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**(228204)∗ 1993 VM$_7$**

Discovered 1993 Nov. 10 by Spacewatch at Kitt Peak.

| Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 | | | | MPC | |
|---|---|---|---|---|---|
| $M$ | 124.65120 | | (2000.0) | **P** | **Q** |
| $n$ | 0.18217085 | $\omega$ | 238.32533 | −0.15648558 | +0.98078867 |
| $a$ | 3.0818876 | $\Omega$ | 23.52822 | −0.77830541 | −0.04985066 |
| $e$ | 0.0501886 | $i$ | 16.96361 | −0.60807315 | −0.18859614 |
| $P$ | 5.41 | $H$ | 14.9 | $G$ 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1993 11 10 | 691 | 0.3+ | 1.2− | 2007 04 08 | A50 | 0.9+ | 0.2+ | 2009 09 22 | 204 | 0.1− | 0.1+ | | | | | |
| 1993 11 10 | 691 | 0.2+ | 0.2+ | 2007 04 08 | A50 | 1.1+ | 0.2− | 2009 09 22 | 204 | 0.0 | 0.1+ | | | | | |
| 1993 11 10 | 691 | 0.0 | 0.0 | 2007 04 08 | A50 | (1.3+ | 2.1+) | 2009 09 29 | 691 | 0.3− | 0.2+ | | | | | |
| 1993 11 20 | 691 | 0.8− | 0.5− | 2007 04 08 | A50 | (0.9+ | 2.0+) | 2009 09 29 | 691 | 0.3− | 0.6+ | | | | | |
| 1993 11 20 | 691 | 0.3+ | 0.9+ | 2007 04 08 | A50 | (0.9+ | 2.4+) | 2009 09 29 | 691 | 0.1− | 0.2+ | | | | | |
| 1993 11 20 | 691 | 0.2+ | 0.2+ | 2007 04 16 | G96 | 0.3− | 0.0 | 2009 10 11 | J75 | 0.6− | 0.2− | | | | | |
| 2004 11 04 | 699 | 1.2+ | 1.3− | 2007 04 16 | G96 | 0.4− | 0.1− | 2009 10 11 | J75 | 1.3− | 0.3− | | | | | |
| 2004 11 04 | 699 | 0.7− | 1.0+ | 2007 04 16 | G96 | 0.1− | 0.1+ | 2009 10 11 | J75 | 0.7+ | 0.4− | | | | | |
| 2004 11 04 | 699 | (0.1+ | 1.7+) | 2007 04 16 | 704 | 1.2+ | 0.3+ | 2009 10 12 | H10 | 0.2+ | 0.0 | | | | | |
| 2004 11 04 | 699 | (0.7+ | 1.6+) | 2007 04 16 | G96 | 0.2− | 0.2+ | 2009 10 12 | H10 | 0.2− | 1.1+ | | | | | |
| 2007 03 09 | 691 | 0.2− | 0.0 | 2007 04 16 | 704 | 1.4+ | 0.9+ | 2009 10 12 | H10 | 0.4− | 0.3+ | | | | | |
| 2007 03 09 | 691 | 0.4− | 0.1+ | 2007 04 16 | 704 | 0.9+ | 0.0 | 2009 10 12 | H10 | 0.7− | 0.1− | | | | | |
| 2007 03 09 | 691 | 0.4− | 0.2+ | 2007 04 16 | 704 | 1.4+ | 0.9+ | 2009 11 18 | G96 | 0.2− | 0.0 | | | | | |
| 2007 03 17 | 691 | 0.2− | 0.1+ | 2007 04 16 | 704 | 1.0+ | 0.2− | 2009 11 18 | G96 | 0.3− | 0.3+ | | | | | |
| 2007 03 17 | 691 | 0.3− | 0.1+ | 2007 05 09 | G96 | 0.0 | 0.1+ | 2009 11 18 | G96 | 0.1+ | 0.1+ | | | | | |
| 2007 03 17 | 691 | 0.3− | 0.1+ | 2007 05 09 | G96 | 0.3− | 0.1+ | 2009 11 18 | G96 | 0.1− | 0.1− | | | | | |
| 2007 03 29 | D35 | 1.0+ | 0.0 | 2007 05 09 | G96 | 0.7− | 1.2− | 2009 11 24 | G96 | 1.2+ | 0.3+ | | | | | |
| 2007 03 29 | D35 | 0.1+ | 0.2+ | 2007 05 09 | G96 | 0.1+ | 1.4− | 2009 11 24 | G96 | 0.0 | 0.0 | | | | | |
| 2007 03 29 | D35 | 0.3+ | 0.0 | 2008 06 10 | E12 | 0.3− | 0.7− | 2009 11 24 | G96 | 0.1+ | 0.0 | | | | | |
| 2007 04 08 | 644 | 0.1+ | 0.5+ | 2008 06 10 | E12 | 0.0 | 0.5− | 2009 11 24 | G96 | 0.2+ | 0.1− | | | | | |
| 2007 04 08 | 644 | 0.2− | 1.1+ | 2008 06 10 | E12 | 0.3− | 0.7− | 2009 12 17 | G96 | 0.6− | 0.3+ | | | | | |
| 2007 04 08 | 644 | 0.4+ | 0.5+ | 2008 06 10 | E12 | 0.8+ | 0.5+ | 2009 12 17 | G96 | 0.1− | 0.0 | | | | | |
| 2007 04 08 | A50 | 0.8+ | 0.2− | 2009 09 17 | 691 | 0.0 | 0.3+ | 2009 12 17 | G96 | 0.5− | 0.2+ | | | | | |
| 2007 04 08 | A50 | 1.0+ | 0.3+ | 2009 09 17 | 691 | 0.1+ | 0.1+ | 2009 12 17 | G96 | 0.0 | 0.3− | | | | | |
| 2007 04 08 | A50 | 0.7+ | 0.1− | 2009 09 17 | 691 | 0.1− | 0.0 | | | | | | | | | |

**(228205)∗ 1994 JP$_2$ = 1998 HC$_{27}$**

Discovered 1994 May 1 by Spacewatch at Kitt Peak.

Id. A. Doppler (*MPO* 8007)

| Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 | | | | MPC | |
|---|---|---|---|---|---|
| $M$ | 287.01109 | | (2000.0) | **P** | **Q** |
| $n$ | 0.23566280 | $\omega$ | 138.42769 | −0.93458362 | +0.34741467 |
| $a$ | 2.5958247 | $\Omega$ | 62.05347 | −0.34496500 | −0.83249647 |
| $e$ | 0.1901430 | $i$ | 4.96977 | −0.08690575 | −0.43157000 |
| $P$ | 4.18 | $H$ | 17.0 | $G$ 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 05 01 | 691 | 0.2+ | 0.1+ | 1998 05 19 | 691 | 0.5− | 0.5− | 2006 01 24 | 699 | 0.2+ | 0.5− | | | | | |
| 1994 05 01 | 691 | 0.0 | 0.1+ | 1998 05 19 | 691 | 0.0 | 0.5− | 2006 01 24 | 699 | 0.1− | 0.7+ | | | | | |
| 1994 05 04 | 691 | 0.1− | 0.3− | 2002 02 08 | 704 | 0.1− | 0.7− | 2006 01 26 | 703 | 0.7+ | 1.4+ | | | | | |
| 1994 05 04 | 691 | 0.1+ | 1.1− | 2002 02 08 | 704 | 1.2+ | 0.4+ | 2006 01 26 | 703 | 0.1+ | 0.2+ | | | | | |
| 1994 05 04 | 691 | 0.1− | 0.0 | 2002 02 08 | 704 | (0.8− | 1.8+) | 2006 01 26 | 703 | 0.4− | 0.1− | | | | | |
| 1994 05 05 | 691 | 0.1+ | 0.6+ | 2002 02 08 | 704 | 0.3+ | 0.8+ | 2006 01 26 | 703 | 1.1− | 1.3+ | | | | | |
| 1994 05 05 | 691 | 0.2+ | 0.8+ | 2002 02 08 | 704 | 0.3− | 1.1+ | 2006 01 26 | 644 | 0.3+ | 0.1− | | | | | |
| 1994 05 05 | 691 | 0.2− | 0.4+ | 2002 02 22 | 644 | 0.0 | 1.5+ | 2006 01 26 | 644 | 0.3+ | 0.1− | | | | | |
| 1994 05 11 | 691 | 0.5+ | 0.9+ | 2002 02 22 | 644 | 0.5+ | 1.3+ | 2006 01 26 | 644 | 0.3+ | 0.1+ | | | | | |
| 1994 05 11 | 691 | 0.1− | 0.5+ | 2002 02 22 | 644 | (0.3+ | 1.7+) | 2006 02 02 | 703 | 0.2+ | 0.2+ | | | | | |
| 1994 05 11 | 691 | 0.1− | 0.4+ | 2002 03 09 | 699 | 0.4− | 0.8+ | 2006 02 02 | 703 | 0.4− | 1.1− | | | | | |
| 1998 04 20 | 704 | 1.5− | 0.4− | 2002 03 09 | 699 | 0.1− | 1.3+ | 2006 02 02 | 703 | 0.5− | 0.1+ | | | | | |
| 1998 04 20 | 704 | 0.8− | 1.0− | 2002 03 09 | 699 | 0.5− | 1.5+ | 2006 02 02 | 703 | 1.3+ | 0.7− | | | | | |
| 1998 04 20 | 704 | 0.2− | 1.7− | 2002 03 09 | 699 | 0.2− | 0.6+ | 2006 02 20 | 704 | 0.7− | 0.0 | | | | | |
| 1998 04 20 | 704 | (0.9+ | 2.0+) | 2002 03 11 | 644 | 0.2− | 0.8+ | 2006 02 20 | 704 | 1.1− | 0.7− | | | | | |
| 1998 04 21 | 691 | 0.4− | 0.1+ | 2002 03 11 | 644 | 0.2− | 0.7+ | 2006 02 20 | 704 | (1.0+ | 2.1−) | | | | | |
| 1998 04 21 | 691 | 0.4− | 0.0 | 2002 03 11 | 644 | 0.3− | 0.8+ | 2006 02 20 | 704 | 0.7+ | 0.4+ | | | | | |
| 1998 04 21 | 691 | 0.2− | 0.5− | 2002 03 22 | 644 | 0.2+ | 1.1+ | 2007 06 27 | 291 | 0.5− | 0.7+ | | | | | |
| 1998 04 23 | 691 | 0.4+ | 0.2− | 2002 03 22 | 644 | 0.2+ | 1.2+ | 2007 06 27 | 291 | 0.0 | 0.5+ | | | | | |
| 1998 04 23 | 691 | 0.7+ | 0.1+ | 2002 03 22 | 644 | 0.2+ | 1.1+ | 2007 06 27 | 291 | 0.2− | 0.6+ | | | | | |
| 1998 04 23 | 691 | 0.4+ | 0.1− | 2002 04 02 | 644 | 0.1+ | 0.4+ | 2009 12 18 | G96 | 0.2+ | 0.2− | | | | | |
| 1998 04 29 | 691 | 0.1− | 0.4− | 2002 04 02 | 644 | 0.0 | 0.6+ | 2009 12 18 | G96 | 0.1+ | 0.1+ | | | | | |
| 1998 04 29 | 691 | 0.1− | 0.6− | 2002 04 02 | 644 | 0.0 | 0.9+ | 2009 12 18 | G96 | 0.5+ | 0.1− | | | | | |
| 1998 04 29 | 691 | 0.1− | 0.5− | 2002 04 02 | 644 | 0.4+ | 0.6+ | 2009 12 18 | G96 | 0.0 | 0.1+ | | | | | |
| 1998 05 17 | 691 | 0.1− | 0.4− | 2002 04 02 | 644 | 0.4+ | 0.9+ | 2009 12 19 | 691 | 0.2+ | 0.3+ | | | | | |
| 1998 05 17 | 691 | 0.4− | 0.5− | 2002 04 02 | 644 | 0.4+ | 0.8+ | 2009 12 19 | 691 | 0.2+ | 0.4− | | | | | |
| 1998 05 17 | 691 | 0.0 | 0.9− | 2006 01 24 | 699 | 0.5+ | 0.1− | 2009 12 19 | 691 | 0.0 | 0.2− | | | | | |
| 1998 05 19 | 691 | 0.1− | 0.5− | 2006 01 24 | 699 | 0.3− | 0.7− | | | | | | | | | |

**(228206)∗ 1995 BY$_8$ = 2006 GX$_{13}$**

Discovered 1995 Jan. 29 by Spacewatch at Kitt Peak.

Id. A. Doppler (*MPO* 99877)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 245.35178 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19291053 | $\omega$ | 130.15242 | | −0.72425016 | +0.68714809 | |
| $a$ | 2.9664162 | $\Omega$ | 93.33626 | | −0.64882050 | −0.65096418 | |
| $e$ | 0.0277862 | $i$ | 3.29340 | | −0.23343878 | −0.32260370 | |
| $P$ | 5.11 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 01 29 | 691 | 0.3− | 0.7− | 2006 03 23 | 691 | 0.8+ | 0.5+ | 2008 10 22 | G96 | 0.1− | 0.1− | |
| 1995 01 29 | 691 | 0.2− | 0.8− | 2006 03 23 | 691 | 0.4+ | 0.1+ | 2008 10 22 | G96 | 0.3+ | 0.0 | |
| 1995 01 29 | 691 | 0.3− | 0.1+ | 2006 03 23 | 691 | 0.1+ | 0.5+ | 2008 10 22 | G96 | 0.2+ | 0.4− | |
| 1995 02 04 | 691 | 0.3− | 0.4− | 2006 04 02 | 691 | 0.1+ | 0.5+ | 2008 10 22 | G96 | 0.5+ | 0.2− | |
| 1995 02 04 | 691 | 0.2+ | 0.1+ | 2006 04 02 | 691 | 0.1+ | 0.5+ | 2009 01 02 | G96 | 0.6+ | 0.0 | |
| 1995 02 04 | 691 | 0.1+ | 0.2− | 2006 04 02 | 691 | 0.1+ | 0.6+ | 2009 01 02 | G96 | 0.0 | 0.4+ | |
| 1995 02 05 | 691 | 0.2− | 0.5+ | 2006 04 07 | 691 | 0.2+ | 0.4+ | 2009 01 02 | G96 | 0.3+ | 0.0 | |
| 1995 02 05 | 691 | 0.1+ | 0.2+ | 2006 04 07 | 691 | 0.2+ | 0.1+ | 2009 01 02 | G96 | 0.0 | 0.0 | |
| 1995 02 05 | 691 | 0.2+ | 0.1+ | 2006 04 07 | 691 | 0.2+ | 0.4+ | 2009 11 10 | G96 | 0.0 | 0.0 | |
| 2003 09 28 | 691 | 0.1+ | 0.3+ | 2006 05 26 | G96 | 0.4− | 0.2+ | 2009 11 10 | G96 | 0.3− | 0.3+ | |
| 2003 09 28 | 691 | 0.0 | 0.2+ | 2006 05 26 | G96 | 0.3− | 0.2+ | 2009 11 10 | G96 | 0.4− | 0.0 | |
| 2003 09 28 | 691 | 0.1+ | 0.0 | 2006 05 26 | G96 | 0.7− | 0.1− | 2009 11 10 | G96 | 0.3+ | 0.7− | |
| 2004 12 18 | G96 | 0.1− | 0.5− | 2006 05 26 | G96 | 0.5− | 0.2+ | 2009 12 16 | 691 | 0.9− | 0.0 | |
| 2004 12 18 | G96 | 0.2+ | 0.2− | 2008 09 22 | 691 | 0.3− | 0.2+ | 2009 12 16 | 691 | 0.1− | 0.0 | |
| 2004 12 18 | G96 | 0.4+ | 0.3+ | 2008 09 22 | 691 | 0.3− | 0.1+ | 2009 12 16 | 691 | 0.4+ | 0.8+ | |
| 2004 12 18 | G96 | 0.4− | 0.5− | 2008 09 22 | 691 | 0.2− | 0.9+ | 2009 12 20 | 691 | 0.1− | 0.0 | |
| 2005 01 17 | 691 | 0.4+ | 0.1+ | 2008 10 08 | 691 | 0.0 | 0.4+ | 2009 12 20 | 691 | 0.3− | 0.2+ | |
| 2005 01 17 | 691 | 0.4+ | 0.0 | 2008 10 08 | 691 | 0.8− | 0.9+ | 2009 12 20 | 691 | 0.5+ | 0.3+ | |
| 2005 01 17 | 691 | 0.4+ | 0.1+ | 2008 10 08 | 691 | 0.4− | 0.5+ | | | | | |

**(228207)∗ 1995 $CM_4$ = 2004 $XR_{158}$**

Discovered 1995 Feb. 1 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 71944)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 359.18117 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19063637 | $\omega$ | 261.23772 | | +0.03675143 | −0.99931922 | |
| $a$ | 2.9899611 | $\Omega$ | 186.65866 | | +0.92746520 | +0.03531202 | |
| $e$ | 0.0813167 | $i$ | 1.59621 | | +0.37209897 | +0.01068462 | |
| $P$ | 5.17 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 02 01 | 691 | 0.4− | 0.1+ | 2003 09 26 | 645 | 0.0 | 0.1− | 2008 09 06 | G96 | 0.2+ | 0.0 | |
| 1995 02 01 | 691 | 0.3+ | 0.9− | 2003 09 26 | 645 | 0.1+ | 0.2− | 2008 09 06 | G96 | 0.0 | 0.2+ | |
| 1995 02 01 | 691 | 0.4+ | 0.4− | 2003 09 28 | 645 | 0.0 | 0.1− | 2008 09 06 | G96 | 0.3− | 0.1+ | |
| 1995 02 07 | 691 | 0.4+ | 0.6− | 2003 09 28 | 645 | 0.0 | 0.1− | 2008 09 20 | G96 | 0.0 | 0.6− | |
| 1995 02 07 | 691 | 0.4+ | 0.7− | 2003 10 19 | 645 | 0.1− | 0.0 | 2008 09 20 | G96 | 0.2+ | 0.4− | |
| 1995 02 07 | 691 | 0.8+ | 0.4− | 2003 10 19 | 645 | 0.0 | 0.2+ | 2008 09 20 | G96 | 0.2+ | 0.6− | |
| 1995 02 21 | 691 | 1.1− | 0.3− | 2004 12 14 | 691 | 0.0 | 0.1+ | 2008 09 20 | G96 | 0.4− | 0.1− | |
| 1995 02 21 | 691 | 0.7− | 0.5− | 2004 12 14 | 691 | 0.1+ | 0.0 | 2009 12 10 | G96 | 0.4+ | 0.4+ | |
| 1995 02 21 | 691 | 0.6− | 1.6+ | 2004 12 14 | 691 | 0.0 | 0.0 | 2009 12 10 | G96 | 0.1− | 0.2+ | |
| 1998 10 14 | 691 | 0.4− | 0.5+ | 2004 12 19 | 691 | 0.0 | 0.2+ | 2009 12 10 | G96 | 0.0 | 0.1+ | |
| 1998 10 14 | 691 | 0.5− | 0.1− | 2004 12 19 | 691 | 0.0 | 0.3+ | 2009 12 25 | 691 | 0.4− | 0.4+ | |
| 1998 10 14 | 691 | (2.6− | 3.6+) | 2004 12 19 | 691 | 0.1+ | 0.0 | 2009 12 25 | 691 | 0.1− | 0.0 | |
| 2003 09 18 | 691 | 0.4+ | 0.4+ | 2005 12 02 | 695 | 0.6− | 0.3+ | 2009 12 25 | 691 | 0.2+ | 0.0 | |
| 2003 09 18 | 691 | 0.3+ | 0.1+ | 2005 12 02 | 695 | 0.2− | 0.6+ | | | | | |
| 2003 09 18 | 691 | 0.3+ | 0.1+ | 2008 09 06 | G96 | 0.0 | 0.3+ | | | | | |

**(228208)∗ 1995 $MR_2$ = 1995 $ON_2$ = 2002 $TZ_{279}$**

Discovered 1995 June 24 by Spacewatch at Kitt Peak.

Id. S. Nakano (d, MPC 31161), G. V. Williams (*MPO* 37045)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 66.06745 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.29816013 | $\omega$ | 135.09550 | | +0.86744358 | −0.48690226 | |
| $a$ | 2.2190632 | $\Omega$ | 254.29531 | | +0.42141657 | +0.82834223 | |
| $e$ | 0.1099207 | $i$ | 6.10091 | | +0.26448008 | +0.27708362 | |
| $P$ | 3.31 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 06 24 | 691 | 0.3− | 0.0 | 2002 10 30 | 608 | (1.9− | 0.5+) | 2005 08 26 | 699 | 0.4− | 0.1+ | |
| 1995 06 24 | 691 | 0.6− | 0.0 | 2002 11 01 | 644 | 0.8+ | 0.3+ | 2005 08 30 | 699 | 1.2+ | 0.2+ | |
| 1995 06 24 | 691 | 0.2− | 0.2− | 2002 11 01 | 644 | 0.1+ | 0.5+ | 2005 08 30 | 699 | 0.4− | 0.1+ | |
| 1995 07 04 | 691 | 0.1− | 0.0 | 2002 11 01 | 644 | (1.6− | 0.3−) | 2005 08 30 | 699 | (0.1+ | 1.8+) | |
| 1995 07 04 | 691 | 0.0 | 0.1− | 2002 11 05 | 704 | 0.2− | 1.1− | 2005 08 30 | 699 | 0.0 | 0.8+ | |
| 1995 07 04 | 691 | 0.0 | 0.1− | 2002 11 05 | 704 | 0.2+ | 0.1− | 2005 09 11 | 699 | 0.5+ | 0.4+ | |
| 1995 07 22 | 691 | 1.2+ | 0.3+ | 2002 11 05 | 704 | 0.4− | 0.4+ | 2005 09 11 | 699 | 0.3− | 0.5− | |
| 1995 07 22 | 691 | 0.8+ | 0.3− | 2002 11 05 | 704 | 0.2− | 0.3− | 2005 09 11 | 699 | 0.1+ | 0.4+ | |
| 1995 07 22 | 691 | 0.9+ | 0.1+ | 2002 11 05 | 704 | 0.6+ | 0.1+ | 2005 09 11 | 699 | 0.2− | 0.9− | |
| 1995 07 30 | 691 | 0.6− | 0.3− | 2002 11 12 | 704 | 0.1+ | 0.3− | 2009 10 18 | G96 | 0.3− | 0.3− | |
| 1995 07 30 | 691 | 0.9− | 0.1− | 2002 11 12 | 704 | 0.9+ | 0.1+ | 2009 10 18 | G96 | 0.2− | 0.1+ | |
| 2002 10 10 | 704 | 0.1− | 0.1+ | 2002 11 12 | 704 | 0.3+ | 0.1− | 2009 10 18 | G96 | 0.0 | 0.4− | |
| 2002 10 10 | 704 | 0.3− | 0.3− | 2002 11 13 | 644 | 0.6− | 0.2+ | 2009 10 18 | G96 | 0.7+ | 0.7+ | |
| 2002 10 10 | 704 | 0.1− | 0.2− | 2002 11 13 | 644 | 0.3− | 0.1− | 2009 11 17 | G96 | 0.2+ | 0.3− | |
| 2002 10 10 | 704 | 0.4+ | 0.4− | 2002 11 13 | 644 | 0.3− | 0.2+ | 2009 11 17 | G96 | 0.0 | 0.1− | |
| 2002 10 10 | 704 | 0.1− | 0.7− | 2002 11 14 | 704 | (0.6+ | 1.7−) | 2009 11 17 | G96 | 0.5− | 0.3− | |
| 2002 10 12 | 704 | 0.4+ | 0.2+ | 2002 11 14 | 704 | (1.6− | 0.4−) | 2009 11 17 | G96 | 0.1− | 0.4− | |
| 2002 10 12 | 704 | 0.3− | 1.3+ | 2002 11 14 | 704 | (2.5− | 0.8−) | 2009 12 20 | 691 | 0.3+ | 0.1+ | |
| 2002 10 12 | 704 | 0.5− | 0.1− | 2002 11 14 | 704 | 0.1− | 1.2− | 2009 12 20 | 691 | 0.1− | 0.0 | |
| 2002 10 12 | 704 | 0.3+ | 0.4+ | 2005 08 26 | 699 | 0.5− | 1.1+ | 2009 12 20 | 691 | 0.1− | 0.0 | |
| 2002 10 30 | 608 | 0.9− | 0.7+ | 2005 08 26 | 699 | 0.8− | 0.5+ | | | | | |
| 2002 10 30 | 608 | (1.9− | 1.2+) | 2005 08 26 | 699 | (0.5+ | 1.6+) | | | | | |

**(228209)∗ 1995 $TF_4$**

Discovered 1995 Oct. 15 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 93.00236 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28722649 | $\omega$ | 307.53819 | | +0.79436685 | +0.60723161 | |
| $a$ | 2.2750261 | $\Omega$ | 15.09341 | | −0.53635875 | +0.71341986 | |
| $e$ | 0.1982745 | $i$ | 3.48874 | | −0.28513261 | +0.34971684 | |
| $P$ | 3.43 | $H$ | 17.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 10 02 | 691 | 0.2− | 0.2+ | 2005 07 10 | E12 | 1.0− | 0.1− | 2008 04 25 | G96 | 0.3− | 0.1− | |
| 1995 10 02 | 691 | 0.3− | 0.5+ | 2005 07 10 | E12 | 0.0 | 0.9+ | 2008 04 25 | G96 | 0.7− | 0.1− | |
| 1995 10 02 | 691 | 0.5+ | 0.4+ | 2006 12 26 | 691 | 0.0 | 0.2− | 2009 11 19 | 691 | 0.1+ | 0.0 | |
| 1995 10 15 | 691 | 0.7− | 0.1− | 2006 12 26 | 691 | 0.3+ | 0.4+ | 2009 11 19 | 691 | 0.6− | 0.2+ | |
| 1995 10 15 | 691 | 0.3− | 0.6− | 2006 12 26 | 691 | 0.3− | 0.1+ | 2009 11 19 | 691 | 0.1− | 0.2+ | |
| 1995 10 15 | 691 | 0.3− | 0.3− | 2007 01 10 | 691 | 0.3− | 0.5− | 2009 11 27 | 691 | 0.2+ | 0.3+ | |
| 1995 10 22 | 691 | 0.1− | 0.2+ | 2007 01 10 | 691 | 0.1+ | 0.0 | 2009 11 27 | 691 | 0.2− | 0.2+ | |
| 1995 10 22 | 691 | 0.4− | 0.2+ | 2007 01 10 | 691 | 0.3+ | 0.2− | 2009 11 27 | 691 | 0.2− | 0.5+ | |
| 1995 10 22 | 691 | 0.4− | 0.1+ | 2008 03 31 | G96 | 0.5+ | 0.0 | 2009 12 16 | G96 | 0.4+ | 0.2− | |
| 1995 10 27 | 691 | 1.0+ | 0.2− | 2008 03 31 | G96 | 0.2+ | 0.2− | 2009 12 16 | G96 | 0.5+ | 0.0 | |
| 1995 10 27 | 691 | 0.5+ | 0.5− | 2008 03 31 | G96 | 0.0 | 0.1+ | 2009 12 16 | G96 | 0.2+ | 0.0 | |
| 1995 10 27 | 691 | 1.2+ | 0.7− | 2008 03 31 | G96 | 0.4− | 0.1+ | 2009 12 16 | G96 | 0.4+ | 0.2+ | |
| 2005 07 10 | E12 | 0.8+ | 0.0 | 2008 04 25 | G96 | 0.6− | 0.2+ | | | | | |
| 2005 07 10 | E12 | 0.3+ | 0.5+ | 2008 04 25 | G96 | 0.1+ | 0.5− | | | | | |

**(228210)∗ 1995 $UT_{59}$ = 2006 $AD_7$**

Discovered 1995 Oct. 19 by Spacewatch at Kitt Peak.

Id. A. Doppler (*MPO* 107731)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 29.90069 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21485441 | $\omega$ | 10.45295 | | +0.85265749 | −0.52180589 | |
| $a$ | 2.7608313 | $\Omega$ | 21.06438 | | +0.47391292 | +0.75120498 | |
| $e$ | 0.0798584 | $i$ | 4.20279 | | +0.21995852 | +0.40423965 | |
| $P$ | 4.59 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 10 19 | 691 | 0.0 | 0.3− | 2004 09 23 | G92 | 0.6− | 1.2+ | 2009 11 09 | 691 | 0.1− | 0.1+ | |
| 1995 10 19 | 691 | 0.1+ | 0.6− | 2004 10 07 | 704 | 0.8+ | 0.3+ | 2009 11 11 | J75 | 0.4+ | 0.2+ | |
| 1995 10 19 | 691 | 0.3+ | 0.3+ | 2004 10 07 | 704 | 0.0 | 0.1− | 2009 11 11 | J75 | 0.6+ | 0.8+ | |
| 1995 10 28 | 691 | 0.6− | 0.3− | 2004 10 07 | 704 | 0.1+ | 0.3+ | 2009 11 11 | J75 | 0.3+ | 0.0 | |
| 1995 10 28 | 691 | 0.2− | 0.2− | 2004 10 07 | 704 | 0.0 | 0.2+ | 2009 11 17 | 704 | (0.9+ | 2.2+) | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 10 28 | 691 | 0.4− | 0.3− | 2004 10 07 | 704 | 1.2+ | 0.0 | 2009 11 17 | 704 | (0.1− | 1.5+) | | |
| 1995 11 15 | 691 | 1.0+ | 1.6+ | 2006 01 05 | 704 | 1.3+ | 0.2+ | 2009 11 17 | 704 | 1.4+ | 1.2+ | | |
| 1995 11 15 | 691 | 0.0 | 0.9− | 2006 01 05 | 704 | 0.6+ | 0.0 | 2009 11 17 | 704 | 1.3− | 1.1+ | | |
| 1995 11 15 | 691 | 0.1− | 0.6− | 2006 01 05 | 704 | (0.6− | 2.9−) | 2009 11 24 | G96 | 0.5+ | 0.1− | | |
| 1997 02 15 | 691 | 0.1− | 0.0 | 2006 01 06 | 704 | 0.6+ | 1.3− | 2009 11 24 | G96 | 0.6+ | 0.2− | | |
| 1997 02 15 | 691 | 0.4− | 0.2− | 2006 01 06 | 704 | 0.4+ | 0.3− | 2009 11 24 | G96 | 0.6+ | 0.0 | | |
| 1997 02 15 | 691 | 0.3+ | 0.4− | 2006 01 06 | 704 | 0.4+ | 0.9+ | 2009 11 24 | G96 | 0.1+ | 0.2− | | |
| 2004 09 12 | G92 | 1.3+ | 0.4− | 2007 03 26 | 691 | 0.1− | 0.4+ | 2009 11 25 | 691 | 0.7− | 0.1+ | | |
| 2004 09 12 | G92 | 0.4− | 1.3+ | 2007 03 26 | 691 | 0.0 | 0.3+ | 2009 11 25 | 691 | 0.3− | 0.3+ | | |
| 2004 09 12 | G92 | 0.1− | 0.2+ | 2007 03 26 | 691 | 0.0 | 0.3+ | 2009 11 25 | 691 | 0.1− | 0.1− | | |
| 2004 09 22 | G92 | 0.3+ | 0.1− | 2009 10 24 | 691 | 0.0 | 0.1− | 2009 12 18 | G96 | 0.6+ | 0.1+ | | |
| 2004 09 22 | G92 | 0.1+ | 0.2+ | 2009 10 24 | 691 | 0.2− | 0.1− | 2009 12 18 | G96 | 0.1+ | 0.1+ | | |
| 2004 09 22 | G92 | 0.6+ | 0.2+ | 2009 10 24 | 691 | 0.4− | 0.1− | 2009 12 18 | G96 | 0.2− | 0.3− | | |
| 2004 09 23 | G92 | 0.3− | 0.1+ | 2009 11 09 | 691 | 0.2− | 0.3+ | 2009 12 18 | G96 | 0.2+ | 0.3− | | |
| 2004 09 23 | G92 | 0.4− | 0.1− | 2009 11 09 | 691 | 0.3− | 0.0 | | | | | | |

**(228211)∗ 1995 VR$_5$ = 2004 TO$_{170}$**

Discovered 1995 Nov. 14 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 68507)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 48.85487 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21880458 | $\omega$ | 335.37227 | | +0.71728861 | −0.68173992 | |
| $a$ | 2.7275022 | $\Omega$ | 68.41107 | | +0.66219831 | +0.60269936 | |
| $e$ | 0.1592097 | $i$ | 8.90712 | | +0.21677279 | +0.41470972 | |
| $P$ | 4.50 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 11 14 | 691 | 0.3− | 0.0 | 2004 10 07 | 704 | 0.3− | 0.3+ | 2007 05 26 | G96 | 0.4− | 0.1+ | | |
| 1995 11 14 | 691 | 0.4− | 0.1− | 2004 10 07 | 704 | 1.1− | 0.4+ | 2007 05 26 | G96 | 0.1+ | 0.1+ | | |
| 1995 11 14 | 691 | 0.2− | 0.0 | 2004 10 07 | 704 | 0.3− | 1.1+ | 2008 07 11 | E12 | 0.0 | 0.1− | | |
| 1995 11 15 | 691 | 0.6+ | 0.1+ | 2004 10 09 | 704 | 0.3− | 0.3+ | 2008 07 11 | E12 | 0.3+ | 0.2+ | | |
| 1995 11 15 | 691 | 0.4+ | 0.3− | 2004 10 09 | 704 | (1.0− | 1.6+) | 2008 07 11 | E12 | (0.8− | 1.8+) | | |
| 1995 11 15 | 691 | 0.3+ | 0.2− | 2004 10 09 | 704 | 0.1+ | 0.4− | 2008 07 11 | E12 | 0.9− | 0.3+ | | |
| 1995 11 20 | 691 | 0.1+ | 0.0 | 2004 10 09 | 704 | 0.6− | 0.2+ | 2008 08 04 | E12 | 1.0+ | 0.4+ | | |
| 1995 11 20 | 691 | 0.2+ | 0.1+ | 2004 10 09 | 704 | 1.0− | 0.1+ | 2008 08 04 | E12 | 0.9− | 0.3+ | | |
| 1995 11 20 | 691 | 0.1+ | 0.1+ | 2004 11 02 | 644 | 0.4+ | 0.1+ | 2008 08 04 | E12 | 0.5− | 0.0 | | |
| 1995 11 26 | 691 | 0.1+ | 0.3− | 2004 11 02 | 644 | 0.1− | 0.3+ | 2008 08 04 | E12 | 0.8+ | 0.7− | | |
| 1995 11 26 | 691 | 0.1+ | 0.2− | 2004 11 02 | 644 | 0.5+ | 0.2+ | 2009 11 21 | G96 | 0.2− | 0.2− | | |
| 1995 11 26 | 691 | 0.2+ | 0.2− | 2005 03 11 | 695 | 0.7− | 0.1− | 2009 11 21 | G96 | 0.1− | 0.1− | | |
| 1995 11 27 | 691 | 0.5− | 0.1+ | 2005 03 11 | 695 | 1.5− | 0.1− | 2009 11 21 | G96 | 0.0 | 0.5− | | |
| 1995 11 27 | 691 | 0.2+ | 0.0 | 2007 04 19 | G96 | 0.4+ | 0.1+ | 2009 11 21 | G96 | 0.1+ | 0.3− | | |
| 1995 11 27 | 691 | 0.5− | 0.2+ | 2007 04 19 | G96 | 0.1− | 0.0 | 2009 12 15 | 704 | 0.1− | 0.3+ | | |
| 2004 10 07 | 699 | 1.3+ | 0.4+ | 2007 04 19 | G96 | 0.1− | 0.2− | 2009 12 15 | 704 | 0.5+ | 0.2− | | |
| 2004 10 07 | 699 | 1.0− | 0.2+ | 2007 04 19 | G96 | 0.1− | 0.6+ | 2009 12 15 | 704 | 0.3+ | 0.6+ | | |
| 2004 10 07 | 699 | 0.7+ | 1.1− | 2007 05 26 | G96 | 0.4− | 0.3− | 2009 12 15 | 704 | 0.1+ | 0.7+ | | |
| 2004 10 07 | 699 | 1.0+ | 0.2− | 2007 05 26 | G96 | 0.4+ | 0.1− | | | | | | |

**(228212)∗ 1995 YG$_9$**

Discovered 1995 Dec. 18 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 212.07746 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27589709 | $\omega$ | 114.02560 | | −0.50778314 | +0.85541396 | |
| $a$ | 2.3368884 | $\Omega$ | 125.06901 | | −0.82877402 | −0.45271328 | |
| $e$ | 0.0695767 | $i$ | 7.16571 | | −0.23513804 | −0.25162999 | |
| $P$ | 3.57 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 12 18 | 691 | 0.1+ | 0.1− | 2004 06 17 | 644 | 0.2+ | 0.5+ | 2007 03 09 | 644 | 0.2+ | 0.6+ | | |
| 1995 12 18 | 691 | 0.8+ | 0.1− | 2004 06 17 | 644 | 0.0 | 0.6+ | 2007 03 09 | 644 | 0.2+ | 0.6+ | | |
| 1995 12 18 | 691 | 0.4+ | 0.2+ | 2005 10 28 | 703 | 0.2+ | 0.7+ | 2008 06 30 | 691 | 0.2− | 0.1− | | |
| 1995 12 23 | 691 | 0.5− | 0.1+ | 2005 10 28 | 703 | 0.5− | 1.1− | 2008 06 30 | 691 | 0.1− | 0.0 | | |
| 1995 12 23 | 691 | 0.6− | 0.2− | 2005 10 28 | 703 | 0.1− | 0.2− | 2008 06 30 | 691 | 0.2− | 0.0 | | |
| 1995 12 23 | 691 | 0.4− | 0.3+ | 2005 10 28 | 703 | 1.5− | 0.0 | 2008 07 28 | E12 | 0.1+ | 0.1+ | | |
| 2000 03 06 | 608 | 0.3+ | 0.2+ | 2006 12 27 | G96 | 0.2− | 0.4− | 2008 07 28 | E12 | 0.3+ | 0.7+ | | |
| 2000 03 06 | 608 | 0.1− | 0.1− | 2006 12 27 | G96 | 0.1− | 0.1− | 2008 07 28 | E12 | 0.1− | 0.8+ | | |
| 2000 03 06 | 608 | 0.1+ | 0.1+ | 2006 12 27 | G96 | 0.1− | 0.2− | 2008 07 28 | E12 | 0.2+ | 0.1− | | |
| 2001 08 01 | 644 | 0.7+ | 0.5+ | 2006 12 27 | G96 | 0.4+ | 0.4− | 2009 12 13 | D39 | 0.1− | 0.3+ | | |
| 2001 08 01 | 644 | 0.7+ | 0.3+ | 2007 02 16 | 644 | 0.3+ | 0.4+ | 2009 12 13 | D39 | 0.2− | 0.3+ | | |
| 2001 08 01 | 644 | 0.6+ | 0.4+ | 2007 02 16 | 644 | 0.0 | 0.1+ | 2009 12 13 | D39 | 0.3− | 0.1− | | |
| 2001 08 27 | 699 | 0.7− | 0.4+ | 2007 02 16 | 644 | 0.1− | 0.5+ | 2009 12 17 | G96 | 0.2+ | 0.3+ | | |
| 2001 08 27 | 699 | 0.3+ | 0.6− | 2007 02 26 | 703 | 1.0+ | 0.5+ | 2009 12 17 | G96 | 0.4+ | 0.2+ | | |
| 2001 08 27 | 699 | 0.5+ | 0.7+ | 2007 02 26 | 703 | (0.6+ | 1.7+) | 2009 12 17 | G96 | 0.3+ | 0.3+ | | |
| 2001 08 27 | 699 | 0.5− | 0.6+ | 2007 02 26 | 703 | 1.2− | 0.1− | 2009 12 17 | G96 | 0.5+ | 0.4+ | | |
| 2004 06 17 | 644 | 0.0 | 0.4+ | 2007 03 09 | 644 | 0.3+ | 0.1+ | 2009 12 17 | G96 | 0.5+ | 0.4+ | | |

**(228213)∗ 1995 YG$_{17}$ = 2003 AS$_{24}$**

Discovered 1995 Dec. 22 by Spacewatch at Kitt Peak.

Id. A. Doppler (*MPO* 46327)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 79.95182 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28800948 | $\omega$ | 285.13030 | | +0.98621542 | −0.10765037 | |
| $a$ | 2.2709009 | $\Omega$ | 81.17028 | | +0.15062305 | +0.89843862 | |
| $e$ | 0.2123411 | $i$ | 7.30594 | | −0.06849704 | +0.42569878 | |
| $P$ | 3.42 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 11 17 | 691 | 0.1+ | 0.2− | 2003 01 08 | 704 | 1.5+ | 0.2+ | 2005 10 02 | E12 | 0.0 | 0.4− | | |
| 1995 11 17 | 691 | 0.1+ | 0.1− | 2003 01 08 | 704 | 1.3+ | 0.0 | 2005 10 02 | E12 | 0.3− | 0.1+ | | |
| 1995 11 17 | 691 | 0.0 | 0.3− | 2003 01 08 | 704 | 0.3+ | 0.3− | 2005 10 24 | 644 | 0.3− | 0.1− | | |
| 1995 12 22 | 691 | 0.5− | 0.1+ | 2005 08 30 | 699 | 0.0 | 0.1+ | 2005 10 24 | 644 | 0.1− | 0.2− | | |
| 1995 12 22 | 691 | 0.1+ | 0.2− | 2005 08 30 | 699 | 0.1− | 0.6− | 2005 10 24 | 644 | 0.2+ | 0.5− | | |
| 1995 12 22 | 691 | 0.2− | 0.0 | 2005 08 30 | 699 | 0.3− | 0.0 | 2009 11 11 | G96 | 0.1− | 0.0 | | |
| 1995 12 28 | 691 | 0.1− | 0.0 | 2005 08 30 | 699 | 0.2+ | 0.1− | 2009 11 11 | G96 | 0.6− | 0.1− | | |
| 1995 12 28 | 691 | 0.0 | 0.1+ | 2005 09 01 | 644 | 0.1− | 0.0 | 2009 11 11 | G96 | 0.6− | 0.3− | | |
| 1995 12 28 | 691 | 0.2+ | 0.2+ | 2005 09 01 | 644 | 0.0 | 0.1+ | 2009 11 11 | G96 | 0.6+ | 0.5− | | |
| 2002 12 05 | 704 | 0.2+ | 0.7− | 2005 09 01 | 644 | 0.1− | 0.0 | 2009 12 19 | G96 | 0.0 | 0.1− | | |
| 2002 12 05 | 704 | 0.1− | 0.6+ | 2005 09 26 | I10 | 0.6− | 0.2− | 2009 12 19 | G96 | 0.2+ | 0.3− | | |
| 2002 12 05 | 704 | 0.7− | 0.2+ | 2005 09 26 | I10 | 0.8+ | 0.3+ | 2009 12 19 | G96 | 0.1− | 0.1+ | | |
| 2002 12 05 | 704 | 0.6− | 0.1− | 2005 09 26 | I10 | 0.8− | 0.3− | 2009 12 19 | 691 | 0.3− | 0.0 | | |
| 2002 12 05 | 704 | 0.1+ | 0.5+ | 2005 09 26 | I10 | 0.6+ | 0.4− | 2009 12 19 | 691 | 0.1− | 0.2− | | |
| 2003 01 04 | 704 | 0.3− | 0.0 | 2005 09 26 | I10 | 0.7+ | 1.2+ | 2009 12 19 | 691 | 0.3+ | 0.4+ | | |
| 2003 01 04 | 704 | 0.4+ | 0.5+ | 2005 09 26 | I10 | 0.1+ | 1.0+ | 2009 12 27 | 691 | 0.2+ | 0.1− | | |
| 2003 01 04 | 704 | 1.0+ | 0.1+ | 2005 10 02 | E12 | 0.1+ | 0.6+ | 2009 12 27 | 691 | 0.1− | 0.2+ | | |
| 2003 01 04 | 704 | 0.4− | 0.8+ | 2005 10 02 | E12 | 0.2− | 0.5+ | 2009 12 27 | 691 | 0.3− | 0.1+ | | |

**(228214)∗ 1996 AO$_{14}$ = 2000 FG$_{71}$**

Discovered 1996 Jan. 12 by Spacewatch at Kitt Peak.

Id. M. E. Sansaturio (*MPO* 60476)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 274.58952 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27181006 | $\omega$ | 150.02365 | | −0.93263781 | −0.36074859 | |
| $a$ | 2.3602556 | $\Omega$ | 8.83834 | | +0.32152122 | −0.83956116 | |
| $e$ | 0.1160682 | $i$ | 2.56207 | | +0.16374010 | −0.40619887 | |
| $P$ | 3.63 | $H$ | 17.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 01 12 | 691 | 0.3− | 0.2− | 2007 01 23 | 699 | 0.0 | 0.6+ | 2009 10 23 | G96 | 0.0 | 0.4− | | |
| 1996 01 12 | 691 | 0.2+ | 0.1− | 2007 01 23 | 699 | (1.6− | 1.2+) | 2009 10 23 | G96 | 0.4+ | 0.0 | | |
| 1996 01 12 | 691 | 0.4+ | 0.2− | 2007 01 23 | 699 | (0.8− | 2.5+) | 2009 10 23 | G96 | 0.3+ | 0.3− | | |
| 1996 01 25 | 691 | 0.5− | 0.2− | 2007 01 27 | 691 | 0.2− | 0.1+ | 2009 10 24 | 691 | 0.2− | 0.1+ | | |
| 1996 01 25 | 691 | 0.0 | 0.2− | 2007 01 27 | 691 | 0.2− | 0.0 | 2009 10 24 | 691 | 0.1− | 0.5+ | | |
| 1996 01 25 | 691 | 0.1+ | 0.2+ | 2007 01 27 | 691 | 0.0 | 0.3+ | 2009 10 24 | 691 | 0.6− | 0.2+ | | |
| 2000 03 29 | 691 | 0.1− | 0.1− | 2007 02 06 | D35 | 0.4+ | 0.4+ | 2009 11 08 | G96 | 1.1+ | 0.4+ | | |
| 2000 03 29 | 691 | 0.1− | 0.1+ | 2007 02 06 | D35 | 0.2+ | 0.5+ | 2009 11 08 | G96 | 0.4+ | 0.4− | | |
| 2000 03 29 | 691 | 0.3+ | 0.5− | 2007 02 06 | D35 | 1.4+ | 0.4+ | 2009 11 08 | G96 | 0.1+ | 0.2− | | |
| 2000 04 05 | 704 | 0.4+ | 0.3+ | 2007 02 08 | G96 | 0.3+ | 0.1− | 2009 11 08 | G96 | 0.3+ | 0.4+ | | |
| 2000 04 05 | 704 | 0.6− | 0.4+ | 2007 02 08 | G96 | 0.0 | 0.1− | 2009 11 11 | 130 | (2.0+ | 0.8−) | | |
| 2000 04 05 | 704 | 0.2+ | 0.1+ | 2007 02 08 | G96 | 0.4+ | 0.2− | 2009 11 22 | G96 | 0.2+ | 0.2− | | |
| 2005 10 01 | G96 | 0.3− | 0.4− | 2007 02 08 | G96 | 0.4+ | 0.1+ | 2009 11 22 | G96 | 0.4+ | 0.2− | | |
| 2005 10 01 | G96 | 0.6− | 0.5− | 2007 02 08 | 644 | 0.7+ | 0.4+ | 2009 11 22 | G96 | 0.7+ | 0.1− | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 01 | G96 | 0.3− | 0.1− | 2007 02 08 | 644 | 0.2+ | 0.6+ | 2009 11 22 | G96 | 0.3+ | 0.2+ |
| 2005 10 01 | G96 | 0.6− | 0.2+ | 2007 02 08 | 644 | 0.2+ | 0.2+ | 2009 12 18 | G96 | 0.6+ | 0.4− |
| 2007 01 09 | 691 | 0.5− | 0.3+ | 2007 03 12 | 691 | 0.1+ | 0.4− | 2009 12 18 | G96 | 0.3− | 0.3− |
| 2007 01 09 | 691 | 0.2− | 0.3− | 2007 03 12 | 691 | 0.2+ | 0.3+ | 2009 12 18 | G96 | 0.0 | 0.1− |
| 2007 01 09 | 691 | 0.2− | 0.1+ | 2007 03 12 | 691 | 0.0 | 0.1− | 2009 12 18 | G96 | 0.7+ | 0.2− |
| 2007 01 23 | 699 | (1.0+ | 3.0−) | 2009 10 23 | G96 | 0.5+ | 0.0 | | | | |

**(228215)∗ 1996 $DD_2$ = 2003 $BT_{59}$**

Discovered 1996 Feb. 26 by G. J. Garradd at Siding Spring.

Id. M. E. Sansaturio (*MPO* 60477)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 24.59543 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27721039 | $\omega$ | 229.73552 | | +0.36121710 | −0.93240373 | |
| $a$ | 2.3295018 | $\Omega$ | 199.09995 | | +0.86633479 | +0.34035059 | |
| $e$ | 0.2038620 | $i$ | 2.11253 | | +0.34494383 | +0.12159259 | |
| $P$ | 3.56 | $H$ | 17.6 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1991 11 06 | 691 | 0.0 | 0.2− | 2005 09 14 | 691 | 0.3− | 0.2+ | 2007 04 07 | G96 | 0.1− | 0.5+ |
| 1991 11 06 | 691 | 0.1− | 0.6− | 2005 09 22 | 644 | 0.1− | 0.2+ | 2007 04 07 | G96 | 0.3+ | 0.1+ |
| 1996 02 26 | 413 | 0.3− | 0.1− | 2005 09 22 | 644 | 0.0 | 0.4+ | 2007 05 09 | G96 | 0.5− | 0.1+ |
| 1996 02 26 | 413 | 0.0 | 0.1− | 2005 09 22 | 644 | 0.1− | 0.4+ | 2007 05 09 | G96 | 0.3+ | 0.1+ |
| 1996 02 26 | 413 | 0.3− | 0.1+ | 2005 09 22 | 644 | 0.0 | 0.3+ | 2007 05 09 | G96 | 0.4+ | 0.1+ |
| 1996 02 26 | 413 | 0.1− | 0.2+ | 2005 09 22 | 644 | 0.2− | 0.3+ | 2007 05 09 | G96 | 0.1− | 0.3+ |
| 1996 02 27 | 413 | 1.1+ | 0.6+ | 2005 09 22 | 644 | 0.2− | 0.5+ | 2009 11 19 | G96 | 0.4− | 0.1− |
| 1996 02 27 | 413 | 0.2+ | 0.0 | 2005 10 12 | 691 | 0.0 | 0.7+ | 2009 11 19 | G96 | 0.1− | 0.3− |
| 1996 02 27 | 413 | 0.4+ | 0.1− | 2005 10 12 | 691 | 0.4+ | 0.7+ | 2009 11 19 | G96 | 0.3− | 0.1− |
| 1996 02 29 | 413 | 0.2+ | 0.2+ | 2005 10 12 | 691 | 0.0 | 0.2+ | 2009 11 19 | G96 | 0.1− | 0.1− |
| 1996 02 29 | 413 | 0.5+ | 0.3− | 2005 10 22 | 703 | 1.1− | 1.3− | 2009 12 17 | G96 | 0.1+ | 0.1− |
| 2003 01 27 | 644 | 0.7+ | 0.5+ | 2005 10 22 | 703 | 0.9− | 1.5− | 2009 12 17 | G96 | 0.1− | 0.0 |
| 2003 01 27 | 644 | 0.8+ | 0.6+ | 2005 10 22 | 703 | 0.2− | 0.8+ | 2009 12 17 | G96 | 0.2+ | 0.2− |
| 2003 01 27 | 644 | 0.9+ | 0.5+ | 2005 10 22 | 703 | 1.2− | 0.8+ | 2009 12 17 | G96 | 0.2+ | 0.1− |
| 2003 01 31 | 704 | 1.3− | 1.1+ | 2005 12 02 | G96 | 0.6+ | 0.1+ | 2009 12 17 | G96 | 0.0 | 0.0 |
| 2003 01 31 | 704 | 0.4+ | 0.1− | 2005 12 02 | G96 | 0.2+ | 0.4− | 2009 12 19 | 691 | 0.1+ | 0.0 |
| 2003 01 31 | 704 | (0.3− | 1.6+) | 2005 12 02 | G96 | 0.1+ | 0.3+ | 2009 12 19 | 691 | 0.0 | 0.3+ |
| 2003 01 31 | 704 | 0.5+ | 0.1+ | 2005 12 02 | G96 | 0.4− | 0.2+ | 2009 12 19 | 691 | 0.3− | 0.2+ |
| 2005 08 31 | 691 | 0.3− | 0.1+ | 2007 03 26 | 691 | 0.1+ | 0.3+ | 2009 12 26 | 691 | 0.0 | 0.1+ |
| 2005 08 31 | 691 | 0.1+ | 0.2+ | 2007 03 26 | 691 | 0.2+ | 0.7+ | 2009 12 26 | 691 | 0.1− | 0.1− |
| 2005 08 31 | 691 | 0.1+ | 0.3+ | 2007 03 26 | 691 | 0.1+ | 0.4+ | 2009 12 26 | 691 | 0.1+ | 0.1+ |
| 2005 09 14 | 691 | 0.0 | 0.2+ | 2007 04 07 | G96 | 0.5− | 0.6+ | | | | |
| 2005 09 14 | 691 | 0.1+ | 0.2+ | 2007 04 07 | G96 | 0.3− | 0.5+ | | | | |

**(228216)∗ 1996 $LJ_3$ = 2003 $SL_{285}$**

Discovered 1996 June 11 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 52418, *MPO* 148462)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 34.53606 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18533196 | $\omega$ | 217.45392 | | +0.69114217 | −0.72223356 | |
| $a$ | 3.0467431 | $\Omega$ | 188.93502 | | +0.69746472 | +0.67614464 | |
| $e$ | 0.0225182 | $i$ | 9.81652 | | +0.18938181 | +0.14562660 | |
| $P$ | 5.32 | $H$ | 15.1 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 06 11 | 691 | 0.2− | 0.3+ | 2003 10 29 | 699 | 1.3− | 0.2+ | 2008 09 24 | 704 | 0.3− | 0.4+ |
| 1996 06 11 | 691 | 0.0 | 0.5+ | 2003 10 29 | 699 | 0.6− | 0.7+ | 2008 09 25 | G96 | (2.6+ | 1.5+) |
| 1996 06 11 | 691 | 0.1− | 0.4+ | 2003 10 29 | 699 | 0.4− | 0.3+ | 2008 09 25 | G96 | 0.0 | 0.1+ |
| 1996 06 16 | 691 | 0.1− | 0.3+ | 2003 10 29 | 699 | 0.4+ | 0.5+ | 2008 09 25 | G96 | 0.2− | 0.0 |
| 1996 06 16 | 691 | 0.2+ | 0.1− | 2006 02 24 | 644 | 0.0 | 0.7+ | 2008 09 25 | 143 | 0.3− | 0.6+ |
| 1996 06 16 | 691 | 0.0 | 0.0 | 2006 02 24 | 644 | 0.4− | 0.1+ | 2008 09 25 | 143 | 0.2+ | 0.2− |
| 1996 06 22 | 691 | 0.4− | 0.1− | 2006 02 24 | 644 | 0.4− | 0.3+ | 2008 09 25 | 143 | 0.4− | 0.1+ |
| 1996 06 22 | 691 | 0.4+ | 0.0 | 2006 02 25 | 691 | 0.3− | 0.4+ | 2008 10 01 | G96 | 0.0 | 0.1+ |
| 1996 06 22 | 691 | 0.5− | 0.2− | 2006 02 25 | 691 | 0.2− | 0.6+ | 2008 10 01 | G96 | 0.2+ | 0.1− |
| 2003 09 20 | 704 | 0.1+ | 0.8+ | 2006 02 25 | 691 | 0.1− | 0.6+ | 2008 10 01 | G96 | 0.0 | 0.3+ |
| 2003 09 20 | 704 | 0.6− | 0.8+ | 2006 03 02 | 691 | 0.5+ | 0.5+ | 2008 10 01 | G96 | 0.3− | 0.2+ |
| 2003 09 20 | 704 | 0.4+ | 1.3+ | 2006 03 02 | 691 | 0.5+ | 0.2+ | 2008 10 01 | 703 | (0.6+ | 1.8+) |
| 2003 09 20 | 704 | 0.2− | 0.6+ | 2006 03 02 | 691 | 0.6+ | 0.4+ | 2008 10 01 | 703 | (0.6− | 2.4+) |
| 2003 09 21 | 644 | 0.2+ | 0.4+ | 2006 03 26 | 699 | 0.6+ | 0.6− | 2008 10 01 | 703 | 0.2+ | 1.0+ |
| 2003 09 21 | 644 | 0.2+ | 0.4+ | 2006 03 26 | 699 | (1.7− | 0.6−) | 2008 10 01 | 703 | 0.6− | 0.8+ |
| 2003 09 21 | 644 | 0.0 | 0.2+ | 2006 03 26 | 699 | 0.7+ | 0.6+ | 2008 10 08 | G96 | 0.0 | 0.0 |
| 2003 09 26 | 704 | (1.2+ | 1.6+) | 2006 03 26 | 699 | 1.1+ | 0.1+ | 2008 10 08 | G96 | 0.0 | 0.0 |
| 2003 09 26 | 704 | 1.3+ | 0.6+ | 2006 04 07 | G96 | 0.3+ | 0.2− | 2008 10 08 | G96 | 0.0 | 0.1+ |
| 2003 09 26 | 704 | (2.0+ | 0.4+) | 2006 04 07 | G96 | 0.0 | 0.0 | 2008 10 08 | G96 | 0.2− | 0.3− |
| 2003 09 26 | 704 | 0.5− | 0.6+ | 2006 04 07 | G96 | 0.3+ | 0.1− | 2008 10 08 | G96 | 0.1+ | 0.5− |
| 2003 10 01 | 691 | 0.3+ | 0.0 | 2006 04 07 | G96 | 0.0 | 0.1+ | 2008 10 08 | G96 | 0.1+ | 0.5− |
| 2003 10 01 | 691 | 0.1+ | 0.1+ | 2006 04 07 | G96 | 0.1− | 0.4+ | 2008 10 08 | G96 | 0.2+ | 0.5− |
| 2003 10 01 | 691 | 0.0 | 0.1+ | 2006 04 07 | G96 | 0.2− | 0.5+ | 2008 10 08 | G96 | 0.2− | 0.1− |
| 2003 10 03 | 608 | 0.6+ | 0.9+ | 2006 04 07 | G96 | 0.5− | 0.5+ | 2008 10 08 | A50 | 0.2− | 0.5+ |
| 2003 10 03 | 608 | 0.1+ | 0.7+ | 2006 04 07 | G96 | 0.6− | 0.5+ | 2008 10 08 | A50 | 0.3+ | 0.1− |
| 2003 10 03 | 608 | 0.0 | 0.5+ | 2006 04 19 | G96 | 0.4− | 0.5+ | 2008 10 08 | A50 | 0.3+ | 0.6+ |
| 2003 10 20 | 704 | 0.3− | 0.5+ | 2006 04 19 | G96 | 0.3− | 0.4+ | 2008 10 08 | A50 | 0.4+ | 0.5+ |
| 2003 10 20 | 704 | 0.5− | 1.3+ | 2006 04 19 | G96 | 0.2− | 0.5+ | 2008 11 24 | G96 | 0.0 | 0.1− |
| 2003 10 20 | 704 | 0.3+ | 0.9+ | 2006 04 19 | G96 | 0.0 | 0.1+ | 2008 11 24 | G96 | 0.3− | 0.3+ |
| 2003 10 20 | 704 | 0.3− | 1.4+ | 2006 04 26 | 691 | 0.4+ | 0.5+ | 2008 11 24 | G96 | 0.1− | 0.0 |
| 2003 10 21 | 644 | 0.1+ | 0.1+ | 2006 04 26 | 691 | 0.2+ | 0.4+ | 2008 11 24 | G96 | 0.3− | 0.5+ |
| 2003 10 21 | 644 | 0.2− | 0.1− | 2006 04 26 | 691 | 0.3+ | 0.4+ | 2009 12 13 | 704 | 0.3+ | 0.2+ |
| 2003 10 21 | 644 | 0.0 | 0.3− | 2007 06 21 | A50 | (14.1+ | 0.3+) | 2009 12 13 | 704 | 0.1− | 0.2− |
| 2003 10 24 | 704 | 0.2+ | 0.1− | 2007 06 21 | A50 | (12.5+ | 0.2+) | 2009 12 13 | 704 | 0.3+ | 0.8+ |
| 2003 10 24 | 704 | 0.2+ | 0.9+ | 2008 09 05 | 691 | 0.1− | 0.1− | 2009 12 13 | 704 | 0.1+ | 0.5+ |
| 2003 10 24 | 704 | 0.2− | 0.1+ | 2008 09 05 | 691 | 0.2− | 0.1+ | 2009 12 15 | 703 | 1.3− | 0.5+ |
| 2003 10 24 | 704 | 1.4+ | 0.3+ | 2008 09 05 | 691 | 0.3− | 0.3+ | 2009 12 15 | 703 | 1.5− | 0.3− |
| 2003 10 28 | 704 | 1.3− | 0.5+ | 2008 09 24 | 704 | 0.8+ | 0.1+ | 2009 12 15 | 703 | 1.0− | 0.5− |
| 2003 10 28 | 704 | 0.6− | 0.8+ | 2008 09 24 | 704 | 0.2+ | 0.5+ | 2009 12 15 | 703 | 0.0 | 0.1− |
| 2003 10 28 | 704 | 0.6− | 0.4+ | 2008 09 24 | 704 | 0.0 | 0.8+ | 2009 12 15 | 703 | 0.2− | 0.7+ |

**(228217)∗ 1996 $RU_{16}$ = 2007 $FS_{26}$**

Discovered 1996 Sept. 13 by Spacewatch at Kitt Peak.

Id. A. Doppler (*MPO* 120240)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 346.66824 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23594839 | $\omega$ | 258.94431 | | +0.21373176 | −0.97689187 | |
| $a$ | 2.5937296 | $\Omega$ | 178.71328 | | +0.91276213 | +0.19933614 | |
| $e$ | 0.0232581 | $i$ | 2.55124 | | +0.34811497 | +0.07711917 | |
| $P$ | 4.18 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 09 13 | 691 | 0.3− | 0.0 | 2007 03 09 | G96 | 0.1− | 0.4− | 2009 10 23 | G96 | 0.1+ | 0.3− |
| 1996 09 13 | 691 | 0.2− | 0.0 | 2007 03 09 | G96 | 0.2− | 0.1+ | 2009 10 23 | G96 | 0.0 | 0.1− |
| 1996 09 13 | 691 | 0.1+ | 0.0 | 2007 03 09 | G96 | 0.2− | 0.0 | 2009 10 23 | G96 | 0.5+ | 0.1− |
| 1996 09 15 | 691 | 0.4+ | 0.3− | 2007 03 20 | 691 | 0.1− | 0.0 | 2009 11 11 | J75 | 0.8− | 1.0+ |
| 1996 09 15 | 691 | 0.4+ | 0.1+ | 2007 03 20 | 691 | 0.2− | 0.1− | 2009 11 11 | J75 | 0.5+ | 0.3+ |
| 1996 09 15 | 691 | 0.2+ | 0.1− | 2007 03 20 | 691 | 0.4− | 0.0 | 2009 11 11 | J75 | 0.0 | 0.2+ |
| 1996 09 19 | 691 | 0.2− | 0.1+ | 2007 03 26 | 691 | 0.2+ | 0.2+ | 2009 11 17 | G96 | 0.2− | 0.3+ |
| 1996 09 19 | 691 | 0.1+ | 0.2+ | 2007 03 26 | 691 | 0.3− | 0.1− | 2009 11 17 | G96 | 0.0 | 0.3+ |
| 1996 09 19 | 691 | 0.1− | 0.1− | 2007 03 26 | 691 | 0.2− | 0.2− | 2009 11 17 | G96 | 0.1+ | 0.3+ |
| 1996 09 22 | 691 | 0.9− | 0.3− | 2007 04 20 | G96 | 0.4− | 0.1+ | 2009 11 17 | G96 | 0.3− | 0.0 |
| 1996 09 22 | 691 | 0.4− | 0.5− | 2007 04 20 | G96 | 0.3+ | 0.1+ | 2009 11 24 | G96 | 0.3− | 0.1+ |
| 1996 09 22 | 691 | 0.5− | 0.2− | 2007 04 20 | G96 | 0.4+ | 0.0 | 2009 11 24 | G96 | 0.0 | 0.3+ |
| 2000 09 03 | 645 | 0.2+ | 0.1+ | 2007 04 20 | G96 | 0.1− | 0.0 | 2009 11 24 | G96 | 0.2− | 0.3+ |
| 2000 09 03 | 645 | 0.2+ | 0.1+ | 2008 06 11 | 691 | 0.2− | 0.3+ | 2009 11 24 | G96 | 0.2− | 0.2+ |
| 2003 04 25 | 691 | 0.6+ | 0.5+ | 2008 06 11 | 691 | 0.7− | 0.3− | 2009 12 09 | A13 | 0.1+ | 0.1+ |
| 2003 04 25 | 691 | 0.4+ | 0.3+ | 2008 06 11 | 691 | 0.1− | 0.0 | 2009 12 09 | A13 | 0.3− | 0.1− |
| 2003 04 25 | 691 | 0.4+ | 0.2+ | 2009 10 14 | 621 | 0.1+ | 0.3+ | 2009 12 19 | G96 | 0.0 | 0.4+ |
| 2005 12 01 | G96 | 0.2+ | 0.0 | 2009 10 14 | 621 | 0.4+ | 0.6+ | 2009 12 19 | G96 | 0.5+ | 0.2+ |
| 2005 12 01 | G96 | 0.5+ | 0.2− | 2009 10 14 | 621 | 0.3− | 0.8+ | 2009 12 19 | G96 | 0.2+ | 0.1+ |
| 2005 12 01 | G96 | 0.3+ | 0.0 | 2009 10 14 | 621 | 0.2− | 0.8+ | 2009 12 19 | G96 | 0.0 | 0.2+ |
| 2007 03 09 | G96 | 0.1+ | 0.1− | 2009 10 23 | G96 | 0.0 | 0.5− | | | | |

**(228218)∗ 1996 $TJ_{17}$ = 2005 $EH_{60}$**

Discovered 1996 Oct. 4 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 74553)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 250.95198 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17490432 | $\omega$ | 271.55787 | | −0.60224111 | +0.79350549 | |
| $a$ | 3.1666667 | $\Omega$ | 320.97209 | | −0.66602169 | −0.55983750 | |
| $e$ | 0.0504452 | $i$ | 7.98658 | | −0.44013721 | −0.23860220 | |
| $P$ | 5.64 | $H$ | 15.2 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 10 04 | 691 | 0.3+ | 0.4+ | 2005 03 04 | 703 | 0.5+ | 0.4− | 2007 08 24 | 691 | 0.2− | 0.1+ | |
| 1996 10 04 | 691 | 0.5+ | 0.2− | 2005 03 04 | 703 | 0.3+ | 0.5+ | 2007 09 17 | 704 | 0.8+ | 0.4− | |
| 1996 10 04 | 691 | 0.2+ | 0.2+ | 2005 03 04 | 703 | 0.1− | 0.7− | 2007 09 17 | 704 | 0.8+ | 0.7− | |
| 1996 10 11 | 691 | 0.7− | 0.3+ | 2005 03 04 | 703 | 0.3− | 0.1+ | 2007 09 17 | 704 | 1.1+ | 0.4+ | |
| 1996 10 11 | 691 | 0.5− | 0.1− | 2005 03 08 | 691 | 0.3+ | 0.2+ | 2007 10 09 | G96 | 0.3+ | 0.1+ | |
| 1996 10 11 | 691 | 0.5− | 0.1+ | 2005 03 08 | 691 | 0.5+ | 0.3+ | 2007 10 09 | G96 | 0.2+ | 0.1+ | |
| 1996 10 12 | 691 | 0.5+ | 0.3+ | 2005 03 08 | 691 | 0.4+ | 0.2+ | 2007 10 09 | G96 | 0.5+ | 0.2+ | |
| 1996 10 12 | 691 | 0.3+ | 0.2+ | 2005 03 10 | 703 | 0.9+ | 1.1+ | 2007 10 09 | G96 | 0.4+ | 0.1+ | |
| 1996 10 18 | 691 | 0.4− | 0.0 | 2005 03 10 | 703 | 0.3− | 0.0 | 2009 09 28 | G96 | 0.2+ | 0.0 | |
| 1996 10 18 | 691 | 0.6− | 0.1− | 2005 03 10 | 703 | 0.5+ | 0.6+ | 2009 09 28 | G96 | 0.3+ | 0.2+ | |
| 1996 10 18 | 691 | 0.4− | 0.2− | 2005 03 10 | 703 | 0.4+ | 0.8+ | 2009 09 28 | G96 | 0.4− | 0.1+ | |
| 1999 01 16 | 691 | 0.1+ | 0.7− | 2005 03 17 | 703 | 0.3+ | 0.9+ | 2009 09 28 | G96 | 0.3+ | 0.1− | |
| 1999 01 16 | 691 | 0.3− | 1.2− | 2005 03 17 | 703 | 1.4− | 0.1+ | 2009 12 18 | 691 | 0.2− | 0.3+ | |
| 1999 01 16 | 691 | 0.6− | 0.8− | 2005 03 17 | 703 | 0.2− | 0.8+ | 2009 12 18 | 691 | 0.2+ | 0.5+ | |
| 2001 08 19 | 807 | 0.5− | 0.1− | 2005 03 17 | 703 | 0.4− | 0.9+ | 2009 12 18 | 691 | 0.1− | 0.1+ | |
| 2001 08 19 | 807 | 0.5− | 0.2− | 2005 04 06 | G92 | 0.3− | 0.1+ | 2009 12 26 | 691 | 0.0 | 0.0 | |
| 2003 12 28 | 704 | 0.1+ | 0.1+ | 2005 04 06 | G92 | 0.2− | 0.5+ | 2009 12 26 | 691 | 0.3− | 0.0 | |
| 2003 12 28 | 704 | 0.0 | 0.7+ | 2005 04 06 | G92 | 0.4+ | 1.0+ | 2009 12 26 | 691 | 0.2− | 0.0 | |
| 2003 12 28 | 704 | 1.2+ | 0.8+ | 2007 08 24 | 691 | 0.1+ | 0.0 | | | | | |
| 2003 12 28 | 704 | 0.0 | 0.8+ | 2007 08 24 | 691 | 0.0 | 0.0 | | | | | |

**(228219)∗ 1996 VG$_{33}$ = 2000 SL$_{265}$**

Discovered 1996 Nov. 5 by Spacewatch at Kitt Peak.

Id. A. Doppler (*MPO* 15580)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 20.96143 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23637934 | $\omega$ | 53.84832 | | −0.25886314 | −0.96320953 | |
| $a$ | 2.5905762 | $\Omega$ | 51.31477 | | +0.85383284 | −0.26314855 | |
| $e$ | 0.2839644 | $i$ | 5.30936 | | +0.45161859 | −0.05459157 | |
| $P$ | 4.17 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 11 05 | 691 | 0.1+ | 0.0 | 2004 09 08 | 704 | 0.1+ | 0.9+ | 2006 03 24 | 704 | (1.9+ | 0.2+) | |
| 1996 11 05 | 691 | 0.1+ | 0.2+ | 2004 09 08 | 704 | 0.1− | 1.1+ | 2006 03 29 | 704 | 0.0 | 0.5+ | |
| 1996 11 05 | 691 | 0.2− | 0.1+ | 2004 09 08 | 704 | 0.1− | 1.1+ | 2006 03 29 | 704 | 0.3+ | 0.4+ | |
| 1996 11 06 | 381 | 0.0 | 0.3+ | 2004 09 16 | 699 | (1.5− | 0.1+) | 2006 03 29 | 704 | 0.2+ | 0.5+ | |
| 1996 11 06 | 381 | 0.2− | 0.3+ | 2004 09 16 | 699 | 0.7− | 0.0 | 2006 03 29 | 704 | 0.6+ | 0.1+ | |
| 1996 11 06 | 381 | 0.0 | 0.0 | 2004 09 16 | 699 | 0.7− | 0.1− | 2006 04 19 | 699 | 0.5− | 0.5− | |
| 1996 11 06 | 381 | 0.3− | 0.2+ | 2004 09 16 | 699 | 0.0 | 0.6+ | 2006 04 19 | 699 | 0.6− | 0.7+ | |
| 1996 11 06 | 381 | 0.2+ | 1.1+ | 2004 09 17 | 704 | 0.3− | 1.4+ | 2006 04 19 | 699 | 0.7+ | 1.4+ | |
| 1996 11 10 | 691 | 0.1+ | 0.1+ | 2004 09 17 | 704 | 0.4+ | 1.2+ | 2006 04 19 | 699 | 0.6+ | 0.2+ | |
| 1996 11 10 | 691 | 0.1+ | 0.1+ | 2004 09 17 | 704 | (0.0 | 1.9+) | 2006 04 24 | 699 | 0.8− | 0.7+ | |
| 1996 11 10 | 691 | 0.2+ | 0.1+ | 2004 10 04 | 644 | 0.1+ | 0.5+ | 2006 04 24 | 699 | 1.3+ | 0.1− | |
| 1996 11 17 | 691 | 0.2− | 0.0 | 2004 10 04 | 644 | 0.1− | 0.5+ | 2006 04 24 | 699 | 0.0 | 0.4+ | |
| 1996 11 17 | 691 | 0.2− | 0.1− | 2004 10 04 | 644 | 0.1+ | 0.4+ | 2006 04 24 | 699 | 0.1− | 0.6+ | |
| 1996 11 17 | 691 | 0.2− | 0.1+ | 2006 02 02 | G96 | 0.0 | 0.1− | 2006 04 25 | 691 | 0.2− | 0.3+ | |
| 2000 09 26 | 704 | 0.7− | 0.8+ | 2006 02 02 | G96 | 0.2− | 0.3− | 2006 04 25 | 691 | 0.1− | 0.3+ | |
| 2000 09 26 | 704 | 0.4− | 0.8+ | 2006 02 02 | G96 | 0.2− | 0.2− | 2006 04 25 | 691 | 0.6+ | 0.6+ | |
| 2000 09 26 | 704 | 0.6+ | 0.3+ | 2006 02 02 | G96 | 0.3− | 0.1− | 2008 09 23 | 704 | 0.6− | 0.1− | |
| 2000 09 26 | 704 | 0.7+ | 0.9− | 2006 02 28 | 704 | 0.9+ | 0.9− | 2008 09 23 | 704 | 1.0+ | 0.9+ | |
| 2000 10 02 | 704 | 0.6− | 0.5+ | 2006 02 28 | 704 | 1.4+ | 0.8+ | 2008 09 23 | 704 | 1.1− | 0.4+ | |
| 2000 10 02 | 704 | 1.5− | 0.2+ | 2006 02 28 | 704 | 1.0+ | 0.1− | 2008 09 23 | 704 | 0.3− | 0.4− | |
| 2000 10 02 | 704 | 0.6− | 0.2+ | 2006 03 24 | 691 | 0.0 | 0.4+ | 2009 11 26 | 291 | 0.1− | 0.0 | |
| 2000 10 02 | 704 | 1.5− | 0.3+ | 2006 03 24 | 691 | 0.1+ | 0.2+ | 2009 11 26 | 291 | 0.0 | 0.1+ | |
| 2000 10 02 | 704 | 0.3− | 0.4+ | 2006 03 24 | 691 | 0.0 | 0.1+ | 2009 11 26 | 291 | 0.0 | 0.1− | |
| 2002 04 14 | 644 | 0.5− | 0.4+ | 2006 03 24 | 704 | 0.5− | 0.5+ | 2009 12 15 | 704 | 0.7+ | 0.2− | |
| 2002 04 14 | 644 | 0.0 | 0.4+ | 2006 03 24 | 704 | 0.4+ | 0.3+ | 2009 12 15 | 704 | 0.2− | 0.0 | |
| 2002 04 14 | 644 | 0.5+ | 0.6+ | 2006 03 24 | 704 | 1.0+ | 0.5+ | 2009 12 15 | 704 | 1.0+ | 0.9+ | |

**(228220)∗ 1996 VB$_{36}$ = 2004 BP$_{12}$**

Discovered 1996 Nov. 10 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 55817)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 337.99638 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.30084683 | $\omega$ | 123.95992 | | +0.35512771 | −0.93199669 | |
| $a$ | 2.2058319 | $\Omega$ | 305.07483 | | +0.82576412 | +0.34914033 | |
| $e$ | 0.1214717 | $i$ | 5.08729 | | +0.43817567 | +0.09738171 | |
| $P$ | 3.28 | $H$ | 17.6 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 11 04 | 691 | 0.4+ | 0.2− | 2004 01 24 | 704 | 0.8+ | 0.8+ | 2006 12 07 | 644 | 0.0 | 0.1+ | |
| 1996 11 04 | 691 | 0.0 | 0.2− | 2004 01 24 | 704 | 1.4+ | 0.8+ | 2006 12 13 | 703 | 0.1− | 0.2+ | |
| 1996 11 04 | 691 | 0.2+ | 0.1− | 2004 01 28 | 691 | 0.0 | 0.2+ | 2006 12 13 | 703 | (0.4+ | 2.0−) | |
| 1996 11 10 | 691 | 0.2− | 0.0 | 2004 01 28 | 691 | 0.0 | 0.1+ | 2006 12 13 | 703 | 0.1+ | 0.8+ | |
| 1996 11 10 | 691 | 0.2− | 0.1− | 2004 01 28 | 691 | 0.3− | 0.2+ | 2006 12 13 | 703 | 0.7− | 0.3+ | |
| 1996 11 10 | 691 | 0.5− | 0.0 | 2004 02 13 | 291 | 0.3+ | 0.5− | 2009 09 25 | 703 | 0.1+ | 0.3+ | |
| 1996 11 18 | 691 | 0.3+ | 0.0 | 2004 02 13 | 291 | 0.3− | 0.1+ | 2009 09 25 | 703 | 0.5− | 0.0 | |
| 1996 11 18 | 691 | 0.2+ | 0.3− | 2004 02 13 | 291 | 0.1− | 0.1− | 2009 09 25 | 703 | 0.5− | 0.8− | |
| 1996 11 18 | 691 | 0.1+ | 0.4+ | 2004 03 17 | 645 | 0.1− | 0.2− | 2009 09 25 | 703 | 0.9− | 0.3+ | |
| 2004 01 17 | 644 | 0.4+ | 0.4− | 2004 03 17 | 645 | 0.0 | 0.1− | 2009 09 25 | G96 | 0.2+ | 0.0 | |
| 2004 01 17 | 644 | 0.1− | 0.3+ | 2006 11 23 | G96 | 0.1+ | 0.1− | 2009 09 25 | G96 | 0.2− | 0.0 | |
| 2004 01 17 | 644 | 0.1+ | 0.2− | 2006 11 23 | G96 | 0.2+ | 0.1− | 2009 09 25 | G96 | 0.0 | 0.1+ | |
| 2004 01 19 | 691 | 0.1+ | 0.1+ | 2006 11 23 | G96 | 0.4− | 0.2− | 2009 09 25 | G96 | 0.2+ | 0.2+ | |
| 2004 01 19 | 691 | 0.1− | 0.2+ | 2006 11 23 | G96 | 0.1− | 0.1− | 2009 11 16 | G96 | 0.2+ | 0.1+ | |
| 2004 01 19 | 691 | 0.0 | 0.1+ | 2006 11 28 | 704 | 0.8+ | 0.6− | 2009 11 16 | G96 | 0.4+ | 0.1+ | |
| 2004 01 21 | 704 | 0.2− | 0.4− | 2006 11 28 | 704 | 0.3+ | 0.1+ | 2009 11 16 | G96 | 0.0 | 0.4+ | |
| 2004 01 21 | 704 | 0.7− | 0.1+ | 2006 11 28 | 704 | 1.0+ | 0.3− | 2009 11 16 | G96 | 0.2+ | 0.1+ | |
| 2004 01 21 | 704 | 0.5− | 0.3+ | 2006 11 28 | 704 | 0.3− | 0.5− | 2009 12 20 | G96 | 0.5+ | 0.3+ | |
| 2004 01 24 | 704 | 0.8+ | 0.8+ | 2006 11 28 | 704 | 0.0 | 0.6+ | 2009 12 20 | G96 | 0.3+ | 0.1+ | |
| 2004 01 24 | 704 | (2.0+ | 0.7−) | 2006 12 07 | 644 | 0.3− | 0.3− | 2009 12 20 | G96 | 0.1− | 0.5+ | |
| 2004 01 24 | 704 | 0.9+ | 0.4+ | 2006 12 07 | 644 | 0.6− | 0.1+ | 2009 12 20 | G96 | 0.1+ | 0.1+ | |

**(228221)∗ 1996 XO$_{7}$ = 2000 SW$_{56}$**

Discovered 1996 Dec. 1 by Spacewatch at Kitt Peak.

Id. M. E. Sansaturio (*MPO* 5424)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 36.18834 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22992267 | $\omega$ | 213.40698 | | +0.77320166 | −0.63413427 | |
| $a$ | 2.6388509 | $\Omega$ | 185.95864 | | +0.59326582 | +0.72650809 | |
| $e$ | 0.2230886 | $i$ | 3.16859 | | +0.22404208 | +0.26468799 | |
| $P$ | 4.29 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 12 01 | 691 | 0.4+ | 0.0 | 2000 09 26 | 704 | 0.3− | 0.3+ | 2000 10 06 | 704 | 0.3− | 0.1− | |
| 1996 12 01 | 691 | 0.5+ | 0.1− | 2000 09 26 | 704 | 0.8− | 1.2− | 2000 10 06 | 704 | 0.0 | 0.7+ | |
| 1996 12 01 | 691 | 0.3+ | 0.3− | 2000 09 26 | 704 | 0.9− | 0.3+ | 2004 07 17 | 807 | 0.5− | 0.1− | |
| 1996 12 08 | 691 | 0.4− | 0.0 | 2000 09 26 | 704 | 0.3− | 0.4+ | 2004 07 17 | 807 | 0.7− | 0.2− | |
| 1996 12 08 | 691 | 0.4− | 0.1− | 2000 09 26 | 704 | 0.2− | 0.4+ | 2004 08 11 | 704 | 1.1− | 1.0+ | |
| 1996 12 08 | 691 | 0.4− | 0.3− | 2000 09 26 | 704 | 0.9− | 0.5− | 2004 08 11 | 704 | 0.1+ | 0.7+ | |
| 1996 12 09 | 691 | 0.1+ | 0.2− | 2000 09 26 | 704 | 0.8+ | 0.2+ | 2004 08 11 | 704 | 0.1+ | 0.9+ | |
| 1996 12 09 | 691 | 0.1− | 0.3− | 2000 09 26 | 704 | 0.6− | 0.0 | 2005 10 06 | G96 | 0.2− | 0.2− | |
| 1996 12 09 | 691 | 0.1+ | 0.2− | 2000 09 27 | 704 | 0.2− | 0.1+ | 2005 10 06 | G96 | 0.8+ | 0.4+ | |
| 1997 01 09 | 691 | 0.0 | 0.2− | 2000 09 27 | 704 | 1.2− | 1.3+ | 2005 10 06 | G96 | 0.6+ | 0.3+ | |
| 1997 01 09 | 691 | 0.1− | 0.0 | 2000 09 27 | 704 | 0.6− | 0.1− | 2005 10 06 | G96 | 0.5+ | 0.2− | |
| 1997 01 09 | 691 | 0.3− | 0.1+ | 2000 09 27 | 704 | 0.8− | 0.9− | 2006 02 03 | G96 | 0.2+ | 0.5+ | |
| 2000 08 26 | 691 | 0.1+ | 0.3− | 2000 09 28 | 704 | 0.2− | 0.1+ | 2006 02 03 | G96 | 0.1− | 0.5+ | |
| 2000 08 26 | 691 | 0.1+ | 0.0 | 2000 09 28 | 704 | 0.5+ | 0.1− | 2006 02 03 | G96 | 0.1+ | 0.3+ | |
| 2000 08 26 | 691 | 0.0 | 0.3− | 2000 09 28 | 704 | 0.3+ | 0.3− | 2006 02 03 | G96 | 0.1+ | 0.2+ | |
| 2000 09 24 | 699 | 1.0+ | 0.9+ | 2000 09 28 | 704 | 0.1+ | 0.3+ | 2006 02 03 | 704 | 0.9+ | 0.4+ | |
| 2000 09 24 | 699 | 0.1− | 0.3+ | 2000 09 28 | 704 | 0.9− | 0.1− | 2006 02 03 | 704 | 1.2+ | 1.0+ | |
| 2000 09 24 | 704 | 0.2− | 0.7+ | 2000 10 01 | 704 | 0.4− | 0.2− | 2006 02 03 | 704 | (2.0+ | 1.8+) | |
| 2000 09 24 | 704 | 0.1− | 0.4+ | 2000 10 01 | 704 | 0.2+ | 0.6+ | 2007 04 16 | G96 | 0.7− | 0.0 | |
| 2000 09 24 | 699 | (1.1+ | 2.4+) | 2000 10 01 | 704 | 0.4+ | 0.2+ | 2007 04 16 | G96 | 0.1− | 0.4+ | |
| 2000 09 24 | 704 | 0.4+ | 1.1+ | 2000 10 01 | 704 | 0.6+ | 0.0 | 2007 04 16 | G96 | 0.3+ | 0.5− | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 24 | 704 | 0.2+ | 1.4+ | 2000 10 01 | 704 | 0.4+ | 0.6+ | 2007 04 16 | G96 | 0.2− | 0.0 | | |
| 2000 09 24 | 699 | 1.3+ | 0.6+ | 2000 10 02 | 704 | 0.1− | 0.2+ | 2009 11 27 | 691 | 0.4− | 0.3+ | | |
| 2000 09 24 | 704 | 0.2+ | 1.3+ | 2000 10 02 | 704 | 0.4− | 0.4+ | 2009 11 27 | 691 | 0.0 | 0.3+ | | |
| 2000 09 26 | 704 | 0.6+ | 0.2+ | 2000 10 02 | 704 | 0.6+ | 0.2+ | 2009 11 27 | 691 | 0.4+ | 0.0 | | |
| 2000 09 26 | 704 | 0.8− | 0.4+ | 2000 10 02 | 704 | 0.0 | 0.7+ | 2009 12 17 | 704 | 0.8− | 0.5+ | | |
| 2000 09 26 | 704 | 0.3+ | 0.3+ | 2000 10 02 | 645 | 0.0 | 0.2− | 2009 12 17 | 704 | 0.4+ | 0.6+ | | |
| 2000 09 26 | 704 | 0.8+ | 0.5− | 2000 10 02 | 645 | 0.1+ | 0.2− | 2009 12 17 | 704 | 0.0 | 0.6+ | | |
| 2000 09 26 | 704 | 0.6+ | 0.2− | 2000 10 02 | 704 | 0.3+ | 0.1+ | 2009 12 17 | 704 | 0.7− | 0.9+ | | |
| 2000 09 26 | 704 | 0.2− | 0.5+ | 2000 10 06 | 704 | 0.1− | 0.6+ | | | | | | |
| 2000 09 26 | 704 | 0.3− | 0.2− | 2000 10 06 | 704 | 0.1− | 0.4+ | | | | | | |

**(228222)∗ 1996 XG$_{30}$ = 1998 HR$_{28}$ = 2005 YA$_{68}$**

Discovered 1996 Dec. 14 by Spacewatch at Kitt Peak.

Id. M. E. Sansaturio (*MPO* 93710), G. V. Williams (*ibid.*)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 331.92994 | | (2000.0) | | | |
| $n$ | 0.22831045 | $\omega$ | 33.08396 | | −0.34173168 | −0.93863695 |
| $a$ | 2.6512592 | $\Omega$ | 76.93572 | | +0.85150540 | −0.33026845 |
| $e$ | 0.0908433 | $i$ | 2.74739 | | +0.39769086 | −0.09941545 |
| $P$ | 4.32 | $H$ | 17.0 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 12 14 | 691 | 0.2+ | 0.7− | 2005 12 28 | G96 | 0.4+ | 0.0 | 2007 04 26 | 691 | 0.1− | 0.6+ | | |
| 1996 12 14 | 691 | 0.0 | 0.4− | 2005 12 28 | G96 | 0.1− | 0.3− | 2007 04 26 | 691 | 0.1+ | 0.3+ | | |
| 1996 12 14 | 691 | 0.1+ | 0.6− | 2005 12 28 | G96 | 0.0 | 0.1+ | 2007 04 26 | 691 | 0.1+ | 0.1+ | | |
| 1996 12 17 | 691 | 0.2+ | 0.5− | 2005 12 28 | G96 | 0.3+ | 0.1− | 2007 05 13 | G96 | 0.1− | 0.3+ | | |
| 1996 12 17 | 691 | 0.2− | 0.6− | 2005 12 30 | 691 | 1.2− | 0.4+ | 2007 05 13 | G96 | 0.0 | 0.1− | | |
| 1996 12 17 | 691 | 0.2+ | 0.1+ | 2005 12 30 | 691 | 0.3− | 0.2+ | 2007 05 13 | G96 | 0.1− | 0.0 | | |
| 1998 04 24 | 691 | 0.8− | 0.3− | 2005 12 30 | 691 | 0.1+ | 0.3+ | 2007 05 13 | G96 | 0.2− | 0.3+ | | |
| 1998 04 24 | 691 | 0.6− | 0.8− | 2006 01 07 | 691 | 0.1+ | 0.3+ | 2009 11 08 | 691 | 0.2− | 0.4+ | | |
| 1998 04 24 | 691 | 0.5− | 0.6− | 2006 01 07 | 691 | 0.1+ | 0.3+ | 2009 11 08 | 691 | 0.2+ | 0.0 | | |
| 1998 04 28 | 691 | 0.4+ | 0.5− | 2006 01 07 | 691 | 0.1+ | 0.4+ | 2009 11 08 | 691 | 0.1+ | 0.0 | | |
| 1998 04 28 | 691 | 1.0+ | 0.1+ | 2006 01 07 | G96 | 0.1+ | 0.0 | 2009 11 20 | 691 | 0.4− | 0.2− | | |
| 1998 04 28 | 691 | 0.1− | 0.6− | 2006 01 07 | G96 | 0.2− | 0.3− | 2009 11 20 | 691 | 0.0 | 0.6+ | | |
| 2002 02 20 | 704 | 0.3+ | 0.6+ | 2006 01 07 | G96 | 0.0 | 0.3− | 2009 11 20 | 691 | 0.1− | 0.1+ | | |
| 2002 02 20 | 704 | 1.1+ | 1.3+ | 2006 01 07 | G96 | 0.3+ | 0.1− | 2009 12 15 | G96 | 0.9+ | 0.0 | | |
| 2002 02 20 | 704 | (0.9+ | 1.6+) | 2006 01 25 | G96 | 1.1+ | 0.4− | 2009 12 15 | G96 | 0.3+ | 0.4− | | |
| 2005 12 26 | 691 | 0.1− | 0.1+ | 2006 01 25 | G96 | 0.3− | 0.4− | 2009 12 15 | G96 | 0.8+ | 0.4+ | | |
| 2005 12 26 | 691 | 0.3+ | 0.1+ | 2006 01 25 | G96 | 0.2+ | 0.4− | 2009 12 15 | G96 | 1.1+ | 0.4+ | | |
| 2005 12 26 | 691 | 0.1+ | 0.3+ | 2006 01 25 | G96 | 0.2− | 0.2− | | | | | | |

**(228223)∗ 1997 GS$_{15}$ = 2005 SQ$_{62}$**

Discovered 1997 Apr. 3 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 88658)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 259.68177 | | (2000.0) | | | |
| $n$ | 0.28911177 | $\omega$ | 181.75672 | | −0.90978415 | +0.41413255 |
| $a$ | 2.2651251 | $\Omega$ | 22.77205 | | −0.37994072 | −0.80364132 |
| $e$ | 0.1783600 | $i$ | 4.15637 | | −0.16714619 | −0.42738140 |
| $P$ | 3.41 | $H$ | 17.5 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 04 03 | 704 | 0.5− | 0.4− | 2005 10 25 | G96 | 0.5+ | 0.1+ | 2007 02 25 | 703 | 0.1+ | 1.0+ | | |
| 1997 04 03 | 704 | 0.9+ | 0.3− | 2005 10 25 | G96 | 0.2− | 0.5− | 2007 02 25 | 703 | 0.4+ | 0.3+ | | |
| 1997 04 06 | 704 | 0.1− | 0.4− | 2005 10 25 | G96 | 0.2+ | 0.5+ | 2007 02 25 | 703 | 1.1− | 0.2− | | |
| 1997 04 06 | 704 | 0.4+ | 0.2+ | 2005 10 25 | G96 | 0.1− | 0.1− | 2007 02 25 | 703 | 1.3− | 0.4+ | | |
| 1997 04 07 | 704 | 0.3− | 1.1+ | 2007 01 24 | 704 | 0.6+ | 1.4− | 2007 04 11 | 291 | 0.2+ | 0.2+ | | |
| 1997 04 07 | 704 | 0.5+ | 1.4+ | 2007 01 24 | 704 | 0.1+ | 1.1+ | 2007 04 11 | 291 | 0.2− | 0.9+ | | |
| 2004 05 19 | 704 | 0.1− | 0.7− | 2007 01 24 | 704 | 0.3+ | 0.4− | 2007 04 11 | 291 | 0.1+ | 0.0 | | |
| 2004 05 19 | 704 | 0.4+ | 0.4+ | 2007 01 24 | 704 | 0.4+ | 0.3− | 2009 11 17 | G96 | 0.5+ | 0.1− | | |
| 2004 05 19 | 704 | 0.2+ | 1.2+ | 2007 01 24 | 704 | 1.4+ | 0.6+ | 2009 11 17 | G96 | 0.6+ | 0.2− | | |
| 2004 05 19 | 704 | (2.6− | 3.2−) | 2007 02 08 | 644 | 0.3+ | 0.3+ | 2009 11 17 | G96 | 0.5+ | 0.2− | | |
| 2005 09 26 | 691 | 0.0 | 0.1+ | 2007 02 08 | 644 | 0.3+ | 0.3+ | 2009 11 17 | G96 | 0.6+ | 0.3− | | |
| 2005 09 26 | 691 | 0.1− | 0.0 | 2007 02 08 | 644 | 0.7+ | 0.4+ | 2009 11 18 | 691 | 0.3+ | 0.3− | | |
| 2005 09 26 | 691 | 0.4− | 0.4− | 2007 02 16 | 703 | 0.4+ | 0.1− | 2009 11 18 | 691 | 0.0 | 0.3− | | |
| 2005 09 29 | G96 | 0.0 | 0.3+ | 2007 02 16 | 703 | 0.8+ | 0.1− | 2009 11 18 | 691 | 0.1+ | 0.3− | | |
| 2005 09 29 | G96 | 0.2− | 0.3+ | 2007 02 16 | 703 | 0.7+ | 0.3− | 2009 11 23 | 691 | 0.4− | 0.0 | | |
| 2005 09 29 | G96 | 0.3− | 0.1+ | 2007 02 16 | 703 | 1.4− | 0.3− | 2009 11 23 | 691 | 0.7− | 0.0 | | |
| 2005 09 29 | G96 | 1.0− | 0.2+ | 2007 02 16 | 703 | 0.4− | 0.1− | 2009 11 23 | 691 | 0.6+ | 0.1+ | | |
| 2005 10 07 | 691 | 0.3− | 0.4+ | 2007 02 16 | 703 | 0.8− | 0.7− | 2009 11 26 | 691 | 0.0 | 0.0 | | |
| 2005 10 07 | 691 | 0.1− | 0.3+ | 2007 02 16 | 703 | 0.3− | 0.3+ | 2009 11 26 | 691 | 0.2− | 0.1− | | |
| 2005 10 07 | 691 | 0.3− | 0.4+ | 2007 02 16 | 703 | 0.9− | 0.1+ | 2009 11 26 | 691 | 0.2− | 0.2+ | | |
| 2005 10 11 | 691 | 0.0 | 0.4+ | 2007 02 17 | 644 | 0.1− | 0.3+ | 2009 12 18 | G96 | 0.9+ | 0.0 | | |
| 2005 10 11 | 691 | 0.3− | 0.5+ | 2007 02 17 | 644 | 0.3+ | 0.2+ | 2009 12 18 | G96 | 0.8+ | 0.3− | | |
| 2005 10 11 | 691 | 0.2+ | 0.2+ | 2007 02 17 | 644 | 0.2+ | 0.5+ | 2009 12 18 | G96 | 0.1+ | 0.3+ | | |

**(228224)∗ 1998 DK$_{12}$ = 2006 BU$_{1}$**

Discovered 1998 Feb. 23 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 93719)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 34.13749 | | (2000.0) | | | |
| $n$ | 0.23420802 | $\omega$ | 284.28603 | | +0.60773521 | −0.79127993 |
| $a$ | 2.6065629 | $\Omega$ | 128.08603 | | +0.75760512 | +0.55226643 |
| $e$ | 0.2169975 | $i$ | 4.90763 | | +0.23810165 | +0.26244590 |
| $P$ | 4.21 | $H$ | 16.3 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 02 23 | 691 | 0.6− | 0.0 | 2004 08 21 | E12 | 0.1− | 0.4+ | 2006 01 24 | 704 | 0.4− | 0.4+ | | |
| 1998 02 23 | 691 | 0.6− | 0.1+ | 2004 08 21 | E12 | 0.6− | 0.1+ | 2006 01 24 | 704 | 0.5+ | 0.3+ | | |
| 1998 02 26 | 691 | 0.1+ | 0.1− | 2004 08 21 | E12 | 0.4+ | 0.5+ | 2006 01 24 | 704 | 0.1− | 0.4+ | | |
| 1998 02 26 | 691 | 0.1+ | 0.1− | 2004 08 21 | E12 | 0.1+ | 0.0 | 2006 01 24 | 704 | 1.0+ | 0.3+ | | |
| 1998 02 26 | 691 | 0.1− | 0.4− | 2005 10 06 | G96 | 0.1− | 0.0 | 2006 02 22 | 703 | 0.0 | 0.2+ | | |
| 1998 03 03 | 691 | 0.0 | 0.1+ | 2005 10 06 | G96 | 0.3− | 0.2+ | 2006 02 22 | 703 | 0.1+ | 1.2− | | |
| 1998 03 03 | 691 | 0.4− | 0.2− | 2005 10 06 | G96 | 0.1+ | 0.2+ | 2006 02 22 | 703 | 1.0− | 0.7− | | |
| 1998 03 03 | 691 | 1.3+ | 0.8+ | 2005 10 06 | G96 | 0.2− | 0.1+ | 2006 02 22 | 703 | 0.1+ | 0.0 | | |
| 2000 10 02 | 704 | 0.5− | 0.4+ | 2005 11 30 | G96 | 0.4− | 0.2+ | 2007 04 25 | 691 | 0.0 | 0.2+ | | |
| 2000 10 02 | 704 | 0.1+ | 0.2+ | 2005 11 30 | G96 | 0.4+ | 0.2+ | 2007 04 25 | 691 | 0.5− | 0.0 | | |
| 2000 10 02 | 704 | 0.1− | 0.9− | 2005 11 30 | G96 | 0.0 | 0.1+ | 2007 04 25 | 691 | 0.2+ | 0.1+ | | |
| 2002 02 10 | 704 | 0.2+ | 0.4− | 2005 11 30 | G96 | 0.2− | 0.5+ | 2007 05 09 | A50 | 0.4+ | 0.5+ | | |
| 2002 02 10 | 704 | 0.1+ | 0.3− | 2006 01 20 | 691 | 0.1− | 0.3− | 2007 05 09 | A50 | 0.4+ | 0.7− | | |
| 2002 02 10 | 704 | 0.5+ | 0.0 | 2006 01 20 | 691 | 0.6+ | 0.3+ | 2009 12 17 | 704 | 0.5+ | 0.1− | | |
| 2002 02 10 | 704 | 0.4− | 0.5+ | 2006 01 20 | 691 | 0.5+ | 0.0 | 2009 12 17 | 704 | 0.1− | 1.1+ | | |
| 2002 02 10 | 704 | 0.1+ | 0.9+ | 2006 01 22 | 699 | 1.3− | 0.5+ | 2009 12 17 | 704 | 0.4+ | 0.0 | | |
| 2004 08 08 | 704 | 1.0− | 1.0+ | 2006 01 22 | 699 | (1.2+ | 1.9−) | 2009 12 17 | 704 | 0.4+ | 1.1+ | | |
| 2004 08 08 | 704 | 0.3+ | 1.1+ | 2006 01 22 | 699 | 1.4+ | 0.0 | 2009 12 19 | 691 | 0.4− | 0.1− | | |
| 2004 08 08 | 704 | 0.8+ | 1.0+ | 2006 01 22 | 699 | 0.5− | 0.4− | 2009 12 19 | 691 | 0.3− | 0.0 | | |
| 2004 08 08 | 704 | 0.1+ | 0.4+ | 2006 01 24 | 704 | 0.7− | 0.0 | 2009 12 19 | 691 | 0.0 | 0.1− | | |

**(228225)∗ 1998 HM$_{16}$ = 2005 YD$_{129}$**

Discovered 1998 Apr. 24 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 93721)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 124.49889 | | (2000.0) | | | |
| $n$ | 0.22188904 | $\omega$ | 207.97493 | | +0.63261114 | +0.77276147 |
| $a$ | 2.7021668 | $\Omega$ | 101.31492 | | −0.70042104 | +0.59918890 |
| $e$ | 0.0768535 | $i$ | 3.00527 | | −0.33047468 | +0.20931406 |
| $P$ | 4.44 | $H$ | 16.3 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 04 24 | 691 | 1.3− | 0.3− | 2005 12 23 | 291 | 0.5+ | 0.0 | 2006 01 22 | G96 | 0.1+ | 0.3− | | |
| 1998 04 24 | 691 | 0.4− | 1.1− | 2005 12 27 | G96 | 0.6+ | 0.5− | 2007 04 25 | 691 | 0.5+ | 0.3+ | | |
| 1998 04 24 | 691 | 0.7− | 0.4+ | 2005 12 27 | G96 | 0.9− | 0.4− | 2007 04 25 | 691 | 0.2+ | 0.3+ | | |
| 1998 04 27 | 691 | 0.6+ | 0.1− | 2005 12 27 | G96 | 0.1− | 0.7− | 2007 04 25 | 691 | 0.5+ | 0.5+ | | |
| 1998 04 27 | 691 | 0.1+ | 0.1− | 2005 12 27 | G96 | 1.0− | 0.1− | 2007 05 07 | 691 | 0.1+ | 0.5+ | | |
| 1998 04 27 | 691 | 1.4+ | 0.6− | 2005 12 30 | 691 | 0.1− | 0.2+ | 2007 05 07 | 691 | 0.1+ | 0.5+ | | |
| 1998 05 03 | 691 | 0.1− | 1.4− | 2005 12 30 | 691 | 0.1− | 0.1+ | 2007 05 07 | 691 | 0.3− | 0.6+ | | |
| 1998 05 03 | 691 | 0.9− | 0.5− | 2005 12 30 | 691 | 0.1− | 0.2+ | 2008 08 23 | 704 | (1.5− | 2.0−) | | |
| 1998 05 03 | 691 | 0.2− | 0.2+ | 2006 01 04 | 691 | 0.1+ | 0.3+ | 2008 08 23 | 704 | 0.3+ | 0.3+ | | |
| 2002 02 10 | 704 | 0.3− | 1.0+ | 2006 01 04 | 691 | 0.2− | 0.0 | 2008 08 23 | 704 | (1.7+ | 0.0 ) | | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 02 10 | 704 | 1.0+ | 0.0 | 2006 01 04 | 691 | 0.4+ | 0.0 | 2009 11 20 | 691 | 0.3− | 0.3− |
| 2002 02 10 | 704 | (2.6+ | 1.6+) | 2006 01 10 | G96 | 0.1− | 0.1+ | 2009 11 20 | 691 | 0.0 | 0.3+ |
| 2002 02 10 | 704 | 0.6+ | 1.3+ | 2006 01 10 | G96 | 0.2− | 0.0 | 2009 11 20 | 691 | 0.1− | 0.1− |
| 2002 03 14 | 704 | (1.7− | 0.6+) | 2006 01 10 | G96 | 0.1− | 0.0 | 2009 12 11 | G96 | 0.1+ | 0.5− |
| 2002 03 14 | 704 | 0.4− | 0.2+ | 2006 01 10 | G96 | 0.4+ | 0.2− | 2009 12 11 | G96 | 0.3+ | 0.3− |
| 2002 03 14 | 704 | 0.2− | 0.9+ | 2006 01 22 | G96 | 0.4+ | 0.6− | 2009 12 11 | G96 | 0.2+ | 0.4− |
| 2005 12 23 | 291 | 0.1+ | 0.0 | 2006 01 22 | G96 | 0.1+ | 0.0 | 2009 12 11 | G96 | 0.1+ | 0.3− |
| 2005 12 23 | 291 | 0.3+ | 0.3+ | 2006 01 22 | G96 | 0.2− | 0.4− | | | | |

**(228226)∗ 1998 HO$_{19}$ = 1995 ST$_{65}$**

Discovered 1998 Apr. 18 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 14760)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 275.52701 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23048386 | $\omega$ | 224.96716 | | −0.99926029 | | +0.03027117 |
| $a$ | 2.6345657 | $\Omega$ | 316.75086 | | −0.01749279 | | −0.90704424 |
| $e$ | 0.1851839 | $i$ | 1.98374 | | −0.03424738 | | −0.41994572 |
| $P$ | 4.28 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 09 21 | 691 | 0.2− | 0.0 | 2002 01 14 | 704 | 0.0 | 0.3+ | 2002 03 13 | 704 | 0.3− | 0.1− |
| 1995 09 21 | 691 | 0.0 | 0.3− | 2002 01 14 | 704 | 0.6− | 0.4− | 2002 03 13 | 644 | 0.3+ | 0.7− |
| 1995 09 21 | 691 | 0.1+ | 0.3− | 2002 02 05 | 644 | 0.1− | 0.1+ | 2002 03 13 | 704 | 0.5+ | 0.1− |
| 1995 09 26 | 691 | 0.2− | 0.6+ | 2002 02 05 | 644 | 0.1− | 0.3+ | 2002 03 13 | 704 | 0.2− | 0.6− |
| 1995 09 26 | 691 | 0.0 | 0.5+ | 2002 02 05 | 644 | 0.1+ | 0.2+ | 2002 03 13 | 644 | 0.0 | 0.4− |
| 1995 09 26 | 691 | 0.1− | 0.5+ | 2002 02 07 | 704 | 0.5+ | 0.2− | 2002 03 13 | 704 | 0.3− | 0.1+ |
| 1998 03 20 | 704 | 0.4+ | 0.8− | 2002 02 07 | 704 | 0.7+ | 0.8+ | 2002 03 13 | 644 | 0.1+ | 0.7− |
| 1998 03 20 | 704 | 1.5+ | 0.5− | 2002 02 07 | 704 | 1.1+ | 1.1+ | 2002 03 13 | 704 | 0.2+ | 0.5+ |
| 1998 03 20 | 704 | 0.4− | 1.3+ | 2002 02 07 | 704 | 0.9+ | 1.0+ | 2004 10 08 | 691 | 0.1− | 0.2+ |
| 1998 03 20 | 704 | (3.8− | 1.1+) | 2002 02 07 | 704 | 1.0+ | 0.3+ | 2004 10 08 | 691 | 0.0 | 0.1+ |
| 1998 03 28 | 704 | 1.3+ | 1.9− | 2002 02 10 | 704 | 0.0 | 0.0 | 2004 10 08 | 691 | 0.1− | 0.1+ |
| 1998 03 28 | 704 | 0.1+ | 1.6+ | 2002 02 10 | 704 | 0.1− | 0.3+ | 2005 11 30 | 691 | 0.1+ | 0.0 |
| 1998 03 28 | 704 | 0.9− | 0.7+ | 2002 02 10 | 704 | 0.1+ | 0.1+ | 2005 11 30 | 691 | 0.0 | 0.2− |
| 1998 03 28 | 704 | 0.3− | 0.3+ | 2002 02 10 | 704 | 0.1+ | 0.0 | 2005 11 30 | 691 | 0.1− | 0.0 |
| 1998 03 28 | 704 | 0.9− | 0.1− | 2002 02 10 | 704 | 0.2− | 0.2+ | 2005 12 04 | 691 | 0.1+ | 0.0 |
| 1998 03 29 | 704 | 0.4− | 0.2− | 2002 02 10 | 691 | 0.2− | 0.0 | 2005 12 04 | 691 | 0.0 | 0.2+ |
| 1998 03 29 | 704 | 0.3− | 1.1− | 2002 02 10 | 691 | 0.4− | 0.2− | 2005 12 04 | 691 | 0.0 | 0.0 |
| 1998 03 29 | 704 | 1.1+ | 1.7− | 2002 02 10 | 691 | 0.0 | 0.4− | 2005 12 08 | 691 | 0.1+ | 0.1+ |
| 1998 03 29 | 704 | (0.9+ | 2.1+) | 2002 02 12 | 704 | 0.1+ | 0.3+ | 2005 12 08 | 691 | 0.1− | 0.2+ |
| 1998 03 29 | 704 | 0.2− | 1.5+ | 2002 02 12 | 704 | 0.1+ | 0.4− | 2005 12 08 | 691 | 0.1+ | 0.2+ |
| 1998 04 01 | 704 | 0.0 | 0.5+ | 2002 02 12 | 704 | 0.0 | 0.2− | 2005 12 24 | 691 | 0.8− | 0.0 |
| 1998 04 01 | 704 | 1.0+ | 1.2+ | 2002 02 12 | 704 | 0.4− | 0.5− | 2005 12 24 | 691 | 1.3+ | 0.3− |
| 1998 04 01 | 704 | 1.0− | 0.6+ | 2002 02 12 | 704 | 0.3− | 0.5− | 2005 12 24 | 691 | 0.2+ | 0.0 |
| 1998 04 01 | 704 | 1.6+ | 0.2− | 2002 02 13 | 704 | 0.1− | 0.7+ | 2006 01 09 | 691 | 0.1+ | 0.1+ |
| 1998 04 18 | 704 | 1.0− | 0.2− | 2002 02 13 | 704 | 0.4+ | 0.1+ | 2006 01 09 | 691 | 0.2− | 0.2− |
| 1998 04 18 | 704 | 0.5+ | 1.5− | 2002 02 13 | 704 | 0.0 | 0.4+ | 2006 01 09 | 691 | 0.1− | 0.5− |
| 1998 04 18 | 704 | 1.3− | 1.1− | 2002 02 13 | 704 | 0.4− | 0.0 | 2008 09 21 | G96 | 0.7− | 0.9+ |
| 1998 04 18 | 704 | (5.1− | 1.0+) | 2002 02 13 | 704 | 0.4+ | 1.3+ | 2008 09 21 | G96 | 0.1− | 0.1+ |
| 1998 04 19 | 704 | 1.5+ | 0.1+ | 2002 02 20 | 704 | 0.9− | 0.8+ | 2008 09 21 | G96 | 0.3− | 0.6+ |
| 1998 04 19 | 704 | 0.5+ | 1.0+ | 2002 02 20 | 704 | 0.9− | 0.6+ | 2008 09 21 | G96 | 0.0 | 1.0+ |
| 1998 04 19 | 704 | 0.0 | 0.9+ | 2002 02 20 | 704 | 0.4− | 0.7+ | 2009 11 09 | G96 | 0.5+ | 0.0 |
| 1998 04 19 | 704 | 0.2− | 0.5+ | 2002 02 20 | 704 | 0.5− | 1.1+ | 2009 11 09 | G96 | 0.2+ | 0.0 |
| 1998 04 19 | 704 | 0.3+ | 0.4+ | 2002 02 20 | 704 | 0.1− | 1.1+ | 2009 11 09 | G96 | 0.4+ | 0.3− |
| 1998 04 20 | 704 | 1.6− | 1.1− | 2002 03 05 | 644 | 0.3+ | 0.4− | 2009 11 09 | G96 | 0.1+ | 0.5+ |
| 1998 04 20 | 704 | 0.5+ | 1.3+ | 2002 03 05 | 644 | 0.2− | 0.6− | 2009 12 16 | G96 | 0.2− | 0.1+ |
| 1998 04 20 | 704 | (2.1− | 0.8−) | 2002 03 05 | 644 | 0.4+ | 0.6− | 2009 12 16 | G96 | 1.7− | 1.3− |
| 1998 04 20 | 704 | 0.2+ | 0.8+ | 2002 03 12 | 644 | 0.0 | 0.3+ | 2009 12 16 | G96 | 0.1+ | 0.1− |
| 2002 01 14 | 704 | 0.4+ | 0.5+ | 2002 03 12 | 644 | 0.0 | 0.3+ | 2009 12 16 | G96 | 0.4− | 0.1− |
| 2002 01 14 | 704 | 0.2− | 0.2− | 2002 03 12 | 644 | 0.4+ | 0.5+ | | | | |

**(228227)∗ 1998 HF$_{25}$**

Discovered 1998 Apr. 18 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 160.07923 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21639325 | $\omega$ | 131.69254 | | −0.14377753 | | +0.98882795 |
| $a$ | 2.7477270 | $\Omega$ | 129.99728 | | −0.92251942 | | −0.11953785 |
| $e$ | 0.2218605 | $i$ | 2.94328 | | −0.35817026 | | −0.08905053 |
| $P$ | 4.55 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 03 29 | 704 | 0.5+ | 0.2− | 2007 03 16 | 704 | 1.4+ | 0.9+ | 2008 09 29 | 703 | 0.6+ | 0.2+ |
| 1998 03 29 | 704 | 1.5+ | 0.2− | 2007 03 16 | 704 | 0.9+ | 1.5+ | 2008 09 29 | 703 | 0.2+ | 0.8+ |
| 1998 03 29 | 704 | 0.3− | 0.3− | 2007 03 16 | 704 | 0.5+ | 0.8+ | 2008 09 29 | 703 | 0.3− | 0.3+ |
| 1998 03 29 | 704 | 0.6− | 0.0 | 2007 03 16 | 704 | 1.1+ | 0.1− | 2008 09 29 | 703 | (2.4+ | 0.1+) |
| 1998 03 29 | 704 | 1.1− | 1.6+ | 2007 03 17 | 699 | 0.2+ | 0.2− | 2008 10 08 | 691 | 0.1− | 0.1+ |
| 1998 03 31 | 704 | 0.9+ | 1.4+ | 2007 03 17 | 699 | 0.0 | 0.1− | 2008 10 08 | 691 | 0.1− | 1.2+ |
| 1998 03 31 | 704 | 0.3+ | 1.6+ | 2007 03 17 | 699 | 0.5+ | 0.8+ | 2008 10 08 | 691 | 0.1+ | 0.1+ |
| 1998 03 31 | 704 | (2.2+ | 1.1−) | 2007 03 17 | 699 | 0.3− | 1.0+ | 2008 11 02 | G96 | 0.4− | 0.4− |
| 1998 03 31 | 704 | 1.4+ | 1.9+ | 2007 03 20 | 691 | 0.0 | 0.3+ | 2008 11 02 | G96 | 0.1+ | 0.1− |
| 1998 04 18 | 691 | 0.2− | 0.3− | 2007 03 20 | 691 | 0.1− | 0.5+ | 2008 11 02 | G96 | 1.3+ | 0.9− |
| 1998 04 18 | 691 | 0.1+ | 0.3− | 2007 03 20 | 691 | 0.1+ | 0.3+ | 2008 11 02 | G96 | 1.4+ | 1.1− |
| 1998 04 18 | 691 | 0.3+ | 0.6− | 2007 04 07 | 703 | (2.5+ | 0.3+) | 2009 11 09 | G96 | 0.2+ | 0.0 |
| 1998 04 19 | 704 | 1.0− | 0.8− | 2007 04 07 | 703 | 0.6+ | 0.9− | 2009 11 09 | G96 | 0.1+ | 0.3+ |
| 1998 04 19 | 704 | 0.8+ | 0.8− | 2007 04 07 | 703 | 0.1− | 1.3+ | 2009 11 09 | G96 | 0.2+ | 0.2+ |
| 1998 04 19 | 704 | 0.3+ | 0.3+ | 2007 04 07 | 703 | 0.3− | 0.1+ | 2009 11 09 | G96 | 0.3+ | 1.0− |
| 1998 04 19 | 704 | 0.9− | 0.2− | 2008 08 24 | 704 | 0.4+ | 1.3+ | 2009 11 10 | 691 | 0.1+ | 0.2− |
| 1998 04 28 | 691 | 0.5− | 0.8− | 2008 08 24 | 704 | 0.2+ | 0.6+ | 2009 11 10 | 691 | 0.1− | 0.1− |
| 1998 04 28 | 691 | 0.4− | 0.5− | 2008 08 24 | 704 | 0.7+ | 0.4+ | 2009 11 10 | 691 | 0.2+ | 0.1+ |
| 1998 04 28 | 691 | 0.4− | 0.3− | 2008 08 24 | 704 | 0.7+ | 0.3− | 2009 11 18 | 691 | 0.1+ | 0.2− |
| 2007 03 12 | 691 | 0.0 | 0.2+ | 2008 08 24 | 704 | 0.0 | 0.5+ | 2009 11 18 | 691 | 0.3− | 0.0 |
| 2007 03 12 | 691 | 0.2+ | 0.4+ | 2008 09 19 | 691 | 0.4− | 0.0 | 2009 11 18 | 691 | 0.0 | 0.4+ |
| 2007 03 12 | 691 | 0.1+ | 0.3+ | 2008 09 19 | 691 | 0.0 | 0.2+ | 2009 11 26 | 691 | 0.4− | 0.1− |
| 2007 03 12 | G96 | 0.2− | 0.1− | 2008 09 19 | 691 | 0.7− | 0.3− | 2009 11 26 | 691 | 0.3− | 0.2− |
| 2007 03 12 | G96 | 0.1− | 0.3+ | 2008 09 22 | 691 | 0.3− | 0.6+ | 2009 11 26 | 691 | 0.1+ | 0.1− |
| 2007 03 12 | G96 | 0.0 | 0.1+ | 2008 09 22 | 691 | 0.4− | 0.4+ | 2009 12 19 | 691 | 0.2− | 0.1− |
| 2007 03 12 | G96 | 0.3− | 0.5+ | 2008 09 22 | 691 | 0.3− | 0.2+ | 2009 12 19 | 691 | 0.1+ | 0.1− |
| 2007 03 16 | 691 | 0.1+ | 0.3+ | 2008 09 28 | 704 | 0.4− | 0.5+ | 2009 12 19 | 691 | 0.6+ | 0.3+ |
| 2007 03 16 | 691 | 0.2+ | 0.4+ | 2008 09 28 | 704 | 0.3+ | 1.2+ | | | | |
| 2007 03 16 | 691 | 0.1+ | 0.4+ | 2008 09 28 | 704 | (1.4+ | 2.0+) | | | | |

**(228228)∗ 1998 HM$_{80}$ = 2002 CB$_{114}$**

Discovered 1998 Apr. 21 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 24972)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 298.64970 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23067769 | $\omega$ | 134.19069 | | −0.92478285 | | −0.37727677 |
| $a$ | 2.6330897 | $\Omega$ | 23.77508 | | +0.30473000 | | −0.81209588 |
| $e$ | 0.2565928 | $i$ | 7.03637 | | +0.22785149 | | −0.44515449 |
| $P$ | 4.27 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 10 10 | 691 | 0.0 | 0.0 | 2002 02 08 | 704 | 0.4− | 0.7+ | 2002 04 02 | 644 | 0.0 | 0.2+ |
| 1996 10 10 | 691 | 0.0 | 0.4+ | 2002 02 08 | 704 | 0.4+ | 1.2+ | 2002 04 02 | 644 | 0.0 | 0.0 |
| 1996 10 10 | 691 | 0.0 | 0.1− | 2002 02 08 | 704 | 0.1− | 1.0+ | 2002 04 02 | 644 | 0.1− | 0.1− |
| 1998 04 21 | 704 | 1.3+ | 0.0 | 2002 02 08 | 704 | 0.0 | 0.4+ | 2002 04 09 | 291 | 0.6+ | 0.1+ |
| 1998 04 21 | 704 | 1.7− | 0.2− | 2002 02 08 | 704 | 0.6+ | 0.4+ | 2002 04 09 | 291 | 0.7+ | 0.1+ |
| 1998 04 21 | 704 | 0.3+ | 0.4− | 2002 02 10 | 704 | 0.1− | 0.4+ | 2002 04 09 | 291 | 0.4+ | 0.1− |
| 1998 04 21 | 704 | 0.4− | 0.1− | 2002 02 10 | 704 | 0.5− | 0.2+ | 2002 04 16 | 704 | 0.5+ | 0.4− |
| 1998 04 21 | 704 | 0.3+ | 1.0− | 2002 02 10 | 704 | 0.5− | 0.2+ | 2002 04 16 | 704 | 0.6+ | 0.8+ |
| 1998 04 22 | 704 | 1.6+ | 0.8+ | 2002 02 10 | 704 | 0.8− | 0.0 | 2002 04 16 | 704 | 0.4+ | 0.2− |
| 1998 04 22 | 704 | 1.1+ | 0.6+ | 2002 02 10 | 704 | 0.4− | 0.1+ | 2002 04 16 | 704 | 0.6+ | 1.0+ |
| 1998 04 22 | 704 | 0.8+ | 1.7+ | 2002 03 03 | 699 | 0.2− | 0.4− | 2002 04 16 | 704 | 0.4+ | 0.2+ |
| 1998 04 22 | 704 | 0.2− | 1.3− | 2002 03 03 | 699 | 0.1+ | 0.2− | 2004 09 17 | 691 | 0.3− | 0.6+ |
| 1998 04 22 | 704 | 0.5− | 0.1+ | 2002 03 03 | 699 | 0.4+ | 0.3− | 2004 09 17 | 691 | 1.0− | 0.6+ |
| 1998 05 18 | 691 | 0.9− | 0.3+ | 2002 03 03 | 699 | 0.5+ | 0.8+ | 2004 09 17 | 691 | 0.1− | 1.1+ |
| 1998 05 18 | 691 | 0.3− | 0.4+ | 2002 03 06 | 704 | 0.2− | 0.5+ | 2005 12 24 | 704 | 0.3− | 1.1+ |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 05 18 | 691 | 0.1− | 0.3+ | 2002 03 06 | 704 | 0.3− | 0.0 | 2005 12 24 | 704 | 0.1− | 1.0+ | |
| 1998 05 24 | 691 | 0.2− | 0.1− | 2002 03 06 | 704 | 0.3− | 0.4+ | 2005 12 24 | 704 | 1.2+ | 0.6− | |
| 1998 05 24 | 691 | 0.1− | 0.4− | 2002 03 06 | 704 | 0.7− | 0.6+ | 2005 12 24 | 704 | 0.3+ | 0.0 | |
| 1998 05 30 | 691 | 0.2+ | 0.6+ | 2002 03 11 | 644 | 0.4− | 0.1− | 2005 12 24 | 704 | 0.3+ | 0.1+ | |
| 1998 05 30 | 691 | 0.2+ | 0.1+ | 2002 03 11 | 644 | 0.3− | 0.2− | 2009 11 22 | G96 | 0.1+ | 0.2− | |
| 1998 05 30 | 691 | 1.5+ | 0.2+ | 2002 03 11 | 644 | 0.3− | 0.1− | 2009 11 22 | G96 | 0.1+ | 0.0 | |
| 2002 01 09 | 704 | (2.1− | 1.1+) | 2002 03 11 | 644 | 0.1+ | 0.1+ | 2009 11 22 | G96 | 0.3+ | 0.2+ | |
| 2002 01 09 | 704 | 0.5− | 0.6+ | 2002 03 11 | 644 | 0.4− | 0.2− | 2009 11 22 | G96 | 0.1+ | 0.3+ | |
| 2002 01 09 | 704 | 0.4− | 0.3+ | 2002 03 11 | 644 | 0.2+ | 0.1+ | 2009 11 26 | 691 | 0.0 | 0.1− | |
| 2002 01 09 | 704 | 0.0 | 0.2+ | 2002 03 17 | 704 | 0.4+ | 0.6− | 2009 11 26 | 691 | 0.5− | 0.1+ | |
| 2002 01 21 | 644 | 0.3− | 0.0 | 2002 03 17 | 704 | 0.0 | 1.5− | 2009 11 26 | 691 | 0.3− | 0.2+ | |
| 2002 01 21 | 644 | 0.5− | 0.2− | 2002 03 17 | 704 | 0.1+ | 0.8+ | 2009 12 20 | G96 | 0.5+ | 0.1+ | |
| 2002 01 21 | 644 | 0.5− | 0.2− | 2002 03 17 | 704 | 0.5+ | 0.9− | 2009 12 20 | G96 | 0.3+ | 0.1− | |
| 2002 02 04 | 699 | 0.0 | 0.4− | 2002 03 17 | 704 | 0.5+ | 0.3+ | 2009 12 20 | G96 | 0.1+ | 0.1− | |
| 2002 02 04 | 699 | 0.5− | 0.5+ | 2002 03 22 | 644 | 0.0 | 0.2− | 2009 12 20 | G96 | 0.5+ | 0.0 | |
| 2002 02 04 | 699 | (1.6− | 0.0 ) | 2002 03 22 | 644 | 0.1+ | 0.1− | | | | | |
| 2002 02 04 | 699 | 0.9− | 0.5− | 2002 03 22 | 644 | 0.1+ | 0.2− | | | | | |

**(228229)∗ 1998 $MO_{17}$ = 2006 $DY_{117}$**

Discovered 1998 June 27 by K. J. Meech at Mauna Kea.

Id. K. E. Smalley (*MPO* 99890)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 307.84292 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21991041 | $\omega$ | 48.27970 | | −0.99853661 | | +0.04030912 |
| $a$ | 2.7183509 | $\Omega$ | 133.99597 | | −0.05071277 | | −0.92949221 |
| $e$ | 0.1618609 | $i$ | 2.87264 | | +0.01878446 | | −0.36663252 |
| $P$ | 4.48 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 06 26 | 568 | 0.5+ | 0.0 | 2006 02 27 | 691 | 0.2+ | 0.3+ | 2006 04 05 | 461 | 0.1+ | 0.1+ | |
| 1998 06 26 | 568 | 0.5+ | 0.0 | 2006 02 27 | 691 | 0.3+ | 0.4+ | 2006 04 05 | 461 | 0.1+ | 0.4+ | |
| 1998 06 27 | 568 | 0.3+ | 0.1− | 2006 02 27 | 691 | 0.4+ | 0.1+ | 2006 04 05 | 461 | 0.2− | 0.2+ | |
| 1998 06 27 | 568 | 0.1− | 0.2− | 2006 03 02 | G96 | 0.1+ | 0.4+ | 2008 10 08 | 691 | 0.1− | 0.2+ | |
| 1998 06 27 | 568 | 0.3− | 0.2− | 2006 03 02 | G96 | 0.1− | 0.2+ | 2008 10 08 | 691 | 0.1− | 0.1+ | |
| 1998 06 28 | 568 | 0.4+ | 0.0 | 2006 03 02 | G96 | 1.0− | 0.2+ | 2008 10 08 | 691 | 0.0 | 0.6+ | |
| 1998 06 28 | 568 | 0.4+ | 0.1− | 2006 03 02 | G96 | 0.4+ | 0.2− | 2009 11 16 | G96 | 0.6+ | 0.3+ | |
| 1998 07 27 | 691 | 0.0 | 0.6+ | 2006 03 29 | 704 | 0.1+ | 0.0 | 2009 11 16 | G96 | 0.2+ | 0.2+ | |
| 1998 07 27 | 691 | 0.4− | 0.8+ | 2006 03 29 | 704 | 0.9+ | 0.6+ | 2009 11 16 | G96 | 0.2+ | 0.0 | |
| 1998 07 27 | 691 | 0.3− | 0.6+ | 2006 03 29 | 704 | 0.4+ | 0.5− | 2009 11 16 | G96 | 0.3+ | 0.1+ | |
| 2003 09 19 | 691 | 0.2+ | 0.2+ | 2006 03 29 | 704 | 0.1− | 0.9+ | 2009 12 15 | G96 | 0.5+ | 0.0 | |
| 2003 09 19 | 691 | 0.3− | 0.1+ | 2006 03 29 | 704 | (0.4+ | 2.1+) | 2009 12 15 | G96 | 0.5+ | 0.5− | |
| 2003 09 19 | 691 | 0.4− | 0.5+ | 2006 03 31 | 704 | 0.9− | 0.8+ | 2009 12 15 | G96 | 0.6+ | 0.1+ | |
| 2005 12 02 | 568 | 0.2+ | 0.3+ | 2006 03 31 | 704 | (1.9− | 0.7−) | 2009 12 15 | G96 | 0.8+ | 0.1− | |
| 2005 12 02 | 568 | 0.2+ | 0.3+ | 2006 04 02 | 461 | 0.0 | 0.4+ | 2009 12 17 | 691 | 0.0 | 0.3+ | |
| 2005 12 02 | 568 | 0.1+ | 0.3+ | 2006 04 02 | 461 | 0.0 | 0.2+ | 2009 12 17 | 691 | 0.1− | 0.5+ | |
| 2006 01 31 | G96 | 0.4− | 0.1+ | 2006 04 02 | 461 | 0.0 | 0.2+ | 2009 12 17 | 691 | 0.0 | 0.0 | |
| 2006 01 31 | G96 | 0.4− | 0.0 | 2006 04 04 | 461 | 0.2+ | 0.1+ | 2009 12 25 | 691 | 0.3− | 0.3+ | |
| 2006 01 31 | G96 | 0.1+ | 0.2+ | 2006 04 04 | 461 | 0.0 | 0.2+ | 2009 12 25 | 691 | 0.2− | 0.3+ | |
| 2006 01 31 | G96 | 0.6− | 0.1+ | 2006 04 04 | 461 | 0.1− | 0.0 | 2009 12 25 | 691 | 0.1+ | 0.2+ | |

**(228230)∗ 1998 $QL_{74}$ = 2002 $YW_{22}$**

Discovered 1998 Aug. 24 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 39939)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 77.44192 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.28633747 | $\omega$ | 113.76945 | | +0.92518569 | | −0.36469243 |
| $a$ | 2.2797327 | $\Omega$ | 267.75655 | | +0.29856443 | | +0.87026032 |
| $e$ | 0.1220096 | $i$ | 6.03342 | | +0.23428769 | | +0.33112899 |
| $P$ | 3.44 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 08 19 | 704 | 1.6− | 0.2− | 2005 08 31 | 704 | 0.5− | 0.2− | 2005 11 02 | 695 | 0.0 | 0.1+ | |
| 1998 08 19 | 704 | (0.2− | 2.0+) | 2005 08 31 | 704 | 0.3− | 1.4+ | 2005 11 02 | 704 | 0.3+ | 0.7+ | |
| 1998 08 19 | 704 | 1.2− | 1.9+ | 2005 09 01 | 644 | 0.0 | 0.1+ | 2005 11 02 | 704 | 0.1+ | 0.5+ | |
| 1998 08 19 | 704 | (2.2− | 0.7−) | 2005 09 01 | 644 | 0.2+ | 0.2+ | 2005 11 02 | 704 | 0.4+ | 0.2+ | |
| 1998 08 19 | 704 | (3.9− | 1.4+) | 2005 09 01 | 644 | 0.3+ | 0.1+ | 2005 11 02 | 704 | 0.2+ | 0.3− | |
| 1998 08 24 | 704 | 0.1+ | 0.6− | 2005 09 10 | 699 | 0.4− | 0.0 | 2005 11 02 | 704 | 0.2− | 0.3+ | |
| 1998 08 24 | 704 | 0.4− | 0.4+ | 2005 09 10 | 699 | 0.3− | 0.5− | 2005 11 02 | 695 | 0.0 | 0.1+ | |
| 1998 08 24 | 704 | 1.0+ | 1.4+ | 2005 09 10 | 699 | 0.2+ | 0.3+ | 2005 11 05 | 704 | 0.2− | 0.3+ | |
| 1998 08 24 | 704 | 1.5+ | 0.9− | 2005 09 12 | 704 | 0.1− | 0.3+ | 2005 11 05 | 704 | 1.2+ | 0.3+ | |
| 1998 08 27 | 704 | 0.5+ | 1.1+ | 2005 09 12 | 704 | (1.7+ | 0.8+) | 2005 11 05 | 704 | 1.2+ | 0.7− | |
| 1998 08 27 | 704 | 0.6+ | 1.4+ | 2005 09 12 | 704 | 0.3− | 0.7+ | 2005 11 05 | 704 | 0.5+ | 0.2+ | |
| 1998 08 27 | 704 | 0.5+ | 0.4+ | 2005 09 12 | 704 | 0.4− | 0.1+ | 2005 11 05 | 704 | 0.2+ | 0.2− | |
| 1998 08 27 | 704 | 0.4+ | 0.6− | 2005 09 12 | 704 | 0.0 | 0.5+ | 2005 11 19 | 699 | 0.1− | 0.3− | |
| 1998 08 27 | 704 | 1.6+ | 1.0+ | 2005 09 23 | 703 | 0.3− | 0.2− | 2005 11 19 | 699 | 0.3+ | 0.9− | |
| 1998 08 30 | 699 | 0.5+ | 0.5+ | 2005 09 23 | 703 | 0.1+ | 1.1− | 2005 11 19 | 699 | 0.5− | 0.6+ | |
| 1998 08 30 | 699 | 0.5+ | 1.1+ | 2005 09 23 | 703 | 0.1+ | 0.7− | 2005 11 19 | 699 | (1.3− | 2.1+) | |
| 1998 08 30 | 699 | 0.1+ | 0.4− | 2005 09 23 | 703 | 1.4− | 0.3− | 2005 11 28 | 703 | 0.1+ | 0.8− | |
| 1998 09 16 | 699 | 0.3− | 0.1+ | 2005 09 26 | 644 | 0.1− | 0.1− | 2005 11 28 | 703 | 0.2+ | 0.7− | |
| 1998 09 16 | 699 | 1.0− | 0.3− | 2005 09 26 | 644 | 0.0 | 0.1− | 2005 11 28 | 703 | 1.1− | 0.6− | |
| 1998 09 16 | 699 | 1.3− | 0.0 | 2005 09 26 | 644 | 0.0 | 0.3− | 2005 11 28 | 703 | 0.7+ | 1.4+ | |
| 1998 09 19 | 704 | 0.3− | 0.5+ | 2005 09 30 | 699 | 0.7+ | 0.4− | 2005 12 02 | 704 | 0.7− | 0.4+ | |
| 1998 09 19 | 704 | 1.9− | 0.9− | 2005 09 30 | 699 | 0.0 | 0.4− | 2005 12 02 | 704 | 0.2− | 0.8+ | |
| 1998 09 19 | 704 | 0.2+ | 1.2− | 2005 09 30 | 699 | 0.3+ | 0.4+ | 2005 12 02 | 704 | 0.3+ | 0.5+ | |
| 1998 09 19 | 704 | 0.3− | 0.9− | 2005 09 30 | 699 | 0.5− | 0.2+ | 2005 12 05 | 704 | 0.3− | 0.6+ | |
| 1998 09 21 | 699 | 0.6+ | 0.3+ | 2005 10 05 | 703 | 0.5+ | 0.1+ | 2005 12 05 | 704 | 0.8− | 0.8+ | |
| 1998 09 21 | 699 | 0.7+ | 0.1+ | 2005 10 05 | 703 | 0.0 | 0.0 | 2005 12 05 | 704 | 0.5− | 0.5+ | |
| 1998 09 21 | 699 | 0.2− | 0.7− | 2005 10 05 | 703 | 0.2+ | 0.2− | 2005 12 05 | 704 | 0.2− | 0.7+ | |
| 1998 09 23 | 704 | 1.1+ | 1.1− | 2005 10 05 | 703 | 0.2− | 0.0 | 2005 12 07 | 704 | 0.1− | 0.1+ | |
| 1998 09 23 | 704 | 0.7− | 0.4− | 2005 10 12 | 704 | 0.0 | 0.6+ | 2005 12 07 | 704 | 0.7+ | 0.8− | |
| 1998 09 23 | 704 | 0.9+ | 1.0− | 2005 10 12 | 704 | 0.5+ | 0.2+ | 2005 12 07 | 704 | 0.0 | 0.6− | |
| 1998 09 23 | 704 | 0.6− | 1.0− | 2005 10 12 | 704 | 0.2− | 0.6+ | 2005 12 24 | 703 | 0.9+ | 0.1+ | |
| 1998 09 23 | 704 | 0.2+ | 1.0− | 2005 10 12 | 704 | 0.1− | 0.1+ | 2005 12 24 | 703 | 0.1− | 0.9− | |
| 1998 10 11 | 699 | 1.2− | 0.0 | 2005 10 12 | 704 | 0.3− | 0.0 | 2005 12 24 | 703 | 0.3− | 0.6+ | |
| 1998 10 11 | 699 | 0.4− | 0.2+ | 2005 10 22 | 644 | 0.3− | 0.1− | 2005 12 24 | 703 | 0.7− | 0.8+ | |
| 1998 10 11 | 699 | 1.0− | 0.0 | 2005 10 22 | 644 | 0.0 | 0.0 | 2007 02 17 | 704 | 0.1− | 0.3+ | |
| 2002 12 05 | 704 | 0.2− | 0.5+ | 2005 10 22 | 644 | 0.2+ | 0.1+ | 2007 02 17 | 704 | 0.3+ | 0.4+ | |
| 2002 12 05 | 704 | 1.0+ | 0.2+ | 2005 10 28 | 703 | 0.7− | 0.9− | 2007 02 17 | 704 | 0.1− | 1.1− | |
| 2002 12 05 | 704 | 0.5+ | 0.5− | 2005 10 28 | 703 | 0.1− | 0.4− | 2007 03 13 | 703 | 0.1− | 0.9+ | |
| 2002 12 05 | 704 | 0.5+ | 0.2+ | 2005 10 28 | 703 | 0.4− | 0.3− | 2007 03 13 | 703 | 0.2− | 1.0+ | |
| 2002 12 10 | 704 | 0.3+ | 0.2− | 2005 10 28 | 703 | 0.2− | 0.2− | 2007 03 13 | 703 | 0.3+ | 0.9+ | |
| 2002 12 10 | 704 | 1.2+ | 0.4+ | 2005 10 30 | 683 | (0.8− | 2.9−) | 2007 03 13 | 703 | 0.3+ | 0.9+ | |
| 2002 12 10 | 704 | 0.5− | 0.3− | 2005 10 30 | 683 | (0.9− | 2.3−) | 2007 03 16 | 704 | (1.9+ | 1.6+) | |
| 2002 12 10 | 704 | 0.1+ | 0.3− | 2005 10 30 | 683 | 0.3− | 1.1− | 2007 03 16 | 704 | 0.1+ | 0.7− | |
| 2002 12 31 | 704 | 1.0+ | 0.5− | 2005 10 30 | 704 | 0.4− | 0.5+ | 2007 03 16 | 704 | 1.4+ | 0.2− | |
| 2002 12 31 | 704 | 0.0 | 0.4− | 2005 10 30 | 704 | 0.1− | 0.1+ | 2007 03 16 | 704 | 0.6+ | 0.9− | |
| 2002 12 31 | 704 | 0.0 | 0.9+ | 2005 10 30 | 704 | 0.1+ | 0.1+ | 2007 03 17 | 704 | 1.3− | 1.3− | |
| 2002 12 31 | 704 | 0.4+ | 0.4+ | 2005 10 30 | 704 | 0.6+ | 0.4− | 2007 03 17 | 704 | 0.2− | 0.2− | |
| 2003 01 04 | 704 | 0.1− | 0.5+ | 2005 10 30 | 704 | 0.7+ | 0.2+ | 2007 03 17 | 704 | (2.2− | 0.5+) | |
| 2003 01 04 | 704 | 0.0 | 0.8+ | 2005 11 01 | 644 | 0.0 | 0.1+ | 2007 03 17 | 704 | (3.8+ | 2.4−) | |
| 2003 01 04 | 704 | 0.3− | 0.6+ | 2005 11 01 | 644 | 0.2− | 0.1+ | 2007 03 17 | 704 | 0.4+ | 0.5+ | |
| 2003 01 08 | 704 | 0.5− | 0.9− | 2005 11 01 | 683 | 0.6+ | 0.5− | 2009 11 16 | G96 | 0.0 | 0.1− | |
| 2003 01 08 | 704 | 0.8− | 0.4− | 2005 11 01 | 683 | 0.1− | 0.6− | 2009 11 16 | G96 | 0.0 | 0.1+ | |
| 2003 01 08 | 704 | 0.6− | 0.1− | 2005 11 01 | 683 | 1.1+ | 0.5− | 2009 11 16 | G96 | 0.1− | 0.2− | |
| 2003 01 08 | 704 | (1.5− | 0.7−) | 2005 11 01 | 644 | 0.0 | 0.0 | 2009 11 16 | G96 | 0.1+ | 0.1− | |
| 2005 08 31 | 704 | 0.5+ | 0.2− | 2005 11 01 | 644 | 0.1− | 0.0 | 2009 12 27 | 691 | 0.4− | 0.1+ | |
| 2005 08 31 | 704 | 0.6+ | 0.1− | 2005 11 01 | 644 | 0.1+ | 0.0 | 2009 12 27 | 691 | 0.1− | 0.1+ | |
| 2005 08 31 | 704 | 0.6+ | 1.4+ | 2005 11 01 | 644 | 0.2− | 0.1+ | 2009 12 27 | 691 | 0.2− | 0.1− | |

**(228231)∗ 1998 $QT_{101}$ = 2009 $UF_{21}$**

Discovered 1998 Aug. 26 by E. W. Elst at the European Southern Observatory.

Id. G. V. Williams (*MPO* 165299)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 47.06565 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.27273763 | $\omega$ | 240.97526 | | +0.98240912 | | +0.18216691 |
| $a$ | 2.3549011 | $\Omega$ | 108.50357 | | −0.15270291 | | +0.91028469 |
| $e$ | 0.3022638 | $i$ | 2.48277 | | −0.10749016 | | +0.37174856 |
| $P$ | 3.61 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 08 26 | 809 | 0.3+ | 1.4+ | 2009 10 21 | 703 | 0.1+ | 0.3− | 2009 11 09 | 703 | 0.4− | 0.1+ | | |
| 1998 08 26 | 809 | 0.0 | 1.6+ | 2009 10 21 | 703 | 0.3− | 0.6+ | 2009 11 11 | A13 | 0.3+ | 0.3− | | |
| 1998 08 26 | 809 | 0.7− | 1.3+ | 2009 10 21 | 703 | 0.4− | 0.2− | 2009 11 11 | A13 | 0.3+ | 0.1− | | |
| 1998 08 27 | 809 | 0.2+ | 0.3+ | 2009 10 21 | 703 | 0.6− | 0.1+ | 2009 11 15 | 703 | 0.2− | 0.2+ | | |
| 1998 08 27 | 809 | 0.5+ | 0.2− | 2009 10 21 | 703 | 0.6− | 0.5− | 2009 11 15 | 703 | 0.1− | 0.2− | | |
| 1998 08 27 | 809 | 0.9+ | 0.3− | 2009 10 21 | 703 | 1.2− | 0.4− | 2009 11 15 | 703 | 1.1+ | 1.3+ | | |
| 1998 09 24 | 699 | 0.2+ | 0.3− | 2009 10 23 | A13 | 0.0 | 0.4+ | 2009 11 15 | 703 | 0.4− | 0.0 | | |
| 1998 09 24 | 699 | 0.2+ | 0.9− | 2009 10 23 | A13 | 0.2− | 0.4+ | 2009 11 18 | 704 | 0.0 | 1.4+ | | |
| 1998 09 24 | 699 | 0.0 | 0.9− | 2009 10 24 | 703 | (1.1+ | 4.7+) | 2009 11 18 | 704 | (0.5+ | 1.8+) | | |
| 1998 09 27 | 699 | 0.0 | 0.1− | 2009 10 24 | 703 | 0.0 | 0.6+ | 2009 11 18 | 704 | (2.2+ | 0.7+) | | |
| 1998 09 27 | 699 | 0.8− | 0.9− | 2009 10 24 | 703 | 0.5+ | 0.2+ | 2009 11 18 | 704 | (0.3− | 2.6+) | | |
| 1998 09 27 | 699 | 0.2+ | 0.0 | 2009 10 24 | 703 | 0.1+ | 0.8− | 2009 11 19 | J75 | 0.7− | 0.2− | | |
| 1998 10 12 | 699 | 0.4+ | 0.2+ | 2009 10 24 | 703 | 0.4+ | 0.3+ | 2009 11 19 | J75 | 0.2+ | 0.2− | | |
| 1998 10 12 | 699 | 0.4− | 0.4− | 2009 10 24 | 703 | 0.1+ | 0.1+ | 2009 11 19 | J75 | 0.1+ | 0.1− | | |
| 1998 10 12 | 699 | 1.3− | 0.7− | 2009 10 24 | 703 | 0.3− | 0.1− | 2009 11 20 | 704 | 0.0 | 0.1+ | | |
| 2007 03 09 | G96 | 0.3+ | 0.3− | 2009 10 24 | 703 | 0.5+ | 0.5− | 2009 11 20 | 704 | 0.3− | 0.1+ | | |
| 2007 03 09 | G96 | 0.1+ | 0.2+ | 2009 10 26 | A13 | 0.2− | 0.2+ | 2009 11 20 | 704 | 0.1− | 0.0 | | |
| 2007 03 09 | G96 | 0.0 | 0.2− | 2009 10 26 | A13 | 0.2− | 0.1+ | 2009 11 20 | 704 | 0.5+ | 0.2− | | |
| 2007 03 09 | G96 | 0.4+ | 0.1+ | 2009 10 27 | 704 | 0.3− | 0.3+ | 2009 11 20 | 704 | 0.1− | 0.3− | | |
| 2008 04 11 | G96 | 1.2+ | 0.6+ | 2009 10 27 | 704 | 0.6+ | 0.1+ | 2009 12 05 | A13 | (0.3− | 3.7+) | | |
| 2008 04 11 | G96 | 0.4+ | 0.2+ | 2009 10 27 | 704 | 0.0 | 0.1− | 2009 12 05 | A13 | 0.7− | 0.3+ | | |
| 2008 04 11 | G96 | 0.6+ | 0.3+ | 2009 10 27 | 704 | 0.6+ | 1.3+ | 2009 12 09 | A13 | 0.1+ | 0.1− | | |
| 2008 04 11 | G96 | 0.2+ | 0.3+ | 2009 10 27 | A13 | 0.2− | 0.1− | 2009 12 09 | A13 | 0.7+ | 0.2− | | |
| 2008 04 29 | 691 | 0.1+ | 0.1+ | 2009 10 27 | A13 | 0.3+ | 0.0 | 2009 12 19 | G96 | 0.2+ | 0.3− | | |
| 2008 04 29 | 691 | 0.1− | 0.3+ | 2009 10 27 | A13 | 0.0 | 0.1+ | 2009 12 19 | G96 | 0.3+ | 0.2− | | |
| 2008 04 29 | 691 | 0.3− | 0.4+ | 2009 11 09 | 703 | 0.3+ | 0.5− | 2009 12 19 | G96 | 0.0 | 0.1− | | |
| 2009 10 21 | 703 | 0.5+ | 0.9+ | 2009 11 09 | 703 | 0.4− | 0.2− | 2009 12 19 | G96 | 0.3+ | 0.0 | | |
| 2009 10 21 | 703 | 1.0− | 0.7+ | 2009 11 09 | 703 | 0.1− | 0.1+ | | | | | | |

**(228232)∗ 1998 RX$_{10}$**

Discovered 1998 Sept. 13 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 104.51535 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19148304 | $\omega$ | 299.24803 | | +0.71968648 | +0.69424472 | |
| $a$ | 2.9811409 | $\Omega$ | 16.79000 | | −0.62610211 | +0.65435854 | |
| $e$ | 0.0688772 | $i$ | 1.72523 | | −0.30007918 | +0.29973182 | |
| $P$ | 5.15 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 03 11 | 691 | 0.5+ | 0.8+ | 2006 01 27 | G96 | 0.1− | 0.0 | 2009 11 08 | 691 | 0.3− | 0.9− | | |
| 1996 03 11 | 691 | 0.9+ | 0.3+ | 2006 01 27 | G96 | 0.0 | 0.0 | 2009 11 08 | 691 | 0.5− | 0.4+ | | |
| 1996 03 11 | 691 | 0.5+ | 0.5+ | 2007 04 15 | 691 | 0.1− | 0.2− | 2009 11 08 | 691 | 0.2− | 0.1− | | |
| 1998 09 13 | 691 | 0.5− | 0.6+ | 2007 04 15 | 691 | 0.0 | 0.0 | 2009 11 20 | 691 | 0.3− | 0.1− | | |
| 1998 09 13 | 691 | 0.8− | 0.0 | 2007 04 15 | 691 | 0.2+ | 0.0 | 2009 11 20 | 691 | 0.3− | 0.0 | | |
| 1998 09 13 | 691 | 0.6− | 0.6+ | 2007 04 23 | 691 | 0.3− | 0.6+ | 2009 11 20 | 691 | 0.1+ | 0.0 | | |
| 1998 09 19 | 691 | 0.7− | 0.4+ | 2007 04 23 | 691 | 0.7− | 0.2− | 2009 11 24 | 691 | 0.1+ | 0.1− | | |
| 1998 09 19 | 691 | 0.3− | 0.2+ | 2007 04 23 | 691 | 0.4− | 0.3+ | 2009 11 24 | 691 | 0.2− | 0.1+ | | |
| 1998 09 19 | 691 | 0.4− | 0.1+ | 2007 05 11 | G96 | 0.5+ | 0.2+ | 2009 11 24 | 691 | 0.7− | 0.5− | | |
| 2002 05 18 | 644 | 0.3− | 0.2+ | 2007 05 11 | G96 | 0.2− | 0.2+ | 2009 12 17 | G96 | 0.1+ | 0.0 | | |
| 2002 05 18 | 644 | 0.3− | 0.5+ | 2007 05 11 | G96 | 0.0 | 0.3+ | 2009 12 17 | G96 | 0.7+ | 0.2+ | | |
| 2002 05 18 | 644 | 0.3− | 0.3+ | 2007 05 11 | G96 | 0.3− | 0.2+ | 2009 12 17 | G96 | 0.4+ | 0.2+ | | |
| 2003 09 04 | 691 | 0.6+ | 0.2+ | 2008 09 24 | G96 | 1.3+ | 0.5− | 2009 12 19 | 691 | 0.1+ | 0.2− | | |
| 2003 09 04 | 691 | 0.5+ | 0.2+ | 2008 09 24 | G96 | 1.1+ | 0.3− | 2009 12 19 | 691 | 0.2+ | 0.6+ | | |
| 2003 09 04 | 691 | 0.5+ | 0.2+ | 2008 09 24 | G96 | 1.0+ | 0.2− | 2009 12 19 | 691 | 0.2− | 0.0 | | |
| 2004 12 10 | 691 | 0.0 | 0.2+ | 2008 09 24 | G96 | 1.4+ | 0.1− | 2009 12 19 | G96 | 0.2+ | 0.4− | | |
| 2004 12 10 | 691 | 0.1− | 0.1+ | 2009 09 21 | G96 | 0.8+ | 0.3− | 2009 12 19 | G96 | 0.0 | 0.2+ | | |
| 2004 12 10 | 691 | 1.1+ | 0.3+ | 2009 09 21 | G96 | 0.3+ | 0.1− | 2009 12 19 | G96 | 0.8+ | 0.2− | | |
| 2006 01 27 | G96 | 0.4+ | 0.0 | 2009 09 21 | G96 | 0.6+ | 0.1− | 2009 12 19 | G96 | 0.6+ | 0.2+ | | |
| 2006 01 27 | G96 | 0.5+ | 0.3− | 2009 09 21 | G96 | 0.1− | 0.0 | | | | | | |

**(228233)∗ 1998 RG$_{13}$ = 2006 DA$_{36}$**

Discovered 1998 Sept. 14 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 93726)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 2.29800 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19199250 | $\omega$ | 45.44081 | | +0.13202190 | −0.99116702 | |
| $a$ | 2.9758649 | $\Omega$ | 36.97816 | | +0.90342290 | +0.11509430 | |
| $e$ | 0.0337498 | $i$ | 1.19796 | | +0.40791823 | +0.06588802 | |
| $P$ | 5.13 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 09 14 | 691 | 0.3− | 0.2+ | 2004 12 20 | 691 | 0.4+ | 0.0 | 2006 03 24 | 691 | 0.1− | 0.7+ | | |
| 1998 09 14 | 691 | 0.4− | 0.1− | 2004 12 20 | 691 | 0.4+ | 0.3− | 2006 03 24 | G96 | 0.5− | 0.1− | | |
| 1998 09 14 | 691 | 0.7− | 0.0 | 2004 12 20 | 691 | 0.1+ | 0.0 | 2006 03 24 | G96 | 0.1− | 0.3+ | | |
| 1998 09 19 | 691 | 0.7− | 0.4+ | 2006 02 20 | 691 | 0.1+ | 0.5− | 2006 03 24 | G96 | 0.3− | 0.2+ | | |
| 1998 09 19 | 691 | 0.3+ | 0.2+ | 2006 02 20 | 691 | 0.1+ | 0.3+ | 2006 03 24 | G96 | 0.0 | 0.3+ | | |
| 1998 09 19 | 691 | 0.2− | 0.2+ | 2006 02 20 | 691 | 0.2+ | 0.1− | 2006 04 07 | G96 | 0.5− | 0.4− | | |
| 1998 09 26 | 691 | 0.6− | 0.2+ | 2006 02 24 | 691 | 0.3+ | 0.3+ | 2006 04 07 | G96 | 0.6− | 0.1+ | | |
| 1998 09 26 | 691 | 0.4− | 0.2− | 2006 02 24 | 691 | 0.0 | 0.1+ | 2006 04 07 | G96 | 0.6− | 0.1+ | | |
| 1998 09 26 | 691 | 0.3− | 0.2− | 2006 02 24 | 691 | 0.1− | 0.2+ | 2006 04 07 | G96 | 0.0 | 0.2− | | |
| 2000 01 05 | 691 | 0.3+ | 0.1− | 2006 03 02 | 691 | 0.0 | 0.0 | 2008 11 24 | G96 | 0.0 | 0.2+ | | |
| 2000 01 05 | 691 | 0.3+ | 0.0 | 2006 03 02 | 691 | 0.3+ | 0.1− | 2008 11 24 | G96 | 1.1− | 0.1+ | | |
| 2000 01 05 | 691 | 0.4+ | 0.2− | 2006 03 02 | 691 | 0.4− | 0.7+ | 2008 11 24 | G96 | 0.1− | 0.3+ | | |
| 2003 09 18 | 691 | 0.3+ | 0.3+ | 2006 03 03 | G96 | 0.2− | 0.4+ | 2008 11 24 | G96 | 0.2− | 0.9+ | | |
| 2003 09 18 | 691 | 0.1+ | 0.5+ | 2006 03 03 | G96 | 0.4− | 0.4+ | 2009 11 09 | 691 | 0.2− | 0.0 | | |
| 2003 09 18 | 691 | 0.2+ | 0.1+ | 2006 03 03 | G96 | 0.1− | 0.3+ | 2009 11 09 | 691 | 0.4− | 0.0 | | |
| 2003 09 26 | 645 | 0.1+ | 0.0 | 2006 03 03 | G96 | 0.3− | 0.3+ | 2009 11 09 | 691 | 0.5− | 0.2+ | | |
| 2003 09 26 | 645 | 0.0 | 0.0 | 2006 03 06 | 691 | 0.2+ | 0.0 | 2009 12 10 | G96 | 0.4− | 0.2− | | |
| 2003 09 28 | 645 | 0.0 | 0.0 | 2006 03 06 | 691 | 0.4+ | 0.2− | 2009 12 10 | G96 | 0.1− | 0.2− | | |
| 2003 09 28 | 645 | 0.1+ | 0.1+ | 2006 03 06 | 691 | 0.1+ | 0.1− | 2009 12 10 | G96 | 0.5− | 0.1+ | | |
| 2003 09 29 | 645 | 0.1+ | 0.1+ | 2006 03 24 | 691 | 0.1− | 0.7+ | 2009 12 10 | G96 | 0.3− | 0.1− | | |
| 2003 09 29 | 645 | 0.1+ | 0.1− | 2006 03 24 | 691 | 0.4+ | 0.4+ | | | | | | |

**(228234)∗ 1998 SC$_{7}$**

Discovered 1998 Sept. 20 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 85.49208 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28255259 | $\omega$ | 145.47454 | | +0.99463377 | +0.10325748 | |
| $a$ | 2.3000460 | $\Omega$ | 208.60074 | | −0.09769844 | +0.91693389 | |
| $e$ | 0.1902868 | $i$ | 0.77153 | | −0.03403927 | +0.38544798 | |
| $P$ | 3.49 | $H$ | 17.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1991 09 09 | 691 | 0.6+ | 0.3+ | 2005 08 29 | 699 | 0.0 | 0.6− | 2005 10 01 | 703 | 0.0 | 0.1− | | |
| 1991 09 09 | 691 | 0.7+ | 0.1+ | 2005 08 29 | 699 | 1.1+ | 0.1− | 2005 10 02 | 704 | 0.6+ | 0.6+ | | |
| 1991 09 09 | 691 | 0.4+ | 0.2+ | 2005 08 31 | 691 | 0.1+ | 0.1+ | 2005 10 02 | 704 | 0.6− | 0.8+ | | |
| 1998 08 26 | 691 | 0.4+ | 0.0 | 2005 08 31 | 691 | 0.1+ | 0.1+ | 2005 10 02 | 704 | 0.4+ | 0.1+ | | |
| 1998 08 26 | 691 | 0.1− | 0.3− | 2005 08 31 | 691 | 0.1+ | 0.1− | 2005 10 07 | 704 | 0.4− | 1.2− | | |
| 1998 08 26 | 691 | 0.3+ | 0.4− | 2005 09 08 | 704 | 0.1+ | 1.0+ | 2005 10 07 | 704 | 0.5+ | 0.7+ | | |
| 1998 09 15 | 691 | 0.2− | 0.0 | 2005 09 08 | 704 | 0.4+ | 0.9+ | 2005 10 07 | 704 | 0.2+ | 0.2− | | |
| 1998 09 15 | 691 | 0.3− | 0.1− | 2005 09 08 | 704 | 0.4+ | 1.4+ | 2005 10 07 | 704 | 0.6− | 0.0 | | |
| 1998 09 15 | 691 | 0.3− | 0.2− | 2005 09 13 | 705 | 0.4+ | 0.4− | 2007 01 28 | 691 | 0.1− | 0.2+ | | |
| 1998 09 20 | 691 | 0.2− | 0.4+ | 2005 09 13 | 705 | 0.4+ | 0.5− | 2007 01 28 | 691 | 0.0 | 0.2+ | | |
| 1998 09 20 | 691 | 0.5− | 0.2+ | 2005 09 14 | 691 | 0.2+ | 0.2− | 2007 01 28 | 691 | 0.3+ | 0.4+ | | |
| 1998 09 21 | 691 | 0.9− | 0.5+ | 2005 09 14 | 691 | 0.3+ | 0.1− | 2007 02 22 | 691 | 0.5+ | 0.4+ | | |
| 1998 09 21 | 691 | 0.5− | 0.2+ | 2005 09 14 | 691 | 0.2+ | 0.0 | 2007 02 22 | 691 | 0.0 | 0.2+ | | |
| 1998 09 21 | 691 | 0.8− | 0.3+ | 2005 09 22 | 644 | 0.2+ | 0.1− | 2007 02 22 | 691 | 0.3− | 0.1+ | | |
| 1998 09 26 | 691 | 0.4− | 0.3+ | 2005 09 22 | 644 | 0.3+ | 0.2− | 2007 03 20 | G96 | 0.5+ | 0.1+ | | |
| 1998 09 26 | 691 | 0.1− | 0.2− | 2005 09 22 | 644 | 0.1+ | 0.2− | 2007 03 20 | G96 | 0.2+ | 0.1− | | |
| 1998 09 26 | 691 | 0.2− | 0.3− | 2005 09 29 | 699 | 0.3− | 0.3− | 2007 03 20 | G96 | 0.0 | 0.3+ | | |
| 2005 08 25 | 644 | 0.1+ | 0.0 | 2005 09 29 | 699 | 1.4+ | 0.1− | 2007 03 20 | G96 | 0.1− | 0.2+ | | |
| 2005 08 25 | 644 | 0.2− | 0.1− | 2005 09 29 | 699 | 1.1+ | 0.7− | 2009 12 16 | G96 | 0.1− | 0.4− | | |
| 2005 08 25 | 644 | 0.1− | 0.0 | 2005 09 29 | 699 | 0.5+ | 0.5+ | 2009 12 16 | G96 | 0.2+ | 0.3− | | |
| 2005 08 29 | 704 | 0.1− | 1.0− | 2005 09 29 | G96 | 0.3+ | 0.4− | 2009 12 16 | G96 | 0.0 | 0.5− | | |
| 2005 08 29 | 704 | 0.8− | 1.1+ | 2005 09 29 | G96 | 0.3− | 0.4− | 2009 12 16 | G96 | 0.2− | 0.3− | | |
| 2005 08 29 | 704 | 0.8− | 0.5− | 2005 09 29 | G96 | 0.2− | 0.4− | 2009 12 16 | G96 | 0.1+ | 0.8− | | |
| 2005 08 29 | 704 | 0.3− | 0.8+ | 2005 09 29 | G96 | 0.2− | 0.5− | 2009 12 25 | 691 | 0.2+ | 0.3− | | |
| 2005 08 29 | 704 | 0.6+ | 1.0+ | 2005 10 01 | 703 | 0.2+ | 0.1− | 2009 12 25 | 691 | 0.1+ | 0.0 | | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 08 29 | 699 | 0.3+ | 0.2+ | 2005 10 01 | 703 | 0.2− | 0.0 | 2009 12 25 | 691 | 0.2− | 0.2+ |
| 2005 08 29 | 699 | 1.4− | 1.2− | 2005 10 01 | 703 | 0.4+ | 0.5+ | | | | |

**(228235)∗ 1998 $SS_{69}$ = 2002 $YQ_{14}$**

Discovered 1998 Sept. 19 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 39954)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 40.38433 | | $\omega$ | 121.77372 | +0.52298373 | −0.84500695 |
| $n$ | 0.28208434 | | $\Omega$ | 296.29443 | +0.73387082 | +0.51299940 |
| $a$ | 2.3025906 | | $i$ | 7.14978 | +0.43349929 | +0.15097970 |
| $e$ | 0.1728186 | | | | | |
| $P$ | 3.49 | | $H$ | 16.6 | $G$ 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 09 18 | 699 | 1.0+ | 0.0 | 2003 01 30 | 699 | 0.3− | 0.9+ | 2005 10 03 | 683 | 0.1− | 1.5− |
| 1998 09 18 | 699 | 0.1− | 1.4+ | 2003 01 30 | 699 | 0.3+ | 0.4+ | 2005 10 03 | 683 | 0.7+ | 0.4− |
| 1998 09 18 | 699 | 0.5+ | 0.0 | 2003 01 30 | 699 | 0.6+ | 0.5+ | 2005 10 05 | 683 | 0.3+ | 0.4− |
| 1998 09 19 | 704 | 0.2+ | 1.7+ | 2003 02 03 | 704 | 0.2− | 0.7+ | 2005 10 05 | 683 | 0.2+ | 1.2+ |
| 1998 09 19 | 704 | (2.7− | 0.5−) | 2003 02 03 | 704 | 0.4+ | 0.4+ | 2005 10 05 | 683 | (1.8− | 1.3+) |
| 1998 09 19 | 704 | 1.2− | 0.0 | 2003 02 03 | 704 | 0.1+ | 1.2+ | 2005 10 07 | 683 | 0.3− | 0.7+ |
| 1998 09 23 | 704 | 1.7− | 1.0+ | 2003 02 03 | 704 | 0.7+ | 0.6+ | 2005 10 07 | 703 | 0.9− | 0.4− |
| 1998 09 23 | 704 | 0.9+ | 0.7+ | 2005 08 30 | 644 | 0.1+ | 0.0 | 2005 10 07 | 683 | 0.5+ | 1.0+ |
| 1998 09 23 | 704 | 0.9+ | 0.5− | 2005 08 30 | 644 | 0.0 | 0.2+ | 2005 10 07 | 703 | 0.8− | 0.5− |
| 2002 12 11 | 704 | 0.3+ | 0.2− | 2005 08 30 | 644 | 0.3+ | 0.1+ | 2005 10 07 | 703 | 0.6− | 0.6− |
| 2002 12 11 | 704 | 0.7+ | 0.3− | 2005 09 10 | 699 | 0.0 | 0.1− | 2005 10 07 | 683 | 1.2− | 0.7+ |
| 2002 12 11 | 704 | 0.0 | 0.1+ | 2005 09 10 | 699 | 0.7+ | 0.6− | 2005 10 07 | 703 | 1.1− | 0.4− |
| 2002 12 11 | 704 | 0.7− | 0.5+ | 2005 09 10 | 699 | 0.5+ | 0.0 | 2005 10 08 | 224 | 0.9− | 0.1− |
| 2002 12 27 | 699 | 0.9− | 1.4− | 2005 09 12 | 704 | 0.3+ | 0.4+ | 2005 10 08 | 224 | 1.3− | 0.6− |
| 2002 12 27 | 699 | 0.6+ | 1.0+ | 2005 09 12 | 704 | 0.2+ | 0.7+ | 2005 10 08 | 224 | 1.4− | 0.0 |
| 2002 12 27 | 699 | 1.1+ | 1.0− | 2005 09 12 | 704 | 0.9− | 0.6+ | 2005 10 22 | 644 | 0.1+ | 0.1+ |
| 2002 12 27 | 699 | 0.7− | 0.6+ | 2005 09 12 | 704 | 0.0 | 0.5+ | 2005 10 22 | 644 | 0.2+ | 0.4+ |
| 2002 12 31 | 704 | 0.2+ | 0.0 | 2005 09 12 | 704 | 0.4+ | 0.5+ | 2005 10 22 | 644 | 0.3+ | 0.1+ |
| 2002 12 31 | 704 | 0.1− | 0.2− | 2005 09 12 | 704 | 0.2+ | 0.9+ | 2005 10 28 | 703 | 0.9− | 0.7+ |
| 2002 12 31 | 704 | 0.4− | 0.2− | 2005 09 12 | 704 | 0.5+ | 0.1+ | 2005 10 28 | 703 | 0.3+ | 0.3− |
| 2002 12 31 | 704 | 0.3− | 0.7− | 2005 09 12 | 704 | 0.4+ | 0.3+ | 2005 10 28 | 703 | 0.5+ | 0.5− |
| 2003 01 03 | 291 | 0.3+ | 0.3+ | 2005 09 12 | 704 | 0.7+ | 0.6+ | 2005 10 28 | 703 | 0.1+ | 0.0 |
| 2003 01 03 | 291 | 0.1− | 0.3+ | 2005 09 30 | 683 | (1.5+ | 0.6−) | 2005 10 30 | 699 | (0.9− | 1.6+) |
| 2003 01 03 | 291 | 0.1+ | 0.1+ | 2005 09 30 | 683 | (1.6+ | 1.2−) | 2005 10 30 | 699 | (0.7− | 1.5+) |
| 2003 01 04 | 704 | 0.4+ | 0.5+ | 2005 09 30 | 683 | 0.4+ | 1.1− | 2005 10 30 | 699 | 0.6− | 0.9− |
| 2003 01 04 | 704 | 0.1+ | 0.1+ | 2005 09 30 | 106 | 0.7+ | 0.9− | 2005 10 30 | 699 | 0.4− | 0.3− |
| 2003 01 04 | 704 | 0.3+ | 1.1+ | 2005 09 30 | 106 | 0.5− | 0.9− | 2009 11 21 | G96 | 0.4+ | 0.3− |
| 2003 01 04 | 704 | 0.5− | 0.8+ | 2005 09 30 | 106 | 0.1+ | 0.5+ | 2009 11 21 | G96 | 0.4+ | 0.1− |
| 2003 01 05 | 699 | 0.1− | 0.1+ | 2005 10 01 | 703 | 0.2+ | 0.6− | 2009 11 21 | G96 | 0.1+ | 0.2− |
| 2003 01 05 | 699 | 1.4+ | 0.8+ | 2005 10 01 | 703 | 0.7+ | 0.2− | 2009 11 21 | G96 | 0.2+ | 0.2− |
| 2003 01 05 | 699 | 0.3− | 0.4+ | 2005 10 01 | 683 | 0.9+ | 0.4− | 2009 12 17 | G96 | 0.3+ | 0.5− |
| 2003 01 05 | 699 | 0.0 | 0.4+ | 2005 10 01 | 703 | 0.3− | 0.3− | 2009 12 17 | G96 | 0.0 | 0.3− |
| 2003 01 08 | 704 | 0.7− | 0.2+ | 2005 10 01 | 703 | 0.1+ | 0.3+ | 2009 12 17 | G96 | 0.4+ | 0.2− |
| 2003 01 08 | 704 | (0.8+ | 2.2+) | 2005 10 01 | 683 | 0.4+ | 1.2− | 2009 12 17 | G96 | 0.7+ | 0.4− |
| 2003 01 08 | 704 | 1.3− | 0.5+ | 2005 10 01 | 683 | 0.8− | 0.4− | 2009 12 18 | 691 | 0.0 | 0.3− |
| 2003 01 08 | 704 | 1.1− | 0.8+ | 2005 10 02 | 699 | 0.6+ | 0.0 | 2009 12 18 | 691 | 0.0 | 0.3− |
| 2003 01 08 | 704 | 1.0− | 1.0+ | 2005 10 02 | 699 | 0.1+ | 0.7+ | 2009 12 18 | 691 | 0.0 | 0.2− |
| 2003 01 25 | 645 | 0.0 | 0.1− | 2005 10 02 | 699 | 0.2+ | 0.3− | 2009 12 25 | 691 | 0.1− | 0.2− |
| 2003 01 25 | 645 | 0.1+ | 0.2− | 2005 10 02 | 699 | (1.6− | 0.9+) | 2009 12 25 | 691 | 0.5− | 0.2− |
| 2003 01 30 | 699 | 0.3− | 0.6+ | 2005 10 03 | 683 | 0.0 | 0.9− | 2009 12 25 | 691 | 0.0 | 0.1− |

**(228236)∗ 1998 $SO_{119}$ = 2003 $RP_{20}$**

Discovered 1998 Sept. 26 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 52444)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 68.70641 | | $\omega$ | 309.27696 | +0.94199962 | −0.33296166 |
| $n$ | 0.19228400 | | $\Omega$ | 70.20794 | +0.32005532 | +0.85347036 |
| $a$ | 2.9728565 | | $i$ | 2.56505 | +0.10100154 | +0.40090507 |
| $e$ | 0.2208549 | | | | | |
| $P$ | 5.13 | | $H$ | 15.6 | $G$ 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 09 26 | 704 | 0.8+ | 0.6− | 2003 09 18 | 704 | 0.6− | 0.3+ | 2008 08 23 | 704 | 0.9+ | 0.8+ |
| 1998 09 26 | 704 | 0.9+ | 1.3− | 2003 09 18 | 704 | 0.0 | 0.9+ | 2008 08 23 | 704 | 0.2+ | 0.2− |
| 1998 09 26 | 704 | 1.1− | 1.9− | 2003 09 20 | 599 | 0.0 | 0.1+ | 2008 08 23 | 704 | 0.1− | 0.2+ |
| 1998 09 26 | 704 | 0.4+ | 0.9− | 2003 09 20 | 599 | 0.0 | 0.5+ | 2008 08 23 | J75 | 0.3− | 0.0 |
| 1998 09 26 | 704 | 0.5+ | 0.6+ | 2003 09 20 | 599 | 0.2+ | 0.3+ | 2008 08 23 | J75 | 0.4+ | 0.4− |
| 1998 09 27 | 704 | 0.8− | 0.4+ | 2003 09 28 | 704 | 0.6+ | 0.2+ | 2008 08 24 | J75 | 0.2+ | 0.3+ |
| 1998 09 27 | 704 | 0.0 | 0.1− | 2003 09 28 | 704 | 0.2+ | 0.2+ | 2008 08 24 | J75 | 0.4+ | 0.2− |
| 1998 09 27 | 704 | 1.1− | 0.6+ | 2003 09 28 | 704 | 0.2+ | 0.2+ | 2008 08 25 | J75 | 0.6+ | 0.5− |
| 1998 09 27 | 704 | 1.7− | 1.7− | 2003 09 28 | 704 | 0.3+ | 0.3− | 2008 08 25 | J75 | 0.2+ | 0.6− |
| 1998 10 10 | 699 | 0.3+ | 1.5+ | 2003 09 28 | 704 | 0.1− | 0.5+ | 2008 09 03 | J75 | 0.1+ | 0.5− |
| 1998 10 10 | 699 | 0.2+ | 1.4+ | 2003 10 03 | 608 | 0.2+ | 1.0− | 2008 09 03 | J75 | 0.2+ | 0.3− |
| 1998 10 10 | 699 | 0.6+ | 1.6+ | 2003 10 03 | 608 | 0.0 | 1.1− | 2008 09 03 | J75 | 0.2+ | 0.2− |
| 1998 10 14 | 327 | 0.8+ | 0.3− | 2003 10 03 | 608 | 0.6− | 0.9− | 2008 09 06 | J75 | 0.5− | 0.6− |
| 1998 10 14 | 327 | 0.8+ | 0.6− | 2003 10 15 | 699 | 0.2+ | 0.1+ | 2008 09 06 | J75 | 0.3+ | 0.4− |
| 1998 10 14 | 327 | 0.7+ | 0.9− | 2003 10 15 | 699 | 0.1+ | 0.0 | 2008 09 06 | J75 | 0.4+ | 0.3+ |
| 2003 08 23 | 704 | 0.8− | 0.2− | 2003 10 15 | 699 | 0.6+ | 0.5+ | 2008 09 06 | 703 | 1.1− | 0.3− |
| 2003 08 23 | 704 | 0.6− | 0.3+ | 2003 10 15 | 699 | 1.1+ | 0.2+ | 2008 09 06 | 703 | 1.1− | 0.1+ |
| 2003 08 23 | 704 | 0.9− | 0.3+ | 2003 10 16 | 644 | 0.2+ | 0.1+ | 2008 09 06 | 703 | 0.3+ | 0.6+ |
| 2003 08 23 | 704 | (1.7− | 0.3+) | 2003 10 16 | 644 | 0.1+ | 0.0 | 2008 09 06 | 703 | 0.7+ | 0.5+ |
| 2003 08 26 | 704 | 1.0− | 0.0 | 2003 10 16 | 644 | 0.1+ | 0.2+ | 2008 09 22 | 691 | 0.1− | 0.0 |
| 2003 08 26 | 704 | 0.1− | 0.1− | 2003 10 24 | 704 | 0.0 | 0.2+ | 2008 09 22 | 691 | 0.0 | 0.1− |
| 2003 08 26 | 704 | 0.1− | 1.0− | 2003 10 24 | 704 | 0.7+ | 0.8− | 2008 09 22 | 691 | 0.1+ | 0.0 |
| 2003 08 26 | 704 | 0.1− | 0.5− | 2003 10 24 | 704 | 0.4− | 0.2+ | 2009 11 11 | G96 | 0.1− | 0.4− |
| 2003 08 26 | 704 | 0.8+ | 0.3− | 2003 10 24 | 704 | 0.5− | 0.6+ | 2009 11 11 | G96 | 0.4+ | 0.1− |
| 2003 09 02 | 704 | 0.7+ | 1.3+ | 2003 10 24 | 704 | 0.7+ | 0.3+ | 2009 11 11 | G96 | 0.8+ | 0.1+ |
| 2003 09 02 | 704 | 0.3+ | 0.8+ | 2005 01 15 | 691 | 0.1− | 0.3+ | 2009 11 11 | G96 | 0.1+ | 0.0 |
| 2003 09 02 | 704 | 0.9− | 0.2+ | 2005 01 15 | 691 | 0.0 | 0.3+ | 2009 12 15 | G96 | 0.1+ | 0.1− |
| 2003 09 02 | 704 | 0.5− | 0.1+ | 2005 01 15 | 691 | 0.4− | 0.3+ | 2009 12 15 | G96 | 0.1+ | 0.0 |
| 2003 09 02 | 704 | 1.0− | 0.2+ | 2005 01 19 | 691 | 0.1+ | 0.2+ | 2009 12 15 | G96 | 0.1+ | 0.1− |
| 2003 09 15 | 699 | 0.9− | 0.3+ | 2005 01 19 | 691 | 0.4+ | 0.4− | 2009 12 15 | G96 | 0.3+ | 0.1+ |
| 2003 09 15 | 699 | (0.3− | 1.8+) | 2005 01 19 | 691 | 0.2+ | 0.2− | 2009 12 18 | 691 | (0.9+ | 2.7+) |
| 2003 09 15 | 699 | 0.1+ | 0.6− | 2008 07 30 | 691 | 0.3− | 0.2+ | 2009 12 18 | 691 | 0.2+ | 0.0 |
| 2003 09 15 | 699 | 0.5+ | 0.7− | 2008 07 30 | 691 | 0.1− | 0.3+ | 2009 12 18 | 691 | 0.3− | 0.2+ |
| 2003 09 18 | 704 | 0.2− | 0.5+ | 2008 07 30 | 691 | 0.1− | 0.1+ | 2009 12 26 | 691 | 0.4− | 0.1+ |
| 2003 09 18 | 704 | 0.0 | 0.2+ | 2008 08 23 | 704 | 0.3− | 0.3+ | 2009 12 26 | 691 | 0.1− | 0.1+ |
| 2003 09 18 | 704 | 0.5− | 0.5− | 2008 08 23 | 704 | 0.0 | 0.8+ | 2009 12 26 | 691 | 0.1+ | 0.0 |

**(228237)∗ 1998 $SB_{167}$ = 2005 $SE_{11}$**

Discovered 1998 Sept. 25 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Id. A. Doppler (*MPO* 84475)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 102.85504 | | $\omega$ | 327.83979 | +0.95163438 | +0.30273926 |
| $n$ | 0.28274985 | | $\Omega$ | 14.81351 | −0.22018940 | +0.79088753 |
| $a$ | 2.2989761 | | $i$ | 11.81597 | −0.21426300 | +0.53183255 |
| $e$ | 0.1459993 | | | | | |
| $P$ | 3.49 | | $H$ | 16.7 | $G$ 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1991 10 02 | 691 | 0.0 | 0.1− | 2005 09 09 | 704 | 0.2− | 0.5+ | 2005 10 06 | 703 | 0.4− | 0.2− |
| 1991 10 02 | 691 | 0.4+ | 0.2− | 2005 09 09 | 704 | 0.5+ | 0.3− | 2005 10 07 | 704 | 0.3+ | 1.0+ |
| 1991 10 02 | 691 | 0.1+ | 0.1+ | 2005 09 09 | 704 | 0.2+ | 1.5− | 2005 10 07 | 704 | 0.0 | 0.2+ |
| 1991 10 05 | 260 | (2.9− | 1.8+) | 2005 09 15 | 703 | 0.7− | 0.2− | 2005 10 07 | 704 | 0.5− | 0.3+ |
| 1991 10 05 | 260 | (2.3+ | 0.1+) | 2005 09 15 | 703 | 0.6+ | 0.2+ | 2005 10 07 | 704 | 1.0− | 1.5+ |
| 1998 09 25 | 699 | 1.2+ | 0.6+ | 2005 09 15 | 703 | 0.4− | 0.4− | 2005 10 21 | 644 | 0.0 | 0.4− |
| 1998 09 25 | 699 | 1.4+ | 1.3− | 2005 09 15 | 703 | (0.4− | 1.5+) | 2005 10 21 | 644 | 0.0 | 0.1+ |
| 1998 09 25 | 699 | 0.3+ | 0.2− | 2005 09 23 | 691 | 0.2+ | 0.3+ | 2005 10 21 | 644 | 0.0 | 0.1+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 09 30 | 691 | 0.7− | 0.1− | 2005 09 23 | 691 | 0.1+ | 0.1+ | 2005 10 27 | 703 | 0.2+ | 1.0+ |
| 1998 09 30 | 691 | 0.7− | 0.2− | 2005 09 23 | 691 | 0.1+ | 0.2+ | 2005 10 27 | 703 | 0.5+ | 0.8− |
| 1998 09 30 | 691 | 0.5− | 0.3− | 2005 09 27 | 691 | 0.1+ | 0.1+ | 2005 10 27 | 703 | 0.3− | 0.2+ |
| 1998 10 14 | 699 | 0.1− | 0.7+ | 2005 09 27 | 691 | 0.1+ | 0.1+ | 2005 10 27 | 703 | 0.4− | 0.1− |
| 1998 10 14 | 699 | 1.6+ | 1.0+ | 2005 09 27 | 691 | 0.1+ | 0.1+ | 2005 11 04 | 704 | 0.3− | 0.2− |
| 1998 10 14 | 699 | 0.5+ | 0.2+ | 2005 09 29 | G96 | 0.1+ | 0.1− | 2005 11 04 | 704 | 0.9+ | 0.7+ |
| 2002 12 12 | 644 | 0.4+ | 0.3+ | 2005 09 29 | G96 | 0.2+ | 0.2− | 2005 11 04 | 704 | 0.7+ | 0.2− |
| 2002 12 12 | 644 | 0.3+ | 0.4+ | 2005 09 29 | G96 | 0.1+ | 0.1− | 2005 11 04 | 704 | 0.9+ | 0.3− |
| 2002 12 12 | 644 | 0.3+ | 0.4+ | 2005 09 29 | 699 | 0.4+ | 1.3− | 2005 11 05 | 691 | 0.1− | 0.3+ |
| 2004 04 20 | 691 | 0.2+ | 0.5+ | 2005 09 29 | 699 | 0.3− | 0.3+ | 2005 11 05 | 691 | 0.5− | 0.3− |
| 2004 04 20 | 691 | 0.0 | 0.4+ | 2005 09 29 | 699 | 0.2− | 0.4− | 2005 11 05 | 691 | 0.0 | 0.2+ |
| 2004 04 20 | 691 | 0.2− | 0.3+ | 2005 09 29 | 699 | 0.9− | 0.3− | 2009 09 24 | G96 | 0.7+ | 0.3− |
| 2004 04 20 | 704 | 0.9+ | 0.1+ | 2005 09 30 | 691 | 0.0 | 0.0 | 2009 09 24 | G96 | 0.0 | 0.2− |
| 2004 04 20 | 704 | 0.5− | 0.3+ | 2005 09 30 | 691 | 0.2+ | 0.1+ | 2009 09 24 | G96 | 0.6− | 0.7+ |
| 2004 04 20 | 704 | 1.2+ | 0.2+ | 2005 09 30 | 691 | 0.1+ | 0.3+ | 2009 12 20 | 703 | 0.1+ | 1.0− |
| 2004 04 20 | 704 | 1.4+ | 0.9− | 2005 10 06 | 703 | 0.2− | 0.2− | 2009 12 20 | 703 | 0.8− | 0.6+ |
| 2005 09 09 | 704 | 1.1− | 0.6+ | 2005 10 06 | 703 | 1.0− | 0.1− | 2009 12 20 | 703 | 0.5− | 0.6− |
| 2005 09 09 | 704 | 0.2− | 0.1+ | 2005 10 06 | 703 | 0.8− | 0.1+ | 2009 12 20 | 703 | 0.2− | 0.2+ |

**(228238)∗ 1998 SB$_{170}$**

Discovered 1998 Sept. 19 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 85.38013 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28306061 | $\omega$ | 70.86551 | | +0.98846962 | −0.11199618 | |
| $a$ | 2.2972932 | $\Omega$ | 295.45586 | | +0.05622538 | +0.89636216 | |
| $e$ | 0.1343611 | $i$ | 6.48034 | | +0.14059345 | +0.42894258 | |
| $P$ | 3.48 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 09 19 | 699 | 0.8− | 0.1+ | 2005 09 25 | 644 | 0.1+ | 0.2− | 2005 10 29 | 644 | 0.1+ | 0.1+ |
| 1998 09 19 | 699 | 0.2+ | 0.5+ | 2005 09 25 | 644 | 0.2+ | 0.3− | 2005 10 29 | 644 | 0.2+ | 0.1− |
| 1998 09 19 | 699 | 0.4− | 0.6+ | 2005 09 26 | 644 | 0.1− | 0.1− | 2005 10 29 | 644 | 0.2+ | 0.2+ |
| 1998 09 25 | 699 | 0.3+ | 0.1− | 2005 09 26 | 644 | 0.1+ | 0.0 | 2005 11 01 | 699 | 0.3− | 0.8+ |
| 1998 09 25 | 699 | 0.1− | 0.2− | 2005 09 26 | 644 | 0.1− | 0.1− | 2005 11 01 | 699 | 0.3+ | 0.2− |
| 1998 09 25 | 699 | 0.0 | 1.2− | 2005 09 27 | 644 | 0.1− | 0.3− | 2005 11 01 | 699 | 0.2+ | 0.8+ |
| 1998 10 18 | 699 | 0.1− | 0.9+ | 2005 09 27 | 644 | 0.1+ | 0.3− | 2005 11 01 | 699 | 0.5+ | 0.3+ |
| 1998 10 18 | 699 | 0.1− | 0.0 | 2005 09 27 | 644 | 0.2− | 0.1+ | 2005 11 03 | 703 | 0.8+ | 0.4+ |
| 1998 10 18 | 699 | 0.7+ | 0.6+ | 2005 09 30 | 699 | 0.1− | 0.1+ | 2005 11 03 | 703 | 0.6− | 0.3− |
| 2002 12 31 | 704 | 0.6+ | 0.1+ | 2005 09 30 | 699 | 0.4+ | 1.2+ | 2005 11 03 | 703 | 0.3+ | 0.5− |
| 2002 12 31 | 704 | 0.6− | 0.3+ | 2005 09 30 | 699 | 0.0 | 0.1+ | 2005 11 03 | 703 | 0.5+ | 0.1− |
| 2002 12 31 | 704 | 0.7+ | 0.5+ | 2005 10 02 | 644 | 0.0 | 0.3− | 2005 11 03 | 704 | 0.9+ | 0.2− |
| 2002 12 31 | 704 | 0.6+ | 0.3+ | 2005 10 02 | 644 | 0.1+ | 0.3− | 2005 11 03 | 704 | 0.4+ | 0.7− |
| 2002 12 31 | 704 | 0.7+ | 0.0 | 2005 10 02 | 644 | 0.0 | 0.3− | 2005 11 03 | 704 | 0.4− | 0.9+ |
| 2003 01 08 | 704 | 0.9− | 0.4+ | 2005 10 02 | 644 | 0.0 | 0.3− | 2005 11 06 | 704 | 0.2− | 0.5+ |
| 2003 01 08 | 704 | 0.2− | 1.3+ | 2005 10 02 | 644 | 0.0 | 0.3− | 2005 11 06 | 704 | 0.2− | 0.9+ |
| 2003 01 08 | 704 | 0.4− | 1.0+ | 2005 10 02 | 644 | 0.0 | 0.5− | 2005 11 06 | 704 | (2.4+ | 0.4+) |
| 2004 04 16 | E12 | 0.1+ | 0.3− | 2005 10 03 | 703 | 0.1+ | 0.6− | 2005 11 06 | 704 | 0.0 | 0.7− |
| 2004 04 16 | E12 | (0.1− | 2.2+) | 2005 10 03 | 703 | 0.1− | 0.6− | 2005 12 05 | 703 | 0.2+ | 0.6+ |
| 2004 04 16 | E12 | (0.5− | 2.3+) | 2005 10 03 | 703 | 0.2− | 0.4− | 2005 12 05 | 703 | 0.2+ | 0.3− |
| 2004 04 16 | E12 | (0.3− | 2.1+) | 2005 10 03 | 703 | 0.2+ | 0.4− | 2005 12 05 | 703 | 0.5+ | 0.4− |
| 2005 08 30 | 699 | 0.3− | 0.6+ | 2005 10 08 | 703 | 0.9− | 0.4− | 2005 12 05 | 703 | 0.0 | 0.2− |
| 2005 08 30 | 699 | 1.0+ | 1.0− | 2005 10 08 | 703 | 0.3− | 0.1− | 2009 12 15 | G96 | 0.8+ | 0.1− |
| 2005 08 30 | 699 | 0.7+ | 0.0 | 2005 10 08 | 703 | (1.8− | 0.8−) | 2009 12 15 | G96 | 0.9+ | 0.3− |
| 2005 08 30 | 699 | 0.8− | 0.3+ | 2005 10 08 | 703 | 0.1− | 0.2− | 2009 12 15 | G96 | 0.1+ | 0.1− |
| 2005 09 12 | 704 | (0.4+ | 1.8−) | 2005 10 12 | 704 | 0.7+ | 0.1+ | 2009 12 15 | G96 | 1.2+ | 0.1− |
| 2005 09 12 | 704 | 0.5− | 1.4+ | 2005 10 12 | 704 | 0.0 | 0.1+ | 2009 12 15 | G96 | 0.4+ | 0.2− |
| 2005 09 12 | 704 | 0.0 | 0.5+ | 2005 10 12 | 704 | 0.5+ | 0.2+ | 2009 12 19 | 691 | 0.2− | 0.6− |
| 2005 09 12 | 704 | 1.0− | 0.6+ | 2005 10 12 | 704 | 0.1− | 0.1+ | 2009 12 19 | 691 | 0.1+ | 0.1− |
| 2005 09 23 | 703 | 0.7− | 0.0 | 2005 10 12 | 704 | 0.3− | 0.2− | 2009 12 19 | 691 | 0.2+ | 0.1+ |
| 2005 09 23 | 703 | 0.2− | 0.0 | 2005 10 28 | 703 | 0.3+ | 0.0 | 2009 12 25 | 691 | 0.5− | 0.1+ |
| 2005 09 23 | 703 | 0.5− | 0.5− | 2005 10 28 | 703 | 0.2− | 0.1− | 2009 12 25 | 691 | 0.1− | 0.0 |
| 2005 09 23 | 703 | 0.9− | 0.4+ | 2005 10 28 | 703 | 0.0 | 0.4− | 2009 12 25 | 691 | 0.5− | 0.1− |
| 2005 09 25 | 644 | 0.1+ | 0.3− | 2005 10 28 | 703 | 0.7+ | 0.3− | | | | |

**(228239)∗ 1998 TK$_{21}$**

Discovered 1998 Oct. 13 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 276.42526 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.08360490 | $\omega$ | 248.87595 | | −0.41900706 | −0.90633208 | |
| $a$ | 5.1798226 | $\Omega$ | 226.01871 | | +0.85873228 | −0.37597711 | |
| $e$ | 0.1293153 | $i$ | 4.36202 | | +0.29497788 | −0.19288177 | |
| $P$ | 11.79 | $H$ | 13.2 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 10 13 | 691 | 0.5+ | 0.2+ | 2002 03 13 | 644 | 0.1− | 0.3+ | 2008 09 19 | 691 | 0.2− | 0.3− |
| 1998 10 13 | 691 | 0.4+ | 0.1− | 2002 03 23 | 691 | 0.1+ | 0.7+ | 2008 09 19 | 691 | 0.2− | 0.2+ |
| 1998 10 13 | 691 | 0.5+ | 0.0 | 2002 03 23 | 691 | 0.3+ | 0.6+ | 2008 09 19 | 691 | 0.3− | 0.3+ |
| 1998 10 19 | 691 | 0.3− | 0.4− | 2002 03 23 | 691 | 0.3+ | 0.7+ | 2008 11 17 | 291 | 0.3+ | 0.6+ |
| 1998 10 19 | 691 | 0.2− | 0.3− | 2004 05 21 | 691 | 0.3− | 0.0 | 2008 11 17 | 291 | 0.3+ | 0.3+ |
| 1998 10 19 | 691 | 0.4− | 0.4− | 2004 05 21 | 691 | 0.2− | 0.2− | 2008 11 17 | 291 | 0.3+ | 0.5+ |
| 1998 10 27 | 691 | 0.0 | 0.2− | 2004 05 21 | 691 | 0.6− | 0.3− | 2009 09 19 | 152 | 0.3− | 0.5+ |
| 1998 10 27 | 691 | 0.2− | 0.2− | 2007 11 02 | G96 | 0.2+ | 0.3+ | 2009 09 19 | 152 | 0.2+ | 0.8+ |
| 1998 10 27 | 691 | 0.5− | 0.4− | 2007 11 02 | G96 | 0.1+ | 0.0 | 2009 09 19 | 152 | 0.3− | 0.7− |
| 1999 12 07 | 704 | 0.4+ | 0.6− | 2007 11 02 | G96 | 0.5+ | 0.5+ | 2009 09 19 | 152 | 0.5+ | 0.2− |
| 1999 12 07 | 704 | 0.2+ | 1.4− | 2007 11 02 | G96 | 0.4+ | 0.2− | 2009 09 20 | 691 | 0.4− | 0.4+ |
| 1999 12 07 | 704 | 0.2+ | 0.7− | 2008 09 09 | G96 | 0.1− | 0.1+ | 2009 09 20 | 691 | 0.1− | 0.2+ |
| 1999 12 07 | 704 | 0.9+ | 0.8+ | 2008 09 09 | G96 | 0.8+ | 0.1+ | 2009 09 20 | 691 | 0.3− | 0.4+ |
| 2002 02 11 | 704 | 0.1− | 0.2− | 2008 09 09 | G96 | 0.5+ | 0.2+ | 2009 09 23 | 691 | 0.1− | 0.3+ |
| 2002 02 11 | 704 | 0.4− | 0.4+ | 2008 09 09 | G96 | 0.8+ | 0.0 | 2009 09 23 | 691 | 0.5− | 0.3+ |
| 2002 02 11 | 704 | 0.4+ | 0.6+ | 2008 09 09 | G96 | 0.4+ | 0.1+ | 2009 09 23 | 691 | 0.6− | 0.3+ |
| 2002 02 11 | 704 | 0.0 | 0.9− | 2008 09 09 | G96 | 0.7+ | 0.3+ | 2009 09 26 | 691 | 0.0 | 0.3+ |
| 2002 02 11 | 704 | 1.2+ | 0.4+ | 2008 09 09 | G96 | 0.2− | 0.3+ | 2009 09 26 | 691 | 0.3− | 0.1− |
| 2002 03 13 | 704 | 0.9+ | 0.4+ | 2008 09 09 | G96 | 0.7+ | 0.2+ | 2009 09 26 | 691 | 0.3− | 0.3+ |
| 2002 03 13 | 704 | 0.8+ | 0.5+ | 2008 09 09 | G96 | 0.2+ | 0.3+ | 2009 12 16 | G96 | 0.3+ | 0.1+ |
| 2002 03 13 | 704 | 0.8+ | 1.3+ | 2008 09 09 | G96 | 0.2+ | 0.2+ | 2009 12 16 | G96 | 0.6+ | 0.1− |
| 2002 03 13 | 644 | 0.2− | 0.2+ | 2008 09 09 | G96 | 0.1+ | 0.4+ | 2009 12 16 | G96 | 0.2+ | 0.2+ |
| 2002 03 13 | 644 | 0.6+ | 0.8+ | 2008 09 09 | G96 | 0.5+ | 0.2− | 2009 12 16 | G96 | 0.0 | 0.2+ |

**(228240)∗ 1998 TK$_{26}$ = 2005 ER$_{129}$**

Discovered 1998 Oct. 14 by Spacewatch at Kitt Peak.

Id. A. Doppler (*MPO* 103146)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 14.63451 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18304488 | $\omega$ | 170.81283 | | +0.51376802 | −0.85765145 | |
| $a$ | 3.0720691 | $\Omega$ | 248.26929 | | +0.78563483 | +0.48054442 | |
| $e$ | 0.2501120 | $i$ | 1.34638 | | +0.34470325 | +0.18306022 | |
| $P$ | 5.38 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 10 14 | 691 | 0.4− | 0.1+ | 2005 03 09 | G96 | 0.1+ | 0.3− | 2009 11 19 | B21 | 0.1+ | 0.2+ |
| 1998 10 14 | 691 | 0.2− | 0.1+ | 2005 03 09 | G96 | 0.4− | 0.1+ | 2009 11 19 | B21 | 0.1+ | 0.2+ |
| 1998 10 14 | 691 | 0.8− | 0.0 | 2005 03 09 | G96 | 0.4+ | 0.1− | 2009 11 19 | B21 | 0.2+ | 0.1+ |
| 1998 10 19 | 691 | 1.3+ | 0.3− | 2005 03 09 | G96 | 0.3+ | 0.1− | 2009 11 24 | 691 | 0.3− | 0.0 |
| 1998 10 19 | 691 | 0.5+ | 0.1− | 2005 03 11 | 691 | 0.3+ | 0.3+ | 2009 11 24 | 691 | 0.5− | 0.0 |
| 1998 10 19 | 691 | 0.4+ | 0.4− | 2005 03 11 | 691 | 0.1+ | 0.5+ | 2009 11 24 | 691 | (3.3− | 1.9−) |
| 1998 10 29 | 691 | 0.1− | 0.2− | 2005 03 11 | 691 | 0.3− | 0.2+ | 2009 12 08 | J75 | 0.0 | 0.4− |
| 1998 10 29 | 691 | 0.1− | 0.1− | 2009 10 16 | G96 | 0.0 | 0.3+ | 2009 12 08 | J75 | 0.5+ | 0.5− |
| 1998 10 29 | 691 | 0.2− | 0.0 | 2009 10 16 | G96 | 0.5+ | 0.2+ | 2009 12 08 | J75 | 0.1− | 0.2− |
| 2003 09 19 | 691 | 0.2− | 0.3+ | 2009 10 16 | G96 | 0.0 | 0.0 | 2009 12 10 | G96 | 0.2+ | 0.1− |
| 2003 09 19 | 691 | 0.1− | 0.4+ | 2009 10 16 | G96 | 0.4− | 0.3+ | 2009 12 10 | G96 | 0.2+ | 0.1− |
| 2003 09 19 | 691 | 0.1− | 0.3+ | 2009 11 08 | G96 | 0.3− | 0.2+ | 2009 12 10 | G96 | 0.5+ | 0.0 |
| 2005 01 17 | 691 | 0.1+ | 0.2− | 2009 11 08 | G96 | 0.6− | 0.2− | 2009 12 10 | G96 | 0.3+ | 0.1+ |
| 2005 01 17 | 691 | 0.1+ | 0.2− | 2009 11 08 | G96 | 0.0 | 0.2+ | 2009 12 19 | G96 | 0.4+ | 0.1+ |
| 2005 01 17 | 691 | 0.2+ | 0.2− | 2009 11 08 | G96 | 0.1− | 0.2− | 2009 12 19 | G96 | 0.2+ | 0.0 |
| 2005 02 04 | 691 | 0.2− | 0.3+ | 2009 11 18 | 704 | 0.5+ | 1.3+ | 2009 12 19 | G96 | 0.2+ | 0.0 |
| 2005 02 04 | 691 | 0.0 | 0.1+ | 2009 11 18 | 704 | (0.6+ | 1.6+) | 2009 12 19 | G96 | 0.2+ | 0.0 |
| 2005 02 04 | 691 | 0.2− | 0.0 | 2009 11 18 | 704 | 0.3+ | 0.8+ | | | | |

**(228241)∗ 1998 $UO_{11}$ = 2009 $WA_{42}$**

Discovered 1998 Oct. 17 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 165301)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 27.20716 | | (2000.0) | | | |
| $n$ | 0.27307014 | $\omega$ | 352.31735 | | +0.63583924 | −0.77002498 |
| $a$ | 2.3529890 | $\Omega$ | 58.18420 | | +0.71138529 | +0.55823491 |
| $e$ | 0.1672426 | $i$ | 3.55100 | | +0.29939845 | +0.30892607 |
| $P$ | 3.61 | $H$ | 17.7 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 10 17 | 691 | 1.2+ | 1.5+ | 2005 08 26 | 644 | 0.1− | 0.4+ | 2007 03 12 | G96 | 0.8+ | 0.3+ |
| 1998 10 17 | 691 | 1.2− | 0.3+ | 2005 10 01 | 703 | 1.4+ | 0.8− | 2009 11 17 | 691 | 0.2− | 0.2+ |
| 1998 10 17 | 691 | 1.1− | 0.0 | 2005 10 01 | 703 | 0.6+ | 1.6+ | 2009 11 17 | 691 | 0.1− | 0.3− |
| 1998 10 24 | 691 | 0.5+ | 0.0 | 2005 10 01 | 703 | 0.6+ | 1.7+ | 2009 11 17 | 691 | 0.4− | 0.1− |
| 1998 10 24 | 691 | 0.4+ | 0.0 | 2005 10 01 | 703 | 0.4+ | 0.4+ | 2009 11 21 | 691 | 0.1+ | 0.2+ |
| 1998 10 24 | 691 | 0.6+ | 0.1− | 2005 10 11 | 691 | 0.3− | 0.5+ | 2009 11 21 | 691 | 0.1− | 0.3+ |
| 1998 10 29 | 691 | 0.1− | 0.3− | 2005 10 11 | 691 | 0.3− | 0.3− | 2009 11 21 | 691 | 0.5+ | 0.3− |
| 1998 10 29 | 691 | 0.0 | 0.1− | 2005 10 11 | 691 | 0.0 | 0.1− | 2009 11 25 | 691 | 0.1− | 0.1+ |
| 1998 12 13 | 691 | 0.0 | 0.5− | 2007 02 26 | G96 | 0.1+ | 0.0 | 2009 11 25 | 691 | 0.2− | 0.1+ |
| 1998 12 13 | 691 | 0.5− | 0.3− | 2007 02 26 | G96 | 0.1+ | 0.2+ | 2009 11 25 | 691 | 0.4− | 0.1+ |
| 1998 12 13 | 691 | 0.1− | 0.2− | 2007 02 26 | G96 | 0.8+ | 0.3− | 2009 12 10 | 704 | 0.1− | 0.7+ |
| 2001 05 23 | 807 | 0.2+ | 0.0 | 2007 02 26 | G96 | 0.2+ | 0.5− | 2009 12 10 | 704 | 1.0+ | 1.2− |
| 2001 05 23 | 807 | 0.2+ | 0.0 | 2007 03 12 | 691 | 0.2+ | 0.5+ | 2009 12 10 | 704 | 0.2− | 0.1− |
| 2004 05 21 | 691 | 0.0 | 0.4+ | 2007 03 12 | 691 | 0.2+ | 0.1+ | 2009 12 10 | 704 | 0.7+ | 0.1+ |
| 2004 05 21 | 691 | 0.3− | 0.1+ | 2007 03 12 | 691 | 0.2+ | 0.3+ | 2009 12 11 | G96 | 0.0 | 0.2+ |
| 2004 05 21 | 691 | 0.5− | 0.4+ | 2007 03 12 | G96 | 0.2+ | 0.1+ | 2009 12 11 | G96 | 0.2+ | 0.2+ |
| 2005 08 26 | 644 | 0.3− | 0.4+ | 2007 03 12 | G96 | 0.5+ | 0.1+ | 2009 12 11 | G96 | 0.1− | 0.2+ |
| 2005 08 26 | 644 | 0.0 | 0.1+ | 2007 03 12 | G96 | 0.5+ | 0.0 | 2009 12 11 | G96 | 0.1+ | 0.2+ |

**(228242)∗ 1998 $UQ_{17}$ = 2003 $AH_{91}$**

Discovered 1998 Oct. 18 by Beijing Schmidt CCD Asteroid Program at Xinglong.

Id. M. E. Sansaturio (*MPO* 46347)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 42.72629 | | (2000.0) | | | |
| $n$ | 0.27401071 | $\omega$ | 70.87084 | | +0.90724751 | −0.41379849 |
| $a$ | 2.3476014 | $\Omega$ | 313.49201 | | +0.33623353 | +0.82113036 |
| $e$ | 0.1613994 | $i$ | 5.95914 | | +0.25268355 | +0.39308490 |
| $P$ | 3.60 | $H$ | 16.5 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 10 18 | 327 | 0.7+ | 0.8− | 2005 07 30 | 644 | 0.1− | 0.0 | 2007 02 17 | 703 | 1.3− | 0.3+ |
| 1998 10 18 | 327 | 0.4+ | 0.7− | 2005 07 30 | 644 | 0.2− | 0.0 | 2007 02 17 | 703 | (0.6+ | 3.1+) |
| 1998 10 18 | 327 | 0.2+ | 0.4− | 2005 08 06 | 644 | 0.1− | 0.0 | 2007 02 17 | 703 | (2.3− | 1.9+) |
| 1998 10 19 | 327 | 0.2+ | 0.1+ | 2005 08 06 | 644 | 0.0 | 0.2+ | 2007 02 21 | 704 | 0.0 | 0.3+ |
| 1998 10 19 | 327 | 0.4+ | 0.6− | 2005 08 06 | 644 | 0.2− | 0.2+ | 2007 02 21 | 704 | (0.6− | 1.8+) |
| 1998 10 19 | 327 | 0.1+ | 0.7− | 2005 08 24 | 644 | 0.2− | 0.1+ | 2007 02 21 | 704 | (0.9+ | 6.6+) |
| 1998 10 20 | 327 | 0.1+ | 0.3− | 2005 08 24 | 644 | 0.0 | 0.1+ | 2007 02 21 | 704 | (2.5+ | 1.0+) |
| 1998 10 20 | 327 | 0.1+ | 0.2− | 2005 08 24 | 644 | 0.1+ | 0.3− | 2007 02 21 | 704 | 0.8+ | 0.6+ |
| 1998 10 20 | 327 | 0.1− | 0.3+ | 2005 08 27 | 699 | 0.3+ | 0.1+ | 2009 11 16 | 704 | 1.0− | 0.3− |
| 1998 10 22 | 327 | 0.2− | 0.1+ | 2005 08 27 | 699 | 0.8− | 0.5− | 2009 11 16 | 704 | 0.7− | 0.1− |
| 1998 10 22 | 327 | 0.1− | 0.6− | 2005 08 27 | 699 | 0.8− | 0.9+ | 2009 11 16 | 704 | 0.8− | 0.2+ |
| 1998 10 22 | 327 | 0.9− | 1.4− | 2005 08 27 | 699 | 0.1− | 0.2+ | 2009 11 16 | 704 | 0.3+ | 0.0 |
| 1998 10 23 | 327 | 0.2+ | 0.9− | 2005 08 30 | 691 | 0.4+ | 0.7+ | 2009 11 16 | 704 | 0.0 | 0.5− |
| 1998 10 23 | 327 | 1.1+ | 0.7− | 2005 08 30 | 691 | (0.4+ | 1.8+) | 2009 11 20 | G92 | 0.8− | 0.1+ |
| 1998 10 23 | 327 | 0.3+ | 0.4− | 2005 08 30 | 691 | 0.1− | 0.6+ | 2009 11 20 | G92 | 0.8+ | 0.4− |
| 2003 01 05 | 704 | 0.2+ | 0.1+ | 2005 08 30 | 704 | 0.6− | 0.4− | 2009 11 20 | G92 | 1.0+ | 0.4− |
| 2003 01 05 | 704 | 0.7+ | 0.3+ | 2005 08 30 | 704 | 1.0+ | 0.7− | 2009 11 23 | 704 | 0.2+ | 0.7+ |
| 2003 01 05 | 704 | 0.3+ | 0.1+ | 2005 08 30 | 704 | 0.0 | 0.2− | 2009 11 23 | 704 | 0.7− | 0.3+ |
| 2003 01 05 | 704 | 0.2+ | 0.3+ | 2005 08 30 | 704 | 0.1− | 0.8− | 2009 11 23 | 704 | 0.8− | 0.3− |
| 2003 01 10 | 704 | 0.3+ | 0.0 | 2005 09 06 | 704 | 0.4− | 0.5+ | 2009 11 23 | 704 | (2.4− | 1.1+) |
| 2003 01 10 | 704 | 0.3+ | 1.3+ | 2005 09 06 | 704 | 0.2+ | 1.0+ | 2009 12 09 | 704 | 0.1+ | 1.1+ |
| 2003 01 10 | 704 | 0.0 | 0.4+ | 2005 09 06 | 704 | 0.3− | 0.3+ | 2009 12 09 | 704 | 0.6+ | 0.3− |
| 2005 06 17 | G96 | 0.1+ | 0.1− | 2005 09 12 | 691 | 0.3− | 0.1+ | 2009 12 09 | 704 | 0.3− | 0.4+ |
| 2005 06 17 | G96 | 0.1− | 0.5+ | 2005 09 12 | 691 | 0.1− | 0.1+ | 2009 12 15 | 704 | 0.2+ | 0.0 |
| 2005 06 17 | G96 | 0.8+ | 0.3− | 2005 09 12 | 691 | 0.2− | 0.3+ | 2009 12 15 | 704 | 0.3− | 0.5+ |
| 2005 06 17 | G96 | 0.7+ | 0.2− | 2005 09 23 | A50 | 0.0 | 0.2+ | 2009 12 15 | 704 | 0.4+ | 1.0+ |
| 2005 07 10 | 703 | (1.6− | 1.2−) | 2005 09 23 | A50 | 0.1+ | 0.1− | 2009 12 15 | 704 | 0.7− | 0.7+ |
| 2005 07 10 | 703 | (1.8− | 1.1+) | 2005 10 07 | 691 | 0.2− | 0.0 | 2009 12 15 | 704 | 0.6− | 0.7+ |
| 2005 07 10 | 703 | 0.9− | 0.1− | 2005 10 07 | 691 | 0.3+ | 0.0 | 2009 12 20 | 291 | 0.5+ | 0.1+ |
| 2005 07 10 | 703 | 1.1− | 0.1− | 2005 10 07 | 691 | 0.1+ | 0.1− | 2009 12 20 | 291 | 0.2+ | 0.1− |
| 2005 07 30 | 644 | 0.3− | 0.1− | 2007 02 17 | 703 | (1.8− | 0.0 ) | 2009 12 20 | 291 | 0.0 | 0.0 |

**(228243)∗ 1998 $US_{17}$ = 1998 $UZ_{39}$ = 2005 $QA_{41}$**

Discovered 1998 Oct. 18 by Beijing Schmidt CCD Asteroid Program at Xinglong.

Id. A. Doppler (d, *MPO* 4024), G. V. Williams (*MPO* 84480)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 78.48618 | | (2000.0) | | | |
| $n$ | 0.27608645 | $\omega$ | 71.16317 | | +0.97023101 | +0.23954202 |
| $a$ | 2.3358197 | $\Omega$ | 274.96515 | | −0.23348708 | +0.88611068 |
| $e$ | 0.2101011 | $i$ | 2.05111 | | −0.06430833 | +0.39677132 |
| $P$ | 3.57 | $H$ | 17.0 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 10 11 | 699 | 0.0 | 0.2− | 2005 08 31 | 691 | 0.1+ | 0.2+ | 2005 11 30 | G96 | 0.3+ | 0.1− |
| 1998 10 11 | 699 | 0.4+ | 0.3+ | 2005 09 06 | 699 | 0.8− | 0.3+ | 2007 01 27 | G96 | 0.1− | 0.5− |
| 1998 10 11 | 699 | 0.8− | 0.9− | 2005 09 06 | 699 | 0.2− | 0.0 | 2007 01 27 | G96 | 0.1− | 0.0 |
| 1998 10 18 | 327 | 0.1− | 0.8− | 2005 09 06 | 699 | 0.8− | 0.1− | 2007 01 27 | G96 | 0.1− | 0.1+ |
| 1998 10 18 | 327 | 1.1+ | 0.1+ | 2005 09 06 | 699 | 0.1− | 0.1− | 2007 01 27 | G96 | 0.2− | 0.0 |
| 1998 10 18 | 327 | 0.4+ | 0.6− | 2005 09 09 | 704 | 1.3− | 0.6− | 2007 02 13 | G96 | 0.1− | 0.0 |
| 1998 10 20 | 327 | 0.3− | 0.6+ | 2005 09 09 | 704 | 1.5− | 0.3− | 2007 02 13 | G96 | 0.2+ | 0.1+ |
| 1998 10 20 | 327 | 0.3− | 0.6+ | 2005 09 09 | 704 | 1.5− | 0.3− | 2007 02 13 | G96 | 0.0 | 0.1− |
| 1998 10 20 | 327 | 1.2− | 0.2+ | 2005 09 09 | 704 | (1.8− | 0.6−) | 2007 02 13 | G96 | 0.1+ | 0.2+ |
| 1998 10 28 | 704 | (2.4− | 1.6−) | 2005 09 09 | 704 | (1.7− | 0.3−) | 2007 02 17 | G96 | 0.5+ | 0.4+ |
| 1998 10 28 | 704 | 0.6− | 0.1− | 2005 09 14 | 691 | 0.1− | 0.1− | 2007 02 17 | G96 | 0.2− | 0.0 |
| 1998 10 28 | 704 | (3.2− | 1.3+) | 2005 09 14 | 691 | 0.1− | 0.0 | 2007 02 17 | G96 | 0.0 | 0.1− |
| 1998 10 28 | 704 | 0.5− | 1.1+ | 2005 09 14 | 691 | 0.0 | 0.1− | 2007 02 17 | G96 | 0.7+ | 0.1− |
| 1998 10 29 | 704 | 0.8+ | 0.9+ | 2005 09 23 | 699 | 1.1+ | 0.2+ | 2008 05 05 | G96 | 0.3+ | 0.0 |
| 1998 10 29 | 704 | (2.5− | 1.2−) | 2005 09 23 | 699 | 0.8+ | 0.3− | 2008 05 05 | G96 | 0.2− | 0.2+ |
| 1998 10 29 | 704 | 0.4+ | 0.1+ | 2005 09 23 | 703 | 0.4+ | 0.2− | 2008 05 05 | G96 | 0.2− | 0.3+ |
| 2005 08 09 | A50 | 0.1+ | 0.1+ | 2005 09 23 | 703 | 0.0 | 1.0− | 2008 05 05 | G96 | 0.1− | 0.1+ |
| 2005 08 26 | 699 | 0.2+ | 0.0 | 2005 09 23 | 703 | 1.2+ | 0.7− | 2009 11 09 | 691 | 0.3− | 0.2+ |
| 2005 08 26 | 699 | 0.4+ | 0.0 | 2005 09 23 | 703 | (1.8− | 0.5−) | 2009 11 09 | 691 | 0.3− | 0.1+ |
| 2005 08 26 | 699 | 0.2− | 0.9− | 2005 09 23 | 699 | (0.1+ | 1.6+) | 2009 11 09 | 691 | 0.2− | 0.0 |
| 2005 08 26 | 699 | 1.0+ | 0.2+ | 2005 09 23 | 699 | 1.3+ | 0.4+ | 2009 12 10 | G96 | 0.1+ | 0.1+ |
| 2005 08 29 | 699 | 0.1+ | 0.2+ | 2005 09 29 | 644 | 0.4− | 0.4− | 2009 12 10 | G96 | 0.2+ | 0.2+ |
| 2005 08 29 | 699 | 0.5− | 0.8+ | 2005 09 29 | 644 | 0.2+ | 0.7− | 2009 12 10 | G96 | 0.4+ | 0.0 |
| 2005 08 29 | 699 | 0.2− | 0.4+ | 2005 09 29 | 644 | 0.7+ | 0.5+ | 2009 12 10 | G96 | 0.2+ | 0.1− |
| 2005 08 29 | 699 | 0.2+ | 0.7+ | 2005 11 30 | G96 | 0.4+ | 0.4− | 2009 12 20 | G96 | 0.3+ | 0.1− |
| 2005 08 31 | 691 | 0.1− | 0.1+ | 2005 11 30 | G96 | 0.1− | 0.3− | 2009 12 20 | G96 | 0.3+ | 0.2− |
| 2005 08 31 | 691 | 0.0 | 0.2+ | 2005 11 30 | G96 | 0.6+ | 0.1− | 2009 12 20 | G96 | 0.5+ | 0.2− |

**(228244)∗ 1998 $UD_{42}$ = 2005 $QD_{176}$**

Discovered 1998 Oct. 28 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 84481)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 73.44979 | | (2000.0) | | | |
| $n$ | 0.27863123 | $\omega$ | 312.06943 | | +0.97897465 | −0.19540805 |
| $a$ | 2.3215757 | $\Omega$ | 59.27720 | | +0.20141675 | +0.88067858 |
| $e$ | 0.1734815 | $i$ | 3.90324 | | +0.03224806 | +0.43153323 |
| $P$ | 3.54 | $H$ | 16.7 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 10 14 | 699 | 0.3− | 0.8+ | 2005 09 29 | 644 | 0.3+ | 0.1− | 2005 11 01 | G96 | 0.3+ | 0.2− |
| 1998 10 14 | 699 | 0.4− | 0.4− | 2005 09 29 | 644 | 0.1+ | 0.2− | 2005 11 01 | G96 | 0.1− | 0.1− |
| 1998 10 14 | 699 | 0.6+ | 0.5+ | 2005 09 30 | 699 | 0.8+ | 1.1+ | 2005 11 02 | G96 | 0.3− | 0.2− |
| 1998 10 20 | 699 | 0.5+ | 0.4− | 2005 09 30 | 699 | 1.0+ | 1.0− | 2005 11 02 | G96 | 0.4+ | 0.3− |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 10 20 | 699 | 0.6+ | 0.3+ | 2005 09 30 | 699 | 0.1+ | 0.1− | 2005 11 02 | G96 | 0.1+ | 0.3− |
| 1998 10 20 | 699 | 0.0 | 0.4+ | 2005 09 30 | 699 | 1.3− | 0.9+ | 2005 11 02 | G96 | 0.1− | 0.1− |
| 1998 10 28 | 704 | (0.4− | 2.5−) | 2005 10 01 | 704 | 0.3+ | 0.1+ | 2005 11 03 | 705 | 0.2+ | 0.2− |
| 1998 10 28 | 704 | 0.6+ | 0.6− | 2005 10 01 | 704 | 0.2− | 0.2+ | 2005 11 03 | 705 | 0.1+ | 0.2− |
| 1998 10 28 | 704 | 0.4+ | 0.6+ | 2005 10 01 | 704 | 0.1− | 0.2+ | 2005 11 04 | 691 | 0.1− | 0.0 |
| 1998 10 28 | 704 | 0.3+ | 1.2− | 2005 10 01 | 704 | 0.1− | 0.4+ | 2005 11 04 | 691 | 0.1− | 0.0 |
| 1998 10 29 | 704 | 1.1− | 0.2+ | 2005 10 01 | 704 | 0.3− | 0.3− | 2005 11 04 | 691 | 0.2− | 0.2+ |
| 1998 10 29 | 704 | 0.8− | 1.0− | 2005 10 06 | 691 | 0.1− | 0.0 | 2005 11 06 | 705 | 0.2+ | 0.2− |
| 1998 10 29 | 704 | (0.8− | 2.8−) | 2005 10 06 | 691 | 0.1− | 0.0 | 2005 11 06 | 705 | 0.2+ | 0.2− |
| 2002 12 31 | 645 | 0.1− | 0.0 | 2005 10 06 | 691 | 0.1− | 0.0 | 2005 11 11 | 705 | 0.0 | 0.2− |
| 2002 12 31 | 645 | 0.1− | 0.1− | 2005 10 12 | 691 | 0.1+ | 0.1+ | 2005 11 11 | 705 | 0.0 | 0.2− |
| 2003 01 05 | 704 | 0.3+ | 0.5+ | 2005 10 12 | 691 | 0.1+ | 0.1+ | 2005 11 19 | 705 | 0.0 | 0.3− |
| 2003 01 05 | 704 | 0.6+ | 0.0 | 2005 10 12 | 691 | 0.1− | 0.2+ | 2005 11 19 | 705 | 0.1− | 0.3− |
| 2003 01 05 | 704 | 0.5+ | 0.3+ | 2005 10 20 | 644 | 0.2+ | 0.3+ | 2005 11 24 | 705 | 0.1+ | 0.4− |
| 2003 01 05 | 704 | 0.1− | 0.3− | 2005 10 20 | 644 | 0.1+ | 0.1+ | 2005 11 24 | 705 | 0.0 | 0.4− |
| 2003 01 05 | 704 | 0.6+ | 0.8+ | 2005 10 20 | 644 | 0.1+ | 0.2+ | 2005 11 26 | 705 | 0.2− | 0.3− |
| 2005 08 31 | 644 | 0.0 | 0.0 | 2005 10 22 | 699 | 0.0 | 0.1+ | 2005 11 26 | 705 | 0.2− | 0.3− |
| 2005 08 31 | 644 | 0.0 | 0.1+ | 2005 10 22 | 699 | 0.6− | 0.1− | 2005 11 30 | G96 | 0.0 | 0.5− |
| 2005 08 31 | 644 | 0.1− | 0.1− | 2005 10 22 | 699 | 0.1− | 1.0+ | 2005 11 30 | G96 | 0.2+ | 0.3− |
| 2005 09 09 | 704 | 0.2+ | 0.3− | 2005 10 22 | 699 | 0.8+ | 0.1− | 2005 11 30 | G96 | 0.5+ | 0.6+ |
| 2005 09 09 | 704 | 0.1+ | 0.7+ | 2005 10 26 | 705 | 0.3+ | 0.1− | 2005 11 30 | G96 | 0.3− | 0.2+ |
| 2005 09 09 | 704 | 0.4− | 0.0 | 2005 10 26 | 705 | 0.2+ | 0.1− | 2005 12 01 | 699 | (2.1− | 0.2−) |
| 2005 09 09 | 704 | 0.2− | 1.2+ | 2005 10 27 | 699 | 0.6− | 0.3+ | 2005 12 01 | 699 | 0.6+ | 0.2+ |
| 2005 09 09 | 704 | 0.5− | 0.3+ | 2005 10 27 | 704 | 0.0 | 0.3+ | 2005 12 01 | 699 | 0.5− | 1.3+ |
| 2005 09 13 | 705 | 0.2+ | 0.2− | 2005 10 27 | 699 | 0.0 | 0.3− | 2005 12 01 | 699 | (0.5+ | 2.5−) |
| 2005 09 13 | 705 | 0.2+ | 0.3− | 2005 10 27 | 704 | 0.3− | 0.1− | 2005 12 04 | 704 | 0.3− | 0.2+ |
| 2005 09 14 | 703 | 0.7+ | 0.7− | 2005 10 27 | 704 | 0.5− | 0.2+ | 2005 12 04 | 704 | 0.4+ | 1.1+ |
| 2005 09 14 | 703 | 0.7− | 0.7− | 2005 10 27 | 699 | 0.2− | 0.5+ | 2005 12 04 | 704 | 0.1− | 0.0 |
| 2005 09 14 | 703 | 0.1+ | 0.5+ | 2005 10 27 | 704 | 0.3− | 0.5+ | 2005 12 04 | 704 | 0.1− | 0.4+ |
| 2005 09 14 | 703 | 0.4+ | 0.3− | 2005 10 27 | 704 | 0.1− | 0.7+ | 2005 12 04 | 704 | 0.5− | 0.9− |
| 2005 09 15 | 705 | 0.2+ | 0.2− | 2005 10 27 | 699 | 0.5+ | 0.1+ | 2007 02 23 | 691 | 0.0 | 0.1+ |
| 2005 09 15 | 705 | 0.2+ | 0.1− | 2005 10 28 | 705 | 0.2+ | 0.3− | 2007 02 23 | 691 | 0.0 | 0.1− |
| 2005 09 22 | 644 | 0.0 | 0.0 | 2005 10 28 | 705 | 0.2+ | 0.2− | 2007 02 23 | 691 | 0.2+ | 0.2+ |
| 2005 09 22 | 644 | 0.1− | 0.1− | 2005 10 31 | 704 | 0.3− | 0.3+ | 2007 04 21 | H55 | 0.4− | 0.3+ |
| 2005 09 22 | 644 | 0.1+ | 0.3+ | 2005 10 31 | 705 | 0.1+ | 0.2− | 2007 04 21 | H55 | 0.4+ | 0.2− |
| 2005 09 24 | 703 | 0.1− | 1.0− | 2005 10 31 | 705 | 0.0 | 0.2− | 2007 04 21 | H55 | 0.1− | 0.0 |
| 2005 09 24 | 703 | 0.2− | 1.0− | 2005 10 31 | 704 | 0.0 | 0.6+ | 2009 12 18 | G96 | 0.0 | 0.1+ |
| 2005 09 24 | 703 | 0.1− | 1.1− | 2005 10 31 | 704 | 0.1− | 0.6+ | 2009 12 18 | G96 | 0.4+ | 0.1− |
| 2005 09 24 | 703 | 0.1− | 0.6+ | 2005 10 31 | 704 | 0.0 | 0.6− | 2009 12 18 | G96 | 0.2+ | 0.3− |
| 2005 09 24 | 644 | 0.1− | 0.1+ | 2005 11 01 | G96 | 0.3+ | 0.0 | 2009 12 18 | G96 | 0.5+ | 0.2− |
| 2005 09 24 | 644 | 0.3+ | 0.0 | 2005 11 01 | 705 | 0.2+ | 0.1− | 2009 12 19 | 691 | 0.2− | 0.1− |
| 2005 09 24 | 644 | 0.5+ | 0.3+ | 2005 11 01 | 705 | 0.3+ | 0.2− | 2009 12 19 | 691 | 0.0 | 0.0 |
| 2005 09 29 | 644 | 0.0 | 0.0 | 2005 11 01 | G96 | 0.1+ | 0.3− | 2009 12 19 | 691 | 0.1− | 0.1+ |

**(228245)∗ 1998 $VL_{48}$ = 2001 $PM_{48}$**

Discovered 1998 Nov. 15 by Spacewatch at Kitt Peak.

Id. M. E. Sansaturio (*MPO* 16870)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 120.51813 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.26681424 | $\omega$ | 222.77079 | | +0.30959483 | | +0.94368617 |
| $a$ | 2.3896266 | $\Omega$ | 65.57133 | | −0.83413770 | | +0.32842932 |
| $e$ | 0.1058369 | $i$ | 7.36101 | | −0.45647053 | | +0.03988228 |
| $P$ | 3.69 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 11 15 | 691 | 0.2+ | 0.2− | 2001 08 21 | 644 | 0.0 | 0.6− | 2008 05 05 | B01 | 0.4− | 0.1+ |
| 1998 11 15 | 691 | 0.3+ | 0.3− | 2001 08 21 | 644 | 0.0 | 0.1− | 2008 05 05 | B01 | 1.4+ | 0.2− |
| 1998 11 15 | 691 | 0.2+ | 0.4− | 2001 08 21 | 644 | 0.4− | 0.4− | 2008 05 08 | B01 | 0.1− | 0.3+ |
| 1998 11 21 | 691 | 0.1+ | 0.2− | 2001 08 21 | 644 | 0.5− | 0.3− | 2008 05 08 | B01 | 0.1+ | 1.3+ |
| 1998 11 21 | 691 | 0.5− | 0.3− | 2004 03 29 | 703 | (2.5+ | 1.5+) | 2009 10 26 | 691 | 0.3− | 0.4+ |
| 1998 11 21 | 691 | 0.5+ | 0.0 | 2004 03 29 | 703 | 0.8+ | 1.1+ | 2009 10 26 | 691 | 0.7− | 0.3+ |
| 1998 11 27 | 691 | 0.6− | 0.2− | 2004 03 29 | 703 | 0.5+ | 1.4+ | 2009 10 26 | 691 | 0.1+ | 0.3− |
| 1998 11 27 | 691 | 0.2− | 1.7+ | 2004 03 29 | 703 | (1.5+ | 1.9+) | 2009 11 08 | G96 | 0.1+ | 0.0 |
| 2001 07 19 | 644 | 0.4− | 0.5+ | 2005 09 30 | 699 | 0.4− | 0.3− | 2009 11 08 | G96 | 0.1− | 0.0 |
| 2001 07 19 | 644 | 0.0 | 0.6+ | 2005 09 30 | 699 | 0.1+ | 0.9+ | 2009 11 08 | G96 | 0.6+ | 0.1− |
| 2001 07 19 | 644 | 0.5− | 0.8+ | 2005 09 30 | 699 | 0.8+ | 0.3− | 2009 11 08 | G96 | 0.2− | 0.1− |
| 2001 08 14 | 644 | 0.4+ | 0.1− | 2005 09 30 | 699 | 0.6+ | 1.0+ | 2009 12 17 | G96 | 0.3+ | 0.0 |
| 2001 08 14 | 644 | 0.1+ | 0.1− | 2005 10 05 | 703 | 0.4− | 0.6+ | 2009 12 17 | G96 | 0.0 | 0.2+ |
| 2001 08 14 | 644 | 0.3+ | 0.0 | 2005 10 05 | 703 | 0.0 | 0.4− | 2009 12 17 | G96 | 0.2+ | 0.1− |
| 2001 08 21 | 644 | 0.2− | 0.4− | 2005 10 05 | 703 | 0.1+ | 0.8+ | 2009 12 17 | G96 | 0.3+ | 0.5+ |
| 2001 08 21 | 644 | 0.5− | 0.6− | 2005 10 05 | 703 | 0.0 | 0.6+ | | | | |

**(228246)∗ 1998 $WC_{46}$**

Discovered 1998 Nov. 22 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 331.99163 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17415733 | $\omega$ | 22.52665 | | −0.53751262 | | −0.79173590 |
| $a$ | 3.1757151 | $\Omega$ | 101.13824 | | +0.72157494 | | −0.60995183 |
| $e$ | 0.2413244 | $i$ | 17.20572 | | +0.43635971 | | +0.03336220 |
| $P$ | 5.66 | $H$ | 14.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 11 22 | 691 | 0.2+ | 0.4− | 2005 01 09 | 703 | 0.1+ | 1.2− | 2009 11 09 | 703 | 0.8− | 0.0 |
| 1998 11 22 | 691 | 0.3+ | 0.5− | 2005 01 09 | 703 | 0.4− | 0.4+ | 2009 11 09 | 703 | 1.3− | 0.5+ |
| 1998 11 22 | 691 | 0.1+ | 0.5− | 2005 01 09 | 703 | 0.2− | 0.3− | 2009 11 19 | J75 | 0.6− | 0.4− |
| 1998 12 16 | 699 | 0.6+ | 0.2− | 2005 01 09 | 703 | 0.9− | 0.2+ | 2009 11 19 | J75 | 0.3+ | 0.3− |
| 1998 12 16 | 699 | (2.3+ | 0.1+) | 2005 03 01 | 703 | 0.3+ | 0.6+ | 2009 11 19 | J75 | 0.0 | 0.1− |
| 1998 12 16 | 699 | 1.3+ | 0.5+ | 2005 03 01 | 703 | 0.1+ | 0.3+ | 2009 11 20 | J75 | 0.1− | 0.1+ |
| 1999 01 10 | 699 | 0.3− | 0.1+ | 2005 03 01 | 703 | 0.0 | 0.0 | 2009 11 20 | J75 | 0.3− | 0.1+ |
| 1999 01 10 | 699 | 0.4+ | 0.4− | 2005 03 01 | 703 | 0.5− | 0.1+ | 2009 11 20 | J75 | 0.8− | 0.2+ |
| 1999 01 10 | 699 | 0.5− | 0.3+ | 2005 03 08 | 704 | 1.3+ | 1.0+ | 2009 11 21 | A50 | 0.2+ | 0.0 |
| 1999 01 19 | 704 | 1.4− | 1.9− | 2005 03 08 | 704 | (2.0− | 1.4+) | 2009 11 21 | A50 | 0.3+ | 0.3− |
| 1999 01 19 | 704 | 0.7− | 0.2− | 2005 03 08 | 704 | 0.2− | 0.2+ | 2009 11 21 | A50 | 0.1− | 0.1− |
| 1999 01 19 | 704 | 1.4− | 1.2+ | 2005 03 08 | 704 | 0.3+ | 0.4+ | 2009 11 26 | G96 | 0.1− | 0.1− |
| 1999 01 19 | 704 | 0.6+ | 0.6+ | 2005 03 08 | 704 | (0.8+ | 1.6+) | 2009 11 26 | G96 | 0.2− | 0.2− |
| 1999 02 12 | 699 | 0.2+ | 0.3− | 2005 03 31 | 703 | 0.4+ | 0.5+ | 2009 11 26 | G96 | 0.2− | 0.3− |
| 1999 02 12 | 699 | 0.9+ | 1.1+ | 2005 03 31 | 703 | 0.5− | 0.6+ | 2009 11 26 | G96 | 0.4− | 0.2− |
| 1999 02 12 | 699 | 0.6− | 0.4− | 2005 03 31 | 703 | (0.8+ | 2.1+) | 2009 11 26 | G96 | 0.4− | 0.2− |
| 2000 05 07 | 691 | 0.4− | 0.2− | 2005 03 31 | 703 | 0.6+ | 1.2+ | 2009 12 13 | 704 | 0.6+ | 0.1+ |
| 2000 05 07 | 691 | 0.1+ | 0.4− | 2005 04 30 | 703 | 0.2+ | 0.4− | 2009 12 13 | 704 | 0.2+ | 0.2+ |
| 2000 05 07 | 691 | 0.1− | 0.4− | 2005 04 30 | 703 | 0.0 | 0.3+ | 2009 12 13 | 704 | 0.6+ | 0.2+ |
| 2003 10 24 | 699 | 0.1− | 1.4− | 2005 04 30 | 703 | 0.5− | 0.0 | 2009 12 13 | 704 | 0.6+ | 0.5+ |
| 2003 10 24 | 699 | (1.7+ | 0.5−) | 2005 04 30 | 703 | 0.7− | 0.4− | 2009 12 13 | 704 | 0.5+ | 0.3+ |
| 2003 10 24 | 699 | 0.1+ | 0.3+ | 2009 10 01 | G96 | 0.1− | 0.1− | 2009 12 18 | 704 | 0.8+ | 0.2− |
| 2003 10 24 | 699 | 0.2+ | 0.1+ | 2009 10 01 | G96 | 0.0 | 0.2− | 2009 12 18 | 704 | 0.4+ | 1.4+ |
| 2004 12 22 | 703 | 0.7+ | 1.4− | 2009 10 01 | G96 | 0.3− | 0.1+ | 2009 12 18 | 704 | 0.5+ | 0.1+ |
| 2004 12 22 | 703 | 0.1+ | 0.3+ | 2009 10 01 | G96 | 0.3− | 0.1− | 2009 12 18 | 704 | 0.3+ | 0.2+ |
| 2004 12 22 | 703 | (1.5+ | 2.1+) | 2009 11 09 | 703 | 0.5+ | 0.6+ | 2009 12 18 | 704 | 0.6+ | 0.2+ |
| 2004 12 22 | 703 | 0.5− | 0.4+ | 2009 11 09 | 703 | 1.0− | 0.4− | | | | |

**(228247)∗ 1998 $XH_{10}$**

Discovered 1998 Dec. 8 by the OCA-DLR Asteroid Survey at Caussols.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 350.47449 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18653008 | $\omega$ | 43.17375 | | −0.36064993 | | −0.91784702 |
| $a$ | 3.0336826 | $\Omega$ | 68.59320 | | +0.79993560 | | −0.39579553 |
| $e$ | 0.1094730 | $i$ | 10.25806 | | +0.47961929 | | −0.03004576 |
| $P$ | 5.28 | $H$ | 14.9 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 12 08 | 691 | 0.6− | 0.2+ | 2003 10 20 | 704 | 1.3− | 0.3− | 2005 02 28 | 703 | 0.2+ | 0.6+ |
| 1998 12 08 | 691 | 0.5− | 0.7+ | 2003 10 20 | 704 | 0.6− | 0.2+ | 2006 04 25 | 691 | 0.3− | 0.5+ |
| 1998 12 08 | 691 | 0.5− | 0.3− | 2003 10 20 | 704 | 0.1+ | 0.8+ | 2006 04 25 | 691 | 0.0 | 0.2+ |
| 1998 12 08 | 910 | 1.1+ | 0.7− | 2003 10 21 | 691 | 0.2+ | 0.7+ | 2006 04 25 | 691 | 0.2+ | 0.2+ |
| 1998 12 08 | 910 | 1.0+ | 0.9− | 2003 10 21 | 691 | 0.2+ | 0.3+ | 2006 05 03 | 691 | 0.3+ | 0.6+ |
| 1998 12 08 | 910 | 1.3+ | 0.2+ | 2003 10 21 | 691 | 0.2+ | 0.4+ | 2006 05 03 | 691 | 0.5+ | 0.3+ |
| 1998 12 15 | 910 | 0.7+ | 0.1+ | 2003 10 28 | 608 | 0.1+ | 0.2− | 2006 05 03 | 691 | 0.7+ | 0.7+ |
| 1998 12 15 | 910 | 0.6+ | 0.1− | 2003 10 28 | 608 | 0.0 | 0.2+ | 2006 05 24 | G96 | 0.4− | 0.1+ |
| 1998 12 15 | 910 | 0.5+ | 0.2− | 2003 10 28 | 608 | 0.2− | 0.7− | 2006 05 24 | G96 | 0.2− | 0.0 |
| 2000 03 04 | 704 | 1.1+ | 0.2+ | 2003 11 19 | 644 | 0.3+ | 0.2+ | 2006 05 24 | G96 | 0.1− | 0.0 |
| 2000 03 04 | 704 | 0.7+ | 0.3+ | 2003 11 19 | 644 | 0.0 | 0.4+ | 2006 05 24 | G96 | 0.9− | 1.2+ |
| 2000 03 04 | 704 | 0.0 | 0.3− | 2003 11 19 | 644 | 0.0 | 0.2+ | 2009 10 14 | G96 | 0.2− | 0.1+ |
| 2000 03 04 | 704 | 0.3+ | 0.4− | 2003 11 26 | 699 | 1.1− | 1.1+ | 2009 10 14 | G96 | 0.1+ | 0.1− |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 03 04 | 704 | 0.1− | 0.5− | 2003 11 26 | 699 | 0.6− | 0.0 | 2009 10 14 | G96 | 0.1− | 0.0 | | |
| 2003 10 14 | 699 | 0.6− | 0.5− | 2003 11 26 | 699 | 1.4− | 0.9− | 2009 12 15 | 704 | 0.1+ | 0.6+ | | |
| 2003 10 14 | 699 | 0.7− | 0.6+ | 2003 11 26 | 699 | 1.0− | 1.2+ | 2009 12 15 | 704 | 0.4+ | 0.8+ | | |
| 2003 10 14 | 699 | (2.3− | 2.0+) | 2005 02 28 | 703 | 0.4− | 0.2− | 2009 12 15 | 704 | 0.2+ | 0.3+ | | |
| 2003 10 14 | 699 | 0.1+ | 0.0 | 2005 02 28 | 703 | 1.0− | 0.2+ | 2009 12 15 | 704 | 0.3+ | 0.5+ | | |
| 2003 10 20 | 704 | 0.3+ | 1.1+ | 2005 02 28 | 703 | 0.7− | 0.2− | | | | | | |

**(228248)∗ 1998 $XD_{13}$ = 2001 $FR_{31}$**

Discovered 1998 Dec. 15 by the OCA-DLR Asteroid Survey at Caussols.

Id. G. V. Williams (*MPO* 11523)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | | **P** | **Q** | |
| $M$ | 62.53215 | | | (2000.0) | +0.90108418 | −0.40311310 | |
| $n$ | 0.18599336 | $\omega$ | 323.24958 | | +0.42845563 | +0.77077318 | |
| $a$ | 3.0395159 | $\Omega$ | 61.26245 | | +0.06688105 | +0.49336451 | |
| $e$ | 0.0314367 | $i$ | 10.50298 | | | | |
| $P$ | 5.30 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 11 14 | 691 | 0.0 | 0.3− | 2001 05 14 | 691 | 0.4+ | 0.8+ | 2003 10 27 | 704 | 1.1− | 1.3+ | | |
| 1998 11 14 | 691 | 0.0 | 0.2− | 2001 05 14 | 691 | 0.4+ | 0.6+ | 2003 10 27 | 704 | 0.8− | 0.8+ | | |
| 1998 11 14 | 691 | 0.2− | 0.1− | 2003 09 28 | 699 | 0.2+ | 0.0 | 2003 10 27 | 704 | 0.3+ | 0.5− | | |
| 1998 11 19 | 691 | 0.2+ | 0.2+ | 2003 09 28 | 699 | 0.1− | 0.0 | 2006 03 23 | 703 | 0.1− | 0.3− | | |
| 1998 11 19 | 691 | 0.4+ | 0.1− | 2003 09 28 | 699 | (1.7− | 0.4+) | 2006 03 23 | 703 | (2.6− | 0.7+) | | |
| 1998 11 19 | 691 | 0.3+ | 0.5− | 2003 09 28 | 699 | (0.1+ | 1.6+) | 2006 03 23 | 703 | 0.1− | 0.3+ | | |
| 1998 12 15 | 910 | 0.3− | 0.2+ | 2003 10 04 | 683 | (1.1+ | 2.4−) | 2006 03 23 | 703 | 0.1+ | 1.5+ | | |
| 1998 12 15 | 910 | 0.0 | 0.6+ | 2003 10 04 | 683 | (3.4+ | 1.3+) | 2006 04 04 | 599 | 0.7+ | 0.0 | | |
| 1998 12 15 | 910 | 0.1+ | 0.7+ | 2003 10 04 | 683 | (2.4+ | 1.0+) | 2006 04 04 | 599 | 0.9+ | 0.1+ | | |
| 1998 12 16 | 910 | 0.1− | 0.4+ | 2003 10 17 | 683 | (0.9− | 2.1+) | 2006 04 04 | 599 | 0.8+ | 0.2− | | |
| 1998 12 16 | 910 | 0.4− | 0.5+ | 2003 10 17 | 683 | 0.4− | 0.9+ | 2006 04 04 | 599 | 0.1− | 1.4− | | |
| 1998 12 16 | 910 | 0.2− | 0.3+ | 2003 10 20 | 704 | 0.2− | 0.0 | 2009 11 26 | 691 | 0.5− | 0.2+ | | |
| 2001 03 22 | 691 | 0.7− | 0.0 | 2003 10 20 | 704 | 0.8− | 0.6+ | 2009 11 26 | 691 | 0.4− | 0.3+ | | |
| 2001 03 22 | 691 | 0.7− | 0.0 | 2003 10 20 | 704 | 0.6− | 0.4+ | 2009 11 26 | 691 | 0.1+ | 0.3+ | | |
| 2001 03 22 | 691 | 0.7− | 0.2− | 2003 10 20 | 704 | 0.1− | 1.3+ | 2009 12 15 | 704 | 1.3+ | 0.1+ | | |
| 2001 03 24 | 691 | 0.2+ | 0.1+ | 2003 10 20 | 691 | 0.3− | 0.1+ | 2009 12 15 | 704 | 0.4+ | 0.0 | | |
| 2001 03 24 | 691 | 0.6+ | 0.4+ | 2003 10 20 | 691 | 0.2− | 0.3+ | 2009 12 15 | 704 | 0.4+ | 0.0 | | |
| 2001 03 24 | 691 | 0.6+ | 0.3+ | 2003 10 20 | 691 | 0.2− | 0.7+ | | | | | | |
| 2001 05 14 | 691 | 0.6+ | 0.5+ | 2003 10 27 | 704 | 0.7+ | 1.0+ | | | | | | |

**(228249)∗ 1998 $XO_{35}$ = 2003 $SA_{38}$**

Discovered 1998 Dec. 14 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 52458)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | | **P** | **Q** | |
| $M$ | 33.17249 | | | (2000.0) | +0.69999423 | −0.67392821 | |
| $n$ | 0.18284816 | $\omega$ | 149.66632 | | +0.59610219 | +0.73358401 | |
| $a$ | 3.0742722 | $\Omega$ | 254.70394 | | +0.39328141 | +0.08760857 | |
| $e$ | 0.2775081 | $i$ | 14.17940 | | | | |
| $P$ | 5.39 | $H$ | 14.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 11 24 | 704 | 0.1+ | 1.4− | 2003 09 22 | 704 | 0.4+ | 0.1+ | 2003 12 29 | 704 | 0.9+ | 1.3+ | | |
| 1998 11 24 | 704 | (0.8+ | 4.0−) | 2003 09 22 | 704 | 0.7+ | 0.0 | 2003 12 29 | 704 | 1.2+ | 0.6+ | | |
| 1998 11 24 | 704 | (0.4+ | 2.1−) | 2003 09 22 | 704 | 0.8+ | 0.3− | 2005 02 04 | 644 | 0.6+ | 0.4+ | | |
| 1998 11 24 | 704 | (4.5− | 0.0 ) | 2003 09 22 | 704 | 0.7+ | 0.5+ | 2005 02 04 | 644 | 0.6+ | 0.4+ | | |
| 1998 12 11 | 699 | 0.7− | 0.3+ | 2003 09 22 | 704 | 0.1+ | 0.3+ | 2005 02 04 | 644 | 0.4+ | 0.2+ | | |
| 1998 12 11 | 699 | 0.0 | 0.7− | 2003 10 19 | 699 | 0.1+ | 0.4− | 2005 02 14 | 703 | 1.4− | 0.6+ | | |
| 1998 12 11 | 699 | 0.4+ | 0.4− | 2003 10 19 | 699 | 1.2− | 0.2− | 2005 02 14 | 703 | 1.0+ | 0.1+ | | |
| 1998 12 14 | 704 | (0.3− | 2.5−) | 2003 10 19 | 699 | 0.3− | 0.3+ | 2005 02 14 | 703 | 0.4+ | 0.6− | | |
| 1998 12 14 | 704 | (1.0− | 2.8−) | 2003 10 19 | 699 | 0.4− | 0.8− | 2005 02 14 | 703 | 0.6− | 0.5+ | | |
| 1998 12 14 | 704 | (0.2− | 2.3−) | 2003 10 20 | 644 | 0.1+ | 0.3+ | 2005 03 04 | 703 | 0.3+ | 0.6+ | | |
| 1998 12 14 | 704 | 0.7+ | 1.6− | 2003 10 20 | 644 | 0.0 | 0.1+ | 2005 03 04 | 703 | 0.3− | 0.1− | | |
| 1998 12 17 | 704 | 1.4− | 0.6− | 2003 10 20 | 644 | 0.1− | 0.2+ | 2005 03 04 | 703 | 0.2− | 0.4+ | | |
| 1998 12 17 | 704 | 0.6− | 0.0 | 2003 11 01 | 704 | 0.5− | 0.9− | 2005 03 04 | 703 | 0.0 | 0.3+ | | |
| 1998 12 17 | 704 | 1.0+ | 0.1− | 2003 11 01 | 704 | 0.6− | 0.2− | 2008 08 02 | 704 | 0.1+ | 0.1− | | |
| 1999 01 05 | 699 | 0.1− | 0.6+ | 2003 11 01 | 704 | 0.5− | 0.4− | 2008 08 02 | 704 | 0.0 | 0.9+ | | |
| 1999 01 05 | 699 | 0.2+ | 0.4− | 2003 11 20 | 704 | (0.7− | 2.1−) | 2008 08 02 | 704 | 0.1− | 0.3− | | |
| 1999 01 05 | 699 | 1.0+ | 0.8+ | 2003 11 20 | 704 | (3.3− | 5.6−) | 2008 08 02 | 704 | 0.9+ | 0.5+ | | |
| 2003 07 28 | 644 | 0.1− | 0.0 | 2003 11 20 | 704 | (4.0− | 2.8−) | 2008 08 02 | 704 | 0.1+ | 0.6+ | | |
| 2003 07 28 | 644 | 0.0 | 0.3− | 2003 11 20 | 704 | 0.6− | 0.4− | 2009 11 20 | 704 | 0.7− | 0.1+ | | |
| 2003 07 28 | 644 | 0.0 | 0.1− | 2003 11 20 | 704 | 0.2− | 0.1− | 2009 11 20 | 704 | 0.7− | 1.4+ | | |
| 2003 09 16 | 644 | 0.3− | 0.2− | 2003 11 30 | 704 | 0.4+ | 0.3+ | 2009 11 20 | 704 | 1.2− | 0.7+ | | |
| 2003 09 16 | 644 | 0.2− | 0.1− | 2003 11 30 | 704 | 0.2− | 0.1+ | 2009 11 20 | 704 | 0.4− | 1.0+ | | |
| 2003 09 16 | 644 | 0.1− | 0.1+ | 2003 11 30 | 704 | 0.6+ | 0.5− | 2009 12 12 | 704 | 1.1+ | 0.8+ | | |
| 2003 09 19 | 608 | 0.8− | 0.0 | 2003 11 30 | 704 | 0.2− | 0.1+ | 2009 12 12 | 704 | 0.8+ | 0.4+ | | |
| 2003 09 19 | 608 | 0.8− | 0.3+ | 2003 11 30 | 704 | 0.4+ | 0.9+ | 2009 12 12 | 704 | 0.2+ | 0.6− | | |
| 2003 09 19 | 608 | 0.8− | 0.1− | 2003 12 27 | 704 | 0.1− | 0.9+ | 2009 12 12 | 704 | 0.8+ | 0.2− | | |
| 2003 09 20 | 644 | 0.1− | 0.4+ | 2003 12 27 | 704 | (1.5− | 0.7+) | 2009 12 18 | 704 | 0.4− | 0.6− | | |
| 2003 09 20 | 644 | 0.1+ | 0.1+ | 2003 12 27 | 704 | (1.4− | 1.9+) | 2009 12 18 | 704 | 0.4− | 0.9− | | |
| 2003 09 20 | 644 | 0.1− | 0.2+ | 2003 12 27 | 704 | 0.1− | 0.7− | 2009 12 18 | 704 | 0.8+ | 0.0 | | |
| 2003 09 20 | 644 | 0.0 | 0.1+ | 2003 12 27 | 704 | 0.6− | 0.9+ | 2009 12 18 | 704 | 0.2+ | 0.3+ | | |
| 2003 09 20 | 644 | 0.1− | 0.4+ | 2003 12 29 | 704 | (1.4− | 4.2+) | | | | | | |
| 2003 09 20 | 644 | 0.1+ | 0.1+ | 2003 12 29 | 704 | 0.6+ | 0.8+ | | | | | | |

**(228250)∗ 1998 $YD_{20}$ = 2005 $CK_{73}$**

Discovered 1998 Dec. 25 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 74596)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | | **P** | **Q** | |
| $M$ | 29.44966 | | | (2000.0) | +0.63876117 | −0.76846913 | |
| $n$ | 0.17509383 | $\omega$ | 329.82291 | | +0.71338491 | +0.57306187 | |
| $a$ | 3.1643814 | $\Omega$ | 80.45025 | | +0.28821196 | +0.28470211 | |
| $e$ | 0.1610115 | $i$ | 2.20483 | | | | |
| $P$ | 5.63 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 12 25 | 691 | 0.7− | 0.4− | 2003 11 21 | 699 | 0.5+ | 0.8+ | 2008 09 02 | J75 | 0.1− | 0.4− | | |
| 1998 12 25 | 691 | 0.4− | 0.4− | 2003 11 21 | 704 | (1.8− | 0.3+) | 2008 09 02 | J75 | 0.5+ | 0.1− | | |
| 1998 12 28 | 691 | 0.2− | 0.1+ | 2003 11 21 | 699 | 0.4+ | 0.7+ | 2008 09 03 | J75 | 0.7+ | 0.3+ | | |
| 1998 12 28 | 691 | 0.2+ | 0.1− | 2003 11 21 | 704 | 1.2+ | 0.3+ | 2008 10 27 | G96 | 0.5− | 0.1− | | |
| 1998 12 28 | 691 | 0.1− | 0.3− | 2003 11 21 | 699 | 0.9+ | 0.2+ | 2008 10 27 | G96 | 0.8− | 0.0 | | |
| 1999 01 07 | 691 | (2.9+ | 1.5−) | 2003 11 21 | 704 | 0.3− | 0.7− | 2008 10 27 | G96 | 0.4− | 0.0 | | |
| 1999 01 07 | 691 | 0.0 | 0.5− | 2003 11 21 | 699 | 0.7+ | 0.3+ | 2008 10 27 | G96 | 0.6− | 0.1+ | | |
| 1999 01 07 | 691 | 0.0 | 0.2− | 2003 11 21 | 704 | 0.1− | 0.4+ | 2009 11 20 | 691 | 0.1− | 0.2+ | | |
| 2003 10 24 | 704 | 0.5− | 0.3+ | 2005 02 01 | 691 | 0.2+ | 0.6+ | 2009 11 20 | 691 | 0.3− | 0.4+ | | |
| 2003 10 24 | 704 | 1.1+ | 0.4− | 2005 02 01 | 691 | 0.4+ | 0.3+ | 2009 11 20 | 691 | 0.2− | 0.1+ | | |
| 2003 10 24 | 704 | 0.2+ | 0.4+ | 2005 02 01 | 691 | 0.6+ | 0.2+ | 2009 12 16 | G96 | 0.1+ | 0.6+ | | |
| 2003 10 24 | 704 | 0.2− | 0.6− | 2005 02 09 | 691 | 0.3+ | 0.1− | 2009 12 16 | G96 | 0.2− | 0.0 | | |
| 2003 10 29 | 703 | 1.0− | 0.0 | 2005 02 09 | 691 | 0.2+ | 0.1+ | 2009 12 16 | G96 | 0.1− | 0.1+ | | |
| 2003 10 29 | 703 | 0.7− | 0.4+ | 2005 02 09 | 691 | 0.3− | 0.4− | 2009 12 16 | G96 | 0.2+ | 0.2+ | | |
| 2003 10 29 | 703 | 0.8+ | 0.2+ | 2006 04 07 | 691 | 0.4+ | 0.1+ | 2009 12 16 | G96 | 0.2− | 0.2+ | | |
| 2003 10 29 | 703 | 0.2− | 0.0 | 2006 04 07 | 691 | 0.0 | 0.2+ | | | | | | |
| 2003 11 21 | 704 | 0.7− | 1.2+ | 2006 04 07 | 691 | 0.3− | 0.4+ | | | | | | |

**(228251)∗ 1999 $AY_{11}$**

Discovered 1999 Jan. 7 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | | **P** | **Q** | |
| $M$ | 344.65861 | | | (2000.0) | −0.66462999 | −0.74506999 | |
| $n$ | 0.26828909 | $\omega$ | 201.23581 | | +0.69384369 | −0.58764060 | |
| $a$ | 2.3808610 | $\Omega$ | 290.46471 | | +0.27721456 | −0.31551422 | |
| $e$ | 0.0981802 | $i$ | 3.42767 | | | | |
| $P$ | 3.67 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 01 07 | 691 | 0.3+ | 0.4− | 2005 11 21 | 691 | 0.2+ | 0.8+ | 2008 09 09 | G96 | 0.0 | 0.3− | | |
| 1999 01 07 | 691 | 0.0 | 0.3− | 2005 11 28 | 703 | (1.8− | 0.4−) | 2008 09 09 | G96 | 0.1+ | 0.2− | | |
| 1999 01 07 | 691 | 0.5+ | 0.0 | 2005 11 28 | 703 | 0.6− | 1.2+ | 2008 10 03 | 691 | 0.3+ | 0.5− | | |
| 1999 01 14 | 691 | 0.3+ | 0.2+ | 2005 11 28 | 703 | 0.9− | 1.2+ | 2008 10 03 | 691 | 0.2− | 0.0 | | |
| 1999 01 14 | 691 | 0.3+ | 0.0 | 2005 11 28 | 703 | (1.2+ | 1.8+) | 2008 10 03 | 691 | 0.1− | 0.3− | | |
| 1999 01 14 | 691 | 0.6+ | 0.1+ | 2005 12 05 | 704 | 0.4− | 0.2+ | 2009 11 11 | G96 | 0.2+ | 0.4− | | |
| 1999 01 22 | 691 | 0.8− | 0.3− | 2005 12 05 | 704 | 0.2− | 0.1+ | 2009 11 11 | G96 | 0.2+ | 0.2− | | |
| 1999 01 22 | 691 | 1.1− | 0.1− | 2005 12 05 | 704 | 0.1+ | 0.1− | 2009 11 11 | G96 | 0.1+ | 0.0 | | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 01 22 | 691 | 0.8− | 0.0 | 2005 12 05 | 704 | 0.5+ | 0.4+ | 2009 11 11 | G96 | 0.0 | 0.4− |
| 2003 03 31 | 704 | 0.8+ | 0.9− | 2005 12 05 | 704 | 0.5+ | 1.1− | 2009 12 17 | 691 | 0.2+ | 0.2− |
| 2003 03 31 | 704 | 0.5+ | 0.5+ | 2005 12 29 | 703 | 0.0 | 0.1+ | 2009 12 17 | 691 | 0.4− | 0.9+ |
| 2003 03 31 | 704 | 0.6+ | 0.3+ | 2005 12 29 | 703 | 0.5+ | 1.1− | 2009 12 17 | 691 | 0.2+ | 0.0 |
| 2004 06 22 | 691 | 0.0 | 0.2+ | 2005 12 29 | 703 | (1.7+ | 1.1−) | 2009 12 19 | 291 | 0.2+ | 0.2+ |
| 2004 06 22 | 691 | 0.0 | 0.3+ | 2005 12 29 | 703 | (0.2− | 2.2−) | 2009 12 19 | 291 | 0.2+ | 0.0 |
| 2004 06 22 | 691 | 0.2− | 0.0 | 2006 01 27 | G96 | 0.1+ | 0.2− | 2009 12 19 | 291 | 0.1+ | 0.2+ |
| 2005 11 12 | 691 | 0.2+ | 0.0 | 2006 01 27 | G96 | 0.1− | 0.2− | 2009 12 25 | 691 | 0.1− | 0.0 |
| 2005 11 12 | 691 | 0.1− | 0.0 | 2006 01 27 | G96 | 0.3− | 0.1+ | 2009 12 25 | 691 | 0.6− | 0.3− |
| 2005 11 12 | 691 | 0.0 | 0.0 | 2006 01 27 | G96 | 0.5+ | 0.3− | 2009 12 25 | 691 | 0.1− | 0.0 |
| 2005 11 21 | 691 | 0.2+ | 0.0 | 2008 09 09 | G96 | 0.1+ | 0.2− | | | | |
| 2005 11 21 | 691 | 0.1+ | 0.1− | 2008 09 09 | G96 | 0.1+ | 0.3− | | | | |

**(228252)∗ 1999 $AO_{32}$ = 1999 $AS_{15}$ = 2005 $TN_{173}$ = 2005 $UA_{358}$**

Discovered 1999 Jan. 15 by Spacewatch at Kitt Peak.

Id. A. Doppler (d, *MPO* 4024), G. V. Williams (*MPO* 93743)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 12.00299 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26400566 | $\omega$ | 109.09221 | | +0.38644303 | −0.92197960 | |
| $a$ | 2.4065445 | $\Omega$ | 318.14735 | | +0.83161568 | +0.35994658 | |
| $e$ | 0.2115359 | $i$ | 2.13077 | | +0.39884476 | +0.14280086 | |
| $P$ | 3.73 | $H$ | 18.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 01 09 | 691 | 0.5+ | 0.4− | 2005 10 07 | 691 | 0.0 | 0.1− | 2009 11 09 | G96 | 0.3− | 0.1− |
| 1999 01 09 | 691 | 0.6− | 0.2− | 2005 10 11 | 691 | 0.3+ | 0.0 | 2009 11 22 | 691 | 0.4− | 0.2− |
| 1999 01 09 | 691 | 0.4− | 0.4+ | 2005 10 11 | 691 | 0.0 | 0.1+ | 2009 11 22 | 691 | 0.8− | 0.4+ |
| 1999 01 15 | 691 | 0.6+ | 0.6− | 2005 10 11 | 691 | 0.2+ | 0.2− | 2009 11 22 | 691 | (1.8− | 1.6−) |
| 1999 01 15 | 691 | 0.4+ | 0.1− | 2005 10 24 | 691 | 0.1− | 0.0 | 2009 11 26 | 691 | 0.2− | 0.3− |
| 1999 01 15 | 691 | 0.6+ | 0.3− | 2005 10 24 | 691 | 0.1+ | 0.1− | 2009 11 26 | 691 | 0.1− | 0.1− |
| 1999 01 23 | 691 | 0.5− | 0.2− | 2005 10 24 | 691 | 0.4− | 0.1− | 2009 11 26 | 691 | 0.1− | 0.1− |
| 1999 01 23 | 691 | 0.4− | 0.0 | 2005 10 31 | 691 | 0.1+ | 0.1+ | 2009 12 10 | 704 | 1.6+ | 2.1+ |
| 1999 01 23 | 691 | 0.5− | 0.0 | 2005 10 31 | 691 | 0.5+ | 0.2+ | 2009 12 10 | 704 | 1.5+ | 1.2+ |
| 2001 08 21 | 807 | 0.1+ | 0.2+ | 2005 10 31 | 691 | 0.0 | 0.1− | 2009 12 10 | 704 | (0.1+ | 3.1+) |
| 2001 08 21 | 807 | 0.3− | 0.0 | 2009 10 26 | G96 | 0.2− | 0.2− | 2009 12 10 | 704 | 0.6+ | 2.2+ |
| 2005 10 01 | 703 | 1.0− | 0.0 | 2009 10 26 | G96 | 0.1+ | 0.1− | 2009 12 10 | 704 | 0.6+ | 1.2+ |
| 2005 10 01 | 703 | 1.5+ | 0.3− | 2009 10 26 | G96 | 0.3+ | 0.4− | 2009 12 11 | G96 | 0.3+ | 0.4− |
| 2005 10 01 | 703 | 0.4− | 0.5− | 2009 10 26 | G96 | 0.1+ | 0.0 | 2009 12 11 | G96 | 0.2+ | 0.5− |
| 2005 10 01 | 703 | 1.1− | 1.0− | 2009 11 09 | G96 | 0.1− | 0.2− | 2009 12 11 | G96 | 0.3+ | 0.5− |
| 2005 10 07 | 691 | 0.3+ | 0.1+ | 2009 11 09 | G96 | 0.2− | 0.4− | 2009 12 11 | G96 | 0.4+ | 0.6− |
| 2005 10 07 | 691 | 0.1− | 0.2− | 2009 11 09 | G96 | 0.2− | 0.3− | | | | |

**(228253)∗ 1999 $CT_{136}$ = 2003 $FZ_{104}$**

Discovered 1999 Feb. 9 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 46353)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 311.38168 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26612929 | $\omega$ | 38.54849 | | −0.98118580 | −0.18891716 | |
| $a$ | 2.3937250 | $\Omega$ | 130.51432 | | +0.16160602 | −0.91646700 | |
| $e$ | 0.1407210 | $i$ | 3.00155 | | +0.10563101 | −0.35270178 | |
| $P$ | 3.70 | $H$ | 17.7 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 01 07 | 691 | 1.1− | 0.5− | 2003 03 27 | 699 | (1.9− | 2.0+) | 2008 09 23 | G96 | 0.4+ | 0.2+ |
| 1999 01 07 | 691 | 0.5− | 0.0 | 2003 03 31 | 699 | 0.3+ | 0.9+ | 2008 09 23 | G96 | 0.4+ | 0.2− |
| 1999 01 07 | 691 | 0.4− | 0.1+ | 2003 03 31 | 699 | 0.0 | 0.7− | 2008 09 23 | G96 | 0.4+ | 0.2+ |
| 1999 01 17 | 691 | 0.2+ | 0.0 | 2003 03 31 | 699 | 0.4+ | 0.4+ | 2008 09 23 | G96 | 0.4+ | 0.1+ |
| 1999 01 17 | 691 | 0.4+ | 0.3− | 2003 03 31 | 699 | 0.1+ | 1.2+ | 2009 12 17 | G96 | 0.7+ | 0.1− |
| 1999 02 09 | 691 | 0.6− | 0.4+ | 2003 04 10 | 691 | 0.1+ | 0.3− | 2009 12 17 | G96 | 0.2+ | 0.0 |
| 1999 02 09 | 691 | 0.4− | 0.1− | 2003 04 10 | 691 | 0.1+ | 0.2+ | 2009 12 17 | G96 | 0.0 | 0.1+ |
| 1999 02 09 | 691 | 0.1+ | 0.3− | 2003 04 10 | 691 | 0.2+ | 0.1+ | 2009 12 17 | G96 | 0.2+ | 0.2− |
| 1999 02 12 | 691 | 0.6+ | 0.1+ | 2007 05 07 | 691 | 0.5− | 0.7− | 2009 12 17 | G96 | 0.2+ | 0.3− |
| 1999 02 12 | 691 | 0.5+ | 0.7− | 2007 05 07 | 691 | 0.7− | 0.3− | 2009 12 18 | 691 | 0.2+ | 0.3+ |
| 1999 02 12 | 691 | 0.1+ | 0.6− | 2007 05 07 | 691 | 0.1− | 0.1− | 2009 12 18 | 691 | 0.1+ | 0.1+ |
| 2003 03 26 | 644 | 0.5+ | 0.7+ | 2007 05 12 | 691 | 0.0 | 0.7+ | 2009 12 18 | 691 | 0.0 | 0.1+ |
| 2003 03 26 | 644 | 0.4+ | 0.8+ | 2007 05 12 | 691 | 0.3− | 0.1− | 2009 12 26 | 691 | 0.2− | 0.2+ |
| 2003 03 26 | 644 | 0.5+ | 1.1+ | 2007 05 12 | 691 | 0.0 | 0.4− | 2009 12 26 | 691 | 0.0 | 0.1+ |
| 2003 03 27 | 699 | 0.8+ | 0.0 | 2007 06 13 | 691 | 0.4+ | 0.2− | 2009 12 26 | 691 | 0.3− | 0.0 |
| 2003 03 27 | 699 | (0.4+ | 1.9+) | 2007 06 13 | 691 | 0.2+ | 0.1− | | | | |
| 2003 03 27 | 699 | 1.4+ | 0.2+ | 2007 06 13 | 691 | 0.1− | 0.0 | | | | |

**(228254)∗ 1999 $CL_{141}$**

Discovered 1999 Feb. 10 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 64.79353 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26785607 | $\omega$ | 257.50339 | | +0.87886851 | −0.46008892 | |
| $a$ | 2.3834262 | $\Omega$ | 129.74412 | | +0.47600180 | +0.82807506 | |
| $e$ | 0.2068936 | $i$ | 9.44122 | | +0.03181881 | +0.32032778 | |
| $P$ | 3.68 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 01 14 | 691 | 0.6− | 0.2+ | 2005 10 25 | 703 | 0.7− | 0.0 | 2005 12 05 | 703 | 0.1− | 0.0 |
| 1999 01 14 | 691 | 0.6− | 0.0 | 2005 10 27 | 699 | 0.4− | 0.7+ | 2005 12 05 | 703 | 0.2− | 0.2− |
| 1999 01 14 | 691 | 0.9− | 0.3− | 2005 10 27 | 699 | 0.2+ | 0.5+ | 2005 12 05 | 703 | 0.4− | 0.3− |
| 1999 02 10 | 691 | 0.3+ | 0.3− | 2005 10 27 | 699 | 0.7+ | 0.0 | 2005 12 06 | 704 | 0.3+ | 0.5+ |
| 1999 02 10 | 691 | 0.4− | 0.4− | 2005 10 27 | 699 | 0.7+ | 0.8+ | 2005 12 06 | 704 | 0.9+ | 0.7+ |
| 1999 02 10 | 691 | 0.4− | 0.2− | 2005 10 31 | 703 | 1.2+ | 1.1+ | 2005 12 06 | 704 | 1.0+ | 0.7+ |
| 1999 02 13 | 691 | 0.7+ | 0.4− | 2005 10 31 | 703 | 0.3− | 0.4− | 2005 12 06 | 704 | 0.7+ | 1.0+ |
| 1999 02 13 | 691 | 0.9+ | 0.0 | 2005 10 31 | 703 | 0.4+ | 0.9− | 2005 12 06 | 704 | 1.1+ | 1.1+ |
| 1999 02 13 | 691 | 0.9+ | 0.1+ | 2005 10 31 | 703 | 0.1− | 0.1− | 2005 12 27 | 703 | 0.0 | 0.5+ |
| 2001 08 16 | 493 | 0.7+ | 0.1− | 2005 11 13 | 699 | 0.7− | 0.0 | 2005 12 27 | 703 | (1.8− | 1.2−) |
| 2001 08 16 | 493 | 0.0 | 0.2− | 2005 11 13 | 699 | 0.4+ | 0.2− | 2005 12 27 | 703 | 1.2− | 0.3− |
| 2001 08 16 | 493 | 0.6+ | 0.2− | 2005 11 13 | 699 | (2.7+ | 0.0 ) | 2005 12 27 | 703 | 1.4− | 0.1+ |
| 2001 08 25 | 699 | 0.2− | 0.3+ | 2005 11 13 | 699 | 1.1+ | 0.3+ | 2006 01 02 | 704 | 0.5− | 0.5+ |
| 2001 08 25 | 699 | 0.2− | 0.4− | 2005 11 19 | 644 | 0.0 | 0.3− | 2006 01 02 | 704 | 0.0 | 0.5+ |
| 2001 08 25 | 699 | 0.6+ | 0.0 | 2005 11 19 | 644 | 0.1+ | 0.1+ | 2006 01 02 | 704 | 1.0− | 1.1+ |
| 2001 08 25 | 699 | 0.4− | 0.8− | 2005 11 19 | 644 | 0.0 | 0.1+ | 2006 01 02 | 704 | (2.0− | 2.9−) |
| 2001 09 11 | 704 | 0.1+ | 1.4− | 2005 11 29 | 703 | 0.5− | 0.3− | 2007 04 15 | G96 | 0.2+ | 0.2− |
| 2001 09 11 | 704 | 0.2− | 0.3− | 2005 11 29 | 703 | 0.4− | 0.6− | 2007 04 15 | G96 | 0.5+ | 0.3+ |
| 2001 09 11 | 704 | 0.0 | 0.3− | 2005 11 29 | 703 | 0.8− | 0.3− | 2007 04 15 | G96 | 0.2− | 0.3+ |
| 2001 09 11 | 704 | 0.5− | 0.4− | 2005 11 29 | 703 | 1.0+ | 0.9+ | 2007 04 15 | G96 | 0.7+ | 0.4+ |
| 2001 09 11 | 704 | 0.5− | 1.1+ | 2005 11 29 | 644 | 0.0 | 0.2+ | 2009 11 27 | G96 | 0.1+ | 0.1− |
| 2005 10 10 | 699 | 0.5+ | 1.4− | 2005 11 29 | 644 | 0.2+ | 0.0 | 2009 11 27 | G96 | 0.0 | 0.1− |
| 2005 10 10 | 699 | 0.1− | 0.2− | 2005 11 29 | 703 | 0.4− | 0.4− | 2009 11 27 | G96 | 0.0 | 0.0 |
| 2005 10 10 | 699 | 0.5− | 0.1+ | 2005 11 29 | 644 | 0.1+ | 0.1+ | 2009 11 27 | G96 | 0.1+ | 0.0 |
| 2005 10 10 | 699 | 1.1+ | 0.0 | 2005 11 29 | 703 | 0.5− | 0.5− | 2009 11 27 | G96 | 0.1+ | 0.0 |
| 2005 10 25 | 703 | 0.7+ | 0.2− | 2005 11 29 | 703 | 0.5− | 0.7− | 2009 12 19 | 691 | 0.3− | 0.0 |
| 2005 10 25 | 703 | 0.4− | 0.1− | 2005 11 29 | 703 | 0.6− | 0.4− | 2009 12 19 | 691 | 0.1− | 0.0 |
| 2005 10 25 | 703 | 0.7− | 0.7− | 2005 12 05 | 703 | 0.4− | 0.2+ | 2009 12 19 | 691 | 0.0 | 0.0 |

**(228255)∗ 1999 $ET_7$ = 2005 $JC_{153}$**

Discovered 1999 Mar. 12 by Spacewatch at Kitt Peak.

Id. A. Doppler (*MPO* 84491)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 308.16763 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17552372 | $\omega$ | 112.06041 | | −0.98367741 | +0.17983704 | |
| $a$ | 3.1592125 | $\Omega$ | 78.30028 | | −0.16730926 | −0.90158834 | |
| $e$ | 0.1384220 | $i$ | 0.35778 | | −0.06622963 | −0.39344264 | |
| $P$ | 5.62 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 01 26 | 910 | 1.8+ | 0.3− | 2005 03 12 | 691 | 0.2+ | 0.2+ | 2007 10 04 | G96 | 0.2− | 0.1− |
| 1999 01 26 | 910 | 1.8+ | 0.1+ | 2005 05 04 | G96 | 0.4− | 0.0 | 2007 10 04 | G96 | 0.7− | 0.1+ |
| 1999 01 26 | 910 | (2.1+ | 0.0 ) | 2005 05 04 | G96 | 0.5− | 0.0 | 2007 10 12 | G96 | 0.4+ | 0.8− |
| 1999 03 12 | 691 | 0.2− | 0.0 | 2005 05 04 | G96 | 0.3− | 0.0 | 2007 10 12 | G96 | 0.2+ | 0.2+ |
| 1999 03 12 | 691 | 0.4− | 0.0 | 2005 05 04 | G96 | 1.2− | 0.2+ | 2007 10 12 | G96 | 0.1+ | 0.1− |
| 1999 03 12 | 691 | 0.3+ | 0.6− | 2005 05 13 | 691 | 0.2+ | 0.2− | 2007 10 12 | G96 | 0.1− | 0.3− |
| 1999 03 20 | 691 | 0.3− | 0.1+ | 2005 05 13 | 691 | 0.4+ | 0.2+ | 2008 11 19 | G96 | 0.0 | 0.1− |
| 1999 03 20 | 691 | 0.6− | 0.0 | 2005 05 13 | 691 | 0.1+ | 0.1+ | 2008 11 19 | G96 | 0.4+ | 0.3+ |
| 1999 03 20 | 691 | 0.2− | 0.2− | 2007 09 12 | G96 | 0.6+ | 0.3− | 2008 11 19 | G96 | 0.1− | 0.0 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 10 11 | 291 | 0.1+ | 0.2+ | 2007 09 12 | G96 | 0.1− | 0.3− | 2008 11 19 | G96 | 0.2+ | 0.5− |
| 2002 10 11 | 291 | 0.2− | 0.6+ | 2007 09 12 | G96 | 0.5+ | 0.5− | 2008 12 21 | G96 | 0.1− | 0.3+ |
| 2002 10 11 | 291 | 0.2+ | 0.3+ | 2007 09 12 | G96 | 0.1+ | 0.6− | 2008 12 21 | G96 | 0.1− | 0.3+ |
| 2005 03 12 | 691 | 0.2+ | 0.3+ | 2007 10 04 | G96 | 0.1− | 0.2− | 2008 12 21 | G96 | 0.1− | 0.3− |
| 2005 03 12 | 691 | 0.0 | 0.1+ | 2007 10 04 | G96 | 0.8− | 0.6− | 2008 12 21 | G96 | 0.5− | 0.5− |

**(228256)∗ 1999 EE$_{12}$**

Discovered 1999 Mar. 15 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 28.00411 | | (2000.0) | | **P** | **Q** |
| $n$ | 0.26899443 | $\omega$ | 2.11968 | | −0.42043259 | −0.90289848 |
| $a$ | 2.3766972 | $\Omega$ | 112.75239 | | +0.83101885 | −0.42279302 |
| $e$ | 0.1685386 | $i$ | 5.56963 | | +0.36420340 | −0.07759118 |
| $P$ | 3.66 | $H$ | 16.3 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1990 11 11 | 691 | 0.4+ | 0.1− | 2003 04 05 | 291 | 0.3+ | 0.6+ | 2006 01 24 | 704 | 0.1− | 0.4− |
| 1990 11 11 | 691 | 0.6+ | 0.1+ | 2005 12 25 | 691 | 0.4+ | 0.1+ | 2006 01 24 | 704 | 0.1− | 0.0 |
| 1990 11 11 | 691 | 0.4+ | 0.0 | 2005 12 25 | 691 | 0.4+ | 0.2+ | 2006 01 24 | 704 | 0.3− | 0.5− |
| 1995 01 28 | 691 | 0.4− | 0.6− | 2005 12 25 | 691 | 0.4+ | 0.1+ | 2006 01 27 | 704 | 0.5− | 0.1− |
| 1995 01 28 | 691 | 0.3− | 1.3− | 2005 12 26 | G96 | 0.0 | 0.4− | 2006 01 27 | 704 | 0.1+ | 1.2+ |
| 1995 01 28 | 691 | 0.8− | 0.2− | 2005 12 26 | G96 | 0.1+ | 0.3− | 2006 01 27 | 704 | 1.0− | 0.4− |
| 1999 03 15 | 704 | (0.9+ | 2.2−) | 2005 12 26 | G96 | 0.2+ | 0.3− | 2006 01 27 | 704 | 0.7− | 0.1− |
| 1999 03 15 | 704 | (2.2+ | 0.1+) | 2005 12 26 | G96 | 0.3− | 0.3− | 2006 01 27 | 704 | 0.1+ | 0.1− |
| 1999 03 15 | 704 | 0.2− | 0.6− | 2005 12 28 | 704 | 0.1− | 0.4+ | 2006 01 27 | 704 | 0.5− | 0.9− |
| 1999 03 15 | 704 | 0.6+ | 0.2+ | 2005 12 28 | 704 | 0.2+ | 0.3+ | 2006 01 27 | 704 | 0.5+ | 0.2+ |
| 1999 03 15 | 704 | 0.0 | 1.0+ | 2005 12 28 | 704 | 0.7+ | 0.6+ | 2006 01 27 | 704 | 0.8− | 0.3+ |
| 1999 03 20 | 704 | (3.3+ | 1.0+) | 2005 12 28 | 704 | 0.6+ | 0.2+ | 2006 01 27 | 704 | 0.1− | 1.5− |
| 1999 03 20 | 704 | 1.0+ | 0.2+ | 2005 12 28 | 704 | 0.8+ | 0.3− | 2006 02 05 | 704 | 0.3− | 1.0+ |
| 1999 03 20 | 704 | 1.0+ | 0.4− | 2005 12 29 | 691 | 0.4+ | 0.3+ | 2006 02 05 | 704 | 0.7− | 0.3− |
| 2001 10 17 | 704 | 0.1+ | 1.0+ | 2005 12 29 | 691 | 0.4+ | 0.3+ | 2006 02 05 | 704 | 0.6− | 0.8+ |
| 2001 10 17 | 704 | 0.5+ | 1.2+ | 2005 12 29 | 691 | 1.0+ | 0.8+ | 2006 02 05 | 704 | (1.8− | 1.3+) |
| 2001 10 17 | 704 | (0.1+ | 1.9+) | 2005 12 31 | 704 | 0.1− | 0.5+ | 2006 02 05 | 704 | (1.7+ | 0.6−) |
| 2001 10 17 | 704 | 0.1− | 1.1+ | 2005 12 31 | 704 | 0.6+ | 0.3+ | 2006 02 07 | G96 | 0.0 | 0.3− |
| 2001 10 17 | 704 | 0.3+ | 0.7+ | 2005 12 31 | 704 | 0.2+ | 0.4+ | 2006 02 07 | G96 | 0.3− | 0.1− |
| 2001 10 24 | 644 | 0.6− | 0.1+ | 2005 12 31 | 704 | 0.3+ | 0.2+ | 2006 02 07 | G96 | 0.0 | 0.2+ |
| 2001 10 24 | 644 | 0.2− | 0.2+ | 2005 12 31 | 704 | (1.6+ | 1.7+) | 2006 02 07 | G96 | 0.3+ | 0.1− |
| 2001 10 24 | 644 | 0.4− | 0.4+ | 2006 01 04 | G96 | 0.3− | 0.6− | 2008 09 23 | 704 | (0.9− | 2.0+) |
| 2001 11 18 | 608 | 0.8− | 0.5− | 2006 01 04 | G96 | 0.0 | 0.5− | 2008 09 23 | 704 | (1.1− | 1.6+) |
| 2001 11 18 | 608 | 0.7− | 0.7− | 2006 01 04 | G96 | 0.3− | 0.7− | 2008 09 23 | 704 | 0.7− | 0.6+ |
| 2001 11 18 | 608 | 0.9− | 0.1− | 2006 01 04 | G96 | 0.1− | 0.2− | 2008 09 23 | 704 | 0.2− | 0.9+ |
| 2001 11 20 | 699 | 0.4− | 0.3− | 2006 01 05 | 704 | 0.3− | 0.0 | 2008 09 23 | 704 | 0.7− | 0.7+ |
| 2001 11 20 | 704 | 0.2− | 0.7− | 2006 01 05 | 691 | 0.1− | 0.3+ | 2008 09 23 | 704 | 0.6− | 0.3+ |
| 2001 11 20 | 699 | 0.7+ | 0.1+ | 2006 01 05 | 704 | 0.4− | 0.6+ | 2009 11 22 | 691 | 0.2− | 0.0 |
| 2001 11 20 | 704 | 1.0− | 0.3− | 2006 01 05 | 691 | 0.1− | 0.5+ | 2009 11 22 | 691 | 0.1− | 0.0 |
| 2001 11 20 | 699 | 0.4− | 1.2+ | 2006 01 05 | 704 | 0.0 | 0.4− | 2009 11 22 | 691 | 0.5+ | 0.6+ |
| 2001 11 20 | 699 | 0.8− | 0.3+ | 2006 01 05 | 704 | 0.4− | 0.2− | 2009 12 18 | 691 | 0.3− | 0.4− |
| 2001 11 20 | 704 | (0.2+ | 2.1+) | 2006 01 05 | 691 | 0.1− | 0.4+ | 2009 12 18 | 691 | 0.1− | 0.1+ |
| 2001 12 09 | 699 | 0.3+ | 0.6+ | 2006 01 05 | 704 | 0.0 | 0.3− | 2009 12 18 | 691 | 0.2− | 0.7− |
| 2001 12 09 | 699 | 0.6− | 1.2− | 2006 01 09 | 691 | 0.1+ | 0.0 | 2009 12 19 | 691 | 0.2+ | 0.3+ |
| 2001 12 09 | 699 | (2.4− | 0.4−) | 2006 01 09 | 691 | 0.6− | 0.2+ | 2009 12 19 | 691 | 0.1+ | 0.2+ |
| 2001 12 09 | 699 | 1.1− | 0.5+ | 2006 01 09 | 691 | 0.2+ | 0.1− | 2009 12 19 | 691 | 0.1− | 0.3+ |
| 2003 04 05 | 291 | 0.1− | 1.0+ | 2006 01 24 | 704 | 0.2− | 0.5− | | | | |
| 2003 04 05 | 291 | 0.3+ | 0.5+ | 2006 01 24 | 704 | 0.3− | 0.3− | | | | |

**(228257)∗ 1999 JL$_{111}$ = 2005 XK$_{16}$**

Discovered 1999 May 13 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. A. Doppler (*MPO* 107773)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 198.13581 | | (2000.0) | | **P** | **Q** |
| $n$ | 0.23951928 | $\omega$ | 163.76626 | | −0.20301819 | +0.97069933 |
| $a$ | 2.5678860 | $\Omega$ | 94.38406 | | −0.91210404 | −0.13972061 |
| $e$ | 0.2365099 | $i$ | 7.40790 | | −0.35615984 | −0.19550180 |
| $P$ | 4.11 | $H$ | 16.6 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 05 12 | 699 | 0.8+ | 1.5+ | 2003 04 27 | 699 | 0.4+ | 0.2− | 2007 03 12 | 703 | (1.9− | 0.2−) |
| 1999 05 12 | 699 | 1.5+ | 0.4+ | 2003 04 27 | 699 | 0.1− | 0.7− | 2007 03 12 | 703 | (2.7− | 0.0 ) |
| 1999 05 12 | 699 | 1.5+ | 0.4+ | 2003 04 27 | 699 | 1.3− | 1.1+ | 2007 03 17 | 699 | 1.1− | 0.2+ |
| 1999 05 13 | 704 | 0.5− | 0.1− | 2003 04 27 | 699 | 0.6+ | 0.7− | 2007 03 17 | 699 | 0.5+ | 0.3+ |
| 1999 05 13 | 704 | (2.7− | 1.3+) | 2003 05 02 | 704 | 0.2+ | 0.0 | 2007 03 17 | 699 | 0.3+ | 1.0+ |
| 1999 05 13 | 704 | (0.8− | 2.5+) | 2003 05 02 | 704 | 1.1+ | 0.0 | 2007 03 17 | 699 | 0.2− | 0.2− |
| 1999 05 13 | 704 | 0.2+ | 0.5− | 2003 05 02 | 704 | 0.5+ | 0.3+ | 2007 03 20 | 703 | 0.8− | 1.2− |
| 1999 05 13 | 704 | 1.1− | 0.8+ | 2003 05 02 | 704 | 0.5+ | 0.0 | 2007 03 20 | 703 | 0.5− | 0.8− |
| 1999 05 18 | 704 | 1.4− | 1.8− | 2003 05 02 | 704 | 0.1− | 0.0 | 2007 03 20 | 703 | (1.9− | 0.1−) |
| 1999 05 18 | 704 | 0.8+ | 0.3− | 2003 05 09 | 704 | 0.5− | 0.5+ | 2007 03 20 | 703 | 0.2− | 0.4− |
| 1999 05 18 | 704 | 1.3− | 1.3+ | 2003 05 09 | 704 | 0.1− | 0.7+ | 2007 04 15 | G96 | 0.5+ | 0.0 |
| 1999 05 18 | 704 | 0.9+ | 1.6− | 2003 05 09 | 704 | 0.3+ | 0.4+ | 2007 04 15 | G96 | 0.2+ | 0.1+ |
| 1999 05 18 | 704 | 1.5− | 0.1+ | 2003 05 09 | 704 | 0.3− | 0.1− | 2007 04 15 | G96 | 0.5+ | 0.3− |
| 1999 05 19 | 704 | 1.7− | 0.1− | 2003 05 09 | 704 | 0.0 | 0.9+ | 2007 04 15 | G96 | 0.2+ | 0.1− |
| 1999 05 19 | 704 | 0.7− | 0.9+ | 2005 12 01 | 691 | 0.2+ | 0.0 | 2007 04 22 | 703 | 0.2− | 0.5+ |
| 1999 05 19 | 704 | 1.1− | 1.5− | 2005 12 01 | 691 | 0.1+ | 0.1− | 2007 04 22 | 703 | 0.2+ | 0.2+ |
| 1999 05 19 | 704 | 0.9− | 0.2+ | 2005 12 01 | 691 | 0.2− | 0.0 | 2007 04 22 | 703 | 0.1+ | 0.8− |
| 1999 06 14 | 704 | 1.6+ | 0.8+ | 2005 12 05 | 691 | 0.0 | 0.0 | 2007 04 22 | 703 | 0.1− | 0.3− |
| 1999 06 14 | 704 | 0.8+ | 0.4− | 2005 12 05 | 691 | 0.2+ | 0.0 | 2009 11 25 | 691 | 0.1− | 0.2+ |
| 1999 06 14 | 704 | 1.6+ | 0.4+ | 2005 12 05 | 691 | 0.6+ | 0.2− | 2009 11 25 | 691 | 0.1− | 0.4+ |
| 1999 06 14 | 704 | 0.2− | 1.1− | 2006 01 05 | 691 | 0.4− | 0.2+ | 2009 11 25 | 691 | 0.3− | 0.1− |
| 1999 06 14 | 704 | (3.1− | 0.4−) | 2006 01 05 | 691 | 0.3− | 0.1− | 2009 12 16 | G96 | 0.1+ | 0.3− |
| 2003 04 08 | 704 | (1.3+ | 1.9+) | 2006 01 05 | 691 | 0.1+ | 0.1− | 2009 12 16 | G96 | 1.1+ | 0.4+ |
| 2003 04 08 | 704 | 0.6+ | 0.6+ | 2007 03 12 | 703 | 0.9− | 0.5+ | 2009 12 16 | G96 | 0.3+ | 0.3+ |
| 2003 04 08 | 704 | 0.8+ | 0.4− | 2007 03 12 | 703 | (2.3− | 0.6−) | 2009 12 16 | G96 | 0.1− | 0.0 |

**(228258)∗ 1999 NV$_{56}$**

Discovered 1999 July 12 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 64.50120 | | (2000.0) | | **P** | **Q** |
| $n$ | 0.21075097 | $\omega$ | 97.74745 | | +0.98645475 | +0.00318478 |
| $a$ | 2.7965526 | $\Omega$ | 262.17565 | | −0.06477221 | +0.92612589 |
| $e$ | 0.2284740 | $i$ | 9.52883 | | +0.15070362 | +0.37720113 |
| $P$ | 4.68 | $H$ | 15.2 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 07 12 | 704 | 0.0 | 0.6− | 2004 09 10 | 704 | 0.7− | 0.4+ | 2004 11 20 | 699 | 1.2− | 0.3+ |
| 1999 07 12 | 704 | 0.2+ | 0.5+ | 2004 09 10 | 704 | 0.6− | 0.2+ | 2004 11 20 | 699 | 1.2+ | 0.1− |
| 1999 07 12 | 704 | 0.6− | 0.6+ | 2004 09 10 | 704 | 0.4− | 0.6+ | 2004 11 20 | 699 | 0.3+ | 0.1− |
| 1999 07 12 | 704 | 0.8+ | 0.2+ | 2004 09 10 | 704 | 0.1− | 0.4+ | 2004 11 20 | 699 | 0.1+ | 1.0+ |
| 1999 07 22 | 704 | 0.6− | 1.0+ | 2004 09 10 | 704 | 0.4+ | 0.1− | 2004 11 20 | 699 | 0.5+ | 0.2+ |
| 1999 07 22 | 704 | 0.1+ | 0.0 | 2004 10 04 | 704 | (2.5− | 2.1+) | 2004 11 20 | 699 | 1.1+ | 0.2− |
| 1999 07 22 | 704 | 0.0 | 0.1+ | 2004 10 04 | 704 | (0.1+ | 2.7+) | 2004 11 20 | 699 | 0.2+ | 0.3+ |
| 1999 07 22 | 704 | 0.6− | 0.3+ | 2004 10 04 | 704 | (1.4+ | 2.2+) | 2004 12 02 | 644 | 0.0 | 0.1− |
| 1999 09 08 | 704 | 1.5− | 0.6+ | 2004 10 04 | 704 | 0.4− | 0.3− | 2004 12 02 | 644 | 0.1+ | 0.1+ |
| 1999 09 08 | 704 | 1.4− | 0.4+ | 2004 10 04 | 704 | 0.8− | 0.3− | 2004 12 02 | 644 | 0.1− | 0.2+ |
| 1999 09 08 | 704 | 0.7+ | 0.1− | 2004 10 08 | 704 | 0.9+ | 0.3+ | 2004 12 15 | 704 | 0.3+ | 1.5+ |
| 1999 09 08 | 704 | 0.4− | 0.3− | 2004 10 08 | 704 | 0.9+ | 0.1+ | 2004 12 15 | 704 | 0.3− | 0.1− |
| 1999 09 16 | 704 | 0.1+ | 0.0 | 2004 10 08 | 704 | 1.1+ | 0.2− | 2004 12 15 | 704 | (1.9− | 0.2+) |
| 1999 09 16 | 704 | 0.5+ | 0.0 | 2004 10 08 | 704 | 0.9+ | 0.2− | 2004 12 15 | 704 | (1.4− | 1.9+) |
| 1999 09 16 | 704 | 0.2− | 0.8+ | 2004 10 08 | 704 | 0.8+ | 0.2− | 2004 12 15 | 704 | 0.6− | 0.5+ |
| 1999 09 16 | 704 | 0.7+ | 0.8+ | 2004 10 10 | 704 | 0.2+ | 0.1+ | 2005 01 07 | 704 | 0.2+ | 0.1+ |
| 1999 09 16 | 704 | 0.6+ | 1.0− | 2004 10 10 | 704 | 0.0 | 0.3+ | 2005 01 07 | 704 | 0.4+ | 0.1+ |
| 1999 09 30 | 703 | 0.4− | 0.2+ | 2004 10 10 | 704 | 0.1+ | 0.4− | 2005 01 07 | 704 | 0.2− | 1.3+ |
| 1999 09 30 | 703 | 0.1− | 1.0+ | 2004 10 10 | 704 | 0.0 | 0.0 | 2005 01 12 | 704 | 0.3− | 0.3+ |
| 1999 09 30 | 703 | 0.8− | 0.5+ | 2004 10 10 | 704 | 0.1− | 0.1− | 2005 01 12 | 704 | 0.9− | 0.1+ |
| 1999 09 30 | 703 | 0.0 | 0.0 | 2004 10 15 | 704 | 0.2− | 0.0 | 2005 01 12 | 704 | 0.4− | 0.2+ |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 10 04 | 704 | 0.9+ | 0.8− | 2004 10 15 | 704 | 0.4− | 0.1− | 2005 01 12 | 704 | 1.0+ | 0.7+ |
| 1999 10 04 | 704 | 0.3+ | 1.0− | 2004 10 15 | 704 | 0.0 | 0.0 | 2009 11 16 | 691 | 0.1+ | 0.1− |
| 1999 10 04 | 704 | 0.8+ | 1.8− | 2004 10 15 | 704 | 0.6− | 0.1+ | 2009 11 16 | 691 | 0.7− | 0.3− |
| 1999 10 04 | 704 | 0.6+ | 1.7− | 2004 10 15 | 704 | 0.3+ | 0.6+ | 2009 11 16 | 691 | 0.3− | 0.0 |
| 1999 10 29 | 703 | 0.5+ | 0.3+ | 2004 10 19 | 113 | 0.1+ | 0.2− | 2009 12 11 | 704 | 0.5+ | 0.8+ |
| 1999 10 29 | 703 | 0.0 | 0.2+ | 2004 10 19 | 113 | 0.0 | 0.3− | 2009 12 11 | 704 | 0.8+ | 0.4+ |
| 1999 10 29 | 703 | 0.1+ | 0.6+ | 2004 10 19 | 113 | 0.0 | 0.2− | 2009 12 11 | 704 | 0.4− | 0.3− |
| 1999 10 29 | 703 | 1.5+ | 1.0+ | 2004 11 09 | 703 | 0.1− | 0.3+ | 2009 12 11 | 704 | 1.3− | 0.1+ |
| 1999 11 06 | 704 | 0.5− | 1.6− | 2004 11 09 | 703 | 0.4− | 0.1− | 2009 12 17 | 704 | 0.3+ | 0.3− |
| 1999 11 06 | 704 | 0.1+ | 0.2− | 2004 11 09 | 703 | 0.1− | 0.2+ | 2009 12 17 | 704 | 1.1+ | 0.2− |
| 1999 11 06 | 704 | 0.0 | 1.0− | 2004 11 09 | 703 | 0.3− | 0.2+ | 2009 12 17 | 704 | 0.9+ | 0.2− |
| 1999 11 06 | 704 | 0.5− | 1.2− | 2004 11 19 | 704 | 1.0− | 0.4− | 2009 12 17 | 704 | 1.0+ | 0.2+ |
| 1999 11 06 | 704 | 0.2− | 0.5+ | 2004 11 19 | 704 | 0.4− | 0.0 | 2009 12 17 | 704 | 1.1+ | 0.8+ |
| 2002 04 08 | 644 | 0.5+ | 0.5+ | 2004 11 19 | 704 | 0.5− | 0.4− | 2009 12 25 | 691 | 0.2− | 0.2− |
| 2002 04 08 | 644 | 0.5+ | 0.1− | 2004 11 19 | 704 | 0.1− | 0.1− | 2009 12 25 | 691 | 0.0 | 0.2− |
| 2002 04 08 | 644 | 0.1− | 0.3+ | 2004 11 19 | 704 | 0.3− | 0.4− | 2009 12 25 | 691 | 0.3− | 0.3− |
| 2002 04 19 | 644 | 0.4− | 0.2+ | 2004 11 20 | 699 | (1.6+ | 0.9+) | | | | |

**(228259)∗ 1999 PL$_3$**

Discovered 1999 Aug. 12 by G. Hug at Farpoint Observatory, Eskridge.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 43.83157 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21613834 | $\omega$ | 301.63254 | | +0.29836361 | −0.93787573 | |
| $a$ | 2.7498870 | $\Omega$ | 129.94501 | | +0.93513645 | +0.25010544 | |
| $e$ | 0.3898330 | $i$ | 13.35689 | | +0.19104705 | +0.24049195 | |
| $P$ | 4.56 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 03 24 | 327 | 0.6+ | 0.0 | 1999 10 05 | 734 | 0.7− | 1.5− | 2004 12 07 | 704 | 0.1− | 0.5+ |
| 1996 03 24 | 327 | 0.6− | 0.8+ | 1999 10 05 | 734 | (3.8+ | 0.6−) | 2004 12 07 | 704 | 0.0 | 0.3+ |
| 1996 03 24 | 327 | 0.3+ | 1.2+ | 1999 10 05 | 734 | 1.1+ | 1.3− | 2004 12 07 | 704 | 0.1+ | 0.4+ |
| 1999 08 12 | 734 | 0.4− | 1.0− | 2001 03 20 | 734 | 0.6+ | 0.1+ | 2004 12 10 | 683 | 0.8+ | 0.5− |
| 1999 08 12 | 734 | 0.2+ | 0.9+ | 2001 03 20 | 734 | 1.1− | 0.6+ | 2004 12 10 | 683 | 0.3− | 0.3− |
| 1999 08 12 | 734 | 0.7− | 0.2+ | 2001 03 20 | 734 | (2.8− | 1.5+) | 2004 12 10 | 683 | 0.8− | 0.1+ |
| 1999 08 12 | 734 | 0.6+ | 0.1+ | 2001 03 20 | 734 | (2.6+ | 2.4+) | 2004 12 12 | 704 | 0.1+ | 0.1− |
| 1999 08 12 | 734 | 0.7− | 0.7− | 2004 09 22 | 704 | 0.8+ | 0.3+ | 2004 12 12 | 704 | 0.4− | 0.7− |
| 1999 08 12 | 734 | (1.9+ | 2.7+) | 2004 09 22 | 704 | 0.1+ | 0.1− | 2004 12 12 | 704 | 0.1+ | 0.4− |
| 1999 08 13 | 734 | 0.8+ | 1.3− | 2004 09 22 | 704 | 0.3− | 0.4+ | 2004 12 12 | 704 | 0.1− | 0.2− |
| 1999 08 13 | 734 | 0.2+ | 0.0 | 2004 09 22 | 704 | 0.7− | 0.5+ | 2004 12 12 | 704 | 0.1+ | 0.0 |
| 1999 08 13 | 734 | 1.0− | 0.1− | 2004 09 22 | 704 | 0.2+ | 0.1+ | 2005 02 02 | 704 | 0.4+ | 1.2+ |
| 1999 08 13 | 734 | 1.3− | 0.8+ | 2004 09 24 | 704 | 0.4+ | 0.1− | 2005 02 02 | 704 | 0.4+ | 0.3+ |
| 1999 08 13 | 734 | 0.0 | 1.1+ | 2004 09 24 | 704 | 0.6− | 0.7− | 2005 02 02 | 704 | 0.3− | 0.2− |
| 1999 08 13 | 734 | 1.8+ | 0.8− | 2004 09 24 | 704 | 0.2+ | 0.2+ | 2005 02 02 | 704 | 0.7− | 0.3− |
| 1999 08 14 | 734 | 0.1− | 0.1− | 2004 09 24 | 704 | 0.1− | 0.3− | 2009 10 18 | G96 | 0.3− | 0.0 |
| 1999 08 14 | 734 | 0.6+ | 1.4+ | 2004 09 24 | 704 | 0.0 | 0.6+ | 2009 10 18 | G96 | 0.1− | 0.2− |
| 1999 08 14 | 734 | 1.7− | 1.0+ | 2004 10 07 | 704 | 0.1− | 1.1− | 2009 10 18 | G96 | 0.2− | 0.0 |
| 1999 08 20 | 734 | 0.2+ | 1.0+ | 2004 10 07 | 704 | 0.3+ | 0.2− | 2009 10 18 | G96 | 0.4− | 0.0 |
| 1999 08 20 | 734 | 0.5+ | 0.1+ | 2004 10 07 | 704 | 0.5− | 0.2− | 2009 11 16 | 691 | 0.1− | 0.0 |
| 1999 08 20 | 734 | 0.4− | 0.6+ | 2004 10 07 | 704 | 0.4+ | 0.4− | 2009 11 16 | 691 | 0.5+ | 0.7+ |
| 1999 08 20 | 734 | 1.6− | 1.2+ | 2004 11 06 | 704 | 0.1+ | 0.4− | 2009 11 16 | 691 | 0.2− | 0.0 |
| 1999 09 06 | 734 | 1.1− | 0.0 | 2004 11 06 | 704 | 0.5+ | 0.2+ | 2009 12 19 | G96 | 0.1+ | 0.1− |
| 1999 09 06 | 734 | (2.0+ | 2.4+) | 2004 11 06 | 704 | 0.1− | 0.4+ | 2009 12 19 | G96 | 0.3+ | 0.0 |
| 1999 09 06 | 734 | 0.1− | 0.0 | 2004 11 06 | 704 | 0.5+ | 0.2+ | 2009 12 19 | G96 | 0.5+ | 0.2− |
| 1999 09 06 | 734 | 1.5+ | 1.8+ | 2004 12 07 | 704 | 0.1− | 0.3+ | 2009 12 19 | G96 | 0.1+ | 0.1− |
| 1999 10 05 | 734 | 1.4+ | 0.2+ | 2004 12 07 | 704 | 0.3− | 0.7+ | | | | |

**(228260)∗ 1999 RM$_{59}$**

Discovered 1999 Sept. 7 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 66.68031 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.20975549 | $\omega$ | 194.41288 | | +0.96571587 | +0.24781954 | |
| $a$ | 2.8053937 | $\Omega$ | 150.88418 | | −0.21966566 | +0.93879441 | |
| $e$ | 0.2321568 | $i$ | 9.14337 | | −0.13834687 | +0.23927084 | |
| $P$ | 4.70 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 08 07 | 699 | 0.3+ | 1.0+ | 2002 03 05 | 645 | 0.1+ | 0.3+ | 2004 11 12 | 704 | 0.4+ | 0.3+ |
| 1999 08 07 | 699 | 1.1− | 1.3+ | 2003 04 28 | 291 | 0.1− | 0.4+ | 2004 11 12 | 704 | 0.2− | 0.0 |
| 1999 08 07 | 699 | 0.9− | 0.8+ | 2003 04 28 | 291 | 0.3+ | 0.5+ | 2004 11 12 | 704 | 0.6+ | 0.3− |
| 1999 08 22 | 703 | 0.3− | 0.0 | 2003 04 28 | 291 | 0.1+ | 0.5+ | 2004 11 12 | 704 | 0.4− | 0.5− |
| 1999 08 22 | 703 | 0.4− | 0.1− | 2004 08 11 | 704 | 0.2− | 0.1+ | 2006 02 03 | G96 | 0.6+ | 0.2− |
| 1999 08 22 | 703 | 0.7+ | 0.6+ | 2004 08 11 | 704 | (1.0− | 1.5+) | 2006 02 03 | G96 | 0.5+ | 0.4− |
| 1999 08 22 | 703 | 1.1+ | 0.7− | 2004 08 11 | 704 | 0.2− | 1.4+ | 2006 02 03 | G96 | 0.0 | 0.2+ |
| 1999 09 04 | 699 | 0.1+ | 1.1+ | 2004 08 11 | 704 | (2.1+ | 2.2+) | 2006 02 03 | G96 | 0.5+ | 0.1+ |
| 1999 09 04 | 699 | 0.0 | 0.8+ | 2004 09 23 | 683 | (2.5+ | 2.0−) | 2007 03 11 | 691 | 0.1− | 0.2+ |
| 1999 09 04 | 699 | 0.3+ | 2.0+ | 2004 09 23 | 683 | (3.9+ | 4.3−) | 2007 03 11 | 691 | 0.1+ | 0.8+ |
| 1999 09 07 | 704 | 1.1− | 0.0 | 2004 09 23 | 683 | (3.4+ | 0.7+) | 2007 03 11 | 691 | 0.4+ | 0.1+ |
| 1999 09 07 | 704 | 0.1+ | 0.0 | 2004 10 05 | 699 | 0.4+ | 0.3− | 2009 11 20 | 291 | 0.4− | 0.1+ |
| 1999 09 07 | 704 | 1.1− | 0.1+ | 2004 10 05 | 699 | 0.4+ | 0.6− | 2009 11 20 | 291 | 0.7− | 0.2+ |
| 1999 09 07 | 704 | 0.0 | 0.0 | 2004 10 05 | 699 | 1.0+ | 0.4+ | 2009 11 20 | 291 | 0.5− | 0.1+ |
| 1999 09 09 | 704 | 0.9+ | 0.3− | 2004 10 05 | 699 | 0.9+ | 0.3− | 2009 11 21 | A50 | 0.0 | 0.6+ |
| 1999 09 09 | 704 | 0.8− | 0.1+ | 2004 10 07 | 704 | 0.2− | 1.1+ | 2009 11 21 | A50 | 0.5+ | 0.1+ |
| 1999 09 09 | 704 | 1.1− | 0.8+ | 2004 10 07 | 704 | 0.5+ | 0.5+ | 2009 11 21 | A50 | 0.6+ | 0.3+ |
| 1999 09 09 | 704 | 0.1− | 1.0+ | 2004 10 07 | 704 | 0.2+ | 0.8+ | 2009 12 11 | 703 | 0.2− | 0.6+ |
| 1999 09 09 | 704 | 0.5− | 0.4+ | 2004 10 07 | 704 | 0.3+ | 1.0+ | 2009 12 11 | 703 | 0.4+ | 1.4+ |
| 1999 09 09 | 704 | 0.6+ | 0.4− | 2004 10 07 | 704 | 0.7− | 0.9+ | 2009 12 11 | 703 | 1.2+ | 0.7+ |
| 1999 09 09 | 704 | 0.5+ | 0.6+ | 2004 10 18 | 704 | 0.9− | 0.1+ | 2009 12 11 | 703 | 0.2− | 1.1+ |
| 1999 09 09 | 704 | 0.4− | 0.5− | 2004 10 18 | 704 | (0.2− | 1.6+) | | | | |
| 2002 03 05 | 645 | 0.0 | 0.2+ | 2004 10 18 | 704 | (1.1+ | 2.3+) | | | | |

**(228261)∗ 1999 RJ$_{82}$**

Discovered 1999 Sept. 7 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 94.71338 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.31273244 | $\omega$ | 116.00998 | | +0.99739577 | +0.06019878 | |
| $a$ | 2.1495824 | $\Omega$ | 240.56162 | | −0.07075007 | +0.92359033 | |
| $e$ | 0.1546163 | $i$ | 2.61418 | | +0.01400348 | +0.37862516 | |
| $P$ | 3.15 | $H$ | 17.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 09 07 | 704 | 0.4− | 0.8+ | 2002 07 04 | 644 | 0.3− | 0.3+ | 2006 11 21 | G96 | 0.0 | 0.0 |
| 1999 09 07 | 704 | 0.2+ | 0.6+ | 2002 07 04 | 644 | 0.2− | 0.7+ | 2006 11 21 | G96 | 0.1+ | 0.2− |
| 1999 09 07 | 704 | 0.2− | 0.0 | 2002 07 04 | 644 | 0.0 | 0.4+ | 2006 11 21 | G96 | 0.3+ | 0.2+ |
| 1999 09 07 | 704 | 0.4− | 0.3+ | 2002 07 19 | 644 | 0.4− | 0.6+ | 2006 12 21 | G96 | 0.1− | 0.0 |
| 1999 09 09 | 704 | 0.6+ | 0.4+ | 2002 07 19 | 644 | 0.4− | 0.3+ | 2006 12 21 | G96 | 0.4+ | 0.2− |
| 1999 09 09 | 704 | 0.9+ | 0.6− | 2002 07 19 | 644 | 0.2− | 0.5+ | 2006 12 21 | G96 | 0.0 | 0.1− |
| 1999 09 09 | 704 | 0.3+ | 1.0+ | 2002 07 22 | 644 | 0.0 | 0.1+ | 2006 12 21 | G96 | 0.0 | 0.0 |
| 1999 09 09 | 704 | 0.1+ | 0.2− | 2002 07 22 | 644 | 0.0 | 0.3+ | 2007 01 27 | G96 | 0.0 | 0.2− |
| 1999 09 09 | 704 | 0.3− | 0.1− | 2002 07 22 | 644 | 0.0 | 0.3− | 2007 01 27 | G96 | 0.1− | 0.0 |
| 1999 10 09 | 704 | 1.7− | 0.4+ | 2002 07 22 | 644 | 0.1− | 0.1+ | 2007 01 27 | G96 | 0.1− | 0.1− |
| 1999 10 09 | 704 | 0.7− | 0.0 | 2002 07 22 | 644 | 0.2+ | 0.5+ | 2007 01 27 | G96 | 0.1+ | 0.1− |
| 1999 10 09 | 704 | 0.3− | 1.5+ | 2002 07 22 | 644 | 0.3+ | 0.2− | 2009 11 17 | G96 | 0.2+ | 0.0 |
| 1999 10 13 | 704 | 0.6− | 0.7− | 2002 07 28 | 608 | 0.3+ | 0.3− | 2009 11 17 | G96 | 0.1+ | 0.3− |
| 1999 10 13 | 704 | 0.2+ | 1.4− | 2002 07 28 | 608 | 0.5− | 0.9− | 2009 11 17 | G96 | 0.7+ | 0.0 |
| 1999 10 13 | 704 | 1.0+ | 0.9− | 2002 07 28 | 608 | 0.1− | 1.2− | 2009 11 17 | G96 | 0.6+ | 0.9− |
| 1999 10 13 | 645 | 0.1+ | 0.0 | 2002 08 06 | 644 | 0.0 | 0.5− | 2009 12 18 | 691 | 0.1+ | 0.2+ |
| 1999 10 13 | 645 | 0.1+ | 0.0 | 2002 08 06 | 644 | 0.1+ | 0.4− | 2009 12 18 | G96 | 0.5+ | 0.1− |
| 1999 10 16 | 645 | 0.1+ | 0.0 | 2002 08 06 | 644 | 0.0 | 0.5− | 2009 12 18 | 691 | 0.3+ | 0.1+ |
| 1999 10 16 | 645 | 0.0 | 0.0 | 2002 08 18 | 608 | 0.1+ | 0.4− | 2009 12 18 | G96 | 0.6+ | 0.0 |
| 1999 11 13 | 691 | 0.0 | 0.2− | 2002 08 18 | 608 | 0.6+ | 0.7− | 2009 12 18 | G96 | 0.6+ | 0.0 |
| 1999 11 13 | 691 | 0.0 | 0.4− | 2002 08 18 | 608 | 0.2+ | 0.1− | 2009 12 18 | 691 | 0.2− | 0.1+ |
| 1999 11 13 | 691 | 0.1− | 0.4− | 2002 08 26 | 644 | 0.1− | 0.5+ | 2009 12 18 | G96 | 0.6+ | 0.1− |
| 1999 11 17 | 691 | 0.2− | 0.3− | 2002 08 26 | 644 | 0.2+ | 0.4+ | 2009 12 26 | 691 | 0.0 | 0.0 |
| 1999 11 17 | 691 | 0.4− | 0.4+ | 2002 08 26 | 644 | 0.0 | 0.3+ | 2009 12 26 | 691 | 0.6− | 0.2+ |
| 1999 11 17 | 691 | 0.2− | 0.1− | 2006 11 21 | G96 | 1.2− | 0.2+ | 2009 12 26 | 691 | 0.3− | 0.0 |

**(228262)∗ 1999 TX$_{67}$**

Discovered 1999 Oct. 8 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 217.00845 | | (2000.0) | | | |
| $n$ | 0.21540528 | $\omega$ | 201.60105 | | −0.01709043 | +0.99714451 |
| $a$ | 2.7561223 | $\Omega$ | 67.48158 | | −0.90529298 | +0.01579806 |
| $e$ | 0.0502896 | $i$ | 4.56724 | | −0.42444380 | −0.07384607 |
| $P$ | 4.58 | $H$ | 16.2 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 10 08 | 691 | 0.2+ | 0.6− | 2008 09 23 | 691 | 0.4− | 0.3− | 2008 11 09 | G96 | 0.1+ | 0.1+ |
| 1999 10 08 | 691 | 0.1+ | 0.5− | 2008 09 23 | 691 | 0.6− | 0.2− | 2008 11 09 | G96 | 0.8+ | 0.1+ |
| 1999 10 08 | 691 | 0.2+ | 0.4− | 2008 09 23 | 691 | 0.1− | 0.1− | 2008 11 09 | G96 | 0.4+ | 0.2+ |
| 1999 10 14 | 691 | 0.4− | 0.4− | 2008 10 21 | 691 | 0.1− | 0.0 | 2008 11 09 | G96 | 0.5+ | 0.1− |
| 1999 10 14 | 691 | 0.5− | 0.3− | 2008 10 21 | 691 | 0.1− | 0.0 | 2008 11 17 | 691 | 0.1+ | 0.1− |
| 1999 10 14 | 691 | 0.2− | 0.5− | 2008 10 21 | 691 | 0.9− | 0.3− | 2008 11 17 | 691 | 0.2− | 0.1− |
| 1999 10 16 | 691 | 0.7− | 0.6+ | 2008 10 27 | 691 | 0.2− | 0.1− | 2008 11 17 | 691 | 0.0 | 0.1− |
| 1999 10 16 | 691 | 0.3− | 0.4+ | 2008 10 27 | 691 | 0.1− | 0.1+ | 2008 11 20 | 691 | 0.1+ | 0.0 |
| 1999 10 16 | 691 | 0.2− | 0.4+ | 2008 10 27 | 691 | 0.2+ | 0.1+ | 2008 11 20 | 691 | 0.1+ | 0.0 |
| 1999 11 12 | 704 | 1.0− | 0.7− | 2008 10 30 | 703 | 0.1− | 1.2− | 2008 11 20 | 691 | 0.2+ | 0.2+ |
| 1999 11 12 | 704 | 0.2+ | 1.0− | 2008 10 30 | 703 | 0.4− | 0.6+ | 2008 11 24 | 691 | 0.2+ | 0.1+ |
| 1999 11 12 | 704 | 0.2+ | 0.8+ | 2008 10 30 | 703 | 0.2+ | 0.6+ | 2008 11 24 | 691 | 0.3− | 0.1+ |
| 1999 11 12 | 704 | 0.8+ | 0.5− | 2008 10 30 | 703 | 1.1− | 0.5+ | 2008 11 24 | 691 | 0.1+ | 0.1+ |
| 1999 12 03 | 691 | 0.3+ | 0.1− | 2008 11 02 | 691 | 0.1− | 0.1− | 2008 12 05 | G96 | 0.8+ | 0.2− |
| 1999 12 03 | 691 | 0.1+ | 0.2− | 2008 11 02 | 691 | 0.2− | 0.2+ | 2008 12 05 | G96 | 1.0+ | 0.6− |
| 1999 12 03 | 691 | 0.1+ | 0.6+ | 2008 11 02 | 691 | 0.1+ | 0.2+ | 2008 12 05 | G96 | 0.2+ | 0.2− |
| 1999 12 16 | 691 | 0.5+ | 0.1+ | 2008 11 02 | 291 | 0.3+ | 0.1+ | 2008 12 05 | G96 | 0.4+ | 0.3− |
| 1999 12 16 | 691 | 0.3+ | 0.1+ | 2008 11 02 | 291 | 0.0 | 0.2+ | 2008 12 30 | G96 | 0.1+ | 0.5− |
| 1999 12 16 | 691 | 0.2+ | 0.0 | 2008 11 02 | 291 | 0.1− | 0.3+ | 2008 12 30 | G96 | 0.4+ | 0.4− |
| 2003 09 17 | 644 | 0.2+ | 0.1+ | 2008 11 03 | 291 | 0.4+ | 0.1+ | 2008 12 30 | G96 | 0.1+ | 0.6− |
| 2003 09 17 | 644 | 0.3+ | 0.1− | 2008 11 03 | 291 | 0.3+ | 0.3+ | 2008 12 30 | G96 | 0.3+ | 0.3− |
| 2003 09 17 | 644 | 0.5+ | 0.0 | 2008 11 03 | 291 | 0.3+ | 0.1+ | 2009 11 21 | G96 | 0.5− | 0.2− |
| 2003 09 21 | 691 | 0.0 | 0.1+ | 2008 11 03 | 291 | 0.3+ | 0.0 | 2009 11 21 | G96 | 0.3− | 0.0 |
| 2003 09 21 | 691 | 0.0 | 0.2− | 2008 11 03 | 291 | 0.1+ | 0.1+ | 2009 11 21 | G96 | 0.1− | 0.0 |
| 2003 09 21 | 691 | 0.2− | 0.1− | 2008 11 03 | 291 | 0.1+ | 0.1+ | 2009 11 21 | G96 | 0.4− | 0.3+ |
| 2003 09 24 | 644 | 0.4+ | 0.1− | 2008 11 05 | H55 | 0.1+ | 0.2+ | 2009 12 20 | G96 | 0.3+ | 0.1− |
| 2003 09 24 | 644 | 0.2+ | 0.2+ | 2008 11 05 | H55 | 0.2+ | 0.0 | 2009 12 20 | G96 | 0.3− | 0.3+ |
| 2003 09 24 | 644 | 0.1+ | 0.1+ | 2008 11 05 | H55 | 0.1+ | 0.0 | 2009 12 20 | G96 | 0.3− | 0.1+ |
| 2004 12 15 | 691 | 0.2+ | 0.2+ | 2008 11 07 | 291 | 0.3− | 0.2+ | 2009 12 20 | G96 | 0.1+ | 0.1+ |
| 2004 12 15 | 691 | 0.1+ | 0.1+ | 2008 11 07 | 291 | 0.2− | 0.2+ | | | | |
| 2004 12 15 | 691 | 0.3+ | 0.1− | 2008 11 07 | 291 | 0.4− | 0.1+ | | | | |

**(228263)∗ 1999 TH$_{128}$ = 2005 GN$_{69}$**

Discovered 1999 Oct. 4 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. A. Doppler (*MPO* 74642)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 45.86479 | | (2000.0) | | | |
| $n$ | 0.28464428 | $\omega$ | 84.61505 | | +0.54910776 | +0.83412398 |
| $a$ | 2.2887643 | $\Omega$ | 218.83905 | | −0.79593897 | +0.50290817 |
| $e$ | 0.1376684 | $i$ | 4.76844 | | −0.25487611 | +0.22654041 |
| $P$ | 3.46 | $H$ | 16.5 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 04 05 | 691 | 0.2− | 0.2+ | 2005 05 12 | G96 | 0.5− | 0.0 | 2006 11 13 | G96 | 0.2+ | 0.1+ |
| 1994 04 05 | 691 | 0.3− | 0.3+ | 2005 05 12 | G96 | 0.2− | 0.4+ | 2006 11 13 | G96 | 0.5+ | 0.1− |
| 1999 10 04 | 704 | 0.8− | 0.2+ | 2005 05 12 | G96 | 0.1+ | 0.1+ | 2006 11 13 | G96 | 0.3− | 0.0 |
| 1999 10 04 | 704 | 0.1+ | 0.2− | 2006 10 04 | 703 | 0.2+ | 1.2+ | 2006 11 13 | G96 | 0.1+ | 0.1− |
| 1999 10 04 | 704 | 1.7+ | 1.8+ | 2006 10 04 | 703 | 1.4− | 1.0+ | 2006 11 17 | 691 | 0.0 | 0.4+ |
| 1999 10 10 | 704 | 0.4+ | 0.3− | 2006 10 04 | 703 | 0.4− | 0.1+ | 2006 11 17 | 691 | 0.4+ | 0.2+ |
| 1999 10 10 | 704 | 0.1+ | 0.8− | 2006 10 04 | 703 | 0.0 | 1.3+ | 2006 11 17 | 691 | 0.1+ | 0.4+ |
| 1999 10 10 | 704 | 0.6+ | 0.0 | 2006 10 16 | 691 | 0.1+ | 0.4+ | 2006 11 17 | 703 | 0.2+ | 0.1− |
| 1999 10 10 | 704 | 0.1− | 0.2+ | 2006 10 16 | 691 | 0.2+ | 0.2+ | 2006 11 17 | 703 | 0.4− | 0.1− |
| 1999 10 10 | 704 | 0.5− | 0.6− | 2006 10 16 | 691 | 0.0 | 0.2+ | 2006 11 17 | 703 | 0.6− | 0.2+ |
| 1999 10 13 | 704 | 0.4− | 1.4− | 2006 10 20 | 691 | 0.2− | 0.1+ | 2006 11 17 | 703 | 0.8− | 0.3+ |
| 1999 10 13 | 704 | 0.1− | 0.7− | 2006 10 20 | 691 | 0.4− | 0.2+ | 2007 01 10 | G96 | 0.0 | 0.9− |
| 1999 10 13 | 704 | 0.4+ | 0.6− | 2006 10 20 | 691 | 0.2− | 0.2+ | 2007 01 10 | G96 | 0.4− | 0.2+ |
| 1999 10 13 | 704 | 1.0+ | 1.3− | 2006 10 20 | 644 | 0.0 | 0.2+ | 2007 01 10 | G96 | 0.1− | 0.4+ |
| 1999 10 13 | 704 | 0.7+ | 1.3− | 2006 10 20 | 644 | 0.0 | 0.2+ | 2007 01 10 | G96 | 0.4− | 0.0 |
| 2002 07 05 | 704 | 0.5+ | 0.1− | 2006 10 20 | 644 | 0.3+ | 0.3+ | 2008 02 12 | G96 | 0.0 | 0.1− |
| 2002 07 05 | 704 | 0.6− | 0.3+ | 2006 10 21 | 644 | 0.0 | 0.3+ | 2008 02 12 | G96 | 0.2− | 0.1− |
| 2002 07 05 | 704 | 0.9− | 0.6− | 2006 10 21 | 644 | 0.1+ | 0.3+ | 2008 02 12 | G96 | 0.0 | 0.3+ |
| 2002 07 05 | 704 | 0.2+ | 0.3− | 2006 10 21 | 644 | 0.0 | 0.3+ | 2009 06 15 | 691 | 0.2− | 0.2+ |
| 2002 07 05 | 704 | 0.5+ | 0.9+ | 2006 10 27 | G96 | 0.4+ | 0.2− | 2009 06 15 | 691 | 0.1− | 0.2+ |
| 2005 04 03 | 644 | 0.3+ | 0.4+ | 2006 10 27 | G96 | 0.0 | 0.1− | 2009 06 15 | 691 | 0.1− | 0.2+ |
| 2005 04 03 | 644 | 0.6+ | 0.5+ | 2006 10 27 | G96 | 0.3+ | 0.0 | 2009 12 19 | G96 | 0.2+ | 0.4+ |
| 2005 04 03 | 644 | 0.3+ | 0.7+ | 2006 10 27 | G96 | 0.0 | 0.0 | 2009 12 19 | G96 | 0.1+ | 0.3− |
| 2005 04 09 | 691 | 1.1+ | 0.5+ | 2006 11 11 | 703 | 0.7− | 0.2− | 2009 12 19 | G96 | 0.1− | 0.3+ |
| 2005 04 09 | 691 | 0.0 | 0.3+ | 2006 11 11 | 703 | 0.8− | 0.7+ | 2009 12 19 | G96 | 0.4− | 0.3+ |
| 2005 04 09 | 691 | 0.1− | 0.4+ | 2006 11 11 | 703 | 0.3− | 0.0 | | | | |
| 2005 05 12 | G96 | 0.5− | 0.1+ | 2006 11 11 | 703 | 0.0 | 0.9− | | | | |

**(228264)∗ 1999 TM$_{130}$ = 2005 OU$_{15}$**

Discovered 1999 Oct. 6 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 84505)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 175.87735 | | (2000.0) | | | |
| $n$ | 0.31906789 | $\omega$ | 81.26185 | | +0.40870764 | +0.91243537 |
| $a$ | 2.1210325 | $\Omega$ | 212.88583 | | −0.85148994 | +0.37313571 |
| $e$ | 0.1084357 | $i$ | 2.16248 | | −0.32851627 | +0.16802213 |
| $P$ | 3.09 | $H$ | 16.8 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 10 06 | 704 | 1.3+ | 0.4− | 2005 08 22 | 644 | 0.1− | 0.1+ | 2007 01 27 | G96 | 0.1+ | 0.0 |
| 1999 10 06 | 704 | 0.2+ | 0.6− | 2005 08 22 | 644 | 0.2− | 0.0 | 2007 01 27 | G96 | 0.3+ | 0.2− |
| 1999 10 06 | 704 | 0.5+ | 0.1− | 2005 08 24 | 644 | 0.7+ | 0.3+ | 2007 02 08 | G96 | 0.1− | 0.2+ |
| 1999 10 06 | 704 | 0.4+ | 0.3− | 2005 08 24 | 644 | 0.2+ | 0.3+ | 2007 02 08 | G96 | 0.2+ | 0.2+ |
| 1999 10 06 | 704 | 0.3+ | 1.5− | 2005 08 24 | 644 | 0.3− | 0.2+ | 2007 02 08 | G96 | 0.2+ | 0.3+ |
| 1999 10 09 | 704 | 0.4+ | 0.1+ | 2005 08 26 | 699 | 0.2+ | 0.3+ | 2007 02 08 | G96 | 0.1+ | 0.4+ |
| 1999 10 09 | 704 | 0.1− | 0.1+ | 2005 08 26 | 699 | 0.3+ | 0.2+ | 2007 02 25 | G96 | 0.5+ | 0.5− |
| 1999 10 09 | 704 | 0.2− | 1.0− | 2005 08 26 | 699 | 0.2− | 0.5+ | 2007 02 25 | G96 | 0.1− | 0.2− |
| 1999 10 15 | 704 | 0.2− | 0.5− | 2005 08 29 | 699 | (1.6+ | 0.1−) | 2007 02 25 | G96 | 0.2− | 0.3− |
| 1999 10 15 | 704 | 1.0− | 0.0 | 2005 08 29 | 699 | 0.2+ | 1.0+ | 2007 02 25 | G96 | 0.2+ | 0.0 |
| 1999 10 15 | 704 | 0.1+ | 0.4− | 2005 08 29 | 699 | 0.4− | 0.3+ | 2008 05 28 | G96 | 0.3+ | 0.3− |
| 2002 08 12 | 704 | 0.5+ | 0.1− | 2005 08 29 | 699 | 0.1+ | 1.1+ | 2008 05 28 | G96 | 0.1+ | 0.4− |
| 2002 08 12 | 704 | 0.3+ | 0.4+ | 2005 08 29 | 699 | 0.1− | 0.8− | 2008 05 28 | G96 | 0.2+ | 0.5− |
| 2002 08 12 | 704 | 0.5− | 0.1+ | 2005 08 29 | 699 | (0.7− | 1.7+) | 2008 05 28 | G96 | 0.4+ | 0.5− |
| 2002 09 04 | 699 | (1.5+ | 0.8+) | 2005 08 29 | 699 | 0.2− | 0.6− | 2008 07 01 | 704 | 0.5+ | 0.6+ |
| 2002 09 04 | 699 | 1.2+ | 0.7+ | 2005 08 29 | 699 | 0.4+ | 1.1+ | 2008 07 01 | 704 | 0.2− | 0.5− |
| 2002 09 04 | 699 | 0.3+ | 0.4+ | 2005 08 30 | 704 | 0.4− | 0.2+ | 2008 07 01 | 704 | 0.3− | 0.4− |
| 2002 09 04 | 699 | 0.1+ | 1.5+ | 2005 08 30 | 704 | 0.0 | 0.0 | 2008 07 25 | E12 | 1.0− | 0.4+ |
| 2002 09 06 | 704 | 0.5− | 0.4− | 2005 08 30 | 704 | 0.1− | 0.5− | 2008 07 25 | E12 | 0.4+ | 0.4+ |
| 2002 09 06 | 704 | 0.2− | 0.6− | 2005 10 01 | G96 | 0.0 | 0.1+ | 2008 07 25 | E12 | 0.1+ | 0.8+ |
| 2002 09 06 | 704 | 0.1+ | 0.5− | 2005 10 01 | G96 | 0.1− | 0.1+ | 2008 07 25 | E12 | 0.5+ | 0.2+ |
| 2002 09 06 | 704 | 0.3− | 0.5− | 2005 10 01 | G96 | 0.2− | 0.0 | 2008 07 30 | 703 | 0.1− | 0.8+ |
| 2002 09 06 | 704 | 1.3+ | 1.1− | 2005 10 01 | G96 | 0.3+ | 0.1− | 2008 07 30 | 703 | 0.7− | 0.3+ |
| 2002 09 14 | 644 | 0.2− | 0.5+ | 2005 10 25 | G96 | 0.2− | 0.4+ | 2008 07 30 | 703 | 0.1− | 0.0 |
| 2002 09 14 | 644 | 0.5− | 0.4+ | 2005 10 25 | G96 | 0.1+ | 0.5+ | 2008 07 30 | 703 | 0.2− | 0.8+ |
| 2002 09 14 | 644 | 0.3− | 0.3+ | 2005 10 25 | G96 | 0.0 | 0.2+ | 2008 08 24 | 704 | 0.1+ | 0.8+ |
| 2002 09 17 | 608 | 0.5− | 0.0 | 2005 10 25 | G96 | 0.3+ | 0.6− | 2008 08 24 | 704 | 0.2+ | 0.3+ |
| 2002 09 17 | 608 | 0.7− | 0.5− | 2006 11 22 | G96 | 0.6+ | 0.1− | 2008 08 24 | 704 | 0.7− | 0.6+ |
| 2002 09 17 | 608 | 0.8− | 0.2+ | 2006 11 22 | G96 | 0.3+ | 0.2− | 2008 09 25 | G96 | 0.3− | 0.3− |
| 2002 10 03 | 704 | 0.3+ | 0.2+ | 2006 11 22 | G96 | 0.0 | 0.2+ | 2008 09 25 | G96 | 0.3+ | 0.2− |
| 2002 10 03 | 704 | (2.4− | 0.6+) | 2006 11 22 | G96 | 0.2+ | 0.1+ | 2008 09 25 | G96 | 0.1− | 0.3− |
| 2002 10 03 | 704 | 0.2+ | 0.7− | 2006 12 16 | G96 | 0.7− | 0.1− | 2008 09 25 | G96 | 0.1− | 0.3− |
| 2002 10 03 | 704 | 0.0 | 0.3− | 2006 12 16 | G96 | 0.3− | 0.8− | 2009 11 16 | G96 | 0.3+ | 0.1− |
| 2002 10 03 | 704 | 0.3− | 0.4+ | 2006 12 16 | G96 | 0.1− | 0.1− | 2009 11 16 | G96 | 0.5+ | 0.3− |
| 2005 06 23 | 644 | 0.2− | 0.0 | 2006 12 16 | G96 | 0.1− | 0.2− | 2009 11 16 | G96 | 0.2+ | 0.3+ |
| 2005 06 23 | 644 | 0.0 | 0.1− | 2007 01 10 | G96 | 0.3+ | 0.2+ | 2009 11 16 | G96 | 0.2− | 0.2− |
| 2005 06 23 | 644 | 0.5− | 0.6− | 2007 01 10 | G96 | 0.3+ | 0.3+ | 2009 12 17 | 691 | 0.1+ | 0.1+ |
| 2005 07 29 | 644 | 0.0 | 0.0 | 2007 01 10 | G96 | 0.3+ | 0.1+ | 2009 12 17 | 691 | 0.1+ | 0.1+ |
| 2005 07 29 | 644 | 0.0 | 0.0 | 2007 01 24 | 703 | 0.1+ | 0.4− | 2009 12 17 | 691 | 0.9+ | 0.5+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 07 29 | 644 | 0.0 | 0.1+ | 2007 01 24 | 703 | 0.5+ | 0.9+ | 2009 12 25 | 691 | 0.3− | 0.4+ |
| 2005 07 31 | 644 | 0.1− | 0.1− | 2007 01 24 | 703 | 0.6− | 0.2+ | 2009 12 25 | 691 | 0.3− | 0.5+ |
| 2005 07 31 | 644 | 0.1− | 0.1− | 2007 01 24 | 703 | 1.2− | 0.3− | 2009 12 25 | 691 | 0.4− | 0.1+ |
| 2005 07 31 | 644 | 0.1− | 0.1+ | 2007 01 27 | G96 | 0.3+ | 0.2+ | | | | |
| 2005 08 22 | 644 | 0.2− | 0.2+ | 2007 01 27 | G96 | 0.1− | 0.3− | | | | |

**(228265)∗ 1999 TF$_{174}$**

Discovered 1999 Oct. 10 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 58.73578 | | (2000.0) | | | |
| $n$ | 0.30244840 | $\omega$ | 236.94788 | | +0.94104987 | −0.33695979 |
| $a$ | 2.1980380 | $\Omega$ | 142.71966 | | +0.32441114 | +0.87412241 |
| $e$ | 0.1781790 | $i$ | 2.81235 | | +0.09582565 | +0.34981153 |
| $P$ | 3.26 | $H$ | 17.3 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 10 10 | 704 | 0.7+ | 0.5+ | 2002 08 18 | 644 | 0.0 | 0.3+ | 2007 02 06 | G96 | 0.0 | 0.0 |
| 1999 10 10 | 704 | 0.4− | 0.2− | 2002 08 28 | 644 | 0.2+ | 0.0 | 2007 02 06 | G96 | 0.0 | 0.3+ |
| 1999 10 10 | 704 | 0.7+ | 0.1+ | 2002 08 28 | 644 | 0.1+ | 0.1+ | 2007 02 06 | G96 | 0.4+ | 0.2− |
| 1999 10 10 | 704 | 0.0 | 0.0 | 2002 08 28 | 644 | 0.1− | 0.0 | 2007 02 13 | G96 | 0.5+ | 0.1− |
| 1999 10 10 | 704 | 0.4+ | 0.4+ | 2002 09 02 | 291 | 0.0 | 0.1+ | 2007 02 13 | G96 | 0.0 | 0.3− |
| 1999 10 11 | 704 | 0.6− | 0.8+ | 2002 09 02 | 291 | 0.0 | 0.1+ | 2007 02 13 | G96 | 0.0 | 0.0 |
| 1999 10 11 | 704 | 0.3+ | 0.3+ | 2002 09 02 | 291 | 0.1+ | 0.1+ | 2007 02 13 | G96 | 0.1− | 0.1− |
| 1999 10 11 | 704 | 0.6+ | 0.6− | 2002 09 05 | 704 | 0.5+ | 0.1+ | 2007 02 13 | G96 | 0.1+ | 0.3+ |
| 1999 10 11 | 704 | 0.3+ | 0.2+ | 2002 09 05 | 704 | 0.5− | 0.6+ | 2007 02 13 | G96 | 0.1+ | 0.0 |
| 1999 10 11 | 704 | 0.2− | 0.2− | 2002 09 05 | 704 | 0.3− | 0.7− | 2007 02 13 | G96 | 0.2+ | 0.1+ |
| 1999 10 20 | 704 | 1.1− | 0.0 | 2002 09 05 | 704 | 0.2− | 0.0 | 2007 02 13 | G96 | 0.2+ | 0.0 |
| 1999 10 20 | 704 | 0.3+ | 0.4+ | 2002 09 15 | 644 | 0.6− | 1.1− | 2007 03 09 | G96 | 0.0 | 0.3+ |
| 1999 10 20 | 704 | 0.2− | 1.6+ | 2002 09 15 | 644 | 0.4− | 1.1− | 2007 03 09 | G96 | 0.5− | 0.5− |
| 1999 10 20 | 704 | 0.0 | 0.8+ | 2002 09 15 | 644 | 0.2− | 1.4− | 2007 03 09 | G96 | 0.5+ | 0.0 |
| 1999 11 05 | 704 | 0.5+ | 0.4+ | 2002 10 11 | 704 | 0.2+ | 0.9− | 2007 03 09 | G96 | 0.1+ | 0.4+ |
| 1999 11 05 | 704 | 0.5+ | 0.9+ | 2002 10 11 | 704 | 0.6+ | 0.4− | 2008 05 28 | G96 | 0.0 | 0.5+ |
| 1999 11 05 | 704 | 1.3− | 0.3− | 2002 10 11 | 704 | 0.4− | 0.0 | 2008 05 28 | G96 | 0.7+ | 0.0 |
| 1999 11 17 | 704 | 0.2− | 0.9− | 2002 10 11 | 704 | (1.4+ | 1.8−) | 2008 05 28 | G96 | 0.7+ | 0.1+ |
| 1999 11 17 | 704 | 0.1+ | 0.6− | 2007 01 10 | G96 | 0.0 | 0.2+ | 2008 05 28 | G96 | 0.2+ | 0.2+ |
| 1999 11 17 | 704 | 0.3− | 1.3− | 2007 01 10 | G96 | 0.1− | 0.3+ | 2008 06 09 | 691 | 0.0 | 0.1+ |
| 1999 11 17 | 704 | 0.5− | 0.3+ | 2007 01 10 | G96 | 0.0 | 0.2+ | 2008 06 09 | 691 | 0.1− | 0.6+ |
| 2002 08 08 | 644 | 0.3− | 0.2+ | 2007 01 10 | G96 | 0.3− | 0.1+ | 2008 06 09 | 691 | 0.0 | 0.2+ |
| 2002 08 08 | 644 | 0.2− | 0.1+ | 2007 01 27 | G96 | 0.4+ | 0.2+ | 2009 12 17 | 704 | 0.4+ | 1.5+ |
| 2002 08 08 | 644 | 0.4+ | 1.3+ | 2007 01 27 | G96 | 0.5+ | 0.4− | 2009 12 17 | 704 | 0.2+ | 0.8+ |
| 2002 08 12 | 699 | 0.2− | 1.4+ | 2007 01 27 | G96 | 0.3+ | 0.0 | 2009 12 17 | 704 | 0.8+ | 0.9− |
| 2002 08 12 | 699 | 0.1− | 0.1− | 2007 01 27 | G96 | 0.3+ | 0.4− | 2009 12 20 | 691 | 0.4− | 0.3+ |
| 2002 08 12 | 699 | 0.2+ | 0.8+ | 2007 01 27 | 691 | 0.0 | 0.1+ | 2009 12 20 | 691 | 0.1+ | 0.1− |
| 2002 08 12 | 699 | 0.5+ | 0.2− | 2007 01 27 | 691 | 0.5− | 0.1+ | 2009 12 20 | 691 | 0.1− | 0.0 |
| 2002 08 18 | 644 | 0.0 | 0.1− | 2007 01 27 | 691 | 0.0 | 0.4+ | | | | |
| 2002 08 18 | 644 | 0.0 | 0.1+ | 2007 02 06 | G96 | 0.2+ | 0.1+ | | | | |

**(228266)∗ 1999 TZ$_{195}$ = 2002 PT$_{57}$**

Discovered 1999 Oct. 12 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 33110)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 98.36622 | | (2000.0) | | | |
| $n$ | 0.30597421 | $\omega$ | 61.15924 | | +0.95955141 | +0.26643401 |
| $a$ | 2.1811197 | $\Omega$ | 283.26640 | | −0.27970434 | +0.86541809 |
| $e$ | 0.1883244 | $i$ | 5.36244 | | −0.03204019 | +0.42434002 |
| $P$ | 3.22 | $H$ | 16.9 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 10 12 | 704 | 0.2+ | 0.1− | 2002 08 28 | 644 | 0.2+ | 0.5+ | 2002 10 05 | 704 | 0.7+ | 1.4+ |
| 1999 10 12 | 704 | 0.2+ | 0.2+ | 2002 08 28 | 644 | 0.4+ | 0.6+ | 2002 10 05 | 704 | 0.0 | 0.2+ |
| 1999 10 12 | 704 | 0.6+ | 0.3− | 2002 09 04 | 699 | 0.3+ | 0.6+ | 2002 10 05 | 704 | 1.1− | 0.6− |
| 1999 10 12 | 704 | 0.3+ | 0.7− | 2002 09 04 | 699 | 0.8+ | 0.9+ | 2002 10 05 | 704 | 0.9− | 0.8− |
| 1999 10 12 | 704 | 0.4+ | 1.4− | 2002 09 04 | 683 | 0.1− | 0.4− | 2002 10 05 | 704 | (0.6− | 1.6+) |
| 1999 10 13 | 704 | 0.9+ | 0.2− | 2002 09 04 | 699 | (1.8+ | 0.4+) | 2002 10 30 | 645 | 0.0 | 0.1− |
| 1999 10 13 | 704 | 0.3− | 0.9+ | 2002 09 04 | 683 | 0.3− | 1.5− | 2002 10 30 | 645 | 0.0 | 0.1− |
| 1999 10 13 | 704 | 0.8+ | 0.9− | 2002 09 04 | 699 | (2.8+ | 0.2−) | 2002 10 31 | 704 | 0.4+ | 0.0 |
| 1999 10 13 | 704 | 0.2+ | 0.6− | 2002 09 04 | 683 | 0.6+ | 0.4− | 2002 10 31 | 704 | 0.2− | 0.4+ |
| 1999 10 13 | 704 | 0.7+ | 0.2− | 2002 09 04 | 644 | 0.1+ | 0.4+ | 2002 10 31 | 704 | 0.1+ | 0.2+ |
| 1999 11 03 | 704 | 0.3− | 0.8+ | 2002 09 04 | 644 | 0.0 | 0.5+ | 2002 10 31 | 704 | 0.0 | 0.1+ |
| 1999 11 03 | 704 | 0.2+ | 0.1− | 2002 09 04 | 644 | 0.2− | 0.6+ | 2006 11 01 | G96 | 0.1− | 0.1− |
| 1999 11 03 | 704 | 0.1− | 0.5+ | 2002 09 07 | 704 | 0.6− | 0.2− | 2006 11 01 | G96 | 0.2− | 0.1− |
| 1999 11 13 | 703 | 0.7− | 0.2+ | 2002 09 07 | 704 | 0.3− | 0.3− | 2006 11 01 | G96 | 0.1+ | 0.4− |
| 1999 11 13 | 703 | 1.1− | 0.1− | 2002 09 07 | 704 | 0.3− | 0.2− | 2006 11 01 | G96 | 0.3− | 0.8− |
| 1999 11 13 | 703 | 1.0− | 0.2+ | 2002 09 07 | 704 | 0.0 | 0.8− | 2006 12 15 | G96 | 0.0 | 0.1+ |
| 1999 11 13 | 703 | 0.3+ | 0.1+ | 2002 09 12 | 683 | 0.2− | 0.3+ | 2006 12 15 | G96 | 0.3+ | 0.0 |
| 2002 07 14 | 704 | 1.1+ | 0.9+ | 2002 09 12 | 683 | 0.2− | 1.0− | 2006 12 15 | G96 | 0.3− | 0.3− |
| 2002 07 14 | 704 | 1.3+ | 0.9+ | 2002 09 12 | 644 | 0.5− | 0.2+ | 2006 12 15 | G96 | 0.1+ | 0.0 |
| 2002 07 14 | 704 | 1.1+ | 1.0+ | 2002 09 12 | 683 | 0.8+ | 0.0 | 2007 01 10 | G96 | 0.3− | 0.4+ |
| 2002 07 14 | 704 | (1.8+ | 1.4+) | 2002 09 12 | 644 | 0.5− | 0.2+ | 2007 01 10 | G96 | 0.6+ | 0.1+ |
| 2002 08 09 | 704 | 0.2− | 0.2− | 2002 09 12 | 644 | 0.4− | 0.0 | 2007 01 10 | G96 | 0.2+ | 0.1− |
| 2002 08 09 | 704 | 0.1+ | 0.3+ | 2002 09 12 | 608 | 0.6− | 0.3− | 2007 01 10 | G96 | 0.4− | 0.1− |
| 2002 08 09 | 704 | 0.8+ | 0.1+ | 2002 09 12 | 608 | 0.5− | 0.4− | 2007 01 27 | G96 | 0.2− | 0.2+ |
| 2002 08 12 | 704 | 0.1+ | 0.1− | 2002 09 12 | 608 | 0.5− | 0.3− | 2007 01 27 | G96 | 0.1− | 0.0 |
| 2002 08 12 | 704 | 0.1+ | 0.0 | 2002 09 13 | 683 | (0.6+ | 1.8+) | 2007 01 27 | G96 | 0.4− | 0.2+ |
| 2002 08 12 | 704 | 0.1+ | 0.3− | 2002 09 13 | 683 | 0.3− | 0.5+ | 2009 11 11 | G96 | 0.9+ | 0.4− |
| 2002 08 12 | 704 | 0.3+ | 0.2− | 2002 09 13 | 644 | 0.3− | 1.0+ | 2009 11 11 | G96 | 0.5+ | 0.1− |
| 2002 08 12 | 704 | 0.4+ | 0.2− | 2002 09 13 | 683 | 0.5− | 0.2− | 2009 11 11 | G96 | 0.7+ | 0.2− |
| 2002 08 16 | 683 | (5.5+ | 0.0 ) | 2002 09 13 | 644 | 0.2− | 1.1+ | 2009 11 11 | G96 | 0.8+ | 0.1+ |
| 2002 08 16 | 704 | 0.2+ | 0.4− | 2002 09 13 | 644 | 0.4− | 1.0+ | 2009 11 23 | G96 | 0.2+ | 0.3− |
| 2002 08 16 | 683 | (0.4− | 1.6−) | 2002 09 14 | 683 | 0.1− | 0.2+ | 2009 11 23 | G96 | 0.4+ | 0.1+ |
| 2002 08 16 | 704 | 0.3+ | 0.9+ | 2002 09 14 | 683 | (1.8− | 0.3−) | 2009 11 23 | G96 | 0.8+ | 0.1− |
| 2002 08 16 | 683 | (0.9+ | 3.2−) | 2002 09 16 | 608 | 0.4− | 0.4− | 2009 11 23 | G96 | 0.6+ | 0.1+ |
| 2002 08 16 | 704 | 0.8+ | 0.5+ | 2002 09 16 | 608 | 0.4− | 0.9− | 2009 12 16 | 691 | 0.1− | 0.1+ |
| 2002 08 16 | 704 | 0.8+ | 0.0 | 2002 09 16 | 608 | 0.7− | 0.5− | 2009 12 16 | 691 | 0.2+ | 0.3+ |
| 2002 08 27 | 644 | 0.0 | 0.3+ | 2002 09 30 | 704 | 0.8− | 0.0 | 2009 12 16 | 691 | 0.3+ | 0.2+ |
| 2002 08 27 | 644 | 0.0 | 0.2+ | 2002 09 30 | 704 | 0.6− | 0.1− | 2009 12 25 | 691 | 0.9− | 0.3+ |
| 2002 08 27 | 644 | 0.2− | 0.2+ | 2002 09 30 | 704 | 0.4− | 0.2+ | 2009 12 25 | 691 | 0.2+ | 0.1− |
| 2002 08 28 | 644 | 0.4+ | 0.5+ | 2002 09 30 | 704 | 0.6− | 0.2− | 2009 12 25 | 691 | 0.4− | 0.2+ |

**(228267)∗ 1999 TC$_{200}$ = 2004 HE$_1$**

Discovered 1999 Oct. 12 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. K. E. Smalley (*MPO* 60549)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 286.69504 | | (2000.0) | | | |
| $n$ | 0.29010716 | $\omega$ | 265.90721 | | −0.74647144 | −0.60279795 |
| $a$ | 2.2599409 | $\Omega$ | 236.77121 | | +0.66060951 | −0.72215643 |
| $e$ | 0.3100423 | $i$ | 19.68765 | | −0.07984653 | −0.33930033 |
| $P$ | 3.40 | $H$ | 16.1 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 10 12 | 704 | 1.1+ | 0.6− | 2004 05 18 | 704 | 0.4− | 0.0 | 2006 12 08 | 644 | 0.2− | 0.1− |
| 1999 10 12 | 704 | 0.3− | 0.2+ | 2004 05 18 | 704 | 0.6− | 0.1+ | 2006 12 08 | 644 | 0.3− | 0.0 |
| 1999 10 12 | 704 | 0.8+ | 0.4− | 2004 05 18 | 704 | (0.2− | 1.8+) | 2006 12 08 | 644 | 0.3− | 0.1+ |
| 1999 10 13 | 704 | 0.4+ | 0.3− | 2004 05 18 | 704 | 0.0 | 1.0+ | 2006 12 09 | 644 | 0.2− | 0.1+ |
| 1999 10 13 | 704 | 0.1− | 0.4+ | 2004 05 18 | 704 | 0.2− | 0.0 | 2006 12 09 | 644 | 0.3− | 0.7− |
| 1999 10 13 | 704 | 0.9+ | 0.9− | 2004 05 18 | 704 | 0.1+ | 0.8+ | 2006 12 09 | 644 | 0.4− | 0.1− |
| 1999 10 13 | 704 | 1.0+ | 0.6+ | 2004 05 18 | 704 | 0.3+ | 0.2− | 2006 12 10 | 699 | 1.1− | 0.1+ |
| 1999 10 31 | 703 | 0.8− | 0.4− | 2004 05 19 | 704 | 0.1− | 0.7+ | 2006 12 10 | 699 | 0.6− | 0.1+ |
| 1999 10 31 | 703 | 1.8− | 0.1+ | 2004 05 19 | 704 | 0.1− | 0.1+ | 2006 12 10 | 699 | 0.4− | 0.5− |
| 1999 10 31 | 703 | (2.3− | 0.1−) | 2004 05 19 | 704 | 0.1+ | 0.8+ | 2006 12 10 | 699 | 0.5− | 0.0 |
| 1999 10 31 | 703 | 0.8+ | 0.3− | 2004 05 19 | 704 | 0.4− | 0.1− | 2006 12 13 | 704 | 0.4+ | 0.4+ |
| 1999 10 31 | 703 | 1.3− | 0.4+ | 2004 05 19 | 704 | 1.2+ | 0.9− | 2006 12 13 | 704 | 0.1− | 0.3+ |
| 1999 10 31 | 703 | (0.6− | 2.3−) | 2004 06 14 | 704 | 0.1+ | 0.7+ | 2006 12 13 | 704 | 0.1− | 0.0 |
| 2004 04 19 | E12 | 1.2+ | 1.3+ | 2004 06 14 | 704 | (0.0 | 1.7+) | 2006 12 13 | 704 | 0.0 | 0.1+ |
| 2004 04 19 | E12 | (1.3+ | 1.7+) | 2004 06 14 | 704 | 0.9+ | 1.2+ | 2006 12 21 | 644 | 0.2− | 0.1− |
| 2004 04 19 | E12 | (1.5+ | 1.7+) | 2004 06 14 | 704 | 0.1− | 0.9+ | 2006 12 21 | 699 | 0.3+ | 0.3− |
| 2004 04 19 | E12 | (1.5+ | 1.9+) | 2004 06 14 | 704 | 0.9+ | 0.2+ | 2006 12 21 | 644 | 0.4− | 0.1− |
| 2004 04 20 | E12 | 0.6− | 0.3+ | 2004 06 17 | 704 | 0.9+ | 1.0+ | 2006 12 21 | 699 | 0.1− | 0.3− |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 04 20 | E12 | 0.1+ | 0.3+ | 2004 06 17 | 704 | 0.4+ | 0.6+ | 2006 12 21 | 644 | 0.1− | 0.0 | | |
| 2004 04 20 | E12 | 0.2+ | 0.2+ | 2004 06 17 | 704 | 0.7− | 0.5+ | 2006 12 21 | 703 | 0.2− | 0.5− | | |
| 2004 04 20 | E12 | 0.4− | 0.3+ | 2006 09 18 | 703 | (2.3− | 0.1−) | 2006 12 21 | 699 | 0.0 | 0.3− | | |
| 2004 04 25 | 704 | (0.5− | 1.6+) | 2006 09 18 | 703 | 0.7− | 1.2+ | 2006 12 21 | 703 | 0.3+ | 0.4− | | |
| 2004 04 25 | 704 | 0.2− | 0.1+ | 2006 09 18 | 703 | 0.3+ | 0.9+ | 2006 12 21 | 703 | 0.5− | 0.4− | | |
| 2004 04 25 | 704 | 0.2+ | 1.0+ | 2006 09 18 | 703 | 0.1− | 0.1− | 2006 12 21 | 703 | 0.2− | 0.4− | | |
| 2004 04 25 | 704 | 0.0 | 0.8+ | 2006 11 13 | G96 | 0.5− | 0.4− | 2006 12 21 | 699 | (3.1− | 0.8+) | | |
| 2004 05 13 | 644 | 0.0 | 0.0 | 2006 11 13 | G96 | 0.2− | 0.1+ | 2006 12 22 | 704 | 0.8+ | 1.4+ | | |
| 2004 05 13 | 703 | 0.2+ | 0.1− | 2006 11 13 | G96 | 0.5− | 0.0 | 2006 12 22 | 704 | 0.2− | 0.3+ | | |
| 2004 05 13 | 644 | 0.0 | 0.2+ | 2006 11 13 | G96 | 0.3− | 0.1+ | 2006 12 22 | 704 | 0.4+ | 0.6+ | | |
| 2004 05 13 | 703 | 0.0 | 0.7− | 2006 11 14 | 704 | 0.3+ | 1.0+ | 2006 12 22 | 704 | 0.9+ | 0.1− | | |
| 2004 05 13 | 703 | 0.5+ | 0.2+ | 2006 11 14 | 704 | 0.1− | 0.1− | 2006 12 22 | 704 | 1.1+ | 0.2− | | |
| 2004 05 13 | 644 | 0.0 | 0.1+ | 2006 11 14 | 704 | 0.0 | 0.0 | 2007 01 24 | 699 | (0.1− | 2.1+) | | |
| 2004 05 13 | 703 | 0.6− | 0.8− | 2006 11 14 | 704 | 0.4+ | 0.5+ | 2007 01 24 | 699 | 0.6− | 0.3+ | | |
| 2004 05 15 | 704 | 0.3+ | 1.0− | 2006 11 17 | 704 | 0.4+ | 0.5+ | 2007 01 24 | 699 | 0.4− | 0.2− | | |
| 2004 05 15 | 704 | 0.4+ | 0.3− | 2006 11 17 | 704 | 0.3+ | 0.7+ | 2007 01 24 | 699 | 0.2− | 0.4+ | | |
| 2004 05 15 | 704 | 0.8+ | 0.5− | 2006 11 17 | 704 | 0.4+ | 0.2+ | 2007 02 17 | 703 | 0.4− | 0.5− | | |
| 2004 05 15 | 704 | 0.4+ | 0.7− | 2006 11 17 | 704 | 0.1+ | 0.6+ | 2007 02 17 | 703 | 0.1+ | 0.7− | | |
| 2004 05 15 | 704 | 0.7− | 1.1− | 2006 11 17 | 704 | 0.4− | 0.6+ | 2007 02 17 | 703 | 1.0− | 0.2+ | | |
| 2004 05 16 | 704 | 0.2− | 0.7− | 2006 11 18 | 691 | 0.1− | 0.5− | 2007 02 17 | 703 | 0.5+ | 1.4− | | |
| 2004 05 16 | 704 | 1.0− | 0.6− | 2006 11 18 | 691 | 0.0 | 0.3− | 2007 03 07 | 644 | 0.2+ | 0.0 | | |
| 2004 05 16 | 704 | 0.0 | 0.7− | 2006 11 18 | 691 | 0.0 | 0.4− | 2007 03 07 | 644 | 0.1+ | 0.1+ | | |
| 2004 05 16 | 704 | 0.8− | 0.8− | 2006 11 18 | 704 | 0.1− | 0.2+ | 2007 03 07 | 644 | 0.1+ | 0.2+ | | |
| 2004 05 16 | 704 | 0.3+ | 0.4− | 2006 11 18 | 704 | 0.1+ | 0.2− | 2007 03 11 | 703 | 0.4+ | 0.7− | | |
| 2004 05 16 | 704 | 0.3− | 0.6− | 2006 11 18 | 704 | 0.2+ | 0.2− | 2007 03 11 | 703 | 0.8+ | 1.3+ | | |
| 2004 05 16 | 704 | 1.1− | 1.2− | 2006 11 18 | 704 | 0.9+ | 0.3+ | 2007 03 11 | 703 | 0.8− | 0.0 | | |
| 2004 05 16 | 704 | 0.6− | 0.3− | 2006 11 20 | 704 | (0.9− | 1.9+) | 2007 03 11 | 703 | 0.2+ | 0.6− | | |
| 2004 05 16 | 704 | 0.3+ | 0.6− | 2006 11 20 | 704 | 0.9− | 0.8+ | 2009 10 14 | G96 | 0.3+ | 0.1− | | |
| 2004 05 16 | 704 | 0.2− | 0.3− | 2006 11 20 | 704 | 0.6− | 1.2+ | 2009 10 14 | G96 | 0.8+ | 0.2+ | | |
| 2004 05 17 | 704 | 0.5− | 0.3+ | 2006 11 20 | 704 | 0.2+ | 0.9+ | 2009 10 14 | G96 | 0.5+ | 0.1+ | | |
| 2004 05 17 | 704 | 0.3+ | 0.2− | 2006 11 20 | 704 | (1.6− | 1.0+) | 2009 10 14 | G96 | 0.9+ | 0.0 | | |
| 2004 05 17 | 704 | 0.5− | 0.0 | 2006 11 25 | 704 | 1.3+ | 0.7+ | 2009 11 10 | 703 | 0.2+ | 0.3+ | | |
| 2004 05 17 | 704 | 0.8− | 0.6− | 2006 11 25 | 704 | (2.2+ | 0.1−) | 2009 11 10 | 703 | 0.4− | 0.7− | | |
| 2004 05 17 | 704 | 1.3− | 0.7+ | 2006 11 25 | 704 | 1.2+ | 1.4− | 2009 11 10 | 703 | 0.8− | 0.5− | | |
| 2004 05 17 | 704 | 0.3− | 1.3+ | 2006 11 25 | 704 | (3.2+ | 0.4+) | 2009 11 10 | 703 | 1.5− | 0.3− | | |
| 2004 05 17 | 704 | 0.2+ | 0.2− | 2006 11 25 | 704 | 0.5+ | 0.2+ | 2009 12 20 | G96 | 0.3− | 0.0 | | |
| 2004 05 17 | 704 | 0.6+ | 0.5− | 2006 11 28 | 704 | 0.2+ | 0.2+ | 2009 12 20 | G96 | 0.3+ | 0.1− | | |
| 2004 05 17 | 704 | 0.2+ | 0.4+ | 2006 11 28 | 704 | 0.3+ | 0.4+ | 2009 12 20 | G96 | 0.1− | 0.3− | | |
| 2004 05 17 | 704 | 0.1+ | 0.3− | 2006 11 28 | 704 | 0.1+ | 0.9+ | 2009 12 20 | G96 | 0.4+ | 0.5+ | | |
| 2004 05 18 | 704 | 0.9+ | 0.3− | 2006 11 28 | 704 | 0.1+ | 0.1+ | | | | | | |
| 2004 05 18 | 704 | 0.8+ | 0.8+ | 2006 11 28 | 704 | 0.4+ | 0.1− | | | | | | |

**(228268)∗ 1999 TR$_{219}$**

Discovered 1999 Oct. 1 by the Catalina Sky Survey.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 33.33219 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.20554970 | $\omega$ | 69.73127 | | +0.73256897 | −0.67870778 | |
| $a$ | 2.8435322 | $\Omega$ | 332.93114 | | +0.57415118 | +0.65709878 | |
| $e$ | 0.2081521 | $i$ | 6.55478 | | +0.36564070 | +0.32798925 | |
| $P$ | 4.79 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 10 01 | 703 | 0.1+ | 0.1+ | 2004 10 08 | 704 | 0.2− | 0.2+ | 2006 01 26 | G96 | 0.7− | 0.5− | | |
| 1999 10 01 | 703 | 0.6− | 0.6+ | 2004 10 08 | 704 | 1.3− | 0.1+ | 2006 01 26 | G96 | 0.3− | 0.4− | | |
| 1999 10 01 | 703 | 0.4+ | 0.1− | 2004 10 08 | 704 | 0.4− | 1.0+ | 2006 01 26 | G96 | 0.5− | 0.5− | | |
| 1999 10 01 | 703 | 0.2− | 0.6+ | 2004 10 08 | 704 | (1.6− | 0.3−) | 2006 01 26 | G96 | 0.8− | 0.2− | | |
| 1999 10 03 | 704 | 0.2− | 0.2− | 2004 11 03 | 703 | 0.1− | 0.6− | 2006 02 24 | 691 | 0.0 | 0.2+ | | |
| 1999 10 03 | 704 | 0.8+ | 0.4+ | 2004 11 03 | 703 | 0.1+ | 0.3+ | 2006 02 24 | 691 | 0.1+ | 0.1+ | | |
| 1999 10 03 | 704 | 0.3+ | 1.2+ | 2004 11 03 | 703 | 0.0 | 0.4+ | 2006 02 24 | 691 | 0.2+ | 0.4− | | |
| 1999 10 03 | 704 | 1.0− | 0.7+ | 2004 11 03 | 703 | 0.5− | 0.5− | 2006 03 02 | 691 | 0.1+ | 0.3+ | | |
| 1999 10 03 | 704 | 0.0 | 1.6+ | 2004 11 04 | 704 | 1.4− | 0.6+ | 2006 03 02 | 691 | 0.2+ | 0.1+ | | |
| 1999 10 10 | 704 | 0.8+ | 0.3+ | 2004 11 04 | 704 | 1.1− | 0.3+ | 2006 03 02 | 691 | 0.1+ | 0.0 | | |
| 1999 10 10 | 704 | 0.4+ | 0.3− | 2004 11 04 | 704 | 0.9− | 0.5+ | 2006 03 09 | 691 | 0.0 | 0.1+ | | |
| 1999 10 10 | 704 | 0.6+ | 0.3+ | 2004 11 04 | 704 | 1.3− | 0.0 | 2006 03 09 | 691 | 0.2+ | 0.2+ | | |
| 1999 10 10 | 704 | 0.6+ | 0.5+ | 2004 11 04 | 704 | 1.3− | 0.0 | 2006 03 09 | 691 | 0.2− | 0.1+ | | |
| 1999 10 10 | 704 | 0.0 | 0.3− | 2004 11 19 | 704 | 0.5+ | 0.2− | 2006 03 24 | 699 | (1.9+ | 0.9−) | | |
| 1999 10 14 | 645 | 0.1− | 0.1− | 2004 11 19 | 704 | 0.1+ | 0.5− | 2006 03 24 | 699 | 0.3+ | 0.0 | | |
| 1999 10 14 | 645 | 0.1− | 0.2− | 2004 11 19 | 704 | 0.0 | 0.1+ | 2006 03 24 | 699 | (0.1− | 1.7+) | | |
| 1999 10 21 | 704 | 0.0 | 0.2− | 2004 11 19 | 704 | 0.6+ | 0.2− | 2006 03 24 | 699 | (2.3− | 2.5+) | | |
| 1999 10 21 | 704 | 0.5+ | 0.2− | 2004 11 19 | 704 | 0.4− | 0.2+ | 2006 04 02 | 621 | 0.6− | 0.0 | | |
| 1999 10 21 | 704 | 0.7+ | 0.5− | 2004 11 22 | 704 | 0.5+ | 0.2+ | 2006 04 02 | 621 | 0.1+ | 0.4− | | |
| 1999 10 21 | 704 | 1.3+ | 0.8+ | 2004 11 22 | 704 | 0.1− | 0.8+ | 2006 04 02 | 621 | 0.1− | 0.1− | | |
| 1999 10 30 | 703 | 0.4+ | 0.5+ | 2004 11 22 | 704 | 0.5+ | 0.7+ | 2006 04 07 | 691 | 0.0 | 0.2+ | | |
| 1999 10 30 | 703 | 1.2− | 1.4+ | 2004 12 02 | 704 | 0.8+ | 0.8+ | 2006 04 07 | 691 | 0.1+ | 0.5+ | | |
| 1999 10 30 | 703 | 0.3− | 0.2+ | 2004 12 02 | 704 | 0.9+ | 0.6+ | 2006 04 07 | 691 | 0.1+ | 0.4+ | | |
| 1999 10 30 | 703 | (2.3− | 0.6−) | 2004 12 02 | 704 | 0.7+ | 0.6+ | 2009 11 16 | 704 | 0.8− | 0.1− | | |
| 1999 11 04 | 704 | 0.0 | 0.5− | 2004 12 02 | 704 | 0.1+ | 0.9+ | 2009 11 16 | 704 | 0.0 | 0.4− | | |
| 1999 11 04 | 704 | 0.3− | 0.2− | 2004 12 02 | 703 | 0.1− | 0.5− | 2009 11 16 | 704 | 0.2+ | 0.5− | | |
| 1999 11 04 | 704 | 0.0 | 0.5+ | 2004 12 02 | 704 | 0.5+ | 0.5− | 2009 11 16 | 704 | 0.2− | 0.6+ | | |
| 1999 11 04 | 704 | 0.3− | 0.3+ | 2004 12 02 | 703 | 0.6− | 0.3− | 2009 11 23 | 704 | 0.3− | 0.1− | | |
| 2004 09 13 | 704 | 0.2+ | 0.2+ | 2004 12 02 | 703 | 0.0 | 0.7− | 2009 11 23 | 704 | 0.2+ | 0.0 | | |
| 2004 09 13 | 704 | 0.8+ | 0.1+ | 2004 12 02 | 703 | 0.1− | 0.2+ | 2009 11 23 | 704 | 0.5+ | 0.7− | | |
| 2004 09 13 | 704 | (3.5+ | 4.0+) | 2004 12 11 | 703 | 0.1− | 0.3− | 2009 11 23 | 704 | 0.2− | 0.3− | | |
| 2004 09 13 | 704 | 0.6− | 0.4− | 2004 12 11 | 703 | 0.2+ | 0.2− | 2009 11 27 | G96 | 0.4− | 0.9− | | |
| 2004 09 13 | 704 | (1.1− | 2.2−) | 2004 12 11 | 703 | 0.2+ | 0.3− | 2009 11 27 | G96 | 0.1− | 0.8− | | |
| 2004 09 18 | 704 | 0.3+ | 0.3− | 2004 12 11 | 703 | 0.3− | 0.1+ | 2009 11 27 | G96 | 0.3− | 0.8− | | |
| 2004 09 18 | 704 | 0.4+ | 0.8+ | 2004 12 17 | 699 | 0.1− | 0.2+ | 2009 11 27 | G96 | 0.2− | 0.7− | | |
| 2004 09 18 | 704 | 0.3− | 1.2+ | 2004 12 17 | 699 | 0.5+ | 0.0 | 2009 11 27 | G96 | 0.3− | 0.9− | | |
| 2004 09 25 | 699 | 0.6− | 0.2− | 2004 12 17 | 699 | 0.3− | 0.1− | 2009 12 15 | 704 | 0.5+ | 0.1+ | | |
| 2004 09 25 | 699 | 0.2+ | 0.8+ | 2004 12 17 | 699 | 0.1+ | 0.2+ | 2009 12 15 | 704 | 0.2+ | 0.3− | | |
| 2004 09 25 | 699 | 1.3+ | 0.0 | 2005 12 07 | 691 | 0.4+ | 0.7− | 2009 12 15 | 704 | 0.2+ | 0.0 | | |
| 2004 09 25 | 699 | 0.6+ | 0.1+ | 2005 12 07 | 691 | 0.6+ | 0.5+ | 2009 12 15 | 704 | 0.5+ | 0.3+ | | |
| 2004 10 08 | 704 | 1.2− | 0.0 | 2005 12 07 | 691 | 0.4− | 0.2+ | 2009 12 15 | 704 | 0.6+ | 0.6− | | |

**(228269)∗ 1999 TO$_{233}$ = 2004 XJ$_{166}$**

Discovered 1999 Oct. 3 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. A. Doppler (*MPO* 74652)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 53.61033 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21131180 | $\omega$ | 136.54155 | | +0.79274295 | −0.59381894 | |
| $a$ | 2.7916023 | $\Omega$ | 260.38741 | | +0.51408922 | +0.77262930 | |
| $e$ | 0.1596600 | $i$ | 8.02319 | | +0.32752235 | +0.22455072 | |
| $P$ | 4.66 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 10 03 | 704 | 0.2+ | 0.3− | 2004 12 19 | 704 | 0.6− | 0.2+ | 2008 08 30 | 704 | 0.9+ | 1.2+ | | |
| 1999 10 03 | 704 | 0.2+ | 0.5− | 2004 12 19 | 704 | 0.8− | 0.4− | 2008 08 30 | 704 | 0.7+ | 0.4+ | | |
| 1999 10 03 | 704 | 0.6− | 1.4− | 2004 12 19 | 704 | 1.0+ | 0.8− | 2008 08 30 | 704 | 0.5+ | 0.7+ | | |
| 1999 10 03 | 704 | 0.1+ | 0.7− | 2004 12 19 | 704 | 1.4− | 0.4− | 2008 08 30 | 704 | 0.5+ | 1.0+ | | |
| 1999 10 03 | 704 | 0.4− | 0.5− | 2006 02 24 | 644 | 0.1+ | 0.3+ | 2008 09 05 | 704 | 0.1+ | 0.2+ | | |
| 1999 10 09 | 703 | 0.3− | 0.2+ | 2006 02 24 | 644 | 0.3+ | 0.2+ | 2008 09 05 | 704 | 1.4+ | 1.4+ | | |
| 1999 10 09 | 703 | 0.3− | 0.2+ | 2006 02 24 | 644 | 0.2+ | 0.4+ | 2008 09 05 | 704 | 1.2+ | 1.3+ | | |
| 1999 10 09 | 703 | 0.1+ | 0.2+ | 2007 06 20 | 691 | 0.3− | 0.3+ | 2008 09 05 | 704 | 0.6+ | 1.2+ | | |
| 1999 10 09 | 703 | 0.7+ | 0.0 | 2007 06 20 | 691 | 0.4− | 0.2+ | 2008 09 05 | 704 | 0.5+ | 0.7+ | | |
| 1999 10 10 | 704 | 0.4− | 0.0 | 2007 06 20 | 691 | 0.1− | 0.1+ | 2008 09 22 | 704 | 0.4− | 0.3+ | | |
| 1999 10 10 | 704 | 0.1− | 1.5+ | 2008 07 25 | E12 | 1.3+ | 0.2+ | 2008 09 22 | 704 | 0.7− | 0.2+ | | |
| 1999 10 10 | 704 | 0.3− | 0.1− | 2008 07 25 | E12 | 0.0 | 0.3− | 2008 09 22 | 704 | 0.6− | 0.4+ | | |
| 1999 10 10 | 704 | 0.3+ | 0.1− | 2008 07 25 | E12 | (0.6− | 1.6+) | 2008 09 22 | 704 | 0.8− | 0.4+ | | |
| 1999 10 10 | 704 | 0.0 | 0.8+ | 2008 07 25 | E12 | 0.2− | 0.3+ | 2008 10 30 | G96 | 0.5− | 0.2− | | |
| 2001 02 19 | 608 | 0.3+ | 1.1+ | 2008 07 26 | E12 | 0.1− | 0.2− | 2008 10 30 | G96 | 0.1+ | 0.2+ | | |
| 2001 02 19 | 608 | 0.5+ | 1.0+ | 2008 07 26 | E12 | 1.0− | 0.3+ | 2008 10 30 | G96 | 0.1+ | 0.3+ | | |
| 2001 02 19 | 608 | 0.1+ | 0.9+ | 2008 07 26 | E12 | 0.6− | 0.3+ | 2008 10 30 | G96 | 0.1+ | 0.3+ | | |
| 2001 02 20 | 645 | 0.1+ | 0.1+ | 2008 07 26 | E12 | 1.3+ | 0.8− | 2009 10 18 | G96 | 0.3+ | 0.3− | | |
| 2001 02 20 | 645 | 0.2+ | 0.1+ | 2008 07 31 | 691 | 0.2− | 0.3− | 2009 10 18 | G96 | 0.2+ | 0.1− | | |
| 2004 11 04 | 691 | 0.1+ | 0.1+ | 2008 07 31 | 691 | 0.5− | 0.0 | 2009 10 18 | G96 | 0.3+ | 0.0 | | |
| 2004 11 04 | 691 | 0.2+ | 0.0 | 2008 07 31 | 691 | 0.5− | 0.4− | 2009 10 18 | G96 | 0.2+ | 0.2− | | |
| 2004 11 04 | 691 | 0.0 | 0.1− | 2008 08 01 | 704 | 0.0 | 0.6− | 2009 12 17 | G96 | 0.2+ | 0.2− | | |
| 2004 11 19 | 704 | 0.4− | 0.1+ | 2008 08 01 | 704 | 0.3− | 0.8+ | 2009 12 17 | G96 | 0.2+ | 0.2− | | |
| 2004 11 19 | 704 | 0.2− | 0.2− | 2008 08 01 | 704 | 0.5− | 0.8+ | 2009 12 17 | G96 | 0.2− | 0.2− | | |
| 2004 11 19 | 704 | 0.3+ | 0.4+ | 2008 08 01 | 704 | 0.2− | 0.4− | 2009 12 17 | G96 | 0.1− | 0.6+ | | |
| 2004 11 19 | 704 | 0.1− | 0.4− | 2008 08 02 | 704 | 0.4− | 0.0 | 2009 12 17 | G96 | 0.7+ | 0.4+ | | |
| 2004 12 02 | 703 | (0.0 | 1.5−) | 2008 08 02 | 704 | 0.3+ | 0.1− | 2009 12 17 | G96 | 0.2+ | 0.0 | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 02 | 703 | 0.3+ | 0.4+ | 2008 08 02 | 704 | 0.0 | 0.6− | 2009 12 17 | G96 | 0.1− | 0.2− |
| 2004 12 02 | 703 | 0.4− | 0.5+ | 2008 08 02 | 704 | 0.5+ | 0.2+ | 2009 12 17 | G96 | 0.3+ | 0.4− |
| 2004 12 02 | 703 | 0.3− | 0.1− | 2008 08 26 | 704 | 0.3+ | 0.9+ | 2009 12 18 | 691 | 0.0 | 0.1− |
| 2004 12 14 | 704 | 0.1− | 0.4+ | 2008 08 26 | 704 | 0.5+ | 0.0 | 2009 12 18 | 691 | 0.1− | 0.1+ |
| 2004 12 14 | 704 | 0.8− | 0.7− | 2008 08 26 | 704 | 0.2− | 0.8+ | 2009 12 18 | 691 | 0.1− | 0.1+ |
| 2004 12 14 | 704 | 0.4+ | 1.0+ | 2008 08 26 | 704 | 0.3− | 0.2− | 2009 12 19 | 691 | 0.2− | 0.0 |
| 2004 12 14 | 704 | 0.3− | 1.2+ | 2008 08 26 | 704 | 0.3− | 0.0 | 2009 12 19 | 691 | 0.1+ | 0.4+ |
| 2004 12 14 | 704 | 0.6− | 0.0 | 2008 08 30 | 704 | 0.3+ | 0.7+ | 2009 12 19 | 691 | 0.5− | 0.8− |

**(228270)∗ 1999 $TT_{260}$ = 2002 $NQ_{23}$**

Discovered 1999 Oct. 12 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 33116)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 126.97000 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.31048598 | $\omega$ | 49.32197 | | +0.56542282 | +0.82417469 | |
| $a$ | 2.1599385 | $\Omega$ | 255.13786 | | −0.76641836 | +0.51060001 | |
| $e$ | 0.1454414 | $i$ | 1.90571 | | −0.30479490 | +0.24499738 | |
| $P$ | 3.17 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 10 12 | 691 | 0.1− | 0.4− | 2002 07 14 | 704 | 0.1− | 1.0+ | 2008 04 26 | 691 | 0.1− | 0.5− |
| 1999 10 12 | 691 | 0.1− | 0.5− | 2002 07 19 | 644 | 0.1+ | 0.5+ | 2008 04 26 | 691 | 0.0 | 0.5− |
| 1999 10 12 | 691 | 0.2− | 0.5− | 2002 07 19 | 644 | 0.2+ | 0.4+ | 2008 04 26 | 691 | 0.1− | 0.6− |
| 1999 10 13 | 645 | 0.1+ | 0.0 | 2002 07 19 | 644 | 0.1+ | 0.3+ | 2008 05 02 | 703 | (1.5− | 0.8−) |
| 1999 10 13 | 645 | 0.1+ | 0.0 | 2002 08 06 | 644 | 0.2+ | 0.2+ | 2008 05 02 | 703 | (0.1+ | 1.6−) |
| 1999 10 15 | 704 | 0.5− | 0.8− | 2002 08 06 | 644 | 0.3+ | 0.1+ | 2008 05 02 | 703 | (1.0+ | 1.8−) |
| 1999 10 15 | 704 | 0.1+ | 1.3+ | 2002 08 06 | 644 | 0.3+ | 0.1+ | 2008 05 05 | 704 | 0.1− | 0.3+ |
| 1999 10 15 | 704 | 0.2+ | 0.1+ | 2002 08 07 | 644 | 0.1+ | 0.0 | 2008 05 05 | 704 | 0.4+ | 0.0 |
| 1999 10 15 | 704 | 0.4+ | 0.7+ | 2002 08 07 | 644 | 0.2+ | 0.2+ | 2008 05 05 | 704 | 0.4+ | 0.4+ |
| 1999 10 16 | 645 | 0.0 | 0.0 | 2002 08 07 | 644 | 0.1+ | 0.2+ | 2008 05 05 | 704 | 0.9+ | 0.4− |
| 1999 10 16 | 645 | 0.0 | 0.0 | 2002 08 14 | 704 | 0.4+ | 0.0 | 2008 05 14 | 691 | 0.3− | 0.3− |
| 1999 10 19 | 691 | 0.1− | 0.3− | 2002 08 14 | 704 | 0.5− | 0.3+ | 2008 05 14 | 691 | 0.3− | 0.2− |
| 1999 10 19 | 691 | 0.1− | 0.5− | 2002 08 14 | 704 | 0.9− | 1.2+ | 2008 05 14 | 691 | 0.4− | 0.0 |
| 1999 10 19 | 691 | 0.1+ | 0.4− | 2002 08 14 | 704 | 0.3+ | 1.1+ | 2008 06 06 | 703 | 0.4− | 0.1+ |
| 1999 11 13 | 691 | 0.3− | 0.4− | 2002 08 17 | 644 | 0.0 | 0.7+ | 2008 06 06 | 703 | 1.3− | 0.3+ |
| 1999 11 13 | 691 | 0.1− | 0.5− | 2002 08 17 | 644 | 0.1+ | 0.5+ | 2008 06 06 | 703 | 0.8− | 0.3− |
| 1999 11 13 | 691 | 0.3+ | 0.6− | 2002 08 17 | 644 | 0.4+ | 0.9+ | 2008 06 06 | 703 | (0.3+ | 2.1−) |
| 2002 07 04 | 644 | 0.4+ | 1.2+ | 2002 08 18 | 608 | 0.5+ | 0.6+ | 2009 12 10 | G96 | 0.4− | 0.1− |
| 2002 07 04 | 644 | 0.5+ | 1.3+ | 2002 08 18 | 608 | 0.7+ | 0.6+ | 2009 12 10 | G96 | 0.1+ | 0.1+ |
| 2002 07 04 | 644 | 0.4+ | 1.3+ | 2002 08 18 | 608 | 0.3+ | 0.6+ | 2009 12 10 | G96 | 0.1− | 0.2+ |
| 2002 07 09 | 704 | 1.1− | 0.4+ | 2002 08 27 | 644 | 0.5− | 0.0 | 2009 12 10 | G96 | 0.1+ | 0.2+ |
| 2002 07 09 | 704 | 0.5− | 0.0 | 2002 08 27 | 644 | 0.0 | 1.0+ | 2009 12 19 | G96 | 0.0 | 0.3+ |
| 2002 07 09 | 704 | 0.8− | 0.6+ | 2002 08 27 | 644 | 0.0 | 0.9+ | 2009 12 19 | G96 | 0.3+ | 0.3+ |
| 2002 07 14 | 704 | 0.3+ | 0.3− | 2004 01 15 | 691 | 0.3+ | 0.7+ | 2009 12 19 | G96 | 0.3− | 0.3+ |
| 2002 07 14 | 704 | 0.7− | 0.2− | 2004 01 15 | 691 | 0.3+ | 0.7+ | 2009 12 19 | G96 | 0.1− | 0.6+ |
| 2002 07 14 | 704 | 0.2− | 0.5+ | 2004 01 15 | 691 | 0.7+ | 0.5+ | | | | |

**(228271)∗ 1999 $TG_{266}$**

Discovered 1999 Oct. 3 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 74.82755 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21083211 | $\omega$ | 110.15758 | | +0.99025104 | +0.03132812 | |
| $a$ | 2.7958350 | $\Omega$ | 248.24411 | | −0.07673198 | +0.93589849 | |
| $e$ | 0.2909044 | $i$ | 8.40298 | | +0.11625440 | +0.35087400 | |
| $P$ | 4.67 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1990 12 19 | 691 | 0.1− | 1.0− | 1999 10 03 | 704 | 0.2− | 0.3− | 2004 12 16 | 704 | 0.2− | 0.5+ |
| 1990 12 19 | 691 | 0.0 | 0.6− | 1999 10 03 | 704 | 0.3− | 0.2− | 2004 12 16 | 704 | 0.3− | 0.0 |
| 1990 12 19 | 691 | 0.1− | 1.0− | 1999 10 10 | 704 | 0.0 | 0.2− | 2004 12 16 | 704 | 0.3+ | 0.3+ |
| 1999 08 11 | 704 | 1.7− | 1.1− | 1999 10 10 | 704 | 0.3+ | 0.2− | 2004 12 19 | 704 | 0.3− | 0.8+ |
| 1999 08 11 | 704 | 0.9− | 0.1− | 1999 10 10 | 704 | 0.1+ | 0.3− | 2004 12 19 | 704 | 0.4− | 0.9+ |
| 1999 08 11 | 704 | 0.3− | 1.8− | 1999 10 10 | 704 | 0.2+ | 0.0 | 2004 12 19 | 704 | 0.4+ | 0.6+ |
| 1999 09 08 | 704 | 0.4+ | 0.1+ | 1999 10 10 | 704 | 0.2+ | 0.3− | 2004 12 20 | G96 | 0.1+ | 0.3+ |
| 1999 09 08 | 704 | 0.0 | 0.1+ | 1999 10 20 | 691 | 0.0 | 0.2− | 2004 12 20 | G96 | 0.1+ | 0.2+ |
| 1999 09 08 | 704 | 0.3− | 0.3− | 1999 10 20 | 691 | 0.3− | 0.2− | 2004 12 20 | G96 | 0.1+ | 0.1+ |
| 1999 09 08 | 704 | 0.1− | 0.1− | 1999 10 20 | 691 | 0.0 | 0.2− | 2004 12 20 | G96 | 0.1+ | 0.2+ |
| 1999 09 08 | 704 | 0.4+ | 0.2− | 1999 10 20 | 704 | 0.6+ | 0.3+ | 2006 03 29 | D35 | 1.1+ | 1.3+ |
| 1999 09 08 | 704 | 0.3− | 0.2+ | 1999 10 20 | 704 | 1.1+ | 0.4+ | 2006 03 29 | D35 | (1.6− | 2.8−) |
| 1999 09 08 | 704 | 0.1− | 0.1− | 1999 10 20 | 704 | 0.5+ | 1.2+ | 2006 03 29 | D35 | 0.3+ | 0.2− |
| 1999 09 08 | 704 | 0.2− | 0.3− | 1999 10 20 | 704 | 0.1+ | 0.4+ | 2009 09 26 | 691 | 0.6− | 0.5− |
| 1999 09 08 | 704 | 0.2+ | 0.1− | 1999 11 05 | 704 | 0.5− | 0.3+ | 2009 09 26 | 691 | 0.1− | 0.4+ |
| 1999 09 08 | 704 | 0.4− | 0.5+ | 1999 11 05 | 704 | 0.1− | 0.3− | 2009 09 26 | 691 | 0.1+ | 0.3+ |
| 1999 09 18 | 704 | 0.3+ | 0.3+ | 1999 11 05 | 704 | 0.3+ | 0.2+ | 2009 11 22 | G96 | 0.0 | 0.2+ |
| 1999 09 18 | 704 | 0.4+ | 0.2+ | 1999 11 05 | 704 | 0.4− | 0.5+ | 2009 11 22 | G96 | 0.2+ | 0.1− |
| 1999 09 18 | 704 | 0.1− | 0.3+ | 1999 11 05 | 704 | 0.8+ | 1.2+ | 2009 11 22 | G96 | 0.4+ | 0.1+ |
| 1999 09 18 | 704 | 0.4− | 0.5− | 2004 09 13 | 704 | 0.1+ | 1.4+ | 2009 11 22 | G96 | 0.0 | 0.1+ |
| 1999 09 18 | 704 | 0.2− | 0.4+ | 2004 09 13 | 704 | 0.1+ | 0.4+ | 2009 12 18 | 704 | (1.3+ | 1.9−) |
| 1999 10 03 | 703 | 0.1+ | 0.4+ | 2004 09 13 | 704 | 0.5+ | 0.3+ | 2009 12 18 | 704 | 0.7+ | 0.5− |
| 1999 10 03 | 703 | 0.4+ | 0.1+ | 2004 09 13 | 704 | 0.3+ | 1.2+ | 2009 12 18 | 704 | 0.7+ | 0.1− |
| 1999 10 03 | 703 | 0.5− | 0.1+ | 2004 09 13 | 704 | (1.6+ | 1.3+) | 2009 12 20 | 691 | 0.4− | 0.2− |
| 1999 10 03 | 703 | 0.4+ | 0.1+ | 2004 12 10 | 704 | 0.5+ | 0.9+ | 2009 12 20 | 691 | 0.1− | 0.2+ |
| 1999 10 03 | 704 | 0.7+ | 0.4+ | 2004 12 10 | 704 | 0.2− | 0.7+ | 2009 12 20 | 691 | 0.1− | 0.3+ |
| 1999 10 03 | 704 | 0.2− | 0.5+ | 2004 12 10 | 704 | 0.1− | 0.7+ | | | | |
| 1999 10 03 | 704 | 0.3+ | 0.3+ | 2004 12 10 | 704 | 1.0+ | 0.4+ | | | | |

**(228272)∗ 1999 $TM_{313}$ = 2004 $VS_{95}$**

Discovered 1999 Oct. 6 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. A. Doppler (*MPO* 74655)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 33.81741 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21233279 | $\omega$ | 76.25263 | | +0.47834501 | −0.87804132 | |
| $a$ | 2.7826463 | $\Omega$ | 345.14162 | | +0.78115932 | +0.43331971 | |
| $e$ | 0.1907181 | $i$ | 3.38676 | | +0.40121835 | +0.20316855 | |
| $P$ | 4.64 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 09 07 | 691 | 0.3− | 0.3− | 2004 11 11 | 691 | 0.1− | 0.2+ | 2009 11 11 | G96 | 0.4+ | 0.0 |
| 1999 09 07 | 691 | 0.0 | 0.1− | 2004 11 19 | 704 | 0.3+ | 0.9+ | 2009 11 11 | G96 | 0.6+ | 0.1+ |
| 1999 09 07 | 691 | 0.6− | 0.2− | 2004 11 19 | 704 | 0.3+ | 0.5− | 2009 11 21 | G96 | 0.3− | 0.6− |
| 1999 10 06 | 704 | 0.4− | 0.3− | 2004 11 19 | 704 | 0.7− | 1.2+ | 2009 11 21 | G96 | 0.1− | 0.3− |
| 1999 10 06 | 704 | 0.2+ | 0.5+ | 2004 11 19 | 704 | 0.8− | 0.4+ | 2009 11 21 | G96 | 0.1− | 0.1− |
| 1999 10 06 | 704 | 0.4+ | 0.2+ | 2004 12 20 | G96 | 0.7+ | 0.2+ | 2009 11 21 | G96 | 0.1+ | 0.1− |
| 1999 10 06 | 704 | 0.7− | 0.4+ | 2004 12 20 | G96 | 0.0 | 0.1− | 2009 12 18 | G96 | 0.0 | 0.3− |
| 1999 10 06 | 704 | 0.4− | 1.2+ | 2004 12 20 | G96 | 0.5− | 0.5− | 2009 12 18 | G96 | 0.4− | 0.3− |
| 1999 10 16 | 645 | 0.1+ | 0.1+ | 2004 12 20 | G96 | 0.0 | 0.0 | 2009 12 18 | G96 | 0.1− | 0.1+ |
| 1999 10 16 | 645 | 0.1+ | 0.0 | 2006 03 25 | G96 | 0.3+ | 0.3+ | 2009 12 18 | G96 | 0.1+ | 0.2− |
| 1999 10 17 | 691 | 0.1− | 0.4− | 2006 03 25 | G96 | 0.0 | 0.5+ | 2009 12 27 | 691 | 0.2− | 0.2+ |
| 1999 10 17 | 691 | 0.5+ | 0.5− | 2006 03 25 | G96 | 0.5+ | 0.1+ | 2009 12 27 | 691 | 0.5+ | 0.2− |
| 1999 10 17 | 691 | 0.0 | 0.2+ | 2006 03 25 | G96 | 0.2− | 0.4+ | 2009 12 27 | 691 | 0.4− | 0.5− |
| 2004 11 11 | 691 | 0.0 | 0.1+ | 2009 11 11 | G96 | 0.2+ | 0.2+ | | | | |
| 2004 11 11 | 691 | 0.0 | 0.1+ | 2009 11 11 | G96 | 0.4− | 0.1− | | | | |

**(228273)∗ 1999 $UJ_{28}$ = 2006 $DP_{204}$ = 2009 $VK_{42}$**

Discovered 1999 Oct. 30 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 165303)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 325.81612 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.20519016 | $\omega$ | 78.95223 | | −0.32274723 | −0.93691304 | |
| $a$ | 2.8468529 | $\Omega$ | 30.94039 | | +0.73398191 | −0.33731993 | |
| $e$ | 0.1077762 | $i$ | 15.13829 | | +0.59758245 | −0.09170177 | |
| $P$ | 4.80 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 10 30 | 691 | 0.4+ | 0.0 | 2004 11 04 | 703 | 1.0+ | 0.3+ | 2009 11 11 | 704 | 0.9− | 0.2+ |
| 1999 10 30 | 691 | 0.1+ | 0.1− | 2006 02 26 | 703 | 1.2+ | 1.4+ | 2009 11 11 | 704 | 0.4+ | 0.3+ |
| 1999 10 30 | 691 | 0.2+ | 0.2− | 2006 02 26 | 703 | 1.0− | 0.4− | 2009 11 11 | 704 | 0.0 | 0.2− |
| 1999 11 05 | 691 | 0.1− | 0.3+ | 2006 02 26 | 703 | 0.3− | 0.1− | 2009 11 14 | 704 | 0.9+ | 0.5+ |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 11 05 | 691 | 0.8− | 0.4+ | 2006 02 26 | 703 | 0.5− | 1.2+ | 2009 11 14 | 704 | 1.3+ | 0.6+ |
| 1999 11 05 | 691 | 0.1+ | 0.2+ | 2006 03 03 | 699 | 0.4+ | 0.5− | 2009 11 14 | 704 | 0.0 | 0.5+ |
| 1999 11 11 | 691 | 0.1+ | 0.2− | 2006 03 03 | 699 | (2.4+ | 0.5−) | 2009 11 14 | 704 | 0.3− | 0.1+ |
| 1999 11 11 | 691 | 0.2+ | 0.3− | 2006 03 03 | 699 | 1.3+ | 0.4+ | 2009 11 14 | 704 | 0.6− | 0.1− |
| 1999 11 11 | 691 | 0.1+ | 0.2− | 2006 03 03 | 699 | 0.8− | 1.3− | 2009 11 16 | 704 | (3.1+ | 0.3+) |
| 2004 10 12 | 691 | 0.1− | 0.1+ | 2009 07 27 | 691 | 0.4− | 0.1+ | 2009 11 16 | 704 | (3.2+ | 1.4+) |
| 2004 10 12 | 691 | 0.2+ | 0.1− | 2009 07 27 | 691 | 1.0− | 0.1+ | 2009 11 16 | 704 | (2.3+ | 0.2−) |
| 2004 10 12 | 691 | 0.0 | 0.2+ | 2009 07 27 | 691 | 0.2+ | 0.4+ | 2009 11 26 | 703 | 0.1− | 0.3− |
| 2004 11 04 | 703 | (0.4− | 1.6+) | 2009 10 26 | 691 | 0.1− | 0.2− | 2009 11 26 | 703 | 0.0 | 0.4+ |
| 2004 11 04 | 703 | 0.8− | 0.8+ | 2009 10 26 | 691 | 0.3− | 0.0 | 2009 11 26 | 703 | 0.3− | 0.4− |
| 2004 11 04 | 703 | 1.2− | 0.4− | 2009 10 26 | 691 | 0.1− | 0.3− | 2009 11 26 | 703 | 0.3+ | 0.4+ |
| 2004 11 04 | 703 | 0.7− | 0.9− | 2009 11 10 | 703 | 0.8− | 0.3− | 2009 11 26 | 703 | 0.4+ | 0.0 |
| 2004 11 04 | 703 | 0.1− | 0.2− | 2009 11 10 | 703 | 0.0 | 0.7+ | 2009 11 26 | A50 | 1.9+ | 0.2+ |
| 2004 11 04 | 703 | 0.1− | 0.5− | 2009 11 10 | 703 | 0.6− | 0.0 | 2009 11 26 | A50 | 1.8+ | 0.3+ |
| 2004 11 04 | 703 | 0.5− | 0.6− | 2009 11 10 | 703 | 0.2− | 0.4− | 2009 11 26 | A50 | 1.7+ | 0.3− |

**(228274)∗ 1999 UV$_{43}$**

Discovered 1999 Oct. 29 by the Catalina Sky Survey.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 86.87786 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.20984902 | $\omega$ | 86.99569 | | +0.97927353 | +0.17267419 | |
| $a$ | 2.8045601 | $\Omega$ | 263.04371 | | −0.20042872 | +0.90146262 | |
| $e$ | 0.3062263 | $i$ | 6.12213 | | +0.02918374 | +0.39692413 | |
| $P$ | 4.70 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 06 11 | 691 | 0.4− | 0.7+ | 1999 11 11 | 703 | 1.3− | 0.7− | 2008 05 28 | G96 | 0.3+ | 0.2+ |
| 1994 06 11 | 691 | 0.4− | 0.3+ | 2004 12 13 | G92 | 0.2+ | 0.4+ | 2008 05 28 | G96 | 0.0 | 0.1+ |
| 1994 06 11 | 691 | 0.5− | 0.1− | 2004 12 13 | G92 | 0.0 | 0.3+ | 2008 07 02 | 691 | 0.1− | 0.2+ |
| 1999 10 12 | 704 | 0.7+ | 0.4− | 2004 12 13 | G92 | 0.1+ | 0.2+ | 2008 07 02 | 691 | 0.4− | 0.2+ |
| 1999 10 12 | 704 | 0.3+ | 0.4− | 2004 12 13 | 504 | 0.2− | 0.0 | 2008 07 02 | 691 | 0.1− | 0.9+ |
| 1999 10 12 | 704 | 0.2− | 0.3− | 2004 12 14 | 504 | 0.4− | 0.8+ | 2008 07 30 | 703 | 0.6− | 0.0 |
| 1999 10 12 | 704 | 0.3+ | 0.8+ | 2004 12 14 | 691 | 0.1+ | 0.0 | 2008 07 30 | 703 | 0.1+ | 0.3− |
| 1999 10 12 | 704 | 1.1+ | 0.1+ | 2004 12 14 | 691 | 0.1+ | 0.0 | 2008 07 30 | 703 | 0.2+ | 0.1+ |
| 1999 10 22 | 704 | 0.6+ | 0.1+ | 2004 12 14 | 691 | 0.2+ | 0.0 | 2008 07 30 | 703 | 0.2− | 0.7− |
| 1999 10 22 | 704 | 0.5+ | 1.7− | 2004 12 14 | 704 | (1.2+ | 2.2+) | 2008 07 30 | 703 | (1.6+ | 0.1−) |
| 1999 10 22 | 704 | 0.5− | 0.1− | 2004 12 14 | 704 | (0.9+ | 1.6+) | 2008 07 30 | 703 | 0.5+ | 0.3+ |
| 1999 10 22 | 704 | 0.5+ | 0.3+ | 2004 12 14 | 704 | (1.1+ | 1.7+) | 2008 07 30 | 703 | 0.0 | 0.9+ |
| 1999 10 22 | 704 | 0.2− | 0.2− | 2004 12 14 | 704 | 1.5+ | 1.4+ | 2008 07 30 | 703 | 0.6+ | 0.6+ |
| 1999 10 29 | 703 | 0.7+ | 0.3− | 2004 12 14 | 703 | 0.0 | 0.0 | 2009 12 18 | 691 | 0.2− | 0.1+ |
| 1999 10 29 | 703 | 0.1− | 0.5+ | 2004 12 14 | 703 | 0.0 | 1.3+ | 2009 12 18 | G96 | 0.1+ | 0.3+ |
| 1999 10 29 | 703 | 0.2− | 0.4+ | 2004 12 14 | 703 | 1.3+ | 0.4− | 2009 12 18 | 691 | 0.1+ | 0.0 |
| 1999 10 29 | 703 | 0.7− | 0.4− | 2004 12 14 | 703 | 0.5− | 0.1− | 2009 12 18 | G96 | 0.4+ | 0.1− |
| 1999 11 01 | 699 | 0.3− | 0.5− | 2004 12 16 | 704 | 0.0 | 1.0+ | 2009 12 18 | G96 | 0.6+ | 0.1− |
| 1999 11 01 | 699 | 0.6+ | 0.5+ | 2004 12 16 | 704 | 1.1− | 0.2+ | 2009 12 18 | 691 | 0.8− | 0.2+ |
| 1999 11 01 | 699 | 0.1+ | 0.9+ | 2004 12 16 | 704 | 0.1− | 0.4+ | 2009 12 18 | G96 | 0.1− | 0.1− |
| 1999 11 03 | 704 | 0.1− | 0.2− | 2004 12 16 | 704 | 0.3+ | 1.4+ | 2009 12 25 | 691 | 0.6− | 0.0 |
| 1999 11 03 | 704 | 0.6+ | 0.4− | 2004 12 16 | 704 | 0.3− | 0.6+ | 2009 12 25 | 691 | 0.1− | 1.1+ |
| 1999 11 03 | 704 | 0.2+ | 0.0 | 2006 02 02 | 691 | 0.6+ | 0.0 | 2009 12 25 | 691 | 0.2+ | 0.3+ |
| 1999 11 03 | 704 | 0.0 | 0.2− | 2006 02 02 | 691 | 0.9+ | 0.1+ | 2009 12 26 | 691 | 0.8+ | 0.6+ |
| 1999 11 11 | 703 | 0.1+ | 0.3− | 2006 02 02 | 691 | 0.2+ | 0.2− | 2009 12 26 | 691 | 1.2− | 0.9− |
| 1999 11 11 | 703 | 0.3+ | 0.3+ | 2008 05 28 | G96 | 0.2− | 0.1− | 2009 12 26 | 691 | 0.6− | 0.6+ |
| 1999 11 11 | 703 | 0.1+ | 0.7− | 2008 05 28 | G96 | 0.1+ | 0.3+ | | | | |

**(228275)∗ 1999 VG$_{57}$**

Discovered 1999 Nov. 4 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 56.93171 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19310333 | $\omega$ | 106.72620 | | +0.80935665 | +0.57830820 | |
| $a$ | 2.9644415 | $\Omega$ | 218.11512 | | −0.58197747 | +0.76622009 | |
| $e$ | 0.1150352 | $i$ | 9.55666 | | −0.07901925 | +0.28011854 | |
| $P$ | 5.10 | $H$ | 15.3 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 10 06 | 704 | 0.1+ | 0.3− | 2004 09 22 | 691 | 0.2− | 0.1− | 2009 09 25 | 704 | (0.2+ | 1.8+) |
| 1999 10 06 | 704 | 0.1+ | 0.8+ | 2004 09 22 | 691 | 0.1− | 0.1− | 2009 09 25 | 704 | 0.4+ | 0.1− |
| 1999 10 06 | 704 | 0.2+ | 0.1− | 2004 09 22 | 691 | 0.2− | 0.2− | 2009 09 25 | 704 | 0.5+ | 1.3+ |
| 1999 10 06 | 704 | 0.6+ | 0.3+ | 2004 10 04 | 691 | 0.2+ | 0.1+ | 2009 09 25 | 704 | 0.3+ | 0.6+ |
| 1999 10 06 | 704 | 0.6+ | 0.2− | 2004 10 04 | 691 | 0.3− | 0.1+ | 2009 09 25 | 704 | 0.7+ | 1.2+ |
| 1999 10 10 | 704 | 0.1+ | 0.1+ | 2004 10 04 | 691 | 0.1− | 0.0 | 2009 09 30 | G96 | 0.0 | 0.2− |
| 1999 10 10 | 704 | 0.7− | 0.4+ | 2004 10 07 | 699 | 0.6+ | 0.3− | 2009 09 30 | G96 | 0.3+ | 0.2− |
| 1999 10 10 | 704 | 0.8− | 1.0+ | 2004 10 07 | 699 | 0.3+ | 0.2− | 2009 09 30 | G96 | 0.1+ | 0.2− |
| 1999 10 15 | 704 | 0.7+ | 0.2+ | 2004 10 07 | 699 | (1.0− | 1.8+) | 2009 09 30 | G96 | 0.2− | 0.5− |
| 1999 10 15 | 704 | 0.5− | 0.1− | 2004 10 07 | 699 | 0.2− | 0.9− | 2009 10 08 | J75 | 0.4+ | 0.3− |
| 1999 10 15 | 704 | 0.2+ | 0.3− | 2004 10 08 | 691 | 0.1+ | 0.0 | 2009 10 08 | J75 | 0.4+ | 1.0− |
| 1999 10 15 | 704 | 0.8+ | 1.5− | 2004 10 08 | 691 | 0.0 | 0.1+ | 2009 10 08 | J75 | 1.0+ | 0.0 |
| 1999 10 15 | 704 | 1.0− | 0.6− | 2004 10 08 | 691 | 0.1− | 0.1− | 2009 10 15 | 704 | 0.2+ | 0.4− |
| 1999 11 04 | 704 | 1.9+ | 0.4+ | 2004 10 10 | 704 | 0.1− | 0.1+ | 2009 10 15 | 704 | 1.2− | 0.6+ |
| 1999 11 04 | 704 | 1.9+ | 0.7− | 2004 10 10 | 704 | 0.0 | 0.6+ | 2009 10 15 | 704 | 0.3+ | 0.1− |
| 1999 11 04 | 704 | 0.0 | 1.1− | 2004 10 10 | 704 | 0.2+ | 1.0+ | 2009 10 15 | 704 | 0.2+ | 1.1+ |
| 1999 11 06 | 704 | 0.9− | 0.5− | 2004 10 10 | 704 | 0.5− | 0.6+ | 2009 10 17 | 683 | 1.5+ | 0.6− |
| 1999 11 06 | 704 | 0.4+ | 0.2+ | 2004 10 10 | 704 | 0.2− | 1.3+ | 2009 10 17 | 683 | 0.2+ | 1.1+ |
| 1999 11 06 | 704 | 1.0+ | 0.2− | 2004 10 12 | 691 | 0.2+ | 0.1+ | 2009 10 17 | 683 | (1.8+ | 1.8+) |
| 1999 11 09 | 704 | 0.9+ | 0.7− | 2004 10 12 | 691 | 0.1+ | 0.2+ | 2009 10 21 | G96 | 0.3+ | 0.0 |
| 1999 11 09 | 704 | 0.1− | 0.3+ | 2004 10 12 | 691 | 0.1+ | 0.2+ | 2009 10 21 | G96 | 0.3+ | 0.5− |
| 1999 11 09 | 704 | 0.3+ | 0.6− | 2004 10 21 | 704 | 0.4− | 0.7+ | 2009 10 21 | G96 | 0.3+ | 0.2− |
| 1999 11 09 | 704 | 0.3+ | 0.3+ | 2004 10 21 | 704 | 0.1− | 0.2+ | 2009 10 21 | G96 | 0.5+ | 0.1+ |
| 1999 11 12 | 704 | 0.5− | 0.9+ | 2004 10 21 | 704 | 0.2− | 0.5+ | 2009 10 21 | G96 | 0.0 | 0.3− |
| 1999 11 12 | 704 | 0.1− | 0.7− | 2004 10 21 | 704 | 0.2− | 0.7+ | 2009 10 21 | G96 | 0.1+ | 0.2− |
| 1999 11 12 | 704 | 0.3− | 0.4− | 2006 01 07 | 291 | 0.1+ | 0.3+ | 2009 10 21 | G96 | 0.2− | 0.2− |
| 1999 11 12 | 704 | 0.8− | 0.5− | 2006 01 07 | 291 | 0.0 | 0.3+ | 2009 10 21 | G96 | 0.0 | 0.1− |
| 1999 11 14 | 691 | 0.0 | 0.3− | 2006 01 07 | 291 | 0.0 | 0.3+ | 2009 12 10 | 114 | 0.5− | 0.7+ |
| 1999 11 14 | 691 | 0.1− | 0.1− | 2006 01 07 | G96 | 0.0 | 0.2− | 2009 12 10 | 114 | 0.2+ | 0.0 |
| 1999 11 14 | 691 | 0.2− | 0.2− | 2006 01 07 | G96 | 0.1+ | 0.2+ | 2009 12 10 | 114 | 0.0 | 0.3− |
| 2003 07 01 | 704 | 0.0 | 1.2+ | 2006 01 07 | G96 | 0.1+ | 0.1− | 2009 12 10 | 114 | 0.6+ | 0.2− |
| 2003 07 01 | 704 | (0.2− | 2.0+) | 2006 01 07 | G96 | 0.2+ | 0.0 | 2009 12 11 | G96 | 0.0 | 0.0 |
| 2003 07 01 | 704 | 0.1− | 0.7+ | 2009 09 15 | 691 | 0.3− | 0.0 | 2009 12 11 | G96 | 0.3+ | 0.2− |
| 2004 09 15 | 699 | 0.9− | 0.8+ | 2009 09 15 | 691 | 0.1− | 0.0 | 2009 12 11 | G96 | 0.0 | 0.0 |
| 2004 09 15 | 699 | 0.8+ | 0.1− | 2009 09 15 | 691 | 0.1− | 0.0 | 2009 12 11 | G96 | 0.3− | 0.1− |
| 2004 09 15 | 699 | 0.7− | 1.1− | 2009 09 19 | 691 | 0.0 | 0.3− | 2009 12 17 | G96 | 0.6+ | 0.1− |
| 2004 09 15 | 699 | 0.3+ | 0.8− | 2009 09 19 | 691 | 0.1− | 0.1+ | 2009 12 17 | G96 | 0.4+ | 0.0 |
| 2004 09 18 | 704 | 1.1− | 1.2+ | 2009 09 19 | 691 | 0.1− | 0.2+ | 2009 12 17 | G96 | 0.7+ | 0.0 |
| 2004 09 18 | 704 | 0.6− | 0.4+ | 2009 09 23 | 691 | 0.2− | 0.3− | 2009 12 17 | G96 | 0.5+ | 0.2+ |
| 2004 09 18 | 704 | 0.5− | 0.5− | 2009 09 23 | 691 | 0.3− | 0.0 | | | | |
| 2004 09 18 | 704 | 0.8− | 0.3+ | 2009 09 23 | 691 | 0.3− | 0.0 | | | | |

**(228276)∗ 1999 VB$_{65}$**

Discovered 1999 Nov. 4 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 5.08221 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19229777 | $\omega$ | 166.95279 | | +0.84348310 | −0.50769578 | |
| $a$ | 2.9727146 | $\Omega$ | 225.00106 | | +0.46786348 | +0.85484438 | |
| $e$ | 0.1641499 | $i$ | 14.36590 | | +0.26389395 | +0.10717314 | |
| $P$ | 5.13 | $H$ | 15.2 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 10 06 | 704 | 0.0 | 0.3− | 2004 09 18 | 704 | 0.4− | 0.7− | 2009 10 09 | 703 | 0.4− | 1.1− |
| 1999 10 06 | 704 | 0.5− | 0.1− | 2004 09 23 | 704 | 1.0+ | 0.4+ | 2009 10 09 | 703 | 0.3− | 0.1− |
| 1999 10 06 | 704 | 0.2+ | 0.0 | 2004 09 23 | 704 | 0.3+ | 0.6+ | 2009 10 16 | 704 | 0.1+ | 0.0 |
| 1999 10 06 | 704 | 0.4+ | 0.3− | 2004 09 23 | 704 | 0.3+ | 0.8+ | 2009 10 16 | 704 | 0.5− | 0.1+ |
| 1999 10 06 | 704 | 0.3+ | 0.3− | 2004 09 23 | 704 | 0.0 | 0.3− | 2009 10 16 | 704 | 0.1− | 0.1+ |
| 1999 10 12 | 704 | 0.2+ | 0.4+ | 2004 10 04 | 699 | 1.1+ | 0.6+ | 2009 10 16 | 704 | 0.1− | 0.4− |
| 1999 10 12 | 704 | 0.4+ | 0.7− | 2004 10 04 | 699 | 0.8+ | 0.1+ | 2009 10 16 | 704 | 0.0 | 0.1+ |
| 1999 10 12 | 704 | 0.0 | 0.1− | 2004 10 04 | 699 | 0.0 | 0.7+ | 2009 10 16 | 703 | 0.3− | 0.9+ |
| 1999 10 12 | 704 | 0.4+ | 0.2+ | 2004 10 04 | 699 | 0.7+ | 0.3− | 2009 10 16 | 703 | 0.4− | 0.1− |
| 1999 10 12 | 704 | 0.1+ | 0.0 | 2004 10 10 | 704 | 0.2+ | 0.4+ | 2009 10 16 | 703 | 0.4− | 0.1+ |
| 1999 10 21 | 704 | 1.0+ | 0.1− | 2004 10 10 | 704 | 0.2+ | 0.1− | 2009 10 16 | 703 | 0.5− | 0.0 |
| 1999 10 21 | 704 | 0.1− | 0.8− | 2004 10 10 | 704 | 0.2+ | 0.7+ | 2009 10 17 | H06 | 0.1+ | 0.6− |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 10 21 | 704 | 1.0+ | 0.5− | 2004 10 10 | 704 | 0.1+ | 0.3− | 2009 10 17 | H06 | 0.5+ | 0.1+ |
| 1999 10 21 | 704 | 1.2+ | 0.1− | 2004 10 10 | 704 | 0.1+ | 0.5+ | 2009 10 17 | H06 | 0.5+ | 0.2+ |
| 1999 11 01 | 703 | 0.3+ | 1.1+ | 2004 10 11 | 152 | 0.7− | 0.1− | 2009 10 24 | 704 | 0.3+ | 0.6+ |
| 1999 11 01 | 703 | 0.3− | 0.6+ | 2004 10 11 | 152 | 0.5− | 0.8− | 2009 10 24 | 704 | 0.1− | 0.1− |
| 1999 11 01 | 703 | 0.3− | 0.0 | 2004 10 12 | 152 | 0.3+ | 0.3+ | 2009 10 24 | 703 | 0.4+ | 0.6− |
| 1999 11 01 | 703 | 0.5− | 0.0 | 2004 10 12 | 152 | 0.2+ | 0.3+ | 2009 10 24 | 703 | 0.2− | 0.2+ |
| 1999 11 04 | 704 | 0.2+ | 0.1− | 2004 10 12 | 152 | 0.6− | 0.4− | 2009 10 24 | 704 | 0.8− | 0.4+ |
| 1999 11 04 | 704 | 0.2+ | 0.1+ | 2004 10 12 | 152 | 0.2+ | 0.3+ | 2009 10 24 | 703 | 0.9+ | 0.1+ |
| 1999 11 04 | 704 | 0.2− | 0.1+ | 2004 10 12 | 152 | (3.0− | 2.7+) | 2009 10 24 | 704 | 0.4+ | 0.6+ |
| 1999 11 04 | 704 | 0.7− | 0.6+ | 2004 10 21 | 704 | 0.0 | 0.1+ | 2009 10 24 | 703 | 0.3+ | 0.5− |
| 1999 11 04 | 704 | 0.5− | 0.6− | 2004 10 21 | 704 | 0.3− | 0.2+ | 2009 10 24 | 704 | 0.0 | 0.1+ |
| 1999 11 06 | 691 | 0.2− | 0.1+ | 2004 10 21 | 704 | 0.3+ | 0.5+ | 2009 10 24 | 703 | 0.1+ | 0.4+ |
| 1999 11 06 | 691 | 0.0 | 0.0 | 2004 10 21 | 704 | 0.5+ | 0.0 | 2009 10 24 | 703 | 0.6− | 0.7− |
| 1999 11 06 | 691 | 0.1+ | 0.1+ | 2004 10 21 | 704 | 0.9− | 0.1− | 2009 10 24 | 703 | 0.2+ | 0.9− |
| 1999 11 09 | 704 | 0.5− | 0.8+ | 2004 11 02 | 699 | 0.0 | 0.2+ | 2009 10 24 | 703 | 0.7− | 0.3− |
| 1999 11 09 | 704 | 0.4− | 0.2+ | 2004 11 02 | 699 | 0.2+ | 0.2− | 2009 10 27 | 704 | 0.0 | 0.3+ |
| 1999 11 09 | 704 | 1.1− | 1.1+ | 2004 11 02 | 699 | 0.9− | 0.1+ | 2009 10 27 | 704 | 1.3− | 0.4+ |
| 1999 11 12 | 704 | 0.2+ | 0.4+ | 2004 11 02 | 699 | 0.1+ | 0.2− | 2009 10 27 | 704 | 0.6− | 0.6+ |
| 1999 11 12 | 704 | 0.4+ | 0.0 | 2004 11 04 | 699 | 0.2− | 0.1+ | 2009 10 27 | 704 | 0.1− | 0.1+ |
| 1999 11 12 | 704 | 0.0 | 0.4+ | 2004 11 04 | 699 | 0.3− | 0.6+ | 2009 11 06 | 703 | 0.1− | 0.2− |
| 1999 11 12 | 704 | 0.1+ | 0.3+ | 2004 11 04 | 699 | 0.4+ | 0.0 | 2009 11 06 | 703 | 0.5+ | 0.6− |
| 1999 11 12 | 704 | 0.2− | 0.1+ | 2004 11 04 | 699 | 0.3+ | 0.6− | 2009 11 06 | 703 | 0.2− | 0.7+ |
| 1999 11 17 | 704 | 0.3+ | 0.9− | 2004 11 04 | 703 | 0.5− | 0.1− | 2009 11 06 | 703 | 0.4+ | 0.3+ |
| 1999 11 17 | 704 | 0.1+ | 0.6− | 2004 11 04 | 703 | 0.3− | 0.1+ | 2009 11 16 | 704 | 0.1+ | 0.9+ |
| 1999 11 17 | 704 | 0.3− | 0.5− | 2004 11 04 | 703 | 0.3− | 0.2− | 2009 11 16 | 704 | 0.3+ | 0.3+ |
| 1999 11 17 | 704 | 0.7+ | 0.6− | 2004 11 04 | 703 | 0.4− | 0.2− | 2009 11 16 | 704 | 0.2+ | 0.4+ |
| 1999 12 04 | 703 | 0.1− | 0.2+ | 2004 11 18 | 704 | 0.0 | 0.3+ | 2009 11 22 | 703 | 0.4+ | 0.2− |
| 1999 12 04 | 703 | (2.3− | 0.0 ) | 2004 11 18 | 704 | 0.8+ | 0.1− | 2009 11 22 | 703 | 0.0 | 0.1− |
| 1999 12 04 | 703 | 0.3− | 0.9− | 2004 11 18 | 704 | 0.7+ | 0.4+ | 2009 11 22 | 703 | 0.1+ | 0.3− |
| 1999 12 04 | 703 | 0.0 | 0.2+ | 2004 11 18 | 704 | 0.6− | 0.3+ | 2009 11 22 | 703 | 0.2− | 0.5− |
| 1999 12 07 | 704 | 0.4+ | 0.2+ | 2007 03 16 | 691 | 0.1− | 0.4+ | 2009 11 25 | G96 | 0.3+ | 0.3− |
| 1999 12 07 | 704 | 0.5+ | 0.3− | 2007 03 16 | 691 | 0.2+ | 0.0 | 2009 11 25 | G96 | 0.2+ | 0.4− |
| 1999 12 07 | 704 | 0.5+ | 0.4− | 2007 03 16 | 691 | 0.2+ | 0.3− | 2009 11 25 | G96 | 0.1+ | 0.1− |
| 1999 12 07 | 704 | 0.5− | 0.5− | 2007 04 20 | 691 | 0.0 | 0.5+ | 2009 11 25 | G96 | 0.0 | 0.2− |
| 1999 12 07 | 704 | 0.4+ | 0.8− | 2007 04 20 | 691 | 0.3− | 0.4+ | 2009 12 16 | 704 | 0.4− | 0.1− |
| 1999 12 12 | 703 | 1.8− | 0.1− | 2007 04 20 | 691 | 0.2+ | 0.3+ | 2009 12 16 | 704 | 0.7+ | 2.1+ |
| 1999 12 12 | 703 | 0.7− | 1.1− | 2009 09 26 | 704 | 0.1− | 0.4− | 2009 12 16 | 704 | 0.2− | 0.7+ |
| 1999 12 12 | 703 | 0.8− | 0.3+ | 2009 09 26 | 704 | 0.2+ | 0.3− | 2009 12 16 | 704 | 0.7− | 1.3+ |
| 1999 12 12 | 703 | 0.2− | 0.9+ | 2009 09 26 | 704 | 0.0 | 0.2− | 2009 12 18 | G96 | 0.1+ | 0.3− |
| 2004 09 18 | 704 | 0.0 | 0.5+ | 2009 09 26 | 704 | 0.0 | 0.1− | 2009 12 18 | G96 | 0.3+ | 0.1− |
| 2004 09 18 | 704 | 0.1− | 0.5+ | 2009 09 26 | 704 | 0.9+ | 0.4− | 2009 12 18 | G96 | 0.0 | 0.2− |
| 2004 09 18 | 704 | 0.5− | 1.0− | 2009 10 09 | 703 | 0.7− | 0.0 | 2009 12 18 | G96 | 0.1+ | 0.1− |
| 2004 09 18 | 704 | 0.1− | 0.0 | 2009 10 09 | 703 | 0.3+ | 0.5+ | | | | |

**(228277)∗ 1999 VD$_{108}$ = 2004 WN$_7$**

Discovered 1999 Nov. 9 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 72024)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 42.75191 | | (2000.0) | | **P** | **Q** |
| $n$ | 0.20017901 | $\omega$ | 332.90674 | | +0.84694776 | −0.49664736 |
| $a$ | 2.8941677 | $\Omega$ | 58.14199 | | +0.51926521 | +0.69600152 |
| $e$ | 0.1598089 | $i$ | 12.91192 | | +0.11420650 | +0.51857813 |
| $P$ | 4.92 | $H$ | 15.4 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 11 09 | 704 | 0.0 | 0.1+ | 2004 11 19 | 704 | 1.0− | 0.4+ | 2004 12 17 | 704 | 0.6− | 0.1− |
| 1999 11 09 | 704 | 0.1+ | 0.2+ | 2004 11 20 | 691 | 0.2+ | 0.2− | 2004 12 17 | 704 | 0.0 | 0.1− |
| 1999 11 09 | 704 | 0.0 | 0.4+ | 2004 11 20 | 691 | 0.0 | 0.2− | 2004 12 17 | 704 | 0.2+ | 0.3+ |
| 1999 11 09 | 704 | 0.1+ | 0.7+ | 2004 11 20 | 691 | 0.1+ | 0.2− | 2007 04 22 | 691 | 0.1− | 0.1+ |
| 1999 11 09 | 704 | 0.2− | 0.5+ | 2004 12 02 | 704 | 0.7− | 0.0 | 2007 04 22 | 691 | 0.1+ | 0.1− |
| 1999 11 12 | 704 | 0.1+ | 0.4− | 2004 12 02 | 644 | 0.4− | 0.1− | 2007 04 22 | 691 | 0.2− | 0.1+ |
| 1999 11 12 | 704 | 1.0+ | 0.6− | 2004 12 02 | 704 | 0.6− | 0.5+ | 2007 04 26 | 691 | 0.2+ | 0.0 |
| 1999 11 12 | 704 | 0.5+ | 0.6− | 2004 12 02 | 704 | 0.0 | 0.2− | 2007 04 26 | 691 | 0.0 | 0.4+ |
| 1999 11 12 | 704 | 0.8+ | 0.6− | 2004 12 02 | 704 | 0.2+ | 0.1− | 2007 04 26 | 691 | 0.2+ | 0.2− |
| 1999 11 12 | 704 | 0.4+ | 0.3− | 2004 12 02 | 644 | 0.2− | 0.1− | 2008 08 08 | E12 | 0.2− | 0.6+ |
| 1999 11 16 | 704 | 0.0 | 0.3− | 2004 12 02 | 644 | 0.3− | 0.0 | 2008 08 08 | E12 | 0.2+ | 0.4− |
| 1999 11 16 | 704 | 0.3− | 0.1+ | 2004 12 11 | 704 | 0.8+ | 0.0 | 2008 08 08 | E12 | 0.4− | 0.8+ |
| 1999 11 16 | 704 | 0.0 | 0.3− | 2004 12 11 | 704 | 0.3+ | 0.2+ | 2008 08 08 | E12 | 0.3+ | 0.4+ |
| 1999 11 16 | 704 | 0.2+ | 1.1− | 2004 12 11 | 704 | 0.2+ | 0.5+ | 2009 11 22 | 704 | 1.4+ | 0.3− |
| 1999 11 16 | 704 | 1.3+ | 0.3− | 2004 12 11 | 704 | 0.4+ | 0.0 | 2009 11 22 | 704 | (1.8+ | 1.3+) |
| 1999 12 07 | 704 | 0.3− | 0.3− | 2004 12 15 | 704 | 0.4− | 0.3− | 2009 11 22 | 704 | (0.7+ | 1.7+) |
| 1999 12 07 | 704 | 0.3− | 0.2− | 2004 12 15 | 704 | 0.6+ | 0.9+ | 2009 11 22 | 691 | 0.2− | 0.1− |
| 1999 12 07 | 704 | 1.4− | 0.5− | 2004 12 15 | 704 | 0.6− | 0.5+ | 2009 11 22 | 691 | 0.1− | 0.1− |
| 2004 09 13 | 691 | 0.1+ | 0.0 | 2004 12 15 | 704 | 1.0+ | 0.4− | 2009 11 22 | 691 | 0.0 | 0.9+ |
| 2004 09 13 | 691 | 0.5− | 0.1+ | 2004 12 15 | 704 | 0.7+ | 0.2+ | 2009 12 15 | 704 | 1.4− | 1.0+ |
| 2004 09 13 | 691 | 0.3− | 0.4+ | 2004 12 16 | 704 | 0.6− | 0.2+ | 2009 12 15 | 704 | 0.7− | 0.5− |
| 2004 11 19 | 704 | 0.9− | 1.2+ | 2004 12 16 | 704 | 0.5+ | 0.4+ | 2009 12 15 | 704 | 0.7+ | 0.5+ |
| 2004 11 19 | 704 | 0.1− | 0.3− | 2004 12 16 | 704 | 0.5+ | 0.2+ | 2009 12 15 | 704 | 0.5+ | 1.0− |
| 2004 11 19 | 704 | 0.1+ | 0.3− | 2004 12 17 | 704 | 0.0 | 0.3+ | | | | |

**(228278)∗ 1999 WJ$_{11}$ = 2002 TT$_{102}$**

Discovered 1999 Nov. 30 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 37196)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 359.34954 | | (2000.0) | | **P** | **Q** |
| $n$ | 0.30240385 | $\omega$ | 238.62113 | | −0.25038864 | −0.96677881 |
| $a$ | 2.1982538 | $\Omega$ | 225.97243 | | +0.91077551 | −0.21720649 |
| $e$ | 0.0817196 | $i$ | 4.10123 | | +0.32831922 | −0.13475933 |
| $P$ | 3.26 | $H$ | 17.2 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 11 09 | 704 | 0.9+ | 0.8− | 2002 10 04 | 644 | 0.3+ | 0.5+ | 2007 02 17 | 703 | 0.1+ | 0.3− |
| 1999 11 09 | 704 | 1.1+ | 0.1− | 2002 10 04 | 704 | 0.9− | 0.9+ | 2007 02 17 | 703 | 0.7+ | 0.0 |
| 1999 11 09 | 704 | 0.4+ | 0.2− | 2002 10 04 | 644 | 0.5− | 0.5+ | 2007 02 17 | 703 | 0.2+ | 0.8+ |
| 1999 11 09 | 704 | 0.1+ | 0.4− | 2002 10 04 | 704 | 0.1− | 0.7+ | 2007 02 22 | D29 | 1.0− | 1.0+ |
| 1999 11 12 | 704 | 1.2+ | 0.5+ | 2002 10 04 | 644 | 0.5− | 0.2+ | 2007 02 22 | D29 | 1.0+ | 0.5− |
| 1999 11 12 | 704 | 0.9+ | 0.4− | 2002 10 05 | 644 | 0.2− | 0.5+ | 2007 02 22 | D29 | 0.3+ | 0.6− |
| 1999 11 12 | 704 | 1.1+ | 0.1+ | 2002 10 05 | 644 | 0.3− | 0.3+ | 2007 02 26 | 703 | 0.0 | 0.1+ |
| 1999 11 12 | 704 | 1.0+ | 1.0− | 2002 10 05 | 644 | 0.1− | 0.5+ | 2007 02 26 | 703 | 0.3− | 0.3− |
| 1999 11 12 | 704 | 1.8+ | 0.5+ | 2002 10 06 | 644 | 0.4− | 0.5+ | 2007 02 26 | 703 | (1.9+ | 0.6−) |
| 1999 11 30 | 691 | 0.1+ | 0.1− | 2002 10 06 | 644 | 0.4− | 0.5+ | 2007 02 26 | 703 | (0.5+ | 1.6+) |
| 1999 11 30 | 691 | 0.1+ | 0.1− | 2002 10 06 | 644 | 0.6− | 0.3+ | 2007 02 27 | 704 | (0.1− | 1.6+) |
| 1999 11 30 | 691 | 0.3− | 0.1− | 2002 10 12 | 704 | 0.0 | 0.2+ | 2007 02 27 | 704 | (0.0 | 2.0+) |
| 1999 12 02 | 691 | 0.5− | 0.5− | 2002 10 12 | 704 | 0.1− | 0.6+ | 2007 02 27 | 704 | 0.6+ | 1.1+ |
| 1999 12 02 | 691 | 0.5− | 0.5− | 2002 10 12 | 704 | 0.4+ | 0.1− | 2007 03 15 | 703 | 0.8− | 0.5+ |
| 1999 12 02 | 691 | 0.5− | 0.3− | 2002 10 12 | 704 | 1.4− | 1.1+ | 2007 03 15 | 703 | 0.3− | 1.0+ |
| 1999 12 09 | 691 | 0.2+ | 0.0 | 2002 10 12 | 704 | (0.7− | 1.6+) | 2007 03 15 | 703 | (0.3+ | 1.8+) |
| 1999 12 09 | 691 | 0.1− | 0.2+ | 2004 04 13 | 691 | 0.2+ | 0.2+ | 2009 11 18 | G96 | 0.1+ | 0.1− |
| 1999 12 09 | 691 | 0.1+ | 0.3− | 2004 04 13 | 691 | 0.0 | 0.0 | 2009 11 18 | G96 | 0.1+ | 0.1+ |
| 1999 12 16 | 691 | 0.2− | 0.2+ | 2004 04 13 | 691 | 0.1+ | 0.2+ | 2009 11 18 | G96 | 0.0 | 0.1− |
| 1999 12 16 | 691 | 0.3− | 0.2+ | 2004 04 16 | 644 | 0.3+ | 0.5+ | 2009 11 18 | G96 | 0.4− | 0.1+ |
| 1999 12 16 | 691 | 0.1− | 0.1+ | 2004 04 16 | 644 | 0.2+ | 0.5+ | 2009 12 17 | 704 | 0.1+ | 0.8+ |
| 2002 09 28 | 608 | (2.8− | 0.8−) | 2004 04 16 | 644 | 0.2+ | 0.5+ | 2009 12 17 | 704 | 0.7+ | 0.2+ |
| 2002 09 28 | 608 | (2.9− | 0.9−) | 2007 02 10 | 703 | 0.8− | 0.6− | 2009 12 17 | 704 | 0.4+ | 0.5+ |
| 2002 09 28 | 608 | (2.5− | 0.9−) | 2007 02 10 | 703 | 0.2+ | 0.5+ | 2009 12 17 | 704 | 0.2− | 1.3+ |
| 2002 10 04 | 704 | 0.3+ | 0.4+ | 2007 02 10 | 703 | 0.1+ | 0.2+ | 2009 12 17 | 704 | 0.2+ | 0.5+ |
| 2002 10 04 | 704 | 0.3+ | 0.7+ | 2007 02 10 | 703 | 0.0 | 0.0 | | | | |
| 2002 10 04 | 704 | 0.8+ | 0.9+ | 2007 02 17 | 703 | (1.5+ | 1.0−) | | | | |

**(228279)∗ 1999 WS$_{27}$**

Discovered 1999 Nov. 30 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 66.81891 | | (2000.0) | | **P** | **Q** |
| $n$ | 0.20553513 | $\omega$ | 270.93773 | | +0.87625063 | −0.48047143 |
| $a$ | 2.8436666 | $\Omega$ | 117.77927 | | +0.45687797 | +0.80437251 |
| $e$ | 0.1023884 | $i$ | 2.36420 | | +0.15312533 | +0.34947399 |
| $P$ | 4.80 | $H$ | 16.1 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 11 30 | 691 | 0.1+ | 0.0 | 2003 08 22 | 644 | 0.3− | 0.8+ | 2008 09 23 | G96 | 0.3− | 0.3+ |
| 1999 11 30 | 691 | 0.4+ | 0.1− | 2003 08 22 | 644 | 0.0 | 0.7+ | 2008 09 23 | G96 | 0.0 | 0.1+ |
| 1999 11 30 | 691 | 0.4+ | 0.1+ | 2005 12 02 | 568 | 0.9+ | 0.6− | 2008 09 23 | G96 | 0.2− | 0.1+ |
| 1999 12 12 | 691 | 0.6− | 0.1− | 2005 12 02 | 568 | 0.8+ | 0.6− | 2008 09 23 | E12 | 0.5− | 0.4+ |
| 1999 12 12 | 691 | 0.4− | 0.2+ | 2006 02 24 | 691 | 0.3+ | 0.3+ | 2008 09 23 | E12 | 0.3+ | 0.4− |
| 1999 12 12 | 691 | 0.2− | 0.2− | 2006 02 24 | 691 | 0.2+ | 0.5+ | 2008 09 23 | E12 | 0.4+ | 0.7+ |
| 2000 01 04 | 691 | 0.4− | 0.0 | 2006 02 24 | 691 | 0.2+ | 0.3+ | 2008 09 23 | E12 | 0.0 | 0.2+ |
| 2000 01 04 | 691 | 0.6+ | 0.1+ | 2006 03 02 | 691 | 0.5− | 0.3+ | 2009 12 10 | G96 | 0.1+ | 0.2− |
| 2000 01 04 | 691 | 0.0 | 0.1+ | 2006 03 02 | 691 | 0.0 | 0.1− | 2009 12 10 | G96 | 0.3+ | 0.2− |
| 2001 03 04 | 691 | 0.4+ | 0.1+ | 2006 03 02 | 691 | 0.1+ | 0.4− | 2009 12 10 | G96 | 0.2+ | 0.1+ |
| 2001 03 04 | 691 | 0.2− | 0.2+ | 2006 03 26 | G96 | 0.1+ | 0.1+ | 2009 12 10 | G96 | 0.7+ | 0.4− |
| 2001 03 04 | 691 | 0.3− | 0.1+ | 2006 03 26 | G96 | 0.4+ | 0.3− | 2009 12 17 | 691 | 0.2− | 0.0 |
| 2001 05 20 | 807 | 0.2− | 0.2− | 2006 03 26 | G96 | 0.1− | 0.3+ | 2009 12 17 | 691 | 0.0 | 0.0 |
| 2001 05 21 | 807 | 0.1− | 0.1− | 2006 03 26 | G96 | 0.2+ | 0.0 | 2009 12 17 | 691 | 0.3− | 0.2+ |
| 2003 08 22 | 644 | 0.9− | 1.0+ | 2008 09 23 | G96 | 0.2− | 0.1+ | | | | |

**(228280)∗ 1999 XK$_{48}$**

Discovered 1999 Dec. 7 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 26.03230 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.20007538 | $\omega$ | 335.78567 | | +0.63156207 | −0.75785595 | |
| $a$ | 2.8951670 | $\Omega$ | 74.62352 | | +0.73616548 | +0.51991652 | |
| $e$ | 0.2039215 | $i$ | 9.77229 | | +0.24328939 | +0.39413344 | |
| $P$ | 4.93 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 11 04 | 704 | 0.1+ | 0.1− | 2000 01 08 | 691 | 0.5+ | 0.3− | 2004 12 16 | 704 | 0.1− | 1.3+ |
| 1999 11 04 | 704 | 0.4+ | 0.4+ | 2000 01 09 | 691 | 0.1+ | 0.7− | 2004 12 16 | 704 | 0.5+ | 0.5+ |
| 1999 11 04 | 704 | 1.3+ | 0.6+ | 2000 01 09 | 691 | 0.2+ | 0.4− | 2004 12 19 | 704 | 0.1− | 0.6+ |
| 1999 11 04 | 704 | 0.4+ | 1.0+ | 2000 01 09 | 691 | 0.1− | 0.6− | 2004 12 19 | 704 | 0.2+ | 0.3+ |
| 1999 11 04 | 704 | 0.5+ | 0.4+ | 2004 12 02 | 704 | (0.6− | 1.7+) | 2004 12 19 | 704 | 0.8− | 0.7+ |
| 1999 11 15 | 704 | 0.1+ | 0.4− | 2004 12 02 | 704 | 0.2− | 0.4+ | 2004 12 19 | 704 | 0.4+ | 1.2+ |
| 1999 11 15 | 704 | 0.2+ | 0.4− | 2004 12 02 | 704 | 0.5+ | 0.5+ | 2004 12 19 | 704 | 0.1+ | 0.6+ |
| 1999 11 15 | 704 | 0.3− | 0.5− | 2004 12 02 | 704 | 0.5− | 0.9+ | 2005 01 18 | 691 | 0.1− | 0.2− |
| 1999 11 15 | 704 | 0.4− | 0.8− | 2004 12 08 | 704 | 0.3− | 1.3+ | 2005 01 18 | 691 | 0.1+ | 0.2− |
| 1999 11 15 | 704 | 0.5− | 1.2− | 2004 12 08 | 704 | 0.1− | 0.2+ | 2005 01 18 | 691 | 0.0 | 0.0 |
| 1999 11 17 | 704 | 1.0+ | 0.8+ | 2004 12 08 | 704 | 0.0 | 0.2− | 2007 06 18 | 691 | 0.1− | 0.3− |
| 1999 11 17 | 704 | 0.3− | 1.0− | 2004 12 08 | 704 | 0.4− | 0.5− | 2007 06 18 | 691 | 0.1+ | 0.0 |
| 1999 11 17 | 704 | 0.3+ | 0.3− | 2004 12 08 | 704 | 0.1+ | 0.4+ | 2007 06 18 | 691 | 0.3− | 0.3− |
| 1999 11 17 | 704 | 0.9+ | 1.2− | 2004 12 10 | 704 | 0.4+ | 0.2+ | 2009 11 08 | 691 | 0.4− | 0.1+ |
| 1999 11 17 | 704 | 0.2− | 0.4− | 2004 12 10 | 704 | 0.3− | 0.1+ | 2009 11 08 | 691 | 0.3− | 0.2+ |
| 1999 11 29 | 691 | 0.8− | 0.1− | 2004 12 10 | 704 | 0.0 | 0.0 | 2009 11 08 | 691 | 0.5− | 0.1+ |
| 1999 11 29 | 691 | 0.8− | 0.1− | 2004 12 10 | 704 | 0.2− | 0.0 | 2009 11 17 | 704 | 0.1+ | 0.3+ |
| 1999 11 29 | 691 | 1.0− | 0.1− | 2004 12 10 | 704 | 0.5+ | 0.2− | 2009 11 17 | 704 | 0.2− | 0.1− |
| 1999 12 04 | 703 | 0.1+ | 0.7+ | 2004 12 10 | 704 | 0.2− | 0.4+ | 2009 11 17 | 704 | 0.4+ | 0.6+ |
| 1999 12 04 | 703 | 0.1− | 0.3+ | 2004 12 10 | 704 | 0.0 | 0.2− | 2009 12 10 | 704 | 1.4− | 1.4+ |
| 1999 12 04 | 703 | 0.2+ | 1.1+ | 2004 12 10 | 704 | 0.0 | 0.2+ | 2009 12 10 | 704 | 0.3+ | 0.0 |
| 1999 12 04 | 703 | 0.6+ | 0.6+ | 2004 12 10 | 704 | 0.4+ | 0.2− | 2009 12 10 | 704 | 0.3+ | 0.4+ |
| 1999 12 07 | 704 | 0.1− | 0.0 | 2004 12 10 | 704 | 0.1− | 0.7+ | 2009 12 10 | 704 | 0.6+ | 0.3+ |
| 1999 12 07 | 704 | 0.5− | 0.0 | 2004 12 11 | 704 | 0.3+ | 0.4+ | 2009 12 11 | G96 | 0.2+ | 0.6− |
| 1999 12 07 | 704 | 0.5+ | 0.0 | 2004 12 11 | 704 | 0.4+ | 0.5− | 2009 12 11 | G96 | 0.2+ | 0.1− |
| 1999 12 07 | 704 | 0.4− | 0.0 | 2004 12 11 | 704 | 0.5− | 0.4+ | 2009 12 11 | G96 | 0.1− | 0.3− |
| 1999 12 07 | 704 | 0.3− | 0.4− | 2004 12 11 | 704 | 0.1− | 0.1+ | 2009 12 11 | G96 | 0.0 | 0.1− |
| 1999 12 08 | 704 | 0.2+ | 0.7+ | 2004 12 12 | 691 | 0.1− | 0.1− | 2009 12 16 | 704 | 0.5+ | 0.9− |
| 1999 12 08 | 704 | 1.0− | 0.1+ | 2004 12 12 | 691 | 0.1− | 0.0 | 2009 12 16 | 704 | 0.3+ | 0.2+ |
| 1999 12 08 | 704 | 0.2− | 0.6− | 2004 12 12 | 691 | 0.0 | 0.0 | 2009 12 16 | 704 | 0.0 | 0.4+ |
| 1999 12 08 | 704 | 0.3− | 0.2− | 2004 12 14 | 704 | 0.0 | 0.4− | 2009 12 16 | 704 | 0.3+ | 0.2+ |
| 1999 12 08 | 704 | 0.2+ | 0.2− | 2004 12 14 | 704 | 0.2− | 0.8− | 2009 12 16 | 704 | 0.2− | 0.4+ |
| 1999 12 12 | 691 | 0.4+ | 0.0 | 2004 12 14 | 704 | 0.8+ | 1.5− | 2009 12 20 | G96 | 0.0 | 0.0 |
| 1999 12 12 | 691 | 0.5+ | 0.0 | 2004 12 14 | 704 | 1.0− | 0.2− | 2009 12 20 | G96 | 0.5+ | 0.1− |
| 1999 12 12 | 691 | 0.5+ | 0.1− | 2004 12 14 | 704 | 0.3− | 0.1− | 2009 12 20 | G96 | 0.5+ | 0.1− |
| 2000 01 08 | 691 | 0.4+ | 0.3− | 2004 12 16 | 704 | 0.9+ | 0.4+ | 2009 12 20 | G96 | 0.1+ | 0.0 |
| 2000 01 08 | 691 | 0.7+ | 0.3− | 2004 12 16 | 704 | 1.0+ | 1.4+ | | | | |

**(228281)∗ 1999 XA$_{118}$ = 2002 RL$_{216}$**

Discovered 1999 Dec. 5 by the Catalina Sky Survey.

Id. G. V. Williams (*MPO* 37214)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 54.11146 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.30211178 | $\omega$ | 348.05241 | | +0.85761396 | −0.51033848 | |
| $a$ | 2.1996704 | $\Omega$ | 42.82890 | | +0.47923168 | +0.74807606 | |
| $e$ | 0.1807176 | $i$ | 5.37348 | | +0.18664213 | +0.42418963 | |
| $P$ | 3.26 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 10 22 | 704 | 0.3+ | 0.1− | 1999 11 16 | 704 | 0.7+ | 0.4− | 2002 10 07 | 608 | 0.3− | 0.8+ |
| 1999 10 22 | 704 | 0.1− | 0.2− | 1999 11 16 | 704 | 1.3+ | 0.9− | 2002 10 07 | 608 | 1.0− | 1.1+ |
| 1999 10 22 | 704 | 1.1+ | 0.4− | 1999 11 16 | 704 | 0.6+ | 1.2− | 2002 10 07 | 608 | 1.1− | 0.4+ |
| 1999 10 22 | 704 | 0.1+ | 0.2− | 1999 11 16 | 704 | 0.1+ | 1.2− | 2004 03 18 | 691 | 0.2+ | 0.5+ |
| 1999 11 03 | 704 | 1.2+ | 1.4− | 1999 12 05 | 703 | 0.6− | 0.7+ | 2004 03 18 | 691 | 0.1+ | 0.3+ |
| 1999 11 03 | 704 | 0.2+ | 0.8− | 1999 12 05 | 703 | 0.1− | 0.5− | 2004 03 18 | 691 | 0.4+ | 0.5+ |
| 1999 11 03 | 704 | 0.8+ | 0.1− | 1999 12 05 | 703 | 0.4+ | 0.7+ | 2004 03 20 | 704 | 0.1− | 0.1− |
| 1999 11 03 | 704 | 0.7+ | 0.5− | 1999 12 05 | 703 | 0.4+ | 0.1+ | 2004 03 20 | 704 | (0.3+ | 4.8−) |
| 1999 11 04 | 703 | 0.2− | 1.4+ | 1999 12 11 | 012 | 0.0 | 0.5− | 2004 03 20 | 704 | 0.2+ | 0.6+ |
| 1999 11 04 | 703 | 0.1+ | 0.8+ | 1999 12 11 | 012 | 0.0 | 0.1+ | 2007 01 29 | G96 | 0.1− | 0.6− |
| 1999 11 04 | 703 | 0.5+ | 0.5+ | 1999 12 11 | 012 | 0.5− | 0.6+ | 2007 01 29 | G96 | 0.1− | 0.3− |
| 1999 11 04 | 703 | 0.2− | 0.7− | 1999 12 13 | 703 | 0.5− | 0.6+ | 2007 01 29 | G96 | 0.0 | 0.3− |
| 1999 11 09 | 703 | 0.3− | 0.0 | 1999 12 13 | 703 | 0.1+ | 0.4+ | 2007 01 29 | G96 | 0.0 | 0.4− |
| 1999 11 09 | 703 | 0.6− | 0.3+ | 1999 12 13 | 703 | 0.4− | 0.5+ | 2007 02 16 | 703 | (0.6− | 1.6+) |
| 1999 11 09 | 703 | 0.1− | 0.5+ | 1999 12 13 | 703 | 0.1− | 0.1− | 2007 02 16 | 703 | 0.8− | 0.1− |
| 1999 11 09 | 703 | 0.5− | 0.6+ | 1999 12 15 | 012 | 0.5− | 0.2+ | 2007 02 16 | 703 | 0.3+ | 0.2+ |
| 1999 11 12 | 699 | 0.4+ | 0.5− | 1999 12 15 | 012 | 0.2− | 0.7+ | 2007 02 16 | 703 | 0.5− | 0.8− |
| 1999 11 12 | 699 | 0.1− | 0.9+ | 1999 12 15 | 012 | 0.3− | 0.3+ | 2009 12 10 | 704 | 0.1+ | 0.9+ |
| 1999 11 12 | 699 | 0.5− | 1.3+ | 2002 08 19 | 644 | 0.2+ | 0.9+ | 2009 12 10 | 704 | 0.1+ | 0.6+ |
| 1999 11 14 | 704 | 0.1− | 0.9− | 2002 08 19 | 644 | 0.0 | 0.5+ | 2009 12 10 | 704 | 0.2+ | 1.1+ |
| 1999 11 14 | 704 | 0.2− | 0.6− | 2002 08 19 | 644 | 0.3+ | 0.7+ | 2009 12 15 | 704 | 0.1− | 0.3− |
| 1999 11 14 | 704 | 1.1− | 0.1− | 2002 09 13 | 608 | 0.2− | 0.3− | 2009 12 15 | 704 | 0.7+ | 0.5+ |
| 1999 11 14 | 704 | 0.6− | 0.8− | 2002 09 13 | 608 | 0.1− | 0.4− | 2009 12 15 | 704 | 0.0 | 0.7+ |
| 1999 11 14 | 704 | 0.4− | 0.3− | 2002 09 13 | 608 | 0.6− | 0.3− | 2009 12 15 | 704 | 0.4+ | 1.0+ |
| 1999 11 15 | 704 | 0.0 | 0.3− | 2002 09 16 | 644 | 0.0 | 0.2− | 2009 12 15 | 704 | 0.6− | 1.0+ |
| 1999 11 15 | 704 | 0.1− | 0.1− | 2002 09 16 | 644 | 0.0 | 0.4+ | 2009 12 20 | G96 | 0.0 | 0.0 |
| 1999 11 15 | 704 | 0.1− | 0.1+ | 2002 09 16 | 644 | 0.3− | 0.3+ | 2009 12 20 | G96 | 0.1− | 0.1− |
| 1999 11 15 | 704 | 0.1+ | 0.3− | 2002 10 01 | 608 | 0.1− | 0.6+ | 2009 12 20 | G96 | 0.1− | 0.2− |
| 1999 11 15 | 704 | 0.1− | 0.1− | 2002 10 01 | 608 | 0.4− | 0.5+ | 2009 12 20 | G96 | 0.3+ | 0.1− |
| 1999 11 16 | 704 | 0.5+ | 0.6− | 2002 10 01 | 608 | 0.5+ | 1.4+ | | | | |

**(228282)∗ 1999 XH$_{149}$**

Discovered 1999 Dec. 8 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 310.90997 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19990398 | $\omega$ | 249.94086 | | −0.67665983 | −0.73400255 | |
| $a$ | 2.8968216 | $\Omega$ | 242.78119 | | +0.69758829 | −0.61385729 | |
| $e$ | 0.0569513 | $i$ | 3.74392 | | +0.23558872 | −0.29055031 | |
| $P$ | 4.93 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 11 09 | 704 | 0.6+ | 0.5− | 2004 11 10 | 691 | 0.4+ | 0.4+ | 2009 11 20 | 691 | 0.6− | 0.2+ |
| 1999 11 09 | 704 | 0.6− | 0.9− | 2006 02 02 | 691 | 0.2+ | 0.6+ | 2009 11 20 | 691 | 0.1− | 0.3+ |
| 1999 11 09 | 704 | 0.5− | 0.9− | 2006 02 02 | 691 | 0.1− | 0.1− | 2009 11 24 | 691 | 0.1− | 0.3+ |
| 1999 11 09 | 704 | 0.4+ | 0.7− | 2006 02 02 | 691 | 0.2+ | 0.1+ | 2009 11 24 | 691 | 0.1− | 0.1+ |
| 1999 11 09 | 704 | 0.7+ | 0.1+ | 2008 07 29 | G96 | 0.2+ | 0.2− | 2009 11 24 | 691 | 0.2− | 0.4+ |
| 1999 11 12 | 704 | (2.3+ | 1.1−) | 2008 07 29 | G96 | 0.0 | 0.3− | 2009 11 27 | G96 | 0.5+ | 0.0 |
| 1999 11 12 | 704 | 1.0+ | 1.3− | 2008 07 29 | G96 | 0.3+ | 0.3− | 2009 11 27 | G96 | 0.8+ | 0.1− |
| 1999 11 12 | 704 | 0.0 | 0.9− | 2008 07 29 | G96 | 0.0 | 0.2− | 2009 11 27 | G96 | 0.7+ | 0.1− |
| 1999 11 12 | 704 | 0.4+ | 1.2− | 2008 09 04 | 691 | 0.1− | 0.3+ | 2009 11 27 | G96 | 0.3+ | 0.0 |
| 1999 12 07 | 704 | 0.7+ | 0.7− | 2008 09 04 | 691 | 0.6− | 0.7+ | 2009 11 27 | G96 | 0.2+ | 0.1+ |
| 1999 12 07 | 704 | 0.2− | 1.0− | 2008 09 04 | 691 | 0.2+ | 0.2+ | 2009 12 10 | G96 | 0.5+ | 0.0 |
| 1999 12 07 | 704 | 1.3+ | 0.9+ | 2009 10 26 | G96 | 0.3+ | 0.3+ | 2009 12 10 | G96 | 0.4+ | 0.1− |
| 1999 12 08 | 691 | 0.0 | 0.2− | 2009 10 26 | G96 | 0.6+ | 0.1− | 2009 12 10 | G96 | 0.7+ | 0.1− |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 12 08 | 691 | 0.4+ | 0.5− | 2009 10 26 | G96 | 0.0 | 0.0 | 2009 12 10 | G96 | 0.1+ | 0.0 |
| 1999 12 08 | 691 | 0.2− | 0.6− | 2009 10 26 | G96 | 0.5+ | 0.0 | 2009 12 11 | 703 | 0.5− | 0.3− |
| 1999 12 13 | 691 | 0.1− | 0.2− | 2009 10 30 | G96 | 0.1+ | 0.7+ | 2009 12 11 | 703 | 0.1+ | 0.8− |
| 1999 12 13 | 691 | 0.6− | 0.0 | 2009 10 30 | G96 | 0.9+ | 0.8+ | 2009 12 11 | 703 | 0.2− | 0.4− |
| 1999 12 13 | 691 | 0.3− | 0.0 | 2009 10 30 | G96 | 0.7+ | 0.2+ | 2009 12 11 | 703 | 0.4+ | 1.6− |
| 2000 01 05 | 691 | 0.0 | 0.2+ | 2009 10 30 | G96 | 1.0+ | 0.1− | 2009 12 15 | G96 | 0.1+ | 0.0 |
| 2000 01 05 | 691 | 0.0 | 0.2+ | 2009 11 16 | 691 | 0.7− | 0.5+ | 2009 12 15 | G96 | 0.6+ | 0.2+ |
| 2000 01 05 | 691 | 0.3− | 0.4+ | 2009 11 16 | 691 | 0.2− | 0.3+ | 2009 12 15 | G96 | 0.3+ | 0.0 |
| 2004 11 10 | 691 | 0.3+ | 0.1− | 2009 11 16 | 691 | 0.4− | 0.1+ | 2009 12 15 | G96 | 0.1− | 0.0 |
| 2004 11 10 | 691 | 0.3+ | 0.3+ | 2009 11 20 | 691 | 0.4− | 0.1+ | | | | |

**(228283)∗ 2000 AO$_{60}$**

Discovered 2000 Jan. 4 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 293.51906 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28746271 | $\omega$ | 254.27742 | | −0.97592231 | +0.20340229 | |
| $a$ | 2.2737797 | $\Omega$ | 297.40306 | | −0.15017663 | −0.88846900 | |
| $e$ | 0.3643068 | $i$ | 5.08967 | | −0.15818539 | −0.41140047 | |
| $P$ | 3.43 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 11 19 | 691 | 0.1− | 0.4− | 2000 02 12 | 704 | (0.0 | 4.1+) | 2007 03 15 | 704 | 0.3+ | 0.1− |
| 1995 11 19 | 691 | 0.2− | 1.1+ | 2000 02 12 | 704 | (0.6− | 4.4+) | 2007 03 15 | 704 | 1.3+ | 0.2+ |
| 1995 11 19 | 691 | 0.1− | 0.1+ | 2000 02 12 | 704 | 0.2− | 1.7+ | 2007 03 15 | 704 | 0.2+ | 0.5− |
| 2000 01 04 | 704 | 0.5+ | 0.3− | 2000 02 27 | 703 | 0.5+ | 0.2− | 2007 03 15 | 704 | (1.1+ | 1.7−) |
| 2000 01 04 | 704 | 0.6− | 0.0 | 2000 02 27 | 703 | 0.5− | 0.2− | 2007 03 28 | E12 | 0.2− | 0.5− |
| 2000 01 04 | 704 | 0.7+ | 1.7− | 2000 02 27 | 703 | 0.4+ | 0.3+ | 2007 03 28 | E12 | 0.2− | 0.3+ |
| 2000 01 04 | 704 | 0.7− | 0.2− | 2000 02 27 | 703 | 0.6− | 0.2− | 2007 03 28 | E12 | 0.3− | 0.2− |
| 2000 01 04 | 704 | 0.6+ | 1.1− | 2000 03 05 | 704 | 0.2− | 1.6+ | 2007 04 16 | E12 | (0.1− | 1.8−) |
| 2000 01 06 | 704 | 0.4+ | 0.0 | 2000 03 05 | 704 | 0.4− | 0.7+ | 2007 04 16 | E12 | (1.2+ | 2.7−) |
| 2000 01 06 | 704 | 0.2+ | 1.2− | 2000 03 05 | 704 | (2.9− | 1.7+) | 2007 04 16 | E12 | 0.4− | 0.2− |
| 2000 01 06 | 704 | 0.4− | 0.7− | 2000 03 05 | 704 | (3.0− | 1.1+) | 2007 04 16 | E12 | 0.5+ | 0.1− |
| 2000 01 06 | 704 | 0.0 | 0.5− | 2000 05 03 | 704 | 0.1+ | 0.3+ | 2009 11 19 | 691 | 0.1− | 0.0 |
| 2000 01 13 | 699 | 1.0+ | 0.2+ | 2000 05 03 | 704 | 0.3− | 0.3− | 2009 11 19 | 691 | 0.1− | 0.6− |
| 2000 01 13 | 699 | 0.4+ | 0.4− | 2000 05 03 | 704 | 0.3+ | 0.3+ | 2009 11 19 | 691 | 0.0 | 0.0 |
| 2000 01 13 | 699 | 0.6− | 0.7+ | 2000 05 03 | 704 | 0.2+ | 0.6+ | 2009 11 27 | 691 | 0.1− | 0.1+ |
| 2000 01 30 | 703 | 0.4− | 0.1+ | 2000 05 03 | 704 | 0.0 | 0.6+ | 2009 11 27 | 691 | 0.4− | 0.2− |
| 2000 01 30 | 703 | 0.0 | 0.0 | 2006 12 26 | 703 | (2.5− | 1.0−) | 2009 11 27 | 691 | 0.1− | 0.1+ |
| 2000 01 30 | 703 | 0.1− | 0.6+ | 2006 12 26 | 703 | 0.5+ | 1.2− | 2009 12 08 | J75 | 0.2− | 0.7+ |
| 2000 01 30 | 703 | 0.3− | 1.1− | 2006 12 26 | 703 | 0.8− | 0.3+ | 2009 12 08 | J75 | 0.2+ | 0.4− |
| 2000 02 02 | 704 | 0.8− | 0.2− | 2006 12 26 | 703 | 0.4− | 0.9− | 2009 12 08 | J75 | 1.3+ | 1.2− |
| 2000 02 02 | 704 | 0.0 | 0.1+ | 2007 01 27 | 703 | 0.8− | 0.6− | 2009 12 13 | G96 | 0.1+ | 0.0 |
| 2000 02 02 | 704 | 0.1− | 0.1+ | 2007 01 27 | 703 | 0.3− | 0.0 | 2009 12 13 | G96 | 0.0 | 0.2− |
| 2000 02 02 | 704 | 0.3− | 0.8+ | 2007 01 27 | 703 | 0.4− | 0.9− | 2009 12 13 | G96 | 0.1+ | 0.3− |
| 2000 02 02 | 704 | 0.3+ | 0.7+ | 2007 01 27 | 703 | 0.4− | 0.7+ | 2009 12 13 | G96 | 0.4+ | 0.1− |
| 2000 02 04 | 704 | 0.2− | 0.0 | 2007 03 01 | E12 | 0.3− | 0.1+ | 2009 12 18 | G96 | 0.1+ | 0.3− |
| 2000 02 04 | 704 | 0.1+ | 0.2+ | 2007 03 01 | E12 | 0.1+ | 0.0 | 2009 12 18 | G96 | 0.4+ | 0.2− |
| 2000 02 04 | 704 | 0.4+ | 0.5− | 2007 03 01 | E12 | 0.4− | 0.0 | 2009 12 18 | G96 | 0.1+ | 0.5− |
| 2000 02 04 | 704 | 0.0 | 0.6+ | 2007 03 01 | E12 | 0.5− | 0.3− | 2009 12 18 | G96 | (2.3+ | 0.1+) |
| 2000 02 06 | 704 | 0.3+ | 0.3+ | 2007 03 14 | E12 | 0.3+ | 0.0 | 2009 12 25 | 291 | 0.2+ | 0.0 |
| 2000 02 06 | 704 | 0.7+ | 0.1− | 2007 03 14 | E12 | 0.1− | 0.3− | 2009 12 25 | 291 | 0.1+ | 0.3+ |
| 2000 02 06 | 704 | 0.7+ | 0.1− | 2007 03 14 | E12 | 0.2− | 0.1− | 2009 12 25 | 291 | 0.2− | 0.3+ |
| 2000 02 06 | 704 | 0.2− | 1.8+ | 2007 03 14 | E12 | 0.0 | 0.0 | | | | |
| 2000 02 06 | 704 | 1.2+ | 0.5− | 2007 03 15 | 704 | 0.1+ | 0.2+ | | | | |

**(228284)∗ 2000 AJ$_{176}$**

Discovered 2000 Jan. 7 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 65.48902 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.20316344 | $\omega$ | 268.43721 | | +0.80998277 | −0.55607310 | |
| $a$ | 2.8657546 | $\Omega$ | 125.30694 | | +0.58642781 | +0.76500525 | |
| $e$ | 0.1037926 | $i$ | 13.19698 | | +0.00550742 | +0.32488411 | |
| $P$ | 4.85 | $H$ | 15.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 01 07 | 704 | 1.2+ | 1.2+ | 2003 09 19 | 699 | 1.3− | 1.2− | 2008 09 19 | 704 | 0.4− | 0.5+ |
| 2000 01 07 | 704 | 0.4− | 0.6+ | 2003 09 19 | 699 | 0.6− | 1.1+ | 2008 10 02 | 703 | 0.2+ | 0.6+ |
| 2000 01 07 | 704 | 0.2+ | 1.6+ | 2003 09 19 | 699 | 0.5− | 1.1+ | 2008 10 02 | 703 | 0.2− | 1.4+ |
| 2000 01 07 | 704 | 0.4− | 0.2− | 2003 09 25 | 644 | 0.1− | 0.3− | 2008 10 02 | 703 | 0.8− | 1.1+ |
| 2000 01 11 | 704 | 0.0 | 0.1− | 2003 09 25 | 644 | 0.1− | 0.2− | 2008 10 02 | 703 | 0.2− | 0.5− |
| 2000 01 11 | 704 | 0.1− | 0.1− | 2003 09 25 | 644 | 0.1+ | 0.4− | 2009 10 26 | G96 | 0.2− | 0.0 |
| 2000 01 11 | 704 | 0.1+ | 1.6− | 2006 03 03 | 703 | 0.7+ | 1.1+ | 2009 10 26 | G96 | 0.2− | 0.1− |
| 2002 06 01 | 644 | 0.9+ | 1.5+ | 2006 03 03 | 703 | 0.4− | 0.4+ | 2009 10 26 | G96 | 0.1+ | 0.0 |
| 2002 06 01 | 644 | 0.1+ | 1.2+ | 2006 03 03 | 703 | 0.4+ | 0.1+ | 2009 10 26 | G96 | 0.3+ | 0.0 |
| 2002 06 01 | 644 | 0.7+ | 0.8+ | 2006 03 03 | 703 | 0.0 | 0.2+ | 2009 12 15 | 703 | 1.3− | 0.5+ |
| 2002 06 17 | 291 | 0.1+ | 0.0 | 2006 04 02 | 703 | 0.3− | 1.5− | 2009 12 15 | 703 | 0.7+ | 0.9− |
| 2002 06 17 | 291 | 0.1+ | 0.1+ | 2006 04 02 | 703 | 0.4+ | 0.9− | 2009 12 15 | 703 | 0.0 | 0.8− |
| 2002 06 17 | 291 | 0.2+ | 0.3+ | 2006 04 02 | 703 | 1.3− | 1.4+ | 2009 12 15 | 703 | 0.0 | 1.4− |
| 2003 09 13 | 608 | 0.1− | 1.4− | 2006 04 02 | 703 | 0.9− | 0.9− | 2009 12 15 | 703 | 1.5+ | 0.0 |
| 2003 09 13 | 608 | 0.0 | 1.1− | 2008 09 19 | 704 | 0.9+ | 0.3+ | 2009 12 20 | 691 | 0.1+ | 0.5+ |
| 2003 09 13 | 608 | 0.5− | 1.2− | 2008 09 19 | 704 | 0.7+ | 1.0+ | 2009 12 20 | 691 | 0.2− | 0.4+ |
| 2003 09 19 | 699 | 0.9+ | 0.6+ | 2008 09 19 | 704 | 0.1+ | 0.5+ | 2009 12 20 | 691 | 0.1− | 0.6+ |

**(228285)∗ 2000 AW$_{179}$ = 2002 XU$_{40}$**

Discovered 2000 Jan. 7 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 40039)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 265.45292 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28794442 | $\omega$ | 290.72611 | | −0.87682005 | +0.33762807 | |
| $a$ | 2.2712430 | $\Omega$ | 270.31342 | | −0.20174084 | −0.90461621 | |
| $e$ | 0.2224632 | $i$ | 20.01957 | | −0.43644844 | −0.26014763 | |
| $P$ | 3.42 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1983 02 08 | 260 | 1.6− | 1.9− | 2002 12 06 | 704 | 0.2+ | 0.8+ | 2007 02 18 | 704 | 0.2+ | 0.1+ |
| 2000 01 07 | 704 | 0.7+ | 0.7+ | 2002 12 06 | 704 | 0.8+ | 0.4+ | 2007 02 18 | 704 | 0.1− | 0.2+ |
| 2000 01 07 | 704 | 0.1− | 0.4+ | 2002 12 10 | 704 | 0.8+ | 0.8+ | 2007 04 11 | E12 | 0.9− | 0.9+ |
| 2000 01 07 | 704 | 0.3+ | 1.2+ | 2002 12 10 | 704 | 0.4+ | 0.8+ | 2007 04 11 | E12 | 0.5+ | 0.1− |
| 2000 01 07 | 704 | 0.8− | 0.7+ | 2002 12 10 | 704 | 1.4− | 0.0 | 2007 04 11 | E12 | 1.3+ | 0.0 |
| 2000 01 11 | 704 | 0.1− | 0.4− | 2006 12 01 | 703 | 0.1− | 0.6− | 2007 04 11 | E12 | (1.6+ | 0.1+) |
| 2000 01 11 | 704 | 0.2+ | 0.1− | 2006 12 01 | 703 | (1.5+ | 0.1−) | 2009 11 27 | G96 | 0.3+ | 0.1+ |
| 2000 01 11 | 704 | 1.4+ | 0.5− | 2006 12 01 | 703 | 0.3− | 0.6− | 2009 11 27 | G96 | 0.8− | 0.6− |
| 2000 01 11 | 704 | (2.7+ | 0.1−) | 2006 12 01 | 703 | 1.4− | 0.8− | 2009 11 27 | G96 | 0.5+ | 0.1− |
| 2000 01 11 | 704 | 0.5+ | 0.1− | 2007 01 26 | E12 | 0.5− | 0.1+ | 2009 11 27 | G96 | 0.0 | 0.2− |
| 2000 02 06 | 704 | 0.1+ | 0.5− | 2007 01 26 | E12 | 0.1+ | 0.0 | 2009 11 27 | G96 | 0.2+ | 0.2− |
| 2000 02 06 | 704 | 0.1− | 0.6+ | 2007 01 26 | E12 | 0.4− | 0.0 | 2009 12 15 | 704 | 0.0 | 0.2− |
| 2000 02 06 | 704 | 0.1− | 1.1+ | 2007 02 04 | 644 | 0.5+ | 0.0 | 2009 12 15 | 704 | 0.6− | 0.4− |
| 2000 02 06 | 704 | 0.4+ | 0.6+ | 2007 02 04 | 644 | 0.1+ | 0.3− | 2009 12 15 | 704 | (0.4+ | 1.7+) |
| 2000 02 11 | 704 | 0.2+ | 0.3+ | 2007 02 04 | 644 | 0.2− | 0.0 | 2009 12 15 | 704 | 0.5− | 0.1− |
| 2000 02 11 | 704 | 0.1− | 0.6+ | 2007 02 08 | 322 | 0.3+ | 0.1+ | 2009 12 15 | 704 | 0.2− | 0.2− |
| 2000 02 11 | 704 | 0.0 | 0.4− | 2007 02 08 | 322 | 0.0 | 1.4− | 2009 12 18 | G96 | 0.5− | 0.7− |
| 2001 08 13 | 644 | 0.2+ | 0.2+ | 2007 02 08 | 322 | 0.0 | 0.2+ | 2009 12 18 | G96 | 0.5− | 0.5− |
| 2001 08 13 | 644 | 0.2− | 0.0 | 2007 02 18 | 704 | 0.5+ | 0.4+ | 2009 12 18 | G96 | 0.5− | 0.6− |
| 2001 08 13 | 644 | 0.0 | 0.2− | 2007 02 18 | 704 | 0.4+ | 0.2+ | | | | |
| 2002 12 06 | 704 | 0.9+ | 0.4+ | 2007 02 18 | 704 | 0.2− | 0.2+ | | | | |

**(228286)∗ 2000 BZ$_1$ = 2004 YL$_{24}$**

Discovered 2000 Jan. 27 by Spacewatch at Kitt Peak.

Id. A. Doppler (*MPO* 72056)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 4.56092 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18851702 | $\omega$ | 126.60756 | | +0.25789088 | −0.96549328 | |
| $a$ | 3.0123285 | $\Omega$ | 308.40752 | | +0.87101514 | +0.24856993 | |
| $e$ | 0.2027729 | $i$ | 2.65242 | | +0.41812069 | +0.07768987 | |
| $P$ | 5.23 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1993 10 12 | 691 | 0.1+ | 0.3+ | 2004 12 20 | G96 | 0.5− | 0.4− | 2008 09 06 | G96 | 0.2− | 0.2− | |
| 1993 10 12 | 691 | 0.2+ | 0.5− | 2004 12 20 | G96 | 0.1− | 0.4− | 2008 09 06 | G96 | 0.4− | 0.1− | |
| 1993 10 12 | 691 | 0.2− | 0.6− | 2005 01 01 | 703 | 0.0 | 0.2+ | 2008 09 06 | G96 | 0.5− | 0.7− | |
| 2000 01 27 | 691 | 0.5+ | 0.1+ | 2005 01 01 | 703 | 0.5− | 0.0 | 2008 09 06 | G96 | 0.6− | 0.3− | |
| 2000 01 27 | 691 | 0.1+ | 0.1+ | 2005 01 01 | 703 | 0.7− | 0.2− | 2008 09 20 | G96 | 0.2+ | 0.1+ | |
| 2000 01 27 | 691 | 0.4+ | 0.1+ | 2005 01 01 | 703 | (1.7− | 1.2−) | 2008 09 20 | G96 | 0.9+ | 0.1+ | |
| 2000 01 28 | 691 | 0.1− | 0.1− | 2005 01 11 | 704 | 0.8− | 0.6+ | 2008 09 20 | G96 | 0.1+ | 0.4− | |
| 2000 01 28 | 691 | 0.3− | 0.1+ | 2005 01 11 | 704 | 0.3+ | 0.2− | 2008 09 20 | G96 | 0.8+ | 0.4+ | |
| 2000 01 28 | 691 | 0.1− | 0.0 | 2005 01 11 | 704 | 0.1+ | 0.5− | 2009 11 09 | 691 | 0.1− | 0.3− | |
| 2000 02 05 | 691 | 0.1− | 0.6− | 2005 01 11 | 704 | 0.5+ | 0.5+ | 2009 11 09 | 691 | 0.6− | 0.1− | |
| 2000 02 05 | 691 | 0.3− | 0.4− | 2005 01 17 | 691 | 0.1+ | 0.2+ | 2009 11 09 | 691 | 0.2− | 0.1− | |
| 2000 02 05 | 691 | 0.0 | 0.4− | 2005 01 17 | 691 | 0.2+ | 0.1+ | 2009 12 10 | J75 | 0.5− | 0.6+ | |
| 2000 03 03 | 691 | 0.4− | 0.4+ | 2005 01 17 | 691 | 0.2+ | 0.3+ | 2009 12 10 | J75 | 0.4− | 0.1+ | |
| 2000 03 03 | 691 | 0.4− | 0.1+ | 2005 01 17 | 704 | 0.6+ | 0.4+ | 2009 12 10 | J75 | 0.2+ | 0.1− | |
| 2000 03 03 | 691 | 0.3− | 0.0 | 2005 01 17 | 704 | 0.0 | 0.4− | 2009 12 11 | G96 | 0.1+ | 0.1+ | |
| 2003 09 04 | 691 | 0.2− | 0.4+ | 2005 01 17 | 704 | 0.1− | 0.7− | 2009 12 11 | G96 | 0.2+ | 0.1+ | |
| 2003 09 04 | 691 | 0.1+ | 0.3+ | 2005 01 18 | 291 | 0.3+ | 0.1+ | 2009 12 11 | G96 | 0.2+ | 0.2+ | |
| 2003 09 04 | 691 | 0.1+ | 0.3+ | 2005 01 18 | 291 | 0.5+ | 0.4+ | 2009 12 11 | G96 | 0.3+ | 0.1+ | |
| 2004 12 16 | 691 | 0.2+ | 0.4+ | 2005 01 18 | 291 | 0.6+ | 0.2+ | 2009 12 18 | G96 | 0.1+ | 0.2− | |
| 2004 12 16 | 691 | 0.0 | 0.3+ | 2005 03 10 | G96 | 0.1− | 0.7− | 2009 12 18 | G96 | 0.1+ | 0.0 | |
| 2004 12 16 | 691 | 0.1+ | 0.0 | 2005 03 10 | G96 | 0.4− | 0.7− | 2009 12 18 | G96 | 0.2− | 0.2− | |
| 2004 12 20 | G96 | 0.8− | 0.1− | 2005 03 10 | G96 | 0.1− | 0.6− | 2009 12 18 | G96 | 0.2+ | 0.1− | |
| 2004 12 20 | G96 | 0.0 | 0.6− | 2005 03 10 | G96 | 0.4− | 0.3− | | | | | |

**(228287)∗ 2000 BE$_3$**

Discovered 2000 Jan. 26 by K. Korlević at Višnjan.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 277.82916 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18426282 | $\omega$ | 75.54085 | | −0.98659820 | +0.14972230 | |
| $a$ | 3.0585170 | $\Omega$ | 113.03687 | | −0.16312743 | −0.91399710 | |
| $e$ | 0.2705533 | $i$ | 4.04179 | | +0.00366560 | −0.37708426 | |
| $P$ | 5.35 | $H$ | 15.3 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 01 26 | 120 | 0.4− | 0.0 | 2000 02 28 | 704 | 1.1− | 1.7+ | 2006 05 28 | 704 | 0.3+ | 0.5+ | |
| 2000 01 26 | 120 | 0.5+ | 0.3− | 2000 02 28 | 704 | 0.6+ | 0.4− | 2006 05 28 | 704 | 0.6+ | 0.7+ | |
| 2000 01 26 | 120 | 0.7− | 1.0− | 2000 02 28 | 704 | 1.1− | 1.0− | 2006 05 28 | 704 | 0.3+ | 1.0+ | |
| 2000 01 27 | 120 | 1.1+ | 0.3− | 2000 03 04 | 704 | 2.0− | 0.4− | 2006 05 28 | 704 | 0.5+ | 1.2+ | |
| 2000 01 27 | 120 | 0.0 | 0.6+ | 2000 03 04 | 704 | 1.3+ | 0.3− | 2006 06 05 | 704 | 1.4+ | 0.2+ | |
| 2000 01 30 | 704 | 0.1− | 0.7− | 2000 03 04 | 704 | 0.9− | 1.5− | 2006 06 05 | 704 | 0.6+ | 0.2− | |
| 2000 01 30 | 703 | 0.8+ | 0.2+ | 2000 03 04 | 704 | 0.3− | 0.3+ | 2006 06 05 | 704 | 0.2+ | 0.0 | |
| 2000 01 30 | 704 | 0.0 | 0.8+ | 2000 03 04 | 704 | 0.1+ | 0.2+ | 2006 06 22 | 644 | 0.0 | 0.1+ | |
| 2000 01 30 | 703 | (1.4+ | 2.8−) | 2003 09 28 | 691 | 0.2− | 0.2+ | 2006 06 22 | 644 | 0.2− | 0.2+ | |
| 2000 01 30 | 703 | 0.2− | 0.0 | 2003 09 28 | 691 | 0.2+ | 0.1+ | 2006 06 22 | 644 | 0.2− | 0.3+ | |
| 2000 01 30 | 704 | 0.0 | 0.6+ | 2003 09 28 | 691 | 0.1− | 0.2+ | 2008 09 23 | G96 | 0.1− | 0.1+ | |
| 2000 01 30 | 703 | 0.5− | 0.4+ | 2004 12 14 | 704 | 1.1+ | 0.3+ | 2008 09 23 | G96 | 0.4+ | 0.1+ | |
| 2000 02 03 | 704 | 0.3+ | 0.3− | 2004 12 14 | 704 | 0.5+ | 0.1− | 2008 09 23 | G96 | 0.4+ | 0.1+ | |
| 2000 02 03 | 704 | 0.3− | 0.1− | 2004 12 14 | 704 | 0.5− | 0.4+ | 2008 09 23 | G96 | 0.2− | 0.1+ | |
| 2000 02 03 | 704 | 0.5+ | 0.0 | 2004 12 14 | 704 | 0.3− | 1.0+ | 2008 10 06 | G96 | 0.6− | 0.0 | |
| 2000 02 03 | 704 | 0.9+ | 0.2+ | 2004 12 19 | 691 | 0.0 | 0.4+ | 2008 10 06 | G96 | 0.0 | 0.2− | |
| 2000 02 03 | 704 | 0.6− | 0.5+ | 2004 12 19 | 691 | 0.4+ | 0.2+ | 2008 10 06 | G96 | 0.0 | 0.2− | |
| 2000 02 03 | 120 | 0.5+ | 0.6− | 2004 12 19 | 691 | 0.3− | 1.0+ | 2008 10 06 | G96 | 0.6− | 0.0 | |
| 2000 02 03 | 120 | 1.0− | 0.3− | 2006 05 17 | 644 | 0.2− | 0.1− | 2008 10 06 | G96 | 0.0 | 0.5+ | |
| 2000 02 11 | 704 | 0.1+ | 0.3− | 2006 05 17 | 644 | 0.2+ | 0.1− | 2008 10 06 | G96 | 0.2− | 0.2+ | |
| 2000 02 11 | 704 | 1.0+ | 1.1− | 2006 05 17 | 644 | 0.3− | 0.4+ | 2008 10 06 | G96 | 0.1+ | 0.4+ | |
| 2000 02 11 | 704 | 0.3+ | 0.5+ | 2006 05 26 | G96 | 0.0 | 0.3+ | 2008 10 06 | G96 | 0.1− | 0.1+ | |
| 2000 02 11 | 704 | 0.6+ | 0.3− | 2006 05 26 | G96 | 0.3− | 0.2+ | 2009 11 20 | A50 | 0.2+ | 0.2− | |
| 2000 02 11 | 704 | 0.2− | 0.0 | 2006 05 26 | G96 | 0.5− | 0.1+ | 2009 11 20 | A50 | 1.0+ | 0.2+ | |
| 2000 02 27 | 703 | 0.6− | 0.8− | 2006 05 26 | G96 | 0.1− | 0.2+ | 2009 11 21 | A50 | 0.3− | 0.1+ | |
| 2000 02 27 | 703 | 0.0 | 0.4+ | 2006 05 27 | 703 | 0.7+ | 0.7+ | 2009 12 11 | 703 | 0.5+ | 0.6+ | |
| 2000 02 27 | 703 | 0.3+ | 0.5+ | 2006 05 27 | 703 | 0.8− | 1.4+ | 2009 12 11 | 703 | 0.0 | 0.7− | |
| 2000 02 27 | 703 | 0.5+ | 0.5+ | 2006 05 27 | 703 | 1.2− | 0.7+ | 2009 12 11 | 703 | 1.0− | 0.5+ | |
| 2000 02 28 | 704 | 0.3− | 0.6+ | 2006 05 28 | 704 | 0.8+ | 1.0+ | 2009 12 11 | 703 | 1.1− | 0.5+ | |

**(228288)∗ 2000 BZ$_{33}$ = 2005 AY$_8$**

Discovered 2000 Jan. 30 by the Catalina Sky Survey.

Id. G. V. Williams (*MPO* 72058)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 328.65296 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18860626 | $\omega$ | 137.94348 | | −0.61687978 | −0.78700083 | |
| $a$ | 3.0113782 | $\Omega$ | 350.13248 | | +0.70664661 | −0.54853664 | |
| $e$ | 0.0943386 | $i$ | 3.15631 | | +0.34656877 | −0.28237785 | |
| $P$ | 5.23 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 01 30 | 703 | (0.6+ | 2.1+) | 2005 01 07 | 599 | 0.3− | 0.0 | 2008 09 06 | 691 | 0.0 | 0.8+ | |
| 2000 01 30 | 703 | 0.8− | 1.5+ | 2005 01 18 | 691 | 0.1+ | 0.2+ | 2008 09 06 | 691 | 0.0 | 0.1− | |
| 2000 01 30 | 703 | 0.7+ | 0.2+ | 2005 01 18 | 691 | 0.1+ | 0.1+ | 2008 09 06 | 691 | 0.0 | 0.0 | |
| 2000 01 30 | 703 | 0.4− | 0.0 | 2005 01 18 | 691 | 0.1+ | 0.0 | 2008 09 24 | 704 | (0.7− | 1.9+) | |
| 2000 02 03 | 704 | 0.7− | 0.5+ | 2005 01 19 | 704 | 0.9+ | 1.0+ | 2008 09 24 | 704 | 0.4− | 1.1+ | |
| 2000 02 03 | 704 | 0.1− | 0.3+ | 2005 01 19 | 704 | 0.1− | 0.3+ | 2008 09 24 | 704 | 0.5+ | 0.5+ | |
| 2000 02 03 | 704 | 0.0 | 0.0 | 2005 01 19 | 704 | 0.6+ | 1.2− | 2008 09 25 | G96 | 0.0 | 0.2− | |
| 2000 02 03 | 704 | 0.4− | 0.2+ | 2005 01 19 | 704 | 0.1+ | 0.0 | 2008 09 25 | G96 | 0.1+ | 0.2− | |
| 2000 02 03 | 704 | 0.9+ | 0.1− | 2005 01 19 | 704 | (1.8+ | 0.4−) | 2008 09 25 | G96 | 0.2+ | 0.5− | |
| 2000 02 11 | 704 | 0.1− | 0.2+ | 2005 01 19 | 704 | 0.6+ | 0.2− | 2008 09 25 | G96 | 0.2+ | 0.2− | |
| 2000 02 11 | 704 | 0.5− | 0.0 | 2005 01 19 | 704 | (1.7+ | 2.7−) | 2008 10 02 | G96 | 0.5+ | 0.3− | |
| 2000 02 11 | 704 | 0.6− | 1.3− | 2005 01 19 | 704 | 0.5+ | 0.7− | 2008 10 02 | G96 | 0.3+ | 0.4− | |
| 2000 02 11 | 704 | 0.6− | 0.9+ | 2006 04 21 | 703 | (0.5+ | 1.6+) | 2008 10 02 | G96 | 0.5+ | 0.2− | |
| 2000 02 11 | 704 | 0.1+ | 0.7− | 2006 04 21 | 703 | 0.3− | 0.7+ | 2008 10 02 | G96 | 0.9+ | 0.2− | |
| 2003 10 24 | 704 | 0.4− | 0.3− | 2006 04 21 | 703 | 0.5− | 0.6− | 2008 10 23 | G96 | 0.0 | 0.3− | |
| 2003 10 24 | 704 | 0.1− | 0.0 | 2006 04 21 | 703 | 0.7+ | 1.1+ | 2008 10 23 | G96 | 0.1+ | 0.6− | |
| 2003 10 24 | 704 | 0.0 | 0.1− | 2006 04 21 | 703 | (2.5+ | 0.9+) | 2008 10 23 | G96 | 0.3+ | 0.0 | |
| 2003 10 24 | 704 | 0.0 | 0.2+ | 2006 04 21 | 703 | 0.1+ | 0.5+ | 2008 10 23 | G96 | 0.0 | 0.1− | |
| 2003 10 24 | 704 | 0.1− | 0.3+ | 2006 04 21 | 703 | 0.9+ | 0.0 | 2008 11 24 | G96 | 0.0 | 0.3− | |
| 2004 12 15 | 691 | 0.0 | 0.2+ | 2006 04 21 | 703 | 0.1+ | 0.9+ | 2008 11 24 | G96 | 0.0 | 0.3− | |
| 2004 12 15 | 691 | 0.3− | 0.3+ | 2008 09 02 | 691 | 0.2− | 0.1+ | 2008 11 24 | G96 | 0.7+ | 0.2− | |
| 2004 12 15 | 691 | 0.2− | 0.2+ | 2008 09 02 | 691 | 0.1− | 0.4+ | 2008 11 24 | G96 | 0.2+ | 0.2− | |
| 2005 01 07 | 704 | 1.5+ | 0.1+ | 2008 09 02 | 691 | 0.4− | 0.3− | 2009 11 26 | 691 | 0.3− | 1.0+ | |
| 2005 01 07 | 704 | 1.0+ | 0.5− | 2008 09 02 | 691 | 0.0 | 0.1+ | 2009 11 26 | 691 | 0.1+ | 0.3− | |
| 2005 01 07 | 704 | (1.6+ | 0.0 ) | 2008 09 02 | 691 | 0.0 | 0.1+ | 2009 11 26 | 691 | 0.1− | 0.4− | |
| 2005 01 07 | 704 | 1.5+ | 0.2+ | 2008 09 02 | 691 | 0.1− | 0.0 | 2009 12 26 | 691 | 0.4− | 0.6− | |
| 2005 01 07 | 704 | 1.6+ | 0.2− | 2008 09 06 | 691 | 0.4− | 0.6+ | 2009 12 26 | 691 | 0.2− | 0.3− | |
| 2005 01 07 | 599 | 0.2+ | 0.1+ | 2008 09 06 | 691 | 0.0 | 0.1+ | 2009 12 26 | 691 | 0.0 | 0.0 | |
| 2005 01 07 | 599 | 0.2− | 0.3+ | 2008 09 06 | 691 | 0.0 | 0.2− | | | | | |

**(228289)∗ 2000 BG$_{34}$ = 2002 XG$_{22}$ = 2005 TN$_{193}$**

Discovered 2000 Jan. 30 by the Catalina Sky Survey.

Id. M. E. Sansaturio (*MPO* 42918), A. Doppler (*MPO* 125798)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 313.24756 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.29126088 | $\omega$ | 151.32012 | | −0.95207826 | −0.30575356 | |
| $a$ | 2.2539690 | $\Omega$ | 10.88502 | | +0.27207290 | −0.85837942 | |
| $e$ | 0.0864367 | $i$ | 2.38505 | | +0.13972592 | −0.41194603 | |
| $P$ | 3.38 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 10 23 | 691 | 0.3− | 0.3− | 2006 11 18 | G96 | 0.0 | 0.4− | 2007 03 26 | G96 | 0.4− | 0.2− | |
| 1995 10 23 | 691 | 0.3+ | 0.1− | 2006 11 18 | G96 | 0.4− | 0.4− | 2007 03 26 | G96 | 0.3− | 0.0 | |
| 1995 10 23 | 691 | 0.3− | 0.7− | 2006 11 18 | G96 | 0.2− | 0.5− | 2007 04 07 | G96 | 0.3− | 0.0 | |
| 2000 01 30 | 703 | 0.7− | 0.2+ | 2007 02 21 | 691 | 0.0 | 0.2+ | 2007 04 07 | G96 | 0.3− | 0.6− | |
| 2000 01 30 | 703 | (1.4− | 2.5+) | 2007 02 21 | 691 | 0.3− | 0.1+ | 2007 04 07 | G96 | 0.1− | 0.2− | |
| 2000 01 30 | 703 | 0.0 | 0.2+ | 2007 02 21 | 691 | 0.1+ | 0.2+ | 2007 04 07 | G96 | 0.1+ | 0.3− | |
| 2000 01 30 | 703 | 0.4− | 0.0 | 2007 03 09 | 691 | 0.1+ | 0.1− | 2007 04 23 | G96 | 0.0 | 0.2− | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 02 03 | 704 | 1.1+ | 0.2+ | 2007 03 09 | 691 | 0.1− | 0.1+ | 2007 04 23 | G96 | 0.5+ | 0.3− | | |
| 2000 02 03 | 704 | 0.2+ | 0.9+ | 2007 03 09 | 691 | 0.3− | 0.1+ | 2007 04 23 | G96 | 0.1− | 0.2− | | |
| 2000 02 03 | 704 | 1.5+ | 0.2+ | 2007 03 09 | G96 | 0.3+ | 0.0 | 2007 04 23 | G96 | 0.1− | 0.2− | | |
| 2000 02 03 | 704 | 0.4− | 1.1− | 2007 03 09 | G96 | 0.2+ | 0.0 | 2007 05 10 | G96 | 0.1+ | 0.1− | | |
| 2002 12 03 | 644 | 0.1− | 0.3+ | 2007 03 09 | G96 | 0.3− | 0.0 | 2007 05 10 | G96 | 0.2− | 0.3− | | |
| 2002 12 03 | 644 | 0.8+ | 0.6+ | 2007 03 09 | G96 | 0.2− | 0.3− | 2007 05 10 | G96 | 0.3+ | 0.2− | | |
| 2002 12 03 | 644 | 0.5+ | 0.9+ | 2007 03 16 | G96 | 0.2− | 0.2+ | 2007 05 10 | G96 | 0.0 | 0.5− | | |
| 2002 12 06 | 704 | 0.3− | 0.5+ | 2007 03 16 | G96 | 0.0 | 0.1+ | 2009 11 21 | G96 | 0.2− | 1.1− | | |
| 2002 12 06 | 704 | 0.1+ | 0.6+ | 2007 03 16 | G96 | 0.3+ | 0.1− | 2009 11 21 | G96 | 0.1− | 0.6− | | |
| 2002 12 06 | 704 | 0.5+ | 1.6+ | 2007 03 16 | G96 | 0.1+ | 0.1+ | 2009 11 21 | G96 | 0.3+ | 0.2− | | |
| 2002 12 06 | 704 | 0.0 | 0.8+ | 2007 03 17 | 704 | 1.1+ | 0.6+ | 2009 11 21 | G96 | 0.3+ | 0.1− | | |
| 2002 12 06 | 704 | (0.6− | 1.7+) | 2007 03 17 | 704 | 0.1+ | 1.1− | 2009 12 19 | G96 | 0.1+ | 0.5− | | |
| 2005 10 07 | 691 | 0.1− | 0.6+ | 2007 03 17 | 704 | 0.1− | 0.2+ | 2009 12 19 | 691 | 0.1− | 0.1− | | |
| 2005 10 07 | 691 | 0.1+ | 0.0 | 2007 03 17 | 704 | 0.3+ | 0.5+ | 2009 12 19 | G96 | 0.2− | 0.3− | | |
| 2005 10 07 | 691 | 0.1+ | 0.1+ | 2007 03 17 | 704 | 0.2+ | 0.8+ | 2009 12 19 | G96 | 0.1+ | 0.0 | | |
| 2005 10 25 | G96 | 0.2+ | 0.1+ | 2007 03 26 | 691 | 0.0 | 0.0 | 2009 12 19 | G96 | 0.1− | 0.4− | | |
| 2005 10 25 | G96 | 0.2− | 0.0 | 2007 03 26 | 691 | 0.2+ | 0.0 | 2009 12 19 | 691 | 0.3− | 0.0 | | |
| 2005 10 25 | G96 | 0.1+ | 0.1+ | 2007 03 26 | 691 | 0.1+ | 0.3+ | 2009 12 19 | 691 | 0.4− | 0.1− | | |
| 2005 10 25 | G96 | 0.1− | 0.2− | 2007 03 26 | G96 | 0.3− | 0.1+ | | | | | | |
| 2006 11 18 | G96 | 0.2− | 0.5− | 2007 03 26 | G96 | 0.1− | 0.1+ | | | | | | |

### (228290)∗ 2000 $CS_{69}$ = 2009 $WP_{73}$

Discovered 2000 Feb. 1 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 165305)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 18.78375 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.08019663 | $\omega$ | 87.89585 | | +0.74109170 | −0.66805386 | |
| $a$ | 5.3255602 | $\Omega$ | 314.01235 | | +0.57302843 | +0.68134274 | |
| $e$ | 0.0609812 | $i$ | 5.34433 | | +0.34988785 | +0.29912557 | |
| $P$ | 12.29 | $H$ | 14.1 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 01 13 | 691 | 0.4− | 0.1− | 2007 10 12 | G96 | 0.5+ | 0.1− | 2009 11 18 | 291 | 0.2− | 0.2+ |
| 2000 01 13 | 691 | 0.1+ | 0.5+ | 2007 10 12 | G96 | 0.0 | 0.5− | 2009 11 22 | G96 | 0.2+ | 0.3+ |
| 2000 01 13 | 691 | 0.4− | 0.2+ | 2008 10 19 | 291 | 0.4− | 0.4+ | 2009 11 22 | G96 | 0.1+ | 0.3− |
| 2000 02 01 | 691 | 0.3+ | 0.3− | 2008 10 19 | 291 | 0.1− | 0.4+ | 2009 11 22 | G96 | 0.1+ | 0.3− |
| 2000 02 01 | 691 | 0.9+ | 0.1− | 2008 10 19 | 291 | 0.4− | 0.5+ | 2009 11 22 | G96 | 0.4+ | 0.2− |
| 2000 02 01 | 691 | 0.0 | 0.1− | 2008 10 29 | G96 | 0.0 | 0.6− | 2009 11 27 | 691 | 0.1+ | 0.4+ |
| 2000 02 07 | 691 | 0.0 | 0.1+ | 2008 10 29 | G96 | 0.6+ | 0.1− | 2009 11 27 | 691 | 0.1− | 0.1+ |
| 2000 02 07 | 691 | 0.2− | 0.2− | 2008 10 29 | G96 | 0.5+ | 0.5− | 2009 11 27 | 691 | 0.1+ | 1.1− |
| 2000 02 07 | 691 | 0.4− | 0.1− | 2008 10 29 | G96 | 0.4+ | 0.5− | 2009 12 19 | G96 | 0.1− | 0.6+ |
| 2007 09 14 | 691 | 0.1+ | 0.4− | 2009 11 09 | G96 | 0.0 | 0.1− | 2009 12 19 | G96 | 0.3+ | 0.2− |
| 2007 09 14 | 691 | 0.2+ | 0.2− | 2009 11 09 | G96 | 0.1+ | 0.0 | 2009 12 19 | G96 | 0.7+ | 0.5+ |
| 2007 09 14 | 691 | 0.1− | 0.2− | 2009 11 09 | G96 | 0.3+ | 0.2+ | 2009 12 19 | G96 | 0.5+ | 0.5+ |
| 2007 10 12 | G96 | 0.4+ | 0.2− | 2009 11 18 | 291 | 0.2− | 0.1− | | | | |
| 2007 10 12 | G96 | 0.0 | 0.2+ | 2009 11 18 | 291 | 0.2− | 0.2− | | | | |

### (228291)∗ 2000 $CX_{95}$ = 2005 $QD_{139}$

Discovered 2000 Feb. 10 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 84534)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 345.38874 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.29265953 | $\omega$ | 354.22442 | | −0.54840335 | −0.83602277 | |
| $a$ | 2.2467820 | $\Omega$ | 129.03170 | | +0.76812974 | −0.51208837 | |
| $e$ | 0.1443424 | $i$ | 1.31893 | | +0.33050034 | −0.19705691 | |
| $P$ | 3.37 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 10 01 | 691 | 0.3− | 0.1− | 2005 09 01 | 691 | 0.0 | 0.2+ | 2007 03 16 | 699 | 0.9+ | 1.4− |
| 1995 10 01 | 691 | 0.2− | 0.4− | 2005 09 01 | 691 | 0.2+ | 0.0 | 2007 03 17 | 704 | 1.3+ | 0.3+ |
| 1995 10 01 | 691 | 0.1− | 0.4− | 2005 09 01 | 691 | 0.2+ | 0.1+ | 2007 03 17 | 704 | 0.5+ | 0.1+ |
| 2000 01 04 | 691 | 0.6− | 1.3− | 2005 09 11 | 691 | 0.2− | 0.4+ | 2007 03 17 | 704 | (0.0 | 1.6−) |
| 2000 01 04 | 691 | 0.6− | 0.2− | 2005 09 11 | 691 | 0.3− | 0.6+ | 2008 07 30 | G96 | 0.3+ | 0.4− |
| 2000 01 04 | 691 | 0.7− | 0.6− | 2005 09 11 | 691 | 0.2− | 0.9+ | 2008 07 30 | G96 | 0.2+ | 0.0 |
| 2000 02 03 | 704 | 0.1+ | 0.2+ | 2007 02 25 | G96 | 0.1+ | 0.4+ | 2008 07 30 | G96 | 0.5+ | 0.0 |
| 2000 02 03 | 704 | 0.7− | 0.2+ | 2007 02 25 | G96 | 0.0 | 0.1− | 2008 07 30 | G96 | 0.4+ | 0.6− |
| 2000 02 03 | 704 | 0.2+ | 0.9+ | 2007 02 25 | G96 | 0.2− | 0.1+ | 2009 11 18 | G96 | 0.2− | 0.1+ |
| 2000 02 03 | 704 | (1.6− | 2.0+) | 2007 02 25 | G96 | 0.5− | 0.1+ | 2009 11 18 | G96 | 0.3− | 0.1+ |
| 2000 02 03 | 704 | 0.3+ | 0.1+ | 2007 03 09 | G96 | 0.2+ | 0.1+ | 2009 11 18 | G96 | 0.1− | 0.2+ |
| 2000 02 10 | 691 | 0.7+ | 0.4+ | 2007 03 09 | G96 | 0.0 | 0.2+ | 2009 11 18 | G96 | 0.3− | 0.0 |
| 2000 02 10 | 691 | 0.7+ | 0.2+ | 2007 03 09 | G96 | 0.2+ | 0.3+ | 2009 12 17 | 704 | 0.7+ | 0.3− |
| 2000 02 10 | 691 | 1.0+ | 0.4− | 2007 03 09 | G96 | 0.1− | 0.2+ | 2009 12 17 | 704 | 0.2+ | 0.0 |
| 2000 02 12 | 691 | 0.0 | 0.1+ | 2007 03 14 | 691 | 0.4− | 0.7+ | 2009 12 17 | 704 | 0.6+ | 1.2+ |
| 2000 02 12 | 691 | 0.1− | 0.1+ | 2007 03 14 | 691 | 0.3− | 0.3+ | 2009 12 17 | 704 | 0.2+ | 0.3+ |
| 2000 02 12 | 691 | 0.2− | 0.0 | 2007 03 14 | 691 | 0.1− | 0.2+ | 2009 12 17 | 704 | 0.9+ | 0.3+ |
| 2005 08 28 | 691 | 0.1+ | 0.2− | 2007 03 16 | 699 | 0.3+ | 0.2+ | 2009 12 20 | 691 | 0.2− | 0.3+ |
| 2005 08 28 | 691 | 0.1− | 0.0 | 2007 03 16 | 699 | (1.9+ | 0.7−) | 2009 12 20 | 691 | 0.2− | 0.3+ |
| 2005 08 28 | 691 | 0.2+ | 0.4+ | 2007 03 16 | 699 | (1.3+ | 1.8+) | 2009 12 20 | 691 | 0.2− | 0.2+ |

### (228292)∗ 2000 $DS_{10}$

Discovered 2000 Feb. 26 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 335.94063 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18504536 | $\omega$ | 296.01261 | | −0.14444971 | −0.98950825 | |
| $a$ | 3.0498882 | $\Omega$ | 162.29215 | | +0.91108974 | −0.13409514 | |
| $e$ | 0.2150062 | $i$ | 0.52271 | | +0.38606964 | −0.05377649 | |
| $P$ | 5.33 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 10 12 | 691 | 0.0 | 0.1+ | 2000 03 02 | 691 | 0.4− | 0.2+ | 2009 11 08 | G96 | 0.4+ | 0.1− |
| 1998 10 12 | 691 | 0.0 | 0.2− | 2000 03 04 | 691 | 0.6+ | 0.2− | 2009 11 11 | J75 | 0.9+ | 0.4+ |
| 1998 10 12 | 691 | 0.0 | 0.1− | 2000 03 04 | 691 | 0.6+ | 0.0 | 2009 11 11 | J75 | 0.3+ | 0.1+ |
| 2000 02 11 | 691 | 0.1− | 0.1+ | 2000 03 04 | 691 | 0.6+ | 0.5− | 2009 11 11 | J75 | 0.9− | 0.5− |
| 2000 02 11 | 691 | 0.1− | 0.1− | 2006 04 19 | G96 | 0.4+ | 0.7− | 2009 11 18 | 704 | 0.0 | 0.5− |
| 2000 02 11 | 691 | 0.1− | 0.2− | 2006 04 19 | G96 | 0.0 | 0.3+ | 2009 11 18 | 704 | 1.0+ | 0.9− |
| 2000 02 26 | 691 | 0.3− | 0.0 | 2006 04 19 | G96 | 0.2− | 0.4+ | 2009 11 18 | 704 | 0.1+ | 0.7+ |
| 2000 02 26 | 691 | 0.1− | 0.1− | 2006 04 19 | G96 | 0.0 | 0.1+ | 2009 11 18 | 704 | 0.3− | 0.3+ |
| 2000 02 26 | 691 | 1.2− | 0.5+ | 2006 05 05 | G96 | 0.4− | 0.3+ | 2009 11 23 | 703 | 0.2− | 0.4+ |
| 2000 02 29 | 704 | 0.1+ | 0.3+ | 2006 05 05 | G96 | 0.5+ | 0.0 | 2009 11 23 | 703 | 0.8− | 0.4+ |
| 2000 02 29 | 704 | 0.7− | 0.4+ | 2006 05 05 | G96 | 0.3+ | 0.4− | 2009 11 23 | 703 | 0.3− | 1.0+ |
| 2000 02 29 | 704 | 0.2+ | 0.9+ | 2006 05 05 | G96 | 1.0− | 1.1− | 2009 11 23 | 703 | 0.5+ | 0.3− |
| 2000 02 29 | 704 | 0.0 | 0.6+ | 2009 10 18 | G96 | 0.2+ | 0.1− | 2009 11 23 | 703 | 0.1− | 0.1+ |
| 2000 02 29 | 704 | 0.6− | 1.8+ | 2009 10 18 | G96 | 0.2+ | 0.1− | 2009 11 25 | G96 | 0.2− | 0.0 |
| 2000 03 02 | 691 | 0.2+ | 0.3+ | 2009 10 18 | G96 | 0.1+ | 0.1− | 2009 11 25 | G96 | 0.2− | 0.1− |
| 2000 03 02 | 691 | 0.2− | 0.1− | 2009 10 18 | G96 | 0.6+ | 0.2− | 2009 11 25 | G96 | 0.2− | 0.2− |
| 2000 03 02 | 691 | 0.1+ | 0.0 | 2009 10 23 | 691 | 0.2− | 0.1− | 2009 11 25 | G96 | 0.3+ | 0.1− |
| 2000 03 02 | 691 | 0.2+ | 0.5− | 2009 10 23 | 691 | 0.1− | 0.0 | 2009 12 15 | G96 | 0.0 | 0.2+ |
| 2000 03 02 | 691 | 0.1− | 0.1− | 2009 10 23 | 691 | 0.0 | 0.1− | 2009 12 15 | G96 | 0.1+ | 0.2+ |
| 2000 03 02 | 691 | 0.4+ | 0.5− | 2009 11 08 | G96 | 0.1+ | 0.1− | 2009 12 15 | G96 | 0.1+ | 0.2+ |
| 2000 03 02 | 691 | 0.1+ | 0.1− | 2009 11 08 | G96 | 0.4+ | 0.1− | 2009 12 15 | G96 | 0.2− | 0.2+ |
| 2000 03 02 | 691 | 0.0 | 0.1− | 2009 11 08 | G96 | 0.0 | 0.0 | | | | |

### (228293)∗ 2000 $DK_{14}$ = 2004 $YG_5$

Discovered 2000 Feb. 28 by Spacewatch at Kitt Peak.

Id. A. Doppler (*MPO* 74733)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 238.81566 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17664700 | $\omega$ | 196.54122 | | −0.82223474 | +0.56914473 | |
| $a$ | 3.1458056 | $\Omega$ | 18.14985 | | −0.52142546 | −0.75182246 | |
| $e$ | 0.2018979 | $i$ | 0.38208 | | −0.22813489 | −0.33292232 | |
| $P$ | 5.58 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 02 28 | 691 | 0.4− | 0.2− | 2006 01 27 | G96 | 0.5− | 0.2− | 2006 05 01 | 704 | 0.9+ | 0.3+ |
| 2000 02 28 | 691 | 0.4− | 0.4− | 2006 01 27 | G96 | 0.0 | 0.0 | 2006 05 01 | 704 | 0.7+ | 0.3+ |
| 2000 02 28 | 691 | 0.5− | 0.3− | 2006 01 27 | G96 | 0.2− | 0.4+ | 2006 05 01 | 704 | 0.9+ | 0.2+ |
| 2000 03 02 | 691 | 0.7− | 0.3− | 2006 02 22 | G96 | 1.1− | 0.2− | 2006 05 04 | G96 | 0.8− | 0.0 |
| 2000 03 02 | 691 | 0.5− | 0.3− | 2006 02 22 | G96 | 0.3− | 0.0 | 2006 05 04 | G96 | 0.7− | 0.2+ |
| 2000 03 02 | 691 | 0.5− | 0.3− | 2006 02 22 | G96 | 0.3+ | 0.3− | 2006 05 04 | G96 | 0.0 | 0.0 |
| 2000 03 03 | 704 | 0.0 | 1.1+ | 2006 02 22 | G96 | 0.2− | 0.1+ | 2006 05 25 | 644 | 0.0 | 0.0 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 03 03 | 704 | 0.3+ | 0.2+ | 2006 03 25 | G96 | 0.5− | 0.0 | 2006 05 25 | 644 | 0.1− | 0.1− | | |
| 2000 03 03 | 704 | 0.6+ | 0.9+ | 2006 03 25 | G96 | 0.2− | 0.0 | 2006 05 25 | 644 | 0.4− | 0.3+ | | |
| 2000 03 03 | 704 | 0.2+ | 1.4+ | 2006 03 25 | G96 | 0.6− | 0.0 | 2007 09 11 | G96 | 0.4− | 0.5+ | | |
| 2000 03 03 | 704 | 0.3+ | 1.0+ | 2006 03 25 | G96 | 0.2− | 0.1− | 2007 09 11 | G96 | 0.3+ | 0.3+ | | |
| 2000 03 04 | 704 | 0.4+ | 0.6+ | 2006 04 09 | 691 | 0.2+ | 0.1+ | 2007 09 11 | G96 | 0.0 | 0.1+ | | |
| 2000 03 04 | 704 | 0.5+ | 0.7+ | 2006 04 09 | 691 | 0.1+ | 0.2+ | 2007 09 11 | G96 | 0.3− | 0.1+ | | |
| 2000 03 04 | 704 | 0.7+ | 0.7+ | 2006 04 09 | 691 | 0.0 | 0.2+ | 2008 10 21 | G96 | 0.4− | 0.6+ | | |
| 2000 03 04 | 704 | 0.3+ | 0.5+ | 2006 04 19 | 699 | 0.2+ | 1.0+ | 2008 10 21 | G96 | 0.7+ | 0.4+ | | |
| 2000 03 04 | 704 | 1.1+ | 0.6+ | 2006 04 19 | 699 | 0.2+ | 0.1+ | 2008 10 21 | G96 | 0.6+ | 0.8+ | | |
| 2000 03 04 | 691 | 0.1− | 0.6− | 2006 04 19 | 699 | 0.5+ | 0.8− | 2008 10 21 | G96 | 1.2+ | 0.2− | | |
| 2000 03 04 | 691 | 0.3− | 0.8− | 2006 04 19 | 699 | (0.6+ | 1.7+) | 2008 10 24 | G96 | 0.0 | 0.3− | | |
| 2000 03 04 | 691 | 0.3− | 0.9− | 2006 04 19 | G96 | 0.2− | 0.1+ | 2008 10 24 | G96 | 0.4− | 0.0 | | |
| 2000 03 05 | 704 | 1.9+ | 1.6+ | 2006 04 19 | G96 | 0.5− | 0.1+ | 2008 10 24 | G96 | 0.5− | 0.3+ | | |
| 2000 03 05 | 704 | 0.8+ | 0.4− | 2006 04 19 | G96 | 0.2− | 0.1− | 2008 10 24 | G96 | 0.7− | 0.2+ | | |
| 2000 03 05 | 704 | 0.5+ | 0.4+ | 2006 04 19 | G96 | 0.2− | 0.2+ | 2009 11 24 | 691 | 0.6− | 0.1+ | | |
| 2000 03 05 | 704 | (2.8+ | 1.3−) | 2006 04 24 | 704 | 0.0 | 0.6+ | 2009 11 24 | 691 | 0.1− | 0.1+ | | |
| 2000 03 05 | 704 | 1.3+ | 1.4− | 2006 04 24 | 704 | 0.7+ | 0.8+ | 2009 11 24 | 691 | 0.8− | 0.1+ | | |
| 2000 03 11 | 699 | 0.7+ | 0.1− | 2006 04 24 | 704 | 0.1− | 0.3+ | 2009 12 10 | G96 | 0.6+ | 0.2+ | | |
| 2000 03 11 | 704 | 0.1− | 0.2− | 2006 04 24 | 704 | (1.1− | 1.6+) | 2009 12 10 | G96 | 0.2+ | 0.2− | | |
| 2000 03 11 | 699 | 1.2+ | 0.6− | 2006 04 25 | 644 | 0.1− | 0.3+ | 2009 12 10 | G96 | 0.1− | 0.1− | | |
| 2000 03 11 | 704 | 0.1+ | 0.4+ | 2006 04 25 | 644 | 0.1+ | 0.1+ | 2009 12 10 | G96 | 0.3+ | 0.0 | | |
| 2000 03 11 | 699 | 0.2+ | 0.8+ | 2006 04 25 | 644 | 0.0 | 0.1+ | 2009 12 15 | G96 | 1.2+ | 0.3+ | | |
| 2000 03 11 | 704 | 0.6− | 0.5+ | 2006 04 28 | 704 | 1.1+ | 0.0 | 2009 12 15 | G96 | 0.2+ | 0.1− | | |
| 2000 03 11 | 704 | 0.2+ | 0.9+ | 2006 04 28 | 704 | 0.4− | 1.2+ | 2009 12 15 | G96 | 0.9− | 0.8− | | |
| 2000 03 11 | 699 | 0.1+ | 0.5+ | 2006 04 28 | 704 | 0.5− | 0.1+ | 2009 12 15 | G96 | 0.3− | 0.6+ | | |
| 2000 03 11 | 704 | 0.4− | 0.4+ | 2006 04 28 | 704 | 0.4+ | 0.4+ | 2009 12 15 | G96 | 0.8+ | 0.1− | | |
| 2004 12 16 | 691 | 0.6+ | 0.2+ | 2006 04 28 | 704 | 0.9+ | 0.1− | 2009 12 15 | G96 | 0.3− | 0.1+ | | |
| 2004 12 16 | 691 | 0.2+ | 0.4+ | 2006 04 30 | 699 | 1.0+ | 0.2+ | 2009 12 15 | G96 | 0.4+ | 0.3+ | | |
| 2004 12 16 | 691 | 0.4+ | 0.0 | 2006 04 30 | 699 | 0.2+ | 0.4+ | 2009 12 15 | G96 | 0.2+ | 0.1+ | | |
| 2004 12 20 | 621 | (1.6+ | 0.7−) | 2006 04 30 | 699 | (1.5+ | 1.0+) | 2009 12 20 | 291 | 0.0 | 0.4+ | | |
| 2004 12 20 | 621 | 0.5+ | 0.0 | 2006 04 30 | 699 | 1.4+ | 1.4+ | 2009 12 20 | 291 | 0.3− | 0.4+ | | |
| 2004 12 20 | 621 | 0.2− | 0.2+ | 2006 05 01 | 704 | 0.9+ | 0.7+ | 2009 12 20 | 291 | 0.2− | 0.6+ | | |
| 2006 01 27 | G96 | 0.1+ | 0.2− | 2006 05 01 | 704 | 0.1+ | 0.9+ | | | | | | |

**(228294)∗ 2000 $DT_{52}$ = 2002 $XE_{31}$**

Discovered 2000 Feb. 29 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 40054)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 13.27232 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28748064 | $\omega$ | 119.80624 | | +0.07808710 | −0.99630363 | |
| $a$ | 2.2736851 | $\Omega$ | 325.65844 | | +0.89138188 | +0.08585444 | |
| $e$ | 0.1386895 | $i$ | 3.63826 | | +0.44647593 | +0.00284309 | |
| $P$ | 3.43 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 02 11 | 691 | 0.3− | 0.1+ | 2002 12 07 | 704 | 0.3− | 0.2− | 2005 09 13 | 691 | 0.1+ | 0.0 | | |
| 2000 02 11 | 691 | 0.1− | 0.2+ | 2002 12 07 | 704 | 0.1+ | 0.7− | 2005 09 13 | 691 | 0.1− | 0.0 | | |
| 2000 02 11 | 691 | 0.1− | 0.0 | 2002 12 07 | 704 | 0.4− | 0.3− | 2005 09 13 | 691 | 0.0 | 0.0 | | |
| 2000 02 29 | 704 | 0.1− | 0.1− | 2002 12 07 | 704 | 0.2− | 0.6− | 2005 09 30 | 691 | 0.3− | 0.1− | | |
| 2000 02 29 | 704 | 0.3+ | 0.3+ | 2002 12 11 | 704 | (1.7− | 0.4−) | 2005 09 30 | 691 | 0.0 | 0.2+ | | |
| 2000 02 29 | 704 | 0.5− | 1.2+ | 2002 12 11 | 704 | 0.4− | 0.2+ | 2005 09 30 | 691 | 0.4− | 0.1+ | | |
| 2000 02 29 | 704 | 0.1+ | 0.4+ | 2002 12 11 | 704 | 0.1+ | 0.3− | 2007 03 12 | 691 | 0.1+ | 0.5+ | | |
| 2000 03 03 | 704 | 0.3− | 1.1+ | 2002 12 14 | 704 | 0.4− | 0.8+ | 2007 03 12 | 691 | 0.0 | 0.2+ | | |
| 2000 03 03 | 704 | 0.7+ | 0.5− | 2002 12 14 | 704 | 0.8− | 1.1+ | 2007 03 12 | 691 | 0.2− | 0.1+ | | |
| 2000 03 03 | 704 | 0.7+ | 0.6+ | 2002 12 14 | 704 | 0.3+ | 0.6+ | 2007 03 19 | 703 | (1.6− | 1.5−) | | |
| 2000 03 03 | 704 | 0.4+ | 0.4− | 2002 12 14 | 704 | 0.2+ | 0.3+ | 2007 03 19 | 703 | (2.1− | 0.7−) | | |
| 2000 03 03 | 704 | 0.4+ | 0.3− | 2002 12 14 | 704 | (2.1− | 0.9−) | 2007 03 19 | 703 | (1.8− | 0.1+) | | |
| 2000 03 11 | 704 | 1.1+ | 0.1− | 2003 01 05 | 704 | 0.1+ | 0.6− | 2007 03 19 | 703 | 0.2+ | 0.5− | | |
| 2000 03 11 | 704 | 0.8+ | 0.2− | 2003 01 05 | 704 | 1.1+ | 1.3− | 2009 12 10 | 704 | 0.3+ | 0.7+ | | |
| 2000 03 11 | 704 | 0.7+ | 0.2− | 2003 01 05 | 704 | 0.9+ | 1.1− | 2009 12 10 | 704 | 1.2+ | 0.4+ | | |
| 2000 03 11 | 704 | 0.7+ | 0.9+ | 2003 01 05 | 704 | 0.5+ | 1.2− | 2009 12 10 | 704 | 0.1− | 0.5+ | | |
| 2002 08 13 | 291 | 0.3− | 0.1− | 2003 01 05 | 704 | 0.1+ | 0.8− | 2009 12 10 | 704 | 0.1− | 0.8+ | | |
| 2002 08 13 | 291 | 0.6− | 0.1+ | 2005 08 27 | 644 | 0.1+ | 0.3+ | 2009 12 16 | 704 | 0.3− | 0.0 | | |
| 2002 08 13 | 291 | 0.1− | 0.1+ | 2005 08 27 | 644 | 0.2+ | 0.2+ | 2009 12 16 | 704 | 0.5− | 1.1+ | | |
| 2002 12 06 | 704 | 0.3+ | 0.2− | 2005 08 27 | 644 | 0.0 | 0.3+ | 2009 12 16 | 704 | 0.3− | 0.2− | | |
| 2002 12 06 | 704 | 0.5+ | 0.5+ | 2005 08 30 | 691 | 0.2+ | 0.4+ | 2009 12 16 | 704 | 0.1+ | 0.9− | | |
| 2002 12 06 | 704 | 0.1− | 0.1+ | 2005 08 30 | 691 | 0.1+ | 0.5+ | 2009 12 16 | 704 | 0.9+ | 0.1+ | | |
| 2002 12 06 | 704 | 0.1− | 0.4+ | 2005 08 30 | 691 | 0.1− | 0.3+ | | | | | | |

**(228295)∗ 2000 $DV_{60}$ = 2007 $BN_{24}$**

Discovered 2000 Feb. 29 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 113747)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 235.96362 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27294777 | $\omega$ | 70.81421 | | −0.96691203 | +0.25351993 | |
| $a$ | 2.3536923 | $\Omega$ | 123.86221 | | −0.24503632 | −0.89192499 | |
| $e$ | 0.1312707 | $i$ | 1.96265 | | −0.07098120 | −0.37442950 | |
| $P$ | 3.61 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 02 29 | 704 | 0.7− | 1.2+ | 2005 10 24 | 691 | 0.7− | 1.0+ | 2007 02 06 | G96 | 0.0 | 0.2− | | |
| 2000 02 29 | 704 | 0.6+ | 0.5− | 2005 10 24 | 691 | 1.2− | 0.9+ | 2007 02 06 | G96 | 0.1− | 0.2− | | |
| 2000 02 29 | 704 | 0.8− | 0.0 | 2007 01 08 | G96 | 0.2− | 0.0 | 2007 02 22 | G96 | 0.1− | 0.3− | | |
| 2000 03 03 | 704 | 0.5− | 0.1+ | 2007 01 08 | G96 | 0.0 | 0.6− | 2007 02 22 | G96 | 0.2− | 0.2− | | |
| 2000 03 03 | 704 | 0.1+ | 0.6+ | 2007 01 08 | G96 | 0.2− | 0.3+ | 2007 02 22 | G96 | 0.2− | 0.2− | | |
| 2000 03 03 | 704 | 0.4+ | 0.0 | 2007 01 08 | G96 | 0.1− | 0.3− | 2007 02 22 | G96 | 0.2+ | 0.4− | | |
| 2000 03 03 | 704 | 0.0 | 0.4+ | 2007 01 17 | 691 | 0.3− | 0.4+ | 2007 03 21 | G96 | 0.3+ | 0.3+ | | |
| 2000 03 03 | 704 | 0.4+ | 0.4+ | 2007 01 17 | 691 | 0.0 | 0.3+ | 2007 03 21 | G96 | 0.6+ | 0.1+ | | |
| 2000 03 11 | 704 | 0.6+ | 0.2+ | 2007 01 17 | 691 | 0.2− | 0.1+ | 2007 03 21 | G96 | 0.2+ | 0.3+ | | |
| 2000 03 11 | 704 | 0.5+ | 0.2+ | 2007 01 24 | G96 | 0.2+ | 0.2− | 2007 03 21 | G96 | 0.4+ | 0.1+ | | |
| 2000 03 11 | 704 | 0.2+ | 0.3+ | 2007 01 24 | G96 | 0.1+ | 0.3− | 2009 10 23 | G96 | 0.5+ | 0.3+ | | |
| 2000 03 12 | 704 | 0.9+ | 0.5+ | 2007 01 24 | G96 | 0.1+ | 0.4− | 2009 10 23 | G96 | 1.0− | 1.1− | | |
| 2000 03 12 | 704 | 0.3+ | 0.1− | 2007 01 24 | G96 | 0.0 | 0.2− | 2009 10 23 | G96 | 0.4− | 0.0 | | |
| 2000 03 12 | 704 | 0.2− | 0.5− | 2007 01 24 | 703 | (1.6+ | 1.0−) | 2009 10 23 | G96 | 0.7+ | 0.0 | | |
| 2004 04 30 | 691 | 0.2+ | 0.5+ | 2007 01 24 | 703 | 0.5+ | 0.3+ | 2009 11 17 | G96 | 0.8+ | 0.2− | | |
| 2004 04 30 | 691 | 0.1+ | 0.2+ | 2007 01 24 | 703 | 0.5+ | 0.5− | 2009 11 17 | G96 | 0.7+ | 0.4+ | | |
| 2004 04 30 | 691 | 0.1− | 0.1+ | 2007 01 24 | 703 | 0.5+ | 0.5− | 2009 11 17 | G96 | 0.3+ | 0.1+ | | |
| 2005 10 01 | 705 | 0.7+ | 0.2+ | 2007 01 25 | 691 | 0.4− | 0.2+ | 2009 11 17 | G96 | 0.3+ | 0.2+ | | |
| 2005 10 01 | 705 | 0.6+ | 0.1+ | 2007 01 25 | 691 | 0.1− | 0.4+ | 2009 12 19 | G96 | 0.6+ | 0.6− | | |
| 2005 10 21 | 705 | 0.6+ | 0.3+ | 2007 01 25 | 691 | 0.2+ | 0.4+ | 2009 12 19 | G96 | 0.2+ | 0.1− | | |
| 2005 10 21 | 705 | 0.8+ | 0.1+ | 2007 02 06 | G96 | 0.3+ | 0.2− | 2009 12 19 | G96 | 0.9+ | 0.6− | | |
| 2005 10 24 | 691 | 0.3− | 0.2+ | 2007 02 06 | G96 | 0.2− | 0.2− | 2009 12 19 | G96 | 0.7+ | 0.7− | | |

**(228296)∗ 2000 $DD_{95}$ = 2007 $AX_3$**

Discovered 2000 Feb. 28 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 113748)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 291.51673 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27638934 | $\omega$ | 123.89534 | | −0.60972892 | −0.79259406 | |
| $a$ | 2.3341129 | $\Omega$ | 3.68640 | | +0.69892393 | −0.54064201 | |
| $e$ | 0.1780701 | $i$ | 4.48788 | | +0.37381278 | −0.28195900 | |
| $P$ | 3.57 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 02 06 | 703 | 1.5+ | 1.2+ | 2007 01 08 | 703 | 1.2+ | 1.0− | 2007 01 28 | 691 | 0.4− | 0.1− | | |
| 2000 02 06 | 703 | 0.1− | 0.1+ | 2007 01 08 | 703 | 0.2− | 0.3− | 2007 01 28 | 691 | 0.5− | 0.2− | | |
| 2000 02 06 | 703 | 0.4+ | 0.6+ | 2007 01 08 | 703 | 0.3+ | 0.8− | 2007 01 28 | 691 | 0.4− | 0.2− | | |
| 2000 02 06 | 703 | 0.3− | 0.0 | 2007 01 08 | 703 | 0.9+ | 1.2− | 2007 01 28 | 703 | 0.7− | 0.1+ | | |
| 2000 02 11 | 704 | 0.9+ | 1.8+ | 2007 01 10 | 691 | 0.3− | 0.2− | 2007 01 28 | 703 | 0.7+ | 0.7− | | |
| 2000 02 11 | 704 | 0.8+ | 0.1+ | 2007 01 10 | 691 | 0.3− | 0.1− | 2007 01 28 | 703 | 0.1− | 0.5+ | | |
| 2000 02 11 | 704 | 0.9+ | 1.6+ | 2007 01 10 | 691 | 0.4− | 0.1− | 2007 01 28 | 703 | 0.5+ | 0.9− | | |
| 2000 02 11 | 704 | 0.6+ | 0.3+ | 2007 01 10 | 704 | 0.4+ | 0.3− | 2007 02 06 | 644 | 0.3− | 0.1+ | | |
| 2000 02 11 | 704 | 1.9+ | 1.5+ | 2007 01 10 | 704 | 0.1− | 0.7− | 2007 02 06 | 644 | 0.1− | 0.2+ | | |
| 2000 02 25 | 703 | (1.6− | 2.3+) | 2007 01 10 | 704 | 0.1+ | 0.7− | 2007 02 06 | 644 | 0.3+ | 0.4+ | | |
| 2000 02 25 | 703 | 0.7− | 0.2+ | 2007 01 10 | 704 | 0.5+ | 0.3− | 2007 02 07 | 644 | 0.3− | 0.1− | | |
| 2000 02 25 | 703 | 0.3− | 1.4+ | 2007 01 16 | 699 | 0.5+ | 0.5+ | 2007 02 07 | 644 | 0.3− | 0.0 | | |
| 2000 02 25 | 703 | 1.2+ | 0.6+ | 2007 01 16 | 699 | 0.9− | 0.5− | 2007 02 07 | 644 | 0.2− | 0.2+ | | |
| 2000 02 28 | 704 | 0.1+ | 0.4− | 2007 01 16 | 699 | 0.6+ | 0.2+ | 2009 09 16 | 691 | 0.2+ | 0.4− | | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 02 28 | 704 | 0.1+ | 0.8+ | 2007 01 16 | 699 | 0.2− | 0.6+ | 2009 09 16 | 691 | 0.2− | 0.2+ |
| 2000 02 28 | 704 | 0.5− | 0.7+ | 2007 01 17 | 644 | 0.0 | 0.2+ | 2009 09 16 | 691 | 0.1+ | 0.0 |
| 2000 02 28 | 704 | 0.6+ | 0.3− | 2007 01 17 | 644 | 0.0 | 0.0 | 2009 09 20 | 691 | 0.1+ | 0.7+ |
| 2000 03 05 | 704 | 0.9− | 0.4− | 2007 01 17 | 644 | 0.1+ | 0.1− | 2009 09 20 | 691 | 0.4− | 0.2+ |
| 2000 03 05 | 704 | 1.5− | 0.1+ | 2007 01 23 | 704 | 0.7+ | 0.7+ | 2009 09 20 | 691 | 0.0 | 0.3+ |
| 2000 03 05 | 704 | 0.5+ | 0.7+ | 2007 01 23 | 704 | 0.5+ | 0.0 | 2009 09 24 | 691 | 0.1− | 0.3+ |
| 2000 03 05 | 704 | 0.1− | 0.5− | 2007 01 23 | 704 | 0.5+ | 0.4− | 2009 09 24 | 691 | 0.3− | 0.2− |
| 2002 10 13 | 291 | 0.1− | 0.2+ | 2007 01 23 | 704 | 0.0 | 0.3− | 2009 09 24 | 691 | 0.1− | 0.0 |
| 2002 10 13 | 291 | 0.1− | 0.1+ | 2007 01 23 | 704 | 0.5+ | 0.1− | 2009 12 17 | G96 | 0.1− | 0.2+ |
| 2002 10 13 | 291 | 0.0 | 0.1+ | 2007 01 24 | 704 | 0.2+ | 0.0 | 2009 12 17 | G96 | 0.3+ | 0.0 |
| 2006 12 26 | 703 | 0.3+ | 0.2− | 2007 01 24 | 704 | 0.1− | 0.2− | 2009 12 17 | G96 | 0.6+ | 0.1+ |
| 2006 12 26 | 703 | 0.3+ | 0.1− | 2007 01 24 | 704 | 0.8+ | 0.1+ | 2009 12 17 | G96 | 0.5+ | 0.5+ |
| 2006 12 26 | 703 | 0.1− | 0.6− | 2007 01 24 | 704 | 0.2+ | 0.0 | | | | |
| 2006 12 26 | 703 | 0.5+ | 0.2+ | 2007 01 24 | 704 | 0.4− | 0.1+ | | | | |

**(228297)∗ 2000 DO$_{100}$**

Discovered 2000 Feb. 29 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 260.10962 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28135456 | $\omega$ | 154.22523 | | −0.92648125 | +0.37321225 | |
| $a$ | 2.3065706 | $\Omega$ | 47.77681 | | −0.35561001 | −0.82604962 | |
| $e$ | 0.1590310 | $i$ | 3.74947 | | −0.12318282 | −0.42232055 | |
| $P$ | 3.50 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 02 29 | 704 | 0.8+ | 0.4+ | 2005 11 28 | G96 | 0.1+ | 0.3− | 2007 02 26 | 703 | 0.2+ | 0.2+ |
| 2000 02 29 | 704 | 0.2+ | 0.2+ | 2005 11 28 | G96 | 0.3− | 1.2− | 2007 02 26 | 703 | 0.1− | 0.4− |
| 2000 02 29 | 704 | 0.3+ | 0.1+ | 2005 11 28 | G96 | 0.0 | 0.5− | 2007 03 08 | 644 | 0.2+ | 0.2− |
| 2000 02 29 | 704 | 0.0 | 1.3+ | 2005 11 29 | G96 | 0.1+ | 0.3− | 2007 03 08 | 644 | 0.2+ | 0.1− |
| 2000 02 29 | 704 | 0.7+ | 0.4+ | 2005 11 29 | G96 | 0.1+ | 0.4− | 2007 03 08 | 644 | 0.1+ | 0.0 |
| 2000 03 02 | 703 | 1.9+ | 1.1+ | 2005 11 29 | G96 | 0.2+ | 0.4− | 2007 03 09 | 644 | 0.2+ | 0.1− |
| 2000 03 02 | 703 | 0.5− | 0.8+ | 2005 11 29 | G96 | 0.3− | 0.2− | 2007 03 09 | 644 | 0.2+ | 0.1− |
| 2000 03 02 | 703 | 0.4+ | 0.3− | 2005 12 04 | G96 | 0.1+ | 0.1+ | 2007 03 09 | 644 | 0.1+ | 0.2− |
| 2000 03 02 | 703 | 0.4− | 1.2+ | 2005 12 04 | G96 | 0.1+ | 0.3− | 2007 03 09 | 703 | 1.0− | 0.1− |
| 2000 03 05 | 704 | 0.0 | 0.2− | 2005 12 04 | G96 | 0.0 | 0.1+ | 2007 03 09 | 703 | 0.1+ | 0.0 |
| 2000 03 05 | 704 | 0.3+ | 0.0 | 2005 12 04 | G96 | 0.0 | 0.1− | 2007 03 09 | 703 | 0.2− | 0.0 |
| 2000 03 05 | 704 | 0.0 | 0.2+ | 2006 11 28 | 291 | 0.1− | 0.7+ | 2007 03 09 | 703 | 0.7− | 0.3− |
| 2000 03 05 | 704 | 0.2+ | 0.5+ | 2006 11 28 | 291 | 0.1− | 0.8+ | 2007 03 14 | 699 | 0.1+ | 0.2− |
| 2000 03 05 | 704 | 0.1+ | 0.3− | 2006 11 28 | 291 | 0.0 | 0.3+ | 2007 03 14 | 699 | 0.6+ | 0.1− |
| 2000 03 12 | 704 | 0.1− | 0.2− | 2007 01 23 | 699 | 0.5− | 0.1− | 2007 03 14 | 699 | 0.5+ | 0.3− |
| 2000 03 12 | 704 | 0.2+ | 1.1+ | 2007 01 23 | 699 | 0.1− | 0.7− | 2007 03 14 | 699 | 0.4+ | 0.9− |
| 2000 03 12 | 704 | 0.4+ | 0.7− | 2007 01 23 | 699 | 0.8− | 0.1− | 2007 03 16 | 703 | (2.3− | 0.2+) |
| 2000 03 12 | 704 | 0.5+ | 0.2− | 2007 01 23 | 699 | 0.9+ | 0.2− | 2007 03 16 | 703 | 0.9− | 0.8+ |
| 2000 03 12 | 704 | 0.2+ | 1.0+ | 2007 02 08 | 691 | 0.2− | 0.5− | 2007 03 16 | 703 | 0.1+ | 0.4+ |
| 2000 04 03 | 699 | 1.8− | 0.6+ | 2007 02 08 | 691 | 0.1− | 0.3− | 2007 03 16 | 703 | 0.5− | 0.5+ |
| 2000 04 03 | 699 | 0.2− | 0.8+ | 2007 02 08 | 691 | 0.2− | 0.3− | 2007 03 16 | 704 | (0.4− | 1.7+) |
| 2000 04 03 | 699 | 0.7+ | 0.6+ | 2007 02 13 | 704 | (3.3+ | 0.1−) | 2007 03 16 | 704 | 0.1− | 0.4+ |
| 2000 04 03 | 699 | 0.7− | 0.8− | 2007 02 13 | 704 | (2.2+ | 0.1+) | 2007 03 16 | 704 | 0.0 | 0.1+ |
| 2005 10 01 | G96 | 0.0 | 0.1− | 2007 02 13 | 704 | (2.5+ | 0.5−) | 2007 03 16 | 704 | 1.0− | 0.3+ |
| 2005 10 01 | G96 | 0.2− | 0.0 | 2007 02 13 | 704 | (2.0+ | 0.2−) | 2007 03 16 | 704 | 0.7− | 0.2+ |
| 2005 10 01 | G96 | 0.0 | 0.1− | 2007 02 15 | 703 | 1.0− | 0.4− | 2007 04 03 | 644 | 0.1+ | 0.0 |
| 2005 10 01 | G96 | 0.2− | 0.2− | 2007 02 15 | 703 | 0.0 | 0.6− | 2007 04 03 | 644 | 0.3− | 0.3− |
| 2005 10 01 | 691 | 0.1+ | 0.1− | 2007 02 15 | 703 | (0.1− | 2.3−) | 2007 04 03 | 644 | 0.0 | 0.0 |
| 2005 10 01 | 691 | 0.3+ | 0.1− | 2007 02 15 | 703 | (0.2− | 2.8−) | 2008 08 29 | J75 | (1.7− | 0.7+) |
| 2005 10 01 | 691 | 0.1+ | 0.4− | 2007 02 15 | 644 | 0.3+ | 0.4− | 2008 08 30 | J75 | 0.3− | 1.4+ |
| 2005 10 10 | 691 | 0.1− | 0.2+ | 2007 02 15 | 644 | 0.3+ | 0.1− | 2008 08 30 | J75 | 0.2− | 0.1+ |
| 2005 10 10 | 691 | 0.2− | 0.4+ | 2007 02 15 | 644 | 0.0 | 0.1+ | 2009 11 17 | G96 | 0.1+ | 0.6− |
| 2005 10 10 | 691 | 0.3− | 0.5+ | 2007 02 18 | 704 | (1.6− | 0.4−) | 2009 11 17 | G96 | 0.2+ | 0.5− |
| 2005 10 12 | 691 | 0.0 | 0.1+ | 2007 02 18 | 704 | 0.3+ | 0.6− | 2009 11 17 | G96 | 0.2− | 0.3− |
| 2005 10 12 | 691 | 0.3− | 0.6+ | 2007 02 18 | 704 | 0.4+ | 1.1− | 2009 11 17 | G96 | 0.1+ | 0.4− |
| 2005 10 12 | 691 | 0.1− | 0.2+ | 2007 02 22 | 699 | 0.8+ | 0.6+ | 2009 12 11 | G96 | 0.4+ | 0.2− |
| 2005 10 28 | G96 | 0.8+ | 0.0 | 2007 02 22 | 699 | 0.2+ | 0.6+ | 2009 12 11 | G96 | 0.4+ | 0.4− |
| 2005 10 28 | G96 | 0.1+ | 0.2+ | 2007 02 22 | 699 | 0.6+ | 0.0 | 2009 12 11 | G96 | 0.4+ | 0.4− |
| 2005 10 28 | G96 | 0.0 | 0.2+ | 2007 02 22 | 699 | 0.6+ | 0.4+ | 2009 12 11 | G96 | 0.4+ | 0.3− |
| 2005 10 28 | G96 | 0.1− | 0.3+ | 2007 02 26 | 703 | 0.6− | 0.5− | | | | |
| 2005 11 28 | G96 | 1.2− | 0.3− | 2007 02 26 | 703 | 0.3+ | 0.0 | | | | |

**(228298)∗ 2000 EX$_4$ = 2007 DX$_{34}$**

Discovered 2000 Mar. 2 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 117397)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 344.69422 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28608073 | $\omega$ | 92.33362 | | −0.31081028 | −0.95046692 | |
| $a$ | 2.2810965 | $\Omega$ | 15.77551 | | +0.86744563 | −0.28499201 | |
| $e$ | 0.1150617 | $i$ | 0.65344 | | +0.38850360 | −0.12406529 | |
| $P$ | 3.45 | $H$ | 17.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 03 02 | 691 | 0.9− | 0.4− | 2007 02 09 | 691 | 0.2+ | 0.0 | 2007 03 26 | G96 | 0.2− | 0.0 |
| 2000 03 02 | 691 | 0.2− | 0.4− | 2007 02 09 | 691 | 0.3− | 0.5+ | 2007 03 26 | G96 | 0.3+ | 0.2− |
| 2000 03 02 | 691 | 0.4− | 0.1+ | 2007 02 09 | 691 | 0.2+ | 0.5+ | 2007 03 26 | G96 | 0.4− | 0.4− |
| 2000 03 03 | 704 | 1.0+ | 0.3+ | 2007 02 17 | 691 | 0.1− | 0.1+ | 2007 04 14 | G96 | 0.7+ | 0.9− |
| 2000 03 03 | 704 | 1.3+ | 0.5+ | 2007 02 17 | 691 | 0.0 | 0.5+ | 2007 04 14 | G96 | 0.2− | 0.1+ |
| 2000 03 03 | 704 | 0.5+ | 0.1− | 2007 02 17 | 691 | 0.0 | 0.3+ | 2007 04 14 | G96 | 0.6− | 0.4− |
| 2000 03 03 | 704 | 1.2+ | 0.1− | 2007 02 21 | 691 | 0.4+ | 0.0 | 2007 04 14 | G96 | 0.2+ | 0.2+ |
| 2000 03 03 | 704 | 1.4+ | 0.9− | 2007 02 21 | 691 | 0.1+ | 0.0 | 2009 11 09 | 691 | 0.1+ | 0.2− |
| 2000 03 04 | 691 | 0.1+ | 0.2+ | 2007 02 21 | 691 | 0.1− | 0.0 | 2009 11 09 | 691 | 0.0 | 0.0 |
| 2000 03 04 | 691 | 0.2− | 0.4+ | 2007 02 25 | 691 | 0.1+ | 0.1− | 2009 11 09 | 691 | 0.1+ | 0.1+ |
| 2000 03 04 | 691 | 0.1− | 0.0 | 2007 02 25 | 691 | 0.1− | 0.2+ | 2009 11 21 | 691 | 0.2− | 0.1− |
| 2000 03 09 | 691 | 0.3+ | 0.6− | 2007 02 25 | 691 | 0.2− | 0.0 | 2009 11 21 | 691 | 0.2− | 0.3− |
| 2000 03 09 | 691 | 0.3+ | 0.4− | 2007 03 08 | 644 | 0.6+ | 0.3+ | 2009 11 21 | 691 | 0.0 | 0.9+ |
| 2000 03 09 | 691 | 0.4+ | 0.3− | 2007 03 08 | 644 | 0.5+ | 0.0 | 2009 11 25 | 691 | 0.3− | 0.0 |
| 2000 03 12 | 691 | 0.2− | 0.3− | 2007 03 08 | 644 | 0.6+ | 0.1+ | 2009 11 25 | 691 | 0.1+ | 0.1− |
| 2000 03 12 | 691 | 0.5− | 0.2− | 2007 03 09 | 703 | 0.2− | 0.7− | 2009 11 25 | 691 | 0.1− | 0.2− |
| 2000 03 12 | 691 | 0.6− | 0.2+ | 2007 03 09 | 703 | (0.3+ | 2.6+) | 2009 12 10 | G96 | 0.5+ | 0.3− |
| 2002 11 24 | 644 | 0.2− | 0.1− | 2007 03 09 | 703 | 1.3+ | 1.4+ | 2009 12 10 | G96 | 0.5+ | 0.1− |
| 2002 11 24 | 644 | 0.1+ | 0.4+ | 2007 03 09 | 703 | 1.0− | 0.9+ | 2009 12 10 | G96 | 0.0 | 0.1− |
| 2002 11 24 | 644 | 0.3+ | 0.4+ | 2007 03 10 | G96 | 0.3+ | 0.1− | 2009 12 10 | G96 | 0.1− | 0.1− |
| 2002 12 05 | 704 | 0.1+ | 0.6− | 2007 03 10 | G96 | 0.2− | 0.0 | 2009 12 19 | G96 | 0.3+ | 0.6+ |
| 2002 12 05 | 704 | 1.0− | 0.0 | 2007 03 10 | G96 | 0.2− | 0.1− | 2009 12 19 | G96 | 0.6+ | 0.0 |
| 2002 12 05 | 704 | 0.3+ | 0.4+ | 2007 03 10 | G96 | 0.1− | 0.2− | 2009 12 19 | G96 | 0.2+ | 0.2− |
| 2002 12 05 | 704 | 0.2+ | 0.3+ | 2007 03 26 | G96 | 0.5+ | 0.5− | 2009 12 19 | G96 | 0.1+ | 0.1− |

**(228299)∗ 2000 EX$_{23}$**

Discovered 2000 Mar. 8 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 299.08851 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27814761 | $\omega$ | 160.84608 | | −0.86330917 | −0.50461604 | |
| $a$ | 2.3242660 | $\Omega$ | 348.83834 | | +0.45765506 | −0.77631790 | |
| $e$ | 0.1424159 | $i$ | 2.29180 | | +0.21271841 | −0.37774749 | |
| $P$ | 3.54 | $H$ | 17.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 03 08 | 691 | 0.1+ | 0.4− | 2006 12 27 | G96 | 0.2+ | 0.3− | 2007 03 13 | 699 | 0.1+ | 0.9+ |
| 2000 03 08 | 691 | 0.4− | 0.1− | 2007 01 17 | G96 | 0.9− | 0.5− | 2007 03 13 | 699 | 1.1+ | 0.3+ |
| 2000 03 08 | 691 | 0.4− | 0.2− | 2007 01 17 | G96 | 0.7+ | 0.1− | 2007 03 13 | 699 | 0.7+ | 0.3− |
| 2000 03 09 | 691 | 0.2− | 0.3− | 2007 01 17 | G96 | 0.1+ | 0.2− | 2007 03 13 | 699 | 0.4− | 0.3+ |
| 2000 03 09 | 691 | 0.2− | 0.0 | 2007 01 17 | G96 | 0.1+ | 0.3+ | 2007 03 17 | 704 | 0.8− | 1.3+ |
| 2000 03 09 | 691 | 0.1− | 0.2− | 2007 02 21 | 704 | 0.4+ | 0.1− | 2007 03 17 | 704 | 0.4− | 0.5+ |
| 2000 03 10 | 704 | 1.6+ | 0.2− | 2007 02 21 | 704 | 0.7+ | 0.5+ | 2007 03 17 | 704 | (1.9− | 1.1−) |
| 2000 03 10 | 704 | 0.4+ | 1.1− | 2007 02 21 | 704 | 0.6− | 0.5+ | 2007 03 20 | G96 | 0.1− | 0.0 |
| 2000 03 10 | 704 | 0.8+ | 0.6+ | 2007 02 21 | 704 | 0.4− | 0.4+ | 2007 03 20 | G96 | 0.2− | 0.1+ |
| 2000 03 10 | 704 | 0.3+ | 0.2− | 2007 02 22 | 691 | 0.3− | 0.1+ | 2007 03 20 | G96 | 0.1− | 0.1− |
| 2000 03 26 | 699 | 0.7− | 0.8+ | 2007 02 22 | 691 | 0.0 | 0.2+ | 2007 03 20 | G96 | 0.0 | 0.1− |
| 2000 03 26 | 699 | 0.2− | 0.2− | 2007 02 22 | 691 | 0.1− | 0.1+ | 2007 05 11 | G96 | 0.3+ | 0.5− |
| 2000 03 26 | 699 | 0.2+ | 0.4+ | 2007 02 23 | 704 | 1.2+ | 0.1− | 2007 05 11 | G96 | 0.3− | 0.2− |
| 2000 03 26 | 699 | 0.6− | 1.4+ | 2007 02 23 | 704 | 0.7+ | 0.8− | 2007 05 11 | G96 | 0.0 | 0.1− |
| 2000 04 05 | 704 | 0.3+ | 0.1+ | 2007 02 23 | 704 | (0.1− | 1.5−) | 2007 05 11 | G96 | 0.1− | 0.1+ |
| 2000 04 05 | 704 | 0.8+ | 0.6+ | 2007 02 23 | 704 | 0.1+ | 0.2− | 2007 05 11 | G96 | 0.1+ | 0.6+ |
| 2000 04 05 | 704 | 0.2+ | 0.1− | 2007 03 09 | 703 | 0.6− | 0.2+ | 2007 05 11 | G96 | 0.5− | 0.0 |
| 2000 04 05 | 704 | 0.4+ | 0.3+ | 2007 03 09 | 703 | 0.2− | 1.5− | 2007 05 11 | G96 | 0.0 | 0.5+ |
| 2000 04 05 | 704 | 0.5+ | 0.5+ | 2007 03 09 | 703 | 0.5− | 0.3+ | 2007 05 11 | G96 | 0.4+ | 0.3+ |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 08 31 | 691 | 0.2− | 0.4+ | 2007 03 09 | 703 | 0.5+ | 0.1− | 2009 11 09 | 691 | 0.4+ | 0.1− |
| 2005 08 31 | 691 | 0.1− | 0.1+ | 2007 03 09 | 644 | 0.3+ | 0.1+ | 2009 11 09 | 691 | 0.3− | 0.0 |
| 2005 08 31 | 691 | 0.1− | 0.1+ | 2007 03 09 | 644 | 0.3+ | 0.2+ | 2009 11 09 | 691 | 0.2− | 0.3+ |
| 2005 10 05 | G96 | 0.3+ | 0.1+ | 2007 03 09 | 644 | 0.0 | 0.3− | 2009 11 17 | 691 | 0.4− | 0.4+ |
| 2005 10 05 | G96 | 0.3+ | 0.0 | 2007 03 09 | G96 | 0.1+ | 0.1− | 2009 11 17 | 691 | 0.1− | 0.1+ |
| 2005 10 05 | G96 | 0.2+ | 0.2− | 2007 03 09 | G96 | 0.1− | 0.0 | 2009 11 17 | 691 | 0.2+ | 0.1− |
| 2005 10 05 | G96 | 0.3+ | 0.1− | 2007 03 09 | G96 | 0.3− | 0.3+ | 2009 11 25 | 691 | 0.3− | 0.1+ |
| 2005 10 27 | G96 | 0.1− | 0.3− | 2007 03 09 | G96 | 0.0 | 0.1− | 2009 11 25 | 691 | 0.4+ | 0.4− |
| 2005 10 27 | G96 | 0.3− | 0.7+ | 2007 03 10 | 644 | 0.4+ | 0.0 | 2009 11 25 | 691 | 0.2− | 0.1+ |
| 2005 10 27 | G96 | 0.5+ | 0.3− | 2007 03 10 | 644 | 0.3+ | 0.0 | 2009 12 17 | G96 | 0.2+ | 0.2− |
| 2005 10 27 | G96 | 0.3+ | 0.6− | 2007 03 10 | 644 | 0.1− | 0.2+ | 2009 12 17 | G96 | 0.2+ | 0.1− |
| 2006 12 27 | G96 | 0.1− | 0.5− | 2007 03 10 | 644 | 0.4+ | 0.0 | 2009 12 17 | G96 | 0.5+ | 0.1− |
| 2006 12 27 | G96 | 0.1+ | 0.4− | 2007 03 10 | 644 | 0.5+ | 0.1− | 2009 12 17 | G96 | 0.3+ | 0.2− |
| 2006 12 27 | G96 | 0.1− | 0.7− | 2007 03 10 | 644 | 0.1+ | 0.1+ | | | | |

**(228300)∗ 2000 EH$_{52}$ = 2006 KF$_4$ = 2008 UW$_{358}$**

Discovered 2000 Mar. 3 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 165306)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 202.79884 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18244415 | $\omega$ | 88.71239 | | +0.03958033 | +0.99921597 | |
| $a$ | 3.0788091 | $\Omega$ | 183.55639 | | −0.92257118 | +0.03618998 | |
| $e$ | 0.0992326 | $i$ | 0.85144 | | −0.38379136 | +0.01605423 | |
| $P$ | 5.40 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1992 11 23 | 691 | 0.0 | 0.6− | 2002 10 11 | 645 | 0.1− | 0.1+ | 2008 10 27 | 691 | 0.0 | 0.1+ |
| 1992 11 23 | 691 | 0.5+ | 0.4− | 2002 10 11 | 645 | 0.0 | 0.1+ | 2008 10 27 | 691 | 0.4− | 0.1+ |
| 1992 11 23 | 691 | 0.8− | 0.3+ | 2003 11 15 | 291 | 0.1− | 0.1− | 2008 10 27 | 691 | 0.2− | 0.0 |
| 2000 03 03 | 691 | 0.1− | 0.1+ | 2003 11 15 | 291 | 0.0 | 0.0 | 2008 11 09 | G96 | 0.3+ | 0.3− |
| 2000 03 03 | 691 | 0.1+ | 0.1+ | 2003 11 15 | 291 | 0.0 | 0.0 | 2008 11 09 | G96 | 0.3+ | 0.2− |
| 2000 03 03 | 704 | 0.5+ | 0.2− | 2003 12 17 | 291 | 0.3+ | 0.2+ | 2008 11 09 | G96 | 0.6+ | 1.1+ |
| 2000 03 03 | 691 | 0.0 | 0.2+ | 2003 12 17 | 291 | 0.4+ | 0.1+ | 2008 11 09 | G96 | 0.3+ | 0.2− |
| 2000 03 03 | 704 | 0.3+ | 0.3+ | 2003 12 17 | 291 | 0.1+ | 0.2+ | 2008 11 20 | G96 | 0.2− | 0.2− |
| 2000 03 03 | 704 | 0.1+ | 0.9+ | 2006 05 19 | 703 | 0.3+ | 0.1− | 2008 11 20 | G96 | 0.1− | 0.2− |
| 2000 03 03 | 704 | 0.7+ | 1.0+ | 2006 05 19 | 703 | 0.2− | 0.2− | 2008 11 20 | G96 | 0.6+ | 0.1− |
| 2000 03 10 | 691 | 0.1+ | 0.0 | 2006 05 19 | 703 | 1.4+ | 0.2+ | 2008 11 20 | G96 | 0.3+ | 0.4− |
| 2000 03 10 | 691 | 0.2+ | 0.2− | 2006 05 19 | 703 | (0.6− | 1.7−) | 2008 12 02 | G96 | 0.2+ | 0.1− |
| 2000 03 10 | 691 | 0.1+ | 0.0 | 2006 05 20 | G96 | 0.5− | 0.5+ | 2008 12 02 | G96 | 0.3+ | 0.2− |
| 2000 03 11 | 704 | 0.5− | 0.3− | 2006 05 20 | G96 | 0.7− | 0.3+ | 2008 12 02 | G96 | 0.2+ | 0.3− |
| 2000 03 11 | 704 | 0.4+ | 0.7+ | 2006 05 20 | G96 | 0.0 | 0.0 | 2008 12 02 | G96 | 0.6+ | 0.3− |
| 2000 03 11 | 704 | 0.2− | 0.8+ | 2006 05 20 | G96 | 0.5− | 0.3+ | 2009 12 15 | G96 | 0.9− | 0.1− |
| 2000 03 11 | 704 | 1.5+ | 0.3− | 2007 09 11 | G96 | 0.1− | 0.2+ | 2009 12 15 | G96 | 0.2− | 0.4− |
| 2000 03 11 | 699 | 0.5+ | 0.1+ | 2007 09 11 | G96 | 0.2− | 0.2+ | 2009 12 15 | G96 | 0.4− | 0.2+ |
| 2000 03 11 | 699 | 0.2+ | 0.4+ | 2007 09 11 | G96 | 0.5− | 0.2+ | 2009 12 15 | G96 | 0.9+ | 0.0 |
| 2000 03 11 | 699 | 0.1− | 0.5+ | 2007 09 11 | G96 | 0.2− | 0.0 | 2009 12 25 | 691 | 0.2+ | 0.3+ |
| 2000 03 11 | 699 | (0.8+ | 2.2+) | 2007 10 31 | G96 | 0.2+ | 0.2+ | 2009 12 25 | 691 | 0.3− | 0.1− |
| 2000 03 14 | 691 | 0.3− | 0.0 | 2007 10 31 | G96 | 0.4+ | 0.7+ | 2009 12 25 | 691 | 0.3− | 0.5+ |
| 2000 03 14 | 691 | 0.3− | 0.1− | 2007 10 31 | G96 | 0.2− | 0.4+ | | | | |
| 2000 03 14 | 691 | 0.2− | 0.1− | 2007 10 31 | G96 | 0.4+ | 0.2+ | | | | |

**(228301)∗ 2000 EA$_{54}$ = 2008 RZ$_{35}$**

Discovered 2000 Mar. 9 by Spacewatch at Kitt Peak.

Id. A. Doppler (*MPO* 145851)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 269.55068 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18272953 | $\omega$ | 197.31712 | | −0.99980071 | −0.01780469 | |
| $a$ | 3.0756027 | $\Omega$ | 341.65560 | | +0.01995285 | −0.90609677 | |
| $e$ | 0.0261230 | $i$ | 1.64414 | | −0.00065786 | −0.42269567 | |
| $P$ | 5.39 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 09 29 | 691 | 0.3− | 0.1+ | 2003 11 28 | 691 | 1.0+ | 0.1+ | 2008 09 20 | G96 | 0.5+ | 0.2− |
| 1997 09 29 | 691 | 0.4− | 0.3+ | 2004 12 19 | G96 | 0.0 | 0.2+ | 2008 09 29 | G96 | 0.4+ | 0.0 |
| 1997 09 29 | 691 | 0.0 | 0.1+ | 2004 12 19 | G96 | 0.2+ | 0.2+ | 2008 09 29 | G96 | 0.7+ | 0.0 |
| 2000 02 26 | 691 | 0.3− | 0.5− | 2004 12 19 | G96 | 0.3+ | 0.0 | 2008 09 29 | G96 | 0.7+ | 0.1− |
| 2000 02 26 | 691 | 0.5− | 0.4− | 2004 12 19 | G96 | 0.1− | 0.1− | 2008 09 29 | G96 | 0.3+ | 0.3− |
| 2000 02 26 | 691 | 0.4− | 0.2− | 2006 05 03 | 691 | 0.1− | 0.4+ | 2008 10 23 | G96 | 0.2− | 0.3+ |
| 2000 03 09 | 691 | 0.1+ | 0.1− | 2006 05 03 | 691 | 0.2+ | 0.5+ | 2008 10 23 | G96 | 0.2+ | 0.2− |
| 2000 03 09 | 691 | 0.5+ | 0.1− | 2006 05 03 | 691 | 0.4+ | 0.8+ | 2008 10 23 | G96 | 0.1+ | 0.2− |
| 2000 03 09 | 691 | 0.2+ | 0.1− | 2008 09 02 | 691 | 0.3− | 0.5+ | 2008 10 23 | G96 | 0.0 | 0.1+ |
| 2000 03 10 | 691 | 0.5+ | 0.5+ | 2008 09 02 | 691 | 0.1− | 0.1− | 2009 11 21 | 691 | 0.2− | 0.1− |
| 2000 03 10 | 691 | 0.4+ | 0.5+ | 2008 09 02 | 691 | 0.4− | 0.1+ | 2009 11 21 | 691 | 0.2− | 0.0 |
| 2000 03 10 | 691 | 0.1+ | 0.6+ | 2008 09 06 | 691 | 0.2+ | 0.3− | 2009 11 21 | 691 | 0.4− | 0.1− |
| 2003 10 19 | 691 | 0.4− | 0.2+ | 2008 09 06 | 691 | 0.3+ | 0.2+ | 2009 12 11 | G96 | 0.7+ | 0.1− |
| 2003 10 19 | 691 | 0.4− | 0.2+ | 2008 09 06 | 691 | 0.1+ | 0.3+ | 2009 12 11 | G96 | 0.1− | 0.0 |
| 2003 10 19 | 691 | 0.7− | 0.2+ | 2008 09 20 | G96 | 0.1+ | 0.2+ | 2009 12 11 | G96 | 0.1− | 0.1+ |
| 2003 11 28 | 691 | 0.1− | 0.5+ | 2008 09 20 | G96 | 0.1+ | 0.1− | 2009 12 11 | G96 | 0.7+ | 0.2+ |
| 2003 11 28 | 691 | 0.1+ | 0.2+ | 2008 09 20 | G96 | 0.3+ | 0.1+ | | | | |

**(228302)∗ 2000 EO$_{57}$**

Discovered 2000 Mar. 8 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 321.20540 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18574784 | $\omega$ | 230.35572 | | −0.84998391 | −0.52671144 | |
| $a$ | 3.0421937 | $\Omega$ | 277.85853 | | +0.48641276 | −0.77728459 | |
| $e$ | 0.2610499 | $i$ | 0.58535 | | +0.20231159 | −0.34409844 | |
| $P$ | 5.31 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 05 27 | 691 | 0.1− | 0.2+ | 2000 04 05 | 704 | 0.5− | 0.1+ | 2005 02 01 | 703 | 0.7− | 0.1+ |
| 1995 05 27 | 691 | 0.2− | 1.0+ | 2000 04 05 | 704 | 0.0 | 0.9+ | 2005 02 01 | 703 | 0.5− | 0.3+ |
| 1995 05 27 | 691 | 0.3− | 1.0+ | 2000 04 06 | 704 | 0.4+ | 1.0+ | 2005 02 01 | 703 | 0.4+ | 1.4+ |
| 2000 02 12 | 645 | 0.0 | 0.2− | 2000 04 06 | 704 | 0.2+ | 0.5+ | 2005 02 02 | 704 | 0.0 | 0.1+ |
| 2000 02 12 | 645 | 0.0 | 0.2− | 2000 04 06 | 704 | 0.5+ | 1.0+ | 2005 02 02 | 704 | 0.0 | 0.9+ |
| 2000 03 08 | 704 | 0.4+ | 0.3+ | 2000 04 06 | 704 | 0.1+ | 0.1+ | 2005 02 02 | 704 | 0.0 | 0.6+ |
| 2000 03 08 | 704 | 1.1+ | 0.4+ | 2000 04 06 | 704 | 0.2− | 0.7+ | 2005 02 02 | 704 | 0.5+ | 1.2+ |
| 2000 03 08 | 704 | 0.7− | 0.2+ | 2000 04 07 | 691 | 0.0 | 0.6− | 2005 02 02 | 704 | 0.4− | 0.8+ |
| 2000 03 08 | 704 | 0.6− | 1.2+ | 2000 04 07 | 691 | 0.1− | 1.0− | 2005 02 09 | 699 | 0.5− | 0.0 |
| 2000 03 09 | 691 | 0.2− | 0.5− | 2000 04 07 | 691 | 0.4+ | 0.5+ | 2005 02 09 | 699 | 0.9− | 0.1+ |
| 2000 03 09 | 691 | 0.4− | 0.4− | 2004 12 20 | G96 | 0.2− | 0.3− | 2005 02 09 | 699 | 1.3+ | 0.5+ |
| 2000 03 09 | 691 | 0.3− | 0.4− | 2004 12 20 | G96 | 0.2− | 0.3− | 2005 02 09 | 699 | 0.2+ | 0.1+ |
| 2000 03 11 | 704 | 0.1− | 0.6− | 2004 12 20 | G96 | 0.2+ | 0.1− | 2008 09 06 | 691 | 0.0 | 0.7+ |
| 2000 03 11 | 704 | 0.3− | 0.1− | 2004 12 20 | G96 | 0.1+ | 0.2− | 2008 09 20 | G96 | 0.2+ | 0.2− |
| 2000 03 11 | 704 | 0.1− | 0.8− | 2005 01 01 | 703 | 1.0− | 0.5+ | 2008 09 20 | G96 | 0.1+ | 0.7− |
| 2000 03 11 | 704 | 0.1+ | 0.7− | 2005 01 01 | 703 | 0.0 | 0.3− | 2008 09 20 | G96 | 0.4+ | 0.4− |
| 2000 03 11 | 704 | 0.0 | 1.1− | 2005 01 01 | 703 | 0.6+ | 0.2− | 2008 09 20 | G96 | 0.7+ | 1.2− |
| 2000 03 14 | 703 | 0.8+ | 0.2− | 2005 01 01 | 703 | 0.6+ | 0.2− | 2008 09 20 | G96 | 0.4+ | 0.2+ |
| 2000 03 14 | 703 | 0.0 | 0.1+ | 2005 01 11 | 704 | 0.4+ | 0.4+ | 2008 09 20 | G96 | 0.7+ | 1.0− |
| 2000 03 14 | 703 | 0.7− | 0.1+ | 2005 01 11 | 704 | 0.8+ | 0.2− | 2008 09 20 | G96 | 0.4+ | 0.4+ |
| 2000 03 14 | 703 | 0.6− | 1.1+ | 2005 01 11 | 704 | 0.0 | 0.3− | 2008 09 20 | G96 | 0.3+ | 1.0− |
| 2000 03 25 | 691 | 0.1+ | 0.1− | 2005 01 11 | 704 | 0.4− | 0.8+ | 2009 11 20 | G96 | 0.2− | 0.3− |
| 2000 03 25 | 691 | 0.0 | 0.2+ | 2005 01 13 | 691 | 0.0 | 0.2+ | 2009 11 20 | G96 | 0.0 | 0.5− |
| 2000 03 25 | 691 | 0.1− | 0.0 | 2005 01 13 | 691 | 0.1+ | 0.3+ | 2009 11 20 | G96 | 0.0 | 0.7− |
| 2000 04 02 | 691 | 0.0 | 0.3− | 2005 01 13 | 691 | 0.1+ | 0.2+ | 2009 11 20 | G96 | 0.1+ | 0.3− |
| 2000 04 02 | 699 | 0.0 | 0.6− | 2005 01 15 | 704 | 0.1− | 0.3− | 2009 12 10 | G96 | 0.0 | 0.0 |
| 2000 04 02 | 691 | 0.0 | 0.5− | 2005 01 15 | 704 | 0.0 | 0.1− | 2009 12 10 | G96 | 0.1− | 0.1− |
| 2000 04 02 | 699 | 0.7+ | 0.0 | 2005 01 15 | 704 | 0.6− | 0.2+ | 2009 12 10 | G96 | 0.1− | 0.1− |
| 2000 04 02 | 691 | 0.0 | 0.4− | 2005 01 17 | 704 | 0.6+ | 0.5+ | 2009 12 10 | G96 | 0.0 | 0.2− |
| 2000 04 02 | 699 | 0.5+ | 0.8+ | 2005 01 17 | 704 | 0.2+ | 0.9+ | 2009 12 19 | G96 | 0.2− | 0.2− |
| 2000 04 02 | 699 | 0.3− | 0.8+ | 2005 01 17 | 704 | 0.3− | 0.3+ | 2009 12 19 | G96 | 0.7− | 0.0 |
| 2000 04 04 | 704 | 0.3+ | 1.1+ | 2005 01 17 | 704 | 0.3+ | 0.0 | 2009 12 19 | G96 | 0.1+ | 0.1− |
| 2000 04 04 | 704 | 1.2+ | 0.8− | 2005 01 17 | 704 | 0.3+ | 0.3+ | 2009 12 19 | G96 | 0.4− | 0.1− |
| 2000 04 04 | 704 | 0.5+ | 0.9+ | 2005 01 19 | 691 | 0.1+ | 0.0 | 2009 12 19 | G96 | 0.1− | 0.2− |
| 2000 04 04 | 704 | 0.2+ | 0.1− | 2005 01 19 | 691 | 0.2+ | 0.0 | 2009 12 19 | G96 | 0.2− | 0.1+ |
| 2000 04 04 | 704 | 0.1+ | 1.3+ | 2005 01 19 | 691 | 0.0 | 0.2+ | 2009 12 19 | G96 | 0.3− | 0.1− |
| 2000 04 05 | 704 | 0.0 | 0.7− | 2005 02 01 | 703 | 0.9− | 0.2+ | | | | |

**(228303)∗ 2000 GT$_{36}$ = 2005 QB$_{88}$**

Discovered 2000 Apr. 5 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 84550)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 55.12894 | | (2000.0) | | | |
| $n$ | 0.27371816 | $\omega$ | 19.02190 | | +0.88158692 | −0.47191771 |
| $a$ | 2.3492738 | $\Omega$ | 9.15592 | | +0.42459778 | +0.78366889 |
| $e$ | 0.1405471 | $i$ | 3.57013 | | +0.20620676 | +0.40392667 |
| $P$ | 3.60 | $H$ | 16.7 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 11 24 | 704 | (1.4+ | 2.5−) | 2005 09 15 | 703 | 0.2− | 0.7− | 2005 10 24 | 699 | 0.5+ | 0.6− |
| 1998 11 24 | 704 | 0.9− | 0.7− | 2005 09 15 | 703 | (2.3+ | 0.6−) | 2005 10 24 | 699 | 0.1+ | 0.9+ |
| 1998 11 24 | 704 | (0.8+ | 2.7−) | 2005 09 24 | 699 | 0.1− | 0.5+ | 2005 10 24 | 699 | 0.8− | 0.7− |
| 1998 11 24 | 704 | 1.0+ | 0.5− | 2005 09 24 | 699 | 1.2− | 0.1− | 2005 10 30 | G96 | 0.0 | 0.2− |
| 2000 03 29 | 691 | 0.2+ | 0.1+ | 2005 09 24 | 699 | 0.2− | 0.5+ | 2005 10 30 | G96 | 0.4+ | 0.3− |
| 2000 03 29 | 691 | 0.2+ | 0.2+ | 2005 09 24 | 699 | 0.9+ | 0.4+ | 2005 10 30 | G96 | 0.0 | 0.1− |
| 2000 03 29 | 691 | 0.2+ | 0.2+ | 2005 09 27 | 691 | 0.1− | 0.1+ | 2005 12 01 | 699 | 0.4+ | 0.3+ |
| 2000 04 05 | 704 | 0.9+ | 1.8+ | 2005 09 27 | 691 | 0.1− | 0.1+ | 2005 12 01 | 699 | (1.8− | 0.8−) |
| 2000 04 05 | 704 | 0.2− | 1.0+ | 2005 09 27 | 691 | 0.0 | 0.2+ | 2005 12 01 | 699 | 0.5+ | 0.1− |
| 2000 04 05 | 704 | 0.2− | 1.4+ | 2005 09 29 | 699 | 0.4− | 0.0 | 2005 12 01 | 699 | 0.3+ | 0.7+ |
| 2000 04 05 | 704 | (1.0+ | 2.4+) | 2005 09 29 | 699 | 0.1+ | 0.6+ | 2007 02 09 | 691 | 0.1− | 0.2− |
| 2000 04 06 | 704 | 0.2+ | 1.7+ | 2005 09 29 | 699 | 1.5+ | 0.7− | 2007 02 09 | 691 | 0.0 | 0.4+ |
| 2000 04 06 | 704 | 0.7+ | 1.1+ | 2005 09 29 | 699 | 0.3+ | 0.9+ | 2007 02 09 | 691 | 0.3+ | 0.1+ |
| 2000 04 06 | 704 | (0.7+ | 2.0+) | 2005 09 30 | G96 | (0.3+ | 2.0+) | 2007 02 17 | 691 | 0.3+ | 0.1− |
| 2000 04 11 | 691 | 0.3− | 0.1− | 2005 09 30 | G96 | 0.1+ | 0.0 | 2007 02 17 | 691 | 0.2+ | 0.2+ |
| 2000 04 11 | 691 | 0.2+ | 0.4− | 2005 09 30 | G96 | 0.2− | 0.0 | 2007 02 17 | 691 | 0.1+ | 0.5− |
| 2000 04 11 | 691 | 0.0 | 0.3− | 2005 09 30 | G96 | 0.0 | 0.1− | 2007 02 21 | 691 | 0.4− | 0.1− |
| 2004 04 28 | 691 | 0.3− | 0.2+ | 2005 10 06 | 703 | 0.2+ | 0.1+ | 2007 02 21 | 691 | 0.2− | 0.1+ |
| 2004 04 28 | 691 | 0.1+ | 0.1+ | 2005 10 06 | 703 | 0.2− | 0.1− | 2007 02 21 | 691 | 0.2− | 0.0 |
| 2004 04 28 | 691 | 0.0 | 0.2+ | 2005 10 06 | 699 | 0.1− | 0.9+ | 2007 02 25 | 691 | 0.3+ | 0.2+ |
| 2005 08 30 | 621 | 0.7+ | 0.3− | 2005 10 06 | 703 | 0.4+ | 0.3+ | 2007 02 25 | 691 | 0.2+ | 0.0 |
| 2005 08 30 | 621 | 0.0 | 0.4− | 2005 10 06 | 703 | 0.1+ | 0.4− | 2007 02 25 | 691 | 0.2+ | 0.0 |
| 2005 08 30 | 621 | 0.3− | 0.1+ | 2005 10 06 | 699 | 0.3+ | 0.1− | 2007 03 10 | G96 | 0.1− | 0.1− |
| 2005 08 30 | 644 | 0.5− | 0.1+ | 2005 10 06 | 699 | 0.1− | 0.3− | 2007 03 10 | G96 | 0.5− | 0.5+ |
| 2005 08 30 | 644 | 0.2− | 0.4+ | 2005 10 06 | 699 | 0.7+ | 0.4+ | 2007 03 10 | G96 | 0.0 | 0.1+ |
| 2005 08 30 | 644 | 0.1− | 0.4+ | 2005 10 07 | 704 | 0.2− | 0.2+ | 2007 04 16 | G96 | 0.1− | 0.2− |
| 2005 09 01 | 621 | 0.1− | 0.2+ | 2005 10 07 | 691 | 0.3− | 0.4+ | 2007 04 16 | G96 | 0.1+ | 0.1− |
| 2005 09 01 | 621 | 0.1− | 0.2+ | 2005 10 07 | 704 | 0.2− | 0.3− | 2007 04 16 | G96 | 0.3− | 0.2− |
| 2005 09 01 | 621 | 0.2− | 0.1+ | 2005 10 07 | 691 | 0.1− | 0.3+ | 2007 04 16 | G96 | 0.2− | 0.3− |
| 2005 09 01 | 621 | 0.0 | 0.2− | 2005 10 07 | 704 | 0.3+ | 1.3+ | 2007 05 10 | G96 | 0.1+ | 0.4− |
| 2005 09 01 | 621 | 0.4− | 0.4+ | 2005 10 07 | 704 | 0.4− | 0.8+ | 2007 05 10 | G96 | 0.2− | 0.3− |
| 2005 09 04 | 621 | 0.2+ | 0.2− | 2005 10 07 | 691 | 0.1− | 0.4+ | 2007 05 10 | G96 | 0.1+ | 0.2+ |
| 2005 09 04 | 621 | 0.3+ | 0.1− | 2005 10 11 | 704 | 0.1+ | 0.6− | 2007 05 10 | G96 | 0.2− | 0.5− |
| 2005 09 04 | 621 | 0.4+ | 0.1− | 2005 10 11 | 704 | 0.2+ | 0.0 | 2009 12 15 | 704 | 0.5− | 1.1+ |
| 2005 09 05 | 621 | 0.5+ | 0.1− | 2005 10 11 | 704 | 0.0 | 0.2+ | 2009 12 15 | 704 | 0.9− | 0.4+ |
| 2005 09 05 | 621 | 0.2+ | 0.0 | 2005 10 11 | 704 | 0.2+ | 0.2+ | 2009 12 15 | 704 | 0.9+ | 0.3+ |
| 2005 09 05 | 621 | 0.3+ | 0.1− | 2005 10 11 | 704 | 0.2− | 0.2+ | 2009 12 15 | 704 | 0.9+ | 0.1− |
| 2005 09 08 | 704 | 1.1− | 1.2− | 2005 10 22 | 703 | 0.0 | 0.2− | 2009 12 18 | 691 | 0.0 | 0.3− |
| 2005 09 08 | 704 | 0.4− | 0.8− | 2005 10 22 | 703 | 0.0 | 0.2− | 2009 12 18 | 691 | 0.1+ | 0.2− |
| 2005 09 08 | 704 | (0.5− | 2.1−) | 2005 10 22 | 703 | 0.3+ | 0.2− | 2009 12 18 | 691 | 0.5− | 0.4+ |
| 2005 09 15 | 703 | (1.0− | 1.6−) | 2005 10 22 | 703 | 1.2− | 0.2− | | | | |
| 2005 09 15 | 703 | 1.1− | 1.5− | 2005 10 24 | 699 | 0.1+ | 0.1+ | | | | |

**(228304)∗ 2000 GE$_{41}$**

Discovered 2000 Apr. 5 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 291.07852 | | (2000.0) | | | |
| $n$ | 0.17542703 | $\omega$ | 319.19854 | | −0.96390593 | −0.26514533 |
| $a$ | 3.1603732 | $\Omega$ | 205.45642 | | +0.25654427 | −0.90070201 |
| $e$ | 0.1467741 | $i$ | 3.22113 | | +0.07120667 | −0.34414218 |
| $P$ | 5.62 | $H$ | 16.1 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 03 03 | 688 | 0.6+ | 0.2+ | 2000 05 02 | 691 | 0.5− | 0.2+ | 2006 05 20 | 691 | 0.7+ | 0.9+ |
| 2000 03 03 | 688 | 0.4+ | 0.5+ | 2005 01 17 | 691 | 0.4+ | 0.1+ | 2008 10 01 | G96 | 0.2+ | 0.7+ |
| 2000 04 05 | 704 | 1.4+ | 0.3+ | 2005 01 17 | 691 | 0.3+ | 0.0 | 2008 10 01 | G96 | 0.1+ | 0.7+ |
| 2000 04 05 | 704 | 0.1+ | 0.2+ | 2005 01 17 | 691 | 0.1+ | 0.0 | 2008 10 01 | G96 | 0.6+ | 0.6+ |
| 2000 04 05 | 704 | 0.7+ | 0.1+ | 2005 02 02 | 691 | 0.4+ | 0.2+ | 2008 10 01 | G96 | 0.7+ | 0.6+ |
| 2000 04 05 | 704 | 0.9+ | 0.1− | 2005 02 02 | 691 | 0.3+ | 0.3+ | 2008 10 24 | G96 | 0.2− | 0.9+ |
| 2000 04 05 | 704 | 0.2− | 0.4− | 2005 02 02 | 691 | 0.2+ | 0.0 | 2008 10 24 | G96 | 0.3+ | 0.0 |
| 2000 04 06 | 704 | 1.4+ | 1.2− | 2006 04 25 | G96 | 0.2− | 0.2+ | 2008 10 24 | G96 | 0.2− | 0.4+ |
| 2000 04 06 | 704 | 0.7+ | 1.2− | 2006 04 25 | G96 | 0.3− | 0.7− | 2008 10 24 | G96 | 0.3+ | 0.3+ |
| 2000 04 06 | 704 | 0.7+ | 0.5− | 2006 04 25 | G96 | 0.0 | 0.1− | 2009 11 19 | 691 | 0.6− | 0.2− |
| 2000 04 06 | 704 | 0.5+ | 0.2− | 2006 04 25 | G96 | 0.2+ | 0.2+ | 2009 11 19 | 691 | 0.7− | 0.4+ |
| 2000 04 06 | 704 | 0.8+ | 0.2− | 2006 05 06 | G96 | 0.4− | 0.0 | 2009 11 19 | 691 | 0.6− | 0.0 |
| 2000 04 26 | 691 | 0.2− | 0.2+ | 2006 05 06 | G96 | 0.2− | 0.2− | 2009 12 11 | G96 | 0.2+ | 0.1− |
| 2000 04 26 | 691 | 0.5− | 0.1− | 2006 05 06 | G96 | 0.1− | 0.1+ | 2009 12 11 | G96 | 0.6+ | 0.2− |
| 2000 04 26 | 691 | 1.0− | 0.2− | 2006 05 06 | G96 | 0.0 | 0.0 | 2009 12 11 | G96 | 0.1− | 0.1+ |
| 2000 05 02 | 691 | 0.4− | 0.1+ | 2006 05 20 | 691 | 0.1+ | 0.3+ | 2009 12 11 | G96 | 0.3+ | 0.2− |
| 2000 05 02 | 691 | 0.5− | 0.1− | 2006 05 20 | 691 | 0.1− | 0.5+ | | | | |

**(228305)∗ 2000 GY$_{128}$ = 2004 BM$_{144}$**

Discovered 2000 Apr. 5 by Spacewatch at Kitt Peak.

Id. A. Doppler (*MPO* 88718)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 36.88145 | | (2000.0) | | | |
| $n$ | 0.21825147 | $\omega$ | 208.54064 | | −0.73691102 | +0.67594222 |
| $a$ | 2.7321084 | $\Omega$ | 13.99580 | | −0.61373817 | −0.66403091 |
| $e$ | 0.1498994 | $i$ | 1.89966 | | −0.28335068 | −0.31963272 |
| $P$ | 4.52 | $H$ | 17.4 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 03 27 | 691 | 0.2+ | 0.1+ | 2004 01 19 | 691 | 0.1+ | 0.2+ | 2008 12 30 | 691 | 0.2− | 0.3+ |
| 2000 03 27 | 691 | 0.1+ | 0.3+ | 2004 01 28 | 691 | 0.3+ | 0.1+ | 2009 02 27 | 691 | 0.1+ | 0.0 |
| 2000 03 27 | 691 | 0.1− | 0.2+ | 2004 01 28 | 691 | 0.1+ | 0.1+ | 2009 02 27 | 691 | 0.2− | 0.0 |
| 2000 03 27 | 691 | 0.1− | 0.1+ | 2004 01 28 | 691 | 0.1− | 0.1+ | 2009 02 27 | 691 | 0.1− | 0.0 |
| 2000 03 27 | 691 | 0.5− | 0.5+ | 2006 09 19 | 691 | 0.3− | 0.2− | 2009 03 03 | 691 | 0.0 | 0.1− |
| 2000 03 27 | 691 | 0.2− | 0.0 | 2006 09 19 | 691 | 0.3+ | 0.1+ | 2009 03 03 | 691 | 0.1+ | 0.2+ |
| 2000 04 05 | 691 | 0.1+ | 0.4− | 2006 09 19 | 691 | 0.2− | 0.2− | 2009 03 03 | 691 | 0.1+ | 0.3− |
| 2000 04 05 | 691 | 0.1− | 0.7+ | 2006 09 25 | G96 | 0.9− | 1.2− | 2009 03 21 | G96 | 0.1+ | 0.2− |
| 2000 04 05 | 691 | 0.1− | 0.4+ | 2006 09 25 | G96 | 0.6+ | 0.1+ | 2009 03 21 | G96 | 0.1− | 0.1− |
| 2000 04 06 | 704 | 0.7+ | 1.0− | 2006 09 25 | G96 | 0.5+ | 0.2− | 2009 03 21 | G96 | 0.1+ | 0.0 |
| 2000 04 06 | 704 | 0.1+ | 0.1− | 2006 09 25 | G96 | 0.2− | 0.2+ | 2009 03 21 | G96 | 0.4+ | 0.0 |
| 2000 04 06 | 704 | 1.0+ | 0.3− | 2006 09 28 | 691 | 0.2− | 0.0 | 2009 04 27 | G96 | 0.4+ | 0.4+ |
| 2000 04 06 | 704 | 0.5+ | 0.7− | 2006 09 28 | 691 | 0.2+ | 0.2+ | 2009 04 27 | G96 | 0.3+ | 0.3+ |
| 2000 04 11 | 691 | 0.2− | 0.8− | 2006 09 28 | 691 | 0.2+ | 0.3+ | 2009 04 27 | G96 | 0.1+ | 0.2− |
| 2000 04 11 | 691 | 0.2+ | 0.3− | 2006 10 13 | 568 | 0.1+ | 0.2− | 2009 04 27 | G96 | 0.5+ | 0.1− |
| 2000 04 11 | 691 | 0.0 | 0.4− | 2006 10 13 | 568 | 0.3+ | 0.0 | 2009 05 25 | G96 | 0.2+ | 0.3+ |
| 2001 09 12 | 695 | 0.2− | 0.1+ | 2006 10 13 | 568 | 0.1+ | 0.1− | 2009 05 25 | G96 | 0.1+ | 0.3+ |
| 2001 09 12 | 695 | 0.1− | 0.1+ | 2006 10 14 | 568 | 0.1− | 0.5+ | 2009 05 25 | G96 | 0.2+ | 0.2+ |
| 2004 01 19 | 691 | 0.1− | 0.4− | 2008 12 30 | 691 | 0.1− | 0.1− | 2009 05 25 | G96 | 0.3+ | 0.4+ |
| 2004 01 19 | 691 | 0.1− | 0.1+ | 2008 12 30 | 691 | 0.6− | 0.5− | | | | |

**(228306)∗ 2000 HT$_{78}$ = 2005 EM$_{275}$**

Discovered 2000 Apr. 28 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Id. A. Doppler (*MPO* 74779)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 268.90125 | | (2000.0) | | | |
| $n$ | 0.17779233 | $\omega$ | 113.19636 | | −0.85980746 | +0.40310221 |
| $a$ | 3.1322809 | $\Omega$ | 91.82527 | | −0.50135922 | −0.78282249 |
| $e$ | 0.1185004 | $i$ | 18.27579 | | +0.09679912 | −0.47402274 |
| $P$ | 5.54 | $H$ | 14.9 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 04 28 | 699 | 0.3+ | 0.1− | 2003 12 18 | 291 | 0.0 | 0.5+ | 2005 03 14 | 703 | 0.1− | 0.4+ |
| 2000 04 28 | 699 | 0.1+ | 0.1+ | 2005 02 28 | 703 | 1.4− | 1.1− | 2006 05 18 | 644 | 0.1− | 0.3+ |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 04 28 | 699 | 0.2− | 0.7+ | 2005 02 28 | 703 | 0.1− | 0.0 | 2006 05 18 | 644 | 0.2+ | 0.3+ |
| 2000 04 28 | 699 | 0.5− | 0.0 | 2005 02 28 | 703 | 0.5+ | 1.1− | 2006 05 18 | 644 | 0.2+ | 0.5+ |
| 2000 05 03 | 704 | 0.4− | 0.2− | 2005 02 28 | 703 | 0.8+ | 1.2− | 2006 06 21 | 644 | 0.0 | 0.4+ |
| 2000 05 03 | 704 | 0.2+ | 0.2− | 2005 03 08 | 703 | 0.8− | 0.7− | 2006 06 21 | 644 | 0.1+ | 0.4+ |
| 2000 05 03 | 704 | 0.7+ | 1.9+ | 2005 03 08 | 703 | 0.4+ | 0.0 | 2006 06 21 | 644 | 0.4+ | 0.2+ |
| 2000 05 03 | 704 | 1.5+ | 0.7+ | 2005 03 08 | 703 | 0.3+ | 0.1+ | 2009 11 17 | G96 | 0.1− | 0.2− |
| 2000 05 30 | 699 | 0.8− | 0.8+ | 2005 03 08 | 703 | 1.0+ | 0.4+ | 2009 11 17 | G96 | 0.0 | 0.2− |
| 2000 05 30 | 699 | 0.7+ | 0.8− | 2005 03 08 | 704 | 0.5− | 0.4+ | 2009 11 17 | G96 | 0.2+ | 0.1− |
| 2000 05 30 | 699 | (2.8+ | 2.1+) | 2005 03 08 | 704 | 0.1− | 0.2+ | 2009 11 17 | G96 | 0.3+ | 0.4− |
| 2000 05 30 | 699 | 0.2+ | 0.5+ | 2005 03 08 | 704 | 0.1+ | 0.6+ | 2009 12 16 | 704 | (2.8− | 0.3+) |
| 2003 11 24 | 691 | 0.2− | 0.1+ | 2005 03 08 | 704 | 0.6− | 0.7+ | 2009 12 16 | 704 | 0.8− | 0.3+ |
| 2003 11 24 | 691 | 0.3− | 0.2+ | 2005 03 08 | 704 | 0.5+ | 0.9− | 2009 12 16 | 704 | 1.5− | 0.2− |
| 2003 11 24 | 691 | 0.1+ | 0.1+ | 2005 03 14 | 703 | 0.6− | 0.4+ | 2009 12 26 | 691 | 0.4− | 0.1− |
| 2003 12 18 | 291 | 0.2− | 0.3+ | 2005 03 14 | 703 | 0.4− | 0.9+ | 2009 12 26 | 691 | 0.7− | 0.4+ |
| 2003 12 18 | 291 | 0.2− | 0.4+ | 2005 03 14 | 703 | 1.0+ | 0.9− | 2009 12 26 | 691 | 1.8+ | 0.5− |

**(228307)∗ 2000 HB$_{94}$ = 2001 UZ$_{27}$**

Discovered 2000 Apr. 29 by Spacewatch at Kitt Peak.

Id. M. E. Sansaturio (*MPO* 22157)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 114.11809 | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.26049877 | $\omega$ | 271.05914 | | +0.78900955 | | +0.61130958 | |
| $a$ | 2.4280946 | $\Omega$ | 51.25984 | | −0.52776119 | | +0.72550795 | |
| $e$ | 0.0731857 | $i$ | 4.51166 | | −0.31453468 | | +0.31613099 | |
| $P$ | 3.78 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 2 | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 04 29 | 691 | 0.1+ | 0.2− | 2005 10 01 | G96 | 0.2− | 0.3− | 2005 11 26 | G96 | 0.1+ | 0.3− |
| 2000 04 29 | 691 | 0.1+ | 0.0 | 2005 10 24 | 691 | 0.3− | 0.0 | 2005 11 26 | G96 | 0.3+ | 0.3− |
| 2000 04 29 | 691 | 0.9− | 0.3+ | 2005 10 24 | 691 | 0.5− | 0.0 | 2005 11 26 | G96 | 0.1− | 0.1− |
| 2000 05 10 | 704 | 0.3− | 0.8+ | 2005 10 24 | 691 | 0.4− | 0.2+ | 2005 12 02 | G96 | 0.7+ | 0.0 |
| 2000 05 10 | 704 | (0.9− | 2.6+) | 2005 10 24 | 691 | 0.6− | 0.1− | 2005 12 02 | G96 | 0.1+ | 0.1+ |
| 2000 05 10 | 704 | 0.6+ | 0.3+ | 2005 10 24 | 691 | 0.3− | 0.0 | 2005 12 02 | G96 | 0.1+ | 0.1− |
| 2000 05 10 | 704 | 1.1− | 1.3+ | 2005 10 24 | 691 | 0.5− | 0.2− | 2005 12 02 | G96 | 0.4+ | 0.1− |
| 2000 05 26 | 691 | 0.2− | 0.7− | 2005 10 25 | G96 | 0.5+ | 0.1+ | 2005 12 05 | 691 | 0.1− | 0.0 |
| 2000 05 26 | 691 | 0.3+ | 1.4− | 2005 10 25 | G96 | 0.6+ | 0.3− | 2005 12 05 | 691 | 0.1− | 0.2+ |
| 2000 05 26 | 691 | 0.2+ | 0.3− | 2005 10 25 | G96 | 0.2+ | 0.3− | 2005 12 05 | 691 | 0.1+ | 0.0 |
| 2001 10 16 | 704 | 0.8+ | 0.2− | 2005 10 25 | G96 | 0.3+ | 0.1− | 2005 12 07 | 691 | 0.2− | 0.0 |
| 2001 10 16 | 704 | 0.0 | 0.3− | 2005 10 28 | 691 | 0.3+ | 0.1+ | 2005 12 07 | 691 | 0.1+ | 0.1+ |
| 2001 10 16 | 704 | 0.6+ | 1.3− | 2005 10 28 | 691 | 0.1+ | 0.0 | 2005 12 07 | 691 | 0.2− | 0.1− |
| 2001 10 16 | 704 | 0.5− | 0.0 | 2005 10 28 | 691 | 0.2+ | 0.1+ | 2009 11 09 | 691 | 0.1+ | 0.2− |
| 2001 10 18 | 644 | 0.3− | 0.1− | 2005 11 01 | 691 | 0.2+ | 0.2+ | 2009 11 09 | 691 | 0.1− | 0.0 |
| 2001 10 18 | 644 | 0.2− | 0.4− | 2005 11 01 | 691 | 0.1+ | 0.1+ | 2009 11 09 | 691 | 0.1− | 0.1− |
| 2001 10 18 | 644 | 0.2− | 0.0 | 2005 11 01 | 691 | 0.3+ | 0.2− | 2009 11 27 | 291 | 0.2− | 0.1− |
| 2001 10 20 | 704 | 0.5+ | 0.7+ | 2005 11 05 | 691 | 0.5+ | 0.2− | 2009 11 27 | 291 | 0.4− | 0.2+ |
| 2001 10 20 | 704 | 0.8+ | 0.2+ | 2005 11 05 | 691 | 0.3+ | 0.1− | 2009 11 27 | 291 | 0.1− | 0.8− |
| 2001 10 20 | 704 | 0.5− | 0.2+ | 2005 11 05 | 691 | 0.0 | 0.1− | 2009 12 11 | G96 | 0.6+ | 0.0 |
| 2001 10 20 | 704 | 0.4− | 0.3+ | 2005 11 10 | 691 | 0.0 | 0.1+ | 2009 12 11 | G96 | 0.6+ | 0.0 |
| 2001 10 20 | 704 | 0.4− | 0.2− | 2005 11 10 | 691 | 0.4+ | 0.2+ | 2009 12 11 | G96 | 0.7+ | 0.1+ |
| 2005 10 01 | G96 | 0.1+ | 0.5− | 2005 11 10 | 691 | 0.2+ | 0.1− | 2009 12 11 | G96 | 0.8+ | 0.3+ |
| 2005 10 01 | G96 | 0.3− | 0.5− | 2005 11 26 | G96 | 0.1+ | 0.7− | | | | |

**(228308)∗ 2000 HE$_{98}$ = 2002 YE$_{19}$**

Discovered 2000 Apr. 27 by Spacewatch at Kitt Peak.

Id. A. Doppler (*MPO* 46403)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 307.09662 | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.27210010 | $\omega$ | 55.39831 | | −0.64412997 | | −0.76299716 | |
| $a$ | 2.3585780 | $\Omega$ | 74.79597 | | +0.68214444 | | −0.60501580 | |
| $e$ | 0.1469930 | $i$ | 3.21663 | | +0.34608604 | | −0.22757685 | |
| $P$ | 3.62 | $H$ | 17.5 | $G$ | 0.15 | $U$ | 1 | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 04 12 | 691 | 0.5− | 0.6+ | 2005 09 13 | 691 | 0.2− | 0.4+ | 2007 03 15 | 703 | 0.4+ | 0.7− |
| 2000 04 12 | 691 | 0.4− | 0.7+ | 2005 09 13 | 691 | 0.2− | 0.6+ | 2007 03 15 | 703 | 0.1− | 0.3− |
| 2000 04 12 | 691 | 0.3− | 0.5+ | 2007 02 15 | 703 | 0.3− | 0.6− | 2007 03 15 | 703 | 0.5− | 0.5+ |
| 2000 04 27 | 691 | 0.0 | 0.1− | 2007 02 15 | 703 | 0.4− | 0.4− | 2007 03 16 | 704 | 0.1+ | 0.1+ |
| 2000 04 27 | 691 | 0.4+ | 0.1+ | 2007 02 15 | 703 | 0.0 | 0.2+ | 2007 03 16 | 704 | 0.1+ | 0.1− |
| 2000 04 27 | 691 | 0.7+ | 0.2+ | 2007 02 15 | 703 | 0.2− | 0.7− | 2007 03 16 | 704 | 0.4+ | 0.0 |
| 2000 05 07 | 691 | 0.4+ | 0.2− | 2007 02 23 | 691 | 0.1+ | 0.0 | 2007 03 16 | 704 | 1.0+ | 0.1+ |
| 2000 05 07 | 691 | 0.3+ | 0.1+ | 2007 02 23 | 691 | 0.1− | 0.1+ | 2007 03 16 | 704 | 1.1+ | 0.1− |
| 2000 05 07 | 691 | 0.3+ | 0.2− | 2007 02 23 | 691 | 0.0 | 0.0 | 2007 03 26 | 703 | 0.5+ | 0.8+ |
| 2002 12 04 | 695 | 0.5+ | 0.1+ | 2007 03 10 | 644 | 0.1− | 0.1+ | 2007 03 26 | 703 | 0.8− | 1.2+ |
| 2002 12 04 | 695 | 0.7+ | 0.2− | 2007 03 10 | 644 | 0.2− | 0.0 | 2007 03 26 | 703 | 0.4− | 0.2− |
| 2002 12 31 | 704 | 0.0 | 0.5+ | 2007 03 10 | 644 | 0.2− | 0.4− | 2007 03 26 | 703 | 0.6− | 0.9+ |
| 2002 12 31 | 704 | 0.0 | 0.0 | 2007 03 12 | 683 | 0.1+ | 1.0− | 2009 10 23 | 691 | 0.5− | 0.5+ |
| 2002 12 31 | 704 | 1.3− | 0.2− | 2007 03 12 | 683 | 0.3+ | 0.6+ | 2009 10 23 | 691 | 0.0 | 0.3+ |
| 2003 01 04 | 704 | 0.6+ | 0.6− | 2007 03 12 | 683 | 0.3− | 0.7+ | 2009 10 23 | 691 | 0.0 | 0.2+ |
| 2003 01 04 | 704 | 0.5− | 0.2+ | 2007 03 13 | 683 | 0.1− | 0.9+ | 2009 12 17 | G96 | 0.1+ | 0.2+ |
| 2003 01 04 | 704 | 0.0 | 1.3+ | 2007 03 13 | 683 | (1.7+ | 0.9−) | 2009 12 17 | G96 | 0.1− | 0.1− |
| 2003 01 04 | 704 | 0.2+ | 0.0 | 2007 03 13 | 683 | 1.0+ | 0.3+ | 2009 12 17 | G96 | 0.1− | 0.4− |
| 2005 09 13 | 691 | 0.2− | 0.5+ | 2007 03 15 | 703 | (1.9− | 0.9+) | 2009 12 17 | G96 | 0.3+ | 0.4+ |

**(228309)∗ 2000 JA$_{43}$**

Discovered 2000 May 7 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 138.07841 | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.25445634 | $\omega$ | 233.08723 | | +0.29026789 | | +0.94713797 | |
| $a$ | 2.4663831 | $\Omega$ | 54.34167 | | −0.81577737 | | +0.31956268 | |
| $e$ | 0.2290367 | $i$ | 9.68245 | | −0.50025177 | | +0.02844917 | |
| $P$ | 3.87 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 1 | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 04 27 | 704 | 0.0 | 0.3+ | 2000 05 23 | 699 | 0.7+ | 0.6− | 2005 10 27 | G96 | 0.1− | 0.8+ |
| 2000 04 27 | 704 | 0.4+ | 0.4+ | 2000 05 23 | 699 | 0.6+ | 0.6− | 2005 10 27 | G96 | 0.3− | 0.7+ |
| 2000 04 27 | 704 | 1.5+ | 1.5+ | 2000 05 23 | 699 | 0.1− | 0.5− | 2005 10 27 | G96 | 0.1− | 0.7+ |
| 2000 04 27 | 704 | 0.3+ | 1.3+ | 2000 05 25 | 691 | 0.4− | 0.3+ | 2005 10 27 | G96 | 0.2+ | 0.6+ |
| 2000 04 30 | 699 | 1.0+ | 1.6+ | 2000 05 25 | 691 | 0.3− | 0.2+ | 2005 11 25 | 691 | 1.0+ | 0.1+ |
| 2000 04 30 | 699 | 0.1+ | 0.3+ | 2000 05 25 | 691 | 0.3− | 0.4+ | 2005 11 25 | 691 | 0.1+ | 0.3+ |
| 2000 04 30 | 699 | 0.0 | 0.6+ | 2000 05 28 | 704 | 1.3+ | 0.1+ | 2005 11 25 | 691 | 0.2+ | 0.3+ |
| 2000 04 30 | 699 | 0.1+ | 0.2+ | 2000 05 28 | 704 | 0.2+ | 0.1+ | 2008 06 05 | E12 | 0.2+ | 0.6+ |
| 2000 05 07 | 704 | 0.7+ | 0.2+ | 2000 05 28 | 704 | 0.7+ | 0.2+ | 2008 06 05 | E12 | 0.1+ | 0.7+ |
| 2000 05 07 | 704 | 0.0 | 0.5− | 2000 05 28 | 704 | 0.5+ | 0.1− | 2008 06 05 | E12 | 0.1+ | 0.6+ |
| 2000 05 07 | 704 | 0.0 | 1.2+ | 2000 05 28 | 704 | 0.6+ | 0.5+ | 2008 06 27 | E12 | 0.1− | 0.8+ |
| 2000 05 07 | 704 | 0.5+ | 1.0− | 2000 05 29 | 704 | 0.5+ | 0.1− | 2008 06 27 | E12 | 0.3− | 0.9+ |
| 2000 05 07 | 704 | 0.7+ | 0.2− | 2000 05 29 | 704 | 1.3+ | 0.2+ | 2008 06 27 | E12 | 0.5− | 0.9+ |
| 2000 05 10 | 704 | 0.3− | 1.6+ | 2000 05 29 | 704 | 1.5+ | 0.3+ | 2008 06 27 | E12 | 0.2+ | 0.6+ |
| 2000 05 10 | 704 | 0.5− | 0.3+ | 2000 05 29 | 704 | 0.3+ | 1.1+ | 2009 11 09 | G96 | 0.4+ | 0.2+ |
| 2000 05 10 | 704 | 0.2− | 0.6− | 2000 05 29 | 704 | 0.2+ | 1.0+ | 2009 11 09 | G96 | 0.1+ | 0.6+ |
| 2000 05 10 | 704 | 0.3+ | 0.1− | 2000 05 30 | 691 | 0.1+ | 0.4− | 2009 11 09 | G96 | 0.7− | 0.3− |
| 2000 05 11 | 704 | 1.9+ | 0.4+ | 2000 05 30 | 691 | 0.2+ | 0.2− | 2009 11 09 | G96 | 0.7+ | 0.0 |
| 2000 05 11 | 699 | 0.2+ | 0.4− | 2000 05 30 | 691 | 0.1+ | 0.1− | 2009 11 26 | 691 | 0.7− | 0.6+ |
| 2000 05 11 | 704 | 0.4+ | 0.8+ | 2000 06 04 | 691 | 0.6− | 0.2+ | 2009 11 26 | 691 | 0.6− | 0.7+ |
| 2000 05 11 | 699 | 0.0 | 0.2− | 2000 06 04 | 691 | 0.6− | 0.2+ | 2009 11 26 | 691 | 0.7− | 0.1+ |
| 2000 05 11 | 699 | 0.8− | 0.1− | 2000 06 04 | 691 | 0.6− | 0.1− | 2009 12 13 | G96 | 0.7+ | 0.4+ |
| 2000 05 11 | 704 | (1.7+ | 2.9+) | 2001 11 14 | 291 | 0.5− | 0.6+ | 2009 12 13 | G96 | 0.1+ | 0.4+ |
| 2000 05 11 | 699 | 1.1− | 0.5− | 2001 11 14 | 291 | 0.5− | 0.6+ | 2009 12 13 | G96 | 0.6+ | 0.0 |
| 2000 05 23 | 699 | 0.8+ | 0.6+ | 2001 11 14 | 291 | 0.5− | 0.4+ | 2009 12 13 | G96 | 0.4+ | 0.2+ |

**(228310)∗ 2000 JV$_{44}$ = 2000 KF$_{11}$ = 2007 CP$_{15}$**

Discovered 2000 May 7 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. A. Doppler (d, *MPO* 4025), G. V. Williams (*MPO* 115690)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 248.13968 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.25916178 | $\omega$ | 111.50436 | | −0.95618418 | −0.28317260 | |
| $a$ | 2.4364383 | $\Omega$ | 52.12279 | | +0.22144593 | −0.86562711 | |
| $e$ | 0.1349452 | $i$ | 5.40355 | | +0.19150332 | −0.41292007 | |
| $P$ | 3.80 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 11 29 | 691 | 0.5+ | 0.9− | 2000 05 28 | 704 | 0.6− | 0.2+ | 2007 02 09 | 703 | 0.4− | 0.5+ | 2002 03 06 | 703 | 0.7+ | 0.5+ | 2008 06 27 | E12 | 0.3− | 0.6− |
| 1994 11 29 | 691 | 0.0 | 0.2− | 2000 05 29 | 704 | 1.1− | 0.2− | 2007 02 09 | 703 | 0.4− | 0.1− | 2002 03 06 | 703 | 0.1− | 0.2+ | 2008 06 27 | E12 | 0.3+ | 0.0 |
| 1994 11 29 | 691 | 0.4+ | 0.7− | 2000 05 29 | 704 | 0.3+ | 0.5− | 2007 02 09 | 703 | 0.5− | 0.6− | 2002 03 06 | 703 | 0.6− | 0.8+ | 2008 06 27 | E12 | 0.1− | 0.1+ |
| 2000 05 07 | 704 | 0.4− | 0.2− | 2000 05 29 | 704 | 1.4+ | 0.8+ | 2007 02 09 | 703 | 1.1− | 0.4− | 2002 03 06 | 703 | 0.3+ | 0.9− | 2008 06 27 | E12 | 0.1− | 0.1+ |
| 2000 05 07 | 704 | 0.0 | 0.4+ | 2000 05 29 | 704 | 0.1− | 0.6+ | 2007 02 16 | 644 | 0.1+ | 0.4+ | 2002 03 23 | 704 | 0.6+ | 0.3− | 2008 07 28 | E12 | 0.4+ | 0.4+ |
| 2000 05 07 | 704 | 0.5− | 0.1+ | 2000 05 29 | 704 | 0.6+ | 0.2+ | 2007 02 16 | 644 | 0.1+ | 0.2+ | 2002 03 23 | 704 | 0.6+ | 0.9+ | 2008 07 28 | E12 | 0.3− | 0.1− |
| 2000 05 07 | 704 | 0.1− | 0.2+ | 2007 01 16 | 703 | 0.3+ | 0.5+ | 2007 02 16 | 644 | 0.4+ | 0.3+ | 2002 03 23 | 704 | 1.0+ | 0.1− | 2008 07 28 | E12 | 0.6− | 0.3+ |
| 2000 05 07 | 704 | 0.7+ | 1.2− | 2007 01 16 | 703 | 0.7+ | 0.6+ | 2009 09 17 | 691 | 0.4− | 0.4+ | 2002 03 23 | 704 | 0.9+ | 0.0 | 2008 08 03 | 704 | 0.8+ | 0.6+ |
| 2000 05 10 | 704 | 0.5+ | 0.7+ | 2007 01 16 | 703 | 0.7− | 0.7+ | 2009 09 17 | 691 | 0.4− | 0.3+ | 2003 10 16 | 704 | 0.4− | 0.8+ | 2008 08 03 | 704 | 0.4+ | 0.2+ |
| 2000 05 10 | 704 | 0.1+ | 0.4+ | 2007 01 23 | 704 | 0.2− | 0.3+ | 2009 09 17 | 691 | 0.1− | 0.3+ | 2003 10 16 | 704 | 0.3+ | 0.4+ | 2008 08 03 | 704 | 0.1− | 1.0− |
| 2000 05 10 | 704 | 0.3+ | 0.3+ | 2007 01 23 | 704 | 0.6+ | 0.6+ | 2009 09 29 | 691 | 0.3− | 0.3+ | 2003 10 16 | 704 | 0.1+ | 0.9+ | 2008 08 03 | 704 | 0.2+ | 0.1− |
| 2000 05 10 | 704 | 0.3+ | 1.4+ | 2007 01 23 | 704 | 0.5+ | 0.7+ | 2009 09 29 | 691 | 0.1− | 0.3+ | 2003 10 16 | 704 | 1.3− | 0.3+ | 2008 08 03 | 704 | 0.3+ | 0.7+ |
| 2000 05 10 | 704 | 0.1− | 0.2+ | 2007 01 23 | 704 | 0.4+ | 0.2− | 2009 09 29 | 691 | 0.2+ | 0.7+ | 2003 10 16 | 704 | 0.0 | 0.5+ | 2008 10 28 | G96 | 0.4− | 0.0 |
| 2000 05 28 | 704 | 0.0 | 0.9− | 2007 01 23 | 704 | 0.2+ | 0.1+ | 2009 12 18 | 291 | 0.2− | 0.4+ | 2005 05 16 | E12 | 0.4+ | 0.0 | 2008 10 28 | G96 | 0.0 | 0.0 |
| 2000 05 28 | 704 | 0.3− | 0.0 | 2007 02 05 | 644 | 0.6+ | 0.4+ | 2009 12 18 | 291 | 0.1− | 0.2+ | 2005 05 16 | E12 | 0.0 | 0.5+ | 2008 10 28 | G96 | 0.0 | 0.1− |
| 2000 05 28 | 704 | 0.1+ | 0.1+ | 2007 02 05 | 644 | 0.1+ | 0.3+ | 2009 12 18 | 291 | 0.2+ | 0.2− | 2005 05 16 | E12 | 0.2+ | 0.6− | 2008 10 28 | G96 | 0.2− | 0.2− |
| 2000 05 28 | 704 | 0.4− | 0.3− | 2007 02 05 | 644 | 0.5+ | 0.8+ | | | | | 2008 05 04 | E12 | 0.3− | 0.1+ | 2009 11 20 | 691 | 0.0 | 0.2+ |
| | | | | | | | | | | | | 2008 05 04 | E12 | 0.1+ | 0.6− | 2009 11 20 | 691 | 0.1− | 0.0 |
| | | | | | | | | | | | | 2008 05 04 | E12 | 0.5+ | 0.3− | 2009 11 20 | 691 | 0.1− | 0.2+ |
| | | | | | | | | | | | | 2008 05 04 | E12 | 0.3+ | 0.5+ | 2009 12 19 | G96 | 0.3+ | 0.2− |
| | | | | | | | | | | | | 2008 06 07 | E12 | 0.3+ | 0.2+ | 2009 12 19 | G96 | 0.1+ | 0.2− |
| | | | | | | | | | | | | 2008 06 07 | E12 | 0.8− | 0.2+ | 2009 12 19 | G96 | 0.4+ | 0.1− |
| | | | | | | | | | | | | 2008 06 07 | E12 | (2.0− | 0.4+) | 2009 12 19 | G96 | 0.2+ | 0.2− |
| | | | | | | | | | | | | 2008 06 07 | E12 | 0.7− | 0.4− | | | | |

**(228311)∗ 2000 $LB_{31}$ = 2004 $LW_3$**

Discovered 2000 June 6 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Id. T. B. Spahr (*MPO* 64742)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 144.37527 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26012282 | $\omega$ | 218.75360 | | +0.72753239 | +0.65267131 | |
| $a$ | 2.4304335 | $\Omega$ | 99.13773 | | −0.56399322 | +0.74445975 | |
| $e$ | 0.2617805 | $i$ | 12.36751 | | −0.39065108 | +0.14071193 | |
| $P$ | 3.79 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 05 27 | 704 | 0.6+ | 0.4+ | 2004 06 14 | 704 | 0.4+ | 0.0 | 2007 03 16 | A44 | 0.5+ | 0.9− | 2000 07 24 | 704 | 0.1− | 0.9− | 2004 08 11 | 704 | 0.1+ | 0.1− | 2005 12 05 | 691 | 0.3− | 0.2+ |
| 2000 05 27 | 704 | 0.1+ | 1.2+ | 2004 06 14 | 704 | 0.3+ | 0.1− | 2007 03 16 | A44 | 0.3− | 0.2− | 2000 07 24 | 704 | 0.1+ | 0.6+ | 2004 08 11 | 704 | 0.4− | 0.2+ | 2005 12 05 | 691 | 0.4− | 0.2+ |
| 2000 05 27 | 704 | 0.0 | 0.2+ | 2004 06 14 | 704 | 0.1+ | 0.1+ | 2008 08 23 | E12 | 0.0 | 0.5+ | 2000 07 24 | 704 | 1.0− | 0.8+ | 2004 08 11 | 704 | 0.2− | 0.5+ | 2005 12 05 | 691 | 0.2− | 0.0 |
| 2000 05 27 | 704 | 0.3+ | 0.6+ | 2004 06 14 | 704 | 0.0 | 0.3+ | 2008 08 23 | E12 | 0.1− | 0.4+ | 2000 08 02 | 704 | 0.4− | 0.9− | 2004 08 11 | 704 | 0.5+ | 0.3+ | 2005 12 25 | 691 | 0.1− | 0.1− |
| 2000 05 27 | 704 | 0.5+ | 0.6+ | 2004 06 17 | 704 | 0.9− | 0.5− | 2008 08 23 | E12 | 0.0 | 0.1+ | 2000 08 02 | 704 | 0.2+ | 0.6+ | 2004 08 11 | 704 | 0.3− | 0.2+ | 2005 12 25 | 691 | 0.0 | 0.0 |
| 2000 06 06 | 699 | 1.0+ | 0.9+ | 2004 06 17 | 704 | 0.5− | 0.6− | 2008 09 24 | E12 | 0.2− | 0.4+ | 2000 08 02 | 704 | 0.7+ | 0.1− | 2004 08 11 | 704 | 0.1− | 0.2− | 2005 12 25 | 691 | 0.1− | 0.1+ |
| 2000 06 06 | 699 | 0.2+ | 0.9+ | 2004 06 17 | 704 | 0.8− | 0.6− | 2008 09 24 | E12 | 0.7+ | 0.1− | 2000 08 02 | 704 | 1.1− | 1.4+ | 2004 08 12 | 704 | 0.2+ | 0.2− | 2005 12 29 | 691 | 0.3+ | 0.4+ |
| 2000 06 06 | 699 | 0.1+ | 0.5+ | 2004 06 17 | 704 | 0.9− | 0.3− | 2008 09 24 | E12 | 0.4− | 0.1+ | 2000 08 02 | 704 | 0.4+ | 1.7+ | 2004 08 12 | 704 | 0.3+ | 0.2+ | 2005 12 29 | 691 | 0.0 | 0.2+ |
| 2000 06 06 | 699 | 0.3− | 1.1+ | 2004 06 28 | 428 | 0.3+ | 0.4− | 2008 09 24 | E12 | 0.0 | 0.2+ | 2000 09 03 | 704 | 0.4+ | 1.8− | 2004 08 12 | 704 | 0.2+ | 0.2+ | 2005 12 29 | 691 | 0.2+ | 0.3+ |
| 2000 06 10 | 691 | 0.2− | 0.3− | 2005 12 04 | G96 | 0.2− | 0.2− | 2008 11 01 | 703 | 0.4+ | 0.3− | 2000 09 03 | 704 | 0.5− | 1.2− | 2004 08 12 | 704 | 0.4− | 0.1+ | 2006 01 06 | 691 | 0.1− | 0.2+ |
| 2000 06 10 | 691 | 0.2+ | 0.0 | 2005 12 04 | G96 | 0.2+ | 0.0 | 2008 11 01 | 703 | 1.4− | 1.0+ | 2000 09 03 | 704 | 0.9− | 0.4− | 2004 08 12 | 704 | 0.4+ | 0.5+ | 2006 01 06 | 691 | 0.2+ | 1.3+ |
| 2000 06 10 | 691 | 0.1+ | 0.0 | 2005 12 04 | G96 | 0.4+ | 0.0 | 2008 11 01 | 703 | 0.0 | 0.7+ | 2000 09 05 | 704 | 1.2+ | 0.4− | 2004 08 12 | 704 | 0.3+ | 0.1+ | 2006 01 06 | 691 | 0.3− | 0.1− |
| 2001 12 17 | 704 | (2.4− | 0.8+) | 2005 12 25 | 691 | 0.3+ | 0.2+ | 2008 11 01 | 703 | 0.8+ | 0.8+ | 2000 09 05 | 704 | 0.4− | 1.3− | 2004 08 12 | 704 | 0.3+ | 0.0 | 2006 01 10 | 691 | 0.5+ | 0.1− |
| 2001 12 17 | 704 | (2.2− | 2.1+) | 2005 12 25 | 691 | 0.1+ | 0.5+ | 2009 11 21 | G96 | 0.2− | 0.2+ | 2000 09 05 | 704 | 0.6+ | 0.2+ | 2004 08 12 | 704 | 0.0 | 0.5+ | 2006 01 10 | 691 | 0.1+ | 0.4+ |
| 2001 12 17 | 704 | (2.4− | 1.3+) | 2005 12 25 | 691 | 0.2+ | 0.1+ | 2009 11 21 | G96 | 0.3+ | 0.3+ | 2000 09 05 | 704 | 0.1− | 0.2+ | 2004 08 12 | 704 | 0.1− | 0.2+ | 2006 01 10 | 691 | 0.3+ | 0.1+ |
| 2004 06 11 | 428 | 0.1− | 0.2+ | 2005 12 30 | 691 | 0.1− | 0.1+ | 2009 11 21 | G96 | 0.5+ | 0.0 | 2001 12 17 | 704 | 0.2+ | 0.1− | 2004 08 12 | 704 | 0.0 | 0.2+ | 2008 07 13 | A50 | 0.1+ | 0.6+ |
| 2004 06 11 | 428 | 0.3+ | 0.2+ | 2005 12 30 | 691 | 1.1− | 0.5− | 2009 11 21 | G96 | 0.1+ | 0.0 | 2001 12 17 | 704 | 0.3+ | 0.3+ | 2004 09 08 | 704 | 0.1− | 0.2+ | 2008 07 13 | A50 | 0.1+ | 0.5+ |
| 2004 06 12 | 428 | 0.4− | 0.7+ | 2005 12 30 | 691 | 0.1− | 0.3+ | 2009 12 18 | 691 | 0.0 | 0.2+ | 2001 12 17 | 704 | 0.5+ | 0.3− | 2004 09 08 | 704 | 0.1+ | 0.1− | 2008 07 13 | A50 | 0.8+ | 0.5+ |
| 2004 06 12 | 428 | 0.5+ | 0.1+ | 2006 01 05 | 691 | 0.8− | 0.9+ | 2009 12 18 | 691 | 0.3− | 0.1+ | 2001 12 17 | 704 | 0.8− | 0.3− | 2004 09 08 | 704 | 0.6+ | 0.2− | 2008 07 13 | A50 | 0.7− | 0.2+ |
| 2004 06 12 | 428 | 0.0 | 0.2+ | 2006 01 05 | 691 | 1.2+ | 0.7− | 2009 12 18 | 691 | 0.1+ | 0.1− | 2001 12 17 | 704 | 0.7+ | 0.5− | 2004 09 10 | 704 | 0.0 | 0.2+ | 2008 07 25 | 703 | 0.0 | 0.3+ |
| 2004 06 14 | 704 | 0.1+ | 0.3− | 2006 01 05 | 691 | 0.1+ | 0.2+ | | | | | 2004 07 14 | 704 | 0.0 | 0.3− | 2004 09 10 | 704 | 0.5+ | 0.5− | 2008 07 25 | 703 | 0.4− | 0.3+ |
| | | | | | | | | | | | | 2004 07 14 | 704 | 0.4− | 0.1+ | 2004 09 10 | 704 | 0.5+ | 0.5− | 2008 07 25 | 703 | 0.4+ | 0.1− |

**(228312)∗ 2000 $OS_8$**

Discovered 2000 July 23 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 176.57853 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.36602609 | $\omega$ | 6.77418 | | +0.71643915 | +0.65475828 | |
| $a$ | 1.9355067 | $\Omega$ | 309.36101 | | −0.65380855 | +0.50968916 | |
| $e$ | 0.0505843 | $i$ | 18.15000 | | −0.24341183 | +0.55812952 | |
| $P$ | 2.69 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 07 23 | 704 | 0.5− | 0.1− | 2002 03 06 | 703 | 0.7+ | 0.5+ | 2008 06 27 | E12 | 0.3− | 0.6− | 2000 07 23 | 704 | 0.2− | 0.3− | 2002 03 06 | 703 | 0.1− | 0.2+ | 2008 06 27 | E12 | 0.3+ | 0.0 |
| 2000 07 23 | 704 | 1.0+ | 0.1− | 2002 03 06 | 703 | 0.6− | 0.8+ | 2008 06 27 | E12 | 0.1− | 0.1+ | 2000 07 23 | 704 | 1.1− | 1.1+ | 2002 03 06 | 703 | 0.3+ | 0.9− | 2008 06 27 | E12 | 0.1− | 0.1+ |
| 2000 08 01 | 704 | 0.2+ | 0.9+ | 2002 03 23 | 704 | 0.6+ | 0.3− | 2008 07 28 | E12 | 0.4+ | 0.4+ | 2000 08 01 | 704 | 0.4+ | 0.3− | 2002 03 23 | 704 | 0.6+ | 0.9+ | 2008 07 28 | E12 | 0.3− | 0.1− |
| 2000 08 01 | 704 | 0.8− | 0.1− | 2002 03 23 | 704 | 1.0+ | 0.1− | 2008 07 28 | E12 | 0.6− | 0.3+ | 2000 08 01 | 704 | 0.2+ | 0.5+ | 2002 03 23 | 704 | 0.9+ | 0.0 | 2008 08 03 | 704 | 0.8+ | 0.6+ |
| 2003 10 16 | 704 | 0.4− | 0.8+ | 2008 08 03 | 704 | 0.4+ | 0.2+ | 2000 08 06 | 608 | (2.7− | 0.2−) | 2003 10 16 | 704 | 0.3+ | 0.4+ | 2008 08 03 | 704 | 0.1− | 1.0− | 2000 08 06 | 608 | (2.6− | 0.7+) |
| 2003 10 16 | 704 | 0.1+ | 0.9+ | 2008 08 03 | 704 | 0.2+ | 0.1− | 2000 08 06 | 608 | (2.9− | 1.0+) | 2003 10 16 | 704 | 1.3− | 0.3+ | 2008 08 03 | 704 | 0.3+ | 0.7+ | 2000 09 03 | 704 | 0.4− | 0.6− |
| 2003 10 16 | 704 | 0.0 | 0.5+ | 2008 10 28 | G96 | 0.4− | 0.0 | 2000 09 03 | 704 | 0.9− | 0.1− | 2005 05 16 | E12 | 0.4+ | 0.0 | 2008 10 28 | G96 | 0.0 | 0.0 | 2000 09 03 | 704 | 0.5− | 0.4+ |
| 2005 05 16 | E12 | 0.0 | 0.5+ | 2008 10 28 | G96 | 0.0 | 0.1− | 2000 09 03 | 704 | 0.2− | 0.9+ | 2005 05 16 | E12 | 0.2+ | 0.6− | 2008 10 28 | G96 | 0.2− | 0.2− | 2000 09 03 | 704 | 0.1+ | 0.1+ |
| 2008 05 04 | E12 | 0.3− | 0.1+ | 2009 11 20 | 691 | 0.0 | 0.2+ | 2000 09 03 | 704 | 0.2− | 0.2+ | 2008 05 04 | E12 | 0.1+ | 0.6− | 2009 11 20 | 691 | 0.1− | 0.0 | 2002 02 08 | 644 | 1.0+ | 1.0+ |
| 2008 05 04 | E12 | 0.5+ | 0.3− | 2009 11 20 | 691 | 0.1− | 0.2+ | 2002 02 08 | 644 | 1.0+ | 0.9+ | 2008 05 04 | E12 | 0.3+ | 0.5+ | 2009 12 19 | G96 | 0.3+ | 0.2− | 2002 02 08 | 644 | 0.7+ | 1.1+ |
| 2008 06 07 | E12 | 0.3+ | 0.2+ | 2009 12 19 | G96 | 0.1+ | 0.2− | 2002 02 14 | 608 | 0.5− | 0.2+ | 2008 06 07 | E12 | 0.8− | 0.2+ | 2009 12 19 | G96 | 0.4+ | 0.1− | 2002 02 14 | 608 | 0.5− | 0.9+ |
| 2008 06 07 | E12 | (2.0− | 0.4+) | 2009 12 19 | G96 | 0.2+ | 0.2− | 2002 02 14 | 608 | 0.9− | 0.6+ | 2008 06 07 | E12 | 0.7− | 0.4− | | | | | | | | |

**(228313)∗ 2000 $OB_{28}$**

Discovered 2000 July 24 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 109.26528 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24547241 | $\omega$ | 66.62698 | | +0.93804917 | +0.32983628 | |
| $a$ | 2.5261992 | $\Omega$ | 273.97771 | | −0.34387246 | +0.84847707 | |
| $e$ | 0.1060224 | $i$ | 6.10928 | | −0.04260862 | +0.41387761 | |
| $P$ | 4.02 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 07 24 | 704 | 0.1− | 0.9− | 2004 08 11 | 704 | 0.1+ | 0.1− | 2005 12 05 | 691 | 0.3− | 0.2+ | 2000 07 24 | 704 | 0.1+ | 0.6+ | 2004 08 11 | 704 | 0.4− | 0.2+ | 2005 12 05 | 691 | 0.4− | 0.2+ |
| 2000 07 24 | 704 | 1.0− | 0.8+ | 2004 08 11 | 704 | 0.2− | 0.5+ | 2005 12 05 | 691 | 0.2− | 0.0 | 2000 08 02 | 704 | 0.4− | 0.9− | 2004 08 11 | 704 | 0.5+ | 0.3+ | 2005 12 25 | 691 | 0.1− | 0.1− |
| 2000 08 02 | 704 | 0.2+ | 0.6+ | 2004 08 11 | 704 | 0.3− | 0.2+ | 2005 12 25 | 691 | 0.0 | 0.0 | 2000 08 02 | 704 | 0.7+ | 0.1− | 2004 08 11 | 704 | 0.1− | 0.2− | 2005 12 25 | 691 | 0.1− | 0.1+ |
| 2000 08 02 | 704 | 1.1− | 1.4+ | 2004 08 12 | 704 | 0.2+ | 0.2− | 2005 12 29 | 691 | 0.3+ | 0.4+ | 2000 08 02 | 704 | 0.4+ | 1.7+ | 2004 08 12 | 704 | 0.3+ | 0.2+ | 2005 12 29 | 691 | 0.0 | 0.2+ |
| 2000 09 03 | 704 | 0.4+ | 1.8− | 2004 08 12 | 704 | 0.2+ | 0.2+ | 2005 12 29 | 691 | 0.2+ | 0.3+ | 2000 09 03 | 704 | 0.5− | 1.2− | 2004 08 12 | 704 | 0.4− | 0.1+ | 2006 01 06 | 691 | 0.1− | 0.2+ |
| 2000 09 03 | 704 | 0.9− | 0.4− | 2004 08 12 | 704 | 0.4+ | 0.5+ | 2006 01 06 | 691 | 0.2+ | 1.3+ | 2000 09 05 | 704 | 1.2+ | 0.4− | 2004 08 12 | 704 | 0.3+ | 0.1+ | 2006 01 06 | 691 | 0.3− | 0.1− |
| 2000 09 05 | 704 | 0.4− | 1.3− | 2004 08 12 | 704 | 0.3+ | 0.0 | 2006 01 10 | 691 | 0.5+ | 0.1− | 2000 09 05 | 704 | 0.6+ | 0.2+ | 2004 08 12 | 704 | 0.0 | 0.5+ | 2006 01 10 | 691 | 0.1+ | 0.4+ |
| 2000 09 05 | 704 | 0.1− | 0.2+ | 2004 08 12 | 704 | 0.1− | 0.2+ | 2006 01 10 | 691 | 0.3+ | 0.1+ | 2001 12 17 | 704 | 0.2+ | 0.1− | 2004 08 12 | 704 | 0.0 | 0.2+ | 2008 07 13 | A50 | 0.1+ | 0.6+ |
| 2001 12 17 | 704 | 0.3+ | 0.3+ | 2004 09 08 | 704 | 0.1− | 0.2+ | 2008 07 13 | A50 | 0.1+ | 0.5+ | 2001 12 17 | 704 | 0.5+ | 0.3− | 2004 09 08 | 704 | 0.1+ | 0.1− | 2008 07 13 | A50 | 0.8+ | 0.5+ |
| 2001 12 17 | 704 | 0.8− | 0.3− | 2004 09 08 | 704 | 0.6+ | 0.2− | 2008 07 13 | A50 | 0.7− | 0.2+ | 2001 12 17 | 704 | 0.7+ | 0.5− | 2004 09 10 | 704 | 0.0 | 0.2+ | 2008 07 25 | 703 | 0.0 | 0.3+ |
| 2004 07 14 | 704 | 0.0 | 0.3− | 2004 09 10 | 704 | 0.5+ | 0.5− | 2008 07 25 | 703 | 0.4− | 0.3+ | 2004 07 14 | 704 | 0.4− | 0.1+ | 2004 09 10 | 704 | 0.5+ | 0.5− | 2008 07 25 | 703 | 0.4+ | 0.1− |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 07 14 | 704 | 0.3− | 1.1+ | 2004 09 10 | 704 | 0.2− | 0.1− | 2008 07 25 | 703 | 0.6− | 0.4− |
| 2004 07 14 | 704 | 0.6+ | 0.5− | 2004 09 10 | 704 | 0.5− | 0.1+ | 2008 07 31 | 704 | 0.2− | 0.3− |
| 2004 07 14 | 704 | 0.2− | 0.3+ | 2004 09 11 | 704 | 0.4− | 0.1− | 2008 07 31 | 704 | 0.3+ | 0.3− |
| 2004 07 18 | 704 | 0.5− | 0.3+ | 2004 09 11 | 704 | 0.4− | 0.0 | 2008 07 31 | 704 | 0.0 | 0.4− |
| 2004 07 18 | 704 | 0.1− | 1.5+ | 2004 09 11 | 704 | 0.3− | 0.1+ | 2008 07 31 | 704 | 0.1− | 0.2− |
| 2004 07 18 | 704 | 0.2− | 0.1+ | 2004 09 11 | 704 | 0.0 | 0.5− | 2008 07 31 | 704 | 0.4− | 0.4− |
| 2004 07 18 | 704 | 0.4+ | 0.7− | 2004 09 13 | 704 | 0.6+ | 0.3− | 2008 08 05 | J75 | 0.0 | 0.2− |
| 2004 08 06 | 644 | 0.3− | 0.1+ | 2004 09 13 | 704 | 0.5+ | 1.0+ | 2008 08 05 | J75 | 0.3− | 0.5− |
| 2004 08 06 | 644 | 0.0 | 0.0 | 2004 09 13 | 704 | 0.5+ | 0.3+ | 2008 08 05 | J75 | 0.4+ | 0.1− |
| 2004 08 06 | 644 | 0.0 | 0.2+ | 2004 09 13 | 704 | 0.1− | 0.0 | 2008 10 26 | G96 | 0.1− | 0.0 |
| 2004 08 09 | 704 | 0.1+ | 0.7+ | 2004 09 13 | 704 | 0.3− | 0.2− | 2008 10 26 | G96 | 0.1+ | 0.1− |
| 2004 08 09 | 704 | 0.2− | 0.5+ | 2004 09 18 | 704 | 0.4− | 0.7− | 2008 10 26 | G96 | 0.2+ | 0.3− |
| 2004 08 09 | 704 | 0.5− | 0.9+ | 2004 09 18 | 704 | (1.5− | 0.6−) | 2008 10 26 | G96 | 0.2− | 0.0 |
| 2004 08 09 | 704 | 0.3+ | 0.7+ | 2004 09 18 | 704 | 0.3− | 1.2− | 2009 10 18 | G96 | 0.3− | 0.5− |
| 2004 08 10 | 704 | 0.2− | 0.5+ | 2004 09 18 | 704 | 0.7− | 0.7− | 2009 10 18 | G96 | 0.5+ | 0.6− |
| 2004 08 10 | 704 | 0.3− | 0.1+ | 2004 09 18 | 704 | (1.7− | 0.8−) | 2009 10 18 | G96 | 0.0 | 0.1+ |
| 2004 08 10 | 704 | 0.2+ | 0.2− | 2005 10 27 | G96 | 0.3+ | 0.5− | 2009 10 18 | G96 | 0.8+ | 0.6− |
| 2004 08 10 | 704 | 0.1+ | 0.3− | 2005 10 27 | G96 | 0.4− | 0.7− | 2009 11 17 | G96 | 0.3+ | 0.3− |
| 2004 08 10 | 704 | 0.3+ | 0.1+ | 2005 10 27 | G96 | 0.0 | 0.4− | 2009 11 17 | G96 | 0.1− | 0.5− |
| 2004 08 10 | 704 | 0.1+ | 0.2+ | 2005 10 27 | G96 | 0.3+ | 0.2− | 2009 11 17 | G96 | 0.0 | 0.6− |
| 2004 08 10 | 704 | 0.0 | 0.4+ | 2005 11 28 | G96 | 0.1+ | 0.2− | 2009 11 17 | G96 | 0.1+ | 0.5− |
| 2004 08 10 | 704 | 0.3− | 0.0 | 2005 11 28 | G96 | 0.0 | 0.2− | 2009 12 16 | 691 | 0.2− | 0.1+ |
| 2004 08 10 | 704 | 0.2+ | 0.1+ | 2005 11 28 | G96 | 0.1+ | 0.2− | 2009 12 16 | 691 | 0.1− | 0.0 |
| 2004 08 10 | 704 | 0.2+ | 0.3− | 2005 11 28 | G96 | 0.0 | 0.2+ | 2009 12 16 | 691 | 0.2− | 0.2− |
| 2004 08 11 | 704 | 0.1− | 0.3+ | 2005 11 29 | G96 | 0.1+ | 0.0 | 2009 12 20 | 691 | 0.1+ | 0.1− |
| 2004 08 11 | 704 | 0.2+ | 0.1− | 2005 11 29 | G96 | 0.1+ | 0.1− | 2009 12 20 | 691 | 0.3− | 0.1− |
| 2004 08 11 | 704 | 0.2+ | 0.5+ | 2005 11 29 | G96 | 0.1− | 0.3− | 2009 12 20 | 691 | 0.2+ | 0.0 |
| 2004 08 11 | 704 | 0.0 | 0.2− | 2005 11 29 | G96 | 0.1− | 0.3− | | | | |

**(228314)∗ 2000 OA$_{41}$**

Discovered 2000 July 30 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 94.70363 | | (2000.0) | | **P** | **Q** |
| $n$ | 0.24206033 | $\omega$ | 119.59915 | | +0.91939956 | +0.38003518 |
| $a$ | 2.5498833 | $\Omega$ | 218.32004 | | −0.39302147 | +0.87752809 |
| $e$ | 0.1609986 | $i$ | 9.41013 | | −0.01544552 | +0.29243410 |
| $P$ | 4.07 | $H$ | 15.1 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 07 04 | 699 | 0.1− | 0.7+ | 2000 09 25 | 704 | 0.0 | 1.3− | 2006 01 03 | 704 | 1.5− | 0.6+ |
| 2000 07 04 | 699 | 0.1+ | 0.5+ | 2004 06 12 | 691 | 0.2+ | 0.3+ | 2006 01 03 | 704 | 0.1+ | 0.0 |
| 2000 07 04 | 699 | (1.2− | 2.6+) | 2004 06 12 | 691 | 0.2+ | 0.1+ | 2007 03 11 | D29 | 0.2+ | 0.5− |
| 2000 07 04 | 699 | 0.7+ | 0.1− | 2004 06 12 | 691 | 0.2+ | 0.1+ | 2007 03 11 | D29 | 0.3+ | 0.4+ |
| 2000 07 30 | 704 | 0.5− | 0.5+ | 2004 06 13 | 704 | 0.2+ | 0.6− | 2007 03 11 | D29 | 1.1+ | 0.1− |
| 2000 07 30 | 704 | 0.5+ | 0.7+ | 2004 06 13 | 704 | 0.3− | 0.8− | 2007 03 11 | D29 | 0.0 | 0.5+ |
| 2000 07 30 | 704 | 0.0 | 0.8+ | 2004 06 13 | 704 | 0.6− | 0.5+ | 2007 03 13 | 703 | 0.8+ | 0.5+ |
| 2000 07 30 | 704 | 0.0 | 0.1+ | 2004 06 13 | 704 | 0.1+ | 0.2− | 2007 03 13 | 703 | 1.1− | 0.5− |
| 2000 08 03 | 704 | 1.1− | 1.3− | 2004 06 13 | 704 | 0.0 | 0.3+ | 2007 03 13 | 703 | (1.9+ | 3.4+) |
| 2000 08 03 | 704 | 0.0 | 0.3+ | 2004 06 17 | 691 | 0.0 | 0.3− | 2007 03 13 | 703 | 0.5− | 0.1− |
| 2000 08 03 | 704 | 0.6− | 0.7+ | 2004 06 17 | 691 | 0.0 | 0.2− | 2008 11 19 | G96 | 0.6+ | 0.2− |
| 2000 08 03 | 704 | 0.4+ | 0.3− | 2004 06 17 | 691 | 0.0 | 0.0 | 2008 11 19 | G96 | 0.0 | 0.2− |
| 2000 08 03 | 704 | 1.3− | 1.0− | 2004 08 09 | 704 | 0.8− | 1.2+ | 2008 11 19 | G96 | 0.2+ | 0.6− |
| 2000 08 31 | 704 | 0.9+ | 0.4− | 2004 08 09 | 704 | 0.4− | 0.1+ | 2008 11 19 | G96 | 0.4+ | 0.5− |
| 2000 08 31 | 704 | 0.4+ | 0.3− | 2004 08 09 | 704 | 0.6− | 0.4− | 2008 11 20 | G96 | 0.1+ | 0.3− |
| 2000 08 31 | 704 | 0.1+ | 0.2− | 2004 08 09 | 704 | 0.1+ | 0.4− | 2008 11 20 | G96 | 0.4+ | 0.0 |
| 2000 08 31 | 704 | 1.2+ | 1.7+ | 2004 09 18 | 704 | 1.1− | 0.3− | 2008 11 20 | G96 | 0.1− | 0.2− |
| 2000 08 31 | 704 | 0.6+ | 0.3− | 2004 09 18 | 704 | 0.5− | 0.0 | 2009 10 14 | G96 | 0.0 | 0.4+ |
| 2000 09 23 | 704 | 0.7+ | 0.3− | 2004 09 18 | 704 | 0.7− | 0.0 | 2009 10 14 | G96 | 0.3+ | 0.1+ |
| 2000 09 23 | 704 | 0.2− | 0.4− | 2004 10 10 | 704 | 0.9+ | 0.8+ | 2009 10 14 | G96 | 0.3+ | 0.1+ |
| 2000 09 23 | 704 | 0.3− | 0.5− | 2004 10 10 | 704 | 0.2+ | 0.6+ | 2009 10 14 | G96 | 0.1− | 0.1− |
| 2000 09 23 | 704 | 0.1− | 0.8− | 2004 10 10 | 704 | 0.9− | 1.4+ | 2009 12 11 | J75 | 0.4+ | 0.4− |
| 2000 09 25 | 704 | 0.0 | 0.4+ | 2004 10 10 | 704 | 0.9− | 0.4+ | 2009 12 11 | J75 | 0.2+ | 0.4+ |
| 2000 09 25 | 704 | 0.1+ | 0.1− | 2006 01 03 | 704 | 0.2+ | 0.6+ | 2009 12 11 | J75 | 0.2+ | 0.1− |
| 2000 09 25 | 704 | 0.4+ | 0.6+ | 2006 01 03 | 704 | 0.5− | 0.2− | | | | |

**(228315)∗ 2000 QX$_{22}$**

Discovered 2000 Aug. 25 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 57.65220 | | (2000.0) | | **P** | **Q** |
| $n$ | 0.23767940 | $\omega$ | 173.41530 | | +0.88584328 | −0.46287035 |
| $a$ | 2.5811209 | $\Omega$ | 214.21620 | | +0.42304827 | +0.83419284 |
| $e$ | 0.2070801 | $i$ | 3.27618 | | +0.19055665 | +0.29978883 |
| $P$ | 4.15 | $H$ | 16.2 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 08 25 | 704 | 0.5+ | 0.6+ | 2002 02 11 | 704 | 0.4+ | 0.1+ | 2004 08 11 | 704 | 0.3+ | 0.3+ |
| 2000 08 25 | 704 | 0.6− | 0.8− | 2002 02 11 | 704 | 0.0 | 0.2+ | 2004 08 11 | 704 | 0.6+ | 0.1+ |
| 2000 08 25 | 704 | (1.1− | 2.2+) | 2002 02 11 | 704 | 0.7+ | 1.1+ | 2005 10 06 | G96 | 0.1+ | 0.3+ |
| 2000 08 26 | 704 | 0.7− | 0.2+ | 2002 02 11 | 704 | 0.3+ | 0.9+ | 2005 10 06 | G96 | 0.2− | 0.1+ |
| 2000 08 26 | 704 | 0.0 | 0.1− | 2002 02 16 | 644 | 0.1+ | 0.6+ | 2005 10 06 | G96 | 0.5− | 0.1+ |
| 2000 08 26 | 704 | 0.2− | 0.6+ | 2002 02 16 | 644 | 0.3+ | 0.6+ | 2005 10 06 | G96 | 0.2− | 0.1+ |
| 2000 08 26 | 704 | 0.3− | 0.5+ | 2002 02 16 | 644 | 0.1+ | 0.5+ | 2006 02 03 | G96 | 0.4− | 0.0 |
| 2000 08 31 | 704 | 1.4− | 0.0 | 2002 02 19 | 209 | 0.3+ | 0.2+ | 2006 02 03 | G96 | 0.2− | 0.1+ |
| 2000 08 31 | 704 | 0.9+ | 0.4− | 2002 02 19 | 209 | 0.2− | 0.2+ | 2006 02 03 | G96 | 0.1− | 0.8− |
| 2000 08 31 | 704 | 0.4− | 0.7+ | 2002 02 19 | 209 | 0.7+ | 0.3− | 2006 02 03 | G96 | 0.0 | 0.1+ |
| 2000 08 31 | 704 | 0.1− | 0.9+ | 2003 05 02 | 291 | 0.4− | 0.2− | 2007 05 18 | A44 | 0.7+ | 0.0 |
| 2000 08 31 | 704 | 0.8− | 0.2− | 2003 05 02 | 291 | 0.3− | 0.2+ | 2007 05 19 | A44 | (1.4− | 1.8+) |
| 2000 09 21 | 699 | 0.1+ | 0.4+ | 2003 05 02 | 291 | 0.2+ | 0.0 | 2008 06 07 | 691 | 0.0 | 0.0 |
| 2000 09 21 | 699 | 0.1− | 0.6+ | 2004 07 11 | 704 | 0.3+ | 0.4+ | 2008 06 07 | 691 | 0.1− | 0.0 |
| 2000 09 21 | 699 | 1.2+ | 0.1+ | 2004 07 11 | 704 | 0.6+ | 0.3+ | 2008 06 07 | 691 | 0.3− | 0.2+ |
| 2000 09 21 | 699 | 0.5− | 0.1+ | 2004 07 11 | 704 | 0.2+ | 1.2+ | 2009 12 09 | J75 | 0.1+ | 0.5− |
| 2000 09 23 | 704 | (0.3− | 2.2−) | 2004 07 11 | 704 | 0.9+ | 1.1− | 2009 12 10 | J75 | 0.5− | 0.2+ |
| 2000 09 23 | 704 | 0.4− | 0.0 | 2004 08 08 | 704 | 0.2+ | 0.3+ | 2009 12 10 | J75 | 0.2− | 0.2+ |
| 2000 09 23 | 704 | 0.6− | 0.7− | 2004 08 08 | 704 | 0.1+ | 0.3+ | 2009 12 17 | G96 | 0.0 | 0.1+ |
| 2000 09 23 | 704 | 0.9+ | 1.1− | 2004 08 08 | 704 | 1.3− | 0.4+ | 2009 12 17 | G96 | 0.1+ | 0.3+ |
| 2002 02 06 | 644 | 0.6+ | 0.4+ | 2004 08 08 | 704 | 0.2+ | 0.0 | 2009 12 17 | G96 | 0.3− | 0.0 |
| 2002 02 06 | 644 | 0.3+ | 0.3+ | 2004 08 11 | 704 | 0.2+ | 0.4+ | 2009 12 17 | G96 | 0.3+ | 0.1− |
| 2002 02 06 | 644 | 0.4+ | 0.6+ | 2004 08 11 | 704 | 0.5+ | 0.7+ | 2009 12 17 | G96 | 0.0 | 0.2+ |
| 2002 02 11 | 704 | 0.4+ | 1.0+ | 2004 08 11 | 704 | 0.0 | 0.9+ | | | | |

**(228316)∗ 2000 QE$_{32}$ = 1996 SL$_6$**

Discovered 2000 Aug. 26 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 3770)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 98.74280 | | (2000.0) | | **P** | **Q** |
| $n$ | 0.23558773 | $\omega$ | 300.91857 | | +0.66892162 | +0.74288820 |
| $a$ | 2.5963761 | $\Omega$ | 11.17865 | | −0.62870500 | +0.58388252 |
| $e$ | 0.2243326 | $i$ | 7.62061 | | −0.39657771 | +0.32741155 |
| $P$ | 4.18 | $H$ | 15.9 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 09 21 | 327 | 0.1− | 0.1+ | 2000 08 29 | 704 | 0.4− | 0.2− | 2003 04 09 | 691 | 0.7+ | 0.5+ |
| 1996 09 21 | 327 | 0.4− | 0.7+ | 2000 08 31 | 649 | (2.6+ | 0.9+) | 2004 06 17 | E12 | 1.6− | 1.5+ |
| 1996 09 21 | 327 | 0.6− | 0.3+ | 2000 08 31 | 649 | 0.3− | 0.0 | 2004 06 17 | E12 | (1.3− | 1.6+) |
| 1996 09 22 | 327 | 0.1− | 0.0 | 2000 09 05 | 704 | 0.2+ | 1.1+ | 2004 06 17 | E12 | (1.5− | 1.6+) |
| 1996 09 22 | 327 | 0.0 | 0.1− | 2000 09 05 | 704 | 0.1− | 0.7+ | 2004 06 17 | E12 | (1.6− | 2.4+) |
| 1996 09 22 | 327 | 0.4− | 0.0 | 2000 09 05 | 704 | 0.1+ | 0.1+ | 2004 07 16 | E17 | 0.2+ | 0.4− |
| 1996 09 22 | 327 | 0.5− | 0.2+ | 2000 09 05 | 704 | 0.3+ | 0.1+ | 2004 07 16 | E17 | 0.1− | 0.4− |
| 1999 03 21 | 645 | 0.1− | 0.1− | 2000 09 21 | 704 | 0.3− | 0.8+ | 2004 07 16 | E17 | 0.1+ | 0.3− |
| 1999 03 21 | 645 | 0.1− | 0.1− | 2000 09 21 | 704 | 0.5− | 0.9+ | 2007 01 27 | G96 | 0.4− | 0.1+ |
| 1999 03 22 | 645 | 0.0 | 0.1− | 2000 09 21 | 704 | 0.4+ | 0.5+ | 2007 01 27 | G96 | 0.1− | 0.1− |
| 1999 03 22 | 645 | 0.0 | 0.1− | 2000 09 21 | 704 | 0.1− | 0.9− | 2007 01 27 | G96 | 0.4− | 0.4− |
| 2000 08 26 | 704 | 0.2+ | 0.0 | 2000 09 24 | 704 | 0.6− | 0.8+ | 2007 01 27 | G96 | 0.1− | 0.1− |
| 2000 08 26 | 704 | 0.2− | 0.6+ | 2000 09 24 | 699 | 1.0− | 1.4+ | 2009 11 21 | 703 | 0.9− | 0.3− |
| 2000 08 26 | 704 | 0.3− | 0.7+ | 2000 09 24 | 704 | 0.7+ | 0.8− | 2009 11 21 | 703 | 0.1+ | 1.0+ |
| 2000 08 26 | 704 | 0.3− | 0.3+ | 2000 09 24 | 704 | 0.1− | 0.6+ | 2009 11 21 | 703 | 0.8− | 0.3+ |
| 2000 08 26 | 704 | 0.6− | 0.8+ | 2000 09 24 | 699 | 0.2− | 0.7+ | 2009 11 21 | 703 | 0.1− | 0.8− |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 08 28 | 704 | 0.1− | 0.1+ | 2000 09 24 | 704 | 0.0 | 0.4− | 2009 12 13 | J47 | 0.5− | 0.2+ |
| 2000 08 28 | 704 | 0.1+ | 0.5+ | 2000 09 24 | 699 | 0.7− | 0.8+ | 2009 12 13 | J47 | 0.3− | 0.1+ |
| 2000 08 28 | 704 | 0.1+ | 1.1+ | 2000 09 24 | 704 | 0.5− | 0.7+ | 2009 12 13 | J47 | 0.1− | 0.1+ |
| 2000 08 28 | 704 | 1.3− | 0.7− | 2000 09 24 | 699 | 0.6− | 0.7+ | 2009 12 15 | 704 | 0.6+ | 1.5+ |
| 2000 08 28 | 704 | 0.2+ | 0.5+ | 2003 03 31 | 691 | 0.1+ | 1.4+ | 2009 12 15 | 704 | 0.1+ | 0.9+ |
| 2000 08 28 | 704 | 0.1− | 0.5− | 2003 03 31 | 691 | 0.6+ | 1.1+ | 2009 12 15 | 704 | 0.0 | 0.1− |
| 2000 08 28 | 704 | 0.2+ | 0.0 | 2003 03 31 | 645 | 0.1+ | 0.0 | 2009 12 15 | 704 | 0.0 | 1.3+ |
| 2000 08 28 | 704 | 0.4+ | 0.2+ | 2003 03 31 | 645 | 0.0 | 0.0 | 2009 12 17 | J47 | 0.4+ | 1.1− |
| 2000 08 29 | 704 | 0.4+ | 0.1+ | 2003 03 31 | 691 | 0.2+ | 1.2+ | 2009 12 17 | J47 | 0.3+ | 0.2− |
| 2000 08 29 | 704 | 0.4+ | 0.1+ | 2003 04 09 | 691 | 0.8+ | 0.9+ | 2009 12 17 | J47 | 0.9+ | 0.9− |
| 2000 08 29 | 704 | 0.3+ | 0.2+ | 2003 04 09 | 691 | 0.7+ | 0.9+ | | | | |

**(228317)∗ 2000 QE$_{58}$**

Discovered 2000 Aug. 26 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 81.64036 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.23625198 | $\omega$ | 248.55911 | | | +0.93089296 | | +0.35196800 | |
| $a$ | 2.5915071 | $\Omega$ | 90.72594 | | | −0.28838460 | | +0.87236376 | |
| $e$ | 0.1642871 | $i$ | 5.61059 | | | −0.22421557 | | +0.33926390 | |
| $P$ | 4.17 | $H$ | 15.7 | $G$ | 0.15 | | $U$ | 1 | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 08 26 | 704 | 0.6− | 0.7+ | 2003 03 26 | 691 | 0.4+ | 0.8+ | 2006 01 26 | G96 | 0.1− | 0.2− |
| 2000 08 26 | 704 | 0.7− | 0.6+ | 2003 03 26 | 691 | 0.0 | 0.7+ | 2007 03 15 | G96 | 0.2+ | 0.3− |
| 2000 08 26 | 704 | 0.3+ | 0.6+ | 2003 03 26 | 691 | 0.5+ | 1.2+ | 2007 03 15 | G96 | 0.0 | 0.4− |
| 2000 08 26 | 704 | 0.8− | 0.2+ | 2004 06 27 | E12 | 0.2+ | 0.4+ | 2007 03 15 | G96 | 0.3− | 0.2− |
| 2000 08 29 | 704 | 0.3− | 0.4+ | 2004 06 27 | E12 | (0.0 | 2.0+) | 2007 03 15 | G96 | 0.4− | 0.3+ |
| 2000 08 29 | 704 | 0.3− | 0.3+ | 2004 06 27 | E12 | (0.5+ | 1.8+) | 2009 11 19 | 691 | 0.4− | 0.4+ |
| 2000 08 29 | 704 | 0.3+ | 0.1+ | 2004 06 27 | E12 | (0.1− | 1.7+) | 2009 11 19 | 691 | 0.3− | 0.2+ |
| 2000 08 29 | 704 | 0.2− | 1.0+ | 2004 07 09 | 704 | 0.4+ | 0.3+ | 2009 11 19 | 691 | 0.3− | 0.0 |
| 2000 09 04 | 704 | 0.6− | 0.4+ | 2004 07 09 | 704 | 0.5+ | 0.5+ | 2009 11 20 | A50 | 1.2+ | 0.6+ |
| 2000 09 04 | 704 | 0.7+ | 0.0 | 2004 07 09 | 704 | 0.2− | 0.2+ | 2009 11 20 | A50 | (1.7+ | 0.9+) |
| 2000 09 04 | 704 | 0.4− | 0.2+ | 2006 01 07 | 691 | 0.1− | 0.2+ | 2009 11 21 | A50 | 1.5+ | 0.7+ |
| 2000 09 04 | 704 | 1.0+ | 1.5+ | 2006 01 07 | 691 | 0.0 | 0.0 | 2009 11 26 | G96 | 0.0 | 0.1+ |
| 2000 09 20 | 704 | 1.1− | 0.9+ | 2006 01 07 | 691 | 0.1− | 0.1+ | 2009 11 26 | G96 | 0.4− | 0.6+ |
| 2000 09 20 | 704 | 0.6− | 0.6− | 2006 01 25 | G96 | 0.1− | 0.3− | 2009 11 26 | G96 | 0.8+ | 0.6+ |
| 2000 09 20 | 704 | 0.3+ | 0.7+ | 2006 01 25 | G96 | 0.1+ | 0.1− | 2009 11 26 | G96 | 0.1+ | 0.1+ |
| 2000 09 20 | 704 | 0.4− | 0.1+ | 2006 01 25 | G96 | 0.3+ | 0.1+ | 2009 11 26 | G96 | 0.2+ | 0.0 |
| 2002 01 14 | 704 | 0.3+ | 0.1− | 2006 01 25 | G96 | 0.1− | 0.4− | 2009 12 11 | G96 | 0.1+ | 0.1− |
| 2002 01 14 | 704 | 0.6+ | 0.5+ | 2006 01 26 | G96 | 0.2+ | 0.2− | 2009 12 11 | G96 | 0.3− | 0.1− |
| 2002 01 14 | 704 | 0.4+ | 0.1− | 2006 01 26 | G96 | 0.0 | 0.6+ | 2009 12 11 | G96 | 0.2− | 0.2− |
| 2002 01 14 | 704 | 0.5+ | 0.3+ | 2006 01 26 | G96 | 0.2+ | 0.5+ | 2009 12 11 | G96 | 0.3− | 0.2− |

**(228318)∗ 2000 QF$_{82}$ = 2004 DS$_{27}$**

Discovered 2000 Aug. 24 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. A. Doppler (*MPO* 68679)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 278.02892 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.17372600 | $\omega$ | 292.17628 | | | +0.16468714 | | +0.98516949 | |
| $a$ | 3.1809695 | $\Omega$ | 347.02187 | | | −0.80743647 | | +0.10661204 | |
| $e$ | 0.2547563 | $i$ | 12.38257 | | | −0.56650198 | | +0.13444312 | |
| $P$ | 5.67 | $H$ | 14.8 | $G$ | 0.15 | | $U$ | 1 | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 08 24 | 704 | 0.2− | 0.5+ | 2000 10 02 | 704 | 0.6+ | 0.3− | 2006 09 16 | 703 | 1.2+ | 0.5+ |
| 2000 08 24 | 704 | 0.0 | 1.3+ | 2000 10 02 | 704 | 0.2+ | 1.2+ | 2006 09 16 | 703 | (1.2+ | 1.7+) |
| 2000 08 24 | 704 | 1.2− | 0.1+ | 2000 10 02 | 704 | 0.2+ | 0.9+ | 2006 09 16 | 703 | (1.7− | 0.6−) |
| 2000 08 24 | 704 | 0.9+ | 0.5− | 2000 10 02 | 645 | 0.0 | 0.1− | 2006 09 28 | 703 | 0.4− | 0.8− |
| 2000 08 31 | 704 | 0.0 | 0.5+ | 2000 10 02 | 645 | 0.0 | 0.1− | 2006 09 28 | 703 | 1.2+ | 0.0 |
| 2000 08 31 | 704 | 0.1− | 0.8+ | 2000 10 02 | 704 | 0.2+ | 0.1− | 2006 09 28 | 703 | 0.2+ | 0.4− |
| 2000 08 31 | 704 | 0.8− | 1.0+ | 2000 10 02 | 704 | 0.2+ | 1.6+ | 2006 09 28 | 703 | 0.1+ | 0.1− |
| 2000 08 31 | 704 | 0.2+ | 0.7+ | 2004 02 16 | 691 | 0.2+ | 0.2+ | 2006 10 04 | 703 | 0.6− | 0.0 |
| 2000 08 31 | 704 | 0.8− | 0.2− | 2004 02 16 | 691 | 0.0 | 0.0 | 2006 10 04 | 703 | (0.8+ | 2.6−) |
| 2000 09 02 | 699 | 1.2− | 0.5+ | 2004 02 16 | 691 | 0.2+ | 0.1+ | 2006 10 04 | 703 | 0.3− | 0.4− |
| 2000 09 02 | 699 | 0.2+ | 0.6− | 2004 02 23 | 704 | 0.6− | 0.5+ | 2006 10 04 | 703 | (2.0− | 0.4−) |
| 2000 09 02 | 699 | 0.9− | 0.4+ | 2004 02 23 | 704 | 0.2+ | 0.8+ | 2006 10 31 | 703 | 0.2− | 0.8+ |
| 2000 09 02 | 699 | (2.4− | 1.3+) | 2004 02 23 | 704 | 0.2− | 0.3+ | 2006 10 31 | 703 | 0.2− | 1.1− |
| 2000 09 21 | 699 | 0.1− | 1.3+ | 2004 02 23 | 704 | 1.0+ | 1.5+ | 2006 10 31 | 703 | 0.3+ | 1.3− |
| 2000 09 21 | 699 | 0.2− | 0.4+ | 2004 02 23 | 704 | 0.6+ | 0.3+ | 2006 10 31 | 703 | 0.2− | 0.5− |
| 2000 09 21 | 699 | 0.5− | 1.1+ | 2004 03 14 | 691 | 0.1+ | 0.5+ | 2009 11 26 | G96 | 0.3− | 0.5− |
| 2000 09 21 | 699 | 0.7− | 0.7+ | 2004 03 14 | 691 | 0.4+ | 0.4+ | 2009 11 26 | G96 | 0.1+ | 0.3+ |
| 2000 09 24 | 704 | 0.0 | 0.1− | 2004 03 14 | 691 | 0.0 | 0.3+ | 2009 11 26 | G96 | 0.3+ | 0.2+ |
| 2000 09 24 | 704 | 0.0 | 0.2+ | 2004 03 19 | 704 | 1.1+ | 0.2− | 2009 11 26 | G96 | 0.0 | 0.2+ |
| 2000 09 24 | 704 | 0.0 | 0.4+ | 2004 03 19 | 704 | 1.1+ | 0.6− | 2009 11 26 | G96 | 0.8+ | 0.4− |
| 2000 09 24 | 704 | 0.5− | 0.7+ | 2004 03 19 | 704 | 0.9+ | 0.3− | 2009 12 26 | 691 | 0.3+ | 0.0 |
| 2000 09 24 | 704 | (0.9− | 2.1+) | 2004 03 19 | 704 | 0.5+ | 0.7− | 2009 12 26 | 691 | 0.0 | 0.3− |
| 2000 09 25 | 704 | 0.9+ | 0.8− | 2004 03 30 | 691 | 0.3− | 0.2+ | 2009 12 26 | 691 | 0.1− | 0.1− |
| 2000 09 25 | 704 | 0.4+ | 0.9− | 2004 03 30 | 691 | 0.0 | 0.0 | 2009 12 27 | 691 | 1.1− | 0.1+ |
| 2000 09 25 | 704 | 0.5+ | 0.5− | 2004 03 30 | 691 | 0.1− | 0.1− | 2009 12 27 | 691 | 0.3− | 0.4− |
| 2000 09 25 | 704 | 1.0+ | 0.5− | 2006 09 16 | 703 | 0.6+ | 0.9+ | 2009 12 27 | 691 | 0.1− | 0.7− |

**(228319)∗ 2000 QC$_{104}$**

Discovered 2000 Aug. 28 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 46.18301 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.23127977 | $\omega$ | 282.88092 | | | +0.85344476 | | −0.51377805 | |
| $a$ | 2.6285180 | $\Omega$ | 108.09506 | | | +0.50674120 | | +0.77873670 | |
| $e$ | 0.2390517 | $i$ | 5.28444 | | | +0.12184168 | | +0.36000175 | |
| $P$ | 4.26 | $H$ | 16.2 | $G$ | 0.15 | | $U$ | 0 | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 08 28 | 704 | (2.1− | 0.3−) | 2000 10 02 | 699 | 0.0 | 0.1− | 2006 01 24 | 408 | 0.4+ | 1.1+ |
| 2000 08 28 | 704 | (2.1− | 1.0+) | 2000 10 02 | 699 | 0.4+ | 0.6− | 2006 01 24 | 408 | 0.4+ | 0.9+ |
| 2000 08 28 | 704 | 1.0− | 1.5+ | 2000 10 02 | 699 | 0.4− | 0.9+ | 2006 01 27 | 699 | 0.4+ | 0.1+ |
| 2000 08 31 | 704 | 0.2+ | 1.2+ | 2000 10 02 | 699 | 0.1− | 0.4− | 2006 01 27 | 699 | 0.6+ | 0.3+ |
| 2000 08 31 | 704 | 0.5− | 0.7+ | 2000 10 05 | 704 | 0.2− | 0.2+ | 2006 01 27 | 699 | (1.6+ | 1.1+) |
| 2000 08 31 | 704 | 0.1− | 0.1+ | 2000 10 05 | 704 | 1.0+ | 0.7− | 2006 01 27 | 699 | 0.1− | 0.3+ |
| 2000 08 31 | 704 | 0.6− | 0.9+ | 2000 10 05 | 704 | 0.7− | 1.0+ | 2006 02 02 | 703 | 0.3− | 0.2+ |
| 2000 08 31 | 704 | 0.6− | 0.9+ | 2002 02 22 | 644 | 0.5+ | 0.4+ | 2006 02 02 | 703 | 0.4− | 1.0− |
| 2000 09 09 | 699 | 1.3− | 0.1− | 2002 02 22 | 644 | 0.1+ | 0.5+ | 2006 02 02 | 703 | 0.1− | 0.8− |
| 2000 09 09 | 699 | 0.7− | 0.6+ | 2002 02 22 | 644 | 0.2+ | 0.4+ | 2006 02 02 | 703 | (1.8− | 0.9−) |
| 2000 09 09 | 699 | 0.6− | 0.6+ | 2004 08 03 | E12 | 0.5+ | 0.4+ | 2006 02 03 | 691 | 0.1+ | 0.0 |
| 2000 09 09 | 699 | 0.0 | 1.8+ | 2004 08 03 | E12 | 0.3− | 0.1+ | 2006 02 03 | 691 | 0.2+ | 0.4+ |
| 2000 09 23 | 704 | 0.3− | 0.6+ | 2004 08 03 | E12 | 0.1+ | 0.0 | 2006 02 03 | 691 | 0.3+ | 0.4+ |
| 2000 09 23 | 704 | 0.4− | 1.2+ | 2004 08 03 | E12 | 0.6− | 1.2− | 2006 02 07 | 691 | 0.2+ | 0.3+ |
| 2000 09 23 | 704 | 0.1+ | 0.4+ | 2004 08 11 | 704 | 0.7+ | 0.1− | 2006 02 07 | 691 | 0.1+ | 0.4+ |
| 2000 09 23 | 704 | 0.7− | 0.2+ | 2004 08 11 | 704 | 0.2+ | 0.0 | 2006 02 07 | 691 | 0.3+ | 0.2+ |
| 2000 09 23 | 704 | 0.1− | 0.3+ | 2004 08 11 | 704 | 0.4+ | 0.1+ | 2007 04 15 | 691 | 0.0 | 0.2+ |
| 2000 09 23 | 704 | 0.4+ | 0.1− | 2004 08 11 | 704 | 0.6+ | 0.1− | 2007 04 15 | 691 | 0.1+ | 0.4+ |
| 2000 09 23 | 704 | 0.1− | 0.6+ | 2004 08 11 | 704 | 0.5+ | 0.2+ | 2007 04 15 | 691 | 0.1− | 0.3+ |
| 2000 09 23 | 704 | 0.6− | 1.0+ | 2004 08 22 | E12 | 0.2− | 0.6+ | 2007 04 19 | 691 | 0.0 | 0.3+ |
| 2000 09 23 | 704 | 0.4− | 0.2+ | 2004 08 22 | E12 | 0.3+ | 0.8+ | 2007 04 19 | 691 | 0.0 | 0.2+ |
| 2000 09 23 | 699 | 0.7− | 0.5+ | 2004 08 22 | E12 | (0.1+ | 1.8+) | 2007 04 19 | 691 | 0.3− | 0.5+ |
| 2000 09 23 | 699 | 0.7− | 0.6+ | 2004 08 22 | E12 | 0.0 | 0.3+ | 2009 12 16 | 691 | 0.1− | 0.1− |
| 2000 09 23 | 699 | 0.6− | 0.5+ | 2005 10 29 | G96 | 0.3− | 0.5− | 2009 12 16 | 691 | 0.0 | 0.0 |
| 2000 09 23 | 699 | 0.0 | 0.2+ | 2005 10 29 | G96 | (1.8− | 0.9−) | 2009 12 16 | 691 | 0.0 | 0.1− |
| 2000 09 24 | 699 | 0.2− | 0.0 | 2005 10 29 | G96 | 0.1+ | 0.1− | 2009 12 16 | G96 | 0.4+ | 0.4− |
| 2000 09 24 | 699 | 0.0 | 0.0 | 2005 10 29 | G96 | 0.2+ | 0.6− | 2009 12 16 | G96 | 0.1− | 0.4− |
| 2000 09 24 | 699 | 0.3− | 0.0 | 2005 12 05 | G96 | 0.1− | 0.2− | 2009 12 16 | G96 | 0.1+ | 0.3− |
| 2000 09 24 | 699 | 0.6− | 0.8+ | 2005 12 05 | G96 | 0.1− | 0.0 | 2009 12 16 | G96 | 0.1+ | 0.5− |
| 2000 09 27 | 645 | 0.1+ | 0.1− | 2005 12 05 | G96 | 0.2− | 0.0 | 2009 12 16 | G96 | 0.6+ | 0.6− |
| 2000 09 27 | 645 | 0.1+ | 0.1− | 2005 12 05 | G96 | 0.3− | 0.2+ | 2009 12 17 | 704 | 0.2− | 1.2+ |
| 2000 10 01 | 704 | 0.0 | 0.2+ | 2006 01 23 | 691 | 0.0 | 0.3+ | 2009 12 17 | 704 | 0.6− | 0.4− |
| 2000 10 01 | 704 | 0.6− | 0.5+ | 2006 01 23 | 691 | 0.1+ | 0.4+ | 2009 12 17 | 704 | 0.1+ | 0.2+ |
| 2000 10 01 | 704 | 0.0 | 0.2− | 2006 01 23 | 691 | 0.2+ | 0.5+ | 2009 12 20 | 691 | 0.3− | 0.5− |
| 2000 10 01 | 704 | 0.5− | 0.2+ | 2006 01 23 | 408 | (2.0− | 1.6+) | 2009 12 20 | 691 | 0.1− | 0.2− |
| 2000 10 01 | 704 | 0.1− | 0.1− | 2006 01 23 | 408 | (1.9− | 0.7+) | 2009 12 20 | 691 | 0.1− | 0.1− |

**(228320)∗ 2000 QO$_{105}$**

Discovered 2000 Aug. 28 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 82.79329 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23370378 | $\omega$ | 230.23125 | | +0.97296626 | +0.20858264 | |
| $a$ | 2.6103108 | $\Omega$ | 117.52102 | | −0.16249526 | +0.92334681 | |
| $e$ | 0.3215081 | $i$ | 6.41891 | | −0.16410956 | +0.32237239 | |
| $P$ | 4.22 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 08 04 | 608 | (2.7+ | 0.5−) | 2003 04 09 | 691 | 0.0 | 0.5+ | 2004 09 09 | 704 | 0.6− | 0.3+ | |
| 2000 08 04 | 608 | (2.5+ | 0.2−) | 2003 04 09 | 691 | 0.3+ | 0.3+ | 2004 09 12 | 704 | 0.3− | 0.1− | |
| 2000 08 04 | 608 | 2.0+ | 0.4− | 2003 04 09 | 691 | 0.4+ | 0.3+ | 2004 09 12 | 704 | 0.1+ | 0.1+ | |
| 2000 08 28 | 704 | 0.2− | 0.1+ | 2004 06 14 | 704 | 1.2− | 0.4+ | 2004 09 12 | 704 | 0.1+ | 0.6+ | |
| 2000 08 28 | 704 | 0.3− | 0.4− | 2004 06 14 | 704 | 0.6− | 0.2+ | 2004 09 12 | 704 | 0.2− | 0.2+ | |
| 2000 08 28 | 704 | 0.1+ | 0.3− | 2004 06 14 | 704 | (1.8+ | 0.2+) | 2004 09 15 | E12 | 0.4− | 0.2− | |
| 2000 08 28 | 704 | 1.3+ | 0.3+ | 2004 06 14 | 704 | 0.3+ | 0.4+ | 2004 09 15 | E12 | 0.1+ | 0.3+ | |
| 2000 08 28 | 704 | 0.9− | 0.1+ | 2004 07 08 | E12 | 0.2+ | 0.5− | 2004 09 15 | E12 | 0.5− | 0.9− | |
| 2000 08 31 | 704 | 0.3− | 0.7− | 2004 07 08 | E12 | (1.9− | 0.2−) | 2004 09 15 | E12 | 0.1− | 0.6+ | |
| 2000 08 31 | 704 | 0.5− | 1.1− | 2004 07 08 | E12 | 0.2+ | 0.1+ | 2004 09 17 | 704 | 0.3− | 0.2+ | |
| 2000 08 31 | 704 | 0.6− | 1.0− | 2004 07 08 | E12 | 1.3+ | 0.1+ | 2004 09 17 | 704 | 0.4− | 0.0 | |
| 2000 08 31 | 704 | 0.7− | 0.9− | 2004 07 09 | 704 | 0.4− | 0.5+ | 2004 09 17 | 704 | 0.5+ | 0.4+ | |
| 2000 08 31 | 704 | 0.4− | 1.1− | 2004 07 09 | 704 | 0.0 | 0.6+ | 2004 09 17 | 704 | 1.1+ | 0.8− | |
| 2000 09 04 | 699 | 0.3+ | 0.1+ | 2004 07 09 | 704 | 0.3+ | 0.8− | 2004 10 09 | 704 | 0.1+ | 0.1+ | |
| 2000 09 04 | 699 | 0.2+ | 0.6+ | 2004 07 09 | 699 | 0.1+ | 0.2+ | 2004 10 09 | 704 | 0.1+ | 0.5− | |
| 2000 09 04 | 699 | 0.6+ | 0.0 | 2004 07 09 | 704 | 0.2+ | 0.1− | 2004 10 09 | 704 | 0.3− | 0.3− | |
| 2000 09 04 | 699 | 0.4+ | 0.0 | 2004 07 09 | 704 | 0.2+ | 0.3+ | 2004 10 09 | 704 | 0.0 | 0.1− | |
| 2000 09 25 | 704 | 0.4− | 0.2+ | 2004 07 09 | 699 | 0.8− | 0.5+ | 2006 01 22 | G96 | 0.1− | 0.2+ | |
| 2000 09 25 | 704 | 0.1− | 0.6+ | 2004 07 09 | 699 | 0.4+ | 0.2+ | 2006 01 22 | G96 | 0.5+ | 0.2− | |
| 2000 09 25 | 704 | 0.1− | 0.3+ | 2004 07 09 | 699 | 0.5+ | 0.2+ | 2006 01 22 | G96 | 0.3+ | 0.2+ | |
| 2000 09 25 | 704 | 0.2+ | 0.2− | 2004 07 16 | 704 | 0.7+ | 0.5+ | 2006 01 22 | G96 | 0.3+ | 0.2− | |
| 2000 09 25 | 704 | 0.4− | 0.0 | 2004 07 16 | 704 | 1.1+ | 0.6− | 2006 01 22 | G96 | 0.1+ | 0.2+ | |
| 2000 10 01 | 704 | 0.1+ | 0.1+ | 2004 07 16 | 704 | 0.0 | 0.3− | 2006 01 22 | G96 | 0.6+ | 0.2− | |
| 2000 10 01 | 704 | 0.2− | 0.1+ | 2004 07 16 | 704 | 0.5− | 0.5+ | 2006 01 22 | G96 | 0.1− | 0.3+ | |
| 2000 10 01 | 704 | 0.2+ | 0.0 | 2004 07 22 | 699 | 0.6− | 0.2− | 2006 01 22 | G96 | 0.5+ | 0.5− | |
| 2000 10 01 | 704 | 0.1− | 0.1+ | 2004 07 22 | 699 | 0.6− | 0.4+ | 2006 01 23 | 691 | 0.2+ | 0.2+ | |
| 2000 10 01 | 704 | 0.3− | 0.4+ | 2004 07 22 | 699 | 0.2− | 0.1+ | 2006 01 23 | 691 | 0.2+ | 0.2+ | |
| 2000 10 05 | 704 | 0.4− | 0.6+ | 2004 07 22 | 699 | 0.2− | 0.1+ | 2006 01 23 | 691 | 0.1− | 0.2+ | |
| 2000 10 05 | 704 | 1.3− | 0.7+ | 2004 08 03 | E12 | 0.1− | 0.0 | 2007 03 11 | 691 | 0.8− | 0.1− | |
| 2000 10 05 | 704 | 0.5− | 0.5+ | 2004 08 03 | E12 | 0.1− | 0.1− | 2007 03 11 | 691 | 0.1+ | 0.2+ | |
| 2000 10 05 | 704 | 0.3− | 0.3+ | 2004 08 03 | E12 | 0.1+ | 0.0 | 2007 03 11 | 691 | 0.1− | 0.5+ | |
| 2000 10 22 | I02 | 0.1− | 0.6− | 2004 08 03 | E12 | 0.1+ | 0.0 | 2009 09 29 | 691 | 0.3− | 0.1− | |
| 2000 10 29 | 704 | 0.6+ | 0.8+ | 2004 08 12 | 704 | 0.4+ | 0.8+ | 2009 09 29 | 691 | 0.2− | 0.0 | |
| 2000 10 29 | 704 | 0.9− | 0.3+ | 2004 08 12 | 704 | 0.2− | 0.1+ | 2009 09 29 | 691 | 0.2− | 0.3+ | |
| 2000 10 29 | 704 | 0.4+ | 0.4+ | 2004 08 12 | 704 | 0.1+ | 0.1+ | 2009 12 17 | G96 | 0.1+ | 0.2− | |
| 2000 10 29 | 704 | 0.0 | 1.1+ | 2004 08 12 | 704 | 0.6− | 0.0 | 2009 12 17 | G96 | 0.4+ | 0.3− | |
| 2000 10 29 | 704 | 0.4+ | 0.7+ | 2004 08 12 | 704 | 0.2+ | 0.6+ | 2009 12 17 | G96 | 0.4+ | 0.4− | |
| 2000 11 03 | 704 | 0.5+ | 0.0 | 2004 09 09 | 704 | 0.4+ | 0.1− | 2009 12 17 | G96 | 0.2+ | 0.2− | |
| 2000 11 03 | 704 | 0.2+ | 0.5+ | 2004 09 09 | 704 | 0.4+ | 0.0 | 2009 12 17 | G96 | 0.1+ | 0.4− | |
| 2000 11 03 | 704 | 0.3+ | 1.4+ | 2004 09 09 | 704 | 0.2− | 0.9− | | | | | |

**(228321)∗ 2000 QQ$_{130}$ = 2004 PV$_{11}$**

Discovered 2000 Aug. 31 by P. G. Comba at Prescott.

Id. G. V. Williams (*MPO* 64773)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 109.02224 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24028506 | $\omega$ | 12.39037 | | +0.82360022 | +0.56665953 | |
| $a$ | 2.5624272 | $\Omega$ | 313.06506 | | −0.52314126 | +0.74258102 | |
| $e$ | 0.1312530 | $i$ | 1.88849 | | −0.21910246 | +0.35702997 | |
| $P$ | 4.10 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1992 10 03 | 691 | 0.3− | 0.0 | 2004 08 10 | 704 | 0.0 | 0.3− | 2008 07 25 | E12 | 0.9+ | 0.4+ | |
| 1992 10 03 | 691 | 0.4− | 0.2− | 2004 08 10 | 704 | 0.2− | 0.5+ | 2008 07 25 | E12 | 0.2− | 1.0+ | |
| 1992 10 03 | 691 | 0.4− | 0.8+ | 2004 08 10 | 704 | 0.8+ | 0.0 | 2008 07 25 | E12 | 0.9− | 1.0+ | |
| 2000 08 31 | 684 | 0.7+ | 0.7− | 2004 08 10 | 704 | 0.1− | 0.6− | 2008 07 25 | E12 | 0.8− | 0.1+ | |
| 2000 08 31 | 684 | 0.9+ | 0.3− | 2004 08 10 | 704 | 0.1+ | 0.9+ | 2008 07 25 | E12 | 1.3− | 1.0+ | |
| 2000 08 31 | 684 | 0.2+ | 0.2+ | 2004 08 10 | 704 | 0.1− | 0.0 | 2008 07 25 | E12 | 0.6+ | 0.2+ | |
| 2000 09 02 | 684 | 0.7+ | 0.0 | 2004 08 10 | 704 | 0.7− | 0.3+ | 2008 09 23 | G96 | 0.8+ | 0.5− | |
| 2000 09 02 | 684 | 0.6+ | 0.2− | 2004 08 21 | E12 | 0.2− | 0.0 | 2008 09 23 | G96 | 0.4− | 0.3− | |
| 2000 09 02 | 684 | 0.7+ | 0.0 | 2004 08 21 | E12 | 0.5+ | 0.4− | 2008 09 23 | G96 | 0.6+ | 0.1+ | |
| 2000 09 03 | 645 | 0.0 | 0.1+ | 2004 08 21 | E12 | 0.1− | 0.1− | 2008 09 23 | G96 | 0.2− | 0.3− | |
| 2000 09 03 | 645 | 0.0 | 0.1+ | 2004 08 21 | E12 | 0.8+ | 0.5+ | 2008 09 23 | G96 | 0.2+ | 0.0 | |
| 2000 09 04 | 684 | 1.4+ | 0.1+ | 2005 12 07 | 691 | 0.4+ | 0.1+ | 2008 09 23 | G96 | 0.1− | 0.1− | |
| 2003 04 08 | 691 | 0.5+ | 0.9+ | 2005 12 07 | 691 | 0.7+ | 0.1+ | 2008 09 23 | G96 | 0.9+ | 0.3+ | |
| 2003 04 08 | 691 | 0.8+ | 0.8+ | 2005 12 07 | 691 | 0.2+ | 0.6+ | 2008 09 23 | G96 | 0.4− | 0.1− | |
| 2003 04 08 | 691 | 0.8+ | 1.1+ | 2007 03 11 | G96 | 0.1+ | 0.0 | 2008 10 02 | G96 | 0.6− | 0.2− | |
| 2004 08 07 | 644 | 0.1+ | 0.5+ | 2007 03 11 | G96 | 0.1− | 0.1− | 2008 10 02 | G96 | 0.1+ | 0.1− | |
| 2004 08 07 | 644 | 0.1+ | 0.4+ | 2007 03 11 | G96 | 0.3− | 0.0 | 2008 10 02 | G96 | 0.2− | 0.1+ | |
| 2004 08 07 | 644 | 0.1− | 0.4+ | 2007 03 11 | G96 | 0.0 | 0.1+ | 2008 10 02 | G96 | 0.0 | 0.1+ | |
| 2004 08 08 | 704 | 0.3− | 0.5+ | 2007 03 12 | 691 | 0.3− | 0.2− | 2009 11 17 | 691 | 0.3− | 0.1+ | |
| 2004 08 08 | 704 | 1.0− | 0.4+ | 2007 03 12 | 691 | 0.2+ | 0.3+ | 2009 11 17 | 691 | 0.4− | 0.6+ | |
| 2004 08 08 | 704 | 0.2− | 0.2+ | 2007 03 12 | 691 | 0.7− | 0.2+ | 2009 11 17 | 691 | 0.4− | 0.2+ | |
| 2004 08 09 | 699 | 0.2+ | 0.5+ | 2007 03 20 | G96 | 0.2+ | 0.1+ | 2009 12 11 | G96 | 0.2− | 0.1+ | |
| 2004 08 09 | 699 | (1.8− | 0.3−) | 2007 03 20 | G96 | 0.5+ | 0.1− | 2009 12 11 | G96 | 0.6+ | 0.3+ | |
| 2004 08 09 | 699 | 0.1− | 0.3+ | 2007 03 20 | G96 | 1.3− | 0.8− | 2009 12 11 | G96 | 0.1− | 0.4+ | |
| 2004 08 09 | 699 | 0.1− | 0.5− | 2007 03 20 | G96 | 0.3+ | 0.5− | 2009 12 11 | G96 | 0.7− | 0.3+ | |
| 2004 08 09 | 704 | 0.2− | 0.5+ | 2007 04 20 | G96 | 0.1+ | 0.1+ | 2009 12 20 | G96 | 0.4+ | 0.2+ | |
| 2004 08 09 | 704 | 0.1− | 0.6− | 2007 04 20 | G96 | 0.4− | 0.1− | 2009 12 20 | G96 | 0.2+ | 0.5+ | |
| 2004 08 09 | 704 | 1.4− | 0.5− | 2007 04 20 | G96 | 0.0 | 0.2− | 2009 12 20 | G96 | 0.4+ | 0.4+ | |
| 2004 08 09 | 704 | 0.2− | 0.2+ | 2007 04 20 | G96 | 0.1+ | 0.0 | 2009 12 20 | G96 | 0.2+ | 0.3+ | |
| 2004 08 10 | 704 | 0.7− | 0.6− | 2008 07 25 | E12 | 0.7+ | 0.6+ | | | | | |
| 2004 08 10 | 704 | 0.1− | 0.1− | 2008 07 25 | E12 | 0.4− | 0.6+ | | | | | |

**(228322)∗ 2000 QU$_{203}$ = 2009 UP$_{135}$**

Discovered 2000 Aug. 29 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. K. E. Smalley (*MPO* 165308)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 71.32697 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22776842 | $\omega$ | 322.76500 | | +0.75055660 | +0.66059591 | |
| $a$ | 2.6554638 | $\Omega$ | 355.77353 | | −0.53869648 | +0.59705811 | |
| $e$ | 0.2521484 | $i$ | 13.07178 | | −0.38271516 | +0.45512049 | |
| $P$ | 4.33 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 08 29 | 704 | 0.4+ | 0.4+ | 2000 09 25 | 699 | 0.0 | 0.5− | 2009 10 16 | 703 | 0.9− | 0.7− | |
| 2000 08 29 | 704 | 0.2+ | 0.3− | 2000 09 25 | 699 | 1.3− | 0.7+ | 2009 10 16 | 703 | 0.2+ | 0.2+ | |
| 2000 08 29 | 704 | 0.1− | 0.5+ | 2000 10 01 | 704 | 0.1+ | 0.7+ | 2009 10 16 | 703 | 0.7− | 0.3+ | |
| 2000 09 02 | 699 | 0.3− | 0.2− | 2000 10 01 | 704 | 0.7+ | 0.7+ | 2009 10 26 | A50 | 0.8+ | 0.1+ | |
| 2000 09 02 | 699 | 1.5− | 0.0 | 2000 10 01 | 704 | 0.5+ | 0.2+ | 2009 10 26 | A50 | 0.5+ | 0.0 | |
| 2000 09 02 | 699 | (2.2− | 0.0 ) | 2000 10 02 | 704 | 0.1− | 0.1− | 2009 10 26 | A50 | 0.6+ | 0.5− | |
| 2000 09 02 | 699 | 1.6− | 0.5− | 2000 10 02 | 704 | 0.9+ | 0.5+ | 2009 10 30 | G96 | 0.3− | 0.0 | |
| 2000 09 05 | 704 | 0.3+ | 1.7+ | 2000 10 02 | 704 | 0.3+ | 0.3+ | 2009 10 30 | G96 | 0.3− | 0.1− | |
| 2000 09 05 | 704 | 1.0+ | 0.5+ | 2000 10 02 | 704 | 0.1+ | 0.9+ | 2009 10 30 | G96 | 0.2+ | 0.3− | |
| 2000 09 05 | 704 | 0.2− | 0.3+ | 2000 10 02 | 704 | 0.4+ | 1.0+ | 2009 10 30 | G96 | 0.0 | 0.0 | |
| 2000 09 05 | 691 | 0.3+ | 0.7− | 2007 01 29 | G96 | 0.0 | 0.4+ | 2009 11 18 | J75 | 0.2− | 0.5− | |
| 2000 09 05 | 704 | 0.4− | 0.7+ | 2007 01 29 | G96 | 0.3− | 0.1+ | 2009 11 18 | J75 | 0.0 | 0.4− | |
| 2000 09 05 | 704 | 0.3+ | 0.3− | 2007 01 29 | G96 | 0.1− | 0.2− | 2009 11 18 | J75 | 0.0 | 0.7− | |
| 2000 09 05 | 691 | 0.2+ | 0.7− | 2007 01 29 | G96 | 0.1+ | 0.1+ | 2009 11 19 | 703 | 0.9− | 0.3+ | |
| 2000 09 05 | 691 | 0.4+ | 0.8− | 2008 05 10 | E12 | 0.2− | 0.2+ | 2009 11 19 | 703 | 0.2− | 0.3− | |
| 2000 09 23 | 699 | 1.0− | 0.5+ | 2008 05 10 | E12 | 0.3+ | 0.4+ | 2009 11 19 | 703 | 0.0 | 0.3+ | |
| 2000 09 23 | 699 | 0.1+ | 0.4+ | 2008 05 10 | E12 | 0.2− | 0.3+ | 2009 11 19 | 703 | 0.9− | 1.2− | |
| 2000 09 23 | 699 | 0.5− | 0.3+ | 2008 06 06 | E12 | 0.6+ | 0.5+ | 2009 11 23 | 704 | 1.1+ | 1.3+ | |
| 2000 09 23 | 699 | (1.2− | 2.3+) | 2008 06 06 | E12 | 0.2− | 0.6− | 2009 11 23 | 704 | 0.4− | 0.0 | |
| 2000 09 24 | 704 | 0.3− | 0.4− | 2008 06 06 | E12 | 0.5+ | 1.0+ | 2009 11 23 | 704 | 0.6+ | 0.5+ | |
| 2000 09 24 | 704 | 0.9− | 0.3− | 2008 06 06 | E12 | 0.6+ | 0.5− | 2009 11 23 | 704 | 0.4+ | 1.5+ | |
| 2000 09 24 | 704 | 0.8− | 0.4+ | 2009 09 25 | 106 | 0.5+ | 0.1+ | 2009 12 10 | 704 | 0.3− | 0.0 | |
| 2000 09 24 | 704 | 0.2− | 0.3+ | 2009 09 25 | 106 | (0.3− | 1.7−) | 2009 12 10 | 704 | 0.5− | 0.3+ | |
| 2000 09 24 | 704 | 0.5− | 1.1+ | 2009 09 25 | 106 | 0.4− | 0.6+ | 2009 12 10 | 704 | 0.0 | 0.0 | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 2000 09 25 | 699 | 0.3+ | 0.2+ | 2009 09 25 | 106 | 0.5− | 1.2− | |
| 2000 09 25 | 699 | 0.1+ | 0.3+ | 2009 10 16 | 703 | 1.0+ | 1.1+ | |

**(228323)∗ 2000 QP$_{204}$**

Discovered 2000 Aug. 31 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 37.36255 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23052838 | $\omega$ | 171.33248 | | +0.86168062 | −0.50522002 | |
| $a$ | 2.6342265 | $\Omega$ | 219.13120 | | +0.46094591 | +0.81844269 | |
| $e$ | 0.2302049 | $i$ | 4.31935 | | +0.21221541 | +0.27368649 | |
| $P$ | 4.28 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 08 31 | 704 | 0.6− | 1.7+ | 2000 10 03 | 704 | 0.1− | 0.6− | 2007 04 21 | 807 | 0.1+ | 0.8+ | |
| 2000 08 31 | 704 | 1.2+ | 0.1+ | 2000 10 03 | 704 | 0.8− | 0.6− | 2007 04 21 | 807 | 0.3+ | 0.3+ | |
| 2000 08 31 | 704 | 0.2+ | 0.2+ | 2000 10 03 | 704 | 0.7− | 0.5− | 2009 11 10 | 691 | 0.1− | 0.3− | |
| 2000 08 31 | 704 | 1.1+ | 0.0 | 2000 10 03 | 704 | 0.4− | 0.3− | 2009 11 10 | 691 | 0.2− | 0.3− | |
| 2000 09 05 | 704 | 0.6− | 0.9+ | 2000 10 03 | 704 | 0.2− | 0.4− | 2009 11 10 | 691 | 0.4− | 0.2− | |
| 2000 09 05 | 704 | 0.0 | 0.5+ | 2002 03 05 | 645 | 0.0 | 0.2+ | 2009 11 18 | 704 | 0.2+ | 0.6+ | |
| 2000 09 05 | 704 | 0.4− | 1.6+ | 2002 03 05 | 645 | 0.1+ | 0.2+ | 2009 11 18 | 704 | 0.2− | 1.3+ | |
| 2000 09 05 | 704 | 0.6− | 0.2+ | 2004 06 14 | 691 | 0.1− | 0.3+ | 2009 11 18 | 704 | (0.6− | 1.6+) | |
| 2000 09 22 | 699 | 1.4+ | 0.0 | 2004 06 14 | 691 | 0.1+ | 0.2+ | 2009 11 21 | 704 | 0.9+ | 0.2− | |
| 2000 09 22 | 699 | 1.8+ | 0.0 | 2004 06 14 | 691 | 0.0 | 0.3+ | 2009 11 21 | 704 | 0.2+ | 0.2− | |
| 2000 09 22 | 699 | 0.2+ | 1.8+ | 2005 12 30 | 691 | 0.3+ | 0.5− | 2009 11 21 | 704 | 0.6+ | 1.1− | |
| 2000 09 22 | 699 | 0.9+ | 0.4+ | 2005 12 30 | 691 | 0.1+ | 0.3+ | 2009 12 09 | J75 | 0.4− | 0.4− | |
| 2000 09 23 | 704 | 0.3− | 0.6+ | 2005 12 30 | 691 | 0.2+ | 0.4+ | 2009 12 09 | J75 | 0.1+ | 0.6− | |
| 2000 09 23 | 704 | 0.1− | 0.4+ | 2006 01 10 | 691 | 0.1+ | 0.1+ | 2009 12 09 | J75 | 0.1+ | 0.4− | |
| 2000 09 23 | 704 | 1.0− | 0.4+ | 2006 01 10 | 691 | 0.2− | 0.2+ | 2009 12 11 | G96 | 0.4+ | 0.4− | |
| 2000 09 23 | 704 | 0.3+ | 0.8+ | 2006 01 10 | 691 | 0.0 | 0.2+ | 2009 12 11 | G96 | 0.0 | 0.3− | |
| 2000 09 23 | 704 | 0.0 | 0.7+ | 2006 01 23 | 704 | (0.3− | 1.6+) | 2009 12 11 | G96 | 0.3+ | 0.3− | |
| 2000 09 25 | 691 | 0.4− | 0.1+ | 2006 01 23 | 704 | 0.1− | 0.5+ | 2009 12 11 | G96 | 0.0 | 0.3− | |
| 2000 09 25 | 691 | 0.5− | 0.1+ | 2006 01 23 | 704 | 0.7− | 1.1+ | 2009 12 17 | 704 | 0.2− | 0.1+ | |
| 2000 09 25 | 691 | 0.4− | 0.1+ | 2006 01 23 | 704 | 0.1+ | 0.4+ | 2009 12 17 | 704 | 0.3+ | 0.3+ | |
| 2000 09 25 | 704 | 0.2− | 0.2− | 2006 01 23 | 704 | 0.2+ | 0.1− | 2009 12 17 | 704 | 0.2− | 0.7+ | |
| 2000 09 25 | 704 | 0.2− | 0.4− | 2006 02 03 | G96 | 0.3+ | 0.2+ | 2009 12 17 | 704 | 0.2− | 0.6+ | |
| 2000 09 25 | 704 | 0.4+ | 0.1− | 2006 02 03 | G96 | 0.1+ | 0.0 | 2009 12 17 | 704 | 0.7+ | 0.1− | |
| 2000 09 25 | 704 | 0.4− | 0.4+ | 2006 02 03 | G96 | 0.0 | 0.1+ | | | | | |
| 2000 09 25 | 704 | 0.3+ | 0.6+ | 2006 02 03 | G96 | 0.2+ | 0.1+ | | | | | |

**(228324)∗ 2000 QK$_{212}$ = 2000 TP$_{69}$**

Discovered 2000 Aug. 31 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. A. Doppler (d, *MPO* 11071)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 93.31568 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23977383 | $\omega$ | 201.28363 | | +0.98948069 | +0.13733024 | |
| $a$ | 2.5660682 | $\Omega$ | 150.70878 | | −0.11564485 | +0.93976226 | |
| $e$ | 0.2258749 | $i$ | 5.33377 | | −0.08691508 | +0.31302924 | |
| $P$ | 4.11 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 08 31 | 704 | 0.9− | 1.1+ | 2000 11 27 | 645 | 0.3+ | 0.2− | 2006 01 05 | 691 | 0.0 | 0.1− | |
| 2000 08 31 | 704 | 0.8+ | 0.4+ | 2000 11 27 | 645 | 0.2+ | 0.2− | 2006 01 10 | G96 | 0.0 | 0.2+ | |
| 2000 08 31 | 704 | 0.3+ | 1.1+ | 2004 08 08 | 704 | 0.7+ | 1.0− | 2006 01 10 | G96 | 0.1− | 0.2− | |
| 2000 08 31 | 704 | 0.2− | 0.8+ | 2004 08 08 | 704 | 0.0 | 0.5+ | 2006 01 10 | G96 | 0.7+ | 0.4+ | |
| 2000 09 05 | 704 | 0.1+ | 0.5+ | 2004 08 08 | 704 | 0.0 | 0.2+ | 2006 01 10 | G96 | 0.5− | 0.7− | |
| 2000 09 05 | 704 | 0.3+ | 0.3+ | 2004 08 08 | 704 | 0.1+ | 0.1− | 2006 03 03 | G96 | 0.2+ | 0.7+ | |
| 2000 09 05 | 704 | 0.5− | 0.3− | 2004 08 08 | 704 | 0.1− | 0.4− | 2006 03 03 | G96 | 0.2− | 0.0 | |
| 2000 09 23 | 699 | 0.0 | 0.3− | 2004 08 09 | 699 | (0.7− | 2.0+) | 2006 03 03 | G96 | 0.6− | 0.1+ | |
| 2000 09 23 | 699 | 1.5− | 0.7+ | 2004 08 09 | 699 | 0.2+ | 0.6+ | 2006 03 03 | G96 | 0.6− | 0.3+ | |
| 2000 09 23 | 699 | 0.4− | 0.4+ | 2004 08 09 | 699 | 0.0 | 0.2+ | 2008 05 15 | G96 | 0.4− | 0.3− | |
| 2000 09 23 | 699 | 0.1− | 0.7+ | 2004 08 09 | 699 | 0.4+ | 0.1− | 2008 05 15 | G96 | 0.1+ | 0.3+ | |
| 2000 09 24 | 699 | 1.3− | 0.3+ | 2004 09 07 | 704 | 0.7+ | 0.2− | 2008 05 15 | G96 | 0.7− | 0.1+ | |
| 2000 09 24 | 699 | 0.1− | 0.5− | 2004 09 07 | 704 | 0.5− | 0.3+ | 2008 05 15 | G96 | 0.8− | 0.2+ | |
| 2000 09 24 | 699 | 0.0 | 0.5+ | 2004 09 07 | 704 | 0.3+ | 0.1− | 2008 10 02 | G96 | 0.4+ | 0.2− | |
| 2000 09 24 | 699 | 0.8− | 0.4− | 2004 09 07 | 704 | 0.6+ | 1.4− | 2008 10 02 | G96 | 0.0 | 0.2− | |
| 2000 09 27 | 691 | 0.1− | 0.3− | 2004 09 09 | 704 | 0.7− | 0.0 | 2008 10 02 | G96 | 0.1+ | 0.2+ | |
| 2000 09 27 | 691 | 0.1+ | 0.1− | 2004 09 09 | 704 | 0.3+ | 0.9+ | 2008 10 02 | G96 | 0.5+ | 0.0 | |
| 2000 09 27 | 691 | 0.0 | 0.3− | 2004 09 09 | 704 | 0.1− | 1.1+ | 2009 12 18 | G96 | 0.1− | 0.5− | |
| 2000 10 02 | 704 | 0.4− | 0.8+ | 2004 09 09 | 704 | 0.1+ | 0.6+ | 2009 12 18 | G96 | 0.6− | 0.1+ | |
| 2000 10 02 | 699 | 0.2− | 1.1+ | 2004 09 09 | 704 | 0.3+ | 0.2− | 2009 12 18 | G96 | 0.5− | 0.0 | |
| 2000 10 02 | 704 | 0.8− | 0.3+ | 2005 12 28 | 691 | 0.3+ | 0.1+ | 2009 12 18 | G96 | 0.4− | 0.1+ | |
| 2000 10 02 | 699 | 0.5− | 0.2− | 2005 12 28 | 691 | 0.1+ | 0.3+ | 2009 12 20 | 691 | 0.2+ | 0.3− | |
| 2000 10 02 | 699 | 0.3− | 1.7+ | 2005 12 28 | 691 | 0.1+ | 0.7+ | 2009 12 20 | 691 | 0.7− | 0.2+ | |
| 2000 10 02 | 704 | 0.6+ | 0.6+ | 2006 01 05 | 691 | 0.3+ | 0.0 | 2009 12 20 | 691 | 0.0 | 0.1+ | |
| 2000 10 02 | 699 | 1.7− | 0.3+ | 2006 01 05 | 691 | 0.3+ | 0.2+ | | | | | |

**(228325)∗ 2000 QS$_{224}$**

Discovered 2000 Aug. 26 by NEAT at Haleakala.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 87.56288 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23862167 | $\omega$ | 87.26173 | | +0.95421430 | +0.22232717 | |
| $a$ | 2.5743215 | $\Omega$ | 259.83479 | | −0.28228231 | +0.89061158 | |
| $e$ | 0.2179702 | $i$ | 11.73032 | | +0.09895334 | +0.39671356 | |
| $P$ | 4.13 | $H$ | 15.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 06 04 | 691 | 0.1− | 0.1+ | 2000 09 27 | 704 | 0.3+ | 0.5− | 2004 08 10 | 704 | 0.6+ | 0.3+ | |
| 2000 06 04 | 691 | 0.3− | 0.3− | 2000 09 27 | 704 | 0.3+ | 0.4− | 2004 08 10 | 704 | 0.3+ | 0.1+ | |
| 2000 06 04 | 691 | 0.3− | 0.0 | 2000 09 27 | 704 | 0.1− | 0.2− | 2004 08 20 | 704 | 0.0 | 0.2− | |
| 2000 07 07 | 699 | 0.4− | 1.6+ | 2000 10 04 | 704 | 0.2+ | 0.3− | 2004 08 20 | 704 | 0.5− | 0.2− | |
| 2000 07 07 | 699 | 0.6− | 1.8+ | 2000 10 04 | 704 | 0.3+ | 0.0 | 2004 08 20 | 704 | 0.4− | 0.1− | |
| 2000 07 07 | 699 | 0.2+ | 1.6+ | 2000 10 04 | 704 | 0.2+ | 0.2− | 2004 08 20 | 704 | 0.7− | 0.2− | |
| 2000 07 07 | 699 | 0.8− | 1.7+ | 2000 10 04 | 704 | 0.1+ | 0.0 | 2004 10 07 | 704 | 0.5− | 0.2− | |
| 2000 07 30 | 704 | 0.6+ | 0.1− | 2000 10 04 | 704 | 0.5+ | 0.3+ | 2004 10 07 | 704 | 0.5+ | 0.3− | |
| 2000 07 30 | 704 | 0.4− | 0.4+ | 2000 10 30 | 704 | 0.8− | 0.9− | 2004 10 07 | 704 | 0.2− | 0.7+ | |
| 2000 07 30 | 704 | 0.2− | 0.3+ | 2000 10 30 | 704 | 0.4+ | 1.0+ | 2004 10 10 | 704 | 0.2− | 1.0+ | |
| 2000 07 30 | 704 | 0.7+ | 0.4+ | 2000 10 30 | 704 | 0.8+ | 0.1+ | 2004 10 10 | 704 | 0.3− | 0.3+ | |
| 2000 07 30 | 704 | 0.7− | 1.4− | 2000 10 30 | 704 | 1.3+ | 0.5+ | 2004 10 10 | 704 | 0.7+ | 1.0+ | |
| 2000 08 07 | 608 | 0.8− | 0.3− | 2000 11 19 | 704 | 0.1+ | 0.7− | 2004 10 10 | 704 | 0.5− | 0.6+ | |
| 2000 08 07 | 608 | 0.9− | 0.2− | 2000 11 19 | 704 | 0.3− | 0.1+ | 2004 10 18 | 704 | (1.7− | 0.3+) | |
| 2000 08 07 | 608 | 0.8− | 0.2− | 2000 11 19 | 704 | 0.5+ | 0.1+ | 2004 10 18 | 704 | 0.8− | 0.7+ | |
| 2000 08 26 | 608 | 0.2− | 1.6− | 2000 11 19 | 704 | 0.2+ | 0.4+ | 2004 10 18 | 704 | 0.4− | 0.6+ | |
| 2000 08 26 | 608 | 0.0 | 1.1− | 2000 11 19 | 704 | 0.6+ | 1.3+ | 2004 10 18 | 704 | 0.1− | 0.4− | |
| 2000 08 26 | 608 | 0.2− | 0.8− | 2000 11 26 | 704 | 0.7+ | 0.0 | 2005 12 27 | 691 | 0.1+ | 0.4+ | |
| 2000 09 01 | 704 | 0.3− | 0.0 | 2000 11 26 | 704 | 0.6+ | 0.2− | 2005 12 27 | 691 | 0.1+ | 0.4+ | |
| 2000 09 01 | 704 | 0.3+ | 0.2+ | 2000 11 26 | 704 | 0.3− | 0.7− | 2005 12 27 | 691 | 0.0 | 0.4+ | |
| 2000 09 01 | 704 | 0.4+ | 0.2+ | 2001 12 14 | 704 | 0.5+ | 0.1− | 2008 12 02 | G96 | 0.6+ | 0.2− | |
| 2000 09 01 | 704 | 0.2− | 0.4− | 2001 12 14 | 704 | 1.1+ | 0.1+ | 2008 12 02 | G96 | 0.4+ | 0.1+ | |
| 2000 09 01 | 704 | 0.0 | 0.1+ | 2001 12 14 | 704 | 0.9+ | 0.5+ | 2008 12 02 | G96 | 0.2+ | 0.0 | |
| 2000 09 22 | 704 | 1.0+ | 0.7− | 2001 12 14 | 704 | 0.6+ | 0.4+ | 2008 12 02 | G96 | 0.6+ | 0.6+ | |
| 2000 09 22 | 704 | 0.0 | 0.2− | 2004 06 19 | 704 | 0.2+ | 0.9− | 2009 11 21 | 704 | 0.7+ | 0.8− | |
| 2000 09 22 | 704 | 1.4− | 0.5+ | 2004 06 19 | 704 | 0.3− | 0.2+ | 2009 11 21 | 704 | 0.7− | 0.3+ | |
| 2000 09 22 | 704 | 0.9+ | 0.4− | 2004 06 19 | 704 | 0.5+ | 0.8+ | 2009 11 21 | 704 | 0.1− | 0.5− | |
| 2000 09 25 | 699 | 0.5+ | 0.0 | 2004 08 09 | 704 | 0.0 | 0.1− | 2009 11 21 | 704 | 0.3− | 0.5+ | |
| 2000 09 25 | 699 | 0.1+ | 0.1+ | 2004 08 09 | 704 | 0.5− | 0.4+ | 2009 12 18 | 691 | 0.1− | 0.1+ | |
| 2000 09 25 | 699 | 0.1− | 0.2+ | 2004 08 09 | 704 | 0.2+ | 0.7+ | 2009 12 18 | 691 | 0.1− | 0.0 | |
| 2000 09 25 | 699 | 0.0 | 0.2− | 2004 08 09 | 704 | 0.0 | 0.2+ | 2009 12 18 | 691 | 0.1− | 0.1− | |
| 2000 09 27 | 704 | 0.0 | 0.0 | 2004 08 10 | 704 | 0.4+ | 0.0 | | | | | |
| 2000 09 27 | 704 | 0.1− | 0.5− | 2004 08 10 | 704 | 0.1− | 0.6+ | | | | | |

**(228326)∗ 2000 QK$_{243}$ = 2002 DC**

Discovered 2000 Aug. 20 by Spacewatch at Kitt Peak.

Id. A. Doppler (*MPO* 25125)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 13.69769 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23744603 | $\omega$ | 99.66860 | | +0.32925025 | −0.94380294 | |
| $a$ | 2.5828119 | $\Omega$ | 331.05676 | | +0.84130257 | +0.30707473 | |
| $e$ | 0.2440849 | $i$ | 3.41349 | | +0.42872399 | +0.12223388 | |
| $P$ | 4.15 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 08 20 | 691 | 1.0− | 1.2+ | 2002 02 16 | 557 | 0.0 | 0.3+ | 2006 01 10 | 703 | (1.6− | 2.0+) |
| 2000 08 20 | 691 | 0.8− | 0.5+ | 2002 02 16 | 557 | 0.5− | 0.3+ | 2006 01 10 | 703 | (2.3− | 1.4−) |
| 2000 08 20 | 691 | 0.4− | 0.9+ | 2002 02 16 | 557 | 0.7− | 0.1− | 2006 01 22 | 691 | 0.2+ | 0.0 |
| 2000 08 25 | 807 | 0.6− | 0.5+ | 2002 02 17 | 557 | 0.4− | 0.3+ | 2006 01 22 | 691 | 0.4+ | 0.0 |
| 2000 08 25 | 807 | 0.6− | 0.5+ | 2002 03 06 | 691 | 0.0 | 0.5+ | 2006 01 22 | 691 | 0.3+ | 0.0 |
| 2000 09 04 | 691 | 0.0 | 0.5+ | 2002 03 06 | 691 | 0.2+ | 0.4+ | 2006 02 06 | 691 | 0.7+ | 0.1− |
| 2000 09 04 | 691 | 0.4+ | 0.4+ | 2002 03 06 | 691 | 1.2+ | 1.1+ | 2006 02 06 | 691 | 0.1+ | 0.1− |
| 2000 09 04 | 691 | 0.5+ | 0.7+ | 2005 12 29 | 704 | 1.3− | 0.2+ | 2006 02 06 | 691 | 0.1+ | 0.2+ |
| 2002 01 14 | 691 | 0.5− | 0.4+ | 2005 12 29 | 704 | 0.1+ | 0.2+ | 2006 02 20 | 691 | 0.0 | 0.3− |
| 2002 01 14 | 691 | 0.7− | 0.4+ | 2005 12 29 | 704 | 0.8+ | 0.2− | 2006 02 20 | 691 | 0.3+ | 0.0 |
| 2002 01 14 | 691 | 0.6− | 0.1+ | 2005 12 29 | 704 | 0.1+ | 0.7+ | 2006 02 20 | 691 | 0.1+ | 0.2− |
| 2002 02 07 | 644 | 0.3+ | 0.5+ | 2005 12 29 | 691 | 0.5+ | 0.5− | 2006 03 24 | G96 | 0.5− | 0.1− |
| 2002 02 07 | 644 | 0.2+ | 0.4+ | 2005 12 29 | 691 | 0.2− | 0.1− | 2006 03 24 | G96 | 0.5− | 0.4+ |
| 2002 02 07 | 291 | 0.1+ | 0.2+ | 2005 12 29 | 691 | 0.0 | 0.3− | 2006 03 24 | G96 | 0.9− | 0.2+ |
| 2002 02 07 | 644 | 0.7+ | 0.5+ | 2005 12 30 | 699 | 0.1+ | 0.4+ | 2006 03 24 | G96 | 0.2− | 0.1+ |
| 2002 02 07 | 291 | 0.1− | 0.2+ | 2005 12 30 | 699 | 0.3− | 0.1+ | 2009 11 18 | 691 | 0.0 | 0.0 |
| 2002 02 07 | 691 | 0.4+ | 0.2+ | 2005 12 30 | 699 | 1.3− | 0.8− | 2009 11 18 | 691 | 0.1− | 0.1− |
| 2002 02 07 | 291 | 0.4+ | 0.2+ | 2005 12 30 | 699 | 0.4+ | 0.2+ | 2009 11 18 | 691 | 0.1− | 0.1− |
| 2002 02 07 | 691 | 0.5+ | 0.3+ | 2005 12 30 | G96 | 0.1+ | 0.4− | 2009 11 22 | 691 | 0.2− | 0.1− |
| 2002 02 07 | 691 | 0.7+ | 0.4+ | 2005 12 30 | G96 | 0.2− | 0.4− | 2009 11 22 | 691 | 0.0 | 0.0 |
| 2002 02 10 | 704 | 0.7− | 0.3− | 2005 12 30 | G96 | 0.5− | 0.1− | 2009 11 22 | 691 | 0.2− | 0.1+ |
| 2002 02 10 | 704 | 0.2− | 0.0 | 2005 12 30 | G96 | 0.4− | 0.4− | 2009 11 26 | 691 | 0.4− | 0.6+ |
| 2002 02 10 | 704 | 0.4− | 0.3− | 2006 01 05 | 704 | 1.1+ | 0.5+ | 2009 11 26 | 691 | 0.2+ | 0.2+ |
| 2002 02 10 | 704 | 0.6− | 0.7− | 2006 01 05 | 704 | 0.8− | 0.0 | 2009 11 26 | 691 | 0.1+ | 0.5− |
| 2002 02 10 | 704 | 0.7− | 0.6− | 2006 01 05 | 704 | 0.7+ | 0.4+ | 2009 12 10 | 704 | (1.8− | 0.0 ) |
| 2002 02 12 | 704 | 1.1+ | 0.7+ | 2006 01 05 | 704 | (0.2+ | 1.6−) | 2009 12 10 | 704 | 0.5− | 0.1+ |
| 2002 02 12 | 704 | (1.5+ | 0.2−) | 2006 01 05 | 699 | 1.2− | 0.6− | 2009 12 10 | 704 | 0.9− | 0.2+ |
| 2002 02 12 | 704 | 0.2+ | 0.6+ | 2006 01 05 | 699 | 0.0 | 0.5− | 2009 12 10 | 704 | 0.8− | 0.2− |
| 2002 02 12 | 704 | 0.2− | 0.4+ | 2006 01 05 | 699 | 1.3− | 0.4− | 2009 12 15 | 704 | 0.3+ | 0.6+ |
| 2002 02 12 | 704 | 0.4− | 0.1− | 2006 01 05 | 699 | 0.1+ | 0.5− | 2009 12 15 | 704 | 1.0+ | 0.8+ |
| 2002 02 16 | 557 | 0.1− | 0.5+ | 2006 01 10 | 703 | 0.3+ | 1.4+ | 2009 12 15 | 704 | 0.6+ | 0.5+ |
| 2002 02 16 | 557 | 0.0 | 0.7− | 2006 01 10 | 703 | 0.7− | 0.1+ | 2009 12 15 | 704 | 0.6+ | 1.1+ |

**(228327)∗ 2000 RN$_{18}$**

Discovered 2000 Sept. 1 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 52.46718 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23037615 | $\omega$ | 83.82960 | | +0.94261828 | −0.32429723 | |
| $a$ | 2.6353868 | $\Omega$ | 295.07071 | | +0.26104545 | +0.86410672 | |
| $e$ | 0.3519301 | $i$ | 5.02802 | | +0.20814911 | +0.38490374 | |
| $P$ | 4.28 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 07 07 | 704 | 0.2+ | 1.0+ | 2000 10 23 | 106 | 0.5− | 0.4− | 2005 10 24 | 568 | 0.2− | 0.3+ |
| 2000 07 07 | 704 | 0.8− | 0.4− | 2000 10 25 | 704 | 1.1− | 1.3+ | 2005 10 24 | 568 | 0.2− | 0.3+ |
| 2000 07 07 | 704 | 0.3+ | 0.3+ | 2000 10 25 | 704 | 0.4− | 1.2− | 2005 10 24 | 568 | 0.2− | 0.2+ |
| 2000 07 07 | 704 | 0.3− | 0.4+ | 2000 10 25 | 704 | 0.7+ | 0.3− | 2005 10 31 | 691 | 0.8+ | 0.1+ |
| 2000 07 07 | 704 | 0.7− | 1.0+ | 2000 10 30 | 704 | (2.2− | 0.9+) | 2005 10 31 | 691 | 0.5+ | 0.3+ |
| 2000 08 03 | 704 | 0.6+ | 0.2+ | 2000 10 30 | 704 | 1.6− | 0.9+ | 2005 10 31 | 691 | 0.2− | 0.6+ |
| 2000 08 03 | 704 | 0.3− | 0.2+ | 2000 10 30 | 704 | 1.5− | 1.2+ | 2005 11 06 | 691 | 0.4+ | 0.2+ |
| 2000 08 03 | 704 | 0.1− | 0.1+ | 2000 10 30 | 704 | 1.2− | 1.1+ | 2005 11 06 | 691 | 0.5+ | 0.3− |
| 2000 08 03 | 704 | 0.4− | 0.3+ | 2000 10 30 | 704 | 1.2− | 1.1+ | 2005 11 06 | 691 | 0.5+ | 0.0 |
| 2000 08 03 | 704 | 0.1+ | 0.7+ | 2000 11 03 | 704 | 0.5− | 0.5− | 2005 12 25 | G96 | 0.1− | 0.3− |
| 2000 09 01 | 704 | 0.2+ | 0.2− | 2000 11 03 | 704 | 0.3+ | 1.2+ | 2005 12 25 | G96 | 0.2+ | 0.1− |
| 2000 09 01 | 704 | 0.0 | 0.3− | 2000 11 03 | 704 | 0.1− | 0.0 | 2005 12 25 | G96 | 0.1− | 0.1− |
| 2000 09 01 | 704 | 0.1− | 0.1− | 2000 11 03 | 704 | 0.7+ | 0.6+ | 2005 12 25 | G96 | 0.4− | 0.4− |
| 2000 09 01 | 704 | 0.2− | 0.1+ | 2000 11 03 | 704 | 0.0 | 1.0+ | 2006 01 06 | G96 | 0.1− | 0.6+ |
| 2000 09 01 | 704 | 0.9− | 0.1− | 2000 11 19 | 704 | 0.1+ | 0.2+ | 2006 01 06 | G96 | 0.2+ | 0.1+ |
| 2000 09 03 | 704 | 0.3+ | 0.5− | 2000 11 19 | 704 | 0.0 | 0.1− | 2006 01 06 | G96 | 0.1− | 0.0 |
| 2000 09 03 | 704 | 0.5+ | 0.2+ | 2000 11 19 | 704 | 0.3+ | 0.2+ | 2006 01 06 | G96 | 1.0− | 0.6+ |
| 2000 09 03 | 704 | 0.7+ | 0.1+ | 2000 11 19 | 704 | 0.4+ | 0.5+ | 2006 01 08 | G96 | 0.3+ | 0.3+ |
| 2000 09 03 | 704 | 0.8+ | 0.3− | 2000 11 19 | 704 | 0.2+ | 0.8− | 2006 01 08 | G96 | 0.0 | 0.2+ |
| 2000 09 03 | 704 | 0.4+ | 0.3− | 2000 11 23 | 704 | 0.2+ | 0.1+ | 2006 01 08 | G96 | 0.3+ | 0.2+ |
| 2000 09 05 | 699 | 0.5− | 0.2+ | 2000 11 23 | 704 | 0.2+ | 0.1− | 2006 01 08 | G96 | 0.2− | 0.2− |
| 2000 09 05 | 699 | 0.6− | 0.2− | 2000 11 23 | 704 | 0.1+ | 0.1− | 2006 02 01 | G96 | 0.4+ | 0.1+ |
| 2000 09 05 | 699 | 0.7− | 0.1− | 2000 11 23 | 704 | 0.0 | 0.1+ | 2006 02 01 | G96 | 0.2+ | 0.1− |
| 2000 09 05 | 699 | 0.7− | 0.1+ | 2000 11 23 | 704 | 0.0 | 0.4+ | 2006 02 01 | G96 | 0.6+ | 0.0 |
| 2000 09 20 | 608 | 0.1+ | 0.1+ | 2000 11 23 | 704 | 0.4+ | 0.0 | 2006 02 01 | G96 | 0.3+ | 0.1+ |
| 2000 09 20 | 608 | 0.1+ | 0.1+ | 2000 11 23 | 704 | 0.1+ | 0.3− | 2006 02 09 | 644 | 0.1− | 0.2+ |
| 2000 09 20 | 608 | 0.1+ | 0.1+ | 2000 11 23 | 704 | 0.2− | 0.4+ | 2006 02 09 | 644 | 0.1− | 0.4+ |
| 2000 09 23 | 704 | 0.0 | 0.2− | 2000 11 26 | 704 | 0.4− | 0.1+ | 2006 02 09 | 644 | 0.3+ | 0.3+ |
| 2000 09 23 | 699 | 0.6+ | 0.2+ | 2000 11 26 | 704 | 0.3− | 0.2− | 2007 03 16 | 691 | 0.2− | 0.3+ |
| 2000 09 23 | 704 | 0.0 | 0.6− | 2000 11 26 | 704 | 0.4+ | 0.3+ | 2007 03 16 | 691 | 0.1+ | 0.5+ |
| 2000 09 23 | 699 | 0.0 | 0.6+ | 2000 11 26 | 704 | 0.2+ | 0.5− | 2007 03 16 | 691 | 0.5− | 0.3+ |
| 2000 09 23 | 704 | 0.1− | 0.6− | 2000 11 26 | 704 | 0.2+ | 0.0 | 2009 11 11 | G96 | 0.4− | 0.3+ |
| 2000 09 23 | 699 | 1.0+ | 0.7+ | 2001 01 19 | 704 | 0.4− | 0.1+ | 2009 11 11 | G96 | 0.2+ | 0.2+ |
| 2000 09 23 | 704 | 0.3− | 0.5− | 2001 01 19 | 704 | 0.1+ | 0.1+ | 2009 11 11 | G96 | 0.1+ | 0.1− |
| 2000 09 23 | 699 | 0.5+ | 0.0 | 2001 01 19 | 704 | 0.1− | 1.2+ | 2009 11 11 | G96 | 0.1+ | 0.1− |
| 2000 09 23 | 704 | 0.3− | 0.8− | 2004 07 15 | E12 | 0.4+ | 0.9+ | 2009 12 11 | 704 | 0.8+ | 0.3+ |
| 2000 09 27 | 704 | 0.0 | 0.1− | 2004 07 15 | E12 | 0.0 | 0.4+ | 2009 12 11 | 704 | 0.3+ | 0.1− |
| 2000 09 27 | 704 | 0.1+ | 0.1+ | 2004 07 15 | E12 | 0.3+ | 0.2+ | 2009 12 11 | 704 | 0.8+ | 1.0+ |
| 2000 09 27 | 704 | 0.3+ | 0.4+ | 2004 07 15 | E12 | 0.1+ | 0.8+ | 2009 12 11 | 704 | 0.9+ | 0.6+ |
| 2000 09 27 | 704 | 0.1+ | 0.7+ | 2004 07 16 | 704 | (0.5− | 1.5+) | 2009 12 15 | G96 | 0.3+ | 0.4− |
| 2000 09 27 | 704 | 0.3+ | 0.2+ | 2004 07 16 | 704 | 0.6− | 1.1+ | 2009 12 15 | G96 | 0.1+ | 0.1− |
| 2000 10 03 | 704 | 0.1+ | 0.0 | 2004 07 16 | 704 | 1.2+ | 0.9+ | 2009 12 15 | G96 | 0.3+ | 0.3− |
| 2000 10 03 | 704 | 1.1+ | 1.3− | 2004 07 16 | 704 | (0.6+ | 1.7+) | 2009 12 15 | G96 | 0.2+ | 0.3− |
| 2000 10 03 | 704 | 0.2− | 0.7− | 2004 07 16 | 704 | 0.7− | 1.2+ | 2009 12 18 | 691 | 0.2− | 0.0 |
| 2000 10 03 | 704 | 0.1+ | 0.5− | 2005 09 30 | 568 | 0.1− | 0.3+ | 2009 12 18 | 691 | 0.2− | 0.0 |
| 2000 10 04 | 300 | 0.3+ | 0.6− | 2005 09 30 | 568 | 0.1− | 0.3+ | 2009 12 18 | 691 | 0.3− | 0.2− |
| 2000 10 04 | 300 | 0.2+ | 0.5− | 2005 09 30 | 568 | 0.0 | 0.3+ | 2009 12 26 | 691 | 0.1− | 0.2− |
| 2000 10 20 | I02 | 0.4− | 0.5− | 2005 10 07 | 568 | 0.1− | 0.2+ | 2009 12 26 | 691 | 0.2− | 0.0 |
| 2000 10 23 | 106 | 0.3− | 0.3− | 2005 10 07 | 568 | 0.1− | 0.2+ | 2009 12 26 | 691 | 0.3− | 0.0 |
| 2000 10 23 | 106 | 0.4− | 0.1− | 2005 10 07 | 568 | 0.2− | 0.2+ | | | | |

**(228328)∗ 2000 RO$_{19}$ = 2002 AC$_{57}$**

Discovered 2000 Sept. 1 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 22462)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 56.91445 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23317757 | $\omega$ | 68.89220 | | +0.95802605 | −0.25233068 | |
| $a$ | 2.6142364 | $\Omega$ | 305.47928 | | +0.15873399 | +0.86213855 | |
| $e$ | 0.1268821 | $i$ | 9.61905 | | +0.23872494 | +0.43937040 | |
| $P$ | 4.23 | $H$ | 15.3 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 01 | 704 | 0.5+ | 0.3− | 2002 01 13 | 704 | 0.1+ | 0.1+ | 2004 08 17 | 704 | 0.1− | 0.1− |
| 2000 09 01 | 704 | 0.3+ | 0.5− | 2002 01 13 | 704 | 1.0+ | 0.4+ | 2004 08 17 | 704 | 0.1− | 0.2− |
| 2000 09 01 | 704 | 0.5+ | 0.0 | 2002 01 13 | 704 | 1.0+ | 0.1+ | 2004 08 17 | 704 | 0.2− | 0.4+ |
| 2000 09 01 | 704 | 0.5+ | 0.3+ | 2002 01 13 | 704 | 1.1+ | 0.9− | 2004 08 25 | 691 | 0.1− | 0.0 |
| 2000 09 01 | 704 | 0.2+ | 0.2+ | 2002 01 21 | 704 | 1.1+ | 1.3+ | 2004 08 25 | 691 | 0.0 | 0.1+ |
| 2000 09 03 | 704 | 0.7+ | 0.4− | 2002 01 21 | 704 | 0.3− | 0.6+ | 2004 08 25 | 691 | 0.1+ | 0.1+ |
| 2000 09 03 | 704 | 0.4+ | 0.3+ | 2002 01 21 | 704 | 1.0+ | 0.5+ | 2004 09 07 | 704 | 0.2+ | 0.5− |
| 2000 09 03 | 704 | 0.5+ | 0.2+ | 2002 01 21 | 704 | 0.9+ | 0.3+ | 2004 09 07 | 704 | 0.4− | 0.1− |
| 2000 09 03 | 704 | 0.4+ | 0.4+ | 2002 01 21 | 704 | 0.7+ | 0.5+ | 2004 09 07 | 704 | 0.1+ | 0.2− |
| 2000 09 03 | 704 | 0.3− | 0.2+ | 2002 02 10 | 049 | 0.5+ | 0.2+ | 2004 09 10 | 704 | 0.0 | 0.5+ |
| 2000 09 05 | 704 | 0.2+ | 0.4− | 2002 02 10 | 049 | 0.7+ | 0.8+ | 2004 09 10 | 704 | 0.2+ | 0.3+ |
| 2000 09 05 | 704 | 0.5+ | 0.5− | 2002 02 10 | 049 | 0.2− | 0.6+ | 2004 09 10 | 704 | 0.5− | 0.6+ |
| 2000 09 05 | 704 | 0.4+ | 0.9+ | 2002 02 11 | 704 | 0.4+ | 0.8+ | 2004 09 10 | 704 | 0.6+ | 1.1+ |
| 2000 09 05 | 704 | 0.1− | 0.1− | 2002 02 11 | 704 | 0.5+ | 0.6+ | 2004 09 10 | 704 | 0.7− | 0.2+ |
| 2000 09 05 | 704 | 0.1+ | 0.0 | 2002 02 11 | 704 | 0.1+ | 0.6+ | 2004 09 13 | 704 | 1.3+ | 0.0 |
| 2000 09 05 | 699 | 1.6− | 0.1+ | 2002 02 11 | 704 | 0.6+ | 0.4− | 2004 09 13 | 704 | 0.1+ | 1.3+ |
| 2000 09 05 | 699 | 1.4− | 0.0 | 2002 02 11 | 704 | 0.6+ | 0.1− | 2004 09 13 | 704 | 0.1− | 1.3+ |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 05 | 699 | 1.1− | 0.7+ | 2002 02 14 | 691 | 0.5− | 0.2+ | 2004 09 18 | 704 | 1.0− | 0.7+ |
| 2000 09 05 | 699 | 1.5− | 0.6+ | 2002 02 14 | 691 | 0.4− | 0.1+ | 2004 09 18 | 704 | 0.0 | 0.4+ |
| 2000 09 06 | 704 | 0.1+ | 1.2− | 2002 02 14 | 691 | 0.3− | 0.1+ | 2004 09 18 | 704 | 0.4+ | 0.8+ |
| 2000 09 06 | 704 | 0.3+ | 0.6− | 2002 02 20 | 691 | 0.5+ | 0.3+ | 2004 09 18 | 704 | 0.6− | 0.6+ |
| 2000 09 06 | 704 | 0.1− | 0.5− | 2002 02 20 | 691 | 0.4− | 0.9+ | 2004 09 18 | 704 | 0.8− | 0.2+ |
| 2000 09 06 | 704 | 0.3+ | 1.2− | 2002 02 20 | 691 | 0.2− | 0.4+ | 2004 10 10 | 644 | 0.4+ | 0.3+ |
| 2000 09 06 | 704 | 0.0 | 0.4− | 2004 07 16 | 704 | 0.9− | 0.2− | 2004 10 10 | 644 | 0.1− | 0.3+ |
| 2000 09 23 | 704 | 1.5− | 0.0 | 2004 07 16 | 704 | 1.1− | 0.5− | 2004 10 10 | 644 | 0.3+ | 0.3+ |
| 2000 09 23 | 704 | 0.1+ | 0.4− | 2004 07 16 | 704 | 0.1+ | 0.9+ | 2005 12 26 | 691 | 0.0 | 0.2− |
| 2000 09 23 | 704 | 1.0+ | 0.2+ | 2004 07 16 | 704 | 1.5− | 0.2− | 2005 12 26 | 691 | 0.2+ | 0.1− |
| 2000 09 23 | 704 | 0.7+ | 0.2− | 2004 08 06 | 644 | 0.0 | 0.4+ | 2005 12 26 | 691 | 0.2− | 0.0 |
| 2000 09 23 | 704 | 0.2+ | 0.4+ | 2004 08 06 | 644 | 0.2+ | 0.4+ | 2005 12 29 | 704 | 0.7+ | 0.3+ |
| 2000 09 27 | 704 | 0.1+ | 0.1− | 2004 08 06 | 644 | 0.3− | 0.3+ | 2005 12 29 | 704 | 1.2+ | 0.3+ |
| 2000 09 27 | 704 | 0.4+ | 0.4− | 2004 08 06 | 599 | 0.1− | 0.4+ | 2005 12 29 | 704 | 0.6+ | 0.5− |
| 2000 09 27 | 704 | 0.6+ | 0.4− | 2004 08 06 | 599 | 0.1− | 0.2+ | 2005 12 29 | 704 | 0.0 | 0.3+ |
| 2000 09 27 | 704 | 0.2− | 0.4− | 2004 08 06 | 599 | 0.1− | 0.1+ | 2006 01 06 | 704 | (1.5− | 3.4+) |
| 2000 09 27 | 704 | 0.2+ | 0.3− | 2004 08 07 | 599 | 0.1− | 0.5+ | 2006 01 06 | 704 | 0.2+ | 0.1− |
| 2000 10 02 | 699 | 0.3+ | 0.6+ | 2004 08 09 | 704 | 0.4− | 0.5+ | 2006 01 06 | 704 | 0.3− | 0.2+ |
| 2000 10 02 | 699 | 0.5+ | 0.2− | 2004 08 09 | 704 | 0.5− | 0.6+ | 2006 01 06 | 704 | 0.4− | 0.2+ |
| 2000 10 02 | 699 | 0.1− | 0.9+ | 2004 08 09 | 704 | 0.1− | 0.0 | 2006 01 07 | 691 | 0.1− | 0.1− |
| 2000 10 02 | 699 | 0.4− | 0.2+ | 2004 08 09 | 704 | 0.1+ | 0.7+ | 2006 01 07 | 691 | 0.1− | 0.0 |
| 2000 10 03 | 704 | 0.6− | 0.2− | 2004 08 09 | 699 | 0.0 | 0.7+ | 2006 01 07 | 691 | 0.1− | 0.2+ |
| 2000 10 03 | 704 | 0.2− | 0.2− | 2004 08 09 | 699 | 0.2+ | 0.1+ | 2009 12 09 | 704 | 0.1+ | 0.5− |
| 2000 10 03 | 704 | 0.2+ | 0.2− | 2004 08 09 | 699 | 0.6− | 0.9+ | 2009 12 09 | 704 | 1.0+ | 0.5+ |
| 2000 10 03 | 704 | 0.3+ | 0.3− | 2004 08 09 | 699 | 0.1− | 0.6+ | 2009 12 09 | 704 | 0.4+ | 0.0 |
| 2000 10 03 | 704 | 0.2− | 0.3+ | 2004 08 11 | 704 | 0.1− | 0.0 | 2009 12 09 | 704 | 0.0 | 0.7− |
| 2002 01 09 | 704 | 0.1− | 0.5+ | 2004 08 11 | 704 | 0.4− | 0.8+ | 2009 12 17 | 703 | 0.2− | 0.9− |
| 2002 01 09 | 704 | 1.0+ | 0.7+ | 2004 08 11 | 704 | 0.4− | 0.4− | 2009 12 17 | 703 | 1.3− | 0.4+ |
| 2002 01 09 | 704 | 0.9+ | 0.6+ | 2004 08 11 | 704 | 0.1− | 0.3+ | 2009 12 17 | 703 | 0.1− | 0.6− |
| 2002 01 13 | 704 | 0.9+ | 0.1+ | 2004 08 11 | 704 | 0.4− | 0.3+ | 2009 12 17 | 703 | 0.2− | 0.9− |

**(228329)∗ 2000 RC$_{21}$**

Discovered 2000 Sept. 1 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 71.59242 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23453162 | $\omega$ | 106.70716 | | +0.99176433 | −0.11886041 | |
| $a$ | 2.6041647 | $\Omega$ | 260.13835 | | +0.09108637 | +0.91642544 | |
| $e$ | 0.2834889 | $i$ | 2.77534 | | +0.09003764 | +0.38214738 | |
| $P$ | 4.20 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 01 | 704 | 0.2− | 0.3+ | 2000 09 26 | 704 | 0.3− | 0.1− | 2004 07 18 | 704 | 0.2+ | 0.6+ |
| 2000 09 01 | 704 | 0.2− | 0.1+ | 2000 09 26 | 704 | 0.6− | 0.5+ | 2004 07 18 | 704 | 0.2− | 0.1+ |
| 2000 09 01 | 704 | 0.6− | 0.1+ | 2000 09 26 | 704 | 0.1− | 0.5+ | 2004 07 18 | 704 | 0.3− | 0.0 |
| 2000 09 01 | 704 | 0.4− | 1.1+ | 2000 09 26 | 704 | 0.1− | 0.2− | 2004 08 08 | 704 | 0.5− | 1.0− |
| 2000 09 01 | 704 | 0.1+ | 0.4+ | 2000 10 01 | 699 | 1.3− | 0.5+ | 2004 08 08 | 704 | 0.6+ | 0.3− |
| 2000 09 02 | 699 | 0.2+ | 0.5+ | 2000 10 01 | 699 | 0.5+ | 0.7+ | 2004 08 08 | 704 | 0.2− | 0.3− |
| 2000 09 02 | 699 | 0.6− | 0.6+ | 2000 10 01 | 699 | 0.6− | 0.6+ | 2004 08 08 | 704 | 0.2+ | 1.0− |
| 2000 09 02 | 699 | 0.6− | 0.4− | 2000 10 01 | 699 | 0.6− | 1.2+ | 2004 08 11 | 704 | 0.0 | 0.4− |
| 2000 09 02 | 699 | 0.3− | 0.3+ | 2000 10 01 | 699 | 1.4− | 0.4− | 2004 08 11 | 704 | 0.1+ | 0.4+ |
| 2000 09 03 | 704 | 0.7− | 0.5− | 2000 10 01 | 699 | 1.0+ | 0.8+ | 2004 08 11 | 704 | 0.7+ | 0.1− |
| 2000 09 03 | 704 | 0.3− | 0.4+ | 2000 10 01 | 699 | 0.8+ | 0.5+ | 2004 08 11 | 704 | 0.6+ | 0.4− |
| 2000 09 03 | 704 | 0.6− | 0.4+ | 2000 10 01 | 699 | 1.3+ | 0.6+ | 2004 08 11 | 704 | 0.1+ | 0.2+ |
| 2000 09 03 | 704 | 1.1− | 0.1+ | 2000 10 03 | 704 | 0.8+ | 1.1+ | 2006 01 08 | G96 | 0.0 | 0.1− |
| 2000 09 03 | 704 | 0.5− | 0.3+ | 2000 10 03 | 704 | 1.5+ | 0.9− | 2006 01 08 | G96 | 0.1+ | 0.3− |
| 2000 09 21 | 699 | 0.3+ | 0.5+ | 2000 10 03 | 704 | 0.9+ | 0.9− | 2006 01 08 | G96 | 0.8− | 0.1+ |
| 2000 09 21 | 699 | 0.5+ | 0.4− | 2000 10 03 | 704 | 0.6+ | 0.3− | 2006 01 08 | G96 | 0.4+ | 0.1− |
| 2000 09 21 | 699 | 0.6+ | 0.2− | 2000 10 06 | 704 | 0.1+ | 0.5− | 2006 02 01 | G96 | 0.3+ | 0.5+ |
| 2000 09 21 | 608 | 0.1+ | 0.7− | 2000 10 06 | 704 | 0.2+ | 0.3+ | 2006 02 01 | G96 | 0.0 | 0.5+ |
| 2000 09 21 | 608 | 0.1+ | 0.7− | 2000 10 06 | 704 | 0.0 | 0.0 | 2006 02 01 | G96 | 0.3+ | 0.4+ |
| 2000 09 21 | 699 | 0.6+ | 0.2+ | 2000 10 06 | 704 | 0.7− | 1.9+ | 2006 02 01 | G96 | 0.4+ | 0.2+ |
| 2000 09 21 | 608 | 0.0 | 0.6− | 2000 10 06 | 704 | 0.1+ | 0.2− | 2009 10 18 | G96 | 0.1+ | 0.4− |
| 2000 09 23 | 704 | 0.0 | 0.3− | 2000 10 07 | 704 | 0.7− | 0.8− | 2009 10 18 | G96 | 0.1− | 0.3− |
| 2000 09 23 | 704 | 0.2− | 0.0 | 2000 10 07 | 704 | 0.4− | 0.5− | 2009 10 18 | G96 | 0.6+ | 0.3− |
| 2000 09 23 | 704 | 0.3+ | 0.3− | 2000 10 07 | 704 | 0.2− | 1.2− | 2009 10 18 | G96 | 0.4+ | 0.5− |
| 2000 09 23 | 704 | 0.1+ | 0.4− | 2000 10 07 | 704 | 1.0− | 1.1− | 2009 12 17 | 691 | 0.6+ | 0.4+ |
| 2000 09 23 | 704 | 0.2+ | 0.2− | 2000 11 03 | 704 | 0.8+ | 0.7− | 2009 12 17 | 691 | 0.1− | 0.2− |
| 2000 09 25 | 704 | 0.1+ | 0.2− | 2000 11 03 | 704 | 0.1+ | 0.3− | 2009 12 17 | 691 | 0.1− | 0.2− |
| 2000 09 25 | 704 | 0.0 | 0.2− | 2000 11 03 | 704 | 0.1− | 0.2+ | 2009 12 25 | 691 | 0.0 | 0.1− |
| 2000 09 25 | 704 | 0.1− | 0.2+ | 2000 11 03 | 704 | 0.3+ | 0.9− | 2009 12 25 | 691 | 0.1+ | 0.2− |
| 2000 09 25 | 704 | 0.4+ | 0.7+ | 2004 07 11 | 704 | 0.2+ | 0.5− | 2009 12 25 | 691 | 0.9− | 0.1+ |
| 2000 09 25 | 704 | 1.3+ | 0.1− | 2004 07 11 | 704 | 0.3− | 0.2+ | | | | |
| 2000 09 26 | 704 | 0.3− | 0.1+ | 2004 07 11 | 704 | 0.1+ | 0.7− | | | | |

**(228330)∗ 2000 RQ$_{34}$**

Discovered 2000 Sept. 1 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 81.47258 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23039049 | $\omega$ | 42.65343 | | +0.86174883 | +0.50511738 | |
| $a$ | 2.6352775 | $\Omega$ | 286.95007 | | −0.47780235 | +0.77663541 | |
| $e$ | 0.2831692 | $i$ | 2.83944 | | −0.17056923 | +0.37642247 | |
| $P$ | 4.28 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 01 | 704 | 0.1+ | 0.2− | 2000 10 05 | 691 | 0.2− | 0.3− | 2004 09 17 | 704 | 0.5− | 0.7− |
| 2000 09 01 | 704 | 0.3+ | 0.1+ | 2000 10 05 | 691 | 0.2− | 0.2− | 2004 09 17 | 704 | 0.5+ | 0.5− |
| 2000 09 01 | 704 | 0.6− | 0.5+ | 2000 10 25 | 704 | 0.1+ | 0.0 | 2004 10 09 | 704 | 0.4+ | 1.1− |
| 2000 09 03 | 704 | 0.2− | 0.1+ | 2000 10 25 | 704 | 0.2+ | 0.6+ | 2004 10 09 | 704 | 0.3+ | 0.4+ |
| 2000 09 03 | 704 | 0.0 | 0.3+ | 2000 10 25 | 704 | 0.5− | 0.3+ | 2004 10 09 | 704 | 0.0 | 0.4+ |
| 2000 09 03 | 704 | 0.5+ | 0.2− | 2000 10 25 | 704 | 0.3− | 1.0+ | 2004 10 09 | 704 | 0.3+ | 0.3− |
| 2000 09 03 | 704 | 0.7+ | 0.4− | 2000 10 25 | 704 | 1.2− | 1.8+ | 2005 12 25 | 691 | 0.2+ | 0.0 |
| 2000 09 03 | 704 | 0.5− | 0.2− | 2000 11 23 | 691 | 0.0 | 0.4− | 2005 12 25 | 691 | 0.1+ | 0.0 |
| 2000 09 22 | 699 | 0.4+ | 0.3+ | 2000 11 23 | 691 | 0.2− | 0.1− | 2005 12 25 | 691 | 0.1− | 0.1+ |
| 2000 09 22 | 699 | 1.2+ | 0.5+ | 2000 11 23 | 691 | 0.0 | 0.0 | 2005 12 29 | 691 | 0.0 | 0.1+ |
| 2000 09 22 | 699 | 1.1+ | 0.4+ | 2003 04 05 | 691 | (1.5+ | 1.7+) | 2005 12 29 | 691 | 0.3− | 0.3+ |
| 2000 09 22 | 699 | 0.5+ | 0.4+ | 2003 04 05 | 691 | (1.4+ | 1.9+) | 2005 12 29 | 691 | 0.0 | 0.2+ |
| 2000 09 23 | 704 | 0.1− | 0.4+ | 2003 04 05 | 691 | (1.9+ | 1.8+) | 2008 05 28 | 704 | 0.1− | 0.4+ |
| 2000 09 23 | 704 | 0.2+ | 0.3+ | 2004 07 09 | 704 | 0.3+ | 0.3− | 2008 05 28 | 704 | 0.6+ | 0.2+ |
| 2000 09 23 | 704 | 0.1− | 0.5− | 2004 07 09 | 704 | 0.3+ | 1.0− | 2008 05 28 | 704 | 0.5+ | 0.6+ |
| 2000 09 26 | 699 | 0.3+ | 1.1+ | 2004 07 09 | 704 | 0.0 | 1.1− | 2008 05 28 | 704 | (0.3− | 1.6+) |
| 2000 09 26 | 699 | 0.3+ | 0.9+ | 2004 07 16 | 704 | 0.1+ | 0.0 | 2009 11 21 | 691 | 0.0 | 0.1− |
| 2000 09 26 | 699 | 0.2+ | 0.5+ | 2004 07 16 | 704 | 0.0 | 0.5+ | 2009 11 21 | 691 | 0.6− | 0.0 |
| 2000 09 26 | 699 | 0.3+ | 0.7+ | 2004 07 16 | 704 | 0.1+ | 0.0 | 2009 11 21 | 691 | 0.3− | 0.1− |
| 2000 09 27 | 704 | 0.0 | 0.0 | 2004 07 16 | 704 | 0.1+ | 0.2− | 2009 11 25 | 691 | 0.9+ | 0.9− |
| 2000 09 27 | 704 | 0.1+ | 0.2+ | 2004 07 16 | 704 | 0.2+ | 0.3− | 2009 11 25 | 691 | 0.2− | 0.2− |
| 2000 09 27 | 704 | 0.4− | 0.7+ | 2004 07 18 | 704 | 0.3+ | 0.2+ | 2009 11 25 | 691 | 0.0 | 0.2− |
| 2000 09 27 | 704 | 1.0+ | 0.1+ | 2004 07 18 | 704 | 0.3− | 0.5− | 2009 12 10 | 704 | 0.1+ | 0.6− |
| 2000 09 27 | 704 | 0.0 | 0.5+ | 2004 07 18 | 704 | 0.3− | 0.2− | 2009 12 10 | 704 | 0.4− | 0.0 |
| 2000 09 28 | 704 | 0.1+ | 0.5+ | 2004 08 08 | 704 | 0.5− | 0.2+ | 2009 12 10 | 704 | 0.4− | 0.8+ |
| 2000 09 28 | 704 | 0.0 | 0.1+ | 2004 08 08 | 704 | 0.2− | 0.1+ | 2009 12 11 | G96 | 0.1+ | 0.3− |
| 2000 09 28 | 704 | 0.2− | 0.8− | 2004 08 08 | 704 | 0.5− | 0.1+ | 2009 12 11 | G96 | 0.5+ | 0.4− |
| 2000 09 28 | 704 | 0.2− | 0.1+ | 2004 08 08 | 704 | 0.0 | 0.1− | 2009 12 11 | G96 | 0.4+ | 0.3− |
| 2000 09 28 | 704 | 0.2+ | 0.3− | 2004 09 09 | 704 | 0.4− | 0.1+ | 2009 12 11 | G96 | 0.3+ | 0.3− |
| 2000 10 03 | 704 | 0.5− | 0.5+ | 2004 09 09 | 704 | 0.0 | 0.2+ | 2009 12 19 | G96 | 0.2− | 0.2− |
| 2000 10 03 | 704 | 0.3− | 0.3− | 2004 09 09 | 704 | 0.4+ | 0.7− | 2009 12 19 | G96 | 0.3+ | 0.2− |
| 2000 10 03 | 704 | 0.4− | 0.2+ | 2004 09 09 | 704 | 0.1+ | 0.5+ | 2009 12 19 | G96 | 0.0 | 0.1− |
| 2000 10 03 | 704 | 1.0− | 0.7− | 2004 09 09 | 704 | 0.5+ | 0.8− | 2009 12 19 | G96 | 0.1+ | 0.2− |
| 2000 10 03 | 704 | 0.8− | 0.4− | 2004 09 17 | 704 | 0.5− | 0.2− | | | | |
| 2000 10 05 | 691 | 0.1− | 0.1− | 2004 09 17 | 704 | 0.1− | 0.1+ | | | | |

**(228331)∗ 2000 RD$_{86}$**

Discovered 2000 Sept. 2 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 80.23569 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23066469 | $\omega$ | 209.82624 | | +0.92870420 | +0.36176414 | |
| $a$ | 2.6331886 | $\Omega$ | 128.73761 | | −0.31620748 | +0.88732945 | |
| $e$ | 0.2509149 | $i$ | 5.99427 | | −0.19370422 | +0.28596004 | |
| $P$ | 4.27 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 08 05 | 608 | 0.9+ | 0.9+ | 2000 10 29 | 704 | 1.2+ | 1.5− | 2004 08 08 | 704 | 0.4− | 0.3− |
| 2000 08 05 | 608 | 0.0 | 0.5+ | 2000 10 29 | 704 | 0.1− | 0.8− | 2004 08 21 | E12 | (0.2+ | 2.2−) |
| 2000 08 05 | 608 | 0.8+ | 0.3− | 2000 11 03 | 704 | 0.5− | 0.6− | 2004 08 21 | E12 | 0.3− | 0.0 |
| 2000 09 02 | 704 | 0.6− | 0.1+ | 2000 11 03 | 704 | 0.1− | 0.3+ | 2004 08 21 | E12 | 0.0 | 0.3− |
| 2000 09 02 | 704 | 0.0 | 0.6− | 2000 11 03 | 704 | 1.0− | 0.1+ | 2004 08 21 | E12 | 0.3+ | 0.2− |
| 2000 09 02 | 704 | 0.4+ | 1.1− | 2000 11 03 | 704 | 1.8− | 0.5+ | 2004 09 21 | 704 | (1.9+ | 0.2−) |
| 2000 09 04 | 699 | 1.5+ | 0.0 | 2004 06 10 | 703 | (1.4− | 1.7−) | 2004 09 21 | 704 | 0.5+ | 1.0− |
| 2000 09 04 | 699 | 1.0+ | 0.1− | 2004 06 10 | 703 | (1.6+ | 2.8+) | 2004 09 21 | 704 | 0.8+ | 0.6− |
| 2000 09 04 | 699 | 0.1+ | 0.6+ | 2004 06 10 | 703 | (0.4− | 2.5+) | 2004 09 21 | 704 | 0.9− | 0.2+ |
| 2000 09 04 | 699 | 0.1− | 0.1− | 2004 06 10 | 703 | (2.0− | 3.5+) | 2004 10 09 | 704 | 0.5− | 0.5− |
| 2000 09 20 | 608 | 1.4+ | 0.7+ | 2004 07 16 | 704 | 0.6+ | 0.4+ | 2004 10 09 | 704 | 0.1+ | 0.5+ |
| 2000 09 20 | 608 | 1.4+ | 0.6+ | 2004 07 16 | 704 | 0.9+ | 0.7+ | 2004 10 09 | 704 | (2.0− | 0.7+) |
| 2000 09 20 | 608 | 1.4+ | 0.5+ | 2004 07 16 | 704 | 0.5+ | 0.1− | 2004 10 09 | 704 | 0.2− | 0.3− |
| 2000 09 24 | 704 | 1.1− | 0.6− | 2004 07 16 | 704 | 0.1+ | 0.1+ | 2006 01 04 | 691 | 0.1− | 0.5+ |
| 2000 09 24 | 704 | 0.7− | 0.5+ | 2004 07 18 | 704 | 0.5+ | 0.4+ | 2006 01 04 | 691 | 0.2+ | 0.4+ |
| 2000 09 24 | 704 | 1.4− | 0.2+ | 2004 07 18 | 704 | 0.3+ | 0.4+ | 2006 01 04 | 691 | 0.0 | 0.4+ |
| 2000 09 24 | 704 | 0.8− | 0.0 | 2004 07 18 | 704 | 0.3+ | 0.3+ | 2009 10 14 | G96 | 0.1+ | 0.2− |
| 2000 09 24 | 704 | 0.8− | 0.8+ | 2004 07 18 | 704 | 0.1+ | 0.1+ | 2009 10 14 | G96 | 0.1+ | 0.0 |
| 2000 09 25 | 704 | 0.2+ | 0.1− | 2004 07 18 | 704 | 0.1− | 0.4+ | 2009 10 14 | G96 | 0.2+ | 0.1− |
| 2000 09 25 | 704 | 0.6+ | 1.5− | 2004 07 19 | 699 | 0.9+ | 0.4+ | 2009 10 14 | G96 | 0.4− | 0.1+ |
| 2000 09 25 | 704 | 0.4− | 0.2− | 2004 07 19 | 699 | 0.3− | 1.1+ | 2009 12 13 | G96 | 0.0 | 0.1+ |
| 2000 09 25 | 704 | 0.4− | 0.5− | 2004 07 19 | 699 | 0.5− | 0.3+ | 2009 12 13 | G96 | 0.1+ | 0.0 |
| 2000 09 25 | 704 | 0.6+ | 0.1+ | 2004 07 19 | 699 | 0.1+ | 0.8+ | 2009 12 13 | G96 | 0.3+ | 0.0 |
| 2000 10 01 | 704 | 0.6− | 0.6+ | 2004 07 27 | 704 | 1.0− | 0.3+ | 2009 12 13 | G96 | 0.4+ | 0.1+ |
| 2000 10 01 | 704 | 0.2− | 0.4+ | 2004 07 27 | 704 | 0.5− | 0.5+ | 2009 12 13 | G96 | 0.4+ | 0.0 |
| 2000 10 01 | 704 | 0.3− | 0.1+ | 2004 07 27 | 704 | 0.9− | 0.5− | 2009 12 18 | 704 | 0.8− | 0.4− |
| 2000 10 01 | 704 | 0.2+ | 0.3+ | 2004 07 27 | 704 | 0.5− | 0.4+ | 2009 12 18 | 704 | 0.0 | 0.0 |
| 2000 10 01 | 704 | 0.4− | 0.4+ | 2004 07 27 | 704 | 0.5− | 0.5+ | 2009 12 18 | 704 | 0.6− | 0.9+ |
| 2000 10 29 | 704 | 0.5+ | 1.3− | 2004 08 08 | 704 | 0.5+ | 0.3+ | | | | |
| 2000 10 29 | 704 | 0.1− | 0.1− | 2004 08 08 | 704 | 1.2− | 0.2− | | | | |

**(228332)∗ 2000 RL$_{99}$**

Discovered 2000 Sept. 5 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 40.60712 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22893146 | $\omega$ | 100.75143 | | +0.82314269 | −0.54381875 | |
| $a$ | 2.6464624 | $\Omega$ | 292.37806 | | +0.42698108 | +0.78247121 | |
| $e$ | 0.3075301 | $i$ | 10.17760 | | +0.37433043 | +0.30331497 | |
| $P$ | 4.31 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 08 04 | 608 | 0.2+ | 0.5+ | 2000 11 01 | 704 | 0.2+ | 0.1− | 2004 08 08 | 704 | 0.6− | 0.9+ |
| 2000 08 04 | 608 | 0.3+ | 0.2+ | 2000 11 01 | 704 | 0.3+ | 0.4− | 2004 08 08 | 704 | 0.7− | 1.1+ |
| 2000 08 04 | 608 | 0.6+ | 1.4+ | 2000 11 01 | 704 | 0.4+ | 0.2+ | 2004 08 08 | 704 | 0.0 | 0.6+ |
| 2000 09 05 | 699 | 1.5− | 1.4+ | 2000 11 01 | 704 | 1.1+ | 0.5− | 2005 10 28 | G96 | 0.1− | 0.2+ |
| 2000 09 05 | 699 | 0.9− | 1.0+ | 2000 11 01 | 704 | 0.8+ | 0.3− | 2005 10 28 | G96 | 0.2− | 0.1− |
| 2000 09 05 | 699 | 0.6− | 0.7+ | 2000 11 25 | 699 | 0.5+ | 0.6+ | 2005 10 28 | G96 | 0.1+ | 0.2− |
| 2000 09 05 | 699 | 0.8− | 0.5+ | 2000 11 25 | 699 | 1.0+ | 0.8+ | 2005 10 28 | G96 | 0.3+ | 0.4+ |
| 2000 09 06 | 704 | 0.2+ | 0.1− | 2000 11 25 | 699 | 0.1+ | 0.2+ | 2006 01 23 | 703 | 0.4+ | 0.1− |
| 2000 09 06 | 704 | 0.0 | 0.0 | 2000 11 25 | 699 | 0.3+ | 0.1+ | 2006 01 23 | 703 | 0.7− | 0.9+ |
| 2000 09 06 | 704 | 0.0 | 0.0 | 2000 11 27 | 704 | 0.1+ | 0.9− | 2006 01 23 | 703 | 1.1+ | 0.8+ |
| 2000 09 06 | 704 | 0.2+ | 0.0 | 2000 11 27 | 704 | 0.3− | 0.8+ | 2006 01 23 | 703 | 0.5+ | 0.2+ |
| 2000 09 22 | 704 | 0.3− | 0.3− | 2000 11 27 | 704 | 0.4+ | 0.1+ | 2009 11 27 | 703 | 0.1+ | 0.4+ |
| 2000 09 22 | 704 | 0.0 | 0.8− | 2000 11 27 | 704 | 0.6+ | 1.5+ | 2009 11 27 | 703 | 0.1− | 0.2+ |
| 2000 09 22 | 704 | 0.4− | 0.4− | 2000 12 19 | 704 | 1.2− | 0.4− | 2009 11 27 | 703 | 1.3− | 0.5− |
| 2000 09 22 | 704 | 0.6− | 0.9− | 2000 12 19 | 704 | 0.4+ | 0.2+ | 2009 11 27 | 703 | 1.5− | 0.4− |
| 2000 09 22 | 704 | 0.3− | 0.9− | 2000 12 19 | 704 | 0.4− | 0.6+ | 2009 12 10 | 704 | 1.1+ | 0.2+ |
| 2000 09 25 | 699 | 0.8− | 0.0 | 2000 12 19 | 704 | 0.4− | 1.0+ | 2009 12 10 | 704 | 0.6+ | 0.3− |
| 2000 09 25 | 699 | (2.5− | 0.2−) | 2000 12 19 | 704 | 0.6+ | 1.3+ | 2009 12 10 | 704 | (2.0− | 1.3+) |
| 2000 09 25 | 699 | (2.2− | 0.2−) | 2004 06 22 | 691 | 0.2− | 0.2− | 2009 12 16 | 704 | 0.2+ | 0.1+ |
| 2000 09 25 | 699 | 0.8− | 0.1+ | 2004 06 22 | 691 | 0.2− | 0.1− | 2009 12 16 | 704 | 0.2+ | 0.7+ |
| 2000 09 30 | 704 | 0.1+ | 0.2− | 2004 06 22 | 691 | 0.2+ | 0.1+ | 2009 12 16 | 704 | 0.1+ | 0.3+ |
| 2000 09 30 | 704 | 0.4− | 0.6− | 2004 07 18 | 704 | 1.0+ | 0.2− | 2009 12 16 | 704 | 0.6− | 0.3− |
| 2000 09 30 | 704 | 0.0 | 0.8− | 2004 07 18 | 704 | 0.4− | 0.7− | 2009 12 21 | H10 | 0.1− | 0.4+ |
| 2000 10 04 | 704 | 0.5+ | 0.4− | 2004 07 18 | 704 | 0.2− | 0.6+ | 2009 12 21 | H10 | 0.7+ | 0.3+ |
| 2000 10 04 | 704 | 0.5+ | 0.2− | 2004 07 18 | 704 | 0.1− | 0.1+ | 2009 12 21 | H10 | 0.4− | 0.9− |
| 2000 10 04 | 704 | 0.4+ | 0.7− | 2004 07 18 | 704 | (2.0+ | 2.5−) | 2009 12 21 | H10 | 0.6+ | 0.4+ |
| 2000 10 04 | 704 | 0.3+ | 0.5− | 2004 08 08 | 704 | 0.8+ | 0.2+ | | | | |
| 2000 10 04 | 704 | 0.7+ | 0.6− | 2004 08 08 | 704 | 0.1+ | 0.2+ | | | | |

**(228333)∗ 2000 SW$_{19}$**

Discovered 2000 Sept. 23 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 55.27419 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23487704 | $\omega$ | 98.40675 | | +0.67274938 | −0.72755446 | |
| $a$ | 2.6016109 | $\Omega$ | 308.41708 | | +0.59319532 | +0.63899585 | |
| $e$ | 0.2420418 | $i$ | 9.87975 | | +0.44218502 | +0.24969743 | |
| $P$ | 4.20 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 22 | 608 | 0.1+ | 0.5− | 2000 11 28 | 704 | 0.1− | 0.5− | 2004 09 13 | 704 | 0.1+ | 0.1− |
| 2000 09 22 | 608 | 0.4+ | 0.8− | 2000 11 28 | 704 | 0.2− | 1.3+ | 2004 09 13 | 704 | 0.5+ | 0.3− |
| 2000 09 22 | 608 | 0.3+ | 1.0− | 2000 11 28 | 704 | 0.2− | 1.3+ | 2004 09 13 | 704 | 0.7+ | 0.1− |
| 2000 09 23 | 704 | 0.3− | 0.2− | 2000 11 28 | 704 | 0.7+ | 0.1+ | 2004 09 16 | 699 | 0.4− | 0.5+ |
| 2000 09 23 | 704 | 0.1+ | 0.5+ | 2004 08 06 | 644 | 0.2+ | 0.1+ | 2004 09 16 | 699 | 0.3+ | 0.5+ |
| 2000 09 23 | 704 | 1.4+ | 1.9+ | 2004 08 06 | 644 | 0.2+ | 0.2+ | 2004 09 16 | 699 | 0.7− | 0.8+ |
| 2000 09 24 | 704 | 0.0 | 0.4− | 2004 08 06 | 644 | 0.4+ | 0.1+ | 2004 09 16 | 699 | 0.0 | 0.3− |
| 2000 09 24 | 704 | 0.4+ | 0.5− | 2004 08 09 | 699 | 0.4+ | 0.0 | 2004 09 18 | 704 | 0.1+ | 1.2− |
| 2000 09 24 | 704 | 0.3+ | 0.4− | 2004 08 09 | 699 | 0.6+ | 0.1− | 2004 09 18 | 704 | 0.1− | 0.0 |
| 2000 09 24 | 704 | 0.5+ | 0.1− | 2004 08 09 | 699 | 0.1+ | 0.2+ | 2004 09 18 | 704 | 1.0+ | 0.8− |
| 2000 09 24 | 704 | 0.7+ | 0.7− | 2004 08 09 | 699 | 0.5+ | 0.7+ | 2004 09 18 | 704 | 0.3− | 0.3+ |
| 2000 09 26 | 699 | 0.0 | 0.4− | 2004 08 12 | 704 | 0.6+ | 0.3+ | 2004 09 18 | 704 | 0.0 | 1.3+ |
| 2000 09 26 | 699 | 0.8− | 0.0 | 2004 08 12 | 704 | 0.0 | 0.3− | 2004 10 05 | 699 | 0.7− | 0.0 |
| 2000 09 26 | 699 | 0.0 | 0.9+ | 2004 08 12 | 704 | 0.6+ | 0.6+ | 2004 10 05 | 699 | 0.7+ | 0.7+ |
| 2000 09 26 | 699 | 1.2− | 0.0 | 2004 08 12 | 704 | 0.4− | 0.8+ | 2004 10 05 | 699 | 0.9+ | 0.1+ |
| 2000 09 28 | 704 | 0.1− | 0.4− | 2004 08 12 | 704 | 0.0 | 0.5+ | 2004 10 05 | 699 | 0.1− | 0.2+ |
| 2000 09 28 | 704 | 0.1+ | 0.6− | 2004 08 17 | 704 | 0.2+ | 0.1− | 2008 06 30 | 691 | 0.3− | 0.4+ |
| 2000 09 28 | 704 | 0.2− | 0.0 | 2004 08 17 | 704 | 0.6+ | 0.3− | 2008 06 30 | 691 | 0.2− | 0.1− |
| 2000 09 28 | 704 | 0.0 | 0.0 | 2004 08 17 | 704 | 1.1− | 0.2+ | 2008 06 30 | 691 | 0.4− | 0.1+ |
| 2000 09 28 | 704 | 1.2− | 0.2− | 2004 08 21 | 703 | 0.9− | 1.0− | 2008 07 30 | G96 | 0.2+ | 0.3− |
| 2000 09 30 | 704 | 0.2− | 0.3− | 2004 08 21 | 703 | 0.9− | 0.7+ | 2008 07 30 | G96 | 0.1+ | 0.1− |
| 2000 09 30 | 704 | 0.9+ | 0.4+ | 2004 08 21 | 703 | 0.5− | 0.8− | 2008 07 30 | G96 | 0.0 | 0.0 |
| 2000 09 30 | 704 | 0.5− | 1.3+ | 2004 08 21 | 703 | 0.0 | 0.6− | 2008 07 30 | G96 | 0.0 | 0.1+ |
| 2000 10 04 | 704 | 0.1− | 0.3− | 2004 09 08 | 704 | 0.7− | 0.2− | 2009 11 21 | G96 | 0.4+ | 0.1− |
| 2000 10 04 | 704 | 0.2− | 0.4− | 2004 09 08 | 704 | 0.8− | 0.2+ | 2009 11 21 | G96 | 0.3+ | 0.2− |
| 2000 10 04 | 704 | 0.3− | 0.2− | 2004 09 08 | 704 | 0.7+ | 0.0 | 2009 11 21 | G96 | 0.4+ | 0.6− |
| 2000 10 04 | 704 | 0.3+ | 0.3− | 2004 09 08 | 704 | 0.1− | 0.3+ | 2009 11 21 | G96 | 0.2+ | 0.2− |
| 2000 10 26 | 699 | 0.5− | 0.1+ | 2004 09 08 | 704 | 0.0 | 0.4+ | 2009 11 22 | 291 | 0.2+ | 0.3+ |
| 2000 10 26 | 699 | 0.6+ | 0.5+ | 2004 09 10 | 704 | 0.0 | 0.5+ | 2009 11 22 | 291 | 0.2− | 0.7+ |
| 2000 10 26 | 699 | 0.2− | 1.0+ | 2004 09 10 | 704 | 0.3− | 0.6− | 2009 11 22 | 291 | 0.3− | 0.1+ |
| 2000 10 26 | 699 | 0.5− | 0.2+ | 2004 09 10 | 704 | 0.1− | 0.2− | 2009 12 19 | G96 | 0.1− | 0.3− |
| 2000 11 01 | 704 | 0.0 | 0.5− | 2004 09 10 | 704 | 0.2− | 0.2+ | 2009 12 19 | G96 | 0.3+ | 0.1− |
| 2000 11 01 | 704 | 0.9+ | 0.2− | 2004 09 10 | 704 | 0.0 | 0.2+ | 2009 12 19 | G96 | 0.7+ | 0.1− |
| 2000 11 01 | 704 | 0.5− | 0.8− | 2004 09 13 | 704 | 0.7+ | 0.3− | 2009 12 19 | G96 | 0.6+ | 0.4− |
| 2000 11 01 | 704 | 1.0− | 0.9− | 2004 09 13 | 704 | 0.4+ | 0.8− | | | | |

**(228334)∗ 2000 SK$_{28}$**

Discovered 2000 Sept. 23 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 7.52755 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22912066 | $\omega$ | 196.32436 | | +0.44170092 | −0.88277535 | |
| $a$ | 2.6450053 | $\Omega$ | 227.77684 | | +0.84540228 | +0.46925198 | |
| $e$ | 0.1552869 | $i$ | 12.47973 | | +0.30032529 | −0.02258889 | |
| $P$ | 4.30 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 06 | 704 | 0.1− | 0.3+ | 2009 10 19 | 704 | 0.3− | 0.5+ | 2009 11 10 | 691 | 0.0 | 0.1+ |
| 2000 09 06 | 704 | 0.1− | 0.6− | 2009 10 19 | 704 | 0.3− | 0.1− | 2009 11 10 | 691 | 0.1− | 0.1− |
| 2000 09 06 | 704 | 0.5− | 0.7− | 2009 10 19 | 704 | 0.3+ | 0.6+ | 2009 11 13 | J75 | 0.9+ | 0.1− |
| 2000 09 23 | 704 | 1.3+ | 0.4− | 2009 10 19 | 704 | 0.3− | 1.1+ | 2009 11 13 | J75 | 0.6+ | 0.4− |
| 2000 09 23 | 704 | 0.6+ | 0.8+ | 2009 10 19 | 704 | 0.5− | 1.5+ | 2009 11 13 | J75 | 0.4+ | 0.2− |
| 2000 09 23 | 704 | 0.5− | 0.6+ | 2009 10 21 | G96 | 0.1+ | 0.0 | 2009 11 15 | 703 | 0.5− | 0.6+ |
| 2000 09 25 | 704 | 0.3− | 0.7+ | 2009 10 21 | G96 | 0.2+ | 0.2+ | 2009 11 15 | 703 | 0.7− | 0.4+ |
| 2000 09 25 | 704 | 0.4+ | 1.5+ | 2009 10 21 | G96 | 0.1+ | 0.1+ | 2009 11 15 | 703 | (1.9− | 0.2+) |
| 2000 09 25 | 704 | 0.4+ | 1.1+ | 2009 10 21 | G96 | 0.3+ | 0.0 | 2009 11 15 | 703 | 1.0− | 0.8+ |
| 2000 09 26 | 704 | 0.2+ | 0.1+ | 2009 10 22 | 704 | (0.1+ | 1.7−) | 2009 11 18 | 704 | 0.1+ | 0.1+ |
| 2000 09 26 | 704 | 0.5− | 0.3+ | 2009 10 22 | 704 | 0.3− | 0.3+ | 2009 11 18 | 704 | 0.0 | 0.2+ |
| 2000 09 26 | 704 | 0.3− | 0.1+ | 2009 10 22 | 704 | 0.0 | 0.5− | 2009 11 18 | 704 | 0.4+ | 0.2− |
| 2000 10 03 | 699 | 1.5− | 0.8+ | 2009 10 22 | 704 | 0.2− | 0.6− | 2009 11 18 | 704 | 0.1− | 0.2+ |
| 2000 10 03 | 699 | 0.3− | 0.1+ | 2009 10 23 | 691 | 0.1− | 0.0 | 2009 11 18 | 704 | 0.3+ | 0.3+ |
| 2000 10 03 | 699 | 0.6− | 0.1− | 2009 10 23 | 691 | 0.1− | 0.3+ | 2009 11 20 | 704 | 0.9+ | 1.1+ |
| 2000 10 03 | 699 | 0.4+ | 0.2− | 2009 10 23 | 691 | 0.2− | 0.0 | 2009 11 20 | 704 | 0.9+ | 0.6+ |
| 2005 12 06 | 704 | 0.2+ | 0.8+ | 2009 10 24 | 703 | 0.8− | 0.1− | 2009 11 20 | 704 | 0.8+ | 0.8+ |
| 2005 12 06 | 704 | 0.2− | 0.2− | 2009 10 24 | 703 | 1.3+ | 0.5− | 2009 11 20 | 704 | 0.9+ | 0.4+ |
| 2005 12 06 | 704 | 0.2+ | 0.7+ | 2009 10 24 | 703 | 0.6− | 0.4− | 2009 11 20 | 704 | 1.0+ | 0.0 |
| 2007 04 19 | 691 | 0.1+ | 0.6+ | 2009 10 24 | 703 | 0.1− | 0.5− | 2009 11 23 | G96 | 0.2+ | 0.2− |
| 2007 04 19 | 691 | 0.1+ | 0.3+ | 2009 10 26 | 703 | 1.5+ | 0.3− | 2009 11 23 | G96 | 0.2+ | 0.3− |
| 2007 04 19 | 691 | 0.1+ | 0.4+ | 2009 10 26 | 703 | (1.7+ | 0.6+) | 2009 11 23 | G96 | 0.0 | 0.1− |
| 2007 05 16 | G96 | 0.2− | 0.4+ | 2009 10 26 | 703 | 0.7− | 0.6− | 2009 11 23 | G96 | 0.4+ | 0.2− |
| 2007 05 16 | G96 | 0.0 | 0.6+ | 2009 10 26 | 703 | (0.6+ | 1.8−) | 2009 12 10 | 703 | 0.4− | 0.2− |
| 2007 05 16 | G96 | 0.0 | 0.5+ | 2009 10 29 | J75 | 0.4− | 0.6− | 2009 12 10 | 703 | 0.5− | 0.2+ |
| 2007 05 16 | G96 | 0.0 | 0.6+ | 2009 10 29 | J75 | 0.0 | 0.3− | 2009 12 10 | 703 | 0.5+ | 0.1− |
| 2009 10 11 | J75 | 0.9+ | 0.2− | 2009 10 29 | J75 | 0.1− | 0.3− | 2009 12 10 | 703 | 0.5− | 0.5− |
| 2009 10 11 | J75 | 0.3+ | 0.4− | 2009 11 08 | 703 | 0.2+ | 0.5− | 2009 12 12 | 704 | 0.2+ | 0.9+ |
| 2009 10 11 | J75 | 0.9+ | 0.1− | 2009 11 08 | 703 | 0.5− | 0.3− | 2009 12 12 | 704 | 0.1+ | 0.8+ |
| 2009 10 11 | G96 | 0.0 | 0.1− | 2009 11 08 | 703 | 0.6+ | 0.5− | 2009 12 12 | 704 | 0.1− | 0.5+ |
| 2009 10 11 | G96 | 0.2− | 0.1− | 2009 11 08 | 703 | 0.1− | 0.3− | 2009 12 12 | 704 | 0.3− | 0.2+ |
| 2009 10 11 | G96 | 0.2+ | 0.1− | 2009 11 09 | J75 | 0.0 | 0.1+ | 2009 12 12 | 704 | 0.2− | 0.4+ |
| 2009 10 11 | G96 | 0.6+ | 0.4− | 2009 11 09 | J75 | 0.1− | 0.1+ | 2009 12 19 | 691 | 0.4− | 0.1+ |
| 2009 10 19 | 704 | 1.5− | 0.4− | 2009 11 09 | J75 | 0.1− | 0.6− | 2009 12 19 | 691 | 0.4− | 0.2− |
| 2009 10 19 | 704 | 0.9+ | 0.9+ | 2009 11 10 | 691 | 0.0 | 0.0 | 2009 12 19 | 691 | 0.2− | 0.0 |

**(228335)∗ 2000 SW$_{64}$ = 2004 RO$_{89}$**

Discovered 2000 Sept. 24 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. A. Doppler (*MPO* 88743)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 26.13971 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22869737 | $\omega$ | 216.53721 | | +0.74651870 | −0.66497445 | |
| $a$ | 2.6482680 | $\Omega$ | 185.31858 | | +0.65371350 | +0.73939504 | |
| $e$ | 0.1131942 | $i$ | 14.22481 | | +0.12396966 | +0.10537529 | |
| $P$ | 4.31 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 24 | 699 | 0.9− | 1.0+ | 2004 09 08 | 704 | 1.0− | 0.6+ | 2007 05 23 | G96 | 0.4+ | 0.2+ |
| 2000 09 24 | 699 | 0.9+ | 0.0 | 2004 09 08 | 704 | 1.0− | 0.9+ | 2007 05 23 | G96 | 0.4+ | 0.2+ |
| 2000 09 24 | 699 | 0.1− | 1.7+ | 2004 09 08 | 704 | 0.5− | 0.7+ | 2007 05 23 | G96 | 0.1− | 0.1+ |
| 2000 09 24 | 704 | 0.3+ | 0.8+ | 2004 09 10 | 704 | 1.0+ | 0.8− | 2009 10 15 | J75 | 0.5+ | 0.2+ |
| 2000 09 24 | 704 | 0.3− | 0.3+ | 2004 09 10 | 704 | 0.7+ | 0.4+ | 2009 10 15 | J75 | 0.4− | 0.1+ |
| 2000 09 24 | 699 | (2.7− | 0.1−) | 2004 09 10 | 704 | 1.0+ | 0.6+ | 2009 10 15 | J75 | 0.8+ | 1.4− |
| 2000 09 24 | 704 | 0.5+ | 0.9+ | 2004 09 10 | 704 | (1.7+ | 0.9+) | 2009 10 26 | J75 | 0.3+ | 0.3− |
| 2000 09 24 | 704 | 0.6+ | 0.9+ | 2004 09 10 | 704 | 0.6+ | 0.0 | 2009 10 26 | J75 | 0.1− | 0.7− |
| 2000 09 24 | 704 | 0.4+ | 0.8+ | 2007 02 21 | G96 | 0.1+ | 0.3+ | 2009 10 26 | J75 | 0.2+ | 0.0 |
| 2000 09 26 | 704 | 0.7− | 0.3+ | 2007 02 21 | G96 | 0.3− | 0.4+ | 2009 11 15 | 704 | (1.3+ | 1.6+) |
| 2000 09 26 | 704 | 0.1+ | 1.1− | 2007 02 21 | G96 | 0.3− | 0.1+ | 2009 11 15 | 704 | 0.5− | 1.4+ |
| 2000 09 26 | 704 | 1.1+ | 0.8− | 2007 02 21 | G96 | 0.4+ | 0.0 | 2009 11 15 | 704 | 0.6+ | 0.4+ |
| 2000 10 01 | 704 | 0.4− | 0.3− | 2007 03 13 | G96 | 0.1+ | 0.4+ | 2009 11 15 | 704 | 0.4+ | 0.1+ |
| 2000 10 01 | 704 | 0.1− | 0.1− | 2007 03 13 | G96 | 0.0 | 0.0 | 2009 11 22 | 703 | 0.2− | 0.3− |
| 2000 10 01 | 704 | 0.2− | 0.2− | 2007 03 13 | G96 | 0.1− | 0.4+ | 2009 11 22 | 703 | 0.4+ | 0.1− |
| 2000 10 01 | 704 | 0.3− | 0.1− | 2007 03 13 | G96 | 0.4+ | 0.0 | 2009 11 22 | 703 | 0.2− | 0.2− |
| 2000 10 02 | 704 | 0.8− | 0.5− | 2007 04 20 | 691 | 0.2− | 0.0 | 2009 11 22 | 703 | 0.4+ | 0.3+ |
| 2000 10 02 | 704 | 0.1− | 0.3− | 2007 04 20 | 691 | 0.1− | 0.1+ | 2009 11 22 | 703 | 0.2− | 0.4− |
| 2000 10 02 | 704 | 0.5− | 0.2− | 2007 04 20 | 691 | 0.0 | 0.2− | 2009 12 17 | 703 | 0.8+ | 1.3+ |
| 2000 10 02 | 704 | 0.1+ | 1.1+ | 2007 04 22 | 691 | 0.1+ | 0.1+ | 2009 12 17 | 703 | 0.5− | 0.3− |
| 2000 10 02 | 704 | 1.4− | 0.3+ | 2007 04 22 | 691 | 0.1+ | 0.2+ | 2009 12 17 | 703 | 0.3+ | 0.2+ |
| 2002 02 15 | 704 | 0.7+ | 0.6+ | 2007 04 22 | 691 | 0.1+ | 0.3+ | 2009 12 17 | 703 | 0.8− | 0.2+ |
| 2002 02 15 | 704 | 0.4− | 0.4+ | 2007 04 24 | 691 | 0.1+ | 0.2+ | 2009 12 20 | 704 | 0.3+ | 0.1+ |
| 2002 02 15 | 704 | 1.2+ | 0.7+ | 2007 04 24 | 691 | 0.1− | 0.4+ | 2009 12 20 | 704 | 0.1− | 1.2+ |
| 2002 02 15 | 704 | 0.1− | 1.2+ | 2007 04 24 | 691 | 0.2− | 0.3+ | 2009 12 20 | 704 | 1.6− | 0.6+ |
| 2004 09 08 | 704 | 0.4− | 1.0+ | 2007 05 23 | G96 | 0.5+ | 0.0 | 2009 12 20 | 704 | 0.6− | 0.4− |

**(228336)∗ 2000 SE$_{76}$**

Discovered 2000 Sept. 24 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 71.06018 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23216740 | $\omega$ | 303.52280 | | +0.98164651 | −0.17601112 | |
| $a$ | 2.6218140 | $\Omega$ | 66.70918 | | +0.19045029 | +0.88469053 | |
| $e$ | 0.2232392 | $i$ | 4.58464 | | +0.00994069 | +0.43167436 | |
| $P$ | 4.25 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 24 | 704 | 0.8− | 0.2+ | 2000 10 30 | 704 | 0.8+ | 0.3− | 2004 09 16 | E12 | 0.6+ | 0.1− |
| 2000 09 24 | 704 | 0.1+ | 0.1+ | 2000 11 02 | 704 | 0.9+ | 0.6− | 2004 09 16 | E12 | 0.2+ | 0.1− |
| 2000 09 24 | 704 | 0.1+ | 0.6− | 2000 11 02 | 704 | 0.1+ | 0.7− | 2004 09 21 | 704 | 0.7+ | 0.4− |
| 2000 09 24 | 704 | 0.4+ | 0.2+ | 2000 11 02 | 704 | 0.8− | 0.5+ | 2004 09 21 | 704 | 0.1+ | 0.6− |
| 2000 09 24 | 704 | 0.2− | 0.3+ | 2000 11 20 | 699 | 0.2+ | 1.0− | 2004 09 21 | 704 | 0.4+ | 0.5− |
| 2000 09 26 | 704 | 0.4+ | 0.3+ | 2000 11 20 | 699 | 0.2− | 0.1+ | 2004 09 21 | 704 | (0.2+ | 1.7−) |
| 2000 09 26 | 704 | 1.1− | 0.1+ | 2000 11 20 | 699 | 1.1− | 0.1+ | 2004 09 21 | 704 | 0.3− | 0.1+ |
| 2000 09 26 | 704 | 1.9+ | 1.0+ | 2000 11 20 | 699 | 1.4− | 0.2− | 2006 01 27 | 699 | 1.0+ | 1.3+ |
| 2000 09 26 | 704 | 0.4+ | 0.4− | 2004 08 08 | 704 | 0.6+ | 0.1+ | 2006 01 27 | 699 | 0.3− | 1.4+ |
| 2000 09 26 | 704 | 0.8− | 0.4− | 2004 08 08 | 704 | 0.7+ | 0.1− | 2006 01 27 | 699 | (0.6+ | 2.7+) |
| 2000 10 02 | 704 | 0.2+ | 0.0 | 2004 08 08 | 704 | 0.8− | 1.4+ | 2006 01 27 | 699 | 0.1+ | 0.1+ |
| 2000 10 02 | 704 | 0.2− | 0.1− | 2004 08 08 | 704 | 0.2+ | 0.3− | 2009 11 11 | G96 | 0.7+ | 0.5− |
| 2000 10 02 | 704 | 0.2− | 0.5+ | 2004 08 21 | E12 | 0.3− | 0.9− | 2009 11 11 | G96 | 0.1− | 0.2− |
| 2000 10 02 | 704 | 0.3+ | 0.7+ | 2004 08 21 | E12 | 0.4− | 0.3− | 2009 11 11 | G96 | 0.2+ | 0.2− |
| 2000 10 06 | 699 | 0.3+ | 1.0+ | 2004 08 21 | E12 | 0.6− | 0.5− | 2009 11 11 | G96 | 0.3− | 0.5− |
| 2000 10 06 | 699 | 1.4+ | 0.0 | 2004 08 21 | E12 | 0.0 | 0.3− | 2009 12 18 | G96 | 0.5+ | 0.4− |
| 2000 10 06 | 699 | 0.9− | 0.3+ | 2004 09 04 | 644 | 0.3+ | 0.1+ | 2009 12 18 | G96 | 0.2+ | 0.2− |
| 2000 10 06 | 699 | 0.2+ | 0.7+ | 2004 09 04 | 644 | 0.2− | 0.1+ | 2009 12 18 | G96 | 0.3+ | 0.3− |
| 2000 10 07 | 699 | 0.3+ | 0.1+ | 2004 09 04 | 644 | 0.1+ | 0.2+ | 2009 12 18 | G96 | 0.4+ | 0.4− |
| 2000 10 07 | 699 | 1.5− | 1.0+ | 2004 09 07 | 704 | 0.6− | 0.4+ | 2009 12 19 | 691 | 0.5− | 0.1+ |
| 2000 10 07 | 699 | 0.4+ | 0.1+ | 2004 09 07 | 704 | 0.3+ | 0.2+ | 2009 12 19 | 691 | 0.2+ | 0.1− |
| 2000 10 07 | 699 | 0.7+ | 0.1+ | 2004 09 07 | 704 | 0.2+ | 0.0 | 2009 12 19 | 691 | 0.2+ | 0.1− |
| 2000 10 30 | 704 | 0.5+ | 0.0 | 2004 09 07 | 704 | 0.1+ | 0.5+ | 2009 12 27 | 691 | 0.1+ | 0.2+ |
| 2000 10 30 | 704 | 0.3− | 0.3− | 2004 09 07 | 704 | 0.2− | 0.2− | 2009 12 27 | 691 | 0.2+ | 0.1+ |
| 2000 10 30 | 704 | 0.2− | 0.3− | 2004 09 16 | E12 | 0.2− | 0.1+ | 2009 12 27 | 691 | 0.7− | 0.5− |
| 2000 10 30 | 704 | 1.2− | 0.1− | 2004 09 16 | E12 | 0.3− | 0.8− | | | | |

**(228337)∗ 2000 SS$_{76}$**

Discovered 2000 Sept. 24 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 79.18801 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22892309 | $\omega$ | 258.52722 | | +0.89591460 | +0.43333698 | |
| $a$ | 2.6465269 | $\Omega$ | 75.73074 | | −0.35802963 | +0.83463974 | |
| $e$ | 0.2742380 | $i$ | 5.78911 | | −0.26296733 | +0.33999347 | |
| $P$ | 4.31 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 24 | 704 | 0.1− | 0.1+ | 2000 11 02 | 704 | 0.4− | 0.1+ | 2007 02 23 | 691 | 0.4− | 0.5+ |
| 2000 09 24 | 704 | 0.1+ | 0.3+ | 2000 11 26 | 704 | 0.3− | 0.6+ | 2007 02 23 | 691 | 0.0 | 0.3+ |
| 2000 09 24 | 704 | 0.6− | 0.1− | 2000 11 26 | 704 | 0.9+ | 1.9+ | 2007 02 23 | 691 | 0.3− | 0.2+ |
| 2000 09 24 | 704 | 0.4− | 0.1− | 2000 11 26 | 704 | 0.5+ | 1.0+ | 2007 03 19 | G96 | 0.1− | 0.0 |
| 2000 09 24 | 704 | 0.3− | 0.3+ | 2000 11 26 | 704 | 0.7+ | 1.2+ | 2007 03 19 | G96 | 0.0 | 0.5− |
| 2000 09 26 | 704 | 0.1− | 0.1− | 2004 07 11 | 704 | 1.0+ | 0.9− | 2007 03 19 | G96 | 0.2+ | 0.1+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 26 | 704 | 0.6+ | 0.5− | 2004 07 11 | 704 | 0.2− | 0.8− | 2007 03 19 | G96 | 0.5+ | 0.3− | | |
| 2000 09 26 | 704 | 0.9+ | 1.8− | 2004 07 11 | 704 | 0.2− | 0.3− | 2008 06 04 | G96 | 0.0 | 0.7+ | | |
| 2000 09 26 | 704 | 0.5+ | 0.3− | 2004 08 05 | 428 | 0.5− | 0.2− | 2008 06 04 | G96 | 1.0+ | 0.5+ | | |
| 2000 09 26 | 704 | 1.6+ | 0.7− | 2004 08 05 | 428 | 0.3+ | 0.1+ | 2008 06 04 | G96 | 0.5+ | 0.3+ | | |
| 2000 09 30 | 699 | 0.3− | 0.1+ | 2004 08 05 | 428 | 0.5+ | 0.3− | 2008 06 04 | G96 | 0.6+ | 0.4+ | | |
| 2000 09 30 | 699 | 0.2− | 0.4− | 2004 08 07 | E12 | 0.3− | 0.1+ | 2009 11 25 | 691 | 0.2− | 0.0 | | |
| 2000 09 30 | 699 | 0.2− | 0.0 | 2004 08 07 | E12 | 0.1+ | 0.2+ | 2009 11 25 | 691 | 0.2− | 0.0 | | |
| 2000 09 30 | 699 | 1.2− | 0.4+ | 2004 08 07 | E12 | 0.2− | 0.2− | 2009 11 25 | 691 | 0.2− | 0.0 | | |
| 2000 10 02 | 704 | 0.6− | 0.5− | 2004 08 07 | E12 | 0.2− | 0.2+ | 2009 12 09 | J75 | 0.0 | 0.3+ | | |
| 2000 10 02 | 704 | 0.2+ | 0.3− | 2005 12 05 | G96 | 0.0 | 0.1− | 2009 12 09 | J75 | 0.2− | 0.3+ | | |
| 2000 10 02 | 704 | 0.6− | 0.3+ | 2005 12 05 | G96 | 0.1− | 0.1− | 2009 12 09 | J75 | 0.8+ | 0.2+ | | |
| 2000 10 02 | 704 | 1.1− | 0.7− | 2005 12 05 | G96 | 0.2− | 0.3+ | 2009 12 09 | J75 | 0.4+ | 0.2− | | |
| 2000 10 02 | 704 | 0.2− | 0.3− | 2005 12 05 | G96 | 0.2+ | 0.0 | 2009 12 09 | J75 | 0.3− | 0.0 | | |
| 2000 10 29 | 704 | 0.1− | 0.3+ | 2005 12 28 | 691 | 0.3+ | 0.4− | 2009 12 09 | J75 | 0.4− | 0.0 | | |
| 2000 10 29 | 704 | 0.6+ | 0.8+ | 2005 12 28 | 691 | 0.3+ | 0.0 | 2009 12 10 | G96 | 0.2− | 0.4− | | |
| 2000 10 29 | 704 | 0.4+ | 0.5+ | 2005 12 28 | 691 | 0.3+ | 0.4− | 2009 12 10 | G96 | 0.0 | 0.1− | | |
| 2000 10 29 | 704 | 0.2+ | 0.4+ | 2005 12 29 | G96 | 0.1+ | 0.2− | 2009 12 10 | G96 | 0.1+ | 0.5− | | |
| 2000 11 02 | 704 | 0.1− | 1.1+ | 2005 12 29 | G96 | 0.2+ | 0.2− | 2009 12 10 | G96 | 0.2+ | 0.2− | | |
| 2000 11 02 | 704 | 1.0− | 0.6+ | 2005 12 29 | G96 | 0.0 | 0.0 | | | | | | |
| 2000 11 02 | 704 | 0.9− | 0.2− | 2005 12 29 | G96 | 0.3+ | 0.2− | | | | | | |

**(228338)∗ 2000 SZ$_{98}$**

Discovered 2000 Sept. 23 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 62.15075 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22751754 | $\omega$ | 86.54310 | | +0.98768256 | +0.14322103 | |
| $a$ | 2.6574155 | $\Omega$ | 265.21566 | | −0.15646799 | +0.90650005 | |
| $e$ | 0.1342204 | $i$ | 3.62554 | | +0.00096010 | +0.39717175 | |
| $P$ | 4.33 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 12 12 | 691 | 0.0 | 1.6− | 2004 07 18 | 704 | (1.9+ | 0.6+) | 2009 11 17 | 704 | 0.7− | 0.9+ | | |
| 1996 12 12 | 691 | 0.1− | 0.9− | 2004 07 18 | 704 | 0.6+ | 0.0 | 2009 11 17 | 704 | 0.3− | 0.4+ | | |
| 1996 12 12 | 691 | 0.2+ | 0.8− | 2004 08 09 | 699 | 0.9+ | 0.0 | 2009 11 17 | 704 | 0.2+ | 1.2+ | | |
| 2000 09 03 | 704 | 0.1+ | 0.3+ | 2004 08 09 | 699 | 0.3− | 0.0 | 2009 11 17 | 704 | 0.9− | 1.0+ | | |
| 2000 09 03 | 704 | 0.1+ | 1.5+ | 2004 08 09 | 699 | 0.1+ | 0.4− | 2009 11 20 | G96 | 0.1+ | 0.1− | | |
| 2000 09 03 | 704 | 1.0− | 0.6+ | 2004 08 09 | 699 | 0.0 | 0.4+ | 2009 11 20 | G96 | 0.1+ | 0.0 | | |
| 2000 09 03 | 704 | 0.7− | 0.4+ | 2004 08 11 | 704 | 0.1− | 0.3− | 2009 11 20 | G96 | 0.2+ | 0.1− | | |
| 2000 09 23 | 704 | 0.3− | 0.1− | 2004 08 11 | 704 | 0.8+ | 0.8− | 2009 11 20 | G96 | 0.1+ | 0.0 | | |
| 2000 09 23 | 704 | 0.4+ | 0.4− | 2004 08 11 | 704 | 0.6− | 0.3− | 2009 11 22 | H10 | 0.3− | 0.7+ | | |
| 2000 09 23 | 704 | 0.2− | 0.2− | 2004 08 11 | 704 | 0.3+ | 0.9− | 2009 11 22 | H10 | 0.4+ | 0.5+ | | |
| 2000 09 26 | 699 | 1.0− | 0.0 | 2004 08 11 | 704 | 0.2− | 0.7− | 2009 11 22 | 703 | 0.6+ | 0.3− | | |
| 2000 09 26 | 699 | 0.3− | 0.4+ | 2005 12 01 | 691 | 0.4+ | 0.1− | 2009 11 22 | 703 | 0.5− | 0.4+ | | |
| 2000 09 26 | 699 | 0.2− | 0.9+ | 2005 12 01 | 691 | 0.0 | 0.1+ | 2009 11 22 | 703 | 0.5+ | 1.0− | | |
| 2000 09 26 | 699 | 0.4− | 0.9+ | 2005 12 01 | 691 | 0.4+ | 0.1− | 2009 11 22 | 703 | 0.5+ | 1.0+ | | |
| 2000 09 27 | 704 | 0.4+ | 0.0 | 2005 12 05 | 691 | 0.3+ | 0.1+ | 2009 11 24 | G96 | 0.0 | 0.3− | | |
| 2000 09 27 | 704 | 0.0 | 0.5+ | 2005 12 05 | 691 | 0.2+ | 0.2+ | 2009 11 24 | G96 | 0.2+ | 0.2− | | |
| 2000 09 27 | 704 | 0.9+ | 0.8+ | 2005 12 05 | 691 | 0.2+ | 0.2+ | 2009 11 24 | G96 | 0.2+ | 0.1− | | |
| 2000 10 03 | 704 | 0.5− | 0.2+ | 2007 03 12 | 691 | 0.1− | 1.0+ | 2009 11 24 | G96 | 0.3+ | 0.1+ | | |
| 2000 10 03 | 704 | 0.2− | 0.6+ | 2007 03 12 | 691 | 0.2+ | 0.5+ | 2009 11 27 | 691 | 0.1− | 0.2+ | | |
| 2000 10 03 | 704 | 0.1− | 0.1− | 2007 03 12 | 691 | 0.1+ | 0.2+ | 2009 11 27 | 691 | 0.6− | 0.4+ | | |
| 2000 10 03 | 704 | 0.2+ | 0.1+ | 2009 11 09 | 691 | 0.2− | 0.0 | 2009 11 27 | 691 | 0.0 | 0.2+ | | |
| 2000 10 03 | 704 | 0.5+ | 0.5+ | 2009 11 09 | 691 | 0.1+ | 0.1− | 2009 12 17 | G96 | 0.2− | 0.1+ | | |
| 2004 07 11 | 704 | 0.3+ | 0.1+ | 2009 11 09 | 691 | 0.0 | 0.0 | 2009 12 17 | G96 | 0.0 | 0.0 | | |
| 2004 07 11 | 704 | 0.2− | 0.5+ | 2009 11 14 | J75 | 0.5− | 0.9− | 2009 12 17 | G96 | 0.0 | 0.0 | | |
| 2004 07 11 | 704 | 0.8− | 1.3+ | 2009 11 14 | J75 | 0.4− | 0.5+ | 2009 12 17 | G96 | 0.1+ | 0.3+ | | |
| 2004 07 11 | 704 | 0.3− | 0.3+ | 2009 11 14 | J75 | 0.4− | 0.1− | | | | | | |
| 2004 07 18 | 704 | 1.0+ | 0.7+ | 2009 11 17 | 704 | 0.7− | 0.9+ | | | | | | |

**(228339)∗ 2000 SL$_{100}$**

Discovered 2000 Sept. 23 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 57.37585 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22982833 | $\omega$ | 36.17882 | | +0.91446883 | −0.40095066 | |
| $a$ | 2.6395730 | $\Omega$ | 347.11606 | | +0.28919670 | +0.74200429 | |
| $e$ | 0.1975280 | $i$ | 14.18420 | | +0.28304070 | +0.53727851 | |
| $P$ | 4.29 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 03 | 704 | 0.2− | 0.1− | 2004 08 08 | 704 | 0.0 | 0.2− | 2004 09 12 | 704 | 0.2+ | 0.0 | | |
| 2000 09 03 | 704 | 0.2+ | 0.2− | 2004 08 08 | 704 | 0.2− | 1.0+ | 2004 09 17 | 704 | 0.3+ | 0.2+ | | |
| 2000 09 03 | 704 | 0.5+ | 1.1− | 2004 08 08 | 704 | 1.1− | 1.3+ | 2004 09 17 | 704 | 0.4− | 0.1− | | |
| 2000 09 03 | 704 | 0.9+ | 1.0− | 2004 08 08 | 699 | 0.3+ | 0.3+ | 2004 09 17 | 704 | 0.3− | 0.3+ | | |
| 2000 09 23 | 704 | 0.4− | 0.8+ | 2004 08 08 | 699 | 0.4− | 0.5− | 2004 09 17 | 704 | 0.8− | 0.3+ | | |
| 2000 09 23 | 704 | 0.6+ | 0.1+ | 2004 08 08 | 699 | 0.5+ | 0.2− | 2004 09 17 | 704 | 0.3+ | 0.6+ | | |
| 2000 09 23 | 704 | 0.2+ | 0.8+ | 2004 08 08 | 699 | 0.5− | 0.7+ | 2004 09 21 | 704 | 0.3− | 0.8− | | |
| 2000 09 23 | 704 | 0.5− | 1.0+ | 2004 08 11 | 704 | 0.1− | 0.6+ | 2004 09 21 | 704 | 0.7− | 0.1− | | |
| 2000 09 27 | 704 | 0.6+ | 0.0 | 2004 08 11 | 704 | 0.0 | 0.3+ | 2004 09 21 | 704 | 0.1− | 0.6− | | |
| 2000 09 27 | 704 | 0.4− | 0.5− | 2004 08 11 | 704 | 0.3− | 0.5+ | 2004 09 21 | 704 | 0.1+ | 0.9− | | |
| 2000 09 27 | 704 | 0.3− | 0.2+ | 2004 08 11 | 704 | 0.1+ | 0.5+ | 2004 09 22 | 691 | 0.1− | 0.1+ | | |
| 2000 09 27 | 704 | 0.1+ | 0.5− | 2004 08 11 | 704 | 0.1+ | 1.2+ | 2004 09 22 | 691 | 0.0 | 0.1− | | |
| 2000 09 27 | 704 | 0.7+ | 0.7− | 2004 08 21 | 703 | 1.4− | 0.1− | 2004 09 22 | 691 | 0.1− | 0.1− | | |
| 2000 09 28 | 704 | 0.7− | 0.6+ | 2004 08 21 | 703 | 0.6− | 0.4+ | 2004 10 09 | 704 | (0.5− | 2.5+) | | |
| 2000 09 28 | 704 | 0.1− | 0.7+ | 2004 08 21 | 703 | 1.2− | 0.0 | 2004 10 09 | 704 | 0.7+ | 0.2− | | |
| 2000 09 28 | 704 | 0.4+ | 0.6− | 2004 08 21 | 703 | 0.8− | 0.0 | 2004 10 09 | 704 | 0.3− | 0.0 | | |
| 2000 09 28 | 704 | 0.2+ | 0.1+ | 2004 09 06 | 644 | 0.2+ | 0.3+ | 2004 10 09 | 704 | (0.1+ | 1.7+) | | |
| 2000 09 28 | 704 | 0.2− | 0.2+ | 2004 09 06 | 644 | 0.1+ | 0.4+ | 2004 10 09 | 704 | 0.5− | 0.8+ | | |
| 2000 09 28 | 704 | 0.5+ | 0.6+ | 2004 09 06 | 644 | 0.1+ | 0.2+ | 2006 01 26 | 703 | 1.3− | 0.9+ | | |
| 2000 09 28 | 704 | 0.5+ | 0.0 | 2004 09 07 | 704 | 0.5+ | 0.4− | 2006 01 26 | 703 | 0.2− | 0.3− | | |
| 2000 09 28 | 704 | 0.9− | 0.2+ | 2004 09 07 | 704 | 0.3+ | 0.1− | 2006 01 26 | 703 | 0.4+ | 0.1− | | |
| 2000 10 03 | 704 | 0.3− | 0.1− | 2004 09 07 | 704 | 0.2+ | 0.4+ | 2006 01 26 | 703 | 0.1+ | 0.1+ | | |
| 2000 10 03 | 704 | 1.1− | 0.3− | 2004 09 07 | 704 | 1.1+ | 0.2− | 2009 11 27 | 703 | 0.2− | 0.2− | | |
| 2000 10 03 | 704 | 0.0 | 0.2− | 2004 09 07 | 704 | 0.2+ | 0.2− | 2009 11 27 | 703 | 0.9− | 0.4− | | |
| 2000 10 03 | 704 | 0.3− | 0.1− | 2004 09 09 | 704 | 0.3− | 0.4+ | 2009 11 27 | 703 | 0.0 | 1.3+ | | |
| 2000 10 03 | 704 | 0.3+ | 0.5+ | 2004 09 09 | 704 | 0.3− | 0.4+ | 2009 11 27 | 703 | 0.2+ | 0.1− | | |
| 2002 02 19 | 691 | 0.5+ | 0.9+ | 2004 09 09 | 704 | 0.2+ | 0.3+ | 2009 12 13 | 703 | 0.2+ | 0.3− | | |
| 2002 02 19 | 691 | 0.2+ | 1.0+ | 2004 09 09 | 704 | 0.1+ | 0.1− | 2009 12 13 | 703 | 0.8+ | 1.1− | | |
| 2002 02 19 | 691 | 0.6+ | 0.2+ | 2004 09 09 | 704 | 0.6− | 0.1+ | 2009 12 13 | 703 | 0.3+ | 0.1− | | |
| 2002 02 22 | 644 | 0.7+ | 0.1− | 2004 09 09 | 699 | 0.3− | 0.5+ | 2009 12 13 | 703 | 0.5− | 0.8+ | | |
| 2002 02 22 | 644 | 0.2+ | 0.4− | 2004 09 09 | 699 | 0.3+ | 0.3− | 2009 12 20 | 703 | 0.5+ | 0.6+ | | |
| 2002 02 22 | 644 | 0.9+ | 0.0 | 2004 09 09 | 699 | 0.2− | 0.3+ | 2009 12 20 | 703 | 0.3− | 0.5− | | |
| 2004 07 13 | 644 | 0.3+ | 0.2− | 2004 09 09 | 699 | 0.5+ | 0.2− | 2009 12 20 | 703 | 0.2− | 0.3− | | |
| 2004 07 13 | 644 | 0.1+ | 0.0 | 2004 09 12 | 704 | 0.4+ | 0.1− | 2009 12 20 | 703 | 0.6+ | 0.1+ | | |
| 2004 07 13 | 644 | 0.3− | 0.2+ | 2004 09 12 | 704 | 0.0 | 0.1+ | | | | | | |

**(228340)∗ 2000 SS$_{129}$ = 2004 RT$_{206}$**

Discovered 2000 Sept. 22 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 68725)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 117.51542 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24321292 | $\omega$ | 51.95587 | | +0.85559226 | +0.47603708 | |
| $a$ | 2.5418209 | $\Omega$ | 278.76475 | | −0.51552172 | +0.74798877 | |
| $e$ | 0.2219591 | $i$ | 11.87347 | | −0.04689604 | +0.46249487 | |
| $P$ | 4.05 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 01 | 704 | 0.4− | 0.7+ | 2004 09 11 | 704 | 0.0 | 0.9+ | 2008 07 29 | 704 | 0.3+ | 0.2+ | | |
| 2000 09 01 | 704 | 0.3− | 0.0 | 2004 09 11 | 704 | 0.3+ | 0.1+ | 2008 07 29 | 704 | 0.9− | 0.3− | | |
| 2000 09 01 | 704 | 0.2+ | 0.1+ | 2004 09 14 | 704 | 0.5− | 0.1+ | 2008 07 29 | 704 | 0.7− | 0.4+ | | |
| 2000 09 01 | 704 | 0.4+ | 0.2+ | 2004 09 14 | 704 | 0.1− | 0.4+ | 2008 07 29 | 704 | 1.0− | 0.3+ | | |
| 2000 09 01 | 704 | 0.5− | 0.7+ | 2004 09 14 | 704 | 0.2+ | 0.1− | 2008 08 02 | 704 | 0.2− | 0.3− | | |
| 2000 09 22 | 704 | 0.6+ | 0.3+ | 2004 09 14 | 704 | 0.2+ | 0.2+ | 2008 08 02 | 704 | 0.4+ | 0.1− | | |
| 2000 09 22 | 704 | 0.3− | 1.0− | 2004 09 14 | 704 | 0.0 | 0.0 | 2008 08 02 | 704 | 0.4+ | 0.5− | | |
| 2000 09 22 | 704 | 0.3− | 0.1− | 2005 12 25 | 691 | 0.3+ | 0.2+ | 2008 08 02 | 704 | 0.1− | 0.1+ | | |
| 2000 09 22 | 704 | 0.3+ | 0.3+ | 2005 12 25 | 691 | 0.0 | 0.6+ | 2008 08 02 | 704 | 0.3− | 0.4− | | |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 28 | 704 | 0.8+ | 0.1− | 2005 12 25 | 691 | 0.3+ | 0.5+ | 2008 08 23 | F85 | 0.4+ | 0.0 |
| 2000 09 28 | 704 | 0.6− | 0.2− | 2005 12 29 | 691 | 0.5+ | 0.2+ | 2008 08 23 | F85 | 0.0 | 0.1+ |
| 2000 09 28 | 704 | 1.3− | 0.3− | 2005 12 29 | 691 | 0.4+ | 0.4+ | 2008 10 01 | G96 | 0.1+ | 0.3+ |
| 2000 09 28 | 704 | 0.0 | 0.3− | 2005 12 29 | 691 | 0.3+ | 0.2− | 2008 10 01 | G96 | 0.9+ | 0.0 |
| 2000 09 28 | 704 | 0.1− | 1.5− | 2006 01 06 | 691 | 0.1− | 0.0 | 2008 10 01 | G96 | 0.0 | 0.2+ |
| 2000 10 04 | 704 | 0.5+ | 0.0 | 2006 01 06 | 691 | 0.1+ | 0.3− | 2008 10 01 | G96 | 0.2+ | 0.0 |
| 2000 10 04 | 704 | 0.1+ | 0.8− | 2006 01 06 | 691 | 0.1+ | 0.4+ | 2009 12 10 | G96 | 0.0 | 0.5− |
| 2000 10 04 | 704 | 0.4+ | 1.1− | 2006 01 09 | G96 | 0.2− | 0.2− | 2009 12 10 | G96 | 0.1+ | 1.1− |
| 2000 10 04 | 704 | 0.6+ | 0.5− | 2006 01 09 | G96 | 0.1− | 0.2− | 2009 12 10 | G96 | 0.1− | 1.0− |
| 2000 10 04 | 704 | 0.2+ | 0.4− | 2006 01 09 | G96 | 0.0 | 0.2+ | 2009 12 10 | G96 | 1.0+ | 0.1+ |
| 2004 08 20 | 703 | 0.6− | 0.7+ | 2006 01 09 | G96 | 0.0 | 0.1+ | 2009 12 18 | 691 | 0.6− | 0.8− |
| 2004 08 20 | 703 | 1.2+ | 1.4+ | 2006 01 31 | G96 | 0.4− | 0.2− | 2009 12 18 | 691 | 0.5− | 0.3+ |
| 2004 08 20 | 703 | 0.8− | 0.9+ | 2006 01 31 | G96 | 0.5− | 0.0 | 2009 12 18 | 691 | 0.3− | 0.2− |
| 2004 08 20 | 703 | (0.5+ | 2.1−) | 2006 01 31 | G96 | 0.6− | 0.1+ | | | | |
| 2004 09 11 | 704 | 0.1+ | 0.8+ | 2006 01 31 | G96 | 0.2− | 0.1+ | | | | |

**(228341)∗ 2000 SK$_{136}$**

Discovered 2000 Sept. 23 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 25.53224 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22546728 | $\omega$ | 128.27700 | | +0.76701782 | −0.63895634 | |
| $a$ | 2.6735011 | $\Omega$ | 271.51604 | | +0.56890718 | +0.71939536 | |
| $e$ | 0.2412512 | $i$ | 3.35303 | | +0.29669561 | +0.27240617 | |
| $P$ | 4.37 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 04 | 699 | (4.8− | 0.6+) | 2000 10 31 | 704 | 0.2− | 0.5+ | 2009 11 09 | 691 | 0.1− | 0.1+ |
| 2000 09 04 | 699 | 0.5+ | 0.6+ | 2000 10 31 | 704 | 0.3− | 1.0+ | 2009 11 09 | 691 | 0.1− | 0.0 |
| 2000 09 04 | 699 | 1.8− | 0.7+ | 2000 10 31 | 704 | 0.6− | 0.5+ | 2009 11 09 | G96 | 0.3+ | 0.1− |
| 2000 09 04 | 699 | 0.4− | 0.1− | 2000 10 31 | 704 | 0.6− | 0.9+ | 2009 11 09 | G96 | 0.4+ | 0.2− |
| 2000 09 22 | 699 | 0.3+ | 0.6+ | 2004 08 10 | 599 | 0.0 | 0.4+ | 2009 11 09 | G96 | 0.3+ | 0.2− |
| 2000 09 22 | 699 | 0.0 | 0.8+ | 2004 08 10 | 599 | 0.1− | 0.3+ | 2009 11 09 | G96 | 0.2+ | 0.4− |
| 2000 09 22 | 699 | 0.1+ | 1.1+ | 2004 08 10 | 599 | 0.3− | 0.4+ | 2009 11 11 | 704 | 0.4+ | 1.2+ |
| 2000 09 22 | 699 | 0.2+ | 0.1+ | 2004 08 10 | 599 | 0.1− | 0.5+ | 2009 11 11 | 704 | 0.3+ | 0.7+ |
| 2000 09 23 | 704 | 0.5− | 0.1+ | 2004 08 11 | 704 | 0.0 | 0.5+ | 2009 11 11 | 704 | 0.5+ | 1.5+ |
| 2000 09 23 | 704 | 0.7− | 0.2+ | 2004 08 11 | 704 | 0.7− | 0.9+ | 2009 11 11 | 704 | 0.0 | 1.4+ |
| 2000 09 23 | 704 | 0.7− | 0.5+ | 2004 08 11 | 704 | 0.6+ | 1.0+ | 2009 11 17 | 691 | 0.1− | 0.2+ |
| 2000 09 23 | 704 | 0.7− | 0.6+ | 2004 08 11 | 704 | 0.8+ | 0.4+ | 2009 11 17 | 691 | 0.3− | 0.1+ |
| 2000 09 26 | 699 | 1.9− | 0.2+ | 2004 08 11 | 704 | 0.3− | 0.2+ | 2009 11 17 | 691 | 0.0 | 0.2− |
| 2000 09 26 | 699 | 1.2− | 0.3+ | 2004 08 11 | 704 | 0.4− | 0.1− | 2009 11 17 | 704 | 0.1− | 0.2+ |
| 2000 09 26 | 699 | 0.9− | 0.1+ | 2004 08 11 | 599 | 0.7+ | 0.1− | 2009 11 17 | 704 | 1.1+ | 0.4+ |
| 2000 09 26 | 699 | 0.6− | 1.1+ | 2004 08 11 | 599 | 0.1− | 0.0 | 2009 11 17 | 704 | 0.3+ | 1.2+ |
| 2000 09 28 | 704 | 0.2− | 0.5− | 2004 08 11 | 599 | 0.8+ | 0.2+ | 2009 11 17 | 704 | 0.1+ | 0.5+ |
| 2000 09 28 | 704 | 0.2− | 0.4− | 2004 08 12 | 704 | 1.3− | 1.0+ | 2009 11 17 | 704 | 0.5+ | 0.2− |
| 2000 09 28 | 704 | 0.1+ | 0.5+ | 2004 08 12 | 704 | 0.8− | 1.0+ | 2009 11 21 | 691 | 0.0 | 0.2+ |
| 2000 09 28 | 704 | 0.4− | 0.4− | 2004 08 12 | 704 | 1.0− | 1.0+ | 2009 11 21 | 691 | 0.2− | 0.0 |
| 2000 09 28 | 704 | 0.3− | 0.1+ | 2004 08 12 | 704 | 0.4+ | 0.8+ | 2009 11 21 | 691 | 0.2− | 0.2+ |
| 2000 09 28 | 704 | 1.1− | 0.3− | 2004 08 12 | 704 | 0.0 | 1.3+ | 2009 11 22 | 704 | (1.7+ | 0.3+) |
| 2000 09 28 | 704 | 0.4+ | 0.8+ | 2004 08 12 | 704 | 0.8− | 0.2− | 2009 11 22 | 704 | 1.1+ | 1.0+ |
| 2000 09 28 | 704 | 0.7− | 0.3− | 2005 11 29 | G96 | 0.1− | 0.2− | 2009 11 22 | 704 | 0.6− | 0.5+ |
| 2000 09 28 | 704 | 0.3− | 0.6+ | 2005 11 29 | G96 | 0.0 | 0.5− | 2009 11 22 | 704 | 0.9+ | 0.4+ |
| 2000 09 28 | 704 | 1.1− | 0.0 | 2005 11 29 | G96 | 0.1+ | 0.1− | 2009 11 24 | J75 | 0.1− | 0.1+ |
| 2000 10 02 | 704 | 1.1− | 0.8− | 2005 11 29 | G96 | 0.0 | 0.0 | 2009 11 24 | J75 | (1.7+ | 0.4−) |
| 2000 10 02 | 704 | 0.4− | 0.4+ | 2006 01 06 | 691 | 0.1− | 0.0 | 2009 11 25 | J75 | 0.2+ | 0.1+ |
| 2000 10 02 | 704 | 1.0+ | 0.2+ | 2006 01 06 | 691 | 0.0 | 0.1+ | 2009 11 25 | 691 | 0.3− | 0.1+ |
| 2000 10 02 | 704 | (0.5− | 2.2+) | 2006 01 06 | 691 | 0.3− | 0.2+ | 2009 11 25 | 691 | 0.0 | 0.0 |
| 2000 10 03 | 704 | 0.4− | 0.5+ | 2006 01 08 | G96 | 0.4+ | 0.5− | 2009 11 25 | 691 | 0.1− | 0.0 |
| 2000 10 03 | 704 | 1.4− | 1.2+ | 2006 01 08 | G96 | 0.3− | 0.5− | 2009 11 25 | 703 | 0.3− | 0.1− |
| 2000 10 03 | 704 | 0.4+ | 0.6+ | 2006 01 08 | G96 | 0.4− | 0.7− | 2009 11 25 | 703 | 0.1− | 0.0 |
| 2000 10 03 | 704 | 0.1+ | 0.7+ | 2006 01 08 | G96 | 0.6+ | 0.4− | 2009 11 25 | 703 | 0.6− | 0.5+ |
| 2000 10 03 | 704 | 0.3+ | 0.3+ | 2006 01 10 | 691 | 0.1+ | 0.4+ | 2009 11 25 | 703 | 0.0 | 0.2− |
| 2000 10 18 | 691 | 0.7+ | 0.7− | 2006 01 10 | 691 | 0.0 | 0.2+ | 2009 11 25 | 703 | 0.3− | 0.2+ |
| 2000 10 18 | 691 | 0.8+ | 0.4− | 2006 01 10 | 691 | 0.1− | 0.2+ | 2009 12 09 | J75 | 0.4+ | 0.4− |
| 2000 10 18 | 691 | 0.8+ | 0.4− | 2006 01 31 | G96 | 0.2+ | 0.2− | 2009 12 09 | J75 | 0.1+ | 0.4− |
| 2000 10 18 | 691 | 0.8+ | 0.6− | 2006 01 31 | G96 | 0.1− | 0.3− | 2009 12 09 | J75 | 0.4+ | 0.0 |
| 2000 10 18 | 691 | 0.5+ | 0.7− | 2006 01 31 | G96 | 0.1+ | 0.4− | 2009 12 11 | 704 | 0.0 | 0.0 |
| 2000 10 18 | 691 | 0.6+ | 0.6− | 2006 01 31 | G96 | 0.8+ | 1.0− | 2009 12 11 | 704 | 0.4− | 0.3+ |
| 2000 10 25 | 691 | 0.2+ | 0.4− | 2006 02 23 | 691 | 0.0 | 0.5+ | 2009 12 11 | 704 | 0.8− | 0.3+ |
| 2000 10 25 | 691 | 0.2+ | 0.5− | 2006 02 23 | 691 | 0.2− | 0.2+ | 2009 12 16 | G96 | 0.0 | 0.1− |
| 2000 10 25 | 704 | 0.6− | 0.6− | 2006 02 23 | 691 | 0.7+ | 0.3− | 2009 12 16 | G96 | 0.3+ | 0.4− |
| 2000 10 25 | 704 | 0.8− | 1.3− | 2006 02 25 | 691 | 0.1+ | 0.3+ | 2009 12 16 | G96 | 0.1+ | 0.2− |
| 2000 10 25 | 691 | 0.2+ | 0.4− | 2006 02 25 | 691 | 0.4− | 0.5+ | 2009 12 16 | G96 | 0.4+ | 0.3− |
| 2000 10 25 | 704 | 0.9+ | 0.9− | 2006 02 25 | 691 | 0.1+ | 0.1− | | | | |
| 2000 10 25 | 704 | 0.3− | 0.3− | 2009 11 09 | 691 | 0.1− | 0.2+ | | | | |

**(228342)∗ 2000 SN$_{136}$**

Discovered 2000 Sept. 23 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 95.02508 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23780704 | $\omega$ | 63.39825 | | +0.99119768 | +0.01512413 | |
| $a$ | 2.5801973 | $\Omega$ | 295.48798 | | −0.07342344 | +0.88946936 | |
| $e$ | 0.2219022 | $i$ | 8.37805 | | +0.11016422 | +0.45674447 | |
| $P$ | 4.14 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 23 | 704 | 0.1+ | 0.1+ | 2004 08 13 | 644 | 0.2− | 0.2+ | 2008 07 28 | G96 | 0.1+ | 0.1− |
| 2000 09 23 | 704 | 0.5+ | 0.0 | 2004 08 13 | 644 | 0.9+ | 0.3− | 2008 07 28 | G96 | 0.0 | 0.2− |
| 2000 09 23 | 704 | 0.2− | 0.2+ | 2004 08 13 | 644 | 0.0 | 0.1+ | 2008 07 30 | 703 | 0.6− | 0.3− |
| 2000 09 25 | 699 | 1.6− | 0.9− | 2004 08 19 | 704 | 0.9+ | 0.1− | 2008 07 30 | 703 | 0.0 | 0.1− |
| 2000 09 25 | 699 | 0.8− | 0.2+ | 2004 08 19 | 704 | 1.0+ | 0.8+ | 2008 07 30 | 703 | 0.3− | 0.2+ |
| 2000 09 25 | 699 | 0.7− | 0.1− | 2004 08 19 | 704 | 0.0 | 1.3+ | 2008 07 30 | 703 | 0.2− | 0.4− |
| 2000 09 25 | 699 | (0.6+ | 2.5+) | 2004 09 10 | 704 | 0.1+ | 0.6+ | 2008 07 31 | J75 | 0.3+ | 0.1− |
| 2000 09 26 | 699 | 1.0+ | 0.5+ | 2004 09 10 | 704 | 0.4− | 0.5+ | 2008 07 31 | J75 | 0.8+ | 0.7− |
| 2000 09 26 | 699 | 1.5+ | 0.0 | 2004 09 10 | 704 | 0.2+ | 0.3+ | 2008 07 31 | J75 | 0.1+ | 0.3− |
| 2000 09 26 | 699 | 0.1+ | 0.3+ | 2004 09 10 | 704 | 0.2+ | 0.5+ | 2008 07 31 | 704 | 0.1− | 0.6+ |
| 2000 09 26 | 699 | 0.5+ | 0.8+ | 2004 09 13 | 704 | 0.1+ | 0.1+ | 2008 07 31 | 704 | 0.5+ | 0.9+ |
| 2000 09 28 | 704 | 0.9− | 0.7+ | 2004 09 13 | 704 | 0.1+ | 0.2− | 2008 07 31 | 704 | 1.0− | 0.3+ |
| 2000 09 28 | 704 | 0.0 | 0.0 | 2004 09 13 | 704 | 0.3− | 0.0 | 2008 07 31 | 704 | 0.1− | 0.6+ |
| 2000 09 28 | 704 | 0.5− | 0.4+ | 2004 09 13 | 704 | 0.4+ | 0.3+ | 2008 07 31 | 704 | 0.1+ | 0.4+ |
| 2000 09 28 | 704 | 0.2− | 0.1+ | 2004 09 13 | 704 | 0.2+ | 0.1− | 2008 07 31 | J75 | 0.8+ | 0.2− |
| 2000 09 28 | 704 | 0.4+ | 0.7+ | 2004 09 18 | 704 | 0.7− | 0.6− | 2008 07 31 | J75 | 0.2+ | 0.0 |
| 2000 10 03 | 699 | 1.0− | 1.0− | 2004 09 18 | 704 | (2.1− | 0.4+) | 2008 07 31 | J75 | 0.1− | 0.8− |
| 2000 10 03 | 699 | 0.1+ | 0.1+ | 2004 09 18 | 704 | 1.4− | 0.2− | 2008 07 31 | J75 | 0.7− | 0.3+ |
| 2000 10 03 | 699 | 0.4+ | 0.6− | 2004 09 18 | 704 | 0.5− | 0.3+ | 2008 07 31 | J75 | 0.4+ | 0.3+ |
| 2000 10 03 | 699 | 1.0− | 0.4+ | 2004 09 18 | 704 | 1.2− | 0.7− | 2008 07 31 | J75 | 0.2− | 0.0 |
| 2000 10 03 | 704 | 0.7− | 0.2+ | 2004 09 22 | 704 | 0.3+ | 0.2− | 2008 08 02 | 704 | 0.2+ | 0.1+ |
| 2000 10 03 | 704 | 0.0 | 0.1− | 2004 09 22 | 704 | 0.4+ | 0.3+ | 2008 08 02 | 704 | 0.0 | 0.1+ |
| 2000 10 03 | 704 | 0.2− | 0.3− | 2004 09 22 | 704 | 0.2− | 0.4− | 2008 08 02 | 704 | 0.9− | 0.0 |
| 2000 10 03 | 704 | 0.2− | 0.4− | 2004 09 22 | 704 | 0.5+ | 0.2− | 2008 08 02 | 704 | 0.3− | 0.2− |
| 2000 10 25 | 704 | 0.2− | 0.6− | 2004 09 22 | 704 | 0.0 | 0.0 | 2008 08 02 | J87 | 0.9+ | 0.5− |
| 2000 10 25 | 704 | 0.0 | 0.4+ | 2004 09 24 | 704 | 0.3+ | 0.7− | 2008 08 02 | J87 | 0.1− | 0.1− |
| 2000 10 25 | 704 | 0.3− | 0.0 | 2004 09 24 | 704 | 0.1− | 0.2+ | 2008 08 02 | J87 | 0.0 | 0.0 |
| 2000 10 25 | 704 | 0.6+ | 0.6− | 2004 09 24 | 704 | 0.3− | 0.8− | 2008 10 26 | G96 | 0.1− | 0.2− |
| 2000 10 25 | 704 | 0.2− | 0.6− | 2004 09 24 | 704 | 0.3+ | 0.1+ | 2008 10 26 | G96 | 0.0 | 0.2− |
| 2000 11 01 | 704 | 1.3+ | 0.0 | 2004 09 24 | 704 | 0.2− | 0.1+ | 2008 10 26 | G96 | 0.2+ | 0.2− |
| 2000 11 01 | 704 | 0.6+ | 1.1− | 2004 10 07 | 704 | (1.8+ | 0.4+) | 2008 10 26 | G96 | 0.3− | 0.3− |
| 2000 11 01 | 704 | 0.9+ | 0.0 | 2004 10 07 | 704 | 0.4− | 0.3+ | 2009 12 15 | G96 | 0.4+ | 0.1− |
| 2000 11 01 | 704 | 0.6+ | 0.6+ | 2004 10 07 | 704 | 0.3+ | 0.4− | 2009 12 15 | G96 | 0.4+ | 0.0 |
| 2000 11 01 | 704 | 0.0 | 0.9+ | 2004 10 07 | 704 | 0.2+ | 0.5− | 2009 12 15 | G96 | 0.6− | 0.1+ |
| 2002 02 11 | 704 | 0.2+ | 0.9+ | 2006 01 08 | G96 | 0.1+ | 0.3− | 2009 12 15 | G96 | 0.3+ | 0.5+ |
| 2002 02 11 | 704 | 0.0 | 0.5− | 2006 01 08 | G96 | 0.2− | 0.3− | 2009 12 17 | 691 | 0.3+ | 0.1− |
| 2002 02 11 | 704 | 0.4− | 0.2+ | 2006 01 08 | G96 | 0.3+ | 0.3− | 2009 12 17 | 691 | 0.4− | 0.0 |
| 2004 08 07 | 644 | 0.2− | 0.2+ | 2006 01 08 | G96 | 0.1− | 0.4− | 2009 12 17 | 691 | 0.1+ | 0.2+ |
| 2004 08 07 | 644 | 0.1− | 0.2+ | 2008 07 28 | G96 | 0.0 | 0.1− | | | | |
| 2004 08 07 | 644 | 1.0+ | 0.6− | 2008 07 28 | G96 | 0.1− | 0.2− | | | | |

**(228343)∗ 2000 SN$_{139}$**

Discovered 2000 Sept. 23 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 81.07957 | | (2000.0) | | | |
| $n$ | 0.22865669 | $\omega$ | 97.71800 | | +0.88737181 | +0.42279295 |
| $a$ | 2.6485821 | $\Omega$ | 237.44325 | | −0.45961692 | +0.84266695 |
| $e$ | 0.2288554 | $i$ | 12.60216 | | +0.03638057 | +0.33340446 |
| $P$ | 4.31 | $H$ | 15.1 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 08 | 699 | 1.0− | 0.8+ | 2000 11 20 | 704 | 0.6+ | 0.6+ | 2004 09 14 | 704 | (0.8+ | 1.8+) |
| 2000 09 08 | 699 | 0.4− | 0.1− | 2000 11 20 | 704 | 0.1− | 0.3− | 2004 09 14 | 704 | 1.1+ | 0.6+ |
| 2000 09 08 | 699 | 0.1+ | 0.2+ | 2000 11 27 | 704 | 0.2+ | 0.1− | 2004 09 14 | 704 | 0.0 | 0.8− |
| 2000 09 08 | 699 | 0.2− | 0.4+ | 2000 11 27 | 704 | 0.3+ | 0.4+ | 2004 10 07 | 704 | 0.4− | 0.7− |
| 2000 09 23 | 704 | 0.2+ | 0.1− | 2000 11 27 | 704 | 0.0 | 0.0 | 2004 10 07 | 704 | 0.1+ | 0.2− |
| 2000 09 23 | 704 | 0.3+ | 0.1− | 2000 11 27 | 704 | 0.7+ | 0.4+ | 2004 10 07 | 704 | 0.0 | 0.3− |
| 2000 09 23 | 704 | 0.1− | 0.2+ | 2000 11 27 | 704 | 1.0− | 0.3− | 2004 10 11 | 644 | 0.7+ | 0.3+ |
| 2000 09 23 | 704 | 0.1− | 0.1+ | 2000 11 27 | 704 | 0.1− | 0.5+ | 2004 10 11 | 644 | 0.6+ | 0.2+ |
| 2000 09 28 | 704 | 0.4+ | 0.1+ | 2000 11 27 | 704 | 1.5− | 0.4+ | 2004 10 11 | 644 | 0.5+ | 0.2− |
| 2000 09 28 | 704 | 0.1+ | 0.3− | 2000 11 27 | 704 | 0.3− | 0.5+ | 2008 06 28 | B03 | 1.0+ | 0.8+ |
| 2000 09 28 | 704 | 0.2+ | 0.2− | 2000 11 27 | 704 | 1.0− | 0.3+ | 2008 06 28 | B03 | (0.7− | 1.7+) |
| 2000 09 28 | 704 | 0.5+ | 0.4− | 2000 12 20 | 704 | 0.5+ | 0.3+ | 2008 06 28 | B03 | 0.2− | 0.7+ |
| 2000 09 30 | 704 | 0.2− | 0.5− | 2000 12 20 | 704 | 0.3− | 0.7+ | 2008 07 03 | 703 | (1.2+ | 1.6+) |
| 2000 09 30 | 704 | 0.4− | 0.5− | 2000 12 20 | 704 | 1.4+ | 0.8+ | 2008 07 03 | 703 | (0.8− | 1.9+) |
| 2000 09 30 | 704 | 0.2+ | 0.4− | 2004 06 13 | 704 | 0.7+ | 1.2+ | 2008 07 03 | 703 | 0.3− | 0.5+ |
| 2000 09 30 | 704 | 0.1+ | 1.4− | 2004 06 13 | 704 | (0.3− | 1.6+) | 2008 07 03 | 703 | (0.4+ | 1.8+) |
| 2000 10 03 | 704 | 0.6− | 0.7− | 2004 06 13 | 704 | 0.0 | 1.4+ | 2008 10 05 | B03 | 1.0− | 0.6− |
| 2000 10 03 | 704 | 0.3− | 0.2− | 2004 06 13 | 704 | 0.9− | 0.0 | 2009 11 18 | 691 | 0.3− | 0.6+ |
| 2000 10 03 | 704 | 0.2− | 0.6− | 2004 06 13 | 704 | 0.1+ | 0.7+ | 2009 11 18 | 704 | 1.0− | 0.3+ |
| 2000 10 03 | 704 | 0.2− | 0.5− | 2004 06 15 | 683 | 0.3+ | 1.5− | 2009 11 18 | 691 | 0.2− | 0.2− |
| 2000 10 03 | 704 | 0.3− | 0.4− | 2004 06 15 | 683 | (2.9− | 2.6−) | 2009 11 18 | 691 | 0.3− | 0.1− |
| 2000 10 25 | 704 | 0.7+ | 0.3+ | 2004 06 15 | 683 | 0.4− | 0.0 | 2009 11 18 | 704 | 0.1+ | 0.0 |
| 2000 10 25 | 704 | 0.2− | 0.2+ | 2004 06 20 | 704 | 0.2− | 0.7− | 2009 11 18 | 704 | 0.3+ | 0.3− |
| 2000 10 25 | 704 | 0.0 | 0.3+ | 2004 06 20 | 704 | 0.7− | 0.3− | 2009 11 18 | 704 | 0.0 | 0.7+ |
| 2000 10 25 | 704 | 0.2− | 0.5+ | 2004 06 20 | 704 | 0.0 | 0.4− | 2009 11 20 | 704 | (1.6+ | 0.7−) |
| 2000 10 25 | 704 | 0.3− | 0.1+ | 2004 06 20 | 704 | 0.3− | 0.2+ | 2009 11 20 | 704 | 0.1− | 0.2− |
| 2000 11 01 | 704 | 0.5+ | 0.7− | 2004 06 20 | 704 | 0.7− | 0.1− | 2009 11 20 | 704 | 0.3+ | 0.2− |
| 2000 11 01 | 704 | 1.3+ | 0.1− | 2004 08 12 | 644 | 0.1+ | 0.1+ | 2009 11 20 | 704 | 0.3+ | 0.2+ |
| 2000 11 01 | 704 | 0.4+ | 0.7− | 2004 08 12 | 644 | 0.2− | 0.5+ | 2009 11 20 | 704 | 1.1+ | 0.4− |
| 2000 11 01 | 704 | 0.7+ | 0.5+ | 2004 08 12 | 644 | 0.3− | 0.0 | 2009 12 11 | 703 | 0.9− | 0.1− |
| 2000 11 01 | 704 | 0.5+ | 0.6+ | 2004 08 12 | 644 | 0.2+ | 0.3+ | 2009 12 11 | 703 | 0.1− | 0.4+ |
| 2000 11 16 | 699 | 1.0− | 0.1+ | 2004 08 12 | 644 | 0.4− | 0.0 | 2009 12 11 | 703 | 0.1− | 0.2+ |
| 2000 11 16 | 699 | 0.6− | 0.1+ | 2004 08 12 | 644 | 0.6− | 0.0 | 2009 12 11 | 703 | 0.2+ | 0.6− |
| 2000 11 16 | 699 | 0.2− | 0.8+ | 2004 09 09 | 644 | 0.1+ | 0.2− | 2009 12 12 | 704 | 1.0+ | 1.2− |
| 2000 11 16 | 699 | 0.9− | 0.9+ | 2004 09 09 | 644 | 0.1+ | 0.0 | 2009 12 12 | 704 | 0.2+ | 1.1− |
| 2000 11 20 | 704 | 0.0 | 0.5− | 2004 09 09 | 644 | 0.0 | 0.5− | 2009 12 12 | 704 | 0.8+ | 0.7+ |
| 2000 11 20 | 704 | 0.6+ | 1.1+ | 2004 09 14 | 704 | 0.6+ | 0.3− | 2009 12 12 | 704 | 0.7+ | 0.2− |
| 2000 11 20 | 704 | 0.2+ | 1.0+ | 2004 09 14 | 704 | 0.4+ | 0.2− | | | | |

**(228344)∗ 2000 SN$_{145}$ = 2004 RM$_{49}$**

Discovered 2000 Sept. 24 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 68728)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 102.81185 | | (2000.0) | | | |
| $n$ | 0.23856524 | $\omega$ | 345.89821 | | +0.98780872 | +0.15542930 |
| $a$ | 2.5747275 | $\Omega$ | 5.18371 | | −0.13186455 | +0.86512914 |
| $e$ | 0.2353593 | $i$ | 5.52507 | | −0.08273862 | +0.47685773 |
| $P$ | 4.13 | $H$ | 16.0 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 24 | 704 | 0.1+ | 0.2− | 2004 09 08 | 704 | 0.5+ | 0.5− | 2004 10 09 | 704 | 0.5+ | 1.2+ |
| 2000 09 24 | 704 | 0.1+ | 0.4− | 2004 09 09 | 704 | 0.2− | 0.9+ | 2004 10 11 | 691 | 0.0 | 0.1+ |
| 2000 09 24 | 704 | 0.2+ | 0.2− | 2004 09 09 | 704 | 0.3− | 0.9+ | 2004 10 11 | 691 | 0.3− | 0.2− |
| 2000 09 24 | 704 | 0.1− | 0.4− | 2004 09 09 | 704 | 0.0 | 0.8+ | 2004 10 11 | 691 | 0.0 | 0.1+ |
| 2000 09 24 | 704 | 0.2− | 0.3+ | 2004 09 09 | 704 | 0.5− | 0.7+ | 2004 10 18 | 704 | 1.4+ | 0.8− |
| 2000 09 25 | 699 | 0.5− | 0.3+ | 2004 09 09 | 704 | 0.5+ | 1.1+ | 2004 10 18 | 704 | 0.3− | 0.5+ |
| 2000 09 25 | 699 | 0.1+ | 0.4+ | 2004 09 09 | 704 | 0.4+ | 0.1− | 2004 10 18 | 704 | 0.7+ | 0.8− |
| 2000 09 25 | 699 | 0.9− | 0.5+ | 2004 09 09 | 704 | 0.4− | 0.2− | 2004 10 18 | 704 | 0.3− | 0.3− |
| 2000 09 25 | 699 | 0.9− | 1.0+ | 2004 09 09 | 704 | 0.4+ | 0.1+ | 2004 10 18 | 704 | 0.5− | 0.8− |
| 2000 09 25 | 608 | 1.3+ | 1.1+ | 2004 09 09 | 699 | 0.0 | 0.5+ | 2004 11 02 | 699 | 0.6− | 0.6+ |
| 2000 09 25 | 608 | 1.0+ | 1.4+ | 2004 09 09 | 704 | 0.7− | 0.4− | 2004 11 02 | 699 | 0.5+ | 0.4− |
| 2000 09 25 | 608 | 1.2+ | 1.1+ | 2004 09 09 | 699 | 0.4+ | 0.3+ | 2004 11 02 | 699 | 1.0− | 0.8+ |
| 2000 09 28 | 704 | 0.3− | 0.0 | 2004 09 09 | 704 | 0.3+ | 0.1+ | 2004 11 02 | 699 | 1.0− | 0.5+ |
| 2000 09 28 | 704 | 0.6− | 0.1− | 2004 09 09 | 699 | 0.1− | 0.3+ | 2007 04 18 | G96 | 0.4+ | 0.3+ |
| 2000 09 28 | 704 | 0.1+ | 0.3− | 2004 09 09 | 699 | 0.2+ | 0.2+ | 2007 04 18 | G96 | 0.2− | 0.3+ |
| 2000 10 02 | 704 | 0.4+ | 0.2− | 2004 09 11 | 691 | 0.2− | 0.2− | 2007 04 18 | G96 | 0.1− | 0.2+ |
| 2000 10 02 | 704 | 0.1− | 0.6− | 2004 09 11 | 691 | 0.1− | 0.0 | 2007 04 18 | G96 | 0.0 | 0.1+ |
| 2000 10 02 | 704 | 0.6+ | 0.4− | 2004 09 11 | 691 | 0.1− | 0.1+ | 2007 04 24 | 291 | 0.3+ | 0.2+ |
| 2000 10 02 | 704 | 0.1+ | 0.5− | 2004 09 13 | 699 | 0.1− | 0.0 | 2007 04 24 | 291 | 0.1+ | 0.2+ |
| 2000 10 02 | 704 | 0.1+ | 0.1− | 2004 09 13 | 699 | 0.2− | 0.1− | 2007 04 24 | 291 | 0.6+ | 0.2+ |
| 2000 10 06 | 699 | 0.5− | 0.7− | 2004 09 13 | 699 | 0.1+ | 0.4− | 2007 04 25 | 291 | 0.1+ | 0.5+ |
| 2000 10 06 | 699 | 0.3− | 0.5− | 2004 09 13 | 699 | 0.2− | 0.0 | 2007 04 25 | 291 | 0.3+ | 0.8+ |
| 2000 10 06 | 699 | 0.5+ | 1.9− | 2004 09 14 | 699 | 0.3+ | 0.0 | 2007 04 25 | 291 | 0.4− | 0.7− |
| 2000 10 06 | 699 | 0.0 | 0.3− | 2004 09 14 | 699 | 0.0 | 0.0 | 2008 08 23 | 704 | 0.3− | 0.8− |
| 2000 10 06 | 699 | 0.4− | 0.0 | 2004 09 14 | 699 | 0.3− | 0.5+ | 2008 08 23 | 704 | 0.7− | 0.7− |
| 2000 10 06 | 699 | 0.4− | 0.2− | 2004 09 14 | 699 | 0.1− | 0.4+ | 2008 08 23 | 704 | 0.4+ | 1.1+ |
| 2000 10 06 | 699 | 0.4− | 1.4− | 2004 09 17 | 704 | 0.2− | 0.1+ | 2008 08 23 | 704 | 0.7− | 0.1+ |
| 2000 10 06 | 699 | 0.6− | 0.3− | 2004 09 17 | 704 | 0.4− | 0.7− | 2008 08 23 | 704 | 0.6− | 0.7− |
| 2000 10 25 | 704 | 0.9− | 0.7+ | 2004 09 17 | 704 | 0.1− | 0.2− | 2008 08 23 | E12 | 0.2+ | 0.5− |
| 2000 10 25 | 704 | (3.5− | 1.4+) | 2004 09 17 | 704 | 0.1+ | 0.3+ | 2008 08 23 | E12 | 0.0 | 0.4− |
| 2000 10 25 | 704 | 1.1− | 1.5+ | 2004 09 17 | 704 | 0.2− | 0.2+ | 2008 08 23 | E12 | 0.0 | 0.5− |
| 2000 10 31 | 704 | 0.2− | 0.2+ | 2004 09 22 | 691 | 0.1− | 0.2+ | 2008 08 23 | E12 | 0.1− | 0.3− |
| 2000 10 31 | 704 | 1.3+ | 0.0 | 2004 09 22 | 691 | 0.1+ | 0.2+ | 2008 09 02 | 704 | (1.2− | 1.8−) |
| 2000 10 31 | 704 | 0.1− | 0.7− | 2004 09 22 | 691 | 0.0 | 0.0 | 2008 09 02 | 704 | 0.5+ | 0.7− |
| 2000 10 31 | 704 | 0.1− | 0.3− | 2004 10 05 | 699 | 1.1+ | 0.6+ | 2008 09 02 | 704 | (1.9+ | 0.8−) |
| 2000 10 31 | 704 | 0.3− | 0.4+ | 2004 10 05 | 699 | 0.6+ | 0.3− | 2008 09 02 | 704 | 0.4+ | 1.1− |
| 2000 11 03 | 704 | 0.3− | 0.3− | 2004 10 05 | 699 | 0.4− | 0.4− | 2008 09 02 | 704 | (1.2+ | 2.5−) |
| 2000 11 03 | 704 | 0.0 | 0.4− | 2004 10 05 | 699 | 0.4+ | 0.4− | 2008 09 23 | 704 | 0.5+ | 0.7− |
| 2000 11 03 | 704 | 1.1− | 0.0 | 2004 10 07 | 704 | 0.1+ | 1.2+ | 2008 09 23 | 704 | 0.3+ | 0.3− |
| 2000 11 03 | 704 | 0.7+ | 1.4+ | 2004 10 07 | 704 | 0.4+ | 0.7+ | 2008 09 23 | 704 | 0.2− | 0.2+ |
| 2004 07 11 | 704 | 0.4− | 0.3+ | 2004 10 07 | 704 | 0.1− | 0.2+ | 2009 09 28 | G96 | 0.1+ | 0.1+ |
| 2004 07 11 | 704 | 0.7− | 0.4+ | 2004 10 07 | 704 | 0.1+ | 0.1+ | 2009 09 28 | G96 | 1.4+ | 1.5− |
| 2004 07 11 | 704 | 0.2− | 0.4+ | 2004 10 07 | 704 | 0.2+ | 0.4+ | 2009 09 28 | G96 | 0.0 | 0.0 |
| 2004 09 08 | 704 | 0.3+ | 0.3− | 2004 10 09 | 704 | 0.1+ | 0.7+ | 2009 09 28 | G96 | 0.8+ | 0.7− |
| 2004 09 08 | 704 | 0.1+ | 0.6− | 2004 10 09 | 704 | 0.1+ | 0.7+ | 2009 12 20 | 691 | 0.0 | 0.2+ |
| 2004 09 08 | 704 | 0.0 | 0.6− | 2004 10 09 | 704 | 0.2+ | 0.9+ | 2009 12 20 | 691 | 0.3− | 0.1+ |
| 2004 09 08 | 704 | 0.6+ | 0.5− | 2004 10 09 | 704 | 0.6+ | 0.0 | 2009 12 20 | 691 | 0.1− | 0.1+ |

**(228345)∗ 2000 SG$_{180}$**

Discovered 2000 Sept. 28 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 55.95512 | | (2000.0) | | | |
| $n$ | 0.22984983 | $\omega$ | 26.52903 | | +0.89093193 | −0.45413258 |
| $a$ | 2.6394084 | $\Omega$ | 0.49331 | | +0.36518910 | +0.71384206 |
| $e$ | 0.1797723 | $i$ | 13.25592 | | +0.26995780 | +0.53309766 |
| $P$ | 4.29 | $H$ | 15.7 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 22 | 699 | 0.4+ | 1.4+ | 2004 08 08 | 704 | 0.2+ | 0.8+ | 2004 09 21 | 704 | 0.1− | 0.1− |
| 2000 09 22 | 699 | 1.2+ | 0.4+ | 2004 08 08 | 704 | 0.1+ | 0.1− | 2004 09 21 | 704 | 1.2− | 0.9− |
| 2000 09 22 | 699 | 1.2+ | 0.2− | 2004 08 08 | 704 | 0.1− | 1.2− | 2004 09 21 | 704 | 0.7− | 0.8+ |
| 2000 09 22 | 699 | 0.2+ | 0.3+ | 2004 08 21 | 703 | 0.3− | 0.2+ | 2004 10 04 | 699 | 0.9− | 1.0− |
| 2000 09 28 | 704 | 0.4+ | 0.5− | 2004 08 21 | 703 | 0.7− | 0.2+ | 2004 10 04 | 699 | 0.5− | 0.2+ |
| 2000 09 28 | 704 | 0.7− | 0.2− | 2004 08 21 | 703 | 1.0− | 0.0 | 2004 10 04 | 699 | 0.2+ | 0.7+ |
| 2000 09 28 | 704 | 0.1+ | 0.2− | 2004 08 21 | 703 | 0.0 | 0.8− | 2004 10 04 | 699 | (1.7+ | 0.5+) |
| 2000 09 30 | 704 | 0.5+ | 0.3− | 2004 09 07 | 704 | 0.1− | 0.1+ | 2004 10 06 | 699 | 0.5− | 0.7+ |
| 2000 09 30 | 704 | 0.3− | 0.1− | 2004 09 07 | 704 | 0.4+ | 0.4+ | 2004 10 06 | 699 | 0.1− | 0.1+ |
| 2000 09 30 | 704 | 1.1− | 0.1+ | 2004 09 07 | 704 | 0.5− | 0.2+ | 2004 10 06 | 699 | 0.8+ | 0.8− |
| 2000 09 30 | 704 | 0.7− | 0.1− | 2004 09 07 | 704 | 0.6− | 0.4+ | 2004 10 06 | 699 | 0.6− | 0.2+ |
| 2000 10 02 | 704 | 0.2− | 0.3− | 2004 09 07 | 704 | 0.2+ | 0.1− | 2004 10 07 | 691 | 0.2+ | 0.1− |
| 2000 10 02 | 704 | 0.3− | 0.3− | 2004 09 09 | 704 | 0.4− | 0.6+ | 2004 10 07 | 691 | 0.0 | 0.1− |
| 2000 10 02 | 704 | 0.5− | 0.1− | 2004 09 09 | 704 | 0.0 | 0.4+ | 2004 10 07 | 691 | 0.1+ | 0.2− |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 10 02 | 704 | 0.3+ | 0.4− | 2004 09 09 | 704 | 0.3− | 0.3+ | 2004 10 10 | 644 | 0.1+ | 0.1+ |
| 2000 10 02 | 704 | 0.1+ | 0.8− | 2004 09 09 | 704 | 0.3− | 0.7+ | 2004 10 10 | 644 | 0.1+ | 0.3− |
| 2000 10 25 | 704 | 0.7− | 0.1− | 2004 09 09 | 704 | 0.5+ | 0.6+ | 2004 10 10 | 644 | 0.3+ | 0.0 |
| 2000 10 25 | 704 | 0.6− | 1.0+ | 2004 09 09 | 704 | 0.3− | 0.7+ | 2005 12 30 | 644 | 0.5+ | 0.4+ |
| 2000 10 25 | 704 | 1.4− | 0.0 | 2004 09 09 | 704 | 0.9− | 1.0+ | 2005 12 30 | 644 | 0.6+ | 0.6+ |
| 2000 11 01 | 704 | 1.0+ | 0.4− | 2004 09 09 | 704 | 0.3− | 0.6+ | 2005 12 30 | 644 | 0.8+ | 0.4+ |
| 2000 11 01 | 704 | 0.3− | 0.4+ | 2004 09 09 | 704 | 0.5− | 0.6+ | 2006 01 05 | 703 | 0.0 | 1.4− |
| 2000 11 01 | 704 | 0.3− | 0.7− | 2004 09 10 | 704 | 0.5+ | 0.2+ | 2006 01 05 | 703 | 0.6− | 0.3− |
| 2000 11 01 | 704 | 0.5− | 0.0 | 2004 09 10 | 704 | 0.3− | 0.4+ | 2006 01 05 | 703 | 0.7− | 0.7− |
| 2000 11 01 | 704 | 0.9+ | 0.8− | 2004 09 10 | 704 | 0.0 | 0.3− | 2006 01 05 | 703 | 0.5+ | 0.2− |
| 2000 11 02 | 704 | 0.4− | 0.0 | 2004 09 10 | 704 | 1.0+ | 0.1− | 2006 01 27 | 703 | 0.5− | 0.6+ |
| 2000 11 02 | 704 | 0.1+ | 0.2+ | 2004 09 10 | 704 | 0.8+ | 0.3− | 2006 01 27 | 703 | 1.0− | 0.3+ |
| 2000 11 02 | 704 | 0.5+ | 0.5− | 2004 09 11 | 704 | 0.4− | 0.4+ | 2006 01 27 | 703 | 1.0+ | 0.9+ |
| 2000 11 02 | 704 | 0.2+ | 0.3− | 2004 09 11 | 704 | 0.2− | 0.5+ | 2006 01 27 | 703 | 0.4− | 0.8+ |
| 2000 11 02 | 704 | 0.6+ | 0.3− | 2004 09 11 | 704 | 0.8+ | 0.0 | 2006 05 03 | G96 | 0.8+ | 0.3+ |
| 2000 11 16 | 699 | 0.4− | 0.2− | 2004 09 11 | 704 | 0.4− | 0.2+ | 2006 05 03 | G96 | 0.5+ | 0.5+ |
| 2000 11 16 | 699 | 0.6+ | 0.3+ | 2004 09 11 | 704 | 0.2− | 0.2+ | 2006 05 03 | G96 | 0.2− | 0.8+ |
| 2000 11 16 | 699 | 0.1− | 0.0 | 2004 09 15 | 699 | 0.2+ | 0.2− | 2006 05 03 | G96 | 0.4+ | 0.4+ |
| 2000 11 16 | 699 | 0.6− | 0.4+ | 2004 09 15 | 699 | 0.2− | 0.4+ | 2008 06 28 | E12 | 0.4− | 0.3+ |
| 2000 11 19 | 704 | 0.1+ | 1.0+ | 2004 09 15 | 699 | 1.0+ | 0.3− | 2008 06 28 | E12 | 0.4+ | 0.2+ |
| 2000 11 19 | 704 | 0.1− | 0.0 | 2004 09 15 | 699 | 0.9+ | 0.8− | 2008 06 28 | E12 | 0.3− | 0.3+ |
| 2000 11 19 | 704 | 0.3+ | 0.1− | 2004 09 17 | 704 | 0.1+ | 0.8− | 2008 06 28 | E12 | 0.7− | 0.7+ |
| 2000 11 19 | 704 | 0.3+ | 0.2− | 2004 09 17 | 704 | 0.8+ | 1.2− | 2009 11 27 | 703 | 0.3+ | 1.3+ |
| 2000 11 19 | 704 | 0.5− | 1.1− | 2004 09 17 | 704 | 0.2+ | 1.2− | 2009 11 27 | 703 | 0.4− | 0.1+ |
| 2000 12 30 | 704 | 0.4− | 1.1− | 2004 09 17 | 704 | 0.7− | 0.3− | 2009 11 27 | 703 | 0.4+ | 0.4+ |
| 2000 12 30 | 704 | 0.8+ | 0.1+ | 2004 09 17 | 704 | 0.6+ | 0.5− | 2009 11 27 | 703 | 0.4+ | 0.2+ |
| 2000 12 30 | 704 | 0.4+ | 0.6+ | 2004 09 21 | 704 | 0.3− | 0.8+ | 2009 12 20 | 703 | 0.3− | 0.1− |
| 2000 12 30 | 704 | 0.3− | 0.3+ | 2004 09 21 | 704 | 0.0 | 0.8+ | 2009 12 20 | 703 | 0.3+ | 0.1− |
| 2000 12 30 | 704 | 2.0+ | 1.6+ | 2004 09 21 | 704 | 0.1+ | 0.5− | 2009 12 20 | 703 | 0.2− | 0.1− |
| 2004 08 07 | 644 | 0.1+ | 0.1+ | 2004 09 21 | 704 | 0.4− | 0.1+ | 2009 12 20 | 703 | 0.5+ | 0.5+ |
| 2004 08 07 | 644 | 0.2+ | 0.3+ | 2004 09 21 | 704 | 1.1+ | 0.1+ | | | | |
| 2004 08 07 | 644 | 0.5+ | 0.4+ | 2004 09 21 | 704 | 0.4− | 0.4+ | | | | |

**(228346)∗ 2000 SG$_{184}$**

Discovered 2000 Sept. 20 by NEAT at Haleakala.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 78.43754 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23513287 | $\omega$ | 86.78956 | | +0.97595166 | | +0.07286147 |
| $a$ | 2.5997234 | $\Omega$ | 268.96343 | | −0.14920003 | | +0.91040502 |
| $e$ | 0.2469752 | $i$ | 11.85779 | | +0.15892675 | | +0.40725165 |
| $P$ | 4.19 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 06 | 704 | 0.5− | 0.2+ | 2000 10 04 | 704 | 0.1+ | 0.0 | 2004 10 07 | 704 | 1.2− | 0.6− |
| 2000 09 06 | 704 | 0.6− | 0.3− | 2000 10 04 | 704 | 0.1+ | 0.3− | 2004 10 07 | 704 | 0.1+ | 0.0 |
| 2000 09 06 | 704 | 0.2− | 0.0 | 2000 10 04 | 704 | 0.0 | 0.1− | 2004 10 07 | 704 | 0.7+ | 0.8+ |
| 2000 09 06 | 704 | 0.2− | 0.5− | 2000 11 01 | 704 | 0.4− | 0.0 | 2004 10 07 | 704 | 0.2− | 0.0 |
| 2000 09 06 | 704 | 0.3− | 0.0 | 2000 11 01 | 704 | 0.5− | 0.0 | 2004 10 07 | 704 | 0.1+ | 0.0 |
| 2000 09 20 | 608 | 0.6− | 0.5+ | 2000 11 01 | 704 | 0.8− | 0.4− | 2004 10 10 | 704 | 0.4+ | 0.4− |
| 2000 09 20 | 608 | 0.3− | 0.6+ | 2000 11 01 | 704 | 0.2+ | 0.2+ | 2004 10 10 | 704 | 0.3+ | 0.3+ |
| 2000 09 20 | 608 | 0.4− | 0.7+ | 2000 11 01 | 704 | 0.6− | 0.2− | 2004 10 10 | 704 | 0.1+ | 0.2+ |
| 2000 09 22 | 704 | 0.6− | 0.3− | 2000 11 25 | 699 | 0.9− | 0.0 | 2004 10 10 | 704 | 0.1− | 0.7− |
| 2000 09 22 | 704 | 0.1− | 0.3− | 2000 11 25 | 699 | 0.2− | 0.8− | 2004 10 10 | 704 | 0.8+ | 0.8− |
| 2000 09 22 | 704 | 0.3− | 0.3− | 2000 11 25 | 699 | 0.3− | 0.1+ | 2005 10 01 | G96 | 0.0 | 0.5− |
| 2000 09 22 | 704 | 0.1+ | 0.0 | 2000 11 25 | 699 | 0.1− | 1.1+ | 2005 10 01 | G96 | 0.3− | 0.2− |
| 2000 09 22 | 704 | 0.6+ | 0.3+ | 2002 02 13 | 645 | 0.1+ | 0.1+ | 2005 10 01 | G96 | 0.5− | 0.0 |
| 2000 09 25 | 699 | 1.3+ | 0.2− | 2002 02 13 | 645 | 0.0 | 0.1+ | 2005 10 01 | G96 | 0.7− | 0.5− |
| 2000 09 25 | 699 | (2.3+ | 0.3+) | 2004 06 16 | 704 | 0.3− | 0.3+ | 2005 10 05 | 691 | 0.2+ | 0.7+ |
| 2000 09 25 | 699 | 0.4+ | 0.1− | 2004 06 16 | 704 | 0.3− | 0.3+ | 2005 10 05 | 691 | 0.2+ | 0.1− |
| 2000 09 25 | 699 | 1.5+ | 0.2− | 2004 06 16 | 704 | 0.6+ | 0.6+ | 2005 10 05 | 691 | 0.4+ | 0.1+ |
| 2000 09 29 | 699 | 0.8+ | 0.0 | 2004 06 16 | 704 | 0.1− | 0.7+ | 2009 11 18 | G96 | 0.0 | 0.4− |
| 2000 09 29 | 699 | 0.7+ | 0.8− | 2004 07 09 | 644 | 0.1− | 0.5+ | 2009 11 18 | G96 | 0.0 | 0.1− |
| 2000 09 29 | 699 | 1.2+ | 0.1+ | 2004 07 09 | 644 | 0.0 | 0.5+ | 2009 11 18 | G96 | 0.1− | 0.3− |
| 2000 09 29 | 699 | 1.8+ | 0.5− | 2004 07 09 | 644 | 0.1+ | 0.5+ | 2009 11 18 | G96 | 0.0 | 0.1− |
| 2000 09 30 | 704 | 0.3+ | 0.7+ | 2004 07 17 | 704 | 0.4− | 1.4+ | 2009 12 17 | 704 | 1.2+ | 1.2+ |
| 2000 09 30 | 704 | 1.0− | 0.1− | 2004 07 17 | 704 | 0.9− | 0.7+ | 2009 12 17 | 704 | 0.5+ | 0.4+ |
| 2000 09 30 | 704 | 0.5− | 0.8+ | 2004 07 17 | 704 | 0.1+ | 0.6+ | 2009 12 17 | 704 | 0.7+ | 1.0+ |
| 2000 09 30 | 704 | 0.8− | 0.7+ | 2004 08 09 | 704 | 0.3− | 0.0 | 2009 12 19 | 691 | 0.3− | 0.0 |
| 2000 09 30 | 704 | 0.3− | 0.2+ | 2004 08 09 | 704 | 0.2− | 0.1− | 2009 12 19 | 691 | 0.1− | 0.0 |
| 2000 10 04 | 704 | 0.1− | 0.0 | 2004 08 09 | 704 | 1.0− | 0.7− | 2009 12 19 | 691 | 0.1− | 0.1− |
| 2000 10 04 | 704 | 0.1+ | 0.3− | 2004 08 09 | 704 | 0.4+ | 0.0 | | | | |

**(228347)∗ 2000 SK$_{198}$ = 2002 CL$_{91}$**

Discovered 2000 Sept. 24 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. A. Doppler (*MPO* 25222)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 35.29256 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23563417 | $\omega$ | 50.34823 | | +0.51983266 | | −0.85424384 |
| $a$ | 2.5960350 | $\Omega$ | 8.33813 | | +0.76954837 | | +0.46499363 |
| $e$ | 0.1421915 | $i$ | 2.54501 | | +0.37090338 | | +0.23248308 |
| $P$ | 4.18 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 24 | 699 | 0.3+ | 1.0+ | 2002 02 20 | 704 | (2.2+ | 2.3+) | 2006 01 31 | 691 | 0.0 | 0.1+ |
| 2000 09 24 | 699 | 0.4− | 0.0 | 2002 02 24 | 644 | 1.0+ | 0.6+ | 2006 01 31 | 691 | 0.2+ | 0.2+ |
| 2000 09 24 | 704 | 0.1− | 0.2+ | 2002 02 24 | 644 | 0.0 | 0.7+ | 2006 01 31 | 691 | 0.2+ | 0.1+ |
| 2000 09 24 | 699 | 0.2+ | 1.5+ | 2002 02 24 | 644 | 0.3− | 0.8+ | 2006 02 02 | 703 | 0.3+ | 0.2− |
| 2000 09 24 | 704 | 0.4+ | 0.7− | 2002 03 09 | 644 | 0.1+ | 0.5+ | 2006 02 02 | 703 | 0.7+ | 0.6− |
| 2000 09 24 | 699 | 0.4− | 0.3+ | 2002 03 09 | 644 | 0.4+ | 0.7+ | 2006 02 02 | 703 | 0.7− | 0.4+ |
| 2000 09 24 | 704 | 0.1− | 0.7+ | 2002 03 09 | 644 | 0.2+ | 0.1+ | 2006 02 02 | 703 | 0.1− | 0.3− |
| 2000 09 24 | 704 | 0.2+ | 0.0 | 2002 03 12 | 691 | 0.1− | 0.2+ | 2006 02 03 | 691 | 0.3− | 0.3+ |
| 2000 09 24 | 704 | 0.6+ | 0.7+ | 2002 03 12 | 691 | 0.1+ | 0.4+ | 2006 02 03 | 691 | 0.4− | 0.5+ |
| 2000 10 01 | 704 | 0.2− | 0.4+ | 2002 03 12 | 691 | 0.1− | 0.4+ | 2006 02 03 | 691 | 0.2− | 0.4+ |
| 2000 10 01 | 704 | 0.2− | 0.6+ | 2002 03 12 | 644 | 0.1− | 0.7+ | 2006 02 07 | G96 | 0.2− | 0.3− |
| 2000 10 01 | 704 | 0.6− | 0.5+ | 2002 03 12 | 644 | 0.1+ | 0.4+ | 2006 02 07 | G96 | 0.3− | 0.1− |
| 2000 10 01 | 704 | 0.3+ | 0.8+ | 2002 03 12 | 644 | 0.2+ | 0.5+ | 2006 02 07 | G96 | 0.1− | 0.1− |
| 2000 10 01 | 699 | 0.7+ | 1.1+ | 2004 08 21 | 703 | 1.2− | 0.0 | 2006 02 07 | G96 | 0.4− | 0.2− |
| 2000 10 01 | 699 | 0.3+ | 1.6+ | 2004 08 21 | 703 | 0.1− | 0.9+ | 2007 04 20 | G96 | 1.0− | 0.7+ |
| 2000 10 01 | 699 | 0.8− | 0.5+ | 2004 08 21 | 703 | (0.1− | 2.5+) | 2007 04 20 | G96 | 1.2+ | 0.1+ |
| 2000 10 01 | 699 | (2.1+ | 1.3+) | 2004 08 21 | 703 | 0.2− | 0.7+ | 2007 04 20 | G96 | 0.3+ | 1.4+ |
| 2000 10 02 | 704 | 0.4− | 0.0 | 2004 09 07 | 704 | 0.1− | 0.8+ | 2007 04 20 | G96 | 0.4− | 0.4+ |
| 2000 10 02 | 704 | 1.2+ | 0.5− | 2004 09 07 | 704 | (0.9+ | 2.1+) | 2008 10 27 | G96 | 0.5− | 0.2+ |
| 2000 10 02 | 704 | 0.7+ | 0.6+ | 2004 09 07 | 704 | (0.2+ | 1.6+) | 2008 10 27 | G96 | 0.0 | 0.4− |
| 2000 10 02 | 704 | 0.4− | 0.2+ | 2004 09 09 | 704 | 0.4+ | 0.2+ | 2008 10 27 | G96 | 0.5− | 0.1− |
| 2000 10 02 | 645 | 0.1− | 0.1− | 2004 09 09 | 704 | 0.9+ | 0.1+ | 2008 10 27 | G96 | 0.5− | 0.1− |
| 2000 10 02 | 645 | 0.1− | 0.1− | 2004 09 09 | 704 | 0.2− | 1.1+ | 2009 12 16 | 704 | 0.1+ | 1.3+ |
| 2000 10 02 | 704 | 0.2− | 0.3+ | 2004 10 04 | 691 | 0.1+ | 0.4+ | 2009 12 16 | 704 | 0.2+ | 0.7− |
| 2002 02 07 | 704 | 0.4+ | 1.2− | 2004 10 04 | 691 | 0.1− | 0.4+ | 2009 12 16 | 704 | 1.5− | 0.1+ |
| 2002 02 07 | 704 | 0.3+ | 0.2− | 2004 10 04 | 691 | 0.0 | 0.4+ | 2009 12 16 | 704 | (1.7− | 0.3−) |
| 2002 02 07 | 704 | 0.5+ | 0.1+ | 2006 01 23 | 691 | 0.1+ | 0.0 | 2009 12 18 | G96 | 0.1+ | 0.4− |
| 2002 02 07 | 704 | 0.0 | 0.8− | 2006 01 23 | 691 | 0.1+ | 0.0 | 2009 12 18 | G96 | 0.2+ | 0.4− |
| 2002 02 10 | 704 | 1.2+ | 0.1− | 2006 01 23 | 691 | 0.2+ | 0.0 | 2009 12 18 | G96 | 0.2− | 0.4− |
| 2002 02 10 | 704 | 0.5+ | 0.9+ | 2006 01 26 | 703 | 0.3− | 0.6− | 2009 12 18 | G96 | 0.0 | 0.5− |
| 2002 02 10 | 704 | 0.5+ | 1.1+ | 2006 01 26 | 703 | 0.5− | 0.5− | 2009 12 19 | 691 | 0.1− | 0.0 |
| 2002 02 10 | 704 | 0.9+ | 0.5+ | 2006 01 26 | 703 | 0.5− | 0.3+ | 2009 12 19 | 691 | 0.2− | 0.0 |
| 2002 02 12 | 704 | 0.0 | 0.2+ | 2006 01 26 | 703 | 1.0+ | 0.5− | 2009 12 19 | 691 | 0.5+ | 0.1+ |
| 2002 02 12 | 704 | 0.3+ | 0.1− | 2006 01 28 | G96 | 0.1+ | 0.5+ | 2009 12 27 | 691 | 0.4+ | 0.3− |
| 2002 02 12 | 704 | 0.1+ | 0.2− | 2006 01 28 | G96 | 0.1− | 0.2− | 2009 12 27 | 691 | 0.1+ | 0.2− |
| 2002 02 20 | 704 | 0.1− | 0.6+ | 2006 01 28 | G96 | 0.1+ | 0.2− | 2009 12 27 | 691 | 0.2− | 0.4− |
| 2002 02 20 | 704 | 0.9+ | 1.2+ | 2006 01 28 | G96 | 0.2− | 0.2− | | | | |

**(228348)∗ 2000 SY$_{224}$ = 2002 EJ$_{101}$**

Discovered 2000 Sept. 27 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. A. Doppler (*MPO* 29386)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 343.59330 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22814918 | $\omega$ | 260.80952 | | −0.11145327 | −0.99207227 | |
| $a$ | 2.6525085 | $\Omega$ | 195.94291 | | +0.97444004 | −0.09763199 | |
| $e$ | 0.1320738 | $i$ | 12.20252 | | +0.19505070 | −0.07912397 | |
| $P$ | 4.32 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 27 | 704 | 1.5+ | 0.6+ | 2002 03 14 | 644 | 0.0 | 0.3+ | 2009 11 17 | 704 | 0.4− | 0.7− |
| 2000 09 27 | 704 | 0.4+ | 0.8+ | 2007 04 14 | G96 | 0.2− | 0.1+ | 2009 11 17 | 704 | 0.4+ | 0.4+ |
| 2000 09 27 | 704 | 0.5− | 0.8− | 2007 04 14 | G96 | 0.0 | 0.0 | 2009 11 17 | 704 | 0.1+ | 0.4+ |
| 2000 10 01 | 704 | 0.7− | 0.4+ | 2007 04 14 | G96 | 0.4− | 0.2+ | 2009 11 17 | 704 | 0.5− | 0.6− |
| 2000 10 01 | 704 | 0.8− | 0.4+ | 2007 04 14 | G96 | 0.2− | 0.1+ | 2009 11 17 | 704 | 0.3− | 0.4+ |
| 2000 10 01 | 704 | 0.2− | 0.0 | 2007 04 23 | A50 | 0.1+ | 0.9− | 2009 11 17 | 704 | 0.2+ | 0.4+ |
| 2000 10 01 | 704 | 0.1− | 0.5+ | 2007 04 23 | A50 | 0.1− | 0.2− | 2009 11 17 | 704 | 0.6− | 0.4+ |
| 2000 10 01 | 704 | 0.8− | 0.3+ | 2007 04 24 | 691 | 0.3+ | 0.3+ | 2009 11 17 | 704 | 0.6+ | 0.3+ |
| 2000 10 02 | 704 | 0.5+ | 0.2− | 2007 04 24 | 691 | 0.0 | 0.2− | 2009 11 18 | J75 | 0.8+ | 0.1+ |
| 2000 10 02 | 704 | 0.9− | 0.5+ | 2007 04 24 | 691 | 0.1− | 0.1+ | 2009 11 18 | J75 | 0.2− | 0.1+ |
| 2000 10 02 | 704 | 0.4+ | 0.8+ | 2007 06 18 | 691 | 0.1+ | 0.2+ | 2009 11 18 | J75 | 0.2+ | 0.1− |
| 2000 10 02 | 704 | 0.4− | 0.3+ | 2007 06 18 | 691 | 0.1+ | 0.2− | 2009 11 22 | 703 | 0.6+ | 0.5− |
| 2000 10 02 | 704 | 1.5− | 0.4+ | 2007 06 18 | 691 | 0.1− | 0.4+ | 2009 11 22 | 703 | 0.5− | 0.7− |
| 2000 11 20 | 691 | 0.2+ | 0.0 | 2008 07 28 | G96 | 0.4+ | 0.1− | 2009 11 22 | 703 | 0.4− | 0.7− |
| 2000 11 20 | 691 | 0.3+ | 0.0 | 2008 07 28 | G96 | 0.1+ | 0.1+ | 2009 11 22 | 703 | 0.6+ | 0.6− |
| 2000 11 20 | 691 | 0.2+ | 0.1+ | 2008 07 28 | G96 | 0.3− | 0.0 | 2009 11 22 | 703 | 0.2+ | 0.2− |
| 2002 03 06 | 644 | 0.5+ | 0.4+ | 2008 07 28 | G96 | 0.1− | 0.3+ | 2009 11 23 | 703 | 0.6− | 0.1+ |
| 2002 03 06 | 644 | 0.4+ | 0.3+ | 2009 10 17 | 703 | (0.2− | 2.3−) | 2009 11 23 | 703 | 0.5+ | 0.7− |
| 2002 03 06 | 644 | 0.4+ | 0.5+ | 2009 10 17 | 703 | 1.0− | 0.6− | 2009 11 23 | 703 | 0.0 | 0.4− |
| 2002 03 10 | 699 | 0.6− | 0.5− | 2009 10 17 | 703 | (1.8− | 0.2+) | 2009 11 23 | 703 | 0.6− | 0.6− |
| 2002 03 10 | 699 | 0.2+ | 0.8− | 2009 10 17 | 703 | 0.5− | 0.3+ | 2009 12 10 | J75 | 0.3− | 0.6− |
| 2002 03 10 | 699 | 0.3+ | 1.2+ | 2009 11 14 | 704 | 0.5+ | 0.7+ | 2009 12 10 | J75 | 0.0 | 0.5− |
| 2002 03 10 | 699 | 1.0− | 0.2+ | 2009 11 14 | 704 | 0.5+ | 0.6+ | 2009 12 10 | J75 | 0.6+ | 0.1+ |
| 2002 03 14 | 644 | 0.0 | 0.7+ | 2009 11 14 | 704 | 0.2+ | 0.9+ | | | | |
| 2002 03 14 | 644 | 0.5+ | 1.2+ | 2009 11 14 | 704 | 0.4− | 1.5+ | | | | |

**(228349)∗ 2000 SU$_{278}$**

Discovered 2000 Sept. 30 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 32.45250 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22456680 | $\omega$ | 1.65661 | | +0.62825290 | −0.76553415 | |
| $a$ | 2.6806433 | $\Omega$ | 49.44925 | | +0.71169293 | +0.49343047 | |
| $e$ | 0.3041322 | $i$ | 10.52278 | | +0.31431109 | +0.41289689 | |
| $P$ | 4.39 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 11 | 699 | 0.4− | 0.1− | 2000 11 20 | 704 | 0.4+ | 0.0 | 2001 01 18 | 704 | 1.4− | 0.5+ |
| 2000 09 11 | 699 | 0.7− | 0.2− | 2000 11 20 | 704 | 0.0 | 0.2− | 2004 09 05 | E12 | 0.6+ | 0.1+ |
| 2000 09 11 | 699 | 1.5− | 0.2+ | 2000 11 20 | 704 | 0.1+ | 0.1− | 2004 09 05 | E12 | 0.5− | 0.3− |
| 2000 09 11 | 699 | 0.5− | 0.3− | 2000 11 20 | 704 | 0.3+ | 0.1− | 2004 09 05 | E12 | 0.7+ | 0.9− |
| 2000 09 30 | 704 | 0.2+ | 0.4− | 2000 11 26 | 739 | 0.3− | 0.6+ | 2004 09 05 | E12 | 0.3+ | 0.5+ |
| 2000 09 30 | 704 | 0.2− | 1.2+ | 2000 11 26 | 739 | 0.0 | 0.2− | 2004 09 15 | E12 | 0.0 | 0.2+ |
| 2000 09 30 | 704 | 0.0 | 1.4+ | 2000 11 26 | 739 | 0.2+ | 0.9− | 2004 09 15 | E12 | 0.2+ | 0.7− |
| 2000 10 02 | 704 | 0.0 | 0.1+ | 2000 11 29 | 704 | 0.0 | 0.3− | 2004 09 15 | E12 | 1.0− | 0.1− |
| 2000 10 02 | 704 | 0.1+ | 0.3+ | 2000 11 29 | 704 | 0.4− | 0.4− | 2004 09 15 | E12 | 0.3− | 0.2− |
| 2000 10 02 | 704 | 0.7− | 0.4+ | 2000 11 29 | 704 | 0.3− | 0.0 | 2007 04 15 | 691 | 0.1+ | 0.3− |
| 2000 10 07 | 704 | 1.0+ | 0.5+ | 2000 11 29 | 704 | 0.5− | 0.1+ | 2007 04 15 | 691 | 0.0 | 0.1− |
| 2000 10 07 | 704 | 0.4+ | 1.4+ | 2000 11 29 | 704 | 0.4− | 0.0 | 2007 04 15 | 691 | 0.1+ | 0.6+ |
| 2000 10 07 | 704 | 0.9+ | 1.4+ | 2000 12 16 | 699 | 0.3+ | 0.4− | 2007 05 09 | G96 | 0.0 | 0.3+ |
| 2000 10 07 | 704 | 0.7+ | 0.8+ | 2000 12 16 | 699 | 1.1+ | 0.6+ | 2007 05 09 | G96 | 0.2+ | 0.1+ |
| 2000 10 24 | 704 | 0.1− | 0.2+ | 2000 12 16 | 699 | 0.4− | 0.5− | 2007 05 09 | G96 | 0.4+ | 0.1− |
| 2000 10 24 | 704 | 0.0 | 0.2+ | 2000 12 16 | 699 | 0.5+ | 0.1− | 2007 05 09 | G96 | 0.5+ | 0.1+ |
| 2000 10 24 | 704 | 0.1+ | 0.0 | 2000 12 20 | 704 | 0.1− | 0.3− | 2007 05 09 | G96 | 0.1− | 0.0 |
| 2000 10 24 | 704 | 0.3+ | 0.1− | 2000 12 20 | 704 | 0.3− | 0.3− | 2007 05 09 | G96 | 0.1+ | 0.5+ |
| 2000 10 24 | 704 | 0.6+ | 0.0 | 2000 12 20 | 704 | 0.6− | 0.5+ | 2007 05 09 | G96 | 0.5− | 0.1+ |
| 2000 11 01 | 704 | 0.5− | 0.1− | 2000 12 20 | 704 | 0.2− | 0.2+ | 2007 05 09 | G96 | 0.1+ | 0.0 |
| 2000 11 01 | 704 | 0.1− | 0.3− | 2000 12 20 | 704 | 0.7− | 0.2− | 2007 05 10 | G96 | 0.0 | 0.2+ |
| 2000 11 01 | 704 | 0.2+ | 0.1− | 2000 12 30 | 704 | 0.7− | 0.5− | 2007 05 10 | G96 | 0.0 | 0.1− |
| 2000 11 01 | 704 | 0.4− | 0.1+ | 2000 12 30 | 699 | 0.1+ | 0.1+ | 2007 05 10 | G96 | 0.1+ | 0.6+ |
| 2000 11 01 | 704 | 0.3− | 0.1− | 2000 12 30 | 704 | 0.2+ | 0.2+ | 2007 05 10 | G96 | 0.2+ | 0.0 |
| 2000 11 02 | 704 | 0.0 | 0.2− | 2000 12 30 | 699 | 0.1+ | 0.1+ | 2009 11 28 | 941 | 0.6+ | 0.3− |
| 2000 11 02 | 704 | 0.2+ | 0.4− | 2000 12 30 | 704 | 0.9+ | 0.8+ | 2009 11 28 | 941 | 0.4+ | 0.2− |
| 2000 11 02 | 704 | 0.1− | 0.7− | 2000 12 30 | 699 | 0.5− | 0.2− | 2009 11 28 | 941 | 0.3+ | 0.1− |
| 2000 11 02 | 704 | 0.1+ | 0.9− | 2000 12 30 | 704 | 0.3− | 0.2+ | 2009 12 09 | 704 | 1.3− | 0.1− |
| 2000 11 15 | 739 | 0.0 | 0.7− | 2000 12 30 | 699 | 0.4− | 0.3− | 2009 12 09 | 704 | 0.7+ | 0.0 |
| 2000 11 15 | 739 | 0.3− | 0.3+ | 2000 12 30 | 704 | 0.4+ | 0.3+ | 2009 12 09 | 704 | 0.1− | 1.1+ |
| 2000 11 15 | 739 | 0.1+ | 0.5− | 2001 01 05 | 704 | (1.1− | 1.6−) | 2009 12 09 | 704 | 0.1+ | 0.2+ |
| 2000 11 18 | 699 | 0.2+ | 0.2+ | 2001 01 05 | 704 | 0.9− | 1.0− | 2009 12 16 | 703 | 0.5− | 0.7− |
| 2000 11 18 | 699 | 0.4+ | 0.2+ | 2001 01 05 | 704 | (2.3− | 0.3+) | 2009 12 16 | 703 | 0.5− | 0.2− |
| 2000 11 18 | 699 | 0.3+ | 1.0+ | 2001 01 18 | 704 | 0.2− | 0.5+ | 2009 12 16 | 703 | 0.3+ | 0.5− |
| 2000 11 18 | 699 | 1.5+ | 0.4+ | 2001 01 18 | 704 | 0.2− | 0.3− | 2009 12 16 | 703 | 0.2+ | 0.1+ |
| 2000 11 20 | 704 | 0.1− | 0.1− | 2001 01 18 | 704 | 0.3− | 0.5+ | | | | |

**(228350)∗ 2000 SV$_{282}$**

Discovered 2000 Sept. 23 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 36.07393 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22831178 | $\omega$ | 140.83115 | | +0.82639752 | −0.53975885 | |
| $a$ | 2.6512489 | $\Omega$ | 252.55560 | | +0.46511103 | +0.81488931 | |
| $e$ | 0.1791730 | $i$ | 9.67915 | | +0.31739386 | +0.21122451 | |
| $P$ | 4.32 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 05 | 699 | 0.5− | 0.1− | 2002 02 12 | 704 | 0.6+ | 0.0 | 2009 11 17 | 704 | 0.0 | 0.5+ |
| 2000 09 05 | 699 | 0.9− | 0.6− | 2002 02 12 | 704 | 0.7− | 0.7+ | 2009 11 17 | 691 | 0.1+ | 0.1− |
| 2000 09 05 | 699 | 0.0 | 0.2+ | 2002 02 12 | 704 | 0.0 | 0.3+ | 2009 11 17 | 691 | 0.2− | 0.3− |
| 2000 09 05 | 699 | 1.9− | 0.1+ | 2004 07 17 | 704 | 0.2− | 0.6+ | 2009 11 17 | 704 | 0.1+ | 0.6+ |
| 2000 09 23 | 704 | 0.3− | 0.1+ | 2004 07 17 | 704 | 0.4− | 1.3+ | 2009 11 17 | 704 | 0.2+ | 0.5+ |
| 2000 09 23 | 704 | 0.4− | 0.4− | 2004 07 17 | 704 | 0.0 | 0.1− | 2009 11 17 | 691 | 0.8− | 0.6+ |
| 2000 09 23 | 704 | 0.6+ | 0.7+ | 2004 08 13 | 644 | 0.0 | 0.1+ | 2009 11 17 | 691 | 0.1− | 0.4+ |
| 2000 09 23 | 704 | 0.7− | 0.5+ | 2004 08 13 | 644 | 0.0 | 0.1− | 2009 11 17 | 704 | 0.1− | 0.5+ |
| 2000 09 23 | 704 | 0.0 | 0.2+ | 2004 08 13 | 644 | 0.1− | 0.3+ | 2009 11 24 | J75 | 0.6+ | 0.4− |
| 2000 10 03 | 704 | 0.1− | 0.1− | 2009 11 09 | 691 | 0.1− | 0.3− | 2009 11 24 | J75 | 0.1− | 0.5− |
| 2000 10 03 | 704 | 0.4+ | 0.1− | 2009 11 09 | 691 | 0.3− | 0.1− | 2009 11 24 | J75 | 0.0 | 0.3− |
| 2000 10 03 | 704 | 0.4+ | 0.4− | 2009 11 09 | 691 | 0.1− | 0.3− | 2009 12 10 | G96 | 0.5+ | 0.1− |
| 2000 10 25 | 704 | 0.5+ | 0.0 | 2009 11 09 | G96 | 0.2+ | 0.1+ | 2009 12 10 | G96 | 0.6+ | 0.3− |
| 2000 10 25 | 704 | 1.1+ | 0.2+ | 2009 11 09 | G96 | 0.0 | 0.1+ | 2009 12 10 | G96 | 0.5+ | 0.2− |
| 2000 10 25 | 704 | 0.6+ | 0.9− | 2009 11 09 | G96 | 0.2− | 0.1+ | 2009 12 10 | G96 | 0.4+ | 0.2− |
| 2000 10 25 | 704 | 1.1+ | 0.4− | 2009 11 09 | G96 | 0.1− | 0.3− | 2009 12 10 | G96 | 0.4+ | 0.7+ |
| 2000 10 25 | 704 | 1.6+ | 0.5− | 2009 11 11 | 704 | 0.8+ | 0.5+ | 2009 12 10 | G96 | 0.9+ | 0.1− |
| 2000 11 01 | 704 | 0.4+ | 0.4+ | 2009 11 11 | 704 | 0.6+ | 0.1+ | 2009 12 10 | G96 | 0.6+ | 0.0 |
| 2000 11 01 | 704 | 0.3− | 0.1+ | 2009 11 11 | 704 | 0.3+ | 0.3− | 2009 12 10 | G96 | 0.4+ | 0.1− |
| 2000 11 01 | 704 | 0.8− | 0.5+ | 2009 11 11 | 704 | 0.2+ | 0.1− | 2009 12 17 | 704 | 0.1+ | 0.8+ |
| 2000 11 19 | 704 | 0.1− | 0.2+ | 2009 11 11 | 704 | 0.3+ | 0.0 | 2009 12 17 | 704 | 1.2+ | 0.2+ |
| 2000 11 19 | 704 | 0.2+ | 0.6− | 2009 11 17 | 704 | 0.4− | 0.4+ | 2009 12 17 | 704 | 0.1+ | 0.1+ |
| 2000 11 19 | 704 | 0.7− | 0.5− | 2009 11 17 | 691 | 0.4− | 0.0 | 2009 12 17 | 704 | 1.0+ | 0.8+ |
| 2002 02 12 | 704 | 0.4+ | 0.2− | 2009 11 17 | 691 | 0.5− | 0.1− | | | | |

**(228351)∗ 2000 SK$_{290}$ = 1996 XU$_{10}$**

Discovered 2000 Sept. 27 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. A. Doppler (*MPO* 6075), G. V. Williams (*ibid.*)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 57.33114 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23644066 | $\omega$ | 79.96913 | | +0.66480056 | −0.74615500 | |
| $a$ | 2.5901283 | $\Omega$ | 328.27082 | | +0.65580772 | +0.60599925 | |
| $e$ | 0.2585098 | $i$ | 3.92050 | | +0.35771002 | +0.27571292 | |
| $P$ | 4.17 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 11 19 | 691 | 0.3− | 0.4− | 2000 10 31 | 704 | 0.3− | 0.2− | 2004 09 18 | E12 | 0.7− | 0.7− |
| 1996 11 19 | 691 | 0.0 | 0.2− | 2000 10 31 | 704 | 0.8− | 0.7− | 2004 09 18 | E12 | 0.4+ | 0.1− |
| 1996 11 19 | 691 | 0.6− | 0.4− | 2004 08 23 | 691 | 0.2− | 0.2+ | 2004 09 18 | E12 | 0.7+ | 0.1− |
| 1996 12 02 | 691 | 0.1+ | 0.1− | 2004 08 23 | 691 | 0.2− | 0.2+ | 2004 09 18 | E12 | 0.1+ | 0.7− |
| 1996 12 02 | 691 | 0.2+ | 0.2− | 2004 08 23 | 691 | 0.4− | 0.3+ | 2004 09 21 | 704 | 1.1− | 0.3+ |
| 1996 12 02 | 691 | 0.3− | 0.1+ | 2004 08 26 | 703 | (1.8− | 3.3−) | 2004 09 21 | 704 | 0.4− | 0.8+ |
| 1996 12 09 | 691 | 0.1+ | 0.1+ | 2004 08 26 | 703 | 0.6+ | 0.5− | 2004 09 21 | 704 | (1.9− | 0.3−) |
| 1996 12 09 | 691 | 0.3+ | 0.1− | 2004 08 26 | 703 | 0.8− | 0.1+ | 2004 09 21 | 704 | 1.1− | 1.0− |
| 1996 12 09 | 691 | 0.4+ | 0.1+ | 2004 08 26 | 703 | (2.1− | 0.1+) | 2004 10 11 | 695 | 0.1− | 0.1− |
| 2000 09 03 | 704 | 0.2+ | 0.6+ | 2004 09 08 | 704 | 0.1+ | 0.7+ | 2004 10 11 | 695 | 0.2− | 0.1− |
| 2000 09 03 | 704 | 0.0 | 0.9− | 2004 09 08 | 704 | 0.7− | 0.4+ | 2006 01 22 | 691 | 0.2− | 0.1− |
| 2000 09 03 | 704 | 0.5+ | 0.7+ | 2004 09 08 | 704 | 0.6− | 0.7+ | 2006 01 22 | 691 | 0.2+ | 0.6+ |
| 2000 09 03 | 704 | 0.3− | 0.2− | 2004 09 08 | 704 | 0.6− | 0.4+ | 2006 01 22 | 691 | 0.2− | 0.0 |
| 2000 09 26 | 699 | 0.3− | 0.8+ | 2004 09 08 | 704 | 0.1+ | 1.2+ | 2006 03 03 | 691 | 0.7+ | 0.4+ |
| 2000 09 26 | 699 | 0.8− | 0.4+ | 2004 09 09 | 704 | 0.1+ | 0.2+ | 2006 03 03 | 691 | 0.5+ | 0.6+ |
| 2000 09 26 | 699 | 1.1− | 0.4+ | 2004 09 09 | 704 | 0.0 | 0.3+ | 2006 03 03 | 691 | 0.5+ | 0.7+ |
| 2000 09 26 | 699 | 1.2− | 1.7+ | 2004 09 09 | 704 | 1.3+ | 0.3+ | 2006 03 05 | 291 | 0.1− | 0.3+ |
| 2000 09 27 | 704 | 0.4+ | 1.2+ | 2004 09 09 | 704 | 0.9− | 0.6+ | 2006 03 05 | 291 | 0.2+ | 0.3+ |
| 2000 09 27 | 704 | 0.5+ | 0.9− | 2004 09 09 | 704 | 0.1− | 0.3+ | 2006 03 05 | 291 | 0.2+ | 0.4+ |
| 2000 09 27 | 704 | 0.7+ | 0.2+ | 2004 09 09 | 699 | (1.1+ | 1.9−) | 2008 09 06 | G96 | 0.0 | 0.0 |
| 2000 10 03 | 704 | 0.1+ | 0.2+ | 2004 09 09 | 699 | 0.2+ | 0.2+ | 2008 09 06 | G96 | 0.1− | 0.2− |
| 2000 10 03 | 704 | 0.8+ | 1.0+ | 2004 09 09 | 699 | (1.7+ | 0.7−) | 2008 09 06 | G96 | 0.3− | 0.4− |
| 2000 10 03 | 704 | 0.3+ | 1.0+ | 2004 09 09 | 699 | 0.3− | 0.5− | 2008 09 06 | G96 | 0.4− | 0.4− |
| 2000 10 03 | 704 | 0.2+ | 0.6+ | 2004 09 16 | 691 | 0.1+ | 0.1− | 2009 11 19 | 691 | 0.3+ | 0.1+ |
| 2000 10 03 | 704 | 0.1+ | 0.3+ | 2004 09 16 | 691 | 0.1+ | 0.1+ | 2009 11 19 | 691 | 0.0 | 0.1− |
| 2000 10 25 | 704 | 0.2+ | 0.6+ | 2004 09 16 | 691 | 0.1− | 0.2+ | 2009 11 19 | 691 | 0.3− | 0.7+ |
| 2000 10 25 | 704 | 0.9+ | 1.9+ | 2004 09 17 | 704 | 0.6+ | 0.8− | 2009 12 20 | G96 | 0.4+ | 0.4+ |
| 2000 10 25 | 704 | 1.1+ | 0.0 | 2004 09 17 | 704 | (0.1+ | 1.6+) | 2009 12 20 | G96 | 0.0 | 0.0 |
| 2000 10 25 | 704 | 0.3− | 0.3+ | 2004 09 17 | 704 | 0.7+ | 1.3+ | 2009 12 20 | G96 | 0.0 | 0.2+ |
| 2000 10 31 | 704 | 0.0 | 0.2− | 2004 09 17 | 704 | 0.3− | 1.1+ | 2009 12 20 | G96 | 0.1+ | 0.0 |
| 2000 10 31 | 704 | 0.2− | 0.8− | 2004 09 17 | 704 | 0.2+ | 0.4− | | | | |

**(228352)∗ 2000 SX$_{303}$**

Discovered 2000 Sept. 28 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 59.24060 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22504506 | $\omega$ | 25.39739 | | +0.99060563 | +0.11933872 | |
| $a$ | 2.6768440 | $\Omega$ | 327.53128 | | −0.13674499 | +0.86037788 | |
| $e$ | 0.2844913 | $i$ | 7.14516 | | −0.00114079 | +0.49548781 | |
| $P$ | 4.38 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 03 | 704 | 0.1− | 0.8+ | 2000 11 30 | 704 | 0.9+ | 0.4+ | 2004 09 07 | 704 | 0.4+ | 0.4+ |
| 2000 09 03 | 704 | 0.7− | 1.6+ | 2000 11 30 | 704 | 0.4+ | 0.6− | 2004 09 07 | 704 | 1.0+ | 1.0+ |
| 2000 09 03 | 704 | 0.5− | 0.9− | 2000 11 30 | 704 | 0.6+ | 0.2+ | 2004 09 09 | 704 | 0.5− | 0.2+ |
| 2000 09 03 | 704 | 1.3+ | 0.7− | 2000 11 30 | 704 | 0.2− | 0.7+ | 2004 09 09 | 704 | 0.2+ | 0.2+ |
| 2000 09 03 | 704 | 0.5+ | 0.5+ | 2000 11 30 | 704 | 1.8+ | 0.3+ | 2004 09 09 | 704 | 0.3− | 0.0 |
| 2000 09 21 | 608 | 0.2+ | 0.5− | 2000 11 30 | 704 | 0.1− | 0.0 | 2004 09 09 | 704 | 0.1+ | 0.6+ |
| 2000 09 21 | 608 | 0.0 | 0.8− | 2000 11 30 | 704 | 0.6+ | 0.6+ | 2004 09 09 | 704 | 0.4− | 0.9+ |
| 2000 09 21 | 608 | 0.1− | 0.4− | 2002 02 07 | 291 | 0.0 | 0.2+ | 2004 09 21 | 704 | 0.3− | 0.7− |
| 2000 09 22 | 699 | 0.7− | 0.2+ | 2002 02 07 | 291 | 0.2+ | 0.4+ | 2004 09 21 | 704 | 0.3− | 0.3+ |
| 2000 09 22 | 699 | 0.2+ | 0.2+ | 2002 02 07 | 291 | 0.4+ | 0.1+ | 2004 09 21 | 704 | 0.6− | 0.8− |
| 2000 09 22 | 699 | 0.9+ | 0.5+ | 2002 03 05 | 291 | 0.3+ | 0.5+ | 2004 09 21 | 704 | 0.1+ | 0.1− |
| 2000 09 22 | 699 | 0.4+ | 0.2− | 2002 03 05 | 291 | 0.3+ | 0.1− | 2004 10 09 | 704 | 0.6+ | 0.3− |
| 2000 09 28 | 704 | 0.0 | 0.4+ | 2002 03 05 | 291 | 0.1− | 0.4+ | 2004 10 09 | 704 | 0.3− | 0.5+ |
| 2000 09 28 | 704 | 0.2− | 0.1+ | 2004 06 28 | E12 | (1.7+ | 1.6−) | 2004 10 09 | 704 | 0.1− | 0.9− |
| 2000 09 28 | 704 | 0.1+ | 0.5+ | 2004 06 28 | E12 | (2.2+ | 1.6−) | 2005 12 25 | 691 | 0.0 | 0.3+ |
| 2000 09 28 | 704 | 0.2− | 0.1− | 2004 06 28 | E12 | 1.2+ | 0.9− | 2005 12 25 | 691 | 0.2+ | 0.8+ |
| 2000 09 28 | 704 | 0.7− | 0.1+ | 2004 06 28 | E12 | 0.5+ | 0.3+ | 2005 12 25 | 691 | 0.1− | 0.0 |
| 2000 10 03 | 704 | 0.2+ | 0.2− | 2004 07 11 | 704 | 0.9− | 0.6+ | 2005 12 30 | G96 | 0.1+ | 0.1− |
| 2000 10 03 | 704 | 0.0 | 0.4− | 2004 07 11 | 704 | 1.1− | 0.5+ | 2005 12 30 | G96 | 0.0 | 0.1− |
| 2000 10 03 | 704 | 0.3+ | 0.3− | 2004 07 11 | 704 | 1.3− | 0.8+ | 2005 12 30 | G96 | 0.2− | 0.1− |
| 2000 10 03 | 704 | 0.2+ | 0.3− | 2004 07 11 | 704 | 0.9− | 0.6+ | 2005 12 30 | G96 | 0.2− | 0.2− |
| 2000 11 16 | 699 | 0.5− | 0.6− | 2004 07 11 | 704 | 0.7− | 0.2+ | 2006 01 05 | 703 | 0.3− | 0.1+ |
| 2000 11 16 | 699 | 0.4− | 0.0 | 2004 08 07 | E12 | 0.2+ | 0.3+ | 2006 01 05 | 703 | (2.0+ | 2.0−) |
| 2000 11 16 | 699 | 0.8− | 0.1+ | 2004 08 07 | E12 | 0.2− | 0.7+ | 2006 01 05 | 703 | (2.0+ | 0.8−) |
| 2000 11 16 | 699 | 0.1− | 0.4+ | 2004 08 07 | E12 | 0.1+ | 0.6+ | 2006 01 05 | 703 | (1.3+ | 2.7−) |
| 2000 11 19 | 704 | 0.3− | 0.4+ | 2004 08 07 | E12 | 0.2+ | 0.7+ | 2006 01 10 | 691 | 0.2+ | 0.1+ |
| 2000 11 19 | 704 | 0.0 | 0.2− | 2004 08 08 | 704 | 0.1+ | 0.3+ | 2006 01 10 | 691 | 0.1+ | 0.0 |
| 2000 11 19 | 704 | 0.1+ | 0.3− | 2004 08 08 | 704 | 0.5− | 0.4+ | 2006 01 10 | 691 | 0.4− | 0.3− |
| 2000 11 19 | 704 | 0.0 | 0.1− | 2004 08 08 | 704 | 0.5+ | 0.9+ | 2009 11 23 | 704 | 0.5− | 0.2+ |
| 2000 11 19 | 704 | 0.4+ | 0.2− | 2004 08 08 | 704 | 0.1+ | 1.1− | 2009 11 23 | 704 | 0.0 | 0.2+ |
| 2000 11 29 | 704 | 0.5− | 0.9− | 2004 08 12 | 704 | 1.1+ | 0.4− | 2009 11 23 | 704 | 0.3− | 0.5+ |
| 2000 11 29 | 704 | 0.0 | 0.7− | 2004 08 12 | 704 | 0.4− | 1.0+ | 2009 12 15 | 704 | 0.4+ | 0.1+ |
| 2000 11 29 | 704 | 0.3+ | 0.3+ | 2004 08 12 | 704 | 0.5− | 0.3− | 2009 12 15 | 704 | 0.2+ | 0.0 |
| 2000 11 29 | 704 | 1.3− | 0.2+ | 2004 08 12 | 704 | 0.7− | 0.9+ | 2009 12 15 | 704 | 0.0 | 0.3+ |
| 2000 11 29 | 704 | 0.4− | 0.3− | 2004 09 07 | 704 | 0.3+ | 0.4+ | 2009 12 15 | 704 | 0.4+ | 0.8+ |
| 2000 11 30 | 704 | 0.0 | 0.3+ | 2004 09 07 | 704 | 0.5− | 0.4− | 2009 12 15 | 704 | 0.5+ | 0.9+ |
| 2000 11 30 | 704 | 0.6− | 0.9− | 2004 09 07 | 704 | 0.9+ | 0.9+ | | | | |

**(228353)∗ 2000 SL$_{306}$**

Discovered 2000 Sept. 30 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 104.71364 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23131979 | $\omega$ | 96.55786 | | +0.73489785 | +0.66516980 | |
| $a$ | 2.6282148 | $\Omega$ | 221.86257 | | −0.67372262 | +0.69376084 | |
| $e$ | 0.1474477 | $i$ | 11.42492 | | −0.07760790 | +0.27612504 | |
| $P$ | 4.26 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 11 06 | 691 | (1.0+ | 4.7−) | 2003 05 03 | 691 | 0.0 | 0.3+ | 2004 09 16 | 704 | 0.1+ | 0.2− |
| 1996 11 06 | 691 | 0.8− | 0.5+ | 2003 05 03 | 691 | 0.4+ | 0.4+ | 2004 09 16 | 704 | 0.9− | 0.0 |
| 1996 11 06 | 691 | 1.2− | 0.0 | 2004 07 12 | 644 | 0.0 | 0.4+ | 2004 09 16 | 699 | 0.5− | 0.4+ |
| 1996 11 07 | 691 | 0.0 | 0.0 | 2004 07 12 | 644 | 0.1+ | 0.3+ | 2004 09 16 | 704 | 0.0 | 0.5− |
| 1996 11 07 | 691 | 0.8+ | 0.3− | 2004 07 12 | 644 | 0.2+ | 0.2+ | 2004 09 16 | 704 | 0.3− | 0.4− |
| 1996 11 07 | 691 | 0.7+ | 0.1− | 2004 08 12 | 644 | 0.2+ | 0.3+ | 2004 09 16 | 699 | 0.2− | 0.1+ |
| 2000 09 22 | 608 | 0.9− | 0.2− | 2004 08 12 | 644 | 0.3+ | 0.1+ | 2004 09 16 | 699 | 0.2+ | 0.2− |
| 2000 09 22 | 608 | 0.9− | 0.4− | 2004 08 12 | 644 | 0.6+ | 0.1+ | 2004 09 16 | 699 | 1.1+ | 0.7+ |
| 2000 09 22 | 608 | 0.7− | 0.1− | 2004 08 20 | 703 | 0.1− | 0.2+ | 2004 09 17 | 704 | 0.7− | 0.1− |
| 2000 09 30 | 704 | 0.4+ | 1.0+ | 2004 08 20 | 703 | 0.4+ | 0.1+ | 2004 09 17 | 704 | 0.5− | 0.2+ |
| 2000 09 30 | 704 | 0.0 | 0.1− | 2004 08 20 | 703 | 0.1− | 0.2− | 2004 09 17 | 704 | 0.5− | 0.9− |
| 2000 09 30 | 704 | 1.1+ | 0.1− | 2004 08 20 | 703 | 0.6− | 1.1− | 2009 11 26 | G96 | 0.3+ | 0.3+ |
| 2000 10 03 | 704 | 0.3+ | 0.9+ | 2004 09 09 | 644 | 0.1− | 0.1+ | 2009 11 26 | G96 | 0.6+ | 0.3+ |
| 2000 10 03 | 704 | 0.7+ | 1.7+ | 2004 09 09 | 644 | 0.1− | 0.3+ | 2009 11 26 | G96 | 0.3+ | 0.3+ |
| 2000 10 03 | 704 | 0.2+ | 0.2+ | 2004 09 09 | 644 | 0.1+ | 0.5+ | 2009 11 26 | G96 | 0.4+ | 0.3+ |
| 2000 10 03 | 704 | 0.0 | 0.6+ | 2004 09 14 | 704 | 0.5− | 0.3+ | 2009 11 26 | G96 | 0.7+ | 0.2+ |
| 2000 10 03 | 704 | 0.7+ | 0.8+ | 2004 09 14 | 704 | 0.0 | 0.2− | 2009 12 11 | 703 | 0.2− | 0.3− |
| 2000 11 25 | 691 | 0.2+ | 0.3− | 2004 09 14 | 704 | 0.1− | 0.6+ | 2009 12 11 | 703 | 0.5− | 1.0+ |
| 2000 11 25 | 691 | 0.1+ | 0.3− | 2004 09 14 | 704 | 0.3+ | 0.0 | 2009 12 11 | 703 | 0.7− | 0.4− |
| 2000 11 25 | 691 | 0.2+ | 0.3− | 2004 09 14 | 704 | 1.1+ | 0.1+ | 2009 12 11 | 703 | 1.0− | 0.5+ |
| 2003 05 03 | 691 | 0.0 | 0.2+ | 2004 09 16 | 704 | 0.8− | 0.4− | | | | |

**(228354)∗ 2000 SD$_{315}$ = 2004 RG$_{89}$**

Discovered 2000 Sept. 28 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 68760)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 60.59722 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22733699 | $\omega$ | 80.27973 | | +0.98057470 | +0.02676054 | |
| $a$ | 2.6588223 | $\Omega$ | 278.00051 | | −0.10691332 | +0.90347143 | |
| $e$ | 0.1391993 | $i$ | 11.31611 | | +0.16444698 | +0.42781217 | |
| $P$ | 4.34 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 28 | 704 | 0.3− | 0.1+ | 2004 09 10 | 704 | 1.0+ | 0.6+ | 2005 12 31 | 704 | (2.0+ | 0.5−) |
| 2000 09 28 | 704 | 0.1+ | 0.4− | 2004 09 10 | 704 | 0.3− | 0.2+ | 2005 12 31 | 704 | (2.5+ | 0.1+) |
| 2000 09 28 | 704 | 0.1− | 0.0 | 2004 09 10 | 704 | 0.3− | 0.1+ | 2006 01 10 | 691 | 0.2− | 0.1+ |
| 2000 09 28 | 704 | 0.1+ | 0.2− | 2004 09 13 | 704 | 0.2− | 0.1+ | 2006 01 10 | 691 | 0.3− | 0.3+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 10 03 | 699 | 0.5+ | 0.2− | 2004 09 13 | 704 | 0.1+ | 0.1− | 2006 01 10 | 691 | 0.6+ | 0.1− | | |
| 2000 10 03 | 699 | 0.4− | 0.6− | 2004 09 13 | 704 | 0.6+ | 0.6− | 2009 11 16 | 704 | 1.4+ | 0.2− | | |
| 2000 10 03 | 699 | 0.1+ | 0.6+ | 2004 09 13 | 704 | 0.2+ | 0.0 | 2009 11 16 | 704 | 0.9+ | 0.9− | | |
| 2000 10 03 | 699 | 1.5+ | 0.5+ | 2004 09 13 | 704 | 0.1− | 0.3+ | 2009 11 16 | 704 | 0.3+ | 0.2− | | |
| 2000 10 04 | 704 | 0.1− | 0.2− | 2004 10 15 | 704 | 0.3− | 0.3+ | 2009 11 16 | 704 | 0.1− | 0.5+ | | |
| 2000 10 04 | 704 | 0.3+ | 0.2+ | 2004 10 15 | 704 | 1.3− | 0.5+ | 2009 11 16 | 704 | 0.4+ | 0.2+ | | |
| 2000 10 04 | 704 | 1.0− | 0.4− | 2004 10 15 | 704 | (1.6− | 0.2−) | 2009 11 19 | 703 | 0.2− | 0.8− | | |
| 2000 10 04 | 704 | 0.5− | 0.2− | 2005 10 30 | G96 | 0.4− | 0.3− | 2009 11 19 | 703 | 0.5− | 0.4− | | |
| 2002 02 07 | 644 | 0.3+ | 0.7+ | 2005 10 30 | G96 | 0.9+ | 0.8− | 2009 11 19 | 703 | 1.2− | 1.2− | | |
| 2002 02 07 | 644 | 0.5+ | 0.8+ | 2005 10 30 | G96 | 0.4+ | 0.4− | 2009 11 19 | 703 | 0.1− | 0.0 | | |
| 2002 02 07 | 644 | 1.0+ | 0.6+ | 2005 10 30 | G96 | 0.3− | 0.1− | 2009 11 23 | 704 | 0.2+ | 0.4− | | |
| 2004 06 25 | 703 | (2.0− | 0.5+) | 2005 11 26 | G96 | 0.0 | 0.1+ | 2009 11 23 | 704 | 0.4+ | 0.4− | | |
| 2004 06 25 | 703 | 1.1− | 1.4+ | 2005 11 26 | G96 | 0.0 | 0.2− | 2009 11 23 | 704 | 0.1− | 0.3− | | |
| 2004 06 25 | 703 | (0.4− | 1.6+) | 2005 11 26 | G96 | 0.1− | 0.2− | 2009 11 23 | 704 | 0.1+ | 0.2− | | |
| 2004 06 25 | 703 | 0.8+ | 1.1+ | 2005 11 26 | G96 | 0.1− | 0.0 | 2009 12 10 | 704 | 0.1− | 0.1− | | |
| 2004 09 08 | 704 | 0.1+ | 0.1− | 2005 12 05 | 691 | 0.2− | 0.1+ | 2009 12 10 | 704 | 0.1− | 1.0− | | |
| 2004 09 08 | 704 | 0.6− | 0.6+ | 2005 12 05 | 691 | 0.0 | 0.1+ | 2009 12 10 | 704 | 0.2− | 0.7+ | | |
| 2004 09 08 | 704 | 0.4+ | 0.5− | 2005 12 05 | 691 | 0.1− | 0.0 | 2009 12 10 | 704 | 0.5+ | 0.2+ | | |
| 2004 09 08 | 704 | 0.1− | 0.6− | 2005 12 25 | 691 | 0.0 | 0.1+ | 2009 12 15 | 704 | 0.1− | 2.1+ | | |
| 2004 09 08 | 704 | 0.1− | 0.3+ | 2005 12 25 | 691 | 0.1− | 0.1− | 2009 12 15 | 704 | 1.1− | 0.8+ | | |
| 2004 09 10 | 704 | 0.5− | 0.6+ | 2005 12 25 | 691 | 0.0 | 0.2+ | 2009 12 15 | 704 | 0.2− | 1.1+ | | |
| 2004 09 10 | 704 | 0.9− | 0.1− | 2005 12 31 | 704 | (2.3+ | 0.2−) | | | | | | |

**(228355)∗ 2000 SU$_{316}$ = 2007 FP$_{17}$**

Discovered 2000 Sept. 30 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 117404)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 128.31853 | | (2000.0) | | | |
| $n$ | 0.23609896 | $\omega$ | 54.96305 | | +0.43990267 | +0.87530316 |
| $a$ | 2.5926267 | $\Omega$ | 242.34592 | | −0.87998701 | +0.37552088 |
| $e$ | 0.1303108 | $i$ | 13.10421 | | −0.17918843 | +0.30467760 |
| $P$ | 4.17 | $H$ | 15.9 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 22 | 704 | 0.1+ | 1.7− | 2003 03 31 | 644 | 0.2+ | 0.4+ | 2007 03 20 | 703 | 0.2+ | 0.3− | | |
| 2000 09 22 | 704 | 0.1− | 0.2+ | 2003 03 31 | 644 | 0.1+ | 0.7+ | 2007 03 20 | 703 | 0.7− | 0.5− | | |
| 2000 09 22 | 704 | 0.8− | 0.1− | 2003 03 31 | 644 | 0.5+ | 0.3+ | 2007 03 21 | 703 | 0.6+ | 0.9− | | |
| 2000 09 22 | 704 | 1.2− | 0.9+ | 2004 08 12 | 644 | 0.3− | 0.1+ | 2007 03 21 | 703 | 0.1− | 0.7+ | | |
| 2000 09 22 | 704 | 0.1− | 0.1− | 2004 08 12 | 644 | 0.2− | 0.2− | 2007 03 21 | 703 | 0.7− | 0.2− | | |
| 2000 09 23 | 699 | 0.3+ | 0.5+ | 2004 08 12 | 644 | 0.5− | 0.0 | 2007 03 21 | 703 | (1.0− | 1.5+) | | |
| 2000 09 23 | 699 | 0.0 | 0.5+ | 2004 09 11 | 704 | 1.4+ | 0.3− | 2009 10 30 | G96 | 0.0 | 0.4− | | |
| 2000 09 23 | 699 | 0.7− | 0.6− | 2004 09 11 | 704 | 1.0+ | 0.3− | 2009 10 30 | G96 | 0.1+ | 0.1− | | |
| 2000 09 23 | 699 | 0.0 | 0.5+ | 2004 09 11 | 704 | 0.9− | 0.8− | 2009 10 30 | G96 | 0.4+ | 0.0 | | |
| 2000 09 30 | 704 | 0.0 | 0.7+ | 2004 09 11 | 704 | 0.2+ | 1.2− | 2009 10 30 | G96 | 0.6+ | 0.6− | | |
| 2000 09 30 | 704 | 0.3− | 0.8+ | 2004 09 14 | 704 | 0.5+ | 0.7+ | 2009 11 08 | 691 | 0.1− | 0.3+ | | |
| 2000 09 30 | 704 | 1.0+ | 0.5− | 2004 09 14 | 704 | 0.4− | 1.4+ | 2009 11 08 | 691 | 0.2− | 0.1+ | | |
| 2000 09 30 | 704 | 0.4+ | 0.3+ | 2004 09 14 | 704 | 1.0− | 1.0+ | 2009 11 08 | 691 | 0.2− | 0.0 | | |
| 2000 10 04 | 704 | 1.0− | 0.4− | 2004 09 14 | 704 | 0.2+ | 0.8+ | 2009 11 20 | 691 | 0.0 | 0.1− | | |
| 2000 10 04 | 704 | 0.9+ | 0.5+ | 2007 03 20 | 703 | 0.3− | 0.5+ | 2009 11 20 | 691 | 0.2− | 0.0 | | |
| 2000 10 04 | 704 | 0.6+ | 0.1+ | 2007 03 20 | 703 | 0.4+ | 0.5+ | 2009 11 20 | 691 | 0.0 | 0.0 | | |
| 2000 10 04 | 704 | 0.4− | 1.1+ | 2007 03 20 | 703 | (1.9− | 1.5+) | 2009 12 17 | G96 | 0.3+ | 0.2+ | | |
| 2003 03 23 | 644 | 0.0 | 1.1+ | 2007 03 20 | 703 | 0.5+ | 0.2+ | 2009 12 17 | G96 | 0.4+ | 0.2+ | | |
| 2003 03 23 | 644 | 0.0 | 0.9+ | 2007 03 20 | 703 | (2.0+ | 0.3−) | 2009 12 17 | G96 | 0.5+ | 0.3+ | | |
| 2003 03 23 | 644 | 0.7+ | 0.8+ | 2007 03 20 | 703 | (2.2+ | 0.9−) | 2009 12 17 | G96 | 0.6+ | 0.5+ | | |

**(228356)∗ 2000 TN$_{14}$**

Discovered 2000 Oct. 1 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 72.94178 | | (2000.0) | | | |
| $n$ | 0.23321586 | $\omega$ | 337.18144 | | +0.97349280 | −0.22737673 |
| $a$ | 2.6139503 | $\Omega$ | 35.98947 | | +0.21580147 | +0.87731117 |
| $e$ | 0.2384164 | $i$ | 2.41196 | | +0.07577262 | +0.42264042 |
| $P$ | 4.23 | $H$ | 17.0 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 10 01 | 704 | 0.4+ | 0.2+ | 2002 02 07 | 695 | 0.1− | 0.5+ | 2004 09 21 | 704 | 0.4− | 0.1+ | | |
| 2000 10 01 | 704 | 0.3− | 0.0 | 2002 02 07 | 695 | 0.0 | 0.3+ | 2006 01 25 | 691 | 0.1− | 0.1+ | | |
| 2000 10 01 | 704 | 0.1+ | 0.0 | 2004 08 10 | 704 | 0.8+ | 0.1− | 2006 01 25 | 691 | 0.3− | 0.0 | | |
| 2000 10 01 | 704 | 0.2− | 0.7− | 2004 08 10 | 704 | 1.1− | 0.3− | 2006 01 25 | 691 | 0.0 | 0.5+ | | |
| 2000 10 01 | 704 | 0.6− | 0.2− | 2004 08 10 | 704 | 0.3− | 0.5− | 2006 02 07 | 691 | 0.2+ | 0.6+ | | |
| 2000 10 02 | 704 | 0.2+ | 1.3+ | 2004 08 11 | 704 | 0.3− | 0.9− | 2006 02 07 | 691 | 0.8+ | 0.4+ | | |
| 2000 10 02 | 704 | 0.1− | 0.5− | 2004 08 11 | 704 | 0.4+ | 0.6+ | 2006 02 07 | 691 | 0.4+ | 0.7+ | | |
| 2000 10 02 | 704 | 0.0 | 0.1+ | 2004 08 11 | 704 | 0.1− | 0.5+ | 2009 11 21 | G96 | 0.1+ | 0.5− | | |
| 2000 10 02 | 704 | 0.2+ | 0.9+ | 2004 09 07 | 704 | 0.4+ | 0.6+ | 2009 11 21 | G96 | 0.1+ | 0.4− | | |
| 2000 10 06 | 699 | 0.6− | 0.0 | 2004 09 07 | 704 | (0.3− | 1.6+) | 2009 11 21 | G96 | 0.1+ | 0.2− | | |
| 2000 10 06 | 699 | 0.4− | 0.2− | 2004 09 07 | 704 | 0.1− | 0.5+ | 2009 11 21 | G96 | 0.1− | 0.1− | | |
| 2000 10 06 | 699 | 0.8− | 0.3+ | 2004 09 09 | 704 | 0.9− | 0.3− | 2009 12 17 | G96 | 0.6+ | 0.2+ | | |
| 2000 10 06 | 699 | 0.2+ | 0.2+ | 2004 09 09 | 704 | 1.1− | 0.1+ | 2009 12 17 | G96 | 0.5+ | 0.1− | | |
| 2000 10 31 | 704 | 0.6+ | 0.0 | 2004 09 09 | 704 | 1.1− | 0.0 | 2009 12 17 | G96 | 0.5+ | 0.5− | | |
| 2000 10 31 | 704 | 0.9+ | 0.6+ | 2004 09 09 | 704 | 1.0− | 0.7+ | 2009 12 17 | G96 | 0.6+ | 0.3− | | |
| 2000 10 31 | 704 | 0.3− | 1.1+ | 2004 09 16 | 691 | 0.2+ | 0.4+ | 2009 12 19 | 291 | 0.4− | 0.2− | | |
| 2000 11 02 | 704 | 0.7+ | 0.7− | 2004 09 16 | 691 | 0.1+ | 0.3+ | 2009 12 19 | 291 | 0.5− | 0.4− | | |
| 2000 11 02 | 704 | 0.6+ | 1.3− | 2004 09 16 | 691 | 0.4+ | 0.1+ | 2009 12 19 | 291 | 0.1− | 0.2− | | |
| 2000 11 02 | 704 | 0.8− | 0.6− | 2004 09 21 | 704 | 0.4+ | 0.2+ | | | | | | |
| 2000 11 02 | 704 | 0.1+ | 0.1+ | 2004 09 21 | 704 | 0.2− | 0.3− | | | | | | |

**(228357)∗ 2000 TC$_{22}$ = 2009 VZ$_{46}$**

Discovered 2000 Oct. 3 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 165310)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 72.91673 | | (2000.0) | | | |
| $n$ | 0.22504846 | $\omega$ | 198.39793 | | +0.84830301 | +0.52805681 |
| $a$ | 2.6768170 | $\Omega$ | 129.66379 | | −0.47919707 | +0.79709959 |
| $e$ | 0.2345556 | $i$ | 2.92019 | | −0.22528243 | +0.29289632 |
| $P$ | 4.38 | $H$ | 16.2 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 10 03 | 704 | 0.2+ | 0.1+ | 2004 07 22 | 699 | 0.1− | 0.4+ | 2009 10 23 | G96 | 0.0 | 0.1+ | | |
| 2000 10 03 | 704 | 0.7+ | 0.2− | 2004 07 22 | 699 | 0.4− | 0.2− | 2009 10 23 | G96 | 0.1+ | 0.1+ | | |
| 2000 10 03 | 704 | 1.0+ | 0.8− | 2004 07 22 | 699 | 0.2− | 0.8+ | 2009 10 23 | G96 | 0.1− | 0.4− | | |
| 2000 10 03 | 704 | 0.6+ | 1.0− | 2007 01 28 | G96 | 1.1+ | 0.1− | 2009 11 09 | G96 | 0.2+ | 0.0 | | |
| 2000 10 03 | 704 | 0.9+ | 0.7− | 2007 01 28 | G96 | 0.4+ | 0.2− | 2009 11 09 | G96 | 0.2+ | 0.2− | | |
| 2000 10 05 | 704 | 0.0 | 0.0 | 2007 01 28 | G96 | 1.0+ | 0.1− | 2009 11 09 | G96 | 0.2+ | 0.1− | | |
| 2000 10 05 | 704 | 0.1+ | 1.6+ | 2007 01 28 | G96 | 0.3+ | 0.4− | 2009 11 09 | G96 | 1.1+ | 1.2− | | |
| 2000 10 05 | 704 | 0.3− | 0.3+ | 2007 02 25 | 691 | 0.2− | 0.4− | 2009 11 16 | G96 | 0.2− | 0.0 | | |
| 2000 10 05 | 704 | 0.1− | 0.3+ | 2007 02 25 | 691 | 0.4− | 0.3+ | 2009 11 16 | G96 | 0.1− | 0.2− | | |
| 2000 10 05 | 704 | 0.3− | 0.1− | 2007 02 25 | 691 | 0.2+ | 0.2+ | 2009 11 16 | G96 | 0.3− | 0.1− | | |
| 2000 10 05 | 704 | 0.6+ | 0.4+ | 2007 03 12 | G96 | 0.5− | 0.5+ | 2009 11 16 | G96 | 0.2− | 0.1− | | |
| 2000 10 05 | 704 | 0.5− | 0.2+ | 2007 03 12 | G96 | 0.2− | 0.4+ | 2009 11 19 | J75 | 0.2− | 0.3− | | |
| 2000 10 05 | 704 | 0.4− | 0.9+ | 2007 03 12 | G96 | 0.3− | 0.0 | 2009 11 19 | J75 | 0.1− | 0.3− | | |
| 2000 10 06 | 699 | 1.2− | 0.3+ | 2007 03 12 | G96 | 0.3+ | 0.6+ | 2009 11 19 | J75 | 0.2− | 0.2+ | | |
| 2000 10 06 | 699 | 1.2− | 0.3− | 2008 05 14 | G96 | 0.7+ | 0.0 | 2009 11 22 | 703 | 0.2− | 1.5+ | | |
| 2000 10 06 | 699 | 0.2− | 0.1+ | 2008 05 14 | G96 | 0.4+ | 0.2+ | 2009 11 22 | 703 | 0.9+ | 0.8− | | |
| 2000 10 06 | 699 | 0.5− | 0.3− | 2008 05 14 | G96 | 0.6+ | 0.2− | 2009 11 22 | 703 | 1.0− | 0.6+ | | |
| 2000 10 07 | 699 | 0.7+ | 0.5− | 2008 05 14 | G96 | 0.4+ | 0.1+ | 2009 11 22 | 703 | (1.8− | 0.4−) | | |
| 2000 10 07 | 699 | 0.2+ | 0.8+ | 2008 05 28 | G96 | 0.6+ | 0.1+ | 2009 11 24 | G96 | 0.0 | 0.4− | | |
| 2000 10 07 | 699 | 0.3− | 0.2− | 2008 05 28 | G96 | 0.4+ | 0.0 | 2009 11 24 | G96 | 0.0 | 0.1− | | |
| 2000 10 07 | 699 | 0.4− | 0.4+ | 2008 05 28 | G96 | 0.4+ | 0.3+ | 2009 11 24 | G96 | 0.1+ | 0.2− | | |
| 2004 07 21 | E12 | 0.4+ | 0.3+ | 2008 05 28 | G96 | 0.1+ | 0.0 | 2009 11 24 | G96 | 0.1+ | 0.1− | | |
| 2004 07 21 | E12 | 0.1+ | 0.3− | 2008 06 13 | 691 | 0.7− | 0.7− | 2009 12 19 | G96 | 0.1+ | 0.5− | | |
| 2004 07 21 | E12 | 0.2− | 0.4− | 2008 06 13 | 691 | 0.1− | 0.3− | 2009 12 19 | G96 | 0.4− | 0.4− | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 07 21 | E12 | 0.2− | 0.0 | 2008 06 13 | 691 | 0.2− | 0.2+ | 2009 12 19 | G96 | 0.2− | 0.3+ | | |
| 2004 07 22 | 699 | 0.4+ | 0.2+ | 2009 10 23 | G96 | 0.4+ | 0.2− | 2009 12 19 | G96 | 0.5+ | 0.1− | | |

**(228358)∗ 2000 TL$_{65}$ = 2004 RL$_{46}$**

Discovered 2000 Oct. 1 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 68774)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 75.67355 | | (2000.0) | | **P** | | **Q** | | |
| $n$ | 0.23495431 | $\omega$ | 15.63026 | | +0.94370806 | | −0.33076357 | | |
| $a$ | 2.6010405 | $\Omega$ | 3.68967 | | +0.29781609 | | +0.84534816 | | |
| $e$ | 0.1897832 | $i$ | 2.89424 | | +0.14394677 | | +0.41950202 | | |
| $P$ | 4.19 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 1 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 10 01 | 704 | 0.6− | 0.2− | 2004 09 09 | 704 | 0.2+ | 0.4+ | 2004 10 03 | 644 | 0.1+ | 0.3+ | | |
| 2000 10 01 | 704 | 0.1− | 0.0 | 2004 09 09 | 704 | 0.1− | 1.1+ | 2004 10 04 | 644 | 0.1+ | 0.2+ | | |
| 2000 10 01 | 704 | 0.1− | 0.3+ | 2004 09 09 | 704 | 0.2+ | 0.3+ | 2004 10 04 | 644 | 0.2+ | 0.0 | | |
| 2000 10 01 | 704 | 0.1+ | 0.3+ | 2004 09 09 | 699 | 1.0+ | 0.4+ | 2004 10 04 | 644 | 0.1+ | 0.1+ | | |
| 2000 10 01 | 704 | 0.5+ | 0.1− | 2004 09 09 | 704 | 0.3+ | 0.1− | 2004 10 10 | 691 | 0.3+ | 0.1+ | | |
| 2000 10 06 | 699 | 0.4+ | 0.5− | 2004 09 09 | 699 | 0.1− | 0.4− | 2004 10 10 | 691 | 0.0 | 0.0 | | |
| 2000 10 06 | 699 | 1.2+ | 0.0 | 2004 09 09 | 704 | 0.1− | 0.5+ | 2004 10 10 | 691 | 0.0 | 0.0 | | |
| 2000 10 06 | 699 | 0.5+ | 0.3+ | 2004 09 09 | 699 | 0.7+ | 0.2− | 2004 10 15 | G96 | 0.0 | 1.0− | | |
| 2000 10 06 | 699 | 1.2− | 0.4+ | 2004 09 09 | 699 | 0.7− | 0.8− | 2004 10 15 | G96 | 0.1− | 0.8− | | |
| 2000 10 07 | 699 | 0.9− | 0.5− | 2004 09 13 | 704 | 0.2− | 0.0 | 2004 10 15 | G96 | 0.2− | 0.5− | | |
| 2000 10 07 | 699 | 1.3− | 0.5− | 2004 09 13 | 704 | 0.5+ | 0.0 | 2004 10 15 | G96 | 0.1+ | 0.4− | | |
| 2000 10 07 | 699 | 0.6− | 0.7+ | 2004 09 13 | 704 | 1.1− | 0.1− | 2006 01 25 | 691 | 0.1+ | 0.2+ | | |
| 2000 10 07 | 699 | 1.1+ | 0.4− | 2004 09 13 | 704 | 0.5+ | 0.3− | 2006 01 25 | 691 | 0.2+ | 0.4+ | | |
| 2002 02 06 | 695 | 0.0 | 0.3+ | 2004 09 13 | 704 | 0.2+ | 0.6+ | 2006 01 25 | 691 | 0.2+ | 0.0 | | |
| 2002 02 06 | 695 | 0.5+ | 0.4+ | 2004 09 13 | 699 | 0.8+ | 0.0 | 2008 09 25 | G96 | 0.4− | 0.2− | | |
| 2002 03 09 | 291 | 0.5+ | 0.3+ | 2004 09 13 | 699 | 0.1+ | 0.5+ | 2008 09 25 | G96 | 0.5− | 0.4− | | |
| 2002 03 09 | 291 | 0.1− | 0.8+ | 2004 09 13 | 699 | 0.1+ | 0.3+ | 2008 09 25 | G96 | 0.1− | 0.3− | | |
| 2002 03 09 | 291 | 0.0 | 0.1− | 2004 09 13 | 699 | 0.1− | 0.2− | 2008 09 25 | G96 | 0.2− | 0.1− | | |
| 2004 09 08 | 704 | 0.0 | 0.6− | 2004 09 17 | 704 | 0.9− | 0.9+ | 2008 10 27 | G96 | 0.4+ | 0.2− | | |
| 2004 09 08 | 704 | 0.1− | 0.7− | 2004 09 17 | 704 | 1.3+ | 0.2− | 2008 10 27 | G96 | 0.1− | 0.3+ | | |
| 2004 09 08 | 704 | 0.4− | 1.1+ | 2004 09 17 | 704 | 0.1− | 1.4+ | 2008 10 27 | G96 | 0.1+ | 0.2− | | |
| 2004 09 08 | 704 | 0.2− | 0.1+ | 2004 09 17 | 704 | 0.3− | 0.7+ | 2008 10 27 | G96 | 0.3− | 0.5− | | |
| 2004 09 08 | 704 | 0.4+ | 0.2− | 2004 09 17 | 704 | 1.2− | 0.9+ | 2009 12 18 | 691 | 0.1+ | 0.2+ | | |
| 2004 09 09 | 704 | 0.2− | 0.5− | 2004 09 23 | 691 | 0.3− | 0.1+ | 2009 12 18 | 691 | 0.1− | 0.2− | | |
| 2004 09 09 | 704 | (0.4+ | 1.8+) | 2004 09 23 | 691 | 0.3− | 0.1+ | 2009 12 18 | 691 | 0.1+ | 0.3− | | |
| 2004 09 09 | 704 | 0.2+ | 0.1+ | 2004 09 23 | 691 | 0.2− | 0.2+ | 2009 12 26 | 691 | 0.1+ | 0.2+ | | |
| 2004 09 09 | 704 | 0.1− | 0.8+ | 2004 10 03 | 644 | 0.3+ | 0.1− | 2009 12 26 | 691 | 0.3− | 0.3− | | |
| 2004 09 09 | 704 | 0.0 | 0.3− | 2004 10 03 | 644 | 0.0 | 0.2+ | 2009 12 26 | 691 | 0.2− | 0.3− | | |

**(228359)∗ 2000 TZ$_{66}$**

Discovered 2000 Oct. 2 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 3.80652 | | (2000.0) | | **P** | | **Q** | | |
| $n$ | 0.24191509 | $\omega$ | 52.18303 | | −0.42414800 | | −0.90241774 | | |
| $a$ | 2.5509037 | $\Omega$ | 63.07502 | | +0.80187591 | | −0.41313303 | | |
| $e$ | 0.1086756 | $i$ | 4.87483 | | +0.42082479 | | −0.12232466 | | |
| $P$ | 4.07 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 1 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 10 02 | 704 | 0.0 | 0.1+ | 2002 03 02 | 644 | 0.1− | 0.3− | 2006 01 27 | 691 | 0.1− | 0.2− | | |
| 2000 10 02 | 704 | 0.8− | 0.7+ | 2002 03 06 | 704 | 0.9+ | 0.6+ | 2006 01 27 | 699 | 1.1+ | 0.3+ | | |
| 2000 10 02 | 704 | 0.4− | 1.4+ | 2002 03 06 | 704 | 0.4+ | 0.1+ | 2006 01 27 | 699 | 0.7+ | 0.2+ | | |
| 2000 10 02 | 704 | 0.6− | 0.7− | 2002 03 06 | 704 | 0.1− | 0.9+ | 2006 01 27 | 699 | 0.5+ | 0.5− | | |
| 2000 10 07 | 691 | 0.5+ | 0.4+ | 2002 03 06 | 704 | 0.0 | 0.2+ | 2006 01 27 | 699 | (1.6+ | 0.3+) | | |
| 2000 10 07 | 691 | 0.5− | 0.1+ | 2002 03 11 | 644 | 0.0 | 0.1+ | 2006 02 05 | 704 | 0.0 | 0.1+ | | |
| 2000 10 07 | 691 | 0.6− | 0.0 | 2002 03 11 | 644 | 0.1+ | 0.2+ | 2006 02 05 | 704 | 0.0 | 0.1− | | |
| 2000 12 17 | 691 | 0.3+ | 0.4− | 2002 03 11 | 644 | 0.1− | 0.1+ | 2006 02 05 | 704 | 1.5+ | 0.2− | | |
| 2000 12 17 | 691 | 0.4+ | 0.1+ | 2004 09 17 | 704 | (0.2− | 1.7+) | 2006 02 05 | 704 | 0.8− | 0.6+ | | |
| 2000 12 17 | 691 | 0.1+ | 0.5+ | 2004 09 17 | 704 | 0.2+ | 1.0+ | 2006 02 06 | 704 | 0.6+ | 0.1+ | | |
| 2002 01 21 | 644 | 0.1+ | 0.4+ | 2004 09 17 | 704 | 0.6+ | 0.6− | 2006 02 06 | 704 | 0.5+ | 0.1+ | | |
| 2002 01 21 | 644 | 0.1+ | 0.7+ | 2006 01 12 | 644 | 0.4− | 0.1− | 2006 02 06 | 704 | 0.0 | 0.1+ | | |
| 2002 01 21 | 644 | 0.0 | 0.5+ | 2006 01 12 | 644 | 0.2− | 0.5− | 2006 02 06 | 704 | 0.3− | 0.4+ | | |
| 2002 02 04 | 699 | 0.0 | 0.1+ | 2006 01 12 | 644 | 0.1− | 0.1− | 2006 02 06 | 704 | 0.7+ | 0.0 | | |
| 2002 02 04 | 699 | 0.3+ | 0.0 | 2006 01 20 | 703 | 0.2+ | 0.3− | 2008 10 01 | G96 | 0.4− | 0.0 | | |
| 2002 02 04 | 699 | 0.5− | 0.5+ | 2006 01 20 | 703 | 0.6− | 0.9− | 2008 10 01 | G96 | 0.2− | 0.1+ | | |
| 2002 02 04 | 699 | 1.4− | 1.2− | 2006 01 20 | 703 | 0.4− | 0.1+ | 2008 10 01 | G96 | 0.1+ | 0.1+ | | |
| 2002 02 04 | 644 | 0.9+ | 0.7+ | 2006 01 20 | 703 | 0.6− | 0.9− | 2008 10 01 | G96 | 0.3− | 0.1+ | | |
| 2002 02 04 | 644 | 0.2+ | 0.4+ | 2006 01 22 | 699 | 1.1+ | 0.5+ | 2009 11 19 | G96 | 0.3− | 0.5− | | |
| 2002 02 04 | 644 | 0.2+ | 0.7+ | 2006 01 22 | 699 | 0.9+ | 1.2+ | 2009 11 19 | G96 | 0.2− | 0.5− | | |
| 2002 02 14 | 644 | 0.2− | 0.6+ | 2006 01 22 | 699 | 1.1+ | 0.8+ | 2009 11 19 | G96 | 0.3− | 0.5− | | |
| 2002 02 14 | 644 | 0.1+ | 0.5+ | 2006 01 22 | 699 | 0.9+ | 0.1+ | 2009 11 19 | G96 | 0.2− | 0.6− | | |
| 2002 02 14 | 644 | 0.1+ | 0.4+ | 2006 01 26 | 703 | 0.6− | 0.2− | 2009 12 20 | G96 | 0.8− | 0.7− | | |
| 2002 02 23 | 644 | 0.1− | 0.7+ | 2006 01 26 | 703 | 0.2− | 0.2− | 2009 12 20 | G96 | 0.7− | 0.6− | | |
| 2002 02 23 | 644 | 0.3+ | 0.5+ | 2006 01 26 | 703 | 0.3− | 0.0 | 2009 12 20 | G96 | 0.4− | 0.5− | | |
| 2002 02 23 | 644 | 0.0 | 0.7+ | 2006 01 26 | 703 | 1.2− | 0.5+ | 2009 12 20 | G96 | 0.3− | 0.7− | | |
| 2002 03 02 | 644 | 0.2− | 0.4− | 2006 01 27 | 691 | 0.1+ | 0.2− | | | | | | |
| 2002 03 02 | 644 | 0.2− | 0.5− | 2006 01 27 | 691 | 0.2− | 0.2− | | | | | | |

**(228360)∗ 2000 UA$_3$**

Discovered 2000 Oct. 23 at Crni Vrh.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 358.70631 | | (2000.0) | | **P** | | **Q** | | |
| $n$ | 0.22676823 | $\omega$ | 52.58674 | | −0.17493029 | | −0.97865947 | | |
| $a$ | 2.6632662 | $\Omega$ | 47.85236 | | +0.85115190 | | −0.20536030 | | |
| $e$ | 0.2955165 | $i$ | 8.36179 | | +0.49491397 | | +0.00726516 | | |
| $P$ | 4.35 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 1 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 10 02 | 704 | 0.3+ | 0.2− | 2000 11 26 | 704 | 1.1− | 1.2+ | 2009 11 11 | 704 | 0.1+ | 0.1+ | | |
| 2000 10 02 | 704 | 0.0 | 0.9+ | 2000 11 26 | 704 | 0.1− | 0.4+ | 2009 11 11 | 704 | 0.0 | 0.0 | | |
| 2000 10 02 | 704 | 0.3− | 0.4+ | 2000 11 26 | 704 | 1.2− | 0.4− | 2009 11 11 | 704 | 0.5+ | 0.2+ | | |
| 2000 10 02 | 704 | 0.0 | 0.4− | 2000 11 26 | 704 | 0.1− | 0.0 | 2009 11 11 | 704 | 0.4− | 0.0 | | |
| 2000 10 02 | 704 | 0.6− | 0.3− | 2000 11 26 | 704 | 0.4+ | 0.3+ | 2009 11 16 | 704 | 0.5+ | 0.2+ | | |
| 2000 10 07 | 699 | 0.3− | 0.9+ | 2002 04 13 | 644 | 0.0 | 1.0+ | 2009 11 16 | 704 | 0.3+ | 0.5+ | | |
| 2000 10 07 | 699 | 0.6− | 0.6+ | 2002 04 13 | 644 | 0.4+ | 1.1+ | 2009 11 16 | 704 | 0.4+ | 0.1− | | |
| 2000 10 07 | 699 | 0.0 | 0.4+ | 2002 04 13 | 644 | 0.4+ | 1.1+ | 2009 11 21 | 703 | 0.5+ | 1.0− | | |
| 2000 10 07 | 699 | 0.3+ | 0.2− | 2006 02 23 | 699 | 0.8+ | 0.7+ | 2009 11 21 | 703 | 0.2− | 0.6− | | |
| 2000 10 23 | 106 | 0.7− | 0.5− | 2006 02 23 | 699 | 0.8+ | 0.8+ | 2009 11 21 | 703 | 0.6− | 0.4− | | |
| 2000 10 24 | 106 | 0.7− | 0.9+ | 2006 02 23 | 699 | 0.4+ | 0.5+ | 2009 11 21 | 703 | 0.1+ | 0.3− | | |
| 2000 10 24 | 106 | 0.1− | 0.8+ | 2006 02 23 | 699 | 0.2+ | 1.5+ | 2009 11 21 | 703 | 0.3+ | 0.7− | | |
| 2000 10 24 | 106 | 0.0 | 0.1+ | 2006 03 03 | 703 | 0.5− | 0.1− | 2009 11 23 | 704 | 0.0 | 0.2+ | | |
| 2000 10 24 | 106 | 0.5+ | 0.2+ | 2006 03 03 | 703 | 0.2+ | 0.1− | 2009 11 23 | 704 | 0.3+ | 0.1− | | |
| 2000 10 24 | 106 | 0.5+ | 0.2+ | 2006 03 03 | 703 | 0.2− | 0.0 | 2009 11 23 | 704 | 0.3+ | 0.3− | | |
| 2000 10 30 | 704 | 0.7− | 0.3− | 2006 03 09 | 683 | 0.1+ | 0.3− | 2009 11 23 | 704 | 0.1− | 0.5+ | | |
| 2000 10 30 | 704 | 0.1− | 0.5+ | 2006 03 09 | 683 | (0.3− | 1.6+) | 2009 12 09 | 704 | 0.5− | 0.4− | | |
| 2000 10 30 | 704 | 0.2+ | 0.5− | 2006 03 09 | 683 | 1.4+ | 0.2− | 2009 12 09 | 704 | 0.7− | 0.8− | | |
| 2000 10 30 | 704 | 1.0− | 0.6− | 2006 03 23 | 703 | 0.4− | 0.0 | 2009 12 09 | 704 | 0.7− | 0.2− | | |
| 2000 10 30 | 704 | 0.3+ | 0.1− | 2006 03 23 | 703 | 0.0 | 0.5− | 2009 12 09 | 704 | 0.3− | 0.4+ | | |
| 2000 11 02 | 704 | 0.2+ | 0.2+ | 2006 03 23 | 703 | 1.3− | 0.3− | 2009 12 09 | 704 | 0.4− | 0.3− | | |
| 2000 11 02 | 704 | 0.7− | 0.4+ | 2006 03 23 | 703 | (1.9− | 1.6−) | 2009 12 15 | 704 | 0.1− | 0.2+ | | |
| 2000 11 02 | 704 | 1.1+ | 0.0 | 2006 04 27 | 703 | 0.8+ | 0.7+ | 2009 12 15 | 704 | 0.3+ | 0.6+ | | |
| 2000 11 02 | 704 | 0.3− | 0.0 | 2006 04 27 | 703 | 1.2+ | 0.6− | 2009 12 15 | 704 | 0.4+ | 0.0 | | |
| 2000 11 21 | 704 | 1.3+ | 0.8− | 2006 04 27 | 703 | 0.0 | 1.0+ | 2009 12 15 | 704 | 0.3+ | 0.4+ | | |
| 2000 11 21 | 704 | 0.4+ | 0.3+ | 2006 04 27 | 703 | 1.2− | 1.1− | 2009 12 15 | 704 | 0.2− | 0.5− | | |
| 2000 11 21 | 704 | 0.1+ | 1.3+ | 2009 11 11 | 704 | 0.1− | 0.1+ | | | | | | |

**(228361)∗ 2000 UQ$_{22}$**

Discovered 2000 Oct. 24 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 91.37384 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23309558 | $\omega$ | 269.09240 | | +0.96624438 | +0.23988614 | |
| $a$ | 2.6148495 | $\Omega$ | 77.02354 | | −0.18085220 | +0.89129890 | |
| $e$ | 0.3112641 | $i$ | 5.53255 | | −0.18347829 | +0.38476086 | |
| $P$ | 4.23 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 10 02 | 704 | 0.6− | 0.2− | 2004 08 08 | 704 | 0.3+ | 0.2− | 2004 09 21 | 704 | 0.1− | 0.2+ | |
| 2000 10 02 | 704 | 0.2− | 0.4− | 2004 08 08 | 704 | 1.0− | 0.4− | 2004 09 21 | 704 | 0.1− | 1.0− | |
| 2000 10 02 | 704 | 0.1− | 0.4− | 2004 08 08 | 644 | 0.1− | 0.2+ | 2004 10 06 | 704 | 0.4+ | 0.2− | |
| 2000 10 02 | 704 | 0.1+ | 1.2+ | 2004 08 08 | 644 | 0.1− | 0.2+ | 2004 10 06 | 704 | 0.9− | 0.4− | |
| 2000 10 24 | 704 | 0.3− | 0.2+ | 2004 08 08 | 644 | 0.0 | 0.3+ | 2004 10 06 | 704 | 1.1+ | 0.6− | |
| 2000 10 24 | 704 | 0.2+ | 0.7+ | 2004 08 21 | E12 | 0.4+ | 0.3+ | 2004 10 06 | 704 | 0.4+ | 0.2− | |
| 2000 10 24 | 704 | 0.7+ | 0.2− | 2004 08 21 | E12 | 0.3− | 0.1+ | 2004 10 06 | 704 | 0.6+ | 0.9− | |
| 2000 10 24 | 704 | 0.6+ | 0.3+ | 2004 08 21 | E12 | 1.3− | 0.2− | 2004 10 14 | 699 | 0.2− | 0.5+ | |
| 2000 10 31 | 704 | 0.4+ | 0.2− | 2004 08 21 | E12 | 0.2+ | 1.1+ | 2004 10 14 | 699 | 0.2− | 1.2− | |
| 2000 10 31 | 704 | 0.3− | 0.3− | 2004 08 23 | 699 | 0.4− | 0.4− | 2004 10 14 | 699 | (2.2− | 1.4+) | |
| 2000 10 31 | 704 | 0.1+ | 0.0 | 2004 08 23 | 699 | 0.0 | 0.5− | 2004 10 14 | 699 | 0.6− | 0.6− | |
| 2000 10 31 | 704 | 0.5− | 0.1+ | 2004 08 23 | 699 | 0.3+ | 0.1− | 2004 11 11 | 699 | 0.6+ | 0.3+ | |
| 2000 10 31 | 704 | 0.1− | 0.4− | 2004 08 23 | 699 | 0.1+ | 0.4− | 2004 11 11 | 699 | 0.3+ | 0.9+ | |
| 2000 11 02 | 704 | 0.5− | 0.4+ | 2004 09 04 | 644 | 0.2− | 0.1− | 2004 11 11 | 699 | (1.8− | 1.7−) | |
| 2000 11 02 | 704 | 0.2− | 0.6− | 2004 09 04 | 644 | 0.3− | 0.2− | 2004 11 11 | 699 | 0.2− | 1.0+ | |
| 2000 11 02 | 704 | 0.6− | 0.5− | 2004 09 04 | 644 | 0.2− | 0.3− | 2006 01 07 | 691 | 0.0 | 0.1− | |
| 2000 11 02 | 704 | 0.2− | 0.6+ | 2004 09 07 | 704 | (2.0+ | 0.7−) | 2006 01 07 | 691 | 0.1+ | 0.3+ | |
| 2000 11 02 | 704 | 0.8+ | 0.7+ | 2004 09 07 | 704 | 0.4+ | 0.2− | 2006 01 07 | 691 | 0.1− | 0.2+ | |
| 2004 07 15 | 704 | 0.3+ | 1.3+ | 2004 09 07 | 704 | 0.1− | 0.6− | 2009 11 11 | G96 | 0.2− | 0.1+ | |
| 2004 07 15 | 704 | 0.2+ | 0.0 | 2004 09 07 | 704 | 0.4+ | 0.7− | 2009 11 11 | G96 | 0.8+ | 0.5− | |
| 2004 07 15 | 704 | 0.2− | 1.1+ | 2004 09 07 | 704 | 0.1+ | 0.2− | 2009 11 11 | G96 | 0.2+ | 0.1+ | |
| 2004 07 15 | 704 | 0.4+ | 1.1+ | 2004 09 16 | E12 | 0.2− | 0.7+ | 2009 11 11 | G96 | 0.1+ | 0.0 | |
| 2004 07 16 | 704 | 0.5− | 0.9+ | 2004 09 16 | E12 | 0.3+ | 0.1+ | 2009 12 18 | G96 | 0.4+ | 0.1− | |
| 2004 07 16 | 704 | 0.1− | 0.2+ | 2004 09 16 | E12 | 0.1− | 0.2+ | 2009 12 18 | G96 | 0.4+ | 0.1+ | |
| 2004 07 16 | 704 | 0.2+ | 1.2+ | 2004 09 16 | E12 | 0.2− | 0.1+ | 2009 12 18 | G96 | 0.0 | 0.3− | |
| 2004 07 16 | 704 | 0.3+ | 0.8+ | 2004 09 21 | 704 | 0.3+ | 0.5− | 2009 12 19 | 691 | 0.2− | 0.1− | |
| 2004 08 08 | 704 | 0.5− | 0.8+ | 2004 09 21 | 704 | 0.2+ | 0.2+ | 2009 12 19 | 691 | 0.0 | 0.6+ | |
| 2004 08 08 | 704 | 0.5− | 0.6+ | 2004 09 21 | 704 | 0.3+ | 1.1− | 2009 12 19 | 691 | 0.0 | 0.2+ | |

**(228362)∗ 2000 UA$_{73}$ = 2004 RE$_{210}$**

Discovered 2000 Oct. 25 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 68796)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 21.94710 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22038013 | $\omega$ | 166.82571 | | +0.73132978 | −0.65684153 | |
| $a$ | 2.7144869 | $\Omega$ | 235.77954 | | +0.60388755 | +0.74876212 | |
| $e$ | 0.0879008 | $i$ | 12.83021 | | +0.31698041 | +0.08896337 | |
| $P$ | 4.47 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1991 11 12 | 691 | 0.2+ | 0.8− | 2004 09 12 | 704 | 0.2− | 0.4+ | 2009 11 08 | 703 | 0.1+ | 0.2− | |
| 1991 11 12 | 691 | 0.2− | 0.2+ | 2004 09 12 | 704 | (1.6+ | 1.4+) | 2009 11 09 | 691 | 0.5− | 0.1− | |
| 1991 11 12 | 691 | 0.2− | 0.6+ | 2004 09 14 | 704 | 0.1+ | 1.1+ | 2009 11 09 | 691 | 0.1− | 0.1− | |
| 2000 10 25 | 704 | 1.2+ | 0.8+ | 2004 09 14 | 704 | 0.1− | 0.2+ | 2009 11 09 | 691 | 0.1− | 0.2− | |
| 2000 10 25 | 704 | 1.0+ | 1.0+ | 2004 09 14 | 704 | 0.1+ | 0.5+ | 2009 11 18 | 704 | 0.1− | 0.3+ | |
| 2000 10 25 | 704 | 0.2+ | 0.4+ | 2004 09 14 | 704 | 0.2+ | 0.1+ | 2009 11 18 | 704 | 0.4+ | 0.4+ | |
| 2000 10 25 | 704 | 0.9− | 0.3− | 2004 09 14 | 704 | 0.6+ | 1.2+ | 2009 11 18 | 704 | 0.0 | 0.2+ | |
| 2000 11 01 | 704 | 0.3+ | 1.5+ | 2004 09 22 | 704 | (1.0− | 2.2−) | 2009 11 18 | 704 | 0.4+ | 0.3− | |
| 2000 11 01 | 704 | 0.3− | 1.4+ | 2004 09 22 | 704 | (0.5− | 2.1−) | 2009 11 18 | 704 | 0.4+ | 0.2+ | |
| 2000 11 01 | 704 | 0.3− | 0.4− | 2004 09 22 | 704 | 0.3+ | 0.7− | 2009 11 20 | J75 | 0.3+ | 0.0 | |
| 2000 11 03 | 704 | 0.3− | 0.1+ | 2004 09 24 | 704 | 0.0 | 0.4− | 2009 11 20 | J75 | 0.1− | 0.9− | |
| 2000 11 03 | 704 | 0.2+ | 0.0 | 2004 09 24 | 704 | 0.1+ | 0.5+ | 2009 11 20 | J75 | 0.2− | 0.2− | |
| 2000 11 03 | 704 | 0.8+ | 0.4+ | 2004 09 24 | 704 | 0.7− | 0.9+ | 2009 11 21 | 704 | 0.4+ | 1.2+ | |
| 2000 11 03 | 704 | 0.1+ | 0.8− | 2004 09 24 | 704 | 0.1− | 0.1− | 2009 11 21 | 704 | 0.5− | 0.7+ | |
| 2000 11 21 | 704 | 0.9+ | 0.5− | 2004 09 24 | 704 | 0.6+ | 0.3− | 2009 11 21 | 704 | 0.1− | 1.3+ | |
| 2000 11 21 | 704 | 0.3− | 0.5− | 2006 01 04 | G96 | 0.3− | 0.1− | 2009 11 23 | G96 | 0.8+ | 0.8− | |
| 2000 11 21 | 704 | 0.8− | 0.4+ | 2006 01 04 | G96 | 0.2− | 0.1+ | 2009 11 23 | G96 | 0.8+ | 0.7− | |
| 2002 02 08 | 644 | 0.6+ | 0.4+ | 2006 01 04 | G96 | 0.2− | 0.1− | 2009 11 23 | G96 | 0.3+ | 0.7− | |
| 2002 02 08 | 644 | 0.3+ | 0.5+ | 2006 01 04 | G96 | 0.3+ | 0.1− | 2009 11 23 | G96 | 0.7+ | 0.5− | |
| 2002 02 08 | 644 | 0.2+ | 0.4+ | 2006 01 07 | 291 | 0.2+ | 0.4+ | 2009 11 23 | D29 | 0.1+ | 0.8− | |
| 2004 08 20 | 703 | 0.3− | 0.4− | 2006 01 07 | 291 | 0.1+ | 0.3+ | 2009 11 23 | D29 | 0.2+ | 0.2− | |
| 2004 08 20 | 703 | 0.9− | 0.9+ | 2006 01 07 | 291 | 0.1+ | 0.4+ | 2009 11 23 | D29 | 0.3+ | 0.8− | |
| 2004 08 20 | 703 | 0.6+ | 0.5+ | 2009 10 22 | 703 | 0.1+ | 0.1− | 2009 11 23 | D29 | 0.4+ | 0.0 | |
| 2004 08 20 | 703 | 0.4+ | 0.7+ | 2009 10 22 | 703 | 0.1+ | 0.4− | 2009 12 11 | 703 | 0.3− | 0.1− | |
| 2004 09 11 | 704 | 0.6− | 0.0 | 2009 10 22 | 703 | 0.1+ | 1.3− | 2009 12 11 | 703 | 0.0 | 0.5+ | |
| 2004 09 11 | 704 | 0.1− | 0.0 | 2009 10 22 | 703 | (2.6+ | 1.2−) | 2009 12 11 | 703 | 0.8− | 0.8+ | |
| 2004 09 11 | 704 | 0.3− | 0.0 | 2009 10 24 | 691 | 0.3+ | 0.0 | 2009 12 11 | 703 | 0.0 | 0.5+ | |
| 2004 09 11 | 704 | 0.2− | 0.5− | 2009 10 24 | 691 | 0.1− | 0.2− | 2009 12 19 | G96 | 0.5− | 0.5− | |
| 2004 09 11 | 704 | 0.2− | 0.3− | 2009 10 24 | 691 | 0.6− | 0.1− | 2009 12 19 | G96 | 0.1+ | 0.3− | |
| 2004 09 12 | 704 | 0.3− | 0.3+ | 2009 11 08 | 703 | 0.3− | 0.6− | 2009 12 19 | G96 | 0.1+ | 0.2− | |
| 2004 09 12 | 704 | 0.2− | 0.4+ | 2009 11 08 | 703 | (1.8+ | 0.1+) | 2009 12 19 | G96 | 0.2+ | 0.2− | |
| 2004 09 12 | 704 | 0.3− | 0.2+ | 2009 11 08 | 703 | 0.3− | 0.8− | | | | | |

**(228363)∗ 2000 UD$_{88}$ = 2003 FD$_{64}$**

Discovered 2000 Oct. 31 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 46511)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 107.14968 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22925348 | $\omega$ | 260.52913 | | +0.67869873 | +0.72765274 | |
| $a$ | 2.6439836 | $\Omega$ | 52.69505 | | −0.61519364 | +0.63724288 | |
| $e$ | 0.2418582 | $i$ | 7.18210 | | −0.40112944 | +0.25385626 | |
| $P$ | 4.30 | $H$ | 15.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 28 | 704 | (0.3+ | 2.4−) | 2002 01 14 | 644 | 0.3− | 0.9+ | 2004 10 06 | 704 | 0.1− | 0.3+ | |
| 2000 09 28 | 704 | 0.7− | 0.1− | 2002 01 14 | 644 | 0.2+ | 0.5+ | 2004 10 06 | 704 | 0.1+ | 1.0+ | |
| 2000 09 28 | 704 | 0.0 | 0.2+ | 2003 03 26 | 683 | (2.0+ | 0.7+) | 2004 10 06 | 704 | 0.1+ | 0.1+ | |
| 2000 09 28 | 704 | 0.4− | 1.4+ | 2003 03 26 | 683 | (1.7+ | 1.0+) | 2004 10 06 | 704 | 0.1− | 0.5+ | |
| 2000 10 02 | 704 | 0.0 | 0.0 | 2003 03 26 | 644 | 0.5+ | 0.9+ | 2004 10 10 | 644 | 0.1− | 0.1− | |
| 2000 10 02 | 704 | 0.3− | 0.1+ | 2003 03 26 | 683 | (2.1+ | 0.1+) | 2004 10 10 | 644 | 0.3+ | 0.1− | |
| 2000 10 02 | 704 | 0.1+ | 0.3− | 2003 03 26 | 644 | 0.5+ | 0.7+ | 2004 10 10 | 644 | 0.1+ | 0.0 | |
| 2000 10 31 | 704 | 0.9− | 1.2+ | 2003 03 26 | 644 | 0.5+ | 0.9+ | 2004 10 13 | 704 | 0.4+ | 1.0+ | |
| 2000 10 31 | 704 | 0.2+ | 0.5+ | 2003 03 26 | 691 | (0.9+ | 1.5+) | 2004 10 13 | 704 | 0.2− | 0.5+ | |
| 2000 10 31 | 704 | 0.3+ | 0.8+ | 2003 03 26 | 691 | 1.1+ | 1.3+ | 2004 10 13 | 704 | 0.1− | 1.2+ | |
| 2000 10 31 | 704 | 1.1+ | 0.0 | 2003 03 26 | 691 | (0.5+ | 1.5+) | 2004 10 13 | 704 | 0.1− | 0.8+ | |
| 2000 11 02 | 704 | 0.8+ | 0.2− | 2003 03 27 | 644 | 0.1+ | 1.3+ | 2004 10 13 | 704 | 0.3− | 1.0+ | |
| 2000 11 02 | 704 | 0.3+ | 0.3+ | 2003 03 27 | 644 | 0.4+ | 1.0+ | 2004 11 05 | 699 | (1.3− | 2.6+) | |
| 2000 11 02 | 704 | 1.2+ | 0.7− | 2003 03 27 | 644 | 0.0 | 0.9+ | 2004 11 05 | 699 | 0.3− | 0.4− | |
| 2000 11 02 | 704 | 0.4− | 0.0 | 2004 09 05 | 644 | 0.7− | 0.1+ | 2004 11 05 | 699 | 0.1− | 0.5− | |
| 2000 11 02 | 704 | 0.2+ | 0.4− | 2004 09 05 | 644 | 0.5− | 0.3+ | 2004 11 05 | 699 | (1.7+ | 0.3−) | |
| 2000 11 05 | 704 | 0.1− | 0.2− | 2004 09 05 | 644 | 0.7− | 0.1+ | 2005 12 06 | 691 | 0.1− | 0.0 | |
| 2000 11 05 | 704 | 0.5− | 0.0 | 2004 09 07 | 704 | 0.4− | 0.0 | 2005 12 06 | 691 | 0.1− | 0.0 | |
| 2000 11 05 | 704 | 0.1+ | 0.3+ | 2004 09 07 | 704 | 0.2− | 0.0 | 2005 12 06 | 691 | 0.2− | 0.4+ | |
| 2000 11 05 | 704 | 1.5+ | 0.5− | 2004 09 07 | 704 | 0.2− | 0.3+ | 2005 12 10 | 691 | 0.1− | 0.2− | |
| 2000 11 05 | 704 | 0.6− | 1.1− | 2004 09 07 | 704 | 0.2− | 0.5+ | 2005 12 10 | 691 | 0.2− | 0.1+ | |
| 2000 11 05 | 704 | 0.4− | 0.1+ | 2004 09 07 | 704 | 0.2− | 0.1+ | 2005 12 10 | 691 | 0.2+ | 0.2+ | |
| 2000 11 05 | 704 | 0.8+ | 0.4− | 2004 09 21 | 704 | 0.0 | 0.2+ | 2009 11 17 | G96 | 0.0 | 0.1− | |
| 2000 11 05 | 704 | 0.4− | 0.8+ | 2004 09 21 | 704 | 1.4− | 0.8+ | 2009 11 17 | G96 | 0.2+ | 0.3− | |
| 2000 11 05 | 704 | 0.5− | 1.4− | 2004 09 21 | 704 | 0.4+ | 0.5+ | 2009 11 17 | G96 | 0.2+ | 0.1− | |
| 2000 11 27 | 704 | 0.4+ | 0.1+ | 2004 09 21 | 704 | 0.4− | 0.4+ | 2009 11 17 | G96 | 0.0 | 0.3+ | |
| 2000 11 27 | 704 | 0.2− | 0.2− | 2004 10 03 | 644 | 0.0 | 0.0 | 2009 12 13 | G96 | 0.3+ | 0.2− | |
| 2000 11 27 | 704 | 0.7− | 0.4+ | 2004 10 03 | 644 | 0.4+ | 0.1− | 2009 12 13 | G96 | 0.3+ | 0.2− | |
| 2000 11 27 | 704 | 0.8− | 0.9+ | 2004 10 03 | 644 | 0.0 | 0.1+ | 2009 12 13 | G96 | 0.1+ | 0.0 | |
| 2002 01 14 | 644 | 0.4+ | 0.7+ | 2004 10 06 | 704 | 1.2− | 0.7+ | 2009 12 13 | G96 | 0.8+ | 0.1− | |

**(228364)∗ 2000 VH$_{22}$ = 2004 RR$_{26}$**

Discovered 2000 Nov. 1 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 68810)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 46.42525 | | (2000.0) | | | |
| $n$ | 0.22614659 | $\omega$ | 156.39035 | | +0.85461325 | −0.51480271 |
| $a$ | 2.6681445 | $\Omega$ | 234.76735 | | +0.46218647 | +0.81376345 |
| $e$ | 0.1634094 | $i$ | 4.77041 | | +0.23668514 | +0.26975398 |
| $P$ | 4.36 | $H$ | 16.4 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 04 15 | 691 | 0.3+ | 0.3+ | 2004 08 12 | 704 | 0.1+ | 0.2− | 2004 09 18 | 704 | 0.1− | 0.2+ |
| 1994 04 15 | 691 | 0.4− | 0.5+ | 2004 08 12 | 704 | 0.1+ | 0.1+ | 2004 09 18 | 704 | 0.1+ | 0.9− |
| 1994 04 15 | 691 | 0.1+ | 0.9+ | 2004 08 12 | 704 | 0.6+ | 1.3+ | 2004 09 18 | 704 | 0.2+ | 0.3− |
| 2000 11 01 | 704 | 0.1− | 0.5− | 2004 08 12 | 704 | 0.2+ | 0.1− | 2004 09 18 | 704 | 0.2+ | 0.1+ |
| 2000 11 01 | 704 | 0.3− | 0.5+ | 2004 09 06 | 683 | 0.7− | 0.6+ | 2004 09 23 | 691 | 0.2− | 0.2− |
| 2000 11 01 | 704 | 0.6− | 0.3+ | 2004 09 06 | 683 | (1.1− | 1.8+) | 2004 09 23 | 691 | 0.3− | 0.1− |
| 2000 11 01 | 704 | 0.2− | 0.3+ | 2004 09 06 | 683 | 0.8− | 1.3+ | 2004 09 23 | 691 | 0.4− | 0.3− |
| 2000 11 02 | 704 | 0.7− | 0.5− | 2004 09 08 | 704 | 0.4− | 0.9+ | 2004 10 07 | 704 | 0.4− | 0.7− |
| 2000 11 02 | 704 | 0.4− | 0.3+ | 2004 09 08 | 704 | 0.2− | 0.5+ | 2004 10 07 | 704 | 0.5− | 0.7− |
| 2000 11 02 | 704 | 0.5− | 0.2− | 2004 09 08 | 704 | 0.6+ | 0.2+ | 2004 10 07 | 704 | (0.1− | 1.5−) |
| 2000 11 02 | 704 | 1.3− | 0.4− | 2004 09 08 | 704 | 0.2+ | 0.2+ | 2006 02 01 | G96 | 0.3+ | 0.1+ |
| 2000 11 02 | 704 | 0.4− | 0.4− | 2004 09 08 | 704 | 0.9+ | 0.2− | 2006 02 01 | G96 | 0.2+ | 0.2+ |
| 2000 11 18 | 699 | 1.1+ | 1.1+ | 2004 09 09 | 691 | 0.2+ | 0.0 | 2006 02 01 | G96 | 0.3− | 1.2+ |
| 2000 11 18 | 699 | 0.8− | 0.0 | 2004 09 09 | 691 | 0.2+ | 0.1− | 2007 05 12 | G96 | 0.3+ | 0.5− |
| 2000 11 18 | 699 | 0.3− | 1.2− | 2004 09 09 | 691 | 0.2+ | 0.1− | 2007 05 12 | G96 | (1.7+ | 0.6−) |
| 2000 11 18 | 699 | 1.0− | 0.8+ | 2004 09 10 | 704 | 0.5− | 0.5+ | 2007 05 12 | G96 | 0.6+ | 0.6− |
| 2000 11 21 | 704 | 0.1− | 0.7+ | 2004 09 10 | 704 | 0.0 | 0.3+ | 2007 05 12 | G96 | 0.6+ | 0.1+ |
| 2000 11 21 | 704 | 0.7− | 0.0 | 2004 09 10 | 704 | 0.7− | 0.2+ | 2008 06 07 | 691 | 0.1+ | 0.0 |
| 2000 11 21 | 704 | 1.3− | 0.1− | 2004 09 10 | 704 | 0.7+ | 1.5+ | 2008 06 07 | 691 | 0.2+ | 0.1+ |
| 2000 11 27 | 704 | 0.7− | 0.4− | 2004 09 10 | 704 | 0.1− | 0.3− | 2008 06 07 | 691 | 0.1+ | 0.4− |
| 2000 11 27 | 704 | 1.1− | 1.0+ | 2004 09 13 | 691 | 0.0 | 0.2+ | 2009 11 27 | 691 | 0.2− | 0.3+ |
| 2000 11 27 | 704 | 0.9− | 0.6− | 2004 09 13 | 704 | 0.3− | 0.0 | 2009 11 27 | 691 | 0.2− | 0.1+ |
| 2000 11 27 | 704 | 0.1− | 0.3+ | 2004 09 13 | 704 | 0.7− | 0.3+ | 2009 11 27 | 691 | 0.2− | 0.2+ |
| 2000 11 28 | 691 | 0.2+ | 0.3− | 2004 09 13 | 691 | 0.0 | 0.0 | 2009 12 17 | 704 | 0.2+ | 0.9+ |
| 2000 11 28 | 691 | 0.3+ | 0.2− | 2004 09 13 | 704 | 0.7− | 1.0+ | 2009 12 17 | 704 | 0.6+ | 1.0+ |
| 2000 11 28 | 691 | 1.4+ | 0.7+ | 2004 09 13 | 704 | 0.4− | 1.1+ | 2009 12 17 | 704 | 0.4+ | 1.1+ |
| 2000 12 04 | 691 | 0.3+ | 0.3− | 2004 09 13 | 691 | 0.1+ | 0.1+ | 2009 12 17 | 704 | 0.3+ | 0.5+ |
| 2000 12 04 | 691 | 0.5+ | 0.3− | 2004 09 13 | 704 | 1.2− | 0.5+ | | | | |
| 2000 12 04 | 691 | 0.5+ | 0.3− | 2004 09 18 | 704 | 0.0 | 0.2+ | | | | |

**(228365)∗ 2000 VB$_{56}$**

Discovered 2000 Nov. 3 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 352.43654 | | (2000.0) | | | |
| $n$ | 0.21974154 | $\omega$ | 188.09275 | | +0.08965899 | −0.97993474 |
| $a$ | 2.7197435 | $\Omega$ | 256.89612 | | +0.92371681 | +0.14865169 |
| $e$ | 0.1222336 | $i$ | 10.53137 | | +0.37243594 | −0.13278019 |
| $P$ | 4.49 | $H$ | 15.7 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 03 | 704 | 0.3− | 1.9− | 2006 01 29 | 246 | 0.8+ | 0.2+ | 2009 11 17 | 704 | 0.7+ | 0.4+ |
| 2000 11 03 | 704 | 0.1+ | 1.4− | 2006 01 29 | 246 | 0.3+ | 0.3− | 2009 11 17 | 704 | 0.3+ | 0.2+ |
| 2000 11 03 | 704 | 0.1+ | 1.0− | 2006 01 29 | 246 | 0.7+ | 0.6+ | 2009 11 17 | 704 | (0.3− | 1.9−) |
| 2000 11 05 | 704 | 0.2− | 0.7− | 2006 01 29 | 246 | (1.8+ | 0.5+) | 2009 11 17 | 704 | 0.2+ | 0.8+ |
| 2000 11 05 | 704 | 0.1+ | 0.2− | 2006 01 29 | 246 | 0.7+ | 0.5+ | 2009 11 24 | J75 | (1.6− | 0.4−) |
| 2000 11 05 | 704 | 0.1+ | 0.4+ | 2006 01 30 | 703 | 0.3+ | 0.5− | 2009 11 24 | J75 | 0.3+ | 0.2− |
| 2000 11 20 | 704 | 0.4+ | 0.5− | 2006 01 30 | 703 | 0.6− | 0.0 | 2009 11 24 | J75 | 0.1+ | 0.3− |
| 2000 11 20 | 704 | 0.3+ | 0.3− | 2006 01 30 | 703 | 0.4− | 0.4+ | 2009 11 24 | J75 | 0.6+ | 0.1− |
| 2000 11 20 | 704 | 0.1+ | 0.3− | 2006 01 30 | 703 | (2.5− | 0.7−) | 2009 11 24 | J75 | 0.8− | 1.5− |
| 2000 11 20 | 704 | 0.0 | 0.0 | 2009 10 23 | 704 | 0.2− | 0.7+ | 2009 11 24 | J75 | 1.2+ | 0.3− |
| 2000 11 20 | 704 | 1.0+ | 1.2− | 2009 10 23 | 704 | 0.1+ | 0.8+ | 2009 11 25 | 691 | 0.2− | 0.1+ |
| 2000 11 29 | 704 | 1.0− | 0.6+ | 2009 10 23 | 704 | 0.7− | 0.4− | 2009 11 25 | 691 | 0.3− | 0.2+ |
| 2000 11 29 | 704 | 0.5− | 0.8+ | 2009 10 23 | 704 | 0.3− | 0.1− | 2009 11 25 | 691 | 0.2− | 0.2+ |
| 2000 11 29 | 704 | 0.6− | 0.7+ | 2009 11 08 | 703 | 1.2+ | 0.5+ | 2009 11 25 | 703 | 0.1+ | 0.4− |
| 2000 11 29 | 704 | 0.1+ | 0.4+ | 2009 11 08 | 703 | 0.3+ | 1.3− | 2009 11 25 | 703 | 0.2+ | 0.2+ |
| 2004 09 11 | 704 | 0.2− | 0.1+ | 2009 11 08 | 703 | 0.1− | 0.7− | 2009 11 25 | 703 | 0.6− | 0.3− |
| 2004 09 11 | 704 | 0.2+ | 0.6+ | 2009 11 08 | 703 | 0.6+ | 0.9− | 2009 11 25 | 703 | 0.0 | 0.8− |
| 2004 09 11 | 704 | 0.1− | 1.0+ | 2009 11 11 | 704 | 0.3− | 0.5− | 2009 11 25 | 703 | 0.9− | 0.9+ |
| 2004 09 11 | 704 | (0.3+ | 1.6+) | 2009 11 11 | 704 | 0.0 | 0.3− | 2009 12 11 | 704 | 0.6+ | 0.6+ |
| 2004 10 06 | 644 | 0.3− | 0.2+ | 2009 11 11 | 704 | 0.2− | 0.5+ | 2009 12 11 | 704 | 0.9+ | 1.0+ |
| 2004 10 06 | 644 | 0.4− | 0.1+ | 2009 11 11 | 704 | 0.2− | 0.1+ | 2009 12 11 | 704 | 0.9+ | 1.0− |
| 2004 10 06 | 644 | 0.1− | 0.2+ | 2009 11 11 | 704 | 0.2− | 0.7+ | 2009 12 16 | 704 | 0.4+ | 0.2+ |
| 2006 01 25 | 699 | 1.2− | 0.2− | 2009 11 12 | J75 | 1.0+ | 0.3− | 2009 12 16 | 704 | 0.9+ | 1.1+ |
| 2006 01 25 | 699 | 0.6− | 0.4− | 2009 11 12 | J75 | 0.0 | 0.0 | 2009 12 16 | 704 | 0.4+ | 0.8+ |
| 2006 01 25 | 699 | 0.6− | 0.3+ | 2009 11 12 | J75 | 0.1− | 0.4+ | 2009 12 16 | 704 | 0.6+ | 1.3+ |
| 2006 01 25 | 699 | 0.0 | 0.2+ | 2009 11 17 | 691 | 0.2− | 0.2− | 2009 12 16 | 704 | 0.2− | 2.1+ |
| 2006 01 29 | 246 | 0.9+ | 0.2− | 2009 11 17 | 691 | 0.3− | 0.2− | | | | |
| 2006 01 29 | 246 | 0.3+ | 0.0 | 2009 11 17 | 691 | 0.5− | 0.2− | | | | |

**(228366)∗ 2000 VO$_{62}$**

Discovered 2000 Nov. 2 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 47.67096 | | (2000.0) | | | |
| $n$ | 0.22560277 | $\omega$ | 298.38319 | | +0.85543253 | −0.51205954 |
| $a$ | 2.6724306 | $\Omega$ | 92.51381 | | +0.49821869 | +0.77264387 |
| $e$ | 0.2873471 | $i$ | 4.45805 | | +0.14146843 | +0.37525522 |
| $P$ | 4.37 | $H$ | 16.5 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 01 | 704 | 1.8− | 1.0− | 2000 12 01 | 691 | 0.1− | 0.3− | 2006 01 23 | 691 | 0.1+ | 0.1+ |
| 2000 11 01 | 704 | 0.3− | 1.2+ | 2004 08 08 | 704 | 0.4+ | 0.2+ | 2006 02 01 | 691 | 0.6− | 0.6+ |
| 2000 11 01 | 704 | (0.1− | 2.3+) | 2004 08 08 | 704 | 0.6− | 0.3+ | 2006 02 01 | 691 | 0.4− | 0.4+ |
| 2000 11 02 | 704 | 1.0− | 0.8+ | 2004 08 08 | 704 | 0.9+ | 0.2+ | 2006 02 01 | 691 | 0.2− | 0.4+ |
| 2000 11 02 | 704 | 0.0 | 0.4− | 2004 08 11 | 704 | 0.4+ | 0.3+ | 2006 02 20 | 691 | 0.1− | 0.2− |
| 2000 11 02 | 704 | 0.4− | 0.1+ | 2004 08 11 | 704 | 0.0 | 1.2+ | 2006 02 20 | 691 | 0.1+ | 0.4+ |
| 2000 11 02 | 704 | 0.7− | 1.0− | 2004 08 11 | 704 | 0.5− | 1.2+ | 2006 02 20 | 691 | 0.4+ | 0.4+ |
| 2000 11 02 | 704 | 0.7− | 0.1+ | 2004 08 11 | 704 | (1.6− | 0.6+) | 2006 02 24 | 691 | 0.2+ | 0.2+ |
| 2000 11 08 | 919 | 0.3+ | 0.5− | 2004 08 23 | 699 | 0.9− | 0.7+ | 2006 02 24 | 691 | 0.3+ | 0.1− |
| 2000 11 08 | 919 | 0.4+ | 0.9− | 2004 08 23 | 699 | 0.3+ | 0.4− | 2006 02 24 | 691 | 0.1− | 0.3+ |
| 2000 11 24 | 699 | 0.2+ | 0.2+ | 2004 08 23 | 699 | 0.9− | 0.3+ | 2007 04 22 | 807 | 0.3+ | 0.2+ |
| 2000 11 24 | 699 | 0.5+ | 0.1+ | 2004 08 23 | 699 | 0.4+ | 0.2+ | 2007 04 22 | 807 | 0.2+ | 0.2+ |
| 2000 11 24 | 699 | 0.2+ | 1.3+ | 2004 09 07 | 704 | 0.7+ | 0.3− | 2009 11 11 | G96 | 0.3+ | 0.5− |
| 2000 11 24 | 699 | 0.7+ | 0.3+ | 2004 09 07 | 704 | 0.7− | 0.5+ | 2009 11 11 | G96 | 0.1+ | 0.4− |
| 2000 11 27 | 704 | 0.2+ | 0.8+ | 2004 09 07 | 704 | 0.1− | 0.1+ | 2009 11 11 | G96 | 0.4+ | 0.6− |
| 2000 11 27 | 704 | 0.2+ | 0.1+ | 2004 09 07 | 704 | 0.3− | 0.6− | 2009 11 11 | G96 | 0.2+ | 0.7− |
| 2000 11 27 | 704 | 0.3+ | 0.6+ | 2004 09 07 | 704 | 0.1+ | 0.6+ | 2009 12 15 | G96 | 0.0 | 0.2+ |
| 2000 11 27 | 704 | 0.2− | 1.0+ | 2004 09 21 | 704 | 0.4+ | 0.3+ | 2009 12 15 | G96 | 0.1− | 0.2− |
| 2000 11 27 | 704 | 0.2− | 0.2− | 2004 09 21 | 704 | (3.3+ | 0.2−) | 2009 12 15 | G96 | 0.6+ | 0.2− |
| 2000 11 27 | 704 | 0.3+ | 0.8+ | 2004 09 21 | 704 | (0.8− | 2.6−) | 2009 12 15 | G96 | 0.3+ | 0.5− |
| 2000 11 27 | 704 | 0.5+ | 0.5+ | 2004 09 21 | 704 | (1.6+ | 1.4−) | 2009 12 18 | 691 | 0.2− | 0.1+ |
| 2000 11 27 | 704 | 0.7+ | 0.6+ | 2004 10 09 | 644 | 0.5− | 0.1− | 2009 12 18 | 691 | 0.1− | 0.0 |
| 2000 11 27 | 704 | 0.1− | 0.6+ | 2004 10 09 | 644 | 0.5− | 0.0 | 2009 12 18 | 691 | 0.1+ | 0.0 |
| 2000 11 27 | 704 | 0.7+ | 1.0+ | 2004 10 09 | 644 | 0.4− | 0.0 | 2009 12 26 | 691 | 0.0 | 0.1− |
| 2000 12 01 | 691 | 0.0 | 0.3− | 2006 01 23 | 691 | 0.4+ | 0.2− | 2009 12 26 | 691 | 0.1+ | 0.1− |
| 2000 12 01 | 691 | 0.0 | 0.3− | 2006 01 23 | 691 | 0.2+ | 0.5− | 2009 12 26 | 691 | 0.2− | 0.1+ |

**(228367)∗ 2000 VS$_{64}$ = 2004 RH$_{34}$**

Discovered 2000 Nov. 1 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 68818)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 59.66491 | | (2000.0) | | | |
| $n$ | 0.22857311 | $\omega$ | 318.40127 | | +0.91093683 | −0.40998246 |
| $a$ | 2.6492277 | $\Omega$ | 65.85679 | | +0.39054921 | +0.82114857 |
| $e$ | 0.2129547 | $i$ | 2.88433 | | +0.13291129 | +0.39702570 |
| $P$ | 4.31 | $H$ | 16.5 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 04 03 | 691 | 0.3+ | 0.3− | 2004 09 06 | 644 | 0.1+ | 0.2+ | 2004 09 17 | 704 | 0.7+ | 0.6+ |
| 1998 04 03 | 691 | 0.1− | 0.7− | 2004 09 06 | 644 | 0.1+ | 0.2+ | 2004 09 21 | 704 | 0.1− | 0.1− |
| 1998 04 03 | 691 | 0.1+ | 0.7− | 2004 09 06 | 644 | 0.2+ | 0.3+ | 2004 09 21 | 704 | 0.3+ | 0.1+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 01 | 704 | 0.2− | 1.8+ | 2004 09 07 | 704 | 0.3− | 0.7+ | 2004 09 21 | 704 | 1.2− | 1.1+ |
| 2000 11 01 | 704 | 0.5− | 0.3+ | 2004 09 07 | 704 | 0.2+ | 0.0 | 2004 09 21 | 704 | 1.3− | 0.3+ |
| 2000 11 01 | 704 | 1.3+ | 0.6+ | 2004 09 07 | 704 | 0.1+ | 0.4+ | 2004 09 21 | 704 | 0.0 | 0.4+ |
| 2000 11 01 | 704 | 0.8+ | 0.9− | 2004 09 07 | 704 | 0.1+ | 0.3+ | 2006 01 23 | 691 | 0.1+ | 0.4+ |
| 2000 11 18 | 699 | 0.2− | 1.9+ | 2004 09 07 | 704 | 0.2+ | 0.2− | 2006 01 23 | 691 | 0.0 | 0.2+ |
| 2000 11 18 | 699 | 1.0− | 0.1− | 2004 09 09 | 704 | 0.3+ | 1.1+ | 2006 01 23 | 691 | 0.0 | 0.1+ |
| 2000 11 18 | 699 | 0.7− | 2.0+ | 2004 09 09 | 704 | 0.1+ | 0.3+ | 2006 01 31 | 691 | 0.1− | 0.4+ |
| 2000 11 18 | 699 | (0.8+ | 2.4+) | 2004 09 09 | 704 | 0.0 | 0.5+ | 2006 01 31 | 691 | 0.7+ | 0.1+ |
| 2000 11 21 | 704 | 0.0 | 0.6− | 2004 09 09 | 704 | 0.4+ | 0.1+ | 2006 01 31 | 691 | 0.2+ | 0.2+ |
| 2000 11 21 | 704 | 0.4− | 0.3− | 2004 09 09 | 704 | 0.1+ | 0.7+ | 2006 02 24 | 691 | 0.1+ | 0.4+ |
| 2000 11 21 | 704 | 0.9− | 0.3− | 2004 09 12 | 704 | 0.3− | 0.6+ | 2006 02 24 | 691 | 0.1− | 0.1+ |
| 2000 11 21 | 704 | 0.2+ | 0.7− | 2004 09 12 | 704 | 0.2− | 0.4+ | 2006 02 24 | 691 | 0.2− | 0.4+ |
| 2000 11 28 | 691 | 0.2+ | 0.4− | 2004 09 12 | 704 | 0.5− | 1.2+ | 2006 03 05 | 691 | 0.6+ | 0.6+ |
| 2000 11 28 | 691 | 0.2+ | 0.5− | 2004 09 12 | 704 | 0.5− | 0.1− | 2006 03 05 | 691 | 0.2+ | 0.5+ |
| 2000 11 28 | 691 | 0.2+ | 0.4− | 2004 09 12 | 704 | 0.2− | 0.1+ | 2006 03 05 | 691 | 0.2+ | 0.4+ |
| 2002 03 12 | 645 | 0.0 | 0.2+ | 2004 09 15 | 699 | 0.2− | 0.1− | 2009 11 11 | G96 | 0.2+ | 0.3− |
| 2002 03 12 | 645 | 0.0 | 0.2+ | 2004 09 15 | 699 | 0.9+ | 1.4− | 2009 11 11 | G96 | 0.0 | 0.7− |
| 2003 06 02 | 807 | 0.1+ | 0.4+ | 2004 09 15 | 699 | 0.1+ | 0.2+ | 2009 11 11 | G96 | 0.2+ | 0.3− |
| 2003 06 02 | 807 | 0.2− | 0.7+ | 2004 09 15 | 699 | 0.9+ | 1.2+ | 2009 11 11 | G96 | 0.3+ | 0.6− |
| 2004 08 21 | 703 | 1.3− | 0.7+ | 2004 09 17 | 704 | 0.5− | 0.3− | 2009 12 19 | 691 | 0.1− | 0.6− |
| 2004 08 21 | 703 | 1.3− | 0.2+ | 2004 09 17 | 704 | 0.3− | 0.6+ | 2009 12 19 | 691 | 0.1− | 0.1− |
| 2004 08 21 | 703 | (1.5− | 0.5−) | 2004 09 17 | 704 | 0.4− | 0.5+ | 2009 12 19 | 691 | 0.1− | 0.2− |
| 2004 08 21 | 703 | 0.9− | 0.3+ | 2004 09 17 | 704 | 0.7− | 0.0 | | | | |

**(228368)∗ 2000 WK$_{10}$**

Discovered 2000 Nov. 19 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 71.03544 | | (2000.0) | | +0.51151031 | +0.83160991 |
| $n$ | 0.54833223 | $\omega$ | 244.30329 | | −0.66848977 | +0.54327835 |
| $a$ | 1.4783373 | $\Omega$ | 58.15854 | | −0.53988761 | +0.11521105 |
| $e$ | 0.7019159 | $i$ | 14.75032 | | | |
| $P$ | 1.80 | $H$ | 18.5 | $G$ 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 19 | 704 | 0.4+ | 0.1− | 2000 12 07 | 046 | 0.1− | 0.5− | 2009 11 11 | 704 | 0.9+ | 0.3+ |
| 2000 11 19 | 704 | 0.6+ | 0.4− | 2000 12 20 | 696 | 0.3+ | 0.3− | 2009 11 11 | 704 | 0.4+ | 0.3− |
| 2000 11 19 | 704 | 0.4+ | 0.2+ | 2000 12 20 | 696 | 0.8+ | 0.2− | 2009 11 11 | 704 | 0.8+ | 0.2+ |
| 2000 11 19 | 704 | 0.8+ | 0.3+ | 2001 03 23 | 568 | 0.2− | 0.3+ | 2009 11 11 | 704 | 0.9+ | 0.5+ |
| 2000 11 20 | 704 | 0.3+ | 0.2− | 2001 03 23 | 568 | 0.3− | 0.1+ | 2009 11 11 | 703 | 0.4− | 0.6− |
| 2000 11 20 | 704 | 0.2+ | 0.1− | 2001 03 24 | 568 | 0.1+ | 0.3− | 2009 11 11 | 703 | 0.1+ | 0.5− |
| 2000 11 20 | 704 | 0.6+ | 0.0 | 2002 01 13 | 291 | 0.6+ | 1.2+ | 2009 11 11 | 703 | 0.2+ | 0.3− |
| 2000 11 20 | 704 | 0.0 | 0.1+ | 2002 01 13 | 291 | (0.2− | 2.9+) | 2009 11 11 | 703 | 0.3− | 0.5+ |
| 2000 11 20 | 704 | 0.2+ | 0.3+ | 2002 01 13 | 291 | (0.8+ | 2.2+) | 2009 11 16 | 704 | 0.8− | 0.7+ |
| 2000 11 22 | 046 | 1.2− | 0.6− | 2002 01 14 | 291 | (0.1+ | 1.7+) | 2009 11 16 | 704 | 0.2− | 0.7+ |
| 2000 11 22 | 046 | 0.1− | 0.7+ | 2002 01 14 | 291 | (0.0 | 3.2+) | 2009 11 16 | 704 | 0.3− | 0.0 |
| 2000 11 22 | 046 | 0.2+ | 0.3− | 2002 01 14 | 291 | (0.0 | 2.6+) | 2009 11 16 | 704 | 0.6− | 0.1− |
| 2000 11 22 | 046 | 0.0 | 0.1− | 2002 02 09 | 691 | 0.2− | 0.3− | 2009 11 23 | 704 | 0.4+ | 0.2− |
| 2000 11 22 | 046 | 0.7− | 0.1+ | 2002 02 09 | 691 | 0.1− | 0.4− | 2009 11 23 | 704 | 1.1+ | 0.3+ |
| 2000 11 23 | 853 | 0.2− | 0.1+ | 2002 02 09 | 691 | 0.1− | 0.3− | 2009 11 23 | 704 | 0.4+ | 0.3− |
| 2000 11 23 | 853 | 0.5+ | 0.0 | 2002 04 08 | 696 | 0.1+ | 0.1+ | 2009 11 23 | 704 | 0.3+ | 0.2+ |
| 2000 11 23 | 853 | 0.8− | 0.2− | 2002 04 08 | 696 | 0.4+ | 0.1+ | 2009 12 07 | B15 | 0.5− | 0.3− |
| 2000 11 28 | 360 | 0.3+ | 0.4− | 2007 12 28 | 291 | (2.9− | 3.3−) | 2009 12 07 | B15 | 0.7− | 0.3− |
| 2000 11 28 | 360 | 0.1+ | 0.4− | 2007 12 28 | 291 | 0.0 | 0.9+ | 2009 12 07 | B15 | 0.8− | 0.5− |
| 2000 11 28 | 360 | 0.0 | 0.2− | 2007 12 28 | 291 | 0.1− | 0.2+ | 2009 12 07 | B15 | 0.7− | 0.5− |
| 2000 12 07 | 046 | 0.3− | 0.1− | 2009 10 18 | G96 | 0.4+ | 0.2− | 2009 12 07 | B15 | 0.5− | 0.7− |
| 2000 12 07 | 046 | 0.6− | 0.5+ | 2009 10 18 | G96 | 0.2+ | 0.3− | 2009 12 08 | 204 | 0.3+ | 0.0 |
| 2000 12 07 | 046 | 0.7− | 1.0− | 2009 10 18 | G96 | 0.7+ | 0.3− | 2009 12 08 | 204 | 0.2+ | 0.2− |
| 2000 12 07 | 046 | 0.1+ | 0.7+ | 2009 10 18 | G96 | 0.3+ | 0.2− | 2009 12 09 | 204 | 0.2+ | 0.6− |

**(228369)∗ 2000 WQ$_{12}$**

Discovered 2000 Nov. 22 by NEAT at Haleakala.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 7.78714 | | (2000.0) | | −0.03690514 | −0.96072158 |
| $n$ | 0.22404156 | $\omega$ | 338.50022 | | +0.95483219 | −0.11510773 |
| $a$ | 2.6848312 | $\Omega$ | 112.73314 | | +0.29484487 | +0.25251585 |
| $e$ | 0.2631642 | $i$ | 17.35049 | | | |
| $P$ | 4.40 | $H$ | 15.7 | $G$ 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 20 | 699 | 0.1− | 0.1+ | 2000 12 28 | 704 | (2.0+ | 0.8+) | 2006 03 24 | 703 | 0.3− | 0.9+ |
| 2000 11 20 | 699 | 0.2+ | 0.1− | 2000 12 28 | 704 | 0.1+ | 1.6+ | 2006 03 24 | 703 | 0.8− | 1.1+ |
| 2000 11 20 | 699 | 0.0 | 0.2− | 2000 12 31 | 608 | (1.4+ | 3.3+) | 2006 03 24 | 703 | 1.4− | 0.3− |
| 2000 11 20 | 699 | 0.0 | 0.2− | 2000 12 31 | 608 | (1.3+ | 2.5+) | 2009 11 18 | 114 | 0.6+ | 0.0 |
| 2000 11 22 | 608 | 1.1− | 0.4− | 2000 12 31 | 608 | (1.3+ | 3.1+) | 2009 11 18 | 114 | 0.3+ | 0.4− |
| 2000 11 22 | 608 | 1.1− | 0.3− | 2001 01 16 | 608 | (0.3− | 1.7−) | 2009 12 10 | J75 | 0.3+ | 0.2− |
| 2000 11 22 | 608 | 0.9− | 0.3− | 2001 01 16 | 608 | (0.4− | 1.5−) | 2009 12 10 | J75 | 0.8+ | 1.0+ |
| 2000 11 25 | 704 | 0.8+ | 0.0 | 2001 01 16 | 608 | (0.5− | 1.7−) | 2009 12 10 | J75 | 0.2+ | 0.5+ |
| 2000 11 25 | 704 | 0.2− | 0.3− | 2004 09 08 | 644 | 0.0 | 0.1− | 2009 12 12 | 704 | 0.2+ | 1.2+ |
| 2000 11 25 | 704 | 0.6+ | 0.2− | 2004 09 08 | 644 | 0.2+ | 0.0 | 2009 12 12 | 704 | 0.7+ | 0.0 |
| 2000 11 25 | 704 | 0.8+ | 0.8+ | 2004 09 08 | 644 | 0.1− | 0.0 | 2009 12 12 | 704 | 0.0 | 0.7+ |
| 2000 11 25 | 704 | 0.4+ | 0.4+ | 2004 09 08 | 644 | 0.1+ | 0.0 | 2009 12 18 | 704 | 1.0+ | 0.8+ |
| 2000 11 25 | 608 | 1.1− | 1.0− | 2004 09 08 | 644 | 0.1− | 0.5− | 2009 12 18 | 704 | 0.5+ | 0.3+ |
| 2000 11 25 | 608 | 1.0− | 1.0− | 2004 09 08 | 644 | 0.4+ | 0.3+ | 2009 12 18 | 704 | 0.2− | 0.5+ |
| 2000 11 25 | 608 | 1.1− | 1.1− | 2006 02 04 | 704 | 1.0+ | 1.2+ | 2009 12 19 | D25 | 0.1− | 0.8− |
| 2000 11 30 | 608 | 0.4+ | 0.1− | 2006 02 04 | 704 | 0.7+ | 0.5+ | 2009 12 19 | D25 | 0.0 | 0.2− |
| 2000 11 30 | 608 | 0.1+ | 0.2− | 2006 02 04 | 704 | 1.2+ | 1.2+ | 2009 12 19 | D25 | 0.1− | 0.4− |
| 2000 11 30 | 608 | 0.1+ | 0.5− | 2006 02 04 | 704 | 0.1+ | 0.9− | 2009 12 19 | D25 | 0.4− | 0.1+ |
| 2000 12 05 | 608 | 0.7+ | 0.5+ | 2006 02 24 | 703 | 0.5+ | 0.6− | 2009 12 20 | 691 | 0.4− | 0.4− |
| 2000 12 05 | 608 | 0.2+ | 0.7+ | 2006 02 24 | 703 | 0.3− | 0.2− | 2009 12 20 | 691 | 0.4− | 0.2− |
| 2000 12 05 | 608 | 0.2+ | 0.5+ | 2006 02 24 | 703 | 0.2+ | 0.4− | 2009 12 20 | 691 | 0.4− | 0.3− |
| 2000 12 18 | 699 | 0.2+ | 0.9+ | 2006 02 24 | 703 | 0.2− | 0.4− | 2009 12 20 | D25 | 0.9+ | 0.4− |
| 2000 12 18 | 699 | 0.4+ | 0.3+ | 2006 03 06 | 703 | 0.6− | 0.3− | 2009 12 20 | D25 | 0.1+ | 0.2− |
| 2000 12 18 | 699 | 0.1− | 1.1+ | 2006 03 06 | 703 | 0.1− | 1.2− | 2009 12 20 | D25 | 0.4+ | 0.8− |
| 2000 12 18 | 699 | 1.0+ | 0.7+ | 2006 03 06 | 703 | 0.2+ | 0.3+ | 2009 12 20 | D25 | 0.4+ | 0.3− |
| 2000 12 28 | 704 | 0.1− | 0.1+ | 2006 03 06 | 703 | 0.9− | 0.4− | | | | |
| 2000 12 28 | 704 | 0.1+ | 0.0 | 2006 03 24 | 703 | 1.3+ | 0.4− | | | | |

**(228370)∗ 2000 WJ$_{27}$ = 2002 JQ$_{122}$**

Discovered 2000 Nov. 23 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 31353)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 152.50993 | | (2000.0) | | +0.62123829 | +0.76270483 |
| $n$ | 0.21831961 | $\omega$ | 210.25725 | | −0.67754783 | +0.63811046 |
| $a$ | 2.7315399 | $\Omega$ | 98.75988 | | −0.39369013 | +0.10533941 |
| $e$ | 0.0145067 | $i$ | 10.48441 | | | |
| $P$ | 4.51 | $H$ | 15.9 | $G$ 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 23 | 691 | 0.1+ | 0.3+ | 2001 01 26 | 691 | 0.1+ | 0.0 | 2006 01 26 | 703 | 0.1+ | 0.4+ |
| 2000 11 23 | 691 | 0.2− | 0.4+ | 2002 04 15 | 699 | 0.5− | 0.4− | 2006 02 22 | 699 | 0.6+ | 0.3+ |
| 2000 11 23 | 691 | 0.2+ | 0.1+ | 2002 04 15 | 699 | 0.7− | 0.6+ | 2006 02 22 | 699 | 0.3− | 1.4− |
| 2000 11 27 | 691 | 0.5− | 0.5− | 2002 04 15 | 699 | 0.7− | 0.9− | 2006 02 22 | 699 | (1.8+ | 0.5+) |
| 2000 11 27 | 691 | 0.4− | 0.4− | 2002 04 15 | 699 | 0.5− | 1.0+ | 2006 02 22 | 699 | 1.1+ | 0.8+ |
| 2000 11 27 | 691 | 0.4− | 0.4− | 2002 05 06 | 644 | 0.6+ | 0.5+ | 2008 10 02 | 703 | 0.8− | 1.0+ |
| 2000 12 30 | 704 | 0.1− | 0.7− | 2002 05 06 | 644 | 0.8+ | 0.3+ | 2008 10 02 | 703 | 0.1+ | 1.1+ |
| 2000 12 30 | 704 | 0.8+ | 0.8+ | 2002 05 06 | 644 | 0.7+ | 0.6+ | 2008 10 02 | 703 | (0.9+ | 1.7+) |
| 2000 12 30 | 704 | 0.4+ | 0.8+ | 2002 05 07 | 704 | (2.0+ | 0.3−) | 2008 10 02 | 703 | 0.0 | 0.6+ |
| 2000 12 30 | 704 | 0.3+ | 1.4+ | 2002 05 07 | 704 | (2.3+ | 0.7−) | 2009 11 18 | G96 | 0.2− | 0.1− |
| 2001 01 03 | 704 | 0.2− | 0.1+ | 2002 05 07 | 704 | (2.4+ | 1.6−) | 2009 11 18 | G96 | 0.1− | 0.4− |
| 2001 01 03 | 704 | 0.6+ | 0.5− | 2005 10 22 | 691 | 0.1+ | 0.0 | 2009 11 18 | G96 | 0.1+ | 0.2+ |
| 2001 01 03 | 704 | 0.9+ | 0.2+ | 2005 10 22 | 691 | 0.2+ | 0.5+ | 2009 11 18 | G96 | 0.2− | 0.1− |
| 2001 01 03 | 704 | 0.3+ | 0.7− | 2005 10 22 | 691 | 0.2− | 0.0 | 2009 12 16 | G96 | 0.1+ | 0.2− |
| 2001 01 03 | 704 | 0.2+ | 0.2− | 2006 01 26 | 703 | 0.9+ | 0.4+ | 2009 12 16 | G96 | 0.0 | 0.1+ |
| 2001 01 26 | 691 | 0.2+ | 0.2+ | 2006 01 26 | 703 | 0.3− | 0.2+ | 2009 12 16 | G96 | 0.6− | 0.2− |
| 2001 01 26 | 691 | 0.1− | 0.0 | 2006 01 26 | 703 | (1.9+ | 0.3−) | 2009 12 16 | G96 | 0.1− | 0.3− |

**(228371)∗ 2000 WB$_{46}$ = 2004 RM$_{140}$**

Discovered 2000 Nov. 21 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 68829)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 30.31879 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22229612 | $\omega$ | 209.98235 | | +0.69008811 | −0.72329888 | |
| $a$ | 2.6988669 | $\Omega$ | 196.42381 | | +0.68024719 | +0.65996645 | |
| $e$ | 0.1744973 | $i$ | 5.04058 | | +0.24706710 | +0.20318220 | |
| $P$ | 4.43 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1991 11 02 | 691 | 0.1− | 0.2− | 2004 09 10 | 704 | 0.4+ | 0.0 | 2004 10 07 | 704 | 0.2+ | 0.3+ |
| 1991 11 02 | 691 | 0.5+ | 0.0 | 2004 09 10 | 704 | 1.3+ | 0.6− | 2004 10 07 | 704 | 0.9− | 0.1+ |
| 1991 11 02 | 691 | 0.1− | 0.3− | 2004 09 10 | 704 | 0.2+ | 0.3+ | 2004 10 10 | 691 | 0.1+ | 0.2+ |
| 2000 11 21 | 704 | 0.0 | 0.3+ | 2004 09 10 | 704 | 0.3− | 1.1+ | 2004 10 10 | 691 | 0.0 | 0.2+ |
| 2000 11 21 | 704 | 1.2+ | 0.9+ | 2004 09 10 | 704 | 0.5− | 0.2+ | 2004 10 10 | 691 | 0.3+ | 0.2+ |
| 2000 11 21 | 704 | 0.6+ | 0.5+ | 2004 09 10 | 704 | 0.2− | 0.0 | 2006 02 09 | 644 | 0.2+ | 0.5+ |
| 2000 11 21 | 704 | 1.2− | 0.5+ | 2004 09 10 | 704 | 0.2− | 0.8+ | 2006 02 09 | 644 | 0.3+ | 0.2+ |
| 2000 11 25 | 691 | 0.3− | 0.1− | 2004 09 10 | 704 | 0.6− | 0.8+ | 2006 02 09 | 644 | 0.6+ | 0.2+ |
| 2000 11 25 | 691 | 0.3− | 0.2− | 2004 09 10 | 704 | 0.5− | 1.5+ | 2007 04 22 | 691 | 0.1+ | 0.0 |
| 2000 11 25 | 691 | 0.1− | 0.2− | 2004 09 10 | 704 | 0.2− | 0.7+ | 2007 04 22 | 691 | 0.1+ | 0.2+ |
| 2000 11 27 | 704 | 0.4− | 0.5+ | 2004 09 10 | 704 | 0.1− | 0.5+ | 2007 04 22 | 691 | 0.1+ | 0.1+ |
| 2000 11 27 | 704 | 0.5+ | 0.4+ | 2004 09 10 | 704 | 0.0 | 0.5+ | 2007 04 26 | 691 | 0.2− | 0.4+ |
| 2000 11 27 | 704 | 0.4+ | 0.5+ | 2004 09 10 | 704 | 1.4− | 0.7+ | 2007 04 26 | 691 | 0.7+ | 0.5+ |
| 2000 11 27 | 704 | 0.2− | 0.7+ | 2004 09 12 | 691 | 0.1− | 0.0 | 2007 04 26 | 691 | 0.4− | 0.1+ |
| 2000 11 27 | 704 | 0.1+ | 0.6+ | 2004 09 12 | 691 | 0.3− | 0.1− | 2007 05 12 | G96 | 0.4+ | 0.3+ |
| 2002 03 20 | 691 | 0.1− | 0.8+ | 2004 09 12 | 691 | 0.0 | 0.1− | 2007 05 12 | G96 | 0.0 | 0.7+ |
| 2002 03 20 | 691 | 0.0 | 0.8+ | 2004 09 13 | 704 | 0.1+ | 0.6+ | 2007 05 12 | G96 | 0.4+ | 0.5+ |
| 2002 03 20 | 691 | 0.3+ | 0.8+ | 2004 09 13 | 704 | 0.4− | 0.7+ | 2007 05 12 | G96 | 0.1+ | 0.2+ |
| 2002 04 08 | 691 | 0.2− | 0.1− | 2004 09 13 | 704 | 0.7+ | 0.1+ | 2009 12 12 | 704 | 0.3− | 0.1− |
| 2002 04 08 | 691 | 0.1+ | 0.1− | 2004 09 13 | 704 | 0.3− | 0.5+ | 2009 12 12 | 704 | 0.4− | 0.9+ |
| 2002 04 08 | 691 | 0.1+ | 0.4− | 2004 09 13 | 699 | 0.0 | 0.3− | 2009 12 12 | 704 | 0.3+ | 2.0+ |
| 2004 08 23 | 683 | (1.0− | 2.3+) | 2004 09 13 | 704 | 0.6− | 0.8+ | 2009 12 12 | 704 | 0.1− | 0.8+ |
| 2004 08 23 | 683 | (0.4+ | 2.9+) | 2004 09 13 | 699 | 1.2− | 0.3− | 2009 12 15 | 703 | 0.1+ | 0.2− |
| 2004 08 23 | 683 | (0.9− | 1.7+) | 2004 09 13 | 699 | 0.7+ | 0.6− | 2009 12 15 | 703 | 0.3− | 0.4− |
| 2004 09 08 | 704 | 0.6+ | 0.9+ | 2004 09 13 | 699 | 0.7+ | 0.1− | 2009 12 15 | 703 | 0.6+ | 0.2− |
| 2004 09 08 | 704 | 1.2− | 0.0 | 2004 09 18 | 704 | 0.0 | 0.2− | 2009 12 17 | G96 | 0.3+ | 0.3+ |
| 2004 09 08 | 704 | 0.0 | 0.2+ | 2004 09 18 | 704 | 0.1+ | 0.1− | 2009 12 17 | G96 | 0.1+ | 0.0 |
| 2004 09 08 | 704 | 1.2− | 0.2+ | 2004 09 18 | 704 | 0.0 | 0.3− | 2009 12 17 | G96 | 0.0 | 0.0 |
| 2004 09 08 | 704 | 0.7− | 0.5− | 2004 09 18 | 704 | 0.3+ | 0.5− | 2009 12 17 | G96 | 0.1− | 0.3+ |
| 2004 09 10 | 704 | 0.7+ | 0.3+ | 2004 09 18 | 704 | 1.0+ | 0.5+ | | | | |
| 2004 09 10 | 704 | 0.9+ | 0.4+ | 2004 10 07 | 704 | 0.8− | 0.1+ | | | | |

**(228372)∗ 2000 WB$_{52}$**

Discovered 2000 Nov. 27 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 4.55910 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21760575 | $\omega$ | 177.84929 | | +0.47257929 | −0.87235353 | |
| $a$ | 2.7375105 | $\Omega$ | 243.92747 | | +0.80647159 | +0.48534552 | |
| $e$ | 0.1547364 | $i$ | 8.01042 | | +0.35534826 | +0.05864341 | |
| $P$ | 4.53 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 10 24 | 704 | 0.2+ | 0.4+ | 2006 01 29 | A13 | 0.3+ | 0.0 | 2009 11 15 | 703 | 0.3− | 0.2− |
| 2000 10 24 | 704 | 0.2− | 0.4+ | 2006 01 29 | A13 | 0.5+ | 0.8− | 2009 11 17 | 704 | (1.2+ | 2.0+) |
| 2000 10 24 | 704 | 0.6+ | 0.3+ | 2006 01 30 | A13 | 0.4+ | 0.3− | 2009 11 17 | 704 | 0.3+ | 0.8+ |
| 2000 10 24 | 704 | 0.2+ | 0.5− | 2006 01 30 | A13 | 0.1+ | 0.3− | 2009 11 17 | 704 | 0.7+ | 0.8+ |
| 2000 10 24 | 704 | 1.1+ | 0.4+ | 2006 01 30 | A13 | 0.1+ | 0.9− | 2009 11 17 | 704 | 1.0+ | 0.2− |
| 2000 11 27 | 691 | 0.1+ | 0.7− | 2006 02 23 | 699 | 0.4+ | 0.0 | 2009 11 17 | 704 | 0.1+ | 0.6+ |
| 2000 11 27 | 691 | 0.2+ | 0.7− | 2006 02 23 | 699 | 0.4+ | 0.2+ | 2009 11 17 | D29 | (2.5+ | 0.7−) |
| 2000 11 27 | 691 | 0.1+ | 0.7− | 2006 02 23 | 699 | 0.1− | 0.6− | 2009 11 17 | D29 | 1.5+ | 0.1− |
| 2000 11 28 | 691 | 0.3+ | 0.6− | 2006 02 23 | 699 | (2.2+ | 0.7−) | 2009 11 17 | D29 | (3.8+ | 0.3−) |
| 2000 11 28 | 691 | 0.2+ | 0.8− | 2007 05 13 | G96 | 0.0 | 0.0 | 2009 11 25 | 691 | 0.0 | 0.1+ |
| 2000 11 28 | 691 | 0.3+ | 0.8− | 2007 05 13 | G96 | 0.8− | 0.1− | 2009 11 25 | 691 | 0.2− | 0.0 |
| 2000 12 01 | 704 | 0.5− | 0.2+ | 2007 05 13 | G96 | 0.1− | 0.3+ | 2009 11 25 | 691 | 0.3− | 0.0 |
| 2000 12 01 | 704 | 0.3− | 0.5+ | 2007 05 13 | G96 | 0.3− | 0.1+ | 2009 11 27 | 691 | 0.2− | 0.1− |
| 2000 12 01 | 704 | 0.7− | 0.6+ | 2009 10 28 | D29 | 0.2− | 0.1+ | 2009 11 27 | 691 | 0.0 | 0.0 |
| 2000 12 01 | 704 | 0.5+ | 0.1− | 2009 10 28 | D29 | 0.1+ | 0.1+ | 2009 11 27 | 691 | 0.1− | 0.1+ |
| 2001 01 19 | 691 | 0.3− | 0.4+ | 2009 10 28 | D29 | 0.5+ | 0.2+ | 2009 12 11 | G96 | 0.1+ | 0.0 |
| 2001 01 19 | 691 | 0.5− | 0.8+ | 2009 10 28 | D29 | 1.0+ | 0.4+ | 2009 12 11 | G96 | 0.3+ | 0.1− |
| 2001 01 19 | 691 | 0.3− | 0.5+ | 2009 11 08 | 703 | 0.8− | 0.4− | 2009 12 11 | G96 | 0.3+ | 0.0 |
| 2001 01 20 | 691 | 0.7− | 0.3+ | 2009 11 08 | 703 | 1.0+ | 0.1+ | 2009 12 11 | G96 | 0.1− | 0.0 |
| 2001 01 20 | 691 | 0.3− | 0.3+ | 2009 11 08 | 703 | (1.0+ | 1.5−) | 2009 12 12 | 704 | 0.2− | 0.1− |
| 2001 01 20 | 691 | 0.0 | 0.1+ | 2009 11 08 | 703 | (1.8+ | 0.6−) | 2009 12 12 | 704 | 0.0 | 1.2+ |
| 2001 01 22 | 691 | 0.1− | 0.3+ | 2009 11 09 | 691 | 0.3− | 0.1+ | 2009 12 12 | 704 | 1.2− | 0.3− |
| 2001 01 22 | 691 | 0.1+ | 0.4+ | 2009 11 09 | 691 | 0.3− | 0.0 | 2009 12 12 | 704 | 0.9+ | 0.7− |
| 2001 01 22 | 691 | 0.1− | 0.3+ | 2009 11 09 | 691 | 0.3− | 0.1+ | 2009 12 16 | 704 | (0.7− | 1.5+) |
| 2004 09 22 | 704 | (0.5− | 2.6−) | 2009 11 10 | J75 | 0.1− | 0.3− | 2009 12 16 | 704 | 0.6− | 0.9+ |
| 2004 09 22 | 704 | 0.2+ | 0.9+ | 2009 11 10 | J75 | 0.0 | 0.4− | 2009 12 16 | 704 | 0.2+ | 1.0+ |
| 2004 09 22 | 704 | 0.6+ | 0.6− | 2009 11 10 | J75 | 0.4+ | 0.1− | 2009 12 16 | 704 | 0.1+ | 0.9+ |
| 2004 09 22 | 704 | 0.3− | 0.3+ | 2009 11 15 | 703 | 0.1− | 0.6+ | 2009 12 17 | A77 | 0.5− | 0.3− |
| 2004 09 22 | 704 | 0.0 | 0.2+ | 2009 11 15 | 703 | (1.7− | 0.6−) | 2009 12 17 | A77 | 0.1− | 0.1− |
| 2006 01 29 | A13 | 0.7− | 0.2+ | 2009 11 15 | 703 | 0.8+ | 0.3+ | 2009 12 17 | A77 | 0.3+ | 0.2− |

**(228373)∗ 2000 WG$_{62}$**

Discovered 2000 Nov. 23 by NEAT at Haleakala.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 73.00212 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23113510 | $\omega$ | 270.62847 | | +0.96261284 | −0.07844239 | |
| $a$ | 2.6296146 | $\Omega$ | 93.89218 | | +0.17354058 | +0.91351739 | |
| $e$ | 0.2287813 | $i$ | 15.06258 | | −0.20799085 | +0.39916508 | |
| $P$ | 4.26 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 01 16 | 599 | 0.7+ | 0.2+ | 2000 11 20 | 699 | 0.2+ | 0.1+ | 2006 01 22 | 703 | 0.2− | 0.1− |
| 1997 01 16 | 599 | 0.8− | 0.2− | 2000 11 20 | 699 | 0.4− | 0.2− | 2006 01 22 | 703 | 0.7+ | 0.3+ |
| 2000 09 10 | 699 | 0.8+ | 0.6+ | 2000 11 23 | 608 | 0.7− | 0.9− | 2006 01 22 | 703 | 0.4− | 0.1+ |
| 2000 09 10 | 699 | 0.9+ | 1.0+ | 2000 11 23 | 608 | 0.6− | 1.0− | 2006 01 22 | 703 | 0.1+ | 0.1− |
| 2000 09 10 | 699 | 0.6+ | 0.4+ | 2000 11 23 | 608 | 1.0− | 1.2− | 2007 05 13 | G96 | 0.5− | 0.3+ |
| 2000 09 10 | 699 | 0.5− | 0.3+ | 2000 11 28 | 608 | 0.4+ | 0.2− | 2007 05 13 | G96 | 0.8− | 0.1+ |
| 2000 09 28 | 699 | 1.5− | 1.8+ | 2000 11 28 | 608 | 0.6+ | 0.1− | 2007 05 13 | G96 | 0.4+ | 0.2+ |
| 2000 09 28 | 699 | 0.5− | 0.7+ | 2000 11 28 | 608 | 0.9+ | 0.2− | 2007 05 13 | G96 | 0.1+ | 0.2+ |
| 2000 09 28 | 699 | 1.0− | 0.5− | 2004 09 03 | E12 | 0.1+ | 0.8− | 2009 11 23 | G96 | 0.2− | 0.4− |
| 2000 09 28 | 699 | 1.0− | 1.6+ | 2004 09 03 | E12 | 0.0 | 0.2− | 2009 11 23 | G96 | 0.2− | 0.3− |
| 2000 10 05 | 704 | 0.6+ | 0.2− | 2004 09 03 | E12 | 0.2− | 0.3+ | 2009 11 23 | G96 | 0.1− | 0.3− |
| 2000 10 05 | 704 | 0.0 | 0.7− | 2004 09 03 | E12 | 0.3− | 0.5+ | 2009 11 23 | G96 | 0.1− | 0.3− |
| 2000 10 05 | 704 | 0.2+ | 0.3+ | 2004 09 18 | E12 | 0.5+ | 0.7+ | 2009 12 16 | 704 | 0.3+ | 1.5+ |
| 2000 10 05 | 704 | 0.6+ | 0.9− | 2004 09 18 | E12 | 0.2+ | 0.0 | 2009 12 16 | 704 | 1.1+ | 0.9+ |
| 2000 10 05 | 704 | 0.4+ | 1.0− | 2004 09 18 | E12 | 0.3− | 0.4+ | 2009 12 16 | 704 | 1.0+ | 1.3+ |
| 2000 10 27 | 704 | 1.1+ | 0.4− | 2004 09 18 | E12 | 0.2− | 0.8+ | 2009 12 17 | 691 | 0.3− | 0.2+ |
| 2000 10 27 | 704 | 0.7+ | 0.2− | 2006 01 06 | 704 | (0.2− | 1.5+) | 2009 12 17 | 691 | 0.1− | 0.3− |
| 2000 10 27 | 704 | 0.2+ | 0.1− | 2006 01 06 | 704 | 0.6+ | 0.0 | 2009 12 17 | 691 | 0.3− | 0.2− |
| 2000 11 20 | 699 | 0.4− | 0.2− | 2006 01 06 | 704 | 0.7+ | 1.1+ | | | | |
| 2000 11 20 | 699 | 0.2− | 0.0 | 2006 01 06 | 704 | 0.2− | 0.0 | | | | |

**(228374)∗ 2000 WU$_{66}$ = 2004 RT$_{112}$**

Discovered 2000 Nov. 21 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 68833)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 52.42128 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22577005 | $\omega$ | 147.24318 | | +0.71874368 | −0.64071351 | |
| $a$ | 2.6711103 | $\Omega$ | 255.06214 | | +0.56249599 | +0.76409385 | |
| $e$ | 0.1737171 | $i$ | 16.22628 | | +0.40866341 | +0.07514512 | |
| $P$ | 4.37 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 21 | 704 | 0.9− | 0.2− | 2004 09 14 | 704 | 0.5− | 0.0 | 2004 10 23 | 704 | 0.7+ | 0.0 |
| 2000 11 21 | 704 | 1.1− | 0.2+ | 2004 09 14 | 704 | 0.1− | 0.1− | 2004 10 23 | 704 | 0.3+ | 0.3− |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 21 | 704 | 0.1− | 0.2+ | 2004 09 14 | 704 | 0.6− | 0.2+ | 2004 10 23 | 704 | 0.0 | 0.2+ |
| 2000 11 21 | 704 | 0.3− | 0.1+ | 2004 09 14 | 704 | 0.2− | 0.5+ | 2004 10 23 | 704 | 0.9+ | 0.3+ |
| 2000 11 27 | 691 | 0.3+ | 0.4− | 2004 09 14 | 704 | 0.2+ | 0.0 | 2004 10 23 | 704 | 0.3− | 0.2− |
| 2000 11 27 | 691 | 0.2+ | 0.3− | 2004 09 26 | 699 | 0.3− | 0.4+ | 2004 11 10 | 699 | 0.2− | 0.6+ |
| 2000 11 27 | 691 | 0.1+ | 0.3− | 2004 09 26 | 699 | 0.6− | 0.7− | 2004 11 10 | 699 | 0.3+ | 0.2+ |
| 2000 11 29 | 704 | 0.9− | 0.7+ | 2004 09 26 | 699 | 0.2− | 0.4− | 2004 11 10 | 699 | (0.4+ | 1.8+) |
| 2000 11 29 | 704 | 0.2− | 0.0 | 2004 09 26 | 699 | (1.5− | 0.7+) | 2004 11 10 | 699 | 0.6+ | 0.9− |
| 2000 11 29 | 704 | 0.2+ | 0.5+ | 2004 10 04 | 704 | 0.4+ | 0.1+ | 2006 03 04 | 703 | 0.4+ | 0.7+ |
| 2000 11 29 | 704 | 1.1+ | 0.7+ | 2004 10 04 | 704 | 0.1+ | 0.4− | 2006 03 04 | 703 | 0.7+ | 0.2+ |
| 2000 11 29 | 704 | 0.3− | 0.0 | 2004 10 04 | 704 | 1.0− | 0.3− | 2006 03 04 | 703 | 1.1− | 0.8− |
| 2000 11 30 | 704 | 0.5− | 0.8− | 2004 10 04 | 704 | 0.3− | 0.3+ | 2006 03 04 | 703 | 0.3+ | 0.0 |
| 2000 11 30 | 704 | 0.7− | 0.5+ | 2004 10 04 | 704 | 0.2+ | 0.6− | 2007 06 15 | 691 | 0.2− | 0.3+ |
| 2000 11 30 | 704 | 0.1− | 0.6+ | 2004 10 08 | 704 | 0.8+ | 0.3+ | 2007 06 15 | 691 | 0.4+ | 0.6+ |
| 2001 01 03 | 704 | 0.7+ | 0.1− | 2004 10 08 | 704 | 1.1+ | 0.4+ | 2007 06 15 | 691 | 0.0 | 0.3+ |
| 2001 01 03 | 704 | 0.2+ | 0.1+ | 2004 10 08 | 704 | 0.9+ | 0.6+ | 2008 07 30 | 703 | 0.1− | 0.1+ |
| 2001 01 03 | 704 | 0.2− | 0.3+ | 2004 10 08 | 704 | 0.8+ | 0.9+ | 2008 07 30 | 703 | 0.4− | 0.2+ |
| 2001 01 03 | 704 | 0.8+ | 0.6− | 2004 10 16 | 704 | 0.1− | 0.0 | 2008 07 30 | 703 | 0.2− | 0.4+ |
| 2001 01 03 | 704 | 0.5− | 0.6+ | 2004 10 16 | 704 | 0.1− | 0.1− | 2008 07 30 | 703 | 0.5+ | 0.5+ |
| 2004 08 26 | 704 | 0.7− | 0.4+ | 2004 10 16 | 704 | 0.3+ | 0.1+ | 2008 07 31 | G96 | 0.1− | 0.2− |
| 2004 08 26 | 704 | 0.2+ | 0.2− | 2004 10 16 | 704 | 0.3− | 0.1+ | 2008 07 31 | G96 | 0.1+ | 0.1− |
| 2004 08 26 | 704 | 0.6− | 0.8+ | 2004 10 20 | 704 | 0.0 | 0.3+ | 2008 07 31 | G96 | 0.3− | 0.0 |
| 2004 09 06 | 704 | 0.1+ | 0.3+ | 2004 10 20 | 704 | 0.5+ | 0.2+ | 2008 07 31 | G96 | 0.0 | 0.0 |
| 2004 09 06 | 704 | 0.7− | 0.0 | 2004 10 20 | 704 | 0.3− | 0.3− | 2009 09 29 | 691 | 0.2− | 0.1− |
| 2004 09 06 | 704 | 0.8− | 0.4− | 2004 10 20 | 704 | 0.1− | 0.0 | 2009 09 29 | 691 | 0.0 | 0.1+ |
| 2004 09 06 | 704 | 0.1− | 0.3− | 2004 10 20 | 704 | 0.5− | 0.3− | 2009 09 29 | 691 | 0.2− | 0.0 |
| 2004 09 12 | 704 | 0.6− | 0.6+ | 2004 10 21 | 704 | 0.5+ | 0.5+ | 2009 12 13 | 704 | 1.2+ | 1.7+ |
| 2004 09 12 | 704 | 0.4− | 0.2+ | 2004 10 21 | 704 | 0.8+ | 0.2+ | 2009 12 13 | 704 | 1.0+ | 1.8+ |
| 2004 09 12 | 704 | 0.7− | 0.7− | 2004 10 21 | 704 | 0.0 | 0.4+ | 2009 12 13 | 704 | 0.8+ | 1.7+ |
| 2004 09 12 | 704 | 0.9− | 0.1+ | 2004 10 21 | 704 | 0.8+ | 0.1− | | | | |
| 2004 09 12 | 704 | 0.5− | 0.5+ | 2004 10 21 | 704 | 0.2+ | 0.8+ | | | | |

**(228375)∗ 2000 WH$_{70}$**

Discovered 2000 Nov. 19 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 39.00009 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22472511 | $\omega$ | 103.46001 | | +0.82488496 | −0.55637641 | |
| $a$ | 2.6793841 | $\Omega$ | 290.43157 | | +0.46852580 | +0.77190817 | |
| $e$ | 0.2364719 | $i$ | 6.12899 | | +0.31630426 | +0.30757613 | |
| $P$ | 4.39 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 24 | 699 | 0.1− | 0.8+ | 2000 12 20 | 704 | 0.0 | 0.0 | 2004 09 15 | 699 | 0.5+ | 0.2+ |
| 2000 09 24 | 699 | 0.3+ | 0.6+ | 2004 07 09 | 644 | 0.8− | 0.3+ | 2004 09 15 | 699 | 0.1− | 0.7+ |
| 2000 09 24 | 699 | 0.2− | 0.1+ | 2004 07 09 | 644 | 0.1− | 0.2+ | 2004 09 15 | 699 | 0.9+ | 0.1+ |
| 2000 09 24 | 699 | 0.7− | 0.3− | 2004 07 09 | 644 | 0.4+ | 0.2− | 2004 09 18 | 704 | 0.0 | 0.1− |
| 2000 10 25 | 704 | 0.3− | 0.5− | 2004 08 09 | 704 | 0.3+ | 0.7− | 2004 09 18 | 704 | 0.2+ | 0.2− |
| 2000 10 25 | 704 | 0.9+ | 0.1− | 2004 08 09 | 704 | 0.2− | 0.2− | 2004 09 18 | 704 | 0.3− | 0.5+ |
| 2000 10 25 | 704 | 0.3+ | 0.1+ | 2004 08 09 | 704 | 0.1+ | 0.5+ | 2004 09 18 | 704 | 0.6− | 0.1+ |
| 2000 10 25 | 704 | 0.6+ | 0.7− | 2004 08 12 | 704 | 0.7− | 0.5+ | 2006 02 02 | 691 | 0.4+ | 0.2+ |
| 2000 11 05 | 704 | 1.0− | 0.5− | 2004 08 12 | 704 | 0.1− | 1.2+ | 2006 02 02 | 691 | 0.2+ | 0.6+ |
| 2000 11 05 | 704 | 0.4+ | 0.0 | 2004 08 12 | 704 | 0.2+ | 0.2+ | 2006 02 02 | 691 | 0.0 | 0.6+ |
| 2000 11 05 | 704 | 1.0− | 0.3− | 2004 08 12 | 704 | 0.3− | 0.5+ | 2006 02 03 | G96 | 0.3− | 0.4+ |
| 2000 11 05 | 704 | 0.5− | 0.2+ | 2004 08 12 | 704 | 0.5− | 0.1+ | 2006 02 03 | G96 | 0.3+ | 0.3+ |
| 2000 11 05 | 704 | 0.6− | 0.9+ | 2004 08 17 | 704 | 0.5− | 0.0 | 2006 02 03 | G96 | 0.1+ | 0.2− |
| 2000 11 19 | 704 | 0.2+ | 0.4+ | 2004 08 17 | 704 | 0.2− | 0.8+ | 2006 02 03 | G96 | 0.4+ | 0.1− |
| 2000 11 19 | 704 | 0.6− | 0.3+ | 2004 08 17 | 704 | 0.7− | 0.4+ | 2009 11 18 | 691 | 0.1− | 0.1− |
| 2000 11 19 | 704 | 0.0 | 0.1+ | 2004 08 17 | 704 | 0.0 | 0.3− | 2009 11 18 | 691 | 0.0 | 0.0 |
| 2000 11 19 | 704 | 0.5+ | 0.5+ | 2004 08 22 | 691 | 0.0 | 0.0 | 2009 11 18 | 691 | 0.0 | 0.0 |
| 2000 11 19 | 704 | 0.3+ | 0.2+ | 2004 08 22 | 691 | 0.1− | 0.1− | 2009 11 22 | 691 | 0.2+ | 0.1− |
| 2000 11 29 | 704 | 0.3+ | 0.1− | 2004 08 22 | 691 | 0.0 | 0.2− | 2009 11 22 | 691 | 0.0 | 0.0 |
| 2000 11 29 | 704 | 0.3+ | 0.1+ | 2004 09 10 | 704 | 0.2+ | 0.2+ | 2009 11 22 | 691 | 0.1− | 0.0 |
| 2000 11 29 | 704 | 0.1− | 0.6+ | 2004 09 10 | 704 | 0.8+ | 0.3− | 2009 11 26 | 691 | 0.3− | 0.1− |
| 2000 11 29 | 704 | 0.0 | 0.2+ | 2004 09 10 | 704 | 0.7− | 0.1+ | 2009 11 26 | 691 | 0.2− | 0.3− |
| 2000 11 29 | 704 | 0.8+ | 0.1− | 2004 09 10 | 704 | 0.7+ | 0.1− | 2009 11 26 | 691 | 0.0 | 0.1− |
| 2000 12 04 | 704 | 0.2− | 0.0 | 2004 09 10 | 704 | 0.1− | 0.7− | 2009 12 10 | 704 | 0.5− | 0.5− |
| 2000 12 04 | 704 | 0.1− | 0.1− | 2004 09 13 | 704 | 0.1+ | 0.4+ | 2009 12 10 | 704 | 0.7− | 0.7− |
| 2000 12 04 | 704 | 0.3+ | 0.3+ | 2004 09 13 | 704 | 0.6− | 0.2− | 2009 12 10 | 704 | 0.7+ | 0.8− |
| 2000 12 04 | 704 | 0.3− | 0.0 | 2004 09 13 | 704 | 0.5+ | 0.3+ | 2009 12 10 | 704 | 0.8+ | 0.5− |
| 2000 12 04 | 704 | 0.0 | 0.1+ | 2004 09 13 | 704 | 0.1+ | 0.2− | 2009 12 10 | 704 | 0.1+ | 0.2− |
| 2000 12 20 | 704 | 0.5− | 0.4+ | 2004 09 13 | 704 | 0.6+ | 0.1− | | | | |
| 2000 12 20 | 704 | 0.5− | 0.8+ | 2004 09 15 | 699 | 0.2+ | 0.2− | | | | |

**(228376)∗ 2000 WJ$_{71}$ = 2004 RE$_{217}$**

Discovered 2000 Nov. 19 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 68833)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 0.38474 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23005169 | $\omega$ | 199.51587 | | −0.22385824 | −0.95027186 | |
| $a$ | 2.6378642 | $\Omega$ | 263.88883 | | +0.92063767 | −0.13327254 | |
| $e$ | 0.0707128 | $i$ | 12.57599 | | +0.31986525 | −0.28146372 | |
| $P$ | 4.28 | $H$ | 15.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 05 | 704 | 0.2− | 0.4+ | 2004 09 11 | 704 | 0.6− | 1.0+ | 2006 01 23 | 703 | 0.0 | 0.4+ |
| 2000 11 05 | 704 | 0.8+ | 0.8− | 2004 09 11 | 704 | 0.0 | 1.2+ | 2006 01 23 | 703 | 0.2− | 0.1− |
| 2000 11 05 | 704 | 0.4+ | 0.7+ | 2004 09 11 | 704 | 0.3+ | 0.4− | 2006 01 23 | 703 | 0.4− | 0.4+ |
| 2000 11 05 | 704 | 1.0+ | 0.5− | 2004 09 11 | 704 | 0.7+ | 0.0 | 2006 01 30 | 703 | 0.5+ | 0.3+ |
| 2000 11 19 | 704 | 0.1− | 0.2− | 2004 09 14 | 704 | 1.4+ | 0.8+ | 2006 01 30 | 703 | 0.6− | 0.7− |
| 2000 11 19 | 704 | 0.2− | 0.5− | 2004 09 14 | 704 | 0.7+ | 0.1− | 2006 01 30 | 703 | 1.0− | 0.1− |
| 2000 11 19 | 704 | 0.3+ | 0.3− | 2004 09 14 | 704 | 0.2+ | 0.3+ | 2006 01 30 | 703 | 0.3− | 0.2− |
| 2000 11 19 | 704 | 0.4− | 0.4− | 2004 09 14 | 704 | 0.3+ | 0.1+ | 2008 09 09 | 703 | 0.3− | 0.0 |
| 2000 11 19 | 704 | (0.8+ | 2.3−) | 2004 09 23 | 704 | 0.6− | 0.4− | 2008 09 09 | 703 | 0.5+ | 0.2+ |
| 2000 11 24 | 699 | 0.8− | 1.4+ | 2004 09 23 | 704 | 0.4− | 0.2− | 2008 09 09 | 703 | 0.4− | 0.1− |
| 2000 11 24 | 699 | 0.1+ | 0.7+ | 2004 09 23 | 704 | 0.4− | 0.5+ | 2008 09 09 | 703 | 0.8− | 0.6− |
| 2000 11 24 | 699 | 0.7− | 0.4− | 2004 09 23 | 704 | 0.4− | 0.5− | 2009 10 15 | G96 | 0.1+ | 0.4− |
| 2000 11 24 | 699 | 0.7− | 0.2+ | 2004 09 23 | 704 | 0.2− | 0.2− | 2009 10 15 | G96 | 0.0 | 0.4− |
| 2000 11 29 | 704 | (2.2− | 0.9+) | 2004 10 10 | 644 | 0.1+ | 0.4− | 2009 10 15 | G96 | 1.0+ | 0.6− |
| 2000 11 29 | 704 | 0.2− | 1.0− | 2004 10 10 | 644 | 0.0 | 0.4− | 2009 10 15 | G96 | 0.6− | 0.3+ |
| 2000 11 29 | 704 | 0.3− | 0.1+ | 2004 10 10 | 644 | 0.0 | 0.3− | 2009 12 17 | 704 | 0.2− | 0.6− |
| 2000 11 29 | 704 | 0.0 | 0.4+ | 2004 12 04 | 201 | 0.0 | 0.8− | 2009 12 17 | 704 | 0.3+ | 0.6− |
| 2000 11 29 | 704 | 0.1− | 0.6+ | 2004 12 04 | 201 | 0.1+ | 0.7− | 2009 12 17 | 704 | 0.3− | 0.6− |
| 2004 09 11 | 704 | 0.3− | 0.2− | 2005 12 25 | 703 | 0.1− | 0.4− | 2009 12 17 | 704 | 0.3+ | 0.4− |
| 2004 09 11 | 704 | 0.4− | 0.6+ | 2005 12 25 | 703 | 1.1+ | 0.6− | 2009 12 17 | 704 | 0.4− | 0.2− |
| 2004 09 11 | 704 | 0.6+ | 0.2− | 2005 12 25 | 703 | 0.7+ | 0.1+ | 2009 12 19 | 691 | 0.1+ | 0.4− |
| 2004 09 11 | 704 | 0.0 | 0.1+ | 2005 12 25 | 703 | 0.3+ | 0.4− | 2009 12 19 | 691 | 0.1+ | 0.0 |
| 2004 09 11 | 704 | 1.2+ | 0.1− | 2006 01 23 | 703 | 0.2+ | 0.3− | 2009 12 19 | 691 | 0.2− | 1.4+ |

**(228377)∗ 2000 WM$_{71}$ = 2004 PD$_{92}$**

Discovered 2000 Nov. 19 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 64883)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 53.31680 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22118687 | $\omega$ | 92.47668 | | +0.98260015 | −0.00275695 | |
| $a$ | 2.7078825 | $\Omega$ | 267.72439 | | −0.07000781 | +0.92064373 | |
| $e$ | 0.1902184 | $i$ | 10.71126 | | +0.17203446 | +0.39039405 | |
| $P$ | 4.46 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 05 | 704 | 1.8+ | 1.4+ | 2004 09 11 | 704 | 0.6+ | 1.0− | 2009 11 16 | 704 | 0.6+ | 0.4− |
| 2000 11 05 | 704 | 1.2+ | 0.5+ | 2004 09 11 | 704 | 0.4− | 0.4+ | 2009 11 19 | 691 | 0.3− | 0.0 |
| 2000 11 05 | 704 | 0.9− | 0.7+ | 2004 09 11 | 704 | 0.6+ | 0.2− | 2009 11 19 | 691 | 0.3− | 0.1− |
| 2000 11 19 | 704 | 0.4+ | 0.6− | 2004 09 11 | 704 | 0.8− | 0.6+ | 2009 11 19 | 691 | 0.3− | 0.1− |
| 2000 11 19 | 704 | 0.6+ | 1.1− | 2005 12 27 | 691 | 0.4+ | 1.2+ | 2009 11 22 | 704 | 0.4+ | 0.9+ |
| 2000 11 19 | 704 | 0.3− | 0.8− | 2005 12 27 | 691 | 0.1+ | 0.4+ | 2009 11 22 | 704 | 0.2+ | 0.7− |
| 2000 11 19 | 704 | 0.1+ | 0.6− | 2005 12 27 | 691 | 0.1− | 0.3− | 2009 11 22 | 704 | 0.4− | 0.1− |
| 2000 11 24 | 699 | 0.1− | 1.2+ | 2006 01 04 | 691 | 0.3+ | 0.3+ | 2009 11 23 | 691 | 0.3− | 0.1− |
| 2000 11 24 | 699 | 1.2− | 0.5+ | 2006 01 04 | 691 | 0.2+ | 0.2+ | 2009 11 23 | 691 | 0.2− | 0.1− |
| 2000 11 24 | 699 | 0.8− | 0.0 | 2006 01 04 | 691 | 0.1+ | 0.5+ | 2009 11 23 | 691 | 0.2− | 0.1− |
| 2000 11 24 | 699 | 1.0− | 0.3− | 2006 01 04 | G96 | 0.1+ | 0.3− | 2009 11 25 | 703 | 0.5+ | 0.2− |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 29 | 704 | 0.2+ | 0.0 | 2006 01 04 | G96 | 0.1+ | 0.2− | 2009 11 25 | 703 | 0.1− | 0.8− |
| 2000 11 29 | 704 | 1.0− | 0.5+ | 2006 01 04 | G96 | 0.2− | 0.3− | 2009 11 25 | 703 | (3.1− | 0.4−) |
| 2000 11 29 | 704 | 0.5− | 0.4+ | 2006 01 04 | G96 | 0.2− | 0.2− | 2009 11 25 | 703 | (7.1− | 2.7−) |
| 2000 11 29 | 704 | 0.7+ | 0.3+ | 2009 11 08 | 703 | 0.4+ | 0.3− | 2009 12 10 | 704 | 0.7+ | 0.2+ |
| 2004 08 12 | 644 | 0.6− | 0.5+ | 2009 11 08 | 703 | 0.3− | 0.3− | 2009 12 10 | 704 | 0.1− | 0.1+ |
| 2004 08 12 | 644 | 0.3− | 0.6+ | 2009 11 08 | 703 | (1.6+ | 0.0 ) | 2009 12 10 | 704 | (2.1− | 0.9+) |
| 2004 08 12 | 644 | 0.5− | 0.3+ | 2009 11 08 | 703 | 0.4− | 0.7− | 2009 12 10 | 704 | 0.5− | 0.2+ |
| 2004 08 13 | 644 | 0.4− | 0.8+ | 2009 11 11 | 691 | 0.2− | 0.1+ | 2009 12 10 | J75 | 0.0 | 0.1+ |
| 2004 08 13 | 644 | 0.5− | 0.9+ | 2009 11 11 | 691 | 0.2− | 0.2− | 2009 12 10 | J75 | 0.1− | 0.3− |
| 2004 08 13 | 644 | 0.9+ | 0.8+ | 2009 11 11 | 691 | 0.2− | 0.2− | 2009 12 10 | J75 | 0.2− | 0.1− |
| 2004 09 08 | 704 | 0.5− | 0.1− | 2009 11 11 | 704 | 0.8+ | 0.5− | 2009 12 16 | 704 | 1.6+ | 1.1+ |
| 2004 09 08 | 704 | 0.9+ | 0.8+ | 2009 11 11 | 704 | 0.2+ | 0.7+ | 2009 12 16 | 704 | 1.2+ | 0.8+ |
| 2004 09 08 | 704 | 0.4− | 0.8+ | 2009 11 11 | 704 | 0.8− | 0.7− | 2009 12 16 | 704 | 0.8+ | 1.6+ |
| 2004 09 08 | 704 | 0.2− | 0.3+ | 2009 11 11 | 704 | 0.4+ | 0.4− | 2009 12 19 | G96 | 0.2+ | 0.6− |
| 2004 09 09 | 704 | 0.5− | 0.2− | 2009 11 11 | 704 | 0.4− | 0.3+ | 2009 12 19 | G96 | 0.2− | 0.5− |
| 2004 09 09 | 704 | 0.2− | 0.1− | 2009 11 16 | 704 | 1.2+ | 0.2− | 2009 12 19 | G96 | 0.0 | 0.3− |
| 2004 09 09 | 704 | 0.4− | 0.7− | 2009 11 16 | 704 | 0.6+ | 0.2− | 2009 12 19 | G96 | 0.0 | 0.6− |
| 2004 09 09 | 704 | 0.2+ | 0.5+ | 2009 11 16 | 704 | 0.8+ | 0.6− | | | | |
| 2004 09 11 | 704 | 0.4+ | 0.5+ | 2009 11 16 | 704 | 0.8+ | 0.8− | | | | |

**(228378)∗ 2000 WN$_{71}$ = 2004 RW$_{219}$**

Discovered 2000 Nov. 19 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 68834)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 333.38121 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.24069444 | $\omega$ | 270.15332 | | −0.84080779 | | −0.43350941 | | |
| $a$ | 2.5595209 | $\Omega$ | 244.16647 | | +0.51403292 | | −0.82717103 | | |
| $e$ | 0.0728825 | $i$ | 21.11293 | | −0.16974222 | | −0.35757192 | | |
| $P$ | 4.09 | $H$ | 15.2 | $G$ | 0.15 | $U$ | 2 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 16 | 699 | 0.4− | 0.4+ | 2004 09 14 | 704 | 1.2+ | 0.0 | 2008 10 04 | 703 | 0.2− | 0.3− |
| 2000 11 16 | 699 | 0.7− | 0.2− | 2004 09 14 | 704 | 0.7+ | 0.4+ | 2008 10 04 | 703 | 1.1− | 0.6+ |
| 2000 11 16 | 699 | 0.4− | 0.6+ | 2004 09 14 | 704 | 0.3+ | 1.0+ | 2008 10 06 | 704 | 0.5− | 1.0+ |
| 2000 11 16 | 699 | 1.0− | 0.9+ | 2004 09 14 | 704 | 0.8+ | 0.2− | 2008 10 06 | 704 | 0.3− | 0.4− |
| 2000 11 19 | 704 | 0.1− | 0.2− | 2004 10 08 | 704 | 0.7+ | 0.1− | 2008 10 06 | 704 | 0.5− | 0.3+ |
| 2000 11 19 | 704 | 1.1+ | 0.0 | 2004 10 08 | 704 | 1.4+ | 0.4− | 2008 10 06 | 704 | 0.7− | 0.6+ |
| 2000 11 19 | 704 | 0.7+ | 0.8+ | 2004 10 08 | 704 | 0.6+ | 0.4− | 2008 11 07 | 703 | 0.4− | 0.9− |
| 2000 11 29 | 704 | 1.1− | 0.2+ | 2004 10 08 | 704 | 0.3+ | 0.6− | 2008 11 07 | 703 | 0.1− | 0.9− |
| 2000 11 29 | 704 | 0.3− | 0.4+ | 2006 01 09 | E12 | 0.5+ | 0.4+ | 2008 11 07 | 703 | 0.2− | 1.1− |
| 2000 11 29 | 704 | 0.9− | 0.2− | 2006 01 09 | E12 | 0.0 | 0.7+ | 2008 11 07 | 703 | 1.1+ | 0.8− |
| 2000 11 29 | 704 | 0.7− | 0.1− | 2006 01 25 | E12 | 0.9+ | 0.3+ | 2009 11 21 | 703 | 0.1− | 0.3+ |
| 2002 01 12 | 644 | 0.1− | 0.4+ | 2006 01 25 | E12 | 0.8+ | 0.4+ | 2009 11 21 | 703 | 1.0+ | 0.8− |
| 2002 01 12 | 644 | 0.1− | 0.8+ | 2006 01 25 | E12 | 0.1+ | 0.5− | 2009 11 21 | 703 | 0.1+ | 0.3− |
| 2002 01 12 | 644 | 0.0 | 0.0 | 2006 01 25 | E12 | 0.7− | 0.6− | 2009 11 21 | 703 | 0.3− | 0.7+ |
| 2004 09 11 | 704 | 0.1− | 0.1− | 2008 09 24 | 703 | 0.1− | 0.7− | 2009 12 16 | 703 | 2.9− | 0.8− |
| 2004 09 11 | 704 | 0.1+ | 0.0 | 2008 09 24 | 703 | 0.2− | 0.4− | 2009 12 16 | 703 | 0.0 | 0.7− |
| 2004 09 11 | 704 | 0.3+ | 0.1+ | 2008 09 24 | 703 | 1.1+ | 0.6− | 2009 12 16 | 703 | 0.3+ | 0.3− |
| 2004 09 11 | 704 | 0.2− | 0.5+ | 2008 09 24 | 703 | 0.3+ | 0.1− | 2009 12 16 | 703 | 0.0 | 0.3− |
| 2004 09 11 | 704 | 0.0 | 0.3+ | 2008 10 04 | 703 | 0.1+ | 0.1+ | | | | |
| 2004 09 14 | 704 | 0.7+ | 0.2− | 2008 10 04 | 703 | 0.9− | 1.2+ | | | | |

**(228379)∗ 2000 WN$_{82}$**

Discovered 2000 Nov. 20 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 16.94298 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.22556177 | $\omega$ | 42.62877 | | +0.08683435 | | −0.99381607 | | |
| $a$ | 2.6727544 | $\Omega$ | 42.52806 | | +0.88421880 | | +0.04488362 | | |
| $e$ | 0.1460045 | $i$ | 5.87639 | | +0.45893018 | | +0.10156321 | | |
| $P$ | 4.37 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 1 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 20 | 704 | 0.5− | 0.4+ | 2004 10 10 | 704 | 0.7+ | 0.5+ | 2009 12 10 | 704 | 0.1+ | 0.1− |
| 2000 11 20 | 704 | 0.3− | 0.1+ | 2004 10 10 | 704 | 0.9− | 0.4+ | 2009 12 10 | 704 | 0.9+ | 0.4− |
| 2000 11 20 | 704 | 0.0 | 0.5− | 2004 10 10 | 704 | 1.2− | 0.0 | 2009 12 10 | 704 | 0.3− | 0.3− |
| 2000 11 20 | 704 | 0.6+ | 0.5− | 2004 11 05 | 691 | 0.0 | 0.2+ | 2009 12 10 | 704 | 0.2− | 0.4+ |
| 2000 11 20 | 704 | 0.8+ | 0.3− | 2004 11 05 | 691 | 0.1− | 0.1+ | 2009 12 10 | 704 | 0.8− | 0.1+ |
| 2000 11 29 | 704 | 0.1− | 0.0 | 2004 11 05 | 691 | 0.1− | 0.3+ | 2009 12 15 | 704 | 0.4+ | 0.3+ |
| 2000 11 29 | 704 | 0.3+ | 0.3+ | 2006 02 09 | 644 | 0.4− | 0.3+ | 2009 12 15 | 704 | 0.0 | 0.6− |
| 2000 11 29 | 704 | 0.4− | 0.0 | 2006 02 09 | 644 | 0.1+ | 0.4+ | 2009 12 15 | 704 | 0.4+ | 0.2+ |
| 2000 11 29 | 704 | 0.6− | 0.2+ | 2006 02 09 | 644 | 0.2− | 0.3+ | 2009 12 15 | 704 | 0.4+ | 0.5+ |
| 2000 11 29 | 704 | 0.2− | 0.4− | 2006 02 21 | 703 | 0.8− | 0.1− | 2009 12 15 | 704 | 0.1− | 0.3+ |
| 2000 12 30 | 704 | 0.7− | 1.2+ | 2006 02 21 | 703 | (1.8− | 1.6−) | 2009 12 27 | D29 | 0.3+ | 0.2− |
| 2000 12 30 | 704 | 0.1− | 0.6+ | 2006 02 21 | 703 | (2.0− | 1.3−) | 2009 12 27 | D29 | 0.6− | 0.8− |
| 2000 12 30 | 704 | 0.1+ | 0.8+ | 2006 02 21 | 703 | 0.4− | 0.8− | 2009 12 27 | D29 | 0.3− | 0.2− |
| 2000 12 30 | 704 | 0.9+ | 0.2+ | 2006 02 23 | 699 | 0.2+ | 0.4+ | 2009 12 27 | D29 | 0.3− | 0.5− |
| 2002 03 16 | 691 | 0.1+ | 0.0 | 2006 02 23 | 699 | 0.6− | 0.1+ | 2009 12 27 | D29 | 0.3− | 0.4− |
| 2002 03 16 | 691 | 0.8+ | 0.4+ | 2006 02 23 | 699 | 0.5+ | 0.4− | 2009 12 27 | D29 | 0.1− | 0.2− |
| 2002 03 16 | 691 | 0.3+ | 0.6+ | 2006 02 23 | 699 | (0.6− | 1.6−) | 2009 12 27 | D29 | 0.4+ | 0.9− |
| 2002 04 08 | 644 | 1.0− | 0.4+ | 2009 11 22 | 704 | 0.6+ | 0.2− | 2009 12 27 | D29 | 0.1+ | 0.5− |
| 2002 04 08 | 644 | 0.2+ | 0.4+ | 2009 11 22 | 704 | 0.4+ | 0.2+ | | | | |
| 2002 04 08 | 644 | 0.3− | 0.2+ | 2009 11 22 | 704 | 0.3− | 1.5+ | | | | |

**(228380)∗ 2000 WH$_{85}$**

Discovered 2000 Nov. 20 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 25.05573 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.22542771 | $\omega$ | 128.65136 | | +0.23184885 | | −0.97204822 | | |
| $a$ | 2.6738139 | $\Omega$ | 307.90278 | | +0.87728659 | | +0.22537305 | | |
| $e$ | 0.1667649 | $i$ | 2.68705 | | +0.42025510 | | +0.06579697 | | |
| $P$ | 4.37 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 0 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 20 | 704 | 0.1− | 0.2+ | 2004 10 10 | 704 | (1.3+ | 1.9−) | 2006 03 09 | G96 | 0.0 | 0.4+ |
| 2000 11 20 | 704 | 0.3+ | 0.2+ | 2004 10 10 | 704 | 1.4+ | 0.1+ | 2008 09 23 | G96 | 0.4+ | 0.1+ |
| 2000 11 20 | 704 | 1.0+ | 0.1+ | 2004 10 10 | 704 | (1.8− | 1.7+) | 2008 09 23 | G96 | 0.7+ | 0.0 |
| 2000 11 20 | 704 | 0.4− | 0.9− | 2004 10 12 | 691 | 0.3− | 0.1+ | 2008 09 23 | G96 | 0.7+ | 0.9− |
| 2000 11 29 | 704 | 0.5− | 0.1− | 2004 10 12 | 691 | 0.1− | 0.0 | 2008 09 23 | G96 | 0.2+ | 0.2− |
| 2000 11 29 | 704 | 0.7− | 0.6− | 2004 10 12 | 691 | 0.0 | 0.2+ | 2009 11 11 | G96 | 0.4+ | 0.1− |
| 2000 11 29 | 704 | 0.5− | 0.4+ | 2004 10 12 | 704 | 0.8− | 0.9+ | 2009 11 11 | G96 | 0.4+ | 0.4− |
| 2000 12 22 | 691 | 0.0 | 0.0 | 2004 10 12 | 704 | 0.2− | 0.3+ | 2009 11 11 | G96 | 0.4+ | 0.2− |
| 2000 12 22 | 691 | 0.1+ | 0.1− | 2004 10 12 | 704 | 1.2− | 0.4− | 2009 11 11 | G96 | 0.1− | 0.3− |
| 2000 12 22 | 691 | 0.2+ | 0.1+ | 2004 10 13 | 704 | 0.5− | 0.9+ | 2009 12 15 | G96 | 0.6+ | 0.2− |
| 2000 12 30 | 704 | 0.2− | 0.8+ | 2004 10 13 | 704 | 0.2− | 0.6+ | 2009 12 15 | G96 | 0.2− | 0.8− |
| 2000 12 30 | 704 | 0.0 | 1.1− | 2004 10 13 | 704 | 0.1− | 1.4+ | 2009 12 15 | G96 | 0.5+ | 0.4+ |
| 2000 12 30 | 704 | 0.1+ | 0.3− | 2004 11 03 | 691 | 0.0 | 0.2+ | 2009 12 15 | G96 | 0.2+ | 0.1+ |
| 2000 12 30 | 704 | 0.9+ | 0.9+ | 2004 11 03 | 691 | 0.0 | 0.1+ | 2009 12 19 | 291 | 0.0 | 0.1+ |
| 2004 10 05 | 691 | 0.0 | 0.1− | 2004 11 03 | 691 | 0.1− | 0.0 | 2009 12 19 | 291 | 0.3− | 0.1− |
| 2004 10 05 | 691 | 0.0 | 0.2− | 2006 01 22 | 691 | 0.6+ | 0.1+ | 2009 12 19 | 291 | 0.1− | 0.3− |
| 2004 10 05 | 691 | 0.1+ | 0.1− | 2006 01 22 | 691 | 0.1+ | 0.3+ | 2009 12 26 | 691 | 0.3− | 0.1− |
| 2004 10 08 | 699 | 0.4− | 0.8− | 2006 01 22 | 691 | 0.1+ | 0.3+ | 2009 12 26 | 691 | 0.1+ | 0.1+ |
| 2004 10 08 | 699 | (1.7− | 0.2+) | 2006 03 09 | G96 | 0.5− | 0.2+ | 2009 12 26 | 691 | 0.1− | 0.1− |
| 2004 10 08 | 699 | 0.3− | 0.0 | 2006 03 09 | G96 | 0.7− | 0.4+ | | | | |
| 2004 10 08 | 699 | 0.3+ | 0.7− | 2006 03 09 | G96 | 0.3− | 0.2+ | | | | |

**(228381)∗ 2000 WM$_{133}$**

Discovered 2000 Nov. 19 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 45.25152 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.22666073 | $\omega$ | 14.33609 | | +0.79737797 | | −0.59598535 | | |
| $a$ | 2.6641082 | $\Omega$ | 23.05649 | | +0.52709888 | | +0.61130013 | | |
| $e$ | 0.1893812 | $i$ | 14.01037 | | +0.29386244 | | +0.52068571 | | |
| $P$ | 4.35 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 1 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 05 | 704 | 0.3+ | 0.2− | 2000 11 30 | 704 | 1.1− | 0.3+ | 2004 10 06 | 704 | 0.1+ | 0.5+ |
| 2000 09 05 | 704 | 0.0 | 0.3+ | 2000 12 04 | 704 | 0.2− | 0.3− | 2004 10 09 | 644 | 0.2+ | 0.1+ |
| 2000 09 05 | 704 | 0.7− | 1.4+ | 2000 12 04 | 704 | 0.2− | 0.7− | 2004 10 09 | 644 | 0.2+ | 0.3+ |
| 2000 09 28 | 704 | 0.9+ | 0.9+ | 2000 12 04 | 704 | 0.2+ | 0.8− | 2004 10 09 | 644 | 0.2+ | 0.3+ |
| 2000 09 28 | 704 | 0.0 | 0.1+ | 2004 08 09 | 644 | 0.1− | 0.0 | 2004 10 13 | 704 | 0.2− | 1.2+ |
| 2000 09 28 | 704 | 0.3− | 1.0+ | 2004 08 09 | 644 | 0.4+ | 0.1− | 2004 10 13 | 704 | 0.3+ | 0.5+ |
| 2000 10 25 | 704 | 0.0 | 0.5− | 2004 08 09 | 644 | 0.1+ | 0.3− | 2004 10 13 | 704 | 0.5− | 0.9− |
| 2000 10 25 | 704 | 0.0 | 0.2+ | 2004 08 09 | 644 | 0.3+ | 0.1− | 2004 10 13 | 704 | 0.1+ | 0.4+ |
| 2000 10 25 | 704 | 0.2+ | 0.3+ | 2004 08 09 | 644 | 0.1− | 0.6− | 2006 01 05 | 703 | 0.8+ | 0.6− |
| 2000 10 25 | 704 | 1.2− | 0.1+ | 2004 08 09 | 644 | 0.1+ | 0.5− | 2006 01 05 | 703 | 0.2+ | 0.9− |
| 2000 10 25 | 704 | 0.1+ | 0.6+ | 2004 09 07 | 704 | 0.0 | 0.2− | 2006 01 05 | 703 | 0.3+ | 0.2− |
| 2000 11 05 | 704 | 1.4− | 0.4− | 2004 09 07 | 704 | 0.6+ | 0.2− | 2006 01 05 | 703 | (0.3+ | 1.7+) |
| 2000 11 05 | 704 | 1.0− | 0.3− | 2004 09 07 | 704 | 0.3− | 0.0 | 2006 01 27 | 703 | 0.5− | 0.4− |
| 2000 11 05 | 704 | 0.1+ | 0.2+ | 2004 09 07 | 704 | 0.0 | 0.2− | 2006 01 27 | 703 | 0.5− | 0.1+ |
| 2000 11 05 | 704 | 0.1− | 0.0 | 2004 09 07 | 704 | 0.7+ | 0.5− | 2006 01 27 | 703 | 0.3− | 0.7+ |
| 2000 11 05 | 704 | 0.8− | 0.1+ | 2004 09 21 | 704 | 0.1− | 0.1− | 2006 01 27 | 703 | (1.7+ | 0.7+) |
| 2000 11 19 | 704 | 0.5+ | 0.2+ | 2004 09 21 | 704 | 0.1+ | 0.5− | 2009 09 24 | G96 | 0.1− | 0.1− |
| 2000 11 19 | 704 | 0.8+ | 0.6− | 2004 09 21 | 704 | 0.3+ | 0.7− | 2009 09 24 | G96 | 0.4− | 0.2− |
| 2000 11 19 | 704 | 0.1+ | 0.8− | 2004 09 21 | 704 | 0.2+ | 0.5+ | 2009 09 24 | G96 | 0.1+ | 0.4− |
| 2000 11 19 | 704 | 0.6− | 1.5− | 2004 09 21 | 704 | 0.0 | 0.8− | 2009 09 24 | G96 | 0.0 | 0.1+ |
| 2000 11 19 | 704 | 0.2+ | 0.5− | 2004 10 01 | 699 | 1.0+ | 0.0 | 2009 12 13 | 703 | 0.9+ | 0.8− |
| 2000 11 24 | 699 | 0.5+ | 0.1+ | 2004 10 01 | 699 | 0.9− | 0.0 | 2009 12 13 | 703 | (2.2+ | 0.3−) |
| 2000 11 24 | 699 | 0.5+ | 0.8+ | 2004 10 01 | 699 | 1.0− | 1.1− | 2009 12 13 | 703 | 0.1− | 0.3− |
| 2000 11 24 | 699 | 1.0+ | 0.7+ | 2004 10 01 | 699 | 0.0 | 1.0− | 2009 12 20 | 703 | 0.4− | 0.6− |
| 2000 11 24 | 699 | 0.9− | 1.0+ | 2004 10 06 | 704 | (1.6− | 1.7+) | 2009 12 20 | 703 | 0.4− | 0.9− |
| 2000 11 30 | 704 | 0.9+ | 0.8+ | 2004 10 06 | 704 | 0.6+ | 0.6+ | 2009 12 20 | 703 | 0.3− | 0.2+ |
| 2000 11 30 | 704 | 1.0+ | 0.4+ | 2004 10 06 | 704 | (0.2− | 1.6+) | 2009 12 20 | 703 | 0.2+ | 0.6+ |
| 2000 11 30 | 704 | 0.1− | 0.3+ | 2004 10 06 | 704 | 0.1+ | 0.7+ | | | | |

**(228382)∗ 2000 WC$_{149}$**

Discovered 2000 Nov. 29 by NEAT at Haleakala.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 24.78081 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22244027 | $\omega$ | 249.67525 | | +0.58169520 | −0.81155505 | |
| $a$ | 2.6977007 | $\Omega$ | 164.38098 | | +0.80140539 | +0.56026586 | |
| $e$ | 0.1875500 | $i$ | 11.75581 | | +0.13921239 | +0.16577263 | |
| $P$ | 4.43 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 10 30 | 704 | 0.5− | 1.5− | 2004 09 11 | 246 | 0.3+ | 0.3− | 2004 10 04 | 644 | 0.1− | 0.4− |
| 2000 10 30 | 704 | 1.2+ | 0.5− | 2004 09 11 | 246 | 0.4+ | 0.2− | 2004 10 04 | 644 | 0.4− | 0.0 |
| 2000 10 30 | 704 | 1.3+ | 0.7+ | 2004 09 11 | 246 | 0.5− | 0.2− | 2004 10 04 | 644 | 0.1− | 0.1+ |
| 2000 11 25 | 704 | 0.1− | 0.1+ | 2004 09 11 | 246 | 0.8− | 0.3+ | 2004 10 05 | 699 | 0.3− | 0.3+ |
| 2000 11 25 | 704 | 0.0 | 0.1+ | 2004 09 11 | 246 | 0.3− | 0.6+ | 2004 10 05 | 699 | 0.2− | 0.1+ |
| 2000 11 25 | 704 | 0.3+ | 0.5+ | 2004 09 11 | 246 | 0.0 | 0.9− | 2004 10 05 | 699 | 1.0− | 0.8+ |
| 2000 11 25 | 704 | 0.1− | 0.5+ | 2004 09 11 | 246 | 0.5− | 0.0 | 2004 10 05 | 699 | (1.5− | 1.8−) |
| 2000 11 29 | 608 | 0.4− | 0.2+ | 2004 09 12 | 291 | 0.2+ | 0.1+ | 2006 01 30 | 703 | (0.2− | 2.0+) |
| 2000 11 29 | 608 | 0.4− | 0.3+ | 2004 09 12 | 291 | 0.2+ | 0.1+ | 2006 01 30 | 703 | 1.0+ | 0.7+ |
| 2000 11 29 | 608 | 0.7− | 0.5+ | 2004 09 12 | 291 | 0.2+ | 0.1+ | 2006 01 30 | 703 | 0.1+ | 1.1+ |
| 2000 12 03 | 608 | 0.2− | 1.8− | 2004 09 12 | 671 | 0.0 | 0.2+ | 2006 01 30 | 703 | 0.8+ | 0.6+ |
| 2000 12 03 | 608 | 0.4− | 1.6− | 2004 09 12 | 671 | 0.2− | 0.3+ | 2006 02 02 | 699 | 0.4+ | 0.5+ |
| 2000 12 03 | 608 | 0.4− | 1.7− | 2004 09 12 | 671 | 0.2− | 1.2+ | 2006 02 02 | 699 | 0.2+ | 0.5+ |
| 2004 08 10 | 704 | 0.0 | 0.0 | 2004 09 12 | 671 | 0.2− | 0.4+ | 2006 02 02 | 699 | (0.7− | 1.6+) |
| 2004 08 10 | 704 | 0.8+ | 0.0 | 2004 09 13 | 699 | 0.7− | 0.4+ | 2006 02 02 | 699 | (0.6+ | 1.7+) |
| 2004 08 10 | 704 | 0.2+ | 0.2− | 2004 09 13 | 699 | 0.5+ | 0.8+ | 2006 02 07 | 703 | 1.1− | 0.1+ |
| 2004 08 12 | 704 | 0.1+ | 0.2− | 2004 09 13 | 699 | 0.1+ | 0.6− | 2006 02 07 | 703 | 0.6− | 0.3+ |
| 2004 08 12 | 704 | 0.4+ | 0.3+ | 2004 09 13 | 291 | 0.1+ | 0.0 | 2006 02 07 | 703 | 0.4+ | 0.3+ |
| 2004 08 12 | 704 | 0.9+ | 1.0− | 2004 09 13 | 291 | 0.0 | 0.1+ | 2006 02 07 | 703 | 0.8+ | 0.6+ |
| 2004 08 12 | 704 | 1.1+ | 1.2− | 2004 09 13 | 699 | 0.2− | 0.2+ | 2006 02 21 | 699 | 1.0+ | 0.8− |
| 2004 09 08 | 704 | 0.3− | 0.3+ | 2004 09 13 | 291 | 0.0 | 0.0 | 2006 02 21 | 699 | 0.5− | 0.5+ |
| 2004 09 08 | 704 | 0.1− | 0.1+ | 2004 09 14 | 699 | 0.0 | 0.9− | 2006 02 21 | 699 | 0.6+ | 0.6+ |
| 2004 09 08 | 704 | 0.2+ | 0.7+ | 2004 09 14 | 699 | 0.1+ | 0.1− | 2006 02 21 | 699 | (0.9+ | 1.9+) |
| 2004 09 08 | 704 | 0.4− | 0.3− | 2004 09 14 | 699 | 0.0 | 0.6+ | 2007 04 25 | G96 | 0.0 | 0.0 |
| 2004 09 08 | 704 | 0.0 | 0.1+ | 2004 09 14 | 699 | 0.3− | 0.5+ | 2007 04 25 | G96 | 0.2− | 0.3+ |
| 2004 09 09 | 704 | 0.1− | 0.1+ | 2004 09 17 | 704 | 0.2+ | 0.1+ | 2007 04 25 | G96 | 0.3− | 0.7+ |
| 2004 09 09 | 704 | 0.4− | 0.7+ | 2004 09 17 | 704 | 0.2− | 1.3+ | 2007 04 25 | G96 | 0.5− | 0.4+ |
| 2004 09 09 | 704 | 0.1− | 0.4+ | 2004 09 17 | 704 | 0.4+ | 0.6+ | 2007 05 26 | G96 | 1.2− | 0.7+ |
| 2004 09 09 | 704 | 0.2+ | 0.4+ | 2004 09 17 | 704 | 0.0 | 0.1− | 2007 05 26 | G96 | 0.2+ | 0.2+ |
| 2004 09 09 | 704 | 0.1− | 0.1− | 2004 09 17 | 704 | 0.2+ | 0.3+ | 2007 05 26 | G96 | 0.0 | 0.5+ |
| 2004 09 09 | 704 | 0.0 | 0.5+ | 2004 09 21 | 704 | 0.2+ | 0.4− | 2007 05 26 | G96 | 0.4+ | 0.5+ |
| 2004 09 09 | 704 | (0.1+ | 1.5+) | 2004 09 21 | 704 | 0.6+ | 0.1− | 2008 07 29 | G96 | 0.2− | 0.1− |
| 2004 09 09 | 699 | 0.4− | 0.3− | 2004 09 21 | 704 | 1.0+ | 0.3+ | 2008 07 29 | G96 | 0.4+ | 0.1− |
| 2004 09 09 | 704 | 0.1− | 0.9+ | 2004 09 21 | 704 | 0.4+ | 0.3+ | 2008 07 29 | G96 | 0.4+ | 0.1− |
| 2004 09 09 | 699 | 0.8+ | 0.1− | 2004 09 21 | 704 | 0.3+ | 0.0 | 2008 07 29 | G96 | 0.2− | 0.1− |
| 2004 09 09 | 704 | 0.2− | 1.3+ | 2004 09 23 | 691 | 0.1+ | 0.0 | 2009 11 21 | 703 | (2.3− | 0.0 ) |
| 2004 09 09 | 699 | (2.0+ | 0.3+) | 2004 09 23 | 691 | 0.1− | 0.0 | 2009 11 21 | 703 | 0.8− | 0.7+ |
| 2004 09 09 | 699 | 0.0 | 0.2+ | 2004 09 23 | 691 | 0.2+ | 0.0 | 2009 11 21 | 703 | 0.4− | 0.4+ |
| 2004 09 11 | 691 | 0.0 | 0.3− | 2004 09 24 | 291 | 0.5− | 0.1+ | 2009 11 21 | 703 | 0.2+ | 1.3+ |
| 2004 09 11 | 691 | 0.1+ | 0.0 | 2004 09 24 | 291 | 0.3− | 0.0 | 2009 12 11 | J75 | 0.1− | 0.4+ |
| 2004 09 11 | 691 | 0.0 | 0.1− | 2004 09 24 | 291 | 0.3− | 0.0 | 2009 12 11 | J75 | 0.4− | 0.2+ |
| 2004 09 11 | 246 | 0.4− | 0.2+ | 2004 10 04 | 644 | 0.1− | 0.3− | 2009 12 11 | J75 | 0.3+ | 0.1+ |
| 2004 09 11 | 246 | 0.3+ | 0.5− | 2004 10 04 | 644 | 0.0 | 0.2− | | | | |
| 2004 09 11 | 246 | 0.1− | 0.3− | 2004 10 04 | 644 | 0.4− | 0.5− | | | | |

**(228383)∗ 2000 WO$_{187}$**

Discovered 2000 Nov. 16 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 56.81116 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22393737 | $\omega$ | 81.86001 | | +0.95552238 | +0.15478788 | |
| $a$ | 2.6856639 | $\Omega$ | 268.97241 | | −0.24451908 | +0.89169628 | |
| $e$ | 0.3170307 | $i$ | 14.54105 | | +0.16488604 | +0.42534510 | |
| $P$ | 4.40 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 08 | 704 | 0.3+ | 0.1+ | 2000 11 30 | 704 | 0.1+ | 0.1+ | 2004 11 12 | 704 | 0.4+ | 0.4− |
| 2000 09 08 | 704 | 0.5+ | 0.4− | 2000 12 04 | 704 | 0.7− | 0.9− | 2004 11 12 | 704 | 0.7− | 0.4− |
| 2000 09 08 | 704 | 0.4− | 0.3− | 2000 12 04 | 704 | 0.2+ | 0.9+ | 2005 10 01 | G96 | 0.6+ | 0.3+ |
| 2000 09 08 | 704 | 0.7− | 0.1+ | 2000 12 04 | 704 | 0.3+ | 0.7+ | 2005 10 01 | G96 | 0.0 | 0.3+ |
| 2000 09 08 | 704 | 0.9− | 0.2− | 2000 12 04 | 704 | 0.4− | 1.8+ | 2005 10 01 | G96 | 0.0 | 0.1− |
| 2000 10 06 | 704 | 0.2− | 0.3− | 2000 12 30 | 704 | 0.6− | 1.0− | 2005 10 01 | G96 | 0.5+ | 0.6+ |
| 2000 10 06 | 704 | 0.1+ | 0.4− | 2000 12 30 | 704 | 0.4+ | 0.5+ | 2009 11 16 | 704 | 0.1+ | 0.5+ |
| 2000 10 06 | 704 | 0.1+ | 1.4− | 2000 12 30 | 704 | 0.3− | 1.0+ | 2009 11 16 | 704 | 0.2− | 1.4+ |
| 2000 10 06 | 704 | 0.4+ | 1.3− | 2004 06 15 | 704 | 0.1− | 0.8+ | 2009 11 16 | 704 | 0.7+ | 0.8+ |
| 2000 11 06 | 704 | 0.8− | 0.0 | 2004 06 15 | 704 | 0.0 | 1.0+ | 2009 11 23 | 691 | 0.3− | 0.1− |
| 2000 11 06 | 704 | 0.5− | 0.8− | 2004 06 15 | 704 | 0.3+ | 0.7+ | 2009 11 23 | 691 | 0.1+ | 0.2− |
| 2000 11 06 | 704 | 0.1+ | 0.3− | 2004 06 15 | 704 | 0.1+ | 0.8+ | 2009 11 23 | 691 | 0.4− | 0.1− |
| 2000 11 06 | 704 | 0.6+ | 0.0 | 2004 06 18 | 704 | 1.3− | 0.5− | 2009 12 08 | J75 | 0.1− | 0.2− |
| 2000 11 16 | 699 | 0.8+ | 0.1− | 2004 06 18 | 704 | 1.3− | 0.6− | 2009 12 08 | J75 | 0.2+ | 0.0 |
| 2000 11 16 | 699 | 0.1− | 0.4− | 2004 06 18 | 704 | 1.3− | 0.1+ | 2009 12 08 | J75 | 0.3+ | 0.1+ |
| 2000 11 16 | 699 | 0.4+ | 0.2+ | 2004 06 18 | 704 | (2.0− | 0.3+) | 2009 12 10 | 704 | 0.7+ | 1.1+ |
| 2000 11 16 | 699 | 0.7+ | 0.4+ | 2004 07 16 | 704 | 0.1− | 0.6+ | 2009 12 10 | 704 | 0.1− | 0.9+ |
| 2000 11 19 | 704 | 0.5+ | 0.0 | 2004 07 16 | 704 | 0.2− | 0.2+ | 2009 12 10 | 704 | 0.4+ | 0.5+ |
| 2000 11 19 | 704 | 0.5− | 0.0 | 2004 07 16 | 704 | 0.5+ | 0.6+ | 2009 12 10 | 704 | 0.1− | 1.0+ |
| 2000 11 19 | 704 | 0.3− | 0.1+ | 2004 07 16 | 704 | 0.4+ | 0.2+ | 2009 12 10 | 704 | 0.3− | 1.5+ |
| 2000 11 19 | 704 | 0.0 | 0.4− | 2004 07 16 | 704 | 0.5+ | 0.3+ | 2009 12 13 | G96 | 0.4+ | 0.1− |
| 2000 11 19 | 704 | 0.5− | 0.2− | 2004 10 18 | 704 | 0.9+ | 0.6− | 2009 12 13 | G96 | 0.4+ | 0.0 |
| 2000 11 30 | 704 | 1.0+ | 0.1− | 2004 10 18 | 704 | 0.5− | 0.9+ | 2009 12 13 | G96 | 0.8+ | 0.7− |
| 2000 11 30 | 704 | 0.2+ | 0.4+ | 2004 10 18 | 704 | (2.7+ | 8.5+) | 2009 12 13 | G96 | 0.2+ | 0.0 |
| 2000 11 30 | 704 | 0.2− | 0.2+ | 2004 10 18 | 704 | (1.9− | 0.8+) | | | | |
| 2000 11 30 | 704 | 0.3− | 0.1+ | 2004 11 12 | 704 | 0.1+ | 0.9+ | | | | |

**(228384)∗ 2000 XD$_{14}$**

Discovered 2000 Dec. 4 by Y.-B. Jeon and B.-C. Lee at Bohyunsan Optical Astronomy Observatory.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 42.81758 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22604610 | $\omega$ | 332.48130 | | +0.46371267 | −0.88412697 | |
| $a$ | 2.6689352 | $\Omega$ | 89.84255 | | +0.82305416 | +0.40590749 | |
| $e$ | 0.0765295 | $i$ | 3.28825 | | +0.32795185 | +0.23142735 | |
| $P$ | 4.36 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1991 11 08 | 691 | 0.1− | 1.2+ | 2000 12 26 | 344 | 0.1+ | 0.0 | 2008 09 07 | 703 | (1.2− | 1.8+) | | | | | |
| 1991 11 08 | 691 | 0.2− | 0.6+ | 2000 12 27 | 691 | 0.9− | 0.5+ | 2008 09 07 | 703 | 0.7+ | 0.9+ | | | | | |
| 1991 11 08 | 691 | 0.5− | 0.4+ | 2000 12 27 | 691 | 0.3− | 0.0 | 2008 09 23 | 704 | 0.4− | 0.2− | | | | | |
| 2000 11 22 | 734 | 0.2− | 0.1+ | 2000 12 27 | 691 | 0.0 | 0.1− | 2008 09 23 | 704 | 0.8− | 0.1+ | | | | | |
| 2000 11 22 | 734 | 1.2− | 0.0 | 2004 10 08 | 699 | 1.4− | 0.6+ | 2008 09 23 | 704 | 1.0− | 0.5+ | | | | | |
| 2000 11 22 | 734 | 1.9− | 0.3− | 2004 10 08 | 699 | 0.8+ | 0.8− | 2008 09 25 | G96 | 0.2− | 0.7− | | | | | |
| 2000 11 22 | 734 | 0.5− | 0.9− | 2004 10 08 | 699 | 0.9+ | 0.4+ | 2008 09 25 | G96 | 0.5− | 0.7− | | | | | |
| 2000 12 04 | 344 | 0.5+ | 1.5− | 2004 10 08 | 699 | 0.8+ | 0.7+ | 2008 09 25 | G96 | 0.1+ | 1.0− | | | | | |
| 2000 12 04 | 344 | 0.3+ | 1.3− | 2004 10 20 | 704 | 0.7+ | 0.1+ | 2008 09 25 | G96 | 0.1− | 0.7− | | | | | |
| 2000 12 04 | 344 | 0.4+ | 1.2− | 2004 10 20 | 704 | 1.0+ | 0.8+ | 2008 10 09 | G96 | 0.5+ | 0.6− | | | | | |
| 2000 12 05 | 344 | 0.3+ | 0.6− | 2004 10 20 | 704 | 0.9+ | 1.0+ | 2008 10 09 | G96 | 0.6+ | 1.1− | | | | | |
| 2000 12 05 | 344 | 0.2+ | 0.7− | 2004 11 03 | 644 | 0.4+ | 0.6− | 2008 10 09 | G96 | 0.4+ | 0.7− | | | | | |
| 2000 12 05 | 344 | 0.1+ | 0.6− | 2004 11 03 | 644 | 0.1+ | 0.1+ | 2008 10 09 | G96 | 0.1− | 0.9− | | | | | |
| 2000 12 08 | 344 | 0.7+ | 0.4− | 2004 11 03 | 644 | 0.0 | 0.3+ | 2009 11 11 | G96 | 0.2+ | 0.6− | | | | | |
| 2000 12 08 | 344 | 0.6+ | 0.3− | 2006 02 04 | 691 | 0.4+ | 0.2+ | 2009 11 11 | G96 | 0.6+ | 0.6− | | | | | |
| 2000 12 08 | 344 | 0.7+ | 0.2− | 2006 02 04 | 691 | 0.3+ | 0.2+ | 2009 11 11 | G96 | 0.3+ | 0.2+ | | | | | |
| 2000 12 14 | 344 | 0.9+ | 0.2− | 2006 02 04 | 691 | 0.2+ | 0.5+ | 2009 12 26 | 691 | 0.9− | 0.3− | | | | | |
| 2000 12 14 | 344 | 0.8+ | 0.2− | 2008 09 07 | 703 | 0.8− | 0.6+ | 2009 12 26 | 691 | 0.1+ | 0.1− | | | | | |
| 2000 12 26 | 344 | 0.1+ | 0.3+ | 2008 09 07 | 703 | 0.1+ | 0.7+ | 2009 12 26 | 691 | 0.3+ | 0.1− | | | | | |

**(228385)∗ 2000 XW$_{20}$**

Discovered 2000 Dec. 4 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 2.20425 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22815961 | $\omega$ | 173.17077 | | −0.49175969 | −0.86343374 | |
| $a$ | 2.6524276 | $\Omega$ | 306.22388 | | +0.79213941 | −0.38998651 | |
| $e$ | 0.1879796 | $i$ | 8.01576 | | +0.36150733 | −0.31998860 | |
| $P$ | 4.32 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 19 | 704 | 0.6− | 1.0+ | 2004 10 10 | 704 | 0.3+ | 0.8+ | 2008 09 09 | G96 | 0.3+ | 0.1− | | | | | |
| 2000 11 19 | 704 | 1.2− | 0.5+ | 2004 10 10 | 704 | 0.4− | 0.1− | 2008 09 09 | G96 | 0.6− | 0.2+ | | | | | |
| 2000 11 19 | 704 | 0.4− | 0.5+ | 2004 10 12 | 699 | 0.3− | 0.1+ | 2008 09 09 | G96 | 0.3− | 0.6+ | | | | | |
| 2000 11 19 | 704 | 0.2+ | 0.6− | 2004 10 12 | 699 | 0.7+ | 0.6+ | 2008 09 09 | G96 | 0.6− | 0.1− | | | | | |
| 2000 11 19 | 704 | 1.1− | 0.2+ | 2004 10 12 | 699 | (0.6+ | 2.4+) | 2008 10 29 | G96 | 0.2− | 0.2− | | | | | |
| 2000 12 04 | 704 | 0.4− | 0.1− | 2004 10 12 | 699 | (1.9+ | 0.6−) | 2008 10 29 | G96 | 0.2+ | 0.3− | | | | | |
| 2000 12 04 | 704 | 0.7+ | 0.8+ | 2004 10 16 | 941 | 0.1+ | 0.1+ | 2008 10 29 | G96 | 0.6+ | 0.2− | | | | | |
| 2000 12 04 | 704 | 0.3− | 0.2+ | 2004 10 16 | 941 | 0.3+ | 0.3− | 2008 10 29 | G96 | 0.3− | 0.3− | | | | | |
| 2000 12 04 | 704 | 0.0 | 0.8+ | 2004 10 16 | 941 | 0.2+ | 0.4− | 2009 11 21 | G96 | 0.4+ | 0.8− | | | | | |
| 2000 12 06 | 704 | 0.3+ | 0.0 | 2004 10 16 | 941 | 0.2+ | 0.4− | 2009 11 21 | G96 | 0.4− | 0.2− | | | | | |
| 2000 12 06 | 704 | 0.3− | 0.3+ | 2004 12 05 | 201 | 0.4+ | 0.2+ | 2009 11 21 | G96 | 0.3− | 0.3− | | | | | |
| 2000 12 06 | 704 | 0.3− | 0.1− | 2004 12 05 | 201 | 0.2+ | 0.3− | 2009 11 21 | G96 | 0.0 | 0.1− | | | | | |
| 2000 12 06 | 704 | 0.4+ | 0.0 | 2004 12 05 | 201 | 0.5+ | 0.4− | 2009 12 17 | G96 | 0.1− | 0.4− | | | | | |
| 2000 12 19 | 704 | 1.3+ | 0.6− | 2006 03 04 | 703 | 0.1+ | 0.0 | 2009 12 17 | G96 | 0.2− | 0.1− | | | | | |
| 2000 12 19 | 704 | 0.1+ | 0.0 | 2006 03 04 | 703 | (2.3+ | 0.6−) | 2009 12 17 | G96 | 0.1− | 0.2− | | | | | |
| 2000 12 19 | 704 | 0.3− | 0.9+ | 2006 03 04 | 703 | 0.3− | 0.6− | 2009 12 17 | G96 | 0.6− | 0.1− | | | | | |
| 2000 12 19 | 704 | 0.5− | 0.2− | 2006 03 04 | 703 | 0.4+ | 0.4− | 2009 12 17 | G96 | 0.0 | 0.2− | | | | | |
| 2001 01 19 | 704 | 0.3− | 0.3+ | 2006 03 05 | 699 | 0.7+ | 0.4+ | 2009 12 17 | G96 | 0.0 | 0.5− | | | | | |
| 2001 01 19 | 704 | 0.4+ | 0.3− | 2006 03 05 | 699 | 0.4+ | 0.8+ | 2009 12 17 | G96 | 0.4− | 0.1− | | | | | |
| 2001 01 19 | 704 | 1.3+ | 0.3+ | 2006 03 05 | 699 | 0.2− | 0.7+ | 2009 12 17 | G96 | 0.4− | 0.3− | | | | | |
| 2004 10 10 | 704 | 0.1− | 0.6+ | 2006 03 05 | 699 | 0.5+ | 1.3+ | | | | | | | | | |

**(228386)∗ 2000 YW$_{19}$ = 2004 RV$_{55}$**

Discovered 2000 Dec. 22 by NEAT at Haleakala.

Id. A. Doppler (*MPO* 68874)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 13.14106 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21851108 | $\omega$ | 264.40578 | | +0.43584835 | −0.89627030 | |
| $a$ | 2.7299440 | $\Omega$ | 159.14578 | | +0.88973648 | +0.41532772 | |
| $e$ | 0.1681953 | $i$ | 13.32910 | | +0.13566581 | +0.15557129 | |
| $P$ | 4.51 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 26 | 704 | 0.7+ | 0.9+ | 2004 09 21 | 704 | 0.3− | 0.9+ | 2006 02 07 | 703 | 0.6+ | 0.2− | | | | | |
| 2000 11 26 | 704 | 0.1+ | 0.6− | 2004 09 21 | 704 | 1.2+ | 0.7+ | 2006 02 07 | 703 | 0.7− | 0.8+ | | | | | |
| 2000 11 26 | 704 | 0.7− | 0.1+ | 2004 09 21 | 704 | 0.0 | 0.3+ | 2006 02 07 | 703 | 0.6− | 0.1− | | | | | |
| 2000 11 26 | 704 | 0.2− | 0.6+ | 2004 09 21 | 704 | 0.4+ | 0.1+ | 2006 02 07 | 703 | 0.9− | 0.6+ | | | | | |
| 2000 12 22 | 608 | 0.0 | 0.5+ | 2004 09 21 | 704 | 0.2− | 0.1+ | 2006 02 08 | 703 | 0.8− | 0.2+ | | | | | |
| 2000 12 22 | 608 | 0.2− | 1.3+ | 2004 09 23 | 704 | (2.8− | 1.4−) | 2006 02 08 | 703 | 0.3− | 0.5+ | | | | | |
| 2000 12 22 | 608 | 0.9− | 1.1+ | 2004 09 23 | 704 | 0.8+ | 0.1+ | 2006 02 08 | 703 | 0.7+ | 0.7+ | | | | | |
| 2000 12 28 | 608 | 0.2− | 1.1− | 2004 09 23 | 704 | 0.5+ | 0.1− | 2006 02 08 | 703 | 0.1+ | 0.5+ | | | | | |
| 2000 12 28 | 608 | 0.0 | 1.0− | 2004 09 23 | 704 | 0.0 | 0.5+ | 2006 03 25 | G96 | 0.0 | 0.2+ | | | | | |
| 2000 12 28 | 608 | 0.1+ | 0.8− | 2004 09 24 | 704 | 0.3+ | 0.7+ | 2006 03 25 | G96 | 0.1− | 0.0 | | | | | |
| 2001 01 27 | 608 | 0.8+ | 1.1− | 2004 09 24 | 704 | 0.5− | 0.4− | 2006 03 25 | G96 | 0.0 | 0.4+ | | | | | |
| 2001 01 27 | 608 | 1.1+ | 0.6− | 2004 09 24 | 704 | 1.5+ | 0.6+ | 2006 03 25 | G96 | 0.5− | 0.2+ | | | | | |
| 2001 01 27 | 608 | 1.2+ | 0.3− | 2004 10 09 | 704 | 0.3− | 0.4+ | 2006 04 20 | G96 | 0.4− | 0.2+ | | | | | |
| 2004 07 15 | 704 | 0.5− | 0.2+ | 2004 10 09 | 704 | 1.0− | 0.5+ | 2006 04 20 | G96 | 0.6− | 0.5+ | | | | | |
| 2004 07 15 | 704 | 0.2+ | 0.2+ | 2004 10 09 | 704 | 0.6+ | 0.7+ | 2006 04 20 | G96 | 0.6− | 0.3+ | | | | | |
| 2004 07 15 | 704 | 1.4+ | 0.2− | 2004 10 09 | 704 | 0.4− | 0.1+ | 2006 04 20 | G96 | 0.1− | 0.6+ | | | | | |
| 2004 08 12 | 704 | (2.0− | 0.9+) | 2004 10 10 | 704 | 0.0 | 0.2+ | 2006 05 28 | G96 | 0.6− | 0.2+ | | | | | |
| 2004 08 12 | 704 | 0.3− | 0.1− | 2004 10 10 | 704 | 0.3− | 0.2+ | 2006 05 28 | G96 | 0.3− | 0.6+ | | | | | |
| 2004 08 12 | 704 | 0.9− | 0.5− | 2004 10 10 | 704 | 0.6− | 0.0 | 2006 05 28 | G96 | 0.4− | 0.3+ | | | | | |
| 2004 08 12 | 704 | 0.2− | 0.6− | 2004 10 10 | 704 | 0.7− | 0.4+ | 2006 05 28 | G96 | 0.2− | 0.5− | | | | | |
| 2004 09 08 | 704 | 0.7− | 0.1+ | 2004 10 10 | 704 | 0.6− | 0.3− | 2007 04 26 | G96 | 0.8+ | 0.9+ | | | | | |
| 2004 09 08 | 704 | 0.2− | 0.9+ | 2004 10 12 | 704 | (1.4− | 2.2−) | 2007 04 26 | G96 | 0.3+ | 0.6+ | | | | | |
| 2004 09 08 | 704 | 0.8− | 0.6+ | 2004 10 12 | 704 | 0.8+ | 0.9− | 2007 04 26 | G96 | 0.2+ | 0.3+ | | | | | |
| 2004 09 08 | 704 | 0.7− | 0.2+ | 2004 10 12 | 704 | 0.2− | 0.1+ | 2007 04 26 | G96 | 0.2+ | 0.7+ | | | | | |
| 2004 09 08 | 704 | 0.8+ | 0.5+ | 2004 10 12 | 704 | 1.0− | 0.7+ | 2008 07 28 | G96 | 0.3+ | 0.2+ | | | | | |
| 2004 09 09 | 704 | 0.3− | 0.4+ | 2004 10 20 | 703 | 0.3+ | 0.4+ | 2008 07 28 | G96 | 0.5+ | 0.2+ | | | | | |
| 2004 09 09 | 704 | 0.2− | 0.8+ | 2004 10 20 | 703 | 1.4+ | 1.0+ | 2008 07 28 | G96 | 0.1+ | 0.8+ | | | | | |
| 2004 09 09 | 704 | 0.4− | 0.2+ | 2004 10 20 | 703 | 0.5− | 0.5− | 2008 07 28 | G96 | 0.3− | 0.5+ | | | | | |
| 2004 09 09 | 704 | 0.1+ | 0.4+ | 2004 10 20 | 703 | 0.8− | 0.0 | 2009 11 21 | 703 | 0.1+ | 0.1− | | | | | |
| 2004 09 09 | 704 | 0.9− | 1.2+ | 2006 01 23 | 703 | (0.1+ | 1.7−) | 2009 11 21 | 703 | 0.8+ | 0.9− | | | | | |
| 2004 09 14 | 699 | 0.1+ | 0.7+ | 2006 01 23 | 703 | 1.2− | 0.1− | 2009 11 21 | 703 | 0.1− | 0.5− | | | | | |
| 2004 09 14 | 699 | 0.5+ | 0.5+ | 2006 01 23 | 703 | 0.7+ | 0.4+ | 2009 11 21 | 703 | (0.6+ | 2.6−) | | | | | |
| 2004 09 14 | 699 | 0.3− | 0.0 | 2006 01 23 | 703 | 1.1− | 0.2+ | 2009 12 16 | 703 | 0.3+ | 0.3− | | | | | |
| 2004 09 14 | 699 | 0.2+ | 0.2+ | 2006 01 23 | 704 | 0.3+ | 0.3+ | 2009 12 16 | 703 | 0.8− | 0.4+ | | | | | |
| 2004 09 16 | 699 | 0.5− | 1.4+ | 2006 01 23 | 704 | 0.3+ | 0.9+ | 2009 12 16 | 703 | 0.8− | 0.0 | | | | | |
| 2004 09 16 | 699 | (1.8+ | 0.8+) | 2006 01 23 | 704 | 0.1− | 0.7+ | 2009 12 16 | 703 | 1.4− | 0.0 | | | | | |
| 2004 09 16 | 699 | 0.2− | 0.1− | 2006 02 02 | 699 | 0.2+ | 0.3− | 2009 12 20 | 704 | 1.0+ | 0.6− | | | | | |
| 2004 09 16 | 699 | 0.4− | 0.0 | 2006 02 02 | 699 | 0.5+ | 0.1− | 2009 12 20 | 704 | 1.1+ | 0.2− | | | | | |
| 2004 09 17 | 704 | 0.3+ | 0.1− | 2006 02 02 | 699 | 1.2+ | 0.1+ | 2009 12 20 | 704 | 1.0+ | 0.3− | | | | | |
| 2004 09 17 | 704 | 0.4+ | 0.6− | 2006 02 02 | 691 | 0.6+ | 0.6+ | 2009 12 20 | 704 | 0.4+ | 1.1− | | | | | |
| 2004 09 17 | 704 | 0.5− | 0.0 | 2006 02 02 | 699 | (1.5+ | 0.9+) | 2009 12 20 | 704 | 0.3− | 0.3− | | | | | |
| 2004 09 17 | 704 | 0.3+ | 0.2+ | 2006 02 02 | 691 | 0.2+ | 0.5+ | | | | | | | | | |
| 2004 09 17 | 704 | 0.4− | 1.0− | 2006 02 02 | 691 | 0.1+ | 0.7+ | | | | | | | | | |

**(228387)∗ 2000 YY$_{35}$ = 2006 FM$_{45}$**

Discovered 2000 Dec. 30 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. A. Doppler (*MPO* 100002)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 339.12914 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21447562 | $\omega$ | 350.32555 | | −0.30754637 | −0.93901676 | |
| $a$ | 2.7640809 | $\Omega$ | 117.44998 | | +0.88419270 | −0.34175675 | |
| $e$ | 0.2636992 | $i$ | 9.98225 | | +0.35159422 | +0.03807693 | |
| $P$ | 4.60 | $H$ | 15.3 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 12 30 | 704 | 0.3+ | 0.3− | 2004 10 20 | 703 | 0.2+ | 0.6+ | 2009 11 08 | 703 | 0.8− | 0.1− |
| 2000 12 30 | 704 | 0.1− | 0.1− | 2004 10 20 | 703 | 0.1− | 0.3+ | 2009 11 08 | 703 | 0.1− | 0.2+ |
| 2000 12 30 | 704 | 0.3− | 0.1+ | 2004 10 20 | 703 | 0.2+ | 0.4+ | 2009 11 15 | 704 | 0.4+ | 0.3+ |
| 2000 12 30 | 704 | 0.0 | 0.1− | 2004 10 20 | 703 | 0.6− | 0.3− | 2009 11 15 | 704 | 0.2+ | 0.6+ |
| 2001 01 02 | 704 | 0.3+ | 0.6− | 2006 02 06 | 699 | 0.6+ | 0.5+ | 2009 11 15 | 704 | 0.2+ | 0.6+ |
| 2001 01 02 | 704 | 0.0 | 0.2− | 2006 02 06 | 699 | 0.2− | 0.4− | 2009 11 15 | 704 | 0.2+ | 0.3+ |
| 2001 01 02 | 704 | 0.0 | 0.1− | 2006 02 06 | 699 | 0.1− | 1.1− | 2009 11 15 | 704 | 0.4+ | 0.9+ |
| 2001 01 02 | 704 | 0.3+ | 0.3− | 2006 02 06 | 699 | 1.3− | 0.3+ | 2009 11 21 | 703 | 0.0 | 0.2− |
| 2001 01 02 | 704 | 0.2+ | 0.3+ | 2006 02 06 | 703 | 0.4− | 0.1+ | 2009 11 21 | 703 | 0.0 | 0.4− |
| 2001 01 03 | 704 | 0.1+ | 1.0+ | 2006 02 06 | 703 | 1.2− | 0.0 | 2009 11 21 | 703 | 0.5− | 0.6− |
| 2001 01 03 | 704 | 0.2− | 0.4− | 2006 02 06 | 703 | 0.7− | 0.2+ | 2009 11 21 | 703 | 0.2− | 0.4− |
| 2001 01 03 | 704 | 0.0 | 0.3− | 2006 02 06 | 703 | 0.4+ | 0.2+ | 2009 11 27 | 703 | 0.3+ | 0.6− |
| 2001 01 03 | 704 | 0.2− | 0.7− | 2006 02 25 | 683 | 0.9+ | 0.7− | 2009 11 27 | 703 | 0.5+ | 1.3− |
| 2001 01 03 | 704 | 0.2− | 0.5− | 2006 02 25 | 683 | (2.4+ | 0.2+) | 2009 11 27 | 703 | 0.1+ | 1.5− |
| 2001 02 19 | 704 | 0.2− | 0.5− | 2006 02 25 | 683 | 1.4+ | 0.8− | 2009 11 27 | 703 | 0.1+ | 0.7+ |
| 2001 02 19 | 704 | 0.2− | 0.4+ | 2006 03 19 | 704 | (2.8+ | 0.7+) | 2009 12 13 | 703 | 1.0− | 0.4− |
| 2001 02 19 | 704 | 0.1− | 0.9+ | 2006 03 19 | 704 | 1.3+ | 0.7+ | 2009 12 13 | 703 | 0.5− | 0.1− |
| 2001 02 19 | 704 | 0.1+ | 0.1− | 2006 03 19 | 704 | 0.9+ | 0.6+ | 2009 12 13 | 703 | 0.3− | 0.2− |
| 2001 02 19 | 704 | 0.7+ | 0.5− | 2006 03 19 | 704 | 0.9− | 0.5+ | 2009 12 13 | 703 | 0.2− | 0.3+ |
| 2004 09 21 | 704 | 0.8+ | 0.1− | 2006 03 24 | 699 | 0.1+ | 0.0 | 2009 12 14 | 704 | 0.1− | 0.1+ |
| 2004 09 21 | 704 | 0.3− | 0.4+ | 2006 03 24 | 699 | 0.1− | 0.3+ | 2009 12 14 | 704 | 0.7+ | 0.2+ |
| 2004 09 21 | 704 | 0.3− | 0.4+ | 2006 03 24 | 699 | 0.8+ | 0.9+ | 2009 12 14 | 704 | 0.5− | 1.4+ |
| 2004 09 21 | 704 | 0.4− | 0.5+ | 2006 03 24 | 699 | 0.2− | 0.5+ | 2009 12 14 | 704 | 1.3+ | 0.1− |
| 2004 09 21 | 704 | 0.3+ | 0.4+ | 2006 03 25 | 703 | 0.8− | 0.1+ | 2009 12 18 | 704 | 0.0 | 0.2+ |
| 2004 09 22 | 704 | 0.8− | 1.0− | 2006 03 25 | 703 | 0.4+ | 0.6+ | 2009 12 18 | 704 | 0.2− | 1.2+ |
| 2004 09 22 | 704 | 0.2− | 0.0 | 2006 03 25 | 703 | 0.8− | 0.1− | 2009 12 18 | 704 | 1.0+ | 1.4+ |
| 2004 09 22 | 704 | 0.2− | 0.2+ | 2006 03 25 | 703 | 0.5+ | 0.6+ | 2009 12 18 | 704 | 0.5+ | 0.7+ |
| 2004 09 22 | 704 | 0.1− | 0.8− | 2009 11 08 | 703 | 0.8− | 0.8− | 2009 12 18 | 704 | 0.3− | 0.1+ |
| 2004 09 22 | 704 | 0.6+ | 0.9+ | 2009 11 08 | 703 | 0.7− | 0.0 | | | | |

**(228388)∗ 2000 YM$_{60}$**

Discovered 2000 Dec. 30 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 306.26984 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21144329 | $\omega$ | 36.68810 | | −0.89250365 | −0.42496752 | |
| $a$ | 2.7904449 | $\Omega$ | 117.50319 | | +0.36265101 | −0.87534635 | |
| $e$ | 0.1941881 | $i$ | 9.81018 | | +0.26818182 | −0.23058918 | |
| $P$ | 4.66 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1992 03 11 | 691 | 0.1+ | 0.6− | 2001 01 20 | 704 | 0.1+ | 0.6+ | 2006 02 23 | 699 | 1.0− | 0.4+ |
| 1992 03 11 | 691 | 0.3− | 0.4− | 2001 01 20 | 704 | 0.3− | 0.8+ | 2006 03 24 | 699 | 0.5+ | 0.2− |
| 1992 03 11 | 691 | 0.2− | 0.5− | 2001 01 20 | 704 | 1.4− | 0.5+ | 2006 03 24 | 699 | 0.8+ | 0.3− |
| 2000 12 30 | 704 | 0.8− | 0.3+ | 2001 01 20 | 704 | 1.1+ | 0.4− | 2006 03 24 | 699 | (1.1+ | 1.7+) |
| 2000 12 30 | 704 | 0.0 | 0.1− | 2001 01 20 | 704 | 0.7− | 0.6− | 2006 03 24 | 699 | 0.6+ | 0.9+ |
| 2000 12 30 | 704 | 0.1+ | 1.5− | 2001 01 21 | 704 | 0.0 | 0.3− | 2006 04 02 | 703 | 0.3+ | 0.3+ |
| 2000 12 30 | 704 | 0.8+ | 0.2− | 2001 01 21 | 704 | 0.2+ | 0.2− | 2006 04 02 | 703 | 0.9− | 0.3− |
| 2001 01 02 | 704 | 0.4+ | 0.9− | 2001 01 21 | 704 | 0.2− | 0.2+ | 2006 04 02 | 703 | 0.1+ | 0.0 |
| 2001 01 02 | 704 | 0.6+ | 0.4+ | 2001 01 21 | 704 | 0.1− | 0.3+ | 2006 04 02 | 703 | 0.5− | 0.4+ |
| 2001 01 02 | 704 | 0.6+ | 0.6+ | 2001 01 21 | 704 | 0.1− | 0.8+ | 2009 11 27 | G96 | 0.6+ | 0.4− |
| 2001 01 02 | 704 | 0.0 | 0.2+ | 2001 02 19 | 704 | 0.2− | 0.3+ | 2009 11 27 | G96 | 0.1+ | 0.4− |
| 2001 01 02 | 704 | 0.2+ | 0.6+ | 2001 02 19 | 704 | 0.6+ | 0.5+ | 2009 11 27 | G96 | 0.6+ | 0.4− |
| 2001 01 03 | 704 | 0.3+ | 0.0 | 2001 02 19 | 704 | 0.4− | 0.8+ | 2009 11 27 | G96 | 0.6+ | 0.5− |
| 2001 01 03 | 704 | 0.5− | 0.2+ | 2006 01 28 | 699 | 0.2+ | 1.0− | 2009 11 27 | G96 | 0.2+ | 0.3− |
| 2001 01 03 | 704 | 0.2+ | 0.1+ | 2006 01 28 | 699 | 0.2− | 1.2− | 2009 12 11 | 703 | 0.3+ | 0.2+ |
| 2001 01 03 | 704 | 0.3− | 0.0 | 2006 01 28 | 699 | 0.3− | 0.6− | 2009 12 11 | 703 | 0.6− | 0.4− |
| 2001 01 03 | 704 | 0.3+ | 0.6+ | 2006 01 28 | 699 | 0.1− | 0.0 | 2009 12 11 | 703 | 0.4− | 0.5− |
| 2001 01 15 | 691 | 0.0 | 0.2+ | 2006 02 22 | 704 | 0.6+ | 0.2+ | 2009 12 11 | 703 | 0.3− | 1.4− |
| 2001 01 15 | 691 | 0.0 | 0.5+ | 2006 02 22 | 704 | 0.1− | 0.2+ | 2009 12 13 | 704 | 0.4+ | 0.8− |
| 2001 01 15 | 691 | 0.0 | 0.3+ | 2006 02 22 | 704 | 0.2+ | 0.5+ | 2009 12 13 | 704 | 0.1− | 0.3− |
| 2001 01 19 | 699 | 0.1− | 0.5− | 2006 02 22 | 704 | 0.4+ | 0.3+ | 2009 12 13 | 704 | 0.1− | 0.1− |
| 2001 01 19 | 699 | 0.6− | 0.0 | 2006 02 23 | 699 | 0.6− | 0.5+ | 2009 12 13 | 704 | 0.4+ | 0.0 |
| 2001 01 19 | 699 | 0.2− | 0.1− | 2006 02 23 | 699 | 0.3+ | 0.0 | | | | |
| 2001 01 19 | 699 | 0.2− | 0.1+ | 2006 02 23 | 699 | 0.1− | 0.9+ | | | | |

**(228389)∗ 2000 YV$_{106}$**

Discovered 2000 Dec. 30 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 345.48274 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21240115 | $\omega$ | 353.17168 | | +0.21462923 | −0.85071250 | |
| $a$ | 2.7820492 | $\Omega$ | 83.57159 | | +0.91738716 | +0.00700969 | |
| $e$ | 0.2098312 | $i$ | 28.87177 | | +0.33516429 | +0.52558454 | |
| $P$ | 4.64 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 12 21 | 691 | 0.1− | 0.1− | 2001 01 04 | 704 | 0.0 | 0.1+ | 2009 09 29 | 703 | 0.4+ | 0.6− |
| 2000 12 21 | 691 | 0.0 | 0.5− | 2001 01 19 | 704 | 0.2+ | 0.5+ | 2009 09 29 | 703 | (0.4+ | 2.9−) |
| 2000 12 21 | 691 | 0.5− | 0.6− | 2001 01 19 | 704 | 0.1− | 0.8+ | 2009 11 10 | 703 | 0.2+ | 0.1− |
| 2000 12 21 | 704 | 0.2+ | 0.4+ | 2001 01 19 | 704 | 0.2+ | 0.2+ | 2009 11 10 | 703 | 0.8− | 0.5− |
| 2000 12 21 | 704 | 0.5− | 0.3+ | 2001 01 19 | 704 | (1.7+ | 0.6+) | 2009 11 10 | 703 | (0.6− | 2.3+) |
| 2000 12 21 | 704 | 0.1+ | 0.3− | 2005 12 30 | 703 | 0.3− | 0.1− | 2009 11 10 | 703 | 0.9− | 1.0+ |
| 2000 12 21 | 704 | 0.3+ | 0.0 | 2005 12 30 | 703 | 0.7− | 0.5+ | 2009 11 18 | 703 | 0.9− | 0.3+ |
| 2000 12 21 | 704 | 0.2+ | 0.2+ | 2005 12 30 | 703 | 0.5+ | 1.3− | 2009 11 18 | 703 | 0.5− | 0.9− |
| 2000 12 29 | 691 | 0.0 | 0.5+ | 2005 12 30 | 703 | 0.1+ | 0.1+ | 2009 11 18 | 703 | 0.0 | 0.0 |
| 2000 12 29 | 691 | 0.0 | 0.5+ | 2007 04 26 | G96 | 0.2− | 0.3− | 2009 11 18 | 703 | 0.0 | 0.1− |
| 2000 12 29 | 691 | 0.4+ | 0.5+ | 2007 04 26 | G96 | 0.3+ | 0.3− | 2009 11 25 | 703 | 1.4+ | 0.5+ |
| 2000 12 30 | 704 | 0.5− | 0.2− | 2007 04 26 | G96 | 0.2+ | 0.2− | 2009 11 25 | 703 | 0.6+ | 0.6− |
| 2000 12 30 | 704 | 0.6+ | 0.4− | 2007 04 26 | G96 | 0.2+ | 0.2− | 2009 11 25 | 703 | 0.4+ | 0.4+ |
| 2000 12 30 | 704 | 0.2− | 0.2+ | 2007 06 13 | 691 | 0.2− | 0.2+ | 2009 11 25 | 703 | 0.7+ | 0.1− |
| 2001 01 04 | 704 | 0.4+ | 0.1− | 2007 06 13 | 691 | 0.3+ | 0.1− | 2009 12 15 | 703 | 0.5− | 0.5+ |
| 2001 01 04 | 704 | 0.4+ | 0.7− | 2007 06 13 | 691 | 0.6− | 0.4− | 2009 12 15 | 703 | 1.0+ | 0.9− |
| 2001 01 04 | 704 | 0.2− | 0.4− | 2009 09 29 | 703 | (0.1+ | 2.2+) | 2009 12 15 | 703 | 1.3+ | 0.7− |
| 2001 01 04 | 704 | 0.3− | 0.6− | 2009 09 29 | 703 | 0.4− | 0.7+ | 2009 12 15 | 703 | 0.4− | 1.1− |

**(228390)∗ 2000 YW$_{112}$**

Discovered 2000 Dec. 30 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 337.14902 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21174472 | $\omega$ | 9.14259 | | −0.34143444 | −0.92278021 | |
| $a$ | 2.7877960 | $\Omega$ | 100.98047 | | +0.85043965 | −0.38421882 | |
| $e$ | 0.1129140 | $i$ | 10.48245 | | +0.40021859 | +0.02919898 | |
| $P$ | 4.65 | $H$ | 15.0 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 12 27 | 699 | 0.5+ | 0.5− | 2004 10 08 | 704 | 0.1− | 1.2+ | 2006 03 19 | 699 | 0.7+ | 1.4+ |
| 2000 12 27 | 699 | 1.3− | 0.4− | 2004 10 08 | 704 | 0.2+ | 1.3+ | 2006 03 19 | 699 | (1.5+ | 1.5+) |
| 2000 12 27 | 699 | 0.0 | 0.5− | 2004 10 08 | 704 | 0.6− | 0.4+ | 2006 03 19 | 699 | (1.7+ | 0.1−) |
| 2000 12 27 | 699 | 0.2− | 0.0 | 2004 10 18 | 704 | (0.2− | 1.7−) | 2006 03 19 | 699 | 0.4+ | 0.3− |
| 2000 12 30 | 704 | 0.2+ | 0.7+ | 2004 10 18 | 704 | 1.1− | 1.0+ | 2006 03 24 | 703 | 0.2− | 0.3− |
| 2000 12 30 | 704 | 0.1+ | 1.0+ | 2004 10 18 | 704 | 0.1− | 0.2+ | 2006 03 24 | 703 | 0.2− | 0.4− |
| 2000 12 30 | 704 | 0.1− | 0.1+ | 2004 10 18 | 704 | 0.5− | 0.0 | 2006 03 24 | 703 | 1.4− | 0.6− |
| 2000 12 30 | 704 | 0.8− | 0.6+ | 2004 11 02 | 644 | 0.5− | 0.0 | 2006 03 24 | 703 | 0.2− | 0.1− |
| 2000 12 30 | 704 | 0.5− | 0.1+ | 2004 11 02 | 644 | 0.1− | 0.3+ | 2006 03 29 | 704 | 0.1− | 0.5+ |
| 2000 12 31 | 691 | 0.2− | 0.0 | 2004 11 02 | 644 | 0.3− | 0.1+ | 2006 03 29 | 704 | 0.0 | 1.2+ |
| 2000 12 31 | 691 | 0.4− | 0.1− | 2004 11 12 | 704 | (1.6− | 1.0+) | 2006 03 29 | 704 | 0.2− | 0.7+ |
| 2000 12 31 | 691 | 0.1− | 0.0 | 2004 11 12 | 704 | 0.7− | 1.0+ | 2006 03 29 | 704 | 0.2− | 0.6+ |
| 2001 01 04 | 704 | 0.8+ | 0.3− | 2004 11 12 | 704 | 0.4− | 0.6+ | 2006 03 29 | 704 | 0.4− | 0.6+ |
| 2001 01 04 | 704 | 0.1+ | 0.5+ | 2004 11 20 | 703 | 0.1+ | 0.2− | 2006 03 31 | 699 | (1.5− | 1.7+) |
| 2001 01 04 | 704 | 0.8+ | 1.5+ | 2004 11 20 | 703 | 0.0 | 0.3− | 2006 03 31 | 699 | 0.4+ | 0.2+ |
| 2001 01 04 | 704 | 0.5+ | 0.6− | 2004 11 20 | 703 | 0.9+ | 0.3+ | 2006 03 31 | 699 | 0.2+ | 0.2+ |
| 2001 01 04 | 704 | 0.4+ | 0.5− | 2004 11 20 | 703 | 0.5− | 0.1− | 2006 03 31 | 699 | 0.1+ | 0.6− |
| 2001 01 19 | 704 | 0.8+ | 0.3+ | 2004 12 04 | 699 | 0.3+ | 0.7+ | 2009 11 13 | J75 | 0.1+ | 0.5+ |
| 2001 01 19 | 704 | 0.4+ | 0.1− | 2004 12 04 | 699 | 0.2+ | 0.4+ | 2009 11 13 | J75 | 0.1− | 0.0 |
| 2001 01 19 | 704 | 0.2+ | 0.4+ | 2004 12 04 | 699 | 0.0 | 0.3− | 2009 11 13 | J75 | 0.1+ | 0.5+ |
| 2001 01 19 | 704 | 0.1+ | 0.9+ | 2004 12 04 | 699 | 0.6− | 0.6+ | 2009 11 19 | 704 | 0.3+ | 0.4− |
| 2001 01 19 | 704 | 0.3− | 0.1+ | 2005 10 30 | 691 | 0.0 | 0.1+ | 2009 11 19 | 704 | 0.8+ | 0.8− |
| 2001 01 24 | 704 | 0.6+ | 0.9− | 2005 10 30 | 691 | 0.0 | 0.0 | 2009 11 19 | 704 | 1.0+ | 0.2− |
| 2001 01 24 | 704 | 0.5+ | 0.1+ | 2005 10 30 | 691 | 0.1+ | 0.1+ | 2009 11 20 | 704 | 0.2+ | 0.4− |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 01 24 | 704 | 0.6+ | 0.3+ | 2006 01 12 | 644 | 0.0 | 0.4+ | 2009 11 20 | 704 | 0.1+ | 0.9− |
| 2001 01 24 | 704 | 0.2+ | 0.7+ | 2006 01 12 | 644 | 0.0 | 0.3+ | 2009 11 20 | 704 | 0.7+ | 0.8− |
| 2001 01 24 | 704 | 0.2+ | 0.2+ | 2006 01 12 | 644 | 0.1+ | 0.2+ | 2009 11 20 | 704 | 0.5+ | 0.2− |
| 2001 01 25 | 704 | 0.2− | 0.3+ | 2006 01 26 | 703 | 0.1− | 0.1+ | 2009 11 20 | 704 | 0.2+ | 1.0− |
| 2001 01 25 | 704 | 0.1+ | 0.4+ | 2006 01 26 | 703 | 0.1+ | 0.3− | 2009 11 27 | G96 | 0.2+ | 0.3− |
| 2001 01 25 | 704 | 0.7+ | 0.4+ | 2006 01 26 | 703 | 0.6− | 0.2+ | 2009 11 27 | G96 | 0.3+ | 0.3− |
| 2001 01 25 | 704 | 0.3+ | 0.5+ | 2006 01 26 | 703 | 0.2+ | 0.0 | 2009 11 27 | G96 | 0.3− | 0.4− |
| 2001 01 25 | 704 | 0.4+ | 0.3+ | 2006 01 28 | 699 | 0.8+ | 0.2− | 2009 11 27 | G96 | 0.1− | 0.2− |
| 2001 02 03 | 704 | 0.8− | 0.1− | 2006 01 28 | 699 | (2.5+ | 1.0+) | 2009 11 27 | G96 | 0.0 | 0.3− |
| 2001 02 03 | 704 | 0.5− | 0.7+ | 2006 01 28 | 699 | 0.6+ | 0.1− | 2009 12 09 | J75 | 0.2+ | 0.7− |
| 2001 02 03 | 704 | 0.2− | 0.3+ | 2006 01 28 | 699 | 0.1− | 0.8+ | 2009 12 09 | J75 | 0.1+ | 0.2− |
| 2001 02 03 | 704 | 1.0− | 0.1+ | 2006 02 12 | 644 | 0.2+ | 0.5+ | 2009 12 09 | J75 | 0.1+ | 0.3− |
| 2001 02 17 | 704 | 0.5+ | 0.4+ | 2006 02 12 | 644 | 0.3+ | 0.1− | 2009 12 11 | 703 | 0.4− | 0.5− |
| 2001 02 17 | 704 | 0.1− | 0.0 | 2006 02 12 | 644 | 0.4+ | 0.2+ | 2009 12 11 | 703 | 0.2− | 0.6− |
| 2001 02 17 | 704 | 0.5− | 0.5+ | 2006 02 21 | 703 | 0.0 | 0.4+ | 2009 12 11 | 703 | 0.3− | 0.5− |
| 2001 02 17 | 704 | 0.6+ | 0.2+ | 2006 02 21 | 703 | 1.0− | 0.4+ | 2009 12 11 | 703 | 0.7− | 0.6− |
| 2001 02 21 | 645 | 0.1− | 0.2− | 2006 02 21 | 703 | 0.9− | 0.1− | 2009 12 12 | 704 | 0.3+ | 0.5+ |
| 2001 02 21 | 645 | 0.0 | 0.2− | 2006 02 21 | 703 | 1.0− | 0.3+ | 2009 12 12 | 704 | 0.4+ | 0.0 |
| 2001 03 26 | 704 | 1.3+ | 0.5− | 2006 03 03 | 699 | 0.9+ | 0.1+ | 2009 12 12 | 704 | 0.7+ | 2.0+ |
| 2001 03 26 | 704 | 1.4+ | 0.4+ | 2006 03 03 | 699 | 1.1+ | 0.2− | 2009 12 12 | 704 | 0.5+ | 1.0+ |
| 2001 03 26 | 704 | 0.4+ | 1.3+ | 2006 03 03 | 699 | 0.8+ | 0.0 | 2009 12 18 | 704 | 0.1− | 2.0− |
| 2004 10 07 | 704 | 0.5− | 0.9+ | 2006 03 03 | 699 | 1.1+ | 0.3− | 2009 12 18 | 704 | 0.0 | 0.9− |
| 2004 10 07 | 704 | 0.4− | 0.5+ | 2006 03 09 | 703 | 1.4− | 0.5+ | 2009 12 18 | 704 | 0.2− | 0.9+ |
| 2004 10 07 | 704 | 0.3− | 0.7+ | 2006 03 09 | 703 | 0.1− | 0.2+ | 2009 12 18 | 704 | 1.1− | 1.8− |
| 2004 10 08 | 704 | 0.5− | 1.1+ | 2006 03 09 | 703 | 0.1− | 0.6− | 2009 12 18 | 704 | 0.0 | 0.2− |
| 2004 10 08 | 704 | 0.7+ | 0.4− | 2006 03 09 | 703 | 0.8+ | 0.9+ | | | | |

**(228391)∗ 2000 YT$_{127}$ = 2006 DA$_3$**

Discovered 2000 Dec. 29 by NEAT at Haleakala.

Id. G. V. Williams (*MPO* 93907)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 313.77252 | | (2000.0) | | **P** | **Q** |
| $n$ | 0.20920051 | $\omega$ | 156.87327 | | −0.70204410 | −0.71031314 |
| $a$ | 2.8103531 | $\Omega$ | 337.61018 | | +0.63072249 | −0.58702092 |
| $e$ | 0.1124252 | $i$ | 7.67712 | | +0.33064062 | −0.38840917 |
| $P$ | 4.71 | $H$ | 15.8 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 12 29 | 608 | 0.4+ | 0.3+ | 2006 02 20 | 703 | 0.7− | 0.5+ | 2006 03 09 | 691 | 0.2+ | 0.0 |
| 2000 12 29 | 608 | 0.2+ | 0.3+ | 2006 02 20 | 703 | 0.4− | 0.5+ | 2006 03 23 | 703 | 0.1− | 0.1+ |
| 2000 12 29 | 608 | 0.6+ | 0.3+ | 2006 02 20 | 703 | 1.2+ | 0.4− | 2006 03 23 | 703 | 0.8− | 0.5+ |
| 2001 01 04 | 704 | 0.4− | 0.8+ | 2006 02 20 | 701 | 0.2+ | 0.6+ | 2006 03 23 | 703 | (1.9− | 1.7+) |
| 2001 01 04 | 704 | 0.4+ | 0.5+ | 2006 02 20 | 701 | 0.2− | 1.2+ | 2006 03 23 | 703 | 1.0− | 0.1− |
| 2001 01 04 | 704 | 0.0 | 0.0 | 2006 02 21 | G96 | 0.8− | 0.1− | 2006 04 02 | G96 | 0.5− | 0.2− |
| 2001 01 04 | 704 | 0.6− | 0.3− | 2006 02 21 | G96 | 0.6+ | 0.2− | 2006 04 02 | G96 | 0.1+ | 0.1+ |
| 2001 01 20 | 704 | 0.2+ | 0.5+ | 2006 02 21 | G96 | 0.2− | 0.4− | 2006 04 02 | G96 | 0.3− | 0.1+ |
| 2001 01 20 | 704 | 0.8+ | 0.6+ | 2006 02 21 | 699 | 0.2+ | 0.3+ | 2006 04 02 | G96 | 0.3− | 0.1− |
| 2001 01 20 | 704 | 0.1− | 0.6+ | 2006 02 21 | G96 | 0.4− | 0.3− | 2008 07 29 | 691 | 0.5− | 0.0 |
| 2001 01 20 | 704 | 0.1+ | 0.8+ | 2006 02 21 | 699 | 0.3+ | 0.4− | 2008 07 29 | 691 | 0.9− | 0.8+ |
| 2001 01 21 | 704 | 0.4+ | 0.6− | 2006 02 21 | 699 | 0.6+ | 0.5+ | 2008 07 29 | 691 | 0.3+ | 0.8+ |
| 2001 01 21 | 704 | 0.5− | 0.4+ | 2006 02 21 | 699 | 0.1+ | 0.1− | 2008 08 21 | 691 | 0.0 | 0.5+ |
| 2001 01 21 | 704 | 0.4− | 0.2+ | 2006 03 03 | 691 | 0.0 | 0.0 | 2008 08 21 | 691 | 0.1− | 0.1+ |
| 2001 01 21 | 704 | 0.3+ | 0.7− | 2006 03 03 | 691 | 0.2− | 0.1+ | 2008 08 21 | 691 | 1.3− | 0.6+ |
| 2001 01 21 | 704 | 0.2+ | 0.5+ | 2006 03 03 | 691 | 0.0 | 0.1− | 2008 09 06 | G96 | 0.0 | 0.8+ |
| 2006 01 26 | 691 | 0.1+ | 0.1− | 2006 03 03 | 699 | 0.2− | 0.3+ | 2008 09 06 | G96 | 0.4+ | 0.9+ |
| 2006 01 26 | 691 | 0.3− | 0.1+ | 2006 03 03 | 704 | 0.5+ | 0.8+ | 2008 09 06 | G96 | 0.1+ | 0.5+ |
| 2006 01 26 | 691 | 0.0 | 0.2+ | 2006 03 03 | 704 | 1.1+ | 0.1+ | 2008 09 06 | G96 | 0.0 | 0.4+ |
| 2006 01 26 | G96 | 0.0 | 0.2− | 2006 03 03 | 699 | (2.6+ | 0.0 ) | 2008 09 23 | G96 | 0.5+ | 0.2+ |
| 2006 01 26 | G96 | 0.3− | 0.4− | 2006 03 03 | 704 | 1.4+ | 1.4+ | 2008 09 23 | G96 | 0.3+ | 0.0 |
| 2006 01 26 | G96 | 0.1− | 0.2− | 2006 03 03 | 699 | 1.4+ | 0.8+ | 2008 09 23 | G96 | 0.5+ | 0.3+ |
| 2006 01 26 | G96 | 0.0 | 0.4− | 2006 03 03 | 699 | 0.2− | 0.1+ | 2008 09 23 | G96 | 0.2+ | 0.1+ |
| 2006 01 26 | G96 | (1.8+ | 2.1+) | 2006 03 05 | 691 | 0.1+ | 0.2− | 2009 11 19 | 703 | 0.3− | 0.9− |
| 2006 01 26 | G96 | 0.1− | 0.0 | 2006 03 05 | 691 | 0.1− | 0.0 | 2009 11 19 | 703 | 0.0 | 0.7+ |
| 2006 01 26 | G96 | 0.2+ | 0.2− | 2006 03 05 | 691 | 0.0 | 0.2− | 2009 11 19 | 703 | 0.8+ | 0.6+ |
| 2006 01 26 | G96 | 0.5+ | 0.2− | 2006 03 05 | 704 | (2.0− | 1.5−) | 2009 11 19 | 703 | 0.5+ | 0.2+ |
| 2006 02 07 | G96 | 0.6− | 0.2− | 2006 03 05 | 704 | 0.3− | 0.6+ | 2009 11 23 | 704 | 0.9+ | 0.4+ |
| 2006 02 07 | G96 | 0.3− | 0.3− | 2006 03 05 | 704 | 0.0 | 0.4+ | 2009 11 23 | 704 | 0.5+ | 0.8− |
| 2006 02 07 | G96 | 0.0 | 0.0 | 2006 03 05 | 704 | 0.7+ | 0.0 | 2009 11 23 | 704 | 1.6+ | 0.0 |
| 2006 02 07 | G96 | 0.4− | 0.0 | 2006 03 05 | 704 | 0.6− | 0.2+ | 2009 11 23 | 704 | 0.2+ | 0.4− |
| 2006 02 20 | 691 | 0.4+ | 0.2+ | 2006 03 05 | 704 | 0.1+ | 0.3− | 2009 11 23 | 704 | 0.3− | 0.3− |
| 2006 02 20 | 691 | 0.3+ | 0.4+ | 2006 03 05 | 704 | 0.8+ | 1.5+ | 2009 12 21 | H10 | 1.5− | 0.9− |
| 2006 02 20 | 703 | 0.0 | 0.1− | 2006 03 09 | 691 | 0.2− | 0.2+ | 2009 12 21 | H10 | 1.3− | 0.3− |
| 2006 02 20 | 691 | 0.2+ | 0.4+ | 2006 03 09 | 691 | 0.4+ | 0.0 | 2009 12 21 | H10 | 0.7− | 0.8− |

**(228392)∗ 2001 AG$_{26}$**

Discovered 2001 Jan. 5 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 25.76729 | | (2000.0) | | **P** | **Q** |
| $n$ | 0.22098961 | $\omega$ | 3.65285 | | +0.25934096 | −0.93795373 |
| $a$ | 2.7094937 | $\Omega$ | 71.42341 | | +0.87982330 | +0.13115225 |
| $e$ | 0.0761006 | $i$ | 14.05404 | | +0.39831297 | +0.32100140 |
| $P$ | 4.46 | $H$ | 14.8 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 30 | 704 | 1.0− | 0.9+ | 2004 11 02 | 699 | 0.7+ | 0.3+ | 2008 09 21 | E12 | 0.3+ | 0.5+ |
| 2000 11 30 | 704 | 0.0 | 0.7− | 2004 11 02 | 699 | 0.9− | 0.1− | 2008 09 21 | E12 | 0.3+ | 1.2+ |
| 2000 11 30 | 704 | 0.3+ | 0.9− | 2004 11 02 | 699 | 0.8− | 0.2+ | 2008 09 21 | E12 | 0.9− | 0.8+ |
| 2001 01 05 | 704 | 0.3− | 0.2− | 2004 11 02 | 699 | 0.2+ | 0.1− | 2008 09 21 | E12 | 0.3− | 0.5+ |
| 2001 01 05 | 704 | 0.2− | 0.2+ | 2004 12 04 | 699 | 0.1+ | 0.0 | 2009 11 11 | 704 | 0.7+ | 0.9+ |
| 2001 01 05 | 704 | 0.2− | 0.3+ | 2004 12 04 | 699 | 0.0 | 0.1+ | 2009 11 11 | 704 | 0.9− | 0.4+ |
| 2001 01 05 | 704 | 1.1+ | 0.1+ | 2004 12 04 | 699 | 0.4− | 0.2+ | 2009 11 11 | 704 | 0.4− | 0.1− |
| 2001 01 06 | 704 | 0.5+ | 0.3+ | 2004 12 04 | 699 | 0.6− | 0.6+ | 2009 11 11 | 704 | 0.1− | 1.3+ |
| 2001 01 06 | 704 | 0.2+ | 0.4+ | 2006 02 20 | 704 | 0.3+ | 0.0 | 2009 12 15 | 704 | 0.3+ | 0.2+ |
| 2001 01 06 | 704 | 0.3+ | 0.0 | 2006 02 20 | 704 | 0.4+ | 0.0 | 2009 12 15 | 704 | 0.4+ | 0.3+ |
| 2002 03 20 | 704 | 0.5+ | 0.8+ | 2006 02 20 | 704 | 0.9+ | 0.1− | 2009 12 15 | 704 | 0.3+ | 0.2− |
| 2002 03 20 | 704 | 0.3− | 0.5− | 2006 02 20 | 704 | 0.5+ | 0.4+ | 2009 12 15 | 704 | 0.1− | 0.6− |
| 2002 03 20 | 704 | 0.2− | 1.1+ | 2006 02 20 | 704 | 0.7+ | 0.0 | 2009 12 15 | 704 | 0.5+ | 0.7+ |
| 2002 03 20 | 704 | 0.3+ | 0.4− | 2006 03 03 | 699 | 0.6− | 0.2+ | 2009 12 20 | G96 | 0.6− | 0.5− |
| 2002 04 12 | 644 | 0.3+ | 1.0+ | 2006 03 03 | 699 | (1.8− | 0.8+) | 2009 12 20 | G96 | 0.2− | 0.7− |
| 2002 04 12 | 644 | 0.2+ | 0.9+ | 2006 03 03 | 699 | 0.5− | 0.0 | 2009 12 20 | G96 | 0.3− | 0.6− |
| 2002 04 12 | 644 | 0.1− | 0.9+ | 2006 03 03 | 699 | (1.5− | 0.2+) | 2009 12 20 | G96 | 0.4− | 0.6− |

**(228393)∗ 2001 AX$_{47}$ = 2004 TD$_{248}$**

Discovered 2001 Jan. 15 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 72314)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 348.28055 | | (2000.0) | | **P** | **Q** |
| $n$ | 0.21259194 | $\omega$ | 3.60076 | | −0.21418557 | −0.93829331 |
| $a$ | 2.7803845 | $\Omega$ | 98.90719 | | +0.88918388 | −0.30235590 |
| $e$ | 0.1467994 | $i$ | 15.95293 | | +0.40432235 | +0.16788859 |
| $P$ | 4.64 | $H$ | 15.3 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 12 27 | 699 | 0.0 | 0.4− | 2004 10 21 | 704 | 0.6− | 0.7+ | 2009 11 19 | 704 | 1.0+ | 0.4+ |
| 2000 12 27 | 699 | 0.9− | 0.1− | 2004 10 21 | 704 | 0.0 | 0.5+ | 2009 11 19 | 704 | 0.4+ | 0.1+ |
| 2000 12 27 | 699 | 0.8+ | 0.0 | 2005 01 21 | 809 | 0.5− | 0.2+ | 2009 11 20 | 704 | 0.2− | 0.2− |
| 2000 12 27 | 699 | 0.7+ | 0.6− | 2005 01 21 | 809 | 0.5− | 0.1+ | 2009 11 20 | 704 | 0.2− | 0.3− |
| 2001 01 15 | 704 | 0.4− | 1.2+ | 2005 01 21 | 809 | 0.4− | 0.3+ | 2009 11 20 | 704 | 0.4− | 0.2+ |
| 2001 01 15 | 704 | 0.2+ | 0.2+ | 2006 02 01 | 703 | 1.1+ | 1.0+ | 2009 12 08 | J75 | 0.1+ | 0.2− |
| 2001 01 15 | 704 | 0.3− | 0.1− | 2006 02 01 | 703 | 1.1− | 0.4+ | 2009 12 09 | J75 | 0.3− | 0.2− |
| 2001 01 15 | 704 | 0.1− | 0.1− | 2006 02 01 | 703 | 1.2+ | 0.2+ | 2009 12 09 | J75 | 0.0 | 0.1+ |
| 2001 01 15 | 704 | 0.2− | 1.3− | 2006 02 01 | 703 | 1.2+ | 0.3+ | 2009 12 12 | 704 | 0.3− | 0.8− |
| 2001 01 18 | 704 | 0.2− | 0.5− | 2006 02 01 | 703 | 0.6− | 0.6+ | 2009 12 12 | 704 | 0.0 | 0.7− |
| 2001 01 18 | 704 | 0.0 | 0.7+ | 2006 02 01 | 703 | 0.2− | 0.2− | 2009 12 12 | 704 | 0.1+ | 0.7− |
| 2001 01 18 | 704 | 0.2+ | 0.2− | 2006 02 01 | 703 | 0.1− | 0.4− | 2009 12 12 | 704 | 0.4− | 1.6− |
| 2001 01 18 | 704 | 0.4+ | 1.0+ | 2006 02 01 | 703 | 0.3− | 0.4+ | 2009 12 12 | J75 | 0.1+ | 0.5− |
| 2001 01 18 | 704 | 0.1+ | 0.6+ | 2006 03 06 | 703 | 0.2− | 0.2+ | 2009 12 12 | J75 | 0.1+ | 0.1− |
| 2004 10 07 | 704 | 1.2+ | 0.8− | 2006 03 06 | 703 | 0.6+ | 0.2+ | 2009 12 12 | J75 | 0.1+ | 0.3− |
| 2004 10 07 | 704 | (0.3− | 1.7−) | 2006 03 06 | 703 | 0.0 | 0.2− | 2009 12 18 | 704 | 0.2+ | 0.5− |
| 2004 10 07 | 704 | 0.6+ | 0.5− | 2006 03 06 | 703 | 1.1− | 0.8− | 2009 12 18 | 704 | 0.4− | 0.1+ |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 07 | 704 | 0.1− | 0.7− | 2008 08 28 | E12 | (0.5− | 1.7+) | 2009 12 18 | 704 | 0.2+ | 0.0 |
| 2004 10 13 | 699 | 0.3− | 1.1+ | 2008 08 28 | E12 | 0.9− | 0.1+ | 2009 12 18 | 704 | 0.4− | 0.2− |
| 2004 10 13 | 699 | 0.1+ | 0.2− | 2008 08 28 | E12 | 0.2− | 0.5+ | 2009 12 21 | 704 | 0.4+ | 0.4+ |
| 2004 10 13 | 699 | 0.9− | 0.1+ | 2008 08 28 | E12 | 0.7+ | 0.8+ | 2009 12 21 | 704 | 0.1− | 2.2+ |
| 2004 10 13 | 699 | 0.8+ | 0.0 | 2009 11 19 | 704 | 0.3+ | 0.1− | 2009 12 21 | 704 | 0.4− | 0.9+ |
| 2004 10 21 | 704 | 0.3− | 0.8+ | 2009 11 19 | 704 | 0.3+ | 0.3− | 2009 12 21 | 704 | 0.0 | 0.7+ |
| 2004 10 21 | 704 | 0.4− | 0.5+ | 2009 11 19 | 704 | 0.7+ | 0.2− | | | | |

**(228394)∗ 2001 BO$_{18}$ = 2004 VW$_{31}$**

Discovered 2001 Jan. 19 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. A. Doppler (*MPO* 74896)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 331.16581 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21894888 | $\omega$ | 72.46112 | | −0.90920890 | | −0.40578149 |
| $a$ | 2.7263037 | $\Omega$ | 83.51604 | | +0.33750706 | | −0.84939056 |
| $e$ | 0.1983360 | $i$ | 5.38049 | | +0.24377890 | | −0.33745675 |
| $P$ | 4.50 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 01 19 | 704 | 0.8− | 0.1+ | 2006 03 25 | 691 | 0.1+ | 0.1+ | 2008 10 27 | G96 | 0.9− | 0.1− |
| 2001 01 19 | 704 | 0.0 | 0.1+ | 2006 03 25 | 691 | 0.1− | 0.1+ | 2008 10 27 | G96 | 1.0− | 0.1− |
| 2001 01 19 | 704 | 0.3− | 0.3− | 2006 04 19 | 699 | 0.1− | 0.0 | 2008 10 27 | G96 | 0.5− | 0.1+ |
| 2001 01 19 | 704 | 0.1− | 0.3− | 2006 04 19 | 699 | 0.6+ | 0.0 | 2009 09 16 | 691 | 0.3− | 0.0 |
| 2001 01 19 | 704 | 0.7− | 0.6− | 2006 04 19 | 699 | 0.6+ | 0.4− | 2009 09 16 | 691 | 0.1− | 0.1− |
| 2001 01 21 | 704 | 0.6− | 0.4− | 2006 04 19 | 699 | 0.4− | 0.5+ | 2009 09 16 | 691 | 0.6− | 0.1+ |
| 2001 01 21 | 704 | 0.2+ | 0.2− | 2006 04 23 | 704 | 0.0 | 0.2+ | 2009 11 11 | G96 | 0.3+ | 0.1+ |
| 2001 01 21 | 704 | 0.3+ | 0.7+ | 2006 04 23 | 704 | 0.7− | 0.7+ | 2009 11 11 | G96 | 0.2− | 0.0 |
| 2001 01 21 | 704 | 0.6+ | 0.5+ | 2006 04 23 | 704 | (1.2− | 2.0+) | 2009 11 11 | G96 | 0.2+ | 0.4+ |
| 2001 01 21 | 704 | 0.7− | 1.0+ | 2006 04 23 | 704 | (1.5+ | 1.5+) | 2009 11 11 | G96 | 0.2+ | 0.5+ |
| 2001 01 24 | 704 | 0.1− | 0.7+ | 2006 04 27 | 704 | 0.0 | 0.4+ | 2009 12 17 | G96 | 0.3+ | 0.1− |
| 2001 01 24 | 704 | 0.2− | 0.6+ | 2006 04 27 | 704 | 0.4+ | 0.6+ | 2009 12 17 | G96 | 0.1+ | 0.3− |
| 2001 01 24 | 704 | 0.1− | 0.6+ | 2006 04 27 | 704 | 0.9+ | 0.6+ | 2009 12 17 | G96 | 0.2+ | 0.5− |
| 2001 01 24 | 704 | 0.0 | 0.5− | 2006 04 27 | 704 | (1.6+ | 0.6+) | 2009 12 17 | G96 | 0.1+ | 0.1− |
| 2001 01 24 | 704 | 0.9+ | 0.7+ | 2006 04 30 | 704 | (2.6+ | 1.3+) | 2009 12 18 | 691 | 0.2+ | 0.1− |
| 2004 11 03 | 691 | 0.0 | 0.6+ | 2006 04 30 | 704 | 0.6+ | 1.0+ | 2009 12 18 | 691 | 0.0 | 0.1− |
| 2004 11 03 | 691 | 0.2− | 0.4+ | 2006 04 30 | 704 | 0.9+ | 0.5+ | 2009 12 18 | 691 | 0.2+ | 0.2− |
| 2004 11 03 | 691 | 0.1+ | 0.5+ | 2008 10 02 | G96 | 0.4− | 0.3+ | 2009 12 19 | 291 | 0.2− | 0.3− |
| 2004 11 10 | 691 | 0.2+ | 0.1+ | 2008 10 02 | G96 | 0.1− | 0.3+ | 2009 12 19 | 291 | 0.0 | 0.2− |
| 2004 11 10 | 691 | 0.4+ | 0.2+ | 2008 10 02 | G96 | 0.2− | 0.2+ | 2009 12 19 | 291 | 0.2− | 0.2− |
| 2004 11 10 | 691 | 0.3+ | 0.0 | 2008 10 02 | G96 | 0.4− | 0.2+ | | | | |
| 2006 03 25 | 691 | 0.1+ | 0.1+ | 2008 10 27 | G96 | 0.7− | 0.1− | | | | |

**(228395)∗ 2001 BC$_{27}$**

Discovered 2001 Jan. 20 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 340.31034 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21179226 | $\omega$ | 348.53333 | | −0.41470670 | | −0.90081171 |
| $a$ | 2.7873788 | $\Omega$ | 125.83895 | | +0.84691691 | | −0.43381418 |
| $e$ | 0.1912470 | $i$ | 9.13287 | | +0.33279137 | | −0.01853440 |
| $P$ | 4.65 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 01 19 | 691 | 0.8− | 0.1+ | 2001 02 17 | 704 | 0.2− | 0.2− | 2006 04 02 | 703 | 0.0 | 0.0 |
| 2001 01 19 | 691 | 0.5− | 0.5− | 2001 02 22 | 699 | 0.5− | 0.6+ | 2006 04 02 | 703 | 1.1− | 0.4+ |
| 2001 01 19 | 691 | 0.2− | 0.3− | 2001 02 22 | 699 | (0.2− | 1.6−) | 2006 04 02 | 703 | 0.0 | 0.3+ |
| 2001 01 20 | 704 | 0.8− | 0.3+ | 2001 02 22 | 699 | 0.2− | 0.5− | 2006 04 02 | 703 | 1.0+ | 0.6− |
| 2001 01 20 | 704 | 0.5+ | 0.6+ | 2001 02 22 | 699 | 0.5− | 1.4+ | 2006 04 18 | 703 | (0.2+ | 2.2+) |
| 2001 01 20 | 704 | 0.4+ | 1.4− | 2004 11 12 | 704 | 1.0− | 0.3+ | 2006 04 18 | 703 | 0.6+ | 1.2+ |
| 2001 01 20 | 704 | 0.4+ | 0.5− | 2004 11 12 | 704 | 0.4+ | 1.0+ | 2006 04 18 | 703 | 0.1+ | 0.7− |
| 2001 01 21 | 704 | 0.2+ | 0.3+ | 2004 11 12 | 704 | 0.2− | 0.2+ | 2006 04 18 | 703 | (1.6− | 1.3−) |
| 2001 01 21 | 704 | 0.3+ | 0.1+ | 2005 10 24 | 568 | 0.2− | 0.1+ | 2009 11 19 | 704 | 0.2+ | 0.1− |
| 2001 01 21 | 704 | 0.3+ | 0.5− | 2005 10 24 | 568 | 0.2− | 0.1+ | 2009 11 19 | 704 | 1.2− | 0.5+ |
| 2001 01 21 | 704 | 0.1− | 0.1− | 2005 10 24 | 568 | 0.0 | 0.1+ | 2009 11 19 | 704 | 0.3+ | 1.1− |
| 2001 01 25 | 691 | 0.4+ | 0.1+ | 2005 10 31 | 568 | 0.2− | 0.2− | 2009 11 19 | 704 | 0.6+ | 0.5+ |
| 2001 01 25 | 691 | 0.4+ | 0.0 | 2005 10 31 | 568 | 0.0 | 0.2− | 2009 11 19 | 704 | 0.1+ | 0.1+ |
| 2001 01 25 | 691 | 0.4+ | 0.0 | 2005 10 31 | 568 | 0.1− | 0.2− | 2009 12 11 | D25 | 0.1− | 0.3− |
| 2001 02 01 | 699 | 0.3+ | 0.5− | 2006 02 22 | 703 | 0.1− | 0.7+ | 2009 12 11 | D25 | 0.1+ | 0.6− |
| 2001 02 01 | 699 | 0.0 | 0.3− | 2006 02 22 | 703 | 0.6− | 0.8+ | 2009 12 11 | D25 | 1.1+ | 0.2− |
| 2001 02 01 | 699 | 0.5− | 0.2− | 2006 02 22 | 703 | 0.0 | 0.0 | 2009 12 12 | D25 | 0.2− | 0.2+ |
| 2001 02 01 | 699 | 0.0 | 0.2− | 2006 02 22 | 703 | 0.5+ | 0.9+ | 2009 12 12 | D25 | 0.3− | 0.1+ |
| 2001 02 03 | 704 | 0.6− | 0.4− | 2006 03 05 | 704 | 0.5+ | 0.2− | 2009 12 12 | D25 | 0.2− | 0.1+ |
| 2001 02 03 | 704 | 0.2+ | 0.2+ | 2006 03 05 | 704 | 0.4+ | 1.0+ | 2009 12 13 | 704 | 0.3− | 1.0+ |
| 2001 02 03 | 704 | 0.1+ | 1.0+ | 2006 03 05 | 704 | 1.1+ | 0.8+ | 2009 12 13 | 704 | 0.2+ | 0.3+ |
| 2001 02 03 | 704 | 0.2+ | 1.0+ | 2006 03 05 | 704 | 0.5+ | 0.3+ | 2009 12 13 | 704 | 0.5− | 0.0 |
| 2001 02 03 | 704 | 0.6+ | 0.4+ | 2006 03 23 | 703 | 1.0− | 0.2− | 2009 12 13 | 704 | 0.6+ | 0.0 |
| 2001 02 17 | 704 | 0.5+ | 0.5− | 2006 03 23 | 703 | 1.2+ | 1.1− | 2009 12 13 | 704 | 0.1− | 0.5+ |
| 2001 02 17 | 704 | 0.2− | 0.5+ | 2006 03 23 | 703 | 1.4− | 0.0 | | | | |
| 2001 02 17 | 704 | 0.4+ | 0.4− | 2006 03 23 | 703 | 0.8− | 0.6− | | | | |

**(228396)∗ 2001 BO$_{29}$**

Discovered 2001 Jan. 20 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 359.06434 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22690056 | $\omega$ | 35.93247 | | −0.92243033 | | −0.36236281 |
| $a$ | 2.6622306 | $\Omega$ | 122.29337 | | +0.30708979 | | −0.89790008 |
| $e$ | 0.2523068 | $i$ | 9.08489 | | +0.23413274 | | −0.24993726 |
| $P$ | 4.34 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 12 30 | 704 | 0.1− | 1.4+ | 2001 02 19 | 704 | (1.2+ | 1.7+) | 2008 10 07 | G96 | 0.2+ | 0.2− |
| 2000 12 30 | 704 | 0.2+ | 0.6− | 2001 02 21 | 691 | 0.2+ | 0.2+ | 2008 10 07 | G96 | 0.7− | 0.1+ |
| 2000 12 30 | 704 | 0.2− | 0.1+ | 2001 02 21 | 691 | 0.4+ | 0.3+ | 2008 10 07 | G96 | 0.5+ | 0.0 |
| 2001 01 20 | 704 | 0.6− | 0.7+ | 2001 02 21 | 691 | 0.5+ | 0.3+ | 2008 10 07 | G96 | 0.6− | 0.4+ |
| 2001 01 20 | 704 | 0.5− | 0.8+ | 2006 05 09 | G96 | 0.3− | 0.1− | 2008 10 26 | G96 | 0.5− | 0.1− |
| 2001 01 20 | 704 | 0.2− | 0.3+ | 2006 05 09 | G96 | 0.6− | 0.0 | 2008 10 26 | G96 | 0.1− | 0.0 |
| 2001 01 20 | 704 | (1.3+ | 1.6+) | 2006 05 09 | G96 | 0.0 | 0.3+ | 2008 10 26 | G96 | 0.3− | 0.2− |
| 2001 01 21 | 704 | 0.4− | 0.6− | 2006 05 09 | G96 | 0.9− | 0.1− | 2008 10 26 | G96 | 0.1+ | 0.4+ |
| 2001 01 21 | 704 | 0.6+ | 0.3+ | 2006 05 27 | 691 | 0.5+ | 0.2+ | 2009 11 22 | 691 | 0.1+ | 0.1− |
| 2001 01 21 | 704 | 0.4+ | 0.3− | 2006 05 27 | 691 | 0.0 | 0.1+ | 2009 11 22 | 691 | 0.2− | 0.1− |
| 2001 01 21 | 704 | 0.4+ | 0.9+ | 2006 05 27 | 691 | 0.1+ | 0.1+ | 2009 11 22 | 691 | 0.1− | 0.0 |
| 2001 01 21 | 704 | 0.0 | 0.4− | 2006 05 31 | 691 | 0.1+ | 0.0 | 2009 11 26 | 691 | 0.3+ | 0.2− |
| 2001 02 03 | 691 | 0.5− | 0.0 | 2006 05 31 | 691 | 0.2+ | 0.2+ | 2009 11 26 | 691 | 0.2+ | 0.5− |
| 2001 02 03 | 691 | 0.2− | 0.0 | 2006 05 31 | 691 | 0.2− | 0.4+ | 2009 11 26 | 691 | 0.5− | 0.1− |
| 2001 02 03 | 691 | 0.3− | 0.1+ | 2008 10 06 | G96 | 0.9+ | 0.0 | 2009 12 19 | G96 | 0.1+ | 0.3− |
| 2001 02 19 | 704 | 0.1− | 0.7− | 2008 10 06 | G96 | 0.0 | 0.0 | 2009 12 19 | G96 | 0.4− | 0.5− |
| 2001 02 19 | 704 | 0.5+ | 0.2+ | 2008 10 06 | G96 | 0.1− | 0.5+ | 2009 12 19 | G96 | 0.0 | 0.4− |
| 2001 02 19 | 704 | 0.5+ | 0.0 | 2008 10 06 | G96 | 0.2+ | 0.9+ | 2009 12 19 | G96 | 0.1− | 0.3− |

**(228397)∗ 2001 CK$_{21}$**

Discovered 2001 Feb. 1 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 333.86215 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21038069 | $\omega$ | 135.53846 | | −0.30293446 | | −0.95050188 |
| $a$ | 2.7998331 | $\Omega$ | 331.88104 | | +0.82841952 | | −0.22678558 |
| $e$ | 0.2284727 | $i$ | 8.43263 | | +0.47111762 | | −0.21240168 |
| $P$ | 4.68 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 12 27 | 699 | 1.3+ | 1.0+ | 2001 02 03 | 704 | 1.1− | 0.1− | 2006 03 05 | 691 | 0.0 | 0.3+ |
| 2000 12 27 | 699 | 0.8+ | 0.9− | 2001 02 17 | 704 | 0.4− | 0.8+ | 2006 03 05 | 691 | 0.2+ | 0.2+ |
| 2000 12 27 | 699 | 0.2+ | 1.5− | 2001 02 17 | 704 | 0.5+ | 0.8+ | 2006 03 05 | 691 | 0.0 | 0.3+ |
| 2000 12 27 | 699 | 0.9+ | 0.8+ | 2001 02 17 | 704 | 0.2− | 0.5− | 2006 03 09 | 691 | 0.4+ | 0.0 |
| 2001 01 04 | 704 | 0.0 | 0.6− | 2001 02 17 | 704 | 0.1+ | 1.4+ | 2006 03 09 | 691 | 0.2− | 0.1− |
| 2001 01 04 | 704 | 0.3+ | 0.1− | 2004 10 12 | 704 | 0.4− | 0.1− | 2006 03 09 | 691 | 0.2+ | 0.0 |
| 2001 01 04 | 704 | 1.0+ | 0.2− | 2004 10 12 | 704 | 0.6+ | 0.1+ | 2009 11 19 | 703 | 0.5− | 0.4+ |
| 2001 01 04 | 704 | (0.1+ | 1.8−) | 2004 10 12 | 704 | (2.5+ | 0.4+) | 2009 11 19 | 703 | 0.4+ | 0.4+ |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 01 19 | 704 | 0.2− | 0.4+ | 2006 01 26 | G96 | 0.0 | 0.2− | 2009 11 19 | 703 | 0.8− | 0.2− |
| 2001 01 19 | 704 | 0.2− | 1.0− | 2006 01 26 | G96 | 0.2− | 0.4− | 2009 11 19 | 703 | 0.6− | 0.0 |
| 2001 01 19 | 704 | 1.0+ | 0.9− | 2006 01 26 | G96 | 0.1+ | 0.3− | 2009 11 23 | 704 | 0.2− | 0.7− |
| 2001 01 19 | 704 | 0.1− | 0.9− | 2006 01 26 | G96 | 0.1− | 0.2− | 2009 11 23 | 704 | 0.6+ | 0.8+ |
| 2001 02 01 | 699 | 1.4− | 0.7− | 2006 02 21 | 699 | (1.9+ | 0.8+) | 2009 11 23 | 704 | 0.8+ | 0.0 |
| 2001 02 01 | 699 | (2.0− | 0.1+) | 2006 02 21 | 699 | 0.5+ | 0.1+ | 2009 11 23 | 704 | 0.8+ | 0.0 |
| 2001 02 01 | 699 | (2.3− | 0.6+) | 2006 02 21 | 699 | 0.1+ | 0.4+ | 2009 12 10 | 704 | 0.3− | 0.4− |
| 2001 02 01 | 699 | 0.5− | 0.2+ | 2006 02 21 | 699 | 0.2− | 0.5+ | 2009 12 10 | 704 | 0.8− | 0.2− |
| 2001 02 03 | 704 | 0.0 | 0.4+ | 2006 03 03 | G96 | 0.2− | 0.2− | 2009 12 10 | 704 | 0.3+ | 1.0+ |
| 2001 02 03 | 704 | 0.4− | 1.1− | 2006 03 03 | G96 | 0.8− | 0.2− | 2009 12 10 | 704 | 1.1− | 0.8+ |
| 2001 02 03 | 704 | 1.3− | 0.7+ | 2006 03 03 | G96 | 0.6− | 0.7− | | | | |
| 2001 02 03 | 704 | 1.1− | 0.3+ | 2006 03 03 | G96 | 0.3+ | 0.0 | | | | |

**(228398)∗ 2001 CT$_{21}$**

Discovered 2001 Feb. 1 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 19.63753 | | (2000.0) | | | |
| $n$ | 0.21999569 | $\omega$ | 351.54081 | | −0.09702576 | −0.97735279 |
| $a$ | 2.7176484 | $\Omega$ | 103.87141 | | +0.92411396 | −0.15863232 |
| $e$ | 0.1845980 | $i$ | 11.16949 | | +0.36959354 | +0.14006182 |
| $P$ | 4.48 | $H$ | 15.9 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 12 22 | 691 | 0.7− | 0.9+ | 2004 10 24 | 699 | 0.4− | 1.1+ | 2004 11 20 | 683 | 0.9− | 0.7+ |
| 2000 12 22 | 691 | 0.8− | 0.1+ | 2004 11 02 | 683 | (2.1+ | 0.9−) | 2004 12 04 | 699 | 1.2− | 0.2+ |
| 2000 12 22 | 691 | 0.5− | 0.1− | 2004 11 02 | 683 | 0.4− | 0.1+ | 2004 12 04 | 699 | 0.4− | 0.2− |
| 2001 01 04 | 704 | 0.4+ | 0.9− | 2004 11 02 | 683 | 0.2+ | 1.2− | 2004 12 04 | 699 | 0.8− | 0.8− |
| 2001 01 04 | 704 | 1.1+ | 0.1+ | 2004 11 03 | 683 | (0.4+ | 2.1−) | 2004 12 04 | 699 | (2.3+ | 0.9−) |
| 2001 01 04 | 704 | 0.2+ | 0.3+ | 2004 11 03 | 683 | 1.0+ | 0.7− | 2004 12 13 | 703 | 0.5+ | 0.9− |
| 2001 01 04 | 704 | 0.1+ | 0.6− | 2004 11 04 | 683 | (0.8+ | 3.0−) | 2004 12 13 | 703 | 0.5− | 0.0 |
| 2001 01 04 | 704 | 0.8+ | 0.1+ | 2004 11 04 | 683 | 0.3− | 0.9− | 2004 12 13 | 703 | 0.0 | 0.6− |
| 2001 01 19 | 704 | 0.8+ | 0.5+ | 2004 11 04 | 683 | 1.2+ | 0.8− | 2004 12 13 | 703 | 0.0 | 0.5− |
| 2001 01 19 | 704 | 0.5+ | 0.7− | 2004 11 06 | 704 | 0.3+ | 0.7− | 2006 04 07 | 703 | 0.5+ | 0.6+ |
| 2001 01 19 | 704 | 0.1+ | 0.1+ | 2004 11 06 | 704 | 1.1+ | 1.0+ | 2006 04 07 | 703 | (1.1− | 2.3+) |
| 2001 01 19 | 704 | 0.2− | 0.2− | 2004 11 06 | 704 | 1.4+ | 0.3+ | 2006 04 07 | 703 | 0.5− | 0.5+ |
| 2001 01 19 | 704 | 0.2− | 0.5− | 2004 11 06 | 704 | 1.3− | 1.1+ | 2006 04 07 | 703 | 0.4− | 0.2+ |
| 2001 02 01 | 699 | 0.7+ | 0.1+ | 2004 11 09 | 683 | (0.6− | 1.5+) | 2006 05 02 | 703 | (0.9+ | 1.7+) |
| 2001 02 01 | 699 | (2.1+ | 0.5+) | 2004 11 09 | 683 | 1.0+ | 0.1+ | 2006 05 02 | 703 | (0.2− | 2.8+) |
| 2001 02 01 | 699 | (2.0+ | 1.3+) | 2004 11 09 | 683 | 0.5− | 0.1+ | 2006 05 02 | 703 | 0.9+ | 0.7+ |
| 2001 02 01 | 699 | (3.4+ | 1.2+) | 2004 11 10 | 683 | 0.1+ | 0.9− | 2006 05 02 | 703 | 0.8+ | 0.0 |
| 2001 02 03 | 704 | 0.5+ | 0.2+ | 2004 11 10 | 683 | 0.3− | 0.2+ | 2008 08 27 | F84 | 0.3+ | 0.8+ |
| 2001 02 03 | 704 | 0.7+ | 0.0 | 2004 11 10 | 683 | 0.3− | 0.7− | 2008 08 27 | F84 | 0.7+ | 0.3− |
| 2001 02 03 | 704 | 0.4− | 0.2− | 2004 11 12 | 704 | 0.4− | 0.0 | 2008 10 02 | 703 | (0.5− | 1.8+) |
| 2001 02 03 | 704 | 0.0 | 0.5− | 2004 11 12 | 704 | 0.1− | 0.1+ | 2008 10 02 | 703 | 0.8− | 0.5+ |
| 2001 02 16 | 704 | 0.1− | 0.5+ | 2004 11 12 | 704 | 0.4− | 0.4+ | 2008 10 02 | 703 | 0.6− | 0.6+ |
| 2001 02 16 | 704 | 1.0− | 0.8− | 2004 11 12 | 704 | 0.6+ | 0.8+ | 2008 10 02 | 703 | 1.1− | 0.0 |
| 2001 02 16 | 704 | (2.5− | 1.3−) | 2004 11 13 | 683 | 0.3+ | 1.4+ | 2009 11 21 | G96 | 0.0 | 0.4− |
| 2001 02 21 | 704 | 0.8+ | 0.4+ | 2004 11 13 | 683 | 0.2+ | 0.8+ | 2009 11 21 | G96 | 0.1− | 0.1− |
| 2001 02 21 | 704 | 0.9+ | 0.6− | 2004 11 13 | 683 | 0.4− | 0.8+ | 2009 11 21 | G96 | 0.1− | 0.2− |
| 2001 02 21 | 704 | 0.2+ | 0.1+ | 2004 11 17 | 683 | 0.3− | 0.6− | 2009 11 21 | G96 | 0.2− | 0.2− |
| 2001 02 21 | 704 | 0.7+ | 1.4− | 2004 11 17 | 683 | (0.2− | 1.5−) | 2009 12 11 | 704 | 1.4− | 0.3+ |
| 2004 10 24 | 699 | 0.3− | 0.3+ | 2004 11 17 | 683 | (0.0 | 1.6−) | 2009 12 11 | 704 | 1.1+ | 0.5+ |
| 2004 10 24 | 699 | 0.9+ | 0.8− | 2004 11 20 | 683 | 0.8+ | 0.2+ | 2009 12 11 | 704 | 0.3− | 1.0+ |
| 2004 10 24 | 699 | 0.6+ | 0.1− | 2004 11 20 | 683 | 0.3− | 0.8+ | 2009 12 11 | 704 | 1.3+ | 1.4+ |

**(228399)∗ 2001 CM$_{46}$**

Discovered 2001 Feb. 15 at La Palma.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 51.39362 | | (2000.0) | | | |
| $n$ | 0.21284280 | $\omega$ | 93.99918 | | +0.51066677 | −0.85963686 |
| $a$ | 2.7781994 | $\Omega$ | 325.27833 | | +0.77755197 | +0.46950405 |
| $e$ | 0.0583352 | $i$ | 1.57122 | | +0.36692285 | +0.20147063 |
| $P$ | 4.63 | $H$ | 16.3 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 10 08 | 691 | 0.7− | 0.5+ | 2006 02 24 | G96 | 0.1+ | 0.3− | 2008 09 24 | 704 | 0.5+ | 0.4+ |
| 1994 10 08 | 691 | 0.0 | 0.1− | 2006 02 24 | G96 | 0.2− | 0.3+ | 2008 10 17 | 691 | 0.1+ | 0.0 |
| 1994 10 08 | 691 | 0.5− | 0.0 | 2006 03 25 | G96 | 0.0 | 0.5+ | 2008 10 17 | 691 | 0.1+ | 0.0 |
| 1999 10 06 | 704 | 0.0 | 0.1− | 2006 03 25 | G96 | 0.3− | 0.5+ | 2008 10 17 | 691 | 0.1− | 0.0 |
| 1999 10 06 | 704 | 0.6+ | 0.3− | 2006 03 25 | G96 | 0.1+ | 0.4+ | 2008 10 18 | 691 | 0.1− | 0.1− |
| 1999 10 06 | 704 | 0.4+ | 1.5+ | 2006 03 25 | G96 | 0.1− | 0.4+ | 2008 10 18 | 691 | 0.1+ | 0.3− |
| 1999 10 06 | 704 | 0.1− | 0.2+ | 2006 04 02 | G96 | 0.1− | 0.4+ | 2008 10 18 | 691 | 0.0 | 0.3+ |
| 1999 10 06 | 704 | 0.3+ | 0.6+ | 2006 04 02 | G96 | 0.4+ | 0.2+ | 2008 10 24 | G96 | 0.4+ | 0.0 |
| 2001 02 15 | 950 | 0.3+ | 0.4+ | 2006 04 02 | G96 | 0.1− | 0.5+ | 2008 10 24 | G96 | 0.1+ | 0.1+ |
| 2001 02 15 | 950 | 0.4+ | 0.3+ | 2006 04 02 | G96 | 0.4− | 0.9+ | 2008 10 24 | G96 | 0.3+ | 0.0 |
| 2001 02 15 | 950 | 0.2+ | 0.3+ | 2008 08 24 | 691 | 0.1− | 0.0 | 2008 10 24 | G96 | 0.0 | 0.0 |
| 2001 02 20 | 950 | 0.4+ | 0.4+ | 2008 08 24 | 691 | 0.1− | 0.1− | 2009 11 16 | G96 | 0.0 | 0.1− |
| 2001 02 20 | 950 | 0.5+ | 0.3+ | 2008 08 24 | 691 | 0.7− | 0.4+ | 2009 11 16 | G96 | 0.2+ | 0.0 |
| 2001 02 20 | 950 | 0.4+ | 0.3+ | 2008 09 03 | 691 | 0.1+ | 0.1+ | 2009 11 16 | G96 | 0.2− | 0.2− |
| 2003 08 04 | 691 | 0.1+ | 0.2+ | 2008 09 03 | 691 | 0.1− | 0.3− | 2009 11 16 | G96 | 0.1− | 0.2+ |
| 2003 08 04 | 691 | 0.2+ | 0.5+ | 2008 09 03 | 691 | 0.0 | 0.3+ | 2009 12 17 | G96 | 0.2+ | 0.1+ |
| 2003 08 04 | 691 | 0.1+ | 0.3+ | 2008 09 19 | 691 | 0.0 | 0.2+ | 2009 12 17 | G96 | 0.1+ | 0.4− |
| 2004 11 20 | 691 | 0.1+ | 0.1− | 2008 09 19 | 691 | 0.1− | 0.0 | 2009 12 17 | G96 | 0.1+ | 0.0 |
| 2004 11 20 | 691 | 0.2+ | 0.1− | 2008 09 19 | 691 | 0.3− | 0.1+ | 2009 12 17 | G96 | 0.0 | 0.1− |
| 2004 11 20 | 691 | 0.2+ | 0.4− | 2008 09 24 | 691 | 0.1− | 0.3+ | 2009 12 18 | 691 | 0.1− | 0.3+ |
| 2006 02 20 | 691 | 0.2+ | 0.7+ | 2008 09 24 | 691 | 0.1− | 0.3+ | 2009 12 18 | 691 | 0.0 | 0.2+ |
| 2006 02 20 | 691 | 0.2+ | 0.6+ | 2008 09 24 | 691 | 0.1− | 0.1− | 2009 12 18 | 691 | 0.2+ | 0.0 |
| 2006 02 20 | 691 | 0.5+ | 0.2+ | 2008 09 24 | 704 | 0.3+ | 0.7− | 2009 12 25 | 691 | 0.2− | 0.1− |
| 2006 02 24 | G96 | 0.2− | 0.5+ | 2008 09 24 | 704 | 0.3− | 0.1− | 2009 12 25 | 691 | 0.1− | 0.1− |
| 2006 02 24 | G96 | 0.9+ | 0.8− | 2008 09 24 | 704 | 0.9+ | 0.3− | 2009 12 25 | 691 | 0.3− | 0.4+ |

**(228400)∗ 2001 DK$_{76}$**

Discovered 2001 Feb. 20 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 286.97812 | | (2000.0) | | | |
| $n$ | 0.20219886 | $\omega$ | 17.86216 | | −0.96774379 | −0.23841984 |
| $a$ | 2.8748614 | $\Omega$ | 147.99110 | | +0.20833003 | −0.93902184 |
| $e$ | 0.1034498 | $i$ | 8.83521 | | +0.14167061 | −0.24777806 |
| $P$ | 4.87 | $H$ | 15.1 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1993 08 15 | 691 | 0.1+ | 0.7+ | 2006 01 07 | G96 | 0.2+ | 0.2− | 2006 03 05 | 704 | 0.5− | 0.8+ |
| 1993 08 15 | 691 | 0.1− | 0.6+ | 2006 01 07 | 699 | (0.1+ | 1.6+) | 2006 03 05 | 704 | 0.4+ | 0.7+ |
| 1993 08 15 | 691 | 0.3− | 0.3+ | 2006 01 07 | G96 | 0.5− | 0.3− | 2006 03 05 | 704 | 0.0 | 0.8+ |
| 2001 01 31 | 704 | (2.6+ | 0.1−) | 2006 01 07 | 699 | 0.8+ | 0.3+ | 2006 03 05 | 704 | 0.1+ | 0.7− |
| 2001 01 31 | 704 | 1.2+ | 0.2+ | 2006 02 02 | H07 | 0.6+ | 0.6− | 2006 03 05 | 704 | 0.5− | 0.0 |
| 2001 01 31 | 704 | 0.6+ | 0.9+ | 2006 02 02 | H07 | 0.5+ | 0.0 | 2006 03 08 | 691 | 0.5− | 0.1+ |
| 2001 02 19 | 699 | 0.0 | 0.4+ | 2006 02 02 | H07 | 0.5+ | 0.5+ | 2006 03 08 | 691 | 0.2− | 0.1+ |
| 2001 02 19 | 699 | (0.3+ | 1.7+) | 2006 02 03 | H07 | 0.0 | 0.0 | 2006 03 08 | 691 | 0.4− | 0.2− |
| 2001 02 19 | 699 | 0.5− | 1.1+ | 2006 02 03 | H07 | 0.2+ | 0.9+ | 2006 03 24 | 704 | 0.5+ | 0.2+ |
| 2001 02 19 | 699 | 1.5− | 0.4+ | 2006 02 21 | 699 | 0.0 | 0.7− | 2006 03 24 | 704 | 0.2− | 0.0 |
| 2001 02 20 | 704 | 0.1+ | 0.1+ | 2006 02 21 | 703 | 0.2+ | 0.7− | 2006 03 24 | 704 | 1.2− | 0.1+ |
| 2001 02 20 | 704 | 0.4+ | 0.6+ | 2006 02 21 | 703 | 0.2− | 0.6− | 2006 03 24 | 704 | 0.1− | 0.6+ |
| 2001 02 20 | 704 | 0.6+ | 0.1+ | 2006 02 21 | 703 | 0.6+ | 1.0− | 2006 03 24 | 699 | 0.0 | 0.6+ |
| 2001 02 20 | 704 | 0.7+ | 1.0+ | 2006 02 21 | 699 | 0.0 | 0.1+ | 2006 03 24 | 699 | 0.3+ | 0.6− |
| 2001 02 22 | 704 | 1.3+ | 0.2+ | 2006 02 21 | 703 | (1.4− | 1.7−) | 2006 03 24 | 699 | (1.2− | 2.1+) |
| 2001 02 22 | 704 | 0.8+ | 0.5− | 2006 02 21 | 699 | (1.8+ | 0.5−) | 2006 03 24 | 699 | 1.3+ | 0.4+ |
| 2001 02 22 | 704 | 0.5− | 0.5− | 2006 02 21 | 699 | 0.3+ | 0.4− | 2006 03 29 | 704 | 1.3+ | 0.7− |
| 2001 02 22 | 704 | 0.6+ | 0.4− | 2006 02 23 | 691 | 0.8− | 0.4− | 2006 03 29 | 704 | 0.5+ | 0.2− |
| 2001 03 03 | 704 | (0.7+ | 2.9+) | 2006 02 23 | 691 | 0.3− | 0.3+ | 2006 03 29 | 704 | (2.0+ | 0.5−) |
| 2001 03 03 | 704 | 0.1+ | 0.3+ | 2006 02 23 | 691 | 0.6− | 0.1+ | 2006 03 31 | 704 | (1.7+ | 0.5−) |
| 2001 03 03 | 704 | 0.5− | 0.0 | 2006 02 24 | 704 | 0.2+ | 0.2− | 2006 03 31 | 704 | 0.8+ | 0.3− |
| 2001 03 03 | 704 | 0.2+ | 0.2+ | 2006 02 24 | 704 | 0.7+ | 0.0 | 2006 03 31 | 704 | 1.0+ | 0.3+ |
| 2001 03 14 | 699 | 0.2+ | 0.3+ | 2006 02 24 | 704 | 1.2+ | 0.2+ | 2006 03 31 | 704 | 1.0+ | 0.2+ |
| 2001 03 14 | 699 | 0.8− | 0.1+ | 2006 02 24 | 704 | 0.6+ | 0.8+ | 2006 03 31 | 704 | 0.0 | 0.2+ |
| 2001 03 14 | 699 | 0.4− | 0.5+ | 2006 02 25 | 704 | 0.7+ | 0.1− | 2008 09 23 | 704 | (1.6− | 1.8+) |
| 2001 03 14 | 699 | 0.5− | 0.2− | 2006 02 25 | 704 | 0.2+ | 1.2+ | 2008 09 23 | 704 | 0.4− | 1.0+ |
| 2001 03 19 | 704 | 0.3− | 0.8+ | 2006 02 25 | 704 | 0.1− | 0.4+ | 2008 09 23 | 704 | 1.0− | 0.7+ |
| 2001 03 19 | 704 | 0.1+ | 0.1+ | 2006 02 25 | 704 | 0.3− | 0.7− | 2008 10 01 | G96 | 0.2+ | 0.2+ |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 03 19 | 704 | 0.4− | 0.6+ | 2006 02 25 | 704 | 0.3+ | 0.3− | 2008 10 01 | G96 | 0.4+ | 0.6+ |
| 2001 03 26 | 704 | 0.1− | 0.1+ | 2006 02 28 | 704 | 0.9+ | 0.4− | 2008 10 01 | G96 | 0.2+ | 0.2+ |
| 2001 03 26 | 704 | 0.5+ | 0.2+ | 2006 02 28 | 704 | 0.3+ | 0.6+ | 2008 10 01 | G96 | 0.1− | 0.1+ |
| 2001 03 26 | 704 | 0.6− | 0.3+ | 2006 02 28 | 704 | 1.0+ | 0.0 | 2009 12 10 | J75 | 0.5+ | 0.1− |
| 2001 03 26 | 704 | (1.4− | 2.2+) | 2006 02 28 | 704 | 0.2+ | 0.2+ | 2009 12 10 | J75 | 0.4+ | 0.9− |
| 2005 12 04 | 691 | 0.3+ | 0.0 | 2006 02 28 | 704 | 1.1+ | 0.6− | 2009 12 10 | J75 | 1.0+ | 0.5− |
| 2005 12 04 | 691 | 0.0 | 0.3+ | 2006 03 04 | 691 | 0.1− | 0.1− | 2009 12 15 | 703 | 0.9− | 0.5+ |
| 2005 12 04 | 691 | 0.2+ | 0.1+ | 2006 03 04 | 691 | 0.2− | 0.0 | 2009 12 15 | 703 | 0.3− | 0.0 |
| 2006 01 07 | 699 | 0.3− | 0.2− | 2006 03 04 | 691 | 0.2− | 0.0 | 2009 12 15 | 703 | 0.0 | 0.5− |
| 2006 01 07 | G96 | 0.5− | 0.4− | 2006 03 04 | G96 | 0.4− | 0.4− | 2009 12 15 | 703 | 0.8− | 0.8+ |
| 2006 01 07 | 699 | 0.6+ | 1.5+ | 2006 03 04 | G96 | 0.6− | 0.2− | 2009 12 15 | 703 | 0.0 | 0.8+ |
| 2006 01 07 | G96 | 0.2− | 0.1− | 2006 03 04 | G96 | 0.5− | 0.2− | | | | |

**(228401)∗ 2001 DY$_{80}$**

Discovered 2001 Feb. 22 at the Tenagra II Observatory.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 204.21006 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.19429127 | | $\omega$ | 189.89896 | | −0.70035620 | | +0.70537510 | |
| $a$ | 2.9523456 | | $\Omega$ | 35.78750 | | −0.64144731 | | −0.55477483 | |
| $e$ | 0.0719035 | | $i$ | 10.77268 | | −0.31312384 | | −0.44121521 | |
| $P$ | 5.07 | | $H$ | 14.7 | $G$ | 0.15 | $U$ | 1 | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 12 12 | 704 | 0.8− | 0.1− | 2003 09 25 | 644 | 0.7− | 1.1+ | 2009 11 09 | 691 | 0.1+ | 0.3+ |
| 1999 12 12 | 704 | 0.5+ | 1.0+ | 2003 09 25 | 644 | 0.9− | 0.8+ | 2009 11 09 | 691 | 0.1− | 0.2− |
| 1999 12 12 | 704 | 0.6+ | 0.4− | 2006 01 22 | 703 | 0.7− | 0.2− | 2009 11 09 | G96 | 0.4+ | 0.2− |
| 2001 02 16 | 704 | (0.7+ | 1.8−) | 2006 01 22 | 703 | 0.3− | 0.2− | 2009 11 09 | G96 | 0.0 | 0.3− |
| 2001 02 16 | 704 | 0.6+ | 0.0 | 2006 01 22 | 703 | 1.2− | 0.0 | 2009 11 09 | G96 | 0.1+ | 0.3− |
| 2001 02 16 | 704 | 0.1− | 0.6+ | 2006 01 22 | 703 | (1.8− | 0.2−) | 2009 11 09 | G96 | 0.2− | 0.4− |
| 2001 02 19 | 699 | 0.8+ | 0.5+ | 2006 02 03 | 699 | 0.6+ | 0.8− | 2009 11 11 | 704 | 0.4+ | 0.9+ |
| 2001 02 19 | 699 | 0.4+ | 0.8− | 2006 02 03 | 699 | (1.7+ | 0.4−) | 2009 11 11 | 704 | 0.3+ | 0.1− |
| 2001 02 19 | 699 | 0.4+ | 0.2− | 2006 02 03 | 699 | (1.6+ | 0.3+) | 2009 11 11 | 704 | 0.1− | 0.5− |
| 2001 02 19 | 699 | 0.1− | 0.2+ | 2006 02 03 | 699 | (2.3+ | 1.1−) | 2009 11 11 | 704 | 0.1− | 0.4+ |
| 2001 02 22 | 926 | 0.6− | 0.1+ | 2006 02 05 | 704 | 1.3− | 0.7− | 2009 11 16 | 704 | 0.6− | 0.2− |
| 2001 02 22 | 926 | 0.4− | 0.3+ | 2006 02 05 | 704 | 0.3− | 0.5− | 2009 11 16 | 704 | 0.1− | 0.1+ |
| 2001 02 22 | 926 | 0.4− | 0.3+ | 2006 02 05 | 704 | 0.5+ | 0.1+ | 2009 11 16 | 704 | 0.8− | 0.4− |
| 2001 02 27 | 926 | 0.1+ | 0.5− | 2006 02 20 | 704 | 0.4− | 0.8+ | 2009 11 22 | 703 | 0.6+ | 0.9− |
| 2001 02 27 | 926 | 0.1+ | 0.4+ | 2006 02 20 | 704 | 0.6+ | 0.4+ | 2009 11 22 | 703 | 0.8− | 0.2+ |
| 2001 02 27 | 926 | 0.4− | 0.4+ | 2006 02 20 | 704 | 0.6+ | 0.2− | 2009 11 22 | 703 | 0.8− | 0.8+ |
| 2001 03 01 | 704 | 0.2+ | 0.5+ | 2006 02 20 | 704 | 0.9+ | 0.1− | 2009 11 22 | 703 | (2.2− | 1.7+) |
| 2001 03 01 | 704 | 0.2+ | 0.6+ | 2006 02 20 | 704 | 0.5+ | 0.3+ | 2009 11 22 | G96 | 0.3− | 0.2− |
| 2001 03 01 | 704 | 0.6− | 0.7+ | 2006 03 06 | 703 | 0.2− | 0.2− | 2009 11 22 | G96 | 0.5− | 0.1− |
| 2001 03 04 | 704 | 0.3− | 0.0 | 2006 03 06 | 703 | 1.0− | 0.1− | 2009 11 22 | G96 | 0.2− | 0.2− |
| 2001 03 04 | 704 | 0.9+ | 1.4+ | 2006 03 06 | 703 | 0.7− | 0.4− | 2009 12 06 | J75 | 0.0 | 0.4− |
| 2001 03 04 | 704 | 0.8+ | 0.2+ | 2006 03 06 | 703 | 0.0 | 0.6− | 2009 12 06 | J75 | 0.2+ | 0.3− |
| 2001 03 04 | 704 | 0.3+ | 0.6− | 2007 05 13 | E12 | (0.3+ | 1.7+) | 2009 12 06 | J75 | 0.2+ | 0.6− |
| 2001 03 04 | 704 | 0.1− | 0.0 | 2007 05 13 | E12 | 0.0 | 0.7+ | 2009 12 10 | 704 | 0.3+ | 1.0+ |
| 2001 03 04 | 704 | 0.2+ | 1.2− | 2007 05 13 | E12 | 0.1− | 0.7+ | 2009 12 10 | 704 | 0.1− | 1.0− |
| 2001 03 23 | 699 | 0.2+ | 0.2− | 2007 05 13 | E12 | 1.1+ | 0.4+ | 2009 12 10 | 704 | 0.1+ | 0.5+ |
| 2001 03 23 | 699 | 1.2+ | 0.8+ | 2009 10 26 | 691 | 0.1− | 0.1+ | 2009 12 10 | 704 | 1.1+ | 0.1− |
| 2001 03 23 | 699 | 0.0 | 0.8+ | 2009 10 26 | 691 | 0.7+ | 0.7+ | 2009 12 10 | 704 | 0.0 | 0.3− |
| 2001 03 23 | 699 | 0.3− | 1.3+ | 2009 10 26 | 691 | 0.2− | 0.1+ | | | | |
| 2003 09 25 | 644 | 0.7− | 0.5+ | 2009 11 09 | 691 | 0.1− | 0.2+ | | | | |

**(228402)∗ 2001 EP$_1$**

Discovered 2001 Mar. 1 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 18.74235 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.21085032 | | $\omega$ | 338.56548 | | +0.35931598 | | −0.91422066 | |
| $a$ | 2.7956741 | | $\Omega$ | 89.97860 | | +0.88113292 | | +0.26623395 | |
| $e$ | 0.2657493 | | $i$ | 10.79702 | | +0.30740332 | | +0.30548335 | |
| $P$ | 4.67 | | $H$ | 15.0 | $G$ | 0.15 | $U$ | 0 | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 09 11 | 704 | 0.4− | 0.9+ | 2004 10 11 | 644 | 0.1+ | 0.0 | 2004 12 14 | 683 | (1.0− | 1.7+) |
| 1999 09 11 | 704 | 0.7− | 0.6+ | 2004 10 11 | 644 | 0.1+ | 0.1+ | 2004 12 14 | 683 | (2.1− | 1.3+) |
| 1999 09 11 | 704 | 0.6− | 0.6+ | 2004 10 11 | 644 | 0.2+ | 0.3+ | 2004 12 14 | 683 | 1.4− | 1.3+ |
| 1999 09 11 | 704 | 0.1− | 1.4− | 2004 10 13 | 699 | 0.0 | 0.1− | 2004 12 15 | 683 | (0.0 | 2.0+) |
| 2001 01 18 | 704 | 0.7− | 0.2+ | 2004 10 13 | 699 | 0.0 | 0.0 | 2004 12 15 | 683 | 0.7+ | 1.0+ |
| 2001 01 18 | 704 | 0.7+ | 0.2+ | 2004 10 13 | 699 | 0.6+ | 0.0 | 2004 12 15 | 683 | 0.4− | 1.3+ |
| 2001 01 18 | 704 | 0.5− | 0.2− | 2004 10 13 | 699 | 0.0 | 0.0 | 2004 12 16 | 683 | (0.1− | 2.9−) |
| 2001 01 18 | 704 | 0.5+ | 1.3+ | 2004 10 18 | 704 | 0.4− | 0.5+ | 2004 12 16 | 683 | 1.0− | 0.5− |
| 2001 01 18 | 704 | 0.2+ | 0.3+ | 2004 10 18 | 704 | 0.1− | 0.0 | 2004 12 16 | 683 | (0.2− | 2.9−) |
| 2001 02 03 | 704 | 0.7+ | 0.3+ | 2004 10 18 | 704 | 0.3− | 0.1+ | 2004 12 17 | 683 | (0.0 | 1.6−) |
| 2001 02 03 | 704 | 0.9+ | 0.3+ | 2004 10 18 | 704 | 0.8− | 0.3+ | 2004 12 17 | 683 | 0.4+ | 0.7− |
| 2001 02 03 | 704 | (2.3+ | 1.0+) | 2004 10 18 | 704 | 0.9− | 0.2+ | 2004 12 17 | 683 | (0.1+ | 2.4−) |
| 2001 02 03 | 704 | 0.1+ | 1.0+ | 2004 10 19 | 704 | 0.6− | 0.6+ | 2004 12 18 | 683 | 0.8+ | 0.5+ |
| 2001 02 16 | 704 | 0.5+ | 1.3+ | 2004 10 19 | 704 | 0.3− | 0.4+ | 2004 12 18 | 683 | (1.9− | 0.1+) |
| 2001 02 16 | 704 | 0.5− | 0.0 | 2004 10 19 | 704 | 0.7− | 0.4+ | 2004 12 18 | 683 | 0.1+ | 0.5+ |
| 2001 02 16 | 704 | 0.3+ | 0.7+ | 2004 10 19 | 704 | 0.4− | 0.6+ | 2005 03 02 | 703 | 0.2− | 0.6− |
| 2001 02 16 | 704 | 1.2− | 0.3− | 2004 10 19 | 704 | 0.1− | 0.7+ | 2005 03 02 | 703 | 1.2− | 0.5− |
| 2001 02 16 | 704 | 0.4+ | 1.3+ | 2004 10 19 | 704 | 0.7+ | 0.3+ | 2005 03 02 | 703 | 0.0 | 0.9− |
| 2001 03 01 | 704 | 0.2+ | 0.4+ | 2004 10 19 | 704 | 0.6+ | 0.1+ | 2005 03 02 | 703 | (0.1+ | 2.1−) |
| 2001 03 01 | 704 | 0.2+ | 0.6+ | 2004 10 19 | 704 | 0.3− | 0.6+ | 2006 02 25 | 699 | (2.1+ | 0.3+) |
| 2001 03 01 | 704 | 0.9+ | 1.3+ | 2004 10 19 | 704 | 0.1− | 0.1− | 2006 02 25 | 699 | 0.9+ | 0.8− |
| 2001 03 04 | 704 | 0.2+ | 0.1+ | 2004 10 19 | 704 | 0.2− | 0.8+ | 2006 02 25 | 699 | (0.8− | 1.6+) |
| 2001 03 04 | 704 | 0.2+ | 0.1+ | 2004 11 06 | 704 | 0.4− | 0.6+ | 2006 02 25 | 699 | 0.4− | 0.2− |
| 2001 03 04 | 704 | 0.8+ | 0.6− | 2004 11 06 | 704 | 0.3− | 0.3+ | 2006 04 18 | 703 | (0.2− | 2.4+) |
| 2001 03 23 | 699 | 0.6+ | 0.0 | 2004 11 06 | 704 | 0.4− | 0.1+ | 2006 04 18 | 703 | 0.3+ | 0.5+ |
| 2001 03 23 | 699 | 0.9− | 0.3− | 2004 11 06 | 704 | 0.2− | 0.3− | 2006 04 18 | 703 | (2.5+ | 1.8−) |
| 2001 03 23 | 699 | 0.2+ | 0.0 | 2004 11 12 | 704 | 0.2+ | 0.3+ | 2006 04 18 | 703 | 0.7− | 0.2− |
| 2001 03 23 | 699 | 0.2+ | 0.2+ | 2004 11 12 | 704 | 0.1+ | 0.0 | 2007 05 11 | G96 | 0.6+ | 0.6+ |
| 2004 09 08 | 704 | 0.4− | 0.0 | 2004 11 12 | 704 | 0.1+ | 0.3+ | 2007 05 11 | G96 | 0.8− | 0.5+ |
| 2004 09 08 | 704 | 0.5+ | 1.3+ | 2004 11 12 | 704 | 0.3+ | 0.1+ | 2007 05 11 | G96 | 0.0 | 0.5+ |
| 2004 09 08 | 704 | 0.5+ | 0.4+ | 2004 11 12 | 704 | 0.0 | 0.1− | 2007 05 11 | G96 | 0.3+ | 0.6+ |
| 2004 09 08 | 704 | 0.3+ | 0.2+ | 2004 11 20 | 703 | 0.0 | 0.1− | 2008 07 28 | E12 | 0.4− | 0.3+ |
| 2004 09 26 | 699 | 0.6+ | 0.4+ | 2004 11 20 | 703 | 0.2− | 0.1− | 2008 07 28 | E12 | 0.4+ | 0.6+ |
| 2004 09 26 | 699 | 0.5− | 0.1+ | 2004 11 20 | 703 | 0.4− | 0.4− | 2008 07 28 | E12 | 0.2− | 0.2+ |
| 2004 09 26 | 699 | 0.1+ | 0.3− | 2004 11 20 | 703 | 0.3− | 0.5− | 2008 07 28 | E12 | (0.4− | 1.7+) |
| 2004 09 26 | 699 | 0.6+ | 0.3− | 2004 12 04 | 699 | 0.4+ | 0.4− | 2009 11 21 | 704 | 0.2+ | 0.6− |
| 2004 10 05 | 699 | 1.2+ | 0.0 | 2004 12 04 | 699 | 0.1+ | 0.0 | 2009 11 21 | 704 | 0.3+ | 0.3− |
| 2004 10 05 | 699 | 0.4+ | 0.6− | 2004 12 04 | 699 | 0.5− | 0.3− | 2009 11 21 | 704 | 0.0 | 0.4− |
| 2004 10 05 | 699 | 0.4+ | 0.3− | 2004 12 04 | 699 | 0.4− | 0.3+ | 2009 11 21 | 704 | 0.3− | 0.6− |
| 2004 10 05 | 699 | 0.5− | 0.0 | 2004 12 07 | 704 | 0.0 | 0.1+ | 2009 11 21 | 704 | 0.7+ | 0.2− |
| 2004 10 07 | 704 | 0.3+ | 0.2+ | 2004 12 07 | 704 | 0.4− | 0.4− | 2009 12 09 | J75 | 0.1− | 0.0 |
| 2004 10 07 | 704 | 0.2− | 0.1− | 2004 12 07 | 704 | 0.4+ | 0.1+ | 2009 12 09 | J75 | 0.4− | 0.0 |
| 2004 10 07 | 704 | 0.1+ | 0.2+ | 2004 12 07 | 704 | 0.2− | 0.1− | 2009 12 09 | J75 | 0.4− | 0.1+ |
| 2004 10 07 | 704 | 0.2− | 0.1+ | 2004 12 07 | 704 | 0.2− | 1.0− | 2009 12 16 | 704 | 0.2+ | 0.1− |
| 2004 10 09 | 704 | 0.1+ | 0.0 | 2004 12 12 | 704 | 1.0+ | 1.0− | 2009 12 16 | 704 | 0.0 | 0.2− |
| 2004 10 09 | 704 | 0.2− | 0.1+ | 2004 12 12 | 704 | 0.5+ | 0.1+ | 2009 12 16 | 704 | 0.1− | 0.8− |
| 2004 10 09 | 704 | 0.1− | 0.0 | 2004 12 12 | 704 | 0.9+ | 0.3− | 2009 12 16 | 704 | 0.0 | 0.2− |
| 2004 10 09 | 704 | 0.1− | 0.2+ | 2004 12 12 | 704 | 0.1+ | 0.4− | 2009 12 16 | 704 | 0.0 | 0.3− |
| 2004 10 09 | 704 | 0.2− | 0.1− | 2004 12 12 | 704 | 0.7+ | 0.5− | | | | |

**(228403)∗ 2001 EA$_3$ = 2003 SZ$_{88}$**

Discovered 2001 Mar. 3 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 52825)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 45.30497 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.20055449 | | $\omega$ | 269.37056 | | +0.69171160 | | −0.72058131 | |
| $a$ | 2.8905543 | | $\Omega$ | 136.73041 | | +0.68728378 | | +0.63646015 | |
| $e$ | 0.0492408 | | $i$ | 4.01009 | | +0.22175679 | | +0.27510190 | |
| $P$ | 4.91 | | $H$ | 15.4 | $G$ | 0.15 | $U$ | 0 | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 03 02 | 699 | 0.8+ | 1.2+ | 2003 09 21 | 691 | 0.3− | 0.4+ | 2006 03 26 | G96 | 0.2+ | 0.5+ |
| 2001 03 02 | 699 | 0.2+ | 0.2+ | 2003 09 21 | 691 | 0.2− | 0.3+ | 2006 03 26 | G96 | 0.2+ | 0.3+ |
| 2001 03 02 | 699 | (0.2+ | 2.4+) | 2003 09 24 | 644 | 0.0 | 0.5+ | 2006 03 26 | G96 | 0.1+ | 0.3+ |
| 2001 03 02 | 699 | (1.6+ | 0.4+) | 2003 09 24 | 644 | 0.0 | 0.5+ | 2006 03 26 | G96 | 0.2− | 0.4+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 03 03 | 950 | 0.2+ | 0.6+ | 2003 09 24 | 644 | 0.1− | 0.5+ | 2006 03 26 | G96 | 0.0 | 0.2+ | | |
| 2001 03 03 | 950 | 0.2+ | 0.4+ | 2004 12 02 | 691 | 0.0 | 0.2+ | 2008 09 23 | G96 | 0.0 | 0.2+ | | |
| 2001 03 03 | 950 | 0.0 | 0.5+ | 2004 12 02 | 691 | 0.1+ | 0.3+ | 2008 09 23 | G96 | 0.4− | 0.5+ | | |
| 2001 03 03 | 704 | 0.6+ | 1.2+ | 2004 12 02 | 691 | 0.2+ | 0.1+ | 2008 09 23 | G96 | 0.4+ | 0.5+ | | |
| 2001 03 03 | 691 | 0.3+ | 0.2+ | 2004 12 09 | 691 | 0.4− | 0.1+ | 2008 09 23 | G96 | 0.0 | 0.8+ | | |
| 2001 03 03 | 691 | 0.4+ | 0.2+ | 2004 12 09 | 691 | 0.8+ | 0.3− | 2008 09 28 | 704 | 0.3− | 0.9+ | | |
| 2001 03 03 | 704 | 0.5+ | 0.1+ | 2004 12 09 | 691 | 0.2− | 0.3+ | 2008 09 28 | 704 | 0.8− | 0.8+ | | |
| 2001 03 03 | 691 | 0.3+ | 0.1+ | 2006 03 02 | 691 | 0.1+ | 0.1+ | 2008 09 28 | 704 | 0.6− | 1.1+ | | |
| 2001 03 03 | 704 | 0.6+ | 0.8+ | 2006 03 02 | 691 | 0.2+ | 0.2− | 2008 09 28 | 704 | 0.1+ | 0.4+ | | |
| 2001 03 03 | 704 | (0.7+ | 1.7+) | 2006 03 02 | 691 | 0.2+ | 0.1+ | 2008 09 29 | 703 | 0.2− | 0.3− | | |
| 2001 03 04 | 691 | 0.4− | 0.4+ | 2006 03 03 | 691 | 0.0 | 0.0 | 2008 09 29 | 703 | 1.1− | 0.6+ | | |
| 2001 03 04 | 691 | 0.5− | 0.4+ | 2006 03 03 | 691 | 0.4+ | 0.1+ | 2008 09 29 | 703 | 0.5− | 1.2+ | | |
| 2001 03 04 | 691 | 0.3− | 0.3+ | 2006 03 03 | 691 | 0.3+ | 0.1− | 2008 09 29 | 703 | 0.7+ | 0.1− | | |
| 2001 03 20 | 608 | 0.2− | 0.0 | 2006 03 04 | G96 | 0.7− | 0.4+ | 2008 09 30 | 704 | 0.6+ | 1.0+ | | |
| 2001 03 20 | 608 | 0.1− | 0.3− | 2006 03 04 | G96 | 0.2− | 0.1+ | 2008 09 30 | 704 | 0.4− | 0.8+ | | |
| 2001 03 20 | 608 | 0.3− | 0.6− | 2006 03 04 | G96 | 0.0 | 0.3+ | 2008 09 30 | 704 | 0.3− | 0.0 | | |
| 2003 09 14 | 644 | 0.2− | 0.8+ | 2006 03 04 | G96 | 0.2+ | 0.2+ | 2008 09 30 | 704 | 0.6− | 1.0+ | | |
| 2003 09 14 | 644 | 0.1− | 0.5+ | 2006 03 24 | 699 | (1.5− | 4.7+) | 2009 12 17 | 704 | 0.6+ | 0.9+ | | |
| 2003 09 14 | 644 | 0.1− | 0.7+ | 2006 03 24 | 699 | 0.2− | 1.2+ | 2009 12 17 | 704 | 0.3+ | 0.9− | | |
| 2003 09 18 | 699 | 0.3+ | 0.1+ | 2006 03 24 | 699 | 0.9+ | 0.4+ | 2009 12 17 | 704 | 0.1+ | 0.2− | | |
| 2003 09 18 | 699 | (1.8− | 2.6−) | 2006 03 24 | 699 | 0.8− | 0.5+ | 2009 12 17 | 704 | 0.6− | 0.4− | | |
| 2003 09 18 | 699 | (0.1+ | 1.6−) | 2006 03 26 | G96 | 0.1+ | 0.3+ | 2009 12 20 | 691 | 0.7− | 0.1+ | | |
| 2003 09 18 | 699 | 0.3+ | 1.4− | 2006 03 26 | G96 | 0.0 | 0.3+ | 2009 12 20 | 691 | 0.5+ | 0.6− | | |
| 2003 09 21 | 691 | 0.2− | 0.2+ | 2006 03 26 | G96 | 0.1− | 0.2+ | 2009 12 20 | 691 | 0.4− | 0.0 | | |

**(228404)∗ 2001 EQ$_{17}$**

Discovered 2001 Mar. 15 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 278.13222 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.30565183 | $\omega$ | 107.19953 | | −0.85482366 | −0.40819545 | |
| $a$ | 2.1826531 | $\Omega$ | 50.00559 | | +0.14491972 | −0.78065256 | |
| $e$ | 0.2466027 | $i$ | 24.72174 | | +0.49827179 | −0.47324206 | |
| $P$ | 3.22 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 03 15 | 704 | 0.7+ | 0.0 | 2001 04 26 | 704 | 0.9− | 0.4− | 2006 11 15 | 691 | 0.2− | 0.2+ | | |
| 2001 03 15 | 704 | 0.1− | 0.4+ | 2001 04 26 | 704 | 0.4+ | 0.0 | 2006 11 15 | 704 | 0.2− | 0.3+ | | |
| 2001 03 15 | 704 | 0.1+ | 0.0 | 2001 04 26 | 704 | 0.6+ | 0.4+ | 2006 11 15 | 704 | 0.7− | 0.1+ | | |
| 2001 03 15 | 704 | 0.1+ | 0.6+ | 2001 05 18 | 608 | 0.7+ | 0.3+ | 2006 11 15 | 704 | 0.3− | 1.0+ | | |
| 2001 03 15 | 704 | 0.4− | 1.0+ | 2001 05 18 | 608 | 0.8+ | 0.2+ | 2006 11 15 | 704 | 0.1+ | 0.3+ | | |
| 2001 03 18 | 704 | 0.1− | 0.1− | 2001 05 18 | 608 | 0.6+ | 0.0 | 2006 11 16 | 704 | 0.0 | 1.1+ | | |
| 2001 03 18 | 704 | 0.7− | 0.1− | 2001 05 23 | 704 | 0.4+ | 1.0+ | 2006 11 16 | 704 | 1.2− | 0.3+ | | |
| 2001 03 18 | 704 | 0.4− | 0.5− | 2001 05 23 | 704 | 1.3+ | 0.2+ | 2006 11 16 | 704 | 0.6− | 1.2+ | | |
| 2001 03 18 | 704 | 0.2− | 0.3+ | 2001 05 23 | 704 | 0.5− | 1.1+ | 2006 11 16 | 704 | 0.6− | 0.9+ | | |
| 2001 03 18 | 704 | 0.4+ | 0.3+ | 2001 05 23 | 704 | 0.1+ | 0.9+ | 2006 11 16 | 704 | 1.1− | 0.5+ | | |
| 2001 03 19 | 704 | 0.2+ | 0.4+ | 2003 11 24 | 704 | 0.1+ | 0.6− | 2006 11 17 | 691 | 0.2− | 0.2+ | | |
| 2001 03 19 | 704 | 0.9− | 0.3+ | 2003 11 24 | 704 | 0.1+ | 1.0+ | 2006 11 17 | 691 | 0.1− | 0.2+ | | |
| 2001 03 19 | 704 | 0.2+ | 0.5+ | 2003 11 24 | 704 | 0.4− | 0.7+ | 2006 11 17 | 691 | 0.1+ | 0.2+ | | |
| 2001 03 19 | 704 | 0.2− | 0.7+ | 2003 11 24 | 704 | 0.1+ | 1.0− | 2006 11 19 | 704 | 1.4+ | 0.8− | | |
| 2001 03 19 | 704 | 0.4+ | 1.0+ | 2003 11 24 | 704 | 0.2− | 1.3+ | 2006 11 19 | 704 | 0.1− | 0.1+ | | |
| 2001 03 19 | 704 | 0.2− | 0.6+ | 2003 11 30 | 645 | 0.1− | 0.3− | 2006 11 19 | 704 | 0.2+ | 0.5− | | |
| 2001 03 19 | 704 | 0.2+ | 0.5− | 2003 11 30 | 645 | 0.1− | 0.4− | 2006 11 19 | 704 | 0.6+ | 0.3− | | |
| 2001 03 19 | 704 | 0.3+ | 0.2+ | 2004 01 13 | 704 | 0.3− | 0.3+ | 2006 11 19 | 704 | 0.5+ | 0.1− | | |
| 2001 03 19 | 704 | 0.3− | 0.2− | 2004 01 13 | 704 | 0.2+ | 0.9+ | 2006 11 20 | 704 | 0.6+ | 0.8+ | | |
| 2001 03 19 | 704 | 0.2+ | 0.4+ | 2004 01 13 | 704 | 0.3+ | 0.9+ | 2006 11 20 | 704 | 0.3+ | 0.2− | | |
| 2001 03 19 | 704 | 0.3+ | 0.0 | 2004 01 13 | 704 | 0.4+ | 1.0+ | 2006 11 20 | 704 | 0.6+ | 0.2+ | | |
| 2001 03 19 | 704 | 0.4− | 0.5− | 2004 02 09 | 704 | 1.3+ | 0.5− | 2006 11 20 | 704 | 0.1+ | 1.2− | | |
| 2001 03 19 | 704 | 0.2+ | 0.5+ | 2004 02 09 | 704 | 0.0 | 0.0 | 2006 11 22 | 691 | 0.1− | 0.2+ | | |
| 2001 03 19 | 704 | 0.8+ | 0.5+ | 2004 02 09 | 704 | (1.2+ | 1.8−) | 2006 11 22 | 691 | 0.2− | 0.2+ | | |
| 2001 03 19 | 704 | 0.0 | 0.3− | 2004 02 09 | 704 | 0.5+ | 0.3+ | 2006 11 22 | 691 | 0.1− | 0.3+ | | |
| 2001 03 19 | 704 | 0.0 | 0.4+ | 2004 02 09 | 704 | (0.5+ | 1.8−) | 2006 11 22 | 704 | 0.4+ | 0.4+ | | |
| 2001 03 19 | 704 | 0.4+ | 0.4+ | 2004 02 09 | 704 | 0.7+ | 0.2− | 2006 11 22 | 704 | 0.3− | 0.7+ | | |
| 2001 03 19 | 704 | 0.6− | 1.0+ | 2004 02 09 | 704 | 0.5+ | 0.2− | 2006 11 22 | 704 | 0.5+ | 0.2+ | | |
| 2001 03 19 | 704 | 0.1+ | 0.0 | 2004 02 09 | 704 | (2.2+ | 1.0−) | 2006 11 22 | 704 | 0.4− | 0.3+ | | |
| 2001 03 19 | 704 | 0.5− | 0.3− | 2004 02 11 | 704 | 0.1+ | 0.5− | 2006 11 22 | 704 | 0.5− | 0.5+ | | |
| 2001 03 25 | 699 | 1.0+ | 0.4− | 2004 02 11 | 704 | 0.2+ | 0.3− | 2006 11 24 | 291 | 0.2− | 0.1+ | | |
| 2001 03 25 | 699 | 1.4+ | 0.3− | 2004 02 11 | 704 | 0.1+ | 0.8− | 2006 11 24 | 291 | 0.2− | 0.2+ | | |
| 2001 03 25 | 699 | 0.5+ | 0.6− | 2004 02 11 | 704 | 0.4+ | 1.0− | 2006 11 24 | 291 | 0.2− | 0.1+ | | |
| 2001 03 25 | 699 | 1.2+ | 0.4− | 2004 02 11 | 704 | 0.0 | 0.9− | 2006 12 13 | 699 | 0.2− | 0.0 | | |
| 2001 04 14 | 704 | (1.7+ | 0.1−) | 2006 10 03 | G96 | 0.1− | 0.0 | 2006 12 13 | 699 | 0.3− | 0.1− | | |
| 2001 04 14 | 704 | 0.1+ | 0.1− | 2006 10 03 | G96 | 0.3+ | 0.2− | 2006 12 13 | 699 | 0.6+ | 0.5+ | | |
| 2001 04 14 | 704 | 0.2+ | 0.8− | 2006 10 03 | G96 | 0.1− | 0.3− | 2006 12 13 | 699 | (0.4+ | 1.5+) | | |
| 2001 04 14 | 704 | 1.1+ | 0.9− | 2006 10 29 | G96 | 0.3− | 0.1− | 2006 12 14 | 703 | (0.1+ | 2.1−) | | |
| 2001 04 14 | 704 | 0.5+ | 1.0− | 2006 10 29 | G96 | 0.6− | 0.1− | 2006 12 14 | 703 | 0.9− | 0.4− | | |
| 2001 04 21 | 704 | (2.6+ | 2.8+) | 2006 10 29 | G96 | 0.5+ | 0.5− | 2006 12 14 | 703 | 0.2− | 0.0 | | |
| 2001 04 21 | 704 | 0.7+ | 1.3+ | 2006 10 29 | G96 | 0.0 | 0.1− | 2006 12 14 | 703 | 0.2− | 0.1+ | | |
| 2001 04 21 | 704 | 0.3+ | 0.7− | 2006 10 29 | G96 | 0.1− | 0.1+ | 2009 10 02 | G96 | 0.0 | 0.5+ | | |
| 2001 04 21 | 704 | 0.7+ | 0.4− | 2006 10 29 | G96 | 0.0 | 0.1+ | 2009 10 02 | G96 | 0.1− | 0.1− | | |
| 2001 04 23 | 704 | 0.4+ | 1.4+ | 2006 10 29 | G96 | 0.2+ | 0.3+ | 2009 10 02 | G96 | 0.7− | 0.4− | | |
| 2001 04 23 | 704 | 0.2+ | 1.3+ | 2006 10 29 | G96 | 0.1− | 0.1+ | 2009 10 02 | G96 | 0.7− | 0.0 | | |
| 2001 04 23 | 704 | 0.0 | 0.7+ | 2006 11 09 | 644 | 0.3− | 0.2+ | 2009 10 26 | J75 | 0.6− | 0.0 | | |
| 2001 04 23 | 704 | 0.1− | 0.9+ | 2006 11 09 | 644 | 0.3− | 0.3+ | 2009 10 26 | J75 | 0.0 | 0.4+ | | |
| 2001 04 23 | 704 | 0.4+ | 0.9+ | 2006 11 09 | 644 | 0.0 | 0.3+ | 2009 10 26 | J75 | 0.2+ | 0.5− | | |
| 2001 04 24 | 704 | 1.0− | 0.9− | 2006 11 13 | 644 | 0.0 | 0.1+ | 2009 12 13 | G96 | 0.7− | 0.3− | | |
| 2001 04 24 | 704 | (0.9+ | 1.9−) | 2006 11 13 | 644 | 0.2+ | 0.0 | 2009 12 13 | G96 | 0.1− | 0.1+ | | |
| 2001 04 24 | 704 | 1.1− | 1.1− | 2006 11 13 | 644 | 0.2− | 0.6+ | 2009 12 13 | G96 | 0.0 | 0.0 | | |
| 2001 04 24 | 704 | 0.3− | 0.2+ | 2006 11 15 | 691 | 0.2− | 0.2+ | 2009 12 13 | G96 | 0.5− | 0.0 | | |
| 2001 04 26 | 704 | 0.1+ | 0.1+ | 2006 11 15 | 691 | 0.3− | 0.2+ | | | | | | |

**(228405)∗ 2001 FL$_2$**

Discovered 2001 Mar. 18 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 347.43726 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.20545125 | $\omega$ | 5.56579 | | −0.25356526 | −0.95887621 | |
| $a$ | 2.8444406 | $\Omega$ | 99.17031 | | +0.88243938 | −0.28329693 | |
| $e$ | 0.1540189 | $i$ | 7.42162 | | +0.39623907 | +0.01729934 | |
| $P$ | 4.80 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 06 10 | 691 | 0.2+ | 0.4+ | 2001 03 19 | 704 | 1.1+ | 0.2− | 2006 02 24 | 644 | 0.1− | 0.2− | | |
| 1997 06 10 | 691 | (3.0+ | 3.7−) | 2001 03 19 | 704 | 0.4+ | 0.4+ | 2006 02 24 | 644 | 0.3− | 0.0 | | |
| 1997 06 10 | 691 | 0.0 | 0.7+ | 2001 03 19 | 704 | 0.0 | 0.3− | 2006 02 24 | 644 | 0.0 | 0.3− | | |
| 1997 06 27 | 691 | 0.2+ | 0.3+ | 2001 03 19 | 704 | (1.0+ | 2.3−) | 2006 02 24 | 644 | 0.2+ | 0.2− | | |
| 1997 06 27 | 691 | 0.0 | 0.1− | 2004 11 03 | 699 | 0.6+ | 1.4+ | 2006 02 24 | 644 | 0.3− | 0.1+ | | |
| 1997 06 27 | 691 | 0.1+ | 0.2− | 2004 11 03 | 699 | (2.2− | 1.9+) | 2006 02 24 | 644 | (0.1− | 1.9−) | | |
| 2001 02 02 | 699 | 0.1− | 0.5− | 2004 11 03 | 699 | 0.5+ | 0.2+ | 2006 02 24 | 644 | 0.2− | 0.1+ | | |
| 2001 02 02 | 699 | 0.1− | 0.8− | 2004 11 03 | 699 | (2.0− | 0.7+) | 2009 12 09 | J75 | 0.2+ | 0.2+ | | |
| 2001 02 02 | 699 | 0.4− | 1.1− | 2004 11 04 | 703 | 0.5− | 0.4− | 2009 12 09 | J75 | 0.0 | 0.1− | | |
| 2001 02 02 | 699 | 0.7− | 0.7+ | 2004 11 04 | 703 | 0.2+ | 0.2+ | 2009 12 09 | J75 | 0.5− | 0.7+ | | |
| 2001 02 16 | 704 | (1.8− | 0.7−) | 2004 11 04 | 703 | 0.4+ | 0.7− | 2009 12 11 | 704 | 0.3+ | 0.3− | | |
| 2001 02 16 | 704 | 0.7− | 0.0 | 2004 11 04 | 703 | 0.3+ | 0.5+ | 2009 12 11 | 704 | 0.4+ | 0.2− | | |
| 2001 02 16 | 704 | 0.0 | 0.3− | 2004 11 12 | 703 | 0.5− | 0.6− | 2009 12 11 | 704 | 0.3+ | 0.1− | | |
| 2001 02 16 | 704 | 0.6− | 0.1− | 2004 11 12 | 703 | 0.1+ | 0.4+ | 2009 12 11 | G96 | 0.2− | 0.2− | | |
| 2001 02 16 | 704 | 0.4+ | 0.2+ | 2004 11 12 | 703 | 0.3− | 0.0 | 2009 12 11 | G96 | 0.1− | 0.3− | | |
| 2001 03 04 | 704 | 0.5+ | 0.1− | 2004 11 12 | 703 | 0.2− | 0.6+ | 2009 12 11 | G96 | 0.0 | 0.3− | | |
| 2001 03 04 | 704 | 1.3+ | 0.8− | 2004 11 19 | 703 | 0.3+ | 0.7+ | 2009 12 11 | G96 | 0.0 | 0.3− | | |
| 2001 03 04 | 704 | 0.9+ | 0.5− | 2004 11 19 | 703 | 0.6+ | 0.6+ | 2009 12 13 | D39 | 0.5− | 0.0 | | |
| 2001 03 04 | 704 | 0.8− | 0.1− | 2004 11 19 | 703 | 0.1+ | 0.2− | 2009 12 13 | D39 | 0.5− | 0.1− | | |
| 2001 03 04 | 704 | 0.1− | 0.1− | 2004 11 19 | 703 | 0.1− | 0.8− | 2009 12 13 | D39 | 0.5− | 0.2+ | | |
| 2001 03 18 | 704 | 0.0 | 0.9+ | 2004 12 09 | 703 | 0.2− | 0.1+ | 2009 12 17 | 704 | 0.7+ | 0.4+ | | |
| 2001 03 18 | 704 | 0.6− | 0.9+ | 2004 12 09 | 703 | 0.2− | 0.7− | 2009 12 17 | 704 | 0.1+ | 0.0 | | |
| 2001 03 18 | 699 | 0.0 | 0.1− | 2004 12 09 | 703 | 0.3− | 1.0− | 2009 12 17 | 704 | 0.2− | 0.7+ | | |
| 2001 03 18 | 704 | 1.0− | 0.7− | 2004 12 09 | 703 | 0.2+ | 1.0− | 2009 12 17 | 704 | 0.1+ | 0.2+ | | |
| 2001 03 18 | 704 | 0.3− | 0.1+ | 2005 01 13 | 703 | 0.9− | 0.3+ | 2009 12 17 | 704 | 0.2+ | 1.0+ | | |
| 2001 03 18 | 704 | 0.0 | 0.3+ | 2005 01 13 | 703 | 0.3+ | 0.3+ | 2009 12 21 | 704 | 0.0 | 1.5+ | | |
| 2001 03 18 | 699 | 0.2+ | 0.4+ | 2005 01 13 | 703 | 0.5− | 0.3+ | 2009 12 21 | 704 | 0.2− | 0.1+ | | |
| 2001 03 18 | 699 | 0.4+ | 0.0 | 2005 01 13 | 703 | 0.6− | 0.7+ | 2009 12 21 | 704 | 0.1− | 0.2+ | | |
| 2001 03 18 | 699 | 0.7+ | 0.4+ | 2006 02 24 | 644 | 0.0 | 0.1− | 2009 12 21 | 704 | 0.1+ | 0.0 | | |
| 2001 03 19 | 704 | 0.4− | 1.0+ | 2006 02 24 | 644 | 0.1− | 0.1− | | | | | | |

**(228406)∗ 2001 FH$_{139}$**

Discovered 2001 Mar. 21 by NEAT at Haleakala.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 318.14526 | | (2000.0) | | | |
| $n$ | 0.19854579 | $\omega$ | 159.96585 | | −0.79665931 | −0.60438271 |
| $a$ | 2.9100175 | $\Omega$ | 342.84336 | | +0.55105465 | −0.72119200 |
| $e$ | 0.0149226 | $i$ | 1.44693 | | +0.24833992 | −0.33853159 |
| $P$ | 4.96 | $H$ | 16.2 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 10 16 | 691 | 0.1− | 0.5− | 2006 02 24 | 691 | 0.3+ | 0.7+ | 2008 10 03 | 291 | 0.2− | 0.2+ |
| 1998 10 16 | 691 | 0.3− | 0.3− | 2006 02 24 | 691 | 0.5+ | 0.6+ | 2008 10 03 | J75 | 0.3+ | 0.3+ |
| 1998 10 16 | 691 | 0.7− | 1.6− | 2006 02 24 | 691 | 0.3+ | 0.5+ | 2008 10 03 | J75 | 0.0 | 0.2− |
| 2001 03 21 | 608 | 0.5− | 0.4+ | 2006 03 02 | 691 | 0.0 | 0.2+ | 2008 10 03 | J75 | 0.7+ | 0.2− |
| 2001 03 21 | 608 | 0.2− | 0.4+ | 2006 03 02 | 691 | 0.4+ | 0.5+ | 2008 10 04 | J75 | 0.1− | 0.0 |
| 2001 03 21 | 608 | 0.3+ | 0.4+ | 2006 03 02 | 691 | 0.0 | 0.5+ | 2008 10 04 | J75 | 0.7+ | 0.1+ |
| 2001 03 23 | 699 | (1.2+ | 1.6+) | 2006 04 07 | G96 | 0.0 | 0.4+ | 2008 10 04 | J75 | 0.3+ | 0.4− |
| 2001 03 23 | 699 | 1.2− | 0.8+ | 2006 04 07 | G96 | 0.4− | 0.5+ | 2008 10 06 | 291 | 0.2− | 0.1+ |
| 2001 03 23 | 699 | 0.6+ | 1.3+ | 2006 04 07 | G96 | 0.2− | 0.1− | 2008 10 06 | 291 | 0.1− | 0.2+ |
| 2001 03 23 | 699 | 0.0 | 0.0 | 2006 04 07 | G96 | 0.5− | 0.4+ | 2008 10 06 | 291 | 0.1− | 0.1+ |
| 2001 03 27 | 691 | 0.2+ | 0.0 | 2006 05 03 | G96 | 0.3− | 0.0 | 2008 10 17 | 691 | 0.5− | 0.5+ |
| 2001 03 27 | 691 | 0.6+ | 0.4+ | 2006 05 03 | G96 | 0.2− | 0.2+ | 2008 10 17 | 691 | 0.2− | 0.3+ |
| 2001 03 27 | 691 | 0.7+ | 0.2+ | 2006 05 03 | G96 | 0.1+ | 0.0 | 2008 10 17 | 691 | 0.2− | 0.0 |
| 2003 09 18 | 691 | 0.5+ | 0.1+ | 2006 05 03 | G96 | 0.4− | 0.5+ | 2008 10 24 | G96 | 0.5+ | 0.3− |
| 2003 09 18 | 691 | 0.5+ | 0.2+ | 2008 08 24 | 691 | 0.3− | 0.1+ | 2008 10 24 | G96 | 0.3− | 0.3− |
| 2003 09 18 | 691 | 0.1− | 0.2− | 2008 08 24 | 691 | 0.4− | 0.5+ | 2008 10 24 | G96 | 0.5+ | 0.5− |
| 2003 09 22 | 644 | 0.0 | 0.3+ | 2008 08 24 | 691 | 0.4− | 0.5+ | 2008 10 24 | G96 | 1.3+ | 0.0 |
| 2003 09 22 | 644 | 0.1+ | 0.4+ | 2008 09 03 | 691 | 0.2− | 0.4+ | 2009 10 14 | G96 | 0.0 | 0.3+ |
| 2003 09 22 | 644 | 0.3+ | 0.2+ | 2008 09 03 | 691 | 0.0 | 0.6+ | 2009 10 14 | G96 | 0.6+ | 0.6+ |
| 2003 09 29 | 704 | 0.6+ | 1.0+ | 2008 09 03 | 691 | 0.1− | 0.4+ | 2009 10 14 | G96 | 0.3− | 0.1− |
| 2003 09 29 | 704 | 0.5+ | 0.4+ | 2008 09 19 | 691 | 0.3− | 0.3+ | 2009 10 14 | G96 | 0.1+ | 0.3+ |
| 2003 09 29 | 704 | 0.9− | 0.8+ | 2008 09 19 | 691 | 0.5− | 0.0 | 2009 12 17 | 691 | 0.5+ | 0.1+ |
| 2003 09 29 | 704 | 0.2− | 0.4+ | 2008 09 19 | 691 | 0.3− | 0.1+ | 2009 12 17 | 691 | 0.1+ | 0.0 |
| 2003 09 29 | 691 | 0.2+ | 0.4+ | 2008 10 01 | G96 | 0.2+ | 0.1+ | 2009 12 17 | 691 | 0.0 | 0.3+ |
| 2003 09 29 | 691 | 0.2+ | 0.4+ | 2008 10 01 | G96 | 0.1− | 0.1− | 2009 12 26 | 691 | 0.0 | 0.1− |
| 2003 09 29 | 691 | 0.3+ | 0.5+ | 2008 10 01 | G96 | 0.2+ | 0.0 | 2009 12 26 | 691 | 0.4− | 0.1− |
| 2003 10 24 | 704 | 0.6+ | 0.9+ | 2008 10 01 | G96 | 0.1− | 0.0 | 2009 12 26 | 691 | 0.4− | 0.5− |
| 2003 10 24 | 704 | 0.9+ | 1.3+ | 2008 10 03 | 291 | 0.4− | 0.2+ | | | | |
| 2003 10 24 | 704 | 0.4+ | 0.1+ | 2008 10 03 | 291 | 0.4− | 0.4+ | | | | |

**(228407)∗ 2001 FF$_{146}$**

Discovered 2001 Mar. 24 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 213.94178 | | (2000.0) | | | |
| $n$ | 0.18968968 | $\omega$ | 262.84223 | | −0.75266000 | +0.64990659 |
| $a$ | 2.9999009 | $\Omega$ | 317.61439 | | −0.52529655 | −0.68931513 |
| $e$ | 0.0430639 | $i$ | 9.00146 | | −0.39694643 | −0.32010323 |
| $P$ | 5.20 | $H$ | 14.6 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 03 24 | 699 | 0.9+ | 0.2+ | 2003 09 20 | 704 | 0.6− | 0.7+ | 2006 02 07 | 703 | 0.2+ | 0.8+ |
| 2001 03 24 | 699 | 0.9+ | 0.0 | 2003 09 20 | 704 | 0.2+ | 0.4+ | 2006 02 07 | 703 | 0.4− | 0.9+ |
| 2001 03 24 | 699 | 0.4+ | 1.0+ | 2003 09 30 | 699 | (1.4− | 1.9+) | 2006 02 26 | 704 | 1.5+ | 0.3+ |
| 2001 03 24 | 699 | 0.3+ | 0.8+ | 2003 09 30 | 699 | 1.1− | 0.4+ | 2006 02 26 | 704 | 0.8+ | 0.1+ |
| 2001 03 26 | 704 | 0.8+ | 0.5+ | 2003 09 30 | 699 | 0.3− | 0.2+ | 2006 02 26 | 704 | 0.5+ | 0.4+ |
| 2001 03 26 | 704 | 0.0 | 1.3+ | 2003 09 30 | 699 | 1.0+ | 0.7+ | 2006 02 26 | 704 | 0.3− | 1.0+ |
| 2001 03 26 | 704 | 0.2− | 0.8+ | 2003 09 30 | 704 | (2.0− | 1.3+) | 2006 03 09 | G96 | 0.3− | 0.2+ |
| 2001 03 26 | 704 | 0.7+ | 1.0+ | 2003 09 30 | 704 | (2.0− | 1.4+) | 2006 03 09 | G96 | 0.2− | 0.0 |
| 2001 03 26 | 704 | 0.7+ | 1.3+ | 2003 09 30 | 704 | 0.5− | 1.3+ | 2006 03 09 | G96 | 0.5− | 0.4− |
| 2001 03 29 | 608 | 0.1− | 0.1+ | 2003 10 15 | 644 | 0.4− | 0.5+ | 2006 03 09 | G96 | 0.3− | 0.1− |
| 2001 03 29 | 608 | 0.1− | 0.2+ | 2003 10 15 | 644 | 0.7− | 0.5+ | 2006 03 25 | 644 | 0.2+ | 0.2+ |
| 2001 03 29 | 608 | 0.1+ | 0.1+ | 2003 10 15 | 644 | 0.5− | 0.4+ | 2006 03 25 | 644 | 0.4+ | 0.2+ |
| 2001 04 25 | 608 | 0.0 | 0.1− | 2003 10 29 | 691 | 0.5− | 0.3+ | 2006 03 25 | 644 | 0.2− | 0.4+ |
| 2001 04 25 | 608 | 0.9+ | 0.1− | 2003 10 29 | 691 | 0.4− | 0.1+ | 2008 09 05 | 691 | 0.2− | 0.4+ |
| 2001 04 25 | 608 | 0.1+ | 0.3+ | 2003 10 29 | 691 | 0.2− | 0.2+ | 2008 09 05 | 691 | 0.2− | 0.4+ |
| 2003 09 04 | 599 | 0.2+ | 0.7− | 2005 12 04 | 691 | 0.2− | 0.1+ | 2008 09 05 | 691 | 0.1− | 0.0 |
| 2003 09 04 | 599 | 0.6− | 0.2− | 2005 12 04 | 691 | 0.0 | 0.1− | 2008 09 26 | G96 | 0.0 | 0.1+ |
| 2003 09 04 | 599 | 0.1+ | 0.0 | 2005 12 04 | 691 | 0.5− | 0.2+ | 2008 09 26 | G96 | 0.2+ | 0.1+ |
| 2003 09 04 | 599 | 0.2+ | 0.2+ | 2006 01 28 | G96 | 0.1− | 0.1− | 2008 09 26 | G96 | 0.1+ | 0.1+ |
| 2003 09 20 | 704 | 0.3+ | 0.4+ | 2006 01 28 | G96 | 0.5− | 0.1− | 2008 09 26 | G96 | 0.4+ | 0.2+ |
| 2003 09 20 | 704 | 0.4− | 0.9+ | 2006 01 28 | G96 | 0.1+ | 0.0 | 2009 11 23 | 704 | 0.9+ | 0.5+ |
| 2003 09 20 | 704 | 0.4− | 0.5+ | 2006 01 28 | G96 | 0.1− | 0.2− | 2009 11 23 | 704 | 0.1− | 0.6+ |
| 2003 09 20 | 704 | 0.6+ | 1.0+ | 2006 02 02 | 691 | 0.5+ | 0.0 | 2009 11 23 | 704 | 0.8+ | 1.4+ |
| 2003 09 20 | 704 | 0.2+ | 1.3+ | 2006 02 02 | 691 | 0.3+ | 0.1+ | 2009 12 18 | 703 | 0.7+ | 2.9− |
| 2003 09 20 | 704 | 0.5− | 0.0 | 2006 02 02 | 691 | 0.4+ | 0.1+ | 2009 12 18 | 703 | 1.0− | 0.8− |
| 2003 09 20 | 704 | 0.1− | 0.3− | 2006 02 07 | 703 | 0.4− | 0.9+ | 2009 12 18 | 703 | 0.1+ | 0.5− |
| 2003 09 20 | 704 | 0.0 | 0.1+ | 2006 02 07 | 703 | 1.1− | 0.4+ | 2009 12 18 | 703 | 0.7− | 0.0 |

**(228408)∗ 2001 FT$_{157}$**

Discovered 2001 Mar. 27 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 173.53320 | | (2000.0) | | | |
| $n$ | 0.29377579 | $\omega$ | 170.96637 | | −0.19356546 | +0.97414179 |
| $a$ | 2.2410870 | $\Omega$ | 87.81017 | | −0.90725692 | −0.13252575 |
| $e$ | 0.2002355 | $i$ | 6.69703 | | −0.37338626 | −0.18298825 |
| $P$ | 3.35 | $H$ | 16.7 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 03 04 | 608 | 0.3+ | 0.8− | 2004 01 18 | 644 | 0.3+ | 0.5+ | 2005 09 27 | 704 | 1.1− | 0.7− |
| 2001 03 04 | 608 | 0.0 | 0.3− | 2004 01 18 | 644 | 0.3+ | 0.2+ | 2005 09 27 | 704 | 0.2− | 0.6+ |
| 2001 03 04 | 608 | 0.0 | 0.1+ | 2004 01 18 | 644 | 0.6+ | 0.1+ | 2005 09 27 | 704 | 0.5− | 0.6+ |
| 2001 03 27 | 699 | 0.0 | 0.4+ | 2004 04 15 | 645 | 0.1+ | 0.1− | 2005 10 03 | 703 | (0.7− | 1.7+) |
| 2001 03 27 | 699 | 0.2− | 0.7+ | 2004 04 15 | 645 | 0.1+ | 0.0 | 2005 10 03 | 703 | 0.7+ | 0.4+ |
| 2001 03 27 | 699 | 0.4+ | 0.3+ | 2005 08 27 | 644 | 0.2− | 0.4+ | 2005 10 03 | 703 | 0.0 | 0.6− |
| 2001 03 27 | 699 | 0.1− | 0.6+ | 2005 08 27 | 644 | 0.1− | 0.3+ | 2005 10 03 | 703 | 0.1− | 1.1+ |
| 2001 03 29 | 608 | 0.0 | 1.0+ | 2005 08 27 | 644 | 0.1+ | 0.2+ | 2005 10 04 | 644 | 0.1+ | 0.2+ |
| 2001 03 29 | 608 | 0.2− | 1.1+ | 2005 09 03 | 703 | 0.3− | 0.7+ | 2005 10 04 | 644 | 0.1+ | 0.8+ |
| 2001 03 29 | 608 | 0.6− | 1.0+ | 2005 09 03 | 703 | 1.2+ | 1.2+ | 2005 10 04 | 644 | 0.1− | 0.3+ |
| 2001 04 15 | 704 | 0.3− | 0.2− | 2005 09 03 | 703 | 0.5− | 0.6+ | 2009 11 10 | 691 | 0.3− | 0.1+ |
| 2001 04 15 | 704 | 0.0 | 1.4+ | 2005 09 03 | 703 | 1.0+ | 0.1− | 2009 11 10 | 691 | 0.7+ | 0.8+ |
| 2001 04 15 | 704 | (0.2+ | 1.6+) | 2005 09 13 | 703 | 0.3− | 0.7+ | 2009 11 10 | 691 | 0.2− | 0.0 |
| 2001 04 15 | 704 | 0.9− | 1.4+ | 2005 09 13 | 703 | 0.3+ | 0.8− | 2009 11 18 | 691 | 0.2− | 0.0 |
| 2001 04 15 | 608 | 0.0 | 0.2+ | 2005 09 13 | 703 | 0.6− | 0.1− | 2009 11 18 | 691 | 0.1− | 0.4+ |
| 2001 04 15 | 608 | 0.0 | 0.2+ | 2005 09 13 | 703 | 0.4− | 0.5− | 2009 11 18 | 691 | 0.3− | 0.2− |
| 2001 04 15 | 608 | 0.0 | 0.5+ | 2005 09 24 | 644 | 0.2+ | 0.1+ | 2009 11 22 | 691 | 0.5− | 0.0 |
| 2001 04 23 | 699 | 0.3+ | 0.4+ | 2005 09 24 | 644 | 0.2+ | 0.1+ | 2009 11 22 | 691 | 0.5− | 0.1+ |
| 2001 04 23 | 699 | 0.6+ | 0.5+ | 2005 09 24 | 644 | 0.1+ | 0.4+ | 2009 11 22 | 691 | 0.1+ | 0.1− |
| 2001 04 23 | 699 | 0.0 | 0.2+ | 2005 09 26 | 703 | 0.5− | 0.2− | 2009 12 17 | G96 | 0.4+ | 0.4− |
| 2001 04 23 | 699 | (1.8+ | 0.4+) | 2005 09 26 | 703 | (1.8− | 0.1+) | 2009 12 17 | G96 | 0.3+ | 0.4− |
| 2001 04 24 | 608 | 0.4+ | 0.2− | 2005 09 26 | 703 | 0.0 | 0.8+ | 2009 12 17 | G96 | 0.5+ | 0.2− |
| 2001 04 24 | 608 | 0.7+ | 0.3− | 2005 09 26 | 703 | 0.1+ | 0.5− | 2009 12 17 | G96 | 0.0 | 0.8− |
| 2001 04 24 | 608 | 0.4+ | 0.5− | 2005 09 27 | 704 | 0.0 | 0.2− | | | | |

**(228409)∗ 2001 FM$_{184}$**

Discovered 2001 Mar. 26 by M. W. Buie at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 222.38195 | | (2000.0) | | | |
| $n$ | 0.19849715 | $\omega$ | 249.26470 | | −0.49690111 | +0.86728055 |
| $a$ | 2.9104928 | $\Omega$ | 350.76263 | | −0.70957762 | −0.42610612 |
| $e$ | 0.0608328 | $i$ | 10.85402 | | −0.49958872 | −0.25740634 |
| $P$ | 4.97 | $H$ | 15.0 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 02 22 | 704 | 0.0 | 0.7− | 2003 11 21 | 695 | 0.1− | 0.1+ | 2008 10 06 | 691 | 0.2− | 0.1− |
| 2001 02 22 | 704 | 0.4+ | 0.8− | 2006 01 05 | G96 | (1.6+ | 3.9−) | 2008 10 06 | 691 | 0.3− | 0.1+ |
| 2001 02 22 | 704 | 1.0+ | 0.2+ | 2006 01 05 | G96 | (1.6− | 0.6−) | 2008 10 07 | 291 | 0.1− | 0.2+ |
| 2001 02 22 | 704 | 0.3+ | 0.8− | 2006 01 05 | G96 | 0.9− | 0.1+ | 2008 10 07 | 291 | 0.2− | 0.1+ |
| 2001 03 26 | 695 | 0.1− | 0.2+ | 2006 01 05 | G96 | 0.2− | 0.3− | 2008 10 07 | 291 | 0.1− | 0.1+ |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 03 26 | 695 | 0.1+ | 0.3+ | 2006 02 20 | 703 | 0.3+ | 1.2− | 2008 10 08 | 691 | 0.2− | 0.2+ |
| 2001 04 01 | 704 | 0.3+ | 0.5+ | 2006 02 20 | 703 | 0.2− | 0.2− | 2008 10 08 | 691 | 0.0 | 0.2+ |
| 2001 04 01 | 704 | 0.3+ | 0.2+ | 2006 02 20 | 703 | 0.3− | 0.7+ | 2008 10 08 | 691 | 0.4− | 0.2+ |
| 2001 04 01 | 704 | 0.0 | 1.1+ | 2006 02 20 | 703 | 0.2− | 0.7+ | 2008 10 08 | 291 | 0.2− | 0.1+ |
| 2001 04 01 | 704 | 0.2− | 0.5− | 2006 02 20 | 691 | 0.5+ | 0.5+ | 2008 10 08 | 291 | 0.3− | 0.1+ |
| 2001 04 01 | 704 | 0.2− | 0.3+ | 2006 02 20 | 691 | 0.5+ | 0.4+ | 2008 10 08 | 291 | 0.2− | 0.1+ |
| 2003 09 19 | 699 | 1.2+ | 0.7+ | 2006 02 20 | 691 | 0.6+ | 0.4+ | 2008 10 26 | 704 | 0.1+ | 0.7+ |
| 2003 09 19 | 699 | 0.6− | 0.6− | 2006 02 24 | 704 | (1.6+ | 1.6+) | 2008 10 26 | 704 | 0.1− | 0.8+ |
| 2003 09 19 | 699 | 0.5− | 0.7− | 2006 02 24 | 704 | 1.4+ | 0.3+ | 2008 10 26 | 704 | 0.2+ | 1.0− |
| 2003 09 19 | 699 | 0.3− | 0.2+ | 2006 02 24 | 704 | 0.7+ | 0.1− | 2008 10 26 | 704 | 0.4+ | 1.0+ |
| 2003 09 20 | 608 | 0.4− | 0.1+ | 2006 02 24 | 704 | 0.7− | 0.0 | 2008 10 29 | G96 | 0.5+ | 0.0 |
| 2003 09 20 | 608 | 0.2+ | 0.4− | 2006 02 24 | G96 | 0.2− | 0.5− | 2008 10 29 | G96 | 0.5+ | 0.0 |
| 2003 09 20 | 608 | 0.1+ | 0.7− | 2006 02 24 | G96 | 0.3− | 0.1− | 2008 10 29 | G96 | 0.6+ | 0.2− |
| 2003 09 27 | 704 | 1.2− | 1.2+ | 2006 02 24 | G96 | 0.3− | 0.0 | 2008 10 29 | G96 | 0.1+ | 0.1− |
| 2003 09 27 | 704 | (1.9− | 0.3+) | 2006 02 24 | G96 | 0.6− | 0.2− | 2008 11 02 | 704 | 0.6+ | 0.6+ |
| 2003 09 27 | 704 | 0.5− | 0.7+ | 2006 02 25 | 691 | 0.1+ | 0.9+ | 2008 11 02 | 704 | (0.1+ | 2.8+) |
| 2003 09 27 | 704 | 0.5− | 0.9+ | 2006 02 25 | G96 | 0.5− | 0.2− | 2008 11 02 | 704 | 0.5+ | 0.9+ |
| 2003 09 27 | 704 | 1.0− | 0.2− | 2006 02 25 | 691 | 0.3+ | 0.6+ | 2008 11 02 | 704 | 0.3+ | 0.2− |
| 2003 09 28 | 699 | 1.4− | 0.9+ | 2006 02 25 | G96 | 0.3− | 0.1− | 2008 11 02 | 704 | 0.6+ | 0.4+ |
| 2003 09 28 | 699 | (1.6− | 0.8+) | 2006 02 25 | G96 | 0.2− | 0.2− | 2008 11 02 | 704 | 0.6+ | 0.8+ |
| 2003 09 28 | 699 | 0.9+ | 0.5+ | 2006 02 25 | G96 | 0.1+ | 0.0 | 2008 11 02 | 704 | 0.3+ | 1.0+ |
| 2003 09 28 | 699 | 1.4+ | 1.4+ | 2006 02 25 | 691 | 0.0 | 0.6+ | 2008 11 02 | 704 | 0.6+ | 0.1+ |
| 2003 10 17 | 699 | 0.7− | 0.2− | 2006 03 05 | 704 | 0.3+ | 0.5+ | 2008 11 06 | G96 | 0.1+ | 0.3− |
| 2003 10 17 | 699 | 0.9− | 0.9− | 2006 03 05 | 704 | 0.9+ | 0.4− | 2008 11 06 | G96 | 0.6+ | 0.3− |
| 2003 10 17 | 699 | 0.4+ | 0.2+ | 2006 03 05 | 704 | (0.4+ | 1.9+) | 2008 11 06 | G96 | 0.7+ | 0.5− |
| 2003 10 17 | 699 | 0.0 | 0.4− | 2008 09 23 | 691 | 0.2− | 0.1+ | 2008 11 06 | G96 | 0.3+ | 0.0 |
| 2003 10 21 | 704 | 0.8− | 0.1+ | 2008 09 23 | 691 | 0.2− | 0.2+ | 2009 09 24 | G96 | 0.3− | 1.1− |
| 2003 10 21 | 704 | 0.8+ | 1.0+ | 2008 09 23 | 691 | 0.5− | 0.1− | 2009 09 24 | G96 | 0.1− | 0.7− |
| 2003 10 21 | 704 | 1.2+ | 1.3− | 2008 10 01 | 704 | (0.8− | 1.7+) | 2009 09 24 | G96 | 0.1+ | 0.6− |
| 2003 10 21 | 704 | 0.3+ | 0.1− | 2008 10 01 | 704 | (1.0− | 1.8+) | 2009 09 24 | G96 | 0.0 | 0.2− |
| 2003 10 26 | 691 | 0.2− | 0.1+ | 2008 10 01 | 704 | 0.9+ | 1.0+ | 2009 12 20 | G96 | 0.2− | 0.9− |
| 2003 10 26 | 691 | 0.1− | 0.0 | 2008 10 01 | 704 | 0.7− | 0.1− | 2009 12 20 | G96 | 0.1− | 0.8− |
| 2003 10 26 | 691 | 0.1− | 0.0 | 2008 10 01 | 704 | 0.7− | 0.5+ | 2009 12 20 | G96 | 0.3− | 0.7− |
| 2003 11 21 | 695 | 0.0 | 0.1+ | 2008 10 06 | 691 | 0.1+ | 0.1− | 2009 12 20 | G96 | 0.2− | 0.9− |

**(228410)∗ 2001 HS$_{58}$**

Discovered 2001 Apr. 25 by NEAT at Haleakala.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 186.92408 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.29663517 | $\omega$ | 343.80669 | | −0.26229032 | | +0.95914758 |
| $a$ | 2.2266620 | $\Omega$ | 270.89395 | | −0.87318222 | | −0.28266951 |
| $e$ | 0.1467218 | $i$ | 6.08654 | | −0.41079996 | | −0.01157044 |
| $P$ | 3.32 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 04 15 | 608 | 0.3+ | 0.9− | 2005 09 23 | 644 | 0.3+ | 0.3+ | 2006 12 27 | G96 | 0.1− | 0.4− |
| 2001 04 15 | 608 | 0.1− | 0.7− | 2005 09 23 | 644 | 0.0 | 0.3+ | 2007 01 10 | G96 | 0.0 | 0.4+ |
| 2001 04 15 | 608 | 0.4− | 0.6− | 2005 09 24 | 703 | 0.7− | 0.2− | 2007 01 10 | G96 | 0.2− | 0.0 |
| 2001 04 25 | 608 | 0.0 | 0.5+ | 2005 09 24 | 703 | (0.2+ | 1.8−) | 2007 01 10 | G96 | 0.0 | 0.2+ |
| 2001 04 25 | 608 | 0.0 | 0.6+ | 2005 09 24 | 703 | 0.6− | 1.0− | 2007 02 11 | H55 | 0.4+ | 0.4+ |
| 2001 04 25 | 608 | 0.2+ | 0.7+ | 2005 09 24 | 703 | 0.4− | 0.7− | 2007 02 11 | H55 | 0.2− | 0.3+ |
| 2001 04 26 | 699 | 0.2+ | 0.3+ | 2005 10 01 | 703 | 0.3+ | 0.8− | 2007 02 11 | H55 | 0.4− | 0.2+ |
| 2001 04 26 | 699 | 0.3+ | 0.4+ | 2005 10 01 | 703 | 1.4− | 1.2+ | 2008 07 01 | 704 | 0.5− | 0.4− |
| 2001 04 26 | 699 | 0.1− | 0.7+ | 2005 10 01 | 703 | 0.2+ | 0.8+ | 2008 07 01 | 704 | 0.4+ | 0.7+ |
| 2001 04 26 | 699 | 0.2− | 0.6+ | 2005 10 01 | 703 | 0.4+ | 0.9+ | 2008 07 01 | 704 | 0.2+ | 0.4− |
| 2001 05 18 | 699 | 0.4+ | 0.6+ | 2005 10 08 | 704 | 0.1+ | 1.1+ | 2008 07 01 | 704 | 0.3+ | 0.1+ |
| 2001 05 18 | 699 | (1.8− | 0.1+) | 2005 10 08 | 704 | 0.8+ | 1.0+ | 2008 07 01 | 704 | 0.2− | 0.1− |
| 2001 05 18 | 699 | 0.3− | 0.1+ | 2005 10 08 | 704 | 0.2− | 0.5+ | 2009 11 21 | 691 | 0.3− | 0.2− |
| 2001 05 18 | 699 | (0.7+ | 2.9+) | 2005 10 08 | 704 | 0.6+ | 0.6+ | 2009 11 21 | 691 | 0.2− | 0.3− |
| 2005 08 29 | 644 | 0.1+ | 0.1+ | 2006 12 13 | 691 | 0.0 | 0.2+ | 2009 11 21 | 691 | 0.4− | 0.3− |
| 2005 08 29 | 644 | 0.0 | 0.0 | 2006 12 13 | 691 | 0.4+ | 0.1− | 2009 12 15 | G96 | 0.4+ | 0.5− |
| 2005 08 29 | 644 | 0.3+ | 0.1− | 2006 12 13 | 691 | 0.4+ | 0.7+ | 2009 12 15 | G96 | 0.3+ | 0.1+ |
| 2005 09 11 | 704 | 0.1− | 0.1− | 2006 12 26 | H07 | (0.7− | 2.6+) | 2009 12 15 | G96 | 0.2+ | 0.0 |
| 2005 09 11 | 704 | 0.3+ | 0.2− | 2006 12 26 | H07 | (0.1+ | 2.4+) | 2009 12 15 | G96 | 0.0 | 0.1+ |
| 2005 09 11 | 704 | 1.2− | 0.2+ | 2006 12 26 | H07 | (0.7− | 2.4+) | 2009 12 17 | H10 | 0.6+ | 0.4+ |
| 2005 09 11 | 704 | 0.5+ | 0.7− | 2006 12 27 | G96 | 0.2+ | 0.1− | 2009 12 17 | H10 | 0.3− | 0.0 |
| 2005 09 11 | 704 | 0.8− | 0.2+ | 2006 12 27 | G96 | 0.2+ | 0.1− | 2009 12 17 | H10 | 0.2+ | 0.4+ |
| 2005 09 23 | 644 | 0.2+ | 0.3+ | 2006 12 27 | G96 | 0.3− | 0.3− | | | | |

**(228411)∗ 2001 KQ$_{53}$ = 2009 WW$_{126}$**

Discovered 2001 May 18 by NEAT at Haleakala.

Id. G. V. Williams (*MPO* 165314)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 201.96545 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18007913 | $\omega$ | 166.62202 | | −0.48233274 | | +0.86908928 |
| $a$ | 3.1057068 | $\Omega$ | 74.44520 | | −0.81382184 | | −0.39822996 |
| $e$ | 0.1268240 | $i$ | 6.53981 | | −0.32411285 | | −0.29342242 |
| $P$ | 5.47 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 05 18 | 608 | 0.2− | 0.5+ | 2003 10 24 | 691 | 0.0 | 0.1+ | 2008 10 27 | G96 | 0.2− | 0.1+ |
| 2001 05 18 | 608 | 0.1− | 0.5− | 2003 10 24 | 691 | 0.4− | 0.1− | 2009 11 20 | 691 | 0.1− | 0.3+ |
| 2001 05 18 | 608 | 0.6+ | 0.2+ | 2005 01 19 | 691 | 0.4+ | 0.0 | 2009 11 20 | 691 | 0.6− | 0.2+ |
| 2001 05 21 | 704 | 1.1− | 0.4+ | 2005 01 19 | 691 | 0.1+ | 0.1+ | 2009 11 20 | 691 | 0.2− | 0.1− |
| 2001 05 21 | 704 | 0.4+ | 0.4+ | 2005 01 19 | 691 | 0.1− | 0.1− | 2009 11 24 | 691 | 0.0 | 0.0 |
| 2001 05 21 | 704 | 0.9+ | 1.2+ | 2006 03 22 | 703 | (0.0 | 2.1+) | 2009 11 24 | 691 | 0.3− | 0.2− |
| 2001 05 28 | 608 | 0.8+ | 0.0 | 2006 03 22 | 703 | 0.8− | 0.3+ | 2009 11 24 | 691 | 0.0 | 0.3+ |
| 2001 05 28 | 608 | 0.1− | 0.3+ | 2006 03 22 | 703 | 1.2+ | 0.7+ | 2009 12 10 | G96 | 0.1+ | 0.1+ |
| 2001 05 28 | 608 | 0.3+ | 0.5+ | 2006 03 22 | 703 | 0.5− | 0.0 | 2009 12 10 | G96 | 0.2− | 0.2+ |
| 2002 08 19 | 644 | 0.1+ | 0.1+ | 2008 10 03 | G96 | 0.4+ | 0.1+ | 2009 12 10 | G96 | 0.2+ | 0.0 |
| 2002 08 19 | 644 | 0.5− | 0.4+ | 2008 10 03 | G96 | 0.3+ | 0.1+ | 2009 12 10 | G96 | 0.2+ | 0.1− |
| 2002 08 19 | 644 | 0.4− | 0.3+ | 2008 10 03 | G96 | 0.2+ | 0.2+ | 2009 12 10 | 114 | 0.4− | 0.5+ |
| 2002 09 08 | 599 | 0.3− | 0.1− | 2008 10 03 | G96 | 0.6+ | 0.1− | 2009 12 10 | 114 | 0.2+ | 0.0 |
| 2002 09 08 | 599 | 0.3+ | 0.0 | 2008 10 27 | G96 | 0.0 | 0.5+ | 2009 12 10 | 114 | 0.0 | 0.1− |
| 2002 09 08 | 599 | 0.7− | 0.3+ | 2008 10 27 | G96 | 0.1+ | 0.2+ | 2009 12 10 | 114 | 1.1+ | 0.1− |
| 2003 10 24 | 691 | 0.3+ | 0.0 | 2008 10 27 | G96 | 0.3+ | 0.3+ | 2009 12 10 | 114 | 0.7+ | 0.8+ |

**(228412)∗ 2001 KD$_{79}$**

Discovered 2001 May 29 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 29.79385 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.24696992 | $\omega$ | 124.19590 | | +0.75423409 | | +0.65495135 |
| $a$ | 2.5159771 | $\Omega$ | 195.06718 | | −0.64583075 | | +0.72718920 |
| $e$ | 0.1538538 | $i$ | 10.32236 | | −0.11846343 | | +0.20551057 |
| $P$ | 3.99 | $H$ | 15.3 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 05 29 | 704 | 0.5− | 0.0 | 2005 10 08 | 704 | 1.5+ | 0.3+ | 2009 06 30 | D29 | 0.1− | 0.0 |
| 2001 05 29 | 704 | 0.2+ | 0.2+ | 2005 10 08 | 704 | 0.2+ | 0.6+ | 2009 06 30 | D29 | 0.0 | 0.5+ |
| 2001 05 29 | 704 | 0.3− | 0.2+ | 2008 02 12 | G96 | 0.3− | 0.7− | 2009 06 30 | D29 | 0.6− | 0.4− |
| 2001 05 29 | 704 | 0.3− | 0.5+ | 2008 02 12 | G96 | 0.4+ | 0.3− | 2009 06 30 | D29 | 0.7− | 0.0 |
| 2001 05 29 | 704 | 0.1− | 0.5− | 2008 02 12 | G96 | 0.1− | 0.1− | 2009 07 14 | J75 | 0.0 | 0.7+ |
| 2001 08 26 | 608 | 0.6+ | 0.1− | 2008 02 12 | G96 | 0.7+ | 0.1+ | 2009 07 14 | J75 | 0.4− | 0.1+ |
| 2001 08 26 | 608 | 0.2+ | 0.4− | 2008 03 09 | G96 | 0.2− | 0.2− | 2009 07 14 | J75 | 0.6− | 0.3+ |
| 2001 08 26 | 608 | 0.6+ | 0.7− | 2008 03 09 | G96 | 0.4− | 0.3− | 2009 07 17 | 704 | 0.7+ | 0.1− |
| 2001 10 14 | 704 | 0.7− | 0.6+ | 2008 03 09 | G96 | 0.2− | 0.2− | 2009 07 17 | 704 | 0.4+ | 0.4− |
| 2001 10 14 | 704 | 0.3− | 0.8+ | 2008 03 09 | G96 | 0.0 | 0.3− | 2009 07 17 | 704 | 0.6+ | 0.8− |
| 2001 10 14 | 704 | 0.9− | 0.4+ | 2008 03 10 | 704 | 0.3− | 0.3+ | 2009 07 17 | 704 | 0.6+ | 0.3− |
| 2001 10 14 | 704 | 0.3− | 0.5+ | 2008 03 10 | 704 | 0.3− | 1.2+ | 2009 07 17 | 704 | 0.9+ | 0.7− |
| 2004 03 20 | 704 | 0.3+ | 0.2+ | 2008 03 10 | 704 | 0.2+ | 1.1− | 2009 07 20 | J75 | 0.4− | 0.2+ |
| 2004 03 20 | 704 | 0.4+ | 1.0− | 2008 03 10 | 704 | 0.1+ | 0.8+ | 2009 07 20 | J75 | 0.1− | 0.4− |
| 2004 03 20 | 704 | 0.3+ | 0.4− | 2008 03 10 | 704 | 0.1− | 0.6+ | 2009 07 20 | J75 | (0.7− | 1.7+) |
| 2004 03 20 | 704 | 0.5− | 0.0 | 2008 03 15 | 704 | 0.5+ | 0.6+ | 2009 09 16 | G96 | 0.5− | 0.2+ |
| 2004 03 20 | 704 | 0.7+ | 0.0 | 2008 03 15 | 704 | 0.4− | 0.5+ | 2009 09 16 | G96 | 0.0 | 0.1+ |
| 2004 04 24 | 691 | 0.3+ | 0.2+ | 2008 03 15 | 704 | 0.3− | 0.7+ | 2009 09 16 | G96 | 0.1− | 0.1+ |
| 2004 04 24 | 691 | 0.2+ | 0.2+ | 2008 03 15 | 704 | 0.4+ | 0.4+ | 2009 09 16 | G96 | 0.5+ | 0.6+ |
| 2004 04 24 | 691 | 0.0 | 0.6+ | 2008 03 15 | 704 | 0.8+ | 0.8+ | 2009 10 09 | 704 | 0.2− | 1.0+ |
| 2005 06 03 | 703 | (1.7− | 0.6−) | 2008 03 28 | 704 | 0.5− | 0.3− | 2009 10 09 | 704 | 0.2− | 1.0+ |
| 2005 06 03 | 703 | 0.6− | 0.1+ | 2008 03 28 | 704 | 0.9+ | 0.1− | 2009 10 09 | 704 | 1.1+ | 0.6+ |
| 2005 06 03 | 703 | 0.5− | 0.0 | 2008 03 28 | 704 | (2.1+ | 0.3+) | 2009 10 09 | 704 | (0.2+ | 1.6+) |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 06 03 | 703 | 0.6+ | 0.3+ | 2008 03 28 | 704 | 0.8− | 0.2+ | 2009 10 09 | 704 | 0.1+ | 0.9+ | | |
| 2005 06 29 | 644 | 0.2− | 0.1− | 2008 04 09 | G96 | 0.4− | 0.2− | 2009 10 15 | 704 | 0.1+ | 0.1+ | | |
| 2005 06 29 | 644 | 0.2− | 0.0 | 2008 04 09 | G96 | 0.2− | 0.3− | 2009 10 15 | 704 | 0.0 | 1.1+ | | |
| 2005 06 29 | 644 | 0.1− | 0.0 | 2008 04 09 | G96 | 0.4− | 0.0 | 2009 10 15 | 704 | 0.2− | 0.7+ | | |
| 2005 06 30 | 703 | 0.4− | 0.2+ | 2008 04 09 | G96 | 0.1− | 0.3− | 2009 12 19 | G96 | 0.1+ | 0.5+ | | |
| 2005 06 30 | 703 | 0.6− | 0.1− | 2008 05 03 | G96 | 0.5− | 0.4− | 2009 12 19 | G96 | 0.7− | 0.0 | | |
| 2005 06 30 | 703 | 0.2− | 0.1− | 2008 05 03 | G96 | 0.4− | 0.3− | 2009 12 19 | G96 | 0.3+ | 0.0 | | |
| 2005 06 30 | 703 | 0.8− | 0.1+ | 2008 05 03 | G96 | 0.2− | 0.2− | 2009 12 19 | G96 | 0.1− | 0.1+ | | |
| 2005 08 21 | 608 | 0.4+ | 1.1− | 2008 05 03 | G96 | 0.1− | 0.1− | 2009 12 19 | G96 | 0.4− | 0.1+ | | |
| 2005 08 21 | 608 | 0.9+ | 0.4− | 2009 06 22 | G96 | 0.6− | 0.3− | 2009 12 19 | G96 | 0.3− | 0.1− | | |
| 2005 08 21 | 608 | 0.4+ | 1.3− | 2009 06 22 | G96 | 0.0 | 0.3− | 2009 12 19 | G96 | 0.1− | 0.3+ | | |
| 2005 10 08 | 704 | 1.3+ | 0.4− | 2009 06 22 | G96 | 0.1− | 0.1− | | | | | | |
| 2005 10 08 | 704 | 0.2− | 1.1+ | 2009 06 22 | G96 | 0.0 | 0.1− | | | | | | |

**(228413)∗ 2001 LU$_{17}$**

Discovered 2001 June 14 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 132.35233 | | (2000.0) | | | |
| $n$ | 0.27517027 | $\omega$ | 213.86636 | | +0.37224366 | +0.90677825 |
| $a$ | 2.3410016 | $\Omega$ | 78.68397 | | −0.80051799 | +0.42160788 |
| $e$ | 0.2827002 | $i$ | 11.64715 | | −0.46968671 | +0.00008040 |
| $P$ | 3.58 | $H$ | 16.4 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 06 14 | 644 | (1.0− | 2.7−) | 2008 04 06 | G96 | 0.0 | 0.1− | 2008 05 28 | 691 | 0.0 | 0.0 | | |
| 2001 06 14 | 644 | (1.1− | 2.5−) | 2008 04 06 | G96 | 0.3− | 0.2− | 2008 06 01 | 704 | 0.3+ | 0.4− | | |
| 2001 06 14 | 644 | (1.4− | 2.4−) | 2008 04 27 | 691 | 0.4+ | 0.5+ | 2008 06 01 | 704 | 0.2+ | 0.0 | | |
| 2001 06 25 | 644 | 0.5− | 0.2− | 2008 04 27 | 691 | 0.0 | 0.1+ | 2008 06 01 | 704 | 0.0 | 0.2− | | |
| 2001 06 25 | 644 | 0.6− | 0.5− | 2008 04 27 | 691 | 0.1+ | 0.1+ | 2008 06 01 | 704 | 0.4+ | 0.2− | | |
| 2001 06 25 | 644 | 0.2− | 0.3− | 2008 04 27 | 291 | 0.4+ | 0.0 | 2008 06 01 | 704 | (1.3+ | 1.5+) | | |
| 2001 06 30 | 644 | 0.2+ | 0.2+ | 2008 04 27 | 291 | 0.3+ | 0.0 | 2008 06 01 | 691 | 1.3− | 0.0 | | |
| 2001 06 30 | 644 | 0.2+ | 0.3+ | 2008 04 27 | 291 | 0.4+ | 0.1+ | 2008 06 01 | 691 | 0.1− | 0.2− | | |
| 2001 06 30 | 644 | 0.2+ | 0.4+ | 2008 05 01 | 704 | 0.9+ | 0.7+ | 2008 06 01 | 691 | 0.2− | 0.0 | | |
| 2002 12 07 | 695 | 0.5+ | 0.2+ | 2008 05 01 | 704 | (2.0+ | 0.1+) | 2008 06 03 | 691 | 0.2− | 0.0 | | |
| 2002 12 07 | 695 | 0.3+ | 0.5+ | 2008 05 01 | 704 | 0.7+ | 0.4+ | 2008 06 03 | 691 | 0.1− | 0.0 | | |
| 2004 01 28 | 645 | 0.0 | 0.0 | 2008 05 01 | 691 | 0.1+ | 0.1+ | 2008 06 03 | 691 | 0.0 | 0.0 | | |
| 2004 01 28 | 645 | 0.0 | 0.0 | 2008 05 01 | 704 | 0.5+ | 0.8+ | 2008 06 07 | 691 | 0.1+ | 0.1− | | |
| 2005 10 22 | 703 | 0.1+ | 0.7+ | 2008 05 01 | 704 | 0.4+ | 0.1− | 2008 06 07 | 691 | 0.0 | 0.3+ | | |
| 2005 10 22 | 703 | 0.5− | 0.2+ | 2008 05 01 | 691 | 0.1− | 0.0 | 2008 06 07 | 691 | 0.1− | 0.1− | | |
| 2005 10 22 | 703 | 0.0 | 0.5− | 2008 05 01 | 691 | 0.0 | 0.1+ | 2008 06 24 | E12 | 0.2+ | 0.2+ | | |
| 2005 10 22 | 703 | 0.5+ | 0.5− | 2008 05 05 | 691 | 0.1+ | 0.1− | 2008 06 24 | E12 | 0.1− | 0.1+ | | |
| 2005 10 22 | 644 | 0.3+ | 0.5+ | 2008 05 05 | 691 | 0.1− | 0.6− | 2008 06 24 | E12 | 0.1− | 0.2+ | | |
| 2005 10 22 | 644 | 0.0 | 0.5+ | 2008 05 05 | 691 | 0.0 | 0.0 | 2008 06 24 | E12 | 0.1+ | 0.5+ | | |
| 2005 10 22 | 644 | 0.0 | 0.5+ | 2008 05 08 | 704 | 0.3+ | 0.4− | 2008 07 01 | 704 | 0.2+ | 0.0 | | |
| 2005 11 03 | 703 | 1.0+ | 0.4+ | 2008 05 08 | 704 | (0.0 | 1.6+) | 2008 07 01 | 704 | 0.5+ | 0.0 | | |
| 2005 11 03 | 703 | 0.7+ | 0.0 | 2008 05 08 | 704 | 0.0 | 0.2+ | 2008 07 01 | 704 | 0.9+ | 0.0 | | |
| 2005 11 03 | 703 | 0.6− | 0.0 | 2008 05 08 | 704 | 0.1− | 0.5− | 2008 07 01 | 704 | 0.5+ | 0.6− | | |
| 2005 11 03 | 703 | 0.3− | 0.3− | 2008 05 08 | 704 | 0.5− | 0.7+ | 2009 11 16 | 691 | 1.1− | 0.9+ | | |
| 2005 11 09 | 703 | 0.5− | 0.8+ | 2008 05 13 | 704 | 0.3+ | 0.5+ | 2009 11 16 | 691 | 0.0 | 0.1− | | |
| 2005 11 09 | 703 | 0.0 | 0.8+ | 2008 05 13 | 704 | 1.0+ | 1.3+ | 2009 11 16 | 691 | 0.4− | 0.3+ | | |
| 2005 11 09 | 703 | 0.1− | 1.1+ | 2008 05 13 | 704 | 0.2+ | 0.4+ | 2009 12 10 | G96 | 0.0 | 0.1− | | |
| 2005 11 09 | 703 | 1.3− | 1.0+ | 2008 05 13 | 704 | (1.8+ | 1.0+) | 2009 12 10 | G96 | 0.0 | 0.1+ | | |
| 2008 03 06 | G96 | 0.1+ | 0.1+ | 2008 05 13 | 704 | 0.7− | 1.3+ | 2009 12 10 | G96 | 0.0 | 0.2+ | | |
| 2008 03 06 | G96 | 0.6− | 0.2− | 2008 05 28 | G96 | 0.2+ | 0.1+ | 2009 12 19 | G96 | 0.6+ | 0.4− | | |
| 2008 03 06 | G96 | 0.1− | 0.0 | 2008 05 28 | 691 | 0.2+ | 0.3+ | 2009 12 19 | G96 | 0.4+ | 0.2+ | | |
| 2008 03 06 | G96 | 0.9+ | 0.2+ | 2008 05 28 | G96 | 0.0 | 0.1+ | 2009 12 19 | G96 | 0.2+ | 0.3+ | | |
| 2008 04 06 | G96 | 0.3− | 0.3− | 2008 05 28 | G96 | 0.1− | 0.1+ | 2009 12 19 | G96 | 0.0 | 0.2− | | |
| 2008 04 06 | G96 | 0.1− | 0.2− | 2008 05 28 | 691 | 0.2− | 0.2+ | | | | | | |

**(228414)∗ 2001 MR$_{21}$ = 2005 TJ$_{77}$**

Discovered 2001 June 28 by NEAT at Palomar.

Id. G. V. Williams (*MPO* 88796)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 94.46916 | | (2000.0) | | | |
| $n$ | 0.26920393 | $\omega$ | 248.18109 | | +0.82030522 | +0.56889244 |
| $a$ | 2.3754640 | $\Omega$ | 77.09986 | | −0.49992130 | +0.76319002 |
| $e$ | 0.1988951 | $i$ | 3.45997 | | −0.27780935 | +0.30643496 |
| $P$ | 3.66 | $H$ | 17.6 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 06 28 | 644 | 0.4+ | 0.7+ | 2005 10 06 | 703 | 1.4− | 0.2+ | 2008 04 29 | 691 | 0.3− | 0.1− | | |
| 2001 06 28 | 644 | 0.7+ | 0.7+ | 2005 10 06 | 703 | 0.5− | 1.5+ | 2008 04 29 | 691 | 0.4− | 0.3− | | |
| 2001 06 28 | 644 | 0.5+ | 0.3+ | 2005 10 06 | 703 | (1.6+ | 0.7−) | 2008 05 03 | 691 | 0.1− | 0.2+ | | |
| 2001 06 30 | 644 | 0.1− | 0.3− | 2005 10 06 | 703 | 0.6+ | 0.1+ | 2008 05 03 | 691 | 0.1+ | 0.1+ | | |
| 2001 06 30 | 644 | 0.4− | 0.5− | 2005 10 08 | 691 | 0.0 | 0.0 | 2008 05 03 | 691 | 0.2+ | 0.3+ | | |
| 2001 06 30 | 644 | 0.5− | 0.5− | 2005 10 08 | 691 | 0.0 | 0.3+ | 2008 06 09 | 691 | 0.4+ | 0.2− | | |
| 2001 07 13 | 608 | 0.5+ | 0.8+ | 2005 10 08 | 691 | 0.1− | 0.0 | 2008 06 09 | 691 | 0.3− | 0.4− | | |
| 2001 07 13 | 608 | 0.4+ | 1.0+ | 2005 10 12 | 691 | 0.1− | 0.1− | 2008 06 09 | 691 | 0.1− | 0.5− | | |
| 2001 07 13 | 608 | 0.1+ | 0.8+ | 2005 10 12 | 691 | 0.0 | 0.1− | 2009 11 20 | 691 | 0.4− | 0.1− | | |
| 2001 07 20 | 644 | 0.8− | 0.8− | 2005 10 12 | 691 | 0.1− | 0.1− | 2009 11 20 | 691 | 0.1− | 0.0 | | |
| 2001 07 20 | 644 | 0.5− | 0.6− | 2005 10 22 | 703 | 0.2+ | 0.7− | 2009 11 20 | 691 | 0.1− | 0.1+ | | |
| 2001 07 20 | 644 | 0.4− | 0.3− | 2005 10 22 | 703 | 0.5− | 0.7− | 2009 11 24 | 691 | 0.1+ | 0.2− | | |
| 2005 09 23 | 691 | 0.1− | 0.2− | 2005 10 22 | 703 | 0.0 | 1.5− | 2009 11 24 | 691 | 0.1− | 0.1+ | | |
| 2005 09 23 | 691 | 0.1+ | 0.0 | 2005 10 22 | 703 | 0.0 | 0.1− | 2009 11 24 | 691 | 0.4− | 0.1− | | |
| 2005 09 23 | 691 | 0.1+ | 0.1− | 2005 10 26 | 691 | 0.0 | 0.2+ | 2009 12 10 | G96 | 0.9+ | 0.2− | | |
| 2005 09 29 | 691 | 0.0 | 0.1− | 2005 10 26 | 691 | 0.1+ | 0.4+ | 2009 12 10 | G96 | 0.7+ | 0.1+ | | |
| 2005 09 29 | 691 | 0.1+ | 0.1− | 2005 10 26 | 691 | 0.3+ | 0.1+ | 2009 12 10 | G96 | 0.9+ | 0.2− | | |
| 2005 09 29 | 691 | 0.2+ | 0.1− | 2008 04 29 | 691 | 0.3+ | 0.1+ | 2009 12 10 | G96 | 0.8+ | 0.2− | | |

**(228415)∗ 2001 NV$_4$ = 2006 KB$_{114}$**

Discovered 2001 July 13 by NEAT at Palomar.

Id. G. V. Williams (*MPO* 100027)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 229.19793 | | (2000.0) | | | |
| $n$ | 0.18121511 | $\omega$ | 307.05695 | | −0.20458930 | +0.97630662 |
| $a$ | 3.0927141 | $\Omega$ | 310.98349 | | −0.86582845 | −0.21408826 |
| $e$ | 0.1928091 | $i$ | 5.35777 | | −0.45660083 | −0.03148960 |
| $P$ | 5.44 | $H$ | 15.3 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 11 29 | 691 | 0.4+ | 0.2− | 2006 06 06 | E12 | 1.0+ | 0.6− | 2007 10 21 | G96 | 0.1− | 0.7− | | |
| 1997 11 29 | 691 | 0.5+ | 0.3+ | 2006 06 06 | E12 | 0.3+ | 0.3+ | 2007 10 21 | G96 | 0.5+ | 0.5− | | |
| 1997 11 29 | 691 | 0.3+ | 0.2− | 2006 06 06 | E12 | 0.9+ | 0.7+ | 2007 10 21 | G96 | 0.1− | 0.5− | | |
| 2001 07 13 | 644 | 0.3− | 0.8− | 2007 09 12 | 699 | (1.8− | 0.5−) | 2007 10 21 | G96 | 0.3+ | 0.6− | | |
| 2001 07 13 | 644 | 0.5− | 0.7− | 2007 09 12 | 699 | (1.8− | 0.8+) | 2008 10 21 | 691 | 1.0− | 0.7− | | |
| 2001 07 13 | 644 | 0.3− | 0.8− | 2007 09 12 | 699 | 1.0− | 0.6+ | 2008 10 21 | 691 | 0.2− | 0.1+ | | |
| 2001 07 14 | 644 | 0.1− | 0.2+ | 2007 09 12 | 699 | 0.6− | 0.4− | 2008 10 21 | 691 | 0.1− | 0.3− | | |
| 2001 07 14 | 644 | 0.1− | 0.8+ | 2007 09 14 | 704 | (0.3− | 1.5+) | 2008 10 25 | 691 | 0.3+ | 0.3+ | | |
| 2001 07 14 | 644 | 0.2+ | 0.2+ | 2007 09 14 | 704 | 0.7− | 0.6+ | 2008 10 25 | 691 | 0.2+ | 0.5− | | |
| 2001 07 14 | 644 | 0.0 | 0.3+ | 2007 09 14 | 704 | 0.0 | 1.2+ | 2008 10 25 | 691 | 0.1− | 0.1+ | | |
| 2001 07 14 | 644 | 0.4− | 0.3+ | 2007 09 14 | 704 | 0.6+ | 1.1+ | 2008 11 06 | 691 | 0.3− | 0.2+ | | |
| 2001 07 14 | 644 | 0.2+ | 0.4+ | 2007 09 15 | 683 | 1.3+ | 0.3− | 2008 11 06 | 691 | 0.0 | 0.5+ | | |
| 2001 07 17 | 644 | 0.5− | 0.6− | 2007 09 15 | 683 | 0.8− | 1.1+ | 2008 11 06 | 691 | 0.2− | 0.0 | | |
| 2001 07 17 | 644 | 1.2− | 0.8− | 2007 09 15 | 683 | (3.1− | 2.1+) | 2008 11 19 | 691 | 0.2+ | 0.0 | | |
| 2001 07 17 | 644 | 0.8− | 0.7− | 2007 10 08 | 699 | 0.3− | 0.8+ | 2008 11 19 | 691 | 0.0 | 0.1− | | |
| 2006 05 22 | E12 | 0.3+ | 0.0 | 2007 10 08 | 699 | 1.4− | 0.2+ | 2008 11 19 | 691 | 0.2+ | 0.1+ | | |
| 2006 05 22 | E12 | 0.3+ | 0.1+ | 2007 10 08 | 699 | 0.4+ | 0.4− | 2009 12 15 | G96 | 0.8− | 1.0+ | | |
| 2006 05 22 | E12 | 0.1− | 0.1− | 2007 10 08 | 699 | 0.4− | 0.2+ | 2009 12 15 | G96 | 0.8+ | 0.4+ | | |
| 2006 05 30 | E12 | 0.2+ | 0.0 | 2007 10 12 | 704 | 1.4+ | 1.2+ | 2009 12 15 | G96 | 0.1− | 0.4+ | | |
| 2006 05 30 | E12 | 0.2− | 0.4+ | 2007 10 12 | 704 | 1.3+ | 0.2+ | 2009 12 15 | G96 | 1.0+ | 0.3+ | | |
| 2006 05 30 | E12 | 0.1− | 0.6+ | 2007 10 12 | 704 | 0.1+ | 0.8+ | 2009 12 26 | 691 | 0.4− | 0.2+ | | |
| 2006 05 30 | E12 | 0.5+ | 0.2+ | 2007 10 12 | 704 | 0.1+ | 0.1− | 2009 12 26 | 691 | 0.0 | 0.4+ | | |
| 2006 06 06 | E12 | 0.2+ | 0.0 | 2007 10 12 | 704 | 0.3+ | 0.4+ | 2009 12 26 | 691 | 0.0 | 0.1+ | | |

**(228416)∗ 2001 OJ$_{57}$**

Discovered 2001 July 16 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 98.15693 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26588271 | $\omega$ | 0.95444 | | +0.70942111 | +0.70309360 | |
| $a$ | 2.3952048 | $\Omega$ | 314.23565 | | −0.64707789 | +0.62233339 | |
| $e$ | 0.2400364 | $i$ | 3.90521 | | −0.27930610 | +0.34403567 | |
| $P$ | 3.71 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 06 28 | 699 | 0.1− | 0.4− | 2001 09 17 | 699 | 0.6− | 0.5− | 2005 10 30 | 704 | 0.3+ | 0.4+ | |
| 2001 06 28 | 699 | 0.5+ | 0.0 | 2001 09 17 | 699 | 0.0 | 0.8− | 2005 10 30 | 704 | 0.0 | 0.0 | |
| 2001 06 28 | 699 | 0.2− | 0.4− | 2001 10 18 | 644 | 0.0 | 0.5+ | 2005 11 02 | 704 | (0.3− | 1.5−) | |
| 2001 06 28 | 699 | 0.8+ | 0.5− | 2001 10 18 | 644 | 0.2+ | 0.8+ | 2005 11 02 | 704 | 0.6− | 1.2− | |
| 2001 07 16 | 699 | 0.7− | 0.3+ | 2001 10 18 | 644 | 0.1− | 0.6+ | 2005 11 02 | 704 | 0.1− | 0.8− | |
| 2001 07 16 | 699 | 1.1− | 0.2+ | 2005 09 25 | 644 | 0.2+ | 0.2− | 2005 11 02 | 704 | 0.5− | 0.8− | |
| 2001 07 16 | 699 | 0.5− | 0.4+ | 2005 09 25 | 644 | 0.2− | 0.0 | 2005 11 02 | 704 | 0.1− | 1.5− | |
| 2001 07 16 | 699 | 0.2+ | 0.2+ | 2005 09 25 | 644 | 0.1+ | 0.2− | 2005 11 05 | 703 | 0.7− | 0.9− | |
| 2001 07 21 | 608 | 0.9− | 0.2− | 2005 09 30 | 703 | 0.8+ | 0.5− | 2005 11 05 | 703 | 0.0 | 0.0 | |
| 2001 07 21 | 608 | 0.6− | 0.0 | 2005 09 30 | 703 | 0.7+ | 0.9+ | 2005 11 05 | 703 | 0.4− | 0.5+ | |
| 2001 07 21 | 608 | 1.0− | 0.5− | 2005 09 30 | 703 | 0.5− | 0.2+ | 2005 11 05 | 703 | 0.1− | 0.4+ | |
| 2001 08 12 | 104 | 0.4− | 0.3+ | 2005 09 30 | 703 | 0.3+ | 0.2− | 2005 11 05 | 703 | 0.3− | 0.3− | |
| 2001 08 12 | 104 | 0.0 | 0.3− | 2005 10 03 | 704 | 0.4+ | 0.6+ | 2005 11 05 | 703 | 0.3+ | 0.2− | |
| 2001 08 12 | 104 | 0.3+ | 0.3+ | 2005 10 03 | 704 | 0.1− | 0.8+ | 2005 11 05 | 703 | 0.0 | 0.9− | |
| 2001 08 14 | 608 | 0.1+ | 0.5− | 2005 10 03 | 704 | 0.6− | 0.1+ | 2005 11 05 | 703 | 0.2+ | 0.6− | |
| 2001 08 14 | 608 | 0.4+ | 0.8− | 2005 10 03 | 704 | 0.3+ | 0.2+ | 2005 11 09 | 703 | 0.0 | 0.9+ | |
| 2001 08 14 | 608 | 0.1+ | 0.6− | 2005 10 08 | 704 | 0.4− | 1.0− | 2005 11 09 | 703 | 0.9+ | 0.5+ | |
| 2001 08 15 | 608 | 1.2+ | 0.8+ | 2005 10 08 | 704 | 0.0 | 0.4− | 2005 11 09 | 703 | 1.2+ | 0.0 | |
| 2001 08 15 | 608 | 1.2+ | 1.2+ | 2005 10 08 | 704 | 0.3+ | 0.6− | 2005 11 09 | 703 | 0.5+ | 0.3+ | |
| 2001 08 15 | 608 | 1.1+ | 0.6+ | 2005 10 08 | 704 | 0.4+ | 0.5− | 2006 12 21 | 695 | 0.2− | 0.5+ | |
| 2001 08 16 | 704 | 0.5+ | 0.2+ | 2005 10 08 | 704 | 0.6− | 0.6− | 2006 12 21 | 695 | 0.0 | 0.3+ | |
| 2001 08 16 | 704 | 0.0 | 0.0 | 2005 10 10 | 699 | 0.1+ | 0.0 | 2007 01 25 | 691 | 0.1− | 0.0 | |
| 2001 08 16 | 704 | 0.5+ | 0.3+ | 2005 10 10 | 699 | 1.1+ | 0.2− | 2007 01 25 | 691 | 0.3+ | 0.1+ | |
| 2001 08 16 | 704 | 0.4+ | 0.1+ | 2005 10 10 | 699 | 0.8+ | 0.5+ | 2007 01 25 | 691 | 0.0 | 0.4+ | |
| 2001 08 16 | 704 | (1.6+ | 1.2−) | 2005 10 10 | 699 | 0.4+ | 0.3+ | 2007 02 25 | G96 | 0.1− | 0.1+ | |
| 2001 08 18 | 704 | 0.4− | 0.9+ | 2005 10 13 | 704 | 0.1+ | 0.3− | 2007 02 25 | G96 | 0.1− | 0.2− | |
| 2001 08 18 | 704 | 0.3− | 1.2− | 2005 10 13 | 704 | 0.7− | 0.0 | 2007 02 25 | G96 | 0.2+ | 0.5− | |
| 2001 08 18 | 704 | 0.8− | 0.6+ | 2005 10 13 | 704 | 0.5− | 0.3+ | 2007 02 25 | G96 | 0.1− | 0.0 | |
| 2001 08 18 | 704 | 0.9− | 0.2+ | 2005 10 13 | 704 | 0.7+ | 0.1− | 2007 03 09 | G96 | 0.2− | 0.0 | |
| 2001 08 19 | 704 | 0.4− | 0.3+ | 2005 10 13 | 704 | 1.1− | 0.9+ | 2007 03 09 | G96 | 0.0 | 0.2+ | |
| 2001 08 19 | 704 | 0.1− | 0.5+ | 2005 10 14 | 699 | 0.9+ | 1.0− | 2007 03 09 | G96 | 0.0 | 0.2+ | |
| 2001 08 19 | 704 | 0.9+ | 0.1− | 2005 10 14 | 699 | 0.4− | 1.0− | 2007 03 09 | G96 | 0.2+ | 0.4− | |
| 2001 08 19 | 704 | 0.2+ | 0.3+ | 2005 10 14 | 699 | 0.2+ | 0.1+ | 2007 03 09 | G96 | 0.2+ | 0.1− | |
| 2001 08 19 | 704 | 0.3+ | 0.2− | 2005 10 14 | 699 | 0.7− | 0.4+ | 2007 03 09 | G96 | 0.0 | 0.1− | |
| 2001 08 25 | 106 | 0.4− | 0.2+ | 2005 10 23 | 644 | 0.4− | 0.2− | 2007 03 09 | G96 | 0.3+ | 0.1+ | |
| 2001 08 25 | 106 | 0.3− | 0.4− | 2005 10 23 | 644 | 0.2− | 0.2− | 2007 03 09 | G96 | 0.1+ | 0.2+ | |
| 2001 08 25 | 106 | 0.5− | 0.1− | 2005 10 23 | 644 | 0.4− | 0.1− | 2008 04 27 | 703 | 0.5− | 0.1− | |
| 2001 09 04 | 644 | 0.9+ | 0.1− | 2005 10 23 | 703 | 0.1− | 0.2+ | 2008 04 27 | 703 | 0.1− | 0.6+ | |
| 2001 09 04 | 644 | 0.4+ | 0.2+ | 2005 10 23 | 703 | 0.3− | 0.1+ | 2008 04 27 | 703 | 0.4+ | 0.2+ | |
| 2001 09 04 | 644 | 0.7+ | 0.1+ | 2005 10 23 | 703 | 0.2+ | 0.5+ | 2008 04 27 | 703 | 0.9+ | 0.1+ | |
| 2001 09 07 | 704 | 1.0− | 0.3− | 2005 10 23 | 703 | 0.4− | 0.2+ | 2009 12 09 | J75 | 0.6− | 0.5+ | |
| 2001 09 07 | 704 | 0.2− | 0.4+ | 2005 10 26 | 699 | 0.7+ | 1.2+ | 2009 12 09 | J75 | 0.4− | 0.4+ | |
| 2001 09 07 | 704 | 0.6− | 0.0 | 2005 10 26 | 699 | 0.0 | 0.5+ | 2009 12 09 | J75 | 0.6− | 0.3+ | |
| 2001 09 07 | 704 | 0.6− | 0.6− | 2005 10 26 | 699 | 0.7+ | 0.2− | 2009 12 10 | 704 | 0.4− | 1.5+ | |
| 2001 09 07 | 704 | 0.4− | 0.8− | 2005 10 29 | 703 | 0.3− | 0.5+ | 2009 12 10 | 704 | 0.1+ | 0.3+ | |
| 2001 09 08 | 699 | 0.1− | 0.6+ | 2005 10 29 | 703 | 0.2− | 0.5− | 2009 12 10 | 704 | 1.1− | 0.2+ | |
| 2001 09 08 | 699 | 0.1− | 0.5+ | 2005 10 29 | 703 | 0.3+ | 0.5− | 2009 12 15 | 704 | 0.7+ | 0.5− | |
| 2001 09 08 | 699 | 0.8− | 0.7+ | 2005 10 29 | 703 | 0.0 | 0.2− | 2009 12 15 | 704 | 0.8+ | 0.0 | |
| 2001 09 08 | 699 | 0.2− | 0.6+ | 2005 10 30 | 704 | 0.1+ | 0.0 | 2009 12 15 | 704 | 0.4− | 0.7+ | |
| 2001 09 17 | 699 | 0.4+ | 0.4− | 2005 10 30 | 704 | 0.9+ | 0.5+ | 2009 12 15 | 704 | 0.0 | 0.2+ | |
| 2001 09 17 | 699 | 0.9+ | 0.6+ | 2005 10 30 | 704 | 0.1+ | 0.7+ | | | | | |

**(228417)∗ 2001 OU$_{59}$ = 2005 UC$_{214}$**

Discovered 2001 July 21 by NEAT at Haleakala.

Id. G. V. Williams (*MPO* 88802)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 100.37691 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27422145 | $\omega$ | 50.21494 | | +0.95882091 | +0.27293946 | |
| $a$ | 2.3463985 | $\Omega$ | 293.81708 | | −0.27968822 | +0.85935743 | |
| $e$ | 0.2715430 | $i$ | 4.92416 | | −0.04936559 | +0.43244520 | |
| $P$ | 3.59 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 07 21 | 608 | 1.1+ | 1.2+ | 2005 11 02 | 704 | (0.2+ | 1.5+) | 2005 12 05 | 704 | 0.1+ | 0.3+ | |
| 2001 07 21 | 608 | 1.0+ | 1.2+ | 2005 11 02 | 704 | 0.0 | 0.0 | 2005 12 05 | 704 | 0.7+ | 0.5+ | |
| 2001 07 21 | 608 | 1.0+ | 1.1+ | 2005 11 02 | 704 | 0.4+ | 0.4− | 2005 12 05 | 704 | 0.6+ | 0.4+ | |
| 2001 07 21 | 608 | (1.9+ | 1.5+) | 2005 11 02 | 704 | 0.3+ | 0.1+ | 2005 12 05 | 704 | 0.3+ | 0.2− | |
| 2001 07 21 | 608 | 1.2+ | 1.3+ | 2005 11 02 | 704 | 0.4+ | 0.7− | 2005 12 05 | 704 | 0.1+ | 0.2+ | |
| 2001 07 21 | 608 | (1.7+ | 1.3+) | 2005 11 08 | 703 | 0.8+ | 0.6− | 2005 12 24 | 703 | 0.2− | 0.1− | |
| 2001 07 22 | 704 | 0.8− | 0.1− | 2005 11 08 | 703 | 1.0+ | 0.6− | 2005 12 24 | 703 | 0.8− | 0.0 | |
| 2001 07 22 | 704 | 0.0 | 0.3− | 2005 11 08 | 703 | 0.7− | 0.0 | 2005 12 24 | 703 | 0.0 | 0.4− | |
| 2001 07 22 | 704 | 0.8− | 0.6− | 2005 11 08 | 703 | 0.5+ | 0.2+ | 2005 12 24 | 703 | 0.2− | 0.5+ | |
| 2001 07 27 | 608 | 0.4− | 0.7− | 2005 11 21 | 644 | 0.1+ | 0.1− | 2005 12 29 | 704 | 1.1− | 0.1+ | |
| 2001 07 27 | 608 | 0.3− | 0.7− | 2005 11 21 | 644 | 0.0 | 0.1− | 2005 12 29 | 704 | 1.1− | 0.7− | |
| 2001 07 27 | 608 | 0.4− | 0.7− | 2005 11 21 | 644 | 0.1− | 0.1− | 2005 12 29 | 704 | 0.1+ | 0.1+ | |
| 2001 07 30 | 704 | 0.1− | 1.4− | 2005 11 28 | 704 | 0.2+ | 0.5+ | 2005 12 29 | 704 | 0.1− | 0.3+ | |
| 2001 07 30 | 704 | (0.1+ | 2.8−) | 2005 11 28 | 704 | 0.4− | 0.4+ | 2005 12 29 | 704 | 0.4− | 0.1− | |
| 2001 07 30 | 704 | (0.1− | 2.6−) | 2005 11 28 | 704 | 0.1− | 0.2+ | 2006 03 04 | G96 | 0.6− | 0.4+ | |
| 2001 07 30 | 704 | 0.7+ | 1.4− | 2005 11 28 | 704 | 0.4− | 0.4+ | 2006 03 04 | G96 | 0.1+ | 0.1− | |
| 2001 08 15 | 608 | 0.4− | 0.8− | 2005 11 28 | 704 | 0.4− | 0.7+ | 2006 03 04 | G96 | 0.2− | 0.1− | |
| 2001 08 15 | 608 | 0.3− | 0.6− | 2005 11 28 | 703 | 0.6− | 0.1− | 2006 03 04 | G96 | 0.0 | 0.3+ | |
| 2001 08 15 | 608 | 0.6− | 0.8− | 2005 11 28 | 703 | 0.5− | 0.3− | 2007 02 17 | G96 | 0.4+ | 0.1− | |
| 2001 08 16 | 704 | 0.1− | 0.4+ | 2005 11 28 | 703 | 0.8− | 0.4− | 2007 02 17 | G96 | 0.4− | 0.3− | |
| 2001 08 16 | 704 | 0.0 | 0.4+ | 2005 11 28 | 703 | 0.7− | 0.0 | 2007 02 17 | G96 | 0.1+ | 0.2− | |
| 2001 08 16 | 704 | 0.1− | 0.5+ | 2005 11 29 | 704 | 0.2− | 0.7+ | 2007 02 17 | G96 | 0.1− | 0.3− | |
| 2001 08 16 | 704 | 0.1− | 0.5+ | 2005 11 29 | 704 | 0.3+ | 0.2+ | 2009 09 17 | 691 | 0.4− | 0.0 | |
| 2001 08 16 | 704 | 0.5− | 0.1+ | 2005 11 29 | 704 | 0.3+ | 0.8+ | 2009 09 17 | 691 | 0.1− | 0.0 | |
| 2005 09 29 | 703 | 0.1− | 0.2+ | 2005 11 29 | 704 | 0.3+ | 0.1+ | 2009 09 17 | 691 | 0.2− | 0.2− | |
| 2005 09 29 | 703 | 0.1+ | 0.1+ | 2005 11 29 | 704 | 0.4− | 0.6+ | 2009 11 11 | G96 | 0.1− | 0.6− | |
| 2005 09 29 | 703 | 1.2+ | 0.3+ | 2005 11 29 | 704 | 0.3+ | 0.0 | 2009 11 11 | G96 | 0.1+ | 0.2− | |
| 2005 09 29 | 703 | 0.1+ | 0.5− | 2005 11 29 | 704 | 0.1− | 0.8+ | 2009 11 11 | G96 | 0.3+ | 0.4− | |
| 2005 10 23 | 644 | 0.1− | 0.3− | 2005 11 29 | 704 | 0.0 | 0.2+ | 2009 11 11 | G96 | 0.4+ | 0.2− | |
| 2005 10 23 | 644 | 0.1− | 0.2− | 2005 11 29 | 704 | 0.1+ | 0.3+ | 2009 12 15 | G96 | 0.1− | 0.3− | |
| 2005 10 23 | 644 | 0.1+ | 0.2+ | 2005 11 29 | 704 | 0.4+ | 0.3+ | 2009 12 15 | G96 | 0.0 | 0.4− | |
| 2005 10 27 | 644 | 0.2− | 0.4− | 2005 12 01 | 644 | 0.0 | 0.2− | 2009 12 15 | G96 | 0.3+ | 0.2− | |
| 2005 10 27 | 644 | 0.0 | 0.0 | 2005 12 01 | 644 | 0.1− | 0.1− | 2009 12 15 | G96 | 0.1+ | 0.2+ | |
| 2005 10 27 | 644 | 0.1− | 0.2− | 2005 12 01 | 644 | 0.0 | 0.3− | 2009 12 18 | 691 | 0.0 | 0.1− | |
| 2005 10 30 | 704 | 1.2+ | 0.5+ | 2005 12 02 | 704 | 0.6+ | 0.1− | 2009 12 18 | 691 | 0.5+ | 0.0 | |
| 2005 10 30 | 704 | 0.2− | 0.4+ | 2005 12 02 | 704 | 0.3− | 0.4− | 2009 12 18 | 691 | 0.1+ | 0.1− | |
| 2005 10 30 | 704 | 0.3− | 0.0 | 2005 12 02 | 704 | 0.1− | 0.4− | 2009 12 26 | 691 | 0.0 | 0.2+ | |
| 2005 10 30 | 704 | 0.2− | 0.4− | 2005 12 02 | 704 | 0.1+ | 0.2+ | 2009 12 26 | 691 | 0.4− | 0.2− | |
| 2005 10 30 | 704 | 0.2+ | 0.6− | 2005 12 02 | 704 | 0.1− | 0.8− | 2009 12 26 | 691 | 0.4− | 0.1− | |

**(228418)∗ 2001 OA$_{64}$**

Discovered 2001 July 23 by NEAT at Haleakala.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 98.85624 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27200732 | $\omega$ | 228.66158 | | +0.96180407 | +0.24759300 | |
| $a$ | 2.3591143 | $\Omega$ | 116.70382 | | −0.19542859 | +0.91971690 | |
| $e$ | 0.2256982 | $i$ | 7.50943 | | −0.19167835 | +0.30466133 | |
| $P$ | 3.62 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 07 12 | 691 | 0.1+ | 0.3+ | 2001 08 23 | 704 | 0.7+ | 0.1+ | 2005 11 09 | 703 | 0.5− | 0.6+ | |
| 1997 07 12 | 691 | 0.3+ | 0.3+ | 2001 08 23 | 699 | 0.5+ | 0.1+ | 2005 11 09 | 703 | 0.2+ | 0.2− | |
| 1997 07 12 | 691 | 0.1− | 1.0+ | 2001 08 23 | 704 | 0.2+ | 0.1+ | 2005 11 21 | 699 | 0.7− | 0.2− | |
| 2001 07 15 | 608 | 0.6− | 1.0− | 2001 08 23 | 699 | 0.1+ | 0.1+ | 2005 11 21 | 699 | 0.3− | 0.0 | |
| 2001 07 15 | 608 | 0.1+ | 0.8− | 2001 08 24 | 704 | 0.9− | 0.0 | 2005 11 21 | 699 | 0.2+ | 0.6+ | |
| 2001 07 15 | 608 | 0.4− | 0.4− | 2001 08 24 | 704 | 0.2− | 0.0 | 2005 11 26 | 703 | 0.8− | 0.9+ | |
| 2001 07 22 | 704 | (1.0− | 2.1+) | 2001 08 24 | 704 | 0.1− | 1.0− | 2005 11 26 | 703 | 0.2+ | 0.1− | |
| 2001 07 22 | 704 | (0.8− | 2.2+) | 2001 08 24 | 704 | 0.3+ | 0.8− | 2005 11 26 | 703 | 0.5− | 0.6− | |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 07 22 | 704 | 0.1− | 0.8+ | 2001 08 24 | 704 | 0.3+ | 1.1− | 2005 11 26 | 703 | 0.8+ | 0.0 |
| 2001 07 23 | 608 | 0.0 | 1.2− | 2001 08 27 | 608 | 0.2− | 0.4+ | 2005 11 29 | 644 | 0.3+ | 0.2+ |
| 2001 07 23 | 608 | 0.3− | 1.0− | 2001 08 27 | 608 | 0.2− | 0.5+ | 2005 11 29 | 644 | 0.4+ | 0.4+ |
| 2001 07 23 | 608 | 0.1+ | 1.1− | 2001 08 27 | 608 | 0.2− | 0.1− | 2005 11 29 | 644 | 0.2+ | 0.3+ |
| 2001 07 27 | 699 | 1.1+ | 0.1− | 2001 09 08 | 699 | 0.8− | 0.1+ | 2005 11 30 | 699 | 0.7+ | 0.1+ |
| 2001 07 27 | 699 | 0.8+ | 0.4− | 2001 09 08 | 699 | 0.3− | 0.3− | 2005 11 30 | 699 | 0.1− | 0.2− |
| 2001 07 27 | 699 | 0.8+ | 0.3+ | 2001 09 08 | 699 | 0.3− | 0.0 | 2005 11 30 | 699 | 0.1+ | 0.4+ |
| 2001 07 27 | 699 | 0.6+ | 0.1+ | 2001 09 08 | 699 | 0.5− | 0.2− | 2005 12 05 | 703 | 0.2− | 0.7+ |
| 2001 07 28 | 608 | 0.0 | 0.5+ | 2001 09 10 | 699 | (1.7− | 1.3−) | 2005 12 05 | 703 | 0.4− | 0.8+ |
| 2001 07 28 | 608 | 0.3+ | 0.1+ | 2001 09 10 | 699 | 0.3− | 0.5+ | 2005 12 05 | 703 | 0.6− | 0.1− |
| 2001 07 28 | 608 | 0.2+ | 0.1− | 2001 09 10 | 699 | (1.5+ | 1.6+) | 2005 12 05 | 703 | 0.7− | 0.4− |
| 2001 07 30 | 704 | 0.7+ | 0.4− | 2001 09 10 | 699 | 0.2+ | 1.3+ | 2005 12 07 | 704 | 0.1+ | 0.2− |
| 2001 07 30 | 704 | 0.8− | 0.5− | 2001 09 11 | 704 | 0.6+ | 0.3+ | 2005 12 07 | 704 | 0.4− | 0.5+ |
| 2001 07 30 | 704 | (1.8+ | 2.3−) | 2001 09 11 | 704 | 0.6+ | 0.4− | 2005 12 07 | 704 | 0.6− | 0.2− |
| 2001 07 30 | 704 | (0.7+ | 2.4−) | 2001 09 11 | 704 | 0.4+ | 0.2− | 2005 12 07 | 704 | 0.3− | 0.4+ |
| 2001 07 30 | 704 | (0.7− | 2.1−) | 2001 09 11 | 704 | 0.8+ | 0.2− | 2005 12 07 | 704 | 0.7− | 0.9+ |
| 2001 08 14 | 608 | 0.2− | 1.3+ | 2001 09 11 | 704 | 0.8+ | 1.3− | 2005 12 21 | 291 | 0.4+ | 0.1+ |
| 2001 08 14 | 608 | 0.1− | 1.3+ | 2004 05 23 | 704 | (1.5+ | 1.7+) | 2005 12 21 | 291 | 0.2+ | 0.0 |
| 2001 08 14 | 608 | 0.2− | 1.2+ | 2004 05 23 | 704 | (0.5+ | 2.2+) | 2005 12 21 | 291 | 0.3+ | 0.2+ |
| 2001 08 16 | 704 | 0.6+ | 0.3+ | 2005 10 24 | 644 | 0.0 | 0.0 | 2006 01 31 | G96 | 0.0 | 0.1− |
| 2001 08 16 | 704 | 0.0 | 0.1− | 2005 10 24 | 644 | 0.2+ | 0.0 | 2006 01 31 | G96 | 0.0 | 0.1+ |
| 2001 08 16 | 704 | 0.1− | 0.1+ | 2005 10 24 | 644 | 0.0 | 0.1− | 2006 01 31 | G96 | 0.0 | 0.2− |
| 2001 08 16 | 704 | 0.2+ | 0.9− | 2005 10 26 | 699 | 0.4− | 0.3− | 2007 02 26 | G96 | 0.3+ | 0.3− |
| 2001 08 16 | 704 | 0.7− | 0.0 | 2005 10 26 | 699 | 0.4− | 0.3− | 2007 02 26 | G96 | 0.3+ | 0.4− |
| 2001 08 18 | 704 | 0.2− | 1.0− | 2005 10 26 | 699 | 0.3− | 0.3+ | 2007 02 26 | G96 | 0.5+ | 0.6− |
| 2001 08 18 | 704 | 0.2− | 0.6+ | 2005 10 26 | 699 | 0.2+ | 0.6+ | 2007 02 26 | G96 | 0.1+ | 0.9− |
| 2001 08 18 | 704 | 0.6− | 0.4+ | 2005 10 27 | 703 | 0.1+ | 0.1− | 2009 09 18 | 691 | 0.2− | 0.2+ |
| 2001 08 18 | 704 | 0.0 | 0.1+ | 2005 10 27 | 703 | 0.5+ | 0.0 | 2009 09 18 | 691 | 0.1− | 0.1+ |
| 2001 08 19 | 704 | 0.6− | 0.1+ | 2005 10 27 | 703 | 1.0− | 0.2− | 2009 09 18 | 691 | 0.1+ | 0.2− |
| 2001 08 19 | 704 | 0.4− | 0.5− | 2005 10 27 | 703 | 0.6− | 0.2− | 2009 12 18 | 691 | 0.2− | 0.1+ |
| 2001 08 19 | 704 | 0.2− | 0.1− | 2005 11 03 | 703 | 0.4− | 0.0 | 2009 12 18 | 691 | 0.2− | 0.0 |
| 2001 08 19 | 704 | 0.8− | 0.2− | 2005 11 03 | 703 | 0.4− | 0.1+ | 2009 12 18 | G96 | 0.0 | 0.1− |
| 2001 08 19 | 704 | 0.2− | 0.6− | 2005 11 03 | 703 | 0.3+ | 0.2+ | 2009 12 18 | G96 | 0.3+ | 0.1− |
| 2001 08 22 | 608 | 0.1+ | 1.1− | 2005 11 03 | 703 | 0.3+ | 0.3− | 2009 12 18 | 691 | 0.0 | 0.1− |
| 2001 08 22 | 608 | 0.0 | 0.7− | 2005 11 05 | 704 | 0.2+ | 0.6− | 2009 12 18 | G96 | 0.2+ | 0.2− |
| 2001 08 22 | 608 | 0.2− | 0.6− | 2005 11 05 | 704 | 0.2+ | 1.0+ | 2009 12 18 | G96 | 0.0 | 0.2− |
| 2001 08 23 | 704 | 0.9+ | 0.0 | 2005 11 05 | 704 | 0.5+ | 0.6+ | 2009 12 26 | 691 | 0.2+ | 2.2− |
| 2001 08 23 | 704 | 0.0 | 0.2− | 2005 11 05 | 704 | 0.0 | 0.5+ | 2009 12 26 | 691 | 0.2− | 0.1+ |
| 2001 08 23 | 699 | 0.4+ | 0.6− | 2005 11 05 | 704 | 0.3+ | 1.0+ | 2009 12 26 | 691 | 0.1− | 0.4− |
| 2001 08 23 | 704 | 0.3+ | 0.1+ | 2005 11 09 | 703 | 0.5− | 0.6+ | | | | |
| 2001 08 23 | 699 | 0.3+ | 0.3− | 2005 11 09 | 703 | 0.2− | 0.7+ | | | | |

**(228419)∗ 2001 OV$_{65}$**

Discovered 2001 July 22 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 90.07753 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26455108 | $\omega$ | 17.84816 | | +0.90875334 | +0.39428376 | |
| $a$ | 2.4032357 | $\Omega$ | 318.08792 | | −0.40350556 | +0.74644698 | |
| $e$ | 0.2888362 | $i$ | 11.81532 | | −0.10653934 | +0.53605711 | |
| $P$ | 3.73 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 03 27 | 691 | 0.4− | 0.5− | 2001 09 11 | 699 | 0.2+ | 0.2− | 2005 09 01 | 704 | 0.8− | 0.9− |
| 1996 03 27 | 691 | 0.2− | 0.5− | 2001 09 11 | 699 | 0.7+ | 0.1− | 2005 09 01 | 704 | 0.9− | 0.9+ |
| 1996 03 27 | 691 | 0.4− | 0.3− | 2001 09 11 | 699 | 0.7+ | 0.4− | 2005 09 01 | 704 | 0.3− | 0.5+ |
| 2001 07 05 | 608 | 0.0 | 0.4− | 2001 09 11 | 699 | 0.6+ | 0.3− | 2005 09 01 | 704 | 0.3− | 0.0 |
| 2001 07 05 | 608 | 0.1+ | 0.6− | 2001 09 13 | 644 | 0.4− | 0.2− | 2005 11 11 | 704 | 0.0 | 0.6− |
| 2001 07 05 | 608 | 0.4− | 0.0 | 2001 09 13 | 644 | 0.4− | 0.3− | 2005 11 11 | 704 | 0.2+ | 0.6− |
| 2001 07 19 | 699 | 0.4− | 0.9+ | 2001 09 13 | 644 | 0.4− | 0.3− | 2005 11 11 | 704 | 0.7+ | 0.1+ |
| 2001 07 19 | 699 | 0.5− | 0.3+ | 2001 09 17 | 704 | (0.1− | 2.6−) | 2005 11 11 | 704 | 0.0 | 0.6− |
| 2001 07 19 | 699 | 0.4− | 0.6+ | 2001 09 17 | 704 | (0.1− | 2.7−) | 2005 11 11 | 704 | 0.8+ | 0.4+ |
| 2001 07 19 | 699 | 0.3− | 0.6+ | 2001 09 17 | 704 | (0.1+ | 3.0−) | 2005 11 26 | 704 | 0.6− | 0.7+ |
| 2001 07 22 | 704 | 0.5+ | 0.2+ | 2001 09 18 | 699 | 0.1− | 0.4− | 2005 11 26 | 704 | 0.3− | 0.5+ |
| 2001 07 22 | 704 | 0.6− | 0.0 | 2001 09 18 | 699 | 0.1+ | 0.4− | 2005 11 26 | 704 | 0.4+ | 0.1+ |
| 2001 07 22 | 704 | 0.2+ | 0.4+ | 2001 09 18 | 699 | 0.2− | 0.3− | 2005 11 26 | 704 | 0.2− | 0.9+ |
| 2001 07 22 | 704 | 0.1+ | 0.2+ | 2001 09 18 | 699 | 0.3− | 0.6− | 2005 12 04 | 703 | (1.9+ | 0.8−) |
| 2001 07 29 | 704 | 0.1− | 1.0+ | 2001 09 21 | 699 | 0.4+ | 0.1− | 2005 12 04 | 703 | 0.1− | 0.6− |
| 2001 07 29 | 704 | 0.1+ | 0.3+ | 2001 09 21 | 699 | 0.4+ | 0.1− | 2005 12 04 | 703 | 0.3+ | 0.6+ |
| 2001 07 29 | 704 | 0.2− | 0.5+ | 2001 09 21 | 699 | 0.5+ | 0.2− | 2005 12 04 | 703 | 0.7+ | 0.2+ |
| 2001 07 29 | 704 | 0.3+ | 0.8+ | 2001 09 21 | 699 | 0.4+ | 0.1− | 2005 12 24 | 704 | 0.4+ | 0.5+ |
| 2001 07 29 | 704 | 0.1− | 0.8+ | 2001 09 25 | 644 | 0.1+ | 0.6+ | 2005 12 24 | 704 | 0.4− | 0.3− |
| 2001 08 03 | 608 | 1.0− | 0.2+ | 2001 09 25 | 644 | 0.4+ | 0.7+ | 2005 12 24 | 704 | 0.6− | 0.0 |
| 2001 08 03 | 608 | 0.9− | 0.3+ | 2001 09 25 | 644 | 0.1− | 0.6+ | 2005 12 24 | 704 | 0.2− | 0.9+ |
| 2001 08 03 | 608 | 0.8− | 0.2− | 2001 10 06 | 644 | 0.1+ | 0.4− | 2005 12 24 | 704 | 0.3− | 0.3− |
| 2001 08 17 | 704 | 0.1− | 0.3+ | 2001 10 06 | 644 | 0.0 | 0.2− | 2007 02 09 | 691 | 0.6+ | 0.4+ |
| 2001 08 17 | 704 | 0.2+ | 0.2+ | 2001 10 06 | 644 | 0.0 | 0.1− | 2007 02 09 | 691 | 0.5+ | 0.0 |
| 2001 08 17 | 704 | 0.3+ | 0.1+ | 2001 11 13 | 704 | 0.2+ | 0.1+ | 2007 02 09 | 691 | 0.2− | 1.2+ |
| 2001 08 17 | 704 | 0.2− | 0.3− | 2001 11 13 | 704 | 0.0 | 0.1+ | 2007 03 16 | G96 | 0.4+ | 0.0 |
| 2001 08 17 | 704 | 0.1+ | 0.2+ | 2001 11 13 | 704 | 1.2+ | 1.2− | 2007 03 16 | G96 | 0.5+ | 0.2+ |
| 2001 08 21 | 704 | 0.1+ | 0.3− | 2001 11 17 | 704 | 0.3+ | 0.2+ | 2007 03 16 | G96 | 0.1− | 0.3+ |
| 2001 08 21 | 704 | 0.1+ | 0.1+ | 2001 11 17 | 704 | 0.2+ | 0.2+ | 2007 03 16 | G96 | 0.3+ | 0.1+ |
| 2001 08 21 | 704 | 0.2− | 0.4− | 2001 11 17 | 704 | 0.3− | 0.1+ | 2009 09 24 | G96 | 0.2+ | 0.0 |
| 2001 08 25 | 704 | 0.2− | 0.4− | 2001 11 17 | 704 | 0.0 | 0.7+ | 2009 09 24 | G96 | 0.3− | 0.3− |
| 2001 08 25 | 704 | 0.2− | 0.3− | 2001 11 19 | 644 | 0.3+ | 0.1+ | 2009 09 24 | G96 | 0.5+ | 0.4+ |
| 2001 08 25 | 704 | 0.6− | 0.3− | 2001 11 19 | 644 | 0.4+ | 0.1+ | 2009 09 24 | G96 | 0.6− | 0.0 |
| 2001 08 25 | 704 | 0.1− | 0.4− | 2001 11 19 | 644 | 0.5+ | 0.3+ | 2009 12 20 | G96 | 0.8− | 0.3+ |
| 2001 08 25 | 704 | 0.2− | 0.3− | 2001 12 11 | 704 | 0.7+ | 0.1+ | 2009 12 20 | G96 | 0.9+ | 0.3+ |
| 2001 09 09 | 644 | 0.4− | 0.1− | 2001 12 11 | 704 | 0.3− | 0.1+ | 2009 12 20 | G96 | 0.1− | 0.0 |
| 2001 09 09 | 644 | 0.4− | 0.0 | 2001 12 11 | 704 | 0.6+ | 0.5− | 2009 12 20 | G96 | 0.2− | 0.0 |
| 2001 09 09 | 644 | 0.3− | 0.1+ | 2001 12 11 | 704 | 0.9+ | 0.1− | | | | |

**(228420)∗ 2001 ON$_{80}$**

Discovered 2001 July 29 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 68.38345 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26549467 | $\omega$ | 269.04142 | | +0.94910410 | −0.30839955 | |
| $a$ | 2.3975381 | $\Omega$ | 108.91920 | | +0.30912896 | +0.87321049 | |
| $e$ | 0.2005653 | $i$ | 3.87699 | | +0.06033819 | +0.37735018 | |
| $P$ | 3.71 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 07 29 | 644 | 0.8− | 0.1+ | 2005 11 03 | 704 | 0.0 | 0.4− | 2005 12 02 | 704 | 0.7+ | 0.2+ |
| 2001 07 29 | 644 | 0.9− | 0.2+ | 2005 11 03 | 703 | 0.4+ | 0.2− | 2005 12 02 | 704 | 0.1− | 0.2− |
| 2001 07 29 | 644 | 1.3− | 0.3+ | 2005 11 03 | 703 | 0.8− | 0.2− | 2005 12 02 | 704 | 0.2− | 0.4+ |
| 2001 07 31 | 644 | 0.1+ | 0.6+ | 2005 11 03 | 704 | 1.3+ | 0.5− | 2005 12 02 | 704 | 0.0 | 0.6+ |
| 2001 07 31 | 644 | 0.1− | 0.3+ | 2005 11 03 | 703 | 0.5− | 0.5− | 2005 12 02 | 704 | 0.4+ | 0.2+ |
| 2001 07 31 | 644 | 0.0 | 0.6+ | 2005 11 03 | 703 | 1.2− | 0.2+ | 2005 12 07 | 704 | 0.3− | 0.2− |
| 2001 08 05 | 608 | 0.0 | 0.1+ | 2005 11 03 | 704 | (2.2+ | 0.4−) | 2005 12 07 | 704 | 0.2− | 0.7+ |
| 2001 08 05 | 608 | 0.0 | 0.0 | 2005 11 03 | 704 | (1.8+ | 0.5+) | 2005 12 07 | 704 | 0.1− | 1.3+ |
| 2001 08 05 | 608 | 0.5− | 0.3− | 2005 11 03 | 704 | 1.0+ | 0.2+ | 2005 12 07 | 704 | 0.5− | 0.3− |
| 2001 08 05 | 608 | 0.7− | 0.0 | 2005 11 03 | G96 | 0.1− | 0.3− | 2005 12 08 | 704 | 0.2+ | 0.4+ |
| 2001 08 05 | 608 | 0.4− | 0.3+ | 2005 11 03 | G96 | 0.1− | 0.3− | 2005 12 08 | 704 | 1.1+ | 0.0 |
| 2001 08 05 | 608 | 0.0 | 0.2+ | 2005 11 03 | G96 | 0.2− | 0.3− | 2005 12 08 | 704 | 0.2+ | 0.5− |
| 2001 08 25 | 699 | 0.3+ | 1.1+ | 2005 11 03 | G96 | 0.6− | 0.2+ | 2005 12 08 | 704 | 0.6+ | 0.3− |
| 2001 08 25 | 699 | 0.1− | 0.0 | 2005 11 03 | G96 | 0.2− | 0.4+ | 2005 12 08 | 704 | 0.2+ | 0.1+ |
| 2001 08 25 | 699 | 0.2+ | 0.3+ | 2005 11 03 | G96 | 0.3+ | 0.4+ | 2005 12 24 | 703 | (1.6− | 1.1−) |
| 2001 08 25 | 699 | 0.6+ | 1.0+ | 2005 11 03 | G96 | 0.7+ | 0.6+ | 2005 12 24 | 703 | 1.1− | 0.3+ |
| 2001 09 12 | 704 | 0.2+ | 0.0 | 2005 11 03 | G96 | 0.2+ | 0.4− | 2005 12 24 | 703 | 1.0− | 0.4− |
| 2001 09 12 | 704 | 0.0 | 0.2+ | 2005 11 06 | 704 | 0.2− | 0.3− | 2005 12 24 | 703 | 0.3− | 1.0+ |
| 2001 09 12 | 704 | 0.1− | 0.1− | 2005 11 06 | 704 | 0.5− | 0.2+ | 2005 12 29 | G96 | 0.1− | 0.4− |
| 2001 09 12 | 704 | 0.1+ | 0.1+ | 2005 11 06 | 704 | 0.5− | 0.3− | 2005 12 29 | G96 | 0.1+ | 0.5− |
| 2001 09 12 | 704 | 0.2− | 0.1− | 2005 11 06 | 704 | 0.5− | 0.7+ | 2005 12 29 | G96 | 0.1− | 0.4− |
| 2001 09 19 | 704 | 0.3+ | 0.3− | 2005 11 06 | 703 | 0.1− | 0.2− | 2005 12 29 | G96 | 0.2+ | 0.4− |
| 2001 09 19 | 704 | 0.1+ | 0.4+ | 2005 11 06 | 704 | 0.3− | 0.1− | 2005 12 29 | G96 | 0.4− | 0.5− |
| 2001 09 19 | 704 | 0.8+ | 0.3− | 2005 11 06 | 703 | 0.1− | 0.3+ | 2005 12 29 | G96 | 0.0 | 0.3− |
| 2001 09 19 | 704 | 0.7+ | 0.4− | 2005 11 06 | 703 | 0.4+ | 0.2− | 2005 12 29 | G96 | 0.3+ | 0.3− |
| 2001 09 19 | 704 | 0.8+ | 0.4− | 2005 11 06 | 703 | 0.3+ | 0.4− | 2006 01 22 | G96 | 0.1− | 0.1+ |
| 2001 09 21 | 704 | 0.8− | 0.0 | 2005 11 26 | 703 | 0.3+ | 0.6− | 2006 01 22 | G96 | 0.1− | 0.1− |
| 2001 09 21 | 704 | 0.3+ | 0.6+ | 2005 11 26 | 703 | (2.4− | 3.0−) | 2006 01 22 | G96 | 0.2+ | 0.1− |
| 2001 09 21 | 704 | 0.5− | 0.4+ | 2005 11 26 | 703 | (3.5+ | 3.1−) | 2006 01 22 | G96 | 0.1+ | 0.3− |
| 2001 09 21 | 704 | 0.2− | 0.2− | 2005 11 28 | 699 | (4.4− | 0.3−) | 2006 02 25 | G96 | 0.0 | 0.1− |
| 2001 09 21 | 704 | 0.2− | 0.2− | 2005 11 28 | 699 | (0.0 | 2.1−) | 2006 02 25 | G96 | 0.5− | 0.3+ |
| 2001 09 24 | 644 | 0.4− | 0.1− | 2005 11 28 | 699 | 0.7− | 0.8+ | 2006 02 25 | G96 | 0.3− | 0.1+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 24 | 644 | 0.0 | 0.1+ | 2005 11 28 | 699 | 0.5+ | 0.7− | 2006 02 25 | G96 | 0.2+ | 0.2− | | |
| 2001 09 24 | 644 | 0.2− | 0.5− | 2005 11 30 | 704 | 1.3− | 0.1− | 2007 04 11 | 691 | 0.1+ | 0.6+ | | |
| 2001 09 27 | 644 | 0.8+ | 0.3− | 2005 11 30 | 704 | 0.3+ | 1.1+ | 2007 04 11 | 691 | 0.4+ | 0.0 | | |
| 2001 09 27 | 644 | 0.6− | 0.6− | 2005 11 30 | 704 | 0.3+ | 0.4+ | 2007 04 11 | 691 | 0.3+ | 0.3+ | | |
| 2001 09 27 | 644 | 1.2− | 0.4− | 2005 11 30 | 704 | 0.1− | 0.1+ | 2007 04 18 | 691 | 0.4− | 0.2+ | | |
| 2001 10 10 | 644 | 0.2− | 0.0 | 2005 11 30 | 704 | 0.1− | 0.1+ | 2007 04 18 | 691 | 0.1− | 0.4+ | | |
| 2001 10 10 | 644 | 0.3− | 0.1− | 2005 11 30 | 644 | 0.1− | 0.1− | 2007 04 18 | 691 | 0.3+ | 0.1− | | |
| 2001 10 10 | 644 | 0.2+ | 0.0 | 2005 11 30 | 644 | 0.0 | 0.4+ | 2009 11 17 | G96 | 0.2− | 0.1+ | | |
| 2001 10 16 | 644 | 0.2− | 0.3+ | 2005 11 30 | 644 | 0.3+ | 0.3− | 2009 11 17 | G96 | 0.1− | 0.4− | | |
| 2001 10 16 | 644 | 0.1− | 0.2− | 2005 12 01 | 704 | 0.1− | 0.2+ | 2009 11 17 | G96 | 0.1+ | 0.1− | | |
| 2001 10 24 | 644 | 0.6+ | 0.6+ | 2005 12 01 | 704 | 0.5+ | 0.5+ | 2009 11 17 | G96 | 0.3+ | 0.1− | | |
| 2001 10 24 | 644 | 0.5+ | 0.6+ | 2005 12 01 | 704 | 0.0 | 0.4+ | 2009 12 15 | G96 | 0.1− | 0.1− | | |
| 2001 10 24 | 644 | 0.5+ | 0.7+ | 2005 12 01 | 704 | 0.1+ | 0.2+ | 2009 12 15 | G96 | 0.4+ | 0.0 | | |
| 2001 11 17 | 608 | 0.3+ | 0.2− | 2005 12 01 | 704 | 0.5+ | 0.6+ | 2009 12 15 | G96 | 0.2+ | 0.1− | | |
| 2001 11 17 | 608 | 0.3+ | 0.3− | 2005 12 02 | 704 | 0.5− | 0.1− | 2009 12 15 | G96 | 0.6+ | 0.2− | | |
| 2001 11 17 | 608 | 0.0 | 0.2− | 2005 12 02 | 704 | 0.3+ | 0.1+ | 2009 12 18 | 691 | 0.3− | 0.1+ | | |
| 2005 10 30 | 644 | 0.0 | 0.1+ | 2005 12 02 | 704 | 0.3− | 0.4+ | 2009 12 18 | 691 | 0.0 | 0.0 | | |
| 2005 10 30 | 644 | 0.2+ | 0.1+ | 2005 12 02 | 704 | 0.6+ | 0.2+ | 2009 12 18 | 691 | 0.1− | 0.0 | | |
| 2005 10 30 | 644 | 0.4+ | 0.3− | 2005 12 02 | 704 | 0.2− | 0.1− | | | | | | |

**(228421)∗ 2001 OL$_{97}$**

Discovered 2001 July 25 by NEAT at Haleakala.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 78.84650 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26847372 | $\omega$ | 254.55827 | | +0.99242045 | +0.01985876 | |
| $a$ | 2.3797693 | $\Omega$ | 104.18764 | | +0.02617861 | +0.93004037 | |
| $e$ | 0.1757640 | $i$ | 7.18590 | | −0.12006802 | +0.36692035 | |
| $P$ | 3.67 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 07 25 | 608 | 0.3+ | 1.1− | 2005 09 27 | 644 | 0.4− | 0.3+ | 2005 11 19 | 644 | 0.3+ | 0.5+ | | |
| 2001 07 25 | 608 | 0.2+ | 0.8− | 2005 10 07 | 699 | 0.1− | 0.0 | 2005 11 19 | 644 | 0.2− | 0.1− | | |
| 2001 07 25 | 608 | 0.4+ | 0.5− | 2005 10 07 | 699 | 0.2+ | 0.2+ | 2005 11 19 | 644 | 0.2− | 0.2+ | | |
| 2001 07 25 | 608 | 0.0 | 1.0− | 2005 10 07 | 699 | 0.0 | 0.2− | 2005 11 22 | 703 | 0.5− | 0.0 | | |
| 2001 07 25 | 608 | 0.2+ | 0.7− | 2005 10 22 | 703 | 0.2− | 0.3+ | 2005 11 22 | 703 | 0.4− | 0.3+ | | |
| 2001 07 25 | 608 | 0.2+ | 0.7− | 2005 10 22 | 703 | 0.8− | 0.0 | 2005 11 22 | 703 | 0.3+ | 0.3+ | | |
| 2001 07 30 | 704 | 0.8− | 1.5+ | 2005 10 22 | 703 | 0.3− | 0.2− | 2005 11 22 | 703 | 0.2+ | 0.3− | | |
| 2001 07 30 | 704 | 0.3+ | 0.2− | 2005 10 22 | 703 | 0.3+ | 0.3− | 2005 11 29 | 703 | 0.4− | 0.0 | | |
| 2001 07 30 | 704 | 0.3+ | 0.6+ | 2005 10 22 | 644 | 0.0 | 0.0 | 2005 11 29 | 703 | 0.1− | 0.0 | | |
| 2001 07 30 | 704 | 0.2− | 0.7+ | 2005 10 22 | 644 | 0.1+ | 0.1− | 2005 11 29 | 703 | 0.9− | 0.1− | | |
| 2001 08 16 | 704 | 0.1+ | 0.3− | 2005 10 22 | 644 | 0.2+ | 0.1− | 2005 11 29 | 703 | 0.1− | 0.4− | | |
| 2001 08 16 | 704 | 0.5+ | 0.3− | 2005 10 27 | 699 | 0.1+ | 0.2− | 2005 11 29 | 644 | 0.3− | 0.1− | | |
| 2001 08 16 | 704 | 0.0 | 0.1− | 2005 10 27 | 699 | 0.6− | 0.2− | 2005 11 29 | 644 | 0.0 | 0.1+ | | |
| 2001 08 19 | 704 | 0.2− | 0.0 | 2005 10 27 | 699 | 1.0− | 0.5− | 2005 11 29 | 644 | 0.2− | 0.1− | | |
| 2001 08 19 | 704 | 0.2− | 0.1− | 2005 10 28 | 703 | 0.3+ | 0.5− | 2005 12 05 | 699 | (0.6− | 1.5+) | | |
| 2001 08 19 | 704 | 0.4− | 0.2− | 2005 10 28 | 703 | 0.3+ | 0.6− | 2005 12 05 | 699 | (2.2+ | 1.6+) | | |
| 2001 08 19 | 704 | 0.0 | 0.3+ | 2005 10 28 | 703 | 0.2− | 0.0 | 2005 12 05 | 699 | 0.2+ | 0.1+ | | |
| 2001 08 19 | 704 | 0.5− | 0.3+ | 2005 10 28 | 703 | 0.2+ | 0.4− | 2005 12 05 | 699 | 0.7+ | 1.4+ | | |
| 2001 08 23 | 608 | 0.1− | 0.6+ | 2005 10 31 | G96 | 0.1+ | 0.1− | 2005 12 06 | 704 | 0.3− | 0.2− | | |
| 2001 08 23 | 608 | 0.4− | 0.5+ | 2005 10 31 | G96 | 0.1+ | 0.1− | 2005 12 06 | 704 | 0.2− | 1.1+ | | |
| 2001 08 23 | 608 | 0.2− | 0.6+ | 2005 10 31 | G96 | 0.2+ | 0.2− | 2005 12 06 | 704 | 0.6+ | 0.3+ | | |
| 2001 08 25 | 699 | 0.3+ | 0.2− | 2005 10 31 | G96 | 0.3+ | 0.1− | 2005 12 06 | 704 | (1.9+ | 0.4−) | | |
| 2001 08 25 | 699 | 0.2+ | 0.1+ | 2005 11 03 | 703 | 0.7− | 0.3− | 2007 02 26 | G96 | 0.2+ | 0.3− | | |
| 2001 08 25 | 699 | 0.1− | 0.1− | 2005 11 03 | 703 | 0.4− | 0.5− | 2007 02 26 | G96 | 0.1+ | 0.4− | | |
| 2001 08 25 | 699 | 0.3− | 0.2− | 2005 11 03 | 703 | 0.1− | 0.4− | 2007 02 26 | G96 | 0.2+ | 0.2− | | |
| 2001 09 07 | 644 | 0.0 | 0.2− | 2005 11 03 | 703 | 0.3− | 0.2− | 2007 02 26 | G96 | 0.4− | 0.2+ | | |
| 2001 09 07 | 644 | 0.4− | 0.0 | 2005 11 04 | 704 | 1.3+ | 0.6+ | 2007 03 16 | 703 | 0.4− | 0.3+ | | |
| 2001 09 07 | 644 | 0.1− | 0.1− | 2005 11 04 | 704 | 1.2+ | 0.4− | 2007 03 16 | 703 | (0.1+ | 1.6+) | | |
| 2001 09 10 | 699 | 0.4+ | 0.1+ | 2005 11 04 | 704 | 1.1+ | 0.6+ | 2007 03 16 | 703 | (0.2− | 2.5+) | | |
| 2001 09 10 | 699 | 0.2− | 0.5+ | 2005 11 04 | 704 | 0.3− | 0.6− | 2007 03 16 | 703 | 0.3− | 0.3− | | |
| 2001 09 10 | 699 | 0.7+ | 0.3− | 2005 11 04 | 704 | 0.1− | 0.3− | 2009 11 21 | 704 | 1.0+ | 0.8− | | |
| 2001 09 10 | 699 | 0.1+ | 0.8+ | 2005 11 06 | 699 | 0.4+ | 0.1− | 2009 11 21 | 704 | 0.3− | 0.1+ | | |
| 2001 09 11 | 704 | 0.1− | 0.2− | 2005 11 06 | 699 | 0.0 | 0.1− | 2009 11 21 | 704 | (2.6− | 1.1+) | | |
| 2001 09 11 | 704 | 0.1− | 0.2+ | 2005 11 06 | 699 | 0.4+ | 0.3− | 2009 12 20 | 691 | 0.4− | 0.4− | | |
| 2001 09 11 | 704 | 0.1+ | 0.3+ | 2005 11 06 | 699 | 0.1+ | 0.4+ | 2009 12 20 | 691 | 0.1− | 0.0 | | |
| 2001 09 11 | 704 | 0.5+ | 0.5+ | 2005 11 09 | 703 | 0.2+ | 0.2− | 2009 12 20 | 691 | 0.1− | 0.0 | | |
| 2001 09 11 | 704 | 0.1+ | 0.2− | 2005 11 09 | 703 | 0.2+ | 0.1− | 2009 12 25 | 691 | 0.2+ | 0.2+ | | |
| 2005 09 27 | 644 | 0.2− | 0.4+ | 2005 11 09 | 703 | 0.7− | 0.2+ | 2009 12 25 | 691 | 0.2+ | 0.2+ | | |
| 2005 09 27 | 644 | 0.0 | 0.2+ | 2005 11 09 | 703 | 0.1+ | 0.0 | 2009 12 25 | 691 | 0.2+ | 0.2+ | | |

**(228422)∗ 2001 OO$_{111}$**

Discovered 2001 July 27 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 268.34161 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17990148 | $\omega$ | 272.91114 | | −0.76351567 | +0.61823177 | |
| $a$ | 3.1077511 | $\Omega$ | 305.35615 | | −0.46324420 | −0.72568131 | |
| $e$ | 0.1970054 | $i$ | 13.22890 | | −0.44994293 | −0.30195383 | |
| $P$ | 5.48 | $H$ | 14.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 07 27 | 699 | 0.2− | 0.4+ | 2005 01 17 | 704 | 0.8+ | 0.6+ | 2005 03 11 | 699 | 0.8+ | 0.4− | | |
| 2001 07 27 | 699 | 1.0− | 0.5− | 2005 01 17 | 704 | 0.7+ | 1.2+ | 2005 03 11 | 699 | 0.9+ | 0.5− | | |
| 2001 07 27 | 699 | 1.1− | 0.0 | 2005 01 17 | 704 | 0.4+ | 0.2+ | 2005 03 11 | 699 | 0.6− | 0.7− | | |
| 2001 07 27 | 699 | 0.8− | 1.0+ | 2005 01 19 | 691 | 0.0 | 0.2+ | 2007 09 04 | 703 | 0.5− | 0.9+ | | |
| 2001 08 16 | 704 | 0.5+ | 0.8+ | 2005 01 19 | 691 | 0.1+ | 0.2+ | 2007 09 04 | 703 | 0.1− | 0.4− | | |
| 2001 08 16 | 704 | 0.2+ | 0.3+ | 2005 01 19 | 691 | 0.0 | 0.2+ | 2007 09 04 | 703 | 0.3+ | 0.6− | | |
| 2001 08 16 | 704 | 0.8− | 0.2− | 2005 01 20 | 699 | 0.9− | 0.2+ | 2007 09 04 | 703 | 0.2+ | 0.1+ | | |
| 2001 08 16 | 704 | 0.4+ | 0.9+ | 2005 01 20 | 699 | 0.2− | 1.1− | 2007 09 11 | 703 | 1.1+ | 1.2+ | | |
| 2001 08 16 | 704 | 0.3− | 1.4+ | 2005 01 20 | 699 | 0.6− | 0.0 | 2007 09 11 | 703 | (2.3+ | 1.2+) | | |
| 2001 08 24 | 699 | 0.5− | 0.3+ | 2005 01 20 | 699 | 0.0 | 0.1− | 2007 09 11 | 703 | (1.7− | 0.5+) | | |
| 2001 08 24 | 699 | 0.1+ | 0.7+ | 2005 02 02 | 704 | 0.2− | 0.5+ | 2007 09 11 | 703 | (0.4− | 1.6+) | | |
| 2001 08 24 | 699 | 0.1+ | 0.5+ | 2005 02 02 | 704 | 0.2+ | 0.0 | 2007 11 01 | G96 | 0.3− | 0.1+ | | |
| 2001 08 24 | 699 | 1.1− | 0.4+ | 2005 02 02 | 704 | 0.3+ | 0.0 | 2007 11 01 | G96 | 0.1− | 0.2− | | |
| 2001 09 10 | 704 | 0.3− | 0.8+ | 2005 02 04 | 699 | 0.2+ | 0.0 | 2007 11 01 | G96 | 0.4− | 0.4− | | |
| 2001 09 10 | 704 | 0.1+ | 0.7+ | 2005 02 04 | 699 | 0.2− | 0.3− | 2007 11 01 | G96 | 0.2− | 0.9− | | |
| 2001 09 10 | 704 | 0.1− | 0.4+ | 2005 02 04 | 699 | 0.6+ | 0.7+ | 2008 12 06 | G96 | 0.2− | 0.1− | | |
| 2005 01 06 | 704 | 0.2− | 0.4− | 2005 02 04 | 699 | 0.0 | 1.1+ | 2008 12 06 | G96 | 0.3− | 0.1+ | | |
| 2005 01 06 | 704 | 0.4+ | 0.7− | 2005 02 09 | 699 | 0.3− | 0.1+ | 2008 12 06 | G96 | 0.6− | 1.1+ | | |
| 2005 01 06 | 704 | 0.3+ | 0.6+ | 2005 02 09 | 699 | 0.1+ | 0.0 | 2008 12 06 | G96 | 0.2+ | 0.5− | | |
| 2005 01 06 | 704 | 0.5+ | 0.5+ | 2005 02 09 | 699 | 0.1+ | 0.2− | 2008 12 29 | 291 | 0.0 | 0.2− | | |
| 2005 01 06 | 704 | 0.3+ | 0.2+ | 2005 02 09 | 699 | 0.1+ | 0.1− | 2008 12 29 | 291 | 0.3+ | 0.3− | | |
| 2005 01 13 | 703 | 0.1− | 0.1− | 2005 03 03 | 703 | 1.1+ | 0.2− | 2008 12 29 | 291 | 0.2+ | 0.3− | | |
| 2005 01 13 | 704 | 0.5− | 0.6− | 2005 03 03 | 703 | 0.8− | 0.7+ | 2009 12 15 | 704 | 0.7+ | 0.3− | | |
| 2005 01 13 | 703 | 0.2− | 0.8+ | 2005 03 03 | 703 | (1.7− | 0.2+) | 2009 12 15 | 704 | 1.3+ | 0.9− | | |
| 2005 01 13 | 704 | 0.7− | 1.2− | 2005 03 03 | 703 | 0.6− | 0.3+ | 2009 12 15 | 704 | (2.0− | 0.3−) | | |
| 2005 01 13 | 703 | 0.0 | 1.0+ | 2005 03 10 | 703 | 0.3− | 0.1− | 2009 12 27 | 691 | 0.1+ | 0.2+ | | |
| 2005 01 13 | 703 | 0.1+ | 0.6+ | 2005 03 10 | 703 | 0.8− | 0.2+ | 2009 12 27 | 691 | 0.5− | 0.6+ | | |
| 2005 01 13 | 704 | 0.5− | 0.8− | 2005 03 10 | 703 | 1.3+ | 0.2+ | 2009 12 27 | 691 | 0.2+ | 0.6+ | | |
| 2005 01 13 | 704 | 0.3+ | 0.4− | 2005 03 10 | 703 | 0.3− | 0.3+ | | | | | | |
| 2005 01 17 | 704 | 1.0+ | 0.5+ | 2005 03 11 | 699 | 0.7+ | 0.3− | | | | | | |

**(228423)∗ 2001 PB$_{19}$**

Discovered 2001 Aug. 10 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 37.69226 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26229722 | $\omega$ | 292.17881 | | +0.92559365 | −0.34757977 | |
| $a$ | 2.4169830 | $\Omega$ | 88.42144 | | +0.37830615 | +0.83619368 | |
| $e$ | 0.1777013 | $i$ | 8.62340 | | +0.01268287 | +0.42422686 | |
| $P$ | 3.76 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 05 04 | 645 | 0.0 | 0.3+ | 2005 08 27 | 644 | 0.2+ | 0.2− | 2009 11 09 | 703 | 0.1+ | 0.3− | | |
| 2000 05 04 | 645 | 0.2+ | 0.1+ | 2005 08 27 | 644 | 0.1− | 0.2− | 2009 11 09 | 703 | 0.2− | 0.3− | | |
| 2001 07 19 | 644 | 0.2+ | 0.4+ | 2005 08 27 | 644 | 0.0 | 0.2− | 2009 11 09 | 703 | 0.7− | 0.2− | | |
| 2001 07 19 | 644 | 0.2+ | 0.3+ | 2005 09 13 | 703 | (0.2+ | 2.4−) | 2009 11 09 | 703 | 0.6− | 1.1+ | | |
| 2001 07 19 | 644 | 0.1+ | 0.2+ | 2005 09 13 | 703 | (2.0+ | 1.0−) | 2009 11 14 | 704 | 0.4− | 0.4+ | | |
| 2001 07 28 | 699 | 0.1+ | 0.0 | 2005 09 13 | 703 | 1.1+ | 0.5+ | 2009 11 14 | 704 | 0.4− | 0.9+ | | |
| 2001 07 28 | 699 | 0.3+ | 0.7+ | 2005 09 13 | 703 | 0.2+ | 0.1− | 2009 11 14 | 704 | 0.7− | 0.7+ | | |
| 2001 07 28 | 699 | 0.5+ | 0.9− | 2005 09 27 | 704 | 0.7− | 0.0 | 2009 11 14 | 704 | 0.7− | 0.2+ | | |
| 2001 07 28 | 699 | 0.2− | 0.1+ | 2005 09 27 | 704 | 0.1− | 0.0 | 2009 11 14 | 704 | 0.9− | 0.3+ | | |
| 2001 08 10 | 644 | 0.2− | 0.5+ | 2005 09 27 | 704 | 0.1− | 0.6+ | 2009 11 19 | 704 | 0.3+ | 0.3+ | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 10 | 644 | 0.1− | 0.3+ | 2005 09 27 | 704 | 0.1+ | 0.4+ | 2009 11 19 | 704 | 0.2− | 0.1− |
| 2001 08 10 | 644 | 0.1− | 0.2+ | 2005 09 27 | 704 | 0.3− | 0.2+ | 2009 11 19 | 704 | 0.4+ | 0.1+ |
| 2001 08 10 | 644 | 0.2− | 0.1+ | 2005 10 08 | 699 | 0.4+ | 0.1− | 2009 11 19 | 704 | 0.2− | 0.9+ |
| 2001 08 10 | 644 | 0.2− | 0.3+ | 2005 10 08 | 699 | 0.5+ | 0.5+ | 2009 11 19 | 704 | 1.0+ | 1.2+ |
| 2001 08 10 | 644 | 0.5− | 0.4+ | 2005 10 08 | 699 | 0.1− | 0.2+ | 2009 11 19 | G96 | 0.0 | 0.2− |
| 2001 08 14 | 644 | 0.1− | 1.2− | 2005 10 08 | 699 | 0.5+ | 0.4− | 2009 11 19 | G96 | 0.2− | 0.1− |
| 2001 08 14 | 644 | 0.5− | 1.4+ | 2005 11 06 | 703 | 0.5+ | 0.8− | 2009 11 19 | G96 | 0.1− | 0.2− |
| 2001 08 14 | 644 | 0.1− | 1.1− | 2005 11 06 | 703 | 0.3− | 0.6− | 2009 11 19 | G96 | 0.4+ | 0.3− |
| 2001 08 14 | 644 | 0.3− | 0.7+ | 2005 11 06 | 699 | 0.1+ | 0.5+ | 2009 11 25 | G96 | 0.0 | 0.0 |
| 2001 08 14 | 644 | 0.0 | 0.7− | 2005 11 06 | 703 | 0.3− | 1.1− | 2009 11 25 | G96 | 0.3− | 0.2− |
| 2001 08 14 | 644 | 0.9− | 0.9+ | 2005 11 06 | 703 | 0.5− | 0.9− | 2009 11 25 | G96 | 0.1+ | 0.1− |
| 2004 05 19 | 599 | 0.0 | 0.4+ | 2005 11 06 | 699 | 0.5+ | 0.2+ | 2009 11 25 | G96 | 0.1+ | 0.1+ |
| 2004 05 19 | 599 | 0.3+ | 0.3+ | 2005 11 06 | 699 | 0.8− | 1.2+ | 2009 12 10 | 703 | 0.7− | 0.1+ |
| 2004 05 19 | 599 | 0.9+ | 0.6+ | 2005 11 06 | 699 | 0.2+ | 0.9+ | 2009 12 10 | 703 | 0.8− | 0.9− |
| 2004 05 19 | 599 | 0.5+ | 0.8+ | 2008 05 28 | G96 | 0.3− | 0.4+ | 2009 12 10 | 703 | 0.2− | 0.2+ |
| 2005 08 27 | 699 | (2.1+ | 0.7+) | 2008 05 28 | G96 | 0.4+ | 0.2+ | 2009 12 10 | 703 | 0.4− | 0.4− |
| 2005 08 27 | 699 | (2.4+ | 0.4−) | 2008 05 28 | G96 | 0.1− | 0.5+ | 2009 12 17 | 704 | 0.7+ | 2.3+ |
| 2005 08 27 | 699 | 0.2+ | 1.2+ | 2008 05 28 | G96 | 0.5− | 0.0 | 2009 12 17 | 704 | 1.0− | 0.2+ |
| 2005 08 27 | 644 | 0.2− | 0.2− | 2009 10 27 | 704 | 0.8+ | 1.3+ | 2009 12 17 | 704 | 1.0+ | 1.5+ |
| 2005 08 27 | 699 | 0.0 | 0.3+ | 2009 10 27 | 704 | 0.2− | 0.2+ | 2009 12 17 | 704 | 0.4+ | 0.3− |
| 2005 08 27 | 644 | 0.0 | 0.3− | 2009 10 27 | 704 | 0.3+ | 0.0 | | | | |
| 2005 08 27 | 644 | 0.1− | 0.2− | 2009 10 27 | 704 | 0.1− | 1.0+ | | | | |

**(228424)∗ 2001 PH$_{22}$**

Discovered 2001 Aug. 10 by NEAT at Haleakala.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 130.84371 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.26963513 | $\omega$ | 276.22020 | | +0.41387836 | | +0.91024737 |
| $a$ | 2.3729308 | $\Omega$ | 18.24395 | | −0.81873136 | | +0.37816578 |
| $e$ | 0.2164006 | $i$ | 2.27498 | | −0.39797444 | | +0.16864275 |
| $P$ | 3.66 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 10 27 | 691 | 0.7+ | 0.5− | 2001 09 21 | 704 | 0.1+ | 0.1+ | 2005 10 31 | A50 | 0.5+ | 1.0− |
| 1994 10 27 | 691 | 0.2+ | 1.1− | 2001 09 21 | 704 | 0.8− | 0.4− | 2005 10 31 | A50 | 0.2− | 1.3+ |
| 1994 10 27 | 691 | 0.2+ | 1.1− | 2001 09 21 | 704 | 0.1+ | 0.8+ | 2005 11 01 | 691 | 0.1− | 1.2+ |
| 2001 08 10 | 608 | 0.2− | 0.8− | 2001 09 21 | 704 | 1.0− | 0.4− | 2005 11 01 | 691 | 0.0 | 0.7+ |
| 2001 08 10 | 608 | 0.8− | 1.2− | 2001 09 21 | 704 | 0.2+ | 0.4− | 2005 11 01 | 691 | 0.2− | 0.4+ |
| 2001 08 10 | 608 | 0.1− | 1.2− | 2001 09 21 | 704 | 0.0 | 0.3− | 2005 11 05 | 691 | 0.1− | 0.2+ |
| 2001 08 14 | 608 | 0.1− | 1.1− | 2001 09 21 | 704 | (0.1− | 1.9−) | 2005 11 05 | 691 | 0.1+ | 0.2+ |
| 2001 08 14 | 608 | 0.4− | 0.7− | 2001 10 17 | 644 | 0.3− | 0.7+ | 2005 11 05 | 691 | 0.1+ | 0.2+ |
| 2001 08 14 | 608 | 0.2− | 0.3− | 2001 10 17 | 644 | 0.5− | 0.5+ | 2005 11 21 | 691 | 0.0 | 0.1+ |
| 2001 08 24 | 704 | 1.2− | 1.0+ | 2001 10 17 | 644 | 0.5− | 0.3+ | 2005 11 21 | 691 | 0.3− | 0.2+ |
| 2001 08 24 | 704 | 1.0− | 0.6+ | 2004 04 20 | 691 | 0.6+ | 0.5+ | 2005 11 21 | 691 | 0.3− | 0.3+ |
| 2001 08 24 | 704 | 0.1+ | 0.4+ | 2004 04 20 | 691 | 0.2+ | 0.7+ | 2005 11 30 | 691 | 0.4+ | 0.2+ |
| 2001 08 27 | 699 | 0.1− | 1.2+ | 2004 04 20 | 691 | 0.5+ | 0.5+ | 2005 11 30 | 691 | 0.0 | 0.2+ |
| 2001 08 27 | 699 | 0.9− | 0.3− | 2005 10 03 | G96 | 0.0 | 0.3− | 2005 11 30 | 691 | 0.4+ | 0.7+ |
| 2001 08 27 | 699 | 0.8− | 0.3+ | 2005 10 03 | G96 | 0.2− | 0.5− | 2005 12 05 | G96 | 1.1− | 0.3+ |
| 2001 08 27 | 699 | 1.4− | 0.5− | 2005 10 03 | G96 | 0.4− | 0.7− | 2005 12 05 | G96 | 0.2+ | 0.4+ |
| 2001 09 07 | 704 | 0.5− | 0.2− | 2005 10 05 | 691 | 0.3− | 0.2+ | 2005 12 05 | G96 | 0.5+ | 0.6+ |
| 2001 09 07 | 704 | 0.1− | 0.2+ | 2005 10 05 | 691 | 0.0 | 0.0 | 2005 12 05 | G96 | 0.6+ | 0.5− |
| 2001 09 07 | 704 | 0.5− | 0.4− | 2005 10 05 | 691 | 0.0 | 0.0 | 2007 01 24 | 691 | 0.1+ | 0.2+ |
| 2001 09 07 | 704 | 0.3+ | 1.3+ | 2005 10 12 | 691 | 0.1+ | 0.1− | 2007 01 24 | 691 | 0.1+ | 0.1+ |
| 2001 09 12 | 704 | 0.5+ | 0.3+ | 2005 10 12 | 691 | 0.2+ | 0.4+ | 2007 01 24 | 691 | 0.4− | 0.0 |
| 2001 09 12 | 704 | 0.6+ | 0.8+ | 2005 10 12 | 691 | 0.0 | 0.2+ | 2009 11 17 | 691 | 1.3− | 1.0− |
| 2001 09 12 | 704 | 0.6+ | 0.7+ | 2005 10 28 | 691 | 0.2− | 0.3+ | 2009 11 17 | 691 | 0.0 | 0.3− |
| 2001 09 12 | 704 | 0.8+ | 0.7+ | 2005 10 28 | 691 | 0.2− | 0.1+ | 2009 11 17 | 691 | 0.2− | 0.4− |
| 2001 09 20 | 704 | 1.0+ | 0.4+ | 2005 10 28 | 691 | 0.3− | 0.0 | 2009 12 11 | G96 | 0.4− | 0.3− |
| 2001 09 20 | 704 | 0.8+ | 0.1+ | 2005 10 30 | 703 | 0.0 | 0.4+ | 2009 12 11 | G96 | 0.5+ | 0.3− |
| 2001 09 20 | 704 | 1.1+ | 0.0 | 2005 10 30 | 703 | 0.3− | 0.1+ | 2009 12 11 | G96 | 0.6+ | 0.3+ |
| 2001 09 20 | 704 | 1.4+ | 0.5− | 2005 10 30 | 703 | 1.1+ | 0.1+ | 2009 12 11 | G96 | 0.2+ | 0.4− |
| 2001 09 21 | 704 | 0.4+ | 0.2− | 2005 10 30 | 703 | 1.3+ | 1.3+ | | | | |

**(228425)∗ 2001 PU$_{28}$**

Discovered 2001 Aug. 15 by J. Broughton at Reedy Creek.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 82.12700 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.26266898 | $\omega$ | 325.41885 | | +0.88651694 | | +0.46264585 |
| $a$ | 2.4147019 | $\Omega$ | 7.03330 | | −0.41094609 | | +0.79405400 |
| $e$ | 0.2635529 | $i$ | 3.19347 | | −0.21262883 | | +0.39425508 |
| $P$ | 3.75 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 02 12 | 645 | 0.1+ | 0.3+ | 2001 10 18 | 699 | 0.3− | 0.3+ | 2005 11 04 | 704 | (0.1− | 2.0+) |
| 2000 02 12 | 645 | 0.2+ | 0.3+ | 2001 10 18 | 699 | 0.9− | 0.2+ | 2005 11 04 | 703 | 0.2+ | 0.1− |
| 2001 06 17 | 644 | 0.3− | 0.1+ | 2001 10 18 | 699 | 0.5− | 0.5+ | 2005 11 04 | G96 | 0.1+ | 0.3− |
| 2001 06 17 | 644 | 0.5− | 0.1+ | 2001 10 23 | 704 | 0.3+ | 0.3+ | 2005 11 04 | G96 | 0.0 | 0.0 |
| 2001 06 17 | 644 | 0.0 | 0.0 | 2001 10 23 | 704 | 1.2− | 0.8+ | 2005 11 04 | 703 | 0.0 | 0.5− |
| 2001 07 03 | 608 | 0.9− | 0.3− | 2001 10 23 | 704 | 0.4− | 0.4− | 2005 11 04 | G96 | 0.1+ | 0.3− |
| 2001 07 03 | 608 | 0.8− | 0.1+ | 2001 10 23 | 704 | 0.3− | 0.5− | 2005 11 04 | G96 | 0.1+ | 0.0 |
| 2001 07 03 | 608 | 0.9− | 0.2− | 2001 10 24 | 704 | 0.2− | 0.0 | 2005 11 04 | 704 | 0.4− | 1.3+ |
| 2001 07 19 | 699 | 0.1− | 1.3+ | 2001 10 24 | 704 | 0.6− | 0.2+ | 2005 11 05 | 699 | 0.1− | 0.2− |
| 2001 07 19 | 699 | 0.5− | 0.4+ | 2001 10 24 | 704 | 0.8− | 0.2+ | 2005 11 05 | 704 | 0.7− | 1.0+ |
| 2001 07 19 | 699 | 0.2+ | 0.5+ | 2001 10 24 | 704 | 0.7− | 0.6+ | 2005 11 05 | 699 | 1.0− | 1.1− |
| 2001 07 19 | 699 | 0.2− | 0.4+ | 2001 10 24 | 704 | 0.3+ | 0.8+ | 2005 11 05 | 704 | 1.3− | 1.5+ |
| 2001 08 12 | 608 | 0.3− | 0.3− | 2004 04 13 | 691 | 0.2+ | 0.6+ | 2005 11 05 | 704 | 0.8− | 0.9+ |
| 2001 08 12 | 608 | 0.2− | 0.5− | 2004 04 13 | 691 | 0.3+ | 0.6+ | 2005 11 05 | 699 | 0.2+ | 0.0 |
| 2001 08 12 | 608 | 0.2− | 0.6− | 2004 04 13 | 691 | 0.6+ | 0.4+ | 2005 11 05 | 704 | 0.5− | 1.1+ |
| 2001 08 15 | 428 | (2.6− | 0.8+) | 2005 10 07 | 704 | 0.0 | 0.5− | 2005 11 05 | 704 | 1.0− | 0.7+ |
| 2001 08 16 | 704 | 0.7+ | 0.2+ | 2005 10 07 | 704 | 0.1− | 0.1+ | 2005 11 05 | 699 | 0.6− | 0.7+ |
| 2001 08 16 | 704 | 0.4+ | 0.1+ | 2005 10 07 | 704 | 0.3+ | 0.0 | 2005 11 06 | 691 | 0.0 | 0.2+ |
| 2001 08 16 | 704 | 0.1− | 0.4− | 2005 10 07 | 704 | 0.1+ | 0.3− | 2005 11 06 | 691 | 0.2− | 0.1+ |
| 2001 08 16 | 704 | 0.1− | 0.5− | 2005 10 07 | 704 | 0.7− | 0.5− | 2005 11 06 | 691 | 0.0 | 0.2+ |
| 2001 08 16 | 704 | 0.4+ | 0.2− | 2005 10 23 | 644 | 0.2− | 0.2− | 2005 11 06 | 704 | 0.6− | 0.8+ |
| 2001 08 16 | 428 | 0.6+ | 0.3+ | 2005 10 23 | 644 | 0.1− | 0.1+ | 2005 11 06 | 704 | 0.2− | 0.5+ |
| 2001 08 16 | 428 | 0.4+ | 0.6+ | 2005 10 23 | 644 | 0.0 | 0.0 | 2005 11 06 | 704 | 0.5− | 0.4+ |
| 2001 08 18 | 704 | 0.8+ | 1.0− | 2005 10 23 | 703 | 1.0− | 0.4− | 2005 11 06 | 704 | 0.3− | 0.6+ |
| 2001 08 18 | 704 | 1.1− | 0.3+ | 2005 10 23 | 703 | 0.0 | 0.1− | 2005 11 06 | 704 | 0.2− | 0.8+ |
| 2001 08 18 | 704 | 0.1+ | 0.1+ | 2005 10 23 | 703 | 0.2− | 0.3− | 2005 11 11 | 704 | 0.2− | 0.4+ |
| 2001 08 18 | 704 | 0.3+ | 0.4+ | 2005 10 23 | 703 | 0.2+ | 0.3+ | 2005 11 11 | 704 | 0.1− | 0.5+ |
| 2001 08 19 | 704 | 0.5− | 0.5+ | 2005 10 24 | 699 | 0.1− | 0.3− | 2005 11 11 | 704 | 1.1+ | 0.7+ |
| 2001 08 19 | 704 | 0.3− | 0.5+ | 2005 10 24 | 699 | 0.4+ | 0.5− | 2005 11 12 | 691 | 0.3+ | 0.2− |
| 2001 08 19 | 704 | 0.0 | 0.2+ | 2005 10 24 | 699 | 0.9− | 0.7− | 2005 11 12 | 691 | 0.2+ | 0.1+ |
| 2001 08 19 | 704 | 0.4− | 0.6+ | 2005 10 24 | 699 | 0.5+ | 1.0− | 2005 11 12 | 691 | 0.1+ | 0.1− |
| 2001 08 19 | 704 | 0.5+ | 0.8+ | 2005 10 25 | 699 | (1.7+ | 0.9−) | 2005 11 21 | 691 | 0.3+ | 0.3− |
| 2001 08 21 | 428 | 0.5− | 0.3+ | 2005 10 25 | 691 | 0.2+ | 0.0 | 2005 11 21 | 691 | 0.2+ | 0.1− |
| 2001 08 21 | 428 | 0.7− | 0.6+ | 2005 10 25 | 691 | 0.1+ | 0.1+ | 2005 11 21 | 691 | 0.4+ | 0.4− |
| 2001 08 23 | 699 | 0.6− | 0.6+ | 2005 10 25 | 699 | 0.7− | 0.6− | 2005 11 28 | 691 | 0.0 | 0.2− |
| 2001 08 23 | 699 | 0.1− | 0.0 | 2005 10 25 | 691 | 0.0 | 0.2+ | 2005 11 28 | 691 | 0.1+ | 0.1− |
| 2001 08 23 | 699 | 0.3− | 0.7+ | 2005 10 25 | 699 | 0.0 | 1.1+ | 2005 11 28 | 691 | 0.1+ | 0.1− |
| 2001 08 23 | 699 | 0.3− | 0.1+ | 2005 10 25 | 699 | (1.7+ | 0.2−) | 2005 11 30 | 691 | 0.1− | 0.1+ |
| 2001 08 25 | 704 | 0.7− | 0.1+ | 2005 10 29 | 691 | 0.1+ | 0.2+ | 2005 11 30 | 691 | 0.1+ | 0.1− |
| 2001 08 25 | 704 | 1.0− | 0.2+ | 2005 10 29 | 691 | 0.0 | 0.2+ | 2005 11 30 | 691 | 0.2+ | 0.1− |
| 2001 08 25 | 704 | 0.2+ | 0.5− | 2005 10 29 | 691 | 0.1− | 0.0 | 2005 12 02 | 691 | 0.2− | 0.0 |
| 2001 08 25 | 704 | 0.2− | 0.1+ | 2005 10 29 | 703 | 0.1− | 0.4− | 2005 12 02 | 691 | 0.1+ | 0.0 |
| 2001 08 25 | 704 | 0.6− | 0.4− | 2005 10 29 | 703 | 0.0 | 0.0 | 2005 12 02 | 691 | 0.2− | 0.0 |
| 2001 08 27 | 699 | 0.3+ | 0.3+ | 2005 10 29 | 703 | 0.2+ | 0.3+ | 2005 12 02 | 704 | 0.0 | 0.2− |
| 2001 08 27 | 699 | 0.6+ | 0.4+ | 2005 10 29 | 703 | 0.7+ | 0.4− | 2005 12 02 | 704 | 0.1+ | 0.4+ |
| 2001 08 27 | 699 | 0.5+ | 0.3+ | 2005 10 29 | 703 | 0.5− | 0.0 | 2005 12 02 | 704 | 1.4− | 1.1− |
| 2001 08 27 | 699 | 0.5+ | 0.5+ | 2005 10 29 | 703 | (0.5+ | 1.6−) | 2008 05 03 | G96 | 0.1− | 0.0 |
| 2001 09 12 | 704 | 0.3− | 0.4+ | 2005 10 29 | 703 | 0.0 | 0.2− | 2008 05 03 | G96 | 0.3− | 0.3+ |
| 2001 09 12 | 704 | 0.3− | 0.2+ | 2005 10 29 | 703 | 0.7− | 0.0 | 2008 05 03 | G96 | 0.1− | 0.1+ |
| 2001 09 12 | 704 | 0.6− | 0.0 | 2005 10 31 | A50 | 0.2+ | 0.1+ | 2008 05 03 | G96 | 0.4− | 0.1− |
| 2001 09 19 | 704 | 0.6+ | 0.2− | 2005 10 31 | A50 | 0.5+ | 0.0 | 2009 11 17 | G96 | 0.0 | 0.3− |
| 2001 09 19 | 704 | 0.6+ | 0.5− | 2005 11 01 | 704 | 0.3− | 0.1+ | 2009 11 17 | G96 | 0.1− | 0.3− |
| 2001 09 19 | 704 | 0.6+ | 0.5− | 2005 11 01 | 704 | 0.1− | 0.1+ | 2009 11 17 | G96 | 0.2+ | 0.4− |
| 2001 09 19 | 704 | 0.8+ | 0.6− | 2005 11 01 | 704 | 0.6− | 0.4+ | 2009 11 17 | G96 | 0.1+ | 0.2− |
| 2001 09 19 | 704 | 0.5+ | 0.6− | 2005 11 01 | 704 | 0.5− | 0.8+ | 2009 11 22 | 691 | 0.2− | 0.1− |
| 2001 09 21 | 704 | 1.0+ | 0.4+ | 2005 11 01 | 704 | 0.1+ | 0.6+ | 2009 11 22 | 691 | 0.3+ | 1.1+ |
| 2001 09 21 | 704 | 1.3+ | 0.9+ | 2005 11 04 | 704 | 0.3− | 1.1+ | 2009 11 22 | 691 | 0.4− | 0.2− |
| 2001 09 21 | 704 | 1.3+ | 0.2+ | 2005 11 04 | 704 | (0.2+ | 1.5+) | 2009 12 10 | 704 | (1.5+ | 2.2+) |
| 2001 09 21 | 704 | 1.1+ | 0.4+ | 2005 11 04 | 704 | 1.0− | 1.5+ | 2009 12 10 | 704 | 0.2− | 0.4+ |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 21 | 704 | 0.7+ | 0.7+ | 2005 11 04 | G96 | 0.4+ | 0.2− | 2009 12 10 | 704 | 0.1+ | 1.0+ |
| 2001 10 13 | 704 | 0.6− | 0.4+ | 2005 11 04 | G96 | 0.3+ | 0.1− | 2009 12 10 | 704 | 1.0+ | 0.2− |
| 2001 10 13 | 704 | (2.6− | 1.5−) | 2005 11 04 | 703 | 1.0+ | 0.5− | 2009 12 13 | G96 | 0.4+ | 0.5− |
| 2001 10 13 | 704 | 0.7− | 0.3− | 2005 11 04 | 703 | 0.1− | 0.2− | 2009 12 13 | G96 | 0.1+ | 0.3− |
| 2001 10 13 | 704 | 0.6− | 0.8− | 2005 11 04 | G96 | 0.0 | 0.3− | 2009 12 13 | G96 | 0.2− | 0.4− |
| 2001 10 18 | 699 | 0.9− | 0.2− | 2005 11 04 | G96 | 0.4+ | 0.0 | 2009 12 13 | G96 | 0.0 | 0.4− |

**(228426)∗ 2001 PC$_{30}$ = 2005 UX$_{455}$**

Discovered 2001 Aug. 10 by NEAT at Palomar.

Id. G. V. Williams (*MPO* 93968)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 117.23060 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27927233 | $\omega$ | 63.20101 | | +0.92968910 | +0.32347370 | |
| $a$ | 2.3180214 | $\Omega$ | 277.49448 | | −0.36810521 | +0.83316717 | |
| $e$ | 0.0363264 | $i$ | 10.23630 | | +0.01329439 | +0.44855013 | |
| $P$ | 3.53 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 10 | 644 | 0.2− | 0.4− | 2005 09 29 | 703 | 0.2− | 0.2− | 2007 03 13 | 703 | 0.3+ | 0.5+ |
| 2001 08 10 | 644 | 0.4− | 0.2− | 2005 09 29 | 703 | 0.3− | 0.6− | 2007 03 13 | 703 | 0.3+ | 0.0 |
| 2001 08 10 | 644 | 0.2− | 0.1− | 2005 09 29 | 703 | 0.1+ | 0.1− | 2008 08 30 | 704 | (0.7+ | 1.7−) |
| 2001 08 17 | 644 | 0.3− | 0.2+ | 2005 10 25 | 703 | 0.1+ | 1.3+ | 2008 08 30 | 704 | 1.4+ | 0.1− |
| 2001 08 17 | 644 | 0.3− | 0.0 | 2005 10 25 | 703 | 0.1− | 1.0− | 2008 08 30 | 704 | 1.2+ | 0.5+ |
| 2001 08 17 | 644 | 0.3− | 0.2+ | 2005 10 25 | 703 | 0.1+ | 0.9− | 2008 10 30 | G96 | 0.2− | 0.5− |
| 2001 08 25 | 704 | 0.0 | 0.0 | 2005 10 25 | 703 | 0.2− | 0.5+ | 2008 10 30 | G96 | 0.9− | 0.5− |
| 2001 08 25 | 704 | 0.6+ | 0.4+ | 2005 10 29 | 703 | 0.3− | 0.0 | 2008 10 30 | G96 | 0.2+ | 0.4+ |
| 2001 08 25 | 704 | (0.4+ | 2.5−) | 2005 10 29 | 703 | 0.6− | 0.5+ | 2008 10 30 | G96 | 1.0− | 0.2+ |
| 2002 11 07 | 645 | 0.1+ | 0.0 | 2005 10 29 | 703 | 1.0+ | 1.1+ | 2009 12 16 | G96 | 0.3+ | 0.0 |
| 2002 11 07 | 645 | 0.2+ | 0.0 | 2005 10 29 | 703 | 0.4+ | 0.9+ | 2009 12 16 | G96 | 0.5+ | 0.4− |
| 2003 01 08 | 704 | 0.9− | 0.7+ | 2005 10 30 | 644 | 0.1− | 0.1+ | 2009 12 16 | G96 | 0.1+ | 0.2+ |
| 2003 01 08 | 704 | 0.6− | 0.6+ | 2005 10 30 | 644 | 0.2+ | 0.3+ | 2009 12 16 | G96 | 0.4+ | 0.0 |
| 2003 01 08 | 704 | 0.1− | 0.2+ | 2005 10 30 | 644 | 0.0 | 0.3+ | 2009 12 16 | G96 | 0.4− | 0.0 |
| 2003 01 08 | 704 | (0.5+ | 1.9+) | 2005 11 22 | 703 | 0.9− | 0.4− | 2009 12 20 | 691 | 0.1+ | 0.1+ |
| 2005 09 29 | 703 | 0.8+ | 1.0− | 2005 11 22 | 703 | (0.9− | 2.5−) | 2009 12 20 | 691 | 0.0 | 0.0 |
| 2005 09 29 | 703 | (0.4− | 1.7−) | 2005 11 22 | 703 | 0.2− | 0.6− | 2009 12 20 | 691 | 0.1− | 0.0 |
| 2005 09 29 | 703 | 0.2− | 0.8+ | 2005 11 22 | 703 | 0.1− | 0.9− | 2009 12 25 | 691 | 0.1− | 0.2+ |
| 2005 09 29 | 703 | (4.7− | 0.0 ) | 2007 03 13 | 703 | 0.1− | 0.5− | 2009 12 25 | 691 | 0.4− | 0.6− |
| 2005 09 29 | 703 | 0.2+ | 0.1+ | 2007 03 13 | 703 | 0.7− | 0.6+ | 2009 12 25 | 691 | 0.1− | 0.1− |

**(228427)∗ 2001 PQ$_{46}$**

Discovered 2001 Aug. 13 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 70.39869 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26617785 | $\omega$ | 86.18879 | | +0.91527355 | −0.20129285 | |
| $a$ | 2.3934339 | $\Omega$ | 285.17007 | | +0.02100572 | +0.88887284 | |
| $e$ | 0.2728986 | $i$ | 21.19438 | | +0.40228483 | +0.41156563 | |
| $P$ | 3.70 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1953 10 31 | 261 | 0.7− | 0.4− | 2001 08 27 | 916 | 0.1− | 0.6+ | 2005 11 22 | 704 | 0.5+ | 0.1− |
| 1953 10 31 | 261 | 0.6+ | 0.5+ | 2001 08 27 | 916 | 0.3+ | 0.2− | 2005 11 22 | 704 | 0.8+ | 0.0 |
| 2001 07 16 | 699 | 0.0 | 0.4− | 2001 08 27 | 916 | 0.3+ | 0.8+ | 2005 12 23 | 704 | 0.1− | 0.7+ |
| 2001 07 16 | 699 | 0.0 | 0.1− | 2001 08 27 | 916 | 0.4− | 0.2+ | 2005 12 23 | 704 | 0.4+ | 0.8+ |
| 2001 07 16 | 699 | 0.6+ | 0.3− | 2001 09 09 | 704 | 0.1+ | 0.1+ | 2005 12 23 | 704 | 0.0 | 0.5+ |
| 2001 07 16 | 704 | (1.8− | 0.1+) | 2001 09 09 | 704 | 0.1+ | 0.2− | 2005 12 23 | 704 | 0.6+ | 0.5+ |
| 2001 07 16 | 704 | 0.2− | 0.5+ | 2001 09 09 | 704 | 0.5+ | 0.2− | 2005 12 30 | 703 | 0.4+ | 0.5+ |
| 2001 07 16 | 699 | 0.6− | 0.9− | 2001 09 09 | 704 | 0.4+ | 0.2+ | 2005 12 30 | 703 | 0.4− | 0.4− |
| 2001 07 16 | 704 | 0.9− | 0.9+ | 2001 09 09 | 704 | 0.3+ | 0.1+ | 2005 12 30 | 703 | 0.3− | 0.4− |
| 2001 07 16 | 704 | 1.3− | 1.0+ | 2001 10 17 | 704 | 0.4+ | 0.1− | 2005 12 30 | 703 | 0.3− | 0.0 |
| 2001 07 29 | 644 | 0.3− | 0.6+ | 2001 10 17 | 704 | 0.4+ | 0.3− | 2006 01 07 | 703 | 0.3+ | 0.2+ |
| 2001 07 29 | 644 | 0.2− | 0.6+ | 2001 10 17 | 704 | 0.4+ | 0.3+ | 2006 01 07 | 703 | 0.7− | 0.2+ |
| 2001 07 29 | 644 | 0.4− | 0.6+ | 2001 10 17 | 704 | 0.1+ | 0.6− | 2006 01 07 | 704 | 0.1− | 0.0 |
| 2001 08 13 | 644 | 0.7− | 0.3+ | 2001 10 17 | 704 | 0.5+ | 0.1+ | 2006 01 07 | 703 | 0.5+ | 0.4− |
| 2001 08 13 | 644 | 0.6− | 0.3+ | 2001 11 13 | 704 | 0.2− | 0.3+ | 2006 01 07 | 703 | 0.6− | 0.7− |
| 2001 08 13 | 644 | 0.6− | 0.2+ | 2001 11 13 | 704 | 0.2− | 0.0 | 2006 01 07 | 704 | 0.2+ | 0.3+ |
| 2001 08 18 | 699 | 0.0 | 0.0 | 2001 11 13 | 704 | 0.1+ | 0.1+ | 2006 01 07 | 704 | 0.8− | 1.1+ |
| 2001 08 18 | 699 | 0.2+ | 0.1− | 2001 11 13 | 704 | 0.0 | 0.1− | 2006 01 07 | 704 | 0.2+ | 0.2+ |
| 2001 08 18 | 699 | (1.8− | 0.3−) | 2001 11 13 | 704 | 0.4− | 0.0 | 2006 03 03 | G96 | 0.2+ | 0.2− |
| 2001 08 18 | 699 | 0.4− | 0.0 | 2001 11 17 | 704 | 0.8+ | 0.5+ | 2006 03 03 | G96 | 0.1− | 0.0 |
| 2001 08 18 | 644 | 0.1− | 0.0 | 2001 11 17 | 704 | 0.8+ | 0.4+ | 2006 03 03 | G96 | 0.1+ | 0.0 |
| 2001 08 18 | 644 | 0.1− | 0.0 | 2001 11 17 | 704 | 0.6+ | 0.7+ | 2006 03 03 | G96 | 0.2+ | 0.0 |
| 2001 08 18 | 644 | 0.0 | 0.1+ | 2001 12 11 | 704 | 0.6− | 0.0 | 2009 11 26 | 703 | 0.3− | 0.4− |
| 2001 08 20 | 916 | 0.8− | 0.4− | 2001 12 11 | 704 | 0.8− | 0.4+ | 2009 11 26 | 703 | 1.3− | 1.2+ |
| 2001 08 20 | 916 | 0.7− | 1.4− | 2001 12 11 | 704 | 0.7+ | 0.3− | 2009 11 26 | 703 | 0.9− | 1.0− |
| 2001 08 20 | 916 | 0.9+ | 0.4+ | 2001 12 11 | 704 | 0.0 | 0.1+ | 2009 11 26 | 703 | 0.6− | 0.4− |
| 2001 08 20 | 916 | 1.4− | 0.8− | 2005 10 30 | 294 | (2.2− | 0.3+) | 2009 12 10 | J75 | (1.6+ | 0.6−) |
| 2001 08 20 | 916 | 1.4− | 0.9− | 2005 10 30 | 294 | 0.3− | 0.1+ | 2009 12 10 | J75 | 0.3+ | 0.7− |
| 2001 08 21 | 916 | 0.8+ | 0.7+ | 2005 10 30 | 294 | 0.3+ | 0.1− | 2009 12 10 | J75 | 0.8+ | 0.2+ |
| 2001 08 21 | 916 | 0.5+ | 0.2− | 2005 10 31 | 294 | 0.2− | 0.2+ | 2009 12 11 | 703 | 0.2− | 0.7− |
| 2001 08 21 | 916 | 0.5+ | 0.7+ | 2005 10 31 | 294 | 0.3− | 0.0 | 2009 12 11 | 703 | 0.8+ | 0.1+ |
| 2001 08 21 | 916 | 0.8+ | 0.6− | 2005 10 31 | 294 | 0.9− | 0.2− | 2009 12 11 | 703 | 0.8+ | 1.0+ |
| 2001 08 21 | 916 | 0.8+ | 0.4+ | 2005 11 13 | 704 | 1.0− | 0.7+ | 2009 12 11 | 703 | 0.6− | 0.5− |
| 2001 08 21 | 916 | 0.9+ | 0.7− | 2005 11 13 | 704 | 0.4− | 0.4− | 2009 12 15 | G96 | 0.1− | 0.1+ |
| 2001 08 22 | 704 | 0.1+ | 0.3− | 2005 11 13 | 704 | 0.5− | 0.7− | 2009 12 15 | G96 | 0.0 | 0.3− |
| 2001 08 22 | 704 | 0.1+ | 0.4− | 2005 11 13 | 704 | 0.3− | 0.6− | 2009 12 15 | G96 | 0.7+ | 0.1− |
| 2001 08 22 | 704 | 0.2− | 0.6− | 2005 11 13 | 704 | 0.8− | 0.2+ | 2009 12 15 | G96 | 0.4+ | 0.2− |
| 2001 08 22 | 704 | 0.0 | 0.4− | 2005 11 22 | 704 | 0.7+ | 0.4− | 2009 12 17 | 691 | 0.0 | 0.1− |
| 2001 08 22 | 704 | 0.2− | 0.5− | 2005 11 22 | 704 | 1.1+ | 0.1+ | 2009 12 17 | 691 | 0.1− | 0.2+ |
| 2001 08 26 | 716 | 1.3+ | 0.6+ | 2005 11 22 | 704 | 0.8+ | 0.0 | 2009 12 17 | 691 | 0.1+ | 0.1+ |

**(228428)∗ 2001 PE$_{52}$ = 2004 JA$_{50}$**

Discovered 2001 Aug. 15 by NEAT at Haleakala.

Id. G. V. Williams (*MPO* 64936)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 117.89610 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27820546 | $\omega$ | 285.67362 | | +0.95492436 | +0.29078500 | |
| $a$ | 2.3239438 | $\Omega$ | 57.45566 | | −0.23795115 | +0.87005074 | |
| $e$ | 0.1228412 | $i$ | 4.06081 | | −0.17747879 | +0.39806506 | |
| $P$ | 3.54 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 07 25 | 608 | 0.4+ | 0.0 | 2005 10 26 | 691 | 0.4− | 0.1+ | 2005 12 02 | G96 | 0.1− | 0.1− |
| 2001 07 25 | 608 | 0.6+ | 0.2− | 2005 10 30 | 691 | 0.0 | 0.1+ | 2005 12 02 | G96 | 0.0 | 0.1− |
| 2001 07 25 | 608 | 0.3+ | 0.6− | 2005 10 30 | 691 | 0.1+ | 0.0 | 2006 01 06 | G96 | 0.4+ | 0.3+ |
| 2001 07 25 | 608 | 0.7+ | 0.4− | 2005 10 30 | 691 | 0.0 | 0.9+ | 2006 01 06 | G96 | 0.3+ | 0.3− |
| 2001 07 25 | 608 | 0.1+ | 0.5− | 2005 10 31 | 704 | 0.1+ | 0.1+ | 2006 01 06 | G96 | 0.4− | 0.3− |
| 2001 07 25 | 608 | 0.8+ | 0.2− | 2005 10 31 | 704 | 0.9+ | 0.4+ | 2006 01 06 | G96 | 0.0 | 0.9− |
| 2001 08 15 | 608 | 0.2+ | 0.2− | 2005 10 31 | 704 | 0.4− | 0.5+ | 2007 02 26 | G96 | 0.3+ | 0.8− |
| 2001 08 15 | 608 | 0.1− | 0.5− | 2005 10 31 | 704 | 0.7+ | 1.3+ | 2007 02 26 | G96 | 0.7+ | 0.0 |
| 2001 08 15 | 608 | 0.4+ | 0.9− | 2005 11 05 | 691 | 0.2− | 0.3+ | 2007 02 26 | G96 | 0.0 | 0.2− |
| 2001 08 19 | 704 | 0.5− | 0.2− | 2005 11 05 | 691 | 0.1+ | 0.2+ | 2007 02 26 | G96 | 0.0 | 0.6− |
| 2001 08 19 | 704 | 0.5− | 1.1+ | 2005 11 05 | 691 | 0.1− | 0.3+ | 2007 03 14 | G96 | 0.3+ | 0.3+ |
| 2001 08 19 | 704 | 0.4− | 0.9+ | 2005 11 11 | 691 | 0.3− | 0.1+ | 2007 03 14 | G96 | 0.2− | 0.1+ |
| 2001 08 23 | 608 | 0.3+ | 1.1− | 2005 11 11 | 691 | (1.1− | 1.5+) | 2007 03 14 | G96 | 0.0 | 0.1+ |
| 2001 08 23 | 608 | 0.3+ | 0.8− | 2005 11 11 | 691 | 0.2− | 0.2+ | 2007 03 14 | G96 | 0.2+ | 0.0 |
| 2001 08 23 | 608 | 0.2+ | 0.6− | 2005 11 25 | 691 | 0.0 | 0.2+ | 2008 07 28 | E12 | 0.2− | 1.3+ |
| 2004 05 13 | 644 | 0.4+ | 0.5+ | 2005 11 25 | 691 | 0.0 | 0.1+ | 2008 07 28 | E12 | 0.3+ | 0.1− |
| 2004 05 13 | 644 | 0.0 | 0.8+ | 2005 11 25 | 691 | 0.1+ | 0.2+ | 2008 07 28 | E12 | 0.2− | 1.2+ |
| 2004 05 13 | 644 | 0.3+ | 0.7+ | 2005 11 25 | G96 | 0.3+ | 0.1− | 2008 07 28 | E12 | 0.6− | 0.9+ |
| 2004 05 21 | 691 | 0.1+ | 0.3+ | 2005 11 25 | G96 | 0.1+ | 0.2− | 2009 11 21 | G96 | 0.7− | 0.4− |
| 2004 05 21 | 691 | 0.1− | 0.5+ | 2005 11 25 | G96 | 0.4+ | 0.2− | 2009 11 21 | G96 | 0.2+ | 0.1+ |
| 2004 05 21 | 691 | 0.1− | 0.4+ | 2005 11 25 | G96 | 0.1− | 0.3− | 2009 11 21 | G96 | 0.0 | 0.3− |
| 2005 10 25 | G96 | 0.0 | 0.2− | 2005 11 29 | 699 | 0.4+ | 0.1− | 2009 11 21 | G96 | 0.1− | 0.4− |
| 2005 10 25 | G96 | 0.4+ | 0.0 | 2005 11 29 | 699 | 1.2+ | 0.0 | 2009 12 19 | G96 | 0.1+ | 0.1+ |
| 2005 10 25 | G96 | 0.3− | 0.3− | 2005 11 29 | 699 | 0.5+ | 0.3− | 2009 12 19 | G96 | 0.6+ | 0.7− |
| 2005 10 25 | G96 | 0.1+ | 0.2− | 2005 11 29 | 699 | 1.4− | 0.6+ | 2009 12 19 | G96 | 0.1− | 0.4+ |
| 2005 10 26 | 691 | 0.1+ | 0.2+ | 2005 12 02 | G96 | 0.2+ | 0.0 | 2009 12 19 | G96 | 0.1+ | 0.0 |
| 2005 10 26 | 691 | 0.8− | 1.1− | 2005 12 02 | G96 | 0.1− | 0.0 | | | | |

**(228429)∗ 2001 PV$_{53}$ = 2005 RJ$_{21}$ = 2005 TP$_{3}$**

Discovered 2001 Aug. 14 by NEAT at Haleakala.

Id. G. V. Williams (*MPO* 84731)

| Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 | | | | | MPC |
|---|---|---|---|---|---|
| $M$ | 84.46122 | | (2000.0) | **P** | **Q** |
| $n$ | 0.26183903 | $\omega$ | 248.15606 | +0.70513249 | +0.70555050 |
| $a$ | 2.4198018 | $\Omega$ | 66.88817 | −0.61892209 | +0.66101758 |
| $e$ | 0.2566201 | $i$ | 4.40341 | −0.34601100 | +0.25544912 |
| $P$ | 3.76 | $H$ | 17.3 | $G$ 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 07 27 | 608 | 0.3+ | 0.5− | 2005 10 01 | 699 | 0.5− | 0.7− | 2008 03 31 | 691 | 0.4− | 0.5+ |
| 2001 07 27 | 608 | 0.7+ | 0.4− | 2005 10 01 | 699 | 0.5+ | 0.7− | 2008 03 31 | 691 | 0.3+ | 0.0 |
| 2001 07 27 | 608 | 0.1+ | 0.7− | 2005 10 01 | 699 | 0.3+ | 0.1− | 2008 03 31 | 691 | 0.3− | 0.2− |
| 2001 07 28 | 699 | 1.4+ | 0.3+ | 2005 10 03 | 703 | 0.8− | 0.0 | 2008 04 28 | G96 | 0.7+ | 0.1+ |
| 2001 07 28 | 699 | 0.2+ | 0.8− | 2005 10 03 | 703 | 0.2− | 0.2− | 2008 04 28 | G96 | 0.3+ | 0.1+ |
| 2001 07 28 | 699 | 0.4− | 1.3+ | 2005 10 03 | 703 | 0.8− | 0.3− | 2008 04 28 | G96 | 0.5+ | 0.6+ |
| 2001 07 28 | 699 | 0.6+ | 0.5+ | 2005 10 03 | 703 | 0.7− | 0.4+ | 2008 04 28 | G96 | 0.2+ | 0.2− |
| 2001 08 14 | 608 | 0.4− | 0.4− | 2005 10 08 | 703 | (0.9− | 2.6+) | 2009 10 23 | G96 | 0.1− | 0.1+ |
| 2001 08 14 | 608 | 0.1+ | 1.2− | 2005 10 08 | 703 | 0.6− | 0.5+ | 2009 10 23 | G96 | 0.1− | 0.2− |
| 2001 08 14 | 608 | 0.6+ | 0.1− | 2005 10 08 | 703 | 1.1− | 0.0 | 2009 10 23 | G96 | 0.2− | 0.1+ |
| 2001 08 19 | 704 | 1.0− | 0.1+ | 2005 10 08 | 703 | 0.9+ | 0.3+ | 2009 10 23 | G96 | 0.2− | 0.0 |
| 2001 08 19 | 704 | 0.8− | 0.5+ | 2005 11 01 | G96 | 0.0 | 0.2− | 2009 11 23 | G96 | 0.1+ | 0.3− |
| 2001 08 19 | 704 | 0.9− | 0.8+ | 2005 11 01 | G96 | 0.2+ | 0.4− | 2009 11 23 | G96 | 0.2+ | 0.3− |
| 2005 09 03 | 644 | 0.2− | 0.2+ | 2005 11 01 | G96 | 0.4+ | 0.2− | 2009 11 23 | G96 | 0.7+ | 0.2+ |
| 2005 09 03 | 644 | 0.4− | 0.2+ | 2005 11 01 | G96 | 0.0 | 0.2− | 2009 11 23 | G96 | 0.3+ | 0.1+ |
| 2005 09 03 | 644 | 0.1− | 0.0 | 2005 11 03 | 705 | 0.3+ | 0.1− | 2009 12 11 | G96 | 0.1− | 0.1+ |
| 2005 10 01 | 704 | (0.2− | 1.6+) | 2005 11 03 | 705 | 0.4+ | 0.0 | 2009 12 11 | G96 | 0.1− | 0.1+ |
| 2005 10 01 | 704 | 0.4− | 0.9+ | 2005 11 30 | G96 | 0.0 | 0.4− | 2009 12 11 | G96 | 0.3+ | 0.1+ |
| 2005 10 01 | 704 | 0.6+ | 0.6+ | 2005 11 30 | G96 | 0.5− | 0.4+ | 2009 12 11 | G96 | 0.3+ | 0.4− |
| 2005 10 01 | 704 | 0.0 | 0.7+ | 2005 11 30 | G96 | 0.2+ | 0.4+ | | | | |
| 2005 10 01 | 699 | 1.1+ | 0.5+ | 2005 11 30 | G96 | 0.2− | 0.3− | | | | |

**(228430)∗ 2001 PC$_{62}$**

Discovered 2001 Aug. 13 by NEAT at Haleakala.

| Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 | | | | | MPC |
|---|---|---|---|---|---|
| $M$ | 67.17381 | | (2000.0) | **P** | **Q** |
| $n$ | 0.27173240 | $\omega$ | 65.77771 | +0.86819131 | −0.49202201 |
| $a$ | 2.3607053 | $\Omega$ | 323.60102 | +0.40669031 | +0.77996145 |
| $e$ | 0.1167173 | $i$ | 6.23853 | +0.28433580 | +0.38674859 |
| $P$ | 3.63 | $H$ | 16.0 | $G$ 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 13 | 608 | 0.5− | 1.1+ | 2003 02 11 | 608 | 0.2+ | 0.7+ | 2005 11 09 | 704 | 0.0 | 0.3+ |
| 2001 08 13 | 608 | 1.2− | 1.3+ | 2003 03 06 | 644 | 0.6+ | 0.2+ | 2005 11 09 | 704 | 1.3+ | 0.7− |
| 2001 08 13 | 608 | 0.6− | 1.0+ | 2003 03 06 | 644 | 1.1+ | 0.5+ | 2005 11 28 | 699 | 0.6− | 1.0+ |
| 2001 08 16 | 704 | 0.3− | 0.2− | 2003 03 06 | 644 | 0.8+ | 0.3+ | 2005 11 28 | 699 | (1.8− | 0.2−) |
| 2001 08 16 | 704 | 0.3− | 0.4+ | 2003 03 12 | 644 | 0.6+ | 0.8+ | 2005 11 28 | 699 | 0.5− | 0.1− |
| 2001 08 16 | 704 | 0.1+ | 0.3+ | 2003 03 12 | 644 | 1.3+ | 0.6+ | 2005 11 28 | 703 | 0.4− | 0.3+ |
| 2001 08 16 | 704 | 0.1− | 0.4+ | 2003 03 12 | 644 | 0.2+ | 0.7+ | 2005 11 28 | 703 | 0.3+ | 0.7− |
| 2001 08 23 | 699 | 0.4+ | 0.4+ | 2005 10 03 | 704 | 0.1+ | 0.1+ | 2005 11 28 | 703 | 0.8+ | 0.6− |
| 2001 08 23 | 699 | 0.5− | 1.1+ | 2005 10 03 | 704 | 0.2− | 0.4+ | 2005 11 28 | 703 | 0.4+ | 0.3+ |
| 2001 08 23 | 699 | 0.6+ | 0.4+ | 2005 10 03 | 704 | 1.2− | 0.1+ | 2005 11 28 | 699 | 0.1+ | 0.9− |
| 2001 08 23 | 699 | 0.3+ | 0.3+ | 2005 10 06 | 699 | 0.4− | 0.7− | 2005 12 03 | 703 | 0.7+ | 0.4+ |
| 2001 09 07 | 704 | 0.7+ | 0.0 | 2005 10 06 | 699 | 0.2+ | 0.3− | 2005 12 03 | 703 | 0.1− | 1.0− |
| 2001 09 07 | 704 | (1.0+ | 2.4+) | 2005 10 06 | 699 | 0.5− | 0.5+ | 2005 12 03 | 703 | 0.0 | 0.2+ |
| 2001 09 07 | 704 | 1.3+ | 1.1+ | 2005 10 06 | 699 | 0.1+ | 0.6+ | 2005 12 03 | 703 | 0.1+ | 0.4+ |
| 2001 09 07 | 704 | 1.0+ | 0.2− | 2005 10 25 | 703 | 0.4− | 0.9− | 2007 03 14 | 703 | 0.8+ | 0.3− |
| 2001 09 07 | 704 | (0.1+ | 1.9+) | 2005 10 25 | 703 | 0.4− | 0.5− | 2007 03 14 | 703 | (2.6− | 1.2−) |
| 2001 09 12 | 704 | 1.1− | 0.6+ | 2005 10 25 | 703 | 0.1+ | 0.8− | 2007 03 14 | 703 | (1.8− | 0.9−) |
| 2001 09 12 | 704 | 0.7− | 0.4+ | 2005 10 25 | 703 | 0.4− | 0.3− | 2007 03 14 | 703 | 0.3− | 1.2+ |
| 2001 09 12 | 704 | 0.4− | 0.5+ | 2005 10 25 | 703 | 0.1− | 0.2− | 2007 03 21 | 704 | 0.4+ | 0.0 |
| 2001 09 12 | 704 | 0.8− | 0.2+ | 2005 10 25 | 703 | 0.0 | 0.5+ | 2007 03 21 | 704 | 0.2+ | 0.4+ |
| 2001 09 12 | 704 | 0.6− | 0.7+ | 2005 10 25 | 703 | 0.1− | 0.6− | 2007 03 21 | 704 | 0.4+ | 0.4− |
| 2001 09 20 | 704 | 0.2− | 0.7− | 2005 10 25 | 703 | 0.3+ | 0.4− | 2009 12 10 | 704 | 0.0 | 0.6− |
| 2001 09 20 | 704 | 0.6− | 0.2− | 2005 11 01 | 699 | 0.0 | 0.1+ | 2009 12 10 | 704 | 0.8+ | 0.0 |
| 2001 09 20 | 704 | 0.2− | 0.0 | 2005 11 01 | 699 | 0.4+ | 0.4+ | 2009 12 10 | 704 | 0.3− | 0.7− |
| 2001 09 20 | 704 | 0.0 | 0.1+ | 2005 11 01 | 699 | 0.2− | 0.3+ | 2009 12 10 | 704 | 0.1− | 0.4− |
| 2001 09 20 | 704 | 0.2− | 0.1− | 2005 11 01 | 699 | 0.2− | 0.1+ | 2009 12 15 | 704 | (2.3− | 0.2−) |
| 2001 09 22 | 704 | 1.1− | 0.9+ | 2005 11 02 | 703 | 0.6+ | 0.5+ | 2009 12 15 | 704 | (1.0− | 1.9+) |
| 2001 09 22 | 704 | 0.9− | 0.7+ | 2005 11 02 | 703 | 0.3− | 0.1− | 2009 12 15 | 704 | (1.1+ | 2.0+) |
| 2001 09 22 | 704 | 0.5− | 0.0 | 2005 11 02 | 703 | 0.4− | 0.0 | 2009 12 18 | G96 | 0.2+ | 0.0 |
| 2001 09 22 | 704 | 0.7− | 0.7+ | 2005 11 02 | 703 | 0.4− | 0.3+ | 2009 12 18 | G96 | 0.1+ | 0.2+ |
| 2002 12 28 | 291 | 0.1− | 0.9+ | 2005 11 03 | 704 | (1.9+ | 0.1−) | 2009 12 18 | G96 | 0.2+ | 0.0 |
| 2002 12 28 | 291 | 0.1+ | 0.6+ | 2005 11 03 | 704 | 0.9+ | 1.1− | 2009 12 18 | G96 | 0.3+ | 0.0 |
| 2002 12 28 | 291 | 0.2− | 0.6+ | 2005 11 03 | 704 | 1.3+ | 0.4+ | 2009 12 27 | 691 | 0.2− | 0.4+ |
| 2003 02 11 | 608 | 0.1− | 0.4− | 2005 11 03 | 704 | 1.1+ | 0.8− | 2009 12 27 | 691 | 0.1− | 0.3+ |
| 2003 02 11 | 608 | 0.6+ | 0.6− | 2005 11 09 | 704 | 0.5+ | 0.0 | 2009 12 27 | 691 | 0.2− | 0.3+ |

**(228431)∗ 2001 QZ**

Discovered 2001 Aug. 16 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

| Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 | | | | | MPC |
|---|---|---|---|---|---|
| $M$ | 55.51879 | | (2000.0) | **P** | **Q** |
| $n$ | 0.26204645 | $\omega$ | 75.82067 | +0.99161193 | −0.12558054 |
| $a$ | 2.4185247 | $\Omega$ | 291.38651 | +0.10226319 | +0.90698849 |
| $e$ | 0.1871699 | $i$ | 1.88219 | +0.07904448 | +0.40199678 |
| $P$ | 3.76 | $H$ | 17.1 | $G$ 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 16 | 704 | 0.1− | 0.1+ | 2005 10 03 | 703 | 0.6+ | 0.0 | 2005 10 29 | 683 | 1.1+ | 0.1+ |
| 2001 08 16 | 704 | 0.2− | 1.3+ | 2005 10 03 | 703 | 0.8+ | 0.8− | 2005 10 29 | 683 | 0.3+ | 0.2− |
| 2001 08 16 | 704 | 0.3− | 0.1+ | 2005 10 03 | 703 | 0.9− | 0.1+ | 2005 10 29 | 683 | (1.6+ | 0.9+) |
| 2001 08 17 | 704 | 0.5+ | 0.1+ | 2005 10 03 | 703 | 0.5+ | 0.7+ | 2005 10 29 | 703 | 0.7− | 1.4− |
| 2001 08 17 | 704 | 1.0− | 0.1− | 2005 10 06 | 691 | 0.2+ | 0.0 | 2005 10 29 | 703 | (2.2− | 1.8−) |
| 2001 08 17 | 704 | 0.1− | 0.3+ | 2005 10 06 | 699 | 0.5+ | 0.4− | 2005 10 29 | 703 | (1.8− | 0.3−) |
| 2001 08 17 | 704 | 0.6− | 0.4+ | 2005 10 06 | 691 | 0.2+ | 0.1+ | 2005 10 29 | 703 | 0.2− | 0.6+ |
| 2001 08 23 | 699 | 0.3+ | 0.1− | 2005 10 06 | 699 | 0.2+ | 0.1+ | 2007 03 10 | G96 | 0.1− | 0.7+ |
| 2001 08 23 | 699 | 0.6− | 0.4− | 2005 10 06 | 691 | 0.1+ | 0.1+ | 2007 03 10 | G96 | 0.3+ | 0.6+ |
| 2001 08 23 | 699 | 0.3− | 0.0 | 2005 10 06 | 699 | 0.0 | 0.1+ | 2007 03 10 | G96 | 0.9+ | 0.2− |
| 2001 08 23 | 699 | 0.3+ | 0.5− | 2005 10 07 | 704 | 0.3+ | 0.3− | 2007 03 10 | G96 | 0.3− | 0.1+ |
| 2001 08 24 | 644 | 0.3− | 0.4+ | 2005 10 07 | 704 | 0.1− | 0.2+ | 2007 03 12 | G96 | 0.7+ | 0.0 |
| 2001 08 24 | 644 | 0.1+ | 0.5+ | 2005 10 07 | 704 | 1.0+ | 0.2+ | 2007 03 12 | G96 | 0.2− | 0.6− |
| 2001 08 24 | 644 | 0.3+ | 0.5+ | 2005 10 07 | 704 | 0.0 | 0.5+ | 2007 03 12 | G96 | 0.3− | 0.3+ |
| 2001 09 20 | 704 | 0.0 | 0.9− | 2005 10 12 | 704 | 0.5+ | 0.2− | 2007 03 12 | G96 | 0.3− | 0.1+ |
| 2001 09 20 | 704 | 0.7+ | 0.1+ | 2005 10 12 | 704 | 0.3− | 0.7− | 2009 11 08 | G96 | 0.0 | 0.1+ |
| 2001 09 20 | 704 | 0.2+ | 0.0 | 2005 10 12 | 704 | 0.7− | 0.9+ | 2009 11 08 | G96 | 0.2− | 0.0 |
| 2001 09 20 | 704 | 0.6− | 0.2+ | 2005 10 12 | 704 | 0.2− | 0.7+ | 2009 11 08 | G96 | 0.3− | 0.0 |
| 2001 09 22 | 704 | 0.0 | 0.2+ | 2005 10 22 | 703 | 0.2+ | 0.0 | 2009 11 08 | G96 | 0.4+ | 0.0 |
| 2001 09 22 | 704 | 0.0 | 0.5− | 2005 10 22 | 703 | 0.8− | 0.3+ | 2009 11 09 | 691 | 0.0 | 0.1+ |
| 2001 09 22 | 704 | 0.2− | 0.4+ | 2005 10 22 | 703 | 0.9− | 1.3− | 2009 11 09 | 691 | 0.2+ | 0.0 |
| 2001 09 22 | 704 | 0.4+ | 0.3− | 2005 10 22 | 703 | (0.8− | 2.0−) | 2009 11 09 | 691 | 0.2− | 0.1− |
| 2001 09 22 | 704 | 0.3+ | 0.1− | 2005 10 22 | 644 | 0.3− | 0.0 | 2009 11 17 | 691 | 0.0 | 0.0 |
| 2005 08 30 | 644 | 0.1+ | 0.1− | 2005 10 22 | 644 | 0.3− | 0.1− | 2009 11 17 | 691 | 0.1− | 0.5− |
| 2005 08 30 | 644 | 0.2+ | 0.2− | 2005 10 22 | 644 | 0.1− | 0.2− | 2009 11 17 | 691 | 0.3− | 0.2+ |
| 2005 08 30 | 644 | 0.1+ | 0.1+ | 2005 10 24 | 699 | 0.2+ | 1.0+ | 2009 11 25 | 691 | 0.0 | 0.1− |
| 2005 09 25 | 691 | 0.1− | 0.0 | 2005 10 24 | 699 | 0.3− | 0.7− | 2009 11 25 | 691 | 0.3− | 0.2+ |
| 2005 09 25 | 691 | 0.2− | 0.1+ | 2005 10 24 | 699 | 0.7− | 1.0− | 2009 11 25 | 691 | 0.2+ | 0.6+ |
| 2005 09 25 | 691 | 0.2− | 0.1+ | 2005 10 24 | 699 | (0.5− | 1.6+) | 2009 12 10 | G96 | 0.4+ | 0.2− |
| 2005 09 30 | 691 | 0.0 | 0.1− | 2005 10 26 | 691 | 0.0 | 0.0 | 2009 12 10 | G96 | 0.4+ | 0.7+ |
| 2005 09 30 | 691 | 0.3+ | 0.2+ | 2005 10 26 | 691 | 0.2− | 0.1− | 2009 12 10 | G96 | 0.1+ | 0.1− |
| 2005 09 30 | 691 | 0.2+ | 0.0 | 2005 10 26 | 691 | 0.0 | 0.2− | 2009 12 10 | G96 | 0.2+ | 0.2+ |

**(228432)∗ 2001 QD$_{38}$**

Discovered 2001 Aug. 16 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

| Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 | | | | | MPC |
|---|---|---|---|---|---|
| $M$ | 111.74323 | | (2000.0) | **P** | **Q** |
| $n$ | 0.27009934 | $\omega$ | 23.37044 | +0.68548294 | +0.72761417 |
| $a$ | 2.3702112 | $\Omega$ | 289.91463 | −0.67234163 | +0.61873272 |
| $e$ | 0.2020616 | $i$ | 1.60185 | −0.27940985 | +0.29622196 |
| $P$ | 3.65 | $H$ | 16.9 | $G$ 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 07 21 | 608 | 0.6− | 0.1+ | 2001 09 07 | 704 | 0.1+ | 0.5− | 2007 02 13 | G96 | 0.2− | 0.2+ |
| 2001 07 21 | 608 | 0.7− | 0.2+ | 2005 10 06 | G96 | 0.1+ | 0.0 | 2007 02 13 | G96 | 0.3+ | 0.5+ |
| 2001 07 21 | 608 | 0.5− | 0.0 | 2005 10 06 | G96 | 0.3+ | 0.1− | 2007 02 13 | G96 | 0.1+ | 0.1− |
| 2001 07 21 | 608 | 1.4− | 0.2− | 2005 10 06 | G96 | 0.4+ | 0.1− | 2007 02 13 | G96 | 0.3+ | 0.2− |
| 2001 07 21 | 608 | 0.7− | 0.1+ | 2005 10 06 | G96 | 0.6+ | 0.2− | 2007 03 13 | G96 | 0.1+ | 0.1− |
| 2001 07 21 | 608 | 0.7− | 0.2+ | 2005 10 09 | 691 | 0.5+ | 0.5− | 2007 03 13 | G96 | 0.8+ | 0.8− |
| 2001 08 14 | 608 | 0.1+ | 0.1− | 2005 10 09 | 691 | 0.1+ | 0.1+ | 2007 03 13 | G96 | 0.5+ | 0.1− |
| 2001 08 14 | 608 | 0.1− | 0.3− | 2005 10 09 | 691 | 0.0 | 0.3+ | 2007 03 13 | G96 | 0.2+ | 0.2− |
| 2001 08 14 | 608 | 0.2− | 0.2− | 2005 10 13 | 691 | 0.2− | 0.3+ | 2008 05 27 | G92 | 0.1+ | 1.1+ |
| 2001 08 16 | 704 | 0.2− | 1.1+ | 2005 10 13 | 691 | 0.2− | 0.2+ | 2008 05 27 | G92 | 0.5+ | 0.5+ |
| 2001 08 16 | 704 | 0.2− | 0.9+ | 2005 10 13 | 691 | 0.4− | 0.2+ | 2008 05 27 | G92 | 0.1+ | 0.4+ |
| 2001 08 16 | 704 | 0.4+ | 0.1+ | 2005 11 06 | 704 | 1.3− | 0.5− | 2009 11 21 | 691 | 0.3− | 0.1+ |
| 2001 08 16 | 704 | 0.6− | 0.4+ | 2005 11 06 | 704 | 0.5+ | 1.0+ | 2009 11 21 | 691 | 0.0 | 0.1− |
| 2001 08 16 | 704 | 1.0+ | 0.3+ | 2005 11 06 | 704 | 1.1+ | 0.7+ | 2009 11 21 | 691 | 0.2− | 0.1− |
| 2001 08 19 | 704 | 0.0 | 0.0 | 2005 11 06 | 704 | 0.4+ | 0.3+ | 2009 12 10 | G96 | 0.3+ | 0.0 |
| 2001 08 19 | 704 | 0.1− | 0.8+ | 2005 11 06 | 704 | 0.4+ | 0.1− | 2009 12 10 | G96 | 0.6− | 0.3− |
| 2001 08 19 | 704 | 0.3+ | 0.5− | 2007 01 27 | 691 | 0.1− | 0.4+ | 2009 12 10 | G96 | 0.3− | 0.1− |
| 2001 08 19 | 704 | 0.7− | 0.5+ | 2007 01 27 | 691 | 0.0 | 0.4+ | 2009 12 10 | G96 | 0.4+ | 0.2− |
| 2001 08 24 | 704 | 0.6+ | 0.5+ | 2007 01 27 | 691 | 0.5+ | 0.6+ | 2009 12 19 | G96 | 0.2− | 0.0 |
| 2001 08 24 | 704 | 0.7+ | 0.1− | 2007 02 06 | G96 | 0.1+ | 0.2+ | 2009 12 19 | G96 | 0.3− | 0.2− |
| 2001 08 24 | 704 | 0.4+ | 0.4− | 2007 02 06 | G96 | 0.6+ | 0.4+ | 2009 12 19 | G96 | 0.7− | 0.7+ |
| 2001 09 07 | 704 | 1.1+ | 1.3− | 2007 02 06 | G96 | 0.3− | 0.1− | 2009 12 19 | G96 | 0.3+ | 0.1− |
| 2001 09 07 | 704 | 0.3+ | 0.5+ | 2007 02 06 | G96 | 0.4− | 0.3− | | | | |

**(228433)∗ 2001 QN$_{41}$ = 1998 WX$_{44}$**

Discovered 2001 Aug. 16 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 42962)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 81.09526 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27098744 | $\omega$ | 104.81239 | | +0.99495059 | −0.09813078 | |
| $a$ | 2.3650297 | $\Omega$ | 260.82246 | | +0.08191294 | +0.91520995 | |
| $e$ | 0.2496807 | $i$ | 1.22260 | | +0.05799651 | +0.39084664 | |
| $P$ | 3.64 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 11 05 | 691 | 0.3− | 0.3+ | 2005 10 30 | 644 | 0.0 | 0.1− | 2005 12 01 | 704 | 0.9− | 0.3− |
| 1994 11 05 | 691 | 0.4+ | 0.1− | 2005 10 30 | 644 | 0.2+ | 0.1+ | 2005 12 01 | 704 | 0.0 | 0.2+ |
| 1994 11 05 | 691 | 0.3− | 0.2− | 2005 10 30 | 644 | 0.2+ | 0.0 | 2005 12 01 | 704 | 0.7− | 0.1+ |
| 1998 11 18 | 950 | 0.0 | 0.1+ | 2005 10 30 | 644 | 0.2+ | 0.1− | 2005 12 01 | 704 | 0.2− | 0.2− |
| 1998 11 18 | 950 | 0.5+ | 0.2+ | 2005 10 30 | 644 | 0.2+ | 0.2+ | 2005 12 01 | 704 | 1.0− | 0.0 |
| 1998 11 18 | 950 | 0.1+ | 0.2+ | 2005 11 01 | 704 | 1.2+ | 0.8− | 2005 12 04 | 704 | 0.7− | 0.1+ |
| 1998 11 18 | 950 | 0.5+ | 0.3+ | 2005 11 01 | 704 | 0.1+ | 0.7− | 2005 12 04 | 704 | 1.1− | 0.4+ |
| 1998 11 18 | 950 | 0.2+ | 0.2+ | 2005 11 01 | 704 | 0.7+ | 1.3+ | 2005 12 04 | 704 | 0.7− | 0.2− |
| 1998 11 18 | 950 | 0.6+ | 0.2+ | 2005 11 01 | 704 | 0.6+ | 0.1− | 2005 12 04 | 704 | 0.3+ | 0.1+ |
| 1998 11 19 | 950 | 0.1+ | 0.2+ | 2005 11 11 | 691 | 0.4+ | 0.3− | 2005 12 04 | 704 | (1.7− | 0.1−) |
| 1998 11 19 | 950 | 0.2+ | 0.2+ | 2005 11 11 | 691 | 0.1+ | 0.2− | 2005 12 04 | G96 | 0.0 | 0.1− |
| 1998 11 19 | 950 | 0.1+ | 0.3+ | 2005 11 11 | 691 | 0.3+ | 0.4− | 2005 12 04 | G96 | 0.1− | 0.1− |
| 2001 07 26 | 608 | 0.6− | 0.2+ | 2005 11 12 | 691 | 0.2+ | 0.2− | 2005 12 04 | G96 | 0.2− | 0.1− |
| 2001 07 26 | 608 | 0.5− | 0.7+ | 2005 11 12 | 691 | 0.0 | 0.2− | 2005 12 04 | G96 | 0.3+ | 0.1+ |
| 2001 07 26 | 608 | 0.2− | 0.8+ | 2005 11 12 | 691 | 0.2+ | 0.2− | 2006 01 05 | G96 | 0.0 | 0.0 |
| 2001 08 16 | 704 | 0.2+ | 1.1+ | 2005 11 21 | 699 | 0.4+ | 0.6− | 2006 01 05 | G96 | 0.1− | 0.4− |
| 2001 08 16 | 704 | 0.1− | 1.2+ | 2005 11 21 | 699 | 0.2− | 0.3− | 2006 01 05 | G96 | 0.1− | 0.3− |
| 2001 08 16 | 704 | 0.1− | 0.4− | 2005 11 21 | 699 | 0.4− | 0.3+ | 2006 01 05 | G96 | 0.3+ | 0.1− |
| 2001 08 19 | 704 | 0.3+ | 0.2− | 2005 11 21 | 699 | 0.1− | 0.0 | 2007 03 13 | G96 | 0.6+ | 0.6− |
| 2001 08 19 | 704 | 0.5− | 0.2− | 2005 11 21 | 703 | 0.2− | 0.1+ | 2007 03 13 | G96 | 0.7+ | 0.1− |
| 2001 08 19 | 704 | 0.1+ | 0.2+ | 2005 11 21 | 703 | 0.3+ | 0.1− | 2007 03 13 | G96 | 0.3+ | 0.0 |
| 2001 08 27 | 691 | 0.0 | 0.6− | 2005 11 21 | 703 | 0.3+ | 0.2− | 2007 03 13 | G96 | 0.4+ | 0.1+ |
| 2001 08 27 | 691 | 0.0 | 0.5− | 2005 11 21 | 703 | 0.3− | 0.1− | 2009 12 15 | G96 | 0.6+ | 0.7− |
| 2001 08 27 | 691 | 0.4+ | 0.6− | 2005 11 28 | 703 | 0.1+ | 0.1+ | 2009 12 15 | G96 | 0.1− | 0.3+ |
| 2005 10 26 | 699 | 0.5− | 1.0+ | 2005 11 28 | 703 | 0.2+ | 0.2− | 2009 12 15 | G96 | 0.2+ | 0.4+ |
| 2005 10 26 | 699 | 0.3− | 0.7+ | 2005 11 28 | 703 | 0.2+ | 1.2+ | 2009 12 15 | G96 | 0.6+ | 0.3− |
| 2005 10 26 | 699 | 0.9− | 0.8− | 2005 11 28 | 703 | (1.8− | 1.1−) | 2009 12 17 | 691 | 0.2− | 0.6− |
| 2005 10 26 | 699 | 0.7− | 0.5+ | 2005 11 29 | 704 | 0.2+ | 0.8+ | 2009 12 17 | 691 | 0.6− | 0.2− |
| 2005 10 27 | 691 | 0.3+ | 0.3+ | 2005 11 29 | 704 | 0.4− | 0.7+ | 2009 12 17 | 691 | 0.0 | 0.6− |
| 2005 10 27 | 691 | 0.2+ | 0.4+ | 2005 11 29 | 704 | 0.7− | 1.0+ | 2009 12 25 | 691 | 0.5− | 0.1+ |
| 2005 10 27 | 691 | 0.2+ | 0.4+ | 2005 11 29 | 704 | 1.0− | 0.2+ | 2009 12 25 | 691 | 0.0 | 0.1+ |
| 2005 10 30 | 644 | 0.3+ | 0.3+ | 2005 11 29 | 704 | 0.5− | 0.2+ | 2009 12 25 | 691 | 0.5− | 0.0 |

**(228434)∗ 2001 QQ$_{45}$**

Discovered 2001 Aug. 16 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 80.21808 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26219560 | $\omega$ | 211.53513 | | +0.83112466 | +0.55418624 | |
| $a$ | 2.4176074 | $\Omega$ | 114.74199 | | −0.49910061 | +0.77982595 | |
| $e$ | 0.2089562 | $i$ | 2.89872 | | −0.24521495 | +0.29111700 | |
| $P$ | 3.76 | $H$ | 17.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 07 27 | 699 | 0.1− | 0.1− | 2005 10 25 | 705 | 0.3+ | 0.0 | 2008 04 07 | 691 | 0.0 | 0.5+ |
| 2001 07 27 | 699 | 0.1+ | 0.1− | 2005 10 25 | 705 | 0.3+ | 0.1+ | 2008 04 07 | 691 | 0.3+ | 0.3− |
| 2001 07 27 | 699 | 0.2+ | 0.7− | 2005 10 26 | 705 | 0.2+ | 0.1+ | 2008 04 07 | 691 | 0.2+ | 0.7+ |
| 2001 07 27 | 699 | 0.4− | 0.2+ | 2005 10 26 | 705 | 0.4+ | 0.0 | 2008 04 30 | G96 | 0.0 | 0.1− |
| 2001 08 16 | 704 | 1.1− | 0.7− | 2005 10 28 | 705 | 0.2+ | 0.0 | 2008 04 30 | G96 | 0.5+ | 0.0 |
| 2001 08 16 | 704 | (1.1− | 2.5−) | 2005 10 28 | 705 | 0.3+ | 0.0 | 2008 04 30 | G96 | 0.3+ | 0.3− |
| 2001 08 16 | 704 | 0.0 | 1.4− | 2005 10 30 | 705 | 0.3+ | 0.0 | 2008 04 30 | G96 | 0.3+ | 0.1− |
| 2001 08 19 | 704 | 0.9+ | 0.2+ | 2005 10 30 | 705 | 0.2+ | 0.0 | 2008 06 01 | G96 | 0.1+ | 0.1− |
| 2001 08 19 | 704 | 0.1− | 0.8+ | 2005 11 01 | 705 | 0.2+ | 0.0 | 2008 06 01 | G96 | 0.1− | 0.0 |
| 2001 08 19 | 704 | 0.6− | 0.6+ | 2005 11 01 | 705 | 0.2+ | 0.0 | 2008 06 01 | G96 | 0.1+ | 0.1− |
| 2001 08 19 | 704 | 0.0 | 0.5+ | 2005 11 03 | 705 | 0.2+ | 0.1− | 2008 06 01 | G96 | 0.3− | 0.2− |
| 2005 07 06 | 291 | 0.6− | 0.2+ | 2005 11 03 | 705 | 0.2+ | 0.1− | 2009 10 25 | 691 | 0.4− | 0.3+ |
| 2005 07 06 | 291 | 0.2− | 0.1− | 2005 11 06 | 705 | 0.3+ | 0.0 | 2009 10 25 | 691 | 0.7− | 0.3+ |
| 2005 07 06 | 291 | 0.4− | 0.0 | 2005 11 06 | 705 | 0.3+ | 0.0 | 2009 10 25 | 691 | 0.5− | 0.3+ |
| 2005 09 24 | 644 | 0.2− | 0.7+ | 2005 11 09 | 705 | 0.2+ | 0.1+ | 2009 11 23 | G96 | 0.0 | 0.1− |
| 2005 09 24 | 644 | 0.0 | 0.2+ | 2005 11 09 | 705 | 0.2+ | 0.0 | 2009 11 23 | G96 | 0.5+ | 0.0 |
| 2005 09 24 | 644 | 0.0 | 0.1+ | 2005 11 19 | 705 | 0.1− | 0.1− | 2009 11 23 | G96 | 0.0 | 0.1− |
| 2005 10 01 | 699 | 0.8+ | 0.3− | 2005 11 19 | 705 | 0.0 | 0.2− | 2009 11 23 | G96 | 0.4+ | 0.2− |
| 2005 10 01 | 699 | 0.0 | 0.1+ | 2005 11 23 | 705 | 0.0 | 0.2− | 2009 11 23 | G96 | 0.3+ | 0.2+ |
| 2005 10 01 | 699 | (1.9− | 0.4−) | 2005 11 23 | 705 | 0.1− | 0.0 | 2009 11 23 | G96 | 0.3+ | 0.0 |
| 2005 10 01 | 699 | 0.1− | 1.3+ | 2005 11 30 | G96 | 0.3− | 0.5− | 2009 11 23 | G96 | 0.5+ | 0.1+ |
| 2005 10 08 | 703 | (0.0 | 1.9+) | 2005 11 30 | G96 | 0.1+ | 0.2+ | 2009 11 23 | G96 | 0.4+ | 0.4+ |
| 2005 10 08 | 703 | (0.7+ | 3.3+) | 2005 11 30 | G96 | 0.2− | 0.1− | 2009 12 19 | G96 | 0.6− | 0.9− |
| 2005 10 08 | 703 | 0.1− | 0.5+ | 2005 11 30 | G96 | 0.0 | 0.0 | 2009 12 19 | G96 | 0.0 | 0.4+ |
| 2005 10 08 | 703 | 1.2+ | 0.4− | 2008 04 01 | 691 | 0.2− | 0.3+ | 2009 12 19 | G96 | 0.4− | 0.5− |
| 2005 10 23 | 705 | 0.4+ | 0.0 | 2008 04 01 | 691 | 0.1+ | 0.2+ | 2009 12 19 | G96 | 0.6+ | 0.1− |
| 2005 10 23 | 705 | 0.4+ | 0.1+ | 2008 04 01 | 691 | 0.1− | 0.2− | | | | |

**(228435)∗ 2001 QR$_{59}$**

Discovered 2001 Aug. 18 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 128.65601 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26866255 | $\omega$ | 291.53698 | | +0.35335080 | +0.93548961 | |
| $a$ | 2.3786541 | $\Omega$ | 359.15080 | | −0.81498228 | +0.30701936 | |
| $e$ | 0.1475100 | $i$ | 5.99866 | | −0.45928977 | +0.17492369 | |
| $P$ | 3.67 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 07 30 | 704 | 0.3− | 0.1− | 2004 03 27 | 704 | 0.2− | 0.5− | 2005 10 09 | 691 | 0.1+ | 0.1+ |
| 2001 07 30 | 704 | 0.1+ | 0.9+ | 2004 03 31 | 704 | 1.1− | 0.1+ | 2005 10 09 | 691 | 0.2+ | 0.2+ |
| 2001 07 30 | 704 | 0.3− | 1.1+ | 2004 03 31 | 704 | 0.2− | 0.1+ | 2005 10 09 | 691 | 0.4+ | 0.2+ |
| 2001 08 18 | 704 | (2.1− | 1.7+) | 2004 03 31 | 704 | 1.0− | 0.1+ | 2005 10 13 | 691 | 0.4− | 0.0 |
| 2001 08 18 | 704 | 1.4− | 0.0 | 2004 03 31 | 704 | 1.1+ | 0.0 | 2005 10 13 | 691 | 0.1− | 0.0 |
| 2001 08 18 | 704 | (1.6− | 0.0 ) | 2004 04 13 | 691 | 0.0 | 0.1+ | 2005 10 13 | 691 | 0.1+ | 0.2+ |
| 2001 08 19 | 704 | 0.7+ | 0.5+ | 2004 04 13 | 691 | 0.1+ | 0.0 | 2005 10 22 | 703 | (0.1+ | 2.1−) |
| 2001 08 19 | 704 | 0.5+ | 0.4+ | 2004 04 13 | 691 | 0.0 | 0.0 | 2005 10 22 | 703 | 0.2− | 0.9− |
| 2001 08 19 | 704 | 0.6+ | 0.1− | 2004 04 17 | 704 | 0.5+ | 0.3− | 2005 10 22 | 703 | 0.2+ | 0.5− |
| 2001 08 19 | 704 | 0.5+ | 0.7+ | 2004 04 17 | 704 | 0.0 | 0.3+ | 2005 10 22 | 703 | 0.4+ | 0.8− |
| 2001 08 19 | 704 | 0.3− | 0.3+ | 2004 04 17 | 704 | 0.3+ | 0.4− | 2005 10 28 | 703 | 0.6− | 0.3− |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 23 | 608 | (2.0+ | 2.0+) | 2004 04 20 | 704 | 1.5+ | 0.9+ | 2005 10 28 | 703 | 0.7+ | 0.6− |
| 2001 08 23 | 608 | (1.8+ | 0.8+) | 2004 04 20 | 704 | 0.5+ | 1.3+ | 2005 10 28 | 703 | 0.3+ | 0.4+ |
| 2001 08 23 | 608 | (1.7+ | 0.6+) | 2004 04 20 | 704 | 0.2+ | 0.2+ | 2005 10 28 | 703 | 1.1+ | 0.1− |
| 2001 08 25 | 704 | 0.2+ | 0.1− | 2004 04 20 | 704 | 0.2+ | 0.4+ | 2005 11 02 | 704 | 0.3+ | 1.2+ |
| 2001 08 25 | 699 | 0.1+ | 0.3+ | 2005 09 08 | 704 | 0.5+ | 0.9+ | 2005 11 02 | 704 | 0.1+ | 1.3+ |
| 2001 08 25 | 704 | 0.1− | 0.4− | 2005 09 08 | 704 | (0.7+ | 3.2+) | 2005 11 02 | 704 | (2.2− | 0.7+) |
| 2001 08 25 | 699 | 0.7− | 0.1− | 2005 09 08 | 704 | (0.5+ | 1.9+) | 2009 11 11 | 691 | 0.5− | 0.3− |
| 2001 08 25 | 704 | 0.4− | 0.0 | 2005 09 08 | 704 | (0.2− | 1.9+) | 2009 11 11 | 691 | 0.5− | 0.1− |
| 2001 08 25 | 699 | 0.1− | 0.7+ | 2005 09 25 | 644 | 0.0 | 0.4+ | 2009 11 11 | 691 | 0.2− | 0.0 |
| 2001 08 25 | 704 | 0.6− | 0.1+ | 2005 09 25 | 644 | 0.2− | 0.2+ | 2009 11 16 | 704 | 0.8+ | 0.3+ |
| 2001 08 25 | 699 | 0.4+ | 0.1− | 2005 09 25 | 644 | 0.1+ | 0.1+ | 2009 11 16 | 704 | 0.4+ | 0.2− |
| 2001 09 11 | 704 | 0.3− | 0.0 | 2005 09 29 | 691 | 0.2+ | 0.1+ | 2009 11 16 | 704 | 0.1+ | 1.1+ |
| 2001 09 11 | 704 | 0.0 | 1.0+ | 2005 09 29 | 691 | 0.2+ | 0.3+ | 2009 11 19 | 691 | 0.2− | 0.1+ |
| 2001 09 11 | 704 | 0.9+ | 1.4+ | 2005 09 29 | 691 | 0.2+ | 0.2+ | 2009 11 19 | 691 | 0.2− | 0.0 |
| 2001 09 11 | 704 | 0.9− | 0.9+ | 2005 09 29 | 699 | 0.4− | 0.1+ | 2009 11 19 | 691 | 0.5− | 0.1− |
| 2001 09 19 | 704 | 0.7− | 0.6− | 2005 09 29 | 699 | 0.5− | 0.4− | 2009 11 23 | 691 | 0.5− | 0.0 |
| 2001 09 19 | 704 | 0.0 | 0.5− | 2005 09 29 | 699 | 1.2+ | 0.8− | 2009 11 23 | 691 | 0.4− | 0.0 |
| 2001 09 19 | 704 | 0.0 | 1.0− | 2005 09 29 | 699 | 0.1+ | 0.3− | 2009 11 23 | 691 | 0.3− | 0.0 |
| 2001 09 19 | 704 | 1.0− | 1.1− | 2005 10 03 | 703 | 0.5+ | 1.5− | 2009 11 24 | D29 | 0.3+ | 0.0 |
| 2001 09 19 | 704 | 0.6− | 1.0− | 2005 10 03 | 703 | 0.2− | 0.1+ | 2009 11 24 | D29 | 0.4+ | 0.0 |
| 2001 09 21 | 704 | 1.0− | 0.2− | 2005 10 03 | 691 | 0.2+ | 0.4+ | 2009 11 24 | D29 | 0.4+ | 0.4+ |
| 2001 09 21 | 704 | 1.2− | 0.9− | 2005 10 03 | 703 | 0.4− | 0.3− | 2009 11 24 | D29 | 0.2+ | 0.2− |
| 2001 09 21 | 704 | 0.9− | 0.7− | 2005 10 03 | 703 | 1.1+ | 0.8+ | 2009 11 27 | 691 | 0.1− | 0.3− |
| 2001 09 21 | 704 | 1.4− | 1.4− | 2005 10 03 | 691 | 0.4+ | 0.3+ | 2009 11 27 | 691 | 0.1− | 0.2− |
| 2004 03 16 | 691 | 0.4+ | 0.7+ | 2005 10 03 | 691 | 0.3+ | 0.3+ | 2009 11 27 | 691 | 0.1− | 0.2+ |
| 2004 03 16 | 691 | 0.2+ | 0.4+ | 2005 10 06 | 699 | 0.3+ | 0.7+ | 2009 12 15 | 704 | 0.2− | 1.0+ |
| 2004 03 16 | 691 | 0.2+ | 0.5+ | 2005 10 06 | 699 | 0.5− | 1.2+ | 2009 12 15 | 704 | 0.2− | 0.9+ |
| 2004 03 27 | 704 | 0.3+ | 0.3+ | 2005 10 06 | 699 | 0.8+ | 1.4+ | 2009 12 15 | 704 | 0.5+ | 1.2+ |
| 2004 03 27 | 704 | 0.7+ | 1.0− | 2005 10 06 | 699 | 0.7− | 0.4+ | | | | |

**(228436)∗ 2001 QH$_{71}$**

Discovered 2001 Aug. 16 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 36.48368 | | (2000.0) | | **P** | **Q** |
| $n$ | 0.38754676 | $\omega$ | 126.85682 | | +0.53047636 | −0.80892560 |
| $a$ | 1.8631735 | $\Omega$ | 289.21187 | | +0.66695570 | +0.58281801 |
| $e$ | 0.1341309 | $i$ | 15.56860 | | +0.52322549 | +0.07721740 |
| $P$ | 2.54 | $H$ | 17.8 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 16 | 644 | 0.7− | 0.9− | 2001 09 17 | 704 | 0.6+ | 0.9+ | 2006 08 16 | 644 | 0.2− | 0.0 |
| 2001 08 16 | 644 | 0.5− | 0.7− | 2004 12 18 | G96 | 0.3− | 0.1+ | 2006 08 16 | 644 | 0.4− | 0.1+ |
| 2001 08 16 | 644 | 0.7− | 0.5− | 2004 12 18 | G96 | 0.2− | 0.1− | 2006 08 16 | 644 | 0.2− | 0.1+ |
| 2001 08 21 | 644 | (0.6− | 1.7−) | 2004 12 18 | G96 | 0.0 | 0.2+ | 2009 11 25 | 703 | 0.5− | 1.0− |
| 2001 08 21 | 644 | (0.8− | 1.9−) | 2004 12 18 | G96 | 0.1− | 0.1+ | 2009 11 25 | 703 | 0.1+ | 0.3+ |
| 2001 08 21 | 644 | (0.7− | 2.0−) | 2004 12 19 | G96 | 0.1− | 0.1− | 2009 11 25 | 703 | 0.3− | 1.0− |
| 2001 09 10 | 704 | 0.2+ | 0.2− | 2004 12 19 | G96 | 0.2− | 0.1+ | 2009 11 25 | 703 | 1.1− | 0.5− |
| 2001 09 10 | 704 | 1.4+ | 0.4− | 2004 12 19 | G96 | 0.3+ | 0.2+ | 2009 12 15 | 704 | 0.5− | 1.2+ |
| 2001 09 10 | 704 | 0.4+ | 1.0− | 2004 12 19 | G96 | 0.1− | 0.1− | 2009 12 15 | 704 | 0.3+ | 0.8+ |
| 2001 09 10 | 704 | 0.6+ | 0.2− | 2005 01 13 | 704 | 0.0 | 0.4− | 2009 12 15 | 704 | 0.5+ | 0.6+ |
| 2001 09 11 | 704 | 0.1+ | 0.4+ | 2005 01 13 | 704 | 0.1− | 0.8− | 2009 12 15 | 704 | 0.4+ | 0.9+ |
| 2001 09 11 | 704 | 0.3− | 0.5+ | 2005 01 13 | 704 | 0.3− | 0.2− | 2009 12 15 | 704 | 0.3+ | 0.6+ |
| 2001 09 11 | 704 | 0.0 | 0.4+ | 2005 01 13 | 704 | 0.7+ | 0.8+ | 2009 12 20 | G96 | 0.3+ | 0.2− |
| 2001 09 11 | 704 | 0.5− | 0.2+ | 2006 07 21 | 703 | 0.1− | 0.9+ | 2009 12 20 | G96 | 0.7+ | 0.2− |
| 2001 09 11 | 704 | 0.4− | 0.3− | 2006 07 21 | 703 | 0.5− | 1.0+ | 2009 12 20 | G96 | 0.1+ | 0.4− |
| 2001 09 17 | 704 | 0.6+ | 0.1− | 2006 07 21 | 703 | (0.0 | 2.1+) | | | | |
| 2001 09 17 | 704 | 0.0 | 0.8+ | 2006 07 21 | 703 | (2.0− | 1.2+) | | | | |

**(228437)∗ 2001 QV$_{86}$**

Discovered 2001 Aug. 17 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 80.17809 | | (2000.0) | | **P** | **Q** |
| $n$ | 0.26232421 | $\omega$ | 77.90844 | | +0.95805401 | +0.20938125 |
| $a$ | 2.4168172 | $\Omega$ | 269.76806 | | −0.27186104 | +0.88005131 |
| $e$ | 0.1093124 | $i$ | 11.28474 | | +0.09068676 | +0.42622668 |
| $P$ | 3.76 | $H$ | 16.5 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 17 | 644 | 0.1+ | 0.0 | 2001 09 21 | 699 | 0.3− | 0.8+ | 2005 11 03 | 704 | 0.6+ | 0.9− |
| 2001 08 17 | 644 | 0.4+ | 0.2+ | 2001 09 21 | 699 | 0.9− | 0.1+ | 2005 11 03 | 704 | 0.3+ | 0.6+ |
| 2001 08 17 | 644 | 0.6+ | 0.0 | 2001 09 21 | 699 | 0.2− | 0.7+ | 2005 11 03 | 704 | 0.6+ | 0.3− |
| 2001 08 21 | 608 | 1.1− | 0.1− | 2001 09 23 | 699 | 0.7− | 0.3+ | 2005 11 03 | 704 | 0.1− | 0.4+ |
| 2001 08 21 | 608 | 0.4− | 1.0− | 2001 09 23 | 644 | 0.8− | 0.6+ | 2005 11 04 | 699 | 0.4− | 0.2− |
| 2001 08 21 | 608 | 0.2− | 0.5− | 2001 09 23 | 699 | 0.0 | 0.2+ | 2005 11 04 | 699 | 0.7− | 0.2− |
| 2001 08 22 | 704 | 0.1+ | 0.8+ | 2001 09 23 | 644 | 1.0− | 0.9+ | 2005 11 04 | 699 | 0.9+ | 1.2− |
| 2001 08 22 | 704 | 0.0 | 0.8− | 2001 09 23 | 699 | 0.7+ | 0.3− | 2005 11 04 | 699 | 0.0 | 0.2+ |
| 2001 08 22 | 704 | 0.1+ | 0.4− | 2001 09 23 | 644 | 0.8− | 0.7+ | 2005 11 22 | 703 | 1.4− | 0.1+ |
| 2001 08 22 | 704 | 0.1− | 0.2+ | 2001 09 23 | 699 | 0.3− | 1.3− | 2005 11 22 | 703 | 0.2+ | 0.1− |
| 2001 08 22 | 704 | 0.1− | 0.6+ | 2001 10 06 | 644 | 0.2+ | 0.7+ | 2005 11 22 | 703 | 0.6+ | 0.2− |
| 2001 09 09 | 608 | 0.3+ | 0.1− | 2001 10 06 | 644 | 0.3+ | 0.3+ | 2005 11 22 | 703 | (1.7+ | 0.8+) |
| 2001 09 09 | 608 | 0.2+ | 0.5+ | 2001 10 06 | 644 | 0.4+ | 0.4+ | 2009 11 26 | 691 | 1.0+ | 0.2+ |
| 2001 09 09 | 608 | 0.2+ | 0.2+ | 2001 10 17 | 704 | 1.3+ | 0.1− | 2009 11 26 | 691 | 0.6− | 0.1− |
| 2001 09 10 | 644 | (1.7+ | 0.1−) | 2001 10 17 | 704 | 0.9+ | 0.5− | 2009 11 26 | 691 | 0.3− | 0.2− |
| 2001 09 10 | 644 | (2.0+ | 0.2−) | 2001 10 17 | 704 | 0.3+ | 0.5− | 2009 12 10 | 704 | 0.2− | 0.6+ |
| 2001 09 10 | 704 | (0.4− | 2.2+) | 2003 03 30 | 645 | 0.1+ | 0.0 | 2009 12 10 | 704 | 0.2+ | 0.3− |
| 2001 09 10 | 644 | (1.9+ | 0.6−) | 2003 03 30 | 645 | 0.0 | 0.2+ | 2009 12 10 | 704 | 1.2+ | 0.3− |
| 2001 09 10 | 704 | 1.0+ | 0.3+ | 2005 09 29 | 703 | 0.2+ | 0.9− | 2009 12 10 | 704 | 0.9− | 1.0+ |
| 2001 09 10 | 704 | 0.1+ | 0.5+ | 2005 09 29 | 703 | 0.2+ | 0.2− | 2009 12 10 | 704 | (0.1+ | 1.8+) |
| 2001 09 10 | 704 | 0.2+ | 0.1+ | 2005 09 29 | 703 | 0.2+ | 0.5− | 2009 12 18 | G96 | 0.2+ | 0.0 |
| 2001 09 10 | 704 | 0.5− | 0.7+ | 2005 09 29 | 703 | 0.7− | 0.0 | 2009 12 18 | G96 | 0.1+ | 0.0 |
| 2001 09 21 | 644 | 0.2− | 0.2+ | 2005 10 25 | 703 | 0.3− | 0.5+ | 2009 12 18 | G96 | 0.2+ | 0.1− |
| 2001 09 21 | 644 | 0.2− | 0.2+ | 2005 10 25 | 703 | 0.5− | 1.0− | 2009 12 18 | G96 | 0.3+ | 0.1− |
| 2001 09 21 | 699 | 0.4+ | 0.1− | 2005 10 25 | 703 | 0.6− | 0.5+ | | | | |
| 2001 09 21 | 644 | 0.3− | 0.0 | 2005 10 25 | 703 | 1.2− | 0.1− | | | | |

**(228438)∗ 2001 QC$_{133}$**

Discovered 2001 Aug. 21 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 139.57892 | | (2000.0) | | **P** | **Q** |
| $n$ | 0.27004858 | $\omega$ | 61.46546 | | +0.38080625 | +0.92040583 |
| $a$ | 2.3705081 | $\Omega$ | 231.19316 | | −0.88310279 | +0.33363945 |
| $e$ | 0.1293144 | $i$ | 6.52420 | | −0.27407309 | +0.20380829 |
| $P$ | 3.65 | $H$ | 16.4 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 21 | 704 | 0.5− | 1.0+ | 2004 04 24 | 691 | 0.1+ | 0.3+ | 2005 10 24 | 699 | 0.7+ | 0.5− |
| 2001 08 21 | 704 | 0.8+ | 0.6+ | 2004 04 24 | 691 | 0.1+ | 0.5+ | 2005 10 28 | 703 | 0.3− | 0.0 |
| 2001 08 21 | 704 | 0.2− | 0.3+ | 2004 04 24 | 691 | 0.1+ | 0.3+ | 2005 10 28 | 703 | 0.0 | 0.0 |
| 2001 08 21 | 704 | 0.1− | 0.8+ | 2004 05 12 | 699 | 0.3− | 0.3− | 2005 10 28 | 703 | 0.1− | 0.4− |
| 2001 08 21 | 704 | 0.5− | 0.0 | 2004 05 12 | 699 | 1.3+ | 0.4+ | 2005 10 28 | 703 | 0.4+ | 0.8− |
| 2001 08 24 | 699 | (1.5− | 1.8+) | 2004 05 12 | 699 | 0.5+ | 0.4− | 2005 11 04 | 704 | 0.7+ | 1.2+ |
| 2001 08 24 | 699 | 1.5− | 0.2+ | 2004 05 12 | 699 | 0.6+ | 0.8+ | 2005 11 04 | 704 | 1.1+ | 1.1+ |
| 2001 08 24 | 699 | 1.2− | 0.2− | 2004 05 16 | 704 | 0.6+ | 0.1− | 2005 11 04 | 704 | 0.8+ | 0.9+ |
| 2001 08 24 | 699 | 1.2− | 0.2+ | 2004 05 16 | 704 | 0.2− | 1.0+ | 2005 11 04 | 704 | (0.6+ | 1.5+) |
| 2001 08 25 | 704 | 0.2− | 0.4− | 2004 05 16 | 704 | 0.2− | 1.4+ | 2005 11 04 | 704 | 1.2+ | 0.8+ |
| 2001 08 25 | 704 | 0.3− | 0.2− | 2004 05 27 | 691 | 0.1− | 0.4+ | 2005 11 06 | 704 | 1.4− | 1.3+ |
| 2001 08 25 | 704 | 0.1− | 0.6− | 2004 05 27 | 691 | 0.2+ | 0.4+ | 2005 11 06 | 704 | 0.7− | 1.0+ |
| 2001 08 25 | 704 | 0.0 | 0.1− | 2004 05 27 | 691 | 0.0 | 0.5+ | 2005 11 06 | 704 | 0.1+ | 1.3+ |
| 2001 08 25 | 704 | 0.6− | 0.1+ | 2005 09 30 | 703 | 1.0− | 0.9+ | 2005 11 06 | 704 | (1.4− | 2.6+) |
| 2001 09 09 | 699 | 0.6− | 1.2+ | 2005 09 30 | 703 | (0.6+ | 1.7+) | 2005 12 28 | G96 | 0.0 | 0.2+ |
| 2001 09 09 | 699 | 0.3− | 0.2+ | 2005 09 30 | 703 | 0.1+ | 0.6+ | 2005 12 28 | G96 | (1.7− | 0.4−) |
| 2001 09 09 | 699 | 0.3+ | 0.5+ | 2005 09 30 | 703 | (0.5− | 1.7−) | 2005 12 28 | G96 | 0.5− | 0.5+ |
| 2001 09 09 | 699 | 0.3− | 0.3+ | 2005 10 01 | A72 | 0.4− | 1.3+ | 2005 12 28 | G96 | 0.3− | 0.3+ |
| 2001 09 16 | 704 | 0.1+ | 0.2+ | 2005 10 01 | A72 | 0.5− | 0.0 | 2006 01 04 | G96 | 0.3+ | 0.0 |
| 2001 09 16 | 704 | 0.2+ | 0.2− | 2005 10 01 | A72 | 0.4+ | 0.8− | 2006 01 04 | G96 | 0.1+ | 0.1+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 16 | 704 | 1.2− | 0.0 | 2005 10 01 | G96 | 0.3+ | 0.0 | 2006 01 04 | G96 | 0.0 | 0.1+ | | |
| 2001 09 16 | 704 | 0.5+ | 0.5+ | 2005 10 01 | G96 | 0.2+ | 0.0 | 2006 01 04 | G96 | 0.3− | 0.3− | | |
| 2001 09 20 | 704 | 1.0+ | 0.4+ | 2005 10 01 | G96 | 0.6+ | 0.2− | 2009 11 19 | 691 | 0.0 | 0.1+ | | |
| 2001 09 20 | 704 | (1.6+ | 0.7−) | 2005 10 01 | G96 | 0.5+ | 0.1− | 2009 11 19 | 691 | 0.2− | 0.2+ | | |
| 2001 09 20 | 704 | (1.5+ | 0.3+) | 2005 10 10 | 691 | 0.1+ | 0.2+ | 2009 11 19 | 691 | 0.1− | 0.1+ | | |
| 2001 09 20 | 704 | (2.0+ | 0.0 ) | 2005 10 10 | 691 | 0.3+ | 0.5+ | 2009 11 23 | 691 | 0.4− | 0.1+ | | |
| 2001 09 20 | 645 | 0.0 | 0.2− | 2005 10 10 | 691 | 1.2+ | 0.6− | 2009 11 23 | 691 | 0.8− | 0.2− | | |
| 2001 09 20 | 645 | 0.1− | 0.1− | 2005 10 10 | 691 | 0.4+ | 0.3+ | 2009 11 23 | 691 | 0.6− | 0.1+ | | |
| 2004 04 15 | 699 | 0.1− | 0.7− | 2005 10 10 | 691 | 0.3+ | 0.5+ | 2009 11 27 | 691 | 0.2− | 0.2+ | | |
| 2004 04 15 | 699 | 0.1+ | 0.0 | 2005 10 10 | 691 | 0.3+ | 0.3+ | 2009 11 27 | 691 | 0.6− | 0.3+ | | |
| 2004 04 15 | 699 | 0.6+ | 0.1+ | 2005 10 23 | 644 | 0.1− | 0.1+ | 2009 11 27 | 691 | 0.3− | 0.3+ | | |
| 2004 04 15 | 699 | 0.4+ | 0.3− | 2005 10 23 | 644 | 0.2− | 0.4+ | 2009 12 11 | G96 | 0.2+ | 0.2+ | | |
| 2004 04 20 | 704 | 0.8+ | 0.2+ | 2005 10 23 | 644 | 0.0 | 0.4+ | 2009 12 11 | G96 | 0.5+ | 0.2+ | | |
| 2004 04 20 | 704 | 0.0 | 0.3+ | 2005 10 24 | 699 | 0.6+ | 0.9+ | 2009 12 11 | G96 | 0.2+ | 0.0 | | |
| 2004 04 20 | 704 | 0.1− | 0.1− | 2005 10 24 | 699 | 0.5+ | 0.9− | 2009 12 11 | G96 | 0.4+ | 0.2+ | | |
| 2004 04 20 | 704 | 0.0 | 0.4+ | 2005 10 24 | 699 | 0.4+ | 0.5− | | | | | | |

**(228439)**∗ **2001 QA**$_{147}$

Discovered 2001 Aug. 20 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 15.32207 | | (2000.0) | | | |
| $n$ | 0.24471372 | $\omega$ | 346.30950 | | +0.92437645 | −0.34657321 |
| $a$ | 2.5314179 | $\Omega$ | 35.30497 | | +0.37080852 | +0.71813334 |
| $e$ | 0.1435979 | $i$ | 16.01266 | | +0.08960593 | +0.60346625 |
| $P$ | 4.03 | $H$ | 16.1 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 10 30 | 704 | 0.4− | 0.1− | 2001 11 20 | 704 | (0.4− | 1.6+) | 2005 11 29 | G96 | 0.3+ | 0.5− | | |
| 1997 10 30 | 704 | 0.1+ | 0.3+ | 2001 11 20 | 704 | (0.0 | 2.2+) | 2005 11 29 | G96 | 0.1+ | 0.5− | | |
| 1997 10 30 | 704 | 0.6+ | 0.6+ | 2001 11 20 | 704 | (0.2− | 2.2+) | 2005 11 29 | G96 | 0.0 | 0.5− | | |
| 1997 10 30 | 704 | 1.3+ | 0.9+ | 2001 11 21 | 704 | 0.0 | 0.6+ | 2005 12 01 | 704 | 0.0 | 0.1− | | |
| 1997 10 30 | 704 | (5.2− | 0.4+) | 2001 11 21 | 704 | 0.3+ | 0.5− | 2005 12 01 | 704 | 1.0+ | 0.2+ | | |
| 1997 10 30 | 704 | (3.8+ | 2.1−) | 2001 11 21 | 704 | 0.3+ | 0.2− | 2005 12 01 | 704 | 0.4+ | 0.3− | | |
| 1997 10 30 | 704 | (2.1+ | 5.4−) | 2001 11 21 | 704 | 0.1− | 0.7− | 2005 12 02 | G96 | 0.3− | 0.3− | | |
| 1997 10 30 | 704 | (4.1+ | 2.4−) | 2001 11 21 | 704 | 0.2+ | 0.3− | 2005 12 02 | G96 | 0.1− | 0.4− | | |
| 1997 10 30 | 704 | (3.3+ | 3.9−) | 2001 12 11 | 704 | 1.0− | 0.6+ | 2005 12 02 | G96 | 0.0 | 0.4− | | |
| 2001 08 20 | 644 | 0.6− | 0.9+ | 2001 12 11 | 704 | 0.5− | 1.0+ | 2005 12 02 | G96 | 0.3+ | 0.4− | | |
| 2001 08 20 | 644 | 0.1− | 0.6+ | 2001 12 11 | 704 | 0.2− | 1.3+ | 2007 02 21 | 703 | 0.1− | 0.2+ | | |
| 2001 08 20 | 644 | 0.7− | 0.6+ | 2001 12 11 | 704 | 0.1+ | 0.8+ | 2007 02 21 | 703 | 0.5+ | 0.8− | | |
| 2001 08 26 | 644 | 0.5+ | 0.2− | 2001 12 11 | 704 | 0.3− | 1.3+ | 2007 02 21 | 703 | 0.1+ | 0.9− | | |
| 2001 08 26 | 644 | 0.4+ | 0.0 | 2005 09 14 | 703 | 0.6+ | 1.2− | 2007 02 21 | 703 | 0.8− | 1.1+ | | |
| 2001 08 26 | 644 | 0.4+ | 0.2− | 2005 09 14 | 703 | 0.6+ | 0.4+ | 2009 09 16 | 703 | 0.9+ | 0.1+ | | |
| 2001 08 27 | 644 | 0.6− | 0.2+ | 2005 09 14 | 703 | 1.1+ | 0.2+ | 2009 09 16 | 703 | 0.5− | 0.9− | | |
| 2001 08 27 | 644 | 0.3− | 0.1+ | 2005 09 14 | 703 | 0.1+ | 0.7+ | 2009 09 16 | 703 | 0.2+ | 0.4− | | |
| 2001 08 27 | 644 | 0.3− | 0.3+ | 2005 09 28 | 644 | 0.1+ | 0.3− | 2009 09 16 | 703 | 0.4+ | 1.4− | | |
| 2001 09 19 | 704 | 0.1+ | 0.2+ | 2005 09 28 | 644 | 0.1+ | 0.0 | 2009 09 24 | 703 | (1.6+ | 0.8−) | | |
| 2001 09 19 | 704 | 0.3− | 0.1− | 2005 09 28 | 644 | 0.2− | 0.4+ | 2009 09 24 | 703 | 0.2− | 0.9− | | |
| 2001 09 19 | 704 | 0.7− | 0.1+ | 2005 09 29 | 644 | 0.3− | 0.2− | 2009 09 24 | 703 | 0.1+ | 0.2+ | | |
| 2001 09 19 | 704 | 0.3− | 0.4− | 2005 09 29 | 644 | 0.4− | 0.3+ | 2009 09 24 | 703 | 0.5− | 0.3+ | | |
| 2001 09 21 | 704 | 0.3− | 0.2+ | 2005 09 29 | 644 | 0.5− | 0.4+ | 2009 09 27 | 703 | 0.6+ | 0.2+ | | |
| 2001 09 21 | 704 | 1.4− | 0.3− | 2005 10 01 | 699 | 0.1+ | 0.5+ | 2009 09 27 | 703 | 1.1+ | 0.2− | | |
| 2001 09 21 | 704 | 0.3− | 0.0 | 2005 10 01 | 699 | 0.1+ | 0.8+ | 2009 09 27 | 703 | 0.4− | 0.2− | | |
| 2001 10 10 | 644 | 0.6− | 0.5+ | 2005 10 01 | 699 | 0.2− | 0.6+ | 2009 09 27 | 703 | (0.3+ | 1.6−) | | |
| 2001 10 10 | 644 | 0.6− | 0.6+ | 2005 10 01 | 699 | 0.4− | 0.2+ | 2009 10 09 | 703 | 0.2− | 0.1+ | | |
| 2001 10 10 | 644 | 0.3− | 0.9+ | 2005 10 03 | 703 | 1.3− | 1.4− | 2009 10 09 | 703 | 0.6+ | 0.3− | | |
| 2001 10 11 | 644 | 0.2− | 0.6− | 2005 10 03 | 703 | 0.5+ | 1.5− | 2009 10 09 | 703 | 0.4+ | 0.1− | | |
| 2001 10 11 | 644 | 0.3− | 0.4− | 2005 10 03 | 703 | 0.4+ | 0.5− | 2009 10 09 | 703 | 1.2+ | 0.1+ | | |
| 2001 10 11 | 644 | 0.2− | 0.3− | 2005 10 03 | 703 | 0.5− | 0.2+ | 2009 10 13 | 704 | 0.6+ | 0.2+ | | |
| 2001 10 15 | 704 | 0.0 | 0.0 | 2005 10 10 | A50 | (2.1+ | 0.9+) | 2009 10 13 | 704 | 0.5− | 0.3+ | | |
| 2001 10 15 | 704 | 0.2− | 0.2− | 2005 10 10 | A50 | 1.3+ | 0.5+ | 2009 10 13 | 704 | 0.4− | 0.1+ | | |
| 2001 10 15 | 704 | 0.2− | 0.7+ | 2005 10 20 | 644 | 0.3+ | 0.1− | 2009 10 13 | 704 | 0.1− | 0.4+ | | |
| 2001 10 15 | 704 | 0.3+ | 0.1− | 2005 10 20 | 644 | 0.1+ | 0.4− | 2009 10 14 | G92 | 0.2+ | 0.4− | | |
| 2001 10 15 | 704 | 0.1− | 0.9− | 2005 10 20 | 644 | 0.3+ | 0.1+ | 2009 10 14 | G92 | 0.2+ | 0.4− | | |
| 2001 10 16 | 704 | 0.0 | 0.3− | 2005 10 27 | 644 | 0.1− | 0.0 | 2009 10 14 | G92 | 0.4− | 0.5+ | | |
| 2001 10 16 | 704 | 0.4− | 0.7− | 2005 10 27 | 704 | 0.6− | 0.5+ | 2009 10 14 | J75 | 0.5+ | 0.2− | | |
| 2001 10 16 | 704 | 0.0 | 0.2− | 2005 10 27 | 704 | 0.4− | 0.7+ | 2009 10 14 | J75 | 0.1+ | 0.1− | | |
| 2001 10 16 | 704 | 0.5+ | 1.2+ | 2005 10 27 | 644 | 0.0 | 0.0 | 2009 10 14 | J75 | 0.1+ | 0.1+ | | |
| 2001 10 16 | 644 | 0.1− | 0.0 | 2005 10 27 | 704 | 0.3+ | 1.1+ | 2009 10 14 | J75 | 0.6+ | 0.3− | | |
| 2001 10 16 | 644 | 0.0 | 0.0 | 2005 10 27 | 704 | 0.3+ | 0.5+ | 2009 10 14 | J75 | 0.1+ | 0.2− | | |
| 2001 10 16 | 644 | 0.1− | 0.2+ | 2005 10 27 | 644 | 0.1− | 0.1− | 2009 10 14 | J75 | 0.8+ | 0.3+ | | |
| 2001 10 18 | 291 | 0.6− | 0.0 | 2005 10 28 | 704 | 1.0− | 1.3+ | 2009 10 16 | 703 | 0.1− | 0.2+ | | |
| 2001 10 18 | 291 | 0.3+ | 0.1− | 2005 10 28 | 704 | 0.4+ | 0.3− | 2009 10 16 | 703 | 0.9− | 0.5− | | |
| 2001 10 18 | 291 | 1.2+ | 0.2− | 2005 10 28 | 703 | 0.3− | 1.4− | 2009 10 16 | 703 | 1.1− | 0.2+ | | |
| 2001 10 21 | 683 | (1.6− | 0.1−) | 2005 10 28 | 704 | 0.2+ | 0.4+ | 2009 10 16 | 703 | 0.9+ | 0.4− | | |
| 2001 10 21 | 683 | 0.5− | 0.5+ | 2005 10 28 | 703 | 0.7+ | 0.6− | 2009 10 20 | 704 | 0.3− | 0.6+ | | |
| 2001 10 21 | 683 | (2.0− | 0.4+) | 2005 10 28 | 703 | 0.2− | 0.6− | 2009 10 20 | 704 | 0.9+ | 0.2− | | |
| 2001 10 22 | 704 | 0.1+ | 0.6+ | 2005 10 28 | 704 | 1.0− | 0.5+ | 2009 10 20 | 704 | 0.0 | 0.3+ | | |
| 2001 10 22 | 704 | 0.0 | 0.7− | 2005 10 28 | 703 | 1.0− | 0.9− | 2009 10 20 | 704 | 0.3− | 1.2+ | | |
| 2001 10 22 | 704 | 0.6− | 0.2+ | 2005 10 28 | 704 | 0.6− | 0.4+ | 2009 10 20 | 704 | 0.5− | 0.3+ | | |
| 2001 11 09 | 704 | 0.0 | 0.4− | 2005 11 17 | 644 | 0.1− | 0.2+ | 2009 12 13 | G96 | 0.3+ | 0.4− | | |
| 2001 11 09 | 704 | 0.5− | 0.1+ | 2005 11 17 | 644 | 0.1+ | 0.1+ | 2009 12 13 | G96 | 0.8+ | 0.3− | | |
| 2001 11 09 | 704 | 0.7− | 0.2− | 2005 11 17 | 644 | 0.1− | 0.2− | 2009 12 13 | G96 | 0.6+ | 0.0 | | |
| 2001 11 18 | 704 | (3.9+ | 1.0+) | 2005 11 29 | 703 | 0.4+ | 0.9− | 2009 12 13 | G96 | 0.5+ | 0.1− | | |
| 2001 11 18 | 704 | (4.0+ | 0.8+) | 2005 11 29 | 703 | 0.1+ | 0.8− | 2009 12 17 | G96 | 0.2+ | 0.1+ | | |
| 2001 11 18 | 704 | (3.2+ | 0.6+) | 2005 11 29 | 703 | 1.2− | 1.1− | 2009 12 17 | G96 | 0.3− | 0.2− | | |
| 2001 11 20 | 704 | (0.6− | 3.2+) | 2005 11 29 | 703 | 0.1+ | 0.6+ | 2009 12 17 | G96 | 0.2− | 0.1− | | |
| 2001 11 20 | 704 | (0.1+ | 2.5+) | 2005 11 29 | G96 | 0.1− | 0.3− | | | | | | |

**(228440)**∗ **2001 QK**$_{149}$

Discovered 2001 Aug. 22 by NEAT at Haleakala.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 80.98640 | | (2000.0) | | | |
| $n$ | 0.27111625 | $\omega$ | 329.72857 | | +0.99800469 | −0.05351684 |
| $a$ | 2.3642806 | $\Omega$ | 33.38978 | | +0.06283382 | +0.89398115 |
| $e$ | 0.1848013 | $i$ | 3.49041 | | −0.00620861 | +0.44489735 |
| $P$ | 3.64 | $H$ | 17.0 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 10 08 | 691 | 0.2+ | 0.0 | 2004 05 28 | 691 | 0.2− | 0.4+ | 2005 11 01 | 704 | 0.1− | 0.1− | | |
| 1994 10 08 | 691 | 0.0 | 0.3+ | 2005 09 30 | G96 | 0.1+ | 0.1+ | 2005 11 04 | 704 | 0.2− | 0.6+ | | |
| 1994 10 08 | 691 | 0.3− | 0.0 | 2005 09 30 | G96 | 0.1+ | 0.3+ | 2005 11 04 | 704 | 0.5− | 0.8+ | | |
| 2001 07 27 | 699 | 0.7− | 0.1+ | 2005 09 30 | G96 | 0.2+ | 0.1+ | 2005 11 04 | 704 | (1.6− | 0.3−) | | |
| 2001 07 27 | 699 | 0.2− | 0.1+ | 2005 09 30 | G96 | 0.2+ | 0.1+ | 2005 11 06 | 704 | 1.1− | 0.9+ | | |
| 2001 07 27 | 699 | 0.2− | 0.6+ | 2005 10 23 | 703 | 1.0− | 0.4+ | 2005 11 06 | 704 | 0.3− | 0.9+ | | |
| 2001 07 27 | 699 | (0.2+ | 1.6+) | 2005 10 23 | 703 | 0.2+ | 0.1− | 2005 11 06 | 704 | 0.8− | 0.4+ | | |
| 2001 08 14 | 608 | 0.4+ | 0.3+ | 2005 10 23 | 703 | 0.1− | 0.3− | 2005 11 06 | 704 | 0.4− | 0.4+ | | |
| 2001 08 14 | 608 | 0.4+ | 0.7+ | 2005 10 23 | 703 | 0.7+ | 0.4− | 2005 11 06 | 704 | 0.2− | 1.1+ | | |
| 2001 08 14 | 608 | 0.7+ | 0.7+ | 2005 10 29 | 703 | 0.5− | 0.5− | 2005 12 01 | 704 | 0.2− | 0.3− | | |
| 2001 08 19 | 704 | 0.2+ | 0.8+ | 2005 10 29 | 703 | 0.3+ | 0.6+ | 2005 12 01 | 704 | 0.1+ | 0.1− | | |
| 2001 08 19 | 704 | (0.4+ | 1.7+) | 2005 10 29 | 703 | 0.0 | 0.5− | 2005 12 01 | 704 | 0.2+ | 1.5+ | | |
| 2001 08 19 | 704 | 0.1− | 0.4+ | 2005 10 29 | 703 | 0.0 | 0.3− | 2005 12 01 | 704 | 0.1+ | 0.3+ | | |
| 2001 08 22 | 608 | 0.4+ | 0.5− | 2005 10 30 | G96 | 0.3+ | 0.1− | 2005 12 01 | 704 | 0.9+ | 0.6+ | | |
| 2001 08 22 | 608 | 0.8+ | 0.4− | 2005 10 30 | G96 | 0.1− | 0.2− | 2007 04 15 | 291 | 0.2− | 0.1− | | |
| 2001 08 22 | 608 | 0.4+ | 0.5− | 2005 10 30 | G96 | 0.0 | 0.2− | 2007 04 15 | 291 | 0.1+ | 0.2+ | | |
| 2001 08 26 | 608 | 0.2+ | 0.6− | 2005 10 30 | G96 | 0.1+ | 0.0 | 2007 04 15 | 291 | 0.2− | 0.1+ | | |
| 2001 08 26 | 608 | 0.1− | 1.5− | 2005 10 31 | 448 | 0.4+ | 0.2+ | 2009 11 21 | G96 | 0.2+ | 0.4− | | |
| 2001 08 26 | 608 | 0.3− | 0.8− | 2005 10 31 | 448 | 0.3+ | 0.0 | 2009 11 21 | G96 | 0.1− | 0.5− | | |
| 2001 08 26 | 608 | 0.4− | 0.8− | 2005 10 31 | 448 | 0.3− | 0.4− | 2009 11 21 | G96 | 0.1+ | 0.2− | | |
| 2001 08 26 | 608 | 0.3− | 0.6− | 2005 10 31 | 448 | 0.0 | 0.1− | 2009 11 21 | G96 | 0.1− | 0.5− | | |
| 2001 08 26 | 608 | 0.7− | 1.1− | 2005 10 31 | 448 | 0.1+ | 0.1+ | 2009 12 19 | G96 | 0.1+ | 0.5− | | |
| 2004 04 25 | 691 | 0.1+ | 0.4− | 2005 10 31 | 448 | 0.1+ | 0.1+ | 2009 12 19 | G96 | 0.1+ | 0.5− | | |
| 2004 04 25 | 691 | 0.3+ | 0.0 | 2005 11 01 | 704 | 0.1+ | 0.5+ | 2009 12 19 | G96 | 0.1− | 0.4− | | |
| 2004 04 25 | 691 | 0.0 | 0.0 | 2005 11 01 | 704 | 0.8− | 0.1− | 2009 12 19 | G96 | 0.2− | 0.3− | | |
| 2004 05 28 | 691 | 0.4+ | 0.5+ | 2005 11 01 | 704 | 0.2− | 0.2+ | | | | | | |
| 2004 05 28 | 691 | 0.3+ | 1.0+ | 2005 11 01 | 704 | 0.1+ | 0.0 | | | | | | |

**(228441)**∗ **2001 QK**$_{157}$

Discovered 2001 Aug. 23 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 53.74360 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26381811 | $\omega$ | 131.66184 | | +0.93870128 | −0.34347403 | |
| $a$ | 2.4076849 | $\Omega$ | 248.44570 | | +0.30614112 | +0.86981233 | |
| $e$ | 0.2002544 | $i$ | 1.81265 | | +0.15848511 | +0.35419218 | |
| $P$ | 3.74 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 01 13 | 691 | 0.3− | 0.1+ | 2005 10 06 | G96 | (1.7+ | 0.7−) | 2005 11 01 | 691 | 0.0 | 0.1+ | |
| 1999 01 13 | 691 | 0.1+ | 0.4+ | 2005 10 06 | G96 | 0.2+ | 0.1− | 2005 11 01 | 704 | 0.5− | 0.3+ | |
| 1999 01 13 | 691 | 0.3+ | 0.5+ | 2005 10 07 | 704 | 0.3+ | 0.6+ | 2005 11 01 | 704 | 0.9− | 0.0 | |
| 2001 08 16 | 704 | 0.5+ | 0.2+ | 2005 10 07 | 704 | 0.7+ | 0.2+ | 2005 11 01 | 704 | 0.0 | 0.5− | |
| 2001 08 16 | 704 | 0.2+ | 0.3− | 2005 10 07 | 704 | 0.7+ | 0.1+ | 2005 11 01 | 704 | 0.1+ | 0.3+ | |
| 2001 08 16 | 704 | 0.4+ | 0.2+ | 2005 10 07 | 704 | 0.2− | 0.4+ | 2005 11 01 | 704 | 0.1+ | 0.3+ | |
| 2001 08 16 | 704 | 1.2+ | 0.6− | 2005 10 07 | 704 | 0.1+ | 0.2+ | 2005 11 03 | G96 | 0.1− | 0.5− | |
| 2001 08 23 | 699 | 0.5− | 0.2− | 2005 10 09 | 691 | 0.0 | 0.1− | 2005 11 03 | G96 | 0.1− | 0.5− | |
| 2001 08 23 | 699 | 0.2+ | 0.6+ | 2005 10 09 | 691 | 0.1− | 0.0 | 2005 11 03 | G96 | 0.1+ | 0.6− | |
| 2001 08 23 | 699 | 0.3− | 0.8+ | 2005 10 09 | 691 | 0.2+ | 0.1+ | 2005 11 03 | G96 | 0.3+ | 0.4− | |
| 2001 08 23 | 699 | 0.7− | 0.4+ | 2005 10 12 | 704 | 0.3+ | 0.7− | 2005 11 04 | 704 | 0.1− | 0.6+ | |
| 2001 08 27 | 699 | 0.8+ | 0.0 | 2005 10 12 | 704 | 0.8+ | 0.3+ | 2005 11 04 | 704 | 0.3− | 0.1+ | |
| 2001 08 27 | 699 | 1.0− | 1.3+ | 2005 10 12 | 704 | 1.2− | 0.4+ | 2005 11 04 | 704 | 0.4− | 0.0 | |
| 2001 08 27 | 699 | 0.0 | 0.1+ | 2005 10 12 | 704 | 0.1+ | 0.5+ | 2005 11 04 | 704 | 0.3+ | 0.2+ | |
| 2001 08 27 | 699 | 0.6− | 0.4+ | 2005 10 13 | 691 | 0.4− | 0.3− | 2005 11 04 | 704 | 0.2+ | 1.0+ | |
| 2001 09 07 | 704 | 0.6− | 0.6+ | 2005 10 13 | 691 | 0.0 | 0.2+ | 2005 11 05 | 699 | 0.4− | 0.6+ | |
| 2001 09 07 | 704 | 0.0 | 0.7− | 2005 10 13 | 691 | 0.0 | 0.2+ | 2005 11 05 | 699 | 1.4+ | 0.9− | |
| 2001 09 07 | 704 | 0.3− | 0.1+ | 2005 10 14 | 699 | 0.7+ | 1.0+ | 2005 11 05 | 699 | 0.0 | 0.4− | |
| 2001 09 07 | 704 | 0.9− | 0.0 | 2005 10 14 | 699 | 0.6+ | 0.3+ | 2005 11 05 | 699 | 0.5− | 0.8− | |
| 2001 09 12 | 704 | 0.3− | 0.1− | 2005 10 14 | 699 | 0.6− | 0.1− | 2005 11 06 | 704 | 0.6− | 0.1− | |
| 2001 09 12 | 704 | 0.1+ | 0.1− | 2005 10 14 | 699 | 0.4− | 0.2+ | 2005 11 06 | 704 | 0.3− | 0.5+ | |
| 2001 09 12 | 704 | 0.8− | 0.4+ | 2005 10 22 | 703 | 0.1− | 0.7− | 2005 11 06 | 704 | 0.5− | 0.3+ | |
| 2001 09 12 | 704 | 0.2− | 0.2− | 2005 10 22 | 703 | 0.1− | 0.1+ | 2005 11 06 | 704 | 0.6− | 0.3+ | |
| 2001 09 12 | 704 | 0.2− | 0.2+ | 2005 10 22 | 703 | 0.4− | 0.4− | 2005 11 06 | 704 | 0.2+ | 0.0 | |
| 2001 09 20 | 704 | 0.3− | 0.1− | 2005 10 22 | 703 | 0.6+ | 0.4− | 2005 11 09 | 703 | 1.1− | 0.7− | |
| 2001 09 20 | 704 | 0.4− | 0.0 | 2005 10 23 | 644 | 0.1+ | 0.1− | 2005 11 09 | 703 | 0.1+ | 0.0 | |
| 2001 09 20 | 704 | 0.7− | 0.2− | 2005 10 23 | 644 | 0.1− | 0.1− | 2005 11 09 | 703 | 0.1+ | 0.4− | |
| 2001 09 20 | 704 | 0.6− | 0.2+ | 2005 10 23 | 644 | 0.3− | 0.0 | 2005 11 09 | 703 | 0.0 | 0.7− | |
| 2001 09 20 | 704 | 0.4− | 0.6+ | 2005 10 24 | 691 | 0.1+ | 0.1+ | 2005 11 10 | G96 | 0.6+ | 0.0 | |
| 2001 09 22 | 704 | 0.6+ | 0.1− | 2005 10 24 | 691 | 0.1+ | 0.2+ | 2005 11 10 | G96 | 0.4+ | 0.0 | |
| 2001 09 22 | 704 | 0.4+ | 0.2+ | 2005 10 24 | 699 | 0.1− | 0.0 | 2005 11 10 | G96 | 0.7+ | 0.0 | |
| 2001 09 22 | 704 | 0.2+ | 0.0 | 2005 10 24 | 691 | 0.2+ | 0.1+ | 2005 11 10 | G96 | 0.4+ | 0.0 | |
| 2001 09 22 | 704 | 0.1+ | 0.6+ | 2005 10 24 | 699 | 0.2+ | 0.8+ | 2005 11 30 | 644 | 0.1− | 0.2− | |
| 2001 09 22 | 704 | 0.5+ | 0.1+ | 2005 10 24 | 699 | 0.4− | 0.4+ | 2005 11 30 | 644 | 0.2+ | 0.3+ | |
| 2001 10 11 | 644 | 0.6− | 0.0 | 2005 10 24 | 699 | 0.1+ | 0.2+ | 2005 11 30 | 644 | 0.2− | 0.1+ | |
| 2001 10 11 | 644 | 0.7− | 0.1− | 2005 10 25 | 699 | 0.3+ | 0.3+ | 2006 01 21 | G96 | 0.1− | 0.3− | |
| 2001 10 11 | 644 | 0.1− | 0.2− | 2005 10 25 | 699 | 1.1− | 0.5+ | 2006 01 21 | G96 | 0.2− | 0.2− | |
| 2001 10 18 | 644 | 0.4+ | 0.2− | 2005 10 25 | 699 | 0.5− | 0.2+ | 2006 01 21 | G96 | 0.1− | 0.7− | |
| 2001 10 18 | 644 | 0.1+ | 0.1− | 2005 10 25 | 699 | 0.5− | 0.3+ | 2006 01 21 | G96 | 0.3− | 0.5− | |
| 2001 10 18 | 644 | 0.1− | 0.1+ | 2005 10 28 | 703 | 0.5+ | 0.1− | 2007 03 13 | G96 | 0.3+ | 0.7+ | |
| 2005 09 29 | 691 | 0.0 | 0.1+ | 2005 10 28 | 703 | 0.4+ | 0.0 | 2007 03 13 | G96 | 0.4+ | 0.3+ | |
| 2005 09 29 | 691 | 0.1− | 0.0 | 2005 10 28 | 703 | 0.1− | 0.1+ | 2007 03 13 | G96 | 0.4+ | 0.3+ | |
| 2005 09 29 | 691 | 0.1+ | 0.1+ | 2005 10 28 | 703 | 0.4+ | 0.8− | 2007 03 13 | G96 | 0.5+ | 0.3+ | |
| 2005 10 01 | 699 | 0.6+ | 0.4+ | 2005 10 28 | 703 | 0.2− | 0.3− | 2007 04 20 | G96 | 0.4− | 0.4+ | |
| 2005 10 01 | 699 | 0.1+ | 0.0 | 2005 10 28 | 703 | 0.2+ | 0.4− | 2007 04 20 | G96 | 0.4+ | 0.0 | |
| 2005 10 01 | 699 | 0.5+ | 0.1− | 2005 10 28 | 703 | 0.1+ | 0.5− | 2007 04 20 | G96 | 0.7+ | 0.1− | |
| 2005 10 01 | 699 | 0.9− | 0.4− | 2005 10 28 | 703 | 0.6+ | 0.3− | 2007 04 20 | G96 | 1.4+ | 0.3+ | |
| 2005 10 01 | 699 | 0.9+ | 0.0 | 2005 10 29 | A50 | 0.2+ | 0.1+ | 2009 08 29 | 691 | 0.4− | 1.0− | |
| 2005 10 01 | 699 | 0.4+ | 0.7+ | 2005 10 29 | A50 | 0.6+ | 0.3+ | 2009 08 29 | 691 | (1.0− | 1.6−) | |
| 2005 10 01 | 699 | 0.2+ | 0.9+ | 2005 10 31 | A50 | 0.1+ | 0.7+ | 2009 08 29 | 691 | 0.5− | 0.9− | |
| 2005 10 01 | 699 | 0.4− | 0.1+ | 2005 10 31 | A50 | 0.1+ | 0.7− | 2009 12 17 | 691 | 0.9− | 0.2+ | |
| 2005 10 06 | G96 | 0.0 | 0.3− | 2005 11 01 | 691 | 0.2+ | 0.0 | 2009 12 17 | 691 | 0.1+ | 0.2+ | |
| 2005 10 06 | G96 | 0.4+ | 1.2− | 2005 11 01 | 691 | 0.0 | 0.2+ | 2009 12 17 | 691 | 0.2+ | 0.1+ | |

**(228442)∗ 2001 QJ$_{159}$**

Discovered 2001 Aug. 23 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 75.30357 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26263933 | $\omega$ | 328.58987 | | +0.97107773 | +0.23862487 | |
| $a$ | 2.4148837 | $\Omega$ | 17.61025 | | −0.21310740 | +0.88159732 | |
| $e$ | 0.1957131 | $i$ | 1.54131 | | −0.10767213 | +0.40723991 | |
| $P$ | 3.75 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 04 05 | 691 | 0.3+ | 0.1+ | 2005 09 30 | G96 | 0.1+ | 0.2− | 2005 11 06 | 704 | (2.2− | 0.5+) | |
| 2000 04 05 | 691 | 0.0 | 0.1+ | 2005 09 30 | G96 | 0.0 | 0.4− | 2005 11 06 | 704 | 0.6− | 0.6+ | |
| 2000 04 05 | 691 | 0.0 | 0.3+ | 2005 09 30 | G96 | 0.1+ | 0.3− | 2005 11 06 | 704 | (0.1− | 2.9+) | |
| 2001 08 23 | 699 | 0.5+ | 0.3− | 2005 09 30 | G96 | 0.0 | 0.2− | 2005 11 26 | G96 | 0.5+ | 0.1− | |
| 2001 08 23 | 699 | 0.1+ | 0.6+ | 2005 10 06 | 703 | 0.2+ | 0.8− | 2005 11 26 | G96 | 0.2+ | 0.2− | |
| 2001 08 23 | 699 | 0.0 | 0.3+ | 2005 10 06 | 703 | 1.4− | 0.3− | 2005 11 26 | G96 | 0.0 | 0.3− | |
| 2001 08 23 | 699 | 1.4+ | 0.3− | 2005 10 06 | 703 | 0.5− | 0.9− | 2005 11 26 | G96 | 0.2− | 0.3− | |
| 2001 08 27 | 699 | 1.0− | 0.2+ | 2005 10 06 | 703 | 0.6− | 0.2+ | 2005 12 01 | 691 | 0.0 | 0.4+ | |
| 2001 08 27 | 699 | 0.4+ | 0.4+ | 2005 10 14 | 699 | 0.7+ | 1.1+ | 2005 12 01 | 691 | 0.2+ | 0.1+ | |
| 2001 08 27 | 699 | 1.0− | 0.2+ | 2005 10 14 | 699 | 0.2− | 0.7+ | 2005 12 01 | 691 | 0.0 | 0.1− | |
| 2001 08 27 | 699 | 0.5− | 0.3+ | 2005 10 14 | 699 | 0.4− | 0.8+ | 2009 11 09 | 691 | 0.4− | 0.2− | |
| 2001 09 12 | 704 | 0.8+ | 1.1+ | 2005 10 14 | 699 | 0.8+ | 0.6+ | 2009 11 09 | 691 | 0.1− | 0.1+ | |
| 2001 09 12 | 704 | 0.2− | 0.9+ | 2005 10 24 | 699 | 0.0 | 1.3+ | 2009 11 09 | 691 | 0.1+ | 0.3+ | |
| 2001 09 12 | 704 | 1.0+ | 0.3+ | 2005 10 24 | 699 | 0.5+ | 0.2− | 2009 11 17 | 691 | 0.4− | 0.1− | |
| 2001 09 12 | 704 | 0.6+ | 0.8+ | 2005 10 24 | 699 | 0.0 | 0.4− | 2009 11 17 | 691 | 0.6− | 0.1+ | |
| 2001 09 20 | 704 | 1.0− | 1.1− | 2005 10 24 | 699 | 0.3+ | 0.3+ | 2009 11 17 | 691 | 0.2+ | 0.3− | |
| 2001 09 20 | 704 | 0.8− | 0.2− | 2005 10 27 | G96 | 0.2− | 0.5− | 2009 12 11 | G96 | 0.8+ | 0.1+ | |
| 2001 09 20 | 704 | 1.0− | 0.0 | 2005 10 27 | G96 | 0.2− | 0.5− | 2009 12 11 | G96 | 0.5+ | 0.0 | |
| 2001 09 20 | 704 | 0.3− | 0.3− | 2005 10 27 | G96 | 0.3+ | 0.5− | 2009 12 11 | G96 | 1.0+ | 0.1+ | |
| 2001 09 20 | 704 | 0.7− | 0.3− | 2005 10 27 | G96 | 0.1+ | 0.5− | 2009 12 11 | G96 | 0.7+ | 0.1+ | |
| 2001 09 22 | 704 | 0.1+ | 0.1− | 2005 11 04 | 704 | 0.4− | 0.4+ | 2009 12 19 | G96 | 0.8+ | 0.0 | |
| 2001 09 22 | 704 | 0.2+ | 0.6− | 2005 11 04 | 704 | (0.5− | 1.8+) | 2009 12 19 | G96 | 0.4+ | 0.0 | |
| 2001 09 22 | 704 | 0.0 | 0.4− | 2005 11 04 | 704 | 0.2+ | 0.8+ | 2009 12 19 | G96 | 0.2+ | 0.1− | |
| 2001 09 22 | 704 | 0.8+ | 0.3− | 2005 11 04 | 704 | 0.2− | 0.3− | | | | | |
| 2001 09 22 | 704 | 0.0 | 0.5− | 2005 11 06 | 704 | (0.8− | 2.0+) | | | | | |

**(228443)∗ 2001 QB$_{162}$ = 2005 SW$_{216}$**

Discovered 2001 Aug. 23 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Id. G. V. Williams (*MPO* 88838)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 56.17305 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26210788 | $\omega$ | 325.25687 | | +0.98687641 | −0.15875964 | |
| $a$ | 2.4181468 | $\Omega$ | 43.90798 | | +0.15611683 | +0.89137347 | |
| $e$ | 0.2030185 | $i$ | 2.43808 | | +0.04126121 | +0.42455709 | |
| $P$ | 3.76 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 23 | 699 | 0.6+ | 0.2− | 2005 10 22 | 703 | 0.5+ | 0.6+ | 2005 11 25 | G96 | 0.0 | 0.3− | |
| 2001 08 23 | 699 | 0.9− | 0.0 | 2005 10 22 | 703 | 0.1− | 0.6+ | 2005 11 25 | G96 | 0.0 | 0.2− | |
| 2001 08 23 | 699 | 0.0 | 0.5− | 2005 10 22 | 703 | 0.4+ | 0.4+ | 2005 11 25 | G96 | 0.1− | 0.3− | |
| 2001 08 23 | 699 | 0.7− | 0.0 | 2005 10 22 | 703 | 0.5+ | 0.8+ | 2005 11 25 | G96 | 0.0 | 0.3− | |
| 2001 08 25 | 704 | 0.0 | 0.1+ | 2005 10 24 | 699 | 0.3− | 0.2+ | 2005 12 28 | G96 | 0.6+ | 0.0 | |
| 2001 08 25 | 704 | 0.2− | 0.0 | 2005 10 24 | 699 | 0.4+ | 1.1− | 2005 12 28 | G96 | 0.3− | 0.2− | |
| 2001 08 25 | 704 | 1.1+ | 0.6− | 2005 10 24 | 699 | 0.0 | 0.4− | 2005 12 28 | G96 | 0.0 | 0.3− | |
| 2001 08 25 | 704 | 0.2+ | 1.3− | 2005 10 24 | 699 | 0.4+ | 0.1+ | 2005 12 28 | G96 | 0.4− | 0.2− | |
| 2001 08 27 | 699 | 0.0 | 0.2+ | 2005 10 25 | 699 | 0.1+ | 0.6− | 2006 01 23 | G96 | 0.0 | 0.2− | |
| 2001 08 27 | 699 | 0.2− | 0.9+ | 2005 10 25 | 699 | 0.4− | 0.2+ | 2006 01 23 | G96 | 0.2+ | 0.2+ | |
| 2001 08 27 | 699 | 0.2− | 0.5+ | 2005 10 25 | 699 | 0.8+ | 0.3+ | 2006 01 23 | G96 | 0.1− | 0.3− | |
| 2001 08 27 | 699 | 0.1+ | 0.2+ | 2005 10 25 | 699 | 1.3− | 0.4− | 2006 01 23 | G96 | 0.0 | 0.4+ | |
| 2005 09 30 | 644 | 0.0 | 0.0 | 2005 10 28 | 704 | 0.5+ | 0.1− | 2007 03 12 | G96 | 0.1− | 0.5− | |
| 2005 09 30 | 644 | 0.0 | 0.2− | 2005 10 28 | 704 | 0.1+ | 0.7+ | 2007 03 12 | G96 | 0.3+ | 0.3+ | |
| 2005 09 30 | 644 | 0.0 | 0.1− | 2005 10 28 | 703 | 0.8− | 0.0 | 2007 03 12 | G96 | 0.7+ | 0.3+ | |
| 2005 10 01 | 704 | 0.2− | 0.5+ | 2005 10 28 | 704 | 0.3− | 0.4− | 2007 03 12 | G96 | 0.4+ | 0.3+ | |
| 2005 10 01 | 704 | 0.1− | 0.4+ | 2005 10 28 | 703 | 0.9− | 1.3+ | 2007 03 19 | G96 | 0.1− | 0.2+ | |
| 2005 10 01 | 704 | 0.3+ | 0.4− | 2005 10 28 | G96 | 0.1+ | 0.3− | 2007 03 19 | G96 | 0.6− | 0.1+ | |
| 2005 10 01 | 704 | 0.3+ | 0.7− | 2005 10 28 | 703 | 0.0 | 1.2+ | 2007 03 19 | G96 | 0.0 | 0.2− | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 01 | 704 | 0.6− | 1.2− | 2005 10 28 | G96 | 0.0 | 0.3− | 2007 03 19 | G96 | 0.1− | 0.1+ | | |
| 2005 10 05 | 704 | 0.1+ | 0.9+ | 2005 10 28 | 704 | 0.1− | 0.8+ | 2009 11 17 | 691 | 0.2− | 0.1+ | | |
| 2005 10 05 | 704 | 0.6− | 1.1− | 2005 10 28 | 703 | 0.8+ | 0.5+ | 2009 11 17 | 691 | 0.3− | 0.1+ | | |
| 2005 10 05 | 704 | (1.4− | 1.9+) | 2005 10 28 | G96 | 0.2+ | 0.3− | 2009 11 17 | 691 | 0.6− | 0.1+ | | |
| 2005 10 05 | 704 | 0.4− | 0.8+ | 2005 10 28 | G96 | 0.2+ | 0.4− | 2009 11 25 | 691 | 0.3+ | 0.1+ | | |
| 2005 10 07 | 691 | 0.0 | 0.3+ | 2005 10 31 | 704 | 0.0 | 0.9+ | 2009 11 25 | 691 | 0.5− | 0.0 | | |
| 2005 10 07 | 691 | 0.0 | 0.4+ | 2005 10 31 | 704 | 0.7− | 1.0+ | 2009 11 25 | 691 | 0.2− | 0.1+ | | |
| 2005 10 07 | 691 | 0.2− | 0.4+ | 2005 10 31 | 704 | 0.3+ | 1.1+ | 2009 12 10 | 704 | 1.5+ | 0.4− | | |
| 2005 10 11 | 691 | 0.1+ | 0.2− | 2005 10 31 | 704 | 0.4− | 0.5+ | 2009 12 10 | 704 | 0.4+ | 1.1− | | |
| 2005 10 11 | 691 | 0.0 | 0.0 | 2005 10 31 | 704 | 0.5+ | 1.1+ | 2009 12 10 | 704 | 1.8+ | 0.6+ | | |
| 2005 10 11 | 691 | 0.2− | 0.0 | 2005 11 05 | 704 | 1.0+ | 0.5− | 2009 12 10 | 704 | 1.8+ | 0.7− | | |
| 2005 10 21 | 644 | 0.1+ | 0.3+ | 2005 11 05 | 704 | 0.7+ | 0.5− | 2009 12 10 | 704 | 0.5+ | 0.5− | | |
| 2005 10 21 | 644 | 0.2+ | 0.3+ | 2005 11 05 | 704 | 0.1+ | 0.6− | 2009 12 11 | G96 | 0.1− | 0.0 | | |
| 2005 10 21 | 644 | 0.4− | 0.1+ | 2005 11 05 | 704 | 0.8+ | 0.6+ | 2009 12 11 | G96 | 0.4− | 0.2+ | | |
| 2005 10 22 | 703 | (2.3+ | 0.3+) | 2005 11 06 | 291 | 0.0 | 0.7− | 2009 12 11 | G96 | 0.1− | 0.4+ | | |
| 2005 10 22 | 703 | 0.0 | 0.2+ | 2005 11 06 | 291 | 0.1+ | 0.6− | 2009 12 11 | G96 | 0.2+ | 0.1+ | | |
| 2005 10 22 | 703 | 0.2− | 0.2− | 2005 11 06 | 291 | 0.1− | 0.6− | | | | | | |

**(228444)∗ 2001 QT$_{165}$ = 2004 GD$_{73}$**

Discovered 2001 Aug. 24 by NEAT at Haleakala.

Id. G. V. Williams (*MPO* 64955)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 212.12679 | | (2000.0) | | | |
| $n$ | 0.28764735 | $\omega$ | 178.61247 | | −0.21868923 | +0.97135179 |
| $a$ | 2.2728065 | $\Omega$ | 78.74918 | | −0.89618494 | −0.16222434 |
| $e$ | 0.1765484 | $i$ | 5.44163 | | −0.38604089 | −0.17366337 |
| $P$ | 3.43 | $H$ | 16.8 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 19 | 704 | 1.4− | 0.1− | 2004 05 15 | 704 | 1.0+ | 0.3+ | 2005 10 31 | 691 | 0.1+ | 0.3+ | | |
| 2001 08 19 | 704 | 0.9− | 0.5− | 2004 05 15 | 704 | 0.7+ | 0.6+ | 2005 10 31 | 691 | 0.3+ | 0.1− | | |
| 2001 08 19 | 704 | 0.5+ | 0.8− | 2004 05 15 | 704 | 0.2− | 0.5+ | 2005 11 01 | 691 | 0.0 | 0.7+ | | |
| 2001 08 24 | 608 | 0.5− | 0.1− | 2004 05 15 | 704 | 0.4+ | 0.5+ | 2005 11 01 | 691 | 0.1− | 0.3+ | | |
| 2001 08 24 | 608 | 0.5− | 0.2+ | 2004 05 18 | 704 | 0.0 | 0.7+ | 2005 11 01 | 691 | 0.1+ | 0.4+ | | |
| 2001 08 24 | 608 | 0.5− | 0.2+ | 2004 05 18 | 704 | 0.2+ | 0.4+ | 2005 11 04 | G96 | 0.3− | 0.2+ | | |
| 2001 08 27 | 644 | 0.0 | 0.1+ | 2004 05 18 | 704 | 0.6− | 0.6+ | 2005 11 04 | G96 | 0.0 | 0.3+ | | |
| 2001 08 27 | 644 | 0.1+ | 0.0 | 2004 05 18 | 704 | 0.1+ | 0.4+ | 2005 11 04 | G96 | 0.0 | 0.3+ | | |
| 2001 08 27 | 644 | 0.1− | 0.0 | 2004 05 18 | 704 | 0.2+ | 0.7+ | 2005 11 04 | G96 | 0.2− | 0.3+ | | |
| 2004 04 15 | 699 | 0.8− | 0.6− | 2004 05 21 | 704 | 1.0+ | 1.0+ | 2005 11 05 | 691 | 0.2− | 0.4+ | | |
| 2004 04 15 | 699 | 1.2+ | 0.4− | 2004 05 21 | 704 | (0.5+ | 1.7+) | 2005 11 05 | 691 | 0.0 | 0.4+ | | |
| 2004 04 15 | 699 | 0.1− | 0.8+ | 2004 05 21 | 704 | 1.5+ | 1.0+ | 2005 11 05 | 691 | 0.1− | 0.6+ | | |
| 2004 04 15 | 699 | 1.1+ | 0.5+ | 2004 05 21 | 704 | 0.4+ | 0.6+ | 2005 12 29 | G96 | 0.2− | 0.1− | | |
| 2004 04 20 | 704 | 0.4+ | 0.0 | 2004 05 21 | 704 | 1.0+ | 0.2+ | 2005 12 29 | G96 | 0.2− | 0.2+ | | |
| 2004 04 20 | 704 | 0.4+ | 0.2+ | 2004 06 08 | 703 | 0.0 | 0.8− | 2005 12 29 | G96 | 0.2− | 0.1− | | |
| 2004 04 20 | 704 | 0.2+ | 0.6+ | 2004 06 08 | 703 | 1.2− | 0.6+ | 2005 12 29 | G96 | 0.2− | 0.4+ | | |
| 2004 04 20 | 704 | 0.5+ | 0.1− | 2004 06 08 | 703 | 1.0− | 1.0+ | 2008 09 06 | 703 | 0.5− | 0.7− | | |
| 2004 04 20 | 704 | 0.3+ | 0.1− | 2004 06 08 | 703 | 0.7− | 0.5+ | 2008 09 06 | 703 | 0.6+ | 0.5+ | | |
| 2004 04 22 | 704 | 0.6+ | 0.1+ | 2004 06 15 | 704 | (0.3+ | 2.3+) | 2008 09 06 | 703 | 0.6+ | 0.8− | | |
| 2004 04 22 | 704 | 1.3+ | 0.6+ | 2004 06 15 | 704 | 0.3− | 0.9+ | 2008 09 06 | 703 | 0.2+ | 1.0− | | |
| 2004 04 22 | 704 | 0.2+ | 0.6+ | 2004 06 15 | 704 | 0.8− | 0.6+ | 2009 11 17 | G96 | 0.3− | 0.3− | | |
| 2004 04 22 | 704 | 0.1− | 1.1+ | 2005 10 22 | 691 | 0.3+ | 0.0 | 2009 11 17 | G96 | 0.2− | 0.4+ | | |
| 2004 04 22 | 704 | (0.3− | 1.5+) | 2005 10 22 | 691 | 0.1− | 0.4+ | 2009 11 17 | G96 | 0.7− | 0.7− | | |
| 2004 05 01 | 703 | (2.2− | 0.5−) | 2005 10 22 | 691 | 0.1− | 0.1+ | 2009 11 17 | G96 | 0.6− | 0.0 | | |
| 2004 05 01 | 703 | 0.2− | 0.1+ | 2005 10 25 | 691 | 0.1− | 0.7+ | 2009 12 26 | 691 | 0.4− | 0.1+ | | |
| 2004 05 01 | 703 | (2.2+ | 0.1+) | 2005 10 25 | 691 | 0.3− | 0.5+ | 2009 12 26 | 691 | 0.5− | 0.3+ | | |
| 2004 05 01 | 703 | 0.0 | 0.1+ | 2005 10 25 | 691 | 0.2− | 0.4+ | 2009 12 26 | 691 | 0.0 | 0.4− | | |
| 2004 05 15 | 704 | 0.7+ | 0.2+ | 2005 10 31 | 691 | 0.1+ | 0.2+ | | | | | | |

**(228445)∗ 2001 QH$_{167}$**

Discovered 2001 Aug. 24 by NEAT at Haleakala.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 127.17869 | | (2000.0) | | | |
| $n$ | 0.27929483 | $\omega$ | 209.52953 | | +0.93590244 | +0.34115144 |
| $a$ | 2.3178969 | $\Omega$ | 130.25469 | | −0.29643525 | +0.89734198 |
| $e$ | 0.1477204 | $i$ | 6.60341 | | −0.19029653 | +0.27998761 |
| $P$ | 3.53 | $H$ | 16.8 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 12 | 608 | 0.2− | 0.2+ | 2004 06 09 | 691 | 0.3− | 0.5+ | 2008 08 03 | 704 | 0.2+ | 0.3+ | | |
| 2001 08 12 | 608 | 0.7− | 0.1+ | 2005 11 10 | 703 | 1.3+ | 0.7+ | 2008 08 03 | 704 | 0.1+ | 1.3+ | | |
| 2001 08 12 | 608 | 0.3− | 0.2+ | 2005 11 10 | 703 | 0.1− | 0.1− | 2008 08 03 | 704 | 0.7− | 0.8+ | | |
| 2001 08 24 | 608 | 0.8+ | 0.4− | 2005 11 10 | 703 | 0.5− | 0.8+ | 2008 08 24 | 704 | 0.4− | 0.0 | | |
| 2001 08 24 | 608 | 0.0 | 0.6− | 2005 11 10 | 703 | 0.1+ | 0.2− | 2008 08 24 | 704 | 0.2+ | 0.6+ | | |
| 2001 08 24 | 608 | 0.1+ | 1.0− | 2005 11 25 | 703 | (1.7− | 1.4+) | 2008 08 24 | 704 | 0.7+ | 0.4− | | |
| 2001 08 25 | 704 | 0.3+ | 0.1+ | 2005 11 25 | 703 | 0.6+ | 0.8− | 2008 08 24 | 704 | 0.1− | 0.2+ | | |
| 2001 08 25 | 704 | 0.9+ | 0.5− | 2005 11 25 | 703 | 0.8− | 1.0+ | 2008 08 24 | 704 | 0.0 | 0.2+ | | |
| 2001 08 25 | 704 | 0.5+ | 0.4− | 2006 02 02 | G96 | 0.5− | 0.4+ | 2008 09 02 | 704 | 1.1− | 0.4− | | |
| 2001 08 27 | 644 | 0.3− | 0.7+ | 2006 02 02 | G96 | 0.4− | 0.2+ | 2008 09 02 | 704 | 0.3− | 0.1− | | |
| 2001 08 27 | 644 | 0.5− | 0.6+ | 2006 02 02 | G96 | 0.3− | 0.1− | 2008 09 02 | 704 | 0.4+ | 0.0 | | |
| 2001 08 27 | 644 | 0.3− | 0.7+ | 2006 02 02 | G96 | 0.0 | 0.3+ | 2009 11 26 | G96 | 0.1+ | 0.1− | | |
| 2001 09 10 | 699 | (0.0 | 1.7+) | 2007 03 14 | G96 | (0.2− | 2.1−) | 2009 11 26 | G96 | 0.1− | 0.2+ | | |
| 2001 09 10 | 699 | 0.7− | 0.2− | 2007 03 14 | G96 | 0.2+ | 0.1+ | 2009 11 26 | G96 | 0.2− | 0.2+ | | |
| 2001 09 10 | 699 | 0.2+ | 0.5− | 2007 03 14 | G96 | 0.0 | 0.2+ | 2009 11 26 | G96 | 0.3+ | 0.4+ | | |
| 2001 09 10 | 699 | 0.1− | 0.1+ | 2007 03 14 | G96 | 0.2+ | 0.1+ | 2009 11 26 | G96 | 0.2+ | 0.1− | | |
| 2003 01 31 | 644 | 0.1− | 0.9+ | 2008 07 28 | E12 | 0.7− | 0.9+ | 2009 12 15 | G96 | 0.3+ | 0.6+ | | |
| 2003 01 31 | 644 | 0.7+ | 0.9+ | 2008 07 28 | E12 | 0.9+ | 0.5+ | 2009 12 15 | G96 | 0.3− | 0.7+ | | |
| 2003 01 31 | 644 | 0.1+ | 0.7+ | 2008 07 28 | E12 | 0.4+ | 0.1+ | 2009 12 15 | G96 | 0.4− | 0.1+ | | |
| 2004 06 09 | 691 | 0.4+ | 0.2− | 2008 07 28 | E12 | 0.0 | 0.4+ | 2009 12 15 | G96 | 0.5− | 0.1+ | | |
| 2004 06 09 | 691 | 0.1+ | 0.2+ | 2008 08 03 | 704 | 0.4− | 0.1− | | | | | | |

**(228446)∗ 2001 QJ$_{167}$ = 2005 UL$_{66}$**

Discovered 2001 Aug. 24 by NEAT at Haleakala.

Id. G. V. Williams (*MPO* 88839)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 64.23891 | | (2000.0) | | | |
| $n$ | 0.27011422 | $\omega$ | 311.66668 | | +0.86648379 | −0.49758736 |
| $a$ | 2.3701241 | $\Omega$ | 78.21002 | | +0.46933805 | +0.78459497 |
| $e$ | 0.1888638 | $i$ | 2.35112 | | +0.17008125 | +0.36988856 |
| $P$ | 3.65 | $H$ | 16.8 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 10 31 | 691 | 0.0 | 0.1+ | 2005 10 31 | 704 | 0.3+ | 0.4− | 2005 12 04 | 704 | 0.1+ | 0.4− | | |
| 1994 10 31 | 691 | 0.1+ | 0.1− | 2005 10 31 | 704 | 0.1− | 0.4+ | 2005 12 04 | G96 | 0.1+ | 0.2− | | |
| 1994 10 31 | 691 | 0.1− | 0.1− | 2005 10 31 | 704 | 0.0 | 0.3− | 2005 12 04 | 704 | 0.4+ | 0.2− | | |
| 2001 08 24 | 608 | 1.2+ | 0.1− | 2005 10 31 | 691 | 0.0 | 0.0 | 2005 12 04 | G96 | 0.1− | 0.3− | | |
| 2001 08 24 | 608 | 1.1+ | 0.4− | 2005 10 31 | 691 | 0.0 | 0.0 | 2005 12 04 | G96 | 0.4+ | 0.2− | | |
| 2001 08 24 | 608 | 1.3+ | 0.7+ | 2005 10 31 | 691 | 0.1+ | 0.0 | 2005 12 04 | G96 | 0.2+ | 0.1− | | |
| 2001 08 25 | 704 | 1.1− | 0.1− | 2005 11 03 | 704 | 0.2− | 0.1− | 2005 12 08 | 691 | 0.0 | 0.0 | | |
| 2001 08 25 | 704 | 0.9− | 0.3− | 2005 11 03 | 704 | 0.3− | 0.2− | 2005 12 08 | 691 | 0.0 | 0.3+ | | |
| 2001 08 25 | 704 | 0.1+ | 0.2− | 2005 11 03 | 704 | 0.2− | 0.2+ | 2005 12 08 | 691 | 0.0 | 0.3+ | | |
| 2001 08 25 | 704 | 0.2− | 0.5− | 2005 11 03 | 704 | 0.2+ | 0.1− | 2006 01 04 | G96 | 0.0 | 0.1− | | |
| 2001 08 27 | 644 | 0.3+ | 0.5− | 2005 11 03 | 704 | 0.4+ | 0.2+ | 2006 01 04 | G96 | 0.1+ | 0.4− | | |
| 2001 08 27 | 644 | 0.3− | 0.8− | 2005 11 04 | 691 | 0.1− | 0.1+ | 2006 01 04 | G96 | 0.7+ | 0.1− | | |
| 2001 08 27 | 644 | 0.4− | 0.7− | 2005 11 04 | 691 | 0.1− | 0.2− | 2006 01 04 | G96 | 0.6+ | 0.0 | | |
| 2001 09 16 | 704 | (2.1− | 0.1−) | 2005 11 04 | 691 | 0.0 | 0.0 | 2006 01 21 | G96 | 0.1+ | 0.6− | | |
| 2001 09 16 | 704 | 0.2− | 0.9+ | 2005 11 10 | 691 | 0.1− | 0.0 | 2006 01 21 | G96 | 0.3+ | 0.9− | | |
| 2001 09 16 | 704 | 0.5− | 1.2+ | 2005 11 10 | 691 | 0.2− | 0.1− | 2006 01 21 | G96 | 0.4− | 0.6− | | |
| 2005 10 22 | 691 | 0.0 | 0.2+ | 2005 11 10 | 691 | 0.1− | 0.1+ | 2006 01 21 | G96 | 0.1− | 0.8− | | |
| 2005 10 22 | 691 | 0.1+ | 0.1+ | 2005 11 20 | 699 | 0.7+ | 1.0+ | 2006 01 23 | G96 | 0.4+ | 0.1− | | |
| 2005 10 22 | 691 | 0.6− | 0.3− | 2005 11 20 | 699 | 0.2− | 0.4+ | 2006 01 23 | G96 | 0.4+ | 0.2− | | |
| 2005 10 26 | 699 | 0.5− | 0.1− | 2005 11 20 | 699 | 0.6+ | 0.4+ | 2006 01 23 | G96 | 0.4+ | 0.3− | | |
| 2005 10 26 | 699 | 0.8− | 0.6− | 2005 11 20 | 699 | (1.7− | 0.4+) | 2006 01 23 | G96 | 0.4+ | 0.4− | | |
| 2005 10 26 | 699 | 0.5− | 0.7+ | 2005 11 29 | G96 | 0.5+ | 0.3+ | 2009 09 27 | 691 | 0.1− | 0.1+ | | |
| 2005 10 26 | 699 | 1.0+ | 0.8+ | 2005 11 29 | G96 | 0.1+ | 0.2− | 2009 09 27 | 691 | 0.4+ | 0.0 | | |
| 2005 10 28 | 704 | 0.4− | 0.9− | 2005 11 29 | G96 | 0.1+ | 0.2− | 2009 09 27 | 691 | 0.7− | 0.1+ | | |
| 2005 10 28 | 704 | 0.0 | 0.3− | 2005 11 29 | G96 | 0.3− | 0.2− | 2009 11 16 | G96 | 0.0 | 0.1− | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 28 | G96 | 0.3− | 0.1− | 2005 12 01 | 704 | 0.6+ | 0.2− | 2009 11 16 | G96 | 0.3+ | 0.0 | | |
| 2005 10 28 | 704 | 0.4− | 0.7+ | 2005 12 01 | 704 | 0.2− | 0.0 | 2009 11 16 | G96 | 0.0 | 0.0 | | |
| 2005 10 28 | G96 | 0.0 | 0.3− | 2005 12 01 | 704 | 0.8− | 0.3− | 2009 11 16 | G96 | 0.1+ | 0.0 | | |
| 2005 10 28 | G96 | 0.1− | 0.1− | 2005 12 01 | 704 | 0.0 | 0.1+ | 2009 12 18 | 691 | 0.1− | 0.1− | | |
| 2005 10 28 | G96 | 0.2− | 0.2− | 2005 12 01 | 704 | 0.2− | 0.3+ | 2009 12 18 | 691 | 0.1+ | 0.1+ | | |
| 2005 10 28 | 704 | 0.6+ | 1.2+ | 2005 12 04 | 704 | 0.6+ | 0.3− | 2009 12 18 | 691 | 0.0 | 0.0 | | |
| 2005 10 31 | 704 | 0.4+ | 0.7+ | 2005 12 04 | 704 | 0.1+ | 0.6+ | | | | | | |
| 2005 10 31 | 704 | 0.4+ | 1.0+ | 2005 12 04 | 704 | 0.0 | 0.1+ | | | | | | |

**(228447)∗ 2001 QK$_{172}$ = 2005 TP$_{42}$**

Discovered 2001 Aug. 25 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 84786)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 68.64646 | | (2000.0) | | | |
| $n$ | 0.27106810 | $\omega$ | 142.23837 | | +0.91169057 | −0.40271016 |
| $a$ | 2.3645606 | $\Omega$ | 241.69662 | | +0.35081390 | +0.86622220 |
| $e$ | 0.1183671 | $i$ | 5.31230 | | +0.21389228 | +0.29577631 |
| $P$ | 3.64 | $H$ | 16.0 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 23 | 699 | 0.1+ | 0.2+ | 2005 10 13 | 704 | 0.2+ | 0.0 | 2005 11 20 | 699 | 1.0− | 1.1+ | | |
| 2001 08 23 | 699 | 0.2− | 0.1+ | 2005 10 13 | 704 | 1.1− | 1.1+ | 2005 11 20 | 699 | 0.6+ | 0.6− | | |
| 2001 08 23 | 699 | 0.7− | 0.4+ | 2005 10 13 | 704 | 0.8+ | 0.5− | 2005 11 25 | 703 | 0.1− | 0.9+ | | |
| 2001 08 23 | 699 | 0.4+ | 0.5+ | 2005 10 13 | 704 | (1.6+ | 1.0−) | 2005 11 25 | 703 | 0.6+ | 0.1+ | | |
| 2001 08 25 | 704 | 0.2+ | 0.6+ | 2005 10 23 | 703 | 0.3− | 0.9− | 2005 11 25 | 703 | 0.5+ | 0.3− | | |
| 2001 08 25 | 704 | 0.4− | 0.3+ | 2005 10 23 | 703 | 1.5− | 0.0 | 2005 11 25 | 703 | 0.4− | 0.3− | | |
| 2001 08 25 | 704 | 0.2+ | 0.1+ | 2005 10 23 | 703 | 0.1− | 0.8− | 2005 12 01 | 704 | 0.6+ | 0.2− | | |
| 2001 08 25 | 704 | 0.0 | 0.3+ | 2005 10 23 | 703 | 0.7− | 0.0 | 2005 12 01 | 704 | 0.1+ | 0.7+ | | |
| 2001 08 25 | 704 | 0.3+ | 0.1− | 2005 10 26 | 691 | 0.5+ | 1.1− | 2005 12 01 | 704 | 0.3+ | 0.2+ | | |
| 2001 08 27 | 704 | 0.4− | 0.1+ | 2005 10 26 | 691 | 0.4− | 0.1− | 2005 12 01 | 704 | 0.0 | 1.0− | | |
| 2001 08 27 | 704 | 0.3+ | 0.4+ | 2005 10 26 | 691 | 0.5+ | 0.3+ | 2005 12 01 | 704 | 0.2− | 0.2− | | |
| 2001 08 27 | 704 | 0.4+ | 0.0 | 2005 10 27 | 691 | 0.1+ | 0.0 | 2005 12 04 | 704 | 0.2− | 0.2− | | |
| 2001 08 27 | 704 | 0.4− | 0.0 | 2005 10 27 | 691 | 0.1− | 0.3− | 2005 12 04 | 704 | 0.1+ | 0.8− | | |
| 2001 08 27 | 704 | 0.2+ | 1.1+ | 2005 10 27 | 691 | 0.1+ | 0.0 | 2005 12 04 | 704 | 0.6− | 0.1− | | |
| 2001 08 27 | 704 | 0.8− | 0.0 | 2005 10 29 | 703 | 0.5+ | 0.2− | 2005 12 04 | 704 | 1.1+ | 0.3+ | | |
| 2001 08 27 | 704 | 0.1− | 0.7+ | 2005 10 29 | 703 | 0.2+ | 0.7− | 2005 12 06 | 704 | 0.8+ | 0.4+ | | |
| 2001 08 27 | 704 | 0.9− | 0.3+ | 2005 10 29 | 703 | 0.3+ | 0.6− | 2005 12 06 | 704 | 0.2+ | 0.4+ | | |
| 2001 08 27 | 704 | 0.0 | 0.9+ | 2005 10 29 | 703 | 0.0 | 0.0 | 2005 12 06 | 704 | 0.5+ | 0.2− | | |
| 2001 09 08 | 704 | 1.3− | 1.3+ | 2005 10 31 | 704 | 0.4+ | 0.0 | 2005 12 08 | 704 | 0.7+ | 0.1+ | | |
| 2001 09 08 | 704 | 0.4+ | 0.5− | 2005 10 31 | 704 | 0.8+ | 0.1− | 2005 12 08 | 704 | 1.0− | 0.2− | | |
| 2001 09 08 | 704 | 0.8+ | 0.2+ | 2005 10 31 | 704 | 0.1− | 0.4+ | 2005 12 08 | 704 | 0.6− | 0.2+ | | |
| 2001 09 08 | 704 | 0.1+ | 0.1− | 2005 10 31 | 704 | 0.4− | 0.2+ | 2005 12 31 | G96 | 0.0 | 0.3− | | |
| 2001 09 08 | 704 | (1.4+ | 1.8−) | 2005 10 31 | 704 | 0.1+ | 0.8+ | 2005 12 31 | G96 | 0.0 | 0.4− | | |
| 2001 09 20 | 704 | 0.5− | 0.7+ | 2005 11 01 | 704 | 0.2− | 0.1− | 2005 12 31 | G96 | 0.1+ | 0.2− | | |
| 2001 09 20 | 704 | 0.3− | 0.1+ | 2005 11 01 | 704 | 0.9− | 0.2+ | 2005 12 31 | G96 | 0.2− | 0.4− | | |
| 2001 09 20 | 704 | 1.0− | 0.4+ | 2005 11 01 | 704 | 0.3− | 0.1− | 2006 01 05 | G96 | 0.1+ | 0.4− | | |
| 2003 02 19 | 644 | 0.1− | 0.9+ | 2005 11 01 | 704 | 0.1− | 0.2+ | 2006 01 05 | G96 | 0.0 | 0.4− | | |
| 2003 02 19 | 644 | 0.7+ | 1.2+ | 2005 11 01 | 704 | 0.3− | 0.4− | 2006 01 05 | G96 | 0.2− | 0.4− | | |
| 2003 02 19 | 644 | 0.1+ | 0.9+ | 2005 11 02 | 704 | 0.5− | 0.5+ | 2006 01 05 | G96 | 0.3− | 0.3− | | |
| 2003 02 19 | 644 | 0.3+ | 0.9+ | 2005 11 02 | 704 | 0.5− | 0.0 | 2006 01 22 | G96 | 1.0+ | 0.3+ | | |
| 2003 02 19 | 644 | 0.2− | 0.9+ | 2005 11 02 | 704 | 0.6− | 0.8+ | 2006 01 22 | G96 | 0.6+ | 0.5+ | | |
| 2003 02 19 | 644 | 0.1+ | 0.8+ | 2005 11 02 | 704 | 0.9− | 0.2− | 2006 01 22 | G96 | 0.7+ | 0.5+ | | |
| 2004 06 14 | 704 | 0.6+ | 0.1− | 2005 11 02 | 704 | 0.6− | 0.6+ | 2006 01 22 | G96 | 0.7+ | 0.3+ | | |
| 2004 06 14 | 704 | 0.2− | 0.2− | 2005 11 04 | 704 | (2.2+ | 0.2−) | 2007 03 21 | 704 | 0.4+ | 0.8+ | | |
| 2004 06 14 | 704 | 0.3− | 0.8− | 2005 11 04 | 704 | 0.5− | 0.5− | 2007 03 21 | 704 | 0.5+ | 0.9+ | | |
| 2004 06 14 | 704 | 0.5− | 0.7+ | 2005 11 04 | 704 | 0.3+ | 0.2− | 2007 03 21 | 704 | 0.8+ | 0.7− | | |
| 2005 10 03 | 644 | 0.1+ | 0.0 | 2005 11 04 | 704 | 0.8+ | 0.8+ | 2007 03 21 | 704 | 1.2+ | 1.2+ | | |
| 2005 10 03 | 644 | 0.2− | 0.1− | 2005 11 04 | 704 | 0.2− | 0.1+ | 2009 11 19 | G96 | 0.0 | 0.2− | | |
| 2005 10 03 | 644 | 0.1− | 0.1+ | 2005 11 07 | 704 | 0.0 | 0.5+ | 2009 11 19 | G96 | 0.4+ | 0.1− | | |
| 2005 10 06 | 699 | 0.1+ | 0.1− | 2005 11 07 | 704 | 0.2− | 0.5+ | 2009 11 19 | G96 | 0.2+ | 0.1− | | |
| 2005 10 06 | 699 | 0.1+ | 0.5+ | 2005 11 07 | 704 | 0.4− | 0.3+ | 2009 11 19 | G96 | 0.0 | 0.1− | | |
| 2005 10 06 | 699 | 0.8+ | 0.3− | 2005 11 07 | 704 | 0.5− | 0.2− | 2009 12 17 | 704 | 0.2+ | 0.1− | | |
| 2005 10 06 | 699 | 0.6− | 0.4+ | 2005 11 07 | 704 | 0.1+ | 0.5+ | 2009 12 17 | 704 | 0.9+ | 0.6+ | | |
| 2005 10 07 | 704 | 0.1+ | 0.0 | 2005 11 10 | 691 | 0.1+ | 0.0 | 2009 12 17 | 704 | 0.2+ | 1.0+ | | |
| 2005 10 07 | 704 | 0.2+ | 0.7+ | 2005 11 10 | 691 | 0.0 | 0.1+ | 2009 12 17 | 704 | 0.7− | 0.8+ | | |
| 2005 10 07 | 704 | 1.1+ | 0.8− | 2005 11 10 | 691 | 0.1− | 0.0 | 2009 12 20 | 691 | 0.1− | 0.1− | | |
| 2005 10 07 | 704 | 0.3+ | 0.3+ | 2005 11 20 | 699 | (1.6− | 1.3+) | 2009 12 20 | 691 | 0.2− | 0.1+ | | |
| 2005 10 13 | 704 | 0.2+ | 0.7+ | 2005 11 20 | 699 | 0.1− | 0.1+ | 2009 12 20 | 691 | 0.1− | 0.0 | | |

**(228448)∗ 2001 QA$_{174}$ = 1986 UW$_3$**

Discovered 2001 Aug. 26 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 17930)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 42.08097 | | (2000.0) | | | |
| $n$ | 0.25900433 | $\omega$ | 135.91645 | | +0.81543446 | −0.56536671 |
| $a$ | 2.4374256 | $\Omega$ | 258.90604 | | +0.48987612 | +0.78832982 |
| $e$ | 0.2316685 | $i$ | 7.27150 | | +0.30836347 | +0.24268616 |
| $P$ | 3.81 | $H$ | 16.2 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1986 10 31 | 675 | 0.5− | 2.4+ | 2001 10 19 | 704 | 0.3− | 0.2+ | 2005 11 29 | 704 | 0.3− | 0.4− | | |
| 1986 10 31 | 675 | (1.1+ | 4.1+) | 2001 10 19 | 704 | 0.3− | 0.6− | 2005 11 29 | 704 | 0.2− | 0.1− | | |
| 1986 11 05 | 675 | (19.0+ | 2.2+) | 2001 10 19 | 704 | 0.7− | 0.2− | 2005 11 29 | 704 | 0.3+ | 0.2− | | |
| 1986 11 05 | 675 | (21.4+ | 3.8+) | 2005 10 23 | 644 | 0.6− | 0.2+ | 2005 11 29 | 704 | 0.1− | 0.1+ | | |
| 2001 08 17 | 704 | 0.2− | 1.0− | 2005 10 23 | 644 | 0.4− | 0.1+ | 2005 11 29 | 704 | 0.0 | 0.0 | | |
| 2001 08 17 | 704 | 0.4+ | 0.1− | 2005 10 23 | 703 | 0.1− | 0.4+ | 2005 12 02 | 704 | 0.0 | 0.2− | | |
| 2001 08 17 | 704 | 0.7+ | 0.9− | 2005 10 23 | 703 | 0.3− | 0.1+ | 2005 12 02 | 704 | 0.7+ | 0.4+ | | |
| 2001 08 26 | 704 | 0.0 | 0.8− | 2005 10 23 | 703 | 0.6+ | 0.6+ | 2005 12 02 | 704 | 0.4+ | 0.0 | | |
| 2001 08 26 | 699 | 0.2+ | 0.2+ | 2005 10 23 | 703 | 0.5− | 0.6+ | 2005 12 02 | 704 | 0.8+ | 0.1+ | | |
| 2001 08 26 | 704 | 0.2+ | 0.3− | 2005 10 23 | 644 | 0.3− | 0.0 | 2005 12 02 | 704 | 0.0 | 0.5+ | | |
| 2001 08 26 | 704 | 0.3− | 0.1+ | 2005 10 26 | 644 | 0.3− | 0.1− | 2005 12 05 | 704 | 0.6+ | 0.1+ | | |
| 2001 08 26 | 704 | 0.7− | 0.4+ | 2005 10 26 | 644 | 0.4− | 0.0 | 2005 12 05 | 704 | 0.1+ | 0.4+ | | |
| 2001 08 26 | 699 | 0.2− | 0.7+ | 2005 10 26 | 644 | 0.2− | 0.3− | 2005 12 05 | 704 | 0.3+ | 0.1− | | |
| 2001 08 26 | 704 | 0.6− | 0.5+ | 2005 10 27 | 644 | 0.3− | 0.2− | 2005 12 05 | 704 | 0.3+ | 0.6+ | | |
| 2001 08 26 | 699 | 0.0 | 0.5− | 2005 10 27 | 644 | 0.2− | 0.2− | 2005 12 05 | 704 | 0.2− | 0.0 | | |
| 2001 08 26 | 699 | 0.3+ | 0.7− | 2005 10 27 | 644 | 0.3− | 0.1− | 2005 12 05 | 699 | 0.4+ | 0.4+ | | |
| 2001 08 27 | 704 | 0.3− | 0.1+ | 2005 10 27 | 644 | 0.3− | 0.1+ | 2005 12 05 | 699 | 0.5+ | 0.8+ | | |
| 2001 08 27 | 704 | 0.1+ | 0.1+ | 2005 10 27 | 644 | 0.2− | 0.1− | 2005 12 05 | 699 | (1.7− | 0.5+) | | |
| 2001 08 27 | 704 | 0.1+ | 0.1+ | 2005 10 27 | 644 | 0.2− | 0.0 | 2005 12 05 | 699 | 0.4+ | 0.3+ | | |
| 2001 08 27 | 704 | 0.0 | 0.5− | 2005 10 29 | 703 | 0.0 | 0.3− | 2005 12 07 | 691 | 0.3+ | 0.1+ | | |
| 2001 08 27 | 704 | 0.7− | 0.4+ | 2005 10 29 | 703 | 0.7− | 0.2+ | 2005 12 07 | 691 | 0.2+ | 0.0 | | |
| 2001 09 10 | 704 | 0.2− | 0.2+ | 2005 10 29 | 703 | 0.5− | 0.1− | 2005 12 07 | 691 | 0.1+ | 0.1− | | |
| 2001 09 10 | 704 | 0.3+ | 0.5+ | 2005 10 29 | 703 | 0.3− | 0.0 | 2005 12 10 | 704 | 0.2− | 0.5+ | | |
| 2001 09 10 | 704 | 0.2+ | 0.1+ | 2005 10 30 | 704 | 0.5− | 0.3− | 2005 12 10 | 704 | 0.7+ | 0.5+ | | |
| 2001 09 10 | 699 | 0.7+ | 0.2+ | 2005 10 30 | 704 | 0.2− | 0.9+ | 2005 12 10 | 704 | 0.5+ | 0.0 | | |
| 2001 09 10 | 704 | 0.4+ | 0.3+ | 2005 10 30 | 704 | 0.5− | 0.0 | 2005 12 10 | 704 | 0.3+ | 0.2− | | |
| 2001 09 10 | 704 | 0.3+ | 0.6+ | 2005 10 30 | 704 | 0.2− | 0.0 | 2005 12 10 | 704 | (1.8+ | 0.8+) | | |
| 2001 09 10 | 699 | 0.4+ | 0.4− | 2005 10 30 | 704 | 0.6− | 0.5+ | 2005 12 30 | 699 | 0.6− | 0.0 | | |
| 2001 09 10 | 699 | 0.2+ | 0.3+ | 2005 11 02 | 704 | 0.3− | 0.6− | 2005 12 30 | 699 | 1.0+ | 1.2− | | |
| 2001 09 10 | 699 | 0.7+ | 0.2− | 2005 11 02 | 704 | 0.0 | 0.7− | 2005 12 30 | 699 | 0.4+ | 1.3− | | |
| 2001 09 21 | 699 | 0.1+ | 0.5− | 2005 11 02 | 704 | 0.0 | 0.2− | 2005 12 30 | 699 | 1.3+ | 0.5− | | |
| 2001 09 21 | 699 | 0.9− | 0.1+ | 2005 11 02 | 704 | 0.6− | 0.1− | 2005 12 31 | 704 | 0.6+ | 1.1+ | | |
| 2001 09 21 | 699 | 0.3− | 0.5− | 2005 11 02 | 704 | 0.1− | 0.5− | 2005 12 31 | 704 | 0.9+ | 0.4+ | | |
| 2001 09 21 | 699 | 1.0− | 0.4− | 2005 11 08 | 704 | 0.2− | 0.2+ | 2005 12 31 | 704 | 0.8+ | 1.3+ | | |
| 2001 09 25 | 704 | 0.2+ | 0.1− | 2005 11 08 | 704 | 0.6+ | 0.1− | 2005 12 31 | 704 | 0.3− | 0.2+ | | |
| 2001 09 25 | 704 | 0.4+ | 0.2− | 2005 11 08 | 704 | 0.2− | 0.8+ | 2006 01 21 | G96 | 0.7+ | 0.5− | | |
| 2001 09 25 | 704 | 0.6+ | 0.3− | 2005 11 08 | 704 | 0.1+ | 0.6+ | 2006 01 21 | G96 | 0.9+ | 0.4− | | |
| 2001 09 25 | 704 | 0.4+ | 0.0 | 2005 11 08 | 704 | 0.1− | 0.8+ | 2006 01 21 | G96 | 1.1+ | 0.4− | | |
| 2001 09 25 | 704 | 0.4+ | 0.1+ | 2005 11 13 | 644 | 0.1− | 0.1− | 2006 01 21 | G96 | 0.9+ | 0.4− | | |
| 2001 10 13 | 644 | 0.3+ | 0.3+ | 2005 11 13 | 644 | 0.1− | 0.0 | 2009 11 23 | 291 | 0.1− | 0.1− | | |
| 2001 10 13 | 644 | 0.4+ | 0.3+ | 2005 11 13 | 644 | 0.4− | 0.1− | 2009 11 23 | 291 | 0.3− | 0.0 | | |
| 2001 10 13 | 644 | 0.5+ | 0.3+ | 2005 11 20 | 699 | 0.1− | 0.5+ | 2009 11 23 | 291 | 0.2− | 0.0 | | |
| 2001 10 17 | 704 | 0.2+ | 0.8+ | 2005 11 20 | 699 | 0.5− | 0.6− | 2009 12 17 | 704 | 0.1− | 0.5+ | | |
| 2001 10 17 | 704 | 0.3− | 0.5− | 2005 11 20 | 699 | 0.6− | 0.1− | 2009 12 17 | 704 | 0.3− | 0.4− | | |
| 2001 10 17 | 704 | 0.1+ | 0.4− | 2005 11 28 | 703 | 0.3− | 0.1− | 2009 12 17 | 704 | 1.0+ | 0.6− | | |
| 2001 10 17 | 704 | 0.4+ | 0.0 | 2005 11 28 | 703 | 0.3− | 0.5− | 2009 12 18 | 691 | 0.1+ | 0.1− | | |
| 2001 10 19 | 704 | 0.8− | 0.9− | 2005 11 28 | 703 | 0.8+ | 0.4− | 2009 12 18 | 691 | 0.3− | 0.1− | | |
| 2001 10 19 | 704 | 0.2− | 0.1− | 2005 11 28 | 703 | 1.2− | 0.6− | 2009 12 18 | 691 | 0.0 | 0.0 | | |

**(228449)∗ 2001 QF$_{179}$**

Discovered 2001 Aug. 28 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 91.43104 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26209165 | $\omega$ | 72.50887 | | +0.99505740 | +0.06156304 | |
| $a$ | 2.4182466 | $\Omega$ | 283.90756 | | −0.08847791 | +0.90587776 | |
| $e$ | 0.1324185 | $i$ | 4.60398 | | +0.04508247 | +0.41904115 | |
| $P$ | 3.76 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 12 03 | 691 | 0.2− | 0.1+ | 2001 10 21 | 704 | 0.0 | 0.1− | 2005 12 23 | 691 | 0.1+ | 0.1+ |
| 1994 12 03 | 691 | 0.2+ | 0.4− | 2001 10 21 | 704 | 0.2− | 0.1− | 2005 12 23 | 703 | (3.3+ | 0.9−) |
| 1994 12 03 | 691 | 0.2+ | 0.1− | 2001 10 23 | 333 | 0.2− | 0.6− | 2005 12 23 | 703 | 0.8+ | 0.6+ |
| 2001 08 17 | 704 | 0.1+ | 0.7+ | 2001 10 23 | 333 | 1.1− | 0.1− | 2005 12 23 | 703 | 1.1+ | 0.4+ |
| 2001 08 17 | 704 | 0.5+ | 0.3+ | 2001 10 23 | 333 | 0.4− | 0.8− | 2005 12 23 | 703 | 0.8− | 1.2+ |
| 2001 08 17 | 704 | 0.5+ | 0.1− | 2001 10 28 | 704 | 0.6+ | 0.6+ | 2005 12 28 | 644 | 0.2+ | 0.3+ |
| 2001 08 28 | 644 | 0.2+ | 1.1+ | 2001 10 28 | 704 | 0.1− | 0.0 | 2005 12 28 | 644 | 0.0 | 0.5+ |
| 2001 08 28 | 644 | 0.3+ | 1.1+ | 2001 10 28 | 704 | 0.6+ | 0.1+ | 2005 12 28 | 644 | 0.1− | 0.2+ |
| 2001 08 28 | 644 | 0.3+ | 0.8+ | 2001 10 28 | 704 | 0.2+ | 0.8+ | 2005 12 29 | 704 | 0.8+ | 1.0+ |
| 2001 08 29 | 644 | 0.1− | 0.0 | 2001 11 17 | 704 | (1.0+ | 1.9−) | 2005 12 29 | 704 | 0.4+ | 0.3+ |
| 2001 08 29 | 644 | 0.1+ | 0.0 | 2001 11 17 | 704 | 0.4+ | 1.0− | 2005 12 29 | 703 | 0.1− | 0.1− |
| 2001 08 29 | 644 | 0.2+ | 0.0 | 2001 11 17 | 704 | (1.2+ | 2.2−) | 2005 12 29 | 704 | 0.5+ | 1.1+ |
| 2001 09 19 | 699 | 0.2+ | 0.5− | 2001 11 17 | 704 | 1.0+ | 1.1− | 2005 12 29 | 703 | 1.2− | 1.2+ |
| 2001 09 19 | 699 | 1.1+ | 0.4− | 2001 11 17 | 704 | 1.1+ | 1.4− | 2005 12 29 | 703 | 0.2+ | 1.3+ |
| 2001 09 19 | 699 | 0.1− | 0.2+ | 2001 11 20 | 699 | 0.8+ | 0.9− | 2005 12 29 | 703 | (1.1+ | 3.7+) |
| 2001 09 19 | 699 | 0.7+ | 0.7− | 2001 11 20 | 699 | 0.2+ | 0.8+ | 2006 01 02 | G96 | 0.2+ | 0.3− |
| 2001 09 20 | 704 | 1.2− | 0.4+ | 2001 11 20 | 699 | 0.1+ | 0.5− | 2006 01 02 | G96 | 0.1+ | 0.2− |
| 2001 09 20 | 704 | 1.2− | 0.7+ | 2001 11 20 | 699 | 0.2− | 0.5+ | 2006 01 02 | G96 | 0.2+ | 0.2− |
| 2001 09 20 | 704 | (1.6− | 0.4+) | 2005 11 06 | 691 | (1.9+ | 0.4−) | 2006 01 02 | G96 | 0.5+ | 0.4− |
| 2001 09 20 | 704 | (1.6− | 0.2−) | 2005 11 06 | 691 | 0.1+ | 0.6− | 2006 01 04 | 699 | 0.4− | 1.3+ |
| 2001 09 22 | 704 | 0.1+ | 1.3+ | 2005 11 06 | 691 | 0.1+ | 0.2− | 2006 01 04 | 699 | 1.2− | 0.7+ |
| 2001 09 22 | 704 | 0.2− | 0.4+ | 2005 11 28 | 703 | 1.0+ | 0.0 | 2006 01 04 | 699 | 0.2− | 1.0− |
| 2001 09 22 | 704 | 0.4− | 0.0 | 2005 11 28 | 703 | 0.8+ | 0.4− | 2006 01 04 | 699 | 0.1+ | 0.9+ |
| 2001 09 23 | 704 | 0.3+ | 0.7+ | 2005 11 28 | 703 | 0.1+ | 1.2− | 2006 01 05 | 704 | 0.6+ | 0.4+ |
| 2001 09 23 | 704 | 0.5+ | 0.9+ | 2005 11 28 | 703 | (2.5− | 1.2+) | 2006 01 05 | 704 | 0.7+ | 0.4+ |
| 2001 09 23 | 704 | 0.5− | 0.5+ | 2005 11 29 | 691 | 0.1− | 0.1+ | 2006 01 05 | 704 | 0.2+ | 0.4+ |
| 2001 10 13 | 699 | 0.3− | 0.8− | 2005 11 29 | 691 | 0.0 | 0.0 | 2006 03 03 | G96 | 0.2− | 0.1+ |
| 2001 10 13 | 699 | 0.2+ | 1.0− | 2005 11 29 | 691 | 0.0 | 0.0 | 2006 03 03 | G96 | 0.2− | 0.3+ |
| 2001 10 13 | 699 | 0.5+ | 1.3− | 2005 12 02 | 704 | 0.6− | 1.1− | 2006 03 03 | G96 | 0.6+ | 0.3+ |
| 2001 10 13 | 699 | 0.2+ | 0.4+ | 2005 12 02 | 704 | 0.2− | 0.5+ | 2006 03 03 | G96 | 0.5+ | 0.2+ |
| 2001 10 14 | 704 | 1.6− | 1.0− | 2005 12 02 | 704 | 0.4+ | 0.7+ | 2008 06 14 | 691 | 0.1− | 0.1+ |
| 2001 10 14 | 704 | 1.5− | 1.4− | 2005 12 02 | 704 | 0.7+ | 0.4+ | 2008 06 14 | 691 | 0.3− | 0.4+ |
| 2001 10 14 | 704 | 1.4− | 1.1− | 2005 12 02 | 704 | 0.0 | 0.8+ | 2008 06 14 | 691 | 0.1− | 0.5+ |
| 2001 10 14 | 704 | (1.9− | 1.8−) | 2005 12 05 | 704 | 0.3+ | 0.1− | 2008 07 01 | 704 | 0.6+ | 0.4+ |
| 2001 10 14 | 704 | (3.4− | 2.6−) | 2005 12 05 | 704 | 0.2+ | 1.2+ | 2008 07 01 | 704 | 1.2+ | 0.4− |
| 2001 10 18 | 333 | (0.3+ | 2.0−) | 2005 12 05 | 704 | 0.7+ | 0.3+ | 2008 07 01 | 704 | 0.4+ | 0.6− |
| 2001 10 18 | 704 | 0.1+ | 0.4− | 2005 12 05 | 704 | 0.0 | 0.3+ | 2008 07 01 | 704 | 0.2− | 0.0 |
| 2001 10 18 | 333 | 0.5− | 0.9− | 2005 12 05 | 704 | 1.5+ | 0.7− | 2009 11 11 | G96 | 0.1+ | 0.0 |
| 2001 10 18 | 704 | 0.1− | 0.1− | 2005 12 09 | 704 | 0.0 | 0.7+ | 2009 11 11 | G96 | 0.3+ | 0.2− |
| 2001 10 18 | 333 | 1.2− | 0.8− | 2005 12 09 | 704 | 0.4− | 0.6+ | 2009 11 11 | G96 | 0.6+ | 0.2− |
| 2001 10 18 | 704 | 0.5− | 0.1− | 2005 12 09 | 704 | 0.2+ | 0.1− | 2009 11 11 | G96 | 0.8+ | 0.0 |
| 2001 10 18 | 704 | 1.0+ | 0.7− | 2005 12 09 | 704 | 0.1− | 0.3+ | 2009 12 20 | 691 | 0.1+ | 0.0 |
| 2001 10 20 | 644 | 0.6− | 0.4+ | 2005 12 09 | 704 | 0.1+ | 0.6− | 2009 12 20 | 691 | 0.1− | 0.1+ |
| 2001 10 20 | 644 | 0.6− | 0.5+ | 2005 12 10 | 691 | 0.0 | 0.1+ | 2009 12 20 | 691 | 0.1− | 0.1+ |
| 2001 10 20 | 644 | 0.6− | 0.3+ | 2005 12 10 | 691 | 0.2+ | 0.2+ | 2009 12 25 | 691 | 1.7− | 0.1− |
| 2001 10 21 | 704 | 0.0 | 0.3+ | 2005 12 10 | 691 | 0.2+ | 0.0 | 2009 12 25 | 691 | 0.1+ | 0.0 |
| 2001 10 21 | 704 | 0.3− | 0.4− | 2005 12 23 | 691 | 0.1+ | 0.0 | 2009 12 25 | 691 | 0.6− | 0.1− |
| 2001 10 21 | 704 | 0.1− | 0.3+ | 2005 12 23 | 691 | 0.0 | 0.1− | | | | |

**(228450)∗ 2001 QH$_{195}$ = 2005 TU$_{151}$**

Discovered 2001 Aug. 22 by NEAT at Haleakala.

Id. G. V. Williams (*MPO* 88842)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 51.60547 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26188592 | $\omega$ | 260.56280 | | +0.98106035 | −0.18719127 | |
| $a$ | 2.4195130 | $\Omega$ | 110.21347 | | +0.19192868 | +0.90469004 | |
| $e$ | 0.2317860 | $i$ | 3.04201 | | +0.02615296 | +0.38274713 | |
| $P$ | 3.76 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 01 15 | 691 | 0.1+ | 0.5− | 2005 09 29 | 699 | 0.9+ | 1.0+ | 2005 11 03 | 703 | 0.3+ | 0.7+ |
| 1999 01 15 | 691 | 0.0 | 0.7+ | 2005 09 29 | 699 | 1.0− | 0.4− | 2005 11 03 | 703 | 0.7+ | 0.1+ |
| 1999 01 15 | 691 | 0.2− | 0.3− | 2005 10 06 | 703 | 1.4− | 0.2− | 2005 11 03 | 703 | 0.0 | 0.6+ |
| 2001 07 27 | 699 | 0.1+ | 0.2− | 2005 10 06 | 703 | 0.3+ | 1.0− | 2005 12 05 | 699 | (2.4− | 0.5−) |
| 2001 07 27 | 699 | 0.2+ | 0.4− | 2005 10 06 | 703 | 0.1+ | 0.1− | 2005 12 05 | 699 | 0.1− | 1.0− |
| 2001 07 27 | 699 | 1.0+ | 0.3+ | 2005 10 06 | 703 | 0.2+ | 0.5− | 2005 12 05 | 699 | 0.5− | 0.8+ |
| 2001 07 27 | 699 | 0.3+ | 0.1− | 2005 10 10 | 704 | 1.1+ | 0.5− | 2005 12 05 | 699 | 1.2− | 0.0 |
| 2001 08 14 | 608 | 0.3+ | 0.1− | 2005 10 10 | 704 | 1.1+ | 1.0+ | 2007 02 21 | 691 | 0.2− | 0.0 |
| 2001 08 14 | 608 | 0.3+ | 0.8− | 2005 10 10 | 704 | 1.0+ | 0.5+ | 2007 02 21 | 691 | 0.4+ | 0.1+ |
| 2001 08 14 | 608 | 0.1+ | 0.4− | 2005 10 10 | 704 | 0.6+ | 0.7− | 2007 02 21 | 691 | 0.1− | 0.4+ |
| 2001 08 19 | 704 | 0.3+ | 1.4+ | 2005 10 12 | 691 | 0.2− | 0.2+ | 2008 05 27 | G96 | 0.1− | 0.0 |
| 2001 08 19 | 704 | 0.6− | 0.0 | 2005 10 12 | 691 | 0.2− | 0.2+ | 2008 05 27 | G96 | 0.3+ | 0.5− |
| 2001 08 19 | 704 | 0.4− | 0.3− | 2005 10 12 | 691 | 0.2− | 0.1+ | 2008 05 27 | G96 | 0.3+ | 0.3− |
| 2001 08 19 | 704 | 0.2+ | 0.6+ | 2005 10 21 | 644 | 0.2− | 0.2+ | 2008 05 27 | G96 | 0.2+ | 0.7+ |
| 2001 08 22 | 608 | 0.1+ | 0.8− | 2005 10 21 | 644 | 0.2+ | 0.5+ | 2009 11 18 | 691 | 0.0 | 0.2+ |
| 2001 08 22 | 608 | 0.4+ | 1.4− | 2005 10 21 | 644 | 0.0 | 0.3+ | 2009 11 18 | 691 | 0.2− | 0.0 |
| 2001 08 22 | 608 | 0.5− | 0.9− | 2005 10 22 | 703 | 0.2+ | 1.1− | 2009 11 18 | 691 | 0.7− | 0.4− |
| 2001 08 24 | 699 | 0.5− | 0.4+ | 2005 10 22 | 703 | 0.3+ | 1.2− | 2009 11 24 | 691 | 0.0 | 0.2+ |
| 2001 08 24 | 699 | 0.5+ | 0.1+ | 2005 10 22 | 703 | 0.0 | 0.7− | 2009 11 24 | 691 | 0.7− | 0.1+ |
| 2001 08 24 | 699 | 0.4− | 0.0 | 2005 10 22 | 703 | 1.0− | 0.9− | 2009 11 24 | 691 | 1.1+ | 0.8− |
| 2001 08 24 | 699 | 0.6− | 0.3− | 2005 10 28 | 704 | 0.0 | 0.1+ | 2009 12 09 | J75 | 0.2+ | 0.4+ |
| 2005 07 06 | 291 | 0.2− | 0.1+ | 2005 10 28 | 704 | 0.0 | 0.1− | 2009 12 09 | J75 | 0.4− | 0.3− |
| 2005 07 06 | 291 | 0.7− | 0.1+ | 2005 10 28 | 704 | 0.1+ | 0.5+ | 2009 12 09 | J75 | 0.0 | 0.2− |
| 2005 07 06 | 291 | 0.6− | 0.2+ | 2005 10 28 | 704 | 0.2+ | 0.1− | 2009 12 11 | G96 | 0.4+ | 0.1+ |
| 2005 09 24 | 644 | 0.0 | 0.0 | 2005 10 28 | 704 | 0.3+ | 0.3− | 2009 12 11 | G96 | 0.5+ | 0.0 |
| 2005 09 24 | 644 | 0.2− | 0.2+ | 2005 10 31 | 704 | 0.4− | 0.7+ | 2009 12 11 | G96 | 0.2+ | 0.1+ |
| 2005 09 24 | 644 | 0.1− | 0.5+ | 2005 10 31 | 704 | 0.7+ | 0.8+ | 2009 12 11 | G96 | 0.4+ | 0.1+ |
| 2005 09 29 | 699 | 1.0+ | 0.3+ | 2005 10 31 | 704 | 0.1− | 0.5+ | | | | |
| 2005 09 29 | 699 | (1.0+ | 2.0+) | 2005 11 03 | 703 | 0.4+ | 0.6+ | | | | |

**(228451)∗ 2001 QF$_{210}$**

Discovered 2001 Aug. 23 by W. K. Y. Yeung at Desert Eagle Observatory.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 52.50605 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26380598 | $\omega$ | 33.08260 | | +0.80454448 | −0.59388923 | |
| $a$ | 2.4077587 | $\Omega$ | 3.35281 | | +0.53743371 | +0.72666675 | |
| $e$ | 0.1474162 | $i$ | 1.90000 | | +0.25273144 | +0.34532741 | |
| $P$ | 3.74 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 05 23 | 807 | 0.1+ | 0.6+ | 2001 10 23 | 699 | (0.1− | 2.1+) | 2005 11 04 | 704 | 0.1+ | 0.8+ |
| 2001 05 23 | 807 | 0.6+ | 0.4+ | 2001 10 23 | 704 | 0.1+ | 0.5+ | 2005 11 04 | 704 | 0.3− | 1.1+ |
| 2001 08 23 | 333 | 0.5+ | 0.5+ | 2001 10 23 | 704 | 0.2+ | 0.2+ | 2005 11 04 | 704 | 0.2+ | 0.5+ |
| 2001 08 23 | 333 | 0.5+ | 0.1+ | 2001 10 23 | 699 | 0.3− | 1.3+ | 2005 11 28 | 703 | 0.2− | 0.3+ |
| 2001 08 27 | 699 | 0.3− | 1.3+ | 2001 10 23 | 704 | 0.2− | 1.2+ | 2005 11 28 | 703 | 0.3− | 0.2+ |
| 2001 08 27 | 699 | (0.9+ | 1.7+) | 2001 10 23 | 699 | 0.3− | 0.2+ | 2005 11 28 | 703 | 0.8+ | 0.9− |
| 2001 08 27 | 699 | 0.7+ | 0.9+ | 2001 10 24 | 704 | 0.7− | 0.9+ | 2005 11 28 | 703 | 0.7− | 0.2− |
| 2001 08 27 | 699 | 0.8+ | 0.7+ | 2001 10 24 | 704 | 0.1− | 1.1+ | 2005 11 29 | 704 | 0.8+ | 1.2− |
| 2001 09 18 | 699 | 0.2+ | 0.5+ | 2001 10 24 | 704 | 0.7− | 0.7+ | 2005 11 29 | 704 | (1.8− | 0.1+) |
| 2001 09 18 | 699 | 1.1+ | 1.1+ | 2001 10 24 | 704 | 0.9− | 0.8+ | 2005 11 29 | 704 | (1.5− | 0.3−) |
| 2001 09 18 | 699 | 0.0 | 0.7+ | 2001 10 24 | 704 | 0.3+ | 0.8+ | 2005 11 29 | 704 | (1.9− | 1.1+) |
| 2001 09 18 | 699 | 0.5+ | 0.7+ | 2001 11 12 | 291 | 0.8− | 0.3+ | 2005 11 29 | 704 | 1.5− | 1.3− |
| 2001 09 19 | 704 | 0.2− | 0.2+ | 2001 11 12 | 291 | 0.9− | 0.1+ | 2005 12 02 | 704 | 0.4+ | 0.4+ |
| 2001 09 19 | 704 | 0.2− | 0.3+ | 2001 11 12 | 291 | 0.7− | 0.2+ | 2005 12 02 | 704 | 0.3− | 1.0+ |
| 2001 09 19 | 704 | 0.4− | 0.1+ | 2001 11 18 | 645 | 0.0 | 0.1− | 2005 12 02 | 704 | 0.3− | 0.4+ |
| 2001 09 19 | 704 | 0.1+ | 0.2− | 2001 11 18 | 645 | 0.0 | 0.2− | 2005 12 02 | 704 | 0.0 | 0.1− |
| 2001 09 19 | 704 | 0.6− | 0.3− | 2003 02 26 | 599 | 0.2+ | 0.4+ | 2005 12 02 | 704 | 0.1+ | 1.0+ |
| 2001 09 20 | 704 | 0.3− | 0.0 | 2003 02 26 | 599 | 0.4+ | 0.4+ | 2005 12 05 | 704 | 0.2+ | 0.5+ |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 20 | 704 | 0.2− | 0.2+ | 2003 02 26 | 599 | 0.1− | 0.3+ | 2005 12 05 | 704 | 1.1− | 0.2− |
| 2001 09 20 | 704 | 0.2+ | 0.3+ | 2003 02 26 | 599 | 0.4+ | 0.4+ | 2005 12 05 | 704 | 0.4− | 0.1+ |
| 2001 09 20 | 704 | 0.0 | 0.3+ | 2003 02 27 | 599 | 0.2− | 0.3+ | 2005 12 05 | 704 | 0.3− | 0.7+ |
| 2001 09 20 | 704 | 0.1− | 0.3+ | 2003 02 27 | 599 | 0.2+ | 0.3+ | 2005 12 05 | 704 | 0.0 | 0.1+ |
| 2001 09 21 | 704 | 0.4− | 0.3+ | 2003 02 27 | 599 | 0.5+ | 0.4+ | 2005 12 08 | 691 | 0.2+ | 0.1+ |
| 2001 09 21 | 704 | 0.1+ | 0.3+ | 2003 02 27 | 599 | 0.2− | 1.1+ | 2005 12 08 | 691 | 0.2+ | 0.1+ |
| 2001 09 21 | 704 | 0.0 | 0.6+ | 2003 03 07 | 291 | 0.3+ | 0.5+ | 2005 12 08 | 691 | 0.2+ | 0.3+ |
| 2001 09 21 | 704 | 0.4+ | 0.5+ | 2003 03 07 | 291 | 0.1+ | 0.3+ | 2005 12 10 | 704 | 0.5+ | 0.2− |
| 2001 09 21 | 704 | 0.3− | 0.3− | 2003 03 07 | 291 | 0.5+ | 0.6+ | 2005 12 10 | 704 | 0.8+ | 0.7− |
| 2001 09 21 | 704 | 0.2+ | 0.2+ | 2003 03 09 | 704 | (0.8+ | 1.5+) | 2005 12 10 | 704 | 0.5+ | 0.7+ |
| 2001 09 21 | 704 | 0.9− | 0.2+ | 2003 03 09 | 704 | (2.3+ | 0.9−) | 2005 12 10 | 704 | 0.1+ | 0.4+ |
| 2001 09 21 | 704 | 0.2+ | 0.0 | 2003 03 09 | 704 | 0.8+ | 0.9+ | 2005 12 10 | 704 | 0.0 | 0.2− |
| 2001 09 21 | 704 | 0.1+ | 0.6+ | 2003 03 09 | 704 | 0.2− | 0.6− | 2006 01 25 | G96 | 0.4− | 0.9− |
| 2001 09 21 | 704 | 0.3+ | 0.1+ | 2003 03 25 | 291 | 0.2+ | 0.4+ | 2006 01 25 | G96 | 0.0 | 0.2− |
| 2001 09 28 | 704 | 0.3− | 0.1+ | 2003 03 25 | 291 | 0.1− | 0.2+ | 2006 01 25 | G96 | 0.2+ | 0.6− |
| 2001 09 28 | 704 | 0.1− | 0.2+ | 2003 03 25 | 291 | 0.1+ | 0.1+ | 2006 01 25 | G96 | 0.5+ | 1.2− |
| 2001 09 28 | 704 | 0.1+ | 0.9+ | 2003 03 26 | 291 | 0.1+ | 0.4+ | 2006 03 04 | G96 | 0.2− | 0.4− |
| 2001 09 28 | 704 | 0.2− | 0.3+ | 2003 03 26 | 291 | 0.4+ | 0.3+ | 2006 03 04 | G96 | 0.4− | 0.0 |
| 2001 09 28 | 704 | 0.0 | 0.5+ | 2003 03 26 | 291 | 0.0 | 0.3+ | 2006 03 04 | G96 | 0.1− | 0.3+ |
| 2001 10 13 | 704 | 1.1+ | 0.2− | 2005 10 23 | 644 | 0.0 | 0.3− | 2006 03 04 | G96 | 0.4− | 0.1+ |
| 2001 10 13 | 704 | 0.3− | 1.2− | 2005 10 23 | 644 | 0.1− | 0.3+ | 2007 03 10 | 691 | 0.0 | 0.3+ |
| 2001 10 13 | 704 | 0.5+ | 0.8− | 2005 10 23 | 644 | 0.2− | 0.1− | 2007 03 10 | 691 | 0.0 | 0.0 |
| 2001 10 13 | 704 | 0.5+ | 0.4− | 2005 10 28 | 691 | 0.1+ | 0.5− | 2007 03 10 | 691 | 0.5+ | 0.0 |
| 2001 10 13 | 704 | 0.4+ | 0.7− | 2005 10 28 | 691 | 0.1+ | 0.4− | 2007 03 14 | 691 | 0.2+ | 0.2+ |
| 2001 10 17 | 644 | 0.1− | 1.4+ | 2005 10 28 | 691 | 0.2+ | 0.4− | 2007 03 14 | 691 | 0.3+ | 0.1+ |
| 2001 10 17 | 644 | (0.2+ | 1.5+) | 2005 10 29 | 703 | 0.2− | 0.2− | 2007 03 14 | 691 | 0.0 | 0.2+ |
| 2001 10 17 | 644 | (0.1+ | 1.8+) | 2005 10 29 | 703 | 0.5− | 0.2+ | 2007 03 18 | 691 | 0.1+ | 0.1+ |
| 2001 10 17 | 644 | (0.4+ | 1.7+) | 2005 10 29 | 703 | 1.3− | 0.6− | 2007 03 18 | 691 | 0.5− | 0.4+ |
| 2001 10 17 | 644 | (0.4+ | 1.6+) | 2005 10 29 | 703 | 0.3− | 0.2− | 2007 03 18 | 691 | 0.2+ | 0.2+ |
| 2001 10 17 | 644 | 0.0 | 1.5+ | 2005 11 01 | 704 | 0.0 | 0.2+ | 2009 10 18 | G96 | 0.1+ | 0.3− |
| 2001 10 20 | 704 | 1.3− | 0.5+ | 2005 11 01 | 704 | 0.2+ | 0.3+ | 2009 10 18 | G96 | 0.3+ | 0.1+ |
| 2001 10 20 | 704 | 1.1− | 0.2− | 2005 11 01 | 704 | 0.5+ | 1.3+ | 2009 10 18 | G96 | 0.0 | 0.2− |
| 2001 10 20 | 704 | 0.7− | 0.3+ | 2005 11 01 | 691 | 0.0 | 0.3− | 2009 10 18 | G96 | 0.4− | 0.5− |
| 2001 10 20 | 704 | 0.7− | 0.3+ | 2005 11 01 | 704 | 1.2+ | 0.1+ | 2009 12 17 | 691 | 0.3− | 0.2− |
| 2001 10 20 | 704 | 1.4− | 0.0 | 2005 11 01 | 691 | 0.2+ | 0.2− | 2009 12 17 | 691 | 0.2− | 0.2− |
| 2001 10 23 | 704 | 0.5− | 1.0+ | 2005 11 01 | 691 | 0.2+ | 0.2− | 2009 12 17 | 691 | 0.2− | 0.1− |
| 2001 10 23 | 699 | 0.8− | 1.2+ | 2005 11 04 | 704 | 0.4+ | 0.8+ | | | | |
| 2001 10 23 | 704 | 0.3+ | 0.2− | 2005 11 04 | 704 | 0.1+ | 0.9+ | | | | |

**(228452)∗ 2001 QA$_{217}$**

Discovered 2001 Aug. 23 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 66.05913 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26570292 | $\omega$ | 9.45246 | | +0.92256694 | −0.38573745 | |
| $a$ | 2.3962852 | $\Omega$ | 13.24735 | | +0.35145238 | +0.83075685 | |
| $e$ | 0.2226664 | $i$ | 2.19256 | | +0.15922144 | +0.40130995 | |
| $P$ | 3.71 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 19 | 807 | 0.2+ | 0.1+ | 2001 09 26 | 699 | 0.7− | 0.7+ | 2005 12 02 | 704 | 0.1− | 1.1+ |
| 2001 08 19 | 807 | 0.3+ | 0.1+ | 2001 09 26 | 699 | 0.3− | 0.7+ | 2005 12 05 | 704 | 1.5+ | 1.4− |
| 2001 08 23 | 699 | 0.3− | 0.0 | 2001 10 11 | 644 | 0.3− | 0.7+ | 2005 12 05 | 704 | 0.8+ | 0.3− |
| 2001 08 23 | 699 | 0.2+ | 0.8+ | 2001 10 11 | 644 | 0.6− | 0.4+ | 2005 12 05 | 704 | 1.3+ | 0.4+ |
| 2001 08 23 | 699 | 0.1− | 0.9+ | 2001 10 11 | 644 | 0.6− | 0.5+ | 2005 12 05 | 704 | 0.7+ | 0.2− |
| 2001 08 23 | 699 | 0.9− | 0.5+ | 2005 10 30 | G96 | 0.1− | 0.4− | 2005 12 05 | 704 | 0.6+ | 0.3+ |
| 2001 08 24 | 704 | (2.9− | 0.7+) | 2005 10 30 | G96 | 0.2− | 0.3− | 2005 12 10 | 704 | 0.5+ | 0.6+ |
| 2001 08 24 | 704 | (2.8− | 0.2+) | 2005 10 30 | G96 | 0.4− | 0.3− | 2005 12 10 | 704 | 0.3+ | 1.3− |
| 2001 08 24 | 704 | (2.2− | 0.2−) | 2005 11 01 | 704 | 0.5− | 0.1+ | 2005 12 10 | 704 | 0.1− | 0.6− |
| 2001 09 07 | 704 | 0.7− | 0.5+ | 2005 11 01 | 704 | 0.2− | 0.1− | 2005 12 10 | 704 | 0.3+ | 0.1+ |
| 2001 09 07 | 704 | 0.3− | 0.1+ | 2005 11 01 | 704 | 0.2+ | 0.6− | 2005 12 10 | 704 | 0.3− | 0.0 |
| 2001 09 07 | 704 | 0.1+ | 0.4− | 2005 11 01 | 704 | 0.4− | 0.2+ | 2005 12 29 | 704 | 0.0 | 0.1+ |
| 2001 09 07 | 704 | 0.1+ | 0.2− | 2005 11 01 | 704 | 0.5− | 0.3− | 2005 12 29 | 704 | 0.0 | 0.8+ |
| 2001 09 07 | 644 | 0.0 | 0.1− | 2005 11 08 | 704 | (1.8− | 0.9+) | 2005 12 29 | 704 | 0.5− | 0.2− |
| 2001 09 07 | 644 | 0.5− | 0.3+ | 2005 11 08 | 704 | (1.6− | 1.1−) | 2007 04 15 | G96 | 0.1+ | 0.6+ |
| 2001 09 07 | 644 | 0.4− | 0.2+ | 2005 11 08 | 704 | 0.8− | 0.8+ | 2007 04 15 | G96 | 0.1+ | 0.0 |
| 2001 09 12 | 704 | 0.1− | 0.3− | 2005 11 08 | 704 | 0.9− | 0.2− | 2007 04 15 | G96 | 0.2+ | 0.2− |
| 2001 09 12 | 704 | 0.3− | 0.2− | 2005 11 12 | 691 | 0.0 | 0.2− | 2007 04 15 | G96 | 0.6+ | 0.1− |
| 2001 09 12 | 704 | 0.2− | 0.1− | 2005 11 12 | 691 | 0.0 | 0.2− | 2007 04 20 | G96 | 0.4+ | 0.5+ |
| 2001 09 12 | 704 | 0.2− | 0.8− | 2005 11 12 | 691 | 0.3+ | 0.1− | 2007 04 20 | G96 | 0.0 | 0.5+ |
| 2001 09 12 | 704 | 0.2− | 0.1− | 2005 11 25 | 691 | 0.0 | 0.1+ | 2007 04 20 | G96 | 0.0 | 0.5+ |
| 2001 09 19 | 704 | (1.8+ | 0.1−) | 2005 11 25 | 691 | 0.1− | 0.2− | 2007 04 20 | G96 | 0.6− | 0.7+ |
| 2001 09 19 | 704 | 0.8+ | 0.7− | 2005 11 25 | 691 | 0.0 | 0.2− | 2009 11 21 | G96 | 0.3+ | 0.2+ |
| 2001 09 19 | 704 | 0.5+ | 0.6− | 2005 11 28 | 704 | 0.3− | 0.1− | 2009 11 21 | G96 | 0.6+ | 0.0 |
| 2001 09 19 | 704 | 0.7+ | 0.9− | 2005 11 28 | 704 | 0.4− | 0.0 | 2009 11 21 | G96 | 0.3+ | 0.0 |
| 2001 09 19 | 291 | 0.4+ | 0.2− | 2005 11 28 | 704 | 0.2+ | 0.0 | 2009 11 21 | G96 | 0.5+ | 0.2+ |
| 2001 09 19 | 704 | 0.5+ | 1.4− | 2005 11 28 | 704 | 0.3+ | 0.2+ | 2009 12 17 | G96 | 0.2+ | 0.1− |
| 2001 09 19 | 291 | 0.3+ | 0.2− | 2005 11 28 | 704 | 0.3− | 0.2− | 2009 12 17 | G96 | 0.3+ | 0.1+ |
| 2001 09 19 | 291 | 0.4+ | 0.1− | 2005 11 28 | 703 | 0.4− | 0.6+ | 2009 12 17 | G96 | 0.0 | 0.2+ |
| 2001 09 21 | 704 | 1.0− | 0.3+ | 2005 11 28 | 703 | 0.7− | 0.4− | 2009 12 17 | G96 | 0.7+ | 0.1− |
| 2001 09 21 | 704 | 0.5− | 0.3+ | 2005 11 28 | 703 | 0.4− | 0.0 | 2009 12 18 | 691 | 0.1− | 0.2+ |
| 2001 09 21 | 704 | 0.6− | 1.1+ | 2005 11 28 | 703 | 0.9− | 0.8+ | 2009 12 18 | 691 | 0.1+ | 0.2+ |
| 2001 09 21 | 704 | 0.6− | 1.0+ | 2005 12 02 | 704 | 0.0 | 0.8+ | 2009 12 18 | 691 | 0.1+ | 0.2+ |
| 2001 09 21 | 704 | 0.6− | 1.3+ | 2005 12 02 | 704 | 1.1+ | 0.0 | 2009 12 26 | 691 | 0.2− | 0.0 |
| 2001 09 26 | 699 | 0.2− | 1.1+ | 2005 12 02 | 704 | 0.4− | 0.3+ | 2009 12 26 | 691 | 0.1+ | 0.2− |
| 2001 09 26 | 699 | 0.6+ | 0.2− | 2005 12 02 | 704 | 0.3+ | 0.6+ | 2009 12 26 | 691 | 0.3− | 0.4+ |

**(228453)∗ 2001 QC$_{217}$**

Discovered 2001 Aug. 23 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 96.97640 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27180496 | $\omega$ | 332.79861 | | +0.99974214 | −0.01113168 | |
| $a$ | 2.3602851 | $\Omega$ | 27.86057 | | +0.01858911 | +0.90179015 | |
| $e$ | 0.1506497 | $i$ | 2.42737 | | −0.01304228 | +0.43203080 | |
| $P$ | 3.63 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 16 | 704 | 1.0− | 1.3+ | 2001 10 17 | 644 | 0.0 | 0.2+ | 2006 01 27 | G96 | 0.3+ | 0.2− |
| 2001 08 16 | 704 | 0.8− | 1.0+ | 2001 10 17 | 644 | 0.2− | 0.4+ | 2006 01 27 | G96 | 0.5+ | 0.4+ |
| 2001 08 16 | 704 | 0.1− | 0.4+ | 2001 10 17 | 644 | 0.1− | 0.3+ | 2006 01 27 | G96 | 0.1− | 0.7+ |
| 2001 08 23 | 699 | 0.4+ | 0.6+ | 2005 10 03 | G96 | 0.2− | 0.2− | 2006 01 27 | G96 | 0.3− | 0.2+ |
| 2001 08 23 | 699 | 0.3− | 0.7+ | 2005 10 03 | G96 | 0.0 | 0.4− | 2007 03 09 | 691 | 0.5+ | 0.4+ |
| 2001 08 23 | 699 | 0.3− | 0.1− | 2005 10 03 | G96 | 0.1− | 0.4− | 2007 03 09 | 691 | 0.3− | 0.4+ |
| 2001 08 23 | 699 | (2.2+ | 1.1+) | 2005 10 03 | G96 | 0.1+ | 0.1− | 2007 03 09 | 691 | 0.3− | 0.6+ |
| 2001 08 24 | 704 | (2.3+ | 2.5+) | 2005 10 28 | G96 | 0.3− | 0.4− | 2007 03 16 | G96 | 0.5+ | 0.2+ |
| 2001 08 24 | 704 | (2.6+ | 0.6+) | 2005 10 28 | G96 | 0.0 | 0.6− | 2007 03 16 | G96 | 0.5+ | 0.5+ |
| 2001 08 24 | 704 | (2.9+ | 1.0+) | 2005 10 28 | G96 | 0.1− | 0.4− | 2007 03 16 | G96 | 0.2+ | 0.2+ |
| 2001 08 28 | 644 | 0.2− | 0.0 | 2005 11 03 | 691 | 0.1− | 0.1− | 2007 03 16 | G96 | 0.3+ | 0.3+ |
| 2001 08 28 | 644 | 0.2− | 0.0 | 2005 11 03 | 691 | 0.2− | 0.0 | 2007 03 26 | G96 | 1.0+ | 0.3+ |
| 2001 08 28 | 644 | 0.4− | 0.1+ | 2005 11 03 | 691 | 0.4− | 0.2+ | 2007 03 26 | G96 | 0.1− | 0.4+ |
| 2001 09 07 | 704 | 0.5− | 0.6+ | 2005 11 12 | 691 | 0.0 | 0.1− | 2007 03 26 | G96 | 0.4+ | 0.4+ |
| 2001 09 07 | 704 | 0.3− | 0.1− | 2005 11 12 | 691 | 0.1+ | 0.0 | 2007 03 26 | G96 | 0.2+ | 0.1+ |
| 2001 09 07 | 704 | 0.9+ | 0.3− | 2005 11 12 | 691 | 0.1− | 0.1+ | 2007 04 23 | G96 | 0.3+ | 0.3+ |
| 2001 09 07 | 704 | 0.9+ | 0.9+ | 2005 11 21 | 703 | 0.2− | 0.9− | 2007 04 23 | G96 | 0.8+ | 0.7+ |
| 2001 09 12 | 704 | 0.3− | 0.4− | 2005 11 21 | 703 | 0.0 | 1.2+ | 2007 04 23 | G96 | 0.2+ | 0.6+ |
| 2001 09 12 | 704 | 0.2+ | 0.6− | 2005 11 21 | 703 | 0.6− | 0.2− | 2007 04 23 | G96 | 0.7+ | 0.4+ |
| 2001 09 12 | 704 | 0.4− | 0.3+ | 2005 11 21 | 703 | 1.2− | 0.6+ | 2009 11 21 | G96 | 0.4+ | 0.0 |
| 2001 09 12 | 704 | 0.0 | 0.1− | 2005 11 25 | 691 | 0.3+ | 0.2− | 2009 11 21 | G96 | 0.2+ | 0.0 |
| 2001 09 12 | 704 | 0.5+ | 0.2+ | 2005 11 25 | 691 | 0.2+ | 0.4− | 2009 11 21 | G96 | 0.1+ | 0.1+ |
| 2001 09 19 | 699 | (0.7+ | 2.2−) | 2005 11 25 | 691 | 0.1+ | 0.2− | 2009 11 21 | G96 | 0.5+ | 0.3− |
| 2001 09 19 | 699 | (1.3− | 3.0−) | 2005 11 29 | 704 | 0.0 | 1.2+ | 2009 12 17 | G96 | 0.0 | 0.1+ |
| 2001 09 19 | 699 | 0.5+ | 1.0− | 2005 11 29 | 704 | 0.6− | 0.4− | 2009 12 17 | G96 | 0.2− | 0.2+ |
| 2001 09 19 | 699 | 0.7− | 0.6+ | 2005 11 29 | 704 | 0.1+ | 0.1− | 2009 12 17 | G96 | 0.0 | 0.1− |
| 2001 09 19 | 704 | 1.1− | 1.3+ | 2005 11 29 | 704 | 0.4+ | 0.0 | 2009 12 17 | G96 | 0.1− | 0.1+ |
| 2001 09 19 | 704 | 0.9− | 0.6+ | 2005 12 02 | 704 | 0.1− | 0.0 | 2009 12 18 | 691 | 0.1+ | 0.4+ |
| 2001 09 19 | 704 | 0.3− | 1.3+ | 2005 12 02 | 704 | 1.4+ | 0.7− | 2009 12 18 | 691 | 0.1+ | 0.2+ |
| 2001 09 19 | 704 | (2.3− | 0.9+) | 2005 12 02 | 704 | 0.4+ | 0.8− | 2009 12 18 | 691 | 0.1+ | 0.2+ |
| 2001 09 19 | 704 | 1.0− | 0.6+ | 2005 12 02 | 704 | 0.1+ | 0.6− | 2009 12 26 | 691 | 0.0 | 0.4+ |
| 2001 09 21 | 704 | 0.2− | 0.6+ | 2005 12 02 | 704 | 0.6+ | 0.2− | 2009 12 26 | 691 | 0.2+ | 0.1− |
| 2001 09 21 | 704 | (0.5+ | 1.7+) | 2005 12 05 | 704 | 0.2+ | 1.3+ | 2009 12 26 | 691 | 0.2− | 0.6+ |
| 2001 09 21 | 704 | 0.2+ | 1.1+ | 2005 12 05 | 704 | 0.8+ | 0.2+ | | | | |
| 2001 09 21 | 704 | 0.0 | 1.4+ | 2005 12 05 | 704 | 0.3+ | 0.5+ | | | | |

**(228454)∗ 2001 QY$_{245}$**

Discovered 2001 Aug. 24 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 50.24588 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.25713940 | $\omega$ | 206.60774 | | +0.90309284 | −0.42944282 | |
| $a$ | 2.4491965 | $\Omega$ | 178.82144 | | +0.40571803 | +0.85206106 | |
| $e$ | 0.2953453 | $i$ | 4.12682 | | +0.14077005 | +0.29928385 | |
| $P$ | 3.83 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 16 | 704 | 0.0 | 0.5+ | 2001 10 13 | 704 | 0.0 | 0.7+ | 2005 11 05 | 703 | 0.8− | 1.1− |
| 2001 08 16 | 704 | 0.4− | 0.1+ | 2001 10 13 | 704 | 0.0 | 0.3+ | 2005 11 05 | 703 | 0.4− | 0.7− |
| 2001 08 16 | 704 | 0.4+ | 0.6+ | 2001 10 13 | 704 | 0.1− | 0.7+ | 2005 11 06 | 704 | 0.2+ | 0.1+ |
| 2001 08 16 | 704 | 0.1+ | 0.5+ | 2001 10 14 | 699 | 0.5− | 0.2+ | 2005 11 06 | 704 | 0.1− | 0.2− |
| 2001 08 16 | 704 | 0.7+ | 0.5+ | 2001 10 14 | 699 | 0.3− | 0.2+ | 2005 11 06 | 704 | 0.1+ | 0.3− |
| 2001 08 18 | 699 | 0.3+ | 0.5+ | 2001 10 14 | 699 | 0.6− | 0.0 | 2005 11 06 | 704 | 0.3− | 0.4− |
| 2001 08 18 | 699 | 0.6+ | 0.3− | 2001 10 14 | 699 | (6.9− | 0.2+) | 2005 11 06 | 704 | 0.1− | 0.4− |
| 2001 08 18 | 699 | 0.4− | 0.4− | 2001 10 16 | 704 | 0.0 | 0.3+ | 2005 11 20 | 644 | 0.1− | 0.1− |
| 2001 08 18 | 699 | 0.2+ | 0.2+ | 2001 10 16 | 704 | 0.1+ | 0.1− | 2005 11 20 | 644 | 0.1+ | 0.1+ |
| 2001 08 24 | 704 | 0.1− | 0.5+ | 2001 10 16 | 704 | 0.0 | 0.3+ | 2005 11 20 | 644 | 0.3− | 0.3− |
| 2001 08 24 | 704 | 0.3− | 0.1+ | 2001 10 16 | 704 | 0.0 | 0.1+ | 2005 11 21 | 703 | 0.0 | 0.1+ |
| 2001 08 24 | 704 | 0.5− | 0.5+ | 2001 10 16 | 704 | 0.0 | 0.0 | 2005 11 21 | 703 | 0.3− | 0.7− |
| 2001 08 24 | 704 | 0.3− | 0.5+ | 2001 10 18 | 644 | 0.0 | 0.1+ | 2005 11 21 | 703 | 0.1+ | 0.5− |
| 2001 08 27 | 699 | 0.1+ | 0.0 | 2001 10 18 | 644 | 0.0 | 0.2+ | 2005 11 21 | 703 | 0.2− | 0.3− |
| 2001 08 27 | 699 | 0.1+ | 0.0 | 2001 10 18 | 644 | 0.1− | 0.1+ | 2005 11 28 | 703 | 0.4+ | 0.3− |
| 2001 08 27 | 699 | 0.0 | 0.0 | 2001 10 20 | 704 | 0.2+ | 0.6+ | 2005 11 28 | 703 | 0.4− | 0.5− |
| 2001 08 27 | 699 | 0.1− | 0.4+ | 2001 10 20 | 704 | 0.3+ | 0.3+ | 2005 11 28 | 703 | 0.2− | 0.2− |
| 2001 09 10 | 333 | 1.0+ | 1.4− | 2001 10 20 | 704 | 0.1+ | 0.6+ | 2005 11 28 | 703 | 0.1− | 0.7− |
| 2001 09 10 | 333 | 0.6+ | 1.1− | 2001 10 20 | 704 | 0.5+ | 0.2+ | 2005 11 30 | 704 | 0.6− | 0.1+ |
| 2001 09 11 | 333 | 0.1+ | 0.8− | 2001 10 20 | 704 | 0.4+ | 0.2+ | 2005 11 30 | 704 | 0.7− | 0.0 |
| 2001 09 11 | 333 | 0.0 | 0.5− | 2001 10 21 | 683 | 0.6− | 0.3+ | 2005 11 30 | 644 | 0.0 | 0.0 |
| 2001 09 11 | 699 | 0.4+ | 0.0 | 2001 10 21 | 683 | 0.4− | 0.6+ | 2005 11 30 | 704 | 0.5− | 0.0 |
| 2001 09 11 | 333 | 0.5+ | 0.3− | 2001 10 21 | 683 | (1.1− | 2.7−) | 2005 11 30 | 704 | 0.5− | 0.1+ |
| 2001 09 11 | 699 | 0.3+ | 0.3− | 2001 10 22 | 704 | 0.0 | 0.3− | 2005 11 30 | 644 | 0.1+ | 0.2− |
| 2001 09 11 | 333 | 1.4− | 0.6− | 2001 10 22 | 704 | 0.1− | 0.4− | 2005 11 30 | 704 | 0.8− | 0.2− |
| 2001 09 11 | 699 | 0.8+ | 0.3− | 2001 10 22 | 704 | 0.1+ | 0.3− | 2005 11 30 | 644 | 0.1− | 0.1− |
| 2001 09 11 | 699 | 0.8+ | 0.1− | 2001 10 22 | 704 | 0.5+ | 0.3− | 2005 12 07 | 704 | 0.1− | 0.4− |
| 2001 09 16 | 704 | 0.2− | 1.1+ | 2001 10 23 | 704 | 0.1+ | 0.1+ | 2005 12 07 | 704 | 0.9+ | 0.5− |
| 2001 09 16 | 704 | 0.3− | 0.9+ | 2001 10 23 | 704 | 0.1+ | 0.0 | 2005 12 07 | 704 | 0.3− | 0.6− |
| 2001 09 16 | 704 | 0.2+ | 0.6+ | 2001 10 23 | 704 | 0.2+ | 0.1− | 2005 12 07 | 704 | 0.5+ | 0.1+ |
| 2001 09 16 | 704 | 0.8− | 0.6− | 2001 10 23 | 704 | 0.1+ | 0.1+ | 2005 12 07 | 704 | 0.6+ | 0.5− |
| 2001 09 19 | 704 | 0.3− | 0.1+ | 2001 10 23 | 704 | 0.1+ | 0.3− | 2005 12 08 | 704 | 0.3+ | 0.3+ |
| 2001 09 19 | 704 | 0.4− | 0.2+ | 2001 10 24 | 704 | 0.0 | 0.2− | 2005 12 08 | 704 | 0.4+ | 0.1+ |
| 2001 09 19 | 704 | 0.3− | 0.4− | 2001 10 24 | 704 | 0.3+ | 0.3+ | 2005 12 08 | 704 | 0.2+ | 0.0 |
| 2001 09 19 | 704 | 0.5− | 0.3− | 2001 10 24 | 704 | 0.2+ | 0.4+ | 2005 12 08 | 704 | 0.2+ | 0.0 |
| 2001 09 19 | 704 | 0.7− | 0.9− | 2001 10 24 | 704 | 0.0 | 0.3− | 2005 12 08 | 704 | 0.3+ | 0.3− |
| 2001 09 20 | 691 | 0.2+ | 0.1− | 2001 10 24 | 704 | 0.5+ | 0.3− | 2005 12 27 | 704 | 0.1− | 0.8+ |
| 2001 09 20 | 691 | 0.3+ | 0.1− | 2001 11 20 | 704 | 0.6− | 0.1− | 2005 12 27 | 704 | 0.2+ | 0.0 |
| 2001 09 20 | 691 | 0.2+ | 0.1− | 2001 11 20 | 704 | (0.8− | 2.1−) | 2005 12 27 | 704 | 0.7− | 1.0+ |
| 2001 09 21 | 704 | 0.2+ | 0.1+ | 2001 11 20 | 704 | 0.5− | 0.8− | 2005 12 27 | 704 | 0.5− | 0.9+ |
| 2001 09 21 | 333 | 0.5+ | 0.1− | 2001 11 20 | 704 | 1.1+ | 0.3+ | 2006 01 03 | 704 | 0.2+ | 0.2− |
| 2001 09 21 | 704 | 0.1+ | 0.1− | 2001 12 07 | 704 | 0.2− | 0.2+ | 2006 01 03 | 704 | 0.7+ | 0.0 |
| 2001 09 21 | 333 | 0.9− | 0.1− | 2001 12 07 | 704 | 0.0 | 0.6− | 2006 01 03 | 704 | 1.3+ | 0.8+ |
| 2001 09 21 | 333 | 0.2− | 0.5+ | 2001 12 07 | 704 | 0.2+ | 0.7− | 2006 01 03 | 704 | 0.3− | 0.2+ |
| 2001 09 21 | 704 | 0.3+ | 0.0 | 2001 12 07 | 704 | 0.1− | 0.3+ | 2006 01 03 | 704 | 0.6− | 0.1− |
| 2001 09 21 | 333 | 0.2+ | 0.1+ | 2001 12 20 | 704 | 0.0 | 0.1− | 2006 01 04 | 699 | 0.7− | 0.1− |
| 2001 09 21 | 333 | 0.4− | 0.3− | 2001 12 20 | 704 | 0.6− | 0.6+ | 2006 01 04 | 699 | 0.3− | 0.2− |
| 2001 09 21 | 704 | 0.0 | 0.1− | 2001 12 20 | 704 | 0.5+ | 0.2+ | 2006 01 04 | 699 | 0.2+ | 0.2+ |
| 2001 09 21 | 333 | 0.1− | 0.2− | 2002 01 02 | 644 | 0.2− | 0.2+ | 2006 01 04 | 699 | 0.1+ | 0.1− |
| 2001 09 21 | 704 | 0.1− | 0.5− | 2002 01 02 | 644 | 0.1− | 0.7+ | 2006 01 23 | 704 | 0.2− | 0.9+ |
| 2001 09 23 | 333 | 0.1+ | 0.2− | 2002 01 02 | 644 | 0.0 | 0.6+ | 2006 01 23 | 704 | 0.9+ | 0.1+ |
| 2001 09 23 | 333 | 0.3+ | 0.5+ | 2003 03 23 | 691 | 0.4− | 0.1+ | 2006 01 23 | 704 | 0.6+ | 0.2− |
| 2001 09 23 | 333 | 0.4+ | 0.4− | 2003 03 23 | 691 | 0.4+ | 0.1− | 2006 01 23 | 704 | 0.5+ | 0.1− |
| 2001 09 25 | 333 | 1.5− | 0.0 | 2003 03 23 | 691 | 0.3+ | 0.3+ | 2006 01 23 | 704 | 0.7+ | 0.1+ |
| 2001 09 25 | 333 | 0.2− | 0.6+ | 2005 07 06 | 691 | 0.2+ | 0.5+ | 2007 03 20 | 691 | 0.5− | 0.4− |
| 2001 09 25 | 333 | 0.0 | 0.3− | 2005 07 06 | 691 | 0.1+ | 0.3+ | 2007 03 20 | 691 | 0.5+ | 0.4+ |
| 2001 09 26 | 333 | 0.1− | 0.1+ | 2005 07 06 | 691 | 0.5− | 0.7+ | 2007 03 20 | 691 | 0.2+ | 0.6+ |
| 2001 09 26 | 333 | 0.3− | 0.2+ | 2005 10 01 | 704 | 0.2− | 0.2− | 2007 03 29 | 291 | 0.4− | 0.3+ |
| 2001 09 26 | 704 | 0.5− | 0.5+ | 2005 10 01 | 704 | 0.1− | 0.3+ | 2007 03 29 | 291 | 0.0 | 0.1+ |
| 2001 09 26 | 333 | 0.3+ | 0.4− | 2005 10 01 | 704 | 0.1+ | 0.0 | 2007 03 29 | 291 | 0.6+ | 0.5+ |
| 2001 09 26 | 704 | 0.7− | 0.5+ | 2005 10 01 | 704 | 0.5+ | 0.3− | 2009 12 10 | J75 | 0.6+ | 0.8+ |
| 2001 09 26 | 704 | 0.5− | 0.6+ | 2005 10 27 | 224 | 0.1+ | 0.2− | 2009 12 10 | J75 | 0.3+ | 0.3+ |
| 2001 09 26 | 704 | 0.1− | 0.1+ | 2005 10 27 | 224 | 0.4− | 0.0 | 2009 12 10 | J75 | 0.2+ | 0.5+ |
| 2001 09 26 | 704 | 0.0 | 1.3+ | 2005 10 27 | 224 | 0.2+ | 0.0 | 2009 12 18 | 704 | 0.8+ | 0.8+ |
| 2001 10 07 | 644 | 0.7− | 0.5+ | 2005 11 01 | G96 | 0.4+ | 0.4− | 2009 12 18 | 704 | 0.5+ | 0.4+ |
| 2001 10 07 | 644 | 0.6− | 0.2+ | 2005 11 01 | G96 | 0.5+ | 0.4− | 2009 12 18 | 704 | 0.9+ | 0.2− |
| 2001 10 07 | 644 | 0.7− | 0.2+ | 2005 11 01 | G96 | 0.0 | 0.5− | 2009 12 18 | 704 | 0.4+ | 1.6+ |
| 2001 10 12 | 699 | 0.1+ | 0.1− | 2005 11 03 | G96 | 0.2+ | 0.1− | 2009 12 18 | 704 | 0.5− | 0.8+ |
| 2001 10 12 | 699 | 0.2+ | 0.1+ | 2005 11 03 | G96 | 0.3+ | 0.2− | 2009 12 20 | 691 | 0.2− | 0.1− |
| 2001 10 12 | 699 | 0.1− | 0.2+ | 2005 11 03 | G96 | 0.4+ | 0.2− | 2009 12 20 | 691 | 0.1− | 0.0 |
| 2001 10 12 | 699 | 0.3− | 0.2+ | 2005 11 03 | G96 | 0.3+ | 0.2− | 2009 12 20 | 691 | 0.5− | 0.0 |
| 2001 10 13 | 704 | 0.2− | 0.6+ | 2005 11 05 | 703 | 0.1+ | 0.2− | | | | |
| 2001 10 13 | 704 | 0.1+ | 0.5+ | 2005 11 05 | 703 | (1.1− | 1.6−) | | | | |

**(228455)∗ 2001 QE$_{252}$ = 2005 VV$_{56}$**

Discovered 2001 Aug. 25 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 94005)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 86.88415 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27038197 | $\omega$ | 250.25545 | | +0.99869319 | +0.01499474 | |
| $a$ | 2.3685591 | $\Omega$ | 108.86095 | | +0.00480888 | +0.92417735 | |
| $e$ | 0.1899270 | $i$ | 2.95949 | | −0.05088018 | +0.38166920 | |
| $P$ | 3.65 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 10 29 | 691 | 0.2+ | 0.1− | 2005 10 28 | 704 | 0.2− | 0.7+ | 2005 12 08 | G96 | 0.4+ | 0.2− |
| 1994 10 29 | 691 | 0.2− | 0.0 | 2005 10 31 | 691 | 0.0 | 0.0 | 2005 12 08 | G96 | 0.2+ | 0.2− |
| 1994 10 29 | 691 | 0.1+ | 0.1+ | 2005 10 31 | 691 | 0.2− | 0.1+ | 2005 12 08 | G96 | 0.5+ | 0.2− |
| 2001 08 25 | 704 | (1.6+ | 0.3+) | 2005 10 31 | 691 | 0.2− | 0.0 | 2005 12 08 | G96 | 0.0 | 0.1− |
| 2001 08 25 | 704 | 0.0 | 0.2+ | 2005 11 01 | G96 | 0.0 | 0.2− | 2005 12 08 | G96 | 0.1+ | 0.2− |
| 2001 08 25 | 704 | 0.7+ | 0.3+ | 2005 11 01 | G96 | 0.3+ | 0.4+ | 2005 12 08 | G96 | 0.2+ | 0.1− |
| 2001 08 25 | 704 | 0.3− | 0.2− | 2005 11 01 | G96 | 0.1− | 0.3− | 2006 01 24 | G96 | 0.3− | 0.7− |
| 2001 08 25 | 704 | 0.2− | 0.5− | 2005 11 01 | G96 | 0.2+ | 0.3− | 2006 01 24 | G96 | 0.4+ | 0.1− |
| 2001 08 27 | 644 | 0.4− | 0.3+ | 2005 11 02 | G96 | 0.1− | 0.5− | 2006 01 24 | G96 | 0.0 | 0.7− |
| 2001 08 27 | 644 | 0.6− | 0.5+ | 2005 11 02 | G96 | 0.2− | 0.2− | 2006 01 24 | G96 | 0.5− | 0.2− |
| 2001 08 27 | 644 | 0.3− | 0.3+ | 2005 11 02 | G96 | 0.2+ | 0.1− | 2006 02 25 | G96 | 0.5+ | 0.1+ |
| 2001 09 11 | 704 | 0.2− | 1.1+ | 2005 11 02 | G96 | 0.1+ | 0.2− | 2006 02 25 | G96 | 0.2− | 0.3− |
| 2001 09 11 | 704 | 0.2+ | 0.5− | 2005 11 04 | 691 | 0.1+ | 0.2+ | 2006 02 25 | G96 | 0.3− | 0.8− |
| 2001 09 11 | 704 | 0.4− | 0.5+ | 2005 11 04 | 691 | 0.2+ | 0.3+ | 2006 02 25 | G96 | 0.3− | 0.3− |
| 2001 09 11 | 704 | 0.5− | 0.1− | 2005 11 04 | 691 | 0.1+ | 0.3+ | 2007 02 25 | 691 | 0.4+ | 0.4+ |
| 2001 09 11 | 704 | 0.0 | 0.5+ | 2005 11 06 | 704 | 0.0 | 0.2− | 2007 02 25 | 691 | 0.2+ | 0.1− |
| 2001 09 21 | 704 | 0.2− | 0.7− | 2005 11 06 | 704 | 0.5− | 0.2− | 2007 02 25 | 691 | 0.0 | 0.4− |
| 2001 09 21 | 704 | 0.1− | 0.1+ | 2005 11 06 | 704 | 0.4− | 0.4+ | 2007 03 14 | 691 | 0.1+ | 1.1+ |
| 2001 09 21 | 704 | 0.1+ | 0.9− | 2005 11 06 | 704 | 0.9− | 0.4+ | 2007 03 14 | 691 | 0.1+ | 0.1+ |
| 2001 09 21 | 704 | 1.0− | 0.6− | 2005 11 06 | 704 | 0.1− | 0.3+ | 2007 03 14 | 691 | 0.7− | 0.3+ |
| 2004 05 13 | 691 | 0.5+ | 0.4+ | 2005 11 10 | 691 | 0.1+ | 0.2+ | 2009 12 15 | G96 | 0.1− | 0.0 |
| 2004 05 13 | 691 | 0.6+ | 0.2+ | 2005 11 10 | 691 | 0.0 | 0.2+ | 2009 12 15 | G96 | 0.7+ | 0.5− |
| 2004 05 13 | 691 | 0.2+ | 0.8+ | 2005 11 10 | 691 | 0.1+ | 0.3+ | 2009 12 15 | G96 | 0.5+ | 0.1− |
| 2005 10 22 | 691 | 0.1+ | 0.3+ | 2005 11 26 | 703 | 0.6+ | 0.6+ | 2009 12 15 | G96 | 0.4+ | 0.2− |
| 2005 10 22 | 691 | 0.1+ | 0.2+ | 2005 11 26 | 703 | 0.1− | 0.2− | 2009 12 15 | G96 | 0.3+ | 0.4− |
| 2005 10 22 | 691 | 0.0 | 0.3+ | 2005 11 26 | 703 | 0.2+ | 0.4+ | 2009 12 17 | 691 | 0.4+ | 0.1− |
| 2005 10 25 | 703 | 0.2+ | 0.0 | 2005 11 26 | 703 | 0.5− | 0.9+ | 2009 12 17 | 691 | 0.2− | 0.4− |
| 2005 10 25 | 703 | 0.2+ | 0.8+ | 2005 11 30 | 704 | 0.4+ | 1.0+ | 2009 12 17 | 691 | 0.0 | 0.1− |
| 2005 10 25 | 703 | 1.0− | 0.7− | 2005 11 30 | 704 | 0.4− | 0.1+ | 2009 12 25 | 691 | 0.1− | 0.0 |
| 2005 10 25 | 703 | 1.1− | 0.2+ | 2005 11 30 | 704 | 0.2− | 0.7+ | 2009 12 25 | 691 | 0.5− | 0.2− |
| 2005 10 28 | 704 | 0.0 | 0.6− | 2005 11 30 | 704 | 0.4− | 0.3+ | 2009 12 25 | 691 | 0.8− | 0.5+ |
| 2005 10 28 | 704 | 0.3− | 0.4+ | 2005 12 08 | G96 | 0.4+ | 0.1− | | | | |
| 2005 10 28 | 704 | 1.4+ | 0.2+ | 2005 12 08 | G96 | 0.1+ | 0.3− | | | | |

**(228456)∗ 2001 QF$_{258}$**

Discovered 2001 Aug. 25 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 166.99149 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27056770 | $\omega$ | 45.97374 | | −0.06924716 | +0.99117224 | |
| $a$ | 2.3674751 | $\Omega$ | 220.46523 | | −0.95786160 | −0.09772848 | |
| $e$ | 0.1871946 | $i$ | 10.03264 | | −0.27875792 | +0.08959204 | |
| $P$ | 3.64 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 12 | 644 | 0.4− | 0.0 | 2004 04 24 | 691 | 0.1+ | 0.4+ | 2005 10 28 | 691 | 0.0 | 0.1+ | |
| 2001 08 12 | 644 | 0.8− | 0.1+ | 2004 04 25 | 704 | 0.0 | 0.1+ | 2005 10 28 | 691 | 0.0 | 0.1+ | |
| 2001 08 12 | 644 | 0.5− | 0.0 | 2004 04 25 | 704 | 0.1− | 1.0+ | 2005 10 30 | 703 | 1.5− | 0.9− | |
| 2001 08 25 | 704 | 0.4+ | 0.1− | 2004 04 25 | 704 | 0.4− | 0.3+ | 2005 10 30 | 703 | 1.1− | 1.0+ | |
| 2001 08 25 | 704 | 0.6− | 0.3− | 2004 04 25 | 704 | 0.2− | 0.5+ | 2005 10 30 | 703 | 0.3− | 0.5+ | |
| 2001 08 25 | 704 | 0.2+ | 0.3− | 2004 04 25 | 704 | 0.4− | 0.3+ | 2005 10 30 | 703 | 0.6− | 0.5+ | |
| 2001 08 25 | 704 | 0.1− | 0.8+ | 2004 04 25 | 291 | 0.7− | 0.8− | 2005 10 31 | A50 | 0.2+ | 0.4+ | |
| 2001 08 25 | 704 | 0.5+ | 0.2+ | 2004 04 25 | 291 | 0.3− | 0.3+ | 2005 10 31 | A50 | 0.7+ | 0.9+ | |
| 2001 08 26 | 699 | 0.5+ | 1.1+ | 2004 04 25 | 291 | 0.3− | 0.4+ | 2005 11 01 | 691 | 0.2+ | 0.1+ | |
| 2001 08 26 | 699 | 0.4− | 0.1+ | 2004 04 26 | 704 | 0.2− | 0.8+ | 2005 11 01 | 691 | 0.0 | 0.0 | |
| 2001 08 26 | 699 | (1.6+ | 1.2+) | 2004 04 26 | 704 | 0.4+ | 1.0+ | 2005 11 01 | 691 | 0.0 | 0.0 | |
| 2001 08 26 | 699 | 0.4− | 0.8+ | 2004 04 26 | 704 | 0.2− | 1.1+ | 2005 11 21 | 691 | 0.2+ | 0.4+ | |
| 2001 09 12 | 704 | 0.3− | 0.0 | 2004 04 26 | 704 | 0.1− | 0.9+ | 2005 11 21 | 691 | 0.2+ | 0.5+ | |
| 2001 09 12 | 704 | 0.2− | 0.1− | 2004 04 26 | 704 | 0.9+ | 0.4+ | 2005 11 21 | 691 | 0.1+ | 0.3+ | |
| 2001 09 12 | 704 | 0.2− | 0.3+ | 2004 04 26 | 704 | (0.3+ | 1.5−) | 2005 11 30 | 691 | 0.0 | 0.3+ | |
| 2001 09 12 | 704 | 0.1− | 0.0 | 2004 04 26 | 704 | 0.1+ | 0.7+ | 2005 11 30 | 691 | 0.2− | 0.4+ | |
| 2001 09 12 | 704 | 0.5+ | 0.1+ | 2004 04 26 | 704 | 0.3+ | 0.6+ | 2005 11 30 | 691 | 0.1− | 0.3+ | |
| 2001 09 12 | 704 | 0.6− | 0.4+ | 2004 04 26 | 704 | 0.3+ | 0.9+ | 2005 11 30 | 691 | 0.1+ | 0.4+ | |
| 2001 09 12 | 704 | 0.3− | 0.9+ | 2004 05 11 | 699 | 0.6+ | 0.3+ | 2005 11 30 | 691 | 0.2− | 0.1+ | |
| 2001 09 12 | 704 | 0.5− | 0.0 | 2004 05 11 | 699 | 0.3− | 0.6+ | 2005 11 30 | 691 | 0.0 | 0.4+ | |
| 2001 09 18 | 699 | 0.3− | 0.7+ | 2004 05 11 | 699 | 0.0 | 0.7+ | 2005 12 02 | 691 | 0.1− | 0.4− | |
| 2001 09 18 | 699 | 0.2− | 0.2+ | 2004 05 11 | 699 | 0.1+ | 0.2− | 2005 12 02 | 691 | 0.0 | 0.2+ | |
| 2001 09 18 | 699 | (2.1− | 0.1−) | 2004 05 15 | 704 | 0.6+ | 0.5+ | 2005 12 02 | 691 | 0.3+ | 0.0 | |
| 2001 09 18 | 699 | (1.7− | 0.8−) | 2004 05 15 | 704 | 1.1+ | 0.4+ | 2005 12 02 | G96 | 0.3+ | 0.1+ | |
| 2001 09 23 | 644 | 0.1+ | 0.0 | 2004 05 15 | 704 | 0.7+ | 1.2+ | 2005 12 02 | G96 | 0.1− | 0.1− | |
| 2001 09 23 | 644 | 0.3+ | 0.1+ | 2004 05 15 | 704 | 0.2+ | 0.5+ | 2005 12 02 | G96 | 0.5+ | 0.1− | |
| 2001 09 23 | 644 | 0.1− | 0.7+ | 2004 05 15 | 704 | 0.4+ | 0.5+ | 2005 12 02 | G96 | 0.1+ | 0.1+ | |
| 2001 09 25 | 704 | 0.0 | 0.0 | 2004 05 16 | 704 | (1.2+ | 2.6+) | 2005 12 04 | G96 | 0.5+ | 0.5+ | |
| 2001 09 25 | 704 | 0.8− | 0.2+ | 2004 05 16 | 704 | (0.6+ | 2.0+) | 2005 12 04 | G96 | 0.2− | 0.1− | |
| 2001 09 25 | 704 | 0.6− | 0.3+ | 2004 05 16 | 704 | (1.5+ | 2.4+) | 2005 12 04 | G96 | 0.2− | 0.1+ | |
| 2001 09 25 | 704 | 0.4+ | 0.9+ | 2004 05 16 | 704 | (0.9+ | 2.2+) | 2005 12 04 | G96 | 0.3− | 0.1− | |
| 2001 09 25 | 704 | 0.4+ | 0.0 | 2004 05 19 | 704 | 0.5+ | 0.3− | 2008 06 29 | 151 | 0.5+ | 0.1+ | |
| 2004 04 13 | 644 | 0.2+ | 0.7+ | 2004 05 19 | 704 | 0.7+ | 0.2+ | 2008 06 29 | 151 | 0.2+ | 0.4− | |
| 2004 04 13 | 644 | 0.2+ | 0.7+ | 2004 05 19 | 704 | 0.3+ | 1.0− | 2008 06 29 | 151 | 0.2+ | 0.2− | |
| 2004 04 13 | 644 | 0.4+ | 0.7+ | 2004 06 18 | 704 | (2.5+ | 1.1+) | 2008 07 29 | 704 | 0.1+ | 0.4− | |
| 2004 04 17 | 704 | 0.7+ | 1.0+ | 2004 06 18 | 704 | 0.7+ | 0.6− | 2008 07 29 | 704 | 0.0 | 0.1− | |
| 2004 04 17 | 704 | 0.0 | 0.1+ | 2004 06 18 | 704 | 1.4+ | 0.4+ | 2008 07 29 | 704 | 0.6− | 0.3+ | |
| 2004 04 17 | 704 | 1.5+ | 1.2+ | 2004 06 18 | 704 | (0.1+ | 2.1+) | 2008 07 29 | 704 | 0.3− | 0.4+ | |
| 2004 04 17 | 704 | 0.5+ | 0.1+ | 2005 10 12 | 691 | 0.3− | 0.2+ | 2009 11 26 | G96 | 0.5+ | 0.5+ | |
| 2004 04 20 | 704 | 0.3− | 0.7+ | 2005 10 12 | 691 | 0.2+ | 0.1+ | 2009 11 26 | G96 | 0.3+ | 0.2+ | |
| 2004 04 20 | 704 | 0.3− | 0.2+ | 2005 10 12 | 691 | 0.0 | 0.2+ | 2009 11 26 | G96 | 0.9+ | 0.3+ | |
| 2004 04 20 | 704 | 0.3− | 0.9+ | 2005 10 24 | 691 | 0.1+ | 0.3+ | 2009 12 18 | 291 | 0.5− | 0.6+ | |
| 2004 04 20 | 704 | 0.4− | 0.8+ | 2005 10 24 | 691 | 0.1+ | 0.0 | 2009 12 18 | 291 | 0.3− | 0.6+ | |
| 2004 04 24 | 691 | 0.0 | 0.4+ | 2005 10 24 | 691 | 0.1− | 0.0 | 2009 12 18 | 291 | 0.4− | 0.3+ | |
| 2004 04 24 | 691 | 0.0 | 0.5+ | 2005 10 28 | 691 | 0.2+ | 0.2+ | | | | | |

**(228457)∗ 2001 QB$_{275}$ = 2004 JA$_{21}$**

Discovered 2001 Aug. 19 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 64968)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 144.26590 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27257783 | $\omega$ | 235.13013 | | +0.38871741 | +0.91495113 | |
| $a$ | 2.3558214 | $\Omega$ | 58.09998 | | −0.79814777 | +0.39320178 | |
| $e$ | 0.0900768 | $i$ | 7.33974 | | −0.46028134 | +0.09086684 | |
| $P$ | 3.62 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 16 | 644 | 1.2− | 0.4+ | 2005 10 28 | 291 | 0.5+ | 0.4+ | 2007 02 16 | 703 | 0.8− | 0.4− | |
| 2001 08 16 | 644 | 0.5− | 0.5+ | 2005 10 28 | 291 | 0.4+ | 0.4+ | 2007 02 16 | 703 | (0.0 | 2.0+) | |
| 2001 08 16 | 644 | 0.5− | 1.0+ | 2005 10 28 | 291 | 0.5+ | 0.3+ | 2007 02 16 | 703 | 0.2+ | 0.2− | |
| 2001 08 19 | 704 | 0.5− | 0.2+ | 2005 10 31 | 704 | 0.1+ | 0.5+ | 2009 08 27 | 691 | 0.0 | 0.4− | |
| 2001 08 19 | 704 | 0.4− | 0.9+ | 2005 10 31 | 704 | 0.2+ | 0.2+ | 2009 08 27 | 691 | 0.6− | 0.2+ | |
| 2001 08 19 | 704 | (1.6− | 1.1+) | 2005 10 31 | 704 | (1.6− | 0.8+) | 2009 08 27 | 691 | 1.0− | 0.3+ | |
| 2001 08 19 | 704 | 0.4− | 0.5− | 2005 11 05 | 699 | 0.5− | 0.7− | 2009 11 09 | 691 | 0.1− | 0.1+ | |
| 2001 08 24 | 608 | 0.3− | 1.4− | 2005 11 05 | 699 | 0.1− | 0.5+ | 2009 11 09 | 691 | 0.3+ | 0.1+ | |
| 2001 08 24 | 608 | 0.1− | 1.2− | 2005 11 05 | 699 | 0.4+ | 0.2+ | 2009 11 09 | 691 | 0.3− | 0.1+ | |
| 2001 08 24 | 608 | 0.4+ | 1.1− | 2005 11 05 | 699 | (1.5+ | 0.1+) | 2009 11 09 | G96 | 0.1+ | 0.0 | |
| 2004 05 09 | 691 | 0.0 | 0.2+ | 2005 11 09 | 703 | 0.5− | 0.3+ | 2009 11 09 | G96 | 0.4+ | 0.1− | |
| 2004 05 09 | 691 | 0.2+ | 0.4+ | 2005 11 09 | 703 | 0.0 | 0.4− | 2009 11 09 | G96 | 0.6− | 0.1− | |
| 2004 05 09 | 691 | 0.1+ | 0.3+ | 2005 11 09 | 703 | 1.3− | 0.1− | 2009 11 09 | G96 | 0.2+ | 0.1− | |
| 2004 05 12 | 699 | 0.4+ | 0.5− | 2005 11 09 | 703 | 0.5− | 0.8+ | 2009 11 17 | 691 | 0.2− | 0.1+ | |
| 2004 05 12 | 699 | 0.6+ | 0.9+ | 2005 12 01 | G96 | 0.5+ | 0.1− | 2009 11 17 | 691 | 0.2− | 0.2+ | |
| 2004 05 12 | 699 | 0.2+ | 0.9+ | 2005 12 01 | G96 | 0.3+ | 0.1+ | 2009 11 17 | 691 | 0.2+ | 0.1− | |
| 2004 05 12 | 699 | 1.1+ | 0.1− | 2005 12 01 | G96 | 0.0 | 0.1+ | 2009 11 21 | 691 | 0.1− | 0.0 | |
| 2004 05 16 | 704 | 0.1+ | 1.0+ | 2005 12 01 | G96 | 0.2+ | 0.1+ | 2009 11 21 | 691 | 0.5− | 0.3+ | |
| 2004 05 16 | 704 | 0.4− | 0.2+ | 2005 12 01 | G96 | 0.1− | 0.1+ | 2009 11 21 | 691 | 0.3+ | 0.1− | |
| 2004 05 16 | 704 | 0.2+ | 0.7+ | 2005 12 01 | G96 | 0.2− | 0.1− | 2009 11 25 | 691 | 0.2− | 0.0 | |
| 2004 05 22 | G92 | 1.0+ | 0.8+ | 2005 12 01 | G96 | 0.1− | 0.0 | 2009 11 25 | 691 | 0.3− | 0.3+ | |
| 2004 05 22 | G92 | 0.2+ | 0.1+ | 2005 12 01 | G96 | 0.1− | 0.3− | 2009 11 25 | 691 | 0.2− | 0.0 | |
| 2004 05 22 | G92 | 0.2+ | 0.6+ | 2006 01 05 | G96 | 0.3+ | 1.0− | 2009 12 11 | G96 | 0.7+ | 0.1+ | |
| 2005 10 07 | 703 | 0.6− | 0.0 | 2006 01 05 | G96 | (2.2+ | 0.5+) | 2009 12 11 | G96 | 0.6+ | 0.1+ | |
| 2005 10 07 | 703 | 0.3+ | 0.3+ | 2006 01 05 | G96 | 0.4− | 1.1+ | 2009 12 11 | G96 | 0.8+ | 0.2+ | |
| 2005 10 07 | 703 | 1.4+ | 0.3+ | 2006 01 05 | G96 | 0.6− | 0.3+ | 2009 12 11 | G96 | 0.6+ | 0.2+ | |
| 2005 10 07 | 703 | 0.3− | 0.9+ | 2007 02 16 | 703 | (0.3+ | 2.1−) | | | | | |

**(228458)∗ 2001 QC$_{275}$**

Discovered 2001 Aug. 19 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 182.58032 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28508789 | $\omega$ | 206.33466 | | +0.29771640 | +0.94718321 | |
| $a$ | 2.2863894 | $\Omega$ | 81.17805 | | −0.85321517 | +0.32001058 | |
| $e$ | 0.1797531 | $i$ | 6.92836 | | −0.42823921 | +0.02090908 | |
| $P$ | 3.46 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 19 | 704 | 0.5− | 0.5− | 2004 05 01 | 703 | 0.8− | 0.6+ | 2007 01 28 | G96 | 0.0 | 0.2− | |
| 2001 08 19 | 704 | 0.1+ | 0.4+ | 2004 05 01 | 703 | 0.2− | 0.5− | 2007 01 28 | G96 | 0.1+ | 0.3− | |
| 2001 08 19 | 704 | 0.6− | 0.4+ | 2004 05 01 | 703 | 1.1− | 0.2− | 2007 01 28 | G96 | 0.1− | 0.1− | |
| 2001 08 25 | 699 | 1.0+ | 0.1+ | 2004 05 01 | 703 | (1.6− | 1.8+) | 2007 01 28 | G96 | 0.1+ | 0.2− | |
| 2001 08 25 | 699 | 0.4− | 0.5− | 2004 05 13 | 699 | 0.1+ | 1.1− | 2007 03 14 | G96 | (0.6+ | 1.9+) | |
| 2001 08 25 | 699 | 1.2+ | 0.3+ | 2004 05 13 | 699 | 0.4+ | 0.6− | 2007 03 14 | G96 | (0.5+ | 1.7+) | |
| 2001 08 25 | 699 | 0.6+ | 0.4+ | 2004 05 13 | 699 | 0.1− | 0.2− | 2007 03 14 | G96 | 0.1+ | 0.1− | |
| 2001 09 10 | 644 | 0.2− | 0.1+ | 2004 05 13 | 699 | 0.1− | 0.8− | 2007 03 14 | G96 | 0.0 | 0.1− | |
| 2001 09 10 | 644 | 0.4− | 0.3+ | 2004 05 14 | 704 | 0.2+ | 0.5+ | 2007 03 14 | G96 | 0.8− | 0.5+ | |
| 2001 09 10 | 644 | 0.5− | 0.0 | 2004 05 14 | 704 | 0.3− | 0.3+ | 2007 03 14 | G96 | 0.4− | 0.5+ | |
| 2001 09 10 | 699 | 0.5+ | 0.1+ | 2004 05 14 | 704 | 0.5+ | 0.6+ | 2007 03 14 | G96 | 0.6− | 0.1+ | |
| 2001 09 10 | 699 | 0.2− | 0.2+ | 2004 05 18 | 704 | 0.1− | 0.6+ | 2008 08 30 | J75 | 0.4+ | 0.1− | |
| 2001 09 10 | 699 | 0.8− | 0.7+ | 2004 05 18 | 704 | 0.1− | 0.0 | 2008 08 30 | J75 | 0.5− | 0.5− | |
| 2001 09 10 | 699 | 0.7− | 0.3+ | 2004 05 18 | 704 | 0.2− | 0.3+ | 2008 08 30 | J75 | 0.0 | 0.3+ | |
| 2001 09 11 | 704 | 0.5− | 0.2+ | 2004 05 18 | 704 | 0.1− | 0.4+ | 2009 12 18 | G96 | 0.4+ | 0.0 | |
| 2001 09 11 | 704 | 0.2− | 0.5+ | 2004 05 18 | 704 | 0.5+ | 0.8+ | 2009 12 18 | G96 | 0.1+ | 0.2− | |
| 2001 09 11 | 704 | 0.4− | 0.0 | 2004 05 22 | 704 | 0.3+ | 0.4+ | 2009 12 18 | G96 | 0.2− | 0.1+ | |
| 2001 09 11 | 704 | 0.6+ | 0.5− | 2004 05 22 | 704 | 0.7+ | 0.0 | 2009 12 18 | G96 | 0.0 | 0.0 | |
| 2001 09 11 | 704 | 0.9− | 0.3+ | 2004 05 22 | 704 | 0.8+ | 1.3+ | 2009 12 19 | G96 | 0.6+ | 0.1− | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 04 23 | 704 | 0.2+ | 0.3+ | 2005 11 04 | 691 | 0.1− | 0.2+ | 2009 12 19 | G96 | 0.4− | 0.0 |
| 2004 04 23 | 704 | 0.3+ | 0.3− | 2005 11 04 | 691 | 0.2+ | 0.5+ | 2009 12 19 | G96 | 0.2+ | 0.2− |
| 2004 04 23 | 704 | 0.6+ | 0.4− | 2005 11 04 | 691 | 0.1+ | 0.5+ | 2009 12 19 | G96 | 0.4+ | 0.1− |
| 2004 04 23 | 704 | 1.0+ | 0.2− | 2005 12 29 | G96 | 0.1− | 0.2− | 2009 12 27 | 691 | 0.3− | 0.5+ |
| 2004 04 26 | 691 | 0.0 | 0.2+ | 2005 12 29 | G96 | 0.4+ | 0.2− | 2009 12 27 | 691 | 0.2− | 0.3+ |
| 2004 04 26 | 691 | 0.2+ | 0.5+ | 2005 12 29 | G96 | 0.4+ | 0.2+ | 2009 12 27 | 691 | 0.1+ | 0.3+ |
| 2004 04 26 | 691 | 0.0 | 0.3+ | 2005 12 29 | G96 | 0.4− | 0.2+ | | | | |

**(228459)∗ 2001 QN$_{323}$ = 1999 AL$_{12}$**

Discovered 2001 Aug. 27 by NEAT at Palomar.

Id. A. Doppler (*MPO* 25382)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 94.83213 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26794966 | $\omega$ | 68.71320 | | +0.99554373 | −0.02182195 | |
| $a$ | 2.3828712 | $\Omega$ | 292.44225 | | −0.01989987 | +0.90233384 | |
| $e$ | 0.1479107 | $i$ | 5.69649 | | +0.09217745 | +0.43048512 | |
| $P$ | 3.68 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 12 23 | 691 | (0.2+ | 2.3−) | 2001 09 25 | 704 | 0.2+ | 0.4− | 2005 12 05 | 704 | 0.8+ | 0.1+ |
| 1998 12 23 | 691 | 0.8+ | 0.4+ | 2001 09 25 | 704 | 0.1+ | 0.1− | 2005 12 05 | 704 | 0.5− | 0.4+ |
| 1998 12 23 | 691 | 0.5+ | 0.0 | 2001 09 25 | 704 | 0.1+ | 0.1+ | 2005 12 05 | 704 | 0.0 | 0.0 |
| 1999 01 07 | 691 | 0.8+ | 0.1− | 2001 09 25 | 704 | 0.4− | 0.1− | 2005 12 05 | 704 | 0.9+ | 0.1− |
| 1999 01 07 | 691 | 0.5+ | 0.2+ | 2001 09 25 | 704 | 0.3− | 0.1− | 2006 01 27 | G96 | 0.1+ | 0.4− |
| 1999 01 07 | 691 | 0.7+ | 0.0 | 2001 10 13 | 644 | 0.4+ | 0.3− | 2006 01 27 | G96 | 0.3− | 0.9− |
| 1999 01 15 | 691 | 0.9− | 0.2+ | 2001 10 13 | 644 | 0.2− | 0.5− | 2006 01 27 | G96 | 0.3+ | 0.2− |
| 1999 01 15 | 691 | 0.9− | 0.7− | 2001 10 13 | 644 | 0.2+ | 0.2− | 2006 01 27 | G96 | 0.0 | 0.1− |
| 1999 01 15 | 691 | 1.2− | 0.3+ | 2001 10 17 | 704 | 0.3+ | 0.8+ | 2006 03 03 | G96 | 1.3+ | 0.0 |
| 2001 08 27 | 644 | 0.3+ | 1.4+ | 2001 10 17 | 704 | 0.1− | 0.1+ | 2006 03 03 | G96 | 0.1+ | 0.2+ |
| 2001 08 27 | 644 | 0.2+ | 1.1+ | 2001 10 17 | 704 | 0.5− | 0.9− | 2006 03 03 | G96 | 0.9− | 0.4+ |
| 2001 08 27 | 644 | 0.2+ | 1.0+ | 2001 10 17 | 704 | 1.0+ | 0.7− | 2006 03 03 | G96 | 0.2+ | 0.2+ |
| 2001 08 28 | 699 | 0.3+ | 0.0 | 2001 10 17 | 704 | 0.1+ | 0.0 | 2008 06 13 | 691 | 0.3− | 0.1− |
| 2001 08 28 | 699 | 0.2− | 0.1+ | 2001 10 26 | 644 | 0.0 | 0.1+ | 2008 06 13 | 691 | 0.0 | 0.0 |
| 2001 08 28 | 699 | 0.3− | 0.5+ | 2001 10 26 | 644 | 0.1− | 0.3− | 2008 06 13 | 691 | 0.2+ | 0.1+ |
| 2001 08 28 | 699 | 0.9− | 0.2+ | 2001 10 26 | 644 | 0.4+ | 0.3+ | 2008 08 04 | 704 | 0.1− | 0.2− |
| 2001 09 10 | 704 | 1.1− | 0.1− | 2001 11 10 | 704 | 0.0 | 0.3+ | 2008 08 04 | 704 | 0.0 | 0.2+ |
| 2001 09 10 | 704 | 0.3− | 0.7− | 2001 11 10 | 704 | 0.5− | 0.4+ | 2008 08 04 | 704 | 0.9+ | 0.0 |
| 2001 09 10 | 704 | 0.1+ | 0.1+ | 2001 11 10 | 704 | 0.6+ | 0.2− | 2008 08 04 | 704 | 0.5− | 0.4+ |
| 2001 09 10 | 704 | 0.2+ | 0.7− | 2005 11 28 | 691 | 0.0 | 0.1− | 2009 11 11 | G96 | 0.5− | 0.2− |
| 2001 09 11 | 699 | 0.4+ | 0.6− | 2005 11 28 | 691 | 0.4− | 0.2− | 2009 11 11 | G96 | 0.3− | 0.1− |
| 2001 09 11 | 699 | 0.2− | 0.3+ | 2005 11 28 | 691 | 0.3− | 0.2+ | 2009 11 11 | G96 | 0.3+ | 0.7+ |
| 2001 09 11 | 699 | 0.1+ | 0.7+ | 2005 12 02 | 704 | 0.1+ | 0.2+ | 2009 11 11 | G96 | 0.0 | 0.3+ |
| 2001 09 11 | 699 | 0.1+ | 1.0− | 2005 12 02 | 704 | 0.2+ | 0.2− | 2009 12 15 | G96 | 1.0+ | 0.0 |
| 2001 09 23 | 644 | 0.1− | 0.0 | 2005 12 02 | 704 | 0.5+ | 0.4+ | 2009 12 15 | G96 | 0.2+ | 0.5− |
| 2001 09 23 | 644 | 0.1− | 0.0 | 2005 12 02 | 704 | 0.6− | 0.7+ | 2009 12 15 | G96 | 0.2− | 0.3+ |
| 2001 09 23 | 644 | 0.1+ | 0.3− | 2005 12 02 | 704 | 1.0+ | 0.1− | 2009 12 15 | G96 | 0.5− | 0.0 |

**(228460)∗ 2001 RH$_1$ = 2001 QK$_{60}$**

Discovered 2001 Sept. 7 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (d, *MPO* 18515)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 54.23605 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26674407 | $\omega$ | 217.16297 | | +0.78829746 | −0.61529427 | |
| $a$ | 2.3900457 | $\Omega$ | 180.81049 | | +0.56912152 | +0.72931316 | |
| $e$ | 0.1831025 | $i$ | 1.12178 | | +0.23385425 | +0.29919102 | |
| $P$ | 3.69 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 18 | 704 | 0.2+ | 0.2+ | 2001 09 21 | 704 | 0.5− | 0.8− | 2005 11 29 | 699 | 0.3− | 0.2+ |
| 2001 08 18 | 704 | 0.1+ | 0.1+ | 2001 09 21 | 704 | 0.5+ | 0.2− | 2005 11 29 | 699 | 0.1+ | 0.4− |
| 2001 08 18 | 704 | 0.3+ | 1.5+ | 2001 10 11 | 644 | 0.4− | 0.4+ | 2005 11 29 | 699 | 0.5+ | 0.0 |
| 2001 08 19 | 704 | 0.4+ | 0.3+ | 2001 10 11 | 644 | 0.0 | 0.6+ | 2005 11 29 | G96 | 0.2+ | 0.3− |
| 2001 08 19 | 704 | 0.6+ | 0.6+ | 2001 10 11 | 644 | 0.2− | 0.2+ | 2005 11 29 | G96 | 0.2− | 0.0 |
| 2001 08 19 | 704 | 0.9+ | 0.1− | 2005 10 01 | G96 | 0.3+ | 0.2− | 2005 11 29 | G96 | (0.2+ | 2.0−) |
| 2001 08 19 | 704 | 0.4− | 0.7+ | 2005 10 01 | G96 | 0.7+ | 0.2− | 2005 11 29 | G96 | 0.2+ | 0.5− |
| 2001 09 07 | 704 | 0.2+ | 0.3+ | 2005 10 01 | G96 | 0.3+ | 0.1+ | 2005 12 04 | G96 | 0.2+ | 0.1− |
| 2001 09 07 | 704 | 0.3+ | 0.3− | 2005 10 01 | G96 | 0.1+ | 0.2− | 2005 12 04 | G96 | 0.4− | 0.4− |
| 2001 09 07 | 704 | 0.1− | 0.6+ | 2005 10 23 | 703 | 0.9+ | 0.7− | 2005 12 04 | G96 | 0.1− | 0.4− |
| 2001 09 07 | 704 | 0.3+ | 0.1+ | 2005 10 23 | 703 | 0.2− | 1.4− | 2005 12 04 | G96 | 0.1− | 0.1− |
| 2001 09 07 | 704 | 0.5+ | 0.9+ | 2005 10 23 | 703 | (1.7− | 0.2+) | 2006 01 22 | G96 | 0.6− | 0.4− |
| 2001 09 08 | 704 | 0.4− | 1.0+ | 2005 10 23 | 703 | (2.3− | 1.5+) | 2006 01 22 | G96 | 0.5+ | 0.5+ |
| 2001 09 08 | 704 | 0.3− | 1.0+ | 2005 10 25 | G96 | 0.1+ | 0.1− | 2006 01 22 | G96 | 0.7− | 0.8+ |
| 2001 09 08 | 704 | 0.8− | 0.9+ | 2005 10 25 | G96 | 0.3+ | 0.1− | 2006 01 22 | G96 | 0.0 | 0.3− |
| 2001 09 08 | 704 | 0.8− | 1.3+ | 2005 10 25 | G96 | 0.1− | 0.1− | 2007 03 13 | 691 | 0.3+ | 0.1+ |
| 2001 09 08 | 704 | 0.5− | 0.8+ | 2005 10 25 | G96 | 0.1+ | 0.0 | 2007 03 13 | 691 | 0.3+ | 0.6+ |
| 2001 09 09 | 704 | 0.9+ | 0.5− | 2005 10 26 | 691 | 0.0 | 0.2+ | 2007 03 13 | 691 | 0.5+ | 0.4+ |
| 2001 09 09 | 704 | 0.9− | 0.6+ | 2005 10 26 | 691 | 0.0 | 0.0 | 2007 03 20 | G96 | 0.1+ | 0.1+ |
| 2001 09 09 | 704 | 0.8− | 0.9+ | 2005 10 26 | 691 | 0.1+ | 0.0 | 2007 03 20 | G96 | (1.7+ | 0.1+) |
| 2001 09 10 | 704 | 0.3− | 0.2+ | 2005 10 30 | 691 | 0.0 | 0.1+ | 2007 03 20 | G96 | 0.2+ | 0.4+ |
| 2001 09 10 | 704 | 0.8− | 0.6− | 2005 10 30 | 691 | 0.1− | 0.0 | 2007 03 20 | G96 | 0.1+ | 0.3+ |
| 2001 09 10 | 704 | 0.3− | 0.3+ | 2005 10 30 | 691 | 0.0 | 0.0 | 2007 03 26 | 691 | 0.2− | 0.3+ |
| 2001 09 10 | 704 | 0.3+ | 0.3− | 2005 11 03 | 691 | 0.1+ | 0.1+ | 2007 03 26 | 691 | 0.0 | 0.4+ |
| 2001 09 10 | 704 | 0.0 | 0.5− | 2005 11 03 | 691 | 0.1+ | 0.2+ | 2007 03 26 | 691 | 0.2+ | 0.9+ |
| 2001 09 12 | 704 | 0.1− | 0.1+ | 2005 11 03 | 704 | 0.7+ | 1.4+ | 2007 04 14 | G96 | 0.3+ | 0.7+ |
| 2001 09 12 | 704 | 0.3− | 0.2− | 2005 11 03 | 691 | 0.0 | 0.0 | 2007 04 14 | G96 | 0.2− | 0.2− |
| 2001 09 12 | 704 | 0.2− | 0.3+ | 2005 11 03 | 704 | (0.8− | 1.7+) | 2007 04 14 | G96 | 0.1+ | 0.0 |
| 2001 09 12 | 704 | 0.1+ | 0.6− | 2005 11 03 | 704 | (0.1+ | 1.9+) | 2007 04 14 | G96 | 0.2+ | 0.2− |
| 2001 09 16 | 704 | 0.9− | 0.0 | 2005 11 04 | 691 | 0.1− | 0.2+ | 2009 11 16 | G96 | 0.4+ | 0.4+ |
| 2001 09 16 | 704 | 0.6− | 0.0 | 2005 11 04 | 691 | 0.1− | 0.1+ | 2009 11 16 | G96 | 0.3+ | 0.3+ |
| 2001 09 16 | 704 | (1.8− | 0.5−) | 2005 11 04 | 691 | 0.1− | 0.2+ | 2009 11 16 | G96 | 0.6+ | 0.2+ |
| 2001 09 16 | 704 | 1.0− | 0.4− | 2005 11 06 | 704 | 0.7− | 0.5− | 2009 11 16 | G96 | 0.9+ | 0.2+ |
| 2001 09 19 | 704 | 0.6+ | 0.3+ | 2005 11 06 | 704 | 0.3− | 0.6− | 2009 12 15 | G96 | 0.5+ | 0.1− |
| 2001 09 19 | 704 | 0.2+ | 0.3− | 2005 11 06 | 704 | 0.6− | 0.4+ | 2009 12 15 | G96 | 0.1+ | 0.3+ |
| 2001 09 19 | 704 | 0.4+ | 0.7− | 2005 11 26 | 703 | 0.0 | 0.5+ | 2009 12 15 | G96 | 0.7+ | 0.2+ |
| 2001 09 19 | 704 | 0.3+ | 0.5− | 2005 11 26 | 703 | 0.1+ | 0.3+ | 2009 12 15 | G96 | 0.8+ | 0.2+ |
| 2001 09 21 | 704 | 0.1+ | 0.4+ | 2005 11 26 | 703 | 0.2+ | 1.1+ | 2009 12 25 | 691 | 0.1− | 0.4+ |
| 2001 09 21 | 704 | 0.5− | 0.1+ | 2005 11 26 | 703 | 0.1− | 1.0+ | 2009 12 25 | 691 | 0.8− | 0.4− |
| 2001 09 21 | 704 | 0.2− | 0.1+ | 2005 11 29 | 699 | 0.3+ | 0.4− | 2009 12 25 | 691 | 0.2− | 0.1+ |

**(228461)∗ 2001 RN$_{24}$ = 2003 FX$_{25}$**

Discovered 2001 Sept. 7 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 46582)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 15.12416 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26584062 | $\omega$ | 262.17849 | | +0.20155348 | −0.97947473 | |
| $a$ | 2.3954576 | $\Omega$ | 176.19131 | | +0.91194498 | +0.18678597 | |
| $e$ | 0.1837547 | $i$ | 2.01567 | | +0.35739692 | +0.07576454 | |
| $P$ | 3.71 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 01 07 | 691 | 0.7− | 0.4+ | 2005 10 06 | 703 | 0.1+ | 0.2+ | 2005 11 05 | 704 | 0.1− | 0.6− |
| 1995 01 07 | 691 | 0.2− | 0.0 | 2005 10 07 | 691 | 0.1+ | 0.0 | 2005 11 05 | 704 | 0.4+ | 0.5+ |
| 1995 01 07 | 691 | 0.2− | 0.6− | 2005 10 07 | 691 | 0.1− | 0.1+ | 2005 11 05 | 699 | 0.4+ | 0.0 |
| 2001 09 07 | 704 | 0.5+ | 0.2− | 2005 10 07 | 691 | 0.1+ | 0.1+ | 2005 12 01 | G96 | 0.0 | 0.1− |
| 2001 09 07 | 704 | 0.0 | 0.6+ | 2005 10 09 | 683 | 0.1− | 0.1− | 2005 12 01 | G96 | 0.1+ | 0.2− |
| 2001 09 07 | 704 | 0.0 | 0.3+ | 2005 10 09 | 683 | 1.0+ | 1.3+ | 2005 12 01 | G96 | 0.0 | 0.3− |
| 2001 09 12 | 691 | 0.1+ | 0.3+ | 2005 10 09 | 683 | 1.2− | 0.4+ | 2005 12 01 | G96 | 0.0 | 0.0 |
| 2001 09 12 | 691 | 0.2+ | 0.3+ | 2005 10 10 | 683 | (1.6+ | 0.2−) | 2005 12 31 | G96 | 0.4− | 0.0 |
| 2001 09 12 | 691 | 0.0 | 0.4+ | 2005 10 10 | 683 | (1.6+ | 0.6+) | 2005 12 31 | G96 | 0.0 | 0.0 |
| 2001 09 12 | 704 | 0.4− | 0.4+ | 2005 10 10 | 683 | 0.3− | 0.9+ | 2005 12 31 | G96 | 0.5+ | 0.1+ |
| 2001 09 12 | 704 | 0.9+ | 0.1+ | 2005 10 11 | 683 | 1.3+ | 0.6− | 2005 12 31 | G96 | 0.2− | 0.0 |
| 2001 09 12 | 704 | 0.2+ | 0.2+ | 2005 10 11 | 683 | (2.8+ | 0.5−) | 2006 01 28 | G96 | 0.4+ | 0.3− |
| 2001 09 16 | 691 | 0.0 | 0.1− | 2005 10 11 | 683 | 0.1− | 1.2− | 2006 01 28 | G96 | 0.2− | 0.5+ |
| 2001 09 16 | 691 | 0.0 | 0.1+ | 2005 10 22 | 703 | 0.6+ | 0.6+ | 2006 01 28 | G96 | 0.3+ | 0.2+ |
| 2001 09 16 | 691 | 0.1+ | 0.2+ | 2005 10 22 | 703 | 0.6− | 0.5+ | 2006 01 28 | G96 | 0.3+ | 1.1+ |
| 2001 09 19 | 704 | (0.6− | 1.8+) | 2005 10 22 | 703 | 0.4+ | 0.5+ | 2007 03 11 | G96 | 0.5− | 0.3+ |
| 2001 09 19 | 704 | 0.1− | 0.7+ | 2005 10 22 | 703 | 0.2+ | 0.6+ | 2007 03 11 | G96 | 0.8+ | 0.4+ |
| 2001 09 19 | 704 | 0.2− | 0.7+ | 2005 10 24 | 699 | 0.3− | 0.1− | 2007 03 11 | G96 | 0.0 | 0.1+ |
| 2001 09 19 | 704 | 0.2− | 0.4− | 2005 10 24 | 699 | 0.1− | 0.3− | 2007 03 11 | G96 | 0.0 | 0.3+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 19 | 704 | 0.7− | 1.4+ | 2005 10 24 | 699 | 0.4+ | 0.1− | 2007 03 13 | 691 | 0.1+ | 0.2+ | | |
| 2003 03 24 | 691 | 0.6+ | 0.5+ | 2005 10 24 | 699 | 0.4+ | 0.1− | 2007 03 13 | 691 | 0.0 | 0.3+ | | |
| 2003 03 24 | 691 | 0.4+ | 0.6+ | 2005 10 25 | 699 | 0.0 | 0.5− | 2007 03 13 | 691 | 0.2− | 0.5+ | | |
| 2003 03 24 | 691 | 0.3+ | 0.4+ | 2005 10 25 | 699 | 0.0 | 0.9+ | 2007 03 26 | G96 | 0.1+ | 0.4+ | | |
| 2003 03 26 | 644 | 0.7+ | 0.6+ | 2005 10 25 | 699 | 0.2− | 0.2+ | 2007 03 26 | G96 | 0.2+ | 0.2+ | | |
| 2003 03 26 | 644 | 1.0+ | 0.8+ | 2005 10 25 | 699 | 0.4− | 0.3+ | 2007 03 26 | 691 | 0.3+ | 0.2+ | | |
| 2003 03 26 | 644 | 0.8+ | 0.7+ | 2005 10 28 | 704 | (0.6+ | 2.4−) | 2007 03 26 | G96 | 0.1+ | 0.4+ | | |
| 2003 03 30 | 695 | 0.5+ | 0.7+ | 2005 10 28 | 704 | 0.3− | 0.6+ | 2007 03 26 | G96 | 0.1+ | 0.2+ | | |
| 2003 03 30 | 695 | 0.0 | 1.1+ | 2005 10 28 | 704 | 0.2+ | 0.6+ | 2007 03 26 | 691 | 0.3+ | 0.0 | | |
| 2005 10 01 | 704 | 0.2+ | 0.6− | 2005 10 28 | 703 | 0.4− | 0.0 | 2007 03 26 | 691 | 0.2+ | 0.4+ | | |
| 2005 10 01 | 704 | 0.0 | 0.5+ | 2005 10 28 | 703 | 1.0− | 0.2− | 2007 04 18 | G96 | 0.1+ | 0.2+ | | |
| 2005 10 01 | 704 | 0.5+ | 1.4+ | 2005 10 28 | 703 | 0.4− | 0.2− | 2007 04 18 | G96 | 0.1− | 0.2+ | | |
| 2005 10 01 | 704 | 0.2+ | 0.0 | 2005 10 28 | 704 | 0.1+ | 0.7+ | 2007 04 18 | G96 | 0.2− | 0.3+ | | |
| 2005 10 01 | G96 | 0.0 | 0.2− | 2005 10 28 | 703 | 0.3+ | 0.2− | 2007 04 18 | G96 | 0.2+ | 0.3+ | | |
| 2005 10 01 | G96 | 0.2+ | 0.3− | 2005 10 31 | 704 | 0.3− | 0.2+ | 2007 04 24 | G96 | 0.3+ | 0.2+ | | |
| 2005 10 01 | G96 | 0.4+ | 0.3− | 2005 10 31 | 704 | 0.3+ | 0.1− | 2007 04 24 | G96 | 0.2+ | 0.2− | | |
| 2005 10 01 | G96 | 0.0 | 0.1− | 2005 10 31 | 704 | 0.2+ | 0.3+ | 2007 04 24 | G96 | 0.2− | 0.2+ | | |
| 2005 10 01 | 699 | 0.3+ | 0.5+ | 2005 10 31 | 704 | 0.4+ | 0.3− | 2007 04 24 | G96 | 0.3+ | 0.2+ | | |
| 2005 10 01 | 699 | 0.3− | 0.3− | 2005 11 03 | 704 | 0.0 | 0.7+ | 2008 06 10 | 691 | 1.2− | 1.5+ | | |
| 2005 10 01 | 699 | 0.9− | 1.3+ | 2005 11 03 | 704 | 0.5− | 0.8+ | 2008 06 10 | 691 | 0.7− | 0.0 | | |
| 2005 10 01 | 699 | 0.9− | 1.3+ | 2005 11 03 | 704 | 0.3− | 0.7− | 2008 06 10 | 691 | 0.7− | 0.4− | | |
| 2005 10 05 | 704 | 0.2+ | 0.5+ | 2005 11 03 | 704 | 0.6+ | 1.4+ | 2009 12 17 | 704 | 0.4− | 0.2− | | |
| 2005 10 05 | 704 | 1.2+ | 0.7+ | 2005 11 03 | 704 | 0.2− | 0.4+ | 2009 12 17 | 704 | 0.1+ | 0.2− | | |
| 2005 10 05 | 704 | 0.3− | 0.1+ | 2005 11 05 | 699 | 0.2− | 0.4+ | 2009 12 17 | 704 | 0.1+ | 0.5+ | | |
| 2005 10 05 | 704 | 0.1+ | 0.2+ | 2005 11 05 | 704 | 1.1− | 0.2+ | 2009 12 17 | 704 | 0.4+ | 0.3+ | | |
| 2005 10 05 | 704 | 0.0 | 0.3+ | 2005 11 05 | 699 | 0.1+ | 0.5+ | 2009 12 18 | 691 | 0.4− | 0.1+ | | |
| 2005 10 06 | 703 | 0.7− | 0.2+ | 2005 11 05 | 704 | 0.4+ | 0.1− | 2009 12 18 | 691 | 0.2− | 0.1+ | | |
| 2005 10 06 | 703 | 0.3− | 0.6− | 2005 11 05 | 704 | 0.6+ | 0.4+ | 2009 12 18 | 691 | 0.2− | 0.2+ | | |
| 2005 10 06 | 703 | 0.1+ | 1.0− | 2005 11 05 | 699 | 0.0 | 0.0 | | | | | | |

**(228462)∗ 2001 RJ$_{28}$ = 2005 UG$_{139}$**

Discovered 2001 Sept. 7 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 88866)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 58.62498 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26895613 | $\omega$ | 234.34809 | | +0.82597434 | −0.56353242 | |
| $a$ | 2.3769228 | $\Omega$ | 159.94070 | | +0.52953520 | +0.76711137 | |
| $e$ | 0.1569388 | $i$ | 2.34884 | | +0.19328440 | +0.30654747 | |
| $P$ | 3.66 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 23 | 699 | (2.1− | 0.3−) | 2001 09 21 | 704 | 0.8+ | 0.3+ | 2005 11 10 | 703 | (1.6+ | 0.5+) | | |
| 2001 08 23 | 699 | 0.1+ | 0.5− | 2005 10 25 | 691 | 0.2+ | 0.3− | 2005 11 10 | 703 | 0.2− | 0.1+ | | |
| 2001 08 23 | 699 | 0.1− | 0.1+ | 2005 10 25 | 691 | 0.1+ | 0.1− | 2005 11 10 | 703 | 1.4− | 0.6+ | | |
| 2001 08 23 | 699 | (0.2− | 1.6+) | 2005 10 25 | 703 | 1.1+ | 0.2+ | 2005 11 10 | 703 | (1.6− | 0.7+) | | |
| 2001 09 07 | 704 | 0.8− | 0.5+ | 2005 10 25 | 703 | 0.7− | 0.5+ | 2005 11 25 | G96 | 0.4+ | 0.2− | | |
| 2001 09 07 | 704 | 0.3+ | 0.3+ | 2005 10 25 | 691 | 0.1+ | 0.0 | 2005 11 25 | G96 | 0.1− | 0.2− | | |
| 2001 09 07 | 704 | 1.0+ | 0.2− | 2005 10 25 | 703 | 0.8− | 0.2+ | 2005 11 25 | G96 | 0.0 | 0.2− | | |
| 2001 09 12 | 704 | 0.6+ | 1.0+ | 2005 10 25 | 703 | 1.0− | 0.8+ | 2005 11 25 | G96 | 0.2+ | 0.3− | | |
| 2001 09 12 | 704 | 0.4+ | 0.5+ | 2005 10 27 | 691 | 0.1+ | 0.2− | 2005 11 26 | 703 | 0.3− | 0.0 | | |
| 2001 09 12 | 704 | 0.1− | 1.1+ | 2005 10 27 | 691 | 0.2+ | 0.0 | 2005 11 26 | 703 | 0.6− | 0.1+ | | |
| 2001 09 12 | 704 | 0.2+ | 1.2+ | 2005 10 27 | 691 | 0.4+ | 0.1− | 2005 11 26 | 703 | 0.1− | 0.3− | | |
| 2001 09 18 | 291 | 0.2+ | 0.3+ | 2005 10 29 | 691 | 0.1+ | 0.2+ | 2005 11 26 | 703 | 0.1− | 0.9+ | | |
| 2001 09 18 | 291 | 0.0 | 0.2+ | 2005 10 29 | 691 | 0.1+ | 0.1+ | 2007 03 20 | 691 | 0.6+ | 0.5+ | | |
| 2001 09 18 | 291 | 0.1− | 0.0 | 2005 10 29 | 691 | 0.1− | 0.3+ | 2007 03 20 | 691 | 0.0 | 0.3+ | | |
| 2001 09 19 | 704 | 0.5− | 0.8+ | 2005 10 30 | G96 | 0.1+ | 0.3− | 2007 03 20 | 691 | 0.2+ | 0.0 | | |
| 2001 09 19 | 704 | 0.2+ | 0.5+ | 2005 10 30 | G96 | 0.1+ | 0.2− | 2007 03 26 | 691 | 0.1− | 0.5+ | | |
| 2001 09 19 | 291 | 0.3− | 0.1+ | 2005 10 30 | G96 | 0.4+ | 0.3− | 2007 03 26 | 691 | 0.0 | 1.2+ | | |
| 2001 09 19 | 704 | 0.3− | 0.6+ | 2005 10 30 | G96 | 0.3+ | 0.2− | 2007 03 26 | 691 | 0.2+ | 0.4− | | |
| 2001 09 19 | 291 | 0.0 | 0.1+ | 2005 10 31 | 691 | 0.0 | 0.1+ | 2009 11 17 | G96 | 0.4+ | 0.1+ | | |
| 2001 09 19 | 704 | 0.5− | 0.3− | 2005 10 31 | 691 | 0.2+ | 0.0 | 2009 11 17 | G96 | 0.3+ | 0.1− | | |
| 2001 09 19 | 704 | 0.4+ | 0.3− | 2005 10 31 | 691 | 0.2+ | 0.1− | 2009 11 17 | G96 | 0.0 | 0.4− | | |
| 2001 09 19 | 645 | 0.1− | 0.2− | 2005 11 06 | 691 | 0.3− | 0.2+ | 2009 11 17 | G96 | 0.1− | 0.3− | | |
| 2001 09 19 | 645 | 0.1− | 0.1− | 2005 11 06 | 691 | 0.1− | 0.2+ | 2009 12 17 | 691 | 0.1− | 0.0 | | |
| 2001 09 19 | 291 | 0.2+ | 0.4+ | 2005 11 06 | 691 | 0.3− | 0.3+ | 2009 12 17 | 691 | 0.2− | 0.1+ | | |
| 2001 09 21 | 704 | 0.7− | 0.7+ | 2005 11 06 | 704 | (3.1+ | 0.4−) | 2009 12 17 | 691 | 0.5+ | 0.6− | | |
| 2001 09 21 | 704 | 0.2+ | 0.5− | 2005 11 06 | 704 | (0.7− | 2.2+) | 2009 12 25 | 691 | 0.1− | 0.0 | | |
| 2001 09 21 | 704 | 0.4+ | 0.7− | 2005 11 06 | 704 | (0.2− | 2.8+) | 2009 12 25 | 691 | 0.6− | 0.0 | | |
| 2001 09 21 | 704 | 0.1− | 0.2+ | 2005 11 06 | 704 | 0.6− | 0.1+ | 2009 12 25 | 691 | 0.1+ | 0.3+ | | |

**(228463)∗ 2001 RR$_{46}$**

Discovered 2001 Sept. 11 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 85.48922 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.38684040 | $\omega$ | 343.82330 | | +0.98815824 | −0.04813750 | |
| $a$ | 1.8654409 | $\Omega$ | 20.67097 | | +0.13895088 | +0.68349649 | |
| $e$ | 0.0649565 | $i$ | 24.37602 | | −0.06508409 | +0.72836484 | |
| $P$ | 2.55 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 03 04 | 704 | 0.2+ | 0.3− | 2001 10 24 | 644 | 0.5− | 0.5+ | 2008 03 28 | G96 | 0.1− | 0.2+ | | |
| 2000 03 04 | 704 | 0.0 | 0.3− | 2001 11 18 | 645 | 0.0 | 0.1− | 2008 03 28 | G96 | 0.1− | 0.0 | | |
| 2000 03 04 | 704 | 0.4+ | 0.1− | 2001 11 18 | 645 | 0.0 | 0.1− | 2008 03 28 | G96 | 0.0 | 0.0 | | |
| 2000 03 04 | 704 | 0.5+ | 0.1− | 2004 12 18 | 704 | 0.5+ | 0.9+ | 2008 03 29 | G96 | 0.2− | 0.1+ | | |
| 2001 09 11 | 704 | 1.2− | 0.7− | 2004 12 18 | 704 | 0.3− | 0.2+ | 2008 03 29 | G96 | 0.3− | 0.2− | | |
| 2001 09 11 | 704 | 1.0+ | 0.4− | 2004 12 18 | 704 | 0.4+ | 0.0 | 2008 03 29 | 704 | 0.2− | 0.3+ | | |
| 2001 09 11 | 704 | 0.1− | 0.7+ | 2004 12 18 | 704 | 0.2− | 1.1+ | 2008 03 29 | G96 | 0.1− | 0.2+ | | |
| 2001 09 11 | 704 | 0.5− | 0.3+ | 2006 08 15 | E12 | 0.4+ | 0.6+ | 2008 03 29 | G96 | 0.1+ | 0.0 | | |
| 2001 09 16 | 704 | 0.1+ | 1.0− | 2006 08 15 | E12 | 0.2+ | 0.3− | 2008 03 29 | 704 | 0.0 | 0.9− | | |
| 2001 09 16 | 704 | 0.3− | 1.2− | 2006 08 15 | E12 | 0.3+ | 0.2+ | 2008 03 29 | 704 | 0.9+ | 0.7− | | |
| 2001 09 16 | 704 | 0.1− | 1.1− | 2006 08 15 | E12 | 0.1+ | 0.2+ | 2008 03 29 | 704 | 1.1+ | 0.8+ | | |
| 2001 09 16 | 704 | 0.2− | 0.8− | 2006 08 22 | E12 | 0.6− | 0.2− | 2008 04 06 | 704 | 0.4+ | 1.0+ | | |
| 2001 10 11 | 704 | 0.2− | 0.0 | 2006 08 22 | E12 | 0.0 | 0.2+ | 2008 04 06 | 704 | 0.9+ | 1.2+ | | |
| 2001 10 11 | 704 | 0.5+ | 1.0+ | 2006 08 22 | E12 | 0.8− | 0.2− | 2008 04 06 | 704 | 0.9+ | 0.4+ | | |
| 2001 10 11 | 704 | 0.2− | 1.4+ | 2006 08 22 | E12 | 0.0 | 0.1− | 2008 04 06 | 704 | 0.6+ | 0.8+ | | |
| 2001 10 16 | 644 | 0.5− | 0.9+ | 2006 08 31 | E12 | 0.5− | 0.6+ | 2008 04 06 | 704 | 0.6+ | 0.7+ | | |
| 2001 10 16 | 644 | 0.7− | 0.8+ | 2006 08 31 | E12 | 0.5+ | 0.5+ | 2008 04 09 | 691 | 0.0 | 0.3+ | | |
| 2001 10 16 | 644 | 0.5− | 0.8+ | 2006 08 31 | E12 | 0.7− | 0.4+ | 2008 04 09 | 691 | 0.1− | 0.2+ | | |
| 2001 10 20 | 704 | 0.3− | 1.2+ | 2006 08 31 | E12 | 0.2− | 0.4+ | 2008 04 09 | 691 | 0.2+ | 0.1+ | | |
| 2001 10 20 | 704 | 0.1+ | 0.6+ | 2006 09 22 | E12 | 0.1− | 0.8− | 2008 04 14 | 704 | 0.7+ | 0.3+ | | |
| 2001 10 20 | 704 | 0.0 | 1.2+ | 2006 09 22 | E12 | 0.2− | 0.0 | 2008 04 14 | 704 | 1.3+ | 1.1+ | | |
| 2001 10 20 | 704 | (0.1− | 1.6+) | 2006 09 22 | E12 | 0.8+ | 0.1+ | 2008 04 14 | 704 | 0.8+ | 0.5+ | | |
| 2001 10 20 | 704 | (0.7+ | 1.6+) | 2006 09 22 | E12 | 0.6− | 0.9+ | 2008 04 14 | 704 | 0.6+ | 0.1− | | |
| 2001 10 21 | 644 | 0.5− | 0.9+ | 2006 12 21 | G96 | 0.2+ | 0.7+ | 2008 04 14 | 704 | 0.7+ | 0.5+ | | |
| 2001 10 21 | 644 | 0.3− | 0.6+ | 2006 12 21 | G96 | 0.1+ | 0.2+ | 2009 11 25 | 703 | 0.8+ | 0.4+ | | |
| 2001 10 21 | 644 | 0.2− | 0.7+ | 2006 12 21 | G96 | 0.1+ | 0.1− | 2009 11 25 | 703 | 0.1+ | 0.2+ | | |
| 2001 10 23 | 699 | 0.8− | 1.0+ | 2006 12 21 | G96 | 0.3+ | 0.4− | 2009 11 25 | 703 | 0.6+ | 0.1− | | |
| 2001 10 23 | 699 | 0.4− | 0.5+ | 2008 03 11 | 703 | 0.0 | 0.7+ | 2009 11 25 | 703 | 1.5+ | 0.4+ | | |
| 2001 10 23 | 699 | 0.6− | 0.6+ | 2008 03 11 | 703 | 0.1+ | 0.6+ | 2009 12 13 | 703 | 1.2− | 1.0+ | | |
| 2001 10 23 | 699 | 0.0 | 1.1+ | 2008 03 11 | 703 | 1.3+ | 0.7+ | 2009 12 13 | 703 | 0.4+ | 0.1+ | | |
| 2001 10 24 | 644 | 0.5− | 0.4+ | 2008 03 11 | 703 | 0.3− | 0.3+ | 2009 12 13 | 703 | 0.6− | 0.4+ | | |
| 2001 10 24 | 644 | 0.5− | 0.5+ | 2008 03 28 | G96 | 0.1+ | 0.1+ | 2009 12 13 | 703 | 0.6− | 0.4+ | | |

**(228464)∗ 2001 RY$_{52}$ = 2005 UF$_{18}$**

Discovered 2001 Sept. 12 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. A. Doppler (*MPO* 94028)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 58.88101 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26003280 | $\omega$ | 316.34848 | | +0.99923960 | −0.02857412 | |
| $a$ | 2.4309944 | $\Omega$ | 45.30945 | | +0.03710094 | +0.90603300 | |
| $e$ | 0.1946417 | $i$ | 2.13851 | | −0.01198910 | +0.42224130 | |
| $P$ | 3.79 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 21 | 807 | 0.0 | 0.2− | 2005 10 05 | 704 | 0.1+ | 0.1+ | 2005 11 25 | G96 | 0.2+ | 0.5− | | |
| 2001 08 21 | 807 | 0.0 | 0.3− | 2005 10 05 | 704 | 0.4− | 0.5+ | 2005 12 28 | G96 | 0.1+ | 0.0 | | |
| 2001 08 25 | 644 | 0.2+ | 0.1+ | 2005 10 05 | 704 | 1.2− | 0.7− | 2005 12 28 | G96 | 0.8+ | 0.4− | | |
| 2001 08 25 | 644 | 0.1− | 0.1+ | 2005 10 22 | 703 | (1.8+ | 0.1+) | 2005 12 28 | G96 | 0.4− | 0.4+ | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 25 | 644 | 0.2+ | 0.3+ | 2005 10 22 | 703 | 0.5− | 0.3− | 2005 12 28 | G96 | 0.3+ | 0.5− |
| 2001 09 06 | 644 | 0.4− | 0.7+ | 2005 10 22 | 703 | (0.7− | 2.5−) | 2007 03 12 | G96 | 0.6− | 0.6+ |
| 2001 09 06 | 644 | 0.5− | 0.1+ | 2005 10 22 | 703 | 0.7− | 0.6− | 2007 03 12 | G96 | 0.1+ | 0.3+ |
| 2001 09 06 | 644 | 0.3− | 0.2+ | 2005 10 24 | 699 | 0.8− | 0.4+ | 2007 03 12 | G96 | 0.5− | 0.5+ |
| 2001 09 12 | 704 | 0.0 | 0.3+ | 2005 10 24 | 699 | 1.0− | 0.2+ | 2007 03 12 | G96 | 1.2+ | 0.4− |
| 2001 09 12 | 704 | 0.1+ | 0.8− | 2005 10 24 | 699 | 0.1+ | 0.0 | 2009 11 08 | G96 | 0.5+ | 0.1+ |
| 2001 09 12 | 704 | 0.0 | 0.4− | 2005 10 24 | 699 | 0.7+ | 0.2− | 2009 11 08 | G96 | 0.4+ | 0.0 |
| 2001 09 12 | 704 | 0.7− | 0.5+ | 2005 10 25 | G96 | 0.4+ | 0.3− | 2009 11 08 | G96 | 0.5+ | 0.1− |
| 2001 09 16 | 704 | 0.4− | 0.2− | 2005 10 25 | G96 | 0.3+ | 0.2− | 2009 11 08 | G96 | 0.5+ | 0.3+ |
| 2001 09 16 | 704 | 0.3− | 0.5− | 2005 10 25 | G96 | 0.3+ | 0.5− | 2009 11 25 | 291 | 0.4− | 0.2+ |
| 2001 09 16 | 704 | 0.2− | 0.1+ | 2005 10 25 | G96 | 0.8+ | 0.3− | 2009 11 25 | 291 | 0.6− | 0.2+ |
| 2001 09 16 | 704 | 0.4− | 0.4− | 2005 10 27 | G96 | 0.2+ | 0.3− | 2009 11 25 | 291 | 0.5− | 0.2+ |
| 2001 09 16 | 704 | 0.2+ | 0.6+ | 2005 10 27 | G96 | 0.5+ | 0.2− | 2009 11 25 | 291 | 0.0 | 0.0 |
| 2001 09 19 | 704 | 0.2− | 0.3+ | 2005 10 27 | G96 | 0.3+ | 0.1− | 2009 11 25 | 291 | 0.0 | 0.1+ |
| 2001 09 19 | 704 | 0.1+ | 0.2− | 2005 10 27 | G96 | 0.3+ | 0.1− | 2009 11 25 | 291 | 0.0 | 0.0 |
| 2001 09 19 | 704 | 0.4+ | 0.2+ | 2005 10 29 | G96 | 0.2+ | 0.4− | 2009 11 25 | 291 | 0.0 | 0.0 |
| 2001 09 19 | 704 | 0.2− | 0.4+ | 2005 10 29 | G96 | 0.0 | 0.3− | 2009 11 25 | 291 | 0.0 | 0.1+ |
| 2001 09 19 | 704 | 0.4+ | 0.1+ | 2005 11 01 | 704 | 0.3+ | 0.3+ | 2009 11 25 | 291 | 0.2+ | 0.2+ |
| 2001 09 21 | 704 | 0.1− | 0.7+ | 2005 11 01 | 704 | 0.2− | 0.2+ | 2009 11 25 | 691 | 0.3− | 0.0 |
| 2001 09 21 | 704 | 0.5+ | 0.6− | 2005 11 01 | 704 | 0.6− | 0.3+ | 2009 11 25 | 691 | 0.2+ | 0.1+ |
| 2001 09 21 | 704 | 1.1− | 1.3+ | 2005 11 05 | 699 | (1.1+ | 2.4−) | 2009 11 25 | 691 | 0.3+ | 0.0 |
| 2001 09 21 | 704 | 0.4+ | 0.0 | 2005 11 05 | 699 | 0.2+ | 0.6− | 2009 12 15 | G96 | 0.1+ | 0.1+ |
| 2001 09 21 | 704 | 1.0+ | 1.2+ | 2005 11 05 | 699 | 0.7+ | 0.1− | 2009 12 15 | G96 | 1.0+ | 0.1− |
| 2005 10 01 | G96 | 0.2+ | 0.3− | 2005 11 05 | 699 | (1.9+ | 1.6−) | 2009 12 15 | G96 | 0.8+ | 0.1+ |
| 2005 10 01 | G96 | 0.2+ | 0.2− | 2005 11 25 | G96 | 0.2+ | 0.3− | 2009 12 15 | G96 | 0.2+ | 0.1+ |
| 2005 10 01 | G96 | 0.2+ | 0.4− | 2005 11 25 | G96 | 0.0 | 0.3− | | | | |
| 2005 10 01 | G96 | 0.2+ | 0.2− | 2005 11 25 | G96 | 0.3+ | 0.3− | | | | |

**(228465)∗ 2001 RV$_{55}$**

Discovered 2001 Sept. 12 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 91.97498 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26913602 | $\omega$ | 246.48718 | | +0.99673086 | +0.03893072 | |
| $a$ | 2.3758636 | $\Omega$ | 111.22011 | | −0.00988223 | +0.92841703 | |
| $e$ | 0.1451247 | $i$ | 4.35551 | | −0.08018689 | +0.36949454 | |
| $P$ | 3.66 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 07 29 | 644 | 0.5− | 0.3+ | 2005 10 30 | 691 | 0.1+ | 0.1+ | 2005 12 05 | 704 | 0.4− | 0.8− |
| 2001 07 29 | 644 | 0.6− | 0.4− | 2005 10 30 | 691 | 0.1+ | 0.0 | 2005 12 05 | 704 | 0.2− | 0.1− |
| 2001 07 29 | 644 | 0.4+ | 0.7− | 2005 11 03 | G96 | 0.0 | 0.0 | 2005 12 05 | 704 | 0.5− | 0.8+ |
| 2001 08 25 | 704 | 1.1− | 1.0− | 2005 11 03 | G96 | 0.2+ | 0.0 | 2005 12 05 | 704 | 1.0+ | 0.0 |
| 2001 08 25 | 704 | 0.6− | 1.3+ | 2005 11 03 | G96 | 0.0 | 0.1+ | 2005 12 07 | 704 | 0.1+ | 0.1+ |
| 2001 08 25 | 704 | 0.9+ | 1.1+ | 2005 11 03 | G96 | 0.2+ | 0.1+ | 2005 12 07 | 704 | 1.1+ | 0.1− |
| 2001 08 28 | 644 | 0.1+ | 0.3+ | 2005 11 06 | 704 | 0.2+ | 0.0 | 2005 12 07 | 704 | 0.4+ | 0.3− |
| 2001 08 28 | 644 | 0.2− | 0.3+ | 2005 11 06 | 704 | 0.5+ | 0.0 | 2005 12 07 | 704 | 0.4+ | 0.3+ |
| 2001 08 28 | 644 | 0.0 | 0.4+ | 2005 11 06 | 704 | 0.3+ | 0.1+ | 2005 12 07 | 704 | 0.1− | 0.0 |
| 2001 09 12 | 704 | 0.6+ | 0.2− | 2005 11 06 | 704 | 0.3+ | 0.4− | 2006 01 24 | G96 | 0.2+ | 0.5− |
| 2001 09 12 | 704 | 0.1+ | 0.7+ | 2005 11 06 | 704 | 0.6+ | 0.8+ | 2006 01 24 | G96 | 0.4− | 0.1+ |
| 2001 09 12 | 704 | 0.5− | 0.3+ | 2005 11 10 | 703 | 0.4− | 1.0+ | 2006 01 24 | G96 | 0.1− | 0.4− |
| 2001 09 12 | 704 | 0.3+ | 0.2− | 2005 11 10 | 703 | 0.8− | 0.6+ | 2006 01 24 | G96 | 0.4+ | 0.0 |
| 2001 09 12 | 704 | 0.6− | 0.4+ | 2005 11 10 | 703 | 0.0 | 0.4+ | 2006 03 03 | G96 | 0.5+ | 0.2+ |
| 2001 09 16 | 704 | 0.2+ | 0.0 | 2005 11 10 | 703 | 1.2+ | 0.7− | 2006 03 03 | G96 | 0.2− | 0.6+ |
| 2001 09 16 | 704 | 0.3+ | 0.4+ | 2005 11 21 | 699 | 0.1+ | 1.4+ | 2006 03 03 | G96 | 0.2+ | 0.0 |
| 2001 09 16 | 704 | 0.2+ | 0.8+ | 2005 11 21 | 699 | 0.2+ | 0.0 | 2006 03 03 | G96 | 0.8+ | 0.6+ |
| 2001 09 16 | 704 | 0.2− | 0.4+ | 2005 11 21 | 699 | 1.4− | 1.5− | 2007 03 12 | 691 | 0.1+ | 0.2+ |
| 2001 09 19 | 704 | 1.3− | 0.0 | 2005 11 21 | 699 | 0.5+ | 0.4+ | 2007 03 12 | 691 | 0.3+ | 0.3+ |
| 2001 09 19 | 704 | 0.1− | 1.2+ | 2005 11 29 | 699 | 0.3− | 1.1+ | 2007 03 12 | 691 | 0.2+ | 0.3− |
| 2001 09 19 | 704 | 0.6− | 0.3+ | 2005 11 29 | 699 | 0.9+ | 0.9− | 2007 03 12 | G96 | 0.3− | 0.1+ |
| 2001 09 19 | 704 | 0.1+ | 0.4− | 2005 11 29 | 699 | 0.1− | 0.1− | 2007 03 12 | G96 | 0.6− | 0.4+ |
| 2001 09 19 | 704 | 0.2+ | 0.2− | 2005 11 29 | 699 | 0.4+ | 1.3+ | 2007 03 12 | G96 | (2.5+ | 1.7−) |
| 2001 09 21 | 704 | 0.6+ | 0.5+ | 2005 11 30 | 704 | 0.1− | 0.1+ | 2007 03 12 | G96 | 0.0 | 0.0 |
| 2001 09 21 | 704 | 0.6− | 0.6− | 2005 11 30 | 704 | 0.7− | 0.5+ | 2007 03 16 | 691 | 0.0 | 0.5+ |
| 2001 09 21 | 704 | 0.6− | 0.0 | 2005 11 30 | 644 | 0.1− | 0.3− | 2007 03 16 | 691 | 0.1− | 0.1+ |
| 2001 09 21 | 704 | 0.7− | 0.6− | 2005 11 30 | 704 | 1.0+ | 0.2− | 2007 03 16 | 691 | 0.1+ | 0.2+ |
| 2001 09 21 | 704 | 0.3− | 0.0 | 2005 11 30 | 644 | 0.2+ | 0.0 | 2007 03 20 | 691 | 0.2+ | 0.0 |
| 2001 10 10 | 644 | 0.7− | 0.6+ | 2005 11 30 | 704 | 0.1+ | 0.6+ | 2007 03 20 | 691 | 0.1+ | 0.3+ |
| 2001 10 10 | 644 | 0.6− | 0.7+ | 2005 11 30 | 704 | 0.7− | 0.5+ | 2007 03 20 | 691 | 0.0 | 0.3+ |
| 2001 10 10 | 644 | 0.5− | 0.4+ | 2005 11 30 | 644 | 0.0 | 0.2+ | 2009 12 10 | G96 | 0.7+ | 0.1− |
| 2004 04 30 | 691 | 0.3+ | 0.4+ | 2005 12 02 | 704 | 0.1− | 0.3+ | 2009 12 10 | G96 | 0.1+ | 0.1− |
| 2004 04 30 | 691 | 0.1+ | 0.5+ | 2005 12 02 | 704 | 0.3− | 0.8− | 2009 12 10 | G96 | 0.1+ | 0.1+ |
| 2004 04 30 | 691 | 0.2− | 0.1+ | 2005 12 02 | 704 | 0.2− | 0.1+ | 2009 12 10 | G96 | 0.2+ | 0.1+ |
| 2004 05 20 | 691 | 0.3+ | 0.4+ | 2005 12 02 | 704 | 0.0 | 0.4+ | 2009 12 17 | 691 | 0.1− | 0.3+ |
| 2004 05 20 | 691 | 0.2+ | 0.3+ | 2005 12 03 | 704 | 0.3+ | 0.3− | 2009 12 17 | 691 | 0.3− | 0.1+ |
| 2004 05 20 | 691 | 0.1+ | 0.3+ | 2005 12 03 | 704 | 0.3+ | 0.3+ | 2009 12 17 | 691 | 0.1− | 0.2+ |
| 2005 10 26 | 699 | 0.0 | 0.4+ | 2005 12 03 | 704 | 0.0 | 0.2+ | 2009 12 25 | 691 | 0.3− | 0.2+ |
| 2005 10 26 | 699 | (1.5− | 0.8+) | 2005 12 04 | 704 | 0.5+ | 0.3+ | 2009 12 25 | 691 | 0.2− | 0.0 |
| 2005 10 26 | 699 | 0.2− | 0.3− | 2005 12 04 | 704 | 0.6− | 0.3+ | 2009 12 25 | 691 | 0.4− | 0.1+ |
| 2005 10 26 | 699 | 0.1+ | 0.2− | 2005 12 04 | 704 | 0.8− | 0.1+ | | | | |
| 2005 10 30 | 691 | 0.2+ | 0.0 | 2005 12 04 | 704 | 0.6− | 0.5+ | | | | |

**(228466)∗ 2001 RF$_{83}$**

Discovered 2001 Sept. 11 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 29.86487 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26073806 | $\omega$ | 94.30405 | | +0.63125638 | −0.77216707 | |
| $a$ | 2.4266087 | $\Omega$ | 316.27073 | | +0.66338471 | +0.58607731 | |
| $e$ | 0.1850178 | $i$ | 6.03023 | | +0.40179113 | +0.24550236 | |
| $P$ | 3.78 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 02 12 | 691 | 0.1− | 0.0 | 2005 09 29 | 703 | 0.9+ | 0.3− | 2005 11 25 | 703 | 0.2− | 0.3− |
| 1999 02 12 | 691 | 0.1+ | 0.1− | 2005 09 29 | 703 | 0.7+ | 0.3− | 2005 11 25 | 703 | 0.7− | 0.6− |
| 1999 02 12 | 691 | 0.1− | 0.1− | 2005 10 08 | 704 | 0.2− | 0.9+ | 2005 11 25 | 703 | 0.7− | 0.2− |
| 2001 08 20 | 807 | 0.2− | 0.3− | 2005 10 08 | 704 | 0.3+ | 0.2+ | 2005 11 25 | 703 | 1.1− | 0.2+ |
| 2001 08 20 | 807 | 0.2− | 0.3− | 2005 10 08 | 704 | 0.0 | 0.5− | 2005 11 29 | 704 | 0.7+ | 0.5+ |
| 2001 09 08 | 704 | 0.8+ | 0.8+ | 2005 10 08 | 704 | 0.6+ | 0.1− | 2005 11 29 | 704 | 0.4+ | 0.3− |
| 2001 09 08 | 704 | 0.2+ | 1.0− | 2005 10 08 | 704 | 1.3− | 0.6− | 2005 11 29 | 704 | 0.0 | 0.1− |
| 2001 09 08 | 704 | 0.7+ | 1.0− | 2005 10 10 | 699 | 0.1− | 1.0+ | 2005 11 29 | 704 | 0.4+ | 0.1+ |
| 2001 09 08 | 704 | 0.5+ | 0.3− | 2005 10 10 | 699 | 0.0 | 0.3− | 2005 11 29 | 704 | 0.3+ | 0.2− |
| 2001 09 11 | 699 | 0.7− | 0.5− | 2005 10 10 | 699 | 1.2+ | 0.7− | 2005 12 07 | 699 | 0.9− | 0.7− |
| 2001 09 11 | 699 | 0.7− | 1.1+ | 2005 10 10 | 703 | 0.1+ | 1.1+ | 2005 12 07 | 699 | 0.1− | 0.7+ |
| 2001 09 11 | 699 | 0.5+ | 0.1− | 2005 10 10 | 703 | (2.7+ | 1.5+) | 2005 12 07 | 699 | 1.1− | 0.6− |
| 2001 09 11 | 699 | 0.1− | 0.7− | 2005 10 10 | 703 | 0.4− | 0.4− | 2005 12 07 | 699 | 0.5− | 0.8+ |
| 2001 09 16 | 704 | 0.6− | 0.9+ | 2005 10 10 | 699 | 1.0+ | 0.4+ | 2005 12 29 | 703 | 0.3− | 0.6+ |
| 2001 09 16 | 704 | 0.8− | 0.1− | 2005 10 10 | 703 | 0.6− | 0.5− | 2005 12 29 | 703 | (1.6+ | 0.8+) |
| 2001 09 16 | 704 | 0.4− | 0.9+ | 2005 10 14 | 704 | (2.2+ | 0.7+) | 2005 12 29 | 703 | 0.0 | 0.3− |
| 2001 09 16 | 704 | 0.2− | 0.1+ | 2005 10 14 | 704 | (1.6+ | 0.5−) | 2005 12 29 | 703 | 0.0 | 0.2+ |
| 2001 09 16 | 704 | 0.8− | 0.2+ | 2005 10 14 | 704 | (1.8+ | 0.1+) | 2006 01 05 | 704 | 1.0+ | 0.7− |
| 2001 09 18 | 699 | 0.7+ | 0.8− | 2005 10 14 | 704 | 0.1− | 0.0 | 2006 01 05 | 704 | 0.0 | 0.7− |
| 2001 09 18 | 699 | 0.0 | 0.4− | 2005 10 23 | 703 | 0.5− | 0.0 | 2006 01 05 | 704 | 0.5+ | 0.5− |
| 2001 09 18 | 699 | 0.5− | 0.4+ | 2005 10 23 | 703 | 0.3− | 0.2+ | 2009 11 16 | 704 | 0.0 | 0.3+ |
| 2001 09 18 | 699 | 0.5+ | 0.6− | 2005 10 23 | 703 | 0.3− | 0.0 | 2009 11 16 | 704 | 0.1+ | 0.4− |
| 2001 09 24 | 704 | 0.0 | 0.2− | 2005 10 23 | 703 | 0.5+ | 0.5− | 2009 11 16 | 704 | 0.5+ | 0.1− |
| 2001 09 24 | 704 | 0.4+ | 0.1− | 2005 10 23 | 703 | 0.2− | 0.2− | 2009 11 16 | 704 | 0.3− | 0.1− |
| 2001 09 24 | 704 | 0.2+ | 0.1+ | 2005 10 23 | 703 | 0.2− | 0.1+ | 2009 11 23 | 704 | 0.3+ | 0.7+ |
| 2001 09 24 | 704 | 0.3+ | 0.5− | 2005 10 23 | 703 | 0.7− | 0.2+ | 2009 11 23 | 704 | 0.1− | 0.2+ |
| 2001 09 24 | 704 | 0.9+ | 0.2− | 2005 10 23 | 703 | 0.3− | 0.5− | 2009 11 23 | 704 | 0.4+ | 0.5+ |
| 2001 10 14 | 704 | 1.0+ | 0.7+ | 2005 10 29 | 703 | 0.6− | 0.2+ | 2009 11 23 | 704 | 0.4+ | 0.5− |
| 2001 10 14 | 704 | 0.2+ | 0.3− | 2005 10 29 | 703 | 1.2+ | 0.3− | 2009 11 27 | G96 | 0.1− | 0.3− |
| 2001 10 14 | 704 | 0.7− | 0.2+ | 2005 10 29 | 703 | 0.6+ | 0.5− | 2009 11 27 | G96 | 0.2− | 0.2− |
| 2001 10 15 | 608 | 0.4− | 1.4+ | 2005 11 03 | 704 | 0.2+ | 0.3+ | 2009 11 27 | G96 | 0.2+ | 0.2− |
| 2001 10 15 | 608 | 0.5− | 0.4+ | 2005 11 03 | 704 | 0.5+ | 0.0 | 2009 11 27 | G96 | 0.2− | 0.3− |
| 2001 10 15 | 608 | 0.1− | 0.3+ | 2005 11 03 | 704 | 0.1− | 0.4+ | 2009 11 27 | G96 | 0.3− | 0.1− |
| 2005 09 13 | 704 | 1.2− | 1.0+ | 2005 11 03 | 704 | 0.4+ | 0.1+ | 2009 12 15 | 704 | 0.3− | 0.6+ |
| 2005 09 13 | 704 | 0.0 | 0.1+ | 2005 11 03 | 704 | 0.3+ | 0.4+ | 2009 12 15 | 704 | 0.2− | 0.2+ |
| 2005 09 13 | 704 | 0.1− | 0.2+ | 2005 11 08 | 704 | 0.3+ | 0.8+ | 2009 12 15 | 704 | 0.2− | 0.2+ |
| 2005 09 29 | 703 | 0.3+ | 0.5− | 2005 11 08 | 704 | 0.0 | 1.3− | 2009 12 15 | 704 | 0.0 | 0.2+ |
| 2005 09 29 | 703 | 0.5+ | 0.1+ | 2005 11 08 | 704 | 0.4+ | 0.6+ | 2009 12 15 | 704 | 0.1+ | 0.2+ |

**(228467)∗ 2001 RT$_{90}$**

Discovered 2001 Sept. 11 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 91.87241 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26535975 | $\omega$ | 278.26623 | | +0.96773308 | +0.24630170 | |
| $a$ | 2.3983506 | $\Omega$ | 67.48801 | | −0.20253786 | +0.88589272 | |
| $e$ | 0.2006454 | $i$ | 3.30017 | | −0.14990365 | +0.39310248 | |
| $P$ | 3.71 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 25 | 704 | 0.4− | 1.0− | 2001 10 23 | 699 | 0.2− | 0.4− | 2005 11 25 | G96 | 0.4+ | 0.2− |
| 2001 08 25 | 704 | 0.1+ | 1.0− | 2001 11 20 | 704 | (0.4+ | 1.7−) | 2005 11 25 | G96 | 0.2+ | 0.3− |
| 2001 08 25 | 704 | 0.4− | 0.0 | 2001 11 20 | 704 | 0.1+ | 0.2+ | 2005 11 25 | G96 | 0.1+ | 0.3− |
| 2001 08 25 | 704 | 0.8− | 0.1+ | 2001 11 20 | 704 | 0.4+ | 0.7+ | 2005 11 28 | 703 | 0.2+ | 0.4− |
| 2001 09 11 | 699 | 0.0 | 0.6+ | 2001 11 20 | 704 | 0.3− | 0.3+ | 2005 11 28 | 703 | (1.7+ | 0.4+) |
| 2001 09 11 | 699 | 0.4+ | 0.4− | 2004 05 16 | 704 | 0.8+ | 1.0+ | 2005 11 28 | 703 | 0.1+ | 0.8+ |
| 2001 09 11 | 699 | 1.1+ | 0.1+ | 2004 05 16 | 704 | 1.1+ | 1.2+ | 2005 11 28 | 703 | 0.5− | 0.0 |
| 2001 09 11 | 699 | 0.9+ | 0.4− | 2004 05 16 | 704 | 0.5− | 1.1+ | 2005 11 29 | 699 | 0.2− | 0.0 |
| 2001 09 12 | 704 | (6.5− | 1.3−) | 2004 05 19 | 691 | 0.4+ | 0.6+ | 2005 11 29 | 699 | 0.3+ | 0.6+ |
| 2001 09 12 | 704 | (6.6− | 1.1−) | 2004 05 19 | 691 | 0.1+ | 0.2+ | 2005 11 29 | 699 | 0.2+ | 0.1− |
| 2001 09 12 | 704 | (6.1− | 1.2−) | 2004 05 19 | 691 | 0.2+ | 0.3+ | 2005 11 29 | 699 | 0.4− | 0.6− |
| 2001 09 18 | 699 | 0.5− | 0.1+ | 2004 05 19 | 599 | 0.3+ | 0.6+ | 2005 12 01 | 704 | 0.2− | 0.0 |
| 2001 09 18 | 699 | 0.2− | 0.1+ | 2004 05 19 | 599 | 0.0 | 0.4+ | 2005 12 01 | 704 | 0.1− | 0.6+ |
| 2001 09 18 | 699 | 0.2− | 0.3+ | 2004 05 19 | 599 | 0.5+ | 0.7+ | 2005 12 01 | 704 | 0.1+ | 1.0+ |
| 2001 09 18 | 699 | 0.6− | 0.0 | 2004 05 28 | 691 | 0.2+ | 0.6+ | 2005 12 01 | 704 | 0.1+ | 0.5+ |
| 2001 09 19 | 704 | 0.2− | 0.4+ | 2004 05 28 | 691 | 0.2+ | 0.5+ | 2005 12 01 | 704 | 0.1− | 0.4+ |
| 2001 09 19 | 704 | 0.1+ | 0.7+ | 2004 05 28 | 691 | 0.1− | 0.3+ | 2005 12 02 | G96 | 0.2− | 0.2− |
| 2001 09 19 | 704 | 0.1+ | 0.6+ | 2005 10 23 | 703 | 1.0− | 0.1− | 2005 12 02 | G96 | 0.4+ | 0.2− |
| 2001 09 19 | 704 | 0.3− | 1.2+ | 2005 10 23 | 703 | 0.3+ | 1.3+ | 2005 12 02 | G96 | 0.1+ | 0.3− |
| 2001 09 19 | 704 | 0.2+ | 0.7+ | 2005 10 23 | 703 | 0.8+ | 0.6− | 2005 12 02 | G96 | 0.3+ | 0.3− |
| 2001 09 21 | 704 | 0.1+ | 0.4+ | 2005 10 23 | 703 | 0.9− | 0.4+ | 2005 12 04 | 704 | 0.6+ | 0.3+ |
| 2001 09 21 | 704 | 0.1+ | 0.5+ | 2005 10 23 | 703 | (0.6+ | 1.8+) | 2005 12 04 | 704 | 0.4+ | 0.6+ |
| 2001 09 21 | 704 | 0.2+ | 0.4+ | 2005 10 23 | 703 | (0.7− | 2.1−) | 2005 12 04 | 704 | 0.4− | 0.1− |
| 2001 09 21 | 704 | 0.2+ | 0.1+ | 2005 10 23 | 703 | 0.3+ | 0.9+ | 2005 12 04 | 704 | 0.3− | 0.3+ |
| 2001 09 21 | 704 | 0.2+ | 0.9+ | 2005 10 23 | 703 | 1.0− | 0.3− | 2005 12 04 | 704 | 0.1− | 0.6+ |
| 2001 09 27 | 644 | 0.2+ | 0.3+ | 2005 10 25 | 699 | 0.1+ | 0.8+ | 2005 12 06 | 704 | 0.1− | 1.2− |
| 2001 09 27 | 644 | 0.2+ | 0.1+ | 2005 10 25 | 699 | 1.4− | 1.3− | 2005 12 06 | 704 | (0.6− | 1.7−) |
| 2001 09 27 | 644 | 0.1+ | 0.2+ | 2005 10 25 | 699 | 0.5+ | 0.6+ | 2005 12 06 | 704 | 1.0− | 0.0 |
| 2001 10 10 | 644 | 0.2+ | 0.1− | 2005 10 25 | 699 | 0.2− | 1.2+ | 2005 12 06 | 704 | (0.1− | 1.8−) |
| 2001 10 10 | 644 | 0.0 | 0.1− | 2005 10 25 | G96 | 0.2− | 0.4− | 2009 10 15 | G96 | 0.3+ | 0.3− |
| 2001 10 10 | 644 | 0.2− | 0.3− | 2005 10 25 | G96 | 0.1− | 0.3− | 2009 10 15 | G96 | 0.4+ | 0.5+ |
| 2001 10 11 | 704 | 0.8+ | 0.1− | 2005 10 25 | G96 | 0.1− | 0.4− | 2009 10 15 | G96 | 0.8+ | 0.4− |
| 2001 10 11 | 704 | 1.3− | 0.2− | 2005 10 25 | G96 | 0.1+ | 0.2− | 2009 10 15 | G96 | 0.0 | 0.4− |
| 2001 10 11 | 704 | 0.4− | 0.5+ | 2005 10 30 | 644 | 0.1+ | 0.2+ | 2009 11 17 | G96 | 0.1+ | 0.2− |
| 2001 10 11 | 704 | 0.2+ | 0.1+ | 2005 10 30 | 644 | 0.6+ | 0.1+ | 2009 11 17 | G96 | 0.3+ | 0.2− |
| 2001 10 11 | 704 | 0.6− | 0.4+ | 2005 10 30 | 644 | 0.1− | 0.2− | 2009 11 17 | G96 | 0.0 | 0.1− |
| 2001 10 13 | 704 | 0.8− | 0.1− | 2005 11 01 | 691 | 0.1+ | 0.2+ | 2009 11 17 | G96 | 0.2+ | 0.0 |
| 2001 10 13 | 704 | 1.2− | 0.2− | 2005 11 01 | 691 | 0.2+ | 0.1+ | 2009 12 17 | 691 | 0.1− | 0.2+ |
| 2001 10 13 | 704 | (1.0− | 2.2+) | 2005 11 01 | 691 | 0.1+ | 0.1− | 2009 12 17 | 691 | 0.1+ | 0.1− |
| 2001 10 13 | 704 | (1.6− | 0.4+) | 2005 11 12 | 691 | 0.5− | 0.4+ | 2009 12 17 | 691 | 0.0 | 0.0 |
| 2001 10 17 | 644 | 0.2+ | 0.6− | 2005 11 12 | 691 | 0.2+ | 0.3+ | 2009 12 26 | 691 | 0.2− | 0.4+ |
| 2001 10 17 | 644 | 0.2+ | 0.5− | 2005 11 12 | 691 | 0.3+ | 0.1+ | 2009 12 26 | 691 | 0.4− | 0.2+ |
| 2001 10 17 | 644 | 0.2+ | 0.4− | 2005 11 22 | 691 | 0.3+ | 0.1+ | 2009 12 26 | 691 | 0.0 | 0.4+ |
| 2001 10 23 | 699 | 0.3− | 0.1− | 2005 11 22 | 691 | 0.2+ | 0.0 | 2009 12 26 | 691 | 0.4− | 0.4+ |
| 2001 10 23 | 699 | 1.0− | 0.4+ | 2005 11 22 | 691 | 0.2+ | 0.0 | 2009 12 26 | 691 | 0.0 | 0.3+ |
| 2001 10 23 | 699 | 1.4− | 0.2+ | 2005 11 25 | G96 | 0.0 | 0.3− | 2009 12 26 | 691 | 0.1− | 0.1+ |

**(228468)∗ 2001 RB$_{113}$**

Discovered 2001 Sept. 12 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 17.10207 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.25993421 | $\omega$ | 72.21853 | | +0.49439824 | −0.86920744 | |
| $a$ | 2.4316091 | $\Omega$ | 348.14394 | | +0.78407494 | +0.44941616 | |
| $e$ | 0.1735866 | $i$ | 1.94862 | | +0.37522909 | +0.20616387 | |
| $P$ | 3.79 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 27 | 691 | 0.3+ | 0.0 | 2005 10 03 | G96 | 0.2− | 0.1− | 2005 11 04 | 703 | 0.1+ | 0.2− |
| 2001 08 27 | 691 | 0.1− | 0.3+ | 2005 10 03 | G96 | 0.2− | 0.2− | 2005 11 04 | 703 | 0.2− | 0.2− |
| 2001 08 27 | 691 | 0.0 | 0.1+ | 2005 10 03 | G96 | 0.2− | 0.1− | 2005 11 04 | 703 | 0.0 | 0.1+ |
| 2001 09 12 | 704 | 0.3− | 0.2+ | 2005 10 03 | G96 | 0.2− | 0.2− | 2005 11 04 | 703 | 0.2− | 0.9− |
| 2001 09 12 | 704 | 0.3− | 0.3+ | 2005 10 09 | 691 | 0.2− | 0.1+ | 2005 12 22 | 291 | 0.0 | 0.3− |
| 2001 09 12 | 704 | 0.6− | 0.6+ | 2005 10 09 | 691 | 0.0 | 0.1− | 2005 12 22 | 291 | 0.2− | 0.2+ |
| 2001 09 12 | 704 | 0.1− | 0.5+ | 2005 10 09 | 691 | 0.4− | 0.5+ | 2005 12 22 | 291 | 0.6+ | 0.2+ |
| 2001 09 19 | 704 | 0.2− | 0.2+ | 2005 10 13 | 691 | 0.1+ | 0.1+ | 2009 11 21 | 691 | 0.1+ | 0.2− |
| 2001 09 19 | 691 | 0.2− | 0.5+ | 2005 10 13 | 691 | 0.2− | 0.3+ | 2009 11 21 | 691 | 0.3+ | 0.1− |
| 2001 09 19 | 704 | 0.2+ | 1.1+ | 2005 10 13 | 691 | 0.1+ | 0.1+ | 2009 11 21 | 691 | 0.2+ | 0.0 |
| 2001 09 19 | 704 | 0.4+ | 0.5+ | 2005 10 22 | 703 | 0.4− | 1.3+ | 2009 11 25 | 691 | 1.4− | 0.1+ |
| 2001 09 19 | 691 | 0.2− | 0.3+ | 2005 10 22 | 703 | 0.4+ | 0.0 | 2009 11 25 | 691 | 0.1+ | 0.2− |
| 2001 09 19 | 704 | 0.3− | 1.0+ | 2005 10 22 | 703 | 0.3− | 0.5+ | 2009 11 25 | 691 | 0.1− | 0.1− |
| 2001 09 19 | 691 | 0.6− | 0.5+ | 2005 10 22 | 703 | 0.9− | 0.3− | 2009 12 06 | J75 | 0.3+ | 0.4− |
| 2001 09 19 | 704 | 0.3+ | 0.6+ | 2005 10 24 | 699 | 0.1+ | 0.0 | 2009 12 07 | J75 | 0.2+ | 1.0− |
| 2003 02 01 | 291 | 0.1− | 0.7+ | 2005 10 24 | 699 | 0.2− | 1.0+ | 2009 12 07 | J75 | 0.6+ | 0.1+ |
| 2003 02 01 | 291 | 0.0 | 0.5+ | 2005 10 24 | 699 | 0.4− | 0.4+ | 2009 12 10 | J75 | 0.4+ | 0.2+ |
| 2003 02 01 | 291 | 0.5+ | 1.0+ | 2005 10 24 | 699 | 0.6+ | 0.5− | 2009 12 10 | J75 | 0.6+ | 0.5− |
| 2003 03 31 | 691 | 0.7+ | 1.0+ | 2005 10 29 | 703 | 0.1− | 0.1− | 2009 12 10 | J75 | 1.0+ | 0.4− |
| 2003 03 31 | 691 | 0.4+ | 1.1+ | 2005 10 29 | 703 | 0.8+ | 0.7+ | 2009 12 11 | G96 | 0.1+ | 0.3− |
| 2003 03 31 | 691 | 0.9+ | 1.0+ | 2005 10 29 | 703 | 0.7+ | 1.3+ | 2009 12 11 | G96 | 0.3+ | 0.4− |
| 2005 10 02 | G96 | 0.2− | 0.1+ | 2005 10 29 | 703 | 0.9− | 0.3− | 2009 12 11 | G96 | 0.5+ | 0.4− |
| 2005 10 02 | G96 | 0.6− | 0.4+ | 2005 10 30 | 691 | 0.4− | 0.1− | 2009 12 11 | G96 | 0.3+ | 0.6− |
| 2005 10 02 | G96 | 0.1+ | 0.7+ | 2005 10 30 | 691 | 0.0 | 0.0 | | | | |
| 2005 10 02 | G96 | 0.8+ | 0.9+ | 2005 10 30 | 691 | (1.5+ | 3.6−) | | | | |

**(228469)∗ 2001 RN$_{153}$ = 2005 WM$_{104}$**

Discovered 2001 Sept. 12 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. A. Doppler (*MPO* 94047)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 94.75657 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26980455 | $\omega$ | 261.41678 | | +0.99318521 | −0.06557014 | |
| $a$ | 2.3719373 | $\Omega$ | 102.30199 | | +0.09735307 | +0.92126252 | |
| $e$ | 0.1471546 | $i$ | 5.65950 | | −0.06407430 | +0.38337438 | |
| $P$ | 3.65 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 12 01 | 691 | 0.2− | 0.2− | 2005 11 04 | G96 | 0.8+ | 0.0 | 2007 04 14 | 691 | 0.2+ | 0.2+ |
| 1994 12 01 | 691 | 0.1+ | 0.1+ | 2005 11 04 | G96 | 0.1+ | 0.1− | 2008 06 02 | G96 | 0.2− | 0.3+ |
| 1994 12 01 | 691 | 0.3− | 0.6− | 2005 11 04 | G96 | 0.2− | 0.1− | 2008 06 02 | G96 | 0.0 | 0.2+ |
| 2001 09 12 | 704 | (1.9− | 0.3+) | 2005 11 04 | G96 | 0.0 | 0.0 | 2008 06 02 | G96 | 0.6− | 0.2− |
| 2001 09 12 | 704 | 0.6− | 0.5+ | 2005 11 28 | 703 | 0.5+ | 0.7− | 2008 06 02 | G96 | 0.4− | 0.0 |
| 2001 09 12 | 704 | 0.4− | 0.5+ | 2005 11 28 | 703 | (2.4− | 0.7+) | 2009 11 16 | G96 | 0.3− | 0.0 |
| 2001 09 12 | 704 | 0.1− | 0.6− | 2005 11 28 | 703 | 0.5+ | 0.4− | 2009 11 16 | G96 | 0.2− | 0.3− |
| 2001 09 13 | 644 | 0.0 | 1.3+ | 2005 11 28 | 703 | 0.1+ | 0.7+ | 2009 11 16 | G96 | 0.2+ | 0.1− |
| 2001 09 13 | 644 | 0.5− | 0.3+ | 2005 11 30 | 704 | 0.9+ | 0.2+ | 2009 11 16 | G96 | 0.1+ | 0.4− |
| 2001 09 13 | 644 | 0.5− | 0.8+ | 2005 11 30 | 704 | 0.5+ | 0.2− | 2009 12 17 | G96 | 0.3− | 0.4+ |
| 2001 09 25 | 704 | 0.5+ | 1.4+ | 2005 11 30 | 704 | 1.6+ | 0.2+ | 2009 12 17 | G96 | 0.1+ | 0.4− |
| 2001 09 25 | 704 | 0.5− | 1.0+ | 2006 01 25 | G96 | 0.3+ | 0.2+ | 2009 12 17 | G96 | 0.1+ | 0.7− |
| 2001 09 25 | 704 | 0.6− | 0.7+ | 2006 01 25 | G96 | 0.2+ | 0.0 | 2009 12 17 | G96 | 0.1+ | 0.1− |
| 2001 09 25 | 704 | 0.4− | 0.4+ | 2006 01 25 | G96 | 0.1+ | 0.1− | 2009 12 18 | 691 | 0.1− | 0.5+ |
| 2001 09 25 | 704 | 0.1− | 0.8+ | 2006 01 25 | G96 | 0.2+ | 0.1− | 2009 12 18 | 691 | 0.2− | 0.0 |
| 2001 10 11 | 704 | 0.3− | 0.3+ | 2007 04 11 | 691 | 0.1+ | 0.8− | 2009 12 18 | 691 | 0.0 | 0.1+ |
| 2001 10 11 | 704 | 0.1− | 0.9+ | 2007 04 11 | 691 | 0.5− | 0.6+ | 2009 12 26 | 691 | 0.1− | 0.1+ |
| 2001 10 11 | 704 | 0.1− | 0.6+ | 2007 04 11 | 691 | 0.1− | 0.3+ | 2009 12 26 | 691 | 0.4− | 0.5+ |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 01 28 | 645 | 0.2+ | 0.1+ | 2007 04 14 | 691 | 0.3+ | 0.5+ | 2009 12 26 | 691 | 0.7− | 0.4+ |
| 2003 01 28 | 645 | 0.1+ | 0.0 | 2007 04 14 | 691 | 0.5+ | 0.5+ | | | | |

**(228470)∗ 2001 SK$_2$**

Discovered 2001 Sept. 17 by W. K. Y. Yeung at Desert Eagle Observatory.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 66.68551 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26206390 | $\omega$ | 21.16575 | | +0.95238837 | −0.30488357 | |
| $a$ | 2.4184173 | $\Omega$ | 356.58428 | | +0.27586193 | +0.86387264 | |
| $e$ | 0.2205294 | $i$ | 1.48986 | | +0.12983290 | +0.40096143 | |
| $P$ | 3.76 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 05 23 | 807 | 0.9+ | 0.7− | 2001 10 13 | 704 | 0.2+ | 0.4− | 2005 12 05 | 704 | 0.2+ | 1.0+ |
| 2001 05 23 | 807 | 0.2+ | 0.8+ | 2001 10 13 | 704 | 0.1+ | 0.2− | 2005 12 05 | 704 | 0.6− | 0.5− |
| 2001 08 27 | 699 | 0.3+ | 0.2+ | 2001 10 15 | 608 | 0.9+ | 0.1+ | 2005 12 06 | 691 | 0.0 | 0.1+ |
| 2001 08 27 | 699 | 0.6+ | 0.1+ | 2001 10 15 | 608 | 1.3+ | 0.3− | 2005 12 06 | 691 | 0.2+ | 0.0 |
| 2001 08 27 | 699 | 0.1+ | 0.1− | 2001 10 15 | 608 | 1.2+ | 0.2+ | 2005 12 06 | 691 | 0.1− | 0.3+ |
| 2001 08 27 | 699 | 0.1+ | 0.8+ | 2001 10 16 | 704 | 0.4+ | 0.6+ | 2005 12 08 | 703 | 0.9− | 0.1+ |
| 2001 09 11 | 699 | (1.1− | 2.0+) | 2001 10 16 | 704 | 0.2− | 0.8+ | 2005 12 08 | 703 | 0.5+ | 0.6− |
| 2001 09 11 | 699 | 0.7− | 0.7− | 2001 10 16 | 704 | 0.5− | 0.2− | 2005 12 08 | 703 | 1.1− | 0.1− |
| 2001 09 11 | 699 | 0.2+ | 0.4+ | 2001 10 16 | 704 | 0.3− | 0.3+ | 2005 12 08 | 703 | 1.4− | 0.2+ |
| 2001 09 11 | 699 | 0.7− | 0.6+ | 2001 10 16 | 704 | 0.2− | 0.4+ | 2005 12 10 | 704 | (0.1+ | 2.4+) |
| 2001 09 16 | 704 | 0.8− | 0.9− | 2001 10 18 | 644 | 0.3+ | 0.6+ | 2005 12 10 | 704 | 0.9+ | 1.0+ |
| 2001 09 16 | 704 | (1.1− | 1.8−) | 2001 10 18 | 644 | 0.3+ | 0.4+ | 2005 12 10 | 704 | 1.1+ | 0.8− |
| 2001 09 16 | 704 | 0.4− | 0.3− | 2001 10 18 | 644 | 0.3+ | 0.3+ | 2005 12 28 | G96 | 0.2− | 0.3− |
| 2001 09 16 | 704 | 0.6− | 0.1+ | 2001 10 19 | 695 | 0.3+ | 0.2− | 2005 12 28 | 644 | 0.2− | 0.1+ |
| 2001 09 17 | 333 | 0.3− | 0.3− | 2001 10 19 | 695 | 0.0 | 0.3− | 2005 12 28 | G96 | 0.3+ | 0.2− |
| 2001 09 17 | 333 | 0.6+ | 0.2− | 2001 10 21 | 704 | 0.3+ | 0.4− | 2005 12 28 | G96 | 0.1+ | 0.5− |
| 2001 09 17 | 333 | 0.2− | 0.2− | 2001 10 21 | 704 | 0.1+ | 0.3− | 2005 12 28 | G96 | 0.3+ | 0.1− |
| 2001 09 18 | 699 | (0.6− | 1.6+) | 2001 10 21 | 704 | 0.5+ | 0.4− | 2005 12 28 | 644 | 0.1− | 0.3+ |
| 2001 09 18 | 699 | 0.5+ | 0.6+ | 2001 10 21 | 704 | 0.2− | 0.4− | 2005 12 28 | 644 | 0.4− | 0.3+ |
| 2001 09 18 | 699 | 0.8− | 0.4+ | 2001 10 21 | 704 | 0.3+ | 0.7− | 2006 01 02 | G96 | 0.0 | 0.4− |
| 2001 09 18 | 333 | 0.2− | 0.2+ | 2001 11 21 | 704 | 0.2+ | 0.9− | 2006 01 02 | G96 | 0.6+ | 0.4− |
| 2001 09 18 | 333 | 0.2− | 0.1− | 2001 11 21 | 704 | 1.1− | 1.0− | 2006 01 02 | G96 | 0.1− | 0.1− |
| 2001 09 18 | 699 | 0.1+ | 1.0+ | 2001 11 21 | 704 | 0.4− | 1.3− | 2006 01 02 | G96 | 0.0 | 0.9− |
| 2001 09 18 | 333 | 0.2+ | 0.5− | 2001 11 21 | 704 | (0.1− | 1.6−) | 2006 01 26 | G96 | 0.1+ | 0.6+ |
| 2001 09 20 | 704 | 0.4− | 0.7+ | 2001 11 21 | 704 | (0.2− | 1.7−) | 2006 01 26 | G96 | 1.3+ | 0.0 |
| 2001 09 20 | 704 | 0.3+ | 1.0+ | 2005 11 21 | 691 | 0.0 | 0.0 | 2006 01 26 | G96 | 0.6+ | 0.0 |
| 2001 09 20 | 704 | 0.2− | 0.9+ | 2005 11 21 | 691 | 0.1+ | 0.1+ | 2006 01 26 | G96 | 0.2− | 0.1+ |
| 2001 09 20 | 704 | 0.1+ | 1.1+ | 2005 11 21 | 691 | 0.2+ | 0.0 | 2007 03 26 | G96 | 0.5+ | 0.2+ |
| 2001 09 20 | 704 | 0.0 | 0.9+ | 2005 11 28 | 704 | 0.9− | 0.3− | 2007 03 26 | G96 | 0.5+ | 0.2+ |
| 2001 09 21 | 704 | 0.1+ | 0.2+ | 2005 11 28 | 704 | 0.0 | 0.7+ | 2007 03 26 | G96 | 0.2− | 0.3+ |
| 2001 09 21 | 704 | 0.8− | 0.5+ | 2005 11 28 | 704 | (0.7− | 2.0+) | 2007 03 26 | G96 | 0.4+ | 0.6+ |
| 2001 09 21 | 704 | 0.1− | 0.4+ | 2005 11 28 | 704 | 0.1− | 0.0 | 2007 04 15 | G96 | 0.6− | 0.1+ |
| 2001 09 21 | 704 | 0.3− | 0.6+ | 2005 11 28 | 703 | 0.3− | 0.4+ | 2007 04 15 | G96 | 0.7+ | 1.1+ |
| 2001 09 23 | 704 | 0.4− | 0.2+ | 2005 11 28 | 703 | 0.9− | 0.6− | 2007 04 15 | G96 | 0.2+ | 0.1+ |
| 2001 09 23 | 704 | 0.3− | 0.1+ | 2005 11 28 | 703 | (1.7− | 0.0 ) | 2007 04 15 | G96 | 0.3− | 0.2− |
| 2001 09 23 | 704 | 0.4− | 0.5+ | 2005 11 28 | 703 | 0.0 | 0.0 | 2009 11 11 | G96 | 0.1+ | 0.1+ |
| 2001 09 23 | 704 | 0.1+ | 0.1+ | 2005 11 29 | 691 | 0.0 | 0.0 | 2009 11 11 | G96 | 0.1− | 0.1+ |
| 2001 09 23 | 704 | 0.3− | 0.4+ | 2005 11 29 | 691 | 0.2− | 0.2− | 2009 11 11 | G96 | 0.0 | 0.3+ |
| 2001 09 24 | 704 | 0.7− | 0.9− | 2005 11 29 | 691 | 0.0 | 0.1− | 2009 12 15 | G96 | 0.3+ | 0.3+ |
| 2001 09 24 | 704 | 0.3− | 0.4+ | 2005 12 01 | 704 | 0.3+ | 0.2+ | 2009 12 15 | G96 | 1.3+ | 0.2− |
| 2001 09 24 | 704 | 0.7+ | 1.0− | 2005 12 01 | 704 | 0.2+ | 0.4− | 2009 12 15 | G96 | 0.1+ | 0.3+ |
| 2001 09 24 | 704 | 0.7+ | 1.3− | 2005 12 01 | 704 | 0.1+ | 0.1+ | 2009 12 15 | G96 | (1.7+ | 0.1−) |
| 2001 09 24 | 704 | 0.4+ | 0.8− | 2005 12 01 | 704 | 0.6+ | 0.3+ | 2009 12 18 | 691 | 0.0 | 0.1− |
| 2001 10 08 | 644 | 0.0 | 1.0− | 2005 12 02 | 691 | 0.3+ | 0.9+ | 2009 12 18 | G96 | 0.0 | 0.1+ |
| 2001 10 08 | 644 | 0.0 | 1.1− | 2005 12 02 | 691 | 0.1− | 0.1− | 2009 12 18 | G96 | 0.1+ | 0.1+ |
| 2001 10 08 | 644 | 0.1− | 0.9− | 2005 12 02 | 691 | 0.1− | 0.0 | 2009 12 18 | 691 | 0.5− | 0.2− |
| 2001 10 11 | 644 | 0.3− | 0.1− | 2005 12 05 | 691 | 0.2+ | 0.0 | 2009 12 18 | G96 | 0.3− | 0.1− |
| 2001 10 11 | 644 | 0.1− | 0.1− | 2005 12 05 | 691 | 0.1+ | 0.1− | 2009 12 18 | G96 | 0.1− | 0.1+ |
| 2001 10 11 | 644 | 0.5− | 0.0 | 2005 12 05 | 691 | 0.1+ | 0.3+ | 2009 12 18 | 691 | 0.0 | 0.1− |
| 2001 10 13 | 704 | (1.5+ | 0.1−) | 2005 12 05 | 704 | 0.2+ | 0.1+ | 2009 12 26 | 691 | 0.1− | 0.3− |
| 2001 10 13 | 704 | 0.1− | 0.0 | 2005 12 05 | 704 | 0.2− | 0.2− | 2009 12 26 | 691 | 0.2− | 0.1+ |
| 2001 10 13 | 704 | 0.2− | 0.2+ | 2005 12 05 | 704 | 0.1− | 0.0 | 2009 12 26 | 691 | 0.1− | 0.0 |

**(228471)∗ 2001 SU$_{19}$**

Discovered 2001 Sept. 16 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 74.84213 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26375328 | $\omega$ | 349.55270 | | +0.99349425 | −0.11366828 | |
| $a$ | 2.4080794 | $\Omega$ | 16.97885 | | +0.10613295 | +0.90193258 | |
| $e$ | 0.2055573 | $i$ | 1.36932 | | +0.04129131 | +0.41664991 | |
| $P$ | 3.74 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 16 | 704 | 0.6− | 1.1+ | 2001 10 20 | 704 | 0.3+ | 0.7+ | 2005 12 01 | 704 | 0.3+ | 0.5+ |
| 2001 09 16 | 704 | 0.4− | 0.2− | 2001 10 20 | 704 | 0.4− | 0.6+ | 2005 12 01 | 704 | 1.2+ | 0.4+ |
| 2001 09 16 | 704 | 0.1− | 0.2+ | 2001 10 20 | 704 | 0.3+ | 0.8+ | 2005 12 01 | 704 | 0.3+ | 0.0 |
| 2001 09 18 | 699 | 0.7+ | 0.5+ | 2001 10 24 | 704 | 0.4− | 0.5− | 2005 12 01 | 704 | 0.5− | 0.2+ |
| 2001 09 18 | 699 | 0.8− | 1.3+ | 2001 10 24 | 704 | (0.1+ | 2.0+) | 2005 12 01 | 704 | 0.3− | 0.3− |
| 2001 09 18 | 699 | 0.1− | 0.9+ | 2001 10 24 | 704 | (0.0 | 1.6+) | 2005 12 02 | 704 | 0.3− | 0.4− |
| 2001 09 18 | 699 | 0.5+ | 0.7+ | 2001 10 24 | 704 | 0.3+ | 1.4+ | 2005 12 02 | 704 | 0.1− | 0.3− |
| 2001 09 19 | 704 | 1.0+ | 0.8+ | 2001 11 18 | 645 | 0.1− | 0.1− | 2005 12 02 | 704 | 0.4+ | 0.0 |
| 2001 09 19 | 704 | 0.7+ | 0.6+ | 2001 11 18 | 645 | 0.0 | 0.1− | 2005 12 04 | 704 | 0.7− | 0.2− |
| 2001 09 19 | 704 | 0.6+ | 0.3+ | 2005 10 03 | G96 | 0.2− | 0.1+ | 2005 12 04 | 704 | 0.3+ | 1.0+ |
| 2001 09 19 | 704 | 0.8+ | 0.6+ | 2005 10 03 | G96 | 0.0 | 0.1− | 2005 12 04 | 704 | 1.0− | 0.7+ |
| 2001 09 19 | 704 | 1.4+ | 0.6+ | 2005 10 03 | G96 | 0.2+ | 0.1+ | 2005 12 04 | 704 | 0.6+ | 0.1− |
| 2001 09 20 | 704 | 0.5− | 0.9+ | 2005 10 03 | G96 | 0.2− | 0.1− | 2005 12 04 | 704 | 1.0+ | 0.0 |
| 2001 09 20 | 704 | 0.3− | 1.0+ | 2005 10 27 | G96 | 0.2+ | 0.3− | 2005 12 04 | 704 | 0.7− | 0.4+ |
| 2001 09 20 | 704 | 0.1+ | 0.6+ | 2005 10 27 | G96 | 0.2− | 0.2− | 2005 12 04 | 704 | 1.0− | 0.2− |
| 2001 09 20 | 704 | 0.0 | 0.1− | 2005 10 27 | G96 | 0.0 | 0.1− | 2005 12 04 | 704 | 0.4+ | 0.4+ |
| 2001 09 20 | 704 | 0.3+ | 0.6+ | 2005 10 27 | G96 | 0.2+ | 0.2− | 2005 12 28 | G96 | 0.4+ | 0.1− |
| 2001 09 21 | 704 | 0.2+ | 0.5+ | 2005 11 08 | 704 | 0.3− | 0.8+ | 2005 12 28 | G96 | 0.1− | 0.2− |
| 2001 09 21 | 704 | 0.1− | 0.8+ | 2005 11 08 | 704 | 0.0 | 0.2+ | 2005 12 28 | G96 | 0.2− | 0.0 |
| 2001 09 21 | 704 | 0.1+ | 0.0 | 2005 11 08 | 704 | 0.6+ | 1.0+ | 2005 12 28 | G96 | 0.0 | 0.2− |
| 2001 09 21 | 704 | 0.2+ | 0.6+ | 2005 11 22 | 691 | 0.4+ | 0.2− | 2006 01 25 | G96 | 0.0 | 0.1− |
| 2001 09 21 | 704 | 0.3+ | 0.3+ | 2005 11 22 | 691 | 0.4+ | 0.1− | 2006 01 25 | G96 | 0.1+ | 0.4− |
| 2001 09 25 | 644 | 0.3+ | 0.2− | 2005 11 22 | 691 | 0.4+ | 0.2− | 2006 01 25 | G96 | 0.1+ | 0.1− |
| 2001 09 25 | 644 | 0.7+ | 0.6− | 2005 11 26 | G96 | 0.1+ | 0.1− | 2006 01 25 | G96 | 0.1+ | 0.2− |
| 2001 09 25 | 644 | 0.3+ | 0.2− | 2005 11 26 | G96 | 0.2+ | 0.2− | 2007 03 20 | G96 | 0.4+ | 0.1− |
| 2001 09 26 | 704 | 0.4− | 0.2− | 2005 11 26 | G96 | 0.3+ | 0.0 | 2007 03 20 | G96 | 0.1+ | 0.2− |
| 2001 09 26 | 704 | 0.0 | 0.2− | 2005 11 26 | G96 | 0.0 | 0.1− | 2007 03 20 | G96 | 0.6+ | 0.3− |
| 2001 09 26 | 704 | 0.4− | 0.4− | 2005 11 28 | 703 | 0.6− | 0.8− | 2007 03 20 | G96 | 0.2+ | 0.2− |
| 2001 09 26 | 704 | 0.0 | 0.7− | 2005 11 28 | 703 | 0.1+ | 1.5− | 2007 04 16 | G96 | 0.0 | 0.4+ |
| 2001 09 26 | 704 | 0.7− | 0.8− | 2005 11 28 | 703 | (1.9− | 1.5−) | 2007 04 16 | G96 | 0.3+ | 0.3− |
| 2001 09 28 | 704 | 0.1+ | 0.8+ | 2005 11 28 | 703 | (2.3− | 1.0−) | 2007 04 16 | G96 | 1.2− | 1.2− |
| 2001 09 28 | 704 | 0.1− | 0.4+ | 2005 11 29 | 704 | 0.1− | 0.3+ | 2007 04 16 | G96 | 0.5− | 0.2+ |
| 2001 09 28 | 704 | 0.5+ | 0.2+ | 2005 11 29 | 704 | 0.1+ | 0.1− | 2009 11 11 | G96 | 0.3− | 0.0 |
| 2001 10 13 | 704 | 0.8+ | 0.1+ | 2005 11 29 | 704 | 0.9+ | 1.0+ | 2009 11 11 | G96 | 0.6− | 0.0 |
| 2001 10 13 | 704 | 0.5+ | 0.2+ | 2005 11 29 | 704 | 0.7− | 0.2+ | 2009 11 11 | G96 | 0.1− | 0.2− |
| 2001 10 13 | 704 | 1.0+ | 0.3− | 2005 11 29 | G96 | 0.1− | 0.3− | 2009 11 11 | G96 | 0.1+ | 0.2− |
| 2001 10 13 | 704 | 0.7+ | 0.2− | 2005 11 29 | G96 | 0.2− | 0.2− | 2009 12 17 | 691 | 0.3+ | 0.1+ |
| 2001 10 13 | 704 | 1.2+ | 0.5+ | 2005 11 29 | 704 | 1.1− | 0.5− | 2009 12 17 | 691 | 0.1+ | 0.0 |
| 2001 10 14 | 645 | 0.1− | 0.2− | 2005 11 29 | G96 | 0.4− | 0.2− | 2009 12 17 | 691 | 0.1− | 0.3+ |
| 2001 10 14 | 645 | 0.1− | 0.2− | 2005 11 29 | G96 | 0.1− | 0.1− | 2009 12 26 | 691 | 0.4+ | 0.8+ |
| 2001 10 15 | 645 | 0.1− | 0.1− | 2005 12 01 | 704 | 0.3+ | 0.3+ | 2009 12 26 | 691 | 0.8− | 0.3− |
| 2001 10 15 | 645 | 0.1− | 0.2− | 2005 12 01 | 704 | 0.1− | 0.7+ | 2009 12 26 | 691 | 0.4− | 0.2+ |
| 2001 10 20 | 704 | 0.6+ | 0.8+ | 2005 12 01 | 704 | 0.4− | 0.3+ | | | | |
| 2001 10 20 | 704 | 0.1− | 0.8+ | 2005 12 01 | 704 | 0.0 | 0.6+ | | | | |

**(228472)∗ 2001 SC$_{27}$**

Discovered 2001 Sept. 16 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 6.99653 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.25918238 | $\omega$ | 267.62561 | | +0.12486120 | −0.99216798 | |
| $a$ | 2.4363092 | $\Omega$ | 175.19739 | | +0.92618380 | +0.11528456 | |
| $e$ | 0.1721340 | $i$ | 2.40777 | | +0.35579946 | +0.04808495 | |
| $P$ | 3.80 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 16 | 704 | 0.2+ | 0.3− | 2001 11 12 | 645 | 0.0 | 0.1− | 2005 11 30 | 704 | 1.1− | 0.3+ | 2001 09 27 | 644 | 0.8− | 0.1− | 2001 11 21 | 704 | 0.7− | 0.8+ | 2005 12 28 | G96 | 0.2+ | 0.3− |
| 2001 09 16 | 704 | 0.8− | 1.3+ | 2001 11 12 | 645 | 0.1− | 0.0 | 2005 11 30 | 704 | 0.0 | 0.6+ | 2001 10 13 | 704 | 1.1+ | 0.8− | 2005 10 25 | G96 | 0.2+ | 0.3− | 2005 12 28 | G96 | 0.1+ | 0.4− |
| 2001 09 16 | 704 | 0.7− | 0.3− | 2001 12 10 | 645 | 0.1+ | 0.1− | 2005 12 29 | G96 | 0.1− | 0.2− | 2001 10 13 | 704 | 0.9+ | 0.2− | 2005 10 25 | G96 | 0.1+ | 0.3− | 2005 12 28 | G96 | 0.1+ | 0.2− |
| 2001 09 16 | 704 | (1.5− | 0.2+) | 2001 12 10 | 645 | 0.1+ | 0.0 | 2005 12 29 | G96 | 0.2− | 0.3− | 2001 10 13 | 704 | 1.0+ | 0.1− | 2005 10 25 | G96 | 0.0 | 0.1− | 2005 12 28 | G96 | 0.2+ | 0.1− |
| 2001 09 19 | 704 | 0.1− | 0.5+ | 2003 04 26 | 691 | 0.5+ | 0.4+ | 2005 12 29 | G96 | 0.3+ | 0.2− | 2001 10 16 | 704 | 0.1+ | 0.3+ | 2005 10 25 | G96 | 0.2+ | 0.5− | 2007 03 12 | G96 | 0.3− | 0.1+ |
| 2001 09 19 | 704 | 0.1− | 0.1− | 2003 04 26 | 691 | 0.0 | 0.4+ | 2005 12 29 | G96 | 0.1+ | 0.1− | 2001 10 16 | 704 | 0.2+ | 0.7+ | 2005 11 04 | 691 | 0.0 | 0.1− | 2007 03 12 | G96 | 0.1− | 0.3− |
| 2001 09 19 | 704 | 0.3− | 0.7− | 2003 04 26 | 691 | 0.1− | 0.2+ | 2006 01 28 | G96 | 0.3+ | 0.4− | 2001 10 16 | 704 | 0.4+ | 0.6+ | 2005 11 04 | 691 | 0.0 | 0.2− | 2007 03 12 | G96 | 0.3+ | 0.4+ |
| 2001 09 19 | 704 | 1.4− | 0.6− | 2005 10 27 | 691 | 0.2+ | 0.1+ | 2006 01 28 | G96 | 0.0 | 0.4− | 2001 10 16 | 704 | 0.5+ | 0.2+ | 2005 11 04 | 691 | 0.0 | 0.2− | 2007 03 12 | G96 | 0.1+ | 0.1+ |
| 2001 09 19 | 704 | 0.4− | 0.8− | 2005 10 27 | 691 | 0.3+ | 0.1+ | 2006 01 28 | G96 | 0.7− | 1.1+ | 2001 10 16 | 704 | 0.2− | 0.9+ | 2005 11 05 | 691 | 0.1+ | 0.2− | 2007 03 16 | 691 | 0.2− | 0.3+ |
| 2001 09 21 | 704 | 0.6− | 0.4+ | 2005 10 27 | 691 | 0.1− | 0.0 | 2006 01 28 | G96 | 0.6− | 0.4+ | 2001 10 18 | 644 | 0.4− | 0.4+ | 2005 11 05 | 691 | 0.2+ | 0.2− | 2007 03 16 | 691 | 0.2+ | 0.5+ |
| 2001 09 21 | 704 | 0.2+ | 1.1+ | 2005 10 28 | 703 | 1.2− | 0.5− | 2007 03 26 | G96 | 0.4+ | 0.1− | 2001 10 18 | 644 | 0.5− | 0.3+ | 2005 11 05 | 691 | 0.2+ | 0.3− | 2007 03 16 | 691 | 0.1+ | 0.4+ |
| 2001 09 21 | 704 | 0.0 | 0.4+ | 2005 10 28 | 703 | 0.7+ | 0.9− | 2007 03 26 | G96 | 0.2− | 0.2+ | 2001 10 18 | 644 | 0.3− | 0.1+ | 2005 11 21 | 703 | 0.8− | 0.1+ | 2007 03 20 | 691 | 0.4− | 0.4+ |
| 2001 09 21 | 291 | 0.3+ | 0.2+ | 2005 10 28 | 703 | 0.5− | 1.3− | 2007 03 26 | G96 | 0.9+ | 0.7+ | 2001 10 20 | 704 | 0.0 | 0.9+ | 2005 11 21 | 703 | 0.1− | 0.5+ | 2007 03 20 | 691 | 0.0 | 0.4+ |
| 2001 09 21 | 291 | 0.1+ | 0.3+ | 2005 10 28 | 703 | (0.3+ | 2.0−) | 2007 03 26 | G96 | 0.5+ | 0.2− | 2001 10 20 | 704 | 0.5+ | 0.3+ | 2005 11 21 | 703 | 1.0− | 1.3− | 2007 03 20 | 691 | 0.1− | 0.3+ |
| 2001 09 21 | 291 | 0.2+ | 0.2+ | 2005 10 31 | 691 | 0.3+ | 0.1+ | 2007 04 16 | G96 | 0.9− | 0.2+ | 2001 10 20 | 704 | 0.5− | 0.1− | 2005 11 21 | 703 | 0.2− | 0.0 | 2009 10 15 | G96 | 0.0 | 0.8− |
| 2001 09 26 | 704 | 0.2− | 1.1+ | 2005 10 31 | 691 | 0.0 | 0.1+ | 2007 04 16 | G96 | 0.2− | 0.0 | 2001 10 20 | 704 | 0.5− | 0.0 | 2005 11 25 | G96 | 0.8+ | 0.2− | 2009 10 15 | G96 | 0.1+ | 0.1− |
| 2001 09 26 | 704 | 1.2− | 0.0 | 2005 10 31 | 691 | 0.5− | 0.6− | 2007 04 16 | G96 | 0.2− | 0.5− | 2001 10 20 | 704 | 0.5− | 0.5+ | 2005 11 25 | G96 | 0.4+ | 0.2− | 2009 10 15 | G96 | 0.2+ | 0.8− |
| 2001 09 26 | 704 | 0.5− | 0.1− | 2005 11 06 | 704 | 0.9+ | 1.2+ | 2007 04 16 | G96 | 0.0 | 0.1+ | 2001 10 22 | 704 | 0.0 | 0.1+ | 2005 11 25 | G96 | 0.4+ | 0.2+ | 2009 10 15 | G96 | 0.3+ | 0.1− |
| 2001 10 16 | 291 | 0.1− | 0.4+ | 2005 11 06 | 704 | 0.7+ | 0.1+ | 2009 11 23 | 691 | 0.2− | 0.1+ | 2001 10 22 | 704 | 0.1− | 0.1+ | 2005 11 25 | G96 | 0.5+ | 0.2− | 2009 12 17 | 691 | 0.0 | 0.2− |
| 2001 10 16 | 291 | 0.2− | 0.3+ | 2005 11 06 | 704 | 0.2+ | 0.3− | 2009 11 23 | 691 | 0.0 | 0.1+ | 2001 10 22 | 704 | 0.5+ | 0.6+ | 2005 11 28 | 703 | 0.3+ | 0.0 | 2009 12 17 | 691 | 0.5− | 0.0 |
| 2001 10 16 | 291 | 0.2+ | 0.6+ | 2005 11 06 | 704 | 0.7+ | 0.9− | 2009 11 23 | 691 | 0.1− | 0.2+ | 2001 10 22 | 704 | 0.2− | 0.2+ | 2005 11 28 | 703 | 0.3− | 0.9− | 2009 12 17 | 691 | 0.2− | 0.1+ |
| 2001 10 20 | 704 | 0.6+ | 0.1− | 2005 11 25 | 703 | 0.1+ | 0.1+ | 2009 12 17 | 704 | 0.4+ | 0.2+ | 2001 10 23 | 704 | 0.2+ | 0.1+ | 2005 11 28 | 703 | 1.4+ | 0.7+ | 2009 12 26 | 691 | 0.4+ | 1.5+ |
| 2001 10 20 | 704 | 0.0 | 1.2− | 2005 11 25 | 703 | 1.3− | 0.1+ | 2009 12 17 | 704 | 0.6+ | 0.3+ | 2001 10 23 | 704 | 0.6− | 0.0 | 2005 11 28 | 703 | (1.8− | 2.5−) | 2009 12 26 | 691 | 0.1− | 0.2− |
| 2001 10 20 | 704 | (1.6+ | 0.6+) | 2005 11 25 | 703 | 0.3− | 1.0− | 2009 12 17 | 704 | 0.1+ | 0.7+ | 2001 10 23 | 704 | 0.2+ | 0.1− | 2005 11 29 | 704 | 0.9+ | 0.7+ | 2009 12 26 | 691 | 0.1− | 0.4− |
| 2001 10 20 | 704 | 1.0+ | 0.3+ | 2005 11 25 | 703 | 0.8+ | 0.9+ | | | | | 2001 10 23 | 704 | 0.3− | 0.2+ | 2005 11 29 | 704 | 0.5− | 0.5+ | | | | |
| 2001 10 20 | 704 | 0.1− | 0.3− | 2005 11 30 | 704 | 0.5+ | 1.0+ | | | | | 2001 10 23 | 704 | 0.7− | 0.1+ | 2005 11 29 | 704 | 0.2− | 0.1+ | | | | |

**(228473)∗ 2001 SX$_{37}$ = 2000 JP$_{78}$**

Discovered 2001 Sept. 16 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 88900)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 74.72029 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26089223 | $\omega$ | 298.67930 | | +0.99678840 | −0.06054944 | |
| $a$ | 2.4256527 | $\Omega$ | 64.83389 | | +0.07700356 | +0.90438987 | |
| $e$ | 0.1994867 | $i$ | 3.31957 | | −0.02198508 | +0.42238930 | |
| $P$ | 3.78 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 05 03 | 691 | 0.3+ | 0.0 | 2001 10 24 | 704 | 0.0 | 0.5+ | 2005 11 29 | 704 | 0.6− | 0.3+ | 2001 09 16 | 704 | 0.2− | 0.6− | 2005 10 28 | 704 | 0.1+ | 0.7+ | 2006 02 25 | G96 | 0.1− | 0.0 |
| 2000 05 03 | 691 | 0.2+ | 0.1− | 2001 10 24 | 704 | 0.3+ | 0.3− | 2005 11 29 | 704 | 0.4+ | 0.4− | 2001 09 16 | 704 | 0.3− | 0.7− | 2005 10 28 | 704 | 0.6+ | 0.0 | 2006 02 25 | G96 | 0.2+ | 0.1+ |
| 2000 05 03 | 691 | 0.4+ | 0.4− | 2001 10 24 | 704 | 0.1− | 0.2+ | 2005 12 01 | 704 | 0.5+ | 0.5+ | 2001 09 16 | 704 | 0.3− | 0.2+ | 2005 10 28 | 704 | 0.4+ | 0.1− | 2006 02 25 | G96 | 1.1− | 0.1− |
| 2001 09 16 | 704 | 0.2+ | 0.0 | 2001 10 24 | 704 | 0.3+ | 0.0 | 2005 12 01 | 704 | 0.7+ | 0.1+ | 2001 09 16 | 704 | 0.9− | 0.3+ | 2005 10 28 | 704 | (1.7+ | 0.3+) | 2007 02 21 | 691 | 0.1+ | 0.1− |
| 2001 09 16 | 704 | 0.9+ | 0.1− | 2001 10 24 | 704 | 0.3+ | 0.7+ | 2005 12 01 | 704 | 0.6+ | 0.3+ | 2001 09 16 | 704 | 0.8− | 0.3− | 2005 10 30 | 703 | 0.3− | 0.0 | 2007 02 21 | 691 | 0.2− | 0.1+ |
| 2001 09 16 | 704 | 0.2+ | 0.0 | 2001 10 25 | 644 | 0.4− | 0.4+ | 2005 12 01 | 704 | 1.0+ | 0.0 | 2001 09 19 | 704 | 0.6− | 0.0 | 2005 10 30 | 703 | 0.9+ | 0.4+ | 2007 02 21 | 691 | 0.4+ | 0.1+ |
| 2001 09 19 | 704 | 0.3− | 0.8+ | 2001 10 25 | 644 | 0.6− | 0.4+ | 2005 12 01 | 704 | 0.7+ | 0.5+ | 2001 09 19 | 704 | 1.0− | 1.1+ | 2005 10 30 | 703 | 0.1− | 0.2− | 2007 03 10 | 691 | 0.0 | 0.1+ |
| 2001 09 19 | 704 | 0.0 | 1.2+ | 2001 10 25 | 644 | 0.4− | 0.3+ | 2005 12 02 | G96 | 0.2+ | 0.5− | 2001 09 19 | 704 | 1.1− | 0.1+ | 2005 10 30 | 703 | 0.6− | 0.1− | 2007 03 10 | 691 | 0.0 | 0.7+ |
| 2001 09 19 | 704 | 0.1+ | 0.3+ | 2001 10 25 | 691 | 0.6− | 0.2− | 2005 12 02 | G96 | 0.2+ | 0.4− | 2001 09 19 | 704 | 0.6− | 0.9+ | 2005 10 31 | 704 | 0.6− | 1.1+ | 2007 03 10 | 691 | 0.3+ | 0.5+ |
| 2001 09 19 | 704 | 0.4+ | 0.7+ | 2001 10 25 | 691 | 0.5− | 0.0 | 2005 12 02 | G96 | 0.3+ | 0.4− | 2001 09 21 | 704 | 0.3− | 0.2+ | 2005 10 31 | 704 | 0.6− | 1.2+ | 2009 11 10 | 691 | 0.6− | 0.3+ |
| 2001 09 19 | 704 | 0.9− | 0.6+ | 2001 10 25 | 691 | 0.7− | 0.3+ | 2005 12 02 | G96 | 0.5+ | 0.4− | 2001 09 21 | 704 | 0.1− | 0.6+ | 2005 10 31 | 704 | 0.2+ | 0.5+ | 2009 11 10 | 691 | 0.3− | 0.1− |
| 2001 09 21 | 704 | 0.2+ | 0.7− | 2001 11 20 | 704 | 0.3+ | 0.1− | 2005 12 05 | 699 | 0.6+ | 0.0 | 2001 09 21 | 704 | 0.4− | 0.4+ | 2005 10 31 | 704 | 0.8− | 0.7+ | 2009 11 10 | 691 | 0.1− | 0.1− |
| 2001 09 21 | 704 | 0.2− | 0.3+ | 2001 11 20 | 704 | 0.3+ | 0.9− | 2005 12 05 | 699 | 0.3− | 0.1+ | 2001 09 21 | 704 | 0.5− | 0.5+ | 2005 10 31 | 704 | (0.4− | 1.5+) | 2009 11 18 | 691 | 0.2− | 0.2− |
| 2001 09 21 | 704 | 0.1+ | 0.0 | 2001 11 20 | 704 | 0.0 | 0.5+ | 2005 12 05 | 699 | 0.7− | 0.2− | 2001 09 21 | 704 | 0.3− | 0.4+ | 2005 11 03 | 704 | 0.9− | 0.4− | 2009 11 18 | 691 | 0.1− | 0.2− |
| 2001 09 21 | 704 | 0.4− | 0.3− | 2001 11 21 | 704 | 0.0 | 0.8− | 2005 12 05 | 699 | 0.1+ | 0.6− | 2001 09 25 | 699 | 0.3+ | 0.2+ | 2005 11 03 | 704 | 0.4− | 0.1− | 2009 11 18 | 691 | 0.2− | 0.4− |
| 2001 09 21 | 704 | 0.7+ | 0.8− | 2001 11 21 | 704 | 0.2− | 0.2− | 2005 12 06 | 704 | 0.4− | 0.2+ | 2001 09 25 | 699 | 0.0 | 0.3+ | 2005 11 03 | 704 | 0.3− | 0.1− | 2009 11 18 | 704 | 0.0 | 0.2+ |
| 2001 09 27 | 644 | 0.1+ | 0.0 | 2001 11 21 | 704 | 0.7− | 0.6− | 2005 12 06 | 704 | 0.6− | 0.2+ | 2001 09 25 | 699 | 0.6+ | 0.5+ | 2005 11 05 | 699 | 0.2− | 0.5+ | 2009 11 18 | 704 | 0.9+ | 0.3+ |
| 2001 09 27 | 644 | 0.8− | 0.6− | 2001 11 21 | 704 | 0.4+ | 0.1+ | 2005 12 06 | 704 | 0.5− | 1.1+ | 2001 09 25 | 699 | 0.7− | 0.5+ | 2005 11 05 | 704 | 0.2− | 0.1+ | 2009 11 18 | 704 | 0.2+ | 0.1− |
| 2001 09 27 | 644 | 0.8− | 0.1− | 2001 11 21 | 704 | 0.7− | 0.8+ | 2005 12 28 | G96 | 0.2+ | 0.3− | 2001 10 14 | 645 | 0.0 | 0.1− | 2005 11 05 | 704 | 0.2+ | 0.3+ | 2009 11 20 | 704 | 0.9+ | 0.8+ |
| 2001 10 13 | 704 | 1.1+ | 0.8− | 2005 10 25 | G96 | 0.2+ | 0.3− | 2005 12 28 | G96 | 0.1+ | 0.4− | 2001 10 14 | 645 | 0.0 | 0.1− | 2005 11 05 | 699 | 0.0 | 0.2− | 2009 11 20 | 704 | 0.2+ | 0.0 |
| 2001 10 13 | 704 | 0.9+ | 0.2− | 2005 10 25 | G96 | 0.1+ | 0.3− | 2005 12 28 | G96 | 0.1+ | 0.2− | 2001 10 16 | 704 | (0.2− | 2.3−) | 2005 11 05 | 704 | 0.1− | 0.2+ | 2009 11 20 | 704 | 1.1+ | 1.3+ |
| 2001 10 13 | 704 | 1.0+ | 0.1− | 2005 10 25 | G96 | 0.0 | 0.1− | 2005 12 28 | G96 | 0.2+ | 0.1− | 2001 10 16 | 704 | 0.4+ | 0.7− | 2005 11 05 | 699 | 0.2+ | 0.5− | 2009 11 20 | 704 | 1.0+ | 0.0 |
| 2001 10 16 | 704 | 0.1+ | 0.3+ | 2005 10 25 | G96 | 0.2+ | 0.5− | 2007 03 12 | G96 | 0.3− | 0.1+ | 2001 10 16 | 704 | 1.0+ | 0.1− | 2005 11 05 | 704 | 0.2− | 0.5+ | 2009 11 20 | 704 | 0.0 | 0.7+ |
| 2001 10 16 | 704 | 0.2+ | 0.7+ | 2005 11 04 | 691 | 0.0 | 0.1− | 2007 03 12 | G96 | 0.1− | 0.3− | 2001 10 17 | 644 | 0.0 | 0.5+ | 2005 11 05 | 699 | 0.4− | 0.3− | 2009 11 20 | A50 | 1.1+ | 0.4+ |
| 2001 10 16 | 704 | 0.4+ | 0.6+ | 2005 11 04 | 691 | 0.0 | 0.2− | 2007 03 12 | G96 | 0.3+ | 0.4+ | 2001 10 17 | 644 | 0.2− | 0.1+ | 2005 11 20 | 644 | 0.2+ | 0.3+ | 2009 11 20 | A50 | 0.5+ | 0.2+ |
| 2001 10 16 | 704 | 0.5+ | 0.2+ | 2005 11 04 | 691 | 0.0 | 0.2− | 2007 03 12 | G96 | 0.1+ | 0.1+ | 2001 10 17 | 644 | 0.3− | 0.5+ | 2005 11 20 | 644 | 0.2+ | 0.5+ | 2009 11 20 | A50 | 1.4+ | 0.5+ |
| 2001 10 16 | 704 | 0.2− | 0.9+ | 2005 11 05 | 691 | 0.1+ | 0.2− | 2007 03 16 | 691 | 0.2− | 0.3+ | 2001 10 19 | 699 | 0.8+ | 0.4− | 2005 11 20 | 644 | 0.3+ | 0.4+ | 2009 11 22 | 691 | 0.0 | 0.2− |
| 2001 10 18 | 644 | 0.4− | 0.4+ | 2005 11 05 | 691 | 0.2+ | 0.2− | 2007 03 16 | 691 | 0.2+ | 0.5+ | 2001 10 19 | 699 | 0.1+ | 1.2+ | 2005 11 25 | 703 | 0.3+ | 0.2+ | 2009 11 22 | 691 | 0.2− | 0.2− |
| 2001 10 18 | 644 | 0.5− | 0.3+ | 2005 11 05 | 691 | 0.2+ | 0.3− | 2007 03 16 | 691 | 0.1+ | 0.4+ | 2001 10 19 | 699 | 0.1− | 0.6+ | 2005 11 25 | 703 | 0.3+ | 0.2− | 2009 11 22 | 691 | 0.1− | 0.1− |

**(228474)∗ 2001 SZ$_{46}$**

Discovered 2001 Sept. 16 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 38.27170 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.25326156 | $\omega$ | 267.47956 | | +0.93323924 | −0.35683382 | |
| $a$ | 2.4741339 | $\Omega$ | 113.42376 | | +0.34500992 | +0.85787418 | |
| $e$ | 0.2248663 | $i$ | 2.60115 | | +0.10016323 | +0.36975873 | |
| $P$ | 3.89 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 16 | 704 | 0.2− | 0.6− | 2005 10 28 | 704 | 0.1+ | 0.7+ | 2006 02 25 | G96 | 0.1− | 0.0 | 2001 10 16 | 704 | 0.2+ | 0.7+ | 2005 11 04 | 691 | 0.0 | 0.1− | 2007 03 12 | G96 | 0.3− | 0.1+ |
| 2001 09 16 | 704 | 0.3− | 0.7− | 2005 10 28 | 704 | 0.6+ | 0.0 | 2006 02 25 | G96 | 0.2+ | 0.1+ | 2001 10 16 | 704 | 0.4+ | 0.6+ | 2005 11 04 | 691 | 0.0 | 0.2− | 2007 03 12 | G96 | 0.3+ | 0.4+ |
| 2001 09 16 | 704 | 0.3− | 0.2+ | 2005 10 28 | 704 | 0.4+ | 0.1− | 2006 02 25 | G96 | 1.1− | 0.1− | 2001 10 16 | 704 | 0.5+ | 0.2+ | 2005 11 04 | 691 | 0.0 | 0.2− | 2007 03 12 | G96 | 0.1+ | 0.1+ |
| 2001 09 16 | 704 | 0.9− | 0.3+ | 2005 10 28 | 704 | (1.7+ | 0.3+) | 2007 02 21 | 691 | 0.1+ | 0.1− | 2001 10 16 | 704 | 0.2− | 0.9+ | 2005 11 05 | 691 | 0.1+ | 0.2− | 2007 03 16 | 691 | 0.2− | 0.3+ |
| 2001 09 16 | 704 | 0.8− | 0.3− | 2005 10 30 | 703 | 0.3− | 0.0 | 2007 02 21 | 691 | 0.2− | 0.1+ | 2001 10 18 | 644 | 0.4− | 0.4+ | 2005 11 05 | 691 | 0.2+ | 0.2− | 2007 03 16 | 691 | 0.2+ | 0.5+ |
| 2001 09 19 | 704 | 0.6− | 0.0 | 2005 10 30 | 703 | 0.9+ | 0.4+ | 2007 02 21 | 691 | 0.4+ | 0.1+ | 2001 10 18 | 644 | 0.5− | 0.3+ | 2005 11 05 | 691 | 0.2+ | 0.3− | 2007 03 16 | 691 | 0.1+ | 0.4+ |
| 2001 09 19 | 704 | 1.0− | 1.1+ | 2005 10 30 | 703 | 0.1− | 0.2− | 2007 03 10 | 691 | 0.0 | 0.1+ | 2001 10 18 | 644 | 0.3− | 0.1+ | 2005 11 21 | 703 | 0.8− | 0.1+ | 2007 03 20 | 691 | 0.4− | 0.4+ |
| 2001 09 19 | 704 | 1.1− | 0.1+ | 2005 10 30 | 703 | 0.6− | 0.1− | 2007 03 10 | 691 | 0.0 | 0.7+ | 2001 10 20 | 704 | 0.0 | 0.9+ | 2005 11 21 | 703 | 0.1− | 0.5+ | 2007 03 20 | 691 | 0.0 | 0.4+ |
| 2001 09 19 | 704 | 0.6− | 0.9+ | 2005 10 31 | 704 | 0.6− | 1.1+ | 2007 03 10 | 691 | 0.3+ | 0.5+ | 2001 10 20 | 704 | 0.5+ | 0.3+ | 2005 11 21 | 703 | 1.0− | 1.3− | 2007 03 20 | 691 | 0.1− | 0.3+ |
| 2001 09 21 | 704 | 0.3− | 0.2+ | 2005 10 31 | 704 | 0.6− | 1.2+ | 2009 11 10 | 691 | 0.6− | 0.3+ | 2001 10 20 | 704 | 0.5− | 0.1− | 2005 11 21 | 703 | 0.2− | 0.0 | 2009 10 15 | G96 | 0.0 | 0.8− |
| 2001 09 21 | 704 | 0.1− | 0.6+ | 2005 10 31 | 704 | 0.2+ | 0.5+ | 2009 11 10 | 691 | 0.3− | 0.1− | 2001 10 20 | 704 | 0.5− | 0.0 | 2005 11 25 | G96 | 0.8+ | 0.2− | 2009 10 15 | G96 | 0.1+ | 0.1− |
| 2001 09 21 | 704 | 0.4− | 0.4+ | 2005 10 31 | 704 | 0.8− | 0.7+ | 2009 11 10 | 691 | 0.1− | 0.1− | 2001 10 20 | 704 | 0.5− | 0.5+ | 2005 11 25 | G96 | 0.4+ | 0.2− | 2009 10 15 | G96 | 0.2+ | 0.8− |
| 2001 09 21 | 704 | 0.5− | 0.5+ | 2005 10 31 | 704 | (0.4− | 1.5+) | 2009 11 18 | 691 | 0.2− | 0.2− | 2001 10 22 | 704 | 0.0 | 0.1+ | 2005 11 25 | G96 | 0.4+ | 0.2+ | 2009 10 15 | G96 | 0.3+ | 0.1− |
| 2001 09 21 | 704 | 0.3− | 0.4+ | 2005 11 03 | 704 | 0.9− | 0.4− | 2009 11 18 | 691 | 0.1− | 0.2− | 2001 10 22 | 704 | 0.1− | 0.1+ | 2005 11 25 | G96 | 0.5+ | 0.2− | 2009 12 17 | 691 | 0.0 | 0.2− |
| 2001 09 25 | 699 | 0.3+ | 0.2+ | 2005 11 03 | 704 | 0.4− | 0.1− | 2009 11 18 | 691 | 0.2− | 0.4− | 2001 10 22 | 704 | 0.5+ | 0.6+ | 2005 11 28 | 703 | 0.3+ | 0.0 | 2009 12 17 | 691 | 0.5− | 0.0 |
| 2001 09 25 | 699 | 0.0 | 0.3+ | 2005 11 03 | 704 | 0.3− | 0.1− | 2009 11 18 | 704 | 0.0 | 0.2+ | 2001 10 22 | 704 | 0.2− | 0.2+ | 2005 11 28 | 703 | 0.3− | 0.9− | 2009 12 17 | 691 | 0.2− | 0.1+ |
| 2001 09 25 | 699 | 0.6+ | 0.5+ | 2005 11 05 | 699 | 0.2− | 0.5+ | 2009 11 18 | 704 | 0.9+ | 0.3+ | 2001 10 23 | 704 | 0.2+ | 0.1+ | 2005 11 28 | 703 | 1.4+ | 0.7+ | 2009 12 26 | 691 | 0.4+ | 1.5+ |
| 2001 09 25 | 699 | 0.7− | 0.5+ | 2005 11 05 | 704 | 0.2− | 0.1+ | 2009 11 18 | 704 | 0.2+ | 0.1− | 2001 10 23 | 704 | 0.6− | 0.0 | 2005 11 28 | 703 | (1.8− | 2.5−) | 2009 12 26 | 691 | 0.1− | 0.2− |
| 2001 10 14 | 645 | 0.0 | 0.1− | 2005 11 05 | 704 | 0.2+ | 0.3+ | 2009 11 20 | 704 | 0.9+ | 0.8+ | 2001 10 23 | 704 | 0.2+ | 0.1− | 2005 11 29 | 704 | 0.9+ | 0.7+ | 2009 12 26 | 691 | 0.1− | 0.4− |
| 2001 10 14 | 645 | 0.0 | 0.1− | 2005 11 05 | 699 | 0.0 | 0.2− | 2009 11 20 | 704 | 0.2+ | 0.0 | 2001 10 23 | 704 | 0.3− | 0.2+ | 2005 11 29 | 704 | 0.5− | 0.5+ | | | | |
| 2001 10 16 | 704 | (0.2− | 2.3−) | 2005 11 05 | 704 | 0.1− | 0.2+ | 2009 11 20 | 704 | 1.1+ | 1.3+ | 2001 10 23 | 704 | 0.7− | 0.1+ | 2005 11 29 | 704 | 0.2− | 0.1+ | | | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 10 19 | 699 | 1.0+ | 0.8+ | 2005 11 25 | 703 | 0.6− | 0.2+ | 2009 11 26 | 691 | 0.2− | 0.3− |
| 2001 11 18 | 645 | 0.1+ | 0.1− | 2005 11 25 | 703 | 0.6+ | 1.0− | 2009 11 26 | 691 | 0.2− | 0.4+ |
| 2001 11 18 | 645 | 0.1+ | 0.1− | 2005 12 29 | G96 | 0.1+ | 0.2− | 2009 11 26 | 691 | 0.1− | 0.1− |
| 2005 10 22 | 644 | 0.2+ | 0.1+ | 2005 12 29 | G96 | 0.2+ | 0.2− | 2009 12 17 | G96 | 0.2+ | 0.3− |
| 2005 10 22 | 644 | 0.1+ | 0.1+ | 2005 12 29 | G96 | 0.1+ | 0.4− | 2009 12 17 | G96 | 0.1+ | 0.2− |
| 2005 10 22 | 644 | 0.2+ | 0.7+ | 2005 12 29 | G96 | 0.4+ | 0.2− | 2009 12 17 | G96 | 0.4+ | 0.2− |
| 2005 10 28 | 704 | 0.8+ | 0.6+ | 2006 02 25 | G96 | 0.1+ | 0.0 | 2009 12 17 | G96 | 0.4+ | 0.3− |

**(228475)∗ 2001 SM$_{49}$**

Discovered 2001 Sept. 16 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 105.14517 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26596160 | $\omega$ | 268.52450 | | +0.91515912 | +0.39752889 | |
| $a$ | 2.3947311 | $\Omega$ | 68.04785 | | −0.33527903 | +0.84260739 | |
| $e$ | 0.2206410 | $i$ | 4.12657 | | −0.22376719 | +0.36329543 | |
| $P$ | 3.71 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 11 | 699 | 0.1+ | 0.0 | 2001 10 24 | 704 | 0.4− | 0.1+ | 2005 12 02 | G96 | 0.3+ | 0.2+ |
| 2001 09 11 | 699 | 0.5+ | 0.2− | 2001 10 24 | 704 | 0.7− | 0.9+ | 2005 12 21 | 691 | 0.0 | 0.6+ |
| 2001 09 11 | 699 | 0.4+ | 0.2+ | 2001 10 24 | 704 | 1.1− | 0.0 | 2005 12 21 | 691 | 0.1+ | 0.4+ |
| 2001 09 11 | 699 | 0.3+ | 1.0+ | 2001 10 24 | 644 | 0.2+ | 1.5+ | 2005 12 21 | 691 | 0.1− | 0.2+ |
| 2001 09 16 | 704 | 0.3+ | 1.5+ | 2001 10 24 | 644 | 0.1− | 1.5+ | 2005 12 23 | 691 | 0.2+ | 0.2+ |
| 2001 09 16 | 704 | 1.0− | 1.3+ | 2001 10 24 | 644 | 0.4+ | 1.3+ | 2005 12 23 | 691 | 0.1− | 0.1+ |
| 2001 09 16 | 704 | 0.6+ | 0.9+ | 2001 10 25 | 645 | 0.0 | 0.1− | 2005 12 23 | 691 | 0.0 | 0.1+ |
| 2001 09 16 | 704 | 0.2+ | 1.3+ | 2001 10 25 | 645 | 0.0 | 0.2− | 2006 01 07 | G96 | 0.5+ | 0.2+ |
| 2001 09 19 | 704 | 0.2+ | 0.4− | 2001 11 18 | 645 | 0.1+ | 0.2− | 2006 01 07 | G96 | 0.0 | 0.0 |
| 2001 09 19 | 704 | 0.7+ | 0.1− | 2001 11 18 | 645 | 0.1+ | 0.2− | 2006 01 07 | G96 | 0.2− | 0.4+ |
| 2001 09 19 | 704 | 1.1+ | 0.6− | 2004 04 25 | 691 | 0.1+ | 0.1+ | 2006 01 07 | G96 | 0.3− | 0.1+ |
| 2001 09 19 | 704 | 0.5− | 0.0 | 2004 04 25 | 691 | 0.3+ | 0.2+ | 2006 01 25 | G96 | 0.0 | 0.5+ |
| 2001 09 19 | 704 | 0.1+ | 0.7− | 2004 04 25 | 691 | 0.1+ | 0.2+ | 2006 01 25 | G96 | 0.6− | 0.1+ |
| 2001 09 21 | 704 | 0.6− | 0.3+ | 2004 05 19 | 691 | 0.5+ | 0.4+ | 2006 01 25 | G96 | 0.7− | 0.1+ |
| 2001 09 21 | 704 | 0.6− | 0.3+ | 2004 05 19 | 691 | 0.5+ | 0.3+ | 2006 01 25 | G96 | 0.3− | 0.3+ |
| 2001 09 21 | 704 | 0.4− | 0.0 | 2004 05 19 | 691 | 0.1− | 1.4+ | 2007 02 25 | G96 | 0.0 | 0.3− |
| 2001 09 21 | 704 | 0.6− | 0.2+ | 2005 10 25 | G96 | 0.0 | 0.2− | 2007 02 25 | G96 | 0.2− | 0.2− |
| 2001 09 21 | 704 | 0.2− | 0.4− | 2005 10 25 | G96 | 0.3+ | 0.1− | 2007 02 25 | G96 | 0.5+ | 0.4− |
| 2001 09 27 | 644 | 0.3− | 0.2+ | 2005 10 25 | G96 | 0.3+ | 0.1− | 2007 02 25 | G96 | 0.4+ | 0.2+ |
| 2001 09 27 | 644 | 0.7− | 0.6+ | 2005 10 25 | G96 | 0.2+ | 0.1− | 2007 02 25 | G96 | 0.1+ | 0.1− |
| 2001 09 27 | 644 | 0.7− | 0.3+ | 2005 11 05 | 691 | 0.4+ | 0.3+ | 2007 02 25 | G96 | 0.1− | 0.1− |
| 2001 10 10 | 644 | 0.2− | 0.0 | 2005 11 05 | 691 | 0.2+ | 0.2+ | 2007 02 25 | G96 | 0.0 | 0.3+ |
| 2001 10 10 | 644 | 0.5− | 1.5+ | 2005 11 05 | 691 | 0.3+ | 0.2+ | 2007 02 25 | G96 | 0.0 | 0.0 |
| 2001 10 10 | 644 | 0.0 | 0.2− | 2005 11 10 | G96 | 0.4+ | 0.0 | 2007 03 12 | G96 | 0.1− | 0.5+ |
| 2001 10 10 | 644 | (0.5− | 1.5+) | 2005 11 10 | G96 | 0.5+ | 0.1− | 2007 03 12 | G96 | 0.2+ | 0.4+ |
| 2001 10 10 | 644 | 0.1− | 0.1− | 2005 11 10 | G96 | 0.1− | 0.1+ | 2007 03 12 | G96 | 0.4− | 0.1− |
| 2001 10 10 | 644 | (0.4− | 1.6+) | 2005 11 10 | G96 | 0.4+ | 0.2+ | 2007 03 12 | G96 | 0.5− | 0.2+ |
| 2001 10 16 | 704 | 0.6+ | 0.0 | 2005 11 25 | G96 | 0.4+ | 0.0 | 2009 11 20 | G96 | 0.0 | 0.2+ |
| 2001 10 16 | 704 | 0.1− | 0.5− | 2005 11 25 | G96 | 0.3+ | 0.1− | 2009 11 20 | G96 | 0.5+ | 0.1− |
| 2001 10 16 | 704 | 0.9− | 0.4+ | 2005 11 25 | G96 | 0.1+ | 0.1+ | 2009 11 20 | G96 | 0.2− | 0.0 |
| 2001 10 19 | 699 | 0.0 | 0.0 | 2005 11 25 | G96 | 0.6+ | 0.1+ | 2009 11 20 | G96 | 0.2− | 0.5+ |
| 2001 10 19 | 699 | 0.3− | 0.3+ | 2005 12 02 | G96 | 0.5+ | 0.1+ | 2009 12 26 | 691 | 0.6− | 0.3+ |
| 2001 10 19 | 699 | 1.0− | 0.9+ | 2005 12 02 | G96 | 0.5+ | 0.0 | 2009 12 26 | 691 | 0.4− | 0.1− |
| 2001 10 19 | 699 | 1.3− | 0.6+ | 2005 12 02 | G96 | 0.2+ | 0.2+ | 2009 12 26 | 691 | 0.9− | 0.2+ |

**(228476)∗ 2001 SU$_{50}$**

Discovered 2001 Sept. 16 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 59.20875 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26212467 | $\omega$ | 318.53021 | | +0.82687509 | −0.55455227 | |
| $a$ | 2.4180435 | $\Omega$ | 75.38378 | | +0.53808880 | +0.73177190 | |
| $e$ | 0.1896363 | $i$ | 5.54724 | | +0.16351766 | +0.39620912 | |
| $P$ | 3.76 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 05 11 | 691 | 0.1+ | 0.4+ | 2001 10 25 | 645 | 0.0 | 0.1− | 2005 12 27 | G96 | (2.0− | 0.5−) |
| 1996 05 11 | 691 | 0.3+ | 0.3+ | 2001 10 25 | 645 | 0.0 | 0.1− | 2005 12 27 | G96 | 0.2+ | 0.4− |
| 1996 05 11 | 691 | 0.4+ | 0.2+ | 2001 11 18 | 704 | 1.2+ | 0.1− | 2005 12 27 | G96 | 0.1− | 0.3− |
| 2001 09 16 | 704 | 0.3− | 1.3+ | 2001 11 18 | 704 | 0.3+ | 0.0 | 2005 12 27 | G96 | 0.0 | 0.4− |
| 2001 09 16 | 704 | 0.2− | 0.2− | 2001 11 18 | 704 | 1.1+ | 0.8+ | 2005 12 28 | 691 | 0.3− | 0.3+ |
| 2001 09 16 | 704 | 0.3+ | 0.5+ | 2001 11 18 | 704 | 1.1+ | 1.2+ | 2005 12 28 | 691 | 0.1− | 0.1+ |
| 2001 09 16 | 704 | 0.2+ | 0.4+ | 2001 11 18 | 704 | 1.0+ | 0.9+ | 2005 12 28 | 691 | (0.4+ | 2.0+) |
| 2001 09 17 | 699 | 0.8+ | 0.7+ | 2001 11 21 | 645 | 0.0 | 0.2− | 2006 01 25 | G96 | 0.4− | 0.5− |
| 2001 09 17 | 699 | 0.0 | 0.1+ | 2001 11 21 | 645 | 0.0 | 0.2− | 2006 01 25 | G96 | 0.0 | 0.3− |
| 2001 09 17 | 699 | 0.4− | 0.4+ | 2005 11 22 | 691 | 1.2− | 0.8+ | 2006 01 25 | G96 | 0.3− | 0.4− |
| 2001 09 17 | 699 | 0.2− | 0.5+ | 2005 11 22 | 691 | 0.0 | 0.1+ | 2006 01 25 | G96 | 0.1+ | 0.4− |
| 2001 09 19 | 704 | 0.2− | 0.0 | 2005 11 22 | 691 | 0.0 | 0.1+ | 2006 01 26 | G96 | 0.2+ | 0.2− |
| 2001 09 19 | 704 | (1.2− | 1.5−) | 2005 11 28 | G96 | 0.0 | 0.3− | 2006 01 26 | G96 | 0.5− | 0.2− |
| 2001 09 19 | 704 | 1.0− | 0.1+ | 2005 11 28 | G96 | 0.0 | 0.2− | 2006 01 26 | G96 | 0.1− | 0.3− |
| 2001 09 19 | 704 | 0.1− | 0.2+ | 2005 11 28 | G96 | 0.1+ | 0.3− | 2006 01 26 | G96 | 0.1+ | 0.2− |
| 2001 09 19 | 704 | 0.8− | 0.5+ | 2005 11 28 | G96 | 0.2− | 0.2− | 2006 03 03 | G96 | 0.1− | 0.1+ |
| 2001 09 21 | 704 | 0.3− | 0.9+ | 2005 11 29 | 704 | 0.1− | 0.5+ | 2006 03 03 | G96 | 0.1+ | 0.1− |
| 2001 09 21 | 704 | 0.1− | 0.7− | 2005 11 29 | 704 | 0.3+ | 0.6+ | 2006 03 03 | G96 | 0.4+ | 0.2− |
| 2001 09 21 | 704 | 0.2− | 1.1+ | 2005 11 29 | 704 | 0.2+ | 0.4− | 2006 03 03 | G96 | 0.4+ | 0.2+ |
| 2001 09 21 | 704 | 0.4+ | 1.2+ | 2005 11 29 | 704 | 0.0 | 0.4+ | 2007 03 26 | 291 | 0.1− | 0.3+ |
| 2001 09 21 | 704 | 0.7− | 0.5+ | 2005 11 29 | 704 | 0.1− | 0.1+ | 2007 03 26 | 291 | 0.4− | 0.2+ |
| 2001 10 10 | 644 | 0.5− | 0.3+ | 2005 12 01 | 704 | 0.5+ | 0.1+ | 2007 03 26 | 291 | 0.4− | 0.4+ |
| 2001 10 10 | 644 | 0.4− | 0.3+ | 2005 12 01 | 704 | 1.2+ | 0.6− | 2007 04 25 | G96 | 0.4+ | 0.1+ |
| 2001 10 10 | 644 | 0.4− | 0.3+ | 2005 12 01 | 704 | 0.1− | 0.1+ | 2007 04 25 | G96 | 0.2− | 0.2− |
| 2001 10 13 | 704 | 0.1− | 0.1− | 2005 12 01 | 704 | 1.3− | 0.7+ | 2007 04 25 | G96 | 0.3+ | 0.2− |
| 2001 10 13 | 704 | 0.1+ | 0.3+ | 2005 12 04 | 704 | 0.4+ | 0.1− | 2007 04 25 | G96 | 0.9+ | 0.3− |
| 2001 10 13 | 704 | 1.0− | 0.5+ | 2005 12 04 | 704 | 0.2− | 0.2+ | 2009 11 21 | G96 | 0.3+ | 0.1+ |
| 2001 10 13 | 704 | 0.9− | 0.7+ | 2005 12 04 | 704 | 0.2+ | 0.1+ | 2009 11 21 | G96 | 0.0 | 0.0 |
| 2001 10 16 | 704 | 0.7+ | 0.1+ | 2005 12 04 | 704 | 0.1− | 0.4+ | 2009 11 21 | G96 | 0.2+ | 0.2− |
| 2001 10 16 | 704 | 0.2+ | 0.1+ | 2005 12 04 | 704 | 0.5+ | 0.8− | 2009 11 21 | G96 | 0.5+ | 0.2− |
| 2001 10 16 | 704 | 0.2− | 0.9+ | 2005 12 06 | 704 | 0.9+ | 0.0 | 2009 12 17 | G96 | 0.6+ | 0.3− |
| 2001 10 16 | 704 | 0.5+ | 0.9+ | 2005 12 06 | 704 | 0.3− | 0.7+ | 2009 12 17 | G96 | 0.5+ | 0.3+ |
| 2001 10 16 | 704 | (0.7+ | 1.9+) | 2005 12 06 | 704 | 1.1+ | 0.7− | 2009 12 17 | G96 | 0.1+ | 0.1− |
| 2001 10 16 | 644 | 0.0 | 0.0 | 2005 12 06 | 704 | 0.4+ | 0.5− | 2009 12 17 | G96 | 0.4+ | 0.1+ |
| 2001 10 16 | 644 | 0.1+ | 0.1+ | 2005 12 06 | 704 | 0.1− | 0.2+ | 2009 12 20 | 691 | 0.3+ | 0.0 |
| 2001 10 16 | 644 | 0.1− | 0.3+ | 2005 12 21 | 703 | 0.8+ | 0.3+ | 2009 12 20 | 691 | 0.1+ | 0.1+ |
| 2001 10 20 | 704 | 0.0 | 0.2− | 2005 12 21 | 703 | 0.7− | 0.2+ | 2009 12 20 | 691 | 0.2+ | 0.2+ |
| 2001 10 20 | 704 | 0.6− | 0.7− | 2005 12 21 | 703 | 0.3+ | 0.3+ | | | | |
| 2001 10 20 | 704 | 0.3+ | 0.4− | 2005 12 21 | 703 | 0.7− | 0.4+ | | | | |

**(228477)∗ 2001 SK$_{52}$**

Discovered 2001 Sept. 16 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 114.50065 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26541811 | $\omega$ | 272.05873 | | +0.84068102 | +0.53710009 | |
| $a$ | 2.3979991 | $\Omega$ | 55.46191 | | −0.45748995 | +0.77270897 | |
| $e$ | 0.2043789 | $i$ | 4.81397 | | −0.28975570 | +0.33829624 | |
| $P$ | 3.71 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 16 | 704 | 0.1+ | 0.1− | 2001 10 24 | 704 | 0.6− | 0.1− | 2005 11 12 | 691 | 0.0 | 0.3+ |
| 2001 09 16 | 704 | 0.0 | 0.3+ | 2001 11 09 | 704 | 0.3+ | 1.0− | 2005 11 21 | 691 | 0.2− | 0.1+ |
| 2001 09 16 | 704 | 0.3+ | 0.4+ | 2001 11 09 | 704 | 1.0− | 0.2+ | 2005 11 21 | 691 | 0.1− | 0.3+ |
| 2001 09 16 | 704 | 0.5− | 0.7− | 2001 11 09 | 704 | (2.1− | 0.7+) | 2005 11 21 | 691 | 0.1− | 0.1+ |
| 2001 09 17 | 699 | 0.5− | 0.7+ | 2001 11 20 | 704 | 0.1+ | 0.0 | 2005 11 29 | 704 | 0.1+ | 0.0 |
| 2001 09 17 | 699 | 0.9− | 0.2+ | 2001 11 20 | 704 | 0.0 | 0.4− | 2005 11 29 | 704 | 0.3+ | 0.2− |
| 2001 09 17 | 699 | 0.8+ | 1.1+ | 2001 11 20 | 704 | 0.3− | 0.3+ | 2005 11 29 | 704 | 0.1+ | 0.8− |
| 2001 09 17 | 699 | 1.1− | 0.1+ | 2001 11 20 | 704 | 1.0+ | 0.2+ | 2005 11 29 | 704 | 0.6+ | 0.5− |
| 2001 09 19 | 704 | 0.1+ | 0.3− | 2001 11 20 | 704 | 0.2+ | 0.3− | 2005 12 21 | 691 | 0.1− | 0.1+ |
| 2001 09 19 | 704 | 0.9− | 0.6− | 2004 04 21 | 691 | 0.5+ | 0.3+ | 2005 12 21 | 691 | 0.3+ | 0.2− |
| 2001 09 19 | 704 | 0.7+ | 0.9− | 2004 04 21 | 691 | 0.1+ | 0.1+ | 2005 12 21 | 691 | 0.3+ | 0.3− |
| 2001 10 13 | 704 | 0.1− | 1.2+ | 2004 04 21 | 691 | 0.3+ | 0.1+ | 2005 12 23 | 691 | 0.2+ | 0.2+ |
| 2001 10 13 | 704 | 0.1− | 0.8+ | 2004 04 24 | 291 | 0.7− | 0.1+ | 2005 12 23 | 691 | 0.5+ | 0.1− |
| 2001 10 13 | 704 | 0.1+ | 0.8+ | 2004 04 24 | 291 | 1.0− | 0.2+ | 2005 12 23 | 691 | 0.1− | 0.1+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 10 16 | 704 | 0.2+ | 0.3− | 2004 04 24 | 291 | 0.5− | 0.0 | 2005 12 31 | G96 | 0.6− | 0.2+ | | |
| 2001 10 16 | 704 | 0.2+ | 0.3+ | 2004 04 28 | 691 | 0.2+ | 0.3+ | 2005 12 31 | G96 | 0.3+ | 0.1− | | |
| 2001 10 16 | 704 | (0.4− | 1.8−) | 2004 04 28 | 691 | 0.2+ | 0.6+ | 2005 12 31 | G96 | 0.5− | 0.0 | | |
| 2001 10 16 | 704 | 0.3+ | 0.9− | 2004 04 28 | 691 | 0.3+ | 0.3+ | 2005 12 31 | G96 | 0.3− | 0.1+ | | |
| 2001 10 16 | 704 | 1.4+ | 0.0 | 2004 05 12 | 699 | (2.0+ | 0.4+) | 2006 01 27 | G96 | 0.1+ | 0.2− | | |
| 2001 10 20 | 704 | 0.1− | 0.2+ | 2004 05 12 | 699 | 1.0+ | 0.4+ | 2006 01 27 | G96 | 0.4− | 0.0 | | |
| 2001 10 20 | 704 | 0.4− | 0.6+ | 2004 05 12 | 699 | 1.0− | 0.4+ | 2006 01 27 | G96 | 0.0 | 0.2+ | | |
| 2001 10 20 | 704 | 0.1− | 0.5+ | 2004 05 12 | 699 | 1.1− | 0.6+ | 2006 01 27 | G96 | 0.0 | 0.1− | | |
| 2001 10 20 | 704 | 0.1− | 0.4+ | 2004 06 08 | 691 | 0.4+ | 0.2− | 2007 02 25 | G96 | 0.6− | 0.1+ | | |
| 2001 10 20 | 704 | 0.0 | 0.3+ | 2004 06 08 | 691 | 0.7+ | 0.5− | 2007 02 25 | G96 | 0.0 | 0.4+ | | |
| 2001 10 22 | 704 | 0.6− | 0.9− | 2004 06 08 | 691 | 0.5+ | 0.0 | 2007 02 25 | G96 | 0.0 | 0.6+ | | |
| 2001 10 22 | 704 | 0.7+ | 0.1− | 2005 09 30 | G96 | 0.0 | 0.3− | 2007 02 25 | G96 | 0.6+ | 1.2− | | |
| 2001 10 22 | 704 | 0.1+ | 0.2+ | 2005 09 30 | G96 | 0.2+ | 0.1+ | 2009 11 21 | G96 | 0.0 | 0.1+ | | |
| 2001 10 22 | 704 | 1.4+ | 0.4− | 2005 09 30 | G96 | 0.3+ | 0.3− | 2009 11 21 | G96 | 0.3− | 0.1+ | | |
| 2001 10 23 | 704 | 0.6− | 0.2+ | 2005 09 30 | G96 | 0.0 | 0.1− | 2009 11 21 | G96 | 0.2+ | 0.4− | | |
| 2001 10 23 | 704 | 0.8− | 0.3+ | 2005 10 27 | G96 | 0.1− | 0.3− | 2009 11 21 | G96 | 0.0 | 0.2− | | |
| 2001 10 23 | 704 | 0.2− | 0.1+ | 2005 10 27 | G96 | 0.1+ | 0.1− | 2009 12 18 | 691 | 0.1− | 0.3+ | | |
| 2001 10 23 | 704 | 0.7− | 0.6− | 2005 10 27 | G96 | 0.2+ | 0.2− | 2009 12 18 | 691 | 0.3− | 0.3+ | | |
| 2001 10 24 | 704 | 0.7− | 1.2+ | 2005 10 27 | G96 | 0.1− | 0.1− | 2009 12 18 | 691 | 0.5− | 0.4+ | | |
| 2001 10 24 | 704 | 0.9− | 0.3+ | 2005 11 12 | 691 | 0.4+ | 0.2+ | | | | | | |
| 2001 10 24 | 704 | 0.8− | 0.2+ | 2005 11 12 | 691 | 0.1+ | 0.1+ | | | | | | |

**(228478)∗ 2001 SS$_{73}$ = 2001 QP$_{179}$ = 2003 FO$_{59}$**

Discovered 2001 Sept. 20 by W. K. Y. Yeung at Desert Eagle Observatory.

Id. M. E. Sansaturio (d, *MPO* 21170), G. V. Williams (*MPO* 46632)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 23.95159 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26112568 | $\omega$ | 104.71944 | | +0.33662653 | −0.94084084 | |
| $a$ | 2.4242067 | $\Omega$ | 325.53093 | | +0.83546103 | +0.31739673 | |
| $e$ | 0.1620770 | $i$ | 3.92535 | | +0.43438168 | +0.11865002 | |
| $P$ | 3.77 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 27 | 699 | 0.0 | 0.1− | 2001 10 21 | 704 | 0.3+ | 1.1+ | 2005 11 28 | 704 | 0.0 | 0.2− | | |
| 2001 08 27 | 699 | 0.1+ | 1.0+ | 2001 10 23 | 333 | 0.3+ | 0.2+ | 2005 11 28 | 704 | 0.0 | 0.0 | | |
| 2001 08 27 | 699 | 0.0 | 1.0+ | 2001 10 23 | 333 | 0.0 | 0.1+ | 2005 11 28 | 704 | 0.4+ | 0.3− | | |
| 2001 08 27 | 699 | 0.3+ | 1.1+ | 2001 10 23 | 333 | 0.5− | 0.4+ | 2005 11 28 | 704 | 0.2+ | 0.2− | | |
| 2001 09 14 | 644 | (0.1+ | 1.8+) | 2003 03 26 | 644 | 0.8+ | 0.6+ | 2005 11 28 | 703 | 0.3− | 0.4+ | | |
| 2001 09 14 | 644 | 0.1+ | 1.1+ | 2003 03 26 | 644 | 0.6+ | 0.5+ | 2005 11 28 | 703 | 0.2− | 0.5− | | |
| 2001 09 14 | 644 | 0.3+ | 1.1+ | 2003 03 26 | 644 | 0.3+ | 0.3+ | 2005 11 28 | 703 | 0.6− | 0.4+ | | |
| 2001 09 17 | 704 | 0.6+ | 0.1− | 2003 03 27 | 644 | 0.8+ | 0.5+ | 2005 11 28 | 703 | 0.0 | 0.3+ | | |
| 2001 09 17 | 704 | 0.3+ | 0.2− | 2003 03 27 | 644 | 1.1+ | 0.5+ | 2005 11 30 | 704 | 0.4+ | 0.0 | | |
| 2001 09 17 | 704 | 0.6+ | 0.9− | 2003 03 27 | 644 | 1.0+ | 0.9+ | 2005 11 30 | 704 | 0.7+ | 0.5− | | |
| 2001 09 17 | 704 | 0.6+ | 0.4− | 2003 03 30 | 699 | 0.5+ | 0.2+ | 2005 11 30 | 704 | 0.3+ | 0.1+ | | |
| 2001 09 20 | 333 | 1.2+ | 0.1+ | 2003 03 30 | 699 | 0.9+ | 0.8+ | 2005 11 30 | 704 | 0.1− | 0.2+ | | |
| 2001 09 20 | 333 | 1.1+ | 0.5− | 2003 03 30 | 699 | 0.8+ | 1.2− | 2005 11 30 | 704 | 0.7+ | 0.2− | | |
| 2001 09 20 | 704 | (0.2− | 1.8+) | 2003 03 30 | 699 | 0.0 | 0.3+ | 2005 12 01 | 644 | 0.1+ | 0.2+ | | |
| 2001 09 20 | 333 | 0.8+ | 0.2+ | 2003 04 24 | 691 | 0.2− | 0.6+ | 2005 12 01 | 644 | 0.1− | 0.1+ | | |
| 2001 09 20 | 704 | 0.1− | 0.1+ | 2003 04 24 | 691 | 0.0 | 1.0+ | 2005 12 01 | 644 | 0.1− | 0.0 | | |
| 2001 09 20 | 704 | 0.4− | 0.8+ | 2003 04 24 | 691 | 0.2− | 0.5+ | 2005 12 02 | 704 | 1.0− | 0.2− | | |
| 2001 09 20 | 704 | 0.9− | 0.1+ | 2005 10 23 | 644 | 0.4+ | 0.2− | 2005 12 02 | 704 | 0.3− | 0.2+ | | |
| 2001 09 20 | 704 | 0.2− | 1.3+ | 2005 10 23 | 644 | 0.1+ | 0.1− | 2005 12 02 | 704 | 0.1+ | 0.1− | | |
| 2001 09 21 | 333 | 0.7+ | 0.0 | 2005 10 23 | 703 | 0.4− | 0.2+ | 2005 12 02 | 704 | 0.3− | 0.2− | | |
| 2001 09 21 | 333 | 1.1+ | 0.1+ | 2005 10 23 | 703 | 0.3− | 0.2+ | 2005 12 05 | 704 | 0.9+ | 0.5+ | | |
| 2001 09 21 | 333 | 1.0+ | 0.3+ | 2005 10 23 | 703 | 0.4− | 0.1+ | 2005 12 05 | 704 | 0.2+ | 0.5+ | | |
| 2001 09 23 | 704 | 1.3− | 0.3− | 2005 10 23 | 644 | 0.2+ | 0.0 | 2005 12 05 | 704 | 0.1− | 0.3+ | | |
| 2001 09 23 | 704 | 1.3− | 0.2− | 2005 10 23 | 703 | 0.8− | 0.4− | 2005 12 05 | 704 | (0.3− | 1.7+) | | |
| 2001 09 23 | 704 | 1.4− | 0.4− | 2005 10 29 | 703 | 0.1+ | 0.2− | 2005 12 05 | 704 | (0.4+ | 1.5+) | | |
| 2001 09 23 | 704 | 1.2− | 0.4− | 2005 10 29 | 703 | 0.0 | 0.2+ | 2005 12 08 | 703 | 0.7+ | 0.3− | | |
| 2001 09 25 | 699 | 0.8− | 0.2+ | 2005 10 29 | 703 | 1.5− | 1.2− | 2005 12 08 | 703 | 0.2+ | 0.5− | | |
| 2001 09 25 | 699 | 0.4− | 0.6+ | 2005 10 30 | 704 | 0.2− | 0.3− | 2005 12 08 | 703 | 0.2+ | 0.0 | | |
| 2001 09 25 | 699 | 0.5− | 0.1− | 2005 10 30 | 704 | 0.5− | 0.7− | 2005 12 08 | 703 | 0.3+ | 0.2− | | |
| 2001 09 25 | 699 | 0.4+ | 0.0 | 2005 10 30 | 704 | 0.3− | 0.6− | 2005 12 10 | 704 | (0.2− | 2.3−) | | |
| 2001 09 28 | 644 | 0.1+ | 0.3+ | 2005 10 30 | 704 | 0.5− | 0.1− | 2005 12 10 | 704 | (0.2− | 2.1−) | | |
| 2001 09 28 | 644 | 0.1+ | 0.6+ | 2005 10 30 | 704 | 0.4− | 1.0− | 2005 12 10 | 704 | 0.1+ | 1.1− | | |
| 2001 09 28 | 644 | 0.4+ | 0.4+ | 2005 11 02 | 704 | 0.9− | 0.6− | 2005 12 10 | 704 | 0.5+ | 0.8+ | | |
| 2001 10 06 | 644 | 0.4− | 0.2+ | 2005 11 02 | 704 | 1.1− | 0.6− | 2005 12 10 | 704 | (1.0+ | 1.8−) | | |
| 2001 10 06 | 644 | 0.7− | 0.0 | 2005 11 02 | 704 | 0.9− | 0.5− | 2006 01 05 | 704 | 0.2+ | 0.6− | | |
| 2001 10 06 | 644 | 0.6− | 0.1+ | 2005 11 02 | 704 | 0.8− | 0.0 | 2006 01 05 | 704 | 0.2+ | 0.5− | | |
| 2001 10 14 | 704 | 0.4− | 0.7+ | 2005 11 02 | 704 | 0.8− | 1.4− | 2006 01 05 | 704 | 1.4+ | 0.0 | | |
| 2001 10 14 | 704 | 0.4− | 0.8+ | 2005 11 08 | 704 | 0.3− | 0.0 | 2006 01 27 | 703 | (0.1− | 1.8+) | | |
| 2001 10 14 | 704 | 0.3− | 1.0+ | 2005 11 08 | 704 | 0.6− | 0.0 | 2006 01 27 | 703 | 0.3− | 0.0 | | |
| 2001 10 14 | 704 | 0.5+ | 0.5+ | 2005 11 08 | 704 | 0.1− | 0.4+ | 2006 01 27 | 703 | 0.4+ | 0.1+ | | |
| 2001 10 15 | 608 | 0.4− | 0.1+ | 2005 11 08 | 704 | 0.4− | 0.1+ | 2006 01 27 | 703 | 0.0 | 0.7+ | | |
| 2001 10 15 | 608 | 0.4− | 0.3+ | 2005 11 08 | 704 | 0.2− | 0.1− | 2007 04 20 | 691 | 0.0 | 0.3+ | | |
| 2001 10 15 | 608 | 0.6− | 0.0 | 2005 11 08 | 703 | 0.0 | 0.3− | 2007 04 20 | 691 | 0.1− | 0.2+ | | |
| 2001 10 17 | 704 | 0.2− | 0.6+ | 2005 11 08 | 703 | 0.8− | 0.4− | 2007 04 20 | 691 | 0.0 | 0.5+ | | |
| 2001 10 17 | 704 | 0.5− | 0.8+ | 2005 11 08 | 703 | 0.7− | 0.3+ | 2009 12 09 | J75 | 0.6+ | 0.4− | | |
| 2001 10 17 | 704 | 0.6− | 0.1+ | 2005 11 08 | 703 | 0.4+ | 0.0 | 2009 12 09 | J75 | 0.4+ | 0.1− | | |
| 2001 10 17 | 704 | 0.4+ | 0.1− | 2005 11 21 | 703 | 0.4+ | 0.1+ | 2009 12 09 | J75 | 0.9+ | 0.6− | | |
| 2001 10 17 | 704 | 0.2+ | 0.5+ | 2005 11 21 | 644 | 0.0 | 0.1− | 2009 12 16 | 704 | 0.4+ | 0.4+ | | |
| 2001 10 18 | 644 | 0.2− | 1.1+ | 2005 11 21 | 703 | 0.2− | 0.4+ | 2009 12 16 | 704 | 1.3+ | 1.1+ | | |
| 2001 10 18 | 644 | 0.1+ | 1.0+ | 2005 11 21 | 703 | (0.7− | 1.5+) | 2009 12 16 | 704 | 0.6+ | 0.5+ | | |
| 2001 10 18 | 644 | 0.1+ | 1.1+ | 2005 11 21 | 703 | 0.3− | 0.5+ | 2009 12 16 | 704 | 1.0+ | 0.9+ | | |
| 2001 10 21 | 704 | 0.2− | 0.6+ | 2005 11 21 | 644 | 0.1+ | 0.1− | 2009 12 16 | 704 | 0.4+ | 0.9+ | | |
| 2001 10 21 | 704 | 0.4− | 0.6+ | 2005 11 21 | 644 | 0.1− | 0.0 | | | | | | |
| 2001 10 21 | 704 | 0.3+ | 0.5+ | 2005 11 28 | 704 | 0.6+ | 0.3+ | | | | | | |

**(228479)∗ 2001 SR$_{74}$**

Discovered 2001 Sept. 19 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 56.07726 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.25773533 | $\omega$ | 121.19098 | | +0.93499149 | −0.34307884 | |
| $a$ | 2.4454198 | $\Omega$ | 259.00405 | | +0.28618557 | +0.87956992 | |
| $e$ | 0.1179080 | $i$ | 5.25648 | | +0.20949637 | +0.32962657 | |
| $P$ | 3.82 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 19 | 699 | 0.0 | 0.5+ | 2001 11 18 | 695 | 0.2+ | 0.1+ | 2005 11 29 | 699 | 0.2+ | 0.5− | | |
| 2001 09 19 | 699 | 0.5− | 0.1− | 2001 11 18 | 695 | 0.1− | 0.2− | 2005 11 29 | 699 | (1.8+ | 0.1+) | | |
| 2001 09 19 | 699 | 0.0 | 0.4+ | 2001 11 18 | 695 | 0.4+ | 0.7− | 2005 11 29 | 704 | 0.2− | 0.2+ | | |
| 2001 09 19 | 699 | 0.2− | 0.2+ | 2001 11 18 | 695 | 0.2− | 0.0 | 2005 11 29 | 704 | 0.2− | 0.2+ | | |
| 2001 09 20 | 704 | 0.1+ | 0.5− | 2001 11 18 | 695 | 0.0 | 0.2− | 2005 11 29 | 704 | 0.6− | 0.1− | | |
| 2001 09 20 | 704 | 0.1− | 0.0 | 2001 11 20 | 699 | 0.1− | 0.7− | 2005 11 29 | 704 | 1.2− | 0.8+ | | |
| 2001 09 20 | 704 | 0.8− | 0.5− | 2001 11 20 | 699 | (2.0− | 0.4+) | 2005 11 29 | 704 | 0.5− | 0.7+ | | |
| 2001 09 20 | 699 | 0.1+ | 0.1− | 2001 11 20 | 699 | 0.2− | 0.2+ | 2005 12 02 | 704 | 0.3− | 0.5+ | | |
| 2001 09 20 | 699 | 0.0 | 0.2− | 2001 11 20 | 699 | 1.2+ | 0.3+ | 2005 12 02 | 704 | 0.0 | 0.2+ | | |
| 2001 09 20 | 704 | 0.7− | 0.9− | 2001 11 20 | 608 | 0.5− | 0.1− | 2005 12 02 | 704 | 0.4+ | 0.0 | | |
| 2001 09 20 | 699 | 0.4− | 0.1+ | 2001 11 20 | 608 | 0.7− | 0.1− | 2005 12 02 | 704 | 0.1+ | 0.6+ | | |
| 2001 09 20 | 699 | 0.1− | 0.2− | 2001 11 20 | 608 | 1.1− | 0.7− | 2005 12 02 | 704 | 0.1+ | 0.5+ | | |
| 2001 09 20 | 704 | 0.9− | 0.2− | 2001 12 11 | 704 | 0.0 | 0.1+ | 2005 12 05 | 704 | 0.0 | 0.2− | | |
| 2001 09 22 | 704 | 0.1+ | 0.4+ | 2001 12 11 | 704 | 0.8− | 0.1− | 2005 12 05 | 704 | 0.4+ | 0.2+ | | |
| 2001 09 22 | 704 | 0.3+ | 0.8+ | 2001 12 11 | 704 | 0.2− | 0.1− | 2005 12 05 | 704 | 0.5− | 0.2+ | | |
| 2001 09 22 | 704 | 0.2− | 0.9+ | 2001 12 11 | 704 | 0.3− | 0.3− | 2005 12 05 | 704 | 0.1+ | 0.1− | | |
| 2001 09 22 | 704 | 0.1− | 0.2+ | 2001 12 11 | 704 | 0.0 | 0.4+ | 2005 12 05 | 704 | 0.1+ | 0.4− | | |
| 2001 09 23 | 704 | 0.8+ | 0.0 | 2003 03 07 | 704 | 0.2− | 0.7+ | 2005 12 05 | 699 | 0.0 | 0.3− | | |
| 2001 09 23 | 704 | 1.1+ | 0.4+ | 2003 03 07 | 704 | 0.3+ | 0.6+ | 2005 12 05 | 699 | 0.7+ | 0.6+ | | |
| 2001 09 23 | 704 | 1.2+ | 0.0 | 2003 03 07 | 704 | 0.9+ | 0.4+ | 2005 12 05 | 699 | 0.2+ | 0.1− | | |
| 2001 09 23 | 704 | 0.4+ | 0.2+ | 2005 10 23 | 644 | 0.0 | 0.0 | 2005 12 05 | 699 | 0.6− | 0.1− | | |
| 2001 09 23 | 704 | 1.3+ | 0.5+ | 2005 10 23 | 644 | 0.0 | 0.1+ | 2005 12 07 | 691 | 0.4− | 0.4+ | | |
| 2001 09 28 | 644 | 0.1+ | 1.0+ | 2005 10 23 | 644 | 0.1+ | 0.4+ | 2005 12 07 | 691 | 0.1+ | 0.1− | | |
| 2001 09 28 | 644 | 0.1+ | 1.0+ | 2005 10 25 | 699 | 0.7+ | 0.9− | 2005 12 07 | 691 | 0.0 | 0.1− | | |
| 2001 09 28 | 644 | 0.1+ | 1.0+ | 2005 10 25 | 699 | 0.4− | 0.1− | 2005 12 09 | 704 | 0.0 | 0.1+ | | |
| 2001 10 07 | 644 | 0.2− | 0.5− | 2005 10 25 | 699 | 0.6− | 0.7+ | 2005 12 09 | 704 | 0.3+ | 0.4+ | | |
| 2001 10 07 | 644 | 0.7+ | 0.7− | 2005 10 26 | 699 | 0.3+ | 0.2− | 2005 12 09 | 704 | 0.6− | 0.3− | | |
| 2001 10 07 | 644 | 0.4+ | 0.0 | 2005 10 26 | 699 | 0.0 | 0.0 | 2005 12 09 | 704 | 0.3+ | 0.4− | | |
| 2001 10 12 | 699 | 0.8+ | 0.1+ | 2005 10 26 | 699 | 0.8+ | 0.3+ | 2005 12 09 | 704 | 0.1+ | 0.6− | | |
| 2001 10 12 | 699 | 1.0+ | 0.3+ | 2005 10 26 | 699 | (0.8+ | 1.9−) | 2005 12 10 | 691 | 0.2− | 0.2− | | |
| 2001 10 12 | 699 | 0.9+ | 0.2− | 2005 11 01 | 704 | 0.5+ | 1.0+ | 2005 12 10 | 691 | 0.0 | 0.2− | | |
| 2001 10 12 | 699 | 0.6+ | 0.1+ | 2005 11 01 | 704 | 0.2+ | 0.2+ | 2005 12 10 | 691 | 0.1− | 0.0 | | |
| 2001 10 14 | 704 | 0.0 | 0.9− | 2005 11 01 | 704 | 0.0 | 0.6+ | 2006 01 06 | G96 | 0.0 | 0.6− | | |
| 2001 10 14 | 704 | 0.2− | 1.4− | 2005 11 01 | 704 | 0.6− | 0.8+ | 2006 01 06 | G96 | 0.3+ | 0.2− | | |
| 2001 10 14 | 704 | 0.1+ | 0.9− | 2005 11 01 | 704 | 0.1+ | 0.6+ | 2006 01 06 | G96 | 0.0 | 0.5− | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 10 14 | 704 | (0.5+ | 1.6−) | 2005 11 04 | 704 | 0.4+ | 0.4+ | 2006 01 06 | G96 | 0.2− | 0.3− | | |
| 2001 10 14 | 704 | 0.3+ | 1.2− | 2005 11 04 | 704 | 0.9+ | 0.0 | 2006 01 20 | 699 | (0.4− | 2.2−) | | |
| 2001 10 17 | 704 | 0.6− | 0.0 | 2005 11 04 | 704 | 0.3+ | 0.2+ | 2006 01 20 | 699 | 1.1+ | 0.5+ | | |
| 2001 10 17 | 704 | 0.2− | 0.2+ | 2005 11 04 | 704 | 0.2− | 0.5+ | 2006 01 20 | 699 | (0.4+ | 1.6−) | | |
| 2001 10 17 | 704 | 0.5− | 0.4+ | 2005 11 04 | 704 | 0.1− | 0.0 | 2006 01 20 | 699 | (4.2− | 0.2+) | | |
| 2001 10 17 | 704 | 0.8− | 0.7+ | 2005 11 05 | 691 | 0.0 | 0.1+ | 2007 03 13 | 703 | 0.2+ | 0.2− | | |
| 2001 10 17 | 704 | 1.0+ | 0.4− | 2005 11 05 | 691 | 0.1+ | 0.1− | 2007 03 13 | 703 | 0.4+ | 0.7− | | |
| 2001 10 20 | 644 | 0.1− | 0.1+ | 2005 11 05 | 691 | 0.6− | 0.2+ | 2007 03 13 | 703 | 1.0− | 1.2+ | | |
| 2001 10 20 | 644 | 0.3− | 0.1+ | 2005 11 08 | 704 | 0.1− | 1.0+ | 2007 03 13 | 703 | 0.3+ | 1.2+ | | |
| 2001 10 20 | 644 | 0.2− | 0.1+ | 2005 11 08 | 704 | 0.0 | 0.7+ | 2009 11 17 | 704 | 0.9+ | 0.2− | | |
| 2001 10 21 | 704 | 0.1− | 0.2+ | 2005 11 08 | 704 | 0.4− | 0.8+ | 2009 11 17 | 704 | 0.5+ | 0.6+ | | |
| 2001 10 21 | 704 | 0.6− | 0.8− | 2005 11 08 | 704 | 0.3− | 0.2+ | 2009 11 17 | 704 | 0.7+ | 0.5+ | | |
| 2001 10 21 | 704 | 0.1− | 0.3+ | 2005 11 08 | 704 | 0.0 | 0.3+ | 2009 11 17 | 691 | 0.5− | 0.1− | | |
| 2001 10 21 | 704 | 0.2+ | 0.7− | 2005 11 20 | 699 | 0.0 | 0.7+ | 2009 11 17 | 691 | 0.2− | 0.2− | | |
| 2001 10 21 | 704 | 0.4+ | 0.2− | 2005 11 20 | 699 | 0.4− | 0.6+ | 2009 11 17 | 691 | 1.6− | 0.4− | | |
| 2001 11 10 | 704 | 0.1− | 0.2+ | 2005 11 20 | 699 | 0.6− | 0.0 | 2009 12 09 | J75 | 0.2− | 0.7− | | |
| 2001 11 10 | 644 | 0.2+ | 0.1− | 2005 11 20 | 699 | (2.0+ | 1.0−) | 2009 12 09 | J75 | 0.1− | 0.4− | | |
| 2001 11 10 | 644 | 0.3+ | 0.5+ | 2005 11 25 | 691 | 0.0 | 0.2− | 2009 12 09 | J75 | 0.3− | 0.6− | | |
| 2001 11 10 | 704 | 0.3− | 0.6− | 2005 11 25 | 691 | 0.1− | 0.2− | 2009 12 09 | J75 | 0.1+ | 0.5− | | |
| 2001 11 10 | 644 | 0.1− | 0.0 | 2005 11 25 | 691 | 0.0 | 0.1− | 2009 12 09 | J75 | 0.3+ | 0.0 | | |
| 2001 11 10 | 704 | 0.9+ | 0.7− | 2005 11 28 | 703 | 0.4+ | 0.9− | 2009 12 09 | J75 | 0.3+ | 0.3− | | |
| 2001 11 10 | 704 | 0.8− | 0.5− | 2005 11 28 | 703 | 0.1+ | 0.3− | 2009 12 10 | G96 | 0.0 | 0.2− | | |
| 2001 11 17 | 704 | 0.6− | 0.4+ | 2005 11 28 | 703 | 0.1+ | 0.2− | 2009 12 10 | G96 | 0.4+ | 0.3− | | |
| 2001 11 17 | 704 | 0.3− | 0.6+ | 2005 11 28 | 703 | 0.1+ | 0.1+ | 2009 12 10 | G96 | 0.2+ | 0.4− | | |
| 2001 11 17 | 704 | 0.1− | 0.1− | 2005 11 29 | 699 | 0.5− | 0.1+ | 2009 12 10 | G96 | 0.5+ | 0.3− | | |
| 2001 11 17 | 704 | 0.2+ | 0.1+ | 2005 11 29 | 699 | 1.0+ | 0.6+ | 2009 12 17 | 704 | 1.0+ | 0.3+ | | |
| 2001 11 17 | 644 | 0.1+ | 0.4+ | 2005 11 29 | 699 | 0.3− | 0.7+ | 2009 12 17 | 704 | 2.1+ | 0.4+ | | |
| 2001 11 17 | 704 | 0.2− | 0.3+ | 2005 11 29 | 699 | 0.1− | 0.4+ | 2009 12 17 | 704 | 0.9+ | 0.2− | | |
| 2001 11 17 | 644 | 0.4− | 0.5+ | 2005 11 29 | 699 | 0.0 | 0.2− | 2009 12 17 | 704 | 1.0+ | 0.2− | | |
| 2001 11 17 | 644 | 0.1− | 0.3+ | 2005 11 29 | 699 | 1.4+ | 0.1− | 2009 12 17 | 704 | 1.2+ | 0.7− | | |

**(228480)∗ 2001 SR$_{76}$ = 2001 TV$_{197}$**

Discovered 2001 Sept. 16 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. A. Doppler (d, *MPO* 24065)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 358.57043 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24567196 | $\omega$ | 104.06186 | | +0.79871108 | −0.60000720 | |
| $a$ | 2.5248311 | $\Omega$ | 292.82794 | | +0.53136268 | +0.73864897 | |
| $e$ | 0.1692455 | $i$ | 2.81712 | | +0.28233722 | +0.30722801 | |
| $P$ | 4.01 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 16 | 704 | 0.3+ | 1.2+ | 2005 08 29 | 691 | 0.2− | 0.1− | 2007 03 16 | G96 | 0.1− | 0.1+ | | |
| 2001 09 16 | 704 | 0.4− | 0.3− | 2005 08 29 | 691 | 0.2+ | 0.2− | 2007 03 16 | G96 | 0.3− | 0.2− | | |
| 2001 09 16 | 704 | 0.1+ | 0.3− | 2005 08 29 | 691 | 0.2+ | 0.0 | 2009 08 16 | 691 | 0.1+ | 0.2− | | |
| 2001 09 16 | 704 | 0.1+ | 0.3− | 2005 08 29 | 699 | (1.8− | 0.2−) | 2009 08 16 | 691 | 0.1− | 0.0 | | |
| 2001 09 18 | 699 | 0.6+ | 0.8+ | 2005 08 29 | 699 | (1.8− | 0.7−) | 2009 08 16 | 691 | 0.1− | 0.2+ | | |
| 2001 09 18 | 699 | 0.6+ | 0.6+ | 2005 08 29 | 699 | 0.3+ | 0.3− | 2009 08 20 | 691 | 0.0 | 0.0 | | |
| 2001 09 18 | 699 | 0.4+ | 1.0+ | 2005 08 29 | 699 | 0.3− | 1.1+ | 2009 08 20 | 691 | 0.0 | 0.1+ | | |
| 2001 09 18 | 699 | 1.1+ | 1.1+ | 2005 08 30 | 704 | 0.5+ | 0.1− | 2009 08 20 | 691 | 0.0 | 0.0 | | |
| 2001 09 22 | 704 | 0.8− | 1.2+ | 2005 08 30 | 704 | 0.2− | 0.2+ | 2009 08 29 | 691 | 0.1− | 0.1+ | | |
| 2001 09 22 | 704 | 0.2+ | 0.5+ | 2005 08 30 | 704 | 0.7− | 0.0 | 2009 08 29 | 691 | 0.0 | 0.1+ | | |
| 2001 09 22 | 704 | 0.5− | 0.6− | 2005 08 30 | 704 | 0.4− | 0.2− | 2009 08 29 | 691 | 0.1− | 0.3− | | |
| 2001 09 22 | 704 | 0.2− | 0.0 | 2005 08 30 | 704 | 0.2+ | 0.3− | 2009 08 30 | J75 | 0.4+ | 0.5− | | |
| 2001 09 24 | 704 | 0.1− | 0.2− | 2005 09 23 | 699 | 0.4+ | 0.3+ | 2009 08 30 | J75 | 0.4− | 0.8− | | |
| 2001 09 24 | 704 | 0.6+ | 0.7+ | 2005 09 23 | 699 | 0.3+ | 0.4− | 2009 08 30 | J75 | 0.3+ | 0.1+ | | |
| 2001 09 24 | 704 | 0.0 | 0.4− | 2005 09 23 | 699 | 0.2− | 0.3+ | 2009 09 16 | G96 | 0.5+ | 0.5− | | |
| 2001 09 24 | 704 | 0.1− | 0.7− | 2005 09 23 | 699 | 0.3− | 0.0 | 2009 09 16 | G96 | 0.2+ | 0.3− | | |
| 2001 09 24 | 704 | 0.1+ | 0.2− | 2005 09 26 | 703 | 0.4− | 0.6− | 2009 09 16 | G96 | 0.4+ | 0.3− | | |
| 2001 09 25 | 699 | 0.3+ | 0.4− | 2005 09 26 | 703 | 0.2+ | 0.4− | 2009 09 16 | G96 | 0.0 | 0.2− | | |
| 2001 09 25 | 699 | (1.9− | 0.3+) | 2005 09 26 | 703 | 0.2+ | 0.2+ | 2009 10 15 | 704 | 0.4− | 1.2+ | | |
| 2001 09 25 | 699 | 0.2+ | 0.6− | 2005 09 26 | 703 | (3.5− | 1.2+) | 2009 10 15 | 704 | 0.5− | 0.3+ | | |
| 2001 09 25 | 699 | 0.0 | 0.8− | 2005 10 07 | 704 | 1.1− | 0.6+ | 2009 10 15 | 704 | 0.2+ | 0.7+ | | |
| 2001 10 14 | 704 | 0.7− | 0.8− | 2005 10 07 | 704 | 0.9− | 0.7+ | 2009 10 15 | 704 | 0.5+ | 1.4+ | | |
| 2001 10 14 | 704 | (1.0− | 2.2−) | 2005 10 07 | 704 | 0.3− | 0.5+ | 2009 10 15 | 704 | 0.4+ | 0.6+ | | |
| 2001 10 14 | 704 | 0.1+ | 1.2− | 2007 02 23 | G96 | 0.3− | 0.1− | 2009 10 16 | 704 | 1.6+ | 0.2− | | |
| 2001 10 14 | 704 | 0.2− | 0.5− | 2007 02 23 | G96 | 0.1− | 0.1− | 2009 10 16 | 704 | 1.1+ | 0.3− | | |
| 2001 10 21 | 704 | 0.7− | 0.5+ | 2007 02 23 | G96 | 0.0 | 0.2− | 2009 10 16 | 704 | 0.3− | 0.6− | | |
| 2001 10 21 | 704 | 0.1− | 0.3+ | 2007 02 23 | G96 | 0.4− | 0.0 | 2009 10 16 | 704 | 0.1+ | 0.5− | | |
| 2001 10 21 | 704 | 0.5− | 0.4− | 2007 03 12 | G96 | 0.0 | 0.1+ | 2009 12 18 | G96 | 0.2+ | 0.7− | | |
| 2001 10 21 | 704 | 0.2+ | 1.2+ | 2007 03 12 | G96 | 0.3+ | 0.2− | 2009 12 18 | G96 | 0.0 | 0.7− | | |
| 2001 10 21 | 704 | 0.6− | 0.2+ | 2007 03 12 | G96 | 0.2+ | 0.0 | 2009 12 18 | G96 | 0.2− | 0.8− | | |
| 2005 08 25 | 644 | 0.3− | 0.0 | 2007 03 12 | G96 | 0.1+ | 0.1+ | 2009 12 18 | G96 | 0.1+ | 0.2− | | |
| 2005 08 25 | 644 | 0.4− | 0.3− | 2007 03 16 | G96 | 0.5+ | 0.2+ | | | | | | |
| 2005 08 25 | 644 | 0.4− | 0.2− | 2007 03 16 | G96 | 0.1− | 0.1+ | | | | | | |

**(228481)∗ 2001 SB$_{78}$ = 2005 UD$_{60}$**

Discovered 2001 Sept. 19 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 88906)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 34.38439 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26405819 | $\omega$ | 229.55948 | | +0.49600585 | −0.86830437 | |
| $a$ | 2.4062253 | $\Omega$ | 190.70790 | | +0.80470127 | +0.46185190 | |
| $e$ | 0.1857521 | $i$ | 1.56383 | | +0.32624234 | +0.18094292 | |
| $P$ | 3.73 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1960 09 24 | 675 | 0.1− | 0.0 | 2001 09 22 | 704 | (2.4+ | 2.7−) | 2005 12 01 | 704 | 0.3+ | 0.4− | | |
| 1960 09 24 | 675 | 0.4− | 0.5− | 2001 09 23 | 704 | 0.3+ | 0.4+ | 2005 12 01 | 704 | 1.1+ | 0.3+ | | |
| 1960 09 24 | 675 | 0.2+ | 0.1+ | 2001 09 23 | 704 | 0.0 | 0.2+ | 2005 12 01 | 704 | 1.1+ | 0.4− | | |
| 1960 09 24 | 675 | 0.1− | 0.6− | 2001 09 23 | 704 | 0.7− | 0.3− | 2005 12 01 | 704 | 0.4− | 0.2+ | | |
| 1960 09 25 | 675 | 1.1− | 1.6− | 2001 09 23 | 704 | (1.8− | 1.3+) | 2005 12 01 | 704 | 0.1+ | 0.8+ | | |
| 1960 09 26 | 675 | 0.4+ | 0.6− | 2005 10 01 | G96 | 0.5− | 0.3− | 2005 12 01 | G96 | 0.1− | 0.1− | | |
| 1960 09 26 | 675 | 1.0+ | 0.2+ | 2005 10 01 | G96 | 0.1− | 0.4− | 2005 12 01 | G96 | 0.0 | 0.3− | | |
| 1960 09 26 | 675 | 0.6+ | 0.5− | 2005 10 01 | G96 | 0.2− | 0.3− | 2005 12 01 | G96 | 0.1− | 0.4− | | |
| 1960 09 26 | 675 | 0.3− | 0.8− | 2005 10 01 | G96 | 0.3− | 0.5− | 2005 12 01 | G96 | 0.4+ | 0.3− | | |
| 1960 09 27 | 675 | 1.1+ | 0.1+ | 2005 10 25 | 699 | (0.5− | 1.8−) | 2005 12 04 | 704 | 0.5− | 0.9+ | | |
| 1960 09 27 | 675 | 0.5+ | 0.2+ | 2005 10 25 | 699 | 0.2− | 0.6− | 2005 12 04 | 704 | (0.7− | 1.7+) | | |
| 1960 09 28 | 675 | 0.4+ | 1.0− | 2005 10 25 | 699 | 0.5+ | 0.7− | 2005 12 04 | 704 | 0.5− | 1.1+ | | |
| 1960 09 28 | 675 | 0.2+ | 0.1− | 2005 10 25 | 699 | 0.4− | 0.1+ | 2005 12 04 | 704 | 0.5+ | 0.5+ | | |
| 1960 09 28 | 675 | 0.5+ | 0.2− | 2005 10 26 | 691 | 0.0 | 0.1− | 2005 12 06 | 704 | 0.1− | 0.3+ | | |
| 1997 07 01 | 691 | 0.5− | 0.0 | 2005 10 26 | 691 | 0.2− | 0.0 | 2005 12 06 | 704 | 0.3+ | 0.9+ | | |
| 1997 07 01 | 691 | 0.8− | 0.8− | 2005 10 26 | 691 | 0.1− | 0.0 | 2005 12 06 | 704 | 1.0− | 0.3+ | | |
| 1997 07 01 | 691 | 0.4− | 0.0 | 2005 10 28 | G96 | 0.0 | 0.5− | 2005 12 06 | 704 | (0.1+ | 1.7+) | | |
| 1997 08 10 | 691 | 0.1− | 0.2+ | 2005 10 28 | G96 | 0.1− | 0.5− | 2005 12 08 | 691 | 0.3+ | 0.0 | | |
| 1997 08 10 | 691 | 0.1+ | 0.5+ | 2005 10 28 | G96 | 0.1− | 0.6− | 2005 12 08 | 691 | 0.2+ | 0.1− | | |
| 1997 08 10 | 691 | 0.5+ | 0.0 | 2005 10 28 | G96 | 0.1− | 0.4− | 2005 12 08 | 691 | 0.0 | 0.0 | | |
| 1999 02 09 | 691 | 0.3− | 0.1+ | 2005 10 31 | 704 | 0.1+ | 0.0 | 2006 01 22 | G96 | 0.6− | 0.3− | | |
| 1999 02 09 | 691 | 0.2− | 0.3− | 2005 10 31 | 704 | 0.2− | 0.0 | 2006 01 22 | G96 | 0.2− | 0.4− | | |
| 1999 02 09 | 691 | 0.1− | 0.3+ | 2005 10 31 | 704 | 0.7+ | 0.3+ | 2006 01 22 | G96 | 0.3− | 0.4− | | |
| 2001 09 19 | 704 | 0.0 | 0.1+ | 2005 11 03 | 704 | 0.7− | 0.4− | 2006 01 22 | G96 | 0.1+ | 0.3− | | |
| 2001 09 19 | 704 | 0.3− | 0.5+ | 2005 11 03 | 704 | 0.7+ | 0.2+ | 2007 04 18 | G96 | 0.8+ | 0.1+ | | |
| 2001 09 19 | 704 | 0.4− | 0.1+ | 2005 11 03 | 704 | 0.1+ | 0.2+ | 2007 04 18 | G96 | 0.5+ | 0.0 | | |
| 2001 09 19 | 704 | 0.7− | 0.3+ | 2005 11 03 | 704 | 0.1+ | 0.0 | 2007 04 18 | G96 | 0.9+ | 0.0 | | |
| 2001 09 19 | 704 | 0.2+ | 0.5+ | 2005 11 03 | 704 | 0.3+ | 0.1− | 2007 04 18 | G96 | 0.5+ | 0.1− | | |
| 2001 09 21 | 691 | 0.2− | 0.3− | 2005 11 06 | 704 | 0.2− | 0.8+ | 2009 11 17 | G96 | 0.3+ | 0.4− | | |
| 2001 09 21 | 704 | 0.3+ | 0.9+ | 2005 11 06 | 704 | 0.1+ | 0.5+ | 2009 11 17 | G96 | 0.5+ | 0.2− | | |
| 2001 09 21 | 691 | 0.2− | 0.2+ | 2005 11 06 | 704 | (2.3+ | 0.7+) | 2009 11 17 | G96 | 0.2− | 0.1− | | |
| 2001 09 21 | 704 | 0.2+ | 0.1+ | 2005 11 10 | 691 | 0.7− | 0.2+ | 2009 11 17 | G96 | 0.2+ | 0.0 | | |
| 2001 09 21 | 704 | 0.0 | 0.5+ | 2005 11 10 | 691 | 0.2− | 0.1− | 2009 12 17 | 691 | 0.0 | 0.0 | | |
| 2001 09 21 | 691 | 0.1− | 0.0 | 2005 11 10 | 691 | 0.3− | 0.3+ | 2009 12 17 | 691 | 0.1− | 0.0 | | |
| 2001 09 21 | 704 | 0.7+ | 0.4+ | 2005 11 26 | 703 | 0.3− | 0.9+ | 2009 12 17 | 691 | 0.0 | 0.2− | | |
| 2001 09 21 | 704 | 0.2+ | 1.0+ | 2005 11 26 | 703 | (2.4− | 2.4−) | 2009 12 18 | G96 | 0.4+ | 0.3− | | |
| 2001 09 22 | 691 | 0.3+ | 0.1− | 2005 11 26 | 703 | 0.4− | 0.0 | 2009 12 18 | G96 | 0.2+ | 0.3− | | |
| 2001 09 22 | 704 | (0.6+ | 1.5−) | 2005 11 26 | 703 | 1.0− | 0.1− | 2009 12 18 | G96 | 0.1+ | 0.3− | | |
| 2001 09 22 | 691 | 0.3+ | 0.0 | 2005 11 29 | 699 | 0.2+ | 0.2+ | 2009 12 18 | G96 | 0.1− | 0.2− | | |
| 2001 09 22 | 704 | 0.8− | 0.7+ | 2005 11 29 | 699 | 0.8+ | 0.3+ | 2009 12 25 | 691 | 0.0 | 0.2+ | | |
| 2001 09 22 | 704 | 0.8+ | 0.0 | 2005 11 29 | 699 | 0.6+ | 0.3− | 2009 12 25 | 691 | 0.0 | 0.1+ | | |
| 2001 09 22 | 691 | 0.3+ | 0.2+ | 2005 11 29 | 699 | 0.5+ | 0.0 | 2009 12 25 | 691 | 0.3+ | 0.2+ | | |

**(228482)∗ 2001 SF$_{90}$ = 2005 WC$_{101}$**

Discovered 2001 Sept. 20 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 94067)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 53.13611 | | (2000.0) | | | |
| $n$ | 0.27279522 | $\omega$ | 220.52425 | | +0.44589548 | −0.89507049 |
| $a$ | 2.3545697 | $\Omega$ | 202.99649 | | +0.82456357 | +0.41297590 |
| $e$ | 0.1679194 | $i$ | 0.74841 | | +0.34824150 | +0.16822522 |
| $P$ | 3.61 | $H$ | 17.1 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 01 22 | 691 | 0.1− | 0.6− | 2005 11 29 | 704 | 0.4− | 0.2+ | 2006 01 06 | G96 | 0.6− | 0.1+ |
| 1999 01 22 | 691 | 0.1+ | 0.4− | 2005 11 29 | 704 | (0.2+ | 1.5+) | 2006 01 06 | G96 | 0.3+ | 0.1+ |
| 1999 01 22 | 691 | 0.2− | 0.2− | 2005 11 29 | 704 | 0.6+ | 1.2+ | 2006 01 06 | G96 | 0.2+ | 0.0 |
| 2001 09 10 | 704 | 0.6− | 0.9+ | 2005 11 30 | 691 | 0.2+ | 0.0 | 2006 01 06 | G96 | 0.3+ | 0.1− |
| 2001 09 10 | 704 | (0.2− | 1.5−) | 2005 11 30 | 691 | 0.2+ | 0.1+ | 2006 01 22 | G96 | 0.0 | 0.2− |
| 2001 09 10 | 704 | 0.1− | 0.5− | 2005 11 30 | 691 | 0.3+ | 0.0 | 2006 01 22 | G96 | 0.3+ | 0.3− |
| 2001 09 10 | 704 | 0.4− | 0.1− | 2005 12 01 | 695 | 0.1− | 0.2+ | 2006 01 22 | G96 | 0.1+ | 0.2− |
| 2001 09 18 | 691 | 0.2+ | 0.1+ | 2005 12 01 | 704 | 0.0 | 0.5+ | 2006 01 22 | G96 | 0.0 | 0.1− |
| 2001 09 18 | 691 | 0.1− | 0.6+ | 2005 12 01 | 704 | 0.6− | 0.1+ | 2007 04 14 | 691 | 0.1+ | 0.1+ |
| 2001 09 18 | 691 | 0.3− | 0.1− | 2005 12 01 | 704 | 0.0 | 0.1− | 2007 04 14 | 691 | 0.4+ | 0.2− |
| 2001 09 20 | 704 | 0.2− | 0.2− | 2005 12 01 | 695 | 0.3+ | 0.1+ | 2007 04 14 | 691 | 0.8− | 0.1− |
| 2001 09 20 | 704 | 0.1− | 0.6− | 2005 12 01 | 704 | 0.1− | 0.7− | 2007 04 22 | 691 | 0.1− | 0.1− |
| 2001 09 20 | 704 | 0.7+ | 0.3− | 2005 12 01 | 695 | 0.2+ | 0.0 | 2007 04 22 | 691 | 0.1+ | 0.2+ |
| 2001 09 20 | 704 | 0.1− | 0.4− | 2005 12 04 | 704 | 0.3− | 0.6− | 2007 04 22 | 691 | 0.1− | 0.2+ |
| 2001 09 22 | 704 | 0.3+ | 0.4+ | 2005 12 04 | 704 | 0.1− | 0.6+ | 2008 07 30 | G96 | 0.2− | 0.1− |
| 2001 09 22 | 704 | 0.2− | 0.2+ | 2005 12 04 | 704 | 0.2− | 0.5+ | 2008 07 30 | G96 | 0.4+ | 0.0 |
| 2001 09 22 | 704 | 1.2− | 1.3+ | 2005 12 04 | 704 | 0.1+ | 0.3− | 2008 07 30 | G96 | 0.2+ | 0.3+ |
| 2001 09 22 | 704 | 0.2+ | 0.9+ | 2005 12 04 | 704 | 0.5− | 0.3+ | 2008 07 30 | G96 | 0.1+ | 0.1− |
| 2003 04 07 | 291 | 0.0 | 0.6+ | 2005 12 04 | G96 | 0.0 | 0.0 | 2008 09 06 | G96 | 0.2+ | 0.7− |
| 2003 04 07 | 291 | 0.5+ | 0.6+ | 2005 12 04 | G96 | 0.2+ | 0.0 | 2008 09 06 | G96 | 0.7+ | 0.6− |
| 2003 04 07 | 291 | 0.4+ | 0.3+ | 2005 12 04 | G96 | 0.2− | 0.5+ | 2008 09 06 | G96 | 0.5+ | 0.6− |
| 2005 09 30 | G96 | 0.2+ | 0.2− | 2005 12 04 | G96 | 0.1− | 0.2− | 2008 09 06 | G96 | (0.7− | 1.6−) |
| 2005 09 30 | G96 | 0.1− | 0.0 | 2005 12 06 | 704 | 0.3− | 0.3− | 2009 11 16 | G96 | 0.7+ | 0.2+ |
| 2005 09 30 | G96 | 0.1+ | 0.2− | 2005 12 06 | 704 | 0.7− | 0.2+ | 2009 11 16 | G96 | 0.8− | 0.6+ |
| 2005 09 30 | G96 | 0.1− | 0.1− | 2005 12 06 | 704 | 0.3− | 0.5− | 2009 11 16 | G96 | 0.2− | 0.0 |
| 2005 11 21 | 703 | 0.5− | 0.4− | 2005 12 06 | 704 | 0.3− | 0.2+ | 2009 11 16 | G96 | 0.3+ | 0.1+ |
| 2005 11 21 | 703 | 0.1− | 0.9+ | 2005 12 06 | 704 | 0.3− | 0.2+ | 2009 12 19 | G96 | 0.4+ | 0.2+ |
| 2005 11 21 | 703 | 0.5− | 0.8− | 2005 12 10 | 704 | 0.2+ | 0.3+ | 2009 12 19 | G96 | 0.0 | 0.2+ |
| 2005 11 21 | 703 | 0.4− | 0.4− | 2005 12 10 | 704 | 0.1− | 0.8+ | 2009 12 19 | G96 | 0.2− | 0.1+ |
| 2005 11 29 | 704 | 0.5+ | 0.5− | 2005 12 10 | 704 | 0.6− | 0.8+ | 2009 12 19 | G96 | 0.5+ | 0.5+ |
| 2005 11 29 | 704 | 0.6− | 0.8+ | 2005 12 10 | 704 | 0.8+ | 0.2+ | | | | |

**(228483)∗ 2001 SL$_{109}$**

Discovered 2001 Sept. 20 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 128.68726 | | (2000.0) | | | |
| $n$ | 0.25999324 | $\omega$ | 64.27279 | | +0.56512139 | +0.82239837 |
| $a$ | 2.4312410 | $\Omega$ | 240.29312 | | −0.78140404 | +0.50806601 |
| $e$ | 0.1087747 | $i$ | 4.32913 | | −0.26466117 | +0.25598797 |
| $P$ | 3.79 | $H$ | 16.2 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 20 | 704 | 1.2− | 1.2− | 2001 10 21 | 704 | 0.4− | 0.2+ | 2005 12 07 | 691 | 0.3− | 0.3+ |
| 2001 09 20 | 704 | 0.7− | 0.2+ | 2001 10 25 | 704 | 0.9− | 0.2+ | 2005 12 07 | 691 | 0.0 | 0.2+ |
| 2001 09 20 | 704 | 0.8− | 0.8+ | 2001 10 25 | 704 | 1.0− | 0.7− | 2005 12 10 | 701 | 0.1+ | 0.5− |
| 2001 09 20 | 704 | 0.0 | 1.1+ | 2001 10 25 | 704 | 0.9+ | 0.8− | 2005 12 10 | 701 | 0.4− | 0.2− |
| 2001 09 22 | 704 | 1.0− | 0.8+ | 2001 10 25 | 704 | 1.1+ | 0.3− | 2005 12 10 | 701 | 0.5+ | 0.1+ |
| 2001 09 22 | 704 | 0.6− | 0.4+ | 2001 10 26 | 691 | 0.0 | 0.1+ | 2005 12 23 | 185 | 1.1+ | 0.2− |
| 2001 09 22 | 704 | 1.2+ | 0.7− | 2001 10 26 | 691 | 0.1+ | 0.0 | 2005 12 23 | 185 | 0.9− | 0.6+ |
| 2001 10 07 | 644 | 0.0 | 0.1+ | 2001 10 26 | 691 | 0.2+ | 0.0 | 2006 01 05 | G96 | 0.1− | 0.5− |
| 2001 10 07 | 644 | 0.3− | 0.7+ | 2004 06 14 | 704 | 0.1+ | 0.3+ | 2006 01 05 | G96 | 0.2− | 0.1− |
| 2001 10 07 | 644 | 0.1+ | 0.5+ | 2004 06 14 | 704 | 0.3+ | 1.1+ | 2006 01 05 | G96 | 0.2− | 0.3− |
| 2001 10 12 | 699 | 0.1− | 0.3+ | 2004 06 14 | 704 | 0.4− | 0.9+ | 2006 01 05 | G96 | 0.3+ | 0.2− |
| 2001 10 12 | 699 | 1.1− | 1.3− | 2004 06 14 | 704 | 0.4+ | 1.1+ | 2006 01 22 | G96 | 0.4+ | 0.5+ |
| 2001 10 12 | 699 | 0.7− | 0.4+ | 2004 06 14 | 704 | 0.0 | 0.2+ | 2006 01 22 | G96 | 0.6− | 0.0 |
| 2001 10 12 | 699 | 0.1− | 0.5+ | 2005 10 26 | 691 | 0.0 | 0.2− | 2006 01 22 | G96 | 0.4− | 0.5+ |
| 2001 10 14 | 704 | 0.8+ | 0.7− | 2005 10 26 | 691 | 0.1+ | 0.4− | 2006 01 22 | G96 | 0.2− | 0.0 |
| 2001 10 14 | 704 | 0.1− | 1.4− | 2005 10 26 | 691 | 0.0 | 0.1− | 2007 02 17 | 703 | 0.2− | 1.2+ |
| 2001 10 14 | 704 | 0.5+ | 0.7− | 2005 10 27 | G96 | 0.1− | 0.6− | 2007 02 17 | 703 | 1.0+ | 0.2− |
| 2001 10 14 | 704 | 0.7+ | 0.9− | 2005 10 27 | G96 | 0.2+ | 0.2− | 2007 02 17 | G96 | 0.2+ | 0.4− |
| 2001 10 14 | 704 | 0.3− | 1.2− | 2005 10 27 | G96 | 0.3+ | 0.3− | 2007 02 17 | G96 | 0.3+ | 0.5− |
| 2001 10 15 | 704 | 1.4+ | 0.2+ | 2005 10 27 | G96 | 0.0 | 0.5− | 2007 02 17 | 703 | 0.2+ | 0.0 |
| 2001 10 15 | 704 | (1.8+ | 1.4−) | 2005 10 30 | 691 | 0.0 | 0.1+ | 2007 02 17 | G96 | 0.4+ | 0.7− |
| 2001 10 15 | 704 | (2.3+ | 0.7−) | 2005 10 30 | 691 | 0.3+ | 0.1− | 2007 02 17 | 703 | 1.3− | 1.4+ |
| 2001 10 17 | 704 | 0.7− | 0.4− | 2005 10 30 | 691 | 0.2+ | 0.5+ | 2007 02 17 | G96 | 0.5+ | 0.5− |
| 2001 10 17 | 704 | 0.2+ | 0.0 | 2005 11 01 | G96 | 0.3+ | 0.1− | 2007 03 15 | 703 | 0.3− | 0.6+ |
| 2001 10 17 | 704 | 0.3+ | 0.7+ | 2005 11 01 | G96 | 0.1+ | 0.1− | 2007 03 15 | 703 | 0.9− | 0.1− |
| 2001 10 17 | 704 | 0.6+ | 0.3+ | 2005 11 01 | G96 | 0.0 | 0.2− | 2007 03 15 | 703 | 0.8+ | 0.9− |
| 2001 10 17 | 704 | 0.1− | 0.2+ | 2005 11 05 | 691 | 0.0 | 0.1+ | 2007 03 15 | 703 | 0.3− | 0.8+ |
| 2001 10 19 | 644 | 0.1+ | 0.9− | 2005 11 05 | 691 | 0.1+ | 0.1+ | 2009 11 08 | 691 | 0.1− | 0.2+ |
| 2001 10 19 | 644 | 0.1+ | 0.8− | 2005 11 05 | 691 | 0.1+ | 0.2+ | 2009 11 08 | 691 | 0.1− | 0.0 |
| 2001 10 19 | 644 | 0.1+ | 1.1− | 2005 11 07 | 704 | 0.2+ | 0.8+ | 2009 11 08 | 691 | 0.9− | 0.6+ |
| 2001 10 20 | 644 | 0.0 | 0.5+ | 2005 11 07 | 704 | 0.5− | 1.0+ | 2009 12 08 | J75 | 0.9− | 0.8− |
| 2001 10 20 | 644 | 0.2+ | 0.6+ | 2005 11 07 | 704 | 0.1+ | 1.0+ | 2009 12 08 | J75 | 0.5+ | 0.0 |
| 2001 10 20 | 644 | 0.0 | 0.5+ | 2005 11 07 | 704 | 0.6− | 0.7+ | 2009 12 08 | J75 | 0.3− | 1.0− |
| 2001 10 21 | 704 | 0.1− | 0.3+ | 2005 11 11 | 691 | 0.1+ | 0.2+ | 2009 12 10 | G96 | 0.6+ | 0.2− |
| 2001 10 21 | 704 | 0.3− | 0.1− | 2005 11 11 | 691 | 0.3+ | 0.1+ | 2009 12 10 | G96 | 0.1+ | 0.2− |
| 2001 10 21 | 704 | 0.4− | 0.2+ | 2005 11 11 | 691 | 0.3+ | 0.2+ | 2009 12 10 | G96 | 0.3+ | 0.2− |
| 2001 10 21 | 704 | 0.4− | 0.0 | 2005 12 07 | 691 | 0.0 | 0.0 | 2009 12 10 | G96 | 0.3+ | 0.1− |

**(228484)∗ 2001 SX$_{120}$**

Discovered 2001 Sept. 16 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 18.44313 | | (2000.0) | | | |
| $n$ | 0.27231511 | $\omega$ | 253.47350 | | −0.23260834 | −0.97121028 |
| $a$ | 2.3573364 | $\Omega$ | 210.12638 | | +0.92682224 | −0.20533245 |
| $e$ | 0.1766922 | $i$ | 5.88014 | | +0.29477770 | −0.12078571 |
| $P$ | 3.62 | $H$ | 16.1 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 16 | 704 | 0.4− | 0.4+ | 2005 10 28 | 704 | 0.9+ | 0.2− | 2005 11 21 | 699 | 0.2− | 0.3− |
| 2001 09 16 | 704 | 0.7+ | 0.7+ | 2005 10 28 | 704 | 0.3+ | 0.1− | 2005 11 26 | 703 | 0.6− | 0.7− |
| 2001 09 16 | 704 | 0.3− | 0.7+ | 2005 10 28 | 704 | 0.6− | 0.1+ | 2005 11 26 | 703 | (0.6+ | 2.6−) |
| 2001 09 16 | 704 | 0.3+ | 0.6+ | 2005 10 28 | 704 | 0.6+ | 0.1+ | 2005 11 26 | 703 | 0.9− | 1.2− |
| 2001 09 16 | 704 | 1.0+ | 1.1+ | 2005 10 28 | 704 | 0.0 | 0.2+ | 2005 11 26 | 703 | 0.7+ | 0.7− |
| 2001 09 20 | 704 | 0.3− | 0.3+ | 2005 10 29 | G96 | 0.1+ | 0.0 | 2005 11 28 | 699 | 0.3+ | 0.9+ |
| 2001 09 20 | 704 | 0.5− | 0.5− | 2005 10 29 | G96 | 0.2+ | 0.1+ | 2005 11 28 | 699 | 0.6− | 0.9+ |
| 2001 09 20 | 704 | 0.7+ | 0.0 | 2005 10 29 | 704 | 0.2+ | 0.3+ | 2005 11 28 | 699 | 0.7− | 0.8+ |
| 2001 09 20 | 704 | 0.1+ | 0.3+ | 2005 10 29 | G96 | 0.1+ | 0.0 | 2005 11 28 | 699 | 0.8− | 0.4+ |
| 2001 09 20 | 704 | 0.2+ | 0.3− | 2005 10 29 | G96 | 0.1+ | 0.1− | 2005 11 30 | 704 | 0.1+ | 0.9+ |
| 2001 09 20 | 704 | 0.1− | 0.0 | 2005 10 29 | 704 | 0.9+ | 0.3+ | 2005 11 30 | 704 | 0.5− | 1.2+ |
| 2001 09 20 | 704 | 0.6+ | 0.2+ | 2005 10 29 | 704 | 0.1+ | 0.2+ | 2005 11 30 | 644 | 0.3+ | 0.3+ |
| 2001 09 20 | 704 | 0.4− | 0.1+ | 2005 10 29 | 704 | 0.3+ | 0.4+ | 2005 11 30 | 704 | 1.4− | 0.4+ |
| 2001 09 21 | 704 | 0.2+ | 0.2+ | 2005 10 30 | 704 | 0.7+ | 1.2+ | 2005 11 30 | 644 | 0.4+ | 0.2− |
| 2001 09 21 | 704 | 0.2+ | 0.4+ | 2005 10 30 | 704 | 0.8+ | 0.6− | 2005 11 30 | 704 | 0.6− | 0.5+ |
| 2001 09 21 | 704 | 0.9− | 0.6+ | 2005 10 30 | 704 | 0.4+ | 0.8+ | 2005 11 30 | 704 | 0.4+ | 0.5− |
| 2001 09 21 | 704 | 0.3+ | 0.2− | 2005 10 30 | 704 | 1.0+ | 0.7+ | 2005 11 30 | 644 | 0.3+ | 0.0 |
| 2001 09 21 | 704 | 0.9− | 0.1+ | 2005 10 30 | 704 | 0.9+ | 0.4+ | 2005 12 03 | 704 | 0.6+ | 0.4+ |
| 2001 09 21 | 704 | 0.3− | 0.2− | 2005 10 31 | 704 | 0.1+ | 0.8+ | 2005 12 03 | 704 | 0.2+ | 0.1+ |
| 2001 09 21 | 704 | 0.7− | 0.3− | 2005 10 31 | 704 | 0.0 | 0.7+ | 2005 12 03 | 704 | 0.7+ | 0.2− |
| 2001 09 21 | 704 | 0.7− | 0.2− | 2005 10 31 | 704 | 0.4− | 0.4− | 2005 12 07 | 704 | 0.1− | 0.8− |
| 2001 09 21 | 704 | 0.1− | 0.2+ | 2005 11 01 | G96 | 0.0 | 0.4− | 2005 12 07 | 704 | 0.2+ | 0.7− |
| 2001 09 28 | 644 | 0.5+ | 0.6+ | 2005 11 01 | G96 | 0.2+ | 0.3− | 2005 12 07 | 704 | 0.1− | 0.4− |
| 2001 09 28 | 644 | 0.1+ | 0.5+ | 2005 11 01 | G96 | 0.0 | 0.4− | 2005 12 07 | 704 | 0.6− | 0.0 |
| 2001 09 28 | 644 | 0.3+ | 0.2+ | 2005 11 01 | G96 | 0.2+ | 0.3− | 2005 12 07 | 704 | 0.7− | 0.1− |
| 2001 10 15 | 645 | 0.0 | 0.1+ | 2005 11 02 | 695 | 0.2− | 0.0 | 2005 12 08 | 704 | 0.0 | 0.2− |
| 2001 10 15 | 645 | 0.0 | 0.1+ | 2005 11 02 | 695 | 0.2− | 0.1− | 2005 12 08 | 704 | 0.2− | 0.3+ |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 10 19 | 644 | 1.4− | 1.1+ | 2005 11 02 | 695 | 0.0 | 0.0 | 2005 12 08 | 704 | 0.4+ | 0.4+ |
| 2001 10 19 | 644 | 0.7− | 0.7+ | 2005 11 03 | 704 | 0.8− | 0.3+ | 2005 12 08 | 704 | 0.6+ | 0.4− |
| 2001 10 19 | 644 | 0.9− | 0.7+ | 2005 11 03 | 704 | 0.2− | 0.4+ | 2005 12 20 | 683 | 0.6+ | 0.4− |
| 2003 03 10 | 704 | (1.3− | 4.2+) | 2005 11 03 | 704 | 0.2− | 0.3+ | 2005 12 20 | 683 | (2.6− | 1.7+) |
| 2003 03 10 | 704 | (1.6− | 5.0+) | 2005 11 04 | G96 | 0.1+ | 0.1+ | 2005 12 20 | 683 | (0.5− | 1.6+) |
| 2003 03 10 | 704 | (2.3− | 5.4+) | 2005 11 04 | G96 | 0.1− | 0.3− | 2006 01 23 | 703 | 1.4− | 0.3− |
| 2003 03 13 | 704 | 0.0 | 0.7− | 2005 11 04 | G96 | 0.3+ | 0.4− | 2006 01 23 | 703 | 0.9+ | 1.2− |
| 2003 03 13 | 704 | 0.9+ | 0.3− | 2005 11 04 | G96 | 0.0 | 0.3− | 2006 01 23 | 703 | 1.0− | 0.1− |
| 2003 03 13 | 704 | 1.2+ | 0.7+ | 2005 11 06 | 704 | 0.3+ | 0.4+ | 2006 01 23 | 703 | 0.3+ | 0.6− |
| 2003 03 31 | 704 | 0.2− | 0.7+ | 2005 11 06 | 704 | 0.4+ | 1.0+ | 2006 02 02 | G96 | 0.0 | 0.1− |
| 2003 03 31 | 704 | 0.5+ | 0.0 | 2005 11 06 | 704 | (0.3+ | 1.6+) | 2006 02 02 | G96 | 0.3− | 0.0 |
| 2003 03 31 | 704 | 0.3+ | 1.4+ | 2005 11 06 | 704 | 0.3+ | 0.2+ | 2006 02 02 | G96 | 0.2+ | 0.1− |
| 2003 03 31 | 704 | 0.8+ | 0.6+ | 2005 11 06 | 703 | 0.7− | 1.0− | 2006 02 02 | G96 | 0.2− | 0.1− |
| 2003 03 31 | 704 | 0.4+ | 0.6+ | 2005 11 06 | 704 | 0.5+ | 0.6+ | 2007 04 19 | G96 | 0.2+ | 0.3+ |
| 2003 04 07 | 691 | 0.0 | 0.8+ | 2005 11 06 | 703 | 0.3− | 0.4− | 2007 04 19 | G96 | 0.1− | 0.0 |
| 2003 04 07 | 691 | 0.1− | 0.8+ | 2005 11 06 | 703 | 1.2+ | 0.1− | 2007 04 19 | G96 | 0.3+ | 0.5+ |
| 2003 04 07 | 691 | 0.1+ | 0.7+ | 2005 11 06 | 703 | 0.9− | 0.2− | 2008 10 07 | G96 | 0.3− | 0.1+ |
| 2003 04 26 | 691 | (1.4+ | 1.7+) | 2005 11 08 | 703 | 0.5− | 0.6+ | 2008 10 07 | G96 | 0.5+ | 0.4− |
| 2003 04 26 | 691 | (1.2+ | 1.8+) | 2005 11 08 | 703 | 0.7− | 0.8+ | 2008 10 07 | G96 | 0.4+ | 0.4+ |
| 2003 04 26 | 691 | (1.2+ | 1.6+) | 2005 11 08 | 703 | 0.2+ | 0.8− | 2008 10 07 | G96 | 0.4− | 0.1+ |
| 2005 10 23 | 703 | 0.7− | 0.1+ | 2005 11 08 | 703 | 0.4− | 0.2+ | 2009 11 27 | 703 | 0.4− | 0.9+ |
| 2005 10 23 | 703 | 1.5− | 0.7− | 2005 11 12 | 703 | 0.7+ | 1.0− | 2009 11 27 | 703 | 0.0 | 0.0 |
| 2005 10 23 | 703 | 0.7− | 0.8− | 2005 11 12 | 703 | 0.5− | 0.1− | 2009 11 27 | 703 | 0.7− | 0.9− |
| 2005 10 23 | 703 | 1.1− | 0.9− | 2005 11 12 | 703 | 0.2+ | 0.3− | 2009 11 27 | 703 | 0.3− | 0.1+ |
| 2005 10 26 | 699 | (2.1+ | 1.6+) | 2005 11 12 | 703 | 0.1− | 0.7+ | 2009 12 18 | 704 | 0.3− | 0.7+ |
| 2005 10 26 | 699 | 0.5− | 1.1+ | 2005 11 21 | 699 | 0.3+ | 0.1+ | 2009 12 18 | 704 | 0.6+ | 0.2− |
| 2005 10 26 | 699 | 0.9+ | 0.5+ | 2005 11 21 | 699 | 0.4+ | 0.6+ | 2009 12 18 | 704 | 0.7+ | 0.7+ |
| 2005 10 26 | 699 | 0.2+ | 0.1− | 2005 11 21 | 699 | 0.8+ | 0.5− | | | | |

**(228485)∗ 2001 SC$_{128}$**

Discovered 2001 Sept. 16 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 39.93990 | | (2000.0) | | **P** | **Q** |
| $n$ | 0.25932330 | $\omega$ | 197.75000 | | +0.82979733 | −0.55795594 |
| $a$ | 2.4354265 | $\Omega$ | 196.17890 | | +0.51669344 | +0.77559662 |
| $e$ | 0.1553657 | $i$ | 2.26779 | | +0.21086555 | +0.29518648 |
| $P$ | 3.80 | $H$ | 17.0 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 16 | 704 | 0.1− | 0.6+ | 2005 10 05 | 691 | 0.4+ | 0.1+ | 2005 11 25 | 703 | 1.3− | 1.1− |
| 2001 09 16 | 704 | 0.6− | 0.6+ | 2005 10 05 | 691 | 0.6+ | 0.1+ | 2005 11 25 | 703 | 0.4− | 0.8− |
| 2001 09 16 | 704 | 0.8− | 0.8+ | 2005 10 05 | 691 | 0.6+ | 0.1+ | 2005 11 30 | G96 | 0.8+ | 0.1− |
| 2001 09 16 | 704 | 1.0− | 0.5+ | 2005 10 22 | 691 | (1.4+ | 1.7−) | 2005 11 30 | G96 | 0.2+ | 0.0 |
| 2001 09 18 | 699 | 0.7+ | 0.5+ | 2005 10 22 | 691 | 0.4+ | 0.1+ | 2005 11 30 | G96 | 0.2+ | 0.0 |
| 2001 09 18 | 699 | 0.7+ | 0.4− | 2005 10 22 | 691 | 0.4+ | 0.1+ | 2005 11 30 | G96 | 0.2+ | 0.1− |
| 2001 09 18 | 699 | (2.7− | 1.9+) | 2005 10 23 | 703 | 0.6− | 0.5− | 2005 12 04 | G96 | 0.1+ | 0.1− |
| 2001 09 18 | 699 | 1.0+ | 1.5+ | 2005 10 23 | 703 | 0.4+ | 0.2+ | 2005 12 04 | G96 | 0.0 | 0.0 |
| 2001 09 20 | 704 | 0.1+ | 0.2+ | 2005 10 23 | 703 | 0.4+ | 0.1+ | 2005 12 04 | G96 | 0.1+ | 0.1− |
| 2001 09 20 | 704 | 0.1+ | 0.0 | 2005 10 23 | 703 | 1.3− | 1.1− | 2005 12 04 | G96 | 0.0 | 0.1− |
| 2001 09 20 | 704 | 0.3− | 0.7+ | 2005 10 27 | 691 | 0.1+ | 0.0 | 2006 01 22 | G96 | 0.3− | 0.1− |
| 2001 09 20 | 704 | 0.0 | 0.0 | 2005 10 27 | 691 | 0.2+ | 0.1− | 2006 01 22 | G96 | 0.1− | 0.0 |
| 2001 09 20 | 704 | 0.1− | 0.2+ | 2005 10 27 | 691 | 0.1− | 0.2− | 2006 01 22 | G96 | 0.2− | 0.1− |
| 2001 09 22 | 704 | 0.4+ | 0.5− | 2005 10 28 | 704 | 0.9+ | 0.7− | 2006 01 22 | G96 | 0.8− | 0.0 |
| 2001 09 22 | 704 | 0.2+ | 0.4− | 2005 10 28 | 704 | 0.3− | 0.6+ | 2007 03 11 | G96 | 0.5+ | 0.4+ |
| 2001 09 22 | 704 | 0.1− | 0.2− | 2005 10 28 | 704 | 0.7− | 0.4− | 2007 03 11 | G96 | 0.5+ | 0.6− |
| 2001 09 22 | 704 | 0.1+ | 0.1+ | 2005 10 28 | 704 | (0.5+ | 1.6+) | 2007 03 11 | G96 | 0.3+ | 0.3+ |
| 2001 09 23 | 704 | (0.5+ | 1.9−) | 2005 10 31 | 691 | 0.4+ | 0.2+ | 2007 03 11 | G96 | 0.2− | 0.1+ |
| 2001 09 23 | 704 | (0.1+ | 1.6−) | 2005 10 31 | 691 | 0.3+ | 0.2+ | 2007 03 20 | G96 | 0.6+ | 0.3− |
| 2001 09 23 | 704 | (0.6+ | 1.7−) | 2005 10 31 | 691 | 0.0 | 0.8+ | 2007 03 20 | G96 | 0.5+ | 0.5+ |
| 2001 09 23 | 704 | 0.3+ | 1.4− | 2005 10 31 | 704 | 0.3+ | 1.0+ | 2007 03 20 | G96 | 0.1− | 0.0 |
| 2001 09 24 | 704 | (2.0+ | 0.3+) | 2005 10 31 | 704 | 0.2− | 0.0 | 2007 03 20 | G96 | 0.3+ | 0.1+ |
| 2001 09 24 | 704 | 1.3+ | 0.5− | 2005 10 31 | 704 | 0.3+ | 0.1− | 2007 04 11 | G96 | 0.4− | 0.0 |
| 2001 09 24 | 704 | 0.8+ | 1.2− | 2005 10 31 | 704 | 0.1+ | 0.8+ | 2007 04 11 | G96 | 0.4+ | 0.2− |
| 2001 09 24 | 704 | (1.8+ | 0.3−) | 2005 10 31 | 704 | 0.4+ | 0.1− | 2007 04 11 | G96 | 0.2+ | 0.1+ |
| 2001 09 24 | 704 | 1.0+ | 0.4− | 2005 11 03 | 704 | 0.4+ | 0.4− | 2007 04 11 | G96 | 0.0 | 0.3+ |
| 2001 10 11 | 644 | 0.5− | 0.3+ | 2005 11 03 | 704 | 0.1+ | 0.1− | 2007 04 15 | G96 | 0.3+ | 0.1− |
| 2001 10 11 | 644 | 0.4− | 0.2+ | 2005 11 03 | 704 | 0.4+ | 0.0 | 2007 04 15 | G96 | 0.4+ | 0.5− |
| 2001 10 11 | 644 | 0.0 | 0.4+ | 2005 11 03 | 704 | 0.3− | 0.7+ | 2007 04 15 | G96 | 0.1− | 0.1+ |
| 2001 10 14 | 645 | 0.1− | 0.1− | 2005 11 04 | 691 | 0.3+ | 0.3+ | 2007 04 15 | G96 | 0.1+ | 0.4− |
| 2001 10 14 | 645 | 0.1− | 0.1− | 2005 11 04 | 691 | 0.4+ | 0.4+ | 2009 11 08 | 691 | 0.4− | 0.1− |
| 2001 10 15 | 645 | 0.2− | 0.1− | 2005 11 04 | 691 | 0.2+ | 0.2+ | 2009 11 08 | 691 | 0.1− | 0.2− |
| 2001 10 15 | 645 | 0.1− | 0.2− | 2005 11 05 | 699 | 0.6+ | 0.5+ | 2009 11 08 | 691 | 0.2− | 0.1− |
| 2001 10 17 | 644 | 0.8+ | 0.3− | 2005 11 05 | 704 | 0.9+ | 1.5+ | 2009 11 16 | 691 | 0.2− | 0.2− |
| 2001 10 17 | 644 | 0.6+ | 0.4− | 2005 11 05 | 704 | (0.6+ | 2.5+) | 2009 11 16 | 691 | 0.1− | 0.1− |
| 2001 10 17 | 644 | 0.0 | 0.1− | 2005 11 05 | 699 | 0.8+ | 0.3+ | 2009 11 16 | 691 | 0.5− | 0.3+ |
| 2001 10 20 | 704 | 0.1− | 1.2+ | 2005 11 05 | 704 | 1.4+ | 1.0+ | 2009 11 26 | 691 | 0.4− | 0.3− |
| 2001 10 20 | 704 | 0.2+ | 0.9+ | 2005 11 05 | 704 | (0.3− | 1.7+) | 2009 11 26 | 691 | 0.4− | 0.2− |
| 2001 10 20 | 704 | 0.4+ | 0.5+ | 2005 11 05 | 699 | 0.6− | 1.2+ | 2009 11 26 | 691 | 0.6− | 0.1+ |
| 2001 10 20 | 704 | 0.4+ | 0.7+ | 2005 11 05 | 699 | 1.0+ | 0.7− | 2009 12 09 | J75 | 0.3− | 0.4− |
| 2001 12 10 | 645 | 0.4− | 0.3− | 2005 11 10 | 703 | 0.0 | 0.3+ | 2009 12 09 | J75 | 0.4− | 0.2+ |
| 2001 12 10 | 645 | 0.1− | 0.1+ | 2005 11 10 | 703 | 0.4+ | 0.2+ | 2009 12 09 | J75 | 0.6− | 0.1− |
| 2005 10 01 | G96 | 0.9+ | 0.6− | 2005 11 10 | 703 | 0.7− | 0.5+ | 2009 12 17 | 704 | 0.6− | 0.7− |
| 2005 10 01 | G96 | 1.3+ | 0.2− | 2005 11 10 | 703 | 0.4− | 0.2+ | 2009 12 17 | 704 | 0.3− | 0.6+ |
| 2005 10 01 | G96 | 0.3+ | 0.0 | 2005 11 25 | 703 | 0.0 | 0.6− | 2009 12 17 | 704 | 0.6− | 0.6− |
| 2005 10 01 | G96 | 0.4+ | 0.0 | 2005 11 25 | 703 | 0.4− | 0.8+ | | | | |

**(228486)∗ 2001 SH$_{166}$**

Discovered 2001 Sept. 19 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 29.91965 | | (2000.0) | | **P** | **Q** |
| $n$ | 0.25876040 | $\omega$ | 119.37480 | | +0.71527721 | −0.69877570 |
| $a$ | 2.4389572 | $\Omega$ | 284.95591 | | +0.63770198 | +0.65822431 |
| $e$ | 0.1756085 | $i$ | 0.56586 | | +0.28585783 | +0.28009513 |
| $P$ | 3.81 | $H$ | 17.5 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 24 | 691 | 0.1+ | 0.0 | 2005 09 29 | 691 | 0.1− | 0.2+ | 2005 11 01 | 704 | 0.6+ | 0.9+ |
| 2001 08 24 | 691 | 0.1+ | 0.1− | 2005 10 03 | G96 | 0.1+ | 0.3− | 2005 11 01 | 704 | 0.2+ | 0.4− |
| 2001 08 24 | 691 | 0.0 | 0.0 | 2005 10 03 | G96 | 0.3+ | 0.5− | 2005 11 06 | 704 | (3.1+ | 1.4−) |
| 2001 09 19 | 704 | 0.2− | 0.1− | 2005 10 03 | G96 | 0.0 | 0.4− | 2005 11 06 | 704 | (1.9− | 0.6+) |
| 2001 09 19 | 704 | 0.3+ | 0.4+ | 2005 10 03 | G96 | 0.2+ | 0.5− | 2005 11 06 | 704 | (1.5+ | 2.3−) |
| 2001 09 19 | 704 | 0.3+ | 0.4+ | 2005 10 05 | 691 | 0.2+ | 0.0 | 2005 11 06 | 704 | 0.5− | 0.3+ |
| 2001 09 19 | 704 | 0.1+ | 0.7+ | 2005 10 05 | 691 | 0.0 | 0.1+ | 2005 11 06 | 704 | 0.7+ | 0.9− |
| 2001 09 19 | 704 | 0.4+ | 0.3+ | 2005 10 05 | 691 | 0.1− | 0.1+ | 2005 12 01 | 691 | 0.0 | 0.0 |
| 2001 09 20 | 704 | 0.4+ | 0.3+ | 2005 10 06 | 621 | 0.1+ | 0.1− | 2005 12 01 | 691 | 0.2+ | 0.2+ |
| 2001 09 20 | 704 | 0.8+ | 0.3− | 2005 10 06 | 621 | 0.2+ | 0.2− | 2005 12 01 | 691 | 0.3+ | 0.2+ |
| 2001 09 20 | 704 | 0.7+ | 0.1− | 2005 10 06 | 621 | 0.1+ | 0.2− | 2005 12 25 | G96 | 0.1+ | 0.3− |
| 2001 09 20 | 704 | 0.0 | 0.4− | 2005 10 23 | 703 | 0.4− | 0.6+ | 2005 12 25 | G96 | 0.1− | 0.5− |
| 2001 09 20 | 704 | 0.4+ | 0.3+ | 2005 10 23 | 703 | 0.1+ | 0.5+ | 2005 12 25 | G96 | 0.2+ | 0.2− |
| 2001 09 21 | 691 | 0.1+ | 0.3− | 2005 10 23 | 703 | 0.0 | 0.4+ | 2005 12 25 | G96 | 0.0 | 0.2− |
| 2001 09 21 | 691 | 0.1+ | 0.4− | 2005 10 23 | 703 | 0.6− | 0.3− | 2009 11 17 | 691 | 0.4− | 0.2+ |
| 2001 09 21 | 691 | 0.0 | 0.2− | 2005 10 24 | 691 | 0.0 | 0.0 | 2009 11 17 | 691 | 0.1− | 0.1− |
| 2001 09 22 | 704 | 0.1+ | 0.4+ | 2005 10 24 | 691 | 0.1+ | 0.1− | 2009 11 17 | 691 | 0.3+ | 0.0 |
| 2001 09 22 | 704 | 0.1− | 0.3− | 2005 10 24 | 691 | 0.1+ | 0.0 | 2009 11 21 | 691 | 0.1+ | 0.0 |
| 2001 09 22 | 704 | 0.2− | 0.3− | 2005 10 25 | 699 | 0.3+ | 1.0+ | 2009 11 21 | 691 | 0.3− | 0.0 |
| 2001 09 22 | 704 | 1.4− | 0.4+ | 2005 10 25 | 699 | (1.0+ | 1.5+) | 2009 11 21 | 691 | 0.5− | 0.1+ |
| 2001 09 23 | 704 | 0.5− | 0.5+ | 2005 10 25 | 699 | (0.0 | 1.5+) | 2009 11 25 | 691 | 0.3− | 0.1− |
| 2001 09 23 | 704 | 0.8− | 0.6+ | 2005 10 25 | 699 | 1.1+ | 0.6+ | 2009 11 25 | 691 | 0.0 | 0.1+ |
| 2001 09 23 | 704 | 0.3− | 0.4+ | 2005 10 28 | 691 | 0.1+ | 0.2− | 2009 11 25 | 691 | 0.3− | 0.1− |
| 2001 09 23 | 704 | 0.5− | 0.3+ | 2005 10 28 | 691 | 0.1+ | 0.1− | 2009 12 10 | G96 | 0.2+ | 0.2− |
| 2001 10 11 | 644 | 0.6− | 0.8+ | 2005 10 28 | 691 | 0.1+ | 0.3+ | 2009 12 10 | G96 | 0.2+ | 0.1+ |
| 2001 10 11 | 644 | 0.3− | 0.6+ | 2005 10 28 | 703 | 1.1− | 0.7− | 2009 12 10 | G96 | 0.2+ | 0.1− |
| 2001 10 11 | 644 | 0.7− | 0.7+ | 2005 10 28 | 703 | 0.1+ | 0.3+ | 2009 12 10 | G96 | 0.5+ | 0.1− |
| 2001 12 10 | 645 | 0.1− | 0.2− | 2005 10 28 | 703 | 0.1+ | 0.3+ | 2009 12 19 | G96 | 0.3+ | 0.1− |
| 2001 12 10 | 645 | 0.1− | 0.1− | 2005 10 28 | 703 | 0.4− | 0.3+ | 2009 12 19 | G96 | 0.2+ | 0.1− |
| 2003 04 01 | 695 | 0.7+ | 0.3+ | 2005 10 29 | A50 | (0.2+ | 1.9+) | 2009 12 19 | G96 | 0.6+ | 0.1+ |
| 2003 04 01 | 695 | 0.3+ | 0.8+ | 2005 10 29 | A50 | (1.0− | 4.1+) | 2009 12 19 | G96 | 0.6+ | 0.0 |
| 2005 09 29 | 691 | 0.1− | 0.2+ | 2005 10 31 | A50 | 1.0− | 0.4+ | | | | |
| 2005 09 29 | 691 | 0.2− | 0.1+ | 2005 11 01 | 704 | 0.5+ | 0.5+ | | | | |

**(228487)∗ 2001 SL$_{171}$**

Discovered 2001 Sept. 16 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 65.25033 | | (2000.0) | | | |
| $n$ | 0.25712945 | $\omega$ | 169.71148 | | +0.98275439 | +0.18491546 |
| $a$ | 2.4492597 | $\Omega$ | 179.63196 | | −0.17264616 | +0.91809633 |
| $e$ | 0.1997745 | $i$ | 2.53673 | | −0.06623527 | +0.35057866 |
| $P$ | 3.83 | $H$ | 17.5 | $G$ 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 16 | 704 | 0.7+ | 0.6− | 2001 10 20 | 704 | 0.0 | 1.1+ | 2005 10 31 | 704 | 0.3− | 0.9− |
| 2001 09 16 | 704 | 0.3− | 0.4+ | 2001 10 20 | 704 | 1.2− | 1.3+ | 2005 11 21 | 691 | 0.2− | 0.0 |
| 2001 09 16 | 704 | (2.2+ | 1.7−) | 2001 10 20 | 704 | 0.5− | 0.2+ | 2005 11 21 | 691 | 0.1+ | 0.2+ |
| 2001 09 16 | 704 | 1.0+ | 1.1− | 2005 10 22 | 691 | 0.1+ | 0.3− | 2005 11 21 | 691 | 0.0 | 0.3+ |
| 2001 09 19 | 691 | 0.2− | 0.1− | 2005 10 22 | 691 | 0.1− | 0.0 | 2005 11 28 | 691 | 0.2− | 0.2− |
| 2001 09 19 | 691 | 0.3− | 0.0 | 2005 10 22 | 691 | 0.0 | 0.2− | 2005 11 28 | 691 | 0.3− | 0.2+ |
| 2001 09 19 | 691 | 0.4− | 0.2− | 2005 10 25 | 699 | 0.9+ | 1.1+ | 2005 11 28 | 691 | 0.0 | 0.8+ |
| 2001 09 21 | 704 | 0.2+ | 0.1− | 2005 10 25 | 699 | 1.4+ | 0.8+ | 2005 11 30 | 691 | 0.3+ | 0.1+ |
| 2001 09 21 | 704 | 0.4+ | 0.3+ | 2005 10 25 | 699 | 0.2+ | 1.1− | 2005 11 30 | 691 | 0.0 | 0.2+ |
| 2001 09 21 | 704 | 0.2+ | 0.4+ | 2005 10 25 | 699 | 0.8− | 0.4− | 2005 11 30 | 691 | 0.3− | 0.2+ |
| 2001 09 21 | 704 | 0.2+ | 0.0 | 2005 10 27 | 691 | 0.0 | 0.2− | 2005 11 30 | G96 | 0.3+ | 0.6− |
| 2001 09 21 | 704 | 0.1+ | 0.3+ | 2005 10 27 | 691 | 0.3− | 0.4− | 2005 11 30 | G96 | 0.4− | 0.2− |
| 2001 09 24 | 704 | 0.8+ | 1.2− | 2005 10 27 | 691 | 0.0 | 0.4− | 2005 11 30 | G96 | 0.1− | 0.5− |
| 2001 09 24 | 704 | 0.7+ | 0.1− | 2005 10 28 | 704 | 1.1+ | 0.3+ | 2005 11 30 | G96 | 0.4+ | 0.3− |
| 2001 09 24 | 704 | 0.9+ | 0.1− | 2005 10 28 | 704 | 0.9+ | 1.0− | 2005 12 02 | 691 | 0.5+ | 0.5− |
| 2001 09 26 | 704 | 0.2− | 0.8+ | 2005 10 28 | 704 | (1.7− | 1.5−) | 2005 12 02 | 691 | 0.1− | 0.3+ |
| 2001 09 26 | 704 | 0.3− | 0.3− | 2005 10 28 | 704 | 0.1+ | 0.1+ | 2005 12 02 | 691 | 0.5− | 0.2+ |
| 2001 09 26 | 704 | 0.0 | 0.1− | 2005 10 29 | G96 | 0.0 | 0.5− | 2005 12 04 | 691 | 0.2− | 0.2+ |
| 2001 09 26 | 704 | 0.7+ | 0.9− | 2005 10 29 | G96 | 0.0 | 0.3− | 2005 12 04 | 691 | 0.0 | 0.0 |
| 2001 09 26 | 704 | (0.2+ | 2.9+) | 2005 10 29 | G96 | 0.1− | 0.4− | 2005 12 04 | 691 | 0.0 | 0.1+ |
| 2001 10 11 | 644 | 0.3+ | 0.0 | 2005 10 29 | G96 | 0.1− | 0.6− | 2008 06 23 | 691 | 0.1+ | 0.1+ |
| 2001 10 11 | 644 | 0.2+ | 0.0 | 2005 10 31 | 691 | 0.1− | 0.1− | 2008 06 23 | 691 | 0.1− | 0.2− |
| 2001 10 11 | 644 | 0.3+ | 0.1+ | 2005 10 31 | 691 | 0.1− | 0.1− | 2008 06 23 | 691 | 0.1− | 0.0 |
| 2001 10 13 | 704 | 0.4+ | 0.4+ | 2005 10 31 | 691 | 0.0 | 0.3− | 2009 11 20 | A50 | 1.0+ | 0.3+ |
| 2001 10 13 | 704 | 1.1+ | 0.3− | 2005 10 31 | 704 | 0.4− | 0.6+ | 2009 11 20 | A50 | 1.3+ | 0.2+ |
| 2001 10 13 | 704 | 0.9+ | 0.3+ | 2005 10 31 | 704 | (2.2− | 0.2−) | 2009 11 26 | 691 | 0.3− | 0.0 |
| 2001 10 17 | 644 | 0.8− | 0.7+ | 2005 10 31 | 704 | 0.3− | 0.0 | 2009 11 26 | 691 | 0.2+ | 0.6− |
| 2001 10 17 | 644 | 0.5− | 0.5+ | 2005 10 31 | 704 | 0.2+ | 0.4+ | 2009 11 26 | 691 | 0.5− | 0.1+ |
| 2001 10 17 | 644 | 0.6− | 0.6+ | 2005 10 31 | 704 | 0.7− | 0.1+ | 2009 12 17 | G96 | 0.3+ | 0.0 |
| 2001 10 17 | 644 | 0.9− | 0.3+ | 2005 10 31 | 704 | 0.1− | 0.1− | 2009 12 17 | G96 | 0.1+ | 0.1+ |
| 2001 10 17 | 644 | 0.0 | 0.2+ | 2005 10 31 | 704 | 0.4+ | 0.1+ | 2009 12 17 | G96 | 0.2− | 0.0 |
| 2001 10 17 | 644 | 0.6− | 0.4+ | 2005 10 31 | 704 | 0.3+ | 0.1+ | 2009 12 17 | G96 | 0.8+ | 0.3− |
| 2001 10 20 | 704 | 0.3− | 0.9+ | 2005 10 31 | 704 | 1.1+ | 0.9+ | | | | |

**(228488)∗ 2001 SD$_{172}$**

Discovered 2001 Sept. 16 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 45.76587 | | (2000.0) | | | |
| $n$ | 0.25894104 | $\omega$ | 205.65313 | | +0.87737205 | −0.47980972 |
| $a$ | 2.4378228 | $\Omega$ | 183.02036 | | +0.44328349 | +0.81134017 |
| $e$ | 0.1919975 | $i$ | 1.03973 | | +0.18362471 | +0.33393077 |
| $P$ | 3.81 | $H$ | 16.9 | $G$ 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 02 12 | 691 | 0.4+ | 0.2+ | 2001 09 27 | 704 | 0.3− | 0.8+ | 2005 10 31 | 704 | 0.7+ | 0.4+ |
| 1999 02 12 | 691 | 0.1− | 0.4+ | 2001 09 28 | 704 | 0.2− | 0.1+ | 2005 10 31 | 704 | 0.4+ | 0.5+ |
| 1999 02 12 | 691 | 0.2− | 0.1− | 2001 09 28 | 704 | 0.7− | 0.5+ | 2005 10 31 | 704 | 1.2+ | 0.6− |
| 2001 08 27 | 699 | 0.2+ | 0.9+ | 2001 09 28 | 704 | 0.3− | 0.2+ | 2005 10 31 | 704 | 0.0 | 0.4+ |
| 2001 08 27 | 699 | 0.3+ | 0.6+ | 2001 09 28 | 704 | 0.6− | 0.4+ | 2005 11 04 | 691 | 0.1+ | 0.0 |
| 2001 08 27 | 699 | 0.3− | 0.7+ | 2001 10 11 | 644 | 0.1+ | 0.4+ | 2005 11 04 | 691 | 0.0 | 0.1− |
| 2001 08 27 | 699 | 0.4+ | 0.5+ | 2001 10 11 | 644 | 0.0 | 0.4+ | 2005 11 04 | 691 | 0.1+ | 0.0 |
| 2001 09 12 | 691 | 0.3− | 0.4+ | 2001 10 11 | 644 | 0.3+ | 0.5+ | 2005 11 06 | 704 | 0.4+ | 0.6+ |
| 2001 09 12 | 691 | 0.4− | 0.3+ | 2001 10 13 | 704 | 0.4− | 0.1− | 2005 11 06 | 704 | 0.2− | 0.8+ |
| 2001 09 12 | 691 | 0.4− | 0.4+ | 2001 10 13 | 704 | 1.4− | 0.1− | 2005 11 06 | 704 | 0.1− | 0.5+ |
| 2001 09 16 | 704 | 0.4− | 0.3− | 2001 10 13 | 704 | 0.4− | 0.2+ | 2005 11 06 | 704 | 0.2+ | 0.5+ |
| 2001 09 16 | 704 | 0.7− | 0.7− | 2001 10 13 | 704 | 0.9− | 0.2+ | 2005 11 06 | 704 | 0.4− | 0.7+ |
| 2001 09 16 | 704 | 0.2− | 1.0− | 2001 10 14 | 645 | 0.1+ | 0.4− | 2005 11 06 | G96 | 0.1+ | 0.1− |
| 2001 09 16 | 704 | 0.1− | 0.5− | 2001 10 14 | 645 | 0.2+ | 0.4− | 2005 11 06 | G96 | 0.2+ | 0.0 |
| 2001 09 18 | 699 | 0.1− | 0.1+ | 2001 10 17 | 644 | 0.1− | 0.8+ | 2005 11 06 | G96 | 0.3+ | 0.1− |
| 2001 09 18 | 699 | (0.5− | 1.8+) | 2001 10 17 | 644 | 0.2− | 0.8+ | 2005 11 06 | G96 | 0.0 | 0.2− |
| 2001 09 18 | 699 | 0.0 | 0.8+ | 2001 10 17 | 644 | 0.1− | 0.7+ | 2005 11 12 | 691 | 0.0 | 0.1+ |
| 2001 09 18 | 699 | 0.2− | 1.3+ | 2001 10 20 | 704 | 0.5− | 0.1+ | 2005 11 12 | 691 | 0.1+ | 0.1+ |
| 2001 09 19 | 704 | 0.2− | 0.8+ | 2001 10 20 | 704 | 0.4+ | 0.0 | 2005 11 12 | 691 | 0.1+ | 0.0 |
| 2001 09 19 | 704 | 0.3+ | 0.8+ | 2001 10 20 | 704 | 0.4− | 0.3+ | 2005 11 20 | 699 | 0.0 | 0.4− |
| 2001 09 19 | 704 | 0.1− | 0.8+ | 2001 10 20 | 704 | 0.0 | 0.2+ | 2005 11 20 | 699 | 0.4− | 0.4− |
| 2001 09 19 | 704 | 0.3− | 1.0+ | 2001 10 20 | 704 | 0.2+ | 0.3+ | 2005 11 20 | 699 | 0.3− | 1.0+ |
| 2001 09 19 | 704 | 0.5− | 1.4+ | 2001 10 24 | 704 | 0.3+ | 0.3+ | 2005 11 20 | 699 | (0.1− | 2.4+) |
| 2001 09 19 | 704 | 0.9− | 0.8+ | 2001 10 24 | 704 | 0.1+ | 0.3+ | 2005 11 26 | 703 | 1.4− | 0.1− |
| 2001 09 19 | 704 | 0.1− | 0.6+ | 2001 10 24 | 704 | 0.6+ | 0.1− | 2005 11 26 | 703 | 0.3+ | 0.2+ |
| 2001 09 19 | 704 | 0.3+ | 0.5+ | 2001 10 24 | 704 | 0.4+ | 0.1+ | 2005 11 26 | 703 | 1.2− | 0.4− |
| 2001 09 19 | 704 | 0.9− | 0.1− | 2001 10 24 | 704 | 0.7− | 1.0+ | 2005 11 26 | 703 | 0.5− | 0.6+ |
| 2001 09 19 | 704 | 0.4+ | 0.8+ | 2001 11 18 | 645 | 0.1+ | 0.3− | 2005 12 01 | 704 | 0.7+ | 0.6+ |
| 2001 09 21 | 704 | 0.4+ | 0.1− | 2001 11 18 | 645 | 0.1+ | 0.3− | 2005 12 01 | 704 | 0.5+ | 0.3+ |
| 2001 09 21 | 704 | 0.3+ | 0.5− | 2001 11 20 | 704 | 1.1− | 0.4+ | 2005 12 01 | 704 | 0.9− | 0.8− |
| 2001 09 21 | 704 | 0.4+ | 0.2− | 2001 11 20 | 704 | 0.0 | 0.8+ | 2005 12 01 | G96 | 0.1+ | 0.5− |
| 2001 09 21 | 704 | 0.4+ | 0.3+ | 2001 11 20 | 704 | 0.1+ | 0.9+ | 2005 12 01 | G96 | 0.1+ | 0.5− |
| 2001 09 21 | 704 | 0.8+ | 0.5− | 2001 11 20 | 704 | 1.1+ | 0.0 | 2005 12 01 | G96 | 0.4+ | 0.2− |
| 2001 09 23 | 704 | 0.6+ | 0.8− | 2005 10 08 | A50 | 0.0 | 0.1+ | 2005 12 04 | 704 | 0.7+ | 1.1− |
| 2001 09 23 | 704 | (2.2+ | 0.2+) | 2005 10 08 | A50 | 0.0 | 0.2+ | 2005 12 04 | 704 | 0.4+ | 0.7+ |
| 2001 09 23 | 704 | 0.5− | 1.0− | 2005 10 23 | 644 | 0.3+ | 0.1+ | 2005 12 04 | 704 | 0.8+ | 1.2+ |
| 2001 09 23 | 704 | (1.7+ | 0.4+) | 2005 10 23 | 644 | 0.0 | 0.0 | 2005 12 04 | 704 | 0.2+ | 0.3+ |
| 2001 09 23 | 704 | 0.3− | 0.4− | 2005 10 23 | 644 | 0.1+ | 0.0 | 2005 12 04 | 704 | 0.6+ | 0.5+ |
| 2001 09 23 | 704 | (1.4+ | 1.7−) | 2005 10 23 | 703 | 0.1+ | 0.9− | 2005 12 06 | 704 | 1.0− | 0.4+ |
| 2001 09 23 | 704 | 0.1+ | 0.6+ | 2005 10 23 | 703 | 1.4− | 0.7− | 2005 12 06 | 704 | 0.1− | 0.5− |
| 2001 09 23 | 704 | 1.1+ | 0.6− | 2005 10 23 | 703 | 0.1+ | 0.2− | 2005 12 06 | 704 | 0.0 | 0.5− |
| 2001 09 23 | 704 | 0.3− | 0.0 | 2005 10 23 | 703 | 0.1+ | 0.9+ | 2006 01 22 | G96 | 0.1+ | 0.4− |
| 2001 09 25 | 699 | (0.6+ | 1.6+) | 2005 10 25 | 691 | 0.1+ | 0.0 | 2006 01 22 | G96 | 0.1+ | 0.1− |
| 2001 09 25 | 699 | 0.3+ | 0.7+ | 2005 10 25 | 691 | 0.1+ | 0.1− | 2006 01 22 | G96 | 0.2+ | 0.4− |
| 2001 09 25 | 699 | 0.5+ | 0.2− | 2005 10 25 | 691 | 1.0− | 0.2− | 2006 01 22 | G96 | 0.4− | 0.2− |
| 2001 09 25 | 699 | 0.6+ | 0.4+ | 2005 10 28 | 704 | 0.4+ | 0.2− | 2007 04 07 | G96 | 0.7+ | 0.3+ |
| 2001 09 26 | 704 | 0.6− | 0.2+ | 2005 10 28 | 704 | 0.6+ | 1.4+ | 2007 04 07 | G96 | 0.1− | 0.4+ |
| 2001 09 26 | 704 | 0.4− | 0.1+ | 2005 10 28 | 704 | 0.5+ | 0.4+ | 2007 04 07 | G96 | 0.2+ | 0.4+ |
| 2001 09 26 | 704 | 0.5− | 0.4+ | 2005 10 28 | 704 | 0.2− | 0.7− | 2007 04 07 | G96 | 0.5+ | 0.1+ |
| 2001 09 26 | 704 | 0.1− | 0.0 | 2005 10 28 | G96 | 0.1− | 0.3− | 2009 11 17 | 691 | 0.3− | 0.2+ |
| 2001 09 26 | 704 | 0.1+ | 1.2+ | 2005 10 28 | G96 | 0.3+ | 0.4− | 2009 11 17 | 691 | 0.7− | 0.1+ |
| 2001 09 27 | 704 | 1.3− | 0.5+ | 2005 10 28 | G96 | 0.1+ | 0.3− | 2009 11 17 | 691 | 0.2− | 0.1+ |
| 2001 09 27 | 704 | 1.5+ | 0.9− | 2005 10 28 | G96 | 0.0 | 0.4− | 2009 12 17 | 704 | 0.9+ | 1.7+ |
| 2001 09 27 | 704 | 0.0 | 0.5+ | 2005 10 29 | 691 | 0.2+ | 0.3− | 2009 12 17 | 704 | 0.2+ | 0.8+ |
| 2001 09 27 | 704 | 0.3− | 0.1+ | 2005 10 29 | 691 | 0.0 | 0.2− | 2009 12 17 | 704 | 0.7+ | 0.4+ |
| 2001 09 27 | 704 | 0.4− | 0.8+ | 2005 10 29 | 691 | 0.3+ | 0.1− | 2009 12 17 | 704 | 0.3− | 0.9+ |
| 2001 09 27 | 704 | 0.2+ | 0.6+ | 2005 10 31 | 704 | 0.9+ | 0.5+ | 2009 12 17 | 704 | 0.1+ | 0.4+ |

**(228489)∗ 2001 SW$_{210}$**

Discovered 2001 Sept. 19 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 70.22580 | | (2000.0) | | | |
| $n$ | 0.26447569 | $\omega$ | 276.51538 | | +0.94895545 | −0.31014967 |
| $a$ | 2.4036923 | $\Omega$ | 101.56437 | | +0.30755909 | +0.86957479 |
| $e$ | 0.2228013 | $i$ | 3.35680 | | +0.06993545 | +0.38424845 |
| $P$ | 3.73 | $H$ | 16.9 | $G$ 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 01 | 644 | 0.2− | 0.5− | 2001 10 11 | 704 | (0.1+ | 2.8+) | 2005 11 30 | 704 | 0.6− | 0.7− |
| 2001 08 01 | 644 | 0.1− | 0.1− | 2001 10 11 | 704 | (0.5− | 2.1+) | 2005 11 30 | 704 | 0.1+ | 0.9− |
| 2001 08 01 | 644 | 0.4− | 0.5− | 2001 10 11 | 704 | (0.3+ | 2.3+) | 2005 11 30 | 704 | 0.2− | 0.5− |
| 2001 09 12 | 704 | 0.3− | 0.7− | 2001 10 11 | 704 | (0.7− | 1.9+) | 2005 11 30 | 704 | 0.1+ | 0.7− |
| 2001 09 12 | 704 | 0.2− | 0.0 | 2001 10 11 | 704 | 0.1− | 0.9+ | 2005 12 01 | G96 | 0.1− | 0.2− |
| 2001 09 12 | 704 | 0.1− | 0.1− | 2001 10 16 | 644 | 0.1+ | 0.3+ | 2005 12 01 | G96 | 0.1+ | 0.2− |
| 2001 09 12 | 704 | 0.1− | 0.1+ | 2001 10 16 | 644 | 0.2+ | 0.4+ | 2005 12 01 | G96 | 0.4+ | 1.2− |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 12 | 704 | 0.2− | 0.1+ | 2001 10 16 | 644 | 0.1+ | 0.3+ | 2005 12 07 | 704 | 0.2+ | 0.1+ | 2003 03 25 | 291 | 0.4+ | 0.2+ |
| 2001 09 18 | 699 | 0.3− | 0.0 | 2001 10 19 | 699 | 0.1− | 0.5+ | 2005 12 07 | 704 | 0.8+ | 0.6+ | 2005 12 04 | G96 | 0.1− | 0.4− |
| 2001 09 18 | 699 | 0.2− | 0.5+ | 2001 10 19 | 699 | 0.4+ | 0.2− | 2005 12 07 | 704 | 0.5+ | 0.4− | 2005 12 04 | 704 | 0.5+ | 0.1+ |
| 2001 09 18 | 699 | 0.3− | 1.0+ | 2001 10 19 | 699 | 0.2− | 0.3+ | 2005 12 07 | 704 | 0.1− | 0.2+ | 2005 12 04 | G96 | 0.1− | 0.3− |
| 2001 09 18 | 699 | 0.8− | 0.6+ | 2001 10 19 | 699 | 0.6+ | 0.2+ | 2005 12 07 | 704 | 0.1+ | 0.7− | 2005 12 04 | G96 | 0.0 | 0.5− |
| 2001 09 19 | 704 | 0.6− | 1.1+ | 2001 10 24 | 644 | 0.8− | 0.1− | 2006 01 06 | G96 | 0.2+ | 0.3− | 2009 12 17 | 691 | 0.1− | 0.1+ |
| 2001 09 19 | 704 | (0.7+ | 1.9+) | 2001 10 24 | 644 | 0.6− | 0.0 | 2006 01 06 | G96 | 0.8+ | 0.7− | 2009 12 25 | 691 | 0.6− | 0.1− |
| 2001 09 19 | 704 | (0.3+ | 1.8+) | 2001 10 24 | 644 | 0.8− | 0.1+ | 2006 01 06 | G96 | 0.9+ | 0.0 | 2009 12 25 | 691 | 0.2− | 0.1− |
| 2001 09 19 | 704 | 0.1− | 0.8+ | 2003 03 23 | 645 | 0.1+ | 0.3+ | 2006 01 06 | G96 | 0.5+ | 0.4+ | 2009 12 25 | 691 | 0.5− | 0.0 |
| 2001 09 19 | 704 | 0.3− | 1.1+ | 2003 03 23 | 645 | 0.0 | 0.2+ | 2006 02 20 | G96 | 0.1− | 0.1+ | | | | |
| 2001 09 21 | 704 | 0.8+ | 0.1+ | 2003 03 31 | 645 | 0.0 | 0.2+ | 2006 02 20 | G96 | 0.1+ | 0.2+ | | | | |
| 2001 09 21 | 704 | 0.4+ | 0.3+ | 2003 03 31 | 645 | 0.1+ | 0.0 | 2006 02 20 | G96 | 0.3+ | 0.2+ | | | | |
| 2001 09 21 | 704 | 0.2+ | 0.0 | 2005 11 01 | G96 | 0.0 | 0.3− | 2006 02 20 | G96 | 0.5+ | 0.2+ | | | | |
| 2001 09 21 | 704 | 0.3+ | 0.1− | 2005 11 01 | G96 | 0.0 | 0.3− | 2009 10 30 | G96 | 0.2− | 0.3− | | | | |
| 2001 09 21 | 704 | 0.3+ | 0.0 | 2005 11 01 | G96 | 0.0 | 0.2− | 2009 10 30 | G96 | 0.0 | 0.1− | | | | |
| 2001 09 25 | 644 | 0.1− | 0.2+ | 2005 11 01 | G96 | 0.0 | 0.3− | 2009 10 30 | G96 | 0.3− | 0.4+ | | | | |
| 2001 09 25 | 644 | 0.1+ | 0.0 | 2005 11 21 | 703 | 0.9+ | 0.6+ | 2009 10 30 | G96 | 0.5+ | 0.1+ | | | | |
| 2001 09 25 | 644 | 0.3− | 0.1+ | 2005 11 21 | 703 | 1.2− | 0.2+ | 2009 12 17 | G96 | 0.8+ | 0.4− | | | | |
| 2001 09 27 | 644 | 0.6− | 0.7+ | 2005 11 21 | 703 | (1.6− | 2.7+) | 2009 12 17 | G96 | 0.1− | 0.1− | | | | |
| 2001 09 27 | 644 | 0.5− | 0.7+ | 2005 11 21 | 703 | 0.7− | 0.4+ | 2009 12 17 | G96 | 0.3+ | 0.7− | | | | |
| 2001 09 27 | 644 | 0.6− | 0.9+ | 2005 11 28 | 703 | 0.3+ | 0.6+ | 2009 12 17 | G96 | 0.5+ | 0.0 | | | | |
| 2001 10 08 | 644 | 0.1+ | 0.6+ | 2005 11 28 | 703 | 1.1− | 0.5− | 2009 12 20 | 291 | 0.1− | 0.0 | | | | |
| 2001 10 08 | 644 | 0.2− | 0.6+ | 2005 11 28 | 703 | 0.0 | 0.1− | 2009 12 20 | 291 | 0.1− | 0.1+ | | | | |
| 2001 10 08 | 644 | 0.2− | 0.6+ | 2005 11 28 | 703 | (2.1− | 1.3−) | 2009 12 20 | 291 | 0.3− | 0.4+ | | | | |

**(228490)∗ 2001 SL$_{211}$**

Discovered 2001 Sept. 19 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 37.54172 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26461489 | $\omega$ | 281.17651 | | +0.45582401 | −0.89004617 | |
| $a$ | 2.4028493 | $\Omega$ | 141.70337 | | +0.82066296 | +0.41743978 | |
| $e$ | 0.1774657 | $i$ | 0.60117 | | +0.34458202 | +0.18319892 | |
| $P$ | 3.72 | $H$ | 17.5 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 03 09 | 691 | 0.3− | 0.3− | 2003 04 07 | 691 | (0.2− | 2.1+) | 2005 12 04 | 704 | 0.2− | 0.9+ | 2001 10 13 | 704 | (2.2− | 0.5−) |
| 1999 03 09 | 691 | 0.1− | 0.2− | 2003 04 07 | 691 | (0.8− | 2.1+) | 2005 12 05 | 703 | 0.1− | 0.3− | 2001 10 13 | 704 | 0.6− | 1.4− |
| 1999 03 09 | 691 | 0.2− | 0.1+ | 2003 04 07 | 691 | (0.2− | 2.0+) | 2005 12 05 | 703 | 0.5− | 0.5+ | 2001 10 14 | 608 | 0.3− | 0.3+ |
| 2001 09 19 | 704 | 0.0 | 0.5+ | 2005 10 01 | G96 | 0.3+ | 0.1+ | 2005 12 05 | 703 | 0.2+ | 0.2− | 2001 10 14 | 608 | 0.5− | 0.8+ |
| 2001 09 19 | 704 | 0.2− | 1.2+ | 2005 10 01 | G96 | 0.4+ | 0.6− | 2005 12 05 | 699 | 0.1− | 0.3+ | 2001 10 14 | 608 | 0.6− | 0.4+ |
| 2001 09 19 | 704 | 0.2− | 0.3+ | 2005 10 01 | G96 | 0.1+ | 0.1− | 2005 12 05 | 703 | 0.9− | 0.0 | 2001 10 19 | 608 | 0.6− | 0.3+ |
| 2001 09 19 | 704 | 0.3− | 0.5+ | 2005 10 01 | G96 | 0.2+ | 0.1+ | 2005 12 05 | 699 | 0.1+ | 0.1− | 2001 10 19 | 608 | 0.1− | 0.5− |
| 2001 09 21 | 704 | 0.8− | 0.6+ | 2005 11 28 | 703 | 0.2− | 0.4+ | 2005 12 05 | 699 | 1.4− | 0.2+ | 2001 10 19 | 608 | 0.6− | 0.2+ |
| 2001 09 21 | 704 | 0.4− | 0.6+ | 2005 11 28 | 703 | (2.5+ | 1.3+) | 2005 12 05 | 699 | 0.6+ | 1.4+ | 2001 10 23 | 644 | 0.1− | 0.6− |
| 2001 09 21 | 704 | (0.7− | 1.8+) | 2005 11 28 | 703 | 0.3− | 0.1− | 2005 12 21 | 699 | 0.9− | 0.3+ | 2001 10 23 | 704 | 0.5− | 0.2+ |
| 2001 09 21 | 704 | 0.3+ | 1.2+ | 2005 11 28 | G96 | 0.5+ | 0.1+ | 2005 12 21 | 699 | 0.2+ | 0.1+ | 2001 10 23 | 704 | 0.4− | 0.1− |
| 2001 09 21 | 704 | 0.4− | 0.9+ | 2005 11 28 | 703 | 0.8+ | 0.9+ | 2005 12 21 | 699 | 0.4− | 0.9+ | 2001 10 23 | 644 | 0.3− | 0.3− |
| 2001 09 23 | 704 | 0.1− | 0.2− | 2005 11 28 | G96 | 0.3+ | 0.1− | 2005 12 21 | 699 | 0.5− | 0.9− | 2001 10 23 | 644 | 0.2+ | 0.4− |
| 2001 09 23 | 704 | 1.2− | 0.1− | 2005 11 28 | G96 | 0.1+ | 0.0 | 2005 12 25 | G96 | 0.4+ | 0.3− | 2001 10 23 | 704 | 0.5− | 0.2+ |
| 2001 09 23 | 704 | 0.9+ | 0.3− | 2005 11 29 | 704 | 0.0 | 0.9+ | 2005 12 25 | G96 | 0.1+ | 0.3− | 2001 10 23 | 704 | 0.5+ | 0.4+ |
| 2001 09 23 | 704 | 1.3− | 1.1+ | 2005 11 29 | 704 | 0.6+ | 0.4+ | 2005 12 25 | G96 | 0.0 | 0.2− | 2001 10 24 | 704 | 0.8+ | 0.1+ |
| 2001 09 26 | 704 | 0.0 | 0.7− | 2005 11 29 | 704 | 0.3+ | 0.9+ | 2005 12 25 | G96 | 0.3+ | 0.3− | 2001 10 24 | 704 | 0.3+ | 0.1− |
| 2001 09 26 | 704 | 0.6− | 0.5+ | 2005 11 29 | 704 | 0.4− | 0.3+ | 2006 01 22 | G96 | 0.2− | 0.1− | 2001 10 24 | 704 | 0.2− | 0.5+ |
| 2001 09 26 | 704 | 0.1− | 0.0 | 2005 11 29 | G96 | 0.0 | 0.0 | 2006 01 22 | G96 | 0.1− | 0.3− | 2001 10 24 | 644 | 0.0 | 0.8− |
| 2001 10 14 | 645 | 0.0 | 0.0 | 2005 11 29 | G96 | 0.1+ | 0.0 | 2006 01 22 | G96 | 0.2+ | 0.1+ | 2001 10 24 | 644 | 0.3+ | 0.9− |
| 2001 10 14 | 645 | 0.0 | 0.0 | 2005 11 29 | 704 | 0.6− | 0.4+ | 2006 01 22 | G96 | 0.3+ | 0.2− | 2001 10 24 | 644 | 0.1− | 0.9− |
| 2001 10 15 | 645 | 0.0 | 0.1− | 2005 11 29 | G96 | 0.0 | 0.2− | 2009 10 30 | G96 | 0.0 | 0.3− | 2001 11 12 | 645 | 0.2+ | 0.1− |
| 2001 10 15 | 645 | 0.1− | 0.1− | 2005 11 29 | G96 | 0.2+ | 0.3− | 2009 10 30 | G96 | 0.4+ | 0.3− | 2001 11 12 | 645 | 0.2+ | 0.1− |
| 2001 10 17 | 644 | 0.5+ | 1.3+ | 2005 12 01 | 704 | 0.3+ | 0.2+ | 2009 10 30 | G96 | 0.3− | 0.1− | 2001 11 12 | 645 | 0.2+ | 0.1− |
| 2001 10 17 | 644 | 0.7+ | 1.2+ | 2005 12 01 | 704 | 0.8+ | 0.2+ | 2009 10 30 | G96 | 0.5+ | 0.1+ | 2004 04 25 | 691 | 0.1+ | 0.2+ |
| 2001 10 17 | 644 | 0.4+ | 1.4+ | 2005 12 01 | 704 | 0.4+ | 0.1+ | 2009 11 16 | G96 | 0.5+ | 0.1+ | 2004 04 25 | 691 | 0.1+ | 0.4+ |
| 2003 03 25 | 291 | 0.2+ | 0.5+ | 2005 12 01 | 704 | 0.8+ | 0.9+ | 2009 11 16 | G96 | 0.6+ | 0.1− | 2004 04 25 | 691 | 0.0 | 0.1+ |
| 2003 03 25 | 291 | 0.3+ | 0.6+ | 2005 12 01 | 704 | 0.3+ | 0.3+ | 2009 11 16 | G96 | 0.1+ | 0.2+ | 2004 05 09 | 691 | 0.2+ | 0.3+ |
| 2003 03 25 | 291 | 0.2+ | 0.5+ | 2005 12 04 | 704 | 1.3+ | 0.6− | 2009 11 16 | G96 | 0.7+ | 0.0 | | | | |
| 2003 03 25 | 291 | 0.5+ | 0.6+ | 2005 12 04 | 704 | 0.3+ | 0.1− | 2009 12 17 | 691 | 0.1+ | 0.4− | | | | |
| 2003 03 25 | 291 | 0.3+ | 0.1+ | 2005 12 04 | G96 | 0.1− | 0.3− | 2009 12 17 | 691 | 0.4− | 0.1− | | | | |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 10 13 | 704 | 0.3− | 0.9+ | 2004 05 09 | 691 | 0.3+ | 0.3+ | 2001 10 24 | 704 | 0.3− | 0.6+ | 2005 11 28 | 703 | 0.4+ | 0.3+ |
| 2001 10 13 | 704 | 0.4− | 0.4+ | 2004 05 09 | 691 | 0.1+ | 0.2+ | 2001 10 24 | 704 | 0.3− | 0.9+ | 2005 11 28 | 703 | 0.1+ | 0.3+ |
| 2001 10 14 | 608 | 0.3− | 0.3+ | 2004 05 19 | 691 | 0.2+ | 0.1+ | 2001 10 24 | 704 | 0.2− | 1.3+ | 2005 11 28 | 703 | 0.1+ | 0.8− |
| 2001 10 14 | 608 | 0.5− | 0.8+ | 2004 05 19 | 691 | 0.1− | 0.3+ | 2001 11 18 | 704 | 0.5+ | 0.4− | 2005 11 30 | G96 | 0.1+ | 0.2− |
| 2001 10 14 | 608 | 0.6− | 0.4+ | 2004 05 19 | 691 | 0.0 | 0.4+ | 2001 11 18 | 704 | 0.8− | 0.4− | 2005 11 30 | G96 | 0.6+ | 0.3− |
| 2001 10 19 | 608 | 0.6− | 0.3+ | 2005 10 22 | 691 | 0.0 | 0.2+ | 2001 11 18 | 704 | 0.7− | 0.4− | 2005 11 30 | G96 | 0.2+ | 0.2− |
| 2001 10 19 | 608 | 0.1− | 0.5− | 2005 10 22 | 691 | 0.1+ | 0.3+ | 2001 11 18 | 704 | 1.1+ | 1.2+ | 2005 11 30 | G96 | 0.1+ | 0.1− |
| 2001 10 19 | 608 | 0.6− | 0.2+ | 2005 10 22 | 691 | 0.1+ | 0.2+ | 2001 11 20 | 704 | 0.2+ | 0.8− | 2005 12 01 | 704 | 0.3− | 0.4+ |
| 2001 10 23 | 644 | 0.1− | 0.6− | 2005 10 31 | 691 | 0.1+ | 0.1+ | 2001 11 20 | 704 | 0.6+ | 1.1+ | 2005 12 01 | 704 | 0.2+ | 0.6+ |
| 2001 10 23 | 704 | 0.5− | 0.2+ | 2005 10 31 | 691 | 0.1+ | 0.3+ | | | | | | | | |
| 2001 10 23 | 704 | 0.4− | 0.1− | 2005 10 31 | 691 | 0.0 | 0.1+ | | | | | | | | |
| 2001 10 23 | 644 | 0.3− | 0.3− | 2005 11 01 | G96 | 0.1+ | 0.2− | | | | | | | | |
| 2001 10 23 | 644 | 0.2+ | 0.4− | 2005 11 01 | G96 | 0.6+ | 0.1− | | | | | | | | |
| 2001 10 23 | 704 | 0.5− | 0.2+ | 2005 11 01 | G96 | 0.0 | 0.4− | | | | | | | | |
| 2001 10 23 | 704 | 0.5+ | 0.4+ | 2005 11 02 | G96 | 0.3+ | 0.1+ | | | | | | | | |
| 2001 10 24 | 704 | 0.8+ | 0.1+ | 2005 11 02 | G96 | 0.2+ | 0.0 | | | | | | | | |
| 2001 10 24 | 704 | 0.3+ | 0.1− | 2005 11 02 | G96 | 0.7+ | 0.0 | | | | | | | | |
| 2001 10 24 | 704 | 0.2+ | 0.1+ | 2005 11 02 | G96 | 0.2− | 0.2− | | | | | | | | |
| 2001 10 24 | 704 | 0.3+ | 0.1+ | 2009 11 24 | 691 | 0.7− | 0.3+ | | | | | | | | |
| 2001 10 24 | 644 | 0.0 | 0.8− | 2009 11 24 | 691 | 0.2+ | 0.0 | | | | | | | | |
| 2001 10 24 | 644 | 0.3+ | 0.9− | 2009 11 24 | 691 | 0.5− | 0.0 | | | | | | | | |
| 2001 10 24 | 644 | 0.1− | 0.9− | 2009 12 11 | G96 | 0.3+ | 0.4+ | | | | | | | | |
| 2001 11 12 | 645 | 0.2+ | 0.1− | 2009 12 11 | G96 | 0.5+ | 0.2+ | | | | | | | | |
| 2001 11 12 | 645 | 0.2+ | 0.1− | 2009 12 11 | G96 | 0.1+ | 0.3+ | | | | | | | | |
| 2004 04 25 | 691 | 0.1+ | 0.2+ | 2009 12 11 | G96 | 0.3+ | 0.4+ | | | | | | | | |
| 2004 04 25 | 691 | 0.1+ | 0.4+ | 2009 12 25 | 691 | 0.0 | 0.8+ | | | | | | | | |
| 2004 04 25 | 691 | 0.0 | 0.1+ | 2009 12 25 | 691 | 0.2+ | 0.3− | | | | | | | | |
| 2004 05 09 | 691 | 0.2+ | 0.3+ | 2009 12 25 | 691 | 0.4− | 0.5+ | | | | | | | | |

**(228491)∗ 2001 SU$_{228}$**

Discovered 2001 Sept. 19 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 95.52628 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26053706 | $\omega$ | 203.71295 | | +0.86927310 | +0.49326303 | |
| $a$ | 2.4278567 | $\Omega$ | 126.69204 | | −0.44681190 | +0.81213161 | |
| $e$ | 0.1936285 | $i$ | 2.32246 | | −0.21147910 | +0.31166303 | |
| $P$ | 3.78 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 19 | 704 | 0.3− | 0.9+ | 2001 10 13 | 704 | (2.2− | 0.5−) | 2004 05 09 | 691 | 0.3+ | 0.3+ | 2001 10 24 | 704 | 0.3− | 0.6+ |
| 2001 09 19 | 704 | 0.4− | 0.4+ | 2001 10 13 | 704 | 0.6− | 1.4− | 2004 05 09 | 691 | 0.1+ | 0.2+ | 2001 10 24 | 704 | 0.3− | 0.9+ |
| 2001 09 19 | 704 | 0.0 | 0.8+ | 2001 10 14 | 608 | 0.3− | 0.3+ | 2004 05 19 | 691 | 0.2+ | 0.1+ | 2001 10 24 | 704 | 0.2− | 1.3+ |
| 2001 09 19 | 704 | 0.1+ | 0.6+ | 2001 10 14 | 608 | 0.5− | 0.8+ | 2004 05 19 | 691 | 0.1− | 0.3+ | 2001 11 18 | 704 | 0.5+ | 0.4− |
| 2001 09 19 | 704 | 0.6− | 0.2− | 2001 10 14 | 608 | 0.6− | 0.4+ | 2004 05 19 | 691 | 0.0 | 0.4+ | 2001 11 18 | 704 | 0.8− | 0.4− |
| 2001 09 21 | 691 | 0.1− | 0.2+ | 2001 10 19 | 608 | 0.6− | 0.3+ | 2005 10 22 | 691 | 0.0 | 0.2+ | 2001 11 18 | 704 | 0.7− | 0.4− |
| 2001 09 21 | 704 | 0.2− | 0.1+ | 2001 10 19 | 608 | 0.1− | 0.5− | 2005 10 22 | 691 | 0.1+ | 0.3+ | 2001 11 20 | 704 | 1.1+ | 1.2+ |
| 2001 09 21 | 691 | 0.0 | 0.1+ | 2001 10 19 | 608 | 0.6− | 0.2+ | 2005 10 22 | 691 | 0.1+ | 0.2+ | 2001 11 20 | 704 | 0.2+ | 0.8− |
| 2001 09 21 | 704 | 0.7− | 0.2+ | 2001 10 23 | 644 | 0.1− | 0.6− | 2005 10 31 | 691 | 0.1+ | 0.1+ | 2001 11 20 | 704 | 0.6+ | 1.1+ |
| 2001 09 21 | 704 | 0.7− | 0.3+ | 2001 10 23 | 704 | 0.5− | 0.2+ | 2005 10 31 | 691 | 0.1+ | 0.3+ | | | | |
| 2001 09 21 | 691 | 0.1− | 0.2+ | 2001 10 23 | 704 | 0.4− | 0.1− | 2005 10 31 | 691 | 0.0 | 0.1+ | | | | |
| 2001 09 21 | 704 | 0.9− | 0.4+ | 2001 10 23 | 644 | 0.3− | 0.3− | 2005 11 01 | G96 | 0.1+ | 0.2− | | | | |
| 2001 09 21 | 704 | 0.6− | 0.3+ | 2001 10 23 | 644 | 0.2+ | 0.4− | 2005 11 01 | G96 | 0.6+ | 0.1− | | | | |
| 2001 09 21 | 704 | 0.4− | 1.2− | 2001 10 23 | 704 | 0.5− | 0.2+ | 2005 11 01 | G96 | 0.0 | 0.4− | | | | |
| 2001 09 21 | 704 | 0.2− | 0.5+ | 2001 10 23 | 704 | 0.5+ | 0.4+ | 2005 11 02 | G96 | 0.3+ | 0.1+ | | | | |
| 2001 09 21 | 704 | 0.3+ | 0.6+ | 2001 10 24 | 704 | 0.8+ | 0.1+ | 2005 11 02 | G96 | 0.2+ | 0.0 | | | | |
| 2001 09 21 | 704 | 0.2− | 0.5+ | 2001 10 24 | 704 | 0.3+ | 0.1− | 2005 11 02 | G96 | 0.7+ | 0.0 | | | | |
| 2001 09 26 | 704 | 0.1− | 0.6+ | 2001 10 24 | 704 | 0.2+ | 0.1+ | 2005 11 02 | G96 | 0.2− | 0.2− | | | | |
| 2001 09 26 | 704 | 0.7− | 0.3− | 2001 10 24 | 704 | 0.3+ | 0.1+ | 2009 11 24 | 691 | 0.7− | 0.3+ | | | | |
| 2001 09 26 | 704 | 0.4+ | 1.4+ | 2001 10 24 | 644 | 0.0 | 0.8− | 2009 11 24 | 691 | 0.2+ | 0.0 | | | | |
| 2001 09 26 | 704 | 0.7− | 0.9+ | 2001 10 24 | 644 | 0.3+ | 0.9− | 2009 11 24 | 691 | 0.5− | 0.0 | | | | |
| 2001 10 12 | 699 | 0.1− | 0.7+ | 2001 10 24 | 644 | 0.1− | 0.9− | 2009 12 11 | G96 | 0.3+ | 0.4+ | | | | |
| 2001 10 12 | 699 | 0.6− | 0.5+ | 2001 11 12 | 645 | 0.2+ | 0.1− | 2009 12 11 | G96 | 0.5+ | 0.2+ | | | | |
| 2001 10 12 | 699 | 0.6− | 0.7+ | 2001 11 12 | 645 | 0.2+ | 0.1− | 2009 12 11 | G96 | 0.1+ | 0.3+ | | | | |
| 2001 10 12 | 699 | (1.8+ | 1.3+) | 2004 04 25 | 691 | 0.1+ | 0.2+ | 2009 12 11 | G96 | 0.3+ | 0.4+ | | | | |
| 2001 10 13 | 704 | 0.7+ | 0.9− | 2004 04 25 | 691 | 0.1+ | 0.4+ | 2009 12 25 | 691 | 0.0 | 0.8+ | | | | |
| 2001 10 13 | 704 | 0.3− | 1.2− | 2004 04 25 | 691 | 0.0 | 0.1+ | 2009 12 25 | 691 | 0.2+ | 0.3− | | | | |
| 2001 10 13 | 704 | 0.2+ | 0.1− | 2004 05 09 | 691 | 0.2+ | 0.3+ | 2009 12 25 | 691 | 0.4− | 0.5+ | | | | |

**(228492)∗ 2001 ST$_{233}$**

Discovered 2001 Sept. 19 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 15.19344 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26057577 | $\omega$ | 345.75533 | | +0.12698415 | −0.99108184 | |
| $a$ | 2.4276162 | $\Omega$ | 96.93763 | | +0.91399146 | +0.10109098 | |
| $e$ | 0.1275861 | $i$ | 2.33222 | | +0.38535001 | +0.08681818 | |
| $P$ | 3.78 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 19 | 704 | 0.1+ | 0.4+ | 2001 10 24 | 704 | 0.3− | 0.6+ | 2005 11 28 | 703 | 0.4+ | 0.3+ | 2001 09 21 | 704 | 0.3− | 0.0 |
| 2001 09 19 | 704 | 0.1− | 0.0 | 2001 10 24 | 704 | 0.3− | 0.9+ | 2005 11 28 | 703 | 0.1+ | 0.3+ | 2001 11 20 | 704 | 0.6+ | 1.1+ |
| 2001 09 19 | 704 | 0.2− | 0.4+ | 2001 10 24 | 704 | 0.2− | 1.3+ | 2005 11 28 | 703 | 0.1+ | 0.8− | | | | |
| 2001 09 19 | 704 | 0.3+ | 0.3+ | 2001 11 18 | 704 | 0.5+ | 0.4− | 2005 11 30 | G96 | 0.1+ | 0.2− | | | | |
| 2001 09 19 | 704 | 0.3+ | 0.0 | 2001 11 18 | 704 | 0.8− | 0.4− | 2005 11 30 | G96 | 0.6+ | 0.3− | | | | |
| 2001 09 21 | 704 | 0.2− | 0.1− | 2001 11 18 | 704 | 0.7− | 0.4− | 2005 11 30 | G96 | 0.2+ | 0.2− | | | | |
| 2001 09 21 | 704 | 0.3− | 0.4+ | 2001 11 20 | 704 | 1.1+ | 1.2+ | 2005 11 30 | G96 | 0.1+ | 0.1− | | | | |
| 2001 09 21 | 704 | 0.3− | 0.4+ | 2001 11 20 | 704 | 0.2+ | 0.8− | 2005 12 01 | 704 | 0.3− | 0.4+ | | | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 21 | 704 | 0.0 | 0.1+ | 2001 11 20 | 704 | 1.3+ | 0.4+ | 2005 12 01 | 704 | 0.2+ | 0.7+ | | |
| 2001 09 26 | 704 | 0.8+ | 0.6− | 2001 11 20 | 704 | 0.1+ | 0.7+ | 2005 12 01 | 704 | 0.2+ | 0.2+ | | |
| 2001 09 26 | 704 | 0.3− | 0.7+ | 2001 11 21 | 704 | 0.2− | 0.5+ | 2005 12 01 | 704 | 0.6+ | 0.3+ | | |
| 2001 09 26 | 704 | 0.2− | 0.2− | 2001 11 21 | 704 | 0.0 | 0.3+ | 2005 12 04 | 704 | (3.4+ | 0.6−) | | |
| 2001 10 07 | 644 | 0.5− | 0.8+ | 2001 11 21 | 704 | 1.3− | 0.9+ | 2005 12 04 | 704 | (3.8+ | 1.0−) | | |
| 2001 10 07 | 644 | 0.4+ | 0.8+ | 2003 02 24 | 599 | 0.0 | 0.8+ | 2005 12 04 | 704 | (3.3+ | 0.4+) | | |
| 2001 10 07 | 644 | 0.7+ | 1.1+ | 2003 02 24 | 599 | 1.1− | 0.3+ | 2005 12 04 | 704 | (3.3+ | 1.3−) | | |
| 2001 10 13 | 704 | 0.8+ | 0.5+ | 2003 02 24 | 599 | 1.4+ | 0.7− | 2005 12 06 | 704 | (1.1+ | 1.6+) | | |
| 2001 10 13 | 704 | 0.7+ | 0.2− | 2003 03 26 | 246 | 1.1+ | 0.4+ | 2005 12 06 | 704 | 0.1− | 0.1+ | | |
| 2001 10 13 | 704 | 0.6+ | 0.6+ | 2003 03 26 | 246 | 0.6+ | 0.8+ | 2005 12 06 | 704 | 0.0 | 0.4− | | |
| 2001 10 13 | 704 | (1.6− | 0.9+) | 2003 03 26 | 246 | 0.8+ | 0.9+ | 2006 01 21 | G96 | 0.2− | 0.1− | | |
| 2001 10 13 | 704 | 0.2+ | 1.0− | 2003 03 26 | 246 | 0.9+ | 0.5+ | 2006 01 21 | G96 | 0.1+ | 0.4+ | | |
| 2001 10 16 | 704 | 0.2+ | 0.7+ | 2003 03 26 | 246 | 1.0+ | 0.2+ | 2006 01 21 | G96 | 0.3+ | 0.1− | | |
| 2001 10 16 | 704 | 0.6− | 0.6+ | 2003 03 27 | 699 | 0.8+ | 0.1− | 2006 01 21 | G96 | 0.2+ | 0.1− | | |
| 2001 10 16 | 704 | 0.0 | 0.1+ | 2003 03 27 | 699 | 0.1− | 0.2+ | 2006 02 24 | G96 | 0.1− | 0.1+ | | |
| 2001 10 16 | 704 | 0.1− | 0.3+ | 2003 03 27 | 699 | 1.2− | 0.2+ | 2006 02 24 | G96 | 0.0 | 0.2+ | | |
| 2001 10 16 | 704 | 0.7− | 0.6+ | 2003 03 27 | 699 | (0.5+ | 2.4+) | 2006 02 24 | G96 | 0.9+ | 0.1− | | |
| 2001 10 18 | 644 | 0.4− | 0.3+ | 2003 03 28 | 291 | 0.1+ | 0.8+ | 2006 02 24 | G96 | 0.1+ | 0.2+ | | |
| 2001 10 18 | 644 | 0.4− | 0.4+ | 2003 03 28 | 291 | 0.5+ | 0.8+ | 2007 03 11 | G96 | 0.7+ | 1.2+ | | |
| 2001 10 18 | 644 | 0.7− | 0.3+ | 2003 03 28 | 291 | 0.4+ | 0.5+ | 2007 03 11 | G96 | 0.2+ | 0.3− | | |
| 2001 10 20 | 704 | 0.3− | 0.5+ | 2003 04 09 | 291 | 0.1+ | 0.7+ | 2007 03 11 | G96 | 0.3− | 0.4+ | | |
| 2001 10 20 | 704 | 0.2− | 1.1+ | 2003 04 09 | 291 | 0.1+ | 0.7+ | 2007 03 11 | G96 | 0.8− | 0.5− | | |
| 2001 10 20 | 704 | 1.1+ | 0.5− | 2003 04 09 | 291 | 0.0 | 0.8+ | 2007 03 20 | 691 | 0.4− | 0.3+ | | |
| 2001 10 20 | 704 | 0.4− | 0.2+ | 2005 10 31 | G96 | 0.2+ | 0.1− | 2007 03 20 | 691 | 0.2+ | 0.4− | | |
| 2001 10 20 | 704 | 0.1− | 0.4− | 2005 10 31 | G96 | 0.3+ | 0.1− | 2007 03 20 | 691 | 0.2− | 0.1+ | | |
| 2001 10 22 | 704 | 0.6+ | 1.3+ | 2005 10 31 | G96 | 0.3+ | 0.2− | 2007 03 29 | 691 | 0.6+ | 0.2− | | |
| 2001 10 22 | 704 | 0.7− | 0.2+ | 2005 10 31 | G96 | 0.5+ | 0.1− | 2007 03 29 | 691 | 0.1+ | 0.3− | | |
| 2001 10 22 | 704 | 0.8− | 0.3+ | 2005 11 03 | 704 | 0.4− | 1.0+ | 2007 03 29 | 691 | 0.2− | 0.1− | | |
| 2001 10 23 | 704 | 0.4− | 0.4− | 2005 11 03 | 704 | 0.1− | 0.0 | 2009 12 16 | 691 | 0.7− | 0.6− | | |
| 2001 10 23 | 704 | 1.1− | 0.3+ | 2005 11 03 | 704 | 0.5+ | 0.3+ | 2009 12 16 | 691 | 0.8− | 0.5− | | |
| 2001 10 23 | 704 | 0.6− | 0.4− | 2005 11 03 | 704 | 0.7− | 0.5− | 2009 12 16 | 691 | 0.3− | 0.2− | | |
| 2001 10 23 | 704 | 0.2− | 0.8+ | 2005 11 21 | 699 | 0.4− | 0.6+ | 2009 12 16 | G96 | 0.5+ | 0.4− | | |
| 2001 10 24 | 691 | 0.6− | 0.1− | 2005 11 21 | 699 | 0.7+ | 0.1− | 2009 12 16 | G96 | 0.6+ | 0.3− | | |
| 2001 10 24 | 691 | 0.5− | 0.1− | 2005 11 21 | 699 | 0.4+ | 0.0 | 2009 12 16 | G96 | 0.6+ | 0.5− | | |
| 2001 10 24 | 691 | 0.5− | 0.1− | 2005 11 21 | 699 | 1.0+ | 0.9+ | 2009 12 16 | G96 | 0.2+ | 0.2− | | |
| 2001 10 24 | 691 | 0.1+ | 0.2+ | 2005 11 28 | 703 | 0.0 | 1.3− | 2009 12 16 | G96 | 0.3+ | 0.3− | | |
| 2001 10 24 | 704 | 1.0− | 0.4+ | 2005 11 28 | 703 | 0.1− | 0.6− | 2009 12 20 | 691 | 0.3+ | 0.0 | | |
| 2001 10 24 | 691 | 0.2− | 0.2+ | 2005 11 28 | 703 | 0.4− | 0.9− | 2009 12 20 | 691 | 0.3+ | 0.0 | | |
| 2001 10 24 | 704 | 0.5+ | 0.6+ | 2005 11 28 | 703 | 0.0 | 0.7− | 2009 12 20 | 691 | 0.0 | 0.3+ | | |
| 2001 10 24 | 691 | 0.2+ | 0.2+ | 2005 11 28 | 703 | 0.3− | 0.3+ | | | | | | |

**(228493)∗ 2001 SL$_{241}$**

Discovered 2001 Sept. 19 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 189.14577 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.25879269 | $\omega$ | 54.01816 | | −0.45543306 | +0.89012789 | |
| $a$ | 2.4387543 | $\Omega$ | 188.93158 | | −0.84623780 | −0.43838850 | |
| $e$ | 0.0728473 | $i$ | 5.88103 | | −0.27651820 | −0.12445021 | |
| $P$ | 3.81 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 19 | 704 | 0.6− | 1.1+ | 2005 10 25 | 691 | 0.0 | 0.0 | 2007 02 26 | 703 | 0.3− | 1.0+ | | |
| 2001 09 19 | 704 | 0.6+ | 0.5+ | 2005 10 25 | 691 | 0.1− | 0.1+ | 2007 02 26 | 703 | 0.6+ | 0.3− | | |
| 2001 09 19 | 704 | 0.4− | 0.6+ | 2005 10 25 | 691 | 0.2+ | 0.1+ | 2007 02 26 | 703 | 0.4+ | 0.3− | | |
| 2001 09 19 | 704 | 0.2+ | 1.5+ | 2005 11 05 | 703 | 0.4+ | 0.3+ | 2007 02 26 | 703 | 1.2+ | 0.2− | | |
| 2001 09 21 | 704 | 0.5− | 0.5+ | 2005 11 05 | 703 | 0.3+ | 0.9+ | 2008 06 13 | 691 | 0.3− | 0.4+ | | |
| 2001 09 21 | 704 | 0.2+ | 0.5− | 2005 11 05 | 703 | 0.3− | 0.1+ | 2008 06 13 | 691 | 0.3− | 0.4+ | | |
| 2001 09 21 | 704 | 0.0 | 0.1+ | 2005 11 05 | 703 | 0.6+ | 0.6− | 2008 06 13 | 691 | 0.2− | 0.3+ | | |
| 2001 09 21 | 704 | 0.7− | 1.3+ | 2007 02 16 | G96 | 0.4− | 0.2+ | 2008 07 29 | G96 | 0.7+ | 0.0 | | |
| 2001 10 16 | 704 | 0.4+ | 0.5+ | 2007 02 16 | G96 | 0.0 | 0.2+ | 2008 07 29 | G96 | 0.1+ | 0.3− | | |
| 2001 10 16 | 704 | 0.3− | 0.5+ | 2007 02 16 | G96 | 0.1− | 0.0 | 2008 07 29 | G96 | 0.5+ | 0.1+ | | |
| 2001 10 16 | 704 | (2.1− | 0.1−) | 2007 02 16 | G96 | 0.1− | 0.1+ | 2008 07 29 | G96 | 0.1− | 0.2− | | |
| 2001 10 18 | 644 | 0.5− | 0.2+ | 2007 02 16 | 644 | 0.1+ | 0.5+ | 2008 07 29 | G96 | 0.4+ | 0.2+ | | |
| 2001 10 18 | 644 | 0.5− | 0.0 | 2007 02 16 | 644 | 0.0 | 0.2+ | 2008 07 29 | G96 | 0.2+ | 0.2− | | |
| 2001 10 18 | 644 | 0.4− | 0.2+ | 2007 02 16 | 644 | 0.1− | 0.7+ | 2008 07 29 | G96 | 0.7+ | 0.2+ | | |
| 2001 10 23 | 704 | 1.0− | 0.3− | 2007 02 17 | 703 | 0.6− | 0.3− | 2008 07 29 | G96 | 0.4− | 0.3− | | |
| 2001 10 23 | 704 | 0.3− | 0.3− | 2007 02 17 | 703 | 0.6− | 0.4+ | 2009 11 23 | G96 | 0.4+ | 0.1− | | |
| 2001 10 23 | 704 | 0.4− | 0.4+ | 2007 02 17 | 703 | (1.5− | 1.8−) | 2009 11 23 | G96 | 0.4+ | 0.2− | | |
| 2001 10 24 | 704 | 0.1+ | 0.1+ | 2007 02 17 | 703 | 1.3− | 1.4+ | 2009 11 23 | G96 | 0.4+ | 0.5− | | |
| 2001 10 24 | 704 | 0.7+ | 0.6− | 2007 02 22 | 704 | 0.4+ | 0.3− | 2009 11 23 | G96 | 0.4+ | 0.3− | | |
| 2001 10 24 | 704 | 0.7+ | 0.7+ | 2007 02 22 | 704 | 0.4− | 0.3− | 2009 12 19 | 691 | 0.1− | 0.0 | | |
| 2003 01 27 | 644 | 0.1− | 0.8+ | 2007 02 22 | 704 | 0.8+ | 1.3+ | 2009 12 19 | 691 | 0.6− | 0.4− | | |
| 2003 01 27 | 644 | 0.3+ | 0.3+ | 2007 02 22 | 704 | 1.4+ | 0.9+ | 2009 12 19 | 691 | 0.1+ | 0.4− | | |
| 2003 01 27 | 644 | 0.0 | 0.7+ | 2007 02 22 | 704 | 1.4+ | 1.0+ | | | | | | |

**(228494)∗ 2001 SV$_{252}$**

Discovered 2001 Sept. 19 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 75.27265 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.25801103 | $\omega$ | 321.72026 | | +0.99692082 | −0.01916572 | |
| $a$ | 2.4436774 | $\Omega$ | 39.58275 | | +0.05339934 | +0.87601717 | |
| $e$ | 0.1507220 | $i$ | 6.85347 | | −0.05742290 | +0.48189894 | |
| $P$ | 3.82 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 17 | 644 | 0.6− | 0.1− | 2001 11 11 | 699 | 0.1− | 0.4+ | 2005 11 01 | 704 | 0.3− | 0.4− | | |
| 2001 09 17 | 644 | 0.4− | 0.4− | 2001 11 11 | 699 | 0.7− | 0.3− | 2005 11 01 | 704 | 0.3+ | 0.0 | | |
| 2001 09 17 | 644 | 0.8− | 0.2− | 2001 11 11 | 699 | 0.0 | 0.4+ | 2005 11 01 | 704 | 0.1− | 0.6− | | |
| 2001 09 19 | 704 | 1.0+ | 0.5− | 2001 11 17 | 704 | 1.3− | 1.0+ | 2005 11 04 | 704 | 0.1+ | 0.3+ | | |
| 2001 09 19 | 704 | 0.6+ | 0.0 | 2001 11 17 | 704 | 1.2− | 0.8+ | 2005 11 04 | 704 | 0.1− | 0.5− | | |
| 2001 09 19 | 704 | 0.2+ | 0.4− | 2001 11 17 | 704 | (1.9− | 1.7+) | 2005 11 04 | 704 | 0.3+ | 0.5− | | |
| 2001 09 19 | 704 | 0.6+ | 0.5− | 2001 11 17 | 704 | (1.6− | 2.5+) | 2005 11 08 | 704 | 0.3+ | 0.8− | | |
| 2001 09 19 | 704 | 0.2+ | 0.3− | 2001 11 17 | 704 | (1.8− | 2.0+) | 2005 11 08 | 704 | 0.5+ | 0.3− | | |
| 2001 09 21 | 704 | 0.8+ | 0.0 | 2001 11 19 | 704 | (2.1− | 3.0+) | 2005 11 08 | 704 | 1.0− | 0.8− | | |
| 2001 09 21 | 704 | 0.5+ | 0.4− | 2001 11 19 | 704 | 0.6− | 0.9+ | 2005 11 08 | 704 | 0.8− | 1.4− | | |
| 2001 09 21 | 704 | 0.1+ | 0.2− | 2001 11 19 | 704 | (1.0− | 2.5+) | 2005 11 08 | 704 | 0.6− | 1.3− | | |
| 2001 09 21 | 704 | 0.4+ | 0.1+ | 2001 11 19 | 704 | (0.1− | 2.8+) | 2005 11 12 | 691 | 0.0 | 0.1− | | |
| 2001 09 21 | 704 | 0.6− | 0.3+ | 2001 11 19 | 704 | (1.7− | 2.9+) | 2005 11 12 | 691 | 0.2+ | 0.2+ | | |
| 2001 09 26 | 704 | 0.5+ | 0.7+ | 2001 11 20 | 699 | 0.7+ | 0.3+ | 2005 11 12 | 691 | 0.3− | 0.0 | | |
| 2001 09 26 | 704 | 0.4+ | 0.6+ | 2001 11 20 | 699 | 0.1− | 0.6+ | 2005 11 21 | 691 | 0.5+ | 0.4+ | | |
| 2001 09 26 | 704 | 0.6− | 0.8+ | 2001 11 20 | 699 | 0.2+ | 0.8+ | 2005 11 21 | 691 | 0.2+ | 0.0 | | |
| 2001 09 26 | 704 | 0.8+ | 0.1+ | 2001 11 20 | 699 | 0.1+ | 0.2+ | 2005 11 21 | 691 | 0.2+ | 0.0 | | |
| 2001 09 26 | 704 | (0.6+ | 1.6+) | 2001 11 21 | 704 | 0.5− | 0.4− | 2005 11 21 | 703 | 0.1+ | 0.4− | | |
| 2001 10 11 | 644 | (1.5− | 1.7+) | 2001 11 21 | 704 | 0.6− | 1.1− | 2005 11 21 | 703 | 0.2− | 0.1− | | |
| 2001 10 11 | 644 | (1.5− | 1.5+) | 2001 11 21 | 704 | 0.5− | 0.9− | 2005 11 21 | 703 | 0.7− | 0.4− | | |
| 2001 10 11 | 644 | (1.2− | 1.5+) | 2001 11 21 | 704 | 0.3− | 0.9− | 2005 11 28 | 704 | 0.4+ | 0.2+ | | |
| 2001 10 13 | 704 | 0.8− | 1.1+ | 2001 11 21 | 704 | 0.2− | 1.3− | 2005 11 28 | 704 | 0.2− | 0.2− | | |
| 2001 10 13 | 704 | 0.5− | 0.6+ | 2001 11 22 | 691 | 0.3+ | 0.1− | 2005 11 28 | 704 | 0.5+ | 0.6+ | | |
| 2001 10 13 | 704 | 0.8− | 0.1+ | 2001 11 22 | 691 | 0.1+ | 0.0 | 2005 11 28 | 704 | 0.2+ | 0.5+ | | |
| 2001 10 13 | 704 | 0.8− | 0.3+ | 2001 11 22 | 691 | 0.3+ | 0.1− | 2005 11 28 | 703 | 0.7+ | 0.9− | | |
| 2001 10 13 | 704 | 1.0− | 0.2− | 2001 12 11 | 704 | 0.2− | 0.3+ | 2005 11 28 | 703 | 0.1+ | 0.9− | | |
| 2001 10 14 | 699 | 0.1+ | 0.7+ | 2001 12 11 | 704 | 0.3+ | 0.2− | 2005 11 28 | 703 | 0.3− | 0.5− | | |
| 2001 10 14 | 699 | 0.2+ | 0.6+ | 2001 12 11 | 704 | 0.3+ | 0.6+ | 2005 11 28 | 703 | 0.2+ | 0.6− | | |
| 2001 10 14 | 699 | 0.4+ | 0.2+ | 2001 12 11 | 704 | 0.5+ | 1.2+ | 2005 12 02 | 704 | 0.3+ | 0.2+ | | |
| 2001 10 14 | 699 | 0.0 | 0.9+ | 2001 12 15 | 704 | 1.0− | 0.5− | 2005 12 02 | 704 | 0.7+ | 0.0 | | |
| 2001 10 17 | 704 | 0.5− | 0.3+ | 2001 12 15 | 704 | 0.1− | 0.5− | 2005 12 02 | 704 | 0.5+ | 0.3− | | |
| 2001 10 17 | 704 | 0.1− | 0.3+ | 2001 12 15 | 704 | 0.1+ | 0.7− | 2005 12 02 | 704 | 0.7+ | 0.2+ | | |
| 2001 10 17 | 704 | 0.2− | 0.3+ | 2001 12 15 | 704 | 0.3− | 0.3− | 2005 12 02 | 704 | 0.3+ | 0.5− | | |
| 2001 10 17 | 704 | 0.3− | 0.0 | 2001 12 15 | 704 | 0.4+ | 0.2− | 2005 12 24 | 703 | 1.0− | 1.5− | | |
| 2001 10 17 | 704 | 0.2− | 0.0 | 2001 12 18 | 704 | 0.4+ | 0.2+ | 2005 12 24 | 703 | 0.2+ | 0.7− | | |
| 2001 10 18 | 644 | 0.1− | 0.1+ | 2001 12 18 | 704 | 0.3+ | 0.1− | 2005 12 24 | 703 | 0.0 | 0.7− | | |
| 2001 10 18 | 644 | 0.1− | 0.1+ | 2001 12 18 | 704 | 0.4+ | 0.6+ | 2005 12 24 | 703 | 0.3− | 1.1− | | |
| 2001 10 18 | 644 | 0.0 | 0.1+ | 2001 12 18 | 704 | 0.2− | 0.6+ | 2005 12 28 | 644 | 0.0 | 0.3− | | |
| 2001 10 20 | 704 | 0.0 | 0.1− | 2001 12 18 | 704 | 0.2− | 0.8+ | 2005 12 28 | 644 | 0.0 | 0.0 | | |
| 2001 10 20 | 704 | 0.2− | 0.2− | 2003 01 28 | 645 | 0.0 | 0.1+ | 2005 12 28 | 644 | 0.0 | 0.1− | | |
| 2001 10 20 | 704 | 0.2+ | 0.5+ | 2003 01 28 | 645 | 0.0 | 0.1+ | 2005 12 29 | 704 | 0.7+ | 0.2− | | |
| 2001 10 23 | 704 | 0.5− | 0.5+ | 2003 02 08 | 608 | 0.6+ | 0.1+ | 2005 12 29 | 704 | 0.4+ | 0.3+ | | |
| 2001 10 23 | 704 | 0.5− | 0.2+ | 2003 02 08 | 608 | 0.2+ | 0.1+ | 2005 12 29 | 704 | 0.4+ | 0.7− | | |
| 2001 10 23 | 704 | 0.8− | 0.2− | 2003 02 08 | 608 | 0.4+ | 0.4− | 2005 12 29 | 704 | 0.5− | 1.0+ | | |
| 2001 10 23 | 704 | 0.4− | 0.2+ | 2005 10 03 | G96 | 0.0 | 0.2+ | 2007 02 24 | A50 | 0.2+ | 0.4− | | |
| 2001 10 23 | 704 | 0.4− | 0.2− | 2005 10 03 | G96 | 0.1+ | 0.1− | 2007 02 24 | A50 | 1.4+ | 1.2− | | |
| 2001 10 24 | 704 | 0.5− | 0.5+ | 2005 10 03 | G96 | 0.4− | 0.1− | 2007 03 14 | G96 | 0.3− | 0.4+ | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 10 24 | 704 | 0.4+ | 0.6+ | 2005 10 03 | G96 | 0.1− | 0.0 | 2007 03 14 | G96 | 0.2− | 0.2+ |
| 2001 10 24 | 704 | (1.8− | 1.3−) | 2005 10 29 | 704 | 1.0+ | 0.9− | 2007 03 14 | G96 | 0.1− | 0.3+ |
| 2001 10 24 | 704 | 0.6− | 0.3+ | 2005 10 29 | 704 | 0.7+ | 0.5+ | 2007 03 14 | G96 | 1.1− | 0.5+ |
| 2001 10 24 | 704 | 0.6− | 0.2+ | 2005 10 29 | 704 | 0.3+ | 0.1+ | 2009 11 16 | 704 | (0.3+ | 1.6+) |
| 2001 10 26 | 704 | 0.4+ | 0.4− | 2005 10 30 | 644 | 0.1+ | 0.1+ | 2009 11 16 | 704 | 0.2+ | 0.8− |
| 2001 10 26 | 704 | 0.1+ | 0.6− | 2005 10 30 | 644 | 0.2− | 0.1− | 2009 11 16 | 704 | 0.2+ | 0.2+ |
| 2001 10 26 | 704 | 0.7+ | 0.6− | 2005 10 30 | G96 | 0.0 | 0.4− | 2009 11 16 | 704 | 0.4− | 0.0 |
| 2001 10 26 | 704 | 0.4+ | 0.8− | 2005 10 30 | G96 | 0.1− | 0.4− | 2009 12 15 | 704 | 0.3+ | 2.4+ |
| 2001 10 26 | 704 | 0.9+ | 0.6− | 2005 10 30 | 644 | 0.2− | 0.1− | 2009 12 15 | 704 | 0.6− | 2.0+ |
| 2001 11 09 | 704 | 0.2+ | 1.1+ | 2005 10 30 | G96 | 0.3− | 0.5− | 2009 12 15 | 704 | 0.5− | 1.2+ |
| 2001 11 09 | 704 | 0.4− | 0.9+ | 2005 10 30 | G96 | 0.2+ | 0.4− | 2009 12 15 | 704 | 0.6− | 1.1+ |
| 2001 11 09 | 704 | (0.5− | 1.9+) | 2005 11 01 | 704 | 0.0 | 0.2− | | | | |
| 2001 11 11 | 699 | 0.1− | 0.6+ | 2005 11 01 | 704 | 0.0 | 0.0 | | | | |

**(228495)∗ 2001 SA$_{266}$**

Discovered 2001 Sept. 25 by W. K. Y. Yeung at Desert Eagle Observatory.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 356.31665 | | (2000.0) | | +0.73930085 | −0.66580652 |
| $n$ | 0.24135127 | $\omega$ | 195.84126 | | +0.63955158 | +0.74106285 |
| $a$ | 2.5548750 | $\Omega$ | 206.75105 | | +0.21073216 | +0.08676134 |
| $e$ | 0.1688774 | $i$ | 12.92471 | | | |
| $P$ | 4.08 | $H$ | 16.4 | $G$ 0.15 | $U$ 2 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 20 | 704 | 0.4− | 0.1+ | 2005 09 23 | 703 | (1.2+ | 1.6−) | 2009 09 15 | A50 | 1.0+ | 0.5− |
| 2001 09 20 | 704 | 1.0− | 0.1+ | 2005 09 24 | 691 | 0.2+ | 0.0 | 2009 09 15 | A50 | 0.0 | 0.3+ |
| 2001 09 20 | 704 | 0.7− | 0.6+ | 2005 09 24 | 691 | 0.2+ | 0.0 | 2009 09 17 | 703 | 1.2+ | 0.0 |
| 2001 09 20 | 704 | 0.3− | 0.8+ | 2005 09 24 | 691 | 0.2+ | 0.1− | 2009 09 17 | 703 | 0.7− | 0.2− |
| 2001 09 20 | 704 | 1.2− | 0.1+ | 2005 09 29 | 691 | 0.2+ | 0.0 | 2009 09 17 | 703 | 1.0+ | 1.0− |
| 2001 09 21 | 699 | (1.8+ | 1.2−) | 2005 09 29 | 691 | 0.2+ | 0.1+ | 2009 09 17 | 703 | 1.3− | 0.4− |
| 2001 09 21 | 699 | 0.9− | 0.8− | 2005 09 29 | 691 | 0.2+ | 0.1+ | 2009 09 17 | 703 | 0.3− | 0.4− |
| 2001 09 21 | 699 | 0.6+ | 0.6− | 2005 10 03 | 703 | 0.4− | 0.6+ | 2009 09 17 | 703 | 0.7+ | 0.2− |
| 2001 09 21 | 699 | 0.7+ | 0.4+ | 2005 10 03 | 703 | 0.0 | 0.2+ | 2009 09 17 | 703 | 0.5+ | 0.2+ |
| 2001 09 25 | 333 | 0.7+ | 0.4+ | 2005 10 03 | 703 | 0.3− | 0.6− | 2009 09 17 | 703 | 0.3− | 0.0 |
| 2001 09 25 | 333 | 0.3+ | 0.3− | 2005 10 05 | 683 | 1.1+ | 1.0− | 2009 09 17 | 703 | 0.6− | 0.1− |
| 2001 09 25 | 333 | 0.4+ | 0.7− | 2005 10 05 | 683 | 0.2− | 0.2− | 2009 09 17 | 703 | 0.8− | 0.4− |
| 2001 09 26 | 333 | 0.3+ | 0.5− | 2005 10 05 | 683 | 0.9− | 0.9+ | 2009 09 17 | 703 | 0.0 | 0.2+ |
| 2001 09 26 | 333 | 0.3+ | 0.2− | 2005 10 06 | 683 | (1.9− | 0.2+) | 2009 09 21 | J75 | 0.1+ | 0.1+ |
| 2001 09 26 | 333 | 0.2+ | 0.4+ | 2005 10 06 | 683 | (1.7− | 1.0+) | 2009 09 21 | J75 | 0.3+ | 0.3− |
| 2001 10 12 | 333 | 0.5+ | 0.6− | 2005 10 06 | 699 | 0.3+ | 0.2− | 2009 09 21 | J75 | 0.1+ | 0.1− |
| 2001 10 12 | 333 | 0.1+ | 0.4− | 2005 10 06 | 683 | (2.0− | 1.7+) | 2009 09 25 | 703 | 0.3+ | 0.6− |
| 2001 10 12 | 333 | 0.4− | 0.4+ | 2005 10 06 | 699 | 0.0 | 0.0 | 2009 09 25 | 703 | 0.6+ | 0.4− |
| 2001 10 13 | 704 | 1.1− | 0.6+ | 2005 10 06 | 699 | 0.6− | 0.2+ | 2009 09 25 | 703 | 0.3− | 0.1− |
| 2001 10 13 | 704 | 1.4+ | 0.9− | 2005 10 06 | 699 | 0.5− | 0.4− | 2009 09 25 | 704 | 0.4− | 0.2+ |
| 2001 10 13 | 704 | 1.1+ | 0.8− | 2005 10 07 | 704 | 0.2+ | 0.7+ | 2009 09 25 | 703 | 0.0 | 0.6+ |
| 2001 10 13 | 704 | 0.2+ | 0.2− | 2005 10 07 | 704 | 0.1− | 0.8+ | 2009 09 25 | 704 | 0.3− | 0.4− |
| 2001 10 17 | 704 | 0.2− | 0.5− | 2005 10 07 | 704 | 0.4+ | 0.4+ | 2009 09 25 | 704 | 0.2+ | 1.0+ |
| 2001 10 17 | 704 | 0.3− | 0.1− | 2005 10 09 | 691 | 0.2+ | 0.1+ | 2009 09 25 | 704 | 0.1− | 0.2− |
| 2001 10 17 | 704 | 0.5− | 0.1+ | 2005 10 09 | 691 | 0.3+ | 0.1− | 2009 09 25 | 704 | 0.1− | 0.2− |
| 2001 10 17 | 704 | 1.0− | 0.1− | 2005 10 09 | 691 | 0.3+ | 0.1+ | 2009 09 25 | G96 | 0.1+ | 0.4− |
| 2001 10 17 | 704 | 0.6+ | 0.2− | 2005 10 11 | 704 | 0.9− | 0.2+ | 2009 09 25 | G96 | 0.3+ | 0.3− |
| 2001 10 18 | 644 | 0.5− | 0.2− | 2005 10 11 | 704 | 0.5− | 0.1− | 2009 09 25 | G96 | 0.2+ | 0.1− |
| 2001 10 18 | 644 | 0.4− | 0.0 | 2005 10 11 | 704 | 0.8− | 1.4+ | 2009 09 25 | G96 | 0.1− | 0.3− |
| 2001 10 18 | 644 | 0.4− | 0.1+ | 2005 10 13 | 691 | 0.3+ | 0.0 | 2009 09 28 | 683 | 0.4− | 0.5− |
| 2001 10 23 | 704 | 0.4− | 1.1+ | 2005 10 13 | 691 | 0.3+ | 0.2− | 2009 09 28 | 683 | (2.1− | 1.2−) |
| 2001 10 23 | 704 | (0.3− | 1.6+) | 2005 10 13 | 691 | 0.2+ | 0.1+ | 2009 09 28 | 683 | 0.6+ | 1.3− |
| 2001 10 23 | 704 | 0.6− | 1.2+ | 2005 10 21 | 644 | 0.0 | 0.2+ | 2009 10 08 | J75 | 0.1+ | 0.7− |
| 2001 10 23 | 704 | 0.0 | 1.4+ | 2005 10 21 | 644 | 0.2+ | 0.1+ | 2009 10 08 | J75 | 0.2+ | 0.5− |
| 2001 10 23 | 704 | 0.4− | 1.0+ | 2005 10 21 | 644 | 0.0 | 0.1+ | 2009 10 08 | J75 | 0.0 | 0.0 |
| 2001 10 24 | 704 | 0.1+ | 0.5+ | 2005 10 22 | 703 | 0.4− | 0.0 | 2009 10 14 | 703 | 0.7+ | 0.0 |
| 2001 10 24 | 704 | 0.3+ | 1.0+ | 2005 10 22 | 703 | 0.6− | 0.1− | 2009 10 14 | 703 | 0.7− | 0.6− |
| 2001 10 24 | 704 | 0.6+ | 0.2+ | 2005 10 22 | 703 | 0.2− | 0.4− | 2009 10 14 | 703 | 0.6− | 0.3− |
| 2001 10 24 | 704 | 0.4+ | 0.7+ | 2005 10 22 | 703 | 1.0− | 0.4− | 2009 10 15 | 704 | 0.6− | 1.3+ |
| 2001 10 24 | 704 | 0.6+ | 1.0+ | 2005 10 24 | 699 | 1.0− | 0.1− | 2009 10 15 | 704 | 0.1− | 0.7+ |
| 2001 11 18 | 704 | 0.0 | 0.6− | 2005 10 24 | 699 | 0.3− | 0.4− | 2009 10 15 | 704 | 0.7+ | 0.6+ |
| 2001 11 18 | 704 | 0.7− | 0.2+ | 2005 10 24 | 699 | 0.6+ | 0.8− | 2009 10 15 | 704 | 0.2− | 0.1+ |
| 2001 11 18 | 704 | 0.1− | 0.3+ | 2005 10 24 | 699 | 0.7− | 0.3− | 2009 10 15 | 704 | 0.7+ | 0.0 |
| 2001 11 18 | 704 | 0.0 | 0.2+ | 2005 11 04 | 704 | 0.3− | 0.3− | 2009 10 22 | 703 | 0.2− | 0.8− |
| 2001 11 20 | 699 | 0.8− | 0.7− | 2005 11 04 | 704 | 1.1+ | 0.1− | 2009 10 22 | 703 | 0.4− | 0.3+ |
| 2001 11 20 | 699 | 0.0 | 0.6+ | 2005 11 04 | 704 | 0.4+ | 0.8+ | 2009 10 22 | 703 | 0.7− | 0.0 |
| 2001 11 20 | 699 | 0.1− | 0.8+ | 2005 11 04 | 704 | 0.6+ | 0.1− | 2009 10 22 | 703 | 0.5− | 1.1+ |
| 2001 11 20 | 699 | 1.5− | 1.2+ | 2005 11 04 | 704 | 0.3+ | 1.0+ | 2009 10 23 | G96 | 0.5− | 0.2− |
| 2004 06 20 | 691 | (3.5− | 2.2−) | 2005 11 30 | G96 | 0.0 | 0.4− | 2009 10 23 | G96 | 0.2+ | 0.3− |
| 2004 06 20 | 691 | 0.2− | 0.4+ | 2005 11 30 | G96 | 0.1+ | 0.4− | 2009 10 23 | G96 | 0.0 | 0.5− |
| 2004 06 20 | 691 | 0.1− | 0.7+ | 2005 11 30 | G96 | 0.3+ | 0.4− | 2009 10 23 | G96 | 0.1+ | 0.5− |
| 2005 09 02 | 644 | 0.5− | 0.1− | 2005 11 30 | G96 | 0.5+ | 0.4− | 2009 12 11 | G96 | 0.2+ | 0.6− |
| 2005 09 02 | 644 | 0.3− | 0.1+ | 2008 05 14 | G96 | 0.4+ | 0.1+ | 2009 12 11 | G96 | 0.4+ | 0.2+ |
| 2005 09 02 | 644 | 0.7− | 0.3+ | 2008 05 14 | G96 | 0.7+ | 0.4− | 2009 12 11 | G96 | 0.1− | 0.2− |
| 2005 09 12 | 704 | 0.0 | 0.6− | 2008 05 14 | G96 | 0.3+ | 0.3− | 2009 12 11 | G96 | 0.0 | 0.2− |
| 2005 09 12 | 704 | 0.6+ | 0.1− | 2008 05 14 | G96 | 0.0 | 0.2+ | 2009 12 19 | G96 | 0.4− | 0.2− |
| 2005 09 12 | 704 | 0.7+ | 1.4+ | 2009 09 10 | 703 | 1.3− | 0.6+ | 2009 12 19 | G96 | 0.5+ | 0.3− |
| 2005 09 12 | 704 | 0.1+ | 0.0 | 2009 09 10 | 703 | 0.8− | 0.7− | 2009 12 19 | G96 | 0.3+ | 0.3− |
| 2005 09 23 | 703 | 0.4+ | 0.0 | 2009 09 10 | 703 | 0.7− | 0.0 | 2009 12 19 | G96 | 0.0 | 0.2− |
| 2005 09 23 | 703 | 0.1− | 0.6− | 2009 09 10 | 703 | 0.8− | 1.2+ | | | | |
| 2005 09 23 | 703 | 0.4− | 0.8− | 2009 09 15 | A50 | 0.4− | 0.5+ | | | | |

**(228496)∗ 2001 SA$_{282}$**

Discovered 2001 Sept. 22 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 102.36654 | | (2000.0) | | +0.95971223 | +0.14736571 |
| $n$ | 0.26697561 | $\omega$ | 248.56370 | | −0.06006020 | +0.93934304 |
| $a$ | 2.3886636 | $\Omega$ | 102.33172 | | −0.27449082 | +0.30970631 |
| $e$ | 0.3011255 | $i$ | 14.17535 | | | |
| $P$ | 3.69 | $H$ | 15.9 | $G$ 0.15 | $U$ 1 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 18 | 644 | 0.6− | 0.1+ | 2001 10 23 | 699 | 0.0 | 0.5− | 2006 01 05 | 704 | 0.9+ | 0.4− |
| 2001 09 18 | 644 | 0.5− | 0.1+ | 2001 10 23 | 699 | 0.0 | 0.1− | 2006 01 05 | 704 | 0.3+ | 0.1− |
| 2001 09 18 | 644 | 0.2− | 0.2− | 2001 10 23 | 699 | 0.1− | 0.1+ | 2006 01 05 | 704 | 0.4+ | 0.1+ |
| 2001 09 22 | 699 | 0.6− | 0.7+ | 2001 11 06 | 644 | 0.5+ | 1.0+ | 2006 01 25 | 691 | 0.2+ | 0.4+ |
| 2001 09 22 | 699 | 0.1− | 0.3− | 2001 11 06 | 644 | 0.4+ | 0.9+ | 2006 01 25 | 691 | 0.3+ | 0.1+ |
| 2001 09 22 | 699 | 1.5− | 0.5+ | 2001 11 06 | 644 | (0.3+ | 1.6+) | 2006 01 25 | 691 | 0.8− | 0.6+ |
| 2001 09 22 | 699 | 1.3− | 0.2− | 2001 11 07 | 704 | 0.2+ | 0.6+ | 2008 07 01 | 704 | 0.2+ | 0.4+ |
| 2001 09 27 | 699 | 0.2− | 0.0 | 2001 11 07 | 704 | 0.0 | 0.4− | 2008 07 01 | 704 | 0.2− | 0.0 |
| 2001 09 27 | 699 | 0.2− | 0.5+ | 2001 11 07 | 704 | 0.5+ | 0.6− | 2008 07 01 | 704 | 0.1+ | 0.3+ |
| 2001 09 27 | 699 | 0.7− | 0.0 | 2001 11 07 | 704 | 0.7+ | 0.3− | 2008 07 01 | 704 | 0.1− | 0.1+ |
| 2001 09 27 | 699 | 0.3− | 0.1+ | 2001 11 22 | 644 | 0.2− | 1.2+ | 2008 07 01 | 704 | 0.1+ | 1.0+ |
| 2001 10 11 | 704 | 0.1+ | 0.0 | 2001 11 22 | 644 | 0.0 | 0.7+ | 2009 11 21 | G96 | 0.1− | 0.4+ |
| 2001 10 11 | 704 | 0.1+ | 0.4− | 2001 11 22 | 644 | 0.1+ | 0.8+ | 2009 11 21 | G96 | 0.3− | 0.6+ |
| 2001 10 11 | 704 | 0.4− | 0.3+ | 2004 05 14 | 691 | 0.3+ | 0.5+ | 2009 11 21 | G96 | 0.1− | 0.6+ |
| 2001 10 11 | 704 | 0.4− | 0.2+ | 2004 05 14 | 691 | 0.3+ | 0.6+ | 2009 11 21 | G96 | 0.4− | 0.3+ |
| 2001 10 11 | 704 | 0.1+ | 0.4− | 2004 05 14 | 691 | 0.3+ | 0.5+ | 2009 12 20 | G96 | 0.0 | 0.1+ |
| 2001 10 15 | 608 | 0.2− | 0.8+ | 2004 05 24 | 704 | 0.2+ | 0.6+ | 2009 12 20 | G96 | 0.1+ | 0.1− |
| 2001 10 15 | 608 | 0.4− | 0.7+ | 2004 05 24 | 704 | 0.4+ | 0.5+ | 2009 12 20 | G96 | 0.0 | 0.4+ |
| 2001 10 15 | 608 | 0.3+ | 0.2+ | 2004 05 24 | 704 | 0.1− | 0.3+ | 2009 12 20 | G96 | 0.0 | 0.1− |
| 2001 10 23 | 699 | 0.3+ | 0.1+ | 2004 05 24 | 704 | 0.0 | 1.0+ | | | | |

**(228497)∗ 2001 SR$_{285}$**

Discovered 2001 Sept. 22 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 36.00245 | | (2000.0) | | +0.98607672 | +0.16495000 |
| $n$ | 0.24167294 | $\omega$ | 337.21608 | | −0.13500792 | +0.86811300 |
| $a$ | 2.5526074 | $\Omega$ | 13.34124 | | −0.09708536 | +0.46815737 |
| $e$ | 0.0723322 | $i$ | 5.24055 | | | |
| $P$ | 4.08 | $H$ | 16.7 | $G$ 0.15 | $U$ 1 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1960 09 24 | 675 | 0.4− | 0.8− | 2001 10 21 | 704 | 0.5+ | 0.2− | 2005 10 07 | 704 | 0.9− | 0.1− |
| 1960 09 24 | 675 | 1.5+ | 0.0 | 2001 10 21 | 704 | 0.2+ | 0.8− | 2005 10 07 | 704 | 0.0 | 0.5+ |
| 1960 09 26 | 675 | 0.4− | 0.3− | 2001 10 21 | 704 | 0.4+ | 0.7− | 2005 10 27 | G96 | 0.2+ | 0.2− |
| 1960 09 26 | 675 | 0.0 | 0.2− | 2001 10 25 | 704 | 0.7+ | 0.9− | 2005 10 27 | G96 | 0.1+ | 0.1− |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 20 | 704 | 0.4− | 0.3− | 2001 10 25 | 704 | 0.5− | 0.7+ | 2005 10 27 | G96 | 0.0 | 0.2− |
| 2001 09 20 | 704 | 0.2+ | 0.4+ | 2001 10 25 | 704 | 1.0+ | 0.5+ | 2005 10 27 | G96 | 0.1− | 0.3− |
| 2001 09 20 | 704 | 0.2− | 0.3+ | 2001 10 25 | 704 | 1.3+ | 0.7− | 2007 01 17 | 691 | 0.1− | 0.1+ |
| 2001 09 22 | 291 | 0.0 | 0.2+ | 2005 09 24 | 691 | 0.2− | 0.1+ | 2007 01 17 | 691 | 0.1+ | 0.1− |
| 2001 09 22 | 291 | 0.1− | 0.0 | 2005 09 24 | 691 | 0.1+ | 0.1− | 2007 01 17 | 691 | 0.2− | 0.1− |
| 2001 09 22 | 291 | 0.6− | 0.1− | 2005 09 24 | 691 | 0.1− | 0.2+ | 2007 01 24 | 691 | 0.1+ | 0.2− |
| 2001 09 23 | 291 | 0.1− | 0.0 | 2005 09 29 | G96 | 0.5+ | 0.1+ | 2007 01 24 | 691 | 0.1− | 0.1− |
| 2001 09 23 | 291 | 0.3− | 0.2+ | 2005 09 29 | G96 | 0.2+ | 0.3+ | 2007 01 24 | 691 | 0.2− | 0.1− |
| 2001 09 23 | 291 | 0.2− | 0.0 | 2005 09 29 | G96 | 0.1+ | 0.3+ | 2007 01 28 | 691 | 0.0 | 0.1+ |
| 2001 10 11 | 644 | 0.0 | 0.1+ | 2005 09 29 | G96 | 0.1− | 0.1+ | 2007 01 28 | 691 | 0.1+ | 0.4+ |
| 2001 10 11 | 644 | 0.1− | 0.1− | 2005 10 06 | 703 | (1.3− | 3.7+) | 2007 01 28 | 691 | 0.3+ | 0.0 |
| 2001 10 11 | 644 | 0.2− | 0.3− | 2005 10 06 | 703 | 0.2− | 0.2− | 2009 09 23 | G96 | 0.0 | 0.2− |
| 2001 10 17 | 704 | 0.1− | 1.4+ | 2005 10 06 | 699 | 1.2− | 1.0+ | 2009 09 23 | G96 | 0.3− | 0.3− |
| 2001 10 17 | 704 | 0.1+ | 0.2− | 2005 10 06 | 703 | 0.1− | 0.2+ | 2009 09 23 | G96 | 0.2+ | 0.4− |
| 2001 10 17 | 704 | 0.3+ | 0.2− | 2005 10 06 | 703 | 0.6− | 0.4+ | 2009 09 23 | G96 | 0.0 | 0.2− |
| 2001 10 17 | 704 | 0.3− | 0.2+ | 2005 10 06 | 699 | 0.7+ | 1.1− | 2009 12 16 | G96 | 0.0 | 0.8− |
| 2001 10 19 | 644 | 0.1− | 0.3+ | 2005 10 06 | 699 | 0.3+ | 0.5− | 2009 12 16 | G96 | 0.1+ | 0.2− |
| 2001 10 19 | 644 | 0.3− | 0.2+ | 2005 10 06 | 699 | (0.0 | 1.8+) | 2009 12 16 | G96 | 0.0 | 0.4+ |
| 2001 10 19 | 644 | 0.2− | 0.4+ | 2005 10 07 | 704 | 0.7+ | 0.5+ | 2009 12 16 | G96 | 0.2+ | 0.3− |
| 2001 10 21 | 704 | 1.2+ | 0.2+ | 2005 10 07 | 704 | 1.3+ | 0.1− | | | | |

**(228498)∗ 2001 SO$_{286}$**

Discovered 2001 Sept. 21 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 72.71746 | | (2000.0) | | | |
| $n$ | 0.25735629 | $\omega$ | 282.18584 | | +0.97030973 | −0.19646086 |
| $a$ | 2.4478203 | $\Omega$ | 89.26763 | | +0.23715749 | +0.88734062 |
| $e$ | 0.2433948 | $i$ | 8.11072 | | −0.04749059 | +0.41716874 |
| $P$ | 3.83 | $H$ | 15.7 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1991 02 05 | 691 | 0.1− | 0.1+ | 2001 11 18 | 704 | 0.5− | 0.7− | 2005 11 29 | 704 | 1.2+ | 0.5− |
| 1991 02 05 | 691 | 0.2+ | 0.4+ | 2001 11 18 | 704 | 0.1+ | 0.4− | 2005 11 29 | 704 | 0.9+ | 0.6+ |
| 1991 02 05 | 691 | 0.0 | 1.1+ | 2001 11 19 | 699 | 0.3− | 0.0 | 2005 11 29 | 704 | 0.3− | 0.1+ |
| 2000 05 28 | 691 | (0.6+ | 2.4+) | 2001 11 19 | 699 | 0.3− | 0.2− | 2005 11 29 | 704 | 1.2+ | 1.3− |
| 2000 05 28 | 691 | 0.2+ | 0.5+ | 2001 11 19 | 699 | 0.2− | 0.3+ | 2005 12 01 | 704 | 0.1− | 0.5+ |
| 2000 05 28 | 691 | 0.4+ | 0.5+ | 2001 11 19 | 699 | 0.2+ | 0.0 | 2005 12 01 | 704 | 0.2+ | 0.5+ |
| 2001 09 17 | 704 | 0.3− | 0.7+ | 2001 11 20 | 704 | 0.8− | 0.9+ | 2005 12 01 | 704 | 0.5+ | 0.9− |
| 2001 09 17 | 704 | 0.5− | 0.2+ | 2001 11 20 | 704 | 0.6− | 0.4+ | 2005 12 01 | 691 | 0.4+ | 0.0 |
| 2001 09 17 | 704 | 1.0− | 0.9+ | 2001 11 20 | 704 | 0.2− | 0.2+ | 2005 12 01 | 704 | 0.1+ | 0.1+ |
| 2001 09 17 | 704 | 0.6− | 0.0 | 2001 11 20 | 704 | 0.7− | 0.0 | 2005 12 01 | 691 | 0.2+ | 0.1− |
| 2001 09 17 | 704 | 0.7− | 0.7+ | 2001 11 21 | 608 | 0.4+ | 0.5− | 2005 12 01 | 691 | 0.4+ | 0.1− |
| 2001 09 21 | 699 | 0.0 | 0.6− | 2001 11 21 | 608 | 0.4+ | 0.7− | 2005 12 06 | 704 | 1.3+ | 0.9+ |
| 2001 09 21 | 699 | 0.3+ | 0.2− | 2001 11 21 | 608 | 0.4+ | 0.6− | 2005 12 06 | 704 | 1.0+ | 0.8+ |
| 2001 09 21 | 699 | 0.6+ | 0.3− | 2001 11 24 | 704 | 0.7+ | 0.4+ | 2005 12 06 | 704 | 0.5+ | 0.9+ |
| 2001 09 21 | 699 | 0.8− | 0.6+ | 2001 11 24 | 704 | 0.5+ | 0.2− | 2005 12 10 | 704 | 0.0 | 0.5− |
| 2001 09 21 | 644 | 0.0 | 0.5+ | 2001 11 24 | 704 | 0.1+ | 0.3− | 2005 12 10 | 704 | 0.0 | 0.2− |
| 2001 09 21 | 644 | 0.1− | 0.0 | 2001 11 24 | 704 | 0.6+ | 0.2− | 2005 12 10 | 704 | 0.2− | 0.1− |
| 2001 09 21 | 644 | 0.0 | 0.6+ | 2001 11 24 | 704 | 1.2+ | 0.2+ | 2005 12 30 | 704 | 0.2+ | 0.5− |
| 2001 09 25 | 704 | 0.9− | 0.3+ | 2001 12 11 | 704 | 0.4+ | 0.5− | 2005 12 30 | 704 | 0.3− | 0.1+ |
| 2001 09 25 | 704 | 1.2− | 0.9+ | 2001 12 11 | 704 | 0.6+ | 0.7− | 2005 12 30 | 704 | 0.0 | 0.4− |
| 2001 09 25 | 704 | 1.0− | 0.0 | 2001 12 11 | 704 | 0.7+ | 0.6− | 2005 12 30 | 704 | 0.1− | 0.4− |
| 2001 09 25 | 704 | 0.8− | 0.6+ | 2001 12 11 | 704 | 0.2+ | 0.5− | 2005 12 30 | 704 | 0.4− | 0.4− |
| 2001 09 25 | 704 | 0.8− | 0.2+ | 2001 12 11 | 704 | 0.1+ | 1.2− | 2006 01 02 | 704 | 0.1+ | 0.2+ |
| 2001 09 27 | 644 | 0.0 | 0.3+ | 2001 12 14 | 704 | 0.1− | 0.1+ | 2006 01 02 | 704 | 0.3+ | 0.8+ |
| 2001 09 27 | 644 | 0.2− | 0.3+ | 2001 12 14 | 704 | 0.0 | 0.1+ | 2006 01 02 | 704 | 0.2+ | 0.2− |
| 2001 09 27 | 644 | 0.3− | 0.1− | 2001 12 14 | 704 | 0.2+ | 0.3+ | 2006 01 02 | 704 | 0.6+ | 0.1− |
| 2001 10 13 | 699 | 0.8+ | 0.0 | 2001 12 14 | 704 | 0.0 | 0.3+ | 2006 01 05 | 704 | 0.1+ | 0.0 |
| 2001 10 13 | 699 | 0.3+ | 0.1− | 2001 12 14 | 704 | 0.2− | 0.0 | 2006 01 05 | 704 | 0.2+ | 0.0 |
| 2001 10 13 | 699 | 0.0 | 0.1− | 2001 12 17 | 704 | 0.5+ | 0.2+ | 2006 01 05 | 704 | 0.3+ | 0.0 |
| 2001 10 13 | 699 | 0.2+ | 0.1+ | 2001 12 17 | 704 | 0.4+ | 0.2+ | 2006 01 24 | 704 | 0.4+ | 0.8+ |
| 2001 10 17 | 704 | 0.4− | 0.1− | 2001 12 17 | 704 | 0.4+ | 0.0 | 2006 01 24 | 704 | 0.1− | 0.5+ |
| 2001 10 17 | 704 | 1.3− | 0.9− | 2001 12 17 | 704 | 0.1+ | 0.3+ | 2006 01 24 | 704 | 0.3− | 1.1+ |
| 2001 10 17 | 704 | (1.2− | 2.6−) | 2001 12 17 | 704 | 0.0 | 0.6+ | 2006 01 24 | 704 | 0.2+ | 0.4+ |
| 2001 10 17 | 704 | (1.9− | 2.4−) | 2001 12 18 | 644 | 0.2+ | 0.2− | 2009 11 11 | G96 | 0.2+ | 0.3− |
| 2001 10 17 | 704 | (1.7− | 0.4+) | 2001 12 18 | 644 | 0.1+ | 0.1− | 2009 11 11 | G96 | 0.4+ | 0.0 |
| 2001 10 20 | 704 | 1.0+ | 0.8− | 2001 12 18 | 644 | 0.2+ | 0.2+ | 2009 11 11 | G96 | 0.2− | 0.2+ |
| 2001 10 20 | 704 | 0.1+ | 0.2− | 2001 12 20 | 704 | 0.0 | 0.1− | 2009 11 11 | G96 | 0.0 | 0.4− |
| 2001 10 20 | 704 | 0.1− | 0.1+ | 2001 12 20 | 704 | 0.3− | 0.1− | 2009 12 11 | 703 | 0.1− | 0.6− |
| 2001 10 20 | 704 | 0.2+ | 0.4− | 2001 12 20 | 704 | 0.3+ | 0.4− | 2009 12 11 | 703 | (0.6− | 1.7−) |
| 2001 10 25 | 644 | 0.4+ | 0.2+ | 2001 12 20 | 704 | 0.1− | 0.4+ | 2009 12 11 | 703 | 0.3− | 1.2− |
| 2001 10 25 | 644 | 0.7+ | 0.5+ | 2001 12 20 | 704 | 0.6+ | 0.8+ | 2009 12 11 | 703 | 0.4− | 0.0 |
| 2001 10 25 | 644 | 0.7+ | 0.3+ | 2002 01 09 | 704 | 0.9+ | 0.1+ | 2009 12 11 | 704 | 1.0− | 0.6+ |
| 2001 11 09 | 704 | (1.7− | 0.2+) | 2002 01 09 | 704 | 0.2+ | 0.7+ | 2009 12 11 | 704 | (1.9+ | 0.3+) |
| 2001 11 09 | 704 | 1.0− | 0.0 | 2002 01 09 | 704 | 0.2− | 1.4+ | 2009 12 11 | 704 | (1.7+ | 1.0+) |
| 2001 11 09 | 704 | 0.9− | 0.8+ | 2002 01 09 | 704 | 0.0 | 1.3+ | 2009 12 15 | G96 | 0.4+ | 0.1+ |
| 2001 11 09 | 704 | 1.2− | 0.2− | 2002 01 09 | 704 | 0.6− | 0.4+ | 2009 12 15 | G96 | 0.3+ | 0.2− |
| 2001 11 09 | 704 | (1.8− | 0.2+) | 2002 01 13 | 704 | 0.4− | 0.2+ | 2009 12 15 | G96 | 0.7+ | 0.4− |
| 2001 11 09 | 644 | 0.2+ | 0.7+ | 2002 01 13 | 704 | 0.1− | 0.2+ | 2009 12 15 | G96 | 0.2+ | 0.1− |
| 2001 11 09 | 644 | 0.2+ | 0.8+ | 2002 01 13 | 704 | 0.6+ | 0.1+ | 2009 12 19 | G96 | 0.3+ | 0.0 |
| 2001 11 09 | 644 | 0.5+ | 0.8+ | 2002 01 13 | 704 | 0.0 | 0.3+ | 2009 12 19 | G96 | 0.0 | 0.0 |
| 2001 11 17 | 704 | 0.0 | 0.1+ | 2002 01 13 | 704 | 0.0 | 0.2+ | 2009 12 19 | G96 | 0.1− | 0.1− |
| 2001 11 17 | 704 | 0.2− | 0.0 | 2002 01 15 | 704 | 0.0 | 1.1+ | 2009 12 19 | G96 | 0.1+ | 0.2− |
| 2001 11 17 | 704 | 0.2− | 0.1− | 2002 01 15 | 704 | 0.2− | 1.0+ | 2009 12 19 | 691 | 0.5− | 0.0 |
| 2001 11 17 | 704 | 0.2− | 0.2− | 2002 01 15 | 704 | 0.6+ | 0.8+ | 2009 12 19 | 691 | 0.9− | 0.7− |
| 2001 11 17 | 704 | 0.1− | 0.3− | 2002 01 15 | 704 | 0.3+ | 0.4+ | 2009 12 19 | 691 | 0.5− | 0.1− |
| 2001 11 18 | 704 | 1.0− | 0.1− | 2002 01 15 | 704 | 0.3+ | 0.8− | 2009 12 27 | 691 | 0.2− | 0.1+ |
| 2001 11 18 | 704 | 0.0 | 1.5− | 2002 02 10 | 691 | 0.4− | 0.3− | 2009 12 27 | 691 | 0.1− | 0.1− |
| 2001 11 18 | 704 | 0.9− | 0.3+ | 2002 02 10 | 691 | 0.4− | 0.3− | 2009 12 27 | 691 | 0.2− | 0.0 |
| 2001 11 18 | 704 | 0.7− | 0.6− | 2002 02 10 | 691 | 0.3− | 0.5− | | | | |
| 2001 11 18 | 704 | 0.8− | 0.2− | 2005 11 29 | 704 | 0.1− | 0.1+ | | | | |

**(228499)∗ 2001 SS$_{288}$ = 2005 ST$_{112}$**

Discovered 2001 Sept. 28 by NEAT at Palomar.

Id. G. V. Williams (*MPO* 84970)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 331.56018 | | (2000.0) | | | |
| $n$ | 0.24505139 | $\omega$ | 212.40179 | | +0.38898251 | −0.91011115 |
| $a$ | 2.5290918 | $\Omega$ | 215.30291 | | +0.88911839 | +0.41145702 |
| $e$ | 0.0851358 | $i$ | 14.30554 | | +0.24116611 | −0.04899814 |
| $P$ | 4.02 | $H$ | 16.0 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 25 | 704 | 0.7− | 0.4+ | 2005 09 12 | 704 | 1.0+ | 0.3+ | 2009 09 26 | 704 | 0.5+ | 0.9+ |
| 2001 09 25 | 704 | 0.5+ | 0.1+ | 2005 09 12 | 704 | 0.3+ | 1.2+ | 2009 10 01 | 291 | 0.3− | 0.0 |
| 2001 09 25 | 704 | 0.4− | 0.1+ | 2005 09 26 | 644 | 0.2− | 0.1− | 2009 10 01 | 291 | 0.1− | 0.1− |
| 2001 09 25 | 704 | 0.9− | 0.6+ | 2005 09 26 | 644 | 0.2− | 0.1− | 2009 10 01 | 291 | 0.3− | 0.3− |
| 2001 09 28 | 644 | 0.1+ | 0.3+ | 2005 09 26 | 644 | 0.3− | 0.3− | 2009 10 10 | 703 | (0.8− | 1.7−) |
| 2001 09 28 | 644 | 0.2+ | 0.2+ | 2005 09 30 | 699 | 0.9+ | 0.1− | 2009 10 10 | 703 | 0.3− | 0.1− |
| 2001 09 28 | 644 | 0.4+ | 0.4+ | 2005 09 30 | 699 | 1.0+ | 0.3− | 2009 10 10 | 703 | 0.4+ | 1.2− |
| 2001 09 29 | 644 | 0.0 | 0.0 | 2005 09 30 | 699 | (1.7− | 1.3+) | 2009 10 10 | 703 | 0.3+ | 0.3− |
| 2001 09 29 | 644 | 0.1+ | 0.1− | 2005 09 30 | 699 | 0.3+ | 0.1+ | 2009 10 16 | 704 | 0.9+ | 0.8+ |
| 2001 09 29 | 644 | 0.1+ | 0.1+ | 2005 11 02 | G96 | 0.0 | 0.5− | 2009 10 16 | 704 | 1.2+ | 0.5+ |
| 2001 10 14 | 704 | 0.3− | 1.0− | 2005 11 02 | G96 | 0.1− | 0.4− | 2009 10 16 | 704 | 0.0 | 0.6− |
| 2001 10 14 | 704 | 0.3+ | 0.5− | 2005 11 02 | G96 | 0.4+ | 0.2− | 2009 10 16 | 704 | 0.7+ | 0.8+ |
| 2001 10 14 | 704 | 1.0− | 0.9− | 2005 11 02 | G96 | 0.2+ | 0.3− | 2009 10 24 | 704 | 0.7+ | 1.2+ |
| 2001 10 14 | 704 | 0.0 | 0.6− | 2007 02 17 | 704 | 0.3− | 0.5+ | 2009 10 24 | 704 | (1.5+ | 1.8+) |
| 2001 10 17 | 704 | 0.1+ | 0.3+ | 2007 02 17 | 704 | (0.8− | 2.6−) | 2009 10 24 | 703 | 0.7− | 0.6− |
| 2001 10 17 | 704 | 0.3+ | 0.4− | 2007 02 17 | 704 | 0.3− | 0.1+ | 2009 10 24 | 703 | (1.6− | 0.4+) |
| 2001 10 17 | 704 | 0.3− | 0.4+ | 2007 02 17 | 704 | 0.8+ | 0.6+ | 2009 10 24 | 704 | 0.7− | 0.4+ |
| 2001 10 17 | 704 | 0.6− | 0.3+ | 2009 09 25 | 703 | 0.4+ | 0.1+ | 2009 10 24 | 703 | 0.2− | 0.4− |
| 2001 10 17 | 704 | 0.1− | 0.3+ | 2009 09 25 | 703 | 1.0+ | 0.4− | 2009 10 24 | 703 | (1.6− | 0.3−) |
| 2005 09 10 | 699 | (1.6+ | 1.6+) | 2009 09 25 | 703 | 0.1− | 0.4− | 2009 10 24 | 704 | (0.3− | 1.8+) |
| 2005 09 10 | 699 | 0.1+ | 1.0+ | 2009 09 25 | 703 | 1.1− | 1.2− | 2009 12 16 | G96 | 0.8− | 0.0 |
| 2005 09 10 | 699 | 0.6− | 0.3− | 2009 09 26 | 704 | 0.3− | 0.9+ | 2009 12 16 | G96 | 0.6− | 0.4− |
| 2005 09 10 | 699 | 0.7+ | 0.1+ | 2009 09 26 | 704 | 0.3+ | 1.4+ | 2009 12 16 | G96 | 0.0 | 0.2− |
| 2005 09 12 | 704 | 0.3− | 1.1+ | 2009 09 26 | 704 | 0.3− | 0.0 | 2009 12 16 | G96 | 1.0− | 0.6− |
| 2005 09 12 | 704 | 0.8+ | 0.4− | 2009 09 26 | 704 | 0.3− | 0.3+ | | | | |

**(228500)∗ 2001 SU$_{289}$**

Discovered 2001 Sept. 29 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 68.30648 | | (2000.0) | | | |
| $n$ | 0.26398483 | $\omega$ | 103.61833 | | +0.96043721 | −0.25863394 |
| $a$ | 2.4066711 | $\Omega$ | 271.44543 | | +0.19838340 | +0.89566101 |
| $e$ | 0.1263969 | $i$ | 5.93056 | | +0.19545943 | +0.36180084 |
| $P$ | 3.73 | $H$ | 15.6 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1960 10 22 | 675 | 0.2− | 0.2+ | 2001 11 10 | 704 | 0.0 | 1.0+ | 2005 11 28 | 703 | 0.2− | 0.6− | 2001 10 23 | 699 | 0.5− | 0.1+ |
| 1960 10 22 | 675 | 0.0 | 0.5− | 2001 11 10 | 644 | 0.1+ | 0.2+ | 2005 11 28 | 703 | 0.2− | 0.3− | 2001 10 23 | 699 | (2.1− | 0.2+) |
| 1960 10 26 | 675 | 0.3+ | 0.1− | 2001 11 10 | 704 | 0.4− | 0.5+ | 2005 11 28 | 703 | 0.2+ | 0.1− | 2001 11 10 | 644 | 0.1− | 0.7+ |
| 2001 08 04 | 644 | 0.0 | 0.0 | 2001 11 10 | 704 | 0.3− | 1.0+ | 2005 11 28 | 703 | 0.1+ | 0.5− | 2001 11 10 | 644 | 0.1+ | 0.5+ |
| 2001 08 04 | 644 | 0.1− | 0.5+ | 2001 11 10 | 704 | 0.0 | 0.2+ | 2005 11 28 | 703 | 0.5− | 1.2− | | | | |
| 2001 08 04 | 644 | 0.3− | 0.2+ | 2001 11 10 | 704 | 0.1− | 0.2− | 2005 11 29 | 704 | 0.1− | 0.5+ | | | | |
| 2001 08 04 | 644 | 0.3− | 0.1+ | 2001 11 11 | 704 | 1.0− | 0.2− | 2005 11 29 | 704 | 0.3− | 0.2+ | | | | |
| 2001 08 04 | 644 | 0.4− | 0.1+ | 2001 11 11 | 704 | 0.5+ | 0.1+ | 2005 11 29 | 704 | 0.1+ | 0.0 | | | | |
| 2001 08 04 | 644 | 0.0 | 0.5+ | 2001 11 11 | 704 | 0.5− | 0.4+ | 2005 11 29 | 704 | 0.5+ | 0.1− | | | | |
| 2001 08 25 | 704 | 0.5+ | 1.0+ | 2001 11 11 | 704 | 0.5+ | 1.0+ | 2005 12 02 | 704 | 0.1+ | 0.0 | | | | |
| 2001 08 25 | 704 | 0.1− | 1.4+ | 2001 11 12 | 704 | 0.6− | 1.1+ | 2005 12 02 | 704 | 0.1− | 0.6+ | | | | |
| 2001 08 25 | 704 | 0.1− | 0.5+ | 2001 11 12 | 704 | 0.0 | 0.5+ | 2005 12 02 | 704 | 0.0 | 0.2+ | | | | |
| 2001 08 25 | 704 | 0.1+ | 1.2+ | 2001 11 12 | 704 | 0.4+ | 0.8+ | 2005 12 02 | 704 | 0.3− | 0.1+ | | | | |
| 2001 09 10 | 704 | 0.0 | 0.1+ | 2001 11 12 | 704 | 0.5+ | 0.2+ | 2005 12 02 | 704 | 0.0 | 0.2+ | | | | |
| 2001 09 10 | 704 | 0.3− | 0.1− | 2001 11 12 | 704 | 0.6+ | 0.1+ | 2005 12 05 | 704 | 0.4− | 0.0 | | | | |
| 2001 09 10 | 704 | 0.1+ | 0.3+ | 2001 12 19 | 704 | 0.8+ | 0.7+ | 2005 12 05 | 704 | 0.0 | 0.5+ | | | | |
| 2001 09 18 | 699 | 0.8+ | 0.1+ | 2001 12 19 | 704 | 1.3+ | 0.3+ | 2005 12 05 | 704 | 0.1− | 0.2+ | | | | |
| 2001 09 18 | 699 | 0.8+ | 0.7+ | 2001 12 19 | 704 | (1.5+ | 0.4+) | 2005 12 05 | 704 | 0.2− | 1.0+ | | | | |
| 2001 09 18 | 699 | 0.9+ | 0.4+ | 2003 02 12 | 608 | (2.1+ | 0.3+) | 2005 12 05 | 704 | 0.4− | 0.2+ | | | | |
| 2001 09 18 | 699 | 0.6+ | 0.8+ | 2003 02 12 | 608 | 1.1+ | 0.8+ | 2005 12 05 | 699 | 0.2+ | 0.2+ | | | | |
| 2001 09 19 | 704 | 0.6+ | 0.1+ | 2003 02 12 | 608 | (2.1+ | 0.3+) | 2005 12 05 | 699 | 0.2+ | 0.2− | | | | |
| 2001 09 19 | 704 | 0.7+ | 0.3− | 2004 06 14 | 704 | 0.3− | 0.2− | 2005 12 05 | 699 | 0.2− | 1.1+ | | | | |
| 2001 09 19 | 704 | 0.5+ | 0.0 | 2004 06 14 | 704 | 0.1+ | 0.1− | 2005 12 05 | 699 | 0.0 | 0.1+ | | | | |
| 2001 09 19 | 704 | 0.4+ | 0.1+ | 2004 06 14 | 704 | 0.0 | 0.4+ | 2005 12 10 | 704 | 0.5+ | 0.3+ | | | | |
| 2001 09 19 | 704 | 0.9+ | 0.3− | 2004 06 14 | 704 | (0.2− | 1.6+) | 2005 12 10 | 704 | 0.3− | 1.0+ | | | | |
| 2001 09 21 | 644 | 0.2+ | 0.5+ | 2005 09 14 | 704 | 0.8− | 0.7− | 2005 12 10 | 704 | 0.3− | 0.3+ | | | | |
| 2001 09 21 | 644 | 0.4+ | 0.5+ | 2005 09 14 | 704 | 1.5− | 0.0 | 2005 12 10 | 704 | 0.1− | 0.6+ | | | | |
| 2001 09 21 | 644 | 0.1+ | 0.6+ | 2005 09 14 | 704 | 1.0− | 0.9− | 2005 12 10 | 704 | 0.2− | 1.1+ | | | | |
| 2001 09 25 | 704 | 0.3− | 0.5− | 2005 09 14 | 704 | 1.1− | 1.0+ | 2005 12 30 | G96 | 0.0 | 0.2− | | | | |
| 2001 09 25 | 704 | 0.3− | 0.1− | 2005 09 14 | 704 | 0.9− | 0.1+ | 2005 12 30 | G96 | 0.3+ | 0.4− | | | | |
| 2001 09 25 | 704 | 0.2− | 0.1− | 2005 10 23 | 703 | 0.5+ | 0.2− | 2005 12 30 | G96 | 0.1− | 0.3− | | | | |
| 2001 09 25 | 704 | 0.3− | 0.1− | 2005 10 23 | 703 | 0.9− | 0.3+ | 2005 12 30 | G96 | 0.1+ | 0.5− | | | | |
| 2001 09 25 | 704 | 0.2− | 0.1+ | 2005 10 23 | 703 | 1.2− | 0.3+ | 2005 12 30 | 699 | 1.3+ | 0.1− | | | | |
| 2001 09 26 | 704 | (0.6+ | 1.6−) | 2005 10 23 | 703 | 0.0 | 0.4− | 2005 12 30 | 699 | 0.1+ | 0.0 | | | | |
| 2001 09 26 | 704 | 0.2− | 0.1+ | 2005 10 26 | 699 | 0.7+ | 0.6− | 2005 12 30 | 699 | 0.6− | 0.1− | | | | |
| 2001 09 26 | 704 | 0.4− | 0.1− | 2005 10 26 | 699 | 0.1− | 1.2+ | 2005 12 30 | 699 | 1.1− | 0.4− | | | | |
| 2001 09 26 | 704 | 0.3− | 0.0 | 2005 10 26 | 699 | 0.6+ | 0.5− | 2005 12 31 | G96 | 0.5+ | 0.3− | | | | |
| 2001 09 26 | 704 | 0.5− | 0.3− | 2005 10 26 | 699 | (3.9+ | 1.1−) | 2005 12 31 | G96 | 0.2+ | 0.3− | | | | |
| 2001 09 29 | 644 | 0.1+ | 0.0 | 2005 10 30 | 704 | 0.2+ | 0.2− | 2005 12 31 | G96 | 0.4+ | 0.2− | | | | |
| 2001 09 29 | 644 | 0.2+ | 0.2+ | 2005 10 30 | 704 | 0.0 | 0.9− | 2005 12 31 | G96 | 0.4+ | 0.3− | | | | |
| 2001 09 29 | 644 | 0.1+ | 0.2+ | 2005 10 30 | 704 | 0.2+ | 0.4− | 2006 01 02 | 049 | (3.3− | 1.7−) | | | | |
| 2001 10 05 | 644 | 0.0 | 1.4− | 2005 10 30 | 704 | (1.7+ | 1.9−) | 2006 01 02 | 049 | (3.2− | 1.5−) | | | | |
| 2001 10 05 | 644 | 0.0 | 1.2− | 2005 10 30 | 704 | 0.3− | 1.4− | 2006 01 02 | 049 | (3.5− | 1.3−) | | | | |
| 2001 10 05 | 644 | 0.1+ | 1.5− | 2005 11 02 | 704 | 0.3− | 0.2− | 2006 01 02 | 049 | (3.1− | 1.6−) | | | | |
| 2001 10 13 | 644 | 0.5+ | 0.3− | 2005 11 02 | 704 | 0.5+ | 0.6− | 2006 01 02 | 049 | (3.7− | 1.4−) | | | | |
| 2001 10 13 | 644 | 0.4+ | 0.1− | 2005 11 02 | 704 | 0.7− | 0.1+ | 2006 01 22 | 699 | (1.8− | 0.8+) | | | | |
| 2001 10 13 | 644 | 0.4+ | 0.2− | 2005 11 02 | 704 | 0.4− | 0.1+ | 2006 01 22 | 699 | 0.7− | 0.1+ | | | | |
| 2001 10 17 | 704 | 0.3− | 0.4− | 2005 11 02 | 704 | 0.2− | 0.5− | 2006 01 22 | 699 | 0.6− | 0.1+ | | | | |
| 2001 10 17 | 704 | 0.4− | 0.5− | 2005 11 03 | 691 | 0.1+ | 0.1− | 2006 01 22 | 699 | 1.2− | 0.5− | | | | |
| 2001 10 17 | 704 | 0.4− | 0.5− | 2005 11 03 | 691 | 0.2+ | 0.1− | 2007 03 13 | 703 | 0.1− | 0.4+ | | | | |
| 2001 10 17 | 704 | 0.4− | 0.9− | 2005 11 03 | 691 | 0.0 | 0.2− | 2007 03 13 | 703 | 0.3− | 0.2+ | | | | |
| 2001 10 17 | 704 | 0.6− | 0.6− | 2005 11 08 | 704 | 0.3− | 0.4− | 2007 03 13 | 703 | 0.5− | 1.2+ | | | | |
| 2001 10 19 | 704 | 0.7− | 1.0− | 2005 11 08 | 704 | 0.3− | 0.2− | 2007 03 13 | 703 | 0.1− | 0.9+ | | | | |
| 2001 10 19 | 704 | 0.2+ | 1.0+ | 2005 11 08 | 704 | 0.2− | 0.1+ | 2009 11 21 | 704 | 0.4+ | 0.8− | | | | |
| 2001 10 19 | 704 | 0.8− | 1.1− | 2005 11 08 | 704 | 0.1− | 0.4− | 2009 11 21 | 704 | 0.1+ | 0.9+ | | | | |
| 2001 10 19 | 704 | 0.1− | 0.1− | 2005 11 08 | 704 | 0.3− | 0.1− | 2009 11 21 | 704 | 0.0 | 0.4− | | | | |
| 2001 10 19 | 704 | 1.2− | 0.8− | 2005 11 21 | 699 | 0.1+ | 0.2− | 2009 11 21 | 704 | 0.2− | 0.9+ | | | | |
| 2001 10 23 | 699 | 0.1− | 0.9+ | 2005 11 21 | 699 | 0.1+ | 0.2+ | 2009 11 21 | 704 | 0.4+ | 0.3+ | | | | |
| 2001 10 23 | 699 | 0.9− | 1.3+ | 2005 11 21 | 699 | 0.4+ | 0.6− | 2009 12 25 | 691 | 0.0 | 0.1+ | | | | |
| 2001 10 23 | 699 | 0.5− | 0.1+ | 2005 11 21 | 699 | 0.2− | 0.1+ | 2009 12 25 | 691 | 1.0+ | 0.3+ | | | | |
| 2001 10 23 | 699 | (2.1− | 0.2+) | 2005 11 28 | 703 | 0.4− | 0.0 | 2009 12 25 | 691 | 0.0 | 0.0 | | | | |
| 2001 11 10 | 644 | 0.1− | 0.7+ | 2005 11 28 | 703 | 1.0+ | 0.8− | | | | | | | | |
| 2001 11 10 | 644 | 0.1+ | 0.5+ | 2005 11 28 | 703 | 0.4+ | 0.9− | | | | | | | | |

**(228501)∗ 2001 SW$_{347}$**

Discovered 2001 Sept. 26 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 123.37245 | | (2000.0) | | | |
| $n$ | 0.26570268 | $\omega$ | 53.01131 | | +0.59684528 | +0.78368343 |
| $a$ | 2.3962866 | $\Omega$ | 254.52165 | | −0.78115873 | +0.51857795 |
| $e$ | 0.1135510 | $i$ | 10.28644 | | −0.18321230 | +0.34193155 |
| $P$ | 3.71 | $H$ | 16.2 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 22 | 704 | 0.8+ | 1.0+ | 2001 10 17 | 704 | 0.2− | 0.5− | 2005 10 30 | 704 | 0.7− | 0.7+ | | | | |
| 2001 08 22 | 704 | 0.0 | 0.6+ | 2001 10 24 | 291 | 0.2− | 0.1+ | 2005 11 01 | 704 | (1.4+ | 1.8+) | | | | |
| 2001 08 22 | 704 | 0.2+ | 0.6+ | 2001 10 24 | 291 | 0.0 | 0.0 | 2005 11 01 | 704 | (1.8+ | 1.7+) | | | | |
| 2001 09 10 | 704 | 0.4+ | 0.6− | 2001 10 24 | 291 | 0.5+ | 0.1− | 2005 11 01 | 704 | 0.1− | 0.2+ | | | | |
| 2001 09 10 | 704 | 0.7+ | 0.6− | 2004 06 06 | 644 | 0.1− | 0.1+ | 2005 11 01 | 704 | 0.9− | 0.1+ | | | | |
| 2001 09 10 | 704 | 0.1+ | 0.6− | 2004 06 06 | 644 | 0.1− | 0.0 | 2005 11 02 | 704 | 0.1+ | 0.0 | | | | |
| 2001 09 10 | 704 | 0.3− | 0.6− | 2004 06 06 | 644 | 0.1+ | 0.1+ | 2005 11 02 | 704 | 0.7+ | 0.1− | | | | |
| 2001 09 10 | 704 | 0.4− | 1.0− | 2005 10 10 | 703 | 1.1− | 0.6+ | 2005 11 02 | 704 | 0.4+ | 0.5+ | | | | |
| 2001 09 21 | 699 | 0.0 | 0.2+ | 2005 10 10 | 703 | (0.7− | 1.6+) | 2005 11 02 | 704 | 0.2+ | 0.6+ | | | | |
| 2001 09 21 | 699 | 0.1− | 0.8+ | 2005 10 10 | 703 | 0.4− | 0.5− | 2009 11 08 | G96 | 0.4+ | 0.4+ | | | | |
| 2001 09 21 | 699 | (1.0+ | 1.9+) | 2005 10 10 | 703 | 0.4+ | 1.2− | 2009 11 08 | G96 | 0.1− | 0.1− | | | | |
| 2001 09 21 | 699 | 0.4− | 0.3− | 2005 10 23 | 703 | 0.2− | 0.4− | 2009 11 08 | G96 | 0.4+ | 0.2+ | | | | |
| 2001 09 26 | 704 | 0.4− | 0.1+ | 2005 10 23 | 703 | 0.2+ | 1.1− | 2009 11 08 | G96 | 0.1− | 0.3+ | | | | |
| 2001 09 26 | 704 | 0.2− | 0.5+ | 2005 10 23 | 703 | 0.1− | 1.2− | 2009 11 21 | 691 | 0.1− | 0.2− | | | | |
| 2001 09 26 | 704 | 0.1+ | 0.9+ | 2005 10 23 | 703 | 0.1− | 0.4+ | 2009 11 21 | 691 | 0.2− | 0.2− | | | | |
| 2001 09 26 | 704 | 0.5− | 1.0− | 2005 10 30 | 644 | 0.2− | 0.3− | 2009 11 21 | 691 | 0.0 | 0.1+ | | | | |
| 2001 09 26 | 704 | 0.7− | 0.9+ | 2005 10 30 | 644 | 0.0 | 0.2+ | 2009 12 10 | G96 | 0.5+ | 0.0 | | | | |
| 2001 09 29 | 644 | 0.0 | 0.1− | 2005 10 30 | 704 | 0.0 | 0.2− | 2009 12 10 | G96 | 0.7+ | 0.2+ | | | | |
| 2001 09 29 | 644 | 0.1+ | 0.1− | 2005 10 30 | 644 | 0.2− | 0.5+ | 2009 12 10 | G96 | 0.2+ | 0.1+ | | | | |
| 2001 09 29 | 644 | 0.5+ | 0.3− | 2005 10 30 | 704 | 0.4− | 1.0+ | 2009 12 10 | G96 | 0.3+ | 0.1− | | | | |
| 2001 10 17 | 704 | 0.9− | 0.6+ | 2005 10 30 | 704 | 0.6+ | 0.3− | | | | | | | | |
| 2001 10 17 | 704 | 0.4+ | 0.1− | 2005 10 30 | 704 | 0.4+ | 0.7+ | | | | | | | | |

**(228502)∗ 2001 TE$_2$**

Discovered 2001 Oct. 12 by NEAT at Haleakala.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 281.16827 | | (2000.0) | | | |
| $n$ | 0.87377995 | $\omega$ | 35.71242 | | −0.89025587 | +0.45501835 |
| $a$ | 1.0835975 | $\Omega$ | 171.28397 | | −0.44256468 | −0.85379726 |
| $e$ | 0.1969188 | $i$ | 7.61059 | | −0.10761504 | −0.25295954 |
| $P$ | 1.13 | $H$ | 20.0 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 12 24 | 608 | 0.0 | 0.5− | 2001 10 14 | 608 | 0.2+ | 0.6− | 2001 11 12 | 715 | 0.3+ | 0.4+ | | | | |
| 2000 12 24 | 608 | 0.2+ | 0.6− | 2001 10 14 | 608 | 0.3+ | 0.8− | 2001 11 12 | 715 | 0.4+ | 0.8+ | | | | |
| 2000 12 24 | 608 | 0.2+ | 0.3− | 2001 10 14 | 608 | 0.3+ | 0.6− | 2001 11 12 | 715 | 0.4− | 1.0+ | | | | |
| 2001 09 26 | 644 | 0.6+ | 0.2− | 2001 10 15 | 046 | 0.3− | 0.1− | 2002 07 05 | 540 | 0.1+ | 0.6+ | | | | |
| 2001 10 12 | 608 | 0.3+ | 0.4+ | 2001 10 15 | 046 | 0.1+ | 0.4+ | 2002 07 05 | 540 | 0.4− | 0.1+ | | | | |
| 2001 10 12 | 608 | 0.1+ | 0.3+ | 2001 10 15 | 046 | 0.2− | 0.6+ | 2002 08 13 | 704 | 0.0 | 0.2− | | | | |
| 2001 10 12 | 608 | 1.0+ | 0.5+ | 2001 10 15 | 046 | 0.6− | 0.1− | 2002 08 13 | 704 | 0.8+ | 0.4+ | | | | |
| 2001 10 13 | 557 | 0.0 | 0.2− | 2001 10 15 | 644 | 0.8− | 0.2+ | 2002 08 13 | 704 | 0.1+ | 0.2− | | | | |
| 2001 10 13 | 557 | 0.2+ | 0.3− | 2001 10 15 | 644 | 0.9− | 0.2+ | 2002 08 13 | 704 | 1.4− | 0.0 | | | | |
| 2001 10 13 | 046 | 0.3+ | 0.0 | 2001 10 15 | 644 | 1.0− | 0.5+ | 2002 08 13 | 704 | 0.2− | 0.1− | | | | |
| 2001 10 13 | 046 | 0.6+ | 0.5− | 2001 10 19 | 360 | 0.3+ | 0.2− | 2008 12 01 | 291 | 0.1− | 0.2+ | | | | |
| 2001 10 13 | 046 | 0.2− | 0.1+ | 2001 10 19 | 360 | 0.2− | 0.4− | 2008 12 01 | 291 | 0.3+ | 1.3+ | | | | |
| 2001 10 13 | 046 | 0.0 | 0.4− | 2001 10 19 | 360 | 0.5+ | 0.5+ | 2009 12 04 | H21 | 0.4− | 0.4− | | | | |
| 2001 10 13 | 046 | 0.7+ | 0.6− | 2001 10 22 | 644 | 0.1− | 0.5+ | 2009 12 04 | H21 | 0.1− | 0.6− | | | | |
| 2001 10 13 | 046 | 0.6− | 0.0 | 2001 10 22 | 644 | 0.2+ | 0.4+ | 2009 12 04 | H21 | 0.4+ | 0.3− | | | | |
| 2001 10 13 | 046 | (1.8+ | 0.9+) | 2001 10 22 | 644 | 0.4+ | 0.7+ | 2009 12 05 | H21 | 0.7− | 0.1+ | | | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 10 13 | 046 | 0.3− | 0.5− | 2001 10 28 | 644 | 0.4− | 0.1+ | 2009 12 05 | H21 | 0.0 | 0.4− |
| 2001 10 13 | 046 | 0.5+ | 0.2− | 2001 10 28 | 644 | 0.5− | 0.1+ | 2009 12 05 | H21 | 0.9+ | 0.0 |
| 2001 10 13 | 046 | (2.8− | 0.2+) | 2001 10 28 | 644 | 0.6− | 0.2− | | | | |

**(228503)∗ 2001 TX$_7$**

Discovered 2001 Oct. 11 by W. K. Y. Yeung at Desert Eagle Observatory.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 85.26872 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26111324 | $\omega$ | 283.24725 | | +0.99520091 | −0.08179707 | |
| $a$ | 2.4242838 | $\Omega$ | 81.46384 | | +0.09657748 | +0.90938600 | |
| $e$ | 0.2111564 | $i$ | 3.11316 | | −0.01574596 | +0.40783127 | |
| $P$ | 3.77 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 10 11 | 333 | 0.7+ | 0.6− | 2001 11 09 | 704 | 0.3− | 0.4− | 2001 12 17 | 691 | 0.2+ | 0.2+ |
| 2001 10 11 | 333 | 0.2+ | 0.5− | 2001 11 09 | 704 | 0.3− | 0.1− | 2003 03 23 | 645 | 0.1− | 0.2+ |
| 2001 10 11 | 333 | 0.4+ | 0.3− | 2001 11 09 | 704 | 0.5− | 0.1+ | 2003 03 23 | 645 | 0.0 | 0.1+ |
| 2001 10 12 | 333 | 1.0+ | 0.5− | 2001 11 09 | 704 | 0.3− | 0.1− | 2003 03 31 | 691 | 0.1+ | 0.3+ |
| 2001 10 12 | 333 | 0.3− | 0.1+ | 2001 11 15 | 644 | 0.0 | 0.4− | 2003 03 31 | 691 | 0.2+ | 0.2+ |
| 2001 10 12 | 333 | 0.2+ | 0.3− | 2001 11 15 | 644 | 0.1− | 0.7− | 2003 03 31 | 645 | 0.1+ | 0.0 |
| 2001 10 13 | 704 | (1.0− | 1.7+) | 2001 11 15 | 644 | 0.2− | 0.6− | 2003 03 31 | 645 | 0.1+ | 0.1− |
| 2001 10 13 | 704 | 1.0− | 1.0+ | 2001 11 17 | 704 | 0.7+ | 0.2+ | 2003 03 31 | 691 | 0.4+ | 0.5+ |
| 2001 10 13 | 704 | 1.3− | 1.3+ | 2001 11 17 | 704 | 0.6+ | 0.0 | 2004 06 14 | 704 | (2.9− | 0.1−) |
| 2001 10 13 | 704 | (1.9− | 1.4+) | 2001 11 17 | 704 | 0.4+ | 0.2+ | 2004 06 14 | 704 | (4.0+ | 0.0 ) |
| 2001 10 14 | 704 | 0.1− | 0.2+ | 2001 11 17 | 704 | 0.2+ | 0.2+ | 2004 06 14 | 704 | (1.8− | 3.8−) |
| 2001 10 14 | 704 | 0.3− | 0.3+ | 2001 11 18 | 704 | 0.1− | 0.3− | 2005 12 07 | 691 | 0.2+ | 0.1− |
| 2001 10 14 | 704 | 0.2− | 0.5+ | 2001 11 18 | 704 | 0.0 | 0.1− | 2005 12 07 | 691 | 0.2+ | 0.1− |
| 2001 10 14 | 704 | 0.0 | 1.1+ | 2001 11 18 | 704 | 1.4− | 0.4− | 2005 12 07 | 691 | 0.2+ | 0.1− |
| 2001 10 17 | 704 | 0.6+ | 0.8+ | 2001 11 18 | 704 | 0.7− | 0.2+ | 2005 12 31 | 691 | 0.2+ | 0.2− |
| 2001 10 17 | 704 | 0.3− | 0.5+ | 2001 11 18 | 704 | 0.8− | 0.2− | 2005 12 31 | 691 | 0.2+ | 0.4− |
| 2001 10 17 | 704 | 0.1− | 0.2+ | 2001 11 18 | 704 | 0.6− | 0.2− | 2005 12 31 | 691 | 0.5− | 0.1+ |
| 2001 10 17 | 704 | 0.4− | 0.2− | 2001 11 18 | 704 | 0.1− | 0.0 | 2006 01 05 | 704 | 0.2+ | 0.5+ |
| 2001 10 18 | 644 | 0.3− | 0.3+ | 2001 11 18 | 704 | 0.4− | 0.3− | 2006 01 05 | 704 | 0.2− | 0.4+ |
| 2001 10 18 | 644 | 0.5− | 0.6+ | 2001 11 18 | 704 | 0.4− | 0.9− | 2006 01 05 | 704 | 0.6+ | 0.4+ |
| 2001 10 18 | 644 | 0.2− | 0.4+ | 2001 11 19 | 608 | 1.1+ | 1.4+ | 2006 01 05 | 704 | 1.0+ | 0.8+ |
| 2001 10 20 | 704 | 0.2+ | 0.7+ | 2001 11 19 | 608 | 0.7+ | 1.1+ | 2006 01 06 | 691 | 0.1− | 0.3− |
| 2001 10 20 | 704 | 0.1− | 0.3+ | 2001 11 19 | 608 | 0.8+ | 0.9+ | 2006 01 06 | 691 | 0.0 | 0.4− |
| 2001 10 20 | 704 | 0.0 | 0.6+ | 2001 11 20 | 704 | 1.2+ | 1.0− | 2006 01 06 | 691 | 0.2− | 0.5− |
| 2001 10 20 | 704 | 0.8− | 0.5+ | 2001 11 20 | 704 | 1.1+ | 0.8− | 2006 01 25 | G96 | 0.2+ | 0.0 |
| 2001 10 22 | 704 | 0.1+ | 0.0 | 2001 11 20 | 704 | (2.8+ | 3.2−) | 2006 01 25 | G96 | 0.1+ | 0.4− |
| 2001 10 22 | 704 | 0.3+ | 0.5+ | 2001 11 20 | 704 | (0.4+ | 1.6−) | 2006 01 25 | G96 | 0.2− | 0.1− |
| 2001 10 22 | 704 | 0.2+ | 1.0+ | 2001 11 20 | 704 | (1.6+ | 1.3−) | 2006 01 25 | G96 | 0.4− | 0.2− |
| 2001 10 22 | 704 | 0.1+ | 0.9+ | 2001 11 21 | 704 | 0.2− | 0.4− | 2006 02 23 | G96 | 0.7+ | 1.1+ |
| 2001 10 23 | 704 | 0.2− | 0.1− | 2001 11 21 | 704 | 0.4+ | 0.6+ | 2006 02 23 | G96 | 0.1− | 1.1+ |
| 2001 10 23 | 704 | 0.5− | 0.6+ | 2001 11 21 | 704 | 0.2− | 0.1+ | 2006 02 23 | G96 | 0.0 | 0.0 |
| 2001 10 23 | 704 | 0.2+ | 0.3− | 2001 11 21 | 704 | 0.4+ | 0.5+ | 2006 02 23 | G96 | 0.7+ | 0.5− |
| 2001 10 23 | 704 | 0.1+ | 0.2− | 2001 11 21 | 704 | 0.2− | 0.4+ | 2007 04 11 | 691 | 0.2+ | 0.3+ |
| 2001 10 23 | 704 | 0.2+ | 0.5− | 2001 11 21 | 704 | 0.5+ | 0.1+ | 2007 04 11 | 691 | 0.1+ | 0.3+ |
| 2001 10 23 | 704 | 0.7− | 0.5− | 2001 11 21 | 704 | 1.0− | 0.0 | 2007 04 11 | 691 | 0.0 | 0.7+ |
| 2001 10 23 | 704 | 0.6+ | 0.4− | 2001 11 21 | 704 | 0.1− | 0.5+ | 2007 04 14 | 691 | 0.4+ | 0.2− |
| 2001 10 23 | 704 | 0.2− | 0.2− | 2001 11 21 | 704 | 1.1+ | 0.0 | 2007 04 14 | 691 | 0.1− | 0.4− |
| 2001 10 23 | 704 | 0.3+ | 0.7− | 2001 12 09 | 699 | 0.2+ | 0.7− | 2007 04 14 | 691 | 0.4− | 0.4− |
| 2001 10 23 | 704 | 0.8+ | 1.2− | 2001 12 09 | 699 | 0.7− | 0.2+ | 2009 11 16 | G96 | 0.4− | 0.3− |
| 2001 10 24 | 704 | 0.4− | 0.4− | 2001 12 09 | 699 | 0.7− | 0.4− | 2009 11 16 | G96 | 0.6− | 0.3− |
| 2001 10 24 | 704 | 0.7− | 0.2− | 2001 12 09 | 699 | 0.9− | 0.3+ | 2009 11 16 | G96 | 0.3− | 0.2+ |
| 2001 10 24 | 704 | 0.3− | 0.5− | 2001 12 11 | 704 | 0.2+ | 0.4+ | 2009 11 16 | G96 | 0.7− | 0.5− |
| 2001 10 24 | 704 | 0.3− | 0.4− | 2001 12 11 | 704 | 0.1− | 0.1+ | 2009 12 17 | G96 | 0.2− | 0.9− |
| 2001 10 24 | 704 | 0.2− | 0.3− | 2001 12 11 | 704 | 0.1− | 0.2− | 2009 12 17 | G96 | 0.2+ | 0.5− |
| 2001 10 25 | 644 | 0.0 | 0.5+ | 2001 12 11 | 704 | 0.6− | 1.3+ | 2009 12 17 | G96 | 0.1+ | 0.1− |
| 2001 10 25 | 644 | 0.1− | 0.7+ | 2001 12 11 | 704 | 0.2− | 1.0+ | 2009 12 17 | G96 | 0.4− | 0.5− |
| 2001 10 25 | 644 | 0.0 | 0.6+ | 2001 12 17 | 691 | 0.2+ | 0.3+ | | | | |
| 2001 11 09 | 704 | 0.3− | 0.0 | 2001 12 17 | 691 | 0.0 | 0.0 | | | | |

**(228504)∗ 2001 TG$_{16}$**

Discovered 2001 Oct. 11 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 49.62240 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.25912967 | $\omega$ | 296.20852 | | +0.80913058 | −0.57243921 | |
| $a$ | 2.4366395 | $\Omega$ | 98.98898 | | +0.57562999 | +0.72670355 | |
| $e$ | 0.1888636 | $i$ | 7.72363 | | +0.11814325 | +0.37975690 | |
| $P$ | 3.80 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 17 | 699 | 0.1+ | 0.8+ | 2003 03 23 | 645 | 0.1+ | 0.2+ | 2005 11 30 | 704 | 0.2− | 0.8+ |
| 2001 09 17 | 699 | 0.1+ | 0.7+ | 2003 03 23 | 645 | 0.1+ | 0.1+ | 2005 11 30 | 704 | 1.0− | 0.9+ |
| 2001 09 17 | 699 | 0.6+ | 0.7+ | 2003 03 31 | 645 | 0.0 | 0.2+ | 2005 11 30 | 704 | 0.5+ | 0.0 |
| 2001 09 17 | 699 | (1.6+ | 0.6+) | 2003 03 31 | 645 | 0.1+ | 0.2+ | 2005 11 30 | 704 | 1.5+ | 0.3− |
| 2001 09 22 | 644 | 0.1− | 0.5+ | 2005 10 30 | 644 | 0.2+ | 0.3− | 2005 12 01 | 703 | 0.8+ | 0.2− |
| 2001 09 22 | 644 | 0.1− | 0.5+ | 2005 10 30 | 644 | 0.1+ | 0.4− | 2005 12 01 | 703 | 0.3− | 0.2+ |
| 2001 09 22 | 644 | 0.1+ | 0.3+ | 2005 10 30 | 644 | 0.1+ | 0.3− | 2005 12 01 | 703 | 0.7− | 0.7− |
| 2001 09 25 | 704 | 0.0 | 0.3+ | 2005 11 02 | 703 | 0.7+ | 0.7+ | 2005 12 07 | 704 | 0.7+ | 1.0− |
| 2001 09 25 | 704 | 0.2+ | 0.5− | 2005 11 02 | 703 | 1.0− | 1.1− | 2005 12 07 | 704 | 1.1+ | 0.1+ |
| 2001 09 25 | 704 | 0.3+ | 0.1+ | 2005 11 02 | 703 | (1.4+ | 1.7+) | 2005 12 07 | 704 | (1.7+ | 0.3+) |
| 2001 09 25 | 704 | 0.1+ | 0.2− | 2005 11 02 | 703 | 0.8− | 0.3− | 2005 12 07 | 704 | 0.8+ | 1.0+ |
| 2001 09 25 | 704 | 0.7+ | 0.0 | 2005 11 05 | 704 | 0.0 | 0.8− | 2005 12 08 | 704 | 1.0+ | 1.0+ |
| 2001 10 11 | 704 | 1.1− | 0.8− | 2005 11 05 | 704 | 0.2− | 0.3− | 2005 12 08 | 704 | 0.9+ | 0.4+ |
| 2001 10 11 | 704 | 0.2+ | 0.6+ | 2005 11 05 | 704 | 0.0 | 0.6− | 2005 12 08 | 704 | 1.0+ | 0.3− |
| 2001 10 11 | 704 | (0.7− | 1.7+) | 2005 11 05 | 704 | 0.4− | 0.9− | 2005 12 08 | 704 | 0.6+ | 0.3+ |
| 2001 10 11 | 704 | 0.1+ | 0.6+ | 2005 11 10 | 691 | 0.1+ | 0.3− | 2005 12 08 | 704 | 0.7+ | 0.0 |
| 2001 10 11 | 704 | 0.3+ | 1.2+ | 2005 11 10 | 691 | 0.0 | 0.1− | 2005 12 27 | 704 | 0.8+ | 1.1+ |
| 2001 10 13 | 704 | 0.6+ | 0.3+ | 2005 11 10 | 703 | 1.0− | 0.0 | 2005 12 27 | 704 | 0.2+ | 0.0 |
| 2001 10 13 | 704 | 0.6− | 0.5+ | 2005 11 10 | 691 | 0.0 | 0.1− | 2005 12 27 | 704 | 0.1− | 0.2− |
| 2001 10 13 | 704 | 0.3+ | 0.5+ | 2005 11 10 | 703 | 1.4− | 0.1− | 2005 12 27 | 704 | 0.2+ | 0.5+ |
| 2001 10 15 | 704 | 0.4− | 0.4+ | 2005 11 10 | 703 | 0.3+ | 0.7+ | 2006 01 04 | 699 | 0.1− | 0.1− |
| 2001 10 15 | 704 | 0.3− | 0.4+ | 2005 11 10 | 703 | 0.4+ | 0.3+ | 2006 01 04 | 699 | 0.3− | 0.5+ |
| 2001 10 15 | 704 | 0.9− | 0.8+ | 2005 11 20 | 644 | 0.1+ | 0.1− | 2006 01 04 | 699 | 0.5+ | 1.1+ |
| 2001 10 15 | 704 | 1.0− | 0.2− | 2005 11 20 | 644 | 0.1− | 0.1− | 2006 01 04 | 699 | (0.7+ | 2.0+) |
| 2001 10 15 | 704 | 0.8− | 0.0 | 2005 11 20 | 644 | 0.2+ | 0.3− | 2009 11 18 | G96 | 0.5+ | 0.4− |
| 2001 10 15 | 644 | 0.1− | 0.1+ | 2005 11 25 | 703 | 0.2+ | 0.7+ | 2009 11 18 | G96 | 0.2+ | 0.2− |
| 2001 10 15 | 644 | 0.0 | 0.0 | 2005 11 25 | 703 | 0.2+ | 0.0 | 2009 11 18 | G96 | 0.1+ | 0.1− |
| 2001 10 15 | 644 | 0.0 | 0.0 | 2005 11 25 | 703 | 0.2+ | 0.9+ | 2009 11 18 | G96 | 0.4+ | 0.3− |
| 2001 10 19 | 699 | 0.2− | 0.4+ | 2005 11 25 | 703 | 0.4− | 0.3− | 2009 12 16 | 691 | 0.0 | 0.0 |
| 2001 10 19 | 699 | 0.2+ | 0.1− | 2005 11 25 | 703 | 0.1− | 0.4+ | 2009 12 16 | 691 | 0.0 | 0.3− |
| 2001 10 19 | 699 | 0.3− | 0.1− | 2005 11 25 | 703 | 0.5+ | 0.0 | 2009 12 16 | 691 | 0.2+ | 0.1− |
| 2001 10 19 | 699 | 1.0− | 0.7+ | 2005 11 25 | 703 | 0.8+ | 0.6+ | 2009 12 20 | 691 | 0.1+ | 0.2− |
| 2001 10 23 | 644 | 0.9− | 0.2− | 2005 11 25 | 703 | 0.2− | 0.6− | 2009 12 20 | 691 | 0.2+ | 0.3− |
| 2001 10 23 | 644 | 1.0− | 0.1+ | 2005 11 28 | 699 | 1.3− | 0.6+ | 2009 12 20 | 691 | 0.5+ | 0.5+ |
| 2001 10 23 | 644 | 0.8− | 0.0 | 2005 11 28 | 699 | 1.1− | 0.5+ | 2009 12 25 | 691 | 1.0− | 0.3− |
| 2001 11 20 | 608 | 0.8− | 1.0+ | 2005 11 28 | 699 | (1.7− | 0.9−) | 2009 12 25 | 691 | 0.3− | 0.1− |
| 2001 11 20 | 608 | 0.6− | 0.3+ | 2005 11 28 | 699 | (1.6+ | 0.6+) | 2009 12 25 | 691 | 0.8− | 0.4− |
| 2001 11 20 | 608 | 0.4− | 0.3+ | 2005 11 30 | 704 | 0.3+ | 0.5− | | | | |

**(228505)∗ 2001 TF$_{21}$**

Discovered 2001 Oct. 9 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 81.76167 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.37744105 | $\omega$ | 128.57330 | | +0.96474754 | +0.00735366 | |
| $a$ | 1.8962836 | $\Omega$ | 232.60662 | | −0.05950900 | +0.97981507 | |
| $e$ | 0.0876543 | $i$ | 19.33712 | | +0.25636082 | +0.19977075 | |
| $P$ | 2.61 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 23 | 704 | 1.0+ | 0.6− | 2001 11 19 | 704 | 0.6− | 0.7+ | 2003 05 30 | 704 | 0.7+ | 0.0 |
| 2001 08 23 | 704 | 1.2+ | 0.1− | 2001 11 20 | 704 | 0.5− | 0.3− | 2003 05 30 | 704 | 0.0 | 0.1+ |
| 2001 08 23 | 704 | 0.7− | 0.8− | 2001 11 20 | 704 | 0.5− | 0.8+ | 2003 05 30 | 704 | 0.2+ | 0.7+ |
| 2001 08 23 | 704 | 0.5− | 0.4− | 2001 11 20 | 704 | (2.3− | 0.3+) | 2003 05 30 | 704 | 0.8+ | 0.4+ |
| 2001 09 25 | 704 | 0.3+ | 1.2+ | 2001 11 20 | 704 | 0.6+ | 0.2− | 2003 05 30 | 704 | 0.6+ | 0.8+ |
| 2001 09 25 | 704 | (0.4− | 1.7+) | 2001 11 21 | 704 | 0.2− | 0.3+ | 2003 06 22 | 699 | 0.6− | 0.3− |
| 2001 09 25 | 704 | 0.2− | 1.1+ | 2001 11 21 | 704 | 0.2− | 0.5+ | 2003 06 22 | 699 | 0.5+ | 0.6+ |
| 2001 09 25 | 704 | 0.5− | 1.2+ | 2001 11 21 | 704 | 0.3− | 0.8+ | 2003 06 22 | 699 | 1.0− | 0.2+ |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 25 | 704 | 0.7− | 0.8+ | 2001 11 21 | 704 | 0.1− | 0.6+ | 2003 06 22 | 699 | 0.3+ | 0.4+ |
| 2001 09 28 | 704 | 0.5− | 0.9+ | 2001 11 21 | 704 | 0.2− | 0.6+ | 2003 06 25 | 644 | 0.7+ | 0.3− |
| 2001 09 28 | 704 | 0.4− | 0.4+ | 2001 12 11 | 704 | 0.9+ | 0.3− | 2003 06 25 | 644 | 1.0+ | 0.3+ |
| 2001 09 28 | 704 | 0.2+ | 0.4+ | 2001 12 11 | 704 | 0.6+ | 0.1− | 2003 06 25 | 644 | 1.0+ | 0.7+ |
| 2001 10 09 | 704 | 0.1− | 0.0 | 2001 12 11 | 704 | 0.9+ | 0.2− | 2003 06 26 | 608 | 0.1+ | 0.7+ |
| 2001 10 09 | 704 | 0.4− | 0.4+ | 2001 12 11 | 704 | 0.6+ | 0.1− | 2003 06 26 | 608 | 0.2+ | 0.8+ |
| 2001 10 09 | 704 | 0.0 | 0.5+ | 2001 12 11 | 704 | 0.4+ | 0.0 | 2003 06 26 | 608 | 0.2+ | 0.4+ |
| 2001 10 09 | 704 | 0.2− | 0.1+ | 2001 12 14 | 704 | 0.1− | 1.2+ | 2006 09 22 | 113 | 0.5+ | 1.3− |
| 2001 10 15 | 704 | 0.9− | 0.2+ | 2001 12 14 | 704 | 0.1− | 0.3− | 2006 09 22 | 113 | 0.5+ | 0.7− |
| 2001 10 15 | 704 | 0.7− | 0.2− | 2001 12 14 | 704 | 0.5+ | 0.0 | 2006 09 22 | 113 | 0.7+ | 0.3− |
| 2001 10 15 | 704 | 0.3− | 0.2− | 2001 12 14 | 704 | 0.4+ | 0.0 | 2006 09 30 | 704 | (2.1− | 0.4+) |
| 2001 10 15 | 704 | 0.4− | 0.3− | 2001 12 14 | 704 | 0.7+ | 0.4− | 2006 09 30 | 704 | 0.5− | 0.1− |
| 2001 10 15 | 704 | 0.0 | 0.2− | 2001 12 17 | 704 | 0.9+ | 0.1− | 2006 09 30 | 704 | 0.3+ | 0.2+ |
| 2001 10 18 | 704 | 0.3− | 0.3+ | 2001 12 17 | 704 | 0.8+ | 0.1+ | 2006 09 30 | 704 | 1.2− | 0.8+ |
| 2001 10 18 | 704 | 0.4− | 0.2+ | 2001 12 17 | 704 | 1.1+ | 0.1+ | 2006 10 20 | 703 | 0.1+ | 0.1+ |
| 2001 10 18 | 704 | 1.2− | 0.3+ | 2001 12 17 | 704 | 1.0+ | 0.1− | 2006 10 20 | 703 | 0.7+ | 0.8+ |
| 2001 10 19 | 704 | 0.5− | 0.1+ | 2001 12 17 | 704 | 0.4+ | 0.4− | 2006 10 20 | 703 | 0.1+ | 0.2+ |
| 2001 10 19 | 704 | 0.5− | 0.3+ | 2001 12 18 | 704 | (0.1− | 2.7+) | 2006 10 20 | 703 | 0.1+ | 0.3+ |
| 2001 10 19 | 704 | 0.2− | 0.4− | 2001 12 18 | 704 | 0.2+ | 0.7+ | 2006 11 14 | 703 | 0.7+ | 0.9− |
| 2001 10 27 | 704 | 0.3+ | 0.2− | 2001 12 18 | 704 | (0.2− | 2.5+) | 2006 11 14 | 703 | 0.1+ | 0.6− |
| 2001 10 27 | 704 | 1.0+ | 0.5− | 2001 12 18 | 704 | 1.4+ | 0.1+ | 2006 11 14 | 703 | 0.5+ | 1.1− |
| 2001 10 27 | 704 | 0.5+ | 0.2− | 2001 12 18 | 704 | (0.0 | 3.3+) | 2006 11 14 | 703 | 0.3− | 0.9− |
| 2001 10 27 | 704 | 1.2+ | 0.2+ | 2001 12 18 | 704 | (0.2− | 3.0+) | 2006 11 27 | 703 | 1.2− | 1.1+ |
| 2001 10 27 | 704 | 1.0+ | 0.3− | 2001 12 18 | 704 | 0.4+ | 0.1− | 2006 11 27 | 703 | 0.4− | 0.4− |
| 2001 11 10 | 704 | 0.1− | 0.0 | 2001 12 18 | 704 | (1.0− | 2.9+) | 2006 11 27 | 703 | 0.1+ | 1.5+ |
| 2001 11 10 | 704 | 0.5− | 0.2− | 2001 12 18 | 704 | 0.6+ | 0.1+ | 2006 11 27 | 703 | (1.3− | 1.8+) |
| 2001 11 10 | 644 | 0.2+ | 0.1+ | 2002 01 12 | 699 | 0.4+ | 0.2− | 2008 04 27 | 703 | 0.3+ | 0.3+ |
| 2001 11 10 | 704 | 0.8− | 0.1+ | 2002 01 12 | 699 | (1.7− | 1.5+) | 2008 04 27 | 703 | 1.1− | 0.1+ |
| 2001 11 10 | 644 | 0.3+ | 0.3+ | 2002 01 12 | 699 | 1.0− | 0.9− | 2008 04 27 | 703 | 0.4− | 0.2− |
| 2001 11 10 | 644 | 1.0+ | 0.3+ | 2002 01 12 | 699 | 0.3+ | 1.4+ | 2008 04 27 | 703 | 0.2+ | 0.6− |
| 2001 11 12 | 704 | (1.5− | 0.5−) | 2003 04 29 | 704 | 0.0 | 0.6+ | 2008 05 07 | E12 | 0.1− | 0.9+ |
| 2001 11 12 | 704 | 0.1+ | 0.1− | 2003 04 29 | 704 | 0.1− | 0.4− | 2008 05 07 | E12 | 1.1+ | 0.7+ |
| 2001 11 12 | 704 | 0.6− | 0.5− | 2003 04 29 | 704 | 0.2− | 1.4+ | 2008 05 07 | E12 | 0.3+ | 0.8+ |
| 2001 11 12 | 704 | 0.3− | 0.1− | 2003 04 29 | 704 | 0.6− | 0.2+ | 2008 05 07 | E12 | 0.4+ | 0.3+ |
| 2001 11 12 | 704 | 0.4− | 0.5− | 2003 04 30 | 704 | (0.9− | 1.6+) | 2009 09 25 | J75 | 0.7+ | 1.1− |
| 2001 11 16 | 644 | 0.5− | 0.8+ | 2003 04 30 | 704 | 0.0 | 0.7+ | 2009 09 25 | J75 | 0.3+ | 0.6− |
| 2001 11 16 | 644 | 0.4− | 1.0+ | 2003 04 30 | 704 | (1.4− | 1.6+) | 2009 09 25 | J75 | 0.2− | 0.1− |
| 2001 11 16 | 644 | 0.4− | 0.9+ | 2003 04 30 | 704 | 0.5+ | 1.4+ | 2009 12 11 | J75 | 0.2− | 0.3+ |
| 2001 11 19 | 704 | 0.6− | 0.5+ | 2003 05 23 | 691 | 0.0 | 0.2+ | 2009 12 11 | J75 | 0.2− | 1.3+ |
| 2001 11 19 | 704 | 0.1+ | 0.6+ | 2003 05 23 | 691 | 0.1− | 0.3+ | 2009 12 11 | J75 | 0.2− | 0.6+ |
| 2001 11 19 | 704 | 0.8− | 0.8+ | 2003 05 23 | 691 | 1.2− | 0.3− | | | | |

**(228506)∗ 2001 TM$_{27}$**

Discovered 2001 Oct. 14 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 87.85940 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26283146 | $\omega$ | 46.21757 | | +0.99857003 | +0.04841993 | |
| $a$ | 2.4137066 | $\Omega$ | 310.99358 | | −0.05345734 | +0.90794544 | |
| $e$ | 0.2375793 | $i$ | 1.72025 | | +0.00044600 | +0.41628187 | |
| $P$ | 3.75 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 01 07 | 691 | 0.5+ | 0.0 | 2001 10 17 | 704 | 0.9− | 0.5+ | 2001 11 19 | 704 | 0.3− | 0.5− |
| 1995 01 07 | 691 | 0.7− | 0.5− | 2001 10 19 | 644 | 0.6− | 0.2+ | 2001 11 19 | 704 | 0.5− | 0.6− |
| 1997 08 14 | 910 | 0.8+ | 0.2− | 2001 10 19 | 644 | 0.5− | 0.2+ | 2005 12 04 | 704 | 0.0 | 0.1+ |
| 1997 08 14 | 910 | 1.3+ | 0.5− | 2001 10 19 | 644 | 0.7− | 0.1− | 2005 12 04 | 704 | 1.2+ | 0.7+ |
| 1997 08 14 | 910 | 1.1+ | 0.4− | 2001 10 21 | 704 | 0.2− | 0.7+ | 2005 12 04 | 704 | 0.6+ | 0.3+ |
| 1997 10 05 | 910 | 1.3− | 0.3− | 2001 10 21 | 704 | 0.1− | 0.4+ | 2005 12 05 | G96 | 0.0 | 0.1− |
| 1997 10 05 | 910 | 1.3− | 1.0− | 2001 10 21 | 704 | 0.0 | 0.3+ | 2005 12 05 | G96 | 0.4+ | 0.1− |
| 1997 10 05 | 910 | 1.8− | 0.6− | 2001 10 21 | 704 | 0.2+ | 0.3+ | 2005 12 05 | G96 | (1.8− | 0.4−) |
| 1999 02 08 | 691 | 0.0 | 0.1− | 2001 10 21 | 704 | 0.4+ | 0.0 | 2005 12 07 | 691 | 0.5− | 0.1+ |
| 1999 02 08 | 691 | 0.2− | 0.3+ | 2001 11 10 | 704 | 0.0 | 0.8− | 2005 12 07 | 691 | 0.1− | 0.1+ |
| 1999 02 08 | 691 | 0.3+ | 0.0 | 2001 11 10 | 704 | 0.5− | 0.1+ | 2005 12 07 | 691 | 0.0 | 0.0 |
| 2001 10 11 | 644 | 0.2+ | 0.7+ | 2001 11 10 | 704 | 0.6− | 0.7− | 2005 12 21 | 691 | 0.0 | 0.1− |
| 2001 10 11 | 644 | 0.4+ | 0.5+ | 2001 11 10 | 704 | 0.2− | 0.0 | 2005 12 21 | 691 | 0.2+ | 0.1+ |
| 2001 10 11 | 644 | 0.3+ | 0.6+ | 2001 11 10 | 704 | 1.3− | 0.8− | 2005 12 21 | 691 | (0.1− | 2.4−) |
| 2001 10 13 | 699 | 0.1+ | 0.2+ | 2001 11 11 | 699 | 0.5− | 1.0− | 2005 12 27 | G96 | 0.0 | 0.3− |
| 2001 10 13 | 699 | 0.5+ | 0.1− | 2001 11 11 | 699 | 0.3− | 0.2+ | 2005 12 27 | G96 | 0.1+ | 0.6− |
| 2001 10 13 | 699 | 0.6− | 0.5+ | 2001 11 11 | 699 | (2.0− | 0.3−) | 2005 12 27 | G96 | 0.1+ | 0.1+ |
| 2001 10 13 | 699 | 0.1− | 0.6+ | 2001 11 11 | 699 | 0.9− | 0.8− | 2005 12 27 | G96 | 0.2+ | 0.0 |
| 2001 10 14 | 704 | 0.5− | 0.1− | 2001 11 14 | 691 | 0.1− | 0.3+ | 2007 03 10 | G96 | 0.9+ | 0.3+ |
| 2001 10 14 | 704 | 0.7− | 0.4− | 2001 11 14 | 691 | (0.6+ | 1.6−) | 2007 03 10 | G96 | 0.4+ | 0.7+ |
| 2001 10 14 | 704 | 0.8− | 0.2+ | 2001 11 14 | 691 | 0.5+ | 0.8− | 2007 03 10 | G96 | 0.8+ | 0.1+ |
| 2001 10 14 | 704 | 0.5− | 0.5− | 2001 11 16 | 691 | 1.1+ | 0.1+ | 2007 03 10 | G96 | 0.3+ | 0.7+ |
| 2001 10 14 | 704 | 0.4− | 0.2− | 2001 11 16 | 691 | 0.7+ | 0.5+ | 2009 11 11 | G96 | 0.3+ | 0.2− |
| 2001 10 15 | 704 | 0.8+ | 0.4+ | 2001 11 16 | 691 | 0.6+ | 0.7+ | 2009 11 11 | G96 | 0.3+ | 0.4− |
| 2001 10 15 | 704 | 0.3− | 0.7+ | 2001 11 17 | 704 | 0.4− | 0.1− | 2009 11 11 | G96 | 0.1− | 0.3+ |
| 2001 10 15 | 704 | 0.1+ | 0.5+ | 2001 11 17 | 704 | 0.2− | 0.3− | 2009 11 11 | G96 | 0.4+ | 0.2− |
| 2001 10 15 | 704 | 0.5+ | 0.0 | 2001 11 17 | 704 | 0.4− | 0.1− | 2009 12 18 | 691 | 0.8− | 0.2− |
| 2001 10 15 | 704 | 1.1+ | 0.1+ | 2001 11 17 | 704 | 0.7− | 0.8− | 2009 12 18 | 691 | 0.1− | 0.0 |
| 2001 10 17 | 704 | 0.8− | 0.8+ | 2001 11 17 | 704 | 0.2+ | 0.7− | 2009 12 18 | 691 | 0.1− | 0.2− |
| 2001 10 17 | 704 | 0.7− | 1.1+ | 2001 11 19 | 704 | 0.2− | 0.8− | | | | |

**(228507)∗ 2001 TV$_{36}$**

Discovered 2001 Oct. 14 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 6.26972 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23528069 | $\omega$ | 12.35622 | | +0.90013240 | −0.43391840 | |
| $a$ | 2.5986345 | $\Omega$ | 13.55740 | | +0.38442002 | +0.74975704 | |
| $e$ | 0.1919490 | $i$ | 9.43424 | | +0.20489732 | +0.49957902 | |
| $P$ | 4.19 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 10 14 | 704 | 0.2− | 0.5− | 2005 10 14 | 699 | 0.7+ | 0.2− | 2009 08 28 | J75 | 0.2+ | 0.1+ |
| 2001 10 14 | 704 | 0.5+ | 0.7− | 2005 10 14 | 699 | 0.0 | 0.8− | 2009 08 28 | J75 | 0.1− | 0.0 |
| 2001 10 14 | 704 | 0.3+ | 0.0 | 2005 10 23 | 703 | (0.2− | 1.6−) | 2009 08 28 | J75 | 0.2− | 0.1− |
| 2001 10 15 | 704 | 0.5− | 0.3+ | 2005 10 23 | 703 | 0.1− | 0.0 | 2009 08 28 | J75 | 0.4+ | 0.0 |
| 2001 10 15 | 704 | 0.4+ | 0.0 | 2005 10 23 | 703 | 0.8− | 0.1− | 2009 08 28 | J75 | 0.1− | 0.3+ |
| 2001 10 15 | 704 | 0.5− | 0.2+ | 2005 10 23 | 703 | 0.8− | 0.0 | 2009 08 29 | J75 | 0.0 | 1.1− |
| 2001 10 27 | 704 | 0.1− | 0.3− | 2005 10 24 | 699 | 0.1− | 0.1+ | 2009 08 29 | J75 | 0.9− | 1.1− |
| 2001 10 27 | 704 | 0.9+ | 0.2+ | 2005 10 24 | 699 | 0.3+ | 0.0 | 2009 08 29 | J75 | 0.5− | 0.4+ |
| 2001 10 27 | 704 | 0.0 | 0.8+ | 2005 10 24 | 699 | 0.6− | 0.0 | 2009 08 29 | J75 | 0.1− | 0.2+ |
| 2001 10 27 | 704 | 0.7+ | 0.3− | 2005 10 24 | 699 | 0.0 | 0.3− | 2009 08 29 | J75 | 0.3+ | 0.2− |
| 2001 11 11 | 704 | 0.5− | 0.6− | 2005 10 25 | 699 | 0.8+ | 0.6− | 2009 08 29 | J75 | 0.9− | 1.4− |
| 2001 11 11 | 704 | 0.3+ | 0.4− | 2005 10 25 | 699 | 0.2+ | 1.0+ | 2009 08 29 | J75 | 0.6+ | 0.2+ |
| 2001 11 11 | 704 | 0.7+ | 0.3− | 2005 10 25 | 699 | 0.3+ | 0.8+ | 2009 08 29 | J75 | 0.4− | 0.0 |
| 2001 11 11 | 704 | 1.1+ | 0.4+ | 2005 10 25 | 699 | 0.2+ | 0.1+ | 2009 08 29 | J75 | 0.2+ | 0.8− |
| 2001 12 09 | 704 | 0.5− | 0.1+ | 2005 10 29 | 703 | 0.1− | 0.0 | 2009 08 29 | J75 | 0.2− | 0.8− |
| 2001 12 09 | 704 | 0.1+ | 0.3+ | 2005 10 29 | 703 | 0.2− | 0.2− | 2009 08 29 | J75 | 0.5+ | 0.5+ |
| 2001 12 09 | 704 | 0.8− | 0.5+ | 2005 10 29 | 703 | 0.6− | 0.1− | 2009 08 29 | J75 | 0.5− | 0.2+ |
| 2001 12 09 | 704 | 0.3− | 0.9+ | 2005 10 29 | 703 | 0.1− | 0.5+ | 2009 09 11 | A50 | 0.0 | 0.3− |
| 2001 12 09 | 704 | 0.1− | 0.4+ | 2005 10 30 | 704 | 0.3− | 0.5− | 2009 09 11 | A50 | 0.7+ | 0.4+ |
| 2001 12 14 | 704 | 0.2+ | 0.5+ | 2005 10 30 | 704 | 0.0 | 0.4− | 2009 09 11 | A50 | 0.0 | 0.0 |
| 2001 12 14 | 704 | 0.4+ | 0.1+ | 2005 10 30 | 704 | 0.2+ | 0.5− | 2009 09 13 | 704 | 0.7− | 0.6+ |
| 2001 12 14 | 704 | 1.2− | 0.3− | 2005 10 30 | 704 | 0.3− | 0.4− | 2009 09 13 | 704 | 0.1+ | 0.5+ |
| 2001 12 14 | 704 | 0.5− | 0.0 | 2005 10 30 | 704 | 0.4+ | 0.3− | 2009 09 13 | 704 | 0.2− | 0.7+ |
| 2001 12 14 | 704 | 0.7− | 0.0 | 2005 11 02 | 704 | 0.4+ | 0.1+ | 2009 09 13 | 704 | 0.0 | 0.1+ |
| 2001 12 22 | 704 | 1.3− | 0.3+ | 2005 11 02 | 704 | 0.7+ | 0.4+ | 2009 09 13 | 704 | 1.3+ | 0.5− |
| 2001 12 22 | 704 | 0.7+ | 0.4+ | 2005 11 02 | 704 | 0.1+ | 0.3+ | 2009 09 27 | E12 | 0.4+ | 0.9+ |
| 2001 12 22 | 704 | (2.5+ | 0.3−) | 2005 11 02 | 704 | 0.0 | 0.0 | 2009 09 27 | E12 | 0.1+ | 0.6+ |
| 2003 04 05 | 691 | 0.1+ | 0.2+ | 2005 11 02 | 704 | 0.3+ | 0.5+ | 2009 09 27 | E12 | 0.2− | 0.2+ |
| 2003 04 05 | 691 | 0.2+ | 0.2+ | 2005 11 02 | G96 | 0.2− | 0.6− | 2009 09 27 | E12 | 0.6+ | 0.2+ |
| 2003 04 05 | 691 | 0.1− | 0.1− | 2005 11 02 | G96 | 0.1+ | 0.6− | 2009 10 09 | 703 | 0.6+ | 1.3− |
| 2005 09 06 | 703 | 0.4− | 0.3+ | 2005 11 02 | G96 | 0.5− | 0.6− | 2009 10 09 | 703 | 0.1+ | 0.4− |
| 2005 09 06 | 703 | 1.2− | 0.3+ | 2005 11 02 | G96 | 0.0 | 0.8− | 2009 10 09 | 703 | 0.4− | 0.1+ |
| 2005 09 06 | 703 | 0.3− | 0.1+ | 2005 11 02 | G96 | 0.0 | 0.6− | 2009 10 09 | 703 | 0.1+ | 0.2+ |
| 2005 09 06 | 703 | (3.6+ | 0.1+) | 2005 11 02 | G96 | 0.4+ | 0.6− | 2009 10 14 | 704 | (0.3− | 1.8+) |
| 2005 09 08 | 704 | 0.5+ | 0.4+ | 2005 11 02 | G96 | 0.4+ | 0.6− | 2009 10 14 | 704 | 0.7− | 1.2+ |
| 2005 09 08 | 704 | 0.4+ | 0.8+ | 2005 11 02 | G96 | 0.3+ | 0.4− | 2009 10 14 | 704 | 0.3− | 1.0+ |
| 2005 09 08 | 704 | 1.1+ | 0.7+ | 2005 11 05 | 699 | 1.0+ | 0.4− | 2009 10 14 | 704 | 1.2− | 0.7+ |
| 2005 09 08 | 704 | 0.4+ | 0.4− | 2005 11 05 | 699 | 0.5+ | 0.2− | 2009 10 18 | G96 | 0.5+ | 0.1− |
| 2005 09 18 | 644 | 0.4− | 0.2− | 2005 11 05 | 699 | 0.1+ | 0.1− | 2009 10 18 | G96 | 0.1+ | 0.0 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 18 | 644 | 0.3− | 0.2− | 2005 11 05 | 699 | 0.4+ | 0.2− | 2009 10 18 | G96 | 0.2+ | 0.1− |
| 2005 09 18 | 644 | 0.1− | 0.2− | 2005 11 07 | 704 | (0.4− | 1.6+) | 2009 10 18 | G96 | 0.3+ | 0.1− |
| 2005 09 24 | 703 | 0.3+ | 0.3− | 2005 11 07 | 704 | 0.4− | 0.2− | 2009 10 19 | 704 | 0.4− | 0.3+ |
| 2005 09 24 | 703 | 0.9+ | 0.0 | 2005 11 07 | 704 | 0.0 | 0.2+ | 2009 10 19 | 704 | 0.1+ | 0.2− |
| 2005 09 24 | 703 | (0.5− | 1.7−) | 2005 11 07 | 704 | 1.1− | 0.3+ | 2009 10 19 | 704 | 0.2+ | 1.0+ |
| 2005 09 24 | 703 | 0.3− | 0.5− | 2005 11 07 | 704 | 0.5− | 0.1− | 2009 10 19 | 704 | 0.1− | 0.9+ |
| 2005 10 07 | 704 | 0.4− | 0.6− | 2005 11 19 | 699 | 0.3− | 1.2+ | 2009 10 19 | 704 | 0.5− | 0.6+ |
| 2005 10 07 | 704 | 0.9− | 0.0 | 2005 11 19 | 699 | 0.1− | 0.4− | 2009 10 24 | 691 | 0.0 | 0.0 |
| 2005 10 07 | 704 | 0.0 | 0.5− | 2005 11 19 | 699 | 0.3− | 1.1+ | 2009 10 24 | 691 | 0.2− | 0.5+ |
| 2005 10 07 | 704 | 0.2− | 0.4− | 2005 11 19 | 699 | 1.1− | 0.2− | 2009 10 24 | 691 | 0.5− | 0.0 |
| 2005 10 07 | 704 | 0.4− | 0.2− | 2005 11 25 | 703 | 0.4+ | 0.6+ | 2009 11 18 | G96 | 0.1+ | 0.1− |
| 2005 10 08 | A32 | 0.4+ | 0.2− | 2005 11 25 | 703 | 0.5+ | 0.7+ | 2009 11 18 | G96 | 0.0 | 0.1− |
| 2005 10 08 | A32 | 0.2− | 0.3+ | 2005 11 25 | 703 | 0.2− | 0.2− | 2009 11 18 | G96 | 0.3+ | 0.2− |
| 2005 10 08 | A32 | 0.6+ | 0.5+ | 2005 11 25 | 703 | 0.4+ | 1.4− | 2009 11 18 | G96 | 0.2+ | 0.2− |
| 2005 10 10 | 691 | 0.0 | 0.0 | 2005 11 29 | 704 | 0.2− | 0.4+ | 2009 11 23 | G96 | 0.2+ | 0.6− |
| 2005 10 10 | 691 | 0.1+ | 0.2− | 2005 11 29 | 704 | 0.6+ | 0.0 | 2009 11 23 | G96 | 0.0 | 0.2− |
| 2005 10 10 | 691 | 0.0 | 0.0 | 2005 11 29 | 704 | 1.3+ | 0.5− | 2009 11 23 | G96 | 0.2− | 0.1+ |
| 2005 10 12 | 704 | (2.1− | 0.6+) | 2005 11 29 | 704 | 0.6+ | 1.2+ | 2009 11 23 | G96 | 0.3− | 0.1− |
| 2005 10 12 | 704 | 0.8− | 0.5+ | 2005 11 29 | 704 | 0.4+ | 0.2+ | 2009 12 18 | G96 | 1.0− | 0.6− |
| 2005 10 12 | 704 | 0.9+ | 0.9+ | 2005 12 01 | 644 | 0.0 | 0.3+ | 2009 12 18 | G96 | 0.5+ | 0.9− |
| 2005 10 12 | 704 | (1.7+ | 0.8−) | 2005 12 01 | 644 | 0.1− | 0.2− | 2009 12 18 | G96 | 0.3+ | 0.7− |
| 2005 10 14 | 699 | 0.1− | 0.2+ | 2005 12 01 | 644 | 0.2+ | 0.0 | 2009 12 18 | G96 | 0.6+ | 0.3− |
| 2005 10 14 | 699 | (1.6+ | 0.4+) | 2009 08 28 | J75 | 0.2+ | 0.0 | | | | |

**(228508)∗ 2001 TS$_{52}$**

Discovered 2001 Oct. 13 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 59.21843 | | (2000.0) | | +0.99762703 | −0.03766651 |
| $n$ | 0.25537755 | $\omega$ | 261.17133 | | +0.05709754 | +0.92037778 |
| $a$ | 2.4604483 | $\Omega$ | 100.97242 | | +0.05709754 | +0.92037778 |
| $e$ | 0.2133217 | $i$ | 3.36554 | | −0.03847308 | +0.38921200 |
| $P$ | 3.86 | $H$ | 17.0 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 17 | 699 | 0.3+ | 0.4+ | 2005 10 26 | 699 | 0.2− | 0.6+ | 2005 11 26 | 703 | 0.9+ | 0.4+ |
| 2001 09 17 | 699 | 0.9+ | 0.3+ | 2005 10 26 | 699 | 0.5− | 1.0+ | 2005 11 26 | 703 | 0.7− | 1.3− |
| 2001 09 17 | 699 | 1.1− | 1.4+ | 2005 10 29 | 691 | 0.1− | 0.1− | 2005 11 26 | 703 | 0.3− | 0.5− |
| 2001 09 17 | 699 | 0.6− | 0.3+ | 2005 10 29 | 691 | 0.2− | 0.1+ | 2005 11 29 | 699 | 0.2+ | 0.5− |
| 2001 09 19 | 704 | 0.7+ | 0.0 | 2005 10 29 | 691 | 0.0 | 0.1− | 2005 11 29 | 699 | 0.0 | 1.1+ |
| 2001 09 19 | 704 | 0.5− | 1.4+ | 2005 10 30 | 644 | 0.2− | 0.3− | 2005 11 29 | 699 | 0.1+ | 0.3− |
| 2001 09 19 | 704 | 0.4+ | 0.5− | 2005 10 30 | 644 | 0.1+ | 0.4− | 2005 11 29 | 699 | 0.8+ | 0.6− |
| 2001 09 19 | 704 | 0.1+ | 0.4+ | 2005 10 30 | 644 | 0.1− | 0.4+ | 2005 12 08 | 691 | 0.3+ | 0.1+ |
| 2001 10 10 | 644 | 0.6− | 0.6− | 2005 10 30 | G96 | 0.1+ | 0.4− | 2005 12 08 | 691 | 0.3+ | 0.2+ |
| 2001 10 10 | 644 | 0.6− | 0.7− | 2005 10 30 | G96 | 0.3− | 0.6− | 2005 12 08 | 691 | 0.3+ | 0.2+ |
| 2001 10 10 | 644 | 0.6− | 0.6− | 2005 10 30 | G96 | 0.4+ | 0.3− | 2006 01 22 | G96 | 0.1+ | 0.0 |
| 2001 10 13 | 704 | 0.1− | 1.1− | 2005 10 30 | G96 | 0.4+ | 0.4− | 2006 01 22 | G96 | 0.4− | 0.4− |
| 2001 10 13 | 704 | 0.2+ | 0.4− | 2005 10 31 | 704 | (2.0+ | 0.3+) | 2006 01 22 | G96 | 0.3+ | 0.1+ |
| 2001 10 13 | 704 | 0.4− | 0.6− | 2005 10 31 | 704 | 0.7+ | 0.8+ | 2006 01 22 | G96 | 0.3+ | 0.2+ |
| 2001 10 16 | 704 | 0.2− | 0.3+ | 2005 10 31 | 704 | 0.6+ | 0.7+ | 2008 05 29 | G96 | 0.6+ | 0.2+ |
| 2001 10 16 | 704 | 0.1− | 0.4− | 2005 11 06 | 691 | 0.0 | 0.3− | 2008 05 29 | G96 | 0.4+ | 0.2+ |
| 2001 10 16 | 704 | 0.3− | 0.4+ | 2005 11 06 | 691 | 0.2+ | 0.1− | 2008 05 29 | G96 | 0.1+ | 0.1+ |
| 2001 10 16 | 704 | 0.8− | 1.1− | 2005 11 06 | 691 | 0.0 | 0.2− | 2008 05 29 | G96 | 0.6− | 0.6+ |
| 2001 10 16 | 704 | (0.1− | 1.9−) | 2005 11 06 | 704 | 0.4− | 0.2+ | 2009 11 20 | 691 | (0.9+ | 3.0−) |
| 2001 10 16 | 644 | 0.2− | 1.1− | 2005 11 06 | 704 | 0.1− | 0.1− | 2009 11 20 | 691 | 0.8− | 0.0 |
| 2001 10 16 | 644 | 0.2+ | 1.3− | 2005 11 06 | 704 | 0.3+ | 0.1+ | 2009 11 20 | 691 | 0.4− | 0.1+ |
| 2001 10 16 | 644 | 0.1− | 1.1− | 2005 11 06 | 704 | 0.2+ | 0.3− | 2009 12 11 | G96 | 0.1+ | 0.4− |
| 2001 10 24 | 644 | 0.7+ | 0.9+ | 2005 11 10 | 703 | 0.3− | 0.1− | 2009 12 11 | G96 | 0.2+ | 0.3− |
| 2001 10 24 | 644 | 0.5+ | 1.0+ | 2005 11 10 | 703 | 0.3+ | 0.4+ | 2009 12 11 | G96 | 0.3− | 0.3− |
| 2001 10 24 | 644 | 0.7+ | 0.9+ | 2005 11 10 | 703 | 0.6− | 0.1− | 2009 12 11 | G96 | 0.1− | 0.1− |
| 2005 10 25 | 691 | 0.1+ | 0.1+ | 2005 11 10 | 703 | 0.7− | 0.3+ | 2009 12 17 | 704 | 0.1+ | 0.5+ |
| 2005 10 25 | 691 | 0.1+ | 0.3+ | 2005 11 25 | 691 | 0.1− | 0.2+ | 2009 12 17 | 704 | 0.6+ | 0.3+ |
| 2005 10 25 | 691 | 0.1− | 0.0 | 2005 11 25 | 691 | 0.1+ | 0.2+ | 2009 12 17 | 704 | 0.3+ | 0.2+ |
| 2005 10 26 | 699 | 0.9+ | 0.7+ | 2005 11 25 | 691 | 0.2− | 0.2+ | | | | |
| 2005 10 26 | 699 | 0.6− | 0.3− | 2005 11 26 | 703 | 0.9+ | 1.0+ | | | | |

**(228509)∗ 2001 TP$_{54}$ = 2001 SR$_{133}$**

Discovered 2001 Oct. 14 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. A. Doppler (d, *MPO* 24067)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 12.81573 | | (2000.0) | | −0.03752647 | −0.99851550 |
| $n$ | 0.26405773 | $\omega$ | 122.46871 | | −0.03752647 | −0.99851550 |
| $a$ | 2.4062281 | $\Omega$ | 329.60728 | | +0.88865625 | −0.01527695 |
| $e$ | 0.1963098 | $i$ | 4.47550 | | +0.45703593 | −0.05228210 |
| $P$ | 3.73 | $H$ | 16.5 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1960 09 24 | 675 | 0.5+ | 0.0 | 2001 10 16 | 704 | (0.2− | 1.7−) | 2005 11 28 | 703 | 0.1+ | 0.2+ |
| 1960 09 24 | 675 | 0.6− | 0.9− | 2001 10 17 | 704 | 0.5+ | 0.2+ | 2005 11 28 | 704 | 0.6+ | 0.4+ |
| 1960 09 26 | 675 | 0.1+ | 0.2+ | 2001 10 17 | 704 | 0.6+ | 0.2− | 2005 11 28 | 703 | 0.5− | 0.1+ |
| 1960 09 28 | 675 | 0.2− | 0.4+ | 2001 10 17 | 704 | 0.0 | 1.1+ | 2005 11 28 | 704 | 0.5+ | 0.4+ |
| 1960 09 28 | 675 | 0.2− | 0.4− | 2001 10 19 | 644 | 0.3− | 0.5+ | 2005 12 08 | 703 | 0.5+ | 0.4+ |
| 1960 09 29 | 675 | 0.1− | 0.2− | 2001 10 19 | 644 | 0.7− | 0.1− | 2005 12 08 | 703 | 0.2+ | 0.3+ |
| 1960 09 29 | 675 | 1.1+ | 0.0 | 2001 10 19 | 644 | 0.7− | 0.1− | 2005 12 08 | 703 | 0.6− | 0.2− |
| 1960 10 17 | 675 | 0.8+ | 0.3+ | 2001 10 21 | 704 | (2.5+ | 1.4+) | 2005 12 08 | 703 | 0.1+ | 0.0 |
| 1960 10 22 | 675 | 0.7− | 0.5− | 2001 10 21 | 704 | (3.0+ | 1.8+) | 2006 03 04 | G96 | 0.9+ | 0.3+ |
| 1960 10 22 | 675 | 0.3+ | 0.1+ | 2001 10 21 | 704 | (3.1+ | 0.3+) | 2006 03 04 | G96 | 0.5− | 0.0 |
| 1960 10 25 | 675 | 0.8− | 0.5− | 2005 10 30 | 704 | 0.4− | 0.4+ | 2006 03 04 | G96 | 0.1+ | 0.1+ |
| 1960 10 26 | 675 | 0.0 | 0.3+ | 2005 10 30 | 704 | 0.3+ | 0.2+ | 2006 03 04 | G96 | 0.2− | 0.0 |
| 1960 10 26 | 675 | 0.2+ | 0.4+ | 2005 10 30 | 704 | 0.2+ | 0.4− | 2006 03 04 | G96 | 0.1+ | 0.2+ |
| 1997 08 10 | 691 | 0.2− | 0.4− | 2005 10 30 | 704 | 0.4− | 0.1+ | 2006 03 04 | G96 | 0.0 | 0.1+ |
| 1997 08 10 | 691 | 0.1− | 0.1− | 2005 10 30 | 704 | 0.4− | 0.4− | 2006 03 04 | G96 | 0.1+ | 0.3+ |
| 1997 08 10 | 691 | 0.1+ | 0.0 | 2005 11 08 | 704 | 0.2+ | 0.4+ | 2006 03 04 | G96 | 0.4− | 0.5− |
| 2001 09 16 | 704 | (4.1− | 9.7+) | 2005 11 08 | 704 | 0.6− | 0.0 | 2009 11 24 | 703 | 0.5− | 1.4− |
| 2001 09 16 | 704 | (5.6− | 9.2+) | 2005 11 08 | 704 | 0.0 | 1.3+ | 2009 11 24 | 703 | 1.1− | 1.0− |
| 2001 09 16 | 704 | (5.2− | 11.6+) | 2005 11 08 | 704 | 0.0 | 0.3+ | 2009 11 24 | 703 | 0.1− | 0.2− |
| 2001 09 20 | 704 | 0.1− | 0.6+ | 2005 11 08 | 704 | 0.0 | 0.4+ | 2009 11 24 | 703 | 1.1− | 1.5− |
| 2001 09 20 | 704 | 0.3− | 1.0+ | 2005 11 21 | 699 | 0.5− | 0.9− | 2009 12 15 | 704 | 0.9+ | 0.9+ |
| 2001 09 20 | 704 | 0.3− | 0.7+ | 2005 11 21 | 699 | 0.5− | 0.2− | 2009 12 15 | 704 | 0.1+ | 1.1− |
| 2001 09 20 | 704 | 0.4− | 0.8+ | 2005 11 21 | 699 | 0.6− | 0.3+ | 2009 12 15 | 704 | 1.1+ | 0.6+ |
| 2001 09 20 | 704 | 0.6+ | 0.8+ | 2005 11 21 | 699 | 0.8− | 0.0 | 2009 12 15 | 704 | 0.5+ | 0.6+ |
| 2001 09 24 | 704 | 1.0+ | 0.9− | 2005 11 21 | 703 | 0.1+ | 0.2+ | 2009 12 15 | 704 | 0.3− | 0.7+ |
| 2001 09 24 | 704 | 0.8+ | 0.4+ | 2005 11 21 | 703 | 0.0 | 0.7− | 2009 12 19 | G96 | 0.6− | 0.2− |
| 2001 09 24 | 704 | 0.1+ | 0.2− | 2005 11 21 | 703 | 0.2− | 0.0 | 2009 12 19 | G96 | 0.2− | 0.2− |
| 2001 09 24 | 704 | 0.0 | 0.8− | 2005 11 21 | 703 | 0.3− | 0.3− | 2009 12 19 | G96 | 0.3+ | 0.3− |
| 2001 09 24 | 704 | 0.5+ | 0.7+ | 2005 11 21 | 644 | 0.2− | 0.1+ | 2009 12 19 | G96 | 0.7+ | 0.5− |
| 2001 10 14 | 704 | 0.1− | 0.4− | 2005 11 21 | 644 | 0.3− | 0.1+ | 2009 12 20 | 691 | 0.1+ | 0.1+ |
| 2001 10 14 | 704 | 0.3+ | 0.1− | 2005 11 21 | 644 | 0.3− | 0.1+ | 2009 12 20 | 691 | 0.2+ | 0.1+ |
| 2001 10 14 | 704 | 0.3+ | 0.4− | 2005 11 28 | 704 | 0.5+ | 0.3+ | 2009 12 20 | 691 | 0.2+ | 0.0 |
| 2001 10 14 | 704 | 0.2+ | 1.2− | 2005 11 28 | 704 | 0.1− | 0.3− | 2009 12 27 | 691 | 0.2− | 0.1+ |
| 2001 10 14 | 704 | 0.5+ | 0.5− | 2005 11 28 | 704 | 0.5+ | 0.4− | 2009 12 27 | 691 | 0.2− | 0.0 |
| 2001 10 16 | 704 | 0.4− | 0.0 | 2005 11 28 | 703 | 0.1+ | 0.5− | 2009 12 27 | 691 | 0.1− | 0.1− |
| 2001 10 16 | 704 | 0.1− | 0.2− | 2005 11 28 | 703 | 1.0+ | 0.7− | | | | |

**(228510)∗ 2001 TU$_{91}$ = 1997 NU$_{8}$**

Discovered 2001 Oct. 14 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. A. Doppler (*MPO* 20504)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 72.36821 | | (2000.0) | | +0.90458336 | −0.42590584 |
| $n$ | 0.26441561 | $\omega$ | 81.17222 | | +0.90458336 | −0.42590584 |
| $a$ | 2.4040564 | $\Omega$ | 304.03384 | | +0.38195206 | +0.82875760 |
| $e$ | 0.2192468 | $i$ | 1.26208 | | +0.18931871 | +0.36299457 |
| $P$ | 3.73 | $H$ | 16.9 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 01 29 | 691 | 0.1− | 1.3+ | 2001 10 12 | 699 | 0.7+ | 0.5− | 2001 11 09 | 704 | 0.8− | 0.0 |
| 1995 01 29 | 691 | 0.2+ | 0.2+ | 2001 10 14 | 704 | 0.5− | 0.4+ | 2001 12 11 | 704 | 0.0 | 0.4+ |
| 1995 01 29 | 691 | 0.1+ | 0.1+ | 2001 10 14 | 704 | 0.6− | 0.1+ | 2001 12 11 | 704 | 0.0 | 0.5− |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 07 13 | 910 | 1.3+ | 0.5+ | 2001 10 14 | 704 | 0.7− | 0.3+ | 2001 12 11 | 704 | 0.6+ | 1.4+ |
| 1997 07 13 | 910 | 0.5+ | 0.1+ | 2001 10 14 | 704 | 0.3− | 0.5+ | 2001 12 11 | 704 | 0.7+ | 0.3+ |
| 1997 07 13 | 910 | 0.4+ | 0.5+ | 2001 10 14 | 704 | 0.6− | 0.8+ | 2001 12 15 | 704 | 0.1− | 0.1+ |
| 1997 07 14 | 910 | 0.1− | 0.2+ | 2001 10 17 | 704 | 0.1+ | 0.5− | 2001 12 15 | 704 | 0.2− | 0.8+ |
| 1997 07 14 | 910 | 0.0 | 0.1− | 2001 10 17 | 704 | 0.0 | 0.6− | 2001 12 15 | 704 | 0.4− | 0.3+ |
| 1997 07 14 | 910 | 0.2+ | 0.2+ | 2001 10 17 | 704 | 0.4+ | 1.3− | 2001 12 15 | 704 | 0.9+ | 0.5+ |
| 1999 02 14 | 691 | 0.5+ | 0.0 | 2001 10 17 | 704 | 0.1+ | 1.0− | 2001 12 15 | 704 | 0.4+ | 1.3+ |
| 1999 02 14 | 691 | 0.7+ | 0.2+ | 2001 10 17 | 704 | 0.3− | 1.3− | 2005 11 25 | 691 | 0.2+ | 0.3+ |
| 1999 02 14 | 691 | 0.3+ | 0.1− | 2001 10 18 | 704 | 0.5− | 0.4− | 2005 11 25 | 691 | 0.1+ | 0.2− |
| 1999 02 19 | 691 | 0.6− | 0.1+ | 2001 10 18 | 704 | 0.2− | 0.3− | 2005 11 25 | 691 | 0.1+ | 0.1+ |
| 1999 02 19 | 691 | 0.2− | 0.1+ | 2001 10 18 | 704 | 0.4− | 0.1+ | 2005 11 28 | 704 | 0.2− | 0.9− |
| 1999 02 19 | 691 | 0.7− | 0.1+ | 2001 10 18 | 704 | 0.1− | 0.3− | 2005 11 28 | 704 | 0.6− | 0.5+ |
| 2001 09 11 | 699 | 0.5− | 0.7− | 2001 10 18 | 704 | 0.9− | 0.4− | 2005 11 28 | 704 | 0.3+ | 0.6+ |
| 2001 09 11 | 699 | 0.6− | 0.3+ | 2001 10 18 | 704 | 0.2+ | 0.4− | 2005 11 28 | 704 | 0.2+ | 0.1+ |
| 2001 09 11 | 699 | 0.7− | 0.4+ | 2001 10 18 | 704 | 0.4− | 0.7− | 2005 12 31 | 691 | 0.2+ | 1.3− |
| 2001 09 11 | 699 | 0.3+ | 0.7− | 2001 10 18 | 704 | 0.5− | 0.2+ | 2005 12 31 | 691 | 0.1− | 0.1− |
| 2001 09 20 | 704 | 0.1+ | 0.2− | 2001 10 19 | 704 | 0.4− | 0.3+ | 2005 12 31 | 691 | 0.0 | 0.2− |
| 2001 09 20 | 704 | 0.2− | 0.3− | 2001 10 19 | 704 | 0.3+ | 0.4+ | 2006 01 06 | G96 | 0.5− | 0.1− |
| 2001 09 20 | 704 | 0.2+ | 0.3− | 2001 10 19 | 644 | 0.1− | 0.2− | 2006 01 06 | G96 | 0.5+ | 0.2− |
| 2001 09 20 | 704 | 0.3− | 0.5− | 2001 10 19 | 704 | 0.8− | 0.0 | 2006 01 06 | G96 | 0.3− | 0.4− |
| 2001 09 23 | 704 | 0.3+ | 0.3− | 2001 10 19 | 644 | 0.2− | 0.3− | 2006 01 06 | G96 | 0.3− | 0.4− |
| 2001 09 23 | 704 | 0.4+ | 0.5− | 2001 10 19 | 704 | 0.1+ | 0.5− | 2007 04 16 | G96 | 0.1− | 0.4+ |
| 2001 09 23 | 704 | 0.3− | 0.2− | 2001 10 19 | 644 | 0.3− | 0.1− | 2007 04 16 | G96 | 0.5− | 0.8+ |
| 2001 09 24 | 704 | 0.1− | 1.3+ | 2001 10 21 | 704 | 0.1+ | 0.7+ | 2007 04 16 | G96 | 0.3+ | 0.3+ |
| 2001 09 24 | 704 | 0.3+ | 0.7+ | 2001 10 21 | 704 | 0.1+ | 0.6+ | 2007 04 16 | G96 | 1.2− | 0.0 |
| 2001 09 24 | 704 | 0.1− | 1.0+ | 2001 10 21 | 704 | 0.5+ | 0.9+ | 2009 11 21 | G96 | 0.0 | 0.7− |
| 2001 09 24 | 704 | (0.4− | 1.7+) | 2001 10 21 | 704 | 0.3+ | 0.9+ | 2009 11 21 | G96 | 0.2+ | 0.1− |
| 2001 09 24 | 704 | 0.5+ | 1.0+ | 2001 10 26 | 644 | 0.3+ | 0.0 | 2009 11 21 | G96 | 0.2+ | 0.5− |
| 2001 10 07 | 644 | 0.0 | 0.2+ | 2001 10 26 | 644 | 0.1+ | 0.0 | 2009 11 21 | G96 | 0.3− | 0.2− |
| 2001 10 07 | 644 | 0.3+ | 0.1+ | 2001 10 26 | 644 | 0.1+ | 0.1− | 2009 12 17 | G96 | 0.3+ | 0.0 |
| 2001 10 07 | 644 | 0.2+ | 0.9+ | 2001 11 09 | 704 | 0.3+ | 0.1− | 2009 12 17 | G96 | 0.4+ | 0.1+ |
| 2001 10 12 | 699 | 0.3+ | 0.4+ | 2001 11 09 | 704 | 0.7− | 0.1+ | 2009 12 17 | G96 | 0.1+ | 0.4− |
| 2001 10 12 | 699 | 0.0 | 0.0 | 2001 11 09 | 704 | 0.4− | 0.2− | 2009 12 17 | G96 | 0.3− | 0.3− |
| 2001 10 12 | 699 | 0.8+ | 0.4+ | 2001 11 09 | 704 | 0.1− | 0.5− | | | | |

**(228511)∗ 2001 TZ$_{93}$**

Discovered 2001 Oct. 14 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 97.33405 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26281891 | $\omega$ | 49.99090 | | +0.93926690 | +0.34166817 | |
| $a$ | 2.4137835 | $\Omega$ | 290.00885 | | −0.32440223 | +0.85325149 | |
| $e$ | 0.2198601 | $i$ | 1.96733 | | −0.11198609 | +0.39398572 | |
| $P$ | 3.75 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 01 22 | 691 | 0.4− | 0.4+ | 2001 10 21 | 704 | (1.8+ | 0.2+) | 2005 12 01 | 704 | 0.0 | 0.4+ |
| 1999 01 22 | 691 | 0.9− | 0.6− | 2001 10 21 | 704 | (1.7+ | 0.4+) | 2005 12 01 | 704 | 0.3− | 0.6+ |
| 1999 01 22 | 691 | 1.1+ | 0.7− | 2001 10 21 | 704 | (1.8+ | 0.4+) | 2005 12 01 | 704 | 0.2+ | 0.5+ |
| 2001 09 20 | 704 | 0.4+ | 0.2− | 2001 10 25 | 704 | 0.3− | 0.6+ | 2005 12 02 | 704 | 0.5− | 0.0 |
| 2001 09 20 | 704 | 0.1− | 0.7− | 2001 10 25 | 704 | 0.0 | 0.0 | 2005 12 02 | 704 | 0.9− | 0.3+ |
| 2001 09 20 | 704 | 1.0+ | 0.6− | 2001 10 25 | 704 | 0.6− | 0.2+ | 2005 12 02 | 704 | 1.3− | 1.3− |
| 2001 09 20 | 704 | 0.3+ | 0.1+ | 2001 10 25 | 704 | 0.2− | 0.2+ | 2005 12 02 | 704 | 1.0+ | 0.4+ |
| 2001 09 20 | 704 | 0.1− | 0.7− | 2001 10 25 | 704 | 0.9− | 0.1+ | 2005 12 10 | 691 | 0.3− | 0.1− |
| 2001 09 20 | 704 | 0.8− | 0.5− | 2001 10 25 | 704 | 0.3+ | 0.0 | 2005 12 10 | 691 | 0.0 | 0.0 |
| 2001 09 20 | 704 | 0.2+ | 1.1− | 2001 10 25 | 704 | 0.3− | 0.2− | 2005 12 10 | 691 | 0.1− | 0.7+ |
| 2001 09 20 | 704 | 0.4− | 0.1− | 2001 10 25 | 704 | 0.7− | 0.1+ | 2005 12 21 | 691 | 0.4+ | 0.1− |
| 2001 09 20 | 704 | 0.5+ | 1.0− | 2001 10 25 | 704 | 0.5+ | 0.1− | 2005 12 21 | 691 | 0.2− | 0.5− |
| 2001 09 23 | 704 | 0.9+ | 0.3+ | 2001 10 26 | 691 | 0.0 | 0.0 | 2005 12 21 | 691 | 0.4+ | 0.2− |
| 2001 09 23 | 704 | (2.0+ | 0.5+) | 2001 10 26 | 691 | 0.0 | 0.2− | 2005 12 23 | 691 | 0.0 | 0.2− |
| 2001 09 23 | 704 | 1.1+ | 0.1+ | 2001 10 26 | 691 | 0.1+ | 0.1− | 2005 12 23 | 691 | 0.0 | 0.1+ |
| 2001 09 23 | 704 | 1.1+ | 0.8+ | 2001 10 26 | 644 | 0.1− | 0.6+ | 2005 12 23 | 691 | 0.2+ | 0.3− |
| 2001 09 23 | 704 | 0.7+ | 0.6− | 2001 10 26 | 644 | 0.3− | 0.6+ | 2005 12 25 | 691 | 0.1+ | 0.1+ |
| 2001 09 23 | 704 | 0.5+ | 1.1− | 2001 10 26 | 644 | 0.0 | 0.9+ | 2005 12 25 | 691 | 0.3+ | 0.1+ |
| 2001 09 23 | 704 | 0.7+ | 0.6− | 2005 10 30 | G96 | 0.2+ | 0.2− | 2005 12 25 | 691 | 0.3+ | 0.1+ |
| 2001 10 12 | 699 | 0.2− | 0.2+ | 2005 10 30 | G96 | 0.4+ | 0.4− | 2007 02 21 | G96 | 0.0 | 0.3+ |
| 2001 10 12 | 699 | 0.6+ | 0.0 | 2005 10 30 | G96 | 0.2+ | 0.1+ | 2007 02 21 | G96 | 0.4+ | 0.6− |
| 2001 10 12 | 699 | 0.4+ | 0.6+ | 2005 10 30 | G96 | 0.2− | 0.2− | 2007 02 21 | G96 | 0.9+ | 0.6− |
| 2001 10 12 | 699 | 0.6− | 0.6+ | 2005 11 12 | 691 | 0.1+ | 0.4+ | 2007 02 21 | G96 | 0.3− | 0.3− |
| 2001 10 14 | 704 | 0.6− | 0.4− | 2005 11 12 | 691 | 0.1− | 0.0 | 2007 03 13 | 198 | 0.5− | 0.3+ |
| 2001 10 14 | 704 | 0.4− | 0.1− | 2005 11 12 | 691 | 0.1− | 0.1+ | 2007 03 13 | 198 | 0.4− | 0.0 |
| 2001 10 14 | 704 | 1.0− | 0.5− | 2005 11 21 | 691 | 0.2− | 0.1+ | 2007 03 13 | 198 | 0.4− | 0.4+ |
| 2001 10 14 | 704 | 1.1− | 0.1+ | 2005 11 21 | 691 | 0.1+ | 0.1− | 2009 11 17 | G96 | 0.2− | 0.1+ |
| 2001 10 14 | 704 | 0.8− | 0.4− | 2005 11 21 | 691 | 0.4− | 0.1+ | 2009 11 17 | G96 | 0.4+ | 0.4+ |
| 2001 10 17 | 704 | 0.4− | 0.3+ | 2005 11 25 | 691 | 0.2− | 0.2+ | 2009 11 17 | G96 | 0.3− | 0.2− |
| 2001 10 17 | 704 | 0.6+ | 1.1+ | 2005 11 25 | 691 | 0.5+ | 0.6+ | 2009 11 17 | G96 | 0.0 | 0.1+ |
| 2001 10 17 | 704 | 0.6+ | 0.9+ | 2005 11 25 | 691 | 0.2− | 0.1+ | 2009 12 16 | G96 | 0.2+ | 0.3− |
| 2001 10 19 | 644 | 0.0 | 0.9− | 2005 12 01 | 704 | (0.9− | 1.5−) | 2009 12 16 | G96 | 0.2− | 0.2− |
| 2001 10 19 | 644 | 0.1− | 0.7− | 2005 12 01 | 704 | 0.8− | 0.3− | 2009 12 16 | G96 | 0.1+ | 0.1+ |
| 2001 10 19 | 644 | 0.3+ | 0.8− | 2005 12 01 | 704 | 0.2+ | 0.1− | 2009 12 16 | G96 | 0.2− | 0.3− |
| 2001 10 21 | 704 | (2.2+ | 0.8+) | 2005 12 01 | 704 | (1.9− | 0.4−) | | | | |
| 2001 10 21 | 704 | (1.6+ | 0.9+) | 2005 12 01 | 704 | 0.4+ | 0.2+ | | | | |

**(228512)∗ 2001 TH$_{104}$**

Discovered 2001 Oct. 15 by W. K. Y. Yeung at Desert Eagle Observatory.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 7.90034 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23974965 | $\omega$ | 175.88054 | | +0.85078366 | −0.50864389 | |
| $a$ | 2.5662408 | $\Omega$ | 215.70362 | | +0.47545300 | +0.85209327 | |
| $e$ | 0.1580637 | $i$ | 13.08196 | | +0.22385621 | +0.12336313 | |
| $P$ | 4.11 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 22 | 691 | 0.1− | 0.3− | 2005 09 30 | 703 | 0.6+ | 0.6− | 2005 11 05 | 699 | 0.1+ | 0.3+ |
| 2001 09 22 | 691 | 0.1− | 0.1− | 2005 09 30 | 703 | 0.0 | 1.1+ | 2005 11 05 | 704 | 0.1− | 0.0 |
| 2001 09 22 | 691 | 0.0 | 0.1+ | 2005 09 30 | 703 | 0.2− | 0.5− | 2005 11 05 | 704 | 0.0 | 0.7+ |
| 2001 10 15 | 333 | 0.8− | 0.2+ | 2005 09 30 | 703 | 0.3+ | 0.0 | 2005 11 05 | 699 | 0.7+ | 0.5− |
| 2001 10 15 | 333 | 0.5− | 0.3− | 2005 10 07 | 704 | 0.2+ | 0.8+ | 2005 12 01 | G96 | 0.1+ | 0.0 |
| 2001 10 17 | 704 | 0.9+ | 0.8+ | 2005 10 07 | 704 | 0.2− | 1.1+ | 2005 12 01 | G96 | 0.1− | 0.3− |
| 2001 10 17 | 704 | 0.9+ | 0.4− | 2005 10 07 | 704 | 0.1− | 0.3− | 2005 12 01 | G96 | 0.1− | 0.2− |
| 2001 10 17 | 704 | 0.9+ | 0.2+ | 2005 10 07 | 704 | 0.5+ | 0.6− | 2005 12 01 | G96 | 0.2− | 0.3− |
| 2001 10 20 | 704 | 0.6− | 0.4− | 2005 10 07 | 704 | 0.1+ | 0.8− | 2008 05 07 | G96 | 0.7− | 0.7+ |
| 2001 10 20 | 704 | 0.8− | 1.4− | 2005 10 09 | 691 | 0.1+ | 0.2− | 2008 05 07 | G96 | 0.1+ | 0.3+ |
| 2001 10 20 | 704 | 0.6− | 0.4− | 2005 10 09 | 691 | 0.1+ | 0.3− | 2008 05 07 | G96 | 0.2− | 0.1+ |
| 2001 10 22 | 704 | 0.1+ | 0.6+ | 2005 10 09 | 691 | 0.1+ | 0.1− | 2008 05 07 | G96 | (1.7− | 0.1+) |
| 2001 10 22 | 704 | 0.6− | 0.3+ | 2005 10 12 | 704 | 0.3+ | 0.3+ | 2008 06 10 | 691 | 0.1+ | 0.4+ |
| 2001 10 22 | 704 | 0.3+ | 0.3+ | 2005 10 12 | 704 | (0.9+ | 1.5+) | 2008 06 10 | 691 | 0.2+ | 0.0 |
| 2001 10 22 | 704 | 0.2− | 0.0 | 2005 10 12 | 704 | 0.0 | 0.8+ | 2008 06 10 | 691 | 0.1− | 0.1+ |
| 2001 10 22 | 704 | 0.4− | 0.4+ | 2005 10 13 | 691 | 0.1+ | 0.1+ | 2009 09 22 | 703 | 0.0 | 1.0+ |
| 2001 10 23 | 333 | 0.3+ | 0.3− | 2005 10 13 | 691 | 0.2+ | 0.2− | 2009 09 22 | 703 | 0.5+ | 0.4+ |
| 2001 10 23 | 333 | 0.4+ | 0.4+ | 2005 10 13 | 691 | 0.0 | 0.1− | 2009 09 22 | 703 | 0.4+ | 0.1+ |
| 2001 10 23 | 333 | 0.3+ | 0.4+ | 2005 10 14 | 699 | 0.4− | 0.4+ | 2009 09 22 | 703 | 0.7− | 0.4− |
| 2001 10 23 | 704 | 0.2− | 0.1+ | 2005 10 14 | 699 | 0.6− | 0.0 | 2009 09 26 | 704 | 0.8− | 0.2+ |
| 2001 10 23 | 704 | 0.3+ | 0.1− | 2005 10 14 | 699 | 0.3− | 0.3− | 2009 09 26 | 704 | (1.7− | 0.6+) |
| 2001 10 23 | 704 | 0.2− | 0.3+ | 2005 10 14 | 699 | 0.2+ | 0.8− | 2009 09 26 | 704 | 0.1+ | 0.6− |
| 2001 10 23 | 704 | 1.3− | 0.3− | 2005 10 22 | 703 | 0.3− | 0.7− | 2009 09 26 | 704 | 1.1− | 0.2− |
| 2001 10 24 | 704 | 0.9+ | 1.0+ | 2005 10 22 | 703 | 0.1− | 0.7− | 2009 09 26 | 704 | 0.7− | 0.9+ |
| 2001 10 24 | 704 | 0.2+ | 0.7+ | 2005 10 22 | 703 | 0.2+ | 1.2− | 2009 10 15 | 704 | 0.0 | 0.2+ |
| 2001 10 24 | 704 | 0.9+ | 0.9+ | 2005 10 22 | 703 | 0.0 | 0.4− | 2009 10 15 | 704 | 0.3+ | 0.1+ |
| 2001 10 24 | 704 | 0.8+ | 0.8+ | 2005 10 24 | 699 | 0.5− | 0.0 | 2009 10 15 | 704 | 0.0 | 0.2− |
| 2001 10 24 | 704 | 0.9+ | 0.0 | 2005 10 24 | 699 | 0.1− | 0.2+ | 2009 10 15 | 704 | 0.1+ | 0.8+ |
| 2001 11 17 | 704 | 0.0 | 0.3+ | 2005 10 24 | 699 | 0.5− | 0.1− | 2009 10 15 | 704 | 0.1+ | 1.0+ |
| 2001 11 17 | 704 | 0.4− | 0.4+ | 2005 10 25 | 699 | 0.4+ | 0.3+ | 2009 10 16 | 703 | 0.4+ | 0.5− |
| 2001 11 17 | 704 | 0.2+ | 0.3+ | 2005 10 25 | 699 | 0.2− | 0.3+ | 2009 10 16 | 703 | 0.3− | 0.5− |
| 2001 11 19 | 699 | 0.2− | 0.6+ | 2005 10 25 | 699 | 0.1+ | 0.1− | 2009 10 16 | 703 | 0.5− | 0.2− |
| 2001 11 19 | 699 | 0.0 | 0.4+ | 2005 10 30 | 703 | 0.6− | 0.8− | 2009 10 16 | 703 | 1.2− | 0.6+ |
| 2001 11 19 | 699 | 1.3+ | 0.4− | 2005 10 30 | 703 | 0.1− | 0.2+ | 2009 10 22 | 704 | 0.0 | 0.5+ |
| 2001 11 19 | 699 | 0.2+ | 0.4− | 2005 10 30 | 703 | 0.0 | 0.3− | 2009 10 22 | 704 | 0.0 | 0.1+ |
| 2001 11 20 | 704 | 0.0 | 0.8− | 2005 10 30 | 703 | 0.5+ | 0.3− | 2009 10 22 | 704 | 0.9+ | 0.7+ |
| 2001 11 20 | 704 | 0.9+ | 0.9− | 2005 10 31 | 683 | 0.3− | 0.7+ | 2009 10 22 | 704 | 0.2+ | 0.2+ |
| 2001 11 20 | 704 | 0.6+ | 0.1− | 2005 10 31 | 683 | 0.8+ | 0.4− | 2009 10 24 | 704 | 0.2+ | 0.1+ |
| 2001 11 20 | 704 | 0.1+ | 0.0 | 2005 10 31 | 683 | 1.2+ | 0.2− | 2009 10 24 | 704 | 0.3+ | 0.6− |
| 2001 11 20 | 608 | 0.7− | 0.3+ | 2005 11 01 | 683 | 0.1+ | 0.1− | 2009 10 24 | 704 | 0.3+ | 0.0 |
| 2001 11 20 | 608 | 0.3− | 0.3− | 2005 11 01 | 683 | 1.0− | 0.9− | 2009 10 24 | 704 | 0.9+ | 1.0− |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 11 20 | 608 | 0.7− | 0.2− | 2005 11 01 | 704 | 0.7+ | 0.5− | 2009 11 17 | 704 | 0.1+ | 0.7− |
| 2001 12 09 | 699 | 0.1− | 0.2− | 2005 11 01 | 683 | 0.6− | 1.4+ | 2009 11 17 | 704 | 0.6− | 1.1− |
| 2001 12 09 | 699 | 0.4− | 0.5+ | 2005 11 01 | 704 | 0.9− | 0.8+ | 2009 11 17 | 704 | 0.2− | 0.4− |
| 2001 12 09 | 699 | 0.4− | 0.9+ | 2005 11 01 | 704 | 0.3− | 0.5+ | 2009 11 17 | 704 | 0.5− | 0.7− |
| 2001 12 09 | 699 | 0.0 | 0.3− | 2005 11 01 | 704 | 0.4− | 1.0+ | 2009 11 22 | 703 | (1.6+ | 0.6−) |
| 2001 12 11 | 704 | 0.6− | 0.2+ | 2005 11 01 | 704 | 0.4− | 0.5+ | 2009 11 22 | 703 | 0.9+ | 0.1+ |
| 2001 12 11 | 704 | 0.0 | 0.2+ | 2005 11 04 | 704 | 0.0 | 0.8+ | 2009 11 22 | 703 | 0.9+ | 0.6− |
| 2001 12 11 | 704 | 0.8− | 0.1+ | 2005 11 04 | 704 | 0.0 | 0.6+ | 2009 11 22 | 703 | (1.6+ | 1.1−) |
| 2001 12 11 | 704 | 0.0 | 0.7+ | 2005 11 04 | 704 | 0.3+ | 1.1+ | 2009 11 23 | G96 | 0.1+ | 0.5− |
| 2001 12 11 | 704 | 0.1− | 0.8+ | 2005 11 04 | 704 | 0.2− | 0.1− | 2009 11 23 | G96 | 0.1− | 0.4− |
| 2005 09 25 | 644 | 0.4− | 0.1− | 2005 11 04 | 704 | 0.7+ | 0.4+ | 2009 11 23 | G96 | 0.1− | 0.2− |
| 2005 09 25 | 644 | 0.3− | 0.0 | 2005 11 05 | 699 | 0.2− | 0.1− | 2009 11 23 | G96 | 0.0 | 0.2− |
| 2005 09 25 | 644 | 0.5− | 0.4+ | 2005 11 05 | 704 | 0.1− | 0.3+ | 2009 12 13 | G96 | 0.4+ | 0.2− |
| 2005 09 25 | 644 | 0.1− | 0.1+ | 2005 11 05 | 699 | 0.4+ | 0.1− | 2009 12 13 | G96 | 0.1+ | 0.3− |
| 2005 09 25 | 644 | 0.1+ | 0.0 | 2005 11 05 | 704 | 0.3− | 0.0 | 2009 12 13 | G96 | 0.4+ | 0.3− |
| 2005 09 25 | 644 | 0.2− | 0.1− | 2005 11 05 | 704 | 0.0 | 0.9+ | | | | |

**(228513)∗ 2001 TL$_{127}$**

Discovered 2001 Oct. 13 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 114.40174 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26447299 | $\omega$ | 55.27679 | | +0.56314240 | +0.81204619 | |
| $a$ | 2.4037087 | $\Omega$ | 249.71692 | | −0.80148451 | +0.49160246 | |
| $e$ | 0.2436023 | $i$ | 9.39634 | | −0.20122926 | +0.31449644 | |
| $P$ | 3.73 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 26 | 699 | 0.4+ | 0.8+ | 2004 03 27 | 704 | 0.0 | 1.3+ | 2005 11 25 | 703 | 0.3+ | 0.9− |
| 2001 08 26 | 699 | 0.4+ | 0.3− | 2004 03 27 | 704 | 1.1+ | 0.2+ | 2005 11 25 | 703 | 0.4− | 0.5− |
| 2001 08 26 | 699 | 0.1− | 0.4− | 2004 03 27 | 704 | (0.7− | 1.6+) | 2005 11 25 | 703 | (0.1− | 1.6−) |
| 2001 08 26 | 699 | 0.3+ | 0.0 | 2004 03 27 | 704 | (1.3+ | 1.6+) | 2005 11 25 | 703 | (1.8− | 0.1+) |
| 2001 09 09 | 704 | 0.1+ | 0.7− | 2005 10 14 | 704 | 0.1+ | 0.1+ | 2005 12 02 | 704 | 1.1+ | 1.1+ |
| 2001 09 09 | 704 | 0.3− | 0.1+ | 2005 10 14 | 704 | 0.8− | 0.2− | 2005 12 02 | 704 | 0.4− | 0.7+ |
| 2001 09 09 | 704 | 0.5+ | 0.4− | 2005 10 14 | 704 | 0.2− | 0.6+ | 2005 12 02 | 704 | 1.2+ | 0.6+ |
| 2001 09 09 | 704 | 0.4− | 1.2− | 2005 10 14 | 704 | 0.5− | 0.3− | 2005 12 02 | 704 | 0.2+ | 1.3+ |
| 2001 09 09 | 704 | 0.9− | 0.4− | 2005 10 23 | 703 | 0.3+ | 0.8− | 2005 12 02 | 703 | 0.9− | 0.2− |
| 2001 09 10 | 699 | 0.3+ | 0.3+ | 2005 10 23 | 703 | 1.1− | 1.2+ | 2005 12 02 | 703 | 0.5+ | 0.6+ |
| 2001 09 10 | 699 | 0.9+ | 0.8+ | 2005 10 23 | 703 | 0.5− | 0.4+ | 2005 12 02 | 703 | 0.1+ | 0.1+ |
| 2001 09 10 | 699 | 0.9− | 0.2+ | 2005 10 23 | 703 | 0.1+ | 0.8+ | 2005 12 02 | 703 | 0.6+ | 0.5+ |
| 2001 09 10 | 699 | 0.4+ | 0.5− | 2005 10 25 | 699 | 1.3+ | 0.5+ | 2005 12 30 | 688 | 0.1+ | 0.0 |
| 2001 09 17 | 644 | 0.2− | 0.7− | 2005 10 25 | 699 | 0.8− | 0.6+ | 2005 12 30 | 688 | 0.2− | 0.1+ |
| 2001 09 17 | 644 | 0.5− | 1.0− | 2005 10 25 | 699 | 0.0 | 0.5+ | 2006 01 23 | G96 | 0.1+ | 0.5− |
| 2001 09 17 | 644 | 0.3− | 0.7− | 2005 10 25 | 699 | 0.0 | 0.8+ | 2006 01 23 | G96 | 0.3+ | 0.1+ |
| 2001 09 21 | 699 | 0.5− | 0.2+ | 2005 10 26 | 699 | 0.3− | 0.9+ | 2006 01 23 | G96 | 0.4− | 0.2− |
| 2001 09 21 | 699 | 0.9− | 0.3+ | 2005 10 26 | 699 | 0.0 | 1.0+ | 2006 01 23 | G96 | 0.4+ | 0.3− |
| 2001 09 21 | 699 | 0.2− | 0.5+ | 2005 10 26 | 699 | 0.3− | 0.8+ | 2008 05 12 | E12 | 0.1+ | 0.0 |
| 2001 09 21 | 699 | 0.7− | 0.3+ | 2005 10 26 | 699 | 0.7− | 0.6− | 2008 05 12 | E12 | 0.1− | 0.4+ |
| 2001 09 23 | 608 | 1.0+ | 0.2− | 2005 10 29 | 703 | (0.3+ | 3.8+) | 2008 05 12 | E12 | 0.4− | 0.5+ |
| 2001 09 23 | 608 | 0.8+ | 0.5− | 2005 10 29 | 703 | 0.5− | 0.1− | 2008 05 28 | 704 | (0.7− | 1.9+) |
| 2001 09 23 | 608 | 1.1+ | 0.3− | 2005 10 29 | 703 | 0.7+ | 0.0 | 2008 05 28 | 704 | 0.6− | 1.5+ |
| 2001 09 29 | 644 | 0.2+ | 0.3+ | 2005 10 29 | 703 | 0.6− | 0.2+ | 2008 05 28 | 704 | 0.4+ | 0.5+ |
| 2001 09 29 | 644 | 0.4+ | 0.2+ | 2005 10 30 | 704 | (0.8− | 1.9+) | 2008 05 28 | 704 | 0.7+ | 0.7+ |
| 2001 09 29 | 644 | 0.0 | 0.3+ | 2005 10 30 | 704 | 0.4+ | 0.5+ | 2008 05 28 | 704 | 0.5+ | 0.9+ |
| 2001 10 13 | 644 | 0.7− | 0.1+ | 2005 10 30 | 644 | 0.1+ | 0.5+ | 2009 11 20 | 691 | 0.2− | 0.5− |
| 2001 10 13 | 644 | 0.5− | 0.1+ | 2005 10 30 | 704 | 0.1+ | 0.8+ | 2009 11 20 | 691 | 0.6− | 0.3+ |
| 2001 10 13 | 644 | 1.1− | 0.2+ | 2005 10 30 | 704 | 0.5+ | 0.4+ | 2009 11 20 | 691 | 0.5− | 0.0 |
| 2001 10 17 | 704 | 0.7− | 0.2+ | 2005 10 30 | 644 | 0.2+ | 0.1− | 2009 12 10 | G96 | 0.4− | 0.5+ |
| 2001 10 17 | 704 | 0.5− | 0.1− | 2005 10 30 | 704 | 0.3+ | 0.1− | 2009 12 10 | G96 | 0.2+ | 0.1− |
| 2001 10 17 | 704 | 0.5+ | 0.9− | 2005 10 30 | 644 | 0.2+ | 0.4+ | 2009 12 10 | G96 | 0.2+ | 0.1+ |
| 2001 10 17 | 704 | 0.6+ | 0.6− | 2005 10 31 | 691 | 0.0 | 0.1− | 2009 12 10 | G96 | 0.2− | 0.1+ |
| 2001 10 17 | 704 | 0.1+ | 0.8− | 2005 10 31 | 691 | 0.1− | 0.3+ | 2009 12 10 | G96 | 0.1− | 0.2− |
| 2001 10 19 | 704 | 0.1+ | 0.5− | 2005 10 31 | 691 | 0.1− | 0.8− | 2009 12 10 | G96 | 0.1+ | 1.1− |
| 2001 10 19 | 704 | 0.2− | 0.4− | 2005 11 02 | 704 | 0.1+ | 0.6− | 2009 12 10 | G96 | 0.2+ | 0.1− |
| 2001 10 19 | 704 | 0.1− | 0.5+ | 2005 11 02 | 704 | 0.2+ | 0.4− | 2009 12 10 | J95 | 0.5− | 0.2+ |
| 2001 10 26 | 644 | 0.2+ | 0.9+ | 2005 11 02 | 704 | 0.5+ | 0.1− | 2009 12 10 | J95 | 0.0 | 0.1+ |
| 2001 10 26 | 644 | 0.6+ | 0.3+ | 2005 11 02 | 704 | 0.1+ | 0.5+ | 2009 12 10 | J95 | 0.9+ | 0.5− |
| 2001 10 26 | 644 | 0.5+ | 0.9+ | 2005 11 02 | 704 | 1.0+ | 0.7+ | 2009 12 11 | G96 | 0.0 | 0.1− |
| 2004 03 27 | 704 | 1.0− | 0.1− | 2005 11 04 | 691 | 0.1− | 0.2+ | 2009 12 11 | G96 | 0.2− | 0.1− |
| 2004 03 27 | 704 | 0.7+ | 0.4− | 2005 11 04 | 691 | 0.2+ | 0.3+ | 2009 12 11 | G96 | 0.2− | 0.1− |
| 2004 03 27 | 704 | 0.4− | 0.4+ | 2005 11 04 | 691 | 0.1+ | 0.4+ | 2009 12 11 | G96 | 0.2+ | 0.1− |

**(228514)∗ 2001 TL$_{140}$**

Discovered 2001 Oct. 10 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 84.47504 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26868881 | $\omega$ | 285.53425 | | +0.98287735 | −0.15722193 | |
| $a$ | 2.3784991 | $\Omega$ | 83.58380 | | +0.18291388 | +0.89545896 | |
| $e$ | 0.1412524 | $i$ | 5.54895 | | −0.02224010 | +0.41645471 | |
| $P$ | 3.67 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 11 | 699 | 0.0 | 0.0 | 2005 11 01 | G96 | 0.2− | 0.1− | 2005 12 01 | G96 | 0.0 | 0.6− |
| 2001 09 11 | 699 | 1.0+ | 0.6− | 2005 11 03 | 704 | 0.2+ | 0.2+ | 2005 12 04 | 704 | 0.6− | 0.3+ |
| 2001 09 11 | 699 | 0.6− | 0.3− | 2005 11 03 | 704 | 0.7− | 0.9+ | 2005 12 04 | 704 | 0.7− | 1.0+ |
| 2001 09 11 | 699 | 0.3− | 0.4+ | 2005 11 03 | 704 | 0.0 | 0.4+ | 2005 12 04 | 704 | 0.1− | 0.3− |
| 2001 09 12 | 704 | 0.6− | 0.4+ | 2005 11 03 | 704 | 0.1+ | 0.3+ | 2005 12 04 | 704 | 0.5− | 0.2+ |
| 2001 09 12 | 704 | 0.4− | 1.2+ | 2005 11 03 | 704 | (1.5− | 1.6+) | 2005 12 04 | 704 | 0.4+ | 0.6+ |
| 2001 09 12 | 704 | 0.1+ | 0.7+ | 2005 11 04 | G96 | 0.0 | 0.4− | 2005 12 06 | 704 | 1.2− | 0.5+ |
| 2001 09 12 | 704 | 0.7− | 1.0+ | 2005 11 04 | G96 | 0.1− | 0.4− | 2005 12 06 | 704 | 0.4+ | 0.9+ |
| 2001 09 12 | 704 | 0.4+ | 0.5+ | 2005 11 04 | G96 | 0.3+ | 0.4− | 2005 12 06 | 704 | 1.1− | 0.4+ |
| 2001 09 18 | 699 | 0.6− | 0.0 | 2005 11 04 | G96 | 0.1+ | 0.4− | 2005 12 06 | 704 | 0.5+ | 0.2+ |
| 2001 09 18 | 699 | 0.6− | 0.1+ | 2005 11 05 | G96 | 0.0 | 0.4− | 2005 12 06 | 704 | 0.1+ | 0.0 |
| 2001 09 18 | 699 | 0.0 | 0.3+ | 2005 11 05 | G96 | 0.4+ | 0.5− | 2005 12 24 | 703 | 0.6− | 0.3− |
| 2001 09 18 | 699 | 1.5− | 0.1+ | 2005 11 05 | G96 | 0.2+ | 0.2− | 2005 12 24 | 703 | 0.3+ | 0.8− |
| 2001 09 25 | 704 | 0.2− | 0.3+ | 2005 11 05 | G96 | 0.2+ | 0.3− | 2005 12 24 | 703 | 0.7+ | 0.1− |
| 2001 09 25 | 704 | 0.1− | 0.7+ | 2005 11 06 | 704 | 0.2− | 1.3+ | 2005 12 24 | 703 | 0.6− | 0.2− |
| 2001 09 25 | 704 | 0.3+ | 0.5− | 2005 11 06 | 704 | 1.4+ | 0.3− | 2006 01 21 | G96 | 0.3+ | 0.2− |
| 2001 09 25 | 704 | 0.2− | 0.1+ | 2005 11 06 | 704 | 0.1− | 0.3− | 2006 01 21 | G96 | 0.2+ | 0.1+ |
| 2001 09 25 | 704 | 0.9− | 0.3+ | 2005 11 06 | 704 | 0.1+ | 0.6+ | 2006 01 21 | G96 | 0.2+ | 0.0 |
| 2001 10 10 | 644 | 0.4+ | 0.1+ | 2005 11 06 | 704 | (1.9− | 1.3+) | 2006 01 21 | G96 | 0.5+ | 0.5− |
| 2001 10 10 | 644 | 0.2+ | 0.3+ | 2005 11 21 | 699 | 0.2+ | 0.1+ | 2007 03 11 | 691 | 0.2+ | 0.0 |
| 2001 10 10 | 644 | 0.2+ | 0.1+ | 2005 11 21 | 699 | 0.6+ | 0.1− | 2007 03 11 | 691 | 0.1+ | 0.6+ |
| 2001 10 16 | 644 | 0.4− | 0.1− | 2005 11 21 | 699 | 0.0 | 0.5− | 2007 03 11 | 691 | 0.4+ | 0.2+ |
| 2001 10 16 | 644 | 0.5− | 0.1− | 2005 11 21 | 699 | 0.9− | 0.5+ | 2007 04 11 | 691 | 0.5− | 0.4+ |
| 2001 10 16 | 644 | 0.4− | 0.2− | 2005 11 21 | 644 | 0.1− | 0.1+ | 2007 04 11 | 691 | 0.3+ | 0.3+ |
| 2001 10 20 | 704 | 0.5+ | 0.2− | 2005 11 21 | 644 | 0.1+ | 0.2− | 2007 04 11 | 691 | 0.1+ | 0.1+ |
| 2001 10 20 | 704 | 0.3− | 0.9+ | 2005 11 21 | 644 | 0.1+ | 0.0 | 2007 04 15 | 691 | 0.0 | 0.1+ |
| 2001 10 20 | 704 | 0.3+ | 0.5+ | 2005 11 28 | 699 | 0.6+ | 0.2− | 2007 04 15 | 691 | 0.3+ | 0.1+ |
| 2001 10 20 | 704 | 0.7+ | 0.9+ | 2005 11 28 | 699 | 1.0− | 0.1+ | 2007 04 15 | 691 | 0.3+ | 0.2+ |
| 2005 10 25 | 703 | 0.3− | 0.2− | 2005 11 28 | 699 | 0.2− | 0.0 | 2009 11 11 | G96 | 0.1− | 0.1+ |
| 2005 10 25 | 703 | 0.2− | 0.3− | 2005 11 28 | 699 | 1.2+ | 1.2+ | 2009 11 11 | G96 | 0.0 | 0.3+ |
| 2005 10 25 | 703 | 0.7− | 0.8− | 2005 11 28 | 703 | 0.1− | 0.5− | 2009 11 11 | G96 | 0.1+ | 0.2+ |
| 2005 10 25 | 703 | 0.6− | 0.1+ | 2005 11 28 | 703 | 0.0 | 0.5− | 2009 11 11 | G96 | 0.3+ | 0.1− |
| 2005 10 31 | 704 | 0.3+ | 0.2+ | 2005 11 28 | 703 | 0.6+ | 0.8− | 2009 12 18 | G96 | 0.4+ | 0.1+ |
| 2005 10 31 | 704 | 0.4− | 0.7+ | 2005 11 28 | 703 | 0.4− | 0.2− | 2009 12 18 | G96 | 0.3− | 0.0 |
| 2005 10 31 | 704 | 0.1− | 1.4+ | 2005 12 01 | 704 | 0.5+ | 0.1− | 2009 12 18 | G96 | 0.6− | 0.2− |
| 2005 11 01 | G96 | 0.2+ | 0.4− | 2005 12 01 | 704 | 0.5+ | 0.5+ | 2009 12 19 | 691 | 0.4− | 0.1− |
| 2005 11 01 | G96 | 0.3+ | 0.3− | 2005 12 01 | 704 | 0.4+ | 0.2+ | 2009 12 19 | 691 | 0.0 | 0.1+ |
| 2005 11 01 | G96 | 0.4+ | 0.4− | 2005 12 01 | 704 | 0.1− | 0.1+ | 2009 12 19 | 691 | 0.0 | 0.1− |
| 2005 11 01 | G96 | 0.1− | 0.6− | 2005 12 01 | 704 | 0.4+ | 0.3+ | 2009 12 27 | 691 | 0.0 | 0.2+ |
| 2005 11 01 | G96 | 0.2+ | 0.2− | 2005 12 01 | G96 | 0.2+ | 0.4− | 2009 12 27 | 691 | 0.3+ | 0.3+ |
| 2005 11 01 | G96 | 0.2− | 0.3− | 2005 12 01 | G96 | 0.4+ | 0.3− | 2009 12 27 | 691 | 0.0 | 0.1+ |
| 2005 11 01 | G96 | 0.1+ | 0.3− | 2005 12 01 | G96 | 0.5+ | 0.3− | | | | |

**(228515)∗ 2001 TA$_{193}$**

Discovered 2001 Oct. 14 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 1.37992 | | (2000.0) | | | |
| $n$ | 0.24173056 | $\omega$ | 96.85402 | | +0.23128654 | −0.97237930 |
| $a$ | 2.5522018 | $\Omega$ | 339.69000 | | +0.85308629 | +0.21820945 |
| $e$ | 0.2087287 | $i$ | 5.18784 | | +0.46770751 | +0.08284398 |
| $P$ | 4.08 | $H$ | 15.4 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 01 16 | 691 | 0.2− | 0.1+ | 2002 01 06 | 644 | 0.1+ | 0.9+ | 2009 10 15 | 704 | 0.4+ | 0.5− |
| 1994 01 16 | 691 | 0.1− | 0.2+ | 2002 01 08 | 704 | 0.2− | 0.2+ | 2009 10 15 | 704 | 0.5+ | 0.2+ |
| 1994 01 16 | 691 | 0.1+ | 0.1− | 2002 01 08 | 704 | 0.5− | 0.3− | 2009 10 24 | 704 | 0.5− | 0.2+ |
| 1997 12 29 | 566 | 0.2− | 1.4− | 2002 01 08 | 704 | 0.6− | 0.0 | 2009 10 24 | 704 | 0.3+ | 0.5+ |
| 1997 12 29 | 566 | 1.1+ | 1.9− | 2002 01 08 | 704 | 0.5− | 0.2+ | 2009 10 24 | 704 | 0.3− | 0.7+ |
| 1997 12 29 | 566 | 0.5+ | 1.9− | 2002 01 08 | 704 | 1.2− | 0.0 | 2009 10 24 | 704 | 0.4− | 1.2+ |
| 2001 10 14 | 704 | 0.2+ | 0.0 | 2002 01 15 | 704 | 0.3+ | 0.0 | 2009 10 24 | 703 | 0.1− | 0.7− |
| 2001 10 14 | 704 | 0.6+ | 0.8− | 2002 01 15 | 704 | 0.2+ | 0.3+ | 2009 10 24 | 703 | 0.2− | 0.1− |
| 2001 10 14 | 704 | 0.4− | 0.3− | 2002 01 15 | 704 | 0.2+ | 0.2− | 2009 10 24 | 703 | 0.4− | 0.2+ |
| 2001 10 14 | 704 | 0.4− | 0.7− | 2002 01 15 | 704 | 0.7+ | 0.3+ | 2009 10 24 | 703 | 0.5− | 0.2− |
| 2001 10 14 | 704 | 0.4− | 0.1+ | 2002 01 15 | 704 | 0.2+ | 0.1− | 2009 10 31 | 704 | 0.6+ | 0.4+ |
| 2001 10 21 | 704 | 0.2+ | 0.7+ | 2002 01 17 | 644 | 0.1− | 0.3− | 2009 10 31 | 704 | 0.1+ | 0.3− |
| 2001 10 21 | 704 | 0.4− | 0.6+ | 2002 01 17 | 644 | 0.0 | 0.3− | 2009 10 31 | 704 | 0.7+ | 0.7+ |
| 2001 10 21 | 704 | 0.1+ | 0.8− | 2002 01 17 | 644 | 0.1+ | 0.5− | 2009 10 31 | 704 | 0.4+ | 0.3− |
| 2001 10 21 | 704 | 0.4+ | 0.5− | 2002 01 19 | 704 | 0.3+ | 0.2− | 2009 10 31 | 704 | 0.1+ | 0.6+ |
| 2001 11 10 | 644 | 0.1− | 1.0+ | 2002 01 19 | 704 | 0.1− | 0.8+ | 2009 11 16 | 704 | 0.5+ | 0.7− |
| 2001 11 10 | 644 | 0.6− | 1.1+ | 2002 01 19 | 704 | 0.3− | 0.8+ | 2009 11 16 | 704 | 0.1+ | 0.5− |
| 2001 11 10 | 644 | 0.4− | 0.8+ | 2002 01 19 | 704 | 0.1+ | 0.1+ | 2009 11 16 | 704 | 0.0 | 0.7− |
| 2001 11 11 | 704 | 0.2+ | 0.9+ | 2002 01 19 | 704 | 1.2+ | 0.1+ | 2009 11 16 | 704 | 0.2+ | 0.4− |
| 2001 11 11 | 704 | 0.3+ | 0.8+ | 2002 02 04 | 644 | 0.1+ | 0.2+ | 2009 11 16 | 704 | 0.0 | 0.5− |
| 2001 11 11 | 704 | 0.1+ | 0.5+ | 2002 02 04 | 644 | 0.1− | 0.3+ | 2009 11 23 | 704 | 0.3− | 0.0 |
| 2001 11 11 | 704 | 0.4+ | 1.0+ | 2002 02 04 | 644 | 0.1− | 0.6+ | 2009 11 23 | 704 | 0.1− | 0.2− |
| 2001 12 09 | 704 | 1.5+ | 1.2+ | 2002 02 08 | 704 | 0.4+ | 0.7+ | 2009 11 23 | 704 | 0.1− | 0.0 |
| 2001 12 09 | 704 | (1.7+ | 0.7+) | 2002 02 08 | 704 | 0.4− | 0.1+ | 2009 11 25 | 703 | 0.3+ | 0.1+ |
| 2001 12 09 | 704 | (2.4+ | 0.6+) | 2002 02 08 | 704 | 0.8+ | 0.7+ | 2009 11 25 | 703 | 0.9− | 0.7+ |
| 2001 12 09 | 704 | (1.7+ | 0.2+) | 2002 02 08 | 704 | 0.2− | 0.1+ | 2009 11 25 | 703 | 0.3+ | 0.5+ |
| 2001 12 09 | 704 | (2.1+ | 0.3+) | 2002 02 08 | 704 | 1.3− | 0.3+ | 2009 11 25 | 703 | 1.0+ | 1.3+ |
| 2001 12 13 | 704 | 0.5+ | 0.0 | 2002 02 12 | 704 | 0.7− | 0.7− | 2009 11 25 | 703 | 0.2+ | 0.6+ |
| 2001 12 13 | 704 | 0.3+ | 0.3− | 2002 02 12 | 704 | 0.2+ | 0.7− | 2009 11 25 | G96 | 0.1+ | 0.4− |
| 2001 12 13 | 704 | 0.0 | 0.7− | 2002 02 12 | 704 | 0.6+ | 1.2− | 2009 11 25 | G96 | 0.1+ | 0.5− |
| 2001 12 13 | 704 | 0.6− | 0.3− | 2002 02 12 | 704 | 0.6− | 0.4− | 2009 11 25 | G96 | 0.1− | 0.4− |
| 2001 12 13 | 704 | 0.1− | 0.8− | 2005 12 24 | 704 | 1.0+ | 0.1+ | 2009 11 25 | G96 | 0.0 | 0.5− |
| 2001 12 17 | 704 | 0.8− | 0.2− | 2005 12 24 | 704 | 0.3− | 0.1− | 2009 11 25 | G96 | 0.0 | 0.4− |
| 2001 12 17 | 704 | 0.7− | 0.1− | 2005 12 24 | 704 | 0.7− | 0.7+ | 2009 11 25 | G96 | 0.5+ | 0.5− |
| 2001 12 17 | 704 | (2.2− | 0.0 ) | 2005 12 24 | 704 | 0.2− | 0.3− | 2009 11 25 | G96 | 0.3− | 0.4− |
| 2001 12 17 | 704 | 0.6− | 0.3− | 2006 01 07 | 704 | 0.3+ | 0.0 | 2009 11 25 | G96 | 0.2+ | 0.4− |
| 2001 12 17 | 704 | 1.1− | 0.1+ | 2006 01 07 | 704 | 0.8+ | 0.3+ | 2009 12 05 | D29 | 0.1− | 0.7− |
| 2001 12 19 | 644 | 0.1− | 0.2+ | 2006 01 07 | 704 | (0.3+ | 2.1+) | 2009 12 05 | D29 | 0.1− | 0.3− |
| 2001 12 19 | 644 | 0.5+ | 0.2+ | 2009 09 15 | 704 | 0.3+ | 0.0 | 2009 12 05 | D29 | 0.1− | 0.3− |
| 2001 12 19 | 644 | 0.0 | 0.1+ | 2009 09 15 | 704 | 0.5− | 0.1− | 2009 12 05 | D29 | 0.2+ | 0.2− |
| 2001 12 19 | 644 | 0.6+ | 0.4+ | 2009 09 15 | 704 | 0.3+ | 0.3+ | 2009 12 06 | J75 | 0.0 | 0.5− |
| 2001 12 19 | 644 | 0.0 | 0.2+ | 2009 09 15 | 704 | 0.6+ | 0.1+ | 2009 12 06 | J75 | 0.1+ | 0.6− |
| 2001 12 19 | 644 | 0.7+ | 0.4+ | 2009 09 26 | J75 | 0.7− | 0.5− | 2009 12 06 | J75 | 0.0 | 0.5− |
| 2001 12 22 | 704 | 0.1+ | 0.1− | 2009 09 26 | J75 | 0.7− | 0.5− | 2009 12 10 | 704 | 0.0 | 0.1+ |
| 2001 12 22 | 704 | 0.1− | 0.3− | 2009 09 26 | J75 | 0.4− | 0.4− | 2009 12 10 | 704 | 0.1− | 0.1+ |
| 2001 12 22 | 704 | 0.3− | 0.4− | 2009 09 28 | 704 | 0.5− | 1.2+ | 2009 12 10 | 704 | 0.1− | 0.3+ |
| 2001 12 22 | 704 | 0.5− | 0.7− | 2009 09 28 | 704 | 0.2− | 0.9+ | 2009 12 10 | 704 | 0.6− | 0.4+ |
| 2001 12 22 | 704 | 0.4− | 0.7− | 2009 09 28 | 704 | 0.2− | 0.9+ | 2009 12 10 | 704 | 0.1− | 0.6+ |
| 2002 01 04 | 644 | 0.3+ | 0.3+ | 2009 09 28 | 704 | 0.5− | 1.1+ | 2009 12 15 | 704 | 0.4+ | 0.0 |
| 2002 01 04 | 644 | 0.1+ | 0.3+ | 2009 09 28 | 704 | 0.0 | 0.1+ | 2009 12 15 | 704 | 0.2− | 0.1− |
| 2002 01 04 | 644 | 0.1+ | 0.4+ | 2009 10 15 | 704 | 0.3+ | 1.3− | 2009 12 15 | 704 | 0.2− | 0.0 |
| 2002 01 06 | 644 | 0.1+ | 0.8+ | 2009 10 15 | 704 | 0.4+ | 0.9− | 2009 12 15 | 704 | 0.2− | 0.2+ |
| 2002 01 06 | 644 | 0.1+ | 1.0+ | 2009 10 15 | 704 | 0.9+ | 0.8− | 2009 12 15 | 704 | 0.3− | 0.3+ |

**(228516)∗ 2001 TN$_{196}$**

Discovered 2001 Oct. 14 by NEAT at Haleakala.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 53.16421 | | (2000.0) | | | |
| $n$ | 0.37031411 | $\omega$ | 297.45736 | | +0.93789410 | +0.08643428 |
| $a$ | 1.9205364 | $\Omega$ | 59.39278 | | +0.12026282 | +0.82740883 |
| $e$ | 0.1466368 | $i$ | 22.97745 | | −0.32540975 | +0.55490877 |
| $P$ | 2.66 | $H$ | 16.7 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 25 | 699 | 0.4+ | 0.9+ | 2001 12 07 | 704 | 0.4+ | 1.4− | 2009 10 25 | J75 | 0.2+ | 0.4+ |
| 2001 09 25 | 699 | 0.4+ | 0.5+ | 2001 12 14 | 704 | 0.3− | 0.2+ | 2009 10 25 | J75 | 0.3+ | 0.2− |
| 2001 09 25 | 699 | 0.9+ | 0.7+ | 2001 12 14 | 704 | 0.3+ | 0.7+ | 2009 11 06 | 704 | 0.5+ | 0.8+ |
| 2001 09 25 | 699 | 0.2+ | 0.6+ | 2001 12 14 | 704 | 0.1+ | 0.4+ | 2009 11 06 | 704 | 1.1+ | 0.4+ |
| 2001 10 07 | 644 | 0.2+ | 0.0 | 2001 12 14 | 704 | 0.2+ | 0.3− | 2009 11 06 | 704 | 0.9+ | 0.7+ |
| 2001 10 07 | 644 | 0.4+ | 0.1− | 2001 12 14 | 704 | 0.4− | 0.2− | 2009 11 06 | 704 | 1.0+ | 0.9+ |
| 2001 10 07 | 644 | 0.3+ | 0.0 | 2001 12 17 | 704 | (0.3− | 2.9−) | 2009 11 06 | 704 | 0.2+ | 1.0+ |
| 2001 10 14 | 608 | 0.6+ | 0.4− | 2001 12 17 | 704 | (0.5+ | 2.3−) | 2009 11 17 | 703 | 0.1+ | 0.1+ |
| 2001 10 14 | 608 | 0.5+ | 1.1− | 2001 12 17 | 704 | (0.0 | 3.1−) | 2009 11 17 | 703 | 0.7− | 0.1− |
| 2001 10 14 | 608 | (0.7+ | 1.7−) | 2001 12 17 | 704 | (0.2+ | 3.7−) | 2009 11 17 | 703 | 0.7− | 0.1− |
| 2001 10 19 | 608 | 0.6− | 0.9− | 2001 12 17 | 704 | (0.3+ | 3.2−) | 2009 11 17 | 703 | 0.3− | 0.2− |
| 2001 10 19 | 608 | 0.5− | 0.7− | 2003 04 27 | 699 | 0.9+ | 1.3+ | 2009 11 23 | 703 | 0.4− | 0.0 |
| 2001 10 19 | 608 | 0.3− | 1.3− | 2003 04 27 | 699 | 0.7− | 0.2+ | 2009 11 23 | 703 | 0.5− | 0.4− |
| 2001 10 23 | 699 | 0.0 | 0.2+ | 2003 04 27 | 699 | 0.5+ | 0.1+ | 2009 11 23 | 703 | 0.0 | 0.7− |
| 2001 10 23 | 699 | 0.3+ | 0.0 | 2003 04 27 | 699 | 0.7+ | 0.5+ | 2009 11 23 | 703 | 0.0 | 0.1− |
| 2001 10 23 | 699 | 0.0 | 0.2+ | 2004 12 16 | 704 | 0.6+ | 0.3− | 2009 11 23 | 703 | 0.1− | 0.3− |
| 2001 10 23 | 699 | 0.1− | 0.6+ | 2004 12 16 | 704 | 0.6+ | 0.1+ | 2009 12 10 | 703 | 0.2+ | 0.2+ |
| 2001 11 18 | 704 | 0.9− | 0.1+ | 2004 12 16 | 704 | 0.5− | 1.0+ | 2009 12 10 | 703 | 0.3+ | 0.2+ |
| 2001 11 18 | 704 | 1.1− | 0.7+ | 2004 12 16 | 704 | 0.0 | 0.9− | 2009 12 10 | 703 | 0.6− | 0.6− |
| 2001 11 18 | 704 | 0.6− | 0.1+ | 2009 09 29 | 703 | 0.3+ | 0.1− | 2009 12 10 | 703 | 1.2+ | 1.5− |
| 2001 11 18 | 704 | 0.8− | 0.1+ | 2009 09 29 | 703 | 0.0 | 0.2− | 2009 12 13 | 704 | (1.5+ | 1.8−) |
| 2001 11 18 | 704 | 1.2− | 0.3+ | 2009 09 29 | 703 | 1.0− | 0.3− | 2009 12 13 | 704 | 0.1+ | 0.3+ |
| 2001 11 20 | 704 | 0.4+ | 0.5+ | 2009 09 29 | 703 | 0.4− | 0.1− | 2009 12 13 | 704 | 0.0 | 0.3+ |
| 2001 11 20 | 704 | 1.3+ | 0.6+ | 2009 10 09 | 704 | 0.0 | 0.8− | 2009 12 13 | 704 | 0.6+ | 0.1+ |
| 2001 11 20 | 704 | 0.6+ | 1.2+ | 2009 10 09 | 704 | 0.2− | 0.3+ | 2009 12 14 | 621 | 0.2+ | 0.2− |
| 2001 11 20 | 704 | 0.2+ | 0.8+ | 2009 10 09 | 704 | 1.1+ | 1.0+ | 2009 12 14 | 621 | 0.1+ | 0.0 |
| 2001 11 20 | 699 | 0.5− | 0.2+ | 2009 10 09 | 704 | 0.3− | 0.9− | 2009 12 14 | 621 | 0.1+ | 0.1− |
| 2001 11 20 | 699 | 0.6− | 0.3− | 2009 10 09 | 704 | 1.4− | 0.0 | 2009 12 20 | G96 | 0.1+ | 0.1− |
| 2001 11 20 | 699 | 0.1+ | 0.2+ | 2009 10 21 | 703 | 0.8− | 0.2+ | 2009 12 20 | G96 | 0.3+ | 0.1− |
| 2001 11 20 | 699 | 0.3− | 0.2+ | 2009 10 21 | 703 | 0.5− | 0.2− | 2009 12 20 | G96 | 0.1+ | 0.2− |
| 2001 12 07 | 704 | 0.9− | 0.2− | 2009 10 21 | 703 | 1.0− | 0.1− | | | | |
| 2001 12 07 | 704 | 0.3− | 1.2− | 2009 10 25 | J75 | 0.7+ | 0.3− | | | | |

**(228517)∗ 2001 TX$_{217}$**

Discovered 2001 Oct. 14 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 349.54961 | | (2000.0) | | | |
| $n$ | 0.26311122 | $\omega$ | 136.21461 | | −0.28699468 | −0.95736857 |
| $a$ | 2.4119954 | $\Omega$ | 330.41821 | | +0.85955074 | −0.24222821 |
| $e$ | 0.1437252 | $i$ | 3.81607 | | +0.42285527 | −0.15738777 |
| $P$ | 3.75 | $H$ | 16.4 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 02 12 | 699 | 0.4− | 0.7+ | 2005 10 25 | 699 | 0.8− | 1.3+ | 2005 12 02 | 703 | 0.2− | 0.8− |
| 1999 02 12 | 699 | 0.1− | 0.6− | 2005 10 25 | 699 | 1.3+ | 0.7− | 2005 12 02 | 703 | 0.4+ | 0.7+ |
| 1999 02 12 | 699 | 0.3− | 0.7+ | 2005 10 25 | 699 | 0.2− | 0.6+ | 2005 12 02 | 703 | 1.1+ | 0.9+ |
| 2001 09 16 | 704 | (1.9+ | 0.3+) | 2005 10 27 | G96 | 0.2− | 0.5− | 2005 12 02 | 703 | 0.3− | 1.0+ |
| 2001 09 16 | 704 | 0.6− | 0.5+ | 2005 10 27 | G96 | 0.1− | 0.4− | 2009 11 16 | 704 | 0.1+ | 1.0+ |
| 2001 09 16 | 704 | 0.9− | 1.1+ | 2005 10 27 | G96 | 0.0 | 0.3− | 2009 11 16 | 704 | 0.9+ | 1.1+ |
| 2001 09 20 | 704 | 0.2+ | 0.3+ | 2005 10 27 | G96 | 0.1− | 0.5− | 2009 11 16 | 704 | 0.4+ | 1.1+ |
| 2001 09 20 | 704 | 0.5− | 0.9+ | 2005 10 30 | 704 | 0.7+ | 0.6+ | 2009 11 22 | 704 | 0.1+ | 0.0 |
| 2001 09 20 | 704 | 0.0 | 0.7+ | 2005 10 30 | 704 | 0.7+ | 0.8+ | 2009 11 22 | 704 | 0.0 | 0.1+ |
| 2001 09 20 | 704 | 0.3− | 0.6+ | 2005 10 30 | 704 | 0.0 | 0.8+ | 2009 11 22 | 704 | 0.2− | 0.4+ |
| 2001 09 20 | 704 | 0.7− | 0.4+ | 2005 10 30 | 704 | 0.4+ | 0.0 | 2009 11 22 | 704 | 0.4+ | 0.4+ |
| 2001 10 14 | 704 | 0.2− | 0.4− | 2005 10 30 | 704 | 0.7+ | 0.5+ | 2009 11 22 | 691 | 0.2− | 0.2− |
| 2001 10 14 | 704 | 0.4− | 0.1+ | 2005 11 02 | 704 | 0.1− | 0.5+ | 2009 11 22 | 691 | 0.2− | 0.1− |
| 2001 10 14 | 704 | 0.5− | 0.6+ | 2005 11 02 | 704 | 0.5+ | 0.4− | 2009 11 22 | 691 | 0.4− | 0.1− |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 10 19 | 644 | 0.8− | 0.4+ | 2005 11 02 | 704 | 0.2+ | 0.3+ | 2009 11 26 | 691 | 0.1− | 0.1− | | |
| 2001 10 19 | 644 | 1.3− | 0.3+ | 2005 11 02 | 704 | 0.2+ | 0.8+ | 2009 11 26 | 691 | 0.2− | 0.2− | | |
| 2001 10 19 | 644 | 1.0− | 0.7+ | 2005 11 02 | 704 | 0.7− | 0.3+ | 2009 11 26 | 691 | 0.8− | 0.9− | | |
| 2001 10 21 | 704 | 0.3− | 0.8+ | 2005 11 07 | 704 | 0.1+ | 0.3− | 2009 12 10 | 704 | 0.3+ | 0.3− | | |
| 2001 10 21 | 704 | (2.8− | 1.0+) | 2005 11 07 | 704 | 0.1+ | 0.2+ | 2009 12 10 | 704 | 0.1+ | 0.2− | | |
| 2001 10 21 | 704 | 0.2− | 0.1− | 2005 11 07 | 704 | 0.1+ | 0.4+ | 2009 12 10 | 704 | 0.0 | 0.4− | | |
| 2001 10 21 | 704 | (1.7− | 0.4+) | 2005 11 07 | 704 | 0.2+ | 0.0 | 2009 12 10 | 704 | 0.6+ | 0.4− | | |
| 2001 10 21 | 704 | 0.6− | 0.7+ | 2005 11 07 | 704 | 0.7+ | 0.5+ | 2009 12 10 | 704 | 0.4− | 0.5− | | |
| 2003 03 23 | 691 | 0.3+ | 0.7+ | 2005 11 12 | 691 | 0.1− | 0.1− | 2009 12 15 | 704 | 0.4+ | 0.1+ | | |
| 2003 03 23 | 691 | 0.4+ | 0.6+ | 2005 11 12 | 691 | 0.1+ | 0.2− | 2009 12 15 | 704 | 0.8+ | 0.2+ | | |
| 2003 03 23 | 691 | 0.4+ | 0.6+ | 2005 11 12 | 691 | 0.3+ | 0.1+ | 2009 12 15 | 704 | 0.4+ | 0.3− | | |
| 2003 03 31 | 704 | 1.1+ | 1.0+ | 2005 11 25 | 703 | 1.1+ | 0.1− | 2009 12 15 | 704 | 0.3+ | 0.5+ | | |
| 2003 03 31 | 704 | 0.7+ | 0.2+ | 2005 11 25 | 703 | 0.8− | 0.1+ | 2009 12 15 | 704 | 0.3− | 0.2+ | | |
| 2003 03 31 | 704 | 0.4+ | 0.0 | 2005 11 25 | 703 | 0.4+ | 0.7− | | | | | | |
| 2005 10 25 | 699 | 0.4− | 0.5+ | 2005 11 25 | 703 | 0.9− | 0.4− | | | | | | |

**(228518)∗ 2001 TC$_{233}$**

Discovered 2001 Oct. 15 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 61.38315 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.25725082 | $\omega$ | 233.91032 | | +0.98151102 | −0.17244733 | |
| $a$ | 2.4484893 | $\Omega$ | 135.84960 | | +0.19006449 | +0.92937532 | |
| $e$ | 0.1536199 | $i$ | 6.84812 | | −0.02261874 | +0.32637929 | |
| $P$ | 3.83 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 01 23 | 691 | 0.6− | 0.2+ | 2001 10 20 | 704 | 0.8+ | 0.2− | 2005 11 26 | 703 | 0.2− | 0.0 | | |
| 1999 01 23 | 691 | 0.1− | 0.8− | 2001 10 20 | 704 | (1.9+ | 0.0 ) | 2005 11 29 | 644 | 1.1− | 0.3+ | | |
| 1999 01 23 | 691 | 0.2− | 0.2+ | 2001 10 20 | 704 | 1.0+ | 0.4+ | 2005 11 29 | 644 | 0.2+ | 0.3+ | | |
| 1999 02 15 | 691 | 0.2+ | 0.0 | 2001 10 20 | 704 | 0.3+ | 0.0 | 2005 11 29 | 644 | 0.1+ | 0.3+ | | |
| 1999 02 15 | 691 | 0.3+ | 0.1− | 2001 10 23 | 644 | 0.2− | 0.8+ | 2005 11 30 | 699 | 0.4+ | 1.0+ | | |
| 1999 02 15 | 691 | 0.6+ | 0.3+ | 2001 10 23 | 644 | 0.2− | 0.5+ | 2005 11 30 | 699 | 0.1− | 0.4− | | |
| 2000 04 27 | 691 | (3.3− | 5.5+) | 2001 10 23 | 644 | 0.5− | 0.6+ | 2005 11 30 | 699 | 0.1− | 0.1+ | | |
| 2000 04 27 | 691 | (1.9− | 4.9+) | 2001 12 07 | 704 | 0.8− | 1.3+ | 2005 11 30 | 699 | 0.1+ | 1.0+ | | |
| 2000 04 27 | 691 | (0.2− | 3.8+) | 2001 12 07 | 704 | 0.0 | 0.4+ | 2007 03 14 | G96 | 0.1− | 0.6+ | | |
| 2000 05 09 | 691 | 0.4+ | 0.0 | 2001 12 07 | 704 | 0.2− | 0.1+ | 2007 03 14 | G96 | 0.3− | 0.2+ | | |
| 2000 05 09 | 691 | 0.0 | 0.4+ | 2005 10 27 | 703 | 0.5− | 0.0 | 2007 03 14 | G96 | 0.4− | 0.1− | | |
| 2000 05 09 | 691 | 0.1− | 0.3+ | 2005 10 27 | 703 | 0.2+ | 1.0+ | 2007 03 14 | G96 | 0.1+ | 0.5+ | | |
| 2001 09 25 | 704 | 0.2− | 0.3− | 2005 10 27 | 703 | 0.4+ | 0.1+ | 2009 12 15 | 703 | 0.9− | 0.3− | | |
| 2001 09 25 | 704 | 0.2+ | 0.2+ | 2005 10 27 | 703 | 1.0+ | 0.3− | 2009 12 15 | 703 | 0.5− | 0.1+ | | |
| 2001 09 25 | 704 | 0.3− | 0.4− | 2005 11 09 | 703 | 0.4− | 0.3+ | 2009 12 15 | 703 | 0.3+ | 1.1+ | | |
| 2001 09 25 | 704 | 0.9− | 0.4− | 2005 11 09 | 703 | 0.4− | 0.6− | 2009 12 15 | 703 | 1.1+ | 0.1− | | |
| 2001 09 25 | 704 | 0.8− | 0.2− | 2005 11 09 | 703 | 0.5− | 0.4+ | 2009 12 17 | G96 | 0.1+ | 0.0 | | |
| 2001 10 15 | 644 | 0.1+ | 0.1+ | 2005 11 09 | 703 | 0.2− | 0.8− | 2009 12 17 | G96 | 0.1+ | 0.1+ | | |
| 2001 10 15 | 644 | 0.5+ | 0.0 | 2005 11 20 | 644 | 0.3− | 0.4+ | 2009 12 17 | G96 | 0.1− | 0.2− | | |
| 2001 10 15 | 644 | 0.5+ | 0.1− | 2005 11 20 | 644 | 0.2+ | 0.3+ | 2009 12 17 | G96 | 0.4+ | 0.0 | | |
| 2001 10 19 | 699 | 0.5− | 0.3+ | 2005 11 20 | 644 | 0.1+ | 0.5− | 2009 12 17 | G96 | 0.2− | 0.3− | | |
| 2001 10 19 | 699 | 0.1+ | 0.6− | 2005 11 26 | 703 | 0.4+ | 1.4− | 2009 12 17 | G96 | 0.4+ | 0.0 | | |
| 2001 10 19 | 699 | 0.1− | 0.3− | 2005 11 26 | 703 | 0.5+ | 0.0 | | | | | | |
| 2001 10 19 | 699 | (1.7+ | 0.3+) | 2005 11 26 | 703 | 0.4− | 0.5− | | | | | | |

**(228519)∗ 2001 TA$_{238}$**

Discovered 2001 Oct. 13 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 359.53981 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24655373 | $\omega$ | 95.78077 | | +0.79564201 | −0.60037379 | |
| $a$ | 2.5188076 | $\Omega$ | 301.14340 | | +0.51178901 | +0.73745220 | |
| $e$ | 0.1024295 | $i$ | 5.40735 | | +0.32407684 | +0.30937932 | |
| $P$ | 4.00 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 10 08 | 691 | 0.3− | 0.3+ | 2005 09 29 | 699 | 0.2+ | 0.0 | 2009 09 17 | 703 | 0.1− | 1.5− | | |
| 1997 10 08 | 691 | 0.3− | 0.1+ | 2005 09 29 | 699 | 0.1+ | 0.7− | 2009 09 17 | 703 | 0.6− | 0.9+ | | |
| 1997 10 08 | 691 | 0.1− | 0.3− | 2005 09 30 | 644 | 0.1+ | 0.0 | 2009 09 17 | 703 | 0.5− | 1.4− | | |
| 2001 09 10 | 699 | 0.2+ | 0.3+ | 2005 09 30 | 644 | 0.1− | 0.2+ | 2009 09 19 | G96 | 0.2− | 0.4− | | |
| 2001 09 10 | 699 | 0.2+ | 0.2− | 2005 09 30 | 644 | 0.1+ | 0.2+ | 2009 09 19 | G96 | 0.0 | 0.2− | | |
| 2001 09 10 | 699 | 0.6+ | 1.0+ | 2005 10 01 | 703 | 1.2+ | 0.2+ | 2009 09 19 | G96 | 0.2+ | 0.4− | | |
| 2001 09 10 | 699 | 0.1+ | 0.6+ | 2005 10 01 | 703 | 0.3+ | 0.3− | 2009 09 19 | G96 | 0.1− | 0.2− | | |
| 2001 09 28 | 644 | 0.1+ | 1.1+ | 2005 10 01 | 703 | 0.5+ | 0.5− | 2009 09 25 | 704 | (1.6+ | 0.1−) | | |
| 2001 09 28 | 644 | 0.4+ | 0.9+ | 2005 10 01 | 703 | 0.1+ | 0.4+ | 2009 09 25 | 704 | 1.4− | 1.0+ | | |
| 2001 09 28 | 644 | 0.4+ | 0.9+ | 2006 12 01 | G96 | 0.1+ | 0.2− | 2009 09 25 | 703 | 0.4− | 0.1− | | |
| 2001 10 13 | 699 | 0.5+ | 0.7− | 2006 12 01 | G96 | 0.3+ | 0.5− | 2009 09 25 | 704 | 1.0+ | 0.4− | | |
| 2001 10 13 | 699 | (0.0 | 2.0+) | 2006 12 01 | G96 | 0.1+ | 0.5− | 2009 09 25 | 703 | 0.3− | 0.6− | | |
| 2001 10 13 | 699 | 0.1− | 0.1− | 2006 12 01 | G96 | 0.2− | 0.1+ | 2009 09 25 | 704 | 1.4+ | 0.9+ | | |
| 2001 10 13 | 699 | 0.8− | 0.0 | 2006 12 21 | G96 | 0.1+ | 0.2− | 2009 09 25 | 703 | 0.9+ | 0.5+ | | |
| 2001 10 17 | 704 | 0.9+ | 0.1+ | 2006 12 21 | G96 | 0.1− | 0.4− | 2009 09 25 | 703 | 0.7− | 0.2+ | | |
| 2001 10 17 | 704 | 0.5− | 0.6− | 2006 12 21 | G96 | 0.2+ | 1.0− | 2009 09 25 | 703 | 0.0 | 0.1− | | |
| 2001 10 17 | 704 | 0.8+ | 0.1+ | 2006 12 21 | G96 | 0.0 | 0.4− | 2009 09 25 | 703 | 1.0− | 1.0− | | |
| 2001 10 17 | 704 | 0.1+ | 0.5+ | 2007 02 09 | 691 | 0.3− | 0.1+ | 2009 09 25 | 703 | 0.5+ | 0.6− | | |
| 2001 10 17 | 704 | 0.0 | 0.1+ | 2007 02 09 | 691 | 0.0 | 0.2+ | 2009 09 25 | 703 | 1.1+ | 0.3+ | | |
| 2001 10 23 | 644 | 0.8− | 0.5− | 2007 02 09 | 691 | 0.3− | 0.2+ | 2009 10 24 | 703 | 0.6+ | 0.2− | | |
| 2001 10 23 | 644 | 0.6− | 0.4− | 2007 02 17 | 703 | (0.5− | 3.6+) | 2009 10 24 | 703 | 1.1− | 0.8− | | |
| 2001 10 23 | 644 | 1.1− | 0.2− | 2007 02 17 | 703 | (2.9− | 0.4−) | 2009 10 24 | 703 | 0.5+ | 0.4+ | | |
| 2002 12 07 | 645 | 0.1+ | 0.0 | 2007 02 17 | 703 | 0.0 | 0.8+ | 2009 10 24 | 703 | (1.9+ | 1.9−) | | |
| 2002 12 07 | 645 | 0.0 | 0.0 | 2007 02 17 | 703 | 0.8+ | 0.7+ | 2009 12 20 | G96 | 0.2− | 0.1− | | |
| 2005 08 29 | 644 | 0.0 | 0.2+ | 2007 02 26 | G96 | 0.6− | 0.2− | 2009 12 20 | G96 | 0.2− | 0.0 | | |
| 2005 08 29 | 644 | 0.3− | 0.2+ | 2007 02 26 | G96 | 0.4+ | 0.5− | 2009 12 20 | G96 | 0.1− | 0.4− | | |
| 2005 08 29 | 644 | 0.4+ | 0.1− | 2007 02 26 | G96 | 0.2+ | 0.0 | 2009 12 20 | G96 | 0.3− | 0.2+ | | |
| 2005 09 29 | 699 | 0.6+ | 0.4− | 2007 02 26 | G96 | 0.1+ | 0.2− | | | | | | |
| 2005 09 29 | 699 | 0.9− | 1.1+ | 2009 09 17 | 703 | 0.4+ | 0.1+ | | | | | | |

**(228520)∗ 2001 UJ**

Discovered 2001 Oct. 16 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 20.30176 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.37117348 | $\omega$ | 4.93292 | | +0.71436311 | −0.65205668 | |
| $a$ | 1.9175709 | $\Omega$ | 39.84441 | | +0.62770991 | +0.43667618 | |
| $e$ | 0.0980421 | $i$ | 23.35407 | | +0.30929859 | +0.61978706 | |
| $P$ | 2.66 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 23 | 699 | 0.0 | 0.6− | 2001 11 17 | 704 | 0.4+ | 0.4+ | 2009 10 15 | J75 | 0.4+ | 0.5− | | |
| 2001 09 23 | 699 | 0.6− | 0.4− | 2001 11 17 | 704 | 0.7+ | 0.1+ | 2009 10 16 | J75 | 0.1+ | 0.5− | | |
| 2001 09 23 | 699 | 0.5+ | 0.4− | 2001 11 17 | 704 | 0.1+ | 0.5+ | 2009 10 18 | J75 | 0.1+ | 0.1− | | |
| 2001 09 23 | 699 | 0.1+ | 0.1− | 2001 11 17 | 704 | 0.2+ | 0.4+ | 2009 10 18 | J75 | 0.4+ | 0.0 | | |
| 2001 10 12 | 608 | 0.7− | 1.0+ | 2001 11 17 | 704 | 0.0 | 0.1+ | 2009 10 19 | J75 | 1.1+ | 0.3+ | | |
| 2001 10 12 | 608 | 1.0− | 0.9+ | 2001 11 19 | 704 | 0.3− | 1.0+ | 2009 10 21 | 703 | 0.4+ | 0.1+ | | |
| 2001 10 12 | 608 | 0.7− | 0.7+ | 2001 11 19 | 704 | 1.3− | 1.1+ | 2009 10 21 | 703 | 0.5+ | 0.3+ | | |
| 2001 10 14 | 699 | 0.8− | 1.1− | 2001 11 19 | 704 | 0.6− | 0.6+ | 2009 10 21 | 703 | 1.1+ | 0.1− | | |
| 2001 10 14 | 699 | 0.8+ | 0.5+ | 2001 11 19 | 704 | 1.0− | 0.9+ | 2009 10 21 | 703 | 0.1+ | 0.3− | | |
| 2001 10 14 | 699 | 0.6− | 0.3+ | 2001 11 19 | 704 | 0.6− | 1.1+ | 2009 10 22 | 704 | 0.1+ | 0.1+ | | |
| 2001 10 14 | 699 | 0.2+ | 0.1− | 2001 11 21 | 608 | 0.1+ | 0.6− | 2009 10 22 | 704 | 0.2+ | 0.3+ | | |
| 2001 10 16 | 704 | 0.1+ | 0.2+ | 2001 11 21 | 608 | 0.5+ | 0.7− | 2009 10 22 | 704 | 0.1+ | 0.7+ | | |
| 2001 10 16 | 704 | 0.9− | 0.3− | 2001 11 21 | 608 | 0.3+ | 0.9− | 2009 10 22 | 704 | 0.3+ | 0.0 | | |
| 2001 10 16 | 704 | 0.3− | 1.0− | 2001 11 24 | 704 | 0.3+ | 0.4+ | 2009 10 22 | 704 | 0.7+ | 0.1+ | | |
| 2001 10 16 | 704 | 1.0− | 1.0− | 2001 11 24 | 704 | 0.7+ | 0.6+ | 2009 10 23 | 691 | 0.5− | 0.2+ | | |
| 2001 10 16 | 704 | 0.4− | 1.3− | 2001 11 24 | 704 | 1.3+ | 0.8+ | 2009 10 23 | 691 | 0.3− | 0.3+ | | |
| 2001 10 17 | 704 | 0.3− | 0.3− | 2001 11 24 | 704 | 0.6+ | 0.9+ | 2009 10 23 | 691 | 0.7− | 0.2+ | | |
| 2001 10 17 | 704 | 0.9− | 0.6− | 2001 11 24 | 704 | 0.1+ | 0.1+ | 2009 10 24 | 703 | 0.1− | 0.8− | | |
| 2001 10 17 | 704 | 0.3+ | 0.6+ | 2002 01 08 | 704 | 0.1− | 0.1+ | 2009 10 24 | 703 | 0.4+ | 0.2− | | |
| 2001 10 17 | 704 | 0.1+ | 0.1− | 2002 01 08 | 704 | 0.3− | 0.0 | 2009 10 24 | 703 | 0.3− | 1.0− | | |
| 2001 10 17 | 704 | 0.2− | 0.2− | 2002 01 08 | 704 | 0.9− | 0.4− | 2009 10 25 | 703 | 0.7+ | 1.0− | | |
| 2001 10 18 | 704 | 0.3− | 0.3+ | 2002 01 08 | 704 | 0.9− | 0.4− | 2009 10 25 | 703 | 0.5+ | 1.1− | | |
| 2001 10 18 | 704 | 0.2+ | 0.1+ | 2005 01 29 | 704 | (0.5− | 1.7+) | 2009 10 25 | 703 | 0.2− | 0.7− | | |
| 2001 10 18 | 704 | 0.1− | 0.7− | 2005 01 29 | 704 | 0.2+ | 0.6+ | 2009 10 25 | 703 | 0.3− | 1.0− | | |
| 2001 10 18 | 704 | 0.4+ | 0.1− | 2005 01 29 | 704 | 0.3+ | 0.6+ | 2009 10 27 | 704 | 0.1+ | 0.2− | | |
| 2001 10 18 | 704 | 0.2+ | 0.4+ | 2006 08 20 | E12 | 0.0 | 0.8+ | 2009 10 27 | 704 | 0.2+ | 0.3− | | |
| 2001 10 20 | 704 | 0.2− | 0.0 | 2006 08 20 | E12 | 0.4+ | 0.4+ | 2009 10 27 | 704 | 0.3+ | 0.3+ | | |
| 2001 10 20 | 704 | 0.5− | 0.2− | 2006 08 20 | E12 | 0.2− | 0.4− | 2009 10 27 | 704 | 0.5+ | 0.8+ | | |
| 2001 10 20 | 704 | 0.0 | 0.1− | 2006 08 20 | E12 | 0.2+ | 0.4+ | 2009 11 06 | 703 | 0.5+ | 0.8− | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 10 20 | 704 | 0.0 | 0.2− | 2008 03 06 | 703 | 0.5− | 0.7+ | 2009 11 06 | 703 | 0.2+ | 0.3− | | |
| 2001 10 20 | 704 | 0.2− | 0.1− | 2008 03 06 | 703 | 1.1− | 0.4− | 2009 11 06 | 703 | 0.4+ | 0.3− | | |
| 2001 10 22 | 704 | 0.7+ | 1.0+ | 2008 03 06 | 703 | 0.3− | 0.6− | 2009 11 06 | 703 | 0.2+ | 0.3− | | |
| 2001 10 22 | 704 | 0.7− | 0.8+ | 2008 03 06 | 703 | (0.9− | 2.7−) | 2009 11 10 | J75 | 0.4+ | 0.2− | | |
| 2001 10 22 | 704 | 1.0− | 0.3+ | 2008 03 30 | 703 | 1.4+ | 0.2− | 2009 11 10 | J75 | 0.5+ | 0.8− | | |
| 2001 10 22 | 704 | 0.9− | 0.3+ | 2008 03 30 | 703 | 0.3− | 0.2− | 2009 11 10 | J75 | 0.7+ | 0.7− | | |
| 2001 10 24 | 704 | 0.1+ | 0.4− | 2008 03 30 | 703 | 0.0 | 0.9− | 2009 11 12 | 704 | 0.1+ | 0.2+ | | |
| 2001 10 24 | 704 | 0.1+ | 0.3− | 2008 03 30 | 703 | 0.1− | 0.0 | 2009 11 12 | 704 | 0.4− | 0.1+ | | |
| 2001 10 24 | 704 | 0.4+ | 0.7− | 2008 04 03 | 704 | (1.7+ | 1.3+) | 2009 11 12 | 704 | 0.1+ | 0.3+ | | |
| 2001 10 24 | 704 | 0.6+ | 0.2− | 2008 04 03 | 704 | 1.3+ | 0.6+ | 2009 11 16 | 704 | 0.1− | 0.2+ | | |
| 2001 10 24 | 704 | 0.1− | 0.2+ | 2008 04 03 | 704 | 0.8+ | 0.4− | 2009 11 16 | 704 | 0.4− | 0.8+ | | |
| 2001 10 24 | 644 | 0.2+ | 0.9+ | 2008 04 03 | 704 | 1.0+ | 0.2− | 2009 11 16 | 704 | 0.3+ | 0.1− | | |
| 2001 10 24 | 644 | 0.2+ | 0.7+ | 2008 04 07 | 703 | 0.9+ | 0.6+ | 2009 11 16 | 704 | 0.2− | 0.3+ | | |
| 2001 10 24 | 644 | 0.2+ | 0.6+ | 2008 04 07 | 703 | 0.3− | 0.7− | 2009 11 16 | 704 | 0.1+ | 0.7+ | | |
| 2001 10 26 | 704 | 0.1− | 0.0 | 2008 04 07 | 703 | 0.2− | 0.2+ | 2009 11 21 | 704 | (2.7− | 0.3+) | | |
| 2001 10 26 | 704 | 0.4− | 0.3− | 2008 04 07 | 703 | 0.9− | 0.1+ | 2009 11 21 | 704 | 0.3− | 0.5+ | | |
| 2001 10 26 | 704 | 0.5− | 0.6− | 2008 04 12 | 703 | 0.4− | 0.1+ | 2009 11 21 | 704 | 0.0 | 0.2+ | | |
| 2001 10 26 | 704 | 0.4− | 0.3− | 2008 04 12 | 703 | 0.0 | 0.9+ | 2009 11 26 | 703 | 0.0 | 0.1+ | | |
| 2001 10 26 | 704 | 0.3− | 0.9− | 2008 04 12 | 703 | 0.6− | 0.5+ | 2009 11 26 | 703 | 0.3+ | 1.4− | | |
| 2001 11 09 | 704 | 0.5+ | 0.3+ | 2008 04 12 | 703 | 1.3− | 0.2+ | 2009 11 26 | 703 | 0.4+ | 0.2− | | |
| 2001 11 09 | 704 | 0.3+ | 0.1+ | 2009 10 12 | J75 | 0.5+ | 0.2+ | 2009 11 26 | 703 | 1.1+ | 0.1+ | | |
| 2001 11 09 | 704 | 0.0 | 0.1+ | 2009 10 12 | J75 | 0.0 | 0.4− | 2009 11 26 | 703 | 0.3+ | 0.4− | | |
| 2001 11 09 | 704 | 0.3+ | 0.3+ | 2009 10 12 | J75 | 0.0 | 0.4− | 2009 12 10 | 704 | 0.1− | 0.2+ | | |
| 2001 11 09 | 704 | 0.2+ | 0.8+ | 2009 10 12 | J75 | 0.5+ | 0.6− | 2009 12 10 | 704 | 0.1− | 0.2− | | |
| 2001 11 16 | 644 | 0.4+ | 0.7+ | 2009 10 12 | J75 | 0.0 | 0.4− | 2009 12 10 | 704 | 0.2− | 0.2− | | |
| 2001 11 16 | 644 | 0.4+ | 0.9+ | 2009 10 12 | J75 | 0.0 | 0.6− | 2009 12 10 | 704 | 0.4− | 0.7− | | |
| 2001 11 16 | 644 | 0.1+ | 0.7+ | 2009 10 15 | J75 | 0.4+ | 0.3− | | | | | | |

**(228521)∗ 2001 UX$_2$ = 2005 UL$_{366}$**

Discovered 2001 Oct. 16 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. A. Doppler (*MPO* 100076)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 98.25787 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.25950584 | $\omega$ | 240.93454 | | +0.75756109 | +0.64464801 | |
| $a$ | 2.4342843 | $\Omega$ | 78.72988 | | −0.55661262 | +0.72006388 | |
| $e$ | 0.2083560 | $i$ | 6.00609 | | −0.34100378 | +0.25678191 | |
| $P$ | 3.80 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 10 10 | 644 | 0.5− | 0.5− | 2005 10 27 | 691 | 0.0 | 0.3− | 2008 06 12 | 691 | 0.4+ | 0.8+ | | |
| 2001 10 10 | 644 | 0.1− | 0.4− | 2005 10 31 | 691 | 0.3− | 0.4+ | 2008 06 12 | 691 | 0.2− | 0.2+ | | |
| 2001 10 10 | 644 | 0.3− | 1.1− | 2005 10 31 | 691 | 0.1− | 0.1− | 2009 11 20 | 691 | 0.6− | 0.3+ | | |
| 2001 10 16 | 704 | 0.8− | 1.1+ | 2005 10 31 | 691 | 0.1+ | 0.1− | 2009 11 20 | 691 | 0.6− | 0.0 | | |
| 2001 10 16 | 704 | 0.0 | 0.1+ | 2005 11 04 | 691 | 0.1+ | 0.5− | 2009 11 20 | 691 | (1.7+ | 0.6−) | | |
| 2001 10 16 | 704 | 0.1− | 0.8+ | 2005 11 04 | 691 | 0.2− | 0.0 | 2009 11 24 | 691 | 0.3− | 0.1+ | | |
| 2001 10 16 | 704 | 0.1+ | 0.9+ | 2005 11 04 | 691 | 0.0 | 0.1− | 2009 11 24 | 691 | 0.2− | 0.4+ | | |
| 2001 10 16 | 704 | 0.7− | 0.0 | 2005 12 06 | 691 | 0.6+ | 0.7+ | 2009 11 24 | 691 | 0.2− | 0.5+ | | |
| 2001 10 17 | 704 | 0.7+ | 0.4− | 2005 12 06 | 691 | 0.2+ | 0.0 | 2009 12 10 | G96 | 0.2+ | 0.2− | | |
| 2001 10 17 | 704 | 0.2− | 0.2+ | 2005 12 06 | 691 | 0.5+ | 0.4+ | 2009 12 10 | G96 | 0.5+ | 0.2+ | | |
| 2001 10 17 | 704 | 0.1− | 0.1+ | 2005 12 29 | G96 | 0.3+ | 0.1− | 2009 12 10 | G96 | 0.3+ | 0.0 | | |
| 2001 10 17 | 704 | 0.1− | 0.3− | 2005 12 29 | G96 | 0.6+ | 0.2− | 2009 12 10 | G96 | 0.6+ | 0.1+ | | |
| 2001 10 21 | 644 | 0.0 | 0.3+ | 2005 12 29 | G96 | 0.2− | 0.1− | 2009 12 13 | G96 | 0.5+ | 0.3+ | | |
| 2001 10 21 | 644 | 0.0 | 0.1− | 2005 12 29 | G96 | 0.1+ | 0.8− | 2009 12 13 | G96 | 0.3+ | 0.7+ | | |
| 2001 10 24 | 644 | 0.0 | 0.3+ | 2008 05 27 | G96 | 0.3+ | 0.0 | 2009 12 13 | G96 | 0.7+ | 0.3+ | | |
| 2001 10 24 | 644 | 0.1+ | 0.4+ | 2008 05 27 | G96 | 0.6+ | 0.1− | 2009 12 13 | G96 | 0.6+ | 0.2+ | | |
| 2001 10 24 | 644 | 0.3+ | 0.0 | 2008 05 27 | G96 | 0.2+ | 0.3+ | 2009 12 13 | G96 | 0.5+ | 0.0 | | |
| 2005 10 27 | 691 | 0.0 | 0.4− | 2008 05 27 | G96 | 0.9+ | 0.2+ | | | | | | |
| 2005 10 27 | 691 | 0.1− | 0.1− | 2008 06 12 | 691 | 0.2− | 0.1+ | | | | | | |

**(228522)∗ 2001 UY$_{25}$**

Discovered 2001 Oct. 18 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 20.17278 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.25421703 | $\omega$ | 101.38103 | | +0.50043768 | −0.86323367 | |
| $a$ | 2.4679307 | $\Omega$ | 318.37487 | | +0.75035259 | +0.47062627 | |
| $e$ | 0.1640029 | $i$ | 5.72442 | | +0.43189481 | +0.18258846 | |
| $P$ | 3.88 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 20 | 704 | 0.4+ | 0.2+ | 2001 11 21 | 704 | 1.2+ | 0.4− | 2005 12 03 | 703 | 0.3+ | 1.0− | | |
| 2001 09 20 | 704 | 0.7+ | 0.1− | 2001 11 21 | 704 | (0.2+ | 1.8−) | 2005 12 03 | 703 | 0.0 | 0.7− | | |
| 2001 09 20 | 704 | 0.0 | 0.8+ | 2001 12 11 | 704 | 0.0 | 0.9+ | 2005 12 08 | 703 | 0.6+ | 0.4+ | | |
| 2001 09 20 | 704 | 0.2− | 0.5+ | 2001 12 11 | 704 | 0.5+ | 0.6− | 2005 12 08 | 703 | 0.0 | 0.0 | | |
| 2001 09 23 | 704 | 0.0 | 0.2− | 2001 12 11 | 704 | 0.5+ | 0.2− | 2005 12 08 | 703 | 0.0 | 0.3− | | |
| 2001 09 23 | 704 | 0.1+ | 0.4− | 2001 12 11 | 704 | (1.5+ | 0.8−) | 2005 12 08 | 703 | 0.0 | 0.3+ | | |
| 2001 09 23 | 704 | 0.5+ | 0.4+ | 2002 01 09 | 704 | 0.7+ | 0.0 | 2006 01 21 | 703 | (0.9− | 1.8+) | | |
| 2001 10 15 | 333 | 0.1+ | 0.3+ | 2002 01 09 | 704 | 0.9+ | 0.5+ | 2006 01 21 | 703 | (2.5+ | 0.7−) | | |
| 2001 10 15 | 333 | 0.5− | 0.3− | 2002 01 09 | 704 | 0.0 | 0.6+ | 2006 01 21 | 703 | (2.8− | 0.7−) | | |
| 2001 10 15 | 333 | 0.2− | 0.4− | 2005 10 03 | 644 | 0.2− | 0.2− | 2006 01 21 | 703 | 0.1+ | 1.1+ | | |
| 2001 10 18 | 704 | 0.4− | 0.5+ | 2005 10 03 | 644 | 0.1+ | 0.1+ | 2006 01 25 | 213 | 0.4+ | 0.6− | | |
| 2001 10 18 | 704 | 0.0 | 0.5+ | 2005 10 03 | 644 | 0.2− | 0.3− | 2006 01 25 | 213 | 0.4+ | 0.3− | | |
| 2001 10 18 | 704 | 0.2+ | 0.6− | 2005 10 14 | 704 | 1.3+ | 0.2+ | 2006 01 25 | 213 | 0.6+ | 0.3− | | |
| 2001 10 18 | 704 | 0.4+ | 0.1+ | 2005 10 14 | 704 | 0.7+ | 0.6+ | 2006 01 27 | 703 | 0.2+ | 0.5+ | | |
| 2001 10 18 | 704 | 0.5− | 0.5+ | 2005 10 14 | 704 | 1.5− | 0.1+ | 2006 01 27 | 703 | 0.0 | 0.4+ | | |
| 2001 10 19 | 704 | 0.5− | 0.3+ | 2005 10 14 | 704 | 1.1− | 0.9+ | 2006 01 27 | 703 | 1.1− | 0.4+ | | |
| 2001 10 19 | 704 | 0.2− | 0.1+ | 2005 10 29 | 703 | 0.4− | 0.2+ | 2006 01 27 | 703 | 0.1+ | 0.1+ | | |
| 2001 10 19 | 704 | 0.8− | 0.0 | 2005 10 29 | 703 | 0.3− | 0.2+ | 2006 03 04 | G96 | 0.2+ | 0.4− | | |
| 2001 10 19 | 704 | 0.2+ | 0.3− | 2005 10 29 | 703 | 0.2− | 0.7+ | 2006 03 04 | G96 | 0.3− | 0.8− | | |
| 2001 10 19 | 704 | 0.1− | 0.1− | 2005 10 29 | 703 | (1.8− | 1.2+) | 2006 03 04 | G96 | 0.1− | 0.0 | | |
| 2001 10 20 | 644 | 0.4− | 0.1+ | 2005 10 29 | 644 | 0.4+ | 0.2− | 2006 03 04 | G96 | 0.2− | 0.4− | | |
| 2001 10 20 | 644 | 0.6− | 0.0 | 2005 10 29 | 644 | 0.5+ | 0.2− | 2006 03 04 | G96 | 0.2− | 0.2− | | |
| 2001 10 20 | 644 | 0.6− | 0.0 | 2005 10 29 | 644 | 0.0 | 0.3− | 2006 03 04 | G96 | 0.2− | 0.0 | | |
| 2001 10 28 | 704 | 0.6+ | 0.7− | 2005 11 02 | 704 | 0.4+ | 0.5+ | 2006 03 04 | G96 | 0.0 | 0.1− | | |
| 2001 10 28 | 704 | 0.0 | 0.1− | 2005 11 02 | 704 | 0.3+ | 0.1+ | 2006 03 04 | G96 | 0.3− | 0.1− | | |
| 2001 10 28 | 704 | 0.1− | 0.3− | 2005 11 02 | 704 | 0.1− | 0.1+ | 2006 03 05 | G96 | 0.7− | 0.1+ | | |
| 2001 10 28 | 704 | 0.0 | 0.3− | 2005 11 02 | 704 | 0.2+ | 0.2+ | 2006 03 05 | G96 | 0.2− | 0.1+ | | |
| 2001 11 10 | 704 | 0.4− | 0.9− | 2005 11 02 | 704 | 0.4+ | 0.2+ | 2006 03 05 | G96 | 0.2− | 0.3− | | |
| 2001 11 10 | 704 | 0.8− | 0.6+ | 2005 11 09 | 704 | 0.1+ | 1.0+ | 2006 03 05 | G96 | 0.0 | 0.3− | | |
| 2001 11 10 | 704 | 0.0 | 0.0 | 2005 11 09 | 704 | 0.1+ | 0.4+ | 2007 04 12 | A44 | 0.4+ | 1.2+ | | |
| 2001 11 10 | 704 | 0.6+ | 0.3+ | 2005 11 09 | 704 | 0.4− | 0.7+ | 2007 04 12 | A44 | 0.4+ | 1.3+ | | |
| 2001 11 11 | 699 | 0.5+ | 0.8+ | 2005 11 21 | 699 | 0.1− | 0.3− | 2007 04 12 | A44 | 0.9+ | 0.5+ | | |
| 2001 11 11 | 699 | 0.8+ | 0.4− | 2005 11 21 | 699 | 0.2− | 0.3− | 2009 11 16 | 704 | 0.7+ | 0.4+ | | |
| 2001 11 11 | 699 | 0.1− | 0.3+ | 2005 11 21 | 699 | 0.0 | 0.3− | 2009 11 16 | 704 | 0.6+ | 0.1+ | | |
| 2001 11 11 | 699 | 0.8+ | 0.5+ | 2005 11 21 | 703 | 0.4+ | 0.5− | 2009 11 16 | 704 | 0.1− | 0.0 | | |
| 2001 11 12 | 704 | (1.4+ | 1.9+) | 2005 11 21 | 703 | 1.4− | 0.1− | 2009 11 16 | 704 | 0.7+ | 0.1+ | | |
| 2001 11 12 | 704 | 1.2+ | 0.3− | 2005 11 21 | 703 | 0.4− | 0.0 | 2009 11 16 | 704 | 0.1+ | 0.8+ | | |
| 2001 11 12 | 704 | 0.7− | 0.1− | 2005 11 21 | 703 | 0.3− | 0.2− | 2009 11 23 | 704 | 1.1− | 0.5+ | | |
| 2001 11 12 | 704 | 0.3− | 0.9+ | 2005 11 21 | 644 | 0.2− | 0.1+ | 2009 11 23 | 704 | 0.3+ | 0.2+ | | |
| 2001 11 12 | 704 | 0.4+ | 1.0− | 2005 11 21 | 644 | 0.2− | 0.1− | 2009 11 23 | 704 | 0.2− | 0.1+ | | |
| 2001 11 20 | 699 | (1.7+ | 0.2+) | 2005 11 21 | 644 | 0.4− | 0.1− | 2009 12 15 | 704 | 0.1+ | 0.3+ | | |
| 2001 11 20 | 699 | 0.2− | 0.4+ | 2005 11 28 | 704 | 0.1+ | 0.3+ | 2009 12 15 | 704 | 0.4+ | 0.6− | | |
| 2001 11 20 | 699 | 0.4− | 0.5− | 2005 11 28 | 704 | 0.3+ | 0.0 | 2009 12 15 | 704 | 0.2− | 1.0− | | |
| 2001 11 20 | 699 | 0.4− | 0.2+ | 2005 11 28 | 704 | 0.2− | 0.1+ | 2009 12 15 | 704 | 0.2+ | 0.8− | | |
| 2001 11 21 | 704 | 0.8− | 0.8− | 2005 11 28 | 704 | 1.3+ | 0.6− | 2009 12 15 | 704 | 0.7− | 0.7+ | | |
| 2001 11 21 | 704 | 0.3− | 0.2− | 2005 12 03 | 703 | 0.1− | 0.3− | | | | | | |
| 2001 11 21 | 704 | 0.5− | 0.2− | 2005 12 03 | 703 | 0.1+ | 0.2− | | | | | | |

**(228523)∗ 2001 UX$_{29}$ = 1990 UF$_{14}$**

Discovered 2001 Oct. 16 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 88998)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 99.68345 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26643849 | $\omega$ | 203.51193 | | +0.97870882 | +0.19406114 | |
| $a$ | 2.3918728 | $\Omega$ | 145.08827 | | −0.16486192 | +0.93726621 | |
| $e$ | 0.2515970 | $i$ | 6.70814 | | −0.12226853 | +0.28960718 | |
| $P$ | 3.70 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1990 10 20 | 413 | 1.5− | 0.0 | 2001 10 16 | 704 | 0.1− | 0.5− | 2005 12 08 | 704 | 0.4+ | 0.1− |
| 1990 10 20 | 413 | 0.4+ | 1.6+ | 2001 10 16 | 704 | 0.6+ | 0.1− | 2005 12 08 | 704 | 0.5− | 0.1− |
| 2000 03 09 | 691 | 0.2+ | 0.1− | 2001 10 19 | 699 | 0.3+ | 0.3+ | 2005 12 08 | 703 | 0.5+ | 0.7+ |
| 2000 03 09 | 691 | 0.1+ | 0.1− | 2001 10 19 | 699 | 0.7− | 0.1+ | 2005 12 08 | 703 | 0.6+ | 0.8− |
| 2000 03 09 | 691 | 0.2+ | 0.2− | 2001 10 19 | 699 | 0.4− | 0.3+ | 2005 12 08 | 704 | 0.4− | 1.3+ |
| 2000 05 04 | 645 | 0.1+ | 0.1+ | 2001 10 19 | 699 | 0.5− | 0.3+ | 2005 12 08 | 704 | 0.7+ | 0.1− |
| 2000 05 04 | 645 | 0.1+ | 0.1+ | 2001 10 20 | 704 | 0.3− | 0.4+ | 2005 12 08 | 704 | 0.5− | 0.5− |
| 2001 08 25 | 704 | 0.2+ | 0.9+ | 2001 10 20 | 704 | 0.3− | 0.3+ | 2005 12 08 | G96 | 0.3+ | 0.1+ |
| 2001 08 25 | 704 | 1.0− | 0.8+ | 2001 10 20 | 704 | 0.5− | 0.7+ | 2005 12 08 | G96 | 0.2+ | 0.1+ |
| 2001 08 25 | 704 | (1.6− | 0.5−) | 2001 10 20 | 704 | 0.1+ | 0.7+ | 2005 12 08 | G96 | 0.3+ | 0.1+ |
| 2001 09 12 | 644 | 0.4− | 0.1− | 2001 10 20 | 704 | 0.5− | 0.4+ | 2005 12 08 | G96 | 0.4+ | 0.0 |
| 2001 09 12 | 644 | 0.7− | 0.4+ | 2001 10 23 | 644 | 0.5− | 0.3+ | 2005 12 09 | 704 | (1.9+ | 3.0−) |
| 2001 09 12 | 644 | 0.1+ | 0.3+ | 2001 10 23 | 644 | 0.5− | 0.2+ | 2005 12 09 | 704 | 0.7+ | 0.1− |
| 2001 09 16 | 704 | 0.8− | 0.1− | 2001 10 23 | 644 | 0.4− | 0.2+ | 2005 12 09 | 704 | 0.1− | 0.6− |
| 2001 09 16 | 704 | 0.7− | 0.2− | 2001 10 24 | 644 | 0.3− | 0.5+ | 2005 12 10 | 704 | 0.7+ | 0.6− |
| 2001 09 16 | 704 | 1.5− | 1.0− | 2001 10 24 | 644 | 0.2− | 0.5+ | 2005 12 10 | 704 | 0.4− | 0.1+ |
| 2001 09 16 | 704 | 0.6− | 0.3− | 2001 10 24 | 644 | 0.4− | 0.5+ | 2005 12 10 | 704 | 0.3− | 0.2+ |
| 2001 09 16 | 704 | 0.8− | 0.1− | 2001 11 15 | 644 | 0.1− | 0.3+ | 2005 12 10 | 704 | 0.6+ | 0.8+ |
| 2001 09 18 | 645 | 0.1+ | 0.1− | 2001 11 15 | 644 | 0.5− | 0.4+ | 2005 12 10 | 704 | 0.2− | 0.5+ |
| 2001 09 18 | 645 | 0.1+ | 0.1− | 2001 11 15 | 644 | 0.2− | 0.2+ | 2007 03 10 | 691 | 0.0 | 0.3+ |
| 2001 09 21 | 645 | 0.1+ | 0.0 | 2004 05 23 | 704 | 0.3− | 0.7+ | 2007 03 10 | 691 | 0.1− | 0.3+ |
| 2001 09 21 | 645 | 0.0 | 0.0 | 2004 05 23 | 704 | 0.6− | 1.3+ | 2007 03 10 | 691 | 0.1− | 0.1− |
| 2001 09 25 | 704 | 1.0+ | 0.4+ | 2004 05 23 | 704 | 0.3+ | 0.8+ | 2007 03 14 | 691 | 0.2− | 0.2+ |
| 2001 09 25 | 704 | 0.2+ | 0.2+ | 2004 05 23 | 704 | (1.0− | 2.2+) | 2007 03 14 | 691 | 0.1− | 0.2+ |
| 2001 09 25 | 704 | 0.3+ | 0.7− | 2004 05 23 | 704 | 0.2+ | 0.7+ | 2007 03 14 | 691 | 0.1+ | 0.2+ |
| 2001 09 25 | 704 | 1.0+ | 0.0 | 2005 12 08 | 704 | 0.6+ | 1.4+ | 2009 12 19 | 691 | 0.2− | 0.1− |
| 2001 09 25 | 704 | 0.6+ | 0.1+ | 2005 12 08 | 704 | (0.0 | 1.7+) | 2009 12 19 | 691 | 0.0 | 0.2− |
| 2001 10 15 | 644 | 0.2+ | 0.5+ | 2005 12 08 | 704 | 0.6− | 0.1− | 2009 12 19 | 691 | 0.2− | 0.2− |
| 2001 10 15 | 644 | 0.1+ | 0.5+ | 2005 12 08 | 703 | 0.3+ | 0.4+ | 2009 12 27 | 691 | 0.5− | 0.4− |
| 2001 10 15 | 644 | 0.1+ | 0.4+ | 2005 12 08 | 704 | 1.2+ | 0.4− | 2009 12 27 | 691 | 0.3− | 0.0 |
| 2001 10 16 | 704 | 0.4− | 0.4− | 2005 12 08 | 704 | 0.1− | 0.1+ | 2009 12 27 | 691 | 0.3+ | 0.1+ |
| 2001 10 16 | 704 | 0.8− | 0.0 | 2005 12 08 | 703 | 0.2− | 0.2− | | | | |
| 2001 10 16 | 704 | 0.3+ | 0.4− | 2005 12 08 | 704 | 0.2+ | 0.4+ | | | | |

**(228524)∗ 2001 UP$_{31}$ = 2005 UG$_{103}$**

Discovered 2001 Oct. 16 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 88998)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 104.07183 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.25947296 | $\omega$ | 239.46081 | | +0.71257538 | +0.69930713 | |
| $a$ | 2.4344899 | $\Omega$ | 76.10040 | | −0.62206585 | +0.66706119 | |
| $e$ | 0.2226414 | $i$ | 3.34387 | | −0.32445402 | +0.25690252 | |
| $P$ | 3.80 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 03 03 | 645 | 0.2+ | 0.0 | 2004 04 22 | 704 | 0.0 | 1.2− | 2005 11 29 | G96 | 0.1+ | 0.0 |
| 2000 03 03 | 645 | 0.2+ | 0.0 | 2005 10 22 | 691 | 0.3+ | 0.2+ | 2005 11 29 | G96 | 0.1+ | 0.0 |
| 2000 05 04 | 645 | 0.1− | 0.1+ | 2005 10 22 | 691 | 0.0 | 0.2+ | 2008 05 08 | B01 | 0.3+ | 0.3+ |
| 2000 05 04 | 645 | 0.1− | 0.2+ | 2005 10 22 | 691 | 0.1+ | 0.3+ | 2008 05 08 | B01 | 0.1− | 0.1− |
| 2001 10 16 | 704 | 0.4+ | 0.3− | 2005 10 27 | 691 | 0.4+ | 0.0 | 2008 05 08 | B01 | 0.4+ | 0.2+ |
| 2001 10 16 | 704 | 0.4+ | 0.9− | 2005 10 27 | 691 | 0.3+ | 0.1+ | 2009 11 08 | 691 | 0.1+ | 0.1− |
| 2001 10 16 | 704 | (0.3+ | 2.2−) | 2005 10 27 | 691 | 0.0 | 0.0 | 2009 11 08 | 691 | 0.4− | 0.2− |
| 2001 10 20 | 704 | 0.4− | 0.3+ | 2005 10 31 | 691 | 0.1− | 0.0 | 2009 11 08 | 691 | 0.2− | 0.0 |
| 2001 10 20 | 704 | 0.2− | 0.6+ | 2005 10 31 | 691 | 0.1+ | 0.3+ | 2009 11 20 | 691 | 0.4− | 0.0 |
| 2001 10 20 | 704 | 0.3− | 0.3+ | 2005 10 31 | 691 | 0.1+ | 0.0 | 2009 11 20 | 691 | 0.5− | 0.1− |
| 2001 10 20 | 704 | 0.5− | 0.6+ | 2005 11 10 | 691 | 0.1− | 0.2+ | 2009 11 20 | 691 | 0.7− | 0.1− |
| 2001 10 24 | 704 | 1.2− | 0.3+ | 2005 11 10 | 691 | 0.3− | 0.3− | 2009 12 10 | G96 | 0.6+ | 0.3− |
| 2001 10 24 | 704 | 0.7− | 1.0+ | 2005 11 10 | 691 | 0.2+ | 0.1+ | 2009 12 10 | G96 | 0.4+ | 0.3− |
| 2001 10 24 | 704 | 1.4− | 0.5− | 2005 11 25 | 691 | 0.1+ | 0.2+ | 2009 12 10 | G96 | 0.6+ | 0.4− |
| 2001 10 24 | 704 | 0.2− | 0.2+ | 2005 11 25 | 691 | 0.1+ | 0.1+ | 2009 12 19 | G96 | 0.2+ | 0.1− |
| 2004 04 22 | 704 | 1.0− | 0.7+ | 2005 11 25 | 691 | 0.1− | 0.3+ | 2009 12 19 | G96 | 0.6+ | 0.5− |
| 2004 04 22 | 704 | 0.6− | 0.6+ | 2005 11 29 | G96 | 0.3+ | 0.2+ | 2009 12 19 | G96 | 0.6+ | 0.1+ |
| 2004 04 22 | 704 | 0.6+ | 0.6+ | 2005 11 29 | G96 | 0.4+ | 0.1− | 2009 12 19 | G96 | 0.4+ | 0.1− |

**(228525)∗ 2001 UE$_{43}$**

Discovered 2001 Oct. 17 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 349.87190 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24580490 | $\omega$ | 2.14646 | | +0.40289216 | −0.91369866 | |
| $a$ | 2.5239206 | $\Omega$ | 64.09813 | | +0.83883918 | +0.34537198 | |
| $e$ | 0.1495179 | $i$ | 3.39197 | | +0.36609662 | +0.21417975 | |
| $P$ | 4.01 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 21 | 704 | 0.1+ | 0.2+ | 2005 09 23 | 691 | 0.1+ | 0.1+ | 2007 03 14 | 291 | 0.2− | 0.0 |
| 2001 09 21 | 704 | 0.6+ | 0.9+ | 2005 09 23 | 691 | 0.1− | 0.3+ | 2007 03 14 | 291 | 0.2− | 0.1− |
| 2001 09 21 | 704 | 0.1+ | 0.4− | 2005 10 01 | 703 | 0.6+ | 0.8− | 2007 03 14 | 291 | 0.1+ | 0.1− |
| 2001 09 21 | 704 | 1.3+ | 0.6+ | 2005 10 01 | 703 | (1.6+ | 1.6−) | 2007 03 15 | 291 | 0.5+ | 0.3− |
| 2001 10 17 | 704 | 0.4+ | 0.4+ | 2005 10 01 | 703 | 0.9+ | 0.4+ | 2007 03 15 | 291 | 0.1− | 0.0 |
| 2001 10 17 | 704 | 0.4+ | 0.4− | 2005 10 01 | 691 | 0.1+ | 0.1+ | 2007 03 15 | 291 | 0.1+ | 0.3+ |
| 2001 10 17 | 704 | 0.0 | 0.4+ | 2005 10 01 | 703 | 1.3− | 0.2− | 2009 09 21 | 691 | 0.2− | 0.1+ |
| 2001 10 17 | 704 | 0.4+ | 0.9+ | 2005 10 01 | 691 | 0.0 | 0.1+ | 2009 09 21 | 691 | 0.2− | 0.1− |
| 2001 10 18 | 644 | 0.4− | 0.6+ | 2005 10 01 | 691 | 0.1+ | 0.4+ | 2009 09 21 | 691 | 0.0 | 0.2− |
| 2001 10 18 | 644 | 0.7− | 0.6+ | 2005 10 11 | 926 | 0.0 | 0.0 | 2009 09 23 | 691 | 0.0 | 0.1+ |
| 2001 10 18 | 644 | 0.2− | 0.6+ | 2005 10 11 | 926 | 0.0 | 0.1+ | 2009 09 23 | 691 | 0.1− | 0.1− |
| 2001 10 20 | 704 | 0.5− | 0.3− | 2005 10 11 | 926 | 0.2− | 0.2− | 2009 09 23 | 691 | 0.6− | 0.3− |
| 2001 10 20 | 704 | 0.7− | 0.1− | 2005 10 12 | 691 | (0.5+ | 1.7−) | 2009 10 11 | J75 | 1.0+ | 0.5− |
| 2001 10 20 | 704 | 0.0 | 0.0 | 2005 10 12 | 691 | 0.4+ | 0.2− | 2009 10 11 | J75 | 0.1+ | 0.6− |
| 2001 10 20 | 704 | 0.5+ | 0.4+ | 2005 10 12 | 691 | 0.2+ | 0.0 | 2009 10 11 | J75 | 1.0+ | 0.2− |
| 2001 10 23 | 704 | 0.7+ | 0.4+ | 2005 10 21 | 644 | 0.6+ | 0.1+ | 2009 10 17 | 703 | (1.5+ | 0.0 ) |
| 2001 10 23 | 704 | 0.6+ | 0.2+ | 2005 10 21 | 644 | 0.2+ | 0.1− | 2009 10 17 | 703 | 0.1+ | 1.2− |
| 2001 10 23 | 704 | 0.3+ | 0.2+ | 2005 10 21 | 644 | 0.4+ | 0.2− | 2009 10 17 | 703 | 0.8− | 0.2+ |
| 2001 10 23 | 704 | 0.1− | 0.9+ | 2005 10 22 | 703 | 0.5− | 0.0 | 2009 10 17 | 703 | 0.1+ | 0.1+ |
| 2001 10 24 | 704 | 1.2+ | 0.0 | 2005 10 22 | 703 | 0.8− | 0.8− | 2009 10 22 | 704 | 0.8− | 0.3− |
| 2001 10 24 | 704 | 0.5+ | 0.1+ | 2005 10 22 | 703 | 1.1− | 0.2− | 2009 10 22 | 704 | 1.3+ | 1.3− |
| 2001 10 24 | 704 | 0.1+ | 0.7+ | 2005 10 22 | 703 | 0.9− | 0.1+ | 2009 10 22 | 704 | (1.4+ | 1.6−) |
| 2001 10 24 | 704 | 0.1− | 0.8+ | 2005 10 22 | 703 | 0.2− | 0.0 | 2009 11 09 | 691 | 0.2− | 0.3+ |
| 2001 10 24 | 704 | 0.4+ | 0.5+ | 2005 10 22 | 703 | 0.1− | 0.2− | 2009 11 09 | 691 | 0.3+ | 0.3− |
| 2001 10 25 | 704 | 1.3− | 0.6+ | 2005 10 22 | 703 | 0.2− | 0.9− | 2009 11 09 | 691 | 0.1+ | 0.2− |
| 2001 10 25 | 704 | 0.0 | 0.6− | 2005 10 22 | 703 | 0.3+ | 0.4− | 2009 11 16 | 691 | 0.2+ | 0.1− |
| 2001 10 25 | 704 | 0.3+ | 0.4+ | 2005 10 28 | 703 | 1.5+ | 0.9+ | 2009 11 16 | 691 | 0.2− | 0.3− |
| 2001 10 25 | 704 | 0.1− | 0.1− | 2005 10 28 | 703 | (0.2− | 1.6+) | 2009 11 16 | 691 | 0.2− | 0.0 |
| 2001 10 25 | 704 | 0.1− | 0.3+ | 2005 10 28 | 703 | 0.4− | 0.3+ | 2009 11 16 | G96 | 0.6+ | 0.2− |
| 2001 10 26 | 691 | 0.5− | 0.1− | 2005 10 28 | 703 | 0.1+ | 1.4+ | 2009 11 16 | G96 | 0.3+ | 0.2− |
| 2001 10 26 | 691 | 0.3− | 0.1− | 2005 12 01 | G96 | 0.1+ | 0.2− | 2009 11 16 | G96 | 0.5+ | 0.4− |
| 2001 10 26 | 691 | 0.4− | 0.0 | 2005 12 01 | G96 | 0.5+ | 0.1− | 2009 11 16 | G96 | 0.3+ | 0.5− |
| 2001 11 20 | 704 | 0.7− | 0.1+ | 2005 12 01 | G96 | 0.1− | 0.1− | 2009 11 17 | 691 | 0.3+ | 0.1+ |
| 2001 11 20 | 704 | 0.9− | 0.4− | 2005 12 01 | G96 | 0.4+ | 0.2− | 2009 11 17 | 691 | 0.0 | 0.0 |
| 2001 11 20 | 704 | 0.1− | 0.0 | 2007 02 21 | 691 | 0.0 | 0.2+ | 2009 11 17 | 691 | 0.3+ | 0.2− |
| 2001 11 20 | 704 | 0.5− | 0.3− | 2007 02 21 | 691 | 0.1+ | 0.2− | 2009 11 20 | 691 | 0.2− | 0.0 |
| 2001 11 20 | 704 | 0.7− | 0.1+ | 2007 02 21 | 691 | 0.1− | 0.5+ | 2009 11 20 | 691 | 0.1+ | 0.2− |
| 2001 11 21 | 704 | 0.0 | 0.2+ | 2007 03 10 | 691 | 0.1+ | 0.1+ | 2009 11 20 | 691 | 0.1+ | 0.2+ |
| 2001 11 21 | 704 | 0.4+ | 0.5+ | 2007 03 10 | 691 | 0.0 | 0.0 | 2009 12 15 | G96 | 0.0 | 0.2+ |
| 2001 11 21 | 704 | 0.1− | 0.2− | 2007 03 10 | 691 | 0.1− | 0.1− | 2009 12 15 | G96 | 0.4− | 0.2+ |
| 2001 11 21 | 704 | 0.8− | 1.1+ | 2007 03 14 | 691 | 0.0 | 0.0 | 2009 12 15 | G96 | 0.9+ | 0.1− |
| 2001 11 21 | 704 | 0.4− | 0.9− | 2007 03 14 | 691 | 0.5+ | 0.1+ | 2009 12 15 | G96 | 0.7+ | 0.1− |
| 2005 09 23 | 691 | 0.4− | 0.1− | 2007 03 14 | 691 | 0.6− | 0.1− | | | | |

**(228526)∗ 2001 UC$_{83}$**

Discovered 2001 Oct. 20 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 31.38794 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.25466541 | $\omega$ | 295.31941 | | +0.53818811 | −0.84152176 | |
| $a$ | 2.4650330 | $\Omega$ | 122.04057 | | +0.79178878 | +0.48576894 | |
| $e$ | 0.1890523 | $i$ | 3.16812 | | +0.28883229 | +0.23636765 | |
| $P$ | 3.87 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 17 | 704 | 0.2− | 0.8− | 2001 11 20 | 704 | 0.4+ | 0.2+ | 2005 12 27 | G96 | 0.1+ | 0.1− | |
| 2001 09 17 | 704 | 0.1+ | 0.6− | 2001 11 20 | 704 | (1.8− | 0.1+) | 2005 12 27 | G96 | (2.4+ | 0.2+) | |
| 2001 09 17 | 704 | 0.5− | 0.2− | 2001 12 11 | 704 | 0.3+ | 0.4+ | 2006 01 24 | G96 | 0.1+ | 0.2+ | |
| 2001 09 17 | 704 | (0.2+ | 1.9−) | 2001 12 11 | 704 | 0.2+ | 0.8+ | 2006 01 24 | G96 | 0.2+ | 0.4− | |
| 2001 09 19 | 704 | 0.6− | 0.7− | 2001 12 11 | 704 | 0.3− | 1.2+ | 2006 01 24 | G96 | 0.2+ | 0.1− | |
| 2001 09 19 | 704 | (0.0 | 2.1−) | 2001 12 11 | 704 | 0.4+ | 0.9+ | 2006 01 24 | G96 | 0.7+ | 0.4− | |
| 2001 09 19 | 704 | (0.3− | 3.2−) | 2001 12 11 | 704 | 0.3− | 1.0+ | 2006 02 24 | G96 | 1.3− | 0.8+ | |
| 2001 09 19 | 704 | (0.4+ | 2.9−) | 2001 12 14 | 704 | 0.1+ | 0.0 | 2006 02 24 | G96 | 0.2− | 0.1+ | |
| 2001 10 17 | 704 | (0.5− | 1.8−) | 2001 12 14 | 704 | 0.1+ | 0.9+ | 2006 02 24 | G96 | 0.3+ | 0.1− | |
| 2001 10 17 | 704 | 0.8− | 0.4+ | 2001 12 14 | 704 | 0.2+ | 0.6+ | 2006 02 24 | G96 | 0.1− | 0.0 | |
| 2001 10 17 | 704 | 0.5+ | 1.0+ | 2001 12 14 | 704 | (0.7+ | 1.6+) | 2007 03 13 | G96 | 0.0 | 0.2− | |
| 2001 10 20 | 704 | 0.2− | 0.7− | 2001 12 14 | 704 | 0.4− | 1.4+ | 2007 03 13 | G96 | 0.6− | 0.1− | |
| 2001 10 20 | 704 | 0.2− | 0.8− | 2003 04 09 | 644 | 0.7+ | 0.9+ | 2007 03 13 | G96 | 0.5+ | 0.4+ | |
| 2001 10 20 | 704 | 0.1− | 0.9− | 2003 04 09 | 644 | 0.2+ | 0.3+ | 2007 03 13 | G96 | 0.1− | 0.6+ | |
| 2001 10 22 | 704 | 0.1− | 0.7− | 2003 04 09 | 644 | 0.1+ | 0.7+ | 2007 04 20 | G96 | 0.2− | 0.1+ | |
| 2001 10 22 | 704 | 0.1− | 0.8− | 2005 11 30 | 704 | 1.0+ | 0.8+ | 2007 04 20 | G96 | 0.3+ | 0.0 | |
| 2001 10 22 | 704 | 0.4+ | 0.6− | 2005 11 30 | 704 | 0.7+ | 0.4+ | 2007 04 20 | G96 | 0.2+ | 0.3+ | |
| 2001 10 22 | 704 | 0.8+ | 0.1− | 2005 11 30 | 704 | 0.4+ | 0.4+ | 2007 04 20 | G96 | 0.0 | 0.2+ | |
| 2001 10 25 | 644 | 0.1− | 0.2− | 2005 11 30 | 704 | 0.8+ | 1.2+ | 2008 06 06 | 691 | 0.2− | 0.3+ | |
| 2001 10 25 | 644 | 0.1+ | 0.1+ | 2005 11 30 | 704 | (0.3− | 1.9+) | 2008 06 06 | 691 | 0.1− | 0.1+ | |
| 2001 10 25 | 644 | 0.1+ | 0.2− | 2005 12 07 | 704 | 0.1− | 0.5+ | 2008 06 06 | 691 | 0.4+ | 0.1+ | |
| 2001 11 15 | 644 | 0.1+ | 0.0 | 2005 12 07 | 704 | 0.1− | 0.3− | 2009 12 12 | A77 | 0.3+ | 0.0 | |
| 2001 11 15 | 644 | 0.1+ | 0.3+ | 2005 12 07 | 704 | (1.7+ | 0.0 ) | 2009 12 12 | A77 | 0.6+ | 0.2+ | |
| 2001 11 15 | 644 | 0.3− | 0.2+ | 2005 12 07 | 704 | (1.9− | 0.3−) | 2009 12 12 | A77 | 0.3+ | 0.0 | |
| 2001 11 17 | 704 | 0.4− | 1.1+ | 2005 12 09 | 704 | (0.4− | 1.5−) | 2009 12 16 | G96 | 0.0 | 0.3− | |
| 2001 11 17 | 704 | 0.1− | 0.3− | 2005 12 09 | 704 | 0.0 | 0.2+ | 2009 12 16 | G96 | 0.0 | 0.3− | |
| 2001 11 17 | 704 | 0.6− | 0.1− | 2005 12 09 | 704 | 0.3− | 0.0 | 2009 12 16 | G96 | 0.1+ | 0.2− | |
| 2001 11 17 | 704 | 0.3− | 0.9− | 2005 12 09 | 704 | 0.5+ | 0.9− | 2009 12 16 | G96 | 0.1+ | 0.2− | |
| 2001 11 19 | 699 | 0.4− | 0.7+ | 2005 12 09 | 704 | 0.3− | 0.3− | 2009 12 17 | 704 | 0.1+ | 0.2+ | |
| 2001 11 19 | 699 | 0.2− | 0.0 | 2005 12 27 | 704 | 0.3− | 0.3− | 2009 12 17 | 704 | 0.8− | 0.4− | |
| 2001 11 19 | 699 | 0.0 | 0.1− | 2005 12 27 | 704 | 0.0 | 0.6+ | 2009 12 17 | 704 | 0.3− | 0.5− | |
| 2001 11 19 | 699 | 0.9− | 0.2+ | 2005 12 27 | 704 | 0.1+ | 0.3+ | 2009 12 20 | 691 | 0.0 | 0.0 | |
| 2001 11 20 | 704 | 0.6− | 0.9+ | 2005 12 27 | 704 | 0.8+ | 1.4− | 2009 12 20 | 691 | 0.5− | 0.1− | |
| 2001 11 20 | 704 | 0.3+ | 0.3+ | 2005 12 27 | G96 | 0.2+ | 0.5− | 2009 12 20 | 691 | 0.2− | 0.2− | |
| 2001 11 20 | 704 | 0.0 | 0.6+ | 2005 12 27 | G96 | 0.0 | 0.4− | | | | | |

**(228527)∗ 2001 UN$_{101}$ = 2003 EQ$_{48}$**

Discovered 2001 Oct. 20 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 43131)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 359.30573 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26504331 | $\omega$ | 30.36318 | | −0.29833610 | −0.95282219 | |
| $a$ | 2.4002593 | $\Omega$ | 77.04321 | | +0.86376200 | −0.29444368 | |
| $e$ | 0.0854386 | $i$ | 3.28864 | | +0.40609209 | −0.07370741 | |
| $P$ | 3.72 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 10 18 | 291 | 0.1+ | 0.2+ | 2005 11 26 | G96 | 0.1+ | 0.3− | 2005 12 31 | G96 | 0.2+ | 0.3− | |
| 2001 10 18 | 291 | 0.7− | 0.2+ | 2005 11 26 | G96 | 0.2+ | 0.4− | 2005 12 31 | G96 | 0.1− | 0.3− | |
| 2001 10 18 | 291 | (1.6− | 0.1+) | 2005 11 28 | 703 | 0.5+ | 0.3− | 2005 12 31 | G96 | 0.1+ | 0.4− | |
| 2001 10 20 | 704 | 1.1+ | 0.4− | 2005 11 28 | 703 | 0.5− | 0.3+ | 2006 01 22 | 701 | 0.4− | 0.2− | |
| 2001 10 20 | 704 | 0.5− | 1.0+ | 2005 11 28 | G96 | 0.2+ | 0.2− | 2006 01 22 | 701 | 0.3+ | 0.6+ | |
| 2001 10 20 | 704 | 0.2− | 0.4+ | 2005 11 28 | 703 | 0.5− | 0.1+ | 2006 01 22 | 701 | 0.5− | 0.3+ | |
| 2001 10 20 | 704 | 0.1− | 0.3+ | 2005 11 28 | G96 | 0.5+ | 0.1− | 2006 01 23 | G96 | 0.2− | 0.3+ | |
| 2001 10 23 | 704 | 0.3− | 0.3− | 2005 11 28 | 703 | 0.3− | 0.4− | 2006 01 23 | G96 | 0.2+ | 0.1− | |
| 2001 10 23 | 704 | 0.8+ | 0.5+ | 2005 11 28 | G96 | 0.4+ | 0.1− | 2006 01 23 | G96 | 0.2+ | 0.2− | |
| 2001 10 23 | 704 | 0.8+ | 0.7+ | 2005 11 28 | G96 | 0.2+ | 0.2− | 2006 01 23 | G96 | 0.0 | 0.0 | |
| 2001 10 23 | 704 | (0.2+ | 1.7+) | 2005 11 29 | G96 | (1.3− | 2.9−) | 2006 01 27 | 701 | 0.6− | 0.5+ | |
| 2001 11 20 | 704 | 0.0 | 0.1+ | 2005 11 29 | G96 | (3.2+ | 2.7−) | 2006 01 27 | 701 | 0.9− | 0.4+ | |
| 2001 11 20 | 704 | 0.6+ | 0.1+ | 2005 11 29 | G96 | 0.1− | 0.2− | 2006 01 27 | 701 | (2.5+ | 1.7−) | |
| 2001 11 20 | 704 | 0.1− | 0.2+ | 2005 11 29 | G96 | 0.4+ | 0.2− | 2006 01 28 | 701 | 1.2− | 0.3+ | |
| 2001 11 20 | 704 | 0.1+ | 0.5+ | 2005 12 01 | 704 | 0.6− | 0.9+ | 2006 01 28 | 701 | (2.3− | 0.1+) | |
| 2003 03 09 | 704 | 0.1− | 0.1+ | 2005 12 01 | 704 | 0.7− | 0.6+ | 2006 03 03 | G96 | 0.6+ | 0.1+ | |
| 2003 03 09 | 704 | 1.4− | 1.4+ | 2005 12 01 | 704 | 0.3− | 0.0 | 2006 03 03 | G96 | 0.6+ | 0.4+ | |
| 2003 03 09 | 704 | (0.6+ | 1.9+) | 2005 12 01 | 704 | 0.2+ | 0.3+ | 2006 03 03 | G96 | 0.3− | 0.5+ | |
| 2003 03 09 | 704 | 0.6+ | 1.4+ | 2005 12 01 | 704 | 1.2− | 0.8+ | 2006 03 03 | G96 | 0.1+ | 0.4+ | |
| 2003 03 11 | 644 | 0.5+ | 0.4+ | 2005 12 04 | 704 | 1.4− | 0.8− | 2007 04 22 | G96 | 0.2− | 0.0 | |
| 2003 03 11 | 644 | 0.6+ | 0.5+ | 2005 12 04 | 704 | 0.4+ | 0.3− | 2007 04 22 | G96 | 0.1− | 0.0 | |
| 2003 03 11 | 644 | 0.7+ | 0.3+ | 2005 12 04 | G96 | 0.2+ | 0.1− | 2007 04 22 | G96 | 0.4+ | 0.1+ | |
| 2003 03 26 | 644 | 0.1− | 0.5+ | 2005 12 04 | G96 | 0.2+ | 0.2− | 2007 04 25 | 691 | 0.2− | 0.1− | |
| 2003 03 26 | 644 | 0.1+ | 0.4+ | 2005 12 04 | 704 | (2.0− | 0.0 ) | 2007 04 25 | 691 | 0.0 | 0.1+ | |
| 2003 03 26 | 644 | 0.0 | 0.2+ | 2005 12 04 | G96 | 0.5+ | 0.0 | 2007 04 25 | 691 | 0.0 | 0.0 | |
| 2003 04 01 | 645 | 0.0 | 0.1− | 2005 12 04 | G96 | 0.5+ | 0.2− | 2009 12 18 | G96 | 0.2+ | 0.0 | |
| 2003 04 01 | 645 | 0.0 | 0.0 | 2005 12 04 | 704 | 0.6− | 0.4+ | 2009 12 18 | G96 | 0.2+ | 0.3− | |
| 2005 10 25 | G96 | 0.1+ | 0.2+ | 2005 12 04 | 704 | 0.7− | 0.2− | 2009 12 18 | G96 | 0.4+ | 0.0 | |
| 2005 10 25 | G96 | 0.1+ | 0.1+ | 2005 12 06 | 704 | 0.5− | 0.2+ | 2009 12 18 | G96 | 0.0 | 0.1− | |
| 2005 10 25 | G96 | 0.3+ | 0.1+ | 2005 12 06 | 704 | 0.2+ | 0.6− | 2009 12 18 | G96 | 0.3+ | 0.3− | |
| 2005 10 25 | G96 | 0.1− | 0.0 | 2005 12 06 | 704 | 0.0 | 0.3+ | 2009 12 18 | G96 | 0.4− | 0.1+ | |
| 2005 11 21 | 703 | 0.5+ | 0.0 | 2005 12 24 | 703 | 0.3− | 0.5− | 2009 12 18 | G96 | 0.0 | 0.1− | |
| 2005 11 21 | 703 | 0.6+ | 0.2+ | 2005 12 24 | 703 | 0.1− | 0.0 | 2009 12 19 | 691 | 0.1− | 0.1− | |
| 2005 11 21 | 703 | 0.6+ | 0.1+ | 2005 12 24 | 703 | 0.0 | 1.1+ | 2009 12 19 | 691 | 0.1− | 0.3+ | |
| 2005 11 21 | 703 | 0.1+ | 0.2+ | 2005 12 24 | 703 | 0.2− | 0.4+ | 2009 12 19 | 691 | 0.0 | 0.2− | |
| 2005 11 26 | G96 | 0.1+ | 0.3− | 2005 12 25 | G96 | 0.2+ | 0.4− | 2009 12 27 | 691 | 0.3− | 0.0 | |
| 2005 11 26 | G96 | 0.1+ | 0.3− | 2005 12 25 | G96 | 0.0 | 0.5− | 2009 12 27 | 691 | 0.0 | 0.1− | |
| 2005 11 26 | G96 | 0.1− | 0.3− | 2005 12 25 | G96 | 0.2− | 0.3− | 2009 12 27 | 691 | 0.5+ | 0.4− | |
| 2005 11 26 | G96 | 0.1+ | 0.3− | 2005 12 25 | G96 | 0.1+ | 0.2− | | | | | |
| 2005 11 26 | G96 | 0.1+ | 0.3− | 2005 12 31 | G96 | 0.3+ | 0.2− | | | | | |

**(228528)∗ 2001 UT$_{113}$ = 2001 UD$_{173}$**

Discovered 2001 Oct. 22 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. A. Doppler (d, *MPO* 24067)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 21.06725 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26365632 | $\omega$ | 13.36976 | | −0.14888936 | −0.98737251 | |
| $a$ | 2.4086697 | $\Omega$ | 85.21250 | | +0.90218845 | −0.15803729 | |
| $e$ | 0.1513677 | $i$ | 3.11244 | | +0.40483078 | −0.01094244 | |
| $P$ | 3.74 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 10 18 | 644 | 0.4− | 0.7+ | 2001 11 20 | 704 | 1.1− | 0.8− | 2006 01 05 | 704 | (1.7− | 2.5−) | |
| 2001 10 18 | 644 | (0.1+ | 1.8+) | 2001 11 20 | 704 | 1.2− | 1.1− | 2006 01 06 | G96 | 0.3− | 0.6− | |
| 2001 10 18 | 644 | 0.3+ | 0.4+ | 2001 11 20 | 704 | 0.7− | 0.5− | 2006 01 06 | G96 | 0.1− | 0.5− | |
| 2001 10 22 | 704 | 0.6+ | 0.2+ | 2001 11 20 | 704 | 0.7− | 0.3+ | 2006 01 06 | G96 | 0.3− | 0.1+ | |
| 2001 10 22 | 704 | 0.1+ | 0.6+ | 2003 04 07 | 291 | 0.1− | 0.4+ | 2006 01 06 | G96 | 0.1− | 0.1− | |
| 2001 10 22 | 704 | 0.3+ | 0.7+ | 2003 04 07 | 291 | 0.3− | 0.4+ | 2006 01 25 | G96 | 0.2+ | 0.3− | |
| 2001 10 22 | 704 | 0.1+ | 1.3+ | 2003 04 07 | 291 | 0.1+ | 0.3+ | 2006 01 25 | G96 | 0.1− | 0.4− | |
| 2001 10 23 | 704 | 1.1+ | 0.1+ | 2003 04 30 | 691 | 0.1+ | 0.2+ | 2006 01 25 | G96 | 0.4− | 0.2− | |
| 2001 10 23 | 704 | 0.6+ | 1.0+ | 2003 04 30 | 691 | 0.4+ | 0.4+ | 2006 01 25 | G96 | 0.1− | 0.3− | |
| 2001 10 23 | 704 | 0.5+ | 0.9+ | 2003 04 30 | 691 | 0.7+ | 0.3+ | 2008 09 25 | G96 | 0.1+ | 0.1+ | |
| 2001 10 23 | 704 | 1.3+ | 0.4− | 2005 12 04 | 691 | 0.0 | 0.2− | 2008 09 25 | G96 | 0.4− | 0.2− | |
| 2001 10 23 | 704 | 0.2+ | 0.8+ | 2005 12 04 | 691 | 0.4− | 0.2− | 2008 09 25 | G96 | 0.0 | 0.1− | |
| 2001 10 24 | 704 | 0.4− | 0.6+ | 2005 12 04 | 691 | 0.8+ | 0.3+ | 2008 09 25 | G96 | 0.6+ | 0.2− | |
| 2001 10 24 | 704 | 0.4− | 0.2+ | 2005 12 21 | 691 | 0.1+ | 0.0 | 2009 11 21 | G96 | 0.0 | 0.3− | |
| 2001 10 24 | 704 | 0.1+ | 0.6+ | 2005 12 21 | 691 | 0.1+ | 0.1− | 2009 11 21 | G96 | 0.3− | 0.3− | |
| 2001 10 24 | 704 | 0.5− | 0.7+ | 2005 12 21 | 691 | 0.0 | 0.0 | 2009 11 21 | G96 | 0.7− | 0.1− | |
| 2001 10 24 | 704 | 0.3− | 0.6+ | 2005 12 29 | 691 | 1.3+ | 1.0+ | 2009 11 21 | G96 | 0.1− | 0.1+ | |
| 2001 11 09 | 704 | (2.5− | 0.7+) | 2005 12 29 | 691 | 0.3− | 0.0 | 2009 12 20 | G96 | 0.2− | 0.3− | |
| 2001 11 09 | 704 | 0.5− | 0.7+ | 2005 12 29 | 691 | 0.7− | 0.0 | 2009 12 20 | G96 | 0.4− | 0.0 | |
| 2001 11 09 | 704 | 0.7− | 0.4+ | 2006 01 05 | 704 | 0.7− | 1.0− | 2009 12 20 | G96 | 0.1− | 0.1− | |
| 2001 11 09 | 704 | 1.3− | 0.5− | 2006 01 05 | 704 | 0.1+ | 0.7+ | 2009 12 20 | G96 | 0.3− | 0.5− | |
| 2001 11 20 | 704 | 0.9− | 0.8− | 2006 01 05 | 704 | (1.3− | 1.9−) | | | | | |

**(228529)∗ 2001 UE$_{116}$**

Discovered 2001 Oct. 22 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 349.10438 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24073902 | $\omega$ | 10.91875 | | +0.51323120 | −0.85495402 | |
| $a$ | 2.5592049 | $\Omega$ | 48.24993 | | +0.77964531 | +0.42782797 | |
| $e$ | 0.1643862 | $i$ | 5.78111 | | +0.35881323 | +0.29328630 | |
| $P$ | 4.09 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 10 18 | 333 | 0.3+ | 0.9+ | 2005 10 01 | 691 | 0.1− | 0.1− | 2005 11 28 | G96 | 0.1− | 0.3− | | | | |
| 2001 10 18 | 333 | (1.5− | 0.3−) | 2005 10 01 | 691 | 0.0 | 0.2− | 2005 11 28 | G96 | 0.4+ | 0.3− | | | | |
| 2001 10 18 | 333 | 0.5+ | 1.3− | 2005 10 06 | 691 | 0.2+ | 0.5+ | 2005 11 29 | G96 | 0.9+ | 0.3− | | | | |
| 2001 10 18 | 644 | 0.5+ | 1.4+ | 2005 10 06 | 691 | 0.0 | 0.1+ | 2005 11 29 | G96 | 0.2− | 0.2− | | | | |
| 2001 10 18 | 644 | 0.4+ | 1.0+ | 2005 10 06 | 691 | 0.2− | 1.0+ | 2005 11 29 | G96 | 0.2− | 0.2− | | | | |
| 2001 10 18 | 644 | 0.0 | 1.0+ | 2005 10 07 | 703 | 0.4+ | 0.7+ | 2005 11 29 | G96 | 0.4− | 0.2− | | | | |
| 2001 10 22 | 704 | 0.6+ | 0.9− | 2005 10 07 | 703 | 0.8− | 0.7− | 2005 12 04 | G96 | 0.1+ | 0.1− | | | | |
| 2001 10 22 | 704 | 0.4− | 1.5− | 2005 10 07 | 703 | 0.5− | 0.2− | 2005 12 04 | G96 | 0.1+ | 0.3− | | | | |
| 2001 10 22 | 704 | 0.1+ | 1.1− | 2005 10 07 | 703 | 0.7− | 0.2− | 2005 12 04 | G96 | 0.8− | 0.3− | | | | |
| 2001 10 22 | 704 | 0.1+ | 1.2− | 2005 10 12 | 691 | 0.1− | 0.3+ | 2005 12 28 | G96 | 0.1− | 0.2− | | | | |
| 2001 10 22 | 704 | 0.3− | 1.2− | 2005 10 12 | 691 | 0.1− | 0.2+ | 2005 12 28 | G96 | 0.1+ | 0.2− | | | | |
| 2001 10 23 | 704 | 0.8+ | 0.5− | 2005 10 12 | 691 | 0.0 | 0.1+ | 2005 12 28 | G96 | 0.1+ | 0.2− | | | | |
| 2001 10 23 | 704 | 0.3+ | 0.5− | 2005 10 22 | 703 | 0.8− | 0.9− | 2005 12 28 | G96 | 0.6+ | 0.5− | | | | |
| 2001 10 23 | 704 | 0.4+ | 1.1− | 2005 10 22 | 703 | 0.9− | 1.1− | 2007 03 11 | 691 | 0.7+ | 0.4− | | | | |
| 2001 10 23 | 704 | 0.0 | 0.8− | 2005 10 22 | 703 | 1.4− | 1.2− | 2007 03 11 | 691 | 0.3+ | 0.2+ | | | | |
| 2001 10 23 | 704 | 0.3− | 0.2− | 2005 10 22 | 703 | 0.7+ | 0.7+ | 2007 03 11 | 691 | 0.4− | 1.3+ | | | | |
| 2001 10 24 | 704 | 0.8+ | 0.6− | 2005 10 24 | 699 | 0.2+ | 1.2+ | 2007 03 15 | 621 | 0.4+ | 0.2+ | | | | |
| 2001 10 24 | 704 | 0.7+ | 0.9− | 2005 10 24 | 699 | 0.2+ | 0.2+ | 2007 03 15 | 621 | 0.5− | 0.3− | | | | |
| 2001 10 24 | 704 | 0.3+ | 0.9− | 2005 10 24 | 699 | 0.4− | 0.7− | 2007 03 15 | 621 | 0.3+ | 0.1+ | | | | |
| 2001 10 24 | 704 | 0.8+ | 0.0 | 2005 10 24 | 699 | 0.5− | 0.8+ | 2009 09 23 | G96 | 0.2− | 0.3− | | | | |
| 2001 10 24 | 704 | 0.7+ | 0.2+ | 2005 10 24 | A50 | 0.6+ | 0.9+ | 2009 09 23 | G96 | 0.2− | 0.2+ | | | | |
| 2001 10 25 | 644 | 0.3+ | 1.0+ | 2005 10 24 | A50 | 0.3+ | 0.5− | 2009 09 23 | G96 | 0.0 | 0.1+ | | | | |
| 2001 10 25 | 644 | 0.5+ | 0.9+ | 2005 10 25 | 699 | 0.1+ | 0.6− | 2009 09 23 | G96 | 0.1+ | 0.2− | | | | |
| 2001 10 25 | 644 | 1.1+ | 0.7+ | 2005 10 25 | 699 | 1.0+ | 0.0 | 2009 09 28 | G96 | 0.3− | 0.1− | | | | |
| 2001 11 09 | 704 | 0.4− | 0.2+ | 2005 10 25 | 699 | 0.2− | 0.4− | 2009 09 28 | G96 | 0.3+ | 0.0 | | | | |
| 2001 11 09 | 704 | 0.4− | 1.0+ | 2005 10 25 | 699 | 0.5− | 0.6+ | 2009 09 28 | G96 | 0.3− | 0.1− | | | | |
| 2001 11 09 | 704 | 0.1− | 0.6− | 2005 10 28 | 704 | 1.1− | 0.1+ | 2009 09 28 | G96 | 0.1+ | 0.0 | | | | |
| 2001 11 09 | 704 | 0.2− | 0.4+ | 2005 10 28 | 704 | 1.1− | 0.4+ | 2009 10 09 | 703 | 0.2+ | 0.1− | | | | |
| 2001 11 09 | 704 | 0.6+ | 0.1− | 2005 10 28 | 703 | 0.1− | 0.1− | 2009 10 09 | 703 | (1.0− | 1.6−) | | | | |
| 2001 11 12 | 704 | 0.6− | 0.7− | 2005 10 28 | 704 | 0.2+ | 1.0+ | 2009 10 09 | 703 | 1.0− | 0.2+ | | | | |
| 2001 11 12 | 704 | 1.2− | 0.0 | 2005 10 28 | 703 | 0.5+ | 0.3− | 2009 10 09 | 703 | 0.1+ | 0.4− | | | | |
| 2001 11 12 | 704 | 0.6+ | 1.2− | 2005 10 28 | 703 | 0.0 | 0.3− | 2009 10 11 | J75 | 0.1− | 0.3+ | | | | |
| 2001 11 12 | 704 | 0.5+ | 0.0 | 2005 10 28 | 704 | 0.3− | 0.6+ | 2009 10 11 | J75 | 0.1+ | 0.7+ | | | | |
| 2001 11 19 | 704 | 0.2− | 0.2+ | 2005 10 28 | 703 | 0.4− | 0.2+ | 2009 10 11 | J75 | 0.4+ | 0.8+ | | | | |
| 2001 11 19 | 704 | 0.2+ | 0.5+ | 2005 10 28 | 704 | 0.2+ | 0.2+ | 2009 10 13 | 704 | 0.2+ | 0.8+ | | | | |
| 2001 11 19 | 704 | 0.0 | 0.2+ | 2005 10 29 | G96 | 0.0 | 0.2− | 2009 10 13 | 704 | 0.4− | 0.7+ | | | | |
| 2001 11 19 | 704 | 0.2− | 0.7+ | 2005 10 29 | G96 | 0.1+ | 0.1− | 2009 10 13 | 704 | 0.8− | 0.4+ | | | | |
| 2001 11 19 | 704 | 0.0 | 0.1− | 2005 10 29 | G96 | 0.1+ | 0.3− | 2009 10 13 | 704 | 0.3+ | 0.7+ | | | | |
| 2001 11 21 | 704 | 0.7− | 0.4− | 2005 10 29 | G96 | 0.1− | 0.1− | 2009 10 17 | G96 | 0.2+ | 0.1+ | | | | |
| 2001 11 21 | 704 | 0.2− | 0.4− | 2005 10 29 | G96 | 0.3− | 0.1+ | 2009 10 17 | G96 | 0.1− | 0.0 | | | | |
| 2001 11 21 | 704 | 0.4− | 0.5+ | 2005 10 29 | G96 | 0.1− | 0.1− | 2009 10 17 | G96 | 0.2+ | 0.1− | | | | |
| 2001 11 21 | 704 | 0.0 | 0.0 | 2005 10 29 | G96 | 0.1− | 0.1− | 2009 10 17 | G96 | 0.3+ | 0.0 | | | | |
| 2001 11 21 | 704 | 0.6− | 0.6+ | 2005 10 29 | G96 | 0.1− | 0.0 | 2009 10 24 | G96 | 0.0 | 0.1− | | | | |
| 2005 08 30 | 644 | 0.1+ | 0.1+ | 2005 10 31 | 704 | 0.3+ | 0.7+ | 2009 10 24 | G96 | 0.2+ | 0.1− | | | | |
| 2005 08 30 | 644 | 0.2+ | 0.2+ | 2005 10 31 | 704 | 0.0 | 1.3+ | 2009 10 24 | G96 | 0.1+ | 0.1+ | | | | |
| 2005 08 30 | 644 | 0.0 | 0.2+ | 2005 10 31 | 704 | 0.5− | 0.1+ | 2009 10 24 | G96 | 0.0 | 0.2− | | | | |
| 2005 09 23 | 691 | 0.1− | 0.3− | 2005 10 31 | 704 | 0.7+ | 0.3− | 2009 12 13 | G96 | 0.1+ | 0.2− | | | | |
| 2005 09 23 | 691 | 0.3− | 0.1− | 2005 11 05 | 704 | 0.1− | 0.2+ | 2009 12 13 | G96 | 0.3+ | 0.1+ | | | | |
| 2005 09 23 | 691 | 0.0 | 0.3− | 2005 11 05 | 704 | 0.6− | 0.2− | 2009 12 13 | G96 | 0.5+ | 0.5− | | | | |
| 2005 10 01 | 703 | 0.8− | 0.9− | 2005 11 05 | 704 | 0.0 | 0.9+ | 2009 12 13 | G96 | 0.0 | 0.3+ | | | | |
| 2005 10 01 | 703 | 1.2+ | 0.8− | 2005 11 05 | 704 | 0.2+ | 0.3+ | 2009 12 18 | 291 | 0.2+ | 0.2+ | | | | |
| 2005 10 01 | 703 | (0.9+ | 2.0+) | 2005 11 05 | 704 | 0.3− | 0.0 | 2009 12 18 | 291 | 0.0 | 0.1+ | | | | |
| 2005 10 01 | 691 | 0.1+ | 0.0 | 2005 11 28 | G96 | 0.2− | 0.1− | 2009 12 18 | 291 | 0.0 | 0.3+ | | | | |
| 2005 10 01 | 703 | 0.6− | 0.8− | 2005 11 28 | G96 | 0.4+ | 0.1− | | | | | | | | |

**(228530)∗ 2001 UO$_{118}$**

Discovered 2001 Oct. 22 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 101.65664 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.25398213 | $\omega$ | 226.25093 | | +0.81412415 | +0.57837467 | |
| $a$ | 2.4694521 | $\Omega$ | 98.34680 | | −0.51659411 | +0.76212220 | |
| $e$ | 0.1779591 | $i$ | 3.00183 | | −0.26520256 | +0.29095102 | |
| $P$ | 3.88 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 10 22 | 704 | 1.0− | 0.8+ | 2001 12 10 | 691 | 0.2+ | 0.2− | 2005 12 05 | G96 | 0.0 | 0.3− | | | | |
| 2001 10 22 | 704 | 0.1+ | 1.0+ | 2001 12 10 | 691 | 0.3+ | 0.3− | 2005 12 05 | G96 | 0.3− | 0.2− | | | | |
| 2001 10 22 | 704 | 0.5+ | 1.0− | 2001 12 10 | 691 | 0.0 | 0.3+ | 2005 12 05 | G96 | 0.1− | 0.2− | | | | |
| 2001 10 23 | 704 | 1.4− | 0.5+ | 2001 12 14 | 704 | 0.5+ | 0.0 | 2005 12 05 | G96 | 0.3− | 0.1− | | | | |
| 2001 10 23 | 704 | 0.9− | 1.0+ | 2001 12 14 | 704 | 0.9+ | 0.4− | 2005 12 05 | G96 | 0.9+ | 0.3− | | | | |
| 2001 10 23 | 704 | 0.3− | 0.3+ | 2001 12 14 | 704 | 0.1− | 0.2− | 2005 12 05 | G96 | 0.1+ | 0.1− | | | | |
| 2001 10 23 | 704 | 0.2+ | 0.2+ | 2003 01 28 | 645 | 0.1+ | 0.1+ | 2005 12 05 | G96 | 0.2− | 0.3− | | | | |
| 2001 10 24 | 704 | 1.0+ | 0.3− | 2003 01 28 | 645 | 0.0 | 0.1+ | 2005 12 05 | G96 | 0.4− | 0.2− | | | | |
| 2001 10 24 | 704 | 0.3+ | 0.6+ | 2004 06 14 | 704 | 0.1− | 0.9+ | 2006 01 22 | G96 | 0.2− | 0.4− | | | | |
| 2001 10 24 | 704 | 0.4− | 0.5− | 2004 06 14 | 704 | 0.0 | 0.4− | 2006 01 22 | G96 | 0.0 | 0.5− | | | | |
| 2001 10 24 | 704 | 0.4+ | 1.1+ | 2004 06 14 | 704 | 0.1+ | 0.2+ | 2006 01 22 | G96 | 0.5− | 0.4− | | | | |
| 2001 10 25 | 644 | 0.6− | 0.1+ | 2004 06 14 | 704 | 0.7+ | 0.7+ | 2006 01 22 | G96 | 0.3− | 0.5− | | | | |
| 2001 10 25 | 644 | 0.3− | 0.1+ | 2004 06 14 | 704 | 0.3− | 1.2+ | 2007 02 25 | G96 | 0.1+ | 0.0 | | | | |
| 2001 10 25 | 644 | 0.4− | 0.1+ | 2005 10 29 | G96 | 0.1− | 0.4− | 2007 02 25 | G96 | 0.3+ | 0.1− | | | | |
| 2001 11 20 | 704 | 0.7− | 0.3+ | 2005 10 29 | G96 | 0.4− | 0.3− | 2007 02 25 | G96 | 0.2− | 0.0 | | | | |
| 2001 11 20 | 704 | (0.4+ | 1.6+) | 2005 10 29 | G96 | 0.3− | 0.4− | 2007 02 25 | G96 | 0.1− | 0.3+ | | | | |
| 2001 11 20 | 704 | 0.3− | 0.3+ | 2005 10 29 | G96 | 0.2− | 0.4− | 2009 11 16 | 691 | 1.1+ | 0.4− | | | | |
| 2001 11 20 | 704 | 0.3− | 0.8+ | 2005 12 01 | 704 | 1.3+ | 1.4+ | 2009 11 16 | 691 | 0.2− | 0.2− | | | | |
| 2001 11 21 | 704 | 0.2+ | 1.0+ | 2005 12 01 | 704 | 0.0 | 0.3+ | 2009 11 16 | 691 | 0.4− | 0.1− | | | | |
| 2001 11 21 | 704 | 0.3− | 0.4+ | 2005 12 01 | 704 | 0.3− | 0.5+ | 2009 12 10 | G96 | 0.1+ | 0.4− | | | | |
| 2001 11 21 | 704 | 0.1+ | 1.3+ | 2005 12 01 | 704 | (0.3+ | 1.7−) | 2009 12 10 | G96 | 0.1− | 0.5− | | | | |
| 2001 11 21 | 704 | 0.2− | 1.3+ | 2005 12 04 | 704 | 0.7− | 0.9− | 2009 12 10 | G96 | 0.2− | 0.4− | | | | |
| 2001 11 21 | 704 | 0.1− | 0.9+ | 2005 12 04 | 704 | 0.8− | 0.2+ | 2009 12 10 | G96 | 0.5+ | 0.5− | | | | |

**(228531)∗ 2001 UV$_{136}$**

Discovered 2001 Oct. 23 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 32.87171 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26366971 | $\omega$ | 15.57581 | | +0.45110133 | −0.89168280 | |
| $a$ | 2.4085882 | $\Omega$ | 47.62627 | | +0.81330437 | +0.39340126 | |
| $e$ | 0.1776815 | $i$ | 2.91284 | | +0.36748278 | +0.22391345 | |
| $P$ | 3.74 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 18 | 699 | 0.1+ | 0.8+ | 2005 10 27 | G96 | 0.4+ | 0.3− | 2005 12 04 | 704 | 0.4+ | 0.6+ | | | | |
| 2001 09 18 | 699 | (0.5+ | 1.6+) | 2005 10 27 | G96 | 0.0 | 0.2− | 2005 12 04 | 704 | 0.1− | 0.1+ | | | | |
| 2001 09 18 | 699 | 1.2+ | 0.5+ | 2005 10 27 | G96 | 0.1+ | 0.1− | 2005 12 05 | G96 | 0.2− | 0.1− | | | | |
| 2001 09 18 | 699 | (1.2− | 1.6+) | 2005 10 30 | 691 | 0.1+ | 0.2− | 2005 12 05 | G96 | 0.4+ | 0.2− | | | | |
| 2001 09 19 | 704 | 1.0− | 0.4+ | 2005 10 30 | 691 | 0.2+ | 0.1− | 2005 12 05 | G96 | 0.1+ | 0.3− | | | | |
| 2001 09 19 | 704 | 0.1− | 1.2+ | 2005 10 30 | 691 | 0.3+ | 0.2− | 2005 12 05 | G96 | 0.3+ | 0.1− | | | | |
| 2001 09 19 | 704 | 0.2− | 1.0+ | 2005 11 04 | 704 | 0.1+ | 1.3− | 2005 12 06 | 704 | 0.3− | 0.7− | | | | |
| 2001 09 19 | 704 | 1.0− | 0.1+ | 2005 11 04 | 704 | 1.1− | 0.0 | 2005 12 06 | 704 | 0.2− | 0.5+ | | | | |
| 2001 09 19 | 704 | 0.5− | 0.1+ | 2005 11 04 | 704 | 0.2+ | 0.4− | 2005 12 06 | 704 | (1.7− | 1.2+) | | | | |
| 2001 10 17 | 644 | 0.1+ | 0.0 | 2005 11 07 | 704 | (1.8− | 0.3−) | 2005 12 09 | 704 | 1.0+ | 0.0 | | | | |
| 2001 10 17 | 644 | 0.1+ | 0.3− | 2005 11 07 | 704 | (2.1− | 0.6−) | 2005 12 09 | 704 | 0.2− | 0.3− | | | | |
| 2001 10 17 | 644 | 0.1+ | 0.0 | 2005 11 07 | 704 | (2.2− | 0.3−) | 2005 12 09 | 704 | 0.1+ | 0.3− | | | | |
| 2001 10 17 | 644 | 0.3+ | 0.3+ | 2005 11 11 | 691 | 0.1+ | 0.0 | 2005 12 09 | 704 | 0.3+ | 0.4− | | | | |
| 2001 10 17 | 644 | 0.2+ | 0.5+ | 2005 11 11 | 691 | 0.0 | 0.2+ | 2005 12 09 | 704 | 0.5− | 0.1+ | | | | |
| 2001 10 17 | 644 | 0.1+ | 0.0 | 2005 11 11 | 691 | 0.2+ | 0.1− | 2006 01 25 | G96 | 0.3+ | 0.3− | | | | |
| 2001 10 23 | 704 | 0.7− | 0.3+ | 2005 11 12 | 691 | 0.0 | 0.1− | 2006 01 25 | G96 | 0.3− | 0.1+ | | | | |
| 2001 10 23 | 704 | 0.5− | 1.2+ | 2005 11 12 | 691 | 0.4+ | 0.1+ | 2006 01 25 | G96 | 0.4− | 0.4− | | | | |
| 2001 10 23 | 704 | 0.0 | 0.7+ | 2005 11 12 | 691 | 0.1− | 0.1+ | 2006 01 25 | G96 | 0.1− | 0.2− | | | | |
| 2001 10 24 | 704 | (1.7− | 1.1+) | 2005 11 21 | 691 | 0.0 | 0.2+ | 2007 03 26 | G96 | 0.2+ | 0.0 | | | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 10 24 | 704 | 0.2− | 1.0+ | 2005 11 21 | 691 | 0.1+ | 0.2+ | 2007 03 26 | G96 | 0.2− | 0.1+ |
| 2001 10 24 | 704 | 1.1− | 0.8+ | 2005 11 21 | 691 | 0.0 | 0.1+ | 2007 03 26 | G96 | 0.5+ | 0.1+ |
| 2001 10 24 | 704 | 1.2− | 0.7+ | 2005 11 28 | 703 | 0.5+ | 0.9− | 2007 03 26 | G96 | 0.1+ | 0.3− |
| 2001 12 10 | 645 | 0.1+ | 0.2− | 2005 11 28 | 703 | 0.4− | 1.0− | 2007 04 18 | G96 | 0.0 | 0.3+ |
| 2001 12 10 | 645 | 0.0 | 0.3− | 2005 11 28 | 703 | 0.1+ | 0.4− | 2007 04 18 | G96 | 0.0 | 0.4+ |
| 2005 10 01 | G96 | 0.0 | 0.3− | 2005 11 28 | 703 | 1.3− | 0.2− | 2007 04 18 | G96 | 0.2+ | 0.0 |
| 2005 10 01 | G96 | 0.1+ | 0.1− | 2005 11 29 | 699 | 0.1− | 0.1− | 2007 04 18 | G96 | 0.1+ | 0.1+ |
| 2005 10 01 | G96 | 0.2− | 0.1− | 2005 11 29 | 699 | 0.6+ | 0.3+ | 2007 04 25 | G96 | 0.1− | 0.3+ |
| 2005 10 01 | G96 | 0.1− | 0.2− | 2005 11 29 | 699 | 0.5− | 0.1− | 2007 04 25 | G96 | 0.4+ | 0.4+ |
| 2005 10 23 | 703 | 1.3− | 0.7− | 2005 11 29 | 704 | 1.1− | 1.1+ | 2007 04 25 | G96 | 0.3+ | 0.7+ |
| 2005 10 23 | 703 | 0.7− | 1.2− | 2005 11 29 | 704 | 0.3− | 0.5+ | 2007 04 25 | G96 | 0.1+ | 0.2+ |
| 2005 10 23 | 703 | 0.0 | 0.6− | 2005 11 29 | 704 | (1.8− | 0.0 ) | 2009 11 11 | G96 | 0.1+ | 0.3− |
| 2005 10 23 | 703 | 0.8− | 0.1− | 2005 11 29 | 704 | 0.6− | 0.8+ | 2009 11 11 | G96 | 0.4+ | 0.1+ |
| 2005 10 25 | 699 | 0.5+ | 0.4+ | 2005 12 01 | 704 | 0.4− | 0.6+ | 2009 11 11 | G96 | 0.2+ | 0.0 |
| 2005 10 25 | 699 | (0.7− | 1.6−) | 2005 12 01 | 704 | 0.2+ | 1.3+ | 2009 12 18 | G96 | 0.3+ | 0.1+ |
| 2005 10 25 | 699 | (1.7+ | 0.2+) | 2005 12 01 | 704 | 0.2− | 0.7+ | 2009 12 18 | G96 | 0.4+ | 0.1− |
| 2005 10 25 | 699 | 0.1− | 1.0+ | 2005 12 01 | 704 | 0.3+ | 0.7+ | 2009 12 18 | G96 | 0.1+ | 0.1+ |
| 2005 10 26 | 691 | 0.0 | 0.0 | 2005 12 01 | 704 | 0.3− | 1.5+ | 2009 12 18 | G96 | 0.2+ | 0.0 |
| 2005 10 26 | 691 | 0.1− | 0.1− | 2005 12 04 | 704 | 0.2+ | 0.4+ | 2009 12 27 | 691 | 0.3− | 0.3+ |
| 2005 10 26 | 691 | 0.1+ | 0.1− | 2005 12 04 | 704 | 0.6+ | 0.9+ | 2009 12 27 | 691 | 0.2− | 0.3+ |
| 2005 10 27 | G96 | 0.3+ | 0.5− | 2005 12 04 | 704 | 0.8+ | 0.6+ | 2009 12 27 | 691 | 0.2− | 0.0 |

**(228532)∗ 2001 VF$_{19}$**

Discovered 2001 Nov. 9 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 324.56974 | | (2000.0) | | | **P** | | **Q** | |
| $n$ | 0.23810120 | $\omega$ | 208.25668 | | | +0.04931016 | | −0.99695560 | |
| $a$ | 2.5780717 | $\Omega$ | 238.97478 | | | +0.92912739 | | +0.06797487 | |
| $e$ | 0.2312121 | $i$ | 4.04168 | | | +0.36645709 | | −0.03819622 | |
| $P$ | 4.14 | $H$ | 17.1 | $G$ | 0.15 | | $U$ | 2 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 10 21 | 704 | 0.2+ | 0.2− | 2001 11 21 | 704 | 0.0 | 0.3− | 2005 10 09 | 152 | 0.8− | 0.0 |
| 2001 10 21 | 704 | 0.5− | 0.1− | 2001 11 21 | 704 | 0.2+ | 0.2− | 2007 03 14 | 691 | 0.2− | 0.1− |
| 2001 10 21 | 704 | 0.1− | 0.8− | 2001 11 21 | 704 | 0.0 | 0.4− | 2007 03 14 | 691 | 0.4− | 0.1+ |
| 2001 10 21 | 704 | 0.4+ | 0.6+ | 2001 11 21 | 704 | 0.3+ | 0.3+ | 2007 03 14 | 691 | 0.5+ | 0.2+ |
| 2001 10 21 | 704 | 0.7− | 0.2− | 2001 11 22 | 644 | 0.2− | 0.8+ | 2007 03 18 | 691 | 0.1+ | 0.4− |
| 2001 10 26 | 644 | 0.5− | 0.0 | 2001 11 22 | 644 | 0.2− | 0.8+ | 2007 03 18 | 691 | 0.0 | 0.0 |
| 2001 10 26 | 644 | 0.1+ | 0.2+ | 2001 11 22 | 644 | 0.3+ | 0.7+ | 2007 03 18 | 691 | 0.2+ | 0.3+ |
| 2001 10 26 | 644 | 0.1− | 0.3+ | 2005 09 25 | 691 | 0.2+ | 0.2− | 2009 08 29 | 691 | 0.6− | 0.2− |
| 2001 11 09 | 704 | 0.1− | 0.2+ | 2005 09 25 | 691 | 0.5+ | 0.1− | 2009 08 29 | 691 | 0.6− | 0.2+ |
| 2001 11 09 | 704 | 0.1− | 1.0+ | 2005 09 25 | 691 | 0.3+ | 0.3− | 2009 08 29 | 691 | 0.2− | 0.3+ |
| 2001 11 09 | 704 | 0.9− | 0.3− | 2005 09 30 | 691 | 0.6+ | 0.0 | 2009 09 16 | 691 | 0.2− | 0.3+ |
| 2001 11 09 | 704 | 0.4− | 0.2+ | 2005 09 30 | 691 | 0.5+ | 0.3− | 2009 09 16 | 691 | 0.2− | 0.3+ |
| 2001 11 12 | 704 | 0.9− | 0.2+ | 2005 09 30 | 691 | 0.3+ | 0.3− | 2009 09 16 | 691 | 0.1+ | 0.4+ |
| 2001 11 12 | 704 | 0.5+ | 0.1− | 2005 10 06 | 691 | 0.1+ | 0.2− | 2009 09 17 | G96 | 0.3+ | 0.4+ |
| 2001 11 12 | 704 | 0.6− | 0.3+ | 2005 10 06 | 691 | 0.1− | 0.1− | 2009 09 17 | G96 | 0.1− | 0.2+ |
| 2001 11 19 | 704 | 0.2− | 0.0 | 2005 10 06 | 691 | 0.0 | 0.3− | 2009 09 17 | G96 | 0.1+ | 0.1+ |
| 2001 11 19 | 704 | 0.1+ | 0.1+ | 2005 10 07 | 152 | (1.9+ | 1.0−) | 2009 09 17 | G96 | 0.3+ | 0.4+ |
| 2001 11 19 | 704 | 0.1+ | 0.6+ | 2005 10 07 | 152 | 0.7− | 1.5− | 2009 12 19 | 291 | 0.3+ | 0.0 |
| 2001 11 19 | 704 | 0.4− | 0.0 | 2005 10 07 | 152 | 0.1− | 0.9− | 2009 12 19 | 291 | 0.2+ | 0.2+ |
| 2001 11 19 | 704 | 0.4+ | 0.0 | 2005 10 09 | 152 | 0.1− | 0.3+ | 2009 12 19 | 291 | 0.6− | 0.1+ |
| 2001 11 21 | 704 | 0.3+ | 0.0 | 2005 10 09 | 152 | 0.1− | 0.4+ | | | | |

**(228533)∗ 2001 VR$_{19}$**

Discovered 2001 Nov. 9 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 323.23183 | | (2000.0) | | | **P** | | **Q** | |
| $n$ | 0.23861488 | $\omega$ | 205.30358 | | | +0.07202194 | | −0.99151959 | |
| $a$ | 2.5743704 | $\Omega$ | 240.73159 | | | +0.93488929 | | +0.10490236 | |
| $e$ | 0.1574855 | $i$ | 7.12331 | | | +0.34755555 | | −0.07670982 | |
| $P$ | 4.13 | $H$ | 16.0 | $G$ | 0.15 | | $U$ | 2 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 10 19 | 644 | 0.5− | 0.0 | 2001 11 21 | 704 | 0.0 | 0.5− | 2005 11 02 | 704 | 0.2+ | 1.0+ |
| 2001 10 19 | 644 | 0.7− | 0.3− | 2001 11 21 | 704 | 0.0 | 0.4− | 2005 11 02 | 704 | (0.1+ | 2.1+) |
| 2001 10 19 | 644 | 0.5− | 0.1+ | 2001 11 21 | 704 | 0.2− | 0.8− | 2005 11 02 | 704 | 0.1+ | 0.7+ |
| 2001 10 21 | 704 | (3.1− | 1.1+) | 2001 12 10 | 291 | 0.2+ | 0.2− | 2005 11 02 | 704 | 0.2− | 0.8+ |
| 2001 10 21 | 704 | 0.0 | 0.3− | 2001 12 10 | 291 | 0.3+ | 0.1− | 2005 11 06 | 704 | 0.2− | 0.4+ |
| 2001 10 21 | 704 | 0.3+ | 0.2+ | 2001 12 10 | 291 | 0.5+ | 0.1− | 2005 11 06 | 704 | 0.3− | 0.5+ |
| 2001 10 21 | 704 | 0.9− | 0.4+ | 2001 12 15 | 704 | 1.0+ | 0.7+ | 2005 11 06 | 704 | 0.1+ | 0.0 |
| 2001 10 21 | 704 | 0.2− | 0.1+ | 2001 12 15 | 704 | 0.2+ | 0.8+ | 2005 11 06 | 704 | 0.5+ | 0.1− |
| 2001 10 26 | 644 | 0.7− | 0.1− | 2001 12 15 | 704 | 0.1+ | 0.9+ | 2005 11 06 | 704 | 0.2+ | 0.2− |
| 2001 10 26 | 644 | 0.8− | 0.2− | 2001 12 15 | 704 | (0.8+ | 2.3+) | 2005 11 09 | 703 | (1.5− | 0.7+) |
| 2001 10 26 | 644 | 0.7− | 0.2− | 2001 12 15 | 704 | 0.1− | 0.7+ | 2005 11 09 | 703 | 0.8+ | 0.1− |
| 2001 11 09 | 704 | 0.4+ | 0.2− | 2001 12 18 | 704 | 0.2+ | 0.6+ | 2005 11 09 | 703 | (2.2+ | 1.2−) |
| 2001 11 09 | 704 | 0.2+ | 0.1− | 2001 12 18 | 704 | (1.6+ | 1.1+) | 2005 11 09 | 703 | 0.4− | 0.9− |
| 2001 11 09 | 704 | 0.3+ | 0.2− | 2001 12 18 | 704 | 0.9+ | 0.7+ | 2005 11 09 | 703 | 0.7+ | 1.2+ |
| 2001 11 09 | 704 | 0.1+ | 0.0 | 2001 12 18 | 704 | 0.8+ | 1.1+ | 2005 11 09 | 703 | 0.8+ | 1.0+ |
| 2001 11 09 | 704 | 0.4+ | 0.5+ | 2001 12 19 | 704 | 1.1+ | 0.7+ | 2005 11 09 | 703 | 0.4+ | 0.7+ |
| 2001 11 11 | 691 | 0.0 | 0.3− | 2001 12 19 | 704 | 0.1+ | 1.4+ | 2005 11 09 | 703 | 0.0 | 0.6+ |
| 2001 11 11 | 691 | 0.0 | 0.4− | 2001 12 19 | 704 | 0.1+ | 0.6+ | 2005 11 10 | G96 | 0.1− | 0.3− |
| 2001 11 11 | 691 | 0.1− | 0.1− | 2001 12 19 | 644 | 0.3− | 0.5+ | 2005 11 10 | G96 | 0.6− | 0.6− |
| 2001 11 12 | 704 | 0.7− | 0.3+ | 2001 12 19 | 704 | 0.2+ | 0.8+ | 2005 11 10 | G96 | 0.3+ | 0.0 |
| 2001 11 12 | 704 | 0.4− | 0.8+ | 2001 12 19 | 644 | 0.3− | 0.5+ | 2005 11 10 | G96 | 0.2− | 0.2− |
| 2001 11 12 | 704 | 0.3− | 0.1+ | 2001 12 19 | 644 | 0.4− | 0.4+ | 2005 11 10 | G96 | 0.2+ | 0.2− |
| 2001 11 12 | 704 | 0.4+ | 0.6− | 2001 12 19 | 704 | 0.6+ | 0.6+ | 2005 11 10 | G96 | 0.2+ | 0.1− |
| 2001 11 12 | 704 | 0.3− | 0.6+ | 2005 10 03 | 704 | 0.2+ | 0.4− | 2005 11 10 | G96 | 0.3+ | 0.0 |
| 2001 11 12 | 049 | 0.7− | 1.1− | 2005 10 03 | 704 | 0.5+ | 0.6− | 2005 11 10 | G96 | 0.2+ | 0.1− |
| 2001 11 12 | 049 | 0.7− | 1.3− | 2005 10 03 | 704 | 0.7− | 0.2− | 2006 01 04 | G96 | 0.1+ | 0.5− |
| 2001 11 12 | 049 | 0.7− | 1.1− | 2005 10 03 | 704 | 0.3+ | 0.4− | 2006 01 04 | G96 | 0.2− | 0.4− |
| 2001 11 13 | 049 | 0.1− | 0.5− | 2005 10 10 | 699 | 0.1− | 0.2+ | 2006 01 04 | G96 | 0.0 | 0.2− |
| 2001 11 13 | 049 | 0.2− | 0.5− | 2005 10 10 | 699 | 0.5+ | 1.0+ | 2006 01 04 | G96 | 0.4− | 0.4− |
| 2001 11 13 | 049 | 0.2− | 0.6− | 2005 10 10 | 699 | 0.6+ | 0.8− | 2006 02 03 | G96 | 0.0 | 0.2− |
| 2001 11 14 | 300 | 0.7− | 1.1− | 2005 10 10 | 699 | 0.1+ | 0.3+ | 2006 02 03 | G96 | 0.3− | 0.7− |
| 2001 11 14 | 300 | 0.2− | 0.8− | 2005 10 12 | 704 | 0.3− | 0.0 | 2006 02 03 | G96 | 0.2− | 0.2+ |
| 2001 11 14 | 300 | 1.0+ | 0.6+ | 2005 10 12 | 704 | 0.4− | 0.6− | 2006 02 03 | G96 | 0.2+ | 0.5− |
| 2001 11 17 | 704 | 0.5− | 0.3− | 2005 10 12 | 704 | 0.5− | 0.2− | 2007 03 13 | 703 | (3.3− | 0.1+) |
| 2001 11 17 | 704 | 0.7− | 0.2− | 2005 10 12 | 704 | 0.4− | 0.8− | 2007 03 13 | 703 | 0.4− | 1.0+ |
| 2001 11 17 | 704 | 0.8− | 0.3+ | 2005 10 12 | 704 | 0.1+ | 0.4+ | 2007 03 13 | 703 | 0.4+ | 0.9− |
| 2001 11 17 | 704 | 0.2+ | 0.4− | 2005 10 23 | 703 | 0.1− | 1.0− | 2007 03 13 | 703 | 0.2+ | 0.4+ |
| 2001 11 17 | 704 | 1.0− | 0.2+ | 2005 10 23 | 703 | 0.8− | 1.4− | 2009 09 25 | 703 | 1.1+ | 0.9+ |
| 2001 11 18 | 704 | 0.4+ | 0.1+ | 2005 10 23 | 703 | 0.1+ | 0.3− | 2009 09 25 | 703 | 0.7− | 0.8+ |
| 2001 11 18 | 704 | 0.0 | 0.2+ | 2005 10 23 | 703 | 0.0 | 0.3− | 2009 09 25 | 703 | 1.0− | 0.8+ |
| 2001 11 18 | 704 | 0.2+ | 0.0 | 2005 10 26 | 699 | 0.4− | 0.4− | 2009 09 25 | 703 | 0.3+ | 0.4+ |
| 2001 11 18 | 704 | 0.1+ | 0.4− | 2005 10 26 | 699 | 0.7+ | 0.1− | 2009 10 10 | 703 | 0.3− | 0.6− |
| 2001 11 18 | 704 | 0.1− | 0.8− | 2005 10 26 | 699 | 0.0 | 0.0 | 2009 10 10 | 703 | 0.7+ | 0.2− |
| 2001 11 19 | 699 | 0.7− | 0.1− | 2005 10 26 | 699 | 0.7− | 0.6+ | 2009 10 10 | 703 | 0.4+ | 0.7− |
| 2001 11 19 | 699 | 0.4− | 0.2+ | 2005 10 29 | 703 | 0.8− | 0.8+ | 2009 10 10 | 703 | 0.1− | 1.4+ |
| 2001 11 19 | 699 | 0.5− | 0.2− | 2005 10 29 | 703 | 0.5− | 0.1− | 2009 12 16 | G96 | 0.0 | 0.2− |
| 2001 11 19 | 704 | 0.7+ | 0.7+ | 2005 10 29 | 703 | 1.1− | 0.2+ | 2009 12 16 | G96 | 0.5+ | 0.3− |
| 2001 11 19 | 699 | 0.6− | 0.3− | 2005 10 29 | 703 | 0.6− | 0.0 | 2009 12 16 | G96 | 0.1− | 0.5− |
| 2001 11 19 | 704 | 1.2+ | 0.7+ | 2005 10 30 | 704 | 0.1+ | 0.3+ | 2009 12 16 | G96 | 0.2− | 0.2− |
| 2001 11 19 | 704 | 0.6+ | 0.5+ | 2005 10 30 | 704 | 0.0 | 0.7+ | 2009 12 17 | G96 | 0.5− | 0.3− |
| 2001 11 19 | 704 | 1.0+ | 0.9+ | 2005 10 30 | 704 | 0.9+ | 0.6+ | 2009 12 17 | G96 | 0.2− | 0.4− |
| 2001 11 19 | 704 | 1.2+ | 1.1+ | 2005 10 30 | 704 | 0.0 | 0.2+ | 2009 12 17 | G96 | 0.5− | 0.4− |
| 2001 11 21 | 704 | 0.2− | 0.2− | 2005 10 30 | 704 | 0.2+ | 0.2+ | 2009 12 17 | G96 | 0.3− | 0.4− |
| 2001 11 21 | 704 | 0.1− | 0.5− | 2005 11 02 | 704 | 0.1+ | 1.0+ | | | | |

**(228534)∗ 2001 VO$_{35}$ = 2005 UN$_2$**

Discovered 2001 Nov. 9 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 94262)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 342.50849 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23915413 | $\omega$ | 24.52869 | | +0.15664807 | −0.96895693 | |
| $a$ | 2.5704991 | $\Omega$ | 56.99088 | | +0.86431579 | +0.04077728 | |
| $e$ | 0.2496229 | $i$ | 13.18440 | | +0.47793262 | +0.24384356 | |
| $P$ | 4.12 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 11 09 | 704 | (0.8+ | 1.5−) | 2005 10 27 | 683 | 0.3− | 0.6− | | 2005 12 06 | 691 | 0.1− | 0.0 | | | | |
| 2001 11 09 | 704 | 0.8+ | 1.4− | 2005 10 27 | 691 | 0.2+ | 0.3− | | 2005 12 06 | 704 | 0.1− | 0.0 | | | | |
| 2001 11 09 | 704 | 0.6− | 0.6+ | 2005 10 27 | 699 | 0.3− | 0.5− | | 2005 12 06 | 704 | 0.2+ | 0.2− | | | | |
| 2001 11 09 | 704 | 1.0+ | 1.4− | 2005 10 27 | 699 | 0.8− | 0.1− | | 2005 12 06 | 704 | (1.7− | 0.4+) | | | | |
| 2001 11 09 | 704 | (1.6+ | 1.3−) | 2005 10 28 | 704 | 0.8+ | 0.4− | | 2005 12 06 | 704 | 0.7+ | 1.4+ | | | | |
| 2001 11 12 | 704 | 0.4+ | 0.1− | 2005 10 28 | 704 | 0.1− | 0.6+ | | 2005 12 06 | 704 | 1.3+ | 0.4+ | | | | |
| 2001 11 12 | 704 | 0.5+ | 0.7− | 2005 10 28 | 704 | 0.3− | 0.9+ | | 2005 12 09 | 704 | 0.1− | 0.1+ | | | | |
| 2001 11 12 | 704 | 0.8+ | 0.3− | 2005 10 28 | 704 | 0.6+ | 0.5+ | | 2005 12 09 | 704 | 0.6− | 0.2− | | | | |
| 2001 11 12 | 704 | 0.3+ | 0.2− | 2005 10 28 | 704 | 0.7− | 0.8− | | 2005 12 09 | 704 | 0.2− | 0.6− | | | | |
| 2001 11 12 | 704 | 0.7+ | 0.0 | 2005 10 31 | 691 | 0.0 | 0.3− | | 2005 12 09 | 704 | 0.2+ | 0.1+ | | | | |
| 2001 11 24 | 704 | 1.2− | 0.9− | 2005 10 31 | 704 | 0.6+ | 0.6+ | | 2005 12 09 | 704 | 0.8− | 0.4+ | | | | |
| 2001 11 24 | 704 | 1.3− | 0.7− | 2005 10 31 | 704 | 0.1− | 0.3+ | | 2005 12 21 | 699 | 1.0− | 0.3− | | | | |
| 2001 11 24 | 704 | (1.6− | 1.7−) | 2005 10 31 | 691 | 0.0 | 0.0 | | 2005 12 21 | 699 | 0.3− | 0.3− | | | | |
| 2001 11 24 | 704 | (2.4− | 0.9−) | 2005 10 31 | 704 | 0.0 | 0.3+ | | 2005 12 21 | 699 | 0.7− | 0.1+ | | | | |
| 2001 11 24 | 704 | (2.4− | 0.2−) | 2005 10 31 | 691 | 0.1+ | 0.1− | | 2005 12 21 | 699 | 1.0− | 0.4− | | | | |
| 2001 12 09 | 704 | 0.9− | 0.3− | 2005 10 31 | 704 | 0.1+ | 0.0 | | 2005 12 24 | 703 | 0.2+ | 0.5− | | | | |
| 2001 12 09 | 704 | 0.1+ | 0.8+ | 2005 10 31 | 704 | 0.3+ | 0.1+ | | 2005 12 24 | 703 | 1.1− | 0.1− | | | | |
| 2001 12 09 | 704 | 0.4− | 0.5− | 2005 11 03 | 704 | 0.4− | 0.8+ | | 2005 12 24 | 703 | 0.0 | 0.9+ | | | | |
| 2001 12 09 | 704 | 0.2− | 0.6− | 2005 11 03 | 704 | 0.3+ | 0.2− | | 2005 12 24 | 703 | 0.3− | 0.4+ | | | | |
| 2001 12 19 | 704 | 0.1− | 0.3− | 2005 11 03 | 704 | 0.0 | 0.6+ | | 2005 12 29 | 704 | 0.0 | 0.5+ | | | | |
| 2001 12 19 | 704 | 0.6+ | 0.1+ | 2005 11 03 | 704 | 0.5+ | 0.2− | | 2005 12 29 | 704 | 1.4− | 0.5− | | | | |
| 2001 12 19 | 704 | 0.1− | 0.5− | 2005 11 04 | 691 | 0.3+ | 0.1− | | 2005 12 29 | 704 | 0.1+ | 0.2− | | | | |
| 2001 12 19 | 704 | 0.6+ | 0.5− | 2005 11 04 | 691 | 0.3+ | 0.0 | | 2005 12 29 | 704 | 0.3− | 0.1− | | | | |
| 2001 12 19 | 704 | 0.4− | 0.4− | 2005 11 04 | 691 | 0.1+ | 0.0 | | 2005 12 29 | 703 | (1.1+ | 1.7−) | | | | |
| 2001 12 19 | 704 | 0.4+ | 0.3− | 2005 11 05 | 703 | 0.2+ | 0.5+ | | 2005 12 29 | 703 | 0.8− | 1.0− | | | | |
| 2001 12 19 | 704 | 0.3− | 0.2− | 2005 11 05 | 703 | 0.2− | 0.0 | | 2005 12 29 | 703 | (0.1− | 1.8−) | | | | |
| 2001 12 19 | 704 | 0.7+ | 0.0 | 2005 11 05 | 703 | 0.5− | 0.1− | | 2005 12 29 | 703 | (3.5− | 3.8+) | | | | |
| 2001 12 19 | 704 | 0.3− | 0.5− | 2005 11 05 | 703 | (0.9− | 1.8+) | | 2006 01 05 | 703 | 0.4+ | 0.3− | | | | |
| 2001 12 19 | 704 | 0.6+ | 0.0 | 2005 11 06 | 704 | 0.2+ | 0.4+ | | 2006 01 05 | 703 | 1.3+ | 0.4+ | | | | |
| 2001 12 22 | 704 | 0.1− | 0.3− | 2005 11 06 | 704 | 0.2+ | 0.6+ | | 2006 01 05 | 703 | 1.1+ | 0.0 | | | | |
| 2001 12 22 | 704 | 0.2− | 0.2− | 2005 11 06 | 704 | 0.6+ | 0.5+ | | 2006 01 05 | 703 | 0.0 | 0.1+ | | | | |
| 2001 12 22 | 704 | 0.4+ | 0.1+ | 2005 11 06 | 704 | 0.1+ | 0.3+ | | 2006 01 05 | 704 | 0.5+ | 0.7+ | | | | |
| 2001 12 22 | 704 | 0.2+ | 0.1− | 2005 11 06 | 704 | 0.5+ | 0.2+ | | 2006 01 05 | 704 | 1.1− | 0.3+ | | | | |
| 2001 12 22 | 704 | 0.2+ | 0.0 | 2005 11 10 | 703 | 0.3+ | 0.3− | | 2006 01 05 | 704 | 0.6− | 0.6+ | | | | |
| 2002 01 07 | 704 | 0.2− | 0.2+ | 2005 11 10 | 703 | 1.3+ | 0.5+ | | 2006 01 05 | 704 | 0.4− | 0.5− | | | | |
| 2002 01 07 | 704 | 0.3+ | 0.2+ | 2005 11 10 | 703 | 0.2+ | 0.4+ | | 2006 01 05 | 704 | 0.1+ | 0.2+ | | | | |
| 2002 01 07 | 704 | 0.5+ | 0.8+ | 2005 11 10 | 703 | 0.3+ | 0.6+ | | 2007 04 15 | 691 | 0.1− | 0.4+ | | | | |
| 2005 10 02 | 699 | 0.3− | 0.0 | 2005 11 20 | 699 | 0.1+ | 0.3− | | 2007 04 15 | 691 | 0.1+ | 0.0 | | | | |
| 2005 10 02 | 699 | 0.2+ | 0.4+ | 2005 11 20 | 699 | 0.1+ | 0.6+ | | 2007 04 15 | 691 | 0.3− | 0.2+ | | | | |
| 2005 10 02 | 699 | 0.5− | 0.5− | 2005 11 20 | 699 | 0.2− | 0.5+ | | 2007 04 19 | 691 | 0.3+ | 0.4+ | | | | |
| 2005 10 02 | 699 | (2.0+ | 0.2+) | 2005 11 20 | 699 | 0.5− | 0.5− | | 2007 04 19 | 691 | 0.4+ | 0.1− | | | | |
| 2005 10 22 | 691 | 0.3− | 0.2− | 2005 11 26 | 703 | 0.4+ | 0.8− | | 2007 04 19 | 691 | 0.4+ | 0.1− | | | | |
| 2005 10 22 | 691 | 0.4− | 0.1− | 2005 11 26 | 703 | 0.6− | 0.2+ | | 2007 05 10 | 691 | 0.1+ | 0.1− | | | | |
| 2005 10 22 | 691 | 0.3− | 0.1− | 2005 11 26 | 703 | 0.1+ | 0.8− | | 2007 05 10 | 691 | 0.2− | 0.5+ | | | | |
| 2005 10 23 | 683 | 0.5− | 0.2+ | 2005 11 29 | 699 | 0.0 | 0.7− | | 2007 05 10 | 691 | 0.1+ | 0.4+ | | | | |
| 2005 10 23 | 683 | 0.7+ | 0.2+ | 2005 11 29 | 699 | 0.1− | 0.2+ | | 2009 10 15 | 703 | 0.5+ | 0.8+ | | | | |
| 2005 10 23 | 683 | 0.4+ | 0.1+ | 2005 11 29 | 699 | 0.2− | 0.8− | | 2009 10 15 | 703 | 0.4+ | 0.0 | | | | |
| 2005 10 24 | 683 | 0.3− | 1.3− | 2005 11 29 | 699 | 0.2+ | 0.1+ | | 2009 10 15 | 703 | 0.7+ | 1.4+ | | | | |
| 2005 10 24 | 683 | (1.1+ | 1.6−) | 2005 12 01 | 704 | 0.0 | 0.5+ | | 2009 10 15 | 703 | 1.1+ | 0.4+ | | | | |
| 2005 10 24 | 683 | 0.1− | 0.7+ | 2005 12 01 | 704 | 0.6− | 0.1− | | 2009 10 19 | 704 | 0.5− | 0.0 | | | | |
| 2005 10 25 | 703 | 0.1− | 0.2− | 2005 12 01 | 704 | 0.4+ | 0.6+ | | 2009 10 19 | 704 | 0.6− | 0.0 | | | | |
| 2005 10 25 | 703 | 0.2+ | 0.1+ | 2005 12 01 | 704 | 0.0 | 0.8+ | | 2009 10 19 | 704 | 1.3− | 0.1+ | | | | |
| 2005 10 25 | 703 | 0.1− | 0.1− | 2005 12 01 | 704 | 0.4+ | 0.9+ | | 2009 10 19 | 704 | 1.1− | 0.7+ | | | | |
| 2005 10 25 | 703 | 0.2− | 0.3− | 2005 12 04 | 691 | 0.1+ | 0.0 | | 2009 10 19 | 704 | 0.9− | 0.6+ | | | | |
| 2005 10 26 | 683 | 0.4+ | 0.3+ | 2005 12 04 | 691 | 0.3+ | 0.1+ | | 2009 10 26 | J75 | 0.1− | 0.4− | | | | |
| 2005 10 26 | 683 | 0.4+ | 0.6− | 2005 12 04 | 691 | 0.0 | 0.2+ | | 2009 10 26 | J75 | 0.1+ | 0.8− | | | | |
| 2005 10 26 | 683 | 1.1− | 0.2+ | 2005 12 04 | 704 | 0.1− | 0.2+ | | 2009 10 26 | J75 | 0.1− | 0.2− | | | | |
| 2005 10 26 | 699 | 0.0 | 0.8+ | 2005 12 04 | 704 | 0.0 | 0.2+ | | 2009 10 27 | 703 | 0.1+ | 0.7+ | | | | |
| 2005 10 26 | 699 | 0.4− | 0.0 | 2005 12 04 | 704 | 0.5− | 0.6+ | | 2009 10 27 | 703 | 0.0 | 0.3+ | | | | |
| 2005 10 26 | 699 | 0.5− | 0.1+ | 2005 12 04 | 704 | 0.1− | 0.7+ | | 2009 10 27 | 703 | 1.5+ | 1.0+ | | | | |
| 2005 10 26 | 699 | 0.3+ | 0.4+ | 2005 12 04 | 704 | 0.4+ | 0.5+ | | 2009 10 27 | 703 | 0.1+ | 0.5− | | | | |
| 2005 10 27 | 699 | 1.1+ | 0.4− | 2005 12 05 | 699 | 0.7− | 0.2+ | | 2009 12 10 | 703 | 0.7− | 0.7− | | | | |
| 2005 10 27 | 683 | 0.5− | 0.8− | 2005 12 05 | 699 | 0.4− | 0.1− | | 2009 12 10 | 703 | 0.2+ | 0.4+ | | | | |
| 2005 10 27 | 691 | 0.3+ | 0.2− | 2005 12 05 | 699 | 1.3− | 0.1− | | 2009 12 10 | 703 | 0.6− | 1.1− | | | | |
| 2005 10 27 | 683 | 0.2+ | 0.9− | 2005 12 05 | 699 | 0.1− | 0.0 | | 2009 12 10 | 703 | 0.3− | 0.7− | | | | |
| 2005 10 27 | 699 | 0.1+ | 0.5+ | 2005 12 06 | 691 | 1.3− | 1.2+ | | | | | | | | | |
| 2005 10 27 | 691 | 0.0 | 0.2− | 2005 12 06 | 691 | 0.0 | 0.1+ | | | | | | | | | |

**(228535)∗ 2001 VL$_{55}$**

Discovered 2001 Nov. 10 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 340.02370 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.12684370 | $\omega$ | 193.06064 | | −0.09082501 | −0.98675941 | |
| $a$ | 3.9230464 | $\Omega$ | 262.26945 | | +0.92544713 | −0.03379245 | |
| $e$ | 0.1760924 | $i$ | 7.79376 | | +0.36782934 | −0.15863147 | |
| $P$ | 7.77 | $H$ | 14.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 10 14 | 704 | 0.2+ | 0.8+ | 2003 01 07 | 704 | 0.6+ | 1.0− | | 2009 10 24 | 703 | 0.5− | 0.1− | | | | |
| 2001 10 14 | 704 | 0.6+ | 0.0 | 2003 01 07 | 704 | 0.7+ | 0.5+ | | 2009 10 24 | 703 | 0.5+ | 0.1+ | | | | |
| 2001 10 14 | 704 | 0.8+ | 0.4− | 2003 01 07 | 704 | 0.2+ | 0.1+ | | 2009 10 26 | 691 | 0.1− | 0.2− | | | | |
| 2001 11 10 | 704 | 0.2− | 0.2+ | 2003 01 07 | 704 | 0.1+ | 0.2+ | | 2009 10 26 | 691 | 0.1− | 0.2− | | | | |
| 2001 11 10 | 704 | 1.0+ | 0.4+ | 2003 01 08 | 704 | 0.3+ | 0.3+ | | 2009 10 26 | 691 | 0.0 | 0.4− | | | | |
| 2001 11 10 | 704 | 0.0 | 0.3+ | 2003 01 08 | 704 | 0.5+ | 0.3+ | | 2009 11 17 | 691 | 0.2− | 0.3− | | | | |
| 2001 11 10 | 704 | 0.5− | 0.2+ | 2003 01 08 | 704 | 1.0− | 0.8− | | 2009 11 17 | 691 | 0.4+ | 1.1+ | | | | |
| 2001 11 10 | 704 | 0.4+ | 0.5+ | 2003 01 08 | 704 | 0.2+ | 0.3+ | | 2009 11 17 | 691 | 0.2− | 0.2− | | | | |
| 2001 11 12 | 704 | 0.3− | 1.1+ | 2003 01 26 | 699 | 1.0− | 0.5+ | | 2009 11 17 | 704 | 0.4+ | 0.0 | | | | |
| 2001 11 12 | 704 | 0.1− | 0.3+ | 2003 01 26 | 699 | 0.5+ | 0.3− | | 2009 11 17 | 704 | 1.1− | 0.9− | | | | |
| 2001 11 12 | 704 | 0.1+ | 0.5+ | 2003 01 26 | 699 | 0.0 | 0.6− | | 2009 11 17 | 704 | (0.0 | 1.5−) | | | | |
| 2001 11 12 | 704 | 0.7− | 0.6+ | 2003 01 26 | 699 | (1.7− | 0.4−) | | 2009 11 17 | 704 | 0.6− | 0.8− | | | | |
| 2001 11 12 | 704 | 0.1− | 0.3− | 2003 01 26 | 644 | 0.7− | 0.1− | | 2009 11 17 | 704 | 0.2+ | 0.5+ | | | | |
| 2001 11 24 | 704 | 1.2− | 0.7− | 2003 01 26 | 644 | 0.5− | 0.0 | | 2009 11 24 | D29 | 0.3+ | 0.0 | | | | |
| 2001 11 24 | 704 | 0.3− | 0.1− | 2003 01 26 | 644 | 0.4− | 0.1− | | 2009 11 24 | D29 | 0.3+ | 0.1− | | | | |
| 2001 11 24 | 704 | 0.0 | 1.1+ | 2003 01 27 | 704 | (2.8− | 1.0+) | | 2009 11 24 | D29 | 0.1+ | 0.2− | | | | |
| 2001 11 24 | 704 | 0.3− | 0.5− | 2003 01 27 | 704 | (1.9− | 0.2−) | | 2009 11 24 | D29 | 0.2+ | 0.4− | | | | |
| 2001 12 20 | 644 | 0.4− | 0.1− | 2003 01 27 | 704 | (1.8− | 0.1−) | | 2009 12 16 | 704 | 0.4− | 0.2− | | | | |
| 2001 12 20 | 644 | 0.1− | 0.2− | 2008 10 29 | G96 | 0.1− | 0.1− | | 2009 12 16 | 704 | 0.1− | 0.7− | | | | |
| 2001 12 20 | 644 | 0.0 | 0.6+ | 2008 10 29 | G96 | 0.1− | 0.0 | | 2009 12 16 | 704 | 0.8+ | 0.7+ | | | | |
| 2003 01 01 | 704 | 0.0 | 0.4+ | 2008 10 29 | G96 | 0.5+ | 0.2+ | | 2009 12 17 | G96 | 0.1+ | 0.5− | | | | |
| 2003 01 01 | 704 | 0.9+ | 1.1+ | 2008 10 29 | G96 | 0.5− | 0.4+ | | 2009 12 17 | G96 | 0.4+ | 0.5− | | | | |
| 2003 01 01 | 704 | 0.4+ | 0.8+ | 2009 10 24 | 703 | 0.5+ | 0.6+ | | 2009 12 17 | G96 | 0.1+ | 0.5− | | | | |
| 2003 01 01 | 704 | (0.8+ | 1.9−) | 2009 10 24 | 703 | 0.6− | 1.4− | | 2009 12 17 | G96 | 0.1+ | 0.5− | | | | |

**(228536)∗ 2001 VJ$_{63}$**

Discovered 2001 Nov. 10 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 19.38166 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24185993 | $\omega$ | 356.10819 | | +0.94916693 | −0.31351963 | |
| $a$ | 2.5512916 | $\Omega$ | 22.22605 | | +0.29076479 | +0.83912967 | |
| $e$ | 0.2681428 | $i$ | 4.25476 | | +0.12057350 | +0.44448492 | |
| $P$ | 4.08 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 20 | 333 | 0.7+ | 0.9− | 2005 10 07 | 704 | 0.0 | 0.1+ | | 2005 11 09 | 703 | 0.4− | 0.5− | | | | |
| 2001 09 20 | 333 | 0.4− | 0.7− | 2005 10 07 | 704 | 0.1+ | 0.5− | | 2005 11 19 | 699 | (0.3− | 1.5+) | | | | |
| 2001 09 20 | 333 | 1.4+ | 0.9− | 2005 10 09 | 691 | 0.2+ | 0.2− | | 2005 11 19 | 699 | 1.3+ | 0.2+ | | | | |
| 2001 10 21 | 704 | (1.9+ | 0.4−) | 2005 10 09 | 691 | 0.0 | 0.0 | | 2005 11 19 | 699 | (1.1+ | 1.6−) | | | | |
| 2001 10 21 | 704 | 0.0 | 0.1− | 2005 10 09 | 691 | 0.1− | 0.3+ | | 2005 11 19 | 699 | (2.1+ | 1.2−) | | | | |
| 2001 10 21 | 704 | 0.3− | 0.9+ | 2005 10 12 | 704 | 0.7− | 1.2+ | | 2007 02 21 | 691 | 1.0− | 0.5− | | | | |
| 2001 10 21 | 704 | 0.0 | 0.6+ | 2005 10 12 | 704 | 0.2+ | 0.5− | | 2007 02 21 | 691 | 0.0 | 0.1− | | | | |
| 2001 10 21 | 704 | 0.2+ | 0.9+ | 2005 10 12 | 704 | 1.0+ | 0.5− | | 2007 02 21 | 691 | 0.0 | 0.0 | | | | |
| 2001 10 26 | 644 | 0.6− | 0.1− | 2005 10 12 | 704 | 0.2− | 0.3+ | | 2007 02 25 | 691 | 0.1+ | 0.1+ | | | | |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 10 26 | 644 | 0.6− | 0.0 | 2005 10 14 | 699 | 0.8+ | 0.8− | 2007 02 25 | 691 | 0.1+ | 0.1+ |
| 2001 10 26 | 644 | 0.7− | 0.1+ | 2005 10 14 | 699 | 0.8− | 0.9+ | 2007 02 25 | 691 | 0.3+ | 0.0 |
| 2001 11 10 | 704 | 0.2+ | 0.0 | 2005 10 14 | 699 | 0.1+ | 0.1− | 2007 03 11 | G96 | 0.2+ | 0.2+ |
| 2001 11 10 | 704 | 0.0 | 0.2+ | 2005 10 14 | 699 | 0.1+ | 1.3− | 2007 03 11 | G96 | 0.5+ | 0.1+ |
| 2001 11 10 | 704 | (2.2− | 0.8+) | 2005 10 22 | 703 | 1.1− | 0.8− | 2007 03 11 | G96 | 0.4+ | 0.3+ |
| 2001 11 10 | 704 | 0.2+ | 0.9+ | 2005 10 22 | 703 | 0.6+ | 0.6− | 2007 03 11 | G96 | 0.6+ | 0.2+ |
| 2001 11 12 | 704 | 0.3+ | 0.5− | 2005 10 22 | 703 | 0.0 | 1.3− | 2009 07 30 | 703 | 0.2+ | 1.1+ |
| 2001 11 12 | 704 | 0.2− | 0.6− | 2005 10 22 | 703 | 0.3− | 1.0− | 2009 07 30 | 703 | (1.8− | 1.1+) |
| 2001 11 12 | 704 | 0.1+ | 0.1− | 2005 10 24 | 699 | 0.2− | 0.2− | 2009 07 30 | 703 | 0.6− | 0.5+ |
| 2001 11 12 | 704 | 0.1− | 0.0 | 2005 10 24 | 699 | 0.2+ | 0.0 | 2009 07 30 | 703 | 0.6− | 1.1− |
| 2001 11 12 | 704 | 0.1− | 0.2+ | 2005 10 24 | 699 | 0.0 | 0.1− | 2009 09 14 | 704 | 1.0+ | 0.0 |
| 2001 11 17 | 644 | 0.2− | 0.1+ | 2005 10 24 | 699 | 0.3− | 0.0 | 2009 09 14 | 704 | 0.8+ | 0.2− |
| 2001 11 17 | 644 | 0.0 | 0.0 | 2005 10 25 | 699 | 0.6− | 0.1+ | 2009 09 14 | 704 | 0.6+ | 0.2− |
| 2001 11 17 | 644 | 0.1+ | 0.0 | 2005 10 25 | 699 | 0.1− | 0.2− | 2009 09 14 | 704 | 0.4+ | 0.1− |
| 2001 11 19 | 699 | 0.2− | 0.3+ | 2005 10 25 | 699 | 0.3+ | 0.2− | 2009 09 14 | 704 | 0.1− | 0.1− |
| 2001 11 19 | 699 | 0.2− | 0.4+ | 2005 10 25 | 699 | 0.3− | 0.4− | 2009 09 17 | 691 | 0.0 | 1.0+ |
| 2001 11 19 | 699 | 0.2− | 0.6− | 2005 10 28 | 703 | 0.1− | 0.4− | 2009 09 17 | 691 | 0.0 | 0.1− |
| 2001 11 19 | 699 | 0.3− | 0.2+ | 2005 10 28 | 703 | 0.0 | 0.5− | 2009 09 17 | 691 | 0.1− | 0.1+ |
| 2001 11 19 | 704 | 0.5+ | 1.1+ | 2005 10 28 | 703 | 0.4− | 0.3− | 2009 09 25 | 691 | 0.4− | 0.0 |
| 2001 11 19 | 704 | 0.3+ | 1.1+ | 2005 10 28 | 703 | 0.2− | 0.1− | 2009 09 25 | 691 | 0.1− | 0.1+ |
| 2001 11 19 | 704 | (1.1+ | 1.7+) | 2005 10 28 | 703 | 0.0 | 0.5− | 2009 09 25 | 691 | 0.4− | 0.1+ |
| 2001 11 19 | 704 | (0.6+ | 1.9+) | 2005 10 28 | 703 | 0.2+ | 0.7− | 2009 09 28 | 691 | 0.3− | 0.0 |
| 2001 11 19 | 704 | (0.2+ | 1.6+) | 2005 10 28 | 703 | 0.1− | 0.6− | 2009 09 28 | 691 | 0.2− | 0.0 |
| 2001 11 20 | 608 | 0.4− | 1.0− | 2005 10 28 | 703 | 0.4− | 0.8− | 2009 09 28 | 691 | 0.6− | 0.3+ |
| 2001 11 20 | 608 | 0.9− | 0.8− | 2005 11 01 | 704 | 0.1− | 0.3+ | 2009 10 08 | J75 | 0.0 | 0.3− |
| 2001 11 20 | 608 | 0.8− | 0.0 | 2005 11 01 | 704 | 0.2+ | 0.3− | 2009 10 08 | J75 | 0.4+ | 0.6− |
| 2001 11 24 | 704 | 0.7+ | 0.6+ | 2005 11 01 | 704 | 0.3+ | 0.0 | 2009 10 08 | J75 | 0.2+ | 0.7− |
| 2001 11 24 | 704 | 0.7+ | 0.5− | 2005 11 01 | 704 | 0.0 | 0.1− | 2009 10 09 | 703 | 0.5− | 0.2+ |
| 2001 11 24 | 704 | 0.3− | 0.1− | 2005 11 01 | 704 | 0.3+ | 0.1− | 2009 10 09 | 703 | 1.0− | 0.3− |
| 2001 11 24 | 704 | 1.2+ | 0.8+ | 2005 11 03 | G96 | 0.2+ | 0.6− | 2009 10 09 | 703 | 1.0− | 0.0 |
| 2001 11 24 | 704 | 0.1− | 0.8+ | 2005 11 03 | G96 | 0.4+ | 0.5− | 2009 10 09 | 703 | 0.2+ | 0.0 |
| 2001 12 10 | 704 | (1.6− | 1.2+) | 2005 11 03 | G96 | 0.2+ | 0.6− | 2009 10 14 | G96 | 0.3+ | 0.2− |
| 2001 12 10 | 704 | 1.2− | 1.2+ | 2005 11 03 | G96 | 0.1− | 0.5− | 2009 10 14 | G96 | 0.4+ | 0.3− |
| 2001 12 10 | 704 | 0.6− | 1.4+ | 2005 11 04 | 704 | 0.1+ | 0.2+ | 2009 10 14 | G96 | 0.1+ | 0.2− |
| 2001 12 10 | 704 | (0.3− | 1.6+) | 2005 11 04 | 704 | 0.3− | 1.4+ | 2009 10 14 | G96 | 0.7+ | 0.1− |
| 2001 12 10 | 704 | (2.1− | 1.2+) | 2005 11 04 | 704 | 0.4+ | 0.2+ | 2009 10 15 | G96 | 0.3+ | 0.4− |
| 2001 12 15 | 704 | 0.3+ | 0.5+ | 2005 11 04 | 704 | 0.2+ | 1.0+ | 2009 10 15 | G96 | 0.5+ | 0.2− |
| 2001 12 15 | 704 | 0.7− | 0.6− | 2005 11 04 | 704 | 0.4+ | 0.6+ | 2009 10 15 | G96 | 0.1+ | 0.3− |
| 2001 12 15 | 704 | 0.3− | 0.5+ | 2005 11 05 | 699 | 0.3− | 0.8− | 2009 10 15 | G96 | 0.2+ | 0.3− |
| 2001 12 15 | 704 | 0.6− | 0.8+ | 2005 11 05 | 704 | 0.3− | 0.6+ | 2009 10 22 | 704 | 0.8+ | 0.5+ |
| 2001 12 15 | 704 | 0.2− | 0.6+ | 2005 11 05 | 699 | 0.4− | 0.7− | 2009 10 22 | 704 | 0.5+ | 0.8+ |
| 2001 12 20 | 644 | 0.0 | 0.3− | 2005 11 05 | 704 | 0.2− | 0.3+ | 2009 10 22 | 704 | 0.4+ | 0.5− |
| 2001 12 20 | 644 | 0.1− | 0.1− | 2005 11 05 | 704 | 0.1+ | 0.5+ | 2009 10 22 | 704 | 0.1− | 0.1− |
| 2001 12 20 | 644 | 0.3− | 0.0 | 2005 11 05 | 699 | 0.3+ | 0.1+ | 2009 10 22 | 704 | 0.1+ | 0.1− |
| 2005 09 29 | G96 | 0.2− | 0.7− | 2005 11 05 | 704 | 0.2+ | 0.6+ | 2009 11 18 | G96 | 0.3+ | 0.4− |
| 2005 09 29 | G96 | 0.2− | 0.5− | 2005 11 05 | 699 | 0.2+ | 0.2− | 2009 11 18 | G96 | 0.2+ | 0.3− |
| 2005 09 29 | G96 | 0.2− | 0.5− | 2005 11 06 | 704 | 0.0 | 0.1− | 2009 11 18 | G96 | 0.6+ | 0.2− |
| 2005 09 29 | G96 | 0.3− | 0.5− | 2005 11 06 | 704 | 0.3+ | 0.2− | 2009 11 18 | G96 | 0.5+ | 0.3− |
| 2005 09 29 | 691 | 0.5− | 1.2+ | 2005 11 06 | 704 | 0.1− | 0.7+ | 2009 11 24 | G96 | 0.1+ | 0.4− |
| 2005 09 29 | 691 | 0.9+ | 0.7+ | 2005 11 06 | 704 | 0.0 | 0.2− | 2009 11 24 | G96 | 0.4+ | 0.3− |
| 2005 09 29 | 691 | 0.2+ | 0.0 | 2005 11 06 | 704 | 0.1+ | 0.6+ | 2009 11 24 | G96 | 0.2+ | 0.4− |
| 2005 10 01 | 699 | 0.6− | 0.1− | 2005 11 06 | 704 | 0.3+ | 0.7+ | 2009 11 24 | G96 | 0.5+ | 0.6− |
| 2005 10 01 | 699 | 0.5+ | 0.1+ | 2005 11 06 | 704 | 0.2+ | 0.0 | 2009 12 17 | G96 | 0.1+ | 0.2− |
| 2005 10 01 | 699 | 0.5+ | 0.5− | 2005 11 06 | 704 | 0.2+ | 0.2+ | 2009 12 17 | G96 | 0.3+ | 0.1− |
| 2005 10 01 | 699 | 0.9+ | 0.0 | 2005 11 06 | 704 | 0.3+ | 0.3− | 2009 12 17 | G96 | 0.0 | 0.3− |
| 2005 10 07 | 704 | 0.8+ | 0.5− | 2005 11 06 | 704 | 0.1− | 0.0 | 2009 12 17 | G96 | 0.4+ | 0.1− |
| 2005 10 07 | 704 | 0.0 | 0.5− | 2005 11 09 | 703 | 0.6− | 0.5− | | | | |
| 2005 10 07 | 704 | 0.4+ | 0.1− | 2005 11 09 | 703 | 0.1− | 0.3− | | | | |

**(228537)**∗ **2001 VX$_{80}$**

Discovered 2001 Nov. 10 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 3.26661 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24037052 | $\omega$ | 113.75750 | | +0.75588076 | −0.65399995 | |
| $a$ | 2.5618199 | $\Omega$ | 287.10119 | | +0.58848144 | +0.69907869 | |
| $e$ | 0.1808946 | $i$ | 1.82679 | | +0.28693879 | +0.28909003 | |
| $P$ | 4.10 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 11 29 | 704 | (2.7− | 0.8−) | 2005 09 18 | 644 | 0.1− | 0.3− | 2007 03 13 | G96 | 0.4+ | 0.1+ |
| 1997 11 29 | 704 | (4.1− | 1.7−) | 2005 09 18 | 644 | 0.1+ | 0.0 | 2007 03 13 | G96 | 0.4− | 0.3+ |
| 1997 11 29 | 704 | 1.2− | 1.5− | 2005 09 18 | 644 | 0.2+ | 0.2+ | 2007 03 13 | G96 | 0.0 | 0.3+ |
| 1997 11 29 | 704 | 1.8− | 0.5+ | 2005 09 29 | 691 | 0.1− | 0.1− | 2007 04 20 | G96 | 0.1+ | 0.3− |
| 2001 10 21 | 704 | 0.2− | 0.9− | 2005 09 29 | 691 | 0.0 | 0.0 | 2007 04 20 | G96 | 0.2+ | 0.2− |
| 2001 10 21 | 704 | 0.2− | 0.4− | 2005 09 29 | 691 | 0.1+ | 0.0 | 2007 04 20 | G96 | 0.1+ | 0.2+ |
| 2001 10 21 | 704 | 0.4− | 0.4− | 2005 09 30 | 703 | 0.2+ | 0.2− | 2007 04 20 | G96 | 0.2+ | 0.2+ |
| 2001 10 21 | 704 | 0.6− | 0.8− | 2005 09 30 | 703 | 0.8− | 0.0 | 2009 09 15 | 704 | 0.9− | 0.2+ |
| 2001 10 21 | 704 | 0.2− | 0.9− | 2005 09 30 | 703 | 0.3+ | 0.6− | 2009 09 15 | 704 | 0.4− | 0.4+ |
| 2001 11 10 | 644 | 0.4− | 0.2+ | 2005 09 30 | 703 | 0.6− | 0.2+ | 2009 09 15 | 704 | 0.7− | 0.9+ |
| 2001 11 10 | 644 | 0.4− | 0.0 | 2005 10 07 | 704 | 0.3− | 0.5+ | 2009 09 18 | 691 | 0.2− | 0.1+ |
| 2001 11 10 | 644 | 0.2− | 0.3+ | 2005 10 07 | 704 | 0.1− | 0.9+ | 2009 09 18 | 691 | 0.1− | 0.1+ |
| 2001 11 12 | 704 | (0.0 | 1.8−) | 2005 10 07 | 704 | 0.4− | 1.3+ | 2009 09 18 | 691 | 0.2− | 0.2+ |
| 2001 11 12 | 704 | 0.6+ | 0.5− | 2005 10 07 | 704 | 0.4− | 0.6+ | 2009 09 21 | J75 | 0.7+ | 0.1− |
| 2001 11 12 | 704 | 1.0+ | 0.1+ | 2005 10 07 | 704 | (0.3− | 1.5+) | 2009 09 21 | J75 | 0.4+ | 0.6− |
| 2001 11 12 | 704 | 0.7+ | 0.9− | 2005 10 14 | 699 | 0.8− | 0.2− | 2009 09 21 | J75 | 0.7+ | 0.5− |
| 2001 11 12 | 704 | 0.6+ | 0.5− | 2005 10 14 | 699 | 0.2− | 0.2+ | 2009 09 22 | 691 | 0.4− | 0.1+ |
| 2001 11 16 | 644 | 0.1− | 0.4+ | 2005 10 14 | 699 | 0.3− | 0.5− | 2009 09 22 | 691 | 0.0 | 0.2+ |
| 2001 11 16 | 644 | 0.1− | 0.6+ | 2005 10 14 | 699 | 0.0 | 0.3− | 2009 09 22 | 691 | 0.2− | 0.1+ |
| 2001 11 16 | 644 | 0.1− | 0.4+ | 2005 10 22 | 703 | 0.5− | 0.9+ | 2009 09 25 | 704 | 0.4− | 1.0+ |
| 2001 11 19 | 699 | 0.2+ | 0.9− | 2005 10 22 | 703 | 0.4− | 0.0 | 2009 09 25 | 704 | 0.2− | 1.2+ |
| 2001 11 19 | 699 | 0.4+ | 1.0+ | 2005 10 22 | 703 | 1.1− | 0.4+ | 2009 09 25 | 683 | (1.7+ | 1.4−) |
| 2001 11 19 | 699 | 1.0+ | 0.8+ | 2005 10 22 | 703 | 0.3− | 0.7+ | 2009 09 25 | 704 | 0.7+ | 0.9− |
| 2001 11 19 | 699 | 0.2− | 0.8+ | 2005 10 24 | 699 | 0.1+ | 0.1− | 2009 09 25 | 683 | 0.4− | 1.3+ |
| 2001 11 19 | 704 | 0.2− | 0.1− | 2005 10 24 | 699 | 0.1+ | 0.0 | 2009 09 25 | 704 | 0.4+ | 0.9− |
| 2001 11 19 | 704 | 0.1+ | 0.2+ | 2005 10 24 | 699 | 0.1− | 0.0 | 2009 09 25 | 704 | 0.8+ | 0.0 |
| 2001 11 19 | 704 | 0.1− | 0.1− | 2005 10 24 | 699 | 0.5− | 0.2+ | 2009 09 26 | 691 | 0.2− | 0.0 |
| 2001 11 19 | 704 | 0.0 | 0.1− | 2005 10 25 | 699 | 0.1− | 0.5− | 2009 09 26 | 691 | 0.1− | 0.1+ |
| 2001 11 20 | 704 | 0.8+ | 0.0 | 2005 10 25 | 699 | 0.3+ | 0.1− | 2009 09 26 | 691 | 0.2− | 0.1+ |
| 2001 11 20 | 704 | 0.5+ | 0.4+ | 2005 10 25 | 699 | 0.3+ | 0.2− | 2009 09 26 | 683 | 0.8− | 0.3− |
| 2001 11 20 | 704 | 0.2+ | 0.2+ | 2005 10 28 | 703 | 0.0 | 0.2− | 2009 09 26 | 683 | 0.1+ | 0.6+ |
| 2001 11 20 | 704 | 1.2+ | 0.6+ | 2005 10 28 | 703 | 0.3+ | 0.3− | 2009 09 27 | 683 | 0.1− | 0.5+ |
| 2001 11 24 | 704 | 0.0 | 0.2− | 2005 10 28 | 703 | 0.2− | 0.3− | 2009 09 27 | 683 | 0.1+ | 0.4+ |
| 2001 11 24 | 704 | 0.1− | 0.3− | 2005 11 01 | 704 | 0.5+ | 0.0 | 2009 09 27 | 683 | 0.0 | 1.3− |
| 2001 11 24 | 704 | 0.1− | 0.1+ | 2005 11 01 | 704 | 0.3+ | 0.2+ | 2009 09 28 | 683 | 0.4+ | 0.5+ |
| 2001 11 24 | 704 | 0.8− | 0.0 | 2005 11 01 | 704 | 0.6+ | 0.2+ | 2009 09 28 | 683 | (0.6+ | 1.6−) |
| 2001 11 24 | 704 | 1.0− | 0.5− | 2005 11 01 | 704 | 0.9+ | 0.6+ | 2009 09 28 | 683 | (0.5+ | 2.2−) |
| 2001 12 08 | 699 | (1.6− | 0.3+) | 2005 11 01 | 704 | 0.4+ | 0.2+ | 2009 09 29 | 683 | (1.5+ | 0.5−) |
| 2001 12 08 | 699 | 0.9− | 0.2− | 2005 11 04 | 704 | 0.0 | 0.1− | 2009 09 29 | 683 | 0.4+ | 1.5+ |
| 2001 12 08 | 699 | 0.3+ | 0.0 | 2005 11 04 | 704 | 0.7− | 0.2+ | 2009 09 29 | 683 | (1.7− | 2.2+) |
| 2001 12 08 | 699 | 0.1− | 0.3+ | 2005 11 04 | 704 | 0.9− | 0.5+ | 2009 10 08 | J75 | 0.4+ | 0.3− |
| 2001 12 10 | 704 | 0.3+ | 0.2+ | 2005 11 04 | 704 | 1.2− | 0.7+ | 2009 10 08 | J75 | 0.2− | 0.3− |
| 2001 12 10 | 704 | 0.1+ | 0.1− | 2005 11 05 | 699 | 0.2+ | 0.3− | 2009 10 08 | J75 | 0.4+ | 0.4− |
| 2001 12 10 | 704 | 0.1+ | 0.1+ | 2005 11 05 | 699 | 0.4+ | 0.3− | 2009 10 09 | 703 | 0.1+ | 0.8+ |
| 2001 12 10 | 704 | 0.6+ | 0.6+ | 2005 11 05 | 699 | 0.8+ | 0.6− | 2009 10 09 | 703 | 0.1+ | 0.6− |
| 2001 12 10 | 704 | 0.2+ | 0.6+ | 2005 11 05 | 699 | 0.3+ | 0.2− | 2009 10 09 | 703 | 0.1+ | 0.5− |
| 2001 12 15 | 704 | 0.1+ | 0.8+ | 2005 11 06 | 704 | (1.9+ | 0.9−) | 2009 10 09 | 703 | 0.8− | 0.3− |
| 2001 12 15 | 704 | 0.9− | 1.4+ | 2005 11 06 | 704 | 1.4+ | 0.4− | 2009 10 15 | 704 | 0.0 | 0.5+ |
| 2001 12 15 | 704 | 0.2− | 0.4+ | 2005 11 06 | 704 | 1.2+ | 0.2− | 2009 10 15 | 704 | 0.5− | 0.6+ |
| 2001 12 15 | 704 | 0.5− | 0.6+ | 2005 11 06 | 704 | 1.1+ | 0.2− | 2009 10 15 | 704 | 0.2− | 0.5+ |
| 2001 12 15 | 704 | 1.2− | 0.7+ | 2005 11 06 | 704 | 1.0+ | 0.0 | 2009 10 15 | 704 | 0.5− | 0.2+ |
| 2001 12 18 | 704 | 1.3+ | 0.5+ | 2005 12 01 | 699 | 1.4+ | 0.4− | 2009 10 15 | G96 | 0.4+ | 0.3− |
| 2001 12 18 | 704 | 0.9+ | 0.4+ | 2005 12 01 | 699 | 0.6+ | 0.6+ | 2009 10 15 | G96 | 0.5+ | 0.4− |
| 2001 12 18 | 704 | 0.5+ | 1.0+ | 2005 12 01 | 699 | 0.5+ | 0.5− | 2009 10 15 | G96 | 0.7+ | 0.3− |
| 2001 12 18 | 704 | 1.1+ | 0.5+ | 2005 12 01 | 699 | 0.2− | 0.2− | 2009 10 15 | G96 | 0.4+ | 0.2− |
| 2001 12 18 | 704 | 0.6+ | 0.1− | 2006 01 23 | G96 | 0.6− | 0.5− | 2009 10 22 | 703 | 0.1− | 0.0 |
| 2001 12 19 | 704 | (0.6− | 1.5−) | 2006 01 23 | G96 | 0.6− | 0.5− | 2009 10 22 | 703 | 0.6− | 0.4+ |
| 2001 12 19 | 704 | (0.2− | 2.6−) | 2006 01 23 | G96 | 0.6− | 0.1− | 2009 10 22 | 703 | 1.1− | 0.2− |
| 2001 12 19 | 704 | (0.0 | 2.0−) | 2006 01 23 | G96 | 0.2− | 0.5− | 2009 10 22 | 703 | 1.0− | 0.0 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 12 19 | 704 | (0.8− | 1.9−) | 2006 12 27 | G96 | 0.3+ | 0.3− | 2009 10 23 | 704 | (2.0+ | 0.1+) | | | |
| 2002 01 08 | 691 | 0.0 | 0.4− | 2006 12 27 | G96 | 0.4− | 0.7− | 2009 10 23 | 704 | 0.7+ | 0.8+ | | | |
| 2002 01 08 | 691 | 0.1− | 0.5− | 2006 12 27 | G96 | 0.6− | 0.2+ | 2009 10 23 | 704 | 0.2+ | 0.0 | | | |
| 2002 01 08 | 691 | 0.2+ | 0.4− | 2006 12 27 | G96 | (2.6+ | 1.9+) | 2009 10 23 | 704 | 0.3+ | 0.2+ | | | |
| 2002 01 09 | 704 | 0.2+ | 0.3− | 2007 02 17 | 691 | 0.2− | 0.2+ | 2009 10 23 | 704 | 0.3+ | 0.8− | | | |
| 2002 01 09 | 704 | 1.1− | 0.2− | 2007 02 17 | 691 | 0.1+ | 0.5+ | 2009 12 17 | G96 | 0.2+ | 0.3− | | | |
| 2002 01 09 | 704 | 0.4− | 0.8− | 2007 02 17 | 691 | 0.0 | 0.3+ | 2009 12 17 | G96 | 0.1− | 0.5− | | | |
| 2002 01 09 | 704 | 0.9− | 0.3+ | 2007 02 21 | 691 | 0.1+ | 0.0 | 2009 12 17 | G96 | 0.2− | 0.2− | | | |
| 2005 09 06 | 621 | 0.5− | 0.3− | 2007 02 21 | 691 | 0.3− | 0.2+ | 2009 12 17 | G96 | 0.1+ | 0.3− | | | |
| 2005 09 06 | 621 | 0.2+ | 0.2− | 2007 02 21 | 691 | 0.2+ | 0.4+ | 2009 12 17 | G96 | 0.0 | 0.2− | | | |
| 2005 09 06 | 621 | 0.7+ | 0.2− | 2007 02 27 | 691 | 0.5+ | 0.0 | 2009 12 17 | G96 | 0.1− | 0.5− | | | |
| 2005 09 07 | 621 | 0.1− | 0.1− | 2007 02 27 | 691 | 0.4+ | 0.1− | 2009 12 17 | G96 | 0.1+ | 0.4− | | | |
| 2005 09 07 | 621 | 0.4+ | 0.2− | 2007 02 27 | 691 | 0.2+ | 0.2+ | | | | | | | |
| 2005 09 07 | 621 | 0.3+ | 0.1+ | 2007 03 13 | G96 | 0.3+ | 0.2+ | | | | | | | |

**(228538)∗ 2001 VO$_{95}$ = 2004 RE$_{276}$**

Discovered 2001 Nov. 15 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. A. Doppler (*MPO* 75210)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 351.38901 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.26199963 | $\omega$ | 337.54126 | | −0.77653867 | | −0.62799133 |
| $a$ | 2.4188128 | $\Omega$ | 163.24496 | | +0.60167812 | | −0.76318799 |
| $e$ | 0.1786914 | $i$ | 10.21674 | | +0.18700573 | | −0.15222018 |
| $P$ | 3.76 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 05 16 | 703 | 1.2+ | 0.1− | 2003 05 12 | 608 | 0.3+ | 1.0− | 2005 12 06 | 704 | 0.1− | 0.4− | | | |
| 1999 05 16 | 703 | 0.3+ | 0.1− | 2003 05 12 | 608 | 0.4− | 0.2− | 2005 12 06 | 704 | 0.3+ | 0.3+ | | | |
| 1999 05 16 | 703 | 0.9+ | 0.4+ | 2003 05 12 | 608 | 0.2+ | 0.3− | 2008 09 25 | G96 | 0.0 | 0.1− | | | |
| 1999 05 16 | 703 | 0.7+ | 0.5− | 2003 05 26 | 691 | (0.4− | 2.0+) | 2008 09 25 | G96 | 0.2+ | 0.0 | | | |
| 2001 11 15 | 704 | 0.6− | 0.6− | 2003 05 26 | 691 | (0.6− | 2.1+) | 2008 09 25 | G96 | 0.1+ | 0.1− | | | |
| 2001 11 15 | 704 | 0.2+ | 0.7− | 2003 05 26 | 691 | 0.9− | 1.3+ | 2008 09 25 | G96 | 0.1+ | 0.4− | | | |
| 2001 11 15 | 704 | 0.3− | 0.3− | 2004 09 13 | 691 | 0.0 | 0.1− | 2008 09 29 | 703 | (0.5− | 2.5+) | | | |
| 2001 11 15 | 704 | 0.7− | 0.8− | 2004 09 13 | 691 | 0.2+ | 0.1+ | 2008 09 29 | 703 | 1.1− | 1.1+ | | | |
| 2001 11 18 | 704 | 0.7− | 0.8+ | 2004 09 13 | 691 | 0.1+ | 0.2+ | 2008 09 29 | 703 | 0.5+ | 0.6− | | | |
| 2001 11 18 | 704 | 0.7− | 0.6+ | 2004 09 16 | 691 | 0.1+ | 0.2+ | 2008 09 29 | 703 | 0.5+ | 0.6+ | | | |
| 2001 11 18 | 704 | (0.8− | 1.6+) | 2004 09 16 | 691 | 0.1− | 0.0 | 2009 11 16 | 703 | 0.6+ | 0.9+ | | | |
| 2001 11 18 | 704 | 0.7− | 1.5+ | 2004 09 16 | 691 | 0.2+ | 0.3+ | 2009 11 16 | 703 | 0.5+ | 0.1− | | | |
| 2001 12 07 | 704 | 0.8+ | 0.8+ | 2004 10 11 | 695 | 0.0 | 0.1+ | 2009 11 16 | 703 | 0.3+ | 0.5+ | | | |
| 2001 12 07 | 704 | 0.2− | 0.2+ | 2004 10 11 | 695 | 0.2− | 0.0 | 2009 11 16 | 703 | 0.1− | 0.2+ | | | |
| 2001 12 07 | 704 | 0.8+ | 0.8+ | 2005 12 06 | 704 | 0.3− | 1.4+ | 2009 12 14 | 704 | 0.7+ | 0.5+ | | | |
| 2003 05 06 | 291 | (1.9− | 0.9+) | 2005 12 06 | 704 | 0.2− | 0.7+ | 2009 12 14 | 704 | 0.2− | 0.1+ | | | |
| 2003 05 06 | 291 | 0.0 | 0.2+ | 2005 12 06 | 704 | 0.4− | 0.1+ | 2009 12 14 | 704 | 0.1+ | 0.2− | | | |
| 2003 05 06 | 291 | 0.1+ | 0.4+ | 2005 12 06 | 704 | (0.2+ | 1.5+) | | | | | | | |

**(228539)∗ 2001 VS$_{100}$ = 2003 JX$_{9}$**

Discovered 2001 Nov. 12 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. A. Doppler (*MPO* 46910)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 333.08672 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.26176249 | $\omega$ | 103.16356 | | −0.85559208 | | −0.51502590 |
| $a$ | 2.4202735 | $\Omega$ | 45.86603 | | +0.44239667 | | −0.77972517 |
| $e$ | 0.1475536 | $i$ | 4.15987 | | +0.26878873 | | −0.35605756 |
| $P$ | 3.77 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 11 12 | 704 | 0.6− | 0.9+ | 2003 05 05 | 704 | 0.4+ | 0.6+ | 2006 03 03 | G96 | 0.1+ | 0.5+ | | | |
| 2001 11 12 | 704 | 0.4− | 0.5+ | 2003 06 05 | 691 | 0.4+ | 1.3+ | 2006 03 03 | G96 | 0.2+ | 0.6+ | | | |
| 2001 11 12 | 704 | (0.7+ | 2.1+) | 2003 06 05 | 691 | (0.5+ | 1.6+) | 2006 03 03 | G96 | 0.7− | 0.5+ | | | |
| 2001 11 12 | 704 | 0.6− | 0.5+ | 2003 06 05 | 691 | (0.6+ | 1.6+) | 2008 10 01 | G96 | 0.2− | 0.4+ | | | |
| 2001 11 12 | 704 | 1.0− | 0.0 | 2005 12 02 | 704 | 0.2+ | 0.2− | 2008 10 01 | G96 | 0.0 | 0.1+ | | | |
| 2001 11 12 | 291 | 0.0 | 0.3+ | 2005 12 02 | 704 | 0.2+ | 0.0 | 2008 10 01 | G96 | 0.8− | 0.6− | | | |
| 2001 11 12 | 291 | 0.1+ | 0.4+ | 2005 12 02 | 704 | 0.5− | 0.3− | 2008 10 01 | G96 | 0.2− | 0.0 | | | |
| 2001 11 12 | 291 | 0.0 | 0.4+ | 2005 12 02 | 704 | 0.1+ | 0.7+ | 2008 10 01 | 291 | 0.5− | 0.1+ | | | |
| 2001 11 19 | 704 | 0.2− | 1.2+ | 2005 12 10 | 291 | 0.1− | 0.6+ | 2008 10 01 | 291 | 0.0 | 0.2+ | | | |
| 2001 11 19 | 704 | 0.8− | 0.3+ | 2005 12 10 | 291 | 0.2− | 0.6+ | 2008 10 01 | 291 | 0.2+ | 0.3+ | | | |
| 2001 11 19 | 704 | 0.2+ | 0.7+ | 2005 12 10 | 291 | 0.1− | 0.6+ | 2008 10 02 | 291 | 0.5+ | 0.2+ | | | |
| 2001 11 19 | 704 | 0.7− | 0.5+ | 2005 12 28 | 691 | 0.2+ | 0.5+ | 2008 10 02 | 291 | 0.1− | 0.4+ | | | |
| 2001 11 19 | 704 | 0.1− | 0.1+ | 2005 12 28 | 691 | 0.1− | 0.3+ | 2008 10 02 | 291 | 0.0 | 0.3+ | | | |
| 2001 11 22 | 644 | 0.7− | 0.1+ | 2005 12 28 | 691 | 0.2− | 0.4+ | 2008 10 03 | 291 | 0.4− | 0.5+ | | | |
| 2001 11 22 | 644 | 0.4− | 0.2− | 2005 12 28 | G96 | 0.0 | 0.1+ | 2008 10 03 | 291 | 0.5− | 0.7+ | | | |
| 2001 11 22 | 644 | 0.5− | 0.1− | 2005 12 28 | G96 | 0.4+ | 0.1+ | 2008 10 03 | 291 | 0.4− | 0.9+ | | | |
| 2003 04 26 | 691 | 0.2− | 0.6+ | 2005 12 28 | G96 | 0.1+ | 0.1+ | 2009 12 15 | 704 | 0.9+ | 1.2+ | | | |
| 2003 04 26 | 691 | 0.1− | 0.7+ | 2005 12 28 | G96 | 0.0 | 0.1− | 2009 12 15 | 704 | 0.9+ | 0.2+ | | | |
| 2003 04 26 | 691 | 0.1− | 0.7+ | 2005 12 29 | 704 | 0.7+ | 0.4+ | 2009 12 15 | 704 | 0.1− | 1.3+ | | | |
| 2003 04 29 | 704 | 0.4− | 0.3+ | 2005 12 29 | 704 | (0.3+ | 3.5+) | 2009 12 15 | 704 | 1.4+ | 1.3+ | | | |
| 2003 04 29 | 704 | (0.5− | 1.6+) | 2005 12 29 | 704 | (1.8+ | 1.3+) | 2009 12 19 | G96 | 0.3+ | 0.4+ | | | |
| 2003 04 29 | 704 | 0.3+ | 0.1+ | 2005 12 30 | G96 | 0.7+ | 0.3− | 2009 12 19 | G96 | 0.3+ | 0.0 | | | |
| 2003 05 03 | 691 | 0.8+ | 1.2+ | 2005 12 30 | G96 | 0.4+ | 0.0 | 2009 12 19 | G96 | 0.1+ | 0.1+ | | | |
| 2003 05 03 | 691 | 1.1+ | 1.0+ | 2005 12 30 | G96 | 0.2+ | 0.2+ | 2009 12 19 | G96 | 0.1+ | 0.3+ | | | |
| 2003 05 03 | 691 | 0.9+ | 1.1+ | 2005 12 31 | G96 | 0.1− | 0.2+ | 2009 12 20 | 691 | 0.6− | 2.3− | | | |
| 2003 05 05 | 704 | 0.6+ | 0.4− | 2005 12 31 | G96 | 0.1− | 0.1+ | 2009 12 20 | 691 | 0.2− | 0.4+ | | | |
| 2003 05 05 | 704 | 0.5− | 0.0 | 2005 12 31 | G96 | 0.0 | 0.0 | 2009 12 20 | 691 | 0.6− | 0.5+ | | | |
| 2003 05 05 | 704 | 0.1− | 0.1+ | 2005 12 31 | G96 | 0.0 | 0.1+ | | | | | | | |
| 2003 05 05 | 704 | 0.4− | 0.2+ | 2006 03 03 | G96 | 0.5+ | 0.5+ | | | | | | | |

**(228540)∗ 2001 VX$_{109}$**

Discovered 2001 Nov. 12 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 344.28602 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23568023 | $\omega$ | 6.33510 | | +0.59510093 | | −0.79955373 |
| $a$ | 2.5956967 | $\Omega$ | 47.18040 | | +0.73240066 | | +0.49806063 |
| $e$ | 0.1236810 | $i$ | 6.34384 | | +0.33082346 | | +0.33563289 |
| $P$ | 4.18 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 11 12 | 704 | 0.5+ | 0.3− | 2005 10 07 | 703 | 0.2− | 0.6+ | 2005 11 03 | 704 | 0.7+ | 0.2+ | | | |
| 2001 11 12 | 704 | 0.1− | 0.1− | 2005 10 07 | 703 | (0.9− | 3.3−) | 2005 11 28 | G96 | 0.3− | 0.5− | | | |
| 2001 11 12 | 704 | 0.1− | 0.4− | 2005 10 07 | 703 | 0.0 | 1.2− | 2005 11 28 | G96 | 1.1+ | 0.8+ | | | |
| 2001 11 12 | 704 | 0.5− | 0.2+ | 2005 10 07 | 703 | 0.0 | 0.3− | 2005 11 28 | G96 | 0.8+ | 0.4− | | | |
| 2001 11 12 | 704 | 0.1+ | 1.0+ | 2005 10 12 | 691 | 0.1− | 0.4+ | 2005 11 28 | G96 | 0.6+ | 0.4− | | | |
| 2001 11 19 | 704 | 1.0+ | 0.1+ | 2005 10 12 | 691 | 0.4− | 0.3+ | 2005 11 29 | G96 | 0.1+ | 0.4− | | | |
| 2001 11 19 | 704 | 1.1+ | 0.1+ | 2005 10 12 | 691 | 0.0 | 0.4+ | 2005 11 29 | G96 | 0.8− | 0.4− | | | |
| 2001 11 19 | 704 | 1.0+ | 0.1− | 2005 10 22 | 703 | 0.3+ | 0.8− | 2005 11 29 | G96 | 0.5− | 0.3− | | | |
| 2001 11 21 | 704 | 0.6− | 0.3+ | 2005 10 22 | 703 | 0.4− | 0.9− | 2005 11 29 | G96 | 0.2+ | 0.6− | | | |
| 2001 11 21 | 704 | 1.1− | 0.2− | 2005 10 22 | 703 | 0.9− | 1.3− | 2005 12 04 | G96 | 0.1+ | 0.3− | | | |
| 2001 11 21 | 704 | 0.8− | 0.2+ | 2005 10 22 | 703 | 0.6+ | 0.1− | 2005 12 04 | G96 | 0.4+ | 0.3− | | | |
| 2001 11 21 | 704 | 0.2− | 0.9+ | 2005 10 22 | 644 | 0.3+ | 0.2+ | 2005 12 04 | G96 | 0.2− | 0.4+ | | | |
| 2001 11 21 | 704 | 0.1− | 0.8+ | 2005 10 22 | 644 | 0.1− | 0.1+ | 2005 12 28 | G96 | 0.1+ | 0.0 | | | |
| 2001 12 10 | 704 | 0.4− | 0.2− | 2005 10 22 | 644 | 0.0 | 0.3+ | 2005 12 28 | G96 | 0.3− | 0.4− | | | |
| 2001 12 10 | 704 | 0.1− | 0.9+ | 2005 10 25 | 699 | (1.8+ | 1.7+) | 2005 12 28 | G96 | 0.7+ | 0.4− | | | |
| 2001 12 10 | 704 | 0.2+ | 0.9+ | 2005 10 25 | 699 | 0.3+ | 0.0 | 2005 12 28 | G96 | 0.1− | 0.2− | | | |
| 2001 12 18 | 704 | 0.2+ | 0.5− | 2005 10 25 | 699 | 0.7+ | 0.4+ | 2007 02 23 | 691 | 0.1+ | 0.1+ | | | |
| 2001 12 18 | 704 | 0.0 | 0.2+ | 2005 10 25 | 699 | 0.7+ | 1.3+ | 2007 02 23 | 691 | 0.2− | 0.3+ | | | |
| 2001 12 18 | 704 | 0.5− | 0.4− | 2005 10 28 | 703 | (0.8− | 1.6−) | 2007 02 23 | 691 | 0.0 | 0.2− | | | |
| 2001 12 19 | 704 | 0.2− | 0.4− | 2005 10 28 | 703 | 0.3+ | 0.7− | 2007 03 19 | G96 | 0.1+ | 0.1− | | | |
| 2001 12 19 | 704 | 0.7− | 0.2+ | 2005 10 28 | 703 | 0.2− | 0.3+ | 2007 03 19 | G96 | 0.1− | 0.3− | | | |
| 2001 12 19 | 704 | 0.5− | 0.1− | 2005 10 28 | 703 | (1.0+ | 1.7+) | 2007 03 19 | G96 | 0.0 | 0.4− | | | |
| 2001 12 19 | 704 | 0.4+ | 0.0 | 2005 10 29 | G96 | 0.1− | 0.3− | 2007 03 19 | G96 | 0.1+ | 0.5− | | | |
| 2005 09 23 | 691 | 0.2+ | 0.3− | 2005 10 29 | G96 | 0.0 | 0.4− | 2009 09 26 | G96 | 0.2− | 0.0 | | | |
| 2005 09 23 | 691 | 0.2+ | 0.3− | 2005 10 29 | G96 | 0.0 | 0.5− | 2009 09 26 | G96 | 0.3− | 0.0 | | | |
| 2005 09 23 | 691 | 0.1− | 0.3− | 2005 10 29 | G96 | 0.1+ | 0.4− | 2009 09 26 | G96 | 0.3− | 0.1− | | | |
| 2005 09 25 | 291 | 0.4+ | 0.2+ | 2005 10 29 | G96 | 0.0 | 0.2− | 2009 09 26 | G96 | 0.1+ | 0.3+ | | | |
| 2005 09 25 | 291 | 0.2+ | 0.1+ | 2005 10 29 | G96 | 0.0 | 0.2− | 2009 09 27 | G96 | 0.1+ | 0.2− | | | |
| 2005 09 25 | 291 | 0.1+ | 0.2+ | 2005 10 29 | G96 | 0.0 | 0.4− | 2009 09 27 | G96 | 0.2− | 0.0 | | | |
| 2005 10 01 | 704 | 0.0 | 0.2+ | 2005 10 29 | G96 | 0.1+ | 0.3− | 2009 09 27 | G96 | 0.2− | 0.2− | | | |
| 2005 10 01 | 704 | 0.8− | 0.8+ | 2005 10 31 | 704 | 0.8− | 0.4+ | 2009 09 27 | G96 | 0.0 | 0.0 | | | |
| 2005 10 01 | 704 | 0.5− | 0.1+ | 2005 10 31 | 704 | 0.3− | 0.4− | 2009 12 20 | G96 | 0.2− | 0.1+ | | | |
| 2005 10 01 | 691 | 0.0 | 0.3+ | 2005 10 31 | 704 | 0.3− | 0.3+ | 2009 12 20 | G96 | 0.4+ | 0.3− | | | |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 01 | 691 | 0.1+ | 0.0 | 2005 11 03 | 704 | 0.1+ | 1.3− | 2009 12 20 | G96 | 1.1+ | 0.6− |
| 2005 10 01 | 691 | 0.0 | 0.1+ | 2005 11 03 | 704 | 0.8− | 0.1− | 2009 12 20 | G96 | 0.1+ | 0.3+ |

**(228541)∗ 2001 WU$_7$**

Discovered 2001 Nov. 17 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 51.03967 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.25936150 | $\omega$ | 305.91212 | | +0.54013110 | −0.83609476 | |
| $a$ | 2.4351873 | $\Omega$ | 111.12214 | | +0.80147784 | +0.47626901 | |
| $e$ | 0.0919765 | $i$ | 5.90314 | | +0.25669374 | +0.27223775 | |
| $P$ | 3.80 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 10 25 | 644 | 0.6− | 0.9+ | 2001 12 11 | 704 | 0.0 | 1.0+ | 2007 04 22 | 691 | 0.1+ | 0.0 |
| 2001 10 25 | 644 | 0.4− | 0.3+ | 2001 12 18 | 644 | 0.6− | 0.5+ | 2007 04 22 | 691 | 0.1+ | 0.0 |
| 2001 10 25 | 644 | 0.5− | 0.8+ | 2001 12 18 | 644 | 0.8− | 0.0 | 2007 04 22 | 691 | 0.1+ | 0.3− |
| 2001 11 17 | 704 | 0.2+ | 0.6+ | 2001 12 18 | 644 | 0.5− | 0.4+ | 2007 04 22 | A50 | 0.6− | 0.4− |
| 2001 11 17 | 704 | (1.6+ | 0.9+) | 2003 04 09 | 644 | 0.3+ | 0.2+ | 2007 04 24 | 691 | 0.0 | 0.5+ |
| 2001 11 17 | 704 | 0.6+ | 0.8+ | 2003 04 09 | 644 | 0.3+ | 0.2− | 2007 04 24 | 691 | 0.3− | 0.1+ |
| 2001 11 17 | 704 | 0.3+ | 0.8+ | 2003 04 09 | 644 | 0.6+ | 0.1+ | 2007 04 24 | 691 | 0.2+ | 0.1+ |
| 2001 11 18 | 704 | 0.1+ | 0.7+ | 2003 04 11 | 691 | 0.1− | 1.3+ | 2008 08 23 | E12 | 0.1+ | 0.5+ |
| 2001 11 18 | 704 | 0.1− | 0.2+ | 2003 04 11 | 691 | 0.4+ | 0.5+ | 2008 08 23 | E12 | 0.9− | 0.5+ |
| 2001 11 18 | 704 | 0.1− | 0.6+ | 2003 04 11 | 691 | 0.4+ | 0.3+ | 2008 08 23 | E12 | 0.0 | 1.4+ |
| 2001 11 18 | 704 | 0.5− | 0.9+ | 2004 08 14 | 807 | 0.1+ | 0.7+ | 2008 08 23 | E12 | 0.1− | 0.2− |
| 2001 11 19 | 699 | 0.6+ | 0.3− | 2004 08 14 | 807 | 0.1+ | 0.7+ | 2009 11 21 | G96 | 0.2− | 0.4− |
| 2001 11 19 | 699 | 1.1+ | 1.3+ | 2005 11 30 | 691 | 0.2− | 0.2+ | 2009 11 21 | G96 | 0.5+ | 0.2− |
| 2001 11 19 | 699 | (1.8+ | 0.5−) | 2005 11 30 | 691 | 0.1+ | 0.2− | 2009 11 21 | G96 | 0.7+ | 0.1− |
| 2001 11 19 | 699 | 0.1− | 1.3− | 2005 11 30 | 691 | 0.1+ | 0.0 | 2009 11 21 | G96 | 0.1+ | 0.0 |
| 2001 11 21 | 608 | 0.7− | 0.2+ | 2005 12 01 | 691 | 0.0 | 0.3− | 2009 12 15 | G96 | 0.1+ | 0.6− |
| 2001 11 21 | 608 | 1.0− | 0.1− | 2005 12 01 | 691 | 0.1+ | 0.1− | 2009 12 15 | G96 | 0.1− | 0.3− |
| 2001 11 21 | 608 | 0.8− | 0.1+ | 2005 12 01 | 691 | 0.1+ | 0.2− | 2009 12 15 | G96 | 0.1− | 0.0 |
| 2001 12 08 | 699 | 0.9− | 1.1+ | 2005 12 08 | 691 | 0.0 | 0.0 | 2009 12 15 | G96 | 0.1+ | 0.2− |
| 2001 12 08 | 699 | 0.1+ | 0.6+ | 2005 12 08 | 691 | 0.3+ | 0.3− | 2009 12 17 | 691 | 0.3− | 0.1− |
| 2001 12 08 | 699 | 0.3+ | 0.3+ | 2005 12 08 | 691 | 0.1+ | 0.5− | 2009 12 17 | 691 | 0.4− | 0.2− |
| 2001 12 08 | 699 | (0.1− | 1.9+) | 2005 12 28 | 691 | 0.1+ | 0.2+ | 2009 12 17 | 691 | 0.0 | 0.4− |
| 2001 12 11 | 704 | 0.2+ | 0.6− | 2005 12 28 | 691 | 0.1+ | 0.3+ | | | | |
| 2001 12 11 | 704 | 0.6− | 0.5+ | 2005 12 28 | 691 | 0.1− | 0.9+ | | | | |

**(228542)∗ 2001 WS$_{18}$**

Discovered 2001 Nov. 17 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 353.46116 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24006581 | $\omega$ | 148.44736 | | +0.68324253 | −0.72907986 | |
| $a$ | 2.5639872 | $\Omega$ | 258.42108 | | +0.66108904 | +0.64106394 | |
| $e$ | 0.2405645 | $i$ | 2.35629 | | +0.31006601 | +0.23974901 | |
| $P$ | 4.11 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 10 14 | 704 | 1.1− | 0.2− | 2005 09 23 | 691 | 0.1+ | 0.2+ | 2005 10 27 | 699 | 0.3+ | 0.7− |
| 2001 10 14 | 704 | 0.5− | 0.2+ | 2005 09 23 | 691 | 0.1+ | 0.2+ | 2005 10 27 | 699 | 0.3− | 0.6+ |
| 2001 10 14 | 704 | 0.3− | 0.9− | 2005 09 23 | 691 | 0.2+ | 0.1+ | 2005 10 27 | 699 | 1.1− | 0.5+ |
| 2001 10 14 | 704 | 0.6− | 0.5− | 2005 09 29 | 691 | 0.3+ | 0.2− | 2005 10 27 | 699 | 1.0+ | 0.5+ |
| 2001 10 19 | 644 | 0.1− | 0.4+ | 2005 09 29 | 691 | 0.0 | 0.1− | 2005 11 04 | 691 | 0.2+ | 0.2− |
| 2001 10 19 | 644 | 0.1− | 0.1+ | 2005 09 29 | 691 | 0.2+ | 0.1− | 2005 11 04 | 691 | 0.0 | 0.0 |
| 2001 10 19 | 644 | 0.3− | 0.3+ | 2005 09 30 | 644 | 0.2+ | 0.4+ | 2005 11 04 | 691 | 0.6+ | 0.6− |
| 2001 10 21 | 704 | 0.8− | 0.4+ | 2005 09 30 | 644 | 0.4+ | 0.1+ | 2005 11 28 | G96 | 0.0 | 0.1+ |
| 2001 10 21 | 704 | 0.7− | 0.4+ | 2005 09 30 | 644 | 0.5+ | 0.0 | 2005 11 28 | G96 | 0.1+ | 0.4− |
| 2001 10 21 | 704 | 0.7− | 0.4+ | 2005 10 03 | 691 | 0.3− | 0.0 | 2005 11 28 | G96 | 0.3− | 0.1+ |
| 2001 10 21 | 704 | 0.7− | 1.2+ | 2005 10 03 | 691 | 0.1− | 0.1+ | 2005 11 28 | G96 | 0.5+ | 0.2− |
| 2001 10 21 | 704 | 0.3− | 0.6+ | 2005 10 03 | 691 | 0.0 | 0.1+ | 2007 03 13 | G96 | 0.2− | 0.4− |
| 2001 10 26 | 644 | 0.1− | 0.4+ | 2005 10 03 | 703 | 0.2+ | 0.1+ | 2007 03 13 | G96 | 0.3+ | 0.0 |
| 2001 10 26 | 644 | 0.1− | 0.3+ | 2005 10 03 | 703 | 0.2+ | 0.6+ | 2007 03 13 | G96 | 0.4− | 0.4+ |
| 2001 10 26 | 644 | 0.1− | 0.3+ | 2005 10 03 | 703 | 0.9− | 0.4− | 2007 03 13 | G96 | 0.5+ | 0.2+ |
| 2001 11 09 | 704 | (1.9+ | 0.6−) | 2005 10 03 | 703 | 0.2+ | 0.2− | 2009 08 28 | 691 | 0.4− | 0.2+ |
| 2001 11 09 | 704 | (2.4+ | 2.9−) | 2005 10 06 | 699 | 0.6+ | 0.4+ | 2009 08 28 | 691 | 0.0 | 0.4+ |
| 2001 11 09 | 704 | (2.5+ | 0.6+) | 2005 10 06 | 699 | 1.2− | 0.5+ | 2009 08 28 | 691 | 0.5− | 0.0 |
| 2001 11 09 | 704 | (3.0+ | 0.6+) | 2005 10 06 | 699 | 0.7− | 1.3− | 2009 09 17 | G96 | 0.1+ | 0.1− |
| 2001 11 09 | 704 | 1.4+ | 0.3+ | 2005 10 06 | 699 | 1.0− | 0.4− | 2009 09 17 | G96 | 0.4+ | 0.1− |
| 2001 11 17 | 704 | 0.5+ | 1.1− | 2005 10 07 | 704 | 0.6− | 0.8+ | 2009 09 17 | G96 | 0.1+ | 0.1+ |
| 2001 11 17 | 704 | 0.2+ | 0.2− | 2005 10 07 | 704 | 0.2− | 0.6+ | 2009 09 17 | G96 | 0.5+ | 0.1+ |
| 2001 11 17 | 704 | 0.3− | 0.8− | 2005 10 07 | 704 | 0.0 | 0.0 | 2009 11 18 | G96 | 0.2+ | 0.2− |
| 2001 11 17 | 704 | 0.2− | 0.3− | 2005 10 07 | 704 | 0.3+ | 0.4+ | 2009 11 18 | G96 | 0.6+ | 0.4− |
| 2001 11 19 | 704 | 0.5+ | 0.2+ | 2005 10 09 | 691 | 0.3+ | 0.2− | 2009 11 18 | G96 | 0.8− | 0.4− |
| 2001 11 19 | 704 | 0.5+ | 0.2+ | 2005 10 09 | 691 | 0.2+ | 0.3− | 2009 11 18 | G96 | 0.9− | 0.5− |
| 2001 11 19 | 704 | 0.6+ | 0.3+ | 2005 10 09 | 691 | 0.3+ | 0.0 | 2009 12 18 | G96 | 0.2+ | 0.1+ |
| 2001 11 19 | 704 | 0.6+ | 0.2+ | 2005 10 13 | 691 | 0.2+ | 0.0 | 2009 12 18 | G96 | 0.2+ | 0.3− |
| 2001 11 19 | 704 | 0.5+ | 0.9+ | 2005 10 13 | 691 | 0.2+ | 0.1+ | 2009 12 18 | G96 | 0.2+ | 0.1− |
| 2001 11 21 | 704 | 0.7− | 0.2+ | 2005 10 13 | 691 | 0.3+ | 0.1− | 2009 12 18 | G96 | 0.0 | 0.1+ |
| 2001 11 21 | 704 | 0.0 | 0.2+ | 2005 10 22 | 703 | 0.3− | 0.4− | 2009 12 19 | G96 | 0.0 | 0.2+ |
| 2001 11 21 | 704 | 0.5− | 0.7+ | 2005 10 22 | 703 | 1.1− | 0.2− | 2009 12 19 | G96 | 0.5− | 0.6− |
| 2001 11 21 | 704 | 0.4− | 0.8+ | 2005 10 22 | 703 | 0.8− | 1.4− | 2009 12 19 | G96 | 0.1− | 0.2− |
| 2001 11 21 | 704 | 0.2− | 0.8+ | 2005 10 22 | 703 | 0.0 | 0.8− | 2009 12 19 | G96 | 0.1− | 0.4− |

**(228543)∗ 2001 WP$_{30}$ = 2004 JX$_{42}$**

Discovered 2001 Nov. 17 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. A. Doppler (*MPO* 68976)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 99.04790 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.25358452 | $\omega$ | 231.60982 | | +0.80745410 | +0.58702290 | |
| $a$ | 2.4720328 | $\Omega$ | 92.36879 | | −0.52135662 | +0.75647955 | |
| $e$ | 0.2172579 | $i$ | 3.35646 | | −0.27605280 | +0.28834496 | |
| $P$ | 3.89 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 10 23 | 704 | 0.4− | 0.6− | 2004 05 21 | 704 | 0.3+ | 0.4+ | 2005 12 29 | G96 | 0.1− | 0.4− |
| 2001 10 23 | 704 | 0.6− | 0.4+ | 2004 05 21 | 704 | 0.3+ | 0.3+ | 2005 12 29 | G96 | 0.3− | 0.2− |
| 2001 10 23 | 704 | 0.3+ | 0.0 | 2004 05 21 | 704 | 0.5− | 0.4+ | 2005 12 29 | G96 | 0.3+ | 0.1− |
| 2001 10 23 | 704 | 1.2+ | 1.3+ | 2005 10 25 | G96 | 0.1+ | 0.0 | 2005 12 29 | G96 | 0.6− | 0.2− |
| 2001 11 17 | 704 | 0.7+ | 0.5+ | 2005 10 25 | G96 | 0.3− | 0.0 | 2006 01 21 | G96 | 0.2− | 0.2+ |
| 2001 11 17 | 704 | 0.4− | 0.0 | 2005 10 25 | G96 | 0.2+ | 0.1− | 2006 01 21 | G96 | 0.3+ | 0.1+ |
| 2001 11 17 | 704 | 0.1− | 0.7+ | 2005 10 25 | G96 | 0.1+ | 0.3+ | 2006 01 21 | G96 | 0.2+ | 0.1+ |
| 2001 11 17 | 704 | 0.2− | 0.5+ | 2005 11 30 | G96 | 0.2− | 0.2− | 2006 01 21 | G96 | 0.0 | 0.0 |
| 2001 11 20 | 704 | 0.8− | 0.7+ | 2005 11 30 | G96 | 0.3− | 0.1− | 2007 03 20 | 291 | 0.1+ | 0.1+ |
| 2001 11 20 | 704 | 0.1+ | 0.5+ | 2005 11 30 | G96 | 0.3− | 0.1− | 2007 03 20 | 291 | 0.1− | 0.2− |
| 2001 11 20 | 704 | 0.1+ | 0.2− | 2005 12 04 | G96 | 0.3− | 0.3− | 2007 03 20 | 291 | 0.0 | 0.1− |
| 2001 11 20 | 704 | 0.5+ | 0.4− | 2005 12 04 | G96 | 0.2− | 0.2− | 2009 11 24 | 691 | 0.1− | 0.2+ |
| 2001 11 20 | 704 | 0.3− | 0.2− | 2005 12 04 | G96 | 0.5− | 0.2− | 2009 11 24 | 691 | 0.2− | 0.2+ |
| 2001 11 21 | 704 | (0.2+ | 1.5+) | 2005 12 04 | G96 | 1.2− | 0.4− | 2009 11 24 | 691 | 0.1− | 0.1− |
| 2001 11 21 | 704 | 0.2− | 0.4+ | 2005 12 04 | G96 | 0.0 | 0.0 | 2009 12 10 | G96 | 0.4+ | 0.1− |
| 2001 11 21 | 704 | 0.1− | 0.3− | 2005 12 04 | G96 | 0.1+ | 0.0 | 2009 12 10 | G96 | 0.4+ | 0.1+ |
| 2001 11 21 | 704 | 0.8− | 0.3+ | 2005 12 04 | G96 | 0.2− | 0.2− | 2009 12 10 | G96 | 0.2+ | 0.1− |
| 2001 11 21 | 704 | 0.0 | 0.2− | 2005 12 04 | G96 | 0.3− | 0.2− | 2009 12 10 | G96 | 0.0 | 0.0 |
| 2004 05 15 | 704 | 0.2+ | 0.7+ | 2005 12 04 | G96 | 0.1+ | 0.1+ | 2009 12 19 | G96 | 0.5+ | 0.3− |
| 2004 05 15 | 704 | 0.2+ | 0.3+ | 2005 12 04 | G96 | 0.2+ | 0.0 | 2009 12 19 | G96 | 0.0 | 0.3− |
| 2004 05 15 | 704 | 0.8+ | 0.9+ | 2005 12 04 | G96 | 0.1+ | 0.2− | 2009 12 19 | G96 | 0.0 | 0.1− |
| 2004 05 15 | 704 | 0.3− | 1.4+ | 2005 12 23 | 691 | 0.1− | 0.4+ | 2009 12 19 | G96 | 0.0 | 0.1− |
| 2004 05 21 | 704 | 0.2+ | 0.9+ | 2005 12 23 | 691 | 0.4+ | 0.4+ | | | | |
| 2004 05 21 | 704 | 0.5+ | 0.9+ | 2005 12 23 | 691 | 0.2+ | 0.6+ | | | | |

**(228544)∗ 2001 WR$_{53}$**

Discovered 2001 Nov. 19 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 270.80804 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24034649 | $\omega$ | 272.23946 | | −0.80421922 | −0.58493734 | |
| $a$ | 2.5619906 | $\Omega$ | 231.98147 | | +0.58446031 | −0.74621133 | |
| $e$ | 0.1208333 | $i$ | 7.67832 | | +0.10787770 | −0.31783165 | |
| $P$ | 4.10 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 10 24 | 291 | 0.2− | 0.4− | 2005 10 01 | G96 | 0.8+ | 0.2+ | 2009 09 21 | 691 | 0.2− | 0.2+ | |
| 2001 10 24 | 291 | 0.1− | 0.2− | 2005 10 01 | G96 | 0.6+ | 0.1− | 2009 09 21 | 691 | 0.6− | 0.3+ | |
| 2001 10 24 | 291 | 0.8− | 0.3− | 2005 10 10 | 691 | 0.5+ | 0.4+ | 2009 09 21 | 691 | 0.2− | 0.3+ | |
| 2001 10 26 | 644 | 0.1− | 0.6− | 2005 10 10 | 691 | 0.5+ | 0.4+ | 2009 09 25 | 691 | 0.5− | 0.4+ | |
| 2001 10 26 | 644 | 0.4− | 0.1+ | 2005 10 10 | 691 | 0.4+ | 0.1− | 2009 09 25 | 691 | 0.9− | 0.4+ | |
| 2001 10 26 | 644 | 0.6− | 0.4− | 2005 12 28 | G96 | 0.5+ | 0.0 | 2009 09 25 | 691 | 0.7− | 0.7+ | |
| 2001 11 19 | 704 | 0.7+ | 0.2+ | 2005 12 28 | G96 | (1.6+ | 0.9−) | 2009 10 15 | G96 | 0.4+ | 0.2− | |
| 2001 11 19 | 704 | 0.5+ | 0.4− | 2005 12 28 | G96 | 1.2+ | 0.4− | 2009 10 15 | G96 | 0.7+ | 0.1+ | |
| 2001 11 19 | 704 | 0.4− | 1.0+ | 2005 12 28 | G96 | 1.0+ | 1.3− | 2009 10 15 | G96 | 1.1+ | 0.3− | |
| 2001 11 19 | 704 | 0.4− | 0.7+ | 2007 03 13 | 703 | 0.4− | 0.3− | 2009 10 15 | G96 | 0.8+ | 0.2− | |
| 2001 11 19 | 704 | 0.2− | 0.9+ | 2007 03 13 | 703 | 0.3− | 0.7− | 2009 10 27 | G96 | 0.3+ | 0.3+ | |
| 2001 11 21 | 704 | 0.4− | 0.4− | 2007 03 13 | 703 | 0.3+ | 0.0 | 2009 10 27 | G96 | 0.6+ | 0.1− | |
| 2001 11 21 | 704 | 1.1− | 0.6− | 2007 03 13 | 703 | 1.1− | 0.2+ | 2009 10 27 | G96 | 0.1+ | 0.1+ | |
| 2001 11 21 | 704 | 0.4+ | 0.1− | 2007 03 20 | 703 | 0.4+ | 0.3− | 2009 10 27 | G96 | 0.7+ | 0.0 | |
| 2001 11 21 | 704 | 0.1− | 0.6+ | 2007 03 20 | 703 | 0.5− | 0.2+ | 2009 12 17 | G96 | 0.5+ | 0.1− | |
| 2003 03 30 | 691 | 0.4+ | 1.1+ | 2007 03 20 | 703 | 0.4+ | 0.9+ | 2009 12 17 | G96 | 0.8+ | 0.0 | |
| 2003 03 30 | 691 | 0.3+ | 1.2+ | 2007 03 20 | 703 | 1.0− | 1.1+ | 2009 12 17 | G96 | 0.0 | 0.5− | |
| 2003 03 30 | 691 | 0.9+ | 0.8+ | 2009 09 17 | 691 | 0.2− | 0.4+ | 2009 12 17 | G96 | 0.3+ | 0.4− | |
| 2005 10 01 | G96 | 0.5+ | 0.3− | 2009 09 17 | 691 | 0.2+ | 1.0+ | | | | | |
| 2005 10 01 | G96 | 0.4+ | 0.3− | 2009 09 17 | 691 | 0.5− | 1.1+ | | | | | |

**(228545)∗ 2001 WJ$_{56}$**

Discovered 2001 Nov. 19 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 107.17193 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.25429167 | $\omega$ | 79.71213 | | +0.83508270 | +0.54135223 | |
| $a$ | 2.4674477 | $\Omega$ | 247.44884 | | −0.53705154 | +0.76369293 | |
| $e$ | 0.1161007 | $i$ | 6.08198 | | −0.11921630 | +0.35172555 | |
| $P$ | 3.88 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 05 28 | 704 | 0.2− | 0.0 | 2001 12 15 | 704 | 0.3+ | 0.3− | 2006 01 06 | G96 | 0.6− | 0.1+ | |
| 2000 05 28 | 704 | 0.3− | 0.1− | 2001 12 15 | 704 | 0.1− | 0.6− | 2006 01 06 | G96 | 0.2+ | 0.1− | |
| 2000 05 28 | 704 | 0.4+ | 0.3− | 2002 01 09 | 291 | 0.4+ | 0.5+ | 2006 01 22 | G96 | 0.7− | 0.0 | |
| 2001 10 26 | 644 | 0.3+ | 0.2+ | 2002 01 09 | 291 | 0.3− | 0.1+ | 2006 01 22 | G96 | 0.7− | 0.0 | |
| 2001 10 26 | 644 | 0.0 | 0.2− | 2002 01 09 | 291 | 0.4+ | 0.3+ | 2006 01 22 | G96 | 0.7− | 0.1− | |
| 2001 10 26 | 644 | 0.5+ | 0.5+ | 2005 11 12 | 691 | 0.2− | 0.0 | 2006 01 22 | G96 | 0.8− | 0.3− | |
| 2001 11 09 | 704 | 1.0− | 0.3− | 2005 11 12 | 691 | 0.0 | 0.1− | 2009 11 08 | 691 | 0.1− | 0.4+ | |
| 2001 11 09 | 704 | 0.5+ | 0.4− | 2005 11 12 | 691 | 0.1+ | 0.1+ | 2009 11 08 | 691 | 0.2− | 0.3− | |
| 2001 11 09 | 704 | 0.6+ | 0.1− | 2005 11 22 | 691 | 0.3− | 0.0 | 2009 11 08 | 691 | 0.4− | 0.2+ | |
| 2001 11 19 | 704 | 0.6+ | 0.1− | 2005 11 22 | 691 | 0.6+ | 0.1+ | 2009 11 20 | 691 | 0.5− | 0.0 | |
| 2001 11 19 | 704 | 0.2+ | 0.2− | 2005 11 22 | 691 | 0.4− | 0.1+ | 2009 11 20 | 691 | 0.5− | 0.3+ | |
| 2001 11 19 | 704 | 0.7+ | 0.6− | 2005 11 28 | G96 | (0.7+ | 1.7+) | 2009 11 20 | 691 | 0.0 | 0.1− | |
| 2001 11 19 | 704 | 0.2− | 0.9− | 2005 11 28 | G96 | 0.6+ | 0.7+ | 2009 12 10 | G96 | 0.4+ | 0.3− | |
| 2001 11 19 | 704 | 0.8+ | 0.0 | 2005 11 28 | G96 | 0.1+ | 0.1− | 2009 12 10 | G96 | 0.1+ | 0.2− | |
| 2001 11 21 | 704 | 0.8− | 0.4+ | 2005 11 28 | G96 | 0.1− | 0.3− | 2009 12 10 | G96 | 0.3+ | 0.2− | |
| 2001 11 21 | 704 | 0.4− | 0.1+ | 2005 12 02 | G96 | 0.0 | 0.3− | 2009 12 10 | G96 | 0.4+ | 0.2− | |
| 2001 11 21 | 704 | 0.8− | 0.3+ | 2005 12 02 | G96 | 0.1+ | 0.3− | 2009 12 25 | 691 | 0.3− | 0.1− | |
| 2001 11 21 | 704 | 0.7− | 0.5+ | 2005 12 02 | G96 | 0.3− | 0.2− | 2009 12 25 | 691 | 0.4− | 0.3+ | |
| 2001 11 21 | 704 | 1.4− | 0.1− | 2005 12 02 | G96 | 0.0 | 0.2− | 2009 12 25 | 691 | 2.3+ | 0.5− | |
| 2001 12 15 | 704 | 0.2+ | 0.1+ | 2006 01 06 | G96 | 0.3+ | 0.1− | | | | | |
| 2001 12 15 | 704 | 0.6+ | 1.2− | 2006 01 06 | G96 | 0.1+ | 0.2+ | | | | | |

**(228546)∗ 2001 WW$_{76}$ = 1999 GP$_{54}$**

Discovered 2001 Nov. 20 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. A. Doppler (*MPO* 25437)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 354.27354 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26416082 | $\omega$ | 252.70108 | | −0.76394057 | −0.64524485 | |
| $a$ | 2.4056020 | $\Omega$ | 247.11424 | | +0.59502402 | −0.69998824 | |
| $e$ | 0.1289943 | $i$ | 0.45656 | | +0.24968224 | −0.30606462 | |
| $P$ | 3.73 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 04 06 | 691 | 0.0 | 0.2− | 2001 12 15 | 704 | 0.4− | 0.0 | 2008 10 02 | G96 | 0.3+ | 0.2− | |
| 1999 04 06 | 691 | 0.2− | 0.2− | 2001 12 15 | 704 | 0.8− | 0.5− | 2008 10 02 | G96 | 0.5+ | 0.3− | |
| 1999 04 06 | 691 | 0.2− | 0.0 | 2001 12 15 | 704 | 0.0 | 0.9+ | 2008 10 02 | G96 | 0.2+ | 0.1+ | |
| 1999 04 12 | 691 | 0.4− | 0.3− | 2001 12 15 | 704 | (1.2+ | 1.7+) | 2008 10 02 | G96 | 0.3+ | 0.3− | |
| 1999 04 12 | 691 | 0.3+ | 0.1+ | 2002 01 13 | 291 | 0.0 | 0.2− | 2008 10 23 | G96 | 0.1− | 0.1− | |
| 1999 04 12 | 691 | 0.1+ | 0.0 | 2002 01 13 | 291 | 0.1− | 0.0 | 2008 10 23 | G96 | 0.1− | 0.2− | |
| 2001 11 11 | 691 | 0.1+ | 0.2− | 2002 01 13 | 291 | 0.1− | 0.4− | 2008 10 23 | G96 | 0.1− | 0.0 | |
| 2001 11 11 | 691 | 0.1− | 0.1− | 2003 05 30 | 807 | 0.1+ | 0.4+ | 2008 10 23 | G96 | 0.2− | 0.1− | |
| 2001 11 11 | 691 | 0.1− | 0.1− | 2003 05 30 | 807 | 0.4+ | 0.3+ | 2008 11 24 | G96 | 0.1− | 0.5− | |
| 2001 11 20 | 704 | 0.1+ | 0.1+ | 2005 12 05 | 691 | 0.1− | 0.1− | 2008 11 24 | G96 | 0.0 | 0.6− | |
| 2001 11 20 | 704 | 0.1+ | 0.2− | 2005 12 05 | 691 | 0.3− | 0.1+ | 2008 11 24 | G96 | 0.7+ | 1.0− | |
| 2001 11 20 | 704 | 0.4− | 0.1+ | 2005 12 05 | 691 | 0.1+ | 0.1+ | 2008 11 24 | G96 | 0.6+ | 0.5− | |
| 2001 11 20 | 691 | 0.1+ | 0.1+ | 2006 01 24 | 691 | 0.1+ | 0.2+ | 2009 10 23 | G96 | 0.5− | 1.1+ | |
| 2001 11 20 | 704 | 0.0 | 0.3+ | 2006 01 24 | 691 | 0.5+ | 0.2− | 2009 10 23 | G96 | (1.6− | 0.8+) | |
| 2001 11 20 | 691 | 0.2+ | 0.3− | 2006 01 24 | 691 | 0.1− | 0.1+ | 2009 10 23 | G96 | 0.2− | 1.0+ | |
| 2001 11 20 | 691 | 0.1+ | 0.2− | 2006 01 28 | 691 | 0.0 | 0.1+ | 2009 10 23 | G96 | 0.2− | 1.3+ | |
| 2001 11 21 | 704 | 0.1+ | 0.1+ | 2006 01 28 | 691 | 0.3+ | 0.1− | 2009 12 19 | G96 | 0.3− | 0.0 | |
| 2001 11 21 | 704 | 0.2− | 0.0 | 2006 01 28 | 691 | 0.1− | 0.0 | 2009 12 19 | G96 | 0.3+ | 0.0 | |
| 2001 11 21 | 704 | 0.0 | 0.6+ | 2008 09 02 | 691 | 0.4− | 0.3+ | 2009 12 19 | G96 | 0.2+ | 0.3+ | |
| 2001 11 21 | 704 | 0.0 | 1.2+ | 2008 09 02 | 691 | 0.4− | 0.0 | 2009 12 19 | G96 | 0.3− | 0.0 | |
| 2001 11 21 | 704 | 0.1− | 0.7+ | 2008 09 02 | 691 | 0.4+ | 0.3+ | | | | | |

**(228547)∗ 2001 WM$_{95}$**

Discovered 2001 Nov. 20 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 47.08969 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23843581 | $\omega$ | 94.62692 | | +0.92857683 | +0.36713590 | |
| $a$ | 2.5756592 | $\Omega$ | 243.84218 | | −0.35999542 | +0.85534378 | |
| $e$ | 0.1441190 | $i$ | 3.47286 | | −0.09026831 | +0.36551094 | |
| $P$ | 4.13 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 10 21 | 704 | 1.1+ | 0.6+ | 2005 11 02 | 704 | 0.7+ | 0.6+ | 2009 09 22 | 691 | 0.0 | 0.2+ | |
| 2001 10 21 | 704 | 0.3− | 0.1− | 2005 11 02 | 704 | (1.6+ | 0.1+) | 2009 09 22 | 691 | 0.1− | 0.0 | |
| 2001 10 21 | 704 | 1.2+ | 0.4− | 2005 11 02 | 704 | (0.3− | 1.9−) | 2009 09 22 | 691 | 0.1− | 0.1+ | |
| 2001 10 21 | 704 | 0.2− | 0.8+ | 2005 11 06 | 704 | 0.3− | 0.6− | 2009 09 22 | 691 | 0.5− | 0.1+ | |
| 2001 11 11 | 691 | 0.3− | 0.4+ | 2005 11 06 | 704 | 0.6− | 0.3− | 2009 09 25 | 691 | 0.2+ | 0.2+ | |
| 2001 11 11 | 691 | 0.5− | 0.3+ | 2005 11 06 | 704 | 0.6+ | 0.3+ | 2009 09 25 | 691 | 0.1− | 0.0 | |
| 2001 11 11 | 691 | 0.7− | 0.3+ | 2005 11 06 | 704 | 0.5− | 0.1+ | 2009 09 25 | 691 | 0.1− | 0.2− | |
| 2001 11 20 | 691 | 0.1+ | 0.2− | 2005 12 05 | G96 | 0.2+ | 0.1+ | 2009 09 26 | 691 | 0.3+ | 0.1+ | |
| 2001 11 20 | 691 | 0.2+ | 0.1+ | 2005 12 05 | G96 | 0.1+ | 0.1+ | 2009 09 26 | 691 | 0.1+ | 0.1+ | |
| 2001 11 20 | 691 | 0.2+ | 0.1− | 2005 12 05 | G96 | 0.4− | 0.1+ | 2009 09 26 | 691 | 0.1+ | 0.1+ | |
| 2001 11 21 | 704 | 0.7− | 0.0 | 2005 12 05 | G96 | 0.2+ | 0.0 | 2009 09 27 | H06 | 0.0 | 0.5+ | |
| 2001 11 21 | 704 | 0.3− | 0.3− | 2008 05 03 | G96 | 0.0 | 0.4+ | 2009 09 27 | H06 | 0.1+ | 0.3+ | |
| 2001 11 21 | 704 | 0.0 | 0.1− | 2008 05 03 | G96 | 0.0 | 0.2+ | 2009 09 27 | H06 | 0.7+ | 0.5+ | |
| 2001 12 08 | 691 | 0.2+ | 0.1+ | 2008 05 03 | G96 | 0.5+ | 0.3+ | 2009 10 09 | 703 | 0.7− | 1.0− | |
| 2001 12 08 | 691 | 0.2− | 0.2− | 2008 05 03 | G96 | 0.0 | 0.4+ | 2009 10 09 | 703 | 1.1− | 0.8− | |
| 2001 12 08 | 691 | 0.3+ | 0.0 | 2009 09 18 | 691 | 0.1+ | 0.0 | 2009 10 09 | 703 | 0.7+ | 0.0 | |
| 2005 10 09 | 691 | 0.1+ | 0.3− | 2009 09 18 | 691 | 0.0 | 0.0 | 2009 10 09 | 703 | 0.4− | 0.8− | |
| 2005 10 09 | 691 | 0.3+ | 0.4− | 2009 09 18 | 691 | 0.2+ | 0.1− | 2009 12 11 | G96 | 0.4− | 0.2− | |
| 2005 10 09 | 691 | 0.4+ | 0.2− | 2009 09 18 | 691 | 0.1− | 0.1+ | 2009 12 11 | G96 | 0.1− | 0.4− | |
| 2005 10 13 | 691 | 0.0 | 1.0+ | 2009 09 18 | 691 | 0.0 | 0.1+ | 2009 12 11 | G96 | 0.0 | 0.4− | |
| 2005 10 13 | 691 | 0.2+ | 0.2− | 2009 09 18 | 691 | 0.1+ | 0.1− | 2009 12 11 | G96 | 0.3− | 0.2− | |
| 2005 10 13 | 691 | 0.1+ | 0.2− | 2009 09 21 | J75 | 0.5+ | 0.9+ | 2009 12 17 | G96 | 0.3+ | 0.3− | |
| 2005 10 28 | 703 | 0.2− | 0.3+ | 2009 09 21 | J75 | 0.5+ | 0.0 | 2009 12 17 | G96 | 0.2+ | 0.0 | |
| 2005 10 28 | 703 | 0.7− | 0.7− | 2009 09 21 | J75 | 0.7+ | 0.4− | 2009 12 17 | G96 | 0.6+ | 0.1− | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 28 | 703 | 0.0 | 0.8− | 2009 09 22 | 691 | 0.2− | 0.2+ | 2009 12 17 | G96 | 0.0 | 0.4− | | |
| 2005 10 28 | 703 | 0.3− | 0.0 | 2009 09 22 | 691 | 0.5− | 0.2− | | | | | | |

**(228548)∗ 2001 XE$_2$**

Discovered 2001 Dec. 8 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 300.03565 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.36673526 | $\omega$ | 212.98600 | | −0.73915607 | −0.60808880 | |
| $a$ | 1.9330108 | $\Omega$ | 286.79466 | | +0.66470935 | −0.58921288 | |
| $e$ | 0.0780230 | $i$ | 17.60887 | | +0.10867280 | −0.53203025 | |
| $P$ | 2.69 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 09 24 | 704 | 1.3+ | 0.3− | 2002 01 08 | 704 | 0.9+ | 0.8+ | 2005 03 13 | 703 | 0.6− | 0.1− | | |
| 1998 09 24 | 704 | 0.7− | 0.8− | 2002 01 08 | 704 | 0.3+ | 0.9+ | 2005 03 13 | 703 | 0.4− | 0.1+ | | |
| 1998 09 24 | 704 | (2.1+ | 1.2−) | 2002 02 06 | 704 | 0.1− | 0.5− | 2005 03 13 | 703 | 0.4− | 0.2+ | | |
| 1998 09 24 | 704 | (2.6+ | 0.6+) | 2002 02 06 | 704 | 0.4− | 1.1+ | 2006 08 13 | 644 | 0.0 | 0.4+ | | |
| 1998 09 24 | 704 | 1.5− | 0.9− | 2002 02 06 | 704 | 0.8+ | 0.1+ | 2006 08 13 | 644 | 0.1− | 0.5+ | | |
| 2001 12 08 | 704 | 0.8− | 0.5− | 2002 02 06 | 704 | 1.0+ | 0.7+ | 2006 08 13 | 644 | 0.0 | 0.3+ | | |
| 2001 12 08 | 704 | 1.0− | 0.1− | 2002 02 06 | 704 | 0.7+ | 0.7+ | 2006 08 24 | 704 | 0.8+ | 0.9+ | | |
| 2001 12 08 | 704 | 0.1− | 0.6+ | 2003 07 25 | 704 | (0.0 | 1.8+) | 2006 08 24 | 704 | 0.7+ | 0.3− | | |
| 2001 12 10 | 704 | 0.2+ | 0.3+ | 2003 07 25 | 704 | (0.8− | 1.8+) | 2006 08 24 | 704 | 1.2+ | 0.3− | | |
| 2001 12 10 | 704 | 0.0 | 0.0 | 2003 07 25 | 704 | 1.0+ | 0.2− | 2006 09 19 | 703 | 0.5− | 0.5− | | |
| 2001 12 10 | 704 | 0.1− | 0.4+ | 2003 07 25 | 704 | 0.2+ | 0.8+ | 2006 09 19 | 703 | 0.4− | 0.7− | | |
| 2001 12 10 | 704 | 0.1+ | 0.4+ | 2004 12 20 | 704 | 1.1+ | 0.5− | 2006 09 19 | 703 | 0.3− | 0.1+ | | |
| 2001 12 10 | 704 | 0.1+ | 0.1+ | 2004 12 20 | 704 | 0.7+ | 0.4− | 2006 09 19 | 703 | 0.2− | 0.1− | | |
| 2001 12 11 | 704 | 0.3− | 0.3+ | 2004 12 20 | 704 | 0.3− | 0.2− | 2006 09 28 | 703 | 0.1− | 0.4+ | | |
| 2001 12 11 | 704 | 0.6− | 0.3+ | 2004 12 20 | 704 | (0.2+ | 2.3+) | 2006 09 28 | 703 | 0.0 | 1.0+ | | |
| 2001 12 11 | 704 | 0.1+ | 0.1− | 2004 12 20 | 704 | 0.4− | 1.0+ | 2006 09 28 | 703 | 0.2− | 0.2+ | | |
| 2001 12 11 | 704 | 0.1− | 0.3+ | 2004 12 20 | 704 | 0.2− | 0.9+ | 2006 09 28 | 703 | 1.1− | 0.8+ | | |
| 2001 12 11 | 704 | 0.5+ | 0.1− | 2004 12 20 | 704 | (0.7+ | 1.5+) | 2008 05 29 | E12 | 0.2+ | 0.4+ | | |
| 2001 12 22 | 704 | 0.1− | 1.1− | 2004 12 20 | 704 | 0.3+ | 0.8+ | 2008 05 29 | E12 | 0.7+ | 0.8+ | | |
| 2001 12 22 | 704 | 0.4+ | 0.5− | 2004 12 20 | 704 | 0.5+ | 0.3− | 2008 05 29 | E12 | 0.4− | 0.7+ | | |
| 2001 12 22 | 704 | 1.1+ | 0.3− | 2004 12 20 | 704 | 1.4− | 0.7− | 2008 05 29 | E12 | 0.7− | 1.1+ | | |
| 2001 12 22 | 704 | 0.5+ | 0.7− | 2004 12 20 | 704 | 1.1+ | 0.6− | 2009 11 08 | 704 | 0.2+ | 0.2+ | | |
| 2002 01 07 | 704 | 1.0− | 0.2− | 2004 12 20 | 704 | 0.7+ | 1.2− | 2009 11 08 | 704 | 0.2+ | 0.2− | | |
| 2002 01 07 | 704 | (1.9− | 0.9−) | 2004 12 20 | 704 | (2.0− | 2.5−) | 2009 11 08 | 704 | 0.3+ | 0.0 | | |
| 2002 01 07 | 704 | (2.6− | 0.3−) | 2005 03 10 | E12 | 0.1− | 0.1− | 2009 11 08 | 704 | 0.7+ | 0.8+ | | |
| 2002 01 07 | 704 | (2.5− | 1.3−) | 2005 03 10 | E12 | 0.1− | 0.2− | 2009 11 08 | 704 | 0.4+ | 0.2+ | | |
| 2002 01 08 | 704 | 0.4− | 0.7+ | 2005 03 10 | E12 | 0.3− | 0.5+ | 2009 11 25 | 704 | 2.1− | 0.1− | | |
| 2002 01 08 | 704 | 0.0 | 0.8+ | 2005 03 10 | E12 | 0.1− | 0.3− | 2009 11 25 | 704 | 2.0− | 0.6− | | |
| 2002 01 08 | 704 | 0.1+ | 1.0+ | 2005 03 13 | 703 | 0.0 | 0.4− | 2009 11 25 | 704 | 2.0+ | 2.4− | | |

**(228549)∗ 2001 XA$_3$**

Discovered 2001 Dec. 9 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 77.85151 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.36985142 | $\omega$ | 92.51627 | | +0.94517942 | +0.01672057 | |
| $a$ | 1.9221378 | $\Omega$ | 266.66346 | | −0.14002713 | +0.92296439 | |
| $e$ | 0.0747958 | $i$ | 19.06720 | | +0.29500555 | +0.38452198 | |
| $P$ | 2.66 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 12 09 | 704 | (5.6+ | 1.1+) | 2002 01 13 | 704 | 0.9− | 0.7− | 2009 11 10 | 704 | 1.2− | 0.4− | | |
| 2001 12 09 | 704 | (6.0+ | 0.8+) | 2002 01 13 | 704 | 0.5+ | 0.1+ | 2009 11 10 | 704 | 0.4− | 0.4+ | | |
| 2001 12 09 | 704 | (7.8+ | 1.5+) | 2002 01 13 | 704 | 1.0+ | 0.1+ | 2009 11 23 | 704 | 0.7+ | 0.9+ | | |
| 2001 12 09 | 704 | (5.1+ | 0.9+) | 2002 01 15 | 704 | 0.5+ | 0.3− | 2009 11 23 | 704 | 0.6+ | 0.6+ | | |
| 2001 12 09 | 704 | (5.7+ | 0.3+) | 2002 01 15 | 704 | 0.4+ | 0.2+ | 2009 11 23 | 704 | 0.4+ | 0.7+ | | |
| 2001 12 10 | 704 | 0.6− | 0.9+ | 2002 01 15 | 704 | 0.9+ | 0.5+ | 2009 11 27 | G96 | 0.3− | 0.3− | | |
| 2001 12 10 | 704 | 0.4− | 0.3+ | 2002 01 15 | 704 | 0.5+ | 0.0 | 2009 11 27 | G96 | 0.4− | 0.4− | | |
| 2001 12 10 | 704 | 0.3− | 0.2− | 2002 01 15 | 704 | 0.0 | 0.2+ | 2009 11 27 | G96 | 0.0 | 0.4− | | |
| 2001 12 10 | 704 | 0.5− | 0.3+ | 2002 01 19 | 704 | 1.2+ | 0.8+ | 2009 11 27 | G96 | 0.0 | 0.3− | | |
| 2001 12 10 | 704 | 0.5− | 0.2− | 2002 01 19 | 704 | 0.7+ | 0.3+ | 2009 11 27 | G96 | 0.0 | 0.3− | | |
| 2001 12 11 | 704 | 0.5− | 0.0 | 2002 01 19 | 704 | 0.2− | 0.4− | 2009 12 09 | J75 | 0.4+ | 0.7− | | |
| 2001 12 11 | 704 | 0.2− | 0.3+ | 2005 02 04 | 704 | 0.8+ | 0.4− | 2009 12 09 | J75 | 0.1+ | 0.3− | | |
| 2001 12 11 | 704 | 0.4− | 0.3− | 2005 02 04 | 704 | 0.7− | 0.9+ | 2009 12 09 | J75 | 0.3+ | 0.3− | | |
| 2001 12 11 | 704 | 1.3− | 0.1− | 2005 02 04 | 704 | 0.2+ | 0.2− | 2009 12 09 | J75 | 0.3− | 1.2− | | |
| 2001 12 11 | 704 | 0.9− | 0.1+ | 2005 02 04 | 704 | 0.1− | 0.5+ | 2009 12 09 | J75 | 0.3− | 0.4− | | |
| 2001 12 18 | 704 | 0.0 | 0.2− | 2005 02 04 | 704 | 1.1+ | 0.4+ | 2009 12 09 | J75 | 0.1+ | 0.4− | | |
| 2001 12 18 | 704 | 0.1− | 0.0 | 2005 02 09 | 704 | 0.6− | 0.2+ | 2009 12 10 | 704 | 0.2− | 0.2+ | | |
| 2001 12 18 | 704 | 0.0 | 0.1+ | 2005 02 09 | 704 | 0.4+ | 0.8− | 2009 12 10 | 704 | 1.0+ | 0.4− | | |
| 2001 12 18 | 704 | 0.4+ | 0.5+ | 2005 02 09 | 704 | 0.8− | 0.1− | 2009 12 10 | 704 | 0.2− | 0.6+ | | |
| 2001 12 18 | 704 | 0.1+ | 0.7+ | 2006 08 12 | 644 | 0.1− | 0.2+ | 2009 12 10 | 704 | 0.0 | 0.2+ | | |
| 2001 12 19 | 704 | 0.3+ | 0.6− | 2006 08 12 | 644 | 0.4− | 0.1+ | 2009 12 10 | 704 | 0.5− | 0.2− | | |
| 2001 12 19 | 704 | 0.2+ | 0.7− | 2006 08 12 | 644 | 0.2+ | 0.2+ | 2009 12 15 | 704 | 0.1+ | 1.5+ | | |
| 2001 12 19 | 704 | 0.1+ | 0.2− | 2006 08 14 | 644 | 0.1+ | 0.1+ | 2009 12 15 | 704 | 0.0 | 0.2− | | |
| 2001 12 19 | 704 | 0.1− | 0.3− | 2006 08 14 | 644 | 0.0 | 0.4+ | 2009 12 15 | 704 | 0.1+ | 1.3+ | | |
| 2001 12 19 | 704 | 0.1+ | 0.1+ | 2006 08 14 | 644 | 0.1+ | 0.3+ | 2009 12 15 | 704 | 0.2+ | 0.5+ | | |
| 2002 01 09 | 704 | 0.0 | 0.9+ | 2006 11 23 | 703 | (0.4− | 1.9−) | 2009 12 15 | 704 | 0.0 | 0.6+ | | |
| 2002 01 09 | 704 | 1.3+ | 0.4− | 2006 11 23 | 703 | (0.6− | 1.5−) | 2009 12 18 | G96 | 0.1− | 0.4− | | |
| 2002 01 09 | 704 | (1.6− | 0.7−) | 2006 11 23 | 703 | 0.1− | 0.1− | 2009 12 18 | G96 | 0.3− | 0.3− | | |
| 2002 01 09 | 704 | 0.3− | 0.4− | 2006 11 23 | 703 | 0.1+ | 0.5− | 2009 12 18 | G96 | 0.5− | 0.4− | | |
| 2002 01 13 | 704 | 0.1− | 0.4− | 2009 11 10 | 704 | 0.6+ | 0.6− | 2009 12 18 | G96 | 0.0 | 0.2− | | |
| 2002 01 13 | 704 | 0.6+ | 0.0 | 2009 11 10 | 704 | 0.2− | 0.1+ | | | | | | |

**(228550)∗ 2001 XL$_{15}$ = 1997 UW$_{15}$**

Discovered 2001 Dec. 10 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. A. Doppler (*MPO* 23151)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 34.99039 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.25637057 | $\omega$ | 33.16432 | | +0.30654071 | −0.95119477 | |
| $a$ | 2.4540906 | $\Omega$ | 39.01780 | | +0.86057783 | +0.26100804 | |
| $e$ | 0.1662168 | $i$ | 3.23389 | | +0.40674143 | +0.16463085 | |
| $P$ | 3.84 | $H$ | 17.4 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 10 23 | 691 | 0.2+ | 0.5− | 2001 12 11 | 704 | 1.0+ | 0.5+ | 2005 11 30 | 691 | 0.1− | 0.2+ | | |
| 1997 10 23 | 691 | 0.2+ | 0.2− | 2001 12 14 | 644 | 0.1− | 0.1− | 2005 12 10 | 691 | 0.0 | 0.2− | | |
| 1997 10 23 | 691 | 0.3+ | 0.3− | 2001 12 14 | 644 | 0.3− | 0.0 | 2005 12 10 | 691 | 0.1+ | 0.2− | | |
| 1997 11 02 | 691 | 0.4− | 0.2− | 2001 12 14 | 644 | 0.4+ | 0.0 | 2005 12 10 | 691 | 0.1+ | 0.1− | | |
| 1997 11 02 | 691 | 0.5+ | 0.1− | 2001 12 15 | 704 | 0.4+ | 0.0 | 2005 12 26 | 691 | 0.0 | 0.4− | | |
| 1997 11 02 | 691 | 0.8− | 0.8+ | 2001 12 15 | 704 | 0.5+ | 0.0 | 2005 12 26 | 691 | 0.0 | 0.0 | | |
| 2001 11 19 | 704 | (0.7+ | 1.6+) | 2001 12 15 | 704 | 0.2− | 0.0 | 2005 12 26 | 691 | 0.1− | 0.1+ | | |
| 2001 11 19 | 704 | 0.7+ | 0.8+ | 2001 12 15 | 704 | 0.2+ | 0.3+ | 2005 12 30 | 691 | 0.0 | 0.1− | | |
| 2001 11 19 | 704 | 1.0− | 1.0+ | 2001 12 18 | 704 | 0.6+ | 0.2− | 2005 12 30 | 691 | 0.1− | 0.5− | | |
| 2001 11 21 | 704 | 0.1− | 0.8+ | 2001 12 18 | 704 | 0.1+ | 0.4+ | 2005 12 30 | 691 | 0.1− | 0.1− | | |
| 2001 11 21 | 704 | 0.3− | 0.6+ | 2001 12 18 | 704 | 0.9− | 0.1− | 2006 01 07 | 691 | 0.1− | 0.0 | | |
| 2001 11 21 | 704 | 0.1− | 0.1+ | 2001 12 18 | 704 | (0.4+ | 1.9+) | 2006 01 07 | 691 | 0.3− | 0.4+ | | |
| 2001 11 21 | 704 | 0.0 | 0.2+ | 2003 04 25 | 691 | 0.0 | 0.0 | 2006 01 07 | 691 | 0.1+ | 0.3− | | |
| 2001 12 10 | 704 | 0.4− | 0.3+ | 2003 04 25 | 691 | 0.1+ | 0.1+ | 2009 11 19 | G96 | 0.0 | 0.2− | | |
| 2001 12 10 | 704 | 1.0− | 0.6− | 2003 04 25 | 691 | 0.2+ | 0.4+ | 2009 11 19 | G96 | 0.6+ | 0.1− | | |
| 2001 12 10 | 704 | (0.2− | 1.7+) | 2005 11 10 | G96 | 0.0 | 0.2− | 2009 11 19 | G96 | 0.1+ | 0.2− | | |
| 2001 12 10 | 704 | 0.6+ | 0.7+ | 2005 11 10 | G96 | 0.3− | 0.1− | 2009 11 19 | G96 | 0.2− | 0.2− | | |
| 2001 12 11 | 704 | 0.3− | 1.4+ | 2005 11 10 | G96 | 0.5− | 0.0 | 2009 12 20 | G96 | 0.1+ | 0.2− | | |
| 2001 12 11 | 704 | 0.3− | 1.2+ | 2005 11 10 | G96 | 0.2− | 0.0 | 2009 12 20 | G96 | 0.2− | 0.2− | | |
| 2001 12 11 | 704 | (1.8+ | 1.4+) | 2005 11 30 | 691 | 0.1+ | 0.3+ | 2009 12 20 | G96 | 0.1− | 0.3− | | |
| 2001 12 11 | 704 | 1.1+ | 0.3− | 2005 11 30 | 691 | 0.1+ | 0.2+ | 2009 12 20 | G96 | 0.1+ | 0.1− | | |

**(228551)∗ 2001 XH$_{23}$**

Discovered 2001 Dec. 9 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 349.98513 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24346568 | $\omega$ | 112.66472 | | −0.13117709 | −0.99120554 | |
| $a$ | 2.5400614 | $\Omega$ | 344.84185 | | +0.88331817 | −0.10887678 | |
| $e$ | 0.2640176 | $i$ | 3.82424 | | +0.45004620 | −0.07521589 | |
| $P$ | 4.05 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1960 09 29 | 675 | 0.1+ | 0.3− | 2005 12 05 | 704 | 0.3+ | 0.0 | 2009 11 22 | 704 | 0.9− | 0.3− |
| 1960 09 29 | 675 | 0.1+ | 0.2− | 2005 12 05 | 704 | 0.0 | 0.3+ | 2009 11 23 | 691 | 0.3− | 0.0 |
| 2000 07 31 | 807 | 0.1− | 0.1+ | 2005 12 24 | 704 | 0.5+ | 0.7+ | 2009 11 23 | 691 | 0.0 | 0.0 |
| 2000 07 31 | 807 | 0.0 | 0.2+ | 2005 12 24 | 704 | 0.6+ | 0.2− | 2009 11 23 | 691 | 0.1− | 0.0 |
| 2001 12 09 | 704 | 1.2+ | 0.5+ | 2005 12 24 | 704 | 0.0 | 0.3− | 2009 11 24 | J75 | 1.0+ | 0.2− |
| 2001 12 09 | 704 | 1.2+ | 0.7− | 2006 01 06 | 704 | 0.2− | 0.1− | 2009 11 24 | J75 | 0.5+ | 0.1− |
| 2001 12 09 | 704 | 1.4+ | 1.2− | 2006 01 06 | 704 | 0.6− | 1.3+ | 2009 11 24 | J75 | 0.6− | 0.4− |
| 2001 12 13 | 704 | 0.1+ | 0.1+ | 2006 01 06 | 704 | 0.9− | 0.6− | 2009 11 25 | 703 | 0.2− | 0.3+ |
| 2001 12 13 | 704 | 0.4− | 0.8+ | 2006 01 06 | 704 | 0.0 | 0.0 | 2009 11 25 | 703 | 0.2− | 0.6− |
| 2001 12 13 | 704 | 0.6− | 0.3− | 2006 01 06 | 704 | 0.2− | 0.2+ | 2009 11 25 | 703 | 0.9+ | 0.0 |
| 2001 12 13 | 704 | 0.7− | 0.2− | 2006 02 02 | G96 | 0.1− | 0.5− | 2009 11 25 | 703 | 0.3− | 0.3− |
| 2001 12 13 | 704 | 0.4+ | 0.4− | 2006 02 02 | G96 | 0.3− | 0.7− | 2009 11 25 | 703 | 0.2+ | 0.0 |
| 2001 12 17 | 704 | 0.8− | 0.3+ | 2006 02 02 | G96 | 0.0 | 0.4− | 2009 11 27 | 691 | 0.2− | 0.0 |
| 2001 12 17 | 704 | 0.2− | 0.4+ | 2006 02 02 | G96 | 0.3− | 0.4− | 2009 11 27 | 691 | 0.2− | 0.0 |
| 2001 12 17 | 704 | 1.2− | 0.2+ | 2009 11 08 | 703 | 0.8− | 0.3− | 2009 11 27 | 691 | 0.2− | 0.1+ |
| 2001 12 17 | 704 | 0.1− | 1.5− | 2009 11 08 | 703 | 0.3− | 1.1+ | 2009 12 05 | D29 | 0.5− | 0.2+ |
| 2001 12 17 | 704 | 0.9− | 0.5+ | 2009 11 08 | 703 | 0.2− | 1.0− | 2009 12 05 | D29 | 0.3+ | 0.3− |
| 2001 12 22 | 704 | 0.1+ | 0.4+ | 2009 11 08 | 703 | (1.6− | 1.3−) | 2009 12 05 | D29 | 0.3+ | 0.8+ |
| 2001 12 22 | 704 | 0.4− | 0.4+ | 2009 11 11 | 691 | 0.2− | 0.1− | 2009 12 05 | D29 | 0.4+ | 0.6+ |
| 2001 12 22 | 704 | (1.5+ | 1.8+) | 2009 11 11 | 691 | 0.2+ | 0.2− | 2009 12 09 | J75 | 0.3+ | 0.2+ |
| 2001 12 22 | 704 | 0.1+ | 0.3+ | 2009 11 11 | 691 | 0.3− | 0.0 | 2009 12 09 | J75 | 0.2+ | 0.4+ |
| 2002 01 08 | 704 | 0.4− | 0.8+ | 2009 11 11 | 704 | 0.5+ | 0.2− | 2009 12 09 | J75 | 0.3− | 0.0 |
| 2002 01 08 | 704 | 0.8+ | 1.2− | 2009 11 11 | 704 | 0.3+ | 0.2− | 2009 12 09 | J75 | 0.4+ | 0.3− |
| 2002 01 08 | 704 | 0.4+ | 0.4+ | 2009 11 11 | 704 | 0.8+ | 1.1− | 2009 12 09 | J75 | 0.7+ | 0.1+ |
| 2002 01 08 | 704 | 0.2− | 0.2− | 2009 11 11 | 704 | 0.6+ | 0.7+ | 2009 12 09 | J75 | 0.5+ | 0.1+ |
| 2002 01 15 | 704 | 0.1− | 0.1− | 2009 11 11 | 704 | 0.4+ | 0.2− | 2009 12 10 | 704 | 0.6+ | 0.2− |
| 2002 01 15 | 704 | 0.2+ | 0.2− | 2009 11 16 | 704 | (1.1− | 1.6−) | 2009 12 10 | 704 | 0.5− | 0.0 |
| 2002 01 15 | 704 | 0.3+ | 0.2− | 2009 11 16 | 704 | 0.5− | 0.8− | 2009 12 10 | 704 | 0.0 | 0.3+ |
| 2002 01 15 | 704 | 0.3+ | 0.2+ | 2009 11 16 | 704 | 0.4+ | 0.2+ | 2009 12 10 | 704 | 0.0 | 0.0 |
| 2005 12 02 | 704 | 0.3− | 0.3+ | 2009 11 16 | 704 | 0.3− | 0.1− | 2009 12 10 | 704 | 1.2− | 0.1+ |
| 2005 12 02 | 704 | 0.1− | 0.2+ | 2009 11 16 | 704 | 0.2− | 0.0 | 2009 12 15 | 704 | 0.8+ | 0.9+ |
| 2005 12 02 | 704 | 0.2+ | 0.1− | 2009 11 22 | 704 | 1.0+ | 0.6+ | 2009 12 15 | 704 | 0.3− | 0.5− |
| 2005 12 02 | 704 | 0.0 | 0.7+ | 2009 11 22 | 704 | 0.2− | 0.3+ | 2009 12 15 | 704 | 1.4+ | 0.0 |
| 2005 12 05 | 704 | 0.8+ | 0.5− | 2009 11 22 | 704 | 0.3+ | 0.7+ | 2009 12 15 | 704 | 0.0 | 0.8+ |

**(228552)∗ 2001 XH$_{31}$**

Discovered 2001 Dec. 11 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 113.43162 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.36747567 | $\omega$ | 226.33705 | | +0.65733307 | +0.64140160 | |
| $a$ | 1.9304134 | $\Omega$ | 89.41751 | | −0.52575818 | +0.76642646 | |
| $e$ | 0.0903231 | $i$ | 23.30608 | | −0.53989959 | +0.03456106 | |
| $P$ | 2.68 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 12 11 | 704 | 0.9− | 0.2+ | 2002 01 13 | 704 | 0.9+ | 1.0+ | 2006 07 30 | E12 | 0.8− | 0.8+ |
| 2001 12 11 | 704 | 0.5− | 0.0 | 2002 01 13 | 704 | 0.7+ | 0.0 | 2006 07 30 | E12 | 0.4− | 0.5+ |
| 2001 12 11 | 704 | 0.9− | 0.1+ | 2002 01 13 | 704 | 0.3+ | 0.2+ | 2006 09 18 | E12 | 0.4− | 0.2+ |
| 2001 12 11 | 704 | 0.7− | 0.0 | 2002 01 13 | 704 | 0.7+ | 0.3+ | 2006 09 18 | E12 | 0.1− | 0.1+ |
| 2001 12 11 | 704 | 0.2+ | 0.1− | 2002 01 15 | 704 | 0.6+ | 0.6− | 2006 09 18 | E12 | 0.3− | 0.6+ |
| 2001 12 14 | 704 | 0.1+ | 0.2− | 2002 01 15 | 704 | 0.4+ | 0.6− | 2006 09 18 | E12 | 0.3+ | 0.4+ |
| 2001 12 14 | 704 | 0.3+ | 0.5− | 2002 01 15 | 704 | 0.3+ | 1.4− | 2008 03 02 | 703 | 0.4− | 0.3+ |
| 2001 12 14 | 704 | 0.3+ | 0.8− | 2002 01 15 | 704 | 1.1+ | 0.7− | 2008 03 02 | 703 | 0.4+ | 0.8+ |
| 2001 12 14 | 704 | 1.3+ | 0.1− | 2002 01 15 | 704 | 1.4+ | 1.5− | 2008 03 02 | 703 | 1.2+ | 0.5+ |
| 2001 12 14 | 704 | 0.6− | 0.3− | 2005 01 15 | 704 | 0.2− | 0.2+ | 2008 03 02 | 703 | 0.8− | 1.3+ |
| 2001 12 19 | 704 | 0.5− | 0.1+ | 2005 01 15 | 704 | 0.2− | 0.2− | 2009 11 19 | J75 | 0.7+ | 0.1− |
| 2001 12 19 | 704 | 0.5− | 0.4+ | 2005 01 15 | 704 | 0.9− | 0.9− | 2009 11 19 | J75 | 0.1+ | 0.2+ |
| 2001 12 19 | 704 | 1.1− | 0.4+ | 2005 01 15 | 704 | 0.9+ | 0.4+ | 2009 11 19 | J75 | 0.4− | 0.3+ |
| 2001 12 19 | 704 | 0.6− | 0.6+ | 2005 01 16 | 704 | 0.3+ | 0.7+ | 2009 11 26 | G96 | 0.0 | 0.4− |
| 2001 12 19 | 704 | 0.6− | 0.1+ | 2005 01 16 | 704 | 0.0 | 1.1+ | 2009 11 26 | G96 | 0.0 | 0.4− |
| 2002 01 09 | 704 | 0.1− | 0.1+ | 2005 01 16 | 704 | 0.7+ | 1.2+ | 2009 11 26 | G96 | 0.4− | 0.3− |
| 2002 01 09 | 704 | 0.6+ | 0.1− | 2005 02 05 | 644 | 0.2+ | 0.4+ | 2009 11 26 | G96 | 0.3− | 0.3− |
| 2002 01 09 | 704 | 0.4− | 0.7+ | 2005 02 05 | 644 | 0.1+ | 0.1+ | 2009 11 26 | G96 | 0.1− | 0.3− |
| 2002 01 09 | 704 | 0.4+ | 0.1− | 2005 02 05 | 644 | 0.3+ | 0.2+ | 2009 12 13 | 704 | 1.0+ | 0.7+ |
| 2002 01 09 | 704 | 0.3− | 0.4− | 2006 07 30 | E12 | 0.0 | 0.4+ | 2009 12 13 | 704 | 0.3− | 1.4+ |
| 2002 01 13 | 704 | 0.5+ | 0.7+ | 2006 07 30 | E12 | 0.7− | 0.2+ | 2009 12 13 | 704 | 0.7− | 0.7+ |

**(228553)∗ 2001 XU$_{71}$**

Discovered 2001 Dec. 11 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 341.06493 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23884328 | $\omega$ | 190.91899 | | +0.36017593 | −0.93007011 | |
| $a$ | 2.5727290 | $\Omega$ | 238.00603 | | +0.86220893 | +0.36151985 | |
| $e$ | 0.1535358 | $i$ | 4.89765 | | +0.35618682 | +0.06536801 | |
| $P$ | 4.13 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 10 21 | 704 | 0.5− | 0.2− | 2005 10 23 | 703 | 0.9+ | 0.4− | 2005 11 10 | G96 | 0.2+ | 0.0 |
| 2001 10 21 | 704 | 0.2− | 0.5+ | 2005 10 23 | 703 | 0.8− | 0.2− | 2005 11 10 | G96 | 0.1+ | 0.0 |
| 2001 10 21 | 704 | (1.0+ | 5.4+) | 2005 10 23 | 703 | 0.4− | 1.4− | 2005 11 10 | G96 | 0.1+ | 0.6− |
| 2001 11 09 | 704 | 0.7+ | 0.5− | 2005 10 23 | 703 | 0.4+ | 0.1+ | 2005 11 10 | G96 | 0.5+ | 0.4+ |
| 2001 11 09 | 704 | 0.3− | 0.5− | 2005 10 24 | 691 | 0.0 | 0.0 | 2005 12 01 | 691 | 0.1− | 0.2+ |
| 2001 11 09 | 704 | 0.5− | 0.4+ | 2005 10 24 | 691 | 0.1+ | 0.3+ | 2005 12 01 | 691 | 0.2+ | 0.1− |
| 2001 11 09 | 704 | 0.5− | 0.4− | 2005 10 24 | 691 | 0.0 | 0.1+ | 2005 12 01 | 691 | 0.1+ | 0.1+ |
| 2001 11 09 | 704 | 0.6− | 0.5− | 2005 10 28 | 691 | 0.3− | 0.2− | 2005 12 05 | G96 | 0.0 | 0.4− |
| 2001 11 17 | 691 | 0.2+ | 0.1− | 2005 10 28 | 691 | 0.2− | 0.0 | 2005 12 05 | G96 | 0.0 | 0.4− |
| 2001 11 17 | 691 | 0.2+ | 0.0 | 2005 10 28 | 691 | 0.4− | 0.2− | 2005 12 05 | G96 | 0.1− | 0.2− |
| 2001 11 17 | 691 | 0.4+ | 0.1− | 2005 10 28 | 703 | 0.6+ | 0.1+ | 2005 12 05 | G96 | 0.1− | 0.6− |
| 2001 11 21 | 704 | 0.3+ | 0.3+ | 2005 10 28 | 703 | 1.0+ | 0.9+ | 2005 12 25 | G96 | 0.7+ | 0.9− |
| 2001 11 21 | 704 | 0.1+ | 0.2+ | 2005 10 28 | 703 | (1.3+ | 2.3+) | 2005 12 25 | G96 | 0.4− | 0.8− |
| 2001 11 21 | 704 | 0.0 | 0.2+ | 2005 10 28 | 703 | 1.1+ | 0.6− | 2005 12 25 | G96 | 0.4− | 0.9− |
| 2001 11 21 | 704 | 0.1− | 0.6+ | 2005 10 29 | A50 | (1.7+ | 0.2−) | 2005 12 25 | G96 | 0.1+ | 0.0 |
| 2001 11 21 | 704 | 0.2− | 0.1− | 2005 10 29 | A50 | 0.7+ | 0.7+ | 2006 01 05 | G96 | 0.8− | 0.5− |
| 2001 12 11 | 704 | 0.9− | 0.2+ | 2005 11 01 | 691 | 0.3+ | 0.1− | 2006 01 05 | G96 | (0.9− | 1.7−) |
| 2001 12 11 | 704 | 0.6− | 0.4+ | 2005 11 01 | 691 | 0.1+ | 0.2− | 2006 01 05 | G96 | 0.1+ | 0.5− |
| 2001 12 11 | 704 | 0.7− | 0.9+ | 2005 11 01 | 691 | 0.1− | 0.3− | 2006 01 05 | G96 | 0.0 | 0.1+ |
| 2001 12 11 | 704 | 0.6− | 0.6+ | 2005 11 01 | 704 | 0.9+ | 1.0+ | 2007 03 14 | 703 | 0.2+ | 0.6− |
| 2001 12 13 | 644 | 0.2− | 0.0 | 2005 11 01 | 704 | 0.0 | 0.6− | 2007 03 14 | 703 | (5.3− | 3.8+) |
| 2001 12 13 | 644 | 0.3− | 0.1+ | 2005 11 01 | 704 | (0.1+ | 2.6−) | 2007 03 14 | 703 | (1.8+ | 1.2+) |
| 2001 12 13 | 644 | 0.3− | 0.2+ | 2005 11 02 | 704 | 1.3+ | 0.3+ | 2007 03 14 | 703 | 0.4− | 0.8− |
| 2001 12 14 | 704 | 0.1− | 0.5+ | 2005 11 02 | 704 | 0.1+ | 0.2− | 2009 09 15 | 691 | 0.1− | 0.2+ |
| 2001 12 14 | 704 | 0.3+ | 0.5+ | 2005 11 02 | 704 | 0.6+ | 1.3− | 2009 09 15 | 691 | 0.2− | 0.0 |
| 2001 12 14 | 704 | 1.2− | 0.6+ | 2005 11 02 | 704 | 0.5+ | 0.0 | 2009 09 15 | 691 | 0.1− | 0.1− |
| 2001 12 14 | 704 | 0.6− | 0.2+ | 2005 11 02 | 704 | 1.0+ | 0.9− | 2009 09 19 | 691 | 0.1− | 0.0 |
| 2001 12 17 | 704 | 0.2− | 0.8+ | 2005 11 03 | G96 | 0.0 | 0.2− | 2009 09 19 | 691 | 0.2− | 0.3+ |
| 2001 12 17 | 704 | 0.4− | 0.1+ | 2005 11 03 | 704 | 0.3− | 0.1− | 2009 09 19 | 691 | 0.3− | 0.1+ |
| 2001 12 17 | 704 | 0.5− | 1.0+ | 2005 11 03 | G96 | 0.0 | 0.2− | 2009 09 23 | 691 | 0.1− | 0.2+ |
| 2001 12 17 | 704 | (0.3− | 1.6+) | 2005 11 03 | G96 | 0.0 | 0.2− | 2009 09 23 | 691 | 0.4− | 0.3− |
| 2005 10 10 | 691 | 0.0 | 0.1+ | 2005 11 03 | 704 | 0.3− | 1.2− | 2009 09 23 | 691 | 0.3− | 0.1− |
| 2005 10 10 | 691 | 0.2− | 0.0 | 2005 11 03 | G96 | 0.2+ | 0.1− | 2009 09 30 | G96 | 0.5+ | 0.0 |
| 2005 10 10 | 691 | 0.1+ | 0.1+ | 2005 11 03 | 704 | 0.2+ | 0.0 | 2009 09 30 | G96 | 0.6+ | 0.1− |
| 2005 10 22 | 703 | 0.8+ | 0.6+ | 2005 11 06 | 704 | 0.2+ | 0.1+ | 2009 09 30 | G96 | 0.3+ | 0.3− |
| 2005 10 22 | 703 | 1.2+ | 0.2+ | 2005 11 06 | 704 | 0.4+ | 0.3+ | 2009 09 30 | G96 | 0.7+ | 0.2− |
| 2005 10 22 | 703 | 1.0+ | 0.6+ | 2005 11 06 | 704 | 0.2− | 0.1+ | 2009 12 17 | G96 | 0.6+ | 0.1− |
| 2005 10 22 | 703 | 0.9+ | 1.0+ | 2005 11 06 | 704 | 0.2− | 0.2− | 2009 12 17 | G96 | 0.1− | 0.0 |
| 2005 10 23 | 691 | 0.1+ | 0.3+ | 2005 11 09 | 703 | 0.3− | 0.7− | 2009 12 17 | G96 | 0.4− | 0.0 |
| 2005 10 23 | 691 | 0.0 | 0.0 | 2005 11 09 | 703 | 0.4− | 0.2− | 2009 12 17 | G96 | 0.2− | 0.2+ |
| 2005 10 23 | 691 | 0.2− | 0.0 | 2005 11 09 | 703 | 0.2− | 0.3+ | | | | |

**(228554)∗ 2001 XG$_{83}$**

Discovered 2001 Dec. 11 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 358.72362 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.25911564 | $\omega$ | 342.70257 | | −0.70349961 | −0.71030943 | |
| $a$ | 2.4367275 | $\Omega$ | 151.99187 | | +0.65780866 | −0.66327213 | |
| $e$ | 0.1438861 | $i$ | 2.85948 | | +0.26902799 | −0.23564931 | |
| $P$ | 3.80 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1993 10 11 | 809 | 1.3+ | 1.2+ | 2001 12 20 | 704 | 0.3+ | 0.6+ | 2006 01 09 | G96 | 0.1+ | 0.2− | 2001 12 10 | 704 | 0.3− | 0.9− | 2002 01 19 | 704 | 0.6− | 0.1+ | 2007 04 16 | E12 | 0.4− | 0.8+ |
| 1993 10 11 | 809 | 0.1− | 0.5+ | 2001 12 20 | 704 | 0.2+ | 1.1+ | 2006 01 09 | G96 | 0.5+ | 0.2− | 2001 12 10 | 704 | 0.9− | 0.6− | 2002 01 19 | 704 | 0.3− | 0.9+ | 2007 04 16 | E12 | 0.9+ | 1.0+ |
| 1993 10 11 | 809 | 0.2− | 1.9− | 2001 12 20 | 704 | 0.5+ | 0.6+ | 2006 01 09 | G96 | 0.2− | 0.2− | 2001 12 10 | 704 | 1.4− | 1.4− | 2002 01 19 | 704 | 0.4− | 0.5+ | 2007 04 16 | E12 | 0.2+ | 0.3+ |
| 2001 11 20 | 704 | 0.7− | 0.3− | 2002 01 09 | 704 | 0.0 | 1.0− | 2006 01 09 | G96 | 0.1+ | 0.3− | 2001 12 15 | 704 | 0.0 | 0.6+ | 2005 10 23 | 703 | 0.4+ | 0.5+ | 2007 04 16 | E12 | 0.4+ | 0.5+ |
| 2001 11 20 | 704 | 0.5− | 0.8− | 2002 01 09 | 704 | 0.4− | 0.8− | 2006 01 22 | G96 | 0.4− | 0.1− | 2001 12 15 | 704 | 0.3− | 0.6+ | 2005 10 23 | 703 | 0.9− | 0.3− | 2007 05 07 | E12 | 0.1− | 0.1− |
| 2001 11 20 | 704 | 0.3− | 0.8− | 2002 01 09 | 704 | 0.5+ | 1.4− | 2006 01 22 | G96 | 0.2− | 0.2− | 2001 12 15 | 704 | 0.5− | 1.2+ | 2005 10 23 | 703 | 0.5− | 0.3− | 2007 05 07 | E12 | 0.6+ | 0.6+ |
| 2001 11 20 | 704 | 0.2− | 0.9− | 2002 01 13 | 704 | 0.0 | 0.3+ | 2006 01 22 | G96 | 0.1+ | 0.1− | 2001 12 15 | 704 | 0.5− | 0.7+ | 2005 10 23 | 703 | 0.1− | 0.7+ | 2007 05 07 | E12 | 0.3− | 0.4+ |
| 2001 11 20 | 704 | 0.7− | 0.7− | 2002 01 13 | 704 | 0.2− | 0.3− | 2006 01 23 | 704 | 0.4+ | 1.0+ | 2001 12 17 | 704 | 0.2− | 0.0 | 2005 10 30 | 644 | 0.2+ | 0.1− | 2007 05 07 | E12 | 0.3+ | 0.0 |
| 2001 12 11 | 704 | 0.2− | 0.6+ | 2002 01 13 | 704 | 0.3+ | 0.5− | 2006 01 23 | 704 | 0.2+ | 0.0 | 2001 12 17 | 704 | 0.1+ | 0.4+ | 2005 10 30 | 644 | 0.1− | 0.3+ | 2007 05 10 | 699 | 0.6+ | 0.1+ |
| 2001 12 11 | 704 | 0.3− | 0.2− | 2002 01 13 | 704 | 1.2− | 1.0− | 2006 01 23 | 704 | 0.1+ | 0.6+ | 2001 12 17 | 704 | 0.6− | 0.5+ | 2005 10 30 | 644 | 0.1− | 0.5+ | 2007 05 10 | 699 | 0.8− | 1.0+ |
| 2001 12 11 | 704 | 0.1− | 0.1+ | 2005 10 06 | G96 | 0.3+ | 0.2− | 2006 01 23 | 704 | 0.4+ | 0.2+ | 2001 12 17 | 704 | 0.0 | 0.3+ | 2005 11 01 | 699 | 0.4+ | 0.3− | 2007 05 10 | 699 | (2.2− | 0.7+) |
| 2001 12 11 | 704 | 0.1+ | 0.5+ | 2005 10 06 | G96 | 0.0 | 0.0 | 2006 01 23 | 704 | 0.0 | 0.1− | 2001 12 17 | 704 | 0.2− | 0.2− | 2005 11 01 | 699 | 0.9− | 0.1+ | 2007 05 10 | 699 | 0.1+ | 0.5+ |
| 2001 12 11 | 704 | 0.8+ | 0.2− | 2005 10 06 | G96 | 0.3− | 0.1− | 2006 05 25 | G96 | 0.6− | 0.3+ | 2001 12 18 | 704 | 0.2+ | 0.2− | 2005 11 01 | 699 | 0.5− | 0.0 | 2007 05 14 | E12 | 1.1+ | 1.0+ |
| 2001 12 14 | 704 | 0.3− | 0.4+ | 2005 10 06 | G96 | 0.2− | 0.0 | 2006 05 25 | G96 | 0.9− | 0.1+ | 2001 12 18 | 704 | 0.7+ | 0.4+ | 2005 11 01 | 699 | 0.9+ | 0.3+ | 2007 05 14 | E12 | 0.4+ | 0.1− |
| 2001 12 14 | 704 | 0.0 | 0.3+ | 2005 10 07 | G96 | 0.1− | 0.1+ | 2006 05 25 | G96 | 0.7− | 0.4− | 2001 12 18 | 704 | 0.6+ | 0.2− | 2005 11 03 | 704 | 0.3− | 1.0+ | 2007 05 14 | E12 | 0.3+ | 0.3− |
| 2001 12 14 | 704 | 0.6− | 0.2+ | 2005 10 07 | G96 | 0.2+ | 0.1− | 2006 05 25 | G96 | 0.3− | 0.2− | 2001 12 18 | 704 | 1.2+ | 0.3+ | 2005 11 03 | 704 | 0.5+ | 0.3+ | 2007 05 14 | E12 | 0.2+ | 0.2+ |
| 2001 12 14 | 704 | 0.3+ | 0.5+ | 2005 10 07 | G96 | 0.1− | 0.3− | 2008 09 06 | 691 | 0.4− | 0.1+ | 2001 12 18 | 704 | 0.5+ | 0.4− | 2005 11 03 | 704 | 0.2− | 0.3+ | 2008 07 28 | G96 | 0.0 | 0.0 |
| 2001 12 14 | 704 | 0.3+ | 1.0+ | 2005 10 07 | G96 | 0.2+ | 0.1− | 2008 09 06 | 691 | 0.0 | 0.1+ | 2001 12 18 | 704 | 0.4+ | 0.6+ | 2005 11 03 | 704 | 0.4+ | 0.2− | 2008 07 28 | G96 | 0.0 | 0.3+ |
| 2001 12 17 | 704 | 0.2− | 0.1− | 2005 12 25 | 691 | 0.4− | 0.8+ | 2008 09 06 | 691 | 0.3− | 0.1+ | 2001 12 18 | 704 | 0.7+ | 0.2− | 2005 11 08 | 704 | (1.7+ | 2.6+) | 2008 07 28 | G96 | 0.5+ | 0.1+ |
| 2001 12 17 | 704 | 0.2+ | 0.4− | 2005 12 25 | 691 | 0.3+ | 0.1+ | 2008 09 28 | 704 | 1.2+ | 0.2− | 2001 12 18 | 704 | 1.3+ | 0.7+ | 2005 11 08 | 704 | 0.9+ | 0.5− | 2008 07 28 | G96 | 0.2− | 0.4+ |
| 2001 12 17 | 704 | 0.1+ | 0.2+ | 2005 12 25 | 691 | 0.4+ | 0.5+ | 2008 09 28 | 704 | 0.4− | 0.2− | 2001 12 18 | 704 | 1.0+ | 0.3+ | 2005 11 08 | 704 | (0.7+ | 3.1+) | 2009 09 22 | 703 | (1.7+ | 0.4+) |
| 2001 12 17 | 704 | 0.2− | 0.1+ | 2005 12 27 | 703 | 0.1− | 0.6− | 2008 09 28 | 704 | 0.2+ | 1.2+ | 2001 12 18 | 704 | 1.1+ | 0.8+ | 2005 11 08 | 704 | (0.1+ | 2.6+) | 2009 09 22 | 703 | (0.7+ | 1.7−) |
| 2001 12 17 | 704 | 0.1− | 0.0 | 2005 12 27 | 703 | 0.5+ | 0.3− | 2008 09 28 | 704 | 0.1+ | 1.3+ | 2001 12 19 | 704 | 0.4− | 0.2+ | 2005 11 25 | 703 | (3.5− | 0.3+) | 2009 09 22 | 703 | 1.1− | 0.1+ |
| 2001 12 19 | 704 | (0.1+ | 1.6−) | 2005 12 27 | 703 | 0.5+ | 0.3− | 2009 10 23 | G96 | 0.2+ | 0.1+ | 2001 12 19 | 704 | 0.6− | 0.7+ | 2005 11 25 | 703 | (1.6− | 0.8+) | 2009 09 22 | 703 | 0.0 | 0.1− |
| 2001 12 19 | 704 | 0.5− | 0.3− | 2005 12 27 | 703 | 0.5+ | 0.8+ | 2009 10 23 | G96 | 0.4+ | 0.1+ | 2001 12 19 | 704 | 0.4− | 0.4+ | 2005 11 25 | 703 | 0.3+ | 0.1− | 2009 09 22 | 703 | 0.7+ | 0.4+ |
| 2001 12 19 | 704 | 0.4+ | 1.1− | 2005 12 30 | 704 | (0.5+ | 2.1−) | 2009 10 23 | G96 | 0.3− | 0.0 | 2001 12 19 | 704 | 0.4− | 0.6+ | 2005 11 25 | 703 | 0.5+ | 0.6+ | 2009 09 22 | 703 | 0.6+ | 0.4+ |
| 2001 12 19 | 704 | 1.1+ | 0.3− | 2005 12 30 | 704 | 0.3− | 1.2− | 2009 10 23 | G96 | 0.1+ | 0.1+ | 2001 12 19 | 704 | 0.0 | 0.7+ | 2005 11 29 | 704 | 0.1− | 0.5+ | 2009 09 22 | 703 | 0.6− | 0.4− |
| 2001 12 19 | 704 | 0.3− | 0.6− | 2005 12 30 | 704 | (0.7− | 2.8+) | 2009 12 19 | G96 | 0.0 | 0.3− | 2002 01 06 | 699 | (1.5− | 0.3+) | 2005 11 29 | 704 | 0.2− | 0.1+ | 2009 09 22 | 703 | 0.7− | 0.7+ |
| 2001 12 19 | 704 | 1.3+ | 0.1+ | 2005 12 30 | 704 | (1.6+ | 0.6+) | 2009 12 19 | G96 | 0.2+ | 0.4− | 2002 01 06 | 699 | 1.4− | 0.4+ | 2005 11 29 | 704 | 0.5− | 0.5+ | 2009 12 20 | G96 | 0.2− | 0.1+ |
| 2001 12 19 | 704 | 0.3− | 1.1− | 2006 01 06 | 691 | 0.0 | 0.1+ | 2009 12 19 | G96 | 0.9+ | 0.2− | 2002 01 06 | 699 | 1.3− | 0.3+ | 2005 11 29 | 704 | 0.3+ | 0.1+ | 2009 12 20 | G96 | 0.5− | 0.2− |
| 2001 12 19 | 704 | 0.3+ | 0.3− | 2006 01 06 | 691 | 0.7− | 0.3+ | 2009 12 19 | G96 | 0.0 | 0.1− | 2002 01 06 | 699 | (1.8− | 0.8+) | 2005 11 29 | 704 | 0.2+ | 1.4+ | 2009 12 20 | G96 | 0.1+ | 0.0 |
| 2001 12 20 | 704 | 0.1+ | 0.3+ | 2006 01 06 | 691 | 0.3+ | 0.2+ | | | | | 2002 01 09 | 704 | 0.1− | 0.6+ | 2005 12 02 | 703 | 0.0 | 0.2+ | 2009 12 20 | G96 | 0.1− | 0.2− |
| | | | | | | | | | | | | 2002 01 09 | 704 | 0.2+ | 0.3+ | 2005 12 02 | 703 | 0.9− | 0.1+ | | | | |

**(228555)∗ 2001 XU$_{96}$**

Discovered 2001 Dec. 10 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 268.65519 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23083815 | $\omega$ | 244.26301 | | −0.81823906 | −0.53932904 | |
| $a$ | 2.6318693 | $\Omega$ | 262.50075 | | +0.57259675 | −0.73378321 | |
| $e$ | 0.2317200 | $i$ | 11.58007 | | +0.05116448 | −0.41314209 | |
| $P$ | 4.27 | $H$ | 15.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 11 11 | 704 | 0.2− | 0.0 | 2002 01 09 | 704 | 0.2− | 0.6+ | 2005 12 02 | 703 | 1.1− | 0.5+ | 2001 08 28 | 644 | 0.0 | 0.7− | 2001 12 19 | 704 | 0.7+ | 0.9− | 2005 12 01 | 704 | 0.2+ | 0.6+ |
| 2001 11 11 | 704 | 0.2− | 0.2+ | 2002 01 09 | 704 | 0.1+ | 1.0+ | 2005 12 02 | 703 | 0.5− | 0.2− | 2001 08 28 | 644 | 0.3− | 0.5− | 2001 12 19 | 704 | 0.6+ | 1.0− | 2005 12 01 | 704 | 0.5+ | 0.6+ |
| 2001 11 11 | 704 | 0.4− | 0.5− | 2002 01 09 | 704 | (2.7− | 0.0 ) | 2005 12 08 | 703 | 1.3+ | 0.2− | 2001 08 28 | 644 | 0.1− | 0.9− | 2004 06 09 | E12 | 1.0+ | 0.8+ | 2005 12 01 | 704 | 0.1− | 0.4+ |
| 2001 11 11 | 704 | 0.3+ | 0.2− | 2002 01 14 | 704 | 0.1− | 1.0− | 2005 12 08 | 703 | 0.2+ | 1.0+ | 2001 10 13 | 699 | 0.3− | 0.3+ | 2004 06 09 | E12 | (1.0+ | 2.1+) | 2005 12 01 | 704 | 0.1− | 0.2+ |
| 2001 11 11 | 704 | 0.4+ | 0.0 | 2002 01 14 | 704 | 0.1+ | 1.0− | 2005 12 08 | 703 | 0.2− | 0.3+ | 2001 10 13 | 699 | 0.7− | 0.0 | 2004 06 09 | E12 | (1.1+ | 1.5+) | 2005 12 01 | 704 | 0.5+ | 0.6+ |
| 2001 11 19 | 704 | 0.1− | 0.2− | 2002 01 14 | 704 | 0.1+ | 1.2− | 2005 12 08 | 703 | 0.3+ | 0.1+ | 2001 10 13 | 699 | 1.3+ | 0.3− | 2004 06 09 | E12 | (1.6+ | 2.8+) | 2005 12 01 | 704 | 0.1+ | 0.6+ |
| 2001 11 19 | 704 | 0.0 | 0.2− | 2002 01 14 | 704 | 0.4− | 1.3− | 2007 01 28 | E12 | 0.3− | 0.5+ | 2001 10 13 | 699 | 0.9− | 0.9+ | 2004 06 14 | 704 | 0.3+ | 0.2+ | 2005 12 01 | 704 | 0.3+ | 1.0+ |
| 2001 11 19 | 704 | 0.0 | 0.4− | 2002 01 14 | 704 | (0.3− | 1.9−) | 2007 01 28 | E12 | 0.3− | 0.2− | 2001 10 13 | 644 | 0.3+ | 0.8+ | 2004 06 14 | 704 | 0.9− | 0.5+ | 2005 12 02 | 704 | 0.2− | 0.3− |
| 2001 11 19 | 704 | 0.0 | 0.3− | 2002 01 15 | 704 | 0.6+ | 0.0 | 2007 01 28 | E12 | 1.0− | 0.8+ | 2001 10 13 | 644 | 0.4+ | 0.6+ | 2004 06 14 | 704 | 0.7− | 1.1+ | 2005 12 02 | 704 | 0.1+ | 0.4− |
| 2001 11 24 | 704 | 0.0 | 0.3− | 2002 01 15 | 704 | 1.0+ | 0.9− | 2007 01 28 | E12 | 1.0+ | 0.9+ | 2001 10 13 | 644 | 0.4+ | 0.7+ | 2004 06 14 | 704 | 0.0 | 0.5+ | 2005 12 02 | 704 | 0.0 | 0.4− |
| 2001 11 24 | 704 | 0.0 | 0.7− | 2002 01 15 | 704 | 0.4+ | 1.1− | 2007 03 28 | E12 | 0.9− | 0.4− | 2001 10 18 | 704 | 0.4− | 0.4+ | 2004 06 14 | 704 | 0.1− | 1.0+ | 2005 12 02 | 704 | 0.1− | 0.2+ |
| 2001 11 24 | 704 | 0.2− | 0.7− | 2002 01 15 | 704 | 0.8+ | 0.7− | 2007 03 28 | E12 | 0.6− | 0.1+ | 2001 10 18 | 704 | 0.2− | 0.0 | 2005 09 14 | 704 | 0.7+ | 0.2− | 2005 12 02 | 704 | 0.2− | 0.3− |
| 2001 11 24 | 704 | (1.9+ | 1.7−) | 2002 01 15 | 704 | 0.1+ | 0.8− | 2007 03 28 | E12 | 0.1− | 0.2− | 2001 10 18 | 704 | 0.7− | 0.3+ | 2005 09 14 | 704 | 0.1+ | 0.0 | 2005 12 03 | 704 | 0.0 | 0.5+ |
| 2001 11 24 | 704 | 0.5− | 0.9− | 2002 01 19 | 704 | (1.7− | 0.5−) | 2007 03 28 | E12 | 0.2+ | 0.3− | 2001 10 18 | 704 | 0.7− | 0.3+ | 2005 09 14 | 704 | 1.1+ | 0.3− | 2005 12 03 | 704 | 0.1− | 0.3+ |
| | | | | | | | | | | | | 2001 10 18 | 704 | 0.8− | 0.2− | 2005 09 14 | 704 | 0.9+ | 0.6+ | 2005 12 03 | 704 | 1.0+ | 0.2+ |
| | | | | | | | | | | | | 2001 11 10 | 704 | 0.1− | 0.2+ | 2005 10 03 | A50 | 0.0 | 0.0 | 2005 12 04 | 704 | 0.4− | 0.5+ |
| | | | | | | | | | | | | 2001 11 10 | 704 | 0.4− | 0.1− | 2005 10 07 | 704 | 1.4+ | 0.1− | 2005 12 04 | 704 | 0.9+ | 0.4− |
| | | | | | | | | | | | | 2001 11 10 | 704 | 0.1− | 0.4+ | 2005 10 07 | 704 | 0.1+ | 0.1− | 2005 12 04 | 704 | 0.6+ | 0.1− |
| | | | | | | | | | | | | 2001 11 10 | 644 | 0.3− | 0.1+ | 2005 10 07 | 704 | 0.3− | 0.6+ | 2005 12 04 | 704 | 0.2+ | 0.3− |
| | | | | | | | | | | | | 2001 11 10 | 704 | 0.1− | 0.1+ | 2005 10 07 | 704 | 0.2− | 0.8+ | 2005 12 04 | G96 | 0.2− | 0.3− |
| | | | | | | | | | | | | 2001 11 10 | 644 | 0.2− | 0.3+ | 2005 10 29 | 704 | 0.1+ | 0.5− | 2005 12 04 | G96 | 0.0 | 0.4− |
| | | | | | | | | | | | | 2001 11 10 | 644 | 0.1− | 0.1+ | 2005 10 29 | 704 | 0.9− | 0.5+ | 2005 12 04 | G96 | 0.1− | 0.3− |

**(228556)∗ 2001 XF$_{102}$**

Discovered 2001 Dec. 11 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 71.88156 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.25852827 | $\omega$ | 118.95650 | | +0.98520573 | −0.09820062 | |
| $a$ | 2.4404169 | $\Omega$ | 246.97961 | | +0.04544914 | +0.93991639 | |
| $e$ | 0.2244723 | $i$ | 8.77779 | | +0.16523935 | +0.32697678 | |
| $P$ | 3.81 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 28 | 644 | 0.0 | 0.7− | 2001 12 19 | 704 | 0.7+ | 0.9− | 2005 12 01 | 704 | 0.2+ | 0.6+ | 2001 12 10 | 704 | 0.3− | 0.9− | 2002 01 19 | 704 | 0.6− | 0.1+ | 2007 04 16 | E12 | 0.4− | 0.8+ |
| 2001 08 28 | 644 | 0.3− | 0.5− | 2001 12 19 | 704 | 0.6+ | 1.0− | 2005 12 01 | 704 | 0.5+ | 0.6+ | 2001 12 10 | 704 | 0.9− | 0.6− | 2002 01 19 | 704 | 0.3− | 0.9+ | 2007 04 16 | E12 | 0.9+ | 1.0+ |
| 2001 08 28 | 644 | 0.1− | 0.9− | 2004 06 09 | E12 | 1.0+ | 0.8+ | 2005 12 01 | 704 | 0.1− | 0.4+ | 2001 12 10 | 704 | 1.4− | 1.4− | 2002 01 19 | 704 | 0.4− | 0.5+ | 2007 04 16 | E12 | 0.2+ | 0.3+ |
| 2001 10 13 | 699 | 0.3− | 0.3+ | 2004 06 09 | E12 | (1.0+ | 2.1+) | 2005 12 01 | 704 | 0.1− | 0.2+ | 2001 12 15 | 704 | 0.0 | 0.6+ | 2005 10 23 | 703 | 0.4+ | 0.5+ | 2007 04 16 | E12 | 0.4+ | 0.5+ |
| 2001 10 13 | 699 | 0.7− | 0.0 | 2004 06 09 | E12 | (1.1+ | 1.5+) | 2005 12 01 | 704 | 0.5+ | 0.6+ | 2001 12 15 | 704 | 0.3− | 0.6+ | 2005 10 23 | 703 | 0.9− | 0.3− | 2007 05 07 | E12 | 0.1− | 0.1− |
| 2001 10 13 | 699 | 1.3+ | 0.3− | 2004 06 09 | E12 | (1.6+ | 2.8+) | 2005 12 01 | 704 | 0.1+ | 0.6+ | 2001 12 15 | 704 | 0.5− | 1.2+ | 2005 10 23 | 703 | 0.5− | 0.3− | 2007 05 07 | E12 | 0.6+ | 0.6+ |
| 2001 10 13 | 699 | 0.9− | 0.9+ | 2004 06 14 | 704 | 0.3+ | 0.2+ | 2005 12 01 | 704 | 0.3+ | 1.0+ | 2001 12 15 | 704 | 0.5− | 0.7+ | 2005 10 23 | 703 | 0.1− | 0.7+ | 2007 05 07 | E12 | 0.3− | 0.4+ |
| 2001 10 13 | 644 | 0.3+ | 0.8+ | 2004 06 14 | 704 | 0.9− | 0.5+ | 2005 12 02 | 704 | 0.2− | 0.3− | 2001 12 17 | 704 | 0.2− | 0.0 | 2005 10 30 | 644 | 0.2+ | 0.1− | 2007 05 07 | E12 | 0.3+ | 0.0 |
| 2001 10 13 | 644 | 0.4+ | 0.6+ | 2004 06 14 | 704 | 0.7− | 1.1+ | 2005 12 02 | 704 | 0.1+ | 0.4− | 2001 12 17 | 704 | 0.1+ | 0.4+ | 2005 10 30 | 644 | 0.1− | 0.3+ | 2007 05 10 | 699 | 0.6+ | 0.1+ |
| 2001 10 13 | 644 | 0.4+ | 0.7+ | 2004 06 14 | 704 | 0.0 | 0.5+ | 2005 12 02 | 704 | 0.0 | 0.4− | 2001 12 17 | 704 | 0.6− | 0.5+ | 2005 10 30 | 644 | 0.1− | 0.5+ | 2007 05 10 | 699 | 0.8− | 1.0+ |
| 2001 10 18 | 704 | 0.4− | 0.4+ | 2004 06 14 | 704 | 0.1− | 1.0+ | 2005 12 02 | 704 | 0.1− | 0.2+ | 2001 12 17 | 704 | 0.0 | 0.3+ | 2005 11 01 | 699 | 0.4+ | 0.3− | 2007 05 10 | 699 | (2.2− | 0.7+) |
| 2001 10 18 | 704 | 0.2− | 0.0 | 2005 09 14 | 704 | 0.7+ | 0.2− | 2005 12 02 | 704 | 0.2− | 0.3− | 2001 12 17 | 704 | 0.2− | 0.2− | 2005 11 01 | 699 | 0.9− | 0.1+ | 2007 05 10 | 699 | 0.1+ | 0.5+ |
| 2001 10 18 | 704 | 0.7− | 0.3+ | 2005 09 14 | 704 | 0.1+ | 0.0 | 2005 12 03 | 704 | 0.0 | 0.5+ | 2001 12 18 | 704 | 0.2+ | 0.2− | 2005 11 01 | 699 | 0.5− | 0.0 | 2007 05 14 | E12 | 1.1+ | 1.0+ |
| 2001 10 18 | 704 | 0.7− | 0.3+ | 2005 09 14 | 704 | 1.1+ | 0.3− | 2005 12 03 | 704 | 0.1− | 0.3+ | 2001 12 18 | 704 | 0.7+ | 0.4+ | 2005 11 01 | 699 | 0.9+ | 0.3+ | 2007 05 14 | E12 | 0.4+ | 0.1− |
| 2001 10 18 | 704 | 0.8− | 0.2− | 2005 09 14 | 704 | 0.9+ | 0.6+ | 2005 12 03 | 704 | 1.0+ | 0.2+ | 2001 12 18 | 704 | 0.6+ | 0.2− | 2005 11 03 | 704 | 0.3− | 1.0+ | 2007 05 14 | E12 | 0.3+ | 0.3− |
| 2001 11 10 | 704 | 0.1− | 0.2+ | 2005 10 03 | A50 | 0.0 | 0.0 | 2005 12 04 | 704 | 0.4− | 0.5+ | 2001 12 18 | 704 | 1.2+ | 0.3+ | 2005 11 03 | 704 | 0.5+ | 0.3+ | 2007 05 14 | E12 | 0.2+ | 0.2+ |
| 2001 11 10 | 704 | 0.4− | 0.1− | 2005 10 07 | 704 | 1.4+ | 0.1− | 2005 12 04 | 704 | 0.9+ | 0.4− | 2001 12 18 | 704 | 0.5+ | 0.4− | 2005 11 03 | 704 | 0.2− | 0.3+ | 2008 07 28 | G96 | 0.0 | 0.0 |
| 2001 11 10 | 704 | 0.1− | 0.4+ | 2005 10 07 | 704 | 0.1+ | 0.1− | 2005 12 04 | 704 | 0.6+ | 0.1− | 2001 12 18 | 704 | 0.4+ | 0.6+ | 2005 11 03 | 704 | 0.4+ | 0.2− | 2008 07 28 | G96 | 0.0 | 0.3+ |
| 2001 11 10 | 644 | 0.3− | 0.1+ | 2005 10 07 | 704 | 0.3− | 0.6+ | 2005 12 04 | 704 | 0.2+ | 0.3− | 2001 12 18 | 704 | 0.7+ | 0.2− | 2005 11 08 | 704 | (1.7+ | 2.6+) | 2008 07 28 | G96 | 0.5+ | 0.1+ |
| 2001 11 10 | 704 | 0.1− | 0.1+ | 2005 10 07 | 704 | 0.2− | 0.8+ | 2005 12 04 | G96 | 0.2− | 0.3− | 2001 12 18 | 704 | 1.3+ | 0.7+ | 2005 11 08 | 704 | 0.9+ | 0.5− | 2008 07 28 | G96 | 0.2− | 0.4+ |
| 2001 11 10 | 644 | 0.2− | 0.3+ | 2005 10 29 | 704 | 0.1+ | 0.5− | 2005 12 04 | G96 | 0.0 | 0.4− | 2001 12 18 | 704 | 1.0+ | 0.3+ | 2005 11 08 | 704 | (0.7+ | 3.1+) | 2009 09 22 | 703 | (1.7+ | 0.4+) |
| 2001 11 10 | 644 | 0.1− | 0.1+ | 2005 10 29 | 704 | 0.9− | 0.5+ | 2005 12 04 | G96 | 0.1− | 0.3− | 2001 12 18 | 704 | 1.1+ | 0.8+ | 2005 11 08 | 704 | (0.1+ | 2.6+) | 2009 09 22 | 703 | (0.7+ | 1.7−) |
| | | | | | | | | | | | | 2001 12 19 | 704 | 0.4− | 0.2+ | 2005 11 25 | 703 | (3.5− | 0.3+) | 2009 09 22 | 703 | 1.1− | 0.1+ |
| | | | | | | | | | | | | 2001 12 19 | 704 | 0.6− | 0.7+ | 2005 11 25 | 703 | (1.6− | 0.8+) | 2009 09 22 | 703 | 0.0 | 0.1− |
| | | | | | | | | | | | | 2001 12 19 | 704 | 0.4− | 0.4+ | 2005 11 25 | 703 | 0.3+ | 0.1− | 2009 09 22 | 703 | 0.7+ | 0.4+ |
| | | | | | | | | | | | | 2001 12 19 | 704 | 0.4− | 0.6+ | 2005 11 25 | 703 | 0.5+ | 0.6+ | 2009 09 22 | 703 | 0.6+ | 0.4+ |
| | | | | | | | | | | | | 2001 12 19 | 704 | 0.0 | 0.7+ | 2005 11 29 | 704 | 0.1− | 0.5+ | 2009 09 22 | 703 | 0.6− | 0.4− |
| | | | | | | | | | | | | 2002 01 06 | 699 | (1.5− | 0.3+) | 2005 11 29 | 704 | 0.2− | 0.1+ | 2009 09 22 | 703 | 0.7− | 0.7+ |
| | | | | | | | | | | | | 2002 01 06 | 699 | 1.4− | 0.4+ | 2005 11 29 | 704 | 0.5− | 0.5+ | 2009 12 20 | G96 | 0.2− | 0.1+ |
| | | | | | | | | | | | | 2002 01 06 | 699 | 1.3− | 0.3+ | 2005 11 29 | 704 | 0.3+ | 0.1+ | 2009 12 20 | G96 | 0.5− | 0.2− |
| | | | | | | | | | | | | 2002 01 06 | 699 | (1.8− | 0.8+) | 2005 11 29 | 704 | 0.2+ | 1.4+ | 2009 12 20 | G96 | 0.1+ | 0.0 |
| | | | | | | | | | | | | 2002 01 09 | 704 | 0.1− | 0.6+ | 2005 12 02 | 703 | 0.0 | 0.2+ | 2009 12 20 | G96 | 0.1− | 0.2− |
| | | | | | | | | | | | | 2002 01 09 | 704 | 0.2+ | 0.3+ | 2005 12 02 | 703 | 0.9− | 0.1+ | | | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 11 10 | 704 | 0.1+ | 0.3+ | 2005 10 29 | 704 | 0.3− | 0.4− | 2005 12 04 | G96 | 0.2− | 0.4− | | |
| 2001 11 12 | 704 | (2.2− | 0.6−) | 2005 10 29 | 704 | (0.5+ | 1.8−) | 2005 12 06 | 704 | 0.9− | 0.1+ | | |
| 2001 11 12 | 704 | 0.5+ | 0.6+ | 2005 11 01 | 704 | 0.3+ | 0.1− | 2005 12 06 | 704 | 0.9− | 0.0 | | |
| 2001 11 12 | 704 | 0.4+ | 0.1− | 2005 11 01 | 704 | 0.3− | 0.2− | 2005 12 06 | 704 | 1.1− | 0.3− | | |
| 2001 11 12 | 704 | 0.1+ | 0.1+ | 2005 11 01 | 704 | 0.7− | 0.5− | 2005 12 06 | 704 | 0.8− | 0.6− | | |
| 2001 11 12 | 704 | 0.4+ | 0.6− | 2005 11 01 | 704 | 0.8− | 0.5− | 2005 12 06 | 704 | 0.6− | 0.0 | | |
| 2001 11 21 | 704 | 0.2− | 0.8+ | 2005 11 01 | 704 | 0.7− | 0.2− | 2005 12 09 | 704 | 0.2− | 0.3+ | | |
| 2001 11 21 | 704 | 0.2+ | 0.1+ | 2005 11 08 | 704 | 0.3− | 0.1− | 2005 12 09 | 704 | 0.3+ | 1.0+ | | |
| 2001 11 21 | 704 | 0.2+ | 0.5− | 2005 11 08 | 704 | 0.9− | 0.1− | 2005 12 09 | 704 | 0.1− | 0.2+ | | |
| 2001 11 21 | 704 | 1.0+ | 0.3− | 2005 11 08 | 704 | 0.7− | 1.0+ | 2005 12 09 | 704 | 0.1+ | 0.4+ | | |
| 2001 11 24 | 704 | 0.4+ | 0.1− | 2005 11 08 | 704 | 0.6− | 0.4− | 2005 12 09 | 704 | 0.2+ | 0.3+ | | |
| 2001 11 24 | 704 | 0.1− | 0.4+ | 2005 11 08 | 704 | 0.2+ | 0.3− | 2005 12 27 | 704 | 0.0 | 0.0 | | |
| 2001 11 24 | 704 | 0.0 | 0.1+ | 2005 11 22 | 691 | 0.5− | 0.1+ | 2005 12 27 | 704 | 0.1+ | 0.1− | | |
| 2001 11 24 | 704 | 0.2+ | 0.1+ | 2005 11 22 | 691 | 0.0 | 0.0 | 2005 12 27 | 704 | 0.6+ | 0.3− | | |
| 2001 11 24 | 704 | 0.3+ | 0.3+ | 2005 11 22 | 691 | 0.2− | 0.1+ | 2005 12 27 | 704 | 0.5− | 0.3+ | | |
| 2001 12 11 | 704 | 0.9+ | 0.8+ | 2005 11 26 | 691 | 0.4+ | 0.2+ | 2009 11 22 | G96 | 0.3+ | 0.5− | | |
| 2001 12 11 | 704 | 0.2− | 0.5+ | 2005 11 26 | 691 | 0.2+ | 0.1+ | 2009 11 22 | G96 | 0.2+ | 0.4− | | |
| 2001 12 11 | 704 | 0.4− | 0.1+ | 2005 11 26 | 691 | 0.1+ | 0.0 | 2009 11 22 | G96 | 0.5+ | 0.4− | | |
| 2001 12 11 | 704 | 0.0 | 0.7+ | 2005 11 28 | G96 | 0.2+ | 0.3− | 2009 11 22 | G96 | 0.3+ | 0.3− | | |
| 2001 12 15 | 704 | 0.1− | 0.0 | 2005 11 28 | G96 | 0.2− | 1.1− | 2009 11 26 | F85 | 0.1+ | 0.1− | | |
| 2001 12 15 | 704 | 0.3− | 0.2+ | 2005 11 28 | G96 | 0.4+ | 0.7− | 2009 11 26 | F85 | 0.9− | 0.0 | | |
| 2001 12 15 | 704 | 0.7− | 0.0 | 2005 11 28 | G96 | 0.2− | 0.4− | 2009 12 15 | 704 | 0.1+ | 0.1− | | |
| 2001 12 15 | 704 | 0.2− | 0.0 | 2005 11 29 | 704 | 0.4− | 0.4+ | 2009 12 15 | 704 | 0.0 | 0.0 | | |
| 2001 12 15 | 704 | 0.5− | 0.1− | 2005 11 29 | 704 | 0.1− | 0.1+ | 2009 12 15 | 704 | 0.3− | 0.0 | | |
| 2001 12 18 | 704 | 1.0+ | 0.1− | 2005 11 29 | 704 | 1.1− | 0.9+ | 2009 12 15 | 704 | 0.2− | 0.3− | | |
| 2001 12 18 | 704 | 0.9+ | 0.2− | 2005 11 29 | 704 | 0.7− | 0.5− | 2009 12 15 | 704 | 0.5+ | 0.3− | | |
| 2001 12 18 | 704 | 0.7+ | 0.5− | 2005 11 30 | 691 | 0.1− | 0.1− | 2009 12 18 | 704 | 2.0+ | 1.2+ | | |
| 2001 12 18 | 704 | 0.6+ | 0.1+ | 2005 11 30 | 691 | 0.2− | 0.1+ | 2009 12 18 | 704 | 1.8+ | 0.6+ | | |
| 2001 12 18 | 704 | 0.4+ | 0.2− | 2005 11 30 | 691 | 0.4− | 1.2− | 2009 12 18 | 704 | 1.2+ | 0.5+ | | |
| 2001 12 19 | 704 | 0.5+ | 0.6− | 2005 12 01 | 704 | 1.0+ | 1.3+ | 2009 12 18 | 704 | 1.5+ | 1.7+ | | |
| 2001 12 19 | 704 | 0.5+ | 0.6− | 2005 12 01 | 704 | 0.6− | 0.1− | | | | | | |
| 2001 12 19 | 704 | 0.6+ | 0.6− | 2005 12 01 | 704 | 0.3− | 0.2+ | | | | | | |

**(228557)∗ 2001 XH$_{103}$**

Discovered 2001 Dec. 14 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 269.82895 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.36157766 | $\omega$ | 269.67907 | | −0.92740477 | −0.22395173 | |
| $a$ | 1.9513492 | $\Omega$ | 257.36416 | | +0.31815317 | −0.89349273 | |
| $e$ | 0.0802897 | $i$ | 17.88132 | | −0.19672047 | −0.38925103 | |
| $P$ | 2.73 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 12 14 | 704 | 0.2+ | 0.2+ | 2002 01 09 | 704 | 0.5+ | 0.2+ | 2006 09 25 | 113 | 0.1+ | 0.6− | | |
| 2001 12 14 | 704 | 0.3+ | 0.1− | 2002 01 09 | 704 | 0.4+ | 0.7+ | 2008 05 09 | E12 | 0.2+ | 0.7+ | | |
| 2001 12 14 | 704 | 0.1− | 0.0 | 2002 01 09 | 704 | 1.2+ | 0.9+ | 2008 05 09 | E12 | 0.4+ | 1.1+ | | |
| 2001 12 14 | 704 | 0.3+ | 0.0 | 2002 01 14 | 704 | 0.2− | 0.7− | 2008 05 09 | E12 | 0.2+ | 0.8+ | | |
| 2001 12 17 | 704 | 0.1− | 0.1− | 2002 01 14 | 704 | 0.6− | 0.3− | 2008 05 09 | E12 | 0.0 | 0.6+ | | |
| 2001 12 17 | 704 | 0.0 | 0.4− | 2002 01 14 | 704 | 0.4+ | 0.8− | 2008 06 25 | E12 | 0.2+ | 0.4+ | | |
| 2001 12 17 | 704 | 0.2− | 0.2− | 2002 01 14 | 704 | 0.4− | 0.4+ | 2008 06 25 | E12 | 0.1− | 0.6+ | | |
| 2001 12 17 | 704 | 0.4− | 0.3− | 2002 01 14 | 704 | 0.4− | 1.1+ | 2008 06 25 | E12 | 0.0 | 1.1+ | | |
| 2001 12 18 | 704 | 0.1− | 0.7+ | 2003 06 02 | 691 | 0.1− | 0.2+ | 2008 06 25 | E12 | 0.7+ | 0.1− | | |
| 2001 12 18 | 704 | 0.7+ | 0.7+ | 2003 06 02 | 691 | 0.2− | 0.8+ | 2009 11 26 | 703 | 0.9+ | 0.7− | | |
| 2001 12 18 | 704 | 0.5+ | 1.5+ | 2003 06 02 | 691 | 1.1− | 0.0 | 2009 11 26 | 703 | (0.5+ | 1.8−) | | |
| 2001 12 18 | 704 | 0.1− | 0.9+ | 2003 07 20 | 644 | 0.1− | 0.3− | 2009 11 26 | 703 | 1.1− | 1.4− | | |
| 2001 12 18 | 704 | 0.1+ | 0.6+ | 2003 07 20 | 644 | 0.0 | 0.0 | 2009 11 26 | 703 | 1.3− | 1.0− | | |
| 2001 12 19 | 704 | 0.7+ | 0.5+ | 2003 07 20 | 644 | 0.1+ | 0.0 | 2009 12 06 | J75 | 0.1− | 0.6− | | |
| 2001 12 19 | 704 | 0.1− | 0.5+ | 2003 07 28 | 644 | 0.5+ | 0.3+ | 2009 12 06 | J75 | 0.3+ | 0.3− | | |
| 2001 12 19 | 704 | 0.5+ | 0.5+ | 2003 07 28 | 644 | 0.1+ | 0.1+ | 2009 12 06 | J75 | 0.4+ | 0.0 | | |
| 2001 12 19 | 704 | (0.0 | 1.6+) | 2003 07 28 | 644 | 0.2+ | 0.6+ | 2009 12 10 | 704 | 0.2+ | 1.1+ | | |
| 2001 12 20 | 704 | 0.2+ | 0.1+ | 2005 03 02 | 704 | 0.2+ | 0.8− | 2009 12 10 | 704 | 0.5+ | 0.3+ | | |
| 2001 12 20 | 704 | 0.9− | 0.4+ | 2005 03 02 | 704 | 0.2− | 0.4− | 2009 12 10 | 704 | 0.1− | 1.0+ | | |
| 2001 12 20 | 704 | 0.3+ | 0.1− | 2005 03 02 | 704 | 0.2− | 0.2− | 2009 12 15 | 704 | 0.4− | 0.1+ | | |
| 2001 12 20 | 704 | 0.1+ | 0.3+ | 2005 03 02 | 704 | 0.7− | 0.1+ | 2009 12 15 | 704 | 0.7+ | 0.1− | | |
| 2001 12 20 | 704 | 0.1− | 0.1− | 2005 03 02 | 704 | 0.9− | 0.2− | 2009 12 15 | 704 | 0.4− | 1.3+ | | |
| 2002 01 09 | 704 | 0.5+ | 0.0 | 2006 09 25 | 113 | 0.4+ | 0.0 | 2009 12 15 | 704 | 0.3− | 0.4+ | | |
| 2002 01 09 | 704 | 0.1+ | 1.1+ | 2006 09 25 | 113 | 0.8+ | 0.2+ | 2009 12 15 | 704 | 0.0 | 0.4+ | | |

**(228558)∗ 2001 XV$_{103}$**

Discovered 2001 Dec. 14 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 114.64094 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.37642733 | $\omega$ | 257.18064 | | +0.90745670 | −0.01134336 | |
| $a$ | 1.8996866 | $\Omega$ | 102.26335 | | +0.13935337 | +0.95117466 | |
| $e$ | 0.1172959 | $i$ | 25.45485 | | −0.39636218 | +0.30844463 | |
| $P$ | 2.62 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 11 17 | 704 | 0.6+ | 0.5+ | 2001 12 20 | 704 | 0.4+ | 1.4− | 2006 11 24 | 703 | 0.7− | 0.5+ | | |
| 2001 11 17 | 704 | 0.0 | 1.0+ | 2001 12 20 | 704 | (1.8+ | 1.1−) | 2006 11 24 | 703 | 0.0 | 0.3+ | | |
| 2001 11 17 | 704 | 1.1+ | 0.3+ | 2001 12 24 | 644 | 0.2+ | 0.1− | 2006 12 15 | 703 | 0.2− | 0.4− | | |
| 2001 11 17 | 704 | 0.6+ | 0.5+ | 2001 12 24 | 644 | 0.5+ | 0.1+ | 2006 12 15 | 703 | 0.2+ | 0.2+ | | |
| 2001 12 10 | 291 | 0.2− | 0.2+ | 2001 12 24 | 644 | 0.6+ | 0.4+ | 2006 12 15 | 703 | 0.1+ | 0.9− | | |
| 2001 12 10 | 291 | 0.4− | 0.2+ | 2001 12 26 | 608 | 0.4− | 0.4+ | 2006 12 15 | 703 | 0.1− | 0.3+ | | |
| 2001 12 10 | 291 | 0.4− | 0.2+ | 2001 12 26 | 608 | 0.1+ | 0.6+ | 2006 12 22 | 703 | 0.1+ | 0.1− | | |
| 2001 12 14 | 704 | 0.6+ | 0.5+ | 2001 12 26 | 608 | 0.2− | 0.5+ | 2006 12 22 | 703 | 0.7+ | 0.3+ | | |
| 2001 12 14 | 704 | 0.2+ | 0.5+ | 2002 01 08 | 704 | 0.4+ | 0.4+ | 2006 12 22 | 703 | 0.4− | 0.7− | | |
| 2001 12 14 | 704 | 0.5+ | 0.7+ | 2002 01 08 | 704 | 0.4+ | 0.2+ | 2006 12 22 | 703 | 0.2+ | 0.0 | | |
| 2001 12 14 | 704 | 0.7+ | 0.3+ | 2002 01 08 | 704 | 0.6+ | 0.2+ | 2007 01 25 | 703 | 0.3− | 0.4+ | | |
| 2001 12 14 | 704 | 0.4+ | 0.7+ | 2002 01 08 | 704 | 0.7+ | 0.1− | 2007 01 25 | 703 | 0.2+ | 0.1− | | |
| 2001 12 17 | 704 | 0.5+ | 0.4− | 2002 01 08 | 704 | 0.8+ | 0.4− | 2007 01 25 | 703 | 0.4+ | 0.2+ | | |
| 2001 12 17 | 704 | (0.5+ | 1.5−) | 2002 01 17 | 644 | 0.8+ | 0.5− | 2007 01 25 | 703 | 0.3− | 0.1− | | |
| 2001 12 17 | 704 | 0.1+ | 0.4− | 2002 01 17 | 644 | 0.7+ | 0.4− | 2008 06 06 | 703 | 0.1− | 0.4+ | | |
| 2001 12 17 | 644 | 0.7+ | 0.0 | 2002 01 17 | 644 | 0.5+ | 0.7− | 2008 06 06 | 703 | 0.2+ | 0.4+ | | |
| 2001 12 17 | 704 | 0.2+ | 0.7− | 2002 01 19 | 704 | 1.0− | 0.9− | 2008 06 06 | 703 | 0.0 | 0.1+ | | |
| 2001 12 17 | 644 | 0.6+ | 0.2+ | 2002 01 19 | 704 | (1.3− | 1.6−) | 2008 06 06 | 703 | 0.3+ | 0.1− | | |
| 2001 12 17 | 644 | 0.9+ | 0.1+ | 2002 01 19 | 704 | 0.8− | 0.5− | 2008 07 01 | 703 | 0.8+ | 0.7+ | | |
| 2001 12 17 | 704 | 0.3+ | 0.4− | 2002 01 19 | 704 | 1.3− | 0.6− | 2008 07 01 | 703 | 0.7+ | 0.3+ | | |
| 2001 12 20 | 704 | (2.8+ | 0.2+) | 2005 03 11 | 703 | 0.5− | 1.0+ | 2008 07 01 | 703 | 0.2− | 0.5+ | | |
| 2001 12 20 | 291 | 0.9− | 0.4+ | 2005 03 11 | 703 | (2.3− | 0.7+) | 2008 07 01 | 703 | 1.3+ | 0.7+ | | |
| 2001 12 20 | 704 | 0.4+ | 0.4− | 2005 03 11 | 703 | 0.7− | 0.2− | 2009 11 27 | 703 | 0.5− | 1.0− | | |
| 2001 12 20 | 291 | 0.6− | 0.6+ | 2005 03 11 | 703 | 1.3− | 0.7− | 2009 11 27 | 703 | 0.7+ | 1.1− | | |
| 2001 12 20 | 291 | 1.0− | 0.1+ | 2006 11 18 | 703 | 0.4+ | 0.1− | 2009 11 27 | 703 | 0.6− | 0.2− | | |
| 2001 12 20 | 704 | 0.8+ | 0.4+ | 2006 11 18 | 703 | 0.2− | 0.3+ | 2009 11 27 | 703 | 0.6+ | 0.7− | | |
| 2001 12 20 | 704 | 0.9− | 0.7+ | 2006 11 18 | 703 | 0.2− | 0.7− | 2009 12 15 | 704 | 1.4+ | 0.2+ | | |
| 2001 12 20 | 704 | 1.0+ | 1.1− | 2006 11 18 | 703 | 0.7− | 0.5− | 2009 12 15 | 704 | 0.3+ | 0.5+ | | |
| 2001 12 20 | 704 | 1.5+ | 0.6− | 2006 11 24 | 703 | 0.5− | 0.3+ | 2009 12 15 | 704 | 0.1+ | 0.4+ | | |
| 2001 12 20 | 704 | 0.7+ | 0.6− | 2006 11 24 | 703 | (0.7+ | 2.3+) | | | | | | |

**(228559)∗ 2001 XD$_{105}$ = 2008 UV$_{97}$**

Discovered 2001 Dec. 14 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 145926)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 56.97146 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.12478903 | $\omega$ | 273.37280 | | +0.78909188 | −0.61114359 | |
| $a$ | 3.9659914 | $\Omega$ | 124.30935 | | +0.58916524 | +0.72443880 | |
| $e$ | 0.2399676 | $i$ | 4.30103 | | +0.17383420 | +0.31889173 | |
| $P$ | 7.90 | $H$ | 14.9 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 09 05 | 691 | 0.4+ | 0.3+ | 2007 09 12 | G96 | 1.0− | 0.1− | 2008 10 30 | 704 | (0.4− | 1.7+) | | |
| 1999 09 05 | 691 | 0.0 | 0.4+ | 2007 09 12 | G96 | 0.4− | 0.0 | 2008 11 23 | 704 | 0.6+ | 0.2− | | |
| 1999 09 05 | 691 | 0.0 | 0.3+ | 2007 09 12 | G96 | 0.4− | 0.2+ | 2008 11 23 | 704 | 0.2− | 0.5+ | | |
| 2001 12 14 | 291 | 0.1− | 0.2+ | 2007 09 12 | G96 | 0.5− | 0.0 | 2008 11 23 | 704 | 0.2+ | 0.1+ | | |
| 2001 12 14 | 291 | 0.2− | 0.2− | 2008 10 01 | 691 | 0.1− | 0.1+ | 2008 11 23 | 704 | 0.8− | 0.8+ | | |
| 2001 12 14 | 291 | 0.5− | 0.1+ | 2008 10 01 | 691 | 0.2− | 0.0 | 2008 11 27 | J75 | 0.4+ | 0.6+ | | |
| 2001 12 17 | 291 | 0.2− | 0.4+ | 2008 10 01 | 691 | 0.1− | 0.2− | 2008 11 27 | J75 | 0.6+ | 0.1+ | | |
| 2001 12 17 | 291 | 0.1+ | 0.3+ | 2008 10 08 | 691 | 0.1− | 0.1− | 2008 11 27 | J75 | 0.0 | 0.8− | | |
| 2001 12 17 | 291 | 0.1− | 0.1+ | 2008 10 08 | 691 | 0.1− | 0.0 | 2008 11 27 | J75 | 1.1+ | 0.8− | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 12 17 | 704 | (1.5+ | 0.1+) | 2008 10 08 | 691 | 0.1− | 0.0 | 2008 11 27 | J75 | 0.1− | 1.2− |
| 2001 12 17 | 704 | 0.2+ | 0.0 | 2008 10 25 | 703 | 0.1+ | 1.0− | 2008 11 27 | J75 | 1.0+ | 1.1− |
| 2001 12 17 | 704 | 0.0 | 0.1+ | 2008 10 25 | 703 | 0.1− | 0.0 | 2008 11 30 | 704 | 0.1− | 0.7− |
| 2001 12 17 | 704 | 1.2+ | 1.4− | 2008 10 25 | 703 | 0.1− | 0.5+ | 2008 11 30 | 704 | 0.5+ | 0.8+ |
| 2002 01 08 | 291 | 0.0 | 0.3+ | 2008 10 25 | 703 | 0.1+ | 0.9+ | 2008 11 30 | 704 | 0.6+ | 0.2− |
| 2002 01 08 | 291 | 0.1− | 0.0 | 2008 10 26 | 704 | 0.0 | 0.5+ | 2009 01 02 | G96 | 0.6+ | 0.4− |
| 2002 01 08 | 291 | 0.0 | 0.1+ | 2008 10 26 | 704 | 0.0 | 0.8+ | 2009 01 02 | G96 | 0.3+ | 0.3− |
| 2002 01 13 | 704 | 0.3+ | 0.2+ | 2008 10 26 | 704 | (1.7− | 0.7−) | 2009 01 02 | G96 | 0.6+ | 0.8− |
| 2002 01 13 | 704 | 0.4+ | 0.3+ | 2008 10 26 | 704 | 0.2− | 0.4+ | 2009 01 02 | G96 | 0.3+ | 0.6− |
| 2002 01 13 | 704 | 1.4+ | 0.5+ | 2008 10 26 | 704 | 1.2− | 0.6− | 2009 10 18 | G96 | 0.2+ | 0.7− |
| 2002 01 13 | 704 | 0.5+ | 0.4− | 2008 10 29 | G96 | 0.4+ | 0.5− | 2009 10 18 | G96 | 0.1+ | 0.3− |
| 2002 01 13 | 704 | 0.9+ | 0.3− | 2008 10 29 | G96 | 0.3+ | 0.6− | 2009 10 18 | G96 | 0.2+ | 0.3− |
| 2002 02 06 | 291 | 0.4− | 0.3+ | 2008 10 29 | G96 | 0.4+ | 0.6− | 2009 10 18 | G96 | 0.3+ | 0.4− |
| 2002 02 06 | 291 | 0.0 | 0.3+ | 2008 10 29 | G96 | 0.0 | 0.7− | 2009 12 15 | G96 | 0.5+ | 0.8− |
| 2002 02 06 | 291 | 0.1− | 0.2+ | 2008 10 30 | 704 | 0.5− | 1.5+ | 2009 12 15 | G96 | 0.2+ | 0.5− |
| 2002 02 09 | 291 | 0.1+ | 0.1+ | 2008 10 30 | 704 | 0.1+ | 1.1+ | 2009 12 15 | G96 | 0.1+ | 0.3− |
| 2002 02 09 | 291 | 0.0 | 0.0 | 2008 10 30 | 704 | 0.2− | 1.1+ | 2009 12 15 | G96 | 0.9+ | 0.2− |
| 2002 02 09 | 291 | 0.0 | 0.0 | 2008 10 30 | 704 | 0.7− | 0.0 | | | | |

**(228560)∗ 2001 XZ$_{125}$**

Discovered 2001 Dec. 14 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 308.62089 | | (2000.0) | | **P** | **Q** |
| $n$ | 0.25633902 | $\omega$ | 66.84906 | | −0.98420394 | −0.16003076 |
| $a$ | 2.4542920 | $\Omega$ | 103.87478 | | +0.11998351 | −0.91741733 |
| $e$ | 0.1458502 | $i$ | 4.47307 | | +0.13017895 | −0.36432897 |
| $P$ | 3.84 | $H$ | 16.2 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 11 20 | 704 | 0.1+ | 0.6+ | 2003 04 30 | 608 | 1.1+ | 0.2+ | 2006 01 22 | G96 | 0.2+ | 0.3− |
| 2001 11 20 | 704 | 0.5− | 0.9+ | 2003 05 01 | 704 | 0.2− | 0.0 | 2006 01 22 | G96 | 0.6+ | 0.1− |
| 2001 11 20 | 704 | 0.2+ | 1.3+ | 2003 05 01 | 704 | 1.2− | 0.2− | 2006 01 22 | G96 | 0.1− | 0.2− |
| 2001 11 20 | 704 | 0.7+ | 0.9+ | 2003 05 01 | 704 | 0.1− | 0.2− | 2006 02 20 | G96 | 0.1− | 0.1− |
| 2001 11 20 | 704 | 0.7− | 0.3+ | 2003 05 01 | 704 | 0.3− | 0.1+ | 2006 02 20 | G96 | 0.2− | 0.1− |
| 2001 12 07 | 644 | 0.8− | 0.7+ | 2003 05 01 | 704 | 0.7+ | 0.7+ | 2006 02 20 | G96 | 0.1− | 0.1− |
| 2001 12 07 | 644 | 0.3− | 0.6+ | 2003 05 11 | 691 | 0.0 | 0.0 | 2006 02 20 | G96 | 0.2+ | 0.3+ |
| 2001 12 07 | 644 | 0.1− | 0.2− | 2003 05 11 | 691 | 0.8− | 0.4+ | 2008 10 04 | F85 | 0.3+ | 0.4+ |
| 2001 12 14 | 704 | 0.1+ | 1.3+ | 2003 05 11 | 691 | 0.3− | 0.4+ | 2008 10 04 | F85 | 1.2− | 0.7+ |
| 2001 12 14 | 704 | 0.6− | 1.4+ | 2003 05 27 | 691 | 0.1+ | 0.4+ | 2009 11 18 | G96 | 0.1+ | 0.3− |
| 2001 12 14 | 704 | (0.6− | 2.3+) | 2003 05 27 | 691 | 0.3+ | 0.3+ | 2009 11 18 | G96 | 0.3+ | 0.5− |
| 2001 12 14 | 704 | 0.1− | 0.8+ | 2003 05 27 | 691 | 0.3+ | 0.4+ | 2009 11 18 | G96 | 0.3− | 0.6− |
| 2001 12 14 | 704 | 0.5+ | 0.2+ | 2005 11 30 | 704 | 1.1− | 0.6+ | 2009 11 18 | G96 | 0.3+ | 0.4− |
| 2001 12 17 | 704 | (0.4+ | 2.0+) | 2005 11 30 | 704 | 0.5+ | 0.8− | 2009 12 10 | G96 | 0.4+ | 0.5− |
| 2001 12 17 | 704 | (0.3+ | 3.1+) | 2005 11 30 | 704 | 0.4− | 0.0 | 2009 12 10 | G96 | 0.2+ | 0.0 |
| 2001 12 17 | 704 | 0.5− | 1.3+ | 2005 11 30 | 704 | (0.5+ | 1.8−) | 2009 12 10 | G96 | 0.5+ | 0.1− |
| 2001 12 17 | 704 | 0.5+ | 0.8+ | 2005 12 09 | 704 | 0.5− | 0.5+ | 2009 12 17 | 704 | 0.8+ | 0.1− |
| 2001 12 17 | 704 | 0.4+ | 0.4+ | 2005 12 09 | 704 | 0.3− | 0.8+ | 2009 12 17 | 691 | 0.0 | 0.2− |
| 2003 04 28 | 704 | 1.1+ | 0.1− | 2005 12 09 | 704 | 0.6− | 0.1+ | 2009 12 17 | 704 | 0.8+ | 0.1+ |
| 2003 04 28 | 704 | 0.5+ | 1.0− | 2005 12 26 | G96 | 0.4+ | 0.2− | 2009 12 17 | 691 | 0.3− | 0.3− |
| 2003 04 28 | 704 | 0.8+ | 0.7− | 2005 12 26 | G96 | 0.3− | 0.2− | 2009 12 17 | 704 | 0.1− | 0.1+ |
| 2003 04 28 | 704 | 0.1+ | 0.7+ | 2005 12 26 | G96 | 0.3− | 0.3− | 2009 12 17 | 691 | 0.0 | 0.1− |
| 2003 04 30 | 608 | 1.1+ | 0.6+ | 2005 12 26 | G96 | 0.3− | 0.4− | 2009 12 17 | 704 | 0.5− | 1.9+ |
| 2003 04 30 | 608 | 0.8+ | 0.9+ | 2006 01 22 | G96 | 0.1− | 0.1− | | | | |

**(228561)∗ 2001 XC$_{137}$ = 2005 XH$_{15}$**

Discovered 2001 Dec. 14 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 94363)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 103.03492 | | (2000.0) | | **P** | **Q** |
| $n$ | 0.24679120 | $\omega$ | 223.16967 | | +0.75796283 | +0.64942561 |
| $a$ | 2.5171915 | $\Omega$ | 96.22851 | | −0.58048574 | +0.71430554 |
| $e$ | 0.2082094 | $i$ | 3.52638 | | −0.29753766 | +0.26079487 |
| $P$ | 3.99 | $H$ | 15.7 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 12 14 | 704 | 0.4+ | 1.2− | 2005 12 04 | 704 | (0.0 | 6.1−) | 2007 02 25 | G96 | 0.1− | 0.2+ |
| 2001 12 14 | 704 | 0.5− | 0.3+ | 2005 12 04 | 704 | 0.6− | 0.8+ | 2009 11 08 | 691 | 0.1+ | 0.2− |
| 2001 12 14 | 704 | 0.9− | 0.2− | 2005 12 04 | 704 | 0.8+ | 0.7− | 2009 11 08 | 691 | 0.0 | 0.4− |
| 2001 12 14 | 704 | 0.6− | 0.1+ | 2005 12 04 | 704 | 0.6− | 0.1− | 2009 11 08 | 691 | 0.1+ | 0.3− |
| 2001 12 17 | 704 | 0.0 | 0.3− | 2005 12 08 | 691 | 0.0 | 0.3+ | 2009 11 16 | 691 | 0.3+ | 0.0 |
| 2001 12 17 | 704 | 0.2+ | 0.2+ | 2005 12 08 | 691 | 0.0 | 0.3+ | 2009 11 16 | 691 | 0.0 | 0.1+ |
| 2001 12 17 | 704 | 0.0 | 0.2+ | 2005 12 08 | 691 | 0.0 | 0.3+ | 2009 11 16 | 691 | 0.1+ | 0.2− |
| 2001 12 17 | 704 | 0.2− | 0.2− | 2005 12 26 | G96 | 0.1+ | 0.3− | 2009 11 21 | 291 | 0.4− | 0.1+ |
| 2001 12 17 | 704 | 0.1+ | 1.4− | 2005 12 26 | G96 | 0.3− | 0.3− | 2009 11 21 | 291 | 0.5− | 0.2+ |
| 2001 12 19 | 704 | 0.6+ | 1.1+ | 2005 12 26 | G96 | 0.0 | 0.2− | 2009 11 21 | 291 | 0.2− | 0.1+ |
| 2001 12 19 | 704 | 0.3+ | 0.8+ | 2005 12 26 | G96 | 0.1+ | 0.3− | 2009 11 24 | 691 | 0.0 | 0.1+ |
| 2001 12 19 | 704 | 0.5+ | 0.0 | 2006 01 06 | G96 | 0.2− | 0.2− | 2009 11 24 | 691 | 0.0 | 0.0 |
| 2001 12 19 | 704 | 0.5− | 0.1− | 2006 01 06 | G96 | 0.1− | 0.0 | 2009 11 24 | 691 | 0.0 | 0.0 |
| 2001 12 20 | 704 | 0.4+ | 0.0 | 2006 01 06 | G96 | 0.3+ | 0.5− | 2009 12 10 | G96 | 0.1− | 0.1− |
| 2001 12 20 | 704 | 0.3+ | 0.5+ | 2006 01 06 | G96 | 0.1− | 0.0 | 2009 12 10 | G96 | 0.2+ | 0.2− |
| 2001 12 20 | 704 | 0.1− | 0.6+ | 2006 01 22 | G96 | 0.1− | 0.2− | 2009 12 10 | G96 | 0.2− | 0.0 |
| 2004 06 14 | 704 | 0.4+ | 0.2− | 2006 01 22 | G96 | 0.2+ | 0.3− | 2009 12 10 | G96 | 0.4+ | 0.1− |
| 2004 06 14 | 704 | 0.5+ | 0.6+ | 2006 01 22 | G96 | 0.1− | 0.1− | 2009 12 10 | G96 | 0.4+ | 0.0 |
| 2004 06 14 | 704 | 0.9− | 0.4− | 2006 01 22 | G96 | 0.2− | 0.3− | 2009 12 10 | G96 | 0.1− | 0.0 |
| 2005 11 22 | 691 | 0.2+ | 0.0 | 2006 02 20 | G96 | 0.1+ | 0.3+ | 2009 12 10 | G96 | 0.1+ | 0.1− |
| 2005 11 22 | 691 | 0.2+ | 0.2− | 2006 02 20 | G96 | 0.1+ | 0.5− | 2009 12 11 | 704 | 0.3− | 0.5+ |
| 2005 11 22 | 691 | 0.3− | 0.4− | 2006 02 20 | G96 | 0.1+ | 0.3+ | 2009 12 11 | G96 | 0.5+ | 0.1− |
| 2005 12 01 | 704 | 0.3+ | 0.7+ | 2006 02 20 | G96 | 0.1+ | 0.4+ | 2009 12 11 | 704 | 0.0 | 0.9+ |
| 2005 12 01 | 704 | 0.7− | 0.2+ | 2007 02 08 | 691 | 0.4− | 0.0 | 2009 12 11 | G96 | 0.3+ | 0.2− |
| 2005 12 01 | 704 | 0.2+ | 0.6+ | 2007 02 08 | 691 | 0.1+ | 0.1− | 2009 12 11 | G96 | 0.3+ | 0.1− |
| 2005 12 04 | 704 | (0.8+ | 1.8−) | 2007 02 08 | 691 | 0.1+ | 0.0 | 2009 12 11 | G96 | 0.2+ | 0.3− |
| 2005 12 04 | 704 | 0.4− | 0.4− | 2007 02 25 | G96 | 0.4+ | 0.1− | 2009 12 11 | 704 | 0.5+ | 0.3+ |
| 2005 12 04 | 704 | 0.3+ | 1.3+ | 2007 02 25 | G96 | 0.3+ | 0.0 | | | | |
| 2005 12 04 | 704 | 0.5− | 0.3+ | 2007 02 25 | G96 | 0.2+ | 0.3− | | | | |

**(228562)∗ 2001 XD$_{153}$**

Discovered 2001 Dec. 14 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 115.57210 | | (2000.0) | | **P** | **Q** |
| $n$ | 0.25468589 | $\omega$ | 111.07186 | | +0.90647603 | +0.42025480 |
| $a$ | 2.4649009 | $\Omega$ | 224.10500 | | −0.40601036 | +0.84074160 |
| $e$ | 0.2146211 | $i$ | 3.38339 | | −0.11600341 | +0.34137877 |
| $P$ | 3.87 | $H$ | 15.8 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 12 14 | 704 | 0.2− | 0.7+ | 2003 04 09 | 691 | 0.5+ | 0.0 | 2008 07 02 | 691 | 0.1− | 0.8+ |
| 2001 12 14 | 704 | 0.3− | 0.5+ | 2005 12 07 | 691 | 0.1− | 0.2+ | 2008 08 19 | E12 | 0.1+ | 0.1− |
| 2001 12 14 | 704 | 1.0+ | 0.0 | 2005 12 07 | 691 | 0.0 | 0.1+ | 2008 08 19 | E12 | 0.3− | 0.8+ |
| 2001 12 14 | 704 | 0.3+ | 0.2+ | 2005 12 07 | 691 | 0.1− | 0.3+ | 2008 08 19 | E12 | 0.3− | 0.2+ |
| 2001 12 14 | 704 | 0.4− | 0.6+ | 2007 02 23 | 691 | 0.3− | 0.1− | 2008 08 19 | E12 | 0.2− | 0.4+ |
| 2001 12 17 | 704 | 0.5+ | 0.5− | 2007 02 23 | 691 | 0.4− | 0.1+ | 2008 10 29 | G96 | 0.0 | 0.1− |
| 2001 12 17 | 704 | 0.1+ | 0.1+ | 2007 02 23 | 691 | 0.1+ | 0.4− | 2008 10 29 | G96 | 0.1+ | 0.2+ |
| 2001 12 17 | 704 | 0.4− | 0.0 | 2007 03 13 | G96 | 0.6− | 0.1− | 2008 10 29 | G96 | 0.1+ | 0.0 |
| 2001 12 17 | 704 | 0.2+ | 0.3− | 2007 03 13 | G96 | 0.3+ | 0.2− | 2008 10 29 | G96 | 0.2+ | 0.0 |
| 2001 12 17 | 704 | 0.1− | 0.3− | 2007 03 13 | G96 | 0.1− | 0.4− | 2009 09 29 | 691 | 0.1+ | 0.2− |
| 2001 12 23 | 704 | 0.3+ | 1.2+ | 2007 03 13 | G96 | 0.4− | 0.1− | 2009 09 29 | 691 | 0.6− | 0.8− |
| 2001 12 23 | 704 | 0.9− | 0.8+ | 2007 03 21 | 704 | 0.3+ | 0.8+ | 2009 09 29 | 691 | 0.1+ | 0.1+ |
| 2001 12 23 | 704 | 0.8− | 0.7+ | 2007 03 21 | 704 | 0.7+ | 1.4+ | 2009 12 18 | G96 | 0.1+ | 0.1− |
| 2001 12 23 | 704 | 0.1+ | 0.5+ | 2007 03 21 | 704 | 0.2+ | 0.8+ | 2009 12 18 | G96 | 0.5+ | 0.0 |
| 2001 12 23 | 704 | 0.4+ | 1.2+ | 2007 03 21 | 704 | (0.1+ | 1.7+) | 2009 12 18 | G96 | 0.1+ | 0.1− |
| 2002 01 15 | 704 | 0.0 | 0.1+ | 2007 04 20 | G96 | 0.2− | 0.1+ | 2009 12 18 | G96 | 0.5+ | 0.2− |
| 2002 01 15 | 704 | 0.2− | 0.5+ | 2007 04 20 | G96 | 0.2+ | 0.3− | 2009 12 20 | 691 | 0.1− | 0.1+ |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 01 15 | 704 | 0.3− | 0.8+ | 2007 04 20 | G96 | 0.0 | 0.1+ | 2009 12 20 | 691 | 0.2+ | 0.1+ |
| 2002 01 15 | 704 | 0.3+ | 0.5+ | 2007 04 20 | G96 | 0.1− | 0.2− | 2009 12 20 | 691 | 0.1+ | 0.1+ |
| 2003 04 09 | 691 | 0.4+ | 0.6+ | 2008 07 02 | 691 | 0.1− | 0.3+ | | | | |
| 2003 04 09 | 691 | 0.1+ | 0.4+ | 2008 07 02 | 691 | 0.2− | 0.4+ | | | | |

**(228563)∗ 2001 XZ$_{154}$**

Discovered 2001 Dec. 14 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 40.00389 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.24813536 | $\omega$ | 301.46324 | | | +0.65161423 | | −0.75706638 | |
| $a$ | 2.5080928 | $\Omega$ | 107.79715 | | | +0.71176469 | | +0.58860915 | |
| $e$ | 0.1147937 | $i$ | 2.85518 | | | +0.26227833 | | +0.28353090 | |
| $P$ | 3.97 | $H$ | 15.8 | $G$ | 0.15 | | $U$ | 1 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 08 04 | 608 | 1.3− | 0.2− | 2002 01 08 | 704 | 0.3+ | 1.0+ | 2007 03 13 | G96 | 0.2+ | 0.1+ |
| 2000 08 04 | 608 | 1.3− | 0.8− | 2002 01 08 | 704 | 0.2+ | 0.3− | 2007 03 13 | G96 | 0.4+ | 0.0 |
| 2000 08 04 | 608 | 1.2− | 0.4− | 2002 01 08 | 704 | 0.1− | 0.3+ | 2007 03 13 | 691 | 0.2− | 0.0 |
| 2001 11 20 | 704 | 0.3+ | 0.1− | 2003 04 04 | 691 | (1.9+ | 2.0+) | 2007 03 13 | 691 | 0.0 | 0.3+ |
| 2001 11 20 | 704 | 0.3+ | 0.5− | 2003 04 04 | 691 | (1.4+ | 2.2+) | 2007 03 13 | 691 | 0.1− | 0.0 |
| 2001 11 20 | 704 | 0.0 | 0.0 | 2003 04 04 | 691 | (1.5+ | 1.9+) | 2007 03 15 | 691 | 0.2+ | 0.2+ |
| 2001 11 21 | 704 | 0.1− | 0.3+ | 2004 07 21 | E12 | 0.4+ | 0.8+ | 2007 03 15 | 691 | 0.0 | 0.1− |
| 2001 11 21 | 704 | 0.8+ | 0.0 | 2004 07 21 | E12 | 0.4+ | 0.5+ | 2007 03 15 | 691 | 0.2− | 0.1+ |
| 2001 11 21 | 704 | 0.0 | 0.5+ | 2004 07 21 | E12 | 1.1+ | 0.4− | 2007 03 26 | 691 | 0.3+ | 0.1− |
| 2001 11 21 | 704 | 0.1+ | 1.4+ | 2004 07 21 | E12 | 0.5+ | 0.6+ | 2007 03 26 | 691 | 0.2+ | 0.0 |
| 2001 12 14 | 704 | 0.3− | 1.2+ | 2005 12 06 | 704 | 0.5− | 0.5− | 2007 03 26 | 691 | 0.1+ | 0.0 |
| 2001 12 14 | 704 | 0.1+ | 0.7+ | 2005 12 06 | 704 | 0.1+ | 0.2+ | 2007 04 20 | G96 | 0.3− | 0.3+ |
| 2001 12 14 | 704 | 0.1− | 1.0+ | 2005 12 06 | 704 | 0.2− | 0.3− | 2007 04 20 | G96 | 0.3+ | 0.2+ |
| 2001 12 14 | 704 | 1.0+ | 0.6+ | 2006 01 05 | 704 | 0.9+ | 0.0 | 2007 04 20 | G96 | 0.0 | 0.0 |
| 2001 12 14 | 704 | 0.1+ | 0.7+ | 2006 01 05 | 704 | 0.1− | 0.2− | 2007 04 20 | G96 | 0.1− | 0.2+ |
| 2001 12 17 | 704 | 0.2− | 0.1+ | 2006 01 05 | 704 | 0.4− | 0.1− | 2008 05 30 | G96 | 0.5+ | 0.4+ |
| 2001 12 17 | 704 | 0.5+ | 0.1+ | 2006 01 05 | 704 | 0.1+ | 0.2− | 2008 05 30 | G96 | 0.0 | 0.3+ |
| 2001 12 17 | 704 | 0.4+ | 0.2+ | 2006 01 24 | 704 | 0.7− | 0.0 | 2008 05 30 | G96 | 0.2+ | 0.3+ |
| 2001 12 17 | 704 | 0.3+ | 0.4+ | 2006 01 24 | 704 | 0.2+ | 0.8− | 2008 05 30 | G96 | 0.3+ | 0.2+ |
| 2001 12 17 | 704 | 0.2+ | 0.3+ | 2006 01 24 | 704 | 0.9+ | 0.5− | 2009 12 17 | 704 | 0.2− | 0.6− |
| 2001 12 20 | 704 | 1.1− | 1.3+ | 2006 01 24 | 704 | (2.5− | 0.4−) | 2009 12 17 | 704 | 0.9− | 0.7− |
| 2001 12 20 | 704 | 1.0+ | 1.4+ | 2006 01 25 | G96 | 0.0 | 0.4− | 2009 12 17 | 704 | 0.0 | 0.8− |
| 2001 12 20 | 704 | 0.9− | 1.2+ | 2006 01 25 | G96 | 0.7− | 0.0 | 2009 12 17 | 704 | 0.2+ | 0.4− |
| 2001 12 20 | 704 | 0.9− | 1.4+ | 2006 01 25 | G96 | 0.2− | 0.1+ | 2009 12 17 | 704 | 0.2− | 0.5− |
| 2001 12 21 | 704 | 0.9− | 0.1− | 2006 01 26 | G96 | 0.4+ | 0.1− | 2009 12 25 | 691 | 0.1− | 0.3− |
| 2001 12 21 | 704 | 0.4− | 0.9− | 2006 01 26 | G96 | 0.0 | 0.3− | 2009 12 25 | 691 | 0.0 | 0.3− |
| 2001 12 21 | 704 | 0.2+ | 0.7− | 2006 01 26 | G96 | 0.1+ | 0.7− | 2009 12 25 | 691 | 0.1− | 0.2− |
| 2002 01 08 | 704 | 0.1+ | 0.0 | 2007 03 13 | G96 | 0.2− | 0.1− | | | | |
| 2002 01 08 | 704 | 0.8+ | 0.2+ | 2007 03 13 | G96 | 0.0 | 0.2− | | | | |

**(228564)∗ 2001 XP$_{187}$**

Discovered 2001 Dec. 14 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 51.62497 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.24026165 | $\omega$ | 272.62408 | | | +0.94387290 | | −0.31482969 | |
| $a$ | 2.5625936 | $\Omega$ | 105.74083 | | | +0.32898111 | | +0.86892472 | |
| $e$ | 0.1634140 | $i$ | 5.95945 | | | +0.02958687 | | +0.38190587 | |
| $P$ | 4.10 | $H$ | 16.2 | $G$ | 0.15 | | $U$ | 1 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 01 11 | 691 | 0.7+ | 0.5− | 2002 01 05 | 608 | 0.0 | 0.8+ | 2006 01 25 | 691 | 0.2+ | 0.0 |
| 1994 01 11 | 691 | 1.3− | 0.9− | 2002 01 05 | 608 | 0.0 | 0.7+ | 2006 01 25 | 691 | 0.2+ | 0.1+ |
| 1994 01 11 | 691 | 0.1+ | 0.5− | 2002 01 05 | 608 | 0.4− | 0.8+ | 2009 10 15 | G96 | 0.1+ | 0.0 |
| 1998 01 23 | 691 | 0.4− | 0.5− | 2002 01 08 | 704 | 0.1+ | 0.1+ | 2009 10 15 | G96 | 0.1− | 0.3+ |
| 1998 01 23 | 691 | 0.4− | 0.5− | 2002 01 08 | 704 | 0.4+ | 0.1+ | 2009 10 15 | G96 | 0.3− | 0.2+ |
| 1998 01 23 | 691 | 0.3− | 0.4− | 2002 01 08 | 704 | 0.3+ | 0.1+ | 2009 10 15 | G96 | 0.0 | 0.3+ |
| 2001 12 14 | 704 | 0.6− | 1.2+ | 2002 01 14 | 691 | 0.1+ | 0.2+ | 2009 11 10 | 691 | (0.2+ | 2.4−) |
| 2001 12 14 | 704 | (1.3− | 1.5+) | 2002 01 14 | 691 | 1.1+ | 0.8+ | 2009 11 10 | 691 | 0.4− | 0.0 |
| 2001 12 14 | 704 | (1.7− | 1.5+) | 2002 01 14 | 691 | 0.0 | 0.3+ | 2009 11 10 | 691 | 0.4− | 0.0 |
| 2001 12 17 | 704 | 0.2− | 0.4+ | 2003 05 02 | 691 | 0.5+ | 0.8+ | 2009 11 18 | 691 | 0.3− | 0.2+ |
| 2001 12 17 | 644 | 0.2− | 0.5+ | 2003 05 02 | 691 | 0.0 | 0.4+ | 2009 11 18 | 691 | 0.4− | 0.1+ |
| 2001 12 17 | 704 | 0.4− | 0.0 | 2003 05 02 | 691 | 0.1+ | 0.4+ | 2009 11 18 | 691 | 0.6− | 0.0 |
| 2001 12 17 | 644 | 0.2− | 0.4+ | 2004 07 15 | E12 | 0.0 | 0.6+ | 2009 11 20 | 704 | 1.4+ | 0.3+ |
| 2001 12 17 | 704 | 0.6− | 0.4− | 2004 07 15 | E12 | 0.2− | 0.5+ | 2009 11 20 | 704 | 0.2+ | 0.2− |
| 2001 12 17 | 644 | 0.0 | 0.5+ | 2004 07 15 | E12 | 0.3+ | 0.2+ | 2009 11 20 | 704 | 0.0 | 0.6+ |
| 2001 12 17 | 704 | 0.8− | 0.3− | 2004 07 15 | E12 | (0.5− | 2.6+) | 2009 12 17 | 704 | 0.2− | 0.2− |
| 2001 12 17 | 704 | 0.4− | 0.2− | 2005 12 01 | 691 | 1.2+ | 0.2− | 2009 12 17 | 704 | 0.2+ | 0.0 |
| 2001 12 19 | 644 | 0.1− | 0.6+ | 2005 12 01 | 691 | 0.0 | 0.3+ | 2009 12 17 | 704 | 0.2− | 0.7− |
| 2001 12 19 | 644 | 0.3− | 0.5+ | 2005 12 01 | 691 | 0.3+ | 0.0 | 2009 12 17 | 704 | 0.6+ | 0.3+ |
| 2001 12 19 | 644 | 0.1− | 0.5+ | 2006 01 25 | 691 | 0.3+ | 0.3+ | 2009 12 17 | 704 | 0.1− | 0.5+ |

**(228565)∗ 2001 XQ$_{188}$**

Discovered 2001 Dec. 14 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 26.18512 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.24216054 | $\omega$ | 306.71380 | | | +0.42009752 | | −0.90006931 | |
| $a$ | 2.5491798 | $\Omega$ | 118.05911 | | | +0.86880776 | | +0.36207989 | |
| $e$ | 0.0746092 | $i$ | 7.53569 | | | +0.26208998 | | +0.24243226 | |
| $P$ | 4.07 | $H$ | 15.8 | $G$ | 0.15 | | $U$ | 1 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 01 12 | 691 | 0.3+ | 0.3− | 2002 01 13 | 704 | 0.0 | 1.3+ | 2004 08 11 | 704 | 0.0 | 0.0 |
| 1994 01 12 | 691 | (2.7− | 2.1+) | 2002 01 13 | 291 | 0.1− | 0.5+ | 2004 08 11 | 704 | (0.5+ | 2.3+) |
| 1994 01 12 | 691 | 0.4− | 1.6− | 2002 01 13 | 704 | 0.1+ | 0.2+ | 2004 08 11 | 704 | (0.3+ | 1.6+) |
| 2000 09 20 | 704 | 0.7− | 0.5+ | 2002 01 13 | 704 | 0.6+ | 0.3+ | 2004 08 11 | 704 | 0.2− | 0.7+ |
| 2000 09 20 | 704 | 0.1+ | 0.7+ | 2002 01 13 | 291 | 0.2− | 0.4+ | 2004 08 11 | 704 | 0.3+ | 0.4− |
| 2000 09 20 | 704 | 0.2− | 0.0 | 2002 01 13 | 704 | 1.2+ | 0.6+ | 2004 08 22 | E12 | 0.2+ | 1.0+ |
| 2001 12 14 | 704 | 0.3− | 0.1− | 2002 01 13 | 704 | 0.2+ | 0.5+ | 2004 08 22 | E12 | 0.2− | 0.1− |
| 2001 12 14 | 704 | 0.5− | 0.2+ | 2002 01 15 | 704 | 0.0 | 0.2+ | 2004 08 22 | E12 | 0.3+ | 0.0 |
| 2001 12 14 | 704 | 0.3+ | 0.3+ | 2002 01 15 | 704 | 0.1+ | 1.3− | 2004 08 22 | E12 | 0.1+ | 0.5− |
| 2001 12 14 | 704 | 0.3− | 0.3+ | 2002 01 15 | 704 | 0.1+ | 0.1− | 2005 12 30 | 704 | 0.6− | 0.6+ |
| 2001 12 17 | 704 | 0.2+ | 0.6− | 2002 01 15 | 704 | 0.3− | 0.9− | 2005 12 30 | 704 | 0.3− | 0.4+ |
| 2001 12 17 | 704 | (0.3+ | 1.6+) | 2002 01 15 | 704 | 0.0 | 0.5+ | 2005 12 30 | 704 | 1.2+ | 0.0 |
| 2001 12 17 | 704 | 0.3+ | 0.4− | 2002 01 15 | 704 | 0.8− | 0.6− | 2005 12 30 | 704 | 0.4+ | 0.4+ |
| 2001 12 17 | 644 | 0.3+ | 0.2+ | 2002 01 15 | 704 | 0.0 | 0.1+ | 2005 12 30 | 704 | 1.3+ | 0.6− |
| 2001 12 17 | 704 | 0.4+ | 0.0 | 2002 01 15 | 704 | (0.4− | 2.5−) | 2005 12 31 | 691 | 0.1+ | 0.2− |
| 2001 12 17 | 644 | 0.0 | 0.0 | 2002 01 15 | 704 | 0.8− | 0.0 | 2005 12 31 | 691 | 0.2+ | 0.1− |
| 2001 12 17 | 704 | 0.6+ | 0.2+ | 2002 01 19 | 704 | 0.3+ | 1.1+ | 2005 12 31 | 691 | 0.0 | 0.3+ |
| 2001 12 17 | 644 | 0.0 | 0.4+ | 2002 01 19 | 704 | 0.3− | 0.1+ | 2007 04 22 | 691 | 0.2+ | 0.2− |
| 2002 01 09 | 704 | 1.0+ | 0.4+ | 2002 01 19 | 704 | 1.4− | 0.3+ | 2007 04 22 | 691 | 0.2− | 0.2+ |
| 2002 01 09 | 704 | 0.6+ | 0.6+ | 2002 01 19 | 704 | 0.4− | 0.9+ | 2007 04 22 | 691 | 0.4+ | 0.1− |
| 2002 01 09 | 704 | 0.6+ | 0.4+ | 2002 02 03 | 608 | 0.8− | 0.4+ | 2009 12 17 | 704 | 0.5+ | 0.1+ |
| 2002 01 09 | 704 | 0.9+ | 0.3− | 2002 02 03 | 608 | 0.6− | 0.3− | 2009 12 17 | 704 | 1.1+ | 1.5+ |
| 2002 01 09 | 599 | 0.3+ | 0.0 | 2002 02 03 | 608 | 0.9− | 0.6+ | 2009 12 17 | 704 | 0.2+ | 0.2+ |
| 2002 01 09 | 599 | 0.2+ | 0.1+ | 2002 02 11 | 704 | 0.6− | 0.1− | 2009 12 17 | 704 | 0.6+ | 0.3+ |
| 2002 01 09 | 599 | 0.3+ | 0.1+ | 2002 02 11 | 704 | 0.7+ | 0.1− | 2009 12 20 | 691 | 0.6− | 0.2− |
| 2002 01 12 | 691 | (1.6− | 0.4+) | 2002 02 11 | 704 | 0.6+ | 0.6+ | 2009 12 20 | 691 | 0.1− | 0.2− |
| 2002 01 12 | 691 | 0.8− | 0.0 | 2003 05 02 | 691 | 0.2− | 0.2+ | 2009 12 20 | 691 | 0.3− | 0.2− |
| 2002 01 12 | 691 | 0.2+ | 0.3− | 2003 05 02 | 691 | 0.0 | 0.3+ | | | | |
| 2002 01 13 | 291 | (2.6− | 0.3+) | 2003 05 02 | 691 | 0.1+ | 0.4+ | | | | |

**(228566)∗ 2001 XW$_{199}$**

Discovered 2001 Dec. 14 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 358.28135 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.24225345 | $\omega$ | 209.64465 | | | −0.15167577 | | −0.98642875 | |
| $a$ | 2.5485279 | $\Omega$ | 249.14012 | | | +0.91959040 | | −0.11750415 | |
| $e$ | 0.2278536 | $i$ | 3.85785 | | | +0.36241958 | | −0.11467826 | |
| $P$ | 4.07 | $H$ | 16.6 | $G$ | 0.15 | | $U$ | 2 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 12 14 | 704 | 0.2+ | 0.1− | 2002 02 11 | 704 | 0.2− | 1.4+ | 2006 01 06 | 691 | 0.0 | 0.1− | 2004 09 17 | 691 | 0.0 | 0.2+ |
| 2001 12 14 | 704 | 1.0+ | 0.8+ | 2002 02 11 | 704 | (0.1− | 2.1+) | 2006 01 09 | G96 | 1.1− | 1.0− | 2005 11 21 | 691 | 0.1− | 0.2+ |
| 2001 12 14 | 704 | 0.9+ | 0.6+ | 2002 02 11 | 704 | 0.4+ | 1.0+ | 2006 01 09 | G96 | 0.2+ | 1.1− | 2005 11 21 | 691 | 0.2+ | 0.6+ |
| 2001 12 17 | 704 | 0.1+ | 1.2+ | 2002 02 11 | 704 | 0.7+ | 1.5+ | 2006 01 09 | G96 | 0.2− | 0.5− | | | | |
| 2001 12 17 | 704 | 0.1− | 0.7+ | 2002 02 11 | 704 | (0.8+ | 1.6+) | 2006 01 09 | G96 | 0.1− | 0.5− | | | | |
| 2001 12 17 | 704 | 1.0+ | 0.1+ | 2002 03 20 | 291 | 0.3+ | 0.0 | 2006 01 10 | 691 | 0.3− | 0.2− | | | | |
| 2001 12 17 | 704 | 0.1+ | 0.6+ | 2002 03 20 | 291 | 0.1+ | 0.0 | 2006 01 10 | 691 | 0.1+ | 1.0− | | | | |
| 2001 12 17 | 644 | 0.0 | 0.4+ | 2002 03 20 | 291 | 0.2− | 0.0 | 2006 01 10 | 691 | 0.0 | 0.1− | | | | |
| 2001 12 17 | 704 | 0.6+ | 0.8+ | 2005 11 30 | G96 | 0.1− | 0.3− | 2006 01 23 | 704 | 0.9− | 0.6− | | | | |
| 2001 12 17 | 644 | 0.3+ | 0.4+ | 2005 11 30 | G96 | 0.3+ | 0.2− | 2006 01 23 | 704 | 0.6+ | 1.0− | | | | |
| 2001 12 17 | 644 | 0.4+ | 0.5+ | 2005 11 30 | G96 | 0.1+ | 0.3− | 2006 01 23 | 704 | 0.0 | 1.1− | | | | |
| 2002 01 08 | 644 | 0.1+ | 0.1+ | 2005 11 30 | G96 | 0.1− | 0.5− | 2006 01 23 | 704 | 0.6− | 1.0− | | | | |
| 2002 01 08 | 644 | 0.1+ | 0.1− | 2005 12 25 | 691 | 0.3+ | 0.1+ | 2007 05 25 | G96 | 0.2+ | 0.0 | | | | |
| 2002 01 08 | 644 | 0.1− | 0.1− | 2005 12 25 | 691 | 0.4+ | 0.1+ | 2007 05 25 | G96 | 0.2+ | 0.0 | | | | |
| 2002 01 09 | 704 | 0.5+ | 0.1+ | 2005 12 25 | 691 | 0.4+ | 0.1+ | 2007 05 25 | G96 | 0.2+ | 1.0− | | | | |
| 2002 01 09 | 704 | 0.1− | 0.1− | 2005 12 27 | 704 | 0.1− | 1.5− | 2007 05 25 | G96 | 0.9− | 0.2− | | | | |
| 2002 01 09 | 704 | (2.0− | 0.4−) | 2005 12 27 | 704 | 0.5− | 0.3+ | 2008 07 28 | G96 | 0.1− | 0.7− | | | | |
| 2002 01 09 | 704 | 0.0 | 0.4+ | 2005 12 27 | 704 | (2.4− | 1.9+) | 2008 07 28 | G96 | 0.1− | 0.4+ | | | | |
| 2002 01 09 | 704 | 0.4− | 0.3− | 2005 12 29 | 691 | 0.2+ | 0.1− | 2008 07 28 | G96 | 0.7+ | 0.1− | | | | |
| 2002 01 13 | 704 | 0.2− | 0.2− | 2005 12 29 | 691 | 0.1+ | 0.0 | 2008 07 28 | G96 | 0.3+ | 1.1+ | | | | |
| 2002 01 13 | 704 | 0.5− | 0.4+ | 2005 12 29 | 691 | 0.1+ | 0.1− | 2009 11 17 | 691 | 0.1− | 0.0 | | | | |
| 2002 01 13 | 704 | 0.5− | 0.8+ | 2005 12 30 | 704 | (2.0+ | 1.7+) | 2009 11 17 | 691 | 0.7− | 0.4− | | | | |
| 2002 01 13 | 704 | 0.4− | 0.6+ | 2005 12 30 | 704 | 0.7− | 0.8− | 2009 11 17 | 691 | 0.3− | 0.2+ | | | | |
| 2002 01 13 | 704 | 0.5− | 1.0+ | 2005 12 30 | 704 | 0.7+ | 0.7+ | 2009 11 25 | 691 | 0.2+ | 0.0 | | | | |
| 2002 01 23 | 704 | 0.8− | 0.0 | 2005 12 30 | 704 | 1.0+ | 0.4+ | 2009 11 25 | 691 | 0.0 | 0.0 | | | | |
| 2002 01 23 | 704 | 1.2− | 0.1− | 2005 12 30 | 704 | 0.5+ | 0.4− | 2009 11 25 | 691 | 0.1+ | 0.2+ | | | | |
| 2002 01 23 | 704 | 0.5− | 0.1+ | 2006 01 02 | G96 | 0.1− | 0.5− | 2009 12 17 | 691 | 0.3− | 0.1+ | | | | |
| 2002 01 23 | 704 | 0.7− | 0.4− | 2006 01 02 | G96 | 0.2+ | 0.5− | 2009 12 17 | 691 | 0.1− | 0.1+ | | | | |
| 2002 01 23 | 704 | 0.7− | 0.8− | 2006 01 02 | G96 | 0.4− | 0.6− | 2009 12 17 | 691 | 0.1− | 0.1+ | | | | |
| 2002 02 06 | 644 | 0.4− | 0.1− | 2006 01 02 | G96 | 0.0 | 0.7− | 2009 12 17 | 704 | 0.9− | 1.4+ | | | | |
| 2002 02 06 | 644 | 0.3− | 0.2− | 2006 01 03 | H07 | 0.0 | 0.1+ | 2009 12 17 | 704 | 0.6− | 1.5+ | | | | |
| 2002 02 06 | 644 | 0.4− | 0.1− | 2006 01 03 | H07 | 0.4+ | 0.4− | 2009 12 17 | 704 | 0.5+ | 0.1+ | | | | |
| 2002 02 08 | 704 | 0.7− | 1.2+ | 2006 01 03 | H07 | 0.2+ | 0.2− | 2009 12 17 | 704 | 0.5+ | 0.6+ | | | | |
| 2002 02 08 | 704 | 0.5+ | 0.4+ | 2006 01 03 | H07 | 0.0 | 0.2+ | 2009 12 17 | 704 | 0.2+ | 0.0 | | | | |
| 2002 02 08 | 704 | 0.9+ | 0.7+ | 2006 01 06 | 691 | 0.1+ | 0.2− | | | | | | | | |
| 2002 02 08 | 704 | (2.7− | 0.1+) | 2006 01 06 | 691 | 0.1+ | 0.0 | | | | | | | | |

**(228567)∗ 2001 XH$_{202}$ = 2005 WW$_{33}$**

Discovered 2001 Dec. 11 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 94387)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 313.33029 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.25296413 | $\omega$ | 236.58136 | | −0.89495032 | −0.43643184 | |
| $a$ | 2.4760729 | $\Omega$ | 277.38985 | | +0.43407459 | −0.80366475 | |
| $e$ | 0.0965100 | $i$ | 5.36297 | | +0.10316577 | −0.40453704 | |
| $P$ | 3.90 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 12 11 | 704 | 1.1+ | 0.1+ | 2005 11 21 | 691 | 0.2− | 0.4− | 2007 04 20 | F85 | 0.1+ | 0.0 | | | | |
| 2001 12 11 | 704 | (0.7− | 1.8+) | 2005 11 25 | 691 | 1.5+ | 0.7− | 2007 04 20 | F85 | 0.0 | 0.4+ | | | | |
| 2001 12 11 | 704 | 0.8− | 0.0 | 2005 11 25 | 691 | 0.1− | 0.1− | 2008 07 29 | G96 | 0.2+ | 0.4− | | | | |
| 2001 12 11 | 704 | 0.5− | 0.3+ | 2005 11 25 | 691 | 0.1− | 0.0 | 2008 07 29 | G96 | 0.0 | 0.2− | | | | |
| 2001 12 18 | 704 | 0.5+ | 0.4− | 2005 11 29 | 691 | 0.2+ | 0.1+ | 2008 07 29 | G96 | 0.3+ | 0.2− | | | | |
| 2001 12 18 | 704 | 0.6+ | 0.2+ | 2005 11 29 | 691 | 0.3− | 0.1+ | 2008 07 29 | G96 | 0.1+ | 0.4− | | | | |
| 2001 12 18 | 704 | 0.2+ | 0.3− | 2005 11 29 | 691 | 0.4− | 0.1+ | 2008 09 06 | 691 | 0.3− | 0.7+ | | | | |
| 2001 12 18 | 704 | 0.3− | 0.4+ | 2005 12 26 | G96 | 0.4− | 0.1− | 2008 09 06 | 691 | 0.1− | 0.1+ | | | | |
| 2001 12 18 | 704 | 0.0 | 0.2− | 2005 12 26 | G96 | 0.0 | 0.0 | 2008 09 06 | 691 | 0.3− | 0.1− | | | | |
| 2001 12 19 | 704 | 0.3− | 0.3− | 2005 12 26 | G96 | 0.3− | 0.2− | 2008 10 07 | G96 | 0.7+ | 0.4− | | | | |
| 2001 12 19 | 704 | 0.0 | 0.0 | 2005 12 26 | G96 | 0.1+ | 0.1− | 2008 10 07 | G96 | 0.3+ | 0.2− | | | | |
| 2001 12 19 | 704 | 0.3− | 0.1− | 2006 01 23 | G96 | 0.0 | 0.4+ | 2008 10 07 | G96 | 0.5+ | 0.1+ | | | | |
| 2001 12 19 | 704 | 0.3− | 0.3+ | 2006 01 23 | G96 | 0.1− | 0.2+ | 2008 10 07 | G96 | 0.1+ | 0.6− | | | | |
| 2001 12 19 | 704 | 0.5− | 0.2− | 2006 01 23 | G96 | 0.2− | 0.2+ | 2009 12 16 | 704 | 0.1+ | 0.3− | | | | |
| 2004 09 17 | 691 | 0.0 | 0.0 | 2006 01 23 | G96 | 0.3− | 0.1+ | 2009 12 16 | 704 | 0.3− | 0.5− | | | | |
| 2004 09 17 | 691 | 0.1+ | 0.3− | 2006 02 20 | G96 | 0.2− | 0.3+ | 2009 12 16 | 704 | 0.4+ | 0.3+ | | | | |
| 2004 09 17 | 691 | 0.0 | 0.2+ | 2006 02 20 | G96 | 0.2− | 0.0 | 2009 12 25 | 691 | 0.2− | 0.1− | | | | |
| 2005 11 21 | 691 | 0.1− | 0.2+ | 2006 02 20 | G96 | 0.0 | 0.3+ | 2009 12 25 | 691 | 0.0 | 0.0 | | | | |
| 2005 11 21 | 691 | 0.2+ | 0.6+ | 2006 02 20 | G96 | 0.2+ | 0.2+ | 2009 12 25 | 691 | 0.0 | 0.1+ | | | | |

**(228568)∗ 2001 XR$_{207}$**

Discovered 2001 Dec. 11 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 4.97940 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.12528231 | $\omega$ | 348.04230 | | +0.04452383 | −0.97783996 | |
| $a$ | 3.9555743 | $\Omega$ | 99.15120 | | +0.93280211 | −0.03261108 | |
| $e$ | 0.2480318 | $i$ | 11.95842 | | +0.35762809 | +0.20679827 | |
| $P$ | 7.87 | $H$ | 14.1 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 11 17 | 704 | 0.8+ | 0.3− | 2002 01 13 | 704 | 0.2− | 0.3+ | 2008 10 09 | 703 | 0.5− | 0.5+ | | | | |
| 2001 11 17 | 704 | 0.5+ | 0.2− | 2002 01 13 | 704 | 0.6− | 0.4+ | 2008 10 09 | 703 | 0.1+ | 0.9+ | | | | |
| 2001 11 17 | 704 | 1.0+ | 0.4− | 2002 01 13 | 704 | 0.2− | 0.2+ | 2008 10 09 | 703 | 0.2− | 0.3+ | | | | |
| 2001 11 17 | 704 | 0.9+ | 0.2+ | 2002 01 15 | 704 | 0.2− | 0.8− | 2008 10 09 | 703 | (1.7− | 0.4−) | | | | |
| 2001 11 17 | 704 | 0.2− | 0.9− | 2002 01 15 | 704 | 0.4+ | 0.2− | 2008 10 27 | 703 | 0.3+ | 0.7− | | | | |
| 2001 11 24 | 704 | 0.3− | 0.3− | 2002 01 15 | 704 | 0.2+ | 0.3− | 2008 10 27 | 703 | 0.6− | 0.0 | | | | |
| 2001 11 24 | 704 | 0.3+ | 0.4+ | 2002 01 15 | 704 | 0.0 | 0.2− | 2008 10 27 | 703 | 0.4− | 0.3− | | | | |
| 2001 11 24 | 704 | 0.0 | 0.4− | 2002 01 15 | 704 | 0.0 | 0.3+ | 2008 10 27 | 703 | 0.2− | 0.5+ | | | | |
| 2001 12 11 | 704 | 0.2− | 0.8− | 2002 01 19 | 704 | (1.7+ | 0.2−) | 2009 11 23 | 691 | 0.0 | 0.0 | | | | |
| 2001 12 11 | 704 | 0.1− | 0.4− | 2002 01 19 | 704 | 1.0+ | 0.7+ | 2009 11 23 | 691 | 0.0 | 0.1+ | | | | |
| 2001 12 11 | 704 | 0.9− | 0.9− | 2002 01 19 | 704 | (0.1− | 7.7+) | 2009 11 23 | 691 | 0.0 | 0.1− | | | | |
| 2001 12 11 | 704 | 0.2− | 0.4− | 2003 03 08 | 704 | 0.7− | 0.2+ | 2009 12 11 | 704 | 0.8+ | 0.9+ | | | | |
| 2001 12 18 | 704 | 0.4− | 0.3− | 2003 03 08 | 704 | 0.1+ | 1.0+ | 2009 12 11 | 704 | 0.7+ | 0.5+ | | | | |
| 2001 12 18 | 704 | 0.9− | 0.3+ | 2003 03 08 | 704 | 0.3− | 0.4− | 2009 12 11 | 704 | 0.1+ | 0.3+ | | | | |
| 2001 12 18 | 704 | 0.1+ | 0.0 | 2003 03 08 | 704 | 0.6+ | 0.6+ | 2009 12 11 | 704 | 0.7+ | 0.4+ | | | | |
| 2001 12 18 | 704 | 0.0 | 0.2+ | 2003 03 08 | 704 | 0.7− | 0.8+ | 2009 12 17 | 704 | 1.6+ | 0.1− | | | | |
| 2002 01 09 | 704 | 0.3+ | 0.4+ | 2003 03 31 | 644 | 0.9+ | 0.5+ | 2009 12 17 | 704 | 0.3− | 0.2+ | | | | |
| 2002 01 09 | 704 | 0.1+ | 0.0 | 2003 03 31 | 644 | 0.6+ | 0.6+ | 2009 12 17 | 704 | 0.2+ | 0.0 | | | | |
| 2002 01 09 | 704 | 0.1+ | 0.2− | 2003 03 31 | 644 | 0.6+ | 0.7+ | 2009 12 17 | 704 | 0.6+ | 0.1+ | | | | |
| 2002 01 09 | 704 | 0.0 | 0.3+ | 2008 10 02 | 703 | 0.2− | 0.8+ | 2009 12 25 | 691 | 0.5− | 0.9− | | | | |
| 2002 01 09 | 704 | 0.3+ | 0.4− | 2008 10 02 | 703 | 0.6+ | 1.0+ | 2009 12 25 | 691 | 0.1+ | 0.0 | | | | |
| 2002 01 13 | 704 | 0.0 | 0.2+ | 2008 10 02 | 703 | 0.2− | 0.9+ | 2009 12 25 | 691 | 0.8− | 0.7+ | | | | |
| 2002 01 13 | 704 | 0.3− | 0.1+ | 2008 10 02 | 703 | 0.8− | 0.6+ | | | | | | | | |

**(228569)∗ 2001 XV$_{219}$ = 2003 EM$_{47}$**

Discovered 2001 Dec. 15 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. A. Doppler (*MPO* 47058)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 168.79930 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22999020 | $\omega$ | 317.25767 | | −0.77883227 | +0.59948195 | |
| $a$ | 2.6383343 | $\Omega$ | 260.49608 | | −0.51305688 | −0.77809234 | |
| $e$ | 0.1332719 | $i$ | 10.78193 | | −0.36082257 | −0.18759983 | |
| $P$ | 4.29 | $H$ | 15.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 12 15 | 704 | 0.4− | 0.3− | 2004 06 16 | 704 | 0.2− | 1.1+ | 2006 12 13 | 704 | 0.8− | 1.3+ | | | | |
| 2001 12 15 | 704 | 0.2− | 0.2+ | 2004 06 16 | 704 | 0.3− | 1.0+ | 2006 12 13 | 704 | 1.0+ | 0.4+ | | | | |
| 2001 12 15 | 704 | 0.8− | 0.3− | 2004 08 09 | 704 | 0.3− | 0.8+ | 2006 12 13 | 704 | 0.1+ | 0.0 | | | | |
| 2001 12 15 | 704 | 0.9− | 0.1− | 2004 08 09 | 704 | 0.0 | 0.6+ | 2007 01 17 | 644 | 0.2+ | 0.1− | | | | |
| 2001 12 18 | 704 | 0.5− | 1.1− | 2004 08 09 | 704 | (0.5− | 1.7+) | 2007 01 17 | 644 | 0.3+ | 0.1+ | | | | |
| 2001 12 18 | 704 | 0.7+ | 1.1+ | 2004 08 09 | 704 | 1.2− | 0.3+ | 2007 01 17 | 644 | 0.2+ | 0.1+ | | | | |
| 2001 12 18 | 704 | 0.5+ | 0.0 | 2004 08 09 | 704 | 0.3− | 0.8+ | 2007 01 18 | 644 | 0.2+ | 0.1+ | | | | |
| 2001 12 18 | 704 | 0.4− | 0.5+ | 2004 08 09 | 704 | 0.3− | 0.4+ | 2007 01 18 | 644 | 0.3+ | 0.0 | | | | |
| 2001 12 19 | 704 | 0.5− | 0.0 | 2004 08 09 | 704 | (0.8+ | 1.9+) | 2007 01 18 | 644 | 0.2− | 0.2+ | | | | |
| 2001 12 19 | 704 | 0.8+ | 1.2+ | 2004 08 09 | 704 | 0.1− | 0.5+ | 2007 01 25 | 703 | (0.1+ | 1.6+) | | | | |
| 2001 12 19 | 704 | 0.8+ | 0.2− | 2004 08 09 | 704 | (0.4+ | 1.9+) | 2007 01 25 | 703 | 0.1+ | 0.0 | | | | |
| 2001 12 19 | 704 | 0.5+ | 0.1− | 2004 08 09 | 704 | 0.2− | 0.6+ | 2007 01 25 | 703 | 0.6− | 0.7+ | | | | |
| 2001 12 19 | 704 | 0.1− | 0.4+ | 2005 10 23 | 703 | 0.3+ | 0.8+ | 2007 01 25 | 703 | 0.7− | 0.7+ | | | | |
| 2003 03 09 | 699 | 0.5+ | 0.6+ | 2005 10 23 | 703 | 1.0+ | 0.4+ | 2007 02 05 | 644 | 0.0 | 0.0 | | | | |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 03 09 | 699 | 0.5+ | 1.4+ | 2005 10 23 | 703 | 0.4− | 0.6− | 2007 02 05 | 644 | 0.1+ | 0.0 |
| 2003 03 09 | 699 | 0.0 | 1.3+ | 2005 10 23 | 703 | 0.8− | 0.6+ | 2007 02 05 | 644 | 0.4+ | 0.2+ |
| 2003 03 09 | 699 | 0.8+ | 0.7+ | 2005 10 29 | 703 | (3.7+ | 0.9+) | 2009 09 22 | 703 | 0.8− | 0.8− |
| 2003 03 10 | 704 | 0.0 | 1.0+ | 2005 10 29 | 703 | 0.4− | 1.2+ | 2009 09 22 | 703 | 0.6− | 0.6+ |
| 2003 03 10 | 704 | 0.4− | 0.2+ | 2005 10 29 | 703 | 0.4− | 0.4+ | 2009 09 22 | 703 | 0.6+ | 0.2+ |
| 2003 03 10 | 704 | 0.5+ | 0.1− | 2005 10 29 | 703 | 0.7− | 0.2+ | 2009 09 22 | 703 | 0.2+ | 0.5− |
| 2003 03 10 | 704 | 0.2+ | 0.8+ | 2005 11 25 | 703 | (3.8− | 7.4+) | 2009 12 20 | G96 | 0.6+ | 0.1− |
| 2003 04 02 | 608 | 0.2+ | 0.4− | 2005 11 25 | 703 | (1.5+ | 1.1+) | 2009 12 20 | G96 | 0.4+ | 0.1− |
| 2003 04 02 | 608 | 0.5+ | 0.9− | 2005 11 25 | 703 | 0.2− | 0.2− | 2009 12 20 | G96 | 0.5+ | 0.6+ |
| 2003 04 02 | 608 | 0.1+ | 0.6− | 2005 11 25 | 703 | 0.7+ | 0.5− | 2009 12 20 | G96 | 0.4+ | 0.1+ |
| 2004 06 16 | 704 | 0.3+ | 1.0+ | 2006 12 13 | 704 | 0.2− | 1.0− | | | | |

**(228570)∗ 2001 XA$_{221}$**

Discovered 2001 Dec. 15 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 71.23067 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.24626092 | $\omega$ | 274.44019 | | | +0.92497277 | | +0.36999851 | |
| $a$ | 2.5208038 | $\Omega$ | 63.86435 | | | −0.29895849 | | +0.84936695 | |
| $e$ | 0.2085998 | $i$ | 5.54549 | | | −0.23462567 | | +0.37639991 | |
| $P$ | 4.00 | $H$ | 16.7 | $G$ | 0.15 | | $U$ | 1 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 11 16 | 691 | 0.4− | 0.1− | 2002 01 08 | 691 | 0.0 | 0.1− | 2005 11 28 | 703 | 0.1+ | 0.4+ |
| 2001 11 16 | 691 | 0.3− | 0.1− | 2002 01 08 | 691 | 0.1+ | 0.2− | 2005 11 28 | 703 | 1.2+ | 0.2+ |
| 2001 11 16 | 691 | 0.2− | 0.2− | 2003 01 28 | 645 | 0.0 | 0.0 | 2005 11 28 | 703 | 0.2− | 0.9+ |
| 2001 11 20 | 704 | 0.6+ | 0.1− | 2003 01 28 | 645 | 0.0 | 0.0 | 2005 12 04 | G96 | 0.2− | 0.2− |
| 2001 11 20 | 704 | (1.0− | 2.6+) | 2004 05 20 | 599 | 0.2+ | 0.6+ | 2005 12 04 | G96 | 0.4− | 0.3− |
| 2001 11 20 | 704 | 0.5+ | 0.4− | 2004 05 20 | 599 | 0.0 | 0.4+ | 2005 12 04 | G96 | 0.1+ | 0.1− |
| 2001 11 20 | 704 | 0.2− | 0.3− | 2004 05 20 | 599 | 0.0 | 0.3+ | 2005 12 04 | G96 | 0.5+ | 0.1+ |
| 2001 11 21 | 704 | (2.4− | 0.2+) | 2004 05 20 | 599 | 0.3+ | 0.4+ | 2009 10 21 | G96 | 0.2− | 0.1− |
| 2001 11 21 | 704 | (3.0− | 0.6+) | 2005 10 25 | G96 | 0.4+ | 0.1− | 2009 10 21 | G96 | 0.6+ | 0.1− |
| 2001 11 21 | 704 | (1.7− | 0.9+) | 2005 10 25 | G96 | 0.5+ | 0.1− | 2009 10 21 | G96 | 0.0 | 0.0 |
| 2001 11 21 | 704 | (1.7− | 1.1+) | 2005 10 25 | G96 | 0.6+ | 0.0 | 2009 10 21 | G96 | 0.2+ | 0.4+ |
| 2001 12 07 | 644 | 0.8− | 0.2− | 2005 10 25 | G96 | 0.2+ | 0.1− | 2009 11 16 | 691 | 0.5− | 0.0 |
| 2001 12 07 | 644 | 1.0− | 0.1− | 2005 11 20 | 926 | 0.0 | 0.6+ | 2009 11 16 | 691 | 0.1+ | 0.1+ |
| 2001 12 07 | 644 | 0.8− | 0.2− | 2005 11 20 | 926 | 0.2+ | 0.6+ | 2009 11 16 | 691 | 0.4− | 0.2− |
| 2001 12 15 | 704 | 0.3− | 0.1+ | 2005 11 20 | 926 | 0.3+ | 0.1+ | 2009 11 20 | 691 | 0.3− | 0.1+ |
| 2001 12 15 | 704 | 0.5− | 0.3− | 2005 11 20 | 926 | 0.1+ | 0.2+ | 2009 11 20 | 691 | 0.3− | 0.2− |
| 2001 12 15 | 704 | 0.7− | 0.1+ | 2005 11 21 | 703 | 0.0 | 0.2+ | 2009 11 20 | 691 | 0.1− | 0.1+ |
| 2001 12 15 | 704 | 0.7− | 0.4+ | 2005 11 21 | 703 | 0.3− | 1.3− | 2009 11 23 | J75 | 1.0+ | 0.1+ |
| 2001 12 18 | 704 | (1.8+ | 0.5−) | 2005 11 21 | 703 | 0.0 | 0.4− | 2009 11 23 | J75 | 0.5+ | 0.2+ |
| 2001 12 18 | 704 | 0.0 | 0.4− | 2005 11 21 | 703 | 0.9− | 0.0 | 2009 11 23 | J75 | 0.0 | 0.0 |
| 2001 12 18 | 704 | 0.1+ | 0.8+ | 2005 11 22 | 691 | 0.0 | 0.0 | 2009 11 24 | 691 | 0.3− | 0.1− |
| 2001 12 18 | 704 | 0.2− | 0.4+ | 2005 11 22 | 691 | 0.2+ | 0.3+ | 2009 11 24 | 691 | 0.1− | 0.0 |
| 2001 12 19 | 704 | (0.2− | 2.4+) | 2005 11 22 | 691 | 0.1+ | 0.3+ | 2009 11 24 | 691 | 0.1− | 0.1+ |
| 2001 12 19 | 704 | 0.5− | 0.4+ | 2005 11 25 | G96 | 0.3+ | 0.2− | 2009 12 09 | J75 | 0.8+ | 0.3− |
| 2001 12 19 | 704 | 0.0 | 1.0+ | 2005 11 25 | G96 | 0.3+ | 0.3− | 2009 12 09 | J75 | 0.6+ | 0.4− |
| 2001 12 19 | 704 | 0.2− | 0.3+ | 2005 11 25 | G96 | 0.2+ | 0.4− | 2009 12 09 | J75 | 0.1+ | 0.2+ |
| 2001 12 19 | 704 | 1.1+ | 0.1− | 2005 11 25 | G96 | 0.2+ | 0.3− | 2009 12 11 | G96 | 0.3+ | 0.1− |
| 2001 12 19 | 704 | 1.2+ | 0.5+ | 2005 11 25 | G96 | 0.3+ | 0.3− | 2009 12 11 | G96 | 0.2+ | 0.1− |
| 2001 12 19 | 704 | 0.7+ | 0.6+ | 2005 11 25 | G96 | 0.5+ | 0.1− | 2009 12 11 | G96 | 0.2+ | 0.2+ |
| 2001 12 19 | 704 | 0.8+ | 0.4+ | 2005 11 25 | G96 | 0.1− | 0.3− | 2009 12 11 | G96 | 0.5+ | 0.2− |
| 2002 01 08 | 691 | 0.3+ | 0.0 | 2005 11 28 | 703 | 0.9+ | 0.4+ | | | | |

**(228571)∗ 2001 XN$_{223}$**

Discovered 2001 Dec. 15 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 14.17090 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.12569464 | $\omega$ | 77.58223 | | | +0.48650633 | | −0.87343519 | |
| $a$ | 3.9469190 | $\Omega$ | 343.25951 | | | +0.77130471 | | +0.44043270 | |
| $e$ | 0.1097787 | $i$ | 4.09245 | | | +0.41036646 | | +0.20767762 | |
| $P$ | 7.84 | $H$ | 14.5 | $G$ | 0.15 | | $U$ | 2 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 08 26 | 691 | 0.3+ | 0.4− | 2008 08 24 | 691 | 0.1− | 0.1− | 2008 10 04 | J75 | 0.3+ | 0.2− |
| 2000 08 26 | 691 | 0.2+ | 0.1− | 2008 08 24 | 691 | 0.2− | 0.0 | 2008 10 04 | J75 | 0.2+ | 0.4− |
| 2000 08 26 | 691 | 0.4+ | 0.7− | 2008 08 24 | 691 | 0.2− | 0.0 | 2008 10 07 | 691 | 0.0 | 0.1− |
| 2000 09 24 | 691 | 0.1− | 0.2+ | 2008 09 03 | 691 | 0.0 | 0.0 | 2008 10 07 | 691 | 0.1− | 0.3+ |
| 2000 09 24 | 691 | 0.4− | 0.1+ | 2008 09 03 | 691 | 0.1− | 0.1− | 2008 10 07 | 691 | 0.1− | 0.0 |
| 2000 09 24 | 691 | 0.2− | 0.1− | 2008 09 03 | 691 | 0.0 | 0.2+ | 2008 10 18 | 691 | 0.3− | 0.0 |
| 2001 10 21 | 704 | 1.0+ | 0.7− | 2008 09 24 | 691 | 0.7− | 1.0+ | 2008 10 18 | 691 | 0.4− | 0.0 |
| 2001 10 21 | 704 | 0.6+ | 1.0− | 2008 09 24 | 691 | 0.0 | 0.0 | 2008 10 18 | 691 | 0.2+ | 0.0 |
| 2001 10 21 | 704 | 0.9+ | 1.1− | 2008 09 24 | 691 | 0.2+ | 0.1− | 2009 11 10 | 691 | 0.0 | 0.0 |
| 2001 11 12 | 704 | 0.5− | 0.7+ | 2008 09 24 | 704 | 0.4+ | 0.3− | 2009 11 10 | 691 | 0.1− | 0.2− |
| 2001 11 12 | 704 | 0.4+ | 0.1+ | 2008 09 24 | 703 | 0.6+ | 0.3+ | 2009 11 10 | 691 | 0.2+ | 0.1+ |
| 2001 11 12 | 704 | 0.1+ | 1.0− | 2008 09 24 | 703 | (1.8+ | 0.5+) | 2009 12 13 | G96 | 0.6+ | 0.2− |
| 2001 12 14 | 644 | 0.3− | 0.2+ | 2008 09 24 | 704 | 0.1− | 0.0 | 2009 12 13 | G96 | 0.2− | 0.2+ |
| 2001 12 14 | 644 | 0.2− | 0.1+ | 2008 09 24 | 703 | 0.2− | 0.9+ | 2009 12 13 | G96 | 0.5+ | 0.3+ |
| 2001 12 14 | 644 | 0.1+ | 0.1+ | 2008 09 24 | 703 | (1.6+ | 0.1+) | 2009 12 13 | G96 | 0.7+ | 0.2− |
| 2001 12 15 | 704 | 0.3− | 0.7− | 2008 09 24 | 704 | 1.0+ | 0.1+ | 2009 12 18 | G96 | 0.8+ | 0.2− |
| 2001 12 15 | 704 | (1.5− | 0.4−) | 2008 09 24 | 704 | 0.9+ | 0.8+ | 2009 12 18 | G96 | 0.7+ | 0.0 |
| 2001 12 15 | 704 | 0.4− | 0.6− | 2008 09 24 | 704 | 0.8− | 0.4− | 2009 12 18 | G96 | 0.4+ | 0.0 |
| 2001 12 18 | 704 | 0.0 | 0.6+ | 2008 09 30 | 704 | 0.1+ | 0.1− | 2009 12 18 | G96 | 0.2− | 0.0 |
| 2001 12 18 | 704 | 0.2− | 0.1− | 2008 09 30 | 704 | 0.9+ | 0.7− | 2009 12 25 | 291 | 0.5− | 0.1+ |
| 2001 12 18 | 704 | 0.3+ | 0.6+ | 2008 09 30 | 704 | 0.3+ | 0.3+ | 2009 12 25 | 291 | 0.4− | 0.1+ |
| 2001 12 18 | 704 | 0.5− | 0.6+ | 2008 09 30 | 704 | 0.7+ | 0.4− | 2009 12 25 | 291 | 0.2− | 0.0 |
| 2001 12 18 | 704 | 0.1− | 0.2+ | 2008 10 04 | J75 | 0.4+ | 0.4+ | | | | |

**(228572)∗ 2001 YY$_4$**

Discovered 2001 Dec. 23 by J. V. McClusky at Kingsnake Observatory, Seguin.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 341.30971 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.36574286 | $\omega$ | 110.89135 | | | −0.49479723 | | −0.86857847 | |
| $a$ | 1.9365058 | $\Omega$ | 8.91481 | | | +0.71728264 | | −0.42596258 | |
| $e$ | 0.2260523 | $i$ | 10.15941 | | | +0.49059282 | | −0.25323375 | |
| $P$ | 2.69 | $H$ | 17.5 | $G$ | 0.15 | | $U$ | 2 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 09 27 | 704 | 1.3+ | 0.1+ | 2002 01 08 | 704 | 0.5+ | 0.6+ | 2006 09 18 | 703 | (0.7− | 1.7+) |
| 1998 09 27 | 704 | 0.2+ | 0.4+ | 2002 01 08 | 704 | 0.1+ | 0.4+ | 2006 09 18 | 703 | 1.2− | 0.2+ |
| 1998 09 27 | 704 | 0.5+ | 0.6+ | 2002 01 08 | 704 | 0.5− | 1.4+ | 2006 09 18 | 703 | 0.0 | 0.0 |
| 1998 09 27 | 704 | 0.7+ | 0.3+ | 2002 01 08 | 704 | 0.0 | 0.0 | 2006 09 18 | 703 | 0.8− | 0.1+ |
| 1998 09 27 | 704 | 1.1− | 1.1+ | 2002 01 08 | 704 | 0.5+ | 1.4+ | 2006 09 19 | 703 | 1.0− | 0.5− |
| 2001 10 04 | 644 | 0.2− | 0.5+ | 2002 01 08 | 704 | (2.1− | 1.8+) | 2006 09 19 | 703 | 0.0 | 0.3+ |
| 2001 10 04 | 644 | 0.3+ | 0.6− | 2002 01 08 | 704 | 0.2− | 0.0 | 2006 09 19 | 703 | 0.6− | 0.4− |
| 2001 12 19 | 699 | 0.0 | 0.2− | 2002 01 08 | 704 | 1.0− | 0.9+ | 2006 09 19 | 703 | 0.6− | 0.6− |
| 2001 12 19 | 699 | 0.5+ | 0.2− | 2002 01 08 | 704 | 0.9− | 1.0+ | 2006 09 22 | A50 | 0.0 | 0.1− |
| 2001 12 19 | 699 | 0.1− | 0.0 | 2002 01 19 | 699 | 1.2+ | 0.7+ | 2006 09 23 | A50 | 0.1− | 0.1− |
| 2001 12 19 | 699 | 0.4+ | 0.1+ | 2002 01 19 | 699 | 0.9+ | 0.2+ | 2006 10 20 | G96 | 0.3+ | 0.0 |
| 2001 12 23 | 704 | 0.7+ | 0.3+ | 2002 01 19 | 699 | 0.4− | 0.1− | 2006 10 20 | G96 | 0.4− | 0.1− |
| 2001 12 23 | 704 | 0.0 | 0.5+ | 2002 01 19 | 699 | 0.6+ | 0.4− | 2006 10 20 | G96 | 0.5+ | 0.1− |
| 2001 12 23 | 704 | 0.8+ | 1.4+ | 2002 01 25 | 704 | 0.1+ | 0.1− | 2006 10 20 | G96 | 0.2− | 0.6− |
| 2001 12 23 | 704 | 0.1− | 0.5− | 2002 01 25 | 704 | 0.3+ | 0.0 | 2006 10 27 | G96 | 0.5+ | 0.4− |
| 2001 12 23 | 446 | 0.3+ | 1.1− | 2002 01 25 | 704 | 0.2− | 0.1− | 2006 10 27 | G96 | 0.2− | 0.2− |
| 2001 12 23 | 446 | 0.2+ | 0.8− | 2002 01 25 | 704 | 0.2+ | 0.4+ | 2006 10 27 | G96 | 0.5+ | 1.0− |
| 2001 12 24 | 446 | 0.6− | 0.2− | 2002 01 25 | 704 | 0.3+ | 0.2+ | 2006 10 27 | G96 | 0.1− | 0.4− |
| 2001 12 24 | 446 | 1.2+ | 0.0 | 2002 02 09 | 446 | 0.6− | 0.1+ | 2006 11 14 | G96 | 0.7− | 0.1+ |
| 2001 12 29 | 446 | 0.7+ | 1.3− | 2002 02 09 | 446 | 0.0 | 0.3+ | 2006 11 14 | G96 | 0.4+ | 0.1− |
| 2001 12 29 | 446 | 0.1+ | 1.1− | 2002 03 05 | 704 | 0.2+ | 0.2+ | 2006 11 14 | G96 | 0.1− | 0.2+ |
| 2001 12 29 | 446 | 0.4+ | 0.6+ | 2002 03 05 | 704 | 0.1+ | 0.0 | 2006 11 14 | G96 | 0.0 | 0.5− |
| 2002 01 06 | 704 | 0.7− | 0.5+ | 2002 03 05 | 704 | 0.3+ | 0.0 | 2009 10 16 | 704 | 1.2− | 0.6− |
| 2002 01 06 | 704 | 0.8− | 0.0 | 2002 03 05 | 704 | 0.4− | 0.2+ | 2009 10 16 | 704 | 0.4− | 0.2− |
| 2002 01 06 | 704 | 0.4− | 0.3− | 2005 05 10 | 699 | 0.7− | 0.6+ | 2009 10 16 | 704 | 0.3− | 0.0 |
| 2002 01 06 | 704 | 0.7− | 0.3− | 2005 05 10 | 699 | 1.1+ | 1.2+ | 2009 10 16 | 704 | 1.2− | 1.5− |
| 2002 01 06 | 704 | 0.6− | 0.5− | 2005 05 10 | 699 | (2.3− | 2.0+) | 2009 11 25 | 704 | 0.2+ | 0.4+ |
| 2002 01 07 | 704 | (1.5− | 1.6+) | 2005 05 10 | 699 | 0.1+ | 1.1− | 2009 11 25 | 704 | 1.8+ | 1.5− |
| 2002 01 07 | 704 | 0.4− | 1.3− | 2006 08 27 | 691 | 0.1− | 0.6+ | 2009 11 25 | 704 | 1.0+ | 0.5− |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 01 07 | 704 | 0.3− | 1.0+ | 2006 08 27 | 691 | 0.1− | 0.5+ | 2009 11 25 | 704 | 0.8+ | 0.3− | | |
| 2002 01 07 | 704 | 1.2− | 1.2+ | 2006 08 27 | 691 | 0.3− | 0.6+ | 2009 11 25 | 704 | 0.3+ | 0.1+ | | |

**(228573)∗ 2001 YC$_8$**

Discovered 2001 Dec. 17 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 331.00264 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.25527745 | $\omega$ | 48.18659 | | −0.84951865 | −0.51402197 | |
| $a$ | 2.4610914 | $\Omega$ | 100.56024 | | +0.44111630 | −0.81555197 | |
| $e$ | 0.1414799 | $i$ | 6.93753 | | +0.28936911 | −0.26581271 | |
| $P$ | 3.86 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 11 17 | 704 | 0.0 | 0.0 | 2002 01 13 | 704 | 0.7− | 0.6+ | 2006 01 05 | 704 | 1.3− | 0.6+ | | |
| 2001 11 17 | 704 | 0.3+ | 1.2+ | 2002 01 15 | 704 | 0.0 | 0.3+ | 2006 01 05 | 704 | 0.2+ | 0.4− | | |
| 2001 11 17 | 704 | 0.4− | 0.3+ | 2002 01 15 | 704 | 0.1− | 0.4+ | 2006 01 26 | G96 | 0.7+ | 0.1− | | |
| 2001 11 17 | 704 | 0.0 | 0.6+ | 2002 01 15 | 704 | 0.4− | 0.9+ | 2006 01 26 | G96 | 0.4+ | 0.2+ | | |
| 2001 12 17 | 704 | 0.2+ | 1.0− | 2002 01 15 | 704 | 0.5− | 0.9+ | 2006 01 26 | G96 | 0.1− | 0.0 | | |
| 2001 12 17 | 704 | 0.1+ | 0.7− | 2003 05 25 | 691 | 0.5+ | 1.0+ | 2006 01 26 | G96 | 0.5+ | 0.3− | | |
| 2001 12 17 | 704 | 0.0 | 0.9− | 2003 05 25 | 691 | 0.0 | 0.8+ | 2009 11 25 | G96 | 0.4− | 0.5− | | |
| 2001 12 17 | 704 | 0.4+ | 0.9− | 2003 05 25 | 691 | 0.4+ | 1.2+ | 2009 11 25 | G96 | 0.0 | 0.4− | | |
| 2001 12 18 | 704 | 0.1+ | 0.4+ | 2003 05 27 | 291 | 0.2− | 0.5− | 2009 11 25 | G96 | 0.2− | 0.3− | | |
| 2001 12 18 | 704 | 0.7− | 0.2+ | 2003 05 27 | 291 | 0.0 | 0.4− | 2009 11 25 | G96 | 0.3− | 0.3− | | |
| 2001 12 18 | 704 | 0.8− | 0.4+ | 2003 05 27 | 291 | 0.1− | 0.5− | 2009 12 15 | G96 | 0.5+ | 0.6− | | |
| 2001 12 18 | 704 | 0.9+ | 0.0 | 2005 11 26 | 691 | 0.3+ | 0.1+ | 2009 12 15 | G96 | 0.4+ | 0.6− | | |
| 2001 12 18 | 704 | 0.5− | 0.4+ | 2005 11 26 | 691 | 0.3+ | 0.1+ | 2009 12 15 | G96 | 0.3− | 0.5− | | |
| 2001 12 20 | 704 | 1.1− | 0.9+ | 2005 11 26 | 691 | 0.2+ | 0.0 | 2009 12 15 | G96 | 0.0 | 0.7− | | |
| 2001 12 20 | 704 | 0.3+ | 0.4+ | 2005 12 07 | 704 | (1.5+ | 1.7−) | 2009 12 16 | 704 | 0.0 | 0.6+ | | |
| 2001 12 20 | 704 | 0.6− | 0.2− | 2005 12 07 | 704 | (0.1− | 2.0+) | 2009 12 16 | 704 | 1.4+ | 1.3+ | | |
| 2001 12 20 | 704 | 0.3− | 0.6+ | 2005 12 07 | 704 | (1.6+ | 1.9+) | 2009 12 16 | 704 | 0.9− | 0.6+ | | |
| 2002 01 08 | 644 | 0.1+ | 0.3+ | 2005 12 07 | 704 | 0.3+ | 1.1+ | 2009 12 16 | 704 | 0.1− | 0.5+ | | |
| 2002 01 08 | 644 | 0.1+ | 0.7+ | 2005 12 07 | 704 | 0.6+ | 0.6+ | 2009 12 26 | 691 | 0.0 | 0.3− | | |
| 2002 01 08 | 644 | 0.1+ | 0.7+ | 2005 12 08 | 691 | 0.2+ | 0.0 | 2009 12 26 | 691 | 0.3− | 0.3− | | |
| 2002 01 09 | 704 | 0.1+ | 0.9+ | 2005 12 08 | 691 | 0.2+ | 0.1+ | 2009 12 26 | 691 | 0.0 | 0.3− | | |
| 2002 01 09 | 704 | 0.3− | 1.3+ | 2005 12 08 | 691 | 0.3+ | 0.1− | 2009 12 26 | 691 | 0.1− | 0.3− | | |
| 2002 01 09 | 704 | 1.0− | 0.3+ | 2005 12 09 | 704 | 0.2− | 1.2− | 2009 12 26 | 691 | 0.3− | 0.1− | | |
| 2002 01 09 | 704 | 1.0− | 0.4+ | 2005 12 09 | 704 | 0.3− | 1.4− | 2009 12 26 | 691 | 0.0 | 0.1+ | | |
| 2002 01 13 | 704 | 0.0 | 1.2+ | 2005 12 09 | 704 | 0.3− | 0.2+ | | | | | | |
| 2002 01 13 | 704 | 0.7− | 0.1+ | 2006 01 05 | 704 | 0.9− | 0.8+ | | | | | | |

**(228574)∗ 2001 YU$_{57}$ = 2004 KR$_7$**

Discovered 2001 Dec. 18 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. A. Doppler (*MPO* 69053)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 69.24584 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24633382 | $\omega$ | 279.86561 | | +0.97368497 | +0.19962683 | |
| $a$ | 2.5203065 | $\Omega$ | 68.68447 | | −0.13358612 | +0.89078050 | |
| $e$ | 0.2800370 | $i$ | 6.77741 | | −0.18464110 | +0.40823919 | |
| $P$ | 4.00 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 12 18 | 704 | 0.3− | 0.8+ | 2004 05 20 | 599 | 0.3+ | 0.3+ | 2008 05 13 | G96 | 0.2− | 0.3− | | |
| 2001 12 18 | 704 | 0.4+ | 0.3− | 2004 05 20 | 599 | 0.2+ | 0.1+ | 2008 05 13 | G96 | 0.5− | 1.1− | | |
| 2001 12 18 | 704 | 0.0 | 0.0 | 2004 06 09 | E12 | (1.8+ | 1.1+) | 2008 05 27 | G96 | 0.2+ | 0.2− | | |
| 2001 12 18 | 704 | 0.0 | 0.1− | 2004 06 09 | E12 | (2.2+ | 0.0 ) | 2008 05 27 | G96 | 0.1− | 0.0 | | |
| 2001 12 19 | 704 | 0.0 | 0.3− | 2004 06 09 | E12 | (2.6+ | 1.1+) | 2008 05 27 | G96 | 0.1+ | 0.2+ | | |
| 2001 12 19 | 704 | 0.1+ | 0.0 | 2004 06 09 | E12 | 0.3− | 0.0 | 2008 05 27 | G96 | 0.2− | 0.0 | | |
| 2001 12 19 | 704 | 0.3− | 0.3+ | 2005 11 29 | 691 | 0.0 | 0.2− | 2009 11 16 | 691 | 0.3− | 0.1+ | | |
| 2001 12 19 | 704 | 0.4− | 0.2+ | 2005 11 29 | 691 | 0.0 | 0.2− | 2009 11 16 | 691 | 0.1− | 0.1+ | | |
| 2001 12 19 | 704 | 0.2− | 0.2+ | 2005 11 29 | 691 | 0.0 | 0.3− | 2009 11 16 | 691 | 0.2− | 0.2+ | | |
| 2001 12 20 | 704 | (3.3+ | 0.4−) | 2005 12 03 | 691 | 0.1+ | 0.1− | 2009 11 24 | 691 | 0.2− | 0.1− | | |
| 2001 12 20 | 704 | (4.1+ | 0.0 ) | 2005 12 03 | 691 | 0.1− | 0.0 | 2009 11 24 | 691 | 0.1− | 0.1− | | |
| 2001 12 20 | 704 | (3.3+ | 0.5−) | 2005 12 03 | 691 | 0.0 | 0.0 | 2009 11 24 | 691 | 0.0 | 0.2+ | | |
| 2004 05 16 | E12 | 1.1− | 0.0 | 2005 12 29 | G96 | 0.3+ | 0.1− | 2009 12 10 | 704 | 0.1− | 0.3+ | | |
| 2004 05 16 | E12 | 0.5− | 0.5+ | 2005 12 29 | G96 | 0.6+ | 0.2− | 2009 12 10 | 704 | 0.2− | 0.3+ | | |
| 2004 05 16 | E12 | 0.9+ | 0.8+ | 2005 12 29 | G96 | 0.5+ | 0.0 | 2009 12 10 | 704 | 0.8+ | 0.5+ | | |
| 2004 05 16 | E12 | 0.1− | 0.1+ | 2005 12 29 | G96 | 0.5+ | 0.3− | 2009 12 10 | 704 | 1.0+ | 0.4+ | | |
| 2004 05 20 | 599 | 0.3+ | 0.2− | 2008 05 13 | G96 | 0.4+ | 0.4+ | 2009 12 10 | 704 | 0.5+ | 0.1+ | | |
| 2004 05 20 | 599 | 0.3+ | 0.2− | 2008 05 13 | G96 | 0.3+ | 0.0 | | | | | | |

**(228575)∗ 2001 YW$_{58}$**

Discovered 2001 Dec. 18 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 32.80700 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.25501372 | $\omega$ | 137.69664 | | +0.18847562 | −0.98092971 | |
| $a$ | 2.4627879 | $\Omega$ | 301.38764 | | +0.88549508 | +0.19064669 | |
| $e$ | 0.1611822 | $i$ | 3.18803 | | +0.42470625 | +0.03782526 | |
| $P$ | 3.86 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1993 10 12 | 691 | 0.3− | 0.4− | 2002 01 14 | 704 | 0.7− | 0.3+ | 2006 01 09 | 691 | 0.1+ | 0.2− | | |
| 1993 10 12 | 691 | 0.4− | 0.4− | 2002 01 14 | 704 | 0.3− | 0.4+ | 2006 01 22 | G96 | 0.1+ | 0.3− | | |
| 1993 10 12 | 691 | 0.7− | 0.1+ | 2002 01 14 | 704 | 0.2+ | 0.3+ | 2006 01 22 | G96 | 0.1− | 0.4− | | |
| 1993 11 06 | 691 | 0.5+ | 0.2− | 2002 01 14 | 704 | 0.1− | 0.3+ | 2006 01 22 | G96 | 0.1− | 0.3− | | |
| 1993 11 06 | 691 | 0.4+ | 0.2+ | 2005 12 24 | 691 | 0.0 | 0.1+ | 2006 01 22 | G96 | 0.1+ | 0.4− | | |
| 1993 11 06 | 691 | 0.3+ | 0.1− | 2005 12 24 | 691 | 0.2+ | 0.5+ | 2006 01 24 | 704 | 0.3− | 0.3+ | | |
| 1997 12 03 | 691 | 0.4+ | 0.2+ | 2005 12 24 | 691 | 0.0 | 0.2+ | 2006 01 24 | 704 | 0.3+ | 0.9+ | | |
| 1997 12 03 | 691 | 0.2+ | 0.0 | 2005 12 28 | G96 | 0.4− | 0.4− | 2006 01 24 | 704 | 0.5− | 0.5+ | | |
| 1997 12 03 | 691 | 0.6+ | 0.2− | 2005 12 28 | G96 | 0.3− | 0.4− | 2006 01 24 | 704 | 0.0 | 0.3− | | |
| 2001 12 18 | 704 | 0.1+ | 0.3+ | 2005 12 28 | G96 | 0.2− | 0.2− | 2008 09 21 | G96 | 0.1− | 0.1+ | | |
| 2001 12 18 | 704 | 0.6− | 0.2+ | 2005 12 31 | 704 | 1.0− | 1.1+ | 2008 09 21 | G96 | 0.3− | 0.1+ | | |
| 2001 12 18 | 704 | 0.6− | 0.1+ | 2005 12 31 | 704 | (4.6− | 4.2+) | 2008 09 21 | G96 | 0.0 | 0.1+ | | |
| 2001 12 19 | 704 | 0.1+ | 0.9+ | 2005 12 31 | 704 | (4.6+ | 4.6+) | 2008 09 21 | G96 | 0.3− | 0.5+ | | |
| 2001 12 19 | 704 | 0.3− | 0.6+ | 2005 12 31 | 704 | 0.6− | 0.3− | 2009 11 21 | G96 | 0.0 | 0.3− | | |
| 2001 12 19 | 704 | 1.3− | 1.2+ | 2006 01 05 | 691 | 0.1+ | 0.0 | 2009 11 21 | G96 | 0.4+ | 0.4− | | |
| 2001 12 20 | 704 | 0.0 | 1.0+ | 2006 01 05 | 691 | 0.0 | 0.1− | 2009 11 21 | G96 | 0.4+ | 0.3− | | |
| 2001 12 20 | 704 | 0.5+ | 0.5+ | 2006 01 05 | 691 | 0.4+ | 0.2− | 2009 11 21 | G96 | 0.2− | 0.3− | | |
| 2001 12 20 | 704 | (0.4+ | 1.9+) | 2006 01 07 | G96 | 0.3− | 0.1− | 2009 12 17 | G96 | 0.2− | 0.1− | | |
| 2001 12 20 | 704 | 0.2− | 1.1+ | 2006 01 07 | G96 | 0.3− | 0.1− | 2009 12 17 | G96 | 0.3+ | 0.4− | | |
| 2002 01 08 | 704 | 0.3− | 0.6− | 2006 01 07 | G96 | 0.3− | 0.1+ | 2009 12 17 | G96 | 0.4+ | 0.4− | | |
| 2002 01 08 | 704 | 0.1− | 0.7− | 2006 01 09 | 691 | 0.0 | 0.2− | 2009 12 17 | G96 | 0.5+ | 0.5− | | |
| 2002 01 08 | 704 | 0.9− | 1.2− | 2006 01 09 | 691 | 0.0 | 0.2− | | | | | | |

**(228576)∗ 2001 YR$_{72}$**

Discovered 2001 Dec. 18 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 55.80984 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23620999 | $\omega$ | 71.82381 | | +0.97313770 | +0.08781694 | |
| $a$ | 2.5918143 | $\Omega$ | 282.71642 | | −0.17437008 | +0.88473112 | |
| $e$ | 0.2257852 | $i$ | 12.60149 | | +0.15032661 | +0.45775434 | |
| $P$ | 4.17 | $H$ | 15.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 07 07 | 704 | 1.2− | 1.0+ | 2002 01 09 | 704 | 0.6+ | 0.2+ | 2006 02 20 | G96 | 0.2+ | 0.0 | | |
| 2000 07 07 | 704 | 0.6+ | 0.9+ | 2002 01 13 | 704 | 0.2+ | 0.2− | 2006 02 20 | G96 | 0.3− | 0.5− | | |
| 2000 07 07 | 704 | 0.4− | 0.5+ | 2002 01 13 | 704 | 0.1+ | 0.3+ | 2009 10 27 | 703 | 0.2− | 0.4− | | |
| 2000 07 07 | 704 | 0.3− | 1.1+ | 2002 01 13 | 704 | 0.1− | 0.4+ | 2009 10 27 | 703 | 0.3− | 0.6− | | |
| 2001 12 07 | 691 | (0.0 | 3.8−) | 2002 01 13 | 704 | 0.1+ | 0.1− | 2009 10 27 | 703 | 0.1− | 0.4− | | |
| 2001 12 07 | 691 | (0.3+ | 3.6−) | 2002 01 15 | 704 | 1.2+ | 0.4+ | 2009 10 27 | 703 | 0.3− | 0.7− | | |
| 2001 12 07 | 691 | (0.0 | 3.5−) | 2002 01 15 | 704 | 0.5− | 0.4− | 2009 11 09 | 704 | 0.3+ | 0.3+ | | |
| 2001 12 09 | 699 | 1.0− | 0.3+ | 2002 01 15 | 704 | 0.0 | 0.7− | 2009 11 09 | 704 | 0.1− | 0.0 | | |
| 2001 12 09 | 699 | 0.2− | 0.6− | 2002 01 19 | 704 | 0.1+ | 0.6− | 2009 11 09 | 704 | 0.2− | 0.1− | | |
| 2001 12 09 | 699 | 0.3+ | 1.0− | 2002 01 19 | 704 | 0.2− | 0.1− | 2009 11 09 | 704 | 0.1− | 0.4+ | | |
| 2001 12 09 | 699 | 0.6+ | 0.3− | 2002 01 19 | 704 | 0.4− | 0.4+ | 2009 11 09 | 704 | 0.3− | 0.5+ | | |
| 2001 12 17 | 644 | 0.0 | 1.0+ | 2004 06 17 | 704 | 0.3− | 0.3+ | 2009 11 10 | 704 | 0.7+ | 0.1− | | |
| 2001 12 17 | 644 | 0.2+ | 1.1+ | 2004 06 17 | 704 | 0.2− | 0.2− | 2009 11 10 | 704 | 0.2+ | 0.0 | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 12 17 | 644 | 0.4+ | 0.9+ | 2004 06 17 | 704 | 0.0 | 1.3+ | 2009 11 10 | 704 | 0.1− | 0.9+ | | |
| 2001 12 18 | 704 | 0.2+ | 0.1− | 2005 12 02 | 704 | 0.1+ | 0.4+ | 2009 11 10 | 704 | 0.2− | 0.8+ | | |
| 2001 12 18 | 704 | 0.1+ | 0.1− | 2005 12 02 | 704 | 0.5+ | 0.2+ | 2009 11 10 | 704 | 0.4− | 1.0+ | | |
| 2001 12 18 | 704 | 0.3− | 0.2− | 2005 12 02 | 704 | 0.1− | 0.2+ | 2009 11 23 | 704 | 0.2− | 0.2− | | |
| 2001 12 18 | 704 | 1.2− | 1.0+ | 2005 12 02 | 704 | 0.3− | 0.5− | 2009 11 23 | 704 | 0.6− | 0.1+ | | |
| 2001 12 18 | 704 | 0.2− | 0.1+ | 2005 12 05 | 704 | 0.1+ | 0.1+ | 2009 11 23 | 704 | 0.2− | 0.7+ | | |
| 2001 12 19 | 704 | 0.6− | 0.5+ | 2005 12 05 | 704 | 0.1− | 0.5+ | 2009 11 23 | 704 | 0.3− | 0.4+ | | |
| 2001 12 19 | 704 | 0.3− | 0.0 | 2005 12 05 | 704 | 0.3+ | 0.3− | 2009 11 26 | 703 | 0.2+ | 0.5− | | |
| 2001 12 19 | 704 | 0.3+ | 0.7+ | 2005 12 05 | 704 | 0.0 | 0.7+ | 2009 11 26 | 703 | 0.7+ | 0.3− | | |
| 2001 12 19 | 704 | 0.3+ | 1.2+ | 2005 12 05 | 704 | 0.2+ | 0.4+ | 2009 11 26 | 703 | 0.3+ | 0.9− | | |
| 2001 12 19 | 704 | 0.5+ | 0.6+ | 2005 12 06 | 691 | 0.1− | 0.0 | 2009 11 26 | 703 | 0.2− | 0.4− | | |
| 2001 12 20 | 704 | 0.5+ | 0.7+ | 2005 12 06 | 691 | 0.0 | 0.2− | 2009 11 26 | 703 | 0.2+ | 0.2− | | |
| 2001 12 20 | 704 | 0.5+ | 0.8+ | 2005 12 06 | 691 | 0.1+ | 0.1− | 2009 12 05 | D29 | 1.1+ | 0.7− | | |
| 2001 12 20 | 704 | 0.2+ | 0.4+ | 2006 01 06 | 704 | 0.6− | 0.3+ | 2009 12 05 | D29 | 0.1− | 1.2− | | |
| 2001 12 20 | 704 | 0.1− | 1.3+ | 2006 01 06 | 704 | 0.6+ | 1.2− | 2009 12 05 | D29 | 0.6+ | 0.1− | | |
| 2001 12 20 | 704 | (2.1+ | 0.6+) | 2006 01 06 | 704 | 0.9− | 0.6+ | 2009 12 05 | D29 | 0.3+ | 0.5− | | |
| 2001 12 25 | 608 | 0.1− | 0.5− | 2006 01 06 | 704 | 0.4+ | 0.2+ | 2009 12 09 | 704 | 0.3+ | 0.5− | | |
| 2001 12 25 | 608 | 0.3− | 0.8− | 2006 01 24 | 704 | 0.6− | 0.1− | 2009 12 09 | 704 | 0.4+ | 1.1+ | | |
| 2001 12 25 | 608 | 0.1− | 1.0− | 2006 01 24 | 704 | 1.2+ | 0.7+ | 2009 12 09 | 704 | 0.3− | 0.5+ | | |
| 2002 01 09 | 704 | 0.8+ | 0.4+ | 2006 01 24 | 704 | 0.8− | 0.5+ | 2009 12 09 | 704 | 0.4− | 0.3− | | |
| 2002 01 09 | 704 | 0.1+ | 0.4− | 2006 01 24 | 704 | 0.2− | 0.3+ | 2009 12 09 | 704 | 0.4− | 0.1+ | | |
| 2002 01 09 | 704 | 0.0 | 0.1− | 2006 02 20 | G96 | 0.2− | 0.0 | | | | | | |
| 2002 01 09 | 704 | 0.6+ | 0.5− | 2006 02 20 | G96 | 0.2− | 0.3− | | | | | | |

**(228577)∗ 2001 YM$_{88}$**

Discovered 2001 Dec. 18 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 77.01273 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24562097 | $\omega$ | 270.46287 | | +0.94252696 | −0.20263636 | |
| $a$ | 2.5251805 | $\Omega$ | 101.24563 | | +0.28724155 | +0.89757535 | |
| $e$ | 0.1589215 | $i$ | 15.71618 | | −0.17069043 | +0.39153161 | |
| $P$ | 4.01 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 12 18 | 704 | 1.0− | 0.1− | 2005 11 25 | G96 | 0.0 | 0.5− | 2006 01 30 | 691 | 0.2+ | 0.0 | | |
| 2001 12 18 | 704 | 0.2+ | 0.8− | 2005 11 25 | G96 | 0.1− | 0.3− | 2006 02 02 | 691 | 0.3+ | 0.0 | | |
| 2001 12 18 | 704 | 0.2− | 0.7+ | 2005 11 25 | G96 | 0.3− | 0.3− | 2006 02 02 | 691 | 0.2+ | 0.0 | | |
| 2001 12 18 | 704 | 1.0− | 0.8− | 2005 11 25 | G96 | 0.4− | 0.5− | 2006 02 02 | 691 | 0.1+ | 0.0 | | |
| 2001 12 19 | 704 | 0.1− | 1.1− | 2005 12 24 | 691 | 0.2+ | 0.3+ | 2008 07 30 | E12 | 0.6− | 0.7+ | | |
| 2001 12 19 | 704 | 0.9− | 0.5− | 2005 12 24 | 691 | 0.2+ | 0.2+ | 2008 07 30 | E12 | 1.0+ | 0.2+ | | |
| 2001 12 19 | 704 | 1.5− | 0.4− | 2005 12 24 | 691 | 0.2+ | 0.3+ | 2008 07 30 | E12 | 0.1+ | 0.1+ | | |
| 2001 12 19 | 704 | 0.9− | 0.2− | 2005 12 27 | 703 | 0.3− | 0.1− | 2008 07 30 | E12 | 0.7− | 0.1+ | | |
| 2002 01 14 | 704 | 0.4+ | 0.0 | 2005 12 27 | 703 | 0.2+ | 1.0− | 2008 08 26 | E12 | 0.1+ | 0.2+ | | |
| 2002 01 14 | 704 | 0.0 | 0.1+ | 2005 12 27 | 703 | 0.5− | 1.2− | 2008 08 26 | E12 | 0.3+ | 0.1+ | | |
| 2002 01 14 | 704 | 0.6+ | 0.4+ | 2005 12 27 | 703 | 0.7+ | 0.0 | 2009 11 17 | G96 | 0.4+ | 0.1− | | |
| 2002 01 14 | 704 | 0.1+ | 0.8+ | 2005 12 28 | G96 | 0.3+ | 0.1+ | 2009 11 17 | G96 | 0.2− | 0.0 | | |
| 2002 01 19 | 704 | 0.1+ | 1.0− | 2005 12 28 | G96 | 0.1+ | 0.2− | 2009 11 17 | G96 | 0.2+ | 0.3− | | |
| 2002 01 19 | 704 | 0.1+ | 0.3+ | 2005 12 28 | G96 | 0.2+ | 0.3− | 2009 11 17 | G96 | 0.1+ | 0.2− | | |
| 2002 01 19 | 704 | 1.2− | 0.3− | 2005 12 30 | 691 | 0.3+ | 0.4+ | 2009 12 10 | G96 | 0.1+ | 0.1+ | | |
| 2002 01 19 | 704 | 0.2+ | 0.5− | 2005 12 30 | 691 | 0.3+ | 0.2+ | 2009 12 10 | G96 | 0.6+ | 0.5− | | |
| 2003 03 31 | 645 | 0.0 | 0.1+ | 2005 12 30 | 691 | 0.4+ | 0.1+ | 2009 12 10 | G96 | 0.0 | 0.1− | | |
| 2003 03 31 | 645 | 0.0 | 0.0 | 2006 01 05 | 704 | 0.4+ | 0.7+ | 2009 12 10 | G96 | 0.4− | 0.2− | | |
| 2004 08 19 | E12 | 0.1− | 0.0 | 2006 01 05 | 704 | 0.2− | 0.8+ | 2009 12 25 | 691 | 0.5− | 0.2+ | | |
| 2004 08 19 | E12 | 0.3− | 0.3− | 2006 01 05 | 704 | 0.3− | 0.2+ | 2009 12 25 | 691 | 0.3− | 0.4+ | | |
| 2004 08 19 | E12 | 0.4+ | 0.5+ | 2006 01 30 | 691 | 0.2+ | 0.0 | 2009 12 25 | 691 | 0.8− | 0.1− | | |
| 2004 08 19 | E12 | (2.9− | 0.3−) | 2006 01 30 | 691 | 0.1+ | 0.1+ | | | | | | |

**(228578)∗ 2001 YB$_{92}$**

Discovered 2001 Dec. 18 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 63.70631 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23993290 | $\omega$ | 42.46411 | | +0.96625653 | +0.24504510 | |
| $a$ | 2.5649339 | $\Omega$ | 303.18683 | | −0.25437928 | +0.85935668 | |
| $e$ | 0.3380150 | $i$ | 5.44276 | | −0.04049064 | +0.44884184 | |
| $P$ | 4.11 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 01 23 | 691 | 0.1− | 0.1− | 2002 01 14 | 704 | 0.9− | 1.2− | 2005 12 28 | 691 | 0.0 | 0.1+ | | |
| 1998 01 23 | 691 | 0.2− | 0.1− | 2004 05 17 | 428 | 0.2+ | 0.5− | 2005 12 29 | 704 | 0.6+ | 0.8− | | |
| 1998 01 23 | 691 | 0.1− | 0.2− | 2004 05 17 | 428 | 1.1− | 0.7+ | 2005 12 29 | 704 | 0.4+ | 0.3+ | | |
| 2001 12 15 | 645 | 0.1− | 0.1− | 2004 05 19 | 428 | 1.2− | 0.2− | 2005 12 29 | 704 | 0.1+ | 0.2+ | | |
| 2001 12 15 | 645 | 0.0 | 0.2− | 2004 05 20 | 428 | 0.4− | 0.7+ | 2005 12 29 | 704 | 0.1− | 0.0 | | |
| 2001 12 18 | 644 | 0.2+ | 0.8+ | 2004 05 20 | 428 | 0.7+ | 0.8+ | 2006 01 06 | 704 | 0.2− | 0.4− | | |
| 2001 12 18 | 644 | 0.0 | 0.7+ | 2004 05 22 | 704 | 1.1+ | 0.4+ | 2006 01 06 | 704 | 0.6− | 0.4− | | |
| 2001 12 18 | 644 | 0.3+ | 0.6+ | 2004 05 22 | 704 | 1.1+ | 0.3− | 2006 01 06 | 704 | 0.1+ | 0.4+ | | |
| 2001 12 19 | 644 | 0.2+ | 1.1+ | 2004 05 22 | 704 | (0.3− | 2.1+) | 2006 02 03 | 691 | 0.2+ | 0.4+ | | |
| 2001 12 19 | 644 | (0.5+ | 1.6+) | 2005 11 28 | 704 | 0.0 | 0.0 | 2006 02 03 | 691 | 0.1+ | 0.1+ | | |
| 2001 12 19 | 644 | 0.4+ | 1.5+ | 2005 11 28 | 704 | 0.6+ | 0.1− | 2006 02 03 | 691 | 0.1− | 0.2+ | | |
| 2001 12 19 | 704 | 0.1− | 0.1− | 2005 11 28 | 704 | 0.2+ | 0.9− | 2007 02 17 | G96 | 0.2− | 1.2+ | | |
| 2001 12 19 | 704 | 0.4− | 0.7+ | 2005 12 02 | 691 | 0.1+ | 0.0 | 2007 02 17 | G96 | 0.6+ | 0.1+ | | |
| 2001 12 19 | 704 | 0.5− | 0.6+ | 2005 12 02 | 691 | 0.0 | 0.1− | 2007 02 17 | G96 | 0.2+ | 0.0 | | |
| 2001 12 19 | 704 | 0.9− | 0.5+ | 2005 12 02 | 691 | 0.3+ | 0.1− | 2007 02 17 | G96 | 0.1− | 0.4+ | | |
| 2001 12 25 | 608 | 0.1− | 0.5− | 2005 12 05 | 704 | 0.4− | 0.3+ | 2009 11 16 | 704 | 0.1+ | 0.2+ | | |
| 2001 12 25 | 608 | 0.0 | 1.0− | 2005 12 05 | 704 | 0.6+ | 0.2+ | 2009 11 16 | 704 | 0.1+ | 0.1+ | | |
| 2001 12 25 | 608 | 0.2− | 0.9− | 2005 12 05 | 704 | 1.2+ | 1.1+ | 2009 11 16 | 704 | 0.1− | 0.3+ | | |
| 2002 01 08 | 704 | 1.2+ | 0.5+ | 2005 12 05 | 704 | 0.5− | 0.4− | 2009 11 16 | 704 | 0.1+ | 0.4+ | | |
| 2002 01 08 | 704 | 0.7+ | 0.4− | 2005 12 06 | 691 | 0.2+ | 0.2− | 2009 11 16 | 704 | 0.2+ | 0.3+ | | |
| 2002 01 08 | 704 | 0.1− | 0.4+ | 2005 12 06 | 691 | 0.7− | 1.1+ | 2009 12 10 | 704 | 0.7− | 0.5+ | | |
| 2002 01 08 | 704 | 0.3+ | 0.9− | 2005 12 06 | 691 | 0.2+ | 0.0 | 2009 12 10 | 704 | 1.3− | 0.6+ | | |
| 2002 01 08 | 704 | 0.2− | 0.1− | 2005 12 10 | 691 | 0.2+ | 0.2− | 2009 12 10 | 704 | 0.1+ | 0.7− | | |
| 2002 01 14 | 704 | (0.4− | 1.7−) | 2005 12 10 | 691 | 0.1+ | 0.1− | 2009 12 16 | 704 | 0.0 | 0.0 | | |
| 2002 01 14 | 704 | 0.1+ | 1.2− | 2005 12 10 | 691 | 0.2− | 0.9+ | 2009 12 16 | 704 | 0.6+ | 0.2− | | |
| 2002 01 14 | 704 | 0.2− | 0.9− | 2005 12 28 | 691 | 0.0 | 0.1− | 2009 12 16 | 704 | 0.1− | 0.0 | | |
| 2002 01 14 | 704 | 0.4− | 1.2− | 2005 12 28 | 691 | 0.0 | 0.1− | | | | | | |

**(228579)∗ 2001 YF$_{92}$**

Discovered 2001 Dec. 18 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 41.99982 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.36781634 | $\omega$ | 316.11653 | | +0.41540394 | −0.81180999 | |
| $a$ | 1.9292212 | $\Omega$ | 105.26827 | | +0.90680277 | +0.33398868 | |
| $e$ | 0.0759515 | $i$ | 25.17506 | | +0.07175171 | +0.47897401 | |
| $P$ | 2.68 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 12 18 | 704 | 0.7+ | 0.7+ | 2002 01 20 | 699 | 0.5− | 0.5− | 2006 10 30 | E12 | 0.6− | 0.0 | | |
| 2001 12 18 | 704 | (1.5+ | 1.4+) | 2002 01 21 | 699 | 0.3+ | 0.2+ | 2006 10 30 | E12 | 0.1+ | 0.6− | | |
| 2001 12 18 | 644 | 0.8+ | 0.3+ | 2002 01 21 | 699 | 0.2− | 0.0 | 2006 10 30 | E12 | 0.7− | 0.3− | | |
| 2001 12 18 | 704 | 0.4− | 0.7+ | 2002 01 21 | 699 | 0.8− | 0.4− | 2008 02 28 | G96 | 0.3+ | 0.7+ | | |
| 2001 12 18 | 644 | 0.7+ | 0.1+ | 2002 01 21 | 699 | 0.7− | 0.0 | 2008 02 28 | G96 | 0.2− | 0.1− | | |
| 2001 12 18 | 644 | 0.6+ | 0.4+ | 2002 01 23 | 704 | 0.1+ | 0.2− | 2008 02 28 | G96 | 0.7− | 0.5− | | |
| 2001 12 18 | 704 | 0.8+ | 0.7+ | 2002 01 23 | 704 | 0.1+ | 0.6− | 2008 02 28 | G96 | 0.4+ | 0.2− | | |
| 2001 12 20 | 704 | 0.3− | 0.2+ | 2002 01 23 | 704 | 0.8+ | 0.1+ | 2008 05 27 | G96 | 0.6+ | 0.1+ | | |
| 2001 12 20 | 704 | 0.4− | 0.5+ | 2002 01 23 | 704 | 0.4+ | 0.7+ | 2008 05 27 | G96 | 0.2+ | 0.2+ | | |
| 2001 12 20 | 704 | (1.6− | 1.4+) | 2002 01 23 | 704 | 0.4+ | 0.0 | 2008 05 27 | G96 | 0.3+ | 0.1+ | | |
| 2001 12 20 | 704 | 0.4− | 0.9+ | 2002 02 02 | 644 | 0.1+ | 0.2− | 2008 05 27 | G96 | 1.1+ | 0.2− | | |
| 2001 12 20 | 704 | 1.0− | 0.6+ | 2002 02 02 | 644 | 0.1+ | 0.2− | 2009 10 24 | G96 | 0.4+ | 0.4− | | |
| 2001 12 23 | 608 | 0.2+ | 0.4− | 2002 02 02 | 644 | 0.2+ | 0.2− | 2009 10 24 | G96 | 0.1− | 0.6− | | |
| 2001 12 23 | 608 | 0.3− | 0.7− | 2002 02 21 | 704 | 1.3+ | 0.4+ | 2009 10 24 | G96 | 0.3+ | 0.4− | | |
| 2001 12 23 | 608 | 0.1− | 0.8+ | 2002 02 21 | 704 | 0.1− | 1.0+ | 2009 12 10 | J75 | 0.1− | 0.0 | | |
| 2002 01 08 | 704 | 0.1− | 0.0 | 2002 02 21 | 704 | 0.6− | 0.2− | 2009 12 10 | J75 | 0.5− | 0.6− | | |
| 2002 01 08 | 704 | 0.1− | 0.5+ | 2002 02 21 | 704 | 0.1− | 0.4+ | 2009 12 10 | J75 | 0.3− | 0.5− | | |
| 2002 01 08 | 704 | 0.5+ | 0.1+ | 2002 02 21 | 704 | 0.2− | 0.1+ | 2009 12 11 | 703 | 0.3+ | 0.7− | | |
| 2002 01 08 | 704 | 0.1− | 0.2− | 2005 03 15 | 703 | 0.8− | 0.4− | 2009 12 11 | 703 | 0.2− | 0.2+ | | |
| 2002 01 08 | 704 | 0.3+ | 0.2− | 2005 03 15 | 703 | 1.1− | 1.3+ | 2009 12 11 | 703 | 0.5+ | 0.3− | | |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 01 11 | 699 | 0.1+ | 0.4− | 2005 03 15 | 703 | (0.0 | 1.7−) | 2009 12 17 | 704 | 0.7+ | 0.5+ |
| 2002 01 11 | 699 | 0.5− | 0.0 | 2005 03 15 | 703 | 0.2− | 0.2− | 2009 12 17 | 704 | 1.1+ | 0.1− |
| 2002 01 11 | 699 | 0.2− | 0.5− | 2005 03 31 | 703 | 0.5− | 0.7− | 2009 12 17 | 704 | 0.5+ | 0.0 |
| 2002 01 11 | 699 | 0.1+ | 0.2− | 2005 03 31 | 703 | (1.9− | 1.2−) | 2009 12 17 | 704 | 0.4+ | 0.3− |
| 2002 01 19 | 699 | (0.2− | 2.6−) | 2005 03 31 | 703 | (0.4− | 1.7+) | 2009 12 17 | 704 | 0.6+ | 0.8+ |
| 2002 01 19 | 699 | 0.3+ | 0.6− | 2005 03 31 | 703 | 0.2− | 0.8+ | 2009 12 17 | 691 | 0.2− | 0.2− |
| 2002 01 19 | 699 | 1.0− | 0.2+ | 2006 10 13 | E12 | 0.6− | 0.7+ | 2009 12 17 | 691 | 0.1− | 0.4− |
| 2002 01 19 | 699 | 0.3+ | 0.4+ | 2006 10 13 | E12 | 0.0 | 0.1− | 2009 12 17 | 691 | 0.3+ | 0.4+ |
| 2002 01 20 | 699 | 0.1− | 0.9− | 2006 10 13 | E12 | 0.1− | 0.3+ | 2009 12 26 | 691 | 0.1− | 0.4+ |
| 2002 01 20 | 699 | 0.2+ | 0.1+ | 2006 10 13 | E12 | 0.2− | 0.3− | 2009 12 26 | 691 | 0.4− | 0.0 |
| 2002 01 20 | 699 | 0.4− | 0.2+ | 2006 10 30 | E12 | 0.6+ | 0.6+ | 2009 12 26 | 691 | 0.0 | 0.3− |

**(228580)∗ 2001 YP$_{96}$**

Discovered 2001 Dec. 18 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 17.56452 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.24462850 | | $\omega$ | 44.49068 | | +0.16807693 | | −0.98468327 | |
| $a$ | 2.5320057 | | $\Omega$ | 35.90802 | | +0.88096696 | | +0.12893999 | |
| $e$ | 0.1738029 | | $i$ | 4.53354 | | +0.44232043 | | +0.11735986 | |
| $P$ | 4.03 | | $H$ | 16.0 | $G$ | 0.15 | $U$ | 1 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1960 09 24 | 675 | 0.6− | 0.7− | 2002 01 11 | 699 | 0.8+ | 0.5+ | 2006 01 06 | 704 | 0.3+ | 1.2+ |
| 1960 09 24 | 675 | 0.1+ | 0.8− | 2002 01 14 | 645 | 0.2− | 0.2− | 2006 01 06 | 704 | 0.2− | 0.6+ |
| 1960 09 26 | 675 | 0.1+ | 0.0 | 2002 01 14 | 645 | 0.2− | 0.2− | 2006 01 18 | 703 | 0.8− | 0.2+ |
| 1960 09 26 | 675 | 0.1+ | 0.2+ | 2002 01 17 | 046 | 0.1− | 0.3+ | 2006 01 18 | 703 | 0.2− | 0.7− |
| 1960 09 27 | 675 | 0.1+ | 0.6− | 2002 01 17 | 046 | 0.3+ | 0.3+ | 2006 01 18 | 703 | 0.3− | 0.3− |
| 1960 09 27 | 675 | 0.4− | 0.7− | 2002 01 17 | 046 | 0.3− | 0.1+ | 2006 01 18 | 703 | 0.6+ | 0.2− |
| 1960 09 28 | 675 | 0.0 | 0.3− | 2002 01 17 | 046 | 0.2+ | 0.2− | 2006 01 24 | 699 | 1.1− | 0.1+ |
| 1960 10 24 | 675 | 1.1+ | 0.2+ | 2002 02 03 | 699 | 0.1− | 1.1+ | 2006 01 24 | 699 | 0.1− | 0.1+ |
| 1960 10 26 | 675 | 0.4+ | 0.4+ | 2002 02 03 | 699 | 0.3− | 0.3+ | 2006 01 24 | 703 | 0.0 | 0.3− |
| 1960 10 26 | 675 | 0.0 | 0.0 | 2002 02 03 | 699 | 1.3+ | 0.2+ | 2006 01 24 | 703 | 0.3− | 0.2− |
| 2001 11 12 | 704 | 0.5+ | 0.6+ | 2002 02 03 | 699 | 0.8+ | 0.5+ | 2006 01 24 | 703 | 0.1− | 0.8+ |
| 2001 11 12 | 704 | 0.2+ | 0.2+ | 2002 02 04 | 644 | 0.3− | 0.8− | 2006 01 24 | 703 | 0.8− | 0.5− |
| 2001 11 12 | 704 | 0.6− | 0.2− | 2002 02 04 | 644 | 0.2− | 0.5− | 2006 01 24 | 699 | 0.4+ | 0.0 |
| 2001 11 12 | 704 | 0.2− | 0.5+ | 2002 02 04 | 644 | 0.2− | 0.6− | 2007 04 20 | G96 | 0.2+ | 1.2+ |
| 2001 12 17 | 704 | 0.5+ | 1.5+ | 2002 02 12 | 704 | 0.4− | 0.0 | 2007 04 20 | G96 | 0.7− | 0.6− |
| 2001 12 17 | 704 | 1.2− | 0.7+ | 2002 02 12 | 704 | 0.0 | 0.6+ | 2007 04 20 | G96 | 1.4+ | 0.1− |
| 2001 12 17 | 704 | 0.8− | 0.4+ | 2002 02 12 | 704 | 0.7+ | 0.1− | 2007 04 20 | G96 | 0.3+ | 0.3+ |
| 2001 12 17 | 704 | 0.4+ | 0.7+ | 2002 02 12 | 704 | 0.2+ | 0.1+ | 2007 04 22 | G96 | 1.1+ | 0.1+ |
| 2001 12 17 | 704 | 0.5− | 0.3+ | 2005 12 06 | 699 | 0.9− | 0.3+ | 2007 04 22 | G96 | 0.4+ | 0.2− |
| 2001 12 18 | 644 | 0.1+ | 0.4− | 2005 12 06 | 699 | 1.4+ | 0.4+ | 2007 04 22 | G96 | 0.2+ | 0.3+ |
| 2001 12 18 | 644 | 0.0 | 0.3− | 2005 12 06 | 699 | (1.9+ | 0.5+) | 2007 04 22 | G96 | 0.1+ | 0.1+ |
| 2001 12 18 | 644 | 0.1− | 0.2− | 2005 12 06 | 699 | 0.6− | 1.5+ | 2007 05 11 | 691 | 0.3− | 0.1− |
| 2001 12 19 | 644 | 0.4+ | 0.2+ | 2005 12 29 | 703 | 0.3+ | 0.0 | 2007 05 11 | 691 | 0.3− | 0.3+ |
| 2001 12 19 | 644 | 0.4+ | 0.3+ | 2005 12 29 | 703 | 0.2− | 0.1+ | 2007 05 11 | 691 | 0.1+ | 0.1− |
| 2001 12 19 | 644 | 0.3+ | 0.3+ | 2005 12 29 | 704 | 0.1+ | 0.3+ | 2009 09 20 | 291 | 0.1− | 0.0 |
| 2001 12 21 | 704 | 0.8+ | 0.4+ | 2005 12 29 | 703 | 0.2− | 0.3+ | 2009 09 20 | 291 | 0.7+ | 1.2+ |
| 2001 12 21 | 704 | 0.9+ | 0.3+ | 2005 12 29 | 704 | 0.0 | 0.1− | 2009 09 20 | 291 | 0.1+ | 0.1− |
| 2001 12 21 | 704 | 0.9+ | 0.2+ | 2005 12 29 | 704 | 0.1+ | 0.1+ | 2009 12 09 | J75 | 0.2− | 0.5− |
| 2002 01 05 | 644 | 0.3+ | 0.2+ | 2005 12 29 | 704 | 0.4+ | 0.1− | 2009 12 09 | J75 | 0.4− | 0.6− |
| 2002 01 05 | 644 | 0.4+ | 0.3+ | 2005 12 29 | 704 | 0.1+ | 0.2+ | 2009 12 09 | J75 | 0.1− | 0.5− |
| 2002 01 05 | 644 | 0.2+ | 0.4+ | 2005 12 30 | 699 | 0.3− | 0.2− | 2009 12 10 | 704 | 0.2+ | 0.8+ |
| 2002 01 08 | 704 | 0.2+ | 0.9− | 2005 12 30 | 699 | 0.2− | 0.1+ | 2009 12 10 | 704 | 0.1+ | 0.6+ |
| 2002 01 08 | 704 | 0.4+ | 1.2− | 2005 12 30 | 699 | 0.5− | 0.8− | 2009 12 10 | 704 | 0.0 | 0.6+ |
| 2002 01 08 | 704 | 1.5+ | 0.9− | 2006 01 05 | 703 | 0.1+ | 1.0− | 2009 12 15 | 704 | 0.2+ | 0.1+ |
| 2002 01 08 | 704 | 1.0+ | 1.5− | 2006 01 05 | 703 | 0.0 | 0.7− | 2009 12 15 | 704 | 0.0 | 0.2− |
| 2002 01 08 | 704 | (1.6+ | 1.9−) | 2006 01 05 | 703 | 1.0− | 1.4− | 2009 12 15 | 704 | 0.6− | 0.8+ |
| 2002 01 11 | 699 | (1.6+ | 0.6−) | 2006 01 05 | 703 | 1.1− | 1.2− | 2009 12 15 | 704 | 0.4+ | 0.2+ |
| 2002 01 11 | 699 | 1.1+ | 0.9+ | 2006 01 06 | 704 | 0.4+ | 0.7+ | 2009 12 15 | 704 | 0.2− | 0.6+ |
| 2002 01 11 | 699 | 0.1+ | 0.5− | 2006 01 06 | 704 | 0.5+ | 1.0+ | | | | |

**(228581)∗ 2001 YL$_{100}$**

Discovered 2001 Dec. 17 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 54.10283 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.24145403 | | $\omega$ | 271.06206 | | +0.96636565 | | −0.13582909 | |
| $a$ | 2.5541501 | | $\Omega$ | 96.77056 | | +0.20984657 | | +0.90735002 | |
| $e$ | 0.1469234 | | $i$ | 12.70370 | | −0.14866689 | | +0.39782710 | |
| $P$ | 4.08 | | $H$ | 15.6 | $G$ | 0.15 | $U$ | 2 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 12 17 | 704 | 0.1− | 0.7− | 2005 11 30 | 704 | 0.3− | 0.9+ | 2009 11 14 | 704 | 0.2− | 0.6+ |
| 2001 12 17 | 704 | 0.1+ | 0.9− | 2005 11 30 | 704 | 0.5− | 0.8+ | 2009 11 14 | 704 | 0.5+ | 0.6+ |
| 2001 12 17 | 704 | 0.1+ | 0.8− | 2005 11 30 | 704 | 0.6+ | 1.0+ | 2009 11 14 | 704 | 0.3+ | 0.3− |
| 2001 12 17 | 704 | 0.1− | 0.7− | 2005 12 07 | 704 | 0.1− | 0.5− | 2009 11 14 | 704 | 0.1− | 0.0 |
| 2001 12 17 | 704 | 0.1+ | 0.7− | 2005 12 07 | 704 | (2.0+ | 1.6+) | 2009 11 15 | 683 | (0.3− | 1.6−) |
| 2001 12 20 | 704 | (0.6− | 3.4+) | 2005 12 07 | 704 | 0.5+ | 0.6+ | 2009 11 15 | 683 | (2.0+ | 0.6+) |
| 2001 12 20 | 704 | (0.9− | 3.4+) | 2005 12 07 | 704 | 0.5+ | 0.1+ | 2009 11 15 | 683 | (1.6+ | 0.4+) |
| 2001 12 20 | 704 | (0.3− | 3.9+) | 2005 12 09 | 704 | 0.2+ | 1.3− | 2009 11 19 | 704 | 0.1− | 0.3+ |
| 2001 12 21 | 704 | 0.2+ | 1.3+ | 2005 12 09 | 704 | 0.4− | 1.0− | 2009 11 19 | 704 | 0.5− | 0.3+ |
| 2001 12 21 | 704 | 0.0 | 0.0 | 2005 12 09 | 704 | 0.5− | 1.0− | 2009 11 19 | 704 | 0.4− | 0.9+ |
| 2001 12 21 | 704 | 0.1+ | 0.1− | 2005 12 09 | 704 | 0.2− | 0.4− | 2009 11 19 | 704 | 0.1+ | 0.3+ |
| 2002 01 08 | 704 | 0.7− | 0.5+ | 2005 12 27 | 704 | 0.1+ | 0.2− | 2009 11 19 | 704 | 0.6+ | 0.3− |
| 2002 01 08 | 704 | 0.2− | 0.9+ | 2005 12 27 | 704 | 0.5− | 0.3+ | 2009 11 19 | 198 | 1.0− | 0.0 |
| 2002 01 08 | 704 | 0.4− | 0.8+ | 2005 12 27 | 704 | 0.2+ | 0.1+ | 2009 11 19 | 198 | 0.3− | 0.1− |
| 2002 01 08 | 704 | 0.1+ | 1.0+ | 2006 02 20 | G96 | 0.2+ | 0.3+ | 2009 11 19 | 198 | 0.2− | 0.2− |
| 2002 01 13 | 704 | 0.6+ | 0.7− | 2006 02 20 | G96 | 0.2+ | 0.4+ | 2009 11 19 | 198 | 0.2+ | 0.2− |
| 2002 01 13 | 704 | 0.6− | 0.2− | 2006 02 20 | G96 | 0.1+ | 0.2+ | 2009 11 19 | 198 | 0.1+ | 0.4− |
| 2002 01 13 | 704 | 0.4− | 0.7− | 2006 02 20 | G96 | 0.6+ | 0.0 | 2009 11 19 | 198 | 0.1+ | 0.4− |
| 2002 01 13 | 704 | 0.7+ | 0.3− | 2007 03 16 | 703 | (1.7+ | 0.2−) | 2009 11 19 | 198 | 0.1+ | 0.5− |
| 2002 01 13 | 704 | 0.4+ | 0.6− | 2007 03 16 | 703 | 0.7− | 0.0 | 2009 11 23 | 703 | (2.0− | 0.6−) |
| 2002 01 15 | 704 | 0.2+ | 0.9− | 2007 03 16 | 703 | 0.5− | 0.5− | 2009 11 23 | 703 | 0.2+ | 0.0 |
| 2002 01 15 | 704 | 0.8+ | 0.6− | 2007 03 16 | 703 | 0.2− | 1.2− | 2009 11 23 | 703 | 0.2+ | 0.1− |
| 2002 01 15 | 704 | 1.0+ | 0.8− | 2007 03 16 | 703 | 0.6+ | 1.1+ | 2009 11 23 | 703 | 0.3+ | 0.7+ |
| 2002 01 15 | 704 | 0.4+ | 1.1− | 2007 03 16 | 703 | 0.1− | 0.9+ | 2009 12 13 | 704 | 0.2− | 0.1+ |
| 2002 01 15 | 704 | 0.9+ | 0.7− | 2007 03 16 | 703 | 0.4+ | 0.3+ | 2009 12 13 | 704 | 0.4− | 0.7+ |
| 2002 01 21 | 704 | 1.3− | 1.2+ | 2007 03 16 | 703 | 0.7+ | 0.4+ | 2009 12 13 | 704 | 0.4− | 0.2− |
| 2002 01 21 | 704 | 0.5− | 0.5+ | 2009 10 31 | J75 | 0.3− | 1.2− | 2009 12 13 | 704 | 0.1+ | 0.1− |
| 2002 01 21 | 704 | 1.0− | 0.1+ | 2009 10 31 | J75 | 0.1− | 0.1+ | 2009 12 13 | 704 | 0.4− | 0.3+ |
| 2002 01 21 | 704 | 0.1− | 0.6+ | 2009 10 31 | J75 | 0.1+ | 0.5− | 2009 12 18 | 704 | 0.7+ | 0.5+ |
| 2002 01 22 | 704 | 0.1− | 0.1+ | 2009 11 09 | 703 | (1.6+ | 0.2+) | 2009 12 18 | 704 | 0.0 | 1.6+ |
| 2002 01 22 | 704 | 0.6+ | 0.3+ | 2009 11 09 | 703 | 0.0 | 0.1− | 2009 12 18 | 704 | 0.4+ | 0.1+ |
| 2002 01 22 | 704 | 0.1− | 0.4− | 2009 11 09 | 703 | 0.4+ | 0.7+ | 2009 12 18 | 704 | 1.0− | 0.3+ |
| 2003 05 30 | 645 | 0.0 | 0.0 | 2009 11 09 | 703 | 0.2− | 0.4− | | | | |
| 2003 05 30 | 645 | 0.0 | 0.0 | 2009 11 14 | 704 | 0.1− | 0.2+ | | | | |

**(228582)∗ 2001 YJ$_{112}$**

Discovered 2001 Dec. 18 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 15.63566 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.23519135 | | $\omega$ | 79.38514 | | +0.71105259 | | −0.70021761 | |
| $a$ | 2.5992925 | | $\Omega$ | 325.00635 | | +0.59356221 | | +0.64656501 | |
| $e$ | 0.1510724 | | $i$ | 6.41021 | | +0.37694578 | | +0.30273583 | |
| $P$ | 4.19 | | $H$ | 15.8 | $G$ | 0.15 | $U$ | 2 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 08 27 | 807 | 0.3− | 0.4+ | 2005 12 31 | 703 | 0.7− | 0.7+ | 2009 10 27 | D29 | 0.0 | 0.2− |
| 2000 08 27 | 807 | 0.0 | 0.4+ | 2009 09 28 | 704 | 0.1+ | 0.8+ | 2009 11 10 | 703 | 0.6− | 0.2+ |
| 2001 12 18 | 644 | 0.5− | 0.7+ | 2009 09 28 | 704 | 0.5+ | 1.1+ | 2009 11 10 | 703 | 0.2− | 0.5− |
| 2001 12 18 | 644 | 0.1− | 0.8+ | 2009 09 28 | 704 | 0.2− | 0.2− | 2009 11 10 | 703 | 0.4− | 0.1− |
| 2001 12 18 | 644 | 0.1+ | 0.8+ | 2009 09 28 | 704 | 1.0− | 0.5+ | 2009 11 10 | 703 | (1.5− | 2.2−) |
| 2001 12 24 | 644 | 0.1− | 0.2− | 2009 10 14 | 703 | 0.9− | 0.1+ | 2009 11 19 | 703 | 0.2+ | 0.1+ |
| 2001 12 24 | 644 | 0.4+ | 0.3− | 2009 10 14 | 703 | 0.2− | 0.3− | 2009 11 19 | 703 | 0.0 | 0.3+ |
| 2001 12 24 | 644 | 0.7+ | 0.2+ | 2009 10 14 | 703 | 0.9− | 0.9− | 2009 11 19 | 703 | 0.6+ | 0.4+ |
| 2002 01 08 | 704 | 0.3+ | 0.3− | 2009 10 14 | 703 | 0.2− | 0.6− | 2009 11 19 | 703 | 0.1+ | 0.3+ |
| 2002 01 08 | 704 | 0.6+ | 1.3− | 2009 10 16 | 704 | 0.5+ | 0.2+ | 2009 11 22 | G92 | 0.0 | 0.3+ |
| 2002 01 08 | 704 | 0.9− | 0.4+ | 2009 10 16 | 704 | 0.3+ | 0.4− | 2009 11 22 | G92 | 0.7− | 1.0− |
| 2002 01 08 | 704 | 0.8− | 0.2− | 2009 10 16 | 704 | 0.9+ | 0.0 | 2009 11 22 | G92 | 0.6− | 0.0 |
| 2002 01 08 | 704 | 0.6− | 0.4− | 2009 10 16 | 704 | 0.3− | 0.1− | 2009 11 22 | 704 | 0.1− | 0.8+ |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 01 17 | 644 | 0.2+ | 0.1+ | 2009 10 16 | 704 | 0.3+ | 0.4+ | 2009 11 22 | 704 | 0.0 | 0.6+ |
| 2002 01 17 | 644 | 0.1+ | 0.5+ | 2009 10 24 | 704 | 0.1− | 0.2+ | 2009 11 22 | 704 | 0.4+ | 0.2+ |
| 2002 01 17 | 644 | 0.1+ | 0.0 | 2009 10 24 | 704 | 0.3− | 0.3− | 2009 11 22 | 704 | 0.1− | 0.0 |
| 2002 02 12 | 704 | 0.2+ | 1.0+ | 2009 10 24 | 704 | 0.1+ | 0.5+ | 2009 12 06 | J75 | 0.2+ | 0.0 |
| 2002 02 12 | 704 | 0.6+ | 0.2+ | 2009 10 24 | 704 | 0.4− | 0.1+ | 2009 12 06 | J75 | 0.9+ | 0.6− |
| 2002 02 12 | 704 | 0.1+ | 0.3+ | 2009 10 24 | 704 | 0.5+ | 0.3+ | 2009 12 06 | J75 | 0.3+ | 0.2+ |
| 2005 12 24 | 704 | 0.5+ | 0.5+ | 2009 10 26 | G96 | 0.3+ | 0.3− | 2009 12 10 | 704 | 0.9+ | 0.3+ |
| 2005 12 24 | 704 | 0.3+ | 0.8− | 2009 10 26 | G96 | 0.1− | 0.4− | 2009 12 10 | 704 | 0.6− | 0.2+ |
| 2005 12 24 | 704 | 0.0 | 0.4+ | 2009 10 26 | G96 | 0.2+ | 0.7− | 2009 12 10 | 704 | 0.9+ | 0.5− |
| 2005 12 24 | 704 | 0.0 | 0.0 | 2009 10 26 | G96 | 0.4− | 0.4− | 2009 12 10 | 704 | 0.1+ | 1.3+ |
| 2005 12 31 | 703 | 0.1− | 0.4− | 2009 10 27 | D29 | 0.4+ | 0.5− | 2009 12 10 | 704 | 0.1− | 0.5− |
| 2005 12 31 | 703 | 0.4+ | 1.0− | 2009 10 27 | D29 | 0.1− | 0.5− | | | | |
| 2005 12 31 | 703 | 0.2− | 0.4− | 2009 10 27 | D29 | 0.5− | 0.2+ | | | | |

**(228583)∗ 2001 YA$_{121}$**

Discovered 2001 Dec. 21 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 4.94059 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23860536 | $\omega$ | 345.84739 | | +0.16962829 | −0.96424456 | |
| $a$ | 2.5744389 | $\Omega$ | 94.08770 | | +0.92287940 | +0.08294293 | |
| $e$ | 0.0957502 | $i$ | 11.77877 | | +0.34571644 | +0.25170003 | |
| $P$ | 4.13 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 12 18 | 644 | 0.2+ | 0.3+ | 2002 02 08 | 704 | 0.0 | 0.2+ | 2007 04 25 | G96 | 0.2+ | 0.2− |
| 2001 12 18 | 644 | 0.2+ | 0.5+ | 2003 04 09 | 691 | 0.3− | 0.2+ | 2007 04 25 | G96 | 0.1+ | 0.4− |
| 2001 12 18 | 704 | 0.8+ | 0.4− | 2003 04 09 | 691 | 0.6+ | 0.2+ | 2007 04 25 | G96 | 0.6− | 0.4− |
| 2001 12 18 | 644 | 0.3+ | 0.2+ | 2003 04 09 | 691 | 0.2+ | 0.2+ | 2007 05 22 | G96 | 0.0 | 0.1+ |
| 2001 12 18 | 704 | 1.0+ | 0.1− | 2005 12 04 | 704 | 0.4− | 0.3+ | 2007 05 22 | G96 | 0.1+ | 0.3− |
| 2001 12 18 | 704 | 0.9+ | 0.8+ | 2005 12 04 | 704 | 1.2+ | 0.5− | 2007 05 22 | G96 | 0.4− | 0.1− |
| 2001 12 18 | 704 | 1.3+ | 0.1+ | 2005 12 04 | 704 | 0.5+ | 0.7+ | 2007 05 22 | G96 | 0.0 | 0.1+ |
| 2001 12 21 | 691 | 0.6− | 0.0 | 2005 12 04 | 704 | 0.0 | 1.3− | 2009 11 19 | 704 | 0.2+ | 0.3− |
| 2001 12 21 | 691 | 0.6− | 0.1− | 2005 12 24 | 691 | 0.1+ | 0.1− | 2009 11 19 | 704 | 0.7+ | 0.6+ |
| 2001 12 21 | 691 | 0.7− | 0.1+ | 2005 12 24 | 691 | 0.1+ | 0.0 | 2009 11 19 | 704 | 0.6+ | 0.1+ |
| 2001 12 22 | 691 | 0.8+ | 0.4+ | 2005 12 24 | 691 | 0.2+ | 0.1− | 2009 11 26 | 691 | 0.4− | 0.2+ |
| 2001 12 22 | 691 | 1.4+ | 0.1+ | 2005 12 28 | 691 | 0.3+ | 0.0 | 2009 11 26 | 691 | 0.4− | 0.2+ |
| 2001 12 22 | 691 | 1.3+ | 0.6+ | 2005 12 28 | 691 | 0.8+ | 0.4− | 2009 11 26 | 691 | 0.6− | 0.2+ |
| 2001 12 23 | 691 | 0.3− | 0.1− | 2005 12 28 | 691 | 0.3+ | 0.0 | 2009 12 11 | G96 | 0.1+ | 0.1− |
| 2001 12 23 | 691 | 0.6− | 0.2− | 2005 12 30 | 691 | 0.4+ | 0.1− | 2009 12 11 | G96 | 0.2+ | 0.1− |
| 2001 12 23 | 691 | 0.6− | 0.1− | 2005 12 30 | 691 | 0.5+ | 0.6− | 2009 12 11 | G96 | 0.2+ | 0.0 |
| 2001 12 24 | 291 | 1.1− | 0.2+ | 2005 12 30 | 691 | 0.2+ | 0.1+ | 2009 12 11 | G96 | 0.1− | 0.0 |
| 2001 12 24 | 291 | 0.9− | 0.2+ | 2006 01 05 | 704 | 1.0− | 0.4− | 2009 12 12 | 704 | 0.1+ | 0.3+ |
| 2001 12 24 | 291 | 0.9− | 0.1+ | 2006 01 05 | 704 | 1.1− | 0.3− | 2009 12 12 | 704 | 0.5− | 0.2+ |
| 2002 01 08 | 704 | 0.8+ | 0.2+ | 2006 01 05 | 704 | (0.0 | 1.8−) | 2009 12 12 | 704 | 0.2+ | 0.1+ |
| 2002 01 08 | 704 | 0.9+ | 0.3− | 2006 01 07 | 704 | (1.9− | 0.1+) | 2009 12 12 | 704 | 0.1− | 0.5− |
| 2002 01 08 | 704 | 0.2− | 0.6− | 2006 01 07 | 704 | 1.5− | 0.7+ | 2009 12 17 | 704 | 0.9− | 0.4− |
| 2002 01 08 | 704 | 0.1+ | 1.2− | 2006 01 07 | 704 | (1.5− | 0.8+) | 2009 12 17 | 704 | 0.2+ | 0.5+ |
| 2002 01 08 | 704 | 0.2+ | 1.0− | 2006 01 07 | 704 | 1.2− | 1.2+ | 2009 12 17 | 704 | 0.5− | 0.7+ |
| 2002 02 08 | 704 | 0.1− | 0.6+ | 2006 01 09 | 691 | 0.4+ | 0.2+ | 2009 12 17 | 704 | 0.4− | 0.3+ |
| 2002 02 08 | 704 | 0.2+ | 0.5+ | 2006 01 09 | 691 | 0.0 | 0.3− | 2009 12 17 | 704 | 0.1− | 0.6− |
| 2002 02 08 | 704 | 0.1+ | 0.1− | 2006 01 09 | 691 | 0.2+ | 0.2− | | | | |
| 2002 02 08 | 704 | 0.7− | 0.3+ | 2007 04 25 | G96 | 0.7− | 0.2− | | | | |

**(228584)∗ 2001 YA$_{127}$**

Discovered 2001 Dec. 17 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 54.62313 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24665840 | $\omega$ | 43.72156 | | +0.88060097 | −0.47344200 | |
| $a$ | 2.5180950 | $\Omega$ | 344.50164 | | +0.41175513 | +0.78526509 | |
| $e$ | 0.1364818 | $i$ | 4.26336 | | +0.23452004 | +0.39901305 | |
| $P$ | 4.00 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 11 24 | 704 | 0.9+ | 0.3+ | 2003 04 08 | 644 | 0.0 | 0.0 | 2005 12 29 | 704 | 0.5+ | 0.5+ |
| 2001 11 24 | 704 | 0.2− | 0.8− | 2003 04 26 | 691 | 0.2+ | 0.3− | 2005 12 29 | 704 | 0.0 | 0.2+ |
| 2001 11 24 | 704 | 0.5− | 0.8+ | 2003 04 26 | 691 | 0.1+ | 0.1+ | 2005 12 29 | 704 | 0.4+ | 0.1− |
| 2001 12 17 | 704 | (1.1− | 1.8+) | 2003 04 26 | 691 | 0.4+ | 0.3+ | 2005 12 29 | 704 | 0.0 | 0.3+ |
| 2001 12 17 | 704 | (1.0− | 1.8+) | 2003 05 03 | 691 | 0.1+ | 0.4+ | 2007 03 15 | 691 | 0.3− | 0.3− |
| 2001 12 17 | 704 | (1.0− | 1.9+) | 2003 05 03 | 691 | 0.3− | 0.1+ | 2007 03 15 | 691 | 0.1− | 0.1− |
| 2001 12 17 | 704 | (1.3− | 2.0+) | 2003 05 03 | 691 | 0.0 | 0.0 | 2007 03 15 | 691 | 0.1− | 0.1− |
| 2001 12 18 | 644 | 0.3− | 1.5− | 2004 07 12 | 428 | 0.7− | 0.4− | 2008 08 03 | 704 | 0.9+ | 0.5+ |
| 2001 12 18 | 644 | 0.1+ | 0.7− | 2005 12 02 | 704 | 1.4− | 0.9+ | 2008 08 03 | 704 | 0.4− | 0.2+ |
| 2001 12 18 | 644 | 0.8− | 1.2− | 2005 12 02 | 704 | 1.2− | 0.8+ | 2008 08 03 | 704 | 0.2+ | 0.1+ |
| 2001 12 18 | 644 | 0.1+ | 0.2+ | 2005 12 02 | 704 | 0.5− | 1.4+ | 2009 11 22 | 704 | 0.5+ | 0.4+ |
| 2001 12 18 | 644 | 0.0 | 0.1+ | 2005 12 02 | 691 | 0.1− | 0.2− | 2009 11 22 | 704 | 0.0 | 0.3− |
| 2001 12 18 | 644 | 0.0 | 0.2+ | 2005 12 02 | 691 | 0.1− | 0.1− | 2009 11 22 | 704 | 0.6+ | 0.9+ |
| 2001 12 22 | 704 | 0.2− | 0.1− | 2005 12 02 | 691 | 0.1+ | 1.4− | 2009 12 10 | 704 | 0.2+ | 1.3+ |
| 2001 12 22 | 704 | 0.1− | 1.4− | 2005 12 05 | 704 | 0.2− | 0.3− | 2009 12 10 | 704 | 0.2− | 0.7+ |
| 2001 12 22 | 704 | 0.2+ | 0.4− | 2005 12 05 | 704 | 0.5+ | 0.1+ | 2009 12 10 | 704 | 0.4+ | 0.4+ |
| 2002 01 08 | 704 | 0.5+ | 1.0+ | 2005 12 05 | 704 | 0.3− | 0.3+ | 2009 12 10 | 704 | 0.8− | 0.2+ |
| 2002 01 08 | 704 | 0.4− | 1.3+ | 2005 12 05 | 704 | 0.3− | 0.9+ | 2009 12 15 | 704 | 0.0 | 0.1+ |
| 2002 01 08 | 704 | 0.0 | 0.8+ | 2005 12 29 | 691 | 0.5+ | 0.1− | 2009 12 15 | 704 | 0.2− | 0.2+ |
| 2002 01 08 | 704 | 0.6+ | 0.9+ | 2005 12 29 | 691 | 0.1+ | 0.2− | 2009 12 15 | 704 | 0.4+ | 0.5+ |
| 2003 04 08 | 644 | 0.4+ | 0.1− | 2005 12 29 | 691 | 0.1− | 0.2− | 2009 12 15 | 704 | 0.0 | 0.1+ |
| 2003 04 08 | 644 | 0.2− | 0.2− | 2005 12 29 | 704 | 0.1+ | 0.1+ | 2009 12 15 | 704 | 0.1− | 0.9+ |

**(228585)∗ 2001 YO$_{161}$**

Discovered 2001 Dec. 17 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 174.98474 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24133439 | $\omega$ | 155.46699 | | −0.17370614 | +0.97812921 | |
| $a$ | 2.5549941 | $\Omega$ | 104.36582 | | −0.92191939 | −0.12066717 | |
| $e$ | 0.0960793 | $i$ | 6.78257 | | −0.34625253 | −0.16941867 | |
| $P$ | 4.08 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 03 22 | 645 | 0.0 | 0.0 | 2003 03 31 | 704 | 0.3− | 0.7+ | 2006 01 25 | G96 | 0.1− | 0.1− |
| 1999 03 22 | 645 | 0.0 | 0.0 | 2003 03 31 | 704 | 0.0 | 0.2− | 2006 01 25 | G96 | 0.2+ | 0.1+ |
| 2001 12 17 | 704 | 0.5+ | 0.5− | 2003 04 01 | 645 | 0.0 | 0.1− | 2006 01 25 | G96 | 0.4− | 0.3− |
| 2001 12 17 | 704 | 0.1− | 0.0 | 2003 04 01 | 645 | 0.0 | 0.0 | 2007 02 17 | 703 | 0.3− | 1.0− |
| 2001 12 17 | 704 | 0.4+ | 0.5− | 2003 04 03 | 608 | 1.0+ | 1.3− | 2007 02 17 | 703 | 0.2+ | 0.9− |
| 2001 12 17 | 704 | 0.7+ | 0.3− | 2003 04 03 | 608 | (0.1+ | 1.8−) | 2007 02 17 | 703 | 0.3− | 0.1− |
| 2002 01 08 | 691 | 0.4− | 0.1+ | 2003 04 03 | 608 | 0.0 | 1.4− | 2007 02 17 | 703 | (1.8+ | 0.5+) |
| 2002 01 08 | 691 | 0.2+ | 0.1+ | 2003 04 09 | 704 | (0.6+ | 2.7−) | 2007 04 15 | 703 | 0.2+ | 0.3+ |
| 2002 01 08 | 691 | 0.0 | 0.5+ | 2003 04 09 | 704 | 0.6+ | 0.4− | 2007 04 15 | 703 | 0.0 | 0.5+ |
| 2002 01 13 | 704 | (2.7− | 0.6+) | 2003 04 09 | 704 | 1.0+ | 0.3+ | 2007 04 15 | 703 | 0.3+ | 0.7+ |
| 2002 01 13 | 704 | (1.3− | 1.6+) | 2003 04 09 | 704 | 0.7+ | 0.3+ | 2007 04 15 | 703 | 1.0− | 0.5+ |
| 2002 01 13 | 704 | (1.9− | 1.7+) | 2003 04 09 | 704 | 1.2+ | 0.3− | 2009 11 18 | G96 | 0.2+ | 0.1+ |
| 2003 03 26 | 644 | 0.3+ | 0.1+ | 2004 08 08 | 704 | 0.2− | 1.2+ | 2009 11 18 | G96 | 0.2− | 0.2− |
| 2003 03 26 | 644 | 0.1+ | 0.3+ | 2004 08 08 | 704 | 0.3− | 0.8+ | 2009 11 18 | G96 | 0.0 | 0.1− |
| 2003 03 26 | 644 | 0.5+ | 0.5+ | 2004 08 08 | 704 | 0.7+ | 0.1+ | 2009 11 18 | G96 | 0.7− | 0.1+ |
| 2003 03 26 | 691 | 0.2− | 0.4+ | 2004 08 08 | 704 | 0.8+ | 1.0+ | 2009 12 11 | 703 | 0.2+ | 0.8− |
| 2003 03 26 | 691 | 0.1− | 0.6+ | 2004 09 07 | 704 | 0.1− | 0.3+ | 2009 12 11 | 703 | 0.8− | 0.1+ |
| 2003 03 26 | 691 | 0.0 | 0.2+ | 2004 09 07 | 704 | 0.8− | 0.7− | 2009 12 11 | 703 | 0.3+ | 1.2+ |
| 2003 03 31 | 704 | 0.8− | 0.0 | 2004 09 07 | 704 | 0.9− | 0.0 | 2009 12 11 | 703 | 0.1+ | 0.7+ |
| 2003 03 31 | 704 | 0.8− | 0.6− | 2006 01 25 | G96 | 0.1− | 0.0 | | | | |

**(228586)∗ 2002 AG$_{4}$**

Discovered 2002 Jan. 8 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 333.58288 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.36997158 | $\omega$ | 55.41102 | | −0.72777621 | | −0.55999003 |
| $a$ | 1.9217216 | $\Omega$ | 87.25670 | | +0.42363339 | | −0.82106743 |
| $e$ | 0.0974873 | $i$ | 23.35173 | | +0.53932972 | | −0.11072233 |
| $P$ | 2.66 | $H$ | 17.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 12 13 | 704 | 0.5− | 0.0 | 2002 01 21 | 699 | 0.3− | 0.4− | 2006 11 19 | 703 | 1.1− | 0.4− |
| 2001 12 13 | 704 | 0.0 | 0.3− | 2002 01 21 | 699 | 0.5+ | 0.1− | 2006 11 19 | 703 | (1.6+ | 0.3−) |
| 2001 12 13 | 704 | (0.4− | 2.4+) | 2002 01 21 | 699 | 1.4+ | 0.4− | 2006 11 19 | 703 | 0.1− | 0.0 |
| 2001 12 13 | 704 | 0.4− | 0.4+ | 2002 01 21 | 699 | 0.2+ | 0.2− | 2009 11 10 | G96 | 0.4− | 0.3− |
| 2001 12 19 | 644 | 0.3+ | 0.5− | 2002 01 25 | 704 | 0.9− | 0.6+ | 2009 11 10 | G96 | 0.4− | 0.2− |
| 2001 12 19 | 644 | 0.7+ | 0.3− | 2002 01 25 | 704 | 0.2+ | 0.5− | 2009 11 10 | G96 | 0.4− | 0.7− |
| 2001 12 19 | 644 | 0.5+ | 0.0 | 2002 01 25 | 704 | 0.9+ | 0.6− | 2009 11 10 | G96 | 0.0 | 0.4+ |
| 2002 01 05 | 699 | 0.3+ | 1.0+ | 2005 04 01 | 703 | 0.4− | 0.2+ | 2009 11 11 | G96 | 0.0 | 0.1− |
| 2002 01 05 | 699 | 0.5+ | 0.2+ | 2005 04 01 | 703 | 0.2+ | 0.5− | 2009 11 11 | G96 | 0.2− | 0.2− |
| 2002 01 05 | 699 | 0.8− | 0.2+ | 2005 04 01 | 703 | 0.5− | 0.4+ | 2009 11 11 | G96 | 0.1+ | 0.5− |
| 2002 01 05 | 699 | 0.0 | 0.4− | 2005 04 01 | 703 | 0.7+ | 0.5+ | 2009 11 11 | G96 | 0.1− | 0.2− |
| 2002 01 08 | 704 | 0.2+ | 0.2+ | 2005 05 04 | 695 | 0.1− | 0.3+ | 2009 11 27 | 703 | (0.2+ | 1.6+) |
| 2002 01 08 | 704 | 0.1+ | 0.0 | 2005 05 04 | 695 | 0.8+ | 0.5+ | 2009 11 27 | 703 | 0.3+ | 0.7+ |
| 2002 01 08 | 704 | 0.2− | 0.4+ | 2005 05 04 | 695 | 0.0 | 0.0 | 2009 11 27 | 703 | 1.2+ | 0.9+ |
| 2002 01 08 | 704 | 0.3+ | 0.2+ | 2005 05 04 | 695 | 0.1+ | 0.1+ | 2009 11 27 | 703 | 0.3+ | 1.4+ |
| 2002 01 09 | 704 | 0.2− | 0.2+ | 2006 11 01 | 703 | (0.7− | 1.8+) | 2009 12 10 | 704 | 0.2+ | 0.0 |
| 2002 01 09 | 704 | 0.9− | 0.2− | 2006 11 01 | 703 | (2.2− | 1.4+) | 2009 12 10 | 704 | 0.0 | 0.3+ |
| 2002 01 09 | 704 | 0.1− | 0.2+ | 2006 11 01 | 703 | (2.0+ | 1.3+) | 2009 12 10 | 704 | 0.6− | 1.2− |
| 2002 01 09 | 704 | 1.0− | 0.1+ | 2006 11 01 | 703 | 1.0− | 1.0+ | | | | |
| 2002 01 09 | 704 | 0.4− | 0.4− | 2006 11 19 | 703 | 1.2+ | 0.5+ | | | | |

**(228587)∗ 2002 AP$_7$**

Discovered 2002 Jan. 9 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 66.97546 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.61848385 | $\omega$ | 283.38544 | | +0.84490884 | | −0.35507549 |
| $a$ | 1.3643228 | $\Omega$ | 98.61724 | | +0.48887817 | | +0.81611939 |
| $e$ | 0.0932742 | $i$ | 23.86799 | | −0.21708798 | | +0.45592822 |
| $P$ | 1.59 | $H$ | 19.3 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 12 12 | 644 | 0.7− | 0.4− | 2002 01 20 | 649 | 0.2+ | 0.7− | 2004 06 15 | 704 | 0.2− | 0.1− |
| 2001 12 12 | 644 | (0.7− | 2.1−) | 2002 01 20 | 649 | 0.8+ | 0.5− | 2004 06 15 | 704 | 0.2− | 0.3+ |
| 2002 01 09 | 704 | 0.2− | 0.8+ | 2002 01 20 | 649 | 0.1− | 0.7− | 2004 06 27 | 170 | 0.3+ | 0.1+ |
| 2002 01 09 | 704 | 0.7+ | 1.1+ | 2002 02 01 | 715 | (2.1− | 1.5−) | 2004 06 27 | 170 | 0.2+ | 0.1− |
| 2002 01 09 | 704 | 0.3+ | 1.0+ | 2002 02 01 | 715 | (2.4− | 1.3−) | 2004 06 27 | 170 | 0.2+ | 0.2− |
| 2002 01 09 | 704 | 0.9+ | 0.9+ | 2002 02 01 | 715 | (1.7− | 1.4−) | 2007 02 07 | 291 | 0.3− | 0.5− |
| 2002 01 09 | 704 | 0.6+ | 1.0+ | 2002 02 12 | 696 | 0.2− | 0.1+ | 2007 02 07 | 291 | 0.1+ | 0.8+ |
| 2002 01 10 | 046 | 0.6− | 0.1− | 2002 02 12 | 696 | 0.1− | 0.3+ | 2007 02 07 | 291 | 0.0 | 0.0 |
| 2002 01 10 | 046 | 0.7− | 0.2− | 2002 03 09 | 696 | 0.8+ | 1.2+ | 2007 04 30 | H55 | 0.5− | 0.4− |
| 2002 01 10 | 046 | 0.1− | 0.2− | 2002 03 11 | 696 | 0.7+ | 0.1+ | 2007 04 30 | H55 | 0.2+ | 0.0 |
| 2002 01 10 | 046 | 0.0 | 0.2− | 2002 03 11 | 696 | 0.5− | 0.5− | 2007 04 30 | H55 | 0.6− | 0.4+ |
| 2002 01 10 | 046 | 0.2+ | 0.3+ | 2004 02 21 | 291 | 0.4+ | 0.1− | 2007 04 30 | H55 | 0.9+ | 1.0− |
| 2002 01 10 | 046 | 0.0 | 0.5− | 2004 02 21 | 291 | (1.8+ | 1.1+) | 2009 09 16 | 291 | 0.4− | 0.1+ |
| 2002 01 10 | 106 | 0.1− | 0.6+ | 2004 05 13 | 673 | 0.2+ | 0.2+ | 2009 09 16 | 291 | 0.1− | 0.0 |
| 2002 01 10 | 106 | 0.1+ | 0.5− | 2004 05 13 | 673 | 0.3+ | 0.3+ | 2009 09 16 | 291 | 0.4− | 0.2+ |
| 2002 01 11 | 413 | 0.8− | 0.2+ | 2004 05 13 | 673 | 0.4+ | 0.1+ | 2009 12 05 | H21 | 0.3− | 0.5− |
| 2002 01 11 | 413 | 0.2− | 0.2− | 2004 05 13 | 673 | 0.3+ | 0.2+ | 2009 12 05 | H21 | 0.0 | 0.1+ |
| 2002 01 11 | 413 | 0.1+ | 0.3− | 2004 05 14 | 673 | 0.1− | 0.3+ | 2009 12 05 | H21 | 0.2+ | 0.1+ |
| 2002 01 13 | 704 | 0.4− | 0.6− | 2004 05 14 | 673 | 0.1+ | 0.1+ | 2009 12 11 | 204 | 0.3− | 0.2− |
| 2002 01 13 | 704 | 0.0 | 0.3+ | 2004 05 14 | 673 | 0.1+ | 0.2+ | 2009 12 11 | 204 | 0.1+ | 0.4− |
| 2002 01 13 | 704 | 0.7− | 0.2− | 2004 05 14 | 673 | 0.4+ | 0.0 | 2009 12 27 | B33 | 0.6− | 0.7+ |
| 2002 01 13 | 704 | 0.1− | 0.4+ | 2004 06 11 | E17 | 0.8+ | 0.3+ | 2009 12 27 | B33 | 0.6+ | 0.6+ |
| 2002 01 13 | 704 | 0.5− | 0.2+ | 2004 06 11 | E17 | 0.7− | 1.2+ | 2009 12 27 | B33 | 0.6+ | 0.1+ |
| 2002 01 13 | 413 | 0.0 | 0.0 | 2004 06 11 | E17 | 0.4− | 0.7+ | 2009 12 27 | B33 | 0.1+ | 0.1+ |
| 2002 01 13 | 413 | 0.2− | 0.1− | 2004 06 15 | 704 | 0.3+ | 0.0 | | | | |

**(228588)∗ 2002 AJ$_{26}$ = 2005 XD$_{68}$**

Discovered 2002 Jan. 11 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 100125)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 312.51964 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21898334 | $\omega$ | 95.12090 | | +0.03505170 | | −0.99936823 |
| $a$ | 2.7260176 | $\Omega$ | 352.86244 | | +0.89716682 | | +0.03405593 |
| $e$ | 0.0730772 | $i$ | 2.71010 | | +0.44029885 | | +0.01016515 |
| $P$ | 4.50 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 10 01 | 704 | 0.9− | 0.2+ | 2005 12 06 | 691 | 0.1− | 0.5− | 2009 09 24 | 691 | 0.6− | 0.5+ |
| 2000 10 01 | 704 | 0.1− | 0.7+ | 2005 12 10 | 691 | 0.2+ | 0.1− | 2009 09 24 | 691 | 0.6− | 0.5+ |
| 2000 10 01 | 704 | 1.6+ | 0.4+ | 2005 12 10 | 691 | 0.3+ | 0.1− | 2009 09 28 | 691 | 0.1+ | 0.0 |
| 2000 10 01 | 704 | 0.4− | 0.6+ | 2005 12 10 | 691 | 0.5+ | 0.2+ | 2009 09 28 | 691 | 0.7− | 0.2− |
| 2000 10 01 | 704 | 0.3− | 0.4+ | 2007 03 09 | 691 | 0.7− | 0.0 | 2009 09 28 | 691 | 0.2+ | 0.2+ |
| 2002 01 11 | 291 | 0.0 | 0.4+ | 2007 03 09 | 691 | 0.5+ | 0.5+ | 2009 10 09 | 291 | 0.1+ | 0.1+ |
| 2002 01 11 | 291 | 0.3− | 0.4+ | 2007 03 09 | 691 | 0.3+ | 0.0 | 2009 10 09 | 291 | 0.2+ | 0.1+ |
| 2002 01 11 | 291 | 0.5− | 0.2+ | 2007 03 13 | 691 | 0.2+ | 0.1+ | 2009 10 09 | 291 | 0.2+ | 0.1+ |
| 2002 01 12 | 291 | 0.1+ | 0.1+ | 2007 03 13 | 691 | 0.1+ | 0.3+ | 2009 10 21 | G96 | 0.0 | 0.3− |
| 2002 01 12 | 291 | 0.1+ | 0.0 | 2007 03 13 | 691 | 0.5+ | 0.6+ | 2009 10 21 | G96 | 0.3− | 0.1− |
| 2002 01 12 | 291 | 0.2− | 0.7+ | 2007 04 16 | G96 | 0.4+ | 0.2+ | 2009 10 21 | G96 | 0.2− | 0.2− |
| 2002 01 14 | 704 | 0.3+ | 1.1+ | 2007 04 16 | G96 | 0.6+ | 0.3+ | 2009 10 21 | G96 | 0.1+ | 0.5− |
| 2002 01 14 | 704 | 0.4+ | 0.0 | 2007 04 16 | G96 | 0.2+ | 0.0 | 2009 10 21 | G96 | 0.1+ | 0.6− |
| 2002 01 14 | 704 | (2.0+ | 0.4−) | 2007 04 16 | G96 | 0.4+ | 0.1+ | 2009 10 21 | G96 | 0.5+ | 0.3− |
| 2002 01 14 | 704 | 0.8+ | 0.3− | 2009 09 16 | 691 | 0.1+ | 0.2− | 2009 10 21 | G96 | 0.1+ | 0.5− |
| 2002 01 14 | 704 | 1.1+ | 0.5+ | 2009 09 16 | 691 | 0.1− | 0.5+ | 2009 10 21 | G96 | 0.4+ | 0.3− |
| 2002 02 12 | 704 | 0.3+ | 0.7− | 2009 09 16 | 691 | 0.0 | 0.3+ | 2009 12 17 | G96 | 0.4+ | 0.1− |
| 2002 02 12 | 704 | 0.3+ | 0.2− | 2009 09 20 | 691 | 0.3− | 0.6+ | 2009 12 17 | G96 | 0.3+ | 0.2− |
| 2002 02 12 | 704 | 0.3− | 0.5− | 2009 09 20 | 691 | 0.5+ | 0.3+ | 2009 12 17 | G96 | 0.3− | 0.5− |
| 2005 12 06 | 691 | 0.0 | 0.4− | 2009 09 20 | 691 | 0.2− | 0.2+ | 2009 12 17 | G96 | 0.3+ | 0.1− |
| 2005 12 06 | 691 | 0.0 | 0.4− | 2009 09 24 | 691 | 0.8− | 0.3+ | | | | |

**(228589)∗ 2002 AG$_{35}$ = 2005 WH$_{140}$**

Discovered 2002 Jan. 8 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 94476)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 53.82876 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.25098316 | $\omega$ | 125.61859 | | +0.70256449 | | −0.70444964 |
| $a$ | 2.4890846 | $\Omega$ | 279.40960 | | +0.61541117 | | +0.67255735 |
| $e$ | 0.1153775 | $i$ | 5.86245 | | +0.35731251 | | +0.22675388 |
| $P$ | 3.93 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 12 19 | 704 | 0.5− | 1.1+ | 2005 12 02 | G96 | 0.3+ | 0.2− | 2008 10 07 | G96 | 0.6+ | 0.5− |
| 2001 12 19 | 704 | 0.1+ | 1.1+ | 2005 12 02 | G96 | 0.0 | 0.3− | 2008 10 07 | G96 | 0.2+ | 0.2− |
| 2001 12 19 | 704 | 0.2+ | 1.2+ | 2005 12 02 | G96 | 0.0 | 0.2− | 2009 09 21 | 691 | 0.1+ | 0.1+ |
| 2002 01 08 | 704 | 0.5− | 0.2− | 2005 12 25 | 691 | 0.4+ | 0.0 | 2009 09 21 | 691 | 0.1− | 0.1− |
| 2002 01 08 | 704 | 0.1− | 1.4− | 2005 12 25 | 691 | 0.3+ | 0.1− | 2009 09 21 | 691 | 0.0 | 0.4− |
| 2002 01 08 | 704 | 0.1− | 0.5+ | 2005 12 25 | 691 | 0.3+ | 0.3− | 2009 09 28 | 691 | 0.0 | 0.1+ |
| 2002 01 08 | 704 | (2.0− | 1.3−) | 2005 12 25 | G96 | 0.2− | 0.1− | 2009 09 28 | 691 | 0.1− | 0.0 |
| 2002 01 13 | 704 | 0.6− | 0.2+ | 2005 12 25 | G96 | 0.3+ | 0.2− | 2009 09 28 | 691 | 0.2− | 0.1+ |
| 2002 01 13 | 704 | 0.2+ | 0.6− | 2005 12 25 | G96 | 0.3+ | 0.4− | 2009 11 11 | G96 | 0.4+ | 0.0 |
| 2002 01 13 | 704 | 0.2− | 0.4− | 2005 12 25 | G96 | 0.2− | 0.0 | 2009 11 11 | G96 | 0.3+ | 0.1− |
| 2002 01 13 | 704 | 0.4− | 0.5+ | 2005 12 29 | 691 | 0.1− | 0.1− | 2009 11 11 | G96 | 0.3− | 0.6+ |
| 2002 01 15 | 704 | 0.5− | 0.2− | 2005 12 29 | 691 | 0.1+ | 0.1− | 2009 11 11 | G96 | 0.5+ | 0.4− |
| 2002 01 15 | 704 | 0.3+ | 0.7− | 2005 12 29 | 691 | 0.0 | 0.2+ | 2009 12 10 | 114 | 0.1− | 0.7− |
| 2002 01 15 | 704 | 0.1+ | 0.5+ | 2006 01 04 | 691 | 0.2+ | 0.0 | 2009 12 10 | 114 | 0.1− | 0.7− |
| 2002 01 15 | 704 | 0.5− | 0.3− | 2006 01 04 | 691 | 0.1+ | 0.0 | 2009 12 10 | 114 | 0.2+ | 0.1− |
| 2005 10 30 | G96 | 0.1− | 0.3− | 2006 01 04 | 691 | 0.2+ | 0.1− | 2009 12 10 | 114 | 0.5+ | 0.6− |
| 2005 10 30 | G96 | 0.2− | 0.3− | 2006 01 06 | 691 | 0.2+ | 0.2+ | 2009 12 10 | 114 | 0.2− | 0.3− |
| 2005 10 30 | G96 | 0.3− | 0.1− | 2006 01 06 | 691 | 0.1+ | 0.0 | 2009 12 15 | G96 | 0.7+ | 0.2− |
| 2005 10 30 | G96 | 0.0 | 0.1− | 2006 01 06 | 691 | 0.0 | 0.1+ | 2009 12 15 | G96 | 0.3+ | 0.0 |
| 2005 11 26 | G96 | 0.5+ | 0.2− | 2006 01 10 | 691 | 0.5− | 0.6+ | 2009 12 15 | G96 | 0.1− | 0.5− |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 11 26 | G96 | 0.1+ | 0.2− | 2006 01 10 | 691 | 0.2+ | 0.5+ | 2009 12 15 | G96 | 0.1− | 0.1− | | |
| 2005 11 26 | G96 | 0.2− | 0.1− | 2006 01 10 | 691 | 0.0 | 0.6+ | 2009 12 25 | 691 | 0.6− | 0.2− | | |
| 2005 11 26 | G96 | 0.1− | 0.0 | 2008 10 07 | G96 | 0.4− | 0.5+ | 2009 12 25 | 691 | 0.5− | 0.3− | | |
| 2005 12 02 | G96 | 0.2− | 0.2− | 2008 10 07 | G96 | 0.2− | 0.2+ | 2009 12 25 | 691 | 0.4− | 0.1− | | |

**(228590)∗ 2002 AE$_{38}$**

Discovered 2002 Jan. 9 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 22.12226 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24526392 | $\omega$ | 298.20643 | | +0.49929872 | −0.86063375 | |
| $a$ | 2.5276306 | $\Omega$ | 121.49610 | | +0.83038432 | +0.44236444 | |
| $e$ | 0.1459230 | $i$ | 6.73852 | | +0.24731090 | +0.25223650 | |
| $P$ | 4.02 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 12 18 | 704 | 0.8− | 0.5+ | 2005 12 05 | 691 | 0.3+ | 0.2+ | 2007 04 26 | G96 | 0.0 | 0.1+ | | |
| 2001 12 18 | 704 | 1.1− | 0.5+ | 2005 12 05 | 691 | 0.1− | 0.1+ | 2007 05 23 | G96 | 0.0 | 0.0 | | |
| 2001 12 18 | 704 | 1.2− | 0.7+ | 2005 12 30 | 704 | 1.0− | 0.9+ | 2007 05 23 | G96 | 0.2+ | 0.2− | | |
| 2001 12 18 | 704 | 0.4− | 0.7+ | 2005 12 30 | 704 | 0.1+ | 0.7+ | 2007 05 23 | G96 | 0.4+ | 0.2− | | |
| 2001 12 18 | 704 | 1.0− | 0.7+ | 2005 12 30 | 704 | 0.3− | 1.0+ | 2007 05 23 | G96 | 0.6+ | 0.4− | | |
| 2002 01 09 | 704 | 1.2+ | 0.3− | 2005 12 30 | 704 | 0.2+ | 0.3+ | 2008 06 06 | 691 | 0.7− | 1.2+ | | |
| 2002 01 09 | 704 | 0.8+ | 0.7− | 2006 02 03 | G96 | 0.3− | 0.5− | 2008 06 06 | 691 | 0.0 | 0.1− | | |
| 2002 01 09 | 704 | 0.4+ | 0.7− | 2006 02 03 | G96 | 0.2− | 0.5− | 2008 06 06 | 691 | 0.7− | 0.9− | | |
| 2002 01 09 | 704 | 0.1+ | 1.2− | 2006 02 03 | G96 | 0.3− | 0.1− | 2009 11 11 | H10 | 0.8+ | 0.1+ | | |
| 2002 01 13 | 704 | 0.1− | 0.4− | 2006 02 03 | G96 | 0.2− | 0.3− | 2009 11 11 | H10 | 0.4+ | 0.4− | | |
| 2002 01 13 | 704 | 0.2+ | 0.1− | 2007 03 15 | G96 | 0.4− | 0.1− | 2009 11 11 | H10 | 0.3− | 0.8+ | | |
| 2002 01 13 | 704 | 0.0 | 0.2− | 2007 03 15 | G96 | 0.1+ | 0.1− | 2009 12 12 | 704 | 0.2+ | 0.6+ | | |
| 2002 01 13 | 704 | 0.1− | 0.2+ | 2007 03 15 | G96 | 0.0 | 0.2− | 2009 12 12 | 704 | 1.0+ | 0.5+ | | |
| 2003 03 24 | 291 | 0.6+ | 0.3− | 2007 03 15 | G96 | 0.0 | 0.3− | 2009 12 12 | 704 | 0.2+ | 0.3+ | | |
| 2003 03 24 | 291 | 0.7+ | 0.1+ | 2007 03 16 | G96 | 0.3+ | 0.6− | 2009 12 17 | G96 | 0.1− | 0.2− | | |
| 2003 03 24 | 291 | 0.3+ | 0.1+ | 2007 03 16 | G96 | 0.6+ | 0.1− | 2009 12 17 | G96 | 0.1+ | 0.0 | | |
| 2004 06 27 | 291 | 0.5+ | 1.0+ | 2007 03 16 | G96 | 1.3+ | 0.6+ | 2009 12 17 | G96 | 0.1− | 0.1− | | |
| 2004 06 27 | 291 | 0.0 | 0.8+ | 2007 03 16 | G96 | 0.0 | 0.1− | 2009 12 17 | G96 | 0.1+ | 0.0 | | |
| 2004 06 27 | 291 | 0.1+ | 0.4+ | 2007 04 18 | 291 | 0.4− | 0.8+ | 2009 12 17 | G96 | 0.3+ | 0.1− | | |
| 2005 11 30 | 704 | 0.1+ | 1.4+ | 2007 04 18 | 291 | 0.6− | 0.5+ | 2009 12 18 | 704 | 0.4− | 1.2+ | | |
| 2005 11 30 | 704 | 1.0+ | 0.6+ | 2007 04 18 | 291 | 0.5− | 0.6+ | 2009 12 18 | 704 | 0.0 | 1.3+ | | |
| 2005 11 30 | 704 | 0.0 | 0.4− | 2007 04 26 | G96 | 0.6+ | 0.4− | 2009 12 18 | 704 | 0.0 | 1.7+ | | |
| 2005 11 30 | 704 | 1.0− | 0.0 | 2007 04 26 | G96 | 0.0 | 0.4− | | | | | | |
| 2005 12 05 | 691 | 0.1− | 0.0 | 2007 04 26 | G96 | 0.1+ | 0.1+ | | | | | | |

**(228591)∗ 2002 AG$_{51}$**

Discovered 2002 Jan. 9 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 324.74068 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23598884 | $\omega$ | 194.94425 | | −0.54720213 | −0.83001521 | |
| $a$ | 2.5934332 | $\Omega$ | 288.33973 | | +0.77912330 | −0.45800429 | |
| $e$ | 0.1500272 | $i$ | 6.52775 | | +0.30583773 | −0.31828734 | |
| $P$ | 4.18 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 11 05 | 691 | 0.3− | 0.0 | 2002 02 07 | 704 | 1.4+ | 0.5+ | 2009 11 16 | 704 | 0.7− | 0.2+ | | |
| 1996 11 05 | 691 | 0.2+ | 0.1+ | 2002 02 07 | 704 | (2.2+ | 1.0+) | 2009 11 16 | 704 | 1.0+ | 0.4+ | | |
| 1996 11 05 | 691 | 0.1+ | 0.2− | 2002 02 07 | 704 | 0.0 | 1.0+ | 2009 11 16 | 704 | 0.0 | 0.1− | | |
| 2001 12 17 | 704 | 0.1+ | 0.6+ | 2002 02 09 | 704 | (1.5+ | 0.3−) | 2009 11 16 | 704 | 0.2+ | 0.3− | | |
| 2001 12 17 | 704 | 0.5+ | 0.1− | 2002 02 09 | 704 | 0.8+ | 0.5− | 2009 11 19 | 691 | 0.3− | 0.1− | | |
| 2001 12 17 | 704 | 0.4+ | 0.7+ | 2002 02 09 | 704 | 0.3+ | 1.4− | 2009 11 19 | 691 | 0.4− | 0.1− | | |
| 2001 12 17 | 704 | 0.8+ | 1.2+ | 2002 02 09 | 704 | 0.3+ | 0.3− | 2009 11 19 | 691 | 0.3+ | 0.6− | | |
| 2001 12 17 | 704 | 0.3+ | 0.1− | 2002 02 09 | 704 | 0.3+ | 0.3− | 2009 11 23 | 691 | 0.9+ | 0.3− | | |
| 2002 01 05 | 691 | 0.0 | 0.0 | 2002 02 11 | 704 | 0.1+ | 0.9− | 2009 11 23 | 691 | 0.1− | 0.0 | | |
| 2002 01 05 | 691 | 0.2− | 0.1+ | 2002 02 11 | 704 | 0.1− | 0.6− | 2009 11 23 | 691 | 0.5− | 0.0 | | |
| 2002 01 05 | 691 | 0.0 | 0.0 | 2002 02 11 | 704 | 0.6− | 0.7− | 2009 11 24 | J75 | 0.1− | 0.3− | | |
| 2002 01 09 | 704 | (1.9+ | 0.7+) | 2002 02 11 | 704 | 0.1− | 0.4− | 2009 11 24 | J75 | 0.6− | 0.4− | | |
| 2002 01 09 | 704 | (3.4+ | 0.9−) | 2002 02 11 | 704 | 0.3− | 0.7− | 2009 11 24 | J75 | 0.3− | 0.8− | | |
| 2002 01 09 | 704 | 1.4+ | 0.8+ | 2002 02 16 | 644 | 0.3− | 0.1+ | 2009 11 27 | 691 | 0.2− | 0.3+ | | |
| 2002 01 09 | 704 | 1.2+ | 0.8+ | 2002 02 16 | 644 | 0.4− | 0.3+ | 2009 11 27 | 691 | 0.4− | 0.0 | | |
| 2002 01 09 | 704 | 1.2+ | 0.9+ | 2002 02 16 | 644 | 0.3− | 0.2+ | 2009 11 27 | 691 | 0.2− | 0.0 | | |
| 2002 01 13 | 704 | 0.4+ | 0.4− | 2002 02 21 | 691 | 1.0− | 0.3− | 2009 12 09 | J75 | 0.5+ | 0.5+ | | |
| 2002 01 13 | 704 | 0.7+ | 0.2− | 2002 02 21 | 691 | 0.7− | 0.2− | 2009 12 09 | J75 | 0.4+ | 1.2+ | | |
| 2002 01 13 | 704 | 0.1− | 0.1− | 2002 02 21 | 691 | 0.8− | 0.5− | 2009 12 09 | J75 | 0.7+ | 0.8+ | | |
| 2002 01 13 | 704 | 0.2+ | 0.1− | 2005 12 06 | 691 | 0.0 | 0.0 | 2009 12 10 | 704 | 1.0+ | 0.1− | | |
| 2002 01 13 | 704 | 0.0 | 0.6− | 2005 12 06 | 691 | 0.1+ | 0.5− | 2009 12 10 | 704 | 1.1+ | 0.0 | | |
| 2002 01 15 | 704 | 0.8+ | 0.5− | 2005 12 06 | 691 | 0.0 | 0.1− | 2009 12 10 | 704 | 0.1+ | 1.1+ | | |
| 2002 01 15 | 704 | 0.0 | 0.4+ | 2005 12 10 | 691 | 0.1+ | 0.1+ | 2009 12 10 | 704 | 0.6+ | 0.6− | | |
| 2002 01 15 | 704 | (1.5+ | 1.7+) | 2005 12 10 | 691 | 0.7− | 0.3+ | 2009 12 15 | 704 | 0.1− | 0.7+ | | |
| 2002 01 22 | 704 | 0.6+ | 0.7+ | 2005 12 10 | 691 | 0.1+ | 0.1+ | 2009 12 15 | 704 | 0.4+ | 0.2− | | |
| 2002 01 22 | 704 | 0.6− | 1.3+ | 2006 01 25 | 691 | 0.2+ | 0.0 | 2009 12 15 | 704 | 0.3− | 0.6− | | |
| 2002 01 22 | 704 | 0.3+ | 0.3+ | 2006 01 25 | 691 | 0.1+ | 0.1+ | 2009 12 15 | 704 | 0.2− | 0.4− | | |
| 2002 01 22 | 704 | (0.0 | 1.9+) | 2006 01 25 | 691 | 0.2+ | 0.1+ | | | | | | |
| 2002 02 07 | 704 | 1.0+ | 0.7+ | 2009 11 16 | 704 | 0.2− | 0.1− | | | | | | |

**(228592)∗ 2002 AY$_{51}$**

Discovered 2002 Jan. 9 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 322.86381 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24147059 | $\omega$ | 226.68470 | | −0.84488532 | −0.53375710 | |
| $a$ | 2.5540333 | $\Omega$ | 281.02551 | | +0.50072177 | −0.76560446 | |
| $e$ | 0.1214436 | $i$ | 2.08247 | | +0.18827240 | −0.35910051 | |
| $P$ | 4.08 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 01 09 | 704 | 0.2− | 0.3− | 2005 12 06 | 701 | 0.0 | 0.2− | 2006 02 20 | G96 | 0.1− | 0.1− | | |
| 2002 01 09 | 704 | 0.6− | 0.2− | 2005 12 08 | 701 | 0.5− | 0.5− | 2006 02 20 | G96 | 0.1+ | 0.1− | | |
| 2002 01 09 | 704 | 0.4− | 0.1− | 2005 12 08 | 701 | 0.8− | 0.0 | 2006 02 20 | G96 | 0.3− | 0.1− | | |
| 2002 01 09 | 704 | 0.2+ | 0.4+ | 2005 12 08 | 701 | 0.7− | 0.0 | 2006 02 20 | G96 | 0.0 | 0.1− | | |
| 2002 01 09 | 704 | 0.5− | 0.2− | 2005 12 22 | 691 | 0.0 | 0.1− | 2006 03 25 | G96 | 0.7− | 0.3+ | | |
| 2002 01 13 | 704 | (1.1+ | 1.9+) | 2005 12 22 | 691 | 0.9+ | 0.2+ | 2006 03 25 | G96 | 0.1+ | 0.1+ | | |
| 2002 01 13 | 704 | 0.6+ | 0.5+ | 2005 12 22 | 691 | 0.1+ | 0.0 | 2006 03 25 | G96 | 0.3− | 0.1− | | |
| 2002 01 13 | 704 | 0.5+ | 0.4− | 2005 12 26 | G96 | 0.0 | 0.3− | 2006 03 25 | G96 | 0.4− | 0.1+ | | |
| 2002 01 13 | 704 | 0.9+ | 0.4− | 2005 12 26 | G96 | 0.2− | 0.4− | 2008 09 22 | G96 | 0.1+ | 0.3− | | |
| 2002 01 21 | 704 | (0.0 | 2.2+) | 2005 12 26 | G96 | 0.7− | 0.4− | 2008 09 22 | G96 | 0.3− | 0.1− | | |
| 2002 01 21 | 704 | 0.1− | 0.7+ | 2005 12 26 | G96 | 0.0 | 0.6− | 2008 09 22 | G96 | 0.5+ | 0.2− | | |
| 2002 01 21 | 704 | 0.3− | 0.6− | 2005 12 26 | 691 | 0.4+ | 0.3+ | 2008 09 22 | G96 | 0.8+ | 0.1+ | | |
| 2002 01 21 | 704 | (1.0+ | 1.8+) | 2005 12 26 | 691 | 0.3+ | 0.2+ | 2008 10 23 | G96 | 0.3+ | 0.5+ | | |
| 2002 01 21 | 704 | 0.8− | 1.3+ | 2005 12 26 | 691 | 0.2+ | 0.3+ | 2008 10 23 | G96 | 0.6+ | 0.1+ | | |
| 2002 02 05 | 644 | 0.0 | 0.0 | 2006 01 06 | G96 | 1.2− | 0.4− | 2008 10 23 | G96 | 0.4+ | 0.1− | | |
| 2002 02 05 | 644 | 0.2− | 0.3+ | 2006 01 06 | G96 | 0.7− | 0.4− | 2008 10 23 | G96 | 0.3− | 0.3− | | |
| 2002 02 05 | 644 | 0.4+ | 0.4+ | 2006 01 06 | G96 | (2.7− | 2.8−) | 2008 11 19 | G96 | 0.3+ | 0.2− | | |
| 2002 02 07 | 704 | 0.5− | 0.3+ | 2006 01 21 | G96 | 0.2+ | 0.4− | 2008 11 19 | G96 | 0.0 | 1.3− | | |
| 2002 02 07 | 704 | 0.1− | 1.4+ | 2006 01 21 | G96 | 0.1− | 0.6− | 2008 11 19 | G96 | 0.2+ | 0.3− | | |
| 2002 02 07 | 704 | 0.0 | 0.7+ | 2006 01 21 | G96 | 0.2− | 0.6− | 2008 11 19 | G96 | 0.2− | 0.1+ | | |
| 2002 02 07 | 704 | 0.2− | 0.1+ | 2006 01 21 | G96 | 0.3+ | 0.5− | 2009 12 16 | 691 | 0.0 | 0.1− | | |
| 2002 02 11 | 704 | 0.5+ | 0.8+ | 2006 01 24 | 704 | (1.7+ | 0.7−) | 2009 12 16 | 691 | 0.1+ | 0.1− | | |
| 2002 02 11 | 704 | 0.7+ | 0.8+ | 2006 01 24 | 704 | 0.4+ | 0.7+ | 2009 12 16 | 691 | 0.3− | 0.3+ | | |
| 2002 02 11 | 704 | 0.2+ | 1.2+ | 2006 01 24 | 704 | 0.1+ | 0.5− | 2009 12 16 | G96 | 0.1+ | 0.0 | | |
| 2002 02 11 | 704 | 0.4− | 0.4+ | 2006 01 24 | 704 | 0.4+ | 0.0 | 2009 12 16 | G96 | 0.0 | 0.2− | | |
| 2002 02 11 | 704 | 0.3+ | 0.6+ | 2006 02 07 | 691 | 0.1− | 0.1− | 2009 12 16 | G96 | 0.3+ | 0.2− | | |
| 2004 09 10 | 691 | 0.3− | 0.6+ | 2006 02 07 | 691 | 0.2+ | 0.1− | 2009 12 20 | 691 | 0.2− | 0.2− | | |
| 2004 09 10 | 691 | 0.4− | 0.2+ | 2006 02 07 | 691 | 0.1− | 0.2− | 2009 12 20 | 691 | 0.3− | 0.0 | | |
| 2004 09 10 | 691 | 0.2− | 0.2+ | 2006 02 07 | 691 | 0.1− | 0.2− | 2009 12 20 | 691 | 0.3− | 0.2− | | |
| 2005 12 06 | 701 | 0.6+ | 0.3− | 2006 02 07 | 691 | 0.1+ | 0.2− | | | | | | |
| 2005 12 06 | 701 | 0.1+ | 0.1+ | 2006 02 07 | 691 | 0.1+ | 0.0 | | | | | | |

**(228593)∗ 2002 AQ$_{56}$**

Discovered 2002 Jan. 9 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 325.23976 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23974916 | $\omega$ | 239.26303 | | −0.61143713 | | −0.78906173 |
| $a$ | 2.5662443 | $\Omega$ | 248.54857 | | +0.74606530 | | −0.54985631 |
| $e$ | 0.1266703 | $i$ | 3.65805 | | +0.26368771 | | −0.27393360 |
| $P$ | 4.11 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 12 10 | 291 | 0.2+ | 0.8+ | 2002 01 15 | 704 | 0.3+ | 0.2+ | 2007 06 14 | 691 | 0.1− | 0.1− |
| 2001 12 10 | 291 | 0.3− | 0.5+ | 2002 01 15 | 704 | 0.3− | 0.3− | 2009 11 16 | 691 | 0.1− | 0.4− |
| 2001 12 10 | 291 | 0.5− | 0.3+ | 2002 01 15 | 704 | 0.1− | 0.7− | 2009 11 16 | 691 | 0.1− | 0.0 |
| 2001 12 17 | 704 | 0.8+ | 1.0+ | 2002 01 15 | 704 | 0.2+ | 0.1+ | 2009 11 16 | 691 | 0.2− | 0.2− |
| 2001 12 17 | 704 | 0.4+ | 0.7+ | 2002 01 19 | 704 | (2.5+ | 0.6−) | 2009 11 20 | 691 | 0.2− | 0.3− |
| 2001 12 17 | 704 | 0.5− | 0.9+ | 2002 01 19 | 704 | 1.0+ | 1.0− | 2009 11 20 | 691 | 0.1+ | 0.2− |
| 2001 12 17 | 704 | 0.4+ | 0.7+ | 2002 01 19 | 704 | 1.1+ | 0.7− | 2009 11 20 | 691 | 0.3− | 0.1− |
| 2001 12 17 | 704 | 0.4+ | 0.4+ | 2004 08 25 | 691 | 0.1+ | 0.2+ | 2009 12 10 | G96 | 0.4+ | 0.2− |
| 2002 01 09 | 704 | 0.6− | 0.2+ | 2004 08 25 | 691 | 0.4− | 0.3+ | 2009 12 10 | G96 | 0.6+ | 0.2− |
| 2002 01 09 | 704 | 0.3+ | 0.7+ | 2004 08 25 | 691 | 0.0 | 0.2+ | 2009 12 10 | G96 | 0.2+ | 0.4− |
| 2002 01 09 | 704 | 0.2+ | 0.0 | 2007 05 10 | 691 | 0.1− | 0.5− | 2009 12 19 | G96 | 0.2+ | 0.2− |
| 2002 01 13 | 704 | 0.1+ | 0.7− | 2007 05 10 | 691 | 0.3− | 0.3+ | 2009 12 19 | G96 | 0.5+ | 0.2− |
| 2002 01 13 | 704 | 0.4− | 0.1− | 2007 05 10 | 691 | 0.3+ | 0.2+ | 2009 12 19 | G96 | 0.7+ | 0.2+ |
| 2002 01 13 | 704 | 0.3+ | 0.9− | 2007 06 14 | 691 | 0.1− | 0.3− | 2009 12 19 | G96 | 0.6+ | 0.3− |
| 2002 01 15 | 704 | 0.4+ | 0.2+ | 2007 06 14 | 691 | 0.2+ | 0.2+ | | | | |

**(228594)∗ 2002 AE$_{66}$ = 2004 TY$_{25}$**

Discovered 2002 Jan. 12 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. A. Doppler (*MPO* 100130)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 263.62343 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23655841 | $\omega$ | 311.60775 | | −0.94013553 | | +0.33904450 |
| $a$ | 2.5892687 | $\Omega$ | 248.23693 | | −0.30056918 | | −0.87266970 |
| $e$ | 0.1520481 | $i$ | 2.13226 | | −0.16063420 | | −0.35142058 |
| $P$ | 4.17 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 12 17 | 691 | 0.7+ | 0.3+ | 2002 02 11 | 704 | 0.4− | 0.5+ | 2008 09 06 | 691 | 0.0 | 0.0 |
| 2001 12 17 | 691 | 0.2− | 0.5+ | 2002 02 15 | 691 | 0.0 | 0.0 | 2008 09 06 | 691 | 0.2− | 0.1+ |
| 2001 12 17 | 691 | 0.1− | 0.1+ | 2002 02 15 | 691 | 0.2+ | 0.2− | 2008 09 21 | G96 | 0.5+ | 0.0 |
| 2002 01 09 | 704 | 0.6+ | 0.4+ | 2002 02 15 | 691 | 0.0 | 0.4+ | 2008 09 21 | G96 | 0.6+ | 0.0 |
| 2002 01 09 | 704 | (1.5+ | 0.3−) | 2004 10 04 | 691 | 0.5− | 0.4+ | 2008 09 21 | G96 | 0.3+ | 0.1+ |
| 2002 01 09 | 704 | 1.0− | 0.6− | 2004 10 04 | 691 | 0.2− | 0.0 | 2008 09 21 | G96 | 0.4+ | 0.1+ |
| 2002 01 09 | 704 | (0.9+ | 1.7−) | 2004 10 04 | 691 | 0.1+ | 0.1+ | 2008 10 23 | G96 | 1.4− | 0.1− |
| 2002 01 09 | 704 | (1.7− | 1.0−) | 2004 10 12 | 691 | 0.0 | 0.0 | 2008 10 23 | G96 | 0.4+ | 0.7+ |
| 2002 01 12 | 704 | 1.2+ | 0.6+ | 2004 10 12 | 691 | 0.0 | 0.1+ | 2008 10 23 | G96 | 0.4+ | 0.3− |
| 2002 01 12 | 704 | 0.5− | 0.1− | 2004 10 12 | 691 | 0.1+ | 0.0 | 2008 10 23 | G96 | 0.1− | 0.1− |
| 2002 01 12 | 704 | 1.3− | 0.8− | 2005 12 01 | 691 | 0.1+ | 0.3− | 2009 11 16 | 691 | 0.2− | 0.6− |
| 2002 01 13 | 704 | 0.3+ | 0.8+ | 2005 12 01 | 691 | 0.1+ | 0.2− | 2009 11 16 | 691 | 0.6− | 0.5− |
| 2002 01 13 | 704 | 0.2− | 0.8+ | 2005 12 01 | 691 | 0.2+ | 0.1− | 2009 11 16 | 691 | 0.4− | 0.4− |
| 2002 01 13 | 704 | 0.8+ | 0.7+ | 2008 09 02 | 691 | 0.2+ | 0.2+ | 2009 12 10 | G96 | 0.4+ | 0.2− |
| 2002 01 13 | 704 | 1.3+ | 0.5+ | 2008 09 02 | 691 | 0.2− | 0.3+ | 2009 12 10 | G96 | 0.4+ | 0.6− |
| 2002 01 13 | 704 | 0.5+ | 0.9+ | 2008 09 02 | 691 | 0.0 | 0.2+ | 2009 12 10 | G96 | 0.3+ | 0.3− |
| 2002 02 11 | 704 | 0.5− | 0.0 | 2008 09 03 | 691 | 0.3+ | 0.0 | 2009 12 19 | G96 | 0.3+ | 0.3− |
| 2002 02 11 | 704 | 0.1− | 0.8+ | 2008 09 03 | 691 | 0.0 | 0.1+ | 2009 12 19 | G96 | 0.2+ | 0.4− |
| 2002 02 11 | 704 | 0.2− | 1.0+ | 2008 09 03 | 691 | 0.2− | 0.1+ | 2009 12 19 | G96 | 0.5+ | 0.3− |
| 2002 02 11 | 704 | 0.6− | 0.7+ | 2008 09 06 | 691 | 0.3− | 0.1+ | 2009 12 19 | G96 | 0.7+ | 0.4− |

**(228595)∗ 2002 AV$_{71}$ = 2005 WT$_{185}$**

Discovered 2002 Jan. 8 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 94491)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 325.77667 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23868940 | $\omega$ | 19.50747 | | −0.40162899 | | −0.87965205 |
| $a$ | 2.5738345 | $\Omega$ | 94.86641 | | +0.80260953 | | −0.47206522 |
| $e$ | 0.1190019 | $i$ | 14.81442 | | +0.44103525 | | +0.05802322 |
| $P$ | 4.13 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 12 25 | 608 | 0.2+ | 0.7− | 2005 12 07 | 704 | 0.0 | 0.8+ | 2007 05 20 | 703 | 0.9− | 0.7− |
| 2001 12 25 | 608 | 0.4+ | 0.4− | 2005 12 27 | 703 | 0.4− | 0.0 | 2009 11 15 | 704 | 1.0− | 0.8+ |
| 2001 12 25 | 608 | 0.1− | 0.8− | 2005 12 27 | 703 | 0.1− | 0.5− | 2009 11 15 | 704 | 0.2− | 0.3+ |
| 2002 01 08 | 704 | 0.0 | 0.4+ | 2005 12 27 | 703 | 0.3− | 0.1− | 2009 11 15 | 704 | 0.3+ | 0.2+ |
| 2002 01 08 | 704 | 0.6+ | 0.2+ | 2005 12 27 | 703 | 0.2− | 0.2− | 2009 11 15 | 704 | 0.1+ | 0.5+ |
| 2002 01 08 | 704 | 0.9+ | 0.2− | 2005 12 30 | 704 | 0.7− | 0.1+ | 2009 11 15 | 704 | 0.5+ | 0.2+ |
| 2002 01 08 | 704 | 0.4+ | 0.1+ | 2005 12 30 | 704 | 1.2− | 1.0− | 2009 11 18 | J75 | 0.1+ | 0.0 |
| 2002 01 14 | 704 | 0.3− | 0.5− | 2005 12 30 | 704 | 1.5− | 1.1− | 2009 11 18 | J75 | 0.2+ | 0.3− |
| 2002 01 14 | 704 | 0.1+ | 0.3− | 2005 12 30 | 704 | 0.6− | 0.1− | 2009 11 18 | J75 | 0.0 | 0.7− |
| 2002 01 14 | 704 | 0.1− | 0.3− | 2005 12 30 | 704 | 0.9− | 1.4− | 2009 11 22 | 703 | 0.3+ | 0.8− |
| 2002 01 14 | 704 | 0.4+ | 1.2− | 2006 01 22 | G96 | 0.2+ | 0.3− | 2009 11 22 | 703 | 0.4+ | 0.5− |
| 2002 01 21 | 704 | 0.9− | 0.0 | 2006 01 22 | G96 | 0.0 | 0.1− | 2009 11 22 | 703 | 1.0+ | 0.5− |
| 2002 01 21 | 704 | 0.9− | 1.2+ | 2006 01 22 | G96 | 0.2− | 0.2− | 2009 11 22 | 703 | 0.0 | 0.0 |
| 2002 01 21 | 704 | 0.9+ | 0.7+ | 2006 01 22 | G96 | 0.2+ | 0.2− | 2009 11 22 | 703 | 0.6+ | 0.5− |
| 2002 02 04 | 644 | 0.2− | 0.3+ | 2006 03 04 | G96 | 0.2− | 0.1+ | 2009 12 10 | 703 | 0.5− | 0.8− |
| 2002 02 04 | 644 | 0.1+ | 0.7+ | 2006 03 04 | G96 | 0.4+ | 0.1+ | 2009 12 10 | 703 | 0.6− | 0.2− |
| 2002 02 04 | 644 | 0.4− | 0.9+ | 2006 03 04 | G96 | 0.4+ | 0.3+ | 2009 12 10 | 703 | 0.4+ | 0.4− |
| 2005 11 30 | 704 | 0.3+ | 1.0+ | 2006 03 04 | G96 | 0.5+ | 0.4+ | 2009 12 10 | 703 | 0.3− | 0.4− |
| 2005 11 30 | 704 | 0.3+ | 0.0 | 2007 04 26 | G96 | 0.3− | 0.1− | 2009 12 13 | 704 | 0.3− | 0.2+ |
| 2005 11 30 | 704 | 0.0 | 0.4+ | 2007 04 26 | G96 | 0.3+ | 0.2+ | 2009 12 13 | 704 | 0.1+ | 0.7− |
| 2005 11 30 | 704 | 0.6+ | 1.0+ | 2007 04 26 | G96 | 0.1+ | 0.1− | 2009 12 13 | 704 | 1.0+ | 0.1+ |
| 2005 12 07 | 704 | 0.5+ | 0.8+ | 2007 04 26 | G96 | 0.2+ | 0.3+ | 2009 12 13 | 704 | 0.3+ | 0.4+ |
| 2005 12 07 | 704 | 0.8+ | 1.0+ | 2007 05 20 | 703 | 1.0− | 0.4− | 2009 12 13 | 704 | 0.3+ | 1.1+ |
| 2005 12 07 | 704 | 0.9− | 0.4+ | 2007 05 20 | 703 | 0.5+ | 0.3+ | | | | |
| 2005 12 07 | 704 | 0.1+ | 0.4+ | 2007 05 20 | 703 | 0.4+ | 0.9− | | | | |

**(228596)∗ 2002 AG$_{78}$**

Discovered 2002 Jan. 8 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 62.27547 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22385532 | $\omega$ | 254.02153 | | +0.93237758 | | +0.34588130 |
| $a$ | 2.6863201 | $\Omega$ | 85.64954 | | −0.27807622 | | +0.87197954 |
| $e$ | 0.0146739 | $i$ | 6.04827 | | −0.23096681 | | +0.34643588 |
| $P$ | 4.40 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 12 19 | 704 | 0.0 | 1.0− | 2005 11 06 | 691 | 0.9− | 0.3+ | 2006 01 21 | G96 | 0.9+ | 0.6+ |
| 2001 12 19 | 704 | 0.0 | 0.1− | 2005 11 06 | 691 | 0.2− | 0.2− | 2006 01 21 | G96 | 0.3+ | 0.4+ |
| 2001 12 19 | 704 | 0.7− | 0.0 | 2005 11 10 | 691 | 0.1+ | 0.0 | 2006 01 21 | G96 | 0.5+ | 0.7+ |
| 2002 01 08 | 704 | 0.4+ | 0.6− | 2005 11 10 | 691 | 0.6+ | 0.1− | 2006 01 21 | G96 | 0.4+ | 0.5+ |
| 2002 01 08 | 704 | 0.2+ | 0.6− | 2005 11 10 | 691 | 0.2+ | 0.1+ | 2009 10 16 | G96 | 0.4− | 0.3+ |
| 2002 01 08 | 704 | 0.6− | 0.7− | 2005 11 28 | 703 | 0.6− | 0.1+ | 2009 10 16 | G96 | 0.4− | 0.2+ |
| 2002 01 08 | 704 | 0.0 | 0.8− | 2005 11 28 | 703 | 0.7+ | 0.9+ | 2009 10 16 | 703 | 0.9+ | 0.5+ |
| 2002 01 14 | 704 | 1.0− | 0.4+ | 2005 11 28 | 703 | 0.5+ | 0.8+ | 2009 10 16 | G96 | 0.7− | 0.3+ |
| 2002 01 14 | 704 | 1.2− | 0.5− | 2005 11 28 | 703 | 0.2− | 0.1+ | 2009 10 16 | 703 | (1.7+ | 2.1+) |
| 2002 01 14 | 704 | 0.7− | 0.0 | 2005 12 01 | G96 | 0.3+ | 0.2+ | 2009 10 16 | G96 | 0.6− | 0.2+ |
| 2003 04 24 | 691 | 0.3+ | 0.4+ | 2005 12 01 | G96 | 0.0 | 0.2+ | 2009 10 16 | 703 | (0.7+ | 2.1+) |
| 2003 04 24 | 691 | 0.5+ | 0.3+ | 2005 12 01 | G96 | 0.3+ | 0.2+ | 2009 10 16 | 703 | (3.0+ | 1.2+) |
| 2003 04 24 | 691 | 0.4+ | 0.7+ | 2005 12 01 | G96 | 0.0 | 0.0 | 2009 10 24 | G96 | 0.5− | 0.2+ |
| 2003 05 01 | 691 | 0.2+ | 0.3+ | 2005 12 29 | G96 | 0.1+ | 0.3+ | 2009 10 24 | G96 | 0.4− | 0.0 |
| 2003 05 01 | 691 | 0.1− | 0.3+ | 2005 12 29 | G96 | 0.2+ | 0.5+ | 2009 10 24 | G96 | 0.2− | 0.2+ |
| 2003 05 01 | 691 | 0.3− | 0.1− | 2005 12 29 | G96 | 0.1+ | 0.4+ | 2009 10 24 | G96 | 0.7− | 0.2+ |
| 2005 10 29 | G96 | 0.3− | 0.4− | 2005 12 29 | G96 | 0.6+ | 0.7+ | 2009 12 13 | G96 | 0.2− | 0.0 |
| 2005 10 29 | G96 | 0.1− | 0.4− | 2006 01 05 | G96 | 0.5+ | 0.3+ | 2009 12 13 | G96 | 0.3− | 0.7+ |
| 2005 10 29 | G96 | 0.3− | 0.8− | 2006 01 05 | G96 | 0.6− | 0.4+ | 2009 12 13 | G96 | 1.3− | 0.7+ |
| 2005 10 29 | G96 | 0.1− | 0.5− | 2006 01 05 | G96 | 0.2− | 0.5+ | | | | |
| 2005 11 06 | 691 | 0.3+ | 0.4+ | 2006 01 05 | G96 | 0.3+ | 0.5+ | | | | |

**(228597)∗ 2002 AQ$_{96}$ = 2001 YY$_{89}$**

Discovered 2002 Jan. 8 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. A. Doppler (d, *MPO* 32045)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 351.29740 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24079666 | $\omega$ | 13.32095 | | −0.17255527 | −0.98176304 | |
| $a$ | 2.5587965 | $\Omega$ | 86.65827 | | +0.89623677 | −0.19009419 | |
| $e$ | 0.1636471 | $i$ | 4.58415 | | +0.40863716 | +0.00235177 | |
| $P$ | 4.09 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 12 18 | 704 | 0.1− | 0.6+ | 2002 01 20 | 699 | 0.0 | 0.2+ | 2005 12 30 | 691 | 0.1+ | 0.1+ |
| 2001 12 18 | 704 | 0.3+ | 0.3+ | 2002 01 21 | 704 | 0.4− | 0.6− | 2007 05 10 | 691 | 0.1− | 0.4+ |
| 2001 12 18 | 704 | 0.9+ | 0.4+ | 2002 01 21 | 704 | 0.3+ | 0.1− | 2007 05 10 | 691 | 0.1+ | 0.1− |
| 2001 12 19 | 704 | 0.5+ | 0.2− | 2002 01 21 | 704 | 0.2+ | 0.4+ | 2007 05 10 | 691 | 0.1+ | 0.1− |
| 2001 12 19 | 704 | 0.4− | 1.1− | 2002 01 21 | 704 | 0.4+ | 0.5− | 2009 11 08 | 691 | 0.1+ | 0.1− |
| 2001 12 19 | 704 | 0.1− | 0.6+ | 2002 01 21 | 704 | 1.2− | 0.6+ | 2009 11 08 | 691 | 0.0 | 0.0 |
| 2002 01 08 | 704 | 0.2+ | 0.1+ | 2002 01 22 | 691 | 0.0 | 0.0 | 2009 11 08 | 691 | 0.0 | 0.0 |
| 2002 01 08 | 704 | 0.1− | 0.2+ | 2002 01 22 | 691 | 0.1− | 0.1− | 2009 11 16 | 691 | 0.1− | 0.1− |
| 2002 01 08 | 704 | 0.1− | 0.1+ | 2002 01 22 | 691 | 0.0 | 0.0 | 2009 11 16 | 691 | 0.1+ | 0.1+ |
| 2002 01 08 | 704 | 0.9+ | 0.4+ | 2002 02 06 | 704 | 0.2− | 0.6− | 2009 11 16 | 691 | 0.3− | 0.2+ |
| 2002 01 08 | 704 | 0.7− | 0.2+ | 2002 02 06 | 704 | (0.2+ | 2.0−) | 2009 11 20 | 691 | 0.1− | 0.0 |
| 2002 01 11 | 699 | 1.2− | 0.5− | 2002 02 06 | 704 | 0.1+ | 0.1− | 2009 11 20 | 691 | 0.1+ | 0.1+ |
| 2002 01 11 | 699 | 0.3− | 0.6+ | 2002 02 06 | 704 | 0.2− | 0.5+ | 2009 11 20 | 691 | 0.1− | 0.0 |
| 2002 01 11 | 699 | 1.4− | 0.5+ | 2002 02 08 | 704 | 0.9+ | 0.6+ | 2009 11 22 | 703 | 1.4+ | 0.6− |
| 2002 01 11 | 699 | 0.8+ | 0.7+ | 2002 02 08 | 704 | 0.3+ | 0.0 | 2009 11 22 | 703 | 0.5− | 0.5+ |
| 2002 01 14 | 645 | 0.0 | 0.2− | 2002 02 08 | 704 | 0.5+ | 0.2− | 2009 11 22 | 703 | 0.5− | 0.1− |
| 2002 01 14 | 645 | 0.0 | 0.2− | 2002 02 08 | 704 | 1.0+ | 0.4− | 2009 11 22 | 703 | 0.5+ | 1.0− |
| 2002 01 14 | 704 | 0.0 | 0.9+ | 2005 12 01 | 691 | 0.0 | 0.1− | 2009 11 22 | 703 | 0.1+ | 0.6− |
| 2002 01 14 | 704 | 0.2− | 0.9+ | 2005 12 01 | 691 | 0.1+ | 0.1+ | 2009 11 24 | 691 | 0.0 | 0.7+ |
| 2002 01 14 | 704 | 0.5− | 1.2+ | 2005 12 01 | 691 | 0.1+ | 0.1+ | 2009 11 24 | 691 | 0.1− | 0.1− |
| 2002 01 14 | 704 | 0.1+ | 1.4+ | 2005 12 08 | 691 | 0.5− | 0.0 | 2009 11 24 | 691 | 0.0 | 0.0 |
| 2002 01 14 | 704 | (0.1− | 1.7+) | 2005 12 08 | 691 | 0.2− | 0.1+ | 2009 12 10 | G96 | 0.0 | 0.3− |
| 2002 01 17 | 644 | 0.1+ | 0.4+ | 2005 12 08 | 691 | 0.2− | 0.1+ | 2009 12 10 | G96 | 0.1+ | 0.3− |
| 2002 01 17 | 644 | 0.4− | 0.5+ | 2005 12 28 | 691 | 0.2+ | 0.0 | 2009 12 10 | G96 | 0.1+ | 0.2− |
| 2002 01 17 | 644 | 0.7− | 0.2+ | 2005 12 28 | 691 | 0.2+ | 0.1− | 2009 12 10 | G96 | 0.2+ | 0.1− |
| 2002 01 20 | 699 | 0.4+ | 0.1+ | 2005 12 28 | 691 | 0.1+ | 0.0 | 2009 12 19 | G96 | 0.1+ | 0.1− |
| 2002 01 20 | 699 | 0.9+ | 0.5+ | 2005 12 30 | 691 | 0.0 | 0.1− | 2009 12 19 | G96 | 0.2− | 0.2− |
| 2002 01 20 | 699 | 0.0 | 0.4+ | 2005 12 30 | 691 | 0.1+ | 0.1+ | 2009 12 19 | G96 | 0.1+ | 0.1− |

**(228598)∗ 2002 AC$_{98}$ = 1998 BP$_{43}$**

Discovered 2002 Jan. 8 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 25560)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 16.92887 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24194701 | $\omega$ | 101.80199 | | +0.49475996 | −0.86836014 | |
| $a$ | 2.5506794 | $\Omega$ | 318.48740 | | +0.77594207 | +0.45909477 | |
| $e$ | 0.2796621 | $i$ | 2.94970 | | +0.39131379 | +0.18757039 | |
| $P$ | 4.07 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 01 24 | 691 | 0.1− | 0.2− | 2002 02 10 | 704 | 0.1+ | 0.1+ | 2006 03 24 | G96 | 0.4+ | 0.1+ |
| 1998 01 24 | 691 | 0.3− | 0.2− | 2002 02 10 | 704 | 0.7+ | 0.3+ | 2006 03 24 | G96 | 0.5− | 0.4+ |
| 1998 01 24 | 691 | 0.2− | 0.3− | 2002 02 10 | 704 | 0.3+ | 0.1+ | 2006 03 24 | G96 | 0.2− | 0.1+ |
| 1998 01 25 | 691 | 0.3− | 0.6− | 2002 02 12 | 704 | 0.1+ | 0.9+ | 2009 11 17 | 704 | (1.8+ | 0.3−) |
| 1998 01 25 | 691 | 0.2− | 0.5− | 2002 02 12 | 704 | 0.0 | 1.4+ | 2009 11 17 | 704 | 0.9+ | 0.1− |
| 1998 01 25 | 691 | 0.1− | 0.6− | 2002 02 12 | 704 | 0.0 | 1.2+ | 2009 11 17 | 704 | 0.5+ | 0.0 |
| 2001 12 18 | 644 | 0.4+ | 0.5+ | 2002 02 12 | 704 | 0.1− | 1.2+ | 2009 11 17 | 704 | 0.3+ | 0.3− |
| 2001 12 18 | 644 | 0.5+ | 0.2+ | 2005 12 24 | 691 | 0.0 | 0.2+ | 2009 11 22 | 704 | 0.4+ | 0.6+ |
| 2001 12 18 | 704 | 0.3− | 0.5+ | 2005 12 24 | 691 | 0.2+ | 0.3+ | 2009 11 22 | 704 | 1.2+ | 0.7+ |
| 2001 12 18 | 644 | 0.1+ | 0.0 | 2005 12 24 | 691 | 0.2+ | 0.3+ | 2009 11 22 | 704 | 1.0− | 0.0 |
| 2001 12 18 | 704 | 0.1+ | 0.7+ | 2005 12 29 | 704 | 0.6− | 0.2+ | 2009 11 22 | 691 | 0.1− | 0.1− |
| 2001 12 18 | 704 | 0.2− | 0.4− | 2005 12 29 | 704 | 0.3− | 0.3+ | 2009 11 22 | 691 | 0.2− | 0.2− |
| 2001 12 18 | 704 | 0.1+ | 0.4− | 2005 12 29 | 704 | 0.1− | 0.6+ | 2009 11 22 | 691 | 0.0 | 0.2− |
| 2001 12 18 | 704 | (1.0− | 1.8−) | 2005 12 29 | 704 | 0.4− | 0.1− | 2009 11 26 | 691 | 0.6+ | 0.0 |
| 2002 01 08 | 704 | 1.2− | 1.2+ | 2005 12 29 | 704 | (1.9+ | 0.2+) | 2009 11 26 | 691 | 0.1− | 0.0 |
| 2002 01 08 | 704 | 0.1+ | 0.4− | 2006 01 05 | 691 | 0.0 | 0.2+ | 2009 11 26 | 691 | 0.2− | 0.1− |
| 2002 01 08 | 704 | 0.6− | 1.4+ | 2006 01 05 | 691 | 0.0 | 0.1+ | 2009 12 10 | 704 | (0.7− | 1.7+) |
| 2002 01 08 | 704 | 0.6− | 0.7+ | 2006 01 05 | 691 | 0.1− | 0.0 | 2009 12 10 | 704 | 0.2− | 0.6− |
| 2002 01 14 | 704 | 0.2+ | 0.2+ | 2006 01 06 | 704 | 0.4− | 0.1+ | 2009 12 10 | 704 | 0.7− | 0.7− |
| 2002 01 14 | 704 | 0.0 | 0.2+ | 2006 01 06 | 704 | 0.2+ | 0.2+ | 2009 12 10 | 704 | 1.3− | 0.6+ |
| 2002 01 14 | 704 | 0.1+ | 0.4+ | 2006 01 06 | 704 | 0.3+ | 0.1+ | 2009 12 10 | 704 | 0.4+ | 0.0 |
| 2002 01 14 | 704 | 0.1− | 0.5+ | 2006 01 06 | 704 | 0.2+ | 0.9+ | 2009 12 16 | 704 | 0.1− | 1.0− |
| 2002 01 14 | 704 | 0.1+ | 0.4+ | 2006 01 06 | 704 | 0.4+ | 0.5+ | 2009 12 16 | 704 | 0.2+ | 0.4− |
| 2002 02 07 | 691 | 0.4+ | 0.1− | 2006 01 09 | 691 | 0.1+ | 0.0 | 2009 12 16 | 704 | 0.0 | 0.4+ |
| 2002 02 07 | 691 | 0.2+ | 0.1− | 2006 01 09 | 691 | 0.3+ | 0.1− | 2009 12 20 | 691 | 0.1+ | 0.5− |
| 2002 02 07 | 691 | 0.4+ | 0.5− | 2006 01 09 | 691 | 0.0 | 0.1− | 2009 12 20 | 691 | 0.3− | 0.1− |
| 2002 02 10 | 704 | (0.5+ | 1.6+) | 2006 03 24 | G96 | 0.1− | 0.2+ | 2009 12 20 | 691 | 0.1− | 0.2− |

**(228599)∗ 2002 AF$_{115}$**

Discovered 2002 Jan. 9 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 357.30633 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23507737 | $\omega$ | 320.97698 | | +0.08461537 | −0.97831689 | |
| $a$ | 2.6001327 | $\Omega$ | 123.38369 | | +0.96148983 | +0.03037786 | |
| $e$ | 0.1077164 | $i$ | 13.08490 | | +0.26149100 | +0.20487373 | |
| $P$ | 4.19 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 01 09 | 704 | 0.4+ | 0.1− | 2002 02 07 | 704 | 0.5+ | 0.4− | 2003 06 01 | 691 | 0.3+ | 0.4+ |
| 2002 01 09 | 704 | 0.0 | 0.5− | 2002 02 07 | 704 | 0.0 | 0.3− | 2003 06 01 | 691 | 0.2+ | 0.0 |
| 2002 01 09 | 704 | 0.9+ | 0.5+ | 2002 02 07 | 704 | 0.7+ | 0.2− | 2003 06 01 | 691 | 0.7+ | 0.2− |
| 2002 01 09 | 704 | 0.0 | 0.0 | 2002 02 07 | 704 | 0.4− | 0.8+ | 2004 08 08 | 644 | 0.1− | 0.6+ |
| 2002 01 14 | 691 | 0.5− | 0.0 | 2002 02 10 | 704 | 0.0 | 0.0 | 2004 08 08 | 644 | 0.2+ | 0.7+ |
| 2002 01 14 | 691 | 0.2− | 0.2− | 2002 02 10 | 704 | 0.2+ | 0.1+ | 2004 08 08 | 644 | 0.7+ | 1.4+ |
| 2002 01 14 | 691 | 0.3− | 0.2+ | 2002 02 10 | 704 | 0.1+ | 0.4+ | 2005 12 30 | 704 | 0.3− | 1.4+ |
| 2002 01 14 | 704 | 0.7+ | 0.1− | 2002 02 10 | 704 | 0.3− | 0.3− | 2005 12 30 | 704 | 0.0 | 1.5+ |
| 2002 01 14 | 704 | 0.9+ | 0.1+ | 2002 02 10 | 704 | 0.2− | 0.1− | 2005 12 30 | 704 | 0.1+ | 1.2+ |
| 2002 01 14 | 704 | 0.1+ | 0.2+ | 2002 02 12 | 704 | 0.1+ | 0.1+ | 2006 01 03 | 704 | 0.6+ | 0.5+ |
| 2002 01 14 | 704 | 0.3+ | 0.2+ | 2002 02 12 | 704 | 0.1+ | 0.1+ | 2006 01 03 | 704 | 0.3+ | 0.3+ |
| 2002 01 14 | 704 | 0.6+ | 0.2− | 2002 02 12 | 704 | 0.0 | 0.5+ | 2006 01 03 | 704 | 0.6+ | 0.1+ |
| 2002 01 21 | 704 | (0.7+ | 4.3+) | 2002 02 12 | 704 | 0.2+ | 0.3+ | 2006 01 03 | 704 | 0.3+ | 0.5+ |
| 2002 01 21 | 704 | 1.2− | 0.5+ | 2002 02 12 | 704 | 0.3− | 0.2− | 2006 01 03 | 704 | 0.8+ | 0.4+ |
| 2002 01 21 | 704 | 0.8− | 0.8− | 2002 02 20 | 704 | 0.0 | 0.3+ | 2007 03 25 | G96 | 0.7− | 0.7− |
| 2002 02 03 | 608 | 0.0 | 1.3+ | 2002 02 20 | 704 | 0.8− | 1.1+ | 2007 03 25 | G96 | 0.8− | 0.9− |
| 2002 02 03 | 608 | (0.6− | 1.6+) | 2002 02 20 | 704 | 0.2− | 0.6+ | 2007 03 25 | G96 | 0.4− | 0.7− |
| 2002 02 03 | 608 | 0.1+ | 0.8+ | 2002 02 20 | 704 | 0.1+ | 0.6+ | 2007 03 25 | G96 | 0.6− | 0.7− |
| 2002 02 04 | 699 | 0.9− | 0.0 | 2002 02 20 | 704 | 0.8+ | 0.5+ | 2008 07 02 | 691 | 0.5− | 0.4+ |
| 2002 02 04 | 699 | 0.4− | 0.6+ | 2002 05 05 | 291 | 0.1+ | 0.1− | 2008 07 02 | 691 | 0.0 | 0.3+ |
| 2002 02 04 | 699 | 0.1+ | 0.1− | 2002 05 05 | 291 | 0.1+ | 0.3− | 2008 07 02 | 691 | 0.6− | 0.6+ |
| 2002 02 04 | 699 | 0.5+ | 1.3+ | 2002 05 05 | 291 | 0.1− | 0.0 | 2009 11 09 | 703 | 0.9− | 0.9+ |
| 2002 02 05 | 644 | 0.4+ | 0.0 | 2003 05 01 | 691 | 0.0 | 0.0 | 2009 11 09 | 703 | 0.3− | 0.0 |
| 2002 02 05 | 644 | 0.3+ | 0.4+ | 2003 05 01 | 691 | 0.0 | 0.0 | 2009 11 09 | 703 | 0.9− | 0.3− |
| 2002 02 05 | 644 | 0.1− | 0.2+ | 2003 05 01 | 691 | 0.2− | 0.5− | 2009 11 09 | 703 | 1.9− | 1.3+ |
| 2002 02 06 | 333 | (0.3− | 1.7−) | 2003 05 26 | 691 | 0.3+ | 0.8+ | 2009 11 15 | 704 | 1.3+ | 1.7+ |
| 2002 02 06 | 333 | 1.0− | 0.7− | 2003 05 26 | 691 | 0.1+ | 0.6+ | 2009 11 15 | 704 | 1.7+ | 1.5− |
| 2002 02 06 | 333 | 1.4− | 1.0− | 2003 05 26 | 691 | 0.2+ | 0.3+ | 2009 11 15 | 704 | 1.0+ | 1.5− |

**(228600)∗ 2002 AF$_{138}$ = 2005 UA$_{298}$**

Discovered 2002 Jan. 9 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 94523)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 342.78921 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22707036 | $\omega$ | 221.30174 | | +0.55243905 | −0.83354737 | |
| $a$ | 2.6609032 | $\Omega$ | 195.16461 | | +0.76788988 | +0.51038369 | |
| $e$ | 0.1249562 | $i$ | 0.68839 | | +0.32427803 | +0.21144092 | |
| $P$ | 4.34 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 12 19 | 644 | 0.3− | 0.3+ | 2005 11 25 | G96 | 0.4+ | 0.5− | 2007 03 09 | G96 | 0.1− | 0.1− |
| 2001 12 19 | 644 | 0.2− | 0.4+ | 2005 11 25 | G96 | 0.3+ | 0.3− | 2007 03 15 | 291 | 0.5− | 0.1+ |
| 2001 12 19 | 644 | 0.5− | 0.2+ | 2005 11 25 | G96 | 0.1+ | 0.4− | 2007 03 15 | 291 | 0.2− | 0.2+ |
| 2002 01 09 | 704 | 0.2+ | 0.5− | 2005 11 25 | G96 | 0.1− | 0.3− | 2007 03 15 | 291 | 0.1− | 0.3+ |
| 2002 01 09 | 704 | 0.2+ | 0.8− | 2005 11 25 | G96 | 0.1− | 0.4− | 2007 04 07 | G96 | 0.1+ | 0.2− |
| 2002 01 09 | 704 | 0.6− | 0.4− | 2005 11 25 | G96 | 0.1+ | 0.5− | 2007 04 07 | G96 | 0.1− | 0.0 |
| 2002 01 09 | 704 | (1.0− | 1.8−) | 2005 12 04 | G96 | 0.1+ | 0.1− | 2007 04 07 | G96 | 0.4+ | 0.5− |
| 2002 01 15 | 704 | 0.6+ | 0.3− | 2005 12 04 | G96 | 0.6− | 0.5+ | 2007 04 07 | G96 | 0.2+ | 0.1− |
| 2002 01 15 | 704 | 0.0 | 0.3− | 2005 12 04 | G96 | 0.8+ | 0.7+ | 2007 04 15 | G96 | 0.8+ | 0.3− |
| 2002 01 15 | 704 | 0.1+ | 0.6− | 2005 12 04 | G96 | 0.1+ | 0.4− | 2007 04 15 | G96 | 0.6+ | 0.6− |
| 2002 01 15 | 704 | 0.2− | 0.5− | 2006 01 21 | G96 | 0.2+ | 0.3− | 2007 04 15 | G96 | 0.0 | 1.1− |
| 2005 10 26 | 691 | 0.3− | 0.2+ | 2006 01 21 | G96 | 0.0 | 0.1+ | 2007 04 15 | G96 | 0.4+ | 0.4− |
| 2005 10 26 | 691 | 0.1+ | 0.2+ | 2006 01 21 | G96 | 0.2− | 0.2− | 2009 10 16 | G96 | 0.0 | 0.1− |
| 2005 10 26 | 691 | 0.5− | 0.2+ | 2006 01 21 | G96 | 0.0 | 0.1− | 2009 10 16 | G96 | 0.0 | 0.1− |
| 2005 10 30 | 691 | 0.2+ | 0.1− | 2006 01 21 | G96 | 0.5− | 0.2− | 2009 10 16 | G96 | 0.2+ | 0.0 |
| 2005 10 30 | 691 | 0.0 | 0.2+ | 2006 01 21 | G96 | 0.5− | 0.1+ | 2009 10 16 | G96 | 0.2+ | 0.1+ |
| 2005 10 30 | 691 | 0.2+ | 0.1+ | 2006 01 21 | G96 | 0.3− | 0.1+ | 2009 11 23 | G96 | 0.2− | 0.3− |
| 2005 11 12 | 691 | 0.1− | 0.1+ | 2006 01 21 | G96 | 0.1− | 0.2+ | 2009 11 23 | G96 | 0.1+ | 0.1− |
| 2005 11 12 | 691 | 0.0 | 0.1+ | 2007 02 27 | 691 | 0.3+ | 0.2− | 2009 11 23 | G96 | 0.1− | 0.1+ |
| 2005 11 12 | 691 | 0.2+ | 0.1+ | 2007 02 27 | 691 | 0.1− | 0.8+ | 2009 11 23 | G96 | 0.3− | 0.1− |
| 2005 11 22 | 691 | 0.2+ | 0.1+ | 2007 02 27 | 691 | 0.2+ | 0.1+ | 2009 12 11 | G96 | 0.6− | 0.1− |
| 2005 11 22 | 691 | 0.1− | 0.1+ | 2007 03 09 | G96 | 0.4+ | 0.3+ | 2009 12 11 | G96 | 0.1+ | 0.1− |
| 2005 11 22 | 691 | 0.0 | 0.1+ | 2007 03 09 | G96 | 0.1+ | 0.1− | 2009 12 11 | G96 | 0.2− | 0.3− |
| 2005 11 25 | G96 | 0.1+ | 0.5− | 2007 03 09 | G96 | 0.2+ | 0.1+ | 2009 12 11 | G96 | 0.5+ | 0.1− |

**(228601)∗ 2002 AR$_{163}$ = 2005 TQ$_{170}$**

Discovered 2002 Jan. 13 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 94533)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 35.03139 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24029347 | $\omega$ | 118.93659 | | +0.59107538 | −0.80472788 | |
| $a$ | 2.5623674 | $\Omega$ | 294.72576 | | +0.71730642 | +0.55567824 | |
| $e$ | 0.2292188 | $i$ | 3.48175 | | +0.36891924 | +0.20888927 | |
| $P$ | 4.10 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 08 27 | 807 | 0.3+ | 0.9+ | 2005 11 06 | G96 | 0.5+ | 1.0− | 2006 01 27 | 704 | (0.4− | 1.7−) |
| 2000 08 27 | 807 | 0.0 | 0.6+ | 2005 11 06 | G96 | 0.7− | 0.1− | 2006 01 27 | 704 | 0.5+ | 0.4− |
| 2002 01 13 | 704 | 0.4+ | 0.2− | 2005 11 06 | G96 | 0.2− | 0.5− | 2006 01 27 | 704 | 0.0 | 1.0− |
| 2002 01 13 | 704 | 0.2+ | 0.8+ | 2005 11 06 | G96 | 0.2+ | 0.4− | 2006 01 27 | 704 | 0.0 | 1.3− |
| 2002 01 13 | 704 | 0.4− | 1.2− | 2005 11 26 | G96 | 0.7+ | 0.4− | 2006 01 27 | 704 | (0.9− | 1.6−) |
| 2002 01 13 | 704 | 0.3− | 0.2+ | 2005 11 26 | G96 | 0.3+ | 0.2− | 2006 02 24 | G96 | 0.1− | 0.1+ |
| 2002 01 13 | 704 | 0.1− | 0.1− | 2005 11 26 | G96 | 0.3− | 0.2− | 2006 02 24 | G96 | 0.1− | 0.1+ |
| 2002 01 19 | 704 | 0.5+ | 0.7+ | 2005 11 26 | G96 | 0.2+ | 0.5+ | 2006 02 24 | G96 | 0.1+ | 0.0 |
| 2002 01 19 | 704 | 0.2− | 0.2− | 2005 12 02 | 695 | 0.1+ | 0.1+ | 2006 02 24 | G96 | 0.5− | 0.1− |
| 2002 01 19 | 704 | 0.7− | 0.3+ | 2005 12 02 | 695 | 0.2+ | 0.1+ | 2006 03 03 | G96 | 0.3− | 0.2+ |
| 2002 01 19 | 704 | 0.9− | 0.8+ | 2005 12 06 | G96 | 0.2+ | 0.0 | 2006 03 03 | G96 | 0.2− | 0.1+ |
| 2002 01 22 | 704 | (0.4+ | 2.3+) | 2005 12 06 | G96 | 0.1− | 0.3− | 2006 03 03 | G96 | 0.3− | 0.0 |
| 2002 01 22 | 704 | (0.5+ | 2.1+) | 2005 12 06 | G96 | 0.3− | 0.2− | 2006 03 03 | G96 | 0.3− | 1.0+ |
| 2002 01 22 | 704 | (0.6− | 1.6+) | 2005 12 06 | G96 | 0.0 | 0.2− | 2009 11 11 | G96 | 0.3+ | 0.1− |
| 2002 02 11 | 704 | 0.2+ | 1.0+ | 2005 12 25 | G96 | 0.5− | 0.1− | 2009 11 11 | G96 | 0.1+ | 0.3− |
| 2002 02 11 | 704 | 0.2− | 1.2+ | 2005 12 25 | G96 | 0.4− | 0.1− | 2009 11 11 | G96 | 0.1− | 0.2− |
| 2002 02 11 | 704 | 0.5+ | 0.4+ | 2005 12 25 | G96 | 0.4− | 0.0 | 2009 11 11 | G96 | 0.3+ | 0.1− |
| 2002 02 11 | 704 | 0.3+ | 0.2+ | 2005 12 25 | G96 | 0.4− | 0.1− | 2009 12 11 | 704 | 0.1− | 0.5+ |
| 2002 02 11 | 704 | 0.5− | 0.3− | 2006 01 05 | G96 | 0.2− | 0.2− | 2009 12 11 | 704 | 0.4+ | 0.5+ |
| 2002 02 16 | 644 | 1.1+ | 0.2+ | 2006 01 05 | G96 | 0.0 | 0.3− | 2009 12 11 | 704 | 1.1+ | 0.1− |
| 2002 02 16 | 644 | 1.0+ | 0.4+ | 2006 01 05 | G96 | 0.2− | 0.1− | 2009 12 15 | G96 | 0.1+ | 0.7− |
| 2002 02 16 | 644 | 0.4+ | 0.0 | 2006 01 06 | 691 | 0.3+ | 0.1+ | 2009 12 15 | G96 | 0.4+ | 0.4− |
| 2004 07 21 | E12 | 0.0 | 0.1+ | 2006 01 06 | 691 | 0.0 | 0.5+ | 2009 12 15 | G96 | 0.1+ | 0.7− |
| 2004 07 21 | E12 | 0.4− | 0.2+ | 2006 01 06 | 691 | 0.0 | 0.1− | 2009 12 15 | G96 | 0.8+ | 0.6− |
| 2004 07 21 | E12 | 0.5− | 0.1+ | 2006 01 10 | 691 | 0.1+ | 0.1− | 2009 12 15 | G96 | 0.2+ | 0.6− |
| 2004 07 21 | E12 | 0.2− | 0.2+ | 2006 01 10 | 691 | 0.0 | 0.2+ | 2009 12 16 | 704 | 0.1+ | 0.5+ |
| 2005 10 01 | G96 | 0.1− | 0.2− | 2006 01 10 | 691 | 0.3+ | 0.2+ | 2009 12 16 | 704 | 0.3+ | 0.3+ |
| 2005 10 01 | G96 | 0.5− | 0.1− | 2006 01 22 | G96 | 0.1− | 0.3− | 2009 12 16 | 704 | 0.3+ | 0.4+ |
| 2005 10 01 | G96 | 0.0 | 0.0 | 2006 01 22 | G96 | 0.4− | 0.3− | 2009 12 16 | 704 | (1.7+ | 0.5+) |
| 2005 10 01 | G96 | 0.0 | 0.2− | 2006 01 22 | G96 | 0.0 | 0.2− | 2009 12 17 | 691 | 0.2− | 0.2− |
| 2005 10 11 | 291 | 0.1− | 0.2+ | 2006 01 22 | G96 | 0.1− | 0.1− | 2009 12 17 | 691 | 0.1− | 0.1+ |
| 2005 10 11 | 291 | 0.0 | 0.4+ | 2006 01 24 | 704 | 0.9+ | 0.1− | 2009 12 17 | 691 | 0.1− | 0.2− |
| 2005 10 11 | 291 | 0.1+ | 0.5+ | 2006 01 24 | 704 | 0.1− | 0.6− | 2009 12 25 | 691 | 0.1− | 0.0 |
| 2005 10 13 | 691 | 0.1+ | 0.7+ | 2006 01 24 | 704 | 0.3+ | 1.0− | 2009 12 25 | 691 | 0.3− | 0.1+ |
| 2005 10 13 | 691 | 0.1− | 0.1− | 2006 01 24 | 704 | 0.8− | 0.4− | 2009 12 25 | 691 | 0.2− | 0.0 |
| 2005 10 13 | 691 | 0.1− | 0.4+ | 2006 01 24 | 704 | 0.2+ | 0.3− | | | | |

**(228602)∗ 2002 AH$_{164}$**

Discovered 2002 Jan. 13 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 35.61445 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23622390 | $\omega$ | 131.05994 | | +0.75909797 | −0.64770991 | |
| $a$ | 2.5917125 | $\Omega$ | 269.41420 | | +0.57602073 | +0.71493316 | |
| $e$ | 0.2406944 | $i$ | 3.73462 | | +0.30326622 | +0.26332955 | |
| $P$ | 4.17 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1992 10 26 | 691 | 0.3− | 0.3− | 2004 07 11 | 704 | 0.5− | 0.2− | 2006 01 09 | 691 | 0.2+ | 0.1+ |
| 1992 10 26 | 691 | 0.4− | 0.4+ | 2004 07 11 | 704 | 0.4− | 0.1+ | 2006 01 09 | 703 | 1.0− | 0.0 |
| 1992 10 26 | 691 | 0.5+ | 0.1+ | 2004 07 11 | 704 | 0.0 | 0.7− | 2006 01 09 | 703 | 0.5− | 0.1− |
| 2000 08 01 | 807 | 0.0 | 0.9+ | 2004 07 21 | E12 | 0.3+ | 0.7+ | 2006 01 09 | 691 | 0.1+ | 0.1+ |
| 2000 08 01 | 807 | 0.1+ | 0.8+ | 2004 07 21 | E12 | 0.1− | 0.3− | 2006 01 09 | 703 | 1.2− | 0.3+ |
| 2002 01 13 | 704 | (1.3+ | 2.4+) | 2004 07 21 | E12 | (1.8− | 0.3+) | 2006 01 09 | 691 | 0.1− | 0.2+ |
| 2002 01 13 | 704 | 0.4+ | 1.4+ | 2004 07 21 | E12 | 0.3− | 0.2− | 2006 01 10 | G96 | 0.2− | 0.5− |
| 2002 01 13 | 704 | 1.2− | 0.9+ | 2005 09 30 | G96 | 0.0 | 0.0 | 2006 01 10 | G96 | 0.1+ | 0.3− |
| 2002 01 13 | 704 | 0.9+ | 0.8+ | 2005 09 30 | G96 | 0.3− | 0.1+ | 2006 01 10 | G96 | 0.3+ | 0.3− |
| 2002 01 19 | 704 | 1.1+ | 0.7+ | 2005 09 30 | G96 | 0.6− | 0.2+ | 2006 01 18 | 703 | 0.9+ | 0.1+ |
| 2002 01 19 | 704 | 0.6− | 1.2+ | 2005 09 30 | G96 | 0.3− | 0.3+ | 2006 01 18 | 703 | (1.7+ | 1.3+) |
| 2002 01 19 | 704 | 0.0 | 0.6+ | 2005 10 27 | G96 | 0.2− | 0.4− | 2006 01 18 | 703 | 0.6− | 0.3+ |
| 2002 01 19 | 704 | 0.7+ | 0.2+ | 2005 10 27 | G96 | 0.1− | 0.5− | 2006 01 18 | 703 | 1.2− | 0.5+ |
| 2002 01 22 | 704 | 0.6− | 0.6− | 2005 10 27 | G96 | 0.2− | 0.4− | 2006 01 23 | G96 | 0.2− | 0.0 |
| 2002 01 22 | 704 | 0.0 | 0.1+ | 2005 10 27 | G96 | 0.3− | 0.3− | 2006 01 23 | G96 | 0.2− | 0.0 |
| 2002 01 22 | 704 | 0.9+ | 0.4− | 2005 11 30 | G96 | 0.5− | 0.7− | 2006 01 23 | G96 | 0.4− | 0.1− |
| 2002 02 06 | 644 | 0.4+ | 0.1+ | 2005 11 30 | G96 | 0.3− | 0.4− | 2006 01 23 | G96 | 0.5− | 0.1+ |
| 2002 02 06 | 644 | 0.1+ | 0.5+ | 2005 11 30 | G96 | 1.0− | 0.0 | 2006 01 29 | 703 | 0.1− | 0.3− |
| 2002 02 06 | 644 | 0.4+ | 0.4+ | 2005 11 30 | G96 | 0.4− | 0.0 | 2006 01 29 | 703 | 0.1− | 0.1+ |
| 2002 02 11 | 704 | 1.3+ | 0.7− | 2005 12 24 | 691 | 0.1− | 0.3− | 2006 01 29 | 703 | 0.5− | 0.6+ |
| 2002 02 11 | 704 | 0.5+ | 1.1− | 2005 12 24 | 691 | 0.4+ | 0.1− | 2006 01 29 | 703 | 1.0− | 0.1+ |
| 2002 02 11 | 704 | 0.7+ | 1.0− | 2005 12 24 | 691 | 0.1− | 0.0 | 2006 02 24 | 644 | 0.2+ | 0.7+ |
| 2002 02 11 | 704 | 1.0+ | 0.8− | 2005 12 26 | G96 | 0.3− | 0.3− | 2006 02 24 | 644 | 0.2+ | 0.1+ |
| 2002 02 11 | 704 | 1.0+ | 0.9− | 2005 12 26 | G96 | 0.2− | 0.5− | 2006 02 24 | 644 | 0.0 | 0.3+ |
| 2002 02 16 | 644 | 0.3+ | 0.3+ | 2005 12 26 | G96 | 0.2− | 0.4− | 2009 11 21 | 704 | 1.2+ | 0.4+ |
| 2002 02 16 | 644 | 0.0 | 0.4+ | 2005 12 26 | G96 | 0.1− | 0.3− | 2009 11 21 | 704 | (1.9+ | 0.1−) |
| 2002 02 16 | 644 | 0.4+ | 0.1+ | 2005 12 28 | 691 | 0.0 | 0.0 | 2009 11 21 | 704 | 1.2+ | 0.8− |
| 2002 02 18 | 209 | 0.2+ | 0.2+ | 2005 12 28 | 691 | 0.1− | 0.0 | 2009 11 21 | 704 | 0.3+ | 0.2− |
| 2002 02 18 | 209 | 0.6+ | 0.0 | 2005 12 28 | 691 | 0.2− | 0.1− | 2009 12 16 | 704 | 1.2+ | 0.8+ |
| 2002 02 19 | 209 | 0.8+ | 0.1+ | 2006 01 05 | 691 | 0.1+ | 0.1+ | 2009 12 16 | 704 | 0.2− | 0.2− |
| 2002 02 19 | 209 | 0.4− | 0.4− | 2006 01 05 | 691 | 0.1− | 0.0 | 2009 12 16 | 704 | 0.5+ | 0.1− |
| 2002 02 19 | 209 | 0.3− | 0.3− | 2006 01 05 | 691 | 0.1− | 0.1+ | 2009 12 16 | 704 | 0.1− | 0.6+ |
| 2002 02 19 | 209 | 1.1− | 0.2+ | 2006 01 09 | 703 | 0.9− | 1.0+ | | | | |

**(228603)∗ 2002 AB$_{177}$**

Discovered 2002 Jan. 14 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 342.56735 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23791004 | $\omega$ | 163.35593 | | −0.36827886 | | −0.92730347 |
| $a$ | 2.5794525 | $\Omega$ | 308.20319 | | +0.84300031 | | −0.30270625 |
| $e$ | 0.1997732 | $i$ | 4.88554 | | +0.39207289 | | −0.22017539 |
| $P$ | 4.14 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 03 03 | 704 | (0.9+ | 3.0+) | 2002 02 11 | 704 | 0.0 | 0.6− | 2006 01 06 | 704 | 0.9− | 0.4− | 2002 02 07 | 704 | 0.3− | 1.5+ | 2005 12 27 | G96 | 0.2− | 0.3− | 2006 02 23 | G96 | 0.2− | 0.1+ |
| 1998 03 03 | 704 | 1.3+ | 1.8+ | 2002 02 11 | 704 | 0.4+ | 0.5− | 2006 01 06 | 704 | 0.4+ | 0.2+ | 2002 02 07 | 704 | 0.2− | 0.6+ | 2005 12 27 | G96 | 0.3− | 0.1− | 2006 02 23 | G96 | 0.1− | 0.3− |
| 1998 03 03 | 704 | 0.2+ | 1.4− | 2002 02 14 | 608 | 0.7+ | 0.4+ | 2006 01 06 | 704 | 1.4− | 0.3+ | 2002 02 07 | 704 | 0.4− | 1.0+ | 2006 01 05 | 691 | 0.2+ | 0.1+ | 2007 04 25 | 691 | 0.1− | 0.3− |
| 1998 03 03 | 704 | (4.5− | 1.0+) | 2002 02 14 | 608 | 0.2− | 0.7+ | 2006 01 07 | 704 | 0.5+ | 0.3+ | 2002 02 07 | 704 | 0.3− | 1.0+ | 2006 01 05 | 691 | 0.1− | 0.9− | 2007 04 25 | 691 | 0.2− | 0.0 |
| 1998 03 04 | 704 | 1.7− | 1.5+ | 2002 02 14 | 608 | 0.1+ | 0.1+ | 2006 01 07 | 704 | 0.6+ | 0.3+ | 2002 02 07 | 704 | 0.1+ | 1.1+ | 2006 01 05 | 691 | 0.3+ | 0.2+ | 2007 04 25 | 691 | 0.1− | 0.7− |
| 1998 03 04 | 704 | (3.3− | 0.9−) | 2002 02 19 | 691 | 0.3+ | 0.4+ | 2006 01 07 | 704 | 0.2− | 0.1− | 2002 02 10 | 704 | 0.3− | 0.1+ | 2006 01 06 | G96 | 0.5− | 0.4− | 2007 05 14 | G96 | 0.3− | 0.8− |
| 1998 03 04 | 704 | (2.8− | 0.5−) | 2002 02 19 | 691 | 0.2+ | 0.2+ | 2006 01 07 | 704 | 0.2− | 0.2+ | 2002 02 10 | 704 | 0.2− | 0.3− | 2006 01 06 | G96 | 0.8− | 1.0− | 2007 05 14 | G96 | 0.2− | 0.3− |
| 1998 03 04 | 704 | (5.8− | 1.9−) | 2002 02 19 | 691 | 0.2+ | 0.1+ | 2006 01 07 | 704 | 0.1+ | 0.4+ | 2002 02 10 | 704 | 0.3+ | 0.3− | 2006 01 06 | G96 | (1.8− | 0.0 ) | 2007 05 14 | G96 | 0.0 | 0.2− |
| 2002 01 09 | 608 | (0.5− | 1.5+) | 2002 02 20 | 704 | 0.0 | 0.1+ | 2006 01 09 | 691 | 0.1+ | 0.1+ | 2002 02 10 | 704 | 0.1− | 0.5− | 2006 01 06 | G96 | 1.0− | 0.5− | 2007 05 14 | G96 | 0.4− | 0.1− |
| 2002 01 09 | 608 | 0.2− | 0.9+ | 2002 02 20 | 704 | 0.7− | 0.3+ | 2006 01 09 | 691 | 0.4− | 0.2− | 2002 02 10 | 704 | 0.2+ | 0.9− | 2006 01 06 | G96 | 0.6− | 0.4− | 2009 12 15 | 703 | 1.4− | 0.1− |
| 2002 01 09 | 608 | 0.4− | 1.2+ | 2002 02 20 | 704 | 0.8− | 0.1− | 2006 01 09 | 691 | 0.2− | 0.0 | 2002 02 12 | 704 | 0.1− | 0.3+ | 2006 01 06 | G96 | 0.9− | 0.7− | 2009 12 15 | 703 | 0.0 | 0.7− |
| 2002 01 14 | 704 | 1.0+ | 0.4+ | 2002 02 20 | 704 | 0.2− | 0.9+ | 2006 01 24 | 704 | 1.2− | 0.5+ | 2002 02 12 | 704 | 0.2− | 1.1+ | 2006 01 06 | G96 | 0.7− | 0.4− | 2009 12 15 | 703 | 0.5− | 0.4− |
| 2002 01 14 | 704 | 1.0+ | 0.4+ | 2002 02 20 | 704 | 0.6− | 0.3+ | 2006 01 24 | 704 | 0.4− | 0.3− | 2002 02 12 | 704 | 0.3+ | 0.7− | 2006 01 06 | G96 | 0.4− | 0.3− | 2009 12 15 | 703 | 1.3− | 0.5− |
| 2002 01 14 | 704 | 0.7+ | 0.0 | 2002 03 05 | 644 | 0.6+ | 0.3+ | 2006 01 24 | 704 | 0.7− | 0.2+ | 2002 02 12 | 704 | 0.6+ | 0.0 | 2006 01 09 | 691 | 1.0+ | 0.1− | 2009 12 15 | 703 | 0.3− | 1.8− |
| 2002 01 14 | 704 | 0.3+ | 0.2+ | 2002 03 05 | 644 | 0.3+ | 0.5+ | 2006 01 24 | 704 | 0.5− | 0.4+ | 2002 02 12 | 704 | 0.2+ | 0.7+ | 2006 01 09 | 691 | 0.3+ | 0.3+ | 2009 12 17 | G96 | 0.1+ | 0.1− |
| 2002 01 14 | 704 | 0.1+ | 0.3+ | 2002 03 05 | 644 | 0.4+ | 0.4+ | 2006 01 24 | 704 | 0.2− | 0.2+ | 2002 02 14 | 704 | 0.2+ | 0.5− | 2006 01 09 | 691 | 0.4+ | 0.4+ | 2009 12 17 | G96 | 0.6+ | 0.4+ |
| 2002 01 21 | 704 | 0.7+ | 1.0+ | 2002 03 12 | 333 | 0.3− | 1.3+ | 2006 03 23 | G96 | 0.0 | 0.2+ | 2002 02 14 | 704 | 0.3+ | 0.7− | 2006 01 18 | 703 | 0.5+ | 1.5− | 2009 12 17 | G96 | 0.1+ | 0.0 |
| 2002 01 21 | 704 | 0.3+ | 0.8+ | 2002 03 12 | 333 | 0.2+ | 0.9+ | 2006 03 23 | G96 | 0.1+ | 0.1+ | 2002 02 14 | 704 | 0.3− | 0.1+ | 2006 01 18 | 703 | (0.8− | 1.5−) | 2009 12 17 | G96 | 0.6+ | 0.3+ |
| 2002 01 21 | 704 | 0.6+ | 0.2+ | 2002 03 13 | 644 | 0.4+ | 0.2+ | 2006 03 23 | G96 | 0.1− | 0.2− | 2002 02 14 | 704 | 0.1+ | 0.3+ | 2006 01 18 | 703 | 0.0 | 0.9− | 2009 12 17 | G96 | 0.1+ | 0.1− |
| 2002 01 21 | 704 | 0.5+ | 0.3+ | 2002 03 13 | 644 | 0.2+ | 0.4+ | 2006 03 23 | G96 | 0.2+ | 0.3− | 2002 03 12 | 644 | 0.1− | 0.5− | 2006 01 18 | 703 | (0.5− | 1.6−) | 2009 12 17 | G96 | 0.6+ | 0.3+ |
| 2002 01 21 | 704 | 0.7+ | 1.0+ | 2002 03 13 | 644 | 0.4+ | 0.5+ | 2006 04 26 | G96 | 0.6− | 0.3− | 2002 03 12 | 644 | 0.4− | 0.5− | 2006 01 19 | 704 | (2.3+ | 0.9+) | 2009 12 17 | G96 | 0.1+ | 0.1− |
| 2002 01 26 | 644 | 0.1+ | 0.2+ | 2004 08 22 | 691 | 0.3− | 0.9+ | 2006 04 26 | G96 | 0.0 | 0.6− | 2002 03 12 | 644 | 0.2− | 0.7− | 2006 01 19 | 704 | 0.1− | 0.5+ | 2009 12 17 | G96 | 0.6+ | 0.4+ |
| 2002 01 26 | 644 | 0.0 | 0.2+ | 2004 08 22 | 691 | 0.3− | 1.0+ | 2006 04 26 | G96 | 0.6+ | 0.3− | 2003 05 26 | 291 | 0.2+ | 0.3+ | 2006 01 19 | 704 | 0.5− | 0.3+ | 2009 12 17 | G96 | 0.5+ | 0.1− |
| 2002 01 26 | 644 | 0.0 | 0.2+ | 2004 08 22 | 691 | 0.6− | 0.9+ | 2006 04 26 | G96 | 0.5+ | 1.3− | 2003 05 26 | 291 | 0.2+ | 0.0 | 2006 01 19 | 704 | 0.7+ | 1.1+ | 2009 12 17 | G96 | 0.6+ | 0.4+ |
| 2002 02 03 | 608 | 0.4− | 1.0− | 2005 12 24 | 691 | 0.1+ | 0.3− | 2008 09 06 | G96 | 0.1+ | 0.0 | 2003 05 26 | 291 | 0.0 | 0.3+ | 2006 01 21 | G96 | 0.4− | 0.2− | | | | |
| 2002 02 03 | 608 | 0.1− | 0.9− | 2005 12 24 | 691 | 0.1+ | 0.3− | 2008 09 06 | G96 | 0.6+ | 0.0 | 2005 12 01 | G96 | 0.5− | 0.3− | 2006 01 21 | G96 | 0.0 | 0.3− | | | | |
| 2002 02 03 | 608 | 0.0 | 0.8− | 2005 12 24 | 691 | 0.1+ | 0.4− | 2008 09 06 | G96 | 0.8− | 0.3+ | | | | | | | | | | | | |
| 2002 02 07 | 704 | 0.2− | 0.5+ | 2005 12 29 | G96 | 0.2− | 0.4− | 2008 09 06 | G96 | 0.3− | 0.5+ | | | | | | | | | | | | |
| 2002 02 07 | 704 | 0.1− | 0.4+ | 2005 12 29 | G96 | 0.2+ | 0.4− | 2009 11 27 | G96 | 0.4+ | 0.1+ | | | | | | | | | | | | |
| 2002 02 07 | 704 | 0.2+ | 0.6+ | 2005 12 29 | G96 | 0.0 | 0.3− | 2009 11 27 | G96 | 0.2+ | 0.0 | | | | | | | | | | | | |
| 2002 02 07 | 704 | 0.2+ | 0.5+ | 2005 12 29 | 704 | 0.0 | 0.3− | 2009 11 27 | G96 | 0.5+ | 0.1+ | | | | | | | | | | | | |
| 2002 02 07 | 704 | 0.2− | 1.2+ | 2005 12 29 | G96 | 0.2+ | 0.5− | 2009 11 27 | G96 | 0.1− | 0.3+ | | | | | | | | | | | | |
| 2002 02 10 | 691 | 0.0 | 0.0 | 2005 12 29 | 704 | 0.1+ | 0.1− | 2009 11 27 | G96 | 0.6+ | 0.4+ | | | | | | | | | | | | |
| 2002 02 10 | 691 | 0.1+ | 0.2− | 2005 12 29 | 704 | 0.0 | 0.4− | 2009 12 10 | 704 | 0.2− | 0.3+ | | | | | | | | | | | | |
| 2002 02 10 | 691 | 0.1− | 0.1− | 2005 12 29 | 704 | 0.6+ | 0.1− | 2009 12 10 | 704 | 0.2− | 0.6+ | | | | | | | | | | | | |
| 2002 02 11 | 704 | 0.2+ | 0.3− | 2005 12 29 | 704 | 0.3− | 1.0− | 2009 12 10 | 704 | 0.3− | 0.8+ | | | | | | | | | | | | |
| 2002 02 11 | 704 | 0.1+ | 0.4− | 2006 01 06 | 704 | 0.0 | 0.6− | 2009 12 10 | 704 | 0.4− | 0.4− | | | | | | | | | | | | |
| 2002 02 11 | 704 | 0.1+ | 0.4− | 2006 01 06 | 704 | 0.2− | 0.0 | | | | | | | | | | | | | | | | |

**(228604)∗ 2002 AC$_{178}$**

Discovered 2002 Jan. 14 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 9.52127 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23777941 | $\omega$ | 316.69001 | | +0.25361724 | | −0.96247473 |
| $a$ | 2.5803971 | $\Omega$ | 118.40230 | | +0.91473958 | | +0.20618423 |
| $e$ | 0.2153357 | $i$ | 6.30119 | | +0.31453108 | | +0.17643824 |
| $P$ | 4.15 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 01 14 | 704 | 1.0− | 0.4− | 2005 12 01 | G96 | 0.3− | 0.3− | 2006 01 21 | G96 | 0.6− | 0.1− | 2002 03 20 | 644 | 0.2− | 0.4− | 2005 12 29 | 703 | 0.6− | 1.3− |
| 2002 01 14 | 704 | 0.0 | 0.5+ | 2005 12 01 | G96 | 0.0 | 0.2− | 2006 01 21 | G96 | 0.1− | 0.2− | 2002 03 20 | 644 | 0.1− | 0.6− | 2005 12 29 | 703 | 0.7− | 1.3− |
| 2002 01 14 | 704 | 0.2− | 0.5− | 2005 12 01 | G96 | 0.1+ | 0.2− | 2006 01 24 | 704 | 0.6+ | 0.0 | 2002 03 20 | 644 | 0.3+ | 0.5− | 2005 12 29 | 704 | 0.3+ | 0.8− |
| 2002 01 14 | 704 | 0.3+ | 0.1− | 2005 12 25 | 691 | 0.0 | 0.2+ | 2006 01 24 | 704 | 0.4− | 1.3+ | 2002 03 21 | 704 | 1.2+ | 0.7+ | 2005 12 29 | 703 | 0.7− | 0.7− |
| 2002 01 14 | 704 | 0.1+ | 0.4− | 2005 12 25 | 691 | 0.1− | 0.3+ | 2006 01 24 | 704 | 0.0 | 0.0 | 2002 03 21 | 704 | 0.2− | 0.4+ | 2005 12 29 | 704 | 0.6+ | 0.0 |
| 2002 01 21 | 704 | 0.0 | 0.9+ | 2005 12 25 | 691 | 0.1− | 0.2+ | 2006 01 24 | 704 | 0.1− | 0.6+ | 2002 03 21 | 704 | 0.1+ | 1.3+ | 2005 12 29 | G96 | 0.2− | 0.2− |
| 2002 01 21 | 704 | 1.0+ | 0.6+ | 2005 12 27 | G96 | 0.0 | 0.2− | 2006 02 23 | G96 | 0.4− | 0.3− | 2002 04 17 | 704 | 0.2− | 0.2+ | 2005 12 29 | G96 | 0.2− | 0.3− |
| 2002 01 21 | 704 | 1.0+ | 0.8+ | 2005 12 27 | G96 | 0.6− | 0.3− | 2006 02 23 | G96 | 0.3+ | 0.0 | 2002 04 17 | 704 | 0.2− | 0.2+ | 2005 12 29 | 704 | 0.5+ | 0.3− |
| 2002 02 07 | 704 | 0.3− | 1.5+ | 2005 12 27 | G96 | 0.2− | 0.3− | 2006 02 23 | G96 | 0.2− | 0.1+ | 2002 04 17 | 704 | 0.6− | 1.8− | 2005 12 29 | G96 | 0.2− | 0.2− |
| 2002 02 07 | 704 | 0.2− | 0.6+ | 2005 12 27 | G96 | 0.3− | 0.1− | 2006 02 23 | G96 | 0.1− | 0.3− | 2002 04 17 | 704 | 0.3+ | 0.4+ | 2005 12 29 | G96 | 0.1− | 0.1− |
| 2002 02 07 | 704 | 0.4− | 1.0+ | 2006 01 05 | 691 | 0.2+ | 0.1+ | 2007 04 25 | 691 | 0.1− | 0.3− | 2002 04 17 | 704 | 0.4+ | 0.4+ | 2005 12 29 | G96 | 0.1− | 0.1− |
| 2002 02 07 | 704 | 0.3− | 1.0+ | 2006 01 05 | 691 | 0.1− | 0.9− | 2007 04 25 | 691 | 0.2− | 0.0 | 2002 04 17 | 704 | 0.9− | 0.3− | 2005 12 29 | 704 | 0.2+ | 0.6+ |
| 2002 02 07 | 704 | 0.1+ | 1.1+ | 2006 01 05 | 691 | 0.3+ | 0.2+ | 2007 04 25 | 691 | 0.1− | 0.7− | 2002 05 05 | 704 | 0.2+ | 0.8+ | 2005 12 29 | 704 | 0.2+ | 0.3+ |
| 2002 02 10 | 704 | 0.3− | 0.1+ | 2006 01 06 | G96 | 0.5− | 0.4− | 2007 05 14 | G96 | 0.3− | 0.8− | 2002 05 05 | 704 | 0.2+ | 1.4− | 2006 01 06 | 704 | 1.4+ | 0.7+ |
| 2002 02 10 | 704 | 0.2− | 0.3− | 2006 01 06 | G96 | 0.8− | 1.0− | 2007 05 14 | G96 | 0.2− | 0.3− | 2002 05 05 | 704 | (1.9− | 0.3−) | 2006 01 06 | 704 | 0.1+ | 0.1+ |
| 2002 02 10 | 704 | 0.3+ | 0.3− | 2006 01 06 | G96 | (1.8− | 0.0 ) | 2007 05 14 | G96 | 0.0 | 0.2− | 2002 05 15 | 608 | 0.0 | 0.3+ | 2006 01 06 | 704 | 0.9+ | 0.6− |
| 2002 02 10 | 704 | 0.1− | 0.5− | 2006 01 06 | G96 | 1.0− | 0.5− | 2007 05 14 | G96 | 0.4− | 0.1− | 2002 05 15 | 608 | 0.1− | 0.2− | 2006 01 06 | 704 | 0.2+ | 0.3− |
| 2002 02 10 | 704 | 0.2+ | 0.9− | 2006 01 06 | G96 | 0.6− | 0.4− | 2009 12 15 | 703 | 1.4− | 0.1− | 2002 05 19 | 644 | 0.1+ | 0.5+ | 2006 01 07 | 291 | 0.1+ | 0.0 |
| 2002 02 12 | 704 | 0.1− | 0.3+ | 2006 01 06 | G96 | 0.9− | 0.7− | 2009 12 15 | 703 | 0.0 | 0.7− | 2002 05 19 | 644 | 0.7+ | 0.3+ | 2006 01 07 | 291 | 0.1+ | 0.0 |
| 2002 02 12 | 704 | 0.2− | 1.1+ | 2006 01 06 | G96 | 0.7− | 0.4− | 2009 12 15 | 703 | 0.5− | 0.4− | 2002 05 19 | 644 | 0.4+ | 0.3+ | 2006 01 09 | 691 | 0.1+ | 0.3− |
| 2002 02 12 | 704 | 0.3+ | 0.7− | 2006 01 06 | G96 | 0.4− | 0.3− | 2009 12 15 | 703 | 1.3− | 0.5− | 2005 10 28 | G96 | 0.1+ | 0.2− | 2006 01 09 | 691 | 0.2− | 0.2− |
| 2002 02 12 | 704 | 0.6+ | 0.0 | 2006 01 09 | 691 | 1.0+ | 0.1− | 2009 12 15 | 703 | 0.3− | 1.8− | 2005 10 28 | G96 | 0.1− | 0.3− | 2006 01 09 | 691 | 0.0 | 0.0 |
| 2002 02 12 | 704 | 0.2+ | 0.7+ | 2006 01 09 | 691 | 0.3+ | 0.3+ | 2009 12 17 | G96 | 0.1+ | 0.1− | 2005 10 28 | G96 | 0.1+ | 0.2− | 2009 11 19 | 704 | 0.9+ | 0.9+ |
| 2002 02 14 | 704 | 0.2+ | 0.5− | 2006 01 09 | 691 | 0.4+ | 0.4+ | 2009 12 17 | G96 | 0.6+ | 0.4+ | 2005 10 28 | G96 | 0.1− | 0.4− | 2009 11 19 | 704 | 0.8− | 0.8+ |
| 2002 02 14 | 704 | 0.3+ | 0.7− | 2006 01 18 | 703 | 0.5+ | 1.5− | 2009 12 17 | G96 | 0.1+ | 0.0 | 2005 11 26 | G96 | 0.2− | 0.1− | 2009 11 19 | 704 | 0.3+ | 0.1+ |
| 2002 02 14 | 704 | 0.3− | 0.1+ | 2006 01 18 | 703 | (0.8− | 1.5−) | 2009 12 17 | G96 | 0.6+ | 0.3+ | 2005 11 26 | G96 | 0.0 | 0.0 | 2009 11 19 | 704 | 0.7+ | 1.0+ |
| 2002 02 14 | 704 | 0.1+ | 0.3+ | 2006 01 18 | 703 | 0.0 | 0.9− | 2009 12 17 | G96 | 0.1+ | 0.1− | 2005 11 26 | G96 | 0.2+ | 0.0 | 2009 11 25 | J75 | 0.2− | 0.9+ |
| 2002 03 12 | 644 | 0.1− | 0.5− | 2006 01 18 | 703 | (0.5− | 1.6−) | 2009 12 17 | G96 | 0.6+ | 0.3+ | 2005 12 01 | G96 | 0.1+ | 0.2− | 2009 11 25 | J75 | 0.1− | 0.3− |
| 2002 03 12 | 644 | 0.4− | 0.5− | 2006 01 19 | 704 | (2.3+ | 0.9+) | 2009 12 17 | G96 | 0.1+ | 0.1− | 2005 12 01 | G96 | 0.5− | 0.3− | 2009 11 25 | J75 | 0.3+ | 1.3+ |
| 2002 03 12 | 644 | 0.2− | 0.7− | 2006 01 19 | 704 | 0.1− | 0.5+ | 2009 12 17 | G96 | 0.6+ | 0.4+ | | | | | | | | |
| 2003 05 26 | 291 | 0.2+ | 0.3+ | 2006 01 19 | 704 | 0.5− | 0.3+ | 2009 12 17 | G96 | 0.5+ | 0.1− | | | | | | | | |
| 2003 05 26 | 291 | 0.2+ | 0.0 | 2006 01 19 | 704 | 0.7+ | 1.1+ | 2009 12 17 | G96 | 0.6+ | 0.4+ | | | | | | | | |
| 2003 05 26 | 291 | 0.0 | 0.3+ | 2006 01 21 | G96 | 0.4− | 0.2− | | | | | | | | | | | | |
| 2005 12 01 | G96 | 0.5− | 0.3− | 2006 01 21 | G96 | 0.0 | 0.3− | | | | | | | | | | | | |

**(228605)∗ 2002 AS$_{187}$**

Discovered 2002 Jan. 8 by NEAT at Haleakala.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 256.57754 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22264557 | $\omega$ | 103.74286 | | −0.93668258 | | +0.28652959 |
| $a$ | 2.6960421 | $\Omega$ | 93.19899 | | −0.34424001 | | −0.85886082 |
| $e$ | 0.1898336 | $i$ | 11.63207 | | +0.06422271 | | −0.42456906 |
| $P$ | 4.43 | $H$ | 15.1 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 05 22 | 704 | 0.9+ | 1.1− | 2002 03 20 | 644 | 0.2− | 0.4− | 2005 12 29 | 703 | 0.6− | 1.3− | 2002 02 07 | 704 | 0.3− | 1.5+ | 2005 12 27 | G96 | 0.2− | 0.3− | 2006 02 23 | G96 | 0.2− | 0.1+ |
| 1998 05 22 | 704 | 0.1+ | 1.6− | 2002 03 20 | 644 | 0.1− | 0.6− | 2005 12 29 | 703 | 0.7− | 1.3− | 2002 02 07 | 704 | 0.2− | 0.6+ | 2005 12 27 | G96 | 0.3− | 0.1− | 2006 02 23 | G96 | 0.1− | 0.3− |
| 1998 05 22 | 704 | 0.7− | 2.0+ | 2002 03 20 | 644 | 0.3+ | 0.5− | 2005 12 29 | 704 | 0.3+ | 0.8− | 2002 02 07 | 704 | 0.4− | 1.0+ | 2006 01 05 | 691 | 0.2+ | 0.1+ | 2007 04 25 | 691 | 0.1− | 0.3− |
| 1998 05 22 | 704 | 1.2− | 1.5+ | 2002 03 21 | 704 | 1.2+ | 0.7+ | 2005 12 29 | 703 | 0.7− | 0.7− | 2002 02 07 | 704 | 0.3− | 1.0+ | 2006 01 05 | 691 | 0.1− | 0.9− | 2007 04 25 | 691 | 0.2− | 0.0 |
| 1998 05 22 | 704 | 0.2− | 0.4+ | 2002 03 21 | 704 | 0.2+ | 1.5+ | 2005 12 29 | 704 | 0.6+ | 0.0 | 2002 02 07 | 704 | 0.1+ | 1.1+ | 2006 01 05 | 691 | 0.3+ | 0.2+ | 2007 04 25 | 691 | 0.1− | 0.7− |
| 1998 06 03 | 704 | 0.9+ | 1.9− | 2002 03 21 | 704 | 0.1+ | 1.3+ | 2005 12 29 | G96 | 0.2− | 0.2− | 2002 02 10 | 704 | 0.3− | 0.1+ | 2006 01 06 | G96 | 0.5− | 0.4− | 2007 05 14 | G96 | 0.3− | 0.8− |
| 1998 06 03 | 704 | 0.6− | 0.4− | 2002 04 17 | 704 | 0.2− | 0.2+ | 2005 12 29 | G96 | 0.2− | 0.3− | 2002 02 10 | 704 | 0.2− | 0.3− | 2006 01 06 | G96 | 0.8− | 1.0− | 2007 05 14 | G96 | 0.2− | 0.3− |
| 1998 06 03 | 704 | 0.6+ | 0.1+ | 2002 04 17 | 704 | 0.2− | 0.2+ | 2005 12 29 | 704 | 0.5+ | 0.3− | 2002 02 10 | 704 | 0.3+ | 0.3− | 2006 01 06 | G96 | (1.8− | 0.0 ) | 2007 05 14 | G96 | 0.0 | 0.2− |
| 1998 06 03 | 704 | 0.6− | 1.8− | 2002 04 17 | 704 | 0.3+ | 0.4+ | 2005 12 29 | G96 | 0.2− | 0.2− | 2002 02 10 | 704 | 0.1− | 0.5− | 2006 01 06 | G96 | 1.0− | 0.5− | 2007 05 14 | G96 | 0.4− | 0.1− |
| 2002 01 08 | 608 | 0.0 | 0.1+ | 2002 04 17 | 704 | 0.4+ | 0.4+ | 2005 12 29 | G96 | 0.1− | 0.1− | 2002 02 10 | 704 | 0.2+ | 0.9− | 2006 01 06 | G96 | 0.6− | 0.4− | 2009 12 15 | 703 | 1.4− | 0.1− |
| 2002 01 08 | 608 | 0.0 | 0.2+ | 2002 04 17 | 704 | 0.9− | 0.3− | 2005 12 29 | 704 | 0.2+ | 0.6+ | 2002 02 12 | 704 | 0.1− | 0.3+ | 2006 01 06 | G96 | 0.9− | 0.7− | 2009 12 15 | 703 | 0.0 | 0.7− |
| 2002 01 08 | 608 | 0.3− | 0.6+ | 2002 05 05 | 704 | 0.2+ | 0.8+ | 2005 12 29 | 704 | 0.2+ | 0.3+ | 2002 02 12 | 704 | 0.2− | 1.1+ | 2006 01 06 | G96 | 0.7− | 0.4− | 2009 12 15 | 703 | 0.5− | 0.4− |
| 2002 01 09 | 704 | 0.0 | 1.3− | 2002 05 05 | 704 | 0.2+ | 0.1− | 2006 01 06 | 704 | 0.7+ | 0.4− | 2002 02 12 | 704 | 0.3+ | 0.7− | 2006 01 06 | G96 | 0.4− | 0.3− | 2009 12 15 | 703 | 1.3− | 0.5− |
| 2002 01 09 | 704 | 0.5+ | 0.4− | 2002 05 05 | 704 | 1.4− | 0.2− | 2006 01 06 | 704 | 1.4+ | 0.7+ | 2002 02 12 | 704 | 0.6+ | 0.0 | 2006 01 09 | 691 | 1.0+ | 0.1− | 2009 12 15 | 703 | 0.3− | 1.8− |
| 2002 01 09 | 704 | 0.3− | 0.3+ | 2002 05 05 | 704 | (1.9− | 0.3−) | 2006 01 06 | 704 | 0.1+ | 0.1+ | 2002 02 12 | 704 | 0.2+ | 0.7+ | 2006 01 09 | 691 | 0.3+ | 0.3+ | 2009 12 17 | G96 | 0.1+ | 0.1− |
| 2002 01 09 | 704 | 1.4+ | 0.6+ | 2002 05 15 | 608 | 0.0 | 0.3+ | 2006 01 06 | 704 | 0.9+ | 0.6− | 2002 02 14 | 704 | 0.2+ | 0.5− | 2006 01 09 | 691 | 0.4+ | 0.4+ | 2009 12 17 | G96 | 0.6+ | 0.4+ |
| 2002 01 09 | 704 | 0.0 | 0.8+ | 2002 05 15 | 608 | 0.1− | 0.2− | 2006 01 06 | 704 | 0.2+ | 0.3− | 2002 02 14 | 704 | 0.3+ | 0.7− | 2006 01 18 | 703 | 0.5+ | 1.5− | 2009 12 17 | G96 | 0.1+ | 0.0 |
| 2002 01 23 | 704 | 0.2− | 0.4− | 2002 05 15 | 608 | 0.3+ | 0.1+ | 2006 01 07 | 291 | 0.1+ | 0.0 | 2002 02 14 | 704 | 0.3− | 0.1+ | 2006 01 18 | 703 | (0.8− | 1.5−) | 2009 12 17 | G96 | 0.6+ | 0.3+ |
| 2002 01 23 | 704 | 0.0 | 0.6− | 2002 05 19 | 644 | 0.1+ | 0.5+ | 2006 01 07 | 291 | 0.1+ | 0.0 | 2002 02 14 | 704 | 0.1+ | 0.3+ | 2006 01 18 | 703 | 0.0 | 0.9− | 2009 12 17 | G96 | 0.1+ | 0.1− |
| 2002 01 23 | 704 | 0.3+ | 0.3− | 2002 05 19 | 644 | 0.7+ | 0.3+ | 2006 01 07 | 291 | 0.0 | 0.0 | 2002 03 12 | 644 | 0.1− | 0.5− | 2006 01 18 | 703 | (0.5− | 1.6−) | 2009 12 17 | G96 | 0.6+ | 0.3+ |
| 2002 01 23 | 704 | 0.0 | 0.6− | 2002 05 19 | 644 | 0.4+ | 0.3+ | 2006 01 09 | 691 | 0.1+ | 0.3− | 2002 03 12 | 644 | 0.4− | 0.5− | 2006 01 19 | 704 | (2.3+ | 0.9+) | 2009 12 17 | G96 | 0.1+ | 0.1− |
| 2002 01 23 | 704 | 0.7+ | 0.3+ | 2005 10 28 | G96 | 0.1+ | 0.2− | 2006 01 09 | 691 | 0.2− | 0.2− | 2002 03 12 | 644 | 0.2− | 0.7− | 2006 01 19 | 704 | 0.1− | 0.5+ | 2009 12 17 | G96 | 0.6+ | 0.4+ |
| 2002 02 21 | 704 | 1.0− | 1.4+ | 2005 10 28 | G96 | 0.1− | 0.3− | 2006 01 09 | 691 | 0.0 | 0.0 | 2003 05 26 | 291 | 0.2+ | 0.3+ | 2006 01 19 | 704 | 0.5− | 0.3+ | 2009 12 17 | G96 | 0.5+ | 0.1− |
| 2002 02 21 | 704 | (0.4− | 1.7+) | 2005 10 28 | G96 | 0.1+ | 0.2− | 2009 11 19 | 704 | 0.9+ | 0.9+ | 2003 05 26 | 291 | 0.2+ | 0.0 | 2006 01 19 | 704 | 0.7+ | 1.1+ | 2009 12 17 | G96 | 0.6+ | 0.4+ |
| 2002 02 21 | 704 | (1.0− | 1.9+) | 2005 10 28 | G96 | 0.1− | 0.4− | 2009 11 19 | 704 | 0.8− | 0.8+ | 2003 05 26 | 291 | 0.0 | 0.3+ | 2006 01 21 | G96 | 0.4− | 0.2− | | | | |
| 2002 02 21 | 704 | (1.1− | 1.9+) | 2005 11 26 | G96 | 0.2− | 0.1− | 2009 11 19 | 704 | 0.3+ | 0.1+ | 2005 12 01 | G96 | 0.5− | 0.3− | 2006 01 21 | G96 | 0.0 | 0.3− | | | | |
| 2002 02 21 | 644 | 0.0 | 0.2− | 2005 11 26 | G96 | 0.0 | 0.0 | 2009 11 19 | 704 | 0.7+ | 1.0+ | | | | | | | | | | | | |
| 2002 02 21 | 704 | (1.5− | 2.0+) | 2005 11 26 | G96 | 0.2+ | 0.0 | 2009 11 25 | J75 | 0.2− | 0.9+ | | | | | | | | | | | | |
| 2002 02 21 | 644 | 0.1+ | 0.3− | 2005 12 01 | G96 | 0.1+ | 0.2− | 2009 11 25 | J75 | 0.1− | 0.3− | | | | | | | | | | | | |
| 2002 02 21 | 644 | 0.2− | 0.1− | 2005 12 01 | G96 | 0.5− | 0.3− | 2009 11 25 | J75 | 0.3+ | 1.3+ | | | | | | | | | | | | |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 03 06 | 704 | 0.7− | 0.4− | 2005 12 01 | G96 | 0.2− | 0.3− | 2009 12 11 | 703 | 0.9− | 0.2+ |
| 2002 03 06 | 704 | 0.2− | 0.1− | 2005 12 01 | G96 | 0.2− | 0.4− | 2009 12 11 | 703 | 1.1− | 0.2− |
| 2002 03 06 | 704 | 0.4− | 0.5+ | 2005 12 24 | 691 | 0.1− | 0.1+ | 2009 12 11 | 703 | 0.5− | 0.3+ |
| 2002 03 06 | 704 | 0.1+ | 0.3+ | 2005 12 24 | 691 | 0.1− | 0.0 | 2009 12 11 | 703 | 1.2− | 0.3+ |
| 2002 03 06 | 704 | 0.7+ | 0.7+ | 2005 12 24 | 691 | 0.0 | 0.0 | | | | |

**(228606)∗ 2002 BU$_2$ = 2005 WU$_{182}$**

Discovered 2002 Jan. 18 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Id. G. V. Williams (*MPO* 103289)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 289.37799 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22209898 | $\omega$ | 124.25495 | | −0.41362155 | −0.90982342 | |
| $a$ | 2.7004637 | $\Omega$ | 350.00545 | | +0.75828464 | −0.32374345 | |
| $e$ | 0.1181458 | $i$ | 11.21089 | | +0.50390636 | −0.25963731 | |
| $P$ | 4.44 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 03 20 | 704 | 1.6+ | 1.7− | 2002 01 23 | 704 | 0.2− | 0.5− | 2007 03 12 | 691 | 0.1− | 0.4+ |
| 1998 03 20 | 704 | 1.2+ | 0.8− | 2002 01 23 | 704 | 0.2− | 0.5− | 2007 03 12 | 691 | 0.0 | 0.1+ |
| 1998 03 20 | 704 | 0.1− | 0.1+ | 2002 02 03 | 644 | 0.3− | 0.1+ | 2007 03 16 | 691 | 0.1+ | 0.3+ |
| 1998 03 20 | 704 | 0.6+ | 1.2− | 2002 02 03 | 644 | 0.3− | 0.9+ | 2007 03 16 | 691 | 0.2+ | 0.2+ |
| 1998 03 20 | 704 | (4.2− | 0.8−) | 2002 02 03 | 644 | 0.2+ | 0.8+ | 2007 03 16 | 691 | 0.0 | 0.1+ |
| 2000 10 02 | 645 | 0.1− | 0.1− | 2002 02 10 | 704 | 1.1− | 0.3− | 2009 09 20 | 691 | 0.2− | 0.4+ |
| 2000 10 02 | 645 | 0.0 | 0.2− | 2002 02 10 | 704 | 0.5− | 0.7+ | 2009 09 20 | 691 | 0.1+ | 0.4+ |
| 2002 01 14 | 645 | 0.0 | 0.1− | 2002 02 10 | 704 | 0.5+ | 0.0 | 2009 09 20 | 691 | 0.1− | 0.2+ |
| 2002 01 14 | 645 | 0.1+ | 0.1− | 2002 02 10 | 704 | 0.4− | 0.0 | 2009 09 22 | 691 | 0.5+ | 0.4+ |
| 2002 01 18 | 699 | 0.1+ | 0.0 | 2005 11 26 | 704 | 0.8+ | 0.6− | 2009 09 22 | 691 | 0.2− | 0.2+ |
| 2002 01 18 | 699 | 0.6− | 0.6+ | 2005 11 26 | 704 | 0.1− | 1.0− | 2009 09 22 | 691 | 0.0 | 0.5+ |
| 2002 01 18 | 699 | 0.2− | 1.1+ | 2005 11 26 | 704 | (1.7+ | 0.7−) | 2009 09 25 | 691 | 0.0 | 0.2+ |
| 2002 01 18 | 699 | 0.7− | 0.1+ | 2005 12 04 | 703 | 0.4− | 0.2+ | 2009 09 25 | 691 | 0.0 | 0.0 |
| 2002 01 20 | 699 | 0.5− | 0.5+ | 2005 12 04 | 703 | 0.1− | 0.5+ | 2009 09 25 | 691 | 0.3+ | 0.4+ |
| 2002 01 20 | 699 | 0.7+ | 0.4+ | 2005 12 04 | 703 | 0.8− | 0.1− | 2009 12 20 | G96 | 0.3+ | 0.1+ |
| 2002 01 20 | 699 | 0.2+ | 0.3+ | 2005 12 04 | 703 | 0.6− | 0.3+ | 2009 12 20 | G96 | 0.7− | 0.6− |
| 2002 01 20 | 699 | 0.5+ | 0.4− | 2006 12 26 | 691 | 0.1+ | 0.4+ | 2009 12 20 | G96 | 0.1+ | 0.3− |
| 2002 01 23 | 704 | 0.2− | 0.2+ | 2006 12 26 | 691 | 0.1− | 0.1+ | 2009 12 20 | G96 | 0.9− | 0.6− |
| 2002 01 23 | 704 | 1.1+ | 0.8− | 2006 12 26 | 691 | 0.1− | 0.0 | | | | |
| 2002 01 23 | 704 | 0.5− | 0.4− | 2007 03 12 | 691 | 0.1− | 0.3+ | | | | |

**(228607)∗ 2002 BH$_5$**

Discovered 2002 Jan. 19 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 303.99215 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23569643 | $\omega$ | 135.37782 | | −0.87256818 | −0.48524232 | |
| $a$ | 2.5955778 | $\Omega$ | 15.86633 | | +0.37062205 | −0.73263790 | |
| $e$ | 0.1240988 | $i$ | 11.87437 | | +0.31822015 | −0.47726470 | |
| $P$ | 4.18 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 03 25 | 704 | 0.4+ | 0.6− | 2002 02 12 | 644 | 0.4+ | 0.2+ | 2005 12 08 | 703 | 0.5− | 0.6− |
| 1998 03 25 | 704 | 0.1+ | 0.8+ | 2002 02 12 | 644 | 0.1+ | 0.2+ | 2005 12 08 | 703 | 0.3+ | 0.6− |
| 1998 03 25 | 704 | 0.9− | 0.9+ | 2002 02 12 | 644 | 0.1+ | 0.2+ | 2005 12 08 | 703 | 0.2+ | 0.9− |
| 1998 03 25 | 704 | 1.1− | 0.8+ | 2002 02 12 | 644 | 0.1+ | 0.1+ | 2005 12 23 | 704 | 0.7+ | 0.1+ |
| 2000 10 01 | 704 | 0.8− | 0.1+ | 2002 02 19 | 704 | 0.2+ | 1.5+ | 2005 12 23 | 704 | 0.8+ | 0.1− |
| 2000 10 01 | 704 | 0.2− | 0.2− | 2002 02 19 | 704 | 0.7+ | 0.9+ | 2005 12 23 | 704 | 0.3+ | 0.4+ |
| 2000 10 01 | 704 | 0.3− | 0.2+ | 2002 02 19 | 704 | (0.3+ | 1.5+) | 2005 12 30 | 703 | 0.4− | 0.9− |
| 2000 10 01 | 704 | 0.2+ | 0.4+ | 2002 02 19 | 704 | (0.3+ | 2.1+) | 2005 12 30 | 703 | 0.2− | 0.5− |
| 2000 10 01 | 704 | 0.3− | 0.6+ | 2002 03 05 | 704 | 0.4− | 0.5+ | 2005 12 30 | 703 | 0.8− | 0.4− |
| 2001 12 09 | 704 | 1.5+ | 0.9− | 2002 03 05 | 704 | 0.6− | 0.7+ | 2006 01 04 | A24 | 0.7− | 1.3− |
| 2001 12 09 | 704 | 1.4+ | 0.8− | 2002 03 05 | 704 | 0.3− | 0.2− | 2006 01 04 | A24 | 0.5− | 0.4− |
| 2001 12 09 | 704 | 1.4+ | 0.7− | 2002 03 05 | 704 | 0.7+ | 0.8+ | 2006 01 04 | A24 | 0.0 | 0.0 |
| 2002 01 11 | 699 | 0.0 | 0.1+ | 2002 03 05 | 704 | 1.4+ | 0.5+ | 2006 01 06 | A24 | (1.2+ | 1.8+) |
| 2002 01 11 | 699 | 0.1+ | 0.6+ | 2004 09 04 | 644 | 0.0 | 0.3+ | 2006 01 06 | A24 | (1.0+ | 1.8+) |
| 2002 01 11 | 699 | 0.5+ | 1.4+ | 2004 09 04 | 644 | 0.0 | 0.4+ | 2006 01 06 | A24 | 0.2+ | 0.1− |
| 2002 01 11 | 699 | 0.3− | 0.5+ | 2004 09 04 | 644 | 0.1− | 0.3+ | 2006 01 07 | A24 | 0.8+ | 0.1+ |
| 2002 01 19 | 699 | 0.5+ | 0.0 | 2004 09 17 | 704 | 0.9− | 1.1+ | 2006 01 09 | 703 | 1.1+ | 0.6− |
| 2002 01 19 | 699 | 0.3− | 0.9− | 2004 09 17 | 704 | 0.6− | 0.6− | 2006 01 09 | 703 | 0.7+ | 0.5+ |
| 2002 01 19 | 699 | 0.1+ | 0.3− | 2004 09 17 | 704 | 0.3+ | 0.1+ | 2006 01 09 | 703 | 0.1− | 1.0− |
| 2002 01 19 | 699 | 0.2+ | 0.3+ | 2004 09 17 | 704 | 0.5− | 0.9+ | 2006 01 09 | 703 | 0.1− | 1.1− |
| 2002 01 21 | 699 | 0.3− | 0.4− | 2004 09 21 | 704 | 1.1+ | 0.5+ | 2006 01 18 | 644 | 0.1+ | 0.3+ |
| 2002 01 21 | 699 | 0.1+ | 0.2− | 2004 09 21 | 704 | 0.7− | 0.3+ | 2006 01 18 | 644 | 0.2+ | 0.0 |
| 2002 01 21 | 699 | 0.1+ | 0.1+ | 2004 09 21 | 704 | 0.3− | 0.8+ | 2006 01 18 | 644 | 0.1+ | 0.0 |
| 2002 01 21 | 699 | 0.0 | 0.4− | 2005 11 26 | 704 | 1.1+ | 1.3+ | 2009 11 21 | 703 | 0.8+ | 0.4− |
| 2002 01 23 | 704 | 0.9+ | 0.5+ | 2005 11 26 | 704 | 0.3− | 0.8+ | 2009 11 21 | 703 | 0.1+ | 0.3− |
| 2002 01 23 | 704 | (0.7+ | 1.7+) | 2005 11 26 | 704 | (1.6+ | 0.4−) | 2009 11 21 | 703 | 0.1− | 0.0 |
| 2002 01 23 | 704 | 0.4+ | 1.2+ | 2005 11 26 | 704 | 1.1− | 0.9+ | 2009 11 21 | 703 | 0.4− | 0.4− |
| 2002 01 23 | 704 | 1.0+ | 1.3+ | 2005 12 02 | 703 | 0.8− | 0.4− | 2009 12 17 | 703 | 0.1− | 0.2+ |
| 2002 02 08 | 645 | 0.1− | 0.0 | 2005 12 02 | 703 | 1.2− | 0.1− | 2009 12 17 | 703 | 0.1+ | 0.3+ |
| 2002 02 08 | 645 | 0.0 | 0.0 | 2005 12 02 | 703 | 1.0− | 0.7+ | 2009 12 17 | 703 | 0.1− | 0.9− |
| 2002 02 12 | 644 | 0.1+ | 0.1+ | 2005 12 02 | 703 | 0.5− | 1.0+ | 2009 12 17 | 703 | 0.8− | 0.5− |
| 2002 02 12 | 644 | 0.0 | 0.3+ | 2005 12 08 | 703 | 0.0 | 1.2− | | | | |

**(228608)∗ 2002 BT$_5$**

Discovered 2002 Jan. 18 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 3.47186 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24494625 | $\omega$ | 119.90086 | | −0.12868933 | −0.99012704 | |
| $a$ | 2.5298155 | $\Omega$ | 337.29171 | | +0.85298874 | −0.08193800 | |
| $e$ | 0.2076088 | $i$ | 8.27571 | | +0.50581544 | −0.11373040 | |
| $P$ | 4.02 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 10 14 | 704 | 0.7+ | 0.9+ | 2002 02 12 | 704 | 0.4− | 0.9+ | 2006 01 08 | 628 | (2.5− | 0.4−) |
| 2001 10 14 | 704 | 0.3− | 0.8+ | 2002 02 12 | 704 | 0.2− | 0.4+ | 2006 01 09 | 699 | 0.1+ | 0.6− |
| 2001 10 14 | 704 | 0.2− | 0.1− | 2002 02 12 | 704 | 0.7− | 0.9+ | 2006 01 09 | 699 | 0.1+ | 0.5− |
| 2001 10 14 | 704 | 0.2+ | 0.2+ | 2002 02 22 | 644 | 0.1+ | 0.1+ | 2006 01 09 | 699 | 0.3− | 0.5+ |
| 2001 11 11 | 704 | (2.8+ | 0.2−) | 2002 02 22 | 644 | 0.3+ | 0.0 | 2006 01 09 | 699 | 0.1+ | 0.5− |
| 2001 11 11 | 704 | 0.1+ | 0.7+ | 2002 02 22 | 644 | 0.0 | 0.1− | 2006 01 18 | 703 | 0.2+ | 0.0 |
| 2001 11 11 | 704 | 0.2+ | 0.8+ | 2002 03 04 | 644 | 0.0 | 0.3+ | 2006 01 18 | 703 | 0.4+ | 0.3− |
| 2001 11 11 | 704 | (0.1− | 1.6+) | 2002 03 04 | 644 | 0.1+ | 0.0 | 2006 01 18 | 703 | 0.6+ | 0.6+ |
| 2001 11 17 | 699 | 0.4+ | 0.0 | 2002 03 04 | 644 | 0.1− | 0.2+ | 2006 01 18 | 703 | 0.3+ | 0.0 |
| 2001 11 17 | 699 | 0.4+ | 0.4+ | 2005 10 28 | 703 | 0.4− | 0.0 | 2006 01 24 | 703 | 0.2− | 0.5− |
| 2001 11 17 | 699 | 0.7+ | 0.1+ | 2005 10 28 | 703 | 0.3+ | 0.6− | 2006 01 24 | 703 | 0.1− | 0.3− |
| 2001 11 17 | 699 | 0.4+ | 0.3+ | 2005 10 28 | 703 | 0.1+ | 1.1− | 2006 01 24 | 703 | 0.3− | 0.3− |
| 2001 12 14 | 704 | 0.5+ | 0.6− | 2005 10 28 | 703 | 0.0 | 0.1+ | 2006 01 24 | 703 | 0.6− | 0.3− |
| 2001 12 14 | 704 | 1.0+ | 0.4+ | 2005 11 02 | 704 | 0.2+ | 0.7− | 2006 02 06 | 704 | 0.3− | 0.5+ |
| 2001 12 14 | 704 | 0.7+ | 0.7− | 2005 11 02 | 704 | 0.8− | 0.1+ | 2006 02 06 | 704 | 0.1+ | 0.2+ |
| 2001 12 14 | 704 | 0.7+ | 0.4− | 2005 11 02 | 704 | 0.2− | 0.3+ | 2006 02 06 | 704 | 0.0 | 0.7+ |
| 2001 12 22 | 704 | 0.3+ | 0.3+ | 2005 11 27 | 699 | 0.3+ | 0.4+ | 2006 02 06 | 704 | 0.4− | 0.4+ |
| 2001 12 22 | 704 | 0.0 | 0.3+ | 2005 11 27 | 699 | 0.5− | 0.8− | 2006 02 06 | 704 | 0.2− | 0.7+ |
| 2001 12 22 | 704 | 0.6− | 0.5+ | 2005 11 27 | 699 | 0.1+ | 0.7+ | 2006 02 22 | 704 | 0.4+ | 0.6+ |
| 2001 12 22 | 704 | 0.2− | 0.0 | 2005 11 27 | 699 | 0.1+ | 0.9+ | 2006 02 22 | 704 | 0.6− | 0.2− |
| 2001 12 22 | 704 | 0.2− | 0.7+ | 2005 12 14 | 699 | 0.0 | 0.6+ | 2006 02 22 | 704 | 0.5− | 0.9− |
| 2002 01 05 | 699 | 0.0 | 0.2− | 2005 12 14 | 699 | 0.5− | 1.4+ | 2006 02 22 | 704 | 0.1− | 0.6− |
| 2002 01 05 | 699 | 0.3− | 0.3− | 2005 12 14 | 699 | 0.1+ | 0.8− | 2006 03 26 | G96 | 0.3+ | 0.2− |
| 2002 01 05 | 699 | 0.1− | 0.3− | 2005 12 14 | 699 | 0.1− | 0.1− | 2006 03 26 | G96 | 0.1+ | 0.1− |
| 2002 01 05 | 699 | 0.5+ | 0.3− | 2005 12 21 | 703 | 0.9− | 0.8− | 2006 03 26 | G96 | 0.1+ | 0.3− |
| 2002 01 08 | 704 | 0.2− | 0.3− | 2005 12 21 | 703 | 0.2− | 0.6− | 2006 03 26 | G96 | 0.2− | 0.3− |
| 2002 01 08 | 704 | 0.1− | 0.0 | 2005 12 21 | 703 | 0.4− | 0.7− | 2006 03 31 | 704 | 0.1+ | 0.8+ |
| 2002 01 08 | 704 | 0.3− | 0.0 | 2005 12 21 | 703 | 0.5− | 0.5− | 2006 03 31 | 704 | 0.3− | 0.3+ |
| 2002 01 08 | 704 | 0.3− | 0.0 | 2005 12 24 | 704 | 0.2− | 0.6+ | 2006 03 31 | 704 | 0.6+ | 0.3+ |
| 2002 01 08 | 704 | 0.3− | 0.0 | 2005 12 24 | 704 | 0.6− | 0.6+ | 2006 03 31 | 704 | 0.2+ | 0.4+ |
| 2002 01 18 | 704 | 0.0 | 0.4− | 2005 12 24 | 704 | 0.8− | 0.3+ | 2006 05 25 | G96 | 0.3− | 0.5− |
| 2002 01 18 | 704 | 0.1+ | 0.7− | 2005 12 24 | 704 | 0.4− | 0.5+ | 2006 05 25 | G96 | 0.2+ | 0.3− |
| 2002 01 18 | 704 | 0.4− | 0.3− | 2005 12 24 | 704 | 0.5− | 0.8+ | 2006 05 25 | G96 | 0.2− | 0.3− |
| 2002 01 18 | 704 | 0.9− | 0.1− | 2005 12 27 | 704 | 0.6− | 0.1+ | 2006 05 25 | G96 | 0.1+ | 0.4− |
| 2002 01 21 | 704 | 0.0 | 0.4+ | 2005 12 27 | 704 | 0.8+ | 0.4− | 2006 05 26 | G96 | 0.4+ | 0.1− |
| 2002 01 21 | 704 | 0.3+ | 1.2+ | 2005 12 27 | 704 | 0.6+ | 0.4− | 2006 05 26 | G96 | 0.1+ | 0.1+ |
| 2002 01 21 | 704 | 0.3− | 0.4+ | 2005 12 27 | 704 | 0.0 | 0.9− | 2006 05 26 | G96 | 0.0 | 0.1+ |
| 2002 01 21 | 704 | 0.0 | 0.7+ | 2005 12 28 | 704 | 1.2− | 0.1− | 2008 09 25 | G96 | 0.3− | 0.1+ |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 01 21 | 704 | 0.1− | 0.4+ | 2005 12 28 | 704 | 0.6+ | 1.3− | 2008 09 25 | G96 | 0.1+ | 0.3+ |
| 2002 02 03 | 699 | 0.8+ | 0.0 | 2005 12 28 | 704 | (0.7+ | 1.6−) | 2008 09 25 | G96 | 0.0 | 0.4+ |
| 2002 02 03 | 644 | 0.1− | 0.0 | 2005 12 28 | 704 | (0.3+ | 1.9−) | 2008 09 25 | G96 | 0.1− | 0.2− |
| 2002 02 03 | 699 | 1.4+ | 0.1− | 2005 12 28 | 704 | 0.1− | 0.5− | 2009 10 16 | 704 | 0.3− | 0.4− |
| 2002 02 03 | 644 | 0.0 | 0.1+ | 2005 12 29 | 644 | 0.0 | 0.2− | 2009 10 16 | 704 | 0.3+ | 0.9+ |
| 2002 02 03 | 699 | 0.7+ | 0.4− | 2005 12 29 | 644 | 0.2− | 0.3− | 2009 10 16 | 704 | 1.0+ | 1.0− |
| 2002 02 03 | 644 | 0.2+ | 0.1− | 2005 12 29 | 644 | 0.2− | 0.3− | 2009 10 16 | 704 | 0.0 | 0.3− |
| 2002 02 03 | 699 | 0.9+ | 1.1− | 2006 01 06 | 703 | 0.4− | 0.4− | 2009 10 18 | 704 | 0.2− | 0.6+ |
| 2002 02 04 | 644 | 0.4+ | 0.7+ | 2006 01 06 | 703 | 0.1+ | 0.3− | 2009 10 18 | 704 | 0.0 | 0.4− |
| 2002 02 04 | 644 | 0.1+ | 0.6+ | 2006 01 06 | 703 | 0.7+ | 0.4− | 2009 10 18 | 704 | 0.5+ | 0.3+ |
| 2002 02 04 | 644 | 0.1+ | 1.0+ | 2006 01 06 | 703 | 0.4+ | 1.1− | 2009 10 24 | 704 | 0.1− | 0.0 |
| 2002 02 08 | 704 | 0.9− | 0.6− | 2006 01 07 | 704 | 0.6+ | 0.5+ | 2009 10 24 | 704 | 0.1− | 0.2+ |
| 2002 02 08 | 704 | 0.6− | 1.4− | 2006 01 07 | 704 | 0.4+ | 0.8+ | 2009 10 24 | 704 | 0.3− | 0.5− |
| 2002 02 08 | 704 | 1.2− | 1.4− | 2006 01 07 | 704 | 0.7+ | 0.6+ | 2009 10 24 | 704 | 0.6− | 0.2+ |
| 2002 02 08 | 704 | (1.2− | 1.5−) | 2006 01 07 | 704 | 0.4+ | 0.4+ | 2009 12 09 | 704 | 0.1+ | 0.7− |
| 2002 02 08 | 704 | (0.9− | 1.6−) | 2006 01 07 | 704 | 0.8+ | 0.8+ | 2009 12 09 | 704 | 0.4− | 0.6− |
| 2002 02 12 | 704 | 0.1+ | 0.8+ | 2006 01 08 | 628 | (2.1− | 0.9−) | 2009 12 09 | 704 | 0.0 | 0.5− |
| 2002 02 12 | 704 | 0.2− | 0.6+ | 2006 01 08 | 628 | (2.2− | 0.4−) | 2009 12 09 | 704 | 0.5+ | 0.9+ |

**(228609)∗ 2002 BW$_{18}$**

Discovered 2002 Jan. 21 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 14.24158 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24465237 | $\omega$ | 9.91934 | | −0.08244953 | −0.98106227 | |
| $a$ | 2.5318410 | $\Omega$ | 84.96396 | | +0.90187909 | −0.14828127 | |
| $e$ | 0.0973191 | $i$ | 10.13379 | | +0.42404738 | +0.12461733 | |
| $P$ | 4.03 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 12 17 | 704 | 1.4+ | 0.6+ | 2002 02 03 | 644 | 0.1+ | 0.4+ | 2006 01 06 | 704 | 1.2+ | 0.1+ |
| 2001 12 17 | 704 | 0.4− | 1.2− | 2002 02 03 | 644 | 0.2− | 0.3+ | 2006 01 20 | 699 | 0.1− | 0.3− |
| 2001 12 17 | 704 | 0.7− | 1.3− | 2002 02 03 | 644 | 0.1+ | 0.6+ | 2006 01 20 | 699 | 0.1− | 0.2− |
| 2001 12 17 | 704 | 0.0 | 0.8− | 2002 02 10 | 704 | 1.2− | 0.0 | 2006 01 20 | 699 | 0.2+ | 0.9− |
| 2001 12 17 | 704 | 0.3− | 0.7− | 2002 02 10 | 704 | 0.1− | 0.2+ | 2006 01 20 | 699 | 1.1− | 0.5− |
| 2002 01 08 | 704 | 0.2+ | 0.6+ | 2002 02 10 | 704 | 0.7− | 0.0 | 2008 08 06 | E12 | 0.2− | 0.4+ |
| 2002 01 08 | 704 | 0.3+ | 0.6+ | 2002 02 10 | 704 | 1.1− | 0.1+ | 2008 08 06 | E12 | (0.5− | 1.6+) |
| 2002 01 08 | 704 | 0.1+ | 0.2+ | 2002 02 10 | 704 | 1.3− | 0.2+ | 2008 08 06 | E12 | 0.4− | 0.3+ |
| 2002 01 08 | 704 | 0.2− | 0.3+ | 2004 08 21 | E12 | 0.4− | 0.4− | 2008 08 06 | E12 | 0.2− | 1.2+ |
| 2002 01 21 | 704 | 0.6+ | 0.0 | 2004 08 21 | E12 | 0.9+ | 0.9+ | 2009 11 11 | G96 | 0.2+ | 0.1− |
| 2002 01 21 | 704 | 0.7+ | 1.4+ | 2004 08 21 | E12 | 0.1− | 0.1+ | 2009 11 11 | G96 | 0.6− | 0.3− |
| 2002 01 21 | 704 | 1.1+ | 1.2+ | 2004 08 21 | E12 | 1.0− | 0.4+ | 2009 11 11 | G96 | 0.5− | 0.5− |
| 2002 01 21 | 704 | 0.2− | 0.5+ | 2005 10 06 | 691 | 0.0 | 0.5+ | 2009 11 11 | G96 | 0.2− | 0.1− |
| 2002 01 21 | 704 | 0.6+ | 0.4+ | 2005 10 06 | 691 | 0.2+ | 0.1− | 2009 11 21 | G96 | 0.2− | 0.2− |
| 2002 01 23 | 704 | 0.6− | 0.4+ | 2005 10 06 | 691 | 0.2+ | 0.3+ | 2009 11 21 | G96 | 0.4− | 0.2− |
| 2002 01 23 | 704 | 0.9+ | 0.2− | 2005 10 13 | 691 | 0.3+ | 0.1− | 2009 11 21 | G96 | 0.4− | 0.0 |
| 2002 01 23 | 704 | 0.4+ | 0.3− | 2005 10 13 | 691 | 0.2+ | 0.2− | 2009 12 11 | 703 | 0.4+ | 1.5− |
| 2002 01 23 | 704 | 0.5+ | 0.2− | 2005 10 13 | 691 | 0.1− | 0.3− | 2009 12 11 | 703 | 0.0 | 1.3− |
| 2002 01 23 | 704 | 1.1− | 0.3+ | 2005 12 22 | 703 | (1.7− | 0.7+) | 2009 12 11 | 703 | 1.2− | 0.5+ |
| 2002 01 25 | 704 | 0.2− | 1.1− | 2005 12 22 | 703 | (1.8− | 0.2−) | 2009 12 11 | 703 | 1.0− | 0.4+ |
| 2002 01 25 | 704 | 0.0 | 0.5− | 2005 12 22 | 703 | 0.2+ | 0.8− | 2009 12 15 | 704 | 0.1+ | 0.0 |
| 2002 01 25 | 704 | 0.3− | 0.7+ | 2005 12 22 | 703 | 0.1+ | 0.5− | 2009 12 15 | 704 | 0.0 | 0.1− |
| 2002 01 25 | 704 | 0.3+ | 0.3− | 2005 12 30 | 699 | 0.8− | 0.6+ | 2009 12 15 | 704 | 0.1+ | 0.6+ |
| 2002 01 25 | 704 | 0.3− | 0.4− | 2005 12 30 | 699 | (2.0− | 0.8+) | 2009 12 15 | 704 | 1.6+ | 0.2− |
| 2002 02 03 | 644 | 0.4+ | 0.4+ | 2005 12 30 | 699 | 1.4− | 0.7+ | 2009 12 19 | G96 | 0.1− | 0.1− |
| 2002 02 03 | 644 | 0.0 | 0.6+ | 2005 12 30 | 699 | (1.8+ | 1.9+) | 2009 12 19 | G96 | 0.0 | 0.2− |
| 2002 02 03 | 644 | 0.1+ | 0.5+ | 2006 01 06 | 704 | 0.8+ | 0.4+ | 2009 12 19 | G96 | 0.4− | 0.3− |
| 2002 02 03 | 644 | 0.0 | 0.4+ | 2006 01 06 | 704 | 0.5+ | 0.5+ | 2009 12 19 | G96 | 0.3+ | 0.2− |
| 2002 02 03 | 644 | 0.2− | 0.5+ | 2006 01 06 | 704 | 0.8+ | 0.3+ | | | | |
| 2002 02 03 | 644 | 0.0 | 0.4+ | 2006 01 06 | 704 | 1.0+ | 0.2+ | | | | |

**(228610)∗ 2002 BO$_{19}$**

Discovered 2002 Jan. 21 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 310.30717 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23620687 | $\omega$ | 97.43751 | | −0.96712342 | −0.24291292 | |
| $a$ | 2.5918371 | $\Omega$ | 68.52727 | | +0.18951180 | −0.88578515 | |
| $e$ | 0.1550278 | $i$ | 4.63939 | | +0.16958054 | −0.39544656 | |
| $P$ | 4.17 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 01 21 | 644 | 0.2+ | 0.1+ | 2002 04 02 | 644 | 0.2+ | 0.3+ | 2006 01 05 | 704 | 0.1+ | 0.1+ |
| 2002 01 21 | 644 | 0.1+ | 0.1+ | 2002 04 02 | 644 | 0.2− | 0.3+ | 2006 02 05 | 704 | 1.1− | 0.4− |
| 2002 01 21 | 644 | 0.4+ | 0.6+ | 2002 04 02 | 644 | 0.1− | 0.5+ | 2006 02 05 | 704 | 1.1− | 0.3− |
| 2002 01 22 | 644 | 1.4+ | 1.3+ | 2002 04 16 | 704 | 0.7+ | 0.2+ | 2006 02 05 | 704 | 0.6− | 0.3− |
| 2002 01 22 | 644 | (0.9+ | 1.6+) | 2002 04 16 | 704 | 0.1+ | 0.4+ | 2006 02 05 | 704 | 0.1− | 0.3+ |
| 2002 01 22 | 644 | 0.7+ | 1.1+ | 2002 04 16 | 704 | 0.5+ | 0.9+ | 2006 02 20 | 704 | (0.7+ | 2.3−) |
| 2002 02 08 | 704 | 0.4+ | 0.7+ | 2002 04 16 | 704 | 0.4− | 0.9+ | 2006 02 20 | 704 | 0.3− | 0.2− |
| 2002 02 08 | 704 | 0.4+ | 0.5+ | 2005 10 13 | 691 | 0.1− | 0.4+ | 2006 02 20 | 704 | 0.3− | 0.1+ |
| 2002 02 08 | 704 | 0.2+ | 0.8+ | 2005 10 13 | 691 | 0.4+ | 0.3+ | 2006 02 20 | 704 | 0.3− | 0.7− |
| 2002 02 08 | 704 | 0.5+ | 0.8+ | 2005 10 13 | 691 | 0.1− | 0.3− | 2006 02 20 | 704 | 0.8+ | 0.8− |
| 2002 02 12 | 704 | 0.4− | 0.3+ | 2005 10 28 | G96 | 0.0 | 0.2+ | 2008 09 04 | 691 | 0.6− | 0.8+ |
| 2002 02 12 | 704 | 0.6− | 0.2+ | 2005 10 28 | G96 | 0.2+ | 0.2− | 2008 09 04 | 691 | 0.3− | 0.5+ |
| 2002 02 12 | 704 | 0.4− | 0.2+ | 2005 10 28 | G96 | 0.0 | 0.5− | 2008 09 04 | 691 | 0.2− | 0.5+ |
| 2002 02 12 | 704 | 0.4+ | 0.1− | 2005 10 28 | G96 | 0.2+ | 0.2− | 2008 09 06 | 703 | 0.4+ | 0.1− |
| 2002 02 12 | 704 | 0.4+ | 0.2+ | 2005 12 29 | 704 | 0.0 | 0.0 | 2008 09 06 | 703 | (1.7+ | 0.7+) |
| 2002 02 14 | 644 | 0.3+ | 0.4− | 2005 12 29 | 704 | 0.4+ | 0.2+ | 2008 09 06 | 703 | 0.2+ | 0.5+ |
| 2002 02 14 | 644 | 0.4+ | 0.4− | 2005 12 29 | 704 | 1.2− | 0.8+ | 2008 09 06 | 703 | 0.8− | 0.8+ |
| 2002 02 14 | 644 | 0.3+ | 0.5− | 2005 12 29 | 704 | (1.8− | 2.1+) | 2009 10 14 | G96 | 0.6+ | 0.4− |
| 2002 02 22 | 644 | 0.4− | 0.0 | 2005 12 29 | 704 | (3.2− | 1.0+) | 2009 10 14 | G96 | 0.7+ | 0.3− |
| 2002 02 22 | 644 | 0.4− | 0.1+ | 2006 01 04 | 703 | 0.1− | 0.1+ | 2009 10 14 | G96 | 0.5+ | 0.5− |
| 2002 02 22 | 644 | 0.2− | 0.0 | 2006 01 04 | 703 | 0.7+ | 0.1− | 2009 12 17 | 691 | 0.2+ | 0.0 |
| 2002 03 11 | 644 | 0.1+ | 0.5+ | 2006 01 04 | 703 | 0.0 | 1.2− | 2009 12 17 | 691 | 0.3+ | 0.0 |
| 2002 03 11 | 644 | 0.1− | 0.5+ | 2006 01 04 | 703 | 1.2− | 0.1− | 2009 12 17 | 691 | 0.1+ | 0.0 |
| 2002 03 11 | 644 | 0.2+ | 0.5+ | 2006 01 05 | 704 | 0.7+ | 0.6+ | 2009 12 26 | 691 | 0.1− | 0.1− |
| 2002 03 22 | 644 | 0.2+ | 0.3+ | 2006 01 05 | 704 | 0.5+ | 0.4− | 2009 12 26 | 691 | 0.0 | 0.0 |
| 2002 03 22 | 644 | 0.1− | 0.4+ | 2006 01 05 | 704 | 0.7+ | 0.5− | 2009 12 26 | 691 | 0.7− | 0.4− |
| 2002 03 22 | 644 | 0.1− | 0.3+ | 2006 01 05 | 704 | 0.9+ | 0.4− | | | | |

**(228611)∗ 2002 BC$_{24}$ = 2007 FW$_{23}$**

Discovered 2002 Jan. 23 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 117429)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 260.81525 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21824162 | $\omega$ | 123.63044 | | −0.78679506 | −0.61520002 | |
| $a$ | 2.7321907 | $\Omega$ | 18.56087 | | +0.50167297 | −0.68444677 | |
| $e$ | 0.1094061 | $i$ | 9.00537 | | +0.35955218 | −0.39123081 | |
| $P$ | 4.52 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 03 | 691 | 0.3− | 0.2− | 2007 03 17 | 704 | 1.5+ | 0.5− | 2007 05 09 | G96 | 0.5+ | 0.2+ |
| 2000 09 03 | 691 | 0.6+ | 0.1− | 2007 03 17 | 704 | 1.3+ | 0.8− | 2007 05 09 | G96 | 0.2+ | 0.3− |
| 2000 09 03 | 691 | 0.1+ | 0.0 | 2007 03 17 | 704 | 1.0− | 0.5− | 2007 05 09 | G96 | 0.2− | 0.2− |
| 2002 01 23 | 704 | 0.1+ | 0.5− | 2007 03 20 | 691 | 0.2− | 0.1+ | 2007 05 10 | G96 | 0.3+ | 0.2+ |
| 2002 01 23 | 704 | 0.6− | 0.0 | 2007 03 20 | 691 | 0.2− | 0.3+ | 2007 05 10 | G96 | 0.2− | 0.1+ |
| 2002 01 23 | 704 | 0.2− | 0.6+ | 2007 03 20 | 691 | 0.1+ | 0.2+ | 2007 05 10 | G96 | 0.1− | 0.0 |
| 2002 01 23 | 704 | 0.2− | 0.4+ | 2007 03 26 | 691 | 0.0 | 0.4+ | 2007 05 10 | G96 | 1.0− | 0.6+ |
| 2002 01 25 | 704 | 0.6+ | 0.6+ | 2007 03 26 | 691 | 0.2+ | 0.2+ | 2009 09 17 | 691 | 0.5− | 0.5+ |
| 2002 01 25 | 704 | 0.3+ | 0.4+ | 2007 03 26 | 691 | 0.0 | 0.2+ | 2009 09 17 | 691 | 0.3− | 0.2+ |
| 2002 01 25 | 704 | 0.4+ | 0.3+ | 2007 04 07 | 703 | 0.2+ | 0.3− | 2009 09 17 | 691 | 0.1− | 0.5+ |
| 2002 01 25 | 704 | 1.0− | 0.6− | 2007 04 07 | 703 | 0.3+ | 0.4+ | 2009 09 25 | 691 | 0.6− | 0.7+ |
| 2002 01 25 | 704 | 0.8− | 0.9+ | 2007 04 07 | 703 | 0.5+ | 0.1− | 2009 09 25 | 691 | 0.4− | 0.5+ |
| 2002 02 10 | 704 | 0.1− | 0.5+ | 2007 04 07 | 703 | 0.4− | 0.3+ | 2009 09 25 | 691 | 0.6− | 0.2+ |
| 2002 02 10 | 704 | 0.7+ | 0.0 | 2007 04 14 | G96 | 0.3+ | 0.1− | 2009 11 11 | G96 | 0.7+ | 0.4− |
| 2002 02 10 | 704 | 0.1− | 0.2− | 2007 04 14 | G96 | 0.1− | 0.1− | 2009 11 11 | G96 | 0.1+ | 0.2− |
| 2002 02 10 | 704 | 0.3+ | 0.5+ | 2007 04 14 | G96 | 0.1+ | 0.1+ | 2009 11 11 | G96 | 0.0 | 0.1+ |
| 2005 10 25 | 691 | 0.3+ | 0.2− | 2007 04 14 | G96 | 0.1− | 0.0 | 2009 11 11 | G96 | 0.1+ | 0.4+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 25 | 691 | 0.4+ | 0.3− | 2007 04 16 | 704 | 0.1+ | 0.6+ | 2009 12 17 | G96 | 0.1+ | 0.1− | | |
| 2005 10 25 | 691 | 0.1+ | 0.2+ | 2007 04 16 | 704 | 0.4+ | 0.2+ | 2009 12 17 | G96 | 0.1+ | 0.2− | | |
| 2007 02 26 | G96 | 0.1− | 0.2− | 2007 04 16 | 704 | 1.0+ | 0.9+ | 2009 12 17 | G96 | 0.1+ | 0.0 | | |
| 2007 02 26 | G96 | 0.1+ | 0.1− | 2007 04 16 | 704 | 0.8+ | 0.3+ | 2009 12 17 | G96 | 0.6+ | 0.0 | | |
| 2007 02 26 | G96 | 0.3+ | 0.1− | 2007 04 16 | 704 | (0.3− | 2.4+) | | | | | | |
| 2007 02 26 | G96 | 0.1+ | 0.0 | 2007 05 09 | G96 | 0.3+ | 0.4+ | | | | | | |

**(228612)∗ 2002 BZ$_{31}$**

Discovered 2002 Jan. 26 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 343.29113 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23549635 | $\omega$ | 350.73977 | | −0.16727302 | −0.98436104 | |
| $a$ | 2.5970477 | $\Omega$ | 108.87444 | | +0.90825204 | −0.17565702 | |
| $e$ | 0.0726175 | $i$ | 3.34766 | | +0.38353354 | −0.01333964 | |
| $P$ | 4.19 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 08 25 | 807 | 0.1− | 0.5+ | 2002 02 12 | 704 | 0.9− | 1.0+ | 2008 07 29 | G96 | 0.8− | 0.8+ | | |
| 2000 08 25 | 807 | 0.0 | 0.0 | 2002 02 12 | 704 | (0.0 | 1.8+) | 2009 11 19 | 691 | 0.5− | 0.6+ | | |
| 2002 01 06 | 644 | 0.0 | 0.3+ | 2002 02 12 | 704 | (1.0− | 1.5+) | 2009 11 19 | 691 | 0.1− | 0.0 | | |
| 2002 01 06 | 644 | 0.5− | 0.8+ | 2004 08 23 | 691 | 0.3− | 0.4+ | 2009 11 19 | 691 | 0.6− | 0.1+ | | |
| 2002 01 14 | 704 | 0.5− | 0.1+ | 2004 08 23 | 691 | 0.3− | 0.3+ | 2009 11 20 | A50 | 0.2+ | 0.0 | | |
| 2002 01 14 | 704 | 0.2− | 0.5+ | 2004 08 23 | 691 | 0.2+ | 0.3+ | 2009 11 20 | A50 | 0.2− | 0.3− | | |
| 2002 01 14 | 704 | 0.9− | 0.8+ | 2005 12 01 | 691 | 0.3+ | 0.3− | 2009 11 21 | A50 | 0.2+ | 0.1− | | |
| 2002 01 14 | 704 | 0.3− | 1.1+ | 2005 12 01 | 691 | 0.1− | 0.1− | 2009 11 23 | 691 | 0.3− | 0.0 | | |
| 2002 01 14 | 704 | 0.7− | 0.6+ | 2005 12 01 | 691 | 0.3+ | 0.0 | 2009 11 23 | 691 | 0.1− | 0.1+ | | |
| 2002 01 18 | 644 | 0.7+ | 0.5+ | 2005 12 25 | 691 | 0.1+ | 0.2− | 2009 11 23 | 691 | 0.0 | 0.0 | | |
| 2002 01 18 | 644 | 0.3+ | 0.1+ | 2005 12 25 | 691 | 0.2+ | 0.1− | 2009 11 23 | J75 | 0.2+ | 0.1− | | |
| 2002 01 18 | 644 | 0.1− | 0.3+ | 2005 12 25 | 691 | 0.2+ | 0.1− | 2009 11 24 | J75 | 0.1− | 0.1− | | |
| 2002 01 20 | 291 | 0.0 | 0.2+ | 2005 12 29 | 691 | 0.2+ | 0.1− | 2009 11 24 | J75 | 0.3+ | 0.4− | | |
| 2002 01 20 | 291 | 0.1+ | 0.1+ | 2005 12 29 | 691 | 0.3+ | 0.2− | 2009 11 26 | G96 | 0.2+ | 0.2− | | |
| 2002 01 20 | 291 | 0.0 | 0.0 | 2005 12 29 | 691 | 0.1− | 0.1− | 2009 11 26 | G96 | 0.1+ | 0.3− | | |
| 2002 01 26 | 644 | 0.2+ | 0.5− | 2007 04 20 | 691 | 0.3+ | 0.2+ | 2009 11 26 | G96 | 0.0 | 0.3− | | |
| 2002 01 26 | 644 | 0.6+ | 0.1+ | 2007 04 20 | 691 | 0.2+ | 0.1+ | 2009 11 26 | G96 | 0.6+ | 0.4− | | |
| 2002 01 26 | 644 | 0.3+ | 0.5+ | 2007 04 20 | 691 | 0.3− | 0.3+ | 2009 11 26 | G96 | 0.4+ | 0.3+ | | |
| 2002 02 05 | 644 | 0.2+ | 0.4− | 2007 04 26 | 461 | 0.1+ | 0.0 | 2009 12 11 | G96 | 0.5+ | 0.3− | | |
| 2002 02 05 | 644 | 0.1+ | 0.6− | 2007 04 26 | 461 | 0.1− | 0.1+ | 2009 12 11 | G96 | 0.1− | 0.5+ | | |
| 2002 02 05 | 644 | 0.1− | 0.2+ | 2008 07 29 | G96 | 0.2− | 0.0 | 2009 12 11 | G96 | 0.8+ | 0.2+ | | |
| 2002 02 12 | 704 | 0.0 | 1.3+ | 2008 07 29 | G96 | 0.5+ | 0.1− | 2009 12 11 | G96 | 0.2+ | 0.3− | | |
| 2002 02 12 | 704 | 0.0 | 0.4− | 2008 07 29 | G96 | 1.0+ | 0.3− | | | | | | |

**(228613)∗ 2002 CY$_5$ = 1996 TQ$_{27}$**

Discovered 2002 Feb. 4 by NEAT at Haleakala.

Id. M. E. Sansaturio (*MPO* 27445), G. V. Williams (*ibid.*)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 342.63143 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23434993 | $\omega$ | 308.78548 | | −0.36834218 | −0.92894343 | |
| $a$ | 2.6055105 | $\Omega$ | 162.71531 | | +0.88712775 | −0.36318354 | |
| $e$ | 0.1883217 | $i$ | 7.20363 | | +0.27807984 | −0.07184574 | |
| $P$ | 4.21 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 10 07 | 691 | 0.1+ | 0.3− | 2002 02 13 | 645 | 0.2− | 0.2− | 2002 03 16 | 704 | 0.3+ | 0.8+ | | |
| 1996 10 07 | 691 | 0.5+ | 0.3+ | 2002 02 13 | 645 | 0.3− | 0.2− | 2002 03 16 | 691 | 0.3− | 0.1− | | |
| 1996 10 07 | 691 | 0.1− | 0.2+ | 2002 02 20 | 704 | 0.0 | 1.1+ | 2002 03 16 | 704 | 0.7+ | 0.1+ | | |
| 1996 10 12 | 691 | 0.3− | 0.1+ | 2002 02 20 | 704 | 0.1− | 0.1− | 2002 03 16 | 704 | 0.9+ | 1.0+ | | |
| 1996 10 12 | 691 | 0.2− | 0.1+ | 2002 02 20 | 704 | 0.2− | 0.1+ | 2002 03 16 | 691 | 0.1+ | 0.8− | | |
| 1996 10 12 | 691 | 0.5− | 0.1+ | 2002 02 20 | 704 | 0.7− | 0.4+ | 2002 03 16 | 704 | 0.5+ | 0.9+ | | |
| 1998 03 18 | 691 | 0.4− | 0.8− | 2002 02 20 | 704 | 0.2+ | 0.1− | 2002 03 16 | 691 | 0.1− | 0.0 | | |
| 1998 03 18 | 691 | 0.4− | 0.5− | 2002 02 21 | 704 | 1.5+ | 0.1+ | 2002 04 03 | 644 | 0.1+ | 0.5+ | | |
| 1998 03 18 | 691 | 0.4− | 0.6− | 2002 02 21 | 704 | 0.9+ | 0.3− | 2002 04 03 | 644 | 0.1− | 0.4+ | | |
| 2000 09 07 | 691 | 0.1+ | 0.2− | 2002 02 21 | 704 | 1.3+ | 0.4− | 2002 04 03 | 644 | 0.1+ | 0.2+ | | |
| 2000 09 07 | 691 | 0.2+ | 0.4− | 2002 02 21 | 704 | 0.8+ | 0.1− | 2006 01 03 | 704 | 0.0 | 0.2− | | |
| 2000 09 07 | 691 | 0.8+ | 0.2− | 2002 02 21 | 704 | 0.2+ | 0.1− | 2006 01 03 | 704 | 0.9+ | 0.8− | | |
| 2002 01 19 | 704 | 1.1+ | 1.5− | 2002 02 25 | 644 | 0.6+ | 0.1+ | 2006 01 03 | 704 | 0.4− | 0.0 | | |
| 2002 01 19 | 704 | 0.1− | 0.1+ | 2002 02 25 | 644 | 0.2+ | 0.3− | 2006 01 08 | 703 | 0.5− | 0.7− | | |
| 2002 01 19 | 704 | 1.1− | 0.9+ | 2002 02 25 | 644 | 0.2+ | 0.3− | 2006 01 08 | 703 | 0.1− | 0.3− | | |
| 2002 01 25 | 644 | 0.0 | 1.0+ | 2002 03 05 | 691 | 0.5− | 0.1− | 2006 01 08 | 703 | 0.3+ | 0.0 | | |
| 2002 01 25 | 644 | 0.8+ | 0.7+ | 2002 03 05 | 691 | 0.0 | 0.2− | 2006 01 08 | 703 | 0.5− | 0.6− | | |
| 2002 01 25 | 644 | 0.7+ | 0.4+ | 2002 03 05 | 691 | 0.0 | 0.2+ | 2006 01 27 | 644 | 0.0 | 0.0 | | |
| 2002 02 04 | 608 | 0.0 | 0.3+ | 2002 03 05 | 644 | 0.0 | 0.3+ | 2006 01 27 | 644 | 0.1+ | 0.0 | | |
| 2002 02 04 | 608 | 0.3+ | 0.3− | 2002 03 05 | 644 | 0.3+ | 0.4+ | 2006 01 27 | 644 | 0.1+ | 0.0 | | |
| 2002 02 04 | 608 | 0.3+ | 0.2− | 2002 03 05 | 644 | 0.1+ | 0.4+ | 2006 02 03 | 704 | 0.6− | 1.0+ | | |
| 2002 02 05 | 644 | 0.3+ | 0.2+ | 2002 03 09 | 704 | 0.2− | 1.4+ | 2006 02 03 | 704 | 0.3− | 1.0+ | | |
| 2002 02 05 | 644 | 0.1+ | 0.0 | 2002 03 09 | 704 | 0.1− | 1.2+ | 2006 02 03 | 704 | 1.2+ | 0.4+ | | |
| 2002 02 05 | 644 | 0.2+ | 0.3+ | 2002 03 09 | 704 | 0.4− | 0.5− | 2006 02 03 | 704 | 0.4− | 0.8+ | | |
| 2002 02 09 | 704 | 0.1− | 0.4− | 2002 03 09 | 704 | (1.1− | 1.8+) | 2008 09 21 | G96 | 0.3− | 0.2+ | | |
| 2002 02 09 | 704 | 0.4+ | 0.5− | 2002 03 09 | 704 | 0.0 | 1.1+ | 2008 09 21 | G96 | 0.2− | 0.3+ | | |
| 2002 02 09 | 704 | 0.2− | 0.4+ | 2002 03 12 | 644 | 0.1+ | 0.1+ | 2008 09 21 | G96 | 0.7− | 0.3− | | |
| 2002 02 09 | 704 | 0.6− | 0.0 | 2002 03 12 | 644 | 0.5+ | 0.3+ | 2008 09 21 | G96 | 0.1+ | 0.3+ | | |
| 2002 02 09 | 704 | 0.1− | 0.2+ | 2002 03 12 | 644 | 0.4+ | 0.4+ | 2009 11 19 | 704 | 0.0 | 0.4− | | |
| 2002 02 11 | 704 | 0.7+ | 0.3− | 2002 03 13 | 644 | (0.4+ | 1.6+) | 2009 11 19 | 704 | (0.8+ | 1.8−) | | |
| 2002 02 11 | 704 | 0.8+ | 0.3− | 2002 03 13 | 644 | 0.5+ | 1.4+ | 2009 11 19 | 704 | 0.5+ | 0.5− | | |
| 2002 02 11 | 704 | 1.0+ | 0.1− | 2002 03 13 | 644 | 0.7+ | 1.1+ | 2009 11 19 | 704 | (0.0 | 1.6−) | | |
| 2002 02 11 | 704 | 1.2+ | 0.1+ | 2002 03 14 | 704 | 0.1− | 0.1+ | 2009 12 15 | 703 | 0.3− | 0.2− | | |
| 2002 02 11 | 704 | 1.1+ | 0.1+ | 2002 03 14 | 704 | 0.0 | 0.5+ | 2009 12 15 | 703 | 0.1− | 0.2− | | |
| 2002 02 12 | 704 | 0.7− | 0.4+ | 2002 03 14 | 704 | 0.5+ | 0.2+ | 2009 12 15 | 703 | 0.5− | 0.9− | | |
| 2002 02 12 | 704 | 0.8+ | 0.9+ | 2002 03 14 | 704 | 0.2− | 0.1+ | 2009 12 15 | 703 | 0.4− | 0.7− | | |
| 2002 02 12 | 704 | 0.7− | 0.5+ | 2002 03 14 | 704 | 0.3+ | 0.4+ | 2009 12 15 | 703 | 0.2+ | 0.2− | | |
| 2002 02 12 | 704 | (0.4− | 1.6+) | 2002 03 16 | 704 | 1.5+ | 0.5+ | | | | | | |

**(228614)∗ 2002 CV$_{30}$**

Discovered 2002 Feb. 6 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 6.04601 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24082554 | $\omega$ | 46.04359 | | +0.01026273 | −0.99877500 | |
| $a$ | 2.5585919 | $\Omega$ | 43.43876 | | +0.89609556 | −0.01229610 | |
| $e$ | 0.1987078 | $i$ | 4.03702 | | +0.44374252 | +0.04793012 | |
| $P$ | 4.09 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 02 15 | 691 | 0.5− | 0.1− | 2002 02 12 | 704 | 0.0 | 0.0 | 2006 01 05 | 703 | 0.2+ | 0.1+ | | |
| 1994 02 15 | 691 | 0.1+ | 0.1− | 2002 02 12 | 704 | 0.7+ | 0.3+ | 2006 01 05 | 703 | 0.1+ | 0.2− | | |
| 1994 02 15 | 691 | 0.6− | 0.5− | 2002 02 12 | 704 | 0.4+ | 0.6+ | 2006 01 06 | 704 | 0.5+ | 0.1+ | | |
| 2001 12 17 | 704 | 1.0+ | 0.4− | 2002 02 12 | 704 | 0.0 | 0.4− | 2006 01 06 | 704 | 0.0 | 0.4− | | |
| 2001 12 17 | 704 | (1.0+ | 1.6−) | 2002 02 12 | 704 | 0.5+ | 0.4− | 2006 01 06 | 704 | 0.2+ | 0.2+ | | |
| 2001 12 17 | 704 | 1.3+ | 1.0+ | 2002 02 12 | 704 | 0.4+ | 0.0 | 2006 01 06 | 704 | (2.0+ | 0.5−) | | |
| 2001 12 17 | 704 | 1.4+ | 1.2+ | 2002 02 12 | 704 | 0.5+ | 0.0 | 2006 01 06 | 704 | (1.6− | 0.5+) | | |
| 2002 01 09 | 704 | 0.4+ | 0.2− | 2002 02 12 | 704 | 1.0+ | 0.1+ | 2006 01 10 | 691 | 0.5− | 0.3− | | |
| 2002 01 09 | 704 | 0.2− | 0.2+ | 2002 02 12 | 704 | 0.8+ | 0.7+ | 2006 01 10 | 691 | 0.4− | 0.0 | | |
| 2002 01 09 | 704 | 0.2− | 0.1− | 2002 02 23 | 644 | 0.1+ | 0.7− | 2006 01 10 | 691 | 0.1− | 0.1− | | |
| 2002 01 09 | 704 | 0.3+ | 0.3− | 2002 02 23 | 644 | 0.1+ | 0.0 | 2006 01 20 | 699 | 0.2+ | 0.5− | | |
| 2002 01 09 | 704 | 0.1+ | 0.1− | 2002 02 23 | 644 | 0.1+ | 0.2+ | 2006 01 20 | 699 | 0.6+ | 0.2− | | |
| 2002 01 09 | 608 | 0.3− | 0.2− | 2005 11 26 | 703 | 0.6+ | 0.1+ | 2006 01 20 | 699 | (2.9− | 0.7+) | | |
| 2002 01 09 | 608 | 0.4− | 0.3+ | 2005 11 26 | 703 | 1.0− | 0.7+ | 2006 01 24 | 699 | 0.3− | 0.4− | | |
| 2002 01 09 | 608 | 0.6− | 0.2− | 2005 11 26 | 703 | 0.3+ | 0.6− | 2006 01 24 | 703 | 0.7− | 1.0− | | |
| 2002 02 03 | 699 | 0.4+ | 0.3− | 2005 11 26 | 703 | 0.2+ | 0.1− | 2006 01 24 | 703 | (0.1+ | 1.6−) | | |
| 2002 02 03 | 699 | 0.2− | 0.4+ | 2005 12 21 | 703 | 1.2− | 1.1− | 2006 01 24 | 703 | 0.2− | 1.2− | | |
| 2002 02 03 | 699 | 0.6− | 1.0+ | 2005 12 21 | 703 | (0.4− | 2.2−) | 2006 01 24 | 699 | 1.5+ | 0.6− | | |
| 2002 02 03 | 699 | 0.8+ | 1.0+ | 2005 12 21 | 703 | 0.3+ | 0.0 | 2006 01 24 | 703 | 1.4− | 0.7− | | |
| 2002 02 04 | 644 | 0.3− | 0.8+ | 2005 12 21 | 703 | 0.9− | 0.4+ | 2006 01 24 | 699 | 0.4+ | 1.3− | | |
| 2002 02 04 | 644 | 0.0 | 0.5+ | 2005 12 25 | 691 | 0.0 | 0.2+ | 2006 02 06 | 699 | 0.3− | 0.6− | | |
| 2002 02 04 | 644 | 0.1− | 0.7+ | 2005 12 25 | 691 | 0.1+ | 0.1+ | 2006 02 06 | 699 | 0.6+ | 0.1+ | | |
| 2002 02 06 | 704 | 0.2− | 0.6+ | 2005 12 25 | 691 | 0.1+ | 0.1+ | 2006 02 06 | 699 | 0.7+ | 0.0 | | |
| 2002 02 06 | 704 | 1.0+ | 0.9+ | 2005 12 26 | 703 | 1.1− | 0.0 | 2006 02 06 | 699 | 0.2− | 0.0 | | |
| 2002 02 06 | 704 | 0.4+ | 0.7+ | 2005 12 26 | 703 | 0.4− | 0.1− | 2009 08 18 | 691 | 0.2+ | 0.6+ | | |
| 2002 02 06 | 704 | 0.3− | 0.3− | 2005 12 26 | 703 | 1.0− | 0.1− | 2009 08 18 | 691 | 0.1+ | 0.3+ | | |
| 2002 02 06 | 704 | 0.5+ | 0.5+ | 2005 12 26 | 703 | 0.4− | 0.1− | 2009 08 18 | 691 | 0.1− | 0.8+ | | |
| 2002 02 08 | 704 | 0.9− | 0.6+ | 2005 12 29 | 704 | 0.5− | 0.3− | 2009 08 29 | 691 | 0.2+ | 0.7− | | |
| 2002 02 08 | 704 | 0.1− | 1.2− | 2005 12 29 | 704 | 0.7− | 0.2− | 2009 08 29 | 691 | 0.2− | 0.3− | | |
| 2002 02 08 | 704 | 0.2− | 0.6+ | 2005 12 29 | 704 | 0.1− | 0.3− | 2009 08 29 | 691 | 0.5− | 0.2− | | |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 02 08 | 704 | 0.0 | 0.6+ | 2005 12 29 | 704 | 0.1+ | 0.6− | 2009 12 10 | 704 | 0.8+ | 0.6+ |
| 2002 02 08 | 704 | 0.4− | 1.0+ | 2005 12 30 | 699 | 0.6− | 0.8+ | 2009 12 10 | 704 | 1.0+ | 0.3+ |
| 2002 02 08 | 608 | 1.0+ | 0.5+ | 2005 12 30 | 699 | 0.3− | 0.6− | 2009 12 10 | 704 | 0.1+ | 0.2+ |
| 2002 02 08 | 608 | 1.0+ | 0.6+ | 2005 12 30 | 699 | 0.4+ | 0.8− | 2009 12 10 | 704 | 0.5+ | 0.2− |
| 2002 02 08 | 608 | 0.8+ | 0.3+ | 2005 12 30 | 699 | 0.6− | 0.2+ | 2009 12 10 | 704 | 0.1− | 0.4+ |
| 2002 02 12 | 704 | 0.1− | 0.1− | 2005 12 31 | 704 | 0.2+ | 0.2+ | 2009 12 16 | 704 | 1.8− | 0.4− |
| 2002 02 12 | 704 | 0.3− | 0.6+ | 2005 12 31 | 704 | 1.4+ | 0.5+ | 2009 12 16 | 704 | 0.3+ | 0.3− |
| 2002 02 12 | 704 | 0.2− | 0.3− | 2005 12 31 | 704 | 0.6− | 0.3− | 2009 12 16 | 704 | 0.6+ | 0.1− |
| 2002 02 12 | 704 | 0.8+ | 0.4− | 2006 01 05 | 703 | (2.1− | 3.5+) | 2009 12 16 | 704 | 0.1− | 0.0 |
| 2002 02 12 | 704 | 0.8+ | 0.2+ | 2006 01 05 | 703 | (1.6+ | 2.5+) | 2009 12 16 | 704 | 0.2− | 0.5− |

**(228615)∗ 2002 CH$_{35}$**

Discovered 2002 Feb. 6 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 331.66640 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23810428 | $\omega$ | 45.11827 | | −0.79391424 | −0.55099845 | |
| $a$ | 2.5780495 | $\Omega$ | 99.77642 | | +0.45791746 | −0.82001069 | |
| $e$ | 0.1043981 | $i$ | 15.12285 | | +0.40001472 | −0.15486505 | |
| $P$ | 4.14 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 26 | 645 | 0.1− | 0.1+ | 2002 03 16 | 699 | 0.4+ | 0.2− | 2006 02 18 | 699 | 0.3− | 0.7− |
| 2000 09 26 | 645 | 0.0 | 0.1+ | 2002 03 16 | 699 | 0.5− | 0.5− | 2006 02 18 | 699 | 0.3− | 0.3+ |
| 2002 01 09 | 704 | 0.6+ | 1.0+ | 2002 03 16 | 699 | 0.0 | 0.2+ | 2006 02 18 | 699 | 0.1− | 1.0− |
| 2002 01 09 | 704 | 0.2+ | 1.3+ | 2002 03 16 | 699 | 0.4− | 0.0 | 2006 02 18 | 699 | 0.6− | 0.1+ |
| 2002 01 09 | 704 | 0.5+ | 0.0 | 2002 03 19 | 644 | 0.0 | 0.3− | 2009 11 17 | G96 | 0.3+ | 0.3− |
| 2002 01 23 | 704 | 1.4− | 0.7+ | 2002 03 19 | 644 | 0.1+ | 0.2− | 2009 11 17 | G96 | 0.0 | 0.2− |
| 2002 01 23 | 704 | 0.1− | 0.9+ | 2002 03 19 | 644 | 0.3+ | 0.3+ | 2009 11 17 | G96 | 0.2+ | 0.1+ |
| 2002 01 23 | 704 | 0.8+ | 0.4+ | 2002 03 30 | 644 | 0.5+ | 0.2+ | 2009 11 17 | G96 | 0.4+ | 0.4− |
| 2002 01 23 | 704 | 1.1+ | 0.6+ | 2002 03 30 | 644 | 0.7+ | 0.7+ | 2009 11 25 | G96 | 0.1− | 0.3− |
| 2002 02 06 | 704 | 1.0+ | 0.0 | 2002 03 30 | 644 | 0.6− | 0.1− | 2009 11 25 | G96 | 0.3− | 0.1− |
| 2002 02 06 | 704 | 0.2+ | 0.1+ | 2002 03 30 | 644 | 0.7+ | 0.6+ | 2009 11 25 | G96 | 0.0 | 0.2− |
| 2002 02 06 | 704 | 1.0+ | 1.0+ | 2002 03 30 | 644 | 0.3− | 0.5+ | 2009 11 25 | G96 | 0.2− | 0.0 |
| 2002 02 06 | 704 | 0.3+ | 0.4+ | 2002 03 30 | 644 | 0.4+ | 0.4+ | 2009 12 12 | A77 | 0.1− | 0.2− |
| 2002 02 06 | 704 | 0.7+ | 0.5+ | 2005 12 29 | 703 | 0.7− | 0.6− | 2009 12 12 | A77 | 0.6+ | 0.4− |
| 2002 02 08 | 704 | 1.1− | 0.2+ | 2005 12 29 | 703 | 0.5− | 0.4+ | 2009 12 12 | A77 | 0.4+ | 0.2− |
| 2002 02 08 | 704 | 0.1+ | 0.1+ | 2005 12 29 | 703 | 0.8+ | 0.4+ | 2009 12 15 | G96 | 1.0+ | 0.2− |
| 2002 02 08 | 704 | 1.1− | 0.3+ | 2005 12 29 | 703 | 0.4+ | 0.1+ | 2009 12 15 | G96 | 0.4+ | 0.2− |
| 2002 02 20 | 699 | 0.1+ | 0.0 | 2006 01 05 | 704 | 1.0+ | 0.2+ | 2009 12 15 | G96 | 0.4− | 0.2− |
| 2002 02 20 | 699 | 0.6+ | 0.1+ | 2006 01 05 | 704 | 0.6+ | 0.8+ | 2009 12 15 | G96 | 0.4+ | 0.4− |
| 2002 02 20 | 699 | 0.6− | 1.0+ | 2006 01 05 | 699 | 0.9+ | 1.4+ | 2009 12 16 | 704 | 1.4+ | 1.3− |
| 2002 02 20 | 699 | 0.7− | 0.6+ | 2006 01 05 | 704 | (1.9+ | 0.1−) | 2009 12 16 | 704 | (2.0+ | 1.3−) |
| 2002 02 21 | 704 | 0.1+ | 0.0 | 2006 01 05 | 704 | 0.6+ | 0.5− | 2009 12 16 | 704 | 0.8+ | 0.5− |
| 2002 02 21 | 704 | 0.8− | 0.1− | 2006 01 05 | 699 | (1.6+ | 0.1−) | 2009 12 16 | 704 | 1.7+ | 0.3− |
| 2002 02 21 | 704 | 0.6− | 0.0 | 2006 01 05 | 699 | 1.2+ | 0.1− | 2009 12 18 | 691 | 0.1− | 0.1− |
| 2002 02 21 | 704 | 0.6− | 0.8− | 2006 01 05 | 699 | 1.4+ | 0.3+ | 2009 12 18 | G96 | 0.3− | 0.3− |
| 2002 02 21 | 704 | 0.3− | 0.5− | 2006 01 27 | 703 | 0.5− | 0.3− | 2009 12 18 | G96 | 0.0 | 0.1− |
| 2002 03 03 | 699 | 0.3− | 0.1+ | 2006 01 27 | 703 | 0.2− | 0.3− | 2009 12 18 | 691 | 0.7− | 0.1− |
| 2002 03 03 | 699 | 0.1− | 0.3+ | 2006 01 27 | 703 | 0.7− | 0.3− | 2009 12 18 | G96 | 0.3− | 0.2− |
| 2002 03 03 | 699 | 0.8− | 0.4− | 2006 01 27 | 703 | 0.2+ | 0.1+ | 2009 12 18 | G96 | 0.5− | 0.3− |
| 2002 03 03 | 699 | (1.8− | 0.2+) | 2006 02 06 | 704 | 1.0+ | 0.0 | 2009 12 18 | 691 | 0.4− | 0.0 |
| 2002 03 05 | 704 | 0.1+ | 0.8− | 2006 02 06 | 704 | 1.0+ | 0.6+ | 2009 12 27 | 691 | 0.3− | 0.1− |
| 2002 03 05 | 704 | 0.2− | 0.3− | 2006 02 06 | 704 | 1.0+ | 0.1+ | 2009 12 27 | 691 | 0.4− | 0.0 |
| 2002 03 05 | 704 | 0.7− | 0.8− | 2006 02 06 | 704 | 0.4+ | 0.1− | 2009 12 27 | 691 | 0.1− | 0.1− |

**(228616)∗ 2002 CR$_{35}$**

Discovered 2002 Feb. 7 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 318.68852 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23443380 | $\omega$ | 83.84624 | | −0.75652106 | −0.64794896 | |
| $a$ | 2.6048891 | $\Omega$ | 55.72826 | | +0.54962321 | −0.70331997 | |
| $e$ | 0.1246819 | $i$ | 6.15010 | | +0.35438709 | −0.29240923 | |
| $P$ | 4.20 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1992 11 24 | 691 | 0.0 | 0.6− | 2002 02 22 | 644 | 0.1− | 0.1+ | 2009 11 17 | 691 | 0.2− | 0.2− |
| 1992 11 24 | 691 | 0.4+ | 0.1+ | 2002 03 11 | 644 | 0.1+ | 1.3− | 2009 11 17 | 691 | 0.4− | 0.1− |
| 1992 11 24 | 691 | 0.2− | 0.2− | 2002 03 11 | 644 | 0.2+ | 0.5− | 2009 11 17 | 691 | 0.4− | 0.1− |
| 2002 01 09 | 704 | 0.7+ | 0.7+ | 2002 03 11 | 644 | 0.0 | 1.1− | 2009 11 22 | 691 | 0.2+ | 1.2+ |
| 2002 01 09 | 704 | 0.7+ | 0.7+ | 2002 04 02 | 644 | 0.1+ | 0.5− | 2009 11 22 | 691 | 0.2− | 0.1− |
| 2002 01 09 | 704 | 0.4+ | 0.6+ | 2002 04 02 | 644 | 0.2− | 0.2− | 2009 11 22 | 691 | 0.2− | 0.1+ |
| 2002 02 03 | 644 | 0.1+ | 0.2− | 2002 04 02 | 644 | 0.1+ | 0.5− | 2009 11 26 | 691 | 0.5+ | 0.1+ |
| 2002 02 03 | 644 | 0.1+ | 0.1− | 2006 01 05 | 703 | 0.0 | 0.3− | 2009 11 26 | 691 | 0.1− | 0.1− |
| 2002 02 03 | 644 | 0.0 | 0.1− | 2006 01 05 | 703 | 0.8− | 0.7− | 2009 11 26 | 691 | 0.0 | 0.0 |
| 2002 02 07 | 704 | 0.4− | 0.5+ | 2006 01 05 | 703 | 0.5− | 0.5− | 2009 12 10 | 704 | 0.5+ | 0.2− |
| 2002 02 07 | 704 | 0.4− | 0.1+ | 2006 01 06 | 704 | 0.3+ | 0.3+ | 2009 12 10 | 704 | 0.7+ | 0.2− |
| 2002 02 07 | 704 | 0.0 | 0.4+ | 2006 01 06 | 704 | 0.4+ | 1.1+ | 2009 12 10 | 704 | 0.4+ | 0.0 |
| 2002 02 07 | 704 | 1.1− | 0.7+ | 2006 01 06 | 704 | 0.6+ | 0.6+ | 2009 12 10 | 704 | 0.2− | 0.1+ |
| 2002 02 08 | 704 | (0.7+ | 2.0−) | 2006 01 06 | 704 | 0.4+ | 0.5+ | 2009 12 10 | 704 | 1.1+ | 0.4− |
| 2002 02 08 | 704 | (0.2+ | 1.6−) | 2006 01 06 | 704 | 0.3+ | 0.2+ | 2009 12 11 | G96 | 0.4+ | 0.2− |
| 2002 02 08 | 704 | (1.0+ | 1.9−) | 2006 02 06 | 704 | 0.3− | 0.5− | 2009 12 11 | G96 | 0.3− | 0.2− |
| 2002 02 22 | 644 | 0.1+ | 0.1+ | 2006 02 06 | 704 | 0.3− | 0.3− | 2009 12 11 | G96 | 0.3+ | 0.0 |
| 2002 02 22 | 644 | 0.0 | 0.0 | 2006 02 06 | 704 | 0.4− | 0.0 | 2009 12 11 | G96 | 0.2+ | 0.2− |

**(228617)∗ 2002 CS$_{39}$**

Discovered 2002 Feb. 7 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 76.31736 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.35975622 | $\omega$ | 72.84433 | | +0.91806668 | −0.30997902 | |
| $a$ | 1.9579301 | $\Omega$ | 304.54047 | | +0.13721464 | +0.83330413 | |
| $e$ | 0.1211046 | $i$ | 17.45751 | | +0.37192165 | +0.45773052 | |
| $P$ | 2.74 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 12 17 | 704 | 0.1− | 1.0+ | 2003 07 22 | 599 | 0.2+ | 0.2+ | 2003 09 19 | 704 | 0.6− | 1.2+ |
| 1998 12 17 | 704 | 1.5− | 0.1+ | 2003 07 22 | 599 | 0.0 | 0.6− | 2003 09 19 | 704 | 0.2− | 1.1− |
| 1998 12 17 | 704 | 1.0− | 0.6− | 2003 07 24 | 644 | 0.2− | 0.5+ | 2003 09 19 | 704 | 0.2+ | 0.7− |
| 1998 12 17 | 704 | 0.5+ | 0.5+ | 2003 07 24 | 644 | 0.1− | 0.6+ | 2003 09 19 | 704 | (0.3− | 1.9+) |
| 1998 12 17 | 704 | 1.5+ | 1.2+ | 2003 07 24 | 644 | 0.2− | 0.5+ | 2006 09 23 | 113 | 0.7− | 0.3− |
| 2002 02 07 | 644 | 0.7+ | 0.1− | 2003 07 24 | 599 | 0.1− | 0.5+ | 2006 09 23 | 113 | 0.7− | 0.1− |
| 2002 02 07 | 644 | 0.8+ | 0.1+ | 2003 07 25 | 599 | 0.1− | 0.4+ | 2006 09 23 | 113 | 0.7− | 0.3− |
| 2002 02 07 | 644 | 0.9+ | 0.4+ | 2003 07 25 | 599 | 0.4− | 0.4+ | 2006 11 11 | 704 | 0.5− | 1.0− |
| 2002 02 11 | 608 | 0.4+ | 0.4− | 2003 07 31 | 608 | 0.2− | 1.2− | 2006 11 11 | 704 | 0.1− | 0.1+ |
| 2002 02 11 | 608 | 0.0 | 0.3+ | 2003 07 31 | 608 | 0.0 | 1.4− | 2006 11 11 | 704 | 0.1− | 0.7− |
| 2002 02 11 | 608 | 0.2+ | 0.5+ | 2003 07 31 | 608 | 0.2− | 0.0 | 2006 11 11 | 704 | 0.0 | 0.1+ |
| 2002 02 15 | 704 | 0.2+ | 0.7+ | 2003 08 07 | 704 | 0.1− | 0.1− | 2006 12 11 | 704 | 1.1+ | 0.8+ |
| 2002 02 15 | 704 | 0.3+ | 0.5+ | 2003 08 07 | 704 | 0.1+ | 0.1+ | 2006 12 11 | 704 | 1.3+ | 0.4+ |
| 2002 02 15 | 704 | 1.1+ | 0.8+ | 2003 08 07 | 704 | 0.9− | 0.6− | 2006 12 11 | 704 | 1.3+ | 0.1+ |
| 2002 02 15 | 704 | 0.7+ | 0.9+ | 2003 08 27 | 608 | 1.1− | 1.3+ | 2006 12 11 | 704 | 1.5+ | 0.3+ |
| 2003 07 02 | 704 | 0.0 | 0.0 | 2003 08 27 | 608 | 1.5− | 0.9+ | 2006 12 11 | 704 | 0.6+ | 0.6+ |
| 2003 07 02 | 704 | 0.1+ | 0.6+ | 2003 08 27 | 608 | 1.1− | 0.7+ | 2009 11 16 | 703 | 0.8− | 0.3+ |
| 2003 07 02 | 704 | 0.1− | 0.3+ | 2003 08 28 | 644 | 0.1− | 0.3+ | 2009 11 16 | 703 | 0.1+ | 0.2− |
| 2003 07 02 | 704 | 0.4− | 0.6+ | 2003 08 28 | 644 | 0.1+ | 0.3+ | 2009 11 16 | 703 | 0.7− | 0.4− |
| 2003 07 02 | 704 | 0.0 | 0.2+ | 2003 08 28 | 644 | 0.1+ | 0.3+ | 2009 11 16 | 703 | 0.7+ | 1.0− |
| 2003 07 22 | 599 | 0.0 | 0.4+ | 2003 09 02 | 704 | 0.0 | 0.2− | 2009 12 16 | 703 | 0.3+ | 1.1+ |
| 2003 07 22 | 599 | 0.1+ | 0.2+ | 2003 09 02 | 704 | 0.5+ | 0.2+ | 2009 12 16 | 703 | 0.1+ | 0.4+ |
| 2003 07 22 | 599 | 0.2− | 0.6+ | 2003 09 02 | 704 | 0.4+ | 0.3+ | 2009 12 16 | 703 | 0.2− | 1.4+ |
| 2003 07 22 | 599 | 0.1− | 0.4+ | 2003 09 02 | 704 | 0.7+ | 0.1+ | 2009 12 16 | 703 | 0.4− | 1.4+ |
| 2003 07 22 | 599 | 0.5+ | 1.1+ | 2003 09 19 | 704 | 0.3− | 0.5− | | | | |

**(228618)∗ 2002 CC$_{49}$ = 2005 YT$_{26}$**

Discovered 2002 Feb. 3 by NEAT at Haleakala.

Id. G. V. Williams (*MPO* 94581)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 22.79618 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23584180 | $\omega$ | 85.04960 | | +0.70165020 | −0.71208755 | |
| $a$ | 2.5945111 | $\Omega$ | 320.35200 | | +0.63731081 | +0.64281053 | |
| $e$ | 0.2496777 | $i$ | 2.23341 | | +0.31862507 | +0.28235782 | |
| $P$ | 4.18 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 01 21 | 691 | 0.3+ | 0.1− | 2005 12 28 | G96 | 0.0 | 0.4− | 2007 03 14 | G96 | 0.2+ | 0.8+ |
| 2002 01 21 | 691 | 0.2+ | 0.2− | 2005 12 28 | G96 | 0.2+ | 0.4− | 2009 11 10 | 691 | 0.0 | 0.2+ |
| 2002 01 21 | 691 | 0.4+ | 0.0 | 2005 12 30 | 691 | 0.1+ | 0.0 | 2009 11 10 | 691 | 0.2− | 0.3+ |
| 2002 02 03 | 608 | 1.2− | 0.9− | 2005 12 30 | 691 | 0.4+ | 0.1+ | 2009 11 10 | 691 | 0.1− | 0.2− |
| 2002 02 03 | 608 | 0.8− | 0.4− | 2005 12 30 | 691 | 0.1+ | 0.1− | 2009 11 11 | 704 | 0.5− | 0.7+ |
| 2002 02 03 | 608 | 1.0− | 0.5− | 2005 12 31 | 704 | 0.8+ | 0.1+ | 2009 11 11 | 704 | 1.2− | 0.2+ |
| 2002 02 05 | 644 | 0.3+ | 0.4+ | 2005 12 31 | 704 | 0.1+ | 0.8+ | 2009 11 11 | 704 | 0.1− | 1.1+ |
| 2002 02 05 | 644 | 0.2− | 0.4+ | 2005 12 31 | 704 | 0.0 | 1.0+ | 2009 11 11 | 704 | 0.6− | 0.5− |
| 2002 02 05 | 644 | 0.1+ | 0.2+ | 2005 12 31 | 704 | 0.6+ | 0.1+ | 2009 11 18 | 691 | 0.5− | 0.5− |
| 2002 02 10 | 704 | 0.7+ | 1.2− | 2005 12 31 | 704 | (1.3+ | 2.0+) | 2009 11 18 | 691 | 0.1− | 0.0 |
| 2002 02 10 | 704 | 1.0− | 0.0 | 2006 01 05 | 704 | 0.3− | 0.7− | 2009 11 18 | 691 | 0.3− | 0.1+ |
| 2002 02 10 | 704 | 0.1− | 0.0 | 2006 01 05 | 704 | 0.6+ | 1.2+ | 2009 11 22 | 704 | 0.9+ | 1.1− |
| 2002 02 10 | 704 | 0.5+ | 1.0+ | 2006 01 05 | 704 | 0.0 | 0.0 | 2009 11 22 | 704 | 1.0+ | 1.1− |
| 2002 02 10 | 704 | (1.8+ | 0.9+) | 2006 01 05 | 704 | 0.5+ | 0.6+ | 2009 11 22 | 691 | 0.0 | 0.0 |
| 2002 02 12 | 704 | 0.4− | 0.3+ | 2006 01 07 | 691 | 0.2+ | 0.0 | 2009 11 22 | 704 | 0.4+ | 0.7+ |
| 2002 02 12 | 704 | 0.1− | 1.3− | 2006 01 07 | G96 | 0.3− | 0.4− | 2009 11 22 | 704 | 0.2+ | 0.5− |
| 2002 02 12 | 704 | 0.2− | 0.1+ | 2006 01 07 | G96 | 0.3− | 0.5− | 2009 11 22 | 691 | 0.0 | 0.0 |
| 2002 02 12 | 704 | 0.4+ | 0.0 | 2006 01 07 | G96 | 0.3− | 0.3− | 2009 11 22 | 691 | 0.3− | 0.1+ |
| 2002 02 12 | 704 | 0.3− | 0.7+ | 2006 01 07 | 691 | 0.3− | 0.4+ | 2009 11 25 | J75 | 0.1+ | 0.1− |
| 2002 02 12 | 704 | 0.2+ | 0.2− | 2006 01 07 | 691 | 0.4+ | 0.2− | 2009 11 25 | J75 | 0.5+ | 0.6− |
| 2002 02 12 | 704 | 0.1+ | 0.3+ | 2006 01 23 | G96 | 0.1− | 0.2− | 2009 11 25 | J75 | 0.4+ | 0.1+ |
| 2002 02 12 | 704 | 0.2− | 0.1+ | 2006 01 23 | G96 | 0.0 | 0.2− | 2009 12 10 | 704 | 0.6+ | 1.5+ |
| 2002 02 12 | 704 | 0.0 | 0.0 | 2006 01 23 | G96 | 0.1+ | 0.3− | 2009 12 10 | 704 | 0.7+ | 1.2+ |
| 2005 12 21 | 703 | 0.4− | 0.5− | 2006 01 23 | G96 | 0.2− | 0.3− | 2009 12 10 | 704 | 0.8+ | 1.3+ |
| 2005 12 21 | 703 | 0.3− | 0.6− | 2006 01 24 | 704 | 0.4+ | 1.2+ | 2009 12 10 | 704 | (0.6+ | 1.6+) |
| 2005 12 21 | 703 | 0.3− | 0.8− | 2006 01 24 | 704 | 0.9+ | 1.5+ | 2009 12 10 | 704 | (0.1− | 2.1+) |
| 2005 12 21 | 703 | 0.4− | 0.2+ | 2006 01 24 | 704 | 0.2− | 0.4+ | 2009 12 16 | 704 | 0.2− | 0.0 |
| 2005 12 26 | 691 | 0.1+ | 0.0 | 2006 01 24 | 704 | 0.7+ | 0.7+ | 2009 12 16 | 704 | 0.4+ | 0.5+ |
| 2005 12 26 | 691 | 0.7− | 0.2+ | 2006 01 24 | 704 | 1.2+ | 1.5+ | 2009 12 16 | 704 | 1.3+ | 0.1− |
| 2005 12 26 | 691 | 1.0− | 0.0 | 2006 03 24 | G96 | 0.0 | 0.2− | 2009 12 16 | 704 | 0.1− | 0.3− |
| 2005 12 27 | 703 | 0.2− | 0.8− | 2006 03 24 | G96 | 0.3+ | 0.3− | 2009 12 16 | 704 | 0.9+ | 0.2+ |
| 2005 12 27 | 703 | 0.4− | 0.5− | 2006 03 24 | G96 | 0.1− | 0.2− | 2009 12 18 | G96 | 0.4+ | 0.1− |
| 2005 12 27 | 703 | 0.8− | 0.7− | 2006 03 24 | G96 | 0.3+ | 0.1+ | 2009 12 18 | G96 | 0.3+ | 0.3− |
| 2005 12 27 | 703 | 1.3− | 0.8− | 2007 03 14 | G96 | 0.3− | 0.2+ | 2009 12 18 | G96 | 0.4+ | 0.4− |
| 2005 12 28 | G96 | 0.0 | 0.4− | 2007 03 14 | G96 | 0.1+ | 0.1+ | | | | |
| 2005 12 28 | G96 | 0.1− | 0.4− | 2007 03 14 | G96 | 0.3+ | 0.6+ | | | | |

**(228619)∗ 2002 CE$_{73}$**

Discovered 2002 Feb. 7 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 29.71958 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23817083 | $\omega$ | 85.38381 | | +0.48659694 | −0.87327090 | |
| $a$ | 2.5775692 | $\Omega$ | 335.45010 | | +0.77586941 | +0.44508677 | |
| $e$ | 0.1495233 | $i$ | 3.43954 | | +0.40155956 | +0.19823145 | |
| $P$ | 4.14 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 01 18 | 704 | 0.7+ | 0.4− | 2005 12 29 | 691 | 0.0 | 0.1− | 2006 01 27 | 699 | 0.1+ | 0.2+ |
| 2002 01 18 | 704 | 0.9+ | 0.5− | 2005 12 29 | 691 | 0.0 | 0.1− | 2006 01 27 | 699 | 0.8− | 0.4− |
| 2002 01 18 | 704 | 0.7+ | 1.0− | 2005 12 29 | 691 | 0.1− | 0.1+ | 2006 01 27 | 699 | 1.1− | 1.2+ |
| 2002 01 22 | 691 | 0.1+ | 0.1+ | 2005 12 30 | 699 | 0.1+ | 0.2+ | 2006 01 27 | 699 | 1.0− | 0.5− |
| 2002 01 22 | 691 | 0.4+ | 0.3+ | 2005 12 30 | 699 | 0.2+ | 0.3+ | 2006 02 06 | 691 | 0.1+ | 0.0 |
| 2002 01 22 | 691 | 0.2+ | 0.3+ | 2005 12 30 | 699 | (1.7− | 0.2+) | 2006 02 06 | 691 | 0.0 | 0.0 |
| 2002 02 06 | 695 | 0.2+ | 0.3+ | 2005 12 30 | 699 | 0.4+ | 0.1− | 2006 02 06 | 691 | 0.3+ | 0.2+ |
| 2002 02 06 | 695 | 0.3− | 0.0 | 2005 12 30 | G96 | 0.6− | 0.3− | 2006 02 07 | G96 | 0.4− | 0.6− |
| 2002 02 07 | 704 | 0.2+ | 0.8+ | 2005 12 30 | G96 | 0.4+ | 0.4− | 2006 02 07 | G96 | 0.2+ | 0.0 |
| 2002 02 07 | 704 | (1.6+ | 1.7+) | 2005 12 30 | G96 | 0.0 | 0.1− | 2006 02 07 | G96 | 0.4+ | 0.6− |
| 2002 02 07 | 704 | 1.1− | 0.4+ | 2005 12 30 | G96 | 0.2− | 0.2− | 2006 02 07 | G96 | 0.5− | 0.0 |
| 2002 02 07 | 704 | 0.2− | 0.4+ | 2006 01 05 | 699 | 1.2− | 0.9− | 2006 02 23 | G96 | 0.5− | 0.1+ |
| 2002 02 07 | 704 | 0.1− | 0.5+ | 2006 01 05 | 699 | 0.5− | 0.4+ | 2006 02 23 | G96 | 0.1− | 0.4+ |
| 2002 02 10 | 704 | 0.2+ | 0.2+ | 2006 01 05 | 699 | 0.7+ | 0.3+ | 2006 02 23 | G96 | 0.3− | 0.1− |
| 2002 02 10 | 704 | 0.6+ | 0.2+ | 2006 01 05 | 704 | 0.2+ | 0.8+ | 2006 02 23 | G96 | 0.1+ | 0.3− |
| 2002 02 10 | 704 | 0.6+ | 0.0 | 2006 01 05 | 699 | 0.8− | 0.0 | 2006 03 24 | G96 | 0.8− | 0.2− |
| 2002 02 10 | 704 | 0.6− | 0.8− | 2006 01 05 | 704 | 1.0+ | 1.0− | 2006 03 24 | G96 | 0.2− | 0.1+ |
| 2002 02 12 | 704 | 0.3− | 0.1− | 2006 01 05 | 704 | 0.5+ | 0.5+ | 2006 03 24 | G96 | 0.0 | 0.1+ |
| 2002 02 12 | 704 | 0.1+ | 0.3− | 2006 01 05 | 704 | 0.3+ | 0.8+ | 2006 03 24 | G96 | 0.2− | 0.1− |
| 2002 02 12 | 704 | 0.3− | 0.2+ | 2006 01 05 | 704 | 0.1+ | 1.0+ | 2006 04 20 | G96 | 0.4+ | 0.3+ |
| 2002 02 12 | 704 | 0.3− | 0.3− | 2006 01 22 | 691 | 0.0 | 0.0 | 2006 04 20 | G96 | 0.9+ | 0.5+ |
| 2002 02 12 | 704 | 0.3− | 0.2+ | 2006 01 22 | 691 | 0.2+ | 0.1+ | 2006 04 20 | G96 | 0.4− | 0.4− |
| 2002 02 20 | 704 | 0.5− | 0.1− | 2006 01 22 | 691 | 0.1+ | 0.2+ | 2006 04 20 | G96 | 0.3− | 0.4+ |
| 2002 02 20 | 704 | 0.2+ | 0.4+ | 2006 01 24 | 703 | 0.6− | 0.3− | 2009 10 14 | G96 | 0.0 | 0.1− |
| 2002 02 20 | 704 | 0.4+ | 0.5+ | 2006 01 24 | 703 | 0.7− | 1.4− | 2009 10 14 | G96 | 0.2+ | 0.1+ |
| 2004 08 21 | E12 | 0.8− | 0.2+ | 2006 01 24 | 703 | 0.7− | 0.2+ | 2009 10 14 | G96 | 0.1− | 0.0 |
| 2004 08 21 | E12 | 0.7− | 0.3− | 2006 01 24 | 703 | 0.6− | 0.8+ | 2009 10 14 | G96 | 0.2− | 0.0 |
| 2004 08 21 | E12 | 0.0 | 0.3+ | 2006 01 27 | G96 | 0.2− | 0.4− | 2009 12 10 | 704 | (0.0 | 2.8+) |
| 2004 08 21 | E12 | 0.1− | 0.4+ | 2006 01 27 | G96 | 0.2− | 0.5− | 2009 12 10 | 704 | (0.5− | 3.7+) |
| 2004 09 12 | 691 | 0.4+ | 0.1+ | 2006 01 27 | G96 | 0.3− | 0.6− | 2009 12 10 | 704 | 0.5+ | 0.2+ |
| 2004 09 12 | 691 | 0.1− | 0.1+ | 2006 01 27 | G96 | 0.3− | 0.5− | 2009 12 10 | 704 | 0.3+ | 1.1− |
| 2004 09 12 | 691 | 0.3− | 0.4+ | 2006 01 27 | 699 | 1.3+ | 0.3− | 2009 12 19 | 691 | 0.4− | 0.2− |
| 2005 10 11 | 691 | 0.1+ | 0.1− | 2006 01 27 | 699 | 0.5− | 0.3− | 2009 12 19 | 691 | 0.5+ | 0.2+ |
| 2005 10 11 | 691 | 0.1− | 0.3+ | 2006 01 27 | 699 | 1.0+ | 1.2− | 2009 12 19 | 691 | 0.1− | 0.0 |
| 2005 10 11 | 691 | 0.1+ | 0.0 | 2006 01 27 | 699 | 0.7+ | 1.2+ | | | | |

**(228620)∗ 2002 CA$_{75}$**

Discovered 2002 Feb. 7 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 32.43123 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24010893 | $\omega$ | 94.67798 | | +0.46631588 | −0.88357968 | |
| $a$ | 2.5636802 | $\Omega$ | 327.41630 | | +0.77680505 | +0.43217952 | |
| $e$ | 0.1873271 | $i$ | 4.56416 | | +0.42322974 | +0.18029924 | |
| $P$ | 4.10 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 09 06 | 691 | 0.5− | 0.4+ | 2002 02 12 | 704 | 0.4+ | 0.4− | 2006 01 25 | 691 | 0.0 | 0.3+ |
| 1996 09 06 | 691 | 0.1− | 0.1+ | 2002 02 12 | 704 | 0.7+ | 0.2+ | 2006 01 26 | 703 | 0.3+ | 1.0− |
| 1996 09 06 | 691 | 0.0 | 0.5+ | 2002 02 12 | 704 | 0.5− | 0.4+ | 2006 01 26 | 703 | 0.1+ | 0.2− |
| 2002 01 07 | 691 | 0.4− | 0.2+ | 2002 02 20 | 704 | 0.5− | 1.0− | 2006 01 26 | 703 | 0.2− | 0.5− |
| 2002 01 07 | 691 | 0.4− | 0.2+ | 2002 02 20 | 704 | 0.5− | 0.5+ | 2006 01 26 | 703 | 0.3− | 0.6− |
| 2002 01 07 | 691 | 0.1− | 0.3+ | 2002 02 20 | 704 | (0.4− | 1.8−) | 2006 01 30 | 691 | 0.2− | 0.2− |
| 2002 01 14 | 704 | 1.2+ | 0.8− | 2002 02 20 | 704 | 0.2− | 0.8− | 2006 01 30 | 691 | 0.6− | 0.6+ |
| 2002 01 14 | 704 | 1.0+ | 1.2− | 2004 08 12 | 704 | 1.0− | 1.3+ | 2006 01 30 | 691 | 0.0 | 0.3− |
| 2002 01 14 | 704 | 1.1+ | 0.4− | 2004 08 12 | 704 | 0.1+ | 0.2− | 2006 03 04 | G96 | 0.0 | 0.1− |
| 2002 01 14 | 704 | 1.0+ | 0.7− | 2004 08 12 | 704 | 0.1+ | 0.5+ | 2006 03 04 | G96 | 0.2− | 0.1+ |
| 2002 01 14 | 704 | 0.7+ | 0.8− | 2004 08 12 | 704 | 0.2− | 1.3+ | 2006 03 04 | G96 | 0.0 | 0.1− |
| 2002 02 05 | 644 | 0.2+ | 0.1− | 2005 12 28 | 703 | 0.4− | 0.6+ | 2006 03 04 | G96 | 0.2+ | 0.2+ |
| 2002 02 05 | 644 | 0.3+ | 0.5+ | 2005 12 28 | 703 | 0.0 | 0.1+ | 2009 11 17 | 704 | 0.6+ | 1.0− |
| 2002 02 05 | 644 | 0.8+ | 0.3+ | 2005 12 28 | 703 | (1.5− | 0.4+) | 2009 11 17 | 704 | 0.3− | 0.5+ |
| 2002 02 07 | 291 | 0.3+ | 0.1+ | 2005 12 28 | 703 | (1.6− | 1.6+) | 2009 11 17 | 704 | 0.3+ | 0.2− |
| 2002 02 07 | 291 | 0.4+ | 0.4+ | 2005 12 30 | 691 | 0.2+ | 0.2+ | 2009 11 17 | 704 | 0.0 | 0.5+ |
| 2002 02 07 | 291 | 0.5− | 0.1+ | 2005 12 30 | 691 | 0.1+ | 0.1+ | 2009 11 21 | G96 | 0.1− | 0.3− |
| 2002 02 07 | 704 | 0.2+ | 0.8+ | 2005 12 30 | 691 | 0.3+ | 0.1+ | 2009 11 21 | G96 | 0.2− | 0.4− |
| 2002 02 07 | 704 | 0.7+ | 0.5+ | 2006 01 08 | 691 | 0.1+ | 0.0 | 2009 11 21 | G96 | 0.1+ | 0.2− |
| 2002 02 07 | 704 | 0.6+ | 1.3+ | 2006 01 08 | 691 | 0.3+ | 0.2− | 2009 11 21 | G96 | 0.5+ | 0.5− |
| 2002 02 07 | 704 | 0.7+ | 0.2+ | 2006 01 08 | 691 | 0.2+ | 0.2− | 2009 12 18 | G96 | 0.0 | 0.4− |
| 2002 02 10 | 704 | 0.7− | 0.6+ | 2006 01 22 | G96 | 0.0 | 0.3− | 2009 12 18 | G96 | 0.2+ | 0.2− |
| 2002 02 10 | 704 | 0.5− | 1.1+ | 2006 01 22 | G96 | 0.0 | 0.4− | 2009 12 18 | G96 | 0.1− | 0.2− |
| 2002 02 10 | 704 | 0.4− | 1.4+ | 2006 01 22 | G96 | 0.4− | 0.5− | 2009 12 18 | G96 | 0.0 | 0.4− |
| 2002 02 10 | 704 | 0.0 | 0.9+ | 2006 01 22 | G96 | 0.2− | 0.5− | 2009 12 19 | 691 | 0.3− | 0.1− |
| 2002 02 10 | 704 | 0.8− | 1.3+ | 2006 01 25 | 691 | 0.2+ | 0.1+ | 2009 12 19 | 691 | 0.1− | 0.1− |
| 2002 02 12 | 704 | 0.4+ | 0.2− | 2006 01 25 | 691 | 0.1+ | 0.2+ | 2009 12 19 | 691 | 0.2− | 0.1+ |

**(228621)∗ 2002 CT$_{82}$**

Discovered 2002 Feb. 7 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 323.91724 | | | (2000.0) | | |
| $n$ | 0.23386191 | $\omega$ | 117.80534 | | −0.71126781 | −0.70277999 |
| $a$ | 2.6091340 | $\Omega$ | 17.55655 | | +0.62737440 | −0.64373348 |
| $e$ | 0.1491072 | $i$ | 2.67629 | | +0.31701650 | −0.30283244 |
| $P$ | 4.21 | $H$ | 16.2 | $G$ 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 02 07 | 704 | 0.2− | 0.3+ | 2002 02 24 | 644 | 0.1− | 0.4+ | 2006 01 10 | G96 | 0.2− | 0.9− |
| 2002 02 07 | 704 | 0.3− | 0.0 | 2002 02 24 | 644 | 0.0 | 0.4+ | 2006 01 10 | G96 | 0.1− | 0.8− |
| 2002 02 07 | 704 | 0.2− | 0.1− | 2002 03 12 | 644 | 0.4− | 0.1+ | 2006 01 10 | G96 | 0.1− | 0.7− |
| 2002 02 07 | 704 | 0.2+ | 0.4+ | 2002 03 12 | 644 | 0.1− | 0.2+ | 2006 01 10 | G96 | 0.4− | 0.8− |
| 2002 02 07 | 704 | 0.1+ | 0.4+ | 2002 03 12 | 644 | 0.1− | 0.2+ | 2006 01 10 | 691 | 0.4− | 0.1− |
| 2002 02 07 | 608 | 0.5− | 0.3− | 2002 03 14 | 704 | 0.7+ | 0.4+ | 2006 01 10 | 691 | 0.2− | 0.1− |
| 2002 02 07 | 608 | 1.2− | 0.4− | 2002 03 14 | 704 | 0.0 | 0.6+ | 2006 01 10 | 691 | 0.2− | 0.1− |
| 2002 02 07 | 608 | 0.8− | 0.1− | 2002 03 14 | 704 | 0.2+ | 0.1+ | 2006 01 24 | 703 | 0.1− | 0.8− |
| 2002 02 10 | 704 | 0.9+ | 0.5+ | 2002 03 14 | 704 | 0.1− | 0.3+ | 2006 01 24 | 703 | 0.4− | 1.0− |
| 2002 02 10 | 704 | 1.0+ | 0.2− | 2002 03 14 | 704 | 0.2+ | 0.5+ | 2006 01 24 | 703 | 0.2− | 0.6− |
| 2002 02 10 | 704 | 1.2+ | 0.4− | 2002 03 16 | 704 | 0.4+ | 0.9+ | 2006 01 24 | 703 | 0.8− | 0.7+ |
| 2002 02 10 | 704 | 1.0+ | 0.5+ | 2002 03 16 | 704 | 0.5+ | 0.4+ | 2006 01 26 | G96 | 0.1+ | 0.8− |
| 2002 02 10 | 704 | 0.7+ | 0.2− | 2002 03 16 | 704 | 0.6+ | 0.5+ | 2006 01 26 | G96 | 0.6− | 0.3− |
| 2002 02 12 | 704 | (0.1+ | 1.5+) | 2002 03 16 | 704 | 0.1+ | 0.1+ | 2006 01 26 | G96 | 0.7− | 0.2− |
| 2002 02 12 | 704 | 0.5+ | 1.1+ | 2002 03 16 | 704 | 0.2+ | 0.3+ | 2006 01 26 | G96 | 0.8− | 0.2− |
| 2002 02 12 | 704 | 0.5+ | 1.2+ | 2004 09 15 | 691 | 0.1− | 0.3+ | 2006 03 26 | G96 | 0.4− | 0.1− |
| 2002 02 12 | 704 | 0.5+ | 1.0+ | 2004 09 15 | 691 | 0.1− | 0.5+ | 2006 03 26 | G96 | 0.3− | 0.1− |
| 2002 02 15 | 704 | 1.1+ | 1.0+ | 2004 09 15 | 691 | 0.2− | 0.1+ | 2006 03 26 | G96 | 0.8− | 0.1− |
| 2002 02 15 | 704 | 1.0+ | 0.8+ | 2004 09 16 | 691 | 0.1− | 0.3+ | 2006 03 26 | G96 | 0.3+ | 0.0 |
| 2002 02 15 | 704 | 1.4+ | 1.1+ | 2004 09 16 | 691 | 0.1− | 0.4+ | 2008 07 30 | 691 | 0.1+ | 0.7+ |
| 2002 02 15 | 704 | (1.2+ | 1.7+) | 2004 09 16 | 691 | 0.0 | 0.5+ | 2008 07 30 | 691 | 0.1− | 0.7+ |
| 2002 02 15 | 704 | 0.7+ | 0.8+ | 2005 12 27 | 703 | 0.0 | 0.3+ | 2008 07 30 | 691 | 1.2− | 0.7− |
| 2002 02 16 | 644 | 0.1− | 0.8+ | 2005 12 27 | 703 | 0.6− | 0.7− | 2009 11 09 | 691 | 0.1+ | 0.0 |
| 2002 02 16 | 644 | 0.1− | 0.3+ | 2005 12 27 | 703 | 0.7− | 0.2+ | 2009 11 09 | 691 | 0.2+ | 0.1− |
| 2002 02 16 | 644 | 0.2+ | 0.9+ | 2005 12 27 | 703 | 0.4− | 0.2+ | 2009 11 09 | 691 | 0.3− | 0.1− |
| 2002 02 16 | 644 | 0.0 | 0.3+ | 2005 12 29 | 704 | (1.6− | 0.7+) | 2009 12 10 | 704 | 0.9+ | 0.4+ |
| 2002 02 16 | 644 | 0.2+ | 0.7+ | 2005 12 29 | 704 | 0.8− | 0.6+ | 2009 12 10 | 704 | (1.5+ | 0.4+) |
| 2002 02 16 | 644 | 0.2− | 0.1+ | 2005 12 29 | 704 | 0.2− | 0.1+ | 2009 12 10 | 704 | 1.4+ | 1.4+ |
| 2002 02 20 | 704 | 0.6+ | 0.4− | 2005 12 29 | 704 | 0.3+ | 0.0 | 2009 12 10 | 704 | 0.4+ | 0.4+ |
| 2002 02 20 | 704 | 0.4+ | 0.3− | 2005 12 29 | 704 | 0.4+ | 0.4− | 2009 12 11 | G96 | 0.1+ | 0.1− |
| 2002 02 20 | 704 | 0.5+ | 0.1− | 2006 01 05 | 704 | 0.1+ | 0.7+ | 2009 12 11 | G96 | 0.0 | 0.3− |
| 2002 02 20 | 704 | 0.4+ | 0.1− | 2006 01 05 | 704 | 0.0 | 0.1+ | 2009 12 11 | G96 | 0.3+ | 0.2− |
| 2002 02 20 | 704 | 0.5+ | 0.3− | 2006 01 05 | 704 | 0.2− | 0.5+ | 2009 12 11 | G96 | 0.2+ | 0.2− |
| 2002 02 20 | 699 | 0.2+ | 0.4− | 2006 01 05 | 704 | 0.2+ | 0.4+ | 2009 12 16 | 704 | 0.3+ | 2.1+ |
| 2002 02 20 | 699 | 0.1− | 0.0 | 2006 01 05 | 704 | 0.9+ | 0.3+ | 2009 12 16 | 704 | 0.8+ | 0.6+ |
| 2002 02 20 | 699 | 0.8− | 0.1− | 2006 01 06 | 691 | 0.3− | 0.2− | 2009 12 16 | 704 | 1.7+ | 0.3− |
| 2002 02 20 | 699 | 0.4+ | 0.1+ | 2006 01 06 | 691 | 0.1− | 0.2− | | | | |
| 2002 02 24 | 644 | 0.4− | 0.0 | 2006 01 06 | 691 | 0.2− | 0.0 | | | | |

**(228622)∗ 2002 CR$_{97}$**

Discovered 2002 Feb. 7 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 352.65681 | | | (2000.0) | | |
| $n$ | 0.23700105 | $\omega$ | 352.53916 | | −0.38079641 | −0.92333839 |
| $a$ | 2.5860437 | $\Omega$ | 119.83253 | | +0.85127213 | −0.37093178 |
| $e$ | 0.1697158 | $i$ | 3.26452 | | +0.36101226 | −0.09927655 |
| $P$ | 4.16 | $H$ | 16.3 | $G$ 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 03 20 | 704 | (1.2− | 3.0−) | 2002 04 02 | 644 | 0.0 | 0.7+ | 2006 01 24 | 691 | 0.3+ | 0.2+ |
| 1998 03 20 | 704 | (0.5− | 2.1+) | 2002 04 02 | 644 | 0.1− | 0.5+ | 2006 01 24 | 691 | 0.2+ | 0.2+ |
| 1998 03 20 | 704 | 1.1− | 1.2+ | 2002 04 02 | 644 | (0.7− | 1.8+) | 2006 01 24 | 704 | 0.5+ | 0.1− |
| 1998 03 20 | 704 | (6.4− | 0.4+) | 2004 09 11 | 691 | 0.2− | 0.4+ | 2006 01 24 | 704 | 0.6+ | 0.1− |
| 1998 03 24 | 704 | 1.4+ | 1.1− | 2004 09 11 | 691 | 0.4− | 0.7+ | 2006 01 24 | 704 | 0.5+ | 0.3− |
| 1998 03 24 | 704 | 0.3− | 0.3+ | 2004 09 11 | 691 | 0.5− | 0.6+ | 2006 01 24 | 704 | 1.1+ | 0.5+ |
| 1998 03 24 | 704 | 0.4+ | 1.7− | 2004 09 23 | 691 | 0.1− | 0.2+ | 2006 01 24 | 704 | 0.7+ | 0.7+ |
| 1998 03 24 | 704 | 0.3+ | 1.1− | 2004 09 23 | 691 | 0.2− | 0.3+ | 2006 01 27 | 691 | 0.0 | 0.0 |
| 2002 02 07 | 704 | (0.4− | 2.4+) | 2004 09 23 | 691 | 0.0 | 0.5+ | 2006 01 27 | 691 | 0.2+ | 0.1+ |
| 2002 02 07 | 704 | (0.5− | 1.9+) | 2004 10 10 | 691 | 0.1− | 0.4+ | 2006 01 27 | 691 | 0.1− | 0.0 |
| 2002 02 07 | 704 | 0.7− | 1.4+ | 2004 10 10 | 691 | 0.0 | 0.6+ | 2006 01 27 | 704 | 0.0 | 1.0+ |
| 2002 02 07 | 704 | (0.4− | 1.7+) | 2004 10 10 | 691 | 0.1+ | 0.7+ | 2006 01 27 | 704 | 0.0 | 0.3− |
| 2002 02 07 | 704 | (0.1+ | 2.6+) | 2005 10 28 | G96 | 0.2− | 0.0 | 2006 01 27 | 704 | 0.6− | 0.6+ |
| 2002 02 08 | 695 | 0.6− | 0.3+ | 2005 10 28 | G96 | 0.2− | 0.1− | 2006 01 27 | 704 | 0.5− | 0.2+ |
| 2002 02 08 | 695 | 0.3− | 0.2+ | 2005 10 28 | G96 | 0.4− | 0.1+ | 2006 01 27 | 704 | 0.3− | 0.5− |
| 2002 02 10 | 704 | 0.4− | 0.9+ | 2005 10 28 | G96 | 0.4+ | 0.1+ | 2006 01 27 | 704 | 0.1− | 0.1− |
| 2002 02 10 | 704 | 0.8+ | 0.8+ | 2005 12 06 | G96 | 0.2− | 0.6− | 2006 01 27 | 704 | 0.1− | 0.2+ |
| 2002 02 10 | 704 | 0.3+ | 0.5+ | 2005 12 06 | G96 | 0.0 | 0.2− | 2006 01 27 | 704 | 0.3+ | 0.6+ |
| 2002 02 10 | 704 | 0.4− | 0.8+ | 2005 12 06 | G96 | 0.0 | 0.3− | 2006 01 27 | 704 | 0.4+ | 0.4+ |
| 2002 02 10 | 704 | 0.2− | 0.4+ | 2005 12 06 | G96 | 0.2+ | 0.2− | 2006 01 27 | 699 | 0.4− | 0.6− |
| 2002 02 12 | 704 | 1.4+ | 0.5+ | 2005 12 25 | G96 | 0.1− | 0.3− | 2006 01 27 | 704 | 1.3+ | 0.5+ |
| 2002 02 12 | 704 | 0.7+ | 0.9+ | 2005 12 25 | G96 | 0.4− | 0.3− | 2006 01 27 | 699 | 0.3− | 0.1+ |
| 2002 02 12 | 704 | 1.3+ | 0.6+ | 2005 12 25 | G96 | 0.2− | 0.4− | 2006 01 27 | 699 | 0.2− | 0.7+ |
| 2002 02 12 | 704 | 0.5+ | 1.0+ | 2005 12 25 | G96 | 1.1− | 0.5− | 2006 01 27 | 699 | 0.1− | 0.5+ |
| 2002 02 19 | 691 | 0.0 | 0.2+ | 2006 01 05 | G96 | 0.1− | 0.3+ | 2006 02 02 | 691 | 0.2+ | 0.1+ |
| 2002 02 19 | 691 | 0.6+ | 0.3+ | 2006 01 05 | G96 | 0.3+ | 0.0 | 2006 02 02 | 691 | 0.1+ | 0.1+ |
| 2002 02 19 | 691 | 0.1− | 0.1+ | 2006 01 05 | G96 | 0.1− | 0.3− | 2006 02 02 | 691 | 0.2+ | 0.1+ |
| 2002 02 20 | 704 | 0.2− | 0.2+ | 2006 01 05 | G96 | 0.3− | 0.3− | 2006 02 02 | 703 | 0.1− | 0.2− |
| 2002 02 20 | 704 | 0.1− | 0.4+ | 2006 01 05 | 699 | 0.3+ | 0.5+ | 2006 02 02 | 703 | 0.1− | 0.1− |
| 2002 02 20 | 704 | 0.0 | 0.4+ | 2006 01 05 | 699 | (0.1− | 1.9+) | 2006 02 02 | 703 | 1.1− | 0.1− |
| 2002 02 20 | 704 | 0.3+ | 0.8+ | 2006 01 05 | 699 | (0.1− | 2.4+) | 2006 02 02 | 703 | 0.1− | 0.2+ |
| 2002 02 20 | 704 | 0.1+ | 0.7+ | 2006 01 05 | 699 | 0.2− | 0.5− | 2008 09 24 | G96 | 0.4− | 0.2− |
| 2002 02 22 | 644 | 0.6− | 0.0 | 2006 01 07 | G96 | 0.5− | 0.3− | 2008 09 24 | G96 | 0.1− | 0.1− |
| 2002 02 22 | 644 | 0.5− | 0.2+ | 2006 01 07 | G96 | 0.3− | 0.3− | 2008 09 24 | G96 | 0.1+ | 0.0 |
| 2002 02 22 | 644 | 0.8− | 0.0 | 2006 01 07 | G96 | 0.1− | 0.3− | 2008 09 24 | G96 | 0.6− | 0.1− |
| 2002 02 24 | 644 | 0.1+ | 0.1+ | 2006 01 07 | G96 | 0.1+ | 0.4− | 2009 12 16 | 691 | 0.4− | 0.1− |
| 2002 02 24 | 644 | 0.4+ | 0.6+ | 2006 01 10 | 691 | 0.2− | 0.2− | 2009 12 16 | 691 | 0.0 | 0.3− |
| 2002 02 24 | 644 | 0.3+ | 0.2+ | 2006 01 10 | 703 | (1.8− | 0.3+) | 2009 12 16 | 691 | 0.0 | 0.3− |
| 2002 03 09 | 704 | 0.6− | 1.4+ | 2006 01 10 | 703 | 0.7− | 1.2+ | 2009 12 16 | G96 | 0.3+ | 0.3− |
| 2002 03 09 | 704 | 1.4− | 1.4+ | 2006 01 10 | 691 | 0.1+ | 0.1+ | 2009 12 16 | G96 | 0.0 | 0.4− |
| 2002 03 09 | 704 | 0.5+ | 0.3+ | 2006 01 10 | 703 | 0.9+ | 1.0+ | 2009 12 16 | G96 | 0.2+ | 0.4− |
| 2002 03 09 | 704 | 0.5+ | 0.5+ | 2006 01 10 | 703 | 0.0 | 0.2− | 2009 12 16 | G96 | 0.1− | 0.4− |
| 2002 03 12 | 644 | 0.1+ | 0.5− | 2006 01 10 | 691 | 0.1− | 0.1− | 2009 12 16 | G96 | 0.2+ | 0.3− |
| 2002 03 12 | 644 | 0.0 | 0.5− | 2006 01 20 | 691 | 0.0 | 0.0 | 2009 12 17 | 704 | 0.2− | 0.1+ |
| 2002 03 12 | 644 | 0.1− | 0.5− | 2006 01 20 | 691 | 0.2+ | 0.1− | 2009 12 17 | 704 | 0.3− | 0.8− |
| 2002 03 16 | 704 | (0.5− | 2.3+) | 2006 01 20 | 691 | 0.1− | 0.1− | 2009 12 17 | 704 | 0.5− | 0.6− |
| 2002 03 16 | 704 | (0.2+ | 1.5+) | 2006 01 23 | G96 | 0.2− | 0.1− | 2009 12 17 | 704 | 0.2− | 0.3+ |
| 2002 03 16 | 704 | (0.2− | 1.8+) | 2006 01 23 | G96 | 0.3+ | 0.2− | 2009 12 25 | 691 | 0.5+ | 0.2+ |
| 2002 03 16 | 704 | (0.2− | 1.8+) | 2006 01 23 | G96 | 0.1− | 0.1− | 2009 12 25 | 691 | 0.1− | 0.3− |
| 2002 03 16 | 704 | (0.2+ | 1.9+) | 2006 01 24 | 691 | 0.2+ | 0.4− | 2009 12 25 | 691 | 0.1− | 0.1− |

**(228623)∗ 2002 CO$_{102}$**

Discovered 2002 Feb. 7 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 267.13825 | | | (2000.0) | | |
| $n$ | 0.22615929 | $\omega$ | 57.72391 | | −0.97600735 | +0.21103020 |
| $a$ | 2.6680446 | $\Omega$ | 134.39575 | | −0.21633994 | −0.91200810 |
| $e$ | 0.1404218 | $i$ | 4.30429 | | −0.02463104 | −0.35172075 |
| $P$ | 4.36 | $H$ | 15.9 | $G$ 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 02 07 | 704 | 0.2+ | 0.4− | 2002 03 20 | 699 | 0.6− | 0.2+ | 2006 02 20 | G96 | 0.1+ | 0.4− |
| 2002 02 07 | 704 | 0.3+ | 0.1+ | 2002 03 20 | 699 | 0.1+ | 0.3− | 2006 03 23 | G96 | 0.6− | 0.1− |
| 2002 02 07 | 704 | 0.1+ | 0.8− | 2002 03 22 | 644 | 0.5+ | 0.2+ | 2006 03 23 | G96 | 0.0 | 0.1− |
| 2002 02 10 | 704 | 0.2+ | 0.4− | 2002 03 22 | 644 | 0.7+ | 0.4+ | 2006 03 23 | G96 | 0.0 | 0.0 |
| 2002 02 10 | 704 | (0.7+ | 1.6−) | 2002 03 22 | 644 | 0.3+ | 0.3+ | 2006 03 23 | G96 | 0.1− | 0.2+ |
| 2002 02 10 | 704 | 0.6+ | 1.4− | 2002 04 02 | 644 | 0.9+ | 0.6+ | 2006 04 20 | G96 | 0.3− | 0.1+ |
| 2002 02 10 | 704 | 0.5+ | 1.0− | 2002 04 02 | 644 | 0.2+ | 0.4+ | 2006 04 20 | G96 | 1.0− | 0.4+ |
| 2002 02 10 | 704 | 0.1+ | 1.4− | 2002 04 02 | 644 | 1.1+ | 0.2+ | 2006 04 20 | G96 | 0.0 | 0.1− |
| 2002 02 13 | 704 | 1.1+ | 1.2+ | 2002 04 11 | 699 | 1.1+ | 0.5− | 2006 04 20 | G96 | 0.0 | 0.1− |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 02 13 | 704 | 0.3+ | 0.4+ | 2002 04 11 | 699 | 0.5+ | 0.2− | 2008 09 04 | 691 | 0.1− | 0.2+ |
| 2002 02 13 | 704 | (2.1+ | 1.3+) | 2002 04 11 | 699 | 0.3+ | 0.0 | 2008 09 04 | 691 | 0.3+ | 0.6+ |
| 2002 02 20 | 704 | 0.1+ | 0.5+ | 2002 04 11 | 699 | 1.3+ | 0.0 | 2008 09 04 | 691 | 0.2+ | 0.6+ |
| 2002 02 20 | 704 | 0.0 | 0.7+ | 2005 12 24 | 691 | 0.1+ | 0.1− | 2008 09 06 | 703 | 0.5+ | 0.1+ |
| 2002 02 20 | 704 | 0.6+ | 1.2+ | 2005 12 24 | 691 | 0.1+ | 0.2− | 2008 09 06 | 703 | (1.9+ | 0.9+) |
| 2002 02 20 | 704 | 1.0+ | 0.6+ | 2005 12 24 | 691 | 0.1+ | 0.2− | 2008 09 06 | 703 | 0.9+ | 0.9− |
| 2002 02 20 | 704 | (0.7+ | 1.5+) | 2006 01 05 | 691 | 0.2− | 0.1− | 2008 09 06 | 703 | 0.4− | 0.3− |
| 2002 02 24 | 644 | 0.3+ | 1.5+ | 2006 01 05 | 691 | 0.1− | 0.1+ | 2008 09 08 | 691 | 0.9− | 1.0+ |
| 2002 02 24 | 644 | 0.6+ | 0.8+ | 2006 01 05 | 691 | 0.0 | 0.1+ | 2008 09 08 | 691 | 0.9− | 0.0 |
| 2002 02 24 | 644 | (0.4+ | 1.6+) | 2006 01 07 | 704 | 0.1− | 1.0+ | 2008 09 08 | 691 | 0.8− | 0.2+ |
| 2002 03 04 | 106 | (0.3+ | 1.5+) | 2006 01 07 | 704 | 0.5+ | 0.9+ | 2008 09 22 | G96 | 0.3+ | 0.3+ |
| 2002 03 04 | 106 | (0.6− | 1.6+) | 2006 01 07 | 704 | 0.2− | 0.6+ | 2008 09 22 | G96 | 0.9+ | 0.5+ |
| 2002 03 04 | 106 | 0.2+ | 1.0+ | 2006 01 07 | 704 | 0.3− | 0.6+ | 2008 09 22 | G96 | 0.9+ | 0.1+ |
| 2002 03 09 | 704 | 0.7+ | 0.5− | 2006 01 09 | G96 | 0.1− | 0.6− | 2008 09 22 | G96 | 0.1+ | 0.4+ |
| 2002 03 09 | 704 | 0.8+ | 0.9− | 2006 01 09 | G96 | 0.5− | 0.5− | 2008 09 25 | G96 | 0.0 | 0.3− |
| 2002 03 09 | 704 | 0.3+ | 0.4− | 2006 01 09 | 691 | 0.2− | 0.1− | 2008 09 25 | G96 | 0.3+ | 0.2− |
| 2002 03 09 | 704 | 0.9+ | 0.2− | 2006 01 09 | G96 | 0.1− | 0.6− | 2008 09 25 | G96 | 0.6+ | 0.1+ |
| 2002 03 09 | 704 | 0.7+ | 0.5+ | 2006 01 09 | G96 | 0.3− | 0.5− | 2008 09 25 | G96 | 0.3− | 0.0 |
| 2002 03 12 | 645 | 0.2− | 0.1− | 2006 01 09 | 691 | 0.2− | 0.2+ | 2008 10 07 | G96 | 0.3+ | 0.4+ |
| 2002 03 12 | 645 | 0.2− | 0.1− | 2006 01 09 | 691 | 0.0 | 0.0 | 2008 10 07 | G96 | 0.8+ | 0.5+ |
| 2002 03 12 | 644 | 0.5+ | 0.1+ | 2006 01 20 | 699 | 0.5− | 0.0 | 2008 10 07 | G96 | 0.2+ | 0.6+ |
| 2002 03 12 | 644 | 0.6+ | 0.1+ | 2006 01 20 | 699 | 1.0+ | 0.2+ | 2008 10 07 | G96 | 0.4− | 0.3− |
| 2002 03 12 | 644 | 0.5+ | 0.0 | 2006 01 20 | 699 | 0.6+ | 0.5+ | 2009 11 20 | G96 | 0.0 | 0.4− |
| 2002 03 14 | 704 | 0.2− | 0.1+ | 2006 01 20 | 699 | (1.6+ | 0.2−) | 2009 11 20 | G96 | 0.1+ | 0.3− |
| 2002 03 14 | 704 | 0.5− | 0.7+ | 2006 01 22 | G96 | 0.7+ | 0.2− | 2009 11 20 | G96 | 0.0 | 0.4− |
| 2002 03 14 | 704 | 0.6− | 1.4+ | 2006 01 22 | G96 | 0.6+ | 0.2− | 2009 11 20 | G96 | 0.0 | 0.1− |
| 2002 03 14 | 704 | 1.3− | 0.2+ | 2006 01 22 | G96 | 0.7+ | 0.1− | 2009 11 26 | 691 | 0.6− | 0.1+ |
| 2002 03 14 | 704 | 0.5− | 0.1+ | 2006 01 22 | G96 | 0.1+ | 0.0 | 2009 11 26 | 691 | 0.2+ | 0.1− |
| 2002 03 16 | 704 | 0.3+ | 1.4+ | 2006 01 24 | 704 | 0.4+ | 0.2− | 2009 11 26 | 691 | 0.2− | 0.2− |
| 2002 03 16 | 704 | 0.0 | 0.9+ | 2006 01 24 | 704 | 0.9+ | 0.1+ | 2009 12 11 | G96 | 0.1+ | 0.3− |
| 2002 03 16 | 704 | 0.0 | 0.7+ | 2006 01 24 | 704 | 0.2− | 0.7+ | 2009 12 11 | G96 | 0.0 | 0.1+ |
| 2002 03 16 | 704 | 0.1− | 0.7+ | 2006 01 27 | 699 | 0.0 | 0.3+ | 2009 12 11 | G96 | 0.6+ | 0.0 |
| 2002 03 16 | 704 | 0.5+ | 1.0+ | 2006 01 27 | 699 | 0.0 | 0.5− | 2009 12 11 | G96 | 0.0 | 0.2− |
| 2002 03 17 | 608 | 0.9− | 1.4+ | 2006 01 27 | 699 | 0.6+ | 0.5+ | 2009 12 17 | 704 | 0.7+ | 0.0 |
| 2002 03 17 | 608 | 1.1− | 1.0+ | 2006 01 27 | 699 | 0.3+ | 0.4+ | 2009 12 17 | 704 | 0.5+ | 1.0+ |
| 2002 03 17 | 608 | 1.0− | 1.5+ | 2006 02 20 | G96 | 0.0 | 0.5− | 2009 12 17 | 704 | 0.1− | 0.5+ |
| 2002 03 20 | 699 | 0.0 | 0.7+ | 2006 02 20 | G96 | 0.0 | 0.3− | | | | |
| 2002 03 20 | 699 | 0.2− | 0.2+ | 2006 02 20 | G96 | 0.1+ | 0.5− | | | | |

**(228624)∗ 2002 CD$_{106}$**

Discovered 2002 Feb. 7 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 338.38167 | | (2000.0) | | | |
| $n$ | 0.23186610 | $\omega$ | 40.52536 | | −0.60918677 | −0.79127076 |
| $a$ | 2.6240849 | $\Omega$ | 87.07082 | | +0.71325538 | −0.57576742 |
| $e$ | 0.0944132 | $i$ | 3.02744 | | +0.34663848 | −0.20587001 |
| $P$ | 4.25 | $H$ | 16.0 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 03 22 | 691 | 0.7− | 0.3− | 2002 03 16 | 704 | 0.8+ | 0.2+ | 2006 01 06 | 699 | 1.2− | 1.4− |
| 1998 03 22 | 691 | 0.7− | 0.3− | 2002 03 19 | 608 | 1.5− | 0.5+ | 2006 01 06 | 699 | 0.4− | 0.8− |
| 1998 03 22 | 691 | 0.7− | 0.2− | 2002 03 19 | 608 | 0.7− | 0.5+ | 2006 01 06 | 699 | 0.0 | 0.7+ |
| 1998 04 22 | 704 | 1.1− | 1.2− | 2002 03 19 | 608 | 0.6− | 0.1+ | 2006 01 06 | 699 | 0.4− | 1.0− |
| 1998 04 22 | 704 | 1.2+ | 0.7+ | 2002 03 20 | 704 | 0.2+ | 0.8+ | 2006 01 23 | 691 | 0.1− | 0.0 |
| 1998 04 22 | 704 | (2.9+ | 0.4−) | 2002 03 20 | 704 | 0.4+ | 1.2+ | 2006 01 23 | 691 | 0.2− | 0.0 |
| 1998 04 22 | 704 | 0.0 | 0.3− | 2002 03 20 | 704 | 0.5+ | 0.7+ | 2006 01 23 | 691 | 0.6− | 1.0− |
| 2002 02 06 | 699 | 0.7+ | 0.1+ | 2002 03 20 | 704 | 0.5+ | 1.0+ | 2006 01 26 | 703 | 0.1+ | 0.7+ |
| 2002 02 06 | 699 | 0.3− | 0.3− | 2002 03 20 | 704 | 1.0+ | 1.0+ | 2006 01 26 | 703 | 0.3+ | 0.0 |
| 2002 02 06 | 699 | 0.3+ | 0.3+ | 2002 03 21 | 704 | 0.5+ | 0.0 | 2006 01 26 | 703 | 0.0 | 0.2− |
| 2002 02 06 | 699 | 0.2+ | 0.8+ | 2002 03 21 | 704 | 0.9+ | 0.7+ | 2006 01 26 | 703 | 0.4− | 0.0 |
| 2002 02 07 | 704 | 0.3− | 0.3+ | 2002 03 21 | 704 | 0.3+ | 0.2+ | 2006 01 27 | 699 | 0.5− | 0.2− |
| 2002 02 07 | 704 | 0.5− | 0.1+ | 2002 03 21 | 704 | 0.7+ | 0.6+ | 2006 01 27 | 699 | 0.5− | 0.3+ |
| 2002 02 07 | 704 | 1.1+ | 0.3+ | 2002 03 21 | 704 | (1.5+ | 0.2−) | 2006 01 27 | 699 | (2.0− | 0.5−) |
| 2002 02 07 | 704 | 0.2− | 0.1+ | 2002 03 21 | 704 | (0.4− | 1.5+) | 2006 01 27 | 699 | 1.4− | 0.7− |
| 2002 02 10 | 704 | 0.7+ | 0.2+ | 2002 03 21 | 704 | 0.8+ | 0.2+ | 2006 01 31 | 691 | 0.2− | 0.1+ |
| 2002 02 10 | 704 | 0.1− | 0.2+ | 2002 03 22 | 644 | 1.2+ | 0.3+ | 2006 01 31 | 691 | 0.2− | 0.2+ |
| 2002 02 10 | 704 | 0.2− | 0.4+ | 2002 03 22 | 644 | 1.3+ | 0.7+ | 2006 01 31 | 691 | 0.1− | 0.2+ |
| 2002 02 10 | 704 | 0.8+ | 0.8+ | 2002 03 22 | 644 | 1.0+ | 0.5+ | 2006 02 15 | 644 | 0.3+ | 0.3+ |
| 2002 02 10 | 704 | 1.0+ | 0.8+ | 2002 03 23 | 704 | (2.2+ | 1.3+) | 2006 02 15 | 644 | 0.1+ | 0.2− |
| 2002 02 20 | 704 | 0.9+ | 0.4+ | 2002 03 23 | 704 | 0.9+ | 0.3− | 2006 02 15 | 644 | 0.3− | 0.4+ |
| 2002 02 20 | 704 | 0.4+ | 1.4+ | 2002 03 23 | 704 | 0.6+ | 0.5+ | 2006 02 21 | 699 | 0.2− | 0.7− |
| 2002 02 20 | 704 | 0.8+ | 0.5+ | 2002 03 23 | 704 | 0.3+ | 1.0− | 2006 02 21 | 699 | 0.1+ | 0.5+ |
| 2002 02 20 | 704 | 1.0+ | 0.6+ | 2002 03 23 | 704 | (1.8+ | 0.0 ) | 2006 02 21 | 699 | 0.6+ | 1.0+ |
| 2002 02 20 | 704 | 1.3+ | 0.3+ | 2002 04 02 | 644 | 0.9+ | 0.5+ | 2006 02 21 | 699 | 0.9+ | 1.0+ |
| 2002 03 03 | 608 | 0.1+ | 0.7− | 2002 04 02 | 644 | 1.1+ | 0.2− | 2006 02 22 | 703 | (1.5− | 0.1−) |
| 2002 03 03 | 608 | 0.6+ | 0.7− | 2002 04 02 | 644 | 0.7+ | 0.3+ | 2006 02 22 | 703 | 0.8+ | 0.2− |
| 2002 03 03 | 608 | 0.2− | 0.6− | 2004 09 13 | 699 | 0.2+ | 1.4+ | 2006 02 22 | 703 | 1.0− | 0.3+ |
| 2002 03 05 | 645 | 0.1− | 0.1− | 2004 09 13 | 699 | 0.1+ | 0.6+ | 2006 02 22 | 703 | 0.7+ | 1.3+ |
| 2002 03 05 | 645 | 0.1− | 0.2− | 2004 09 13 | 699 | 0.1+ | 0.3+ | 2008 07 30 | 691 | 0.8− | 0.8+ |
| 2002 03 09 | 704 | 0.5− | 0.4+ | 2004 09 13 | 699 | (0.3+ | 2.2+) | 2008 07 30 | 691 | 0.2− | 0.5+ |
| 2002 03 09 | 704 | 0.2+ | 1.3+ | 2004 09 14 | 683 | 0.8+ | 0.4− | 2008 07 30 | 691 | 0.4− | 1.4+ |
| 2002 03 09 | 704 | 0.4+ | 0.8+ | 2004 09 14 | 683 | (0.4+ | 2.5−) | 2009 12 16 | 704 | 0.1+ | 0.2− |
| 2002 03 12 | 704 | 0.2+ | 1.2+ | 2004 09 14 | 683 | (1.9− | 1.2+) | 2009 12 16 | 704 | 0.2+ | 0.7+ |
| 2002 03 12 | 704 | 0.9+ | 1.0+ | 2004 10 08 | 699 | 0.7− | 0.1+ | 2009 12 16 | G96 | 0.1+ | 0.5− |
| 2002 03 12 | 704 | 0.0 | 1.5+ | 2004 10 08 | 699 | 0.0 | 0.4+ | 2009 12 16 | 704 | 1.1+ | 0.8+ |
| 2002 03 12 | 704 | (0.5+ | 1.8+) | 2004 10 08 | 699 | 0.1+ | 0.2− | 2009 12 16 | G96 | 0.1+ | 0.4− |
| 2002 03 16 | 704 | (0.3− | 1.7+) | 2004 10 08 | 699 | 0.4− | 1.0+ | 2009 12 16 | G96 | 0.2+ | 0.6− |
| 2002 03 16 | 704 | 0.2+ | 0.3+ | 2004 10 09 | 704 | 0.1− | 1.1+ | 2009 12 26 | 691 | 0.2− | 0.1− |
| 2002 03 16 | 704 | 0.1+ | 0.1+ | 2004 10 09 | 704 | (0.4− | 2.7+) | 2009 12 26 | 691 | 0.1+ | 0.1− |
| 2002 03 16 | 704 | 0.8+ | 0.4+ | 2004 10 09 | 704 | (0.1+ | 1.9+) | 2009 12 26 | 691 | 0.1− | 0.3+ |

**(228625)∗ 2002 CB$_{126}$**

Discovered 2002 Feb. 7 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 19.50478 | | (2000.0) | | | |
| $n$ | 0.24139142 | $\omega$ | 182.75531 | | +0.16450417 | −0.98481801 |
| $a$ | 2.5545917 | $\Omega$ | 257.78065 | | +0.90606355 | +0.17307964 |
| $e$ | 0.2666074 | $i$ | 3.25094 | | +0.38985539 | +0.01330114 |
| $P$ | 4.08 | $H$ | 16.5 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 01 22 | 704 | 0.5− | 0.3− | 2005 09 30 | G96 | 0.0 | 0.0 | 2006 02 26 | 704 | 0.5+ | 1.2+ |
| 2002 01 22 | 704 | 0.2− | 0.4− | 2005 09 30 | G96 | 0.2+ | 0.2− | 2006 02 26 | 704 | 0.4+ | 0.3− |
| 2002 01 22 | 704 | 0.3+ | 0.2+ | 2005 09 30 | G96 | 0.2+ | 0.2− | 2006 02 26 | 704 | 0.3+ | 0.1− |
| 2002 02 06 | 644 | 0.1− | 0.1+ | 2005 09 30 | G96 | 0.3− | 0.0 | 2006 02 26 | 704 | 0.7+ | 0.9+ |
| 2002 02 06 | 644 | 0.3− | 0.1+ | 2005 10 28 | G96 | 0.1− | 0.2− | 2006 03 05 | 703 | 0.4+ | 0.2+ |
| 2002 02 06 | 644 | 0.4− | 0.3+ | 2005 10 28 | G96 | 0.4+ | 0.2− | 2006 03 05 | 703 | 0.7− | 0.1− |
| 2002 02 07 | 704 | (1.7− | 0.5+) | 2005 10 28 | G96 | 0.0 | 0.0 | 2006 03 05 | 703 | (0.9+ | 1.6+) |
| 2002 02 07 | 704 | 0.9+ | 1.0+ | 2005 10 28 | G96 | 0.1+ | 0.4+ | 2006 03 05 | 703 | (0.3+ | 1.7+) |
| 2002 02 07 | 704 | 1.2− | 1.2− | 2006 01 09 | 621 | 0.3− | 0.1+ | 2008 07 30 | G96 | 0.2+ | 0.7− |
| 2002 02 07 | 704 | 0.8− | 0.1− | 2006 01 09 | 621 | 0.6− | 0.4+ | 2008 07 30 | G96 | 0.2+ | 0.0 |
| 2002 02 07 | 704 | 0.2− | 0.4− | 2006 01 09 | 621 | 0.5− | 0.3− | 2008 07 30 | G96 | 0.5− | 0.1− |
| 2002 02 11 | 704 | 0.9− | 0.2− | 2006 01 22 | 699 | 0.7+ | 0.0 | 2008 07 30 | G96 | 0.6+ | 0.1− |
| 2002 02 11 | 704 | 0.3− | 0.9− | 2006 01 22 | 699 | 1.1+ | 0.7+ | 2009 10 18 | G96 | 0.1− | 0.2+ |
| 2002 02 11 | 704 | 0.6+ | 0.7− | 2006 01 22 | 699 | 0.3− | 0.3+ | 2009 10 18 | G96 | 0.3+ | 0.4+ |
| 2002 02 11 | 704 | 0.1+ | 0.1− | 2006 01 22 | 699 | 0.4+ | 0.1+ | 2009 10 18 | G96 | 0.5+ | 0.2− |
| 2002 02 20 | 704 | 0.2+ | 0.5+ | 2006 02 02 | 699 | 0.3+ | 0.1− | 2009 10 18 | G96 | (1.9+ | 0.2+) |
| 2002 02 20 | 704 | 0.1− | 0.0 | 2006 02 02 | 691 | 0.0 | 0.1− | 2009 11 26 | 703 | 1.1− | 0.2− |
| 2002 02 20 | 704 | 0.3− | 0.1+ | 2006 02 02 | 691 | 0.7+ | 0.0 | 2009 11 26 | 703 | 0.3− | 1.0+ |
| 2002 02 20 | 704 | (0.6+ | 1.7−) | 2006 02 02 | 691 | 0.1+ | 0.2− | 2009 11 26 | 703 | 0.5+ | 0.6− |
| 2002 03 05 | 644 | 0.0 | 0.1− | 2006 02 02 | 699 | 0.5+ | 0.9+ | 2009 11 26 | 703 | 0.7+ | 0.5+ |
| 2002 03 05 | 644 | 0.2+ | 0.0 | 2006 02 02 | 691 | 0.2+ | 0.2+ | 2009 12 19 | 691 | 0.2− | 0.0 |
| 2002 03 05 | 644 | 0.2− | 0.2− | 2006 02 02 | 699 | 0.6+ | 1.0− | 2009 12 19 | 691 | 0.1− | 0.2− |
| 2002 03 06 | 644 | 0.0 | 0.1− | 2006 02 09 | 644 | 0.3− | 0.1+ | 2009 12 19 | 691 | 0.2− | 0.1− |
| 2002 03 06 | 644 | 0.1+ | 0.0 | 2006 02 09 | 644 | 0.2− | 0.0 | | | | |
| 2002 03 06 | 644 | 0.1− | 0.0 | 2006 02 09 | 644 | 0.4− | 0.1+ | | | | |

**(228626)∗ 2002 CP$_{142}$**

Discovered 2002 Feb. 9 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 2.90260 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23849386 | $\omega$ | 283.06619 | | +0.12258097 | −0.99202111 | |
| $a$ | 2.5752412 | $\Omega$ | 159.82184 | | +0.94045314 | +0.10662287 | |
| $e$ | 0.0979793 | $i$ | 4.89977 | | +0.31705174 | +0.06727323 | |
| $P$ | 4.13 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 12 23 | 704 | 0.3+ | 0.3− | 2002 02 13 | 704 | 0.4+ | 0.3+ | 2007 04 25 | 691 | 0.1+ | 0.0 | 2001 12 23 | 704 | 0.6− | 0.6+ | |
| 2002 02 13 | 704 | 0.3+ | 0.1− | 2007 04 25 | 691 | 0.2− | 0.2− | 2001 12 23 | 704 | (0.3+ | 1.6+) | 2002 02 13 | 704 | 0.5+ | 0.5+ | |
| 2007 04 25 | 691 | 0.0 | 0.1+ | 2002 01 08 | 644 | 0.3− | 0.3+ | 2002 02 13 | 704 | 0.2+ | 0.5+ | 2008 07 29 | G96 | 0.3− | 0.2+ | |
| 2002 01 08 | 644 | 0.0 | 0.3+ | 2002 02 13 | 704 | 0.7+ | 0.5+ | 2008 07 29 | G96 | 0.0 | 0.2+ | 2002 01 08 | 644 | 0.2− | 0.4+ | |
| 2003 05 22 | 691 | 0.2+ | 0.3+ | 2008 07 29 | G96 | 0.8− | 0.5+ | 2002 01 09 | 704 | 0.0 | 0.9− | 2003 05 22 | 691 | 0.3+ | 0.2+ | |
| 2008 07 30 | J75 | 0.5+ | 0.1+ | 2002 01 09 | 704 | 0.5− | 0.1− | 2003 05 22 | 691 | 0.3+ | 0.5+ | 2008 07 30 | J75 | 0.4− | 0.2+ | |
| 2002 01 09 | 704 | 0.8− | 0.4+ | 2004 08 20 | 691 | 0.0 | 0.5+ | 2008 07 30 | J75 | 0.1− | 0.3− | 2002 01 14 | 704 | (2.3− | 0.0 ) | |
| 2004 08 20 | 691 | 0.2− | 0.5+ | 2008 08 03 | J75 | 0.3+ | 0.5+ | 2002 01 14 | 704 | 0.7+ | 0.2+ | 2004 08 20 | 691 | 0.2− | 0.4+ | |
| 2008 08 03 | J75 | 0.6− | 0.0 | 2002 01 14 | 704 | (2.7− | 0.8+) | 2005 12 30 | 704 | 0.1− | 0.4+ | 2008 08 03 | J75 | 0.8+ | 0.0 | |
| 2002 01 14 | 704 | 1.4− | 0.1− | 2005 12 30 | 704 | 0.1+ | 0.4+ | 2008 08 04 | 704 | (1.6− | 0.5+) | 2002 02 06 | 644 | 0.1+ | 0.5+ | |
| 2005 12 30 | 704 | 0.0 | 0.2+ | 2008 08 04 | 704 | 1.0− | 1.4+ | 2002 02 06 | 644 | 0.2+ | 0.4+ | 2005 12 30 | 704 | 0.1− | 0.4− | |
| 2008 08 04 | 704 | 0.5− | 0.6+ | 2002 02 06 | 644 | 0.0 | 0.3+ | 2005 12 30 | 704 | 0.1− | 0.2− | 2009 11 20 | 704 | 1.2+ | 0.6+ | |
| 2002 02 07 | 704 | (2.0− | 0.8+) | 2006 01 23 | 704 | 0.3+ | 0.0 | 2009 11 20 | 704 | 0.4+ | 0.1+ | 2002 02 07 | 704 | 1.2− | 0.8+ | |
| 2006 01 23 | 704 | 0.5+ | 0.8+ | 2009 11 20 | 704 | 1.2+ | 0.5− | 2002 02 07 | 704 | 0.5+ | 1.3+ | 2006 01 23 | 704 | 0.3− | 0.1− | |
| 2009 12 12 | 106 | 0.0 | 0.3− | 2002 02 09 | 704 | 0.0 | 1.1+ | 2006 01 23 | 704 | 0.6− | 0.3+ | 2009 12 12 | 106 | 0.9− | 0.2− | |
| 2002 02 09 | 704 | 0.7− | 0.5+ | 2007 04 20 | 691 | 0.2− | 0.0 | 2009 12 12 | 106 | 0.4− | 0.0 | 2002 02 09 | 704 | 0.1− | 0.4+ | |
| 2007 04 20 | 691 | 0.1− | 0.1+ | 2009 12 12 | 106 | 0.0 | 0.3− | 2002 02 09 | 704 | 0.9+ | 0.5+ | 2007 04 20 | 691 | 0.2− | 0.1− | |
| 2009 12 17 | G96 | 0.1− | 0.1− | 2002 02 11 | 704 | 0.4− | 0.8+ | 2007 04 22 | G96 | 0.1− | 0.3− | 2009 12 17 | G96 | 0.1+ | 0.2− | |
| 2002 02 11 | 704 | 1.4+ | 0.2− | 2007 04 22 | G96 | 0.2+ | 0.2− | 2009 12 17 | G96 | 0.0 | 0.4+ | 2002 02 11 | 704 | 0.6+ | 0.1+ | |
| 2007 04 22 | G96 | 0.3+ | 0.2− | 2009 12 17 | G96 | 0.1− | 0.1− | 2002 02 11 | 704 | 0.1− | 0.9+ | 2007 04 22 | G96 | 0.1+ | 0.5− | |

**(228627)∗ 2002 CB$_{158}$**

Discovered 2002 Feb. 7 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 294.89346 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23443173 | $\omega$ | 63.21599 | | −0.99393494 | −0.09879903 | |
| $a$ | 2.6049044 | $\Omega$ | 111.08155 | | +0.07317975 | −0.92201959 | |
| $e$ | 0.0621427 | $i$ | 2.96671 | | +0.08208565 | −0.37432422 | |
| $P$ | 4.20 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 03 02 | 691 | 0.6− | 0.4+ | 2002 03 14 | 704 | 0.2+ | 0.6− | 2006 01 07 | G96 | 0.1+ | 0.2− | 1998 03 02 | 691 | 0.5− | 0.1+ | |
| 2002 03 14 | 704 | 1.4+ | 0.3− | 2006 01 08 | 691 | 0.1+ | 0.1+ | 1998 03 02 | 691 | 0.2− | 0.1+ | 2002 03 14 | 704 | (1.8+ | 0.0 ) | |
| 2006 01 08 | 691 | 0.1+ | 0.1+ | 2000 10 06 | 691 | 0.2− | 0.0 | 2002 03 16 | 704 | 0.8+ | 0.4+ | 2006 01 08 | 691 | 0.4− | 0.7+ | |
| 2000 10 06 | 691 | 0.1− | 0.2+ | 2002 03 16 | 704 | 0.7+ | 0.5+ | 2006 01 19 | 703 | 0.7+ | 1.1+ | 2000 10 06 | 691 | 0.4+ | 0.3+ | |
| 2002 03 16 | 704 | 0.5+ | 0.8+ | 2006 01 19 | 703 | 0.2− | 0.9+ | 2002 02 07 | 704 | 0.0 | 0.4+ | 2002 03 16 | 704 | 0.9+ | 0.6+ | |
| 2006 01 19 | 703 | 0.6− | 0.3− | 2002 02 07 | 704 | 0.2+ | 0.7+ | 2002 03 16 | 704 | 0.5+ | 0.6− | 2006 01 19 | 703 | (1.9− | 0.7+) | |
| 2002 02 07 | 704 | 0.5− | 1.0+ | 2002 03 16 | 152 | 0.7+ | 0.2+ | 2006 01 25 | 691 | 0.4− | 0.3+ | 2002 02 07 | 704 | 0.5+ | 1.2+ | |
| 2002 03 23 | 644 | 0.2− | 0.7+ | 2006 01 25 | 691 | 0.1− | 0.6− | 2002 02 07 | 704 | 0.2+ | 1.0+ | 2002 03 23 | 644 | 0.7+ | 0.5+ | |
| 2006 01 25 | 691 | 0.1− | 0.4− | 2002 02 10 | 704 | (0.3+ | 2.6−) | 2002 03 23 | 644 | 0.1+ | 0.6+ | 2006 01 25 | 644 | 0.2+ | 0.4− | |
| 2002 02 10 | 704 | 0.4− | 0.2+ | 2004 11 10 | 691 | 0.2− | 0.2+ | 2006 01 25 | 644 | 0.1− | 0.1− | 2002 02 10 | 704 | 0.5− | 0.4− | |
| 2004 11 10 | 691 | 0.2− | 0.6+ | 2006 01 25 | 644 | 0.0 | 0.2+ | 2002 02 10 | 704 | (1.7+ | 0.8−) | 2004 11 10 | 691 | 0.3− | 0.4+ | |
| 2006 01 27 | 704 | 0.3+ | 0.9− | 2002 02 10 | 704 | 1.0− | 0.2− | 2005 09 30 | G96 | 0.4− | 0.1− | 2006 01 27 | 704 | 0.0 | 1.0+ | |
| 2005 09 30 | G96 | 0.3+ | 0.1− | 2006 01 27 | 704 | 0.2− | 0.0 | 2002 02 12 | 704 | 0.0 | 1.4− | 2005 09 30 | G96 | 0.3− | 0.1+ | |
| 2006 01 27 | 704 | 0.3− | 0.5− | 2002 02 12 | 704 | 0.6+ | 1.1− | 2005 09 30 | G96 | 0.2− | 0.0 | 2006 01 30 | 691 | 0.1− | 0.0 | |
| 2002 02 12 | 704 | 0.5+ | 1.2− | 2005 10 29 | G96 | (0.1+ | 1.5−) | 2006 01 30 | 691 | 0.1+ | 0.1− | 2002 02 14 | 644 | 0.1+ | 0.6+ | |
| 2005 10 29 | G96 | 0.3− | 0.3− | 2006 01 30 | 691 | 0.0 | 0.1+ | 2002 02 14 | 644 | 0.3+ | 0.4+ | 2005 10 29 | G96 | 0.2− | 0.5− | |
| 2006 02 23 | G96 | 1.4− | 0.4+ | 2002 02 14 | 644 | 0.3− | 0.6+ | 2005 10 29 | G96 | 0.1− | 0.3− | 2006 02 23 | G96 | 0.3− | 0.1− | |
| 2002 02 16 | 644 | 0.5− | 0.4+ | 2005 11 06 | G96 | 0.6− | 0.4− | 2006 02 23 | G96 | 0.2− | 0.3+ | 2002 02 16 | 644 | 0.4+ | 0.4+ | |
| 2005 11 06 | G96 | 0.5− | 0.2− | 2006 02 23 | G96 | 1.1− | 0.2− | 2002 02 16 | 644 | 0.4− | 0.3+ | 2005 11 06 | G96 | 0.2+ | 0.2− | |
| 2006 03 04 | G96 | 0.2− | 0.8− | 2002 02 20 | 704 | 0.1+ | 0.4+ | 2005 11 06 | G96 | 0.2+ | 0.0 | 2006 03 04 | G96 | 0.4+ | 0.6− | |
| 2002 02 20 | 704 | 0.3+ | 0.5+ | 2005 11 25 | G96 | 0.3− | 0.3− | 2006 03 04 | G96 | 0.0 | 0.8− | 2002 02 20 | 704 | 0.6+ | 0.3+ | |
| 2005 11 25 | G96 | 0.1− | 0.0 | 2006 03 04 | G96 | 0.2− | 0.4− | 2002 02 20 | 704 | 0.5+ | 0.8+ | 2005 11 25 | G96 | 0.2+ | 0.2− | |
| 2008 09 22 | 704 | 0.5− | 0.0 | 2002 02 20 | 704 | 0.3+ | 0.5+ | 2005 11 25 | G96 | 0.1− | 0.3− | 2008 09 22 | 704 | 0.6+ | 0.6+ | |
| 2002 02 24 | 644 | 0.0 | 1.5+ | 2005 12 06 | G96 | 0.0 | 0.2− | 2008 09 22 | 704 | 0.4− | 1.4+ | 2002 02 24 | 644 | 1.1+ | 1.3+ | |
| 2005 12 06 | G96 | 0.1− | 0.3− | 2009 10 15 | G96 | 0.2− | 0.3− | 2002 02 24 | 644 | 0.5+ | 1.1+ | 2005 12 06 | G96 | 0.2− | 0.4− | |
| 2009 10 15 | G96 | 0.4− | 0.4− | 2002 03 09 | 644 | 0.5+ | 0.1− | 2005 12 06 | G96 | 0.3− | 0.1− | 2009 10 15 | G96 | 0.3+ | 0.1+ | |
| 2002 03 09 | 704 | 1.2+ | 0.6− | 2005 12 28 | G96 | 0.0 | 0.3− | 2009 10 15 | G96 | 0.5− | 0.3− | 2002 03 09 | 644 | 0.4+ | 0.2+ | |
| 2005 12 28 | G96 | 0.2− | 0.3− | 2009 12 16 | G96 | 0.3− | 0.2− | 2002 03 09 | 704 | 1.3+ | 1.3− | 2005 12 28 | G96 | 0.2− | 0.5− | |
| 2009 12 16 | G96 | 0.4− | 0.2− | 2002 03 09 | 704 | (0.9+ | 2.2−) | 2005 12 28 | G96 | 0.2− | 0.6− | 2009 12 16 | G96 | 0.5− | 0.3− | |
| 2002 03 09 | 644 | 0.2− | 0.2+ | 2006 01 04 | 691 | 0.1+ | 0.0 | 2009 12 16 | G96 | 0.0 | 0.3− | 2002 03 12 | 644 | 0.4+ | 0.3− | |
| 2006 01 04 | 691 | 0.1+ | 0.1− | 2009 12 16 | G96 | 0.0 | 0.2− | 2002 03 12 | 644 | 0.7+ | 0.2− | 2006 01 04 | 691 | 0.0 | 0.4+ | |
| 2009 12 17 | 704 | 0.3+ | 0.2+ | 2002 03 12 | 644 | 0.4+ | 0.1− | 2006 01 07 | G96 | 0.3− | 0.5− | 2009 12 17 | 704 | 0.2+ | 0.7− | |
| 2002 03 14 | 704 | (1.5+ | 0.2−) | 2006 01 07 | G96 | 0.1+ | 0.3− | 2009 12 17 | 704 | 0.8+ | 0.0 | 2002 03 14 | 704 | 0.5+ | 0.9− | |
| 2006 01 07 | G96 | 0.1− | 0.3− | 2009 12 17 | 704 | 0.6+ | 0.8− | | | | | | | | | |

**(228628)∗ 2002 CS$_{185}$ = 2004 TJ$_{88}$**

Discovered 2002 Feb. 10 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. A. Doppler (*MPO* 100174)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 245.71920 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22680411 | $\omega$ | 145.11068 | | −0.93398657 | +0.35563553 | |
| $a$ | 2.6629853 | $\Omega$ | 55.75800 | | −0.33659429 | −0.84329546 | |
| $e$ | 0.1478045 | $i$ | 2.39408 | | −0.11988899 | −0.40295922 | |
| $P$ | 4.35 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 04 17 | 691 | 0.5− | 0.5− | 2004 10 05 | 691 | 0.1− | 0.2− | 2008 09 23 | G96 | 0.5+ | 0.3− | 1998 04 17 | 691 | 0.2− | 0.5− | |
| 2004 10 05 | 691 | 0.0 | 0.3− | 2008 09 23 | G96 | 0.4+ | 0.1+ | 1998 04 17 | 691 | 0.6− | 0.6− | 2004 10 05 | 691 | 0.1+ | 0.1+ | |
| 2008 09 23 | G96 | 0.3− | 0.1− | 2002 01 11 | 291 | 0.2− | 0.6+ | 2004 10 09 | 691 | 0.3+ | 0.3− | 2008 09 23 | G96 | 0.2+ | 0.4− | |
| 2002 01 11 | 291 | 0.2− | 0.6+ | 2004 10 09 | 691 | 0.1+ | 0.3− | 2009 11 20 | 691 | 1.0− | 0.3+ | 2002 01 11 | 291 | 0.1− | 0.3+ | |
| 2004 10 09 | 691 | 0.5+ | 0.2+ | 2009 11 20 | 691 | 0.1− | 0.1− | 2002 02 10 | 704 | 1.4+ | 0.3− | 2005 12 24 | 691 | 0.3+ | 0.4+ | |
| 2009 11 20 | 691 | 0.2− | 0.1− | 2002 02 10 | 704 | (1.9+ | 0.7−) | 2005 12 24 | 691 | 0.3+ | 0.0 | 2009 11 24 | 691 | 0.1− | 0.2− | |
| 2002 02 10 | 704 | 0.6+ | 1.4− | 2005 12 24 | 691 | 0.4+ | 0.1− | 2009 11 24 | 691 | 0.6− | 0.6− | 2002 02 10 | 704 | 0.8+ | 1.2− | |
| 2007 04 14 | G96 | 0.1+ | 0.6+ | 2009 11 24 | 691 | 0.6+ | 0.3− | 2002 02 10 | 704 | 1.0+ | 1.2− | 2007 04 14 | G96 | 0.3+ | 0.0 | |
| 2009 12 11 | G96 | 0.1− | 0.4− | 2002 02 12 | 704 | 0.4+ | 0.1+ | 2007 04 14 | G96 | 0.5− | 0.1+ | 2009 12 11 | G96 | 0.5+ | 0.1− | |
| 2002 02 12 | 704 | 0.3+ | 0.3+ | 2007 04 14 | G96 | 0.2+ | 0.1+ | 2009 12 11 | G96 | 0.1− | 0.4− | 2002 02 12 | 704 | 0.2+ | 0.1− | |
| 2007 06 14 | 691 | 0.1− | 0.3− | 2009 12 11 | G96 | 0.5+ | 0.2− | 2002 02 12 | 704 | 0.7− | 0.4+ | 2007 06 14 | 691 | 0.1+ | 0.2+ | |
| 2002 02 12 | 704 | 0.1− | 0.9− | 2007 06 14 | 691 | 0.2+ | 0.1+ | | | | | | | | | |

**(228629)∗ 2002 CH$_{215}$**

Discovered 2002 Feb. 10 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 327.33020 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23302624 | $\omega$ | 139.23003 | | −0.65053007 | −0.75943661 | |
| $a$ | 2.6153681 | $\Omega$ | 351.34064 | | +0.68196424 | −0.57936816 | |
| $e$ | 0.1748693 | $i$ | 3.10885 | | +0.33426846 | −0.29595367 | |
| $P$ | 4.23 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 02 07 | 704 | (1.8+ | 1.0−) | 2002 03 16 | 704 | 0.7+ | 0.2− | 2006 01 06 | 691 | 0.2+ | 0.1− |
| 2002 02 07 | 704 | 0.9+ | 0.5+ | 2002 03 16 | 704 | 0.7+ | 0.1+ | 2006 01 06 | 691 | 0.3+ | 0.1− |
| 2002 02 07 | 704 | (4.1+ | 1.5+) | 2002 03 16 | 704 | 0.2− | 0.1− | 2006 01 06 | 691 | 0.0 | 0.2− |
| 2002 02 07 | 704 | (1.2+ | 2.0−) | 2002 03 16 | 704 | 0.1− | 0.2− | 2006 01 10 | 691 | 0.1+ | 0.1+ |
| 2002 02 07 | 704 | 0.2− | 0.5+ | 2002 03 16 | 704 | 0.0 | 0.7+ | 2006 01 10 | 691 | 0.1+ | 0.0 |
| 2002 02 10 | 704 | 0.4− | 0.3+ | 2002 04 07 | 807 | (2.0+ | 0.8+) | 2006 01 10 | 691 | 0.0 | 0.2− |
| 2002 02 10 | 704 | 0.3− | 0.6+ | 2002 04 07 | 807 | 0.8+ | 0.4+ | 2006 01 18 | 703 | 0.5− | 1.2− |
| 2002 02 10 | 704 | 0.0 | 0.9+ | 2002 04 07 | 807 | 0.0 | 0.2− | 2006 01 18 | 703 | 0.4+ | 0.6− |
| 2002 02 10 | 704 | 0.2− | 0.6+ | 2002 04 08 | 807 | 0.0 | 0.2− | 2006 01 18 | 703 | 0.4− | 0.6− |
| 2002 02 10 | 704 | 0.1− | 0.5+ | 2004 09 11 | 691 | 0.2− | 0.5+ | 2006 01 18 | 703 | 1.0− | 0.5+ |
| 2002 02 12 | 704 | 0.7− | 1.0+ | 2004 09 11 | 691 | 0.2− | 0.4+ | 2006 01 20 | 699 | 0.6+ | 0.2+ |
| 2002 02 12 | 704 | 0.5− | 1.5+ | 2004 09 11 | 691 | 0.0 | 0.5+ | 2006 01 20 | 699 | 0.3− | 0.3+ |
| 2002 02 12 | 704 | (0.5+ | 1.6+) | 2004 09 12 | 568 | 0.3− | 0.2+ | 2006 01 20 | 699 | 0.5− | 0.9+ |
| 2002 02 12 | 704 | 0.1− | 0.8+ | 2004 09 12 | 568 | 0.5− | 0.3+ | 2006 01 20 | 699 | 0.1+ | 0.6− |
| 2002 02 13 | 691 | 0.1+ | 0.6+ | 2004 09 12 | 568 | 0.3− | 0.2+ | 2006 01 26 | G96 | 0.1+ | 0.6− |
| 2002 02 13 | 691 | 0.2+ | 0.8+ | 2004 09 16 | 691 | 0.2− | 0.4+ | 2006 01 26 | G96 | 0.0 | 0.1− |
| 2002 02 13 | 691 | 0.2+ | 0.5+ | 2004 09 16 | 691 | 0.2− | 0.2+ | 2006 01 26 | G96 | 0.2− | 0.5− |
| 2002 02 20 | 704 | 0.0 | 0.8+ | 2004 09 16 | 691 | 0.0 | 0.2+ | 2006 01 26 | G96 | 0.4− | 0.0 |
| 2002 02 20 | 704 | 0.7+ | 0.9+ | 2005 12 27 | 703 | 0.1− | 0.8+ | 2006 02 07 | G96 | 0.2− | 0.4− |
| 2002 02 20 | 704 | 0.1− | 0.6+ | 2005 12 27 | 703 | 0.5+ | 0.2− | 2006 02 07 | G96 | 0.0 | 0.4− |
| 2002 02 20 | 704 | 0.0 | 1.1+ | 2005 12 27 | 703 | 0.1+ | 0.0 | 2006 02 07 | G96 | 0.2+ | 0.5− |
| 2002 02 20 | 704 | 0.1+ | 0.7+ | 2005 12 27 | 703 | 0.6+ | 0.0 | 2006 03 26 | G96 | 0.4+ | 0.1+ |
| 2002 02 22 | 644 | 0.0 | 0.2+ | 2005 12 30 | 699 | 0.9− | 0.5+ | 2006 03 26 | G96 | 0.0 | 0.0 |
| 2002 02 22 | 644 | 0.3+ | 0.2+ | 2005 12 30 | 699 | 0.6+ | 0.2+ | 2006 03 26 | G96 | 0.1+ | 0.1+ |
| 2002 02 22 | 644 | 0.2+ | 0.3+ | 2005 12 30 | G96 | 0.1− | 0.5− | 2006 03 26 | G96 | 0.5− | 0.1− |
| 2002 02 24 | 644 | 0.8+ | 0.3+ | 2005 12 30 | 699 | 0.5+ | 0.6− | 2009 11 19 | 691 | 0.7+ | 0.4+ |
| 2002 02 24 | 644 | 0.3+ | 0.5+ | 2005 12 30 | G96 | 0.1+ | 0.4− | 2009 11 19 | 691 | 0.2− | 0.1+ |
| 2002 02 24 | 644 | 1.1+ | 0.3+ | 2005 12 30 | G96 | 0.1+ | 0.4− | 2009 11 19 | 691 | 0.1− | 0.1+ |
| 2002 03 05 | 691 | 0.1+ | 0.1+ | 2005 12 30 | G96 | 0.2− | 0.4− | 2009 11 23 | 691 | 0.2− | 0.1− |
| 2002 03 05 | 691 | 0.3+ | 0.2+ | 2005 12 30 | 699 | 0.7− | 0.6+ | 2009 11 23 | 691 | 0.4− | 0.2− |
| 2002 03 05 | 691 | 0.1+ | 0.1− | 2006 01 05 | 699 | 0.4+ | 0.1+ | 2009 11 23 | 691 | 0.5− | 0.0 |
| 2002 03 12 | 291 | 0.6+ | 0.3+ | 2006 01 05 | 703 | 0.7− | 0.2+ | 2009 11 27 | 691 | 0.1− | 0.0 |
| 2002 03 12 | 291 | 0.1− | 0.2+ | 2006 01 05 | 699 | 0.2+ | 0.9− | 2009 11 27 | 691 | 0.2− | 0.1− |
| 2002 03 12 | 645 | 0.1− | 0.3− | 2006 01 05 | 703 | 0.4− | 0.7− | 2009 11 27 | 691 | 0.2− | 0.1− |
| 2002 03 12 | 645 | 0.1− | 0.3− | 2006 01 05 | 703 | 0.6− | 0.7− | 2009 12 13 | G96 | 0.1− | 0.2+ |
| 2002 03 12 | 291 | 0.2− | 0.2+ | 2006 01 05 | 703 | 0.3− | 0.5+ | 2009 12 13 | G96 | 1.0+ | 0.3− |
| 2002 03 13 | 644 | 0.3+ | 0.3+ | 2006 01 05 | 699 | 0.5+ | 0.4+ | 2009 12 13 | G96 | 0.2− | 0.1− |
| 2002 03 13 | 644 | 0.1+ | 0.0 | 2006 01 05 | 704 | 0.5− | 1.1+ | 2009 12 15 | 704 | 0.8+ | 0.6− |
| 2002 03 13 | 644 | 0.5+ | 0.5+ | 2006 01 05 | 699 | 1.3+ | 0.5+ | 2009 12 15 | 704 | 0.9+ | 0.2+ |
| 2002 03 14 | 704 | 0.4− | 0.7− | 2006 01 05 | 704 | 0.5− | 1.5+ | 2009 12 15 | 704 | 1.1+ | 0.9− |
| 2002 03 14 | 704 | 0.3+ | 0.5− | 2006 01 05 | 704 | 0.4+ | 0.7− | 2009 12 15 | 704 | 0.5+ | 1.0− |
| 2002 03 14 | 704 | 0.1+ | 0.4− | 2006 01 05 | 704 | 0.3− | 0.4+ | 2009 12 15 | 704 | 0.6+ | 1.2+ |
| 2002 03 14 | 704 | 0.2+ | 0.5− | 2006 01 05 | 704 | (1.7+ | 0.8+) | | | | |

**(228630)∗ 2002 CR$_{227}$ = 2005 SM$_{219}$**

Discovered 2002 Feb. 6 by NEAT at Palomar.

Id. G. V. Williams (*MPO* 85447)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 35.60273 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23977564 | $\omega$ | 145.09330 | | +0.65323687 | −0.75233491 | |
| $a$ | 2.5660553 | $\Omega$ | 263.96175 | | +0.67369244 | +0.62894174 | |
| $e$ | 0.2388679 | $i$ | 4.91986 | | +0.34557211 | +0.19602160 | |
| $P$ | 4.11 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 03 15 | 691 | 0.8− | 0.2+ | 2005 11 30 | G96 | 0.3− | 0.2− | 2006 02 03 | 704 | 0.2+ | 0.2− |
| 1994 03 15 | 691 | 0.1+ | 0.6− | 2005 11 30 | G96 | 0.2− | 0.1+ | 2006 02 03 | 704 | 0.7− | 0.0 |
| 1994 03 15 | 691 | 0.0 | 0.5− | 2005 11 30 | G96 | 0.4− | 0.0 | 2009 10 15 | G96 | 0.1+ | 0.3− |
| 2002 02 06 | 644 | 0.7+ | 0.1+ | 2005 12 24 | 691 | 0.2+ | 0.4+ | 2009 10 15 | G96 | 0.0 | 0.2− |
| 2002 02 06 | 644 | 0.3+ | 0.3+ | 2005 12 24 | 691 | 0.1− | 0.4+ | 2009 10 15 | G96 | 0.0 | 0.2− |
| 2002 02 06 | 644 | 0.5+ | 0.4+ | 2005 12 24 | 691 | 0.1+ | 0.2+ | 2009 10 15 | G96 | 0.0 | 0.3− |
| 2002 02 08 | 608 | 0.4+ | 0.9− | 2006 01 10 | 691 | 0.1+ | 0.2+ | 2009 11 10 | G96 | 0.1+ | 0.1+ |
| 2002 02 08 | 608 | (0.4+ | 1.8−) | 2006 01 10 | 691 | 0.1− | 0.3+ | 2009 11 10 | G96 | 0.1+ | 0.2− |
| 2002 02 08 | 608 | 0.1+ | 0.7− | 2006 01 10 | 691 | 0.0 | 0.4+ | 2009 11 10 | G96 | 0.2− | 0.1− |
| 2002 02 16 | 644 | 0.8+ | 0.3+ | 2006 01 22 | 699 | 0.4+ | 0.3+ | 2009 11 10 | G96 | 0.1− | 0.3− |
| 2002 02 16 | 644 | 0.7+ | 0.1+ | 2006 01 22 | 699 | 0.4+ | 0.4+ | 2009 12 09 | J75 | 0.3+ | 0.1− |
| 2002 02 16 | 644 | 0.7+ | 0.3+ | 2006 01 22 | 699 | 0.9− | 0.6+ | 2009 12 09 | J75 | 0.4+ | 0.3− |
| 2005 09 30 | G96 | 0.3− | 0.3+ | 2006 01 22 | 699 | 0.2− | 0.2− | 2009 12 09 | J75 | 0.8− | 0.6− |
| 2005 09 30 | G96 | 0.2− | 0.0 | 2006 01 23 | 704 | 0.1+ | 0.8+ | 2009 12 10 | G96 | 0.0 | 0.2− |
| 2005 09 30 | G96 | 0.8− | 0.1− | 2006 01 23 | 704 | (3.8+ | 3.1+) | 2009 12 10 | G96 | 0.3− | 0.0 |
| 2005 09 30 | G96 | 0.2− | 0.1− | 2006 01 23 | 704 | (1.7+ | 2.0+) | 2009 12 10 | G96 | 0.1+ | 0.2− |
| 2005 10 01 | 691 | 0.1+ | 0.2− | 2006 01 23 | 704 | (1.2− | 2.3+) | 2009 12 10 | G96 | 0.1+ | 0.2− |
| 2005 10 01 | 691 | 0.1+ | 0.0 | 2006 01 29 | 703 | (0.3− | 1.6+) | 2009 12 18 | 691 | 0.1− | 0.1− |
| 2005 10 01 | 691 | 0.1+ | 0.4+ | 2006 01 29 | 703 | 0.4+ | 1.2+ | 2009 12 18 | 691 | 0.1− | 0.0 |
| 2005 10 06 | G96 | 0.3− | 0.1+ | 2006 01 29 | 703 | 0.4− | 0.2− | 2009 12 18 | 691 | 0.1− | 0.1− |
| 2005 10 06 | G96 | 0.7− | 0.3− | 2006 01 29 | 703 | 0.3− | 0.9+ | 2009 12 19 | 691 | 0.2+ | 0.2− |
| 2005 10 06 | G96 | 0.0 | 0.1− | 2006 02 03 | G96 | 0.0 | 0.4− | 2009 12 19 | 691 | 0.0 | 0.1− |
| 2005 10 06 | G96 | 0.3− | 0.2+ | 2006 02 03 | G96 | 0.1− | 0.3− | 2009 12 19 | 691 | 0.2− | 0.2− |
| 2005 10 10 | 691 | 0.4+ | 0.3+ | 2006 02 03 | G96 | 0.2− | 0.4− | 2009 12 26 | 691 | 0.0 | 0.2− |
| 2005 10 10 | 691 | 0.5+ | 0.3− | 2006 02 03 | G96 | 0.1− | 0.3− | 2009 12 26 | 691 | 0.1− | 0.2− |
| 2005 10 10 | 691 | 0.3− | 0.1+ | 2006 02 03 | 704 | 0.6+ | 0.3− | 2009 12 26 | 691 | 0.0 | 0.2− |
| 2005 11 30 | G96 | 0.1− | 0.1+ | 2006 02 03 | 704 | 0.4+ | 0.2− | | | | |

**(228631)∗ 2002 CB$_{234}$**

Discovered 2002 Feb. 12 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 267.46483 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23854549 | $\omega$ | 124.38988 | | −0.83352536 | +0.50853062 | |
| $a$ | 2.5748696 | $\Omega$ | 87.06823 | | −0.55070409 | −0.73342475 | |
| $e$ | 0.1806118 | $i$ | 12.48756 | | −0.04427729 | −0.45109283 | |
| $P$ | 4.13 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 27 | 645 | 0.1+ | 0.2− | 2002 02 12 | 644 | 0.2+ | 0.5+ | 2006 01 07 | 691 | 0.1+ | 0.1+ |
| 2000 11 27 | 645 | 0.0 | 0.1− | 2002 02 12 | 644 | 0.1− | 0.5+ | 2006 01 07 | 691 | 0.0 | 0.1+ |
| 2001 12 17 | 704 | 0.3+ | 0.2− | 2002 02 13 | 644 | 0.1− | 0.8− | 2006 01 09 | 699 | 1.2− | 1.1+ |
| 2001 12 17 | 704 | 1.0+ | 0.7+ | 2002 02 13 | 644 | 0.1− | 0.7− | 2006 01 09 | 699 | 0.8+ | 0.1− |
| 2001 12 17 | 704 | 0.7+ | 0.3+ | 2002 02 13 | 644 | 0.1+ | 0.5− | 2006 01 09 | 699 | 0.0 | 0.7+ |
| 2001 12 17 | 704 | 0.2− | 0.5+ | 2002 03 05 | 704 | 0.9− | 0.2− | 2006 01 09 | 699 | 0.8− | 0.2+ |
| 2001 12 17 | 704 | 0.7+ | 0.3+ | 2002 03 05 | 704 | 0.9− | 0.2+ | 2006 01 18 | 703 | 0.6− | 0.3+ |
| 2002 01 07 | 699 | 0.0 | 0.1− | 2002 03 05 | 704 | 0.8− | 0.2− | 2006 01 18 | 703 | 0.0 | 0.4− |
| 2002 01 07 | 699 | 0.1+ | 0.2+ | 2002 03 05 | 704 | 0.0 | 0.0 | 2006 01 18 | 703 | 0.2− | 0.3− |
| 2002 01 07 | 699 | 0.9+ | 1.1+ | 2002 03 05 | 704 | 0.9− | 1.0+ | 2006 01 18 | 703 | 0.5− | 0.7− |
| 2002 01 07 | 699 | 0.4− | 1.0+ | 2005 11 10 | G96 | 0.0 | 0.4− | 2006 01 18 | 644 | 0.0 | 0.1+ |
| 2002 01 08 | 704 | 0.1+ | 0.1− | 2005 11 10 | G96 | 0.1− | 0.4− | 2006 01 18 | 644 | 0.2+ | 0.2+ |
| 2002 01 08 | 704 | 0.3− | 0.1+ | 2005 11 10 | G96 | 0.1+ | 0.3− | 2006 01 18 | 644 | 0.1+ | 0.2− |
| 2002 01 08 | 704 | 0.5+ | 0.3+ | 2005 11 10 | G96 | 0.0 | 0.4− | 2006 05 24 | 291 | 1.4− | 0.1+ |
| 2002 01 08 | 704 | 0.3− | 0.1+ | 2005 12 26 | 703 | 0.1− | 0.5+ | 2006 05 24 | 291 | 0.7+ | 0.1+ |
| 2002 01 08 | 704 | 0.8− | 0.2− | 2005 12 26 | 703 | 0.2+ | 0.5+ | 2006 05 24 | 291 | 0.4+ | 0.3+ |
| 2002 01 21 | 704 | 1.3+ | 0.6+ | 2005 12 26 | 703 | 0.6− | 0.0 | 2008 10 04 | 703 | 0.1+ | 0.9+ |
| 2002 01 21 | 704 | 1.3+ | 0.7+ | 2005 12 26 | 703 | 0.3− | 0.9+ | 2008 10 04 | 703 | (0.5− | 1.6+) |
| 2002 01 21 | 704 | (2.0+ | 0.2+) | 2005 12 29 | 704 | (1.9− | 0.2−) | 2008 10 04 | 703 | 1.0− | 0.7+ |
| 2002 01 21 | 704 | 1.1+ | 0.9+ | 2005 12 29 | 704 | (1.7+ | 0.7−) | 2008 10 04 | 703 | (0.0 | 2.0+) |
| 2002 01 21 | 704 | 1.0+ | 1.2+ | 2005 12 29 | 704 | 0.2+ | 0.1− | 2008 10 22 | 704 | 0.0 | 0.4+ |
| 2002 02 03 | 699 | 0.1− | 0.4+ | 2005 12 29 | 704 | 0.7− | 0.3+ | 2008 10 22 | 704 | 0.1+ | 0.7+ |
| 2002 02 03 | 699 | 1.1+ | 0.0 | 2005 12 29 | 704 | 0.9+ | 0.3− | 2008 10 22 | 704 | 0.4+ | 0.7+ |
| 2002 02 03 | 699 | 0.3− | 0.4+ | 2005 12 30 | 699 | 0.7+ | 0.2− | 2008 10 22 | 704 | 1.0− | 0.2+ |
| 2002 02 03 | 699 | 0.7− | 0.1+ | 2005 12 30 | 699 | 0.8+ | 0.0 | 2008 10 22 | 704 | 0.2− | 1.0+ |
| 2002 02 03 | 644 | 1.2+ | 0.7+ | 2005 12 30 | 699 | 0.0 | 0.5− | 2009 11 17 | G96 | 0.0 | 0.4+ |
| 2002 02 03 | 644 | 0.8+ | 0.8+ | 2005 12 30 | 699 | 0.8− | 0.3− | 2009 11 17 | G96 | 0.0 | 0.1+ |
| 2002 02 03 | 644 | 1.1+ | 1.0+ | 2006 01 05 | 703 | 0.3− | 0.3− | 2009 11 17 | G96 | 0.8+ | 0.0 |
| 2002 02 08 | 645 | 0.1− | 0.3− | 2006 01 05 | 703 | 0.8− | 0.1+ | 2009 11 17 | G96 | 0.1− | 0.1− |
| 2002 02 08 | 645 | 0.1− | 0.3− | 2006 01 05 | 703 | 0.2− | 1.0− | 2009 12 10 | 704 | 0.0 | 1.5+ |
| 2002 02 10 | 704 | 0.6+ | 0.1− | 2006 01 06 | 704 | 0.5+ | 0.5− | 2009 12 10 | 704 | 1.1+ | 0.7+ |
| 2002 02 10 | 704 | 0.1+ | 0.2+ | 2006 01 06 | 704 | 1.0+ | 0.0 | 2009 12 10 | 704 | 0.9+ | 0.2+ |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 02 10 | 704 | 0.5− | 0.2− | 2006 01 06 | 704 | 0.4+ | 0.1− | 2009 12 10 | 704 | 0.3+ | 0.0 |
| 2002 02 10 | 704 | 0.3− | 0.3− | 2006 01 06 | 704 | 0.8+ | 0.4− | 2009 12 17 | 691 | 0.5− | 0.1− |
| 2002 02 10 | 704 | 0.3− | 0.1− | 2006 01 06 | 704 | 0.5+ | 0.5− | 2009 12 17 | 691 | 0.1− | 0.2− |
| 2002 02 12 | 644 | 0.1+ | 0.3+ | 2006 01 07 | 691 | 0.1− | 0.4+ | 2009 12 17 | 691 | 0.2− | 0.2− |

**(228632)∗ 2002 CQ$_{251}$**

Discovered 2002 Feb. 3 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 355.88985 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24193280 | $\omega$ | 1.39550 | | −0.51450435 | −0.83155826 | |
| $a$ | 2.5507793 | $\Omega$ | 119.61044 | | +0.78437941 | −0.55501529 | |
| $e$ | 0.1097465 | $i$ | 13.92850 | | +0.34645954 | +0.02165397 | |
| $P$ | 4.07 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 01 09 | 704 | 1.0+ | 0.9− | 2002 03 21 | 704 | 0.3− | 0.4− | 2006 02 02 | 703 | (1.5− | 0.7−) |
| 2002 01 09 | 704 | 0.6+ | 0.2− | 2004 09 07 | 644 | 0.1+ | 1.0+ | 2006 02 02 | 703 | 0.9+ | 1.4− |
| 2002 01 09 | 704 | (2.0+ | 0.6+) | 2004 09 07 | 644 | 0.2+ | 0.6+ | 2006 02 02 | 703 | 0.8+ | 0.3− |
| 2002 01 09 | 691 | 0.7− | 0.1+ | 2004 09 07 | 644 | 0.1+ | 0.7+ | 2006 02 03 | 699 | 1.1− | 0.5− |
| 2002 01 09 | 704 | 0.4+ | 0.3+ | 2004 09 21 | 704 | 1.1− | 1.2+ | 2006 02 03 | 699 | 1.2− | 0.7+ |
| 2002 01 09 | 704 | 1.3+ | 1.1+ | 2004 09 21 | 704 | 0.3+ | 1.4+ | 2006 02 03 | 699 | 0.6− | 0.4− |
| 2002 01 09 | 691 | 0.7− | 0.2− | 2004 09 21 | 704 | (0.4+ | 2.5+) | 2006 02 03 | 699 | 0.9− | 0.3− |
| 2002 01 09 | 691 | 0.5− | 0.1− | 2005 11 29 | G96 | 0.0 | 0.2− | 2006 02 20 | 704 | 0.2+ | 1.4+ |
| 2002 02 03 | 644 | 0.2+ | 0.1+ | 2005 11 29 | G96 | 0.6+ | 0.1− | 2006 02 20 | 704 | 0.7+ | 0.6− |
| 2002 02 03 | 644 | 0.3+ | 0.5+ | 2005 11 29 | G96 | 0.2− | 0.2− | 2006 02 20 | 704 | 0.5+ | 0.0 |
| 2002 02 03 | 644 | 0.4+ | 0.2+ | 2005 11 29 | G96 | 0.4+ | 0.4− | 2006 02 20 | 704 | 0.4+ | 1.0− |
| 2002 02 04 | 699 | 0.4+ | 0.7+ | 2006 01 04 | 703 | 0.8+ | 0.0 | 2006 02 20 | 704 | 0.2+ | 0.5− |
| 2002 02 04 | 699 | 0.3− | 0.2+ | 2006 01 04 | 703 | 0.7− | 0.8− | 2006 02 22 | 699 | 0.2− | 0.0 |
| 2002 02 04 | 699 | 0.2− | 0.2− | 2006 01 04 | 703 | 0.2− | 0.4− | 2006 02 22 | 699 | 0.1− | 0.1+ |
| 2002 02 04 | 699 | (1.1− | 1.7+) | 2006 01 04 | 703 | 0.3− | 0.6− | 2006 02 22 | 699 | 0.6+ | 0.8+ |
| 2002 02 08 | 704 | 1.0+ | 0.6+ | 2006 01 10 | 703 | (1.7− | 0.6−) | 2006 02 22 | 699 | 0.5− | 0.2− |
| 2002 02 08 | 704 | 0.9+ | 1.1+ | 2006 01 10 | 703 | (0.8− | 2.1−) | 2006 04 24 | 703 | 0.8− | 0.4− |
| 2002 02 08 | 704 | 0.6+ | 1.1+ | 2006 01 10 | 703 | 0.8− | 0.0 | 2006 04 24 | 703 | 0.8− | 0.1− |
| 2002 02 08 | 704 | 0.6+ | 1.0+ | 2006 01 10 | 703 | 0.3− | 0.2+ | 2006 04 24 | 703 | 0.3− | 0.6+ |
| 2002 02 08 | 704 | 0.4+ | 1.0+ | 2006 01 19 | 703 | 0.3+ | 0.1+ | 2006 04 24 | 703 | 0.1+ | 0.5− |
| 2002 03 05 | 699 | 0.1− | 0.4− | 2006 01 19 | 703 | 0.1+ | 0.5+ | 2008 10 02 | 703 | 0.4+ | 0.0 |
| 2002 03 05 | 699 | 0.0 | 0.0 | 2006 01 19 | 703 | 0.8− | 0.5− | 2008 10 02 | 703 | 0.8− | 0.1+ |
| 2002 03 05 | 699 | 0.1+ | 0.1+ | 2006 01 19 | 703 | 0.6− | 0.6+ | 2008 10 02 | 703 | 1.1− | 0.2+ |
| 2002 03 05 | 699 | 0.1+ | 0.2+ | 2006 01 22 | 699 | 1.3+ | 0.1+ | 2008 10 02 | 703 | (1.8− | 0.4−) |
| 2002 03 20 | 704 | 0.4− | 0.6+ | 2006 01 22 | 699 | 0.6+ | 0.2− | 2009 09 30 | G96 | 0.4+ | 0.2− |
| 2002 03 20 | 704 | 0.7− | 1.0− | 2006 01 22 | 699 | 0.7+ | 0.4+ | 2009 09 30 | G96 | 0.2+ | 0.3− |
| 2002 03 20 | 704 | 0.6+ | 0.7+ | 2006 01 22 | 699 | 0.2− | 0.2+ | 2009 09 30 | G96 | 0.5+ | 0.5− |
| 2002 03 20 | 704 | 0.1− | 0.1− | 2006 01 23 | 691 | 0.1+ | 0.1+ | 2009 09 30 | G96 | 0.6+ | 0.2− |
| 2002 03 20 | 704 | 0.3− | 0.8+ | 2006 01 23 | 691 | 0.1+ | 0.2+ | 2009 09 30 | G96 | 0.6+ | 0.0 |
| 2002 03 21 | 644 | 0.1+ | 0.3+ | 2006 01 23 | 691 | 0.1+ | 0.4− | 2009 09 30 | G96 | 0.2+ | 0.2− |
| 2002 03 21 | 644 | 0.3+ | 0.1+ | 2006 01 26 | 703 | 0.1− | 0.6− | 2009 09 30 | G96 | 0.2+ | 0.1− |
| 2002 03 21 | 704 | 0.6+ | 0.3+ | 2006 01 26 | 703 | 0.0 | 0.4− | 2009 12 13 | J75 | 0.3+ | 0.1− |
| 2002 03 21 | 644 | 0.1+ | 0.2+ | 2006 01 26 | 703 | 0.3− | 0.6− | 2009 12 13 | J75 | 0.1− | 0.5+ |
| 2002 03 21 | 704 | 0.2− | 0.9+ | 2006 01 26 | 703 | 0.6− | 0.1− | 2009 12 13 | J75 | 0.9− | 0.0 |
| 2002 03 21 | 704 | 0.6+ | 1.4+ | 2006 02 02 | 703 | 0.1+ | 0.3+ | | | | |

**(228633)∗ 2002 CS$_{255}$**

Discovered 2002 Feb. 6 by M. W. Buie at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 332.05607 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22349307 | $\omega$ | 116.17775 | | −0.12695024 | −0.99057412 | |
| $a$ | 2.6892221 | $\Omega$ | 340.90470 | | +0.84466403 | −0.08076874 | |
| $e$ | 0.0864429 | $i$ | 9.04764 | | +0.52002531 | −0.11063150 | |
| $P$ | 4.41 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 02 06 | 695 | 0.5− | 0.4+ | 2002 03 14 | 704 | (3.0+ | 1.0−) | 2004 09 12 | 691 | 0.1− | 0.3+ |
| 2002 02 06 | 695 | 0.3+ | 0.2+ | 2002 03 14 | 704 | (2.6+ | 0.3+) | 2004 10 07 | 691 | 0.4− | 0.2+ |
| 2002 02 07 | 704 | 0.7+ | 0.9+ | 2002 03 14 | 704 | 1.0+ | 0.3+ | 2004 10 07 | 691 | 0.0 | 0.2+ |
| 2002 02 07 | 704 | 0.5+ | 0.9+ | 2002 03 14 | 704 | 0.8+ | 0.5− | 2004 10 07 | 691 | 0.0 | 0.2+ |
| 2002 02 07 | 704 | 0.0 | 0.1− | 2004 08 11 | 599 | 0.4− | 0.2+ | 2006 01 05 | 224 | 0.3− | 0.1− |
| 2002 02 07 | 704 | 0.5+ | 1.4+ | 2004 08 11 | 599 | 0.2− | 0.3+ | 2006 01 05 | 224 | 1.0− | 0.2− |
| 2002 02 10 | 704 | 1.5+ | 0.8+ | 2004 08 11 | 599 | 0.4− | 0.4+ | 2006 01 06 | 224 | 0.3+ | 0.1+ |
| 2002 02 10 | 704 | (1.6− | 0.6+) | 2004 09 07 | 691 | 0.1− | 0.3+ | 2006 01 07 | 704 | 0.1− | 0.3− |
| 2002 02 10 | 704 | (1.5− | 1.8+) | 2004 09 07 | 691 | 0.1− | 0.1+ | 2006 01 07 | 704 | 0.0 | 0.5− |
| 2002 02 10 | 704 | (2.3− | 0.4−) | 2004 09 07 | 691 | 0.0 | 0.4+ | 2006 01 07 | 704 | 0.1− | 0.5− |
| 2002 02 12 | 704 | 0.3− | 0.0 | 2004 09 08 | 704 | 0.2− | 0.8+ | 2006 01 08 | 224 | 0.5+ | 0.2− |
| 2002 02 12 | 704 | 1.1− | 0.5+ | 2004 09 08 | 704 | 0.3− | 1.2− | 2006 01 08 | 224 | 0.2+ | 0.4− |
| 2002 02 12 | 704 | 0.4− | 0.2− | 2004 09 08 | 704 | 0.6− | 0.2− | 2006 01 08 | 224 | 0.8+ | 0.7− |
| 2002 02 12 | 704 | 0.8+ | 0.9+ | 2004 09 08 | 704 | 0.4− | 0.4+ | 2006 01 18 | 703 | (1.1− | 2.5−) |
| 2002 02 13 | 291 | 0.0 | 0.5+ | 2004 09 09 | 704 | (1.7+ | 0.0 ) | 2006 01 18 | 703 | 0.8− | 0.7− |
| 2002 02 13 | 291 | 0.0 | 0.6+ | 2004 09 09 | 704 | 0.5− | 1.3− | 2006 01 18 | 703 | (2.3− | 1.8−) |
| 2002 02 13 | 291 | 0.2− | 0.4+ | 2004 09 09 | 704 | 0.4+ | 0.1− | 2006 01 18 | 703 | 0.4− | 0.7− |
| 2002 02 22 | 644 | 0.1+ | 0.6+ | 2004 09 09 | 704 | 0.8+ | 0.2+ | 2009 10 27 | J75 | 0.9+ | 0.9− |
| 2002 02 22 | 644 | 0.0 | 0.4+ | 2004 09 09 | 704 | 0.2+ | 0.3− | 2009 10 27 | J75 | 0.9+ | 0.2− |
| 2002 02 22 | 644 | 0.4+ | 0.7+ | 2004 09 10 | 704 | 0.4− | 0.2+ | 2009 10 27 | J75 | 0.3+ | 0.8− |
| 2002 03 04 | 209 | 0.4+ | 0.9− | 2004 09 10 | 704 | 0.0 | 0.1− | 2009 11 19 | 703 | 0.0 | 0.5+ |
| 2002 03 04 | 209 | 0.2+ | 0.2+ | 2004 09 10 | 704 | 0.7− | 0.8+ | 2009 11 19 | 703 | 0.6− | 0.0 |
| 2002 03 04 | 209 | 0.1− | 0.6− | 2004 09 11 | 704 | 0.4− | 0.4+ | 2009 11 19 | 703 | 1.1− | 0.5− |
| 2002 03 09 | 644 | 0.2+ | 0.2+ | 2004 09 11 | 704 | 0.0 | 0.2+ | 2009 11 19 | 703 | 0.9− | 0.6+ |
| 2002 03 09 | 644 | 0.0 | 0.5+ | 2004 09 11 | 704 | 0.3+ | 0.3− | 2009 12 10 | 704 | 0.8− | 0.3+ |
| 2002 03 09 | 644 | 0.0 | 0.7+ | 2004 09 11 | 704 | 0.0 | 0.5− | 2009 12 10 | 704 | 0.8+ | 0.4+ |
| 2002 03 12 | 291 | 0.0 | 0.1− | 2004 09 11 | 704 | 0.6+ | 1.0+ | 2009 12 10 | 704 | 0.1+ | 0.9+ |
| 2002 03 12 | 291 | 0.3+ | 0.2− | 2004 09 12 | 691 | 0.1− | 0.1+ | 2009 12 10 | 704 | 0.2− | 0.4+ |
| 2002 03 12 | 291 | 0.4+ | 0.3− | 2004 09 12 | 691 | 0.0 | 0.2+ | | | | |

**(228634)∗ 2002 CU$_{255}$**

Discovered 2002 Feb. 6 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 6.01467 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23797585 | $\omega$ | 167.09114 | | +0.09046757 | −0.99475706 | |
| $a$ | 2.5789770 | $\Omega$ | 277.70360 | | +0.90939040 | +0.10203416 | |
| $e$ | 0.2532922 | $i$ | 2.75819 | | +0.40598610 | −0.00688603 | |
| $P$ | 4.14 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1992 10 02 | 691 | 0.1− | 0.6+ | 2005 10 29 | G96 | 0.1+ | 0.1− | 2006 01 27 | 704 | 1.1+ | 0.1+ |
| 1992 10 02 | 691 | 0.3− | 0.1+ | 2005 10 29 | G96 | 0.1− | 0.3− | 2006 01 29 | 703 | 0.7− | 0.4+ |
| 1992 10 02 | 691 | 0.0 | 0.2+ | 2005 10 29 | G96 | 0.3− | 0.0 | 2006 01 29 | 703 | 0.1− | 0.1+ |
| 2002 02 06 | 644 | 0.3+ | 1.2+ | 2005 11 25 | G96 | 0.2− | 0.2− | 2006 01 29 | 703 | 0.1− | 0.0 |
| 2002 02 06 | 644 | 1.0+ | 0.4+ | 2005 11 25 | G96 | 0.2− | 0.3− | 2006 01 29 | 703 | 0.8+ | 0.8+ |
| 2002 02 06 | 644 | 0.6+ | 0.8+ | 2005 11 25 | G96 | 0.1− | 0.1− | 2006 02 03 | 699 | 0.4− | 0.1+ |
| 2002 02 07 | 699 | 0.3− | 0.2+ | 2005 12 26 | G96 | 0.1− | 0.2− | 2006 02 03 | 699 | 0.5− | 0.0 |
| 2002 02 07 | 699 | 0.7− | 0.9− | 2005 12 26 | G96 | 0.4− | 0.4− | 2006 02 03 | 699 | 0.3+ | 0.6− |
| 2002 02 07 | 699 | 1.1− | 0.2+ | 2005 12 26 | G96 | 0.7− | 0.2− | 2006 02 03 | 699 | 1.0− | 0.0 |
| 2002 02 07 | 699 | 0.8− | 0.1− | 2005 12 26 | G96 | 0.5− | 0.7− | 2006 02 20 | 703 | (5.3+ | 3.5−) |
| 2002 02 11 | 704 | 0.5+ | 0.8+ | 2006 01 06 | G96 | 0.5− | 0.3− | 2006 02 20 | 703 | (2.2+ | 2.0−) |
| 2002 02 11 | 704 | 0.6+ | 0.1+ | 2006 01 06 | G96 | 0.2− | 0.3− | 2006 02 20 | 703 | (0.4− | 2.0−) |
| 2002 02 11 | 704 | 0.4+ | 0.3+ | 2006 01 06 | G96 | 0.5− | 0.3− | 2006 02 20 | 703 | 0.5− | 1.1− |
| 2002 02 11 | 704 | 0.4+ | 0.5+ | 2006 01 06 | G96 | 0.3− | 0.4− | 2006 02 21 | 699 | 0.2− | 0.3− |
| 2002 02 11 | 704 | 0.7+ | 0.8+ | 2006 01 10 | 703 | 0.6− | 1.0+ | 2006 02 21 | 699 | 0.5− | 1.0+ |
| 2002 02 16 | 644 | 0.3+ | 0.9− | 2006 01 10 | 703 | 0.0 | 1.5− | 2006 02 21 | 699 | 0.4− | 0.6− |
| 2002 02 16 | 644 | 0.2+ | 0.6− | 2006 01 10 | 703 | (1.8− | 0.0 ) | 2006 02 21 | 699 | 0.3+ | 0.0 |
| 2002 02 16 | 644 | 0.1+ | 0.5− | 2006 01 10 | 703 | 1.5+ | 0.0 | 2009 11 20 | 691 | 0.2− | 0.1− |
| 2002 02 20 | 704 | 0.1+ | 1.0+ | 2006 01 23 | G96 | 0.5− | 0.6− | 2009 11 20 | 691 | 0.0 | 0.0 |
| 2002 02 20 | 704 | (1.9+ | 0.3+) | 2006 01 23 | G96 | 0.3− | 0.6− | 2009 11 20 | 691 | 0.2+ | 0.0 |
| 2002 02 20 | 704 | 1.3+ | 0.6+ | 2006 01 23 | G96 | 0.7− | 0.5− | 2009 11 22 | 704 | 0.6+ | 1.0− |
| 2002 02 20 | 704 | 0.9− | 1.0+ | 2006 01 23 | 224 | 0.6+ | 0.0 | 2009 11 22 | 704 | 0.3+ | 0.8− |
| 2002 02 20 | 704 | 0.3+ | 0.0 | 2006 01 23 | 224 | 0.6− | 0.6+ | 2009 11 22 | 704 | 0.1+ | 0.4+ |
| 2002 02 20 | 699 | 1.4− | 0.9+ | 2006 01 24 | 224 | 0.3− | 0.3− | 2009 11 24 | 691 | 0.5− | 0.2− |
| 2002 02 20 | 699 | 0.8+ | 0.4+ | 2006 01 24 | 704 | 0.3+ | 0.5+ | 2009 11 24 | 691 | 0.0 | 0.0 |
| 2002 02 20 | 699 | 0.3+ | 1.1+ | 2006 01 24 | 704 | 0.6+ | 0.2+ | 2009 11 24 | 691 | 0.2− | 0.1− |
| 2002 02 20 | 699 | 0.4− | 0.2+ | 2006 01 24 | 704 | 0.5+ | 0.1+ | 2009 12 10 | 704 | 0.7+ | 0.9+ |
| 2002 03 13 | 704 | (1.9+ | 0.6−) | 2006 01 24 | 704 | 0.4+ | 0.2− | 2009 12 10 | 704 | 0.1− | 0.8+ |
| 2002 03 13 | 704 | 0.8+ | 0.0 | 2006 01 24 | 704 | 0.2+ | 0.1+ | 2009 12 10 | 704 | 0.5+ | 1.3+ |
| 2002 03 13 | 704 | (1.9+ | 0.5+) | 2006 01 27 | 704 | 0.2+ | 0.5− | 2009 12 10 | 704 | 0.7+ | 0.7+ |
| 2002 03 13 | 704 | 0.4+ | 0.3− | 2006 01 27 | 704 | 0.6− | 0.4− | 2009 12 16 | 704 | 0.4+ | 0.2− |
| 2005 10 20 | G96 | 0.3+ | 0.3− | 2006 01 27 | 704 | 0.7+ | 0.0 | 2009 12 16 | 704 | 0.1− | 0.2− |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 20 | G96 | 0.1− | 0.3− | 2006 01 27 | 704 | 0.1+ | 0.0 | 2009 12 16 | 704 | 0.3− | 1.4+ | | |
| 2005 10 20 | G96 | 0.2+ | 0.3− | 2006 01 27 | 704 | 0.2+ | 0.5− | 2009 12 16 | 704 | 0.2+ | 0.5+ | | |
| 2005 10 20 | G96 | 0.1− | 0.0 | 2006 01 27 | 704 | 0.7+ | 0.3+ | | | | | | |
| 2005 10 29 | G96 | 0.5− | 0.4− | 2006 01 27 | 704 | 0.2+ | 0.6− | | | | | | |

**(228635)∗ 2002 CZ$_{272}$ = 2005 SQ$_{219}$**

Discovered 2002 Feb. 8 by NEAT at Palomar.

Id. G. V. Williams (*MPO* 85451)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 29.29863 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23993787 | $\omega$ | 153.60387 | | +0.46813691 | −0.85853933 | |
| $a$ | 2.5648985 | $\Omega$ | 267.84259 | | +0.76921099 | +0.51243876 | |
| $e$ | 0.2472442 | $i$ | 12.08325 | | +0.43492791 | +0.01779701 | |
| $P$ | 4.11 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 07 08 | 691 | 0.0 | 0.0 | 2005 12 06 | 703 | 0.6+ | 0.5+ | 2009 11 10 | G96 | 0.5+ | 0.5− | | |
| 2000 07 08 | 691 | 0.4− | 0.3+ | 2005 12 06 | 703 | 0.3+ | 0.8+ | 2009 11 10 | G96 | 0.1+ | 0.3− | | |
| 2000 07 08 | 691 | 0.0 | 0.1+ | 2005 12 06 | 703 | (2.1+ | 0.3+) | 2009 11 10 | G96 | 0.3+ | 0.4− | | |
| 2002 01 12 | 704 | (0.9− | 2.0−) | 2005 12 28 | 703 | 0.2+ | 0.7+ | 2009 11 10 | G96 | 0.2+ | 0.1− | | |
| 2002 01 12 | 704 | (1.9+ | 1.2−) | 2005 12 28 | 703 | 0.6+ | 0.3+ | 2009 11 18 | 704 | 0.0 | 1.1+ | | |
| 2002 01 12 | 704 | 0.7− | 0.7− | 2005 12 28 | 703 | 0.8+ | 0.1+ | 2009 11 18 | 704 | 0.4− | 0.2+ | | |
| 2002 01 12 | 704 | 0.9+ | 1.2− | 2005 12 28 | 703 | 0.1− | 0.1+ | 2009 11 18 | 704 | 1.0− | 0.5+ | | |
| 2002 02 08 | 644 | 0.2+ | 0.1+ | 2006 01 07 | 699 | 0.6+ | 0.3+ | 2009 11 18 | 704 | 0.8− | 0.8+ | | |
| 2002 02 08 | 644 | 0.2+ | 0.2+ | 2006 01 07 | 699 | 0.7− | 1.0+ | 2009 11 18 | 704 | 0.6− | 0.7+ | | |
| 2002 02 08 | 644 | 0.3+ | 0.0 | 2006 01 07 | 699 | 0.5− | 0.3+ | 2009 11 26 | 703 | (0.3− | 1.8−) | | |
| 2002 02 10 | 699 | 0.8+ | 0.0 | 2006 01 07 | 699 | 0.2+ | 0.3− | 2009 11 26 | 703 | 0.1− | 0.5− | | |
| 2002 02 10 | 699 | (0.0 | 1.7+) | 2006 01 10 | 703 | 0.5− | 0.5− | 2009 11 26 | 703 | 0.4− | 0.4− | | |
| 2002 02 10 | 699 | 0.2+ | 0.4+ | 2006 01 10 | 703 | 0.6− | 0.8− | 2009 11 26 | 703 | 0.3− | 0.4− | | |
| 2002 02 10 | 699 | 0.1− | 0.9+ | 2006 01 10 | 703 | (1.6+ | 0.6−) | 2009 12 15 | 703 | 0.6− | 0.2− | | |
| 2002 02 15 | 704 | 0.5+ | 0.3+ | 2006 01 10 | 703 | 0.5− | 0.7− | 2009 12 15 | 703 | (0.3+ | 1.6+) | | |
| 2002 02 15 | 704 | 0.4+ | 0.1− | 2006 01 25 | 699 | 0.4+ | 0.0 | 2009 12 15 | 703 | 0.3− | 0.5+ | | |
| 2002 02 15 | 704 | 0.1− | 0.1− | 2006 01 25 | 699 | 0.2− | 0.4− | 2009 12 15 | 703 | 0.5− | 0.7− | | |
| 2002 02 15 | 704 | 0.3+ | 0.9+ | 2006 01 25 | 699 | 0.5+ | 0.3− | 2009 12 15 | 703 | 0.0 | 1.1− | | |
| 2002 02 15 | 704 | 0.9− | 0.2− | 2006 01 25 | 699 | 0.5+ | 0.0 | 2009 12 17 | 704 | 1.2+ | 0.7+ | | |
| 2005 09 30 | G96 | 0.2− | 0.2− | 2006 01 30 | 703 | 0.8− | 0.7+ | 2009 12 17 | 704 | 0.7+ | 0.4+ | | |
| 2005 09 30 | G96 | 0.4− | 0.0 | 2006 01 30 | 703 | 0.2+ | 0.0 | 2009 12 17 | 704 | 1.0+ | 0.0 | | |
| 2005 09 30 | G96 | 0.0 | 0.2− | 2006 01 30 | 703 | 1.0− | 0.5+ | 2009 12 20 | 691 | 0.0 | 0.0 | | |
| 2005 09 30 | G96 | 0.2− | 0.2+ | 2006 01 30 | 703 | 0.0 | 0.3− | 2009 12 20 | 691 | 0.0 | 0.1− | | |
| 2005 10 01 | 691 | 0.2− | 0.0 | 2006 02 07 | 703 | 0.6− | 0.4+ | 2009 12 20 | 691 | 0.1− | 0.3+ | | |
| 2005 10 01 | 691 | 0.4+ | 0.2+ | 2006 02 07 | 703 | 0.6− | 0.4+ | 2009 12 27 | D29 | 0.3+ | 0.6− | | |
| 2005 10 01 | 691 | 0.1+ | 0.1+ | 2006 02 07 | 703 | 0.0 | 0.4+ | 2009 12 27 | D29 | 0.3+ | 1.0− | | |
| 2005 10 05 | 691 | 0.3+ | 0.2+ | 2006 02 07 | 703 | 0.1+ | 0.5+ | 2009 12 27 | D29 | 0.2+ | 0.0 | | |
| 2005 10 05 | 691 | 0.2+ | 0.2+ | 2008 06 07 | 691 | 0.1+ | 0.3+ | 2009 12 27 | D29 | 0.1+ | 0.1− | | |
| 2005 10 05 | 691 | 0.4+ | 0.1+ | 2008 06 07 | 691 | 0.0 | 0.3+ | | | | | | |
| 2005 12 06 | 703 | (0.3+ | 1.7+) | 2008 06 07 | 691 | 0.3− | 0.4+ | | | | | | |

**(228636)∗ 2002 CK$_{273}$ = 2005 YG$_{49}$**

Discovered 2002 Feb. 8 by Spacewatch at Kitt Peak.

Id. A. Doppler (*MPO* 100187), G. V. Williams (*MPO* 148487)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 70.99517 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23930927 | $\omega$ | 251.26634 | | +0.93647910 | −0.34628879 | |
| $a$ | 2.5693881 | $\Omega$ | 128.95512 | | +0.34266155 | +0.86959136 | |
| $e$ | 0.1323157 | $i$ | 4.09981 | | +0.07476605 | +0.35198713 | |
| $P$ | 4.12 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 27 | 645 | 0.0 | 0.2− | 2004 09 10 | 691 | 0.1+ | 0.2+ | 2006 02 20 | G96 | 0.3− | 0.2− | | |
| 2000 11 27 | 645 | 0.0 | 0.2− | 2004 09 10 | 691 | 0.2+ | 0.2+ | 2006 02 20 | G96 | 0.3− | 0.0 | | |
| 2002 01 21 | 691 | 0.5− | 0.1+ | 2004 09 10 | 691 | 0.1+ | 0.2+ | 2006 02 20 | G96 | 0.0 | 0.1+ | | |
| 2002 01 21 | 691 | 0.4− | 0.1+ | 2004 09 22 | 691 | (30.6+ | 0.9−) | 2006 02 20 | G96 | 0.3− | 0.0 | | |
| 2002 01 21 | 691 | 0.0 | 0.3+ | 2004 09 22 | 691 | (30.3+ | 1.1−) | 2008 06 30 | 691 | 0.2− | 0.4+ | | |
| 2002 02 08 | 691 | 0.6+ | 0.8− | 2004 09 22 | 691 | (29.9+ | 1.1−) | 2008 06 30 | 691 | 0.5− | 0.6+ | | |
| 2002 02 08 | 691 | 0.3+ | 0.4+ | 2005 12 22 | 691 | 0.3+ | 0.0 | 2008 06 30 | 691 | 0.3− | 0.5+ | | |
| 2002 02 08 | 691 | 0.2+ | 0.4+ | 2005 12 22 | 691 | 0.2+ | 0.3+ | 2008 10 27 | G96 | 0.0 | 0.2+ | | |
| 2002 02 10 | 704 | 0.4+ | 0.1− | 2005 12 22 | 691 | 0.4+ | 0.0 | 2008 10 27 | G96 | 0.0 | 0.2− | | |
| 2002 02 10 | 704 | 0.5− | 1.1+ | 2005 12 27 | 691 | 0.3+ | 0.6+ | 2008 10 27 | G96 | 0.1+ | 0.2− | | |
| 2002 02 10 | 704 | 0.1− | 0.3+ | 2005 12 27 | 691 | 0.4− | 1.4+ | 2008 10 27 | G96 | 1.2+ | 0.8− | | |
| 2002 02 10 | 704 | 0.8+ | 0.6+ | 2005 12 27 | 691 | 0.1+ | 0.1+ | 2009 12 17 | G96 | 0.3+ | 0.0 | | |
| 2004 08 12 | 704 | 0.2− | 0.7+ | 2006 01 06 | G96 | 0.2− | 0.6+ | 2009 12 17 | G96 | 0.1+ | 0.6− | | |
| 2004 08 12 | 704 | 0.4− | 0.7+ | 2006 01 06 | G96 | 0.2− | 0.7+ | 2009 12 17 | G96 | 0.5+ | 0.0 | | |
| 2004 08 12 | 704 | 0.7− | 1.0+ | 2006 01 06 | G96 | 0.2− | 0.6+ | 2009 12 17 | G96 | 0.3+ | 0.2− | | |
| 2004 08 12 | 704 | 0.7− | 0.4+ | 2006 01 06 | G96 | 0.1− | 0.6+ | 2009 12 17 | G96 | 0.1+ | 0.6− | | |
| 2004 08 22 | 691 | 0.0 | 0.5+ | 2006 01 21 | 691 | 0.2− | 0.3+ | 2009 12 18 | 691 | 0.5− | 0.3+ | | |
| 2004 08 22 | 691 | 0.1− | 0.4+ | 2006 01 21 | 691 | 0.1+ | 0.2+ | 2009 12 18 | 691 | 0.3+ | 0.1− | | |
| 2004 08 22 | 691 | 0.0 | 0.6+ | 2006 01 21 | 691 | 0.1+ | 0.1− | 2009 12 18 | 691 | 0.1− | 0.4− | | |

**(228637)∗ 2002 CH$_{285}$**

Discovered 2002 Feb. 10 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 63.36181 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22672502 | $\omega$ | 232.31319 | | +0.99218778 | +0.09578029 | |
| $a$ | 2.6636046 | $\Omega$ | 122.05761 | | −0.06202407 | +0.93466625 | |
| $e$ | 0.0496396 | $i$ | 5.41199 | | −0.10824247 | +0.34238156 | |
| $P$ | 4.35 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 01 14 | 704 | 0.4+ | 0.1− | 2002 02 12 | 691 | 0.3− | 0.0 | 2007 03 15 | 691 | 0.0 | 0.2− | | |
| 2002 01 14 | 704 | 0.2+ | 1.4+ | 2002 02 12 | 691 | 0.3− | 0.2− | 2007 03 15 | 691 | 0.4− | 0.3− | | |
| 2002 01 14 | 704 | 0.9− | 0.7+ | 2003 04 25 | 599 | 0.2− | 0.1− | 2009 10 14 | G96 | 0.1− | 0.0 | | |
| 2002 01 22 | 291 | 0.4− | 0.2+ | 2003 04 25 | 599 | 0.1− | 0.8+ | 2009 10 14 | G96 | 0.3− | 0.3+ | | |
| 2002 01 22 | 291 | 0.3+ | 0.2+ | 2003 04 30 | 691 | 0.6+ | 0.9+ | 2009 10 14 | G96 | 0.5+ | 0.3+ | | |
| 2002 01 22 | 291 | 0.1+ | 0.1+ | 2003 04 30 | 691 | 0.8+ | 1.3+ | 2009 10 14 | G96 | 0.1− | 0.0 | | |
| 2002 02 10 | 704 | 0.2+ | 0.2+ | 2003 04 30 | 691 | 0.9+ | 1.2+ | 2009 11 16 | G96 | 0.0 | 0.4+ | | |
| 2002 02 10 | 704 | 0.6− | 0.3− | 2003 05 11 | 691 | 0.1− | 0.2− | 2009 11 16 | G96 | 0.2+ | 0.2+ | | |
| 2002 02 10 | 704 | 0.2+ | 0.8+ | 2003 05 11 | 691 | 0.9− | 0.5− | 2009 11 16 | G96 | 0.3+ | 0.4+ | | |
| 2002 02 10 | 704 | 0.4− | 0.1+ | 2003 05 11 | 691 | 0.4− | 0.0 | 2009 11 16 | G96 | 0.6+ | 0.3+ | | |
| 2002 02 11 | 691 | 0.2+ | 0.2+ | 2007 03 11 | 691 | 0.1− | 0.6− | 2009 11 21 | 703 | 0.8− | 0.2− | | |
| 2002 02 11 | 691 | 0.3+ | 0.2+ | 2007 03 11 | 691 | 0.1− | 0.4− | 2009 11 21 | 703 | 0.7− | 0.5− | | |
| 2002 02 11 | 691 | 0.4+ | 0.3− | 2007 03 11 | 691 | 0.2− | 0.3− | 2009 11 21 | 703 | 0.5− | 1.5+ | | |
| 2002 02 12 | 691 | 0.1+ | 0.1+ | 2007 03 15 | 691 | 0.2− | 0.7− | 2009 11 21 | 703 | 0.5− | 1.0+ | | |

**(228638)∗ 2002 CV$_{302}$ = 2005 UW$_{405}$**

Discovered 2002 Feb. 12 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 94666)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 357.01142 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23914763 | $\omega$ | 203.50425 | | −0.10225691 | −0.98979886 | |
| $a$ | 2.5705457 | $\Omega$ | 252.48377 | | +0.92838172 | −0.05913899 | |
| $e$ | 0.2878283 | $i$ | 5.97124 | | +0.35728267 | −0.12961785 | |
| $P$ | 4.12 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 27 | 645 | 0.0 | 0.1+ | 2005 12 08 | 704 | 0.1+ | 0.5+ | 2009 11 09 | 691 | 0.5− | 0.2− | | |
| 2000 09 27 | 645 | 0.1− | 0.1+ | 2005 12 25 | 699 | 0.3+ | 0.0 | 2009 11 09 | 691 | 0.1− | 0.6− | | |
| 2002 01 13 | 644 | 0.5+ | 0.6− | 2005 12 25 | 699 | 0.3+ | 0.4+ | 2009 11 11 | 704 | 0.2+ | 0.1− | | |
| 2002 01 13 | 644 | 0.1− | 0.1− | 2005 12 25 | 699 | 0.3− | 0.5+ | 2009 11 11 | 704 | 1.0+ | 0.2− | | |
| 2002 01 13 | 644 | 0.1+ | 0.0 | 2005 12 25 | 699 | 0.3− | 1.5+ | 2009 11 11 | 704 | 0.7+ | 0.5+ | | |
| 2002 02 07 | 644 | 0.3− | 0.1− | 2005 12 27 | 704 | (2.2+ | 1.2−) | 2009 11 11 | 704 | 1.1+ | 0.1+ | | |
| 2002 02 07 | 644 | 0.1− | 0.1+ | 2005 12 27 | 704 | (2.6+ | 0.9−) | 2009 11 17 | 704 | 1.0+ | 1.0+ | | |
| 2002 02 07 | 644 | 0.4− | 0.1+ | 2005 12 27 | 704 | 0.2+ | 0.1− | 2009 11 17 | 704 | 0.5− | 0.4− | | |
| 2002 02 12 | 704 | (1.6+ | 0.6+) | 2005 12 27 | 704 | 1.3+ | 1.0− | 2009 11 17 | 704 | 0.1+ | 0.8− | | |
| 2002 02 12 | 704 | 1.2+ | 0.2− | 2005 12 28 | 683 | 0.3− | 0.3− | 2009 11 20 | 704 | 0.6− | 1.0+ | | |
| 2002 02 12 | 704 | (1.8+ | 0.1−) | 2005 12 28 | 683 | 1.4− | 0.1+ | 2009 11 20 | 704 | 0.0 | 0.3+ | | |
| 2002 02 12 | 704 | (1.6+ | 0.2−) | 2005 12 30 | 683 | 1.3+ | 0.3− | 2009 11 20 | 704 | 0.6− | 0.5+ | | |
| 2002 02 12 | 704 | 1.3+ | 0.0 | 2005 12 30 | 704 | 0.5+ | 0.3+ | 2009 11 20 | 704 | 0.1− | 0.4+ | | |
| 2002 02 15 | 704 | 0.8+ | 0.6+ | 2005 12 30 | 704 | 0.0 | 0.3− | 2009 11 20 | 704 | 0.2− | 0.1+ | | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 02 15 | 704 | 0.3+ | 0.1+ | 2005 12 30 | 683 | 0.6+ | 0.3− | 2009 11 21 | 704 | 0.1+ | 0.1− |
| 2002 02 15 | 704 | 0.6+ | 0.8+ | 2005 12 30 | 704 | 0.2+ | 0.2− | 2009 11 21 | 704 | 0.1+ | 0.7+ |
| 2002 02 15 | 704 | 1.0+ | 0.3+ | 2005 12 30 | 704 | 0.0 | 0.7− | 2009 11 21 | 704 | 0.1− | 0.4+ |
| 2002 02 15 | 704 | 1.0+ | 0.9+ | 2005 12 30 | 704 | 0.3− | 0.6− | 2009 11 21 | 704 | 0.2+ | 0.4+ |
| 2002 02 17 | 644 | 0.2− | 0.1+ | 2006 01 03 | 704 | 0.4− | 0.1+ | 2009 11 21 | 704 | 0.3+ | 0.0 |
| 2002 02 17 | 644 | 0.2− | 0.2+ | 2006 01 03 | 704 | 0.2− | 0.1+ | 2009 12 10 | G96 | 0.1− | 0.3− |
| 2002 02 17 | 644 | 0.1− | 0.0 | 2006 01 03 | 704 | 0.1− | 0.5+ | 2009 12 10 | G96 | 0.1− | 0.2− |
| 2002 03 05 | 699 | 1.1− | 0.6+ | 2006 01 03 | 704 | 0.1− | 1.2+ | 2009 12 10 | G96 | 0.3− | 0.1− |
| 2002 03 05 | 699 | 0.1+ | 0.1+ | 2006 01 03 | 704 | 0.3+ | 0.5− | 2009 12 10 | G96 | 0.1− | 0.1− |
| 2002 03 05 | 699 | 0.7− | 1.2+ | 2006 01 05 | 699 | 0.1− | 0.4+ | 2009 12 11 | 704 | 0.2+ | 0.1− |
| 2002 03 05 | 699 | 1.0− | 1.0+ | 2006 01 05 | 699 | 0.1− | 0.3+ | 2009 12 11 | 704 | 0.4− | 1.6+ |
| 2005 10 29 | G96 | 0.3− | 0.3− | 2006 01 05 | 699 | 0.3− | 0.6− | 2009 12 11 | 704 | 0.2+ | 0.2− |
| 2005 10 29 | G96 | 0.4− | 0.3− | 2006 01 09 | 703 | 0.1+ | 0.6− | 2009 12 11 | 704 | 0.0 | 0.1− |
| 2005 10 29 | G96 | 1.0− | 0.7+ | 2006 01 09 | 703 | 0.6− | 0.8− | 2009 12 11 | 704 | 0.2+ | 0.4− |
| 2005 11 01 | G96 | 0.2− | 0.2− | 2006 01 09 | 703 | 0.2− | 0.3+ | 2009 12 12 | J75 | 0.1+ | 0.2+ |
| 2005 11 01 | G96 | 0.1+ | 0.1− | 2006 01 09 | 703 | 0.8− | 0.3− | 2009 12 12 | J75 | 0.1− | 0.5− |
| 2005 11 01 | G96 | 0.9+ | 0.2− | 2006 01 18 | 703 | 0.0 | 0.6− | 2009 12 12 | J75 | 0.3+ | 0.4− |
| 2005 11 01 | G96 | 0.0 | 0.1− | 2006 01 18 | 703 | 0.6− | 0.1− | 2009 12 17 | 704 | 0.7+ | 0.6+ |
| 2005 11 25 | 703 | 0.8− | 0.1− | 2006 01 18 | 703 | 0.1− | 0.2− | 2009 12 17 | 704 | 0.2+ | 0.1+ |
| 2005 11 25 | 703 | 0.8+ | 0.3+ | 2006 01 18 | 703 | 0.7− | 0.8− | 2009 12 17 | 704 | 0.5+ | 0.3+ |
| 2005 11 25 | 703 | 0.9− | 0.3− | 2006 02 03 | 704 | 0.4− | 0.5+ | 2009 12 17 | 704 | 0.2+ | 0.5+ |
| 2005 11 25 | 703 | 0.7+ | 0.0 | 2006 02 03 | 704 | 0.5+ | 0.4− | 2009 12 17 | 704 | 0.5+ | 0.4+ |
| 2005 12 08 | 704 | 0.3+ | 0.5− | 2006 02 03 | 704 | 0.3+ | 0.4− | | | | |
| 2005 12 08 | 704 | 1.1− | 0.4+ | 2009 11 09 | 691 | 0.4− | 0.1− | | | | |

**(228639)∗ 2002 CA$_{309}$ = 2004 RS$_{230}$**

Discovered 2002 Feb. 10 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 69265)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 355.13465 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23970722 | $\omega$ | 117.11562 | | −0.59756701 | | −0.80173168 |
| $a$ | 2.5665435 | $\Omega$ | 9.60694 | | +0.70827273 | | −0.53470945 |
| $e$ | 0.0197349 | $i$ | 4.06529 | | +0.37585026 | | −0.26704327 |
| $P$ | 4.11 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 30 | 645 | 0.0 | 0.2− | 2004 09 09 | 691 | 0.0 | 0.0 | 2008 09 19 | 691 | 0.3− | 0.3+ |
| 2000 11 30 | 645 | 0.0 | 0.2− | 2004 09 15 | 691 | 0.0 | 0.2+ | 2008 09 19 | 691 | 0.5− | 0.3− |
| 2002 02 10 | 704 | 0.7+ | 0.5+ | 2004 09 15 | 691 | 0.1− | 0.0 | 2008 10 01 | G96 | 0.8+ | 0.1+ |
| 2002 02 10 | 704 | 0.1− | 0.4− | 2004 09 15 | 691 | 0.7+ | 0.0 | 2008 10 01 | G96 | 0.1+ | 0.1− |
| 2002 02 10 | 704 | 1.2+ | 0.5+ | 2004 09 22 | 691 | 0.2+ | 0.1+ | 2008 10 01 | G96 | 0.6+ | 0.1− |
| 2002 02 10 | 704 | 0.5+ | 0.2− | 2004 09 22 | 691 | 0.2+ | 0.0 | 2008 10 01 | G96 | 0.3+ | 0.2− |
| 2002 02 10 | 704 | 0.2+ | 0.3− | 2004 09 22 | 691 | 0.2+ | 0.1− | 2008 10 18 | 691 | 0.7− | 0.2+ |
| 2002 02 12 | 704 | (0.5− | 1.9+) | 2004 10 14 | 691 | 0.0 | 0.1+ | 2008 10 18 | 691 | 0.0 | 0.2+ |
| 2002 02 12 | 704 | 0.2+ | 0.7+ | 2004 10 14 | 691 | 0.2− | 0.2+ | 2008 10 18 | 691 | 0.3− | 0.3+ |
| 2002 02 12 | 704 | (2.6+ | 0.6−) | 2004 10 14 | 691 | 0.2− | 0.2+ | 2009 11 19 | G96 | 0.7+ | 0.4− |
| 2002 02 16 | 644 | (2.0− | 1.0+) | 2004 11 11 | 691 | 0.1+ | 0.0 | 2009 11 19 | G96 | 0.1+ | 0.2− |
| 2002 02 16 | 644 | (2.2− | 0.9+) | 2004 11 11 | 691 | 0.0 | 0.3+ | 2009 11 19 | G96 | 0.4+ | 0.3− |
| 2002 02 16 | 644 | (1.9− | 1.0+) | 2004 11 11 | 691 | 0.1+ | 0.3+ | 2009 11 19 | G96 | 0.2− | 0.3+ |
| 2002 03 12 | 644 | 0.4+ | 0.7+ | 2006 01 26 | 703 | 0.4− | 0.5− | 2009 12 20 | G96 | 0.1+ | 0.8− |
| 2002 03 12 | 644 | 0.6+ | 1.0+ | 2006 01 26 | 703 | 1.0− | 0.8+ | 2009 12 20 | G96 | 0.3+ | 0.7− |
| 2002 03 12 | 644 | 0.2+ | 0.8+ | 2006 01 26 | 703 | 0.1− | 1.0+ | 2009 12 20 | G96 | 0.0 | 0.3− |
| 2004 09 09 | 691 | 0.1+ | 0.3+ | 2006 01 26 | 703 | 1.6− | 1.2+ | 2009 12 20 | G96 | 0.3+ | 0.4− |
| 2004 09 09 | 691 | 0.1+ | 0.0 | 2008 09 19 | 691 | 0.1− | 0.1+ | | | | |

**(228640)∗ 2002 EU$_{15}$**

Discovered 2002 Mar. 6 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 10.53441 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.24282465 | $\omega$ | 227.07657 | | −0.15540478 | | −0.98399098 |
| $a$ | 2.5445298 | $\Omega$ | 232.06931 | | +0.93550133 | | −0.11822643 |
| $e$ | 0.2770326 | $i$ | 6.35029 | | +0.31731155 | | −0.13335763 |
| $P$ | 4.06 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 03 04 | 704 | 1.6− | 0.6− | 2002 03 12 | 704 | 0.2+ | 0.5− | 2006 02 07 | 703 | 0.3+ | 0.7− |
| 1998 03 04 | 704 | (4.0− | 1.3−) | 2002 03 12 | 704 | 0.6− | 0.6− | 2006 02 07 | 703 | 1.2+ | 0.0 |
| 1998 03 04 | 704 | 0.8− | 0.2− | 2002 03 12 | 704 | 0.1− | 0.8+ | 2006 02 07 | 703 | 1.3− | 0.7+ |
| 1998 03 04 | 704 | 0.6− | 0.0 | 2002 03 12 | 704 | 0.2+ | 0.1+ | 2006 02 22 | 703 | 0.5− | 0.7− |
| 2002 01 12 | 704 | 0.5+ | 0.3+ | 2002 03 14 | 644 | 0.5+ | 0.3+ | 2006 02 22 | 703 | 0.8− | 0.3− |
| 2002 01 12 | 704 | 1.2+ | 0.6+ | 2002 03 14 | 644 | 0.7+ | 0.3+ | 2006 02 22 | 703 | 0.1+ | 0.2− |
| 2002 01 12 | 704 | 0.2+ | 0.2− | 2002 03 14 | 644 | 1.5+ | 1.0− | 2006 02 22 | 703 | 0.5− | 0.4− |
| 2002 01 12 | 704 | 0.5− | 0.5+ | 2002 03 17 | 704 | 0.8+ | 0.7+ | 2006 02 25 | 704 | 1.4− | 0.3+ |
| 2002 01 12 | 704 | 0.8+ | 0.6− | 2002 03 17 | 704 | 0.6+ | 0.7+ | 2006 02 25 | 704 | 0.6+ | 0.4+ |
| 2002 02 07 | 644 | 0.0 | 0.1+ | 2002 03 17 | 704 | 0.8+ | 0.2− | 2006 02 25 | 704 | 0.2+ | 0.1+ |
| 2002 02 07 | 644 | 0.2+ | 0.2− | 2004 08 20 | 691 | 0.3− | 0.6+ | 2006 02 25 | 704 | 0.1+ | 0.4− |
| 2002 02 07 | 644 | 0.0 | 0.0 | 2004 08 20 | 691 | 0.0 | 0.4+ | 2006 02 25 | 704 | (1.7− | 0.2−) |
| 2002 02 14 | 608 | 0.6+ | 0.6+ | 2004 08 20 | 691 | 0.3− | 0.4+ | 2009 09 26 | 691 | 0.2− | 0.2− |
| 2002 02 14 | 608 | 0.2− | 0.3− | 2005 12 25 | 703 | 0.6− | 1.2− | 2009 09 26 | 691 | 0.0 | 0.3+ |
| 2002 02 14 | 608 | 0.6+ | 0.2+ | 2005 12 25 | 703 | 0.9− | 0.0 | 2009 09 26 | 691 | 0.1− | 0.1− |
| 2002 02 15 | 704 | 0.0 | 0.2+ | 2005 12 25 | 703 | (1.6− | 1.8+) | 2009 11 27 | G96 | 0.3+ | 0.1− |
| 2002 02 15 | 704 | 0.0 | 0.3− | 2005 12 25 | 703 | 0.1− | 1.2+ | 2009 11 27 | G96 | 0.2+ | 0.1− |
| 2002 02 15 | 704 | 0.3+ | 0.2− | 2006 01 23 | 703 | 0.4− | 0.3+ | 2009 11 27 | G96 | 0.0 | 0.1− |
| 2002 02 15 | 704 | 0.3− | 0.5− | 2006 01 23 | 703 | 0.4− | 0.8+ | 2009 11 27 | G96 | 0.4+ | 0.1− |
| 2002 02 15 | 704 | 0.5− | 0.4− | 2006 01 23 | 703 | 0.1− | 1.1+ | 2009 11 27 | G96 | 0.1+ | 0.2− |
| 2002 03 05 | 703 | 0.2+ | 0.3+ | 2006 01 23 | 703 | 0.1+ | 0.4+ | 2009 12 11 | 703 | 0.7− | 0.6+ |
| 2002 03 05 | 703 | 0.3− | 0.3− | 2006 01 25 | 699 | 0.6+ | 0.1− | 2009 12 11 | 703 | 1.2− | 0.2− |
| 2002 03 05 | 703 | 0.4+ | 0.4− | 2006 01 25 | 699 | 0.0 | 0.1+ | 2009 12 11 | 703 | 0.7− | 0.1+ |
| 2002 03 05 | 703 | 0.6+ | 0.7+ | 2006 01 25 | 699 | 0.1+ | 0.2+ | 2009 12 11 | 703 | 0.5+ | 0.1− |
| 2002 03 06 | 644 | 0.3+ | 0.3+ | 2006 01 25 | 699 | 0.2− | 0.1− | 2009 12 18 | 704 | 1.1+ | 0.1− |
| 2002 03 06 | 644 | 0.2+ | 0.3+ | 2006 01 30 | 703 | 0.8− | 0.2− | 2009 12 18 | 704 | 0.9+ | 0.3+ |
| 2002 03 06 | 644 | 0.4+ | 0.3+ | 2006 01 30 | 703 | 0.9− | 0.9− | 2009 12 18 | 704 | 1.4+ | 0.4+ |
| 2002 03 09 | 644 | 0.2− | 0.8+ | 2006 01 30 | 703 | 0.4− | 0.2− | 2009 12 18 | 704 | 0.9+ | 0.5+ |
| 2002 03 09 | 644 | 0.4+ | 0.8+ | 2006 01 30 | 703 | 0.1− | 0.0 | | | | |
| 2002 03 09 | 644 | 0.3+ | 1.1+ | 2006 02 07 | 703 | 0.6− | 0.1+ | | | | |

**(228641)∗ 2002 ET$_{19}$ = 1998 HB$_{104}$**

Discovered 2002 Mar. 6 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. A. Doppler (*MPO* 29952)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 316.64650 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23071897 | $\omega$ | 25.20951 | | −0.76767593 | | −0.60839752 |
| $a$ | 2.6327756 | $\Omega$ | 115.81236 | | +0.54353978 | | −0.78456444 |
| $e$ | 0.1327227 | $i$ | 12.92192 | | +0.33946750 | | −0.11962898 |
| $P$ | 4.27 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 04 23 | 704 | 0.4+ | 0.1− | 2005 12 27 | G96 | 0.3− | 0.2− | 2006 01 27 | 704 | 0.3+ | 0.6− |
| 1998 04 23 | 704 | (1.5+ | 2.6−) | 2005 12 27 | G96 | 0.7− | 0.3− | 2006 01 27 | 699 | 0.2− | 0.1+ |
| 1998 04 23 | 704 | 1.4+ | 1.2− | 2005 12 27 | 691 | 0.0 | 0.3+ | 2006 02 02 | 703 | 0.0 | 0.3− |
| 1998 04 23 | 704 | (1.0+ | 2.8−) | 2005 12 27 | 691 | 0.2+ | 0.1+ | 2006 02 02 | 703 | 0.1− | 0.2− |
| 1998 04 23 | 704 | 0.7+ | 0.7− | 2005 12 27 | 691 | 0.0 | 0.2+ | 2006 02 02 | 703 | 0.2− | 1.0− |
| 1998 04 24 | 704 | 0.6− | 1.1+ | 2005 12 28 | 704 | 0.3− | 0.3+ | 2006 02 02 | 703 | 0.8− | 0.0 |
| 1998 04 24 | 704 | 0.3+ | 1.2+ | 2005 12 28 | 704 | 1.4+ | 0.6+ | 2006 02 03 | 699 | 0.4− | 0.7+ |
| 1998 04 24 | 704 | 1.4+ | 1.2+ | 2005 12 28 | 704 | 1.3+ | 0.5+ | 2006 02 03 | 699 | 0.0 | 0.3+ |
| 1998 04 24 | 704 | 0.2+ | 0.6+ | 2006 01 04 | G96 | 0.3− | 0.5− | 2006 02 03 | 699 | 0.3− | 0.7+ |
| 2002 02 08 | 699 | 0.3+ | 1.0− | 2006 01 04 | G96 | 0.1+ | 0.4− | 2006 02 03 | 699 | 0.7+ | 0.9+ |
| 2002 02 08 | 699 | 0.6− | 0.0 | 2006 01 04 | G96 | 0.2− | 0.3− | 2006 02 07 | G96 | 0.0 | 0.4− |
| 2002 02 08 | 699 | 0.9− | 0.4+ | 2006 01 04 | G96 | 0.3− | 0.5− | 2006 02 07 | G96 | 0.3− | 0.5− |
| 2002 02 08 | 699 | 0.2− | 0.2+ | 2006 01 05 | 699 | 0.0 | 0.3− | 2006 02 07 | G96 | 0.5− | 0.4− |
| 2002 02 10 | 704 | 0.2− | 1.0+ | 2006 01 05 | 699 | 1.4+ | 0.3+ | 2006 02 07 | G96 | 0.1− | 0.4− |
| 2002 02 10 | 704 | 0.6− | 0.4+ | 2006 01 05 | 699 | 0.1+ | 0.6− | 2006 02 14 | 644 | 0.0 | 0.1− |
| 2002 02 10 | 704 | 0.3− | 0.7+ | 2006 01 08 | 691 | 0.0 | 0.3− | 2006 02 14 | 644 | 0.3+ | 0.3− |
| 2002 02 10 | 704 | 0.8− | 1.3+ | 2006 01 08 | 691 | 0.1− | 0.1− | 2006 02 14 | 644 | 0.1− | 0.0 |
| 2002 02 22 | 644 | 0.4+ | 0.1− | 2006 01 08 | 691 | 0.0 | 0.2− | 2006 02 20 | 704 | 1.0+ | 0.2− |
| 2002 02 22 | 644 | 0.4+ | 0.1− | 2006 01 10 | G96 | 0.1− | 0.3− | 2006 02 20 | 704 | 0.6+ | 0.0 |
| 2002 02 22 | 644 | 0.2+ | 0.0 | 2006 01 10 | G96 | 0.1− | 0.2− | 2006 02 20 | 704 | 0.2+ | 0.1+ |
| 2002 03 06 | 704 | (1.8+ | 0.3+) | 2006 01 10 | G96 | 0.1− | 0.2− | 2006 02 20 | 704 | 0.3+ | 0.3− |
| 2002 03 06 | 704 | (2.1+ | 0.3+) | 2006 01 10 | 703 | 0.6− | 0.4− | 2006 02 20 | 704 | 0.3+ | 0.2+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 03 06 | 704 | (2.9+ | 1.0+) | 2006 01 10 | 703 | 0.4− | 0.3− | 2007 06 09 | 703 | 0.1− | 0.1+ | | |
| 2002 03 06 | 704 | (2.7+ | 1.2+) | 2006 01 10 | 703 | 0.2− | 0.1− | 2007 06 09 | 703 | 0.2+ | 0.4− | | |
| 2002 03 10 | 704 | 0.4+ | 0.7+ | 2006 01 10 | 703 | 0.1+ | 0.4− | 2007 06 09 | 703 | 1.3− | 1.1− | | |
| 2002 03 10 | 704 | 0.5+ | 0.7+ | 2006 01 18 | 703 | 0.3− | 0.4− | 2007 06 09 | 703 | (0.5− | 2.4−) | | |
| 2002 03 10 | 704 | 0.7+ | 1.1+ | 2006 01 18 | 703 | 0.6− | 0.4+ | 2008 08 23 | E12 | 0.9− | 0.6+ | | |
| 2002 03 20 | 704 | 0.1− | 0.2− | 2006 01 18 | 703 | 0.9− | 0.3− | 2008 08 23 | E12 | 0.2− | 0.2+ | | |
| 2002 03 20 | 704 | 0.2+ | 0.1+ | 2006 01 18 | 703 | 0.7− | 0.4+ | 2008 08 23 | E12 | 0.0 | 0.3+ | | |
| 2002 03 20 | 704 | 0.6− | 0.2− | 2006 01 20 | 699 | 0.4− | 0.1− | 2008 08 23 | E12 | 0.1+ | 0.1− | | |
| 2002 03 31 | 644 | 0.1+ | 0.3+ | 2006 01 20 | 699 | 0.4− | 0.4+ | 2009 11 23 | 703 | 0.0 | 0.5− | | |
| 2002 03 31 | 644 | 0.0 | 0.1+ | 2006 01 20 | 699 | 0.4− | 0.2+ | 2009 11 23 | 703 | 0.1− | 1.1− | | |
| 2002 03 31 | 644 | 0.2+ | 0.2+ | 2006 01 20 | 699 | 0.2+ | 0.6+ | 2009 11 23 | 703 | 0.2− | 0.4− | | |
| 2002 04 04 | 704 | 0.1− | 0.9+ | 2006 01 23 | G96 | 0.1+ | 0.5− | 2009 12 13 | 704 | 0.0 | 0.2+ | | |
| 2002 04 04 | 704 | 0.6+ | 0.6+ | 2006 01 23 | G96 | 0.4− | 0.4− | 2009 12 13 | 704 | 0.2+ | 0.4+ | | |
| 2002 04 04 | 704 | 0.1+ | 0.8+ | 2006 01 23 | G96 | 0.2− | 0.2− | 2009 12 13 | 704 | 0.7+ | 0.9+ | | |
| 2002 04 04 | 704 | 0.0 | 0.5+ | 2006 01 23 | G96 | 0.2− | 0.4− | 2009 12 13 | 704 | 0.2+ | 0.9+ | | |
| 2004 09 06 | 644 | 0.1− | 0.8+ | 2006 01 24 | 704 | 0.0 | 0.3+ | 2009 12 13 | 704 | 0.4+ | 0.6+ | | |
| 2004 09 06 | 644 | 0.1+ | 1.2+ | 2006 01 24 | 704 | 0.5+ | 0.0 | 2009 12 15 | 703 | 0.9− | 0.9+ | | |
| 2004 09 06 | 644 | 0.6− | 0.5+ | 2006 01 24 | 704 | 0.9+ | 0.1− | 2009 12 15 | 703 | 0.8− | 0.7+ | | |
| 2004 09 21 | 704 | 1.2− | 0.9+ | 2006 01 24 | 704 | 0.7+ | 0.6− | 2009 12 15 | 703 | 0.1− | 0.3− | | |
| 2004 09 21 | 704 | 0.2+ | 0.1− | 2006 01 24 | 704 | 0.6+ | 0.3− | 2009 12 15 | 703 | 0.4+ | 0.3− | | |
| 2004 09 21 | 704 | 0.6− | 0.1+ | 2006 01 27 | G96 | 0.0 | 0.1− | 2009 12 15 | 703 | 1.1− | 0.3+ | | |
| 2005 11 25 | 703 | 1.0− | 0.3+ | 2006 01 27 | G96 | 0.0 | 0.1− | 2009 12 18 | 704 | 1.2+ | 1.1+ | | |
| 2005 11 25 | 703 | 0.1− | 0.7− | 2006 01 27 | G96 | 0.1+ | 0.3− | 2009 12 18 | 704 | 0.3− | 0.8+ | | |
| 2005 11 25 | 703 | 0.9− | 0.1+ | 2006 01 27 | G96 | 0.1− | 0.3− | 2009 12 18 | 704 | 0.4− | 0.3− | | |
| 2005 11 25 | 703 | 0.2− | 0.3+ | 2006 01 27 | 704 | 0.4+ | 0.1− | 2009 12 18 | 704 | 0.6− | 0.2+ | | |
| 2005 12 22 | 691 | 0.0 | 0.3+ | 2006 01 27 | 704 | 0.3+ | 0.3− | 2009 12 18 | 704 | 1.2+ | 1.3+ | | |
| 2005 12 22 | 691 | 0.2+ | 0.2+ | 2006 01 27 | 704 | 0.3+ | 0.6− | 2009 12 27 | H10 | 0.3+ | 0.3+ | | |
| 2005 12 22 | 691 | 0.3− | 0.5− | 2006 01 27 | 699 | 0.2+ | 0.0 | 2009 12 27 | H10 | 0.5+ | 0.3− | | |
| 2005 12 27 | G96 | 0.1− | 0.2− | 2006 01 27 | 704 | 0.2+ | 0.4− | 2009 12 27 | H10 | 0.2+ | 0.5+ | | |
| 2005 12 27 | G96 | 0.1+ | 0.2− | 2006 01 27 | 699 | (1.5− | 0.8−) | 2009 12 27 | H10 | 0.7+ | 0.4+ | | |

**(228642)∗ 2002 EK$_{24}$**

Discovered 2002 Mar. 5 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 12.46075 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22355037 | $\omega$ | 75.01569 | | +0.33336734 | −0.94279101 | |
| $a$ | 2.6887626 | $\Omega$ | 355.50677 | | +0.84764967 | +0.30128501 | |
| $e$ | 0.0588534 | $i$ | 2.46271 | | +0.41274237 | +0.14273212 | |
| $P$ | 4.41 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 02 09 | 291 | 0.0 | 0.8+ | 2002 04 02 | 691 | 0.1+ | 0.0 | 2006 01 26 | 703 | 0.3− | 0.2+ | | |
| 2002 02 09 | 291 | 0.2− | 0.6+ | 2002 04 02 | 691 | 0.8+ | 0.6− | 2006 01 26 | 703 | 0.5− | 0.6+ | | |
| 2002 02 09 | 291 | 0.4− | 0.7+ | 2004 10 07 | 691 | 0.0 | 0.4+ | 2006 01 27 | 291 | 0.4+ | 0.4+ | | |
| 2002 02 20 | 704 | (2.7− | 0.0 ) | 2004 10 07 | 691 | 0.0 | 0.4+ | 2006 01 27 | 291 | 0.3+ | 0.5+ | | |
| 2002 02 20 | 704 | 0.7− | 0.8+ | 2004 10 07 | 691 | 0.4− | 0.5+ | 2006 01 27 | 291 | 0.1+ | 0.5+ | | |
| 2002 02 20 | 704 | (1.7− | 0.2+) | 2004 10 15 | 691 | 0.3− | 0.5+ | 2006 01 30 | 691 | 0.2− | 0.4+ | | |
| 2002 02 20 | 704 | 0.1− | 1.0− | 2004 10 15 | 691 | 0.1− | 0.3+ | 2006 01 30 | 691 | 0.2+ | 0.2− | | |
| 2002 03 05 | 691 | 0.2+ | 0.2+ | 2004 10 15 | 691 | 0.3− | 0.3+ | 2006 01 30 | 691 | 0.2+ | 0.2− | | |
| 2002 03 05 | 691 | 0.1+ | 0.3+ | 2005 12 30 | 691 | 0.4+ | 0.2− | 2006 03 04 | G96 | 0.2− | 0.2− | | |
| 2002 03 05 | 691 | 0.1+ | 0.4+ | 2005 12 30 | 691 | 0.3+ | 0.1+ | 2006 03 04 | G96 | 0.1+ | 0.2− | | |
| 2002 03 12 | 291 | 0.1+ | 0.2+ | 2005 12 30 | 691 | 0.1+ | 0.4+ | 2006 03 04 | G96 | 0.1− | 0.2− | | |
| 2002 03 12 | 291 | 0.2+ | 0.2+ | 2006 01 04 | 691 | 0.1+ | 0.5− | 2006 03 04 | G96 | 0.2− | 0.1− | | |
| 2002 03 12 | 291 | 0.1+ | 0.1+ | 2006 01 04 | 691 | 0.1− | 0.3− | 2008 09 22 | G96 | 0.5− | 0.0 | | |
| 2002 03 13 | 704 | (0.7− | 1.6+) | 2006 01 04 | 691 | 0.2− | 0.5− | 2008 09 22 | G96 | 0.2+ | 0.3+ | | |
| 2002 03 13 | 704 | 0.3+ | 1.2+ | 2006 01 07 | 691 | 0.1− | 0.1− | 2008 09 22 | G96 | 0.3+ | 0.1+ | | |
| 2002 03 13 | 704 | 0.5− | 0.2− | 2006 01 07 | 691 | 0.1− | 0.0 | 2008 09 22 | G96 | 0.0 | 0.5+ | | |
| 2002 03 13 | 704 | 1.0+ | 1.0+ | 2006 01 07 | 691 | 0.1+ | 0.2− | 2009 11 23 | 691 | 0.3− | 0.1− | | |
| 2002 03 14 | 704 | (1.7+ | 1.4+) | 2006 01 08 | 691 | 0.7+ | 0.4+ | 2009 11 23 | 691 | 0.6− | 0.1+ | | |
| 2002 03 14 | 704 | (1.9+ | 0.1−) | 2006 01 08 | 691 | 0.2− | 0.2− | 2009 11 23 | 691 | 0.0 | 0.0 | | |
| 2002 03 14 | 704 | (3.9− | 3.4+) | 2006 01 08 | 691 | 1.3− | 0.7− | 2009 12 11 | G96 | 0.9+ | 0.1+ | | |
| 2002 03 14 | 704 | (0.7+ | 1.5+) | 2006 01 25 | 691 | 0.1+ | 0.4− | 2009 12 11 | G96 | 1.0+ | 0.7− | | |
| 2002 03 14 | 644 | 0.4+ | 0.1− | 2006 01 25 | 691 | 0.1+ | 0.3− | 2009 12 11 | G96 | 0.4+ | 0.0 | | |
| 2002 03 14 | 644 | 0.5+ | 0.3+ | 2006 01 25 | 691 | 0.2− | 0.2− | 2009 12 11 | G96 | 0.2+ | 0.2− | | |
| 2002 03 14 | 644 | 0.5+ | 0.3− | 2006 01 26 | 703 | 0.4− | 0.3+ | | | | | | |
| 2002 04 02 | 691 | 0.1− | 0.1+ | 2006 01 26 | 703 | 0.6− | 0.5− | | | | | | |

**(228643)∗ 2002 EP$_{33}$ = 2002 CE$_{169}$**

Discovered 2002 Mar. 11 by NEAT at Palomar.

Id. A. Doppler (d, *MPO* 32045)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 355.02016 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23300509 | $\omega$ | 352.39763 | | −0.11249470 | −0.98917476 | |
| $a$ | 2.6155264 | $\Omega$ | 104.02653 | | +0.91669290 | −0.13990581 | |
| $e$ | 0.1508662 | $i$ | 5.57336 | | +0.38343065 | +0.04426811 | |
| $P$ | 4.23 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 02 08 | 699 | 0.1+ | 0.1− | 2005 12 26 | G96 | 0.0 | 0.5− | 2006 01 28 | G96 | 0.3− | 0.4− | | |
| 2002 02 08 | 699 | 0.5+ | 0.7+ | 2005 12 26 | G96 | 0.4− | 0.5− | 2006 01 28 | G96 | 0.4− | 0.4− | | |
| 2002 02 08 | 699 | 0.3− | 0.3− | 2005 12 27 | 691 | 0.2− | 0.3− | 2006 01 28 | G96 | 0.6− | 0.7− | | |
| 2002 02 08 | 704 | 0.3− | 0.2+ | 2005 12 27 | 691 | 0.2+ | 0.2− | 2006 02 06 | 691 | 0.1− | 0.1+ | | |
| 2002 02 08 | 699 | 1.5+ | 0.9− | 2005 12 27 | 691 | 0.2− | 0.2+ | 2006 02 06 | 691 | 0.0 | 0.3+ | | |
| 2002 02 08 | 704 | 0.9− | 1.2+ | 2006 01 04 | 691 | 0.1+ | 0.1− | 2006 02 06 | 691 | 0.1+ | 0.2+ | | |
| 2002 02 08 | 704 | 0.8− | 1.2+ | 2006 01 04 | 691 | 0.1+ | 0.3− | 2006 02 20 | 691 | 0.1+ | 0.1− | | |
| 2002 02 08 | 704 | 0.2− | 0.6+ | 2006 01 04 | 691 | 0.0 | 0.3− | 2006 02 20 | 691 | 0.1+ | 0.2− | | |
| 2002 02 08 | 704 | 0.4− | 1.1+ | 2006 01 08 | 691 | 0.6− | 1.4− | 2006 02 20 | 691 | 1.2− | 0.8+ | | |
| 2002 03 11 | 644 | 0.1+ | 0.3+ | 2006 01 08 | 691 | 0.2− | 0.0 | 2006 02 20 | 704 | 0.2+ | 0.5+ | | |
| 2002 03 11 | 644 | 0.2+ | 0.5+ | 2006 01 08 | 691 | 0.1− | 0.1+ | 2006 02 20 | 704 | 0.6+ | 0.4+ | | |
| 2002 03 11 | 644 | 0.2+ | 0.3+ | 2006 01 18 | 703 | 0.8− | 0.6− | 2006 02 20 | 704 | 0.3+ | 0.4− | | |
| 2002 03 12 | 644 | 0.2+ | 0.5− | 2006 01 18 | 703 | 0.4− | 0.2+ | 2006 02 20 | 704 | 0.8+ | 1.0− | | |
| 2002 03 12 | 644 | 0.3+ | 0.6− | 2006 01 18 | 703 | 0.0 | 0.4+ | 2006 02 25 | 691 | 0.0 | 0.1+ | | |
| 2002 03 12 | 644 | 0.6+ | 0.4− | 2006 01 18 | 703 | 1.5− | 0.3+ | 2006 02 25 | 691 | 0.1+ | 0.1+ | | |
| 2002 03 22 | 644 | 0.0 | 0.3+ | 2006 01 20 | 291 | 0.4+ | 0.4+ | 2006 02 25 | 691 | 0.2+ | 0.1− | | |
| 2002 03 22 | 644 | 0.2+ | 0.1+ | 2006 01 20 | 291 | 0.4+ | 0.2− | 2007 06 13 | 691 | 0.3+ | 0.2− | | |
| 2002 03 22 | 644 | 0.2+ | 0.0 | 2006 01 20 | 291 | 0.6+ | 0.0 | 2007 06 13 | 691 | 0.6− | 0.2− | | |
| 2002 04 02 | 644 | 0.3+ | 0.1+ | 2006 01 22 | 691 | 0.1− | 0.4+ | 2007 06 13 | 691 | 0.2+ | 0.2+ | | |
| 2002 04 02 | 644 | 0.4+ | 0.4+ | 2006 01 22 | 691 | 0.2+ | 0.2− | 2009 11 19 | 691 | 0.7− | 0.4+ | | |
| 2002 04 02 | 644 | 0.1+ | 0.3+ | 2006 01 22 | 691 | 0.1+ | 0.0 | 2009 11 19 | 691 | 0.0 | 0.1+ | | |
| 2005 10 27 | G96 | 0.1− | 0.1− | 2006 01 25 | 703 | 0.5− | 0.7− | 2009 11 19 | 691 | 0.0 | 0.2+ | | |
| 2005 10 27 | G96 | 0.3− | 0.1− | 2006 01 25 | 703 | 0.2− | 0.7− | 2009 11 23 | 691 | 0.0 | 0.3+ | | |
| 2005 10 27 | G96 | 0.4− | 0.6− | 2006 01 25 | 703 | 0.4− | 0.5− | 2009 11 23 | 691 | 0.2− | 0.4+ | | |
| 2005 10 27 | G96 | 0.1+ | 0.3− | 2006 01 25 | 703 | 0.5− | 0.8− | 2009 11 23 | 691 | 0.3+ | 0.2− | | |
| 2005 12 22 | 691 | 0.0 | 0.1+ | 2006 01 26 | 704 | 0.1+ | 0.2+ | 2009 12 17 | 704 | 1.1+ | 0.4+ | | |
| 2005 12 22 | 691 | 0.0 | 0.1+ | 2006 01 26 | 704 | 0.2+ | 0.0 | 2009 12 17 | 704 | 0.0 | 0.3− | | |
| 2005 12 22 | 691 | 0.0 | 0.1+ | 2006 01 26 | 704 | 1.4+ | 0.4+ | 2009 12 17 | 704 | 0.1+ | 0.2+ | | |
| 2005 12 26 | G96 | 0.3− | 0.5− | 2006 01 26 | 704 | 0.5+ | 0.4+ | 2009 12 17 | 704 | 0.2+ | 0.3− | | |
| 2005 12 26 | G96 | 0.1− | 0.6− | 2006 01 28 | G96 | 0.3− | 0.3− | 2009 12 17 | 704 | 0.6+ | 0.3+ | | |

**(228644)∗ 2002 EY$_{33}$**

Discovered 2002 Mar. 11 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 353.94640 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23392066 | $\omega$ | 72.64456 | | −0.07755139 | −0.99642323 | |
| $a$ | 2.6086971 | $\Omega$ | 21.88633 | | +0.87712890 | −0.08419331 | |
| $e$ | 0.2397000 | $i$ | 5.16591 | | +0.47395218 | −0.00722778 | |
| $P$ | 4.21 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 10 14 | 327 | 0.3+ | 0.6+ | 2006 01 08 | 699 | 0.0 | 0.3+ | 2009 11 18 | 691 | 0.2− | 0.0 | | |
| 1996 10 14 | 327 | 0.5− | 0.2+ | 2006 01 08 | 699 | (2.2− | 0.1+) | 2009 11 18 | 691 | 0.4− | 0.1+ | | |
| 1996 10 14 | 327 | 0.1− | 0.4− | 2006 01 08 | 699 | 1.3+ | 0.6− | 2009 11 22 | 704 | 0.8+ | 0.6+ | | |
| 2002 03 11 | 644 | 0.2− | 0.7+ | 2006 01 08 | 699 | 0.2− | 0.3+ | 2009 11 22 | 704 | 0.0 | 0.7+ | | |
| 2002 03 11 | 644 | 0.1− | 0.5+ | 2006 01 19 | 703 | 0.9− | 0.9− | 2009 11 22 | 691 | 0.2− | 0.1+ | | |
| 2002 03 11 | 644 | 0.0 | 0.7+ | 2006 01 19 | 703 | 0.5− | 0.6− | 2009 11 22 | 704 | 1.0+ | 0.5− | | |
| 2002 03 12 | 644 | 0.6+ | 0.0 | 2006 01 19 | 703 | (0.6− | 1.6−) | 2009 11 22 | 691 | 0.1− | 0.1+ | | |
| 2002 03 12 | 644 | 0.6+ | 0.1+ | 2006 01 19 | 703 | 0.3+ | 0.3− | 2009 11 22 | 704 | 0.2+ | 0.8+ | | |
| 2002 03 12 | 644 | 0.4+ | 0.2− | 2006 01 25 | 703 | 0.5− | 0.6− | 2009 11 22 | 691 | 0.2− | 0.1+ | | |
| 2002 03 16 | 704 | 0.1− | 0.8+ | 2006 01 25 | 703 | 0.2− | 0.8− | 2009 11 26 | 691 | 0.4− | 0.0 | | |
| 2002 03 16 | 704 | 0.2+ | 0.3+ | 2006 01 25 | 703 | 0.4− | 0.5− | 2009 11 26 | 691 | 0.1+ | 0.7− | | |
| 2002 03 16 | 704 | 0.1+ | 1.4+ | 2006 01 25 | 703 | 0.1− | 0.3− | 2009 11 26 | 691 | 0.3− | 0.1+ | | |
| 2002 03 16 | 704 | 0.7+ | 0.2+ | 2006 02 02 | 703 | 1.1+ | 0.3− | 2009 12 10 | 704 | 0.4+ | 0.0 | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 03 16 | 704 | (0.7+ | 1.9+) | 2006 02 02 | 703 | 0.4+ | 0.0 | 2009 12 10 | 704 | 0.2+ | 0.1+ | | |
| 2002 04 07 | 807 | 0.1+ | 0.2− | 2006 02 02 | 703 | 0.4+ | 0.3+ | 2009 12 10 | 704 | 0.6+ | 0.1− | | |
| 2002 04 07 | 807 | 0.4− | 0.3− | 2006 02 02 | 703 | 1.4− | 0.2− | 2009 12 10 | 704 | 0.5+ | 0.0 | | |
| 2002 04 11 | 695 | 0.0 | 0.3− | 2009 11 11 | 704 | 0.3+ | 0.7+ | 2009 12 10 | 704 | 1.5+ | 0.1− | | |
| 2002 04 11 | 695 | 0.1+ | 0.1− | 2009 11 11 | 704 | 1.2+ | 0.8+ | 2009 12 15 | 704 | 0.5− | 0.0 | | |
| 2006 01 06 | 704 | 0.0 | 0.5+ | 2009 11 11 | 704 | 0.7+ | 1.3+ | 2009 12 15 | 704 | 0.3+ | 0.2− | | |
| 2006 01 06 | 704 | 0.1− | 0.2− | 2009 11 13 | J75 | 0.6+ | 0.3− | 2009 12 15 | 704 | 0.0 | 0.3− | | |
| 2006 01 06 | 704 | 0.3− | 0.0 | 2009 11 13 | J75 | 0.2− | 0.4+ | 2009 12 15 | 704 | 0.0 | 0.8− | | |
| 2006 01 06 | 704 | 0.2+ | 0.2+ | 2009 11 13 | J75 | 0.4− | 0.3+ | 2009 12 15 | 704 | 0.4− | 0.5− | | |
| 2006 01 06 | 704 | 0.0 | 0.7+ | 2009 11 18 | 691 | 0.2− | 0.0 | | | | | | |

**(228645)∗ 2002 EW$_{43}$**

Discovered 2002 Mar. 12 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 291.08972 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23403810 | $\omega$ | 208.53561 | | −0.92360876 | +0.38327069 | |
| $a$ | 2.6078244 | $\Omega$ | 353.98768 | | −0.33756150 | −0.82195917 | |
| $e$ | 0.1840062 | $i$ | 3.88812 | | −0.18165655 | −0.42129171 | |
| $P$ | 4.21 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 08 12 | 691 | 0.1− | 0.1+ | 2002 04 03 | 644 | 0.9+ | 0.5+ | 2006 02 25 | G96 | 0.1+ | 0.1+ | | |
| 1999 08 12 | 691 | 0.2− | 0.5+ | 2002 04 03 | 644 | 0.8+ | 0.3+ | 2006 02 25 | G96 | 0.0 | 0.0 | | |
| 1999 08 12 | 691 | 0.5− | 0.6+ | 2002 04 04 | 644 | 0.2+ | 0.9+ | 2006 02 25 | G96 | 0.2− | 0.2− | | |
| 2002 02 20 | 704 | 0.9− | 1.1− | 2002 04 04 | 644 | 0.4+ | 0.9+ | 2006 02 25 | G96 | 0.1− | 0.1− | | |
| 2002 02 20 | 704 | 0.4− | 0.1+ | 2002 04 04 | 644 | 0.1+ | 0.8+ | 2006 03 03 | 691 | 0.1+ | 0.2− | | |
| 2002 02 20 | 704 | 0.2− | 1.0− | 2002 04 08 | 691 | 0.0 | 0.5− | 2006 03 03 | 691 | 0.1− | 0.4− | | |
| 2002 02 20 | 704 | (0.2+ | 2.0−) | 2002 04 08 | 691 | 0.3− | 0.1− | 2006 03 03 | 691 | 0.3− | 0.4− | | |
| 2002 03 06 | 644 | 0.0 | 0.1− | 2002 04 08 | 691 | 0.1− | 0.4− | 2006 03 05 | 691 | 0.3− | 0.1− | | |
| 2002 03 06 | 644 | 0.0 | 0.7+ | 2002 04 12 | 704 | 0.3+ | 0.9+ | 2006 03 05 | 691 | 0.3− | 0.2+ | | |
| 2002 03 06 | 644 | 0.9+ | 0.0 | 2002 04 12 | 704 | 0.5+ | 0.7+ | 2006 03 05 | 691 | 0.3− | 0.1− | | |
| 2002 03 12 | 704 | (1.9+ | 0.6−) | 2002 04 12 | 704 | 0.5+ | 0.0 | 2006 03 08 | 691 | 0.6+ | 0.0 | | |
| 2002 03 12 | 704 | 1.2+ | 0.7+ | 2002 04 12 | 704 | 0.7+ | 0.4+ | 2006 03 08 | 691 | 0.1+ | 0.1+ | | |
| 2002 03 12 | 704 | 1.0+ | 0.1+ | 2002 04 12 | 704 | 1.0+ | 0.9+ | 2006 03 08 | 691 | 0.3+ | 0.4+ | | |
| 2002 03 13 | 704 | 0.2+ | 0.3− | 2002 04 14 | 704 | 0.2+ | 0.7+ | 2006 05 03 | G96 | 0.5− | 0.3− | | |
| 2002 03 13 | 704 | 0.3+ | 0.5+ | 2002 04 14 | 704 | 0.1+ | 0.7+ | 2006 05 03 | G96 | 0.2+ | 0.0 | | |
| 2002 03 13 | 704 | (1.5+ | 1.7+) | 2002 04 14 | 704 | 0.9+ | 0.9+ | 2006 05 03 | G96 | 0.6− | 0.4− | | |
| 2002 03 13 | 704 | 1.1+ | 0.0 | 2002 04 14 | 704 | 0.5+ | 1.3+ | 2006 05 03 | G96 | 0.0 | 0.3− | | |
| 2002 03 13 | 704 | 1.2+ | 0.3+ | 2004 10 15 | 695 | 0.2− | 0.3+ | 2008 09 26 | 691 | 0.0 | 0.8+ | | |
| 2002 03 13 | 644 | 0.6+ | 0.9+ | 2004 10 15 | 695 | 0.4− | 0.3+ | 2008 09 26 | 691 | 0.3+ | 1.0+ | | |
| 2002 03 13 | 644 | 0.6+ | 1.0+ | 2006 01 20 | 691 | 0.2− | 0.2− | 2008 09 26 | 691 | 0.3+ | 0.3+ | | |
| 2002 03 13 | 644 | 0.6+ | 0.9+ | 2006 01 20 | 691 | 0.1− | 0.3+ | 2008 10 20 | 691 | 0.9− | 0.1+ | | |
| 2002 03 15 | 644 | 0.5+ | 0.4+ | 2006 01 20 | 691 | 0.5+ | 0.1+ | 2008 10 20 | 691 | 0.1+ | 0.3+ | | |
| 2002 03 15 | 704 | 0.0 | 1.0+ | 2006 01 25 | 691 | 0.1+ | 0.1− | 2008 10 20 | 691 | 0.7− | 0.6+ | | |
| 2002 03 15 | 644 | 0.3+ | 0.6+ | 2006 01 25 | 691 | 0.1+ | 0.1− | 2009 12 19 | G96 | 0.1+ | 0.1+ | | |
| 2002 03 15 | 704 | 0.9− | 0.6− | 2006 01 25 | 691 | 0.2+ | 0.1− | 2009 12 19 | G96 | 0.0 | 0.3+ | | |
| 2002 03 15 | 704 | 0.5− | 0.3+ | 2006 01 26 | 703 | 0.8− | 0.4+ | 2009 12 19 | G96 | 0.0 | 0.3− | | |
| 2002 03 15 | 704 | 1.4− | 0.7− | 2006 01 26 | 703 | (2.7− | 0.5−) | 2009 12 19 | G96 | 0.0 | 0.1+ | | |
| 2002 03 15 | 644 | 0.8+ | 0.5+ | 2006 01 26 | 703 | 1.4− | 0.4+ | 2009 12 27 | 691 | 0.3− | 0.1− | | |
| 2002 03 18 | 691 | 0.3− | 0.4+ | 2006 01 26 | 703 | 0.2− | 0.0 | 2009 12 27 | 691 | 0.1+ | 0.5− | | |
| 2002 03 18 | 691 | 0.1− | 0.2+ | 2006 01 31 | 691 | 0.0 | 0.0 | 2009 12 27 | 691 | 0.1− | 0.1+ | | |
| 2002 03 18 | 691 | 0.3− | 0.1+ | 2006 01 31 | 691 | 0.2+ | 0.1+ | | | | | | |
| 2002 04 03 | 644 | 0.6+ | 1.0+ | 2006 01 31 | 691 | 0.0 | 0.2+ | | | | | | |

**(228646)∗ 2002 EA$_{53}$ = 1995 SV$_{21}$**

Discovered 2002 Mar. 9 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. M. E. Sansaturio (*MPO* 35170)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 265.10493 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22473650 | $\omega$ | 111.67523 | | −0.98256542 | +0.18212920 | |
| $a$ | 2.6792936 | $\Omega$ | 78.83387 | | −0.18152928 | −0.89645312 | |
| $e$ | 0.1400804 | $i$ | 2.18114 | | −0.04015374 | −0.40398114 | |
| $P$ | 4.39 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 09 19 | 691 | 0.1+ | 1.0+ | 2002 03 12 | 644 | 0.2+ | 0.5− | 2006 01 10 | G96 | 0.4− | 0.4− | | |
| 1995 09 19 | 691 | 0.5+ | 0.0 | 2002 03 12 | 644 | 0.1+ | 0.2− | 2006 01 10 | G96 | 0.4− | 0.3− | | |
| 1995 09 19 | 691 | 0.0 | 0.6+ | 2002 03 14 | 704 | 0.6− | 1.2+ | 2006 01 23 | G96 | 0.2− | 0.1− | | |
| 1995 09 24 | 691 | 0.5− | 0.2+ | 2002 03 14 | 704 | 0.7+ | 0.3+ | 2006 01 23 | G96 | 0.1+ | 0.1− | | |
| 1995 09 24 | 691 | 0.2− | 0.3+ | 2002 03 14 | 704 | 0.5− | 0.9− | 2006 01 23 | G96 | 0.5+ | 0.1− | | |
| 1995 09 24 | 691 | 0.3− | 0.1− | 2002 03 16 | 704 | 0.9+ | 0.7− | 2006 01 23 | G96 | 0.3+ | 0.2− | | |
| 2000 11 02 | 691 | 0.1− | 0.5− | 2002 03 16 | 704 | 0.8+ | 0.7+ | 2006 02 07 | G96 | 0.5+ | 0.2− | | |
| 2000 11 02 | 691 | 0.2− | 0.0 | 2002 03 16 | 704 | 1.0+ | 0.2+ | 2006 02 07 | G96 | 0.3+ | 0.4− | | |
| 2000 11 02 | 691 | 0.0 | 0.6− | 2002 03 16 | 704 | 0.6+ | 0.2− | 2006 02 07 | G96 | 0.1+ | 0.5− | | |
| 2002 02 10 | 704 | 0.2+ | 0.3− | 2002 03 16 | 704 | 0.3+ | 0.6+ | 2006 02 07 | G96 | 0.0 | 0.7− | | |
| 2002 02 10 | 704 | 0.9+ | 0.5+ | 2002 03 16 | 704 | 0.5− | 1.1+ | 2006 03 26 | G96 | 0.1− | 0.3+ | | |
| 2002 02 10 | 704 | (0.7+ | 2.5+) | 2002 03 16 | 704 | 0.4− | 1.2+ | 2006 03 26 | G96 | 0.2− | 0.1− | | |
| 2002 02 10 | 704 | 0.5+ | 0.8+ | 2002 03 16 | 704 | (2.0+ | 0.4−) | 2006 03 26 | G96 | 0.0 | 0.0 | | |
| 2002 02 20 | 704 | 1.4+ | 0.6− | 2002 03 16 | 704 | 0.2− | 0.0 | 2006 03 26 | G96 | 0.2+ | 0.2− | | |
| 2002 02 20 | 704 | 1.3+ | 0.2+ | 2002 03 16 | 704 | 0.4+ | 1.1+ | 2009 11 16 | 691 | 0.0 | 0.2+ | | |
| 2002 02 20 | 704 | 1.1+ | 0.4+ | 2005 12 22 | 691 | 0.1+ | 0.1+ | 2009 11 16 | 691 | 0.0 | 0.4+ | | |
| 2002 03 09 | 644 | (0.3+ | 1.6+) | 2005 12 22 | 691 | 0.3+ | 0.3+ | 2009 11 16 | 691 | 0.2+ | 0.2+ | | |
| 2002 03 09 | 704 | 0.7+ | 0.9− | 2005 12 22 | 691 | 0.2− | 0.1− | 2009 11 20 | 691 | 0.1− | 0.2+ | | |
| 2002 03 09 | 704 | 0.7+ | 0.7− | 2005 12 26 | 691 | 0.1− | 0.0 | 2009 11 20 | 691 | 0.3− | 0.1− | | |
| 2002 03 09 | 644 | 0.3+ | 1.4+ | 2005 12 26 | 691 | 0.1+ | 0.1+ | 2009 11 20 | 691 | 0.7− | 0.1+ | | |
| 2002 03 09 | 704 | (0.6− | 2.1−) | 2005 12 26 | 691 | 0.2+ | 0.0 | 2009 12 10 | G96 | 0.2+ | 0.2− | | |
| 2002 03 09 | 644 | 0.5+ | 1.1+ | 2006 01 08 | 691 | 0.0 | 0.0 | 2009 12 10 | G96 | 0.7+ | 0.2− | | |
| 2002 03 12 | 645 | 0.3− | 0.1+ | 2006 01 08 | 691 | 0.2+ | 0.3− | 2009 12 10 | G96 | 0.5+ | 0.0 | | |
| 2002 03 12 | 645 | 0.2− | 0.0 | 2006 01 08 | 691 | 0.1+ | 0.1+ | 2009 12 10 | G96 | 0.6+ | 0.2− | | |
| 2002 03 12 | 644 | 0.3+ | 0.2− | 2006 01 10 | G96 | 0.3− | 0.4− | | | | | | |

**(228647)∗ 2002 EJ$_{64}$**

Discovered 2002 Mar. 13 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 219.58498 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22994468 | $\omega$ | 290.75394 | | −0.08315170 | +0.99455951 | |
| $a$ | 2.6386825 | $\Omega$ | 334.23153 | | −0.85219324 | −0.10360578 | |
| $e$ | 0.1220109 | $i$ | 8.29868 | | −0.51657766 | +0.01082670 | |
| $P$ | 4.29 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 10 13 | 704 | 0.0 | 0.8+ | 2006 01 20 | 691 | 0.0 | 0.3+ | 2006 03 05 | G96 | 0.0 | 0.2+ | | |
| 1999 10 13 | 704 | 0.6− | 0.2+ | 2006 01 20 | 691 | 0.5+ | 0.1− | 2006 03 24 | G96 | 0.0 | 0.1− | | |
| 1999 10 13 | 704 | 0.2− | 0.1+ | 2006 01 20 | 691 | 0.3+ | 0.1− | 2006 03 24 | G96 | 0.1+ | 0.2− | | |
| 1999 10 13 | 704 | (2.2− | 0.3−) | 2006 01 31 | 691 | 0.4+ | 0.2+ | 2006 03 24 | G96 | 0.3− | 0.2− | | |
| 1999 10 13 | 645 | 0.3− | 0.2+ | 2006 01 31 | 691 | 0.3+ | 0.3+ | 2006 03 24 | G96 | 0.3+ | 0.1− | | |
| 1999 10 13 | 645 | 0.1− | 0.2+ | 2006 01 31 | 691 | 0.2+ | 0.4+ | 2008 10 24 | 703 | 0.4− | 0.5+ | | |
| 2002 02 11 | 704 | 0.7− | 0.3+ | 2006 02 02 | 699 | 1.3+ | 0.9− | 2008 10 24 | 703 | 0.1− | 0.8+ | | |
| 2002 02 11 | 704 | 0.9+ | 0.6+ | 2006 02 02 | 699 | 0.3+ | 0.1+ | 2008 10 24 | 703 | 0.9+ | 0.6+ | | |
| 2002 02 11 | 704 | (0.2+ | 2.0+) | 2006 02 02 | 699 | 0.3+ | 1.2+ | 2008 10 24 | 703 | 0.4− | 0.7+ | | |
| 2002 03 12 | 699 | 0.6+ | 0.8+ | 2006 02 02 | 699 | 0.2+ | 0.5− | 2008 10 28 | 704 | 0.8+ | 0.7− | | |
| 2002 03 12 | 699 | (1.3+ | 1.6+) | 2006 02 02 | G96 | 0.2− | 0.4− | 2008 10 28 | 704 | 0.2− | 0.0 | | |
| 2002 03 12 | 699 | 0.1+ | 0.5+ | 2006 02 02 | G96 | 0.3− | 0.3− | 2008 10 28 | 704 | 0.7+ | 0.5+ | | |
| 2002 03 12 | 699 | 1.1+ | 0.3+ | 2006 02 02 | G96 | 0.1+ | 0.3− | 2008 11 01 | G96 | 0.6+ | 0.4+ | | |
| 2002 03 13 | 704 | 0.6+ | 1.1+ | 2006 02 02 | G96 | 0.1− | 0.2− | 2008 11 01 | G96 | 0.6+ | 0.5+ | | |
| 2002 03 13 | 704 | 0.6+ | 0.2+ | 2006 02 04 | 691 | 0.0 | 0.0 | 2008 11 01 | G96 | 0.2+ | 0.5+ | | |
| 2002 03 13 | 704 | 0.4+ | 0.4+ | 2006 02 04 | 691 | 0.2+ | 0.2− | 2008 11 01 | G96 | 0.2+ | 0.3+ | | |
| 2002 03 13 | 704 | 0.2+ | 0.9+ | 2006 02 04 | 691 | 0.3+ | 0.1+ | 2008 11 03 | 703 | 0.2+ | 0.9+ | | |
| 2002 03 13 | 704 | 0.9+ | 0.0 | 2006 02 09 | 644 | 0.4− | 0.0 | 2008 11 03 | 703 | 0.6+ | 0.8+ | | |
| 2002 03 13 | 644 | 0.5+ | 0.6+ | 2006 02 09 | 644 | 0.5+ | 0.0 | 2008 11 03 | 703 | 0.6+ | 0.1− | | |
| 2002 03 13 | 644 | 0.3+ | 0.5+ | 2006 02 09 | 644 | 0.1− | 0.2− | 2008 11 03 | 703 | 0.5− | 0.1− | | |
| 2002 03 13 | 644 | 0.3+ | 0.5+ | 2006 02 20 | 703 | 1.4− | 0.1− | 2009 12 20 | 691 | 0.0 | 0.2− | | |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 03 15 | 704 | 0.1− | 0.1+ | 2006 02 20 | 703 | (1.8+ | 0.9−) | 2009 12 20 | 691 | 0.3+ | 0.2− |
| 2002 03 15 | 704 | 0.4− | 0.0 | 2006 02 20 | 703 | 0.7− | 0.1− | 2009 12 20 | 691 | 0.0 | 0.2− |
| 2002 03 15 | 704 | 0.5+ | 0.2+ | 2006 02 20 | 703 | 0.1− | 0.1− | 2009 12 26 | 291 | 0.6− | 0.0 |
| 2002 04 04 | 644 | 0.0 | 0.4+ | 2006 02 25 | G96 | 0.4+ | 0.3− | 2009 12 26 | 291 | 0.8− | 0.1+ |
| 2002 04 04 | 644 | 0.2+ | 0.5+ | 2006 02 25 | G96 | 0.3+ | 0.4− | 2009 12 26 | 291 | 0.4− | 0.0 |
| 2002 04 04 | 644 | 0.4+ | 0.6+ | 2006 02 25 | G96 | 0.1+ | 0.8− | 2009 12 27 | 291 | 0.4− | 0.0 |
| 2002 04 10 | 704 | 1.0+ | 0.6+ | 2006 02 25 | G96 | 0.2− | 0.3− | 2009 12 27 | 291 | 0.7− | 0.0 |
| 2002 04 10 | 704 | 0.3− | 0.7+ | 2006 03 05 | G96 | 0.2+ | 0.0 | 2009 12 27 | 291 | 0.5− | 0.1+ |
| 2002 04 10 | 704 | 0.4+ | 0.8+ | 2006 03 05 | G96 | 0.2− | 0.2− | | | | |
| 2002 04 10 | 704 | 0.1− | 1.5+ | 2006 03 05 | G96 | 0.1− | 0.0 | | | | |

**(228648)∗ 2002 EQ$_{75}$ = 2006 BK$_{26}$**

Discovered 2002 Mar. 14 by NEAT at Palomar.

Id. A. Doppler (*MPO* 94694)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 2.46981 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23788899 | $\omega$ | 189.31145 | | −0.35683743 | | −0.92432984 |
| $a$ | 2.5796046 | $\Omega$ | 281.68776 | | +0.86572227 | | −0.27282959 |
| $e$ | 0.1174969 | $i$ | 7.93627 | | +0.35098718 | | −0.26679273 |
| $P$ | 4.14 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 30 | 645 | 0.0 | 0.0 | 2006 01 23 | 704 | 0.3+ | 0.0 | 2006 02 22 | 703 | 0.1+ | 0.0 |
| 2000 11 30 | 645 | 0.0 | 0.1+ | 2006 01 23 | 704 | 0.6− | 0.1− | 2006 02 22 | 703 | 0.4+ | 0.0 |
| 2002 02 15 | 704 | (2.2− | 0.8−) | 2006 01 23 | 704 | 0.2− | 0.1+ | 2008 08 30 | 704 | (0.5+ | 2.1+) |
| 2002 02 15 | 704 | (2.2− | 1.3−) | 2006 01 24 | 461 | 0.3− | 0.2+ | 2008 08 30 | 704 | (0.7− | 1.6+) |
| 2002 02 15 | 704 | 0.9− | 0.7− | 2006 01 24 | 461 | 0.2+ | 0.2+ | 2008 08 30 | 704 | 0.1+ | 0.3+ |
| 2002 02 15 | 704 | (1.5− | 1.7−) | 2006 01 24 | 461 | 0.0 | 0.1− | 2008 08 30 | 704 | 0.1+ | 0.6+ |
| 2002 03 09 | 644 | 0.2+ | 0.3+ | 2006 01 25 | 461 | 0.1− | 0.1+ | 2009 09 28 | 691 | 0.8− | 0.0 |
| 2002 03 09 | 644 | 0.1− | 0.4− | 2006 01 25 | 461 | 0.2+ | 0.1− | 2009 09 28 | 691 | 0.6− | 0.3− |
| 2002 03 09 | 644 | 0.2− | 0.1+ | 2006 01 25 | 461 | 0.2+ | 0.1+ | 2009 09 28 | 691 | 0.1− | 0.3+ |
| 2002 03 14 | 644 | 0.2+ | 0.9+ | 2006 01 26 | 461 | 0.1+ | 0.2+ | 2009 11 16 | G96 | 0.3+ | 0.1− |
| 2002 03 14 | 644 | 0.5+ | 0.4+ | 2006 01 26 | 461 | 0.1− | 0.1+ | 2009 11 16 | G96 | 0.2− | 0.3− |
| 2002 03 14 | 644 | 0.3− | 0.9+ | 2006 01 26 | 461 | 0.0 | 0.0 | 2009 11 16 | G96 | 0.1− | 0.2− |
| 2002 03 15 | 644 | 0.1+ | 0.6+ | 2006 01 26 | 461 | 0.1+ | 0.2+ | 2009 11 16 | G96 | 0.0 | 0.3− |
| 2002 03 15 | 644 | 0.0 | 0.6+ | 2006 02 02 | 699 | 0.3+ | 0.1− | 2009 12 15 | G96 | 0.0 | 0.4− |
| 2002 03 15 | 644 | 0.1+ | 0.6+ | 2006 02 02 | 699 | 0.2+ | 0.1− | 2009 12 15 | G96 | 0.1+ | 0.1− |
| 2004 09 10 | 704 | 1.0− | 0.3− | 2006 02 02 | 699 | 0.0 | 0.3+ | 2009 12 15 | G96 | 0.1+ | 0.1+ |
| 2004 09 10 | 704 | 1.0− | 0.4+ | 2006 02 02 | 699 | 0.5− | 0.4− | 2009 12 15 | G96 | 0.4− | 0.0 |
| 2004 09 10 | 704 | (1.6− | 1.1+) | 2006 02 07 | 703 | 0.0 | 0.2− | 2009 12 17 | 691 | 0.3− | 0.0 |
| 2004 09 18 | 704 | 0.6− | 0.8− | 2006 02 07 | 703 | 0.6+ | 0.1− | 2009 12 17 | 691 | 0.1− | 0.1− |
| 2004 09 18 | 704 | 1.0+ | 0.7− | 2006 02 07 | 703 | 0.7+ | 0.9− | 2009 12 17 | 691 | 0.1− | 0.2− |
| 2004 09 18 | 704 | 0.6+ | 0.9+ | 2006 02 07 | 703 | 0.3− | 1.1− | 2009 12 25 | 691 | 0.8+ | 0.3+ |
| 2006 01 23 | 704 | 0.3+ | 0.8− | 2006 02 22 | 703 | 0.6− | 0.7− | 2009 12 25 | 691 | 0.1+ | 0.1− |
| 2006 01 23 | 704 | 0.5+ | 0.0 | 2006 02 22 | 703 | 0.3− | 1.3+ | 2009 12 25 | 691 | 0.1+ | 0.2+ |

**(228649)∗ 2002 EQ$_{85}$**

Discovered 2002 Mar. 9 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 299.44222 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22082153 | $\omega$ | 133.93341 | | −0.79729384 | | −0.60257309 |
| $a$ | 2.7108684 | $\Omega$ | 9.20550 | | +0.47177952 | | −0.65834656 |
| $e$ | 0.0922259 | $i$ | 12.65438 | | +0.37649253 | | −0.45109364 |
| $P$ | 4.46 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 19 | 704 | 0.3− | 0.2+ | 2002 03 20 | 644 | 0.4+ | 0.5+ | 2005 12 30 | 703 | 1.4− | 0.5− |
| 2000 11 19 | 704 | 0.7+ | 0.4+ | 2002 03 20 | 644 | 0.4+ | 0.5+ | 2005 12 30 | 703 | 0.4− | 0.2+ |
| 2000 11 19 | 704 | 1.3+ | 1.8− | 2002 03 20 | 644 | 0.4+ | 0.3+ | 2005 12 30 | 703 | 0.3+ | 1.1− |
| 2000 11 19 | 704 | 1.4+ | 1.3− | 2002 04 03 | 644 | 0.4+ | 0.0 | 2006 01 22 | 704 | 0.1+ | 0.3+ |
| 2000 11 19 | 704 | 0.2− | 0.6− | 2002 04 03 | 644 | 0.4+ | 0.3+ | 2006 01 22 | 704 | 0.3− | 0.8+ |
| 2002 02 10 | 704 | 0.5+ | 0.2+ | 2002 04 03 | 644 | 0.4+ | 0.3+ | 2006 01 22 | 703 | 1.2+ | 0.9− |
| 2002 02 10 | 704 | 0.1+ | 1.1+ | 2002 04 10 | 704 | 0.9+ | 0.5+ | 2006 01 22 | 703 | 0.0 | 0.7− |
| 2002 02 10 | 704 | 0.5+ | 0.7+ | 2002 04 10 | 704 | 0.0 | 0.3+ | 2006 01 22 | 704 | 0.4+ | 0.0 |
| 2002 03 09 | 704 | (0.1+ | 1.8+) | 2002 04 10 | 704 | 0.0 | 0.6+ | 2006 01 22 | 703 | 0.2− | 0.0 |
| 2002 03 09 | 704 | (0.7+ | 1.8+) | 2002 04 10 | 704 | 1.2+ | 0.8+ | 2006 01 22 | 703 | 0.1+ | 0.4− |
| 2002 03 09 | 704 | 0.2+ | 0.4+ | 2002 04 10 | 704 | 1.4+ | 0.4+ | 2006 01 22 | 704 | 0.3+ | 0.7+ |
| 2002 03 09 | 704 | 1.1+ | 0.9+ | 2004 10 04 | 691 | 0.3− | 0.6+ | 2006 01 27 | 703 | 0.1+ | 0.5− |
| 2002 03 13 | 691 | 0.1+ | 0.5+ | 2004 10 04 | 691 | 0.4− | 0.8+ | 2006 01 27 | 703 | 0.3− | 0.4+ |
| 2002 03 13 | 691 | 0.2+ | 0.1+ | 2004 10 04 | 691 | 0.6− | 0.2+ | 2006 01 27 | 703 | 0.2− | 1.0− |
| 2002 03 13 | 691 | 0.2+ | 0.3+ | 2004 10 08 | 699 | 1.0− | 0.4+ | 2006 01 27 | 703 | 0.0 | 0.7+ |
| 2002 03 14 | 699 | 0.1+ | 0.1− | 2004 10 08 | 699 | (0.0 | 2.2+) | 2006 03 03 | 703 | 0.9− | 0.6+ |
| 2002 03 14 | 699 | 0.5− | 0.0 | 2004 10 08 | 699 | 0.6− | 1.0+ | 2006 03 03 | 703 | 0.8− | 0.3+ |
| 2002 03 14 | 699 | (0.8+ | 1.9+) | 2004 10 08 | 699 | 0.9− | 0.9+ | 2006 03 03 | 703 | 0.2− | 0.3+ |
| 2002 03 14 | 699 | (1.7− | 0.4−) | 2004 10 09 | 704 | 1.3− | 0.8+ | 2006 03 03 | 703 | 1.1− | 0.2− |
| 2002 03 16 | 704 | 0.3+ | 0.8+ | 2004 10 09 | 704 | 0.8− | 0.4+ | 2009 11 24 | 704 | 0.5+ | 0.8− |
| 2002 03 16 | 704 | 0.1+ | 0.5+ | 2004 10 09 | 704 | 1.0− | 0.4+ | 2009 11 24 | 704 | 0.3+ | 0.6− |
| 2002 03 16 | 704 | 0.4+ | 0.7+ | 2004 10 12 | 691 | 0.0 | 0.2+ | 2009 11 24 | 704 | 0.2+ | 0.2+ |
| 2002 03 16 | 704 | 0.4+ | 0.8+ | 2004 10 12 | 691 | 0.3− | 0.4+ | 2009 11 24 | 704 | 0.7+ | 1.2+ |
| 2002 03 16 | 704 | 0.8+ | 0.4+ | 2004 10 12 | 691 | 0.2− | 0.0 | 2009 12 18 | 703 | 1.1+ | 0.6+ |
| 2002 03 19 | 699 | 0.7+ | 0.3+ | 2004 10 14 | 691 | 0.2− | 0.3+ | 2009 12 18 | 703 | 0.2+ | 0.4+ |
| 2002 03 19 | 699 | (2.4+ | 0.4−) | 2004 10 14 | 691 | 0.2− | 0.4+ | 2009 12 18 | 703 | 0.2+ | 1.0+ |
| 2002 03 19 | 699 | (1.4+ | 1.5−) | 2004 10 14 | 691 | 0.3− | 0.4+ | 2009 12 18 | 703 | 1.2− | 0.0 |
| 2002 03 19 | 699 | 0.5+ | 0.5+ | 2005 12 30 | 703 | 1.3− | 0.4− | | | | |

**(228650)∗ 2002 EU$_{92}$**

Discovered 2002 Mar. 14 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 163.68527 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.20499594 | $\omega$ | 237.73645 | | −0.73496035 | | +0.67479781 |
| $a$ | 2.8486507 | $\Omega$ | 344.35321 | | −0.50811855 | | −0.61339976 |
| $e$ | 0.0929557 | $i$ | 14.37117 | | −0.44905325 | | −0.41035187 |
| $P$ | 4.81 | $H$ | 15.3 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 09 07 | 704 | 0.3+ | 0.8− | 2004 09 21 | 704 | 0.2− | 0.4+ | 2007 03 09 | 703 | 0.0 | 0.6+ |
| 1999 09 07 | 704 | 0.7− | 1.3− | 2004 09 21 | 704 | 0.8+ | 0.4+ | 2007 03 09 | 644 | 0.1− | 0.3− |
| 1999 09 07 | 704 | 0.6+ | 0.4− | 2004 09 21 | 704 | 1.2− | 0.4− | 2007 03 09 | 644 | 0.3+ | 0.1+ |
| 1999 09 07 | 704 | 0.4− | 0.4+ | 2004 09 21 | 704 | 0.0 | 0.4+ | 2007 03 09 | 644 | 0.2+ | 0.3− |
| 2002 02 04 | 644 | 0.3− | 0.4+ | 2004 09 21 | 704 | (1.7− | 0.1+) | 2007 03 09 | 644 | 0.2+ | 0.1− |
| 2002 02 04 | 644 | 0.1+ | 0.4+ | 2006 11 24 | 691 | 0.1− | 0.6− | 2007 03 09 | 644 | 0.2+ | 0.2− |
| 2002 02 04 | 644 | 0.2+ | 0.1− | 2006 11 24 | 691 | 0.4− | 0.4− | 2007 03 09 | 644 | 0.1+ | 0.1+ |
| 2002 02 08 | 704 | 0.6+ | 0.1+ | 2006 11 24 | 691 | 0.1− | 1.0− | 2007 03 10 | 644 | 0.0 | 0.1− |
| 2002 02 08 | 704 | (0.6+ | 2.6+) | 2007 01 27 | G96 | 0.1+ | 0.3− | 2007 03 10 | G96 | 0.2− | 0.4− |
| 2002 02 08 | 704 | 0.7+ | 0.7+ | 2007 01 27 | G96 | 0.3− | 0.6− | 2007 03 10 | G96 | 0.0 | 0.3− |
| 2002 02 08 | 704 | 0.2+ | 0.0 | 2007 01 27 | G96 | 0.0 | 0.5− | 2007 03 10 | 644 | 0.1− | 0.2+ |
| 2002 02 14 | 644 | 0.4+ | 1.4+ | 2007 01 27 | G96 | 0.4− | 0.5− | 2007 03 10 | G96 | 0.1− | 0.3− |
| 2002 02 14 | 644 | 0.5+ | 1.0+ | 2007 02 07 | 691 | 0.1− | 0.1+ | 2007 03 10 | G96 | 0.3− | 0.3− |
| 2002 02 14 | 644 | 0.4+ | 1.2+ | 2007 02 07 | 691 | 0.0 | 0.1− | 2007 03 10 | 644 | 0.2+ | 0.0 |
| 2002 03 02 | 644 | 0.7− | 0.3+ | 2007 02 07 | 691 | 0.1− | 0.1+ | 2007 03 13 | 699 | 0.2− | 0.3+ |
| 2002 03 02 | 644 | 0.9− | 0.1+ | 2007 02 15 | 644 | 0.2+ | 0.6+ | 2007 03 13 | 699 | 0.1+ | 0.7− |
| 2002 03 02 | 644 | 0.4− | 0.0 | 2007 02 15 | 644 | 0.2+ | 0.1+ | 2007 03 13 | 699 | 0.6+ | 0.6+ |
| 2002 03 06 | 704 | 0.2+ | 0.1+ | 2007 02 15 | 644 | 0.0 | 0.2+ | 2007 03 13 | 699 | 0.3− | 0.4+ |
| 2002 03 06 | 704 | 0.1+ | 0.4+ | 2007 02 21 | 704 | 0.4+ | 1.3+ | 2007 03 14 | 704 | (1.5+ | 2.0−) |
| 2002 03 06 | 704 | 0.2+ | 0.6+ | 2007 02 21 | 704 | 0.3+ | 0.6+ | 2007 03 14 | 704 | 0.4+ | 0.0 |
| 2002 03 12 | 644 | 0.0 | 1.2+ | 2007 02 21 | 704 | (1.8+ | 0.5+) | 2007 03 14 | 704 | 0.8+ | 0.7+ |
| 2002 03 12 | 644 | 0.1− | 1.1+ | 2007 02 21 | 704 | 0.4+ | 0.3+ | 2007 03 14 | 704 | (1.5+ | 0.8+) |
| 2002 03 12 | 644 | 0.0 | 1.1+ | 2007 02 21 | 704 | 1.2− | 0.5+ | 2007 03 17 | 704 | 0.9− | 1.2− |
| 2002 03 14 | 704 | 0.2+ | 0.6− | 2007 02 21 | G96 | 0.0 | 0.5− | 2007 03 17 | 704 | 1.2+ | 0.7− |
| 2002 03 14 | 704 | 0.6+ | 0.4− | 2007 02 21 | G96 | 0.0 | 0.3− | 2007 03 17 | 704 | 0.4− | 0.1− |
| 2002 03 14 | 704 | 0.1+ | 1.3− | 2007 02 21 | G96 | 0.0 | 0.5− | 2007 03 17 | 704 | 0.7− | 0.1+ |
| 2002 03 14 | 704 | 0.2+ | 0.3− | 2007 02 21 | G96 | 0.0 | 0.4− | 2007 03 21 | 703 | 0.4− | 1.2+ |
| 2002 03 14 | 704 | 0.4+ | 0.5− | 2007 02 22 | 691 | 0.3− | 0.4− | 2007 03 21 | 703 | 0.4+ | 0.5+ |
| 2002 03 16 | 704 | 0.2− | 0.5− | 2007 02 22 | 691 | 0.3− | 0.0 | 2007 03 21 | 703 | 1.1+ | 0.5+ |
| 2002 03 16 | 704 | 0.1− | 0.4− | 2007 02 22 | 691 | 0.3− | 0.1− | 2007 03 21 | 703 | 0.4+ | 0.8+ |
| 2002 03 16 | 704 | 0.0 | 0.9− | 2007 02 23 | 704 | 1.4+ | 0.3− | 2009 10 24 | 703 | 0.6− | 0.2− |
| 2004 09 10 | 704 | 0.5+ | 0.6+ | 2007 02 23 | 704 | 0.3+ | 0.1+ | 2009 10 24 | 703 | 0.3+ | 0.2− |
| 2004 09 10 | 704 | 0.6− | 0.8+ | 2007 02 23 | 704 | (1.7+ | 0.9−) | 2009 10 24 | 703 | 0.7− | 0.5− |
| 2004 09 10 | 704 | 0.3+ | 1.3+ | 2007 02 23 | 704 | 0.4+ | 0.5+ | 2009 10 24 | 703 | 0.9− | 0.4− |
| 2004 09 10 | 704 | 0.5− | 1.1+ | 2007 02 23 | 704 | (1.7+ | 0.1−) | 2009 12 20 | G96 | 0.2− | 0.3− |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 18 | 704 | (0.6− | 1.9+) | 2007 03 09 | 703 | 0.6+ | 0.9+ | 2009 12 20 | G96 | 0.4+ | 0.8− |
| 2004 09 18 | 704 | 0.0 | 0.5+ | 2007 03 09 | 703 | 0.0 | 0.5+ | 2009 12 20 | G96 | 0.0 | 0.2− |
| 2004 09 18 | 704 | 1.5+ | 0.9+ | 2007 03 09 | 703 | 0.5− | 0.4+ | 2009 12 20 | G96 | 0.1− | 0.0 |

**(228651)∗ 2002 EQ$_{101}$ = 1998 HP$_{120}$**

Discovered 2002 Mar. 6 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. A. Doppler (*MPO* 30058)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 263.12721 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22516661 | $\omega$ | 78.40057 | | −0.97078677 | +0.15879117 | |
| $a$ | 2.6758806 | $\Omega$ | 110.53274 | | −0.21144823 | −0.92051107 | |
| $e$ | 0.1242958 | $i$ | 11.07463 | | +0.11341384 | −0.35699403 | |
| $P$ | 4.38 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 04 23 | 704 | 0.6− | 1.0− | 2002 03 20 | 644 | 0.1− | 0.1+ | 2006 01 24 | 704 | 0.3− | 0.2+ |
| 1998 04 23 | 704 | 0.6+ | 0.3− | 2002 03 20 | 704 | 0.4+ | 0.8− | 2006 01 24 | 704 | 0.3− | 1.1+ |
| 1998 04 23 | 704 | 0.7+ | 0.3+ | 2002 03 20 | 644 | 0.2− | 0.2+ | 2006 01 30 | 691 | 0.4+ | 0.2− |
| 1998 04 23 | 704 | 0.8− | 0.9+ | 2002 03 21 | 644 | 0.2+ | 0.1− | 2006 01 30 | 691 | 0.5+ | 0.3− |
| 1998 04 24 | 704 | 0.3− | 0.5− | 2002 03 21 | 644 | 0.3+ | 0.0 | 2006 01 30 | 691 | 0.2+ | 0.0 |
| 1998 04 24 | 704 | (2.1− | 1.1−) | 2002 03 21 | 644 | 0.1+ | 0.2+ | 2006 02 02 | 691 | 0.2+ | 0.2− |
| 1998 04 24 | 704 | 1.1+ | 0.3− | 2002 03 31 | 644 | 0.0 | 0.0 | 2006 02 02 | 691 | 0.3+ | 0.1− |
| 1998 04 24 | 704 | 1.0− | 0.7+ | 2002 03 31 | 644 | 0.0 | 0.2+ | 2006 02 02 | 691 | 1.0− | 0.6+ |
| 2002 01 21 | 644 | 0.1− | 0.2− | 2002 03 31 | 644 | 0.0 | 0.1+ | 2006 02 07 | G96 | 0.2+ | 0.6− |
| 2002 01 21 | 644 | 0.3+ | 0.1+ | 2002 04 01 | 644 | 0.1+ | 0.5+ | 2006 02 07 | G96 | 0.4− | 0.4− |
| 2002 01 21 | 644 | 0.6+ | 0.1+ | 2002 04 01 | 644 | 0.1+ | 0.4+ | 2006 02 07 | G96 | 0.1− | 0.8− |
| 2002 02 10 | 704 | 0.3+ | 0.2+ | 2002 04 01 | 644 | 0.0 | 0.1+ | 2006 02 07 | G96 | 0.2− | 0.4− |
| 2002 02 10 | 704 | 0.7+ | 0.2+ | 2002 05 05 | 704 | 0.0 | 0.1− | 2007 05 17 | 703 | 0.7− | 0.5+ |
| 2002 02 10 | 704 | 0.6+ | 0.3− | 2002 05 05 | 704 | 0.3+ | 0.1+ | 2007 05 17 | 703 | 0.1− | 0.1− |
| 2002 02 10 | 704 | 0.7+ | 0.3− | 2002 05 05 | 704 | 0.7− | 0.0 | 2007 05 17 | 703 | 0.8+ | 0.6+ |
| 2002 02 10 | 704 | 0.1+ | 1.0− | 2002 05 05 | 704 | 0.3− | 0.4+ | 2007 05 17 | 703 | 0.8+ | 0.0 |
| 2002 02 22 | 644 | 0.1− | 0.8+ | 2005 11 30 | G96 | 0.1− | 0.4− | 2007 06 09 | 703 | (1.0+ | 1.8−) |
| 2002 02 22 | 644 | 0.1− | 0.7+ | 2005 11 30 | G96 | 0.2+ | 0.0 | 2007 06 09 | 703 | 0.8− | 0.3− |
| 2002 02 22 | 644 | 0.1+ | 0.7+ | 2005 11 30 | G96 | 0.2− | 0.3− | 2007 06 09 | 703 | 0.0 | 0.3− |
| 2002 03 06 | 704 | 0.4+ | 0.3+ | 2005 11 30 | G96 | 0.5− | 0.4− | 2007 06 09 | 703 | (2.2− | 0.5−) |
| 2002 03 06 | 704 | 0.0 | 0.8+ | 2005 12 28 | 691 | 0.1+ | 0.3+ | 2008 09 06 | 703 | 1.3− | 0.4− |
| 2002 03 06 | 704 | 1.2+ | 0.5− | 2005 12 28 | 691 | 0.1+ | 0.1+ | 2008 09 06 | 703 | 1.0+ | 0.0 |
| 2002 03 06 | 704 | (1.5+ | 0.5+) | 2005 12 28 | 691 | 0.1+ | 0.3+ | 2008 09 06 | 703 | (0.5+ | 1.5+) |
| 2002 03 06 | 704 | 0.4+ | 0.1+ | 2006 01 04 | G96 | 0.7− | 1.2− | 2008 09 06 | 703 | 0.1+ | 1.1+ |
| 2002 03 09 | 699 | 0.1+ | 0.4− | 2006 01 04 | G96 | 0.2− | 0.3− | 2009 11 27 | G96 | 0.0 | 0.3+ |
| 2002 03 09 | 699 | 1.5− | 0.5+ | 2006 01 04 | G96 | 0.3− | 0.8− | 2009 11 27 | G96 | 0.1+ | 0.2+ |
| 2002 03 09 | 699 | 0.5− | 0.1+ | 2006 01 05 | 691 | 0.1− | 0.3+ | 2009 11 27 | G96 | 0.1− | 0.2− |
| 2002 03 09 | 699 | 0.4− | 0.1− | 2006 01 05 | 691 | 0.3− | 0.3+ | 2009 11 27 | G96 | 0.5+ | 0.0 |
| 2002 03 17 | 608 | 0.7− | 0.5− | 2006 01 05 | 691 | 0.2− | 0.2+ | 2009 11 27 | G96 | 0.2+ | 0.1+ |
| 2002 03 17 | 608 | 0.7− | 0.5− | 2006 01 23 | G96 | 0.3− | 0.5− | 2009 12 13 | 704 | 0.5− | 0.0 |
| 2002 03 17 | 608 | 0.9− | 0.2− | 2006 01 23 | G96 | 0.2− | 0.4− | 2009 12 13 | 704 | 0.2+ | 0.4+ |
| 2002 03 20 | 704 | 0.0 | 0.3− | 2006 01 23 | G96 | 0.1− | 0.4− | 2009 12 13 | 704 | 0.2+ | 0.2− |
| 2002 03 20 | 644 | 0.2− | 0.1− | 2006 01 24 | 704 | 0.6+ | 0.3− | | | | |
| 2002 03 20 | 704 | 0.8+ | 0.2− | 2006 01 24 | 704 | 0.8+ | 0.4+ | | | | |

**(228652)∗ 2002 EP$_{120}$**

Discovered 2002 Mar. 11 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 18.87625 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23555557 | $\omega$ | 114.58967 | | +0.24990844 | −0.96752801 | |
| $a$ | 2.5966124 | $\Omega$ | 320.87697 | | +0.86523912 | +0.24070886 | |
| $e$ | 0.2093387 | $i$ | 3.44223 | | +0.43463437 | +0.07712847 | |
| $P$ | 4.18 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 03 24 | 691 | 0.2− | 0.5− | 2006 01 12 | 644 | 0.6− | 0.3+ | 2006 02 08 | 704 | (1.5+ | 2.4+) |
| 1998 03 24 | 691 | 0.1− | 0.0 | 2006 01 12 | 644 | 0.4− | 0.0 | 2006 02 08 | 704 | 1.1+ | 0.5+ |
| 1998 03 24 | 691 | 0.0 | 0.1− | 2006 01 22 | 691 | 0.1+ | 0.2+ | 2006 02 20 | G96 | 0.3− | 0.8− |
| 2002 02 25 | 644 | 0.9+ | 0.6+ | 2006 01 22 | 691 | 0.1− | 0.2+ | 2006 02 20 | G96 | 0.6− | 0.0 |
| 2002 02 25 | 644 | 0.1+ | 0.4+ | 2006 01 22 | 691 | 0.2− | 0.3+ | 2006 02 20 | G96 | 0.3− | 0.0 |
| 2002 02 25 | 644 | 0.3− | 0.0 | 2006 01 24 | 704 | 1.1+ | 1.1+ | 2006 02 20 | G96 | 0.4− | 0.2+ |
| 2002 03 05 | 644 | 0.4+ | 0.4+ | 2006 01 24 | 704 | 1.1+ | 0.6− | 2006 04 20 | G96 | 0.8− | 0.2+ |
| 2002 03 05 | 644 | 0.1+ | 0.5+ | 2006 01 24 | 704 | 0.7+ | 0.4− | 2006 04 20 | G96 | 0.2+ | 0.5− |
| 2002 03 11 | 691 | 0.1+ | 0.0 | 2006 01 24 | 704 | 0.1+ | 0.5− | 2006 04 20 | G96 | 0.9+ | 0.2+ |
| 2002 03 11 | 691 | 0.0 | 0.3− | 2006 01 24 | 704 | 0.4− | 0.5+ | 2006 04 20 | G96 | 0.7− | 0.1− |
| 2002 03 11 | 691 | 0.1− | 0.0 | 2006 01 26 | G96 | 0.7− | 0.2− | 2009 10 14 | G96 | 0.1− | 0.2− |
| 2002 03 13 | 704 | 0.2− | 0.9+ | 2006 01 26 | G96 | 0.2− | 0.1− | 2009 10 14 | G96 | 0.0 | 0.2− |
| 2002 03 13 | 704 | 0.4+ | 0.3+ | 2006 01 26 | G96 | 0.3− | 0.2− | 2009 10 14 | G96 | 0.0 | 0.0 |
| 2002 03 13 | 704 | 0.5− | 0.9+ | 2006 01 26 | G96 | 0.6− | 0.0 | 2009 10 14 | G96 | 0.1+ | 0.2+ |
| 2002 03 13 | 704 | 0.1+ | 0.8+ | 2006 01 27 | 704 | 0.5+ | 0.2+ | 2009 12 10 | 704 | 0.2+ | 0.6+ |
| 2002 03 13 | 644 | 0.3+ | 0.1+ | 2006 01 27 | 704 | 0.3− | 0.1+ | 2009 12 10 | 704 | 0.0 | 0.7− |
| 2002 03 13 | 644 | 0.3+ | 0.2− | 2006 01 27 | 704 | 0.9+ | 0.7− | 2009 12 10 | 704 | 0.8− | 0.3− |
| 2002 03 13 | 644 | 0.2+ | 0.1+ | 2006 01 27 | 704 | 1.1+ | 0.6− | 2009 12 10 | 704 | 1.1− | 0.0 |
| 2002 04 04 | 644 | 0.3+ | 0.2− | 2006 02 01 | 691 | 0.2− | 0.0 | 2009 12 10 | 704 | 0.3− | 0.1+ |
| 2002 04 04 | 644 | 0.0 | 0.1− | 2006 02 01 | 691 | 0.2− | 0.0 | 2009 12 16 | 704 | 1.4+ | 1.3+ |
| 2002 04 04 | 644 | 0.5+ | 0.0 | 2006 02 01 | 691 | 0.1− | 0.0 | 2009 12 16 | 704 | 0.6+ | 0.6+ |
| 2006 01 04 | 703 | 0.6− | 0.6− | 2006 02 02 | 699 | 0.6+ | 0.3− | 2009 12 16 | 704 | 0.3+ | 0.1− |
| 2006 01 04 | 703 | 0.6− | 0.3+ | 2006 02 02 | 699 | 0.0 | 1.0− | 2009 12 19 | 691 | 0.6+ | 0.6+ |
| 2006 01 04 | 703 | 0.8+ | 1.1− | 2006 02 02 | 699 | 0.8+ | 0.4− | 2009 12 19 | 691 | 0.0 | 0.1− |
| 2006 01 04 | 703 | 0.2+ | 0.9− | 2006 02 02 | 699 | 0.1− | 0.2+ | 2009 12 19 | 691 | 0.2− | 0.2− |
| 2006 01 06 | 699 | 0.9− | 0.9+ | 2006 02 03 | 704 | (0.1+ | 2.2+) | 2009 12 27 | 691 | 0.1− | 0.0 |
| 2006 01 06 | 699 | 0.2− | 0.1− | 2006 02 03 | 704 | 0.8+ | 0.3− | 2009 12 27 | 691 | 0.5− | 0.4− |
| 2006 01 06 | 699 | (2.1+ | 0.7+) | 2006 02 03 | 704 | 0.4− | 0.8− | 2009 12 27 | 691 | 0.0 | 0.1− |
| 2006 01 06 | 699 | 0.3+ | 0.4− | 2006 02 08 | 704 | (2.0+ | 1.1+) | | | | |
| 2006 01 12 | 644 | 0.5− | 0.4+ | 2006 02 08 | 704 | (1.9+ | 2.3+) | | | | |

**(228653)∗ 2002 EZ$_{129}$**

Discovered 2002 Mar. 12 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 277.08586 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21880463 | $\omega$ | 274.96227 | | −0.70915923 | −0.69481578 | |
| $a$ | 2.7275018 | $\Omega$ | 221.10085 | | +0.69724568 | −0.66594791 | |
| $e$ | 0.2103531 | $i$ | 10.48977 | | +0.10460232 | −0.27155922 | |
| $P$ | 4.50 | $H$ | 15.3 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 01 10 | 644 | 0.2− | 1.4− | 2005 10 31 | G96 | 0.0 | 0.2− | 2005 12 08 | 704 | 0.0 | 0.3+ |
| 2002 01 10 | 644 | 0.4+ | 0.6− | 2005 11 01 | G96 | 0.0 | 0.0 | 2005 12 27 | 704 | 0.4− | 0.7+ |
| 2002 01 10 | 644 | 0.0 | 1.0− | 2005 11 01 | G96 | 0.2+ | 0.0 | 2005 12 27 | 704 | 0.4− | 0.6+ |
| 2002 02 08 | 644 | 0.1− | 0.2− | 2005 11 01 | G96 | 0.4+ | 0.2− | 2005 12 27 | 704 | 0.3+ | 0.3+ |
| 2002 02 08 | 644 | 0.3− | 0.3− | 2005 11 01 | G96 | 0.2+ | 0.0 | 2006 01 31 | 703 | (0.5+ | 2.6+) |
| 2002 02 08 | 644 | 0.1− | 0.3− | 2005 11 02 | G96 | 0.2+ | 0.1− | 2006 01 31 | 703 | (0.6+ | 1.5+) |
| 2002 02 12 | 704 | 0.6+ | 0.2− | 2005 11 02 | G96 | 0.1+ | 0.4− | 2006 01 31 | 703 | 0.0 | 0.0 |
| 2002 02 12 | 704 | 0.7+ | 0.3− | 2005 11 02 | G96 | 0.0 | 0.1− | 2006 01 31 | 703 | 0.5+ | 0.0 |
| 2002 02 12 | 704 | (5.8+ | 1.9−) | 2005 11 02 | G96 | 0.3+ | 0.0 | 2007 04 11 | 691 | 0.3− | 0.1+ |
| 2002 02 12 | 704 | 0.0 | 0.4− | 2005 11 06 | 704 | 0.1− | 0.1+ | 2007 04 11 | 691 | 0.3+ | 0.7+ |
| 2002 02 14 | 704 | 0.3− | 0.3− | 2005 11 06 | 704 | 0.1+ | 0.6+ | 2007 04 11 | 691 | 0.3− | 0.2− |
| 2002 02 14 | 704 | 0.1− | 1.2− | 2005 11 06 | 704 | 0.5+ | 0.3+ | 2007 04 19 | 691 | 0.2− | 0.0 |
| 2002 02 14 | 704 | 0.2− | 0.6− | 2005 11 06 | 704 | 0.4+ | 0.2+ | 2007 04 19 | 691 | 0.1− | 0.2− |
| 2002 02 14 | 704 | 0.2− | 0.2− | 2005 11 25 | 703 | 0.5− | 0.1+ | 2007 04 19 | 691 | 0.1− | 0.2− |
| 2002 03 12 | 699 | 0.0 | 0.2+ | 2005 11 25 | 703 | 0.8− | 1.0− | 2007 04 23 | 691 | 0.1− | 0.0 |
| 2002 03 12 | 699 | 0.0 | 0.3+ | 2005 11 25 | 703 | 0.5− | 0.8− | 2007 04 23 | 691 | 0.2− | 0.0 |
| 2002 03 12 | 699 | 0.2− | 0.4+ | 2005 11 25 | 703 | 0.8− | 0.2+ | 2007 04 23 | 691 | 0.2− | 0.1− |
| 2002 03 12 | 699 | 1.1+ | 0.9+ | 2005 11 25 | 703 | 0.3− | 0.4− | 2007 05 08 | 699 | 0.8+ | 1.0+ |
| 2002 03 15 | 644 | 0.0 | 0.2+ | 2005 11 25 | 703 | 0.0 | 0.5− | 2007 05 08 | 699 | 0.0 | 0.1− |
| 2002 03 15 | 644 | 0.1− | 0.2− | 2005 11 25 | 703 | 0.3− | 0.5− | 2007 05 08 | 699 | 1.0+ | 0.5+ |
| 2002 03 15 | 644 | 0.3− | 0.1− | 2005 11 25 | 703 | 0.1+ | 0.3+ | 2007 05 08 | 699 | 0.8+ | 0.0 |
| 2002 03 17 | 704 | 0.6+ | 0.0 | 2005 11 28 | 699 | 0.7− | 0.1+ | 2007 05 09 | G96 | 0.3+ | 0.2− |
| 2002 03 17 | 704 | 0.0 | 0.3+ | 2005 11 28 | 699 | 0.3+ | 0.7− | 2007 05 09 | G96 | 0.1+ | 0.1− |
| 2002 03 17 | 704 | 0.7+ | 0.9+ | 2005 11 28 | 699 | 1.1+ | 0.9− | 2007 05 09 | G96 | 0.1− | 0.0 |
| 2002 04 05 | 608 | 0.4− | 1.4+ | 2005 11 28 | 699 | 0.1+ | 0.8− | 2007 05 12 | G96 | 0.3− | 0.0 |
| 2002 04 05 | 608 | (0.1− | 1.8+) | 2005 11 30 | 704 | 0.6+ | 0.0 | 2007 05 12 | G96 | 0.0 | 0.1+ |
| 2002 04 05 | 608 | (0.5− | 3.4+) | 2005 11 30 | 704 | 0.1+ | 1.1+ | 2007 05 12 | G96 | 0.2− | 0.0 |
| 2002 04 10 | 704 | 0.7− | 0.2− | 2005 11 30 | 704 | 0.4− | 0.6+ | 2007 05 12 | G96 | 0.1+ | 0.1+ |
| 2002 04 10 | 704 | 0.5− | 0.8+ | 2005 11 30 | 704 | 0.0 | 0.5+ | 2007 05 13 | 704 | (2.1+ | 0.1−) |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 04 10 | 704 | 0.7− | 0.9+ | 2005 11 30 | 704 | 0.7− | 0.3+ | 2007 05 13 | 704 | 1.0+ | 0.0 | |
| 2002 04 10 | 704 | 0.6− | 0.4+ | 2005 11 30 | 644 | 0.2+ | 0.1+ | 2007 05 13 | 704 | 1.1+ | 0.6+ | |
| 2002 04 10 | 704 | 1.1− | 0.5+ | 2005 11 30 | 644 | 0.5+ | 0.0 | 2009 09 23 | 691 | 0.2+ | 0.5+ | |
| 2002 04 14 | 608 | 0.5+ | 1.4+ | 2005 11 30 | 644 | 0.1+ | 0.0 | 2009 09 23 | 691 | 0.2− | 0.5+ | |
| 2002 04 14 | 608 | 0.8+ | 1.1+ | 2005 12 07 | 704 | 0.2− | 0.5+ | 2009 09 23 | 691 | 0.1+ | 0.6+ | |
| 2002 04 14 | 608 | 0.7+ | 1.5+ | 2005 12 07 | 704 | 0.5− | 0.4− | 2009 10 22 | 703 | 0.3+ | 1.3− | |
| 2002 04 15 | 704 | 0.7− | 0.5+ | 2005 12 07 | 704 | 0.6− | 0.6+ | 2009 10 22 | 703 | 0.5+ | 0.3+ | |
| 2002 04 15 | 704 | 0.7+ | 0.1− | 2005 12 07 | 704 | 0.4− | 0.6+ | 2009 10 22 | 703 | 1.1− | 0.1+ | |
| 2002 04 15 | 704 | 0.8+ | 0.3− | 2005 12 07 | 704 | 0.3− | 0.1− | 2009 10 22 | 703 | 1.5− | 0.5− | |
| 2002 04 15 | 704 | 0.2+ | 0.4− | 2005 12 08 | 704 | 0.6+ | 0.2+ | 2009 12 16 | G96 | 0.2− | 0.1+ | |
| 2005 10 31 | G96 | 0.3+ | 0.1+ | 2005 12 08 | 704 | 0.0 | 0.7+ | 2009 12 16 | G96 | 0.7+ | 0.4+ | |
| 2005 10 31 | G96 | 0.1+ | 0.2− | 2005 12 08 | 704 | 0.2+ | 0.6+ | 2009 12 16 | G96 | 0.3+ | 0.4+ | |
| 2005 10 31 | G96 | 0.3+ | 0.1− | 2005 12 08 | 704 | 0.1− | 0.0 | 2009 12 16 | G96 | 0.1− | 0.3+ | |

**(228654)∗ 2002 EQ$_{146}$**

Discovered 2002 Mar. 14 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 194.33367 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.20936988 | $\omega$ | 149.37131 | | −0.60736883 | +0.79311382 | |
| $a$ | 2.8088373 | $\Omega$ | 83.19080 | | −0.73784461 | −0.54194280 | |
| $e$ | 0.0749045 | $i$ | 2.62851 | | −0.29442901 | −0.27797207 | |
| $P$ | 4.71 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 03 14 | 699 | 0.9− | 1.2+ | 2006 01 07 | G96 | 0.3− | 0.2− | 2007 04 14 | 691 | 0.2+ | 0.1− | |
| 2002 03 14 | 699 | 0.8− | 1.2+ | 2006 01 07 | G96 | 0.1− | 0.3− | 2007 04 14 | 691 | 0.2− | 0.0 | |
| 2002 03 14 | 699 | 0.4+ | 1.3+ | 2006 01 07 | G96 | 0.4− | 0.5− | 2007 04 18 | 691 | 0.0 | 0.0 | |
| 2002 03 14 | 699 | 1.0− | 0.2− | 2006 01 08 | 691 | 0.1+ | 0.0 | 2007 04 18 | 691 | 0.1− | 0.0 | |
| 2002 03 16 | 704 | 0.1+ | 0.4− | 2006 01 08 | 691 | 0.4+ | 0.2− | 2007 04 18 | 691 | 0.1− | 0.2− | |
| 2002 03 16 | 704 | 1.2− | 0.6+ | 2006 01 08 | 691 | 0.2− | 0.0 | 2007 04 20 | 691 | 0.0 | 0.1− | |
| 2002 03 16 | 704 | 0.6− | 0.7+ | 2006 01 08 | G96 | 0.2+ | 0.4− | 2007 04 20 | 691 | 0.3− | 0.1− | |
| 2002 03 16 | 704 | 0.5+ | 0.6+ | 2006 01 08 | G96 | 0.4− | 0.3− | 2007 04 20 | 691 | 1.2+ | 1.1− | |
| 2002 03 16 | 152 | 0.2+ | 0.2+ | 2006 01 08 | G96 | 0.1− | 0.4− | 2007 04 22 | 691 | 0.3− | 0.1− | |
| 2002 03 17 | 152 | 0.6− | 0.1− | 2006 01 08 | G96 | 0.1− | 0.3− | 2007 04 22 | 691 | 0.4− | 0.1− | |
| 2002 03 21 | 644 | 0.2+ | 0.3− | 2006 01 23 | G96 | 0.5+ | 0.3− | 2007 04 22 | 691 | 0.5− | 0.3− | |
| 2002 03 21 | 644 | 0.2+ | 0.6− | 2006 01 23 | G96 | 0.1− | 0.2− | 2007 06 11 | G96 | 0.2− | 0.3+ | |
| 2002 03 21 | 644 | 0.2+ | 0.3− | 2006 01 23 | G96 | 0.5+ | 0.2− | 2007 06 11 | G96 | 0.5+ | 0.0 | |
| 2002 04 10 | 704 | 0.4+ | 1.1+ | 2006 01 23 | G96 | 0.1− | 0.4− | 2007 06 11 | G96 | 0.1+ | 0.2+ | |
| 2002 04 10 | 704 | 0.7+ | 1.0+ | 2006 01 31 | A13 | (1.6+ | 0.5−) | 2007 06 11 | G96 | 0.2− | 0.5+ | |
| 2002 04 10 | 704 | 1.3+ | 1.0+ | 2006 01 31 | A13 | 0.5− | 0.7− | 2008 09 25 | G96 | 0.0 | 0.0 | |
| 2002 04 15 | 644 | 0.2− | 0.5+ | 2006 03 26 | G96 | 0.3− | 0.1+ | 2008 09 25 | G96 | 0.1− | 0.1+ | |
| 2002 04 15 | 644 | 0.5+ | 0.2− | 2006 03 26 | G96 | 0.3− | 0.0 | 2008 09 25 | G96 | 0.3− | 0.0 | |
| 2002 04 15 | 644 | 0.1− | 0.1+ | 2006 03 26 | G96 | 0.2− | 0.2− | 2008 09 25 | G96 | 0.3− | 0.0 | |
| 2002 04 18 | 691 | 0.3+ | 0.5+ | 2006 03 26 | G96 | 0.1− | 0.5− | 2009 11 23 | G96 | 0.3+ | 0.2+ | |
| 2002 04 18 | 691 | 0.5+ | 0.1+ | 2007 01 27 | G96 | 1.2− | 0.0 | 2009 11 23 | G96 | 0.3+ | 0.2− | |
| 2002 04 18 | 691 | 0.6+ | 0.2+ | 2007 01 27 | G96 | 0.3− | 1.2− | 2009 11 23 | G96 | 0.4+ | 0.3− | |
| 2005 12 22 | 691 | 0.1+ | 0.1+ | 2007 01 27 | G96 | 0.6− | 0.3− | 2009 11 23 | G96 | 0.1− | 0.3+ | |
| 2005 12 22 | 691 | 0.1− | 0.4+ | 2007 01 27 | G96 | 0.2− | 0.7− | 2009 12 11 | G96 | 0.1+ | 0.1+ | |
| 2005 12 22 | 691 | 0.2+ | 0.0 | 2007 02 26 | G96 | 0.3− | 0.4− | 2009 12 11 | G96 | 0.2+ | 0.1+ | |
| 2005 12 30 | 691 | 0.1+ | 0.1+ | 2007 02 26 | G96 | 0.7− | 0.0 | 2009 12 11 | G96 | 0.1− | 0.3− | |
| 2005 12 30 | 691 | 0.4− | 0.0 | 2007 02 26 | G96 | 0.3− | 0.7− | 2009 12 11 | G96 | 0.0 | 0.2− | |
| 2005 12 30 | 691 | 0.1− | 0.2− | 2007 02 26 | G96 | 0.0 | 0.9− | | | | | |
| 2006 01 07 | G96 | 0.3− | 0.2− | 2007 04 14 | 691 | 0.1+ | 0.1+ | | | | | |

**(228655)∗ 2002 FS$_{25}$**

Discovered 2002 Mar. 19 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 9.95081 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23624945 | $\omega$ | 8.72407 | | +0.04649198 | −0.97136716 | |
| $a$ | 2.5915256 | $\Omega$ | 78.85531 | | +0.90156676 | −0.05963052 | |
| $e$ | 0.2666372 | $i$ | 13.73715 | | +0.43013472 | +0.22997834 | |
| $P$ | 4.17 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 01 23 | 704 | 0.3+ | 0.5− | 2005 12 24 | 703 | 0.5− | 0.5+ | 2006 03 31 | 704 | 0.6+ | 0.1+ | |
| 2002 01 23 | 704 | 0.1− | 0.2+ | 2006 01 02 | 703 | 0.8− | 0.6− | 2006 03 31 | 704 | 0.6+ | 0.2+ | |
| 2002 01 23 | 704 | 0.3− | 0.2− | 2006 01 02 | 703 | 0.5− | 0.3− | 2006 04 24 | 703 | 0.1− | 0.1− | |
| 2002 01 23 | 704 | 0.8+ | 0.1+ | 2006 01 02 | 703 | 0.1− | 0.5− | 2006 04 24 | 703 | 0.2+ | 0.4− | |
| 2002 02 21 | 704 | 0.5− | 0.7− | 2006 01 02 | 703 | (1.7− | 1.1−) | 2006 04 24 | 703 | 0.1+ | 0.9+ | |
| 2002 02 21 | 704 | 1.1+ | 0.6− | 2006 01 05 | 703 | 0.8− | 0.0 | 2006 04 24 | 703 | (2.2+ | 1.1+) | |
| 2002 02 21 | 704 | 0.1− | 0.5− | 2006 01 05 | 703 | 0.7− | 0.2+ | 2007 05 26 | G96 | 0.1+ | 0.0 | |
| 2002 02 21 | 704 | 0.4+ | 0.6− | 2006 01 05 | 703 | 1.0− | 0.1− | 2007 05 26 | G96 | 0.4− | 0.0 | |
| 2002 03 06 | 704 | 0.8− | 0.8+ | 2006 01 05 | 703 | 0.0 | 0.4− | 2007 05 26 | G96 | 0.2+ | 0.4− | |
| 2002 03 06 | 704 | 0.6+ | 1.1+ | 2006 01 06 | 704 | 0.2+ | 0.4+ | 2007 05 26 | G96 | 0.2− | 0.3− | |
| 2002 03 06 | 704 | 1.0− | 0.4+ | 2006 01 06 | 704 | 0.3+ | 0.4+ | 2009 11 11 | 703 | 1.0− | 0.0 | |
| 2002 03 06 | 704 | 1.0− | 0.9+ | 2006 01 06 | 704 | 0.3+ | 0.5+ | 2009 11 11 | G96 | 0.3+ | 0.2− | |
| 2002 03 06 | 704 | 1.0− | 0.6+ | 2006 01 06 | 704 | 0.3+ | 0.1− | 2009 11 11 | 703 | (1.7− | 0.0 ) | |
| 2002 03 19 | 644 | 0.2− | 0.2+ | 2006 01 06 | 704 | 0.2− | 0.5+ | 2009 11 11 | G96 | 0.3− | 0.1− | |
| 2002 03 19 | 644 | 0.0 | 0.2+ | 2006 01 11 | 699 | 0.5+ | 0.3− | 2009 11 11 | 703 | 0.0 | 0.1+ | |
| 2002 03 19 | 644 | 0.6+ | 0.3+ | 2006 01 11 | 699 | 0.3− | 0.7− | 2009 11 11 | G96 | 0.1− | 0.1− | |
| 2002 03 21 | 704 | 1.0+ | 1.0+ | 2006 01 11 | 699 | 0.1+ | 0.9− | 2009 11 11 | 703 | 0.5− | 0.7+ | |
| 2002 03 21 | 704 | (1.7+ | 0.4−) | 2006 01 11 | 699 | 0.0 | 0.2+ | 2009 11 11 | G96 | 0.1+ | 0.0 | |
| 2002 03 21 | 704 | 0.8+ | 0.9+ | 2006 01 22 | 703 | (0.1− | 1.6+) | 2009 11 17 | 704 | (0.3− | 2.8+) | |
| 2002 03 21 | 704 | 0.5+ | 0.3− | 2006 01 22 | 703 | 1.0+ | 0.2+ | 2009 11 17 | 704 | 1.0− | 1.4+ | |
| 2002 03 23 | 704 | 0.4+ | 0.3+ | 2006 01 22 | 703 | (1.7+ | 0.5−) | 2009 11 17 | 704 | 0.2− | 0.3+ | |
| 2002 03 23 | 704 | 0.1− | 0.1− | 2006 01 22 | 703 | 0.0 | 0.7+ | 2009 11 17 | 704 | 1.3+ | 0.0 | |
| 2002 03 23 | 704 | 0.6+ | 0.4− | 2006 01 27 | 703 | 0.4− | 0.4− | 2009 11 17 | 704 | 1.0+ | 0.5+ | |
| 2002 03 23 | 704 | 0.3− | 0.1− | 2006 01 27 | 703 | 0.8− | 1.0− | 2009 11 20 | G96 | 0.1+ | 0.2− | |
| 2002 04 22 | 644 | 0.1+ | 0.1− | 2006 01 27 | 703 | 0.7− | 0.8− | 2009 11 20 | G96 | 0.3+ | 0.3− | |
| 2002 04 22 | 644 | 0.1+ | 0.4+ | 2006 01 27 | 703 | 0.4− | 0.8− | 2009 11 20 | G96 | 0.0 | 0.3− | |
| 2002 04 22 | 644 | 0.4− | 0.1− | 2006 02 06 | 704 | 0.4+ | 0.3+ | 2009 11 20 | G96 | 0.2+ | 0.2− | |
| 2005 11 28 | 703 | 0.9− | 1.2− | 2006 02 06 | 704 | 0.7+ | 0.2+ | 2009 11 22 | G92 | 0.4− | 0.7− | |
| 2005 11 28 | 703 | 0.5− | 0.1− | 2006 02 06 | 704 | 0.1− | 0.1+ | 2009 11 22 | G92 | 1.0− | 0.4− | |
| 2005 11 28 | 703 | (1.9− | 0.8−) | 2006 02 06 | 704 | 0.2− | 0.0 | 2009 11 22 | G92 | 0.0 | 1.1− | |
| 2005 11 28 | 703 | 0.3− | 0.1− | 2006 02 06 | 704 | 0.6+ | 0.3+ | 2009 11 22 | 704 | 0.6− | 0.3+ | |
| 2005 11 29 | 704 | 0.1+ | 0.4+ | 2006 02 23 | 703 | 0.0 | 0.0 | 2009 11 22 | 704 | 0.2− | 0.3+ | |
| 2005 11 29 | 704 | 0.9+ | 0.6− | 2006 02 23 | 703 | 0.4+ | 0.4− | 2009 11 22 | 704 | 0.2+ | 0.3+ | |
| 2005 11 29 | 704 | 0.6+ | 0.1+ | 2006 02 23 | 703 | 0.3+ | 0.9− | 2009 11 22 | 704 | 0.4− | 0.2+ | |
| 2005 11 29 | 704 | 0.3+ | 0.3+ | 2006 02 23 | 703 | 0.3+ | 0.4+ | 2009 11 26 | 703 | 0.3− | 0.7− | |
| 2005 11 29 | 704 | 1.0+ | 0.0 | 2006 02 24 | 699 | 0.3− | 0.3− | 2009 11 26 | 703 | 0.6− | 0.2− | |
| 2005 12 06 | 703 | 0.3− | 0.4− | 2006 02 24 | 699 | 0.3− | 0.3+ | 2009 11 26 | 703 | 0.0 | 0.2− | |
| 2005 12 06 | 703 | 0.1− | 0.5− | 2006 02 24 | 699 | 0.9+ | 0.2+ | 2009 12 10 | 704 | 0.2+ | 0.7+ | |
| 2005 12 06 | 703 | 1.0− | 1.0− | 2006 03 04 | 703 | 0.2− | 0.2− | 2009 12 10 | 704 | 0.3+ | 0.6+ | |
| 2005 12 06 | 703 | 0.4− | 0.1− | 2006 03 04 | 703 | 0.0 | 0.1− | 2009 12 10 | 704 | 0.2+ | 0.7+ | |
| 2005 12 10 | 704 | (1.6+ | 0.4+) | 2006 03 04 | 703 | 0.3− | 0.5− | 2009 12 10 | 704 | 0.8+ | 0.1− | |
| 2005 12 10 | 704 | 1.1+ | 0.4+ | 2006 03 04 | 703 | 0.6− | 0.2− | 2009 12 10 | 704 | (0.6+ | 2.2+) | |
| 2005 12 10 | 704 | 1.2+ | 0.5− | 2006 03 24 | 703 | 0.1− | 0.3− | 2009 12 15 | 704 | 0.0 | 0.4+ | |
| 2005 12 10 | 704 | 0.6+ | 0.1+ | 2006 03 24 | 703 | 0.7− | 0.2− | 2009 12 15 | 704 | 0.1+ | 0.1+ | |
| 2005 12 10 | 704 | 1.3+ | 0.4− | 2006 03 24 | 703 | 0.8− | 0.4− | 2009 12 15 | 704 | 0.3+ | 0.1+ | |
| 2005 12 24 | 703 | 0.4+ | 1.0+ | 2006 03 24 | 703 | 0.9− | 0.5+ | 2009 12 15 | 704 | 0.7+ | 0.7+ | |
| 2005 12 24 | 703 | 0.7− | 0.1− | 2006 03 31 | 704 | 1.2+ | 0.2+ | 2009 12 15 | 704 | 0.2− | 0.0 | |
| 2005 12 24 | 703 | 1.3− | 0.9+ | 2006 03 31 | 704 | 0.3− | 0.1+ | | | | | |

**(228656)∗ 2002 FE$_{31}$**

Discovered 2002 Mar. 20 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 197.90788 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21149407 | $\omega$ | 142.64889 | | −0.56073250 | +0.78185342 | |
| $a$ | 2.7899982 | $\Omega$ | 91.63912 | | −0.81015864 | −0.45011725 | |
| $e$ | 0.1821165 | $i$ | 15.82279 | | −0.17094456 | −0.43139272 | |
| $P$ | 4.66 | $H$ | 15.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 02 21 | 704 | 0.7+ | 0.2− | 2006 01 02 | G96 | 0.2+ | 0.3− | 2007 05 10 | 703 | 0.2− | 0.6+ | |
| 2002 02 21 | 704 | 0.7+ | 0.7− | 2006 01 02 | G96 | 0.1− | 0.3− | 2007 05 10 | 703 | (2.4+ | 1.0+) | |
| 2002 02 21 | 704 | 0.1+ | 0.2− | 2006 01 02 | G96 | 0.1− | 0.2− | 2007 05 10 | 703 | 0.3+ | 0.3− | |
| 2002 02 21 | 704 | 0.6+ | 0.5− | 2006 01 02 | G96 | 0.1+ | 0.1− | 2007 05 10 | 703 | 0.4− | 0.0 | |
| 2002 03 20 | 644 | 0.1− | 0.8− | 2006 01 06 | 704 | 0.3− | 0.2− | 2007 05 20 | 703 | 0.1− | 0.2− | |
| 2002 03 20 | 644 | 0.4− | 0.7− | 2006 01 06 | 704 | 0.5− | 0.3− | 2007 05 20 | 703 | 0.1− | 0.2− | |
| 2002 03 20 | 644 | 0.5− | 0.6− | 2006 01 06 | 704 | 0.8+ | 0.1+ | 2007 05 20 | 703 | 0.1− | 0.0 | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 03 21 | 704 | 0.4− | 0.7− | 2006 01 06 | 704 | 1.3− | 0.2+ | 2007 05 20 | 703 | 0.1− | 0.3− |
| 2002 03 21 | 704 | 0.4− | 0.1− | 2006 01 07 | 691 | 0.9+ | 0.6+ | 2007 05 26 | G96 | 0.2− | 0.6− |
| 2002 03 21 | 704 | 0.3− | 0.6+ | 2006 01 07 | 691 | 0.1+ | 0.2− | 2007 05 26 | G96 | 0.4+ | 0.4− |
| 2002 03 21 | 704 | 0.2+ | 0.0 | 2006 01 07 | 691 | 0.4+ | 0.3− | 2007 05 26 | G96 | 0.5+ | 0.1− |
| 2002 03 21 | 704 | 0.4− | 0.2+ | 2007 01 28 | 703 | (1.5− | 1.0+) | 2007 05 26 | G96 | 0.0 | 0.3− |
| 2002 04 04 | 704 | 0.1+ | 1.1+ | 2007 01 28 | 703 | 1.0+ | 0.2− | 2007 05 26 | 703 | (1.5− | 0.4+) |
| 2002 04 04 | 704 | 0.3− | 1.0+ | 2007 01 28 | 703 | 0.9− | 0.6− | 2007 05 26 | 703 | 0.6+ | 0.5+ |
| 2002 04 04 | 704 | 0.5− | 0.3+ | 2007 01 28 | 703 | 0.0 | 0.2− | 2007 05 26 | 703 | 0.1− | 0.4− |
| 2002 04 04 | 704 | 0.2+ | 1.1+ | 2007 04 16 | 703 | 0.2− | 0.1− | 2007 05 26 | 703 | 0.3+ | 0.4+ |
| 2002 04 04 | 704 | 0.5− | 0.9+ | 2007 04 16 | 703 | 0.4− | 0.2− | 2007 06 16 | 703 | 1.2+ | 0.3− |
| 2002 04 10 | 644 | 0.1+ | 0.0 | 2007 04 16 | 703 | 0.1− | 0.0 | 2007 06 16 | 703 | 0.0 | 1.0+ |
| 2002 04 10 | 644 | 0.5+ | 0.2+ | 2007 04 16 | 703 | 0.4− | 1.1− | 2007 06 16 | 703 | 0.4+ | 1.2+ |
| 2002 04 10 | 644 | 0.3+ | 0.2+ | 2007 04 21 | B00 | 0.3+ | 0.1− | 2007 06 16 | 703 | (1.5+ | 1.7+) |
| 2002 05 05 | 704 | 0.0 | 0.2− | 2007 04 21 | B00 | 0.8+ | 0.1+ | 2009 11 24 | G96 | 0.2+ | 0.3+ |
| 2002 05 05 | 704 | 1.0− | 0.5+ | 2007 04 21 | B00 | 0.5+ | 0.1− | 2009 11 24 | G96 | 0.4+ | 1.3− |
| 2002 05 05 | 704 | 0.7+ | 1.4+ | 2007 04 23 | 703 | 0.4− | 0.0 | 2009 11 24 | G96 | 0.0 | 0.1+ |
| 2002 05 05 | 704 | 0.4+ | 0.4+ | 2007 04 23 | 703 | 0.4− | 0.2+ | 2009 11 24 | G96 | 0.2+ | 0.0 |
| 2002 05 05 | 704 | 0.7− | 1.5+ | 2007 04 23 | 703 | 0.8− | 0.4+ | 2009 12 19 | 691 | 0.4− | 0.4+ |
| 2003 07 07 | 644 | 0.2+ | 0.6+ | 2007 05 10 | 703 | 1.1− | 0.4− | 2009 12 19 | 691 | 0.7− | 0.0 |
| 2003 07 07 | 644 | 0.2+ | 0.2+ | 2007 05 10 | 703 | (2.3− | 0.7−) | 2009 12 19 | 691 | 0.3− | 0.2+ |
| 2003 07 07 | 644 | 0.3+ | 0.5+ | 2007 05 10 | 703 | 0.2− | 0.6+ | | | | |

**(228657)∗ 2002 FD$_{36}$**

Discovered 2002 Mar. 21 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 348.67832 | | (2000.0) | | **P** | **Q** |
| $n$ | 0.23384240 | $\omega$ | 38.09784 | | −0.58806342 | −0.76834081 |
| $a$ | 2.6092792 | $\Omega$ | 89.35313 | | +0.66614475 | −0.63726337 |
| $e$ | 0.1973088 | $i$ | 14.63554 | | +0.45872931 | −0.05956340 |
| $P$ | 4.21 | $H$ | 15.7 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 03 21 | 704 | 0.0 | 0.2− | 2006 01 01 | 703 | 1.1− | 0.7+ | 2009 11 11 | G96 | 0.2− | 0.1− |
| 2002 03 21 | 704 | 0.0 | 0.3+ | 2006 01 05 | 704 | 0.0 | 0.3− | 2009 11 17 | 704 | 0.2− | 0.8+ |
| 2002 03 21 | 704 | 0.0 | 0.6+ | 2006 01 05 | 704 | 0.4+ | 0.9+ | 2009 11 17 | 704 | 0.8+ | 0.1− |
| 2002 03 21 | 704 | 0.1+ | 0.2+ | 2006 01 05 | 704 | 0.9+ | 0.5− | 2009 11 17 | 704 | 0.2− | 1.0− |
| 2002 03 23 | 704 | 0.1+ | 0.7+ | 2006 01 05 | 704 | 0.1− | 0.3+ | 2009 11 26 | 703 | 0.1− | 0.2+ |
| 2002 03 23 | 704 | 0.3− | 0.1− | 2006 03 03 | 699 | 0.5+ | 0.4− | 2009 11 26 | 703 | 0.2+ | 0.2+ |
| 2002 03 23 | 704 | 0.6− | 0.1− | 2006 03 03 | 699 | 0.3+ | 0.0 | 2009 11 26 | 703 | 0.0 | 1.4− |
| 2002 03 23 | 704 | 0.5− | 0.3− | 2006 03 03 | 699 | 0.5− | 0.4− | 2009 11 26 | 703 | 0.4+ | 0.2− |
| 2002 03 23 | 704 | 0.4− | 0.0 | 2006 03 03 | 699 | 0.3+ | 0.1+ | 2009 12 10 | 704 | 0.5+ | 0.5+ |
| 2002 04 22 | 644 | 0.6+ | 0.8+ | 2006 03 06 | 703 | 0.8− | 0.8− | 2009 12 10 | 704 | 0.3− | 0.3+ |
| 2002 04 22 | 644 | 0.7+ | 0.7+ | 2006 03 06 | 703 | 0.7− | 0.5− | 2009 12 10 | 704 | 0.1+ | 0.4− |
| 2002 04 22 | 644 | 0.5+ | 0.8+ | 2006 03 06 | 703 | (1.7− | 0.2−) | 2009 12 10 | 704 | 0.4+ | 0.2+ |
| 2002 05 06 | 704 | (1.8+ | 1.6−) | 2006 03 06 | 703 | (2.7− | 0.1−) | 2009 12 10 | 704 | 0.9+ | 0.6+ |
| 2002 05 06 | 704 | (3.0+ | 1.7−) | 2006 03 16 | 644 | 0.5+ | 0.2− | 2009 12 15 | 704 | 0.3+ | 0.2+ |
| 2002 05 06 | 704 | (1.9+ | 0.4−) | 2006 03 16 | 644 | 0.1+ | 0.3− | 2009 12 15 | 704 | 0.0 | 1.0+ |
| 2002 05 13 | 644 | 0.8+ | 0.2+ | 2006 03 16 | 644 | 0.6+ | 0.3− | 2009 12 15 | 704 | 0.1+ | 0.8+ |
| 2002 05 13 | 644 | 0.8+ | 0.0 | 2006 03 23 | 703 | 0.2+ | 0.3− | 2009 12 15 | 704 | 0.1− | 0.3+ |
| 2002 05 13 | 644 | 0.7+ | 0.1+ | 2006 03 23 | 703 | 0.9− | 0.4+ | 2009 12 15 | 704 | 0.3+ | 0.6+ |
| 2004 10 07 | 644 | 0.6− | 0.1+ | 2006 03 23 | 703 | 0.3− | 0.1+ | 2009 12 18 | G96 | 0.4− | 0.1− |
| 2004 10 07 | 644 | 0.0 | 0.6+ | 2006 03 23 | 703 | 1.1− | 1.0− | 2009 12 18 | G96 | 0.5− | 0.2− |
| 2004 10 07 | 644 | 0.2− | 0.4+ | 2009 11 11 | G96 | 0.2+ | 0.1− | 2009 12 18 | G96 | 0.6− | 0.1− |
| 2006 01 01 | 703 | 0.8+ | 0.5− | 2009 11 11 | G96 | 0.3− | 0.0 | 2009 12 18 | G96 | 0.8− | 0.1+ |
| 2006 01 01 | 703 | 0.3− | 0.1− | 2009 11 11 | G96 | 0.2− | 0.1+ | | | | |

**(228658)∗ 2002 GP$_2$**

Discovered 2002 Apr. 4 by Uppsala-DLR Asteroid Survey at Kvistaberg.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 222.87007 | | (2000.0) | | **P** | **Q** |
| $n$ | 0.23279377 | $\omega$ | 151.47990 | | +0.06779153 | +0.98536417 |
| $a$ | 2.6171091 | $\Omega$ | 122.00842 | | −0.94682895 | +0.11295752 |
| $e$ | 0.0576764 | $i$ | 10.62869 | | −0.31451431 | −0.12766385 |
| $P$ | 4.23 | $H$ | 15.6 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 04 24 | 704 | 0.9+ | 0.3− | 2002 04 13 | 644 | 0.1− | 0.2+ | 2006 03 25 | 703 | 0.7− | 0.8− |
| 1998 04 24 | 704 | 0.6+ | 0.8− | 2002 04 13 | 644 | 0.0 | 0.3+ | 2006 03 25 | 703 | 0.8+ | 0.2+ |
| 1998 04 24 | 704 | (1.3+ | 3.0+) | 2002 04 13 | 644 | 0.2+ | 0.3+ | 2006 03 25 | 703 | 0.8− | 0.0 |
| 1998 04 24 | 704 | 1.3− | 0.2+ | 2002 05 06 | 644 | 0.7+ | 1.1+ | 2006 04 02 | 703 | 0.6+ | 0.5+ |
| 1998 04 24 | 566 | 0.9+ | 0.2− | 2002 05 06 | 644 | 0.7+ | 0.5+ | 2006 04 02 | 703 | 0.3− | 0.2+ |
| 1998 04 24 | 566 | 0.8+ | 0.7− | 2002 05 06 | 644 | 0.2− | 0.8+ | 2006 04 02 | 703 | 0.3− | 1.0+ |
| 1998 04 24 | 566 | 0.4+ | 0.7+ | 2002 05 06 | 704 | (0.2+ | 1.7+) | 2006 04 02 | 703 | 0.7− | 1.2− |
| 2002 03 12 | 645 | 0.3− | 0.1− | 2002 05 06 | 704 | 0.5+ | 1.0+ | 2008 10 26 | G96 | 0.1+ | 0.1− |
| 2002 03 12 | 645 | 0.2− | 0.2− | 2002 05 06 | 704 | 1.0+ | 1.2+ | 2008 10 26 | G96 | 0.3+ | 0.1− |
| 2002 03 20 | 704 | (2.8+ | 1.3+) | 2006 02 21 | 703 | 0.8− | 0.1− | 2008 10 26 | G96 | 0.5+ | 0.1− |
| 2002 03 20 | 704 | (2.2+ | 1.1+) | 2006 02 21 | 703 | 0.4+ | 0.1+ | 2008 10 26 | G96 | 0.0 | 0.2− |
| 2002 03 20 | 704 | 1.4+ | 0.5− | 2006 02 21 | 703 | 0.1+ | 0.8− | 2008 11 03 | 703 | 0.3+ | 0.6+ |
| 2002 04 04 | 049 | 1.2− | 0.0 | 2006 02 21 | 703 | 0.3+ | 0.8− | 2008 11 03 | 703 | 0.8− | 0.7− |
| 2002 04 04 | 049 | 0.9− | 0.1+ | 2006 02 22 | 704 | 0.0 | 1.0+ | 2008 11 03 | 703 | 0.2− | 0.5− |
| 2002 04 04 | 049 | 0.8− | 0.3+ | 2006 02 22 | 704 | 0.2+ | 0.5− | 2008 11 03 | 703 | 0.7− | 0.7+ |
| 2002 04 05 | 049 | 1.0+ | 1.0− | 2006 02 22 | 704 | 0.1+ | 0.4− | 2009 11 15 | G96 | 0.2+ | 0.1+ |
| 2002 04 05 | 049 | 1.0+ | 0.7− | 2006 02 22 | 704 | 0.1+ | 1.0− | 2009 11 15 | G96 | 0.5+ | 0.2+ |
| 2002 04 05 | 049 | 1.2+ | 0.7− | 2006 02 23 | 699 | (2.6+ | 1.4+) | 2009 11 15 | G96 | (1.5+ | 0.1−) |
| 2002 04 11 | 699 | 0.2− | 0.1+ | 2006 02 23 | 699 | 1.5+ | 1.0+ | 2009 11 15 | G96 | 0.4+ | 0.4− |
| 2002 04 11 | 699 | 0.0 | 0.6+ | 2006 02 23 | 699 | 1.3+ | 1.0+ | 2009 12 20 | G96 | 0.0 | 0.1+ |
| 2002 04 11 | 699 | 0.8− | 0.3+ | 2006 02 23 | 699 | 1.1+ | 0.2+ | 2009 12 20 | G96 | 0.0 | 0.2+ |
| 2002 04 11 | 699 | 0.1− | 1.5+ | 2006 02 24 | 644 | 0.1+ | 0.3+ | 2009 12 20 | G96 | 0.1− | 0.3+ |
| 2002 04 12 | 644 | 0.2+ | 0.5+ | 2006 02 24 | 644 | 0.2+ | 0.3+ | 2009 12 20 | G96 | 0.6+ | 0.2+ |
| 2002 04 12 | 644 | 0.5+ | 0.5+ | 2006 02 24 | 644 | 0.1+ | 0.3+ | | | | |
| 2002 04 12 | 644 | 0.4+ | 0.2+ | 2006 03 25 | 703 | 0.6− | 0.5+ | | | | |

**(228659)∗ 2002 GZ$_3$ = 2000 WS$_1$**

Discovered 2002 Apr. 8 by NEAT at Palomar.

Id. G. V. Williams (*MPO* 30121)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 343.20098 | | (2000.0) | | **P** | **Q** |
| $n$ | 0.23187979 | $\omega$ | 104.10739 | | −0.58084938 | −0.79207712 |
| $a$ | 2.6239816 | $\Omega$ | 24.52712 | | +0.45479477 | −0.50701173 |
| $e$ | 0.2766095 | $i$ | 26.88055 | | +0.67511163 | −0.33993078 |
| $P$ | 4.25 | $H$ | 16.3 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 17 | 691 | 0.1− | 0.2+ | 2002 04 14 | 704 | 0.4+ | 0.8− | 2006 03 03 | 703 | 0.9− | 0.2+ |
| 2000 11 17 | 691 | 0.1− | 0.3+ | 2002 04 14 | 704 | 1.0+ | 0.6− | 2006 03 03 | 703 | 0.7− | 0.6− |
| 2000 11 17 | 691 | 0.1+ | 0.1+ | 2002 04 14 | 704 | 0.4+ | 0.6− | 2006 03 03 | 703 | 1.1− | 0.4+ |
| 2000 11 19 | 691 | 0.4− | 0.4+ | 2002 04 16 | 704 | 0.0 | 0.5+ | 2006 03 03 | 703 | 0.2− | 0.1− |
| 2000 11 19 | 691 | 0.6− | 0.0 | 2002 04 16 | 704 | 0.1+ | 0.2− | 2006 04 26 | 703 | 1.1− | 0.4+ |
| 2000 11 19 | 691 | 0.1− | 0.0 | 2002 04 16 | 704 | 0.1+ | 0.6+ | 2006 04 26 | 703 | 0.0 | 0.5− |
| 2002 04 05 | 699 | 0.4+ | 0.8+ | 2002 04 16 | 704 | 0.1+ | 0.3− | 2006 04 26 | 703 | 0.4+ | 1.0− |
| 2002 04 05 | 699 | 0.1− | 0.3+ | 2002 04 16 | 704 | 0.1+ | 0.7− | 2006 04 26 | 703 | (0.6+ | 1.6+) |
| 2002 04 05 | 699 | 0.6+ | 1.4+ | 2002 04 30 | 644 | 0.4+ | 0.8+ | 2009 10 27 | 703 | 1.0+ | 0.5+ |
| 2002 04 05 | 699 | 0.1− | 1.1+ | 2002 04 30 | 644 | 0.7+ | 0.2+ | 2009 10 27 | 703 | 1.0+ | 0.0 |
| 2002 04 08 | 644 | 0.3+ | 0.3+ | 2002 04 30 | 644 | 0.5− | 0.6+ | 2009 10 27 | 703 | 0.0 | 0.3+ |
| 2002 04 08 | 644 | 0.2+ | 0.3+ | 2002 05 17 | 644 | 0.6+ | 0.5+ | 2009 10 27 | 703 | (0.4+ | 1.6+) |
| 2002 04 08 | 644 | 0.4+ | 0.1+ | 2002 05 17 | 644 | 0.6+ | 0.2+ | 2009 11 16 | 703 | 0.5− | 0.2− |
| 2002 04 09 | 704 | 0.3− | 0.2+ | 2002 05 17 | 644 | 0.1− | 0.5+ | 2009 11 16 | 703 | 0.2− | 0.6− |
| 2002 04 09 | 704 | 0.6+ | 0.2− | 2006 02 09 | 699 | (2.0+ | 0.9+) | 2009 11 16 | 703 | 0.4− | 0.6+ |
| 2002 04 09 | 704 | 0.1+ | 1.1+ | 2006 02 09 | 699 | (0.5+ | 1.9+) | 2009 11 16 | 703 | 0.4− | 0.4− |
| 2002 04 10 | 644 | 0.1− | 0.2+ | 2006 02 09 | 699 | (1.5+ | 0.0 ) | 2009 12 13 | 703 | 0.1− | 1.3+ |
| 2002 04 10 | 644 | 0.3+ | 0.2+ | 2006 02 09 | 699 | 0.6+ | 0.2+ | 2009 12 13 | 703 | 0.1− | 0.1− |
| 2002 04 10 | 644 | 0.2+ | 0.3+ | 2006 02 24 | 644 | 0.1+ | 0.0 | 2009 12 13 | 703 | 0.6+ | 0.5+ |
| 2002 04 14 | 704 | 0.3+ | 0.9− | 2006 02 24 | 644 | 0.0 | 0.0 | 2009 12 13 | 703 | 0.0 | 0.2+ |
| 2002 04 14 | 704 | 0.2+ | 1.1− | 2006 02 24 | 644 | 0.2+ | 0.2+ | | | | |

**(228660)∗ 2002 GP$_{11}$**

Discovered 2002 Apr. 14 by W. K. Y. Yeung at Desert Eagle Observatory.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 291.50495 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22055446 | $\omega$ | 73.89482 | | −0.96248993 | | −0.19624307 |
| $a$ | 2.7130564 | $\Omega$ | 94.49976 | | +0.11398073 | | −0.91910685 |
| $e$ | 0.2198046 | $i$ | 10.83224 | | +0.24621441 | | −0.34165955 |
| $P$ | 4.47 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 12 09 | 691 | 0.1+ | 0.3− | 2005 09 30 | G96 | 0.2+ | 0.1− | 2006 01 27 | 703 | 0.5− | 0.5− |
| 1996 12 09 | 691 | 0.1− | 0.3− | 2005 09 30 | G96 | 0.1− | 0.1+ | 2006 01 27 | 703 | 0.6− | 0.2− |
| 1996 12 09 | 691 | 0.3− | 0.3− | 2005 09 30 | G96 | 0.1+ | 0.2+ | 2006 02 02 | 703 | 0.1+ | 0.6− |
| 2002 04 10 | 704 | 0.3− | 0.7+ | 2005 09 30 | G96 | 0.2+ | 0.2− | 2006 02 02 | 703 | 0.1− | 0.2− |
| 2002 04 10 | 704 | 0.3+ | 1.0+ | 2005 09 30 | G96 | 0.2− | 0.0 | 2006 02 02 | 703 | 0.1− | 0.8− |
| 2002 04 10 | 704 | 0.6− | 0.1+ | 2005 09 30 | G96 | 0.5+ | 0.2− | 2006 02 02 | 703 | 1.1+ | 0.8− |
| 2002 04 10 | 704 | 0.3− | 0.9− | 2005 09 30 | G96 | 0.4+ | 0.1− | 2006 02 05 | 704 | 0.5+ | 0.4+ |
| 2002 04 10 | 704 | 1.1− | 0.4− | 2005 09 30 | G96 | 0.5+ | 0.6− | 2006 02 05 | 704 | 0.0 | 0.3+ |
| 2002 04 12 | 644 | 0.1+ | 0.3+ | 2005 10 01 | 691 | 0.4+ | 0.3− | 2006 02 05 | 704 | 0.0 | 0.4+ |
| 2002 04 12 | 644 | 0.2+ | 0.4+ | 2005 10 01 | 691 | 0.4+ | 0.0 | 2006 02 05 | 704 | 1.2+ | 0.0 |
| 2002 04 12 | 644 | 0.3+ | 0.4+ | 2005 10 01 | 691 | 0.3+ | 0.0 | 2006 02 05 | 704 | 0.2+ | 0.4− |
| 2002 04 14 | 333 | 0.7− | 0.9+ | 2005 10 01 | 691 | 0.2+ | 0.1+ | 2006 02 06 | 699 | 0.9+ | 0.1+ |
| 2002 04 14 | 333 | 0.2− | 0.4− | 2005 10 01 | 691 | 0.2+ | 0.1+ | 2006 02 06 | 699 | 0.2− | 0.4+ |
| 2002 04 14 | 333 | (2.0− | 0.6−) | 2005 10 01 | 691 | 0.2+ | 0.0 | 2006 02 06 | 699 | 0.0 | 0.4− |
| 2002 04 16 | 704 | 0.4+ | 0.1+ | 2005 12 28 | 703 | 0.6− | 0.3+ | 2006 02 06 | 699 | 0.1− | 0.4+ |
| 2002 04 16 | 704 | 0.4+ | 0.5− | 2005 12 28 | 703 | 0.2+ | 0.2− | 2006 02 18 | 699 | 0.1− | 0.0 |
| 2002 04 16 | 704 | 0.4− | 0.3+ | 2005 12 28 | 703 | 0.0 | 0.2+ | 2006 02 18 | 699 | 0.7− | 0.3+ |
| 2002 04 16 | 704 | 0.2+ | 0.5− | 2005 12 28 | 703 | 0.3− | 0.2− | 2006 02 18 | 699 | 0.2+ | 0.4− |
| 2002 04 16 | 704 | 0.2+ | 0.5− | 2005 12 29 | 704 | 0.0 | 0.3+ | 2006 02 18 | 699 | 0.1+ | 0.3− |
| 2002 04 18 | 333 | 0.8− | 0.2− | 2005 12 29 | 704 | 0.3+ | 0.6− | 2006 02 20 | 704 | 0.1+ | 0.7− |
| 2002 04 18 | 333 | 0.5− | 0.3+ | 2005 12 29 | 704 | 0.3+ | 0.2+ | 2006 02 20 | 704 | 0.5+ | 0.7− |
| 2002 04 18 | 333 | 0.2+ | 0.1− | 2005 12 29 | 704 | 1.0+ | 0.1+ | 2006 02 20 | 704 | 1.0− | 0.2+ |
| 2002 05 06 | 644 | 0.2+ | 0.4+ | 2006 01 04 | 703 | 0.8− | 0.0 | 2006 02 20 | 704 | (0.8− | 1.9+) |
| 2002 05 06 | 644 | 0.1+ | 0.2+ | 2006 01 04 | 703 | 1.2− | 0.5− | 2006 02 24 | 699 | 0.2+ | 0.0 |
| 2002 05 06 | 644 | 0.4+ | 0.1+ | 2006 01 04 | 703 | 0.6− | 0.2− | 2006 02 24 | 699 | 0.3− | 0.6+ |
| 2002 05 07 | 704 | 0.8+ | 0.3+ | 2006 01 04 | 703 | 0.9− | 0.8+ | 2006 02 24 | 699 | 0.3− | 0.5− |
| 2002 05 07 | 704 | 0.7+ | 0.0 | 2006 01 05 | 704 | 0.3+ | 0.9+ | 2006 02 24 | 699 | 0.4− | 0.4+ |
| 2002 05 07 | 704 | 0.2+ | 0.4+ | 2006 01 05 | 704 | 0.3+ | 0.1+ | 2009 11 25 | J75 | 0.5− | 0.1− |
| 2002 05 07 | 704 | (2.2+ | 1.0+) | 2006 01 05 | 704 | 0.3− | 0.1− | 2009 11 25 | J75 | 0.1− | 0.1− |
| 2002 05 08 | 608 | 0.0 | 0.2+ | 2006 01 05 | 704 | (0.8+ | 2.0+) | 2009 11 25 | J75 | 0.3+ | 0.4+ |
| 2002 05 08 | 608 | 0.2+ | 0.0 | 2006 01 05 | 704 | 0.9+ | 0.3+ | 2009 11 25 | G96 | 0.2− | 0.1− |
| 2002 05 08 | 608 | 0.3− | 0.1− | 2006 01 20 | 644 | 0.3− | 0.2+ | 2009 11 25 | G96 | 0.2− | 0.0 |
| 2002 05 12 | 644 | 0.1+ | 0.4+ | 2006 01 20 | 644 | 0.4− | 0.3+ | 2009 11 25 | G96 | 0.0 | 0.0 |
| 2002 05 12 | 644 | 0.4+ | 0.4+ | 2006 01 20 | 644 | 0.3− | 0.1+ | 2009 11 25 | G96 | 0.0 | 0.3+ |
| 2002 05 12 | 644 | 0.0 | 0.6+ | 2006 01 20 | 703 | 0.1+ | 0.4− | 2009 12 10 | 703 | 0.1− | 0.5+ |
| 2002 05 13 | 704 | 0.7+ | 1.0+ | 2006 01 20 | 703 | 0.1− | 0.4− | 2009 12 10 | 703 | 0.7+ | 1.8+ |
| 2002 05 13 | 704 | 0.6+ | 0.1+ | 2006 01 20 | 703 | 0.1+ | 0.3+ | 2009 12 10 | 703 | 0.6− | 0.6+ |
| 2002 05 13 | 704 | 0.5+ | 0.2− | 2006 01 20 | 703 | (0.3+ | 1.7+) | 2009 12 10 | 703 | 1.8− | 1.0+ |
| 2002 05 13 | 704 | 0.4+ | 0.3− | 2006 01 24 | 699 | 0.2− | 0.3+ | 2009 12 12 | 704 | 0.4− | 0.4+ |
| 2002 05 13 | 704 | (1.8− | 0.1+) | 2006 01 24 | 699 | 0.1− | 0.1+ | 2009 12 12 | 704 | 0.7− | 0.4− |
| 2002 06 06 | 699 | 0.1− | 0.1− | 2006 01 24 | 699 | 0.4− | 0.7+ | 2009 12 12 | 704 | 0.0 | 1.5+ |
| 2002 06 06 | 699 | (1.5− | 0.5+) | 2006 01 24 | 699 | 0.3+ | 0.6+ | 2009 12 12 | 704 | 1.0− | 1.5+ |
| 2002 06 06 | 699 | 0.7− | 0.4+ | 2006 01 27 | 703 | 0.6− | 0.2+ | | | | |
| 2002 06 06 | 699 | 0.5+ | 0.2+ | 2006 01 27 | 703 | 0.3+ | 0.6− | | | | |

**(228661)∗ 2002 GJ$_{22}$**

Discovered 2002 Apr. 14 by NEAT at Haleakala.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 1.31694 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23728194 | $\omega$ | 338.32228 | | −0.57672978 | | −0.81520679 |
| $a$ | 2.5840025 | $\Omega$ | 146.83167 | | +0.76306433 | | −0.56077612 |
| $e$ | 0.2427014 | $i$ | 5.57075 | | +0.29174577 | | −0.14480341 |
| $P$ | 4.15 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 03 16 | 608 | 0.6+ | 0.1+ | 2006 01 05 | G96 | 0.4− | 0.5− | 2006 03 24 | 704 | 0.3+ | 0.0 |
| 2002 03 16 | 608 | 0.6− | 0.4− | 2006 01 05 | G96 | 0.4− | 0.2− | 2006 03 24 | 704 | 0.2+ | 0.5+ |
| 2002 03 16 | 608 | 0.5− | 0.9+ | 2006 01 26 | G96 | 0.5− | 0.1− | 2006 03 24 | 704 | 0.6+ | 0.1+ |
| 2002 04 02 | 644 | 0.2− | 0.9+ | 2006 01 26 | G96 | 0.3− | 0.2− | 2006 03 24 | 704 | 0.8+ | 0.2− |
| 2002 04 02 | 644 | 0.2+ | 1.2+ | 2006 01 26 | G96 | 0.3− | 0.1− | 2006 03 24 | 704 | 0.4+ | 0.0 |
| 2002 04 02 | 644 | 0.3− | 1.3+ | 2006 01 26 | G96 | 0.1− | 0.2+ | 2006 03 24 | 704 | (1.5+ | 0.1−) |
| 2002 04 10 | 704 | 0.3+ | 1.0+ | 2006 02 13 | 644 | 0.1+ | 0.2+ | 2006 03 24 | 704 | 0.6+ | 0.0 |
| 2002 04 10 | 704 | 0.4− | 1.2+ | 2006 02 13 | 644 | 0.1− | 0.1+ | 2006 03 24 | 699 | 0.0 | 0.0 |
| 2002 04 10 | 704 | 0.9+ | 1.0+ | 2006 02 13 | 644 | 0.0 | 0.3+ | 2006 03 24 | 699 | 0.5+ | 0.6− |
| 2002 04 10 | 704 | 0.6+ | 0.6+ | 2006 02 22 | 703 | 0.3− | 0.8+ | 2006 03 24 | 699 | 0.3+ | 0.4− |
| 2002 04 11 | 704 | 1.0+ | 0.6+ | 2006 02 22 | 703 | 0.1+ | 0.4− | 2006 03 24 | 699 | 0.2+ | 0.1+ |
| 2002 04 11 | 704 | 0.4+ | 0.0 | 2006 02 22 | 703 | 0.7+ | 0.8− | 2006 03 29 | 704 | 0.2− | 0.4+ |
| 2002 04 11 | 704 | 1.2+ | 0.2+ | 2006 02 22 | 699 | 0.2− | 0.0 | 2006 03 29 | 704 | 0.4− | 0.4+ |
| 2002 04 11 | 704 | 0.9+ | 0.3− | 2006 02 22 | 703 | 0.4− | 0.7− | 2006 03 29 | 704 | 0.5+ | 0.8+ |
| 2002 04 14 | 608 | (2.0− | 1.0+) | 2006 02 22 | 699 | 1.1− | 0.2− | 2006 03 29 | 704 | 0.6+ | 0.5+ |
| 2002 04 14 | 608 | (2.3− | 1.3+) | 2006 02 22 | 699 | 0.5− | 0.0 | 2006 03 31 | 704 | (0.8+ | 2.0−) |
| 2002 04 14 | 608 | (1.7− | 0.5+) | 2006 02 22 | 699 | 0.3− | 0.4− | 2006 03 31 | 704 | 0.4+ | 0.1+ |
| 2002 04 16 | 704 | 0.1+ | 0.5+ | 2006 02 28 | 704 | 1.0+ | 0.2− | 2006 03 31 | 704 | 0.1+ | 0.8+ |
| 2002 04 16 | 704 | 0.4+ | 0.4+ | 2006 02 28 | 704 | 0.8+ | 0.0 | 2006 03 31 | 704 | 0.4+ | 0.2+ |
| 2002 04 16 | 704 | 1.4− | 0.1+ | 2006 02 28 | 704 | 1.2+ | 0.0 | 2008 09 23 | G96 | 0.5− | 0.4+ |
| 2002 04 16 | 704 | 0.8− | 0.5− | 2006 02 28 | 704 | 1.3− | 0.2+ | 2008 09 23 | G96 | 0.3+ | 0.2+ |
| 2002 04 18 | 644 | 0.5− | 0.3+ | 2006 02 28 | 704 | 0.5+ | 0.1+ | 2008 09 23 | G96 | 0.2− | 0.3+ |
| 2002 04 18 | 644 | 0.5− | 0.1+ | 2006 03 03 | 691 | 0.0 | 0.1− | 2008 09 23 | G96 | 0.0 | 0.5+ |
| 2002 04 18 | 644 | 0.3− | 0.1− | 2006 03 03 | 691 | 0.1− | 0.2− | 2008 09 24 | 291 | 0.2− | 0.7+ |
| 2002 05 07 | 644 | 0.1− | 0.0 | 2006 03 03 | 691 | 0.1− | 0.2− | 2008 09 24 | 291 | 0.2− | 0.6+ |
| 2002 05 07 | 644 | 0.1+ | 0.4+ | 2006 03 03 | G96 | 0.2− | 0.0 | 2008 09 24 | 291 | 0.2− | 0.7+ |
| 2002 05 07 | 644 | 0.2+ | 0.2+ | 2006 03 03 | G96 | 0.0 | 0.0 | 2009 10 23 | 691 | 0.2− | 0.2− |
| 2005 12 04 | 691 | 0.0 | 0.4+ | 2006 03 03 | G96 | 0.2− | 0.1+ | 2009 10 23 | 691 | 0.0 | 0.1− |
| 2005 12 04 | 691 | 0.2+ | 0.0 | 2006 03 03 | G96 | 0.1+ | 0.0 | 2009 10 23 | 691 | 0.1+ | 0.2+ |
| 2005 12 04 | 691 | 0.3+ | 0.2− | 2006 03 20 | A50 | 0.1− | 0.2+ | 2009 10 27 | 691 | 0.1− | 0.8+ |
| 2005 12 08 | 691 | 0.3+ | 0.1− | 2006 03 20 | A50 | 0.0 | 0.2+ | 2009 10 27 | 691 | 0.0 | 0.3+ |
| 2005 12 08 | 691 | 0.2+ | 0.1+ | 2006 03 23 | 703 | 0.0 | 0.1− | 2009 10 27 | 691 | 0.1− | 0.8+ |
| 2005 12 08 | 691 | 0.2+ | 0.3+ | 2006 03 23 | 703 | 0.6− | 0.7− | 2009 12 13 | 704 | 0.1− | 0.1− |
| 2006 01 05 | G96 | 0.2+ | 0.4− | 2006 03 23 | 703 | 0.7− | 0.5− | 2009 12 13 | 704 | 0.9+ | 0.4+ |
| 2006 01 05 | G96 | 0.2− | 0.2− | 2006 03 23 | 703 | 1.3− | 1.0− | 2009 12 13 | 704 | 1.2− | 0.0 |

**(228662)∗ 2002 GA$_{37}$ = 1995 UR$_{62}$**

Discovered 2002 Apr. 2 by NEAT at Palomar.

Id. G. V. Williams (*MPO* 31509)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 232.91172 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22752735 | $\omega$ | 158.29094 | | −0.35889643 | | +0.92867829 |
| $a$ | 2.6573391 | $\Omega$ | 90.57702 | | −0.86953228 | | −0.29623544 |
| $e$ | 0.1211394 | $i$ | 5.36765 | | −0.33927416 | | −0.22316184 |
| $P$ | 4.33 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 10 21 | 691 | 0.8+ | 0.3+ | 2002 04 13 | 644 | 0.6+ | 0.4+ | 2006 01 23 | 691 | 0.6+ | 0.1+ |
| 1995 10 21 | 691 | 0.7+ | 0.2+ | 2002 04 16 | 704 | 0.7+ | 0.7+ | 2008 09 25 | 691 | 0.1− | 0.5+ |
| 1995 10 21 | 691 | 0.8+ | 0.1+ | 2002 04 16 | 704 | 0.5+ | 1.0+ | 2008 09 25 | 691 | 0.3+ | 0.1+ |
| 1995 10 25 | 691 | 0.5− | 0.3− | 2002 04 16 | 704 | 0.4− | 0.0 | 2008 09 25 | 691 | 0.1− | 0.2+ |
| 1995 10 25 | 691 | 0.6− | 0.3− | 2002 04 16 | 704 | 0.7+ | 1.4+ | 2008 09 29 | 691 | 0.2− | 0.5+ |
| 1995 10 25 | 691 | 0.5− | 0.0 | 2003 07 08 | 644 | 0.6+ | 0.9+ | 2008 09 29 | 691 | (0.4− | 2.0+) |
| 1998 04 28 | 691 | 0.2− | 0.3+ | 2003 07 08 | 644 | 0.6+ | 1.1+ | 2008 09 29 | 691 | 0.5− | 0.4+ |
| 1998 04 28 | 691 | 0.1− | 0.2+ | 2003 07 08 | 644 | 0.3+ | 1.3+ | 2008 10 03 | 691 | 0.2− | 0.2+ |
| 1998 04 28 | 691 | 0.2− | 0.2+ | 2004 11 04 | 691 | 0.2+ | 0.1+ | 2008 10 03 | 691 | 0.4− | 0.1+ |
| 2002 04 02 | 644 | 0.4+ | 0.4+ | 2004 11 04 | 691 | 0.1+ | 0.0 | 2008 10 03 | 691 | 0.0 | 0.0 |
| 2002 04 02 | 644 | 0.2+ | 0.2+ | 2004 11 04 | 691 | 0.3− | 0.0 | 2009 12 15 | G96 | 0.2+ | 0.5+ |
| 2002 04 02 | 644 | 0.1− | 0.5+ | 2004 12 20 | G96 | 0.7− | 0.5− | 2009 12 15 | G96 | 0.3+ | 0.2+ |
| 2002 04 04 | 608 | 0.6− | 0.1+ | 2004 12 20 | G96 | 1.2− | 1.1− | 2009 12 15 | G96 | 0.1− | 0.3+ |
| 2002 04 04 | 608 | 0.8− | 0.6− | 2004 12 20 | G96 | 0.8− | 0.1− | 2009 12 15 | G96 | 0.6+ | 0.3+ |
| 2002 04 04 | 608 | 1.0− | 0.2+ | 2004 12 20 | G96 | 0.2− | 0.2− | 2009 12 18 | 691 | 0.2− | 0.4− |
| 2002 04 13 | 644 | 0.9+ | 0.3+ | 2006 01 23 | 691 | 0.5+ | 0.3+ | 2009 12 18 | 691 | 0.3− | 0.1− |
| 2002 04 13 | 644 | 0.6+ | 0.3+ | 2006 01 23 | 691 | 0.5+ | 0.1+ | 2009 12 18 | 691 | 0.2− | 0.1− |

**(228663)∗ 2002 GU$_{71}$ = 2000 TK$_{48}$**

Discovered 2002 Apr. 9 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Id. A. Doppler (*MPO* 31540)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 356.19237 | | (2000.0) | | | |
| $n$ | 0.23503431 | $\omega$ | 90.37667 | | −0.37942745 | −0.92178052 |
| $a$ | 2.6004502 | $\Omega$ | 22.44372 | | +0.74391183 | −0.35517060 |
| $e$ | 0.2479732 | $i$ | 12.05303 | | +0.55011817 | −0.15548155 |
| $P$ | 4.19 | $H$ | 16.0 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 10 01 | 699 | 1.0− | 0.4+ | 2005 12 06 | 703 | 0.1− | 0.8+ | 2006 03 19 | 704 | (0.2− | 1.7+) |
| 2000 10 01 | 699 | 0.7− | 0.7+ | 2006 01 04 | 703 | 0.2+ | 0.7− | 2006 03 19 | 704 | (0.3+ | 2.1+) |
| 2000 10 01 | 699 | 0.4− | 1.4+ | 2006 01 04 | 703 | 0.2+ | 0.5− | 2006 03 19 | 704 | 0.2+ | 0.7− |
| 2000 10 01 | 699 | 1.2+ | 0.8− | 2006 01 04 | 703 | 0.6+ | 1.2− | 2006 03 19 | 704 | 0.2+ | 0.1+ |
| 2000 10 02 | 704 | 0.9− | 1.1+ | 2006 01 04 | 703 | 0.5+ | 0.7− | 2006 03 19 | 704 | 0.9+ | 0.3+ |
| 2000 10 02 | 704 | 0.4− | 0.7+ | 2006 01 05 | 704 | 0.3+ | 0.9+ | 2006 03 24 | 703 | 0.5− | 0.1+ |
| 2000 10 02 | 704 | 0.2− | 0.7+ | 2006 01 05 | 704 | 0.2+ | 0.0 | 2006 03 24 | 703 | 0.1− | 0.2− |
| 2000 10 02 | 704 | 1.3− | 1.1+ | 2006 01 05 | 704 | 0.1+ | 0.2− | 2006 03 24 | 703 | 0.7− | 0.1+ |
| 2000 10 07 | 691 | 0.3− | 0.3+ | 2006 01 05 | 704 | 0.5+ | 0.7+ | 2006 03 24 | 703 | 0.3− | 0.4+ |
| 2000 10 07 | 691 | 0.1− | 0.5+ | 2006 02 12 | 644 | 0.7− | 0.1− | 2006 04 19 | 703 | 1.0+ | 0.4+ |
| 2000 10 07 | 691 | 0.4− | 0.4+ | 2006 02 12 | 644 | 0.2− | 0.1− | 2006 04 19 | 703 | 0.9− | 0.3+ |
| 2002 04 09 | 699 | 0.2+ | 0.8+ | 2006 02 12 | 644 | 0.1− | 0.4− | 2006 04 19 | 703 | 0.9+ | 0.0 |
| 2002 04 09 | 699 | 0.1+ | 0.0 | 2006 02 20 | 704 | 0.8+ | 0.2+ | 2006 04 19 | 703 | 0.6+ | 0.6− |
| 2002 04 09 | 699 | 0.0 | 0.5+ | 2006 02 20 | 704 | 0.7+ | 0.2+ | 2009 11 10 | 704 | 0.7+ | 0.1+ |
| 2002 04 09 | 699 | 0.5− | 0.7+ | 2006 02 20 | 704 | 0.7+ | 0.4+ | 2009 11 10 | 704 | 0.6+ | 0.0 |
| 2002 04 10 | 704 | 0.6+ | 0.3+ | 2006 02 20 | 704 | 0.8+ | 0.4+ | 2009 11 10 | 704 | 0.6+ | 0.5− |
| 2002 04 10 | 704 | 0.2+ | 0.8+ | 2006 02 20 | 704 | 0.2+ | 0.7+ | 2009 11 10 | 704 | 0.5+ | 0.4+ |
| 2002 04 10 | 704 | 0.9+ | 0.2− | 2006 02 26 | 703 | 1.2− | 0.2+ | 2009 11 27 | 703 | 0.3+ | 0.7+ |
| 2002 04 10 | 704 | 0.6+ | 0.9+ | 2006 02 26 | 703 | 1.0− | 0.3− | 2009 11 27 | 703 | 0.4+ | 0.3− |
| 2002 04 14 | 691 | 0.2+ | 0.5+ | 2006 02 26 | 703 | 1.2− | 0.2− | 2009 11 27 | 703 | 0.5+ | 0.3+ |
| 2002 04 14 | 691 | 0.2+ | 0.6+ | 2006 02 26 | 703 | 0.3− | 0.6+ | 2009 11 27 | 703 | 0.1− | 0.0 |
| 2002 04 14 | 691 | 0.3+ | 0.5+ | 2006 03 03 | 699 | 0.5+ | 0.1− | 2009 12 13 | 703 | 0.5− | 0.2+ |
| 2002 04 17 | 704 | 1.3+ | 0.1+ | 2006 03 03 | 699 | 0.1+ | 0.5− | 2009 12 13 | 703 | 0.4+ | 0.2+ |
| 2002 04 17 | 704 | 1.0− | 0.3− | 2006 03 03 | 699 | 0.5+ | 0.1− | 2009 12 13 | 703 | 0.4− | 0.9− |
| 2002 04 17 | 704 | 1.2+ | 0.6− | 2006 03 03 | 699 | 0.0 | 0.0 | 2009 12 13 | 703 | 0.1+ | 0.1− |
| 2002 04 17 | 704 | 0.1+ | 0.8− | 2006 03 09 | 703 | 0.6− | 0.8+ | 2009 12 20 | 703 | 0.0 | 0.5+ |
| 2005 12 06 | 703 | (2.1− | 1.0+) | 2006 03 09 | 703 | 0.5− | 0.7+ | 2009 12 20 | 703 | 0.8− | 0.3− |
| 2005 12 06 | 703 | 0.5+ | 0.5+ | 2006 03 09 | 703 | 0.9− | 0.7− | 2009 12 20 | 703 | 0.4− | 0.0 |
| 2005 12 06 | 703 | 0.1− | 0.5− | 2006 03 09 | 703 | 0.8− | 0.2− | 2009 12 20 | 703 | 0.7− | 0.1+ |

**(228664)∗ 2002 GM$_{76}$**

Discovered 2002 Apr. 9 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 333.38149 | | (2000.0) | | | |
| $n$ | 0.24211884 | $\omega$ | 112.95688 | | −0.93237089 | +0.34583074 |
| $a$ | 2.5494725 | $\Omega$ | 87.40821 | | −0.35810106 | −0.84369196 |
| $e$ | 0.2099927 | $i$ | 6.04999 | | −0.04947874 | −0.41059101 |
| $P$ | 4.07 | $H$ | 16.3 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 05 24 | 704 | 0.9− | 1.7+ | 2002 05 09 | 644 | 0.4+ | 0.1+ | 2006 05 20 | 703 | 1.1− | 0.1+ |
| 1998 05 24 | 704 | (2.6− | 0.0 ) | 2002 05 18 | 704 | 0.1+ | 0.2− | 2006 05 26 | 703 | 0.8+ | 0.6− |
| 1998 05 24 | 704 | 0.5+ | 0.5− | 2002 05 18 | 704 | 0.3+ | 0.3− | 2006 05 26 | 703 | 0.7− | 0.8− |
| 1998 05 24 | 704 | (7.8− | 0.6+) | 2002 05 18 | 704 | 0.7+ | 0.1+ | 2006 05 26 | 703 | 1.0− | 0.1− |
| 2002 04 09 | 704 | 0.2+ | 1.0+ | 2002 05 18 | 704 | 0.4− | 0.8+ | 2006 05 26 | 703 | 0.9− | 0.1− |
| 2002 04 09 | 704 | 0.0 | 0.6+ | 2006 04 18 | 703 | 0.4+ | 0.5− | 2008 11 01 | G96 | 0.6− | 0.4+ |
| 2002 04 09 | 704 | 0.3− | 0.6+ | 2006 04 18 | 703 | 0.5− | 0.0 | 2008 11 01 | G96 | 0.4− | 0.5+ |
| 2002 04 10 | 704 | 0.4+ | 0.9+ | 2006 04 18 | 703 | 0.1+ | 0.2+ | 2008 11 01 | G96 | 0.3+ | 0.6+ |
| 2002 04 10 | 704 | (0.4+ | 2.3+) | 2006 04 18 | 703 | 1.5− | 0.3− | 2008 11 01 | G96 | 0.0 | 0.3+ |
| 2002 04 10 | 704 | 0.5+ | 0.4− | 2006 04 19 | 699 | 0.3+ | 0.7− | 2008 11 20 | G96 | 0.1+ | 0.4+ |
| 2002 04 10 | 704 | 1.2− | 0.2+ | 2006 04 19 | 699 | 0.0 | 0.1− | 2008 11 20 | G96 | 0.0 | 0.3+ |
| 2002 04 12 | 608 | 0.8− | 0.4− | 2006 04 19 | 699 | 0.1+ | 0.5− | 2008 11 20 | G96 | 0.2− | 0.5+ |
| 2002 04 12 | 608 | 0.0 | 0.3− | 2006 04 19 | 699 | 0.0 | 0.5− | 2008 11 20 | G96 | 0.1+ | 0.2+ |
| 2002 04 12 | 608 | 0.3− | 0.4+ | 2006 04 27 | 703 | 0.6− | 0.7− | 2008 12 05 | G96 | 0.3− | 0.5+ |
| 2002 04 16 | 704 | 0.3+ | 0.7+ | 2006 04 27 | 703 | 0.5− | 0.5− | 2008 12 05 | G96 | 0.5+ | 0.4+ |
| 2002 04 16 | 704 | 0.6+ | 0.2+ | 2006 04 27 | 703 | 0.2− | 0.3+ | 2008 12 05 | G96 | 0.1+ | 1.1+ |
| 2002 04 16 | 704 | 0.8+ | 1.1+ | 2006 04 27 | 703 | 0.1− | 0.4− | 2008 12 05 | G96 | 0.6− | 0.4+ |
| 2002 04 16 | 704 | 0.3+ | 1.2+ | 2006 04 28 | 704 | 1.1+ | 0.0 | 2008 12 21 | G96 | 0.1− | 0.0 |
| 2002 04 16 | 704 | 0.2+ | 0.4+ | 2006 04 28 | 704 | 0.9+ | 0.3+ | 2008 12 21 | G96 | 0.3− | 0.0 |
| 2002 05 07 | 699 | 0.1+ | 0.1+ | 2006 04 28 | 704 | 0.2+ | 0.6+ | 2008 12 21 | G96 | 0.0 | 0.1− |
| 2002 05 07 | 699 | 0.0 | 0.2+ | 2006 04 28 | 704 | 0.8+ | 0.3+ | 2008 12 21 | G96 | 0.2− | 0.7− |
| 2002 05 07 | 699 | (0.5− | 1.7+) | 2006 04 28 | 704 | (1.8+ | 1.2+) | 2009 12 26 | 691 | 0.1− | 0.1− |
| 2002 05 07 | 699 | 0.2− | 0.6+ | 2006 05 17 | 644 | 0.1− | 0.4− | 2009 12 26 | 691 | 0.2− | 0.3− |
| 2002 05 08 | 704 | 1.1+ | 0.9+ | 2006 05 17 | 644 | 0.2+ | 0.4− | 2009 12 26 | 691 | 0.3− | 0.7+ |
| 2002 05 08 | 704 | 0.8+ | 0.3− | 2006 05 17 | 644 | 0.3+ | 0.5− | 2009 12 27 | 691 | 0.4+ | 0.2− |
| 2002 05 08 | 704 | 0.6+ | 1.2− | 2006 05 20 | 703 | 0.8− | 0.5+ | 2009 12 27 | 691 | 0.0 | 0.0 |
| 2002 05 09 | 644 | 0.3+ | 0.1+ | 2006 05 20 | 703 | 1.1− | 0.1+ | 2009 12 27 | 691 | 0.5+ | 0.4− |
| 2002 05 09 | 644 | 0.3+ | 0.2+ | 2006 05 20 | 703 | 0.3− | 0.3+ | | | | |

**(228665)∗ 2002 GX$_{114}$**

Discovered 2002 Apr. 11 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 224.76510 | | (2000.0) | | | |
| $n$ | 0.22593652 | $\omega$ | 137.27918 | | −0.30728879 | +0.94773346 |
| $a$ | 2.6697981 | $\Omega$ | 114.65872 | | −0.89660792 | −0.25810706 |
| $e$ | 0.0216701 | $i$ | 5.42221 | | −0.31885393 | −0.18756876 |
| $P$ | 4.36 | $H$ | 16.0 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 06 18 | 691 | 0.2− | 0.1+ | 2002 04 16 | 704 | 1.5+ | 0.9− | 2006 02 25 | 704 | 0.7+ | 0.5+ |
| 1998 06 18 | 691 | 0.3− | 0.2− | 2002 04 16 | 704 | 0.2+ | 0.6− | 2006 02 25 | 704 | 0.5− | 0.5+ |
| 1998 06 18 | 691 | 0.4− | 0.1− | 2002 05 07 | 644 | 0.2+ | 0.0 | 2008 10 07 | G96 | 0.1− | 0.7+ |
| 2000 12 29 | 691 | 0.1+ | 0.1− | 2002 05 07 | 644 | 0.6+ | 0.4+ | 2008 10 07 | G96 | 0.1+ | 0.3+ |
| 2000 12 29 | 691 | 0.1+ | 0.0 | 2002 05 07 | 644 | 0.2+ | 0.2+ | 2008 10 07 | G96 | 0.2− | 0.1+ |
| 2000 12 29 | 691 | 0.0 | 0.1− | 2005 02 13 | 809 | 0.1− | 0.2+ | 2008 10 07 | G96 | 0.0 | 0.1+ |
| 2002 03 14 | 209 | 0.4+ | 0.0 | 2005 02 13 | 809 | 0.2+ | 0.1+ | 2008 10 27 | G96 | 0.1+ | 0.6+ |
| 2002 03 14 | 209 | 0.4+ | 0.2+ | 2005 02 13 | 809 | 0.3− | 0.1− | 2008 10 27 | G96 | 0.2+ | 0.7+ |
| 2002 03 14 | 209 | 0.2+ | 0.2+ | 2006 01 25 | 691 | 0.2+ | 0.0 | 2008 10 27 | G96 | 0.1+ | 0.6+ |
| 2002 04 09 | 699 | 0.5− | 0.1− | 2006 01 25 | 691 | 0.1+ | 0.0 | 2008 10 27 | G96 | 0.0 | 0.3+ |
| 2002 04 09 | 699 | 1.3− | 0.1+ | 2006 01 25 | 691 | 0.0 | 0.1− | 2009 11 16 | G96 | 0.4− | 0.1− |
| 2002 04 09 | 699 | 0.2− | 0.4+ | 2006 02 01 | 691 | 0.2− | 0.0 | 2009 11 16 | G96 | 0.1+ | 0.3+ |
| 2002 04 09 | 699 | 1.3+ | 1.0+ | 2006 02 01 | 691 | 0.0 | 0.3− | 2009 11 16 | G96 | 0.6− | 0.4+ |
| 2002 04 11 | 704 | 0.0 | 1.1+ | 2006 02 01 | 691 | 0.2− | 0.3− | 2009 11 16 | G96 | 0.3− | 0.2+ |
| 2002 04 11 | 704 | 0.4+ | 1.3+ | 2006 02 09 | 644 | 0.3+ | 0.2+ | 2009 12 15 | G96 | 0.1− | 0.1+ |
| 2002 04 11 | 704 | 0.4+ | 0.3+ | 2006 02 09 | 644 | 0.3− | 0.1− | 2009 12 15 | G96 | 0.1+ | 0.0 |
| 2002 04 11 | 704 | 0.5+ | 0.5− | 2006 02 09 | 644 | 0.1− | 0.2− | 2009 12 15 | G96 | 0.4− | 0.3− |
| 2002 04 11 | 704 | 0.2− | 1.3+ | 2006 02 22 | 699 | 0.4− | 0.2+ | 2009 12 15 | G96 | 0.3− | 0.0 |
| 2002 04 13 | 644 | 0.1+ | 0.1+ | 2006 02 22 | 699 | 1.2+ | 1.0+ | 2009 12 17 | 691 | 0.2− | 0.1− |
| 2002 04 13 | 644 | 0.3+ | 0.2− | 2006 02 22 | 699 | 0.5− | 0.6+ | 2009 12 17 | 691 | 0.1− | 0.2− |
| 2002 04 13 | 644 | 0.1+ | 0.1− | 2006 02 22 | 699 | 0.4+ | 0.0 | 2009 12 17 | 691 | 0.0 | 0.2+ |
| 2002 04 16 | 704 | (0.1+ | 1.8−) | 2006 02 25 | 704 | (1.6+ | 1.2+) | | | | |
| 2002 04 16 | 704 | 0.5+ | 1.0− | 2006 02 25 | 704 | 0.0 | 0.7− | | | | |

**(228666)∗ 2002 GG$_{131}$ = 2004 TD$_{74}$ = 2006 BZ$_{54}$**

Discovered 2002 Apr. 12 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. A. Doppler (*MPO* 72615, *MPO* 142611)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 295.64997 | | (2000.0) | | | |
| $n$ | 0.21415415 | $\omega$ | 305.25501 | | −0.84415898 | −0.53575413 |
| $a$ | 2.7668465 | $\Omega$ | 202.36862 | | +0.50668783 | −0.78574113 |
| $e$ | 0.0316077 | $i$ | 2.87021 | | +0.17510874 | −0.30915756 |
| $P$ | 4.60 | $H$ | 16.4 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 04 12 | 704 | 0.9− | 1.2+ | 2004 10 08 | 691 | 0.2− | 0.4+ | 2007 06 14 | 691 | 0.8− | 0.2− |
| 2002 04 12 | 704 | 0.3− | 1.5+ | 2004 10 08 | 691 | 0.0 | 0.2+ | 2007 06 22 | 691 | 0.3+ | 0.4− |
| 2002 04 12 | 704 | (1.9− | 0.8+) | 2004 10 12 | 691 | 0.1+ | 0.4+ | 2007 06 22 | 691 | 0.3− | 0.0 |
| 2002 04 12 | 704 | (0.9− | 2.2+) | 2004 10 12 | 691 | 0.2+ | 0.3+ | 2007 06 22 | 691 | 0.0 | 0.2− |
| 2002 04 14 | 704 | (1.1− | 1.6+) | 2004 10 12 | 691 | 0.2− | 0.3+ | 2008 08 07 | 691 | 0.2+ | 0.8+ |
| 2002 04 14 | 704 | (0.1+ | 2.5+) | 2006 01 25 | 408 | 0.1+ | 0.9+ | 2008 08 07 | 691 | 0.0 | 0.8+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 04 14 | 704 | (0.1− | 2.4+) | 2006 01 25 | 408 | 0.2− | 0.6+ | 2008 08 07 | 691 | 0.0 | 0.4+ | | |
| 2002 04 14 | 704 | (0.2+ | 1.8+) | 2006 01 26 | 408 | 0.3− | 0.2+ | 2009 11 19 | 691 | 0.0 | 0.1+ | | |
| 2002 04 14 | 704 | (0.6− | 2.7+) | 2006 01 26 | 408 | 0.6− | 0.6+ | 2009 11 19 | 691 | 0.3− | 0.8+ | | |
| 2002 04 18 | 291 | 1.2+ | 0.2− | 2007 04 19 | G96 | 0.3+ | 0.0 | 2009 11 19 | 691 | 0.1+ | 0.1+ | | |
| 2002 04 18 | 291 | 0.2− | 1.2+ | 2007 04 19 | G96 | 0.4+ | 0.3+ | 2009 11 23 | 691 | 0.1− | 0.1− | | |
| 2002 04 18 | 291 | 0.1− | 1.1+ | 2007 04 19 | G96 | 0.0 | 0.6+ | 2009 11 23 | 691 | 0.0 | 0.3+ | | |
| 2002 04 18 | 291 | 0.2+ | 0.1− | 2007 04 19 | G96 | 0.1+ | 0.4+ | 2009 11 23 | 691 | 0.1− | 0.2+ | | |
| 2002 04 18 | 291 | 1.2+ | 0.2− | 2007 05 24 | G96 | 0.4+ | 0.1+ | 2009 12 11 | G96 | 1.0+ | 0.3+ | | |
| 2002 04 18 | 291 | 0.1+ | 0.4+ | 2007 05 24 | G96 | 0.3+ | 0.1+ | 2009 12 11 | G96 | 0.6+ | 0.3+ | | |
| 2004 10 06 | 291 | 0.3− | 0.2+ | 2007 05 24 | G96 | 0.2+ | 0.1+ | 2009 12 11 | G96 | 0.7+ | 0.1+ | | |
| 2004 10 06 | 291 | 0.2− | 0.3+ | 2007 05 24 | G96 | 0.3+ | 0.1+ | 2009 12 11 | G96 | 1.0+ | 0.1− | | |
| 2004 10 06 | 291 | 0.7− | 0.2− | 2007 06 14 | 691 | 0.4− | 0.8+ | | | | | | |
| 2004 10 08 | 691 | 0.3− | 0.0 | 2007 06 14 | 691 | 0.3− | 0.5+ | | | | | | |

**(228667)∗ 2002 GK$_{144}$ = 2000 WM$_{102}$**

Discovered 2002 Apr. 11 by NEAT at Palomar.

Id. A. Doppler (*MPO* 31598)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | | **P** | **Q** | |
| $M$ | 1.26276 | | (2000.0) | | −0.38504591 | −0.90082045 | |
| $n$ | 0.22940741 | $\omega$ | 4.17786 | | +0.84048959 | −0.43208066 | |
| $a$ | 2.6428008 | $\Omega$ | 108.56591 | | +0.38120454 | +0.04276462 | |
| $e$ | 0.1668828 | $i$ | 12.22024 | | | | |
| $P$ | 4.30 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 09 03 | 691 | 0.1+ | 0.3+ | 2002 04 22 | 644 | 0.0 | 0.6+ | 2006 03 25 | 699 | 0.1− | 0.4− | | |
| 1995 09 03 | 691 | 0.0 | 0.5+ | 2002 06 10 | 645 | 0.0 | 0.1− | 2006 03 25 | 699 | 1.1− | 0.3− | | |
| 1995 09 03 | 691 | 0.3− | 0.3+ | 2002 06 10 | 645 | 0.0 | 0.1− | 2006 03 25 | 699 | 0.1+ | 0.9+ | | |
| 2000 11 26 | 704 | 0.4− | 0.4+ | 2006 02 03 | 704 | 0.7+ | 0.1+ | 2006 03 25 | 699 | 0.2+ | 0.1+ | | |
| 2000 11 26 | 704 | 0.4+ | 0.9+ | 2006 02 03 | 704 | (1.8+ | 1.3+) | 2009 11 26 | 703 | 0.8− | 0.3− | | |
| 2000 11 26 | 704 | 0.3+ | 0.2− | 2006 02 03 | 704 | 1.5+ | 0.5+ | 2009 11 26 | 703 | 0.5+ | 0.9− | | |
| 2000 11 26 | 704 | 0.9+ | 0.3− | 2006 02 03 | 704 | 0.3+ | 0.9+ | 2009 11 26 | 703 | (1.8+ | 1.2−) | | |
| 2000 11 29 | 704 | 1.2− | 0.5+ | 2006 02 04 | 704 | 0.9+ | 1.2+ | 2009 11 26 | 703 | 1.6+ | 0.3− | | |
| 2000 11 29 | 704 | 0.6− | 0.2+ | 2006 02 04 | 704 | (2.2+ | 1.6+) | 2009 12 10 | J75 | 0.2+ | 0.6− | | |
| 2000 11 29 | 704 | 0.5− | 0.7+ | 2006 02 04 | 704 | 1.3+ | 1.4+ | 2009 12 10 | J75 | 0.6+ | 0.6+ | | |
| 2000 11 29 | 704 | 0.1− | 0.5− | 2006 02 04 | 704 | 1.2+ | 0.0 | 2009 12 10 | J75 | 0.3− | 0.2+ | | |
| 2000 11 29 | 704 | 0.5+ | 0.6+ | 2006 02 05 | 201 | 0.2+ | 0.9− | 2009 12 15 | G96 | 0.1+ | 0.1− | | |
| 2002 04 11 | 644 | 0.0 | 0.4+ | 2006 02 05 | 201 | 0.0 | 0.1− | 2009 12 15 | G96 | 0.5+ | 0.3− | | |
| 2002 04 11 | 644 | 0.1− | 0.5+ | 2006 02 05 | 201 | 0.4− | 0.0 | 2009 12 15 | G96 | 0.3− | 0.2− | | |
| 2002 04 11 | 644 | 0.2+ | 0.4+ | 2006 02 21 | 703 | 0.4+ | 0.2+ | 2009 12 15 | G96 | 0.0 | 0.3− | | |
| 2002 04 15 | 699 | 0.4− | 0.6+ | 2006 02 21 | 703 | 0.2− | 0.1+ | 2009 12 17 | 691 | 0.0 | 0.1− | | |
| 2002 04 15 | 699 | 0.0 | 0.3+ | 2006 02 21 | 703 | 0.4− | 0.5+ | 2009 12 17 | 691 | 0.1+ | 0.1− | | |
| 2002 04 15 | 699 | 0.4− | 0.5+ | 2006 02 21 | 703 | 0.4− | 0.0 | 2009 12 17 | 691 | 0.0 | 0.0 | | |
| 2002 04 15 | 699 | 0.6+ | 0.9+ | 2006 02 26 | 699 | 0.2+ | 0.1+ | 2009 12 25 | 691 | 0.3− | 0.1− | | |
| 2002 04 22 | 644 | 0.3− | 0.7+ | 2006 02 26 | 699 | 0.8− | 0.3+ | 2009 12 25 | 691 | 0.2− | 0.1− | | |
| 2002 04 22 | 644 | 0.1− | 0.6+ | 2006 02 26 | 699 | 0.9+ | 0.2− | 2009 12 25 | 691 | 0.2− | 0.1+ | | |

**(228668)∗ 2002 JF$_5$ = 2006 CE$_{54}$**

Discovered 2002 May 5 by W. K. Y. Yeung at Desert Eagle Observatory.

Id. G. V. Williams (*MPO* 94768)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | | **P** | **Q** | |
| $M$ | 246.15632 | | (2000.0) | | −0.97156934 | +0.17789448 | |
| $n$ | 0.20600074 | $\omega$ | 147.17629 | | −0.23468259 | −0.81075385 | |
| $a$ | 2.8393800 | $\Omega$ | 43.94369 | | −0.03125859 | −0.55770221 | |
| $e$ | 0.0396497 | $i$ | 13.01025 | | | | |
| $P$ | 4.78 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 05 05 | 333 | 1.1+ | 0.9+ | 2004 10 23 | 691 | 0.1− | 0.3+ | 2006 02 04 | 703 | 0.3+ | 1.3− | | |
| 2002 05 05 | 333 | 0.4+ | 0.2+ | 2004 10 23 | 691 | 0.2− | 0.1+ | 2006 02 04 | 703 | 0.3− | 0.5− | | |
| 2002 05 05 | 333 | 1.0− | 1.0+ | 2004 10 23 | 691 | 0.2− | 0.3+ | 2006 02 04 | 703 | 0.5− | 0.5− | | |
| 2002 05 06 | 333 | 0.2+ | 0.1+ | 2004 11 04 | 691 | 0.4− | 0.3+ | 2006 02 06 | 704 | 0.4+ | 1.4+ | | |
| 2002 05 06 | 333 | 0.3+ | 0.1+ | 2004 11 04 | 691 | 0.1− | 0.2+ | 2006 02 06 | 704 | 0.1− | 1.0+ | | |
| 2002 05 08 | 699 | 0.3+ | 1.0+ | 2004 11 04 | 691 | 0.0 | 0.2+ | 2006 02 06 | 704 | (0.6+ | 1.6+) | | |
| 2002 05 08 | 699 | 0.1+ | 1.2+ | 2004 11 04 | 703 | (1.5− | 1.6−) | 2006 02 06 | 704 | 1.3− | 1.4+ | | |
| 2002 05 08 | 699 | (0.5− | 1.7+) | 2004 11 04 | 703 | (2.3+ | 2.2−) | 2006 02 06 | 704 | 0.5− | 0.1+ | | |
| 2002 05 08 | 699 | 0.8+ | 0.9+ | 2004 11 04 | 703 | 1.2− | 0.2− | 2006 02 18 | 699 | 0.0 | 0.3+ | | |
| 2002 05 09 | 644 | 0.4+ | 0.6+ | 2004 11 04 | 703 | 0.6+ | 0.1− | 2006 02 18 | 699 | 0.1+ | 1.1− | | |
| 2002 05 09 | 644 | (0.4+ | 1.7+) | 2004 12 12 | 691 | 0.3− | 0.2+ | 2006 02 18 | 699 | 0.1− | 0.9− | | |
| 2002 05 09 | 644 | 0.6+ | 0.3+ | 2004 12 12 | 691 | 0.1− | 0.2+ | 2006 02 18 | 699 | 0.1− | 1.2− | | |
| 2002 05 11 | 704 | 0.4+ | 0.2− | 2004 12 12 | 691 | 0.2− | 0.1+ | 2006 02 24 | 699 | 1.5− | 0.0 | | |
| 2002 05 11 | 704 | 0.7+ | 0.2+ | 2005 12 05 | 703 | 0.3− | 0.7+ | 2006 02 24 | 699 | 0.5− | 0.5− | | |
| 2002 05 11 | 704 | 0.3+ | 0.0 | 2005 12 05 | 703 | 1.4+ | 0.7+ | 2006 02 24 | 699 | 0.1+ | 0.5− | | |
| 2002 05 11 | 704 | 0.7+ | 0.4+ | 2005 12 05 | 703 | 0.6+ | 1.4+ | 2006 02 24 | 699 | 0.4− | 0.7− | | |
| 2002 05 11 | 704 | 0.6+ | 0.2+ | 2005 12 05 | 703 | 0.9+ | 0.1+ | 2007 05 21 | F85 | 0.1− | 0.3+ | | |
| 2002 05 14 | 699 | (1.6+ | 0.6+) | 2006 01 06 | 704 | 0.1+ | 0.4+ | 2007 05 21 | F85 | 1.0− | 0.4+ | | |
| 2002 05 14 | 699 | 0.1− | 0.9+ | 2006 01 06 | 704 | 0.1− | 0.3+ | 2009 11 11 | 704 | 0.2+ | 0.8+ | | |
| 2002 05 14 | 699 | 0.3+ | 0.6+ | 2006 01 06 | 704 | 0.0 | 0.3− | 2009 11 11 | 691 | 0.1+ | 0.0 | | |
| 2002 05 14 | 699 | 0.0 | 0.0 | 2006 01 06 | 704 | 1.1+ | 0.5− | 2009 11 11 | 704 | (0.3+ | 1.9+) | | |
| 2002 05 18 | 644 | 0.2+ | 0.3+ | 2006 01 06 | 704 | 0.3+ | 1.0+ | 2009 11 11 | 691 | 0.0 | 0.1− | | |
| 2002 05 18 | 644 | 0.6+ | 0.1− | 2006 01 28 | 703 | 0.2− | 0.0 | 2009 11 11 | 691 | 0.1+ | 0.3− | | |
| 2002 05 18 | 644 | 0.4+ | 0.2− | 2006 01 28 | 703 | 0.2− | 0.5− | 2009 11 11 | 704 | (0.0 | 2.5+) | | |
| 2004 10 09 | 691 | 0.1+ | 0.3+ | 2006 01 28 | 703 | 0.9+ | 0.2+ | 2009 12 10 | 704 | 1.1− | 0.1− | | |
| 2004 10 09 | 691 | 0.1+ | 0.1+ | 2006 01 28 | 703 | 0.5− | 0.0 | 2009 12 10 | 704 | 1.0+ | 0.5+ | | |
| 2004 10 09 | 691 | 0.1− | 0.0 | 2006 02 04 | 703 | 0.0 | 0.2− | 2009 12 10 | 704 | 0.7+ | 1.2+ | | |

**(228669)∗ 2002 JT$_{10}$ = 2000 YO$_{85}$**

Discovered 2002 May 7 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 30180)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | | **P** | **Q** | |
| $M$ | 283.31295 | | (2000.0) | | −0.94826091 | −0.21607252 | |
| $n$ | 0.21195497 | $\omega$ | 53.77748 | | +0.14271842 | −0.94458865 | |
| $a$ | 2.7859521 | $\Omega$ | 112.70814 | | +0.28360658 | −0.24711321 | |
| $e$ | 0.1503768 | $i$ | 14.60605 | | | | |
| $P$ | 4.65 | $H$ | 15.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 06 16 | 691 | 0.6+ | 1.2+ | 2002 06 05 | 699 | (1.8+ | 0.2−) | 2006 01 27 | 699 | 0.1+ | 0.7+ | | |
| 1998 06 16 | 691 | (0.4+ | 3.2+) | 2005 10 28 | G96 | 0.0 | 0.3− | 2006 01 27 | 699 | 1.0+ | 0.6+ | | |
| 1998 06 16 | 691 | 0.3− | 0.7+ | 2005 10 28 | G96 | 0.1+ | 0.1+ | 2006 02 18 | 699 | 0.2− | 0.2− | | |
| 2000 12 30 | 704 | 0.6− | 0.1+ | 2005 10 28 | G96 | 0.2+ | 0.2+ | 2006 02 18 | 699 | 0.6+ | 0.4− | | |
| 2000 12 30 | 704 | 0.1+ | 0.9+ | 2005 10 28 | G96 | 0.1− | 0.7− | 2006 02 18 | 699 | 0.3− | 0.4− | | |
| 2000 12 30 | 704 | 0.5+ | 0.5− | 2005 12 29 | 703 | 0.5− | 0.8− | 2006 02 20 | 704 | 1.4+ | 0.3+ | | |
| 2001 01 03 | 704 | 0.3− | 0.8+ | 2005 12 29 | 703 | 0.4− | 0.4+ | 2006 02 20 | 704 | 0.9+ | 0.2+ | | |
| 2001 01 03 | 704 | 0.3− | 0.2+ | 2005 12 29 | 703 | (1.3− | 2.2+) | 2006 02 20 | 704 | 0.5+ | 1.1+ | | |
| 2001 01 03 | 704 | 0.4+ | 0.1− | 2005 12 29 | 703 | 1.2− | 0.1− | 2006 02 20 | 704 | 0.3− | 0.6+ | | |
| 2001 01 03 | 704 | 0.0 | 1.4+ | 2006 01 04 | 703 | 0.2+ | 0.6+ | 2006 02 20 | 704 | 1.1+ | 0.8+ | | |
| 2001 01 03 | 704 | 0.6− | 0.2− | 2006 01 04 | 703 | 0.1+ | 0.2+ | 2006 03 09 | 644 | 0.5+ | 0.1− | | |
| 2002 05 04 | 699 | 0.3− | 1.0+ | 2006 01 04 | 703 | (0.2− | 1.8+) | 2006 03 09 | 644 | 0.4+ | 0.2− | | |
| 2002 05 04 | 699 | 1.1− | 0.7+ | 2006 01 04 | 703 | 0.7+ | 0.4+ | 2006 03 09 | 644 | 0.3+ | 0.2− | | |
| 2002 05 04 | 699 | 0.3+ | 0.4+ | 2006 01 12 | 644 | 0.4+ | 0.2+ | 2006 03 15 | 644 | 0.5+ | 0.0 | | |
| 2002 05 04 | 699 | 0.3− | 0.2− | 2006 01 12 | 644 | 0.2+ | 0.2+ | 2006 03 15 | 644 | 0.4+ | 0.3− | | |
| 2002 05 07 | 704 | 0.6+ | 0.0 | 2006 01 12 | 644 | 0.2+ | 0.1− | 2006 03 15 | 644 | 0.1+ | 0.4− | | |
| 2002 05 07 | 704 | 0.2+ | 0.1− | 2006 01 20 | 703 | 0.9− | 0.7+ | 2009 11 09 | 703 | 1.1− | 0.7+ | | |
| 2002 05 07 | 704 | 0.3+ | 0.3− | 2006 01 20 | 703 | 0.5− | 0.1− | 2009 11 09 | 703 | 0.4− | 1.2+ | | |
| 2002 05 07 | 704 | 0.5+ | 0.8− | 2006 01 20 | 703 | 1.1− | 0.2+ | 2009 11 09 | 703 | 0.6+ | 0.5+ | | |
| 2002 05 07 | 704 | 0.0 | 0.7+ | 2006 01 20 | 703 | 1.2− | 0.3− | 2009 11 09 | 703 | (1.8+ | 1.2+) | | |
| 2002 05 08 | 704 | 0.5+ | 0.2− | 2006 01 22 | 699 | 0.2+ | 0.0 | 2009 11 23 | 703 | 0.1+ | 1.1+ | | |
| 2002 05 08 | 704 | 1.2− | 0.3+ | 2006 01 22 | 699 | 0.2+ | 0.3+ | 2009 11 23 | 703 | 0.2+ | 1.0+ | | |
| 2002 05 08 | 704 | 0.2− | 0.7+ | 2006 01 22 | 699 | 0.5+ | 1.1+ | 2009 11 23 | 703 | 0.1− | 1.4+ | | |
| 2002 05 08 | 704 | 1.0− | 0.0 | 2006 01 22 | 699 | 0.2+ | 0.5− | 2009 11 23 | 703 | 0.1+ | 0.3+ | | |
| 2002 05 13 | 644 | 0.5+ | 0.2+ | 2006 01 27 | 703 | 0.4− | 0.7− | 2009 11 23 | 703 | 0.1− | 0.6+ | | |
| 2002 05 13 | 644 | 0.1+ | 0.1+ | 2006 01 27 | 703 | 0.3− | 0.4− | 2009 12 15 | 703 | 1.3− | 0.1− | | |
| 2002 05 13 | 644 | 0.0 | 0.1+ | 2006 01 27 | 703 | 0.3− | 0.6− | 2009 12 15 | 703 | 0.4+ | 0.6+ | | |
| 2002 06 05 | 699 | 0.5+ | 1.1+ | 2006 01 27 | 703 | 0.7− | 0.5− | 2009 12 15 | 703 | 1.1− | 0.5− | | |
| 2002 06 05 | 699 | 0.9+ | 1.4+ | 2006 01 27 | 699 | 0.1− | 0.2+ | 2009 12 15 | 703 | 0.4− | 1.0− | | |
| 2002 06 05 | 699 | 0.2− | 0.2− | 2006 01 27 | 699 | 0.3− | 0.6+ | | | | | | |

**(228670)∗ 2002 JY$_{21}$**

Discovered 2002 May 9 by W. K. Y. Yeung at Desert Eagle Observatory.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 114.29395 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18226827 | $\omega$ | 208.90571 | | +0.51206418 | +0.83741357 | |
| $a$ | 3.0807893 | $\Omega$ | 92.49252 | | −0.74670540 | +0.54396448 | |
| $e$ | 0.3065934 | $i$ | 11.02901 | | −0.42452481 | +0.05330261 | |
| $P$ | 5.41 | $H$ | 15.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 05 08 | 704 | 0.0 | 0.6+ | 2002 06 09 | 704 | 0.1− | 0.2− | 2003 11 23 | 699 | 0.9− | 0.1− |
| 2002 05 08 | 704 | 0.8− | 0.3− | 2002 06 09 | 704 | 0.2+ | 0.6+ | 2007 04 15 | G96 | 0.4+ | 0.1− |
| 2002 05 08 | 704 | 0.0 | 0.6+ | 2002 06 09 | 704 | 0.5+ | 0.6+ | 2007 04 15 | G96 | 0.5+ | 0.2− |
| 2002 05 08 | 704 | 1.0− | 0.1− | 2002 06 10 | 644 | 0.0 | 0.1+ | 2007 04 15 | G96 | 0.2+ | 0.1− |
| 2002 05 08 | 704 | 0.5− | 0.4+ | 2002 06 10 | 644 | 0.0 | 0.0 | 2007 04 15 | G96 | 0.7+ | 0.2− |
| 2002 05 09 | 333 | 0.2+ | 0.2− | 2002 06 10 | 704 | 0.1− | 0.1− | 2007 04 20 | 699 | 0.1− | 0.9+ |
| 2002 05 09 | 333 | 0.1− | 0.1− | 2002 06 10 | 704 | 0.5+ | 0.2+ | 2007 04 20 | 699 | 0.5+ | 0.0 |
| 2002 05 09 | 333 | 0.0 | 0.6− | 2002 06 10 | 644 | 0.2− | 0.1+ | 2007 04 20 | 699 | (1.6+ | 1.3+) |
| 2002 05 10 | 333 | 1.0− | 1.1+ | 2002 06 10 | 704 | 1.3+ | 0.2+ | 2007 04 20 | 699 | 1.2− | 0.5+ |
| 2002 05 10 | 333 | 0.4− | 0.1+ | 2002 06 10 | 704 | 0.8+ | 0.4− | 2007 04 22 | 703 | 0.8− | 0.2− |
| 2002 05 12 | 704 | 0.3− | 0.8+ | 2002 06 10 | 704 | 0.6+ | 0.7− | 2007 04 22 | 703 | 0.2+ | 0.6+ |
| 2002 05 12 | 704 | 0.6+ | 0.3+ | 2002 06 16 | 704 | 0.7+ | 0.2+ | 2007 04 22 | 703 | 0.9− | 0.2+ |
| 2002 05 12 | 704 | 0.0 | 0.5− | 2002 06 16 | 704 | 0.6+ | 0.1+ | 2007 04 22 | 703 | 0.3− | 0.0 |
| 2002 06 02 | 644 | 0.4− | 0.3+ | 2002 06 16 | 704 | 0.6+ | 0.1+ | 2008 06 28 | E12 | 0.4+ | 0.4+ |
| 2002 06 02 | 644 | 0.1− | 0.3+ | 2002 06 16 | 704 | 0.5+ | 0.3− | 2008 06 28 | E12 | 0.3− | 0.6+ |
| 2002 06 02 | 644 | 0.2− | 0.1+ | 2002 06 16 | 704 | 0.3+ | 0.1+ | 2008 06 28 | E12 | 0.5+ | 0.0 |
| 2002 06 03 | 644 | 0.1− | 0.2+ | 2002 07 05 | 704 | 0.8+ | 0.7+ | 2008 06 28 | E12 | 0.8+ | 0.2+ |
| 2002 06 03 | 644 | 0.3− | 0.3+ | 2002 07 05 | 704 | 0.2+ | 0.2+ | 2008 10 29 | 703 | 0.2− | 0.4− |
| 2002 06 03 | 644 | 0.2− | 0.1+ | 2002 07 05 | 704 | 0.5− | 0.6+ | 2008 10 29 | 703 | 0.4+ | 0.9+ |
| 2002 06 08 | 704 | 0.1− | 0.3+ | 2003 09 22 | 644 | 0.3− | 0.2+ | 2008 10 29 | 703 | 0.9− | 0.8− |
| 2002 06 08 | 704 | 0.0 | 0.1− | 2003 09 22 | 644 | 0.1− | 0.1+ | 2008 10 29 | 703 | 1.2− | 0.4− |
| 2002 06 08 | 704 | 0.1+ | 0.3+ | 2003 09 22 | 644 | 0.3− | 0.1+ | 2009 11 10 | 691 | 0.1− | 0.6+ |
| 2002 06 08 | 704 | 0.0 | 0.1+ | 2003 10 20 | 704 | 0.8+ | 0.9+ | 2009 11 10 | 691 | 0.2− | 0.6+ |
| 2002 06 08 | 704 | 0.5+ | 0.6+ | 2003 10 20 | 704 | 0.5− | 0.0 | 2009 11 10 | 691 | 0.0 | 0.5+ |
| 2002 06 08 | 608 | 0.5+ | 0.6− | 2003 10 20 | 704 | 0.1− | 0.3+ | 2009 12 11 | G96 | 0.8+ | 0.3+ |
| 2002 06 08 | 608 | 0.4− | 0.1− | 2003 10 20 | 704 | 0.2− | 0.5+ | 2009 12 11 | G96 | 0.3+ | 0.2+ |
| 2002 06 08 | 608 | 0.2+ | 0.4− | 2003 11 23 | 699 | 1.3− | 0.5− | 2009 12 11 | G96 | 0.4+ | 0.5+ |
| 2002 06 09 | 704 | 0.7+ | 0.6+ | 2003 11 23 | 699 | 1.1+ | 0.3+ | 2009 12 11 | G96 | 0.1+ | 0.2+ |
| 2002 06 09 | 704 | 0.2+ | 0.2+ | 2003 11 23 | 699 | 0.7− | 0.3+ | | | | |

**(228671)∗ 2002 JX$_{59}$ = 2003 SQ$_{100}$**

Discovered 2002 May 9 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 53026)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 93.77021 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18255858 | $\omega$ | 74.32947 | | +0.53506179 | +0.81060750 | |
| $a$ | 3.0775223 | $\Omega$ | 230.50916 | | −0.84375695 | +0.49867725 | |
| $e$ | 0.1413357 | $i$ | 17.95959 | | −0.04222659 | +0.30697962 | |
| $P$ | 5.40 | $H$ | 14.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 09 20 | 699 | 0.2+ | 0.0 | 2002 06 11 | 644 | 0.4+ | 0.3+ | 2009 10 24 | 703 | 0.4− | 0.1+ |
| 1998 09 20 | 699 | 0.5+ | 0.6+ | 2002 06 11 | 704 | 0.1− | 0.7+ | 2009 10 24 | 703 | 0.5+ | 0.2+ |
| 1998 09 20 | 699 | 0.7− | 0.2− | 2002 06 11 | 704 | 0.8− | 0.4+ | 2009 10 24 | 703 | 0.5− | 0.6− |
| 2002 05 09 | 704 | (0.8+ | 2.0−) | 2002 06 11 | 644 | 0.2+ | 0.4+ | 2009 10 24 | 703 | 1.5− | 0.9+ |
| 2002 05 09 | 704 | (1.9+ | 2.7−) | 2002 06 11 | 704 | 0.2− | 1.0− | 2009 10 25 | 703 | 0.3+ | 1.0+ |
| 2002 05 09 | 704 | (0.8+ | 1.9−) | 2002 06 13 | 699 | 0.2− | 0.7+ | 2009 10 25 | 703 | 0.1+ | 0.3− |
| 2002 05 09 | 704 | 0.7+ | 1.3− | 2002 06 13 | 699 | 0.4− | 0.3− | 2009 10 25 | 703 | (1.6− | 0.2−) |
| 2002 05 09 | 704 | (1.7+ | 2.3−) | 2002 06 13 | 699 | 0.8− | 0.2+ | 2009 10 25 | 703 | 0.9− | 0.9+ |
| 2002 05 09 | 644 | 0.1− | 0.5+ | 2002 06 13 | 699 | 0.6− | 0.9+ | 2009 10 28 | J75 | 1.3+ | 0.2− |
| 2002 05 09 | 644 | 0.1+ | 0.6+ | 2003 08 29 | 608 | 0.2− | 1.4− | 2009 10 28 | J75 | 0.3+ | 0.2+ |
| 2002 05 09 | 644 | 0.0 | 0.5+ | 2003 08 29 | 608 | 0.7− | 0.2− | 2009 10 28 | J75 | 0.9+ | 0.2+ |
| 2002 05 11 | 704 | 0.3− | 0.1− | 2003 08 29 | 608 | 0.1− | 0.7− | 2009 11 08 | G96 | 0.1− | 0.1+ |
| 2002 05 11 | 704 | 0.3− | 0.1+ | 2003 09 20 | 644 | 0.0 | 0.0 | 2009 11 08 | G96 | 0.1+ | 0.0 |
| 2002 05 11 | 704 | 0.1− | 0.6− | 2003 09 20 | 644 | 0.0 | 0.0 | 2009 11 08 | G96 | 0.2+ | 0.4+ |
| 2002 05 11 | 704 | 0.1+ | 0.6− | 2003 09 20 | 644 | 0.1− | 0.1− | 2009 11 08 | G96 | 0.1+ | 0.0 |
| 2002 05 11 | 704 | (1.6− | 0.9−) | 2003 09 21 | 704 | 0.1− | 0.5+ | 2009 11 11 | 106 | 0.0 | 0.4+ |
| 2002 05 12 | 704 | 0.3+ | 0.4+ | 2003 09 21 | 704 | 1.1+ | 0.0 | 2009 11 11 | 106 | 0.1+ | 0.2+ |
| 2002 05 12 | 704 | 0.3− | 0.3+ | 2003 09 21 | 704 | 0.3− | 0.4− | 2009 11 11 | 106 | 0.5+ | 0.1+ |
| 2002 05 12 | 704 | 0.1+ | 0.6− | 2003 09 21 | 704 | 0.0 | 0.4− | 2009 11 11 | 106 | 1.0+ | 0.5− |
| 2002 05 16 | 704 | 0.9+ | 0.4− | 2003 09 21 | 704 | 0.2+ | 0.1− | 2009 11 13 | J75 | 0.5+ | 0.0 |
| 2002 05 16 | 704 | (1.7+ | 0.5−) | 2003 10 21 | 644 | 0.1− | 0.1− | 2009 11 13 | J75 | 0.0 | 0.3− |
| 2002 05 16 | 704 | 0.4+ | 0.9− | 2003 10 21 | 644 | 0.2− | 0.1+ | 2009 11 13 | J75 | 0.7− | 0.4− |
| 2002 05 21 | 704 | 0.8− | 0.2+ | 2003 10 21 | 644 | 0.0 | 0.1− | 2009 11 15 | H10 | 0.8+ | 0.1+ |
| 2002 05 21 | 704 | 0.4− | 0.2+ | 2007 03 28 | E12 | 0.3− | 0.2+ | 2009 11 20 | 704 | 0.2+ | 1.0− |
| 2002 05 21 | 704 | 0.2− | 0.7+ | 2007 03 28 | E12 | 0.7− | 0.1+ | 2009 11 20 | 704 | 0.0 | 0.4+ |
| 2002 05 21 | 704 | 0.4− | 0.0 | 2007 03 28 | E12 | 0.2+ | 0.7+ | 2009 11 20 | 704 | 0.1− | 0.6− |
| 2002 05 30 | 699 | 0.5− | 0.3+ | 2007 03 28 | E12 | 0.3− | 0.8− | 2009 11 20 | 704 | 0.1+ | 0.7+ |
| 2002 05 30 | 699 | 0.0 | 0.4+ | 2009 10 14 | 703 | 0.1− | 0.6+ | 2009 11 20 | 704 | 0.2− | 0.9+ |
| 2002 05 30 | 699 | 0.6+ | 0.1− | 2009 10 14 | 703 | 0.7− | 0.5+ | 2009 11 23 | 703 | 0.1+ | 0.4+ |
| 2002 05 30 | 699 | 0.1− | 0.2+ | 2009 10 14 | 703 | 0.2+ | 0.5+ | 2009 11 23 | 703 | 0.3− | 0.0 |
| 2002 06 05 | 704 | 0.5+ | 1.0+ | 2009 10 14 | 703 | 0.1− | 0.2+ | 2009 11 23 | 703 | 0.7− | 0.6+ |
| 2002 06 05 | 704 | (0.2+ | 2.2+) | 2009 10 22 | 703 | 0.0 | 0.7+ | 2009 11 23 | 703 | 0.4− | 0.0 |
| 2002 06 05 | 704 | 1.0+ | 0.4+ | 2009 10 22 | 703 | 0.7− | 0.1+ | 2009 11 23 | 703 | 0.2− | 0.9+ |
| 2002 06 05 | 704 | 1.4+ | 0.4+ | 2009 10 22 | 703 | 0.7+ | 0.5+ | 2009 12 17 | G96 | 0.2− | 0.2+ |
| 2002 06 06 | 704 | 0.4+ | 0.9+ | 2009 10 22 | 703 | 0.9− | 0.2+ | 2009 12 17 | G96 | 0.2+ | 0.3+ |
| 2002 06 06 | 704 | 0.2+ | 0.2+ | 2009 10 22 | 703 | 0.3+ | 0.8− | 2009 12 17 | G96 | 0.0 | 0.1+ |
| 2002 06 06 | 704 | 0.0 | 1.1+ | 2009 10 22 | 703 | 1.4+ | 0.7+ | 2009 12 17 | G96 | 0.4+ | 0.1+ |
| 2002 06 06 | 704 | 0.4+ | 1.0+ | 2009 10 22 | 703 | 0.1− | 0.0 | | | | |
| 2002 06 11 | 644 | 0.0 | 0.5+ | 2009 10 22 | 703 | 0.5− | 0.1+ | | | | |

**(228672)∗ 2002 JP$_{61}$**

Discovered 2002 May 8 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 242.05990 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.20987356 | $\omega$ | 141.34794 | | −0.85948383 | +0.45668116 | |
| $a$ | 2.8043415 | $\Omega$ | 67.29550 | | −0.50860708 | −0.71916998 | |
| $e$ | 0.1498791 | $i$ | 14.41356 | | −0.05105278 | −0.52367629 | |
| $P$ | 4.70 | $H$ | 15.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 04 16 | 704 | 1.1+ | 1.1+ | 2004 11 09 | 621 | 1.0+ | 0.4+ | 2006 01 22 | 703 | 0.7− | 0.1− |
| 2002 04 16 | 704 | 0.0 | 0.5+ | 2004 11 09 | 621 | 0.2− | 0.4+ | 2006 01 24 | 699 | 0.8+ | 0.2− |
| 2002 04 16 | 704 | 1.1+ | 1.0+ | 2004 11 09 | 621 | 0.1+ | 0.2− | 2006 01 24 | 699 | 0.2+ | 0.0 |
| 2002 04 16 | 704 | 1.3+ | 0.1− | 2004 11 09 | 621 | 1.4− | 0.7− | 2006 01 24 | 699 | 0.1− | 0.4+ |
| 2002 05 08 | 704 | 0.1− | 0.1+ | 2004 11 09 | 621 | 0.4− | 0.3− | 2006 01 24 | 699 | 0.3+ | 0.8+ |
| 2002 05 08 | 704 | 0.1+ | 0.3+ | 2004 12 16 | 691 | 0.3− | 0.9+ | 2006 02 06 | 704 | 0.4+ | 0.1− |
| 2002 05 08 | 704 | 0.5− | 1.3+ | 2004 12 16 | 691 | 0.2− | 0.6+ | 2006 02 06 | 704 | 0.7+ | 0.2+ |
| 2002 05 08 | 704 | 0.3+ | 0.3+ | 2004 12 16 | 691 | 0.4− | 0.4+ | 2006 02 06 | 704 | 0.4− | 0.4− |
| 2002 05 08 | 704 | 0.1− | 0.3+ | 2005 12 30 | 644 | 0.5+ | 0.1− | 2006 02 06 | 704 | 0.9+ | 0.4− |
| 2002 05 12 | 704 | 0.6+ | 0.0 | 2005 12 30 | 644 | 0.1+ | 0.2− | 2006 02 06 | 704 | 0.1+ | 0.5+ |
| 2002 05 12 | 704 | 0.2− | 0.2+ | 2005 12 30 | 644 | 0.3+ | 0.2+ | 2006 02 22 | 703 | 0.6− | 0.8− |
| 2002 05 12 | 704 | 0.9+ | 0.8+ | 2006 01 02 | 703 | 0.2+ | 0.2+ | 2006 02 22 | 703 | 0.1− | 0.3− |
| 2002 05 14 | 699 | 0.0 | 0.1+ | 2006 01 02 | 703 | 1.2− | 0.1+ | 2006 02 22 | 703 | 0.4+ | 0.4+ |
| 2002 05 14 | 699 | 0.3+ | 0.4+ | 2006 01 02 | 703 | 0.2− | 0.4+ | 2006 02 22 | 703 | 0.1+ | 0.1+ |
| 2002 05 14 | 699 | 0.4− | 0.9+ | 2006 01 02 | 703 | 0.2− | 0.1+ | 2006 03 31 | 704 | 0.6+ | 1.1+ |
| 2002 05 14 | 699 | 0.0 | 0.5+ | 2006 01 05 | 703 | 0.4− | 0.6− | 2006 03 31 | 704 | 0.4+ | 0.4+ |
| 2002 05 16 | 704 | 0.0 | 0.7+ | 2006 01 05 | 703 | 0.1− | 0.5− | 2006 03 31 | 704 | 0.6+ | 0.4− |
| 2002 05 16 | 704 | 0.7+ | 0.4+ | 2006 01 05 | 703 | 0.3− | 0.8− | 2009 10 30 | G96 | 0.5+ | 0.6+ |
| 2002 05 16 | 704 | 0.3+ | 0.8+ | 2006 01 05 | 703 | 1.0− | 0.6+ | 2009 10 30 | G96 | 0.0 | 0.5+ |
| 2002 06 03 | 644 | 0.1− | 0.2+ | 2006 01 05 | 703 | 0.7− | 0.4− | 2009 10 30 | G96 | 1.0+ | 0.0 |
| 2002 06 03 | 644 | 0.1− | 0.0 | 2006 01 05 | 703 | 0.4+ | 0.3− | 2009 10 30 | G96 | 0.5+ | 0.2− |
| 2002 06 03 | 644 | 0.1− | 0.3+ | 2006 01 05 | 703 | 0.7− | 0.9− | 2009 11 25 | 691 | 0.5− | 0.3+ |
| 2002 06 06 | 704 | 0.4+ | 0.5+ | 2006 01 05 | 703 | 0.4− | 0.7− | 2009 11 25 | 691 | 0.2− | 0.3+ |
| 2002 06 06 | 704 | 0.4+ | 0.5+ | 2006 01 05 | 703 | 0.4+ | 0.2− | 2009 11 25 | 691 | 0.9− | 1.0+ |
| 2002 06 06 | 704 | 0.2+ | 0.4+ | 2006 01 05 | 703 | 0.1+ | 0.6− | 2009 12 15 | G96 | 0.2+ | 0.2+ |
| 2002 06 06 | 704 | 0.9+ | 0.3− | 2006 01 05 | 703 | 0.5+ | 0.3− | 2009 12 15 | G96 | 0.3+ | 0.5+ |
| 2002 06 11 | 644 | 0.0 | 0.5+ | 2006 01 05 | 703 | 1.2+ | 0.7+ | 2009 12 15 | G96 | 0.0 | 0.4+ |
| 2002 06 11 | 644 | 0.2− | 0.2+ | 2006 01 22 | 703 | 0.9− | 0.8− | 2009 12 15 | G96 | 0.3+ | 0.4+ |
| 2002 06 11 | 644 | 0.0 | 0.8+ | 2006 01 22 | 703 | 1.3− | 0.4− | | | | |
| 2004 11 09 | 621 | 0.4− | 0.8+ | 2006 01 22 | 703 | 0.7− | 0.2− | | | | |

**(228673)∗ 2002 JR$_{75}$ = 2007 HM$_{40}$**

Discovered 2002 May 10 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 119086)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 77.69367 | | (2000.0) | | | |
| $n$ | 0.19386839 | $\omega$ | 283.78679 | | +0.91452962 | +0.37541299 |
| $a$ | 2.9566373 | $\Omega$ | 54.37074 | | −0.26074824 | +0.83183712 |
| $e$ | 0.0399739 | $i$ | 10.68257 | | −0.30926677 | +0.40879346 |
| $P$ | 5.08 | $H$ | 15.1 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 05 08 | 291 | 0.2+ | 0.5+ | 2008 08 26 | E12 | 0.0 | 0.4+ | 2009 11 15 | 703 | 0.3− | 0.3− |
| 2002 05 08 | 291 | 0.3+ | 0.5+ | 2008 08 26 | E12 | 0.2+ | 0.6+ | 2009 11 15 | 703 | 0.8− | 0.3+ |
| 2002 05 08 | 291 | 0.1+ | 0.5+ | 2008 08 26 | E12 | 0.5− | 0.7− | 2009 11 15 | 703 | 0.9− | 0.3+ |
| 2002 05 10 | 704 | 0.8+ | 0.1− | 2008 08 26 | E12 | 0.3− | 0.6− | 2009 11 18 | 704 | (0.1− | 1.8+) |
| 2002 05 10 | 704 | 0.3− | 0.5+ | 2009 10 21 | 703 | 0.0 | 0.9− | 2009 11 18 | 704 | 1.3− | 1.5+ |
| 2002 05 10 | 704 | 0.4+ | 0.5+ | 2009 10 21 | 703 | 0.5− | 0.9+ | 2009 11 18 | 704 | 1.3− | 1.3+ |
| 2002 05 13 | 704 | 0.2− | 0.4+ | 2009 10 21 | 703 | 0.5− | 0.7+ | 2009 11 18 | 704 | 1.0− | 0.0 |
| 2002 05 13 | 704 | 0.0 | 0.3− | 2009 10 21 | 703 | 1.4− | 1.1+ | 2009 11 20 | 704 | 0.5+ | 0.1+ |
| 2002 05 13 | 704 | 0.1+ | 0.3− | 2009 10 22 | 704 | 0.9+ | 0.1− | 2009 11 20 | 704 | 0.2+ | 0.0 |
| 2002 05 13 | 704 | 0.1+ | 0.2+ | 2009 10 22 | 704 | 0.8+ | 1.5+ | 2009 11 20 | 704 | 0.1+ | 0.9+ |
| 2006 03 06 | 703 | 0.3+ | 0.5− | 2009 10 22 | 704 | 0.1+ | 0.7+ | 2009 11 20 | 704 | (0.0 | 1.6+) |
| 2006 03 06 | 703 | 0.0 | 0.0 | 2009 10 22 | 704 | (0.0 | 1.6+) | 2009 11 20 | 704 | 0.4+ | 0.3+ |
| 2006 03 06 | 703 | 0.4− | 1.0− | 2009 10 23 | G96 | 0.3+ | 0.5+ | 2009 11 20 | J75 | 0.2+ | 0.4+ |
| 2006 03 06 | 703 | 0.2− | 1.0+ | 2009 10 23 | G96 | 0.2− | 0.0 | 2009 11 20 | J75 | 0.7− | 0.8+ |
| 2007 04 20 | 691 | 0.1+ | 0.2+ | 2009 10 23 | G96 | 0.1− | 0.0 | 2009 11 20 | J75 | 0.9+ | 0.0 |
| 2007 04 20 | 691 | 0.2+ | 0.2+ | 2009 10 23 | G96 | 0.3+ | 0.0 | 2009 11 23 | G96 | 0.3+ | 0.3+ |
| 2007 04 20 | 691 | 0.1+ | 0.3+ | 2009 10 24 | 703 | 0.6+ | 0.3+ | 2009 11 23 | G96 | 0.4+ | 0.4+ |
| 2007 04 22 | 691 | 0.1+ | 0.3+ | 2009 10 24 | 703 | 0.0 | 0.7− | 2009 11 23 | G96 | 0.1+ | 0.1+ |
| 2007 04 22 | 691 | 0.1− | 0.2+ | 2009 10 24 | 703 | (2.3+ | 1.0+) | 2009 11 23 | J75 | 0.1+ | 0.1− |
| 2007 04 22 | 691 | 0.1+ | 0.1+ | 2009 10 24 | 703 | (0.1+ | 1.6+) | 2009 11 23 | J75 | 0.0 | 0.2+ |
| 2007 05 13 | 704 | 0.3+ | 0.3+ | 2009 10 24 | 703 | 0.2+ | 0.9+ | 2009 11 23 | J75 | 0.5− | 1.1− |
| 2007 05 13 | 704 | 0.5+ | 0.0 | 2009 10 24 | 703 | 1.0− | 0.6+ | 2009 11 23 | J75 | 0.0 | 0.0 |
| 2007 05 13 | 704 | 0.2+ | 0.3− | 2009 10 24 | 703 | (0.3+ | 1.9+) | 2009 11 23 | J75 | 0.0 | 0.3− |
| 2007 05 13 | 704 | 0.8+ | 0.6+ | 2009 10 24 | 703 | 0.9− | 0.4+ | 2009 11 23 | J75 | 0.5− | 0.1− |
| 2007 05 16 | G96 | 0.1+ | 0.1+ | 2009 11 08 | 703 | 1.0+ | 0.4+ | 2009 12 10 | G96 | 0.0 | 0.1− |
| 2007 05 16 | G96 | 0.1− | 0.1+ | 2009 11 08 | 703 | 0.2− | 0.8+ | 2009 12 10 | G96 | 0.3+ | 0.1− |
| 2007 05 16 | G96 | 0.1− | 0.0 | 2009 11 08 | 703 | 0.5+ | 0.4+ | 2009 12 10 | G96 | 0.0 | 0.2− |
| 2007 05 16 | G96 | 0.2+ | 0.2+ | 2009 11 08 | 703 | 1.1− | 0.7+ | 2009 12 10 | G96 | 0.2− | 0.0 |
| 2007 05 18 | 291 | 0.1− | 0.2+ | 2009 11 13 | J75 | 0.0 | 0.3+ | 2009 12 11 | J75 | 0.1+ | 0.8+ |
| 2007 05 18 | 291 | 0.0 | 0.1+ | 2009 11 13 | J75 | 0.5− | 0.6− | 2009 12 11 | J75 | 0.0 | 1.1+ |
| 2007 05 18 | 291 | 0.2+ | 0.0 | 2009 11 13 | J75 | 0.1+ | 0.2+ | 2009 12 11 | J75 | 0.3+ | 0.4+ |
| 2008 08 04 | E12 | 0.0 | 0.3− | 2009 11 14 | J75 | 0.6− | 0.2− | 2009 12 16 | G96 | 0.3− | 0.2− |
| 2008 08 04 | E12 | 0.2+ | 0.2+ | 2009 11 14 | J75 | 0.1+ | 0.2− | 2009 12 16 | G96 | 0.5+ | 0.1+ |
| 2008 08 04 | E12 | 0.4+ | 0.2+ | 2009 11 14 | J75 | 0.2− | 0.4+ | 2009 12 16 | G96 | 0.1+ | 0.1− |
| 2008 08 04 | E12 | 0.5− | 0.7+ | 2009 11 15 | 703 | 1.3− | 0.1+ | 2009 12 16 | G96 | 0.3− | 0.1− |

**(228674)∗ 2002 JZ$_{80}$**

Discovered 2002 May 11 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 261.45880 | | (2000.0) | | | |
| $n$ | 0.21721221 | $\omega$ | 170.58405 | | −0.94765444 | +0.31783491 |
| $a$ | 2.7408161 | $\Omega$ | 28.00722 | | −0.29701824 | −0.84240202 |
| $e$ | 0.1280923 | $i$ | 3.72762 | | −0.11718032 | −0.43513194 |
| $P$ | 4.54 | $H$ | 15.7 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 09 18 | 691 | 0.1+ | 0.0 | 2002 05 11 | 704 | 0.4− | 1.0+ | 2006 02 22 | 703 | 1.4− | 0.1− |
| 1999 09 18 | 691 | 0.2+ | 0.1+ | 2002 05 11 | 704 | 0.0 | 0.4− | 2008 09 19 | 691 | 0.6− | 0.5+ |
| 1999 09 18 | 691 | 0.0 | 0.2− | 2002 05 11 | 704 | 0.2+ | 0.1− | 2008 09 19 | 691 | 0.7− | 0.6+ |
| 1999 10 04 | 691 | 0.2− | 0.5− | 2002 05 11 | 704 | 0.5+ | 0.1+ | 2008 09 19 | 691 | 0.2− | 0.6+ |
| 1999 10 04 | 691 | 0.4+ | 0.5− | 2002 05 11 | 704 | 0.9+ | 0.6− | 2008 09 28 | 704 | (0.7− | 1.8+) |
| 1999 10 04 | 691 | 0.0 | 0.2− | 2002 05 13 | 704 | 0.2+ | 1.1+ | 2008 09 28 | 704 | 0.4− | 0.5+ |
| 2002 04 09 | 644 | 0.2+ | 0.2+ | 2002 05 13 | 704 | 0.5+ | 1.1+ | 2008 09 28 | 704 | (1.9+ | 0.2−) |
| 2002 04 09 | 644 | 0.4+ | 0.3+ | 2002 05 13 | 704 | 0.4− | 0.2+ | 2008 11 02 | G96 | 0.2− | 0.4+ |
| 2002 04 09 | 644 | 0.2+ | 0.4+ | 2002 05 13 | 704 | 0.2+ | 0.2+ | 2008 11 02 | G96 | 0.0 | 0.5+ |
| 2002 04 14 | 704 | 0.3+ | 0.7+ | 2002 05 18 | 644 | 0.5+ | 0.4+ | 2008 11 02 | G96 | 0.6+ | 0.3+ |
| 2002 04 14 | 704 | 0.5+ | 0.7+ | 2002 05 18 | 644 | 0.0 | 0.2+ | 2008 11 02 | G96 | 0.3+ | 0.1+ |
| 2002 04 14 | 704 | 0.1+ | 0.7+ | 2002 05 18 | 644 | 0.6+ | 0.4+ | 2009 11 26 | 691 | 0.2− | 0.2+ |
| 2002 04 14 | 704 | 0.5+ | 1.2+ | 2004 10 08 | 691 | 0.1− | 0.2+ | 2009 11 26 | 691 | 0.2+ | 0.1+ |
| 2002 04 14 | 704 | 0.5− | 0.3+ | 2004 10 08 | 691 | 0.1+ | 0.5+ | 2009 11 26 | 691 | 0.1+ | 0.5+ |
| 2002 04 15 | 644 | 0.5+ | 1.2+ | 2004 10 08 | 691 | 0.0 | 0.5+ | 2009 12 11 | G96 | 0.1+ | 0.3+ |
| 2002 04 15 | 644 | 0.2+ | 1.3+ | 2004 10 18 | 695 | 0.1+ | 0.5+ | 2009 12 11 | G96 | 0.2− | 0.6+ |
| 2002 04 15 | 644 | 0.1+ | 0.4+ | 2004 10 18 | 695 | 0.0 | 0.4+ | 2009 12 11 | G96 | 0.4+ | 0.5+ |
| 2002 04 29 | 644 | 0.1− | 0.7− | 2006 02 22 | 703 | 0.5− | 1.0+ | 2009 12 11 | G96 | 0.6+ | 0.2+ |
| 2002 04 29 | 644 | 0.2+ | 0.4− | 2006 02 22 | 703 | 0.3− | 0.3− | | | | |
| 2002 04 29 | 644 | 0.2+ | 0.3− | 2006 02 22 | 703 | 0.1− | 0.5− | | | | |

**(228675)∗ 2002 JT$_{86}$**

Discovered 2002 May 11 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 95.85653 | | (2000.0) | | | |
| $n$ | 0.17973905 | $\omega$ | 57.64495 | | +0.31464898 | +0.93522548 |
| $a$ | 3.1096231 | $\Omega$ | 231.56393 | | −0.92557689 | +0.26437486 |
| $e$ | 0.1656131 | $i$ | 11.96015 | | −0.21048383 | +0.23549782 |
| $P$ | 5.48 | $H$ | 15.2 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 03 19 | 645 | 0.0 | 0.0 | 2002 05 18 | 644 | 0.2+ | 0.2+ | 2003 09 30 | 699 | 0.4− | 0.9+ |
| 2001 03 19 | 645 | 0.1− | 0.0 | 2002 05 18 | 644 | 0.2+ | 0.2+ | 2003 09 30 | 699 | 0.5+ | 0.3+ |
| 2002 04 14 | 704 | 0.2+ | 1.1+ | 2002 06 03 | 291 | 0.0 | 0.2− | 2004 11 10 | 691 | 0.4+ | 0.1− |
| 2002 04 14 | 704 | 0.1+ | 1.2+ | 2002 06 03 | 291 | 0.2+ | 0.1− | 2004 11 10 | 691 | 0.3+ | 0.3+ |
| 2002 04 14 | 704 | 0.5+ | 1.2+ | 2002 06 03 | 291 | 0.1− | 0.1− | 2004 11 10 | 691 | 0.0 | 0.2+ |
| 2002 04 14 | 704 | 0.0 | 1.4+ | 2003 08 29 | 608 | 0.6+ | 0.3− | 2004 12 09 | 703 | 0.8− | 0.1− |
| 2002 04 14 | 704 | 0.1− | 1.1+ | 2003 08 29 | 608 | 0.6+ | 1.1− | 2004 12 09 | 703 | 1.2− | 0.1+ |
| 2002 05 11 | 704 | 0.0 | 0.4− | 2003 08 29 | 608 | 0.2+ | 0.3− | 2004 12 09 | 703 | (3.0+ | 0.1−) |
| 2002 05 11 | 704 | 0.4+ | 0.7+ | 2003 09 17 | 699 | 0.5+ | 0.7+ | 2004 12 09 | 703 | 1.3+ | 0.1− |
| 2002 05 11 | 704 | 1.1− | 1.2− | 2003 09 17 | 699 | 0.2+ | 0.6− | 2009 10 15 | 704 | (0.1+ | 2.3+) |
| 2002 05 11 | 704 | 0.3− | 0.2− | 2003 09 17 | 699 | 0.4− | 0.5+ | 2009 10 15 | 704 | 0.8− | 1.0+ |
| 2002 05 11 | 704 | 0.1+ | 0.2+ | 2003 09 17 | 699 | 0.0 | 1.2− | 2009 10 15 | 704 | (0.1− | 1.9+) |
| 2002 05 13 | 704 | 0.1− | 0.3− | 2003 09 18 | 699 | (1.2− | 2.1+) | 2009 12 18 | G96 | 0.1+ | 0.1− |
| 2002 05 13 | 704 | 0.9+ | 0.0 | 2003 09 18 | 699 | 0.6− | 1.3+ | 2009 12 18 | G96 | 0.3− | 0.1− |
| 2002 05 13 | 704 | 0.6+ | 0.7− | 2003 09 18 | 699 | 0.3− | 0.7− | 2009 12 18 | G96 | 0.0 | 0.4+ |
| 2002 05 13 | 704 | 0.7− | 0.3− | 2003 09 18 | 699 | 0.8− | 1.0+ | 2009 12 18 | G96 | 0.2+ | 0.0 |
| 2002 05 13 | 704 | 0.5− | 0.4+ | 2003 09 30 | 699 | 0.3+ | 0.1− | | | | |
| 2002 05 18 | 644 | 0.1+ | 0.0 | 2003 09 30 | 699 | 1.0− | 0.8− | | | | |

**(228676)∗ 2002 JK$_{91}$ = 2009 UH$_{34}$**

Discovered 2002 May 11 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 165327)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 77.66912 | | (2000.0) | | | |
| $n$ | 0.18945718 | $\omega$ | 279.42681 | | +0.88010396 | +0.45630676 |
| $a$ | 3.0023548 | $\Omega$ | 53.53763 | | −0.34584317 | +0.80540380 |
| $e$ | 0.1058567 | $i$ | 9.38547 | | −0.32528377 | +0.37829732 |
| $P$ | 5.20 | $H$ | 15.1 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 05 08 | 291 | 0.1+ | 0.6+ | 2007 03 15 | G96 | 0.2+ | 0.1+ | 2009 11 11 | 691 | 0.1− | 0.2+ |
| 2002 05 08 | 291 | 0.2+ | 0.6+ | 2007 03 15 | G96 | 0.4− | 0.1+ | 2009 11 11 | 691 | 0.1− | 0.3+ |
| 2002 05 08 | 291 | 0.0 | 0.6+ | 2007 04 18 | 691 | 0.0 | 0.1− | 2009 11 11 | G96 | 0.2− | 0.0 |
| 2002 05 09 | 644 | 0.7+ | 0.5+ | 2007 04 18 | 691 | 0.1− | 0.1+ | 2009 11 11 | G96 | 0.1− | 0.0 |
| 2002 05 09 | 644 | 0.6+ | 0.3+ | 2007 04 18 | 691 | 0.0 | 0.2+ | 2009 11 11 | G96 | 0.3− | 0.0 |
| 2002 05 09 | 644 | 0.4+ | 0.4+ | 2008 07 03 | E12 | 0.7− | 0.3− | 2009 11 11 | G96 | 0.2− | 0.2+ |
| 2002 05 11 | 704 | 0.6+ | 0.8+ | 2008 07 03 | E12 | 0.1− | 0.5+ | 2009 11 11 | J75 | 0.1+ | 0.1+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 05 11 | 704 | 1.3+ | 0.6+ | 2008 07 03 | E12 | 0.2+ | 0.3+ | 2009 11 11 | J75 | 0.1− | 0.3+ |
| 2002 05 11 | 704 | 0.6+ | 0.9+ | 2008 07 03 | E12 | 0.1+ | 0.9+ | 2009 11 11 | J75 | 0.0 | 0.1− |
| 2002 05 11 | 704 | 0.0 | 0.4+ | 2008 08 03 | E12 | 0.1− | 0.4+ | 2009 11 15 | 703 | 0.8− | 0.9+ |
| 2002 05 11 | 704 | 0.6+ | 0.5+ | 2008 08 03 | E12 | 0.0 | 0.1+ | 2009 11 15 | 703 | 1.5− | 0.5+ |
| 2002 05 13 | 704 | 0.3− | 0.2+ | 2008 08 03 | E12 | 0.3− | 0.6+ | 2009 11 15 | 703 | 0.1− | 0.9+ |
| 2002 05 13 | 704 | 0.2+ | 0.0 | 2008 08 03 | E12 | 0.3+ | 0.1+ | 2009 11 15 | 703 | 0.1+ | 1.3+ |
| 2002 05 13 | 704 | 0.4+ | 0.2+ | 2008 08 26 | E12 | 0.1+ | 0.1+ | 2009 11 17 | 704 | 0.9+ | 0.0 |
| 2002 05 13 | 704 | 0.1+ | 0.8+ | 2008 08 26 | E12 | 0.2+ | 0.3+ | 2009 11 17 | 704 | 0.3+ | 0.7+ |
| 2003 09 19 | 699 | 0.3− | 0.5− | 2008 08 26 | E12 | 0.3+ | 0.7− | 2009 11 17 | 704 | 0.6+ | 0.1+ |
| 2003 09 19 | 699 | 0.9+ | 0.8− | 2008 08 26 | E12 | 0.2+ | 0.2+ | 2009 11 17 | 704 | 0.0 | 0.0 |
| 2003 09 19 | 699 | 0.1+ | 0.3− | 2009 10 21 | 703 | 1.1− | 0.4− | 2009 11 17 | 704 | 0.8+ | 0.3+ |
| 2003 09 19 | 699 | 0.5+ | 0.8− | 2009 10 21 | 703 | 0.8− | 0.6− | 2009 11 23 | 703 | 0.3− | 0.2− |
| 2003 09 19 | 699 | 0.5− | 0.2+ | 2009 10 21 | 703 | (2.1− | 0.2−) | 2009 11 23 | G96 | 0.3+ | 0.2+ |
| 2003 09 19 | 699 | (0.3− | 1.8+) | 2009 10 21 | 703 | 0.9− | 1.0− | 2009 11 23 | 703 | 0.2− | 0.8+ |
| 2003 09 19 | 699 | (0.2− | 1.8+) | 2009 10 23 | 691 | 0.3− | 0.2+ | 2009 11 23 | G96 | 0.3+ | 0.1+ |
| 2003 09 19 | 699 | 1.2− | 0.6+ | 2009 10 23 | 691 | 0.2− | 0.0 | 2009 11 23 | 703 | 0.6+ | 0.5− |
| 2004 09 16 | 691 | 0.5+ | 0.3− | 2009 10 23 | 691 | 0.2− | 0.3+ | 2009 11 23 | G96 | 0.2+ | 0.2+ |
| 2004 09 16 | 691 | 0.0 | 0.3− | 2009 10 27 | 691 | 0.1+ | 0.2+ | 2009 11 23 | 703 | 1.1− | 0.5+ |
| 2004 09 16 | 691 | 0.1− | 0.6− | 2009 10 27 | 691 | 0.2− | 0.2+ | 2009 11 23 | G96 | 0.3− | 0.1+ |
| 2004 12 14 | 703 | 0.5− | 0.4− | 2009 10 27 | 691 | 0.3− | 0.4+ | 2009 11 23 | 703 | 0.5+ | 1.4+ |
| 2004 12 14 | 703 | 0.3− | 1.1+ | 2009 11 08 | 703 | 0.3− | 0.3+ | 2009 12 11 | G96 | 0.0 | 0.0 |
| 2004 12 14 | 703 | 0.4+ | 1.1+ | 2009 11 08 | 703 | 0.0 | 0.0 | 2009 12 11 | G96 | 0.3+ | 0.0 |
| 2004 12 14 | 703 | 0.4+ | 0.5+ | 2009 11 08 | 703 | 0.7+ | 0.4+ | 2009 12 11 | G96 | 0.0 | 0.1+ |
| 2007 03 15 | G96 | 0.1− | 0.1+ | 2009 11 08 | 703 | 0.5+ | 0.7+ | 2009 12 11 | G96 | 0.2+ | 0.2+ |
| 2007 03 15 | G96 | 0.2− | 0.2− | 2009 11 11 | 691 | 0.1− | 0.2+ | | | | |

**(228677)∗ 2002 JW$_{118}$ = 2006 BG$_{168}$**

Discovered 2002 May 5 by NEAT at Palomar.

Id. G. V. Williams (*MPO* 94782)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 334.66895 | | (2000.0) | | | |
| $n$ | 0.23074244 | $\omega$ | 27.46548 | | −0.77999402 | −0.58288334 |
| $a$ | 2.6325970 | $\Omega$ | 115.03969 | | +0.51810001 | −0.80558670 |
| $e$ | 0.1176505 | $i$ | 14.55696 | | +0.35097251 | −0.10619362 |
| $P$ | 4.27 | $H$ | 15.7 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 25 | 704 | 0.6− | 0.9+ | 2005 01 13 | 703 | 0.6+ | 0.6+ | 2006 02 20 | 704 | 0.4− | 0.5− |
| 2000 11 25 | 704 | 0.0 | 0.8+ | 2005 01 13 | 703 | 0.8− | 0.3− | 2006 02 20 | 704 | 0.6+ | 0.5+ |
| 2000 11 25 | 704 | 0.2− | 0.4+ | 2005 01 13 | 703 | 0.0 | 0.6− | 2006 02 20 | 704 | 0.0 | 0.3− |
| 2000 11 25 | 704 | 0.1+ | 0.8+ | 2005 01 13 | 703 | (1.5+ | 0.6−) | 2006 02 20 | 704 | 0.2− | 0.3+ |
| 2000 11 25 | 704 | 0.2+ | 0.6+ | 2005 10 07 | 568 | 0.2+ | 0.1+ | 2006 03 03 | 699 | 0.3− | 0.1+ |
| 2000 11 27 | 645 | 0.0 | 0.0 | 2005 10 07 | 568 | 0.2+ | 0.2+ | 2006 03 03 | 699 | 0.2+ | 0.9− |
| 2000 11 27 | 645 | 0.0 | 0.0 | 2005 10 07 | 568 | 0.5− | 0.1− | 2006 03 03 | 699 | 1.0+ | 0.9+ |
| 2002 03 21 | 704 | 0.3+ | 0.2+ | 2005 10 29 | 691 | 0.1− | 0.0 | 2006 03 03 | 699 | 0.4− | 0.8− |
| 2002 03 21 | 704 | 0.5+ | 0.5+ | 2005 10 29 | 691 | 0.1− | 0.1+ | 2006 03 16 | 644 | 0.1− | 0.4− |
| 2002 03 21 | 704 | 0.8+ | 0.1− | 2005 10 29 | 691 | 0.1+ | 0.2+ | 2006 03 16 | 644 | 0.1− | 0.3− |
| 2002 03 21 | 704 | 1.1− | 0.7+ | 2005 11 10 | 691 | 0.5+ | 0.3+ | 2006 03 16 | 644 | 0.0 | 0.7− |
| 2002 05 05 | 644 | 0.2+ | 0.4− | 2005 11 10 | 691 | 0.5+ | 0.7+ | 2009 10 26 | G96 | 0.6+ | 0.3− |
| 2002 05 05 | 644 | 0.3+ | 0.3− | 2005 11 10 | 691 | 0.2+ | 0.0 | 2009 10 26 | G96 | 0.3+ | 0.2− |
| 2002 05 05 | 644 | 0.2− | 0.3− | 2006 01 26 | 703 | 0.8+ | 0.3− | 2009 10 26 | G96 | 0.1+ | 0.3− |
| 2002 05 09 | 704 | 0.4+ | 0.9+ | 2006 01 26 | 703 | 0.7− | 0.5− | 2009 10 26 | G96 | 0.1− | 0.2− |
| 2002 05 09 | 704 | 0.5+ | 0.8+ | 2006 01 26 | 703 | 0.5− | 0.3+ | 2009 12 17 | 704 | 0.6+ | 0.2+ |
| 2002 05 09 | 704 | 0.5− | 0.4+ | 2006 01 26 | 703 | 0.0 | 0.7− | 2009 12 17 | 704 | 0.0 | 0.6+ |
| 2002 05 09 | 704 | 0.8+ | 0.5+ | 2006 01 28 | 699 | 0.4− | 0.9− | 2009 12 17 | 704 | 0.4+ | 0.2− |
| 2002 05 09 | 704 | 0.5+ | 0.4+ | 2006 01 28 | 699 | 1.3− | 0.9+ | 2009 12 17 | 704 | 0.3+ | 0.7+ |
| 2002 05 13 | 644 | 0.2− | 0.4+ | 2006 01 28 | 699 | 0.1− | 0.2− | 2009 12 17 | 704 | 0.5− | 0.5− |
| 2002 05 13 | 644 | 0.0 | 0.3+ | 2006 01 28 | 699 | 0.6− | 0.5+ | 2009 12 17 | 691 | 0.0 | 0.2− |
| 2002 05 13 | 644 | 0.5+ | 0.3+ | 2006 02 04 | 704 | 1.3− | 0.9+ | 2009 12 17 | 691 | 0.1+ | 0.3− |
| 2004 09 21 | 704 | 0.9− | 0.8+ | 2006 02 04 | 704 | 0.7− | 0.4− | 2009 12 17 | 691 | 0.1+ | 0.2− |
| 2004 09 21 | 704 | 0.2+ | 0.5− | 2006 02 04 | 704 | 0.9+ | 0.9− | 2009 12 25 | 691 | 0.2+ | 0.0 |
| 2004 09 21 | 704 | 0.1+ | 0.0 | 2006 02 04 | 704 | 0.4− | 0.5+ | 2009 12 25 | 691 | 0.1− | 0.2− |
| 2004 09 21 | 704 | 0.2− | 0.5− | 2006 02 04 | 704 | 0.3− | 0.5+ | 2009 12 25 | 691 | 0.3− | 0.1− |

**(228678)∗ 2002 JW$_{122}$**

Discovered 2002 May 6 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 232.17574 | | (2000.0) | | | |
| $n$ | 0.21055112 | $\omega$ | 70.72915 | | −0.84674576 | +0.51824199 |
| $a$ | 2.7983220 | $\Omega$ | 140.23366 | | −0.53072567 | −0.80726447 |
| $e$ | 0.0522529 | $i$ | 10.83056 | | −0.03676791 | −0.28239923 |
| $P$ | 4.68 | $H$ | 15.3 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 03 20 | 704 | (4.3+ | 3.1+) | 2006 01 08 | G96 | 0.2− | 0.5− | 2006 02 08 | 644 | 0.5+ | 0.0 |
| 2002 03 20 | 704 | (3.4+ | 3.9+) | 2006 01 08 | G96 | 0.1− | 0.2− | 2006 02 20 | 703 | 0.8+ | 0.9+ |
| 2002 03 20 | 704 | (3.4+ | 1.7+) | 2006 01 08 | G96 | 0.3− | 0.4− | 2006 02 20 | 703 | (2.3+ | 1.1+) |
| 2002 03 20 | 704 | (1.2+ | 2.5+) | 2006 01 24 | 704 | 0.4+ | 0.3− | 2006 02 20 | 703 | 1.0+ | 0.1+ |
| 2002 04 16 | 704 | 0.8+ | 0.1− | 2006 01 24 | 704 | (0.5+ | 2.3+) | 2006 02 20 | 703 | 1.0− | 0.3− |
| 2002 04 16 | 704 | 0.6+ | 0.8− | 2006 01 24 | 704 | 0.2− | 1.0+ | 2006 03 05 | 703 | 0.2+ | 0.9+ |
| 2002 04 16 | 704 | 0.7+ | 0.3− | 2006 01 24 | 704 | 0.3− | 0.6+ | 2006 03 05 | 703 | 0.1− | 0.8+ |
| 2002 04 16 | 704 | 1.1+ | 0.5− | 2006 01 24 | 704 | 1.2+ | 1.4+ | 2006 03 05 | 703 | 0.4+ | 0.3+ |
| 2002 04 16 | 704 | 0.4+ | 0.4+ | 2006 01 24 | 704 | 0.4+ | 1.0+ | 2006 03 05 | 703 | 0.4+ | 0.6+ |
| 2002 05 06 | 644 | 0.2+ | 1.2+ | 2006 01 24 | 704 | (1.7+ | 0.6+) | 2007 05 25 | 703 | 0.8+ | 0.1+ |
| 2002 05 06 | 644 | 0.3+ | 1.2+ | 2006 01 24 | 704 | 0.6− | 0.7− | 2007 05 25 | 703 | 1.3− | 0.1− |
| 2002 05 06 | 644 | 0.0 | 1.4+ | 2006 01 24 | 704 | 0.2+ | 0.6+ | 2007 05 25 | 703 | 0.5− | 0.4− |
| 2002 05 07 | 704 | 0.1+ | 0.6− | 2006 01 24 | 704 | 0.4+ | 1.0+ | 2008 09 03 | J75 | 0.0 | 0.1+ |
| 2002 05 07 | 704 | 0.6− | 0.2− | 2006 01 27 | 699 | 0.1+ | 0.2− | 2008 09 03 | J75 | 0.3+ | 0.3− |
| 2002 05 07 | 704 | 0.5− | 0.3+ | 2006 01 27 | 699 | (2.2+ | 1.1+) | 2008 09 03 | J75 | 0.0 | 0.0 |
| 2002 05 12 | 644 | 0.4+ | 0.3+ | 2006 01 27 | 699 | (2.5+ | 2.2+) | 2008 09 06 | 703 | 0.2+ | 0.6+ |
| 2002 05 12 | 644 | 0.2+ | 0.3− | 2006 01 27 | 699 | 0.4+ | 0.5− | 2008 09 06 | 703 | (0.1− | 1.8+) |
| 2002 05 12 | 644 | 0.0 | 0.2− | 2006 02 02 | 699 | 1.2− | 1.2+ | 2008 09 06 | 703 | 0.1+ | 1.4+ |
| 2003 07 03 | 691 | 0.4− | 0.3+ | 2006 02 02 | 699 | 0.3− | 0.7+ | 2008 09 06 | 703 | (0.1− | 2.0+) |
| 2003 07 03 | 691 | 0.2− | 0.4+ | 2006 02 02 | 699 | 0.0 | 1.3− | 2009 10 01 | G96 | 0.3+ | 0.2+ |
| 2003 07 03 | 691 | 0.4− | 0.3+ | 2006 02 02 | 699 | 0.3− | 0.7+ | 2009 10 01 | G96 | 0.3+ | 0.0 |
| 2003 08 25 | 704 | 0.9+ | 1.1+ | 2006 02 03 | 704 | 0.1− | 0.5− | 2009 10 01 | G96 | 0.0 | 0.0 |
| 2003 08 25 | 704 | (0.4+ | 1.6+) | 2006 02 03 | 704 | 0.2− | 0.5− | 2009 10 01 | G96 | 0.1+ | 0.3+ |
| 2003 08 25 | 704 | (0.3− | 2.6+) | 2006 02 03 | 704 | 0.2− | 0.2+ | 2009 11 21 | A50 | 0.4− | 0.0 |
| 2006 01 08 | G96 | 1.0− | 0.1− | 2006 02 03 | 704 | 0.0 | 0.2− | 2009 11 21 | A50 | 1.0− | 0.8+ |
| 2006 01 08 | G96 | 0.3+ | 0.4− | 2006 02 03 | 704 | 0.4− | 0.4+ | 2009 12 13 | 704 | 0.6+ | 0.3− |
| 2006 01 08 | G96 | 0.6− | 0.1− | 2006 02 07 | G96 | 0.4− | 0.0 | 2009 12 13 | 704 | 0.4+ | 0.2+ |
| 2006 01 08 | G96 | 0.4− | 0.0 | 2006 02 07 | G96 | 0.2− | 0.1− | 2009 12 13 | 704 | 0.2+ | 0.3+ |
| 2006 01 08 | G96 | 0.4− | 0.4− | 2006 02 07 | G96 | 0.0 | 0.0 | 2009 12 13 | 704 | 0.9+ | 1.3+ |
| 2006 01 08 | G96 | 0.7− | 0.1− | 2006 02 07 | G96 | 0.2− | 0.1− | 2009 12 13 | 704 | 0.0 | 0.5+ |
| 2006 01 08 | G96 | 0.1+ | 0.2− | 2006 02 08 | 644 | 0.1+ | 0.1− | | | | |
| 2006 01 08 | G96 | 0.1+ | 0.3− | 2006 02 08 | 644 | 0.4+ | 0.5+ | | | | |

**(228679)∗ 2002 KH$_{14}$**

Discovered 2002 May 30 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 295.62254 | | (2000.0) | | | |
| $n$ | 0.23339912 | $\omega$ | 44.36220 | | −0.58512214 | +0.80968041 |
| $a$ | 2.6125818 | $\Omega$ | 190.11876 | | −0.79710114 | −0.58450799 |
| $e$ | 0.0960766 | $i$ | 14.93319 | | −0.14920408 | −0.05261214 |
| $P$ | 4.22 | $H$ | 16.2 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 04 21 | 691 | 0.2+ | 0.1− | 2003 09 26 | 704 | 0.9+ | 0.5+ | 2006 04 27 | 703 | 0.0 | 0.4+ |
| 2002 04 21 | 691 | 0.2+ | 0.1− | 2003 09 26 | 704 | 1.3+ | 0.5− | 2006 04 27 | 704 | (1.6− | 0.6+) |
| 2002 04 21 | 691 | 0.1+ | 0.2− | 2003 10 18 | 645 | 0.0 | 0.0 | 2006 05 19 | 699 | 0.7− | 0.7+ |
| 2002 05 08 | 704 | 0.6− | 1.0+ | 2003 10 18 | 645 | 0.0 | 0.0 | 2006 05 19 | 699 | 0.4− | 0.3− |
| 2002 05 08 | 704 | 1.0− | 0.8+ | 2003 10 19 | 645 | 0.1− | 0.1+ | 2006 05 19 | 699 | (1.8+ | 0.2−) |
| 2002 05 08 | 704 | 0.6− | 1.3+ | 2003 10 19 | 645 | 0.0 | 0.1+ | 2006 05 19 | 699 | 0.6− | 0.1+ |
| 2002 05 08 | 704 | 0.7− | 0.3+ | 2006 03 23 | 691 | 0.6+ | 0.6− | 2007 10 13 | G96 | 0.2− | 0.3− |
| 2002 05 30 | 644 | 0.4− | 0.0 | 2006 03 23 | 691 | 0.1+ | 0.1+ | 2007 10 13 | G96 | 0.1+ | 0.3− |
| 2002 05 30 | 644 | 0.1− | 0.1− | 2006 03 23 | 691 | 0.3+ | 0.1− | 2007 10 13 | G96 | 0.0 | 0.1− |
| 2002 05 30 | 644 | 0.4− | 0.0 | 2006 04 19 | 699 | 0.1− | 0.8+ | 2007 10 13 | G96 | 0.1− | 0.1− |
| 2002 06 03 | 704 | 0.1+ | 0.4+ | 2006 04 19 | 699 | 0.6+ | 0.4+ | 2007 11 02 | G96 | 0.1− | 0.3+ |
| 2002 06 03 | 704 | 0.1− | 0.9+ | 2006 04 19 | 699 | 0.9+ | 1.0− | 2007 11 02 | G96 | 0.3− | 0.0 |
| 2002 06 03 | 704 | 0.5+ | 0.1+ | 2006 04 19 | 699 | 0.9− | 0.5+ | 2007 11 02 | G96 | 0.5+ | 0.1− |
| 2002 06 08 | 644 | 0.0 | 0.3− | 2006 04 24 | 704 | (1.9+ | 0.4+) | 2007 11 02 | G96 | 0.3− | 0.1− |
| 2002 06 08 | 644 | 0.1− | 0.5− | 2006 04 24 | 704 | 0.9+ | 0.4+ | 2009 11 23 | G96 | 0.2− | 0.0 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 06 08 | 644 | 0.2− | 0.2− | 2006 04 24 | 704 | 1.0+ | 0.2+ | 2009 11 23 | G96 | 0.2+ | 0.0 |
| 2003 09 18 | 691 | 0.1− | 0.4+ | 2006 04 27 | 704 | (2.0− | 0.5−) | 2009 11 23 | G96 | 0.2+ | 0.9+ |
| 2003 09 18 | 691 | 0.1− | 0.4+ | 2006 04 27 | 703 | 0.7− | 0.0 | 2009 11 23 | G96 | 0.2+ | 0.9+ |
| 2003 09 18 | 691 | 0.0 | 0.5+ | 2006 04 27 | 704 | 0.6+ | 0.9+ | 2009 12 27 | 291 | 0.0 | 0.6+ |
| 2003 09 26 | 704 | 0.3− | 0.8+ | 2006 04 27 | 703 | 0.5− | 0.0 | 2009 12 27 | 291 | 0.5− | 0.6+ |
| 2003 09 26 | 704 | 0.5− | 0.3+ | 2006 04 27 | 703 | 0.0 | 0.1− | 2009 12 27 | 291 | 0.2− | 0.6+ |
| 2003 09 26 | 704 | 0.0 | 0.7− | 2006 04 27 | 704 | 0.0 | 0.2− | | | | |

**(228680)∗ 2002 KX$_{15}$**

Discovered 2002 May 18 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 94.24351 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18284725 | $\omega$ | 80.64537 | | +0.59043224 | | +0.79276583 |
| $a$ | 3.0742824 | $\Omega$ | 226.66590 | | −0.79780022 | | +0.54491236 |
| $e$ | 0.1463835 | $i$ | 12.01127 | | −0.12208434 | | +0.27311694 |
| $P$ | 5.39 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 05 18 | 644 | 0.0 | 0.0 | 2003 10 05 | 691 | 0.1− | 0.2− | 2009 11 08 | G96 | 0.3+ | 0.1− |
| 2002 05 18 | 644 | 0.1+ | 0.1+ | 2003 10 05 | 691 | 0.1+ | 0.1− | 2009 11 08 | G96 | 0.3+ | 0.1+ |
| 2002 05 18 | 644 | 0.1+ | 0.4− | 2003 10 05 | 691 | 0.1− | 0.0 | 2009 11 24 | G96 | 0.1− | 0.2− |
| 2002 05 19 | 644 | 0.0 | 0.3+ | 2008 07 31 | 691 | 0.0 | 0.3+ | 2009 11 24 | G96 | 0.0 | 0.0 |
| 2002 05 19 | 644 | 0.2+ | 0.2+ | 2008 07 31 | 691 | 0.1− | 0.3− | 2009 11 24 | G96 | 0.1+ | 0.1− |
| 2002 05 19 | 644 | 0.3+ | 0.2+ | 2008 07 31 | 691 | 0.0 | 0.1− | 2009 11 24 | G96 | 0.3+ | 0.2+ |
| 2002 05 30 | 644 | 0.2− | 0.0 | 2009 10 18 | G96 | 0.2+ | 0.2+ | 2009 12 15 | G96 | 0.3+ | 0.8+ |
| 2002 05 30 | 644 | 0.9− | 1.3+ | 2009 10 18 | G96 | 0.4+ | 0.2− | 2009 12 15 | G96 | 0.3− | 0.0 |
| 2002 05 30 | 644 | 0.5− | 0.5+ | 2009 10 18 | G96 | 0.6+ | 0.2− | 2009 12 15 | G96 | 0.3− | 0.1+ |
| 2002 06 11 | 644 | 0.8+ | 0.3− | 2009 10 18 | G96 | 0.3+ | 0.0 | 2009 12 15 | G96 | 0.1+ | 0.0 |
| 2002 06 11 | 644 | 0.1+ | 0.2+ | 2009 10 23 | 691 | 0.6− | 0.2+ | 2009 12 16 | G96 | 0.6+ | 0.4+ |
| 2002 06 11 | 644 | 0.2+ | 0.3+ | 2009 10 23 | 691 | 0.0 | 0.1− | 2009 12 16 | G96 | 0.2+ | 0.1+ |
| 2003 09 21 | 644 | 0.1+ | 0.1+ | 2009 10 23 | 691 | 0.2− | 0.1+ | 2009 12 16 | G96 | 0.0 | 0.2+ |
| 2003 09 21 | 644 | 0.1+ | 0.8+ | 2009 11 08 | G96 | 0.5+ | 0.3+ | 2009 12 16 | G96 | 0.2− | 0.1+ |
| 2003 09 21 | 644 | 0.2+ | 0.2+ | 2009 11 08 | G96 | 0.1− | 0.2+ | | | | |

**(228681)∗ 2002 LX$_6$ = 2001 CN$_{16}$**

Discovered 2002 June 1 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. M. E. Sansaturio (*MPO* 35200)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 2.34750 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21844087 | $\omega$ | 8.59682 | | −0.60064370 | | −0.78971186 |
| $a$ | 2.7305289 | $\Omega$ | 118.41463 | | +0.72484504 | | −0.60375229 |
| $e$ | 0.0404095 | $i$ | 8.15940 | | +0.33738230 | | −0.10880415 |
| $P$ | 4.51 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 02 01 | 704 | 0.6+ | 0.6+ | 2006 04 04 | 599 | 0.4+ | 0.2+ | 2008 10 22 | G96 | 0.2− | 0.1− |
| 2001 02 01 | 704 | 0.2+ | 0.5+ | 2006 04 04 | 599 | 0.2+ | 0.8+ | 2008 10 22 | G96 | 0.2+ | 0.2− |
| 2001 02 01 | 704 | 0.4− | 1.0+ | 2006 04 04 | 599 | 0.6+ | 0.1− | 2008 10 29 | 704 | (1.0+ | 1.9+) |
| 2001 02 01 | 704 | 0.3+ | 0.7+ | 2006 04 18 | 703 | (1.3− | 1.9+) | 2008 10 29 | 704 | 0.8+ | 0.9+ |
| 2001 02 03 | 704 | 0.6+ | 0.7+ | 2006 04 18 | 703 | 1.0− | 0.2+ | 2008 10 29 | 704 | (0.3− | 2.2+) |
| 2001 02 03 | 704 | 0.9− | 0.2+ | 2006 04 18 | 703 | 0.1− | 0.4+ | 2008 10 29 | 704 | 0.5− | 0.8+ |
| 2001 02 03 | 704 | 0.3+ | 1.1+ | 2006 04 18 | 703 | 0.4− | 0.4− | 2008 11 03 | 703 | 0.3+ | 0.6+ |
| 2001 02 03 | 704 | 0.7+ | 0.6+ | 2006 04 24 | G96 | 0.1− | 0.4− | 2008 11 03 | 703 | 0.1− | 0.3+ |
| 2002 06 01 | 704 | 0.6+ | 0.6+ | 2006 04 24 | G96 | 0.1+ | 0.6− | 2008 11 03 | 703 | 0.9− | 0.7+ |
| 2002 06 01 | 704 | 0.4+ | 0.3+ | 2006 04 24 | G96 | 0.3− | 0.4− | 2008 11 03 | 703 | 0.3+ | 0.2+ |
| 2002 06 01 | 704 | 0.1+ | 0.7+ | 2006 04 24 | G96 | 0.1− | 0.6− | 2009 11 15 | G96 | 0.2+ | 0.2− |
| 2002 06 01 | 704 | 0.1+ | 0.7+ | 2008 09 29 | 704 | (0.2− | 1.8+) | 2009 11 15 | G96 | 0.0 | 0.2− |
| 2002 06 03 | 644 | (0.0 | 1.6+) | 2008 09 29 | 704 | 0.0 | 0.5+ | 2009 11 15 | G96 | 0.6− | 0.8− |
| 2002 06 03 | 644 | 0.3− | 1.3+ | 2008 09 29 | 704 | (0.5− | 1.7+) | 2009 11 15 | G96 | 0.1− | 0.5− |
| 2002 06 03 | 644 | (0.3− | 1.9+) | 2008 09 29 | 704 | 1.0− | 0.7+ | 2009 11 27 | 703 | (2.9+ | 0.9−) |
| 2002 06 10 | 644 | 0.1− | 0.3+ | 2008 09 29 | 704 | 0.5− | 0.2+ | 2009 11 27 | 703 | 0.2− | 0.5+ |
| 2002 06 10 | 644 | 0.1+ | 0.6+ | 2008 10 07 | G96 | 0.4− | 0.2+ | 2009 11 27 | 703 | (2.0− | 0.5+) |
| 2002 06 10 | 644 | 0.2+ | 0.5+ | 2008 10 07 | G96 | 0.3− | 0.1+ | 2009 11 27 | 703 | (1.8− | 0.5+) |
| 2003 09 25 | 644 | 0.2+ | 0.4+ | 2008 10 07 | G96 | 0.0 | 0.1+ | 2009 12 19 | G96 | 0.2− | 0.2− |
| 2003 09 25 | 644 | 0.3− | 0.3+ | 2008 10 07 | G96 | 0.1+ | 0.1+ | 2009 12 19 | G96 | 0.2+ | 0.1− |
| 2003 09 25 | 644 | 0.3− | 0.3+ | 2008 10 22 | G96 | 0.2+ | 0.5− | 2009 12 19 | G96 | 0.2+ | 0.0 |
| 2006 04 04 | 599 | 0.7+ | 0.1+ | 2008 10 22 | G96 | 0.6+ | 0.3− | 2009 12 19 | G96 | 0.0 | 0.0 |

**(228682)∗ 2002 LR$_{50}$ = 2003 SV$_{306}$ = 2003 UP$_{75}$ = 2003 UL$_{279}$**

Discovered 2002 June 7 by Spacewatch at Kitt Peak.

Id. A. Doppler (*MPO* 103326)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 214.69110 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18665230 | $\omega$ | 341.15392 | | −0.64916220 | | +0.74445828 |
| $a$ | 3.0323581 | $\Omega$ | 248.04487 | | −0.67447012 | | −0.65824796 |
| $e$ | 0.0515885 | $i$ | 9.68997 | | −0.35167952 | | −0.11176538 |
| $P$ | 5.28 | $H$ | 15.2 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 06 07 | 291 | 0.2− | 0.2+ | 2003 10 03 | 691 | 0.1+ | 0.2− | 2009 11 08 | 691 | 0.1+ | 0.1+ |
| 2002 06 07 | 291 | 0.5− | 0.2+ | 2003 10 17 | 691 | 0.1− | 0.3− | 2009 11 08 | 691 | 0.4− | 0.0 |
| 2002 06 07 | 291 | 0.4− | 0.1+ | 2003 10 17 | 691 | 0.1− | 0.3− | 2009 11 08 | 691 | 0.1− | 0.1− |
| 2002 06 10 | 644 | 0.4+ | 0.1− | 2003 10 17 | 691 | 0.0 | 0.2− | 2009 11 16 | 691 | 0.3− | 0.2+ |
| 2002 06 10 | 644 | 0.2+ | 0.2+ | 2003 10 27 | 691 | 0.2− | 0.4+ | 2009 11 16 | 691 | 0.6− | 0.3+ |
| 2002 06 10 | 644 | 0.2+ | 0.2+ | 2003 10 27 | 691 | 0.0 | 0.3+ | 2009 11 16 | 691 | 0.7− | 0.4+ |
| 2002 07 29 | 644 | (1.8+ | 0.4+) | 2003 10 27 | 691 | 0.1− | 0.1+ | 2009 12 08 | J75 | 0.2+ | 0.3+ |
| 2002 07 29 | 644 | 0.1+ | 1.1+ | 2004 12 02 | 691 | 0.3+ | 0.2+ | 2009 12 08 | J75 | 0.3− | 0.2+ |
| 2002 07 29 | 644 | 0.1+ | 1.2+ | 2004 12 02 | 691 | 0.5+ | 0.1+ | 2009 12 08 | J75 | 1.4+ | 0.6− |
| 2002 08 04 | 644 | 0.5+ | 0.6+ | 2004 12 02 | 691 | 0.1+ | 0.3+ | 2009 12 10 | G96 | 0.6+ | 0.1+ |
| 2002 08 04 | 644 | 0.3− | 0.5+ | 2008 09 05 | 704 | 0.6+ | 0.3+ | 2009 12 10 | G96 | 0.5+ | 0.1+ |
| 2002 08 04 | 644 | 0.5− | 0.4+ | 2008 09 05 | 704 | (1.5+ | 0.6+) | 2009 12 10 | G96 | 0.7+ | 0.2+ |
| 2003 09 30 | 704 | 0.0 | 0.4− | 2008 09 05 | 704 | 1.0+ | 0.1− | 2009 12 10 | G96 | 0.4+ | 0.0 |
| 2003 09 30 | 704 | 0.1+ | 0.2+ | 2008 09 28 | 703 | 0.8+ | 1.3− | 2009 12 11 | G96 | 0.4+ | 0.1− |
| 2003 09 30 | 704 | 0.7− | 0.7− | 2008 09 28 | 703 | 0.3+ | 0.4+ | 2009 12 11 | G96 | 0.2+ | 0.1+ |
| 2003 10 03 | 691 | 0.2+ | 0.3− | 2008 09 28 | 703 | (1.9+ | 0.8+) | 2009 12 11 | G96 | 0.6+ | 0.1+ |
| 2003 10 03 | 691 | 0.1+ | 0.0 | 2008 09 28 | 703 | 0.6+ | 0.1+ | | | | |

**(228683)∗ 2002 NJ$_{24}$**

Discovered 2002 July 9 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 93.34447 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17485796 | $\omega$ | 77.69419 | | +0.98101310 | | +0.12890055 |
| $a$ | 3.1672264 | $\Omega$ | 274.76930 | | −0.17763910 | | +0.89705599 |
| $e$ | 0.2303142 | $i$ | 8.36103 | | +0.07783084 | | +0.42269989 |
| $P$ | 5.64 | $H$ | 14.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 07 09 | 704 | 0.8− | 0.6− | 2002 10 04 | 704 | 0.5+ | 0.5+ | 2008 10 02 | 704 | 0.1− | 0.6+ |
| 2002 07 09 | 704 | 0.3+ | 0.3+ | 2002 10 04 | 704 | 0.8+ | 1.1+ | 2008 10 02 | 704 | 0.1+ | 0.5+ |
| 2002 07 09 | 704 | 0.7+ | 1.1− | 2002 10 12 | 704 | 0.3− | 0.3− | 2008 10 02 | 704 | 0.0 | 0.8+ |
| 2002 07 09 | 704 | (0.8− | 1.5−) | 2002 10 12 | 704 | 0.7− | 0.4− | 2008 10 10 | G96 | 0.8+ | 0.6− |
| 2002 07 14 | 704 | 0.0 | 0.1− | 2002 10 12 | 704 | 0.1− | 0.5− | 2008 10 10 | G96 | 0.2− | 0.2− |
| 2002 07 14 | 704 | 0.0 | 0.4+ | 2002 10 12 | 704 | 0.5+ | 0.4+ | 2008 10 10 | G96 | 0.0 | 0.8− |
| 2002 07 14 | 704 | 0.5− | 0.5− | 2002 10 29 | 704 | 0.8+ | 0.0 | 2008 10 10 | G96 | 0.6+ | 0.6− |
| 2002 07 14 | 704 | (2.9− | 1.6+) | 2002 10 29 | 704 | 0.1− | 0.1+ | 2008 10 27 | 704 | 0.4− | 0.6+ |
| 2002 07 21 | 644 | 0.1+ | 0.5+ | 2002 10 29 | 704 | 0.4− | 0.0 | 2008 10 27 | 704 | 0.7− | 0.2+ |
| 2002 07 21 | 644 | 0.0 | 0.4+ | 2002 10 29 | 704 | 0.5− | 0.5− | 2008 10 27 | 704 | 0.2+ | 0.1+ |
| 2002 07 21 | 644 | 0.0 | 0.5+ | 2002 10 29 | 704 | 0.0 | 0.2+ | 2008 10 27 | 704 | 0.4− | 0.6− |
| 2002 07 23 | 644 | 0.1+ | 0.9+ | 2003 12 04 | 704 | 0.0 | 0.8+ | 2008 10 27 | 704 | 0.2− | 0.3− |
| 2002 07 23 | 644 | 0.3+ | 0.8+ | 2003 12 04 | 704 | 0.7+ | 0.0 | 2008 11 02 | 704 | 0.0 | 0.3+ |
| 2002 07 23 | 644 | 0.0 | 1.0+ | 2003 12 04 | 704 | 0.2+ | 0.2− | 2008 11 02 | 704 | 0.0 | 0.0 |
| 2002 08 05 | 644 | 0.2− | 0.1+ | 2003 12 04 | 704 | 0.0 | 0.0 | 2008 11 02 | 704 | 0.3+ | 0.2− |
| 2002 08 05 | 644 | 0.1− | 0.0 | 2004 01 28 | 691 | 0.3− | 0.1+ | 2008 11 02 | 704 | 0.4+ | 0.5+ |
| 2002 08 05 | 644 | 0.1− | 0.1+ | 2004 01 28 | 691 | 0.2+ | 0.1+ | 2008 11 02 | 704 | 0.6+ | 0.2− |
| 2002 08 12 | 704 | 0.1− | 0.0 | 2004 01 28 | 691 | 0.1+ | 0.0 | 2008 11 03 | 704 | 1.2+ | 0.3− |
| 2002 08 12 | 704 | 0.5− | 0.1+ | 2008 07 28 | 703 | 0.1+ | 0.5+ | 2008 11 03 | 704 | 0.3+ | 0.6+ |
| 2002 08 12 | 704 | 0.3− | 0.1+ | 2008 07 28 | 703 | 0.2+ | 0.5+ | 2008 11 03 | 704 | 0.6+ | 0.1+ |
| 2002 08 12 | 704 | 0.3− | 0.2+ | 2008 07 28 | 703 | 0.4− | 0.3+ | 2008 11 03 | 704 | 0.5+ | 0.7− |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 12 | 704 | 0.3− | 0.1+ | 2008 07 28 | 703 | 0.6+ | 1.0− | 2008 11 21 | 704 | 0.3− | 0.6+ | | |
| 2002 08 12 | 608 | 0.8− | 1.2− | 2008 07 31 | 703 | 0.6+ | 0.8− | 2008 11 21 | 704 | 0.2− | 0.6− | | |
| 2002 08 12 | 608 | 0.6− | 1.2− | 2008 07 31 | 703 | (0.5+ | 1.5−) | 2008 11 21 | 704 | 0.8+ | 0.9− | | |
| 2002 08 12 | 608 | 0.6− | 0.9− | 2008 07 31 | 703 | 0.4− | 0.9− | 2008 11 24 | G92 | 0.2− | 0.8+ | | |
| 2002 08 16 | 644 | 0.3− | 0.3− | 2008 07 31 | 703 | 0.5+ | 0.7+ | 2008 11 24 | G92 | 0.7+ | 0.3+ | | |
| 2002 08 16 | 644 | 0.2− | 0.3− | 2008 08 01 | 704 | 0.4− | 0.8+ | 2008 11 24 | G92 | 0.0 | 0.6+ | | |
| 2002 08 16 | 644 | 0.0 | 0.1− | 2008 08 01 | 704 | 0.4− | 0.3− | 2008 12 02 | G96 | 0.0 | 0.3− | | |
| 2002 08 19 | 608 | 1.2+ | 0.4+ | 2008 08 01 | 704 | 0.2− | 0.1+ | 2008 12 02 | G96 | 0.2+ | 0.5− | | |
| 2002 08 19 | 608 | 1.0+ | 0.3− | 2008 08 01 | 704 | 0.2+ | 0.4+ | 2008 12 02 | G96 | 0.3+ | 0.5− | | |
| 2002 08 19 | 608 | 0.6+ | 0.3− | 2008 08 01 | 704 | 0.2− | 1.1+ | 2008 12 02 | G96 | 0.4+ | 0.3− | | |
| 2002 08 25 | 644 | 0.2− | 0.1+ | 2008 08 26 | 106 | 0.2+ | 0.0 | 2008 12 22 | 703 | 1.1− | 0.1+ | | |
| 2002 08 25 | 644 | 0.3− | 0.0 | 2008 08 26 | 106 | 0.5+ | 0.4− | 2008 12 22 | 703 | 1.2− | 1.0+ | | |
| 2002 08 25 | 644 | 0.0 | 0.0 | 2008 08 26 | 106 | 0.0 | 0.1− | 2008 12 22 | 703 | 1.3− | 0.7− | | |
| 2002 08 26 | 644 | 0.2− | 0.8− | 2008 08 26 | 106 | 0.2+ | 0.6− | 2008 12 22 | 703 | 0.5− | 0.5+ | | |
| 2002 08 26 | 644 | 0.1− | 0.7− | 2008 09 05 | 704 | 0.0 | 0.2− | 2009 09 16 | 691 | 0.2− | 0.1+ | | |
| 2002 08 26 | 644 | 0.3− | 0.8− | 2008 09 05 | 704 | 0.3− | 0.0 | 2009 09 16 | 691 | 0.2− | 0.0 | | |
| 2002 08 26 | 644 | 0.1+ | 0.7+ | 2008 09 05 | 704 | 0.2− | 0.4+ | 2009 09 16 | 691 | 0.2− | 0.1− | | |
| 2002 08 26 | 644 | 0.3+ | 0.9+ | 2008 09 05 | 704 | 0.2− | 0.3− | 2009 10 18 | G96 | 0.0 | 0.1− | | |
| 2002 08 26 | 644 | 0.0 | 0.6+ | 2008 09 05 | 704 | 0.4− | 0.1+ | 2009 10 18 | G96 | 0.6+ | 0.1− | | |
| 2002 09 02 | 608 | 0.2− | 0.6+ | 2008 09 22 | 703 | 0.2+ | 0.9− | 2009 10 18 | G96 | 0.2+ | 0.1+ | | |
| 2002 09 02 | 608 | 0.3− | 0.6+ | 2008 09 22 | 703 | 0.3− | 0.9− | 2009 10 18 | G96 | 0.5+ | 0.2− | | |
| 2002 09 02 | 608 | 0.4− | 0.5+ | 2008 09 22 | 703 | 0.2− | 0.3− | 2009 12 18 | 691 | 0.2− | 0.3+ | | |
| 2002 09 08 | 608 | 0.7+ | 0.4+ | 2008 09 22 | 703 | 0.3− | 0.6− | 2009 12 18 | G96 | 0.3+ | 0.1− | | |
| 2002 09 08 | 608 | 0.4+ | 0.3+ | 2008 09 30 | 703 | 0.5+ | 0.7+ | 2009 12 18 | 691 | 0.4+ | 0.0 | | |
| 2002 09 08 | 608 | 0.2+ | 0.3+ | 2008 09 30 | 703 | 0.0 | 0.3+ | 2009 12 18 | G96 | 0.6+ | 0.1− | | |
| 2002 09 22 | 644 | 0.2+ | 0.1+ | 2008 09 30 | 703 | 0.3− | 0.1+ | 2009 12 18 | G96 | 0.2+ | 0.1− | | |
| 2002 09 22 | 644 | 0.3+ | 0.1+ | 2008 09 30 | 703 | 0.3− | 0.7− | 2009 12 18 | 691 | 0.3− | 0.2+ | | |
| 2002 09 22 | 644 | 0.3− | 0.1− | 2008 10 02 | 704 | 0.2− | 0.5+ | 2009 12 18 | G96 | 0.3+ | 0.3− | | |
| 2002 10 04 | 704 | 0.2− | 0.3− | 2008 10 02 | 704 | 0.3− | 0.3+ | | | | | | |

**(228684)∗ 2002 NK$_{55}$**

Discovered 2002 July 9 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 94.13591 | | (2000.0) | | +0.89072473 | +0.19283130 |
| $n$ | 0.17463400 | $\omega$ | 55.06851 | | −0.39739263 | +0.76995738 |
| $a$ | 3.1699337 | $\Omega$ | 290.60575 | | +0.22065483 | +0.60826123 |
| $e$ | 0.2628376 | $i$ | 26.08771 | | | |
| $P$ | 5.64 | $H$ | 14.4 | $G$ 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 07 04 | 333 | (1.6− | 1.8+) | 2002 08 13 | 704 | 0.2+ | 0.5− | 2003 12 30 | 704 | 0.6− | 0.5+ | | |
| 2002 07 04 | 333 | 0.5− | 1.5+ | 2002 08 13 | 704 | 0.2+ | 1.0+ | 2008 06 12 | 703 | 0.0 | 0.3− | | |
| 2002 07 04 | 333 | 0.9+ | 0.3+ | 2002 08 13 | 704 | 0.6+ | 0.4− | 2008 06 12 | 703 | 0.6− | 0.8− | | |
| 2002 07 09 | 704 | 0.2− | 0.4+ | 2002 08 13 | 704 | 0.2+ | 1.3+ | 2008 06 12 | 703 | 0.7− | 0.4− | | |
| 2002 07 09 | 704 | 0.2+ | 0.2− | 2002 08 13 | 704 | 0.2+ | 0.1+ | 2008 06 12 | 703 | 0.6− | 1.2− | | |
| 2002 07 09 | 704 | (1.1+ | 1.8−) | 2002 08 13 | 704 | 0.1− | 0.5+ | 2008 10 09 | 704 | 1.2+ | 0.2+ | | |
| 2002 07 09 | 704 | 1.0− | 0.5+ | 2002 08 13 | 704 | 0.3+ | 0.5− | 2008 10 09 | 704 | 0.7+ | 0.2+ | | |
| 2002 07 09 | 704 | 0.4+ | 0.2+ | 2002 08 13 | 704 | 0.5+ | 0.8+ | 2008 10 09 | 704 | 0.5+ | 0.2+ | | |
| 2002 07 12 | 644 | 0.6− | 0.3+ | 2002 09 30 | 704 | 0.4+ | 0.9+ | 2008 10 09 | 704 | 0.8+ | 0.2+ | | |
| 2002 07 12 | 644 | 0.1− | 0.2+ | 2002 09 30 | 704 | 0.4− | 0.1− | 2008 10 09 | 704 | 0.8+ | 0.6+ | | |
| 2002 07 12 | 644 | 0.2− | 0.2+ | 2002 09 30 | 704 | 0.1+ | 0.1+ | 2008 11 06 | 704 | 0.0 | 0.1− | | |
| 2002 07 18 | 704 | 0.6− | 0.2− | 2002 09 30 | 704 | 0.7− | 0.5+ | 2008 11 06 | 704 | 0.7+ | 1.1− | | |
| 2002 07 18 | 704 | 0.4− | 0.1− | 2002 10 06 | 704 | 0.3− | 1.0+ | 2008 11 06 | 704 | 0.2+ | 0.7− | | |
| 2002 07 18 | 704 | 0.9− | 0.0 | 2002 10 06 | 704 | 0.3+ | 0.4− | 2008 11 06 | 704 | 0.2+ | 0.8+ | | |
| 2002 07 18 | 704 | 0.7− | 0.3+ | 2002 10 06 | 704 | 0.3− | 0.1− | 2008 11 24 | 704 | 0.4− | 0.0 | | |
| 2002 07 18 | 704 | 0.5− | 0.0 | 2002 10 06 | 704 | 0.6+ | 0.2− | 2008 11 24 | 704 | 0.4− | 1.0+ | | |
| 2002 07 21 | 644 | 0.7− | 0.2− | 2002 10 31 | 704 | 0.5+ | 0.1− | 2008 11 24 | 704 | (0.3− | 1.6+) | | |
| 2002 07 21 | 644 | 0.5− | 0.1− | 2002 10 31 | 704 | 0.6+ | 0.6− | 2008 12 06 | G96 | 0.3+ | 0.6− | | |
| 2002 07 21 | 644 | 0.5− | 0.1− | 2002 10 31 | 704 | 0.1− | 0.5− | 2008 12 06 | G96 | 0.3+ | 0.5− | | |
| 2002 07 28 | 608 | 0.5+ | 0.4+ | 2002 10 31 | 704 | 0.6+ | 0.6− | 2008 12 06 | G96 | 0.3+ | 0.4− | | |
| 2002 07 28 | 608 | 0.1− | 0.3− | 2003 11 21 | 704 | 0.2− | 0.3+ | 2008 12 06 | G96 | 0.3+ | 0.5− | | |
| 2002 07 28 | 608 | 0.1+ | 0.2+ | 2003 11 21 | 704 | 0.3+ | 0.0 | 2008 12 07 | 704 | 0.4− | 0.4− | | |
| 2002 08 04 | 644 | 0.1+ | 0.2+ | 2003 11 21 | 704 | 0.3+ | 1.1+ | 2008 12 07 | 704 | (1.6+ | 0.9+) | | |
| 2002 08 04 | 644 | 0.1− | 0.0 | 2003 11 21 | 704 | 0.7− | 0.7+ | 2008 12 07 | 704 | 0.2− | 0.3− | | |
| 2002 08 04 | 644 | 0.3− | 0.0 | 2003 11 21 | 704 | 0.1+ | 0.7− | 2008 12 07 | 704 | 1.4− | 0.8− | | |
| 2002 08 05 | 644 | 0.2− | 0.1+ | 2003 12 15 | 704 | 0.2− | 1.1+ | 2009 11 21 | G96 | (1.2+ | 1.7−) | | |
| 2002 08 05 | 644 | 0.3− | 0.0 | 2003 12 15 | 704 | 0.7+ | 0.6+ | 2009 11 21 | G96 | (2.3+ | 1.9−) | | |
| 2002 08 05 | 644 | 0.1− | 0.0 | 2003 12 15 | 704 | 0.8− | 1.0+ | 2009 11 21 | G96 | 0.3+ | 0.5− | | |
| 2002 08 12 | 704 | 0.0 | 0.1− | 2003 12 15 | 704 | 0.2+ | 0.1− | 2009 11 21 | G96 | 0.4+ | 0.4− | | |
| 2002 08 12 | 704 | 0.4+ | 0.6− | 2003 12 28 | 704 | 0.8+ | 0.2+ | 2009 12 19 | 691 | 0.3− | 0.3− | | |
| 2002 08 12 | 704 | 0.2− | 0.1− | 2003 12 28 | 704 | 0.8+ | 0.6+ | 2009 12 19 | 691 | 0.4− | 0.0 | | |
| 2002 08 12 | 704 | 0.1− | 0.1− | 2003 12 28 | 704 | 0.9+ | 0.3+ | 2009 12 19 | 691 | 0.2− | 0.0 | | |
| 2002 08 12 | 704 | 0.1− | 0.2− | 2003 12 28 | 704 | 0.3+ | 0.6+ | 2009 12 27 | 691 | 0.0 | 0.0 | | |
| 2002 08 13 | 704 | 0.2+ | 0.5− | 2003 12 30 | 704 | 0.6+ | 0.2− | 2009 12 27 | 691 | 0.6+ | 0.5+ | | |
| 2002 08 13 | 704 | 0.2+ | 0.1+ | 2003 12 30 | 704 | 0.0 | 0.5+ | 2009 12 27 | 691 | 0.1+ | 0.0 | | |

**(228685)∗ 2002 ND$_{61}$**

Discovered 2002 July 15 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 184.66857 | | (2000.0) | | −0.21731579 | +0.93568933 |
| $n$ | 0.18165767 | $\omega$ | 143.37484 | | −0.95170052 | −0.13983788 |
| $a$ | 3.0876891 | $\Omega$ | 112.56945 | | −0.21688701 | −0.32393032 |
| $e$ | 0.0397056 | $i$ | 17.51818 | | | |
| $P$ | 5.43 | $H$ | 14.5 | $G$ 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 05 22 | 699 | (2.0+ | 1.3−) | 2002 08 30 | 644 | 0.1+ | 0.1+ | 2006 02 25 | 703 | 0.2+ | 0.0 | | |
| 2001 05 22 | 699 | 0.3− | 0.8+ | 2002 08 30 | 644 | 0.1− | 0.0 | 2006 02 25 | 703 | 0.8+ | 0.3− | | |
| 2001 05 22 | 699 | 0.4+ | 0.3+ | 2002 08 30 | 644 | 0.1− | 0.6+ | 2006 02 25 | 703 | 0.1− | 0.7− | | |
| 2001 05 22 | 699 | 0.0 | 1.2+ | 2004 12 14 | 704 | 1.1+ | 0.2+ | 2006 04 26 | 703 | 0.5− | 0.4− | | |
| 2002 07 15 | 644 | 0.3+ | 0.2+ | 2004 12 14 | 704 | 0.9+ | 0.7− | 2006 04 26 | 703 | 0.3+ | 0.7− | | |
| 2002 07 15 | 644 | 0.0 | 0.2+ | 2004 12 14 | 704 | 0.3− | 0.2− | 2006 04 26 | 703 | 0.5− | 0.7+ | | |
| 2002 07 15 | 644 | 0.4+ | 0.2+ | 2005 01 06 | 704 | 0.3+ | 0.0 | 2006 04 26 | 703 | 0.3+ | 0.2− | | |
| 2002 08 11 | 644 | 0.3+ | 0.6+ | 2005 01 06 | 704 | 0.5+ | 0.6+ | 2009 11 21 | A50 | 1.0+ | 0.6− | | |
| 2002 08 11 | 644 | 0.2+ | 0.4+ | 2005 01 06 | 704 | 0.3+ | 0.9+ | 2009 11 21 | A50 | 0.0 | 0.2+ | | |
| 2002 08 11 | 644 | 0.2+ | 0.1− | 2005 01 17 | 691 | 0.1+ | 0.1+ | 2009 11 21 | A50 | 0.1+ | 0.4+ | | |
| 2002 08 11 | 644 | 0.3− | 0.0 | 2005 01 17 | 691 | 0.7− | 0.5+ | 2009 12 13 | 704 | 0.0 | 0.1+ | | |
| 2002 08 11 | 644 | 0.1+ | 0.2− | 2005 01 17 | 691 | 0.2+ | 0.1+ | 2009 12 13 | 704 | 0.4− | 0.1− | | |
| 2002 08 11 | 644 | 0.5+ | 0.7+ | 2005 01 17 | 704 | 0.2− | 1.3− | 2009 12 13 | 704 | 0.6− | 0.1− | | |
| 2002 08 13 | 704 | 0.7− | 1.0− | 2005 01 17 | 704 | 0.9− | 0.2− | 2009 12 13 | 704 | 1.0− | 0.7+ | | |
| 2002 08 13 | 704 | 0.2− | 0.5+ | 2005 01 17 | 704 | 0.1+ | 0.2+ | | | | | | |
| 2002 08 13 | 704 | 0.2− | 0.6− | 2006 02 25 | 703 | 0.3− | 0.3+ | | | | | | |

**(228686)∗ 2002 NZ$_{64}$**

Discovered 2002 July 2 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 44.21259 | | (2000.0) | | +0.60347218 | −0.75016984 |
| $n$ | 0.18126996 | $\omega$ | 307.86434 | | +0.79054536 | +0.51856827 |
| $a$ | 3.0920902 | $\Omega$ | 102.81632 | | +0.10420828 | +0.41028303 |
| $e$ | 0.2284933 | $i$ | 16.09404 | | | |
| $P$ | 5.44 | $H$ | 15.4 | $G$ 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 06 12 | 644 | 0.1− | 0.0 | 2003 10 21 | 699 | 0.5+ | 1.0+ | 2009 10 30 | G96 | 0.4− | 0.2+ | | |
| 2002 06 12 | 644 | 0.1− | 0.5+ | 2003 10 21 | 699 | (0.6− | 2.5+) | 2009 10 30 | G96 | 0.1+ | 0.1+ | | |
| 2002 06 12 | 644 | 0.7− | 0.2+ | 2003 12 13 | 644 | 0.2− | 0.4+ | 2009 10 30 | G96 | 0.2− | 0.1+ | | |
| 2002 07 02 | 644 | 0.2− | 0.7+ | 2003 12 13 | 644 | 0.3− | 0.6+ | 2009 11 16 | G96 | 0.1+ | 0.0 | | |
| 2002 07 02 | 644 | 0.6− | 0.7+ | 2003 12 13 | 644 | 0.1+ | 0.6+ | 2009 11 16 | G96 | 0.1− | 0.0 | | |
| 2002 07 02 | 644 | 0.4− | 0.3+ | 2004 12 11 | 291 | 0.3− | 0.3+ | 2009 11 16 | G96 | 0.1+ | 0.1− | | |
| 2002 07 05 | 644 | 0.2+ | 0.7+ | 2004 12 11 | 291 | 0.0 | 0.4+ | 2009 11 16 | G96 | 0.3+ | 0.1− | | |
| 2002 07 05 | 644 | 0.1− | 0.1− | 2004 12 11 | 291 | 0.2− | 0.2+ | 2009 12 10 | 703 | 0.1+ | 0.4− | | |
| 2002 07 12 | 644 | 0.1+ | 0.3+ | 2006 05 25 | 691 | 0.1+ | 0.2+ | 2009 12 10 | 703 | 0.1− | 0.5− | | |
| 2002 07 12 | 644 | 0.2− | 0.1− | 2006 05 25 | 691 | 0.5+ | 0.2− | 2009 12 10 | 703 | 0.1+ | 0.9+ | | |
| 2002 07 12 | 644 | 0.0 | 0.2+ | 2006 05 25 | 691 | 0.8+ | 0.0 | 2009 12 10 | 703 | 0.6− | 0.6+ | | |
| 2002 07 12 | 644 | 0.1− | 0.2+ | 2006 05 31 | 691 | 0.2− | 0.1− | 2009 12 11 | 704 | 0.1− | 0.9+ | | |
| 2002 07 12 | 644 | 0.0 | 0.3+ | 2006 05 31 | 691 | 0.3+ | 0.3+ | 2009 12 11 | 704 | 0.9+ | 0.2+ | | |
| 2002 07 12 | 644 | 0.2+ | 0.2+ | 2006 05 31 | 691 | 0.1+ | 0.6+ | 2009 12 11 | 704 | 0.2+ | 0.4+ | | |
| 2002 07 14 | 644 | 0.2− | 0.4+ | 2008 08 23 | E12 | 0.2+ | 1.4+ | 2009 12 16 | 704 | 0.7− | 1.1+ | | |
| 2002 07 14 | 644 | 0.3− | 0.6+ | 2008 08 23 | E12 | 0.8− | 0.8+ | 2009 12 16 | 704 | 0.3+ | 0.5+ | | |
| 2002 07 15 | 644 | 0.0 | 0.1+ | 2008 08 23 | E12 | 0.2+ | 0.2+ | 2009 12 16 | 704 | 0.6+ | 0.2− | | |
| 2002 07 15 | 644 | 0.1+ | 0.4+ | 2008 08 23 | E12 | 0.7− | 0.2+ | 2009 12 18 | 691 | 0.0 | 0.2+ | | |
| 2003 09 27 | 645 | 0.0 | 0.0 | 2009 10 18 | G96 | 0.2− | 0.1− | 2009 12 18 | 691 | 0.3− | 0.1+ | | |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 27 | 645 | 0.1− | 0.0 | 2009 10 18 | G96 | 0.1− | 0.1− | 2009 12 18 | 691 | 0.1− | 0.3+ |
| 2003 10 21 | 699 | 0.2+ | 0.9+ | 2009 10 18 | G96 | 0.1+ | 0.2− | | | | |
| 2003 10 21 | 699 | 0.1− | 0.4+ | 2009 10 30 | G96 | 0.3+ | 0.1− | | | | |

**(228687)∗ 2002 OA$_8$ = 2008 SJ$_{191}$**

Discovered 2002 July 18 by NEAT at Palomar.

Id. G. V. Williams (*MPO* 145953)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 157.65248 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18230039 | $\omega$ | 344.66886 | | +0.17059389 | | +0.98300514 |
| $a$ | 3.0804275 | $\Omega$ | 295.11440 | | −0.89597389 | | +0.12611455 |
| $e$ | 0.1337470 | $i$ | 4.29509 | | −0.41003477 | | +0.13340169 |
| $P$ | 5.41 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 07 04 | 644 | 0.5− | 0.6+ | 2005 12 07 | 691 | 0.5+ | 0.1− | 2008 10 02 | 691 | 0.1− | 0.2+ |
| 2002 07 04 | 644 | 0.5− | 0.4+ | 2005 12 07 | 691 | 0.1− | 0.0 | 2008 10 02 | 691 | 0.0 | 0.0 |
| 2002 07 04 | 644 | 0.3− | 0.2+ | 2005 12 07 | 691 | 1.0+ | 0.2+ | 2008 10 02 | 691 | 0.0 | 0.3+ |
| 2002 07 18 | 644 | 0.3− | 0.5− | 2006 03 05 | 691 | 0.1+ | 0.5+ | 2008 10 09 | 691 | 0.2− | 0.5+ |
| 2002 07 18 | 644 | 0.5− | 0.7− | 2006 03 05 | 691 | 0.2+ | 0.4+ | 2008 10 09 | 691 | 0.1+ | 0.0 |
| 2002 07 18 | 644 | 0.4− | 0.7− | 2006 03 05 | 691 | 0.3+ | 0.6+ | 2008 10 09 | 691 | 0.4− | 0.2+ |
| 2002 07 22 | 644 | 0.0 | 0.4+ | 2008 09 05 | 691 | 0.4− | 0.5+ | 2008 10 26 | G96 | 0.2+ | 0.2− |
| 2002 07 22 | 644 | 0.2− | 0.7+ | 2008 09 05 | 691 | 0.2− | 0.5+ | 2008 10 26 | G96 | 0.4+ | 0.1+ |
| 2002 07 22 | 644 | 0.2− | 0.2+ | 2008 09 05 | 691 | 0.2+ | 0.2+ | 2008 10 26 | G96 | 0.1+ | 0.1+ |
| 2003 10 28 | 621 | 1.1+ | 0.2− | 2008 09 25 | G96 | 0.4+ | 0.1+ | 2008 10 26 | G96 | 0.2+ | 0.3− |
| 2003 10 28 | 621 | 0.9+ | 0.4+ | 2008 09 25 | G96 | 0.6+ | 0.0 | 2009 11 23 | 691 | 1.1− | 0.1− |
| 2003 10 28 | 621 | 0.2+ | 0.0 | 2008 09 25 | G96 | 0.3+ | 0.4+ | 2009 11 23 | 691 | 0.2− | 0.0 |
| 2003 10 28 | 621 | (1.8+ | 1.8−) | 2008 09 25 | G96 | 0.4+ | 0.1+ | 2009 11 23 | 691 | 0.7− | 0.2+ |
| 2003 10 28 | 621 | (1.8+ | 0.4−) | 2008 09 28 | G96 | 0.3+ | 0.3− | 2009 12 11 | G96 | 0.4+ | 0.1+ |
| 2003 11 24 | 691 | 0.2+ | 0.1− | 2008 09 28 | G96 | 0.1+ | 0.2− | 2009 12 11 | G96 | 0.4+ | 0.1+ |
| 2003 11 24 | 691 | 0.4+ | 0.4+ | 2008 09 28 | G96 | 0.3+ | 0.0 | 2009 12 11 | G96 | 0.6+ | 0.2+ |
| 2003 11 24 | 691 | 0.4− | 0.8− | 2008 09 28 | G96 | 0.1+ | 0.1− | 2009 12 11 | G96 | 0.7+ | 0.5− |

**(228688)∗ 2002 OF$_{10}$**

Discovered 2002 July 21 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 139.81458 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18299528 | $\omega$ | 42.94473 | | +0.78105670 | | +0.59840531 |
| $a$ | 3.0726243 | $\Omega$ | 279.44224 | | −0.61069314 | | +0.67227699 |
| $e$ | 0.0554951 | $i$ | 10.42507 | | −0.13040061 | | +0.43583797 |
| $P$ | 5.39 | $H$ | 15.3 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 07 21 | 644 | 0.2+ | 0.5+ | 2005 01 08 | 599 | 1.4+ | 0.3+ | 2008 10 25 | 703 | 0.8+ | 0.1− |
| 2002 07 21 | 644 | 0.0 | 0.4+ | 2005 01 08 | 599 | 1.2+ | 0.6+ | 2008 10 25 | 703 | 0.5− | 0.6+ |
| 2002 07 21 | 644 | 0.3− | 0.5+ | 2005 01 08 | 599 | 0.5+ | 0.2+ | 2008 10 28 | G96 | 0.2− | 0.2− |
| 2002 07 22 | 644 | 0.4− | 0.2+ | 2005 01 08 | 599 | 0.5+ | 0.2+ | 2008 10 28 | G96 | 0.1− | 0.3− |
| 2002 07 22 | 644 | 0.1− | 0.6+ | 2007 06 24 | 691 | 0.1− | 1.0+ | 2008 10 28 | G96 | 0.2+ | 0.3− |
| 2002 07 22 | 644 | 0.4− | 0.4+ | 2007 06 24 | 691 | 0.7− | 0.4− | 2008 10 28 | G96 | 0.2− | 0.2− |
| 2002 08 05 | 644 | 0.0 | 0.5− | 2007 06 24 | 691 | 0.1+ | 0.0 | 2008 10 28 | 704 | 0.3− | 0.6− |
| 2002 08 05 | 644 | 0.5− | 0.4− | 2008 09 30 | 703 | 0.2− | 0.2− | 2008 10 28 | 704 | 0.3− | 0.4+ |
| 2002 08 05 | 644 | 0.0 | 0.0 | 2008 09 30 | 703 | 1.1+ | 0.4− | 2008 10 28 | 704 | 0.2+ | 0.2+ |
| 2002 08 13 | 699 | (2.7+ | 0.9+) | 2008 09 30 | 703 | 0.7+ | 0.2− | 2008 10 28 | 704 | 0.3− | 0.5+ |
| 2002 08 13 | 699 | 1.0+ | 0.1− | 2008 09 30 | 703 | 1.0+ | 1.3− | 2008 10 28 | 704 | 0.1− | 0.2+ |
| 2002 08 13 | 699 | 0.5+ | 0.6+ | 2008 10 10 | G96 | 0.2+ | 0.2− | 2008 11 02 | 703 | 0.1− | 0.1− |
| 2002 08 13 | 699 | (1.7+ | 0.2+) | 2008 10 10 | G96 | 0.1− | 0.3− | 2008 11 02 | 703 | 0.3+ | 0.6− |
| 2002 08 15 | 644 | 0.5− | 0.2− | 2008 10 10 | G96 | 0.3+ | 0.2− | 2008 11 02 | 703 | 0.2+ | 0.4− |
| 2002 08 15 | 644 | 0.2+ | 0.3+ | 2008 10 10 | G96 | 0.0 | 0.3− | 2008 11 02 | 703 | 0.6− | 0.1− |
| 2002 08 15 | 644 | 0.4+ | 0.3+ | 2008 10 22 | 621 | 0.5+ | 0.2− | 2009 09 17 | 691 | 0.1+ | 0.2+ |
| 2003 11 19 | 704 | 1.2− | 0.2+ | 2008 10 22 | 621 | 1.1+ | 0.1− | 2009 09 17 | 691 | 0.1− | 0.2+ |
| 2003 11 19 | 704 | 0.4− | 0.2+ | 2008 10 22 | 621 | 0.4+ | 0.1+ | 2009 09 17 | 691 | 0.7− | 0.1+ |
| 2003 11 19 | 704 | 0.8− | 0.4+ | 2008 10 23 | 621 | 0.4+ | 0.0 | 2009 12 10 | G96 | 0.4+ | 0.1+ |
| 2003 11 26 | 704 | 0.7+ | 0.9+ | 2008 10 23 | 621 | 0.1+ | 0.0 | 2009 12 10 | G96 | 0.0 | 0.1− |
| 2003 11 26 | 704 | 0.0 | 0.3+ | 2008 10 23 | 621 | 0.1+ | 0.3+ | 2009 12 10 | G96 | 0.4− | 0.0 |
| 2003 11 26 | 704 | 1.1− | 0.6+ | 2008 10 25 | 703 | 0.9− | 1.0+ | 2009 12 10 | G96 | 0.4+ | 0.6+ |
| 2003 11 26 | 704 | 0.7− | 0.1+ | 2008 10 25 | 703 | 0.1+ | 1.2+ | | | | |

**(228689)∗ 2002 OR$_{16}$**

Discovered 2002 July 18 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 102.83047 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.30315314 | $\omega$ | 79.29936 | | +0.58953188 | | +0.80466076 |
| $a$ | 2.1946301 | $\Omega$ | 227.06209 | | −0.77363669 | | +0.53737920 |
| $e$ | 0.1761348 | $i$ | 5.52776 | | −0.23224650 | | +0.25247703 |
| $P$ | 3.25 | $H$ | 17.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 11 09 | 691 | 0.2+ | 0.3− | 2002 08 04 | 644 | 0.1− | 0.2+ | 2006 12 12 | 691 | 0.2− | 0.1+ |
| 1996 11 09 | 691 | 0.0 | 0.2− | 2002 08 05 | 644 | 0.3− | 0.9− | 2006 12 12 | 691 | 0.1− | 0.1+ |
| 1996 11 09 | 691 | 0.1− | 0.1+ | 2002 08 05 | 644 | 0.3− | 0.7− | 2006 12 12 | 691 | 0.1+ | 0.2+ |
| 1999 10 11 | 704 | 0.5− | 0.2− | 2002 08 05 | 644 | 0.0 | 0.5− | 2009 09 21 | G96 | 0.5− | 0.1− |
| 1999 10 11 | 704 | 1.3+ | 0.7+ | 2002 08 06 | 644 | 0.3− | 0.6+ | 2009 09 21 | G96 | 0.2− | 0.6− |
| 1999 10 11 | 704 | 0.2+ | 0.1− | 2002 08 06 | 644 | 0.2− | 0.5+ | 2009 09 21 | G96 | 0.5− | 0.1− |
| 1999 10 11 | 704 | 0.2− | 0.5− | 2002 08 06 | 644 | 0.2− | 0.4+ | 2009 09 21 | G96 | 0.3− | 0.0 |
| 1999 10 11 | 704 | 0.5+ | 0.1+ | 2002 08 09 | 608 | 0.2− | 0.3+ | 2009 10 26 | 291 | 0.2+ | 0.2+ |
| 1999 10 11 | 704 | 0.4− | 0.1+ | 2002 08 09 | 608 | 0.2− | 0.1+ | 2009 10 26 | 291 | 0.0 | 0.4+ |
| 1999 10 11 | 704 | 0.2− | 0.1+ | 2002 08 09 | 608 | 0.2− | 1.0+ | 2009 10 26 | 291 | 0.1− | 0.9+ |
| 1999 10 11 | 704 | 0.3+ | 0.3− | 2002 08 15 | 644 | 0.0 | 0.2+ | 2009 11 23 | G96 | 0.1− | 0.5+ |
| 1999 10 11 | 704 | 0.7− | 0.1+ | 2002 08 15 | 644 | 0.4− | 0.2+ | 2009 11 23 | G96 | 0.1+ | 0.4+ |
| 1999 10 11 | 704 | 0.0 | 0.1+ | 2002 08 15 | 644 | 0.1− | 0.0 | 2009 11 23 | G96 | 0.2− | 0.3− |
| 2002 07 18 | 704 | (1.6+ | 0.8−) | 2005 05 20 | G96 | 0.4− | 0.3+ | 2009 11 23 | G96 | 0.1+ | 0.0 |
| 2002 07 18 | 704 | 0.3− | 0.5− | 2005 05 20 | G96 | 0.0 | 0.0 | 2009 12 11 | G96 | 0.6+ | 0.2− |
| 2002 07 18 | 704 | 0.6+ | 0.7− | 2005 05 20 | G96 | 0.2− | 0.1+ | 2009 12 11 | G96 | 0.4+ | 0.6+ |
| 2002 07 18 | 704 | 0.9+ | 1.1− | 2005 05 20 | G96 | 0.4− | 0.2+ | 2009 12 11 | G96 | 0.3+ | 0.1− |
| 2002 07 18 | 704 | 0.6+ | 0.2+ | 2005 06 08 | 691 | 0.0 | 0.0 | 2009 12 11 | G96 | 0.1+ | 0.0 |
| 2002 07 21 | 644 | 0.0 | 0.6− | 2005 06 08 | 691 | 0.5− | 0.2+ | 2009 12 19 | G96 | 0.2− | 0.1+ |
| 2002 07 21 | 644 | 0.4+ | 0.5− | 2005 06 08 | 691 | 0.8+ | 0.9+ | 2009 12 19 | G96 | 0.0 | 0.4− |
| 2002 07 21 | 644 | 0.1− | 0.3− | 2005 06 27 | 644 | 0.3+ | 0.3+ | 2009 12 19 | G96 | 0.4− | 0.2− |
| 2002 08 04 | 644 | 0.1+ | 0.4+ | 2005 06 27 | 644 | 0.5+ | 0.4− | 2009 12 19 | G96 | 0.3− | 0.5− |
| 2002 08 04 | 644 | 0.1+ | 0.5+ | 2005 06 27 | 644 | 0.0 | 0.0 | | | | |

**(228690)∗ 2002 OE$_{28}$ = 2004 DO$_8$**

Discovered 2002 July 18 by NEAT at Palomar.

Id. G. V. Williams (*MPO* 100301)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 29.99595 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.30058498 | $\omega$ | 243.87025 | | +0.83623238 | | −0.54731129 |
| $a$ | 2.2071128 | $\Omega$ | 149.27807 | | +0.52397127 | | +0.77910050 |
| $e$ | 0.1616585 | $i$ | 3.83212 | | +0.16176995 | | +0.30570046 |
| $P$ | 3.28 | $H$ | 17.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 07 18 | 644 | 0.1− | 0.0 | 2007 01 10 | G96 | 0.2+ | 0.4− | 2009 11 09 | 703 | 0.3+ | 0.6− |
| 2002 07 18 | 644 | 0.2+ | 0.3+ | 2007 01 10 | G96 | 0.1+ | 0.2− | 2009 11 14 | 704 | 0.4− | 0.1+ |
| 2002 07 18 | 644 | 0.2+ | 0.7+ | 2007 01 10 | G96 | 0.1+ | 0.4− | 2009 11 14 | 704 | 0.3+ | 0.3+ |
| 2002 07 22 | 644 | 0.3− | 0.1+ | 2007 01 17 | G96 | 0.4− | 0.5+ | 2009 11 14 | 704 | 0.4− | 0.6+ |
| 2002 07 22 | 644 | 0.1− | 0.5+ | 2007 01 17 | G96 | 0.3+ | 0.3− | 2009 11 14 | 704 | 0.9− | 0.5+ |
| 2002 08 06 | 644 | 0.2+ | 0.4+ | 2007 01 17 | G96 | 0.2+ | 0.1− | 2009 11 14 | 704 | 0.6+ | 0.7+ |
| 2002 08 06 | 644 | 0.2+ | 0.5+ | 2007 01 18 | 644 | 0.1+ | 0.3+ | 2009 11 15 | 703 | 0.3+ | 1.0− |
| 2002 08 06 | 644 | 0.0 | 0.7+ | 2007 01 18 | 644 | 0.6+ | 0.3+ | 2009 11 15 | 703 | 0.6− | 0.0 |
| 2002 08 07 | 644 | 0.1− | 0.3+ | 2007 01 18 | 644 | 0.3+ | 0.3+ | 2009 11 15 | 703 | 0.1+ | 0.1− |
| 2002 08 07 | 644 | 0.4− | 0.2− | 2007 02 07 | G96 | 0.2− | 0.2− | 2009 11 18 | G96 | 0.6+ | 0.0 |
| 2002 08 07 | 644 | 0.2− | 0.4+ | 2007 02 07 | G96 | 0.0 | 0.2− | 2009 11 18 | G96 | 0.1− | 0.2+ |
| 2002 08 27 | 644 | 0.1− | 0.8− | 2007 02 07 | G96 | 0.4− | 0.3− | 2009 11 18 | G96 | 0.1+ | 0.0 |
| 2002 08 27 | 644 | 0.1− | 0.6− | 2007 02 07 | G96 | 0.1− | 0.3− | 2009 11 18 | G96 | 0.3+ | 0.2+ |
| 2002 08 27 | 644 | 0.0 | 0.2− | 2007 02 21 | G96 | 0.3− | 0.3− | 2009 11 19 | J75 | 0.1+ | 0.1− |
| 2004 02 17 | 691 | 0.6+ | 0.1− | 2007 02 21 | G96 | 0.2− | 0.1− | 2009 11 19 | J75 | 0.1+ | 0.1− |
| 2004 02 17 | 691 | 0.2+ | 0.1+ | 2007 02 21 | G96 | 0.3− | 0.2− | 2009 11 19 | J75 | 0.7+ | 0.1− |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 02 17 | 691 | 0.1+ | 0.1− | 2007 02 21 | G96 | 0.6− | 0.0 | 2009 11 25 | G96 | 0.3+ | 0.3+ |
| 2004 02 18 | 291 | 0.1− | 0.1+ | 2007 03 15 | G96 | 0.0 | 1.0− | 2009 11 25 | G96 | 0.5+ | 0.1+ |
| 2004 02 18 | 291 | 0.4− | 0.2+ | 2007 03 15 | G96 | 0.3− | 0.1+ | 2009 11 25 | G96 | 0.3+ | 0.1+ |
| 2004 02 18 | 291 | 0.8− | 0.4+ | 2007 03 15 | G96 | 0.2+ | 0.2+ | 2009 11 25 | G96 | 0.3+ | 0.2+ |
| 2004 02 29 | 691 | 0.4+ | 0.0 | 2007 03 15 | G96 | 0.1− | 0.2− | 2009 12 10 | 703 | 0.4− | 0.3+ |
| 2004 02 29 | 691 | 0.3+ | 0.5+ | 2009 11 09 | 703 | 0.2− | 0.5− | 2009 12 10 | 703 | 0.4− | 0.1+ |
| 2004 02 29 | 691 | 0.2+ | 0.1− | 2009 11 09 | 703 | 0.7− | 0.8+ | 2009 12 10 | 703 | 0.5− | 0.4+ |
| 2007 01 10 | G96 | 0.1− | 0.1− | 2009 11 09 | 703 | 0.3+ | 0.5− | 2009 12 10 | 703 | 1.0− | 0.2+ |

**(228691)∗ 2002 OR$_{28}$**

Discovered 2002 July 22 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 35.71230 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.29684979 | $\omega$ | 125.98003 | | +0.87502549 | −0.47057864 | |
| $a$ | 2.2255886 | $\Omega$ | 262.34095 | | +0.39904555 | +0.83395725 | |
| $e$ | 0.1724862 | $i$ | 6.57703 | | +0.27403110 | +0.28822049 | |
| $P$ | 3.32 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 11 13 | 703 | 0.5+ | 0.2− | 2009 10 24 | 704 | 0.0 | 1.1+ | 2009 11 24 | D29 | 0.5+ | 0.7− |
| 1999 11 13 | 703 | 0.4− | 1.1+ | 2009 10 24 | 703 | 0.2− | 1.0+ | 2009 11 24 | D29 | 0.0 | 0.4− |
| 1999 11 13 | 703 | 0.0 | 1.0+ | 2009 10 24 | 703 | 0.4− | 0.6+ | 2009 11 24 | D29 | 1.2+ | 0.0 |
| 1999 11 13 | 703 | 0.3− | 0.1− | 2009 10 24 | 703 | 0.7+ | 0.0 | 2009 11 24 | D29 | 0.4+ | 1.0− |
| 2002 07 22 | 644 | 0.2− | 0.5− | 2009 10 24 | 703 | 0.4− | 0.7− | 2009 11 24 | J75 | 0.3+ | 0.6− |
| 2002 07 22 | 644 | 0.0 | 0.6− | 2009 10 26 | 703 | 0.7− | 0.0 | 2009 11 24 | J75 | 0.2+ | 0.1+ |
| 2002 07 22 | 644 | 0.1+ | 0.6− | 2009 10 26 | 703 | 0.5+ | 0.4+ | 2009 11 24 | J75 | 0.5+ | 0.4− |
| 2002 08 05 | 644 | 0.0 | 0.1+ | 2009 10 26 | 703 | 0.1+ | 0.7− | 2009 11 25 | 691 | 0.1− | 0.1− |
| 2002 08 05 | 644 | 0.0 | 0.2+ | 2009 10 26 | 691 | 0.2− | 0.3− | 2009 11 25 | 691 | 0.1− | 0.0 |
| 2002 08 05 | 644 | (0.9− | 2.2−) | 2009 10 26 | 691 | 0.3− | 0.4− | 2009 11 25 | 691 | 0.1− | 0.2− |
| 2002 08 12 | 704 | 0.1− | 0.5− | 2009 10 26 | 691 | 0.4− | 0.4− | 2009 11 25 | 703 | 0.5+ | 0.0 |
| 2002 08 12 | 704 | 0.1+ | 0.3+ | 2009 11 08 | 703 | 0.1+ | 0.1+ | 2009 11 25 | 703 | 0.2+ | 0.4− |
| 2002 08 12 | 704 | 0.9− | 0.4− | 2009 11 08 | 703 | 0.5+ | 1.1− | 2009 11 25 | 703 | 0.1− | 0.3− |
| 2002 08 12 | 704 | 0.8− | 0.1− | 2009 11 08 | 703 | 1.4− | 0.1− | 2009 11 25 | 703 | 0.4− | 0.2+ |
| 2002 09 04 | 644 | 0.4+ | 0.7+ | 2009 11 08 | 703 | 0.6− | 1.3− | 2009 11 25 | 703 | 0.4+ | 0.1− |
| 2002 09 04 | 644 | 0.6+ | 0.5+ | 2009 11 11 | J75 | 0.0 | 0.1+ | 2009 12 05 | J75 | 0.4+ | 0.5− |
| 2002 09 04 | 644 | 0.5+ | 0.3+ | 2009 11 11 | J75 | 0.8+ | 0.7+ | 2009 12 05 | J75 | 0.5+ | 0.4− |
| 2002 09 12 | 644 | 0.4+ | 0.2+ | 2009 11 11 | J75 | 0.3+ | 0.2+ | 2009 12 05 | J75 | 0.4+ | 0.9− |
| 2002 09 12 | 644 | 0.5− | 0.7+ | 2009 11 11 | 704 | 0.3+ | 0.3+ | 2009 12 16 | 704 | 0.2+ | 0.9+ |
| 2002 09 12 | 644 | 0.2− | 0.5+ | 2009 11 11 | 704 | 0.4+ | 0.5+ | 2009 12 16 | 704 | (2.5− | 1.0+) |
| 2004 03 16 | 691 | 0.1+ | 0.2+ | 2009 11 11 | 704 | 0.5+ | 0.2+ | 2009 12 16 | 704 | 0.5− | 0.4+ |
| 2004 03 16 | 691 | 0.1+ | 0.0 | 2009 11 11 | 704 | 0.3+ | 0.1− | 2009 12 16 | 704 | 0.4+ | 1.3+ |
| 2004 03 16 | 691 | 0.1+ | 0.1+ | 2009 11 17 | 704 | 0.3− | 0.1+ | 2009 12 18 | G96 | 0.3+ | 0.2− |
| 2006 10 21 | G96 | 0.6− | 0.3+ | 2009 11 17 | 704 | 0.1− | 0.3+ | 2009 12 18 | G96 | 0.5+ | 0.2− |
| 2006 10 21 | G96 | 0.2− | 0.3− | 2009 11 17 | 704 | 0.1+ | 0.4+ | 2009 12 18 | G96 | 0.1+ | 0.2− |
| 2006 10 21 | G96 | 0.2+ | 0.3− | 2009 11 17 | 704 | (0.1+ | 3.0+) | 2009 12 18 | G96 | 0.3+ | 0.1− |
| 2006 10 21 | G96 | 0.6− | 0.0 | 2009 11 17 | 704 | 1.4− | 0.3+ | 2009 12 18 | A77 | 0.3+ | 0.2− |
| 2006 12 27 | G96 | 0.0 | 0.2+ | 2009 11 21 | 691 | 0.2− | 0.2− | 2009 12 18 | A77 | 0.8+ | 0.8+ |
| 2006 12 27 | G96 | 0.0 | 0.1+ | 2009 11 21 | 691 | 0.1+ | 0.0 | 2009 12 19 | A77 | 0.6+ | 1.6− |
| 2006 12 27 | G96 | 0.0 | 0.1− | 2009 11 21 | 691 | 0.4− | 0.2+ | 2009 12 19 | 691 | 0.2− | 0.1+ |
| 2006 12 27 | G96 | 0.4− | 0.0 | 2009 11 22 | 704 | 0.7+ | 1.2+ | 2009 12 19 | 691 | 0.1− | 0.3− |
| 2007 01 17 | 644 | 0.2− | 0.2+ | 2009 11 22 | 704 | 0.6+ | 0.8+ | 2009 12 19 | 691 | 0.4− | 0.1+ |
| 2007 01 17 | 644 | 0.1+ | 0.2+ | 2009 11 22 | 704 | 0.2+ | 1.1+ | 2009 12 19 | G96 | 0.1+ | 0.1− |
| 2007 01 17 | 644 | 0.2+ | 0.1+ | 2009 11 22 | 704 | 0.5+ | 0.2+ | 2009 12 19 | G96 | 0.0 | 0.2+ |
| 2009 10 24 | 704 | 0.4− | 0.2+ | 2009 11 22 | 704 | 1.3+ | 0.5+ | 2009 12 19 | G96 | 0.3+ | 0.1+ |
| 2009 10 24 | 704 | 1.3− | 1.1+ | 2009 11 22 | 704 | 0.2+ | 1.5+ | 2009 12 19 | G96 | 0.2+ | 0.1− |

**(228692)∗ 2002 PL$_{12}$ = 2003 YU$_{70}$**

Discovered 2002 Aug. 5 by NEAT at Palomar.

Id. A. Doppler (*MPO* 75417)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 21.51899 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18026353 | $\omega$ | 138.58903 | | +0.40934003 | −0.87279436 | |
| $a$ | 3.1035885 | $\Omega$ | 285.68307 | | +0.74750032 | +0.48788187 | |
| $e$ | 0.0713042 | $i$ | 16.02872 | | +0.52314818 | −0.01418754 | |
| $P$ | 5.47 | $H$ | 14.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 05 | 644 | 0.1+ | 0.0 | 2003 12 18 | 704 | 0.6+ | 0.3+ | 2008 10 02 | 704 | (1.6+ | 0.9−) |
| 2002 08 05 | 644 | 0.1+ | 0.3+ | 2003 12 18 | 704 | 0.2− | 0.6− | 2008 10 02 | 704 | (1.8+ | 0.8+) |
| 2002 08 05 | 644 | 0.2− | 0.1+ | 2003 12 22 | 704 | 0.5− | 1.4− | 2008 10 02 | 704 | 0.7+ | 0.3− |
| 2002 08 05 | 644 | 0.3− | 0.4+ | 2003 12 22 | 704 | 0.8+ | 0.4− | 2009 11 16 | 704 | 0.3+ | 0.3− |
| 2002 08 05 | 644 | 0.0 | 0.3+ | 2003 12 22 | 704 | 0.4+ | 0.4+ | 2009 11 16 | 704 | 0.5+ | 0.7+ |
| 2002 08 05 | 644 | 0.2− | 0.6+ | 2005 02 02 | 703 | 0.5+ | 0.7+ | 2009 11 16 | 704 | 0.1− | 0.9+ |
| 2002 08 07 | 644 | 0.4− | 0.2+ | 2005 02 02 | 703 | 0.1− | 0.7+ | 2009 11 21 | 703 | 0.4− | 0.3− |
| 2002 08 07 | 644 | 0.5− | 0.1+ | 2005 02 02 | 703 | 0.2+ | 0.1+ | 2009 11 21 | 703 | 0.1− | 0.0 |
| 2002 08 07 | 644 | 0.2+ | 0.2+ | 2005 02 02 | 703 | 0.3+ | 0.8+ | 2009 11 21 | 703 | 0.6+ | 0.5+ |
| 2002 08 26 | 644 | 0.3− | 0.6+ | 2008 09 07 | 704 | 0.1− | 0.0 | 2009 11 21 | 703 | 1.3− | 0.5− |
| 2002 08 26 | 644 | 0.2− | 0.5+ | 2008 09 07 | 704 | 0.0 | 0.1− | 2009 12 15 | 704 | 0.1+ | 0.3+ |
| 2002 08 26 | 644 | 0.1+ | 0.6+ | 2008 09 07 | 704 | 0.3− | 0.5+ | 2009 12 15 | 704 | 1.0+ | 0.4− |
| 2003 10 23 | 704 | 0.6− | 0.4+ | 2008 09 28 | 703 | (2.1+ | 0.4−) | 2009 12 15 | 704 | 0.4+ | 1.2+ |
| 2003 10 23 | 704 | 0.1+ | 0.9− | 2008 09 28 | 703 | 0.2− | 0.6+ | 2009 12 15 | 704 | 0.3+ | 0.4+ |
| 2003 10 23 | 704 | 0.2+ | 0.9− | 2008 09 28 | 703 | 0.3− | 0.3+ | | | | |
| 2003 12 18 | 704 | 0.2− | 0.6+ | 2008 09 28 | 703 | 0.4− | 0.9− | | | | |

**(228693)∗ 2002 PN$_{17}$**

Discovered 2002 Aug. 6 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 67.25383 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.30045784 | $\omega$ | 114.56747 | | +0.98522221 | +0.17121508 | |
| $a$ | 2.2077354 | $\Omega$ | 235.57439 | | −0.15916876 | +0.90488473 | |
| $e$ | 0.2085215 | $i$ | 0.33023 | | −0.06329056 | +0.38970376 | |
| $P$ | 3.28 | $H$ | 18.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 10 15 | 704 | 1.1+ | 0.1− | 2002 08 07 | 644 | 0.1+ | 0.7+ | 2009 09 30 | G96 | 0.1− | 0.5− |
| 1999 10 15 | 704 | 0.3+ | 0.6− | 2002 08 07 | 644 | 0.3+ | 0.5+ | 2009 09 30 | G96 | 0.0 | 0.1+ |
| 1999 10 15 | 704 | 1.3+ | 1.4− | 2002 08 07 | 644 | 0.1+ | 0.3+ | 2009 09 30 | G96 | 0.2+ | 0.3+ |
| 1999 11 04 | 691 | 0.1+ | 0.0 | 2002 08 08 | 644 | 0.2− | 0.8+ | 2009 11 20 | 691 | 0.5− | 0.2+ |
| 1999 11 04 | 691 | 0.1+ | 0.2− | 2002 08 08 | 644 | 0.1− | 0.9+ | 2009 11 20 | 691 | 0.0 | 0.2+ |
| 1999 11 04 | 691 | 0.2− | 0.1− | 2002 08 08 | 644 | 0.0 | 1.0+ | 2009 11 20 | 691 | 0.7− | 0.2+ |
| 1999 11 14 | 691 | 0.0 | 0.2− | 2002 08 15 | 291 | 0.1− | 0.4− | 2009 11 24 | 691 | 0.2− | 0.2+ |
| 1999 11 14 | 691 | 0.2− | 0.1− | 2002 08 15 | 291 | 0.0 | 0.5− | 2009 11 24 | 691 | 0.2+ | 0.2+ |
| 1999 11 14 | 691 | 0.2− | 0.1− | 2002 08 15 | 291 | 0.0 | 0.4− | 2009 11 24 | 691 | 0.5+ | 0.1+ |
| 2002 07 17 | 644 | 0.4− | 0.4+ | 2007 01 16 | G96 | 0.4+ | 0.0 | 2009 12 11 | 703 | 0.4− | 0.1− |
| 2002 07 17 | 644 | 0.3− | 0.5+ | 2007 01 16 | G96 | 0.0 | 0.6− | 2009 12 11 | 703 | 0.8+ | 1.2+ |
| 2002 07 17 | 644 | 0.2− | 0.6+ | 2007 01 16 | G96 | 0.3+ | 0.2+ | 2009 12 11 | 703 | 0.1+ | 1.2+ |
| 2002 07 22 | 644 | 0.3+ | 0.8+ | 2007 01 16 | G96 | 0.1+ | 0.2− | 2009 12 11 | 703 | 0.0 | 0.1+ |
| 2002 07 22 | 644 | 0.6+ | 0.9+ | 2008 04 14 | G96 | 0.2+ | 0.5+ | 2009 12 15 | G96 | 0.2− | 0.3+ |
| 2002 07 22 | 644 | 0.1+ | 0.6+ | 2008 04 14 | G96 | 0.4− | 0.2+ | 2009 12 15 | G96 | 0.2+ | 0.2+ |
| 2002 08 06 | 644 | 0.2− | 0.2+ | 2008 04 14 | G96 | 0.4− | 0.2− | 2009 12 15 | G96 | 0.6+ | 0.3+ |
| 2002 08 06 | 644 | 0.3− | 0.3+ | 2008 04 14 | G96 | 0.2+ | 0.1+ | 2009 12 15 | G96 | 0.1+ | 0.0 |
| 2002 08 06 | 644 | 0.2− | 0.2+ | 2009 09 30 | G96 | 0.7+ | 0.1− | | | | |

**(228694)∗ 2002 PE$_{92}$**

Discovered 2002 Aug. 14 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 158.71401 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17605916 | $\omega$ | 19.57416 | | +0.11444947 | +0.96009164 | |
| $a$ | 3.1528039 | $\Omega$ | 257.65363 | | −0.94272342 | +0.02394188 | |
| $e$ | 0.1061751 | $i$ | 15.14356 | | −0.31332711 | +0.27865897 | |
| $P$ | 5.60 | $H$ | 14.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 03 | 644 | 0.2+ | 0.0 | 2002 09 11 | 644 | 0.2− | 0.2− | 2008 10 25 | 703 | 0.1+ | 0.2+ |
| 2002 08 03 | 644 | 0.3+ | 0.2+ | 2003 10 19 | 644 | 0.2− | 0.0 | 2008 10 25 | 703 | 0.1− | 0.9− |
| 2002 08 03 | 644 | 0.4+ | 0.1+ | 2003 10 19 | 644 | 0.2+ | 0.1+ | 2008 10 25 | 703 | 0.3− | 0.9− |
| 2002 08 14 | 644 | 0.3− | 0.0 | 2003 10 19 | 644 | 0.0 | 0.3+ | 2008 10 25 | 703 | 0.1+ | 0.1+ |
| 2002 08 14 | 644 | 0.0 | 0.1+ | 2003 11 19 | 699 | 0.1+ | 0.8+ | 2009 11 09 | 691 | 0.0 | 0.0 |
| 2002 08 14 | 644 | 0.3− | 0.1+ | 2003 11 19 | 699 | (0.6− | 1.5+) | 2009 11 09 | 691 | 0.1− | 0.4+ |
| 2002 08 15 | 704 | 0.8− | 0.8− | 2003 11 19 | 699 | 0.2− | 0.2+ | 2009 11 09 | 691 | 0.2− | 0.3+ |
| 2002 08 15 | 704 | 0.5− | 0.1+ | 2003 11 19 | 699 | (0.0 | 1.6+) | 2009 11 09 | G96 | 0.5+ | 0.1− |
| 2002 08 15 | 704 | 0.5+ | 0.5− | 2003 11 19 | 704 | 0.1− | 0.4+ | 2009 11 09 | G96 | 0.3+ | 0.0 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 25 | 644 | 0.5+ | 1.3+ | 2003 11 19 | 704 | 0.9+ | 0.3− | 2009 11 09 | G96 | 0.7+ | 0.0 |
| 2002 08 25 | 644 | 0.6+ | 0.9+ | 2003 11 19 | 704 | 0.4− | 0.0 | 2009 11 09 | G96 | 0.5+ | 0.2+ |
| 2002 08 25 | 644 | 0.0 | 1.0+ | 2003 11 19 | 704 | 0.6+ | 0.4+ | 2009 11 21 | 691 | 0.3− | 0.0 |
| 2002 08 25 | 644 | 0.2− | 0.1− | 2003 11 19 | 691 | 0.1− | 0.2− | 2009 11 21 | 691 | 0.1− | 0.0 |
| 2002 08 25 | 644 | 0.0 | 0.0 | 2003 11 19 | 691 | 0.1− | 0.2− | 2009 11 21 | 691 | 0.0 | 0.1− |
| 2002 08 25 | 644 | 0.0 | 0.2− | 2003 11 19 | 691 | 0.0 | 0.5− | 2009 12 10 | G96 | 0.4+ | 0.1− |
| 2002 09 02 | 644 | 0.1+ | 0.2− | 2008 09 23 | 703 | 0.2+ | 1.4− | 2009 12 10 | G96 | 0.2+ | 0.0 |
| 2002 09 02 | 644 | 0.0 | 0.3− | 2008 09 23 | 703 | 0.5+ | 0.3+ | 2009 12 10 | G96 | 0.3+ | 0.0 |
| 2002 09 02 | 644 | 0.3− | 0.2− | 2008 09 23 | 703 | 0.0 | 0.1− | 2009 12 10 | G96 | 0.1− | 0.0 |
| 2002 09 10 | 644 | 0.4− | 0.4+ | 2008 09 23 | 703 | 0.7+ | 0.1+ | 2009 12 19 | G96 | 0.4+ | 0.2+ |
| 2002 09 10 | 644 | 0.1+ | 0.0 | 2008 10 03 | 704 | 0.4+ | 0.2+ | 2009 12 19 | G96 | 0.3+ | 0.1− |
| 2002 09 10 | 644 | 0.3− | 0.5+ | 2008 10 03 | 704 | 0.5− | 0.3+ | 2009 12 19 | G96 | 0.2+ | 0.2+ |
| 2002 09 11 | 644 | 0.6− | 0.3− | 2008 10 03 | 704 | 0.5− | 0.2+ | 2009 12 19 | G96 | 0.1+ | 0.2+ |
| 2002 09 11 | 644 | 0.2+ | 0.1− | 2008 10 03 | 704 | 0.1− | 0.5+ | | | | |

**(228695)∗ 2002 PU$_{92}$**

Discovered 2002 Aug. 14 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 78.31607 | | (2000.0) | | | |
| $n$ | 0.29393391 | $\omega$ | 76.68176 | | +0.84685496 | +0.53119271 |
| $a$ | 2.2402832 | $\Omega$ | 251.22665 | | −0.49791708 | +0.77480919 |
| $e$ | 0.3226275 | $i$ | 1.56773 | | −0.18685622 | +0.34279004 |
| $P$ | 3.35 | $H$ | 17.7 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 12 27 | 691 | 0.2+ | 0.5− | 2002 09 06 | 704 | 0.3+ | 0.5+ | 2002 10 31 | 704 | 0.1− | 0.7+ |
| 1999 12 27 | 691 | 0.1− | 0.0 | 2002 09 06 | 704 | 0.2+ | 0.1− | 2002 10 31 | 704 | 0.6+ | 0.2+ |
| 1999 12 27 | 691 | 0.2− | 0.4− | 2002 09 06 | 704 | 0.1− | 0.3+ | 2002 10 31 | 704 | 0.6+ | 0.9+ |
| 2002 08 12 | 704 | 1.4+ | 0.9− | 2002 09 14 | 644 | 0.2+ | 0.9− | 2005 05 10 | G96 | 0.1+ | 0.1+ |
| 2002 08 12 | 704 | 1.4− | 0.2− | 2002 09 14 | 644 | 0.2+ | 0.7− | 2005 05 10 | G96 | 0.0 | 0.2+ |
| 2002 08 12 | 704 | 0.3− | 0.6− | 2002 09 14 | 644 | 0.0 | 0.7+ | 2005 05 10 | G96 | 0.1+ | 0.1+ |
| 2002 08 12 | 704 | 0.2− | 1.4+ | 2002 09 14 | 644 | (1.2+ | 2.6−) | 2005 05 10 | G96 | 0.3− | 0.4+ |
| 2002 08 14 | 704 | 1.2+ | 0.2− | 2002 09 14 | 644 | 0.0 | 0.8+ | 2005 05 16 | 691 | 0.3+ | 0.2− |
| 2002 08 14 | 704 | 0.4− | 0.5+ | 2002 09 14 | 644 | 0.1− | 0.8+ | 2005 05 16 | 691 | 0.4+ | 0.1+ |
| 2002 08 14 | 704 | 0.0 | 0.1+ | 2002 09 16 | 608 | 0.5− | 0.7− | 2005 05 16 | 691 | 1.0− | 0.7− |
| 2002 08 14 | 704 | 0.3+ | 0.0 | 2002 09 16 | 608 | 0.8− | 0.1+ | 2008 03 10 | 691 | 0.3− | 0.2+ |
| 2002 08 14 | 704 | 0.0 | 0.1− | 2002 09 16 | 608 | 0.8− | 0.6− | 2008 03 10 | 691 | 0.2+ | 0.7+ |
| 2002 08 15 | 704 | 0.1+ | 0.6+ | 2002 10 04 | 704 | 0.2+ | 0.0 | 2008 03 10 | 691 | 0.4+ | 0.0 |
| 2002 08 15 | 704 | 0.6− | 0.1+ | 2002 10 04 | 704 | 0.3+ | 0.1+ | 2008 03 27 | G96 | 0.5+ | 0.2+ |
| 2002 08 15 | 704 | 0.5− | 0.1− | 2002 10 04 | 704 | 0.1+ | 0.1+ | 2008 03 27 | G96 | 0.3+ | 0.4+ |
| 2002 08 15 | 704 | 0.3− | 0.4+ | 2002 10 04 | 704 | 0.4+ | 0.0 | 2008 03 27 | G96 | 0.6+ | 0.3+ |
| 2002 08 16 | 704 | 1.1− | 0.7− | 2002 10 04 | 704 | 0.3+ | 0.2− | 2008 03 27 | G96 | 0.5+ | 0.3+ |
| 2002 08 16 | 704 | 0.2− | 0.8− | 2002 10 12 | 704 | 0.1+ | 0.6− | 2009 11 20 | 691 | 0.3− | 0.1− |
| 2002 08 16 | 704 | 0.6− | 0.0 | 2002 10 12 | 704 | (1.6+ | 1.2+) | 2009 11 20 | 691 | 0.4− | 0.3+ |
| 2002 09 05 | 699 | 0.1+ | 0.6+ | 2002 10 12 | 704 | 0.2+ | 0.0 | 2009 11 20 | 691 | 0.1− | 0.2+ |
| 2002 09 05 | 699 | 0.4+ | 0.2− | 2002 10 12 | 704 | (2.3+ | 1.1+) | 2009 12 10 | G96 | 0.6+ | 0.0 |
| 2002 09 05 | 699 | 0.4+ | 0.8+ | 2002 10 12 | 704 | (1.8+ | 0.0 ) | 2009 12 10 | G96 | 0.7+ | 0.1+ |
| 2002 09 05 | 699 | 0.1+ | 0.2− | 2002 10 12 | 704 | 0.1− | 1.0+ | 2009 12 10 | G96 | 0.6+ | 0.0 |
| 2002 09 06 | 704 | 0.0 | 0.5− | 2002 10 12 | 704 | 0.6− | 0.5− | 2009 12 10 | G96 | 0.6+ | 0.0 |
| 2002 09 06 | 704 | 0.8+ | 0.0 | 2002 10 12 | 704 | (0.8+ | 1.8+) | | | | |

**(228696)∗ 2002 PX$_{95}$**

Discovered 2002 Aug. 14 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 130.82694 | | (2000.0) | | | |
| $n$ | 0.31002252 | $\omega$ | 13.60018 | | +0.56901215 | +0.81793577 |
| $a$ | 2.1620906 | $\Omega$ | 291.14464 | | −0.76272999 | +0.48636892 |
| $e$ | 0.0864661 | $i$ | 5.22215 | | −0.30735667 | +0.30728870 |
| $P$ | 3.18 | $H$ | 16.7 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 09 08 | 704 | 0.1+ | 0.5− | 2002 08 24 | 644 | 0.1+ | 0.6+ | 2004 01 24 | 704 | 0.8− | 0.3+ |
| 1999 09 08 | 704 | 0.4− | 0.6− | 2002 08 26 | 644 | 0.0 | 0.3+ | 2004 02 17 | 645 | 0.0 | 0.0 |
| 1999 09 08 | 704 | 0.3+ | 0.4− | 2002 08 26 | 644 | 0.2+ | 0.3+ | 2004 02 17 | 645 | 0.1+ | 0.0 |
| 2002 07 22 | 644 | 0.0 | 0.5+ | 2002 08 26 | 644 | 0.3+ | 0.5+ | 2006 12 14 | 704 | (2.1+ | 1.3+) |
| 2002 07 22 | 644 | 0.0 | 0.5+ | 2002 08 27 | 644 | 0.0 | 0.3+ | 2006 12 14 | 644 | 0.2− | 0.3+ |
| 2002 07 22 | 644 | 0.1− | 0.3+ | 2002 08 27 | 644 | 0.2− | 0.4+ | 2006 12 14 | 644 | 0.4− | 0.0 |
| 2002 08 08 | 699 | 0.1+ | 0.0 | 2002 08 27 | 644 | 0.2− | 0.5+ | 2006 12 14 | 704 | 1.1+ | 0.7+ |
| 2002 08 08 | 699 | 0.5+ | 0.3− | 2002 09 02 | 608 | 0.0 | 0.4+ | 2006 12 14 | 644 | 0.3− | 0.1+ |
| 2002 08 08 | 699 | 0.8+ | 0.2− | 2002 09 02 | 608 | 0.5− | 1.0+ | 2006 12 14 | 704 | 0.9+ | 0.5− |
| 2002 08 08 | 699 | 0.2− | 1.0+ | 2002 09 02 | 608 | 0.6− | 0.5+ | 2006 12 25 | 691 | 0.5+ | 1.2+ |
| 2002 08 14 | 704 | 0.2− | 0.4+ | 2002 09 06 | 704 | 1.1− | 1.4− | 2006 12 25 | 691 | 0.1− | 0.2− |
| 2002 08 14 | 704 | 0.9− | 0.5+ | 2002 09 06 | 704 | 0.2− | 0.2+ | 2006 12 25 | 691 | 0.0 | 0.3− |
| 2002 08 14 | 704 | 0.0 | 0.2+ | 2002 09 06 | 704 | 0.1− | 0.5− | 2008 06 25 | E12 | 0.5− | 0.3− |
| 2002 08 14 | 704 | (2.1− | 0.1+) | 2003 12 29 | 691 | 0.0 | 0.1+ | 2008 06 25 | E12 | (0.7+ | 1.7+) |
| 2002 08 14 | 704 | 0.9− | 0.5− | 2003 12 29 | 691 | 0.0 | 0.6+ | 2008 06 25 | E12 | 0.2+ | 0.0 |
| 2002 08 15 | 699 | 0.0 | 0.6− | 2003 12 29 | 691 | 0.1− | 0.1+ | 2008 06 25 | E12 | 0.2+ | 1.4+ |
| 2002 08 15 | 699 | 0.3− | 0.6− | 2004 01 16 | 691 | 0.2+ | 0.2+ | 2009 11 23 | 691 | 0.1− | 0.3− |
| 2002 08 15 | 699 | 0.3+ | 0.0 | 2004 01 16 | 691 | 0.1+ | 0.4+ | 2009 11 23 | 691 | 0.2− | 0.1− |
| 2002 08 15 | 699 | 0.5− | 0.6+ | 2004 01 16 | 691 | 0.3+ | 0.1+ | 2009 11 23 | 691 | 0.2− | 0.2− |
| 2002 08 16 | 644 | 0.1+ | 0.4+ | 2004 01 21 | 704 | 0.3+ | 0.1+ | 2009 12 13 | G96 | 0.1+ | 0.3− |
| 2002 08 16 | 644 | 0.0 | 0.5+ | 2004 01 21 | 704 | 0.3− | 0.2− | 2009 12 13 | G96 | 0.0 | 0.2− |
| 2002 08 16 | 644 | 0.0 | 0.4+ | 2004 01 21 | 704 | 0.1+ | 0.4+ | 2009 12 13 | G96 | 0.2+ | 0.3− |
| 2002 08 17 | 644 | 0.2+ | 0.4+ | 2004 01 21 | 704 | 0.2− | 0.5+ | 2009 12 13 | G96 | 0.4+ | 0.2− |
| 2002 08 17 | 644 | 1.2+ | 0.3− | 2004 01 24 | 704 | 0.1+ | 0.2+ | 2009 12 18 | G96 | 0.3+ | 0.4− |
| 2002 08 17 | 644 | 0.3+ | 0.4+ | 2004 01 24 | 704 | (1.0+ | 2.1+) | 2009 12 18 | G96 | 0.1− | 0.4− |
| 2002 08 24 | 644 | 0.1− | 0.4+ | 2004 01 24 | 704 | 0.2− | 1.0+ | 2009 12 18 | G96 | 0.1+ | 0.0 |
| 2002 08 24 | 644 | 0.2− | 0.3+ | 2004 01 24 | 704 | 0.4− | 0.3+ | 2009 12 18 | G96 | 0.3+ | 0.1− |

**(228697)∗ 2002 PP$_{170}$**

Discovered 2002 Aug. 11 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 156.69360 | | (2000.0) | | | |
| $n$ | 0.30673562 | $\omega$ | 246.85325 | | −0.13791849 | +0.99031870 |
| $a$ | 2.1775088 | $\Omega$ | 15.24438 | | −0.88543405 | −0.11616465 |
| $e$ | 0.1449544 | $i$ | 3.42923 | | −0.44382997 | −0.07599108 |
| $P$ | 3.21 | $H$ | 17.8 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 03 27 | 691 | 0.3− | 0.1− | 2002 08 19 | 644 | 0.2− | 0.4− | 2008 05 01 | 703 | 0.3+ | 0.7+ |
| 1995 03 27 | 691 | 0.0 | 0.1+ | 2002 08 19 | 644 | 0.0 | 0.7− | 2008 05 01 | 703 | 0.0 | 0.2+ |
| 1995 03 27 | 691 | 0.2− | 0.1+ | 2002 08 19 | 644 | 0.2− | 0.8− | 2008 05 01 | 703 | (0.7+ | 1.5−) |
| 1995 04 05 | 691 | 0.2+ | 0.2− | 2002 08 29 | 644 | 0.6− | 0.4+ | 2009 11 09 | 691 | 0.1− | 0.3+ |
| 1995 04 05 | 691 | 0.1− | 0.1− | 2002 08 29 | 644 | 0.1− | 0.3+ | 2009 11 09 | 691 | 0.6− | 0.6− |
| 1995 04 05 | 691 | 0.2+ | 0.2− | 2002 08 29 | 644 | 0.6− | 0.2− | 2009 11 09 | 691 | 0.1− | 0.4+ |
| 2002 08 11 | 644 | 0.2+ | 0.2− | 2002 09 15 | 644 | 0.5− | 0.3+ | 2009 11 10 | G96 | 0.2+ | 0.2+ |
| 2002 08 11 | 644 | 0.1+ | 0.0 | 2002 09 15 | 644 | 0.7− | 0.2+ | 2009 11 10 | G96 | 0.5+ | 0.5+ |
| 2002 08 11 | 644 | 0.4+ | 0.3+ | 2002 09 15 | 644 | 0.1+ | 0.1− | 2009 11 10 | G96 | 0.9+ | 0.3+ |
| 2002 08 16 | 608 | 0.5+ | 0.7+ | 2004 02 26 | 695 | 0.0 | 0.1+ | 2009 11 11 | G96 | 0.6+ | 0.1− |
| 2002 08 16 | 608 | 0.6+ | 0.3+ | 2004 02 26 | 695 | 0.4+ | 0.5+ | 2009 11 11 | G96 | 0.8+ | 0.5+ |
| 2002 08 16 | 608 | 0.6+ | 0.3+ | 2008 04 12 | 691 | 0.2+ | 0.2+ | 2009 11 11 | G96 | 0.5+ | 0.1+ |
| 2002 08 18 | 644 | 0.1+ | 0.2+ | 2008 04 12 | 691 | 0.1− | 0.5+ | 2009 11 11 | G96 | 0.4+ | 0.0 |
| 2002 08 18 | 644 | 0.1+ | 0.1− | 2008 04 12 | 691 | 0.1+ | 0.0 | 2009 12 14 | A77 | 2.6− | 2.2+ |
| 2002 08 18 | 644 | 0.0 | 0.2+ | 2008 05 01 | 703 | 0.2+ | 0.7+ | 2009 12 14 | A77 | 0.3+ | 1.1− |

**(228698)∗ 2002 PF$_{187}$**

Discovered 2002 Aug. 11 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 63.77083 | | (2000.0) | | | |
| $n$ | 0.30459287 | $\omega$ | 269.52765 | | +0.97897359 | −0.16058659 |
| $a$ | 2.1877090 | $\Omega$ | 99.70944 | | +0.19677029 | +0.90599273 |
| $e$ | 0.1028238 | $i$ | 7.33186 | | −0.05377879 | +0.39164924 |
| $P$ | 3.24 | $H$ | 17.2 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 11 | 644 | 0.6− | 0.1− | 2006 11 27 | G96 | 0.4− | 0.2− | 2009 11 26 | 691 | 0.2− | 0.1+ |
| 2002 08 11 | 644 | 0.4− | 0.1− | 2006 11 27 | G96 | 0.1− | 0.4− | 2009 11 26 | 691 | 0.1− | 0.2+ |
| 2002 08 11 | 644 | 0.4− | 0.0 | 2006 12 24 | 691 | 0.1+ | 0.3+ | 2009 12 08 | J75 | 0.4+ | 0.0 |
| 2002 08 13 | 644 | 0.6+ | 0.3+ | 2006 12 24 | 691 | 0.0 | 0.5+ | 2009 12 09 | J75 | 0.4+ | 0.3− |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 13 | 644 | 0.3+ | 0.8+ | 2006 12 24 | 691 | 0.2+ | 0.4+ | 2009 12 09 | J75 | 0.2− | 0.0 | | |
| 2002 08 13 | 644 | 0.2+ | 0.4+ | 2008 05 03 | G96 | 0.4+ | 0.1− | 2009 12 11 | 703 | 0.8− | 1.0− | | |
| 2002 08 30 | 644 | 0.1+ | 0.1+ | 2008 05 03 | G96 | 0.3− | 0.1+ | 2009 12 11 | 703 | 0.2− | 1.4− | | |
| 2002 08 30 | 644 | 0.3+ | 0.5+ | 2008 05 03 | G96 | 0.1+ | 0.1+ | 2009 12 11 | 703 | 0.4+ | 0.5− | | |
| 2002 08 30 | 644 | 0.2+ | 0.1+ | 2008 05 03 | G96 | 0.0 | 0.0 | 2009 12 11 | 703 | 1.6− | 0.8− | | |
| 2002 09 15 | 644 | 0.3− | 0.2− | 2008 05 28 | G96 | 0.1+ | 0.5+ | 2009 12 12 | 704 | 0.2+ | 0.1− | | |
| 2002 09 15 | 644 | 0.3− | 0.1+ | 2008 05 28 | G96 | 0.3− | 0.2+ | 2009 12 12 | 704 | 1.1+ | 0.9+ | | |
| 2002 09 15 | 644 | 0.3− | 0.6+ | 2008 05 28 | G96 | 0.2− | 0.1− | 2009 12 12 | 704 | 1.0+ | 0.3+ | | |
| 2006 11 27 | G96 | 0.0 | 0.3+ | 2008 05 28 | G96 | 0.5+ | 0.8+ | | | | | | |
| 2006 11 27 | G96 | 0.3− | 0.3− | 2009 11 26 | 691 | 0.2+ | 0.2+ | | | | | | |

**(228699)∗ 2002 PX$_{187}$ = 2006 DB$_{172}$**

Discovered 2002 Aug. 8 by NEAT at Palomar.

Id. T. B. Spahr (*MPO* 148495)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 181.68764 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18375247 | $\omega$ | 183.59064 | | −0.18609204 | +0.98166812 | |
| $a$ | 3.0641775 | $\Omega$ | 75.68775 | | −0.90039322 | −0.15360075 | |
| $e$ | 0.0883955 | $i$ | 2.43695 | | −0.39327066 | −0.11284733 | |
| $P$ | 5.36 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 07 14 | 644 | 0.0 | 0.2− | 2003 09 28 | 691 | 0.1− | 0.1− | 2008 09 19 | 691 | 0.3− | 0.6+ | | |
| 2002 07 14 | 644 | 0.3− | 0.4+ | 2003 09 28 | 691 | 0.2− | 0.1+ | 2008 10 02 | G96 | 0.8+ | 0.1+ | | |
| 2002 07 14 | 644 | 0.1− | 0.2+ | 2003 10 23 | 695 | 0.0 | 0.6+ | 2008 10 02 | G96 | 0.6+ | 0.0 | | |
| 2002 07 18 | 644 | 0.2− | 0.2− | 2003 10 23 | 695 | 0.5+ | 0.2+ | 2008 10 02 | G96 | 0.2− | 0.5+ | | |
| 2002 07 18 | 644 | 0.0 | 0.1+ | 2006 02 27 | 691 | 0.0 | 0.1+ | 2008 10 02 | G96 | 0.2+ | 0.3+ | | |
| 2002 07 18 | 644 | 0.1+ | 0.2+ | 2006 02 27 | 691 | 0.2+ | 0.2+ | 2008 11 02 | G96 | 0.4− | 0.4− | | |
| 2002 08 08 | 644 | 0.4+ | 0.0 | 2006 02 27 | 691 | 0.1+ | 0.4+ | 2008 11 02 | G96 | 0.1− | 0.2− | | |
| 2002 08 08 | 644 | 0.1− | 0.1− | 2006 03 03 | 691 | 0.4+ | 0.2− | 2008 11 02 | G96 | 0.4+ | 0.0 | | |
| 2002 08 08 | 644 | 0.1+ | 0.5− | 2006 03 03 | 691 | 0.1+ | 0.0 | 2008 11 02 | G96 | 0.3+ | 0.4− | | |
| 2002 08 18 | 644 | 0.2+ | 0.7+ | 2006 03 03 | 691 | 0.0 | 0.2+ | 2009 12 10 | G96 | 0.0 | 0.5− | | |
| 2002 08 18 | 644 | 0.2− | 0.4+ | 2006 03 03 | G96 | 0.2− | 0.6+ | 2009 12 10 | G96 | 0.2+ | 0.3− | | |
| 2002 08 18 | 644 | 0.0 | 0.5− | 2006 03 03 | G96 | 0.0 | 1.0+ | 2009 12 10 | G96 | 0.0 | 0.3− | | |
| 2002 08 29 | 644 | 0.4+ | 0.3− | 2006 03 03 | G96 | 0.4− | 0.7+ | 2009 12 19 | G96 | 0.1− | 0.1+ | | |
| 2002 08 29 | 644 | 0.1+ | 0.6+ | 2006 03 03 | G96 | 0.6− | 0.7+ | 2009 12 19 | G96 | 0.4+ | 0.0 | | |
| 2002 08 29 | 644 | 0.4− | 0.3+ | 2008 09 19 | 691 | 0.6− | 0.0 | 2009 12 19 | G96 | 0.1+ | 0.1+ | | |
| 2003 09 28 | 691 | 0.0 | 0.1+ | 2008 09 19 | 691 | 0.0 | 0.2+ | | | | | | |

**(228700)∗ 2002 QH$_{44}$**

Discovered 2002 Aug. 30 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 97.80042 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.30731884 | $\omega$ | 282.98867 | | +0.95462116 | +0.28725428 | |
| $a$ | 2.1747529 | $\Omega$ | 60.36560 | | −0.22593754 | +0.87052798 | |
| $e$ | 0.1967659 | $i$ | 5.19054 | | −0.19403780 | +0.39958231 | |
| $P$ | 3.21 | $H$ | 17.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 13 | 704 | 0.4− | 0.4+ | 2002 08 30 | 644 | 0.2+ | 0.4+ | 2008 06 09 | 691 | 0.2− | 0.3+ | | |
| 2002 08 13 | 704 | 0.3− | 0.5+ | 2002 08 30 | 644 | 0.2+ | 0.2+ | 2008 06 09 | 691 | 0.0 | 0.1+ | | |
| 2002 08 13 | 704 | 0.6− | 0.8+ | 2002 08 30 | 644 | 0.1− | 0.1+ | 2009 11 20 | G96 | 0.6+ | 0.3− | | |
| 2002 08 13 | 704 | 0.0 | 0.7+ | 2002 08 31 | 704 | 0.0 | 0.1− | 2009 11 20 | G96 | 0.5+ | 0.2− | | |
| 2002 08 13 | 704 | 0.2− | 0.8+ | 2002 08 31 | 704 | 1.1− | 0.7− | 2009 11 20 | G96 | 0.8+ | 0.4− | | |
| 2002 08 13 | 644 | 0.4+ | 0.1− | 2002 08 31 | 704 | 0.1+ | 0.3− | 2009 11 20 | G96 | 0.2+ | 0.0 | | |
| 2002 08 13 | 644 | 0.4+ | 0.0 | 2002 08 31 | 704 | 0.1+ | 0.2+ | 2009 12 18 | 691 | 0.5− | 0.1+ | | |
| 2002 08 13 | 644 | 0.1+ | 0.0 | 2004 02 16 | 691 | 0.3− | 0.1+ | 2009 12 18 | 691 | 0.3− | 0.1− | | |
| 2002 08 17 | 608 | 0.4+ | 0.7− | 2004 02 16 | 691 | 0.2+ | 0.2− | 2009 12 18 | 691 | 0.2+ | 0.2− | | |
| 2002 08 17 | 608 | 0.4+ | 0.3− | 2004 02 16 | 691 | 0.1+ | 0.1+ | 2009 12 27 | 691 | 0.2+ | 0.0 | | |
| 2002 08 17 | 608 | 0.6+ | 0.6− | 2008 05 13 | 691 | 0.8− | 0.2+ | 2009 12 27 | 691 | 0.2− | 0.2+ | | |
| 2002 08 20 | 644 | 0.3− | 0.7− | 2008 05 13 | 691 | 0.1− | 0.0 | 2009 12 27 | 691 | 0.1+ | 0.1− | | |
| 2002 08 20 | 644 | 0.0 | 0.7− | 2008 05 13 | 691 | 0.8+ | 0.9− | | | | | | |
| 2002 08 20 | 644 | 0.2+ | 0.7− | 2008 06 09 | 691 | 0.3+ | 0.1+ | | | | | | |

**(228701)∗ 2002 QR$_{57}$ = 2005 NO$_{18}$**

Discovered 2002 Aug. 29 by S. F. Hönig on NEAT images taken at Palomar.

Id. G. V. Williams (*MPO* 85578)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 75.43916 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.31087526 | $\omega$ | 242.28360 | | +0.90521451 | −0.42398543 | |
| $a$ | 2.1581350 | $\Omega$ | 142.78283 | | +0.40468321 | +0.83946373 | |
| $e$ | 0.1065954 | $i$ | 2.71870 | | +0.12968500 | +0.33990733 | |
| $P$ | 3.17 | $H$ | 17.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 10 09 | 704 | 0.4− | 0.8+ | 2005 07 02 | 691 | 0.2− | 0.2+ | 2007 02 06 | G96 | 0.4+ | 0.2− | | |
| 1999 10 09 | 704 | 0.0 | 0.2+ | 2005 07 02 | 691 | 0.2+ | 0.1− | 2007 02 06 | G96 | 0.4− | 0.3− | | |
| 1999 10 09 | 704 | 1.2+ | 0.9− | 2005 07 04 | G96 | 0.3− | 0.2+ | 2007 02 13 | G96 | 0.2+ | 0.1− | | |
| 1999 10 09 | 704 | 0.1+ | 0.1− | 2005 07 04 | 644 | 0.6+ | 0.3− | 2007 02 13 | G96 | 0.0 | 0.2− | | |
| 2002 08 18 | 644 | 0.4− | 0.0 | 2005 07 04 | G96 | 0.3− | 0.1+ | 2007 02 13 | G96 | 0.2+ | 0.0 | | |
| 2002 08 18 | 644 | 0.0 | 0.0 | 2005 07 04 | G96 | 0.4− | 0.2+ | 2007 02 13 | 704 | (0.6+ | 2.1+) | | |
| 2002 08 29 | 644 | 0.2+ | 0.9+ | 2005 07 04 | G96 | 0.4− | 0.1+ | 2007 02 13 | G96 | 0.2+ | 0.2+ | | |
| 2002 08 29 | 644 | 0.1− | 0.2+ | 2005 07 04 | 644 | 0.4+ | 0.2+ | 2007 02 13 | 704 | 0.3− | 0.4+ | | |
| 2002 08 29 | 644 | 0.2− | 0.9+ | 2005 07 04 | 644 | 0.4+ | 0.3− | 2007 02 13 | 704 | 0.0 | 0.4+ | | |
| 2002 08 29 | 644 | 0.3+ | 0.0 | 2005 07 07 | 691 | 0.5− | 0.0 | 2007 02 14 | 568 | 0.1+ | 0.1+ | | |
| 2002 08 29 | 644 | 0.5− | 0.2+ | 2005 07 07 | 691 | 0.0 | 0.0 | 2007 02 14 | 568 | 0.1+ | 0.1+ | | |
| 2002 08 29 | 644 | 0.5− | 0.8+ | 2005 07 07 | 691 | 0.6− | 0.0 | 2007 02 14 | 568 | 0.0 | 0.2+ | | |
| 2002 08 29 | 644 | 0.7− | 0.1+ | 2005 07 15 | G96 | 0.2+ | 0.0 | 2007 02 15 | 568 | 0.1− | 0.2+ | | |
| 2002 08 29 | 644 | 0.3+ | 0.1− | 2005 07 15 | G96 | 0.2− | 0.4+ | 2007 02 23 | G96 | 0.5− | 0.1− | | |
| 2002 08 29 | 644 | 0.3− | 0.7+ | 2005 07 15 | G96 | 0.2− | 0.3+ | 2007 02 23 | G96 | 0.3+ | 0.0 | | |
| 2002 09 05 | 704 | 0.5+ | 0.9+ | 2005 07 15 | G96 | 0.1− | 0.4+ | 2007 02 23 | G96 | 0.1− | 0.1− | | |
| 2002 09 05 | 704 | 0.5− | 0.5+ | 2005 07 15 | G96 | 0.0 | 0.3+ | 2007 02 23 | G96 | (0.4− | 2.0−) | | |
| 2002 09 05 | 704 | 0.1+ | 0.6+ | 2005 07 15 | G96 | 0.1+ | 0.3+ | 2007 03 09 | G96 | 0.0 | 0.2+ | | |
| 2002 09 15 | 644 | 0.4− | 0.2− | 2005 07 15 | G96 | 0.1+ | 0.3+ | 2007 03 09 | G96 | 0.9+ | 0.4+ | | |
| 2002 09 15 | 644 | 0.4− | 0.2+ | 2005 07 15 | G96 | 0.4− | 0.3+ | 2007 03 09 | G96 | 0.3+ | 0.2+ | | |
| 2002 09 15 | 644 | 1.4− | 0.5− | 2006 11 21 | G96 | 0.1+ | 0.0 | 2007 03 09 | G96 | 0.3+ | 0.2+ | | |
| 2004 03 18 | 691 | 0.0 | 0.5+ | 2006 11 21 | G96 | 0.2− | 0.2− | 2009 12 15 | G96 | 0.1+ | 0.3− | | |
| 2004 03 18 | 691 | 0.2+ | 0.1+ | 2006 11 21 | G96 | 0.1+ | 0.3− | 2009 12 15 | G96 | 0.3− | 0.5+ | | |
| 2004 03 18 | 691 | 0.0 | 0.5+ | 2006 11 21 | G96 | 0.1− | 0.1− | 2009 12 15 | G96 | 0.1− | 0.3+ | | |
| 2005 05 19 | G96 | 0.2− | 0.2− | 2007 01 27 | 691 | 0.1+ | 0.1+ | 2009 12 15 | G96 | 0.2− | 0.2+ | | |
| 2005 05 19 | G96 | 0.0 | 0.2− | 2007 01 27 | 691 | 0.1− | 0.2+ | 2009 12 17 | 691 | 0.2− | 0.5+ | | |
| 2005 05 19 | G96 | 0.4− | 0.2− | 2007 01 27 | 691 | 0.1+ | 0.3+ | 2009 12 17 | 691 | 0.1+ | 0.8+ | | |
| 2005 05 19 | G96 | 0.2+ | 0.7− | 2007 02 06 | G96 | 0.1− | 0.0 | 2009 12 17 | 691 | 0.4+ | 0.2+ | | |
| 2005 07 02 | 691 | 1.3+ | 1.3+ | 2007 02 06 | G96 | 0.2+ | 0.4+ | | | | | | |

**(228702)∗ 2002 QH$_{66}$ = 1999 TD$_{163}$**

Discovered 2002 Aug. 18 by NEAT at Palomar.

Id. T. B. Spahr (*MPO* 69386)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 29.30259 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.30101977 | $\omega$ | 275.35000 | | +0.74490361 | −0.66626780 | |
| $a$ | 2.2049870 | $\Omega$ | 126.43504 | | +0.62794140 | +0.68256712 | |
| $e$ | 0.1212289 | $i$ | 2.47377 | | +0.22540678 | +0.30031542 | |
| $P$ | 3.27 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 10 09 | 704 | 0.1− | 0.0 | 2007 01 09 | 691 | 0.3− | 0.3+ | 2007 02 21 | 691 | 0.1− | 0.3+ | | |
| 1999 10 09 | 704 | 0.5− | 0.3+ | 2007 01 09 | 691 | 0.5− | 0.3+ | 2007 02 21 | 691 | 0.2− | 0.1+ | | |
| 1999 10 09 | 704 | 0.9+ | 0.0 | 2007 01 09 | 691 | 0.2− | 0.0 | 2007 02 22 | G96 | 0.1− | 0.1− | | |
| 1999 10 09 | 704 | 0.0 | 0.1+ | 2007 01 17 | 644 | 0.1+ | 0.3+ | 2007 02 22 | G96 | 0.0 | 0.1− | | |
| 1999 10 11 | 704 | 0.1+ | 1.1− | 2007 01 17 | 644 | 0.3+ | 0.3+ | 2007 02 22 | G96 | 0.2+ | 0.3+ | | |
| 1999 10 11 | 704 | 0.0 | 0.7− | 2007 01 17 | 644 | 0.0 | 0.4+ | 2007 02 22 | G96 | 0.4− | 0.2− | | |
| 1999 10 11 | 704 | 0.2+ | 0.3− | 2007 01 24 | G96 | 0.6+ | 0.4− | 2007 03 10 | G96 | 0.3+ | 0.1− | | |
| 1999 10 11 | 704 | 0.5+ | 1.2− | 2007 01 24 | G96 | 0.4+ | 0.3− | 2007 03 10 | G96 | 0.1− | 0.0 | | |
| 1999 10 11 | 704 | 0.1+ | 0.4− | 2007 01 24 | G96 | 0.4+ | 0.3− | 2007 03 10 | G96 | 0.6+ | 0.1+ | | |
| 1999 10 11 | 704 | 0.1+ | 1.1− | 2007 01 24 | G96 | 0.2+ | 0.3− | 2007 03 10 | G96 | 0.2+ | 0.2+ | | |
| 1999 10 11 | 704 | 0.1+ | 0.1− | 2007 01 24 | 703 | 0.0 | 0.5− | 2009 11 10 | 691 | 0.1− | 0.1− | | |
| 1999 10 11 | 704 | 0.6+ | 1.7− | 2007 01 24 | 703 | 0.2− | 0.0 | 2009 11 10 | 691 | 0.2− | 0.1− | | |
| 1999 10 11 | 704 | 0.2+ | 0.3− | 2007 01 24 | 703 | 0.9+ | 1.2− | 2009 11 10 | 691 | 0.0 | 0.0 | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 07 23 | 644 | 0.3− | 0.7+ | 2007 01 24 | G96 | 0.0 | 0.1− | 2009 11 18 | 691 | 0.1− | 0.1+ | | |
| 2002 07 23 | 644 | 0.6+ | 0.7+ | 2007 01 24 | 703 | 0.1+ | 0.6+ | 2009 11 18 | 691 | 0.3− | 0.1− | | |
| 2002 07 30 | 608 | 0.3− | 0.1− | 2007 01 24 | G96 | 0.2− | 0.1− | 2009 11 18 | 691 | 0.2− | 0.2+ | | |
| 2002 07 30 | 608 | 0.3− | 0.9+ | 2007 01 24 | G96 | 0.0 | 0.1− | 2009 11 18 | 704 | 0.9+ | 1.3+ | | |
| 2002 07 30 | 608 | 0.2− | 0.5+ | 2007 01 24 | G96 | 0.3− | 0.1− | 2009 11 18 | 704 | 1.0+ | 0.0 | | |
| 2002 08 08 | 644 | 0.1+ | 0.2− | 2007 01 24 | G96 | 0.2− | 0.2− | 2009 11 18 | 704 | 0.9+ | 0.0 | | |
| 2002 08 08 | 644 | 0.1− | 0.5+ | 2007 01 24 | G96 | 0.6− | 0.1− | 2009 11 18 | 704 | 0.1+ | 0.6+ | | |
| 2002 08 18 | 644 | 0.1+ | 0.9+ | 2007 01 24 | G96 | 0.0 | 0.3− | 2009 11 20 | 704 | 0.1− | 1.0+ | | |
| 2002 08 18 | 644 | 0.2− | 0.1+ | 2007 01 27 | 691 | 0.2+ | 0.2− | 2009 11 20 | 704 | 0.7+ | 0.8+ | | |
| 2002 08 18 | 644 | 0.1− | 0.0 | 2007 01 27 | 691 | 0.2− | 0.1− | 2009 11 20 | 704 | 0.2− | 0.2− | | |
| 2002 08 29 | 644 | 0.3− | 0.5+ | 2007 01 27 | 691 | 0.1+ | 0.0 | 2009 11 20 | 704 | 0.5− | 0.0 | | |
| 2002 08 29 | 644 | 0.1− | 0.2+ | 2007 02 06 | 691 | 0.2− | 0.0 | 2009 11 20 | 704 | 0.3− | 0.2+ | | |
| 2002 08 29 | 644 | 0.1− | 0.3+ | 2007 02 06 | 691 | 0.1+ | 0.0 | 2009 11 22 | 691 | (2.0− | 0.9−) | | |
| 2002 09 15 | 644 | 0.2− | 0.2+ | 2007 02 06 | 691 | 0.4+ | 0.2− | 2009 11 22 | 691 | 0.3− | 0.2+ | | |
| 2002 09 15 | 644 | 0.4+ | 0.0 | 2007 02 06 | G96 | 0.1+ | 0.4− | 2009 11 22 | 691 | 0.3− | 0.2+ | | |
| 2002 09 15 | 644 | 0.4− | 0.2− | 2007 02 06 | G96 | 0.2+ | 0.1− | 2009 11 23 | J75 | 0.2− | 0.4− | | |
| 2006 11 01 | G96 | 0.4+ | 0.3− | 2007 02 06 | G96 | 0.2− | 0.3− | 2009 11 23 | J75 | 0.3+ | 0.2− | | |
| 2006 11 01 | G96 | 0.4− | 0.1− | 2007 02 06 | G96 | 0.1+ | 0.0 | 2009 11 23 | J75 | 0.0 | 0.4− | | |
| 2006 11 01 | G96 | 0.6+ | 0.3− | 2007 02 08 | 691 | 0.0 | 0.2+ | 2009 11 26 | 691 | 0.0 | 0.1+ | | |
| 2006 11 01 | G96 | 0.1− | 0.1− | 2007 02 08 | 691 | 0.3− | 0.1+ | 2009 11 26 | 691 | 0.1+ | 0.0 | | |
| 2006 11 27 | G96 | 0.0 | 0.3− | 2007 02 08 | 691 | 0.0 | 0.2− | 2009 11 26 | 691 | 0.1− | 0.1+ | | |
| 2006 11 27 | G96 | 0.1+ | 0.2− | 2007 02 13 | G96 | 0.2− | 0.2− | 2009 12 09 | J75 | 0.7+ | 0.3− | | |
| 2006 11 27 | G96 | 0.2+ | 0.0 | 2007 02 13 | G96 | 0.1+ | 0.5− | 2009 12 09 | J75 | 0.5+ | 0.2+ | | |
| 2006 11 27 | G96 | 0.4+ | 0.4− | 2007 02 13 | G96 | 0.4+ | 0.4− | 2009 12 09 | J75 | 0.7+ | 0.3− | | |
| 2006 12 13 | G96 | 0.1− | 0.2− | 2007 02 13 | G96 | 0.1+ | 0.4− | 2009 12 11 | 703 | 0.1− | 0.0 | | |
| 2006 12 13 | G96 | 0.3+ | 0.0 | 2007 02 17 | 691 | 0.1− | 0.2+ | 2009 12 11 | 703 | 0.8− | 0.5+ | | |
| 2006 12 13 | G96 | 0.2+ | 0.1− | 2007 02 17 | 691 | 0.1− | 0.5+ | 2009 12 11 | 703 | 0.1− | 0.5− | | |
| 2006 12 13 | G96 | 0.4− | 0.3− | 2007 02 17 | 691 | 0.2+ | 0.2+ | 2009 12 11 | 703 | 0.6+ | 0.4− | | |
| 2007 01 08 | G96 | 1.1+ | 0.4− | 2007 02 19 | 691 | 0.1− | 0.1− | 2009 12 12 | 704 | 0.6− | 0.0 | | |
| 2007 01 08 | G96 | 0.5− | 0.0 | 2007 02 19 | 691 | 0.2+ | 0.1+ | 2009 12 12 | 704 | 0.3− | 0.1+ | | |
| 2007 01 08 | G96 | 0.4− | 0.8− | 2007 02 19 | 691 | 0.1+ | 0.2+ | 2009 12 12 | 704 | 0.3+ | 1.4+ | | |
| 2007 01 08 | G96 | 0.2+ | 0.3− | 2007 02 21 | 691 | 0.1+ | 0.3+ | 2009 12 12 | 704 | 0.7+ | 0.9+ | | |

**(228703)∗ 2002 QM$_{83}$**

Discovered 2002 Aug. 17 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 62.99519 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18051780 | $\omega$ | 93.76063 | | +0.70890284 | −0.69418312 | |
| $a$ | 3.1006734 | $\Omega$ | 310.25516 | | +0.56466943 | +0.66459407 | |
| $e$ | 0.1076962 | $i$ | 9.40912 | | +0.42261709 | +0.27644984 | |
| $P$ | 5.46 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 11 | 644 | 0.3+ | 0.6+ | 2003 12 17 | 704 | 0.9− | 0.1− | 2008 11 08 | G96 | 0.5+ | 0.2− | | |
| 2002 08 11 | 644 | 0.8+ | 0.0 | 2003 12 17 | 704 | 0.9− | 0.6+ | 2008 11 08 | G96 | 0.3+ | 0.1− | | |
| 2002 08 17 | 644 | 0.5− | 0.0 | 2003 12 17 | 704 | 0.5+ | 0.0 | 2008 11 08 | G96 | 0.4+ | 0.3− | | |
| 2002 08 17 | 644 | 0.5− | 0.4+ | 2003 12 17 | 704 | 0.5+ | 0.1+ | 2008 11 08 | G96 | 0.2+ | 0.3− | | |
| 2002 08 17 | 644 | 0.5− | 0.0 | 2003 12 25 | 691 | 0.2− | 0.3− | 2009 09 28 | G96 | 0.5+ | 0.3+ | | |
| 2002 08 18 | 644 | 0.0 | 0.2+ | 2003 12 25 | 691 | 0.4− | 0.2+ | 2009 09 28 | G96 | 0.1− | 0.8+ | | |
| 2002 08 18 | 644 | 0.1+ | 0.1+ | 2003 12 25 | 691 | 0.8+ | 0.4− | 2009 09 28 | G96 | 0.2+ | 0.3− | | |
| 2002 08 18 | 644 | 0.3− | 0.1+ | 2008 09 30 | A77 | 1.0− | 0.7+ | 2009 09 28 | G96 | 0.1− | 0.4− | | |
| 2002 08 26 | 644 | 0.1+ | 0.1− | 2008 10 21 | G96 | 0.1+ | 0.3− | 2009 11 19 | G96 | 0.3+ | 0.9− | | |
| 2002 08 26 | 644 | 0.2− | 0.2+ | 2008 10 21 | G96 | 0.1+ | 0.3− | 2009 11 19 | G96 | 0.4+ | 0.3− | | |
| 2002 08 26 | 644 | 0.2+ | 0.3+ | 2008 10 21 | G96 | 0.1+ | 0.1− | 2009 11 19 | G96 | 0.1− | 0.2− | | |
| 2002 08 27 | 644 | 0.1− | 0.2+ | 2008 10 21 | G96 | 0.2+ | 0.1− | 2009 11 19 | G96 | 0.0 | 0.2− | | |
| 2002 08 27 | 644 | 0.1− | 0.4+ | 2008 10 24 | 703 | 0.5+ | 0.3+ | 2009 12 18 | 691 | 0.0 | 0.2+ | | |
| 2002 08 27 | 644 | 0.1+ | 0.0 | 2008 10 24 | 703 | 0.3− | 0.7+ | 2009 12 18 | 691 | 0.1− | 0.1+ | | |
| 2002 09 13 | 644 | 0.1+ | 0.1+ | 2008 10 24 | 703 | 0.7− | 0.3+ | 2009 12 18 | 691 | 0.5+ | 0.1+ | | |
| 2002 09 13 | 644 | 0.1+ | 0.7+ | 2008 10 24 | 703 | 1.1− | 0.5− | 2009 12 26 | 691 | 0.4+ | 0.6+ | | |
| 2002 09 13 | 644 | 0.1+ | 0.5+ | 2008 10 28 | 704 | (0.3− | 2.0−) | 2009 12 26 | 691 | 0.4− | 0.1+ | | |
| 2002 09 14 | 644 | 0.5− | 1.0− | 2008 10 28 | 704 | (3.0+ | 0.7−) | 2009 12 26 | 691 | 0.3− | 0.0 | | |
| 2002 09 14 | 644 | 0.2− | 0.6− | 2008 10 28 | 704 | 0.3− | 0.3+ | | | | | | |
| 2002 09 14 | 644 | 0.1− | 0.4− | 2008 10 28 | 704 | 1.1+ | 0.1− | | | | | | |

**(228704)∗ 2002 QC$_{93}$**

Discovered 2002 Aug. 19 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 77.49593 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17787900 | $\omega$ | 257.29983 | | +0.86712993 | −0.47715440 | |
| $a$ | 3.1312634 | $\Omega$ | 131.00448 | | +0.49786890 | +0.82195142 | |
| $e$ | 0.1280608 | $i$ | 10.91228 | | +0.01456865 | +0.31099764 | |
| $P$ | 5.54 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 01 13 | 691 | (0.3− | 3.5+) | 2006 05 24 | 691 | 0.3+ | 0.4+ | 2008 10 22 | 704 | 0.9+ | 0.6+ | | |
| 1999 01 13 | 691 | 0.3+ | 0.1+ | 2006 05 24 | 691 | 0.0 | 0.1+ | 2008 10 22 | 704 | 0.3+ | 0.0 | | |
| 1999 01 13 | 691 | 0.5+ | 0.4+ | 2006 05 24 | 691 | 0.4+ | 0.3+ | 2008 10 22 | 704 | 1.4+ | 0.1+ | | |
| 2002 08 19 | 644 | 0.1− | 0.2− | 2006 05 26 | 691 | 0.3+ | 0.0 | 2008 11 02 | 703 | (0.1+ | 2.2+) | | |
| 2002 08 19 | 644 | 0.0 | 0.1+ | 2006 05 26 | 691 | 0.1− | 0.2+ | 2008 11 02 | 703 | 0.2− | 0.2+ | | |
| 2002 08 19 | 644 | 0.6− | 0.0 | 2006 05 26 | 691 | 0.3+ | 0.1+ | 2008 11 02 | 703 | (1.6+ | 1.7+) | | |
| 2002 08 26 | 644 | 0.7− | 0.2− | 2008 10 01 | 703 | 0.2+ | 0.3+ | 2008 11 02 | 703 | 0.2− | 0.3+ | | |
| 2002 08 26 | 644 | 0.3− | 0.0 | 2008 10 01 | 703 | 0.6− | 0.5+ | 2009 10 27 | 691 | 0.9− | 0.2+ | | |
| 2002 09 16 | 644 | 0.6− | 0.4− | 2008 10 01 | 703 | 0.4− | 0.1− | 2009 10 27 | 691 | 0.2− | 0.0 | | |
| 2002 09 16 | 644 | 0.8− | 0.3− | 2008 10 01 | 703 | 0.0 | 0.7+ | 2009 10 27 | 691 | 0.2− | 0.0 | | |
| 2002 09 16 | 644 | 1.0− | 0.3− | 2008 10 09 | 703 | 0.1+ | 1.0+ | 2009 12 15 | G96 | 0.2− | 0.1+ | | |
| 2005 03 16 | 703 | 0.6− | 1.0− | 2008 10 09 | 703 | 0.1+ | 0.9+ | 2009 12 15 | G96 | 0.1− | 0.1+ | | |
| 2005 03 16 | 703 | 0.7+ | 0.8+ | 2008 10 09 | 703 | 1.0+ | 0.3− | 2009 12 15 | G96 | 0.0 | 0.2− | | |
| 2005 03 16 | 703 | 1.1− | 0.6− | 2008 10 09 | 703 | 0.6− | 0.6+ | 2009 12 15 | G96 | 0.3− | 0.0 | | |
| 2005 03 16 | 703 | 0.9− | 0.3− | 2008 10 22 | 704 | 0.4+ | 0.8+ | | | | | | |

**(228705)∗ 2002 QY$_{98}$**

Discovered 2002 Aug. 26 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 195.98907 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19134186 | $\omega$ | 211.39132 | | +0.21895867 | +0.96973100 | |
| $a$ | 2.9826071 | $\Omega$ | 71.44565 | | −0.86994053 | +0.24417564 | |
| $e$ | 0.1500466 | $i$ | 6.54561 | | −0.44188298 | −0.00019751 | |
| $P$ | 5.15 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 05 21 | 691 | 0.7− | 0.1+ | 2002 09 16 | 644 | 0.2+ | 0.2+ | 2007 08 14 | E12 | 0.0 | 0.7− | | |
| 1996 05 21 | 691 | 0.1− | 0.5+ | 2002 09 16 | 644 | 0.2− | 0.2− | 2007 08 14 | E12 | 0.5− | 0.2− | | |
| 1996 05 21 | 691 | 0.6− | 0.2− | 2002 09 30 | 608 | 1.2+ | 1.2+ | 2007 08 15 | E12 | (1.3+ | 1.7+) | | |
| 2001 04 14 | 691 | 0.7+ | 0.1− | 2002 09 30 | 608 | 0.3+ | 0.8+ | 2007 08 15 | E12 | 0.6− | 0.4+ | | |
| 2001 04 14 | 691 | 0.8+ | 0.3− | 2002 09 30 | 608 | 0.2+ | 0.1− | 2007 08 15 | E12 | 0.7− | 1.0+ | | |
| 2001 04 14 | 691 | 0.9+ | 0.2− | 2006 03 25 | 691 | 0.0 | 0.1+ | 2007 08 15 | E12 | 0.2+ | 0.8− | | |
| 2002 08 12 | 608 | 0.4− | 0.7+ | 2006 03 25 | 691 | 0.1− | 0.0 | 2008 11 21 | G96 | 0.0 | 0.3+ | | |
| 2002 08 12 | 608 | 0.0 | 0.2+ | 2006 03 25 | 691 | 0.3+ | 0.2+ | 2008 11 21 | G96 | 0.0 | 0.5+ | | |
| 2002 08 12 | 608 | 0.2− | 0.5+ | 2006 05 07 | G96 | 0.3− | 0.2+ | 2008 11 21 | G96 | (0.2+ | 1.9+) | | |
| 2002 08 19 | 644 | 0.1− | 0.3+ | 2006 05 07 | G96 | 0.4− | 0.2− | 2008 11 21 | G96 | 0.5+ | 0.4+ | | |
| 2002 08 19 | 644 | 0.1+ | 0.2+ | 2006 05 07 | G96 | 0.2− | 0.4+ | 2009 12 19 | G96 | 0.5+ | 0.0 | | |
| 2002 08 19 | 644 | 0.0 | 0.1+ | 2006 05 07 | G96 | 0.3− | 0.3+ | 2009 12 19 | G96 | 1.0+ | 0.0 | | |
| 2002 08 26 | 644 | 0.1− | 0.3+ | 2006 05 21 | G96 | 0.9− | 0.0 | 2009 12 19 | G96 | 0.0 | 0.2− | | |
| 2002 08 26 | 644 | 0.1− | 0.3+ | 2006 05 21 | G96 | 0.3− | 0.3+ | 2009 12 19 | G96 | 0.5+ | 0.3+ | | |
| 2002 08 26 | 644 | 0.1− | 0.3+ | 2006 05 21 | G96 | 0.1+ | 0.1+ | 2009 12 20 | 691 | 0.3− | 0.0 | | |
| 2002 09 08 | 608 | 0.1− | 1.0− | 2006 05 21 | G96 | 0.5− | 0.1+ | 2009 12 20 | 691 | 0.2− | 0.1+ | | |
| 2002 09 08 | 608 | 0.0 | 0.2− | 2007 08 14 | E12 | 0.2− | 1.1− | 2009 12 20 | 691 | 0.5− | 0.0 | | |
| 2002 09 16 | 644 | 0.5+ | 0.3+ | 2007 08 14 | E12 | 0.0 | 0.6− | | | | | | |

**(228706)∗ 2002 QA$_{105}$ = 2003 YX$_{163}$**

Discovered 2002 Aug. 27 by NEAT at Palomar.

Id. G. V. Williams (*MPO* 108342)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 40.25313 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.16838676 | $\omega$ | 17.30412 | | +0.78807361 | −0.61555639 | |
| $a$ | 3.2478609 | $\Omega$ | 20.69122 | | +0.56292447 | +0.71701305 | |
| $e$ | 0.1319621 | $i$ | 0.89304 | | +0.24911049 | +0.32708197 | |
| $P$ | 5.85 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 17 | 644 | 0.1− | 0.4+ | 2002 09 15 | 644 | 0.5− | 0.3+ | 2006 05 01 | 568 | 0.1+ | 0.2+ |
| 2002 08 17 | 644 | 0.2− | 0.0 | 2003 11 26 | 691 | 0.1+ | 0.4+ | 2008 07 30 | G96 | 0.3+ | 0.1+ |
| 2002 08 17 | 644 | 0.0 | 0.3− | 2003 11 26 | 691 | 0.2+ | 0.4+ | 2008 07 30 | G96 | 0.4+ | 0.5− |
| 2002 08 18 | 644 | 0.2+ | 0.0 | 2003 11 26 | 691 | 0.0 | 0.2+ | 2008 07 30 | G96 | 0.2+ | 0.3− |
| 2002 08 18 | 644 | 0.1+ | 0.8+ | 2003 12 17 | 691 | 0.3+ | 0.0 | 2008 07 30 | G96 | 0.3+ | 0.3− |
| 2002 08 18 | 644 | 0.4+ | 0.3+ | 2003 12 17 | 691 | 0.4+ | 0.2− | 2008 09 06 | G96 | 0.2+ | 0.3− |
| 2002 08 27 | 644 | 0.1− | 0.4+ | 2003 12 17 | 691 | 0.0 | 0.3+ | 2008 09 06 | G96 | 0.2− | 0.1− |
| 2002 08 27 | 644 | 0.0 | 0.4+ | 2003 12 29 | 691 | 0.6− | 0.4− | 2008 09 06 | G96 | 0.2+ | 0.1− |
| 2002 08 27 | 644 | 0.1+ | 0.0 | 2003 12 29 | 691 | 0.3− | 0.2− | 2008 09 06 | G96 | 0.3− | 0.1− |
| 2002 08 29 | 644 | 0.5− | 0.0 | 2003 12 29 | 691 | 0.2− | 0.1− | 2009 11 20 | 691 | 0.3− | 0.1− |
| 2002 08 29 | 644 | 0.2+ | 0.2− | 2005 03 04 | G96 | 0.3− | 0.2− | 2009 11 20 | 691 | 0.1+ | 0.0 |
| 2002 08 29 | 644 | 0.3+ | 0.3− | 2005 03 04 | G96 | 0.3+ | 0.2− | 2009 11 20 | 691 | 0.0 | 0.2− |
| 2002 09 01 | 644 | 0.0 | 0.1− | 2005 03 04 | G96 | 0.1− | 0.3+ | 2009 12 10 | G96 | 0.0 | 0.1− |
| 2002 09 01 | 644 | 0.0 | 0.3− | 2005 03 04 | G96 | 0.0 | 0.3− | 2009 12 10 | G96 | 0.1− | 0.0 |
| 2002 09 15 | 644 | 0.5− | 0.2− | 2006 05 01 | 568 | 0.2+ | 0.2+ | 2009 12 10 | G96 | 0.3+ | 0.4− |
| 2002 09 15 | 644 | 0.0 | 0.1+ | 2006 05 01 | 568 | 0.1− | 0.1+ | 2009 12 10 | G96 | 0.2+ | 0.2− |

**(228707)∗ 2002 QB$_{123}$ = 2006 EL$_{61}$**

Discovered 2002 Aug. 27 by NEAT at Palomar.

Id. T. B. Spahr (*MPO* 131217)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 99.91469 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17268712 | $\omega$ | 21.00852 | | +0.76288479 | +0.64012937 | |
| $a$ | 3.1937145 | $\Omega$ | 298.86078 | | −0.60698498 | +0.66076691 | |
| $e$ | 0.0219886 | $i$ | 5.94971 | | −0.22265674 | +0.39194576 | |
| $P$ | 5.71 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 03 06 | 691 | 1.0− | 0.3− | 2002 08 17 | 644 | 0.2− | 0.2+ | 2006 03 05 | 691 | 0.0 | 0.4+ |
| 1994 03 06 | 691 | 0.3− | 0.3+ | 2002 08 17 | 644 | 0.0 | 0.5+ | 2006 03 09 | 691 | 0.1+ | 0.3+ |
| 1994 03 06 | 691 | 0.5+ | 0.2+ | 2002 08 17 | 644 | 0.2− | 0.1+ | 2006 03 09 | 691 | 0.3+ | 0.0 |
| 2002 07 04 | 644 | 0.3+ | 0.2+ | 2002 08 27 | 644 | 0.2+ | 0.5+ | 2006 03 09 | 691 | 0.4+ | 0.0 |
| 2002 07 04 | 644 | 0.5+ | 0.5+ | 2002 08 27 | 644 | 0.5+ | 0.0 | 2008 09 24 | G96 | 0.3− | 0.1− |
| 2002 07 04 | 644 | 0.1− | 0.1+ | 2002 08 27 | 644 | 0.2− | 0.5+ | 2008 09 24 | G96 | 0.1+ | 0.0 |
| 2002 07 14 | 644 | 0.4− | 0.4+ | 2003 11 22 | 691 | 0.1− | 0.2+ | 2008 09 24 | G96 | 0.0 | 0.1− |
| 2002 07 14 | 644 | 0.2+ | 0.1+ | 2003 11 22 | 691 | 0.1+ | 0.3+ | 2008 09 24 | G96 | 0.3− | 0.1+ |
| 2002 07 14 | 644 | 0.7− | 0.3+ | 2003 11 22 | 691 | 0.2+ | 0.2+ | 2009 11 22 | 691 | 0.8− | 0.4+ |
| 2002 07 18 | 644 | 0.3− | 0.9+ | 2004 12 15 | 691 | 0.2+ | 0.2+ | 2009 11 22 | 691 | 0.4− | 0.0 |
| 2002 07 18 | 644 | 0.1− | 0.5+ | 2004 12 15 | 691 | 0.3+ | 0.2+ | 2009 11 22 | 691 | 0.1+ | 0.3− |
| 2002 07 22 | 644 | 0.2− | 0.1+ | 2004 12 15 | 691 | 0.4+ | 0.1+ | 2009 12 20 | G96 | 0.0 | 0.2− |
| 2002 07 22 | 644 | 0.2− | 0.0 | 2005 01 18 | 691 | 0.2+ | 0.1+ | 2009 12 20 | G96 | 0.4+ | 0.1− |
| 2002 07 22 | 644 | 0.2− | 0.4+ | 2005 01 18 | 691 | 0.0 | 0.2− | 2009 12 20 | G96 | 0.1− | 0.3+ |
| 2002 08 07 | 644 | 0.0 | 0.5+ | 2005 01 18 | 691 | 0.3+ | 0.1+ | 2009 12 20 | G96 | 0.2− | 0.1− |
| 2002 08 07 | 644 | 0.3− | 0.5+ | 2006 03 05 | 691 | 0.1+ | 0.8+ | | | | |
| 2002 08 07 | 644 | 0.1− | 0.3+ | 2006 03 05 | 691 | 0.1− | 0.1+ | | | | |

**(228708)∗ 2002 RG$_{54}$**

Discovered 2002 Sept. 5 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 78.10767 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17029267 | $\omega$ | 228.92128 | | +0.93010372 | −0.36310185 | |
| $a$ | 3.2235822 | $\Omega$ | 152.23622 | | +0.36244445 | +0.88291597 | |
| $e$ | 0.1375967 | $i$ | 6.82462 | | +0.05950711 | +0.29768512 | |
| $P$ | 5.79 | $H$ | 14.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 09 05 | 704 | 0.7− | 0.1− | 2003 12 01 | 704 | 0.4+ | 0.2+ | 2008 10 08 | 703 | 0.9+ | 1.2+ |
| 2002 09 05 | 704 | (1.6− | 0.4+) | 2003 12 01 | 704 | 0.1− | 0.3+ | 2008 10 08 | 703 | 1.1− | 0.9+ |
| 2002 09 05 | 704 | (2.0− | 0.6+) | 2003 12 01 | 704 | 0.2+ | 0.5+ | 2008 10 08 | 703 | 0.1+ | 0.5+ |
| 2002 09 05 | 704 | 1.3− | 0.0 | 2003 12 01 | 704 | 0.2+ | 0.1− | 2008 10 23 | G96 | 0.0 | 0.3− |
| 2002 09 05 | 645 | 0.2+ | 0.2− | 2003 12 22 | 704 | (1.6− | 0.8+) | 2008 10 23 | G96 | 0.2+ | 0.4− |
| 2002 09 05 | 645 | 0.1+ | 0.2− | 2003 12 22 | 704 | 0.4− | 1.1+ | 2008 10 23 | G96 | 0.4+ | 0.3− |
| 2002 09 06 | 704 | 0.7− | 0.3+ | 2003 12 22 | 704 | (0.1− | 1.9+) | 2008 10 23 | G96 | 0.5+ | 0.3− |
| 2002 09 06 | 704 | 0.9− | 0.3− | 2008 09 21 | 703 | (1.7+ | 0.4−) | 2008 10 24 | 704 | 0.3+ | 0.9− |
| 2002 09 06 | 704 | 0.5− | 0.7+ | 2008 09 21 | 703 | 0.5+ | 0.1+ | 2008 10 24 | 704 | 0.2− | 0.8+ |
| 2002 09 06 | 704 | 0.7− | 0.9+ | 2008 09 21 | 703 | 0.2− | 0.1+ | 2008 10 24 | 704 | 0.9+ | 0.9− |
| 2002 09 13 | 608 | 0.5− | 0.4+ | 2008 09 21 | 703 | 0.4− | 0.8− | 2008 10 24 | 704 | 0.5+ | 0.3− |
| 2002 09 13 | 608 | 0.4− | 0.0 | 2008 09 23 | 704 | 0.5− | 1.0+ | 2008 10 24 | 704 | 0.3+ | 1.0− |
| 2002 09 13 | 608 | 0.4− | 0.2− | 2008 09 23 | 704 | 0.4− | 1.1+ | 2008 10 29 | 703 | 0.3− | 0.4− |
| 2002 09 29 | 608 | (1.5− | 2.2+) | 2008 09 23 | 704 | 0.5− | 1.2+ | 2008 10 29 | 703 | 0.2+ | 0.3+ |
| 2002 09 29 | 608 | (1.0− | 1.9+) | 2008 09 23 | 704 | 0.6− | 1.0+ | 2008 10 29 | 703 | 0.4− | 0.2− |
| 2002 09 29 | 608 | (0.9− | 1.9+) | 2008 09 23 | 704 | 0.3− | 0.3+ | 2008 10 29 | 703 | (1.6− | 1.2−) |
| 2002 10 02 | 704 | 0.9+ | 0.6+ | 2008 09 23 | G96 | 0.0 | 0.4− | 2008 10 29 | 703 | 0.7+ | 0.1− |
| 2002 10 02 | 704 | 1.0+ | 0.6− | 2008 09 23 | G96 | 0.3+ | 0.3− | 2008 10 29 | 703 | 0.0 | 0.4− |
| 2002 10 02 | 704 | 0.2+ | 0.7+ | 2008 09 23 | G96 | 0.1+ | 0.3− | 2008 10 29 | 703 | 0.9− | 0.9− |
| 2002 10 02 | 704 | 0.9+ | 0.1+ | 2008 09 23 | G96 | 0.4+ | 0.4− | 2008 10 29 | 703 | 0.1− | 0.4− |
| 2002 10 03 | 704 | 0.7+ | 0.4+ | 2008 09 29 | 704 | (1.9+ | 0.4+) | 2008 10 30 | 704 | 0.1+ | 0.6+ |
| 2002 10 03 | 704 | 0.1− | 0.4+ | 2008 09 29 | 704 | (1.9+ | 0.7−) | 2008 10 30 | 704 | 0.4− | 0.4+ |
| 2002 10 03 | 704 | 0.4− | 0.0 | 2008 09 29 | 704 | (2.3+ | 1.2−) | 2008 10 30 | 704 | 0.2+ | 0.4+ |
| 2002 10 03 | 704 | 0.9+ | 0.5− | 2008 09 29 | 704 | 1.3+ | 0.1− | 2008 10 30 | 704 | 0.0 | 0.4+ |
| 2002 10 06 | 704 | 0.3+ | 0.0 | 2008 09 29 | 704 | (1.9+ | 0.5−) | 2008 10 30 | 704 | 0.0 | 0.3+ |
| 2002 10 06 | 704 | 0.4+ | 0.2− | 2008 09 29 | 703 | 0.5− | 0.6+ | 2009 09 30 | G96 | 0.2+ | 0.1− |
| 2002 10 06 | 704 | 0.2− | 0.5+ | 2008 09 29 | 703 | 0.8− | 0.8− | 2009 09 30 | G96 | 0.5− | 0.3+ |
| 2002 10 06 | 704 | 0.1− | 0.4+ | 2008 09 29 | 703 | 0.6− | 0.8+ | 2009 09 30 | G96 | 0.1− | 0.2− |
| 2002 10 06 | 608 | 0.1− | 0.0 | 2008 09 29 | 703 | 0.8− | 0.2− | 2009 09 30 | G96 | 0.6− | 0.7+ |
| 2002 10 06 | 608 | 0.2− | 0.5− | 2008 10 04 | J75 | 0.0 | 0.4− | 2009 12 19 | 691 | 0.0 | 0.4− |
| 2002 10 06 | 608 | 0.1− | 0.3− | 2008 10 04 | J75 | 0.1− | 0.4− | 2009 12 19 | 691 | 0.0 | 0.0 |
| 2002 10 11 | 704 | (1.7+ | 0.8+) | 2008 10 04 | J75 | 0.4+ | 0.6− | 2009 12 19 | 691 | 0.2+ | 0.0 |
| 2002 10 11 | 704 | 0.1− | 0.6+ | 2008 10 05 | J75 | 0.3− | 0.5− | 2009 12 27 | 691 | 0.1− | 0.1− |
| 2002 10 11 | 704 | 0.2− | 0.6+ | 2008 10 05 | J75 | 0.1− | 0.1− | 2009 12 27 | 691 | 0.0 | 0.1− |
| 2002 10 11 | 704 | 0.6− | 0.8+ | 2008 10 05 | J75 | (3.0− | 1.1−) | 2009 12 27 | 691 | 0.1− | 0.1− |
| 2002 10 11 | 704 | 0.8− | 0.8+ | 2008 10 08 | 703 | 0.9+ | 0.7+ | | | | |

**(228709)∗ 2002 RN$_{74}$**

Discovered 2002 Sept. 5 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 70.02800 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28595512 | $\omega$ | 327.11753 | | +0.58073749 | +0.81386392 | |
| $a$ | 2.2817644 | $\Omega$ | 338.36574 | | −0.73520260 | +0.51417608 | |
| $e$ | 0.2169817 | $i$ | 2.98859 | | −0.34960134 | +0.27064457 | |
| $P$ | 3.45 | $H$ | 17.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 02 21 | 691 | 0.6+ | 0.4+ | 2002 10 03 | 704 | 0.6+ | 0.8+ | 2008 05 03 | G96 | 0.6+ | 0.1− |
| 2001 02 21 | 691 | 1.2+ | 0.9+ | 2002 10 03 | 704 | 0.2+ | 0.1+ | 2008 05 03 | G96 | 0.5+ | 0.2− |
| 2001 02 21 | 691 | 0.3+ | 0.6+ | 2002 10 03 | 704 | 0.7+ | 0.2+ | 2008 05 03 | G96 | 0.8+ | 0.0 |
| 2002 08 12 | 807 | 0.3− | 0.2+ | 2002 10 03 | 704 | 0.9− | 0.0 | 2009 09 10 | J04 | 0.2+ | 0.3− |
| 2002 08 12 | 807 | 0.3− | 0.2+ | 2002 10 03 | 704 | 0.4+ | 0.0 | 2009 09 10 | J04 | 0.8− | 0.5+ |
| 2002 08 28 | 644 | 0.2− | 0.6+ | 2004 01 15 | 691 | 0.2− | 0.1− | 2009 09 10 | J04 | 0.3+ | 0.1− |
| 2002 08 28 | 644 | 0.3− | 0.3+ | 2004 01 15 | 691 | 0.0 | 0.2+ | 2009 09 15 | 704 | 0.5− | 0.0 |
| 2002 08 28 | 644 | 0.5− | 0.7+ | 2004 01 15 | 691 | 0.5− | 0.3− | 2009 09 15 | 704 | 0.3+ | 1.0+ |
| 2002 09 05 | 704 | 0.1+ | 0.2+ | 2008 01 30 | 691 | 0.1− | 0.1− | 2009 09 15 | 704 | 0.3+ | 0.7− |
| 2002 09 05 | 704 | 0.3− | 0.4+ | 2008 01 30 | 691 | 0.0 | 0.5+ | 2009 09 20 | 691 | 0.2+ | 0.2− |
| 2002 09 05 | 704 | 0.1+ | 0.7+ | 2008 01 30 | 691 | 0.1+ | 0.1+ | 2009 09 20 | 691 | 0.1+ | 0.2− |
| 2002 09 05 | 704 | 0.1− | 0.1+ | 2008 02 12 | 691 | 0.8− | 0.4− | 2009 09 20 | 691 | 0.5+ | 0.6+ |
| 2002 09 05 | 704 | 0.9− | 0.3+ | 2008 02 12 | 691 | 0.0 | 0.0 | 2009 09 23 | 691 | 0.2− | 0.0 |
| 2002 09 07 | 704 | 0.4+ | 0.3− | 2008 02 12 | 691 | 0.3− | 0.1− | 2009 09 23 | 691 | 0.4− | 0.0 |
| 2002 09 07 | 704 | 0.6+ | 0.2+ | 2008 03 05 | G96 | 0.1− | 0.1− | 2009 09 23 | 691 | 0.6− | 0.3− |
| 2002 09 07 | 704 | 0.5+ | 0.0 | 2008 03 05 | G96 | 0.2− | 0.2+ | 2009 10 15 | 704 | 0.7− | 0.5+ |
| 2002 09 07 | 704 | 0.4+ | 0.4+ | 2008 03 05 | G96 | 0.3− | 0.1+ | 2009 10 15 | 704 | 0.3+ | 0.5+ |
| 2002 09 08 | 608 | 0.8− | 0.3− | 2008 03 05 | G96 | 0.3+ | 0.3− | 2009 10 15 | 704 | 1.1+ | 0.8+ |
| 2002 09 08 | 608 | 0.4− | 0.5− | 2008 04 11 | G96 | 0.1− | 0.0 | 2009 10 15 | 704 | 0.1+ | 0.5+ |
| 2002 09 08 | 608 | 0.7− | 0.7− | 2008 04 11 | G96 | 0.2+ | 0.1− | 2009 12 17 | G96 | 0.6+ | 0.1− |
| 2002 09 14 | 644 | 0.5− | 0.3+ | 2008 04 11 | G96 | 0.0 | 0.1− | 2009 12 17 | G96 | 0.6+ | 0.2− |
| 2002 09 14 | 644 | 0.4− | 0.1− | 2008 04 11 | G96 | 0.4+ | 0.2+ | 2009 12 17 | G96 | 0.7+ | 0.5− |
| 2002 09 14 | 644 | 0.1− | 0.3+ | 2008 05 03 | G96 | 0.2+ | 0.4+ | 2009 12 17 | G96 | 0.8+ | 0.2− |

**(228710)∗ 2002 RF$_{148}$**

Discovered 2002 Sept. 11 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 139.80547 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17540925 | $\omega$ | 235.92994 | | +0.64176407 | +0.76624944 | |
| $a$ | 3.1605867 | $\Omega$ | 74.02578 | | −0.69233255 | +0.59661149 | |
| $e$ | 0.1878452 | $i$ | 1.88560 | | −0.32987045 | +0.23857184 | |
| $P$ | 5.62 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1991 10 08 | 691 | 0.6− | 0.9+ | 2003 11 29 | 691 | 0.1+ | 0.1− | 2008 11 09 | G96 | 0.1+ | 0.1− |
| 1991 10 08 | 691 | 0.0 | 0.2+ | 2003 11 29 | 691 | 0.4+ | 0.0 | 2008 11 09 | G96 | 0.8− | 0.2+ |
| 1991 10 08 | 691 | 0.1− | 0.2+ | 2005 01 19 | 691 | 0.2+ | 0.1+ | 2008 11 09 | G96 | 0.8− | 0.4+ |
| 2002 09 04 | 699 | 0.4+ | 1.1− | 2005 01 19 | 691 | 0.1− | 0.5+ | 2008 11 09 | G96 | 0.9− | 0.2+ |
| 2002 09 04 | 699 | 0.8− | 0.1+ | 2005 01 19 | 691 | 0.0 | 0.4+ | 2008 11 18 | 691 | 0.1− | 0.1+ |
| 2002 09 04 | 699 | 0.5+ | 0.6− | 2005 03 10 | G96 | 0.2+ | 0.4+ | 2008 11 18 | 691 | 0.0 | 0.0 |
| 2002 09 04 | 699 | 0.2− | 0.8+ | 2005 03 10 | G96 | 0.2− | 0.1− | 2008 11 18 | 691 | 0.3+ | 0.0 |
| 2002 09 11 | 644 | 0.4+ | 0.4− | 2005 03 10 | G96 | 0.3− | 0.2+ | 2008 11 20 | 691 | 0.2+ | 0.1+ |
| 2002 09 11 | 644 | 0.2+ | 0.1+ | 2005 03 10 | G96 | 0.3− | 0.1+ | 2008 11 20 | 691 | 0.0 | 0.0 |
| 2002 09 11 | 644 | 0.2+ | 0.0 | 2008 09 21 | 691 | 0.4− | 0.7− | 2008 11 20 | 691 | 0.1− | 0.1+ |
| 2002 09 13 | 644 | 0.4+ | 0.1− | 2008 09 21 | 691 | 0.5− | 0.4− | 2008 12 04 | G96 | 0.2+ | 0.1+ |
| 2002 09 13 | 644 | 0.1+ | 0.1+ | 2008 09 21 | 691 | 0.0 | 0.1− | 2008 12 04 | G96 | 0.1+ | 0.1+ |
| 2002 09 13 | 644 | 0.0 | 0.1− | 2008 09 29 | 691 | 0.0 | 0.1− | 2008 12 04 | G96 | 0.4+ | 0.5− |
| 2002 09 18 | 644 | 0.0 | 1.2+ | 2008 09 29 | 691 | 0.2+ | 0.1− | 2008 12 04 | G96 | 0.3+ | 0.6− |
| 2002 09 18 | 644 | 0.3− | 1.0+ | 2008 09 29 | 691 | 0.0 | 0.2− | 2008 12 30 | G96 | 0.3+ | 0.4− |
| 2002 09 18 | 644 | 0.4+ | 0.9+ | 2008 10 07 | 691 | 0.3+ | 0.0 | 2008 12 30 | G96 | 0.1+ | 0.2− |
| 2002 10 03 | 704 | 0.1− | 0.8− | 2008 10 07 | 691 | 0.3+ | 0.1− | 2008 12 30 | G96 | 0.6+ | 0.0 |
| 2002 10 03 | 704 | 0.2− | 0.1− | 2008 10 07 | 691 | 0.2+ | 0.1+ | 2008 12 30 | G96 | 0.0 | 0.0 |
| 2002 10 03 | 704 | 0.4+ | 0.1+ | 2008 10 23 | G96 | 0.9+ | 0.4− | 2009 11 17 | G96 | 0.1− | 0.3− |
| 2002 10 04 | 704 | 0.5+ | 0.7+ | 2008 10 23 | G96 | 0.5+ | 0.3− | 2009 11 17 | G96 | 0.3+ | 0.2+ |
| 2002 10 04 | 704 | 1.1+ | 0.4− | 2008 10 23 | G96 | 0.7+ | 0.4− | 2009 11 17 | G96 | 0.4− | 0.2− |
| 2002 10 04 | 704 | 1.1− | 0.6− | 2008 10 23 | G96 | 0.8+ | 0.3− | 2009 11 17 | G96 | 0.1− | 0.1+ |
| 2002 10 04 | 704 | 0.5− | 0.4+ | 2008 10 27 | 691 | 0.2+ | 0.0 | 2009 12 16 | G96 | 0.0 | 0.4− |
| 2002 10 04 | 704 | 0.7− | 0.5− | 2008 10 27 | 691 | 1.1− | 0.1+ | 2009 12 16 | G96 | 0.5+ | 0.4− |
| 2002 10 07 | 704 | 0.5− | 0.8+ | 2008 10 27 | 691 | 0.4− | 0.3+ | 2009 12 16 | G96 | 0.1+ | 0.1− |
| 2002 10 07 | 704 | 0.7+ | 0.5+ | 2008 11 07 | G96 | 0.1− | 0.5− | 2009 12 16 | G96 | 0.6+ | 0.2+ |
| 2002 10 07 | 704 | 0.3+ | 0.4− | 2008 11 07 | G96 | 0.5+ | 0.1+ | 2009 12 16 | G96 | 0.2+ | 0.6− |
| 2003 11 29 | 691 | 0.2+ | 0.1− | 2008 11 07 | G96 | 0.0 | 0.1− | | | | |

**(228711)∗ 2002 RP$_{169}$ = 2005 MM$_8$**

Discovered 2002 Sept. 13 by NEAT at Palomar.

Id. G. V. Williams (*MPO* 85609)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 131.49046 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.30092359 | $\omega$ | 141.38238 | | +0.50858756 | +0.86096047 | |
| $a$ | 2.2054568 | $\Omega$ | 159.18241 | | −0.79628989 | +0.47442221 | |
| $e$ | 0.0717601 | $i$ | 1.49322 | | −0.32750742 | +0.18349560 | |
| $P$ | 3.28 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 10 10 | 704 | 0.5+ | 0.9+ | 2005 06 27 | 644 | 0.3− | 0.1+ | 2009 09 22 | G96 | 0.6+ | 0.5+ |
| 1999 10 10 | 704 | 0.7− | 0.9+ | 2005 06 27 | 644 | 0.2− | 0.2+ | 2009 09 22 | G96 | 0.2+ | 1.2− |
| 1999 10 10 | 704 | 1.0− | 0.5− | 2005 06 28 | 644 | 0.1− | 0.1− | 2009 09 30 | G96 | 0.2+ | 0.1− |
| 2001 05 22 | 807 | 0.4+ | 0.1+ | 2005 06 28 | 644 | 0.3− | 0.2− | 2009 09 30 | G96 | 0.3+ | 0.4− |
| 2001 05 23 | 807 | 0.3+ | 0.0 | 2005 06 28 | 644 | 0.1− | 0.1− | 2009 09 30 | G96 | 0.1− | 0.4+ |
| 2002 09 05 | 645 | 0.1+ | 0.2− | 2005 07 02 | 691 | 0.0 | 0.2+ | 2009 09 30 | G96 | 0.5+ | 0.0 |
| 2002 09 05 | 645 | 0.1+ | 0.2− | 2005 07 02 | 691 | 0.0 | 0.0 | 2009 10 30 | G96 | 0.4+ | 0.4− |
| 2002 09 07 | 704 | 0.7− | 0.6+ | 2005 07 02 | 691 | 0.1− | 0.2+ | 2009 10 30 | G96 | 0.8− | 0.2− |
| 2002 09 07 | 704 | 0.3− | 0.5+ | 2005 07 07 | 691 | 0.2− | 0.1− | 2009 10 30 | G96 | 0.5+ | 0.7+ |
| 2002 09 07 | 704 | (2.0− | 1.4+) | 2005 07 07 | 691 | 0.3− | 0.0 | 2009 10 30 | G96 | 1.2+ | 0.9+ |
| 2002 09 13 | 644 | 0.2− | 0.0 | 2005 07 07 | 691 | 0.5+ | 0.4+ | 2009 11 16 | 691 | 0.2+ | 0.2+ |
| 2002 09 13 | 644 | 0.1− | 0.1+ | 2005 07 30 | E12 | 0.4+ | 0.7+ | 2009 11 16 | 691 | 0.0 | 0.3+ |
| 2002 09 13 | 644 | 0.1− | 0.3+ | 2005 07 30 | E12 | 0.6− | 0.1+ | 2009 11 16 | 691 | 0.1+ | 0.1+ |
| 2002 09 14 | 644 | 0.1− | 0.2+ | 2005 07 30 | E12 | 0.6− | 0.5+ | 2009 11 26 | 691 | 0.3− | 0.1+ |
| 2002 09 14 | 644 | 0.0 | 0.4+ | 2005 09 29 | G96 | 0.4+ | 0.2− | 2009 11 26 | 691 | 0.7− | 0.3+ |
| 2002 09 14 | 644 | 0.1+ | 0.4+ | 2005 09 29 | G96 | 0.5+ | 0.3− | 2009 11 26 | 691 | 0.6− | 0.2+ |
| 2002 10 03 | 704 | 0.1− | 0.2+ | 2005 09 29 | G96 | 0.7+ | 0.3− | 2009 12 17 | G96 | 0.1− | 0.2− |
| 2002 10 03 | 704 | 0.0 | 0.1+ | 2005 09 29 | G96 | 0.3+ | 0.2− | 2009 12 17 | G96 | 0.3+ | 0.3− |
| 2002 10 03 | 704 | 0.2− | 0.4+ | 2006 11 01 | G96 | 0.3− | 0.3− | 2009 12 17 | G96 | 0.1+ | 0.3+ |
| 2002 10 03 | 704 | 1.0− | 1.1+ | 2006 11 01 | G96 | 0.1− | 0.3− | 2009 12 17 | G96 | 0.6+ | 0.3+ |
| 2005 06 27 | 691 | 0.1− | 0.0 | 2006 11 01 | G96 | 0.0 | 0.5− | 2009 12 17 | G96 | 0.3− | 0.3− |
| 2005 06 27 | 691 | 0.0 | 0.1+ | 2006 11 01 | G96 | 0.2+ | 0.1− | 2009 12 17 | G96 | 0.2+ | 0.4− |
| 2005 06 27 | 691 | 0.1− | 0.1+ | 2009 09 22 | G96 | 0.7+ | 0.3− | 2009 12 17 | G96 | 1.0+ | 0.3− |
| 2005 06 27 | 644 | 0.1+ | 0.2− | 2009 09 22 | G96 | 0.8+ | 0.4− | | | | |

**(228712)∗ 2002 RZ$_{205}$**

Discovered 2002 Sept. 14 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 21.56775 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28556070 | $\omega$ | 129.01175 | | +0.91259532 | −0.40785344 | |
| $a$ | 2.2838650 | $\Omega$ | 255.07518 | | +0.36533657 | +0.84497326 | |
| $e$ | 0.1656416 | $i$ | 1.70376 | | +0.18357277 | +0.34594184 | |
| $P$ | 3.45 | $H$ | 17.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 09 06 | 704 | 0.5+ | 0.5− | 2008 05 03 | G96 | 0.1− | 0.0 | 2009 10 15 | 704 | 0.3+ | 0.4− |
| 2002 09 06 | 704 | 0.5+ | 0.2+ | 2008 05 03 | G96 | 0.1− | 0.4+ | 2009 10 15 | 704 | 0.8+ | 0.1− |
| 2002 09 06 | 704 | 1.0+ | 0.5+ | 2008 05 03 | G96 | 0.2− | 0.2+ | 2009 10 15 | 704 | 0.1+ | 0.6+ |
| 2002 09 06 | 704 | 0.5+ | 1.3+ | 2008 05 03 | G96 | 0.8+ | 0.5+ | 2009 10 15 | 704 | 0.0 | 0.1+ |
| 2002 09 06 | 704 | 0.6+ | 0.1+ | 2009 09 18 | 691 | 0.3− | 0.1+ | 2009 10 17 | J75 | 0.3+ | 0.3+ |
| 2002 09 06 | 704 | (1.6+ | 2.1+) | 2009 09 18 | 691 | 0.3− | 0.2+ | 2009 10 17 | J75 | 0.4+ | 0.1− |
| 2002 09 06 | 704 | 0.3− | 0.9+ | 2009 09 18 | 691 | 0.5− | 0.0 | 2009 10 17 | J75 | 0.0 | 0.2− |
| 2002 09 14 | 644 | 0.3− | 0.2− | 2009 09 22 | 691 | 0.1− | 0.1− | 2009 10 17 | J75 | 0.3+ | 0.0 |
| 2002 09 14 | 644 | 0.1− | 0.1− | 2009 09 22 | 691 | 0.0 | 0.2+ | 2009 10 17 | J75 | 0.6+ | 0.4− |
| 2002 09 14 | 644 | 0.2− | 0.2− | 2009 09 22 | 691 | 0.4− | 0.1+ | 2009 10 17 | J75 | 0.0 | 0.3− |
| 2002 09 15 | 608 | 0.4− | 0.1− | 2009 09 25 | 704 | 1.1− | 1.4+ | 2009 10 23 | 704 | 0.3+ | 0.5+ |
| 2002 09 15 | 608 | 0.5− | 0.3− | 2009 09 25 | 704 | 1.0+ | 0.3− | 2009 10 23 | 704 | (1.6+ | 0.5+) |
| 2002 09 15 | 608 | 0.4− | 0.4− | 2009 09 25 | 704 | 0.3+ | 1.1+ | 2009 10 23 | 704 | 0.7+ | 1.0+ |
| 2002 10 04 | 704 | 0.0 | 0.1+ | 2009 09 25 | 704 | 0.0 | 0.2+ | 2009 10 23 | 704 | 0.5+ | 0.5+ |
| 2002 10 04 | 704 | 0.2− | 0.1− | 2009 09 25 | 704 | 0.5− | 0.7+ | 2009 10 27 | G96 | 0.2+ | 0.0 |
| 2002 10 04 | 704 | 0.2− | 0.5+ | 2009 09 26 | 691 | 0.6− | 0.6+ | 2009 10 27 | G96 | 0.1+ | 0.2− |
| 2002 10 10 | 645 | 0.0 | 0.2− | 2009 09 26 | 691 | 0.2− | 0.0 | 2009 10 27 | G96 | 0.1+ | 0.1− |
| 2002 10 10 | 645 | 0.1+ | 0.2− | 2009 09 26 | 691 | 0.1− | 0.6+ | 2009 10 27 | G96 | 0.1− | 0.0 |
| 2004 03 14 | 691 | 0.6+ | 0.5+ | 2009 09 28 | 691 | 0.3− | 0.2+ | 2009 10 27 | J75 | 0.0 | 0.8− |
| 2004 03 14 | 691 | 0.7+ | 0.2+ | 2009 09 28 | 691 | 0.1− | 0.1+ | 2009 10 27 | J75 | 0.5+ | 0.4− |
| 2004 03 14 | 691 | 0.4− | 0.8+ | 2009 09 28 | 691 | 0.1− | 0.1+ | 2009 10 27 | J75 | 0.5+ | 0.5− |
| 2006 12 13 | G96 | 0.1− | 0.2− | 2009 10 09 | 703 | 0.7− | 0.4+ | 2009 11 10 | 703 | 0.3− | 0.4+ |
| 2006 12 13 | G96 | 0.3+ | 0.1− | 2009 10 09 | 703 | (1.6− | 0.2+) | 2009 11 10 | 703 | 0.2− | 0.0 |
| 2006 12 13 | G96 | 0.1+ | 0.2− | 2009 10 09 | 703 | 0.0 | 0.4+ | 2009 11 10 | 703 | 1.3− | 0.6− |
| 2006 12 13 | G96 | 0.0 | 0.1+ | 2009 10 09 | 703 | 1.4− | 0.3− | 2009 11 10 | 703 | 0.6− | 0.3− |
| 2007 01 09 | G96 | 0.3− | 0.1+ | 2009 10 12 | J75 | 0.7+ | 0.5− | 2009 12 15 | G96 | 0.3+ | 0.2+ |
| 2007 01 09 | G96 | 0.2− | 0.0 | 2009 10 12 | J75 | 0.1− | 0.1+ | 2009 12 15 | G96 | 1.0+ | 0.3+ |
| 2007 01 09 | G96 | 0.4− | 0.0 | 2009 10 12 | J75 | 0.6+ | 0.4− | 2009 12 15 | G96 | 0.7+ | 0.4+ |
| 2007 01 09 | G96 | 0.0 | 0.1− | 2009 10 14 | 703 | 0.8+ | 0.6− | 2009 12 15 | G96 | 1.0+ | 0.1+ |
| 2007 02 21 | G96 | 0.5− | 0.0 | 2009 10 14 | 703 | 0.5+ | 0.5− | 2009 12 16 | G96 | 0.1+ | 0.2− |
| 2007 02 21 | G96 | 0.2− | 0.2− | 2009 10 14 | 703 | 1.2+ | 0.1+ | 2009 12 16 | G96 | 0.3+ | 0.0 |
| 2007 02 21 | G96 | 0.1+ | 0.2− | 2009 10 14 | 703 | 0.3+ | 0.2− | 2009 12 16 | G96 | 0.6+ | 0.0 |
| 2007 02 21 | G96 | 0.2− | 0.3− | 2009 10 15 | 704 | 0.5+ | 0.0 | 2009 12 16 | G96 | 0.7+ | 0.1− |

**(228713)∗ 2002 RD$_{256}$**

Discovered 2002 Sept. 4 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 70.01015 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18164315 | $\omega$ | 115.78909 | | +0.77657343 | −0.60855702 | |
| $a$ | 3.0878536 | $\Omega$ | 282.12763 | | +0.50163710 | +0.75384546 | |
| $e$ | 0.0608369 | $i$ | 9.60142 | | +0.38117440 | +0.24774054 | |
| $P$ | 5.43 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 07 21 | 644 | 0.3− | 0.1+ | 2002 09 12 | 644 | 0.4− | 0.2+ | 2008 11 03 | 704 | 0.2− | 0.6+ |
| 2002 07 21 | 644 | 0.8− | 0.3− | 2002 09 12 | 644 | 0.3− | 0.2+ | 2008 11 03 | 704 | 1.1+ | 0.8− |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 07 21 | 644 | 0.1+ | 0.3− | 2003 11 24 | 704 | 0.8− | 0.8− | 2008 11 03 | 704 | 0.0 | 0.1+ |
| 2002 08 15 | 644 | 0.1+ | 0.1+ | 2003 11 24 | 704 | 0.3+ | 0.4+ | 2008 11 03 | 704 | (2.4− | 1.7+) |
| 2002 08 15 | 644 | 0.3+ | 0.3+ | 2003 11 24 | 704 | 0.8+ | 0.1− | 2009 11 16 | G96 | 0.3− | 0.7+ |
| 2002 08 15 | 644 | 0.6− | 0.0 | 2003 12 18 | 691 | 0.2− | 0.2− | 2009 11 16 | G96 | 0.1+ | 0.4+ |
| 2002 08 26 | 644 | 0.4− | 0.0 | 2003 12 18 | 691 | 0.3− | 0.2− | 2009 11 16 | G96 | 0.2− | 0.0 |
| 2002 08 26 | 644 | 0.4+ | 0.3− | 2003 12 18 | 691 | 0.5+ | 0.1− | 2009 11 16 | G96 | 0.4+ | 0.3+ |
| 2002 08 26 | 644 | 0.4+ | 0.1− | 2008 10 03 | 704 | 0.5+ | 0.0 | 2009 12 15 | G96 | 0.5− | 0.1− |
| 2002 08 26 | 644 | 0.2+ | 0.1+ | 2008 10 03 | 704 | 0.3+ | 0.3+ | 2009 12 15 | G96 | 1.0+ | 0.1+ |
| 2002 08 26 | 644 | 0.5+ | 0.7− | 2008 10 03 | 704 | 0.4+ | 1.0+ | 2009 12 15 | G96 | 0.5+ | 0.6− |
| 2002 09 04 | 644 | 0.1+ | 0.0 | 2008 11 02 | 703 | 1.2− | 0.4− | 2009 12 15 | G96 | 0.4+ | 0.1− |
| 2002 09 04 | 644 | 0.7+ | 0.2+ | 2008 11 02 | 703 | 0.5− | 0.3+ | 2009 12 17 | 691 | 0.3− | 0.2+ |
| 2002 09 04 | 644 | 0.2+ | 0.3+ | 2008 11 02 | 703 | (1.7− | 0.1−) | 2009 12 17 | 691 | 0.3− | 0.2+ |
| 2002 09 12 | 644 | 0.3− | 0.1+ | 2008 11 02 | 703 | 0.8− | 0.4+ | 2009 12 17 | 691 | 0.4+ | 0.0 |

**(228714)∗ 2002 RM$_{257}$**

Discovered 2002 Sept. 3 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 174.79071 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18345373 | $\omega$ | 191.42644 | | −0.04648127 | +0.98980820 | |
| $a$ | 3.0675032 | $\Omega$ | 76.01602 | | −0.90521199 | +0.01524608 | |
| $e$ | 0.1638938 | $i$ | 7.97372 | | −0.42241064 | −0.14158847 | |
| $P$ | 5.37 | $H$ | 15.3 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 05 22 | 566 | 0.2− | 0.1− | 2002 08 30 | 644 | 0.2+ | 0.3− | 2008 10 21 | G96 | 0.2+ | 0.4− |
| 1996 05 22 | 566 | 0.8+ | 0.2+ | 2002 08 30 | 644 | 0.1+ | 0.3+ | 2008 10 21 | G96 | 0.0 | 0.6− |
| 1996 05 22 | 566 | 0.2+ | 0.1+ | 2002 08 30 | 644 | 0.3− | 0.9+ | 2008 10 21 | G96 | 0.0 | 0.5− |
| 1996 06 14 | 566 | 0.4− | 0.7+ | 2002 08 30 | 644 | 0.0 | 0.0 | 2008 10 21 | G96 | 0.1− | 0.6− |
| 1996 06 14 | 566 | 0.9− | 0.4+ | 2002 08 30 | 644 | 0.2+ | 0.3− | 2008 10 21 | G96 | 0.1− | 0.5− |
| 1996 06 14 | 566 | 0.4+ | 0.1+ | 2002 08 30 | 644 | 0.7+ | 0.2− | 2008 10 21 | G96 | 0.3− | 0.6− |
| 2002 07 16 | 644 | 0.3+ | 0.3+ | 2002 08 30 | 644 | 0.6− | 0.3− | 2008 10 22 | G96 | 0.4+ | 0.2− |
| 2002 07 16 | 644 | 0.1+ | 0.2− | 2002 09 03 | 644 | 0.6− | 0.3+ | 2008 10 22 | G96 | 0.2+ | 0.3− |
| 2002 07 29 | 644 | 0.2+ | 0.2+ | 2002 09 03 | 644 | 0.3− | 0.2+ | 2008 10 22 | G96 | 0.0 | 0.2− |
| 2002 07 29 | 644 | 0.1+ | 0.6+ | 2002 09 03 | 644 | 0.1− | 0.2+ | 2008 10 22 | G96 | 0.3+ | 0.4− |
| 2002 07 29 | 644 | 0.3+ | 0.2+ | 2002 09 15 | 644 | 0.4− | 0.0 | 2009 11 21 | 691 | 0.4− | 0.5+ |
| 2002 08 13 | 644 | 0.0 | 0.7+ | 2002 09 15 | 644 | 0.1− | 0.2− | 2009 11 21 | 691 | 0.1+ | 0.4+ |
| 2002 08 13 | 644 | 0.3− | 0.0 | 2002 09 15 | 644 | 0.4− | 0.1+ | 2009 11 21 | 691 | 0.1+ | 0.8+ |
| 2002 08 13 | 644 | 0.2+ | 0.6+ | 2006 02 21 | 703 | 0.1− | 0.6+ | 2009 12 10 | G96 | 0.1+ | 0.1− |
| 2002 08 13 | 644 | 0.1− | 0.1− | 2006 02 21 | 703 | 0.5+ | 0.1+ | 2009 12 10 | G96 | 0.7+ | 0.5− |
| 2002 08 13 | 644 | 0.1− | 0.7+ | 2006 02 21 | 703 | 0.1+ | 0.8+ | 2009 12 10 | G96 | 0.3+ | 0.1− |
| 2002 08 13 | 644 | 0.0 | 0.1− | 2006 02 21 | 703 | 1.3− | 1.0− | 2009 12 10 | G96 | 0.2+ | 0.0 |
| 2002 08 19 | 644 | 0.2+ | 0.7+ | 2006 03 24 | 644 | 0.4+ | 0.1+ | 2009 12 19 | G96 | 0.2+ | 0.2+ |
| 2002 08 19 | 644 | 0.1+ | 0.1+ | 2006 03 24 | 644 | 0.3+ | 0.1+ | 2009 12 19 | G96 | 0.0 | 0.2+ |
| 2002 08 19 | 644 | 0.1+ | 0.1+ | 2006 03 24 | 644 | 0.2+ | 0.2+ | 2009 12 19 | G96 | 0.2− | 0.0 |
| 2002 08 30 | 644 | 0.5+ | 0.2+ | 2008 10 21 | G96 | 0.1− | 0.2− | 2009 12 19 | G96 | 0.2− | 0.1+ |
| 2002 08 30 | 644 | 0.1+ | 0.6+ | 2008 10 21 | G96 | 0.3− | 0.6− | | | | |

**(228715)∗ 2002 RH$_{258}$ = 2000 EO$_{163}$**

Discovered 2002 Sept. 14 by NEAT at Palomar.

Id. A. Doppler (*MPO* 108384)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 219.98630 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17533321 | $\omega$ | 140.33105 | | −0.63617830 | +0.77148579 | |
| $a$ | 3.1615006 | $\Omega$ | 90.15946 | | −0.71022128 | −0.58085432 | |
| $e$ | 0.1132693 | $i$ | 0.53395 | | −0.30143475 | −0.25964963 | |
| $P$ | 5.62 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 03 03 | 704 | 0.5+ | 0.7+ | 2006 04 09 | 691 | 0.4+ | 0.5+ | 2008 09 24 | 691 | 0.2+ | 0.3+ |
| 2000 03 03 | 704 | 0.3+ | 1.0+ | 2006 04 09 | 691 | 0.3+ | 0.2+ | 2008 10 02 | 691 | 0.4− | 0.2+ |
| 2000 03 03 | 704 | 0.6− | 0.5− | 2006 04 09 | 691 | 0.2+ | 0.1+ | 2008 10 02 | 691 | 0.2− | 0.2− |
| 2000 03 03 | 704 | 0.3+ | 1.0+ | 2006 04 18 | 699 | 0.3− | 0.9− | 2008 10 02 | 691 | 0.0 | 0.5+ |
| 2000 03 11 | 704 | 0.1− | 1.0+ | 2006 04 18 | 699 | 1.2− | 0.1+ | 2008 10 06 | 691 | 0.3+ | 0.2+ |
| 2000 03 11 | 704 | 0.5− | 0.2+ | 2006 04 18 | 699 | (2.3+ | 1.1+) | 2008 10 06 | 691 | 0.0 | 0.1+ |
| 2000 03 11 | 704 | 0.3+ | 0.6+ | 2006 04 18 | 699 | (1.0+ | 2.5+) | 2008 10 06 | 691 | 0.1+ | 0.4+ |
| 2000 03 11 | 704 | 1.0+ | 0.3− | 2006 04 19 | G96 | 0.1− | 0.4+ | 2008 10 10 | 691 | 0.2+ | 0.2+ |
| 2000 03 11 | 704 | 0.8+ | 1.0+ | 2006 04 19 | G96 | 0.1− | 0.4+ | 2008 10 10 | 691 | 0.2− | 0.4− |
| 2002 09 13 | 644 | 0.4− | 0.5+ | 2006 04 19 | G96 | 0.2+ | 0.4+ | 2008 10 10 | 691 | 0.3− | 0.1− |
| 2002 09 13 | 644 | 0.1+ | 0.6+ | 2006 04 19 | G96 | (0.9− | 2.1+) | 2008 11 07 | G96 | 0.6+ | 1.1− |
| 2002 09 14 | 644 | 0.3+ | 0.5+ | 2006 04 27 | 807 | 0.2+ | 0.4+ | 2008 11 07 | G96 | 0.1+ | 0.4+ |
| 2002 09 14 | 644 | 0.1− | 0.5+ | 2006 04 27 | 807 | 0.2+ | 0.5+ | 2008 11 07 | G96 | (1.6+ | 0.0 ) |
| 2002 09 14 | 644 | 0.2− | 0.8+ | 2006 05 05 | G96 | (0.7− | 1.6+) | 2008 11 07 | G96 | 0.6+ | 0.5− |
| 2002 09 15 | 644 | 0.5− | 0.2+ | 2006 05 05 | G96 | 0.0 | 0.1+ | 2009 11 20 | G96 | 0.4− | 0.3− |
| 2002 09 15 | 644 | 0.3+ | 0.2− | 2006 05 05 | G96 | 0.3+ | 0.1+ | 2009 11 20 | G96 | 0.3+ | 0.0 |
| 2002 09 15 | 644 | 0.6− | 0.4+ | 2006 05 05 | G96 | 0.0 | 0.2+ | 2009 11 20 | G96 | 0.1− | 0.1− |
| 2002 09 15 | 644 | 0.1− | 0.4+ | 2006 05 22 | G96 | 0.1+ | 0.0 | 2009 11 20 | G96 | 0.0 | 0.1+ |
| 2002 09 15 | 644 | 0.3+ | 0.7+ | 2006 05 22 | G96 | 0.1+ | 0.3+ | 2009 12 10 | G96 | 0.1+ | 0.1+ |
| 2005 01 18 | 691 | 0.0 | 0.4+ | 2006 05 22 | G96 | 0.2+ | 0.2+ | 2009 12 10 | G96 | 0.6+ | 0.3− |
| 2005 01 18 | 691 | 0.2− | 0.1+ | 2006 05 22 | G96 | 0.1+ | 0.2+ | 2009 12 10 | G96 | 0.0 | 0.3− |
| 2005 01 18 | 691 | 0.0 | 0.2+ | 2008 09 24 | 691 | 1.1− | 0.0 | 2009 12 10 | G96 | 0.4+ | 0.3− |
| 2006 03 23 | G96 | 0.1− | 0.5+ | 2008 09 24 | 691 | 0.1+ | 1.1+ | 2009 12 19 | G96 | 0.3+ | 0.1− |
| 2006 03 23 | G96 | 0.2− | 0.2+ | 2008 09 24 | 691 | 0.4− | 0.1+ | 2009 12 19 | G96 | 0.4+ | 0.0 |
| 2006 03 23 | G96 | 0.2+ | 0.2+ | 2008 09 24 | 691 | 0.0 | 0.0 | 2009 12 19 | G96 | 0.0 | 0.1− |
| 2006 03 23 | G96 | 0.2+ | 0.6+ | 2008 09 24 | 691 | 0.0 | 0.2+ | 2009 12 19 | G96 | 0.3+ | 0.2− |

**(228716)∗ 2002 RK$_{279}$**

Discovered 2002 Sept. 8 by NEAT at Haleakala.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 40.80328 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.29338945 | $\omega$ | 119.09938 | | +0.94314010 | −0.32322587 | |
| $a$ | 2.2430540 | $\Omega$ | 259.84882 | | +0.27098007 | +0.88275942 | |
| $e$ | 0.1498580 | $i$ | 4.51779 | | +0.19250076 | +0.34097045 | |
| $P$ | 3.36 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 09 08 | 608 | 0.2− | 0.1− | 2007 02 09 | G96 | 0.0 | 0.6− | 2009 11 22 | 703 | 0.3+ | 0.9+ |
| 2002 09 08 | 608 | 0.4− | 0.3− | 2008 05 05 | G96 | 0.3+ | 0.3+ | 2009 11 22 | 703 | 0.6+ | 0.3+ |
| 2002 09 08 | 608 | 0.2− | 0.4− | 2008 05 05 | G96 | 0.3− | 0.2− | 2009 11 22 | 703 | 0.1− | 0.8+ |
| 2002 09 13 | 644 | 0.2− | 0.2− | 2008 05 05 | G96 | 0.1− | 0.6+ | 2009 11 23 | 703 | 0.6+ | 0.9+ |
| 2002 09 13 | 644 | 0.2− | 0.5− | 2008 05 05 | G96 | (0.3+ | 2.7+) | 2009 11 23 | 703 | 0.9+ | 0.0 |
| 2002 09 13 | 644 | 0.0 | 0.2− | 2009 11 08 | 703 | 0.6− | 0.0 | 2009 11 23 | 703 | 0.6+ | 0.1+ |
| 2002 10 10 | 645 | 0.1+ | 0.0 | 2009 11 08 | 703 | 0.2− | 0.4− | 2009 11 23 | 703 | 1.3+ | 0.0 |
| 2002 10 10 | 645 | 0.0 | 0.0 | 2009 11 08 | 703 | 0.3− | 0.9+ | 2009 11 24 | G96 | 0.3+ | 0.4− |
| 2002 10 30 | 645 | 0.0 | 0.0 | 2009 11 08 | 703 | 1.0+ | 0.4+ | 2009 11 24 | G96 | 0.1+ | 0.2− |
| 2002 10 30 | 645 | 0.1+ | 0.0 | 2009 11 10 | J75 | 0.3− | 0.3+ | 2009 11 24 | G96 | 0.3+ | 0.3− |
| 2002 11 08 | 645 | 0.0 | 0.0 | 2009 11 10 | J75 | 0.5+ | 0.2+ | 2009 11 24 | G96 | 0.1+ | 0.3− |
| 2002 11 08 | 645 | 0.0 | 0.1− | 2009 11 10 | J75 | 0.0 | 0.2+ | 2009 11 25 | 691 | 0.2− | 0.0 |
| 2006 12 16 | G96 | 0.3− | 0.7− | 2009 11 11 | 691 | 0.0 | 0.1− | 2009 11 25 | 691 | 0.3− | 0.1+ |
| 2006 12 16 | G96 | 0.1− | 0.1+ | 2009 11 11 | 691 | 0.0 | 0.2− | 2009 11 25 | 691 | 0.5− | 0.1+ |
| 2006 12 16 | G96 | 0.3− | 0.3− | 2009 11 11 | 691 | 0.1− | 0.0 | 2009 11 27 | 691 | 0.3− | 0.0 |
| 2006 12 16 | G96 | 0.5− | 0.5− | 2009 11 11 | J75 | 0.5+ | 0.4− | 2009 11 27 | 691 | 0.4− | 0.0 |
| 2006 12 21 | G96 | 0.6+ | 0.4− | 2009 11 11 | J75 | 0.1+ | 0.1− | 2009 11 27 | 691 | 0.4− | 0.0 |
| 2006 12 21 | G96 | 0.4− | 0.2− | 2009 11 11 | J75 | 0.3+ | 0.1− | 2009 12 13 | 703 | 0.2− | 0.9+ |
| 2006 12 21 | G96 | 0.3+ | 0.4− | 2009 11 11 | J75 | 0.6+ | 0.4+ | 2009 12 13 | 703 | 0.3+ | 0.9+ |
| 2006 12 21 | G96 | 0.1− | 0.3− | 2009 11 11 | J75 | 0.2+ | 0.4+ | 2009 12 13 | 703 | 1.3− | 0.3− |
| 2007 01 10 | G96 | 0.2− | 0.1− | 2009 11 11 | J75 | 0.4+ | 0.1− | 2009 12 13 | 703 | 0.8+ | 0.2+ |
| 2007 01 10 | G96 | 0.3− | 0.2− | 2009 11 17 | 704 | 0.1− | 0.2+ | 2009 12 18 | G96 | 0.4+ | 0.2− |
| 2007 01 10 | G96 | 0.2− | 0.2− | 2009 11 17 | 704 | 0.4+ | 0.9+ | 2009 12 18 | G96 | 0.0 | 0.1− |
| 2007 01 10 | G96 | 0.1+ | 0.4− | 2009 11 17 | 704 | 0.7− | 0.1+ | 2009 12 18 | G96 | 0.6+ | 0.1− |
| 2007 02 09 | G96 | 0.1− | 0.5− | 2009 11 17 | 704 | 0.3+ | 0.0 | 2009 12 18 | G96 | 0.0 | 0.4− |
| 2007 02 09 | G96 | 0.3− | 0.4− | 2009 11 17 | 704 | 0.2+ | 0.7+ | | | | |
| 2007 02 09 | G96 | 0.1+ | 0.5− | 2009 11 22 | 703 | 0.0 | 0.0 | | | | |

**(228717)∗ 2002 SM$_{44}$**

Discovered 2002 Sept. 29 by NEAT at Haleakala.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 0.32919 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27706069 | $\omega$ | 6.72471 | | +0.82460361 | −0.56250758 | |
| $a$ | 2.3303408 | $\Omega$ | 27.77313 | | +0.51283511 | +0.69843673 | |
| $e$ | 0.1251335 | $i$ | 7.41268 | | +0.23880753 | +0.44246057 | |
| $P$ | 3.56 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 09 29 | 608 | 0.1− | 0.5− | 2002 10 11 | 704 | 0.9− | 0.3− | 2008 05 03 | G96 | 0.1+ | 0.5− |
| 2002 09 29 | 608 | 0.5− | 0.0 | 2002 10 11 | 704 | 0.5+ | 0.3+ | 2008 05 03 | G96 | 0.8+ | 1.4− |
| 2002 09 29 | 608 | 0.6− | 0.0 | 2002 10 11 | 704 | 0.4+ | 0.7− | 2008 05 03 | G96 | 0.2+ | 0.0 |
| 2002 10 02 | 704 | 0.5− | 0.9+ | 2002 10 31 | 699 | (1.7− | 2.7+) | 2009 09 13 | 704 | 0.9+ | 0.5+ |
| 2002 10 02 | 704 | 0.3+ | 0.4− | 2002 10 31 | 699 | 0.1− | 0.0 | 2009 09 13 | 704 | 0.5+ | 0.7− |
| 2002 10 02 | 704 | 0.5+ | 0.3+ | 2002 10 31 | 699 | (2.0− | 1.5+) | 2009 09 13 | 704 | 0.5+ | 0.3− |
| 2002 10 02 | 704 | 0.5+ | 0.4+ | 2002 10 31 | 699 | 0.4− | 1.1− | 2009 09 13 | 704 | 0.0 | 0.4+ |
| 2002 10 03 | 704 | 0.5− | 0.8+ | 2002 11 01 | 704 | 0.6− | 0.3+ | 2009 09 24 | G96 | 0.1− | 0.0 |
| 2002 10 03 | 704 | 0.2+ | 0.4+ | 2002 11 01 | 704 | 0.5− | 0.8− | 2009 09 24 | G96 | 0.2− | 0.2− |
| 2002 10 03 | 704 | 0.7− | 0.7+ | 2002 11 01 | 704 | 1.1+ | 0.6− | 2009 09 24 | G96 | 0.6− | 0.1− |
| 2002 10 07 | 644 | 0.6− | 0.3+ | 2004 03 26 | 691 | 0.2+ | 0.1+ | 2009 09 24 | G96 | 0.6− | 0.0 |
| 2002 10 07 | 644 | 0.4− | 0.3+ | 2004 03 26 | 691 | 0.3+ | 0.2+ | 2009 09 27 | E12 | 0.2− | 0.2+ |
| 2002 10 07 | 704 | 0.4+ | 0.1− | 2004 03 26 | 691 | 0.1− | 0.4+ | 2009 09 27 | E12 | 0.8+ | 0.1+ |
| 2002 10 07 | 704 | 0.6− | 0.8+ | 2008 04 01 | 691 | 0.1+ | 0.1− | 2009 09 27 | E12 | 0.6− | 0.1− |
| 2002 10 07 | 704 | 0.2+ | 0.6+ | 2008 04 01 | 691 | 0.2− | 0.2− | 2009 09 27 | E12 | 0.1− | 0.0 |
| 2002 10 07 | 644 | 0.4− | 0.2+ | 2008 04 01 | 691 | 0.0 | 0.1+ | 2009 12 12 | G96 | 0.3+ | 0.2+ |
| 2002 10 07 | 704 | 0.6− | 1.0+ | 2008 04 26 | 691 | 0.3− | 0.5+ | 2009 12 12 | G96 | 0.0 | 0.4− |
| 2002 10 07 | 704 | 0.8+ | 0.5+ | 2008 04 26 | 691 | 0.0 | 0.4+ | 2009 12 12 | G96 | 0.1+ | 0.3− |
| 2002 10 11 | 704 | 0.2− | 0.1− | 2008 04 26 | 691 | 0.0 | 0.1+ | 2009 12 12 | G96 | 0.1+ | 0.0 |
| 2002 10 11 | 704 | 1.2+ | 0.3+ | 2008 05 03 | G96 | 0.4+ | 0.4+ | | | | |

**(228718)∗ 2002 SH$_{52}$ = 2007 AT$_1$**

Discovered 2002 Sept. 17 by NEAT at Palomar.

Id. G. V. Williams (*MPO* 113949)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 64.23589 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.29213980 | $\omega$ | 238.00588 | | +0.98343527 | +0.11978658 | |
| $a$ | 2.2494460 | $\Omega$ | 114.80078 | | −0.06801528 | +0.93954169 | |
| $e$ | 0.1363517 | $i$ | 8.61875 | | −0.16801486 | +0.32079991 | |
| $P$ | 3.37 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 09 14 | 608 | 0.6− | 0.5− | 2006 12 13 | G96 | 0.3+ | 0.2+ | 2008 04 24 | 691 | 0.2− | 0.3+ |
| 2002 09 14 | 608 | 0.6− | 0.1− | 2006 12 13 | G96 | 0.2+ | 0.1− | 2008 04 24 | 691 | 0.2+ | 0.1+ |
| 2002 09 14 | 608 | 0.4− | 0.4− | 2007 01 08 | 703 | 0.7− | 0.6− | 2008 04 25 | 691 | 0.1− | 0.1− |
| 2002 09 17 | 644 | 0.1+ | 0.1+ | 2007 01 08 | 703 | 0.1− | 0.6+ | 2008 04 25 | 691 | 0.4− | 0.2+ |
| 2002 09 17 | 644 | 0.0 | 0.3+ | 2007 01 08 | 703 | (4.0− | 1.4−) | 2008 04 25 | 691 | 0.1− | 0.3+ |
| 2002 09 17 | 644 | 0.5+ | 0.0 | 2007 01 08 | 703 | 0.3+ | 0.7− | 2008 04 28 | G96 | 0.4+ | 0.2− |
| 2002 09 19 | 644 | 0.1− | 0.2+ | 2007 01 09 | G96 | 0.2− | 0.0 | 2008 04 28 | G96 | 0.0 | 0.3− |
| 2002 09 19 | 644 | 0.2− | 0.3+ | 2007 01 09 | G96 | 0.2+ | 0.1+ | 2008 04 28 | G96 | 0.0 | 0.2+ |
| 2002 09 19 | 644 | 0.0 | 0.3+ | 2007 01 09 | G96 | 0.4+ | 0.0 | 2008 04 28 | G96 | 0.9+ | 0.1− |
| 2002 09 30 | 608 | 0.1− | 0.2− | 2007 01 09 | G96 | 0.4+ | 0.3+ | 2008 05 02 | 152 | 1.2+ | 0.2− |
| 2002 09 30 | 608 | 0.1+ | 0.7− | 2007 01 16 | 704 | 0.4+ | 0.5+ | 2008 05 02 | 152 | 1.0+ | 0.5− |
| 2002 09 30 | 608 | 0.4− | 0.3− | 2007 01 16 | 704 | 0.9− | 0.7− | 2008 05 04 | 691 | 0.0 | 0.1+ |
| 2002 10 05 | 704 | 0.7− | 0.3+ | 2007 01 16 | 704 | 0.0 | 0.2+ | 2008 05 04 | 691 | 0.3− | 0.2− |
| 2002 10 05 | 704 | 0.4− | 0.7+ | 2007 01 16 | 704 | 0.4− | 0.1+ | 2008 05 04 | 691 | 0.3+ | 0.1− |
| 2002 10 05 | 704 | 0.0 | 0.3+ | 2007 01 16 | 704 | 1.0− | 0.5+ | 2009 11 09 | 703 | 0.4+ | 0.2+ |
| 2002 10 05 | 704 | (2.0− | 0.9+) | 2007 01 16 | G96 | 0.7+ | 0.2− | 2009 11 09 | 703 | 0.1+ | 0.1− |
| 2002 10 05 | 704 | (1.7− | 0.4+) | 2007 01 16 | G96 | 0.2+ | 0.0 | 2009 11 09 | 703 | 0.6− | 0.4+ |
| 2002 10 06 | 704 | 0.2+ | 0.6+ | 2007 01 16 | G96 | 0.7+ | 0.1− | 2009 11 09 | 703 | 1.1+ | 0.3+ |
| 2002 10 06 | 704 | (1.6+ | 0.3+) | 2007 01 16 | G96 | 0.3+ | 0.3− | 2009 11 21 | 703 | 0.3− | 0.5− |
| 2002 10 06 | 704 | 0.0 | 0.8+ | 2007 02 06 | G96 | 0.2− | 0.0 | 2009 11 21 | 703 | 0.8+ | 0.7+ |
| 2002 10 06 | 704 | 0.1+ | 1.4+ | 2007 02 06 | G96 | 0.0 | 0.0 | 2009 11 21 | 703 | 0.3+ | 0.1− |
| 2002 10 06 | 704 | 0.5+ | 0.7− | 2007 02 06 | G96 | 0.3+ | 0.0 | 2009 11 21 | 703 | 0.1− | 0.3− |
| 2002 10 07 | 608 | 0.3+ | 0.4− | 2007 02 06 | G96 | 0.0 | 0.2− | 2009 12 10 | 703 | 0.4+ | 0.3− |
| 2002 10 07 | 608 | 0.4+ | 0.2− | 2007 02 07 | 691 | 0.1− | 0.1+ | 2009 12 10 | 703 | 0.1− | 0.8− |
| 2002 10 07 | 608 | 0.6+ | 0.0 | 2007 02 07 | 691 | 0.0 | 0.3+ | 2009 12 10 | 703 | 1.3− | 0.6− |
| 2006 12 13 | G96 | 0.1− | 0.1− | 2007 02 07 | 691 | 0.1− | 0.1+ | 2009 12 10 | 703 | 0.9− | 1.5+ |
| 2006 12 13 | G96 | 0.4+ | 0.1− | 2008 04 24 | 691 | 0.1− | 0.4+ | | | | |

**(228719)∗ 2002 TP = 1999 AW$_{27}$**

Discovered 2002 Oct. 1 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Id. G. V. Williams (*MPO* 37960)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 129.61103 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17277166 | $\omega$ | 189.60072 | | +0.84129889 | +0.53543000 | |
| $a$ | 3.1926725 | $\Omega$ | 137.74982 | | −0.48833664 | +0.81178058 | |
| $e$ | 0.1461276 | $i$ | 6.35041 | | −0.23182646 | +0.23308155 | |
| $P$ | 5.70 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 01 11 | 691 | 0.1− | 0.1− | 2002 10 02 | 608 | 0.3− | 0.4− | 2008 10 25 | 704 | 0.3− | 0.1+ |
| 1999 01 11 | 691 | 0.4+ | 0.2+ | 2002 10 02 | 608 | 0.7− | 0.6− | 2008 10 25 | 704 | (0.2+ | 1.7−) |
| 1999 01 18 | 691 | 0.2+ | 0.2+ | 2002 10 03 | 704 | 0.2− | 0.3+ | 2008 10 25 | 704 | 0.4+ | 0.7− |
| 1999 01 18 | 691 | 0.1− | 0.3− | 2002 10 03 | 704 | 0.1− | 0.7− | 2008 10 28 | G96 | 0.4+ | 0.4− |
| 1999 01 18 | 691 | 0.3− | 0.2− | 2002 10 03 | 704 | 0.2+ | 0.2− | 2008 10 28 | G96 | 0.4+ | 0.3− |
| 2002 09 14 | 608 | 0.1+ | 0.5− | 2002 10 03 | 704 | 1.3+ | 0.3+ | 2008 10 28 | G96 | 0.5+ | 0.1− |
| 2002 09 14 | 608 | 0.2− | 0.2+ | 2005 03 10 | G96 | 0.1+ | 0.2− | 2008 10 28 | G96 | 0.6+ | 0.2− |
| 2002 09 14 | 608 | 0.2+ | 0.8− | 2005 03 10 | G96 | 0.3− | 0.1+ | 2008 10 30 | 704 | 0.7+ | 0.9+ |
| 2002 09 16 | 644 | 0.4+ | 0.2+ | 2005 03 10 | G96 | 0.2+ | 0.2− | 2008 10 30 | 704 | 0.0 | 0.6+ |
| 2002 09 16 | 644 | 0.1+ | 0.1− | 2005 03 10 | G96 | 0.1+ | 0.1+ | 2008 10 30 | 704 | 1.0+ | 0.4+ |
| 2002 09 16 | 644 | 0.2+ | 0.1+ | 2007 07 18 | 703 | 0.6+ | 0.1+ | 2008 11 18 | 703 | 0.4− | 1.0+ |
| 2002 09 16 | 644 | 0.1− | 0.2+ | 2007 07 18 | 703 | 0.2+ | 0.3− | 2008 11 18 | 703 | 0.1− | 0.3− |
| 2002 09 16 | 644 | 0.0 | 0.1+ | 2007 07 18 | 703 | 0.7− | 0.4+ | 2008 11 18 | 703 | 0.7− | 0.9+ |
| 2002 09 16 | 644 | 0.1− | 0.4+ | 2007 07 18 | 703 | 0.1− | 0.0 | 2008 11 18 | 703 | 1.3− | 0.2− |
| 2002 10 01 | 699 | 0.0 | 0.6− | 2008 10 05 | J75 | 0.5− | 0.1− | 2009 12 17 | G96 | 0.7− | 0.5− |
| 2002 10 01 | 699 | 0.0 | 0.7+ | 2008 10 05 | J75 | 0.3+ | 0.3− | 2009 12 17 | G96 | 0.3+ | 0.1+ |
| 2002 10 01 | 699 | 1.1− | 0.0 | 2008 10 05 | J75 | 0.4+ | 0.9− | 2009 12 17 | G96 | 0.2− | 0.8− |
| 2002 10 01 | 699 | 0.2− | 0.5− | 2008 10 07 | 703 | 0.1− | 1.0+ | 2009 12 17 | G96 | 0.1+ | 0.3− |
| 2002 10 02 | 704 | 1.2+ | 0.2+ | 2008 10 07 | 703 | 0.8− | 0.5+ | 2009 12 17 | G96 | 0.0 | 0.2− |
| 2002 10 02 | 704 | 0.4+ | 0.5− | 2008 10 07 | 703 | 1.1− | 0.8+ | 2009 12 18 | 691 | 0.0 | 0.0 |
| 2002 10 02 | 704 | 0.4+ | 0.1− | 2008 10 07 | 703 | 0.7+ | 0.4+ | 2009 12 18 | 691 | 0.0 | 0.3+ |
| 2002 10 02 | 608 | 0.8− | 0.7− | 2008 10 25 | 704 | 0.4− | 0.1− | 2009 12 18 | 691 | 0.1− | 0.2+ |

**(228720)∗ 2002 TN$_4$**

Discovered 2002 Oct. 1 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 87.22379 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.29938211 | $\omega$ | 183.53935 | | +0.99840480 | +0.05598985 | |
| $a$ | 2.2130207 | $\Omega$ | 173.23808 | | −0.05016528 | +0.93883895 | |
| $e$ | 0.2002385 | $i$ | 3.54485 | | −0.02590962 | +0.33977429 | |
| $P$ | 3.29 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 10 01 | 699 | 0.7− | 0.1+ | 2002 10 31 | 704 | 0.3− | 0.3− | 2005 10 25 | G96 | 0.6+ | 1.2− |
| 2002 10 01 | 704 | 0.2+ | 0.2− | 2002 11 05 | 699 | 0.4− | 0.0 | 2007 02 17 | G96 | 0.1− | 1.1+ |
| 2002 10 01 | 704 | 0.1+ | 1.3+ | 2002 11 05 | 699 | 0.4+ | 0.8− | 2007 02 17 | G96 | 0.2+ | 0.2+ |
| 2002 10 01 | 699 | 0.8+ | 0.3+ | 2002 11 05 | 699 | 0.3− | 0.3+ | 2007 02 17 | G96 | 0.0 | 0.8− |
| 2002 10 01 | 704 | 1.2− | 0.4+ | 2002 11 05 | 699 | 0.5− | 0.1− | 2007 02 17 | G96 | 0.8+ | 0.1+ |
| 2002 10 01 | 699 | 0.2+ | 0.6+ | 2004 03 14 | 691 | 0.6+ | 0.5+ | 2008 04 29 | G96 | 0.3− | 0.3+ |
| 2002 10 01 | 704 | 1.2− | 0.3+ | 2004 03 14 | 691 | 0.1− | 0.7+ | 2008 04 29 | G96 | 0.4+ | 0.1+ |
| 2002 10 01 | 699 | 0.7+ | 0.4− | 2004 03 14 | 691 | 0.1+ | 0.1+ | 2008 04 29 | G96 | 0.2+ | 0.0 |
| 2002 10 02 | 704 | 0.0 | 0.2− | 2005 05 15 | G96 | 0.2− | 0.2− | 2008 04 29 | G96 | 0.2− | 0.1− |
| 2002 10 02 | 704 | 0.6+ | 0.5− | 2005 05 15 | G96 | 0.1+ | 0.1− | 2008 05 28 | G96 | 0.7+ | 0.1+ |
| 2002 10 02 | 704 | 0.6+ | 0.0 | 2005 05 15 | G96 | 0.4− | 0.2− | 2008 05 28 | G96 | 0.3+ | 0.4+ |
| 2002 10 02 | 704 | 0.3− | 0.5+ | 2005 05 15 | G96 | 0.1+ | 0.1− | 2008 05 28 | G96 | 0.3+ | 0.2+ |
| 2002 10 02 | 704 | 0.8− | 0.3+ | 2005 06 28 | 691 | 0.1+ | 0.4+ | 2008 05 28 | G96 | 0.2+ | 0.1+ |
| 2002 10 03 | 704 | 0.9+ | 0.3− | 2005 06 28 | 691 | 0.1+ | 0.4+ | 2008 06 06 | 691 | 0.3− | 0.4− |
| 2002 10 03 | 704 | 0.1+ | 0.2− | 2005 06 28 | 691 | 0.3− | 0.1+ | 2008 06 06 | 691 | 0.2− | 0.1− |
| 2002 10 03 | 704 | 0.7+ | 0.4+ | 2005 07 08 | 691 | 0.3− | 0.3+ | 2008 06 06 | 691 | 0.1− | 0.4+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 10 03 | 704 | (0.7+ | 1.6+) | 2005 07 08 | 691 | 0.2+ | 0.3+ | 2009 12 17 | G96 | 0.5+ | 0.1+ | | |
| 2002 10 03 | 704 | 0.4+ | 1.2+ | 2005 07 08 | 691 | 0.3+ | 0.1+ | 2009 12 17 | G96 | 1.0+ | 0.4+ | | |
| 2002 10 10 | 644 | 0.1− | 0.1− | 2005 07 11 | G96 | 0.2− | 0.1+ | 2009 12 17 | G96 | 0.8+ | 0.1− | | |
| 2002 10 10 | 644 | 0.1− | 0.0 | 2005 07 11 | G96 | 0.2− | 0.0 | 2009 12 17 | G96 | 0.9+ | 0.1+ | | |
| 2002 10 10 | 644 | 0.0 | 0.0 | 2005 07 11 | G96 | 0.3+ | 0.0 | 2009 12 17 | G96 | 0.9+ | 0.1+ | | |
| 2002 10 31 | 704 | 0.6− | 0.7+ | 2005 07 11 | G96 | 0.2− | 0.0 | 2009 12 20 | 691 | 0.0 | 0.1+ | | |
| 2002 10 31 | 704 | 0.7− | 0.2+ | 2005 10 25 | G96 | 0.5− | 0.2− | 2009 12 20 | 691 | 0.5+ | 0.1+ | | |
| 2002 10 31 | 704 | 0.0 | 0.5+ | 2005 10 25 | G96 | 0.5+ | 0.4− | 2009 12 20 | 691 | 1.4− | 0.2+ | | |
| 2002 10 31 | 704 | 0.3− | 0.5+ | 2005 10 25 | G96 | 0.3+ | 0.9− | | | | | | |

**(228721)∗ 2002 TV$_{26}$ = 2009 UH$_{105}$**

Discovered 2002 Oct. 2 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 165340)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 25.59063 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28644455 | $\omega$ | 194.56206 | | +0.77149039 | −0.63610203 | |
| $a$ | 2.2791645 | $\Omega$ | 204.95477 | | +0.58684628 | +0.71951350 | |
| $e$ | 0.1905702 | $i$ | 1.80596 | | +0.24579263 | +0.27870151 | |
| $P$ | 3.44 | $H$ | 17.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 10 02 | 704 | 0.7+ | 0.9+ | 2007 01 29 | 691 | 0.5− | 0.3− | 2009 11 11 | J75 | 0.7+ | 0.2− | | |
| 2002 10 02 | 704 | 0.2+ | 0.8+ | 2007 02 08 | 691 | 0.1+ | 0.3− | 2009 11 11 | J75 | 1.0+ | 0.5− | | |
| 2002 10 02 | 704 | 0.4+ | 0.9+ | 2007 02 08 | 691 | 0.1+ | 0.1+ | 2009 11 11 | J75 | 0.0 | 0.1+ | | |
| 2002 10 03 | 704 | 0.0 | 0.5+ | 2007 02 08 | 691 | 0.0 | 0.2− | 2009 11 18 | 704 | 0.4+ | 0.1+ | | |
| 2002 10 03 | 704 | 0.6− | 1.3+ | 2007 03 14 | G96 | 0.6+ | 0.5+ | 2009 11 18 | 704 | 0.5+ | 0.4− | | |
| 2002 10 03 | 704 | 0.2− | 1.0+ | 2007 03 14 | G96 | 0.1+ | 0.4+ | 2009 11 18 | 704 | 1.1− | 0.3− | | |
| 2002 10 03 | 704 | 0.3+ | 0.3+ | 2007 03 14 | G96 | 0.2+ | 0.1− | 2009 11 20 | 704 | 0.1− | 0.7+ | | |
| 2002 10 09 | 704 | 0.8− | 0.1− | 2007 03 14 | G96 | 0.4+ | 0.4+ | 2009 11 20 | 704 | 0.7− | 0.7+ | | |
| 2002 10 09 | 704 | 0.1− | 1.3− | 2009 09 18 | G96 | 0.4+ | 0.6− | 2009 11 20 | 704 | 0.7− | 1.1+ | | |
| 2002 10 09 | 704 | (1.9− | 2.8−) | 2009 09 18 | G96 | 0.3+ | 0.1− | 2009 11 20 | 704 | 0.5− | 0.1− | | |
| 2002 10 10 | 644 | 0.1+ | 0.1− | 2009 09 18 | G96 | 0.5+ | 0.3− | 2009 11 20 | G96 | 0.5+ | 0.2− | | |
| 2002 10 10 | 644 | 0.4+ | 0.2+ | 2009 09 18 | G96 | 0.4+ | 0.2− | 2009 11 20 | G96 | 0.7+ | 0.3− | | |
| 2002 10 10 | 644 | 0.0 | 0.1+ | 2009 10 25 | 691 | 0.2− | 0.3− | 2009 11 20 | G96 | 0.3+ | 0.3− | | |
| 2002 10 11 | 704 | 0.1+ | 0.1− | 2009 10 25 | 691 | 0.3− | 0.4− | 2009 11 20 | G96 | 0.5+ | 0.3− | | |
| 2002 10 11 | 704 | 0.1− | 0.7− | 2009 10 25 | 691 | (2.0− | 0.5−) | 2009 12 11 | 703 | 0.8− | 0.0 | | |
| 2002 10 11 | 704 | 1.1− | 0.3− | 2009 10 26 | 703 | 0.4− | 0.2+ | 2009 12 11 | 703 | 0.2+ | 0.7+ | | |
| 2002 10 11 | 704 | 0.2+ | 1.3− | 2009 10 26 | 703 | 0.6+ | 0.4+ | 2009 12 11 | 703 | 0.5− | 0.3+ | | |
| 2005 06 15 | G96 | 0.3− | 0.4+ | 2009 10 26 | 703 | 0.3− | 0.4− | 2009 12 11 | 703 | 0.4− | 0.9+ | | |
| 2005 06 15 | G96 | 0.5− | 0.3+ | 2009 10 26 | 703 | (1.9− | 1.0+) | 2009 12 19 | 691 | 0.5− | 0.0 | | |
| 2005 06 15 | G96 | 0.4− | 0.4+ | 2009 11 08 | 691 | 0.1+ | 0.1− | 2009 12 19 | 691 | 0.2+ | 0.4+ | | |
| 2005 06 15 | G96 | 0.6− | 0.0 | 2009 11 08 | 691 | 0.2− | 0.2− | 2009 12 19 | 691 | 0.2− | 0.1+ | | |
| 2005 07 15 | 691 | 0.1+ | 0.0 | 2009 11 08 | 691 | 0.1+ | 0.1− | 2009 12 19 | G96 | 0.3− | 0.0 | | |
| 2005 07 15 | 691 | 0.0 | 0.0 | 2009 11 08 | 703 | 0.0 | 0.7+ | 2009 12 19 | G96 | 0.4+ | 0.1− | | |
| 2005 07 15 | 691 | 0.3+ | 0.2− | 2009 11 08 | 703 | 1.1+ | 0.2+ | 2009 12 19 | G96 | 0.2+ | 0.2+ | | |
| 2007 01 29 | 691 | 0.1− | 0.1+ | 2009 11 08 | 703 | 0.1+ | 0.4− | 2009 12 19 | G96 | 0.5+ | 0.0 | | |
| 2007 01 29 | 691 | 0.1+ | 0.2+ | 2009 11 08 | 703 | 0.6+ | 0.1+ | | | | | | |

**(228722)∗ 2002 TZ$_{37}$ = 1972 TK$_{10}$**

Discovered 2002 Oct. 2 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 61377)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 80.54252 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.29637276 | $\omega$ | 316.64608 | | +0.99523892 | −0.07442920 | |
| $a$ | 2.2279761 | $\Omega$ | 47.73433 | | +0.09483000 | +0.88858271 | |
| $e$ | 0.1737588 | $i$ | 4.87788 | | −0.02251127 | +0.45263790 | |
| $P$ | 3.33 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1972 10 09 | 033 | 1.2+ | 0.9− | 2002 10 31 | 644 | 0.2+ | 0.3+ | 2004 03 30 | 691 | 0.3− | 0.6+ | | |
| 1972 10 09 | 033 | 1.0+ | 1.6− | 2002 10 31 | 644 | 0.3+ | 0.4+ | 2004 03 30 | 691 | 0.2− | 0.7+ | | |
| 1972 10 09 | 033 | 0.8− | 1.6− | 2002 11 01 | 608 | 0.1− | 0.1+ | 2005 07 03 | 644 | 0.2− | 0.7+ | | |
| 1997 01 11 | 691 | 0.7+ | 0.2− | 2002 11 01 | 608 | 0.1− | 0.2− | 2005 07 03 | 644 | 0.2− | 0.5+ | | |
| 1997 01 11 | 691 | 0.4+ | 0.1− | 2002 11 01 | 608 | 0.0 | 0.1− | 2005 07 03 | 644 | 0.5− | 1.0+ | | |
| 1997 01 11 | 691 | 0.4+ | 0.1− | 2002 11 04 | 699 | 0.4− | 0.2− | 2005 07 03 | 644 | 0.2− | 0.6+ | | |
| 2002 09 06 | 704 | 0.0 | 0.6− | 2002 11 04 | 699 | 0.8− | 0.9+ | 2005 07 03 | 644 | 0.3− | 0.5+ | | |
| 2002 09 06 | 704 | 0.7+ | 0.3− | 2002 11 04 | 699 | 0.3− | 0.9+ | 2005 07 03 | 644 | 0.1− | 0.6+ | | |
| 2002 09 06 | 704 | 0.5+ | 0.4+ | 2002 11 04 | 699 | 0.1+ | 0.1+ | 2005 07 10 | E12 | 0.0 | 0.7+ | | |
| 2002 09 06 | 704 | 0.1− | 1.1− | 2002 11 06 | 704 | 0.7− | 0.4− | 2005 07 10 | E12 | 0.4− | 0.5+ | | |
| 2002 10 02 | 704 | 1.3− | 0.5+ | 2002 11 06 | 704 | 1.3− | 0.3− | 2005 07 10 | E12 | 0.2+ | 0.6+ | | |
| 2002 10 02 | 704 | 0.9+ | 0.5+ | 2002 11 06 | 704 | 1.1− | 0.1+ | 2005 07 17 | 644 | 0.1− | 0.7+ | | |
| 2002 10 02 | 704 | 0.0 | 0.8+ | 2002 11 06 | 704 | 0.6− | 0.0 | 2005 07 17 | 644 | 0.1+ | 1.2+ | | |
| 2002 10 02 | 704 | 0.3− | 0.1+ | 2002 11 06 | 704 | 0.6− | 0.2+ | 2005 07 17 | 644 | 0.1− | 0.7+ | | |
| 2002 10 02 | 704 | 0.5+ | 0.7+ | 2002 11 06 | 608 | 0.8+ | 0.5+ | 2005 08 10 | E12 | 1.1+ | 0.1+ | | |
| 2002 10 03 | 704 | 0.7− | 0.2+ | 2002 11 06 | 608 | 0.5+ | 0.4+ | 2005 08 10 | E12 | 0.1− | 0.2+ | | |
| 2002 10 03 | 704 | 0.5− | 0.0 | 2002 11 06 | 608 | 0.7+ | 0.7+ | 2005 08 10 | E12 | 0.5− | 0.4+ | | |
| 2002 10 03 | 704 | 1.0− | 0.0 | 2002 11 10 | 704 | 0.4− | 0.8+ | 2005 08 10 | E12 | 0.5− | 0.1+ | | |
| 2002 10 03 | 704 | 0.6− | 0.2− | 2002 11 10 | 704 | 0.3+ | 0.9+ | 2005 09 22 | E12 | 0.6− | 0.1+ | | |
| 2002 10 03 | 704 | 0.5− | 0.6+ | 2002 11 10 | 704 | 0.4− | 1.0+ | 2005 09 22 | E12 | 0.6− | 0.3− | | |
| 2002 10 07 | 704 | 0.1+ | 0.0 | 2002 11 10 | 704 | 0.6− | 0.7+ | 2005 09 22 | E12 | 0.5+ | 1.0+ | | |
| 2002 10 07 | 704 | 0.1− | 0.2− | 2002 11 11 | 704 | 0.4− | 0.6+ | 2005 09 22 | E12 | 0.5− | 0.6+ | | |
| 2002 10 07 | 704 | 0.1+ | 0.0 | 2002 11 11 | 704 | 0.9− | 0.5+ | 2005 10 06 | 703 | 0.8+ | 1.4+ | | |
| 2002 10 07 | 704 | 0.7+ | 1.3− | 2002 11 11 | 704 | (1.0+ | 1.5+) | 2005 10 06 | 703 | (0.4+ | 2.1+) | | |
| 2002 10 08 | 699 | 0.7+ | 0.4+ | 2002 11 11 | 704 | 0.1+ | 0.2+ | 2005 10 06 | 703 | (3.3− | 1.8+) | | |
| 2002 10 08 | 699 | 0.6+ | 1.4+ | 2002 11 11 | 704 | 0.1+ | 0.2+ | 2005 10 06 | 703 | (5.1− | 2.2+) | | |
| 2002 10 08 | 699 | 0.3− | 0.6+ | 2002 11 22 | 644 | 0.1+ | 0.6+ | 2005 11 06 | G96 | 0.3+ | 0.1− | | |
| 2002 10 08 | 699 | 0.4+ | 1.1+ | 2002 11 22 | 644 | 0.1+ | 0.5+ | 2005 11 06 | G96 | 0.5− | 0.2− | | |
| 2002 10 09 | 704 | 0.4+ | 0.1− | 2002 11 22 | 644 | 0.1− | 0.4+ | 2005 11 06 | G96 | 0.3− | 0.2− | | |
| 2002 10 09 | 704 | 0.1− | 0.4− | 2002 12 05 | 704 | 0.9+ | 0.1+ | 2005 11 06 | G96 | 0.1+ | 0.4+ | | |
| 2002 10 09 | 704 | 0.3+ | 0.2+ | 2002 12 05 | 704 | 0.1+ | 0.4− | 2007 02 16 | 703 | (0.3+ | 2.5+) | | |
| 2002 10 09 | 704 | 0.6+ | 0.3+ | 2002 12 05 | 704 | (2.0− | 0.1+) | 2007 02 16 | 703 | 0.1+ | 0.1+ | | |
| 2002 10 09 | 704 | 0.1− | 0.3− | 2004 03 20 | 691 | 0.4+ | 0.6+ | 2007 02 16 | 703 | 0.8+ | 0.5− | | |
| 2002 10 11 | 704 | 0.1+ | 0.3− | 2004 03 20 | 691 | 0.3+ | 0.5+ | 2007 02 16 | 703 | (1.7+ | 0.7−) | | |
| 2002 10 11 | 704 | 0.3− | 0.3− | 2004 03 20 | 691 | 0.4+ | 0.2+ | 2009 12 16 | 704 | 0.8+ | 0.1− | | |
| 2002 10 11 | 704 | 0.5+ | 0.3+ | 2004 03 20 | 704 | (1.1+ | 1.7+) | 2009 12 16 | 704 | 0.4− | 0.3− | | |
| 2002 10 11 | 704 | 0.2− | 0.2+ | 2004 03 20 | 704 | 0.9+ | 0.4+ | 2009 12 16 | 704 | 1.2+ | 0.1+ | | |
| 2002 10 11 | 704 | 1.0− | 0.3+ | 2004 03 20 | 704 | 0.6+ | 1.2+ | 2009 12 27 | 691 | 0.3− | 0.6+ | | |
| 2002 10 26 | 608 | 0.3− | 0.7− | 2004 03 23 | 704 | 0.4− | 1.3+ | 2009 12 27 | 691 | 0.3− | 0.2− | | |
| 2002 10 26 | 608 | 0.2− | 0.5− | 2004 03 23 | 704 | 0.2− | 0.8+ | 2009 12 27 | 691 | 0.2− | 0.1+ | | |
| 2002 10 26 | 608 | 0.3− | 0.2− | 2004 03 23 | 704 | 0.9− | 0.2+ | | | | | | |
| 2002 10 31 | 644 | 0.2+ | 0.4+ | 2004 03 30 | 691 | 0.0 | 0.6+ | | | | | | |

**(228723)∗ 2002 TE$_{40}$**

Discovered 2002 Oct. 2 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 48.89215 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.29138059 | $\omega$ | 327.68094 | | +0.85747521 | −0.50962380 | |
| $a$ | 2.2533516 | $\Omega$ | 63.11658 | | +0.48735008 | +0.76029007 | |
| $e$ | 0.1566124 | $i$ | 4.55613 | | +0.16500354 | +0.40279348 | |
| $P$ | 3.38 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 05 24 | 291 | 0.3+ | 0.6+ | 2002 11 06 | 704 | 0.1− | 0.2+ | 2007 01 23 | 699 | 0.9+ | 0.2− | | |
| 2001 05 24 | 291 | 0.7+ | 0.5+ | 2002 11 06 | 704 | 0.4− | 0.2+ | 2007 01 23 | 699 | (3.4+ | 1.5+) | | |
| 2001 05 24 | 291 | 0.4+ | 0.7+ | 2002 11 06 | 704 | 0.0 | 0.2+ | 2007 01 23 | 699 | 1.1+ | 1.4+ | | |
| 2002 10 02 | 704 | 1.0− | 0.4+ | 2002 11 06 | 704 | 0.2+ | 0.1+ | 2007 01 23 | 699 | 0.5+ | 0.6+ | | |
| 2002 10 02 | 704 | 0.2− | 1.0− | 2002 11 06 | 704 | 0.4− | 0.1− | 2007 02 08 | 691 | 0.3− | 0.3− | | |
| 2002 10 02 | 704 | 1.1− | 0.3− | 2002 11 06 | 608 | 0.7+ | 0.6+ | 2007 02 08 | 691 | 0.1− | 0.1+ | | |
| 2002 10 02 | 704 | 0.3− | 0.4− | 2002 11 06 | 608 | 0.7+ | 0.0 | 2007 02 08 | 691 | 0.2− | 0.1− | | |
| 2002 10 03 | 704 | 0.7− | 0.1− | 2002 11 06 | 608 | 0.9+ | 0.2− | 2007 02 16 | 703 | (1.5− | 1.0−) | | |
| 2002 10 03 | 704 | 0.7− | 0.0 | 2002 11 10 | 704 | 0.1− | 0.3+ | 2007 02 16 | 703 | 0.1+ | 1.2− | | |
| 2002 10 03 | 704 | 0.2+ | 0.6+ | 2002 11 10 | 704 | 0.3+ | 0.6− | 2007 02 16 | 703 | 0.1+ | 0.1− | | |
| 2002 10 03 | 704 | 0.1+ | 0.3− | 2002 11 10 | 704 | 0.1− | 0.2− | 2007 02 16 | 703 | 0.5+ | 1.0− | | |
| 2002 10 03 | 704 | 0.2+ | 1.1+ | 2002 11 10 | 704 | 0.2+ | 0.3− | 2007 02 17 | 691 | 0.1+ | 0.2+ | | |
| 2002 10 09 | 704 | (0.4− | 1.6+) | 2002 11 14 | 644 | 0.3+ | 1.1+ | 2007 02 17 | 691 | 0.2− | 0.2+ | | |
| 2002 10 09 | 704 | (1.3+ | 1.6+) | 2002 11 14 | 644 | 0.1+ | 0.9+ | 2007 02 17 | 691 | 0.0 | 0.3+ | | |
| 2002 10 09 | 704 | (0.4− | 2.3+) | 2002 11 14 | 644 | 0.6+ | 1.2+ | 2007 02 21 | 691 | 0.1− | 0.1− | | |
| 2002 10 09 | 704 | 0.6+ | 0.9+ | 2002 11 22 | 644 | 0.3− | 0.1+ | 2007 02 21 | 691 | 0.3− | 0.0 | | |
| 2002 10 11 | 704 | 0.2− | 0.5+ | 2002 11 22 | 644 | 0.1− | 0.1+ | 2007 02 21 | 691 | 0.2− | 0.1− | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 10 11 | 704 | 0.0 | 0.2− | 2002 11 22 | 644 | 0.2− | 0.1+ | 2007 02 25 | 691 | 0.0 | 0.1− |
| 2002 10 11 | 704 | 0.4+ | 0.3+ | 2002 12 01 | 704 | 0.7− | 0.6+ | 2007 02 25 | 691 | 0.1− | 0.0 |
| 2002 10 11 | 704 | 0.4+ | 0.7+ | 2002 12 01 | 704 | 0.6− | 0.3− | 2007 02 25 | 691 | 0.1+ | 0.0 |
| 2002 10 11 | 704 | 0.3+ | 0.8+ | 2002 12 01 | 704 | 0.2− | 0.4+ | 2007 03 26 | 291 | 0.1− | 0.0 |
| 2002 10 15 | 644 | 0.2− | 0.9+ | 2002 12 01 | 704 | 0.0 | 0.5− | 2007 03 26 | 291 | 0.2− | 0.2+ |
| 2002 10 15 | 644 | 0.2− | 0.9+ | 2002 12 01 | 704 | 0.1+ | 1.5+ | 2007 03 26 | 291 | 0.0 | 0.3+ |
| 2002 10 15 | 644 | 0.3+ | 0.9+ | 2004 03 18 | 691 | 0.1+ | 0.5+ | 2009 11 20 | 691 | 0.9− | 0.4+ |
| 2002 10 26 | 608 | 0.2− | 0.1− | 2004 03 18 | 691 | 0.2+ | 0.4+ | 2009 11 20 | 691 | 0.4+ | 0.2− |
| 2002 10 26 | 608 | 0.2+ | 0.5− | 2004 03 18 | 691 | 0.3+ | 0.3+ | 2009 11 20 | 691 | 0.1− | 0.1− |
| 2002 10 26 | 608 | 0.1− | 0.2− | 2005 07 03 | 644 | 0.0 | 0.1+ | 2009 12 10 | 704 | 1.1+ | 0.8+ |
| 2002 11 01 | 704 | 0.3− | 0.4+ | 2005 07 03 | 644 | 0.2− | 0.5+ | 2009 12 10 | 704 | 1.0+ | 0.3− |
| 2002 11 01 | 704 | 0.7− | 0.4+ | 2005 07 03 | 644 | 0.3− | 0.2+ | 2009 12 10 | 704 | 1.0+ | 0.1+ |
| 2002 11 01 | 704 | 0.3− | 0.6− | 2005 08 10 | E12 | 0.0 | 0.0 | 2009 12 10 | 704 | 0.8+ | 0.7+ |
| 2002 11 01 | 608 | 0.6− | 0.5− | 2005 08 10 | E12 | 0.9− | 0.2− | 2009 12 10 | 704 | (1.3+ | 2.6+) |
| 2002 11 01 | 608 | 0.7− | 0.6− | 2005 08 10 | E12 | 0.2− | 0.3+ | | | | |
| 2002 11 01 | 608 | 0.4− | 0.8− | 2005 08 10 | E12 | 0.2− | 0.5− | | | | |

**(228724)∗ 2002 TZ$_{51}$**

Discovered 2002 Oct. 2 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 22.39261 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27849327 | $\omega$ | 333.46013 | | +0.85856289 | −0.51038871 | |
| $a$ | 2.3223424 | $\Omega$ | 57.31374 | | +0.48008922 | +0.76695388 | |
| $e$ | 0.2125898 | $i$ | 3.31818 | | +0.17995581 | +0.38895388 | |
| $P$ | 3.54 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 02 05 | 695 | 0.2− | 0.0 | 2002 12 05 | 704 | 0.1− | 0.1− | 2009 10 22 | 704 | 0.0 | 0.5+ |
| 2000 02 05 | 695 | 0.5+ | 0.3− | 2002 12 05 | 704 | 0.2+ | 0.0 | 2009 10 22 | 704 | 0.0 | 0.5+ |
| 2002 10 02 | 704 | 0.0 | 0.1− | 2002 12 05 | 704 | 0.1+ | 0.6+ | 2009 10 22 | 704 | 0.1+ | 0.1− |
| 2002 10 02 | 704 | 0.5+ | 0.6+ | 2002 12 10 | 704 | 0.1+ | 0.4+ | 2009 10 26 | 691 | 0.1− | 0.2+ |
| 2002 10 02 | 704 | 0.5+ | 1.2+ | 2002 12 10 | 704 | 1.2− | 0.1+ | 2009 10 26 | 691 | 0.1+ | 0.7− |
| 2002 10 02 | 704 | 1.0+ | 0.9+ | 2002 12 10 | 704 | 0.6− | 0.5+ | 2009 10 26 | 691 | 0.2− | 0.6+ |
| 2002 10 03 | 704 | 0.6+ | 0.2+ | 2002 12 10 | 704 | 0.4− | 0.5− | 2009 10 27 | 704 | 0.1+ | 0.2+ |
| 2002 10 03 | 704 | 0.0 | 0.9+ | 2002 12 10 | 704 | 0.5+ | 0.6+ | 2009 10 27 | 704 | 0.8+ | 0.6+ |
| 2002 10 03 | 704 | 0.3+ | 0.5+ | 2002 12 10 | 704 | (1.8− | 0.7+) | 2009 10 27 | 704 | 0.1+ | 0.2− |
| 2002 10 30 | 049 | 0.4+ | 1.1− | 2002 12 27 | 644 | 0.0 | 0.2+ | 2009 10 27 | 704 | 0.6+ | 0.4+ |
| 2002 10 30 | 049 | 0.4+ | 0.8− | 2002 12 27 | 644 | 0.2+ | 0.2+ | 2009 11 06 | 703 | 0.4− | 0.2+ |
| 2002 10 30 | 049 | 0.2+ | 1.0− | 2002 12 27 | 644 | 0.1+ | 0.3+ | 2009 11 06 | 703 | 1.0− | 0.8− |
| 2002 10 30 | 608 | 0.2+ | 0.2+ | 2006 11 27 | G96 | 0.7− | 0.1+ | 2009 11 06 | 703 | 0.3− | 0.1+ |
| 2002 10 30 | 608 | 0.1+ | 0.2− | 2006 11 27 | G96 | 0.1+ | 0.6− | 2009 11 06 | 703 | 0.0 | 0.7+ |
| 2002 10 30 | 608 | 0.1+ | 0.2+ | 2006 11 27 | G96 | 0.5− | 0.4− | 2009 11 10 | J75 | 0.1− | 0.2+ |
| 2002 11 06 | 704 | 0.8+ | 0.3− | 2006 11 27 | G96 | 0.1− | 0.4− | 2009 11 10 | J75 | 0.1+ | 0.6− |
| 2002 11 06 | 704 | 0.3+ | 0.5− | 2007 01 17 | 691 | 0.1− | 0.3+ | 2009 11 10 | J75 | 0.7− | 0.1− |
| 2002 11 06 | 704 | 0.3+ | 0.8− | 2007 01 17 | 691 | 0.1+ | 0.2− | 2009 11 13 | J75 | 0.4+ | 0.2− |
| 2002 11 06 | 704 | 0.1− | 0.2− | 2007 01 17 | 691 | 0.3+ | 0.1+ | 2009 11 13 | J75 | 0.1+ | 0.1− |
| 2002 11 06 | 704 | 0.0 | 0.5− | 2008 05 31 | 691 | 0.2− | 0.3− | 2009 11 13 | J75 | 0.1+ | 0.0 |
| 2002 11 14 | 704 | 0.6− | 0.5− | 2008 05 31 | 691 | 0.1+ | 0.0 | 2009 11 14 | J75 | 0.2+ | 0.7− |
| 2002 11 14 | 704 | 0.3− | 0.6− | 2008 05 31 | 691 | 0.0 | 0.3+ | 2009 11 14 | J75 | 0.3− | 0.4− |
| 2002 11 14 | 704 | 0.4− | 0.5− | 2009 10 12 | J75 | 0.3+ | 0.5− | 2009 11 14 | J75 | 1.0+ | 0.3+ |
| 2002 11 14 | 704 | 0.2− | 0.3− | 2009 10 12 | J75 | 0.1+ | 0.3− | 2009 11 18 | 704 | 0.0 | 0.8+ |
| 2002 11 14 | 704 | 0.2− | 0.2− | 2009 10 12 | J75 | 0.3− | 0.1− | 2009 11 18 | 704 | 0.2− | 0.4+ |
| 2002 11 23 | 644 | 0.0 | 0.7− | 2009 10 14 | 703 | 0.0 | 0.7− | 2009 11 18 | 704 | 0.1− | 0.3+ |
| 2002 11 23 | 644 | 0.1− | 0.8− | 2009 10 14 | 703 | 0.3− | 0.4+ | 2009 11 18 | 704 | 0.6− | 0.5+ |
| 2002 11 23 | 644 | 0.0 | 0.7− | 2009 10 14 | 703 | 0.6+ | 0.1− | 2009 11 18 | 704 | 0.3− | 0.1+ |
| 2002 11 27 | 699 | 0.5− | 0.2+ | 2009 10 14 | 703 | 0.2− | 0.2− | 2009 11 19 | G96 | 0.4+ | 0.1− |
| 2002 11 27 | 699 | 0.0 | 0.5+ | 2009 10 14 | 704 | 0.2− | 0.4+ | 2009 11 19 | G96 | 0.1− | 0.2− |
| 2002 11 27 | 699 | 0.5− | 0.7+ | 2009 10 14 | 704 | 0.2− | 0.5+ | 2009 11 19 | G96 | 0.0 | 0.2− |
| 2002 11 27 | 699 | 0.8− | 0.4+ | 2009 10 14 | 704 | 0.4+ | 0.3− | 2009 11 19 | G96 | 0.5+ | 0.1− |
| 2002 11 28 | 699 | 0.2− | 0.1− | 2009 10 14 | 704 | 0.1− | 0.3+ | 2009 11 23 | J75 | 0.2+ | 0.5− |
| 2002 11 28 | 699 | 0.3+ | 0.4− | 2009 10 14 | 704 | 0.4+ | 0.0 | 2009 11 23 | J75 | 0.3+ | 0.2+ |
| 2002 11 28 | 699 | 0.0 | 0.5+ | 2009 10 15 | J75 | 0.2+ | 0.1+ | 2009 11 23 | J75 | 0.0 | 0.5− |
| 2002 11 28 | 699 | 0.5− | 0.7+ | 2009 10 15 | J75 | 0.2+ | 0.2− | 2009 12 16 | 704 | 1.1− | 0.1− |
| 2002 12 02 | 704 | 0.4+ | 0.2+ | 2009 10 15 | J75 | 0.5+ | 0.0 | 2009 12 16 | 704 | 1.9− | 0.8+ |
| 2002 12 02 | 704 | 0.5+ | 0.3+ | 2009 10 18 | J75 | 0.2+ | 0.5− | 2009 12 16 | 704 | 1.3− | 1.2+ |
| 2002 12 02 | 704 | 0.2+ | 0.3+ | 2009 10 18 | J75 | 0.3+ | 0.2+ | 2009 12 16 | 704 | 0.3+ | 0.7+ |
| 2002 12 02 | 704 | 0.1− | 0.3+ | 2009 10 18 | J75 | 0.2+ | 0.4− | 2009 12 16 | 704 | 0.3− | 0.7+ |
| 2002 12 02 | 704 | 0.2− | 0.1− | 2009 10 21 | 703 | 0.1− | 0.1− | 2009 12 19 | G96 | 0.0 | 0.3− |
| 2002 12 02 | 608 | 0.1− | 1.2− | 2009 10 21 | 703 | 0.0 | 0.7− | 2009 12 19 | G96 | 0.3+ | 0.2− |
| 2002 12 02 | 608 | (0.3− | 1.8−) | 2009 10 21 | 703 | 0.3− | 0.2− | 2009 12 19 | G96 | 0.1+ | 0.0 |
| 2002 12 02 | 608 | 0.9− | 1.4− | 2009 10 21 | 703 | 0.2− | 0.0 | 2009 12 19 | G96 | 0.4+ | 0.0 |
| 2002 12 05 | 704 | 0.8+ | 0.0 | 2009 10 22 | 704 | 0.2+ | 0.6+ | | | | |
| 2002 12 05 | 704 | 0.1− | 0.1+ | 2009 10 22 | 704 | 0.3+ | 0.3+ | | | | |

**(228725)∗ 2002 TW$_{75}$**

Discovered 2002 Oct. 1 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 20.10249 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.30154817 | $\omega$ | 134.74574 | | +0.10134044 | −0.99387916 | |
| $a$ | 2.2024104 | $\Omega$ | 309.38667 | | +0.89592849 | +0.11039284 | |
| $e$ | 0.0894515 | $i$ | 3.26219 | | +0.43248381 | +0.00419913 | |
| $P$ | 3.27 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 02 07 | 691 | 0.2+ | 0.3− | 2004 04 14 | 699 | 0.5− | 0.3+ | 2007 02 17 | 703 | 1.1− | 0.3− |
| 1997 02 07 | 691 | 0.1− | 0.5− | 2004 04 14 | 699 | 0.2+ | 0.7+ | 2007 02 18 | A50 | 0.4+ | 0.2+ |
| 1997 02 07 | 691 | 0.3− | 0.2− | 2005 07 30 | 644 | 0.3− | 0.1− | 2007 02 23 | 704 | (2.3+ | 1.6+) |
| 2002 10 01 | 699 | 1.2+ | 0.8+ | 2005 07 30 | 644 | 0.3− | 0.1− | 2007 02 23 | 704 | 0.1− | 0.2+ |
| 2002 10 01 | 699 | 0.2+ | 0.8+ | 2005 07 30 | 644 | 0.9+ | 0.2+ | 2007 02 23 | 704 | 1.5+ | 0.4+ |
| 2002 10 01 | 699 | (0.6− | 2.0+) | 2005 08 06 | 644 | 0.1− | 0.0 | 2007 02 23 | 704 | (1.9+ | 0.4+) |
| 2002 10 01 | 699 | 0.1− | 0.3+ | 2005 08 06 | 644 | 0.2− | 0.1− | 2007 02 23 | 704 | 0.3+ | 0.2+ |
| 2002 10 04 | 704 | 0.3− | 0.1+ | 2005 08 06 | 644 | 0.4− | 0.2− | 2007 03 08 | 644 | 0.4+ | 0.5+ |
| 2002 10 04 | 704 | 0.2− | 0.9+ | 2005 08 25 | 644 | 0.7− | 0.3− | 2007 03 08 | 644 | 0.1− | 0.4+ |
| 2002 10 04 | 704 | 0.1+ | 0.1− | 2005 08 25 | 644 | 0.1− | 0.2− | 2007 03 08 | 644 | 0.4+ | 0.2+ |
| 2002 10 04 | 704 | 0.1− | 0.2− | 2005 08 25 | 644 | 0.6− | 0.0 | 2007 03 09 | 644 | 0.5+ | 0.2+ |
| 2002 10 04 | 644 | 0.4− | 0.4+ | 2005 09 25 | 291 | 0.0 | 0.1+ | 2007 03 09 | 644 | 0.7+ | 0.2+ |
| 2002 10 04 | 644 | 0.4− | 0.2+ | 2005 09 25 | 291 | 0.4+ | 0.3+ | 2007 03 09 | 644 | 0.4+ | 0.5+ |
| 2002 10 04 | 644 | 0.5− | 0.3+ | 2005 09 25 | 291 | 0.2+ | 0.3+ | 2007 03 10 | 644 | 0.0 | 0.5+ |
| 2002 10 09 | 704 | 0.1+ | 0.7− | 2006 12 15 | G96 | 0.0 | 0.5− | 2007 03 10 | 644 | 0.3+ | 0.3+ |
| 2002 10 09 | 704 | 0.1+ | 0.4+ | 2006 12 15 | G96 | 0.3− | 0.0 | 2007 03 10 | 644 | 0.4+ | 0.5+ |
| 2002 10 09 | 704 | 0.4− | 0.2+ | 2006 12 15 | G96 | 0.1+ | 0.1+ | 2009 12 19 | 691 | 0.0 | 0.0 |
| 2002 10 12 | 704 | (0.3+ | 2.2+) | 2006 12 15 | G96 | 0.7− | 0.3− | 2009 12 19 | 691 | 0.1+ | 0.1+ |
| 2002 10 12 | 704 | 0.4− | 0.3+ | 2007 02 08 | 691 | 0.2− | 0.7+ | 2009 12 19 | 691 | 0.4− | 0.1+ |
| 2002 10 12 | 704 | 0.1− | 0.6− | 2007 02 08 | 691 | 0.3+ | 0.0 | 2009 12 27 | D29 | 0.4+ | 0.4− |
| 2002 10 12 | 704 | 0.5− | 0.4+ | 2007 02 08 | 691 | 0.4+ | 0.1+ | 2009 12 27 | D29 | 0.2− | 0.4− |
| 2002 10 12 | 704 | 0.2− | 0.1+ | 2007 02 17 | 703 | 0.7− | 0.5+ | 2009 12 27 | D29 | 0.2+ | 0.0 |
| 2004 04 14 | 699 | 0.2− | 1.4+ | 2007 02 17 | 703 | 0.5− | 1.2− | 2009 12 27 | D29 | 0.2+ | 0.6+ |
| 2004 04 14 | 699 | 0.2− | 0.4− | 2007 02 17 | 703 | 0.0 | 0.2− | | | | |

**(228726)∗ 2002 TK$_{77}$**

Discovered 2002 Oct. 1 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 91.61802 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.29138624 | $\omega$ | 30.01141 | | +0.74876571 | +0.66194309 | |
| $a$ | 2.2533225 | $\Omega$ | 288.49911 | | −0.61512216 | +0.67461597 | |
| $e$ | 0.2230324 | $i$ | 2.07698 | | −0.24693042 | +0.32668738 | |
| $P$ | 3.38 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 10 01 | 699 | 0.4− | 0.2− | 2002 11 08 | 704 | 0.6− | 0.2− | 2008 04 11 | G96 | 0.4+ | 0.2+ |
| 2002 10 01 | 699 | 0.5+ | 0.2+ | 2002 11 08 | 704 | 1.1− | 0.3+ | 2008 04 11 | G96 | 0.5+ | 0.0 |
| 2002 10 01 | 699 | 0.4+ | 0.5+ | 2002 11 08 | 704 | 0.5− | 0.2+ | 2008 04 11 | G96 | 0.0 | 0.2+ |
| 2002 10 01 | 699 | 0.2+ | 0.4+ | 2002 11 08 | 704 | 1.2− | 0.1− | 2009 10 17 | G96 | 0.5+ | 0.6− |
| 2002 10 04 | 704 | 0.3+ | 0.0 | 2002 12 06 | 291 | 0.3+ | 0.0 | 2009 10 17 | G96 | 0.7+ | 0.5− |
| 2002 10 04 | 704 | 0.4+ | 0.2+ | 2002 12 06 | 291 | 0.3− | 0.0 | 2009 10 17 | G96 | 0.4+ | 0.4− |
| 2002 10 04 | 704 | 0.2+ | 0.3− | 2002 12 06 | 291 | 0.9− | 0.2+ | 2009 10 17 | G96 | 0.7+ | 0.6− |
| 2002 10 04 | 704 | 0.6+ | 0.2+ | 2004 02 12 | 691 | 0.1− | 0.0 | 2009 11 09 | 691 | 0.2− | 0.1− |
| 2002 10 09 | 704 | 0.3+ | 0.7+ | 2004 02 12 | 691 | 0.3+ | 0.1+ | 2009 11 09 | 691 | 0.3− | 0.2+ |
| 2002 10 09 | 704 | 0.6+ | 0.5+ | 2004 02 12 | 691 | 0.3+ | 0.7+ | 2009 11 09 | 691 | 0.8− | 0.1+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 10 09 | 704 | 0.6+ | 0.6+ | 2007 01 08 | G96 | 0.1+ | 0.4− | 2009 11 15 | J75 | 0.5+ | 0.1− | | |
| 2002 10 09 | 704 | 0.2+ | 1.1+ | 2007 01 08 | G96 | 0.3− | 0.2− | 2009 11 15 | J75 | 0.1+ | 0.2+ | | |
| 2002 10 09 | 704 | 0.6+ | 1.5+ | 2007 01 08 | G96 | 0.0 | 0.4− | 2009 11 15 | J75 | 0.7+ | 0.1− | | |
| 2002 10 12 | 704 | 0.1− | 0.9+ | 2007 01 08 | G96 | 0.0 | 0.4− | 2009 11 24 | J75 | 0.6+ | 0.1+ | | |
| 2002 10 12 | 704 | 0.5+ | 0.6+ | 2007 01 10 | 691 | 0.1− | 0.0 | 2009 11 24 | J75 | 0.1− | 0.1+ | | |
| 2002 10 12 | 704 | 0.3+ | 0.1+ | 2007 01 10 | 691 | 0.1− | 0.1+ | 2009 11 24 | J75 | 0.6+ | 0.2− | | |
| 2002 10 12 | 704 | 0.0 | 0.2− | 2007 01 10 | 691 | 0.1− | 0.1− | 2009 11 25 | 703 | 0.0 | 0.4− | | |
| 2002 10 12 | 704 | 0.2+ | 0.1+ | 2007 01 17 | G96 | 0.2+ | 0.5− | 2009 11 25 | 703 | 0.7+ | 0.5+ | | |
| 2002 10 30 | 644 | 0.2− | 0.7− | 2007 01 17 | G96 | 0.6− | 0.8− | 2009 11 25 | 703 | 0.6+ | 0.1− | | |
| 2002 10 30 | 644 | 0.1− | 0.7− | 2007 01 17 | G96 | 0.0 | 0.4− | 2009 11 25 | 703 | 0.6− | 0.0 | | |
| 2002 10 30 | 644 | 0.1− | 0.8− | 2007 01 17 | G96 | 0.2+ | 0.6− | 2009 11 25 | 703 | 0.8− | 0.3+ | | |
| 2002 10 31 | 699 | 0.3− | 0.1+ | 2008 03 12 | 691 | 0.1+ | 0.6+ | 2009 12 18 | G96 | 0.3+ | 0.1+ | | |
| 2002 10 31 | 699 | 0.2− | 0.1− | 2008 03 12 | 691 | 0.2+ | 0.4+ | 2009 12 18 | G96 | 0.4+ | 0.2− | | |
| 2002 10 31 | 699 | 0.2− | 0.2+ | 2008 03 12 | 691 | 0.0 | 0.2+ | 2009 12 18 | G96 | 0.4+ | 0.1+ | | |
| 2002 10 31 | 699 | 1.0− | 0.2+ | 2008 04 11 | G96 | 0.1− | 0.1+ | 2009 12 18 | G96 | 0.4+ | 0.2− | | |

**(228727)∗ 2002 TF$_{98}$ = 2004 CO$_{16}$**

Discovered 2002 Oct. 3 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 61420)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 130.35572 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.29520025 | $\omega$ | 305.07779 | | +0.43154705 | +0.90206876 | |
| $a$ | 2.2338717 | $\Omega$ | 350.48184 | | −0.81485528 | +0.38683192 | |
| $e$ | 0.0576558 | $i$ | 2.16706 | | −0.38701165 | +0.19139753 | |
| $P$ | 3.34 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 02 15 | 691 | 0.2− | 0.2− | 2004 02 11 | 291 | 0.0 | 0.3+ | 2006 12 14 | 691 | 0.1− | 0.3− | | |
| 1994 02 15 | 691 | 0.8− | 0.2− | 2004 02 11 | 291 | 0.1− | 0.4+ | 2006 12 14 | 691 | 0.2+ | 0.3− | | |
| 1994 02 15 | 691 | 0.2− | 0.1+ | 2004 02 11 | 291 | 0.2− | 0.4+ | 2006 12 25 | 691 | 0.3− | 0.3− | | |
| 2002 10 03 | 704 | 0.1+ | 0.3+ | 2004 02 12 | 691 | 0.4+ | 0.3+ | 2006 12 25 | 691 | 0.2− | 0.4− | | |
| 2002 10 03 | 704 | 0.0 | 1.1+ | 2004 02 12 | 691 | 0.4+ | 0.2+ | 2006 12 25 | 691 | 0.4− | 0.6− | | |
| 2002 10 03 | 704 | 0.0 | 0.3− | 2004 02 12 | 691 | 0.4+ | 0.2+ | 2008 05 09 | F85 | 0.0 | 1.0+ | | |
| 2002 10 03 | 704 | 0.9+ | 0.3+ | 2004 02 17 | 704 | (0.2+ | 2.4+) | 2008 05 09 | F85 | 0.8− | 0.5− | | |
| 2002 10 05 | 644 | 0.2− | 0.7+ | 2004 02 17 | 704 | 0.3− | 1.1+ | 2009 11 09 | 691 | 0.1− | 0.2+ | | |
| 2002 10 05 | 644 | 0.1− | 0.5+ | 2004 02 17 | 704 | 1.1+ | 0.8+ | 2009 11 09 | 691 | 0.0 | 1.0+ | | |
| 2002 10 05 | 644 | 0.2+ | 1.2+ | 2004 02 17 | 704 | (0.8+ | 1.7+) | 2009 11 09 | 691 | 0.1+ | 0.2+ | | |
| 2002 10 05 | 644 | 0.1− | 0.4+ | 2004 02 23 | 704 | 0.9+ | 1.2− | 2009 11 21 | 691 | 0.0 | 0.1− | | |
| 2002 10 05 | 644 | 0.2+ | 1.0+ | 2004 02 23 | 704 | 0.7+ | 1.3− | 2009 11 21 | 691 | 0.1− | 0.2− | | |
| 2002 10 05 | 644 | 0.0 | 0.4+ | 2004 02 23 | 704 | 0.2+ | 0.2+ | 2009 11 21 | 691 | 0.1− | 0.1− | | |
| 2002 10 06 | 644 | 0.1− | 0.1+ | 2004 02 23 | 704 | 1.1+ | 0.1− | 2009 11 25 | 691 | 0.3− | 0.3+ | | |
| 2002 10 06 | 644 | 0.5− | 0.4+ | 2004 02 23 | 704 | 0.8+ | 0.3+ | 2009 11 25 | 691 | 0.6− | 0.4− | | |
| 2002 10 06 | 644 | 0.1− | 0.2− | 2004 02 29 | 691 | 0.1+ | 0.4+ | 2009 11 25 | 691 | 0.1+ | 0.3− | | |
| 2002 10 06 | 644 | 0.4− | 0.4+ | 2004 02 29 | 691 | 0.3+ | 0.3+ | 2009 12 11 | 703 | 0.6− | 0.7+ | | |
| 2002 10 06 | 644 | 0.2− | 0.5+ | 2004 02 29 | 691 | 0.2+ | 0.2+ | 2009 12 11 | 703 | 0.9+ | 0.2+ | | |
| 2002 10 06 | 644 | 0.2− | 0.4+ | 2004 03 20 | 691 | 0.4+ | 0.1+ | 2009 12 11 | 703 | 0.6+ | 0.9− | | |
| 2002 10 07 | 699 | (1.9− | 0.2+) | 2004 03 20 | 691 | 0.0 | 0.1+ | 2009 12 11 | 703 | 0.2+ | 0.2− | | |
| 2002 10 07 | 699 | 0.1+ | 0.5+ | 2004 03 20 | 691 | 0.3+ | 0.1+ | 2009 12 17 | G96 | 0.2+ | 0.0 | | |
| 2002 10 07 | 699 | 0.1− | 0.2+ | 2005 07 10 | 703 | 1.1− | 0.5− | 2009 12 17 | G96 | 0.1− | 0.0 | | |
| 2002 10 07 | 699 | 0.3− | 0.6− | 2005 07 10 | 703 | (2.2− | 0.0 ) | 2009 12 17 | G96 | 0.1− | 0.2− | | |
| 2002 10 11 | 704 | 1.5+ | 0.2+ | 2005 07 10 | 703 | 0.5− | 0.4− | 2009 12 17 | G96 | 0.0 | 0.3− | | |
| 2002 10 11 | 704 | 0.7+ | 0.5+ | 2005 07 10 | 703 | 0.4− | 0.9+ | | | | | | |
| 2002 10 11 | 704 | 0.1+ | 0.0 | 2006 12 14 | 691 | 0.4− | 0.1− | | | | | | |

**(228728)∗ 2002 TM$_{119}$ = 2008 UA$_{215}$**

Discovered 2002 Oct. 3 by NEAT at Palomar.

Id. G. V. Williams (*MPO* 146003)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 48.29015 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.16998822 | $\omega$ | 140.12121 | | +0.40341655 | −0.90726617 | |
| $a$ | 3.2274300 | $\Omega$ | 285.79076 | | +0.80486367 | +0.41362734 | |
| $e$ | 0.0482541 | $i$ | 7.09424 | | +0.43525805 | +0.07602978 | |
| $P$ | 5.80 | $H$ | 14.9 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 10 03 | 644 | 0.4− | 0.1+ | 2007 09 04 | 703 | 1.1+ | 1.3+ | 2008 10 31 | G96 | 0.2− | 0.5− | | |
| 2002 10 03 | 644 | 0.0 | 0.9+ | 2007 09 15 | 291 | 0.4− | 0.1− | 2008 10 31 | G96 | 1.4+ | 1.4− | | |
| 2002 10 03 | 644 | 0.2− | 0.0 | 2007 09 15 | 291 | 0.1+ | 0.1+ | 2008 10 31 | G96 | 0.6− | 0.4− | | |
| 2002 10 03 | 644 | 0.3− | 0.3+ | 2007 09 15 | 291 | 0.1− | 0.2+ | 2008 10 31 | G96 | 0.5− | 0.2− | | |
| 2002 10 03 | 644 | 0.1− | 0.1− | 2007 10 17 | G96 | 0.2+ | 0.1− | 2008 10 31 | G96 | 0.5− | 0.2− | | |
| 2002 10 03 | 644 | 0.2− | 0.4+ | 2007 10 17 | G96 | 0.2− | 0.3− | 2009 11 21 | G96 | 0.2+ | 0.1− | | |
| 2002 10 05 | 704 | 0.2+ | 0.2− | 2007 10 17 | G96 | 0.1− | 0.1− | 2009 11 21 | G96 | 0.2+ | 0.2− | | |
| 2002 10 05 | 704 | 0.3− | 0.5+ | 2007 10 17 | G96 | 0.5+ | 0.3+ | 2009 11 21 | G96 | 0.5+ | 0.0 | | |
| 2002 10 05 | 704 | 0.3+ | 0.3+ | 2008 10 10 | G96 | 0.1+ | 0.3− | 2009 11 21 | G96 | 0.3+ | 0.3− | | |
| 2002 10 31 | 644 | 0.2+ | 0.8+ | 2008 10 10 | G96 | 0.1− | 0.3− | 2009 12 15 | G96 | 0.6+ | 0.1− | | |
| 2002 10 31 | 644 | 0.3− | 0.6+ | 2008 10 10 | G96 | 0.2− | 0.3− | 2009 12 15 | G96 | 0.6+ | 0.0 | | |
| 2002 10 31 | 644 | 0.0 | 0.8+ | 2008 10 10 | G96 | 0.3− | 0.3− | 2009 12 15 | G96 | 0.5+ | 0.5+ | | |
| 2005 03 13 | 703 | (2.6+ | 0.1−) | 2008 10 24 | 703 | 0.6+ | 0.9+ | 2009 12 15 | G96 | 0.5+ | 0.1− | | |
| 2005 03 13 | 703 | 0.4− | 1.1+ | 2008 10 24 | 703 | 0.6+ | 0.0 | 2009 12 17 | 691 | 0.2− | 0.2− | | |
| 2005 03 13 | 703 | 0.2+ | 0.8+ | 2008 10 24 | 703 | 0.4− | 0.3+ | 2009 12 17 | 691 | 0.4+ | 0.3− | | |
| 2005 03 13 | 703 | (2.9+ | 0.0 ) | 2008 10 24 | 703 | 0.2+ | 0.2− | 2009 12 17 | 691 | 0.1− | 0.3+ | | |
| 2007 09 04 | 703 | (0.8+ | 1.7+) | 2008 10 31 | G96 | 0.4− | 0.3− | 2009 12 27 | 691 | 1.5− | 0.7+ | | |
| 2007 09 04 | 703 | (2.0+ | 1.7+) | 2008 10 31 | G96 | 0.4− | 0.4− | 2009 12 27 | 691 | 0.9+ | 0.0 | | |
| 2007 09 04 | 703 | 0.4+ | 0.6− | 2008 10 31 | G96 | 0.1− | 0.3− | 2009 12 27 | 691 | 0.2+ | 0.2− | | |

**(228729)∗ 2002 TH$_{121}$**

Discovered 2002 Oct. 3 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 24.34443 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28744932 | $\omega$ | 152.34267 | | +0.71387064 | −0.69035375 | |
| $a$ | 2.2738502 | $\Omega$ | 251.82904 | | +0.61750151 | +0.69968586 | |
| $e$ | 0.1403854 | $i$ | 7.10229 | | +0.33027352 | +0.18398750 | |
| $P$ | 3.43 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 01 05 | 704 | 0.7− | 0.4+ | 2002 11 12 | 704 | 0.2+ | 0.6− | 2009 11 11 | 704 | 0.3+ | 0.5+ | | |
| 2000 01 05 | 704 | 0.6+ | 0.8+ | 2002 11 12 | 644 | 0.9+ | 0.2+ | 2009 11 11 | 704 | 0.2− | 0.3+ | | |
| 2000 01 05 | 704 | 0.2+ | 0.8+ | 2002 11 12 | 704 | 0.1− | 0.4− | 2009 11 11 | 704 | 0.2+ | 0.3− | | |
| 2000 01 05 | 704 | 0.3− | 0.1− | 2002 11 12 | 704 | 0.6+ | 0.8− | 2009 11 11 | 704 | 0.0 | 0.1+ | | |
| 2000 01 05 | 704 | 1.1+ | 0.2+ | 2004 01 29 | 291 | 0.1− | 1.2+ | 2009 11 11 | J75 | 0.3+ | 0.2+ | | |
| 2002 09 21 | 644 | 0.4− | 0.3+ | 2004 01 29 | 291 | 0.3+ | 1.1+ | 2009 11 11 | J75 | 0.3− | 0.5+ | | |
| 2002 09 21 | 644 | 0.2− | 0.2+ | 2004 01 29 | 291 | 0.1+ | 0.7+ | 2009 11 12 | J75 | 0.1− | 0.0 | | |
| 2002 09 21 | 644 | 0.5− | 0.3+ | 2005 06 29 | 691 | 0.1− | 0.3+ | 2009 11 17 | 691 | 0.2− | 0.5+ | | |
| 2002 09 21 | 644 | 0.0 | 0.2+ | 2005 06 29 | 691 | 0.0 | 0.4+ | 2009 11 17 | 691 | 0.0 | 0.9+ | | |
| 2002 09 21 | 644 | 0.2− | 0.3+ | 2005 06 29 | 691 | 0.0 | 0.5+ | 2009 11 17 | 691 | 0.1− | 0.0 | | |
| 2002 09 21 | 644 | 0.3+ | 0.3+ | 2005 07 08 | 691 | 0.2− | 0.5+ | 2009 11 17 | 704 | 0.4+ | 0.2+ | | |
| 2002 10 03 | 644 | 0.3+ | 0.4+ | 2005 07 08 | 691 | 0.0 | 0.6+ | 2009 11 17 | 704 | 0.0 | 0.0 | | |
| 2002 10 03 | 644 | 0.0 | 0.5+ | 2005 07 08 | 691 | 0.2− | 0.5+ | 2009 11 17 | 704 | 0.3+ | 1.2+ | | |
| 2002 10 03 | 644 | 0.4+ | 0.1− | 2005 07 19 | 644 | 0.2− | 0.3+ | 2009 11 17 | 704 | 0.2+ | 0.3− | | |
| 2002 10 05 | 704 | 0.9− | 0.2+ | 2005 07 19 | 644 | 0.1+ | 0.1− | 2009 11 17 | 704 | 0.1+ | 0.6+ | | |
| 2002 10 05 | 704 | 0.2− | 0.3+ | 2005 07 19 | 644 | 0.3+ | 0.2+ | 2009 11 24 | J75 | 0.0 | 0.3− | | |
| 2002 10 05 | 704 | 0.5− | 0.6− | 2007 01 25 | 703 | 0.3+ | 0.5− | 2009 11 24 | J75 | 0.0 | 0.4+ | | |
| 2002 10 05 | 704 | 1.1− | 0.3+ | 2007 01 25 | 703 | 0.4+ | 0.3+ | 2009 11 24 | J75 | 0.1+ | 0.4− | | |
| 2002 10 05 | 704 | 0.2− | 0.3+ | 2007 01 25 | 703 | 0.6+ | 0.2− | 2009 11 25 | 691 | 0.1− | 0.0 | | |
| 2002 10 10 | 704 | 0.5− | 1.1− | 2007 01 25 | 703 | 0.2+ | 0.2+ | 2009 11 25 | 691 | 0.1+ | 0.2− | | |
| 2002 10 10 | 704 | 0.2+ | 0.0 | 2009 10 23 | 704 | 0.1+ | 0.8+ | 2009 11 25 | 691 | 0.1− | 0.0 | | |
| 2002 10 10 | 704 | 0.0 | 1.1− | 2009 10 23 | 704 | 0.3− | 1.1+ | 2009 12 09 | J75 | 0.4+ | 0.1− | | |
| 2002 10 10 | 704 | 0.4+ | 0.7− | 2009 10 23 | 704 | 0.0 | 0.7+ | 2009 12 09 | J75 | 0.4+ | 0.1− | | |
| 2002 10 10 | 704 | 0.2+ | 0.8− | 2009 10 24 | 703 | 0.6+ | 0.3− | 2009 12 09 | J75 | 0.5+ | 0.5− | | |
| 2002 10 12 | 704 | (2.1− | 1.5−) | 2009 10 24 | 703 | 0.1+ | 0.1− | 2009 12 11 | G96 | 0.2+ | 0.1− | | |
| 2002 10 12 | 704 | 0.8+ | 0.3− | 2009 10 24 | 703 | 0.3+ | 0.3− | 2009 12 11 | G96 | 0.3+ | 0.1− | | |
| 2002 10 12 | 704 | 0.1− | 0.0 | 2009 10 24 | 703 | (1.8+ | 2.7−) | 2009 12 11 | G96 | 0.5+ | 0.0 | | |
| 2002 10 12 | 704 | 0.2+ | 1.0− | 2009 10 26 | 691 | 0.2− | 0.1− | 2009 12 11 | G96 | 0.2+ | 0.1− | | |
| 2002 10 12 | 704 | 0.6− | 0.2+ | 2009 10 26 | 691 | 0.1− | 0.0 | 2009 12 11 | 704 | 0.7− | 0.3+ | | |
| 2002 10 30 | 608 | 0.5+ | 0.8− | 2009 10 26 | 691 | 0.1− | 0.0 | 2009 12 11 | 704 | 0.5− | 0.3+ | | |
| 2002 10 30 | 608 | 0.2+ | 0.5− | 2009 11 08 | 703 | 1.2+ | 0.1− | 2009 12 11 | 703 | 0.4− | 1.0− | | |
| 2002 10 30 | 608 | 0.6+ | 0.4− | 2009 11 08 | 703 | 0.1− | 0.3− | 2009 12 11 | 704 | 0.1− | 1.1+ | | |
| 2002 11 06 | 704 | (0.2− | 1.6+) | 2009 11 08 | 703 | 0.1+ | 0.1+ | 2009 12 11 | 703 | 0.2− | 0.4− | | |
| 2002 11 06 | 704 | 0.3+ | 1.0+ | 2009 11 08 | 703 | 0.7+ | 0.5− | 2009 12 11 | 703 | 0.7+ | 1.2− | | |
| 2002 11 06 | 704 | 0.1− | 0.5+ | 2009 11 09 | 691 | 0.1− | 0.0 | 2009 12 11 | 704 | 0.4− | 0.5+ | | |
| 2002 11 06 | 704 | 0.4+ | 1.1+ | 2009 11 09 | 691 | 0.2− | 0.0 | 2009 12 11 | 703 | 0.5− | 0.1+ | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 11 06 | 704 | 0.7− | 0.3+ | 2009 11 09 | 691 | 0.4− | 0.1+ | 2009 12 15 | A77 | 0.0 | 0.0 | | |
| 2002 11 12 | 704 | 0.0 | 0.6− | 2009 11 11 | J75 | 0.5+ | 0.2− | 2009 12 15 | A77 | 0.2+ | 0.1+ | | |
| 2002 11 12 | 644 | 0.2− | 0.9+ | 2009 11 11 | J75 | 0.8+ | 0.1+ | 2009 12 15 | A77 | 0.3+ | 0.2+ | | |
| 2002 11 12 | 704 | 0.5− | 0.6− | 2009 11 11 | J75 | 0.1− | 0.3+ | | | | | | |
| 2002 11 12 | 644 | 0.2+ | 1.3+ | 2009 11 11 | 704 | 0.6− | 0.0 | | | | | | |

**(228730)∗ 2002 TX$_{124}$**

Discovered 2002 Oct. 4 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 272.66142 | | (2000.0) | | **P** | | **Q** | | |
| $n$ | 0.29731923 | $\omega$ | 277.22205 | | −0.95262819 | | −0.28316094 | | |
| $a$ | 2.2232453 | $\Omega$ | 246.37967 | | +0.30413610 | | −0.88587868 | | |
| $e$ | 0.0468276 | $i$ | 6.95802 | | +0.00086919 | | −0.36747632 | | |
| $P$ | 3.31 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 1 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 09 03 | 644 | 0.0 | 0.1+ | 2006 11 01 | G96 | 0.4+ | 0.2+ | 2009 11 20 | 691 | 0.1+ | 0.1− | | |
| 2002 09 03 | 644 | 0.2+ | 0.2+ | 2006 11 01 | G96 | 0.3− | 0.1− | 2009 11 20 | 691 | 0.1+ | 0.1− | | |
| 2002 09 03 | 644 | 0.1+ | 0.4+ | 2006 11 01 | G96 | 0.5+ | 0.0 | 2009 11 20 | G96 | 0.2+ | 0.4− | | |
| 2002 09 12 | 644 | 0.1− | 0.1− | 2006 11 01 | G96 | 0.3− | 0.2− | 2009 11 20 | G96 | 0.5+ | 0.1− | | |
| 2002 09 12 | 644 | 0.1+ | 0.3− | 2006 11 17 | G96 | 0.2+ | 0.4− | 2009 11 20 | G96 | 0.1+ | 0.1− | | |
| 2002 09 12 | 644 | 0.0 | 0.2− | 2006 11 17 | G96 | 0.5− | 0.3− | 2009 11 20 | G96 | 0.3+ | 0.3− | | |
| 2002 10 04 | 644 | 0.0 | 0.3+ | 2006 11 17 | G96 | 0.0 | 0.3− | 2009 11 24 | G96 | 0.6+ | 0.0 | | |
| 2002 10 04 | 644 | 0.2+ | 0.4+ | 2006 11 17 | G96 | 0.0 | 0.3− | 2009 11 24 | G96 | 0.6− | 0.2+ | | |
| 2002 10 04 | 644 | 0.5+ | 0.2+ | 2009 11 08 | 691 | 0.0 | 0.1+ | 2009 11 24 | G96 | 0.4+ | 0.2+ | | |
| 2002 10 05 | 704 | 1.3− | 0.3− | 2009 11 08 | 691 | 0.0 | 0.1+ | 2009 11 24 | G96 | 0.2+ | 0.1+ | | |
| 2002 10 05 | 704 | 0.5+ | 0.7− | 2009 11 08 | 691 | 0.1− | 0.3+ | 2009 11 25 | 691 | 0.4− | 0.2+ | | |
| 2002 10 05 | 704 | (1.8− | 0.8+) | 2009 11 15 | J75 | 0.8+ | 0.5− | 2009 11 25 | 691 | 0.5− | 0.1+ | | |
| 2002 10 05 | 704 | 0.3− | 0.2+ | 2009 11 15 | J75 | 0.0 | 0.2+ | 2009 11 25 | 691 | 0.1+ | 0.3− | | |
| 2004 02 14 | 644 | 0.0 | 0.5+ | 2009 11 15 | J75 | 1.2+ | 0.3− | 2009 11 27 | 691 | 0.5− | 0.1+ | | |
| 2004 02 14 | 644 | 0.3+ | 0.6+ | 2009 11 16 | 691 | 0.3+ | 0.1− | 2009 11 27 | 691 | 0.1− | 0.1− | | |
| 2004 02 14 | 644 | 0.2+ | 0.6+ | 2009 11 16 | 691 | 0.2+ | 0.0 | 2009 11 27 | 691 | 0.3− | 0.0 | | |
| 2005 07 30 | 644 | 0.1− | 0.3+ | 2009 11 16 | 691 | 0.0 | 0.2+ | 2009 12 11 | G96 | 0.1+ | 0.2+ | | |
| 2005 07 30 | 644 | 0.2− | 0.3+ | 2009 11 17 | 704 | (1.2+ | 1.7+) | 2009 12 11 | G96 | 0.5+ | 0.1− | | |
| 2005 07 30 | 644 | 0.0 | 0.1− | 2009 11 17 | 704 | 0.1+ | 0.1+ | 2009 12 11 | G96 | 0.5+ | 0.1− | | |
| 2005 09 02 | 644 | 0.1+ | 0.2+ | 2009 11 17 | 704 | 0.3+ | 0.7+ | 2009 12 11 | G96 | 0.4+ | 0.0 | | |
| 2005 09 02 | 644 | 0.1+ | 0.0 | 2009 11 17 | 704 | 0.2+ | 0.0 | | | | | | |
| 2005 09 02 | 644 | 0.1+ | 0.2+ | 2009 11 20 | 691 | 0.2− | 0.1− | | | | | | |

**(228731)∗ 2002 TV$_{130}$**

Discovered 2002 Oct. 4 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 111.30819 | | (2000.0) | | **P** | | **Q** | | |
| $n$ | 0.17523821 | $\omega$ | 78.06218 | | +0.99670248 | | +0.04421855 | | |
| $a$ | 3.1626430 | $\Omega$ | 279.37560 | | −0.06819985 | | +0.91081742 | | |
| $e$ | 0.0509962 | $i$ | 3.95409 | | +0.04396533 | | +0.41043434 | | |
| $P$ | 5.62 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 0 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 09 06 | 704 | 0.6− | 0.0 | 2006 06 02 | G96 | 0.4− | 0.6+ | 2008 10 30 | G96 | 0.4+ | 0.3− | | |
| 2002 09 06 | 704 | 0.3+ | 0.3− | 2006 06 02 | G96 | 0.0 | 0.4+ | 2008 10 30 | G96 | 0.0 | 0.2− | | |
| 2002 09 06 | 704 | 0.6− | 0.1+ | 2007 10 12 | G96 | 0.4+ | 0.1+ | 2008 10 30 | G96 | 0.1+ | 0.3− | | |
| 2002 10 04 | 704 | 0.1− | 0.5− | 2007 10 12 | G96 | 0.3+ | 0.1+ | 2008 11 01 | 704 | 0.0 | 0.8+ | | |
| 2002 10 04 | 704 | (0.0 | 1.9−) | 2007 10 12 | G96 | 0.4+ | 0.1− | 2008 11 01 | 704 | 0.2+ | 0.1+ | | |
| 2002 10 04 | 704 | 0.5− | 0.7+ | 2007 10 12 | G96 | 0.9+ | 0.3+ | 2008 11 01 | 704 | 0.3+ | 1.1+ | | |
| 2002 10 04 | 704 | 0.9− | 0.1− | 2007 11 05 | G96 | 0.4+ | 0.1+ | 2008 11 01 | 704 | 0.9+ | 0.2+ | | |
| 2002 10 04 | 704 | 0.1+ | 1.1+ | 2007 11 05 | G96 | 0.4+ | 0.2− | 2008 11 01 | 704 | 0.4+ | 0.0 | | |
| 2002 10 05 | 704 | 0.2− | 0.7− | 2007 11 05 | G96 | 0.1− | 0.2+ | 2008 11 01 | 704 | 0.8+ | 0.5+ | | |
| 2002 10 05 | 704 | 0.9+ | 1.2+ | 2007 11 05 | G96 | 0.1− | 0.1+ | 2008 11 01 | 704 | 1.5+ | 0.1+ | | |
| 2002 10 05 | 704 | 0.6− | 1.0− | 2008 09 24 | 691 | 0.4− | 0.0 | 2008 11 01 | 704 | (0.2+ | 3.4−) | | |
| 2002 10 05 | 704 | 0.1− | 1.3+ | 2008 09 24 | 691 | 0.3− | 0.3+ | 2008 11 01 | 704 | (1.6+ | 0.5+) | | |
| 2002 10 05 | 704 | 0.8− | 1.4+ | 2008 09 24 | 691 | 0.9− | 0.5− | 2008 11 18 | 691 | 0.0 | 0.1− | | |
| 2002 10 31 | 704 | 0.7+ | 0.1− | 2008 10 10 | G96 | 0.9+ | 0.4− | 2008 11 18 | 691 | 0.1+ | 0.2− | | |
| 2002 10 31 | 704 | (1.6+ | 0.1−) | 2008 10 10 | G96 | 0.3+ | 0.5− | 2008 11 18 | 691 | 0.1+ | 0.1+ | | |
| 2002 10 31 | 704 | 0.5+ | 0.5+ | 2008 10 10 | G96 | 0.4+ | 0.1− | 2009 12 15 | G96 | 0.2− | 0.2+ | | |
| 2003 11 20 | 695 | 0.2+ | 0.1− | 2008 10 10 | G96 | 0.4+ | 0.4− | 2009 12 15 | G96 | 0.3+ | 0.3+ | | |
| 2003 11 20 | 695 | 0.7+ | 0.2+ | 2008 10 24 | 691 | 0.0 | 0.0 | 2009 12 15 | G96 | 0.1+ | 0.6− | | |
| 2006 05 31 | G96 | 0.1+ | 0.7+ | 2008 10 24 | 691 | 0.0 | 0.2+ | 2009 12 15 | G96 | 0.5+ | 0.1− | | |
| 2006 05 31 | G96 | 0.3+ | 0.7+ | 2008 10 24 | 691 | 0.1+ | 0.1− | 2009 12 17 | 691 | 0.2+ | 0.5+ | | |
| 2006 05 31 | G96 | 0.4+ | 0.5+ | 2008 10 26 | 691 | 0.3− | 0.2− | 2009 12 17 | 691 | 0.2+ | 0.1+ | | |
| 2006 05 31 | G96 | (0.4− | 2.6+) | 2008 10 26 | 691 | 0.3− | 0.1+ | 2009 12 17 | 691 | 0.1− | 0.2+ | | |
| 2006 06 02 | G96 | 0.4− | 0.5+ | 2008 10 26 | 691 | 0.1− | 0.1− | | | | | | |
| 2006 06 02 | G96 | 0.4− | 0.5+ | 2008 10 30 | G96 | 0.2+ | 0.1− | | | | | | |

**(228732)∗ 2002 TQ$_{132}$ = 2005 QB$_{20}$**

Discovered 2002 Oct. 4 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 85660)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 182.73984 | | (2000.0) | | **P** | | **Q** | | |
| $n$ | 0.31146851 | $\omega$ | 19.84816 | | +0.10938010 | | +0.99181425 | | |
| $a$ | 2.1553938 | $\Omega$ | 256.47516 | | −0.92088448 | | +0.07616153 | | |
| $e$ | 0.1753264 | $i$ | 3.88542 | | −0.37417611 | | +0.10248857 | | |
| $P$ | 3.16 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 1 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 12 12 | 691 | 1.0− | 0.5− | 2005 08 27 | 699 | 0.2+ | 0.6+ | 2008 06 07 | 703 | 0.2+ | 1.2+ | | |
| 1996 12 12 | 691 | 0.5− | 0.8− | 2005 08 27 | 699 | 0.4+ | 0.4− | 2008 06 07 | 703 | 0.5− | 0.8+ | | |
| 1996 12 12 | 691 | 0.1− | 0.8− | 2005 08 27 | 644 | 0.0 | 0.0 | 2008 07 01 | 704 | 0.9− | 0.2+ | | |
| 2001 02 20 | 645 | 0.1+ | 0.1+ | 2005 08 27 | 644 | 0.4+ | 0.1− | 2008 07 01 | 704 | 0.7− | 0.1+ | | |
| 2001 02 20 | 645 | 0.1+ | 0.1+ | 2005 08 27 | 644 | 0.1+ | 0.2+ | 2008 07 01 | 704 | 0.0 | 0.2− | | |
| 2002 10 04 | 704 | 0.3− | 0.9+ | 2005 09 06 | 699 | 0.5− | 1.2− | 2008 07 30 | 300 | 0.6+ | 0.1− | | |
| 2002 10 04 | 704 | 0.3+ | 0.6+ | 2005 09 06 | 699 | 1.1− | 0.2− | 2008 07 30 | 300 | 0.0 | 0.7− | | |
| 2002 10 04 | 704 | 0.1− | 0.8+ | 2005 09 06 | 699 | 0.5− | 0.1+ | 2008 07 30 | 300 | 0.3− | 0.6− | | |
| 2002 10 04 | 644 | 0.4− | 0.4+ | 2005 09 06 | 699 | 0.3+ | 0.1+ | 2008 07 30 | 300 | 0.2− | 0.4− | | |
| 2002 10 04 | 704 | 0.6+ | 0.7+ | 2005 09 14 | 703 | 0.3+ | 1.1− | 2008 07 30 | 300 | 0.0 | 0.6− | | |
| 2002 10 04 | 644 | 0.2− | 0.3+ | 2005 09 14 | 703 | 0.5+ | 0.4+ | 2008 08 06 | E12 | (2.3+ | 0.2−) | | |
| 2002 10 04 | 704 | 0.6+ | 1.1+ | 2005 09 14 | 703 | 1.4− | 0.5− | 2008 08 06 | E12 | 0.2+ | 0.2− | | |
| 2002 10 04 | 644 | 0.0 | 0.6+ | 2005 09 14 | 703 | 1.2− | 1.3− | 2008 08 06 | E12 | 0.2+ | 0.1+ | | |
| 2002 10 05 | 704 | 0.6− | 0.3+ | 2005 09 26 | 691 | 0.2+ | 0.0 | 2008 08 06 | E12 | 0.4− | 0.3+ | | |
| 2002 10 05 | 704 | 0.3− | 0.4+ | 2005 09 26 | 691 | 0.2+ | 0.1+ | 2008 11 20 | G96 | 0.3− | 0.1+ | | |
| 2002 10 05 | 704 | 0.7+ | 0.0 | 2005 09 26 | 691 | 0.8+ | 0.4+ | 2008 11 20 | G96 | 0.3− | 0.3+ | | |
| 2002 10 09 | 704 | 0.0 | 1.2+ | 2005 10 10 | 691 | 0.0 | 0.8+ | 2008 11 20 | G96 | 0.8− | 0.4+ | | |
| 2002 10 09 | 704 | 0.3− | 0.2− | 2005 10 10 | 691 | 0.1− | 0.4+ | 2008 11 20 | G96 | 0.3+ | 0.0 | | |
| 2002 10 09 | 704 | 0.5+ | 0.7+ | 2005 10 10 | 691 | 0.4+ | 0.5+ | 2009 12 16 | 691 | 0.7+ | 0.3− | | |
| 2002 10 09 | 704 | 0.5+ | 1.1+ | 2007 02 10 | G96 | 0.1+ | 0.3− | 2009 12 16 | 691 | 0.4− | 0.1− | | |
| 2004 01 22 | 704 | 0.2+ | 0.1+ | 2007 02 10 | G96 | 0.6+ | 0.3− | 2009 12 16 | 691 | 0.3+ | 0.0 | | |
| 2004 01 22 | 704 | 0.3+ | 1.1+ | 2007 02 10 | G96 | 0.4+ | 0.3− | 2009 12 20 | 691 | 0.1− | 0.2+ | | |
| 2004 01 22 | 704 | (0.9+ | 2.1+) | 2007 02 10 | G96 | 0.7+ | 0.7+ | 2009 12 20 | 691 | 0.2− | 0.1+ | | |
| 2005 08 26 | 699 | 0.0 | 0.9− | 2008 05 15 | G96 | 0.2+ | 0.2+ | 2009 12 20 | 691 | 0.0 | 0.1+ | | |
| 2005 08 26 | 699 | 0.5− | 0.8+ | 2008 05 15 | G96 | 0.1+ | 0.0 | 2009 12 25 | 691 | 0.0 | 0.1− | | |
| 2005 08 26 | 699 | 0.7− | 0.7− | 2008 05 15 | G96 | 0.5− | 0.2+ | 2009 12 25 | 691 | 0.7− | 0.1− | | |
| 2005 08 26 | 699 | 0.4+ | 0.9− | 2008 05 15 | G96 | 0.6− | 0.2− | 2009 12 25 | 691 | 0.1− | 0.1+ | | |
| 2005 08 27 | 699 | 0.3+ | 0.6− | 2008 06 07 | 703 | 1.1− | 0.0 | | | | | | |
| 2005 08 27 | 699 | 0.2+ | 0.2+ | 2008 06 07 | 703 | 0.2− | 0.5− | | | | | | |

**(228733)∗ 2002 TY$_{132}$ = 2000 AD$_{106}$**

Discovered 2002 Oct. 4 by NEAT at Palomar.

Id. A. Doppler (*MPO* 38041)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 55.15034 | | (2000.0) | | **P** | | **Q** | | |
| $n$ | 0.29815753 | $\omega$ | 126.85966 | | +0.83457893 | | −0.54512391 | | |
| $a$ | 2.2190761 | $\Omega$ | 266.30355 | | +0.47668663 | | +0.78693144 | | |
| $e$ | 0.1849816 | $i$ | 4.56851 | | +0.27613015 | | +0.28910003 | | |
| $P$ | 3.31 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 0 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 01 05 | 704 | 0.3− | 0.8− | 2002 10 09 | 704 | 0.2− | 0.5+ | 2005 07 10 | 691 | 0.7− | 0.3+ | | |
| 2000 01 05 | 704 | 0.7+ | 0.0 | 2002 10 09 | 704 | 0.3+ | 0.8+ | 2005 07 11 | G96 | 0.2+ | 0.0 | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 01 05 | 704 | 0.1+ | 0.1+ | 2002 10 30 | 644 | 0.0 | 0.8− | 2005 07 11 | G96 | 0.2− | 0.0 |
| 2000 01 05 | 704 | 0.4+ | 0.9+ | 2002 10 30 | 644 | 0.2− | 0.9− | 2005 07 11 | G96 | 0.0 | 0.0 |
| 2000 01 05 | 704 | 1.0+ | 0.1+ | 2002 10 30 | 644 | 0.0 | 0.8− | 2005 07 11 | G96 | 0.1+ | 0.0 |
| 2000 01 07 | 704 | 0.2− | 0.8+ | 2002 11 08 | 704 | 0.2+ | 0.7− | 2005 07 30 | E12 | 0.4− | 0.0 |
| 2000 01 07 | 704 | 0.9− | 1.3+ | 2002 11 08 | 704 | (2.5+ | 0.1+) | 2005 07 30 | E12 | 0.1+ | 0.0 |
| 2000 01 07 | 704 | 0.5− | 0.1− | 2002 11 08 | 704 | 0.2− | 0.8− | 2005 07 30 | E12 | 0.5− | 0.6+ |
| 2002 09 07 | 704 | 0.3− | 0.2+ | 2002 11 08 | 704 | 0.8− | 0.5+ | 2005 07 30 | 599 | 0.0 | 0.5+ |
| 2002 09 07 | 704 | 0.5+ | 0.3− | 2002 11 22 | 644 | 0.2− | 0.2+ | 2005 07 30 | 599 | 0.1+ | 0.2+ |
| 2002 09 07 | 704 | 0.6− | 0.1− | 2002 11 22 | 644 | 0.2− | 0.4+ | 2005 07 30 | 599 | 0.2+ | 0.4+ |
| 2002 09 07 | 704 | 0.4+ | 0.7− | 2002 11 22 | 644 | 0.1− | 0.1+ | 2009 10 18 | G96 | 0.3− | 0.2− |
| 2002 09 07 | 704 | 0.1+ | 0.5− | 2005 06 18 | G96 | 0.2+ | 0.1+ | 2009 10 18 | G96 | 0.2+ | 0.2− |
| 2002 09 26 | 608 | (2.8− | 0.5+) | 2005 06 18 | G96 | 0.3+ | 0.1+ | 2009 10 18 | G96 | 0.0 | 0.1− |
| 2002 09 26 | 608 | (2.3− | 0.2+) | 2005 06 18 | G96 | 0.0 | 0.2− | 2009 11 10 | G96 | 0.4+ | 0.0 |
| 2002 09 26 | 608 | (2.1− | 0.2−) | 2005 06 18 | G96 | 0.3− | 0.3+ | 2009 11 10 | G96 | 0.2− | 0.2+ |
| 2002 10 04 | 644 | 0.3− | 0.1+ | 2005 06 28 | 691 | 0.4+ | 0.1− | 2009 11 10 | G96 | 0.1+ | 0.5− |
| 2002 10 04 | 644 | 0.2− | 0.0 | 2005 06 28 | 691 | 0.3− | 0.1+ | 2009 11 10 | G96 | 0.0 | 0.3− |
| 2002 10 04 | 644 | 0.5− | 0.1+ | 2005 06 28 | 691 | 0.2+ | 0.2− | 2009 12 15 | G96 | 0.5− | 0.2− |
| 2002 10 05 | 704 | 0.1− | 0.2+ | 2005 06 29 | 691 | 0.0 | 0.1+ | 2009 12 15 | G96 | 0.4+ | 0.1− |
| 2002 10 05 | 704 | 0.2+ | 0.3+ | 2005 06 29 | 691 | 0.0 | 0.1− | 2009 12 15 | G96 | 0.1+ | 0.4− |
| 2002 10 05 | 704 | 0.1− | 0.1− | 2005 06 29 | 691 | 0.1− | 0.0 | 2009 12 15 | G96 | 0.2− | 0.3− |
| 2002 10 05 | 704 | 0.1+ | 0.4− | 2005 07 05 | 691 | 0.0 | 0.3+ | 2009 12 15 | G96 | 0.0 | 0.2− |
| 2002 10 05 | 704 | 0.1+ | 0.3− | 2005 07 05 | 691 | 0.2− | 0.2+ | 2009 12 18 | 691 | 0.2+ | 0.1+ |
| 2002 10 09 | 704 | 0.7+ | 0.2+ | 2005 07 05 | 691 | 0.1− | 0.1+ | 2009 12 18 | 691 | 0.0 | 0.6+ |
| 2002 10 09 | 704 | 0.4+ | 0.1+ | 2005 07 10 | 691 | 0.0 | 0.1+ | 2009 12 18 | 691 | 0.1− | 0.1+ |
| 2002 10 09 | 704 | 0.8+ | 1.4+ | 2005 07 10 | 691 | 0.5+ | 0.3− | | | | |

**(228734)∗ 2002 TW$_{154}$ = 2003 YK$_{46}$**

Discovered 2002 Oct. 5 by NEAT at Palomar.

Id. A. Doppler (*MPO* 69401)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 128.80273 | | (2000.0) | | **P** | **Q** |
| $n$ | 0.17878840 | $\omega$ | 74.59392 | | +0.89556172 | +0.41948201 |
| $a$ | 3.1206363 | $\Omega$ | 260.41589 | | −0.44361670 | +0.81615217 |
| $e$ | 0.0804679 | $i$ | 8.65228 | | −0.03425551 | +0.39740466 |
| $P$ | 5.51 | $H$ | 15.1 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 27 | 644 | 0.2+ | 0.1+ | 2003 12 21 | 704 | 0.9+ | 1.0+ | 2008 11 03 | 703 | 0.9− | 0.1− |
| 2002 08 27 | 644 | 0.0 | 0.0 | 2007 06 15 | 691 | 0.1+ | 0.1+ | 2008 11 03 | 703 | 0.0 | 0.9− |
| 2002 08 27 | 644 | 0.2+ | 0.1− | 2007 06 15 | 691 | 0.0 | 0.1+ | 2008 11 03 | 703 | 0.1− | 1.3+ |
| 2002 09 04 | 644 | 0.1− | 0.2+ | 2007 06 15 | 691 | 0.2+ | 0.2+ | 2008 11 03 | 703 | 0.3− | 0.3− |
| 2002 09 04 | 644 | 0.1− | 0.1+ | 2008 09 29 | G96 | 0.4− | 0.4− | 2008 11 09 | G96 | 0.4+ | 0.5− |
| 2002 09 04 | 644 | 0.2+ | 0.1− | 2008 09 29 | G96 | 0.2− | 0.4− | 2008 11 09 | G96 | 0.1+ | 0.3− |
| 2002 09 12 | 644 | 0.2− | 0.1− | 2008 09 29 | G96 | 0.0 | 0.4− | 2008 11 09 | G96 | 0.8+ | 0.4− |
| 2002 09 12 | 644 | 0.1− | 0.1− | 2008 09 29 | G96 | 0.2+ | 0.6− | 2008 11 09 | G96 | 0.0 | 0.5− |
| 2002 09 12 | 644 | 0.2− | 0.0 | 2008 10 10 | 703 | (0.1+ | 1.7−) | 2008 11 19 | 703 | 0.8− | 0.2+ |
| 2002 10 05 | 704 | 0.8− | 0.6− | 2008 10 10 | 703 | 0.3+ | 0.1+ | 2008 11 19 | 703 | 0.7− | 0.2− |
| 2002 10 05 | 644 | 0.4− | 0.1+ | 2008 10 10 | 703 | 0.4+ | 0.0 | 2008 11 19 | 703 | 0.1− | 0.9+ |
| 2002 10 05 | 704 | 0.1− | 0.6+ | 2008 10 10 | 703 | 0.6+ | 0.1+ | 2008 11 19 | 703 | 0.0 | 0.6− |
| 2002 10 05 | 644 | 0.3− | 0.0 | 2008 10 19 | 130 | (0.4+ | 1.6−) | 2009 09 29 | 691 | 0.3− | 0.0 |
| 2002 10 05 | 704 | 0.4− | 0.1+ | 2008 10 19 | 130 | 0.4− | 0.4− | 2009 09 29 | 691 | 0.2− | 0.1+ |
| 2002 10 05 | 704 | 0.0 | 0.0 | 2008 10 19 | 130 | 0.0 | 0.9− | 2009 09 29 | 691 | 0.3− | 0.1+ |
| 2002 10 05 | 644 | 0.3− | 0.1− | 2008 10 24 | 703 | 0.9+ | 0.2− | 2009 12 18 | G96 | 0.6+ | 0.1− |
| 2002 10 06 | 644 | 0.0 | 0.4+ | 2008 10 24 | 703 | 0.9+ | 0.2− | 2009 12 18 | G96 | 0.1+ | 0.1+ |
| 2002 10 06 | 644 | 0.3− | 0.5+ | 2008 10 24 | 703 | 0.0 | 0.4− | 2009 12 18 | G96 | 0.1− | 0.0 |
| 2002 10 06 | 644 | 0.3− | 0.1+ | 2008 10 24 | 703 | 0.9+ | 0.3− | 2009 12 18 | G96 | 0.0 | 0.2− |
| 2003 12 17 | 644 | 1.3+ | 0.2+ | 2008 10 28 | 704 | 0.2+ | 0.4− | 2009 12 20 | 691 | 0.1− | 0.3+ |
| 2003 12 17 | 644 | 0.4+ | 0.0 | 2008 10 28 | 704 | 0.2− | 0.8+ | 2009 12 20 | 691 | 0.2− | 0.0 |
| 2003 12 17 | 644 | 0.2− | 0.3− | 2008 10 28 | 704 | 0.6− | 0.6+ | 2009 12 20 | 691 | 0.1+ | 0.0 |
| 2003 12 21 | 704 | 0.5+ | 0.9+ | 2008 10 28 | 704 | 0.2− | 1.2+ | | | | |
| 2003 12 21 | 704 | 0.2− | 0.5+ | 2008 10 28 | 704 | 0.3+ | 0.2+ | | | | |

**(228735)∗ 2002 TP$_{169}$ = 2003 YM$_{148}$**

Discovered 2002 Oct. 3 by NEAT at Palomar.

Id. A. Doppler (*MPO* 75718)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 96.16288 | | (2000.0) | | **P** | **Q** |
| $n$ | 0.18249456 | $\omega$ | 70.37471 | | +0.74369218 | −0.65618275 |
| $a$ | 3.0782421 | $\Omega$ | 330.20935 | | +0.47520686 | +0.65339754 |
| $e$ | 0.0473293 | $i$ | 14.91195 | | +0.47021313 | +0.37748623 |
| $P$ | 5.40 | $H$ | 14.7 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 02 12 | 699 | 0.5− | 0.5+ | 2005 03 13 | 703 | 1.0+ | 0.5+ | 2007 09 13 | G96 | 0.4+ | 0.3− |
| 1999 02 12 | 699 | 0.2+ | 1.2+ | 2005 03 13 | 703 | 0.3− | 0.0 | 2007 09 13 | G96 | 0.2+ | 0.5− |
| 1999 02 12 | 699 | 1.0+ | 0.1− | 2005 03 13 | 703 | 0.2− | 0.2+ | 2007 09 13 | G96 | 0.1+ | 0.4− |
| 2002 10 03 | 644 | 0.6− | 0.3+ | 2005 03 13 | 703 | 0.0 | 0.1− | 2007 09 15 | 699 | 0.2− | 0.7+ |
| 2002 10 03 | 644 | 0.4− | 0.5+ | 2007 08 09 | 691 | 0.2− | 0.0 | 2007 09 15 | 699 | 0.2+ | 0.9+ |
| 2002 10 03 | 644 | 0.3− | 0.0 | 2007 08 09 | 704 | 0.8+ | 1.3+ | 2007 09 15 | 699 | 0.1+ | 0.6+ |
| 2002 10 06 | 704 | 0.9+ | 0.4− | 2007 08 09 | 691 | 0.1− | 0.1− | 2007 09 15 | 699 | 0.2− | 0.1− |
| 2002 10 06 | 704 | 0.4+ | 0.2+ | 2007 08 09 | 704 | 0.2+ | 1.3+ | 2007 10 11 | G96 | 0.4+ | 0.3− |
| 2002 10 06 | 704 | 0.6+ | 0.1+ | 2007 08 09 | 691 | 0.1− | 0.4+ | 2007 10 11 | G96 | 0.1+ | 0.1− |
| 2002 10 06 | 704 | 0.9+ | 0.0 | 2007 08 09 | 704 | 1.2− | 1.3+ | 2007 10 11 | G96 | 0.4+ | 0.5− |
| 2002 10 06 | 704 | 0.6− | 0.4+ | 2007 08 09 | 704 | 0.0 | 1.3+ | 2007 10 11 | G96 | 0.1+ | 0.6− |
| 2002 10 09 | 704 | 0.0 | 0.6+ | 2007 08 13 | D29 | 0.2− | 0.5− | 2007 10 12 | 699 | 0.2− | 0.4+ |
| 2002 10 09 | 704 | 0.3+ | 0.0 | 2007 08 13 | D29 | 0.3+ | 0.1− | 2007 10 12 | 699 | 0.1− | 1.2− |
| 2002 10 09 | 704 | 0.0 | 0.7− | 2007 08 13 | D29 | 0.0 | 0.0 | 2007 10 12 | 699 | 0.1+ | 0.9− |
| 2003 12 17 | 704 | 0.3+ | 0.9+ | 2007 08 13 | D29 | 0.1− | 0.2− | 2007 10 12 | 699 | 1.3− | 0.7− |
| 2003 12 17 | 704 | 0.5+ | 0.4+ | 2007 08 23 | 691 | 0.3− | 0.2− | 2008 10 09 | 704 | 0.4− | 0.5− |
| 2003 12 17 | 704 | 0.9− | 0.7+ | 2007 08 23 | 691 | 0.2− | 0.1− | 2008 10 09 | 704 | 0.1+ | 0.5+ |
| 2003 12 17 | 704 | 0.4+ | 0.6− | 2007 08 23 | 691 | 0.5− | 0.2+ | 2008 10 09 | 704 | 0.0 | 0.1+ |
| 2003 12 29 | 704 | 0.0 | 0.4− | 2007 09 03 | 703 | 0.1− | 0.2+ | 2008 10 09 | 704 | 0.8+ | 0.3− |
| 2003 12 29 | 704 | 0.4− | 0.2+ | 2007 09 03 | 703 | 0.6+ | 0.4+ | 2009 11 22 | G96 | 0.5− | 0.0 |
| 2003 12 29 | 704 | 0.6− | 0.0 | 2007 09 03 | 703 | 0.9+ | 0.7+ | 2009 11 22 | G96 | 0.1− | 0.4+ |
| 2003 12 29 | 704 | 0.4− | 1.3− | 2007 09 03 | 703 | 0.2+ | 0.8− | 2009 11 22 | G96 | 0.1+ | 0.5+ |
| 2003 12 30 | 704 | 0.5+ | 0.0 | 2007 09 12 | G96 | 0.3+ | 0.5− | 2009 11 22 | G96 | 0.2− | 0.2− |
| 2003 12 30 | 704 | 0.4− | 0.6+ | 2007 09 12 | G96 | 0.4+ | 0.3− | 2009 12 20 | G96 | 0.5+ | 0.3− |
| 2003 12 30 | 704 | 0.0 | 0.1+ | 2007 09 12 | G96 | 0.0 | 0.1+ | 2009 12 20 | G96 | 0.5+ | 0.3− |
| 2003 12 30 | 704 | 0.0 | 0.2+ | 2007 09 12 | G96 | 0.2+ | 0.4− | 2009 12 20 | G96 | 0.2+ | 0.2− |
| 2003 12 30 | 704 | 0.1− | 0.7+ | 2007 09 13 | G96 | 0.1+ | 0.3− | 2009 12 20 | G96 | 0.2+ | 0.3− |

**(228736)∗ 2002 TY$_{204}$ = 2002 TK$_{307}$ = 2005 NA$_{90}$**

Discovered 2002 Oct. 4 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (d, *MPO* 74503), A. Doppler (*MPO* 100384)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 27.80972 | | (2000.0) | | **P** | **Q** |
| $n$ | 0.29432317 | $\omega$ | 281.94454 | | +0.61497001 | −0.78510020 |
| $a$ | 2.2383075 | $\Omega$ | 129.85332 | | +0.75568606 | +0.56006543 |
| $e$ | 0.0440034 | $i$ | 5.50794 | | +0.22527864 | +0.26447000 |
| $P$ | 3.35 | $H$ | 17.2 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 10 04 | 704 | 0.4+ | 0.6− | 2004 03 20 | 704 | 1.3+ | 0.2+ | 2007 01 25 | 691 | 0.3− | 0.0 |
| 2002 10 04 | 704 | 0.8− | 0.5− | 2005 07 04 | G96 | 0.0 | 0.5+ | 2007 02 08 | G96 | 0.1− | 0.2− |
| 2002 10 04 | 704 | 0.2− | 0.4+ | 2005 07 04 | G96 | 0.2− | 0.3+ | 2007 02 08 | G96 | 0.4− | 0.3+ |
| 2002 10 04 | 645 | 0.0 | 0.0 | 2005 07 04 | G96 | 0.1+ | 0.4+ | 2007 02 08 | G96 | 0.1+ | 0.0 |
| 2002 10 04 | 645 | 0.1− | 0.1+ | 2005 07 04 | G96 | 0.5− | 0.3+ | 2007 02 08 | G96 | 0.2− | 0.2− |
| 2002 10 08 | 699 | (1.1− | 1.8+) | 2005 07 12 | G96 | 0.1− | 0.3− | 2007 03 10 | G96 | 0.2− | 0.1+ |
| 2002 10 08 | 699 | (0.1+ | 1.5+) | 2005 07 12 | G96 | 0.2+ | 0.2− | 2007 03 10 | G96 | 0.0 | 0.1+ |
| 2002 10 08 | 699 | 1.1− | 1.1+ | 2005 07 12 | G96 | 0.2− | 0.2− | 2007 03 10 | G96 | 0.1+ | 0.4− |
| 2002 10 08 | 699 | 0.1− | 0.3− | 2005 07 12 | G96 | 0.6− | 0.1− | 2007 03 10 | G96 | 0.2+ | 0.1− |
| 2002 10 10 | 645 | 0.0 | 0.1− | 2006 11 22 | G96 | 0.4+ | 0.5− | 2009 11 17 | 703 | (2.8+ | 1.0−) |
| 2002 10 10 | 645 | 0.1+ | 0.1− | 2006 11 22 | G96 | 0.0 | 0.0 | 2009 11 17 | 703 | 1.3+ | 1.1+ |
| 2002 10 11 | 645 | 0.1+ | 0.1− | 2006 11 22 | G96 | 0.1− | 0.5− | 2009 11 17 | 703 | 0.9+ | 0.4+ |
| 2002 10 11 | 645 | 0.0 | 0.1− | 2006 11 22 | G96 | 0.6+ | 0.2− | 2009 11 19 | 704 | 0.5+ | 0.3+ |
| 2002 10 31 | 704 | 0.5− | 0.5+ | 2007 01 09 | G96 | 0.5− | 0.1− | 2009 11 19 | 704 | 0.5+ | 1.0− |
| 2002 10 31 | 704 | 0.3+ | 1.4+ | 2007 01 09 | G96 | 0.1− | 0.0 | 2009 11 19 | 704 | 0.2+ | 0.3− |
| 2002 10 31 | 704 | (0.2+ | 1.7+) | 2007 01 09 | G96 | 0.3− | 0.2+ | 2009 11 19 | 704 | 0.7− | 0.3+ |
| 2004 03 20 | 704 | 0.7+ | 0.1− | 2007 01 09 | G96 | 0.0 | 0.1− | 2009 12 11 | 703 | 0.9− | 0.6+ |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 03 20 | 704 | 0.5+ | 0.3+ | 2007 01 25 | 691 | 0.2− | 0.1+ | 2009 12 11 | 703 | 0.9− | 0.4+ |
| 2004 03 20 | 704 | 0.4− | 1.0− | 2007 01 25 | 691 | 0.1− | 0.2+ | 2009 12 11 | 703 | 0.6+ | 0.5+ |

**(228737)∗ 2002 TB$_{211}$ = 2002 TF$_{297}$**

Discovered 2002 Oct. 7 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. A. Doppler (d, *MPO* 38538)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 92.50709 | | $\omega$ | 316.01589 | +0.99146342 | +0.11873804 |
| $n$ | 0.29752811 | | $\Omega$ | 37.26451 | −0.08076962 | +0.88363421 |
| $a$ | 2.2222046 | | $i$ | 5.10391 | −0.10235509 | +0.45287070 |
| $e$ | 0.1681026 | | $H$ | 16.5 | $G$ 0.15 | $U$ 1 |
| $P$ | 3.31 | | | | | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 12 15 | 704 | 1.6− | 0.7− | 2002 11 03 | 704 | 0.8+ | 0.2− | 2005 07 03 | 644 | 0.5+ | 0.2+ |
| 1999 12 15 | 704 | 1.0− | 0.7− | 2002 11 03 | 704 | 0.5+ | 0.2− | 2005 08 04 | 644 | 0.1− | 0.5+ |
| 1999 12 15 | 704 | 0.6− | 0.5− | 2002 11 03 | 704 | 0.1+ | 0.5− | 2005 08 04 | 644 | 0.1+ | 0.5+ |
| 2001 03 21 | 691 | 0.1+ | 0.5+ | 2002 11 03 | 704 | 0.1− | 0.8− | 2005 08 04 | 644 | 0.1− | 0.5+ |
| 2001 03 21 | 691 | 0.1+ | 1.0+ | 2002 11 06 | 704 | 0.5+ | 0.3− | 2005 08 15 | E12 | 0.2− | 0.1− |
| 2001 03 21 | 691 | 0.0 | 0.6+ | 2002 11 06 | 704 | 0.4+ | 0.2− | 2005 08 15 | E12 | 0.0 | 0.4+ |
| 2002 09 05 | 704 | 0.2− | 1.0+ | 2002 11 06 | 704 | 0.3+ | 0.2− | 2005 08 15 | E12 | 0.6− | 0.0 |
| 2002 09 05 | 704 | 0.2− | 0.3+ | 2002 11 06 | 704 | 0.3+ | 0.1+ | 2005 08 15 | E12 | 0.2− | 0.3− |
| 2002 09 05 | 704 | 0.6+ | 0.9+ | 2002 11 06 | 608 | 0.9− | 0.9− | 2005 08 24 | E12 | 0.3− | 0.0 |
| 2002 09 05 | 704 | 0.2− | 0.6+ | 2002 11 06 | 608 | 0.8− | 0.8− | 2005 08 24 | E12 | 0.6+ | 0.5+ |
| 2002 09 07 | 704 | (2.4− | 0.7+) | 2002 11 06 | 608 | 0.8− | 0.3− | 2005 08 24 | E12 | 0.3− | 0.1− |
| 2002 09 07 | 704 | 0.8− | 0.9+ | 2002 11 07 | 704 | 0.1+ | 0.6− | 2005 08 24 | E12 | 0.5− | 0.3+ |
| 2002 09 07 | 704 | (0.3+ | 2.3+) | 2002 11 07 | 704 | 0.1+ | 0.2− | 2005 08 28 | 699 | 1.1− | 0.2− |
| 2002 10 02 | 704 | 1.0+ | 0.0 | 2002 11 07 | 704 | 0.2− | 0.3− | 2005 08 28 | 699 | 0.8− | 0.1+ |
| 2002 10 02 | 704 | (0.5− | 1.5+) | 2002 11 07 | 704 | 0.0 | 0.2− | 2005 08 28 | 699 | 0.5− | 0.1+ |
| 2002 10 02 | 704 | 0.1− | 0.4+ | 2002 11 07 | 704 | 0.1+ | 0.5− | 2005 08 28 | 699 | 0.2− | 0.9+ |
| 2002 10 02 | 704 | 0.3− | 0.2− | 2002 11 08 | 704 | 0.2− | 0.3− | 2005 09 06 | E12 | 0.5− | 0.8+ |
| 2002 10 07 | 704 | 0.0 | 0.0 | 2002 11 08 | 704 | 0.1− | 0.0 | 2005 09 06 | E12 | 0.1+ | 0.9+ |
| 2002 10 07 | 704 | 0.1− | 0.0 | 2002 11 08 | 704 | 1.2− | 0.3− | 2005 09 06 | E12 | 0.9+ | 0.1+ |
| 2002 10 07 | 704 | 0.2+ | 0.1+ | 2002 11 08 | 704 | 0.1+ | 0.1+ | 2005 09 06 | E12 | 0.3− | 0.1+ |
| 2002 10 07 | 704 | 0.4+ | 1.2+ | 2002 11 08 | 704 | 0.2+ | 0.1− | 2005 09 17 | 644 | 0.1− | 0.6+ |
| 2002 10 08 | 699 | 0.1− | 0.5+ | 2002 11 08 | 704 | 0.6− | 0.4+ | 2005 09 17 | 644 | 0.1+ | 0.6+ |
| 2002 10 08 | 699 | 0.3+ | 0.2+ | 2002 11 08 | 704 | 0.4− | 0.2− | 2005 09 17 | 644 | 0.3− | 0.3+ |
| 2002 10 08 | 699 | 0.3− | 0.0 | 2002 11 08 | 704 | 0.2− | 0.2+ | 2005 11 06 | G96 | 0.1− | 0.0 |
| 2002 10 08 | 699 | 0.2− | 0.4+ | 2002 11 08 | 704 | 0.0 | 0.3+ | 2005 11 06 | G96 | 0.5+ | 1.0+ |
| 2002 10 09 | 704 | 0.6+ | 0.7+ | 2002 11 10 | 704 | (1.9− | 0.3+) | 2005 11 06 | G96 | 0.4− | 0.2− |
| 2002 10 09 | 704 | 0.6+ | 0.9+ | 2002 11 10 | 704 | 0.0 | 1.0+ | 2005 11 06 | G96 | 0.3− | 0.1− |
| 2002 10 09 | 704 | 0.3− | 0.2− | 2002 11 10 | 704 | 0.4+ | 0.8+ | 2007 02 16 | 703 | 0.6+ | 0.6+ |
| 2002 10 09 | 704 | 0.2− | 1.0+ | 2002 11 10 | 704 | 0.3+ | 0.7+ | 2007 02 16 | 703 | (0.5+ | 2.3−) |
| 2002 10 09 | 704 | 0.3− | 0.6+ | 2002 12 05 | 704 | (2.6+ | 1.2+) | 2007 02 16 | 703 | 0.4+ | 0.4+ |
| 2002 10 11 | 704 | (2.5+ | 1.0−) | 2002 12 05 | 704 | (3.5+ | 0.2−) | 2007 02 16 | 703 | 0.8+ | 0.9+ |
| 2002 10 11 | 704 | 0.2+ | 0.9− | 2002 12 05 | 704 | 0.5+ | 0.2+ | 2009 12 15 | 704 | 0.8+ | 0.6+ |
| 2002 10 11 | 704 | 0.1− | 0.2+ | 2002 12 05 | 704 | 0.4− | 0.0 | 2009 12 15 | 704 | 0.9+ | 0.4+ |
| 2002 10 11 | 704 | 0.7− | 0.2+ | 2002 12 05 | 704 | 0.0 | 0.8+ | 2009 12 15 | 704 | (0.8+ | 1.8+) |
| 2002 10 15 | 644 | 0.2− | 0.3− | 2004 03 15 | 691 | 0.4+ | 0.2+ | 2009 12 15 | 704 | 0.5− | 1.4+ |
| 2002 10 15 | 644 | 0.2− | 0.1− | 2004 03 15 | 691 | 0.6+ | 0.4+ | 2009 12 18 | 691 | 0.2− | 0.1+ |
| 2002 10 15 | 644 | 0.1− | 0.1− | 2004 03 15 | 691 | 0.8+ | 0.2+ | 2009 12 18 | 691 | 0.4− | 0.0 |
| 2002 10 31 | 644 | 0.1− | 0.5+ | 2004 03 20 | 704 | 0.2− | 0.4+ | 2009 12 18 | 691 | 0.1+ | 0.3+ |
| 2002 10 31 | 644 | 0.2− | 0.4+ | 2004 03 20 | 704 | 0.2+ | 0.5+ | 2009 12 27 | 691 | 0.1+ | 0.1− |
| 2002 10 31 | 644 | 0.1− | 0.4+ | 2004 03 20 | 704 | 0.8+ | 1.1+ | 2009 12 27 | 691 | 0.3− | 0.1+ |
| 2002 11 01 | 608 | 0.8+ | 0.9+ | 2004 03 20 | 704 | (1.4+ | 1.9+) | 2009 12 27 | 691 | 0.0 | 0.2+ |
| 2002 11 01 | 608 | 0.8+ | 1.1+ | 2005 07 03 | 644 | 0.2+ | 0.6+ | | | | |
| 2002 11 01 | 608 | 0.7+ | 1.0+ | 2005 07 03 | 644 | 0.1+ | 0.3+ | | | | |

**(228738)∗ 2002 TU$_{257}$ = 2002 UD$_{28}$**

Discovered 2002 Oct. 9 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. A. Doppler (d, *MPO* 74503)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 93.09919 | | $\omega$ | 291.95531 | +0.99545218 | +0.07044450 |
| $n$ | 0.29931800 | | $\Omega$ | 64.05434 | −0.03658720 | +0.90426929 |
| $a$ | 2.2133367 | | $i$ | 4.08964 | −0.08795646 | +0.42111118 |
| $e$ | 0.2096559 | | $H$ | 17.6 | $G$ 0.15 | $U$ 1 |
| $P$ | 3.29 | | | | | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 10 09 | 704 | 0.2− | 1.3+ | 2002 11 06 | 704 | (2.0− | 0.1−) | 2005 07 29 | E12 | 0.2+ | 0.8− |
| 2002 10 09 | 704 | 0.3− | 0.2− | 2002 11 06 | 704 | 0.5+ | 0.2+ | 2005 11 06 | G96 | 0.1− | 0.1− |
| 2002 10 09 | 704 | 0.4− | 0.2+ | 2002 11 06 | 704 | 0.3+ | 0.5− | 2005 11 06 | G96 | 0.3+ | 0.4− |
| 2002 10 09 | 704 | 0.9+ | 0.0 | 2002 11 06 | 608 | 0.1+ | 0.0 | 2005 11 06 | G96 | 0.4− | 0.8− |
| 2002 10 09 | 704 | 1.2+ | 0.1+ | 2002 11 06 | 608 | 0.1+ | 0.1+ | 2005 11 06 | G96 | 0.5− | 0.5− |
| 2002 10 11 | 704 | (1.6− | 1.0−) | 2002 11 06 | 608 | 0.3− | 0.4+ | 2009 11 11 | G96 | 0.1+ | 0.4− |
| 2002 10 11 | 704 | 0.7− | 0.1+ | 2002 11 22 | 644 | 0.5− | 0.1+ | 2009 11 11 | G96 | 0.4+ | 0.3+ |
| 2002 10 11 | 704 | 1.1− | 0.5+ | 2002 11 22 | 644 | 0.4− | 0.1+ | 2009 11 11 | G96 | 0.0 | 0.3+ |
| 2002 10 30 | 644 | 0.2− | 0.9+ | 2002 11 22 | 644 | 0.2− | 0.2+ | 2009 11 11 | G96 | 0.2+ | 0.0 |
| 2002 10 30 | 644 | 0.4− | 0.7+ | 2004 03 15 | 691 | 0.2− | 0.7+ | 2009 12 19 | 691 | 0.1+ | 0.5− |
| 2002 10 30 | 644 | 0.3− | 0.8+ | 2004 03 15 | 691 | 0.5+ | 0.0 | 2009 12 19 | 691 | 0.1+ | 0.2− |
| 2002 11 01 | 704 | 0.2− | 0.6− | 2004 03 15 | 691 | 0.3+ | 0.6+ | 2009 12 19 | 691 | 0.1− | 0.2− |
| 2002 11 01 | 704 | 0.0 | 0.4+ | 2005 07 29 | E12 | 0.9+ | 0.9− | 2009 12 27 | 691 | 0.3− | 0.3+ |
| 2002 11 01 | 704 | 0.2− | 0.0 | 2005 07 29 | E12 | 0.3− | 0.7+ | 2009 12 27 | 691 | 0.4− | 0.9− |
| 2002 11 06 | 704 | 0.2+ | 0.0 | 2005 07 29 | E12 | 0.0 | 0.4− | 2009 12 27 | 691 | 0.2+ | 0.2− |

**(228739)∗ 2002 TV$_{275}$**

Discovered 2002 Oct. 9 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 127.81392 | | $\omega$ | 91.42867 | +0.87116638 | +0.48858204 |
| $n$ | 0.30473566 | | $\Omega$ | 239.32615 | −0.46993289 | +0.80107831 |
| $a$ | 2.1870256 | | $i$ | 3.23569 | −0.14224002 | +0.34577612 |
| $e$ | 0.2021357 | | $H$ | 16.2 | $G$ 0.15 | $U$ 1 |
| $P$ | 3.23 | | | | | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 04 22 | 704 | (1.8− | 2.4+) | 2002 12 05 | 704 | 0.7+ | 0.3− | 2005 09 23 | 703 | 0.4− | 0.3− |
| 1998 04 22 | 704 | 0.3− | 1.6+ | 2002 12 10 | 644 | 0.1+ | 0.4+ | 2005 09 23 | 703 | 0.5− | 0.3− |
| 1998 04 22 | 704 | 0.6+ | 1.3+ | 2002 12 10 | 644 | 0.1+ | 0.1+ | 2005 09 23 | 699 | 0.1− | 0.0 |
| 1998 04 22 | 704 | (6.7− | 0.6+) | 2002 12 10 | 644 | 0.7+ | 0.6+ | 2005 09 23 | 699 | 0.3− | 0.1+ |
| 2002 09 06 | 704 | 0.4+ | 0.1− | 2005 06 06 | 703 | 0.4− | 0.4+ | 2005 09 23 | 699 | 0.1− | 0.2+ |
| 2002 09 06 | 704 | 0.0 | 0.0 | 2005 06 06 | 703 | 0.1− | 0.4− | 2005 09 30 | 699 | 0.3+ | 0.2+ |
| 2002 09 06 | 704 | 0.2− | 0.3+ | 2005 06 06 | 703 | 0.1− | 1.1− | 2005 09 30 | 699 | 0.4− | 0.2− |
| 2002 09 06 | 704 | 0.3− | 0.3+ | 2005 06 06 | 703 | 0.1− | 0.3− | 2005 09 30 | 699 | 0.3− | 0.1+ |
| 2002 09 06 | 704 | 0.1− | 0.2+ | 2005 07 01 | 699 | 0.6− | 0.1+ | 2005 09 30 | 699 | 0.3− | 0.1+ |
| 2002 10 04 | 704 | 0.1+ | 0.2+ | 2005 07 01 | 699 | 0.7+ | 0.4+ | 2005 10 05 | 691 | 0.2+ | 0.1+ |
| 2002 10 04 | 704 | 0.2+ | 1.1+ | 2005 07 01 | 699 | 0.6+ | 0.1− | 2005 10 05 | 691 | 0.4+ | 0.0 |
| 2002 10 04 | 704 | 0.0 | 0.6+ | 2005 07 01 | 699 | 0.3+ | 0.0 | 2005 10 05 | 691 | 0.2+ | 0.2+ |
| 2002 10 04 | 704 | 0.7+ | 0.3+ | 2005 07 04 | 704 | 0.0 | 0.4− | 2005 10 06 | 691 | 0.1− | 0.2+ |
| 2002 10 04 | 704 | 0.1+ | 0.3+ | 2005 07 04 | 704 | 0.1− | 0.1+ | 2005 10 06 | 691 | 0.1+ | 0.1+ |
| 2002 10 09 | 704 | 1.1+ | 0.1− | 2005 07 04 | 704 | 0.8+ | 0.1+ | 2005 10 06 | 691 | 0.1+ | 0.1+ |
| 2002 10 09 | 704 | (1.9+ | 0.8+) | 2005 07 04 | 704 | 0.4+ | 0.2+ | 2005 10 26 | 704 | 0.5+ | 0.5+ |
| 2002 10 09 | 704 | (1.6+ | 0.7−) | 2005 07 04 | 704 | 0.7+ | 0.2+ | 2005 10 26 | 704 | 0.3− | 0.5+ |
| 2002 10 09 | 704 | 1.3+ | 1.3− | 2005 07 07 | 704 | 1.4+ | 1.0− | 2005 10 26 | 704 | 0.2− | 0.2+ |
| 2002 10 12 | 704 | 0.5− | 0.8− | 2005 07 07 | 704 | 1.0+ | 0.6+ | 2005 10 26 | 704 | 0.3+ | 0.5+ |
| 2002 10 12 | 704 | (2.3− | 0.2+) | 2005 07 07 | 704 | 0.2+ | 0.5+ | 2005 10 26 | 704 | 0.1− | 0.0 |
| 2002 10 12 | 704 | (0.6+ | 1.5+) | 2005 07 07 | 699 | 0.3+ | 0.1− | 2005 10 26 | 703 | 1.1− | 0.9− |
| 2002 10 12 | 704 | 0.3+ | 0.5− | 2005 07 07 | 704 | 0.3− | 0.5+ | 2005 10 26 | 703 | 0.2− | 0.9− |
| 2002 10 12 | 704 | 1.1− | 0.4+ | 2005 07 07 | 704 | 0.2+ | 0.0 | 2005 10 26 | 703 | 1.0− | 1.4− |
| 2002 10 16 | 699 | 0.1+ | 0.1+ | 2005 07 07 | 699 | 0.5+ | 0.2− | 2005 10 26 | 703 | 0.7− | 1.3− |
| 2002 10 16 | 699 | 0.1− | 0.2+ | 2005 07 07 | 699 | 0.5− | 0.1+ | 2005 10 26 | 644 | 0.0 | 0.2− |
| 2002 10 16 | 699 | 0.7− | 0.7+ | 2005 07 07 | 699 | 0.8− | 0.1+ | 2005 10 26 | 644 | 0.2+ | 0.3+ |
| 2002 10 16 | 699 | 0.3− | 0.5− | 2005 07 31 | 644 | 0.2− | 0.4− | 2005 10 26 | 644 | 0.2+ | 0.2− |
| 2002 10 31 | 699 | 0.5− | 0.1+ | 2005 07 31 | 644 | 0.2− | 0.1− | 2005 11 01 | G96 | 0.4− | 0.4− |
| 2002 10 31 | 699 | 0.1− | 0.3− | 2005 07 31 | 644 | 0.1− | 0.1− | 2005 11 01 | G96 | 0.1+ | 0.4− |
| 2002 10 31 | 699 | 0.3− | 0.4+ | 2005 08 07 | 608 | 0.6− | 0.0 | 2005 11 01 | G96 | 0.4− | 0.4− |
| 2002 10 31 | 644 | 0.1− | 0.1+ | 2005 08 07 | 608 | 0.6− | 0.3− | 2005 11 01 | G96 | 0.3+ | 0.3− |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 10 31 | 699 | 0.1− | 0.6+ | 2005 08 07 | 608 | 0.7− | 0.1− | 2005 12 01 | 704 | (1.0− | 1.7+) | | |
| 2002 10 31 | 644 | 0.2− | 0.0 | 2005 08 16 | E12 | 0.2+ | 0.7− | 2005 12 01 | 704 | 0.3− | 0.1− | | |
| 2002 10 31 | 644 | 0.1− | 0.3+ | 2005 08 16 | E12 | 0.4+ | 0.7− | 2005 12 01 | 704 | 1.0− | 0.2+ | | |
| 2002 11 06 | 704 | 0.4− | 0.4− | 2005 08 16 | E12 | 0.6− | 0.4− | 2005 12 01 | 704 | 1.2− | 0.3+ | | |
| 2002 11 06 | 704 | 0.1− | 0.6− | 2005 08 16 | E12 | 0.2− | 0.0 | 2006 02 02 | G96 | 1.4+ | 0.6+ | | |
| 2002 11 06 | 704 | 0.2− | 0.9− | 2005 08 24 | 644 | 0.1+ | 0.1− | 2006 02 02 | G96 | 0.6− | 0.7− | | |
| 2002 11 06 | 704 | 0.2− | 0.7− | 2005 08 24 | 644 | 0.0 | 0.1− | 2006 02 02 | G96 | 0.7+ | 0.3− | | |
| 2002 11 06 | 704 | 0.0 | 1.2− | 2005 08 24 | 644 | 0.2+ | 0.1− | 2006 02 02 | G96 | 0.2− | 0.1− | | |
| 2002 11 06 | 608 | 0.2+ | 0.1+ | 2005 08 27 | 699 | 0.3+ | 0.5+ | 2007 02 08 | 644 | 0.8+ | 0.3+ | | |
| 2002 11 06 | 608 | 0.2− | 0.1+ | 2005 08 27 | 699 | 0.1+ | 0.1+ | 2007 02 08 | 644 | 0.3+ | 0.4+ | | |
| 2002 11 06 | 608 | 0.0 | 0.1− | 2005 08 27 | 699 | 0.5+ | 0.1+ | 2007 02 08 | 644 | 0.5+ | 0.7+ | | |
| 2002 11 10 | 704 | 0.0 | 0.7+ | 2005 08 30 | 704 | 0.1− | 0.4+ | 2007 02 15 | 703 | 0.2− | 0.8− | | |
| 2002 11 10 | 704 | 0.2+ | 0.1+ | 2005 08 30 | 704 | 0.0 | 0.8+ | 2007 02 15 | 703 | 0.1− | 1.3+ | | |
| 2002 11 10 | 704 | 1.0+ | 0.5− | 2005 08 30 | 704 | 0.1− | 0.5+ | 2007 02 15 | 703 | 0.7− | 0.2− | | |
| 2002 11 10 | 704 | 0.2− | 1.0− | 2005 08 30 | 704 | 0.2− | 0.2+ | 2007 02 15 | 703 | 0.2− | 0.1− | | |
| 2002 11 12 | 644 | 0.3− | 0.3+ | 2005 08 30 | 704 | 0.0 | 0.5+ | 2007 02 26 | G96 | 0.1+ | 0.6+ | | |
| 2002 11 12 | 644 | 0.1− | 0.7+ | 2005 09 06 | 704 | 0.2− | 0.0 | 2007 02 26 | G96 | 0.6+ | 0.4+ | | |
| 2002 11 12 | 644 | 0.1+ | 0.4+ | 2005 09 06 | 704 | 0.3− | 0.0 | 2007 02 26 | G96 | 0.4+ | 0.1− | | |
| 2002 11 23 | 644 | 0.1− | 0.6+ | 2005 09 06 | 704 | 0.4+ | 0.0 | 2007 02 26 | G96 | 0.0 | 0.4+ | | |
| 2002 11 23 | 644 | 0.2− | 0.4+ | 2005 09 11 | 699 | 0.0 | 0.1+ | 2008 07 01 | 704 | 0.3+ | 0.5+ | | |
| 2002 11 23 | 644 | 0.3− | 0.5+ | 2005 09 11 | 699 | 0.1− | 0.6− | 2008 07 01 | 704 | 0.6+ | 0.5+ | | |
| 2002 12 01 | 704 | 0.5+ | 0.2+ | 2005 09 11 | 699 | 0.0 | 0.1+ | 2008 07 01 | 704 | 0.1− | 0.1+ | | |
| 2002 12 01 | 704 | 0.6+ | 0.0 | 2005 09 11 | 699 | 0.2− | 0.1+ | 2008 07 01 | 704 | 0.3− | 0.5+ | | |
| 2002 12 01 | 704 | 1.0− | 0.3+ | 2005 09 11 | 608 | 0.4− | 1.2+ | 2009 12 19 | 691 | 0.0 | 0.1+ | | |
| 2002 12 01 | 704 | 0.5− | 0.3− | 2005 09 11 | 608 | 0.6− | 1.2+ | 2009 12 19 | 691 | 0.3+ | 0.1− | | |
| 2002 12 05 | 704 | 0.0 | 0.4− | 2005 09 11 | 608 | 0.2− | 1.2+ | 2009 12 19 | 691 | 0.2− | 0.2+ | | |
| 2002 12 05 | 704 | 0.2+ | 0.2+ | 2005 09 23 | 703 | 0.2− | 0.4− | 2009 12 27 | 691 | 0.2− | 0.0 | | |
| 2002 12 05 | 704 | 0.3+ | 0.7− | 2005 09 23 | 703 | 0.4− | 0.1− | 2009 12 27 | 691 | 0.0 | 0.3+ | | |
| 2002 12 05 | 704 | 0.4+ | 0.4+ | 2005 09 23 | 699 | 0.9+ | 0.1+ | 2009 12 27 | 691 | 0.0 | 0.1+ | | |

**(228740)∗ 2002 TT$_{281}$**

Discovered 2002 Oct. 10 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 67.83889 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28844472 | $\omega$ | 12.72841 | | +0.99114185 | +0.12923151 | |
| $a$ | 2.2686160 | $\Omega$ | 339.76988 | | −0.12828579 | +0.87198454 | |
| $e$ | 0.1838491 | $i$ | 5.07877 | | −0.03435970 | +0.47216754 | |
| $P$ | 3.42 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 09 02 | 691 | 0.2− | 0.4+ | 2002 11 06 | 699 | 0.1− | 0.5+ | 2006 12 23 | 461 | 0.1− | 0.0 | | |
| 1995 09 02 | 691 | 0.2− | 0.2+ | 2002 11 06 | 704 | 1.0+ | 0.4+ | 2006 12 23 | 461 | 0.1− | 0.1+ | | |
| 1995 09 02 | 691 | 0.6− | 0.0 | 2002 11 06 | 699 | 0.3+ | 0.4+ | 2007 01 17 | 691 | 0.2− | 0.2+ | | |
| 2002 10 04 | 704 | 0.2+ | 0.6− | 2002 11 06 | 704 | 1.0+ | 0.2+ | 2007 01 17 | 691 | 0.3− | 0.4+ | | |
| 2002 10 04 | 704 | 0.4+ | 0.4− | 2002 11 06 | 699 | 0.1+ | 0.0 | 2007 01 17 | 691 | 0.2+ | 0.3+ | | |
| 2002 10 04 | 704 | 0.1− | 1.5− | 2002 11 06 | 699 | 1.0− | 0.9− | 2007 01 25 | 691 | 0.6− | 0.0 | | |
| 2002 10 04 | 704 | 0.5+ | 0.3− | 2002 11 13 | 644 | 0.3+ | 0.2+ | 2007 01 25 | 691 | 0.3− | 0.1− | | |
| 2002 10 04 | 704 | 0.4+ | 0.1+ | 2002 11 13 | 644 | 0.1+ | 0.1+ | 2007 01 25 | 691 | 0.3− | 0.2− | | |
| 2002 10 10 | 704 | (0.7− | 1.5+) | 2002 11 13 | 644 | 0.2+ | 0.1+ | 2009 11 16 | 704 | (1.6+ | 0.7+) | | |
| 2002 10 10 | 704 | 0.6− | 0.7+ | 2002 11 14 | 704 | 0.6− | 0.4− | 2009 11 16 | 704 | 0.6+ | 0.1− | | |
| 2002 10 10 | 704 | (1.9− | 0.8+) | 2002 11 14 | 704 | 0.2− | 0.0 | 2009 11 16 | 704 | 1.3+ | 0.0 | | |
| 2002 10 10 | 704 | 0.7− | 1.1+ | 2002 11 14 | 704 | 0.7+ | 0.0 | 2009 11 23 | 704 | 0.2+ | 0.1+ | | |
| 2002 10 10 | 704 | 1.2− | 0.8+ | 2004 03 14 | 691 | 0.5+ | 0.4− | 2009 11 23 | 704 | 0.4− | 0.7− | | |
| 2002 10 12 | 704 | 0.1+ | 0.3+ | 2004 03 14 | 691 | 0.6+ | 0.2− | 2009 11 23 | 704 | 0.5− | 0.6− | | |
| 2002 10 12 | 704 | 0.7+ | 0.2+ | 2004 03 14 | 691 | 0.3+ | 0.1− | 2009 11 23 | 704 | 0.0 | 0.3− | | |
| 2002 10 12 | 704 | 0.1+ | 1.1− | 2004 03 18 | 691 | 0.1− | 0.4+ | 2009 12 10 | H10 | 1.1− | 0.3+ | | |
| 2002 11 05 | 704 | 0.3+ | 0.6+ | 2004 03 18 | 691 | 0.4+ | 0.5+ | 2009 12 10 | H10 | 1.5− | 0.6− | | |
| 2002 11 05 | 704 | 0.1+ | 0.7+ | 2004 03 18 | 691 | 0.3+ | 0.5+ | 2009 12 10 | H10 | (1.8− | 0.7−) | | |
| 2002 11 05 | 704 | 0.3+ | 0.7+ | 2005 11 25 | G96 | 0.5− | 0.4+ | 2009 12 15 | 704 | 0.5+ | 0.4+ | | |
| 2002 11 05 | 704 | 0.6+ | 0.6+ | 2005 11 25 | G96 | 0.9− | 0.8+ | 2009 12 15 | 704 | 0.4+ | 0.4+ | | |
| 2002 11 05 | 704 | 0.2− | 0.5+ | 2005 11 25 | G96 | 0.4− | 0.8− | 2009 12 15 | 704 | 0.3− | 0.1− | | |
| 2002 11 06 | 704 | 1.2+ | 0.4− | 2005 11 25 | G96 | 0.0 | 0.2− | 2009 12 15 | 704 | 0.5− | 0.4+ | | |
| 2002 11 06 | 704 | 1.0+ | 0.1− | 2006 12 23 | 461 | 0.3+ | 0.1− | | | | | | |

**(228741)∗ 2002 TQ$_{282}$**

Discovered 2002 Oct. 10 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 48.64810 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28683168 | $\omega$ | 94.04239 | | +0.94957090 | −0.30530381 | |
| $a$ | 2.2771133 | $\Omega$ | 283.74521 | | +0.25050676 | +0.87572645 | |
| $e$ | 0.1293049 | $i$ | 4.21812 | | +0.18857751 | +0.37402241 | |
| $P$ | 3.44 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 10 04 | 704 | 0.9+ | 0.1− | 2002 11 14 | 704 | 0.4+ | 0.2+ | 2007 03 16 | G96 | 0.1− | 0.3+ | | |
| 2002 10 04 | 704 | 0.1− | 0.8+ | 2002 11 14 | 704 | 0.8− | 0.5− | 2007 03 16 | G96 | 0.2+ | 0.2+ | | |
| 2002 10 04 | 704 | 0.3− | 0.6+ | 2002 12 06 | 704 | 0.6+ | 0.2+ | 2007 03 16 | G96 | 0.1− | 0.2+ | | |
| 2002 10 04 | 704 | 0.5+ | 0.3+ | 2002 12 06 | 704 | 0.5− | 0.0 | 2007 03 16 | G96 | 0.2+ | 0.2+ | | |
| 2002 10 04 | 704 | 0.6+ | 0.7− | 2002 12 06 | 704 | 1.0− | 0.6+ | 2009 11 09 | G96 | 0.3+ | 0.2− | | |
| 2002 10 10 | 704 | 0.0 | 0.0 | 2002 12 06 | 704 | 0.0 | 0.4− | 2009 11 09 | G96 | 0.0 | 0.1+ | | |
| 2002 10 10 | 704 | (2.0+ | 0.2+) | 2002 12 06 | 704 | 0.6+ | 0.2− | 2009 11 09 | G96 | 0.0 | 0.1− | | |
| 2002 10 10 | 704 | 0.5+ | 0.3− | 2005 06 27 | 691 | 0.0 | 0.3+ | 2009 11 09 | G96 | 0.0 | 0.1+ | | |
| 2002 10 10 | 704 | 0.0 | 0.1+ | 2005 06 27 | 691 | 0.0 | 0.3+ | 2009 11 11 | 704 | 0.7+ | 0.0 | | |
| 2002 10 12 | 704 | 0.1+ | 0.1+ | 2005 06 27 | 691 | 0.1+ | 0.3+ | 2009 11 11 | 691 | 0.1− | 0.1− | | |
| 2002 10 12 | 704 | 0.4+ | 0.1− | 2005 06 28 | 644 | 0.4− | 0.1+ | 2009 11 11 | 704 | 0.8+ | 0.1+ | | |
| 2002 10 12 | 704 | 0.1+ | 0.2+ | 2005 06 28 | 644 | 0.4− | 0.1− | 2009 11 11 | 691 | 0.1− | 0.1− | | |
| 2002 10 12 | 704 | 0.4+ | 0.6− | 2005 06 28 | 644 | 0.2− | 0.0 | 2009 11 11 | 704 | 0.9+ | 0.3+ | | |
| 2002 11 05 | 704 | (0.0 | 2.0+) | 2005 07 05 | 644 | 0.2− | 0.1− | 2009 11 11 | 704 | (1.5+ | 0.1+) | | |
| 2002 11 05 | 704 | 0.2+ | 1.1+ | 2005 07 05 | 644 | 0.0 | 0.0 | 2009 11 11 | 691 | 0.0 | 0.1− | | |
| 2002 11 05 | 704 | 0.2+ | 1.3+ | 2005 07 05 | 644 | 0.1− | 0.0 | 2009 11 12 | J75 | 0.2+ | 0.3+ | | |
| 2002 11 05 | 704 | 0.5+ | 0.4+ | 2005 07 18 | 644 | 0.2− | 0.2+ | 2009 11 12 | J75 | 0.5+ | 0.1+ | | |
| 2002 11 06 | 699 | 1.1+ | 0.3− | 2005 07 18 | 644 | 0.4− | 0.0 | 2009 11 12 | J75 | 0.2− | 0.6+ | | |
| 2002 11 06 | 699 | 1.0+ | 0.6− | 2005 07 18 | 644 | 0.5− | 0.0 | 2009 11 17 | 704 | 0.2+ | 0.3+ | | |
| 2002 11 06 | 699 | 0.6− | 0.5+ | 2005 07 27 | 644 | 0.2− | 0.1+ | 2009 11 17 | 704 | 0.4+ | 0.5+ | | |
| 2002 11 06 | 699 | 0.4− | 0.1+ | 2005 07 27 | 644 | 0.0 | 0.2− | 2009 11 17 | 704 | 1.3− | 0.0 | | |
| 2002 11 08 | 704 | 0.0 | 1.1+ | 2005 07 27 | 644 | 0.4− | 0.0 | 2009 11 19 | 691 | 0.3− | 0.3+ | | |
| 2002 11 08 | 704 | 0.7− | 0.6+ | 2005 08 05 | 644 | 0.3− | 0.3− | 2009 11 19 | 691 | 0.2− | 0.2+ | | |
| 2002 11 08 | 704 | 0.5+ | 0.8+ | 2005 08 05 | 644 | 0.3− | 0.2− | 2009 11 19 | 691 | 0.1− | 0.0 | | |
| 2002 11 11 | 704 | (2.3− | 1.6−) | 2005 08 05 | 644 | 0.1− | 0.3− | 2009 11 22 | 704 | 0.0 | 0.1+ | | |
| 2002 11 11 | 704 | 0.4+ | 0.1− | 2005 08 28 | 691 | 0.2+ | 0.3− | 2009 11 22 | 704 | 0.3+ | 1.1+ | | |
| 2002 11 11 | 704 | 0.3+ | 0.2+ | 2005 08 28 | 691 | 0.0 | 0.1− | 2009 11 22 | 704 | 1.4+ | 0.2− | | |
| 2002 11 11 | 704 | 0.2− | 0.5− | 2005 08 28 | 691 | 0.4+ | 0.9+ | 2009 11 22 | 704 | 0.4+ | 0.1− | | |
| 2002 11 11 | 704 | 1.2− | 1.2− | 2005 10 30 | G96 | 0.4− | 0.6− | 2009 11 23 | 691 | 0.4− | 0.2+ | | |
| 2002 11 11 | 704 | 0.1+ | 0.4− | 2005 10 30 | G96 | 0.0 | 0.6− | 2009 11 23 | 691 | 0.0 | 0.1+ | | |
| 2002 11 11 | 704 | 0.4− | 0.7− | 2005 10 30 | G96 | 0.1− | 0.4− | 2009 11 23 | 691 | 0.4− | 0.2+ | | |
| 2002 11 11 | 704 | 1.1− | 1.0− | 2005 10 30 | G96 | 0.2− | 0.6− | 2009 12 10 | 704 | 0.3+ | 0.2− | | |
| 2002 11 11 | 704 | 0.1− | 0.4− | 2006 10 20 | 695 | 0.2− | 0.2+ | 2009 12 10 | 704 | 1.1− | 1.0− | | |
| 2002 11 12 | 704 | 0.6+ | 0.2+ | 2006 10 20 | 695 | 0.4+ | 0.3+ | 2009 12 10 | 704 | 0.0 | 0.3− | | |
| 2002 11 12 | 704 | 0.1+ | 0.5− | 2006 11 21 | G96 | 0.4− | 0.2− | 2009 12 10 | 704 | 0.1− | 0.2− | | |
| 2002 11 12 | 704 | 0.3+ | 0.6− | 2006 11 21 | G96 | 0.4− | 0.1− | 2009 12 10 | 704 | 0.4− | 1.1+ | | |
| 2002 11 12 | 704 | 1.3− | 0.2+ | 2006 11 21 | G96 | 0.2− | 0.0 | 2009 12 16 | 704 | 0.3+ | 0.7− | | |
| 2002 11 12 | 704 | 0.1− | 1.2− | 2006 11 21 | G96 | 0.1+ | 0.0 | 2009 12 16 | 704 | 0.2+ | 0.0 | | |
| 2002 11 13 | 704 | (1.5− | 0.6+) | 2007 01 24 | 703 | (1.8− | 0.6+) | 2009 12 16 | 704 | 0.8+ | 0.6− | | |
| 2002 11 13 | 704 | 0.3− | 0.5− | 2007 01 24 | 703 | 0.3+ | 0.7+ | 2009 12 16 | 704 | 0.8+ | 0.3− | | |
| 2002 11 13 | 704 | 0.0 | 0.4− | 2007 01 24 | 703 | 0.1+ | 0.2+ | 2009 12 16 | G96 | 0.0 | 0.1− | | |
| 2002 11 13 | 704 | 0.3− | 0.4− | 2007 01 24 | 703 | 0.1+ | 0.7− | 2009 12 16 | G96 | 0.2− | 0.2− | | |
| 2002 11 13 | 704 | 0.2− | 0.2− | 2007 02 10 | 644 | 0.1+ | 0.4+ | 2009 12 16 | 704 | 0.8+ | 0.5− | | |
| 2002 11 14 | 704 | 0.2− | 0.1− | 2007 02 10 | 644 | 0.2+ | 0.7+ | 2009 12 16 | G96 | 0.8+ | 0.1− | | |
| 2002 11 14 | 704 | 0.1+ | 0.4+ | 2007 02 10 | 644 | 0.3+ | 0.5+ | 2009 12 16 | G96 | 0.0 | 0.1− | | |

**(228742)∗ 2002 TA$_{287}$**

Discovered 2002 Oct. 10 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 70.42143 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.29551590 | $\omega$ | 114.87299 | | +0.89403210 | −0.43995150 | |
| $a$ | 2.2322808 | $\Omega$ | 271.32396 | | +0.37443919 | +0.83742222 | |
| $e$ | 0.0807027 | $i$ | 4.85164 | | +0.24597132 | +0.32429417 | |
| $P$ | 3.34 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 03 05 | 691 | 0.7− | 0.3+ | 2002 11 07 | 704 | 0.2+ | 0.4+ | 2005 08 27 | 699 | 0.4− | 0.0 |
| 1997 03 05 | 691 | 1.0+ | 0.2− | 2002 11 07 | 704 | 0.4+ | 0.0 | 2005 09 09 | 704 | 0.6− | 0.5− |
| 1997 03 05 | 691 | 0.6− | 0.0 | 2002 11 07 | 704 | 0.1+ | 0.3− | 2005 09 09 | 704 | 0.3− | 0.0 |
| 2002 10 10 | 704 | (0.4+ | 1.8−) | 2002 11 07 | 704 | 0.5+ | 0.8+ | 2005 09 09 | 704 | 0.2− | 0.7+ |
| 2002 10 10 | 704 | 0.2+ | 0.6− | 2002 11 07 | 704 | 0.9+ | 0.2− | 2005 09 09 | 704 | 0.5− | 0.0 |
| 2002 10 10 | 704 | 0.8− | 0.0 | 2002 11 08 | 704 | 0.8− | 0.3− | 2005 09 09 | 704 | 0.1− | 0.4− |
| 2002 10 10 | 704 | 1.2− | 1.3− | 2002 11 08 | 704 | 1.3− | 0.1+ | 2005 09 14 | 703 | 0.5− | 0.4− |
| 2002 10 10 | 704 | 0.3+ | 0.3− | 2002 11 08 | 704 | 0.2+ | 0.1− | 2005 09 14 | 703 | 0.2− | 0.5− |
| 2002 10 12 | 704 | 0.2+ | 0.2− | 2002 11 08 | 704 | 0.8+ | 0.9− | 2005 09 14 | 703 | 0.8+ | 0.1− |
| 2002 10 12 | 704 | 1.2− | 0.9− | 2002 11 12 | 704 | 0.5− | 1.1+ | 2005 09 14 | 703 | 0.1− | 0.2+ |
| 2002 10 12 | 704 | 0.4− | 1.2− | 2002 11 12 | 704 | 0.3− | 0.1+ | 2005 10 07 | 691 | 0.3+ | 0.2+ |
| 2002 11 04 | 644 | 0.1− | 0.0 | 2002 11 12 | 704 | 0.1+ | 1.0+ | 2005 10 07 | 691 | 0.2+ | 0.0 |
| 2002 11 04 | 644 | 0.3− | 1.1+ | 2002 11 12 | 704 | 0.6− | 0.4+ | 2005 10 07 | 691 | 0.1+ | 0.3+ |
| 2002 11 04 | 644 | 0.8− | 1.0+ | 2002 11 14 | 704 | 0.3+ | 0.1− | 2007 02 10 | 703 | 0.3+ | 0.5+ |
| 2002 11 05 | 704 | 0.5− | 0.0 | 2002 11 14 | 704 | 0.7+ | 0.4+ | 2007 02 10 | 703 | 0.6+ | 0.9+ |
| 2002 11 05 | 704 | 0.1+ | 0.0 | 2002 11 14 | 704 | 0.8+ | 0.0 | 2007 02 10 | 703 | 0.2+ | 0.9− |
| 2002 11 05 | 704 | 0.0 | 0.1− | 2002 11 14 | 704 | 0.1+ | 0.0 | 2007 02 10 | 703 | (2.2− | 1.3+) |
| 2002 11 05 | 704 | 0.4− | 0.5+ | 2002 11 14 | 704 | 0.6+ | 0.1+ | 2007 03 15 | 703 | (0.3+ | 1.6−) |
| 2002 11 05 | 704 | 0.3− | 0.5+ | 2002 11 24 | 644 | 0.0 | 0.1− | 2007 03 15 | 703 | (3.7− | 0.7+) |
| 2002 11 06 | 704 | 0.9+ | 0.2+ | 2002 11 24 | 644 | 0.2− | 0.2+ | 2007 03 15 | 703 | (1.8− | 0.5+) |
| 2002 11 06 | 704 | 0.7− | 0.5− | 2002 11 24 | 644 | 0.1+ | 0.3+ | 2007 03 15 | 703 | 1.1+ | 1.2− |
| 2002 11 06 | 704 | 0.3+ | 0.1+ | 2002 12 06 | 704 | 0.5+ | 0.2+ | 2009 11 11 | G96 | 0.6− | 0.2− |
| 2002 11 06 | 704 | 0.7− | 0.3− | 2002 12 06 | 704 | 0.1+ | 0.4− | 2009 11 11 | G96 | 0.4− | 0.2− |
| 2002 11 06 | 704 | 0.5+ | 0.4− | 2002 12 06 | 704 | 0.2+ | 0.4+ | 2009 11 11 | G96 | 0.7− | 0.6− |
| 2002 11 06 | 704 | 0.0 | 0.3+ | 2002 12 06 | 704 | 0.6+ | 0.2+ | 2009 11 11 | G96 | 0.6− | 0.2− |
| 2002 11 06 | 699 | 0.3+ | 0.2+ | 2002 12 06 | 704 | 0.1+ | 0.3+ | 2009 12 09 | J75 | 0.6− | 0.1− |
| 2002 11 06 | 704 | 0.9+ | 0.3− | 2002 12 11 | 644 | 0.3− | 0.0 | 2009 12 09 | J75 | 0.3+ | 0.2+ |
| 2002 11 06 | 704 | 0.2− | 0.0 | 2002 12 11 | 644 | 0.3− | 0.6+ | 2009 12 09 | J75 | 0.4− | 0.4− |
| 2002 11 06 | 699 | 0.2+ | 0.0 | 2002 12 11 | 644 | 0.1− | 0.4+ | 2009 12 10 | G96 | 0.3+ | 0.4− |
| 2002 11 06 | 704 | 0.6+ | 0.6− | 2005 07 31 | 644 | 0.0 | 0.1− | 2009 12 10 | G96 | 0.4+ | 0.0 |
| 2002 11 06 | 704 | 0.1− | 0.3+ | 2005 07 31 | 644 | 0.1+ | 0.1− | 2009 12 10 | G96 | 0.4+ | 0.4+ |
| 2002 11 06 | 699 | 0.6+ | 1.0+ | 2005 07 31 | 644 | 0.0 | 0.2− | 2009 12 10 | G96 | 0.1+ | 0.0 |
| 2002 11 06 | 699 | 0.4+ | 0.6+ | 2005 08 26 | 644 | 0.1+ | 0.3− | 2009 12 21 | D29 | 0.1− | 0.0 |
| 2002 11 07 | 734 | 0.3− | 0.6− | 2005 08 26 | 644 | 0.1+ | 0.4− | 2009 12 21 | D29 | 0.7− | 0.1+ |
| 2002 11 07 | 734 | 0.1− | 0.5− | 2005 08 26 | 644 | 0.1+ | 0.0 | 2009 12 21 | D29 | 0.5+ | 0.7− |
| 2002 11 07 | 734 | 0.0 | 0.6− | 2005 08 27 | 699 | (1.8− | 1.0−) | 2009 12 21 | D29 | 0.5− | 0.9+ |
| 2002 11 07 | 734 | 0.1+ | 0.2− | 2005 08 27 | 699 | 0.0 | 0.7− | | | | |
| 2002 11 07 | 734 | 0.1+ | 0.6− | 2005 08 27 | 699 | 0.8− | 1.0+ | | | | |

**(228743)∗ 2002 TZ$_{290}$**

Discovered 2002 Oct. 10 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 90.15285 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28859538 | $\omega$ | 60.89783 | | +0.85233749 | +0.51616197 | |
| $a$ | 2.2678264 | $\Omega$ | 267.91119 | | −0.50435325 | +0.76860428 | |
| $e$ | 0.1932433 | $i$ | 4.83597 | | −0.13837846 | +0.37792101 | |
| $P$ | 3.42 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 10 10 | 704 | 0.9− | 0.2− | 2002 11 14 | 704 | 0.2+ | 0.2− | 2006 12 13 | G96 | 0.2+ | 0.1+ |
| 2002 10 10 | 704 | 0.2− | 0.6− | 2002 11 14 | 704 | 0.1+ | 0.1+ | 2006 12 16 | G96 | 0.2+ | 0.4− |
| 2002 10 10 | 704 | 0.6− | 0.0 | 2002 11 14 | 704 | 0.0 | 0.1+ | 2006 12 16 | G96 | 0.3+ | 0.4− |
| 2002 10 10 | 704 | 0.3+ | 0.2+ | 2002 12 11 | 644 | 0.2− | 0.4+ | 2006 12 16 | G96 | 0.4+ | 0.3− |
| 2002 10 12 | 704 | 0.4− | 0.3− | 2002 12 11 | 644 | 0.1− | 0.4+ | 2006 12 16 | G96 | 0.0 | 0.5− |
| 2002 10 12 | 704 | 0.1+ | 0.4− | 2002 12 11 | 644 | 0.4− | 0.7+ | 2007 01 10 | G96 | 0.1− | 0.5− |
| 2002 10 12 | 704 | 0.6+ | 0.2+ | 2005 06 14 | G96 | 0.4− | 0.0 | 2007 01 10 | G96 | 0.2+ | 0.4− |
| 2002 10 12 | 704 | 0.9− | 0.0 | 2005 06 14 | G96 | 0.1− | 0.0 | 2007 01 10 | G96 | 0.6+ | 0.3− |
| 2002 10 12 | 704 | 0.1− | 0.3+ | 2005 06 14 | G96 | 0.4− | 0.1+ | 2007 01 10 | G96 | 0.3− | 0.5− |
| 2002 10 31 | 699 | 1.0− | 1.0+ | 2005 06 14 | G96 | 0.7− | 0.1+ | 2007 02 17 | 691 | 0.7− | 0.3+ |
| 2002 10 31 | 699 | 0.1+ | 0.2− | 2005 06 18 | G96 | 0.4− | 0.1+ | 2007 02 17 | 691 | 0.2− | 0.0 |
| 2002 10 31 | 699 | 0.5− | 0.6+ | 2005 06 18 | G96 | 0.6− | 0.1− | 2007 02 17 | 691 | 0.1+ | 0.1− |
| 2002 10 31 | 699 | 0.2+ | 0.1+ | 2005 06 18 | G96 | 0.2− | 0.2+ | 2009 11 09 | G96 | 0.1− | 0.5− |
| 2002 11 05 | 704 | 0.2+ | 0.4− | 2005 06 18 | G96 | 0.6− | 0.1+ | 2009 11 09 | G96 | 0.9+ | 0.9− |
| 2002 11 05 | 704 | 0.5+ | 0.9+ | 2005 07 04 | 704 | 0.0 | 0.1+ | 2009 11 09 | G96 | 0.3+ | 0.3− |
| 2002 11 05 | 704 | 0.2+ | 0.6+ | 2005 07 04 | 704 | 0.3+ | 0.7− | 2009 11 09 | G96 | 0.3− | 0.1− |
| 2002 11 05 | 704 | 1.5+ | 0.8+ | 2005 07 04 | 704 | 1.2+ | 0.4− | 2009 11 17 | 704 | 0.2+ | 0.3− |
| 2002 11 08 | 704 | 1.0+ | 0.4+ | 2005 07 04 | 704 | 0.1+ | 0.2− | 2009 11 17 | 704 | (2.0+ | 0.8+) |
| 2002 11 08 | 704 | 0.7+ | 0.5+ | 2005 07 04 | 704 | 0.3+ | 0.4+ | 2009 11 17 | 704 | 0.2+ | 0.8+ |
| 2002 11 08 | 704 | 0.3+ | 0.5+ | 2005 07 05 | 691 | 0.0 | 0.2+ | 2009 11 21 | 691 | 0.2− | 0.1− |
| 2002 11 08 | 704 | 0.1− | 0.5+ | 2005 07 05 | 691 | 0.0 | 0.3+ | 2009 11 21 | 691 | 0.1+ | 0.2− |
| 2002 11 11 | 699 | 0.4+ | 0.9− | 2005 07 05 | 691 | 0.2+ | 0.3− | 2009 11 21 | 691 | 0.3− | 0.1− |
| 2002 11 11 | 699 | 0.0 | 0.1+ | 2005 07 11 | G96 | 0.4− | 0.5− | 2009 11 25 | J75 | 1.2+ | 0.4− |
| 2002 11 11 | 699 | 0.6− | 0.7− | 2005 07 11 | G96 | 0.5− | 0.5− | 2009 11 25 | J75 | 0.3− | 0.2− |
| 2002 11 11 | 699 | 0.0 | 0.8− | 2005 07 11 | G96 | 0.1− | 0.6− | 2009 11 25 | J75 | 0.1+ | 0.3+ |
| 2002 11 12 | 704 | 0.8− | 1.2− | 2005 07 11 | G96 | 0.2− | 0.5− | 2009 11 25 | 691 | 0.3− | 0.1− |
| 2002 11 12 | 704 | 0.1− | 0.1+ | 2005 07 17 | 608 | 0.7+ | 0.1− | 2009 11 25 | 691 | 0.2− | 0.1− |
| 2002 11 12 | 704 | 0.4− | 0.2+ | 2005 07 17 | 608 | 0.9+ | 0.2− | 2009 11 25 | 691 | 0.2+ | 0.0 |
| 2002 11 12 | 704 | 0.4+ | 0.6+ | 2005 07 17 | 608 | 0.9+ | 0.7− | 2009 12 15 | G96 | 0.3+ | 0.1+ |
| 2002 11 12 | 704 | 0.6− | 0.3+ | 2006 12 13 | G96 | 0.3+ | 0.2− | 2009 12 15 | G96 | 0.1− | 0.3+ |
| 2002 11 14 | 704 | 0.2− | 0.5− | 2006 12 13 | G96 | 0.1− | 0.3− | 2009 12 15 | G96 | 0.4+ | 0.3+ |
| 2002 11 14 | 704 | 0.4+ | 0.2− | 2006 12 13 | G96 | 0.5+ | 0.0 | 2009 12 15 | G96 | 0.1+ | 0.0 |

**(228744)∗ 2002 UO$_{37}$ = 1999 YK$_{29}$ = 2009 SS$_{119}$**

Discovered 2002 Oct. 31 by NEAT at Palomar.

Id. G. V. Williams (*MPO* 161869)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 58.09863 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27580348 | $\omega$ | 59.23613 | | +0.85304885 | +0.52097649 | |
| $a$ | 2.3374171 | $\Omega$ | 269.35079 | | −0.48839598 | +0.77693656 | |
| $e$ | 0.1455792 | $i$ | 1.71077 | | −0.18378526 | +0.35348703 | |
| $P$ | 3.57 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 12 18 | 691 | 0.2+ | 0.4− | 2008 03 11 | 691 | 0.2− | 0.3+ | 2009 10 09 | 703 | 0.9− | 0.6+ |
| 1999 12 18 | 691 | 0.3+ | 0.1+ | 2008 03 11 | 691 | 0.4+ | 1.0+ | 2009 10 09 | 703 | 0.6− | 1.0+ |
| 1999 12 18 | 691 | 0.1− | 0.2− | 2008 04 13 | G96 | 0.2+ | 0.1+ | 2009 10 09 | 703 | 0.1− | 0.2− |
| 2002 10 31 | 291 | 0.1− | 0.4+ | 2008 04 13 | G96 | 0.1+ | 0.2+ | 2009 10 15 | 704 | 0.0 | 0.6+ |
| 2002 10 31 | 644 | 0.3+ | 0.1− | 2008 04 13 | G96 | 0.4− | 0.7+ | 2009 10 15 | 704 | 0.5+ | 0.6+ |
| 2002 10 31 | 291 | 0.3− | 0.4+ | 2008 04 13 | G96 | 0.4− | 0.5+ | 2009 10 15 | 704 | (0.2− | 1.7+) |
| 2002 10 31 | 644 | 0.4+ | 0.2− | 2008 04 30 | G96 | 0.3+ | 0.1+ | 2009 10 15 | 704 | 0.2− | 0.3+ |
| 2002 10 31 | 644 | 0.5+ | 0.2− | 2008 04 30 | G96 | 0.1+ | 0.2− | 2009 10 15 | 704 | 0.3− | 0.4+ |
| 2002 10 31 | 291 | 0.5− | 0.3+ | 2008 04 30 | G96 | 0.5+ | 0.2+ | 2009 10 21 | G96 | 0.3+ | 0.1− |
| 2002 11 04 | 699 | 0.0 | 0.2− | 2008 04 30 | G96 | 0.3+ | 0.1+ | 2009 10 21 | G96 | 0.4+ | 0.1− |
| 2002 11 04 | 699 | 0.5+ | 0.2+ | 2009 09 18 | 691 | 0.2+ | 0.3+ | 2009 10 21 | G96 | 0.3+ | 0.0 |
| 2002 11 04 | 699 | 1.0− | 0.5+ | 2009 09 18 | 691 | 0.0 | 0.2+ | 2009 10 21 | G96 | 0.4+ | 0.1− |
| 2002 11 04 | 699 | (1.7+ | 0.7+) | 2009 09 18 | 691 | 0.2− | 0.2+ | 2009 10 21 | G96 | 0.4+ | 0.3+ |
| 2002 11 06 | 704 | (0.8+ | 3.3−) | 2009 09 22 | 691 | 0.0 | 0.0 | 2009 10 21 | G96 | 0.5+ | 0.3− |
| 2002 11 06 | 704 | (0.7+ | 1.9−) | 2009 09 22 | 691 | 0.0 | 0.3+ | 2009 10 21 | G96 | 0.5+ | 0.1+ |
| 2002 11 06 | 704 | (2.0+ | 0.4−) | 2009 09 22 | 691 | 0.3+ | 0.1− | 2009 10 21 | G96 | 0.4+ | 0.2− |
| 2004 02 14 | 691 | 0.0 | 0.0 | 2009 09 26 | 691 | 0.1+ | 0.0 | 2009 10 22 | 703 | 0.1− | 0.5− |
| 2004 02 14 | 691 | 0.4+ | 0.2− | 2009 09 26 | 691 | 0.2− | 0.0 | 2009 10 22 | 703 | 0.5− | 0.7− |
| 2004 02 14 | 691 | 0.2− | 0.4+ | 2009 09 26 | 691 | 0.1− | 0.3+ | 2009 10 22 | 703 | 0.3− | 0.2− |
| 2004 03 17 | 691 | 0.1+ | 0.4+ | 2009 09 26 | 691 | 0.0 | 0.6+ | 2009 10 22 | 703 | 0.0 | 1.3− |
| 2004 03 17 | 691 | 0.4+ | 0.0 | 2009 09 26 | 691 | 0.0 | 0.0 | 2009 12 17 | G96 | 0.0 | 0.0 |
| 2004 03 17 | 691 | 0.0 | 0.1− | 2009 09 26 | 691 | 0.2− | 0.1+ | 2009 12 17 | G96 | 0.1+ | 0.2+ |
| 2006 12 14 | 691 | 0.4− | 0.2− | 2009 10 08 | J75 | 0.2− | 1.4− | 2009 12 17 | G96 | 0.6+ | 0.2− |
| 2006 12 14 | 691 | 0.2− | 0.1+ | 2009 10 08 | J75 | 0.1− | 0.7− | 2009 12 17 | G96 | 0.1− | 0.4− |
| 2006 12 14 | 691 | 0.0 | 0.2− | 2009 10 08 | J75 | 0.2− | 0.1+ | | | | |
| 2008 03 11 | 691 | 0.1+ | 0.6+ | 2009 10 09 | 703 | 0.6− | 0.0 | | | | |

**(228745)∗ 2002 UE$_{40}$ = 2005 OA$_{23}$**

Discovered 2002 Oct. 31 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 85710)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 24.79104 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28876026 | $\omega$ | 308.42868 | | +0.52483427 | −0.84281513 | |
| $a$ | 2.2669630 | $\Omega$ | 109.51424 | | +0.81506801 | +0.45722645 | |
| $e$ | 0.0802504 | $i$ | 7.26610 | | +0.24538363 | +0.28391306 | |
| $P$ | 3.41 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 06 28 | 691 | 0.3− | 0.5+ | 2004 04 15 | 644 | 0.6+ | 1.1+ | 2007 01 24 | 704 | 0.9+ | 0.5− |
| 1998 06 28 | 691 | 0.2+ | 0.2+ | 2004 04 15 | 644 | 0.1− | 0.9+ | 2007 02 16 | 703 | 0.6− | 0.7+ |
| 1998 06 28 | 691 | 0.3+ | 0.8+ | 2004 04 15 | 644 | 0.3+ | 1.1+ | 2007 02 16 | 703 | 0.7− | 0.9+ |
| 2002 10 31 | 704 | 0.3+ | 0.1− | 2005 07 29 | 644 | 0.4− | 0.4+ | 2007 02 16 | 703 | 0.3+ | 0.4+ |
| 2002 10 31 | 704 | 0.7+ | 0.4− | 2005 07 29 | 644 | 0.3− | 0.3+ | 2007 02 16 | 703 | 0.2+ | 0.6+ |
| 2002 10 31 | 704 | 0.7+ | 0.3− | 2005 07 29 | 644 | 0.2− | 0.2+ | 2007 02 16 | 644 | 0.3− | 0.4+ |
| 2002 10 31 | 704 | 0.4− | 0.3− | 2005 08 05 | 644 | 0.3+ | 0.1− | 2007 02 16 | 644 | 0.1+ | 0.4+ |
| 2002 11 03 | 608 | 0.5− | 0.3+ | 2005 08 05 | 644 | 0.1+ | 0.0 | 2007 02 16 | 644 | 0.1− | 0.2+ |
| 2002 11 03 | 608 | 0.8− | 0.6+ | 2005 08 05 | 644 | 0.2− | 0.1+ | 2009 11 20 | 704 | 0.1− | 1.1+ |
| 2002 11 03 | 608 | 0.6− | 0.4+ | 2005 08 31 | 644 | 0.4− | 0.1+ | 2009 11 20 | 704 | 0.8+ | 0.3+ |
| 2002 11 06 | 699 | 0.6− | 0.2− | 2005 08 31 | 644 | 0.7− | 0.3+ | 2009 11 20 | 704 | (1.7+ | 0.1+) |
| 2002 11 06 | 699 | 0.7− | 0.5+ | 2005 08 31 | 644 | 0.1− | 0.3+ | 2009 12 12 | 704 | 0.3+ | 1.0+ |
| 2002 11 06 | 699 | (0.4− | 1.9+) | 2005 09 01 | 644 | 0.4− | 0.2+ | 2009 12 12 | 704 | 0.3− | 0.7− |
| 2002 11 06 | 699 | (0.9− | 2.8+) | 2005 09 01 | 644 | 0.2− | 0.1+ | 2009 12 12 | 704 | 0.5− | 0.7+ |
| 2002 11 12 | 704 | (0.6− | 2.0+) | 2005 09 01 | 644 | 0.1+ | 0.1+ | 2009 12 12 | 704 | 0.3+ | 2.0+ |
| 2002 11 12 | 704 | 0.9+ | 0.0 | 2007 01 24 | 704 | 0.1+ | 0.6+ | 2009 12 12 | 704 | 0.5+ | 0.3− |
| 2002 11 12 | 704 | 0.2− | 0.0 | 2007 01 24 | 704 | 1.1+ | 0.5+ | | | | |

**(228746)∗ 2002 UQ$_{51}$**

Discovered 2002 Oct. 29 by the Sloan Digital Sky Survey at Apache Point.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 150.90448 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17719227 | $\omega$ | 24.44007 | | +0.23618008 | +0.95840488 | |
| $a$ | 3.1393485 | $\Omega$ | 259.54201 | | −0.91619574 | +0.16469593 | |
| $e$ | 0.1856183 | $i$ | 9.37839 | | −0.32373499 | +0.23309940 | |
| $P$ | 5.56 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 07 21 | 644 | 0.1+ | 0.1− | 2002 10 10 | 645 | 0.1− | 0.1− | 2008 10 31 | G96 | 0.1+ | 0.6− |
| 2002 07 21 | 644 | 0.7+ | 0.1+ | 2002 10 29 | 645 | 0.0 | 0.1− | 2009 11 17 | 691 | 0.1+ | 0.0 |
| 2002 07 21 | 644 | 0.2+ | 0.1− | 2002 10 29 | 645 | 0.0 | 0.1− | 2009 11 17 | 691 | 0.0 | 0.3+ |
| 2002 08 04 | 644 | 0.3+ | 0.8+ | 2002 10 30 | 645 | 0.1− | 0.0 | 2009 11 17 | 691 | 0.3+ | 0.0 |
| 2002 08 04 | 644 | 0.2+ | 0.8+ | 2002 10 30 | 645 | 0.0 | 0.0 | 2009 11 21 | 691 | 0.5− | 0.7− |
| 2002 08 04 | 644 | 0.4+ | 0.8+ | 2006 02 25 | G96 | 0.1− | 0.0 | 2009 11 21 | 691 | 0.1+ | 0.2+ |
| 2002 08 15 | 644 | 0.4− | 1.0+ | 2006 02 25 | G96 | 0.1+ | 0.3+ | 2009 11 21 | 691 | 0.5− | 1.5+ |
| 2002 08 15 | 644 | 0.1+ | 1.1+ | 2006 02 25 | G96 | 0.3+ | 0.0 | 2009 12 10 | G96 | 0.4+ | 0.1+ |
| 2002 08 15 | 644 | 0.1− | 0.5+ | 2006 02 25 | G96 | 0.2− | 0.2+ | 2009 12 10 | G96 | 0.4+ | 0.3− |
| 2002 09 04 | 644 | 0.1− | 0.2+ | 2008 10 10 | G96 | 0.4+ | 0.2− | 2009 12 10 | G96 | 0.5+ | 0.1− |
| 2002 09 04 | 644 | 0.0 | 0.0 | 2008 10 10 | G96 | 0.0 | 0.2− | 2009 12 10 | G96 | 0.5+ | 0.2+ |
| 2002 09 04 | 644 | 0.2− | 0.0 | 2008 10 10 | G96 | 0.0 | 0.2− | 2009 12 19 | G96 | 0.3+ | 0.2− |
| 2002 09 12 | 644 | 0.0 | 0.1+ | 2008 10 10 | G96 | 0.2+ | 0.4− | 2009 12 19 | G96 | 0.3+ | 0.5− |
| 2002 09 12 | 644 | 0.2+ | 0.6+ | 2008 10 31 | G96 | 0.4− | 0.2− | 2009 12 19 | G96 | 0.1− | 0.5− |
| 2002 09 12 | 644 | 0.1+ | 0.2+ | 2008 10 31 | G96 | 0.3+ | 0.2− | 2009 12 19 | G96 | 0.1+ | 0.3− |
| 2002 10 10 | 645 | 0.0 | 0.0 | 2008 10 31 | G96 | 0.0 | 0.4− | | | | |

**(228747)∗ 2002 VH$_3$ = 2000 CE$_{10}$**

Discovered 2002 Nov. 1 by NEAT at Palomar.

Id. G. V. Williams (*MPO* 38127)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 10.92501 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.29197824 | $\omega$ | 172.50148 | | +0.07588084 | −0.99504455 | |
| $a$ | 2.2502757 | $\Omega$ | 273.13117 | | +0.91146406 | +0.09534771 | |
| $e$ | 0.0938793 | $i$ | 3.68947 | | +0.40432088 | −0.02819839 | |
| $P$ | 3.38 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 02 02 | 704 | 0.2− | 1.1+ | 2002 11 14 | 704 | 0.8+ | 0.4+ | 2005 09 30 | 703 | (1.8− | 0.1−) |
| 2000 02 02 | 704 | 0.7− | 1.2+ | 2002 11 14 | 704 | 1.3+ | 1.3+ | 2005 09 30 | 703 | (2.2− | 0.4−) |
| 2000 02 02 | 704 | 0.3+ | 0.3− | 2002 11 14 | 704 | 0.7+ | 0.0 | 2005 10 09 | 691 | 0.0 | 0.0 |
| 2000 02 02 | 704 | 0.1− | 0.6+ | 2002 11 14 | 704 | 1.2+ | 0.3+ | 2005 10 09 | 691 | 0.1− | 0.2− |
| 2000 02 03 | 704 | 0.5− | 0.5− | 2002 11 24 | 644 | 0.1+ | 0.6+ | 2005 10 09 | 691 | 0.0 | 0.0 |
| 2000 02 03 | 704 | 0.7− | 0.4+ | 2002 11 24 | 644 | 0.3− | 0.2+ | 2005 11 06 | 291 | 0.1+ | 0.1+ |
| 2000 02 03 | 704 | 0.2+ | 0.2− | 2002 11 24 | 644 | 0.1− | 0.2+ | 2005 11 06 | 291 | 0.0 | 0.1+ |
| 2000 02 03 | 704 | 0.5+ | 1.0+ | 2002 11 30 | 608 | 0.6− | 0.4− | 2005 11 06 | 291 | 0.0 | 0.2+ |
| 2002 11 01 | 644 | 0.1− | 0.1− | 2002 11 30 | 608 | 0.2− | 0.4− | 2007 03 09 | 703 | 0.5− | 0.2+ |
| 2002 11 01 | 644 | 0.7+ | 0.2+ | 2002 11 30 | 608 | 0.9− | 0.1− | 2007 03 09 | 703 | 1.0+ | 0.4− |
| 2002 11 01 | 644 | 0.2− | 0.0 | 2002 12 02 | 704 | 0.1− | 0.5− | 2007 03 09 | 703 | 0.4+ | 1.4− |
| 2002 11 04 | 644 | 0.2− | 0.1− | 2002 12 02 | 704 | 0.3− | 0.6+ | 2007 03 09 | 703 | (0.7− | 1.8+) |
| 2002 11 04 | 644 | 0.4− | 0.2− | 2002 12 02 | 704 | 0.7− | 0.4− | 2007 03 16 | 704 | (0.6+ | 1.6+) |
| 2002 11 04 | 644 | 0.1− | 0.1+ | 2002 12 02 | 704 | 0.3+ | 0.1− | 2007 03 16 | 704 | 0.6+ | 1.2+ |
| 2002 11 05 | 704 | 0.0 | 0.2− | 2002 12 06 | 704 | 0.6− | 0.4− | 2007 03 16 | 704 | 0.8+ | 0.6+ |
| 2002 11 05 | 704 | 0.4+ | 0.2− | 2002 12 06 | 704 | 0.1+ | 1.0+ | 2007 03 16 | 704 | 0.0 | 0.3− |
| 2002 11 05 | 704 | 0.7− | 0.4− | 2002 12 06 | 704 | 0.0 | 0.3− | 2007 03 16 | 704 | 0.9+ | 1.0+ |
| 2002 11 05 | 704 | 0.0 | 0.1+ | 2002 12 06 | 704 | 0.1+ | 0.1+ | 2007 03 17 | 704 | 1.3+ | 0.0 |
| 2002 11 05 | 704 | 0.6− | 1.3+ | 2002 12 06 | 704 | 0.9+ | 1.3+ | 2007 03 17 | 704 | 0.6+ | 0.2− |
| 2002 11 06 | 699 | 0.6− | 0.1+ | 2005 07 31 | 644 | 0.0 | 0.2+ | 2007 03 17 | 704 | 0.5+ | 1.3+ |
| 2002 11 06 | 699 | 0.1+ | 0.1+ | 2005 07 31 | 644 | 0.0 | 0.5+ | 2007 03 17 | 704 | 0.6− | 0.7− |
| 2002 11 06 | 699 | 0.2− | 0.3+ | 2005 07 31 | 644 | 0.1+ | 0.5+ | 2007 03 21 | 704 | 0.0 | 0.2+ |
| 2002 11 06 | 699 | 0.6− | 0.2− | 2005 08 27 | 644 | 0.3− | 0.0 | 2007 03 21 | 704 | 0.1− | 0.8+ |
| 2002 11 08 | 704 | 0.8+ | 0.9− | 2005 08 27 | 644 | 0.0 | 0.1− | 2007 03 21 | 704 | 0.9− | 0.9+ |
| 2002 11 08 | 704 | 0.0 | 0.1− | 2005 08 27 | 644 | 0.2− | 0.1+ | 2007 03 21 | 704 | 0.2+ | 0.8+ |
| 2002 11 08 | 704 | 0.6+ | 0.1− | 2005 08 30 | 691 | 0.3+ | 0.0 | 2009 08 28 | 691 | 0.0 | 0.1+ |
| 2002 11 11 | 699 | 0.5− | 0.8+ | 2005 08 30 | 691 | 0.3+ | 0.0 | 2009 08 28 | 691 | 0.1+ | 0.4+ |
| 2002 11 11 | 699 | 0.0 | 0.9+ | 2005 08 30 | 691 | 0.2+ | 0.0 | 2009 08 28 | 691 | 0.1− | 0.3− |
| 2002 11 11 | 699 | 0.2− | 1.4+ | 2005 09 12 | 691 | 0.1+ | 0.1+ | 2009 12 16 | 704 | 0.1− | 0.2+ |
| 2002 11 11 | 699 | 0.7− | 0.3− | 2005 09 12 | 691 | 0.1− | 0.2+ | 2009 12 16 | 704 | 0.4+ | 0.4− |
| 2002 11 12 | 704 | 0.5+ | 0.1− | 2005 09 12 | 691 | 0.0 | 0.0 | 2009 12 16 | 704 | 1.0+ | 0.1− |
| 2002 11 12 | 704 | 0.7+ | 0.3+ | 2005 09 26 | 691 | 0.3− | 0.0 | 2009 12 16 | 704 | 0.6+ | 0.2+ |
| 2002 11 12 | 704 | 1.0+ | 0.2+ | 2005 09 26 | 691 | 0.4− | 0.1− | 2009 12 25 | 691 | 0.1+ | 0.6− |
| 2002 11 12 | 704 | 0.1− | 1.3− | 2005 09 26 | 691 | 0.5− | 0.2+ | 2009 12 25 | 691 | 1.0− | 0.4− |
| 2002 11 12 | 704 | 0.3− | 0.1− | 2005 09 30 | 703 | (2.1− | 0.8−) | 2009 12 25 | 691 | 0.0 | 0.4− |
| 2002 11 14 | 704 | 0.7+ | 0.8− | 2005 09 30 | 703 | (1.4− | 2.6−) | | | | |

**(228748)∗ 2002 VA$_4$**

Discovered 2002 Nov. 1 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 52.45089 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.29063932 | $\omega$ | 111.20467 | | +0.86692531 | −0.49319127 | |
| $a$ | 2.2571814 | $\Omega$ | 278.40863 | | +0.42599493 | +0.80826065 | |
| $e$ | 0.1826147 | $i$ | 4.18142 | | +0.25878334 | +0.32167857 | |
| $P$ | 3.39 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 10 12 | 704 | 0.3− | 0.1− | 2002 11 28 | 699 | 0.7− | 0.1+ | 2005 07 18 | 644 | 0.0 | 0.2− |
| 2002 10 12 | 704 | 0.2− | 0.1+ | 2002 12 02 | 704 | 0.1− | 0.0 | 2005 07 28 | 644 | 0.1+ | 0.2+ |
| 2002 10 12 | 704 | 0.3− | 0.4− | 2002 12 02 | 704 | 0.1− | 0.1+ | 2005 07 28 | 644 | 0.0 | 0.0 |
| 2002 10 12 | 704 | 0.2+ | 0.5+ | 2002 12 02 | 704 | 0.3− | 0.3+ | 2005 07 28 | 644 | 0.1+ | 0.0 |
| 2002 11 01 | 644 | 0.5+ | 0.1+ | 2002 12 02 | 704 | 0.4− | 0.6+ | 2005 08 01 | 599 | 0.2+ | 0.0 |
| 2002 11 01 | 644 | 0.6+ | 0.3+ | 2002 12 02 | 704 | 0.2− | 0.4+ | 2005 08 01 | 599 | 0.0 | 0.0 |
| 2002 11 01 | 644 | 0.5+ | 0.1− | 2002 12 06 | 704 | 0.4− | 0.4+ | 2005 08 01 | 599 | 0.0 | 0.2+ |
| 2002 11 04 | 644 | 0.4− | 0.3+ | 2002 12 06 | 704 | 0.2− | 0.1+ | 2005 08 01 | 599 | 0.0 | 0.3+ |
| 2002 11 04 | 644 | 0.2− | 0.4+ | 2002 12 06 | 704 | 0.2+ | 0.1+ | 2005 08 25 | 644 | 0.2− | 0.3− |
| 2002 11 04 | 644 | 0.1− | 0.5+ | 2002 12 06 | 704 | 0.1+ | 0.9− | 2005 08 25 | 644 | 0.0 | 0.1− |
| 2002 11 05 | 644 | 0.4− | 0.5+ | 2002 12 06 | 704 | 0.6+ | 0.3− | 2005 08 25 | 644 | 0.1− | 0.4− |
| 2002 11 05 | 644 | 0.2− | 0.6+ | 2002 12 11 | 644 | 0.3− | 0.0 | 2005 09 13 | 691 | 0.1− | 0.2− |
| 2002 11 05 | 644 | 0.0 | 0.6+ | 2002 12 11 | 644 | 0.1− | 0.1− | 2005 09 13 | 691 | 0.4− | 0.3− |
| 2002 11 06 | 699 | 0.2− | 0.2− | 2002 12 11 | 644 | 0.1− | 0.1− | 2005 09 13 | 691 | 0.2+ | 0.2− |
| 2002 11 06 | 699 | 0.0 | 0.6− | 2002 12 11 | 704 | 0.5− | 0.8+ | 2005 10 30 | G96 | 0.3− | 0.6− |
| 2002 11 06 | 699 | 0.1− | 0.2− | 2002 12 11 | 704 | 0.4− | 0.8+ | 2005 10 30 | G96 | 0.2+ | 0.6− |
| 2002 11 06 | 699 | 0.3− | 0.2− | 2002 12 11 | 704 | 0.1+ | 0.2− | 2005 10 30 | G96 | 0.3− | 0.2+ |
| 2002 11 08 | 704 | 0.2+ | 0.1+ | 2002 12 27 | 644 | 0.4− | 0.4+ | 2005 10 30 | G96 | 0.3− | 0.1− |
| 2002 11 08 | 704 | 1.1+ | 1.0− | 2002 12 27 | 644 | 0.1− | 0.1+ | 2007 02 17 | G96 | 0.0 | 0.3+ |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 11 08 | 704 | 0.2+ | 0.8− | 2002 12 27 | 644 | 0.1+ | 0.6+ | 2007 02 17 | G96 | 0.1− | 0.3+ |
| 2002 11 12 | 704 | 0.1+ | 0.7− | 2005 06 18 | G96 | 0.1− | 0.2+ | 2007 02 17 | G96 | 0.0 | 0.0 |
| 2002 11 12 | 704 | 0.1+ | 0.5− | 2005 06 18 | G96 | 0.4+ | 0.3+ | 2007 02 17 | G96 | 0.0 | 0.1− |
| 2002 11 12 | 704 | 0.1− | 0.0 | 2005 06 18 | G96 | 0.3+ | 0.0 | 2009 10 14 | G96 | 0.0 | 0.0 |
| 2002 11 12 | 704 | 0.7+ | 0.3− | 2005 06 18 | G96 | 0.3+ | 0.2+ | 2009 10 14 | G96 | 0.1− | 0.1+ |
| 2002 11 12 | 704 | 1.1+ | 0.8− | 2005 07 01 | 691 | 0.0 | 0.2+ | 2009 10 14 | G96 | 0.0 | 0.2− |
| 2002 11 14 | 704 | 0.0 | 0.6− | 2005 07 01 | 691 | 0.0 | 0.2+ | 2009 10 14 | G96 | 0.3+ | 0.2− |
| 2002 11 14 | 704 | 0.4− | 0.4− | 2005 07 01 | 691 | 0.1+ | 0.1+ | 2009 12 16 | 691 | 0.1− | 0.0 |
| 2002 11 14 | 704 | 0.2+ | 0.4− | 2005 07 05 | 644 | 0.4− | 0.1− | 2009 12 16 | 691 | 0.1− | 0.0 |
| 2002 11 14 | 704 | 0.4+ | 0.4− | 2005 07 05 | 644 | 0.2− | 0.2+ | 2009 12 16 | 691 | 0.1+ | 0.0 |
| 2002 11 23 | 644 | 0.4− | 0.4+ | 2005 07 05 | 644 | 0.2− | 0.0 | 2009 12 16 | G96 | 0.4+ | 0.2− |
| 2002 11 23 | 644 | 0.6− | 0.2+ | 2005 07 06 | 691 | 0.2+ | 0.2+ | 2009 12 16 | G96 | 0.1− | 0.1− |
| 2002 11 23 | 644 | 0.3− | 0.5+ | 2005 07 06 | 691 | 0.1+ | 0.1+ | 2009 12 16 | G96 | 0.3+ | 0.0 |
| 2002 11 28 | 699 | 0.7+ | 0.7+ | 2005 07 06 | 691 | 0.1− | 0.2+ | 2009 12 20 | 691 | 0.0 | 0.1− |
| 2002 11 28 | 699 | 0.3+ | 0.7+ | 2005 07 18 | 644 | 0.1+ | 0.0 | 2009 12 20 | 691 | 0.0 | 0.0 |
| 2002 11 28 | 699 | 0.0 | 0.5+ | 2005 07 18 | 644 | 0.0 | 0.1− | 2009 12 20 | 691 | 0.0 | 0.0 |

**(228749)∗ 2002 VY$_8$**

Discovered 2002 Nov. 1 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 84.43245 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.29002171 | $\omega$ | 59.64505 | | +0.90696078 | | +0.41089123 |
| $a$ | 2.2603848 | $\Omega$ | 275.95659 | | −0.41133609 | | +0.81660477 |
| $e$ | 0.2091864 | $i$ | 5.34705 | | −0.09069048 | | +0.40537025 |
| $P$ | 3.40 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 09 06 | 704 | 0.3+ | 0.5− | 2002 11 14 | 704 | 0.3− | 0.3+ | 2007 01 10 | G96 | 0.0 | 0.0 |
| 2002 09 06 | 704 | 0.1− | 0.4− | 2002 11 14 | 704 | 0.3+ | 0.1− | 2007 01 10 | G96 | 0.5− | 0.1− |
| 2002 09 06 | 704 | 0.3− | 0.5+ | 2002 11 14 | 704 | 0.5− | 0.2− | 2007 01 10 | G96 | 0.0 | 0.3− |
| 2002 09 06 | 704 | 0.3+ | 0.5− | 2002 11 24 | 644 | 0.2− | 0.0 | 2007 01 10 | G96 | 0.2− | 0.2+ |
| 2002 10 05 | 704 | 0.2− | 0.4+ | 2002 11 24 | 644 | 0.4− | 0.0 | 2007 01 24 | 703 | 0.8− | 0.1− |
| 2002 10 05 | 704 | 0.7− | 0.9+ | 2002 11 24 | 644 | 0.4− | 0.2− | 2007 01 24 | 703 | 0.6+ | 0.7+ |
| 2002 10 05 | 704 | 0.2− | 0.2− | 2002 12 02 | 704 | 0.1− | 0.1− | 2007 01 24 | 703 | (0.3− | 2.0+) |
| 2002 10 05 | 704 | 0.0 | 0.9+ | 2002 12 02 | 704 | 0.9+ | 0.1− | 2007 01 24 | 703 | 0.5− | 0.7+ |
| 2002 10 10 | 704 | 0.8+ | 0.2+ | 2002 12 02 | 704 | 0.4+ | 0.2+ | 2007 01 27 | G96 | 0.1+ | 0.1− |
| 2002 10 10 | 704 | 0.9+ | 0.1+ | 2002 12 02 | 704 | 0.2+ | 0.6+ | 2007 01 27 | G96 | 0.3+ | 0.2− |
| 2002 10 10 | 704 | 0.3+ | 0.1− | 2002 12 02 | 704 | 0.4+ | 0.6+ | 2007 01 27 | G96 | 0.2+ | 0.1+ |
| 2002 10 10 | 704 | 0.1+ | 0.0 | 2002 12 06 | 608 | 0.4+ | 0.0 | 2007 01 27 | G96 | 0.2+ | 0.1+ |
| 2002 10 10 | 704 | 0.6+ | 0.2+ | 2002 12 06 | 608 | 0.6+ | 0.4− | 2008 06 06 | E12 | 0.1− | 0.3+ |
| 2002 11 01 | 644 | 0.2− | 0.1− | 2002 12 06 | 608 | 0.3+ | 0.6− | 2008 06 06 | E12 | 0.0 | 1.5+ |
| 2002 11 01 | 644 | 0.4− | 0.0 | 2002 12 11 | 704 | 0.2− | 0.3− | 2008 06 06 | E12 | 0.4− | 0.9+ |
| 2002 11 01 | 644 | 0.2− | 0.1− | 2002 12 11 | 704 | 0.2− | 0.5− | 2009 11 11 | 704 | 1.1− | 0.4− |
| 2002 11 05 | 704 | 0.5+ | 0.0 | 2002 12 11 | 704 | 0.3− | 0.6− | 2009 11 11 | 704 | 0.6+ | 0.8− |
| 2002 11 05 | 704 | 0.2+ | 0.5− | 2002 12 11 | 704 | 0.4+ | 0.3+ | 2009 11 11 | 704 | 0.8+ | 0.2+ |
| 2002 11 05 | 704 | 0.3− | 0.5− | 2002 12 11 | 704 | 0.7+ | 0.2+ | 2009 11 11 | 704 | (0.5+ | 1.5+) |
| 2002 11 05 | 704 | 0.1+ | 0.6− | 2005 06 03 | 691 | 0.0 | 0.1+ | 2009 12 08 | J75 | 0.4+ | 0.1+ |
| 2002 11 05 | 704 | 0.2+ | 0.1− | 2005 06 03 | 691 | 0.0 | 0.1+ | 2009 12 08 | J75 | 0.5+ | 0.2+ |
| 2002 11 06 | 704 | 0.5− | 0.3+ | 2005 06 03 | 691 | 0.1− | 0.3+ | 2009 12 09 | J75 | 0.2+ | 0.1− |
| 2002 11 06 | 704 | 1.4− | 0.6+ | 2005 06 12 | 691 | 0.1− | 0.1+ | 2009 12 10 | 704 | (1.4− | 2.1+) |
| 2002 11 06 | 704 | 0.3− | 0.6+ | 2005 06 12 | 691 | 0.2+ | 0.2+ | 2009 12 10 | 704 | 0.6+ | 0.5+ |
| 2002 11 06 | 704 | 0.9− | 0.2+ | 2005 06 12 | 691 | 0.1+ | 0.2+ | 2009 12 10 | 704 | 1.0+ | 0.6+ |
| 2002 11 06 | 704 | 1.1− | 0.2− | 2005 06 27 | 608 | (0.8− | 2.2+) | 2009 12 10 | 704 | 0.1− | 0.2+ |
| 2002 11 06 | 704 | 0.5− | 0.4− | 2005 06 27 | 608 | (0.6− | 2.3+) | 2009 12 10 | 704 | (0.5+ | 1.7+) |
| 2002 11 06 | 704 | 1.0− | 0.1− | 2005 06 27 | 608 | (0.8− | 2.0+) | 2009 12 10 | J75 | 0.5− | 0.1+ |
| 2002 11 06 | 704 | 0.0 | 0.0 | 2005 06 28 | 608 | 0.3− | 0.4+ | 2009 12 10 | J75 | 0.3− | 0.0 |
| 2002 11 06 | 704 | 0.9− | 0.0 | 2005 06 28 | 608 | 0.4− | 0.6+ | 2009 12 10 | J75 | 0.2+ | 0.1+ |
| 2002 11 08 | 704 | 0.3+ | 0.9− | 2005 06 28 | 608 | 0.3− | 0.5+ | 2009 12 11 | G96 | 0.2− | 0.2− |
| 2002 11 08 | 704 | 0.6+ | 1.1− | 2006 11 15 | G96 | 0.3− | 0.4− | 2009 12 11 | G96 | 0.1− | 0.2− |
| 2002 11 08 | 704 | 1.4+ | 0.9− | 2006 11 15 | G96 | 0.1+ | 0.1− | 2009 12 11 | G96 | 0.1− | 0.4− |
| 2002 11 08 | 704 | 1.1+ | 0.0 | 2006 11 15 | G96 | 0.1+ | 0.5− | 2009 12 16 | 704 | 0.6− | 1.2+ |
| 2002 11 11 | 699 | 0.7+ | 0.1− | 2006 11 15 | G96 | 1.0+ | 0.0 | 2009 12 16 | 704 | 0.0 | 0.5+ |
| 2002 11 11 | 699 | 1.0− | 0.0 | 2006 12 15 | G96 | 0.0 | 0.4− | 2009 12 16 | 704 | 0.2+ | 1.1+ |
| 2002 11 11 | 699 | 0.1+ | 0.3+ | 2006 12 15 | G96 | 0.5+ | 0.1− | 2009 12 16 | 704 | 0.3− | 1.4+ |
| 2002 11 11 | 699 | 0.5− | 0.4+ | 2006 12 15 | G96 | 0.1+ | 0.1+ | 2009 12 16 | 704 | 0.7− | 1.0+ |
| 2002 11 13 | 644 | 0.3− | 0.2+ | 2006 12 15 | G96 | 0.1+ | 0.3− | 2009 12 16 | 704 | 0.6− | 1.3+ |
| 2002 11 13 | 644 | 0.1− | 0.2+ | 2006 12 16 | G96 | 0.2+ | 0.1− | 2009 12 16 | 704 | 0.9+ | 2.7+ |
| 2002 11 13 | 644 | 0.2+ | 0.6+ | 2006 12 16 | G96 | 0.1− | 0.1− | 2009 12 16 | 704 | 1.0− | 1.0− |
| 2002 11 14 | 704 | 0.4+ | 0.1− | 2006 12 16 | G96 | 0.1+ | 0.2+ | 2009 12 16 | 704 | 0.1− | 0.3+ |
| 2002 11 14 | 704 | 0.7+ | 0.0 | 2006 12 16 | G96 | 0.4+ | 0.1+ | | | | |

**(228750)∗ 2002 VH$_9$**

Discovered 2002 Nov. 1 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 85.00126 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.29522720 | $\omega$ | 248.75754 | | +0.96497746 | | −0.24602655 |
| $a$ | 2.2337358 | $\Omega$ | 125.37578 | | +0.26233264 | | +0.90459936 |
| $e$ | 0.1080095 | $i$ | 6.41115 | | +0.00029915 | | +0.34809616 |
| $P$ | 3.34 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1992 12 01 | 691 | 0.7− | 0.4− | 2002 11 24 | 644 | 0.3+ | 1.0+ | 2005 09 27 | 704 | 0.8− | 0.7− |
| 1992 12 01 | 691 | 0.2− | 0.3− | 2002 11 24 | 644 | 0.3+ | 1.1+ | 2005 09 27 | 704 | 0.6− | 0.1+ |
| 1992 12 01 | 691 | 1.6+ | 0.1+ | 2002 11 24 | 644 | 0.4+ | 1.0+ | 2005 09 27 | 704 | 0.2− | 0.3+ |
| 1995 09 01 | 809 | (0.0 | 2.4−) | 2002 11 28 | 699 | 0.6+ | 0.4+ | 2005 10 03 | 703 | 0.6− | 0.5− |
| 2000 01 26 | 691 | 0.7− | 0.3− | 2002 11 28 | 699 | 0.4+ | 1.4+ | 2005 10 03 | 703 | 0.1+ | 0.2− |
| 2000 01 26 | 691 | 0.4− | 0.3− | 2002 11 28 | 699 | 0.0 | 0.5+ | 2005 10 03 | 703 | 0.4− | 0.5− |
| 2000 01 26 | 691 | 0.6− | 0.4− | 2002 11 28 | 699 | (1.5+ | 1.5−) | 2005 10 03 | 703 | 0.4− | 0.1+ |
| 2001 05 24 | 691 | 0.1+ | 0.5+ | 2002 12 01 | 704 | 0.1− | 0.3+ | 2005 10 03 | 703 | 0.9+ | 0.6− |
| 2001 05 24 | 691 | 0.0 | 0.5+ | 2002 12 01 | 704 | 0.0 | 0.3+ | 2005 10 03 | 703 | 0.8+ | 0.2− |
| 2001 05 24 | 691 | 0.3+ | 0.5+ | 2002 12 01 | 704 | 0.1+ | 0.5+ | 2005 10 03 | 703 | 0.4− | 0.7− |
| 2002 10 09 | 704 | (0.1+ | 1.8+) | 2005 08 26 | 699 | 0.2− | 0.4+ | 2005 10 03 | 703 | 0.1+ | 1.0− |
| 2002 10 09 | 704 | 0.5+ | 1.2+ | 2005 08 26 | 699 | 0.0 | 0.7+ | 2005 10 05 | G96 | 0.2+ | 0.3− |
| 2002 10 09 | 704 | 0.1+ | 0.1− | 2005 08 26 | 699 | 1.4+ | 0.5+ | 2005 10 05 | G96 | 0.1+ | 0.1− |
| 2002 11 01 | 704 | 0.0 | 0.1+ | 2005 08 26 | 699 | 0.4− | 0.4− | 2005 10 05 | G96 | 0.3+ | 0.2− |
| 2002 11 01 | 704 | 0.9+ | 0.6+ | 2005 08 28 | 699 | (1.5+ | 0.3−) | 2005 10 05 | G96 | 0.0 | 0.1− |
| 2002 11 01 | 704 | 1.4+ | 0.1− | 2005 08 28 | 699 | 0.4+ | 0.1+ | 2007 02 25 | G96 | 0.2+ | 0.2+ |
| 2002 11 05 | 704 | 0.9− | 0.3− | 2005 08 28 | 699 | 0.6+ | 0.2− | 2007 02 25 | G96 | 0.4+ | 0.1+ |
| 2002 11 05 | 704 | 0.6− | 1.0− | 2005 08 28 | 699 | 0.3− | 0.3− | 2007 02 25 | G96 | 0.0 | 0.0 |
| 2002 11 05 | 704 | 0.5− | 0.6− | 2005 09 13 | 703 | 1.2+ | 0.5− | 2007 02 25 | G96 | 0.1+ | 0.2+ |
| 2002 11 05 | 704 | 0.0 | 0.4+ | 2005 09 13 | 703 | 0.3− | 0.2− | 2007 03 09 | 703 | 0.8+ | 0.8− |
| 2002 11 11 | 699 | 0.9− | 0.3+ | 2005 09 13 | 703 | 0.2+ | 0.2− | 2007 03 09 | 703 | 0.8+ | 0.9− |
| 2002 11 11 | 699 | 0.7− | 0.3+ | 2005 09 13 | 703 | 0.3+ | 1.0− | 2007 03 09 | 703 | 0.8− | 0.8− |
| 2002 11 11 | 699 | 0.5− | 0.2+ | 2005 09 24 | 644 | 0.1− | 0.0 | 2007 03 09 | 703 | (1.8− | 1.1−) |
| 2002 11 11 | 699 | 0.7− | 0.5− | 2005 09 24 | 644 | 0.4− | 0.1+ | 2007 03 10 | 644 | 0.8+ | 0.6+ |
| 2002 11 12 | 704 | 0.4− | 0.2+ | 2005 09 24 | 644 | 0.1+ | 0.2+ | 2007 03 10 | 644 | 0.8+ | 0.0 |
| 2002 11 12 | 704 | 0.2− | 0.2+ | 2005 09 24 | 644 | 0.1− | 0.3+ | 2007 03 10 | 644 | 0.9+ | 0.0 |
| 2002 11 12 | 704 | 0.0 | 0.3+ | 2005 09 24 | 644 | 0.3+ | 0.1− | 2009 12 10 | J75 | 0.3− | 0.1+ |
| 2002 11 12 | 704 | 1.0− | 0.3+ | 2005 09 24 | 644 | 0.1− | 0.1− | 2009 12 10 | J75 | 0.1− | 0.0 |
| 2002 11 12 | 644 | 0.0 | 1.3+ | 2005 09 25 | 703 | 0.5− | 0.4− | 2009 12 10 | J75 | 0.6+ | 0.3+ |
| 2002 11 12 | 644 | 0.2+ | 0.9+ | 2005 09 25 | 703 | 0.5+ | 0.1+ | 2009 12 25 | 691 | 0.1− | 0.0 |
| 2002 11 12 | 644 | 0.6+ | 1.0+ | 2005 09 25 | 703 | 0.7− | 0.1+ | 2009 12 25 | 691 | 0.0 | 0.0 |
| 2002 11 23 | 644 | 0.0 | 0.0 | 2005 09 25 | 703 | 0.3− | 0.2+ | 2009 12 25 | 691 | 0.1+ | 0.3+ |
| 2002 11 23 | 644 | 0.1+ | 0.1+ | 2005 09 27 | 704 | 0.9− | 0.3+ | | | | |
| 2002 11 23 | 644 | 0.1+ | 0.1− | 2005 09 27 | 704 | 0.5− | 0.9+ | | | | |

**(228751)∗ 2002 VY$_{30}$**

Discovered 2002 Nov. 5 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 56.69345 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.28508923 | $\omega$ | 322.78383 | | +0.96412639 | | −0.25479737 |
| $a$ | 2.2863823 | $\Omega$ | 52.14368 | | +0.26053370 | | +0.85466455 |
| $e$ | 0.1557388 | $i$ | 5.40862 | | +0.05081818 | | +0.45235695 |
| $P$ | 3.46 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 11 05 | 704 | 0.7− | 0.8+ | 2002 12 06 | 704 | 0.2+ | 0.4− | 2005 08 22 | 644 | 0.2+ | 0.6+ |
| 2002 11 05 | 704 | 0.1− | 0.2+ | 2002 12 06 | 704 | 1.0− | 0.4+ | 2009 11 17 | 691 | 0.1+ | 0.6− |
| 2002 11 05 | 704 | 0.7− | 0.6+ | 2002 12 06 | 704 | 0.4+ | 0.1− | 2009 11 17 | 691 | 0.5− | 0.5− |
| 2002 11 05 | 704 | 0.2+ | 0.1− | 2002 12 06 | 704 | 0.9+ | 0.1− | 2009 11 17 | 691 | 0.0 | 0.3− |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 11 05 | 704 | 0.3− | 1.2+ | 2002 12 27 | 644 | 0.2− | 0.7+ | 2009 11 26 | 691 | 0.1+ | 0.1− |
| 2002 11 06 | 704 | (2.4− | 0.9+) | 2002 12 27 | 644 | 0.2+ | 0.2+ | 2009 11 26 | 691 | 1.0− | 0.7− |
| 2002 11 06 | 704 | 0.8− | 0.3+ | 2002 12 27 | 644 | 0.3+ | 0.8+ | 2009 11 26 | 691 | 0.1+ | 0.1− |
| 2002 11 06 | 704 | 0.8− | 0.2+ | 2004 03 28 | 691 | 0.1+ | 0.6+ | 2009 12 10 | 704 | 0.0 | 1.9+ |
| 2002 11 06 | 704 | 0.6− | 0.2+ | 2004 03 28 | 691 | 0.5+ | 0.3+ | 2009 12 10 | 704 | 1.5+ | 1.1+ |
| 2002 11 13 | 644 | 0.6+ | 0.5+ | 2004 03 28 | 691 | 0.0 | 0.4+ | 2009 12 10 | 704 | 0.5+ | 1.3+ |
| 2002 11 13 | 644 | 0.4+ | 0.5+ | 2005 07 03 | 644 | 0.5− | 0.0 | 2009 12 10 | 704 | 0.5+ | 1.5+ |
| 2002 11 13 | 644 | 0.5+ | 0.6+ | 2005 07 03 | 644 | 0.5− | 0.0 | 2009 12 10 | 704 | 1.0+ | 1.6+ |
| 2002 11 24 | 644 | 0.1− | 0.0 | 2005 07 03 | 644 | 0.6− | 0.4+ | 2009 12 11 | G96 | 0.3+ | 0.3− |
| 2002 11 24 | 644 | 0.0 | 0.0 | 2005 08 04 | 644 | 0.1− | 0.5+ | 2009 12 11 | G96 | 0.7+ | 0.3− |
| 2002 11 24 | 644 | 0.0 | 0.0 | 2005 08 04 | 644 | 0.2− | 0.4+ | 2009 12 11 | G96 | 0.1+ | 0.3− |
| 2002 12 03 | 608 | 0.3− | 1.2+ | 2005 08 04 | 644 | 0.4− | 0.3+ | 2009 12 11 | G96 | 0.2+ | 0.2− |
| 2002 12 03 | 608 | 0.3− | 0.2− | 2005 08 22 | 644 | 0.5+ | 0.9+ | | | | |
| 2002 12 03 | 608 | 0.2+ | 0.5− | 2005 08 22 | 644 | 0.1+ | 0.5+ | | | | |

**(228752)∗ 2002 VG$_{31}$**

Discovered 2002 Nov. 5 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 33.76223 | | (2000.0) | | +0.63959486 | −0.76681052 |
| $n$ | 0.28706617 | $\omega$ | 193.20661 | | +0.71317547 | +0.61815247 |
| $a$ | 2.2758731 | $\Omega$ | 217.07308 | | +0.28687830 | +0.17288478 |
| $e$ | 0.1960844 | $i$ | 5.14284 | | | |
| $P$ | 3.43 | $H$ | 16.9 | $G$ 0.15 | $U$ 1 | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 10 28 | 691 | 0.2− | 0.0 | 2002 11 07 | 704 | (2.5− | 0.5+) | 2002 12 11 | 704 | 1.0+ | 0.2+ |
| 1995 10 28 | 691 | 0.2− | 0.0 | 2002 11 07 | 704 | 0.2+ | 0.1− | 2004 05 13 | 691 | 0.4+ | 0.7+ |
| 1995 10 28 | 691 | 0.3− | 0.1+ | 2002 11 07 | 704 | (1.5− | 0.7+) | 2004 05 13 | 691 | 0.2+ | 0.6+ |
| 2002 10 30 | 608 | 0.9− | 0.2+ | 2002 11 07 | 704 | 0.7+ | 0.5+ | 2004 05 13 | 691 | 0.4+ | 0.7+ |
| 2002 10 30 | 608 | 0.7− | 0.0 | 2002 11 11 | 704 | 0.0 | 0.3+ | 2004 05 21 | 691 | 0.0 | 0.5+ |
| 2002 10 30 | 608 | 0.3− | 0.1− | 2002 11 11 | 704 | 0.1− | 0.4+ | 2004 05 21 | 691 | 0.2+ | 0.9+ |
| 2002 11 05 | 704 | 0.6+ | 1.5− | 2002 11 11 | 704 | 0.3− | 0.3+ | 2004 05 21 | 691 | 0.1− | 0.4+ |
| 2002 11 05 | 704 | (2.9+ | 1.8−) | 2002 11 11 | 704 | 0.3− | 0.2+ | 2005 07 08 | 691 | 0.2− | 0.3+ |
| 2002 11 05 | 704 | (1.9+ | 1.6−) | 2002 11 14 | 704 | 0.4+ | 0.2+ | 2005 07 08 | 691 | 0.1+ | 0.9+ |
| 2002 11 05 | 704 | 0.4+ | 0.1+ | 2002 11 14 | 704 | 0.9+ | 0.9+ | 2005 07 08 | 691 | 0.2+ | 0.4+ |
| 2002 11 05 | 704 | (1.6+ | 0.5−) | 2002 11 14 | 704 | 0.8+ | 0.3+ | 2005 09 03 | 644 | 0.3− | 0.4+ |
| 2002 11 06 | 704 | 0.1− | 1.0+ | 2002 11 14 | 704 | 0.2+ | 1.1+ | 2005 09 03 | 644 | 0.5− | 0.4+ |
| 2002 11 06 | 704 | 0.6+ | 0.7− | 2002 11 14 | 704 | (0.5+ | 1.5+) | 2005 09 03 | 644 | 0.1− | 0.4+ |
| 2002 11 06 | 704 | 1.2+ | 1.4+ | 2002 11 24 | 644 | 0.1− | 0.4+ | 2005 11 01 | G96 | 0.1− | 0.2− |
| 2002 11 06 | 704 | 0.1− | 0.2− | 2002 11 24 | 644 | 0.3+ | 0.4+ | 2005 11 01 | G96 | 0.6− | 0.1+ |
| 2002 11 06 | 704 | 0.0 | 0.9− | 2002 11 24 | 644 | 0.5+ | 0.4+ | 2005 11 01 | G96 | 0.0 | 0.2+ |
| 2002 11 06 | 704 | 0.3+ | 0.1− | 2002 12 01 | 704 | 0.3+ | 0.6+ | 2005 11 01 | G96 | 0.4− | 0.1+ |
| 2002 11 06 | 704 | 0.2+ | 0.0 | 2002 12 01 | 704 | 0.3+ | 0.3+ | 2009 08 27 | 691 | 0.6− | 0.3− |
| 2002 11 06 | 704 | 0.0 | 0.0 | 2002 12 01 | 704 | 0.9+ | 0.6+ | 2009 08 27 | 691 | 0.3− | 0.1− |
| 2002 11 06 | 704 | 0.2− | 0.3− | 2002 12 01 | 704 | 1.2+ | 0.3+ | 2009 08 27 | 691 | 0.0 | 0.1+ |
| 2002 11 06 | 704 | 0.1+ | 0.4+ | 2002 12 01 | 704 | 0.8+ | 0.1+ | 2009 12 12 | 704 | 0.1− | 0.3− |
| 2002 11 07 | 704 | 1.2− | 0.5+ | 2002 12 10 | 644 | 0.0 | 0.2+ | 2009 12 12 | 704 | 0.1− | 1.7+ |
| 2002 11 07 | 704 | 0.2− | 0.1− | 2002 12 10 | 644 | 0.1− | 0.4+ | 2009 12 12 | 704 | 0.3− | 0.4+ |
| 2002 11 07 | 704 | 0.9− | 0.4+ | 2002 12 10 | 644 | 0.2− | 0.4+ | 2009 12 18 | 704 | 1.1− | 1.2+ |
| 2002 11 07 | 704 | 0.0 | 0.6+ | 2002 12 11 | 704 | 0.5− | 0.3− | 2009 12 18 | 704 | 0.1− | 0.4+ |
| 2002 11 07 | 704 | (2.5− | 0.6+) | 2002 12 11 | 704 | 0.6− | 0.7− | 2009 12 18 | 704 | 0.4+ | 1.2+ |
| 2002 11 07 | 704 | 0.9− | 0.4+ | 2002 12 11 | 704 | 0.1− | 0.1− | 2009 12 18 | 704 | 0.1+ | 0.2− |

**(228753)∗ 2002 VT$_{32}$**

Discovered 2002 Nov. 5 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 49.72235 | | (2000.0) | | +0.63860008 | −0.76651881 |
| $n$ | 0.29163712 | $\omega$ | 190.36426 | | +0.71340454 | +0.62287725 |
| $a$ | 2.2520300 | $\Omega$ | 219.99668 | | +0.28852019 | +0.15643797 |
| $e$ | 0.0702092 | $i$ | 6.08284 | | | |
| $P$ | 3.38 | $H$ | 16.3 | $G$ 0.15 | $U$ 1 | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 11 05 | 704 | 0.1+ | 0.3− | 2002 12 01 | 704 | 0.0 | 0.4− | 2005 11 01 | G96 | 0.3+ | 0.2− |
| 2002 11 05 | 704 | 0.3− | 0.4− | 2002 12 01 | 704 | 0.3− | 0.3+ | 2005 11 01 | G96 | 0.2− | 0.3− |
| 2002 11 05 | 704 | 0.3+ | 0.2− | 2002 12 11 | 704 | 0.4+ | 0.4− | 2005 11 01 | G96 | 0.2− | 0.5− |
| 2002 11 05 | 704 | 0.6+ | 0.0 | 2002 12 11 | 704 | 0.3+ | 0.0 | 2005 11 01 | G96 | 0.1− | 0.3− |
| 2002 11 06 | 704 | 0.1− | 0.1+ | 2002 12 11 | 704 | 0.4− | 0.0 | 2005 11 30 | G96 | 0.1− | 0.3− |
| 2002 11 06 | 704 | 0.0 | 0.1− | 2002 12 11 | 704 | 0.7+ | 0.3+ | 2005 11 30 | G96 | 0.3+ | 0.0 |
| 2002 11 06 | 704 | 0.0 | 0.4− | 2002 12 11 | 704 | 0.0 | 0.3+ | 2005 11 30 | G96 | 0.0 | 0.0 |
| 2002 11 06 | 704 | 0.3− | 0.3+ | 2004 04 22 | 704 | 0.8+ | 0.1− | 2005 11 30 | G96 | 0.1− | 0.2− |
| 2002 11 06 | 704 | 0.6− | 0.4− | 2004 04 22 | 704 | 0.1− | 0.3+ | 2005 12 04 | G96 | 0.0 | 0.4− |
| 2002 11 11 | 704 | 0.0 | 0.2+ | 2004 04 22 | 704 | 0.5+ | 1.2+ | 2005 12 04 | G96 | 0.1+ | 0.2− |
| 2002 11 11 | 704 | 0.2− | 0.4+ | 2004 04 23 | 333 | (1.1− | 1.7+) | 2005 12 04 | G96 | 0.4− | 0.5− |
| 2002 11 11 | 704 | 1.1+ | 0.1− | 2004 04 23 | 333 | (1.0− | 2.3+) | 2005 12 04 | G96 | 0.2− | 0.0 |
| 2002 11 13 | 704 | 0.9+ | 0.3− | 2004 04 23 | 333 | (0.8− | 1.7+) | 2005 12 21 | 291 | 0.2+ | 0.6+ |
| 2002 11 13 | 704 | 1.4− | 0.4+ | 2004 04 24 | 704 | 0.7+ | 0.2− | 2005 12 21 | 291 | 0.2− | 0.5+ |
| 2002 11 13 | 704 | 0.1− | 0.1+ | 2004 04 24 | 704 | 0.3+ | 1.0+ | 2005 12 21 | 291 | 0.2− | 0.4+ |
| 2002 11 13 | 704 | (1.4+ | 1.8−) | 2004 04 24 | 704 | 0.6+ | 1.0− | 2005 12 22 | 291 | 0.2− | 0.3+ |
| 2002 11 13 | 704 | 0.8− | 0.3+ | 2004 04 24 | 704 | (1.0+ | 2.8−) | 2005 12 22 | 291 | 0.3− | 0.1− |
| 2002 11 13 | 644 | 0.3+ | 0.2− | 2004 04 24 | 704 | 0.2− | 0.2+ | 2005 12 22 | 291 | 0.5+ | 0.4+ |
| 2002 11 13 | 644 | 0.1+ | 0.2+ | 2004 04 25 | 703 | 0.8− | 1.0+ | 2005 12 22 | 291 | 0.2+ | 0.2+ |
| 2002 11 13 | 644 | 0.0 | 0.5+ | 2004 04 25 | 703 | (1.0+ | 1.5+) | 2005 12 22 | 291 | 0.5+ | 0.2+ |
| 2002 11 14 | 704 | 0.8+ | 0.2− | 2004 04 25 | 703 | 0.8− | 0.4+ | 2005 12 22 | 291 | 0.6+ | 0.3+ |
| 2002 11 14 | 704 | 0.5− | 0.5+ | 2004 04 25 | 703 | 0.0 | 0.4− | 2007 03 12 | 703 | 0.1− | 0.2+ |
| 2002 11 14 | 704 | 0.3− | 0.3− | 2004 04 26 | 704 | 0.2+ | 0.4+ | 2007 03 12 | 703 | (2.2+ | 0.5−) |
| 2002 11 14 | 704 | 1.0− | 0.7+ | 2004 04 26 | 704 | 0.7+ | 0.6+ | 2007 03 12 | 703 | 0.7− | 0.9− |
| 2002 11 14 | 704 | 0.3− | 0.2+ | 2004 04 26 | 704 | 0.4− | 0.9+ | 2007 03 12 | 703 | 0.6+ | 1.2+ |
| 2002 11 14 | 704 | 0.2− | 0.8+ | 2005 09 24 | 703 | (1.8− | 1.3−) | 2007 03 21 | 704 | (1.6+ | 0.9−) |
| 2002 11 14 | 704 | 0.7+ | 0.2+ | 2005 09 24 | 703 | 0.7+ | 0.8+ | 2007 03 21 | 704 | (1.6+ | 1.9+) |
| 2002 11 14 | 704 | 0.3− | 0.3− | 2005 09 24 | 703 | 0.3− | 0.4+ | 2007 03 21 | 704 | 0.4+ | 0.5+ |
| 2002 11 14 | 704 | 0.1+ | 0.0 | 2005 09 24 | 703 | 1.1− | 0.7+ | 2007 03 21 | 704 | (3.3+ | 2.1+) |
| 2002 11 14 | 704 | 0.3+ | 0.2− | 2005 09 24 | 703 | 0.0 | 0.0 | 2009 11 22 | G96 | 1.1− | 0.6− |
| 2002 11 14 | 704 | 1.0+ | 0.3+ | 2005 09 24 | 703 | 0.7+ | 0.5− | 2009 11 22 | G96 | 0.7− | 0.1− |
| 2002 11 14 | 704 | 0.1− | 0.8− | 2005 09 24 | 703 | 0.3+ | 0.3− | 2009 11 22 | G96 | 0.9− | 0.5+ |
| 2002 11 24 | 644 | 0.2− | 0.0 | 2005 09 24 | 703 | 0.7− | 0.1− | 2009 11 22 | G96 | 0.1− | 0.1− |
| 2002 11 24 | 644 | 0.0 | 0.1+ | 2005 10 01 | 703 | 0.2− | 0.5− | 2009 12 18 | 704 | 1.9+ | 0.8+ |
| 2002 11 24 | 644 | 0.0 | 0.2+ | 2005 10 01 | 703 | 1.0− | 0.1− | 2009 12 18 | 704 | 0.6+ | 0.6+ |
| 2002 12 01 | 704 | 0.4− | 0.3− | 2005 10 01 | 703 | 0.7− | 0.2− | 2009 12 18 | 704 | 0.5− | 1.8− |
| 2002 12 01 | 704 | 0.3− | 0.3+ | 2005 10 01 | 703 | 0.5− | 0.2− | | | | |

**(228754)∗ 2002 VZ$_{35}$ = 1995 UC$_{67}$**

Discovered 2002 Nov. 5 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 41187)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 35.43883 | | (2000.0) | | +0.32913792 | −0.94362275 |
| $n$ | 0.29186747 | $\omega$ | 169.84350 | | +0.86383678 | +0.31597580 |
| $a$ | 2.2508450 | $\Omega$ | 260.93330 | | +0.38138465 | +0.09866813 |
| $e$ | 0.1901293 | $i$ | 2.04713 | | | |
| $P$ | 3.38 | $H$ | 17.5 | $G$ 0.15 | $U$ 1 | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 10 18 | 691 | 0.2+ | 0.2− | 2002 12 10 | 704 | 0.3+ | 0.5+ | 2005 08 25 | 644 | 0.0 | 0.1+ |
| 1995 10 18 | 691 | 0.1− | 0.2− | 2002 12 10 | 704 | 0.1+ | 0.2− | 2005 08 30 | 691 | 0.1− | 0.0 |
| 1995 10 18 | 691 | 0.3+ | 0.2− | 2002 12 10 | 704 | 0.1+ | 0.5− | 2005 08 30 | 691 | 0.1+ | 0.3+ |
| 1995 10 23 | 691 | 1.1+ | 0.7− | 2002 12 10 | 704 | 0.2− | 0.4− | 2005 08 30 | 691 | 0.2− | 0.4+ |
| 1995 10 23 | 691 | 0.0 | 1.6− | 2002 12 10 | 704 | 0.9− | 0.2+ | 2005 09 22 | 644 | 0.1− | 0.1− |
| 1995 10 23 | 691 | 0.2+ | 0.7− | 2002 12 10 | 704 | 0.2+ | 0.5− | 2005 09 22 | 644 | 0.1+ | 0.3+ |
| 2002 11 05 | 704 | 0.1+ | 1.3+ | 2002 12 10 | 704 | 0.8+ | 0.3− | 2005 09 22 | 644 | 0.5+ | 0.3+ |
| 2002 11 05 | 704 | 0.3+ | 0.2− | 2002 12 10 | 704 | 0.8+ | 0.3− | 2005 09 26 | 691 | 0.1+ | 0.1+ |
| 2002 11 05 | 704 | 0.3+ | 0.3+ | 2002 12 11 | 333 | 0.1+ | 0.7+ | 2005 09 26 | 691 | 0.1− | 0.3+ |
| 2002 11 06 | 704 | 0.4+ | 0.1− | 2002 12 11 | 333 | 0.1+ | 0.1− | 2005 09 26 | 691 | 0.1− | 0.3+ |
| 2002 11 06 | 704 | 0.0 | 0.9+ | 2002 12 11 | 333 | (1.9+ | 0.2+) | 2005 10 09 | 691 | 0.1+ | 0.8+ |
| 2002 11 06 | 704 | 0.3+ | 0.4+ | 2002 12 31 | 699 | 0.9− | 0.2+ | 2005 10 09 | 691 | 0.2+ | 0.2− |
| 2002 11 14 | 704 | (0.9+ | 1.6+) | 2002 12 31 | 699 | 0.9− | 0.1− | 2005 10 09 | 691 | 0.1− | 0.0 |
| 2002 11 14 | 704 | 0.2+ | 1.0+ | 2002 12 31 | 699 | 0.6− | 0.5− | 2005 11 30 | G96 | 0.2− | 0.7− |
| 2002 11 14 | 704 | 0.6+ | 1.1+ | 2002 12 31 | 699 | 1.1− | 0.6− | 2005 11 30 | G96 | 0.5+ | 0.1+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 11 14 | 704 | (0.7− | 1.7+) | 2002 12 31 | 704 | 0.5+ | 1.2+ | 2005 11 30 | G96 | 1.0− | 0.2+ |
| 2002 11 14 | 704 | 0.4+ | 0.7+ | 2002 12 31 | 704 | 0.2− | 0.2+ | 2005 11 30 | G96 | 0.4− | 0.1+ |
| 2002 12 05 | 704 | 0.4− | 0.6+ | 2002 12 31 | 704 | 0.4+ | 1.0+ | 2007 03 12 | 691 | 0.4− | 0.2− |
| 2002 12 05 | 704 | 0.1− | 0.7+ | 2002 12 31 | 704 | 0.2− | 0.7+ | 2007 03 12 | 691 | 0.2− | 0.3− |
| 2002 12 05 | 704 | 0.2− | 0.0 | 2002 12 31 | 704 | 0.5− | 0.4− | 2007 03 12 | 691 | 0.5+ | 0.2+ |
| 2002 12 05 | 704 | 0.1+ | 0.1+ | 2005 07 05 | 291 | 0.6− | 0.0 | 2009 11 21 | G96 | 0.1− | 0.1− |
| 2002 12 05 | 704 | 0.2− | 0.2+ | 2005 07 05 | 291 | 0.5− | 0.2+ | 2009 11 21 | G96 | 1.0+ | 0.1+ |
| 2002 12 07 | 333 | 0.1− | 0.2+ | 2005 07 05 | 291 | 0.5− | 0.3+ | 2009 11 21 | G96 | 0.0 | 0.4− |
| 2002 12 07 | 333 | 0.2− | 0.2+ | 2005 08 24 | 644 | 0.5+ | 0.3− | 2009 11 21 | G96 | 0.1+ | 0.2+ |
| 2002 12 07 | 333 | 0.2− | 0.1+ | 2005 08 24 | 644 | 0.1+ | 0.3+ | 2009 12 18 | G96 | 0.2− | 0.2− |
| 2002 12 08 | 333 | 0.1− | 0.1− | 2005 08 24 | 644 | 0.1+ | 0.6+ | 2009 12 18 | G96 | 0.3− | 0.2− |
| 2002 12 08 | 333 | 0.2− | 0.1+ | 2005 08 25 | 644 | 0.3− | 0.3+ | 2009 12 18 | G96 | 0.3− | 0.0 |
| 2002 12 08 | 333 | 0.2− | 0.2− | 2005 08 25 | 644 | 0.3− | 0.3+ | 2009 12 18 | G96 | 0.2+ | 0.2− |

**(228755)∗ 2002 VK$_{54}$**

Discovered 2002 Nov. 6 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 13.85543 | | (2000.0) | | +0.31803392 | −0.94589070 |
| $n$ | 0.28746278 | $\omega$ | 214.56276 | | +0.89219797 | +0.32156749 |
| $a$ | 2.2737793 | $\Omega$ | 217.01151 | | +0.32068240 | +0.04341825 |
| $e$ | 0.0912876 | $i$ | 6.13973 | | | |
| $P$ | 3.43 | $H$ | 16.7 | $G$ 0.15 | $U$ 1 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 02 11 | 704 | 0.2− | 0.3+ | 2004 05 21 | 691 | 0.1+ | 0.8+ | 2009 11 10 | 691 | 0.1+ | 0.0 |
| 2000 02 11 | 704 | 0.4+ | 1.4+ | 2004 05 21 | 691 | 0.3+ | 0.5+ | 2009 11 10 | 691 | 0.4− | 0.1− |
| 2000 02 11 | 704 | 0.2− | 1.3+ | 2004 05 21 | 691 | 0.2+ | 0.7+ | 2009 11 20 | 704 | 0.4+ | 0.2− |
| 2000 02 11 | 704 | 0.1+ | 0.1− | 2005 08 29 | 644 | 0.1− | 0.2+ | 2009 11 20 | 704 | 0.7+ | 1.0+ |
| 2000 02 11 | 704 | 0.7+ | 1.3+ | 2005 08 29 | 644 | 0.1+ | 0.3+ | 2009 11 20 | 704 | 1.0+ | 0.4+ |
| 2002 10 31 | 644 | 0.3− | 0.3− | 2005 08 29 | 644 | 0.3− | 0.2+ | 2009 11 20 | 704 | 0.8+ | 0.4+ |
| 2002 10 31 | 644 | 0.2+ | 0.7+ | 2005 10 05 | 691 | 0.1− | 0.1+ | 2009 11 23 | 703 | 0.2− | 0.2− |
| 2002 10 31 | 644 | 0.4− | 0.3− | 2005 10 05 | 691 | 0.1− | 0.4+ | 2009 11 23 | 703 | 0.4− | 0.8− |
| 2002 10 31 | 644 | 0.2− | 0.7+ | 2005 10 05 | 691 | 0.2− | 0.3+ | 2009 11 23 | 703 | 0.8− | 0.5− |
| 2002 10 31 | 644 | 0.3− | 0.5− | 2007 02 10 | 703 | 0.3− | 0.9+ | 2009 11 23 | 703 | 1.1− | 0.6+ |
| 2002 10 31 | 644 | 0.5− | 0.7+ | 2007 02 10 | 703 | (0.5− | 1.7+) | 2009 12 15 | 703 | 2.5+ | 0.0 |
| 2002 11 06 | 704 | 0.9− | 0.6− | 2007 02 10 | 703 | 0.8− | 0.4− | 2009 12 15 | 703 | 0.8+ | 0.8+ |
| 2002 11 06 | 704 | 0.7+ | 0.1+ | 2007 02 10 | 703 | 1.2− | 0.3− | 2009 12 15 | 703 | 0.2+ | 1.0− |
| 2002 11 06 | 704 | (0.8+ | 1.6+) | 2007 02 16 | 644 | 0.3+ | 0.2+ | 2009 12 15 | 703 | 1.0− | 0.5− |
| 2002 11 06 | 704 | 0.6+ | 1.3+ | 2007 02 16 | 644 | 0.3+ | 0.2+ | 2009 12 15 | 703 | 0.7− | 0.4− |
| 2002 11 07 | 704 | 0.4+ | 1.0+ | 2007 02 16 | 644 | 0.3+ | 0.2+ | 2009 12 17 | G96 | 0.0 | 0.2− |
| 2002 11 07 | 704 | 0.4− | 0.8+ | 2007 02 25 | 704 | 0.4− | 0.1− | 2009 12 17 | G96 | 0.2− | 0.3− |
| 2002 11 07 | 704 | 0.3− | 0.9+ | 2007 02 25 | 704 | 0.3+ | 0.4+ | 2009 12 17 | G96 | 0.1+ | 0.2− |
| 2002 12 01 | 608 | 0.2+ | 0.6+ | 2007 02 25 | 704 | 1.1+ | 0.6− | 2009 12 17 | G96 | 0.1+ | 0.4− |
| 2002 12 01 | 608 | 0.5+ | 0.5+ | 2007 02 25 | 704 | 0.2+ | 1.2− | | | | |
| 2002 12 01 | 608 | 0.2+ | 1.5+ | 2009 11 10 | 691 | 0.3− | 0.2− | | | | |

**(228756)∗ 2002 VM$_{74}$**

Discovered 2002 Nov. 7 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 68.00728 | | (2000.0) | | +0.93452183 | +0.33847130 |
| $n$ | 0.28423643 | $\omega$ | 275.86453 | | −0.25868342 | +0.85829451 |
| $a$ | 2.2909532 | $\Omega$ | 64.39362 | | −0.24444188 | +0.38570417 |
| $e$ | 0.1994092 | $i$ | 7.00819 | | | |
| $P$ | 3.47 | $H$ | 16.8 | $G$ 0.15 | $U$ 1 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 10 09 | 704 | 0.0 | 0.2− | 2008 04 28 | G96 | 0.2+ | 0.5+ | 2009 11 14 | J75 | 1.2+ | 0.7+ |
| 2002 10 09 | 704 | 0.5− | 0.3− | 2008 04 28 | G96 | 0.0 | 0.0 | 2009 11 18 | 704 | 0.9+ | 0.3− |
| 2002 10 09 | 704 | 0.4+ | 0.2+ | 2009 10 23 | G96 | 0.4+ | 0.1− | 2009 11 18 | 704 | 0.1+ | 0.6− |
| 2002 10 09 | 704 | 0.3− | 0.9+ | 2009 10 23 | G96 | 0.3+ | 0.5− | 2009 11 18 | 704 | 0.1− | 0.4− |
| 2002 10 30 | 644 | 0.3− | 1.3+ | 2009 10 23 | G96 | 0.5+ | 0.3− | 2009 11 18 | 704 | 0.6+ | 0.5− |
| 2002 10 30 | 644 | 0.1− | 1.4+ | 2009 10 23 | G96 | 0.4+ | 0.4− | 2009 11 18 | 704 | 0.1− | 0.1+ |
| 2002 10 30 | 644 | 0.1− | 1.4+ | 2009 10 24 | 703 | 0.9− | 1.2− | 2009 11 20 | 704 | 0.4− | 0.5− |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 11 07 | 704 | 0.2+ | 1.2+ | 2009 10 24 | 703 | 0.5− | 0.6+ | 2009 11 20 | 704 | 0.8− | 0.9− |
| 2002 11 07 | 704 | 0.6+ | 1.3+ | 2009 10 24 | 703 | 0.7− | 0.5− | 2009 11 20 | 704 | 1.2− | 0.4− |
| 2002 11 07 | 704 | 0.4− | 0.5+ | 2009 10 24 | 703 | 1.2+ | 0.0 | 2009 11 20 | 704 | 0.7− | 0.1− |
| 2002 11 07 | 704 | 0.4− | 0.4− | 2009 10 25 | 691 | 0.3− | 0.1+ | 2009 11 20 | 704 | 0.9− | 0.8− |
| 2002 11 11 | 704 | 0.8− | 0.2+ | 2009 10 25 | 691 | 0.2− | 0.2+ | 2009 11 22 | 703 | 0.3+ | 0.1+ |
| 2002 11 11 | 704 | 1.3− | 0.7+ | 2009 10 25 | 691 | 0.4− | 0.1+ | 2009 11 22 | 703 | 0.1+ | 0.8− |
| 2002 11 11 | 704 | 0.4− | 0.2+ | 2009 11 08 | 691 | 0.4− | 0.0 | 2009 11 22 | 703 | 0.0 | 0.5− |
| 2002 11 11 | 704 | 1.2− | 1.1+ | 2009 11 08 | 691 | 0.3− | 0.2+ | 2009 11 22 | 703 | 0.5+ | 0.0 |
| 2002 11 11 | 704 | 0.5− | 0.4+ | 2009 11 08 | 691 | 0.1− | 0.0 | 2009 11 23 | G96 | 0.2+ | 0.3− |
| 2002 11 12 | 644 | 0.0 | 0.5+ | 2009 11 08 | 703 | 0.1− | 0.0 | 2009 11 23 | G96 | 0.1+ | 0.2− |
| 2002 11 12 | 644 | 0.2− | 0.2+ | 2009 11 08 | 703 | 0.7− | 0.5− | 2009 11 23 | G96 | 0.6+ | 0.2− |
| 2002 11 12 | 644 | 0.2+ | 0.7+ | 2009 11 08 | 703 | 1.0+ | 0.7− | 2009 11 23 | G96 | 0.3+ | 0.4− |
| 2004 01 28 | 645 | 0.1+ | 0.0 | 2009 11 08 | 703 | (2.0+ | 1.3−) | 2009 11 23 | J75 | 1.1+ | 0.2+ |
| 2004 01 28 | 645 | 0.0 | 0.1+ | 2009 11 08 | 703 | 0.0 | 0.4− | 2009 11 23 | J75 | 0.5+ | 0.4− |
| 2008 04 04 | 691 | 0.1+ | 0.6+ | 2009 11 08 | 703 | 0.8+ | 0.4− | 2009 11 23 | J75 | 0.6+ | 0.9− |
| 2008 04 04 | 691 | 0.2− | 0.2+ | 2009 11 08 | 703 | 0.8− | 0.0 | 2009 12 05 | J75 | 0.5+ | 0.6+ |
| 2008 04 04 | 691 | 0.3+ | 0.4+ | 2009 11 08 | 703 | 0.8− | 0.5− | 2009 12 05 | J75 | 0.4+ | 0.3− |
| 2008 04 08 | 691 | 0.0 | 0.1+ | 2009 11 09 | J75 | 0.2+ | 0.1− | 2009 12 05 | J75 | 0.4− | 0.5− |
| 2008 04 08 | 691 | 0.2− | 0.1− | 2009 11 09 | J75 | 0.5+ | 0.2+ | 2009 12 11 | G96 | 0.2+ | 0.2− |
| 2008 04 08 | 691 | 0.1+ | 0.2− | 2009 11 09 | J75 | 0.1+ | 0.5+ | 2009 12 11 | G96 | 0.5+ | 0.1+ |
| 2008 04 12 | 691 | 0.0 | 0.0 | 2009 11 14 | J75 | 0.3+ | 0.0 | 2009 12 11 | G96 | 0.2− | 0.0 |
| 2008 04 12 | 691 | 0.4+ | 0.2− | 2009 11 14 | J75 | 0.8+ | 0.1− | 2009 12 11 | G96 | 0.3+ | 0.1− |
| 2008 04 12 | 691 | 0.1− | 0.2+ | 2009 11 14 | J75 | 0.7+ | 0.2+ | 2009 12 12 | 704 | 0.3+ | 0.5+ |
| 2008 04 28 | G96 | 0.5− | 0.0 | 2009 11 14 | J75 | 0.8+ | 0.4+ | 2009 12 12 | 704 | 0.2+ | 0.2+ |
| 2008 04 28 | G96 | 0.1− | 0.1+ | 2009 11 14 | J75 | 0.8+ | 0.1+ | 2009 12 12 | 704 | 0.6+ | 0.1− |

**(228757)∗ 2002 VF$_{80}$**

Discovered 2002 Nov. 7 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 51.37302 | | (2000.0) | | +0.98636483 | −0.15370313 |
| $n$ | 0.28376322 | $\omega$ | 262.51534 | | +0.16449478 | +0.90972567 |
| $a$ | 2.2934995 | $\Omega$ | 106.31262 | | +0.00508731 | +0.38571305 |
| $e$ | 0.2360544 | $i$ | 3.51368 | | | |
| $P$ | 3.47 | $H$ | 17.1 | $G$ 0.15 | $U$ 1 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 11 07 | 704 | 0.5+ | 1.0− | 2002 12 10 | 644 | 0.1− | 0.5+ | 2008 06 03 | G96 | 0.1+ | 0.1+ |
| 2002 11 07 | 704 | 0.5+ | 0.4− | 2002 12 11 | 704 | 0.3− | 1.0+ | 2008 06 03 | G96 | 0.1+ | 0.6+ |
| 2002 11 07 | 704 | 0.2+ | 1.0− | 2002 12 11 | 704 | 0.5− | 0.9+ | 2008 06 03 | G96 | 0.2+ | 0.3+ |
| 2002 11 07 | 704 | (1.7+ | 2.3−) | 2002 12 11 | 704 | 0.1+ | 0.4+ | 2008 06 03 | G96 | 0.1+ | 0.5+ |
| 2002 11 11 | 704 | 0.5− | 0.1+ | 2002 12 11 | 704 | 0.4+ | 0.3+ | 2009 11 19 | 691 | 0.2− | 0.1− |
| 2002 11 11 | 704 | 0.1+ | 0.2+ | 2002 12 27 | 644 | 0.2− | 1.0+ | 2009 11 19 | 691 | 0.1− | 0.1− |
| 2002 11 11 | 704 | 0.3− | 0.8− | 2002 12 27 | 644 | 0.0 | 1.0+ | 2009 11 19 | 691 | 0.6+ | 0.2− |
| 2002 11 11 | 704 | 0.6− | 1.0+ | 2002 12 27 | 644 | 0.5− | 1.0+ | 2009 11 22 | 691 | 0.5− | 0.4− |
| 2002 11 11 | 704 | 0.4− | 0.2+ | 2003 01 03 | 291 | 0.4+ | 0.1+ | 2009 11 22 | 691 | 0.4+ | 1.3− |
| 2002 12 01 | 704 | 1.1− | 0.0 | 2003 01 03 | 291 | 0.2+ | 0.2− | 2009 11 22 | 691 | 0.2+ | 0.1− |
| 2002 12 01 | 704 | 0.1− | 0.2+ | 2003 01 03 | 291 | (2.2+ | 0.4+) | 2009 11 23 | 691 | 0.2− | 0.1− |
| 2002 12 01 | 704 | 0.3+ | 1.1+ | 2005 06 12 | 691 | 0.1− | 0.2− | 2009 11 23 | 691 | 0.1− | 0.0 |
| 2002 12 01 | 704 | 0.6+ | 0.3+ | 2005 06 12 | 691 | 0.2+ | 0.2− | 2009 11 23 | 691 | 0.7+ | 0.4+ |
| 2002 12 02 | 704 | 1.1− | 0.7+ | 2005 06 12 | 691 | 0.2− | 0.0 | 2009 11 26 | 691 | 0.0 | 0.1− |
| 2002 12 02 | 704 | 0.0 | 0.4+ | 2005 06 13 | G96 | 0.1+ | 0.5+ | 2009 11 26 | 691 | 0.1+ | 0.1− |
| 2002 12 02 | 704 | 0.5− | 0.2+ | 2005 06 13 | G96 | 0.2− | 0.4+ | 2009 11 26 | 691 | 0.1− | 0.0 |
| 2002 12 02 | 704 | 0.7− | 0.7+ | 2005 06 13 | G96 | 0.1+ | 0.2+ | 2009 11 27 | 691 | 0.2− | 0.0 |
| 2002 12 02 | 704 | 0.6− | 0.5− | 2005 06 13 | G96 | 0.3+ | 0.3+ | 2009 11 27 | 691 | 0.0 | 0.5+ |
| 2002 12 03 | 608 | 0.5+ | 0.5− | 2005 06 16 | 691 | 0.2+ | 0.1+ | 2009 11 27 | 691 | 0.1− | 0.1− |
| 2002 12 03 | 608 | 0.3+ | 0.4+ | 2005 06 16 | 691 | 0.0 | 0.1− | 2009 12 11 | G96 | 0.4+ | 0.3− |
| 2002 12 03 | 608 | (0.3+ | 4.0+) | 2005 06 16 | 691 | 0.0 | 0.2+ | 2009 12 11 | G96 | 0.1+ | 0.2− |
| 2002 12 05 | 704 | 0.4+ | 0.1− | 2007 02 08 | G96 | 0.5+ | 0.3− | 2009 12 11 | G96 | 0.2+ | 0.2− |
| 2002 12 05 | 704 | 0.7− | 0.9+ | 2007 02 08 | G96 | 0.4− | 0.1− | 2009 12 11 | G96 | 0.4+ | 0.5− |
| 2002 12 05 | 704 | 0.4− | 1.2+ | 2007 02 08 | G96 | 0.3− | 0.1+ | 2009 12 11 | 703 | 0.2+ | 1.4− |
| 2002 12 05 | 704 | 0.4− | 0.0 | 2007 02 08 | G96 | 0.3− | 0.1+ | 2009 12 11 | 703 | 0.1− | 0.2− |
| 2002 12 05 | 704 | 0.4− | 0.6− | 2007 02 16 | G96 | 0.5+ | 0.7+ | 2009 12 11 | 703 | 0.2− | 0.1+ |
| 2002 12 06 | 704 | 0.5+ | 0.5− | 2007 02 16 | G96 | 0.5− | 0.4− | 2009 12 11 | 703 | 0.6− | 0.9− |
| 2002 12 06 | 704 | 0.2+ | 0.5+ | 2007 02 16 | G96 | 0.3− | 0.1+ | 2009 12 17 | 704 | 1.7− | 0.0 |
| 2002 12 06 | 704 | 0.4+ | 1.4+ | 2007 02 16 | G96 | 0.2+ | 0.2− | 2009 12 17 | 704 | 0.3− | 0.0 |
| 2002 12 06 | 704 | 0.2− | 0.4− | 2007 03 20 | G96 | 0.3− | 0.3+ | 2009 12 17 | 704 | 0.2− | 0.1− |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 12 06 | 704 | 0.6− | 1.1+ | 2007 03 20 | G96 | 0.0 | 0.1− | 2009 12 17 | 704 | 1.1+ | 1.6+ |
| 2002 12 10 | 644 | 0.2+ | 0.4+ | 2007 03 20 | G96 | 0.3+ | 0.4+ | | | | |
| 2002 12 10 | 644 | 0.2+ | 0.6+ | 2007 03 20 | G96 | 0.5+ | 0.5− | | | | |

**(228758)∗ 2002 VZ$_{83}$**

Discovered 2002 Nov. 7 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 51.83124 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28506055 | $\omega$ | 298.12296 | | +0.90169722 | −0.41384742 | |
| $a$ | 2.2865356 | $\Omega$ | 86.55783 | | +0.42748744 | +0.80994814 | |
| $e$ | 0.1117862 | $i$ | 7.20477 | | +0.06478132 | +0.41558914 | |
| $P$ | 3.46 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 11 07 | 704 | 0.4+ | 0.3− | 2002 12 31 | 704 | 0.0 | 0.5− | 2007 02 18 | 699 | 1.4+ | 1.0+ |
| 2002 11 07 | 704 | 0.4+ | 0.5− | 2005 08 04 | 644 | 0.1− | 0.2+ | 2007 02 18 | 699 | (1.8+ | 0.6−) |
| 2002 11 07 | 704 | 0.4+ | 0.2− | 2005 08 04 | 644 | 0.2− | 0.3+ | 2007 02 18 | 699 | 0.6+ | 0.7+ |
| 2002 11 11 | 704 | 0.3− | 0.0 | 2005 08 04 | 644 | 0.0 | 0.0 | 2007 02 18 | 699 | (0.4+ | 1.7+) |
| 2002 11 11 | 704 | 0.0 | 0.2− | 2005 08 05 | 644 | 0.3− | 0.0 | 2009 11 21 | 704 | 0.6+ | 0.6+ |
| 2002 11 11 | 704 | 0.5+ | 0.3+ | 2005 08 05 | 644 | 0.1− | 0.0 | 2009 11 21 | 704 | 0.3+ | 0.6+ |
| 2002 11 11 | 704 | 0.8+ | 1.1− | 2005 08 05 | 644 | 0.0 | 0.1+ | 2009 11 21 | 704 | 0.1+ | 0.1+ |
| 2002 12 01 | 704 | 0.4− | 0.2+ | 2005 08 28 | E12 | 0.2− | 0.3+ | 2009 11 21 | 704 | 0.0 | 0.8+ |
| 2002 12 01 | 704 | 0.4− | 0.4− | 2005 08 28 | E12 | 0.5+ | 0.1− | 2009 11 21 | 704 | 0.1+ | 0.3− |
| 2002 12 01 | 704 | 0.6− | 0.1− | 2005 08 28 | E12 | 0.1+ | 0.0 | 2009 12 10 | G96 | 0.0 | 0.5+ |
| 2002 12 01 | 704 | 0.6− | 0.1− | 2005 08 28 | E12 | 0.1− | 0.2+ | 2009 12 10 | G96 | 0.3− | 0.4− |
| 2002 12 03 | 608 | 0.2+ | 0.9+ | 2005 09 01 | 644 | 0.1+ | 0.2+ | 2009 12 10 | G96 | 0.1− | 0.4− |
| 2002 12 03 | 608 | 0.1+ | 1.2+ | 2005 09 01 | 644 | 0.2+ | 0.3+ | 2009 12 10 | G96 | 0.0 | 0.4− |
| 2002 12 03 | 608 | 0.2− | 1.2+ | 2005 09 01 | 644 | 0.3+ | 0.0 | 2009 12 11 | 704 | 0.4+ | 0.5+ |
| 2002 12 10 | 644 | 0.4− | 0.5− | 2005 09 08 | E12 | 0.2− | 0.2+ | 2009 12 11 | 704 | 0.5+ | 0.1+ |
| 2002 12 10 | 644 | 0.4− | 0.6− | 2005 09 08 | E12 | 0.0 | 0.1+ | 2009 12 11 | 704 | 0.8+ | 0.2− |
| 2002 12 10 | 644 | 0.3− | 0.5− | 2005 09 08 | E12 | 0.1+ | 0.2+ | 2009 12 17 | 704 | 0.0 | 0.0 |
| 2002 12 11 | 704 | 0.1− | 0.3+ | 2005 09 08 | E12 | 0.1+ | 0.2+ | 2009 12 17 | 704 | 0.6− | 0.0 |
| 2002 12 11 | 704 | 0.0 | 0.1− | 2005 09 26 | 703 | 0.3− | 0.2− | 2009 12 17 | 704 | 0.5− | 0.1+ |
| 2002 12 11 | 704 | 0.6− | 0.3− | 2005 09 26 | 703 | 0.7− | 0.7− | 2009 12 17 | 704 | 0.2− | 0.0 |
| 2002 12 11 | 704 | 0.3− | 0.2+ | 2005 09 26 | 703 | (1.8− | 0.7+) | 2009 12 17 | 704 | 0.5− | 0.2− |
| 2002 12 27 | 644 | 0.1+ | 0.7+ | 2005 09 26 | 703 | 0.1+ | 0.3+ | 2009 12 19 | G96 | 0.1− | 0.4− |
| 2002 12 27 | 644 | 0.2+ | 0.6+ | 2007 02 16 | 703 | 0.3− | 0.2+ | 2009 12 19 | G96 | 0.1− | 0.3− |
| 2002 12 27 | 644 | 0.6+ | 0.5+ | 2007 02 16 | 703 | 1.0− | 0.4+ | 2009 12 19 | G96 | 0.1+ | 0.4− |
| 2002 12 31 | 704 | 0.6+ | 0.2− | 2007 02 16 | 703 | 0.2− | 0.7+ | 2009 12 19 | G96 | 0.0 | 0.4− |
| 2002 12 31 | 704 | 0.8+ | 0.3− | 2007 02 16 | 703 | 0.1+ | 1.1− | | | | |

**(228759)∗ 2002 VC$_{90}$ = 2005 QY$_{49}$**

Discovered 2002 Nov. 11 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 85746)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 136.06614 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.30106571 | $\omega$ | 258.72586 | | +0.82413123 | +0.55982392 | |
| $a$ | 2.2047627 | $\Omega$ | 67.17608 | | −0.47640551 | +0.76731226 | |
| $e$ | 0.1204951 | $i$ | 5.35704 | | −0.30634213 | +0.31277640 | |
| $P$ | 3.27 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 11 06 | 704 | 0.3− | 0.4+ | 2005 08 27 | 699 | 0.5+ | 1.1+ | 2007 01 28 | 691 | 0.0 | 0.3− |
| 2002 11 06 | 704 | 1.3− | 0.9+ | 2005 08 27 | 699 | (0.1− | 1.7−) | 2007 01 28 | 691 | 0.1+ | 0.0 |
| 2002 11 06 | 704 | 0.5− | 0.2− | 2005 08 27 | 699 | 0.2− | 0.2− | 2007 01 28 | 691 | 0.1+ | 0.0 |
| 2002 11 06 | 704 | 0.7+ | 0.8− | 2005 09 03 | 703 | 0.1+ | 0.0 | 2007 02 16 | 703 | 0.1+ | 0.8+ |
| 2002 11 11 | 704 | 0.0 | 0.8+ | 2005 09 03 | 703 | 0.3− | 0.2+ | 2007 02 16 | 703 | (1.7− | 1.1−) |
| 2002 11 11 | 704 | 0.0 | 0.2+ | 2005 09 03 | 703 | 0.2− | 0.5+ | 2007 02 16 | 703 | 1.4− | 0.9+ |
| 2002 11 11 | 704 | 0.5− | 0.9+ | 2005 09 03 | 703 | 0.5− | 0.5+ | 2007 02 16 | 703 | 0.7− | 1.5+ |
| 2002 11 12 | 644 | 0.2+ | 0.0 | 2005 09 13 | 703 | 0.2+ | 0.2− | 2007 03 09 | G96 | 0.2+ | 0.0 |
| 2002 11 12 | 644 | 0.3+ | 0.4+ | 2005 09 13 | 703 | 0.9+ | 0.0 | 2007 03 09 | G96 | 0.1− | 0.0 |
| 2002 11 12 | 644 | 0.6+ | 0.1+ | 2005 09 13 | 703 | 0.1− | 0.4− | 2007 03 09 | G96 | 0.0 | 0.1+ |
| 2004 03 18 | 691 | 0.1+ | 0.3+ | 2005 09 13 | 703 | 0.0 | 0.6− | 2007 03 09 | G96 | 0.1+ | 0.1− |
| 2004 03 18 | 691 | 0.2+ | 0.1+ | 2005 09 23 | 703 | (1.6− | 0.1+) | 2009 11 11 | G96 | 0.1+ | 0.6− |
| 2004 03 18 | 691 | 0.2+ | 0.1+ | 2005 09 23 | 703 | 0.9− | 0.7− | 2009 11 11 | G96 | 0.2+ | 0.3+ |
| 2004 03 20 | 704 | 0.1− | 0.8+ | 2005 09 23 | 703 | 0.3− | 1.3− | 2009 11 11 | G96 | 0.3+ | 0.1+ |
| 2004 03 20 | 704 | (0.0 | 1.6+) | 2005 09 23 | 703 | 0.0 | 0.3− | 2009 11 11 | G96 | 0.4+ | 0.4− |
| 2004 03 20 | 704 | 0.6+ | 1.0+ | 2005 09 27 | 704 | 0.0 | 0.4+ | 2009 12 18 | G96 | 0.1− | 0.3− |
| 2004 03 20 | 704 | (0.4− | 2.2+) | 2005 09 27 | 704 | 1.2+ | 0.0 | 2009 12 18 | G96 | 0.2+ | 0.3− |
| 2005 08 26 | 644 | 0.4− | 0.4+ | 2005 09 27 | 704 | 0.1− | 0.0 | 2009 12 18 | G96 | 0.6+ | 0.3− |
| 2005 08 26 | 644 | 0.3− | 0.2+ | 2005 09 27 | 704 | 0.2+ | 0.2+ | 2009 12 18 | G96 | 0.4+ | 0.4− |
| 2005 08 26 | 644 | 0.6− | 0.1+ | 2005 09 27 | 704 | 0.7+ | 0.2+ | 2009 12 27 | 691 | 0.1+ | 0.0 |
| 2005 08 26 | 644 | 0.4− | 0.1+ | 2005 10 03 | 703 | 0.1+ | 0.0 | 2009 12 27 | 691 | 0.1+ | 0.2− |
| 2005 08 26 | 644 | 0.2− | 0.2+ | 2005 10 03 | 703 | 0.9− | 0.1− | 2009 12 27 | 691 | 0.5− | 0.2− |
| 2005 08 26 | 644 | 0.2− | 0.2+ | 2005 10 03 | 703 | 1.0− | 0.9+ | | | | |
| 2005 08 27 | 699 | 1.0+ | 0.5+ | 2005 10 03 | 703 | 0.1+ | 0.1+ | | | | |

**(228760)∗ 2002 VW$_{91}$**

Discovered 2002 Nov. 11 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 116.59427 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.29440790 | $\omega$ | 256.06912 | | +0.84766890 | +0.50681845 | |
| $a$ | 2.2378780 | $\Omega$ | 73.27167 | | −0.40117234 | +0.80577206 | |
| $e$ | 0.1993662 | $i$ | 9.42462 | | −0.34715731 | +0.30637631 | |
| $P$ | 3.35 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1992 11 24 | 691 | 0.4− | 1.1− | 2002 12 09 | 644 | 0.1− | 0.5+ | 2005 10 07 | 428 | 0.2+ | 0.2− |
| 1992 11 24 | 691 | (1.6− | 4.5−) | 2002 12 09 | 644 | 0.1− | 0.6+ | 2005 10 07 | 428 | 0.8+ | 0.2+ |
| 1992 11 24 | 691 | 0.0 | 0.6− | 2002 12 09 | 644 | 0.1− | 0.3+ | 2005 10 10 | 703 | 0.4− | 0.0 |
| 2001 04 27 | 608 | 1.5− | 0.2+ | 2002 12 10 | 704 | 0.9+ | 1.3+ | 2005 10 10 | 703 | 0.2+ | 0.4+ |
| 2001 04 27 | 608 | 1.0− | 0.5− | 2002 12 10 | 704 | 0.4− | 0.6+ | 2005 10 30 | 703 | 0.7+ | 0.3− |
| 2001 04 27 | 608 | (1.8− | 0.0 ) | 2002 12 10 | 704 | 1.0+ | 0.1+ | 2005 10 30 | 703 | 0.4+ | 0.3+ |
| 2002 11 11 | 704 | 0.3+ | 0.0 | 2002 12 10 | 704 | 0.0 | 0.2+ | 2005 10 30 | 703 | 1.4− | 0.6− |
| 2002 11 11 | 704 | 0.1− | 0.1+ | 2002 12 27 | 644 | 0.1− | 0.1+ | 2005 10 30 | 703 | 0.0 | 0.4− |
| 2002 11 11 | 704 | 0.2+ | 0.0 | 2002 12 27 | 644 | 0.2+ | 0.6+ | 2005 11 05 | 699 | 0.3− | 0.2− |
| 2002 11 11 | 704 | 0.4+ | 0.5+ | 2002 12 27 | 644 | 0.1+ | 0.4+ | 2005 11 05 | 699 | 0.4− | 0.3− |
| 2002 11 12 | 704 | 0.1− | 0.0 | 2003 01 04 | 704 | 0.9+ | 1.0+ | 2005 11 05 | 699 | 0.3− | 0.4+ |
| 2002 11 12 | 704 | 0.1− | 0.6+ | 2003 01 04 | 704 | 0.9− | 0.4+ | 2005 11 05 | 699 | 0.4− | 0.3− |
| 2002 11 12 | 704 | 1.0+ | 0.1− | 2003 01 04 | 704 | 0.2+ | 1.1− | 2005 11 06 | 703 | 1.0− | 0.0 |
| 2002 11 12 | 704 | 0.0 | 0.1− | 2003 01 04 | 704 | 1.0+ | 0.4− | 2005 11 06 | 703 | 0.9− | 0.2+ |
| 2002 11 13 | 926 | 0.3− | 0.5− | 2004 03 23 | 704 | (0.3+ | 2.1+) | 2005 11 06 | 703 | 0.5− | 0.4+ |
| 2002 11 13 | 926 | 0.1− | 0.6+ | 2004 03 23 | 704 | 0.2+ | 0.2− | 2005 11 06 | 703 | 0.1+ | 0.2+ |
| 2002 11 14 | 926 | 0.3+ | 0.2− | 2004 03 23 | 704 | 0.6− | 1.0− | 2005 12 01 | 703 | 0.8+ | 0.3+ |
| 2002 11 14 | 926 | 0.0 | 0.6− | 2004 03 29 | 291 | 0.9+ | 0.5+ | 2005 12 01 | 703 | 0.2− | 0.5+ |
| 2002 11 14 | 926 | 0.2− | 0.1+ | 2004 03 29 | 291 | 0.7+ | 0.4+ | 2005 12 01 | 703 | 0.2+ | 0.0 |
| 2002 11 15 | 704 | 0.7+ | 0.1+ | 2004 03 29 | 291 | 0.9+ | 0.5+ | 2005 12 01 | 703 | 0.2+ | 0.0 |
| 2002 11 15 | 704 | 0.1− | 0.3− | 2005 08 08 | E12 | 0.2+ | 0.4+ | 2005 12 01 | 703 | 0.4− | 0.4− |
| 2002 11 15 | 704 | 0.1− | 0.7+ | 2005 08 08 | E12 | 0.2− | 0.1+ | 2005 12 01 | 703 | 0.2+ | 0.8+ |
| 2002 11 15 | 704 | 0.2+ | 0.4− | 2005 08 08 | E12 | 0.4+ | 0.2− | 2005 12 01 | 703 | 0.1+ | 0.1− |
| 2002 11 24 | 644 | 0.2− | 1.1+ | 2005 08 08 | E12 | 0.5+ | 0.2+ | 2005 12 01 | 703 | 0.2+ | 0.3− |
| 2002 11 24 | 644 | 0.2− | 0.9+ | 2005 08 27 | E12 | 0.0 | 0.3+ | 2005 12 06 | 703 | 0.0 | 0.5+ |
| 2002 11 24 | 644 | 0.1− | 0.9+ | 2005 08 27 | E12 | 0.1+ | 0.2− | 2005 12 06 | 703 | (0.3− | 1.8+) |
| 2002 11 28 | 699 | 1.1− | 0.4+ | 2005 08 27 | E12 | 0.3− | 0.2+ | 2005 12 06 | 703 | 0.5+ | 0.5− |
| 2002 11 28 | 699 | 0.7− | 0.1− | 2005 08 27 | E12 | 0.3+ | 0.1+ | 2005 12 06 | 703 | (1.6− | 0.3+) |
| 2002 11 28 | 699 | 0.5− | 0.4+ | 2005 09 01 | 644 | 0.2+ | 0.0 | 2007 02 09 | 703 | (1.7− | 0.6−) |
| 2002 11 28 | 699 | 0.2− | 0.2+ | 2005 09 01 | 644 | 0.1+ | 0.0 | 2007 02 09 | 703 | 1.4+ | 0.2− |
| 2002 12 02 | 704 | (0.5− | 2.8+) | 2005 09 01 | 644 | 0.3+ | 0.2+ | 2007 02 09 | 703 | 0.3− | 0.3− |
| 2002 12 02 | 704 | 0.8+ | 0.6+ | 2005 09 26 | 704 | 0.0 | 0.3+ | 2007 02 09 | 703 | 0.5− | 0.6− |
| 2002 12 02 | 704 | 0.4+ | 0.9+ | 2005 09 26 | 704 | (0.7− | 1.6+) | 2008 06 25 | E12 | 0.1− | 0.9+ |
| 2002 12 02 | 704 | 0.4+ | 0.6+ | 2005 09 26 | 704 | 0.9− | 0.9+ | 2008 06 25 | E12 | 0.1− | 0.9+ |
| 2002 12 03 | 608 | 0.2− | 0.0 | 2005 09 26 | 704 | 0.8− | 0.3+ | 2008 06 25 | E12 | 0.2− | 1.2+ |
| 2002 12 03 | 608 | 0.2+ | 1.3− | 2005 09 26 | 704 | 0.4− | 0.9+ | 2008 06 25 | E12 | 0.2− | 0.6+ |
| 2002 12 03 | 608 | 0.1− | 1.0− | 2005 09 29 | 428 | 0.9+ | 0.4− | 2009 12 18 | 691 | 0.3− | 0.1− |
| 2002 12 05 | 704 | 0.3− | 0.4+ | 2005 10 01 | 428 | 0.5+ | 0.2− | 2009 12 18 | 691 | 0.4+ | 0.1+ |
| 2002 12 05 | 704 | 0.1+ | 0.0 | 2005 10 02 | E12 | 0.3− | 0.4+ | 2009 12 18 | 691 | 0.2− | 0.0 |
| 2002 12 05 | 704 | 0.4+ | 0.7+ | 2005 10 02 | E12 | 0.5− | 0.2+ | 2009 12 27 | 691 | 0.6− | 0.1− |
| 2002 12 05 | 704 | 0.3− | 0.8+ | 2005 10 02 | E12 | 0.2− | 0.2− | 2009 12 27 | 691 | 0.6− | 0.1+ |
| 2002 12 05 | 704 | 0.0 | 0.5+ | 2005 10 02 | E12 | 0.6+ | 0.3− | 2009 12 27 | 691 | 0.4− | 0.1− |

**(228761)∗ 2002 VJ$_{102}$**

Discovered 2002 Nov. 12 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 104.47148 | | | (2000.0) | | |
| $n$ | 0.30080011 | $\omega$ | 33.63023 | | +0.98964049 | +0.14250641 |
| $a$ | 2.2060604 | $\Omega$ | 318.16589 | | −0.13680554 | +0.89924623 |
| $e$ | 0.1532103 | $i$ | 1.49701 | | −0.04354240 | +0.41357966 |
| $P$ | 3.28 | $H$ | 17.5 | $G$ 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1992 10 01 | 691 | 0.2+ | 0.5− | 2002 11 12 | 704 | 0.6+ | 0.9+ | 2005 10 22 | 703 | 1.1+ | 0.6+ | |
| 1992 10 01 | 691 | 0.1+ | 0.3− | 2002 11 12 | 704 | 0.9− | 1.0+ | 2005 10 25 | G96 | 0.5− | 0.1− | |
| 1992 10 01 | 691 | 0.1− | 0.4− | 2002 11 12 | 704 | 0.2− | 0.8+ | 2005 10 25 | G96 | 0.3− | 0.0 | |
| 1997 02 10 | 691 | 0.1− | 0.6− | 2002 11 12 | 704 | 0.7− | 0.1− | 2005 10 25 | G96 | 0.2− | 0.3− | |
| 1997 02 10 | 691 | 0.2− | 0.3− | 2002 11 14 | 704 | 0.5+ | 0.3− | 2005 10 25 | G96 | 0.2− | 0.2+ | |
| 1997 02 10 | 691 | 0.1+ | 0.5− | 2002 11 14 | 704 | 0.1+ | 0.0 | 2007 02 23 | G96 | 0.1− | 0.1− | |
| 1997 02 10 | 691 | 0.1+ | 0.7− | 2002 11 14 | 704 | 0.0 | 0.1− | 2007 02 23 | G96 | 0.2− | 0.3+ | |
| 2001 03 31 | 691 | 0.3+ | 0.4+ | 2002 11 14 | 704 | (1.9− | 0.5+) | 2007 02 23 | G96 | 0.2+ | 0.1− | |
| 2001 03 31 | 691 | 0.2+ | 0.5+ | 2002 11 14 | 704 | (2.0− | 0.8−) | 2007 02 23 | G96 | 0.0 | 0.1− | |
| 2001 03 31 | 691 | 0.0 | 0.9+ | 2005 07 29 | 644 | 0.2− | 0.0 | 2007 02 25 | G98 | 1.1+ | 0.2+ | |
| 2002 10 08 | 699 | 0.8+ | 0.2+ | 2005 07 29 | 644 | 0.2− | 0.2+ | 2007 02 25 | G98 | (1.7+ | 0.5+) | |
| 2002 10 08 | 699 | (2.1+ | 0.5−) | 2005 07 29 | 644 | 0.3− | 0.2− | 2007 02 25 | G98 | 0.4+ | 0.7+ | |
| 2002 10 08 | 699 | 0.2+ | 1.1+ | 2005 08 27 | 644 | 0.8− | 0.1− | 2007 02 25 | G98 | 1.3+ | 0.4− | |
| 2002 10 08 | 699 | 0.1+ | 1.1+ | 2005 08 27 | 644 | 0.7− | 0.0 | 2009 11 11 | G96 | 0.4+ | 0.5− | |
| 2002 10 31 | 699 | 0.7− | 1.0− | 2005 08 27 | 644 | 0.8− | 0.1− | 2009 11 11 | G96 | 0.4− | 0.3− | |
| 2002 10 31 | 699 | 0.1− | 1.2+ | 2005 08 29 | 704 | 1.3+ | 1.5+ | 2009 11 11 | G96 | 0.1− | 0.1− | |
| 2002 10 31 | 699 | 0.3− | 0.3+ | 2005 08 29 | 704 | (1.0+ | 2.2+) | 2009 11 11 | G96 | 0.8+ | 0.2− | |
| 2002 10 31 | 699 | 0.8+ | 0.1+ | 2005 08 29 | 704 | (1.4+ | 2.0+) | 2009 12 15 | G96 | 0.1− | 0.1+ | |
| 2002 10 31 | 699 | 1.1− | 0.2+ | 2005 09 07 | 699 | 0.1+ | 0.3− | 2009 12 15 | G96 | 0.6− | 0.3+ | |
| 2002 10 31 | 699 | 0.6+ | 0.9+ | 2005 09 07 | 699 | 1.2+ | 1.4− | 2009 12 15 | G96 | 0.5+ | 0.2+ | |
| 2002 10 31 | 644 | 0.2− | 1.0+ | 2005 09 07 | 699 | 0.5− | 0.5+ | 2009 12 15 | G96 | 0.1+ | 0.0 | |
| 2002 10 31 | 699 | 0.6− | 0.1+ | 2005 09 07 | 699 | 0.3+ | 0.3+ | 2009 12 18 | 691 | 0.1− | 0.4+ | |
| 2002 10 31 | 699 | 0.2+ | 0.4− | 2005 10 22 | 703 | (0.4+ | 4.2+) | 2009 12 18 | 691 | 0.5− | 0.3+ | |
| 2002 10 31 | 644 | 0.0 | 0.9+ | 2005 10 22 | 703 | 1.2+ | 0.1− | 2009 12 18 | 691 | 0.4− | 0.3+ | |
| 2002 10 31 | 644 | 0.1− | 0.9+ | 2005 10 22 | 703 | (0.7− | 1.8−) | | | | | |

**(228762)∗ 2002 VR$_{102}$**

Discovered 2002 Nov. 12 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 39.55412 | | | (2000.0) | | |
| $n$ | 0.29619847 | $\omega$ | 171.54632 | | +0.45078522 | −0.88920136 |
| $a$ | 2.2288500 | $\Omega$ | 251.62916 | | +0.81408102 | +0.44546635 |
| $e$ | 0.0593947 | $i$ | 4.72587 | | +0.36614858 | +0.10431047 |
| $P$ | 3.33 | $H$ | 17.1 | $G$ 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 10 31 | 699 | 0.4− | 0.3− | 2004 05 19 | 691 | 0.2+ | 0.6+ | 2008 05 28 | G96 | 0.4+ | 0.3+ | |
| 2002 10 31 | 699 | 0.5− | 0.3+ | 2004 05 19 | 691 | 0.6+ | 0.8+ | 2008 05 28 | G96 | 0.1− | 0.3+ | |
| 2002 10 31 | 699 | 0.3− | 1.2− | 2004 05 28 | 691 | 0.4− | 0.2+ | 2008 05 28 | G96 | 0.1+ | 0.3− | |
| 2002 10 31 | 699 | (3.8+ | 0.2+) | 2004 05 28 | 691 | 0.5+ | 0.2+ | 2008 06 07 | 691 | 0.1+ | 0.0 | |
| 2002 11 05 | 704 | 0.9− | 0.7+ | 2004 05 28 | 691 | 0.4+ | 0.4+ | 2008 06 07 | 691 | 0.3− | 0.2+ | |
| 2002 11 05 | 704 | 0.3+ | 0.0 | 2005 09 09 | 704 | 0.2− | 1.0− | 2008 06 07 | 691 | 0.2− | 0.0 | |
| 2002 11 05 | 704 | 0.7− | 1.0+ | 2005 09 09 | 704 | 1.0+ | 0.2− | 2008 06 11 | 691 | 0.4− | 0.2− | |
| 2002 11 05 | 704 | 0.6− | 0.4− | 2005 09 09 | 704 | 0.9+ | 0.1− | 2008 06 11 | 691 | 0.3− | 0.0 | |
| 2002 11 05 | 704 | 0.6− | 0.1+ | 2005 09 24 | 703 | (2.1− | 0.2−) | 2008 06 11 | 691 | 0.1+ | 0.0 | |
| 2002 11 12 | 704 | 0.4− | 0.6+ | 2005 09 24 | 703 | 0.3+ | 1.1+ | 2009 11 17 | G96 | 0.1+ | 0.0 | |
| 2002 11 12 | 704 | 0.6+ | 0.1+ | 2005 09 24 | 703 | 0.0 | 0.1+ | 2009 11 17 | G96 | 0.2− | 0.1+ | |
| 2002 11 12 | 704 | 0.1− | 0.1− | 2005 09 24 | 703 | 0.3+ | 0.9+ | 2009 11 17 | G96 | 0.5− | 0.2− | |
| 2002 11 12 | 704 | 0.3+ | 0.4+ | 2005 09 26 | A50 | 0.1− | 0.0 | 2009 11 17 | G96 | 0.3+ | 0.1+ | |
| 2002 11 14 | 704 | 0.0 | 0.5− | 2005 09 26 | A50 | 0.1+ | 0.2+ | 2009 12 17 | G96 | 0.1− | 0.0 | |
| 2002 11 14 | 704 | 0.2+ | 0.6+ | 2005 09 29 | 691 | 0.2+ | 0.3+ | 2009 12 17 | G96 | 0.2+ | 0.1− | |
| 2002 11 14 | 704 | 0.1+ | 0.6+ | 2005 09 29 | 691 | 0.5− | 0.9+ | 2009 12 17 | G96 | 0.0 | 0.1− | |
| 2002 11 14 | 704 | 0.5+ | 0.0 | 2005 09 29 | 691 | 0.3+ | 0.1− | 2009 12 17 | G96 | 0.3+ | 0.3+ | |
| 2002 11 14 | 704 | 0.2+ | 0.9+ | 2007 03 15 | 703 | 1.0− | 0.3+ | 2009 12 17 | G96 | 0.0 | 0.2+ | |
| 2002 11 23 | 644 | 0.5− | 0.4+ | 2007 03 15 | 703 | (0.7+ | 1.9+) | 2009 12 18 | 691 | 0.0 | 0.2+ | |
| 2002 11 23 | 644 | 0.5− | 0.6+ | 2007 03 15 | 703 | 0.9− | 0.3− | 2009 12 18 | 691 | 0.1+ | 0.2+ | |
| 2002 11 23 | 644 | 0.5− | 0.6+ | 2007 03 15 | 703 | (1.8+ | 0.8−) | 2009 12 18 | 691 | 0.4+ | 0.4+ | |
| 2004 05 19 | 691 | 0.2+ | 0.1+ | 2008 05 28 | G96 | 0.2− | 0.6+ | | | | | |

**(228763)∗ 2002 VN$_{104}$ = 2000 BR$_{31}$**

Discovered 2002 Nov. 12 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 41255)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 62.91190 | | | (2000.0) | | |
| $n$ | 0.29538785 | $\omega$ | 112.61869 | | +0.75155606 | −0.65724129 |
| $a$ | 2.2329259 | $\Omega$ | 288.52049 | | +0.58122735 | +0.70029084 |
| $e$ | 0.1068124 | $i$ | 3.41879 | | +0.31199079 | +0.27861556 |
| $P$ | 3.34 | $H$ | 16.6 | $G$ 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 01 27 | 691 | 0.1− | 0.4− | 2002 12 31 | 704 | 0.5− | 0.9+ | 2005 09 30 | 703 | (1.9− | 0.5+) | |
| 2000 01 27 | 691 | 0.1− | 0.3− | 2002 12 31 | 704 | 0.3− | 0.0 | 2005 09 30 | 703 | (1.7− | 1.0+) | |
| 2000 01 27 | 691 | 0.1− | 0.3− | 2005 08 29 | 691 | 0.0 | 0.1+ | 2005 09 30 | 703 | 0.5− | 0.0 | |
| 2000 02 02 | 704 | 0.3+ | 0.5+ | 2005 08 29 | 691 | 0.2− | 0.3+ | 2005 09 30 | 703 | (0.2− | 2.5−) | |
| 2000 02 02 | 704 | 0.8− | 1.0+ | 2005 08 29 | 691 | 0.8− | 0.0 | 2005 10 01 | 699 | 0.4− | 0.5+ | |
| 2000 02 02 | 704 | 0.2+ | 0.9+ | 2005 08 29 | 699 | 0.4− | 1.1+ | 2005 10 01 | 699 | 0.0 | 0.2− | |
| 2002 11 12 | 704 | (1.6+ | 0.1−) | 2005 08 29 | 699 | 0.1+ | 0.6+ | 2005 10 01 | 699 | 0.2+ | 0.2− | |
| 2002 11 12 | 704 | 0.7+ | 0.4+ | 2005 08 29 | 699 | 0.5− | 0.5+ | 2005 10 01 | 699 | 1.0+ | 0.7+ | |
| 2002 11 12 | 704 | 0.4+ | 0.6− | 2005 08 29 | 699 | 0.1− | 0.3− | 2005 10 07 | 704 | (2.1+ | 0.4+) | |
| 2002 11 12 | 704 | 0.1− | 0.2+ | 2005 08 30 | 704 | 0.3− | 1.2+ | 2005 10 07 | 704 | 0.6+ | 0.5+ | |
| 2002 11 12 | 704 | 0.1+ | 0.6+ | 2005 08 30 | 704 | 0.7+ | 0.3+ | 2005 10 07 | 704 | 0.9+ | 0.3+ | |
| 2002 11 14 | 704 | 0.0 | 1.3+ | 2005 08 30 | 704 | 0.3− | 0.2+ | 2005 10 07 | 704 | 1.3+ | 1.3− | |
| 2002 11 14 | 704 | 0.4− | 1.3+ | 2005 09 06 | 699 | 0.5− | 0.3+ | 2005 10 07 | 704 | 1.3+ | 0.7− | |
| 2002 11 14 | 704 | 0.5− | 0.0 | 2005 09 06 | 699 | 0.0 | 0.0 | 2007 03 11 | 703 | 0.3+ | 0.0 | |
| 2002 11 14 | 704 | (0.5− | 1.7+) | 2005 09 06 | 699 | 0.3+ | 0.0 | 2007 03 11 | 703 | 0.6+ | 1.0+ | |
| 2002 11 24 | 644 | 0.3− | 0.2+ | 2005 09 06 | 699 | (0.2− | 1.7−) | 2007 03 11 | 703 | (1.8+ | 0.1+) | |
| 2002 11 24 | 644 | 0.3− | 0.1+ | 2005 09 09 | 704 | 0.1+ | 0.5+ | 2007 03 11 | 703 | 0.0 | 0.2+ | |
| 2002 11 24 | 644 | 0.2− | 0.3+ | 2005 09 09 | 704 | 0.1− | 0.0 | 2007 03 13 | G96 | 0.4+ | 0.3+ | |
| 2002 12 02 | 704 | 0.1− | 0.1+ | 2005 09 09 | 704 | 0.3+ | 0.4+ | 2007 03 13 | G96 | 0.6+ | 0.1+ | |
| 2002 12 02 | 704 | 0.2− | 0.2+ | 2005 09 09 | 704 | 0.1− | 0.3− | 2007 03 13 | G96 | 1.6+ | 1.2+ | |
| 2002 12 02 | 704 | 0.0 | 0.4+ | 2005 09 09 | 704 | 0.0 | 0.4+ | 2007 03 13 | G96 | 0.2+ | 0.2+ | |
| 2002 12 02 | 704 | 0.4+ | 1.0+ | 2005 09 14 | 703 | 0.4+ | 1.0− | 2008 06 24 | 691 | 0.1− | 0.1− | |
| 2002 12 06 | 704 | 0.5− | 0.0 | 2005 09 14 | 703 | (0.2+ | 1.8−) | 2008 06 24 | 691 | 0.1− | 0.2+ | |
| 2002 12 06 | 704 | 0.7− | 0.4+ | 2005 09 14 | 703 | 0.0 | 1.0− | 2008 06 24 | 691 | 0.3− | 0.0 | |
| 2002 12 06 | 704 | 0.1+ | 0.1− | 2005 09 14 | 703 | 0.3+ | 1.2− | 2009 11 16 | G96 | 0.3− | 0.4− | |
| 2002 12 06 | 704 | 0.4− | 0.2+ | 2005 09 24 | 703 | 1.1− | 0.4+ | 2009 11 16 | G96 | 0.2+ | 0.3− | |
| 2002 12 06 | 704 | 0.5− | 0.1− | 2005 09 24 | 703 | 0.5+ | 1.5− | 2009 11 16 | G96 | 0.3+ | 0.5− | |
| 2002 12 11 | 704 | 0.5+ | 0.2+ | 2005 09 24 | 703 | (0.3+ | 2.2−) | 2009 11 16 | G96 | 0.2+ | 0.3− | |
| 2002 12 11 | 704 | 0.9+ | 0.1+ | 2005 09 24 | 703 | 0.8− | 0.3− | 2009 12 25 | 691 | 0.2− | 0.3− | |
| 2002 12 11 | 704 | 0.7+ | 0.4− | 2005 09 29 | 691 | 0.2+ | 0.4− | 2009 12 25 | 691 | 0.3− | 0.3− | |
| 2002 12 31 | 704 | 0.3+ | 0.5+ | 2005 09 29 | 691 | 0.4+ | 0.2− | 2009 12 25 | 691 | 0.2− | 0.2− | |
| 2002 12 31 | 704 | 0.5− | 0.5+ | 2005 09 29 | 691 | 0.3+ | 0.1− | | | | | |

**(228764)∗ 2002 VL$_{128}$ = 2005 QV$_{12}$**

Discovered 2002 Nov. 14 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 85758)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 68.29827 | | | (2000.0) | | |
| $n$ | 0.28477018 | $\omega$ | 167.68809 | | +0.99309695 | −0.11584271 |
| $a$ | 2.2880897 | $\Omega$ | 198.99351 | | +0.10224912 | +0.93187609 |
| $e$ | 0.1273177 | $i$ | 3.24263 | | +0.05747661 | +0.34378397 |
| $P$ | 3.46 | $H$ | 16.6 | $G$ 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 11 14 | 704 | 0.4+ | 0.2− | 2005 08 27 | 699 | 0.3+ | 0.4− | 2007 02 15 | 703 | 0.4− | 0.2− | |
| 2002 11 14 | 704 | 0.4− | 0.6− | 2005 08 27 | 699 | 0.3+ | 0.1+ | 2007 02 15 | 703 | (2.6+ | 0.7+) | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 11 14 | 704 | (0.9− | 1.7−) | 2005 08 27 | 699 | 0.0 | 0.0 | 2007 02 15 | 703 | 0.4+ | 0.8+ | | |
| 2002 11 18 | 644 | 0.4− | 0.1+ | 2005 08 27 | 699 | 0.4+ | 0.5+ | 2007 02 26 | G96 | 0.2+ | 0.3− | | |
| 2002 11 18 | 644 | 0.3− | 0.5+ | 2005 09 30 | 699 | 0.3− | 0.0 | 2007 02 26 | G96 | 0.0 | 0.2− | | |
| 2002 11 18 | 644 | 0.0 | 0.3+ | 2005 09 30 | 699 | 0.3− | 0.1+ | 2007 02 26 | G96 | 0.9+ | 0.1+ | | |
| 2002 11 24 | 644 | 0.0 | 0.0 | 2005 09 30 | 699 | (1.6− | 0.3−) | 2007 02 26 | G96 | 0.2+ | 0.2− | | |
| 2002 11 24 | 644 | 0.0 | 0.0 | 2005 09 30 | 699 | 0.1− | 0.1− | 2007 03 12 | 691 | 0.1+ | 0.3+ | | |
| 2002 11 24 | 644 | 0.1− | 0.1+ | 2005 10 05 | 691 | 0.1+ | 0.2+ | 2007 03 12 | 691 | 0.2+ | 0.4+ | | |
| 2002 11 28 | 608 | 0.0 | 0.1− | 2005 10 05 | 691 | 0.1+ | 0.2+ | 2007 03 12 | 691 | 0.3− | 0.1+ | | |
| 2002 11 28 | 608 | 0.3− | 0.1+ | 2005 10 05 | 691 | 0.5+ | 0.3+ | 2007 03 16 | G96 | 0.0 | 0.2+ | | |
| 2002 11 28 | 608 | 0.3− | 0.2+ | 2005 10 27 | G96 | 0.6− | 0.1− | 2007 03 16 | G96 | 0.0 | 0.0 | | |
| 2002 12 03 | 644 | 0.4− | 0.1− | 2005 10 27 | G96 | 0.0 | 0.2+ | 2007 03 16 | G96 | 0.1− | 0.0 | | |
| 2002 12 03 | 644 | 0.1− | 0.1+ | 2005 10 27 | G96 | 0.1− | 0.1− | 2007 03 16 | G96 | 0.2− | 0.1+ | | |
| 2002 12 03 | 644 | 0.1+ | 0.1+ | 2005 10 27 | G96 | 0.0 | 0.2− | 2008 06 25 | E12 | 0.5− | 0.0 | | |
| 2002 12 05 | 608 | 0.2+ | 0.2+ | 2005 11 25 | G96 | 0.4− | 0.1− | 2008 06 25 | E12 | 0.2+ | 0.9+ | | |
| 2002 12 05 | 608 | 0.2+ | 0.2+ | 2005 11 25 | G96 | 0.1− | 0.0 | 2008 06 25 | E12 | 0.3− | 0.7+ | | |
| 2002 12 05 | 608 | 0.0 | 0.1− | 2005 11 25 | G96 | 0.4− | 0.1+ | 2008 06 25 | E12 | 0.2− | 0.4+ | | |
| 2002 12 10 | 644 | 0.2+ | 1.0+ | 2005 11 25 | G96 | 0.5− | 0.2− | 2009 11 27 | 691 | 0.2+ | 0.4+ | | |
| 2002 12 10 | 644 | 0.1+ | 1.1+ | 2005 12 04 | G96 | 0.9− | 0.5− | 2009 11 27 | 691 | 0.2− | 0.1− | | |
| 2002 12 10 | 644 | 0.1+ | 0.9+ | 2005 12 04 | G96 | 0.5− | 0.8− | 2009 11 27 | 691 | 0.3− | 0.1− | | |
| 2002 12 11 | 704 | (2.8− | 2.5+) | 2005 12 04 | G96 | 0.0 | 0.5− | 2009 12 13 | G96 | 0.1− | 0.6− | | |
| 2002 12 11 | 704 | (1.7− | 2.7+) | 2005 12 04 | G96 | 0.0 | 0.3+ | 2009 12 13 | G96 | 0.1+ | 0.3− | | |
| 2002 12 11 | 704 | (2.7− | 2.5+) | 2007 01 29 | 691 | 0.1+ | 0.1− | 2009 12 13 | G96 | 0.2− | 0.4− | | |
| 2002 12 11 | 704 | (0.2− | 3.0+) | 2007 01 29 | 691 | 0.1− | 0.1+ | 2009 12 13 | G96 | 0.0 | 0.3− | | |
| 2005 08 06 | 644 | 0.3− | 0.0 | 2007 01 29 | 691 | 0.1− | 0.0 | 2009 12 13 | G96 | 0.3+ | 0.4− | | |
| 2005 08 06 | 644 | 0.0 | 0.2+ | 2007 02 10 | G96 | 0.1+ | 0.0 | 2009 12 13 | G96 | 0.4+ | 0.2− | | |
| 2005 08 06 | 644 | 0.1− | 0.1+ | 2007 02 10 | G96 | 0.3+ | 0.0 | 2009 12 13 | G96 | 0.1+ | 0.5− | | |
| 2005 08 24 | 644 | 0.0 | 0.1+ | 2007 02 10 | G96 | 0.0 | 0.1− | 2009 12 13 | G96 | 0.2+ | 0.1− | | |
| 2005 08 24 | 644 | 0.3− | 0.1+ | 2007 02 10 | G96 | 0.2+ | 0.2− | 2009 12 13 | G96 | 0.2+ | 0.4− | | |
| 2005 08 24 | 644 | 0.1− | 0.0 | 2007 02 15 | 703 | (1.9+ | 2.4+) | 2009 12 13 | G96 | 0.2+ | 0.3− | | |

**(228765)∗ 2002 VH$_{131}$**

Discovered 2002 Nov. 13 by J. V. McClusky at Kingsnake Observatory, Seguin.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 64.28332 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18000625 | $\omega$ | 106.87938 | | −0.01433198 | −0.99080180 | |
| $a$ | 3.1065450 | $\Omega$ | 342.22780 | | +0.66394262 | +0.09119390 | |
| $e$ | 0.1298251 | $i$ | 26.15769 | | +0.74764617 | −0.09997734 | |
| $P$ | 5.48 | $H$ | 14.6 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 09 16 | 699 | 0.4+ | 0.4− | 2004 01 30 | 703 | (0.2+ | 1.5+) | 2007 09 13 | 704 | 0.2− | 0.2+ | | |
| 2002 09 16 | 699 | 0.6+ | 0.7− | 2004 01 30 | 703 | 0.4− | 0.8+ | 2007 09 13 | 704 | 0.3− | 0.3+ | | |
| 2002 09 16 | 699 | 0.5− | 0.1+ | 2004 01 30 | 703 | 0.5− | 0.3+ | 2007 09 13 | 704 | 0.4− | 0.6+ | | |
| 2002 09 16 | 699 | 0.6+ | 0.5− | 2004 01 30 | 703 | 0.5+ | 0.5+ | 2007 09 14 | 691 | 0.2− | 0.1+ | | |
| 2002 09 26 | 644 | 0.0 | 0.1+ | 2004 01 31 | 699 | 0.3+ | 0.3+ | 2007 09 14 | 691 | 0.3− | 0.0 | | |
| 2002 09 26 | 644 | 0.0 | 0.1+ | 2004 01 31 | 699 | 0.0 | 1.1+ | 2007 09 14 | 691 | 0.0 | 0.4− | | |
| 2002 09 26 | 644 | 0.1+ | 0.3− | 2004 01 31 | 699 | (0.6+ | 1.8+) | 2007 09 14 | 704 | (0.1− | 2.4+) | | |
| 2002 10 11 | 644 | 0.3− | 0.2− | 2004 01 31 | 699 | 0.5+ | 0.9− | 2007 09 14 | 704 | 0.6+ | 0.0 | | |
| 2002 10 11 | 644 | 0.0 | 0.2− | 2004 01 31 | 704 | 1.1+ | 0.1+ | 2007 09 14 | 704 | 0.3+ | 0.4+ | | |
| 2002 10 11 | 644 | 0.3− | 0.1− | 2004 01 31 | 704 | 0.9+ | 0.2− | 2007 09 14 | 704 | 0.5− | 1.0+ | | |
| 2002 10 31 | 704 | 0.4− | 0.6− | 2004 01 31 | 704 | 0.6+ | 0.8+ | 2007 09 14 | 704 | (0.7+ | 1.6+) | | |
| 2002 10 31 | 704 | 0.7− | 0.0 | 2004 01 31 | 704 | 0.9+ | 0.1+ | 2007 09 17 | 704 | 0.0 | 1.0− | | |
| 2002 10 31 | 704 | 0.6− | 0.1− | 2004 02 02 | 704 | 0.2+ | 0.6+ | 2007 09 17 | 704 | 0.1− | 1.2+ | | |
| 2002 10 31 | 704 | 0.4− | 0.3− | 2004 02 02 | 704 | 0.3− | 0.7+ | 2007 09 17 | 704 | 0.4− | 0.4+ | | |
| 2002 11 11 | 699 | 0.3− | 0.0 | 2004 02 02 | 704 | 0.5+ | 0.9+ | 2007 09 17 | 704 | 0.1− | 0.5+ | | |
| 2002 11 11 | 699 | 0.6− | 0.1− | 2004 02 02 | 704 | 0.6+ | 0.7+ | 2007 10 12 | 704 | 0.2− | 0.3+ | | |
| 2002 11 11 | 699 | 0.7− | 0.2− | 2004 02 14 | 704 | 0.8− | 0.6+ | 2007 10 12 | 704 | 0.0 | 0.7+ | | |
| 2002 11 11 | 699 | 0.8+ | 0.6+ | 2004 02 14 | 704 | 0.3− | 1.3+ | 2007 10 12 | 704 | 0.4+ | 0.5+ | | |
| 2002 11 13 | 446 | 0.4+ | 0.5− | 2004 02 14 | 704 | 0.2− | 0.8+ | 2007 10 12 | 704 | 0.8+ | 0.8+ | | |
| 2002 11 13 | 446 | 0.4+ | 0.6− | 2004 02 14 | 704 | 0.6+ | 0.8− | 2007 10 12 | 704 | 0.6+ | 0.2+ | | |
| 2002 11 14 | 446 | 0.8− | 0.2+ | 2004 02 14 | 704 | 0.0 | 0.8+ | 2007 10 15 | 704 | 0.4+ | 0.7− | | |
| 2002 11 14 | 446 | 0.3+ | 0.8− | 2004 02 16 | 703 | 0.1+ | 0.2− | 2007 10 15 | 704 | 0.4+ | 0.4+ | | |
| 2002 11 24 | 446 | 1.3+ | 0.7− | 2004 02 16 | 703 | 0.5− | 0.1+ | 2007 10 15 | 704 | 0.1+ | 0.8+ | | |
| 2002 11 24 | 446 | (1.6+ | 0.1+) | 2004 02 16 | 703 | 0.2− | 0.0 | 2007 10 15 | 704 | 0.4+ | 0.6+ | | |
| 2002 11 24 | 446 | 0.8+ | 1.2+ | 2004 02 16 | 703 | 0.3− | 0.4+ | 2007 10 15 | 704 | 0.5+ | 0.9+ | | |
| 2003 12 03 | 704 | 0.4+ | 0.3− | 2004 02 17 | 645 | 0.2− | 0.2− | 2007 10 18 | 704 | 0.8− | 0.8− | | |
| 2003 12 03 | 704 | 1.1+ | 1.2+ | 2004 02 17 | 645 | 0.2− | 0.3− | 2007 10 18 | 704 | 1.2− | 0.4− | | |
| 2003 12 03 | 704 | 0.6+ | 0.0 | 2004 02 18 | 201 | 0.4− | 0.4+ | 2007 10 18 | 704 | (2.0− | 0.4−) | | |
| 2003 12 03 | 704 | 0.1+ | 0.1− | 2004 02 18 | 201 | 0.1+ | 0.3+ | 2007 10 18 | 704 | 0.7− | 1.0− | | |
| 2003 12 03 | 704 | 0.4+ | 0.0 | 2004 02 18 | 201 | 0.3− | 0.2+ | 2007 12 05 | 703 | 0.2− | 0.8+ | | |
| 2003 12 30 | 704 | 0.8+ | 0.3+ | 2004 03 18 | 644 | 0.6+ | 1.1+ | 2007 12 05 | 703 | 1.4+ | 1.1+ | | |
| 2003 12 30 | 704 | 0.9+ | 0.3+ | 2004 03 18 | 644 | 0.5+ | 0.2+ | 2007 12 05 | 703 | 0.2− | 0.4+ | | |
| 2003 12 30 | 704 | 0.6+ | 0.2+ | 2004 03 18 | 644 | 0.5+ | 0.6+ | 2007 12 05 | 703 | 0.7− | 1.1− | | |
| 2003 12 30 | 704 | 0.2+ | 0.1− | 2004 03 23 | 704 | 0.5+ | 0.8+ | 2008 11 09 | 704 | 0.3+ | 0.2− | | |
| 2004 01 02 | 704 | 0.6+ | 0.1− | 2004 03 23 | 704 | 0.7+ | 0.4+ | 2008 11 09 | 704 | 1.3+ | 0.3+ | | |
| 2004 01 02 | 704 | 0.1− | 0.9− | 2004 03 23 | 704 | 0.7+ | 0.5+ | 2008 11 09 | 704 | 0.7+ | 0.0 | | |
| 2004 01 02 | 704 | 0.1− | 0.2+ | 2004 03 23 | 704 | 0.1+ | 0.0 | 2008 11 19 | 704 | 0.5− | 0.7− | | |
| 2004 01 02 | 704 | 1.0+ | 0.7+ | 2004 04 15 | 645 | 0.1+ | 0.1− | 2008 11 19 | 704 | 0.4+ | 0.8− | | |
| 2004 01 02 | 704 | 0.0 | 0.2+ | 2004 04 15 | 645 | 0.0 | 0.1− | 2008 11 19 | 704 | 0.4− | 0.2+ | | |
| 2004 01 14 | 644 | 0.0 | 0.3+ | 2004 04 16 | 645 | 0.1+ | 0.1− | 2008 11 19 | 704 | 0.3− | 1.2− | | |
| 2004 01 14 | 644 | 0.2+ | 0.2+ | 2004 04 16 | 645 | 0.1+ | 0.1− | 2008 11 19 | 704 | 0.8− | 1.2− | | |
| 2004 01 14 | 644 | 0.0 | 0.3+ | 2007 08 17 | D29 | 0.6− | 0.0 | 2009 11 26 | G96 | 0.0 | 0.3+ | | |
| 2004 01 17 | 644 | 0.0 | 0.3+ | 2007 08 17 | D29 | 0.5+ | 0.8− | 2009 11 26 | G96 | 0.4− | 0.2+ | | |
| 2004 01 17 | 644 | 0.1− | 0.3+ | 2007 08 17 | D29 | 0.8− | 0.1− | 2009 11 26 | G96 | 0.1− | 1.1− | | |
| 2004 01 17 | 644 | 0.2− | 0.6+ | 2007 08 17 | D29 | 0.4+ | 0.1+ | 2009 11 26 | G96 | 0.3+ | 0.3+ | | |
| 2004 01 17 | 644 | 0.1− | 0.5+ | 2007 08 22 | 704 | 0.6− | 1.5+ | 2009 12 26 | 691 | 0.6− | 0.1+ | | |
| 2004 01 17 | 644 | 0.2− | 0.6+ | 2007 08 22 | 704 | 0.0 | 0.0 | 2009 12 26 | 691 | 0.1− | 0.9+ | | |
| 2004 01 17 | 644 | 0.1− | 0.8+ | 2007 08 22 | 704 | 1.0− | 0.1− | 2009 12 26 | 691 | 0.4+ | 0.3+ | | |

**(228766)∗ 2002 VS$_{146}$ = 1977 RQ$_{18}$ = 2008 HO$_9$**

Discovered 2002 Nov. 4 by NEAT at Palomar.

Id. T. B. Spahr (*MPO* 158817)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 70.61722 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27892061 | $\omega$ | 125.35712 | | +0.81623586 | +0.57769708 | |
| $a$ | 2.3199697 | $\Omega$ | 199.35569 | | −0.53483133 | +0.75233344 | |
| $e$ | 0.1901900 | $i$ | 0.86641 | | −0.21843644 | +0.31663935 | |
| $P$ | 3.53 | $H$ | 17.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1977 09 09 | 675 | (4.3+ | 1.8+) | 2008 04 03 | G96 | 0.0 | 0.2− | 2009 10 14 | J75 | 0.0 | 0.1+ | | |
| 1977 09 10 | 675 | 0.3+ | 0.6− | 2008 04 03 | G96 | 0.2− | 0.2− | 2009 10 14 | J75 | 0.3− | 0.9− | | |
| 1995 11 27 | 691 | 0.5− | 0.2+ | 2008 04 03 | G96 | 0.1+ | 0.1− | 2009 10 14 | J75 | 0.4+ | 0.4− | | |
| 1995 11 27 | 691 | 0.1− | 0.2− | 2008 04 03 | G96 | 0.0 | 0.2− | 2009 10 14 | D29 | 0.9+ | 0.2− | | |
| 1995 11 27 | 691 | 0.3+ | 0.4− | 2008 04 24 | G96 | 0.5− | 0.2+ | 2009 10 14 | D29 | 0.2− | 0.0 | | |
| 2002 10 31 | 644 | 0.7+ | 0.0 | 2008 04 24 | G96 | 0.4− | 0.2− | 2009 10 14 | D29 | 0.3+ | 0.4− | | |
| 2002 10 31 | 644 | 0.4+ | 0.2− | 2008 04 24 | G96 | 0.0 | 0.4+ | 2009 10 14 | D29 | 0.0 | 0.5− | | |
| 2002 10 31 | 644 | 0.0 | 0.1+ | 2008 04 24 | G96 | 0.1+ | 0.1+ | 2009 10 24 | 691 | 0.1− | 0.2+ | | |
| 2002 10 31 | 644 | 0.2− | 0.5+ | 2008 04 26 | G96 | 0.2+ | 0.4+ | 2009 10 24 | 691 | 0.2− | 0.2+ | | |
| 2002 10 31 | 644 | 0.0 | 0.2+ | 2008 04 26 | G96 | 0.2+ | 0.0 | 2009 10 24 | 691 | 0.2− | 0.0 | | |
| 2002 10 31 | 644 | 0.2− | 0.2+ | 2008 04 26 | G96 | 0.3+ | 0.2+ | 2009 11 11 | G96 | 0.1+ | 0.0 | | |
| 2002 11 04 | 644 | 0.2− | 0.1+ | 2008 04 26 | G96 | 0.2− | 0.4+ | 2009 11 11 | G96 | 0.2+ | 0.0 | | |
| 2002 11 04 | 644 | 0.1+ | 0.0 | 2008 05 02 | G96 | 0.5+ | 0.3+ | 2009 11 11 | G96 | 0.6− | 0.5− | | |
| 2002 11 04 | 644 | 0.2− | 0.1− | 2008 05 02 | G96 | 0.2+ | 0.2− | 2009 11 11 | G96 | 0.4+ | 0.2− | | |
| 2002 11 12 | 644 | 0.4+ | 0.5+ | 2008 05 02 | G96 | 0.2− | 0.1+ | 2009 11 19 | G96 | 0.3+ | 0.2− | | |
| 2002 11 12 | 644 | 0.2− | 0.0 | 2008 05 02 | G96 | 0.2+ | 0.1− | 2009 11 19 | G96 | 0.3+ | 0.0 | | |
| 2002 11 12 | 644 | 0.3+ | 0.6+ | 2009 10 10 | J75 | (2.4+ | 0.9+) | 2009 11 19 | G96 | 0.3+ | 0.1− | | |
| 2002 12 10 | 644 | 0.6− | 0.2+ | 2009 10 10 | J75 | 0.7+ | 0.0 | 2009 11 19 | G96 | 0.3+ | 0.1− | | |
| 2002 12 10 | 644 | 0.3+ | 0.6+ | 2009 10 10 | J75 | 0.6− | 0.7+ | 2009 12 20 | G96 | 0.1+ | 0.1+ | | |
| 2002 12 10 | 644 | 0.2+ | 0.2− | 2009 10 11 | G96 | 0.2− | 0.3+ | 2009 12 20 | G96 | 0.6− | 0.3+ | | |
| 2006 12 24 | 691 | 0.1− | 0.1+ | 2009 10 11 | G96 | 0.1− | 0.1+ | 2009 12 20 | G96 | 0.8− | 0.0 | | |
| 2006 12 24 | 691 | 0.0 | 0.3− | 2009 10 11 | G96 | 0.0 | 0.5+ | 2009 12 20 | G96 | 0.3+ | 0.2− | | |
| 2006 12 24 | 691 | 0.2+ | 0.0 | 2009 10 11 | G96 | 0.0 | 0.2+ | | | | | | |

**(228767)∗ 2002 WX$_5$**

Discovered 2002 Nov. 24 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 86.51392 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.30588265 | $\omega$ | 60.56992 | | +0.80421887 | −0.59291932 | |
| $a$ | 2.1815549 | $\Omega$ | 335.72301 | | +0.50492034 | +0.71796901 | |
| $e$ | 0.1557861 | $i$ | 5.71913 | | +0.31350830 | +0.36464665 | |
| $P$ | 3.22 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1960 10 22 | 675 | 0.2+ | 0.4− | 2005 08 24 | 644 | 0.0 | 0.2+ | 2005 09 24 | 703 | 1.4+ | 1.1− | 2002 11 06 | 644 | 0.0 | 0.0 | 2003 01 01 | 704 | (0.1+ | 1.9−) | 2009 09 21 | 703 | (3.7− | 1.0+) |
| 1960 10 26 | 675 | 0.1+ | 0.3− | 2005 08 24 | 644 | 0.1+ | 0.1− | 2005 09 24 | 703 | 0.1+ | 0.1− | 2002 11 06 | 644 | 0.2+ | 0.0 | 2003 01 04 | 704 | 0.2+ | 0.9+ | 2009 09 21 | 703 | 0.9− | 0.5− |
| 1999 12 12 | 704 | 1.6+ | 0.7+ | 2005 08 24 | 644 | 0.3+ | 0.1− | 2005 09 24 | 699 | 0.3+ | 0.3− | 2002 11 23 | 644 | 0.2− | 0.2+ | 2003 01 04 | 704 | 0.6+ | 0.4+ | 2009 09 21 | 703 | 0.4− | 0.3+ |
| 1999 12 12 | 704 | 1.3+ | 0.2− | 2005 08 25 | 644 | 0.1− | 0.1+ | 2005 09 24 | 699 | 0.5+ | 0.5− | 2002 11 23 | 644 | 0.1− | 0.1− | 2003 01 04 | 704 | 0.0 | 0.5+ | 2009 09 21 | 703 | (0.8+ | 1.6−) |
| 1999 12 12 | 704 | 0.9− | 0.1− | 2005 08 25 | 644 | 0.3− | 0.3− | 2005 09 24 | 699 | 1.0− | 0.2+ | 2002 11 23 | 644 | 0.1− | 0.2+ | 2003 01 04 | 704 | 0.5− | 0.7+ | 2009 11 24 | 683 | 0.3− | 0.3− |
| 1999 12 12 | 704 | 1.4− | 1.3− | 2005 08 25 | 644 | 0.0 | 0.1− | 2005 09 28 | 644 | 0.2+ | 0.3+ | 2002 11 30 | 704 | 0.2+ | 0.4+ | 2003 01 04 | 704 | 0.9+ | 0.2+ | 2009 11 24 | 683 | 0.5− | 0.0 |
| 2002 11 06 | 704 | 0.9− | 0.2− | 2005 08 26 | 699 | 1.5− | 0.5− | 2005 09 28 | 644 | 0.0 | 0.1+ | 2002 11 30 | 704 | 0.6+ | 1.0+ | 2003 01 08 | 704 | 1.3+ | 0.1− | 2009 11 24 | 683 | 0.8+ | 0.6+ |
| 2002 11 06 | 704 | 1.2− | 0.5+ | 2005 08 26 | 699 | 0.4− | 1.3+ | 2005 09 28 | 644 | 0.1+ | 0.2+ | 2002 11 30 | 704 | 0.2+ | 0.4− | 2003 01 08 | 704 | 0.4+ | 1.3− | 2009 11 24 | D29 | 0.1+ | 0.4+ |
| 2002 11 06 | 704 | 0.8− | 0.6+ | 2005 08 26 | 699 | (2.0− | 0.6+) | 2005 09 29 | 691 | 0.1+ | 0.1− | 2002 11 30 | 704 | 0.1+ | 0.8+ | 2003 01 08 | 704 | 1.3+ | 1.1− | 2009 11 24 | D29 | 0.2− | 0.2+ |
| 2002 11 06 | 704 | 0.2− | 0.1− | 2005 08 26 | 699 | 0.1− | 0.3+ | 2005 09 29 | 691 | 0.0 | 0.3+ | 2002 12 01 | 704 | 0.1+ | 0.2+ | 2003 01 08 | 704 | 0.4+ | 0.6− | 2009 11 24 | D29 | 0.2− | 0.3+ |
| 2002 11 06 | 704 | 0.1− | 0.1+ | 2005 08 26 | 699 | 0.1+ | 0.5− | 2005 09 29 | 691 | 0.0 | 0.4+ | 2002 12 01 | 704 | 0.3+ | 0.0 | 2003 02 01 | 704 | 0.2+ | 0.2− | 2009 11 24 | D29 | 0.2− | 0.2+ |
| 2002 11 14 | 704 | 0.1+ | 0.3− | 2005 08 26 | 699 | 0.4− | 1.3+ | 2005 09 30 | 703 | (0.6− | 2.0−) | 2002 12 01 | 704 | 0.4+ | 0.1+ | 2003 02 01 | 704 | 0.2− | 0.3+ | 2009 12 08 | J75 | 0.1+ | 0.4+ |
| 2002 11 14 | 704 | 0.1+ | 1.3+ | 2005 08 26 | 699 | 0.5− | 0.2− | 2005 09 30 | 703 | 0.1− | 0.8− | 2002 12 01 | 704 | 0.0 | 0.1+ | 2003 02 01 | 704 | 0.4+ | 0.4+ | 2009 12 08 | J75 | 0.0 | 0.2− |
| 2002 11 14 | 704 | 0.1− | 0.2− | 2005 08 26 | 699 | 1.2− | 0.9+ | 2005 09 30 | 703 | 0.0 | 0.6− | 2002 12 01 | 704 | 0.4− | 0.3+ | 2003 02 01 | 704 | 0.2− | 1.0+ | 2009 12 08 | J75 | 0.4+ | 0.8− |
| 2002 11 14 | 704 | 0.2− | 0.2+ | 2005 08 29 | 699 | 1.1− | 0.5+ | 2005 09 30 | 703 | 1.1− | 0.6− | 2002 12 06 | 704 | 0.8− | 0.0 | 2003 02 01 | 704 | 0.2+ | 0.3+ | 2009 12 17 | 704 | 0.7+ | 0.1+ |
| 2002 11 14 | 704 | 0.0 | 0.1+ | 2005 08 29 | 699 | 0.4− | 0.3+ | 2005 10 01 | 699 | 0.0 | 0.4+ | 2002 12 06 | 704 | 1.0− | 0.4− | 2007 02 21 | 703 | 0.5− | 0.9+ | 2009 12 17 | 704 | 0.7+ | 0.1− |
| 2002 11 24 | 644 | 0.1+ | 0.4+ | 2005 08 29 | 699 | 1.4− | 0.6+ | 2005 10 01 | 699 | 0.5− | 0.3+ | 2002 12 06 | 704 | 0.7− | 0.6− | 2007 02 21 | 703 | 0.7+ | 0.8− | 2009 12 17 | 704 | 0.1− | 0.2− |
| 2002 11 24 | 644 | 0.2+ | 0.4+ | 2005 08 29 | 699 | 0.3− | 0.8− | 2005 10 01 | 699 | 1.1+ | 0.5+ | 2002 12 06 | 704 | 0.8− | 0.2− | 2007 02 21 | 703 | 0.8− | 0.8− | 2009 12 17 | 704 | 0.7+ | 0.1+ |
| 2002 11 24 | 644 | 0.2+ | 0.4+ | 2005 08 30 | 704 | 0.6− | 0.7+ | 2005 10 01 | 699 | 0.1− | 0.8+ | 2002 12 06 | 704 | 0.9− | 0.3− | 2007 02 21 | 703 | 0.9− | 0.1− | 2009 12 21 | 704 | 0.0 | 0.6− |
| 2002 11 27 | 699 | 0.4+ | 0.1+ | 2005 08 30 | 704 | 0.8+ | 0.4+ | 2005 10 07 | 704 | 0.4+ | 0.0 | 2002 12 09 | 644 | 0.0 | 0.9+ | 2007 03 17 | 703 | 0.0 | 0.7− | 2009 12 21 | 704 | 0.1− | 0.5− |
| 2002 11 27 | 699 | 0.4+ | 0.0 | 2005 08 30 | 704 | 0.1+ | 0.2− | 2005 10 07 | 704 | 0.3− | 0.7+ | 2002 12 09 | 644 | 0.1+ | 0.2+ | 2007 03 17 | 703 | 1.0− | 0.3− | 2009 12 21 | 704 | 0.4− | 0.2+ |
| 2002 11 27 | 699 | 0.2+ | 0.2+ | 2005 08 30 | 704 | 0.2− | 0.0 | 2005 10 07 | 704 | 0.0 | 0.3+ | 2002 12 09 | 644 | 0.4− | 0.4+ | 2007 03 17 | 703 | 1.0− | 0.1− | 2009 12 21 | 704 | 0.1− | 0.1+ |
| 2002 11 27 | 699 | 0.1− | 0.1− | 2005 08 31 | 691 | 0.1+ | 0.3+ | 2005 10 07 | 704 | (0.8+ | 1.6−) | 2002 12 13 | 608 | 0.1− | 0.8− | 2007 03 17 | 703 | 0.4+ | 0.9− | | | | |
| 2002 12 02 | 704 | 0.2+ | 0.0 | 2005 08 31 | 691 | 0.0 | 0.3+ | 2005 10 07 | 704 | 0.6+ | 0.8− | | | | | | | | | | | | |
| 2002 12 02 | 704 | 0.4+ | 0.4− | 2005 08 31 | 691 | 0.0 | 0.2+ | 2005 10 26 | 644 | 0.0 | 0.0 | | | | | | | | | | | | |
| 2002 12 02 | 704 | 0.1− | 0.2+ | 2005 09 06 | 699 | 0.4− | 0.2− | 2005 10 26 | 644 | 0.0 | 0.1− | | | | | | | | | | | | |
| 2002 12 02 | 704 | 0.4+ | 0.3− | 2005 09 06 | 699 | 0.1+ | 0.1− | 2005 10 26 | 644 | 0.3+ | 0.1− | | | | | | | | | | | | |
| 2002 12 02 | 704 | 0.4− | 0.1− | 2005 09 06 | 699 | 0.0 | 0.0 | 2007 03 12 | 691 | 0.2+ | 0.3+ | | | | | | | | | | | | |
| 2002 12 05 | 704 | 0.0 | 0.4+ | 2005 09 06 | 699 | 0.1+ | 0.5+ | 2007 03 12 | 691 | 0.0 | 0.3+ | | | | | | | | | | | | |
| 2002 12 05 | 704 | 0.3− | 0.4− | 2005 09 06 | 704 | (2.6− | 2.1+) | 2007 03 12 | 691 | 0.6+ | 0.8+ | | | | | | | | | | | | |
| 2002 12 05 | 704 | 1.2− | 0.0 | 2005 09 06 | 704 | 0.6− | 0.8+ | 2008 10 25 | G96 | 0.4+ | 0.5+ | | | | | | | | | | | | |
| 2002 12 05 | 704 | 0.2− | 0.4+ | 2005 09 06 | 704 | (0.5+ | 3.6−) | 2008 10 25 | G96 | 0.2+ | 0.3+ | | | | | | | | | | | | |
| 2002 12 05 | 704 | 0.5− | 0.0 | 2005 09 13 | 691 | 0.2+ | 0.3− | 2008 10 25 | G96 | 0.5+ | 0.1+ | | | | | | | | | | | | |
| 2002 12 11 | 644 | 0.2+ | 0.0 | 2005 09 13 | 691 | 0.2+ | 0.2− | 2008 10 25 | G96 | 0.3+ | 0.2− | | | | | | | | | | | | |
| 2002 12 11 | 644 | 0.4+ | 0.3− | 2005 09 13 | 691 | 0.1+ | 0.2− | 2009 11 22 | G96 | 0.3+ | 0.5− | | | | | | | | | | | | |
| 2002 12 11 | 644 | 0.3+ | 0.1− | 2005 09 14 | 703 | 0.0 | 0.4− | 2009 11 22 | G96 | 0.2+ | 0.3+ | | | | | | | | | | | | |
| 2002 12 31 | 704 | 1.1+ | 0.0 | 2005 09 14 | 703 | 0.1+ | 0.1+ | 2009 11 22 | G96 | 0.2− | 0.3+ | | | | | | | | | | | | |
| 2002 12 31 | 704 | 0.6+ | 1.1+ | 2005 09 14 | 703 | 0.2+ | 1.0− | 2009 11 22 | G96 | 0.3− | 0.3− | | | | | | | | | | | | |
| 2002 12 31 | 704 | 0.4+ | 0.5+ | 2005 09 14 | 703 | 0.7+ | 0.6− | 2009 12 19 | G96 | 0.5− | 0.1− | | | | | | | | | | | | |
| 2005 07 30 | 644 | 0.0 | 0.2+ | 2005 09 24 | 703 | 0.0 | 0.5− | 2009 12 19 | G96 | 0.2− | 0.3+ | | | | | | | | | | | | |
| 2005 07 30 | 644 | 0.2− | 0.2+ | 2005 09 24 | 703 | 0.2− | 0.6− | 2009 12 19 | G96 | 0.6− | 0.2− | | | | | | | | | | | | |
| 2005 07 30 | 644 | 0.1− | 0.2− | 2005 09 24 | 699 | 1.0+ | 0.4− | 2009 12 19 | G96 | 0.3− | 0.4+ | | | | | | | | | | | | |

**(228768)∗ 2002 WQ$_{17}$**

Discovered 2002 Nov. 30 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 345.58935 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28358423 | $\omega$ | 26.80890 | | −0.26534701 | −0.86012155 | |
| $a$ | 2.2944644 | $\Omega$ | 81.30918 | | +0.78652859 | −0.45443704 | |
| $e$ | 0.2277200 | $i$ | 26.14853 | | +0.55764123 | +0.23168489 | |
| $P$ | 3.48 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 03 27 | 704 | 1.6+ | 0.5+ | 2002 12 13 | 608 | 0.1+ | 0.6− | 2007 04 11 | 704 | 0.9− | 0.3− | 2000 04 12 | 699 | 0.2− | 1.3+ | 2002 12 14 | 704 | 0.2+ | 0.1− | 2007 04 11 | 704 | 1.1+ | 0.2+ |
| 2000 03 27 | 704 | 0.6+ | 0.9+ | 2002 12 13 | 608 | 0.0 | 0.9− | 2007 04 11 | 704 | 1.0+ | 0.3+ | 2000 04 12 | 699 | 0.3− | 0.3+ | 2002 12 14 | 704 | 0.2+ | 0.2− | 2007 04 25 | 703 | 1.2− | 0.0 |
| 2000 03 27 | 704 | 1.4+ | 0.1− | 2002 12 14 | 704 | 0.1+ | 0.2− | 2007 04 11 | 704 | 0.6+ | 0.5+ | 2000 04 12 | 699 | 0.9+ | 0.6+ | 2002 12 15 | 704 | 0.0 | 0.1− | 2007 04 25 | 703 | 0.3+ | 0.7− |
| 2000 03 27 | 704 | 0.5+ | 0.9+ | 2002 12 14 | 704 | 0.7− | 0.1+ | 2007 04 11 | 704 | 0.1+ | 0.1+ | 2000 04 12 | 699 | 0.5− | 0.1+ | 2002 12 15 | 704 | 0.4+ | 1.4+ | 2007 04 25 | 703 | 1.4− | 0.8− |
| | | | | | | | | | | | | 2002 10 30 | 704 | 1.1− | 0.1+ | 2002 12 15 | 704 | 0.2− | 0.7+ | 2007 04 25 | 703 | 0.4− | 0.0 |
| | | | | | | | | | | | | 2002 10 30 | 704 | 0.2− | 1.0− | 2002 12 15 | 704 | 0.6+ | 0.3+ | 2007 05 10 | 703 | 1.0+ | 0.1− |
| | | | | | | | | | | | | 2002 10 30 | 704 | 0.6− | 0.1+ | 2003 01 01 | 704 | 0.2+ | 0.4− | 2007 05 10 | 703 | 0.1+ | 0.6− |
| | | | | | | | | | | | | 2002 10 30 | 704 | 0.1+ | 0.1− | 2003 01 01 | 704 | 0.4− | 0.0 | 2007 05 10 | 703 | 0.4− | 0.2+ |
| | | | | | | | | | | | | 2002 11 06 | 644 | 0.3− | 0.2+ | 2003 01 01 | 704 | 0.2− | 0.8− | 2007 05 10 | 703 | 0.3− | 1.3+ |

**(228769)∗ 2002 WP$_{21}$ = 2007 BA$_{44}$**

Discovered 2002 Nov. 24 by NEAT at Palomar.

Id. G. V. Williams (*MPO* 113987)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 317.54200 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27028003 | $\omega$ | 306.84331 | | −0.18799083 | −0.98196903 | |
| $a$ | 2.3691547 | $\Omega$ | 153.97115 | | +0.91494906 | −0.18245772 | |
| $e$ | 0.1594753 | $i$ | 2.60005 | | +0.35711015 | −0.04945717 | |
| $P$ | 3.65 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 04 05 | 704 | 0.4+ | 0.0 | 2007 02 07 | G96 | 0.1+ | 0.0 | 2007 02 23 | 704 | (0.8+ | 1.8+) | 2002 11 24 | 644 | 0.1− | 0.0 | 2007 02 07 | G96 | 0.5+ | 0.3+ | 2007 03 09 | G96 | 0.1+ | 0.0 |
| 2000 04 05 | 704 | 0.4+ | 0.7+ | 2007 02 07 | G96 | 0.1+ | 0.1− | 2007 02 23 | 704 | (1.6+ | 0.6+) | 2002 11 24 | 644 | 0.1+ | 0.2− | 2007 02 13 | 704 | 0.2+ | 0.7+ | 2007 03 09 | G96 | 0.1+ | 0.2+ |
| 2000 04 05 | 704 | 0.2− | 1.0+ | 2007 02 07 | G96 | 0.1− | 0.1− | 2007 02 23 | 704 | 1.1+ | 0.1− | 2002 11 24 | 644 | 0.1+ | 0.3+ | 2007 02 13 | 704 | 1.2+ | 0.3+ | 2007 03 09 | G96 | 0.0 | 0.0 |
| 2002 11 24 | 644 | 0.1− | 0.0 | 2007 02 07 | G96 | 0.5+ | 0.3+ | 2007 03 09 | G96 | 0.1+ | 0.0 | 2002 12 03 | 644 | 0.2− | 0.0 | 2007 02 13 | 704 | 1.0+ | 0.1− | 2007 03 09 | G96 | 0.4+ | 0.1− |
| 2002 11 24 | 644 | 0.1+ | 0.2− | 2007 02 13 | 704 | 0.2+ | 0.7+ | 2007 03 09 | G96 | 0.1+ | 0.2+ | 2002 12 03 | 644 | 0.2− | 0.0 | 2007 02 13 | 704 | 1.1+ | 0.7+ | 2007 03 11 | 691 | 0.1− | 0.1+ |
| 2002 11 24 | 644 | 0.1+ | 0.3+ | 2007 02 13 | 704 | 1.2+ | 0.3+ | 2007 03 09 | G96 | 0.0 | 0.0 | 2002 12 03 | 644 | 0.2− | 0.1+ | 2007 02 13 | 704 | (1.5+ | 0.9+) | 2007 03 11 | 691 | 0.1+ | 0.1− |
| 2002 12 03 | 644 | 0.2− | 0.0 | 2007 02 13 | 704 | 1.0+ | 0.1− | 2007 03 09 | G96 | 0.4+ | 0.1− | 2002 12 10 | 644 | 0.0 | 0.7+ | 2007 02 15 | 683 | 0.0 | 0.3+ | 2007 03 11 | 691 | 0.3− | 0.0 |
| 2002 12 03 | 644 | 0.2− | 0.0 | 2007 02 13 | 704 | 1.1+ | 0.7+ | 2007 03 11 | 691 | 0.1− | 0.1+ | 2002 12 10 | 644 | 0.1+ | 0.9+ | 2007 02 15 | 683 | 0.4− | 1.2+ | 2007 04 22 | G96 | 0.2+ | 0.4− |
| 2002 12 03 | 644 | 0.2− | 0.1+ | 2007 02 13 | 704 | (1.5+ | 0.9+) | 2007 03 11 | 691 | 0.1+ | 0.1− | 2006 11 21 | G96 | 1.0+ | 0.3− | 2007 02 15 | 683 | 1.0− | 0.3+ | 2007 04 22 | G96 | 0.8+ | 0.4− |
| 2002 12 10 | 644 | 0.0 | 0.7+ | 2007 02 15 | 683 | 0.0 | 0.3+ | 2007 03 11 | 691 | 0.3− | 0.0 | 2006 11 21 | G96 | 0.3+ | 0.3− | 2007 02 15 | 644 | 0.0 | 0.0 | 2007 04 22 | G96 | 0.2+ | 0.3− |
| 2002 12 10 | 644 | 0.1+ | 0.9+ | 2007 02 15 | 683 | 0.4− | 1.2+ | 2007 04 22 | G96 | 0.2+ | 0.4− | 2006 11 21 | G96 | 0.1+ | 0.3− | 2007 02 15 | 644 | 0.6+ | 0.2+ | 2007 04 22 | G96 | 0.9− | 0.0 |
| 2006 11 21 | G96 | 1.0+ | 0.3− | 2007 02 15 | 683 | 1.0− | 0.3+ | 2007 04 22 | G96 | 0.8+ | 0.4− | 2006 11 21 | G96 | 0.1− | 0.4− | 2007 02 15 | 644 | 0.1+ | 0.2+ | 2009 09 16 | 691 | 0.1+ | 0.0 |
| 2006 11 21 | G96 | 0.3+ | 0.3− | 2007 02 15 | 644 | 0.0 | 0.0 | 2007 04 22 | G96 | 0.2+ | 0.3− | 2006 12 24 | G96 | 0.0 | 0.1− | 2007 02 16 | 683 | (1.7+ | 0.3+) | 2009 09 16 | 691 | 0.3+ | 0.1− |
| 2006 11 21 | G96 | 0.1+ | 0.3− | 2007 02 15 | 644 | 0.6+ | 0.2+ | 2007 04 22 | G96 | 0.9− | 0.0 | 2006 12 24 | G96 | 0.4− | 0.5− | 2007 02 16 | 683 | (1.1− | 1.7+) | 2009 09 16 | 691 | 0.2+ | 0.1+ |
| 2006 11 21 | G96 | 0.1− | 0.4− | 2007 02 15 | 644 | 0.1+ | 0.2+ | 2009 09 16 | 691 | 0.1+ | 0.0 | 2006 12 24 | G96 | 0.0 | 0.6− | 2007 02 16 | 683 | 0.2− | 1.0− | 2009 09 20 | 691 | 0.0 | 0.0 |
| 2006 12 24 | G96 | 0.0 | 0.1− | 2007 02 16 | 683 | (1.7+ | 0.3+) | 2009 09 16 | 691 | 0.3+ | 0.1− | 2006 12 24 | G96 | 0.0 | 0.2− | 2007 02 17 | 683 | 0.6− | 1.4− | 2009 09 20 | 691 | 0.3− | 0.1+ |
| 2006 12 24 | G96 | 0.4− | 0.5− | 2007 02 16 | 683 | (1.1− | 1.7+) | 2009 09 16 | 691 | 0.2+ | 0.1+ | 2007 01 10 | 291 | 0.5− | 0.0 | 2007 02 17 | 683 | (0.5+ | 2.7−) | 2009 09 20 | 691 | 0.0 | 0.1− |
| 2006 12 24 | G96 | 0.0 | 0.6− | 2007 02 16 | 683 | 0.2− | 1.0− | 2009 09 20 | 691 | 0.0 | 0.0 | 2007 01 10 | 291 | 0.5− | 0.3+ | 2007 02 17 | 683 | 1.0− | 0.8− | 2009 09 24 | 691 | 0.3+ | 0.0 |
| 2006 12 24 | G96 | 0.0 | 0.2− | 2007 02 17 | 683 | 0.6− | 1.4− | 2009 09 20 | 691 | 0.3− | 0.1+ | 2007 01 10 | 291 | 0.4− | 0.0 | 2007 02 17 | 644 | 0.3+ | 0.5+ | 2009 09 24 | 691 | 0.3− | 0.1+ |
| 2007 01 10 | 291 | 0.5− | 0.0 | 2007 02 17 | 683 | (0.5+ | 2.7−) | 2009 09 20 | 691 | 0.0 | 0.1− | 2007 01 24 | 703 | 0.5− | 0.1+ | 2007 02 17 | 644 | 0.3+ | 0.3+ | 2009 09 24 | 691 | 0.3− | 0.1+ |
| 2007 01 10 | 291 | 0.5− | 0.3+ | 2007 02 17 | 683 | 1.0− | 0.8− | 2009 09 24 | 691 | 0.3+ | 0.0 | | | | | | | | | | | | |
| 2007 01 10 | 291 | 0.4− | 0.0 | 2007 02 17 | 644 | 0.3+ | 0.5+ | 2009 09 24 | 691 | 0.3− | 0.1+ | | | | | | | | | | | | |
| 2007 01 24 | 703 | 0.5− | 0.1+ | 2007 02 17 | 644 | 0.3+ | 0.3+ | 2009 09 24 | 691 | 0.3− | 0.1+ | | | | | | | | | | | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 01 24 | 703 | 0.7+ | 0.4− | 2007 02 17 | 644 | 0.0 | 0.3+ | 2009 09 28 | 691 | 0.1− | 0.0 |
| 2007 01 24 | 703 | 0.3− | 0.4+ | 2007 02 23 | G96 | 0.2+ | 0.1− | 2009 09 28 | 691 | 0.1− | 0.0 |
| 2007 01 24 | 703 | 0.0 | 1.1− | 2007 02 23 | G96 | 0.1− | 0.2− | 2009 09 28 | 691 | 0.1− | 0.1+ |
| 2007 01 27 | G96 | 0.2− | 0.4− | 2007 02 23 | G96 | 0.1+ | 0.0 | 2009 12 13 | G96 | 0.4+ | 0.5− |
| 2007 01 27 | G96 | 0.2+ | 0.1− | 2007 02 23 | G96 | 0.4+ | 0.0 | 2009 12 13 | G96 | 0.3− | 0.2− |
| 2007 01 27 | G96 | 0.1− | 0.1− | 2007 02 23 | 704 | 0.6+ | 0.9+ | 2009 12 13 | G96 | 0.6+ | 0.2+ |
| 2007 01 27 | G96 | 0.2− | 0.3− | 2007 02 23 | 704 | 0.8+ | 0.2− | 2009 12 13 | G96 | 0.4+ | 0.1− |

**(228770)∗ 2002 $WR_{25}$**

Discovered 2002 Nov. 16 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 319.91871 | | (2000.0) | | | |
| $n$ | 0.28532622 | $\omega$ | 274.69827 | | −0.62157887 | −0.77975271 |
| $a$ | 2.2851161 | $\Omega$ | 214.10155 | | +0.76125880 | −0.57869476 |
| $e$ | 0.0676308 | $i$ | 7.68782 | | +0.18472886 | −0.23895206 |
| $P$ | 3.45 | $H$ | 16.9 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 04 29 | 691 | 0.2− | 0.2− | 2003 01 18 | 644 | 0.6− | 1.3+ | 2007 02 10 | 703 | 0.7+ | 0.1+ |
| 1997 04 29 | 691 | 0.4− | 0.4− | 2003 01 27 | 644 | 0.8− | 0.1− | 2009 09 22 | G96 | 1.0− | 0.1+ |
| 1997 04 29 | 691 | 0.0 | 0.0 | 2003 01 27 | 644 | 0.5− | 0.8+ | 2009 09 22 | G96 | 0.2+ | 0.0 |
| 2002 11 16 | 644 | 0.8+ | 0.2− | 2003 01 27 | 644 | 0.9− | 0.8+ | 2009 09 22 | G96 | 0.5− | 0.1− |
| 2002 11 16 | 644 | 0.1− | 0.3+ | 2004 04 25 | 691 | 0.1+ | 0.2+ | 2009 09 22 | G96 | 0.3+ | 0.2+ |
| 2002 11 23 | 644 | 0.5+ | 0.2+ | 2004 04 25 | 691 | 0.2− | 0.3+ | 2009 09 30 | G96 | 0.1+ | 0.2+ |
| 2002 11 23 | 644 | 0.1+ | 0.1− | 2004 04 25 | 691 | 0.0 | 0.4+ | 2009 09 30 | G96 | 0.4− | 0.0 |
| 2002 11 23 | 644 | 0.4+ | 0.1+ | 2004 05 18 | 599 | 0.8+ | 0.5+ | 2009 09 30 | G96 | 0.0 | 0.1− |
| 2002 11 23 | 644 | 0.1+ | 0.2+ | 2004 05 18 | 599 | 0.0 | 0.4+ | 2009 11 27 | G96 | 0.1− | 0.0 |
| 2002 11 23 | 644 | 0.4+ | 0.4+ | 2004 05 18 | 599 | 0.3+ | 0.4+ | 2009 11 27 | G96 | 0.0 | 0.1+ |
| 2002 11 23 | 644 | 0.4+ | 0.3+ | 2004 05 19 | 691 | 0.1+ | 0.3+ | 2009 11 27 | G96 | 0.0 | 0.1− |
| 2002 11 23 | 644 | 0.3+ | 0.0 | 2004 05 19 | 691 | 0.2+ | 0.3+ | 2009 11 27 | G96 | 0.2− | 0.0 |
| 2002 11 23 | 644 | 0.3+ | 0.2+ | 2004 05 19 | 691 | 0.3+ | 0.2+ | 2009 11 27 | G96 | 0.1− | 0.0 |
| 2002 11 23 | 644 | 0.4+ | 0.2+ | 2005 08 29 | 644 | 0.0 | 0.3+ | 2009 12 11 | 703 | 1.1− | 0.1+ |
| 2002 12 10 | 644 | 0.4+ | 0.3− | 2005 08 29 | 644 | 0.3− | 0.3+ | 2009 12 11 | 703 | 0.7+ | 1.0+ |
| 2002 12 10 | 644 | 0.1− | 0.6+ | 2005 08 29 | 644 | 0.5− | 0.4+ | 2009 12 11 | 703 | 0.5− | 0.3+ |
| 2002 12 10 | 644 | 0.2− | 0.4− | 2007 02 10 | 703 | 0.1− | 0.4− | 2009 12 11 | 703 | 0.2− | 0.3− |
| 2003 01 18 | 644 | 0.1+ | 0.7+ | 2007 02 10 | 703 | 0.4− | 0.4− | | | | |
| 2003 01 18 | 644 | 0.2+ | 0.5+ | 2007 02 10 | 703 | 0.5+ | 0.5− | | | | |

**(228771)∗ 2002 $XU_{18}$**

Discovered 2002 Dec. 5 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 36.82602 | | (2000.0) | | | |
| $n$ | 0.28650358 | $\omega$ | 109.60161 | | +0.51067278 | −0.84952308 |
| $a$ | 2.2788514 | $\Omega$ | 308.97432 | | +0.71117084 | +0.50389572 |
| $e$ | 0.0759822 | $i$ | 9.80389 | | +0.48316596 | +0.15620383 |
| $P$ | 3.44 | $H$ | 16.0 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 11 06 | 704 | 0.6− | 1.1− | 2003 02 01 | 704 | 0.4− | 0.3− | 2007 03 12 | 703 | 0.2− | 0.7+ |
| 2002 11 06 | 704 | 0.3+ | 0.3− | 2003 02 01 | 704 | 0.2+ | 0.5+ | 2007 03 12 | 703 | 0.7− | 0.8− |
| 2002 11 06 | 704 | 0.2+ | 0.7− | 2003 02 01 | 704 | 1.0− | 0.8+ | 2007 03 12 | 703 | 0.8− | 0.4− |
| 2002 11 06 | 704 | 0.9+ | 0.4− | 2005 08 31 | 704 | 0.5− | 0.0 | 2007 03 12 | 703 | (0.4− | 2.0−) |
| 2002 12 05 | 704 | 1.1+ | 0.2− | 2005 08 31 | 704 | 0.2+ | 0.0 | 2009 10 18 | 704 | 0.1− | 0.8+ |
| 2002 12 05 | 704 | 0.7+ | 0.0 | 2005 08 31 | 704 | 0.2+ | 0.1+ | 2009 10 18 | 704 | 0.4+ | 0.1+ |
| 2002 12 05 | 704 | 0.5+ | 0.0 | 2005 08 31 | 704 | 0.2+ | 0.7− | 2009 10 18 | 704 | 1.2+ | 0.0 |
| 2002 12 05 | 704 | 0.7+ | 0.1− | 2005 08 31 | 704 | 0.1− | 0.3+ | 2009 12 15 | 704 | 0.4− | 0.3− |
| 2002 12 06 | 704 | 0.7− | 0.1+ | 2005 09 26 | 683 | 0.7+ | 0.0 | 2009 12 15 | 704 | 0.1+ | 0.9− |
| 2002 12 06 | 704 | 0.7− | 0.7+ | 2005 09 26 | 683 | 1.4+ | 0.3+ | 2009 12 15 | 704 | 0.3− | 0.1− |
| 2002 12 06 | 704 | 0.2− | 1.0+ | 2005 09 26 | 683 | 0.3− | 0.7+ | 2009 12 15 | 704 | 0.4− | 0.3+ |
| 2002 12 06 | 704 | 0.3+ | 0.2+ | 2005 09 26 | 703 | 0.2− | 0.3− | 2009 12 15 | 704 | 0.3− | 0.0 |
| 2002 12 15 | 704 | 0.2+ | 0.1+ | 2005 09 26 | 703 | 0.5− | 1.0− | 2009 12 20 | G96 | 0.1+ | 0.6− |
| 2002 12 15 | 704 | 1.1− | 0.6+ | 2005 09 26 | 703 | 0.2− | 0.3− | 2009 12 20 | G96 | 0.3− | 0.6− |
| 2002 12 15 | 704 | 0.1− | 0.8+ | 2005 09 26 | 703 | 0.4− | 0.6− | 2009 12 20 | G96 | 0.8− | 0.7− |
| 2002 12 15 | 704 | 0.0 | 0.0 | 2007 03 08 | 644 | 0.4+ | 0.4− | 2009 12 20 | G96 | 0.6+ | 0.6− |
| 2002 12 15 | 704 | 1.1− | 0.8+ | 2007 03 08 | 644 | 0.4+ | 0.2+ | | | | |
| 2003 02 01 | 704 | 0.5+ | 0.4+ | 2007 03 08 | 644 | 0.4+ | 0.3− | | | | |

**(228772)∗ 2002 $XL_{20}$ = 2005 $SL_{253}$**

Discovered 2002 Dec. 2 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 89381)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 115.12805 | | (2000.0) | | | |
| $n$ | 0.28942958 | $\omega$ | 52.77454 | | +0.77748130 | +0.61988770 |
| $a$ | 2.2634667 | $\Omega$ | 268.66759 | | −0.60539685 | +0.69198067 |
| $e$ | 0.1369170 | $i$ | 6.09352 | | −0.17034520 | +0.37000268 |
| $P$ | 3.41 | $H$ | 16.3 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 06 26 | 704 | 0.7+ | 1.7− | 2005 09 09 | 704 | 1.2+ | 0.9+ | 2006 12 21 | G96 | 0.6− | 0.1+ |
| 1998 06 26 | 704 | 0.1+ | 0.7+ | 2005 09 23 | 644 | 0.4− | 0.0 | 2006 12 21 | G96 | 0.4− | 0.3+ |
| 1998 06 26 | 704 | 0.3− | 1.4− | 2005 09 23 | 644 | 0.2− | 0.1+ | 2006 12 21 | G96 | 0.4− | 0.1+ |
| 1998 06 26 | 704 | 1.3+ | 1.4− | 2005 09 23 | 644 | 0.0 | 0.2+ | 2006 12 21 | G96 | 0.0 | 0.4+ |
| 2002 12 02 | 704 | 0.8− | 0.4+ | 2005 09 24 | 699 | 0.6+ | 0.1− | 2007 02 10 | G96 | 0.1− | 0.0 |
| 2002 12 02 | 704 | 0.6+ | 0.1+ | 2005 09 24 | 699 | 0.5+ | 0.3− | 2007 02 10 | G96 | 0.3− | 0.0 |
| 2002 12 02 | 704 | 0.8− | 1.2− | 2005 09 24 | 699 | 0.9− | 0.1+ | 2007 02 10 | G96 | 0.0 | 0.2+ |
| 2002 12 02 | 704 | 0.9− | 0.2− | 2005 09 24 | 699 | 0.7− | 0.1+ | 2009 08 28 | 691 | 0.4− | 0.0 |
| 2002 12 06 | 704 | 0.1+ | 0.0 | 2005 10 01 | 699 | 0.9+ | 0.1− | 2009 08 28 | 691 | 0.5− | 0.1+ |
| 2002 12 06 | 704 | 0.8− | 1.1− | 2005 10 01 | 699 | 1.3− | 0.6− | 2009 08 28 | 691 | 0.4− | 0.4+ |
| 2002 12 06 | 704 | 0.2− | 0.1− | 2005 10 01 | 699 | 1.3− | 0.0 | 2009 12 10 | G96 | 0.3− | 0.3− |
| 2002 12 06 | 704 | 1.2+ | 1.3− | 2005 10 01 | 699 | 1.1+ | 0.0 | 2009 12 10 | G96 | 0.6− | 0.1+ |
| 2002 12 11 | 644 | 0.1+ | 0.8+ | 2006 11 22 | G96 | 0.2+ | 0.3− | 2009 12 10 | G96 | 0.1+ | 0.0 |
| 2002 12 11 | 644 | 0.4− | 0.6+ | 2006 11 22 | G96 | 0.2− | 0.4− | 2009 12 10 | G96 | 0.2+ | 0.4− |
| 2002 12 11 | 644 | 0.4+ | 0.3+ | 2006 11 22 | G96 | 0.6− | 0.1+ | 2009 12 16 | 704 | 1.7+ | 0.7+ |
| 2002 12 31 | 704 | 0.5+ | 0.6− | 2006 11 22 | G96 | 0.4− | 0.1+ | 2009 12 16 | 704 | 1.2+ | 1.5− |
| 2002 12 31 | 704 | (1.6+ | 0.7+) | 2006 12 21 | G96 | 0.4+ | 0.2− | 2009 12 16 | 704 | 1.0+ | 0.7− |
| 2002 12 31 | 704 | 1.2+ | 0.4+ | 2006 12 21 | G96 | 0.3+ | 0.2− | 2009 12 16 | 704 | 0.7+ | 0.5− |
| 2005 09 09 | 704 | 0.4− | 0.5+ | 2006 12 21 | G96 | 0.0 | 0.5+ | | | | |
| 2005 09 09 | 704 | 0.3− | 0.8+ | 2006 12 21 | G96 | 0.3+ | 0.1− | | | | |

**(228773)∗ 2002 $XT_{23}$ = 2004 $GH_{63}$**

Discovered 2002 Dec. 5 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. A. Doppler (*MPO* 100404)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 43.52747 | | (2000.0) | | | |
| $n$ | 0.28220361 | $\omega$ | 0.21036 | | +0.89986628 | −0.43322257 |
| $a$ | 2.3019418 | $\Omega$ | 25.65058 | | +0.40000351 | +0.77345194 |
| $e$ | 0.1624356 | $i$ | 6.71076 | | +0.17389037 | +0.46269893 |
| $P$ | 3.49 | $H$ | 16.7 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 11 12 | 704 | 0.6− | 0.9+ | 2004 04 20 | 691 | 0.0 | 0.4+ | 2009 11 21 | 703 | 0.0 | 0.7− |
| 2002 11 12 | 704 | 0.1+ | 0.7+ | 2004 04 20 | 691 | 0.5+ | 0.4+ | 2009 11 21 | 703 | 0.9− | 0.5− |
| 2002 11 12 | 704 | 0.3+ | 0.5+ | 2004 04 20 | 691 | 0.3+ | 0.3+ | 2009 11 21 | 703 | 0.3+ | 1.1− |
| 2002 12 05 | 704 | 0.9− | 0.1+ | 2005 07 26 | 644 | 0.4− | 1.2+ | 2009 11 21 | 703 | 0.6− | 0.4+ |
| 2002 12 05 | 704 | 0.1− | 0.4+ | 2005 07 26 | 644 | 0.2− | 1.0+ | 2009 11 23 | 704 | 0.4+ | 0.4− |
| 2002 12 05 | 704 | 0.0 | 0.3+ | 2005 07 26 | 644 | 0.5− | 0.7+ | 2009 11 23 | 704 | 0.5+ | 0.0 |
| 2002 12 05 | 704 | 0.2+ | 0.1+ | 2005 11 06 | G96 | 0.3− | 0.0 | 2009 11 23 | 704 | 0.8+ | 0.7+ |
| 2002 12 05 | 704 | 0.5− | 0.6+ | 2005 11 06 | G96 | 0.0 | 0.2+ | 2009 12 09 | 704 | 0.2+ | 0.3+ |
| 2002 12 06 | 704 | 0.1− | 0.2+ | 2005 11 06 | G96 | 0.0 | 0.4+ | 2009 12 09 | 704 | 0.1+ | 0.9− |
| 2002 12 06 | 704 | 0.2+ | 0.4− | 2005 11 06 | G96 | 0.2− | 0.6+ | 2009 12 09 | 704 | 0.1+ | 0.9− |
| 2002 12 06 | 704 | 0.4+ | 0.0 | 2009 11 16 | 704 | 0.4+ | 0.1+ | 2009 12 15 | 704 | 0.3− | 0.6+ |
| 2002 12 06 | 704 | 0.2− | 0.3+ | 2009 11 16 | 704 | 0.1− | 1.0+ | 2009 12 15 | 704 | 0.9− | 0.1+ |
| 2002 12 06 | 704 | 0.4+ | 0.3+ | 2009 11 16 | 704 | 0.1− | 0.3− | 2009 12 15 | 704 | 0.2− | 1.1+ |
| 2004 04 13 | 691 | 0.1+ | 0.1− | 2009 11 16 | 704 | 0.6+ | 0.3+ | 2009 12 15 | 704 | 0.1− | 0.7+ |
| 2004 04 13 | 691 | 0.2− | 0.1+ | 2009 11 16 | 704 | 0.5− | 0.1− | 2009 12 15 | 704 | 0.3+ | 0.1− |
| 2004 04 13 | 691 | 0.1− | 0.1+ | 2009 11 21 | 703 | 0.0 | 0.1+ | | | | |

**(228774)∗ 2002 XR$_{29}$**

Discovered 2002 Dec. 5 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 15.42024 | | $\omega$ | 301.04504 | +0.34294664 | −0.93622117 |
| $n$ | 0.28293270 | | $\Omega$ | 128.70107 | +0.89185371 | +0.29889360 |
| $a$ | 2.2979855 | | $i$ | 5.63759 | +0.29493145 | +0.18480406 |
| $e$ | 0.1937100 | | | | | |
| $P$ | 3.48 | | $H$ | 16.6 | $G$ 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 12 01 | 704 | 0.2+ | 0.2+ | 2003 01 07 | 704 | 1.4− | 0.0 | 2006 11 23 | G96 | 0.1+ | 0.3− |
| 2002 12 01 | 704 | 0.2− | 0.9+ | 2003 01 07 | 704 | 0.3− | 0.9+ | 2007 03 11 | 691 | 0.1− | 0.2+ |
| 2002 12 01 | 704 | 0.0 | 0.3− | 2003 01 27 | 704 | 1.2− | 0.6+ | 2007 03 11 | 691 | 0.3+ | 0.2+ |
| 2002 12 01 | 704 | 0.2+ | 0.3− | 2003 01 27 | 704 | 0.8− | 0.1− | 2007 03 11 | 691 | 0.3+ | 0.4+ |
| 2002 12 05 | 644 | 0.2+ | 0.6+ | 2003 01 27 | 704 | 1.2− | 0.2+ | 2009 11 20 | 704 | 0.3+ | 0.1− |
| 2002 12 05 | 644 | 0.5+ | 0.7+ | 2005 08 04 | 644 | 0.1+ | 0.6+ | 2009 11 20 | 704 | 0.1− | 0.6+ |
| 2002 12 05 | 644 | 0.3+ | 0.6+ | 2005 08 04 | 644 | 0.3− | 0.4+ | 2009 11 20 | 704 | 0.6− | 0.4− |
| 2002 12 08 | 608 | (0.1− | 1.7+) | 2005 08 04 | 644 | 0.0 | 0.4+ | 2009 11 20 | 704 | 0.1+ | 0.1− |
| 2002 12 08 | 608 | (0.1+ | 1.8+) | 2005 08 05 | 644 | 0.4+ | 0.4+ | 2009 11 20 | 704 | 0.3+ | 0.3+ |
| 2002 12 08 | 608 | 0.1+ | 1.5+ | 2005 08 05 | 644 | 0.1+ | 0.6+ | 2009 12 12 | 704 | 0.8+ | 0.5− |
| 2002 12 10 | 644 | 0.2+ | 0.1+ | 2005 08 05 | 644 | 0.3+ | 0.5+ | 2009 12 12 | 704 | 0.5+ | 0.4− |
| 2002 12 10 | 644 | 0.3+ | 0.1+ | 2005 08 28 | E12 | 1.0− | 0.4+ | 2009 12 12 | 704 | 0.2− | 0.5− |
| 2002 12 10 | 644 | 0.3+ | 0.2+ | 2005 08 28 | E12 | 0.5+ | 0.3+ | 2009 12 12 | 704 | 0.1+ | 0.5− |
| 2002 12 12 | 644 | 0.1− | 0.3+ | 2005 08 28 | E12 | 0.0 | 0.3− | 2009 12 18 | 704 | 0.5+ | 0.9− |
| 2002 12 12 | 644 | 0.2− | 0.3+ | 2005 08 28 | E12 | 0.7− | 0.4− | 2009 12 18 | 704 | 0.3+ | 0.4+ |
| 2002 12 12 | 644 | 0.1+ | 0.4+ | 2005 08 30 | 644 | 0.1− | 0.0 | 2009 12 18 | 704 | 0.3+ | 0.4+ |
| 2002 12 31 | 704 | 0.0 | 0.3− | 2005 08 30 | 644 | 0.3− | 0.0 | 2009 12 18 | 704 | 0.4+ | 0.1+ |
| 2002 12 31 | 704 | 1.2+ | 0.8− | 2005 08 30 | 644 | 0.2− | 0.0 | 2009 12 18 | 704 | 0.3+ | 0.2− |
| 2002 12 31 | 704 | 1.3+ | 1.2− | 2006 11 23 | G96 | 0.7− | 0.2− | 2009 12 21 | 704 | 0.9− | 0.6− |
| 2003 01 07 | 704 | 0.6− | 0.1− | 2006 11 23 | G96 | 0.0 | 0.2+ | 2009 12 21 | 704 | 1.1− | 0.7− |
| 2003 01 07 | 704 | 0.6− | 0.1− | 2006 11 23 | G96 | 0.5− | 0.5− | 2009 12 21 | 704 | 0.4− | 0.1− |

**(228775)∗ 2002 XK$_{35}$**

Discovered 2002 Dec. 8 by W. K. Y. Yeung at Desert Eagle Observatory.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 17.63007 | | $\omega$ | 143.70143 | +0.67711686 | −0.73103744 |
| $n$ | 0.27840103 | | $\Omega$ | 263.51469 | +0.65361461 | +0.65006639 |
| $a$ | 2.3228553 | | $i$ | 4.86374 | +0.33808387 | +0.20735947 |
| $e$ | 0.1576476 | | | | | |
| $P$ | 3.54 | | $H$ | 17.3 | $G$ 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 02 12 | 645 | 0.0 | 0.0 | 2005 08 06 | 644 | 0.1− | 0.5+ | 2009 11 08 | 703 | 0.4− | 0.9− |
| 2000 02 12 | 645 | 0.0 | 0.1+ | 2005 09 03 | 644 | 0.1− | 0.2+ | 2009 11 08 | 703 | (1.8− | 0.3−) |
| 2002 12 05 | 704 | 0.3− | 0.3+ | 2005 09 03 | 644 | 0.1− | 0.2+ | 2009 11 08 | 703 | 0.7− | 0.1− |
| 2002 12 05 | 704 | 0.2+ | 0.8+ | 2005 09 03 | 644 | 0.3+ | 0.2+ | 2009 11 08 | 703 | (1.0+ | 1.9+) |
| 2002 12 05 | 704 | 0.5+ | 0.6+ | 2007 02 17 | G96 | 0.1+ | 0.1− | 2009 11 11 | G96 | 0.2+ | 0.2− |
| 2002 12 05 | 704 | 0.4+ | 1.2+ | 2007 02 17 | G96 | 0.4− | 0.1− | 2009 11 11 | G96 | 0.6+ | 0.2− |
| 2002 12 05 | 704 | 0.3+ | 1.0+ | 2007 02 17 | G96 | 0.5− | 0.1+ | 2009 11 11 | G96 | 0.4+ | 0.2− |
| 2002 12 08 | 333 | 0.5− | 0.4− | 2007 02 17 | G96 | 0.5− | 0.4− | 2009 11 11 | G96 | 0.3+ | 0.1− |
| 2002 12 08 | 333 | 0.1+ | 0.1− | 2007 02 23 | 704 | (0.3+ | 2.3+) | 2009 11 17 | 704 | 0.2+ | 0.6− |
| 2002 12 09 | 333 | 0.2− | 0.2− | 2007 02 23 | 704 | 1.0+ | 1.1+ | 2009 11 17 | 704 | 0.8− | 0.2− |
| 2002 12 09 | 333 | 0.6− | 0.6− | 2007 02 23 | 704 | 0.9+ | 0.2− | 2009 11 17 | 704 | 0.0 | 0.7− |
| 2002 12 09 | 333 | 0.0 | 0.4− | 2009 10 22 | 703 | 0.8− | 0.7− | 2009 11 17 | 704 | 1.4+ | 1.0+ |
| 2002 12 10 | 704 | 0.3+ | 0.1− | 2009 10 22 | 703 | 0.4− | 0.3+ | 2009 11 18 | 691 | 0.0 | 0.3− |
| 2002 12 10 | 704 | 0.4+ | 0.2+ | 2009 10 22 | 703 | 0.9− | 0.3+ | 2009 11 18 | 691 | 0.5− | 0.4+ |
| 2002 12 10 | 704 | 0.2− | 0.3− | 2009 10 22 | 703 | 1.0− | 0.1− | 2009 11 18 | 691 | 0.0 | 0.3+ |
| 2002 12 10 | 704 | 0.0 | 0.3− | 2009 10 23 | 704 | 0.0 | 1.1− | 2009 11 20 | J75 | 0.1− | 0.0 |
| 2002 12 10 | 704 | 0.6− | 0.1− | 2009 10 23 | 704 | 0.6+ | 0.5+ | 2009 11 20 | J75 | 0.2+ | 0.1+ |
| 2002 12 11 | 704 | 0.1+ | 0.2+ | 2009 10 23 | 704 | 0.0 | 0.9+ | 2009 11 20 | J75 | 0.8+ | 0.4− |
| 2002 12 11 | 704 | 0.1− | 0.1+ | 2009 10 24 | 703 | 1.4+ | 0.9+ | 2009 11 24 | J75 | 0.3− | 0.1− |
| 2002 12 11 | 704 | 0.0 | 0.3− | 2009 10 24 | 703 | 0.9+ | 0.1− | 2009 11 24 | J75 | 0.1− | 0.1+ |
| 2002 12 11 | 704 | 0.7+ | 0.1+ | 2009 10 24 | 703 | 0.7− | 0.0 | 2009 11 24 | J75 | 0.8+ | 0.0 |
| 2002 12 11 | 704 | 0.1− | 0.6− | 2009 10 24 | 703 | 0.8− | 1.0+ | 2009 12 11 | J75 | 0.4+ | 0.2− |
| 2003 01 01 | 333 | 0.4− | 0.2− | 2009 10 25 | 703 | 0.3+ | 0.4− | 2009 12 11 | J75 | 0.2+ | 0.1+ |
| 2003 01 01 | 333 | 0.0 | 0.4− | 2009 10 25 | 703 | 1.3− | 0.3+ | 2009 12 11 | J75 | 0.7+ | 0.1− |
| 2003 01 01 | 333 | 0.2− | 0.1− | 2009 10 25 | 703 | 0.4− | 0.3+ | 2009 12 18 | G96 | 0.1+ | 0.0 |
| 2003 01 02 | 333 | 0.2− | 0.1+ | 2009 10 25 | 703 | 0.5− | 0.2+ | 2009 12 18 | G96 | 0.1− | 0.1− |
| 2003 01 02 | 333 | 0.4+ | 0.2+ | 2009 10 30 | G96 | 0.1+ | 0.3− | 2009 12 18 | G96 | 0.1+ | 0.0 |
| 2003 01 02 | 333 | 0.0 | 1.3− | 2009 10 30 | G96 | 0.5+ | 0.3+ | 2009 12 18 | G96 | 0.1− | 0.0 |
| 2005 08 06 | 644 | 0.3− | 0.3+ | 2009 10 30 | G96 | 0.5+ | 0.2− | | | | |
| 2005 08 06 | 644 | 0.1− | 0.4+ | 2009 10 30 | G96 | 0.1− | 0.1+ | | | | |

**(228776)∗ 2002 XD$_{42}$**

Discovered 2002 Dec. 6 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 351.94066 | | $\omega$ | 330.33507 | −0.21237272 | −0.97714640 |
| $n$ | 0.28281739 | | $\Omega$ | 131.92475 | +0.89894274 | −0.19900867 |
| $a$ | 2.2986101 | | $i$ | 0.70047 | +0.38314458 | −0.07470245 |
| $e$ | 0.1648594 | | | | | |
| $P$ | 3.48 | | $H$ | 17.7 | $G$ 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 03 03 | 645 | 0.0 | 0.1− | 2002 12 10 | 704 | 0.5+ | 0.9+ | 2007 03 13 | 691 | 0.3− | 0.3− |
| 2000 03 03 | 645 | 0.0 | 0.1− | 2002 12 11 | 704 | 0.4+ | 0.2− | 2007 03 13 | 691 | 0.2− | 0.5+ |
| 2000 04 05 | 704 | 0.2− | 1.1+ | 2002 12 11 | 704 | 0.5+ | 0.7+ | 2007 04 20 | G96 | 0.4+ | 0.3− |
| 2000 04 05 | 704 | 0.6+ | 0.4+ | 2002 12 11 | 704 | 0.1− | 1.0+ | 2007 04 20 | G96 | 0.3+ | 0.3− |
| 2000 04 05 | 704 | 0.1+ | 0.6+ | 2002 12 11 | 704 | 1.3+ | 0.5+ | 2007 04 20 | G96 | 0.2+ | 0.2− |
| 2000 04 05 | 704 | 1.9− | 0.7+ | 2002 12 11 | 704 | 0.2− | 0.2+ | 2007 04 20 | G96 | 0.0 | 0.2− |
| 2002 12 06 | 704 | 0.1− | 0.6+ | 2002 12 31 | 704 | 0.2− | 0.1− | 2009 11 16 | 691 | 0.1+ | 0.1+ |
| 2002 12 06 | 704 | 1.2− | 0.6+ | 2002 12 31 | 704 | 0.4− | 0.1− | 2009 11 16 | 691 | 0.3− | 0.1− |
| 2002 12 06 | 704 | (1.6− | 0.6+) | 2002 12 31 | 704 | 0.1− | 1.2− | 2009 11 16 | 691 | 0.1+ | 0.1− |
| 2002 12 06 | 704 | 0.8− | 0.3+ | 2003 01 06 | 291 | 0.2− | 0.3+ | 2009 11 24 | 691 | 0.1+ | 0.1− |
| 2002 12 06 | 704 | (2.2− | 2.3+) | 2003 01 06 | 291 | 0.2− | 0.2+ | 2009 11 24 | 691 | 0.3− | 0.1− |
| 2002 12 06 | 704 | (2.1− | 0.4+) | 2003 01 06 | 291 | 0.2− | 0.1− | 2009 11 24 | 691 | 0.0 | 0.9− |
| 2002 12 10 | 704 | 0.0 | 0.2+ | 2007 03 09 | 691 | 0.0 | 0.0 | 2009 12 10 | G96 | 1.5+ | 2.0− |
| 2002 12 10 | 704 | (1.8− | 0.4+) | 2007 03 09 | 691 | 0.1− | 0.3+ | 2009 12 10 | G96 | 0.3+ | 0.1− |
| 2002 12 10 | 704 | 0.9+ | 0.7+ | 2007 03 09 | 691 | 0.2− | 0.2− | 2009 12 10 | G96 | 0.3+ | 0.0 |
| 2002 12 10 | 704 | 0.6+ | 0.0 | 2007 03 13 | 691 | 0.4+ | 0.1− | 2009 12 10 | G96 | 0.1− | 1.4+ |

**(228777)∗ 2002 XZ$_{43}$ = 1995 TD$_{12}$**

Discovered 2002 Dec. 6 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. M. E. Sansaturio (*MPO* 47233)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 24.30376 | | $\omega$ | 82.37071 | +0.19482701 | −0.98083279 |
| $n$ | 0.28932382 | | $\Omega$ | 356.39032 | +0.87953420 | +0.17609243 |
| $a$ | 2.2640182 | | $i$ | 2.80135 | +0.43412213 | +0.08341756 |
| $e$ | 0.1216249 | | | | | |
| $P$ | 3.41 | | $H$ | 17.5 | $G$ 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 10 15 | 691 | 0.5− | 0.0 | 2002 12 11 | 704 | 0.0 | 0.9+ | 2007 04 19 | G96 | 0.2+ | 0.1+ |
| 1995 10 15 | 691 | 0.5− | 0.5− | 2005 09 22 | 644 | 0.0 | 0.0 | 2009 11 11 | G96 | 0.1+ | 0.1+ |
| 1995 10 15 | 691 | 0.5− | 0.2− | 2005 09 22 | 644 | 0.1− | 0.0 | 2009 11 11 | G96 | 0.0 | 0.0 |
| 1995 10 22 | 691 | 0.5+ | 1.5+ | 2005 09 22 | 644 | 0.1+ | 0.0 | 2009 11 11 | G96 | 0.4+ | 0.1− |
| 1995 10 22 | 691 | 0.5− | 1.0+ | 2005 09 30 | G96 | 0.0 | 0.1− | 2009 11 11 | G96 | 0.2+ | 0.4− |
| 1995 10 22 | 691 | 0.7− | 0.2+ | 2005 09 30 | G96 | 0.6+ | 0.5− | 2009 11 21 | G96 | 0.5− | 0.2− |
| 2000 03 03 | 704 | 0.2+ | 0.9+ | 2005 09 30 | G96 | 0.1+ | 0.0 | 2009 11 21 | G96 | 0.2+ | 0.4− |
| 2000 03 03 | 704 | 1.4+ | 0.4+ | 2005 09 30 | G96 | 0.7+ | 0.1− | 2009 11 21 | G96 | 0.2− | 0.0 |
| 2000 03 03 | 704 | 0.0 | 1.0+ | 2005 10 03 | G96 | 0.4+ | 0.1+ | 2009 11 21 | G96 | 0.4− | 0.1− |
| 2000 03 03 | 704 | 1.3+ | 0.7+ | 2005 10 03 | G96 | 0.2+ | 0.1+ | 2009 12 18 | G96 | 0.4+ | 0.2− |
| 2000 03 03 | 704 | 0.6+ | 1.5+ | 2005 10 03 | G96 | 0.1+ | 0.1− | 2009 12 18 | G96 | 0.5+ | 0.3− |
| 2002 12 06 | 704 | 0.3+ | 0.5+ | 2005 10 03 | G96 | 0.0 | 0.2− | 2009 12 18 | G96 | 0.1+ | 0.1− |
| 2002 12 06 | 704 | 1.2+ | 0.2+ | 2007 02 27 | 691 | 0.2− | 0.4+ | 2009 12 18 | G96 | 0.2+ | 0.0 |
| 2002 12 06 | 704 | (1.6+ | 0.8+) | 2007 02 27 | 691 | 0.3+ | 0.5+ | 2009 12 19 | 691 | 0.1+ | 0.0 |
| 2002 12 06 | 704 | 1.5+ | 0.3− | 2007 02 27 | 691 | 0.3+ | 0.4+ | 2009 12 19 | 691 | 0.0 | 0.2− |
| 2002 12 06 | 704 | 0.5+ | 0.4− | 2007 03 26 | G96 | 0.0 | 0.1+ | 2009 12 19 | 691 | 0.7− | 0.2+ |
| 2002 12 09 | 621 | 0.1− | 0.2− | 2007 03 26 | G96 | 0.4+ | 0.3+ | 2009 12 19 | 691 | 0.2− | 0.1+ |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 12 09 | 621 | 0.6+ | 0.0 | 2007 03 26 | G96 | 0.1+ | 0.3+ | 2009 12 19 | 691 | 0.0 | 0.2− |
| 2002 12 09 | 621 | 0.1− | 0.2+ | 2007 03 26 | G96 | 0.3+ | 0.1− | 2009 12 19 | 691 | 0.1+ | 0.1− |
| 2002 12 09 | 621 | (1.6+ | 0.1+) | 2007 04 11 | G96 | 0.3+ | 0.1+ | 2009 12 27 | 691 | 0.0 | 0.4− |
| 2002 12 10 | 644 | 0.2+ | 0.5+ | 2007 04 11 | G96 | 0.3+ | 0.2+ | 2009 12 27 | 691 | 0.1+ | 0.0 |
| 2002 12 10 | 644 | 0.0 | 0.5+ | 2007 04 11 | G96 | 0.1+ | 0.3+ | 2009 12 27 | 691 | 0.4− | 0.2− |
| 2002 12 10 | 644 | 0.2+ | 0.3+ | 2007 04 11 | G96 | 0.1+ | 0.1+ | 2009 12 27 | 691 | 0.6− | 0.7− |
| 2002 12 11 | 704 | 1.0+ | 0.2+ | 2007 04 19 | G96 | 0.1+ | 0.0 | 2009 12 27 | 691 | 0.2− | 0.2− |
| 2002 12 11 | 704 | 0.3− | 1.1+ | 2007 04 19 | G96 | 0.3− | 0.1− | 2009 12 27 | 691 | 0.4− | 0.4− |
| 2002 12 11 | 704 | 0.5+ | 0.8+ | 2007 04 19 | G96 | 0.0 | 0.1+ | | | | |

**(228778)∗ 2002 XJ$_{52}$ = 2001 MK**

Discovered 2002 Dec. 10 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 41335)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 77.58706 | | (2000.0) | | | |
| $n$ | 0.28534891 | $\omega$ | 267.96450 | | +0.99216527 | −0.05856481 |
| $a$ | 2.2849949 | $\Omega$ | 95.38043 | | +0.09706559 | +0.91746624 |
| $e$ | 0.1760981 | $i$ | 6.36394 | | −0.07865329 | +0.39347918 |
| $P$ | 3.45 | $H$ | 16.7 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 05 15 | 691 | 0.0 | 0.1− | 2003 01 02 | 291 | 0.5− | 0.1+ | 2005 09 14 | G92 | 0.3+ | 0.1+ |
| 1994 05 15 | 691 | 0.1− | 0.0 | 2003 01 02 | 291 | 0.6− | 0.2+ | 2005 09 14 | G92 | 0.6+ | 0.1− |
| 1994 05 15 | 691 | 0.0 | 0.1− | 2003 01 04 | 704 | 0.2+ | 0.0 | 2005 09 25 | 703 | 0.2− | 0.1− |
| 2001 06 16 | 691 | 0.2+ | 0.3+ | 2003 01 04 | 704 | 0.4+ | 0.5+ | 2005 09 25 | 703 | 1.0− | 0.3− |
| 2001 06 16 | 691 | 0.2+ | 0.0 | 2003 01 04 | 704 | 0.1− | 0.4+ | 2005 09 25 | 703 | 1.1− | 0.7− |
| 2001 06 16 | 691 | 0.6+ | 0.1+ | 2003 01 04 | 704 | 0.5+ | 0.5+ | 2005 09 25 | 703 | 1.2− | 0.3− |
| 2001 06 17 | 691 | 0.8− | 0.5+ | 2004 04 26 | 691 | 0.3+ | 0.2+ | 2005 09 26 | 704 | 0.3− | 0.3− |
| 2001 06 17 | 691 | 0.1− | 0.2+ | 2004 04 26 | 691 | 0.2+ | 0.1+ | 2005 09 26 | 704 | 0.1+ | 0.1− |
| 2001 06 17 | 691 | 0.4− | 0.5+ | 2004 04 26 | 691 | 0.5+ | 0.1+ | 2005 09 26 | 704 | 0.8− | 0.2− |
| 2002 12 05 | 704 | 0.8+ | 0.1+ | 2005 07 29 | 644 | 0.3+ | 0.2+ | 2005 09 26 | 704 | 0.0 | 0.7+ |
| 2002 12 05 | 704 | 0.1+ | 0.6+ | 2005 07 29 | 644 | 0.4+ | 0.3+ | 2005 09 26 | 704 | 0.6+ | 0.2+ |
| 2002 12 05 | 704 | 0.6+ | 0.3+ | 2005 07 29 | 644 | 0.3+ | 0.5+ | 2009 11 18 | G96 | 0.0 | 0.1− |
| 2002 12 05 | 704 | 0.2+ | 0.5− | 2005 08 06 | E12 | 0.6+ | 0.5+ | 2009 11 18 | G96 | 0.2+ | 0.2− |
| 2002 12 05 | 704 | 0.1+ | 0.5+ | 2005 08 06 | E12 | 0.6+ | 0.1− | 2009 11 18 | G96 | 0.1− | 0.2− |
| 2002 12 10 | 704 | 0.3+ | 0.5+ | 2005 08 06 | E12 | 0.0 | 0.1+ | 2009 11 18 | G96 | 0.0 | 0.1− |
| 2002 12 10 | 704 | 0.3+ | 0.1− | 2005 08 06 | E12 | 0.5+ | 0.1+ | 2009 12 16 | 691 | 0.0 | 0.0 |
| 2002 12 10 | 704 | 0.4+ | 0.8+ | 2005 08 28 | 699 | 0.0 | 0.8+ | 2009 12 16 | 691 | 0.2− | 0.1− |
| 2002 12 11 | 704 | 0.1+ | 0.7− | 2005 08 28 | 699 | 0.5− | 0.4+ | 2009 12 16 | 691 | 0.3− | 0.2+ |
| 2002 12 11 | 704 | 0.4− | 0.0 | 2005 08 28 | 699 | 0.1+ | 1.2+ | 2009 12 16 | G96 | 0.0 | 0.3− |
| 2002 12 11 | 704 | (1.6− | 1.2+) | 2005 09 13 | G92 | 0.9+ | 0.3− | 2009 12 16 | G96 | 0.1+ | 0.1+ |
| 2002 12 11 | 704 | 0.7− | 0.3+ | 2005 09 13 | G92 | 0.4− | 0.2+ | 2009 12 16 | G96 | 0.2− | 0.0 |
| 2002 12 11 | 704 | 0.1− | 0.6+ | 2005 09 13 | 703 | 0.3− | 0.3− | 2009 12 16 | G96 | 0.0 | 0.1− |
| 2002 12 31 | 704 | 0.2− | 0.8+ | 2005 09 13 | G92 | 0.1+ | 0.2+ | 2009 12 16 | G96 | 0.0 | 0.2+ |
| 2002 12 31 | 704 | 0.8+ | 0.1− | 2005 09 13 | 703 | 0.1+ | 0.0 | 2009 12 16 | G96 | 0.2+ | 0.1− |
| 2002 12 31 | 704 | 0.6+ | 0.2− | 2005 09 13 | 703 | 0.6+ | 0.4+ | 2009 12 16 | G96 | 0.3+ | 0.1+ |
| 2002 12 31 | 704 | 0.4− | 0.1+ | 2005 09 13 | 703 | 1.0− | 0.5+ | 2009 12 16 | G96 | 0.0 | 0.2− |
| 2003 01 02 | 291 | 0.1+ | 0.4+ | 2005 09 14 | G92 | 0.6+ | 0.3+ | 2009 12 16 | G96 | 0.1+ | 0.0 |

**(228779)∗ 2002 XP$_{53}$**

Discovered 2002 Dec. 10 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 357.62244 | | (2000.0) | | | |
| $n$ | 0.29100734 | $\omega$ | 13.78793 | | −0.29686110 | −0.94454095 |
| $a$ | 2.2552780 | $\Omega$ | 93.62325 | | +0.86224419 | −0.32832769 |
| $e$ | 0.0506217 | $i$ | 8.08804 | | +0.41037599 | +0.00658220 |
| $P$ | 3.39 | $H$ | 16.7 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 11 24 | 644 | 0.4+ | 0.1+ | 2005 10 05 | 703 | 0.3− | 1.0+ | 2007 04 11 | 703 | 1.0− | 0.9+ |
| 2002 11 24 | 644 | 1.0+ | 0.2− | 2005 10 05 | 703 | 0.6+ | 0.1+ | 2007 04 11 | 703 | 0.2+ | 0.7+ |
| 2002 11 24 | 644 | 0.5− | 0.1− | 2005 10 05 | 703 | 0.2− | 1.2+ | 2009 11 23 | G96 | 0.2+ | 0.3− |
| 2002 12 01 | 704 | 0.9− | 0.2+ | 2005 10 05 | 703 | 0.3− | 0.0 | 2009 11 23 | G96 | 0.7+ | 0.4− |
| 2002 12 01 | 704 | 0.9− | 0.5+ | 2006 11 23 | 691 | 0.4− | 1.1− | 2009 11 23 | G96 | 0.5+ | 0.3− |
| 2002 12 01 | 704 | 0.6− | 1.1+ | 2006 11 23 | 691 | 0.3+ | 0.2− | 2009 11 23 | G96 | 0.1− | 0.2− |
| 2002 12 01 | 704 | 0.7− | 0.0 | 2006 11 23 | 691 | 0.1+ | 0.3+ | 2009 12 10 | G96 | 0.4+ | 0.4− |
| 2002 12 10 | 644 | 0.0 | 0.2+ | 2007 03 11 | D29 | 0.1+ | 0.5+ | 2009 12 10 | G96 | 0.5+ | 0.3− |
| 2002 12 10 | 644 | 0.1− | 0.4+ | 2007 03 11 | D29 | 0.5+ | 0.1+ | 2009 12 10 | G96 | 0.2+ | 0.3− |
| 2002 12 10 | 644 | 0.1− | 0.3+ | 2007 03 11 | D29 | 0.1+ | 0.3+ | 2009 12 10 | G96 | 0.0 | 0.7− |
| 2002 12 11 | 704 | 0.3+ | 1.2+ | 2007 03 11 | D29 | 0.2− | 0.3+ | 2009 12 16 | 691 | 0.3− | 0.1− |
| 2002 12 11 | 704 | 0.8+ | 0.4− | 2007 03 16 | 703 | 0.5− | 0.2+ | 2009 12 16 | 691 | 0.1− | 0.1− |
| 2002 12 11 | 704 | 0.6− | 0.8+ | 2007 03 16 | 703 | (1.9− | 0.6−) | 2009 12 16 | 691 | 0.0 | 0.1− |
| 2002 12 11 | 704 | 0.0 | 0.7+ | 2007 03 16 | 703 | (1.8− | 0.3−) | 2009 12 16 | 704 | 0.4+ | 0.9− |
| 2003 01 27 | 291 | 0.1− | 0.0 | 2007 03 16 | 703 | 0.8+ | 0.5+ | 2009 12 16 | 704 | 0.2− | 0.7+ |
| 2003 01 27 | 291 | 0.1+ | 0.3+ | 2007 03 19 | 699 | (2.3+ | 3.2+) | 2009 12 16 | 704 | 1.0+ | 0.2− |
| 2003 01 27 | 291 | 0.1+ | 0.2+ | 2007 03 19 | 699 | 0.1− | 1.4+ | 2009 12 26 | 691 | 0.3− | 0.1+ |
| 2005 10 03 | 703 | 0.5− | 1.1− | 2007 03 19 | 699 | (2.1+ | 1.6+) | 2009 12 26 | 691 | 0.2− | 0.2− |
| 2005 10 03 | 703 | (1.0+ | 1.7−) | 2007 03 19 | 699 | 0.4+ | 0.1+ | 2009 12 26 | 691 | 0.2+ | 0.1− |
| 2005 10 03 | 703 | 0.0 | 0.2− | 2007 04 11 | 703 | 1.2+ | 0.2− | | | | |
| 2005 10 03 | 703 | 0.4+ | 0.5− | 2007 04 11 | 703 | 0.1− | 0.2+ | | | | |

**(228780)∗ 2002 XS$_{84}$**

Discovered 2002 Dec. 11 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 194.30874 | | (2000.0) | | | |
| $n$ | 0.23624306 | $\omega$ | 292.76682 | | −0.94282112 | +0.27901913 |
| $a$ | 2.5915724 | $\Omega$ | 263.82448 | | −0.19626509 | −0.90686300 |
| $e$ | 0.2550142 | $i$ | 10.56631 | | −0.26938513 | −0.31582879 |
| $P$ | 4.17 | $H$ | 15.1 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 22 | 691 | 0.3− | 0.2+ | 2003 02 01 | 704 | 0.1+ | 0.2− | 2005 10 29 | 703 | 0.4− | 0.1+ |
| 2000 09 22 | 691 | 0.2− | 0.2+ | 2003 02 01 | 608 | 0.4− | 0.0 | 2006 09 25 | 691 | 0.7+ | 0.3− |
| 2000 09 22 | 691 | 0.2− | 0.1− | 2003 02 01 | 608 | 0.6− | 0.1+ | 2006 09 25 | 691 | 0.5+ | 0.0 |
| 2002 12 06 | 644 | 0.4+ | 0.6+ | 2003 02 01 | 608 | 0.3− | 0.5+ | 2006 09 25 | 691 | 0.3+ | 0.3− |
| 2002 12 06 | 644 | 0.3+ | 0.5+ | 2003 02 02 | 704 | 0.8− | 0.7− | 2006 11 14 | G96 | 0.0 | 0.5− |
| 2002 12 06 | 644 | 0.1− | 0.4+ | 2003 02 02 | 704 | 0.2+ | 0.7+ | 2006 11 14 | G96 | 0.3+ | 0.6− |
| 2002 12 11 | 704 | 0.4− | 0.8+ | 2003 02 02 | 704 | 0.5− | 1.2− | 2006 11 14 | G96 | 0.0 | 0.4− |
| 2002 12 11 | 704 | 0.0 | 0.7+ | 2003 02 02 | 704 | 0.2− | 1.0+ | 2006 11 14 | G96 | 0.4− | 0.4− |
| 2002 12 11 | 704 | 0.2+ | 0.1− | 2003 02 02 | 704 | 0.1− | 0.4+ | 2006 11 18 | 704 | 0.9+ | 1.1+ |
| 2002 12 11 | 704 | 0.2− | 0.7+ | 2003 02 02 | 704 | 0.5− | 0.7− | 2006 11 18 | 704 | 1.4+ | 1.1+ |
| 2002 12 11 | 704 | 1.1− | 0.6+ | 2003 02 02 | 704 | 0.0 | 0.4+ | 2006 11 18 | 704 | 0.7+ | 0.0 |
| 2002 12 14 | 645 | 0.0 | 0.1− | 2003 02 02 | 704 | 0.1− | 0.7− | 2006 11 18 | 704 | 0.8+ | 0.7+ |
| 2002 12 14 | 645 | 0.0 | 0.1− | 2003 02 02 | 704 | 0.0 | 0.6+ | 2006 11 21 | 704 | (1.7+ | 1.1+) |
| 2002 12 15 | 608 | 0.3+ | 0.9− | 2003 02 02 | 704 | 0.5− | 0.6− | 2006 11 21 | 704 | 0.7+ | 1.2+ |
| 2002 12 15 | 608 | 0.4+ | 0.9− | 2003 02 03 | 699 | 0.1+ | 0.8+ | 2006 11 21 | 704 | 0.2− | 1.3+ |
| 2002 12 15 | 608 | 0.1+ | 0.9− | 2003 02 03 | 699 | 0.1− | 0.5− | 2006 11 21 | 704 | 0.7+ | 1.1+ |
| 2003 01 01 | 704 | 0.2+ | 0.1+ | 2003 02 03 | 699 | 0.4− | 0.4+ | 2006 12 13 | 704 | (1.6− | 0.3+) |
| 2003 01 01 | 704 | 0.2− | 0.4+ | 2003 02 03 | 699 | 0.0 | 0.3− | 2006 12 13 | 704 | 0.3+ | 1.3+ |
| 2003 01 01 | 704 | 0.3+ | 0.2+ | 2003 02 04 | 644 | 0.0 | 0.4+ | 2006 12 13 | 704 | 0.0 | 0.7+ |
| 2003 01 01 | 704 | 0.1− | 0.3− | 2003 02 04 | 644 | 0.2+ | 0.4+ | 2006 12 13 | 704 | 0.3− | 0.2− |
| 2003 01 01 | 704 | 0.1+ | 0.3+ | 2003 02 04 | 644 | 0.2− | 0.3+ | 2006 12 20 | 644 | 0.2− | 0.1− |
| 2003 01 05 | 704 | 0.1− | 0.5− | 2003 02 19 | 644 | 0.4+ | 0.2+ | 2006 12 20 | 644 | 0.1− | 0.1− |
| 2003 01 05 | 704 | 0.0 | 0.0 | 2003 02 19 | 644 | 0.3+ | 0.1+ | 2006 12 20 | 644 | 0.2− | 0.1− |
| 2003 01 05 | 704 | 0.3− | 0.3+ | 2003 02 19 | 644 | 0.3+ | 0.2+ | 2006 12 27 | 691 | 1.0− | 0.6− |
| 2003 01 05 | 704 | 1.1− | 0.6+ | 2003 04 09 | 704 | 0.2+ | 1.0+ | 2006 12 27 | 691 | 0.4− | 0.2− |
| 2003 01 16 | 644 | 0.4+ | 0.3+ | 2003 04 09 | 704 | 0.7+ | 0.5+ | 2006 12 27 | 691 | 0.4− | 0.1− |
| 2003 01 16 | 644 | 0.4+ | 0.1− | 2003 04 09 | 704 | 0.3+ | 1.1+ | 2007 04 18 | 704 | 0.8− | 0.3+ |
| 2003 01 16 | 644 | 0.5+ | 0.3+ | 2003 04 09 | 704 | 0.5+ | 0.9+ | 2007 04 18 | 704 | 0.9− | 0.6− |
| 2003 01 26 | 644 | 0.0 | 0.3+ | 2003 04 09 | 704 | 0.1+ | 0.3+ | 2007 04 18 | 704 | (2.4+ | 3.2+) |
| 2003 01 26 | 644 | 0.1+ | 0.0 | 2003 04 26 | 704 | 0.8+ | 0.1+ | 2007 04 18 | 704 | (2.9− | 2.6+) |
| 2003 01 26 | 644 | 0.1− | 0.0 | 2003 04 26 | 704 | 0.1+ | 0.2+ | 2008 05 15 | G96 | 0.3− | 0.1+ |
| 2003 01 28 | 704 | (1.5+ | 1.0+) | 2003 04 26 | 704 | 0.1+ | 0.8+ | 2008 05 15 | G96 | 0.2− | 0.2− |
| 2003 01 28 | 704 | 0.3− | 0.6− | 2003 04 26 | 704 | 0.3− | 0.6− | 2008 05 15 | G96 | 0.1+ | 0.0 |
| 2003 01 28 | 704 | 0.5+ | 0.7− | 2004 08 06 | 644 | 0.1+ | 0.3+ | 2008 05 15 | G96 | 0.4− | 0.0 |
| 2003 01 28 | 704 | 0.5+ | 0.1+ | 2004 08 06 | 644 | 0.2− | 0.3+ | 2009 09 22 | 703 | 0.8+ | 0.7+ |
| 2003 01 28 | 704 | 0.6+ | 0.9− | 2004 08 06 | 644 | 0.1+ | 0.3+ | 2009 09 22 | 703 | 0.5+ | 0.9+ |
| 2003 02 01 | 699 | 1.2+ | 0.2+ | 2004 08 09 | 704 | 0.9+ | 0.4− | 2009 09 22 | 703 | 0.3− | 0.0 |
| 2003 02 01 | 699 | 1.2+ | 0.2+ | 2004 08 09 | 704 | 0.3+ | 0.9+ | 2009 09 22 | 703 | 0.9+ | 1.1+ |
| 2003 02 01 | 699 | 0.9+ | 0.1+ | 2004 08 09 | 704 | 0.6+ | 0.4− | 2009 12 20 | G96 | 0.4+ | 0.3+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 02 01 | 699 | 0.8+ | 0.1+ | 2005 10 29 | 703 | 0.7− | 1.0− | 2009 12 20 | G96 | 0.1− | 0.3+ | | |
| 2003 02 01 | 704 | 1.1− | 0.2− | 2005 10 29 | 703 | 0.5− | 0.1− | 2009 12 20 | G96 | 0.1+ | 0.1− | | |
| 2003 02 01 | 704 | 0.1+ | 0.8− | 2005 10 29 | 703 | 1.2− | 1.2− | 2009 12 20 | G96 | 0.6+ | 0.2− | | |

**(228781)∗ 2002 $XM_{96}$ = 1995 $UO_{33}$**

Discovered 2002 Dec. 5 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. A. Doppler (*MPO* 47236)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 340.83045 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.29065563 | $\omega$ | 52.32561 | | −0.63258767 | −0.76756015 | |
| $a$ | 2.2570970 | $\Omega$ | 77.23806 | | +0.67303173 | −0.61083991 | |
| $e$ | 0.0997708 | $i$ | 6.08380 | | +0.38322466 | −0.19423187 | |
| $P$ | 3.39 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 10 21 | 691 | 0.2+ | 0.1− | 2002 12 31 | 704 | 0.9+ | 1.3+ | 2009 10 15 | G96 | 0.3+ | 0.2+ | | |
| 1995 10 21 | 691 | 0.5+ | 0.2− | 2002 12 31 | 704 | 0.9+ | 0.2+ | 2009 11 11 | G96 | 0.5+ | 0.5− | | |
| 1995 10 21 | 691 | 0.5+ | 0.1− | 2007 03 12 | 703 | 1.1− | 0.1− | 2009 11 11 | G96 | 0.2+ | 0.5− | | |
| 1995 10 25 | 691 | 0.4− | 0.3+ | 2007 03 12 | 703 | 0.4− | 0.4+ | 2009 11 11 | G96 | 0.3+ | 0.0 | | |
| 1995 10 25 | 691 | 0.6− | 0.3− | 2007 03 12 | 703 | 0.1+ | 0.5+ | 2009 11 11 | G96 | 0.0 | 0.8− | | |
| 1995 10 25 | 691 | 0.3− | 0.3− | 2007 03 12 | 703 | 0.2+ | 0.1+ | 2009 11 11 | G96 | 0.2+ | 0.2− | | |
| 2000 03 04 | 704 | 0.0 | 0.5+ | 2007 03 20 | 703 | 0.8+ | 0.7+ | 2009 11 11 | G96 | 0.3+ | 0.5− | | |
| 2000 03 04 | 704 | 0.0 | 0.3+ | 2007 03 20 | 703 | (0.2+ | 1.9−) | 2009 11 23 | G96 | 0.4− | 0.0 | | |
| 2000 03 04 | 704 | 0.0 | 1.0+ | 2007 03 20 | 703 | 1.3+ | 0.0 | 2009 11 23 | G96 | 0.5− | 0.3− | | |
| 2002 12 05 | 704 | 0.3− | 0.5+ | 2007 03 20 | 703 | 0.4− | 0.6+ | 2009 11 23 | G96 | 0.0 | 0.1− | | |
| 2002 12 05 | 704 | 0.1+ | 0.6+ | 2007 04 11 | 703 | 0.2+ | 0.9− | 2009 11 23 | G96 | 0.4+ | 0.6− | | |
| 2002 12 05 | 704 | 0.3− | 0.7+ | 2007 04 11 | 703 | 1.0− | 0.4+ | 2009 12 18 | G96 | 0.1− | 0.3− | | |
| 2002 12 05 | 704 | 0.3− | 0.6+ | 2007 04 11 | 703 | 0.5− | 0.9− | 2009 12 18 | G96 | 0.0 | 0.3− | | |
| 2002 12 05 | 704 | 0.5− | 0.8+ | 2007 04 11 | 703 | 0.6+ | 1.1− | 2009 12 18 | G96 | 0.0 | 0.5− | | |
| 2002 12 10 | 704 | 0.1− | 0.2− | 2007 04 22 | 703 | 0.2+ | 0.8− | 2009 12 18 | G96 | 0.2− | 0.2− | | |
| 2002 12 10 | 704 | 0.8+ | 0.2+ | 2007 04 22 | 703 | (1.6− | 0.3+) | 2009 12 19 | 691 | 0.1− | 0.2− | | |
| 2002 12 10 | 704 | 0.5+ | 0.0 | 2007 04 22 | 703 | 0.2+ | 0.8− | 2009 12 19 | 691 | 0.1− | 0.2− | | |
| 2002 12 10 | 704 | 0.3+ | 0.4+ | 2007 04 22 | 703 | (0.6− | 1.9+) | 2009 12 19 | 691 | 0.4− | 0.0 | | |
| 2002 12 10 | 704 | 0.7+ | 1.0+ | 2009 10 15 | G96 | 0.2− | 0.0 | 2009 12 27 | 691 | 0.2− | 0.2− | | |
| 2002 12 31 | 704 | 0.3− | 0.4+ | 2009 10 15 | G96 | 0.3+ | 0.2− | 2009 12 27 | 691 | 0.1− | 0.3+ | | |
| 2002 12 31 | 704 | 0.1− | 0.3− | 2009 10 15 | G96 | 0.0 | 0.2+ | 2009 12 27 | 691 | 0.1+ | 0.0 | | |

**(228782)∗ 2002 $XO_{104}$**

Discovered 2002 Dec. 5 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 38.37219 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28618203 | $\omega$ | 267.00981 | | +0.70790955 | −0.70612135 | |
| $a$ | 2.2805581 | $\Omega$ | 137.90959 | | +0.65714524 | +0.65015562 | |
| $e$ | 0.2306684 | $i$ | 1.36965 | | +0.25889032 | +0.28051793 | |
| $P$ | 3.44 | $H$ | 17.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 10 29 | 291 | 0.4− | 0.0 | 2002 12 10 | 704 | 0.0 | 0.7+ | 2007 02 23 | G96 | 0.4+ | 0.1+ | | |
| 2002 10 29 | 291 | 0.0 | 0.4− | 2002 12 13 | 704 | 1.4− | 1.0+ | 2007 02 23 | G96 | 0.4− | 0.1+ | | |
| 2002 10 29 | 291 | 0.0 | 0.3− | 2002 12 13 | 704 | 1.2− | 0.6− | 2007 03 10 | G96 | 0.7− | 0.0 | | |
| 2002 12 05 | 704 | 0.4+ | 0.3− | 2002 12 13 | 704 | 0.6− | 0.3− | 2007 03 10 | G96 | 0.0 | 0.2+ | | |
| 2002 12 05 | 704 | 0.2+ | 0.1− | 2002 12 13 | 704 | 0.6− | 0.1− | 2007 03 10 | G96 | 0.0 | 0.2+ | | |
| 2002 12 05 | 704 | 0.5+ | 0.2+ | 2002 12 13 | 704 | 0.3− | 0.4− | 2007 03 10 | G96 | 0.2+ | 0.1− | | |
| 2002 12 05 | 704 | 0.4+ | 0.3+ | 2002 12 31 | 704 | 1.0+ | 0.6− | 2009 11 18 | G96 | 0.0 | 0.4− | | |
| 2002 12 05 | 608 | 0.2+ | 1.0+ | 2002 12 31 | 704 | 0.2+ | 0.0 | 2009 11 18 | G96 | 0.4+ | 0.4− | | |
| 2002 12 05 | 608 | 0.2+ | 1.3+ | 2002 12 31 | 704 | 0.7+ | 0.3+ | 2009 11 18 | G96 | 0.4+ | 0.3− | | |
| 2002 12 05 | 608 | 0.1+ | 0.7+ | 2002 12 31 | 704 | 0.3+ | 0.9− | 2009 11 18 | G96 | 0.3+ | 0.7− | | |
| 2002 12 10 | 704 | 0.5− | 0.0 | 2005 06 13 | G96 | 0.8+ | 0.6− | 2009 12 16 | 691 | 0.1− | 0.0 | | |
| 2002 12 10 | 704 | 0.3+ | 0.1+ | 2005 06 13 | G96 | 0.4− | 0.1+ | 2009 12 16 | 691 | 0.0 | 0.2+ | | |
| 2002 12 10 | 704 | 0.2+ | 0.1+ | 2005 06 13 | G96 | 0.7− | 0.1+ | 2009 12 16 | 691 | 0.4− | 0.1+ | | |
| 2002 12 10 | 704 | 0.6+ | 0.1− | 2005 06 13 | G96 | 0.1+ | 0.3+ | 2009 12 20 | 691 | 0.2+ | 0.1+ | | |
| 2002 12 10 | 704 | 0.1− | 0.1+ | 2005 07 18 | 644 | 0.3− | 0.5+ | 2009 12 20 | 691 | 0.2− | 0.1+ | | |
| 2002 12 10 | 704 | 0.6+ | 0.5− | 2005 07 18 | 644 | 0.0 | 0.9+ | 2009 12 20 | 691 | 0.3+ | 0.0 | | |
| 2002 12 10 | 704 | 0.5− | 0.4− | 2005 07 18 | 644 | 0.0 | 0.8+ | 2009 12 25 | 691 | 0.0 | 0.1− | | |
| 2002 12 10 | 704 | 0.2+ | 0.3+ | 2007 02 23 | G96 | 0.4+ | 0.1+ | 2009 12 25 | 691 | 0.1+ | 0.1+ | | |
| 2002 12 10 | 704 | 0.3+ | 0.4+ | 2007 02 23 | G96 | 0.1+ | 0.3− | 2009 12 25 | 691 | 0.1− | 0.3+ | | |

**(228783)∗ 2002 $XX_{108}$ = 2007 $DC_{21}$**

Discovered 2002 Dec. 6 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 115753)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 2.62556 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28014109 | $\omega$ | 75.60072 | | +0.33332681 | −0.94280415 | |
| $a$ | 2.3132266 | $\Omega$ | 354.92394 | | +0.84817908 | +0.30157388 | |
| $e$ | 0.1663027 | $i$ | 2.38628 | | +0.41168615 | +0.14203355 | |
| $P$ | 3.52 | $H$ | 17.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 11 24 | 644 | 0.1− | 0.6− | 2007 02 21 | 691 | 0.1+ | 0.2− | 2009 11 17 | 704 | 0.3+ | 0.1+ | | |
| 2002 11 24 | 644 | 0.0 | 0.5− | 2007 02 21 | 691 | 0.1+ | 0.0 | 2009 11 17 | 704 | (1.8− | 3.0+) | | |
| 2002 11 24 | 644 | 0.0 | 0.6− | 2007 02 25 | 691 | 0.1+ | 0.2+ | 2009 11 20 | J75 | 0.5+ | 0.7+ | | |
| 2002 12 06 | 704 | 0.3+ | 0.3− | 2007 02 25 | 691 | 0.4− | 0.1− | 2009 11 20 | J75 | 0.5− | 0.6+ | | |
| 2002 12 06 | 704 | 0.4+ | 0.3− | 2007 02 25 | 691 | 0.0 | 0.0 | 2009 11 20 | J75 | (0.2+ | 1.9+) | | |
| 2002 12 06 | 704 | 0.4+ | 0.5+ | 2007 03 10 | G96 | 0.2+ | 0.2+ | 2009 11 22 | 703 | 0.9+ | 1.1− | | |
| 2002 12 11 | 704 | 0.5− | 0.5− | 2007 03 10 | G96 | 0.2− | 0.3+ | 2009 11 22 | 703 | 0.5+ | 0.6− | | |
| 2002 12 11 | 704 | 0.8− | 0.4− | 2007 03 10 | G96 | 0.1− | 0.0 | 2009 11 22 | 703 | 0.4− | 0.2− | | |
| 2002 12 11 | 704 | 0.6+ | 0.8+ | 2007 03 10 | G96 | 0.5+ | 0.2+ | 2009 11 22 | 703 | 0.2+ | 0.1− | | |
| 2002 12 11 | 704 | 0.3− | 0.9+ | 2009 09 23 | G96 | 0.3+ | 0.1+ | 2009 11 22 | G96 | 0.4+ | 0.3− | | |
| 2005 08 04 | 644 | 0.7+ | 0.1+ | 2009 09 23 | G96 | 0.3− | 0.2− | 2009 11 22 | G96 | 0.0 | 0.2− | | |
| 2005 08 04 | 644 | 0.2− | 0.3+ | 2009 09 23 | G96 | 0.8− | 0.4− | 2009 11 22 | G96 | 0.3+ | 0.1− | | |
| 2005 08 04 | 644 | 0.8− | 0.3+ | 2009 09 23 | G96 | 0.1+ | 0.4− | 2009 11 22 | G96 | 0.2+ | 0.2− | | |
| 2006 12 27 | G96 | 0.7− | 0.4− | 2009 11 11 | 691 | 0.3− | 0.1+ | 2009 11 26 | 691 | 0.7− | 0.0 | | |
| 2006 12 27 | G96 | (1.9− | 0.6+) | 2009 11 11 | 691 | 0.9+ | 0.5+ | 2009 11 26 | 691 | 0.5− | 0.1− | | |
| 2006 12 27 | G96 | 0.5+ | 0.3− | 2009 11 11 | 691 | 0.2− | 0.5+ | 2009 11 26 | 691 | 0.5− | 0.1− | | |
| 2006 12 27 | G96 | 0.3+ | 0.3+ | 2009 11 11 | J75 | 0.7+ | 0.2+ | 2009 12 13 | 703 | 1.0+ | 1.0− | | |
| 2007 01 27 | G96 | 0.4− | 0.2− | 2009 11 11 | J75 | 0.5+ | 0.6+ | 2009 12 13 | 703 | 0.6+ | 0.7+ | | |
| 2007 01 27 | G96 | 0.7+ | 0.2− | 2009 11 11 | J75 | 0.1+ | 0.4− | 2009 12 13 | 703 | 0.4− | 0.3+ | | |
| 2007 01 27 | G96 | 0.7+ | 0.2− | 2009 11 14 | J75 | 0.0 | 0.8− | 2009 12 13 | 703 | 0.3− | 0.0 | | |
| 2007 01 27 | G96 | 0.3− | 0.4− | 2009 11 14 | J75 | 0.4+ | 0.2− | 2009 12 18 | G96 | 0.4− | 0.0 | | |
| 2007 02 17 | 691 | 0.0 | 0.1+ | 2009 11 14 | J75 | 0.6− | 0.4+ | 2009 12 18 | G96 | 0.2+ | 0.4+ | | |
| 2007 02 17 | 691 | 0.0 | 0.0 | 2009 11 17 | 704 | (1.7− | 0.2+) | 2009 12 18 | G96 | 0.1+ | 0.1+ | | |
| 2007 02 17 | 691 | 0.2− | 0.0 | 2009 11 17 | 704 | 0.8+ | 0.1− | 2009 12 18 | G96 | 0.1+ | 0.0 | | |
| 2007 02 21 | 691 | 0.0 | 0.3+ | 2009 11 17 | 704 | (0.6+ | 1.8+) | | | | | | |

**(228784)∗ 2002 $XP_{109}$ = 2000 $BX_1$**

Discovered 2002 Dec. 6 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. A. Doppler (*MPO* 47239)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 56.90280 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.29144591 | $\omega$ | 88.23521 | | +0.79378984 | −0.60546229 | |
| $a$ | 2.2530150 | $\Omega$ | 309.02217 | | +0.52439681 | +0.72928952 | |
| $e$ | 0.1644677 | $i$ | 4.24886 | | +0.30806765 | +0.31867259 | |
| $P$ | 3.38 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 01 27 | 691 | 0.5+ | 0.3+ | 2005 07 30 | 644 | 0.2− | 0.1+ | 2007 03 13 | G96 | 0.2− | 0.4+ | | |
| 2000 01 27 | 691 | 0.2+ | 0.1+ | 2005 07 30 | 644 | 0.4+ | 0.1+ | 2007 03 13 | G96 | 0.4− | 0.3+ | | |
| 2000 01 27 | 691 | 0.0 | 0.1− | 2005 08 06 | 644 | 0.4− | 0.2+ | 2009 11 11 | G96 | 0.4− | 0.3− | | |
| 2000 01 28 | 691 | 0.0 | 0.1+ | 2005 08 06 | 644 | 0.5− | 0.1+ | 2009 11 11 | G96 | 0.0 | 0.0 | | |
| 2000 01 28 | 691 | 0.2− | 0.2− | 2005 08 06 | 644 | 0.1+ | 0.4+ | 2009 11 11 | G96 | 0.4− | 0.1− | | |
| 2000 01 28 | 691 | 0.5− | 0.2− | 2005 08 06 | 644 | 0.4− | 0.2+ | 2009 11 11 | G96 | 0.4− | 0.4− | | |
| 2002 11 12 | 704 | 0.2+ | 0.3− | 2005 08 06 | 644 | 0.3− | 0.2+ | 2009 11 21 | G96 | 0.0 | 0.4− | | |
| 2002 11 12 | 704 | 0.8+ | 0.8− | 2005 08 06 | 644 | 0.2− | 0.2+ | 2009 11 21 | G96 | 0.3− | 0.2− | | |
| 2002 11 12 | 704 | 0.4+ | 0.0 | 2005 08 27 | 699 | 0.9+ | 0.5+ | 2009 11 21 | G96 | 0.2+ | 0.2− | | |
| 2002 11 12 | 704 | (2.0+ | 1.0−) | 2005 08 27 | 699 | 0.2− | 1.2+ | 2009 11 21 | G96 | 0.5+ | 0.3− | | |
| 2002 11 12 | 704 | 0.6+ | 0.2− | 2005 08 27 | 699 | 1.2+ | 0.2+ | 2009 12 15 | G96 | 0.4− | 0.7− | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 12 06 | 704 | 0.4− | 0.2− | 2005 08 27 | 699 | (1.6+ | 0.5+) | 2009 12 15 | G96 | 0.1− | 0.3− | | |
| 2002 12 06 | 704 | 0.0 | 0.1+ | 2005 09 22 | 644 | 0.2− | 0.0 | 2009 12 15 | G96 | 0.6+ | 0.4− | | |
| 2002 12 06 | 704 | 0.7− | 0.0 | 2005 09 22 | 644 | 0.8− | 0.4+ | 2009 12 15 | G96 | 0.4+ | 0.1− | | |
| 2002 12 06 | 704 | 0.3+ | 1.0+ | 2005 09 22 | 644 | 0.4− | 0.0 | 2009 12 18 | 691 | 0.3− | 0.0 | | |
| 2002 12 11 | 704 | 0.0 | 0.4− | 2005 11 01 | G96 | 0.7− | 0.4− | 2009 12 18 | 691 | 0.1− | 0.2+ | | |
| 2002 12 11 | 704 | 0.1− | 0.1− | 2005 11 01 | G96 | 0.3+ | 0.5− | 2009 12 18 | 691 | 0.2+ | 0.1+ | | |
| 2002 12 11 | 704 | 0.4− | 0.4− | 2005 11 01 | G96 | 0.1+ | 0.4− | 2009 12 26 | 691 | 0.1+ | 0.1+ | | |
| 2002 12 11 | 704 | 0.6− | 0.2+ | 2005 11 01 | G96 | 0.1+ | 0.2− | 2009 12 26 | 691 | 0.0 | 0.4+ | | |
| 2002 12 11 | 704 | 0.4− | 0.4+ | 2007 03 13 | G96 | 0.2+ | 0.4+ | 2009 12 26 | 691 | 0.3+ | 0.5+ | | |
| 2005 07 30 | 644 | 0.4− | 0.0 | 2007 03 13 | G96 | 0.6+ | 0.1− | | | | | | |

**(228785)∗ 2002 YG$_7$**

Discovered 2002 Dec. 28 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 356.98631 | | (2000.0) | | | **P** | | **Q** | |
| $n$ | 0.27241884 | $\omega$ | 322.78607 | | | +0.04196463 | | −0.99476834 | |
| $a$ | 2.3567379 | $\Omega$ | 124.62541 | | | +0.94174931 | | +0.00824855 | |
| $e$ | 0.1918156 | $i$ | 6.49902 | | | +0.33368730 | | +0.10182294 | |
| $P$ | 3.62 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 1 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 12 05 | 704 | 0.1+ | 0.2− | 2003 01 30 | 704 | 0.5+ | 1.3− | 2005 10 04 | 644 | 0.6+ | 0.6+ | | |
| 2002 12 05 | 704 | 1.2+ | 0.1+ | 2003 01 30 | 644 | 0.1+ | 0.0 | 2005 10 04 | 644 | 0.3+ | 0.4+ | | |
| 2002 12 05 | 704 | 0.5− | 0.6+ | 2003 01 30 | 704 | 0.0 | 0.5− | 2005 10 10 | 703 | (1.6+ | 0.2+) | | |
| 2002 12 05 | 704 | 1.1− | 0.1− | 2003 01 30 | 704 | 0.3− | 0.6− | 2005 10 10 | 703 | 0.4+ | 0.6+ | | |
| 2002 12 05 | 704 | 0.3− | 0.6− | 2003 01 30 | 644 | 0.0 | 0.1− | 2005 10 10 | 703 | 1.0− | 0.7+ | | |
| 2002 12 06 | 644 | 0.2− | 1.0+ | 2003 01 30 | 644 | 0.1− | 0.0 | 2005 10 10 | 703 | 0.1− | 0.8+ | | |
| 2002 12 06 | 644 | 0.1+ | 1.1+ | 2003 01 31 | 704 | (1.0+ | 1.8−) | 2005 10 22 | 703 | 0.3− | 0.8− | | |
| 2002 12 06 | 644 | 0.0 | 1.3+ | 2003 01 31 | 704 | 0.8− | 0.6− | 2005 10 22 | 703 | (1.5+ | 0.5−) | | |
| 2002 12 10 | 644 | 0.1− | 0.2+ | 2003 01 31 | 704 | (0.7+ | 2.0−) | 2005 10 22 | 703 | 0.4− | 0.1+ | | |
| 2002 12 10 | 644 | 0.4− | 0.2+ | 2003 02 01 | 704 | 0.4+ | 0.5− | 2005 10 22 | 703 | (2.3− | 0.5−) | | |
| 2002 12 10 | 644 | 0.1− | 0.3+ | 2003 02 01 | 704 | 1.5+ | 0.7− | 2007 03 17 | 699 | 0.5+ | 1.0+ | | |
| 2002 12 12 | 333 | 0.2− | 0.8− | 2003 02 01 | 704 | 0.4− | 1.1− | 2007 03 17 | 699 | (1.6+ | 1.4+) | | |
| 2002 12 12 | 333 | 0.2− | 1.2− | 2003 02 01 | 704 | 0.3+ | 0.4− | 2007 03 17 | 699 | 0.4+ | 1.0− | | |
| 2002 12 28 | 699 | 0.8+ | 0.2− | 2003 02 03 | 704 | 0.7+ | 0.3+ | 2007 03 17 | 699 | 0.8− | 0.3− | | |
| 2002 12 28 | 699 | 1.3+ | 0.1+ | 2003 02 03 | 704 | 0.3− | 0.4+ | 2007 03 21 | 704 | 0.1− | 0.4+ | | |
| 2002 12 28 | 699 | 1.1+ | 0.4+ | 2003 02 03 | 704 | 0.5− | 0.2− | 2007 03 21 | 704 | 0.2+ | 0.3+ | | |
| 2002 12 28 | 699 | 0.8+ | 0.5+ | 2003 02 03 | 704 | 0.1+ | 0.2+ | 2007 03 21 | 704 | 1.3+ | 1.0+ | | |
| 2002 12 31 | 704 | 1.0+ | 0.3+ | 2003 02 03 | 704 | 0.2+ | 0.2+ | 2007 03 21 | 704 | 0.1− | 0.2+ | | |
| 2002 12 31 | 704 | 1.0+ | 0.7+ | 2003 02 07 | 704 | 0.4− | 0.6+ | 2007 03 29 | 644 | 0.3− | 0.4+ | | |
| 2002 12 31 | 704 | 0.9+ | 0.4+ | 2003 02 07 | 704 | 0.5− | 0.8+ | 2007 03 29 | 644 | 0.2− | 0.2+ | | |
| 2002 12 31 | 704 | 1.0+ | 0.7+ | 2003 02 07 | 704 | 0.0 | 0.6− | 2007 03 29 | 644 | 0.2− | 0.3+ | | |
| 2003 01 04 | 704 | 0.3+ | 0.2− | 2003 02 07 | 704 | 0.1− | 1.4+ | 2009 11 09 | 703 | 0.2− | 0.3− | | |
| 2003 01 04 | 704 | 0.1+ | 0.1− | 2003 02 07 | 704 | 0.3− | 0.6+ | 2009 11 09 | 703 | 1.3+ | 0.0 | | |
| 2003 01 04 | 704 | 0.5+ | 0.2+ | 2003 02 08 | 704 | 0.1− | 0.5− | 2009 11 09 | 703 | 0.4− | 0.0 | | |
| 2003 01 04 | 704 | 0.8+ | 0.5+ | 2003 02 08 | 704 | 0.1− | 0.1− | 2009 11 16 | J75 | 0.1− | 0.4− | | |
| 2003 01 04 | 704 | 0.5+ | 0.2+ | 2003 02 08 | 704 | 0.5+ | 0.5+ | 2009 11 16 | J75 | 0.5− | 0.2− | | |
| 2003 01 08 | 704 | 0.2− | 0.7+ | 2003 02 08 | 704 | 0.5+ | 0.2− | 2009 11 17 | J75 | 0.2− | 0.3− | | |
| 2003 01 08 | 704 | 0.1− | 0.9+ | 2003 02 08 | 704 | 0.3+ | 0.4+ | 2009 11 19 | 704 | 0.6+ | 0.1+ | | |
| 2003 01 08 | 704 | 0.3− | 0.9+ | 2003 02 20 | 587 | 0.0 | 0.3− | 2009 11 19 | 704 | 0.5+ | 0.1+ | | |
| 2003 01 08 | 704 | 0.3− | 0.0 | 2003 02 20 | 587 | 0.0 | 0.2− | 2009 11 19 | 704 | 0.3+ | 0.1− | | |
| 2003 01 08 | 704 | 0.2− | 0.3+ | 2003 02 20 | 587 | 0.6− | 0.0 | 2009 11 19 | 704 | 0.3− | 0.2− | | |
| 2003 01 14 | 608 | 0.4+ | 0.1+ | 2003 02 23 | 699 | 0.9+ | 0.3− | 2009 11 19 | 704 | 0.0 | 0.1+ | | |
| 2003 01 14 | 608 | 0.6+ | 0.3− | 2003 02 23 | 699 | 0.6− | 0.1+ | 2009 11 20 | J75 | 0.1+ | 0.2− | | |
| 2003 01 14 | 608 | 0.6+ | 0.5− | 2003 02 23 | 699 | 1.1+ | 0.5+ | 2009 11 20 | J75 | 0.0 | 0.5− | | |
| 2003 01 27 | 704 | 0.4− | 0.0 | 2003 02 23 | 699 | 0.0 | 0.4+ | 2009 11 20 | J75 | 1.0− | 0.6+ | | |
| 2003 01 27 | 704 | 0.5− | 0.1+ | 2003 02 23 | 587 | 0.2− | 0.2− | 2009 11 23 | 703 | 0.2+ | 0.5− | | |
| 2003 01 27 | 704 | 0.6− | 0.1− | 2003 02 23 | 587 | 0.4− | 0.3− | 2009 11 23 | 703 | 0.6− | 0.1− | | |
| 2003 01 27 | 704 | 0.6− | 0.1+ | 2005 09 03 | 703 | (0.5− | 2.3+) | 2009 11 23 | 703 | 0.3− | 0.4− | | |
| 2003 01 27 | 704 | 0.4− | 0.2+ | 2005 09 03 | 703 | 0.1− | 1.5+ | 2009 11 23 | 703 | 0.1+ | 0.4+ | | |
| 2003 01 27 | 608 | 0.0 | 0.2+ | 2005 09 03 | 703 | (0.3− | 1.6+) | 2009 11 23 | 703 | 0.6− | 0.2+ | | |
| 2003 01 27 | 608 | 0.0 | 0.0 | 2005 09 03 | 703 | (0.6+ | 2.5+) | 2009 11 26 | G96 | 0.2+ | 0.4− | | |
| 2003 01 27 | 608 | 0.3− | 0.1+ | 2005 09 23 | 703 | 0.4− | 0.3− | 2009 11 26 | G96 | 0.1+ | 0.5− | | |
| 2003 01 28 | 704 | (4.8+ | 2.4−) | 2005 09 23 | 703 | 1.5− | 0.3− | 2009 11 26 | G96 | 0.3+ | 0.5− | | |
| 2003 01 28 | 704 | 0.7− | 0.4+ | 2005 09 23 | 703 | (1.9− | 0.3−) | 2009 11 26 | G96 | 0.2+ | 0.4− | | |
| 2003 01 28 | 704 | (4.9+ | 2.5−) | 2005 09 23 | 703 | 0.8− | 0.5− | 2009 11 26 | G96 | 0.0 | 0.2− | | |
| 2003 01 28 | 704 | 0.9− | 0.1+ | 2005 09 24 | 644 | 0.0 | 0.5+ | 2009 12 11 | 703 | 0.4− | 1.9− | | |
| 2003 01 28 | 704 | (4.7+ | 2.6−) | 2005 09 24 | 644 | 0.4+ | 0.5+ | 2009 12 11 | 703 | 0.8+ | 1.5− | | |
| 2003 01 28 | 704 | 0.4− | 0.6+ | 2005 09 24 | 644 | 0.5+ | 0.8+ | 2009 12 11 | 703 | 1.2− | 0.5− | | |
| 2003 01 28 | 704 | (4.5+ | 2.6−) | 2005 09 27 | 704 | (0.3− | 2.9+) | 2009 12 13 | 704 | 0.2+ | 0.0 | | |
| 2003 01 28 | 704 | 0.4− | 0.4+ | 2005 09 27 | 704 | (0.0 | 2.3+) | 2009 12 13 | 704 | 0.1+ | 0.6− | | |
| 2003 01 28 | 704 | (3.7+ | 2.7−) | 2005 09 27 | 704 | 0.6+ | 1.5+ | 2009 12 13 | 704 | 0.3+ | 0.5− | | |
| 2003 01 28 | 704 | 0.6− | 0.1+ | 2005 09 27 | 704 | (0.3+ | 2.0+) | 2009 12 13 | 704 | 0.2+ | 0.4− | | |
| 2003 01 28 | 704 | 0.7− | 0.0 | 2005 10 03 | 703 | 0.5− | 1.0+ | 2009 12 13 | 704 | 0.4+ | 0.6+ | | |
| 2003 01 28 | 704 | 0.5− | 0.0 | 2005 10 03 | 703 | 0.7− | 0.4+ | 2009 12 18 | 704 | 0.4+ | 0.2+ | | |
| 2003 01 28 | 704 | 0.6− | 0.5+ | 2005 10 03 | 703 | 0.6+ | 0.9+ | 2009 12 18 | 704 | 0.2+ | 1.1+ | | |
| 2003 01 28 | 704 | 0.5− | 0.3+ | 2005 10 03 | 703 | 1.2− | 0.3+ | 2009 12 18 | 704 | 0.3+ | 0.6+ | | |
| 2003 01 28 | 704 | 0.3− | 0.2+ | 2005 10 04 | 644 | 0.3+ | 0.3+ | 2009 12 18 | 704 | 0.3+ | 0.2− | | |

**(228786)∗ 2002 YJ$_9$**

Discovered 2002 Dec. 31 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 77.16923 | | (2000.0) | | | **P** | | **Q** | |
| $n$ | 0.28598064 | $\omega$ | 278.87984 | | | +0.97682416 | | −0.19824809 | |
| $a$ | 2.2816286 | $\Omega$ | 92.58416 | | | +0.21396545 | | +0.89423889 | |
| $e$ | 0.2006933 | $i$ | 4.63344 | | | +0.00577461 | | +0.40129104 | |
| $P$ | 3.45 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 1 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 08 17 | 704 | 0.2+ | 0.6+ | 2005 08 26 | 644 | 0.0 | 0.1+ | 2005 10 10 | 291 | 0.4− | 0.7+ | | |
| 1998 08 17 | 704 | 1.5− | 0.7+ | 2005 08 26 | 644 | 0.2+ | 0.2− | 2005 10 10 | 291 | 0.1− | 0.3+ | | |
| 1998 08 17 | 704 | 1.8+ | 0.3− | 2005 08 26 | 644 | 0.0 | 0.2− | 2005 10 10 | 703 | 0.4− | 0.1+ | | |
| 1998 08 17 | 704 | 0.2+ | 0.1+ | 2005 08 26 | 644 | 0.1− | 0.0 | 2005 10 10 | 703 | 0.8− | 0.1− | | |
| 1998 08 17 | 704 | 1.6− | 1.4+ | 2005 08 26 | 644 | 0.1+ | 0.1− | 2005 10 10 | 703 | 0.2+ | 0.4− | | |
| 2000 03 03 | 688 | 0.0 | 0.8+ | 2005 08 27 | 699 | 0.3− | 1.2+ | 2005 10 10 | 703 | 0.3− | 0.6− | | |
| 2000 03 03 | 688 | 0.1+ | 0.6+ | 2005 08 27 | 699 | 0.3+ | 0.0 | 2005 11 17 | 644 | 0.3− | 0.6− | | |
| 2002 12 05 | 704 | 0.6+ | 0.1+ | 2005 08 27 | 699 | 0.1+ | 0.4+ | 2005 11 17 | 644 | 0.1− | 0.3− | | |
| 2002 12 05 | 704 | 0.4+ | 0.4+ | 2005 08 27 | 699 | 0.0 | 0.5+ | 2005 11 17 | 644 | 0.0 | 0.5− | | |
| 2002 12 05 | 704 | 0.4+ | 0.2+ | 2005 09 01 | 644 | 0.1− | 0.2− | 2005 12 06 | 703 | 0.3+ | 0.6+ | | |
| 2002 12 05 | 704 | 0.6+ | 0.4− | 2005 09 01 | 644 | 0.1+ | 0.1− | 2005 12 06 | 703 | 0.1+ | 1.0+ | | |
| 2002 12 05 | 704 | 0.4+ | 0.7+ | 2005 09 01 | 644 | 0.1+ | 0.1− | 2005 12 06 | 703 | (0.7+ | 1.9+) | | |
| 2002 12 31 | 704 | 1.3− | 0.1+ | 2005 09 11 | 608 | 0.4− | 0.7− | 2005 12 06 | 703 | (2.8− | 0.9−) | | |
| 2002 12 31 | 704 | 0.4+ | 0.0 | 2005 09 11 | 608 | 0.1− | 0.9− | 2009 10 18 | G96 | 0.0 | 0.5− | | |
| 2002 12 31 | 704 | 0.3− | 0.2+ | 2005 09 11 | 608 | 0.7− | 0.9− | 2009 10 18 | G96 | 0.1+ | 0.2− | | |
| 2002 12 31 | 704 | 0.0 | 0.5+ | 2005 09 25 | 703 | 0.7− | 0.2+ | 2009 10 18 | G96 | 0.4− | 0.4− | | |
| 2002 12 31 | 704 | 0.5+ | 0.5+ | 2005 09 25 | 703 | 0.0 | 0.1+ | 2009 10 18 | G96 | 0.5+ | 0.2− | | |
| 2003 01 01 | 704 | 0.2− | 0.5+ | 2005 09 25 | 703 | 0.0 | 0.6+ | 2009 11 16 | G96 | 0.2+ | 0.0 | | |
| 2003 01 01 | 704 | 0.4− | 0.6− | 2005 09 25 | 703 | 0.6+ | 0.0 | 2009 11 16 | G96 | 0.7+ | 0.1− | | |
| 2003 01 01 | 704 | 0.5− | 0.4+ | 2005 09 27 | 704 | 0.6− | 0.0 | 2009 11 16 | G96 | 0.2+ | 0.0 | | |
| 2003 01 01 | 704 | 0.4+ | 0.1+ | 2005 09 27 | 704 | 0.1− | 0.0 | 2009 11 16 | G96 | 0.1+ | 0.1− | | |
| 2003 01 08 | 704 | 0.2+ | 1.3+ | 2005 09 27 | 704 | 0.2+ | 0.1+ | 2009 12 11 | 703 | (1.7− | 1.1−) | | |
| 2003 01 08 | 704 | 0.6− | 0.1+ | 2005 09 27 | 704 | 0.1+ | 0.2+ | 2009 12 11 | 703 | 0.3− | 0.2+ | | |
| 2003 01 08 | 704 | 0.2+ | 0.8+ | 2005 09 27 | 704 | 0.5+ | 0.4− | 2009 12 11 | 703 | 0.4− | 0.3− | | |
| 2003 01 08 | 704 | (0.6− | 1.6+) | 2005 10 03 | 703 | 0.0 | 0.6− | 2009 12 11 | 703 | 0.5+ | 1.0+ | | |
| 2004 04 14 | 691 | 0.2+ | 0.7+ | 2005 10 03 | 703 | 0.4+ | 0.7− | 2009 12 15 | G96 | 0.1− | 0.1+ | | |
| 2004 04 14 | 691 | 0.4+ | 0.7+ | 2005 10 03 | 703 | 0.2+ | 0.7− | 2009 12 15 | G96 | 0.1− | 0.4− | | |
| 2004 04 14 | 691 | 0.3+ | 0.5+ | 2005 10 03 | 703 | 0.2+ | 0.4− | 2009 12 15 | G96 | 0.3+ | 0.2− | | |
| 2005 08 16 | E12 | 0.5− | 0.8− | 2005 10 07 | 699 | 1.1+ | 1.2+ | 2009 12 15 | G96 | 0.1− | 0.3− | | |
| 2005 08 16 | E12 | 0.1− | 0.2+ | 2005 10 07 | 699 | 0.3+ | 0.4+ | 2009 12 26 | 691 | 0.1− | 0.1+ | | |
| 2005 08 16 | E12 | 0.1− | 0.1− | 2005 10 07 | 699 | 0.4+ | 0.8+ | 2009 12 26 | 691 | 0.2− | 0.0 | | |
| 2005 08 16 | E12 | 0.4+ | 0.3+ | 2005 10 07 | 699 | 0.3− | 1.1+ | 2009 12 26 | 691 | 0.1− | 0.1− | | |
| 2005 08 26 | 644 | 0.0 | 0.1− | 2005 10 10 | 291 | 0.1− | 0.5+ | | | | | | |

**(228787)∗ 2002 YH$_{10}$**

Discovered 2002 Dec. 31 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 29.93507 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26998993 | $\omega$ | 113.26504 | | +0.89936365 | −0.42450639 | |
| $a$ | 2.3708514 | $\Omega$ | 271.99164 | | +0.35306074 | +0.84628785 | |
| $e$ | 0.1912162 | $i$ | 6.00727 | | +0.25786265 | +0.32185587 | |
| $P$ | 3.65 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 11 16 | 704 | 0.5+ | 0.5− | 2005 08 29 | 699 | 0.6+ | 0.9+ | 2009 11 16 | 704 | 0.3+ | 0.2+ | |
| 1998 11 16 | 704 | 0.5− | 1.4− | 2005 08 31 | 704 | 0.7− | 0.0 | 2009 11 16 | 704 | 0.4+ | 0.1+ | |
| 1998 11 16 | 704 | 0.5+ | 0.1+ | 2005 08 31 | 704 | 0.7− | 0.4+ | 2009 11 17 | G92 | 0.4+ | 0.1− | |
| 1998 11 16 | 704 | (2.9− | 0.7+) | 2005 08 31 | 704 | 0.3− | 0.2− | 2009 11 17 | G92 | 0.6− | 0.5− | |
| 2002 12 05 | 704 | (0.4− | 1.8+) | 2009 09 18 | 703 | 0.4− | 0.0 | 2009 11 17 | G92 | 0.0 | 0.1+ | |
| 2002 12 05 | 704 | 0.9+ | 1.0+ | 2009 09 18 | 703 | 0.2+ | 0.2+ | 2009 11 21 | 704 | 0.2+ | 0.4+ | |
| 2002 12 05 | 704 | 0.2− | 0.5+ | 2009 09 18 | 703 | 0.8+ | 0.5− | 2009 11 21 | 704 | 0.0 | 0.6− | |
| 2002 12 05 | 704 | 0.1− | 0.7+ | 2009 09 18 | 703 | 1.1+ | 0.0 | 2009 11 21 | 704 | 0.3− | 0.0 | |
| 2002 12 05 | 704 | (0.2+ | 1.8+) | 2009 10 11 | J75 | 0.3+ | 0.7+ | 2009 11 21 | G96 | 0.1− | 0.1− | |
| 2002 12 06 | 645 | 0.0 | 0.1− | 2009 10 11 | J75 | 0.5+ | 0.0 | 2009 11 21 | G96 | 0.0 | 0.2− | |
| 2002 12 06 | 645 | 0.0 | 0.1− | 2009 10 11 | J75 | 0.4+ | 0.6+ | 2009 11 21 | G96 | 0.0 | 0.2− | |
| 2002 12 31 | 704 | 0.1+ | 0.2− | 2009 10 16 | 704 | 0.1+ | 0.5− | 2009 11 21 | G96 | 0.3− | 0.2− | |
| 2002 12 31 | 704 | 0.7+ | 0.2− | 2009 10 16 | 704 | 0.1+ | 0.3+ | 2009 11 26 | G96 | 0.2− | 0.3− | |
| 2002 12 31 | 704 | 0.3− | 0.6+ | 2009 10 16 | 704 | 0.2+ | 0.0 | 2009 11 26 | G96 | 0.2− | 0.3− | |
| 2003 01 01 | 704 | 0.2+ | 0.3+ | 2009 10 16 | 704 | 0.2+ | 0.0 | 2009 11 26 | G96 | 0.3− | 0.4− | |
| 2003 01 01 | 704 | 0.4− | 0.7+ | 2009 10 16 | 704 | 0.3+ | 0.6− | 2009 11 26 | G96 | 0.0 | 0.3− | |
| 2003 01 01 | 704 | 0.3− | 0.2− | 2009 10 24 | 704 | 0.4− | 0.1− | 2009 11 26 | G96 | 0.0 | 0.3− | |
| 2003 01 01 | 704 | 0.5− | 0.0 | 2009 10 24 | 704 | 0.5− | 0.3− | 2009 12 06 | J75 | 0.1− | 0.1− | |
| 2003 01 01 | 704 | 0.3+ | 0.1+ | 2009 10 24 | 704 | 0.0 | 0.2+ | 2009 12 06 | J75 | 0.2− | 0.4− | |
| 2003 01 01 | 704 | 0.2+ | 0.5+ | 2009 10 24 | 704 | 0.2− | 0.3+ | 2009 12 06 | J75 | 0.3+ | 0.1− | |
| 2003 01 01 | 704 | 0.3+ | 0.4− | 2009 10 24 | 704 | 0.9+ | 0.7− | 2009 12 11 | J75 | 0.1− | 0.3− | |
| 2003 01 01 | 704 | 0.2− | 1.1+ | 2009 10 26 | G96 | 0.5− | 0.3− | 2009 12 11 | J75 | 0.0 | 0.1+ | |
| 2003 01 01 | 704 | 0.4− | 0.8+ | 2009 10 26 | G96 | 0.1− | 0.3− | 2009 12 11 | J75 | 0.2+ | 0.2− | |
| 2003 01 01 | 704 | 0.3+ | 0.2+ | 2009 10 26 | G96 | 0.1+ | 0.3− | 2009 12 13 | 703 | 0.9− | 0.6− | |
| 2003 01 08 | 704 | 0.2+ | 0.2− | 2009 10 26 | G96 | 0.4− | 0.4− | 2009 12 13 | 703 | 0.2+ | 0.2+ | |
| 2003 01 08 | 704 | 0.5− | 0.1− | 2009 10 27 | D29 | 0.3− | 0.1+ | 2009 12 13 | 703 | 0.2+ | 0.0 | |
| 2003 01 08 | 704 | 0.4+ | 0.1− | 2009 10 27 | D29 | 0.1+ | 0.3− | 2009 12 13 | 703 | 0.9− | 0.3− | |
| 2003 01 08 | 704 | 0.1+ | 0.3− | 2009 10 27 | D29 | 0.0 | 0.1− | 2009 12 15 | 704 | 0.1− | 0.9+ | |
| 2003 01 08 | 704 | 0.0 | 0.2− | 2009 10 27 | D29 | 0.0 | 0.2+ | 2009 12 15 | 704 | 0.1+ | 0.5+ | |
| 2005 08 22 | 608 | 0.3+ | 0.6− | 2009 10 28 | J75 | 0.4− | 0.1+ | 2009 12 15 | 704 | 0.1+ | 1.1+ | |
| 2005 08 22 | 608 | 0.0 | 0.1+ | 2009 10 28 | J75 | 0.5− | 0.4+ | 2009 12 15 | 704 | 0.1− | 0.3+ | |
| 2005 08 22 | 608 | 0.2+ | 0.5− | 2009 10 28 | J75 | 0.3− | 0.9− | 2009 12 15 | 704 | 0.0 | 0.2+ | |
| 2005 08 24 | 644 | 0.1− | 0.2+ | 2009 11 12 | J75 | 0.3− | 0.0 | 2009 12 16 | 704 | 0.5− | 0.9+ | |
| 2005 08 24 | 644 | 0.2− | 0.3+ | 2009 11 12 | J75 | 0.1− | 0.1− | 2009 12 16 | 704 | 0.3− | 1.0+ | |
| 2005 08 24 | 644 | 0.1− | 0.2+ | 2009 11 12 | J75 | 0.6− | 0.5− | 2009 12 16 | 704 | 0.6+ | 0.9+ | |
| 2005 08 29 | 699 | 0.4− | 0.1− | 2009 11 16 | 704 | 0.6+ | 0.6+ | 2009 12 16 | 704 | 0.4+ | 0.9+ | |
| 2005 08 29 | 699 | 0.2+ | 0.7+ | 2009 11 16 | 704 | 0.4+ | 0.4+ | 2009 12 16 | 704 | 0.0 | 0.9+ | |
| 2005 08 29 | 699 | 0.2+ | 0.8+ | 2009 11 16 | 704 | 0.5+ | 0.8+ | | | | | |

**(228788)∗ 2002 YM$_{17}$ = 2004 JU$_{27}$**

Discovered 2002 Dec. 31 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. A. Doppler (*MPO* 69425)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 280.55165 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27591703 | $\omega$ | 260.92484 | | −0.91476852 | −0.39368102 | |
| $a$ | 2.3367758 | $\Omega$ | 255.84969 | | +0.39755327 | −0.83742008 | |
| $e$ | 0.0466384 | $i$ | 5.36304 | | +0.07176325 | −0.37913437 | |
| $P$ | 3.57 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 12 11 | 704 | 0.2− | 0.0 | 2005 10 08 | 704 | 0.6+ | 0.5+ | 2007 02 22 | 704 | 0.7+ | 1.3+ | |
| 2002 12 11 | 704 | (2.2− | 1.9−) | 2005 10 08 | 704 | 1.3− | 1.1+ | 2007 02 22 | 704 | 0.6+ | 1.0− | |
| 2002 12 11 | 704 | 0.2+ | 0.6− | 2005 10 08 | 704 | 0.2+ | 0.2+ | 2007 02 22 | 704 | (2.1− | 1.2−) | |
| 2002 12 11 | 704 | 0.7− | 0.2− | 2007 01 14 | D35 | 0.2− | 0.0 | 2007 02 25 | 703 | 0.3+ | 0.9+ | |
| 2002 12 11 | 704 | 0.4− | 0.5− | 2007 01 14 | D35 | 0.2− | 0.1+ | 2007 02 25 | 703 | 0.2+ | 1.2+ | |
| 2002 12 11 | 704 | 0.4− | 1.4+ | 2007 01 14 | D35 | 0.8+ | 0.2+ | 2007 02 25 | 703 | 0.8− | 0.3+ | |
| 2002 12 11 | 704 | 0.2+ | 0.6− | 2007 01 15 | 703 | (2.0+ | 1.6−) | 2007 02 25 | 703 | 0.2+ | 0.0 | |
| 2002 12 11 | 704 | (1.1− | 2.1+) | 2007 01 15 | 703 | 0.1+ | 1.1− | 2007 03 09 | 703 | 0.1− | 0.0 | |
| 2002 12 31 | 704 | 0.2− | 0.1+ | 2007 01 15 | 703 | (1.7− | 0.3−) | 2007 03 09 | 703 | 0.0 | 0.4− | |
| 2002 12 31 | 704 | 0.5+ | 0.4− | 2007 01 15 | 703 | 0.6− | 0.5+ | 2007 03 09 | 703 | 0.1+ | 0.2− | |
| 2002 12 31 | 704 | 0.5− | 0.9+ | 2007 02 08 | 644 | 0.0 | 0.1+ | 2007 03 09 | 703 | (0.4− | 2.5−) | |
| 2002 12 31 | 704 | 0.5+ | 0.1− | 2007 02 08 | 644 | 0.3− | 0.1+ | 2009 11 20 | 291 | 0.2− | 0.2+ | |
| 2002 12 31 | 704 | 0.1+ | 0.7+ | 2007 02 08 | 644 | 0.0 | 0.3− | 2009 11 20 | 291 | 0.2− | 0.2+ | |
| 2003 01 04 | 704 | 0.2− | 0.8− | 2007 02 10 | 703 | 1.3− | 0.0 | 2009 11 20 | 291 | 0.6− | 0.3+ | |
| 2003 01 04 | 704 | (2.0− | 0.9−) | 2007 02 10 | 703 | 0.2− | 0.4+ | 2009 11 21 | 291 | 0.3+ | 0.0 | |
| 2003 01 04 | 704 | 1.0+ | 0.3− | 2007 02 10 | 703 | 0.1− | 0.1− | 2009 11 21 | 291 | 0.4+ | 0.0 | |
| 2003 01 04 | 704 | 0.5− | 1.2− | 2007 02 10 | 703 | 0.0 | 0.8− | 2009 11 21 | 291 | 0.0 | 0.2+ | |
| 2003 01 11 | 291 | 0.0 | 0.1− | 2007 02 16 | 644 | 0.0 | 0.1+ | 2009 11 24 | 691 | 0.9− | 0.9+ | |
| 2003 01 11 | 291 | 0.2− | 0.0 | 2007 02 16 | 644 | 0.1− | 0.1+ | 2009 11 24 | 691 | 0.0 | 0.0 | |
| 2003 01 11 | 291 | 0.3+ | 0.5− | 2007 02 16 | 644 | 0.0 | 0.1+ | 2009 11 24 | 691 | (1.7+ | 1.7+) | |
| 2004 05 15 | E12 | 0.5+ | 1.0+ | 2007 02 17 | 644 | 0.3− | 0.3+ | 2009 12 11 | 703 | 0.7+ | 0.6− | |
| 2004 05 15 | E12 | (0.7− | 1.9+) | 2007 02 17 | 644 | 0.1− | 0.2+ | 2009 12 11 | 703 | 1.9+ | 0.2+ | |
| 2004 05 15 | E12 | (2.3− | 1.4+) | 2007 02 17 | 644 | 0.1− | 0.1+ | 2009 12 11 | 703 | 1.0− | 1.2− | |
| 2004 05 15 | E12 | 0.8− | 1.3+ | 2007 02 21 | 704 | 0.9− | 0.5+ | 2009 12 11 | 703 | 0.7+ | 0.4− | |
| 2004 05 16 | 704 | 0.2− | 0.6− | 2007 02 21 | 704 | 1.2+ | 0.1− | 2009 12 17 | G96 | 0.6+ | 0.2− | |
| 2004 05 16 | 704 | 0.9+ | 0.4− | 2007 02 21 | 704 | 0.5+ | 0.8+ | 2009 12 17 | G96 | 0.5+ | 0.4− | |
| 2004 05 16 | 704 | 0.0 | 0.2+ | 2007 02 21 | 704 | 1.0+ | 0.1+ | 2009 12 17 | G96 | 0.8+ | 0.3− | |
| 2005 10 08 | 704 | 0.1− | 0.3− | 2007 02 21 | 704 | 0.7+ | 0.2− | 2009 12 17 | G96 | 0.6+ | 0.2− | |
| 2005 10 08 | 704 | 0.0 | 0.1+ | 2007 02 22 | 704 | 0.0 | 0.1+ | | | | | |

**(228789)∗ 2002 YW$_{20}$**

Discovered 2002 Dec. 31 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 313.91332 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27506243 | $\omega$ | 43.31138 | | −0.74382796 | −0.52243591 | |
| $a$ | 2.3416134 | $\Omega$ | 100.53667 | | +0.43640901 | −0.85203506 | |
| $e$ | 0.2305236 | $i$ | 25.08864 | | +0.50622835 | −0.03312074 | |
| $P$ | 3.58 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 11 23 | 691 | 0.1− | 0.2− | 2003 02 04 | 704 | 1.2+ | 0.6− | 2007 05 25 | 703 | 0.3+ | 0.5− | |
| 1995 11 23 | 691 | 0.2+ | 0.4− | 2006 10 27 | 703 | (0.7+ | 1.6−) | 2007 05 25 | 703 | 0.8− | 0.1− | |
| 1995 11 23 | 691 | 0.6− | 0.9− | 2006 10 27 | 703 | (1.9+ | 0.5−) | 2007 05 25 | 703 | 0.5+ | 0.3− | |
| 2002 12 31 | 704 | 0.4− | 0.3+ | 2006 10 27 | 703 | 0.6+ | 0.5− | 2007 05 25 | 703 | 0.3− | 0.0 | |
| 2002 12 31 | 704 | 0.0 | 0.2+ | 2007 02 16 | 703 | 1.0+ | 0.6+ | 2007 06 07 | 703 | 1.4− | 0.1+ | |
| 2002 12 31 | 704 | 0.8− | 0.0 | 2007 02 16 | 703 | (0.7+ | 1.8−) | 2007 06 07 | 703 | 0.3− | 0.1− | |
| 2002 12 31 | 704 | 0.0 | 0.5+ | 2007 02 16 | 703 | 0.3+ | 0.1+ | 2007 06 07 | 703 | 0.7− | 0.8− | |
| 2002 12 31 | 704 | 0.1+ | 0.4+ | 2007 02 16 | 703 | 0.0 | 0.1+ | 2007 06 07 | 703 | 0.3+ | 0.1+ | |
| 2003 01 04 | 704 | 1.4+ | 0.4+ | 2007 04 11 | 704 | 0.1+ | 0.3+ | 2009 11 18 | 703 | 0.1+ | 0.3+ | |
| 2003 01 04 | 704 | 1.3+ | 0.3+ | 2007 04 11 | 704 | 0.3+ | 0.8+ | 2009 11 18 | 703 | 0.3+ | 0.4+ | |
| 2003 01 04 | 704 | 1.1+ | 0.5+ | 2007 04 11 | 704 | 1.2+ | 1.3+ | 2009 11 18 | 703 | 0.2+ | 0.7− | |
| 2003 01 04 | 704 | 1.0+ | 0.2+ | 2007 04 11 | 704 | 0.4− | 1.3+ | 2009 11 18 | 703 | 0.3− | 1.1+ | |
| 2003 01 04 | 704 | (2.1+ | 0.2−) | 2007 04 11 | 704 | 0.9+ | 1.0+ | 2009 11 22 | J75 | 0.9− | 0.6+ | |
| 2003 01 08 | 704 | 0.7− | 0.6− | 2007 04 18 | 703 | 0.5− | 0.3− | 2009 11 22 | J75 | 0.2− | 0.2− | |
| 2003 01 08 | 704 | 0.2− | 0.5− | 2007 04 18 | 703 | 0.0 | 0.1− | 2009 11 22 | J75 | 0.1− | 0.1+ | |
| 2003 01 08 | 704 | 0.2+ | 0.4− | 2007 04 18 | 703 | 0.5− | 0.8− | 2009 12 15 | 703 | (2.1+ | 1.7+) | |
| 2003 01 08 | 704 | 0.3− | 0.6− | 2007 04 18 | 703 | (1.6+ | 1.5−) | 2009 12 15 | 703 | 0.1+ | 0.1+ | |
| 2003 01 08 | 704 | 0.3+ | 0.6− | 2007 04 26 | 703 | 0.8+ | 0.1+ | 2009 12 15 | 703 | 0.3− | 0.2+ | |
| 2003 02 01 | 704 | 0.1− | 0.4+ | 2007 04 26 | 703 | 0.4− | 0.8+ | 2009 12 17 | 703 | 0.3+ | 1.3+ | |
| 2003 02 01 | 704 | 0.6− | 0.5+ | 2007 04 26 | 703 | 0.1− | 0.1− | 2009 12 17 | 703 | 0.3− | 0.2+ | |
| 2003 02 01 | 704 | 0.2− | 0.2+ | 2007 04 26 | 703 | 0.8− | 0.6+ | 2009 12 17 | 703 | 1.2− | 0.5− | |
| 2003 02 01 | 704 | 0.1− | 0.3− | 2007 04 26 | 704 | 1.5+ | 0.8+ | 2009 12 17 | 703 | (1.8− | 0.9−) | |
| 2003 02 01 | 704 | 0.5− | 0.2− | 2007 04 26 | 704 | 0.8+ | 0.1+ | 2009 12 20 | 704 | 0.1− | 0.7+ | |
| 2003 02 04 | 704 | 1.2+ | 0.2− | 2007 04 26 | 704 | (1.9+ | 0.0 ) | 2009 12 20 | 704 | 1.3− | 1.2+ | |
| 2003 02 04 | 704 | 0.5+ | 0.0 | 2007 04 26 | 704 | (1.9+ | 0.3−) | 2009 12 20 | 704 | 1.4− | 0.5+ | |
| 2003 02 04 | 704 | 0.4+ | 0.5+ | 2007 04 26 | 704 | 0.9+ | 0.0 | 2009 12 20 | 704 | 1.2− | 0.8+ | |

**(228790)∗ 2002 YJ$_{24}$**

Discovered 2002 Dec. 31 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 42.41043 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27812517 | $\omega$ | 296.37823 | | +0.77278690 | −0.62141642 | |
| $a$ | 2.3243910 | $\Omega$ | 102.31990 | | +0.61914548 | +0.69347488 | |
| $e$ | 0.1164843 | $i$ | 7.58777 | | +0.13949651 | +0.36460146 | |
| $P$ | 3.54 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 12 05 | 704 | 0.5+ | 0.5+ | 2005 08 27 | 699 | (1.4+ | 2.5−) | 2007 03 26 | 703 | 1.1+ | 0.0 | |
| 2002 12 05 | 704 | 0.5+ | 0.2− | 2005 08 27 | 644 | 0.3− | 0.3− | 2007 03 26 | 703 | 0.6+ | 0.3+ | |
| 2002 12 05 | 704 | 0.8− | 0.4+ | 2005 09 03 | 703 | 0.8+ | 0.4+ | 2007 03 26 | 703 | 0.3− | 0.7+ | |
| 2002 12 05 | 704 | 0.5+ | 0.8− | 2005 09 03 | 703 | 0.4− | 0.2+ | 2007 03 26 | 703 | (1.3+ | 2.5+) | |
| 2002 12 31 | 704 | 0.3+ | 0.2+ | 2005 09 03 | 703 | 0.5− | 0.2+ | 2009 11 19 | 691 | 0.2+ | 0.9+ | |
| 2002 12 31 | 704 | 0.2− | 0.1− | 2005 09 03 | 703 | 0.5+ | 0.4+ | 2009 11 19 | 691 | 0.5− | 0.2− | |
| 2002 12 31 | 704 | 0.5+ | 1.2+ | 2005 09 13 | 703 | (0.9− | 1.7−) | 2009 11 19 | 691 | 0.4− | 0.2− | |
| 2002 12 31 | 704 | 0.2− | 0.2+ | 2005 09 13 | 703 | (0.8− | 1.7−) | 2009 11 20 | 704 | 0.6+ | 0.4+ | |
| 2002 12 31 | 704 | 0.0 | 0.7+ | 2005 09 13 | 703 | 0.2− | 1.1− | 2009 11 20 | 704 | 0.1+ | 0.2+ | |
| 2003 01 04 | 704 | 0.1+ | 0.0 | 2005 09 13 | 703 | 1.4+ | 0.4+ | 2009 11 20 | 704 | 0.4+ | 0.5+ | |
| 2003 01 04 | 704 | 1.4− | 0.5− | 2005 09 27 | 704 | 0.3+ | 0.2− | 2009 11 20 | 704 | 0.1− | 0.3+ | |
| 2003 01 04 | 704 | 0.4+ | 0.4− | 2005 09 27 | 704 | 0.3− | 0.4+ | 2009 11 20 | 704 | 0.4+ | 0.6+ | |
| 2003 01 08 | 704 | 0.1− | 0.0 | 2005 09 27 | 704 | 0.5+ | 0.0 | 2009 11 27 | 691 | 0.2+ | 0.8− | |
| 2003 01 08 | 704 | 0.6− | 0.6+ | 2005 09 27 | 704 | 0.8− | 0.3− | 2009 11 27 | 691 | 0.6− | 0.1− | |
| 2003 01 08 | 704 | 0.7− | 0.3− | 2005 09 27 | 704 | 0.1− | 0.2− | 2009 11 27 | 691 | 0.2− | 0.1− | |
| 2003 01 08 | 704 | 0.3− | 0.5+ | 2005 09 27 | 704 | 0.5+ | 0.2+ | 2009 12 11 | 704 | 0.2+ | 0.4+ | |
| 2003 01 10 | 704 | 0.6− | 1.3+ | 2005 09 27 | 704 | 1.1− | 1.0+ | 2009 12 11 | 704 | 1.6+ | 0.7− | |
| 2003 01 10 | 704 | 0.8+ | 0.1− | 2005 09 27 | 704 | 0.3+ | 0.3− | 2009 12 11 | 704 | 0.3+ | 0.3+ | |
| 2003 01 10 | 704 | 1.0+ | 0.9− | 2005 10 04 | 644 | 0.1− | 0.1+ | 2009 12 11 | 704 | 1.3+ | 0.7− | |
| 2003 01 10 | 704 | 0.1+ | 0.4− | 2005 10 04 | 644 | 0.0 | 0.1− | 2009 12 17 | 704 | 0.2+ | 0.1− | |
| 2005 08 27 | 699 | 0.7− | 0.5+ | 2005 10 04 | 644 | 0.3− | 0.3− | 2009 12 17 | 704 | 0.0 | 0.2− | |
| 2005 08 27 | 699 | 0.2+ | 0.3+ | 2007 03 16 | 703 | (1.9− | 2.7−) | 2009 12 17 | 704 | 0.1− | 0.4− | |
| 2005 08 27 | 644 | 0.4− | 0.3− | 2007 03 16 | 703 | 0.7− | 0.0 | 2009 12 17 | 704 | 0.6+ | 0.2+ | |
| 2005 08 27 | 699 | 0.1+ | 0.0 | 2007 03 16 | 703 | 0.5− | 0.1− | 2009 12 17 | 704 | 0.1− | 0.3− | |
| 2005 08 27 | 644 | 0.2− | 0.2− | 2007 03 16 | 703 | (2.2− | 1.1+) | | | | | |

**(228791)∗ 2002 YQ$_{29}$ = 2007 EV$_9$**

Discovered 2002 Dec. 31 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 119094)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 329.54302 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27161797 | $\omega$ | 24.81460 | | −0.47515211 | −0.87801419 | |
| $a$ | 2.3613682 | $\Omega$ | 93.60018 | | +0.79734926 | −0.45734712 | |
| $e$ | 0.1479976 | $i$ | 3.31050 | | +0.37210836 | −0.14115486 | |
| $P$ | 3.63 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 12 31 | 704 | 0.1+ | 1.5+ | 2007 03 12 | A13 | 0.1− | 0.1− | 2009 11 18 | 691 | 0.1− | 0.0 | |
| 2002 12 31 | 704 | 0.8+ | 0.3+ | 2007 03 14 | A13 | 0.3+ | 0.3+ | 2009 11 18 | 691 | 0.2− | 0.0 | |
| 2002 12 31 | 704 | 1.2+ | 0.3− | 2007 03 14 | A13 | 0.3− | 0.6− | 2009 11 18 | 691 | 0.3− | 0.0 | |
| 2002 12 31 | 704 | 0.2+ | 0.1− | 2007 03 14 | A13 | 0.5− | 0.1− | 2009 11 20 | J75 | 0.1+ | 0.1+ | |
| 2003 01 04 | 704 | 0.5+ | 0.5− | 2007 03 15 | 691 | 0.0 | 0.1− | 2009 11 20 | J75 | 0.0 | 0.3− | |
| 2003 01 04 | 704 | (0.5− | 1.9−) | 2007 03 15 | 691 | 0.3− | 0.2+ | 2009 11 20 | J75 | 0.4+ | 0.1− | |
| 2003 01 04 | 704 | (0.0 | 1.7−) | 2007 03 15 | 691 | 0.1− | 0.0 | 2009 11 20 | A50 | 0.7+ | 0.3− | |
| 2003 01 04 | 704 | 0.6− | 0.7− | 2007 03 16 | 699 | 0.2− | 1.0+ | 2009 11 20 | A50 | 0.7+ | 0.1− | |
| 2003 01 05 | 291 | 0.2− | 0.2− | 2007 03 16 | 704 | 1.4+ | 0.5− | 2009 11 20 | A50 | 0.7+ | 0.5+ | |
| 2003 01 05 | 291 | 0.0 | 0.2− | 2007 03 16 | 699 | 0.5+ | 0.3− | 2009 11 20 | A50 | 0.1+ | 0.0 | |
| 2003 01 05 | 291 | 0.0 | 0.0 | 2007 03 16 | 704 | 1.1+ | 0.4− | 2009 11 20 | A50 | 0.4+ | 0.3+ | |
| 2003 01 08 | 704 | 0.0 | 0.4− | 2007 03 16 | 704 | 1.3+ | 1.2+ | 2009 11 20 | A50 | 0.1+ | 0.1+ | |
| 2003 01 08 | 704 | 0.1+ | 0.4+ | 2007 03 16 | 699 | 0.0 | 1.4+ | 2009 11 21 | 704 | 0.1+ | 0.6− | |
| 2003 01 08 | 704 | 0.1+ | 0.7+ | 2007 03 16 | 704 | 0.1+ | 0.4+ | 2009 11 21 | 704 | 0.2− | 0.4+ | |
| 2003 01 08 | 704 | 0.4− | 1.2+ | 2007 03 16 | 699 | (1.5+ | 0.2−) | 2009 11 21 | 704 | 0.3− | 0.0 | |
| 2003 01 08 | 704 | 0.9− | 0.3− | 2007 04 08 | 106 | 0.1− | 0.2+ | 2009 11 25 | 703 | 0.5+ | 0.3− | |
| 2005 09 09 | 705 | 0.1− | 0.3+ | 2007 04 08 | 106 | 0.2− | 0.1− | 2009 11 25 | 703 | 0.4+ | 0.2+ | |
| 2005 09 09 | 705 | 0.1− | 0.1+ | 2007 04 09 | 106 | 0.5+ | 0.9− | 2009 11 25 | 703 | 0.1− | 0.2− | |
| 2005 09 24 | 705 | 0.2− | 0.3+ | 2007 04 16 | 703 | 0.8− | 0.5− | 2009 11 25 | 703 | 0.3+ | 0.5− | |
| 2005 09 24 | 705 | 0.0 | 0.2+ | 2007 04 16 | 703 | 0.2− | 0.0 | 2009 11 25 | 703 | 0.1− | 0.9− | |
| 2007 03 10 | G96 | 0.1− | 0.2− | 2007 04 16 | 703 | 1.2− | 1.3+ | 2009 11 26 | 691 | 0.3− | 0.0 | |
| 2007 03 10 | G96 | 0.2+ | 0.2− | 2007 04 16 | 703 | 0.0 | 0.3+ | 2009 11 26 | 691 | 0.2− | 0.0 | |
| 2007 03 10 | G96 | 0.2− | 0.0 | 2007 05 22 | G96 | 0.2+ | 0.6− | 2009 11 26 | 691 | 0.5− | 0.0 | |
| 2007 03 10 | G96 | 0.0 | 0.2− | 2007 05 22 | G96 | 0.1+ | 0.4− | 2009 12 11 | 703 | 0.1− | 0.3+ | |
| 2007 03 10 | A13 | 0.1+ | 0.0 | 2007 05 22 | G96 | 0.1+ | 0.3− | 2009 12 11 | 703 | 0.5− | 0.1− | |
| 2007 03 11 | A13 | 0.1+ | 0.2− | 2007 05 22 | G96 | 0.0 | 0.4− | 2009 12 11 | 703 | 0.1+ | 1.0− | |
| 2007 03 11 | A13 | 0.2+ | 0.3− | 2009 11 09 | G96 | 0.5+ | 0.2− | 2009 12 12 | 704 | 0.2− | 0.3+ | |
| 2007 03 11 | 691 | 0.1+ | 0.0 | 2009 11 09 | G96 | 0.4+ | 0.1− | 2009 12 12 | 704 | 1.2+ | 0.5− | |
| 2007 03 11 | 691 | 0.1− | 0.1− | 2009 11 09 | G96 | 0.5+ | 0.1− | 2009 12 12 | 704 | 0.3− | 0.6+ | |
| 2007 03 11 | 691 | 0.1− | 0.3− | 2009 11 09 | G96 | 0.0 | 0.1− | 2009 12 12 | 704 | 1.6+ | 0.8+ | |
| 2007 03 11 | A13 | 0.3− | 0.3+ | 2009 11 10 | 691 | 0.1+ | 0.2− | 2009 12 12 | 704 | 0.4− | 1.1+ | |
| 2007 03 11 | A13 | 0.0 | 0.1+ | 2009 11 10 | 691 | 0.0 | 0.1+ | | | | | |
| 2007 03 12 | A13 | 0.1+ | 0.3+ | 2009 11 10 | 691 | 0.1− | 0.1− | | | | | |

**(228792)∗ 2002 YM$_{30}$ = 2005 SA$_{113}$**

Discovered 2002 Dec. 31 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 85816)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 57.13384 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28518163 | $\omega$ | 135.89448 | | +0.70328884 | −0.70523899 | |
| $a$ | 2.2858884 | $\Omega$ | 269.18813 | | +0.62492926 | +0.67337048 | |
| $e$ | 0.1042154 | $i$ | 5.13939 | | +0.33889266 | +0.22183365 | |
| $P$ | 3.46 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 12 31 | 704 | 0.5− | 0.7+ | 2005 10 03 | 704 | 0.0 | 0.5+ | 2005 10 27 | 703 | 0.6− | 0.4− | |
| 2002 12 31 | 704 | 0.0 | 1.1+ | 2005 10 03 | 703 | 0.8+ | 0.7− | 2005 10 30 | 704 | 0.3+ | 0.6+ | |
| 2002 12 31 | 704 | 0.5+ | 0.6+ | 2005 10 03 | 703 | 0.2− | 0.3− | 2005 10 30 | 704 | 0.0 | 0.2− | |
| 2002 12 31 | 704 | 0.3− | 1.1+ | 2005 10 03 | 703 | 0.4− | 1.4− | 2005 10 30 | 704 | 0.1+ | 0.3− | |
| 2003 01 04 | 704 | 0.3− | 0.3+ | 2005 10 03 | 703 | (0.8− | 1.6−) | 2005 10 30 | 704 | 0.6− | 0.4− | |
| 2003 01 04 | 704 | 0.1+ | 0.6+ | 2005 10 05 | 704 | 0.3+ | 0.5+ | 2005 11 02 | 704 | 0.8− | 0.1+ | |
| 2003 01 04 | 704 | 0.6+ | 0.9+ | 2005 10 05 | 704 | 0.2+ | 0.5+ | 2005 11 02 | 704 | 1.0+ | 0.5+ | |
| 2003 01 04 | 704 | 0.8+ | 0.7− | 2005 10 05 | 704 | 0.1− | 0.4+ | 2005 11 02 | 704 | 1.1− | 0.7− | |
| 2003 01 05 | 704 | 0.2− | 1.2− | 2005 10 05 | 704 | 0.3− | 0.5+ | 2005 11 02 | 704 | 0.3− | 0.1+ | |
| 2003 01 05 | 704 | 0.0 | 0.8− | 2005 10 05 | 704 | 0.1+ | 0.0 | 2005 11 05 | 704 | 0.4+ | 0.8+ | |
| 2003 01 05 | 704 | 0.5− | 1.0− | 2005 10 07 | G96 | 0.1+ | 0.2− | 2005 11 05 | 704 | 0.3+ | 0.0 | |
| 2003 01 08 | 704 | 0.9+ | 0.9+ | 2005 10 07 | G96 | 0.0 | 0.2− | 2005 11 05 | 704 | 0.5+ | 0.1+ | |
| 2003 01 08 | 704 | 0.2+ | 1.2+ | 2005 10 07 | G96 | 0.0 | 0.3− | 2005 11 05 | 704 | 0.1+ | 0.4+ | |
| 2003 01 08 | 704 | 0.8+ | 1.1+ | 2005 10 07 | G96 | 0.1− | 0.3− | 2005 11 05 | 704 | 0.3+ | 0.4+ | |
| 2003 01 08 | 704 | 0.3+ | 1.3+ | 2005 10 08 | 704 | 0.6+ | 0.1+ | 2007 03 13 | 703 | 0.8+ | 0.9− | |
| 2003 01 08 | 704 | (1.3+ | 2.0+) | 2005 10 08 | 703 | 0.9− | 1.1− | 2007 03 13 | 703 | 1.4− | 0.8+ | |
| 2005 08 30 | 644 | 0.0 | 0.1+ | 2005 10 08 | 703 | 0.5− | 0.3+ | 2007 03 13 | 703 | (2.3+ | 0.0 ) | |
| 2005 08 30 | 644 | 0.0 | 0.2+ | 2005 10 08 | 704 | 0.1− | 1.2+ | 2007 03 13 | 703 | 0.8− | 0.9+ | |
| 2005 08 30 | 644 | 0.2− | 0.0 | 2005 10 08 | 703 | 0.0 | 0.5− | 2008 06 11 | 691 | 0.6+ | 0.1− | |
| 2005 09 12 | 704 | 0.2− | 0.0 | 2005 10 08 | 703 | 0.6+ | 1.1− | 2008 06 11 | 691 | 0.2− | 0.6+ | |
| 2005 09 12 | 704 | 0.2− | 0.6− | 2005 10 08 | 704 | 0.0 | 0.3+ | 2008 06 11 | 691 | 0.1− | 0.0 | |
| 2005 09 12 | 704 | 0.3+ | 0.4+ | 2005 10 08 | 704 | 0.7+ | 0.7+ | 2009 10 18 | G96 | 0.1− | 0.5− | |
| 2005 09 12 | 704 | 0.3− | 0.2− | 2005 10 08 | 704 | 0.5+ | 0.3− | 2009 10 18 | G96 | 0.7− | 0.8− | |
| 2005 09 18 | 644 | 0.1+ | 0.2− | 2005 10 12 | 704 | 0.5+ | 0.7+ | 2009 10 18 | G96 | 0.0 | 0.3− | |
| 2005 09 18 | 644 | 0.2− | 0.3+ | 2005 10 12 | 704 | 0.6+ | 0.5− | 2009 10 18 | G96 | 0.2− | 0.3− | |
| 2005 09 18 | 644 | 0.1+ | 0.7+ | 2005 10 12 | 704 | 0.0 | 0.1+ | 2009 11 16 | G96 | 0.6+ | 0.3− | |
| 2005 09 23 | 703 | 1.3− | 0.2+ | 2005 10 12 | 704 | 0.1+ | 0.5+ | 2009 11 16 | G96 | 0.2+ | 0.4− | |
| 2005 09 23 | 703 | 0.8− | 1.0− | 2005 10 12 | 704 | (0.4+ | 1.9+) | 2009 11 16 | G96 | 0.3+ | 0.1+ | |
| 2005 09 23 | 703 | 0.1+ | 0.1+ | 2005 10 22 | 644 | 0.1+ | 0.0 | 2009 11 16 | G96 | 0.5+ | 0.2− | |
| 2005 09 23 | 703 | (0.5− | 2.9+) | 2005 10 22 | 644 | 0.1− | 0.1+ | 2009 11 26 | 703 | (0.1− | 3.7+) | |
| 2005 09 26 | 644 | 0.0 | 0.0 | 2005 10 22 | 644 | 0.1− | 0.2− | 2009 11 26 | 703 | 1.0− | 0.1− | |
| 2005 09 26 | 644 | 0.1+ | 0.1+ | 2005 10 24 | 683 | (0.6− | 2.4−) | 2009 11 26 | 703 | 0.9− | 0.4− | |
| 2005 09 26 | 644 | 0.1+ | 0.1− | 2005 10 24 | 683 | (2.0− | 1.3−) | 2009 11 26 | 703 | 0.2+ | 1.0− | |
| 2005 09 30 | 699 | 0.0 | 0.9+ | 2005 10 24 | 683 | 0.2+ | 0.1+ | 2009 12 15 | G96 | 0.2+ | 0.3− | |
| 2005 09 30 | 699 | 0.8− | 0.7− | 2005 10 25 | 683 | (0.9− | 2.0−) | 2009 12 15 | G96 | 0.2+ | 0.2− | |
| 2005 09 30 | 699 | 0.9− | 0.2+ | 2005 10 25 | 683 | (0.4− | 3.1−) | 2009 12 15 | G96 | 0.0 | 0.3− | |
| 2005 09 30 | 699 | 0.5− | 0.1− | 2005 10 25 | 683 | (2.1− | 1.6−) | 2009 12 15 | G96 | 0.2− | 0.2− | |
| 2005 10 03 | 704 | 1.0+ | 0.5− | 2005 10 27 | 703 | 0.8− | 0.3− | 2009 12 27 | 691 | 0.3− | 0.0 | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 03 | 704 | 1.4+ | 0.1+ | 2005 10 27 | 703 | 0.8− | 0.3− | 2009 12 27 | 691 | 0.1+ | 0.2− |
| 2005 10 03 | 704 | 0.1+ | 0.6+ | 2005 10 27 | 703 | 0.7− | 0.5− | 2009 12 27 | 691 | 0.0 | 0.2− |

**(228793)∗ 2002 YM$_{33}$ = 2005 QV$_{170}$**

Discovered 2002 Dec. 31 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. A. Doppler (*MPO* 85818)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 16.86844 | | (2000.0) | | | |
| $n$ | 0.28604960 | $\omega$ | 153.32671 | | +0.29524595 | −0.95054514 |
| $a$ | 2.2812619 | $\Omega$ | 279.37387 | | +0.85821045 | +0.30819650 |
| $e$ | 0.0511039 | $i$ | 5.60726 | | +0.41988648 | +0.03845597 |
| $P$ | 3.45 | $H$ | 16.5 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1992 12 25 | 691 | 0.1− | 0.1+ | 2003 01 05 | 704 | 0.6+ | 0.2+ | 2005 09 24 | 703 | 0.4− | 0.0 |
| 1992 12 25 | 691 | 0.3+ | 1.0− | 2003 01 05 | 704 | 0.4− | 0.0 | 2005 09 24 | 703 | 0.6+ | 0.1− |
| 1992 12 25 | 691 | 0.1+ | 0.4− | 2003 01 05 | 704 | 0.0 | 0.0 | 2007 02 10 | 703 | 0.1− | 0.2+ |
| 1995 11 24 | 691 | 0.0 | 0.5− | 2003 01 05 | 704 | 0.6+ | 0.1− | 2007 02 10 | 703 | 1.1− | 0.6− |
| 1995 11 24 | 691 | 0.2− | 0.4− | 2003 01 05 | 704 | 0.5− | 0.2+ | 2007 02 10 | 703 | 0.1− | 0.3+ |
| 1995 11 24 | 691 | 0.3− | 0.4− | 2005 06 30 | 291 | 0.2− | 0.1+ | 2007 02 10 | 703 | (2.7− | 0.6+) |
| 2000 02 02 | 704 | 0.2− | 0.5+ | 2005 06 30 | 291 | 0.4− | 0.5+ | 2007 02 16 | 644 | 0.1− | 0.6+ |
| 2000 02 02 | 704 | 0.0 | 0.8+ | 2005 06 30 | 291 | 0.4− | 0.5+ | 2007 02 16 | 644 | 0.5+ | 0.5+ |
| 2000 02 02 | 704 | 0.6− | 0.5+ | 2005 08 29 | 644 | 0.2+ | 0.2+ | 2007 02 16 | 644 | 0.7+ | 0.5+ |
| 2000 02 02 | 704 | 0.3+ | 0.8+ | 2005 08 29 | 644 | 0.3+ | 0.5+ | 2007 02 25 | 704 | (0.8+ | 2.0+) |
| 2002 11 12 | 704 | 0.1− | 1.0+ | 2005 08 29 | 644 | 0.1+ | 0.3+ | 2007 02 25 | 704 | 0.6+ | 0.4+ |
| 2002 11 12 | 704 | 1.0− | 0.5+ | 2005 08 31 | 599 | 0.1+ | 0.0 | 2007 02 25 | 704 | (1.8+ | 0.9+) |
| 2002 11 12 | 704 | 0.2− | 0.2+ | 2005 08 31 | 599 | 0.8+ | 0.3+ | 2007 02 25 | 704 | 0.2+ | 0.7+ |
| 2002 11 12 | 704 | 0.4+ | 0.4+ | 2005 08 31 | 599 | 0.5+ | 0.0 | 2009 12 10 | 704 | 0.4+ | 0.1− |
| 2002 12 11 | 704 | 0.5+ | 0.7+ | 2005 08 31 | 599 | 0.0 | 0.9− | 2009 12 10 | 704 | 1.1− | 0.0 |
| 2002 12 11 | 704 | 0.9+ | 0.5+ | 2005 09 11 | 704 | 0.3+ | 1.2+ | 2009 12 10 | 704 | 0.4+ | 0.5+ |
| 2002 12 11 | 704 | 0.6+ | 1.0+ | 2005 09 11 | 704 | 0.1+ | 0.5+ | 2009 12 10 | 704 | 0.2+ | 0.2+ |
| 2002 12 31 | 704 | (1.8+ | 0.6+) | 2005 09 11 | 704 | 0.2+ | 0.8− | 2009 12 16 | 704 | 0.1− | 0.6+ |
| 2002 12 31 | 704 | 0.3+ | 0.3+ | 2005 09 11 | 704 | 0.8+ | 0.5+ | 2009 12 16 | 704 | 0.5− | 0.9+ |
| 2002 12 31 | 704 | 0.2+ | 0.5+ | 2005 09 24 | 703 | 0.7− | 0.3− | 2009 12 16 | 704 | 0.2+ | 0.2+ |
| 2002 12 31 | 704 | (2.2+ | 0.9+) | 2005 09 24 | 703 | 0.6− | 0.8− | | | | |

**(228794)∗ 2003 AT$_{13}$**

Discovered 2003 Jan. 1 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 293.71376 | | (2000.0) | | | |
| $n$ | 0.26126709 | $\omega$ | 262.31005 | | −0.59194961 | −0.80109602 |
| $a$ | 2.4233320 | $\Omega$ | 224.38291 | | +0.78035851 | −0.54218747 |
| $e$ | 0.2049205 | $i$ | 7.27301 | | +0.20158437 | −0.25353091 |
| $P$ | 3.77 | $H$ | 16.5 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 12 11 | 691 | 0.0 | 0.1+ | 2003 01 27 | 704 | 0.2+ | 0.2+ | 2009 09 30 | G96 | 0.1− | 0.0 |
| 1998 12 11 | 691 | 0.1+ | 0.3− | 2003 01 27 | 704 | 0.7− | 0.3− | 2009 09 30 | G96 | 0.2+ | 0.1+ |
| 1998 12 11 | 691 | 0.2+ | 0.1− | 2003 01 27 | 704 | 0.5− | 0.6− | 2009 09 30 | G96 | 0.3+ | 0.0 |
| 2002 12 14 | 704 | 0.0 | 1.0+ | 2007 01 15 | 703 | 0.4− | 0.1− | 2009 10 20 | G89 | 0.1+ | 0.1+ |
| 2002 12 14 | 704 | 0.1− | 0.1+ | 2007 01 15 | 703 | 0.6+ | 0.3+ | 2009 10 20 | G89 | 0.1+ | 0.0 |
| 2002 12 14 | 704 | 0.7− | 0.6− | 2007 01 15 | 703 | 1.1+ | 1.3+ | 2009 10 20 | G89 | 0.1+ | 0.0 |
| 2002 12 14 | 704 | 0.3− | 0.8+ | 2007 01 15 | 703 | 1.1+ | 0.5+ | 2009 10 21 | G89 | 0.2+ | 0.1+ |
| 2003 01 01 | 704 | 0.2+ | 0.4+ | 2007 02 21 | 703 | 0.2− | 0.5+ | 2009 10 21 | G89 | 0.1+ | 0.1+ |
| 2003 01 01 | 704 | 0.2− | 0.5− | 2007 02 21 | 703 | 0.4+ | 0.5+ | 2009 10 21 | G89 | 0.2+ | 0.1+ |
| 2003 01 01 | 704 | 0.8+ | 0.6− | 2007 02 21 | 703 | 0.4+ | 0.0 | 2009 10 21 | G96 | 0.4− | 0.2+ |
| 2003 01 05 | 704 | 0.1− | 0.3− | 2007 02 21 | 703 | 0.1− | 0.2− | 2009 10 21 | G96 | 0.1+ | 0.2− |
| 2003 01 05 | 704 | 0.0 | 0.2− | 2007 03 12 | 703 | 0.5+ | 0.6+ | 2009 10 21 | G96 | 0.1+ | 0.1+ |
| 2003 01 05 | 704 | 0.2− | 0.3− | 2007 03 12 | 703 | 0.1− | 0.6+ | 2009 10 21 | G96 | 0.1+ | 0.3+ |
| 2003 01 05 | 704 | 0.3− | 0.2− | 2007 03 12 | 703 | 0.4− | 0.8+ | 2009 12 17 | G96 | 0.6+ | 0.0 |
| 2003 01 09 | 704 | 0.0 | 0.4− | 2007 03 12 | 703 | 0.0 | 0.2+ | 2009 12 17 | G96 | 1.0+ | 0.3− |
| 2003 01 09 | 704 | 0.4+ | 0.4− | 2009 09 19 | 691 | 0.4− | 0.4+ | 2009 12 17 | G96 | 0.3+ | 0.2− |
| 2003 01 09 | 704 | 0.6+ | 0.2+ | 2009 09 19 | 691 | 0.3− | 0.3+ | 2009 12 17 | G96 | 0.2− | 0.1+ |
| 2003 01 09 | 704 | 0.2+ | 0.1+ | 2009 09 19 | 691 | 0.3− | 0.3+ | | | | |
| 2003 01 27 | 704 | 1.3− | 0.4+ | 2009 09 30 | G96 | 0.0 | 0.1+ | | | | |

**(228795)∗ 2003 AY$_{26}$ = 2004 LX$_{18}$**

Discovered 2003 Jan. 4 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. A. Doppler (*MPO* 108629)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 75.39865 | | (2000.0) | | | |
| $n$ | 0.28654099 | $\omega$ | 294.60663 | | +0.81673968 | −0.57255206 |
| $a$ | 2.2786531 | $\Omega$ | 100.39763 | | +0.55221406 | +0.73965107 |
| $e$ | 0.1019301 | $i$ | 4.17206 | | +0.16731985 | +0.35369540 |
| $P$ | 3.44 | $H$ | 17.0 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 01 04 | 704 | 0.0 | 0.5− | 2005 10 22 | 703 | 0.1+ | 0.7+ | 2007 03 11 | 691 | 0.1+ | 0.2− |
| 2003 01 04 | 704 | 0.2+ | 0.3+ | 2005 10 22 | 703 | 0.2− | 0.5+ | 2007 03 15 | 691 | 0.4− | 0.3+ |
| 2003 01 04 | 704 | 1.0+ | 0.7− | 2005 10 22 | 703 | 0.5− | 0.7+ | 2007 03 15 | 691 | 0.1+ | 0.1+ |
| 2003 01 04 | 704 | 0.7+ | 0.3+ | 2005 10 22 | 703 | 0.3+ | 0.1− | 2007 03 15 | 691 | 0.0 | 0.1− |
| 2003 01 08 | 704 | 0.7− | 0.2+ | 2005 11 03 | 703 | 0.9− | 0.4− | 2008 06 02 | G96 | 0.1− | 0.1− |
| 2003 01 08 | 704 | 0.6− | 0.6+ | 2005 11 03 | 703 | 0.5+ | 0.2+ | 2008 06 02 | G96 | 0.3− | 0.3+ |
| 2003 01 08 | 704 | 0.4− | 0.3+ | 2005 11 03 | 703 | 0.9− | 1.0+ | 2008 06 02 | G96 | 1.0− | 0.2+ |
| 2003 01 08 | 704 | 0.5− | 0.6+ | 2005 11 03 | 703 | 0.6− | 0.5− | 2008 06 02 | G96 | 0.1− | 0.3+ |
| 2004 06 11 | 691 | 0.0 | 0.3+ | 2005 11 09 | 703 | 0.1− | 0.8+ | 2009 11 21 | G96 | 0.1− | 0.4− |
| 2004 06 11 | 691 | 0.2+ | 0.1− | 2005 11 09 | 703 | 0.2+ | 0.4+ | 2009 11 21 | G96 | 0.9+ | 0.3+ |
| 2004 06 11 | 691 | 0.0 | 0.0 | 2005 11 09 | 703 | 0.7− | 0.5− | 2009 11 21 | G96 | 0.1− | 0.1− |
| 2004 06 17 | 691 | 0.3+ | 0.5+ | 2005 11 09 | 703 | 0.1+ | 0.3+ | 2009 11 21 | G96 | 0.2+ | 0.2+ |
| 2004 06 17 | 691 | 0.0 | 0.0 | 2007 02 26 | G96 | 0.4− | 0.1− | 2009 12 17 | G96 | 0.7+ | 0.0 |
| 2004 06 17 | 691 | 0.2+ | 0.0 | 2007 02 26 | G96 | 0.1− | 0.2+ | 2009 12 17 | G96 | 0.0 | 0.2+ |
| 2005 10 01 | 703 | (0.2− | 1.7+) | 2007 02 26 | G96 | 0.4− | 0.0 | 2009 12 17 | G96 | 0.3+ | 0.0 |
| 2005 10 01 | 703 | 0.7+ | 0.5+ | 2007 02 26 | G96 | 0.1− | 0.3− | 2009 12 17 | G96 | 0.1+ | 0.1+ |
| 2005 10 01 | 703 | 0.2+ | 0.3+ | 2007 03 11 | 691 | 0.1− | 0.1+ | | | | |
| 2005 10 01 | 703 | 0.1+ | 0.0 | 2007 03 11 | 691 | 0.1+ | 0.5+ | | | | |

**(228796)∗ 2003 AC$_{27}$ = 2007 EX$_{200}$**

Discovered 2003 Jan. 4 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. T. B. Spahr (*MPO* 117453)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 7.32097 | | (2000.0) | | | |
| $n$ | 0.27217248 | $\omega$ | 327.72656 | | +0.44351873 | −0.89440599 |
| $a$ | 2.3581599 | $\Omega$ | 95.88766 | | +0.83413592 | +0.38836677 |
| $e$ | 0.1876330 | $i$ | 3.32525 | | +0.32788475 | +0.22183141 |
| $P$ | 3.62 | $H$ | 17.0 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 12 31 | 645 | 0.0 | 0.1− | 2009 09 21 | 704 | 0.2− | 1.0− | 2009 11 17 | G96 | 0.0 | 0.2− |
| 2002 12 31 | 645 | 0.0 | 0.1− | 2009 10 21 | 703 | 0.2− | 0.1− | 2009 11 18 | 704 | 0.3+ | 0.5+ |
| 2003 01 04 | 704 | 0.4− | 1.5+ | 2009 10 21 | 703 | 0.8− | 0.3− | 2009 11 18 | 704 | 0.3+ | 0.0 |
| 2003 01 04 | 704 | 0.6+ | 0.5+ | 2009 10 21 | 703 | 0.5− | 0.3− | 2009 11 18 | 704 | 0.5+ | 0.1+ |
| 2003 01 04 | 704 | 1.0+ | 1.3+ | 2009 10 21 | 703 | 0.7− | 0.0 | 2009 11 18 | 704 | 0.5− | 0.1− |
| 2003 01 04 | 704 | 0.4+ | 0.9+ | 2009 10 22 | G96 | 0.0 | 0.2− | 2009 11 18 | 704 | 0.6+ | 0.9+ |
| 2003 01 08 | 704 | (0.8− | 1.9+) | 2009 10 22 | G96 | 0.3− | 0.2− | 2009 11 20 | 704 | 1.2− | 0.9+ |
| 2003 01 08 | 704 | (0.5− | 2.2+) | 2009 10 22 | G96 | 0.0 | 0.5+ | 2009 11 20 | 704 | 0.5− | 0.1− |
| 2003 01 08 | 704 | (0.5− | 2.8+) | 2009 10 22 | G96 | 0.4+ | 0.2− | 2009 11 20 | 704 | 0.7− | 0.1+ |
| 2003 01 08 | 704 | (0.5− | 2.5+) | 2009 10 26 | 703 | 0.5− | 0.5+ | 2009 11 20 | 704 | 0.4− | 0.6+ |
| 2003 01 09 | 704 | 0.6+ | 1.0+ | 2009 10 26 | 703 | 0.0 | 0.1− | 2009 11 20 | 704 | 0.5+ | 0.0 |
| 2003 01 09 | 704 | 0.4− | 0.5+ | 2009 10 26 | 703 | 0.0 | 0.7− | 2009 11 22 | 703 | 0.4− | 0.1+ |
| 2003 01 09 | 704 | 0.5− | 0.2+ | 2009 10 26 | 703 | 0.6+ | 0.1+ | 2009 11 22 | 703 | 0.6− | 0.2− |
| 2005 08 27 | 644 | 0.1+ | 0.1+ | 2009 11 09 | 703 | 0.6− | 0.2− | 2009 11 22 | 703 | 0.7+ | 0.0 |
| 2005 08 27 | 644 | 0.2− | 0.2+ | 2009 11 09 | 703 | 0.3− | 0.2+ | 2009 11 22 | 703 | 0.1− | 0.0 |
| 2005 08 27 | 644 | 0.0 | 0.4+ | 2009 11 09 | 703 | 0.6+ | 0.5+ | 2009 11 23 | J75 | 1.0+ | 0.5− |
| 2007 02 26 | G96 | 0.7− | 0.2− | 2009 11 09 | 703 | 0.6− | 0.4− | 2009 11 23 | J75 | 0.3+ | 0.1+ |
| 2007 02 26 | G96 | 0.5+ | 0.1+ | 2009 11 12 | J75 | 0.6+ | 0.2− | 2009 11 23 | J75 | 0.1+ | 0.0 |
| 2007 02 26 | G96 | 0.0 | 0.2− | 2009 11 12 | J75 | 0.2+ | 0.4− | 2009 11 24 | G96 | 0.4+ | 0.2− |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 02 26 | G96 | 0.5− | 0.4− | 2009 11 12 | J75 | 0.2+ | 0.1− | 2009 11 24 | G96 | 0.4+ | 0.2− |
| 2007 03 11 | D29 | 0.9− | 1.0− | 2009 11 15 | 703 | 0.9+ | 0.4− | 2009 11 24 | G96 | 0.5+ | 0.1− |
| 2007 03 11 | D29 | 0.7+ | 0.6+ | 2009 11 15 | 703 | 0.2+ | 0.7− | 2009 11 24 | G96 | 0.1+ | 0.2− |
| 2007 03 11 | D29 | 0.1+ | 0.4− | 2009 11 15 | 703 | 0.6+ | 0.2− | 2009 12 11 | 703 | 0.2+ | 0.2− |
| 2007 03 11 | D29 | 0.1− | 0.9− | 2009 11 15 | 703 | 0.4+ | 0.2− | 2009 12 11 | 703 | 0.7− | 0.0 |
| 2007 03 14 | G96 | 0.0 | 0.3+ | 2009 11 15 | 703 | 0.8− | 0.6− | 2009 12 11 | 703 | 0.6+ | 0.1+ |
| 2007 03 14 | G96 | 0.0 | 0.2+ | 2009 11 15 | 703 | 0.3+ | 0.1+ | 2009 12 11 | 703 | 0.7− | 0.5− |
| 2007 03 14 | G96 | 0.2+ | 0.1+ | 2009 11 15 | 703 | 0.3+ | 0.5− | 2009 12 12 | 704 | 0.6− | 0.3+ |
| 2007 03 14 | G96 | 0.2− | 0.2+ | 2009 11 15 | 703 | 0.3− | 0.3+ | 2009 12 12 | 704 | 0.2+ | 1.1+ |
| 2009 09 21 | 704 | (0.1− | 1.9+) | 2009 11 17 | G96 | 0.1− | 0.2− | 2009 12 12 | 704 | 0.6+ | 0.9+ |
| 2009 09 21 | 704 | 0.3− | 0.6+ | 2009 11 17 | G96 | 0.2− | 0.1− | | | | |
| 2009 09 21 | 704 | (1.7− | 1.0+) | 2009 11 17 | G96 | 0.1+ | 0.3− | | | | |

**(228797)∗ 2003 AX$_{32}$ = 2005 TZ$_{84}$**

Discovered 2003 Jan. 5 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 89395)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 342.38102 | | (2000.0) | | | |
| $n$ | 0.28222398 | $\omega$ | 154.88477 | | −0.67320106 | −0.73936652 |
| $a$ | 2.3018310 | $\Omega$ | 337.42394 | | +0.67318026 | −0.60622243 |
| $e$ | 0.1439277 | $i$ | 1.75014 | | +0.30598801 | −0.29297016 |
| $P$ | 3.49 | $H$ | 17.6 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 12 31 | 704 | 0.5+ | 0.4+ | 2005 10 03 | 691 | 0.2− | 0.1+ | 2007 05 12 | G96 | 0.7− | 0.1− |
| 2002 12 31 | 704 | 0.1− | 0.5+ | 2005 10 09 | 691 | 0.1+ | 0.0 | 2007 05 12 | G96 | 0.8+ | 0.1− |
| 2002 12 31 | 704 | 0.5+ | 1.1+ | 2005 10 09 | 691 | 0.1+ | 0.1+ | 2007 05 12 | G96 | 0.9− | 0.1+ |
| 2002 12 31 | 704 | 0.1+ | 0.3+ | 2005 10 09 | 691 | 0.1− | 0.1− | 2007 05 12 | G96 | 0.1+ | 0.4− |
| 2003 01 05 | 704 | 0.4− | 0.1+ | 2005 10 13 | 691 | 0.1+ | 0.0 | 2009 11 11 | G96 | 0.2+ | 0.1+ |
| 2003 01 05 | 704 | 0.3− | 0.2+ | 2005 10 13 | 691 | 0.3− | 0.1+ | 2009 11 11 | G96 | 0.0 | 0.3− |
| 2003 01 05 | 704 | 0.1+ | 0.3+ | 2005 10 13 | 691 | 0.4− | 0.1+ | 2009 11 11 | G96 | 0.0 | 0.1+ |
| 2003 01 05 | 704 | 0.9− | 0.3+ | 2005 10 26 | 691 | 0.1+ | 0.0 | 2009 11 11 | G96 | 0.4+ | 0.3− |
| 2003 01 05 | 704 | (1.6+ | 1.1+) | 2005 10 26 | 691 | 1.1+ | 0.2+ | 2009 12 18 | 691 | 0.0 | 0.2− |
| 2003 01 08 | 704 | 0.5− | 0.5+ | 2005 10 26 | 691 | 0.5− | 0.3+ | 2009 12 18 | 691 | 0.0 | 0.2− |
| 2003 01 08 | 704 | 0.4+ | 0.7− | 2007 03 18 | 691 | 0.4+ | 0.2− | 2009 12 18 | 691 | 0.0 | 0.0 |
| 2003 01 08 | 704 | 0.1− | 0.9+ | 2007 03 18 | 691 | 0.1+ | 0.3+ | 2009 12 26 | 691 | 0.0 | 0.1+ |
| 2003 01 08 | 704 | 0.8+ | 0.2− | 2007 03 18 | 691 | 0.6+ | 0.6+ | 2009 12 26 | 691 | 0.2− | 0.1− |
| 2003 01 08 | 704 | 0.3+ | 1.0− | 2007 04 20 | 691 | 0.1+ | 0.0 | 2009 12 26 | 691 | 0.1+ | 0.2− |
| 2005 10 03 | 691 | 0.0 | 0.1+ | 2007 04 20 | 691 | 0.2− | 0.0 | | | | |
| 2005 10 03 | 691 | 0.1− | 0.1− | 2007 04 20 | 691 | 0.4− | 0.1− | | | | |

**(228798)∗ 2003 AO$_{33}$**

Discovered 2003 Jan. 5 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 323.60407 | | (2000.0) | | | |
| $n$ | 0.26801659 | $\omega$ | 111.60221 | | −0.46333681 | −0.88617825 |
| $a$ | 2.3824745 | $\Omega$ | 6.00247 | | +0.80333306 | −0.42128808 |
| $e$ | 0.1341364 | $i$ | 1.46140 | | +0.37413232 | −0.19288458 |
| $P$ | 3.68 | $H$ | 16.8 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 12 31 | 704 | 0.1+ | 0.2− | 2005 10 05 | 691 | 0.1− | 0.1+ | 2007 04 23 | G96 | 0.0 | 0.2− |
| 2002 12 31 | 704 | 0.5+ | 0.1− | 2005 10 05 | 691 | 0.1+ | 0.2+ | 2007 04 23 | G96 | 0.1− | 0.1+ |
| 2002 12 31 | 704 | 0.1+ | 0.1+ | 2005 10 07 | 703 | 0.8− | 0.9− | 2007 04 23 | G96 | 0.2+ | 0.2− |
| 2002 12 31 | 704 | 0.2+ | 0.5+ | 2005 10 07 | 703 | 0.6+ | 0.3− | 2007 04 23 | G96 | 0.0 | 0.1− |
| 2002 12 31 | 704 | 0.4+ | 0.7− | 2005 10 07 | 703 | 0.3+ | 1.3− | 2009 11 08 | 703 | (1.6+ | 0.3−) |
| 2002 12 31 | 704 | 0.6+ | 0.1+ | 2005 10 07 | 703 | 0.6+ | 0.0 | 2009 11 08 | 703 | (1.8+ | 0.4+) |
| 2002 12 31 | 704 | 0.6+ | 1.0+ | 2005 12 02 | G96 | 0.7+ | 0.4− | 2009 11 08 | 703 | 0.0 | 1.5+ |
| 2003 01 05 | 704 | 0.2+ | 0.6− | 2005 12 02 | G96 | 0.2− | 0.1− | 2009 11 08 | 703 | 0.6− | 0.3− |
| 2003 01 05 | 704 | 0.1+ | 0.5+ | 2005 12 02 | G96 | 0.1+ | 0.1− | 2009 11 09 | 691 | 0.5− | 0.3− |
| 2003 01 05 | 704 | 0.3− | 0.7+ | 2005 12 02 | G96 | 0.0 | 0.0 | 2009 11 09 | 691 | 0.1− | 0.2− |
| 2003 01 08 | 704 | 1.1+ | 0.6− | 2006 11 23 | G96 | 0.1− | 0.3− | 2009 11 09 | 691 | 0.2− | 0.2− |
| 2003 01 08 | 704 | 0.4− | 0.7− | 2006 11 23 | G96 | 0.3+ | 0.4− | 2009 11 11 | J75 | 0.4+ | 0.6− |
| 2003 01 08 | 704 | 0.2+ | 0.0 | 2006 11 23 | G96 | 0.3− | 0.3− | 2009 11 11 | J75 | 0.5+ | 0.5− |
| 2003 01 08 | 704 | 0.4+ | 0.1+ | 2006 11 23 | G96 | 0.3+ | 0.4− | 2009 11 11 | J75 | 0.7+ | 0.2− |
| 2003 01 15 | 644 | 0.2+ | 0.6+ | 2007 01 17 | G96 | 0.1+ | 0.1− | 2009 11 14 | J75 | 0.4+ | 0.3− |
| 2003 01 15 | 644 | 0.1+ | 0.8+ | 2007 01 17 | G96 | 0.1− | 0.3+ | 2009 11 14 | J75 | 0.3− | 0.6− |
| 2003 01 15 | 644 | 0.2+ | 1.0+ | 2007 01 17 | G96 | 0.3+ | 0.2− | 2009 11 14 | J75 | 0.5+ | 0.4− |
| 2003 01 25 | 699 | 0.1+ | 0.6+ | 2007 01 17 | G96 | 0.1+ | 0.0 | 2009 11 17 | 704 | 1.0− | 0.8+ |
| 2003 01 25 | 699 | (1.8+ | 0.1+) | 2007 01 28 | G96 | 0.1− | 0.1− | 2009 11 17 | 704 | 0.1+ | 0.5+ |
| 2003 01 25 | 699 | 0.0 | 0.2+ | 2007 01 28 | G96 | 0.1− | 0.1− | 2009 11 17 | 704 | (1.7− | 0.8−) |
| 2003 01 25 | 699 | 0.0 | 0.6+ | 2007 01 28 | G96 | 0.2− | 0.1− | 2009 11 17 | 704 | 0.3+ | 0.4+ |
| 2003 02 01 | 704 | 0.4− | 0.6+ | 2007 01 28 | G96 | 0.1− | 0.1+ | 2009 11 21 | 704 | 0.1− | 0.3+ |
| 2003 02 01 | 704 | 0.5− | 0.1+ | 2007 02 16 | G96 | 0.0 | 0.1− | 2009 11 21 | 704 | 0.0 | 0.6+ |
| 2003 02 01 | 704 | 0.1− | 0.1+ | 2007 02 16 | G96 | 0.5+ | 0.2+ | 2009 11 21 | 704 | 0.2+ | 0.3+ |
| 2003 02 01 | 704 | 1.2− | 0.5− | 2007 02 16 | G96 | 0.1− | 0.1− | 2009 11 22 | 703 | 0.4+ | 0.0 |
| 2003 02 01 | 704 | 0.2+ | 1.4− | 2007 02 16 | G96 | 0.6− | 0.2+ | 2009 11 22 | 703 | 0.3+ | 0.7− |
| 2003 02 03 | 704 | 0.4− | 0.4− | 2007 02 23 | 691 | 0.0 | 0.0 | 2009 11 22 | 703 | 0.1+ | 0.4− |
| 2003 02 03 | 704 | 0.5+ | 1.0+ | 2007 02 23 | 691 | 0.1+ | 0.2+ | 2009 11 24 | G96 | 0.1+ | 0.0 |
| 2003 02 03 | 704 | 1.2− | 0.1+ | 2007 02 23 | 691 | 0.8− | 0.4− | 2009 11 24 | G96 | 0.4+ | 0.2− |
| 2003 02 03 | 704 | 0.3− | 0.3+ | 2007 03 09 | 691 | 0.2+ | 0.0 | 2009 11 24 | G96 | 0.1+ | 0.3− |
| 2003 02 06 | 608 | (0.1− | 1.9+) | 2007 03 09 | 691 | 0.0 | 0.1− | 2009 11 24 | G96 | 0.4+ | 0.1− |
| 2003 02 06 | 608 | (0.1+ | 2.0+) | 2007 03 09 | 691 | 0.3+ | 0.2+ | 2009 11 25 | 691 | 0.6+ | 0.4+ |
| 2003 02 06 | 608 | 0.3+ | 1.0+ | 2007 03 09 | G96 | 0.1− | 0.2+ | 2009 11 25 | 691 | 0.4− | 0.1− |
| 2005 09 26 | 691 | 0.0 | 0.2+ | 2007 03 09 | G96 | 0.1− | 0.1+ | 2009 11 25 | 691 | 0.3− | 0.0 |
| 2005 09 26 | 691 | 0.1− | 0.1+ | 2007 03 09 | G96 | 0.0 | 0.2+ | 2009 11 27 | 691 | 0.3− | 0.2− |
| 2005 09 26 | 691 | 0.1− | 0.0 | 2007 03 09 | G96 | 0.1− | 0.3+ | 2009 11 27 | 691 | 0.6− | 0.1− |
| 2005 09 27 | 691 | 0.1− | 0.2+ | 2007 03 17 | 704 | (2.0+ | 1.2+) | 2009 11 27 | 691 | 0.1− | 0.1+ |
| 2005 09 27 | 691 | 0.0 | 0.4+ | 2007 03 17 | 704 | (2.5+ | 0.6+) | 2009 12 13 | 703 | 2.3+ | 0.5− |
| 2005 09 27 | 691 | 0.0 | 0.3+ | 2007 03 17 | 704 | (1.8+ | 2.2+) | 2009 12 13 | 703 | 0.8+ | 0.3− |
| 2005 09 30 | G96 | 0.0 | 0.2− | 2007 03 17 | 704 | 1.2+ | 0.3+ | 2009 12 13 | 703 | 0.8+ | 0.0 |
| 2005 09 30 | G96 | 0.1− | 0.4− | 2007 03 25 | G96 | 0.4+ | 0.1+ | 2009 12 13 | 703 | 1.8+ | 1.8− |
| 2005 09 30 | G96 | 0.1− | 0.2− | 2007 03 25 | G96 | 0.2− | 0.1+ | 2009 12 18 | G96 | 0.2+ | 0.1+ |
| 2005 09 30 | G96 | 0.1− | 0.2− | 2007 03 25 | G96 | 0.2− | 0.1+ | 2009 12 18 | G96 | 0.2+ | 0.1− |
| 2005 10 01 | 691 | 0.2− | 0.2− | 2007 03 25 | G96 | 0.3+ | 0.0 | 2009 12 18 | G96 | 0.1+ | 0.0 |
| 2005 10 01 | 691 | 0.0 | 0.4+ | 2007 04 15 | G96 | 0.3− | 0.3− | 2009 12 18 | G96 | 0.0 | 0.4− |
| 2005 10 01 | 691 | 0.1− | 0.3+ | 2007 04 15 | G96 | 0.0 | 0.3− | | | | |
| 2005 10 05 | 691 | 0.2− | 0.1+ | 2007 04 15 | G96 | 0.4− | 0.1− | | | | |

**(228799)∗ 2003 AP$_{38}$**

Discovered 2003 Jan. 7 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 58.15116 | | (2000.0) | | | |
| $n$ | 0.27993035 | $\omega$ | 134.89899 | | +0.73650700 | −0.66491470 |
| $a$ | 2.3143874 | $\Omega$ | 267.19847 | | +0.58026094 | +0.71546755 |
| $e$ | 0.1061310 | $i$ | 7.14785 | | +0.34764159 | +0.21446358 |
| $P$ | 3.52 | $H$ | 16.0 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 07 14 | 608 | 0.1− | 0.0 | 2005 10 10 | 699 | 0.4+ | 0.3+ | 2005 11 25 | 703 | 0.3+ | 0.1− |
| 2001 07 14 | 608 | 0.1+ | 0.5− | 2005 10 10 | 699 | 0.1+ | 0.0 | 2005 11 25 | 703 | 0.3− | 0.8+ |
| 2001 07 14 | 608 | 0.3− | 0.1− | 2005 10 13 | 704 | 0.0 | 0.4+ | 2005 11 25 | 703 | 0.3− | 0.3+ |
| 2002 12 28 | 699 | 0.2− | 0.8+ | 2005 10 13 | 704 | 0.0 | 0.4+ | 2005 11 25 | 703 | 0.5− | 0.6+ |
| 2002 12 28 | 699 | (1.5− | 0.2−) | 2005 10 13 | 704 | 0.4− | 0.1+ | 2005 12 22 | 644 | 0.5− | 0.3+ |
| 2002 12 28 | 699 | 0.4+ | 0.2− | 2005 10 13 | 704 | 0.4− | 0.8+ | 2005 12 22 | 644 | 0.5− | 0.3+ |
| 2002 12 28 | 699 | 0.5− | 0.1− | 2005 10 13 | 704 | 0.1− | 0.2+ | 2005 12 22 | 644 | 0.4− | 0.2− |
| 2003 01 07 | 704 | 0.3+ | 0.5+ | 2005 10 14 | 699 | 0.0 | 1.0+ | 2005 12 24 | 703 | 0.2+ | 0.9+ |
| 2003 01 07 | 704 | 1.1+ | 0.3− | 2005 10 14 | 699 | 0.5+ | 0.2− | 2005 12 24 | 703 | 0.2− | 1.0+ |
| 2003 01 07 | 704 | 0.4+ | 0.1+ | 2005 10 14 | 699 | 0.2− | 0.6− | 2005 12 24 | 703 | 0.2+ | 0.7− |
| 2003 01 07 | 704 | 0.4− | 0.0 | 2005 10 14 | 699 | 0.4+ | 0.2+ | 2005 12 24 | 703 | 0.8− | 0.2− |
| 2003 01 08 | 704 | (2.2+ | 0.7−) | 2005 10 23 | 703 | 0.2− | 0.0 | 2007 03 13 | 703 | 0.4+ | 0.2+ |
| 2003 01 08 | 704 | 1.1− | 0.3− | 2005 10 23 | 703 | 0.7− | 0.5+ | 2007 03 13 | 703 | 0.7+ | 0.8+ |
| 2003 01 08 | 704 | 0.7+ | 0.4− | 2005 10 23 | 703 | 0.1− | 0.3+ | 2007 03 13 | 703 | 0.5− | 0.0 |
| 2003 01 08 | 704 | 0.0 | 0.6+ | 2005 10 23 | 703 | 0.6− | 0.2− | 2007 03 13 | 703 | 0.9+ | 0.9− |
| 2003 01 27 | 704 | 0.0 | 0.3+ | 2005 10 26 | 699 | 0.8+ | 0.4+ | 2007 03 14 | 699 | 0.8+ | 1.2+ |
| 2003 01 27 | 704 | 0.2+ | 0.1− | 2005 10 26 | 699 | 0.2+ | 0.3+ | 2007 03 14 | 699 | 0.5− | 1.1+ |
| 2003 01 27 | 704 | 0.5− | 1.4+ | 2005 10 26 | 699 | 0.4+ | 0.3− | 2007 03 14 | 699 | (0.8+ | 2.0+) |
| 2003 01 27 | 704 | 0.1− | 0.1− | 2005 10 26 | 699 | 0.1− | 0.6+ | 2007 03 14 | 699 | (2.3+ | 0.6+) |
| 2005 08 16 | 704 | 0.3+ | 0.5+ | 2005 10 29 | 703 | 0.3− | 0.2− | 2007 03 20 | 703 | 0.9+ | 0.6+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 08 16 | 704 | 0.9+ | 0.7+ | 2005 10 29 | 703 | 0.0 | 0.2− | 2007 03 20 | 703 | 0.4− | 0.3+ | | |
| 2005 08 16 | 704 | 0.1+ | 0.3− | 2005 10 29 | 703 | 0.3+ | 0.3− | 2007 03 20 | 703 | 0.5− | 0.0 | | |
| 2005 09 24 | 703 | 0.2+ | 0.4− | 2005 10 29 | 703 | 0.4− | 0.8− | 2007 03 20 | 703 | 0.4+ | 0.0 | | |
| 2005 09 24 | 703 | 0.1− | 0.1− | 2005 11 03 | 704 | 1.2+ | 0.8+ | 2008 06 11 | 691 | 0.3− | 0.6− | | |
| 2005 09 24 | 703 | 0.4+ | 0.1+ | 2005 11 03 | 704 | 0.6+ | 0.4− | 2008 06 11 | 691 | 0.1+ | 0.5+ | | |
| 2005 09 24 | 703 | 0.1− | 0.3+ | 2005 11 03 | 704 | 0.2+ | 0.1− | 2008 06 11 | 691 | 0.1− | 0.6+ | | |
| 2005 09 30 | 703 | 0.1+ | 0.1+ | 2005 11 03 | 704 | 0.0 | 0.5− | 2009 10 18 | G96 | 0.1− | 0.0 | | |
| 2005 09 30 | 703 | 0.4− | 0.2− | 2005 11 07 | 704 | (0.8− | 1.6+) | 2009 10 18 | G96 | 0.2+ | 0.1+ | | |
| 2005 09 30 | 703 | 0.5− | 0.4− | 2005 11 07 | 704 | (1.0− | 1.9+) | 2009 10 18 | G96 | 0.1− | 0.4− | | |
| 2005 09 30 | 703 | 0.1− | 0.2− | 2005 11 07 | 704 | 0.8− | 1.4+ | 2009 10 18 | G96 | 0.4+ | 0.5− | | |
| 2005 10 02 | 644 | 0.1− | 0.0 | 2005 11 07 | 704 | (0.9− | 1.7+) | 2009 12 17 | 704 | 0.5+ | 0.5+ | | |
| 2005 10 02 | 644 | 0.0 | 0.1+ | 2005 11 07 | 704 | (0.5− | 1.8+) | 2009 12 17 | 704 | 0.9+ | 0.6− | | |
| 2005 10 02 | 644 | 0.1− | 0.3+ | 2005 11 19 | 699 | 0.3+ | 0.4+ | 2009 12 17 | 704 | 0.7+ | 0.1− | | |
| 2005 10 08 | 703 | 0.3+ | 0.4− | 2005 11 19 | 699 | 0.2+ | 0.2+ | 2009 12 17 | 704 | 0.4+ | 0.3+ | | |
| 2005 10 08 | 703 | 0.3− | 0.6− | 2005 11 19 | 699 | 0.2− | 0.3+ | 2009 12 20 | 691 | 0.3− | 0.2− | | |
| 2005 10 08 | 703 | 0.1+ | 0.9− | 2005 11 19 | 699 | 0.3− | 0.9− | 2009 12 20 | 691 | 0.4− | 0.2− | | |
| 2005 10 08 | 703 | 0.5+ | 0.7− | 2005 11 22 | 291 | 0.0 | 0.0 | 2009 12 20 | 691 | 0.4− | 0.3− | | |
| 2005 10 10 | 699 | 0.7− | 0.2+ | 2005 11 22 | 291 | 0.0 | 0.0 | | | | | | |
| 2005 10 10 | 699 | 0.5+ | 0.2+ | 2005 11 22 | 291 | 0.1− | 0.0 | | | | | | |

**(228800)∗ 2003 AL$_{48}$**

Discovered 2003 Jan. 5 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 11.40631 | | (2000.0) | | | |
| $n$ | 0.27838722 | $\omega$ | 14.44400 | | +0.18096974 | −0.98139347 |
| $a$ | 2.3229321 | $\Omega$ | 65.16275 | | +0.89517314 | +0.13734808 |
| $e$ | 0.1510620 | $i$ | 4.05431 | | +0.40732665 | +0.13417291 |
| $P$ | 3.54 | $H$ | 17.0 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 09 25 | 645 | 0.0 | 0.1− | 2005 09 22 | 644 | 0.4− | 0.4+ | 2007 03 15 | 691 | 0.0 | 0.1+ | | |
| 1998 09 25 | 645 | 0.0 | 0.1− | 2005 10 01 | 703 | 0.2+ | 1.1− | 2009 11 11 | 114 | 1.3+ | 0.4+ | | |
| 2003 01 05 | 704 | 0.0 | 0.3+ | 2005 10 01 | 703 | 0.4− | 0.2+ | 2009 11 11 | 114 | 0.1+ | 0.2− | | |
| 2003 01 05 | 704 | 0.1− | 0.1+ | 2005 10 01 | 703 | 0.6+ | 0.2+ | 2009 11 11 | 114 | 0.2+ | 0.1− | | |
| 2003 01 05 | 704 | 0.3+ | 0.4+ | 2005 10 01 | 703 | 0.0 | 0.4+ | 2009 11 11 | 114 | 0.7+ | 0.3+ | | |
| 2003 01 05 | 704 | 0.2− | 1.2+ | 2005 10 01 | 703 | 0.0 | 0.3− | 2009 11 18 | 114 | 0.2− | 0.4− | | |
| 2003 01 09 | 704 | (0.5− | 1.8+) | 2005 10 01 | 703 | 0.5+ | 0.2+ | 2009 11 18 | 114 | 0.2− | 0.2− | | |
| 2003 01 09 | 704 | 0.0 | 0.9+ | 2005 10 01 | 703 | 0.1+ | 0.2+ | 2009 11 18 | 114 | 0.4− | 0.7− | | |
| 2003 01 09 | 704 | 0.4+ | 0.6+ | 2005 10 01 | 703 | 0.2+ | 0.3+ | 2009 11 18 | 114 | 0.6− | 0.3− | | |
| 2003 01 09 | 704 | 0.6+ | 0.7+ | 2007 02 26 | G96 | 0.1+ | 0.1+ | 2009 11 18 | 114 | 0.3− | 0.3− | | |
| 2005 08 30 | 691 | 0.3− | 0.4+ | 2007 02 26 | G96 | 0.0 | 0.2− | 2009 12 10 | 704 | 0.3− | 0.4+ | | |
| 2005 08 30 | 691 | 0.0 | 0.4+ | 2007 02 26 | G96 | 0.1+ | 0.0 | 2009 12 10 | 704 | 0.0 | 0.2+ | | |
| 2005 08 30 | 691 | 0.4− | 0.4+ | 2007 02 26 | G96 | 0.1+ | 0.3+ | 2009 12 10 | 704 | 0.8− | 0.6− | | |
| 2005 09 13 | 691 | 0.0 | 0.2+ | 2007 03 11 | 691 | 0.1+ | 0.2+ | 2009 12 10 | 704 | 0.4− | 0.1− | | |
| 2005 09 13 | 691 | 0.1− | 0.3+ | 2007 03 11 | 691 | 0.0 | 0.1+ | 2009 12 10 | 704 | 1.3+ | 0.6+ | | |
| 2005 09 13 | 691 | 0.2− | 0.4+ | 2007 03 11 | 691 | 0.2+ | 0.3+ | 2009 12 19 | 691 | 0.3− | 0.1− | | |
| 2005 09 22 | 644 | 0.6− | 0.4+ | 2007 03 15 | 691 | 0.3+ | 0.3+ | 2009 12 19 | 691 | 0.5+ | 0.1− | | |
| 2005 09 22 | 644 | 0.1− | 0.4+ | 2007 03 15 | 691 | 0.3− | 0.1+ | 2009 12 19 | 691 | 0.3− | 0.2− | | |

**(228801)∗ 2003 AB$_{55}$ = 2005 QS$_{145}$**

Discovered 2003 Jan. 5 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. A. Doppler (*MPO* 85845)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 41.17821 | | (2000.0) | | | |
| $n$ | 0.28096115 | $\omega$ | 337.79030 | | +0.61465333 | −0.78027153 |
| $a$ | 2.3087232 | $\Omega$ | 74.09105 | | +0.74058787 | +0.52037376 |
| $e$ | 0.2043027 | $i$ | 6.90758 | | +0.27153433 | +0.34696900 |
| $P$ | 3.51 | $H$ | 16.5 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 01 05 | 704 | 0.4+ | 0.7+ | 2005 09 03 | 703 | 0.2+ | 0.2+ | 2009 11 11 | G96 | 0.1+ | 0.0 | | |
| 2003 01 05 | 704 | 0.4+ | 0.6+ | 2005 09 03 | 703 | 0.1+ | 0.2− | 2009 11 11 | G96 | 0.3− | 0.1− | | |
| 2003 01 05 | 704 | 0.4+ | 1.0+ | 2005 09 12 | E12 | 0.2+ | 0.2+ | 2009 11 21 | G96 | 0.3− | 0.3− | | |
| 2003 01 05 | 704 | (0.3+ | 2.0+) | 2005 09 12 | E12 | 0.6+ | 0.4+ | 2009 11 21 | G96 | 0.1− | 0.0 | | |
| 2003 01 09 | 704 | 0.7+ | 0.3+ | 2005 09 12 | E12 | 0.1− | 0.3+ | 2009 11 21 | G96 | 0.0 | 0.0 | | |
| 2003 01 09 | 704 | 0.3+ | 0.0 | 2005 09 12 | E12 | 0.2+ | 0.9+ | 2009 11 21 | G96 | 0.4− | 0.1− | | |
| 2003 01 09 | 704 | 0.2+ | 0.1+ | 2005 09 25 | 703 | 0.4− | 0.3+ | 2009 12 10 | 704 | 0.1− | 1.3+ | | |
| 2003 01 09 | 704 | 0.0 | 0.1+ | 2005 09 25 | 703 | 0.5− | 0.2+ | 2009 12 10 | 704 | (0.3+ | 1.9+) | | |
| 2003 01 09 | 704 | 0.1− | 0.1− | 2005 09 25 | 703 | 0.5+ | 0.4+ | 2009 12 10 | 704 | 1.0+ | 1.3+ | | |
| 2003 01 31 | 704 | 0.0 | 1.0+ | 2005 09 25 | 703 | 0.4+ | 0.4− | 2009 12 10 | 704 | 0.3− | 1.5+ | | |
| 2003 01 31 | 704 | 0.7− | 1.0+ | 2005 09 27 | 704 | 1.0− | 0.2+ | 2009 12 15 | 704 | 1.1+ | 0.4+ | | |
| 2003 01 31 | 704 | 0.0 | 0.0 | 2005 09 27 | 704 | 0.1+ | 0.6+ | 2009 12 15 | 704 | 0.6+ | 0.5+ | | |
| 2003 01 31 | 704 | 0.0 | 0.1− | 2005 09 27 | 704 | 0.9+ | 0.5+ | 2009 12 15 | 704 | 0.3+ | 0.2+ | | |
| 2003 01 31 | 704 | 0.7− | 0.1+ | 2005 09 27 | 704 | 0.2− | 0.9+ | 2009 12 15 | 704 | 0.8+ | 1.1− | | |
| 2004 05 21 | 691 | 0.0 | 0.3+ | 2005 09 27 | 704 | (1.2− | 1.9+) | 2009 12 15 | 704 | 1.2+ | 0.1− | | |
| 2004 05 21 | 691 | 0.0 | 0.2+ | 2005 10 03 | 703 | 0.8− | 0.1− | 2009 12 15 | 704 | 0.4+ | 0.5− | | |
| 2004 05 21 | 691 | 0.1+ | 0.4+ | 2005 10 03 | 703 | 0.8− | 0.3+ | 2009 12 15 | 704 | 0.2+ | 1.2− | | |
| 2004 06 13 | 691 | 0.5+ | 0.3+ | 2005 10 03 | 703 | 0.2+ | 0.4+ | 2009 12 15 | 704 | 0.0 | 0.2− | | |
| 2004 06 13 | 691 | 0.3− | 0.2+ | 2005 10 03 | 703 | (0.4− | 2.9+) | 2009 12 19 | G96 | 0.2− | 0.1− | | |
| 2004 06 13 | 691 | 0.4+ | 0.8+ | 2005 11 05 | 699 | 0.2− | 1.1+ | 2009 12 19 | G96 | 0.1+ | 0.2− | | |
| 2005 08 27 | 644 | 0.0 | 0.5+ | 2005 11 05 | 699 | 0.6− | 0.1− | 2009 12 19 | G96 | 0.2− | 0.3− | | |
| 2005 08 27 | 644 | 0.1− | 0.3+ | 2005 11 05 | 699 | 0.2+ | 1.4− | 2009 12 19 | G96 | 0.1+ | 0.1− | | |
| 2005 08 27 | 644 | 0.0 | 0.3+ | 2005 11 05 | 699 | 1.2− | 0.1+ | 2009 12 20 | 691 | 0.2− | 0.1+ | | |
| 2005 09 03 | 703 | 0.3− | 0.1− | 2009 11 11 | G96 | 0.1+ | 0.0 | 2009 12 20 | 691 | 0.3− | 0.2+ | | |
| 2005 09 03 | 703 | 0.3− | 0.1+ | 2009 11 11 | G96 | 0.2− | 0.1− | 2009 12 20 | 691 | 0.3− | 0.2+ | | |

**(228802)∗ 2003 AP$_{61}$ = 2007 HZ$_{16}$**

Discovered 2003 Jan. 7 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 119095)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 326.96470 | | (2000.0) | | | |
| $n$ | 0.27241801 | $\omega$ | 325.50195 | | −0.60915635 | −0.79223654 |
| $a$ | 2.3567427 | $\Omega$ | 161.94121 | | +0.75121537 | −0.59094439 |
| $e$ | 0.1553431 | $i$ | 6.65286 | | +0.25417318 | −0.15213804 |
| $P$ | 3.62 | $H$ | 16.9 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 05 09 | 691 | 0.2+ | 0.1+ | 2003 01 27 | 704 | 0.7− | 0.1− | 2007 04 23 | G96 | 0.2+ | 0.2− | | |
| 2000 05 09 | 691 | 0.1+ | 0.3+ | 2003 02 02 | 704 | (3.2+ | 3.9+) | 2008 07 29 | G96 | 0.2+ | 0.2+ | | |
| 2000 05 09 | 691 | 0.3+ | 0.3+ | 2003 02 02 | 704 | 0.1+ | 0.4+ | 2008 07 29 | G96 | 0.2+ | 0.1− | | |
| 2001 08 23 | 691 | 0.1+ | 0.5+ | 2003 02 02 | 704 | 0.3− | 0.0 | 2008 07 29 | G96 | 0.2− | 0.0 | | |
| 2001 08 23 | 691 | 0.5− | 0.5+ | 2005 10 21 | 705 | 0.1+ | 0.1+ | 2008 07 29 | G96 | 0.1− | 0.1− | | |
| 2001 08 23 | 691 | 0.4− | 0.2+ | 2005 10 21 | 705 | 0.1+ | 0.2+ | 2009 11 09 | 703 | 0.1− | 1.2− | | |
| 2003 01 01 | 704 | 0.2− | 1.3+ | 2007 03 11 | 691 | 0.2+ | 0.1+ | 2009 11 09 | 703 | 0.2+ | 0.6+ | | |
| 2003 01 01 | 704 | (0.4− | 2.5+) | 2007 03 11 | 691 | 0.1+ | 0.1+ | 2009 11 09 | 703 | (0.1− | 2.1−) | | |
| 2003 01 01 | 704 | 0.5+ | 0.6+ | 2007 03 11 | 691 | 0.1− | 0.3+ | 2009 11 09 | 703 | 0.4− | 0.6− | | |
| 2003 01 01 | 704 | 0.1+ | 0.1+ | 2007 03 25 | 703 | 0.1− | 0.3− | 2009 12 11 | 703 | 0.1− | 0.4− | | |
| 2003 01 01 | 704 | 0.2+ | 0.5− | 2007 03 25 | 703 | (1.5+ | 0.4+) | 2009 12 11 | 703 | 0.2− | 1.0− | | |
| 2003 01 07 | 704 | 0.4+ | 0.0 | 2007 03 25 | 703 | 1.1− | 0.2− | 2009 12 11 | 703 | 0.6− | 0.3− | | |
| 2003 01 07 | 704 | 0.5+ | 0.8+ | 2007 03 25 | 703 | 0.0 | 0.3− | 2009 12 11 | 703 | 0.1− | 0.0 | | |
| 2003 01 07 | 704 | 0.8+ | 0.2+ | 2007 04 16 | 703 | 0.2+ | 0.6− | 2009 12 13 | 704 | 1.7+ | 0.5+ | | |
| 2003 01 07 | 704 | 0.1− | 0.7+ | 2007 04 16 | 703 | 0.5− | 0.3+ | 2009 12 13 | 704 | 0.4− | 0.3+ | | |
| 2003 01 09 | 704 | 1.0− | 0.6+ | 2007 04 16 | 703 | 0.6− | 0.7− | 2009 12 13 | 704 | 0.5+ | 0.4+ | | |
| 2003 01 09 | 704 | 0.7+ | 0.5+ | 2007 04 16 | 703 | 0.3− | 0.3+ | 2009 12 13 | 704 | 0.4+ | 0.4+ | | |
| 2003 01 09 | 704 | 0.1+ | 0.1+ | 2007 04 23 | G96 | 0.1− | 0.0 | 2009 12 13 | 704 | 0.1− | 0.4+ | | |
| 2003 01 27 | 704 | 0.4− | 0.2+ | 2007 04 23 | G96 | 0.3+ | 0.1+ | | | | | | |
| 2003 01 27 | 704 | 0.3− | 0.1− | 2007 04 23 | G96 | 0.1+ | 0.1− | | | | | | |

**(228803)∗ 2003 AX$_{62}$ = 2005 RE$_{34}$**

Discovered 2003 Jan. 8 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 85849)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 96.36346 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28028098 | $\omega$ | 250.27737 | | +0.98501710 | +0.11885573 | |
| $a$ | 2.3124568 | $\Omega$ | 102.74002 | | −0.06513526 | +0.92731194 | |
| $e$ | 0.1354169 | $i$ | 7.36054 | | −0.15968315 | +0.35491674 | |
| $P$ | 3.52 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 12 31 | 704 | 0.2+ | 0.3+ | 2005 09 25 | 705 | 0.4+ | 0.2+ | 2005 11 01 | 703 | 0.3− | 0.1− |
| 2002 12 31 | 704 | 0.6+ | 0.3− | 2005 09 29 | 644 | 0.1− | 0.4− | 2005 11 01 | 703 | 0.1+ | 0.4+ |
| 2002 12 31 | 704 | 0.2− | 0.2− | 2005 09 29 | 644 | 0.2− | 0.2+ | 2005 11 01 | 703 | 0.1+ | 0.3+ |
| 2003 01 08 | 704 | 0.8+ | 0.1+ | 2005 09 29 | 644 | 0.3− | 0.0 | 2005 11 01 | 703 | 0.1+ | 0.5+ |
| 2003 01 08 | 704 | 0.5− | 0.6− | 2005 09 29 | 644 | 0.0 | 0.1+ | 2005 11 17 | 644 | 0.2+ | 0.2+ |
| 2003 01 08 | 704 | 0.6+ | 0.3+ | 2005 09 29 | 644 | 0.3− | 0.0 | 2005 11 17 | 644 | 0.1+ | 0.0 |
| 2003 01 08 | 704 | 0.4+ | 0.3− | 2005 09 29 | 644 | 0.1− | 0.2+ | 2005 11 17 | 644 | 0.4+ | 0.2+ |
| 2003 01 08 | 704 | 0.2+ | 0.1+ | 2005 09 30 | 704 | 0.8− | 0.7+ | 2005 11 22 | 703 | 0.2+ | 0.7− |
| 2003 01 09 | 704 | 0.2+ | 0.1+ | 2005 09 30 | 704 | 0.5− | 0.6+ | 2005 11 22 | 703 | 0.3− | 0.6− |
| 2003 01 09 | 704 | 0.5− | 0.4+ | 2005 09 30 | 704 | 0.0 | 0.7+ | 2005 11 22 | 703 | 0.3+ | 1.1− |
| 2003 01 09 | 704 | 0.4− | 0.3+ | 2005 10 01 | 699 | 0.2− | 0.3+ | 2005 11 22 | 703 | 0.2+ | 0.2− |
| 2003 01 09 | 704 | 1.0− | 0.4+ | 2005 10 01 | 699 | 0.3− | 0.4− | 2005 12 04 | 699 | 0.2− | 1.0− |
| 2003 01 09 | 704 | 0.0 | 0.0 | 2005 10 01 | 699 | 0.2+ | 0.4+ | 2005 12 04 | 699 | 0.2+ | 0.2− |
| 2004 04 23 | 704 | 0.0 | 1.1+ | 2005 10 05 | 703 | 0.7− | 0.0 | 2005 12 04 | 699 | 0.8− | 0.4+ |
| 2004 04 23 | 704 | 0.8− | 1.2+ | 2005 10 05 | 703 | 0.4− | 0.5− | 2005 12 04 | 699 | 0.6− | 0.6+ |
| 2004 04 23 | 704 | 0.0 | 1.1− | 2005 10 05 | 703 | 0.4+ | 0.7+ | 2005 12 06 | 703 | 0.2+ | 0.1− |
| 2004 04 23 | 704 | 0.0 | 0.8+ | 2005 10 05 | 703 | 0.7+ | 0.3− | 2005 12 06 | 703 | 0.4+ | 0.5+ |
| 2004 04 23 | 704 | 1.1+ | 0.2− | 2005 10 22 | 644 | 0.2+ | 0.1− | 2005 12 06 | 703 | 1.2− | 0.4+ |
| 2004 05 23 | 704 | (0.9− | 2.0+) | 2005 10 22 | 644 | 0.4+ | 0.0 | 2005 12 06 | 703 | 0.1+ | 0.0 |
| 2004 05 23 | 704 | 0.6+ | 0.6+ | 2005 10 22 | 644 | 0.4+ | 0.3+ | 2007 02 22 | 703 | 1.0+ | 1.4+ |
| 2004 05 23 | 704 | (0.4− | 1.8+) | 2005 10 26 | 644 | 0.2+ | 0.1+ | 2007 02 22 | 703 | 0.1− | 1.2− |
| 2004 05 23 | 704 | 0.2− | 0.3+ | 2005 10 26 | 644 | 0.4+ | 0.0 | 2007 02 22 | 703 | 1.4− | 0.0 |
| 2005 09 03 | 705 | 0.1− | 0.1− | 2005 10 26 | 644 | 0.1+ | 0.0 | 2007 02 22 | 703 | (1.5− | 0.7−) |
| 2005 09 03 | 705 | 0.0 | 0.1− | 2005 10 27 | 704 | 0.5− | 0.1− | 2007 03 14 | 699 | 0.7− | 0.3+ |
| 2005 09 14 | 703 | 0.1− | 0.7− | 2005 10 27 | 704 | 0.4− | 0.2− | 2007 03 14 | 699 | (0.8+ | 1.8−) |
| 2005 09 14 | 703 | 0.5+ | 0.3− | 2005 10 27 | 704 | 1.1− | 0.2+ | 2007 03 14 | 699 | 0.9+ | 0.4+ |
| 2005 09 14 | 703 | 0.0 | 0.1+ | 2005 10 27 | 704 | 0.7− | 0.2− | 2007 03 14 | 699 | 1.3+ | 1.1+ |
| 2005 09 14 | 703 | 0.9− | 0.9− | 2005 10 27 | 704 | 0.8− | 0.2− | 2009 12 10 | G96 | 0.0 | 0.4− |
| 2005 09 15 | 705 | 0.1+ | 0.0 | 2005 10 27 | 703 | 0.8+ | 0.5+ | 2009 12 10 | G96 | 0.2+ | 0.4− |
| 2005 09 15 | 705 | 0.1+ | 0.0 | 2005 10 27 | 703 | 0.4+ | 1.0+ | 2009 12 10 | G96 | 0.3− | 0.3− |
| 2005 09 16 | 699 | 1.4− | 0.9+ | 2005 10 27 | 703 | 1.1+ | 0.6+ | 2009 12 10 | G96 | 0.2− | 0.8− |
| 2005 09 16 | 699 | (0.1− | 1.9+) | 2005 10 27 | 703 | 0.7+ | 0.3+ | 2009 12 17 | 704 | 1.0+ | 0.4− |
| 2005 09 16 | 699 | 0.3+ | 0.5− | 2005 10 27 | 703 | 0.2− | 0.4− | 2009 12 17 | 691 | 0.2+ | 0.3+ |
| 2005 09 16 | 699 | 1.1+ | 0.8+ | 2005 10 27 | 703 | 0.1+ | 0.4− | 2009 12 17 | 704 | 0.0 | 0.3− |
| 2005 09 21 | 705 | 0.2+ | 0.1+ | 2005 10 27 | 703 | 0.9− | 0.0 | 2009 12 17 | 691 | 0.2− | 0.2− |
| 2005 09 21 | 705 | 0.2+ | 0.0 | 2005 10 27 | 703 | 0.3− | 0.4− | 2009 12 17 | 704 | 0.9− | 0.3+ |
| 2005 09 24 | 705 | 0.2+ | 0.2+ | 2005 10 31 | 699 | 0.4+ | 0.3+ | 2009 12 17 | 704 | 0.5+ | 0.2− |
| 2005 09 24 | 705 | 0.1+ | 0.2+ | 2005 10 31 | 699 | 0.2− | 0.2+ | 2009 12 17 | 691 | 0.0 | 0.1− |
| 2005 09 25 | 705 | 0.3+ | 0.2+ | 2005 10 31 | 699 | 0.2+ | 0.2+ | 2009 12 17 | 704 | 0.0 | 0.9+ |

**(228804)∗ 2003 AE$_{63}$ = 2009 WG$_{52}$**

Discovered 2003 Jan. 8 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. T. B. Spahr (*MPO* 165353)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 255.69045 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26942015 | $\omega$ | 74.47661 | | −0.98649607 | +0.11455936 | |
| $a$ | 2.3741929 | $\Omega$ | 111.98711 | | −0.14901887 | −0.92435324 | |
| $e$ | 0.0420319 | $i$ | 7.25210 | | +0.06796230 | −0.36393301 | |
| $P$ | 3.66 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 05 05 | 645 | 0.0 | 0.0 | 2006 11 24 | G96 | 0.3− | 0.4− | 2009 11 17 | 703 | 0.9− | 0.8− |
| 2000 05 05 | 645 | 0.0 | 0.0 | 2006 11 24 | G96 | 0.0 | 0.5+ | 2009 11 17 | 703 | 0.5− | 0.1− |
| 2002 12 31 | 704 | 0.7+ | 1.3+ | 2007 02 22 | 703 | 1.3+ | 0.4− | 2009 11 17 | 703 | 0.2− | 0.3+ |
| 2002 12 31 | 704 | 0.1+ | 1.2+ | 2007 02 22 | 703 | 1.3− | 0.7+ | 2009 11 17 | 703 | 1.4− | 0.8+ |
| 2002 12 31 | 704 | 0.2− | 0.9+ | 2007 02 22 | 703 | 0.3+ | 0.4+ | 2009 11 20 | J75 | 0.1+ | 0.6+ |
| 2002 12 31 | 704 | (0.2+ | 1.8+) | 2007 02 22 | 703 | 0.7− | 0.5+ | 2009 11 20 | J75 | 0.6+ | 0.0 |
| 2003 01 08 | 704 | 0.1+ | 0.2+ | 2007 02 25 | 699 | 0.7− | 1.5− | 2009 11 20 | J75 | 0.4+ | 0.7− |
| 2003 01 08 | 704 | 0.1+ | 0.6+ | 2007 02 25 | 699 | 0.1+ | 1.0− | 2009 11 25 | J75 | 0.0 | 0.1+ |
| 2003 01 08 | 704 | 0.8− | 0.2+ | 2007 02 25 | 699 | 0.5− | 0.4− | 2009 11 25 | J75 | 0.4+ | 0.2+ |
| 2003 01 08 | 704 | 0.0 | 0.2+ | 2007 02 25 | 699 | 0.7− | 1.1+ | 2009 11 25 | J75 | 0.1− | 0.3− |
| 2003 01 08 | 704 | 0.1+ | 0.1+ | 2007 03 16 | 703 | 0.5− | 0.4+ | 2009 11 26 | G96 | 0.0 | 0.1+ |
| 2003 01 09 | 704 | 0.1+ | 0.4− | 2007 03 16 | 703 | 0.4+ | 0.2− | 2009 11 26 | G96 | 0.0 | 0.1+ |
| 2003 01 09 | 704 | 0.5+ | 0.4+ | 2007 03 16 | 703 | 1.2+ | 0.1+ | 2009 11 26 | G96 | 0.1− | 0.1+ |
| 2003 01 09 | 704 | 0.4+ | 0.1+ | 2007 03 16 | 703 | 0.0 | 0.3+ | 2009 11 26 | G96 | 0.1+ | 0.2+ |
| 2003 01 09 | 704 | 0.4+ | 0.8− | 2007 03 16 | 703 | 0.0 | 0.2+ | 2009 11 26 | G96 | 0.2− | 0.1+ |
| 2003 01 11 | 704 | 0.1− | 0.1− | 2007 03 16 | 703 | 0.1+ | 0.1+ | 2009 11 26 | G96 | 0.1+ | 0.2+ |
| 2003 01 11 | 704 | 0.4− | 0.6+ | 2007 03 16 | 703 | 0.7+ | 0.4+ | 2009 11 26 | G96 | 0.3+ | 0.2+ |
| 2003 01 11 | 704 | 0.5− | 0.9− | 2007 03 16 | 703 | 0.3− | 0.6+ | 2009 11 26 | G96 | 0.1− | 0.0 |
| 2003 01 11 | 704 | 1.1− | 0.3+ | 2008 05 30 | G96 | 0.5+ | 0.1+ | 2009 11 26 | G96 | 0.4− | 0.1− |
| 2005 10 27 | 703 | 1.3− | 0.7− | 2008 05 30 | G96 | 0.0 | 0.2+ | 2009 11 26 | G96 | 0.1− | 0.4− |
| 2005 10 27 | 703 | 0.0 | 0.9+ | 2008 05 30 | G96 | 0.6+ | 0.1− | 2009 12 11 | 703 | 1.1+ | 0.4− |
| 2005 10 27 | 703 | 0.6− | 0.9+ | 2008 05 30 | G96 | 0.6+ | 0.0 | 2009 12 11 | 703 | 0.6+ | 0.1− |
| 2005 10 27 | 703 | 0.9+ | 0.4+ | 2008 06 14 | 691 | 0.3+ | 0.3− | 2009 12 11 | 703 | 1.1+ | 0.2+ |
| 2006 11 24 | G96 | 0.6+ | 0.9− | 2008 06 14 | 691 | 1.0− | 1.0+ | 2009 12 11 | 703 | 0.6+ | 0.3+ |
| 2006 11 24 | G96 | 0.3+ | 0.3− | 2008 06 14 | 691 | 0.1+ | 0.3+ | | | | |

**(228805)∗ 2003 AW$_{78}$**

Discovered 2003 Jan. 10 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 35.60779 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27620856 | $\omega$ | 154.21783 | | +0.49380166 | −0.86766506 | |
| $a$ | 2.3351312 | $\Omega$ | 266.14371 | | +0.78749898 | +0.47430190 | |
| $e$ | 0.1097983 | $i$ | 3.30932 | | +0.36878894 | +0.14898004 | |
| $P$ | 3.57 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 02 09 | 691 | 0.0 | 0.7− | 2003 02 03 | 644 | 0.5+ | 0.4+ | 2005 10 28 | 703 | 0.5− | 0.3− |
| 1999 02 09 | 691 | 0.4+ | 1.4− | 2005 09 23 | 703 | (0.7− | 1.9+) | 2005 10 30 | 704 | 0.8− | 0.1+ |
| 1999 02 09 | 691 | 0.6− | 0.9− | 2005 09 23 | 703 | 0.7− | 0.2− | 2005 10 30 | 704 | 0.4+ | 0.8+ |
| 2001 08 16 | 704 | 0.1− | 0.2+ | 2005 09 23 | 703 | (0.2− | 1.6+) | 2005 10 30 | 704 | 0.0 | 0.5+ |
| 2001 08 16 | 704 | 0.9− | 0.5− | 2005 09 23 | 703 | 0.8− | 0.3− | 2005 10 30 | 704 | 0.8− | 0.2+ |
| 2001 08 16 | 704 | (0.7− | 2.0+) | 2005 09 25 | 691 | 0.1+ | 0.1− | 2005 10 30 | 704 | 0.1+ | 0.3+ |
| 2003 01 10 | 291 | 0.5− | 0.3+ | 2005 09 25 | 691 | 0.1+ | 0.1+ | 2005 11 02 | 704 | 0.3+ | 0.0 |
| 2003 01 10 | 291 | 0.3− | 0.2+ | 2005 09 25 | 691 | 0.4+ | 0.1− | 2005 11 02 | 704 | 0.8+ | 0.7+ |
| 2003 01 10 | 291 | 0.5− | 0.0 | 2005 09 30 | 691 | 0.1− | 0.5+ | 2005 11 02 | 704 | 0.8+ | 0.1+ |
| 2003 01 13 | 291 | 0.4− | 0.2+ | 2005 09 30 | 691 | 0.1+ | 0.5+ | 2005 11 05 | 683 | 0.5+ | 0.5− |
| 2003 01 13 | 291 | 0.1− | 0.3+ | 2005 09 30 | 691 | 0.1− | 0.4+ | 2005 11 05 | 683 | (1.1− | 2.0+) |
| 2003 01 13 | 291 | 0.1+ | 0.4+ | 2005 10 06 | 691 | 0.5− | 0.0 | 2005 11 05 | 704 | (0.3− | 1.9+) |
| 2003 01 13 | 291 | 0.1+ | 0.1+ | 2005 10 06 | 691 | 0.8+ | 0.3− | 2005 11 05 | 683 | (0.4− | 2.0+) |
| 2003 01 13 | 291 | 0.1− | 0.2+ | 2005 10 06 | 691 | 0.1− | 0.1− | 2005 11 05 | 704 | 0.3+ | 1.1+ |
| 2003 01 13 | 291 | 0.0 | 0.0 | 2005 10 08 | 704 | 0.4− | 0.1− | 2005 11 05 | 704 | 0.8+ | 0.8+ |
| 2003 01 27 | 704 | 1.1+ | 0.6+ | 2005 10 08 | 704 | 0.2+ | 0.6+ | 2005 11 05 | 704 | 0.3+ | 0.1+ |
| 2003 01 27 | 704 | 0.9+ | 0.6+ | 2005 10 08 | 704 | 0.2+ | 0.6+ | 2005 11 06 | 240 | 0.1+ | 0.1− |
| 2003 01 27 | 704 | 0.5+ | 0.2+ | 2005 10 08 | 704 | 0.6+ | 0.4+ | 2005 11 06 | 240 | 0.0 | 0.0 |
| 2003 01 27 | 704 | 1.0+ | 1.1+ | 2005 10 08 | 704 | 1.3− | 0.3+ | 2005 11 06 | 240 | 0.0 | 0.2+ |
| 2003 01 27 | 644 | 0.8+ | 1.4+ | 2005 10 10 | 691 | 0.0 | 0.0 | 2007 04 22 | G96 | 0.1− | 0.4+ |
| 2003 01 27 | 644 | 0.4+ | 1.3+ | 2005 10 10 | 691 | 0.2− | 0.1− | 2007 04 22 | G96 | 0.2+ | 0.1+ |
| 2003 01 27 | 644 | 0.7+ | 1.0+ | 2005 10 10 | 691 | 0.1+ | 0.2− | 2007 04 22 | G96 | 0.1− | 0.1+ |
| 2003 01 30 | 699 | 0.7+ | 0.3− | 2005 10 12 | 704 | (1.7− | 0.2−) | 2007 04 22 | G96 | 0.3+ | 0.3+ |
| 2003 01 30 | 699 | 0.0 | 0.1− | 2005 10 12 | 704 | 0.7− | 0.1+ | 2009 10 15 | G96 | 0.2+ | 0.1− |
| 2003 01 30 | 699 | (2.0+ | 0.9+) | 2005 10 12 | 704 | 0.3− | 0.3− | 2009 10 15 | G96 | 0.2+ | 0.3− |
| 2003 01 30 | 699 | 1.1+ | 0.6+ | 2005 10 12 | 704 | 0.4+ | 0.9+ | 2009 10 15 | G96 | 0.8− | 0.7− |
| 2003 01 31 | 704 | 1.5+ | 0.1+ | 2005 10 12 | 704 | 0.5− | 0.9+ | 2009 10 15 | G96 | 0.2+ | 0.7− |
| 2003 01 31 | 704 | 1.0+ | 0.6+ | 2005 10 22 | 644 | 0.0 | 0.2+ | 2009 11 10 | G96 | 0.3+ | 0.4− |
| 2003 01 31 | 704 | (0.2+ | 1.8−) | 2005 10 22 | 644 | 0.0 | 0.1+ | 2009 11 10 | G96 | 0.2+ | 0.4− |
| 2003 01 31 | 704 | 1.0+ | 0.6− | 2005 10 22 | 644 | 0.0 | 0.5+ | 2009 11 10 | G96 | 0.3+ | 0.2− |
| 2003 02 03 | 704 | 0.1+ | 0.6− | 2005 10 24 | 699 | 1.0− | 0.3− | 2009 11 10 | G96 | 0.1+ | 0.4− |
| 2003 02 03 | 704 | 0.6+ | 0.5− | 2005 10 24 | 699 | 0.3+ | 0.8+ | 2009 12 16 | 691 | 0.4− | 0.3− |
| 2003 02 03 | 704 | 0.5+ | 0.1− | 2005 10 24 | 699 | 0.7− | 0.1− | 2009 12 16 | 691 | 0.1− | 0.3− |
| 2003 02 03 | 704 | 0.6+ | 0.5− | 2005 10 24 | 699 | 0.0 | 0.5+ | 2009 12 16 | 691 | 0.6− | 0.1+ |
| 2003 02 03 | 704 | 0.5− | 0.3− | 2005 10 28 | 703 | 0.9− | 0.3− | 2009 12 20 | 691 | 0.3− | 0.3− |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 02 03 | 644 | 0.5+ | 0.8+ | 2005 10 28 | 703 | 0.3− | 0.0 | 2009 12 20 | 691 | 0.2− | 0.5− |
| 2003 02 03 | 644 | 0.6+ | 1.4+ | 2005 10 28 | 703 | 0.5− | 0.8+ | 2009 12 20 | 691 | 0.4+ | 0.3− |

**(228806)∗ 2003 AA$_{82}$**

Discovered 2003 Jan. 11 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 18.43184 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28119960 | $\omega$ | 15.80507 | | −0.15324888 | −0.90198574 | |
| $a$ | 2.3074179 | $\Omega$ | 84.36363 | | +0.85701619 | −0.32467607 | |
| $e$ | 0.1490678 | $i$ | 23.92967 | | +0.49197361 | +0.28461759 | |
| $P$ | 3.51 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 05 03 | 704 | 0.4+ | 0.3− | 2003 02 07 | 699 | (2.3+ | 0.2+) | 2005 10 31 | 703 | 0.9− | 0.5− |
| 2000 05 03 | 704 | 0.0 | 0.3− | 2003 02 07 | 699 | 0.3+ | 0.9+ | 2005 10 31 | 703 | 0.5− | 0.1− |
| 2000 05 03 | 704 | 0.1+ | 0.2− | 2003 02 07 | 699 | 0.5+ | 1.1+ | 2005 12 01 | 703 | 0.5− | 0.4+ |
| 2000 05 03 | 704 | 1.2+ | 1.4+ | 2003 02 07 | 699 | 0.9− | 0.4− | 2005 12 01 | 703 | 1.0+ | 0.6+ |
| 2002 11 23 | 644 | 0.2+ | 0.1− | 2003 02 23 | 704 | 1.2+ | 0.4− | 2005 12 01 | 703 | 0.6+ | 0.8+ |
| 2002 11 23 | 644 | 0.1+ | 0.1− | 2003 02 23 | 704 | 0.4− | 0.7− | 2005 12 01 | 703 | 0.9− | 0.7+ |
| 2002 11 23 | 644 | 0.4+ | 0.3+ | 2003 02 23 | 704 | 0.7+ | 0.7+ | 2007 05 20 | 703 | 0.6− | 1.2+ |
| 2002 12 15 | 704 | 0.4− | 0.5− | 2003 02 23 | 704 | 0.4− | 0.5+ | 2007 05 20 | 703 | 0.7− | 0.1− |
| 2002 12 15 | 704 | 0.6+ | 0.3− | 2003 02 23 | 704 | (1.6+ | 0.1−) | 2007 05 20 | 703 | 0.7− | 0.4+ |
| 2002 12 15 | 704 | 0.9− | 0.2− | 2003 02 23 | 704 | 0.9− | 0.5− | 2007 05 20 | 703 | 0.2− | 0.3− |
| 2003 01 11 | 704 | 0.4+ | 0.4− | 2003 02 23 | 704 | (1.6+ | 0.2−) | 2008 08 03 | E12 | 0.4− | 1.4+ |
| 2003 01 11 | 704 | 0.2+ | 0.4− | 2003 02 23 | 704 | (1.6− | 1.0−) | 2008 08 03 | E12 | (0.4− | 1.9+) |
| 2003 01 11 | 704 | 0.3− | 0.2+ | 2003 02 23 | 704 | (1.7+ | 0.6+) | 2008 08 03 | E12 | 0.4+ | 1.4+ |
| 2003 01 11 | 704 | 0.4− | 0.4+ | 2003 02 26 | 704 | 1.4+ | 0.6+ | 2008 08 03 | E12 | (0.5− | 1.6+) |
| 2003 01 11 | 704 | 0.0 | 0.5+ | 2003 02 26 | 704 | 0.5− | 1.4+ | 2009 11 18 | 703 | 1.7+ | 0.3+ |
| 2003 01 14 | 704 | 0.4− | 0.2− | 2003 02 26 | 704 | 0.2− | 1.5+ | 2009 11 18 | 703 | 0.7+ | 0.6− |
| 2003 01 14 | 704 | 0.4− | 0.3− | 2003 02 26 | 704 | 0.6+ | 0.9+ | 2009 11 18 | 703 | 0.2− | 1.3− |
| 2003 01 14 | 704 | 0.5− | 0.1− | 2005 10 25 | 704 | 1.3+ | 0.4+ | 2009 11 18 | 703 | 0.8+ | 0.4+ |
| 2003 01 14 | 704 | 0.0 | 0.3+ | 2005 10 25 | 704 | 0.5+ | 0.5+ | 2009 12 17 | 703 | 0.7− | 2.1− |
| 2003 01 14 | 704 | 0.5− | 0.3+ | 2005 10 25 | 704 | 0.3− | 1.2− | 2009 12 17 | 703 | 0.6− | 1.2− |
| 2003 01 15 | 704 | 0.7+ | 0.3+ | 2005 10 25 | 704 | 0.3− | 0.4+ | 2009 12 17 | 703 | 0.0 | 0.2− |
| 2003 01 15 | 704 | 0.4+ | 0.3+ | 2005 10 25 | 704 | 0.6− | 0.0 | 2009 12 17 | 703 | 0.3− | 0.9+ |
| 2003 01 15 | 704 | 0.1+ | 0.4− | 2005 10 31 | 703 | 0.6− | 0.1− | | | | |
| 2003 01 15 | 704 | 0.3+ | 0.5+ | 2005 10 31 | 703 | 0.6− | 0.3+ | | | | |

**(228807)∗ 2003 AZ$_{82}$**

Discovered 2003 Jan. 8 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 26.26532 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27551297 | $\omega$ | 114.74580 | | +0.47421876 | −0.87133202 | |
| $a$ | 2.3390599 | $\Omega$ | 306.35711 | | +0.74059691 | +0.47223794 | |
| $e$ | 0.1807289 | $i$ | 9.00728 | | +0.47605964 | +0.13331109 | |
| $P$ | 3.58 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 11 26 | 699 | 1.2− | 0.1− | 2003 01 31 | 704 | 0.4+ | 0.7+ | 2005 09 11 | 704 | 1.2− | 0.8− |
| 1998 11 26 | 699 | 0.8− | 0.3+ | 2003 01 31 | 704 | 0.1+ | 0.8+ | 2005 09 11 | 704 | (0.9+ | 2.6−) |
| 1998 11 26 | 699 | 0.8− | 0.3− | 2003 01 31 | 704 | 0.2+ | 0.8+ | 2005 09 11 | 683 | 0.6+ | 0.7− |
| 2002 12 31 | 704 | 0.1− | 0.3+ | 2003 01 31 | 704 | 0.4+ | 0.6+ | 2005 09 11 | 704 | (0.9− | 1.8−) |
| 2002 12 31 | 704 | 0.3− | 0.7− | 2003 01 31 | 704 | 0.0 | 0.0 | 2005 09 11 | 704 | 0.0 | 0.8+ |
| 2002 12 31 | 704 | 0.2+ | 0.6− | 2003 01 31 | 704 | 0.3+ | 0.2+ | 2005 09 11 | 683 | 0.3+ | 0.6− |
| 2002 12 31 | 704 | 0.6+ | 0.1− | 2003 01 31 | 704 | 0.3+ | 0.3+ | 2005 09 11 | 704 | (1.1− | 1.8−) |
| 2003 01 08 | 704 | 0.3− | 0.3+ | 2003 01 31 | 704 | 0.2+ | 0.4+ | 2005 09 11 | 704 | 0.7+ | 0.2− |
| 2003 01 08 | 704 | 0.4+ | 0.5− | 2003 01 31 | 704 | 0.9+ | 0.5− | 2005 09 11 | 704 | (1.8− | 1.0−) |
| 2003 01 08 | 704 | 0.6+ | 0.3+ | 2003 02 03 | 704 | 0.2− | 0.1− | 2005 09 11 | 704 | 0.2+ | 0.5+ |
| 2003 01 08 | 704 | 0.2− | 0.3+ | 2003 02 03 | 704 | 0.6+ | 0.0 | 2005 09 11 | 704 | (0.8− | 1.7−) |
| 2003 01 08 | 704 | 0.3+ | 0.3− | 2003 02 03 | 704 | 0.4+ | 0.5+ | 2005 09 11 | 704 | 0.9+ | 0.1− |
| 2003 01 10 | 621 | 0.1− | 0.0 | 2003 02 03 | 704 | 0.2− | 0.5− | 2005 09 13 | 683 | 0.0 | 0.1− |
| 2003 01 10 | 621 | 0.4− | 0.0 | 2003 02 03 | 704 | 0.1+ | 0.0 | 2005 09 13 | 683 | (0.6+ | 2.0+) |
| 2003 01 10 | 621 | 0.3+ | 0.2− | 2003 02 08 | 704 | 0.9+ | 0.2+ | 2005 09 13 | 683 | 1.0+ | 0.2+ |
| 2003 01 10 | 621 | 0.1− | 0.1+ | 2003 02 08 | 704 | 0.2+ | 0.2+ | 2005 09 26 | 703 | 0.1− | 0.5− |
| 2003 01 10 | 621 | 0.3− | 0.1− | 2003 02 08 | 704 | 0.6− | 0.3− | 2005 09 26 | 703 | 0.5− | 0.3− |
| 2003 01 25 | 699 | 1.2+ | 0.6− | 2003 02 08 | 704 | 0.1+ | 0.7− | 2005 09 26 | 703 | 0.2+ | 0.3− |
| 2003 01 25 | 699 | 0.1+ | 0.3+ | 2003 02 21 | 608 | 0.1− | 0.1+ | 2005 09 26 | 703 | 0.1− | 0.5− |
| 2003 01 25 | 699 | 1.1+ | 0.6+ | 2003 02 21 | 608 | 0.1− | 0.2+ | 2005 10 02 | 699 | 0.9+ | 0.8+ |
| 2003 01 25 | 699 | 0.5+ | 0.4+ | 2003 02 21 | 608 | 0.4− | 0.5+ | 2005 10 02 | 699 | 0.3+ | 0.1+ |
| 2003 01 27 | 704 | 0.1− | 0.4− | 2005 08 29 | 644 | 0.4− | 0.0 | 2005 10 02 | 699 | 0.1− | 0.8+ |
| 2003 01 27 | 704 | 0.7− | 0.8− | 2005 08 29 | 644 | 0.2− | 0.3+ | 2005 10 02 | 699 | 1.0+ | 0.6+ |
| 2003 01 27 | 704 | 0.3− | 0.5− | 2005 08 29 | 644 | 0.1− | 0.0 | 2005 10 07 | 703 | 0.3− | 0.2− |
| 2003 01 27 | 704 | 1.4− | 0.5− | 2005 08 31 | 704 | 0.2− | 0.5− | 2005 10 07 | 703 | 0.1+ | 0.3− |
| 2003 01 27 | 704 | 0.5− | 0.8− | 2005 08 31 | 704 | 0.2+ | 0.4− | 2005 10 07 | 703 | 0.7− | 0.7+ |
| 2003 01 27 | 608 | 0.2− | 0.2+ | 2005 08 31 | 704 | 0.6+ | 0.7+ | 2005 10 07 | 703 | 0.8− | 0.3+ |
| 2003 01 27 | 608 | 0.6− | 0.2− | 2005 08 31 | 704 | 0.4− | 0.3+ | 2005 11 25 | G96 | 0.3− | 0.3+ |
| 2003 01 27 | 608 | 0.6− | 0.1− | 2005 09 01 | 683 | 1.4− | 0.2+ | 2005 11 25 | G96 | 0.5+ | 0.4+ |
| 2003 01 28 | 704 | 0.0 | 0.1+ | 2005 09 01 | 683 | (1.4− | 1.7+) | 2005 11 25 | G96 | 0.0 | 0.7+ |
| 2003 01 28 | 704 | 0.5+ | 0.4− | 2005 09 01 | 683 | 1.4− | 0.0 | 2005 11 25 | G96 | 0.2+ | 0.7+ |
| 2003 01 28 | 704 | 0.4+ | 0.0 | 2005 09 08 | A50 | 0.6+ | 0.5+ | 2007 03 20 | 703 | 1.2− | 1.3+ |
| 2003 01 28 | 704 | 0.1+ | 0.3− | 2005 09 08 | A50 | 0.5− | 0.0 | 2007 03 20 | 703 | (1.8+ | 0.7+) |
| 2003 01 28 | 704 | 0.2+ | 0.2− | 2005 09 09 | H06 | 0.2+ | 0.6+ | 2007 03 20 | 703 | 0.4− | 0.1+ |
| 2003 01 28 | 704 | 0.5+ | 0.5− | 2005 09 09 | H06 | 0.1+ | 0.8− | 2007 03 20 | 703 | 0.1− | 0.4− |
| 2003 01 28 | 704 | 0.1− | 0.1+ | 2005 09 09 | H06 | 0.0 | 0.4− | 2009 10 31 | 704 | 0.5+ | 0.0 |
| 2003 01 28 | 704 | 0.6+ | 0.4− | 2005 09 10 | 683 | 0.1+ | 0.5− | 2009 10 31 | 704 | 0.8+ | 0.2+ |
| 2003 01 28 | 704 | 0.2+ | 0.5− | 2005 09 10 | 683 | 0.8+ | 0.3+ | 2009 10 31 | 704 | 0.4+ | 1.0− |
| 2003 01 28 | 704 | 0.5+ | 0.2− | 2005 09 10 | 683 | 0.2− | 1.4+ | 2009 12 09 | 704 | 0.5− | 0.7+ |
| 2003 01 29 | 291 | 0.2− | 0.1− | 2005 09 10 | H06 | 0.4+ | 0.2− | 2009 12 09 | 704 | 0.3− | 0.5− |
| 2003 01 29 | 291 | 0.1− | 0.0 | 2005 09 10 | H06 | 0.9+ | 0.5− | 2009 12 09 | 704 | 0.5− | 0.6− |
| 2003 01 29 | 291 | 0.2− | 0.1+ | 2005 09 10 | H06 | 0.3− | 0.8− | 2009 12 09 | 704 | 0.8− | 0.3+ |
| 2003 01 30 | 644 | 0.3− | 0.1+ | 2005 09 11 | 291 | 0.2+ | 0.1− | 2009 12 09 | 704 | 0.3− | 0.3− |
| 2003 01 30 | 644 | 0.2− | 0.3+ | 2005 09 11 | 291 | 0.0 | 0.1− | 2009 12 15 | 704 | 0.0 | 0.2+ |
| 2003 01 30 | 644 | 0.4− | 0.2+ | 2005 09 11 | 291 | 0.0 | 0.1− | 2009 12 15 | 704 | 0.9− | 0.5+ |
| 2003 01 31 | 704 | 0.4+ | 0.7+ | 2005 09 11 | 683 | (0.8+ | 1.8−) | 2009 12 15 | 704 | 0.1+ | 0.4− |

**(228808)∗ 2003 AR$_{88}$ = 2005 TC$_{105}$**

Discovered 2003 Jan. 2 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 89402)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 124.14714 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28404503 | $\omega$ | 45.46695 | | +0.88039137 | +0.46617443 | |
| $a$ | 2.2919823 | $\Omega$ | 286.56638 | | −0.45680993 | +0.78421876 | |
| $e$ | 0.1654974 | $i$ | 5.21585 | | −0.12741946 | +0.40949034 | |
| $P$ | 3.47 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 12 31 | 461 | 0.5− | 0.8+ | 2005 10 13 | 704 | 0.6+ | 0.3− | 2005 11 29 | 704 | 0.7− | 0.4− |
| 2002 12 31 | 461 | 0.3− | 1.4+ | 2005 10 13 | 704 | 0.0 | 0.1+ | 2005 11 29 | 704 | 0.6+ | 0.4− |
| 2002 12 31 | 461 | 0.1− | 0.1− | 2005 10 23 | 703 | 0.6+ | 0.2+ | 2005 12 01 | 644 | 0.2+ | 0.2− |
| 2003 01 02 | 704 | 1.1− | 0.6+ | 2005 10 23 | 703 | 0.2+ | 0.7+ | 2005 12 01 | 644 | 0.1− | 0.0 |
| 2003 01 02 | 704 | 0.1+ | 0.8− | 2005 10 23 | 703 | 0.5− | 0.5− | 2005 12 01 | 644 | 0.0 | 0.2+ |
| 2003 01 02 | 704 | 0.4+ | 0.2+ | 2005 10 23 | 703 | 0.3− | 0.1+ | 2005 12 02 | 703 | 0.6+ | 1.4− |
| 2003 01 08 | 704 | 1.3+ | 0.7+ | 2005 10 29 | 703 | 0.6− | 0.3− | 2005 12 02 | 703 | 1.0+ | 0.6− |
| 2003 01 08 | 704 | 0.3+ | 0.5− | 2005 10 29 | 703 | 0.0 | 0.1− | 2005 12 02 | 703 | 0.7− | 0.9− |
| 2003 01 08 | 704 | 0.1− | 0.8− | 2005 10 29 | 703 | 0.3+ | 0.1+ | 2005 12 02 | 703 | 0.5− | 1.2− |
| 2005 09 29 | 703 | 0.3− | 1.0− | 2005 10 30 | 644 | 0.0 | 0.2+ | 2008 07 01 | 704 | 0.0 | 0.6+ |
| 2005 09 29 | 703 | 0.7− | 1.0− | 2005 10 30 | 644 | 0.2− | 0.1+ | 2008 07 01 | 704 | 0.2− | 0.4+ |
| 2005 09 29 | 703 | 0.4+ | 0.4− | 2005 10 30 | 704 | 0.5− | 0.4− | 2008 07 01 | 704 | 0.1− | 0.1− |
| 2005 09 29 | 703 | 0.0 | 0.3+ | 2005 10 30 | 644 | 0.3− | 0.0 | 2008 07 01 | 704 | 0.1+ | 0.1+ |
| 2005 10 03 | 704 | 0.4+ | 1.0+ | 2005 10 30 | 704 | 0.1− | 0.0 | 2008 10 26 | G96 | 0.3+ | 0.1+ |
| 2005 10 03 | 704 | 1.0+ | 1.5+ | 2005 10 30 | 704 | 0.0 | 0.3− | 2008 10 26 | G96 | 0.7− | 0.4− |
| 2005 10 03 | 704 | (0.7− | 1.8+) | 2005 10 30 | 704 | 0.1− | 0.1+ | 2008 10 26 | G96 | 0.0 | 0.2− |
| 2005 10 03 | 644 | 0.3− | 0.0 | 2005 10 30 | 704 | 0.1+ | 0.8+ | 2008 10 26 | G96 | 0.0 | 0.1+ |
| 2005 10 03 | 644 | 0.1+ | 0.2+ | 2005 11 02 | 704 | 0.1+ | 0.1+ | 2009 09 17 | 691 | 0.4− | 0.2− |
| 2005 10 03 | 644 | 0.1− | 0.2− | 2005 11 02 | 704 | 0.2− | 0.1+ | 2009 09 17 | 691 | 0.2− | 0.8+ |
| 2005 10 08 | 704 | 0.5+ | 0.1− | 2005 11 02 | 704 | 0.2+ | 0.0 | 2009 09 17 | 691 | 0.2− | 0.0 |
| 2005 10 08 | 704 | 0.4+ | 0.1− | 2005 11 02 | 704 | 0.4− | 0.1− | 2009 09 21 | 691 | 0.3+ | 0.6− |
| 2005 10 08 | 704 | 0.4− | 0.0 | 2005 11 02 | 704 | 0.3+ | 0.1− | 2009 09 21 | 691 | 0.1− | 0.0 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 08 | 704 | 0.6− | 0.8+ | 2005 11 07 | 704 | 0.5+ | 0.5+ | 2009 09 21 | 691 | 0.0 | 0.6+ |
| 2005 10 08 | 704 | 0.3− | 0.6− | 2005 11 07 | 704 | 0.2− | 0.6+ | 2009 12 15 | G96 | 0.2+ | 0.5− |
| 2005 10 10 | 699 | 0.0 | 0.8− | 2005 11 07 | 704 | 0.0 | 0.1+ | 2009 12 15 | G96 | 0.2− | 0.5− |
| 2005 10 10 | 699 | 1.0+ | 0.8+ | 2005 11 07 | 704 | 0.2+ | 0.1+ | 2009 12 15 | G96 | 0.5+ | 0.3− |
| 2005 10 10 | 699 | 0.3+ | 0.1+ | 2005 11 07 | 704 | 0.7− | 0.2+ | 2009 12 15 | G96 | 0.2+ | 0.2− |
| 2005 10 10 | 699 | 0.4− | 0.2+ | 2005 11 29 | 704 | 0.8+ | 0.3+ | 2009 12 26 | 691 | 0.2+ | 0.1− |
| 2005 10 13 | 704 | 0.4− | 0.0 | 2005 11 29 | 704 | 0.0 | 0.2− | 2009 12 26 | 691 | 0.1+ | 0.3+ |
| 2005 10 13 | 704 | 0.1+ | 1.0+ | 2005 11 29 | 704 | 0.6+ | 0.0 | 2009 12 26 | 691 | 0.1− | 0.1+ |

**(228809)∗ 2003 AP$_{91}$**

Discovered 2003 Jan. 5 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 21.95202 | | (2000.0) | | | **P** | | **Q** | |
| $n$ | 0.27433849 | $\omega$ | 2.40053 | | | +0.53103152 | | −0.84006579 | |
| $a$ | 2.3457311 | $\Omega$ | 55.54550 | | | +0.77517272 | | +0.42877053 | |
| $e$ | 0.2060837 | $i$ | 7.72812 | | | +0.34221744 | | +0.33233312 | |
| $P$ | 3.59 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 1 | | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 09 22 | 699 | 0.6+ | 1.8+ | 2003 01 31 | 699 | 0.3− | 0.2+ | 2005 10 03 | 703 | 0.9+ | 0.3− |
| 1998 09 22 | 699 | 1.1+ | 0.5− | 2003 01 31 | 699 | 0.3− | 0.1+ | 2007 04 11 | 691 | 0.1− | 0.0 |
| 1998 09 22 | 699 | 0.7+ | 0.6− | 2003 01 31 | 699 | 0.5− | 0.1− | 2007 04 11 | 691 | 0.3− | 0.0 |
| 1998 10 11 | 699 | 0.9− | 0.2+ | 2003 01 31 | 699 | 1.0− | 0.4+ | 2007 04 11 | 691 | 0.2+ | 0.4− |
| 1998 10 11 | 699 | 0.0 | 0.1+ | 2005 09 13 | 703 | (1.7+ | 0.8+) | 2009 11 26 | 691 | 0.2− | 0.5− |
| 1998 10 11 | 699 | 1.1− | 0.3+ | 2005 09 13 | 703 | (2.5− | 2.0+) | 2009 11 26 | 691 | 0.2− | 0.4− |
| 1998 10 20 | 699 | 0.4+ | 0.6+ | 2005 09 13 | 703 | (0.8+ | 5.0+) | 2009 11 26 | 691 | 0.4− | 0.4− |
| 1998 10 20 | 699 | 1.4− | 0.1− | 2005 09 13 | 703 | 0.1− | 0.3− | 2009 12 10 | 704 | 0.6+ | 0.5− |
| 1998 10 20 | 699 | 0.2+ | 0.1− | 2005 09 25 | 703 | 0.3+ | 0.6+ | 2009 12 10 | 704 | 0.5+ | 0.3− |
| 2003 01 05 | 699 | 0.5+ | 0.7+ | 2005 09 25 | 703 | 1.0− | 0.0 | 2009 12 10 | 704 | 0.2+ | 0.1− |
| 2003 01 05 | 699 | 0.1+ | 0.1+ | 2005 09 25 | 703 | 0.3+ | 0.1+ | 2009 12 10 | 704 | 0.2+ | 0.2+ |
| 2003 01 05 | 699 | 0.2− | 0.2+ | 2005 10 03 | 644 | 0.2+ | 0.9+ | 2009 12 15 | 704 | 0.6+ | 0.5− |
| 2003 01 05 | 699 | 0.7+ | 0.4+ | 2005 10 03 | 644 | 0.5+ | 0.5+ | 2009 12 15 | 704 | 1.0+ | 0.1+ |
| 2003 01 10 | 704 | 0.4+ | 0.3− | 2005 10 03 | 644 | 1.1+ | 0.3+ | 2009 12 15 | 704 | 0.3+ | 0.1− |
| 2003 01 10 | 704 | 0.2+ | 0.3+ | 2005 10 03 | 703 | 0.5+ | 0.0 | 2009 12 15 | 704 | 0.4− | 1.6+ |
| 2003 01 10 | 704 | 1.4+ | 0.7+ | 2005 10 03 | 703 | 1.4− | 0.8− | 2009 12 15 | 704 | 0.6+ | 0.4+ |
| 2003 01 10 | 704 | 0.0 | 1.4+ | 2005 10 03 | 703 | 1.5− | 1.0− | | | | |

**(228810)∗ 2003 BZ$_2$**

Discovered 2003 Jan. 25 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 49.36120 | | (2000.0) | | | **P** | | **Q** | |
| $n$ | 0.28245383 | $\omega$ | 293.98945 | | | +0.65899501 | | −0.64806392 | |
| $a$ | 2.3005821 | $\Omega$ | 108.91456 | | | +0.74814510 | | +0.61707101 | |
| $e$ | 0.3050772 | $i$ | 23.80016 | | | −0.07748864 | | +0.44635918 | |
| $P$ | 3.49 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 1 | | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 12 20 | 691 | 0.0 | 0.7− | 2003 01 27 | 704 | 1.2− | 0.2+ | 2005 11 02 | E12 | 0.5+ | 0.5+ |
| 1995 12 20 | 691 | 0.0 | 0.3− | 2003 01 27 | 704 | 0.1+ | 1.0+ | 2005 11 02 | E12 | 0.3+ | 0.4− |
| 1995 12 20 | 691 | 0.0 | 0.4− | 2003 01 27 | 704 | (0.1+ | 1.6+) | 2005 11 02 | E12 | 0.1+ | 0.2− |
| 2002 12 05 | 704 | (1.7− | 0.1−) | 2003 01 27 | 704 | (0.1+ | 1.7+) | 2005 11 02 | E12 | 0.6+ | 0.4+ |
| 2002 12 05 | 704 | (2.1+ | 0.7−) | 2003 02 02 | 704 | 1.3+ | 1.0+ | 2005 11 02 | E12 | 0.8− | 0.9+ |
| 2002 12 05 | 704 | 0.4− | 0.2− | 2003 02 02 | 704 | 1.0+ | 0.2+ | 2007 04 24 | G96 | 0.5− | 0.1− |
| 2002 12 05 | 704 | 0.5− | 0.4− | 2003 02 02 | 704 | (1.7+ | 0.4−) | 2007 04 24 | G96 | 0.3− | 0.1− |
| 2002 12 05 | 704 | 0.4+ | 1.0+ | 2003 02 02 | 704 | (2.1+ | 0.7+) | 2007 04 24 | G96 | 0.7− | 0.3+ |
| 2002 12 11 | 704 | 0.2− | 0.4− | 2003 02 06 | 699 | 0.0 | 0.8+ | 2007 04 24 | G96 | 0.5− | 0.0 |
| 2002 12 11 | 704 | 1.2− | 0.1+ | 2003 02 06 | 699 | 0.7+ | 0.8+ | 2009 11 15 | G96 | (1.8− | 0.1−) |
| 2002 12 11 | 704 | 0.1− | 0.4− | 2003 02 06 | 699 | 0.5+ | 0.2− | 2009 11 15 | G96 | 0.3− | 0.0 |
| 2002 12 31 | 704 | 0.3+ | 0.7+ | 2003 02 06 | 699 | 0.2− | 0.3+ | 2009 11 15 | G96 | 0.2− | 0.2− |
| 2002 12 31 | 704 | 0.2+ | 0.3− | 2005 08 10 | E12 | 0.3− | 0.3+ | 2009 11 15 | G96 | 0.3− | 0.1− |
| 2002 12 31 | 704 | 0.2+ | 0.1+ | 2005 08 10 | E12 | 0.1+ | 0.4− | 2009 11 26 | 703 | 0.4− | 0.5− |
| 2002 12 31 | 704 | 0.0 | 0.4+ | 2005 08 10 | E12 | 0.0 | 0.3+ | 2009 11 26 | 703 | 1.2+ | 0.2− |
| 2002 12 31 | 704 | 0.1+ | 0.6+ | 2005 08 10 | E12 | 0.3− | 0.4+ | 2009 11 26 | 703 | 0.1− | 1.1− |
| 2003 01 10 | 704 | 0.3+ | 0.1− | 2005 09 06 | E12 | 0.7− | 0.5+ | 2009 11 26 | 703 | (1.6+ | 2.1−) |
| 2003 01 10 | 704 | (1.7+ | 0.2−) | 2005 09 06 | E12 | 0.5+ | 0.1+ | 2009 11 27 | 703 | 0.4− | 0.3− |
| 2003 01 10 | 704 | 0.2+ | 0.3− | 2005 09 06 | E12 | 0.5+ | 0.3+ | 2009 11 27 | 703 | 0.8+ | 1.1+ |
| 2003 01 10 | 704 | 0.5− | 0.4+ | 2005 09 08 | E12 | 0.1+ | 0.1− | 2009 11 27 | 703 | 1.0− | 0.2− |
| 2003 01 10 | 704 | 0.2+ | 0.3+ | 2005 09 08 | E12 | 0.4− | 0.3+ | 2009 11 27 | 703 | 0.2− | 1.4+ |
| 2003 01 25 | 704 | 0.4− | 0.2− | 2005 09 08 | E12 | 0.1− | 0.1− | 2009 12 15 | 704 | 0.3+ | 0.1− |
| 2003 01 25 | 704 | 0.5+ | 0.1+ | 2005 09 08 | E12 | 0.2− | 0.1+ | 2009 12 15 | 704 | 0.7+ | 0.2+ |
| 2003 01 25 | 704 | 0.3− | 0.3+ | 2005 11 02 | E12 | 0.5+ | 0.0 | 2009 12 15 | 704 | 0.0 | 0.9+ |
| 2003 01 25 | 704 | 0.3+ | 0.6+ | 2005 11 02 | E12 | 0.1+ | 0.2− | 2009 12 15 | 704 | 1.2− | 0.2− |
| 2003 01 27 | 704 | (0.2− | 1.8+) | 2005 11 02 | E12 | 0.0 | 0.4− | | | | |

**(228811)∗ 2003 BR$_6$**

Discovered 2003 Jan. 24 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 18.10763 | | (2000.0) | | | **P** | | **Q** | |
| $n$ | 0.27234066 | $\omega$ | 147.97065 | | | +0.47513937 | | −0.87390516 | |
| $a$ | 2.3571889 | $\Omega$ | 273.47809 | | | +0.78406001 | | +0.47342839 | |
| $e$ | 0.0978589 | $i$ | 5.90139 | | | +0.39936511 | | +0.11025119 | |
| $P$ | 3.62 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 1 | | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 01 08 | 704 | 0.9+ | 1.1− | 2005 10 01 | 683 | 0.3− | 0.6− | 2009 11 10 | 691 | 0.2− | 0.1− |
| 2003 01 08 | 704 | 0.1+ | 0.2− | 2005 10 05 | 683 | (1.6+ | 2.0−) | 2009 11 11 | 704 | 0.5+ | 0.6+ |
| 2003 01 08 | 704 | 1.0+ | 0.6− | 2005 10 05 | 683 | (1.9+ | 0.7+) | 2009 11 11 | 704 | 1.2+ | 0.9+ |
| 2003 01 08 | 704 | (1.8+ | 0.2−) | 2005 10 05 | 683 | (1.6+ | 0.3−) | 2009 11 11 | 704 | 0.0 | 1.2+ |
| 2003 01 08 | 704 | 0.1− | 0.3− | 2005 10 08 | 704 | 0.7− | 0.6+ | 2009 11 11 | 704 | 0.4+ | 0.3+ |
| 2003 01 08 | 704 | 0.9+ | 0.1− | 2005 10 08 | 704 | 0.6− | 0.1+ | 2009 11 11 | 704 | 0.0 | 0.6+ |
| 2003 01 24 | 644 | 0.5+ | 0.7+ | 2005 10 08 | 704 | 0.2− | 0.0 | 2009 11 17 | 704 | 1.5+ | 1.0− |
| 2003 01 24 | 644 | 0.3+ | 0.2+ | 2005 10 08 | 704 | 0.6− | 0.3− | 2009 11 17 | 704 | 0.5− | 1.0+ |
| 2003 01 24 | 644 | 0.8+ | 0.1− | 2005 10 08 | 704 | 0.2− | 0.2− | 2009 11 17 | 704 | (1.2− | 2.0+) |
| 2003 01 25 | 645 | 0.1− | 0.1− | 2005 10 08 | 704 | 0.7− | 0.1+ | 2009 11 17 | 704 | (1.7+ | 0.8−) |
| 2003 01 25 | 645 | 0.1− | 0.1− | 2005 10 08 | 704 | 0.5− | 0.3− | 2009 11 17 | 704 | (1.2− | 1.6+) |
| 2003 01 27 | 704 | 0.3+ | 1.4+ | 2005 10 08 | 704 | 0.3− | 0.0 | 2009 11 22 | 691 | 0.2− | 0.3− |
| 2003 01 27 | 704 | 0.3+ | 0.4+ | 2005 10 08 | 704 | 0.2− | 0.4+ | 2009 11 22 | 704 | 0.7+ | 0.3+ |
| 2003 01 27 | 704 | 0.4− | 0.1+ | 2005 10 30 | 704 | 0.3− | 0.2− | 2009 11 22 | 691 | 0.9− | 0.2− |
| 2003 01 27 | 704 | 0.1+ | 0.0 | 2005 10 30 | 704 | 0.2− | 0.1− | 2009 11 22 | 704 | 0.2− | 1.1− |
| 2003 01 27 | 704 | 0.6− | 0.8− | 2005 10 30 | 704 | 0.2− | 0.5+ | 2009 11 22 | 691 | 0.0 | 0.2− |
| 2003 01 28 | 291 | 0.4− | 0.1+ | 2005 10 30 | 704 | 0.4+ | 0.6− | 2009 11 22 | 704 | 0.4+ | 0.0 |
| 2003 01 28 | 291 | 0.2+ | 0.3+ | 2005 10 30 | 704 | 0.2− | 0.3− | 2009 11 22 | 704 | 0.2+ | 0.5− |
| 2003 01 28 | 291 | 0.1+ | 0.3+ | 2005 12 02 | 703 | 1.4+ | 1.1+ | 2009 12 10 | 704 | 0.8− | 1.4+ |
| 2005 09 12 | 704 | 0.4+ | 0.2+ | 2005 12 02 | 703 | (2.2− | 0.6+) | 2009 12 10 | 704 | 0.1+ | 0.6+ |
| 2005 09 12 | 704 | 0.4+ | 0.1+ | 2005 12 02 | 703 | (2.2− | 0.2−) | 2009 12 10 | 704 | 0.4− | 1.2+ |
| 2005 09 12 | 704 | 0.3+ | 0.7+ | 2005 12 02 | 703 | 0.8− | 0.0 | 2009 12 10 | 704 | 0.5+ | 0.7+ |
| 2005 09 12 | 704 | 0.9+ | 0.6− | 2007 03 11 | 703 | 0.9+ | 1.2+ | 2009 12 10 | 704 | 0.2− | 1.0+ |
| 2005 09 12 | 704 | 0.6+ | 0.0 | 2007 03 11 | 703 | 0.7− | 0.4− | 2009 12 11 | G96 | 0.5+ | 0.2− |
| 2005 09 26 | 644 | 0.2− | 0.1− | 2007 03 11 | 703 | 0.2− | 0.9− | 2009 12 11 | G96 | 0.4+ | 0.1− |
| 2005 09 26 | 644 | 0.2− | 0.1− | 2007 03 11 | 703 | 0.8− | 0.4− | 2009 12 11 | G96 | 0.2+ | 0.1− |
| 2005 09 26 | 644 | 0.3− | 0.2+ | 2007 03 12 | 703 | 0.2− | 0.3− | 2009 12 11 | G96 | 0.4+ | 0.3− |
| 2005 09 29 | 699 | 0.8+ | 1.4+ | 2007 03 12 | 703 | 0.9+ | 0.6− | 2009 12 16 | 704 | 0.4− | 0.1+ |
| 2005 09 29 | 699 | 0.1+ | 1.0+ | 2007 03 12 | 703 | 1.3− | 0.2+ | 2009 12 16 | 704 | 0.1− | 0.5+ |
| 2005 09 29 | 699 | 0.8+ | 0.7− | 2007 03 12 | 703 | 0.8+ | 0.4+ | 2009 12 16 | 704 | 0.7− | 0.3+ |
| 2005 09 29 | 699 | 0.5+ | 0.4+ | 2007 03 15 | 703 | 0.1+ | 0.3− | 2009 12 16 | 704 | 1.1+ | 0.3+ |
| 2005 09 30 | 683 | 0.8+ | 0.2− | 2007 03 15 | 703 | 0.1+ | 0.5− | 2009 12 16 | 704 | 0.4+ | 0.6+ |
| 2005 09 30 | 683 | 0.5+ | 0.8− | 2007 03 15 | 703 | 0.2+ | 1.1+ | 2009 12 18 | G96 | 0.3+ | 0.6− |
| 2005 09 30 | 683 | 0.2+ | 0.6− | 2007 03 15 | 703 | (3.0− | 0.4+) | 2009 12 18 | G96 | 0.1+ | 0.4− |
| 2005 10 01 | 683 | 0.7− | 1.4− | 2009 11 10 | 691 | 0.2− | 0.2− | 2009 12 18 | G96 | 0.2+ | 0.5− |
| 2005 10 01 | 683 | 0.3+ | 0.9− | 2009 11 10 | 691 | 0.2− | 0.2− | 2009 12 18 | G96 | 0.6+ | 0.5− |

**(228812)∗ 2003 BM$_{14}$**

Discovered 2003 Jan. 26 by NEAT at Haleakala.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 4.54898 | | (2000.0) | | | |
| $n$ | 0.27182724 | $\omega$ | 181.79833 | | +0.15170146 | −0.98562503 |
| $a$ | 2.3601561 | $\Omega$ | 259.48126 | | +0.90780498 | +0.16869373 |
| $e$ | 0.1115493 | $i$ | 4.33770 | | +0.39099461 | −0.00925909 |
| $P$ | 3.63 | $H$ | 16.6 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 01 23 | 691 | 0.5+ | 0.7− | 2005 08 30 | 644 | 0.4− | 0.4+ | 2007 03 19 | 703 | 0.4− | 0.3− |
| 1999 01 23 | 691 | 0.1+ | 0.9− | 2005 09 29 | 683 | 0.9+ | 1.2− | 2007 03 19 | 703 | 0.8− | 1.0+ |
| 1999 01 23 | 691 | 0.4+ | 0.4− | 2005 09 29 | 683 | 0.7− | 1.2− | 2007 03 19 | 703 | 0.3+ | 0.1− |
| 2003 01 01 | 704 | 0.6− | 0.5− | 2005 09 29 | 683 | 0.6− | 0.2+ | 2007 03 21 | 704 | 0.9+ | 0.9+ |
| 2003 01 01 | 704 | 0.8− | 0.5− | 2005 09 30 | 683 | 0.5+ | 1.1+ | 2007 03 21 | 704 | 0.5+ | 0.3− |
| 2003 01 01 | 704 | 0.4+ | 0.3+ | 2005 09 30 | 683 | 0.9+ | 0.1− | 2007 03 21 | 704 | (1.9+ | 0.7+) |
| 2003 01 07 | 704 | 1.3− | 0.1− | 2005 09 30 | 683 | 0.2+ | 0.5+ | 2007 03 21 | 704 | 1.3+ | 0.1− |
| 2003 01 07 | 704 | 0.8+ | 0.1− | 2005 10 03 | 704 | 0.4− | 0.3+ | 2009 11 21 | 704 | 0.6+ | 0.0 |
| 2003 01 07 | 704 | 0.3− | 0.1− | 2005 10 03 | 704 | 0.1+ | 1.2+ | 2009 11 21 | 704 | 0.8− | 0.2− |
| 2003 01 07 | 704 | 0.3+ | 0.0 | 2005 10 03 | 704 | 0.4− | 0.6+ | 2009 11 21 | 704 | 0.3+ | 0.6− |
| 2003 01 26 | 608 | 0.5− | 0.5+ | 2005 10 03 | 704 | 0.0 | 0.1+ | 2009 11 21 | 704 | 0.5+ | 0.4+ |
| 2003 01 26 | 608 | 0.6− | 0.4+ | 2005 10 03 | 703 | 0.4− | 1.0+ | 2009 11 21 | 704 | 0.6+ | 0.5+ |
| 2003 01 26 | 608 | 0.2− | 0.0 | 2005 10 03 | 703 | 0.2− | 0.8+ | 2009 11 21 | 691 | 0.4− | 0.2+ |
| 2003 01 27 | 704 | 0.3+ | 0.3+ | 2005 10 03 | 703 | (1.8− | 1.5−) | 2009 11 21 | 691 | 0.2− | 0.2+ |
| 2003 01 27 | 704 | 0.0 | 0.9+ | 2005 10 03 | 703 | 0.0 | 0.6− | 2009 11 21 | 691 | 0.1− | 0.1+ |
| 2003 01 27 | 704 | 0.4− | 0.8+ | 2005 10 06 | 699 | 0.2+ | 0.6− | 2009 11 22 | 703 | 0.0 | 0.2− |
| 2003 01 27 | 704 | 0.0 | 0.6+ | 2005 10 06 | 699 | 0.5− | 1.3+ | 2009 11 22 | 703 | 0.1+ | 0.6+ |
| 2003 01 27 | 704 | 0.4+ | 0.3+ | 2005 10 06 | 699 | 0.3+ | 0.1+ | 2009 11 22 | 703 | 0.1+ | 0.3− |
| 2003 01 27 | 699 | 0.8+ | 0.0 | 2005 10 06 | 699 | 0.7− | 0.8− | 2009 11 22 | 703 | 0.5− | 0.2− |
| 2003 01 27 | 644 | 0.3− | 0.1+ | 2005 10 08 | 703 | (0.4+ | 2.8−) | 2009 11 22 | 703 | 1.0− | 0.3− |
| 2003 01 27 | 699 | 0.9+ | 0.3+ | 2005 10 08 | 703 | (2.0− | 0.1+) | 2009 12 09 | J75 | 0.2− | 0.1− |
| 2003 01 27 | 699 | 0.1+ | 0.4+ | 2005 10 08 | 704 | 0.6+ | 0.8+ | 2009 12 09 | J75 | 0.7+ | 0.1+ |
| 2003 01 27 | 699 | 0.1+ | 0.3+ | 2005 10 08 | 703 | (1.4− | 2.0−) | 2009 12 09 | J75 | 0.3+ | 0.3− |
| 2003 01 27 | 644 | 0.0 | 0.1− | 2005 10 08 | 703 | 1.0− | 1.0− | 2009 12 09 | J75 | 0.4+ | 0.6+ |
| 2003 01 27 | 644 | 0.0 | 0.1+ | 2005 10 08 | 704 | 0.8− | 0.2− | 2009 12 09 | J75 | 0.6+ | 0.6− |
| 2003 02 03 | 644 | (0.4+ | 1.7+) | 2005 10 08 | 704 | 1.3− | 1.4+ | 2009 12 09 | J75 | 0.3+ | 0.3− |
| 2003 02 03 | 644 | 0.2− | 1.3+ | 2005 10 21 | 644 | 0.4+ | 0.7+ | 2009 12 10 | G96 | 0.0 | 0.0 |
| 2003 02 03 | 644 | 0.1+ | 1.1+ | 2005 10 21 | 644 | 0.3+ | 0.4+ | 2009 12 10 | G96 | 0.2+ | 0.1+ |
| 2005 08 30 | 644 | 0.6− | 0.2+ | 2005 10 21 | 644 | 0.2+ | 0.7+ | 2009 12 10 | G96 | 0.4+ | 0.0 |
| 2005 08 30 | 644 | 0.2− | 0.3+ | 2007 03 19 | 703 | 0.6+ | 0.4+ | 2009 12 10 | G96 | 0.3+ | 0.0 |

**(228813)∗ 2003 BL$_{17}$**

Discovered 2003 Jan. 26 by NEAT at Haleakala.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 339.70565 | | (2000.0) | | | |
| $n$ | 0.27482608 | $\omega$ | 92.82974 | | −0.72728999 | −0.68308362 |
| $a$ | 2.3429558 | $\Omega$ | 44.09758 | | +0.58547580 | −0.66817831 |
| $e$ | 0.1696124 | $i$ | 5.49846 | | +0.35814433 | −0.29484661 |
| $P$ | 3.59 | $H$ | 16.5 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 01 26 | 608 | 0.4+ | 0.7− | 2003 03 26 | 704 | 0.2− | 0.3− | 2005 11 29 | 703 | (1.9+ | 0.4+) |
| 2003 01 26 | 608 | 0.0 | 0.7− | 2005 10 03 | G96 | 0.2+ | 0.2− | 2005 11 29 | 703 | 0.4+ | 1.1− |
| 2003 01 26 | 608 | 0.2+ | 0.2− | 2005 10 03 | G96 | 0.0 | 0.1− | 2005 11 29 | 703 | 0.0 | 0.4− |
| 2003 01 27 | 704 | 0.2+ | 0.0 | 2005 10 03 | G96 | 0.3− | 0.2− | 2005 11 29 | 703 | 0.4− | 0.5− |
| 2003 01 27 | 704 | 0.6+ | 0.3+ | 2005 10 03 | G96 | 0.0 | 0.2− | 2005 11 30 | 691 | 0.1− | 0.1− |
| 2003 01 27 | 704 | 0.1− | 0.3+ | 2005 10 22 | 691 | 0.1+ | 0.3+ | 2005 11 30 | 691 | 0.1− | 0.1− |
| 2003 01 27 | 704 | 0.2+ | 0.1− | 2005 10 22 | 691 | 0.2+ | 0.2+ | 2005 11 30 | 691 | 0.3− | 0.3+ |
| 2003 01 27 | 704 | 0.1+ | 0.1− | 2005 10 22 | 691 | 0.1+ | 0.2+ | 2006 01 06 | G96 | 1.0− | 0.6− |
| 2003 01 28 | 704 | 0.7− | 0.2− | 2005 10 23 | 703 | 0.9− | 0.4− | 2006 01 06 | G96 | 0.2+ | 0.2− |
| 2003 01 28 | 704 | 0.7− | 0.9− | 2005 10 23 | 703 | 0.4− | 0.0 | 2006 01 06 | G96 | 0.3− | 0.4− |
| 2003 01 28 | 704 | 0.4− | 0.9− | 2005 10 23 | 703 | 0.3+ | 0.5+ | 2006 01 06 | G96 | 0.3− | 0.6− |
| 2003 01 28 | 704 | (0.2− | 1.6−) | 2005 10 23 | 703 | 0.8− | 0.7− | 2007 04 09 | 691 | 0.2+ | 0.0 |
| 2003 01 31 | 704 | 1.4− | 0.7+ | 2005 10 24 | 699 | 0.8− | 0.6+ | 2007 04 09 | 691 | 0.0 | 0.2− |
| 2003 01 31 | 704 | 0.9− | 0.3+ | 2005 10 24 | 699 | 0.7+ | 0.6− | 2007 04 09 | 691 | 0.0 | 0.0 |
| 2003 01 31 | 704 | 0.4− | 0.3− | 2005 10 24 | 699 | 0.5+ | 0.3+ | 2007 04 18 | G96 | 0.4+ | 0.1+ |
| 2003 02 06 | 704 | 0.1+ | 0.6− | 2005 10 24 | 699 | 0.1− | 0.2+ | 2007 04 18 | G96 | 0.1+ | 0.0 |
| 2003 02 06 | 704 | 0.5+ | 0.9+ | 2005 10 25 | G96 | 0.0 | 0.2− | 2007 04 18 | G96 | 0.3+ | 0.2+ |
| 2003 02 06 | 704 | (1.5+ | 1.3−) | 2005 10 25 | G96 | 0.2+ | 0.2− | 2007 04 18 | G96 | 0.3+ | 0.3+ |
| 2003 02 06 | 704 | 0.7+ | 1.0− | 2005 10 25 | G96 | 0.2− | 0.1− | 2007 04 26 | 691 | 0.2+ | 0.3+ |
| 2003 02 08 | 699 | 0.2+ | 0.4+ | 2005 10 25 | G96 | 0.0 | 0.1− | 2007 04 26 | 691 | 0.1− | 0.0 |
| 2003 02 08 | 699 | 0.6+ | 0.0 | 2005 10 27 | 691 | 0.4+ | 0.2+ | 2007 04 26 | 691 | 0.3− | 0.2+ |
| 2003 02 08 | 699 | 0.9+ | 0.0 | 2005 10 27 | 691 | 0.2+ | 0.1+ | 2007 05 07 | 703 | 0.3+ | 1.1− |
| 2003 02 08 | 699 | 0.1− | 1.0+ | 2005 10 27 | 691 | 0.0 | 0.3+ | 2007 05 07 | 703 | 0.4− | 0.2− |
| 2003 02 23 | 608 | 0.3+ | 0.3+ | 2005 10 31 | 691 | 0.1− | 0.9+ | 2007 05 07 | 703 | 0.3+ | 0.7+ |
| 2003 02 23 | 608 | 0.4+ | 0.1− | 2005 10 31 | 691 | 0.3− | 0.2+ | 2007 05 07 | 703 | 1.0− | 0.5+ |
| 2003 02 23 | 608 | 0.9+ | 0.5+ | 2005 10 31 | 691 | 0.3− | 0.3+ | 2007 05 11 | 691 | 0.1+ | 0.2+ |
| 2003 02 25 | 608 | 0.1+ | 0.2− | 2005 10 31 | 704 | 0.8− | 0.1− | 2007 05 11 | 691 | 0.0 | 0.2+ |
| 2003 02 25 | 608 | 0.2− | 0.0 | 2005 10 31 | 704 | (1.7− | 0.5−) | 2007 05 11 | 691 | 0.2− | 0.3+ |
| 2003 02 25 | 608 | 0.3− | 0.3− | 2005 10 31 | 704 | 0.1− | 0.1− | 2007 05 14 | 704 | 0.5+ | 1.1+ |
| 2003 02 26 | 608 | 1.3− | 1.3− | 2005 10 31 | 704 | 0.7− | 0.3+ | 2007 05 14 | 704 | 0.9+ | 0.3+ |
| 2003 02 26 | 608 | (1.3− | 1.6−) | 2005 10 31 | 704 | 0.3+ | 0.5+ | 2007 05 14 | 704 | 0.8+ | 0.6+ |
| 2003 02 26 | 608 | (0.8− | 1.6−) | 2005 11 03 | 704 | 0.5− | 0.7+ | 2007 05 14 | 704 | 0.5+ | 0.0 |
| 2003 03 05 | 704 | 0.6+ | 0.9+ | 2005 11 03 | 704 | (1.5− | 0.3+) | 2009 11 26 | 703 | 0.6− | 0.3− |
| 2003 03 05 | 704 | 0.0 | 0.1+ | 2005 11 03 | 704 | 0.3+ | 0.3− | 2009 11 26 | 703 | 0.4+ | 1.0− |
| 2003 03 05 | 704 | (0.0 | 1.9+) | 2005 11 03 | 704 | 0.3− | 0.4− | 2009 11 26 | 703 | 0.9+ | 0.5− |
| 2003 03 05 | 704 | 0.2+ | 0.1+ | 2005 11 04 | 691 | 0.1− | 0.3+ | 2009 11 26 | 703 | 0.9+ | 1.3+ |
| 2003 03 05 | 704 | 0.3+ | 0.5+ | 2005 11 04 | 691 | 0.1+ | 0.1+ | 2009 12 10 | 704 | 0.1− | 0.2+ |
| 2003 03 07 | 644 | 0.1− | 1.2+ | 2005 11 04 | 691 | 0.0 | 0.2+ | 2009 12 10 | 704 | 0.0 | 0.1+ |
| 2003 03 07 | 644 | 0.2+ | 1.2+ | 2005 11 05 | 699 | 0.5+ | 0.3+ | 2009 12 10 | 704 | 0.4− | 1.0− |
| 2003 03 07 | 644 | 0.3+ | 0.9+ | 2005 11 05 | 699 | 0.3+ | 0.9− | 2009 12 15 | 704 | 0.1− | 0.4+ |
| 2003 03 08 | 704 | 0.1− | 0.4+ | 2005 11 05 | 699 | 0.8+ | 0.1− | 2009 12 15 | 704 | 0.5+ | 0.1− |
| 2003 03 08 | 704 | 0.3+ | 0.6+ | 2005 11 05 | 699 | 0.1+ | 0.5+ | 2009 12 15 | 704 | 0.2− | 0.7+ |
| 2003 03 08 | 704 | 1.0− | 0.3+ | 2005 11 21 | 691 | (1.9− | 0.8+) | 2009 12 15 | 704 | 0.0 | 0.4+ |
| 2003 03 08 | 704 | 0.2+ | 0.4+ | 2005 11 21 | 691 | 0.1+ | 0.2+ | 2009 12 15 | 704 | 0.0 | 0.6+ |
| 2003 03 08 | 704 | 0.1− | 0.6+ | 2005 11 21 | 691 | 0.4− | 0.2+ | 2009 12 27 | D29 | 0.3− | 0.4− |
| 2003 03 26 | 704 | 0.1+ | 0.0 | 2005 11 26 | G96 | 0.1+ | 0.4− | 2009 12 27 | D29 | 0.0 | 0.9− |
| 2003 03 26 | 704 | 0.0 | 0.0 | 2005 11 26 | G96 | 0.1− | 0.3− | 2009 12 27 | D29 | 0.2− | 0.6− |
| 2003 03 26 | 704 | 0.2+ | 0.6− | 2005 11 26 | G96 | 0.1− | 0.4− | 2009 12 27 | D29 | 0.5− | 0.7− |
| 2003 03 26 | 704 | 0.9+ | 0.3− | 2005 11 26 | G96 | 0.2+ | 0.4− | | | | |

**(228814)∗ 2003 BP$_{17}$**

Discovered 2003 Jan. 27 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 325.62947 | | (2000.0) | | | |
| $n$ | 0.27792161 | $\omega$ | 211.22436 | | −0.92805528 | −0.37004704 |
| $a$ | 2.3255258 | $\Omega$ | 306.99835 | | +0.35167380 | −0.83338313 |
| $e$ | 0.1735630 | $i$ | 3.02694 | | +0.12263335 | −0.41053350 |
| $P$ | 3.55 | $H$ | 17.0 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 27 | 691 | 0.2− | 0.1− | 2003 01 28 | 608 | 0.5+ | 0.9+ | 2005 10 29 | 691 | 1.0− | 0.2+ |
| 2001 08 27 | 691 | 0.3+ | 0.5+ | 2003 02 03 | 704 | 0.3− | 0.3+ | 2005 10 29 | 691 | 0.2− | 0.2+ |
| 2001 08 27 | 691 | 0.3− | 0.0 | 2003 02 03 | 704 | 0.1− | 0.5+ | 2005 11 05 | 691 | 0.1+ | 0.2+ |
| 2001 10 15 | 645 | 0.1− | 0.0 | 2003 02 03 | 704 | 0.2+ | 0.1+ | 2005 11 05 | 691 | 0.2− | 0.3+ |
| 2001 10 15 | 645 | 0.0 | 0.0 | 2003 02 03 | 704 | 0.4+ | 0.7+ | 2005 11 05 | 691 | 0.2+ | 0.4+ |
| 2003 01 08 | 704 | 0.1− | 0.5+ | 2003 02 03 | 704 | 0.1− | 0.4+ | 2005 11 06 | 691 | 0.1+ | 0.3+ |
| 2003 01 08 | 704 | 0.2+ | 0.3− | 2003 02 08 | 704 | 0.2− | 1.5+ | 2005 11 06 | 691 | 0.1+ | 0.2+ |
| 2003 01 08 | 704 | 0.3+ | 0.1+ | 2003 02 08 | 704 | 0.4− | 0.8+ | 2005 11 06 | 691 | 0.3+ | 0.2+ |
| 2003 01 08 | 704 | 0.1− | 0.7− | 2003 02 08 | 704 | 0.0 | 0.7+ | 2005 11 12 | 691 | 0.1− | 0.9− |
| 2003 01 08 | 608 | 0.1− | 0.3− | 2003 02 08 | 704 | 0.7+ | 0.8+ | 2005 11 12 | 691 | 0.1+ | 0.2+ |
| 2003 01 08 | 608 | 0.1+ | 0.5− | 2003 02 08 | 704 | 0.0 | 0.3− | 2005 11 12 | 691 | 0.3+ | 0.2+ |
| 2003 01 08 | 608 | 0.3+ | 0.0 | 2003 02 09 | 608 | 0.4− | 0.8+ | 2007 05 14 | 704 | 0.5− | 1.3− |
| 2003 01 17 | 644 | 0.1+ | 0.1− | 2003 02 09 | 608 | 0.1+ | 1.4+ | 2007 05 14 | 704 | 1.2+ | 0.3− |
| 2003 01 17 | 644 | 0.2− | 0.4− | 2003 02 09 | 608 | 0.1− | 1.2+ | 2007 05 14 | 704 | 0.7+ | 0.6+ |
| 2003 01 17 | 644 | 0.1+ | 0.4− | 2003 02 21 | 644 | 0.2− | 0.5+ | 2007 06 15 | 691 | 0.1− | 0.4+ |
| 2003 01 27 | 704 | 0.5+ | 0.1− | 2003 02 21 | 644 | 0.1− | 0.4+ | 2007 06 15 | 691 | 0.0 | 0.7+ |
| 2003 01 27 | 704 | 0.5+ | 0.2− | 2003 02 21 | 699 | 0.5+ | 0.2+ | 2007 06 15 | 691 | 0.1+ | 0.2+ |
| 2003 01 27 | 704 | 0.0 | 0.7− | 2003 02 21 | 644 | 0.2− | 0.4+ | 2008 10 08 | 691 | 0.3+ | 0.2+ |
| 2003 01 27 | 699 | 0.1− | 0.1+ | 2003 02 21 | 699 | 0.4− | 0.1+ | 2008 10 08 | 691 | 0.3− | 0.4+ |
| 2003 01 27 | 704 | 0.6+ | 0.1− | 2003 02 21 | 699 | 0.2− | 0.3+ | 2008 10 08 | 691 | 0.3− | 0.3+ |
| 2003 01 27 | 699 | 0.2− | 1.0+ | 2003 02 21 | 699 | 0.6− | 0.3− | 2009 11 11 | G96 | 0.2+ | 0.3− |
| 2003 01 27 | 704 | 0.4+ | 0.1− | 2003 03 05 | 704 | 0.3− | 0.1+ | 2009 11 11 | G96 | 0.1− | 0.0 |
| 2003 01 27 | 699 | 0.2+ | 1.0+ | 2003 03 05 | 704 | 0.5− | 0.2+ | 2009 11 11 | G96 | 0.2+ | 0.3− |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 01 27 | 699 | 0.4− | 0.6+ | 2003 03 05 | 704 | 0.1− | 0.2+ | 2009 11 11 | G96 | 0.0 | 1.0− |
| 2003 01 27 | 644 | 0.0 | 0.8− | 2003 03 06 | 704 | 1.1+ | 0.4− | 2009 12 15 | G96 | 0.1+ | 0.1− |
| 2003 01 27 | 644 | 0.5+ | 0.5+ | 2003 03 06 | 704 | 0.3+ | 1.3+ | 2009 12 15 | G96 | 0.1+ | 0.4− |
| 2003 01 27 | 644 | 0.1+ | 0.7− | 2003 03 06 | 704 | 1.0− | 0.3+ | 2009 12 15 | G96 | 0.2− | 0.5− |
| 2003 01 27 | 644 | 0.4+ | 0.5+ | 2003 03 06 | 704 | 0.2+ | 0.6+ | 2009 12 15 | G96 | 0.2+ | 0.3− |
| 2003 01 27 | 644 | 0.2− | 0.6− | 2003 04 06 | 291 | 0.2+ | 0.2+ | 2009 12 18 | 691 | 0.3− | 0.2− |
| 2003 01 27 | 644 | 0.3+ | 0.4+ | 2003 04 06 | 291 | 0.3+ | 0.2+ | 2009 12 18 | 691 | 0.2− | 0.1− |
| 2003 01 28 | 291 | 0.1− | 0.1− | 2003 04 06 | 291 | 0.4+ | 0.1− | 2009 12 18 | 691 | 0.1− | 0.1− |
| 2003 01 28 | 291 | 0.0 | 0.1− | 2005 10 25 | 691 | 0.2+ | 0.0 | 2009 12 26 | 691 | 0.3− | 0.3− |
| 2003 01 28 | 291 | 0.1− | 0.2− | 2005 10 25 | 691 | 0.3+ | 0.1+ | 2009 12 26 | 691 | 0.2− | 0.4− |
| 2003 01 28 | 608 | 0.3+ | 0.2− | 2005 10 25 | 691 | 0.1+ | 0.1+ | 2009 12 26 | 691 | 0.3+ | 0.1− |
| 2003 01 28 | 608 | 0.4+ | 0.0 | 2005 10 29 | 691 | 0.4− | 0.1− | | | | |

**(228815)∗ 2003 BW$_{24}$**

Discovered 2003 Jan. 25 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 358.84576 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.27568400 | $\omega$ | 224.81585 | | −0.31291294 | | −0.94599922 |
| $a$ | 2.3380924 | $\Omega$ | 243.58970 | | +0.89576854 | | −0.26430413 |
| $e$ | 0.1742797 | $i$ | 5.42539 | | +0.31572808 | | −0.18769339 |
| $P$ | 3.58 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 01 02 | 704 | 0.2− | 0.9+ | 2005 09 30 | 691 | 0.3+ | 0.8+ | 2007 04 15 | 704 | 1.0+ | 0.2+ |
| 2003 01 02 | 704 | 0.9− | 0.9− | 2005 09 30 | 691 | 0.1+ | 0.3+ | 2007 04 15 | 704 | (2.4− | 4.5−) |
| 2003 01 02 | 704 | 1.0+ | 0.8− | 2005 09 30 | 691 | 0.3− | 1.4+ | 2007 04 15 | 704 | 0.7+ | 0.7+ |
| 2003 01 02 | 704 | 1.1− | 0.4+ | 2005 10 01 | 703 | 1.1+ | 0.8+ | 2007 04 19 | 691 | 0.2+ | 0.2+ |
| 2003 01 16 | 644 | 0.2− | 0.2+ | 2005 10 01 | 703 | 0.6+ | 1.3+ | 2007 04 19 | 691 | 0.0 | 0.4+ |
| 2003 01 16 | 644 | 0.1− | 0.8+ | 2005 10 01 | 703 | (1.4+ | 2.0+) | 2007 04 19 | 691 | 0.0 | 0.2+ |
| 2003 01 16 | 644 | 0.1+ | 1.0+ | 2005 10 01 | 703 | 0.3+ | 0.7+ | 2007 04 22 | 704 | 0.1− | 0.9− |
| 2003 01 25 | 644 | 0.6+ | 1.2+ | 2005 10 02 | 644 | 0.0 | 0.5+ | 2007 04 22 | 704 | 0.0 | 0.2+ |
| 2003 01 25 | 644 | 0.2+ | 1.5+ | 2005 10 02 | 644 | 0.0 | 0.2+ | 2007 04 22 | 704 | 0.3− | 0.3− |
| 2003 01 25 | 644 | 0.0 | 1.3+ | 2005 10 02 | 644 | 0.4− | 0.1+ | 2007 04 22 | 704 | 0.2− | 1.5+ |
| 2003 01 28 | 704 | 0.4+ | 1.0+ | 2005 10 06 | 691 | 0.2− | 0.3+ | 2007 04 23 | 691 | 0.1+ | 0.2+ |
| 2003 01 28 | 704 | 0.3− | 1.4+ | 2005 10 06 | 691 | 0.1− | 0.3+ | 2007 04 23 | 691 | 0.0 | 0.2+ |
| 2003 01 28 | 704 | (0.4+ | 2.1+) | 2005 10 06 | 691 | 0.1− | 0.3+ | 2007 04 23 | 691 | 0.0 | 0.4+ |
| 2003 01 28 | 704 | 0.8− | 1.2+ | 2005 10 08 | 704 | 0.4− | 1.2+ | 2008 08 21 | 691 | 0.4− | 0.4+ |
| 2003 02 02 | 699 | 1.5+ | 0.6+ | 2005 10 08 | 704 | 0.7+ | 0.7+ | 2008 08 21 | 691 | 0.2− | 0.7+ |
| 2003 02 02 | 699 | 0.0 | 0.6+ | 2005 10 08 | 704 | (2.5+ | 1.1−) | 2008 08 21 | 691 | 0.2− | 0.1+ |
| 2003 02 02 | 699 | (1.6+ | 0.2−) | 2005 10 10 | 691 | 0.2− | 0.0 | 2009 10 15 | G96 | 0.2− | 0.4− |
| 2003 02 02 | 699 | 0.3+ | 0.8+ | 2005 10 10 | 691 | 0.1− | 0.1+ | 2009 10 15 | G96 | 0.3− | 0.4− |
| 2003 02 02 | 704 | 0.4+ | 0.2+ | 2005 10 10 | 691 | 0.2− | 0.1+ | 2009 10 15 | G96 | 0.2+ | 0.1+ |
| 2003 02 02 | 704 | 0.0 | 0.4+ | 2005 10 22 | 703 | 0.7− | 1.1− | 2009 11 24 | J75 | 0.7+ | 1.0− |
| 2003 02 02 | 704 | 0.2+ | 0.3+ | 2005 10 22 | 703 | 0.3− | 0.1+ | 2009 11 25 | J75 | 0.1− | 0.5− |
| 2003 02 02 | 704 | 0.1+ | 0.4− | 2005 10 22 | 703 | 1.0− | 1.4− | 2009 11 25 | J75 | 0.2− | 0.8+ |
| 2003 02 02 | 704 | 0.3+ | 0.6+ | 2005 10 22 | 703 | (0.6− | 1.6−) | 2009 11 25 | J75 | (0.9− | 1.6+) |
| 2003 02 03 | 699 | 0.1+ | 0.0 | 2005 10 28 | 703 | 0.3+ | 0.1− | 2009 11 25 | J75 | 0.4− | 0.4+ |
| 2003 02 03 | 699 | 1.1− | 0.3+ | 2005 10 28 | 703 | 0.7− | 0.1− | 2009 11 25 | J75 | 1.3− | 0.3− |
| 2003 02 03 | 699 | 0.1− | 0.5+ | 2005 10 28 | 703 | (1.6− | 0.4+) | 2009 12 15 | 703 | 0.1+ | 0.2− |
| 2003 02 03 | 699 | 0.0 | 0.3− | 2005 10 28 | 703 | 1.5− | 0.4+ | 2009 12 15 | 703 | 0.2− | 0.8− |
| 2003 02 04 | 608 | 0.9+ | 0.7− | 2005 10 30 | 704 | 0.3− | 0.5+ | 2009 12 15 | 703 | 0.1+ | 0.6− |
| 2003 02 04 | 608 | 0.5+ | 0.7− | 2005 10 30 | 704 | 0.4+ | 0.7+ | 2009 12 15 | 703 | 0.7− | 1.0− |
| 2003 02 04 | 608 | 0.7+ | 0.9− | 2005 10 30 | 704 | 0.2− | 0.2− | 2009 12 15 | 703 | 0.8− | 0.7− |
| 2003 02 04 | 644 | 0.3+ | 0.1+ | 2005 10 30 | 704 | 0.4+ | 0.2+ | 2009 12 17 | 704 | 0.7+ | 0.5+ |
| 2003 02 04 | 644 | 0.1− | 0.6+ | 2005 10 30 | 704 | 0.4− | 0.2+ | 2009 12 17 | 704 | 0.3+ | 0.6+ |
| 2003 02 04 | 644 | 0.0 | 0.8+ | 2005 11 02 | 704 | 0.9− | 0.6+ | 2009 12 17 | 704 | 0.3+ | 0.7+ |
| 2003 02 22 | 333 | 0.6− | 0.5+ | 2005 11 02 | 704 | 0.2+ | 0.6+ | 2009 12 17 | G92 | 0.1− | 0.2+ |
| 2003 02 22 | 333 | 0.3+ | 0.5+ | 2005 11 02 | 704 | 0.0 | 0.1− | 2009 12 17 | 704 | 0.1+ | 0.1− |
| 2003 03 07 | 704 | 0.1+ | 0.1+ | 2005 11 02 | 704 | 0.5− | 0.3− | 2009 12 17 | G92 | 0.3− | 0.8− |
| 2003 03 07 | 704 | 0.4− | 1.0+ | 2005 11 02 | 704 | 0.1+ | 0.5− | 2009 12 17 | 704 | 1.1+ | 0.0 |
| 2003 03 07 | 704 | 0.2− | 0.3+ | 2005 11 05 | 704 | 0.6+ | 0.1+ | 2009 12 17 | G92 | 0.2+ | 0.3+ |
| 2003 03 07 | 704 | 0.2− | 0.4+ | 2005 11 05 | 704 | 0.5+ | 0.2+ | 2009 12 17 | G96 | 0.2− | 0.3− |
| 2003 03 07 | 704 | 0.2+ | 0.4+ | 2005 11 05 | 704 | 0.0 | 1.0− | 2009 12 17 | G96 | 0.1− | 0.2− |
| 2003 03 07 | 704 | 1.1+ | 0.5+ | 2005 11 05 | 704 | 0.2+ | 0.2+ | 2009 12 17 | G96 | 0.1− | 0.2− |
| 2003 03 07 | 704 | 0.3+ | 0.7+ | 2006 02 24 | G96 | 0.3− | 0.5+ | 2009 12 17 | G96 | 0.0 | 0.4− |
| 2003 03 07 | 608 | 0.4+ | 0.1− | 2006 02 24 | G96 | 0.3+ | 0.4− | 2009 12 17 | G96 | 0.1+ | 0.3− |
| 2003 03 07 | 608 | 0.8+ | 0.2+ | 2006 02 24 | G96 | 0.0 | 0.0 | 2009 12 20 | 691 | 0.1− | 0.3− |
| 2003 03 07 | 608 | 0.0 | 0.1+ | 2006 02 24 | G96 | 0.0 | 0.1− | 2009 12 20 | 691 | 0.1− | 0.3− |
| 2005 09 25 | 691 | 0.1− | 0.1+ | 2007 04 11 | 691 | 0.1+ | 0.2+ | 2009 12 20 | 691 | 0.3− | 0.3− |
| 2005 09 25 | 691 | 0.2+ | 0.1− | 2007 04 11 | 691 | 0.2+ | 0.2+ | | | | |
| 2005 09 25 | 691 | 0.1+ | 0.1+ | 2007 04 11 | 691 | 0.3+ | 0.3+ | | | | |

**(228816)∗ 2003 BE$_{28}$ = 2005 QG$_{81}$**

Discovered 2003 Jan. 26 by NEAT at Haleakala.

Id. G. V. Williams (*MPO* 85871)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 321.85263 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.25547593 | $\omega$ | 178.42218 | | +0.17165570 | | −0.98427456 |
| $a$ | 2.4598166 | $\Omega$ | 261.69232 | | +0.90340181 | | +0.17414766 |
| $e$ | 0.1392459 | $i$ | 2.41460 | | +0.39293700 | | +0.02960024 |
| $P$ | 3.86 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 01 08 | 704 | (0.3− | 1.7+) | 2003 02 08 | 704 | 0.4+ | 0.6+ | 2007 02 09 | 291 | 0.4− | 0.0 |
| 2003 01 08 | 704 | 1.0+ | 0.6+ | 2003 02 08 | 704 | 0.2+ | 0.0 | 2007 02 21 | 704 | 0.1+ | 0.2+ |
| 2003 01 08 | 704 | 0.5+ | 0.4+ | 2003 02 08 | 704 | 0.5+ | 0.9+ | 2007 02 21 | 704 | 0.3+ | 1.0− |
| 2003 01 08 | 704 | 0.4+ | 1.2+ | 2005 07 06 | 291 | 0.4− | 0.3+ | 2007 02 21 | 704 | 0.3+ | 0.2+ |
| 2003 01 08 | 704 | 1.0+ | 0.1− | 2005 07 06 | 291 | 0.5− | 0.2+ | 2007 03 09 | 703 | 0.7+ | 1.0+ |
| 2003 01 08 | 704 | 0.7− | 0.0 | 2005 07 06 | 291 | 0.8− | 0.3+ | 2007 03 09 | 703 | 0.6− | 0.1− |
| 2003 01 08 | 704 | 0.8+ | 0.2− | 2005 08 29 | 691 | 0.1+ | 0.1+ | 2007 03 09 | 703 | (1.8+ | 3.9+) |
| 2003 01 08 | 704 | 0.3− | 0.2+ | 2005 08 29 | 691 | 0.0 | 0.2+ | 2007 03 09 | 703 | 1.5+ | 0.5+ |
| 2003 01 08 | 704 | (2.1− | 0.2+) | 2005 08 29 | 691 | 0.0 | 0.2+ | 2007 03 16 | G96 | 0.0 | 0.3− |
| 2003 01 08 | 704 | 0.6+ | 0.4− | 2005 08 31 | 291 | 0.1− | 0.0 | 2007 03 16 | G96 | 0.1− | 0.3− |
| 2003 01 08 | 704 | 0.5− | 1.2+ | 2005 08 31 | 291 | 0.0 | 0.1+ | 2007 03 16 | G96 | 0.3+ | 0.2− |
| 2003 01 08 | 704 | 1.3− | 0.6+ | 2005 08 31 | 291 | 0.5− | 0.0 | 2007 03 16 | G96 | 0.1+ | 0.1− |
| 2003 01 08 | 704 | 0.4+ | 0.0 | 2005 09 13 | 691 | 0.1+ | 0.1+ | 2007 04 10 | H55 | 0.0 | 0.5+ |
| 2003 01 08 | 704 | 0.5− | 0.5+ | 2005 09 13 | 691 | 0.1+ | 0.1+ | 2007 04 10 | H55 | 0.2+ | 0.1+ |
| 2003 01 26 | 608 | 0.1+ | 0.7− | 2005 09 13 | 691 | 0.2+ | 0.1+ | 2007 04 10 | H55 | 0.0 | 0.6+ |
| 2003 01 26 | 608 | (0.3+ | 1.9−) | 2005 09 25 | 691 | 0.2+ | 0.1− | 2009 09 27 | 703 | 0.8− | 0.4− |
| 2003 01 26 | 608 | 0.3+ | 1.5− | 2005 09 25 | 691 | 0.1+ | 0.1+ | 2009 09 27 | 703 | 0.7− | 1.0− |
| 2003 01 28 | 704 | 0.4− | 0.4+ | 2005 09 25 | 691 | 0.1+ | 0.0 | 2009 09 27 | 703 | 0.0 | 1.4− |
| 2003 01 28 | 704 | 0.5− | 0.1+ | 2005 10 07 | 691 | 0.1− | 0.2+ | 2009 09 27 | 703 | 0.8+ | 1.0− |
| 2003 01 28 | 704 | 0.8− | 0.5− | 2005 10 07 | 691 | 0.2+ | 0.5+ | 2009 10 16 | 704 | (1.9+ | 0.3−) |
| 2003 01 30 | 644 | 0.2− | 0.0 | 2005 10 07 | 691 | 0.2+ | 0.2− | 2009 10 16 | 704 | 1.3+ | 0.2− |
| 2003 01 30 | 644 | 0.5− | 0.0 | 2005 10 30 | G96 | 0.0 | 0.2− | 2009 10 16 | 704 | 1.1+ | 1.4− |
| 2003 01 30 | 644 | 0.2− | 0.0 | 2005 10 30 | G96 | 0.0 | 0.3− | 2009 12 19 | 291 | 0.2− | 0.1+ |
| 2003 01 31 | 704 | 0.3+ | 0.7+ | 2005 10 30 | G96 | 0.0 | 0.2− | 2009 12 19 | 291 | 0.2+ | 0.1+ |
| 2003 01 31 | 704 | 0.0 | 0.4+ | 2005 10 30 | G96 | 0.0 | 0.6− | 2009 12 19 | 291 | 0.0 | 0.2+ |
| 2003 01 31 | 704 | 0.1+ | 0.7− | 2007 02 09 | 291 | 0.2− | 0.2− | | | | |
| 2003 01 31 | 704 | 0.2+ | 0.7+ | 2007 02 09 | 291 | 0.0 | 0.1− | | | | |

**(228817)∗ 2003 BN$_{31}$**

Discovered 2003 Jan. 27 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 14.36484 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.27881578 | $\omega$ | 313.10307 | | −0.05772794 | | −0.99575766 |
| $a$ | 2.3205512 | $\Omega$ | 140.03834 | | +0.94529871 | | −0.07760201 |
| $e$ | 0.1486664 | $i$ | 6.40533 | | +0.32105736 | | +0.04944301 |
| $P$ | 3.53 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 21 | 291 | 0.5− | 0.8+ | 2003 02 02 | 608 | 0.5+ | 0.8− | 2005 10 27 | 704 | (2.5− | 0.7+) |
| 2001 09 21 | 291 | 0.3− | 0.3+ | 2003 02 02 | 608 | 0.5+ | 1.0− | 2005 10 27 | 704 | 0.2− | 0.7− |
| 2001 09 21 | 291 | 0.2− | 0.3+ | 2003 02 02 | 608 | 0.4+ | 1.1− | 2005 10 27 | 704 | 0.2+ | 0.8− |
| 2003 01 17 | 644 | 0.2− | 0.2+ | 2003 02 03 | 704 | 0.1+ | 1.5+ | 2005 10 27 | 704 | 0.4− | 1.1− |
| 2003 01 17 | 644 | 0.1− | 0.3+ | 2003 02 03 | 704 | (1.7+ | 0.6+) | 2005 11 01 | 703 | (1.7− | 0.1+) |
| 2003 01 17 | 644 | 0.2− | 0.3+ | 2003 02 03 | 704 | 0.5+ | 0.3+ | 2005 11 01 | 703 | (0.4− | 1.8−) |
| 2003 01 27 | 704 | 0.7− | 0.1− | 2003 02 03 | 704 | 1.1+ | 0.2+ | 2005 11 01 | 703 | 0.2− | 0.2+ |
| 2003 01 27 | 704 | 0.0 | 1.2+ | 2003 02 03 | 704 | 1.5+ | 0.2− | 2005 11 01 | 703 | 1.1− | 0.6− |
| 2003 01 27 | 704 | 0.9+ | 0.1− | 2003 02 08 | 608 | 1.4+ | 0.2− | 2005 12 04 | 699 | 0.5− | 0.1+ |
| 2003 01 27 | 699 | 0.2+ | 1.2+ | 2003 02 08 | 608 | 0.9+ | 0.1− | 2005 12 04 | 699 | (0.8− | 2.2+) |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 01 27 | 704 | 0.2+ | 0.8+ | 2003 02 08 | 608 | 1.4+ | 0.1− | 2005 12 04 | 699 | (0.3+ | 3.8+) |
| 2003 01 27 | 699 | 0.6− | 0.5+ | 2003 02 21 | 644 | 0.3− | 0.8+ | 2005 12 04 | 699 | 0.9+ | 1.3+ |
| 2003 01 27 | 704 | 0.0 | 0.5+ | 2003 02 21 | 644 | 0.2− | 0.8+ | 2007 03 15 | G96 | 0.3− | 0.4− |
| 2003 01 27 | 699 | 0.5− | 1.3+ | 2003 02 21 | 644 | 0.1− | 0.8+ | 2007 03 15 | G96 | 0.2+ | 0.1+ |
| 2003 01 27 | 699 | 0.1− | 0.4+ | 2003 02 28 | 608 | 0.2− | 0.7− | 2007 03 15 | G96 | 0.7+ | 0.1+ |
| 2003 01 27 | 644 | 0.2+ | 0.1− | 2003 02 28 | 608 | 0.2+ | 0.6− | 2007 03 15 | G96 | 0.1+ | 0.2+ |
| 2003 01 27 | 644 | 0.4+ | 0.1+ | 2003 02 28 | 608 | 0.1− | 0.6− | 2007 04 26 | G96 | 0.2+ | 0.2+ |
| 2003 01 27 | 644 | 0.5+ | 0.1− | 2003 03 07 | 704 | 0.5+ | 0.1+ | 2007 04 26 | G96 | 0.1− | 0.1+ |
| 2003 01 28 | 704 | 0.5− | 0.3+ | 2003 03 07 | 704 | 0.8+ | 0.8+ | 2007 04 26 | G96 | 0.3+ | 0.1+ |
| 2003 01 28 | 704 | 1.0− | 0.3− | 2003 03 07 | 704 | 0.1− | 0.6+ | 2007 04 26 | G96 | 0.0 | 0.0 |
| 2003 01 28 | 704 | 1.2− | 0.2− | 2003 03 07 | 704 | 0.1− | 0.4− | 2008 09 06 | G96 | 0.2− | 0.1− |
| 2003 01 28 | 704 | 0.2− | 0.5− | 2005 09 24 | 644 | 0.1− | 0.0 | 2008 09 06 | G96 | 0.1+ | 0.5+ |
| 2003 01 28 | 704 | 0.1− | 0.1− | 2005 09 24 | 644 | 0.4− | 0.0 | 2008 09 06 | G96 | 0.3+ | 0.8+ |
| 2003 01 30 | 699 | (1.5− | 1.0+) | 2005 09 24 | 644 | 0.2− | 0.1+ | 2008 09 06 | G96 | 0.6+ | 0.6+ |
| 2003 01 30 | 699 | 0.6− | 0.9+ | 2005 09 26 | 703 | 1.3+ | 0.3− | 2009 10 26 | G96 | 0.3− | 0.6− |
| 2003 01 30 | 699 | 0.3− | 1.3+ | 2005 09 26 | 703 | 0.6+ | 0.8+ | 2009 10 26 | G96 | 0.1− | 0.1+ |
| 2003 01 30 | 699 | 0.9− | 0.1+ | 2005 09 26 | 703 | 0.4− | 1.1+ | 2009 10 26 | G96 | 0.7+ | 0.2+ |
| 2003 01 31 | 704 | 1.2− | 0.3+ | 2005 09 26 | 703 | 0.6+ | 0.9+ | 2009 10 26 | G96 | 0.2− | 0.0 |
| 2003 01 31 | 704 | 0.3− | 0.0 | 2005 10 05 | 703 | 0.1+ | 0.3− | 2009 12 27 | 691 | 0.3− | 0.3− |
| 2003 01 31 | 704 | 0.3− | 0.3+ | 2005 10 05 | 703 | 0.1− | 0.0 | 2009 12 27 | 691 | 0.2− | 0.4− |
| 2003 01 31 | 704 | 0.1+ | 0.1− | 2005 10 05 | 703 | 0.8+ | 0.3+ | 2009 12 27 | 691 | 0.0 | 0.1− |
| 2003 01 31 | 704 | 0.2− | 0.0 | 2005 10 27 | 704 | 1.0+ | 0.4+ | | | | |

**(228818)∗ 2003 BC$_{38}$ = 2005 SF$_{120}$**

Discovered 2003 Jan. 27 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Id. G. V. Williams (*MPO* 85877)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 351.26856 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.27387527 | $\omega$ | 102.15320 | | −0.19439141 | | −0.98092384 |
| $a$ | 2.3483753 | $\Omega$ | 359.05526 | | +0.88420577 | | −0.17494193 |
| $e$ | 0.1619936 | $i$ | 2.22546 | | +0.42472596 | | −0.08475702 |
| $P$ | 3.60 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 12 31 | 704 | 0.0 | 0.5+ | 2003 02 01 | 704 | 0.1− | 0.3+ | 2007 03 14 | 691 | 0.1− | 0.0 |
| 2002 12 31 | 704 | 0.2+ | 1.1+ | 2003 02 01 | 704 | 0.6+ | 0.5+ | 2007 03 18 | 691 | 0.5− | 0.3− |
| 2002 12 31 | 704 | 0.5− | 0.3− | 2003 02 01 | 704 | (3.5− | 1.4+) | 2007 03 18 | 691 | 0.9+ | 0.0 |
| 2002 12 31 | 704 | 1.4+ | 1.0+ | 2003 02 01 | 704 | (0.4+ | 1.6+) | 2007 03 18 | 691 | 0.3− | 0.2− |
| 2003 01 05 | 704 | 0.7+ | 0.3− | 2003 02 04 | 704 | (0.5+ | 1.9+) | 2007 04 07 | G96 | 0.2− | 0.3− |
| 2003 01 05 | 704 | 0.8+ | 1.2+ | 2003 02 04 | 704 | 0.1− | 1.1+ | 2007 04 07 | G96 | 0.3− | 0.5− |
| 2003 01 05 | 704 | 0.2− | 0.4+ | 2003 02 04 | 704 | (0.9+ | 2.0+) | 2007 04 07 | G96 | 0.7− | 0.4− |
| 2003 01 09 | 704 | (1.9− | 3.5+) | 2003 02 04 | 704 | 0.1+ | 0.2+ | 2007 04 07 | G96 | 0.3+ | 0.1+ |
| 2003 01 09 | 704 | 0.8− | 0.1− | 2005 08 31 | 691 | 0.1− | 0.2+ | 2007 04 16 | G96 | 0.2− | 0.2− |
| 2003 01 09 | 704 | 0.8− | 0.1− | 2005 08 31 | 691 | 0.3− | 0.3− | 2007 04 16 | G96 | 0.2+ | 0.1+ |
| 2003 01 09 | 704 | 0.5− | 0.4+ | 2005 08 31 | 691 | 0.0 | 0.0 | 2007 04 16 | G96 | 0.1+ | 0.1+ |
| 2003 01 27 | 699 | 0.4− | 0.6+ | 2005 09 29 | 291 | 0.1+ | 0.1+ | 2007 04 16 | G96 | 0.0 | 0.0 |
| 2003 01 27 | 699 | 0.0 | 0.1− | 2005 09 29 | 291 | 0.0 | 0.2+ | 2009 11 17 | G96 | 0.1− | 0.1− |
| 2003 01 27 | 699 | 0.1+ | 0.5+ | 2005 09 29 | 291 | 0.1+ | 0.4+ | 2009 11 17 | G96 | 0.1+ | 0.1− |
| 2003 01 27 | 699 | 0.1− | 0.8+ | 2005 09 30 | G96 | 0.3− | 0.4− | 2009 11 17 | G96 | 0.3+ | 0.1− |
| 2003 01 27 | 608 | 0.1+ | 0.5− | 2005 09 30 | G96 | 0.1− | 0.4− | 2009 11 17 | G96 | 0.1+ | 0.2− |
| 2003 01 27 | 608 | 0.1− | 0.1− | 2005 09 30 | G96 | 0.1+ | 0.1+ | 2009 11 19 | 691 | 0.2− | 0.1+ |
| 2003 01 27 | 608 | 0.3+ | 0.1− | 2005 09 30 | G96 | 0.3− | 0.0 | 2009 11 19 | 691 | 0.3− | 0.0 |
| 2003 01 30 | 699 | 0.6+ | 0.4+ | 2005 10 01 | 703 | 0.1− | 0.4− | 2009 11 19 | 691 | 0.2− | 0.1+ |
| 2003 01 30 | 644 | 0.1− | 0.3+ | 2005 10 01 | 703 | 0.1− | 0.0 | 2009 11 22 | 691 | 0.4+ | 0.1− |
| 2003 01 30 | 699 | 0.8− | 0.2+ | 2005 10 01 | 703 | 0.0 | 0.3− | 2009 11 22 | 691 | 0.0 | 0.0 |
| 2003 01 30 | 699 | 0.1+ | 0.0 | 2005 10 01 | 703 | 0.5− | 0.3+ | 2009 11 22 | 691 | 0.0 | 0.0 |
| 2003 01 30 | 699 | 0.7+ | 0.5+ | 2005 10 12 | 291 | 0.1+ | 0.1+ | 2009 11 26 | 691 | 0.0 | 0.1− |
| 2003 01 30 | 644 | 0.0 | 0.2+ | 2005 10 12 | 291 | 0.2+ | 0.1+ | 2009 11 26 | 691 | 0.2− | 0.1− |
| 2003 01 30 | 644 | 0.0 | 0.2+ | 2005 10 12 | 291 | 0.0 | 0.1+ | 2009 11 26 | 691 | 0.0 | 0.2− |
| 2003 01 31 | 704 | 0.5− | 0.7− | 2005 10 25 | G96 | 0.1− | 0.1− | 2009 12 10 | 704 | 0.4+ | 0.8− |
| 2003 01 31 | 704 | 0.0 | 0.6− | 2005 10 25 | G96 | 0.1+ | 0.1− | 2009 12 10 | 704 | 1.0+ | 0.5− |
| 2003 01 31 | 704 | 0.3− | 0.4− | 2005 10 25 | G96 | 0.7− | 0.1− | 2009 12 10 | 704 | 0.0 | 1.2− |
| 2003 01 31 | 704 | 0.5+ | 0.7− | 2005 10 25 | G96 | 0.8+ | 0.5+ | 2009 12 10 | 704 | 0.1+ | 0.7− |
| 2003 01 31 | 704 | 0.3− | 0.6− | 2005 11 06 | G96 | 0.3− | 0.0 | 2009 12 10 | 704 | 0.5+ | 1.0− |
| 2003 02 01 | 704 | 0.4+ | 0.0 | 2005 11 06 | G96 | 0.0 | 0.0 | 2009 12 13 | G96 | 0.3+ | 0.3− |
| 2003 02 01 | 704 | 0.5+ | 0.2− | 2005 11 06 | G96 | 0.1− | 0.2− | 2009 12 13 | G96 | 0.1− | 0.3− |
| 2003 02 01 | 704 | 0.4− | 0.2+ | 2005 11 06 | G96 | 0.2− | 0.2+ | 2009 12 13 | G96 | 0.1− | 0.3− |
| 2003 02 01 | 704 | 0.1− | 0.8+ | 2007 03 14 | 691 | 0.2+ | 0.2+ | 2009 12 13 | G96 | 0.2− | 0.2− |
| 2003 02 01 | 704 | 1.1+ | 0.3+ | 2007 03 14 | 691 | 0.3− | 0.0 | | | | |

**(228819)∗ 2003 BH$_{55}$ = 2005 US$_{266}$**

Discovered 2003 Jan. 27 by NEAT at Haleakala.

Id. G. V. Williams (*MPO* 89416)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 291.33555 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.27766715 | $\omega$ | 97.90797 | | −0.97475387 | | +0.21584926 |
| $a$ | 2.3269464 | $\Omega$ | 94.57061 | | −0.22070688 | | −0.89268816 |
| $e$ | 0.1137671 | $i$ | 3.28563 | | −0.03381376 | | −0.39562224 |
| $P$ | 3.55 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 01 01 | 291 | 0.0 | 0.2+ | 2005 10 29 | G96 | 0.1− | 0.2− | 2007 04 16 | 699 | 0.7+ | 0.8+ |
| 2003 01 01 | 291 | 0.0 | 0.0 | 2005 10 29 | G96 | 0.3− | 0.2− | 2007 04 16 | 699 | 0.0 | 0.7+ |
| 2003 01 01 | 291 | 0.2− | 0.0 | 2005 10 29 | G96 | 0.0 | 0.2− | 2007 04 16 | 703 | 0.3− | 0.3+ |
| 2003 01 27 | 608 | 0.1− | 0.5+ | 2005 10 29 | G96 | 0.0 | 0.3− | 2007 04 16 | 703 | 0.0 | 0.2+ |
| 2003 01 27 | 608 | 0.4− | 0.4+ | 2005 10 31 | 691 | 0.0 | 0.4+ | 2007 04 16 | 703 | 0.4− | 0.9+ |
| 2003 01 27 | 608 | 0.3− | 0.4+ | 2005 10 31 | 691 | 0.3− | 0.5+ | 2007 04 16 | 699 | 1.1+ | 1.4+ |
| 2003 01 30 | 699 | 0.1− | 0.1+ | 2005 10 31 | 691 | 0.1− | 0.2+ | 2007 04 16 | 703 | 0.7− | 0.8+ |
| 2003 01 30 | 699 | 0.4+ | 0.9− | 2005 12 01 | G96 | 0.0 | 0.1− | 2007 05 09 | 699 | (0.4+ | 2.6+) |
| 2003 01 30 | 699 | 1.1+ | 0.4+ | 2005 12 01 | G96 | 0.3+ | 0.1− | 2007 05 09 | 699 | (1.0+ | 1.7+) |
| 2003 01 30 | 699 | 0.3+ | 0.5+ | 2005 12 01 | G96 | 0.2+ | 0.1− | 2007 05 09 | 699 | 0.1− | 0.3− |
| 2003 01 31 | 644 | 0.1− | 0.0 | 2005 12 01 | G96 | 0.1− | 0.1− | 2007 05 09 | 699 | 1.0+ | 0.5− |
| 2003 01 31 | 644 | 0.4+ | 1.0+ | 2005 12 29 | G96 | 0.5+ | 0.4− | 2008 10 07 | G96 | 0.0 | 0.7+ |
| 2003 01 31 | 644 | 0.0 | 0.0 | 2005 12 29 | G96 | 0.2− | 0.3− | 2008 10 07 | G96 | 0.3− | 0.1− |
| 2003 01 31 | 644 | 0.5+ | 1.2+ | 2005 12 29 | G96 | 0.2+ | 0.3− | 2008 10 07 | G96 | 0.0 | 0.2+ |
| 2003 01 31 | 644 | 0.1− | 0.4+ | 2005 12 29 | G96 | 0.4+ | 0.6− | 2008 10 07 | G96 | 0.9− | 0.2− |
| 2003 01 31 | 644 | 0.5+ | 0.7+ | 2007 03 20 | 691 | 0.3− | 0.1+ | 2009 12 15 | G96 | 0.6− | 0.4− |
| 2003 02 02 | 644 | 0.2− | 0.1+ | 2007 03 20 | 691 | 0.3− | 0.1− | 2009 12 15 | G96 | 0.2+ | 0.1+ |
| 2003 02 02 | 644 | 0.1− | 0.3+ | 2007 03 20 | 691 | 0.0 | 0.1+ | 2009 12 15 | G96 | 1.2− | 1.1− |
| 2003 02 02 | 644 | 0.1+ | 0.4+ | 2007 03 29 | 691 | 0.7+ | 0.2− | 2009 12 15 | G96 | (0.3− | 1.6−) |
| 2005 10 27 | 691 | 0.1− | 0.3+ | 2007 03 29 | 691 | 0.2− | 0.1− | 2009 12 26 | 691 | 0.1− | 0.4− |
| 2005 10 27 | 691 | 0.1+ | 0.4+ | 2007 03 29 | 691 | 0.1+ | 0.1− | 2009 12 26 | 691 | 0.4− | 0.2− |
| 2005 10 27 | 691 | 0.1+ | 0.3+ | 2007 04 16 | 699 | 0.4− | 0.7− | 2009 12 26 | 691 | 0.6+ | 0.8− |

**(228820)∗ 2003 BJ$_{55}$ = 2005 UZ$_{200}$**

Discovered 2003 Jan. 27 by NEAT at Haleakala.

Id. G. V. Williams (*MPO* 89416)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 253.81043 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.26573266 | $\omega$ | 129.64773 | | −0.88381437 | | +0.46447993 |
| $a$ | 2.3961064 | $\Omega$ | 78.09495 | | −0.44484124 | | −0.79730419 |
| $e$ | 0.1795735 | $i$ | 3.27803 | | −0.14487383 | | −0.38544056 |
| $P$ | 3.71 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 04 17 | 691 | (3.4+ | 1.1−) | 2005 11 10 | 691 | 0.2+ | 0.6+ | 2007 04 14 | 691 | 0.2+ | 0.0 |
| 1996 04 17 | 691 | 0.2− | 0.1+ | 2007 03 09 | D35 | 0.4+ | 0.2− | 2007 04 14 | 691 | 0.0 | 0.4− |
| 1996 04 17 | 691 | 0.1− | 0.0 | 2007 03 09 | D35 | 0.4+ | 0.6+ | 2007 04 14 | 691 | 0.2+ | 0.1− |
| 2001 10 23 | 691 | 0.5− | 1.0+ | 2007 03 09 | D35 | 0.2+ | 0.1+ | 2007 04 16 | 699 | 0.0 | 0.1− |
| 2001 10 23 | 691 | 0.3− | 0.2+ | 2007 03 10 | 644 | 0.1+ | 0.6+ | 2007 04 16 | 699 | 0.3+ | 0.6+ |
| 2001 10 23 | 691 | 0.0 | 0.4+ | 2007 03 10 | 644 | 0.1− | 0.2+ | 2007 04 16 | 699 | 0.2− | 0.4+ |
| 2003 01 27 | 608 | 0.2+ | 0.8− | 2007 03 10 | 644 | 0.2+ | 0.0 | 2007 04 16 | 699 | 0.6− | 0.3+ |
| 2003 01 27 | 608 | 0.2− | 0.7− | 2007 03 10 | 644 | 0.2+ | 0.3+ | 2008 09 25 | G96 | 0.3− | 0.5+ |
| 2003 01 27 | 608 | 0.1− | 0.6− | 2007 03 10 | 644 | 0.4− | 1.0− | 2008 09 25 | G96 | 0.8+ | 0.0 |
| 2003 01 30 | 699 | 0.3− | 0.8− | 2007 03 10 | 644 | 0.2+ | 0.0 | 2008 09 25 | G96 | 0.2+ | 0.0 |
| 2003 01 30 | 699 | 0.0 | 0.7+ | 2007 03 16 | 704 | 1.2+ | 0.6+ | 2008 09 25 | G96 | 0.7+ | 0.1+ |
| 2003 01 30 | 699 | 0.7+ | 0.7+ | 2007 03 16 | 704 | 0.1− | 1.4+ | 2008 10 08 | G96 | 0.0 | 0.1+ |
| 2003 01 30 | 699 | 0.7+ | 0.4− | 2007 03 16 | 704 | 0.6+ | 0.2+ | 2008 10 08 | G96 | 0.3− | 0.5− |
| 2003 02 02 | 644 | 0.6+ | 0.5+ | 2007 03 21 | 704 | (1.0+ | 1.5+) | 2008 10 08 | G96 | 0.2− | 0.2+ |
| 2003 02 02 | 644 | 0.4+ | 0.4+ | 2007 03 21 | 704 | 0.1− | 0.3− | 2008 10 08 | G96 | 0.3+ | 0.0 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 02 02 | 644 | 0.3+ | 0.3+ | 2007 03 21 | 704 | 0.2− | 0.8+ | 2009 11 20 | 691 | 0.3− | 0.2− | | |
| 2004 08 13 | 807 | 0.3− | 0.3+ | 2007 03 21 | 704 | 1.1− | 0.2+ | 2009 11 20 | 691 | 0.7− | 0.2+ | | |
| 2004 08 13 | 807 | 0.1− | 0.2+ | 2007 04 06 | 644 | 0.3+ | 0.2+ | 2009 11 20 | 691 | 0.7− | 0.2+ | | |
| 2005 10 25 | 691 | 0.2− | 0.6− | 2007 04 06 | 644 | 0.2+ | 0.6+ | 2009 12 10 | G96 | 0.2+ | 0.2− | | |
| 2005 10 25 | 691 | 0.1− | 0.4− | 2007 04 06 | 644 | 0.1+ | 0.4+ | 2009 12 10 | G96 | 0.6+ | 0.2− | | |
| 2005 10 25 | 691 | 0.4+ | 0.7+ | 2007 04 07 | 703 | 0.2+ | 0.3+ | 2009 12 10 | G96 | 0.9+ | 0.1+ | | |
| 2005 10 28 | G96 | 0.3− | 0.1+ | 2007 04 07 | 703 | 0.7− | 0.3+ | 2009 12 10 | G96 | 0.5+ | 0.4− | | |
| 2005 10 28 | G96 | 0.4+ | 0.1+ | 2007 04 07 | 703 | 0.4− | 0.1− | 2009 12 19 | G96 | 0.3+ | 0.6− | | |
| 2005 10 28 | G96 | 0.3− | 0.1− | 2007 04 07 | 703 | 0.8− | 0.0 | 2009 12 19 | G96 | 0.7+ | 0.7− | | |
| 2005 10 28 | G96 | 0.5− | 0.1− | 2007 04 11 | 691 | 0.1+ | 0.0 | 2009 12 19 | G96 | 0.3+ | 0.7− | | |
| 2005 11 10 | 691 | 0.2− | 0.4− | 2007 04 11 | 691 | 0.2+ | 0.0 | 2009 12 19 | G96 | 0.2− | 0.8− | | |
| 2005 11 10 | 691 | 0.4+ | 0.3+ | 2007 04 11 | 691 | 0.1− | 0.0 | | | | | | |

**(228821)∗ 2003 $BV_{57}$ = 2005 $UL_{392}$**

Discovered 2003 Jan. 27 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 94908)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 319.36960 | | (2000.0) | | | |
| $n$ | 0.26809815 | $\omega$ | 166.84368 | | −0.61912092 | −0.78511324 |
| $a$ | 2.3819913 | $\Omega$ | 321.40448 | | +0.71801589 | −0.55721785 |
| $e$ | 0.1499281 | $i$ | 1.55478 | | +0.31802904 | −0.27038023 |
| $P$ | 3.68 | $H$ | 16.9 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 21 | 704 | 0.1+ | 0.8+ | 2005 10 30 | G96 | 0.2− | 0.0 | 2009 11 12 | J75 | (1.4+ | 1.6−) | | |
| 2001 09 21 | 704 | 0.0 | 0.2+ | 2005 10 30 | G96 | 0.3− | 0.3− | 2009 11 17 | 691 | 0.3− | 0.1− | | |
| 2001 09 21 | 704 | 0.0 | 0.7− | 2005 10 31 | G96 | 0.3+ | 0.2− | 2009 11 17 | 691 | 0.5+ | 0.2− | | |
| 2003 01 27 | 704 | 0.1− | 0.9− | 2005 10 31 | G96 | 0.2+ | 0.1− | 2009 11 17 | 691 | 0.3+ | 0.1+ | | |
| 2003 01 27 | 704 | 0.1+ | 0.2+ | 2005 10 31 | G96 | 0.1+ | 0.2+ | 2009 11 17 | 704 | 1.1+ | 0.2+ | | |
| 2003 01 27 | 704 | 0.1+ | 0.6+ | 2005 10 31 | G96 | 0.4− | 0.4− | 2009 11 17 | 704 | (2.4+ | 0.1−) | | |
| 2003 01 31 | 704 | 0.7+ | 0.4+ | 2007 03 14 | 691 | 0.2+ | 0.1+ | 2009 11 17 | 704 | 0.8+ | 0.1+ | | |
| 2003 01 31 | 704 | 0.6+ | 0.1+ | 2007 03 14 | 691 | 0.2− | 0.0 | 2009 11 17 | 704 | 0.3+ | 0.1+ | | |
| 2003 01 31 | 704 | 0.3+ | 0.4− | 2007 03 14 | 691 | 0.1+ | 0.3− | 2009 11 25 | 691 | 0.0 | 0.0 | | |
| 2003 01 31 | 704 | 0.5+ | 0.0 | 2007 04 07 | 703 | 0.8+ | 0.4− | 2009 11 25 | 691 | 0.1+ | 0.9− | | |
| 2003 01 31 | 704 | 0.4+ | 0.5− | 2007 04 07 | 703 | 0.3− | 0.4− | 2009 11 25 | 691 | 0.1− | 0.3− | | |
| 2003 02 03 | 704 | 0.2+ | 0.7+ | 2007 04 07 | 703 | 0.7− | 1.2− | 2009 11 25 | 703 | 0.3+ | 0.1− | | |
| 2003 02 03 | 673 | 0.8− | 0.2+ | 2007 04 07 | 703 | (1.7− | 0.2−) | 2009 11 25 | 703 | 0.4+ | 0.6− | | |
| 2003 02 03 | 704 | 0.5− | 0.2− | 2007 04 22 | G96 | 0.6− | 0.5− | 2009 11 25 | 703 | 0.7− | 0.6− | | |
| 2003 02 03 | 704 | 0.7+ | 0.9+ | 2007 04 22 | G96 | 0.6− | 0.5− | 2009 11 25 | 703 | 0.6− | 0.3− | | |
| 2003 02 03 | 704 | 0.2− | 0.2+ | 2007 04 22 | G96 | 0.2− | 0.4− | 2009 11 25 | 703 | 1.0− | 0.9− | | |
| 2003 02 03 | 704 | 0.3+ | 0.4+ | 2007 04 22 | G96 | 0.8− | 0.8− | 2009 12 11 | A77 | 0.3+ | 0.9+ | | |
| 2003 02 03 | 673 | 0.1− | 0.6+ | 2009 10 24 | 703 | 0.1+ | 0.9− | 2009 12 11 | A77 | 0.8+ | 0.7+ | | |
| 2003 02 03 | 673 | 0.7+ | 0.5+ | 2009 10 24 | 703 | 0.1− | 1.0− | 2009 12 11 | A77 | 0.2+ | 0.1+ | | |
| 2003 02 04 | 673 | 0.3− | 0.4+ | 2009 10 24 | 703 | 0.2+ | 0.5+ | 2009 12 18 | G96 | 0.1+ | 0.2− | | |
| 2003 02 04 | 673 | 0.2+ | 0.1+ | 2009 10 24 | 703 | 0.8− | 0.6+ | 2009 12 18 | G96 | 0.1+ | 0.0 | | |
| 2003 02 04 | 673 | 0.0 | 0.3+ | 2009 11 08 | 703 | 0.7− | 1.1− | 2009 12 18 | G96 | 0.0 | 0.1+ | | |
| 2003 02 08 | 608 | 0.4− | 0.1+ | 2009 11 08 | 703 | 0.4− | 0.5− | 2009 12 18 | G96 | 0.3+ | 0.2− | | |
| 2003 02 08 | 608 | 0.5− | 0.2+ | 2009 11 08 | 703 | 0.3− | 0.8− | 2009 12 19 | 691 | 0.4− | 0.5+ | | |
| 2003 02 08 | 608 | 0.4− | 0.3+ | 2009 11 08 | 703 | (0.1− | 2.2+) | 2009 12 19 | 691 | 0.1+ | 0.3+ | | |
| 2005 10 11 | 691 | 0.3− | 0.3+ | 2009 11 09 | 691 | 0.0 | 0.0 | 2009 12 19 | 691 | 0.0 | 0.1+ | | |
| 2005 10 11 | 691 | 0.1+ | 0.4+ | 2009 11 09 | 691 | 0.2− | 0.1+ | 2009 12 19 | G96 | 0.4+ | 0.1+ | | |
| 2005 10 11 | 691 | 0.1− | 0.1+ | 2009 11 09 | 691 | 0.1− | 0.1+ | 2009 12 19 | G96 | 0.2+ | 0.1+ | | |
| 2005 10 30 | G96 | 0.0 | 0.2− | 2009 11 12 | J75 | 1.1+ | 0.8− | 2009 12 19 | G96 | 0.5+ | 0.2+ | | |
| 2005 10 30 | G96 | 0.5+ | 0.1− | 2009 11 12 | J75 | 0.3− | 0.6− | 2009 12 19 | G96 | 0.2+ | 0.2+ | | |

**(228822)∗ 2003 $BR_{62}$**

Discovered 2003 Jan. 28 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 6.13000 | | (2000.0) | | | |
| $n$ | 0.26901850 | $\omega$ | 341.20353 | | +0.32718385 | −0.93639969 |
| $a$ | 2.3765554 | $\Omega$ | 89.54049 | | +0.88243858 | +0.25472791 |
| $e$ | 0.1792910 | $i$ | 7.29135 | | +0.33801314 | +0.24139038 |
| $P$ | 3.66 | $H$ | 16.6 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 12 08 | 699 | 0.4− | 0.1+ | 2005 09 13 | 703 | 1.5− | 0.5+ | 2009 11 20 | G96 | 0.3+ | 0.4− | | |
| 1998 12 08 | 699 | 0.3− | 0.2+ | 2005 09 25 | 703 | 0.6+ | 0.1+ | 2009 11 20 | G96 | 0.2+ | 0.5− | | |
| 1998 12 08 | 699 | 0.8+ | 0.0 | 2005 09 25 | 703 | 0.1− | 1.2+ | 2009 11 20 | G96 | 0.0 | 0.7− | | |
| 2003 01 05 | 704 | 1.1− | 1.4− | 2005 09 25 | 703 | (0.2+ | 1.8+) | 2009 11 20 | G96 | 0.0 | 0.4− | | |
| 2003 01 05 | 704 | 0.8+ | 0.4+ | 2005 09 25 | 703 | (0.9+ | 2.9+) | 2009 11 24 | J75 | 0.8+ | 1.0− | | |
| 2003 01 05 | 704 | 0.2+ | 0.6+ | 2005 10 03 | 703 | 0.5+ | 0.2+ | 2009 11 24 | J75 | 0.1− | 0.4− | | |
| 2003 01 05 | 704 | 0.4− | 0.7− | 2005 10 03 | 703 | 0.5− | 0.4+ | 2009 11 24 | J75 | 0.1+ | 0.4− | | |
| 2003 01 28 | 644 | 0.2+ | 0.5+ | 2005 10 03 | 703 | 0.8− | 0.5− | 2009 11 25 | G96 | 0.1+ | 0.4− | | |
| 2003 01 28 | 644 | 0.2− | 0.4+ | 2005 10 03 | 703 | 0.3− | 0.5− | 2009 11 25 | G96 | 0.0 | 0.4− | | |
| 2003 01 28 | 644 | 0.1+ | 0.4+ | 2007 04 11 | 691 | 0.1− | 0.1+ | 2009 11 25 | G96 | 0.1+ | 0.4− | | |
| 2003 01 31 | 704 | 0.4+ | 0.7− | 2007 04 11 | 691 | 0.4+ | 0.3+ | 2009 11 25 | G96 | 0.1+ | 0.4− | | |
| 2003 01 31 | 704 | (2.0+ | 1.9−) | 2007 04 11 | 691 | 0.1+ | 0.5+ | 2009 12 11 | 703 | 0.3− | 0.5− | | |
| 2003 01 31 | 704 | (1.4+ | 1.8−) | 2009 10 30 | J75 | 0.3− | 0.4− | 2009 12 11 | 703 | 0.0 | 0.8− | | |
| 2003 02 04 | 699 | 0.7− | 0.0 | 2009 10 30 | J75 | 0.2+ | 0.7− | 2009 12 11 | 703 | 0.1− | 1.3− | | |
| 2003 02 04 | 699 | 0.3+ | 0.5+ | 2009 10 30 | J75 | 0.2− | 0.7− | 2009 12 11 | 703 | 0.2+ | 0.1+ | | |
| 2003 02 04 | 699 | 0.2− | 0.0 | 2009 11 16 | J75 | 0.1− | 0.6− | 2009 12 12 | G96 | 0.2− | 0.8− | | |
| 2003 02 04 | 699 | 0.3+ | 1.0+ | 2009 11 16 | J75 | 0.2− | 0.6− | 2009 12 12 | G96 | 0.1+ | 0.6− | | |
| 2003 03 03 | 644 | 0.2+ | 0.5+ | 2009 11 16 | J75 | 0.0 | 0.5− | 2009 12 12 | G96 | 0.0 | 0.9− | | |
| 2003 03 03 | 644 | 0.1− | 0.6+ | 2009 11 19 | 704 | 0.3+ | 0.6+ | 2009 12 12 | G96 | 0.1− | 0.6− | | |
| 2003 03 03 | 644 | 0.2− | 0.7+ | 2009 11 19 | 704 | 0.1− | 0.7+ | 2009 12 12 | 704 | 0.1− | 0.1+ | | |
| 2003 03 07 | 644 | 0.2+ | 0.5− | 2009 11 19 | 704 | 0.2− | 0.9+ | 2009 12 12 | 704 | 0.5+ | 1.1+ | | |
| 2003 03 07 | 644 | 0.4+ | 0.5− | 2009 11 19 | 704 | 0.0 | 0.0 | 2009 12 12 | 704 | 0.1− | 0.5+ | | |
| 2003 03 07 | 644 | 0.2− | 0.8− | 2009 11 19 | 704 | 0.6+ | 0.5+ | 2009 12 17 | 704 | 0.5+ | 0.9+ | | |
| 2005 08 27 | 644 | 0.2− | 0.5+ | 2009 11 20 | 704 | 0.5+ | 0.7+ | 2009 12 17 | 704 | 0.4+ | 0.0 | | |
| 2005 08 27 | 644 | 0.2− | 0.4+ | 2009 11 20 | 704 | 0.8− | 0.4+ | 2009 12 17 | 704 | 0.2− | 0.4+ | | |
| 2005 08 27 | 644 | 0.4− | 0.3+ | 2009 11 20 | 704 | 0.2+ | 0.5+ | 2009 12 17 | 704 | 0.1− | 0.8+ | | |
| 2005 09 03 | 703 | 0.4+ | 0.0 | 2009 11 20 | 704 | 0.5− | 1.0− | 2009 12 17 | 704 | 0.1+ | 0.6+ | | |
| 2005 09 03 | 703 | 1.5− | 0.3+ | 2009 11 20 | 704 | 0.5+ | 0.2+ | 2009 12 21 | 704 | 0.5+ | 0.8+ | | |
| 2005 09 03 | 703 | 0.2− | 1.2+ | 2009 11 20 | 704 | 0.1− | 0.7+ | 2009 12 21 | 704 | 0.3− | 1.7+ | | |
| 2005 09 03 | 703 | 0.4+ | 0.8+ | 2009 11 20 | 704 | 0.1− | 0.5+ | 2009 12 21 | 704 | 0.2+ | 0.7+ | | |
| 2005 09 13 | 703 | 1.1+ | 1.1− | 2009 11 20 | 704 | 1.2− | 0.5+ | 2009 12 21 | 704 | 0.2+ | 0.3+ | | |
| 2005 09 13 | 703 | 0.1− | 0.5+ | 2009 11 20 | 704 | 0.2− | 0.6+ | | | | | | |
| 2005 09 13 | 703 | 0.8+ | 0.2− | 2009 11 20 | 704 | 1.0− | 0.7+ | | | | | | |

**(228823)∗ 2003 $BF_{65}$ = 2009 $TB_{26}$**

Discovered 2003 Jan. 30 by NEAT at Palomar.

Id. G. V. Williams (*MPO* 165355)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 344.56095 | | (2000.0) | | | |
| $n$ | 0.26383010 | $\omega$ | 220.92150 | | +0.19305731 | −0.98111358 |
| $a$ | 2.4076119 | $\Omega$ | 217.95175 | | +0.90524695 | +0.18283635 |
| $e$ | 0.1479930 | $i$ | 1.12199 | | +0.37849283 | +0.06314282 |
| $P$ | 3.74 | $H$ | 17.5 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 10 31 | 691 | 0.1− | 0.7− | 2005 11 25 | G96 | 0.9− | 0.2+ | 2009 10 27 | 704 | 1.1+ | 0.6− | | |
| 1994 10 31 | 691 | 0.1+ | 0.1+ | 2005 11 25 | G96 | 0.1+ | 0.0 | 2009 10 27 | 704 | 0.2− | 0.3+ | | |
| 1994 10 31 | 691 | 0.3+ | 0.6− | 2005 11 25 | G96 | 0.2− | 0.3− | 2009 10 27 | 704 | 0.6+ | 0.3+ | | |
| 2003 01 13 | 291 | 0.2+ | 0.6+ | 2007 02 25 | G96 | 0.5− | 0.1+ | 2009 11 09 | 703 | 1.2− | 0.1− | | |
| 2003 01 13 | 291 | 0.2+ | 0.3+ | 2007 02 25 | G96 | 0.1− | 0.1− | 2009 11 09 | 703 | 0.1+ | 0.4− | | |
| 2003 01 13 | 291 | 0.2+ | 0.3+ | 2007 02 25 | G96 | 0.2− | 0.0 | 2009 11 09 | 703 | 0.1− | 1.4− | | |
| 2003 01 30 | 644 | 0.0 | 0.5+ | 2007 02 25 | G96 | 0.5− | 0.5− | 2009 11 09 | 703 | 1.3− | 0.2− | | |
| 2003 01 30 | 644 | 0.2+ | 0.6+ | 2007 03 26 | G96 | 0.2− | 0.4− | 2009 11 11 | G96 | 0.2+ | 0.0 | | |
| 2003 01 30 | 644 | 0.5+ | 0.7+ | 2007 03 26 | G96 | 0.0 | 0.3− | 2009 11 11 | G96 | 0.1− | 0.1− | | |
| 2003 01 31 | 704 | (0.3+ | 1.9+) | 2007 03 26 | G96 | 0.4− | 0.3− | 2009 11 11 | G96 | 0.1− | 0.2− | | |
| 2003 01 31 | 704 | (0.2− | 2.8+) | 2007 03 26 | G96 | 0.2+ | 0.2+ | 2009 11 11 | G96 | 0.1+ | 0.0 | | |
| 2003 01 31 | 704 | (0.9+ | 2.5+) | 2009 10 14 | D29 | 0.5− | 0.5− | 2009 11 19 | G96 | 0.2+ | 0.0 | | |
| 2005 08 30 | 691 | 0.0 | 0.2+ | 2009 10 14 | D29 | 0.2− | 0.1+ | 2009 11 19 | G96 | 0.0 | 0.4− | | |
| 2005 08 30 | 691 | 0.1+ | 0.5+ | 2009 10 14 | D29 | 1.5+ | 0.5+ | 2009 11 19 | G96 | 0.3+ | 0.2− | | |
| 2005 08 30 | 691 | 0.3− | 0.2+ | 2009 10 14 | D29 | 0.5+ | 0.5+ | 2009 11 19 | G96 | 0.3+ | 0.1+ | | |
| 2005 10 01 | 691 | 0.1− | 0.9+ | 2009 10 18 | G96 | 0.3+ | 0.7− | 2009 11 24 | G96 | 0.3+ | 0.2+ | | |
| 2005 10 01 | 691 | 0.2+ | 0.2+ | 2009 10 18 | G96 | 0.0 | 0.7− | 2009 11 24 | G96 | 0.3+ | 0.0 | | |
| 2005 10 01 | 691 | 0.2+ | 0.1+ | 2009 10 18 | G96 | 0.2+ | 0.6− | 2009 11 24 | G96 | 0.3− | 0.1+ | | |
| 2005 11 25 | G96 | (5.3− | 2.4+) | 2009 10 18 | G96 | 0.0 | 0.9− | 2009 11 24 | G96 | 0.3− | 0.0 | | |

**(228824)∗ 2003 BR$_{66}$**

Discovered 2003 Jan. 30 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 304.15442 | | (2000.0) | | | |
| $n$ | 0.26219066 | $\omega$ | 172.86358 | | −0.75840303 | −0.65122968 |
| $a$ | 2.4176378 | $\Omega$ | 326.45287 | | +0.59556872 | −0.67561780 |
| $e$ | 0.1618481 | $i$ | 2.79229 | | +0.26480698 | −0.34560165 |
| $P$ | 3.76 | $H$ | 17.1 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 01 30 | 699 | 1.1+ | 0.0 | 2003 02 22 | 699 | 0.4− | 1.1− | 2007 03 29 | 691 | 0.1− | 1.1+ |
| 2003 01 30 | 699 | 1.2+ | 0.2− | 2003 02 22 | 644 | 0.1+ | 0.9+ | 2007 03 29 | 691 | 0.3− | 0.4− |
| 2003 01 30 | 699 | 0.2− | 0.8+ | 2003 02 22 | 699 | 0.7− | 0.0 | 2007 04 15 | 704 | (1.6+ | 0.6+) |
| 2003 01 30 | 699 | 0.1− | 0.0 | 2003 03 12 | 644 | 0.1− | 0.2− | 2007 04 15 | 704 | 0.7+ | 0.9+ |
| 2003 01 31 | 704 | 0.5+ | 0.2− | 2003 03 12 | 644 | 0.3+ | 0.1+ | 2007 04 15 | 704 | (0.5+ | 1.6+) |
| 2003 01 31 | 704 | 1.1+ | 0.3+ | 2003 03 12 | 644 | 0.0 | 0.2+ | 2009 10 25 | 941 | 0.4+ | 0.1− |
| 2003 01 31 | 704 | 0.0 | 1.1− | 2005 09 29 | 691 | 0.5− | 0.7+ | 2009 10 25 | 941 | 0.4+ | 0.3− |
| 2003 01 31 | 704 | 0.2+ | 0.1+ | 2005 09 29 | 691 | 0.2+ | 0.5+ | 2009 10 25 | 941 | 0.3+ | 0.3− |
| 2003 01 31 | 704 | 0.5− | 0.5− | 2005 09 29 | 691 | 0.1− | 0.0 | 2009 11 21 | 691 | 0.4− | 0.1− |
| 2003 02 21 | 644 | 0.1− | 0.1− | 2007 03 10 | 691 | 0.1+ | 0.3− | 2009 11 21 | 691 | 0.5− | 0.0 |
| 2003 02 21 | 644 | 0.1+ | 0.1− | 2007 03 10 | 691 | 0.3− | 0.0 | 2009 11 21 | 691 | 0.1− | 0.0 |
| 2003 02 21 | 644 | 0.5− | 0.1− | 2007 03 10 | 691 | 0.1+ | 0.0 | 2009 12 14 | A77 | 1.4+ | 0.1− |
| 2003 02 22 | 644 | 0.1− | 0.7+ | 2007 03 14 | 691 | 0.2− | 0.0 | 2009 12 14 | A77 | 1.4+ | 0.2− |
| 2003 02 22 | 644 | 0.1+ | 0.7+ | 2007 03 14 | 691 | 0.8+ | 0.2+ | 2009 12 14 | A77 | 0.8+ | 0.2− |
| 2003 02 22 | 699 | 0.8− | 0.1− | 2007 03 14 | 691 | 0.3− | 0.1− | | | | |
| 2003 02 22 | 699 | 0.9− | 0.6+ | 2007 03 29 | 691 | 0.3+ | 0.0 | | | | |

**(228825)∗ 2003 BK$_{74}$**

Discovered 2003 Jan. 29 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 303.71085 | | (2000.0) | | | |
| $n$ | 0.26708921 | $\omega$ | 54.08400 | | −0.84383992 | −0.50498213 |
| $a$ | 2.3879862 | $\Omega$ | 94.93476 | | +0.41467517 | −0.82831424 |
| $e$ | 0.1588453 | $i$ | 10.49407 | | +0.34055645 | −0.24266968 |
| $P$ | 3.69 | $H$ | 16.3 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 12 31 | 704 | 0.2+ | 0.2− | 2003 03 08 | 644 | 0.5+ | 0.4+ | 2007 04 13 | 246 | 0.9+ | 0.0 |
| 2002 12 31 | 704 | 0.2− | 0.6+ | 2003 03 08 | 644 | 0.1+ | 0.1− | 2007 04 13 | 246 | 0.5+ | 0.0 |
| 2002 12 31 | 704 | 0.3− | 0.0 | 2005 09 03 | 705 | 0.0 | 0.3+ | 2007 04 13 | 246 | 0.5+ | 0.0 |
| 2002 12 31 | 704 | 0.3− | 0.4+ | 2005 09 03 | 705 | 0.1− | 0.3+ | 2007 04 20 | 699 | (1.7+ | 0.6−) |
| 2002 12 31 | 704 | 0.2− | 0.1+ | 2007 01 27 | 703 | 0.5+ | 0.7− | 2007 04 20 | 699 | 0.4+ | 0.2+ |
| 2003 01 08 | 608 | 0.2+ | 0.1+ | 2007 01 27 | 703 | (2.7− | 0.4−) | 2007 04 20 | 699 | (1.5+ | 0.3+) |
| 2003 01 08 | 608 | 0.0 | 0.0 | 2007 01 27 | 703 | (1.0+ | 2.0−) | 2007 04 20 | 699 | 0.3+ | 0.2− |
| 2003 01 08 | 608 | 0.1+ | 0.0 | 2007 01 27 | 703 | 0.6+ | 0.8− | 2007 04 22 | 703 | 0.1+ | 1.2+ |
| 2003 01 10 | 704 | 0.2+ | 0.0 | 2007 02 21 | 704 | 0.1− | 0.9− | 2007 04 22 | 703 | 0.8− | 0.4+ |
| 2003 01 10 | 704 | 0.5+ | 0.3+ | 2007 02 21 | 704 | 0.2+ | 0.1+ | 2007 04 22 | 703 | 0.0 | 1.0+ |
| 2003 01 10 | 704 | 0.3− | 0.4+ | 2007 02 21 | 704 | 0.1+ | 0.9− | 2007 04 22 | 703 | 0.2+ | 0.5+ |
| 2003 01 10 | 704 | 0.3− | 0.3+ | 2007 02 21 | 704 | 0.4− | 0.0 | 2009 11 14 | 704 | 0.8+ | 0.1− |
| 2003 01 10 | 704 | 0.1− | 0.9+ | 2007 03 17 | 699 | 0.3− | 0.7+ | 2009 11 14 | 704 | 0.1− | 0.1+ |
| 2003 01 29 | 644 | 0.1+ | 0.0 | 2007 03 17 | 699 | 0.2+ | 0.8+ | 2009 11 14 | 704 | 0.4− | 1.0+ |
| 2003 01 29 | 644 | 0.1− | 0.1+ | 2007 03 17 | 699 | 0.3+ | 0.6+ | 2009 11 14 | 704 | 0.6− | 0.1− |
| 2003 01 29 | 644 | 0.1+ | 0.1− | 2007 03 17 | 699 | 0.2+ | 0.3+ | 2009 11 17 | 703 | 0.6− | 0.2− |
| 2003 02 01 | 644 | 0.3− | 0.2+ | 2007 03 20 | 703 | 0.4− | 0.8− | 2009 11 17 | 703 | 0.3+ | 0.1+ |
| 2003 02 01 | 644 | 0.1− | 0.1+ | 2007 03 20 | 703 | 0.6− | 0.3− | 2009 11 17 | 703 | 0.4− | 0.1− |
| 2003 02 01 | 644 | 0.2− | 0.1+ | 2007 03 20 | 703 | 0.9− | 0.3− | 2009 11 17 | 703 | 0.4− | 0.2+ |
| 2003 02 08 | 699 | 0.0 | 0.0 | 2007 03 20 | 703 | 1.4− | 0.2− | 2009 11 19 | 704 | 0.4+ | 0.1− |
| 2003 02 08 | 699 | 0.6+ | 0.0 | 2007 04 09 | E12 | 1.2− | 0.4− | 2009 11 19 | 704 | 0.8− | 0.9+ |
| 2003 02 08 | 699 | 0.5− | 0.5− | 2007 04 09 | E12 | 0.4− | 0.2+ | 2009 11 19 | 704 | 0.1+ | 0.0 |
| 2003 02 08 | 699 | 0.4+ | 0.4+ | 2007 04 09 | E12 | 0.5+ | 0.2+ | 2009 11 19 | 704 | 0.3+ | 0.1+ |
| 2003 02 19 | 644 | 0.4− | 0.0 | 2007 04 09 | E12 | 0.2− | 0.5− | 2009 11 25 | G96 | 0.4+ | 0.2− |
| 2003 02 19 | 644 | 0.2+ | 0.0 | 2007 04 10 | D29 | 1.0− | 0.0 | 2009 11 25 | G96 | 0.2+ | 0.1− |
| 2003 02 19 | 644 | 0.1+ | 0.1− | 2007 04 10 | D29 | 0.1+ | 0.4− | 2009 11 25 | G96 | 0.6+ | 0.1− |
| 2003 02 26 | 704 | 0.7− | 1.4− | 2007 04 10 | D29 | 0.1− | 0.3− | 2009 11 25 | G96 | 0.3+ | 0.2− |
| 2003 02 26 | 704 | 0.7+ | 0.7− | 2007 04 10 | D29 | 0.2+ | 0.2− | 2009 12 10 | 703 | 0.7+ | 0.9− |
| 2003 02 26 | 704 | 0.3+ | 0.0 | 2007 04 13 | 246 | 0.9+ | 0.4+ | 2009 12 10 | 703 | 0.6+ | 0.9− |
| 2003 02 26 | 704 | 0.0 | 0.3+ | 2007 04 13 | 246 | 0.9+ | 0.5− | 2009 12 10 | 703 | 0.2− | 0.0 |
| 2003 03 08 | 644 | 0.1+ | 0.1+ | 2007 04 13 | 246 | 0.5+ | 0.0 | 2009 12 10 | 703 | 0.9− | 0.4− |

**(228826)∗ 2003 BC$_{80}$**

Discovered 2003 Jan. 31 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 357.78927 | | (2000.0) | | | |
| $n$ | 0.26838979 | $\omega$ | 17.13394 | | −0.02757662 | −0.99055972 |
| $a$ | 2.3802654 | $\Omega$ | 74.60496 | | +0.90003863 | −0.08305195 |
| $e$ | 0.0415055 | $i$ | 8.00601 | | +0.43493678 | +0.10905876 |
| $P$ | 3.67 | $H$ | 16.1 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 01 10 | 704 | 0.5+ | 0.8+ | 2005 10 22 | 703 | 0.2− | 1.4+ | 2007 03 14 | 699 | 0.7+ | 0.4+ |
| 2003 01 10 | 704 | 0.3− | 0.2− | 2005 10 28 | 703 | 0.9− | 1.0− | 2007 03 20 | 703 | 0.7+ | 0.4+ |
| 2003 01 10 | 704 | 0.9− | 0.3+ | 2005 10 28 | 703 | 0.2− | 1.1+ | 2007 03 20 | 703 | 0.1− | 0.7+ |
| 2003 01 10 | 704 | 0.6− | 0.7+ | 2005 10 28 | 703 | 0.0 | 0.2− | 2007 03 20 | 703 | 0.7+ | 0.3+ |
| 2003 01 31 | 704 | 0.2+ | 0.2+ | 2005 10 28 | 703 | 0.4− | 1.2− | 2007 03 20 | 703 | 0.7− | 1.2− |
| 2003 01 31 | 704 | 1.1+ | 0.0 | 2005 10 30 | 699 | 0.7+ | 0.2+ | 2007 04 15 | 703 | 0.8− | 1.2+ |
| 2003 01 31 | 704 | 0.8+ | 0.3+ | 2005 10 30 | 699 | 1.1+ | 0.1+ | 2007 04 15 | 703 | 0.6− | 0.9+ |
| 2003 02 01 | 644 | 0.2− | 0.6+ | 2005 10 30 | 699 | 0.6− | 0.0 | 2007 04 15 | 703 | 0.2+ | 0.9− |
| 2003 02 01 | 644 | 0.2− | 0.6+ | 2005 10 30 | 699 | 0.7− | 0.5+ | 2007 04 15 | 703 | 1.2− | 0.4− |
| 2003 02 01 | 644 | 0.3− | 0.5+ | 2005 11 05 | 699 | 0.3+ | 0.5+ | 2009 11 08 | 691 | 0.2− | 0.1+ |
| 2003 02 19 | 644 | 0.2+ | 0.2+ | 2005 11 05 | 699 | (0.6+ | 1.6+) | 2009 11 08 | 691 | 0.6− | 0.1+ |
| 2003 02 19 | 644 | 0.4+ | 0.1− | 2005 11 05 | 699 | 0.1− | 1.3− | 2009 11 08 | 691 | 0.6− | 1.4− |
| 2003 02 19 | 644 | 0.3+ | 0.3+ | 2005 11 05 | 699 | 0.5− | 0.1− | 2009 11 21 | 704 | 0.9+ | 0.1− |
| 2005 10 01 | 703 | 0.6+ | 0.4+ | 2005 11 06 | 699 | 0.8− | 1.0+ | 2009 11 21 | 704 | 1.1+ | 1.2− |
| 2005 10 01 | 703 | 0.2− | 0.3+ | 2005 11 06 | 699 | 1.1− | 0.4+ | 2009 11 21 | 704 | 0.1− | 0.6− |
| 2005 10 01 | 703 | 0.9− | 0.8− | 2005 11 06 | 699 | 0.2− | 0.4+ | 2009 11 22 | 703 | 1.1+ | 1.4− |
| 2005 10 01 | 703 | 1.4+ | 1.3− | 2005 11 06 | 699 | 0.3− | 0.7+ | 2009 11 22 | 703 | 1.1− | 1.2− |
| 2005 10 07 | 699 | 0.2− | 1.1+ | 2005 12 05 | 699 | 0.6− | 0.3+ | 2009 11 22 | 703 | 0.0 | 0.4− |
| 2005 10 07 | 699 | 0.3− | 0.8+ | 2005 12 05 | 699 | 0.6− | 0.4+ | 2009 11 22 | 703 | 0.2+ | 0.5− |
| 2005 10 07 | 699 | 0.2+ | 0.2+ | 2005 12 05 | 699 | 0.2− | 1.2+ | 2009 12 10 | 704 | 0.8+ | 1.2+ |
| 2005 10 07 | 699 | 0.6+ | 0.1− | 2005 12 05 | 699 | 0.7− | 0.9+ | 2009 12 10 | 704 | 0.0 | 0.3+ |
| 2005 10 10 | 703 | 0.0 | 0.4+ | 2006 02 24 | G96 | 0.2+ | 0.4+ | 2009 12 10 | 704 | 0.7+ | 1.1+ |
| 2005 10 10 | 703 | 0.1+ | 0.0 | 2006 02 24 | G96 | 0.0 | 0.2+ | 2009 12 11 | G96 | 0.3+ | 0.3− |
| 2005 10 10 | 703 | 0.4− | 0.4− | 2006 02 24 | G96 | 0.4+ | 0.1− | 2009 12 11 | G96 | 0.5+ | 0.2+ |
| 2005 10 10 | 703 | 0.3− | 0.0 | 2006 02 24 | G96 | 0.8+ | 0.7− | 2009 12 11 | G96 | 1.6+ | 0.2− |
| 2005 10 22 | 703 | 1.2+ | 0.7+ | 2007 03 14 | 699 | 0.1+ | 0.3− | 2009 12 11 | G96 | 0.2− | 0.3− |
| 2005 10 22 | 703 | 0.3+ | 0.3− | 2007 03 14 | 699 | 0.2− | 0.8+ | | | | |
| 2005 10 22 | 703 | 0.1+ | 1.1+ | 2007 03 14 | 699 | 1.1+ | 1.0− | | | | |

**(228827)∗ 2003 BV$_{86}$ = 2005 UX$_{403}$ = 2005 VT$_{81}$**

Discovered 2003 Jan. 26 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Id. A. Doppler (*MPO* 94912)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 337.81376 | | (2000.0) | | | |
| $n$ | 0.27552352 | $\omega$ | 25.94829 | | −0.80700034 | −0.58818179 |
| $a$ | 2.3390002 | $\Omega$ | 117.92280 | | +0.53087796 | −0.76174380 |
| $e$ | 0.1097429 | $i$ | 3.42881 | | +0.25868716 | −0.27164052 |
| $P$ | 3.58 | $H$ | 16.9 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 01 26 | 699 | 0.6+ | 0.5+ | 2005 11 06 | 691 | 0.3− | 0.1+ | 2007 04 24 | 691 | 0.0 | 0.0 |
| 2003 01 26 | 699 | 0.2+ | 0.7+ | 2005 11 06 | 691 | 0.1− | 0.2+ | 2007 04 24 | 691 | 0.0 | 0.1+ |
| 2003 01 26 | 699 | 0.4− | 0.6− | 2005 11 10 | 691 | 0.3− | 0.2− | 2007 04 28 | 691 | 0.3− | 0.1+ |
| 2003 01 26 | 699 | 0.5− | 1.0+ | 2005 11 10 | 691 | 0.0 | 0.2+ | 2007 04 28 | 691 | 0.3+ | 0.1− |
| 2003 02 01 | 704 | 0.4+ | 0.5+ | 2005 11 10 | 691 | 0.3− | 0.0 | 2007 04 28 | 691 | 0.1− | 0.1+ |
| 2003 02 01 | 704 | 0.7+ | 0.2− | 2005 11 10 | 703 | 0.9+ | 0.9+ | 2007 05 09 | A50 | 0.8+ | 0.4+ |
| 2003 02 01 | 704 | 0.7+ | 0.6+ | 2005 11 10 | 703 | (0.5+ | 1.9+) | 2007 05 09 | A50 | 0.8+ | 0.4− |
| 2003 02 01 | 704 | 0.9− | 0.3+ | 2005 11 10 | 703 | 0.3− | 0.2+ | 2009 10 30 | G96 | 0.3+ | 0.4− |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 03 06 | 699 | (2.2+ | 0.4+) | 2005 11 10 | 703 | (1.8+ | 0.9+) | 2009 10 30 | G96 | 0.1− | 1.0− |
| 2003 03 06 | 699 | 0.2+ | 0.6+ | 2005 12 24 | 291 | 0.2− | 0.5+ | 2009 10 30 | G96 | 0.1− | 0.6− |
| 2003 03 06 | 699 | 0.9+ | 0.4+ | 2005 12 24 | 291 | 0.1+ | 0.3+ | 2009 10 30 | G96 | 0.0 | 0.6− |
| 2003 03 06 | 699 | 0.2− | 0.7+ | 2005 12 24 | 291 | 0.2+ | 0.2+ | 2009 11 16 | G96 | 0.4+ | 0.8− |
| 2005 10 29 | 691 | 0.4+ | 0.5+ | 2006 02 25 | G96 | 0.9− | 0.5− | 2009 11 16 | G96 | 0.3+ | 0.3− |
| 2005 10 29 | 691 | 0.2+ | 0.6+ | 2006 02 25 | G96 | 0.2+ | 0.2+ | 2009 11 16 | G96 | 0.2+ | 0.2− |
| 2005 10 29 | 691 | 0.1+ | 0.5+ | 2006 02 25 | G96 | 0.3+ | 0.5− | 2009 11 16 | G96 | 0.1+ | 0.5− |
| 2005 11 01 | G96 | 0.3− | 0.6− | 2006 02 25 | G96 | 0.5− | 0.4+ | 2009 12 17 | 691 | 0.2− | 0.2− |
| 2005 11 01 | G96 | 0.1− | 0.7− | 2007 04 20 | 691 | 0.2+ | 0.1+ | 2009 12 17 | 691 | 0.2− | 0.5− |
| 2005 11 01 | G96 | 0.6− | 0.6− | 2007 04 20 | 691 | 0.1− | 0.1+ | 2009 12 17 | 691 | 0.1− | 0.4− |
| 2005 11 01 | G96 | 0.4− | 0.3− | 2007 04 20 | 691 | 0.2− | 0.4+ | | | | |
| 2005 11 06 | 691 | 0.2− | 0.1− | 2007 04 24 | 691 | 0.1− | 0.1+ | | | | |

**(228828)∗ 2003 $CS_{12}$ = 2005 $SC_{191}$**

Discovered 2003 Feb. 2 by NEAT at Palomar.

Id. G. V. Williams (*MPO* 85913)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 19.26174 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26828816 | $\omega$ | 85.68977 | | +0.46925377 | −0.88231617 | |
| $a$ | 2.3808665 | $\Omega$ | 336.21828 | | +0.77026927 | +0.42908229 | |
| $e$ | 0.1275407 | $i$ | 5.16735 | | +0.43184043 | +0.19340775 | |
| $P$ | 3.67 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 02 02 | 644 | 0.2+ | 0.4+ | 2005 10 03 | 704 | 0.5− | 0.2+ | 2005 10 27 | 703 | 0.9+ | 1.0+ |
| 2003 02 02 | 644 | 0.3+ | 0.3+ | 2005 10 03 | 683 | 1.0− | 0.5+ | 2005 10 27 | 703 | 0.6+ | 0.6+ |
| 2003 02 02 | 644 | 0.1− | 0.3+ | 2005 10 03 | 704 | 0.2+ | 0.1− | 2005 10 27 | 699 | 0.5+ | 0.0 |
| 2003 02 04 | 699 | 0.3− | 0.5+ | 2005 10 03 | 703 | (1.5+ | 0.2+) | 2005 10 27 | 703 | 0.8+ | 0.6+ |
| 2003 02 04 | 699 | 0.4+ | 0.8− | 2005 10 03 | 703 | 0.8+ | 0.1+ | 2005 10 27 | 703 | 0.9+ | 0.8+ |
| 2003 02 04 | 699 | 0.2− | 0.1+ | 2005 10 03 | 703 | 0.3+ | 0.9− | 2005 11 02 | 704 | 0.1+ | 0.4+ |
| 2003 02 04 | 699 | 0.3+ | 0.3+ | 2005 10 03 | 703 | (1.3+ | 2.1−) | 2005 11 02 | 704 | 0.8− | 0.0 |
| 2003 02 09 | 608 | 0.5− | 0.6− | 2005 10 05 | 683 | 0.1− | 0.1+ | 2005 11 02 | 704 | 0.1− | 0.3− |
| 2003 02 09 | 608 | 0.2+ | 0.5− | 2005 10 05 | 683 | 0.3+ | 0.3− | 2005 11 02 | 704 | 0.0 | 0.2+ |
| 2003 02 09 | 608 | 0.5− | 0.0 | 2005 10 05 | 683 | 0.2− | 0.6− | 2005 11 02 | 704 | 0.2+ | 0.7+ |
| 2005 08 30 | 644 | 0.6− | 0.2+ | 2005 10 06 | 699 | 0.4− | 0.9+ | 2007 02 23 | 691 | 0.2+ | 0.4− |
| 2005 08 30 | 644 | 0.1− | 0.2+ | 2005 10 06 | 699 | 0.4− | 0.7+ | 2007 02 23 | 691 | 0.4+ | 0.2− |
| 2005 08 30 | 644 | 0.3− | 0.1+ | 2005 10 06 | 699 | 1.0+ | 0.4+ | 2007 02 23 | 691 | 0.3− | 0.5+ |
| 2005 09 23 | 691 | 0.0 | 0.3− | 2005 10 06 | 683 | 0.4+ | 0.4+ | 2007 02 27 | 691 | 0.1− | 0.2− |
| 2005 09 23 | 691 | 0.1− | 0.4− | 2005 10 06 | 699 | 0.9− | 0.3− | 2007 02 27 | 691 | 0.4− | 0.2+ |
| 2005 09 23 | 691 | 0.0 | 0.2− | 2005 10 06 | 683 | 1.1+ | 0.8− | 2007 02 27 | 691 | 0.2− | 0.2+ |
| 2005 09 23 | 703 | 1.2− | 0.2− | 2005 10 06 | 683 | 0.6+ | 1.3+ | 2007 03 12 | 691 | 0.6+ | 0.1− |
| 2005 09 23 | 703 | (1.6− | 0.2+) | 2005 10 08 | 704 | 0.7− | 1.0+ | 2007 03 12 | 691 | 0.3+ | 0.1+ |
| 2005 09 23 | 703 | 0.7− | 0.0 | 2005 10 08 | 704 | (0.5− | 1.8+) | 2007 03 12 | 691 | 0.1− | 0.4+ |
| 2005 09 23 | 703 | 0.6− | 0.1− | 2005 10 08 | 704 | 0.6− | 0.3− | 2007 04 22 | G96 | 0.4+ | 0.3+ |
| 2005 09 29 | 683 | 0.2− | 0.1− | 2005 10 08 | 704 | (1.3− | 1.7+) | 2007 04 22 | G96 | 0.1+ | 0.2+ |
| 2005 09 29 | 683 | 0.3− | 1.2− | 2005 10 09 | 691 | 0.2− | 0.3+ | 2007 04 22 | G96 | 0.6− | 0.4+ |
| 2005 09 29 | 683 | 0.9+ | 0.3+ | 2005 10 09 | 691 | 0.1− | 0.0 | 2007 04 22 | G96 | 0.4+ | 0.1+ |
| 2005 09 29 | 699 | (1.5+ | 0.3−) | 2005 10 09 | 683 | 0.0 | 0.6+ | 2009 11 16 | 704 | 0.7− | 0.1− |
| 2005 09 29 | 699 | 1.3+ | 0.1+ | 2005 10 09 | 691 | 0.1− | 0.1+ | 2009 11 16 | 704 | 0.2− | 1.5− |
| 2005 09 29 | 699 | 0.3− | 0.0 | 2005 10 09 | 683 | 0.6+ | 0.2− | 2009 11 16 | 704 | 0.2− | 0.5− |
| 2005 09 29 | 699 | 0.4+ | 0.9− | 2005 10 09 | 683 | (0.0 | 1.9+) | 2009 12 09 | J75 | 0.0 | 0.1− |
| 2005 10 01 | 683 | 0.7+ | 1.0− | 2005 10 13 | 691 | 0.3− | 0.3+ | 2009 12 09 | J75 | 0.4+ | 0.4− |
| 2005 10 01 | 683 | 0.3+ | 0.6+ | 2005 10 13 | 691 | 0.2− | 0.1− | 2009 12 09 | J75 | 0.7+ | 0.8− |
| 2005 10 03 | 691 | 0.2+ | 0.1+ | 2005 10 13 | 691 | 0.1− | 0.1− | 2009 12 15 | 704 | 0.1+ | 0.4+ |
| 2005 10 03 | 691 | 0.1− | 0.1− | 2005 10 21 | 644 | 0.0 | 0.1− | 2009 12 15 | 704 | 0.2− | 0.3+ |
| 2005 10 03 | 691 | 0.1− | 0.1− | 2005 10 21 | 644 | 0.3− | 0.2+ | 2009 12 15 | 704 | 0.1+ | 0.8+ |
| 2005 10 03 | 683 | 0.8− | 0.7− | 2005 10 21 | 644 | 0.2− | 0.1+ | 2009 12 15 | 704 | 0.5+ | 0.1− |
| 2005 10 03 | 704 | 0.7+ | 0.4− | 2005 10 27 | 699 | 0.8+ | 0.6+ | 2009 12 15 | 704 | 0.8− | 0.2+ |
| 2005 10 03 | 704 | 0.8− | 0.3+ | 2005 10 27 | 699 | 0.1− | 0.8+ | | | | |
| 2005 10 03 | 683 | 1.0+ | 0.6− | 2005 10 27 | 699 | 0.0 | 0.2+ | | | | |

**(228829)∗ 2003 $CO_{14}$ = 2005 $UA_{31}$**

Discovered 2003 Feb. 3 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Id. G. V. Williams (*MPO* 89428)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 254.16250 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.25772166 | $\omega$ | 324.86607 | | −0.99256936 | +0.11602124 | |
| $a$ | 2.4455062 | $\Omega$ | 221.84407 | | −0.09521394 | −0.92823662 | |
| $e$ | 0.1493267 | $i$ | 3.15160 | | −0.07576528 | −0.35343437 | |
| $P$ | 3.82 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 01 28 | 645 | 0.1− | 0.1− | 2005 10 25 | 568 | 0.1+ | 0.3− | 2007 03 17 | 699 | 0.5− | 0.4+ |
| 2003 01 28 | 645 | 0.0 | 0.2− | 2005 10 25 | 568 | 0.2+ | 0.3− | 2007 03 17 | 699 | 0.6− | 1.0− |
| 2003 02 03 | 699 | (0.2− | 1.8+) | 2005 10 26 | 568 | 0.4+ | 0.0 | 2007 03 21 | 704 | 0.3+ | 0.4+ |
| 2003 02 03 | 699 | 0.2+ | 0.9+ | 2005 10 28 | 691 | 0.0 | 0.1− | 2007 03 21 | 704 | 0.2+ | 0.2+ |
| 2003 02 03 | 699 | 0.6− | 0.9+ | 2005 10 28 | 691 | 0.0 | 0.0 | 2007 03 21 | 704 | 0.3+ | 0.2+ |
| 2003 02 03 | 699 | 0.7+ | 1.1+ | 2005 10 28 | 691 | 0.1− | 0.1+ | 2007 03 21 | 704 | 0.8− | 0.1+ |
| 2003 02 07 | 644 | 0.1+ | 0.2+ | 2005 11 30 | 691 | 0.1+ | 1.2+ | 2007 03 21 | 704 | 0.2+ | 0.4+ |
| 2003 02 07 | 644 | 0.0 | 0.2+ | 2005 11 30 | 691 | 0.2− | 0.3+ | 2007 04 20 | G96 | 0.4− | 0.1+ |
| 2003 02 07 | 644 | 0.1− | 0.2+ | 2005 11 30 | 691 | 0.4− | 0.4− | 2007 04 20 | G96 | 0.4− | 0.1− |
| 2005 10 12 | 691 | 0.2+ | 0.3+ | 2005 12 02 | G96 | 0.1+ | 0.2+ | 2007 04 20 | G96 | 0.0 | 0.1− |
| 2005 10 12 | 691 | 0.1− | 0.3+ | 2005 12 02 | G96 | 0.5+ | 0.1+ | 2007 04 20 | G96 | 0.1− | 0.3+ |
| 2005 10 12 | 691 | 0.3− | 0.0 | 2005 12 02 | G96 | 0.4+ | 0.0 | 2009 10 27 | 691 | 0.1+ | 0.6− |
| 2005 10 24 | 691 | 0.4+ | 0.2+ | 2005 12 02 | G96 | 0.0 | 0.1+ | 2009 10 27 | 691 | 0.5− | 0.3+ |
| 2005 10 24 | 691 | 0.0 | 0.0 | 2007 02 14 | D35 | 0.8+ | 0.1+ | 2009 10 27 | 691 | 0.1+ | 0.1− |
| 2005 10 24 | 691 | 0.3+ | 0.2− | 2007 02 14 | D35 | 1.0+ | 0.3+ | 2009 11 23 | G96 | 0.0 | 0.2− |
| 2005 10 25 | 701 | 0.9− | 0.6− | 2007 02 14 | D35 | 0.8+ | 0.5+ | 2009 11 23 | G96 | 0.5− | 0.2− |
| 2005 10 25 | 701 | 1.1− | 0.1− | 2007 02 26 | 704 | (2.0+ | 0.5+) | 2009 11 23 | G96 | 0.1− | 0.0 |
| 2005 10 25 | 701 | 0.4− | 0.8− | 2007 02 26 | 704 | 0.3+ | 1.3+ | 2009 11 23 | G96 | 0.1− | 0.2− |
| 2005 10 25 | 701 | 0.5+ | 0.4+ | 2007 02 26 | 704 | 1.0+ | 0.5− | 2009 12 11 | G96 | 0.5+ | 0.2− |
| 2005 10 25 | 701 | 0.4− | 0.7− | 2007 02 26 | 704 | 0.4+ | 0.6+ | 2009 12 11 | G96 | 0.3+ | 0.5+ |
| 2005 10 25 | 701 | 0.1+ | 0.2− | 2007 03 17 | 699 | (1.6− | 0.2+) | 2009 12 11 | G96 | 0.0 | 0.2− |
| 2005 10 25 | 568 | 0.1+ | 0.4− | 2007 03 17 | 699 | 0.9− | 0.1+ | 2009 12 11 | G96 | 0.7+ | 0.0 |

**(228830)∗ 2003 DP**

Discovered 2003 Feb. 20 by NEAT at Haleakala.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 3.37888 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26803284 | $\omega$ | 177.01840 | | +0.07240249 | −0.99686998 | |
| $a$ | 2.3823782 | $\Omega$ | 268.82811 | | +0.91441579 | +0.07905789 | |
| $e$ | 0.1535403 | $i$ | 1.81987 | | +0.39824821 | −0.00029106 | |
| $P$ | 3.68 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 22 | 704 | 0.0 | 0.2+ | 2005 09 07 | A50 | 0.3+ | 0.1− | 2005 10 28 | 703 | 0.5+ | 1.3− |
| 2001 09 22 | 704 | 0.6+ | 1.3+ | 2005 09 29 | 691 | 0.1+ | 0.2+ | 2005 10 28 | 703 | 0.2− | 0.5− |
| 2001 09 22 | 704 | 0.7− | 0.1+ | 2005 09 29 | 691 | 0.1− | 0.3+ | 2005 10 28 | 703 | (3.5− | 2.6+) |
| 2001 09 22 | 704 | 0.7− | 0.1− | 2005 09 29 | 691 | 0.1+ | 0.3+ | 2005 11 04 | 704 | 1.0− | 0.6− |
| 2002 12 07 | 645 | 0.2− | 0.0 | 2005 09 29 | 699 | 0.1− | 0.2− | 2005 11 04 | 704 | 0.5− | 1.0+ |
| 2002 12 07 | 645 | 0.1− | 0.1− | 2005 09 29 | 699 | 0.0 | 0.0 | 2005 11 04 | 704 | 0.0 | 0.0 |
| 2003 02 08 | 704 | 0.2+ | 0.4+ | 2005 09 29 | 699 | 0.6+ | 0.2+ | 2005 11 06 | G96 | 0.1− | 0.1− |
| 2003 02 08 | 704 | 0.4− | 0.3+ | 2005 09 29 | 699 | 0.0 | 0.9+ | 2005 11 06 | G96 | 0.0 | 0.3− |
| 2003 02 08 | 704 | (1.7− | 0.8−) | 2005 09 30 | 683 | 0.5+ | 0.3+ | 2005 11 06 | G96 | 0.0 | 0.3− |
| 2003 02 12 | 608 | 0.5+ | 1.0+ | 2005 09 30 | 683 | 0.2+ | 0.8+ | 2005 11 06 | G96 | 0.1+ | 0.1− |
| 2003 02 12 | 608 | 0.3− | 0.6+ | 2005 10 03 | 703 | (1.6− | 0.4−) | 2007 03 10 | 691 | 0.1− | 0.3+ |
| 2003 02 12 | 608 | 0.6+ | 0.3+ | 2005 10 03 | 703 | 0.5+ | 0.3− | 2007 03 10 | 691 | 0.0 | 0.1+ |
| 2003 02 20 | 608 | 0.6+ | 1.3− | 2005 10 03 | 703 | (1.5+ | 1.7+) | 2007 03 10 | 691 | 0.2+ | 0.1+ |
| 2003 02 20 | 608 | 0.8+ | 0.4+ | 2005 10 03 | 691 | 0.1− | 0.3+ | 2009 11 09 | 691 | 0.3− | 0.1− |
| 2003 02 20 | 608 | 0.0 | 0.3− | 2005 10 03 | 703 | 0.2− | 0.7− | 2009 11 09 | 691 | 0.4− | 0.2− |
| 2003 02 22 | 644 | 0.3+ | 0.4+ | 2005 10 03 | 691 | 0.1+ | 0.3+ | 2009 11 09 | 691 | 0.5− | 0.5− |
| 2003 02 22 | 644 | 0.1+ | 0.3+ | 2005 10 03 | 691 | 0.0 | 0.2+ | 2009 11 17 | 691 | 0.1− | 0.2− |
| 2003 02 22 | 644 | 0.2+ | 0.7+ | 2005 10 06 | 699 | 0.7+ | 0.2+ | 2009 11 17 | 691 | 0.3− | 0.1− |
| 2003 03 05 | 704 | 0.5+ | 0.4+ | 2005 10 06 | 699 | 0.2+ | 0.7+ | 2009 11 17 | 691 | 0.1− | 0.1− |
| 2003 03 05 | 704 | (2.6+ | 0.5+) | 2005 10 06 | 699 | (0.0 | 1.5+) | 2009 11 21 | 704 | 0.2+ | 0.3− |
| 2003 03 05 | 704 | 0.6+ | 0.4+ | 2005 10 06 | 699 | 0.9+ | 0.3+ | 2009 11 21 | 704 | 0.3− | 0.0 |
| 2003 03 05 | 704 | 0.2+ | 0.2− | 2005 10 07 | 704 | 0.0 | 0.7+ | 2009 11 21 | 704 | 0.6+ | 0.2+ |
| 2003 03 06 | 699 | 0.8− | 0.3+ | 2005 10 07 | 704 | 0.1− | 0.5+ | 2009 11 21 | 704 | 0.3+ | 0.1+ |
| 2003 03 06 | 699 | 0.5+ | 1.0+ | 2005 10 07 | 704 | 0.5+ | 0.1+ | 2009 12 10 | G96 | 0.3+ | 0.4− |
| 2003 03 06 | 699 | 0.8+ | 0.6− | 2005 10 07 | 704 | 0.4− | 0.6+ | 2009 12 10 | G96 | 0.3+ | 0.5− |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 03 06 | 699 | 0.6+ | 0.3− | 2005 10 13 | 691 | 0.2− | 0.0 | 2009 12 10 | G96 | 0.2− | 0.5− |
| 2003 03 06 | 644 | 0.8+ | 0.3+ | 2005 10 13 | 691 | 0.3− | 0.1− | 2009 12 10 | G96 | 1.3+ | 0.3− |
| 2003 03 06 | 644 | 0.7+ | 0.6+ | 2005 10 13 | 691 | 0.2− | 0.1+ | 2009 12 16 | 704 | 0.4+ | 0.4+ |
| 2003 03 06 | 644 | 0.4+ | 0.6+ | 2005 10 22 | 703 | 0.6+ | 0.6− | 2009 12 16 | 704 | 0.1− | 0.5+ |
| 2003 03 12 | 644 | 0.3+ | 0.7+ | 2005 10 22 | 703 | 0.7− | 0.5− | 2009 12 16 | 704 | 0.8+ | 0.6+ |
| 2003 03 12 | 644 | 0.1− | 0.8+ | 2005 10 22 | 703 | 0.5− | 0.4+ | 2009 12 16 | 704 | 0.4+ | 0.5+ |
| 2003 03 12 | 644 | 0.0 | 0.8+ | 2005 10 22 | 703 | 1.0− | 0.6− | 2009 12 16 | 704 | 1.4+ | 1.2+ |
| 2005 09 07 | A50 | 0.2+ | 0.1− | 2005 10 28 | 703 | 0.5− | 1.2+ | | | | |

**(228831)∗ 2003 DN$_2$ = 2005 UL$_{229}$**

Discovered 2003 Feb. 22 by NEAT at Palomar.

Id. G. V. Williams (*MPO* 89431)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 268.17593 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.26110331 | $\omega$ | 26.90422 | | −0.99490218 | | +0.10035515 |
| $a$ | 2.4243452 | $\Omega$ | 158.84839 | | −0.09676642 | | −0.92232916 |
| $e$ | 0.1277995 | $i$ | 1.57605 | | −0.02838855 | | −0.37314577 |
| $P$ | 3.77 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 12 07 | 645 | 0.3− | 0.1− | 2005 10 25 | 691 | 0.0 | 0.1+ | 2007 04 06 | 644 | 0.4+ | 0.2+ |
| 2002 12 07 | 645 | 0.2− | 0.1+ | 2005 10 25 | 691 | 0.3+ | 0.1− | 2007 04 06 | 644 | 0.2+ | 0.0 |
| 2003 02 22 | 644 | 0.3+ | 0.2− | 2005 10 25 | 691 | 0.1+ | 0.0 | 2007 04 15 | G96 | 0.1+ | 0.0 |
| 2003 02 22 | 644 | 0.4+ | 0.3− | 2005 10 29 | 691 | 0.2+ | 0.1+ | 2007 04 15 | G96 | 0.2+ | 0.4− |
| 2003 02 22 | 699 | 0.2− | 0.9− | 2005 10 29 | 691 | 0.3+ | 0.2+ | 2007 04 15 | 703 | 0.6− | 0.2+ |
| 2003 02 22 | 699 | 0.2− | 0.8− | 2005 10 29 | 691 | 0.1+ | 0.2+ | 2007 04 15 | G96 | 0.0 | 0.1+ |
| 2003 02 22 | 699 | 0.6− | 0.2− | 2005 11 06 | 691 | 0.0 | 0.0 | 2007 04 15 | 703 | 0.6+ | 0.9+ |
| 2003 02 22 | 699 | 0.2+ | 0.3+ | 2005 11 06 | 691 | 0.2+ | 0.4+ | 2007 04 15 | G96 | 0.1+ | 0.5− |
| 2003 02 22 | 644 | 0.5+ | 0.1− | 2005 11 06 | 691 | 0.2+ | 0.4+ | 2007 04 15 | 703 | 0.4− | 0.2− |
| 2003 02 23 | 291 | 0.2− | 0.1+ | 2005 11 06 | G96 | 0.4+ | 0.2− | 2007 04 15 | 703 | 0.0 | 0.8+ |
| 2003 02 23 | 291 | 0.1− | 0.4+ | 2005 11 06 | G96 | 0.4+ | 0.4− | 2007 04 20 | G96 | 0.1+ | 0.7+ |
| 2003 02 23 | 291 | 0.1+ | 0.7− | 2005 11 06 | G96 | 0.2− | 0.2− | 2007 04 20 | G96 | 0.2+ | 0.1+ |
| 2003 02 25 | 608 | 0.6+ | 0.4− | 2005 11 06 | G96 | 0.4+ | 0.3− | 2007 04 20 | G96 | 0.0 | 0.1− |
| 2003 02 25 | 608 | 0.6+ | 0.7− | 2007 03 09 | 691 | 0.1− | 0.2− | 2007 04 20 | G96 | 0.0 | 0.3− |
| 2003 02 25 | 608 | 0.1+ | 0.5− | 2007 03 09 | 691 | 0.3+ | 0.0 | 2008 07 29 | 691 | 0.1− | 0.4+ |
| 2003 03 06 | 644 | 0.5+ | 0.3+ | 2007 03 09 | 691 | 0.1− | 0.0 | 2008 07 29 | 691 | 0.8− | 0.3+ |
| 2003 03 06 | 644 | 0.2+ | 0.2+ | 2007 03 16 | 699 | (1.0+ | 2.0+) | 2008 07 29 | 691 | 0.6− | 0.4+ |
| 2003 03 06 | 644 | 0.0 | 0.5+ | 2007 03 16 | 699 | (2.0+ | 0.5−) | 2009 11 24 | 691 | 0.3− | 0.3+ |
| 2003 03 12 | 291 | 0.0 | 0.2+ | 2007 03 16 | 699 | 1.1+ | 1.2+ | 2009 11 24 | 691 | 0.7− | 0.2+ |
| 2003 03 12 | 291 | 0.2+ | 0.6+ | 2007 03 16 | 699 | 1.3+ | 0.5+ | 2009 11 24 | 691 | 0.2− | 0.2+ |
| 2003 03 12 | 291 | 0.2+ | 0.5+ | 2007 03 26 | 691 | 0.1+ | 0.0 | 2009 12 11 | G96 | 0.3+ | 0.2− |
| 2003 03 12 | 644 | 0.3+ | 0.3+ | 2007 03 26 | 691 | 0.0 | 0.0 | 2009 12 11 | G96 | 0.6+ | 0.1− |
| 2003 03 12 | 644 | 0.2+ | 0.4+ | 2007 03 26 | 691 | 0.1+ | 0.0 | 2009 12 11 | G96 | 0.3+ | 0.3− |
| 2003 03 12 | 644 | 0.0 | 0.4+ | 2007 04 06 | 644 | 0.0 | 0.1− | 2009 12 11 | G96 | 0.4+ | 0.1+ |

**(228832)∗ 2003 DE$_3$ = 2005 TB$_{98}$**

Discovered 2003 Feb. 22 by NEAT at Palomar.

Id. G. V. Williams (*MPO* 89431)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 356.52142 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.27378914 | $\omega$ | 132.78533 | | −0.39163659 | | −0.92003370 |
| $a$ | 2.3488678 | $\Omega$ | 340.26030 | | +0.83292849 | | −0.34867264 |
| $e$ | 0.1423587 | $i$ | 2.13807 | | +0.39096151 | | −0.17878865 |
| $P$ | 3.60 | $H$ | 17.5 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 02 22 | 699 | 0.4+ | 0.7− | 2005 11 03 | G96 | 0.1+ | 0.1− | 2005 11 09 | 703 | 0.8− | 1.2− |
| 2003 02 22 | 699 | 0.3− | 1.2+ | 2005 11 03 | G96 | 0.2+ | 0.1− | 2005 11 09 | 703 | 1.0− | 0.6+ |
| 2003 02 22 | 699 | 0.2+ | 0.7+ | 2005 11 03 | G96 | 0.0 | 0.2− | 2007 04 27 | 691 | 0.1+ | 0.2− |
| 2003 02 22 | 699 | 0.2− | 0.4+ | 2005 11 03 | G96 | 0.1+ | 0.1− | 2007 04 27 | 691 | 0.2− | 0.5+ |
| 2003 02 22 | 644 | 0.3+ | 0.5+ | 2005 11 03 | G96 | 0.2− | 0.3− | 2007 04 27 | 691 | 0.2− | 0.8− |
| 2003 02 22 | 644 | 0.3+ | 0.3+ | 2005 11 03 | G96 | 0.3+ | 0.3− | 2007 05 13 | G96 | 0.0 | 0.4+ |
| 2003 02 22 | 644 | 0.2+ | 0.6+ | 2005 11 03 | G96 | 0.1− | 0.5− | 2007 05 13 | G96 | 0.3− | 0.1− |
| 2003 02 23 | 291 | 0.5+ | 0.2− | 2005 11 03 | G96 | 0.0 | 0.2− | 2007 05 13 | G96 | 0.1− | 0.2− |
| 2003 02 23 | 291 | 0.2− | 0.1+ | 2005 11 04 | G96 | 0.0 | 0.2+ | 2007 05 13 | G96 | 0.5+ | 0.9− |
| 2003 02 23 | 291 | 0.1+ | 0.1− | 2005 11 04 | G96 | 0.5+ | 0.2+ | 2007 05 16 | G96 | 0.4+ | 0.1− |
| 2003 03 12 | 291 | 0.1+ | 0.8+ | 2005 11 04 | G96 | 0.3+ | 0.1+ | 2007 05 16 | G96 | 0.2+ | 0.2+ |
| 2003 03 12 | 291 | 0.0 | 0.3+ | 2005 11 04 | G96 | 0.2+ | 0.1+ | 2007 05 16 | G96 | 0.7− | 0.0 |
| 2003 03 12 | 291 | 0.2+ | 0.4+ | 2005 11 05 | G96 | 0.1+ | 0.3− | 2007 05 16 | G96 | 0.0 | 0.5− |
| 2005 10 06 | G96 | 0.2+ | 0.0 | 2005 11 05 | G96 | 0.4+ | 0.1+ | 2009 11 23 | G96 | 0.3+ | 0.2− |
| 2005 10 06 | G96 | 0.3+ | 0.2+ | 2005 11 05 | G96 | 0.1− | 0.2− | 2009 11 23 | G96 | 0.6+ | 1.1− |
| 2005 10 06 | G96 | 0.2+ | 0.2+ | 2005 11 05 | G96 | 0.0 | 0.2− | 2009 11 23 | G96 | 0.1+ | 0.2− |
| 2005 10 06 | G96 | 0.2+ | 0.0 | 2005 11 05 | G96 | 0.2+ | 0.1− | 2009 11 23 | G96 | 0.2− | 0.5+ |
| 2005 10 10 | 691 | 0.3− | 0.4+ | 2005 11 05 | G96 | 0.3+ | 0.0 | 2009 12 19 | G96 | 0.2+ | 0.3− |
| 2005 10 10 | 691 | 0.1− | 0.5+ | 2005 11 05 | G96 | 0.4+ | 0.4− | 2009 12 19 | G96 | 0.2− | 0.2− |
| 2005 10 10 | 691 | 0.1+ | 0.3+ | 2005 11 05 | G96 | 0.1+ | 0.0 | 2009 12 19 | G96 | 0.1+ | 0.5− |
| 2005 10 28 | 703 | 1.2− | 0.8+ | 2005 11 05 | 734 | 0.4+ | 0.2− | 2009 12 19 | G96 | 0.4− | 0.0 |
| 2005 10 28 | 703 | 0.6− | 0.2+ | 2005 11 05 | 734 | 0.1− | 0.6+ | 2009 12 19 | 691 | 0.2− | 0.3− |
| 2005 10 28 | 703 | (0.4+ | 1.7+) | 2005 11 05 | 734 | 0.6+ | 0.3− | 2009 12 19 | 691 | 0.3− | 0.0 |
| 2005 10 28 | 703 | 0.3+ | 0.7+ | 2005 11 05 | 734 | 0.2− | 0.6+ | 2009 12 19 | 691 | 0.4− | 0.1− |
| 2005 10 28 | 703 | 0.1− | 0.1+ | 2005 11 08 | 734 | 0.0 | 0.8− | 2009 12 27 | 691 | 0.3− | 0.1− |
| 2005 10 28 | 703 | 0.2+ | 0.1− | 2005 11 08 | 734 | 0.3− | 0.7− | 2009 12 27 | 691 | 1.0+ | 0.7− |
| 2005 10 28 | 703 | 1.2− | 0.4+ | 2005 11 08 | 734 | (1.5− | 0.2+) | 2009 12 27 | 691 | 0.3− | 0.2− |
| 2005 10 28 | 703 | 0.1+ | 0.8+ | 2005 11 09 | 703 | 0.4− | 0.3− | | | | |

**(228833)∗ 2003 DV$_3$ = 2005 SH$_{148}$**

Discovered 2003 Feb. 22 by NEAT at Palomar.

Id. G. V. Williams (*MPO* 85919)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 7.38608 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.27301465 | $\omega$ | 326.35832 | | −0.13427292 | | −0.99079731 |
| $a$ | 2.3533079 | $\Omega$ | 131.35204 | | +0.91411208 | | −0.13049535 |
| $e$ | 0.1779326 | $i$ | 1.30321 | | +0.38258317 | | −0.03593954 |
| $P$ | 3.61 | $H$ | 17.5 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 12 07 | 645 | 0.1− | 0.1− | 2005 10 06 | 691 | 0.2+ | 0.2+ | 2005 12 02 | 695 | 0.0 | 0.0 |
| 2002 12 07 | 645 | 0.0 | 0.0 | 2005 10 06 | 691 | 0.3+ | 0.3+ | 2007 04 22 | G96 | 0.1− | 0.1− |
| 2003 02 22 | 644 | 0.2+ | 0.3+ | 2005 10 06 | 691 | 0.1+ | 0.4+ | 2007 04 22 | G96 | 0.0 | 0.1+ |
| 2003 02 22 | 644 | 0.5+ | 0.5+ | 2005 10 10 | 691 | 0.3− | 0.4+ | 2007 04 22 | G96 | 0.1+ | 0.1+ |
| 2003 02 22 | 644 | 0.3+ | 0.7+ | 2005 10 10 | 691 | 1.0− | 0.1− | 2007 04 22 | G96 | 0.2+ | 0.1+ |
| 2003 02 23 | 291 | 0.2+ | 0.1+ | 2005 10 10 | 691 | 0.3+ | 0.3+ | 2007 04 25 | 691 | 0.2+ | 0.0 |
| 2003 02 23 | 291 | 0.3+ | 0.1+ | 2005 10 12 | 291 | 0.1+ | 0.1+ | 2007 04 25 | 691 | 0.1− | 0.5− |
| 2003 02 23 | 291 | 0.2+ | 0.5+ | 2005 10 12 | 291 | 0.1− | 0.1+ | 2007 04 25 | 691 | 0.2− | 1.3+ |
| 2003 02 28 | 704 | 0.6− | 0.2+ | 2005 10 12 | 291 | 0.1− | 0.1+ | 2008 07 30 | G96 | 0.3+ | 0.0 |
| 2003 02 28 | 704 | 0.6− | 0.6+ | 2005 10 21 | 644 | 0.1− | 0.4+ | 2008 07 30 | G96 | 0.1+ | 0.1− |
| 2003 02 28 | 704 | 0.8+ | 0.8+ | 2005 10 21 | 644 | 0.4+ | 0.2+ | 2008 07 30 | G96 | 0.4+ | 0.0 |
| 2005 09 25 | 691 | 0.1− | 0.2+ | 2005 10 21 | 644 | 0.1− | 0.5+ | 2008 07 30 | G96 | 0.2+ | 0.5+ |
| 2005 09 25 | 691 | 0.1+ | 0.0 | 2005 10 22 | 703 | 0.1− | 1.2− | 2009 11 18 | G96 | 0.3+ | 0.6− |
| 2005 09 25 | 691 | 0.1+ | 0.2+ | 2005 10 22 | 703 | 0.7− | 0.7− | 2009 11 18 | G96 | 0.2+ | 0.4− |
| 2005 10 01 | G96 | 0.3+ | 0.2− | 2005 10 22 | 703 | 0.6− | 0.1− | 2009 11 18 | G96 | 0.3+ | 0.5− |
| 2005 10 01 | G96 | 0.1+ | 0.2− | 2005 10 22 | 703 | 0.3+ | 0.9− | 2009 11 18 | G96 | 0.6+ | 0.3− |
| 2005 10 01 | 691 | 0.1− | 0.1− | 2005 10 30 | 691 | 0.0 | 0.2+ | 2009 12 26 | 691 | 0.0 | 0.2− |
| 2005 10 01 | G96 | 0.3+ | 0.2− | 2005 10 30 | 691 | 0.1− | 0.3+ | 2009 12 26 | 691 | 0.3− | 0.0 |
| 2005 10 01 | G96 | 0.0 | 0.2− | 2005 10 30 | 691 | 0.0 | 0.3+ | 2009 12 26 | 691 | 0.0 | 0.2− |
| 2005 10 01 | 691 | 0.1− | 0.2− | 2005 12 01 | 695 | 0.0 | 0.1+ | | | | |
| 2005 10 01 | 691 | 0.1− | 0.1− | 2005 12 01 | 695 | 0.1− | 0.1+ | | | | |

**(228834)∗ 2003 DL$_8$ = 2009 WM$_{38}$**

Discovered 2003 Feb. 22 by NEAT at Palomar.

Id. G. V. Williams (*MPO* 165355)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 339.15268 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.26475005 | $\omega$ | 89.82182 | | −0.35766567 | | −0.93377380 |
| $a$ | 2.4020314 | $\Omega$ | 21.14714 | | +0.84312757 | | −0.32837441 |
| $e$ | 0.1295348 | $i$ | 1.89125 | | +0.40151111 | | −0.14225587 |
| $P$ | 3.72 | $H$ | 17.5 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 02 22 | 644 | 0.4+ | 0.5+ | 2005 10 11 | 691 | 0.0 | 0.1+ | 2009 11 17 | 691 | 0.5− | 0.2− |
| 2003 02 22 | 644 | 0.3+ | 0.5+ | 2005 10 11 | 691 | 0.1− | 0.3+ | 2009 11 17 | 691 | 0.2+ | 0.2− |
| 2003 02 22 | 644 | 0.6+ | 0.3+ | 2005 10 11 | 691 | 0.2− | 0.3+ | 2009 11 17 | 691 | 0.1− | 0.0 |
| 2003 02 25 | 599 | 0.3− | 0.1+ | 2007 03 15 | 691 | 0.2− | 0.3− | 2009 11 17 | 691 | 0.1− | 0.0 |
| 2003 02 25 | 599 | 0.1− | 0.4− | 2007 03 15 | 691 | 0.1+ | 0.2− | 2009 11 21 | 691 | 0.1+ | 0.0 |
| 2003 02 25 | 599 | 0.1− | 0.4+ | 2007 03 15 | 691 | 0.2− | 0.0 | 2009 11 21 | 691 | 0.1+ | 0.1− |
| 2003 02 25 | 599 | 0.1− | 0.5+ | 2007 03 26 | 691 | 0.2+ | 0.0 | 2009 11 21 | 691 | 0.2+ | 0.3− |
| 2003 02 26 | 599 | 0.1+ | 0.1− | 2007 03 26 | 691 | 0.1− | 0.3+ | 2009 11 25 | 691 | 0.1− | 0.3+ |
| 2003 02 26 | 599 | 0.3+ | 0.3+ | 2007 03 26 | 691 | 0.1+ | 0.4+ | 2009 11 25 | 691 | 0.3− | 0.0 |
| 2003 02 26 | 599 | 0.5− | 0.1− | 2007 04 16 | G96 | 0.4− | 0.2+ | 2009 11 25 | 691 | 0.0 | 0.1+ |
| 2003 02 27 | 599 | 0.1+ | 0.2− | 2007 04 16 | G96 | 0.1− | 0.1+ | 2009 12 09 | J75 | 0.6+ | 0.2+ |
| 2005 09 30 | G96 | 0.1− | 0.1− | 2007 04 16 | G96 | 0.7+ | 0.1+ | 2009 12 09 | J75 | 0.5+ | 0.5+ |
| 2005 09 30 | G96 | 0.4− | 0.2+ | 2007 04 16 | G96 | 0.3+ | 0.0 | 2009 12 09 | J75 | 0.1+ | 0.5− |
| 2005 09 30 | G96 | 0.1− | 0.0 | 2007 05 09 | G96 | 0.2− | 0.7− | 2009 12 11 | G96 | 0.4+ | 0.3− |
| 2005 09 30 | G96 | 0.3+ | 0.1+ | 2007 05 09 | G96 | 0.1+ | 0.1− | 2009 12 11 | G96 | 0.4+ | 0.2− |
| 2005 09 30 | G96 | 0.3+ | 0.0 | 2007 05 09 | G96 | 0.3− | 0.1+ | 2009 12 11 | G96 | 0.3+ | 0.2− |
| 2005 09 30 | G96 | 0.1− | 0.1− | 2007 05 09 | G96 | 0.5+ | 0.9− | 2009 12 11 | G96 | 0.2+ | 0.2− |
| 2005 09 30 | G96 | 0.0 | 0.1− | 2009 11 17 | 691 | 0.1+ | 0.1− | | | | |
| 2005 09 30 | G96 | 0.2+ | 0.2+ | 2009 11 17 | 691 | 0.1− | 0.2+ | | | | |

**(228835)∗ 2003 DU$_8$**

Discovered 2003 Feb. 22 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 359.75286 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.27528916 | $\omega$ | 313.24155 | | −0.31500939 | | −0.94873920 |
| $a$ | 2.3403275 | $\Omega$ | 155.08520 | | +0.88752437 | | −0.30407953 |
| $e$ | 0.2490703 | $i$ | 3.50425 | | +0.33625819 | | −0.08619496 |
| $P$ | 3.58 | $H$ | 18.1 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 04 18 | 691 | 0.4− | 0.6− | 2003 03 31 | 645 | 0.0 | 0.1− | 2005 10 31 | 705 | 0.2+ | 0.3+ |
| 1996 04 18 | 691 | 1.1− | 0.1− | 2003 03 31 | 645 | 0.1+ | 0.1− | 2009 11 19 | G96 | 0.7− | 0.5− |
| 1996 04 18 | 691 | 0.8− | 0.5− | 2003 04 05 | 691 | 0.7+ | 0.6+ | 2009 11 19 | G96 | 0.2+ | 0.1− |
| 2003 01 28 | 291 | 0.0 | 0.4+ | 2003 04 05 | 691 | 0.7+ | 0.9+ | 2009 11 19 | G96 | 0.2− | 0.1− |
| 2003 01 28 | 291 | 0.1− | 0.3+ | 2003 04 05 | 691 | 0.5+ | 1.0+ | 2009 11 19 | G96 | 0.0 | 0.3− |
| 2003 01 28 | 291 | 0.7− | 0.4+ | 2005 09 25 | 691 | 0.2− | 0.2+ | 2009 11 22 | G96 | 0.1+ | 0.3− |
| 2003 02 22 | 644 | 1.0+ | 0.9+ | 2005 09 25 | 691 | 0.2− | 0.1− | 2009 11 22 | G96 | 0.0 | 0.3− |
| 2003 02 22 | 644 | 0.7+ | 0.8+ | 2005 09 25 | 691 | 0.0 | 0.2− | 2009 11 22 | G96 | 0.2− | 0.8− |
| 2003 02 22 | 644 | 1.1+ | 0.4+ | 2005 10 12 | 691 | 0.3+ | 0.1− | 2009 11 22 | G96 | 0.2− | 0.3− |
| 2003 02 25 | 599 | 0.6+ | 0.8+ | 2005 10 12 | 691 | 0.3+ | 0.6+ | 2009 12 17 | 704 | 0.3− | 0.9− |
| 2003 02 25 | 599 | 0.5+ | 0.3+ | 2005 10 12 | 691 | 0.4− | 0.3+ | 2009 12 17 | 704 | 0.4− | 0.3− |
| 2003 02 25 | 599 | 0.8+ | 0.5+ | 2005 10 23 | 705 | 0.3+ | 0.2+ | 2009 12 17 | 704 | 0.5− | 0.2+ |
| 2003 02 25 | 599 | 0.6+ | 0.3+ | 2005 10 23 | 705 | 0.4+ | 0.2+ | 2009 12 17 | 704 | 0.4− | 0.3− |
| 2003 03 24 | 691 | 0.3+ | 0.4− | 2005 10 27 | 705 | 0.2+ | 0.2+ | 2009 12 20 | 691 | 0.2− | 0.1− |
| 2003 03 24 | 691 | 0.0 | 0.4− | 2005 10 27 | 705 | 0.4+ | 0.2+ | 2009 12 20 | 691 | 0.2− | 0.3− |
| 2003 03 24 | 691 | 0.1− | 0.5− | 2005 10 31 | 705 | 0.3+ | 0.2+ | 2009 12 20 | 691 | 0.2− | 0.2− |

**(228836)∗ 2003 DW$_8$**

Discovered 2003 Feb. 22 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 267.94890 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.26719580 | $\omega$ | 114.03357 | | −0.83958205 | | +0.54052419 |
| $a$ | 2.3873511 | $\Omega$ | 98.72699 | | −0.51619953 | | −0.76275165 |
| $e$ | 0.1545132 | $i$ | 3.14228 | | −0.16923365 | | −0.35502609 |
| $P$ | 3.69 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 12 07 | 645 | 0.3− | 0.2− | 2003 03 25 | 699 | 0.4− | 0.2+ | 2007 05 09 | 699 | 0.6+ | 0.1− |
| 2002 12 07 | 645 | 0.2− | 0.1− | 2005 10 29 | G96 | 0.5− | 0.5− | 2007 05 09 | 699 | (1.9+ | 0.1−) |
| 2003 02 08 | 608 | 0.3− | 0.1+ | 2005 10 29 | G96 | 0.4+ | 0.1+ | 2007 05 09 | 703 | 0.4− | 0.1− |
| 2003 02 08 | 608 | 0.4− | 0.9− | 2005 10 29 | G96 | 0.1− | 0.0 | 2007 05 09 | 703 | 0.3− | 0.4− |
| 2003 02 08 | 608 | 0.1+ | 0.4− | 2005 10 29 | G96 | 0.3+ | 0.1− | 2007 05 09 | 699 | 1.4+ | 0.1− |
| 2003 02 22 | 644 | 0.1− | 0.1+ | 2005 12 01 | G96 | 0.3− | 0.2− | 2007 05 09 | 703 | 0.5− | 0.1− |
| 2003 02 22 | 644 | 0.0 | 0.1− | 2005 12 01 | G96 | 0.1− | 0.3− | 2007 05 09 | 703 | 0.2− | 0.8− |
| 2003 02 22 | 644 | 0.1− | 0.1+ | 2005 12 01 | G96 | 0.3− | 0.3− | 2007 05 13 | 704 | 0.7+ | 0.6− |
| 2003 02 25 | 599 | 0.6− | 0.3− | 2005 12 07 | 941 | (1.9+ | 0.9+) | 2007 05 13 | 704 | 0.4+ | 0.3+ |
| 2003 02 25 | 599 | 0.3− | 0.1− | 2005 12 07 | 941 | 0.1+ | 0.4+ | 2007 05 13 | 704 | 0.1+ | 0.5− |
| 2003 02 25 | 599 | 0.3+ | 0.0 | 2005 12 07 | 941 | 0.0 | 0.3+ | 2007 05 16 | G96 | 0.4− | 0.1+ |
| 2003 02 25 | 599 | 0.0 | 0.2+ | 2007 03 16 | G96 | 0.3− | 0.1+ | 2007 05 16 | G96 | 0.1− | 0.1− |
| 2003 02 28 | 704 | 0.0 | 0.1− | 2007 03 16 | G96 | 0.2− | 0.1+ | 2007 05 16 | G96 | 0.1− | 0.0 |
| 2003 02 28 | 704 | 0.2+ | 0.4+ | 2007 03 16 | G96 | 0.0 | 0.1− | 2007 05 16 | G96 | 0.2− | 0.0 |
| 2003 02 28 | 704 | 0.3+ | 0.2− | 2007 03 16 | G96 | 0.4− | 0.0 | 2007 05 22 | 703 | 0.3+ | 0.0 |
| 2003 02 28 | 704 | 0.1− | 0.2+ | 2007 04 01 | 644 | 0.0 | 0.1+ | 2007 05 22 | 703 | 0.7− | 0.3− |
| 2003 02 28 | 704 | 0.4+ | 0.0 | 2007 04 01 | 644 | 0.3− | 0.1+ | 2007 05 22 | 703 | 0.5− | 0.6− |
| 2003 03 06 | 699 | 0.9+ | 0.0 | 2007 04 01 | 644 | 0.1− | 0.1− | 2007 05 22 | 703 | 0.5− | 0.1+ |
| 2003 03 06 | 699 | 0.4+ | 0.3+ | 2007 04 20 | 691 | 0.1− | 0.1+ | 2008 09 24 | G96 | 0.1− | 0.4+ |
| 2003 03 06 | 699 | 1.3+ | 1.3− | 2007 04 20 | 691 | 0.1+ | 0.1+ | 2008 09 24 | G96 | 0.0 | 0.6+ |
| 2003 03 06 | 699 | 1.3+ | 0.4+ | 2007 04 20 | 704 | 1.2+ | 0.5+ | 2008 09 24 | G96 | 0.2− | 0.4+ |
| 2003 03 07 | 699 | 0.2− | 0.4+ | 2007 04 20 | 704 | 1.1+ | 0.9+ | 2008 09 24 | G96 | 0.2− | 0.6+ |
| 2003 03 07 | 699 | 0.9+ | 0.8+ | 2007 04 20 | 691 | 0.1+ | 0.0 | 2009 12 16 | 691 | 0.2+ | 0.3+ |
| 2003 03 07 | 699 | 0.3+ | 0.5+ | 2007 04 20 | 704 | 1.1+ | 1.3+ | 2009 12 16 | 691 | 0.1− | 0.1+ |
| 2003 03 07 | 699 | 0.7− | 0.6+ | 2007 04 20 | 704 | (2.2+ | 1.2+) | 2009 12 16 | 691 | 0.1+ | 0.2− |
| 2003 03 24 | 608 | (0.4+ | 1.7+) | 2007 04 24 | 691 | 0.1+ | 0.3+ | 2009 12 20 | 691 | 1.0+ | 0.5+ |
| 2003 03 24 | 608 | 0.7+ | 1.0+ | 2007 04 24 | 691 | 0.2− | 0.1+ | 2009 12 20 | 691 | 0.7+ | 0.0 |
| 2003 03 24 | 608 | (0.7+ | 1.5+) | 2007 04 24 | 691 | 0.2− | 0.1+ | 2009 12 20 | 691 | 0.1− | 0.8+ |
| 2003 03 25 | 699 | (2.2− | 0.3−) | 2007 04 28 | 691 | 0.2− | 0.1− | 2009 12 25 | 691 | 1.2− | 0.2+ |
| 2003 03 25 | 699 | 0.3+ | 0.3+ | 2007 04 28 | 691 | 0.2− | 0.0 | 2009 12 25 | 691 | 0.4− | 0.0 |
| 2003 03 25 | 699 | 0.8+ | 0.7− | 2007 04 28 | 691 | 0.0 | 0.1+ | 2009 12 25 | 691 | 0.1+ | 0.2− |

**(228837)∗ 2003 EY$_6$**

Discovered 2003 Mar. 6 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 308.58588 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.27201491 | $\omega$ | 234.61734 | | −0.99676019 | | −0.07978719 |
| $a$ | 2.3590704 | $\Omega$ | 300.80433 | | +0.07709653 | | −0.91181216 |
| $e$ | 0.1183974 | $i$ | 0.67747 | | +0.02291850 | | −0.40278106 |
| $P$ | 3.62 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 01 01 | 291 | 0.1+ | 0.5+ | 2003 03 24 | 691 | 0.7− | 0.1− | 2007 05 07 | 691 | 0.2− | 0.0 |
| 2003 01 01 | 291 | 0.3− | 0.6+ | 2003 03 24 | 691 | 0.5− | 0.2− | 2007 05 07 | 691 | 0.2+ | 0.4− |
| 2003 01 01 | 291 | 0.3− | 0.8+ | 2003 03 26 | 699 | 0.7+ | 0.1+ | 2007 05 07 | 691 | 0.2− | 0.2+ |
| 2003 01 28 | 291 | 0.2− | 0.1+ | 2003 03 26 | 699 | 0.5− | 0.1− | 2007 05 11 | 691 | 0.0 | 0.1− |
| 2003 01 28 | 291 | 0.3− | 0.1− | 2003 03 26 | 699 | 0.6+ | 0.0 | 2007 05 11 | 691 | 0.1− | 0.2− |
| 2003 01 28 | 291 | 0.2− | 0.8+ | 2003 03 26 | 699 | 1.4− | 0.1+ | 2007 05 11 | 691 | 0.0 | 0.1− |
| 2003 02 22 | 644 | 0.6+ | 0.2+ | 2003 04 05 | 691 | (0.5− | 2.2+) | 2007 05 11 | 691 | 0.0 | 0.2− |
| 2003 02 22 | 644 | 0.3+ | 0.1+ | 2003 04 05 | 291 | 0.1+ | 0.0 | 2007 05 11 | 691 | 0.0 | 0.0 |
| 2003 02 22 | 644 | 0.6+ | 0.4+ | 2003 04 05 | 291 | 0.0 | 0.1− | 2007 05 11 | 691 | 0.1− | 0.2− |
| 2003 03 06 | 699 | (1.9+ | 0.3−) | 2003 04 05 | 691 | (0.5− | 2.1+) | 2008 09 20 | G96 | 0.1− | 0.0 |
| 2003 03 06 | 699 | 0.8− | 0.2+ | 2003 04 05 | 291 | 0.1+ | 0.1− | 2008 09 20 | G96 | 0.3− | 0.8+ |
| 2003 03 06 | 699 | 1.5+ | 1.0+ | 2003 04 05 | 691 | (0.2− | 1.6+) | 2008 09 20 | G96 | 0.5− | 0.3+ |
| 2003 03 06 | 699 | (1.7+ | 0.2+) | 2005 11 26 | G96 | 0.2+ | 0.1− | 2008 09 20 | G96 | 0.7− | 0.2+ |
| 2003 03 07 | 291 | 0.1+ | 0.1− | 2005 11 26 | G96 | 0.3+ | 0.0 | 2008 10 20 | G96 | 0.6+ | 0.1+ |
| 2003 03 07 | 291 | 0.1− | 0.2+ | 2005 11 26 | G96 | 0.3− | 0.4+ | 2008 10 20 | G96 | 0.3+ | 0.5+ |
| 2003 03 07 | 291 | 0.1+ | 0.0 | 2005 11 26 | G96 | 0.3− | 0.1− | 2008 10 20 | G96 | 0.1− | 0.3+ |
| 2003 03 09 | 291 | 0.4+ | 0.0 | 2005 12 04 | G96 | 0.3− | 0.6− | 2008 10 20 | G96 | 0.6+ | 0.4+ |
| 2003 03 09 | 704 | 0.7+ | 0.7− | 2005 12 04 | G96 | 0.1− | 0.0 | 2009 11 16 | G96 | 0.2− | 0.3− |
| 2003 03 09 | 291 | 0.5+ | 0.1+ | 2005 12 04 | G96 | 0.9+ | 1.0− | 2009 11 16 | G96 | 0.2− | 0.5− |
| 2003 03 09 | 704 | 0.1− | 0.6− | 2005 12 04 | G96 | 0.0 | 0.3− | 2009 11 16 | G96 | 0.4+ | 0.4− |
| 2003 03 09 | 704 | 0.6+ | 0.6+ | 2006 01 02 | G96 | 0.4− | 0.1− | 2009 11 16 | G96 | 0.5+ | 0.4− |
| 2003 03 09 | 291 | 1.3+ | 0.2− | 2006 01 02 | G96 | 0.4+ | 0.7− | 2009 12 25 | 691 | 0.1− | 0.5− |
| 2003 03 09 | 704 | 0.5+ | 0.9− | 2006 01 02 | G96 | 0.2− | 0.2− | 2009 12 25 | 691 | 0.1+ | 0.4− |
| 2003 03 24 | 691 | 0.5− | 0.0 | 2006 01 02 | G96 | 0.4− | 0.2− | 2009 12 25 | 691 | 0.3− | 0.3− |

**(228838)∗ 2003 EQ$_{12}$ = 2005 UE$_{154}$**

Discovered 2003 Mar. 6 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 89438)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 310.11582 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27113577 | $\omega$ | 289.17859 | | −0.99482122 | −0.09603303 | |
| $a$ | 2.3641671 | $\Omega$ | 245.32217 | | +0.10144702 | −0.91796263 | |
| $e$ | 0.1855489 | $i$ | 2.09973 | | +0.00626482 | −0.38486656 | |
| $P$ | 3.64 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 03 06 | 704 | 0.4− | 0.4+ | 2003 03 31 | 704 | 0.7− | 0.3− | 2005 11 26 | G96 | 0.6+ | 0.5+ |
| 2003 03 06 | 704 | 1.2− | 0.9− | 2005 10 26 | 691 | 0.2+ | 0.1+ | 2006 01 21 | G96 | 1.1+ | 0.7− |
| 2003 03 06 | 704 | 0.2− | 1.1− | 2005 10 26 | 691 | 0.3+ | 0.5− | 2006 01 21 | G96 | 0.9+ | 0.1− |
| 2003 03 07 | 704 | 0.5+ | 1.0+ | 2005 10 26 | 691 | 0.0 | 0.7− | 2006 01 21 | G96 | 0.2+ | 0.3− |
| 2003 03 07 | 704 | 1.3+ | 0.5+ | 2005 10 27 | G96 | 0.5− | 0.1− | 2006 01 21 | G96 | 0.0 | 0.3− |
| 2003 03 07 | 704 | 0.3− | 0.6+ | 2005 10 27 | G96 | 0.7− | 0.2− | 2007 05 25 | G96 | 0.4− | 0.3− |
| 2003 03 07 | 704 | 0.3+ | 0.2− | 2005 10 27 | G96 | 0.2+ | 0.1− | 2007 05 25 | G96 | 0.1+ | 0.2+ |
| 2003 03 07 | 704 | 0.9+ | 0.6− | 2005 10 27 | G96 | 0.3− | 0.2+ | 2007 05 25 | G96 | 0.1+ | 0.2+ |
| 2003 03 09 | 704 | (3.4+ | 1.6+) | 2005 10 30 | 691 | 0.1− | 0.1+ | 2007 06 22 | G96 | 0.0 | 0.1− |
| 2003 03 09 | 704 | (3.1+ | 0.1+) | 2005 10 30 | 691 | 0.1− | 0.0 | 2007 06 22 | G96 | 0.1− | 0.2+ |
| 2003 03 09 | 704 | (1.6+ | 0.4+) | 2005 10 30 | 691 | 0.1− | 0.1+ | 2007 06 22 | G96 | 0.1+ | 0.1+ |
| 2003 03 09 | 704 | (2.9+ | 0.3+) | 2005 11 03 | 691 | 0.2− | 0.2+ | 2007 06 22 | G96 | 0.1− | 0.1− |
| 2003 03 09 | 704 | 1.5+ | 0.1+ | 2005 11 03 | 691 | 0.1− | 0.0 | 2008 09 25 | G96 | 0.7+ | 0.7+ |
| 2003 03 09 | 644 | 0.1+ | 0.1− | 2005 11 03 | 691 | 0.0 | 0.2− | 2008 09 25 | G96 | 0.3− | 0.0 |
| 2003 03 09 | 644 | 0.2+ | 0.1− | 2005 11 05 | 291 | 1.2− | 0.5+ | 2008 09 25 | G96 | 0.0 | 0.3+ |
| 2003 03 09 | 644 | 0.6+ | 0.1+ | 2005 11 05 | 291 | 0.3− | 0.5+ | 2008 09 25 | G96 | 0.2+ | 0.4+ |
| 2003 03 23 | 683 | (1.5− | 0.0 ) | 2005 11 05 | 291 | 0.3− | 0.3+ | 2009 11 19 | G96 | 0.3+ | 0.5− |
| 2003 03 23 | 683 | 0.1+ | 1.2− | 2005 11 11 | 691 | 0.0 | 0.3− | 2009 11 19 | G96 | 0.3+ | 0.3− |
| 2003 03 23 | 683 | 0.5+ | 1.3+ | 2005 11 11 | 691 | 0.3− | 0.4+ | 2009 11 19 | G96 | 0.3− | 0.3− |
| 2003 03 26 | 699 | 0.7+ | 0.0 | 2005 11 11 | 691 | 0.3+ | 0.2+ | 2009 11 19 | G96 | 0.3+ | 0.0 |
| 2003 03 26 | 699 | 0.3− | 0.5− | 2005 11 12 | 691 | 0.1+ | 0.3+ | 2009 12 10 | G96 | 0.1− | 0.3− |
| 2003 03 26 | 699 | 0.5− | 0.3− | 2005 11 12 | 691 | 0.0 | 0.2+ | 2009 12 10 | G96 | 0.3− | 0.2− |
| 2003 03 26 | 699 | (0.1− | 1.7−) | 2005 11 12 | 691 | 0.0 | 0.2+ | 2009 12 10 | G96 | 0.3− | 0.3− |
| 2003 03 27 | 691 | 0.0 | 0.6+ | 2005 11 22 | 291 | 0.3+ | 0.7+ | 2009 12 10 | G96 | 0.4+ | 0.3− |
| 2003 03 27 | 691 | 0.1− | 0.5+ | 2005 11 22 | 291 | 0.1+ | 0.7+ | 2009 12 18 | 691 | 0.2− | 0.6− |
| 2003 03 27 | 691 | 0.1− | 0.8+ | 2005 11 22 | 291 | 0.1+ | 0.4− | 2009 12 18 | 691 | 0.1− | 0.4− |
| 2003 03 31 | 704 | 0.4+ | 0.3− | 2005 11 26 | G96 | 0.2− | 0.2− | 2009 12 18 | 691 | 0.1− | 0.3− |
| 2003 03 31 | 704 | 0.4+ | 0.1− | 2005 11 26 | G96 | 0.0 | 0.1+ | | | | |
| 2003 03 31 | 704 | 0.7− | 0.2+ | 2005 11 26 | G96 | 0.4+ | 0.1− | | | | |

**(228839)∗ 2003 EG$_{14}$ = 1996 JN$_7$**

Discovered 2003 Mar. 7 by NEAT at Palomar.

Id. A. Doppler (*MPO* 47329)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 3.89942 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26342037 | $\omega$ | 357.02073 | | +0.21865714 | −0.97077762 | |
| $a$ | 2.4101079 | $\Omega$ | 80.33392 | | +0.89734181 | +0.16022503 | |
| $e$ | 0.0961329 | $i$ | 5.75745 | | +0.38336239 | +0.17865822 | |
| $P$ | 3.74 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 05 12 | 691 | 0.4+ | 0.0 | 2005 10 21 | 644 | 0.1− | 0.4+ | 2009 11 20 | 691 | 0.5− | 0.1− |
| 1996 05 12 | 691 | 0.0 | 0.3+ | 2005 10 21 | 644 | 0.1+ | 0.3− | 2009 11 20 | 691 | 0.6− | 0.2− |
| 1996 05 12 | 691 | 0.5+ | 0.0 | 2005 10 21 | 644 | 0.3+ | 0.1+ | 2009 11 20 | 691 | 0.2− | 0.1− |
| 1996 05 19 | 691 | 0.4− | 0.1+ | 2005 10 22 | 703 | 0.1− | 0.1+ | 2009 11 24 | J75 | 0.8+ | 0.3− |
| 1996 05 19 | 691 | 0.5− | 0.1− | 2005 10 22 | 703 | 0.7+ | 0.5− | 2009 11 24 | J75 | 0.4− | 0.7− |
| 1996 05 19 | 691 | 0.0 | 0.3− | 2005 10 22 | 703 | 1.0− | 1.3+ | 2009 11 24 | J75 | 0.5+ | 0.2+ |
| 2001 10 10 | 644 | 0.1− | 0.4+ | 2005 10 22 | 703 | 0.2− | 0.2+ | 2009 11 27 | G96 | 0.4+ | 0.4− |
| 2001 10 10 | 644 | 0.4− | 0.6+ | 2005 10 28 | 703 | 0.3− | 0.2− | 2009 11 27 | G96 | 0.6+ | 0.2− |
| 2001 10 10 | 644 | 0.0 | 0.7+ | 2005 10 28 | 703 | 0.3+ | 0.5− | 2009 11 27 | G96 | 0.1+ | 0.4− |
| 2003 02 21 | 644 | 0.1+ | 0.2+ | 2005 10 28 | 703 | 1.2− | 0.1− | 2009 11 27 | G96 | 0.6+ | 0.4− |
| 2003 02 21 | 644 | 0.1+ | 0.1+ | 2005 10 28 | 703 | 0.4+ | 0.4− | 2009 11 27 | G96 | 0.7+ | 0.4− |
| 2003 02 21 | 644 | 0.2+ | 0.1− | 2005 10 31 | 699 | (1.6+ | 0.2−) | 2009 12 09 | J75 | 0.1+ | 0.7− |
| 2003 03 07 | 644 | 0.1− | 0.2− | 2005 10 31 | 699 | 1.0− | 0.7+ | 2009 12 09 | J75 | 0.2− | 0.1− |
| 2003 03 07 | 644 | 0.3+ | 0.1− | 2005 10 31 | 699 | 0.5− | 0.4− | 2009 12 09 | J75 | 0.0 | 0.1+ |
| 2003 03 07 | 644 | 0.3+ | 0.5− | 2005 10 31 | 699 | 1.4+ | 0.7− | 2009 12 10 | G96 | 0.1+ | 0.4− |
| 2003 03 08 | 704 | 0.6+ | 0.9+ | 2005 11 09 | 703 | 0.5− | 0.6− | 2009 12 10 | G96 | 0.3+ | 0.6− |
| 2003 03 08 | 704 | 0.1− | 1.3+ | 2005 11 09 | 703 | 0.8+ | 0.6− | 2009 12 10 | G96 | 0.5+ | 0.5− |
| 2003 03 08 | 704 | (1.2+ | 1.9+) | 2005 11 09 | 703 | 0.3− | 0.9− | 2009 12 10 | G96 | 0.3+ | 0.4− |
| 2003 03 08 | 704 | 0.1− | 0.9+ | 2005 11 09 | 703 | 0.3− | 0.3+ | 2009 12 11 | 704 | 0.4− | 0.4+ |
| 2003 03 08 | 644 | 0.1+ | 0.2+ | 2007 03 20 | 703 | 0.7− | 0.2+ | 2009 12 11 | 704 | 0.4+ | 0.4+ |
| 2003 03 08 | 644 | 0.0 | 0.3+ | 2007 03 20 | 703 | (0.6+ | 1.5−) | 2009 12 11 | 704 | 0.9+ | 0.6+ |
| 2003 03 08 | 644 | 0.1+ | 0.1+ | 2007 03 20 | 703 | 0.4− | 0.7− | 2009 12 15 | G96 | 0.1− | 0.2− |
| 2003 03 08 | 599 | 0.1+ | 0.1− | 2007 03 20 | 703 | 0.2+ | 0.1− | 2009 12 15 | G96 | 0.4+ | 0.2− |
| 2003 03 08 | 599 | 0.1− | 0.0 | 2009 11 08 | 691 | 0.1− | 0.0 | 2009 12 15 | G96 | 0.4+ | 0.1− |
| 2003 03 08 | 599 | 0.1+ | 0.1+ | 2009 11 08 | 691 | 0.4− | 0.1− | 2009 12 15 | G96 | 0.4+ | 0.3− |
| 2003 03 08 | 599 | 0.7− | 0.9+ | 2009 11 08 | 691 | 0.1− | 0.1− | 2009 12 17 | 704 | 0.9+ | 0.0 |
| 2005 10 07 | 699 | 1.1+ | 0.8+ | 2009 11 18 | 704 | 1.2+ | 1.1+ | 2009 12 17 | 704 | 0.6− | 0.6+ |
| 2005 10 07 | 699 | 0.7− | 0.5+ | 2009 11 18 | 704 | 0.1+ | 1.5+ | 2009 12 17 | 704 | 0.2− | 0.5+ |
| 2005 10 07 | 699 | 0.3+ | 1.2+ | 2009 11 18 | 704 | 0.6+ | 1.1+ | 2009 12 17 | 704 | 0.6+ | 0.2− |
| 2005 10 07 | 699 | 0.2− | 0.4+ | 2009 11 18 | 704 | 0.0 | 0.8+ | | | | |

**(228840)∗ 2003 EV$_{19}$**

Discovered 2003 Mar. 6 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 304.96795 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26265073 | $\omega$ | 198.18236 | | −0.87033307 | −0.49169379 | |
| $a$ | 2.4148137 | $\Omega$ | 312.33362 | | +0.45632217 | −0.78418387 | |
| $e$ | 0.1710513 | $i$ | 2.13377 | | +0.18517674 | −0.37854045 | |
| $P$ | 3.75 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 02 09 | 608 | 0.1− | 0.7− | 2003 03 13 | 704 | 1.3− | 0.1+ | 2005 11 03 | G96 | 0.2− | 0.3− |
| 2003 02 09 | 608 | 0.1+ | 0.6− | 2003 03 13 | 704 | 0.5+ | 0.2− | 2005 11 05 | G96 | 0.2− | 0.4− |
| 2003 02 09 | 608 | 0.2+ | 0.4− | 2003 03 13 | 704 | 0.3− | 0.3− | 2005 11 05 | G96 | 0.3+ | 0.1− |
| 2003 03 06 | 699 | 0.1− | 0.5− | 2003 03 26 | 699 | 0.6+ | 0.4+ | 2005 11 05 | G96 | 0.1− | 0.0 |
| 2003 03 06 | 699 | 0.1+ | 0.4− | 2003 03 26 | 699 | 0.5+ | 0.4− | 2005 11 05 | G96 | 0.2− | 0.1+ |
| 2003 03 06 | 699 | 0.5+ | 0.1− | 2003 03 26 | 699 | 0.6− | 0.0 | 2005 11 06 | 291 | 0.2− | 0.3+ |
| 2003 03 06 | 699 | 0.2− | 1.1− | 2003 03 26 | 699 | 0.3− | 0.2− | 2005 11 06 | 291 | 0.1+ | 0.4+ |
| 2003 03 07 | 699 | 1.0− | 0.1− | 2003 03 27 | 691 | 0.3+ | 0.3+ | 2005 11 06 | 291 | 0.1− | 0.4+ |
| 2003 03 07 | 699 | (0.3+ | 1.7−) | 2003 03 27 | 691 | 0.1− | 0.1+ | 2008 07 30 | G96 | 0.1− | 0.2+ |
| 2003 03 07 | 699 | 0.0 | 0.4+ | 2003 03 27 | 691 | 0.1− | 0.4+ | 2008 07 30 | G96 | 0.4− | 0.5+ |
| 2003 03 07 | 699 | 0.5− | 0.3+ | 2003 04 05 | 691 | 0.2+ | 0.1+ | 2008 07 30 | G96 | 0.3+ | 0.2+ |
| 2003 03 09 | 704 | 0.0 | 0.9+ | 2003 04 05 | 691 | 0.0 | 0.0 | 2008 07 30 | G96 | 0.2− | 0.6+ |
| 2003 03 09 | 704 | 0.4+ | 0.3+ | 2003 04 05 | 691 | 0.2− | 0.3− | 2009 11 17 | 691 | 0.1− | 0.2− |
| 2003 03 09 | 704 | 0.6− | 0.8+ | 2005 10 06 | G96 | 0.0 | 0.2− | 2009 11 17 | 691 | 0.3− | 0.2− |
| 2003 03 09 | 704 | 0.3+ | 0.1+ | 2005 10 06 | G96 | 0.1+ | 0.2+ | 2009 11 17 | 691 | 1.1+ | 0.7+ |
| 2003 03 09 | 644 | 0.3+ | 1.0+ | 2005 10 06 | G96 | 0.3− | 0.2− | 2009 11 25 | 691 | 0.2− | 0.2+ |
| 2003 03 09 | 704 | 0.1− | 0.6+ | 2005 10 28 | 703 | 0.3+ | 0.1+ | 2009 11 25 | 691 | 0.4− | 0.1− |
| 2003 03 09 | 644 | 0.1− | 0.2+ | 2005 10 28 | 703 | 0.1− | 0.2+ | 2009 11 25 | 691 | 0.2− | 0.0 |
| 2003 03 09 | 644 | 0.3+ | 1.0+ | 2005 10 28 | 703 | 0.1− | 0.8− | 2009 12 16 | G96 | 0.0 | 0.8− |
| 2003 03 12 | 704 | 1.0+ | 0.5− | 2005 10 28 | 703 | 0.4+ | 0.0 | 2009 12 16 | G96 | 0.6+ | 0.8− |
| 2003 03 12 | 704 | 0.3+ | 0.1+ | 2005 11 03 | G96 | 0.2− | 0.1− | 2009 12 16 | G96 | 0.3+ | 0.9− |
| 2003 03 12 | 704 | 0.5+ | 0.4+ | 2005 11 03 | G96 | 0.3− | 0.1+ | | | | |
| 2003 03 13 | 704 | 0.2+ | 0.9− | 2005 11 03 | G96 | 0.1+ | 0.1− | | | | |

**(228841)∗ 2003 EZ$_{24}$**

Discovered 2003 Mar. 6 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 3.60372 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27744351 | $\omega$ | 50.85313 | | −0.42331372 | −0.90395004 | |
| $a$ | 2.3281967 | $\Omega$ | 64.29115 | | +0.80907238 | −0.40731452 | |
| $e$ | 0.2401596 | $i$ | 3.86043 | | +0.40768539 | −0.13026594 | |
| $P$ | 3.55 | $H$ | 17.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 03 19 | 691 | 0.6− | 0.8− | 2003 03 07 | 699 | 0.5− | 1.2+ | 2005 10 08 | 691 | 0.1− | 0.3+ |
| 1996 03 19 | 691 | 0.7− | 0.8− | 2003 03 07 | 699 | 0.5+ | 0.4+ | 2005 10 08 | 691 | 0.1+ | 0.4+ |
| 1996 03 19 | 691 | 0.6− | 1.1− | 2003 03 07 | 699 | 0.8+ | 1.3+ | 2005 10 08 | 691 | 0.0 | 0.2+ |
| 1998 12 13 | 691 | 0.2+ | 0.4− | 2003 03 10 | 644 | 0.1+ | 0.2+ | 2005 10 12 | 691 | 0.1− | 0.2+ |
| 1998 12 13 | 691 | 0.0 | 0.4− | 2003 03 10 | 644 | 0.1+ | 0.1+ | 2005 10 12 | 691 | 0.2− | 0.1+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 12 13 | 691 | 0.4+ | 0.5− | 2003 03 10 | 644 | 0.1+ | 0.2+ | 2005 10 12 | 691 | 0.3− | 0.0 | | |
| 2003 02 01 | 704 | 1.3− | 0.1+ | 2003 03 25 | 644 | 0.1+ | 0.3− | 2005 10 24 | 691 | 0.1− | 0.4+ | | |
| 2003 02 01 | 704 | (0.0 | 2.4+) | 2003 03 25 | 644 | 0.2+ | 0.3− | 2005 10 24 | 691 | 0.1+ | 0.0 | | |
| 2003 02 01 | 704 | 1.0− | 0.5+ | 2003 03 25 | 644 | 0.2+ | 0.2− | 2005 10 24 | 691 | 0.3− | 0.3+ | | |
| 2003 02 01 | 704 | (2.2− | 0.1−) | 2003 03 26 | 691 | 0.4+ | 0.7+ | 2005 11 01 | 691 | 0.5− | 0.1+ | | |
| 2003 02 11 | 608 | 0.2− | 1.2− | 2003 03 26 | 691 | 0.3+ | 0.7+ | 2005 11 01 | 691 | 0.3− | 0.1+ | | |
| 2003 02 11 | 608 | 0.1+ | 1.1− | 2003 03 26 | 691 | 0.9+ | 0.6+ | 2005 11 01 | 691 | 0.5− | 0.3+ | | |
| 2003 02 11 | 608 | 0.2− | 1.4− | 2003 03 30 | 645 | 0.1− | 0.1− | 2005 12 21 | 291 | 0.9+ | 0.0 | | |
| 2003 02 22 | 644 | 0.6+ | 1.4+ | 2003 03 30 | 645 | 0.2− | 0.1− | 2005 12 21 | 291 | 0.9+ | 0.4− | | |
| 2003 02 22 | 644 | 0.4+ | 0.9+ | 2003 04 08 | 691 | 0.7+ | 0.8+ | 2005 12 21 | 291 | (1.7+ | 0.5−) | | |
| 2003 02 22 | 644 | 0.7+ | 1.3+ | 2003 04 08 | 691 | 1.0+ | 0.6+ | 2009 11 21 | G96 | 0.4− | 0.5− | | |
| 2003 02 28 | 704 | 0.1− | 0.1− | 2003 04 08 | 691 | 0.8+ | 0.5+ | 2009 11 21 | G96 | 0.4− | 0.4− | | |
| 2003 02 28 | 704 | 0.7+ | 1.1− | 2005 09 29 | 691 | 0.1+ | 0.2+ | 2009 11 21 | G96 | 0.1− | 0.4− | | |
| 2003 02 28 | 704 | 0.2− | 0.4+ | 2005 09 29 | 691 | 0.2− | 0.1− | 2009 11 21 | G96 | 0.1− | 0.4− | | |
| 2003 03 06 | 699 | 0.7− | 0.2+ | 2005 09 29 | 691 | 0.3− | 0.1− | 2009 12 15 | 704 | 0.2− | 0.4− | | |
| 2003 03 06 | 699 | 0.3− | 0.9+ | 2005 10 07 | 703 | (2.9− | 1.0−) | 2009 12 15 | 704 | 1.1− | 0.0 | | |
| 2003 03 06 | 699 | 0.1+ | 0.0 | 2005 10 07 | 703 | 1.3+ | 0.5+ | 2009 12 15 | 704 | 0.4− | 0.6+ | | |
| 2003 03 06 | 699 | 1.2+ | 0.1− | 2005 10 07 | 703 | 0.2+ | 0.3− | | | | | | |
| 2003 03 07 | 699 | (0.4− | 1.8+) | 2005 10 07 | 703 | (3.0+ | 0.8+) | | | | | | |

**(228842)∗ 2003 EN$_{32}$**

Discovered 2003 Mar. 7 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 124.53809 | | (2000.0) | | | |
| $n$ | 0.24431869 | $\omega$ | 318.73758 | | +0.49613979 | +0.86690220 |
| $a$ | 2.5341458 | $\Omega$ | 340.85233 | | −0.75304096 | +0.40199728 |
| $e$ | 0.0959771 | $i$ | 8.45503 | | −0.43217429 | +0.29475205 |
| $P$ | 4.03 | $H$ | 16.1 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 12 09 | 704 | 0.6− | 1.0+ | 2003 03 27 | 691 | 0.5+ | 0.2− | 2007 03 10 | G96 | 0.2− | 0.3− | | |
| 2001 12 09 | 704 | 0.8− | 0.7+ | 2003 04 09 | 691 | 1.0+ | 0.9+ | 2007 03 11 | G96 | 0.1+ | 0.4− | | |
| 2001 12 09 | 704 | (0.0 | 2.0+) | 2003 04 09 | 691 | 0.7+ | 0.4+ | 2007 03 11 | G96 | 0.4− | 0.4− | | |
| 2001 12 09 | 704 | (0.6− | 1.8+) | 2003 04 09 | 691 | 1.3+ | 0.2+ | 2007 03 11 | G96 | 0.6− | 1.0− | | |
| 2001 12 22 | 704 | 0.8+ | 0.3− | 2004 07 12 | E12 | 0.2+ | 0.3+ | 2007 03 11 | G96 | 0.1− | 0.4− | | |
| 2001 12 22 | 704 | 1.4+ | 0.7+ | 2004 07 12 | E12 | 0.6− | 0.4+ | 2008 06 27 | E12 | 0.4− | 1.1+ | | |
| 2001 12 22 | 704 | (1.6+ | 0.0 ) | 2004 07 12 | E12 | 0.0 | 0.9+ | 2008 06 27 | E12 | 0.5+ | 0.5+ | | |
| 2001 12 22 | 704 | 0.9− | 0.2+ | 2004 07 12 | E12 | 0.1− | 0.2− | 2008 06 27 | E12 | 0.2+ | 0.1+ | | |
| 2001 12 22 | 704 | 1.2− | 0.2− | 2007 02 17 | 691 | 0.2− | 0.0 | 2008 06 27 | E12 | 0.7− | 0.3+ | | |
| 2003 03 07 | 699 | 1.0− | 0.3+ | 2007 02 17 | 691 | 0.4− | 0.4− | 2009 11 26 | 703 | 0.9− | 1.1+ | | |
| 2003 03 07 | 699 | 0.9− | 0.7+ | 2007 02 17 | 691 | 0.3− | 0.3− | 2009 11 26 | 703 | 0.8− | 0.3+ | | |
| 2003 03 07 | 699 | 0.9− | 0.8+ | 2007 03 09 | G96 | 0.2+ | 0.0 | 2009 11 26 | 703 | 1.2+ | 0.3− | | |
| 2003 03 07 | 699 | 0.4− | 0.2+ | 2007 03 09 | G96 | 0.7− | 0.3− | 2009 11 26 | 703 | 0.8+ | 0.2− | | |
| 2003 03 09 | 704 | 0.7− | 1.0+ | 2007 03 09 | G96 | 0.3− | 0.4− | 2009 11 26 | 703 | 0.0 | 0.3+ | | |
| 2003 03 09 | 704 | 0.5− | 0.3+ | 2007 03 09 | G96 | 0.3− | 0.3− | 2009 12 18 | 703 | (0.9+ | 1.8+) | | |
| 2003 03 09 | 704 | 0.9− | 0.2+ | 2007 03 10 | G96 | 0.3− | 0.2− | 2009 12 18 | 703 | 0.2− | 1.1+ | | |
| 2003 03 27 | 691 | 0.1+ | 0.2+ | 2007 03 10 | G96 | 0.5− | 0.3− | 2009 12 18 | 703 | 0.1+ | 0.5+ | | |
| 2003 03 27 | 691 | 0.1+ | 0.1+ | 2007 03 10 | G96 | 0.6− | 0.2− | 2009 12 18 | 703 | 0.0 | 0.7+ | | |

**(228843)∗ 2003 ES$_{46}$**

Discovered 2003 Mar. 8 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 270.90664 | | (2000.0) | | | |
| $n$ | 0.26069040 | $\omega$ | 118.76908 | | −0.98176959 | +0.15939628 |
| $a$ | 2.4269045 | $\Omega$ | 70.56208 | | −0.18866486 | −0.88343234 |
| $e$ | 0.1411611 | $i$ | 6.30391 | | +0.02310920 | −0.44061334 |
| $P$ | 3.78 | $H$ | 16.8 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 01 28 | 645 | 0.1− | 0.3− | 2005 10 29 | G96 | 0.4+ | 0.4− | 2007 04 20 | G96 | 0.1+ | 0.1+ | | |
| 2003 01 28 | 645 | 0.0 | 0.3− | 2005 10 29 | G96 | 0.5+ | 0.0 | 2007 04 20 | 704 | (1.9+ | 1.2+) | | |
| 2003 02 25 | 599 | 0.3+ | 0.5+ | 2005 10 31 | 691 | 0.3− | 0.0 | 2007 04 22 | G96 | 0.1+ | 0.0 | | |
| 2003 02 25 | 599 | 0.1+ | 0.2+ | 2005 10 31 | 691 | 0.3− | 0.0 | 2007 04 22 | G96 | 0.2− | 0.2+ | | |
| 2003 02 25 | 599 | 0.1+ | 0.4− | 2005 10 31 | 691 | 0.2− | 0.0 | 2007 04 22 | G96 | 0.1+ | 0.1+ | | |
| 2003 02 25 | 599 | 0.1+ | 0.2+ | 2005 11 04 | 691 | 0.2− | 0.2+ | 2007 04 22 | G96 | 0.3− | 0.2+ | | |
| 2003 03 08 | 704 | 0.5+ | 1.2+ | 2005 11 04 | 691 | 0.3+ | 0.4+ | 2007 05 07 | 691 | 0.0 | 0.2+ | | |
| 2003 03 08 | 704 | 0.6− | 0.9− | 2005 11 04 | 691 | 0.7− | 1.3+ | 2007 05 07 | 691 | 0.1− | 0.2+ | | |
| 2003 03 08 | 704 | 0.4+ | 0.0 | 2005 12 01 | G96 | 0.2+ | 0.2− | 2007 05 07 | 691 | 0.2− | 0.2+ | | |
| 2003 03 08 | 704 | 0.7+ | 0.3+ | 2005 12 01 | G96 | 0.4+ | 0.2− | 2007 05 16 | 699 | 1.4+ | 0.1− | | |
| 2003 03 11 | 644 | 0.5+ | 0.2+ | 2005 12 01 | G96 | 0.2+ | 0.5− | 2007 05 16 | 699 | 1.0+ | 1.2+ | | |
| 2003 03 11 | 644 | 0.4+ | 0.3+ | 2005 12 01 | G96 | 0.2− | 0.4− | 2007 05 16 | 699 | 1.2+ | 0.1− | | |
| 2003 03 11 | 644 | 0.9+ | 0.6+ | 2005 12 08 | 691 | 0.2− | 0.2+ | 2007 05 16 | 699 | (4.8+ | 2.2+) | | |
| 2003 03 23 | 644 | 0.4+ | 0.4+ | 2005 12 08 | 691 | 0.2− | 0.0 | 2009 11 08 | 691 | 0.0 | 0.3− | | |
| 2003 03 23 | 644 | 0.2+ | 0.3+ | 2005 12 08 | 691 | 0.1− | 0.1− | 2009 11 08 | 691 | 0.3− | 0.9− | | |
| 2003 03 23 | 644 | 0.3+ | 0.5+ | 2005 12 29 | G96 | 0.1− | 0.1− | 2009 11 08 | 691 | 0.0 | 0.2+ | | |
| 2003 03 28 | 691 | 0.3+ | 0.1+ | 2005 12 29 | G96 | 0.0 | 0.4− | 2009 11 20 | G96 | 0.5− | 0.0 | | |
| 2003 03 28 | 691 | 0.2+ | 0.5+ | 2005 12 29 | G96 | 0.4+ | 0.2+ | 2009 11 20 | G96 | 0.0 | 0.0 | | |
| 2003 03 28 | 691 | 0.5+ | 0.4− | 2005 12 29 | G96 | 0.4− | 0.4− | 2009 11 20 | G96 | 0.1+ | 0.1+ | | |
| 2003 03 30 | 644 | 0.6+ | 0.6+ | 2007 04 15 | 703 | 0.3+ | 0.7+ | 2009 11 20 | G96 | 0.2+ | 0.2+ | | |
| 2003 03 30 | 644 | 0.2+ | 0.5+ | 2007 04 15 | 703 | 1.4− | 0.3− | 2009 11 21 | 691 | 0.1− | 0.2− | | |
| 2003 03 30 | 644 | 0.7+ | 0.8+ | 2007 04 15 | 703 | 0.0 | 0.5− | 2009 11 21 | 691 | 0.5− | 0.1− | | |
| 2003 04 10 | 691 | 0.5− | 0.5+ | 2007 04 15 | 703 | 0.2− | 0.2+ | 2009 11 21 | 691 | 0.3+ | 0.2+ | | |
| 2003 04 10 | 691 | 0.8− | 0.4+ | 2007 04 19 | 699 | (0.3− | 1.9+) | 2009 12 10 | G96 | 0.5+ | 0.2− | | |
| 2003 04 10 | 691 | 0.7− | 0.4+ | 2007 04 19 | 699 | 0.2+ | 0.8+ | 2009 12 10 | G96 | 0.5+ | 0.4− | | |
| 2005 10 22 | 691 | 0.2+ | 0.3+ | 2007 04 19 | 699 | 0.9+ | 0.3+ | 2009 12 10 | G96 | 0.4+ | 0.3− | | |
| 2005 10 22 | 691 | 0.2+ | 0.2+ | 2007 04 19 | 699 | 0.2+ | 0.4+ | 2009 12 10 | G96 | 0.7+ | 0.4− | | |
| 2005 10 22 | 691 | 0.0 | 1.2+ | 2007 04 20 | 704 | 0.9+ | 0.1− | 2009 12 19 | G96 | 0.2+ | 0.4− | | |
| 2005 10 27 | 691 | 0.1− | 0.4+ | 2007 04 20 | 704 | (1.8+ | 0.8+) | 2009 12 19 | G96 | 0.3+ | 0.0 | | |
| 2005 10 27 | 691 | 0.1− | 0.4+ | 2007 04 20 | G96 | 0.2− | 0.0 | 2009 12 19 | G96 | 0.6+ | 0.2− | | |
| 2005 10 27 | 691 | 0.0 | 0.2+ | 2007 04 20 | 704 | (1.8+ | 0.8+) | 2009 12 19 | G96 | 0.8+ | 0.1− | | |
| 2005 10 29 | G96 | 0.3− | 0.4− | 2007 04 20 | G96 | 0.1− | 0.1+ | | | | | | |
| 2005 10 29 | G96 | 0.0 | 0.2− | 2007 04 20 | G96 | 0.0 | 0.1+ | | | | | | |

**(228844)∗ 2003 EX$_{51}$ = 2005 UJ$_{397}$**

Discovered 2003 Mar. 11 by NEAT at Palomar.

Id. G. V. Williams (*MPO* 94937)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 3.97350 | | (2000.0) | | | |
| $n$ | 0.27003653 | $\omega$ | 38.52892 | | −0.26946275 | −0.96156935 |
| $a$ | 2.3705787 | $\Omega$ | 67.15922 | | +0.86878004 | −0.26632811 |
| $e$ | 0.1627922 | $i$ | 3.27637 | | +0.41546487 | −0.06673628 |
| $P$ | 3.65 | $H$ | 17.2 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 03 11 | 644 | 0.0 | 0.5+ | 2005 11 06 | 704 | 0.6− | 1.0+ | 2007 04 26 | 691 | 0.1+ | 0.2+ | | |
| 2003 03 11 | 644 | 0.7+ | 0.7+ | 2005 11 06 | 704 | 0.2− | 1.1+ | 2007 04 26 | 691 | 0.1+ | 0.1+ | | |
| 2003 03 11 | 644 | 0.3+ | 0.3+ | 2005 11 06 | 704 | 0.2− | 0.6+ | 2007 05 09 | G96 | 0.2+ | 0.1+ | | |
| 2003 03 12 | 644 | 0.5+ | 0.9+ | 2005 11 10 | 703 | 0.5− | 0.0 | 2007 05 09 | G96 | 0.0 | 0.1− | | |
| 2003 03 12 | 644 | 0.6+ | 1.2+ | 2005 11 10 | 703 | 0.9+ | 1.2+ | 2007 05 09 | G96 | 0.3− | 0.4+ | | |
| 2003 03 12 | 644 | 0.6+ | 0.5+ | 2005 11 10 | 703 | (0.2+ | 2.0+) | 2007 05 09 | G96 | 0.1+ | 0.2− | | |
| 2003 03 25 | 644 | 0.4+ | 0.5+ | 2005 11 10 | 703 | 0.2+ | 1.1+ | 2007 05 14 | 691 | 0.1− | 0.1− | | |
| 2003 03 25 | 644 | 0.2+ | 0.6+ | 2005 11 25 | 703 | 0.0 | 0.2− | 2007 05 14 | 691 | 0.4+ | 0.2− | | |
| 2003 03 25 | 644 | 0.0 | 0.5+ | 2005 11 25 | 703 | 0.5− | 0.4+ | 2007 05 14 | 691 | 0.5+ | 0.1− | | |
| 2003 03 26 | 644 | 0.1+ | 0.7+ | 2005 11 25 | 703 | 0.0 | 0.8− | 2007 05 15 | 291 | 0.3− | 0.0 | | |
| 2003 03 26 | 644 | 0.1− | 0.5+ | 2005 11 25 | 703 | 1.5− | 1.0+ | 2007 05 15 | 291 | 0.0 | 0.1− | | |
| 2003 03 26 | 644 | 0.3+ | 0.6+ | 2005 11 25 | 703 | 0.6− | 1.0+ | 2007 05 15 | 291 | 1.1− | 1.2− | | |
| 2005 10 28 | 703 | 0.0 | 0.0 | 2005 11 25 | 703 | 0.2− | 0.9− | 2009 11 11 | G96 | 0.2+ | 0.1− | | |
| 2005 10 28 | 703 | (1.6+ | 0.9−) | 2005 11 25 | 703 | 0.7− | 0.6+ | 2009 11 11 | G96 | 0.0 | 0.0 | | |
| 2005 10 28 | 703 | 0.2− | 0.8− | 2005 11 25 | 703 | 0.3− | 0.9− | 2009 11 11 | G96 | 0.3+ | 0.0 | | |
| 2005 10 28 | 703 | 0.4+ | 0.1− | 2006 01 21 | G96 | 0.1− | 0.1+ | 2009 12 18 | 691 | 0.1+ | 0.3− | | |
| 2005 10 31 | 704 | 0.6− | 1.1+ | 2006 01 21 | G96 | 0.6+ | 0.2− | 2009 12 18 | 691 | 0.1+ | 0.2− | | |
| 2005 10 31 | 704 | 0.2− | 1.1+ | 2006 01 21 | G96 | 0.2+ | 0.1− | 2009 12 18 | 691 | 0.0 | 0.2− | | |
| 2005 10 31 | 704 | 0.5− | 0.4− | 2006 01 21 | G96 | 0.0 | 0.1− | 2009 12 19 | 691 | 0.2− | 0.3− | | |
| 2005 10 31 | 704 | 0.3+ | 1.0+ | 2007 04 14 | 691 | 0.1+ | 0.1− | 2009 12 19 | 691 | 0.0 | 0.4− | | |
| 2005 10 31 | 704 | 0.2− | 0.1+ | 2007 04 14 | 691 | 0.2+ | 0.7+ | 2009 12 19 | 691 | 0.3− | 0.1− | | |
| 2005 11 05 | 691 | 0.3+ | 0.2+ | 2007 04 14 | 691 | 0.2+ | 0.4+ | 2009 12 27 | 691 | 0.0 | 0.0 | | |
| 2005 11 05 | 691 | 0.0 | 0.3+ | 2007 04 18 | 691 | 0.2+ | 0.2+ | 2009 12 27 | 691 | 0.2− | 0.2− | | |
| 2005 11 05 | 691 | 0.2− | 0.3+ | 2007 04 18 | 691 | 0.2+ | 0.0 | 2009 12 27 | 691 | 0.1+ | 0.0 | | |
| 2005 11 06 | 704 | 0.4− | 0.0 | 2007 04 18 | 691 | 0.2− | 0.3+ | | | | | | |
| 2005 11 06 | 704 | 0.5+ | 0.8+ | 2007 04 26 | 691 | 0.1− | 0.4+ | | | | | | |

**(228845)∗ 2003 EQ$_{54}$ = 2005 WV$_{99}$**

Discovered 2003 Mar. 7 by Spacewatch at Kitt Peak.

Id. A. Doppler (*MPO* 94938)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 337.85659 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26374779 | $\omega$ | 330.30695 | | −0.78212912 | −0.62311005 | |
| $a$ | 2.4081128 | $\Omega$ | 171.14781 | | +0.57523637 | −0.72375708 | |
| $e$ | 0.1298416 | $i$ | 1.04644 | | +0.23953529 | −0.29649545 | |
| $P$ | 3.74 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 11 21 | 704 | (2.0− | 0.9+) | 2005 11 28 | G96 | 0.3− | 0.2− | 2006 02 24 | G96 | 0.4+ | 0.9+ |
| 2001 11 21 | 704 | (2.0− | 1.2+) | 2005 11 28 | G96 | 0.7− | 1.4− | 2006 03 05 | G96 | 0.1− | 0.1− |
| 2001 11 21 | 704 | 1.1− | 0.3+ | 2005 11 28 | G96 | (1.8+ | 1.1−) | 2006 03 05 | G96 | 0.8− | 0.1+ |
| 2003 03 07 | 291 | 0.3+ | 0.2+ | 2005 11 28 | G96 | 0.1− | 0.5− | 2006 03 05 | G96 | 0.5+ | 0.0 |
| 2003 03 07 | 291 | 0.1+ | 0.3+ | 2005 11 30 | 691 | 0.1− | 0.2+ | 2006 03 05 | G96 | 0.3− | 0.0 |
| 2003 03 07 | 291 | 0.2+ | 0.4+ | 2005 11 30 | 691 | 0.0 | 0.2− | 2007 05 24 | G96 | 0.3− | 0.0 |
| 2003 03 08 | 695 | 0.2+ | 0.2+ | 2005 11 30 | 691 | 0.1− | 0.1+ | 2007 05 24 | G96 | 0.0 | 0.0 |
| 2003 03 08 | 695 | 0.3− | 0.3+ | 2005 12 01 | 704 | 1.3+ | 0.9+ | 2007 05 24 | G96 | 0.3− | 0.0 |
| 2003 03 08 | 695 | 0.1+ | 0.1+ | 2005 12 01 | 704 | 0.1+ | 0.6+ | 2007 05 24 | G96 | 0.1+ | 0.2+ |
| 2003 03 08 | 695 | 0.3+ | 0.2+ | 2005 12 01 | 704 | 0.1− | 0.3+ | 2008 09 06 | G96 | 0.3− | 0.9+ |
| 2003 03 08 | 695 | 0.4+ | 0.3+ | 2005 12 04 | 691 | 0.2− | 0.1+ | 2008 09 06 | G96 | 0.2− | 0.8+ |
| 2003 04 09 | 644 | 0.7+ | 0.4+ | 2005 12 04 | 691 | 0.0 | 0.7+ | 2008 09 06 | G96 | 0.1− | 0.5+ |
| 2003 04 09 | 644 | 0.3+ | 0.2+ | 2005 12 04 | 691 | 0.3− | 0.1− | 2008 09 06 | G96 | 0.1+ | 0.7+ |
| 2003 04 09 | 644 | 0.3+ | 0.1+ | 2005 12 04 | 704 | (1.4+ | 1.7+) | 2009 11 16 | G96 | 0.3+ | 0.0 |
| 2003 04 29 | 691 | 0.3+ | 0.3+ | 2005 12 04 | 704 | 1.1+ | 0.2− | 2009 11 16 | G96 | 0.4+ | 0.6− |
| 2003 04 29 | 691 | 0.3+ | 0.2+ | 2005 12 04 | 704 | 0.7+ | 1.3+ | 2009 11 16 | G96 | 0.6+ | 0.3− |
| 2003 04 29 | 691 | 0.3+ | 0.1+ | 2005 12 04 | 704 | (1.7+ | 0.5+) | 2009 11 16 | G96 | 0.2+ | 0.1+ |
| 2003 05 06 | 691 | 0.6− | 0.2− | 2005 12 06 | 704 | 0.4+ | 0.8+ | 2009 12 15 | G96 | 0.2− | 0.5− |
| 2003 05 06 | 691 | 0.3− | 0.2− | 2005 12 06 | 704 | 0.8+ | 0.4+ | 2009 12 15 | G96 | 0.4− | 0.5− |
| 2003 05 06 | 691 | 0.3− | 0.2− | 2005 12 06 | 704 | 0.7+ | 1.0+ | 2009 12 15 | G96 | 0.2− | 0.4− |
| 2005 10 28 | G96 | 0.4− | 0.1− | 2005 12 06 | 704 | 0.0 | 0.7+ | 2009 12 15 | G96 | 0.3− | 0.6− |
| 2005 10 28 | G96 | 0.2− | 0.2− | 2006 02 24 | G96 | 0.4− | 0.2− | 2009 12 17 | 691 | 0.1− | 0.1− |
| 2005 10 28 | G96 | 0.1+ | 0.3− | 2006 02 24 | G96 | 0.6− | 0.1− | 2009 12 17 | 691 | 0.2− | 0.1− |
| 2005 10 28 | G96 | 0.6− | 0.1+ | 2006 02 24 | G96 | 0.2+ | 0.0 | 2009 12 17 | 691 | 0.1− | 0.4− |

**(228846)∗ 2003 EG$_{60}$**

Discovered 2003 Mar. 6 by R. A. Tucker at the Goodricke-Pigott Observatory, Tucson.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 306.40927 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26691974 | $\omega$ | 98.35970 | | −0.99400824 | +0.02849992 | |
| $a$ | 2.3889969 | $\Omega$ | 83.32029 | | −0.06930867 | −0.91085551 | |
| $e$ | 0.1734663 | $i$ | 6.09893 | | +0.08452180 | −0.41174021 | |
| $P$ | 3.69 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 02 09 | 608 | 0.3+ | 0.6− | 2003 04 26 | 704 | 0.1− | 1.0+ | 2006 01 05 | G96 | 0.2+ | 0.2− |
| 2003 02 09 | 608 | 0.1− | 0.3− | 2003 05 05 | 704 | 0.8+ | 0.1+ | 2006 01 05 | G96 | 0.3+ | 0.0 |
| 2003 02 09 | 608 | 0.5+ | 0.7− | 2003 05 05 | 704 | (0.4− | 1.6+) | 2006 01 05 | G96 | 0.1+ | 0.0 |
| 2003 03 06 | 683 | 0.2− | 0.2− | 2003 05 05 | 704 | 0.7+ | 0.3− | 2006 01 05 | G96 | 0.2− | 0.4− |
| 2003 03 06 | 683 | 0.5− | 0.0 | 2003 05 05 | 704 | (0.3− | 1.9+) | 2006 01 21 | G96 | 0.4+ | 0.2− |
| 2003 03 06 | 683 | 0.0 | 0.6− | 2005 11 06 | 691 | 0.1+ | 0.3+ | 2006 01 21 | G96 | 0.1− | 0.4+ |
| 2003 03 09 | 683 | 0.5− | 0.6+ | 2005 11 06 | 691 | 0.0 | 0.0 | 2006 01 21 | G96 | 0.1+ | 0.1− |
| 2003 03 09 | 683 | 0.2− | 1.0− | 2005 11 06 | 691 | 0.2+ | 0.0 | 2006 01 21 | G96 | 0.1+ | 0.3− |
| 2003 03 09 | 683 | 0.2+ | 1.1− | 2005 11 28 | 703 | 0.1+ | 0.3− | 2006 01 23 | G96 | 0.6− | 1.0− |
| 2003 03 26 | 644 | 0.0 | 0.8+ | 2005 11 28 | 703 | 0.4+ | 1.4+ | 2006 01 23 | G96 | 0.9− | 0.7− |
| 2003 03 26 | 644 | 0.3+ | 0.9+ | 2005 11 28 | 703 | 0.9− | 1.4+ | 2006 01 23 | G96 | 0.7− | 0.6− |
| 2003 03 26 | 644 | 0.2− | 0.8+ | 2005 11 28 | 703 | (2.0+ | 0.3+) | 2006 01 23 | G96 | 1.0− | 0.8− |
| 2003 03 31 | 704 | 0.3− | 1.0+ | 2005 12 01 | G96 | 0.2+ | 0.1+ | 2007 06 15 | 704 | 0.4+ | 0.6+ |
| 2003 03 31 | 704 | 0.7− | 0.4+ | 2005 12 01 | G96 | 0.2+ | 0.1+ | 2007 06 15 | 704 | 0.3+ | 0.0 |
| 2003 03 31 | 704 | 0.3+ | 0.3+ | 2005 12 01 | G96 | 0.2+ | 0.3+ | 2007 06 15 | 704 | 0.3+ | 0.9+ |
| 2003 03 31 | 704 | 0.3− | 0.8+ | 2005 12 01 | G96 | 0.1+ | 0.0 | 2007 06 15 | 704 | 0.9− | 0.1+ |
| 2003 04 01 | 704 | 0.1− | 0.1− | 2005 12 04 | 704 | 0.2− | 0.1+ | 2009 11 11 | G96 | 0.3+ | 0.1+ |
| 2003 04 01 | 704 | 0.1− | 0.1+ | 2005 12 04 | 704 | 0.0 | 0.1+ | 2009 11 11 | G96 | 0.5+ | 0.1− |
| 2003 04 01 | 704 | 0.1+ | 0.2− | 2005 12 04 | 704 | 0.2− | 0.5− | 2009 11 11 | G96 | 0.0 | 0.1+ |
| 2003 04 01 | 704 | 0.2+ | 0.2− | 2005 12 04 | 704 | 0.4− | 0.5− | 2009 11 11 | G96 | 0.2+ | 0.3− |
| 2003 04 09 | 704 | 1.1+ | 0.3− | 2005 12 04 | 704 | 0.5− | 0.3+ | 2009 12 18 | G96 | 0.2+ | 0.5− |
| 2003 04 09 | 704 | 1.4+ | 1.0− | 2005 12 04 | 704 | 0.2− | 0.3+ | 2009 12 18 | G96 | 0.1− | 0.0 |
| 2003 04 09 | 704 | 0.4+ | 0.2+ | 2005 12 04 | 704 | 0.4+ | 1.4+ | 2009 12 18 | G96 | 0.0 | 0.2− |
| 2003 04 09 | 704 | (1.8+ | 0.3+) | 2005 12 05 | 704 | 1.1+ | 0.0 | 2009 12 18 | G96 | 0.2+ | 0.1+ |
| 2003 04 09 | 704 | 0.4+ | 0.3+ | 2005 12 05 | 704 | 0.5− | 0.4+ | 2009 12 19 | 691 | 0.2− | 0.1− |
| 2003 04 09 | 691 | 0.0 | 0.2+ | 2005 12 05 | 704 | 0.0 | 0.2+ | 2009 12 19 | 691 | 0.0 | 0.0 |
| 2003 04 09 | 691 | 0.3− | 0.0 | 2005 12 05 | 704 | 0.4+ | 1.2+ | 2009 12 19 | 691 | 0.0 | 0.2− |
| 2003 04 09 | 691 | 0.1− | 0.2+ | 2005 12 05 | 704 | 0.1+ | 0.0 | 2009 12 27 | 691 | 0.2− | 0.2− |
| 2003 04 26 | 704 | 0.4− | 0.3− | 2005 12 25 | 691 | 0.1+ | 0.3− | 2009 12 27 | 691 | 0.0 | 0.2− |
| 2003 04 26 | 704 | (2.0− | 1.1−) | 2005 12 25 | 691 | 0.2− | 0.6+ | 2009 12 27 | 691 | 0.0 | 0.2+ |
| 2003 04 26 | 704 | 0.1+ | 0.3− | 2005 12 25 | 691 | 0.3− | 0.3+ | | | | |

**(228847)∗ 2003 FW**

Discovered 2003 Mar. 20 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 309.77743 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26648435 | $\omega$ | 83.55725 | | −0.86127035 | −0.31809226 | |
| $a$ | 2.3915983 | $\Omega$ | 77.32386 | | +0.12271132 | −0.88695146 | |
| $e$ | 0.2553698 | $i$ | 23.96453 | | +0.49310781 | −0.33486478 | |
| $P$ | 3.70 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 01 16 | 704 | 0.2− | 1.3− | 2003 03 24 | 704 | (2.0+ | 1.0−) | 2007 06 18 | 691 | 0.1+ | 0.0 |
| 1999 01 16 | 704 | 2.0+ | 1.1− | 2003 03 24 | 704 | 1.2+ | 1.0− | 2007 06 18 | 691 | 0.0 | 0.1+ |
| 1999 01 16 | 704 | (3.9+ | 0.7−) | 2003 03 24 | 704 | 1.1+ | 0.6− | 2007 06 22 | 691 | 0.0 | 0.1+ |
| 1999 01 16 | 704 | (2.9+ | 0.5−) | 2003 03 24 | 704 | 1.2+ | 0.5− | 2007 06 22 | 691 | 0.1− | 0.1+ |
| 1999 01 16 | 704 | 0.8− | 0.4+ | 2003 03 24 | 704 | 0.9+ | 0.6− | 2007 06 22 | 691 | 0.1+ | 0.2+ |
| 2003 01 13 | 704 | 0.1− | 0.6+ | 2003 03 26 | 645 | 0.1− | 0.1− | 2009 11 18 | 691 | 0.3− | 0.4+ |
| 2003 01 13 | 704 | 0.6+ | 1.3+ | 2003 03 26 | 645 | 0.0 | 0.1− | 2009 11 18 | 704 | (1.8+ | 0.4+) |
| 2003 01 13 | 704 | 0.3− | 1.0+ | 2003 04 22 | 704 | 0.1+ | 0.1+ | 2009 11 18 | 691 | 0.1− | 0.1+ |
| 2003 01 13 | 704 | 1.3+ | 1.3+ | 2003 04 22 | 704 | 0.1− | 0.3− | 2009 11 18 | 704 | (2.3+ | 0.2+) |
| 2003 02 06 | 699 | 0.0 | 0.4+ | 2003 04 22 | 704 | 0.5− | 0.1+ | 2009 11 18 | 704 | 0.2+ | 0.7+ |
| 2003 02 06 | 699 | 0.1− | 0.4− | 2003 04 22 | 704 | 0.7− | 0.8+ | 2009 11 18 | 691 | 0.3− | 0.1+ |
| 2003 02 06 | 699 | 0.4− | 0.9+ | 2003 04 22 | 704 | 0.1− | 0.4+ | 2009 11 18 | 704 | 0.3+ | 0.3+ |
| 2003 02 06 | 699 | 0.1+ | 0.5− | 2003 04 26 | 645 | 0.1− | 0.0 | 2009 11 19 | 691 | 0.3− | 0.1+ |
| 2003 03 15 | 699 | (3.1+ | 0.7−) | 2003 04 26 | 645 | 0.1− | 0.0 | 2009 11 19 | 691 | 0.2− | 0.1+ |
| 2003 03 15 | 699 | 0.9+ | 1.4+ | 2007 05 11 | G96 | 0.4+ | 0.0 | 2009 11 19 | 691 | 0.6− | 0.0 |
| 2003 03 15 | 699 | 1.4+ | 0.2+ | 2007 05 11 | G96 | 0.2+ | 0.1+ | 2009 11 20 | 704 | 0.0 | 0.5+ |
| 2003 03 15 | 699 | 0.9− | 0.9+ | 2007 05 11 | G96 | 0.0 | 0.0 | 2009 11 20 | 704 | 0.3− | 0.4− |
| 2003 03 15 | 699 | 0.4− | 0.2− | 2007 05 11 | G96 | 0.3+ | 0.1+ | 2009 11 20 | 704 | 1.1+ | 1.1+ |
| 2003 03 15 | 699 | 0.1+ | 1.0− | 2007 06 08 | 703 | 0.1+ | 0.3− | 2009 11 20 | 704 | 0.3− | 0.7+ |
| 2003 03 15 | 699 | 1.3+ | 0.4+ | 2007 06 08 | 703 | 0.1+ | 0.3+ | 2009 12 10 | G96 | 0.1+ | 0.1− |
| 2003 03 15 | 699 | 1.1+ | 0.5+ | 2007 06 08 | 703 | 1.0− | 0.8+ | 2009 12 10 | G96 | 0.1+ | 0.1− |
| 2003 03 20 | 644 | 1.3+ | 1.3+ | 2007 06 08 | 703 | (0.4− | 2.0+) | 2009 12 10 | G96 | 0.2+ | 0.2− |
| 2003 03 20 | 644 | (1.6+ | 1.4+) | 2007 06 13 | 691 | 0.6+ | 0.5+ | 2009 12 10 | G96 | 0.2+ | 0.0 |
| 2003 03 20 | 644 | (1.7+ | 1.4+) | 2007 06 13 | 691 | 0.1+ | 0.0 | 2009 12 16 | 704 | 0.2+ | 0.6+ |
| 2003 03 24 | 645 | 0.1− | 0.0 | 2007 06 13 | 691 | 0.4+ | 0.4+ | 2009 12 16 | 704 | 0.4+ | 0.4+ |
| 2003 03 24 | 645 | 0.1− | 0.0 | 2007 06 18 | 691 | 0.1+ | 0.1+ | 2009 12 16 | 704 | 0.2+ | 0.6+ |

**(228848)∗ 2003 FC$_{31}$**

Discovered 2003 Mar. 23 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 256.73539 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.25468554 | $\omega$ | 119.71346 | | −0.98862544 | +0.09973506 | |
| $a$ | 2.4649031 | $\Omega$ | 66.20888 | | −0.13961122 | −0.88693499 | |
| $e$ | 0.0771606 | $i$ | 7.06686 | | +0.05593251 | −0.45099805 | |
| $P$ | 3.87 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 03 08 | 704 | 1.3+ | 1.1+ | 2005 10 29 | G96 | 0.3− | 0.2− | 2007 03 12 | 703 | 1.3− | 0.6− |
| 2003 03 08 | 704 | 0.1+ | 0.1+ | 2005 10 29 | G96 | 0.1− | 0.4− | 2007 03 12 | 703 | 0.1+ | 0.5− |
| 2003 03 08 | 704 | 0.9+ | 0.3+ | 2005 10 29 | G96 | 0.1− | 0.3− | 2007 03 20 | 703 | 0.4− | 0.3+ |
| 2003 03 08 | 704 | 0.1− | 0.5+ | 2005 10 31 | 691 | 0.1+ | 0.0 | 2007 03 20 | 703 | 1.2+ | 0.2+ |
| 2003 03 23 | 644 | 0.3+ | 0.2+ | 2005 10 31 | 691 | 0.1+ | 0.1− | 2007 03 20 | 703 | 0.9+ | 0.6+ |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 03 23 | 644 | 0.2+ | 0.1+ | 2005 10 31 | 691 | 0.1− | 0.0 | 2007 03 20 | 703 | 0.3+ | 0.0 | |
| 2003 03 23 | 644 | 0.4+ | 0.1− | 2005 12 01 | G96 | 0.1+ | 0.2− | 2008 08 09 | F84 | (0.8− | 4.0+) | |
| 2003 03 26 | 691 | 0.2− | 0.1− | 2005 12 01 | G96 | 0.1+ | 0.2− | 2008 08 09 | F84 | (2.1− | 2.6+) | |
| 2003 03 26 | 691 | 0.2− | 0.2− | 2005 12 01 | G96 | 0.0 | 0.1− | 2009 09 22 | G96 | 0.4− | 0.0 | |
| 2003 03 26 | 691 | 0.3− | 0.0 | 2005 12 01 | G96 | 0.1+ | 0.3− | 2009 09 22 | G96 | 0.5− | 0.0 | |
| 2003 04 10 | 691 | 0.3+ | 0.3− | 2006 01 05 | G96 | 0.1+ | 0.6− | 2009 09 22 | G96 | 0.1− | 0.6+ | |
| 2003 04 10 | 691 | 0.3− | 0.5+ | 2006 01 05 | G96 | 0.2+ | 1.1− | 2009 09 22 | G96 | 0.1− | 0.1− | |
| 2003 04 10 | 691 | 0.1+ | 0.2− | 2006 01 05 | G96 | 0.4+ | 0.1+ | 2009 10 21 | G96 | 0.0 | 0.3+ | |
| 2005 10 22 | 691 | 0.3+ | 0.0 | 2006 01 05 | G96 | 0.0 | 0.1− | 2009 10 21 | G96 | 0.1− | 0.2+ | |
| 2005 10 22 | 691 | 0.1− | 0.1− | 2006 01 23 | G96 | 0.1− | 0.2− | 2009 10 21 | G96 | 0.2+ | 0.2− | |
| 2005 10 22 | 691 | 0.1− | 0.3− | 2006 01 23 | G96 | 0.5+ | 0.2− | 2009 10 21 | G96 | 0.1+ | 0.3+ | |
| 2005 10 27 | 691 | 0.5− | 0.6+ | 2006 01 23 | G96 | 0.5+ | 0.0 | 2009 12 11 | G96 | 0.1+ | 0.3− | |
| 2005 10 27 | 691 | 0.1+ | 0.4+ | 2006 01 23 | G96 | 0.1− | 0.0 | 2009 12 11 | G96 | 0.0 | 0.3− | |
| 2005 10 27 | 691 | 0.0 | 0.4+ | 2007 03 12 | 703 | 1.2− | 0.3+ | 2009 12 11 | G96 | 0.4+ | 0.4− | |
| 2005 10 29 | G96 | 0.1− | 0.2− | 2007 03 12 | 703 | 0.2+ | 0.4− | 2009 12 11 | G96 | 0.4+ | 0.1− | |

**(228849)∗ 2003 FP$_{37}$**

Discovered 2003 Mar. 23 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 355.69291 | | (2000.0) | | | |
| $n$ | 0.27106463 | $\omega$ | 160.81416 | | −0.68050600 | −0.73246176 |
| $a$ | 2.3645807 | $\Omega$ | 332.05775 | | +0.66649328 | −0.60724134 |
| $e$ | 0.1057806 | $i$ | 2.48074 | | +0.30446393 | −0.30782743 |
| $P$ | 3.64 | $H$ | 16.9 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 01 23 | 691 | 0.5− | 0.4− | 2003 04 26 | 691 | 0.5+ | 0.9+ | 2005 12 30 | G96 | 0.1+ | 0.3− | |
| 1999 01 23 | 691 | 0.4− | 0.5− | 2004 12 13 | 568 | 0.1− | 0.1+ | 2006 01 27 | G96 | 0.4− | 0.5+ | |
| 1999 01 23 | 691 | 0.2− | 0.5− | 2004 12 13 | 568 | 0.1− | 0.1+ | 2006 01 27 | G96 | 0.3+ | 0.0 | |
| 2001 10 19 | 644 | 0.0 | 0.9+ | 2004 12 13 | 568 | 0.1− | 0.2+ | 2006 01 27 | G96 | 0.1− | 0.3− | |
| 2001 10 19 | 644 | 0.1− | 1.1+ | 2005 11 11 | 599 | 0.3+ | 0.2+ | 2006 01 27 | G96 | 0.3+ | 0.3− | |
| 2001 10 19 | 644 | 0.0 | 0.9+ | 2005 11 11 | 599 | 0.5+ | 0.1− | 2008 09 07 | G96 | 0.1− | 0.4+ | |
| 2003 03 23 | 691 | 0.1+ | 0.5+ | 2005 11 11 | 599 | 0.8+ | 0.1+ | 2008 09 07 | G96 | 0.1+ | 0.1+ | |
| 2003 03 23 | 691 | 0.3+ | 0.5+ | 2005 11 11 | 599 | 0.4+ | 0.1+ | 2008 09 07 | G96 | 0.2− | 0.2+ | |
| 2003 03 23 | 691 | 0.1− | 0.6+ | 2005 12 02 | 691 | 0.1− | 0.4+ | 2008 09 07 | G96 | 0.6− | 0.2+ | |
| 2003 03 26 | 691 | 0.1+ | 0.1+ | 2005 12 02 | 691 | 0.1+ | 0.3+ | 2008 09 21 | G96 | 0.2− | 0.4+ | |
| 2003 03 26 | 691 | 0.3+ | 0.3+ | 2005 12 02 | 691 | 0.3+ | 0.4+ | 2008 09 21 | G96 | 0.4− | 0.5+ | |
| 2003 03 26 | 691 | 0.0 | 0.0 | 2005 12 04 | 704 | 1.3− | 0.4− | 2008 09 21 | G96 | 0.2+ | 0.5+ | |
| 2003 04 01 | 704 | (0.8− | 2.1−) | 2005 12 04 | 704 | 0.3+ | 0.2+ | 2008 09 21 | G96 | 0.0 | 0.3+ | |
| 2003 04 01 | 704 | (0.4+ | 2.4−) | 2005 12 04 | 704 | 0.0 | 0.3+ | 2008 10 02 | G96 | 0.2+ | 0.5+ | |
| 2003 04 01 | 704 | 1.4− | 0.7+ | 2005 12 04 | 704 | 0.4− | 0.7+ | 2008 10 02 | G96 | 0.1+ | 0.4+ | |
| 2003 04 01 | 704 | (0.8+ | 1.9−) | 2005 12 05 | 691 | 0.3− | 0.4− | 2008 10 02 | G96 | 0.1− | 0.7+ | |
| 2003 04 01 | 644 | 0.6+ | 1.0+ | 2005 12 05 | 691 | 0.4− | 0.3+ | 2008 10 02 | G96 | 0.3− | 0.5+ | |
| 2003 04 01 | 644 | 0.6+ | 1.0+ | 2005 12 05 | 691 | 0.5− | 0.6+ | 2008 10 21 | G96 | 0.4− | 0.1− | |
| 2003 04 01 | 644 | 0.7+ | 1.1+ | 2005 12 05 | 704 | 0.3− | 0.9− | 2008 10 21 | G96 | 0.5− | 0.1+ | |
| 2003 04 03 | 699 | 0.8+ | 0.0 | 2005 12 05 | 704 | 0.1− | 0.1− | 2008 10 21 | G96 | 0.0 | 0.1+ | |
| 2003 04 03 | 699 | (2.1− | 0.0 ) | 2005 12 05 | 704 | 0.5− | 0.3− | 2008 10 21 | G96 | 0.1− | 0.2+ | |
| 2003 04 03 | 699 | 0.2+ | 0.6− | 2005 12 05 | 704 | 0.2+ | 0.2+ | 2009 11 21 | G96 | 0.5− | 0.1+ | |
| 2003 04 03 | 699 | 0.6− | 0.9− | 2005 12 10 | 691 | 1.1+ | 1.3+ | 2009 11 21 | G96 | 0.4− | 0.3− | |
| 2003 04 07 | 691 | 0.5+ | 0.3+ | 2005 12 10 | 691 | 0.3− | 0.7+ | 2009 11 21 | G96 | 0.1− | 0.2− | |
| 2003 04 07 | 691 | 0.5+ | 0.0 | 2005 12 10 | 691 | 0.1+ | 0.5+ | 2009 12 20 | G96 | 0.7− | 0.3+ | |
| 2003 04 07 | 691 | 0.3+ | 0.1+ | 2005 12 30 | G96 | 0.2+ | 0.2− | 2009 12 20 | G96 | 0.5− | 0.2+ | |
| 2003 04 26 | 691 | 0.3+ | 0.7+ | 2005 12 30 | G96 | 0.4+ | 0.1− | 2009 12 20 | G96 | 0.9− | 0.0 | |
| 2003 04 26 | 691 | 0.6+ | 0.9+ | 2005 12 30 | G96 | 0.0 | 0.1− | 2009 12 20 | G96 | 0.1− | 0.2− | |

**(228850)∗ 2003 FZ$_{51}$**

Discovered 2003 Mar. 25 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 233.67292 | | (2000.0) | | | |
| $n$ | 0.26360245 | $\omega$ | 161.83219 | | −0.16585826 | +0.97636414 |
| $a$ | 2.4089979 | $\Omega$ | 98.44394 | | −0.92126241 | −0.10327574 |
| $e$ | 0.2020330 | $i$ | 8.05349 | | −0.35180478 | −0.18986098 |
| $P$ | 3.74 | $H$ | 15.9 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 08 26 | 704 | (3.1− | 1.7−) | 2004 09 14 | 699 | 0.7− | 0.2+ | 2007 06 08 | 699 | 0.2− | 0.1+ | |
| 2000 08 26 | 704 | 0.8− | 0.7− | 2004 09 14 | 699 | 0.8− | 1.4+ | 2007 06 08 | 703 | 0.3− | 0.2+ | |
| 2000 08 26 | 704 | 0.3− | 0.7− | 2004 09 14 | 699 | 0.2+ | 1.1+ | 2007 06 08 | 699 | 0.7+ | 0.1− | |
| 2001 12 17 | 704 | 0.6− | 0.1+ | 2004 09 14 | 699 | 0.2+ | 1.2+ | 2007 06 08 | 703 | 0.1+ | 0.4+ | |
| 2001 12 17 | 704 | 0.3+ | 0.3+ | 2004 10 09 | 699 | 0.5− | 0.2+ | 2007 06 08 | 703 | 0.2− | 0.7+ | |
| 2001 12 17 | 704 | 0.9− | 0.2+ | 2004 10 09 | 699 | 0.8− | 0.3+ | 2007 06 08 | 699 | 0.4+ | 0.4− | |
| 2003 03 25 | 644 | 0.2+ | 0.5+ | 2004 10 09 | 699 | (1.3+ | 1.9+) | 2007 06 16 | 703 | 0.8− | 0.9+ | |
| 2003 03 25 | 644 | 0.2+ | 0.6+ | 2004 10 09 | 699 | 1.4+ | 0.5− | 2007 06 16 | 703 | 0.7− | 0.4+ | |
| 2003 03 25 | 644 | 0.2+ | 0.6+ | 2004 10 20 | 703 | (2.0− | 0.1+) | 2007 06 16 | 703 | 0.2+ | 0.0 | |
| 2003 03 27 | 704 | 0.2− | 0.2− | 2004 10 20 | 703 | (1.6+ | 1.6+) | 2007 06 16 | 703 | 0.9− | 0.1− | |
| 2003 03 27 | 704 | 0.5+ | 0.8+ | 2004 10 20 | 703 | 0.3+ | 1.4+ | 2007 06 19 | 704 | 0.3+ | 0.7+ | |
| 2003 03 27 | 704 | 0.1+ | 0.4− | 2004 10 20 | 703 | 0.5− | 1.0+ | 2007 06 19 | 704 | 0.2+ | 0.4+ | |
| 2003 03 27 | 704 | 0.2+ | 0.0 | 2005 12 01 | 691 | 0.3+ | 0.2+ | 2007 06 19 | 704 | 1.2+ | 0.1− | |
| 2003 03 27 | 704 | 0.2+ | 0.0 | 2005 12 01 | 691 | 0.2+ | 0.1− | 2007 06 19 | 704 | 0.8+ | 0.1+ | |
| 2003 03 27 | 704 | 0.3− | 0.7− | 2005 12 01 | 691 | 0.3+ | 0.0 | 2007 06 19 | 704 | 0.6+ | 0.3− | |
| 2003 03 27 | 704 | 1.1+ | 0.2+ | 2007 04 03 | 644 | 0.1+ | 0.0 | 2008 10 28 | G96 | 0.1+ | 0.3+ | |
| 2003 03 27 | 704 | 0.2− | 0.4+ | 2007 04 03 | 644 | 0.4+ | 0.1+ | 2008 10 28 | G96 | 0.2+ | 0.4+ | |
| 2003 03 27 | 704 | 0.2+ | 0.8+ | 2007 04 03 | 644 | 0.1− | 0.1+ | 2008 10 28 | G96 | 0.3+ | 0.2+ | |
| 2003 04 01 | 703 | 0.1− | 1.0− | 2007 05 10 | 699 | 0.6+ | 0.1+ | 2008 10 28 | G96 | 0.2+ | 0.3+ | |
| 2003 04 01 | 703 | 0.1+ | 1.3+ | 2007 05 10 | 699 | 0.1+ | 0.5− | 2009 11 17 | G96 | 0.1+ | 0.0 | |
| 2003 04 01 | 703 | 0.4+ | 1.1+ | 2007 05 10 | 699 | 0.4+ | 0.1− | 2009 11 17 | G96 | 0.1− | 0.0 | |
| 2003 04 01 | 703 | 0.2+ | 1.0+ | 2007 05 10 | 699 | 0.4+ | 0.4− | 2009 11 17 | G96 | 0.3− | 0.7− | |
| 2003 04 04 | 704 | 0.5− | 0.2+ | 2007 05 17 | 703 | 0.1− | 0.2+ | 2009 11 17 | G96 | 0.5+ | 0.4+ | |
| 2003 04 04 | 704 | 0.0 | 0.3− | 2007 05 17 | 703 | 0.4− | 0.3+ | 2009 12 18 | 691 | 0.2+ | 0.2+ | |
| 2003 04 04 | 704 | 0.1+ | 0.1− | 2007 05 17 | 703 | 0.1− | 0.0 | 2009 12 18 | 691 | 0.0 | 0.1+ | |
| 2003 04 04 | 704 | 0.2+ | 0.2− | 2007 05 17 | 703 | 0.1+ | 0.4+ | 2009 12 18 | 691 | 0.1− | 0.1+ | |
| 2003 04 04 | 704 | 0.6+ | 0.3+ | 2007 05 24 | 703 | 0.4− | 0.2− | 2009 12 26 | 691 | 0.7− | 0.3− | |
| 2004 09 08 | 704 | 0.3− | 0.1− | 2007 05 24 | 703 | 0.1+ | 0.3+ | 2009 12 26 | 691 | 0.1− | 0.4+ | |
| 2004 09 08 | 704 | 0.4− | 0.1+ | 2007 05 24 | 703 | 1.2− | 0.3− | 2009 12 26 | 691 | 0.1− | 0.3− | |
| 2004 09 08 | 704 | 1.1− | 1.4+ | 2007 05 24 | 703 | 0.2− | 0.1+ | | | | | |
| 2004 09 08 | 704 | 0.4+ | 0.4+ | 2007 06 08 | 699 | 0.2+ | 0.3+ | | | | | |

**(228851)∗ 2003 FD$_{65}$**

Discovered 2003 Mar. 26 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 343.11782 | | (2000.0) | | | |
| $n$ | 0.26444304 | $\omega$ | 54.99915 | | −0.57831524 | −0.80882723 |
| $a$ | 2.4038902 | $\Omega$ | 70.68080 | | +0.70688504 | −0.56199871 |
| $e$ | 0.1326343 | $i$ | 6.48213 | | +0.40726531 | −0.17307792 |
| $P$ | 3.73 | $H$ | 16.6 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 10 10 | 644 | 0.6− | 0.7+ | 2005 10 24 | 691 | 0.4+ | 0.3+ | 2005 12 04 | 704 | 1.0+ | 0.1− | |
| 2001 10 10 | 644 | 0.3− | 0.6+ | 2005 10 24 | 691 | 0.1− | 0.0 | 2005 12 04 | G96 | 0.4+ | 0.3− | |
| 2001 10 10 | 644 | 0.5− | 0.6+ | 2005 10 28 | 691 | 0.1+ | 0.2+ | 2005 12 04 | G96 | 0.6− | 0.2− | |
| 2001 10 25 | 645 | 0.0 | 0.0 | 2005 10 28 | 691 | 0.0 | 0.2+ | 2005 12 06 | 704 | (0.4− | 1.7−) | |
| 2001 10 25 | 645 | 0.0 | 0.0 | 2005 10 28 | 691 | 0.0 | 0.2+ | 2005 12 06 | 704 | 0.5+ | 0.5− | |
| 2001 11 18 | 645 | 0.1+ | 0.1− | 2005 10 29 | G96 | 0.1− | 0.3− | 2005 12 06 | 704 | 1.0+ | 0.3+ | |
| 2001 11 18 | 645 | 0.1+ | 0.1− | 2005 10 29 | G96 | 0.2+ | 0.2+ | 2005 12 06 | 704 | 1.3− | 0.5− | |
| 2001 12 10 | 645 | 0.0 | 0.0 | 2005 10 29 | G96 | 0.1− | 0.3− | 2005 12 21 | 699 | 0.4− | 1.2+ | |
| 2001 12 10 | 645 | 0.0 | 0.1+ | 2005 10 29 | G96 | 0.0 | 0.3− | 2005 12 21 | 699 | 1.0− | 0.9− | |
| 2003 03 09 | 704 | 0.6+ | 1.4+ | 2005 11 01 | 691 | 0.0 | 0.3+ | 2005 12 21 | 699 | 0.4− | 0.2− | |
| 2003 03 09 | 704 | 0.2+ | 1.2− | 2005 11 01 | 691 | 0.2− | 0.2+ | 2005 12 21 | 699 | (1.6+ | 0.1−) | |
| 2003 03 09 | 704 | 0.2+ | 0.7− | 2005 11 01 | 691 | 0.1− | 0.2+ | 2006 01 04 | G96 | 0.2− | 0.3− | |
| 2003 03 26 | 644 | 0.6+ | 0.1+ | 2005 11 02 | 704 | 0.2− | 0.2+ | 2006 01 04 | G96 | 0.0 | 0.3− | |
| 2003 03 26 | 644 | 0.4+ | 0.2+ | 2005 11 02 | 704 | 1.4− | 1.1+ | 2006 01 04 | G96 | 0.2− | 0.3− | |
| 2003 03 26 | 644 | 0.7+ | 0.1− | 2005 11 02 | 704 | 0.2+ | 0.1+ | 2006 01 04 | G96 | 0.1− | 0.0 | |
| 2003 03 26 | 691 | 0.0 | 0.5+ | 2005 11 02 | 704 | 0.8− | 1.4+ | 2006 01 23 | G96 | 0.4+ | 0.4− | |
| 2003 03 26 | 691 | 0.0 | 0.2+ | 2005 11 04 | 691 | 0.1+ | 0.3+ | 2006 01 23 | G96 | 0.5− | 0.6− | |
| 2003 03 26 | 691 | 0.1+ | 0.5+ | 2005 11 04 | 691 | 0.1+ | 0.3+ | 2006 01 23 | G96 | 0.1+ | 0.7− | |
| 2003 03 27 | 644 | 0.2+ | 0.8− | 2005 11 04 | 691 | 0.1+ | 0.4+ | 2006 01 23 | G96 | 0.3+ | 0.3− | |
| 2003 03 27 | 644 | 0.2− | 0.7− | 2005 11 06 | 704 | (1.7+ | 0.6+) | 2006 03 04 | G96 | 0.3− | 0.2− | |
| 2003 03 27 | 644 | 0.1+ | 0.6− | 2005 11 06 | 704 | 0.9+ | 1.2+ | 2006 03 04 | G96 | 0.3− | 0.0 | |
| 2003 03 27 | 704 | (2.1+ | 0.5+) | 2005 11 06 | 704 | 0.7− | 0.6+ | 2006 03 04 | G96 | 0.4+ | 0.3− | |
| 2003 03 27 | 704 | 1.0+ | 0.5+ | 2005 11 06 | 704 | 0.9− | 1.3− | 2006 03 04 | G96 | 0.3+ | 0.4− | |
| 2003 03 27 | 704 | 0.6+ | 1.3+ | 2005 11 20 | 699 | 1.2− | 0.6+ | 2007 04 26 | 691 | 0.3+ | 0.3+ | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 03 31 | 699 | 0.1+ | 0.4+ | 2005 11 20 | 699 | 0.5− | 0.4− | 2007 04 26 | 691 | 0.1− | 0.2+ | | |
| 2003 03 31 | 699 | 0.0 | 0.3− | 2005 11 20 | 699 | 1.4− | 0.3− | 2007 04 26 | 691 | 0.2+ | 0.3+ | | |
| 2003 03 31 | 699 | 0.3− | 1.2− | 2005 11 20 | 699 | 0.3+ | 0.7− | 2007 05 12 | G96 | 0.0 | 0.4+ | | |
| 2003 03 31 | 699 | 0.2+ | 1.4+ | 2005 11 22 | 691 | 0.0 | 0.0 | 2007 05 12 | G96 | 0.0 | 0.3+ | | |
| 2003 04 01 | 704 | 0.7+ | 0.4− | 2005 11 22 | 691 | 0.0 | 0.1+ | 2007 05 12 | G96 | 0.1− | 0.0 | | |
| 2003 04 01 | 704 | 1.1+ | 0.3+ | 2005 11 22 | 691 | 0.1− | 0.1+ | 2007 05 12 | G96 | 1.2− | 1.1− | | |
| 2003 04 01 | 704 | 0.1− | 0.2+ | 2005 11 26 | 703 | 0.1− | 1.1− | 2009 11 20 | G96 | 0.3− | 0.3− | | |
| 2003 04 01 | 704 | 1.1+ | 0.3+ | 2005 11 26 | 703 | 0.5+ | 0.1+ | 2009 11 20 | G96 | 0.0 | 0.3− | | |
| 2003 04 01 | 645 | 0.1− | 0.0 | 2005 11 26 | 703 | 0.3− | 0.2+ | 2009 11 20 | G96 | 0.2+ | 0.4− | | |
| 2003 04 01 | 645 | 0.1− | 0.0 | 2005 11 26 | 703 | 0.7− | 0.6− | 2009 11 20 | G96 | 0.1− | 0.4− | | |
| 2003 04 27 | 699 | 1.1− | 0.1+ | 2005 12 04 | 704 | 0.4− | 0.8− | 2009 12 10 | 704 | 0.7+ | 0.4− | | |
| 2003 04 27 | 699 | 0.2− | 0.4+ | 2005 12 04 | 704 | 0.0 | 0.5− | 2009 12 10 | 704 | 0.3+ | 0.2− | | |
| 2003 04 27 | 699 | 0.8− | 1.2− | 2005 12 04 | 704 | 0.3+ | 0.6+ | 2009 12 10 | 704 | 0.2+ | 1.0− | | |
| 2003 04 27 | 699 | 1.1+ | 0.4+ | 2005 12 04 | 704 | 1.4+ | 0.1+ | | | | | | |
| 2005 10 24 | 691 | 0.2+ | 0.1− | 2005 12 04 | G96 | 0.2+ | 0.4− | | | | | | |

**(228852)∗ 2003 FJ$_{77}$ = 2007 EG$_{200}$**

Discovered 2003 Mar. 27 by NEAT at Palomar.

Id. G. V. Williams (*MPO* 119100)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 242.25572 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.24608303 | $\omega$ | 253.98271 | | −0.96231986 | | +0.26822094 |
| $a$ | 2.5220185 | $\Omega$ | 301.55647 | | −0.22509972 | | −0.87800594 |
| $e$ | 0.1115329 | $i$ | 3.00689 | | −0.15254705 | | −0.39643802 |
| $P$ | 4.01 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 03 27 | 644 | 0.1+ | 0.2− | 2007 03 21 | 704 | 0.3+ | 0.8− | 2008 09 07 | G96 | 0.1− | 0.4+ | | |
| 2003 03 27 | 644 | 0.2− | 0.0 | 2007 03 21 | 704 | 0.9+ | 0.7− | 2008 09 07 | G96 | 0.2− | 0.7+ | | |
| 2003 03 27 | 644 | 0.2− | 0.0 | 2007 03 21 | 704 | 0.1+ | 0.4− | 2008 09 21 | G96 | 0.3− | 0.5+ | | |
| 2003 03 28 | 691 | 0.9+ | 0.3+ | 2007 03 21 | 704 | 0.1− | 0.1+ | 2008 09 21 | G96 | 0.7− | 0.6+ | | |
| 2003 03 28 | 691 | 0.0 | 1.0+ | 2007 03 21 | D29 | 0.2− | 0.6− | 2008 09 21 | G96 | 0.6− | 0.5+ | | |
| 2003 03 28 | 691 | 0.5+ | 0.8+ | 2007 03 21 | D29 | 0.8− | 0.3− | 2008 09 21 | G96 | 0.6− | 0.7+ | | |
| 2003 03 31 | 704 | 0.5− | 0.2− | 2007 03 21 | D29 | 0.5− | 0.7− | 2009 11 11 | 691 | 0.1− | 0.3+ | | |
| 2003 03 31 | 704 | 0.3+ | 0.1− | 2007 03 21 | D29 | 0.1− | 0.4− | 2009 11 11 | 691 | 0.1+ | 0.2+ | | |
| 2003 03 31 | 704 | 0.3+ | 1.2+ | 2007 04 18 | 699 | 0.3+ | 0.6− | 2009 11 11 | 691 | 0.0 | 0.3+ | | |
| 2003 03 31 | 704 | 0.3+ | 0.2− | 2007 04 18 | 699 | 0.5− | 0.3+ | 2009 11 26 | 691 | 0.2− | 0.2+ | | |
| 2003 03 31 | 704 | 0.2− | 0.4+ | 2007 04 18 | 699 | 0.0 | 0.3+ | 2009 11 26 | 691 | 0.1+ | 0.0 | | |
| 2003 04 01 | 644 | 0.4− | 0.2+ | 2007 04 18 | 699 | 0.2+ | 0.5+ | 2009 11 26 | 691 | 0.2− | 0.1− | | |
| 2003 04 01 | 644 | 0.2− | 0.2+ | 2007 04 22 | G96 | 0.0 | 0.3− | 2009 12 17 | G96 | 0.4+ | 0.2− | | |
| 2003 04 01 | 644 | 0.3− | 0.1+ | 2007 04 22 | G96 | 0.5− | 0.0 | 2009 12 17 | G96 | 0.1+ | 0.2− | | |
| 2007 03 12 | 691 | 0.3− | 0.4− | 2007 04 22 | G96 | 0.2− | 0.3− | 2009 12 17 | G96 | 0.0 | 0.5+ | | |
| 2007 03 12 | 691 | 0.3+ | 0.3+ | 2007 04 22 | G96 | 0.2− | 0.4− | 2009 12 17 | G96 | 0.0 | 0.0 | | |
| 2007 03 12 | 691 | 0.2− | 0.2− | 2008 09 07 | G96 | 0.0 | 0.7+ | | | | | | |
| 2007 03 21 | 704 | 0.4− | 0.1− | 2008 09 07 | G96 | 1.1+ | 0.1− | | | | | | |

**(228853)∗ 2003 FU$_{84}$**

Discovered 2003 Mar. 28 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 288.73417 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.26268253 | $\omega$ | 221.48039 | | −0.99553836 | | +0.06235152 |
| $a$ | 2.4146189 | $\Omega$ | 321.91897 | | −0.02098498 | | −0.87807029 |
| $e$ | 0.0924237 | $i$ | 6.59354 | | −0.09199461 | | −0.47445215 |
| $P$ | 3.75 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 11 03 | 691 | 0.1+ | 0.1− | 2003 04 01 | 704 | 0.1− | 0.8+ | 2008 09 23 | 152 | (1.7− | 0.1−) | | |
| 1997 11 03 | 691 | 0.3− | 0.0 | 2003 04 01 | 704 | 0.3− | 0.2+ | 2008 09 23 | 152 | 0.9+ | 1.2+ | | |
| 1997 11 03 | 691 | 0.1− | 0.2+ | 2003 04 01 | 704 | 0.0 | 0.2+ | 2008 09 23 | 152 | 1.0− | 0.5− | | |
| 1999 02 10 | 691 | 1.7+ | 1.7+ | 2003 04 01 | 704 | 0.0 | 0.7+ | 2008 09 25 | G96 | 0.1+ | 0.3+ | | |
| 1999 02 10 | 691 | 0.5− | 0.5− | 2003 04 04 | 699 | 0.1+ | 0.0 | 2008 09 25 | G96 | 0.8+ | 0.5+ | | |
| 1999 02 10 | 691 | 0.6− | 0.1− | 2003 04 04 | 699 | 0.2+ | 0.3+ | 2008 09 25 | G96 | 0.2− | 0.4+ | | |
| 1999 02 16 | 691 | 0.3− | 0.7− | 2003 04 04 | 699 | 0.1+ | 1.1+ | 2008 10 08 | G96 | 0.5− | 0.0 | | |
| 1999 02 16 | 691 | 0.3− | 0.1− | 2003 04 04 | 699 | 1.3− | 1.4+ | 2008 10 08 | G96 | 0.3+ | 0.4+ | | |
| 1999 02 16 | 691 | 0.4− | 0.2− | 2004 08 14 | 599 | 0.1+ | 0.6+ | 2008 10 08 | G96 | 0.0 | 0.0 | | |
| 2003 03 07 | 704 | 1.1+ | 0.4− | 2004 08 14 | 599 | 0.3− | 0.8+ | 2008 10 08 | G96 | 0.0 | 0.3+ | | |
| 2003 03 07 | 704 | 0.1+ | 1.0− | 2004 08 15 | 599 | 0.2− | 0.7+ | 2009 10 14 | G96 | 0.2− | 0.0 | | |
| 2003 03 07 | 704 | 0.5+ | 0.2+ | 2007 04 16 | E12 | 0.1+ | 0.1− | 2009 10 14 | G96 | 0.2+ | 0.0 | | |
| 2003 03 07 | 704 | 1.4+ | 1.3− | 2007 04 16 | E12 | 0.8− | 0.4− | 2009 10 14 | G96 | 0.1− | 0.0 | | |
| 2003 03 07 | 704 | 0.7+ | 0.1− | 2007 04 16 | E12 | 0.2− | 0.6+ | 2009 10 14 | G96 | 0.2+ | 0.1+ | | |
| 2003 03 28 | 699 | 1.4+ | 0.2− | 2007 04 16 | E12 | 0.1+ | 0.0 | 2009 12 15 | 704 | (2.4− | 0.6+) | | |
| 2003 03 28 | 699 | (2.6+ | 0.0 ) | 2007 05 11 | E12 | 0.4+ | 0.0 | 2009 12 15 | 704 | (1.4− | 1.6+) | | |
| 2003 03 28 | 699 | 0.6− | 0.1− | 2007 05 11 | E12 | 0.7− | 0.9+ | 2009 12 15 | 704 | 1.0+ | 1.0+ | | |
| 2003 03 28 | 699 | 0.1− | 0.3+ | 2007 05 11 | E12 | 1.2− | 0.3+ | 2009 12 15 | 704 | 0.3− | 1.2+ | | |
| 2003 03 31 | 704 | 1.2+ | 0.8+ | 2007 05 11 | E12 | 0.2+ | 1.0+ | 2009 12 27 | 691 | 0.2+ | 0.3+ | | |
| 2003 03 31 | 704 | 0.5+ | 0.3+ | 2008 09 05 | 691 | 0.2− | 0.4+ | 2009 12 27 | 691 | 0.3− | 0.1+ | | |
| 2003 03 31 | 704 | 0.8+ | 0.0 | 2008 09 05 | 691 | 0.4− | 0.1− | 2009 12 27 | 691 | 0.0 | 0.0 | | |
| 2003 03 31 | 704 | 0.9+ | 0.2+ | 2008 09 05 | 691 | 0.1− | 0.4+ | | | | | | |
| 2003 04 01 | 704 | 0.3+ | 0.4+ | 2008 09 23 | 152 | 0.6+ | 0.8+ | | | | | | |

**(228854)∗ 2003 FP$_{98}$**

Discovered 2003 Mar. 30 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 288.78032 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.25760706 | $\omega$ | 67.08566 | | −0.96630258 | | −0.25086455 |
| $a$ | 2.4462314 | $\Omega$ | 98.34689 | | +0.20961598 | | −0.89692685 |
| $e$ | 0.1593318 | $i$ | 3.34176 | | +0.14940037 | | −0.36412800 |
| $P$ | 3.83 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 07 30 | 807 | 0.4− | 0.1+ | 2003 03 31 | 704 | 0.1− | 1.0+ | 2007 05 12 | 691 | 0.1− | 0.1− | | |
| 2000 07 30 | 807 | 0.4− | 0.3+ | 2003 04 01 | 645 | 0.2− | 0.2− | 2009 11 10 | 691 | 0.3− | 0.2+ | | |
| 2003 03 09 | 704 | 0.8− | 0.5+ | 2003 04 01 | 645 | 0.2− | 0.2− | 2009 11 10 | 691 | 0.2− | 0.0 | | |
| 2003 03 09 | 704 | 0.5+ | 1.2+ | 2004 08 13 | 807 | 0.0 | 0.4+ | 2009 11 10 | 691 | 0.2− | 0.2− | | |
| 2003 03 09 | 704 | (0.9+ | 2.5+) | 2004 08 13 | 807 | 0.0 | 0.4+ | 2009 11 18 | 691 | 0.4− | 0.0 | | |
| 2003 03 09 | 704 | (0.2+ | 1.9+) | 2005 10 31 | 691 | 0.0 | 0.2+ | 2009 11 18 | 691 | 0.0 | 0.3+ | | |
| 2003 03 09 | 704 | (1.4+ | 3.0+) | 2005 10 31 | 691 | 0.1+ | 0.1+ | 2009 11 18 | 691 | 0.0 | 0.1− | | |
| 2003 03 10 | 599 | 0.4+ | 0.0 | 2005 10 31 | 691 | 0.1+ | 0.3+ | 2009 11 20 | A50 | 0.5+ | 0.5+ | | |
| 2003 03 10 | 599 | 0.2+ | 0.2+ | 2007 03 15 | G96 | 0.2+ | 0.0 | 2009 11 20 | A50 | 1.0+ | 0.8+ | | |
| 2003 03 10 | 599 | 1.0+ | 0.1− | 2007 03 15 | G96 | 0.5+ | 0.2− | 2009 11 20 | A50 | 0.8+ | 0.4+ | | |
| 2003 03 10 | 599 | 0.3+ | 0.2− | 2007 03 15 | G96 | 0.1+ | 0.1− | 2009 11 20 | A50 | 1.0+ | 0.6+ | | |
| 2003 03 27 | 704 | 0.3− | 1.3− | 2007 03 15 | G96 | 0.1− | 0.0 | 2009 11 20 | A50 | 0.9+ | 0.0 | | |
| 2003 03 27 | 704 | 0.4+ | 0.8+ | 2007 04 16 | 699 | 0.4− | 0.5+ | 2009 11 22 | 691 | 0.6− | 0.2− | | |
| 2003 03 27 | 704 | 0.6+ | 0.4+ | 2007 04 16 | 699 | (2.4− | 1.2−) | 2009 11 22 | 691 | 0.2− | 0.1− | | |
| 2003 03 27 | 704 | 0.1+ | 0.1− | 2007 04 16 | 699 | 0.3− | 0.1− | 2009 11 22 | 691 | 0.1− | 0.0 | | |
| 2003 03 27 | 704 | (2.0+ | 2.3−) | 2007 04 16 | 699 | 0.7+ | 1.4+ | 2009 11 26 | 691 | 0.1+ | 0.1− | | |
| 2003 03 30 | 704 | 0.5+ | 0.3+ | 2007 04 18 | 691 | 0.2+ | 0.2+ | 2009 11 26 | 691 | 0.1− | 0.1− | | |
| 2003 03 30 | 704 | 0.2+ | 0.9+ | 2007 04 18 | 691 | 0.3− | 0.2− | 2009 11 26 | 691 | 0.1+ | 0.0 | | |
| 2003 03 30 | 704 | 0.5+ | 0.8+ | 2007 04 18 | 691 | 0.3+ | 0.1+ | 2009 12 17 | G96 | 0.4+ | 0.1− | | |
| 2003 03 30 | 704 | 0.9+ | 1.2+ | 2007 05 07 | 691 | 0.1+ | 0.1+ | 2009 12 17 | G96 | 0.4+ | 0.1− | | |
| 2003 03 30 | 704 | 0.5+ | 1.1+ | 2007 05 07 | 691 | 0.2− | 0.2+ | 2009 12 17 | G96 | 0.5+ | 0.1− | | |
| 2003 03 31 | 704 | 0.0 | 0.7+ | 2007 05 07 | 691 | 0.2+ | 0.1+ | 2009 12 17 | G96 | 0.5+ | 0.4− | | |
| 2003 03 31 | 704 | 0.8+ | 0.4+ | 2007 05 12 | 691 | 0.1− | 0.0 | | | | | | |
| 2003 03 31 | 704 | 1.1+ | 0.1+ | 2007 05 12 | 691 | 0.1+ | 0.4− | | | | | | |

**(228855)∗ 2003 FK$_{109}$**

Discovered 2003 Mar. 31 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 329.62723 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.26859185 | $\omega$ | 57.26622 | | −0.94819006 | | −0.31352047 |
| $a$ | 2.3790715 | $\Omega$ | 104.41775 | | +0.27084360 | | −0.88223838 |
| $e$ | 0.1538024 | $i$ | 3.04137 | | +0.16607032 | | −0.35122694 |
| $P$ | 3.67 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 03 09 | 291 | 0.2− | 0.5+ | 2003 05 02 | 691 | 0.1+ | 0.5+ | 2008 09 04 | 691 | 0.4− | 0.4+ | | |
| 2003 03 09 | 291 | 0.4− | 0.4+ | 2003 05 02 | 691 | 0.4+ | 0.3+ | 2008 09 04 | 691 | 0.2− | 0.3+ | | |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 03 09 | 291 | 0.4− | 0.3+ | 2005 10 29 | G96 | 0.2− | 0.2+ | 2009 11 17 | G96 | 0.1+ | 0.4− |
| 2003 03 31 | 699 | 0.5− | 0.3+ | 2005 10 29 | G96 | 0.2− | 0.1− | 2009 11 17 | G96 | 0.1− | 0.0 |
| 2003 03 31 | 699 | 0.1+ | 1.5− | 2005 10 29 | G96 | 0.1− | 0.0 | 2009 11 17 | G96 | 0.5− | 0.1− |
| 2003 03 31 | 699 | 0.9+ | 1.1+ | 2005 10 29 | G96 | 0.1− | 0.0 | 2009 11 21 | G96 | 0.3− | 0.0 |
| 2003 03 31 | 699 | 1.0+ | 0.3+ | 2005 11 22 | 691 | 0.1+ | 0.1+ | 2009 11 21 | G96 | 0.1− | 0.0 |
| 2003 04 01 | 608 | 0.0 | 1.3− | 2005 11 22 | 691 | 0.0 | 0.0 | 2009 11 21 | G96 | 0.4+ | 0.1+ |
| 2003 04 01 | 608 | (0.5+ | 1.8−) | 2005 11 22 | 691 | 0.2+ | 0.4+ | 2009 11 21 | G96 | 0.3− | 0.5+ |
| 2003 04 01 | 608 | 0.1+ | 1.1− | 2005 11 30 | G96 | 0.1− | 0.2+ | 2009 12 17 | G96 | 0.1+ | 0.1− |
| 2003 04 07 | 691 | 0.2+ | 0.0 | 2005 11 30 | G96 | 0.0 | 0.0 | 2009 12 17 | G96 | 0.2+ | 0.2+ |
| 2003 04 07 | 691 | 0.0 | 0.1− | 2005 11 30 | G96 | 0.0 | 0.3+ | 2009 12 17 | G96 | 0.5+ | 0.1+ |
| 2003 04 07 | 691 | 0.0 | 0.2− | 2005 11 30 | G96 | 0.3− | 0.0 | 2009 12 17 | G96 | 0.0 | 0.0 |
| 2003 05 02 | 691 | 0.2+ | 0.2+ | 2008 09 04 | 691 | 0.0 | 0.5+ | | | | |

**(228856)∗ 2003 FN$_{116}$ = 2005 UC$_2$**

Discovered 2003 Mar. 23 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 89460)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 2.28826 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.26502053 | $\omega$ | 44.03221 | | −0.05291010 | | −0.99773981 |
| $a$ | 2.4003968 | $\Omega$ | 49.04606 | | +0.90036513 | | −0.06560484 |
| $e$ | 0.1739426 | $i$ | 3.14405 | | +0.43190642 | | +0.01453510 |
| $P$ | 3.72 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 03 07 | 699 | (2.7+ | 0.1+) | 2005 10 24 | 683 | (0.3+ | 2.5+) | 2005 12 02 | G96 | 0.1− | 0.4− |
| 2003 03 07 | 699 | (1.0+ | 1.8+) | 2005 10 24 | 699 | 0.2− | 0.5+ | 2005 12 02 | G96 | 0.4+ | 0.5− |
| 2003 03 07 | 699 | (1.9+ | 0.4+) | 2005 10 24 | 683 | 0.5− | 0.6+ | 2005 12 28 | G96 | 0.0 | 0.1− |
| 2003 03 07 | 699 | 0.1− | 0.1− | 2005 10 24 | 699 | 0.3+ | 0.1+ | 2005 12 28 | G96 | 0.4+ | 0.2− |
| 2003 03 09 | 704 | 0.3− | 0.5+ | 2005 10 25 | 699 | 0.2− | 0.3− | 2005 12 28 | G96 | 0.2+ | 0.5− |
| 2003 03 09 | 704 | 1.0− | 0.3− | 2005 10 25 | 699 | 0.7− | 0.7+ | 2005 12 28 | G96 | 0.0 | 0.3+ |
| 2003 03 09 | 704 | 1.2+ | 0.6+ | 2005 10 25 | 699 | 0.6− | 0.6− | 2006 01 23 | G96 | 0.1− | 0.2− |
| 2003 03 09 | 704 | 1.4+ | 1.1+ | 2005 10 25 | 699 | 0.6+ | 0.2+ | 2006 01 23 | G96 | 0.0 | 0.0 |
| 2003 03 23 | 691 | 0.1− | 0.2+ | 2005 10 28 | 704 | 0.2− | 0.4+ | 2006 01 23 | G96 | 0.0 | 0.2− |
| 2003 03 23 | 691 | 0.0 | 0.3+ | 2005 10 28 | 704 | 0.2− | 0.5+ | 2006 01 23 | G96 | 0.0 | 0.0 |
| 2003 03 23 | 691 | 0.0 | 0.2+ | 2005 10 28 | 704 | 0.5− | 0.4+ | 2007 03 11 | G96 | 0.1− | 0.1+ |
| 2003 03 26 | 699 | 0.8+ | 0.7+ | 2005 10 28 | G96 | 0.4− | 0.1− | 2007 03 11 | G96 | 0.4+ | 0.4+ |
| 2003 03 26 | 699 | 0.5− | 0.3− | 2005 10 28 | G96 | 0.2+ | 0.1− | 2007 03 11 | G96 | 0.2− | 0.7+ |
| 2003 03 26 | 699 | 0.9+ | 0.2+ | 2005 10 28 | 704 | 0.4− | 1.0+ | 2007 03 11 | G96 | 0.3− | 0.1+ |
| 2003 03 26 | 699 | 0.1− | 1.0+ | 2005 10 28 | G96 | 0.4− | 0.2− | 2007 03 26 | 691 | 0.1− | 0.3− |
| 2003 04 01 | 645 | 0.1− | 0.1+ | 2005 10 28 | G96 | 0.1+ | 0.3− | 2007 03 26 | 691 | 0.5− | 0.0 |
| 2003 04 01 | 645 | 0.1− | 0.1+ | 2005 10 28 | 704 | 0.1− | 0.1+ | 2007 03 26 | 691 | 0.3− | 0.3+ |
| 2003 04 06 | 691 | 0.4+ | 0.2+ | 2005 10 30 | 703 | 0.4− | 0.5− | 2007 04 16 | G96 | 0.2+ | 0.2− |
| 2003 04 06 | 691 | 0.5+ | 0.3+ | 2005 10 30 | 703 | 0.2+ | 0.7+ | 2007 04 16 | G96 | 0.4− | 0.2+ |
| 2003 04 06 | 691 | 0.6+ | 0.2+ | 2005 10 30 | 703 | 0.3− | 0.0 | 2007 04 16 | G96 | 0.2+ | 0.0 |
| 2005 10 01 | 704 | 1.3− | 0.0 | 2005 10 30 | 703 | 1.3− | 0.4− | 2007 04 16 | G96 | 0.0 | 0.0 |
| 2005 10 01 | 704 | 0.0 | 1.0− | 2005 10 31 | 704 | 0.4+ | 0.6− | 2007 05 07 | 691 | 0.0 | 0.3+ |
| 2005 10 01 | 704 | 1.4− | 0.7+ | 2005 10 31 | 704 | 0.7− | 0.2− | 2007 05 07 | 691 | 0.4+ | 0.0 |
| 2005 10 01 | 704 | 0.5+ | 0.0 | 2005 10 31 | 704 | (1.0− | 1.9+) | 2007 05 07 | 691 | 0.3+ | 0.1− |
| 2005 10 05 | 704 | 0.4− | 0.2− | 2005 10 31 | 704 | 0.3− | 1.0+ | 2007 05 09 | G96 | 0.5+ | 0.2+ |
| 2005 10 05 | 704 | 0.4+ | 0.6+ | 2005 10 31 | 704 | 0.3− | 0.5+ | 2007 05 09 | G96 | 0.3− | 0.1+ |
| 2005 10 05 | 704 | 0.2− | 0.8+ | 2005 11 03 | 704 | 0.5− | 0.4+ | 2007 05 09 | G96 | 0.1− | 0.5− |
| 2005 10 05 | 704 | 0.1+ | 0.2+ | 2005 11 03 | 704 | 0.2− | 1.0+ | 2007 05 09 | G96 | 0.6+ | 1.0− |
| 2005 10 07 | 703 | 0.3− | 0.1+ | 2005 11 03 | 704 | 0.4− | 0.5+ | 2009 08 27 | 691 | 0.6− | 0.1− |
| 2005 10 07 | 703 | 0.2+ | 1.5+ | 2005 11 03 | 704 | 0.6− | 1.0+ | 2009 08 27 | 691 | 0.1− | 0.4− |
| 2005 10 07 | 703 | 0.3+ | 0.4− | 2005 11 03 | 704 | 0.6− | 0.4+ | 2009 08 27 | 691 | 0.5− | 1.3− |
| 2005 10 07 | 703 | (1.8− | 0.1−) | 2005 11 05 | 699 | 0.3− | 0.6+ | 2009 12 10 | 704 | 0.3− | 0.8− |
| 2005 10 22 | 691 | 0.0 | 0.3+ | 2005 11 05 | 699 | 0.2+ | 0.6+ | 2009 12 10 | 704 | 0.0 | 0.5+ |
| 2005 10 22 | 691 | 0.5+ | 0.7+ | 2005 11 05 | 704 | 0.9+ | 0.7+ | 2009 12 10 | 704 | 0.4− | 0.7− |
| 2005 10 22 | 691 | 0.1− | 0.2+ | 2005 11 05 | 699 | 0.5+ | 0.1+ | 2009 12 10 | 704 | 0.4− | 0.7− |
| 2005 10 22 | 683 | (1.9+ | 0.7−) | 2005 11 05 | 704 | 0.7+ | 0.3− | 2009 12 10 | 704 | 0.0 | 1.4− |
| 2005 10 22 | 683 | 1.3+ | 0.8+ | 2005 11 05 | 704 | 1.4+ | 0.9+ | 2009 12 16 | 704 | 0.2− | 0.5− |
| 2005 10 22 | 683 | 0.3+ | 0.5− | 2005 11 05 | 699 | 0.3+ | 0.1+ | 2009 12 16 | 704 | 0.5+ | 0.5− |
| 2005 10 23 | 683 | 0.2+ | 1.1+ | 2005 11 25 | G96 | 0.2− | 0.3− | 2009 12 16 | 704 | 0.3+ | 0.1− |
| 2005 10 23 | 683 | 0.8− | 1.5+ | 2005 11 25 | G96 | 0.1+ | 0.6− | 2009 12 16 | 704 | 0.9+ | 0.2− |
| 2005 10 23 | 683 | 1.3− | 1.4+ | 2005 11 25 | G96 | 0.1− | 0.3− | 2009 12 18 | 691 | 0.2+ | 0.0 |
| 2005 10 24 | 699 | 0.5− | 0.1+ | 2005 11 25 | G96 | 0.3+ | 0.2− | 2009 12 18 | 691 | 0.2+ | 0.2− |
| 2005 10 24 | 699 | 0.4+ | 0.6− | 2005 12 02 | G96 | 0.0 | 0.2− | 2009 12 18 | 691 | 0.0 | 0.2− |
| 2005 10 24 | 683 | 1.5− | 1.2+ | 2005 12 02 | G96 | 0.5− | 0.4− | | | | |

**(228857)∗ 2003 FD$_{120}$**

Discovered 2003 Mar. 23 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 337.81285 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.27836492 | $\omega$ | 44.63543 | | −0.93192386 | | −0.34469496 |
| $a$ | 2.3230562 | $\Omega$ | 114.89578 | | +0.28821752 | | −0.89259598 |
| $e$ | 0.0529155 | $i$ | 7.13776 | | +0.22011039 | | −0.29061623 |
| $P$ | 3.54 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 10 23 | 644 | 0.7− | 0.7+ | 2005 12 08 | 704 | 0.3+ | 0.9− | 2007 04 22 | 703 | 0.6+ | 0.0 |
| 2001 10 23 | 644 | 0.3+ | 0.8+ | 2005 12 08 | 704 | 0.0 | 0.4+ | 2007 04 22 | 703 | 0.2− | 1.1− |
| 2001 10 23 | 644 | 0.7− | 1.0+ | 2005 12 08 | 704 | 0.3− | 0.9+ | 2007 05 09 | A50 | 0.3+ | 0.0 |
| 2003 02 01 | 704 | 0.1− | 0.7+ | 2005 12 08 | 704 | 0.1− | 0.1− | 2007 05 09 | A50 | 0.2+ | 0.5− |
| 2003 02 01 | 704 | 0.2− | 0.1− | 2005 12 27 | 703 | 0.5− | 0.1+ | 2007 05 13 | 691 | 0.6− | 1.0+ |
| 2003 02 01 | 704 | 1.1− | 0.1− | 2005 12 27 | 703 | 0.4+ | 0.4+ | 2007 05 13 | 691 | 0.1+ | 0.2− |
| 2003 02 01 | 704 | 0.2+ | 0.6− | 2005 12 27 | 703 | (1.9+ | 0.7+) | 2007 05 13 | 691 | 0.1+ | 0.1− |
| 2003 02 01 | 704 | 0.3− | 0.2+ | 2005 12 27 | 703 | 0.7− | 0.7+ | 2007 05 24 | 703 | 0.4+ | 0.8− |
| 2003 02 28 | 704 | 0.2− | 0.4+ | 2006 01 31 | G96 | 0.2+ | 0.1− | 2007 05 24 | 703 | 1.0+ | 0.6+ |
| 2003 02 28 | 704 | 0.7+ | 0.7+ | 2006 01 31 | G96 | 0.4− | 0.2− | 2007 05 24 | 703 | 1.2− | 0.4− |
| 2003 02 28 | 704 | 0.6+ | 0.3− | 2006 01 31 | G96 | 0.1+ | 0.1− | 2007 05 24 | 703 | 0.0 | 0.4+ |
| 2003 02 28 | 704 | 0.6+ | 0.3+ | 2006 01 31 | G96 | 0.1+ | 0.0 | 2008 10 02 | 703 | (0.4+ | 2.4+) |
| 2003 02 28 | 704 | 0.5+ | 0.3+ | 2006 02 25 | G96 | 0.2− | 0.3− | 2008 10 02 | 703 | (0.3− | 1.7+) |
| 2003 03 23 | 644 | 0.1− | 0.0 | 2006 02 25 | G96 | 0.6+ | 0.0 | 2008 10 02 | 703 | (0.5− | 2.0+) |
| 2003 03 23 | 644 | 0.1− | 0.1+ | 2006 02 25 | G96 | 0.2+ | 0.0 | 2008 10 02 | 703 | (0.5+ | 2.8+) |
| 2003 03 23 | 644 | 0.0 | 0.1+ | 2006 02 25 | G96 | 0.1− | 0.2− | 2009 11 19 | 691 | 0.3− | 0.3+ |
| 2003 03 25 | 699 | 0.2+ | 0.3+ | 2006 03 05 | G96 | 0.3+ | 0.1+ | 2009 11 19 | 691 | 0.2+ | 0.3− |
| 2003 03 25 | 699 | 0.4− | 0.1− | 2006 03 05 | G96 | 0.3− | 0.1− | 2009 11 19 | 691 | 0.0 | 0.1+ |
| 2003 03 25 | 699 | 0.2− | 0.0 | 2006 03 05 | G96 | 1.2+ | 0.4+ | 2009 12 20 | G96 | 0.2+ | 0.2− |
| 2003 03 25 | 699 | (1.9+ | 0.7+) | 2006 03 05 | G96 | 0.1+ | 0.0 | 2009 12 20 | G96 | 0.2+ | 0.2− |
| 2004 07 16 | 807 | 0.1− | 0.3− | 2007 04 22 | 703 | 0.9+ | 0.7+ | 2009 12 20 | G96 | 0.3− | 0.3− |
| 2004 07 16 | 807 | 0.1+ | 0.5+ | 2007 04 22 | 703 | 0.2+ | 0.5+ | 2009 12 20 | G96 | 0.1− | 0.4− |

**(228858)∗ 2003 GL = 1996 TT$_{64}$**

Discovered 2003 Apr. 1 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. A. Doppler (*MPO* 47499)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 302.80970 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.37330475 | $\omega$ | 247.23168 | | +0.24651248 | | −0.96725407 |
| $a$ | 1.9102654 | $\Omega$ | 189.14664 | | +0.96840110 | | +0.24827897 |
| $e$ | 0.1114356 | $i$ | 22.34125 | | +0.03782724 | | −0.05269838 |
| $P$ | 2.64 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 10 13 | 566 | 0.8+ | 1.3− | 2004 09 10 | 704 | 1.0− | 0.4+ | 2004 10 09 | 704 | 0.2+ | 0.8+ |
| 1996 10 13 | 566 | 0.5+ | 0.7− | 2004 09 13 | 704 | 0.4+ | 0.2+ | 2004 10 09 | 704 | 0.2− | 0.4+ |
| 1996 10 13 | 566 | 0.9+ | 0.9− | 2004 09 13 | 704 | 0.6− | 0.4+ | 2004 10 09 | 704 | 0.0 | 0.8+ |
| 1996 10 19 | 910 | 0.1− | 0.5− | 2004 09 13 | 704 | 0.9− | 0.7+ | 2004 10 09 | 704 | 0.0 | 1.0+ |
| 1996 10 19 | 910 | 0.0 | 0.5− | 2004 09 13 | 704 | 0.1+ | 1.0+ | 2004 10 09 | 608 | 0.0 | 1.0− |
| 1996 10 19 | 910 | 0.0 | 0.5− | 2004 09 13 | 704 | 0.2− | 0.0 | 2004 10 09 | 608 | 0.3+ | 0.8− |
| 1999 12 31 | 704 | 1.1− | 0.7− | 2004 09 14 | 644 | 0.4+ | 0.7− | 2004 10 09 | 608 | 1.1+ | 1.2− |
| 1999 12 31 | 704 | 0.6+ | 1.3− | 2004 09 14 | 644 | 0.1+ | 0.0 | 2004 10 15 | 608 | 0.6− | 0.7− |
| 1999 12 31 | 704 | 0.3− | 1.0− | 2004 09 14 | 644 | 0.3+ | 0.1− | 2004 10 15 | 608 | 0.2− | 1.1− |
| 1999 12 31 | 704 | 1.6− | 0.7− | 2004 09 14 | 644 | 0.0 | 0.1− | 2004 10 15 | 608 | 0.7− | 0.6− |
| 2003 02 06 | 608 | 0.3− | 0.2+ | 2004 09 14 | 644 | 0.4+ | 0.1− | 2004 10 18 | 704 | 0.1+ | 0.6+ |
| 2003 02 06 | 608 | 0.4− | 0.5+ | 2004 09 14 | 644 | (0.7+ | 1.6+) | 2004 10 18 | 704 | 0.1+ | 0.4+ |
| 2003 02 06 | 608 | 0.3− | 0.5+ | 2004 09 18 | 704 | 0.0 | 0.0 | 2004 10 18 | 704 | 0.2− | 0.9+ |
| 2003 03 26 | 691 | 0.4+ | 0.5+ | 2004 09 18 | 704 | 0.7+ | 0.6+ | 2004 10 18 | 704 | 0.3− | 0.5+ |
| 2003 03 26 | 691 | 0.2+ | 0.7+ | 2004 09 18 | 704 | 0.1+ | 0.1+ | 2004 10 18 | 704 | 0.6− | 0.6+ |
| 2003 03 26 | 691 | 0.3+ | 0.3+ | 2004 09 18 | 704 | 0.2− | 0.2− | 2004 11 11 | 699 | 0.7+ | 0.1+ |
| 2003 03 27 | 699 | 0.0 | 0.9− | 2004 09 22 | 704 | 0.0 | 0.0 | 2004 11 11 | 699 | 0.4− | 0.1+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 03 27 | 699 | 0.6− | 1.3+ | 2004 09 22 | 704 | 0.2− | 0.0 | 2004 11 11 | 699 | 0.1+ | 0.6+ | | |
| 2003 03 27 | 699 | 0.8− | 0.4+ | 2004 09 22 | 704 | 0.3− | 0.4− | 2004 11 11 | 699 | 0.1− | 0.5+ | | |
| 2003 03 27 | 699 | 0.7− | 0.7+ | 2004 09 22 | 704 | 0.3+ | 0.1+ | 2006 05 24 | 703 | 0.7− | 0.4− | | |
| 2003 04 01 | 704 | 0.7+ | 0.4+ | 2004 09 24 | 704 | 0.9− | 1.2+ | 2006 05 24 | 703 | 0.3− | 0.1− | | |
| 2003 04 01 | 704 | 0.5+ | 0.1− | 2004 09 24 | 704 | 0.2− | 0.7+ | 2006 05 24 | 703 | 0.9− | 0.0 | | |
| 2003 04 01 | 704 | 0.8+ | 0.3+ | 2004 09 24 | 704 | 0.6− | 0.4+ | 2006 05 24 | 703 | 0.0 | 0.8− | | |
| 2003 04 01 | 704 | 0.6+ | 0.1+ | 2004 09 24 | 704 | 0.3− | 0.4+ | 2006 05 27 | 703 | 1.1− | 0.7− | | |
| 2003 04 01 | 704 | 0.2+ | 0.5+ | 2004 10 04 | 691 | 0.1− | 0.2+ | 2006 05 27 | 703 | 0.4− | 0.4− | | |
| 2003 04 04 | 704 | 0.7+ | 0.8+ | 2004 10 04 | 691 | 0.1− | 0.3+ | 2006 05 27 | 703 | 0.6− | 0.3+ | | |
| 2003 04 04 | 704 | 1.2+ | 0.5+ | 2004 10 04 | 691 | 0.2+ | 0.4+ | 2006 05 27 | 704 | 0.9− | 0.9+ | | |
| 2003 04 04 | 704 | 1.3+ | 0.1+ | 2004 10 05 | 683 | 0.4+ | 1.3− | 2006 05 27 | 703 | 0.4− | 0.1+ | | |
| 2003 04 04 | 704 | 1.5+ | 0.9+ | 2004 10 05 | 683 | 0.6+ | 0.6− | 2006 05 27 | 704 | 0.3− | 0.6+ | | |
| 2003 04 04 | 704 | 0.8+ | 0.6+ | 2004 10 05 | 683 | 0.6+ | 0.4− | 2006 05 27 | 704 | (1.3− | 3.6+) | | |
| 2003 04 07 | 691 | 0.7− | 0.2− | 2004 10 07 | 704 | 0.2+ | 0.7+ | 2006 05 27 | 704 | (1.9+ | 0.1+) | | |
| 2003 04 07 | 691 | 0.5− | 0.1− | 2004 10 07 | 704 | 0.2+ | 0.5+ | 2006 05 27 | 704 | 0.4− | 0.7+ | | |
| 2003 04 07 | 691 | 0.6− | 0.1− | 2004 10 07 | 704 | 0.3+ | 0.4+ | 2008 03 08 | 704 | 1.3+ | 0.9+ | | |
| 2003 04 08 | 704 | 1.0+ | 0.4− | 2004 10 07 | 704 | 0.9− | 0.6+ | 2008 03 08 | 704 | 0.7− | 0.4+ | | |
| 2003 04 08 | 704 | 0.1− | 1.3+ | 2004 10 07 | 704 | 0.1− | 0.6+ | 2008 03 08 | 704 | 1.1+ | 1.0+ | | |
| 2003 04 08 | 704 | 0.2+ | 0.9− | 2004 10 08 | 699 | 0.0 | 0.3+ | 2008 03 08 | 704 | 0.2− | 1.0+ | | |
| 2003 04 08 | 704 | 0.3+ | 0.4+ | 2004 10 08 | 699 | 0.1+ | 0.2+ | 2009 07 24 | A50 | 0.1− | 0.3+ | | |
| 2003 04 26 | 704 | 0.6− | 1.3+ | 2004 10 08 | 704 | 0.1+ | 0.5+ | 2009 07 24 | A50 | 0.3+ | 0.1+ | | |
| 2003 04 26 | 699 | 0.4+ | 0.4− | 2004 10 08 | 704 | 0.2− | 0.5+ | 2009 07 24 | A50 | 0.9+ | 0.3+ | | |
| 2003 04 26 | 699 | 1.5− | 0.8− | 2004 10 08 | 699 | 0.5+ | 0.6+ | 2009 07 24 | A50 | 0.0 | 0.2+ | | |
| 2003 04 26 | 704 | 0.9+ | 0.5+ | 2004 10 08 | 704 | 0.3+ | 1.0+ | 2009 07 25 | 704 | 1.5+ | 0.3+ | | |
| 2003 04 26 | 699 | 0.5− | 0.2+ | 2004 10 08 | 704 | 0.0 | 0.1+ | 2009 07 25 | 704 | (1.7+ | 0.1−) | | |
| 2003 04 26 | 704 | 0.9+ | 0.7+ | 2004 10 08 | 704 | 0.0 | 0.8+ | 2009 07 25 | 704 | 0.7+ | 0.8− | | |
| 2003 04 26 | 704 | 0.8+ | 0.3+ | 2004 10 08 | 699 | 0.2+ | 0.6+ | 2009 07 25 | 704 | 0.3+ | 0.4− | | |
| 2003 04 26 | 699 | 1.1− | 0.5+ | 2004 10 08 | 704 | 0.6− | 0.8− | 2009 12 19 | G96 | 1.2− | 0.4− | | |
| 2003 04 26 | 704 | 0.0 | 0.5+ | 2004 10 08 | 704 | 0.3+ | 0.8+ | 2009 12 19 | G96 | 0.0 | 0.1+ | | |
| 2004 09 10 | 704 | 0.1+ | 0.5+ | 2004 10 08 | 704 | 0.5− | 0.2+ | 2009 12 19 | G96 | 0.6+ | 0.0 | | |
| 2004 09 10 | 704 | 0.4+ | 0.9+ | 2004 10 08 | 704 | 0.5+ | 0.9+ | 2009 12 19 | G96 | 0.6− | 0.1+ | | |
| 2004 09 10 | 704 | 0.6− | 0.5+ | 2004 10 08 | 704 | 0.6− | 0.3+ | | | | | | |
| 2004 09 10 | 704 | 0.9+ | 0.0 | 2004 10 09 | 704 | 0.2− | 0.9+ | | | | | | |

**(228859)∗ 2003 GY$_3$ = 2001 SL$_{295}$**

Discovered 2003 Apr. 1 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 47503)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 39.83934 | | (2000.0) | | −0.18092547 | −0.98339691 |
| $n$ | 0.27962667 | $\omega$ | 259.13336 | | +0.91674175 | −0.16346648 |
| $a$ | 2.3160627 | $\Omega$ | 201.30579 | | +0.35616083 | −0.07879869 |
| $e$ | 0.1973887 | $i$ | 2.21099 | | | |
| $P$ | 3.52 | $H$ | 16.9 | $G$ 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 09 01 | 691 | (3.1+ | 7.3−) | 2003 04 04 | 691 | 0.3+ | 1.0+ | 2006 01 28 | G96 | 0.1− | 0.1− | | |
| 1994 09 01 | 691 | (7.3+ | 5.3−) | 2003 04 04 | 691 | 0.7+ | 0.9+ | 2006 01 28 | G96 | 0.3+ | 0.1− | | |
| 1994 10 08 | 691 | 0.2− | 0.6+ | 2003 04 07 | 291 | 0.6+ | 0.7+ | 2006 01 28 | G96 | 0.1+ | 0.1− | | |
| 1994 10 08 | 691 | 0.1− | 1.1+ | 2003 04 07 | 291 | 0.4+ | 0.8+ | 2008 08 21 | 691 | 0.4− | 0.1− | | |
| 1994 10 08 | 691 | 0.6− | 1.1+ | 2003 04 07 | 291 | 0.4+ | 0.8+ | 2008 08 21 | 691 | 0.3− | 0.4+ | | |
| 1998 12 22 | 704 | 0.9− | 0.4+ | 2005 11 01 | G96 | 0.2− | 0.1− | 2008 08 21 | 691 | 0.8− | 0.3− | | |
| 1998 12 22 | 704 | 1.4+ | 0.7+ | 2005 11 01 | G96 | 0.1− | 0.1− | 2008 09 07 | G96 | 0.4+ | 0.0 | | |
| 1998 12 22 | 704 | 0.5− | 0.4− | 2005 11 01 | G96 | 0.1− | 0.2− | 2008 09 07 | G96 | 0.1− | 0.1− | | |
| 1998 12 22 | 704 | 0.8− | 0.4− | 2005 11 01 | G96 | 0.1− | 0.0 | 2008 09 07 | G96 | 0.1+ | 0.2+ | | |
| 1998 12 22 | 704 | (3.6− | 1.3−) | 2005 11 30 | 704 | 0.1− | 0.4− | 2008 09 07 | G96 | 0.3+ | 0.1− | | |
| 2001 09 20 | 704 | (0.3− | 1.5+) | 2005 11 30 | 704 | 0.7− | 0.8+ | 2008 09 07 | G96 | 0.4+ | 0.0 | | |
| 2001 09 20 | 704 | 1.1− | 0.9+ | 2005 11 30 | 704 | 0.2− | 0.6− | 2008 09 07 | G96 | 0.4+ | 0.0 | | |
| 2001 09 20 | 704 | 1.1− | 1.3+ | 2005 11 30 | 704 | 0.0 | 0.5− | 2008 09 07 | G96 | 0.3+ | 0.3+ | | |
| 2001 09 20 | 704 | 1.0− | 0.3+ | 2005 12 01 | 691 | 0.2− | 0.2+ | 2008 09 22 | 691 | 0.4+ | 0.0 | | |
| 2001 09 20 | 704 | (1.4− | 1.7+) | 2005 12 01 | 691 | 0.2+ | 0.2+ | 2008 09 22 | 691 | 0.5+ | 0.6+ | | |
| 2001 09 23 | 704 | 0.1− | 1.2+ | 2005 12 01 | 691 | 0.1− | 0.2+ | 2008 09 22 | 691 | 0.0 | 0.2+ | | |
| 2001 09 23 | 704 | 0.6+ | 0.2+ | 2005 12 05 | 691 | 0.2− | 0.4+ | 2008 09 24 | 704 | 0.3− | 0.1+ | | |
| 2001 09 23 | 704 | 0.0 | 0.5+ | 2005 12 05 | 691 | 0.0 | 0.2+ | 2008 09 24 | 704 | 0.3− | 0.8+ | | |
| 2001 09 23 | 704 | 0.6− | 0.0 | 2005 12 05 | 691 | 0.0 | 0.3+ | 2008 09 24 | 704 | 0.1+ | 1.0+ | | |
| 2001 09 23 | 704 | 1.2− | 0.6+ | 2005 12 07 | 704 | 1.4+ | 0.3− | 2009 12 20 | G96 | 0.1− | 0.0 | | |
| 2003 04 01 | 704 | 0.3+ | 1.2+ | 2005 12 07 | 704 | 0.1+ | 0.5+ | 2009 12 20 | G96 | 0.1− | 0.2− | | |
| 2003 04 01 | 704 | 0.1− | 1.3+ | 2005 12 07 | 704 | 0.6+ | 0.2+ | 2009 12 20 | G96 | 0.5− | 1.0+ | | |
| 2003 04 01 | 704 | 0.3− | 1.1+ | 2005 12 07 | 704 | 0.1− | 0.2+ | 2009 12 20 | G96 | 0.1− | 0.2− | | |
| 2003 04 01 | 704 | 1.0+ | 0.9+ | 2005 12 07 | 704 | 0.1− | 0.5− | 2009 12 25 | 691 | 0.1+ | 0.0 | | |
| 2003 04 03 | 699 | 1.2+ | 0.0 | 2005 12 09 | 704 | 0.2+ | 0.4+ | 2009 12 25 | 691 | 0.0 | 0.2+ | | |
| 2003 04 03 | 699 | (1.6+ | 1.6+) | 2005 12 09 | 704 | 0.1+ | 0.2− | 2009 12 25 | 691 | 0.4− | 0.1+ | | |
| 2003 04 03 | 699 | 1.1− | 0.2+ | 2005 12 09 | 704 | 0.3+ | 0.4+ | 2009 12 26 | 691 | 0.3− | 0.4− | | |
| 2003 04 03 | 699 | 0.1+ | 1.1+ | 2005 12 09 | 704 | 0.5+ | 1.3+ | 2009 12 26 | 691 | 0.2+ | 0.1+ | | |
| 2003 04 04 | 691 | (0.2+ | 2.2+) | 2006 01 28 | G96 | 0.0 | 0.1+ | 2009 12 26 | 691 | 0.2− | 0.1− | | |

**(228860)∗ 2003 GX$_4$**

Discovered 2003 Apr. 1 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 305.16735 | | (2000.0) | | −0.64086450 | +0.76752631 |
| $n$ | 0.27997338 | $\omega$ | 43.77048 | | −0.73427358 | −0.61821563 |
| $a$ | 2.3141503 | $\Omega$ | 186.41865 | | −0.22390846 | −0.16944852 |
| $e$ | 0.1485658 | $i$ | 7.19527 | | | |
| $P$ | 3.52 | $H$ | 16.0 | $G$ 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 11 17 | 704 | 0.4− | 0.8− | 2003 04 05 | 608 | 0.5+ | 0.0 | 2004 09 22 | 704 | 0.3+ | 1.0+ | | |
| 2001 11 17 | 704 | 0.3− | 1.3+ | 2003 04 08 | 704 | (0.9+ | 2.2−) | 2004 09 22 | 704 | (0.2− | 1.7+) | | |
| 2001 11 17 | 704 | 0.2− | 0.5+ | 2003 04 08 | 691 | 0.1− | 0.4+ | 2004 09 22 | 704 | (1.3− | 1.9+) | | |
| 2001 12 11 | 704 | 0.6− | 1.1+ | 2003 04 08 | 704 | (0.4− | 1.6−) | 2004 09 22 | 704 | 0.4+ | 0.6+ | | |
| 2001 12 11 | 704 | (2.0− | 1.8+) | 2003 04 08 | 704 | 1.3− | 1.0− | 2004 09 22 | 704 | 0.2− | 0.7+ | | |
| 2001 12 11 | 704 | 0.9− | 0.9+ | 2003 04 08 | 691 | 0.1+ | 0.4+ | 2004 10 09 | 704 | (1.5− | 2.0+) | | |
| 2001 12 11 | 704 | (1.0− | 1.6+) | 2003 04 08 | 704 | 0.8− | 0.2+ | 2004 10 09 | 704 | (0.2− | 1.8+) | | |
| 2003 03 10 | 704 | 0.1− | 0.2+ | 2003 04 08 | 691 | 0.3+ | 0.4+ | 2004 10 09 | 704 | (0.6− | 1.7+) | | |
| 2003 03 10 | 704 | 1.3+ | 0.1− | 2003 04 09 | 608 | (0.1+ | 1.6−) | 2004 10 10 | 691 | 0.0 | 0.7+ | | |
| 2003 03 10 | 704 | 0.1− | 0.0 | 2003 04 09 | 608 | 0.6+ | 0.9− | 2004 10 10 | 691 | 0.1− | 0.7+ | | |
| 2003 03 10 | 704 | (1.6+ | 0.5−) | 2003 04 09 | 608 | 0.3+ | 1.3− | 2004 10 10 | 691 | 0.0 | 0.7+ | | |
| 2003 03 10 | 704 | 0.4+ | 0.1− | 2003 04 22 | 703 | 1.2+ | 0.1− | 2007 06 21 | G96 | 0.0 | 0.1− | | |
| 2003 03 10 | 704 | 1.3+ | 1.4+ | 2003 04 22 | 703 | (3.6+ | 0.7+) | 2007 06 21 | G96 | 0.5− | 0.1− | | |
| 2003 03 10 | 704 | 0.3− | 0.0 | 2003 04 22 | 703 | (2.7+ | 0.4−) | 2007 06 21 | G96 | 0.4− | 0.2− | | |
| 2003 03 10 | 704 | 1.3+ | 0.7+ | 2003 04 22 | 703 | 1.3+ | 0.3− | 2007 06 21 | G96 | 0.3− | 0.1− | | |
| 2003 03 10 | 704 | 0.1+ | 0.8− | 2003 04 26 | 691 | 0.5− | 0.1− | 2007 07 15 | 704 | 0.1− | 0.2− | | |
| 2003 03 27 | 644 | 0.0 | 0.0 | 2003 04 26 | 691 | 0.5− | 0.1− | 2007 07 15 | 704 | 0.3+ | 0.4− | | |
| 2003 03 27 | 699 | 0.2− | 0.5− | 2003 04 26 | 691 | 0.6− | 0.1− | 2007 07 15 | 704 | 0.7− | 0.7− | | |
| 2003 03 27 | 699 | 0.2− | 0.0 | 2003 04 27 | 704 | 1.4+ | 1.2+ | 2008 11 02 | G96 | 0.1+ | 0.2+ | | |
| 2003 03 27 | 644 | 0.2+ | 0.0 | 2003 04 27 | 699 | 0.4− | 0.2+ | 2008 11 02 | G96 | 0.3− | 0.2+ | | |
| 2003 03 27 | 699 | 0.7− | 1.1− | 2003 04 27 | 704 | 0.7+ | 0.6+ | 2008 11 02 | G96 | 0.1− | 0.2+ | | |
| 2003 03 27 | 699 | 0.4− | 0.7− | 2003 04 27 | 699 | 0.2+ | 0.0 | 2008 11 02 | G96 | 0.0 | 0.1+ | | |
| 2003 03 27 | 644 | 0.3+ | 0.0 | 2003 04 27 | 704 | (2.6+ | 1.3−) | 2009 12 20 | G96 | 0.2− | 0.1− | | |
| 2003 04 01 | 704 | 0.1− | 0.0 | 2003 04 27 | 699 | 0.2− | 0.2+ | 2009 12 20 | G96 | 0.5+ | 0.1− | | |
| 2003 04 01 | 704 | 0.0 | 0.4− | 2003 04 27 | 704 | 0.3+ | 0.3+ | 2009 12 20 | G96 | 0.2+ | 0.2− | | |
| 2003 04 01 | 704 | 0.2− | 0.2− | 2003 04 27 | 699 | 0.5+ | 0.7+ | 2009 12 20 | G96 | 0.3+ | 0.1+ | | |
| 2003 04 01 | 704 | 0.1− | 0.1+ | 2003 05 01 | 704 | 0.6+ | 0.5+ | 2009 12 26 | 691 | 0.1+ | 0.1+ | | |
| 2003 04 01 | 704 | 0.7+ | 0.2+ | 2003 05 01 | 704 | 0.1+ | 0.7+ | 2009 12 26 | 691 | 0.6− | 0.3− | | |
| 2003 04 03 | 699 | 0.9− | 0.5+ | 2003 05 01 | 704 | 0.6+ | 0.8+ | 2009 12 26 | 691 | 0.3+ | 0.1− | | |
| 2003 04 03 | 699 | 0.4− | 1.4+ | 2003 05 01 | 704 | 0.9+ | 0.3+ | 2009 12 27 | 691 | 0.1+ | 0.1− | | |
| 2003 04 03 | 699 | 0.2− | 0.1− | 2003 05 01 | 704 | 0.7+ | 0.7+ | 2009 12 27 | 691 | 0.0 | 0.3− | | |
| 2003 04 03 | 699 | 1.0− | 0.1− | 2003 05 02 | 691 | 0.0 | 0.3+ | 2009 12 27 | 691 | 0.0 | 0.3− | | |
| 2003 04 05 | 608 | 0.7+ | 0.3− | 2003 05 02 | 691 | 0.1+ | 0.6+ | | | | | | |
| 2003 04 05 | 608 | 0.5+ | 0.0 | 2003 05 02 | 691 | 0.0 | 0.6+ | | | | | | |

**(228861)∗ 2003 GG$_{12}$ = 2005 VO$_{67}$**

Discovered 2003 Apr. 1 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 94970)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 281.39189 | | (2000.0) | | | |
| $n$ | 0.25556632 | $\omega$ | 253.67323 | | −0.98533736 | −0.16787871 |
| $a$ | 2.4592365 | $\Omega$ | 276.65464 | | +0.16589559 | −0.90099858 |
| $e$ | 0.1286899 | $i$ | 1.75659 | | +0.03986139 | −0.40002288 |
| $P$ | 3.86 | $H$ | 17.0 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 03 07 | 704 | (2.5+ | 0.5−) | 2005 11 01 | G96 | 0.2+ | 0.1− | 2007 03 18 | 691 | 0.2− | 0.3+ | | | | |
| 2003 03 07 | 704 | 1.2+ | 0.1− | 2005 11 05 | 691 | 0.2− | 0.2+ | 2007 03 29 | 691 | 0.2+ | 0.1− | | | | |
| 2003 03 07 | 704 | (1.9+ | 0.1+) | 2005 11 05 | 691 | 0.4− | 0.3+ | 2007 03 29 | 691 | 0.1− | 0.1+ | | | | |
| 2003 03 25 | 699 | 0.1+ | 0.3− | 2005 11 05 | 691 | 0.3− | 0.3+ | 2007 03 29 | 691 | 0.1− | 0.2+ | | | | |
| 2003 03 25 | 699 | 0.2+ | 0.6− | 2005 12 06 | 691 | 0.2+ | 0.1− | 2007 04 15 | 704 | (1.7− | 0.7+) | | | | |
| 2003 03 25 | 699 | 0.6− | 0.8− | 2005 12 06 | 691 | 0.7+ | 0.0 | 2007 04 15 | 704 | 0.3− | 0.2+ | | | | |
| 2003 03 25 | 699 | (1.7− | 0.4+) | 2005 12 06 | 691 | 0.1− | 0.2− | 2007 04 15 | 704 | 0.4+ | 1.1− | | | | |
| 2003 03 28 | 691 | 1.3− | 0.5− | 2006 01 27 | G96 | 0.3+ | 0.6− | 2007 04 15 | 704 | (1.5+ | 1.4+) | | | | |
| 2003 03 28 | 691 | 0.1+ | 0.3+ | 2006 01 27 | G96 | 0.7+ | 0.2− | 2009 11 09 | 691 | 0.4− | 0.0 | | | | |
| 2003 03 28 | 691 | 0.1− | 0.1− | 2006 01 27 | G96 | 0.2+ | 0.1− | 2009 11 09 | 691 | 0.2− | 0.1+ | | | | |
| 2003 04 01 | 704 | 0.1+ | 0.1− | 2006 01 27 | G96 | 0.3− | 0.1+ | 2009 11 09 | 691 | 0.4− | 0.3+ | | | | |
| 2003 04 01 | 704 | 1.0+ | 0.4+ | 2007 03 14 | G96 | 0.2− | 0.1+ | 2009 11 25 | 691 | 0.7+ | 0.4− | | | | |
| 2003 04 01 | 704 | (1.8+ | 0.1+) | 2007 03 14 | G96 | 0.1− | 0.1+ | 2009 11 25 | 691 | 0.3− | 0.0 | | | | |
| 2003 04 01 | 704 | 0.5+ | 0.5− | 2007 03 14 | G96 | 0.1− | 0.2+ | 2009 11 25 | 691 | 0.1+ | 0.1+ | | | | |
| 2003 04 05 | 691 | 0.1+ | 0.1− | 2007 03 14 | G96 | 0.1− | 0.2+ | 2009 12 15 | G96 | 0.3+ | 0.2+ | | | | |
| 2003 04 05 | 691 | 0.0 | 0.1+ | 2007 03 14 | 691 | 0.1+ | 0.2+ | 2009 12 15 | G96 | 0.1− | 0.1− | | | | |
| 2003 04 05 | 691 | 0.2+ | 0.2+ | 2007 03 14 | 691 | 0.1+ | 0.2+ | 2009 12 15 | G96 | 0.4+ | 0.4− | | | | |
| 2005 11 01 | G96 | 0.3+ | 0.0 | 2007 03 14 | 691 | 0.1+ | 0.2+ | 2009 12 15 | G96 | 0.8+ | 0.0 | | | | |
| 2005 11 01 | G96 | 0.4− | 0.1− | 2007 03 18 | 691 | 0.4+ | 0.2+ | | | | | | | | |
| 2005 11 01 | G96 | 0.3+ | 0.1+ | 2007 03 18 | 691 | 0.0 | 0.1− | | | | | | | | |

**(228862)∗ 2003 GX$_{31}$**

Discovered 2003 Apr. 8 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 263.20362 | | (2000.0) | | | |
| $n$ | 0.10437612 | $\omega$ | 135.96516 | | −0.98699139 | +0.07766091 |
| $a$ | 4.4675417 | $\Omega$ | 49.03610 | | −0.13885784 | −0.85309743 |
| $e$ | 0.2253130 | $i$ | 10.74410 | | +0.08103396 | −0.51593949 |
| $P$ | 9.44 | $H$ | 13.9 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 01 14 | 644 | 0.0 | 0.7+ | 2003 04 09 | 704 | 0.3+ | 0.8+ | 2003 05 07 | 608 | 0.1− | 0.8− | | | | |
| 2002 01 14 | 644 | 0.1− | 0.6+ | 2003 04 09 | 691 | 0.7+ | 0.7− | 2003 05 07 | 608 | 0.0 | 0.3− | | | | |
| 2002 01 14 | 644 | 0.2− | 0.6+ | 2003 04 09 | 704 | 0.1+ | 0.5+ | 2008 10 03 | 691 | 0.6− | 0.3+ | | | | |
| 2002 01 14 | 644 | 0.1+ | 0.3− | 2003 04 09 | 704 | 0.5− | 0.6+ | 2008 10 03 | 691 | 0.2− | 0.5+ | | | | |
| 2002 01 14 | 644 | 0.1+ | 0.2− | 2003 04 09 | 691 | 0.8+ | 0.6− | 2008 10 03 | 691 | 0.0 | 0.5+ | | | | |
| 2002 01 14 | 644 | 0.0 | 0.4− | 2003 04 09 | 704 | 0.4− | 0.5+ | 2009 11 08 | 691 | 0.2+ | 0.0 | | | | |
| 2002 02 03 | 644 | 0.3+ | 0.5− | 2003 04 09 | 691 | 0.9+ | 0.4− | 2009 11 08 | 691 | 0.1+ | 0.0 | | | | |
| 2002 02 03 | 644 | 0.0 | 0.6− | 2003 04 27 | 699 | 0.2− | 0.9− | 2009 11 08 | 691 | 0.4+ | 0.2+ | | | | |
| 2002 02 03 | 644 | 0.2− | 0.2− | 2003 04 27 | 699 | 1.1− | 0.1+ | 2009 11 21 | 291 | 0.1+ | 0.0 | | | | |
| 2003 03 28 | 644 | 0.0 | 0.2+ | 2003 04 27 | 699 | 0.8− | 1.0+ | 2009 11 21 | 291 | 0.1− | 0.1− | | | | |
| 2003 03 28 | 644 | 0.7− | 0.8+ | 2003 04 27 | 699 | 0.1− | 0.3+ | 2009 11 21 | 291 | 0.2+ | 0.2− | | | | |
| 2003 03 28 | 644 | 0.6− | 0.8+ | 2003 05 01 | 704 | 0.4+ | 0.2+ | 2009 12 18 | G96 | 0.3+ | 0.3− | | | | |
| 2003 04 01 | 704 | 0.1+ | 0.1− | 2003 05 01 | 704 | 0.8+ | 0.7+ | 2009 12 18 | G96 | 0.2+ | 0.4− | | | | |
| 2003 04 01 | 704 | 0.1+ | 0.3+ | 2003 05 01 | 704 | (1.4− | 2.1+) | 2009 12 18 | G96 | 0.1+ | 0.2− | | | | |
| 2003 04 01 | 704 | 0.6− | 0.1+ | 2003 05 01 | 704 | 0.3− | 0.1− | 2009 12 18 | G96 | 0.2+ | 0.2− | | | | |
| 2003 04 08 | 644 | 0.2− | 0.1+ | 2003 05 02 | 691 | 0.3− | 0.5+ | 2009 12 19 | 691 | 0.6− | 0.1+ | | | | |
| 2003 04 08 | 644 | 0.1− | 0.2+ | 2003 05 02 | 691 | 0.4− | 0.4+ | 2009 12 19 | 691 | 0.1− | 0.3− | | | | |
| 2003 04 08 | 644 | 0.1− | 0.0 | 2003 05 02 | 691 | 0.2− | 0.6+ | 2009 12 19 | 691 | 0.3− | 0.4+ | | | | |
| 2003 04 09 | 704 | 0.0 | 0.7+ | 2003 05 07 | 608 | 0.2− | 0.6− | | | | | | | | |

**(228863)∗ 2003 GO$_{32}$**

Discovered 2003 Apr. 8 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 304.75670 | | (2000.0) | | | |
| $n$ | 0.25161317 | $\omega$ | 15.98342 | | −0.82008714 | −0.56841070 |
| $a$ | 2.4849280 | $\Omega$ | 129.18797 | | +0.51523872 | −0.78370019 |
| $e$ | 0.0666060 | $i$ | 4.89063 | | +0.24897016 | −0.25044617 |
| $P$ | 3.92 | $H$ | 16.2 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 11 03 | 589 | 0.3+ | 0.2+ | 2005 11 06 | G96 | 0.1− | 0.2− | 2007 03 15 | G96 | 0.3+ | 0.1− | | | | |
| 1997 11 03 | 589 | 0.0 | 1.4+ | 2005 11 06 | G96 | 0.0 | 0.1− | 2007 03 15 | G96 | 0.1− | 0.0 | | | | |
| 1997 11 03 | 589 | (3.7− | 0.8−) | 2005 11 20 | 644 | 0.1+ | 0.2− | 2007 04 15 | 703 | (0.6− | 2.3+) | | | | |
| 1997 11 03 | 589 | 0.6− | 0.5− | 2005 11 20 | 644 | 0.2+ | 0.1− | 2007 04 15 | 703 | 0.1− | 0.9+ | | | | |
| 2000 07 05 | 691 | 0.1− | 0.6+ | 2005 11 20 | 644 | 0.2− | 0.1+ | 2007 04 15 | 703 | (0.8+ | 2.0+) | | | | |
| 2000 07 05 | 691 | 0.2− | 0.7+ | 2005 11 25 | 703 | 0.5+ | 0.5− | 2007 04 15 | 703 | 0.7+ | 0.8+ | | | | |
| 2000 07 05 | 691 | 0.1+ | 0.6+ | 2005 11 25 | 703 | 0.1+ | 0.1+ | 2007 04 20 | 704 | 0.2− | 0.6− | | | | |
| 2001 11 17 | 704 | 0.2− | 1.1− | 2005 11 25 | 703 | 1.0− | 0.3+ | 2007 04 20 | 704 | 0.8+ | 0.7− | | | | |
| 2001 11 17 | 704 | 0.1+ | 0.5+ | 2005 11 25 | 703 | 0.6+ | 0.1− | 2007 04 20 | 704 | 0.7+ | 0.8+ | | | | |
| 2001 11 17 | 704 | 0.6− | 0.2+ | 2005 11 30 | 704 | 1.1+ | 0.1+ | 2007 04 20 | 704 | 0.0 | 0.2+ | | | | |
| 2001 11 17 | 704 | 0.2− | 0.3+ | 2005 11 30 | 704 | 0.3+ | 1.1+ | 2007 04 20 | 704 | (1.3+ | 1.6+) | | | | |
| 2003 03 22 | 644 | 0.4+ | 0.3+ | 2005 11 30 | 704 | 1.0+ | 1.0+ | 2007 04 26 | G96 | 0.1+ | 0.3− | | | | |
| 2003 03 22 | 644 | 0.6+ | 0.2+ | 2005 11 30 | 704 | 1.4+ | 1.3+ | 2007 04 26 | G96 | 0.1+ | 0.1− | | | | |
| 2003 03 22 | 644 | 0.4+ | 0.2+ | 2005 11 30 | 704 | 0.3− | 1.4+ | 2007 04 26 | G96 | 0.1+ | 0.1− | | | | |
| 2003 04 08 | 644 | 0.9+ | 0.0 | 2005 11 30 | 644 | 0.0 | 0.1+ | 2007 04 26 | G96 | 0.0 | 0.1− | | | | |
| 2003 04 08 | 704 | 0.0 | 0.6+ | 2005 11 30 | 644 | 0.1− | 0.2+ | 2008 09 25 | G96 | 0.4− | 0.5− | | | | |
| 2003 04 08 | 644 | 0.3+ | 0.4+ | 2005 11 30 | 644 | 0.2− | 0.3+ | 2008 09 25 | G96 | 0.1− | 0.3+ | | | | |
| 2003 04 08 | 704 | 0.8+ | 0.3+ | 2005 12 07 | H06 | 1.0− | 0.3+ | 2008 09 25 | G96 | 0.4− | 0.2+ | | | | |
| 2003 04 08 | 704 | 0.5+ | 0.6+ | 2005 12 07 | H06 | 1.0− | 0.2− | 2008 09 25 | G96 | 0.6− | 0.1+ | | | | |
| 2003 04 08 | 704 | (1.3+ | 1.8+) | 2005 12 07 | H06 | 0.5− | 0.5− | 2009 11 26 | 691 | 0.3− | 0.0 | | | | |
| 2003 04 08 | 644 | 0.4+ | 0.6+ | 2005 12 07 | 704 | 0.4− | 0.5+ | 2009 11 26 | 691 | 0.1− | 0.2+ | | | | |
| 2003 04 09 | 691 | 0.8− | 0.2+ | 2005 12 07 | 704 | 0.8+ | 1.5+ | 2009 11 26 | 691 | 0.3− | 0.0 | | | | |
| 2003 04 09 | 691 | 0.4− | 0.2+ | 2005 12 07 | 704 | (1.1+ | 2.8+) | 2009 12 11 | 703 | 0.6− | 0.8+ | | | | |
| 2003 04 09 | 691 | 0.3− | 0.3+ | 2006 01 31 | G96 | 0.6− | 0.2− | 2009 12 11 | 703 | 0.4− | 0.2− | | | | |
| 2003 05 02 | 691 | 0.2+ | 0.1+ | 2006 01 31 | G96 | 0.0 | 0.5+ | 2009 12 11 | 703 | 0.3+ | 0.7+ | | | | |
| 2003 05 02 | 691 | 0.2+ | 0.2− | 2006 01 31 | G96 | 0.1− | 0.1− | 2009 12 11 | 703 | 0.9+ | 0.2+ | | | | |
| 2003 05 02 | 691 | 0.3+ | 0.1+ | 2006 01 31 | G96 | 0.1− | 0.1+ | 2009 12 12 | 704 | 0.7+ | 1.2− | | | | |
| 2005 11 06 | G96 | 0.3+ | 0.0 | 2007 03 15 | G96 | 0.4− | 0.1+ | 2009 12 12 | 704 | 0.5+ | 0.6+ | | | | |
| 2005 11 06 | G96 | 0.1− | 0.1+ | 2007 03 15 | G96 | 0.3+ | 0.1+ | 2009 12 12 | 704 | (0.6+ | 3.0+) | | | | |

**(228864)∗ 2003 GL$_{35}$**

Discovered 2003 Apr. 7 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 331.84366 | | (2000.0) | | | |
| $n$ | 0.26643522 | $\omega$ | 72.53486 | | −0.81903736 | −0.57145867 |
| $a$ | 2.3918923 | $\Omega$ | 72.58442 | | +0.50397714 | −0.75916507 |
| $e$ | 0.1566331 | $i$ | 3.07088 | | +0.27419856 | −0.31161416 |
| $P$ | 3.70 | $H$ | 17.3 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 03 26 | 644 | 0.7+ | 0.2− | 2005 11 01 | 691 | 0.1+ | 0.2+ | 2007 04 19 | G96 | 0.7− | 0.3− | | | | |
| 2003 03 26 | 644 | 0.3+ | 0.1− | 2005 11 12 | 691 | 0.1− | 0.3+ | 2007 04 19 | G96 | 0.4− | 0.1+ | | | | |
| 2003 03 26 | 644 | 0.5+ | 0.0 | 2005 11 12 | 691 | 0.2− | 0.1+ | 2007 04 19 | G96 | 0.0 | 0.1− | | | | |
| 2003 04 07 | 644 | 0.2+ | 0.6+ | 2005 11 12 | 691 | 0.1+ | 0.1+ | 2007 05 25 | G96 | 0.1+ | 0.4− | | | | |
| 2003 04 07 | 644 | 0.5+ | 0.6+ | 2005 11 22 | 691 | 0.0 | 0.4+ | 2007 05 25 | G96 | (1.8− | 1.7−) | | | | |
| 2003 04 07 | 644 | 0.1+ | 0.7+ | 2005 11 22 | 691 | 0.1− | 0.4+ | 2007 05 25 | G96 | 0.3+ | 0.4− | | | | |
| 2003 04 09 | 691 | 0.2+ | 0.2− | 2005 11 22 | 691 | 0.2− | 0.4+ | 2007 05 25 | G96 | 0.1− | 0.1− | | | | |
| 2003 04 09 | 691 | 0.2− | 0.2− | 2005 11 25 | G96 | 0.0 | 0.0 | 2009 11 23 | G96 | 0.2+ | 0.1− | | | | |
| 2003 04 09 | 691 | 0.3− | 0.1− | 2005 11 25 | G96 | 0.0 | 0.1+ | 2009 11 23 | G96 | 0.5+ | 0.6− | | | | |
| 2003 04 25 | 691 | 0.5− | 0.1+ | 2005 11 25 | G96 | 0.0 | 0.1+ | 2009 11 23 | G96 | 0.3− | 0.4− | | | | |
| 2003 04 25 | 691 | 0.2− | 0.0 | 2005 11 25 | G96 | 0.2− | 0.1+ | 2009 11 23 | G96 | 0.5+ | 0.4− | | | | |
| 2003 04 25 | 691 | 0.4− | 0.1+ | 2005 12 04 | G96 | 0.3+ | 0.1+ | 2009 12 18 | G96 | 0.3+ | 0.6− | | | | |
| 2003 05 05 | 691 | 0.7+ | 0.6+ | 2005 12 04 | G96 | 0.2+ | 0.1+ | 2009 12 18 | G96 | 0.4+ | 0.4− | | | | |
| 2003 05 05 | 691 | 0.4+ | 0.8+ | 2005 12 04 | G96 | 0.1− | 0.0 | 2009 12 18 | G96 | 0.2+ | 0.5− | | | | |
| 2003 05 05 | 691 | 0.7+ | 0.5+ | 2005 12 04 | G96 | 0.2+ | 0.0 | 2009 12 18 | G96 | 0.4+ | 0.3− | | | | |
| 2005 10 28 | 691 | 0.1− | 0.3+ | 2006 01 23 | G96 | 0.4+ | 1.4− | 2009 12 19 | 691 | 0.1− | 0.1− | | | | |
| 2005 10 28 | 691 | 0.1+ | 0.0 | 2006 01 23 | G96 | 0.6− | 1.0− | 2009 12 19 | 691 | 0.3− | 0.2− | | | | |
| 2005 10 28 | 691 | 0.1− | 0.2+ | 2006 01 23 | G96 | 0.4+ | 0.2− | 2009 12 19 | 691 | 0.3− | 0.3− | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 2005 11 01 | 691 | 0.2− | 0.1+ | 2006 01 23 | G96 | 0.5+ | 0.6− | |
| 2005 11 01 | 691 | 0.0 | 0.2+ | 2007 04 19 | G96 | 0.0 | 0.5− | |

**(228865)∗ 2003 $GT_{47}$ = 2005 $WB_{64}$**

Discovered 2003 Apr. 8 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. A. Doppler (*MPO* 100434)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 289.58019 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26222586 | $\omega$ | 126.43765 | | −0.96798569 | +0.24691077 | |
| $a$ | 2.4174215 | $\Omega$ | 67.89580 | | −0.24306193 | −0.87716443 | |
| $e$ | 0.1593930 | $i$ | 2.79340 | | −0.06264665 | −0.41184661 | |
| $P$ | 3.76 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 02 23 | 699 | 0.9+ | 0.5+ | 2003 05 01 | 704 | 0.1+ | 0.1+ | 2006 01 07 | G96 | 0.1− | 0.2− |
| 1999 02 23 | 699 | 0.6+ | 0.4+ | 2003 05 01 | 704 | 0.1− | 0.1− | 2006 01 07 | G96 | 0.0 | 0.0 |
| 1999 02 23 | 699 | 0.1+ | 0.4− | 2003 05 01 | 704 | 0.2− | 0.1− | 2006 01 07 | G96 | 0.4− | 0.4+ |
| 2003 03 27 | 644 | 0.1+ | 0.4− | 2003 05 01 | 704 | 0.5+ | 0.2− | 2006 01 07 | G96 | 0.3− | 0.0 |
| 2003 03 27 | 644 | 0.2+ | 0.1− | 2003 05 06 | 691 | 0.2+ | 0.6+ | 2007 05 11 | D35 | 0.3+ | 0.4− |
| 2003 03 27 | 644 | 0.3+ | 0.0 | 2003 05 06 | 691 | 0.2+ | 0.4+ | 2007 05 11 | D35 | 0.6− | 0.4− |
| 2003 04 08 | 704 | 0.6− | 0.7− | 2003 05 06 | 691 | 0.1+ | 0.5+ | 2007 05 11 | D35 | 0.5− | 0.2− |
| 2003 04 08 | 704 | 1.5− | 0.1− | 2004 09 12 | 691 | 0.2− | 0.4+ | 2007 05 13 | 704 | 0.8+ | 0.7+ |
| 2003 04 08 | 704 | 1.0− | 0.1− | 2004 09 12 | 691 | 0.0 | 0.5+ | 2007 05 13 | 704 | (1.6+ | 1.4+) |
| 2003 04 08 | 704 | 0.8− | 0.2− | 2004 09 12 | 691 | 0.1− | 0.3+ | 2007 05 13 | 704 | (3.7+ | 0.6+) |
| 2003 04 11 | 691 | 1.0+ | 0.6− | 2005 11 10 | G96 | 0.2− | 0.1+ | 2008 10 02 | G96 | 0.1− | 0.0 |
| 2003 04 11 | 691 | 0.9+ | 0.8− | 2005 11 10 | G96 | 0.4− | 0.2+ | 2008 10 02 | G96 | 0.2+ | 0.1− |
| 2003 04 11 | 691 | 0.9+ | 0.6− | 2005 11 10 | G96 | 0.1+ | 0.0 | 2008 10 02 | G96 | 0.1+ | 0.2− |
| 2003 04 24 | 691 | 0.2− | 0.5+ | 2005 11 10 | G96 | 0.0 | 0.0 | 2008 10 02 | G96 | 0.4+ | 0.1+ |
| 2003 04 24 | 691 | 0.3− | 0.7+ | 2005 11 25 | G96 | 0.2+ | 0.1+ | 2009 11 11 | G96 | 0.4+ | 0.2− |
| 2003 04 24 | 691 | 0.2− | 0.7+ | 2005 11 25 | G96 | 0.2+ | 0.0 | 2009 11 11 | G96 | 0.2− | 0.0 |
| 2003 04 24 | 291 | 0.4− | 0.0 | 2005 11 25 | G96 | 0.0 | 0.2+ | 2009 11 11 | G96 | 0.1+ | 0.3+ |
| 2003 04 24 | 291 | 0.6− | 0.0 | 2005 11 25 | G96 | 0.0 | 0.1+ | 2009 11 11 | G96 | 0.4+ | 0.5+ |
| 2003 04 24 | 291 | 0.4− | 0.0 | 2005 11 29 | 691 | 0.5− | 0.4+ | 2009 12 18 | G96 | 0.3+ | 0.1− |
| 2003 04 25 | 699 | 1.4− | 0.5− | 2005 11 29 | 691 | 0.2− | 0.3+ | 2009 12 18 | G96 | 0.1+ | 0.1− |
| 2003 04 25 | 699 | 0.5− | 0.6+ | 2005 11 29 | 691 | (1.0+ | 2.2+) | 2009 12 18 | G96 | 0.6+ | 0.0 |
| 2003 04 25 | 699 | 0.1+ | 0.1− | 2005 12 28 | 691 | 0.0 | 0.5− | 2009 12 18 | G96 | 0.5+ | 0.0 |
| 2003 04 25 | 699 | 0.4+ | 1.2+ | 2005 12 28 | 691 | 0.1− | 0.0 | | | | |
| 2003 05 01 | 704 | 0.8− | 0.2+ | 2005 12 28 | 691 | 0.2+ | 0.1+ | | | | |

**(228866)∗ 2003 $HM_4$**

Discovered 2003 Apr. 24 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 136.84265 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22459721 | $\omega$ | 218.77300 | | +0.42751483 | +0.87713288 | |
| $a$ | 2.6804012 | $\Omega$ | 77.52651 | | −0.76353935 | +0.47992294 | |
| $e$ | 0.1834790 | $i$ | 12.94872 | | −0.48398216 | +0.01766028 | |
| $P$ | 4.39 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 04 09 | 691 | 0.3− | 0.2+ | 2003 05 05 | 704 | 0.7+ | 0.0 | 2007 03 16 | 703 | 0.4− | 1.3− |
| 2003 04 09 | 691 | 0.3+ | 0.1+ | 2003 05 05 | 699 | 0.4− | 0.3− | 2007 03 16 | 703 | 0.3+ | 0.9+ |
| 2003 04 09 | 691 | 0.8+ | 0.2+ | 2003 05 21 | 699 | 0.2+ | 0.0 | 2007 03 16 | 703 | 0.9− | 0.5− |
| 2003 04 24 | 699 | 1.4+ | 0.9+ | 2003 05 21 | 699 | 0.7+ | 0.6+ | 2007 04 14 | 703 | (0.5+ | 3.2+) |
| 2003 04 24 | 699 | 0.2− | 0.3− | 2003 05 21 | 699 | 0.2+ | 0.5− | 2007 04 14 | 703 | (3.2+ | 0.9+) |
| 2003 04 24 | 699 | 0.2+ | 0.2− | 2003 05 21 | 699 | 1.1+ | 0.4− | 2007 04 14 | 703 | 0.2+ | 1.3− |
| 2003 04 24 | 699 | (1.9+ | 0.7+) | 2003 05 27 | 699 | 0.8− | 0.2− | 2007 04 14 | 703 | 0.0 | 0.8+ |
| 2003 04 25 | 691 | 0.2− | 0.3+ | 2003 05 27 | 691 | 0.1− | 0.1− | 2008 08 28 | E12 | 1.1− | 0.3+ |
| 2003 04 25 | 691 | 0.2− | 0.6+ | 2003 05 27 | 699 | 0.2+ | 0.8− | 2008 08 28 | E12 | 0.1− | 0.5+ |
| 2003 04 25 | 691 | 0.1+ | 0.8+ | 2003 05 27 | 691 | 0.0 | 0.1− | 2008 08 28 | E12 | 0.1+ | 0.1+ |
| 2003 05 02 | 704 | 0.7− | 0.6+ | 2003 05 27 | 699 | 0.5− | 0.7+ | 2008 08 28 | E12 | 0.7+ | 0.4− |
| 2003 05 02 | 704 | 0.6− | 1.0+ | 2003 05 27 | 699 | 0.9− | 0.2− | 2009 11 21 | 691 | 0.6− | 0.2+ |
| 2003 05 02 | 704 | 0.3− | 0.0 | 2003 05 27 | 691 | 0.1− | 0.2+ | 2009 11 21 | 691 | 0.5− | 0.4+ |
| 2003 05 05 | 699 | 0.4+ | 0.5− | 2004 09 21 | 699 | (2.1− | 0.0 ) | 2009 11 21 | 691 | 0.9+ | 0.5+ |
| 2003 05 05 | 704 | 0.9+ | 0.1+ | 2004 09 21 | 699 | 0.2+ | 0.7+ | 2009 12 10 | G96 | 0.2+ | 0.4+ |
| 2003 05 05 | 704 | 0.0 | 0.2− | 2004 09 21 | 699 | 0.2− | 1.3+ | 2009 12 10 | G96 | 0.3+ | 0.3+ |
| 2003 05 05 | 704 | 1.2+ | 0.1− | 2004 09 21 | 699 | 0.3+ | 0.3+ | 2009 12 10 | G96 | 0.3+ | 0.2+ |
| 2003 05 05 | 699 | 0.0 | 0.2− | 2004 10 05 | 644 | 0.6− | 0.1− | 2009 12 19 | G96 | 0.6− | 0.2+ |
| 2003 05 05 | 704 | 0.6− | 0.3− | 2004 10 05 | 644 | 0.8− | 0.1− | 2009 12 19 | G96 | 0.2+ | 0.2+ |
| 2003 05 05 | 704 | 0.9+ | 0.4− | 2004 10 05 | 644 | 0.7− | 0.2− | 2009 12 19 | G96 | 0.1− | 0.0 |
| 2003 05 05 | 699 | 0.2+ | 0.1+ | 2007 03 16 | 703 | 1.2− | 0.8− | 2009 12 19 | G96 | 0.2− | 0.1+ |

**(228867)∗ 2003 $HS_7$ = 1995 $QE_{11}$**

Discovered 2003 Apr. 24 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Id. G. V. Williams (*MPO* 47544)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 130.33226 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21279776 | $\omega$ | 54.52044 | | −0.29509330 | +0.95433152 | |
| $a$ | 2.7785913 | $\Omega$ | 198.48448 | | −0.91732771 | −0.29661816 | |
| $e$ | 0.1056232 | $i$ | 8.45148 | | −0.26726356 | −0.03562318 | |
| $P$ | 4.63 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 08 17 | 691 | 0.0 | 0.4− | 2003 04 28 | 704 | 0.4+ | 0.9+ | 2005 11 06 | 691 | 0.1+ | 0.2+ |
| 1995 08 17 | 691 | 0.3− | 0.4− | 2003 05 01 | 704 | 0.8+ | 0.7− | 2005 11 06 | 691 | 0.2+ | 0.5+ |
| 1995 08 17 | 691 | 0.0 | 0.2+ | 2003 05 01 | 704 | 1.3+ | 1.1− | 2006 10 30 | G96 | 0.5+ | 1.0+ |
| 1995 08 20 | 691 | 0.2+ | 1.1− | 2003 05 01 | 704 | 1.2+ | 0.1− | 2006 10 30 | G96 | (0.1− | 1.8+) |
| 1995 08 20 | 691 | 0.4+ | 1.0− | 2003 05 01 | 704 | 0.2+ | 0.7− | 2006 10 30 | G96 | 0.3+ | 0.1+ |
| 1995 08 20 | 691 | 0.4+ | 1.1− | 2003 05 05 | 704 | 0.1− | 0.3+ | 2006 10 30 | G96 | 0.2− | 0.6− |
| 2003 03 30 | 291 | (1.7− | 0.1+) | 2003 05 05 | 704 | 0.4− | 0.3− | 2007 02 23 | 703 | 0.4+ | 1.0+ |
| 2003 03 30 | 291 | 1.1− | 0.7+ | 2003 05 05 | 704 | 0.1− | 0.3− | 2007 02 23 | 703 | 0.1+ | 0.8− |
| 2003 03 30 | 291 | 1.0− | 0.3+ | 2003 05 05 | 704 | 0.1− | 0.6− | 2007 02 23 | 703 | 0.9− | 0.5− |
| 2003 04 24 | 699 | 1.1+ | 0.6+ | 2003 05 05 | 704 | 0.7+ | 0.3− | 2007 02 23 | 703 | 0.6− | 0.7− |
| 2003 04 24 | 699 | (0.1− | 1.9−) | 2004 09 08 | 704 | 0.3+ | 1.1+ | 2009 10 15 | G96 | 0.1+ | 0.2+ |
| 2003 04 24 | 699 | 0.3− | 0.6− | 2004 09 08 | 704 | 0.5− | 1.3+ | 2009 10 15 | G96 | 0.0 | 0.6+ |
| 2003 04 24 | 699 | 0.3+ | 0.0 | 2004 09 08 | 704 | 0.1− | 1.0+ | 2009 10 15 | G96 | 0.0 | 0.2+ |
| 2003 04 26 | 691 | 0.4+ | 0.1− | 2004 09 08 | 704 | 0.4− | 0.7+ | 2009 10 15 | G96 | 0.2− | 0.3+ |
| 2003 04 26 | 691 | 0.3+ | 0.0 | 2004 09 10 | 704 | 0.4+ | 0.7+ | 2009 12 13 | G96 | 0.2− | 0.0 |
| 2003 04 26 | 691 | 0.1+ | 0.1− | 2004 09 10 | 704 | 0.8− | 1.2+ | 2009 12 13 | G96 | 0.2− | 0.9+ |
| 2003 04 27 | 699 | (1.7− | 0.7−) | 2004 09 10 | 704 | 0.2− | 0.3+ | 2009 12 13 | G96 | 0.3− | 0.5+ |
| 2003 04 27 | 699 | 0.3+ | 0.6+ | 2004 09 10 | 704 | 0.2− | 0.8+ | 2009 12 13 | G96 | 0.3− | 0.4+ |
| 2003 04 27 | 699 | (1.5− | 0.6−) | 2004 09 10 | 704 | 0.5− | 0.5+ | 2009 12 13 | G96 | 0.8− | 0.1− |
| 2003 04 27 | 699 | (0.2+ | 1.6−) | 2004 10 14 | 691 | 0.3+ | 0.5+ | 2009 12 13 | G96 | 0.2+ | 0.0 |
| 2003 04 28 | 704 | 0.6− | 0.3+ | 2004 10 14 | 691 | 0.2− | 0.2+ | 2009 12 13 | G96 | 0.3− | 0.6+ |
| 2003 04 28 | 704 | 0.2− | 1.1+ | 2004 10 14 | 691 | 0.0 | 0.1+ | 2009 12 13 | G96 | 0.5− | 0.3+ |
| 2003 04 28 | 704 | 0.3+ | 0.4+ | 2005 11 06 | 691 | 0.1+ | 0.3+ | | | | |

**(228868)∗ 2003 $HB_{12}$**

Discovered 2003 Apr. 25 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 244.60246 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.25687064 | $\omega$ | 150.22167 | | −0.13943988 | +0.97225262 | |
| $a$ | 2.4509046 | $\Omega$ | 111.21311 | | −0.94367237 | −0.07299140 | |
| $e$ | 0.2287605 | $i$ | 11.62386 | | −0.30006497 | −0.22225459 | |
| $P$ | 3.84 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 12 09 | 691 | 0.3− | 1.2+ | 2003 06 04 | 704 | 0.5+ | 0.4− | 2006 01 08 | 691 | 0.3− | 0.0 |
| 2001 12 09 | 691 | 0.1− | 1.1+ | 2003 06 04 | 704 | 0.5+ | 0.1+ | 2006 01 18 | 703 | 0.5+ | 0.7− |
| 2001 12 09 | 691 | 0.1+ | 1.3+ | 2003 06 22 | 699 | 0.4+ | 0.3− | 2006 01 18 | 703 | 0.3+ | 0.4+ |
| 2003 03 26 | 699 | 0.8− | 0.2− | 2003 06 22 | 699 | 0.2+ | 0.1− | 2006 01 18 | 703 | 0.3− | 0.4− |
| 2003 03 26 | 699 | (3.1− | 1.1+) | 2003 06 22 | 699 | 0.3− | 0.9+ | 2006 01 18 | 703 | 0.6+ | 0.9− |
| 2003 03 26 | 699 | (2.5− | 0.5+) | 2003 06 22 | 699 | 0.2− | 0.3+ | 2006 01 23 | G96 | 0.1+ | 0.5− |
| 2003 03 26 | 699 | 1.1− | 0.3+ | 2003 06 29 | 704 | 0.1+ | 0.3+ | 2006 01 23 | G96 | 0.2+ | 0.6− |
| 2003 04 08 | 704 | (0.0 | 2.1−) | 2003 06 29 | 704 | 0.6+ | 0.7− | 2006 01 23 | G96 | 0.3− | 0.3− |
| 2003 04 08 | 704 | (1.7+ | 0.4+) | 2003 06 29 | 704 | 0.2+ | 0.7− | 2006 01 23 | G96 | 0.0 | 0.4− |
| 2003 04 08 | 704 | (5.3+ | 3.0+) | 2003 06 29 | 704 | 0.1− | 0.7− | 2006 02 07 | G96 | 0.0 | 0.7− |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 04 08 | 704 | (5.2+ | 0.1−) | 2003 07 01 | 704 | (0.2+ | 1.8+) | 2006 02 07 | G96 | 0.6− | 0.3− | | |
| 2003 04 08 | 704 | (4.0+ | 3.1−) | 2003 07 01 | 704 | 0.7+ | 1.0+ | 2006 02 07 | G96 | 0.0 | 0.4− | | |
| 2003 04 25 | 699 | 0.3− | 0.2+ | 2003 07 01 | 704 | 0.2+ | 1.3+ | 2006 02 07 | G96 | 0.1− | 0.4− | | |
| 2003 04 25 | 699 | 0.6− | 0.0 | 2003 07 01 | 704 | 0.8+ | 0.7+ | 2006 04 03 | G96 | 0.2+ | 0.4− | | |
| 2003 04 25 | 699 | 1.1− | 0.1+ | 2003 07 01 | 704 | 0.7+ | 0.4+ | 2006 04 03 | G96 | 0.7+ | 0.0 | | |
| 2003 04 25 | 699 | 0.5− | 0.1+ | 2005 10 06 | G96 | 0.3− | 0.3+ | 2006 04 03 | G96 | 0.0 | 0.1− | | |
| 2003 04 27 | 704 | 0.0 | 0.2+ | 2005 10 06 | G96 | 0.9− | 0.3− | 2006 04 03 | G96 | 0.1+ | 0.6− | | |
| 2003 04 27 | 704 | 0.9− | 1.0+ | 2005 10 06 | G96 | 0.1+ | 0.3+ | 2007 06 19 | 704 | 0.5+ | 0.9+ | | |
| 2003 04 27 | 704 | 0.1− | 0.2− | 2005 10 06 | G96 | 0.5− | 0.2− | 2007 06 19 | 704 | 0.5+ | 0.4− | | |
| 2003 04 27 | 704 | 0.0 | 0.3− | 2005 12 30 | 691 | 0.1− | 0.0 | 2007 06 19 | 704 | 0.7− | 0.8+ | | |
| 2003 04 27 | 704 | 0.7− | 0.1+ | 2005 12 30 | 691 | 0.3+ | 0.1+ | 2008 11 02 | 703 | 1.0− | 0.6− | | |
| 2003 05 07 | 703 | 0.6+ | 0.1+ | 2005 12 30 | 691 | 0.0 | 0.2+ | 2008 11 02 | 703 | (2.4− | 1.0+) | | |
| 2003 05 07 | 703 | 0.4+ | 0.4+ | 2006 01 04 | 691 | 0.3+ | 0.1+ | 2008 11 02 | 703 | 0.5− | 0.3+ | | |
| 2003 05 07 | 703 | 0.1+ | 0.7+ | 2006 01 04 | 691 | 0.0 | 0.0 | 2008 11 02 | 703 | 0.2+ | 0.3+ | | |
| 2003 05 07 | 703 | 0.1− | 0.5+ | 2006 01 04 | 691 | 0.1+ | 0.0 | 2009 11 21 | G96 | 0.2+ | 0.5− | | |
| 2003 05 10 | 704 | 0.2+ | 0.4− | 2006 01 05 | 704 | 0.7− | 0.6+ | 2009 11 21 | G96 | 0.1+ | 0.0 | | |
| 2003 05 10 | 704 | 0.2+ | 0.6+ | 2006 01 05 | 704 | 1.0− | 0.1+ | 2009 11 21 | G96 | 0.7− | 0.6− | | |
| 2003 05 10 | 704 | 0.1− | 0.1+ | 2006 01 05 | 704 | (1.8− | 1.3+) | 2009 11 21 | G96 | 0.5+ | 0.4− | | |
| 2003 05 10 | 704 | 0.1− | 0.2+ | 2006 01 07 | G96 | 0.3− | 0.4− | 2009 12 17 | G96 | 0.3− | 0.6− | | |
| 2003 05 21 | 608 | 0.2+ | 0.9− | 2006 01 07 | G96 | 0.1+ | 0.3− | 2009 12 17 | G96 | 0.3− | 0.3− | | |
| 2003 05 21 | 608 | 0.1+ | 0.7− | 2006 01 07 | G96 | 0.1− | 0.4− | 2009 12 17 | G96 | 0.1− | 0.4− | | |
| 2003 05 21 | 608 | 0.5+ | 0.5− | 2006 01 08 | 691 | 0.5+ | 0.2− | 2009 12 17 | G96 | 0.0 | 0.4− | | |
| 2003 06 04 | 704 | 1.1+ | 0.7+ | 2006 01 08 | 691 | 0.2+ | 0.0 | | | | | | |

**(228869)∗ 2003 HU$_{21}$ = 2005 UA$_{262}$**

Discovered 2003 Apr. 27 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Id. G. V. Williams (*MPO* 89468)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 230.19283 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22761727 | $\omega$ | 333.47425 | | −0.97781321 | −0.20728167 | |
| $a$ | 2.6566392 | $\Omega$ | 194.65779 | | +0.20708545 | −0.93473084 | |
| $e$ | 0.1719591 | $i$ | 6.86793 | | +0.03157435 | −0.28863916 | |
| $P$ | 4.33 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 24 | 691 | 1.0− | 0.5+ | 2005 10 29 | G96 | 0.1+ | 0.4− | 2007 03 09 | 644 | 0.0 | 0.0 | | |
| 2000 09 24 | 691 | 1.2− | 1.3+ | 2005 10 29 | G96 | 0.0 | 0.2− | 2007 03 09 | 644 | 0.1− | 0.0 | | |
| 2000 09 24 | 691 | 1.1− | 0.7+ | 2005 10 30 | 691 | 0.2+ | 0.2+ | 2007 03 09 | 703 | 0.8+ | 1.2+ | | |
| 2001 12 11 | 704 | 0.1+ | 0.7+ | 2005 10 30 | 691 | 0.2+ | 0.2+ | 2007 03 09 | 703 | 0.9+ | 1.4+ | | |
| 2001 12 11 | 704 | 0.8− | 0.4+ | 2005 10 30 | 691 | 0.3+ | 0.6+ | 2007 03 09 | 703 | 0.1+ | 0.3+ | | |
| 2001 12 11 | 704 | 0.2− | 1.3+ | 2005 10 31 | G96 | 0.3+ | 0.0 | 2007 03 09 | 703 | 0.2− | 0.3+ | | |
| 2001 12 11 | 704 | 0.5− | 0.2+ | 2005 10 31 | G96 | 0.3+ | 0.1− | 2007 03 10 | 644 | 0.3− | 0.2+ | | |
| 2003 03 30 | 291 | 0.5+ | 0.6+ | 2005 10 31 | G96 | 0.2+ | 0.3− | 2007 03 10 | 644 | 0.1− | 0.1+ | | |
| 2003 03 30 | 291 | 0.6+ | 0.7+ | 2005 10 31 | G96 | 0.8+ | 0.1− | 2007 03 10 | 644 | 0.2− | 0.2+ | | |
| 2003 03 30 | 291 | 0.2+ | 0.5+ | 2005 11 03 | 691 | 0.1+ | 0.3+ | 2007 03 10 | 644 | 0.3− | 0.1− | | |
| 2003 04 27 | 699 | 0.0 | 0.9+ | 2005 11 03 | 691 | 0.3+ | 0.3+ | 2007 03 10 | 644 | 0.3− | 0.5+ | | |
| 2003 04 27 | 699 | 0.5+ | 0.4+ | 2005 11 03 | 691 | 0.1+ | 0.2+ | 2007 03 10 | 644 | 0.1− | 0.0 | | |
| 2003 04 27 | 699 | 0.8+ | 0.6+ | 2005 12 01 | G96 | 0.1+ | 0.5+ | 2007 03 15 | 703 | 0.9− | 0.3− | | |
| 2003 04 27 | 699 | 0.3− | 0.6+ | 2005 12 01 | G96 | 0.5+ | 0.1− | 2007 03 15 | 703 | 0.8− | 1.3− | | |
| 2003 04 28 | 704 | 0.0 | 0.6− | 2005 12 01 | G96 | 0.2+ | 0.0 | 2007 03 15 | 703 | 0.4+ | 0.2− | | |
| 2003 04 28 | 704 | 0.1+ | 0.1+ | 2005 12 01 | G96 | 0.6+ | 0.1+ | 2007 03 15 | 703 | 0.5− | 0.7− | | |
| 2003 04 28 | 704 | 0.9+ | 0.5− | 2007 02 10 | 703 | 0.8− | 0.5+ | 2007 03 21 | 703 | 0.8− | 0.5+ | | |
| 2003 04 28 | 704 | 0.4+ | 1.1− | 2007 02 10 | 703 | 0.6− | 0.8+ | 2007 03 21 | 703 | 1.4− | 0.9− | | |
| 2003 05 01 | 704 | 0.7− | 1.0− | 2007 02 10 | 703 | 1.0− | 0.3+ | 2007 03 21 | 703 | (1.3− | 1.5−) | | |
| 2003 05 01 | 704 | (3.3+ | 0.4−) | 2007 02 10 | 703 | 0.3− | 0.3− | 2007 03 21 | 703 | 0.2− | 0.1+ | | |
| 2003 05 01 | 704 | 0.1− | 0.2+ | 2007 02 22 | 704 | 0.3− | 0.3+ | 2007 03 21 | 704 | 0.2+ | 0.4+ | | |
| 2003 05 01 | 704 | (3.8− | 0.5+) | 2007 02 22 | 704 | 0.5+ | 0.1− | 2007 03 21 | 704 | 0.2− | 0.4− | | |
| 2003 05 01 | 704 | 0.0 | 1.0+ | 2007 02 22 | 704 | 0.1+ | 1.4− | 2007 03 21 | 704 | 0.1− | 0.1− | | |
| 2003 05 05 | 704 | (2.3+ | 1.0+) | 2007 02 22 | 704 | (1.7− | 0.9−) | 2007 03 21 | 704 | 0.1+ | 1.3+ | | |
| 2003 05 05 | 704 | 0.8+ | 0.2+ | 2007 02 22 | 704 | 0.6− | 1.2+ | 2007 03 21 | 704 | (0.8− | 1.6+) | | |
| 2003 05 05 | 704 | 0.5+ | 0.9− | 2007 02 24 | 704 | 1.1+ | 0.5+ | 2007 05 11 | G96 | 0.6− | 0.1− | | |
| 2003 05 06 | 691 | (0.5+ | 2.6+) | 2007 02 24 | 704 | 0.2− | 0.2− | 2007 05 11 | G96 | 0.0 | 0.3− | | |
| 2003 05 06 | 691 | (0.4+ | 2.4+) | 2007 02 24 | 704 | 0.2+ | 1.0+ | 2007 05 11 | G96 | 0.2− | 0.2− | | |
| 2003 05 06 | 691 | (0.5+ | 2.4+) | 2007 02 24 | 704 | 0.9+ | 0.4+ | 2007 05 11 | G96 | 0.1− | 0.1− | | |
| 2005 10 23 | 703 | 0.7− | 0.6− | 2007 02 25 | 704 | 0.8+ | 0.5+ | 2009 10 16 | G96 | 0.0 | 0.2+ | | |
| 2005 10 23 | 703 | 0.3− | 0.8+ | 2007 02 25 | 704 | 0.7+ | 0.5+ | 2009 10 16 | G96 | 0.1+ | 0.2+ | | |
| 2005 10 23 | 703 | 0.9− | 1.1− | 2007 02 25 | 704 | 0.5+ | 0.9+ | 2009 10 16 | G96 | 0.2+ | 0.1+ | | |
| 2005 10 23 | 703 | (3.5− | 1.4−) | 2007 02 25 | 704 | 0.7+ | 0.2+ | 2009 10 16 | G96 | 0.2− | 0.1− | | |
| 2005 10 26 | 691 | 0.4+ | 0.1+ | 2007 02 25 | 704 | 0.3+ | 0.1+ | 2009 12 11 | G96 | 0.7− | 0.3+ | | |
| 2005 10 26 | 691 | 0.4+ | 0.0 | 2007 03 08 | 644 | 1.2− | 0.1+ | 2009 12 11 | G96 | 0.2− | 0.2− | | |
| 2005 10 26 | 691 | 0.3+ | 0.0 | 2007 03 08 | 644 | 0.2− | 0.2+ | 2009 12 11 | G96 | 0.3− | 0.1+ | | |
| 2005 10 29 | G96 | 0.1+ | 0.4− | 2007 03 08 | 644 | 0.1− | 0.3+ | 2009 12 11 | G96 | 0.0 | 0.3+ | | |
| 2005 10 29 | G96 | 0.4− | 0.4− | 2007 03 09 | 644 | 0.1+ | 0.2+ | | | | | | |

**(228870)∗ 2003 HL$_{27}$ = 2005 YP$_{94}$**

Discovered 2003 Apr. 28 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. A. Doppler (*MPO* 94990)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 299.63981 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26290738 | $\omega$ | 114.17869 | | −0.96356192 | +0.24649685 | |
| $a$ | 2.4132419 | $\Omega$ | 80.22456 | | −0.26725603 | −0.87111822 | |
| $e$ | 0.1606478 | $i$ | 6.04988 | | −0.01107392 | −0.42472621 | |
| $P$ | 3.75 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 11 14 | 691 | 0.4+ | 0.4+ | 2005 11 29 | 691 | 0.0 | 0.4+ | 2008 09 30 | 807 | 0.7− | 0.3+ | | |
| 2001 11 14 | 691 | 0.2− | 0.6− | 2005 11 29 | 691 | (0.6− | 3.0+) | 2008 10 01 | 807 | 0.1− | 0.4+ | | |
| 2001 11 14 | 691 | 0.1+ | 1.0+ | 2005 12 21 | 691 | 0.0 | 0.2+ | 2008 10 01 | 807 | 0.2− | 0.5+ | | |
| 2003 04 28 | 704 | 0.6− | 0.2+ | 2005 12 21 | 691 | 0.3+ | 0.4+ | 2008 10 01 | 807 | 0.4− | 0.4+ | | |
| 2003 04 28 | 704 | 0.6− | 0.5+ | 2005 12 21 | 691 | 0.1− | 0.3+ | 2008 10 27 | G96 | 0.0 | 0.3+ | | |
| 2003 04 28 | 704 | 0.4− | 0.7+ | 2005 12 29 | 691 | 0.2− | 0.0 | 2008 10 27 | G96 | 0.0 | 0.5+ | | |
| 2003 04 28 | 704 | 0.8− | 0.8+ | 2005 12 29 | 691 | 0.2+ | 0.2− | 2008 10 27 | G96 | 0.3+ | 0.1− | | |
| 2003 04 29 | 691 | 0.7+ | 1.2+ | 2005 12 29 | 691 | 0.4− | 0.3− | 2008 10 27 | G96 | 0.3− | 0.3+ | | |
| 2003 04 29 | 691 | 0.6+ | 1.3+ | 2006 01 07 | G96 | 0.5+ | 0.1+ | 2008 10 27 | G96 | 0.1+ | 0.4+ | | |
| 2003 04 29 | 691 | 0.8+ | 1.2+ | 2006 01 07 | G96 | 0.3− | 0.2+ | 2008 10 27 | G96 | 0.1− | 0.4+ | | |
| 2003 05 01 | 704 | 0.6+ | 0.0 | 2006 01 07 | G96 | 0.2− | 0.1+ | 2008 10 27 | G96 | 0.2+ | 0.2+ | | |
| 2003 05 01 | 704 | 0.4+ | 0.0 | 2006 01 07 | G96 | 0.5− | 0.0 | 2008 10 27 | G96 | 0.1+ | 0.4+ | | |
| 2003 05 01 | 704 | 0.9+ | 0.6− | 2006 01 27 | G96 | 0.1+ | 0.0 | 2009 11 21 | G96 | 1.1+ | 0.3+ | | |
| 2003 05 01 | 704 | 0.5+ | 0.3− | 2006 01 27 | G96 | 0.5− | 0.1− | 2009 11 21 | G96 | 0.9+ | 0.1+ | | |
| 2003 05 08 | 704 | 0.3− | 1.1+ | 2006 01 27 | G96 | 0.0 | 0.0 | 2009 11 21 | G96 | 0.2+ | 0.4+ | | |
| 2003 05 08 | 704 | 0.8− | 0.4+ | 2006 01 27 | G96 | 0.2− | 0.2+ | 2009 11 21 | G96 | 0.1+ | 0.3+ | | |
| 2003 05 08 | 704 | 0.8− | 0.6− | 2008 09 23 | 291 | 0.5− | 0.6+ | 2009 12 18 | 691 | 0.3+ | 0.2+ | | |
| 2004 09 13 | 691 | 0.5− | 0.4+ | 2008 09 23 | 291 | 0.6− | 0.5+ | 2009 12 18 | 691 | 0.1− | 0.3+ | | |
| 2004 09 13 | 691 | 0.2+ | 0.3+ | 2008 09 23 | 291 | 0.5− | 0.6+ | 2009 12 18 | 691 | 0.0 | 0.2+ | | |
| 2004 09 13 | 691 | 0.0 | 0.4+ | 2008 09 30 | 807 | 0.2− | 0.3+ | | | | | | |
| 2005 11 29 | 691 | 0.2− | 0.3+ | 2008 09 30 | 807 | 0.2− | 0.4+ | | | | | | |

**(228871)∗ 2003 HQ$_{31}$ = 1999 JQ$_{138}$**

Discovered 2003 Apr. 26 by NEAT at Haleakala.

Id. G. V. Williams (*MPO* 47559)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 224.73194 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24435544 | $\omega$ | 1.28865 | | −0.66442411 | +0.74309160 | |
| $a$ | 2.5338917 | $\Omega$ | 227.08070 | | −0.68665565 | −0.64908713 | |
| $e$ | 0.0951761 | $i$ | 6.24973 | | −0.29503324 | −0.16279057 | |
| $P$ | 4.03 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 10 03 | 809 | (2.2+ | 0.2−) | 2004 08 13 | 644 | 0.3− | 0.2+ | 2007 04 18 | 704 | (1.7− | 0.6−) | | |
| 1996 10 03 | 809 | (1.0+ | 2.5−) | 2004 08 13 | 644 | 0.7− | 0.4+ | 2007 04 18 | 704 | 0.3− | 0.8+ | | |
| 1996 10 03 | 809 | (0.1+ | 3.1−) | 2004 08 13 | 644 | 0.5− | 0.5+ | 2007 04 20 | 704 | (1.1− | 1.6+) | | |
| 1999 05 10 | 704 | (2.1+ | 3.0−) | 2004 09 10 | 704 | 0.6+ | 0.8− | 2007 04 20 | 704 | (2.4+ | 0.1+) | | |
| 1999 05 10 | 704 | 1.4− | 1.5+ | 2004 09 10 | 704 | 0.4+ | 0.9+ | 2007 04 20 | 704 | 1.3+ | 0.4− | | |
| 1999 05 10 | 704 | 1.0+ | 0.9+ | 2004 09 10 | 704 | 0.4+ | 0.5+ | 2007 04 20 | 704 | (2.2+ | 0.1−) | | |
| 1999 05 10 | 704 | 0.5+ | 1.0+ | 2004 09 10 | 704 | 0.1+ | 0.3+ | 2007 04 20 | 704 | (1.9+ | 0.2−) | | |
| 1999 05 15 | 703 | 0.2+ | 0.4− | 2004 09 10 | 704 | 0.4+ | 0.5+ | 2007 04 22 | 704 | 0.9+ | 0.4− | | |
| 1999 05 15 | 703 | 0.1+ | 0.0 | 2004 09 16 | 699 | 0.5− | 0.6+ | 2007 04 22 | 704 | 0.8+ | 0.7+ | | |
| 1999 05 15 | 703 | 1.1+ | 0.3− | 2004 09 16 | 699 | 0.7+ | 0.6− | 2007 04 22 | 704 | 1.2+ | 1.4+ | | |
| 1999 05 15 | 703 | 0.8− | 0.7+ | 2004 09 16 | 699 | 0.9− | 0.6+ | 2007 04 22 | 704 | 0.3+ | 0.4+ | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 05 18 | 699 | 0.0 | 0.4− | 2004 09 16 | 699 | 0.1+ | 0.2− | 2007 04 22 | 704 | 1.1+ | 0.5+ | | |
| 1999 05 18 | 699 | 0.8+ | 0.5− | 2004 09 18 | 704 | 0.4− | 0.9+ | 2007 05 09 | 699 | 0.6+ | 0.9− | | |
| 1999 05 18 | 699 | 0.8+ | 0.1− | 2004 09 18 | 704 | 0.1− | 0.8+ | 2007 05 09 | 699 | 1.1+ | 0.5+ | | |
| 2003 03 31 | 704 | 0.0 | 0.6+ | 2004 09 18 | 704 | 0.0 | 1.0+ | 2007 05 09 | 699 | 0.9+ | 0.7− | | |
| 2003 03 31 | 704 | 0.1− | 0.7+ | 2004 09 20 | 683 | 1.3− | 1.2− | 2007 05 09 | 699 | 0.5+ | 0.3+ | | |
| 2003 03 31 | 704 | 0.1− | 1.2+ | 2004 09 20 | 683 | (0.6− | 1.7−) | 2008 10 01 | G96 | 0.2− | 0.1− | | |
| 2003 03 31 | 704 | 0.7+ | 0.1+ | 2004 09 20 | 683 | 0.2+ | 1.3− | 2008 10 01 | G96 | 0.2− | 0.1− | | |
| 2003 04 07 | 704 | 0.8+ | 0.7− | 2007 03 16 | 691 | 0.3− | 0.0 | 2008 10 01 | G96 | 0.2+ | 0.0 | | |
| 2003 04 07 | 704 | 0.3+ | 0.0 | 2007 03 16 | 691 | 0.2− | 0.7− | 2008 10 01 | G96 | 0.1+ | 0.0 | | |
| 2003 04 07 | 704 | 0.8− | 0.3− | 2007 03 16 | 691 | 0.5− | 0.1− | 2008 10 01 | 704 | 0.4+ | 0.8+ | | |
| 2003 04 07 | 704 | 0.3+ | 1.1− | 2007 03 20 | 691 | 0.6− | 0.0 | 2008 10 01 | 704 | 0.3− | 0.1− | | |
| 2003 04 07 | 704 | 0.1+ | 1.1− | 2007 03 20 | 691 | 0.3− | 0.2− | 2008 10 01 | 704 | 0.2+ | 0.8+ | | |
| 2003 04 26 | 608 | 0.5− | 1.2+ | 2007 03 20 | 691 | 0.2− | 0.2− | 2008 10 01 | G96 | 0.1+ | 0.0 | | |
| 2003 04 26 | 608 | (0.4− | 1.6+) | 2007 03 31 | 644 | 0.4− | 0.1+ | 2008 10 01 | G96 | 0.2+ | 0.2+ | | |
| 2003 04 26 | 608 | 0.2− | 1.2+ | 2007 03 31 | 644 | 0.3− | 0.1+ | 2008 10 01 | 704 | 0.6− | 0.4− | | |
| 2003 04 29 | 699 | 0.8− | 0.3+ | 2007 03 31 | 644 | 0.3− | 0.1+ | 2008 10 01 | G96 | 0.3+ | 0.1+ | | |
| 2003 04 29 | 699 | 0.8− | 0.8− | 2007 04 15 | 704 | 0.9+ | 0.2− | 2008 10 01 | G96 | 0.0 | 0.1− | | |
| 2003 04 29 | 699 | 1.0− | 0.2− | 2007 04 15 | 704 | 0.4− | 0.5+ | 2009 12 11 | G96 | 0.1− | 0.5+ | | |
| 2003 04 29 | 699 | 0.7− | 0.5− | 2007 04 15 | 704 | 0.4+ | 0.4+ | 2009 12 11 | G96 | 0.1+ | 0.7+ | | |
| 2003 05 06 | 704 | 0.2+ | 0.4+ | 2007 04 15 | 704 | 0.1− | 1.3+ | 2009 12 11 | G96 | 0.2− | 0.5+ | | |
| 2003 05 06 | 704 | 0.3+ | 0.3+ | 2007 04 15 | 704 | 0.9+ | 0.0 | 2009 12 11 | G96 | 0.4− | 0.8+ | | |
| 2003 05 06 | 704 | 0.1+ | 0.3− | 2007 04 18 | 699 | 0.2+ | 0.5+ | 2009 12 17 | 704 | 0.2+ | 1.4+ | | |
| 2003 05 25 | 699 | 0.8− | 0.2+ | 2007 04 18 | 699 | 0.7+ | 0.3+ | 2009 12 17 | 704 | 0.7+ | 1.0+ | | |
| 2003 05 25 | 699 | 0.7− | 0.0 | 2007 04 18 | 699 | 0.6+ | 0.0 | 2009 12 17 | 704 | 0.1+ | 0.6+ | | |
| 2003 05 25 | 699 | 0.4− | 0.5− | 2007 04 18 | 699 | 0.4+ | 0.6+ | | | | | | |
| 2003 05 25 | 699 | 1.3+ | 0.1− | 2007 04 18 | 704 | 0.7− | 0.7+ | | | | | | |

**(228872)∗ 2003 HS$_{38}$ = 2001 YR$_{28}$**

Discovered 2003 Apr. 29 by NEAT at Haleakala.

Id. A. Doppler (*MPO* 47562)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 214.39823 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23824993 | $\omega$ | 313.00349 | | −0.79904857 | +0.56009346 | |
| $a$ | 2.5769987 | $\Omega$ | 262.21928 | | −0.46720197 | −0.80729332 | |
| $e$ | 0.2336560 | $i$ | 12.75028 | | −0.37847549 | −0.18593767 | |
| $P$ | 4.14 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 12 18 | 704 | 0.8+ | 0.2+ | 2003 05 19 | 699 | (1.6− | 0.5−) | 2007 03 14 | 703 | 0.4− | 1.0+ | | |
| 2001 12 18 | 704 | 0.1+ | 0.4+ | 2003 05 19 | 699 | 0.5− | 0.3− | 2007 03 14 | 703 | 0.7− | 0.4− | | |
| 2001 12 18 | 704 | 0.7+ | 0.3+ | 2003 05 19 | 699 | 0.4+ | 0.3+ | 2007 03 27 | 704 | 1.3+ | 0.6+ | | |
| 2001 12 18 | 704 | 0.2+ | 0.7+ | 2003 05 19 | 699 | 0.1+ | 1.1+ | 2007 03 27 | 704 | (0.2− | 2.7+) | | |
| 2001 12 19 | 704 | 0.6− | 0.4+ | 2006 12 20 | G96 | 0.2+ | 0.3− | 2007 03 27 | 704 | (1.9+ | 0.9+) | | |
| 2001 12 19 | 704 | 0.5− | 0.7+ | 2006 12 20 | G96 | 0.1− | 0.4− | 2007 03 27 | 704 | 0.2+ | 1.1+ | | |
| 2001 12 19 | 704 | 0.8− | 0.8+ | 2006 12 20 | G96 | 0.0 | 0.0 | 2007 03 27 | 704 | (1.4+ | 1.9+) | | |
| 2003 03 30 | 699 | (0.4+ | 2.0+) | 2006 12 20 | G96 | 0.3− | 0.4+ | 2007 04 23 | E12 | 0.1+ | 0.6+ | | |
| 2003 03 30 | 699 | 0.3− | 0.6− | 2007 01 27 | E12 | 0.1− | 0.6− | 2007 04 23 | E12 | 0.6+ | 0.5− | | |
| 2003 03 30 | 699 | 0.3− | 0.4+ | 2007 01 27 | E12 | 0.5− | 1.2− | 2007 04 23 | E12 | 0.0 | 0.4+ | | |
| 2003 03 30 | 699 | 0.3+ | 0.2+ | 2007 01 27 | E12 | 0.2− | 0.1+ | 2007 04 23 | E12 | 0.7− | 1.1+ | | |
| 2003 04 06 | 704 | 0.2+ | 0.0 | 2007 01 27 | E12 | 0.5− | 0.8− | 2009 10 26 | G96 | 0.1+ | 0.3+ | | |
| 2003 04 06 | 704 | 0.4− | 0.1+ | 2007 02 03 | 644 | 0.0 | 0.1+ | 2009 10 26 | G96 | 0.1− | 0.0 | | |
| 2003 04 06 | 704 | 0.3+ | 1.1− | 2007 02 03 | 644 | 0.5+ | 0.3+ | 2009 10 26 | G96 | 0.1+ | 0.0 | | |
| 2003 04 06 | 704 | 0.1− | 1.2− | 2007 02 03 | 644 | 0.2+ | 0.3− | 2009 10 26 | G96 | 0.1− | 0.1− | | |
| 2003 04 29 | 608 | 0.1− | 0.2+ | 2007 02 18 | 704 | 0.1+ | 0.1− | 2009 11 09 | G96 | 0.1+ | 0.2+ | | |
| 2003 04 29 | 608 | 0.1− | 0.2+ | 2007 02 18 | 704 | 0.4+ | 0.0 | 2009 11 09 | G96 | 0.0 | 0.2+ | | |
| 2003 04 29 | 608 | 0.0 | 0.1+ | 2007 02 18 | 704 | 0.2+ | 0.3+ | 2009 11 09 | G96 | 0.4+ | 0.2+ | | |
| 2003 04 30 | 704 | 0.1− | 0.1+ | 2007 02 18 | 704 | 0.3+ | 0.7− | 2009 11 09 | G96 | 0.2+ | 0.0 | | |
| 2003 04 30 | 704 | 1.1+ | 0.0 | 2007 02 18 | 704 | 0.3− | 0.1− | 2009 12 20 | G96 | 0.4− | 0.6− | | |
| 2003 04 30 | 704 | 0.1+ | 1.0+ | 2007 03 02 | 644 | 0.3+ | 0.2− | 2009 12 20 | G96 | 0.4+ | 0.2− | | |
| 2003 04 30 | 704 | 0.2+ | 0.4− | 2007 03 02 | 644 | 0.1+ | 0.2− | 2009 12 20 | G96 | 0.3− | 0.2+ | | |
| 2003 05 04 | 608 | 0.0 | 0.4+ | 2007 03 02 | 644 | 0.9+ | 0.7− | 2009 12 20 | G96 | 0.0 | 0.1− | | |
| 2003 05 04 | 608 | 0.2+ | 1.0+ | 2007 03 14 | 703 | 0.6− | 0.5+ | | | | | | |
| 2003 05 04 | 608 | 0.2− | 0.5+ | 2007 03 14 | 703 | 1.3− | 0.8− | | | | | | |

**(228873)∗ 2003 HD$_{45}$ = 1999 CQ$_{127}$**

Discovered 2003 Apr. 29 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. M. E. Sansaturio (*MPO* 61718)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 2.40048 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26794715 | $\omega$ | 74.93478 | | −0.52834700 | −0.83667433 | |
| $a$ | 2.3828861 | $\Omega$ | 47.88729 | | +0.68494176 | −0.52047241 | |
| $e$ | 0.2619626 | $i$ | 11.21749 | | +0.50170134 | −0.17054188 | |
| $P$ | 3.68 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 02 11 | 704 | 1.2+ | 0.7− | 2005 10 06 | 699 | 0.0 | 1.1+ | 2005 11 29 | 704 | 0.2− | 0.2+ | | |
| 1999 02 11 | 704 | 0.2− | 0.5+ | 2005 10 25 | 699 | 0.4− | 0.4+ | 2005 11 29 | 704 | 0.3− | 0.3+ | | |
| 1999 02 11 | 704 | 0.7− | 1.8− | 2005 10 25 | 699 | 0.3− | 0.3+ | 2005 12 02 | 704 | 0.1+ | 0.3+ | | |
| 1999 02 11 | 704 | 0.4− | 1.6− | 2005 10 25 | 699 | 0.1+ | 0.8− | 2005 12 02 | 704 | 0.1− | 0.6− | | |
| 1999 02 18 | 704 | 0.2− | 1.6− | 2005 10 25 | 699 | 0.6+ | 0.8+ | 2005 12 02 | 704 | 0.0 | 0.8− | | |
| 1999 02 18 | 704 | 1.3− | 0.7+ | 2005 10 26 | 699 | 0.3− | 0.2+ | 2005 12 02 | 704 | 0.1− | 0.1+ | | |
| 1999 02 18 | 704 | 0.1+ | 0.1+ | 2005 10 26 | 699 | 1.3+ | 0.3+ | 2005 12 02 | 704 | 0.1+ | 0.8− | | |
| 1999 02 18 | 704 | 1.2− | 0.6+ | 2005 10 26 | 691 | 0.1− | 0.1− | 2005 12 05 | 704 | 0.1− | 0.8+ | | |
| 1999 02 18 | 704 | (4.6− | 1.7−) | 2005 10 26 | 699 | 0.4− | 0.6+ | 2005 12 05 | 704 | 0.1− | 0.5+ | | |
| 2001 10 08 | 644 | 0.4− | 1.4+ | 2005 10 26 | 691 | 0.1− | 0.1+ | 2005 12 05 | 704 | 0.2− | 0.3+ | | |
| 2001 10 08 | 644 | 0.3− | 1.4+ | 2005 10 26 | 699 | 1.0− | 0.0 | 2005 12 05 | 704 | 0.0 | 0.6+ | | |
| 2001 10 08 | 644 | 0.6− | 1.1+ | 2005 10 26 | 691 | 0.1− | 0.0 | 2005 12 05 | 704 | 0.1− | 0.3+ | | |
| 2003 04 29 | 704 | 0.6+ | 0.4− | 2005 10 30 | 691 | 0.1+ | 0.2− | 2005 12 05 | 699 | (2.4+ | 0.7+) | | |
| 2003 04 29 | 704 | 0.6+ | 0.2+ | 2005 10 30 | 691 | 0.1+ | 0.1− | 2005 12 05 | 699 | 0.4+ | 0.2+ | | |
| 2003 04 29 | 704 | 0.8+ | 0.7+ | 2005 10 30 | 691 | 0.0 | 0.2− | 2005 12 05 | 699 | 0.5+ | 0.8+ | | |
| 2003 04 29 | 704 | 0.3− | 0.4+ | 2005 11 01 | A50 | 0.0 | 0.0 | 2005 12 05 | 699 | 0.4+ | 0.2+ | | |
| 2003 04 29 | 704 | 0.7+ | 0.2+ | 2005 11 01 | A50 | 0.0 | 0.0 | 2005 12 10 | 704 | 0.3+ | 0.8− | | |
| 2003 05 01 | 691 | 0.1+ | 0.3+ | 2005 11 01 | 704 | 0.2− | 0.0 | 2005 12 10 | 704 | 0.4− | 0.0 | | |
| 2003 05 01 | 691 | 0.3+ | 0.1+ | 2005 11 01 | 704 | 0.4− | 0.2− | 2005 12 10 | 704 | 0.4+ | 0.0 | | |
| 2003 05 01 | 691 | 0.2+ | 0.3+ | 2005 11 01 | 704 | 0.3− | 0.4+ | 2005 12 10 | 704 | 0.1+ | 0.0 | | |
| 2003 05 02 | 291 | 0.2+ | 0.3+ | 2005 11 01 | 704 | 0.5− | 0.5− | 2005 12 10 | 704 | 0.0 | 0.2− | | |
| 2003 05 02 | 291 | 0.0 | 0.3+ | 2005 11 04 | 704 | 0.2− | 0.5+ | 2005 12 24 | 703 | 0.3− | 0.5+ | | |
| 2003 05 02 | 291 | 0.1+ | 0.3+ | 2005 11 04 | 704 | 0.2+ | 0.7+ | 2005 12 24 | 703 | 0.6+ | 0.9+ | | |
| 2003 05 05 | 704 | 0.3+ | 0.5+ | 2005 11 04 | 704 | 1.0+ | 1.4+ | 2005 12 24 | 703 | 0.5− | 1.2+ | | |
| 2003 05 05 | 704 | 0.4+ | 0.4+ | 2005 11 04 | 704 | 0.0 | 0.8+ | 2005 12 24 | 703 | 0.4+ | 0.4+ | | |
| 2003 05 05 | 704 | 0.4+ | 0.5+ | 2005 11 05 | 704 | 0.6− | 0.1+ | 2005 12 29 | 704 | 0.0 | 0.2+ | | |
| 2003 05 05 | 704 | 0.2+ | 0.8+ | 2005 11 05 | 704 | 0.2− | 0.3− | 2005 12 29 | 704 | 0.6+ | 0.2+ | | |
| 2003 05 05 | 704 | 0.1− | 0.5+ | 2005 11 05 | 704 | 0.8− | 0.4+ | 2005 12 29 | 704 | 0.0 | 0.4+ | | |
| 2003 05 20 | 699 | (1.6+ | 0.7+) | 2005 11 05 | 704 | 0.3− | 0.4− | 2005 12 29 | 704 | 0.4− | 0.8+ | | |
| 2003 05 20 | 699 | 0.2− | 0.5− | 2005 11 05 | 704 | 0.3+ | 0.7+ | 2006 01 06 | 704 | (2.0+ | 1.5−) | | |
| 2003 05 20 | 699 | 0.9− | 0.6− | 2005 11 07 | 704 | 0.3− | 0.3+ | 2006 01 06 | 704 | (1.6+ | 0.4−) | | |
| 2003 05 20 | 699 | 0.4− | 0.0 | 2005 11 07 | 704 | 0.2− | 0.5− | 2006 01 06 | 704 | (2.1+ | 1.0−) | | |
| 2003 05 24 | 691 | 0.6+ | 1.4+ | 2005 11 07 | 704 | 0.4− | 0.6+ | 2006 01 06 | 704 | (2.6+ | 0.1−) | | |
| 2003 05 24 | 691 | (0.9+ | 1.5+) | 2005 11 20 | 699 | 0.3+ | 0.9+ | 2006 01 06 | 704 | (1.6+ | 0.6−) | | |
| 2003 05 24 | 691 | 0.8+ | 1.2+ | 2005 11 20 | 699 | 0.4− | 0.4+ | 2006 01 21 | 703 | 0.0 | 0.1+ | | |
| 2005 10 01 | 704 | 0.0 | 0.3− | 2005 11 20 | 699 | 0.2− | 0.6+ | 2006 01 21 | 703 | 0.2+ | 0.2+ | | |
| 2005 10 01 | 704 | 0.4− | 0.2− | 2005 11 28 | 703 | 0.1− | 0.1− | 2006 01 21 | 703 | 0.5+ | 0.6− | | |
| 2005 10 01 | 704 | 0.4+ | 0.1− | 2005 11 28 | 703 | 0.1− | 0.3+ | 2006 01 21 | 703 | (1.6− | 0.3+) | | |
| 2005 10 01 | 704 | 0.8− | 0.2− | 2005 11 28 | 703 | 0.1− | 0.2+ | 2009 12 10 | 704 | 0.1+ | 0.4+ | | |
| 2005 10 05 | 704 | 0.2− | 0.6− | 2005 11 28 | 703 | 0.2− | 0.1+ | 2009 12 10 | 704 | 0.9+ | 1.3+ | | |
| 2005 10 05 | 704 | 1.0− | 0.4+ | 2005 11 29 | 699 | 0.1+ | 0.0 | 2009 12 10 | 704 | 1.3+ | 0.5+ | | |
| 2005 10 05 | 704 | 0.3+ | 0.5+ | 2005 11 29 | 699 | 0.4− | 0.2+ | 2009 12 17 | 703 | 0.2+ | 0.8+ | | |
| 2005 10 05 | 704 | 0.2− | 0.6+ | 2005 11 29 | 699 | 0.6− | 0.3− | 2009 12 17 | 703 | 0.5− | 0.3+ | | |
| 2005 10 06 | 699 | 0.1+ | 0.4+ | 2005 11 29 | 704 | 0.4− | 0.5+ | 2009 12 17 | 703 | 0.6+ | 0.0 | | |
| 2005 10 06 | 699 | 1.3− | 0.3+ | 2005 11 29 | 704 | 0.3− | 0.2+ | 2009 12 17 | 703 | 0.3− | 0.5+ | | |
| 2005 10 06 | 699 | (1.6− | 2.1+) | 2005 11 29 | 704 | 0.6− | 0.5+ | | | | | | |

**(228874)∗ 2003 HD$_{52}$**

Discovered 2003 Apr. 30 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 113.30959 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23123650 | $\omega$ | 247.24066 | | +0.75243311 | +0.62305686 | |
| $a$ | 2.6288459 | $\Omega$ | 73.53335 | | −0.49245270 | +0.74754606 | |
| $e$ | 0.0841673 | $i$ | 12.87257 | | −0.43741828 | +0.23016307 | |
| $P$ | 4.26 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 02 08 | 645 | 0.1− | 0.0 | 2003 05 11 | 691 | 0.0 | 0.2− | 2008 08 08 | E12 | 0.2+ | 0.4+ | |
| 2002 02 08 | 645 | 0.1− | 0.1− | 2003 05 11 | 691 | 0.4+ | 0.3− | 2008 08 08 | E12 | 0.4− | 0.2+ | |
| 2002 02 08 | 645 | 0.0 | 0.0 | 2003 05 27 | 691 | 0.3− | 0.1− | 2008 08 08 | E12 | 0.5+ | 0.5+ | |
| 2002 02 08 | 645 | 0.1+ | 0.0 | 2003 05 27 | 691 | 0.0 | 0.1− | 2008 08 26 | E12 | 0.3− | 0.3+ | |
| 2003 03 31 | 691 | 0.2+ | 0.3+ | 2003 05 27 | 691 | 0.2− | 0.0 | 2008 08 26 | E12 | 0.0 | 0.5+ | |
| 2003 03 31 | 691 | 0.5+ | 0.3+ | 2004 07 20 | E12 | 0.4− | 0.3+ | 2008 08 26 | E12 | 0.1− | 0.1+ | |
| 2003 03 31 | 691 | 0.5+ | 0.3+ | 2004 07 20 | E12 | 0.3+ | 0.2− | 2008 08 26 | E12 | 0.3− | 0.9+ | |
| 2003 04 30 | 691 | 0.4− | 0.4+ | 2004 07 20 | E12 | 0.5− | 0.2+ | 2009 11 20 | 691 | 0.4− | 0.3+ | |
| 2003 04 30 | 691 | 0.5+ | 0.5+ | 2004 07 20 | E12 | 0.2+ | 0.1+ | 2009 11 20 | 691 | 0.0 | 0.4+ | |
| 2003 04 30 | 691 | 0.1− | 0.3+ | 2004 09 21 | 704 | 0.6+ | 0.1− | 2009 11 20 | 691 | 0.4− | 0.4+ | |
| 2003 05 02 | 704 | 1.2− | 0.1− | 2004 09 21 | 704 | 0.3+ | 0.5+ | 2009 12 19 | G96 | 0.4+ | 0.3+ | |
| 2003 05 02 | 704 | 0.5− | 0.3+ | 2004 09 21 | 704 | 0.9− | 0.3− | 2009 12 19 | G96 | 0.2+ | 0.3+ | |
| 2003 05 02 | 704 | 0.4− | 0.2+ | 2005 12 10 | 691 | 0.3+ | 0.3− | 2009 12 19 | G96 | 0.4+ | 0.0 | |
| 2003 05 02 | 704 | 0.4+ | 0.8+ | 2005 12 10 | 691 | 0.1− | 0.4+ | 2009 12 19 | G96 | 0.2+ | 0.0 | |
| 2003 05 11 | 691 | 0.0 | 0.4− | 2005 12 10 | 691 | 0.0 | 0.3+ | | | | | |

**(228875)∗ 2003 KX$_3$**

Discovered 2003 May 23 by J. Broughton at Reedy Creek.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 140.88082 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21848328 | $\omega$ | 4.75885 | | +0.27087807 | +0.95182524 | |
| $a$ | 2.7301756 | $\Omega$ | 281.00992 | | −0.88794202 | +0.18941187 | |
| $e$ | 0.2712353 | $i$ | 8.41888 | | −0.37173114 | +0.24114695 | |
| $P$ | 4.51 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 09 07 | 703 | 0.1+ | 0.3− | 2008 06 11 | 703 | 0.9− | 0.1− | 2008 09 05 | 704 | 0.4+ | 0.3+ | |
| 1999 09 07 | 703 | 0.5− | 0.2− | 2008 07 28 | 106 | 0.7− | 0.1+ | 2008 09 05 | 704 | 0.8+ | 0.1+ | |
| 1999 09 07 | 703 | 0.2+ | 0.5+ | 2008 07 28 | 106 | 0.0 | 1.1− | 2008 09 05 | 704 | 0.8+ | 0.1+ | |
| 1999 09 07 | 703 | 0.2+ | 0.0 | 2008 07 28 | 106 | 0.1− | 0.1+ | 2008 09 05 | 704 | 0.8+ | 0.0 | |
| 2003 05 08 | 704 | 0.2− | 0.4− | 2008 07 28 | 106 | 0.5− | 0.3− | 2008 09 23 | 683 | 0.1+ | 0.2− | |
| 2003 05 08 | 704 | 0.2+ | 0.3− | 2008 07 29 | 106 | 0.2− | 0.4+ | 2008 09 23 | 683 | 0.1− | 1.1− | |
| 2003 05 08 | 704 | 0.1+ | 0.5+ | 2008 07 29 | 106 | 0.6− | 0.0 | 2008 09 23 | 683 | 0.2+ | 0.5− | |
| 2003 05 08 | 704 | (1.8+ | 2.7+) | 2008 07 29 | 106 | 0.2+ | 0.1+ | 2008 09 25 | 683 | 0.5− | 0.3− | |
| 2003 05 23 | 428 | (0.4+ | 1.9+) | 2008 07 29 | 106 | 0.2− | 0.2− | 2008 09 25 | 683 | 0.0 | 1.5− | |
| 2003 05 24 | 428 | 0.5− | 0.3+ | 2008 07 30 | 703 | 0.2+ | 1.0+ | 2008 09 25 | 683 | 0.5+ | 1.0− | |
| 2003 05 24 | 428 | 0.3+ | 0.7+ | 2008 07 30 | 703 | 0.6− | 0.5− | 2008 09 29 | 704 | 1.3+ | 0.8+ | |
| 2003 06 04 | 428 | 0.0 | 0.1+ | 2008 07 30 | 703 | 0.3− | 0.7− | 2008 09 29 | 704 | (0.4+ | 2.0−) | |
| 2003 06 21 | 428 | 0.4− | 0.1− | 2008 07 30 | 703 | 0.6− | 0.3− | 2008 09 29 | 704 | 0.1+ | 0.5+ | |
| 2003 06 21 | 428 | (1.8− | 0.2+) | 2008 08 01 | 704 | 0.5− | 0.0 | 2008 09 29 | 704 | 1.2+ | 1.4− | |
| 2003 07 04 | 428 | 0.2− | 0.3− | 2008 08 01 | 704 | 0.4− | 0.3+ | 2008 09 29 | 704 | 0.4+ | 1.1− | |
| 2003 07 07 | 644 | 0.2+ | 0.1+ | 2008 08 01 | 704 | 0.2− | 0.2+ | 2008 11 01 | G96 | 0.5− | 0.4− | |
| 2003 07 07 | 644 | 0.2+ | 0.1+ | 2008 08 01 | 704 | 0.0 | 0.1− | 2008 11 01 | G96 | 0.2− | 0.3− | |
| 2003 07 07 | 644 | 0.1+ | 0.0 | 2008 08 01 | 704 | 0.1− | 0.5+ | 2008 11 01 | G96 | 0.2+ | 0.5− | |
| 2004 11 09 | 703 | 0.2+ | 0.0 | 2008 08 26 | 704 | 0.2+ | 1.0+ | 2008 11 01 | G96 | 0.0 | 0.4− | |
| 2004 11 09 | 703 | 0.0 | 0.8− | 2008 08 26 | 704 | 0.1− | 0.7+ | 2008 11 03 | 704 | 0.2− | 1.4+ | |
| 2004 11 09 | 703 | 0.1+ | 0.2+ | 2008 08 26 | 704 | 0.0 | 0.7+ | 2008 11 03 | 704 | 0.0 | 0.4+ | |
| 2004 11 09 | 703 | 0.3− | 0.7+ | 2008 08 26 | 704 | 0.0 | 0.7+ | 2008 11 03 | 704 | 0.3− | 0.9+ | |
| 2005 12 25 | G96 | 0.3+ | 0.2− | 2008 08 26 | 704 | 0.2+ | 0.3+ | 2009 11 27 | 691 | 0.4− | 0.3+ | |
| 2005 12 25 | G96 | 0.3+ | 0.2− | 2008 08 30 | 704 | 0.0 | 0.1− | 2009 11 27 | 691 | 0.1− | 0.3+ | |
| 2005 12 25 | G96 | 0.4+ | 0.1+ | 2008 08 30 | 704 | 0.2− | 0.4+ | 2009 11 27 | 691 | 0.5− | 0.2+ | |
| 2005 12 25 | G96 | 0.5+ | 0.0 | 2008 08 30 | 704 | 0.0 | 0.4+ | 2009 12 13 | G96 | 1.0+ | 0.5− | |
| 2008 06 11 | 703 | 0.5− | 0.6+ | 2008 08 30 | 704 | 0.0 | 0.3+ | 2009 12 13 | G96 | 0.5+ | 0.2+ | |
| 2008 06 11 | 703 | 0.3+ | 1.1+ | 2008 08 30 | 704 | 0.4− | 0.3+ | 2009 12 13 | G96 | 0.9+ | 0.1+ | |
| 2008 06 11 | 703 | (0.0 | 1.6+) | 2008 09 05 | 704 | 0.4+ | 0.1− | | | | | |

**(228876)∗ 2003 LH$_4$**

Discovered 2003 June 3 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 74.62803 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.37236331 | $\omega$ | 137.41593 | | +0.93952631 | −0.19729396 | |
| $a$ | 1.9134838 | $\Omega$ | 236.06471 | | +0.14338627 | +0.96890898 | |
| $e$ | 0.0966049 | $i$ | 19.71914 | | +0.31101558 | +0.14929998 | |
| $P$ | 2.65 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1993 12 10 | 691 | 0.3− | 0.0 | 2003 06 29 | 704 | 0.9+ | 0.1− | 2006 10 02 | 704 | 1.1+ | 0.7+ | |
| 1993 12 10 | 691 | 0.2+ | 0.1− | 2003 06 29 | 704 | 0.2+ | 0.0 | 2006 10 02 | 704 | 0.5+ | 1.4+ | |
| 1993 12 10 | 691 | 0.3− | 0.2− | 2003 06 29 | 704 | 0.5+ | 0.0 | 2006 10 20 | 703 | 0.8− | 0.3− | |
| 2000 05 03 | 645 | 0.1− | 0.0 | 2003 06 29 | 608 | 0.4+ | 0.0 | 2006 10 20 | 703 | 0.0 | 0.4− | |
| 2000 05 03 | 645 | 0.1− | 0.1+ | 2003 06 29 | 608 | 0.6+ | 0.3− | 2006 10 20 | 703 | 0.7− | 0.4− | |
| 2001 11 17 | 704 | 1.2+ | 0.5+ | 2003 06 29 | 608 | 0.9+ | 0.3+ | 2006 10 21 | 704 | 0.4− | 1.1− | |
| 2001 11 17 | 704 | 0.7+ | 0.1+ | 2003 07 30 | 644 | 0.1+ | 0.2+ | 2006 10 21 | 704 | (2.3+ | 0.9−) | |
| 2001 11 17 | 704 | 0.5+ | 1.5− | 2003 07 30 | 644 | 0.3+ | 0.0 | 2006 10 21 | 704 | (0.3− | 1.7+) | |
| 2001 11 17 | 704 | 1.2+ | 0.3− | 2003 07 30 | 644 | 0.2+ | 0.3+ | 2006 10 21 | 704 | 1.2− | 0.8− | |
| 2001 12 19 | 704 | (0.1+ | 3.2+) | 2005 04 03 | 704 | 1.5+ | 0.2− | 2006 10 21 | 704 | 0.0 | 1.1+ | |
| 2001 12 19 | 704 | (0.3+ | 2.7+) | 2005 04 03 | 704 | 0.8+ | 0.6− | 2006 11 25 | 703 | 0.5+ | 0.5+ | |
| 2001 12 19 | 704 | (0.1+ | 2.4+) | 2005 04 03 | 704 | (2.2+ | 0.2+) | 2006 11 25 | 703 | 0.7− | 1.3+ | |
| 2001 12 19 | 704 | (0.4+ | 2.4+) | 2005 04 03 | 704 | 0.4+ | 1.1+ | 2006 11 25 | 703 | 0.2− | 0.1− | |
| 2001 12 26 | 608 | 0.2+ | 0.8− | 2005 04 03 | 704 | (2.3+ | 1.0+) | 2006 11 25 | 703 | 0.3− | 0.5+ | |
| 2001 12 26 | 608 | 0.1− | 0.8− | 2006 09 25 | 703 | 0.1− | 0.1− | 2008 04 07 | 703 | 1.0− | 0.4+ | |
| 2001 12 26 | 608 | 0.1+ | 0.9− | 2006 09 25 | 703 | 0.0 | 0.0 | 2008 04 07 | 703 | (0.1+ | 1.6−) | |
| 2003 06 03 | 704 | 0.1+ | 0.8− | 2006 09 25 | 703 | 0.1+ | 0.1+ | 2008 04 07 | 703 | 0.3− | 0.5+ | |
| 2003 06 03 | 704 | 0.4+ | 1.2− | 2006 09 25 | 703 | 0.3− | 0.1+ | 2008 04 07 | 703 | 0.5+ | 0.5+ | |
| 2003 06 03 | 704 | 0.1− | 0.8− | 2006 10 02 | 703 | 1.3− | 0.7− | 2009 08 28 | 691 | 0.3− | 0.2+ | |
| 2003 06 03 | 704 | (0.2− | 1.8−) | 2006 10 02 | 703 | 0.3− | 0.9− | 2009 08 28 | 691 | 0.1+ | 0.2+ | |
| 2003 06 06 | 704 | 0.1− | 1.1+ | 2006 10 02 | 703 | 0.2− | 0.5− | 2009 08 28 | 691 | 0.3− | 0.0 | |
| 2003 06 06 | 704 | 1.1+ | 0.6− | 2006 10 02 | 703 | 0.0 | 1.1− | 2009 12 20 | 704 | 0.4+ | 0.1− | |
| 2003 06 06 | 704 | 0.1+ | 0.6− | 2006 10 02 | 704 | 0.1− | 1.3+ | 2009 12 20 | 704 | 0.1+ | 0.7− | |
| 2003 06 29 | 704 | 0.6+ | 0.2+ | 2006 10 02 | 704 | 0.6+ | 1.0+ | 2009 12 20 | 704 | 1.2− | 0.2+ | |
| 2003 06 29 | 704 | 0.0 | 0.5− | 2006 10 02 | 704 | 0.2+ | 1.0+ | 2009 12 20 | 704 | 0.0 | 0.2+ | |

**(228877)∗ 2003 MM$_2$**

Discovered 2003 June 23 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 52.72936 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18504610 | $\omega$ | 95.87522 | | +0.98296637 | −0.01482880 | |
| $a$ | 3.0498800 | $\Omega$ | 265.07407 | | −0.05621684 | +0.92470517 | |
| $e$ | 0.3064790 | $i$ | 10.59499 | | +0.17497654 | +0.38039512 | |
| $P$ | 5.33 | $H$ | 14.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 08 29 | 704 | 1.0− | 0.2− | 2003 08 27 | 608 | 0.8+ | 0.9+ | 2003 12 23 | 704 | 0.1+ | 0.7+ | |
| 1998 08 29 | 704 | 0.5+ | 0.1− | 2003 08 27 | 608 | 0.8+ | 1.0+ | 2003 12 23 | 704 | 0.5+ | 0.2+ | |
| 1998 08 29 | 704 | (2.4− | 0.0 ) | 2003 08 27 | 608 | 0.7+ | 0.9+ | 2003 12 23 | 704 | 0.0 | 0.0 | |
| 1998 08 29 | 704 | 0.8− | 0.1+ | 2003 08 28 | 644 | 0.0 | 0.2+ | 2005 01 13 | 704 | 0.2− | 0.5− | |
| 1998 08 29 | 704 | 0.7+ | 0.2+ | 2003 08 28 | 644 | 0.1− | 0.3+ | 2005 01 13 | 703 | 0.4− | 0.1+ | |
| 1998 10 02 | 699 | 0.1+ | 0.1− | 2003 08 28 | 644 | 0.1− | 0.1− | 2005 01 13 | 704 | 1.5− | 0.2− | |
| 1998 10 02 | 699 | 0.3+ | 0.1+ | 2003 08 29 | 704 | 1.0+ | 0.4+ | 2005 01 13 | 703 | 0.1+ | 0.2− | |
| 1998 10 02 | 699 | 0.2+ | 0.7+ | 2003 08 29 | 704 | 0.5+ | 0.4+ | 2005 01 13 | 704 | 0.8− | 0.2+ | |
| 1998 10 29 | 699 | 0.0 | 0.2+ | 2003 08 29 | 704 | 1.1+ | 0.1+ | 2005 01 13 | 703 | 0.1− | 0.8− | |
| 1998 10 29 | 699 | 0.3+ | 0.4− | 2003 09 02 | 704 | 0.0 | 1.0+ | 2005 01 13 | 703 | 0.6+ | 0.4− | |
| 1998 10 29 | 699 | 0.4+ | 0.6− | 2003 09 02 | 704 | (0.2+ | 2.2+) | 2005 01 13 | 704 | 1.1− | 1.1+ | |
| 1998 11 26 | 699 | 0.1+ | 0.8− | 2003 09 02 | 704 | 1.4− | 1.0+ | 2009 11 11 | 704 | 0.1+ | 0.1+ | |
| 1998 11 26 | 699 | 0.5+ | 0.9− | 2003 09 18 | 644 | 0.2+ | 0.4+ | 2009 11 11 | 704 | 0.3+ | 0.2+ | |
| 1998 11 26 | 699 | 0.7+ | 0.3+ | 2003 09 18 | 644 | 0.2+ | 0.5+ | 2009 11 11 | 704 | 0.2− | 0.0 | |
| 2003 06 23 | 699 | 0.9− | 0.4+ | 2003 09 18 | 644 | 0.1+ | 0.3+ | 2009 11 11 | 704 | 0.2− | 0.6− | |
| 2003 06 23 | 699 | 0.6− | 0.3+ | 2003 09 19 | 704 | (1.5+ | 1.0+) | 2009 11 11 | 704 | 0.2− | 0.3+ | |
| 2003 06 23 | 699 | 0.2+ | 0.1− | 2003 09 19 | 704 | 0.9+ | 0.6+ | 2009 11 17 | 704 | 0.1− | 0.8+ | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 06 23 | 699 | 0.0 | 0.7+ | 2003 09 19 | 704 | 1.1+ | 0.3− | 2009 11 17 | 704 | 0.0 | 0.5− |
| 2003 06 26 | 704 | 0.1+ | 0.3+ | 2003 09 19 | 704 | 0.3− | 0.9− | 2009 11 17 | 704 | 1.3+ | 0.7− |
| 2003 06 26 | 704 | 0.4+ | 0.5+ | 2003 10 17 | 645 | 0.0 | 0.1− | 2009 11 17 | 704 | 0.9+ | 0.1+ |
| 2003 06 26 | 704 | 0.5+ | 0.4+ | 2003 10 17 | 645 | 0.0 | 0.1− | 2009 11 22 | 704 | 1.2− | 0.7+ |
| 2003 06 29 | 704 | 0.6+ | 0.4+ | 2003 10 19 | 704 | 0.4+ | 0.4+ | 2009 11 22 | 704 | 0.1+ | 1.3+ |
| 2003 06 29 | 704 | 0.1− | 1.0+ | 2003 10 19 | 704 | 0.3− | 0.1− | 2009 11 22 | 704 | 0.8− | 0.6+ |
| 2003 06 29 | 704 | 0.4+ | 0.4− | 2003 10 19 | 704 | 0.1+ | 0.1− | 2009 11 22 | 704 | 0.4+ | 0.8+ |
| 2003 06 29 | 704 | 0.4− | 0.1+ | 2003 10 19 | 704 | 0.1− | 0.5− | 2009 11 22 | 704 | 0.2− | 0.7+ |
| 2003 07 22 | 608 | 0.1+ | 0.4+ | 2003 10 19 | 704 | 0.2+ | 0.8− | 2009 12 10 | G96 | 0.1+ | 0.2− |
| 2003 07 22 | 608 | 0.0 | 0.6+ | 2003 10 22 | 645 | 0.0 | 0.2− | 2009 12 10 | G96 | 0.2+ | 1.2+ |
| 2003 07 22 | 608 | 1.4− | 1.3+ | 2003 10 22 | 645 | 0.9− | 0.2− | 2009 12 10 | G96 | 0.0 | 0.2− |
| 2003 07 29 | 608 | 0.8+ | 0.4− | 2003 10 24 | 645 | 0.0 | 0.2− | 2009 12 10 | G96 | 1.2+ | 0.9− |
| 2003 07 29 | 608 | 0.6+ | 0.2− | 2003 10 24 | 645 | 0.0 | 0.2− | 2009 12 11 | 704 | 0.1+ | 0.6+ |
| 2003 07 29 | 608 | 0.4+ | 0.3− | 2003 11 19 | 704 | 0.7+ | 0.4+ | 2009 12 11 | 704 | 0.2− | 0.9+ |
| 2003 08 01 | 704 | 0.4+ | 1.2+ | 2003 11 19 | 704 | 0.2+ | 0.2− | 2009 12 11 | 704 | 0.0 | 0.3+ |
| 2003 08 01 | 704 | 0.4+ | 0.3+ | 2003 11 19 | 704 | 1.1+ | 0.0 | 2009 12 14 | C00 | 0.4+ | 0.3+ |
| 2003 08 01 | 704 | 0.8+ | 0.9+ | 2003 11 19 | 704 | 0.9+ | 0.2+ | 2009 12 14 | C00 | 0.7+ | 0.3+ |
| 2003 08 01 | 704 | 0.5+ | 1.2+ | 2003 11 19 | 704 | 1.0+ | 0.1− | 2009 12 14 | C00 | 0.6+ | 0.4+ |
| 2003 08 01 | 704 | 0.3+ | 0.4+ | 2003 12 14 | 704 | 0.5− | 0.6− | 2009 12 16 | 704 | 0.1+ | 0.6+ |
| 2003 08 07 | 704 | 0.1− | 0.6+ | 2003 12 14 | 704 | 1.0+ | 0.3+ | 2009 12 16 | 704 | 0.5+ | 0.6+ |
| 2003 08 07 | 704 | 0.0 | 0.6+ | 2003 12 14 | 704 | 0.7− | 0.3− | 2009 12 16 | 704 | 0.6− | 0.3+ |
| 2003 08 07 | 704 | 0.1− | 0.3+ | 2003 12 14 | 704 | 0.5− | 1.0+ | 2009 12 16 | 704 | 0.2+ | 0.3+ |
| 2003 08 07 | 704 | 0.8− | 0.5+ | 2003 12 14 | 704 | 1.0− | 0.3+ | 2009 12 16 | 704 | 0.3+ | 0.2+ |

**(228878)∗ 2003 ME$_3$**

Discovered 2003 June 25 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 211.91466 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23365243 | $\omega$ | 152.01544 | | −0.51505554 | +0.81867437 | |
| $a$ | 2.6106933 | $\Omega$ | 85.94680 | | −0.82626952 | −0.39538963 | |
| $e$ | 0.2145597 | $i$ | 14.74904 | | −0.22802733 | −0.41646047 | |
| $P$ | 4.22 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 05 05 | 704 | (0.9+ | 1.7+) | 2006 01 06 | 691 | 0.5− | 0.5− | 2007 05 22 | 703 | 0.6− | 0.5− |
| 2003 05 05 | 704 | (1.9+ | 0.6+) | 2007 01 29 | 703 | 1.1− | 1.3+ | 2007 05 22 | 703 | 1.3− | 0.9− |
| 2003 05 05 | 704 | 1.0+ | 1.1+ | 2007 01 29 | 703 | 0.4+ | 0.5− | 2007 05 22 | 703 | 0.9− | 0.5− |
| 2003 05 05 | 704 | (1.1+ | 1.6+) | 2007 01 29 | 703 | 0.2− | 1.0− | 2007 05 22 | 703 | (0.9− | 1.7−) |
| 2003 05 30 | 704 | 0.2+ | 1.2− | 2007 01 29 | 703 | 1.3+ | 0.1− | 2007 06 18 | 703 | 0.0 | 0.3− |
| 2003 05 30 | 704 | 0.3+ | 0.9+ | 2007 02 17 | 703 | (1.8− | 0.5−) | 2007 06 18 | 703 | 0.1− | 1.1− |
| 2003 05 30 | 704 | 0.0 | 0.6+ | 2007 02 17 | 703 | 0.4+ | 0.1− | 2007 06 18 | 703 | 0.3− | 0.2+ |
| 2003 05 30 | 704 | 0.4+ | 0.4+ | 2007 02 17 | 703 | 0.6− | 0.1− | 2007 06 18 | 703 | 0.6− | 0.7− |
| 2003 05 30 | 704 | 0.3− | 0.2+ | 2007 02 17 | 703 | (1.5− | 0.5+) | 2009 11 10 | 691 | 0.1+ | 0.1+ |
| 2003 06 04 | 704 | 0.2+ | 0.2+ | 2007 02 21 | 704 | 0.3+ | 0.3− | 2009 11 10 | 691 | 0.2+ | 0.1− |
| 2003 06 04 | 704 | 0.4+ | 1.4− | 2007 02 21 | 704 | (1.5+ | 0.8−) | 2009 11 10 | 691 | 0.1+ | 0.1− |
| 2003 06 04 | 704 | 0.5+ | 0.3+ | 2007 02 21 | 704 | 0.9+ | 0.1− | 2009 11 18 | 691 | 0.3− | 0.4+ |
| 2003 06 04 | 704 | 0.3+ | 0.0 | 2007 02 21 | 704 | (1.5+ | 0.5+) | 2009 11 18 | 691 | 0.1+ | 0.2+ |
| 2003 06 06 | 704 | 0.4+ | 1.1+ | 2007 03 20 | 699 | 0.8+ | 0.1+ | 2009 11 18 | 691 | 0.1− | 0.1− |
| 2003 06 06 | 704 | 0.3+ | 0.6+ | 2007 03 20 | 699 | 0.2− | 1.0+ | 2009 11 19 | 691 | 0.9+ | 0.2+ |
| 2003 06 06 | 704 | 0.2+ | 0.1− | 2007 03 20 | 699 | 1.2+ | 0.4+ | 2009 11 19 | 691 | 0.2− | 0.0 |
| 2003 06 06 | 704 | 0.1+ | 1.1+ | 2007 03 26 | 703 | 0.7− | 1.0+ | 2009 11 19 | 691 | 0.5− | 0.1− |
| 2003 06 06 | 704 | 0.1+ | 0.7+ | 2007 03 26 | 703 | 0.4− | 0.7+ | 2009 11 23 | 691 | 0.5− | 0.5− |
| 2003 06 25 | 704 | 0.1− | 0.2+ | 2007 03 26 | 703 | 0.6− | 1.0+ | 2009 11 23 | 691 | 0.3− | 0.1− |
| 2003 06 25 | 704 | 0.8− | 0.7+ | 2007 03 26 | 703 | 0.3+ | 0.2− | 2009 11 23 | 691 | 0.4− | 0.1+ |
| 2003 06 25 | 704 | 0.0 | 0.4− | 2007 04 11 | 703 | 0.1+ | 0.6− | 2009 11 27 | 691 | 0.3+ | 0.4+ |
| 2003 06 25 | 704 | 0.7− | 0.1+ | 2007 04 11 | 703 | 0.4+ | 0.2+ | 2009 11 27 | 691 | 0.2− | 0.6+ |
| 2003 06 25 | 704 | 1.0− | 0.2− | 2007 04 11 | 703 | 0.1+ | 0.1+ | 2009 11 27 | 691 | 0.1+ | 0.1+ |
| 2003 06 27 | 704 | 0.1− | 0.7− | 2007 04 11 | 703 | 0.6− | 0.3− | 2009 12 11 | G96 | 0.6+ | 0.0 |
| 2003 06 27 | 704 | 0.6+ | 0.7− | 2007 04 20 | 699 | 0.8+ | 0.7+ | 2009 12 11 | G96 | 0.3+ | 0.2− |
| 2003 06 27 | 704 | 0.7− | 0.5+ | 2007 04 20 | 699 | 0.8+ | 0.6+ | 2009 12 11 | G96 | 0.4+ | 0.1− |
| 2003 06 27 | 704 | 0.2+ | 0.1+ | 2007 04 20 | 699 | 0.6+ | 0.0 | 2009 12 11 | G96 | 0.5+ | 0.1− |
| 2005 12 31 | 691 | 0.2+ | 0.1+ | 2007 04 20 | 699 | 0.3+ | 0.1+ | 2009 12 11 | 703 | 0.0 | 0.2+ |
| 2005 12 31 | 691 | 0.2+ | 0.1+ | 2007 05 13 | 703 | 0.4− | 0.3− | 2009 12 11 | 703 | 1.1− | 1.6+ |
| 2005 12 31 | 691 | 0.3+ | 0.1− | 2007 05 13 | 703 | 0.2− | 0.9− | 2009 12 11 | 703 | 0.0 | 0.3+ |
| 2006 01 06 | 691 | 0.2+ | 0.5− | 2007 05 13 | 703 | 0.6+ | 0.8− | 2009 12 11 | 703 | 1.1− | 0.3− |
| 2006 01 06 | 691 | 0.0 | 0.0 | 2007 05 13 | 703 | 0.6− | 0.2+ | | | | |

**(228879)∗ 2003 NF = 1999 RR$_{222}$**

Discovered 2003 July 1 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 50234)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 198.76049 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22983690 | $\omega$ | 347.15651 | | −0.02423694 | +0.98095344 | |
| $a$ | 2.6395073 | $\Omega$ | 281.21109 | | −0.89896435 | −0.10572367 | |
| $e$ | 0.2720223 | $i$ | 11.33085 | | −0.43735074 | +0.16295045 | |
| $P$ | 4.29 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 09 07 | 703 | 0.5+ | 1.1+ | 2003 08 05 | 704 | 0.6+ | 0.6− | 2007 05 14 | E12 | 0.0 | 0.2+ |
| 1999 09 07 | 703 | 0.1+ | 0.2− | 2003 08 05 | 704 | 0.6− | 0.5+ | 2007 05 14 | E12 | 0.0 | 0.0 |
| 1999 09 07 | 703 | 1.0− | 1.6+ | 2003 08 05 | 704 | 0.2− | 0.8+ | 2007 05 14 | E12 | 0.2+ | 0.5+ |
| 1999 09 07 | 703 | 0.7− | 0.5− | 2003 08 05 | 704 | 0.3− | 0.8+ | 2007 05 14 | E12 | 0.1+ | 0.3+ |
| 1999 09 08 | 704 | 1.0− | 1.2+ | 2005 12 28 | 691 | 0.0 | 0.3+ | 2007 06 05 | E12 | 0.2− | 0.2+ |
| 1999 09 08 | 704 | 0.3− | 0.9+ | 2005 12 28 | 691 | 0.3+ | 0.0 | 2007 06 05 | E12 | 0.1+ | 0.5+ |
| 1999 09 08 | 704 | 0.1− | 0.2− | 2005 12 28 | 691 | 0.3+ | 0.1+ | 2007 06 05 | E12 | 0.6− | 0.2+ |
| 2003 06 25 | 704 | 0.1+ | 0.5− | 2006 01 07 | 691 | 0.2+ | 0.2+ | 2007 06 05 | E12 | 0.4− | 0.2+ |
| 2003 06 25 | 704 | 0.6− | 1.1− | 2006 01 07 | 691 | 0.1− | 0.5+ | 2007 07 20 | E12 | 0.6− | 0.2+ |
| 2003 06 25 | 704 | 0.8+ | 0.4+ | 2006 01 07 | 691 | 0.4− | 0.0 | 2007 07 20 | E12 | 0.2+ | 0.8+ |
| 2003 06 25 | 704 | 0.6+ | 0.6− | 2006 01 09 | G96 | 0.1+ | 0.1− | 2008 11 03 | G96 | 0.1+ | 0.1+ |
| 2003 07 01 | 704 | (0.4− | 1.9+) | 2006 01 09 | G96 | 0.2+ | 0.5− | 2008 11 03 | G96 | 0.0 | 0.2+ |
| 2003 07 01 | 704 | 0.6− | 0.2+ | 2006 01 09 | G96 | 0.4+ | 0.2− | 2008 11 03 | G96 | 0.2− | 0.2+ |
| 2003 07 01 | 704 | 0.4+ | 0.5+ | 2006 01 09 | G96 | 0.1− | 0.2− | 2008 11 03 | G96 | 0.1+ | 0.2+ |
| 2003 07 02 | 608 | 0.1+ | 1.1− | 2007 03 28 | E12 | 0.4− | 0.1− | 2009 11 17 | G96 | 0.5+ | 0.2− |
| 2003 07 02 | 608 | 0.1− | 0.0 | 2007 03 28 | E12 | 0.7+ | 0.3+ | 2009 11 17 | G96 | 0.3+ | 0.1+ |
| 2003 07 02 | 608 | 0.7+ | 1.1− | 2007 03 28 | E12 | 0.0 | 0.5+ | 2009 11 17 | G96 | 0.2+ | 0.0 |
| 2003 07 25 | 704 | 0.5+ | 0.3+ | 2007 03 28 | E12 | 0.2− | 1.0+ | 2009 11 17 | G96 | 0.4− | 0.0 |
| 2003 07 25 | 704 | 0.8− | 1.1+ | 2007 05 12 | 735 | 0.4+ | 0.8+ | 2009 12 17 | 691 | 0.3− | 0.2− |
| 2003 07 25 | 704 | 0.8+ | 0.8− | 2007 05 12 | 735 | 0.7+ | 0.0 | 2009 12 17 | 691 | 0.1+ | 0.2+ |
| 2003 07 25 | 704 | (2.3− | 1.2+) | 2007 05 12 | 735 | 0.5+ | 0.1− | 2009 12 17 | 691 | 0.1− | 0.0 |

**(228880)∗ 2003 OA$_8$**

Discovered 2003 July 27 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 42.09918 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17522609 | $\omega$ | 79.87972 | | +0.87033350 | +0.25007362 | |
| $a$ | 3.1627889 | $\Omega$ | 264.64929 | | −0.40356600 | +0.85588821 | |
| $e$ | 0.2409534 | $i$ | 25.22034 | | +0.28223055 | +0.45267930 | |
| $P$ | 5.62 | $H$ | 14.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 11 16 | 704 | 1.8− | 1.0+ | 2003 08 01 | 704 | 0.1+ | 0.1− | 2009 11 09 | 704 | 0.2+ | 0.1+ |
| 1998 11 16 | 704 | 0.7+ | 0.3+ | 2003 08 01 | 704 | 0.9− | 0.5− | 2009 11 09 | 704 | 0.0 | 0.2+ |
| 1998 11 16 | 704 | 0.9+ | 0.5− | 2003 08 01 | 636 | 0.2− | 0.5+ | 2009 11 09 | 704 | 0.1+ | 0.4+ |
| 1998 11 16 | 704 | (3.4− | 1.0+) | 2003 08 01 | 636 | 0.4+ | 0.8+ | 2009 11 09 | 703 | 0.7− | 0.0 |
| 2003 06 26 | 699 | 0.1− | 0.3− | 2003 08 01 | 636 | 0.1+ | 0.5+ | 2009 11 09 | 703 | 0.2− | 0.5− |
| 2003 06 26 | 699 | 0.9+ | 0.2− | 2003 10 06 | 704 | 0.9+ | 0.4+ | 2009 11 09 | 703 | (0.7+ | 1.9−) |
| 2003 06 26 | 699 | 0.4− | 0.7+ | 2003 10 06 | 704 | 0.6+ | 1.3+ | 2009 11 09 | 703 | (2.1+ | 0.2−) |
| 2003 06 26 | 699 | 0.1+ | 0.1+ | 2003 10 06 | 704 | (0.3− | 2.0+) | 2009 11 10 | 704 | 0.7+ | 0.3− |
| 2003 06 30 | 608 | 0.5+ | 1.3− | 2003 10 06 | 704 | 0.8+ | 0.3+ | 2009 11 10 | 704 | 0.2+ | 0.1+ |
| 2003 06 30 | 608 | 0.8+ | 0.3− | 2004 12 14 | 704 | 0.9− | 0.1+ | 2009 11 10 | 704 | 0.4+ | 0.3+ |
| 2003 06 30 | 608 | 0.1− | 0.5− | 2004 12 14 | 704 | 0.5+ | 0.6+ | 2009 11 10 | 704 | 0.2− | 0.1+ |
| 2003 07 26 | 644 | 0.3− | 0.2− | 2004 12 14 | 704 | 0.7+ | 0.3− | 2009 11 20 | 703 | 0.2− | 0.3− |
| 2003 07 26 | 644 | 0.5− | 0.2+ | 2004 12 14 | 704 | 0.1− | 0.7+ | 2009 11 20 | 703 | 0.0 | 0.5− |
| 2003 07 26 | 644 | 0.2− | 0.2+ | 2004 12 16 | 691 | 0.1+ | 0.2− | 2009 11 20 | 703 | 0.2− | 0.9− |
| 2003 07 27 | 704 | 0.0 | 0.5+ | 2004 12 16 | 691 | 0.1− | 0.0 | 2009 11 23 | 704 | 0.3+ | 0.0 |
| 2003 07 27 | 704 | 0.6+ | 0.5+ | 2004 12 16 | 691 | 0.0 | 0.2− | 2009 11 23 | 704 | 0.5+ | 0.5+ |
| 2003 07 27 | 704 | 0.3+ | 0.4+ | 2009 10 12 | 704 | 0.3+ | 1.0+ | 2009 11 23 | 704 | 0.2+ | 0.3− |
| 2003 07 29 | 704 | 0.2− | 0.0 | 2009 10 12 | 704 | 1.3+ | 0.6+ | 2009 11 23 | 704 | 0.2+ | 0.3− |
| 2003 07 29 | 704 | 0.1+ | 0.8− | 2009 10 12 | 704 | 0.6+ | 0.1+ | 2009 12 09 | 704 | 0.1− | 0.0 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 07 29 | 704 | 0.2+ | 0.7− | 2009 10 17 | 703 | 0.3− | 0.6− | 2009 12 09 | 704 | 0.0 | 0.9+ |
| 2003 07 29 | 704 | 0.1+ | 0.6− | 2009 10 17 | 703 | 0.2− | 0.6− | 2009 12 09 | 704 | 0.0 | 0.4+ |
| 2003 07 29 | 704 | 0.1− | 0.9− | 2009 10 17 | 703 | 0.1− | 0.7− | 2009 12 09 | 704 | 1.0− | 0.2+ |
| 2003 07 30 | 704 | 1.0− | 0.2− | 2009 10 17 | 703 | 1.1− | 0.9− | 2009 12 19 | 703 | 1.6− | 1.0− |
| 2003 07 30 | 704 | 0.8− | 0.1− | 2009 10 17 | 703 | 0.1+ | 0.7− | 2009 12 19 | 703 | 0.0 | 0.2+ |
| 2003 07 30 | 704 | 1.1− | 0.0 | 2009 11 09 | 704 | 0.3+ | 0.1+ | 2009 12 19 | 703 | 0.7− | 0.1+ |
| 2003 08 01 | 704 | 0.5− | 0.8+ | 2009 11 09 | 704 | 0.6+ | 1.1+ | 2009 12 19 | 703 | 0.1+ | 0.2− |

**(228881)∗ 2003 OT$_8$**

Discovered 2003 July 22 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 68.68233 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17823363 | $\omega$ | 57.70721 | | +0.82870790 | | +0.48587748 |
| $a$ | 3.1271085 | $\Omega$ | 271.83421 | | −0.55951870 | | +0.73118431 |
| $e$ | 0.3379275 | $i$ | 16.13674 | | +0.01349245 | | +0.47884504 |
| $P$ | 5.53 | $H$ | 14.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 06 30 | 699 | (0.3+ | 3.8−) | 2003 10 17 | 636 | 0.0 | 0.2− | 2004 12 03 | 691 | 0.0 | 0.0 |
| 2003 06 30 | 699 | (2.3− | 0.1−) | 2003 10 17 | 636 | 0.1+ | 0.6− | 2004 12 03 | 691 | 0.1− | 0.2+ |
| 2003 06 30 | 699 | 0.5− | 0.3− | 2003 10 19 | 644 | 0.1− | 0.2− | 2004 12 03 | 691 | 0.1− | 0.1− |
| 2003 06 30 | 699 | 0.8− | 0.3+ | 2003 10 19 | 644 | 0.2− | 0.3− | 2004 12 14 | 703 | 0.3+ | 0.7+ |
| 2003 07 22 | 704 | 0.1− | 1.0+ | 2003 10 19 | 644 | 0.1− | 0.2− | 2004 12 14 | 703 | 0.1+ | 0.3− |
| 2003 07 22 | 704 | 0.4− | 0.7+ | 2003 10 19 | 699 | 0.5− | 0.1− | 2004 12 14 | 703 | 0.3− | 0.6+ |
| 2003 07 22 | 704 | 0.3+ | 0.4− | 2003 10 19 | 699 | 0.5− | 0.2− | 2004 12 14 | 703 | 0.5− | 0.9− |
| 2003 07 22 | 704 | 0.2− | 0.1− | 2003 10 19 | 699 | 0.0 | 0.1+ | 2005 01 16 | 691 | 0.1+ | 0.1− |
| 2003 07 22 | 704 | 0.4− | 0.5+ | 2003 10 19 | 699 | 0.1+ | 0.1+ | 2005 01 16 | 691 | 0.3+ | 0.1+ |
| 2003 07 27 | 704 | 0.6+ | 0.9+ | 2003 10 22 | 699 | 0.2− | 0.2− | 2005 01 16 | 691 | 0.1− | 0.1− |
| 2003 07 27 | 704 | 0.5+ | 1.1− | 2003 10 22 | 699 | 0.1− | 0.1− | 2008 08 18 | B03 | 0.2− | 0.5+ |
| 2003 07 27 | 704 | 0.1+ | 1.0+ | 2003 10 22 | 699 | 0.3− | 0.2− | 2009 11 16 | 704 | 0.6− | 0.1+ |
| 2003 07 27 | 704 | 0.4+ | 1.0+ | 2003 10 22 | 699 | 0.1+ | 0.1− | 2009 11 16 | 704 | 0.6− | 0.2+ |
| 2003 08 21 | 704 | 0.4− | 0.0 | 2003 10 22 | 704 | 0.2+ | 0.2+ | 2009 11 16 | 704 | 1.1− | 1.5− |
| 2003 08 21 | 704 | 0.3− | 0.0 | 2003 10 22 | 704 | 0.3+ | 0.2+ | 2009 11 16 | 704 | 0.2− | 0.3− |
| 2003 08 21 | 704 | 0.0 | 0.1+ | 2003 10 22 | 704 | 0.0 | 0.2+ | 2009 11 23 | 704 | 0.8− | 0.2+ |
| 2003 08 21 | 704 | 1.0+ | 0.4− | 2003 10 22 | 704 | 0.1− | 0.3+ | 2009 11 23 | 704 | 0.3+ | 0.3− |
| 2003 08 21 | 704 | 0.9− | 0.8+ | 2003 10 22 | 704 | 0.2+ | 0.2+ | 2009 11 23 | 704 | 0.3+ | 0.2− |
| 2003 08 28 | 644 | 0.0 | 0.1− | 2003 11 21 | 704 | 0.1+ | 0.1− | 2009 11 23 | 704 | 0.1+ | 0.0 |
| 2003 08 28 | 644 | 0.1− | 0.1− | 2003 11 21 | 704 | 0.0 | 0.1+ | 2009 12 09 | J75 | 0.3− | 0.2− |
| 2003 08 28 | 644 | 0.1+ | 0.1− | 2003 11 21 | 704 | 0.0 | 0.1− | 2009 12 09 | J75 | 0.1− | 0.0 |
| 2003 09 07 | 704 | 0.7+ | 0.6+ | 2003 11 21 | 704 | 0.4− | 0.5− | 2009 12 09 | J75 | 0.1− | 0.4+ |
| 2003 09 07 | 704 | 0.1− | 0.7+ | 2003 11 21 | 704 | 0.7− | 0.6− | 2009 12 10 | 704 | 0.0 | 0.3+ |
| 2003 09 07 | 704 | (1.9− | 0.7−) | 2003 11 23 | 704 | 0.3− | 0.9+ | 2009 12 10 | 704 | 0.1− | 0.4+ |
| 2003 09 07 | 704 | 0.5− | 0.6− | 2003 11 23 | 704 | 0.1+ | 0.6− | 2009 12 10 | 704 | 0.2+ | 0.0 |
| 2003 09 07 | 704 | (1.3− | 1.9+) | 2003 11 23 | 704 | 0.0 | 0.2+ | 2009 12 10 | 704 | 0.1+ | 0.1+ |
| 2003 09 25 | 196 | 0.7+ | 0.4− | 2003 11 23 | 704 | 0.1+ | 0.1+ | 2009 12 10 | 704 | 0.1+ | 0.3+ |
| 2003 09 25 | 196 | 0.7+ | 0.4− | 2003 11 23 | 704 | 0.5+ | 0.1+ | 2009 12 15 | 704 | 0.5+ | 0.6+ |
| 2003 09 29 | 699 | 0.0 | 0.3− | 2003 12 19 | 704 | 0.1− | 0.1− | 2009 12 15 | 704 | 0.4+ | 0.6+ |
| 2003 09 29 | 699 | 0.2+ | 0.0 | 2003 12 19 | 704 | 0.1+ | 0.1− | 2009 12 15 | 704 | 1.0+ | 0.4+ |
| 2003 09 29 | 699 | 0.1+ | 0.3− | 2003 12 19 | 704 | 0.7+ | 0.1+ | 2009 12 15 | 704 | 1.1+ | 1.2+ |
| 2003 09 29 | 699 | 0.1− | 0.1+ | 2003 12 19 | 704 | 0.4+ | 0.2− | 2009 12 15 | 704 | 0.1− | 0.5+ |
| 2003 10 17 | 636 | 0.1+ | 0.9− | 2003 12 19 | 704 | 0.3+ | 0.0 | | | | |

**(228882)∗ 2003 OW$_{17}$ = 2004 XS$_{21}$**

Discovered 2003 July 29 by J. Broughton at Reedy Creek.

Id. G. V. Williams (*MPO* 72782)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 91.54314 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.20061766 | $\omega$ | 250.72035 | | +0.91842330 | | +0.38684732 |
| $a$ | 2.8899474 | $\Omega$ | 86.45066 | | −0.32465156 | | +0.85656675 |
| $e$ | 0.1710643 | $i$ | 4.75588 | | −0.22605311 | | +0.34152972 |
| $P$ | 4.91 | $H$ | 15.3 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 12 07 | 704 | 0.1+ | 0.4− | 2004 12 16 | 704 | 1.1− | 0.2+ | 2008 07 27 | J75 | 0.0 | 0.3− |
| 1999 12 07 | 704 | 0.4+ | 0.6− | 2004 12 16 | 704 | 1.0− | 0.2− | 2008 08 03 | 704 | 0.7− | 0.8− |
| 1999 12 07 | 704 | 0.5− | 0.8− | 2004 12 16 | 704 | 0.1+ | 0.7+ | 2008 08 03 | 704 | 0.5+ | 0.3+ |
| 1999 12 07 | 704 | 0.5+ | 0.1− | 2004 12 16 | 704 | 0.1− | 1.5− | 2008 08 03 | 704 | 0.1− | 0.9− |
| 1999 12 07 | 704 | 0.7+ | 0.2− | 2007 03 15 | G96 | 0.6− | 0.5− | 2008 08 03 | 704 | 0.1+ | 0.3+ |
| 2002 04 14 | 644 | 0.3+ | 0.4+ | 2007 03 15 | G96 | 0.2+ | 0.3− | 2008 08 23 | 704 | 0.2+ | 0.3− |
| 2002 04 14 | 644 | 0.7+ | 0.3+ | 2007 03 15 | G96 | 0.1− | 0.2− | 2008 08 23 | 704 | 0.2+ | 0.1+ |
| 2002 04 14 | 644 | 0.6+ | 0.6+ | 2007 03 15 | G96 | 0.6− | 0.1+ | 2008 08 23 | 704 | 0.5− | 0.1− |
| 2003 07 29 | 428 | 0.7− | 0.7− | 2007 03 29 | 691 | 0.0 | 0.1− | 2008 08 23 | 704 | 0.2− | 0.1− |
| 2003 07 29 | 428 | 0.3+ | 0.1− | 2007 03 29 | 691 | 0.1− | 0.1+ | 2008 08 23 | 704 | 0.2+ | 0.2− |
| 2003 07 30 | 428 | 0.4+ | 0.3+ | 2007 03 29 | 691 | 0.4− | 0.2− | 2008 08 23 | E12 | 0.0 | 0.1+ |
| 2003 07 30 | 428 | 0.8+ | 0.5+ | 2007 04 14 | 691 | 0.1− | 0.2− | 2008 08 23 | E12 | 0.1− | 0.5+ |
| 2003 08 05 | 428 | 0.4− | 0.5+ | 2007 04 14 | 691 | 0.1+ | 0.1+ | 2008 08 23 | E12 | 0.1− | 1.0+ |
| 2003 08 05 | 428 | 0.6− | 0.5− | 2007 04 14 | 691 | 0.0 | 0.0 | 2008 08 23 | E12 | 0.1− | 0.4+ |
| 2004 12 08 | 704 | 0.5− | 0.6+ | 2007 04 18 | 691 | 0.1− | 0.1− | 2009 12 10 | G96 | 0.1− | 0.0 |
| 2004 12 08 | 704 | 0.0 | 0.1− | 2007 04 18 | 691 | 0.2+ | 0.3+ | 2009 12 10 | G96 | 0.2− | 0.1− |
| 2004 12 08 | 704 | 1.0− | 0.9+ | 2007 04 18 | 691 | 0.2− | 0.2− | 2009 12 10 | G96 | 0.2− | 0.1+ |
| 2004 12 08 | 704 | 0.0 | 0.7+ | 2007 05 10 | 691 | 0.2+ | 0.0 | 2009 12 10 | G96 | 0.2+ | 0.0 |
| 2004 12 10 | 704 | 0.7+ | 0.5+ | 2007 05 10 | 691 | 0.2+ | 0.1+ | 2009 12 17 | 704 | 0.4+ | 0.1+ |
| 2004 12 10 | 704 | 0.6+ | 0.7− | 2007 05 10 | 691 | 0.1+ | 0.1+ | 2009 12 17 | 704 | 0.7+ | 0.6+ |
| 2004 12 10 | 704 | 0.9+ | 0.3+ | 2008 07 27 | J75 | 0.4+ | 0.1+ | 2009 12 17 | 704 | 0.4+ | 0.3− |
| 2004 12 16 | 704 | 0.7− | 0.2+ | 2008 07 27 | J75 | 0.2+ | 0.1+ | | | | |

**(228883)∗ 2003 PT$_4$**

Discovered 2003 Aug. 2 by B. Christophe at Saint-Sulpice.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 50.25036 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18883210 | $\omega$ | 120.37921 | | +0.98742133 | | +0.08450776 |
| $a$ | 3.0089768 | $\Omega$ | 235.09174 | | −0.12231324 | | +0.94384829 |
| $e$ | 0.1116934 | $i$ | 9.37830 | | +0.10019272 | | +0.31938822 |
| $P$ | 5.22 | $H$ | 15.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 05 11 | 704 | (0.4− | 1.9+) | 2004 12 14 | 704 | 0.5− | 0.3− | 2009 10 24 | 703 | 0.6− | 0.5+ |
| 2002 05 11 | 704 | 0.1+ | 1.1+ | 2004 12 14 | 704 | 0.2+ | 0.4+ | 2009 10 25 | 703 | 0.1− | 0.1+ |
| 2002 05 11 | 704 | (0.7− | 1.9+) | 2005 02 08 | 947 | 0.5+ | 0.0 | 2009 10 25 | 703 | 0.2+ | 0.3− |
| 2003 08 02 | 947 | 0.3+ | 0.2+ | 2005 02 08 | 947 | 0.3+ | 0.2+ | 2009 10 25 | 703 | 0.1+ | 0.7− |
| 2003 08 02 | 947 | 0.3+ | 0.3− | 2005 02 08 | 947 | 0.4− | 0.1+ | 2009 10 25 | 703 | 0.1− | 0.7− |
| 2003 08 02 | 947 | 0.5− | 0.5+ | 2006 03 04 | 703 | 0.9+ | 0.6+ | 2009 10 28 | J75 | 0.3+ | 0.1+ |
| 2003 08 03 | 947 | 0.1+ | 0.1+ | 2006 03 04 | 703 | (0.0 | 1.9+) | 2009 10 28 | J75 | 0.3− | 0.3− |
| 2003 08 03 | 947 | 0.1+ | 0.0 | 2006 03 04 | 703 | 0.9− | 0.8− | 2009 10 28 | J75 | 0.1− | 0.1− |
| 2003 08 03 | 947 | 1.0− | 0.0 | 2006 03 04 | 703 | 0.2− | 0.1− | 2009 11 08 | G96 | 0.3+ | 0.0 |
| 2003 08 04 | 947 | (10.3− | 4.6+) | 2009 10 11 | J75 | 0.4− | 0.1+ | 2009 11 08 | G96 | 0.0 | 0.0 |
| 2003 08 04 | 947 | 0.1− | 0.4+ | 2009 10 11 | J75 | 0.2+ | 0.3− | 2009 11 08 | G96 | 0.2+ | 0.1+ |
| 2003 08 04 | 947 | 0.8− | 0.2− | 2009 10 11 | J75 | 0.1− | 0.0 | 2009 11 08 | G96 | 0.2− | 0.1− |
| 2003 08 17 | 644 | 0.3− | 0.1+ | 2009 10 14 | 703 | 0.3− | 0.3+ | 2009 11 13 | J75 | 0.4− | 0.1− |
| 2003 08 17 | 644 | 0.3− | 0.2+ | 2009 10 14 | 703 | 0.6− | 0.4+ | 2009 11 13 | J75 | 0.3− | 0.5− |
| 2003 08 17 | 644 | 0.2− | 0.2+ | 2009 10 14 | 703 | (1.8− | 0.1+) | 2009 11 13 | J75 | 0.9+ | 0.1+ |
| 2003 08 19 | 947 | 0.1− | 0.1− | 2009 10 14 | 703 | 0.1− | 0.3+ | 2009 11 17 | 704 | 0.2+ | 0.3+ |
| 2003 08 19 | 947 | 0.5+ | 0.1− | 2009 10 22 | 703 | 0.0 | 0.0 | 2009 11 17 | 704 | 0.0 | 0.6+ |
| 2003 08 19 | 947 | 0.4+ | 0.2− | 2009 10 22 | 703 | 1.4+ | 0.8+ | 2009 11 17 | 704 | 0.4− | 0.1+ |
| 2003 08 21 | 947 | 1.1+ | 0.7− | 2009 10 22 | 703 | 1.2− | 0.3− | 2009 11 17 | 704 | 0.4− | 0.8− |
| 2003 08 21 | 947 | 0.4+ | 0.4+ | 2009 10 22 | 703 | 0.9− | 0.2+ | 2009 11 20 | 704 | 0.2+ | 0.1− |
| 2003 09 01 | 947 | (8.2+ | 0.5−) | 2009 10 23 | 704 | 0.8+ | 0.1− | 2009 11 20 | 704 | (1.6+ | 0.2+) |
| 2003 09 01 | 947 | (1.1− | 4.6−) | 2009 10 23 | 704 | 0.9+ | 0.4+ | 2009 11 20 | 704 | 0.5+ | 0.4− |
| 2004 12 09 | 703 | 0.5− | 0.4− | 2009 10 23 | 704 | 0.3+ | 0.9− | 2009 11 20 | 704 | 0.4+ | 0.1− |
| 2004 12 09 | 703 | 0.6+ | 0.8− | 2009 10 23 | 704 | 0.4− | 0.4+ | 2009 11 20 | 704 | 0.2+ | 0.5− |
| 2004 12 09 | 703 | 0.5+ | 0.8+ | 2009 10 23 | 704 | 0.0 | 0.3+ | 2009 12 10 | 703 | 1.0+ | 0.2+ |
| 2004 12 09 | 703 | (0.9− | 2.0+) | 2009 10 23 | G96 | 0.1+ | 0.2+ | 2009 12 10 | 703 | 1.1− | 0.6− |
| 2004 12 10 | 704 | 0.5+ | 1.3+ | 2009 10 23 | G96 | 0.1+ | 0.2+ | 2009 12 10 | 703 | 0.5− | 0.5+ |
| 2004 12 10 | 704 | 0.9− | 0.7+ | 2009 10 23 | G96 | 0.2+ | 0.2+ | 2009 12 10 | 703 | 0.6− | 1.1− |
| 2004 12 10 | 704 | 0.2+ | 0.4− | 2009 10 23 | G96 | 0.2+ | 0.1+ | 2009 12 17 | G96 | 0.3+ | 0.0 |
| 2004 12 10 | 704 | (0.3+ | 1.8+) | 2009 10 24 | 703 | 0.9+ | 1.1− | 2009 12 17 | G96 | 0.1+ | 0.2+ |
| 2004 12 14 | 704 | 0.4+ | 0.6+ | 2009 10 24 | 703 | (1.8+ | 0.0 ) | 2009 12 17 | G96 | 0.0 | 0.1+ |
| 2004 12 14 | 704 | 0.8− | 0.5+ | 2009 10 24 | 703 | 0.2− | 0.8+ | 2009 12 17 | G96 | 0.2− | 0.1+ |

**(228884)∗ 2003 QK$_{15}$ = 2001 DU$_{83}$**

Discovered 2003 Aug. 20 by NEAT at Palomar.

Id. G. V. Williams (*MPO* 53135)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 88.92955 | | (2000.0) | | | |
| $n$ | 0.19318176 | $\omega$ | 88.66378 | | +0.92574914 | +0.35123621 |
| $a$ | 2.9636391 | $\Omega$ | 250.75836 | | −0.37813139 | +0.85764434 |
| $e$ | 0.1163886 | $i$ | 8.53221 | | −0.00227466 | +0.37560527 |
| $P$ | 5.10 | $H$ | 15.4 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 02 23 | 807 | 1.0+ | 0.5+ | 2003 09 20 | 704 | 0.1− | 1.0+ | 2008 09 05 | 704 | 0.6+ | 0.3+ |
| 2001 02 23 | 807 | 0.5− | 0.9+ | 2003 09 30 | 704 | 0.3+ | 0.6− | 2008 09 22 | 704 | 0.7+ | 0.0 |
| 2001 02 23 | 807 | 0.8+ | 0.8+ | 2003 09 30 | 704 | (2.5− | 1.1−) | 2008 09 22 | 704 | 0.8− | 1.4+ |
| 2001 02 23 | 807 | 0.7+ | 0.2+ | 2003 09 30 | 704 | (0.0 | 1.6−) | 2008 09 22 | 704 | 0.4− | 0.3− |
| 2001 02 25 | 807 | 0.3+ | 0.4+ | 2003 09 30 | 704 | (2.3+ | 2.4−) | 2008 09 22 | 704 | 0.3− | 0.6+ |
| 2001 02 25 | 807 | 0.5− | 1.1+ | 2003 10 15 | 644 | 0.1+ | 0.1+ | 2009 11 20 | 691 | 0.3− | 0.0 |
| 2003 08 20 | 644 | 0.2− | 0.0 | 2003 10 15 | 644 | 0.1− | 0.2+ | 2009 11 20 | 691 | 0.1− | 0.0 |
| 2003 08 20 | 644 | 0.1− | 0.1− | 2003 10 15 | 644 | 0.1+ | 0.2+ | 2009 11 20 | 691 | 0.3− | 0.1− |
| 2003 08 20 | 644 | 0.2+ | 0.1+ | 2008 07 26 | E12 | 0.0 | 0.2− | 2009 11 24 | 691 | 0.1− | 0.2+ |
| 2003 08 23 | 644 | 0.0 | 0.2− | 2008 07 26 | E12 | 0.4+ | 0.1− | 2009 11 24 | 691 | 0.1− | 0.0 |
| 2003 08 23 | 644 | 0.0 | 0.1− | 2008 07 26 | E12 | 0.2+ | 0.4+ | 2009 11 24 | 691 | 0.1+ | 0.0 |
| 2003 08 23 | 644 | 0.0 | 0.2− | 2008 07 26 | E12 | (1.7+ | 0.5−) | 2009 12 10 | G96 | 0.2+ | 0.1− |
| 2003 09 18 | 699 | 0.8− | 0.1+ | 2008 08 26 | 704 | 0.4+ | 0.3+ | 2009 12 10 | G96 | 0.2+ | 0.3− |
| 2003 09 18 | 699 | 1.0+ | 1.3− | 2008 08 26 | 704 | 0.9− | 0.3− | 2009 12 10 | G96 | 0.3+ | 0.1− |
| 2003 09 18 | 699 | 1.4− | 0.0 | 2008 08 26 | 704 | 0.5− | 0.3− | 2009 12 10 | G96 | 0.4+ | 0.0 |
| 2003 09 18 | 699 | 0.1+ | 0.1+ | 2008 08 26 | 704 | 0.7− | 0.4+ | 2009 12 10 | G96 | 0.5+ | 0.0 |
| 2003 09 19 | 704 | 1.2− | 0.2− | 2008 08 30 | 704 | 0.6+ | 0.4+ | 2009 12 10 | G96 | 0.4+ | 0.1− |
| 2003 09 19 | 704 | 0.3− | 0.3+ | 2008 08 30 | 704 | 0.1+ | 0.4− | 2009 12 10 | G96 | 0.3+ | 0.1+ |
| 2003 09 19 | 704 | 0.0 | 1.1+ | 2008 08 30 | 704 | 0.8+ | 0.5− | 2009 12 19 | G96 | 0.5− | 0.4− |
| 2003 09 19 | 704 | 0.2+ | 0.2+ | 2008 08 30 | 704 | 1.4+ | 0.1+ | 2009 12 19 | G96 | 0.2+ | 0.3− |
| 2003 09 20 | 704 | 1.0− | 1.5+ | 2008 09 05 | 704 | 0.1+ | 1.3− | 2009 12 19 | G96 | 0.4+ | 0.0 |
| 2003 09 20 | 704 | 0.2+ | 1.3+ | 2008 09 05 | 704 | 1.0− | 0.5− | 2009 12 19 | G96 | 0.1+ | 0.0 |
| 2003 09 20 | 704 | 0.3+ | 0.8+ | 2008 09 05 | 704 | 0.1− | 0.8− | | | | |
| 2003 09 20 | 704 | 0.7+ | 0.5+ | 2008 09 05 | 704 | 0.1+ | 0.2− | | | | |

**(228885)∗ 2003 QZ$_{24}$ = 1998 VB$_{54}$**

Discovered 2003 Aug. 22 by NEAT at Palomar.

Id. G. V. Williams (*MPO* 50301)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 44.61331 | | (2000.0) | | | |
| $n$ | 0.18433886 | $\omega$ | 72.01194 | | +0.91548741 | −0.39149362 |
| $a$ | 3.0576759 | $\Omega$ | 310.92552 | | +0.30675887 | +0.82844066 |
| $e$ | 0.3214593 | $i$ | 7.05655 | | +0.26034938 | +0.40052318 |
| $P$ | 5.35 | $H$ | 15.1 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 11 14 | 704 | 0.3+ | 0.6− | 2003 09 18 | 704 | 0.7− | 0.4+ | 2005 02 02 | 704 | 0.7+ | 0.5+ |
| 1998 11 14 | 704 | 0.6+ | 0.7− | 2003 09 19 | 691 | 0.2− | 0.3+ | 2005 02 02 | 703 | (0.7+ | 2.2+) |
| 1998 11 14 | 704 | 0.5+ | 0.9− | 2003 09 19 | 691 | 0.1− | 0.3+ | 2005 02 02 | 703 | 0.1+ | 0.9+ |
| 1998 11 14 | 704 | 0.6+ | 1.1− | 2003 09 19 | 691 | 0.2− | 0.2+ | 2005 02 02 | 704 | 0.4+ | 1.3+ |
| 1998 11 14 | 704 | (2.9+ | 1.2−) | 2003 09 21 | 608 | 0.8− | 0.6− | 2005 02 02 | 703 | 0.2+ | 0.1+ |
| 1998 11 16 | 704 | 0.0 | 1.1− | 2003 09 21 | 608 | 0.8− | 0.6− | 2005 02 02 | 703 | 1.0+ | 0.1− |
| 1998 11 16 | 704 | 0.2− | 0.8− | 2003 09 21 | 608 | 0.7− | 0.9− | 2005 02 09 | 699 | (1.5− | 1.0+) |
| 1998 11 16 | 704 | 0.1+ | 0.2− | 2003 09 23 | 644 | 0.3− | 0.4+ | 2005 02 09 | 699 | 1.0+ | 1.2+ |
| 1998 11 16 | 704 | (4.6− | 1.0+) | 2003 09 23 | 644 | 0.2− | 0.7+ | 2005 02 09 | 699 | 0.5+ | 0.5+ |
| 1998 11 16 | 566 | 1.0+ | 1.2− | 2003 09 23 | 644 | 0.2− | 0.6+ | 2005 02 09 | 699 | 0.1+ | 0.2+ |
| 1998 11 16 | 566 | 0.5+ | 1.9− | 2003 09 27 | 699 | 1.1+ | 0.5− | 2005 03 02 | 691 | 0.1+ | 0.0 |
| 1998 11 16 | 566 | 1.2+ | 1.4− | 2003 09 27 | 704 | 0.2+ | 0.7+ | 2005 03 02 | 691 | 0.2+ | 0.2+ |
| 1999 01 08 | 699 | 0.4− | 0.3+ | 2003 09 27 | 699 | 0.1+ | 0.2+ | 2005 03 02 | 691 | 0.1+ | 0.4+ |
| 1999 01 08 | 699 | 1.1− | 0.4+ | 2003 09 27 | 704 | 0.2+ | 0.6+ | 2005 03 09 | G96 | 0.0 | 0.0 |
| 1999 01 08 | 699 | 1.7− | 0.1+ | 2003 09 27 | 699 | 0.5− | 0.3+ | 2005 03 09 | G96 | 0.1− | 0.1− |
| 2003 07 24 | 644 | 0.1− | 0.2+ | 2003 09 27 | 704 | 0.0 | 1.0+ | 2005 03 09 | G96 | 0.1− | 0.1+ |
| 2003 07 24 | 644 | 0.1− | 0.2+ | 2003 09 27 | 699 | 0.8+ | 0.3+ | 2005 03 09 | G96 | 0.4+ | 0.0 |
| 2003 07 24 | 644 | 0.1+ | 0.3+ | 2003 09 27 | 704 | 0.4+ | 0.8+ | 2005 03 11 | 691 | 0.3+ | 0.4+ |
| 2003 08 05 | 704 | 0.0 | 0.7+ | 2003 09 27 | 704 | 0.3− | 0.7+ | 2005 03 11 | 691 | 0.3+ | 0.2+ |
| 2003 08 05 | 704 | 0.3+ | 0.3+ | 2003 10 25 | 704 | 0.6+ | 0.5− | 2005 03 11 | 691 | 0.4+ | 0.3+ |
| 2003 08 05 | 704 | 0.0 | 0.4+ | 2003 10 25 | 704 | 0.3+ | 1.2+ | 2005 04 06 | G96 | 0.3− | 0.1+ |
| 2003 08 05 | 704 | 0.4− | 0.4+ | 2003 10 25 | 704 | 0.2− | 0.2+ | 2005 04 06 | G96 | 0.0 | 0.0 |
| 2003 08 05 | 704 | 0.5− | 0.3+ | 2003 10 25 | 704 | 0.5− | 0.7+ | 2005 04 06 | G96 | 0.1− | 0.1+ |
| 2003 08 22 | 644 | 0.3− | 0.4+ | 2003 10 25 | 704 | 0.8+ | 1.1+ | 2005 04 06 | G96 | 0.7+ | 1.0+ |
| 2003 08 22 | 644 | 0.4− | 0.3+ | 2003 10 30 | 704 | 0.1+ | 0.5+ | 2005 04 07 | 568 | 0.3+ | 0.4+ |
| 2003 08 22 | 644 | 0.3− | 0.3+ | 2003 10 30 | 704 | 0.2+ | 0.4+ | 2005 04 07 | 568 | 0.3+ | 0.6+ |
| 2003 08 24 | 704 | 0.1+ | 0.5+ | 2003 10 30 | 704 | 0.1+ | 0.2+ | 2005 04 07 | 568 | 0.3+ | 0.6+ |
| 2003 08 24 | 704 | 0.4− | 0.6+ | 2003 10 30 | 704 | (0.1− | 1.7+) | 2009 10 14 | G96 | 0.1− | 0.1− |
| 2003 08 24 | 704 | 0.5− | 0.5+ | 2003 10 30 | 704 | (1.9+ | 0.0 ) | 2009 10 14 | G96 | 0.3+ | 0.0 |
| 2003 08 24 | 704 | 0.5− | 0.9+ | 2003 11 24 | 704 | 0.2+ | 0.7+ | 2009 10 14 | G96 | 0.1− | 0.1− |
| 2003 08 24 | 704 | 0.5− | 0.8+ | 2003 11 24 | 704 | 0.0 | 0.6+ | 2009 10 14 | G96 | 0.3+ | 0.1− |
| 2003 08 28 | 704 | 0.3− | 0.0 | 2003 11 24 | 704 | (1.5− | 0.1+) | 2009 12 10 | 704 | 1.2+ | 1.0+ |
| 2003 08 28 | 704 | 0.3− | 0.3− | 2003 11 24 | 704 | 1.1+ | 0.4+ | 2009 12 10 | 704 | 0.2− | 0.2− |
| 2003 08 28 | 704 | 0.2+ | 0.0 | 2003 11 24 | 704 | 0.5+ | 1.2+ | 2009 12 10 | 704 | 0.1+ | 0.3− |
| 2003 08 28 | 704 | 0.3− | 0.1+ | 2003 12 28 | 704 | 0.8− | 0.3− | 2009 12 10 | 704 | 0.2+ | 0.1+ |
| 2003 08 28 | 704 | 0.0 | 0.5+ | 2003 12 28 | 704 | 0.1− | 0.4+ | 2009 12 10 | J75 | 0.1+ | 0.7− |
| 2003 09 02 | 704 | 0.3+ | 0.1− | 2003 12 28 | 704 | 0.5− | 0.5− | 2009 12 10 | J75 | 0.7− | 0.2− |
| 2003 09 02 | 704 | 0.2− | 0.6+ | 2003 12 28 | 704 | 0.4+ | 0.2+ | 2009 12 10 | J75 | 0.0 | 0.3− |
| 2003 09 02 | 704 | 0.4− | 0.3+ | 2003 12 28 | 704 | 0.0 | 0.9+ | 2009 12 15 | 704 | 1.3+ | 0.9+ |
| 2003 09 02 | 704 | 0.0 | 0.3+ | 2004 12 18 | G96 | 0.7− | 0.5− | 2009 12 15 | 704 | (2.1+ | 0.4−) |
| 2003 09 02 | 704 | 0.3− | 0.2− | 2004 12 18 | G96 | 0.0 | 0.1− | 2009 12 15 | 704 | (2.2+ | 0.5−) |
| 2003 09 07 | 608 | 0.3− | 0.8− | 2004 12 18 | G96 | 1.2− | 0.2− | 2009 12 15 | 704 | 1.2+ | 0.6+ |
| 2003 09 07 | 608 | 0.1− | 0.6− | 2004 12 18 | G96 | 0.1+ | 0.1− | 2009 12 18 | 691 | 0.2− | 0.1− |
| 2003 09 07 | 608 | 0.4− | 0.3− | 2005 01 16 | 691 | 0.2+ | 0.5+ | 2009 12 18 | 691 | 0.1+ | 0.7+ |
| 2003 09 16 | 699 | 0.1− | 0.4+ | 2005 01 16 | 691 | 0.2+ | 0.5+ | 2009 12 18 | 691 | 0.2− | 0.2+ |
| 2003 09 16 | 699 | 0.2− | 0.2− | 2005 01 16 | 691 | 0.3+ | 0.1+ | 2009 12 27 | 691 | 0.0 | 0.0 |
| 2003 09 16 | 699 | 0.2− | 0.4− | 2005 01 18 | 703 | (1.8− | 1.9+) | 2009 12 27 | 691 | 0.1− | 0.0 |
| 2003 09 16 | 699 | 0.9− | 0.2+ | 2005 01 18 | 703 | 0.2− | 1.2+ | 2009 12 27 | 691 | 0.0 | 0.1+ |
| 2003 09 18 | 704 | 0.4+ | 0.2+ | 2005 01 18 | 703 | 1.1− | 0.3+ | 2009 12 27 | 691 | 0.1− | 0.2+ |
| 2003 09 18 | 704 | (0.1+ | 1.8−) | 2005 01 18 | 703 | 0.4− | 0.4+ | 2009 12 27 | 691 | 0.3− | 0.0 |
| 2003 09 18 | 704 | 1.1− | 0.0 | 2005 02 02 | 704 | 1.0+ | 0.4+ | 2009 12 27 | 691 | 0.2− | 1.0− |
| 2003 09 18 | 704 | 0.2− | 0.3− | 2005 02 02 | 704 | 0.7− | 1.4+ | | | | |

**(228886)∗ 2003 QF$_{28}$ = 2001 CS$_{48}$**

Discovered 2003 Aug. 21 by CINEOS at Campo Imperatore.

Id. T. B. Spahr (*MPO* 50302)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 75.88623 | | (2000.0) | | | |
| $n$ | 0.17396965 | $\omega$ | 320.02574 | | +0.34656209 | +0.93352694 |
| $a$ | 3.1779987 | $\Omega$ | 329.91929 | | −0.80703862 | +0.24687097 |
| $e$ | 0.1907167 | $i$ | 10.55028 | | −0.47810395 | +0.25996573 |
| $P$ | 5.67 | $H$ | 15.3 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 02 13 | 691 | 0.3+ | 0.3+ | 2003 08 25 | 704 | 0.5+ | 0.1− | 2007 02 16 | G96 | 0.1+ | 0.6− |
| 2001 02 13 | 691 | 0.0 | 0.0 | 2003 08 25 | 704 | 0.9− | 0.0 | 2007 02 16 | G96 | 0.3+ | 0.4− |
| 2001 02 13 | 691 | 0.2+ | 0.5+ | 2003 08 26 | 106 | 0.1− | 0.3− | 2007 03 09 | 703 | 1.1− | 1.0− |
| 2001 02 16 | 209 | 0.7+ | 0.6+ | 2003 08 27 | 106 | 0.1+ | 0.3− | 2007 03 09 | 703 | 0.8− | 0.1+ |
| 2001 02 16 | 209 | 0.6+ | 0.5+ | 2003 08 27 | 106 | 0.4− | 0.3− | 2007 03 09 | 703 | 1.2− | 0.5− |
| 2001 02 17 | 209 | 0.3+ | 0.6+ | 2003 08 31 | 691 | 0.0 | 0.2− | 2007 03 09 | 703 | (1.6+ | 1.9−) |
| 2003 07 25 | 644 | 0.3− | 0.2+ | 2003 08 31 | 691 | 0.0 | 0.1− | 2007 03 15 | 703 | 0.1+ | 1.0+ |
| 2003 07 25 | 644 | 0.3− | 0.2+ | 2003 08 31 | 691 | 0.0 | 0.1− | 2007 03 15 | 703 | (1.7− | 0.7−) |
| 2003 07 25 | 644 | 0.3+ | 0.1− | 2003 09 01 | 704 | 0.3− | 0.2+ | 2007 03 15 | 703 | 0.3+ | 0.1− |
| 2003 08 04 | 704 | 0.6+ | 0.1+ | 2003 09 01 | 704 | 1.3+ | 0.6+ | 2007 03 15 | 703 | 0.5− | 0.7− |
| 2003 08 04 | 704 | 0.4+ | 0.2+ | 2003 09 01 | 704 | 0.4+ | 0.2− | 2009 09 25 | 703 | 0.5− | 0.6+ |
| 2003 08 04 | 704 | 0.7+ | 0.7+ | 2003 09 01 | 704 | 0.4− | 0.2− | 2009 09 25 | 703 | 1.2− | 0.3− |
| 2003 08 04 | 704 | 0.3+ | 0.8+ | 2003 09 01 | 704 | 0.1− | 0.4− | 2009 09 25 | 703 | 0.2+ | 0.3+ |
| 2003 08 21 | 599 | 0.5− | 0.2− | 2003 09 04 | 106 | 0.2− | 0.2− | 2009 09 25 | 703 | 0.5− | 0.3+ |
| 2003 08 21 | 599 | 0.1+ | 0.0 | 2003 09 04 | 106 | 0.2− | 0.6− | 2009 09 25 | 704 | 0.1− | 1.1+ |
| 2003 08 21 | 599 | 0.1− | 0.1+ | 2003 09 05 | 106 | 0.7+ | 0.5− | 2009 09 25 | 704 | 0.9+ | 0.0 |
| 2003 08 21 | 599 | 0.0 | 0.3− | 2003 09 27 | 699 | 0.6− | 0.5+ | 2009 09 25 | 704 | 0.8+ | 1.0+ |
| 2003 08 22 | 704 | 0.6+ | 0.8+ | 2003 09 27 | 699 | 0.2+ | 0.6− | 2009 09 25 | 704 | 0.8+ | 0.5+ |
| 2003 08 22 | 704 | 0.8− | 1.1+ | 2003 09 27 | 704 | 0.4+ | 1.5+ | 2009 10 24 | 703 | 0.9+ | 0.1− |
| 2003 08 22 | 704 | 0.3− | 0.9+ | 2003 09 27 | 699 | 1.2− | 0.2− | 2009 10 24 | 703 | 0.4− | 1.0− |
| 2003 08 22 | 704 | (0.1− | 2.1+) | 2003 09 27 | 704 | 0.0 | 0.2+ | 2009 10 24 | 703 | 0.5− | 0.2− |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 08 23 | 644 | 0.4− | 0.0 | 2003 09 27 | 699 | 0.5+ | 0.8− | 2009 10 24 | 703 | 0.2− | 1.4− |
| 2003 08 23 | 644 | 0.4− | 0.0 | 2003 09 27 | 704 | 0.2+ | 0.2− | 2009 12 20 | G96 | 0.0 | 0.7− |
| 2003 08 23 | 644 | 0.2− | 0.1+ | 2003 09 27 | 704 | 0.2− | 0.5+ | 2009 12 20 | G96 | 1.0+ | 0.7− |
| 2003 08 25 | 704 | 0.7− | 1.0+ | 2007 02 16 | G96 | 0.8+ | 0.6+ | 2009 12 20 | G96 | 0.3− | 0.8− |
| 2003 08 25 | 704 | 0.4− | 0.2+ | 2007 02 16 | G96 | 0.5+ | 0.4− | 2009 12 20 | G96 | 0.1+ | 0.3− |

**(228887)∗ 2003 QR$_{31}$**

Discovered 2003 Aug. 21 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 146.56998 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21403977 | $\omega$ | 32.34498 | | +0.76013618 | | +0.64864234 |
| $a$ | 2.7678320 | $\Omega$ | 287.16721 | | −0.60432370 | | +0.68418140 |
| $e$ | 0.0952552 | $i$ | 2.28889 | | −0.23871708 | | +0.33340504 |
| $P$ | 4.60 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 10 13 | 704 | 0.4− | 0.2− | 2004 12 15 | 704 | 0.6− | 0.4− | 2008 09 25 | 691 | 0.1− | 0.2+ |
| 1999 10 13 | 704 | 0.1+ | 0.4− | 2004 12 15 | 704 | 0.1− | 0.1+ | 2008 09 25 | 691 | 0.2− | 0.1− |
| 1999 10 13 | 704 | 0.5− | 0.0 | 2004 12 15 | 704 | 0.7+ | 0.3− | 2008 10 01 | 704 | 0.3+ | 0.0 |
| 1999 10 13 | 704 | 0.6− | 0.7− | 2004 12 16 | 691 | 0.3+ | 0.1+ | 2008 10 01 | 704 | 0.1+ | 0.5− |
| 2003 08 04 | 691 | 0.1− | 0.5+ | 2004 12 16 | 691 | 0.3+ | 0.2− | 2008 10 01 | 704 | 0.0 | 0.5+ |
| 2003 08 04 | 691 | 0.1− | 0.5+ | 2004 12 16 | 691 | 0.2+ | 0.1− | 2008 10 01 | 704 | 0.2+ | 0.6− |
| 2003 08 04 | 691 | 0.2− | 0.4+ | 2006 02 02 | 691 | 0.2+ | 0.5+ | 2008 10 02 | 703 | 1.2− | 0.6− |
| 2003 08 21 | 644 | 0.1− | 0.3+ | 2006 02 02 | 691 | 0.4− | 0.6+ | 2008 10 02 | 703 | 0.5+ | 0.0 |
| 2003 08 21 | 644 | 0.3− | 0.4+ | 2006 02 02 | 691 | 0.5+ | 0.1+ | 2008 10 02 | 703 | 0.5+ | 0.2− |
| 2003 08 21 | 644 | 0.2− | 0.3+ | 2006 03 02 | G96 | 0.3+ | 0.1+ | 2008 10 02 | 703 | 1.0+ | 0.1− |
| 2003 08 21 | 644 | 0.4− | 0.1+ | 2006 03 02 | G96 | 0.1− | 0.4+ | 2008 10 03 | 691 | 0.0 | 0.0 |
| 2003 08 21 | 644 | 0.4+ | 0.5+ | 2006 03 02 | G96 | 0.7+ | 0.2− | 2008 10 03 | 691 | 0.1+ | 0.1+ |
| 2003 08 21 | 644 | 0.4− | 0.1+ | 2006 03 02 | G96 | 0.3+ | 0.2+ | 2008 10 03 | 691 | 0.2− | 0.0 |
| 2003 08 25 | 704 | 0.1− | 0.3+ | 2006 05 04 | G96 | 0.2+ | 0.3− | 2008 10 07 | 691 | 0.2− | 0.0 |
| 2003 08 25 | 704 | 0.4− | 0.1− | 2006 05 04 | G96 | 0.3+ | 0.1+ | 2008 10 07 | 691 | 0.3− | 0.0 |
| 2003 08 25 | 704 | 0.1+ | 0.5− | 2006 05 04 | G96 | 0.0 | 0.0 | 2008 10 07 | 691 | 0.3− | 0.1− |
| 2003 08 25 | 704 | 0.2− | 1.1+ | 2006 05 04 | G96 | 0.0 | 0.1− | 2009 12 18 | 691 | 0.3+ | 0.2− |
| 2003 08 26 | 106 | 0.0 | 0.5− | 2008 09 08 | G96 | 0.8+ | 0.0 | 2009 12 18 | 691 | 0.2− | 1.1+ |
| 2003 08 26 | 106 | 0.1− | 0.2− | 2008 09 08 | G96 | 1.2+ | 0.2− | 2009 12 18 | 691 | 0.2+ | 0.1+ |
| 2003 08 26 | 106 | 0.1+ | 0.2− | 2008 09 08 | G96 | 0.8+ | 0.2− | 2009 12 26 | 691 | 0.3+ | 0.4+ |
| 2003 09 01 | 704 | 0.7+ | 0.3+ | 2008 09 21 | 691 | 0.3+ | 0.0 | 2009 12 26 | 691 | 0.4− | 0.1+ |
| 2003 09 01 | 704 | 0.2− | 0.0 | 2008 09 21 | 691 | 0.1− | 0.3+ | 2009 12 26 | 691 | 0.5− | 0.2− |
| 2003 09 01 | 704 | 0.5+ | 0.8− | 2008 09 21 | 691 | 0.3− | 0.2+ | | | | |
| 2003 09 01 | 704 | 0.2− | 0.1− | 2008 09 25 | 691 | 0.2+ | 0.1− | | | | |

**(228888)∗ 2003 QA$_{67}$**

Discovered 2003 Aug. 23 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 216.14318 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21111221 | $\omega$ | 270.40111 | | −0.43386488 | | +0.90060520 |
| $a$ | 2.7933616 | $\Omega$ | 333.83732 | | −0.80149258 | | −0.39893615 |
| $e$ | 0.0497089 | $i$ | 3.36938 | | −0.41154698 | | −0.17251153 |
| $P$ | 4.67 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 12 30 | 691 | 0.1− | 0.0 | 2006 01 26 | G96 | 0.2− | 0.2+ | 2006 03 09 | G96 | 0.3− | 0.3+ |
| 2000 12 30 | 691 | 0.1− | 0.2+ | 2006 02 07 | G96 | 0.2− | 0.2− | 2006 03 09 | G96 | 0.5− | 0.1+ |
| 2000 12 30 | 691 | 0.3− | 0.0 | 2006 02 07 | G96 | 0.5− | 0.2− | 2006 03 09 | G96 | 0.3+ | 0.0 |
| 2002 05 18 | 644 | 0.2+ | 0.8+ | 2006 02 07 | G96 | 0.3− | 0.3− | 2006 03 09 | G96 | 0.1− | 0.4+ |
| 2002 05 18 | 644 | 0.0 | 0.8+ | 2006 02 07 | G96 | 0.4+ | 0.2+ | 2006 05 26 | G96 | 0.0 | 0.0 |
| 2002 05 18 | 644 | 0.3− | 0.4+ | 2006 02 20 | 703 | 1.2+ | 0.6− | 2006 05 26 | G96 | 0.6− | 0.3+ |
| 2003 08 23 | 644 | 0.1− | 0.6+ | 2006 02 20 | 703 | 0.4− | 1.4+ | 2006 05 26 | G96 | 0.2− | 0.1+ |
| 2003 08 23 | 644 | 0.2− | 0.7+ | 2006 02 20 | 703 | (0.2+ | 1.8+) | 2006 05 26 | G96 | 0.2+ | 0.1− |
| 2003 08 23 | 644 | 0.1− | 0.8+ | 2006 02 20 | 703 | 0.7− | 1.1+ | 2008 09 21 | 691 | 0.2− | 0.2+ |
| 2003 08 26 | 106 | 0.1− | 0.3+ | 2006 02 22 | 704 | 0.8+ | 0.4+ | 2008 09 21 | 691 | 0.1+ | 0.2+ |
| 2003 08 27 | 106 | 0.2− | 0.2+ | 2006 02 22 | 704 | 0.1− | 0.6− | 2008 09 21 | 691 | 0.3− | 0.2+ |
| 2003 08 27 | 106 | 0.3− | 0.0 | 2006 02 22 | 704 | 0.1+ | 1.1+ | 2008 10 07 | 691 | 0.4+ | 0.5+ |
| 2003 08 31 | 691 | 0.1− | 0.3+ | 2006 02 22 | 704 | 0.0 | 0.2+ | 2008 10 07 | 691 | 0.7− | 0.6+ |
| 2003 08 31 | 691 | 0.0 | 0.4+ | 2006 03 03 | 699 | (2.0+ | 0.1−) | 2008 10 07 | 691 | 0.5− | 0.2+ |
| 2003 08 31 | 691 | 0.0 | 0.4+ | 2006 03 03 | 699 | 0.7+ | 0.1+ | 2008 10 10 | 691 | 0.3− | 0.0 |
| 2003 09 01 | 704 | 1.3+ | 1.0− | 2006 03 03 | 699 | 0.7+ | 0.5+ | 2008 10 10 | 691 | 0.1+ | 0.1− |
| 2003 09 01 | 704 | 0.8+ | 1.2+ | 2006 03 03 | 699 | 0.0 | 1.3+ | 2008 10 10 | 691 | 0.0 | 0.1− |
| 2003 09 01 | 704 | 0.3− | 0.5− | 2006 03 05 | 704 | 0.6+ | 0.0 | 2008 10 17 | 691 | 0.2− | 0.0 |
| 2003 09 01 | 704 | 0.8+ | 0.7− | 2006 03 05 | 704 | 0.7+ | 1.0− | 2008 10 17 | 691 | 0.2− | 0.0 |
| 2003 09 01 | 704 | 0.0 | 0.4+ | 2006 03 05 | 704 | 0.2+ | 0.2− | 2008 10 17 | 691 | 0.2+ | 0.1− |
| 2004 11 11 | 691 | 0.1+ | 0.2− | 2006 03 05 | 704 | 0.2− | 0.1+ | 2008 10 18 | 691 | 0.2− | 0.0 |
| 2004 11 11 | 691 | 0.1− | 0.1− | 2006 03 05 | 704 | 0.2+ | 0.4+ | 2008 10 18 | 691 | 0.0 | 0.0 |
| 2004 11 11 | 691 | 0.2+ | 0.1+ | 2006 03 05 | 704 | 0.3+ | 0.1− | 2008 10 18 | 691 | 0.2− | 0.0 |
| 2006 01 26 | 691 | 0.5+ | 0.9+ | 2006 03 05 | 704 | 0.8+ | 0.9+ | 2009 10 14 | G96 | 0.2+ | 0.0 |
| 2006 01 26 | 691 | 0.1+ | 0.2+ | 2006 03 05 | 704 | 1.0+ | 0.0 | 2009 10 14 | G96 | 0.7+ | 0.6− |
| 2006 01 26 | 691 | 0.3+ | 0.4+ | 2006 03 08 | G96 | 0.6− | 0.2+ | 2009 10 14 | G96 | 0.6+ | 0.3− |
| 2006 01 26 | G96 | 0.2− | 0.2+ | 2006 03 08 | G96 | 0.2+ | 0.3+ | 2009 12 19 | 691 | 0.1− | 0.1− |
| 2006 01 26 | G96 | 0.2+ | 0.0 | 2006 03 08 | G96 | 0.4− | 0.4+ | 2009 12 19 | 691 | 0.0 | 0.2− |
| 2006 01 26 | G96 | 0.0 | 0.0 | 2006 03 08 | G96 | 0.2+ | 0.2+ | 2009 12 19 | 691 | 0.3+ | 0.3− |

**(228889)∗ 2003 QH$_{70}$**

Discovered 2003 Aug. 22 by W. Bickel at Bergisch Gladbach.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 79.41270 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18986508 | $\omega$ | 7.69020 | | +0.98783750 | | −0.15544086 |
| $a$ | 2.9980531 | $\Omega$ | 1.27201 | | +0.13166870 | | +0.82289733 |
| $e$ | 0.1277093 | $i$ | 10.11750 | | +0.08270684 | | +0.54651453 |
| $P$ | 5.19 | $H$ | 15.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 11 14 | 704 | 0.3− | 1.7+ | 2003 10 25 | 704 | 0.3− | 0.3+ | 2008 09 21 | G96 | 0.3− | 0.1− |
| 1998 11 14 | 704 | 1.4+ | 1.2− | 2003 10 25 | 704 | 0.2− | 0.3+ | 2008 09 21 | G96 | 0.6− | 0.0 |
| 1998 11 14 | 704 | 0.2+ | 0.5− | 2003 10 25 | 704 | 0.5− | 0.2+ | 2008 09 21 | G96 | 0.9− | 0.8− |
| 1998 11 14 | 704 | (2.6+ | 0.8+) | 2003 10 30 | 704 | 0.9− | 0.6+ | 2008 09 22 | 704 | 0.5− | 0.4+ |
| 2003 08 22 | 621 | 0.1− | 0.6− | 2003 10 30 | 704 | 0.3− | 0.7+ | 2008 09 22 | 704 | 0.5− | 0.4+ |
| 2003 08 22 | 621 | 0.3+ | 0.5− | 2003 10 30 | 704 | 0.1+ | 0.1+ | 2008 09 22 | 704 | 0.4− | 0.5+ |
| 2003 08 22 | 621 | 0.5− | 0.3+ | 2003 12 23 | 704 | 0.3+ | 0.7+ | 2008 09 22 | 704 | 0.2− | 0.5+ |
| 2003 08 24 | 621 | 0.1+ | 0.0 | 2003 12 23 | 704 | 0.3− | 0.2− | 2008 09 22 | 704 | (1.5+ | 0.4+) |
| 2003 08 24 | 621 | 0.4+ | 0.1+ | 2003 12 23 | 704 | 0.3+ | 1.3+ | 2008 09 22 | 704 | 0.2− | 0.2+ |
| 2003 08 24 | 621 | 0.1− | 0.0 | 2006 02 24 | 691 | 0.1+ | 0.8+ | 2008 09 22 | 704 | 0.4+ | 1.1+ |
| 2003 09 02 | 621 | 0.4− | 0.1− | 2006 02 24 | G96 | 0.4− | 0.2− | 2008 09 23 | E12 | 0.1− | 0.1− |
| 2003 09 02 | 621 | 0.2− | 0.0 | 2006 02 24 | 691 | 0.4+ | 0.6+ | 2008 09 23 | E12 | 0.6− | 1.0+ |
| 2003 09 02 | 621 | 0.1− | 0.1− | 2006 02 24 | G96 | 0.1− | 0.3+ | 2008 09 23 | E12 | 0.5− | 0.3− |
| 2003 09 02 | 621 | 0.1+ | 0.2− | 2006 02 24 | G96 | 0.2− | 0.4+ | 2008 09 23 | E12 | 0.1+ | 0.3+ |
| 2003 09 02 | 621 | 0.2+ | 0.2− | 2006 02 24 | G96 | 0.2− | 0.3+ | 2008 09 28 | 704 | 0.1+ | 0.6+ |
| 2003 09 02 | 621 | 0.1− | 0.1− | 2006 02 24 | 691 | 0.1+ | 0.5+ | 2008 09 28 | 704 | 0.3− | 0.5+ |
| 2003 09 03 | 621 | 0.0 | 0.0 | 2006 03 02 | 691 | 0.1− | 0.4+ | 2008 09 28 | 704 | 0.2− | 0.3+ |
| 2003 09 03 | 621 | 0.1− | 0.0 | 2006 03 02 | 691 | 0.1+ | 0.5+ | 2008 09 28 | 704 | 0.4− | 0.3+ |
| 2003 09 03 | 621 | 0.0 | 0.2− | 2006 03 02 | 691 | 0.2+ | 0.1− | 2008 09 28 | 704 | 0.1− | 0.5+ |
| 2003 09 05 | 621 | 0.1+ | 0.1+ | 2006 03 25 | G96 | 0.3− | 0.0 | 2008 09 29 | 703 | (0.7− | 2.1+) |
| 2003 09 05 | 621 | 0.0 | 0.0 | 2006 03 25 | G96 | 0.4− | 0.1− | 2008 09 29 | 703 | 0.6+ | 0.8+ |
| 2003 09 05 | 621 | 0.2+ | 0.0 | 2006 03 25 | G96 | 0.7− | 0.2+ | 2008 09 29 | 703 | 0.8+ | 1.4+ |
| 2003 09 05 | 621 | 0.3− | 0.0 | 2006 03 25 | G96 | 0.3− | 0.1− | 2008 09 29 | 703 | 0.5+ | 0.8+ |
| 2003 09 05 | 621 | 0.7+ | 1.1− | 2006 04 07 | G96 | 0.1− | 0.3+ | 2008 10 09 | 703 | 0.3+ | 0.9− |
| 2003 09 05 | 621 | 0.0 | 0.5− | 2006 04 07 | G96 | 0.0 | 0.4+ | 2008 10 09 | 703 | 0.4− | 0.6+ |
| 2003 09 20 | 704 | 0.4+ | 0.6+ | 2006 04 07 | G96 | 0.3− | 0.5+ | 2008 10 09 | 703 | (0.6− | 2.1+) |
| 2003 09 20 | 704 | 0.5− | 0.6+ | 2006 04 07 | G96 | 1.1− | 0.2+ | 2008 10 09 | 703 | 0.2− | 1.0+ |
| 2003 09 20 | 704 | 0.2+ | 0.4+ | 2006 04 19 | 691 | 0.3+ | 0.1− | 2008 10 20 | G96 | 0.1− | 0.1− |
| 2003 09 20 | 704 | 0.2− | 0.0 | 2006 04 19 | 691 | 1.3+ | 0.0 | 2008 10 20 | G96 | 0.5− | 0.1− |
| 2003 09 20 | 704 | 0.8− | 0.8+ | 2006 04 19 | 691 | 0.4+ | 0.1− | 2008 10 20 | G96 | 0.2+ | 0.0 |
| 2003 09 21 | 608 | 0.4− | 0.6− | 2006 04 20 | 691 | 0.2+ | 0.3+ | 2008 10 20 | G96 | 0.1− | 0.1− |
| 2003 09 21 | 608 | 0.8− | 0.6− | 2006 04 20 | 691 | 0.2+ | 0.2+ | 2008 11 19 | G96 | 0.1− | 0.2− |
| 2003 09 21 | 608 | 0.5− | 0.7− | 2006 04 20 | 691 | 0.0 | 0.1+ | 2008 11 19 | G96 | 0.2+ | 0.1+ |
| 2003 09 27 | 704 | 1.0− | 0.3+ | 2006 04 21 | 691 | 0.5+ | 0.2+ | 2008 11 19 | G96 | 0.0 | 0.1− |
| 2003 09 27 | 704 | 0.5− | 0.5− | 2006 04 21 | 691 | 0.4+ | 0.3+ | 2008 11 19 | G96 | 0.1− | 0.1− |
| 2003 09 27 | 704 | 0.5− | 0.4+ | 2006 04 21 | 691 | 0.2+ | 0.5+ | 2008 11 20 | 703 | 0.3− | 0.8+ |
| 2003 09 27 | 704 | 0.5− | 0.5+ | 2006 04 25 | 691 | 0.1+ | 0.6+ | 2008 11 20 | 703 | 0.4− | 0.2+ |
| 2003 09 27 | 704 | 0.1− | 0.3+ | 2006 04 25 | 691 | 0.1+ | 0.3+ | 2008 11 20 | 703 | 0.6+ | 0.5+ |
| 2003 10 16 | 691 | 0.0 | 0.0 | 2006 04 25 | 691 | 0.2+ | 0.1+ | 2008 11 20 | 703 | 0.5+ | 0.9− |
| 2003 10 16 | 691 | 0.0 | 0.1+ | 2008 08 24 | 704 | 0.6+ | 0.3+ | 2008 11 30 | G96 | 0.0 | 0.5− |
| 2003 10 16 | 691 | 0.1− | 0.0 | 2008 08 24 | 704 | 0.7− | 0.5+ | 2008 11 30 | G96 | 0.3− | 0.2+ |
| 2003 10 17 | 699 | 0.2+ | 0.6+ | 2008 08 24 | 704 | 1.2− | 0.4+ | 2008 11 30 | G96 | 0.0 | 0.1− |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 17 | 699 | 0.2+ | 1.2+ | 2008 08 24 | 704 | 0.2− | 0.4+ | 2008 11 30 | G96 | 0.4− | 0.3− |
| 2003 10 17 | 699 | 0.5− | 0.4+ | 2008 09 06 | 703 | 1.4+ | 0.6+ | 2009 12 15 | 621 | 0.2+ | 0.9+ |
| 2003 10 17 | 699 | 0.8+ | 0.4+ | 2008 09 06 | 703 | 0.0 | 1.3+ | 2009 12 15 | 621 | 0.3+ | 0.0 |
| 2003 10 21 | 704 | 0.3− | 0.5+ | 2008 09 06 | 703 | (1.9+ | 0.9+) | 2009 12 15 | 621 | 0.2+ | 0.1− |
| 2003 10 21 | 704 | 0.3− | 0.1− | 2008 09 06 | 703 | (1.7+ | 0.7+) | 2009 12 15 | 621 | 0.1+ | 0.2− |
| 2003 10 21 | 704 | 0.2− | 0.3+ | 2008 09 07 | G96 | 0.5− | 0.1− | 2009 12 18 | 621 | 0.5− | 0.1− |
| 2003 10 21 | 704 | 0.4+ | 0.6+ | 2008 09 07 | G96 | 0.2− | 0.3− | 2009 12 18 | 621 | 0.0 | 0.2− |
| 2003 10 21 | 704 | 0.8− | 0.8+ | 2008 09 07 | G96 | 0.3− | 0.2− | 2009 12 18 | 621 | 0.3− | 0.2− |
| 2003 10 25 | 704 | 0.2− | 0.7+ | 2008 09 07 | G96 | 0.0 | 0.2− | 2009 12 18 | 621 | 0.4− | 0.1− |
| 2003 10 25 | 704 | 0.3− | 0.4+ | 2008 09 21 | G96 | 0.6− | 0.1+ | | | | |

**(228890)∗ 2003 QH$_{78}$**

Discovered 2003 Aug. 24 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 65.85401 | | (2000.0) | | | |
| $n$ | 0.19203008 | $\omega$ | 63.73054 | | +0.91895701 | −0.38068624 |
| $a$ | 2.9754766 | $\Omega$ | 318.42555 | | +0.28323016 | +0.81874845 |
| $e$ | 0.1476240 | $i$ | 8.92379 | | +0.27440608 | +0.42980108 |
| $P$ | 5.13 | $H$ | 14.6 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 10 12 | 699 | 0.8+ | 0.6+ | 2003 10 17 | 699 | 0.6+ | 0.6− | 2005 01 20 | 704 | 0.6− | 0.5+ |
| 1998 10 12 | 699 | 0.1− | 0.0 | 2003 10 17 | 699 | 0.4− | 0.6− | 2005 01 20 | 704 | 0.0 | 0.7+ |
| 1998 10 12 | 699 | 0.1− | 0.1− | 2003 10 17 | 699 | 0.4− | 0.1− | 2005 01 20 | 704 | 0.8+ | 0.0 |
| 2003 08 24 | 704 | 0.8+ | 0.1+ | 2003 10 21 | 704 | 0.3− | 0.1− | 2005 01 20 | 704 | 0.2− | 0.1+ |
| 2003 08 24 | 704 | 0.3− | 0.4+ | 2003 10 21 | 704 | 0.2− | 0.5− | 2005 01 20 | 704 | 0.1− | 0.4+ |
| 2003 08 24 | 704 | 0.2− | 0.3+ | 2003 10 21 | 704 | 0.2+ | 0.1+ | 2005 02 03 | 704 | 0.2+ | 0.2− |
| 2003 08 28 | 704 | 0.4− | 0.7+ | 2003 10 21 | 704 | 0.2− | 0.7− | 2005 02 03 | 704 | 0.3− | 1.2+ |
| 2003 08 28 | 704 | 0.5− | 0.2+ | 2003 10 21 | 704 | 0.7− | 0.2− | 2005 02 03 | 704 | 0.4− | 0.8− |
| 2003 08 28 | 704 | 0.0 | 0.4+ | 2003 10 29 | 691 | 0.2+ | 0.3− | 2005 02 03 | 704 | 0.3− | 0.2+ |
| 2003 08 28 | 704 | 0.3− | 0.1− | 2003 10 29 | 691 | 0.1− | 0.3− | 2005 02 03 | 704 | 0.4− | 0.2+ |
| 2003 08 28 | 704 | 0.7− | 0.7+ | 2003 10 29 | 691 | 0.2+ | 0.5− | 2008 07 29 | G96 | 0.1+ | 0.1+ |
| 2003 09 04 | 704 | 0.7− | 0.5+ | 2003 11 30 | 704 | 0.1− | 0.3− | 2008 07 29 | G96 | 0.1+ | 0.0 |
| 2003 09 04 | 704 | 0.4− | 0.2+ | 2003 11 30 | 704 | 0.3+ | 0.1+ | 2008 07 29 | G96 | 0.1+ | 0.2+ |
| 2003 09 04 | 704 | 0.4− | 0.2− | 2003 11 30 | 704 | 0.1− | 0.9− | 2008 07 29 | G96 | 0.1+ | 0.2+ |
| 2003 09 04 | 599 | (1.5+ | 2.4+) | 2004 12 15 | 704 | 1.2+ | 1.0+ | 2008 09 21 | 703 | 0.2− | 0.3+ |
| 2003 09 04 | 599 | 0.3− | 0.1− | 2004 12 15 | 704 | 0.8+ | 0.3+ | 2008 09 21 | 703 | 0.2− | 0.3+ |
| 2003 09 04 | 599 | 0.0 | 0.1− | 2004 12 15 | 704 | 0.9+ | 0.2+ | 2008 09 21 | 703 | 0.2+ | 0.6− |
| 2003 09 04 | 599 | 0.0 | 0.1+ | 2004 12 21 | 703 | 0.0 | 0.3+ | 2008 09 21 | 703 | 0.3− | 0.7− |
| 2003 09 17 | 644 | 0.2− | 0.4− | 2004 12 21 | 703 | 1.4− | 1.1+ | 2008 10 02 | 291 | 0.1+ | 0.2+ |
| 2003 09 17 | 644 | 0.1− | 0.4− | 2004 12 21 | 703 | 0.3+ | 0.1+ | 2008 10 02 | 291 | 0.0 | 0.1+ |
| 2003 09 17 | 644 | 0.0 | 0.1− | 2004 12 21 | 703 | 0.5− | 0.1+ | 2008 10 02 | 291 | 0.1+ | 0.2+ |
| 2003 09 20 | 704 | 0.7+ | 0.7+ | 2005 01 07 | 704 | 0.5+ | 0.8+ | 2008 11 20 | 703 | 1.0+ | 0.7− |
| 2003 09 20 | 704 | 0.6+ | 1.0+ | 2005 01 07 | 704 | 0.2− | 0.0 | 2008 11 20 | 703 | 1.3− | 0.0 |
| 2003 09 20 | 704 | 0.4+ | 0.5+ | 2005 01 07 | 704 | 0.2+ | 0.3+ | 2008 11 20 | 703 | 0.7− | 0.8− |
| 2003 09 20 | 704 | 0.4+ | 0.3+ | 2005 01 07 | 704 | 0.2− | 0.8+ | 2008 11 20 | 703 | (0.2+ | 1.8−) |
| 2003 09 20 | 704 | 0.4+ | 0.0 | 2005 01 12 | 704 | 0.0 | 0.5− | 2009 12 10 | 704 | 0.4+ | 0.6+ |
| 2003 09 21 | 699 | 0.3+ | 0.3− | 2005 01 12 | 704 | 0.2− | 0.1+ | 2009 12 10 | 704 | 0.3+ | 0.3− |
| 2003 09 21 | 699 | 0.7− | 0.2− | 2005 01 12 | 704 | 0.3+ | 0.2− | 2009 12 10 | 704 | 0.9− | 0.1− |
| 2003 09 21 | 699 | 0.3− | 0.2+ | 2005 01 16 | 704 | 0.3+ | 0.4+ | 2009 12 10 | 704 | 1.1− | 0.8− |
| 2003 09 21 | 699 | 0.1− | 0.0 | 2005 01 16 | 704 | 0.3+ | 0.4+ | 2009 12 10 | 704 | 0.3− | 0.9+ |
| 2003 09 29 | 699 | 0.2+ | 0.2+ | 2005 01 16 | 704 | 0.4− | 0.1− | 2009 12 15 | 704 | 0.5+ | 0.7+ |
| 2003 09 29 | 699 | 0.0 | 0.0 | 2005 01 16 | 704 | 0.6+ | 0.1+ | 2009 12 15 | 704 | 0.9+ | 0.8+ |
| 2003 09 29 | 699 | 0.2− | 0.5− | 2005 01 16 | 704 | 0.1+ | 0.5+ | 2009 12 15 | 704 | 0.3+ | 0.2+ |
| 2003 09 29 | 699 | 0.5− | 0.3+ | 2005 01 19 | 704 | 0.0 | 0.3+ | 2009 12 15 | 704 | 0.3− | 0.5− |
| 2003 09 30 | 704 | 1.0+ | 1.4+ | 2005 01 19 | 704 | 0.3+ | 0.0 | 2009 12 18 | 691 | 0.5+ | 0.2− |
| 2003 09 30 | 704 | 0.2+ | 0.9+ | 2005 01 19 | 704 | 0.3+ | 0.2− | 2009 12 18 | 691 | 0.2− | 0.2− |
| 2003 09 30 | 704 | 0.5+ | 0.3+ | 2005 01 19 | 704 | 0.0 | 0.3+ | 2009 12 18 | 691 | 0.3− | 0.4− |
| 2003 09 30 | 704 | 0.2+ | 1.0+ | 2005 01 20 | 704 | 0.3− | 0.0 | 2009 12 27 | 691 | 0.1+ | 0.1− |
| 2003 10 15 | 644 | 0.3− | 0.4− | 2005 01 20 | 704 | 0.2+ | 0.0 | 2009 12 27 | 691 | 0.0 | 0.2− |
| 2003 10 15 | 644 | 0.0 | 0.1− | 2005 01 20 | 704 | 0.3+ | 0.3− | 2009 12 27 | 691 | 0.1− | 0.2− |
| 2003 10 15 | 644 | 0.1+ | 0.2− | 2005 01 20 | 704 | 0.2− | 1.2− | | | | |
| 2003 10 17 | 699 | 0.3− | 0.3+ | 2005 01 20 | 704 | 0.3− | 0.4− | | | | |

**(228891)∗ 2003 QU$_{99}$**

Discovered 2003 Aug. 28 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 59.65824 | | (2000.0) | | | |
| $n$ | 0.18840404 | $\omega$ | 198.18371 | | +0.98831397 | +0.02147474 |
| $a$ | 3.0135327 | $\Omega$ | 158.78939 | | −0.02099849 | +0.99976823 |
| $e$ | 0.2326251 | $i$ | 24.65269 | | −0.15097867 | +0.00152445 |
| $P$ | 5.23 | $H$ | 14.8 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 09 22 | 699 | 0.5+ | 1.7+ | 2003 09 24 | 644 | 0.2− | 0.6+ | 2006 01 30 | 691 | 0.1+ | 0.1+ |
| 1998 09 22 | 699 | 0.3− | 2.0+ | 2003 09 25 | 608 | 0.1− | 1.0+ | 2006 02 07 | 691 | 0.0 | 0.5+ |
| 1998 09 22 | 699 | 0.9+ | 0.6+ | 2003 09 25 | 608 | 0.4− | 1.0+ | 2006 02 07 | 691 | 0.1− | 0.0 |
| 2003 07 31 | 608 | 0.5+ | 0.0 | 2003 09 25 | 608 | 0.2− | 1.1+ | 2006 02 07 | 691 | 0.4− | 0.5+ |
| 2003 07 31 | 608 | 0.1+ | 0.4+ | 2003 09 29 | 704 | (0.8+ | 2.5+) | 2006 02 20 | 691 | 0.5+ | 0.2+ |
| 2003 07 31 | 608 | 0.2+ | 0.0 | 2003 09 29 | 704 | 0.2+ | 1.1+ | 2006 02 20 | 691 | 0.5+ | 0.2+ |
| 2003 08 01 | 704 | 0.2+ | 0.5+ | 2003 09 29 | 704 | 0.2− | 0.4+ | 2006 02 20 | 691 | 0.5+ | 0.5+ |
| 2003 08 01 | 704 | 0.1+ | 0.6+ | 2003 09 29 | 704 | (2.6+ | 0.6−) | 2006 02 21 | G96 | 0.2− | 0.2+ |
| 2003 08 01 | 704 | 0.0 | 0.6+ | 2003 09 29 | 704 | 0.1+ | 0.6+ | 2006 02 21 | G96 | 0.2− | 0.0 |
| 2003 08 01 | 704 | 0.2+ | 1.2+ | 2003 10 17 | 704 | 0.8− | 0.1− | 2006 02 21 | G96 | 0.2− | 0.2+ |
| 2003 08 01 | 704 | 0.0 | 0.7+ | 2003 10 17 | 704 | 1.4− | 0.6− | 2006 02 21 | G96 | 0.1− | 0.3+ |
| 2003 08 24 | 704 | 0.4+ | 0.2− | 2003 10 17 | 704 | 0.4− | 0.5+ | 2006 02 25 | G96 | 0.3− | 0.0 |
| 2003 08 24 | 704 | 0.0 | 0.0 | 2003 10 17 | 704 | 0.2− | 0.4− | 2006 02 25 | G96 | 0.0 | 0.0 |
| 2003 08 24 | 704 | 0.8+ | 0.1− | 2003 11 22 | 704 | 0.4+ | 0.8− | 2006 02 25 | G96 | 0.0 | 0.2+ |
| 2003 08 24 | 704 | 0.4+ | 0.5+ | 2003 11 22 | 704 | 0.7+ | 0.3− | 2006 02 25 | G96 | 0.2− | 0.3+ |
| 2003 08 24 | 704 | (1.8+ | 0.7+) | 2003 11 22 | 704 | 0.3− | 1.3− | 2006 03 03 | 691 | 0.3− | 0.1+ |
| 2003 08 28 | 704 | 0.3+ | 0.1+ | 2003 11 26 | 704 | 0.5− | 0.1+ | 2006 03 03 | 691 | 0.1+ | 0.5+ |
| 2003 08 28 | 704 | 0.2+ | 0.2+ | 2003 11 26 | 704 | 0.1+ | 0.3+ | 2006 03 03 | 691 | 0.0 | 0.1+ |
| 2003 08 28 | 704 | 0.3+ | 0.0 | 2003 11 26 | 704 | 0.6− | 1.3+ | 2006 03 05 | 691 | 0.0 | 0.1+ |
| 2003 09 01 | 704 | 0.2+ | 0.8+ | 2003 11 26 | 704 | 0.5− | 0.7− | 2006 03 05 | 691 | 0.0 | 0.3+ |
| 2003 09 01 | 704 | 0.2+ | 0.1− | 2005 01 18 | 703 | (1.2− | 2.1−) | 2006 03 05 | 691 | 0.2+ | 0.3+ |
| 2003 09 01 | 704 | 0.1+ | 0.1− | 2005 01 18 | 703 | 1.1− | 0.7− | 2009 11 10 | 703 | 0.3+ | 0.4+ |
| 2003 09 01 | 704 | 0.0 | 0.4+ | 2005 01 18 | 703 | 0.9− | 0.7+ | 2009 11 10 | 703 | 0.5+ | 1.1+ |
| 2003 09 01 | 704 | 0.4− | 0.4+ | 2005 01 18 | 703 | 1.1− | 0.1+ | 2009 11 10 | 703 | 0.1+ | 0.1+ |
| 2003 09 14 | 699 | 0.8+ | 0.3+ | 2006 01 22 | 691 | 0.1− | 0.2+ | 2009 11 10 | 703 | 0.7+ | 0.2− |
| 2003 09 14 | 699 | 1.3− | 0.6+ | 2006 01 22 | 691 | 0.2+ | 0.6+ | 2009 11 18 | 703 | 0.2− | 0.4+ |
| 2003 09 14 | 699 | 0.7+ | 0.1− | 2006 01 22 | 691 | 0.5− | 0.3− | 2009 11 18 | 703 | 0.3− | 0.7+ |
| 2003 09 14 | 699 | 0.0 | 1.5+ | 2006 01 26 | 691 | 0.1+ | 0.2+ | 2009 11 18 | 703 | 0.6+ | 0.2+ |
| 2003 09 14 | 608 | 0.4− | 0.3− | 2006 01 26 | 691 | 0.1+ | 0.0 | 2009 11 18 | 703 | 0.4+ | 0.2+ |
| 2003 09 14 | 608 | 0.4− | 0.5− | 2006 01 26 | 691 | 0.1− | 0.4+ | 2009 12 15 | 703 | 0.4− | 0.9− |
| 2003 09 14 | 608 | 0.5− | 0.6− | 2006 01 28 | G96 | 0.2− | 0.5− | 2009 12 15 | 703 | 0.2− | 0.1+ |
| 2003 09 17 | 704 | (0.1+ | 1.8+) | 2006 01 28 | G96 | 0.3− | 0.1− | 2009 12 15 | 703 | 0.4− | 0.1− |
| 2003 09 17 | 704 | 0.6+ | 0.3+ | 2006 01 28 | G96 | 0.2− | 0.4− | 2009 12 15 | 703 | 0.2+ | 0.8− |
| 2003 09 17 | 704 | (0.5+ | 1.5+) | 2006 01 28 | G96 | 0.7− | 0.3− | 2009 12 15 | 703 | 0.4+ | 0.1− |
| 2003 09 24 | 644 | 0.0 | 0.2+ | 2006 01 30 | 691 | 0.1− | 0.3+ | | | | |
| 2003 09 24 | 644 | 0.2− | 0.3+ | 2006 01 30 | 691 | 0.1− | 0.1+ | | | | |

**(228892)∗ 2003 QL$_{115}$**

Discovered 2003 Aug. 31 by NEAT at Haleakala.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 15.23090 | | (2000.0) | | | |
| $n$ | 0.17588914 | $\omega$ | 335.83893 | | +0.77075754 | −0.61142023 |
| $a$ | 3.1548354 | $\Omega$ | 63.06485 | | +0.61238076 | +0.63331582 |
| $e$ | 0.2099443 | $i$ | 11.59308 | | +0.17584830 | +0.47442214 |
| $P$ | 5.60 | $H$ | 15.3 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 12 09 | 327 | 0.4+ | 0.2− | 2007 05 25 | G96 | 0.2− | 0.2+ | 2009 11 15 | 703 | (1.6− | 0.3+) |
| 1998 12 09 | 327 | 0.7+ | 0.4− | 2007 05 25 | G96 | 0.5+ | 0.1+ | 2009 11 18 | 704 | 0.2+ | 0.7+ |
| 1998 12 09 | 327 | 0.6+ | 0.9− | 2007 05 25 | G96 | 0.9+ | 0.8− | 2009 11 18 | 704 | 0.0 | 0.4+ |
| 2003 08 31 | 704 | 0.3+ | 0.9− | 2009 10 14 | G96 | 0.1+ | 0.2− | 2009 11 18 | 704 | 0.3+ | 0.6+ |
| 2003 08 31 | 704 | 0.2+ | 0.0 | 2009 10 14 | G96 | 0.1− | 0.3− | 2009 11 18 | 704 | 0.2− | 0.5+ |
| 2003 08 31 | 704 | 1.1− | 0.3− | 2009 10 14 | G96 | 0.0 | 0.2− | 2009 11 18 | 704 | 0.2+ | 1.1+ |
| 2003 08 31 | 704 | 0.8− | 1.0− | 2009 10 14 | G96 | 0.3+ | 0.0 | 2009 11 19 | G96 | 0.1+ | 0.2− |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 08 31 | 608 | 0.8− | 0.7− | 2009 10 20 | 704 | 0.3− | 0.6+ | 2009 11 19 | G96 | 0.1+ | 0.3− |
| 2003 08 31 | 608 | 0.3− | 0.4− | 2009 10 20 | 704 | 0.2+ | 0.6+ | 2009 11 19 | G96 | 0.1+ | 0.2− |
| 2003 08 31 | 608 | 0.1+ | 0.3− | 2009 10 20 | 704 | 0.0 | 0.6+ | 2009 11 19 | G96 | 0.2+ | 0.3− |
| 2003 09 19 | 699 | 0.2− | 0.4+ | 2009 10 20 | 704 | 0.1+ | 0.4+ | 2009 11 19 | J75 | 0.2− | 0.1+ |
| 2003 09 19 | 699 | 0.5+ | 1.1+ | 2009 10 21 | 703 | 0.4+ | 0.7− | 2009 11 19 | J75 | 0.4− | 0.7− |
| 2003 09 19 | 699 | 0.6− | 0.2+ | 2009 10 21 | 703 | 0.3− | 0.9− | 2009 11 19 | J75 | 0.1− | 0.2− |
| 2003 09 19 | 699 | 0.5+ | 0.2− | 2009 10 21 | 703 | 0.2+ | 0.4+ | 2009 11 19 | J75 | 0.3+ | 0.3− |
| 2003 09 25 | 644 | 0.1+ | 0.3+ | 2009 10 21 | 703 | 0.1+ | 1.0+ | 2009 11 19 | J75 | 0.3− | 0.5− |
| 2003 09 25 | 644 | 0.1+ | 0.3+ | 2009 10 24 | 703 | 1.0− | 0.2+ | 2009 11 19 | J75 | 0.1− | 0.6− |
| 2003 09 25 | 644 | 0.3+ | 0.3+ | 2009 10 24 | 703 | 0.6− | 0.9− | 2009 11 20 | 704 | 0.0 | 0.5+ |
| 2003 10 03 | 608 | 0.2− | 0.9− | 2009 10 24 | 703 | 0.6− | 0.7+ | 2009 11 20 | 704 | 0.5+ | 0.3− |
| 2003 10 03 | 608 | 0.2+ | 1.2− | 2009 10 24 | 703 | 0.4+ | 0.7− | 2009 11 20 | 704 | 0.4− | 0.7+ |
| 2003 10 03 | 608 | 0.3+ | 0.6− | 2009 10 27 | 704 | 1.3− | 0.8+ | 2009 11 20 | 704 | 0.3+ | 0.8+ |
| 2003 10 16 | 699 | 0.4+ | 0.8− | 2009 10 27 | 704 | 0.4− | 0.6+ | 2009 11 20 | 704 | 0.5− | 0.3+ |
| 2003 10 16 | 699 | 0.4+ | 0.8+ | 2009 10 27 | 704 | 0.5− | 1.4+ | 2009 11 23 | J75 | 0.3+ | 0.4− |
| 2003 10 16 | 699 | 0.7+ | 0.8+ | 2009 10 29 | J75 | 0.2− | 0.3− | 2009 11 23 | J75 | 0.0 | 0.4− |
| 2003 10 16 | 699 | (0.3− | 1.7−) | 2009 10 30 | J75 | 0.5+ | 0.2− | 2009 11 23 | J75 | 0.3+ | 0.1+ |
| 2005 01 06 | 703 | (1.0− | 1.6+) | 2009 10 30 | J75 | 0.1+ | 0.5− | 2009 12 12 | 704 | 2.4+ | 1.9+ |
| 2005 01 06 | 703 | 1.1− | 0.8− | 2009 11 09 | 703 | 0.3+ | 0.2+ | 2009 12 12 | 704 | 0.2− | 1.4+ |
| 2005 01 06 | 703 | 1.1− | 0.3+ | 2009 11 09 | 703 | 0.2− | 0.4− | 2009 12 12 | 704 | 0.2− | 0.6+ |
| 2005 01 06 | 703 | 0.1+ | 0.6− | 2009 11 09 | 703 | 0.3− | 0.1− | 2009 12 12 | 704 | 0.7+ | 1.5+ |
| 2007 04 19 | G96 | 0.1− | 0.1+ | 2009 11 09 | 703 | 0.2− | 0.3− | 2009 12 15 | G96 | 0.4− | 0.6− |
| 2007 04 19 | G96 | 0.3+ | 0.5+ | 2009 11 15 | 703 | 0.2− | 0.5− | 2009 12 15 | G96 | 0.1− | 0.2− |
| 2007 04 19 | G96 | 0.2+ | 0.7+ | 2009 11 15 | 703 | 0.5− | 0.9− | 2009 12 15 | G96 | 0.1− | 0.1− |
| 2007 05 25 | G96 | 0.4+ | 0.2+ | 2009 11 15 | 703 | 0.7− | 0.7− | 2009 12 15 | G96 | 0.2+ | 0.2− |

**(228893)∗ 2003 $RL_8$ = 2008 $SQ_{193}$**

Discovered 2003 Sept. 6 at the Piszkéstető Station of the University of Szeged.

Id. G. V. Williams (*MPO* 146032)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 149.17129 | | (2000.0) | | | |
| $n$ | 0.20978086 | $\omega$ | 175.49497 | | +0.78441843 | +0.61843161 |
| $a$ | 2.8051676 | $\Omega$ | 146.15740 | | −0.57166826 | +0.75043464 |
| $e$ | 0.1021582 | $i$ | 4.86425 | | −0.24058912 | +0.23321706 |
| $P$ | 4.70 | $H$ | 16.4 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 01 19 | 691 | 0.2+ | 0.1+ | 2003 09 08 | 461 | 0.4+ | 0.6+ | 2008 09 29 | 691 | 0.3+ | 0.3+ |
| 1996 01 19 | 691 | 0.1+ | 0.1+ | 2003 09 08 | 461 | 0.1− | 0.2+ | 2008 09 29 | 691 | 0.2− | 0.2+ |
| 1996 01 19 | 691 | 0.0 | 0.5+ | 2003 09 18 | 461 | 0.1+ | 0.1+ | 2008 10 03 | 691 | 0.2+ | 0.1+ |
| 2002 05 03 | 644 | 0.7+ | 0.3+ | 2003 09 18 | 461 | 0.1+ | 0.1+ | 2008 10 03 | 691 | 0.1− | 0.2+ |
| 2002 05 03 | 644 | 0.2− | 0.3+ | 2003 09 18 | 461 | 0.9− | 0.0 | 2008 10 03 | 691 | 0.3+ | 0.1+ |
| 2002 05 03 | 644 | 0.2+ | 0.4+ | 2003 09 18 | 461 | 0.7+ | 0.8+ | 2008 10 07 | 691 | 0.1+ | 0.3− |
| 2002 05 23 | 644 | 0.1− | 0.7+ | 2003 09 22 | 461 | 1.0− | 0.1− | 2008 10 07 | 691 | 0.1+ | 0.1− |
| 2002 05 23 | 644 | 0.7+ | 1.0+ | 2003 09 22 | 461 | 0.0 | 0.0 | 2008 10 07 | 691 | 0.2+ | 0.5− |
| 2003 09 06 | 461 | 0.2− | 0.7+ | 2003 09 22 | 461 | 0.1− | 0.1− | 2008 10 23 | G96 | 0.8+ | 0.5− |
| 2003 09 06 | 461 | 1.0− | 0.2+ | 2006 02 27 | G96 | 0.1+ | 0.1+ | 2008 10 23 | G96 | 0.3+ | 0.1− |
| 2003 09 06 | 461 | 0.6− | 0.3+ | 2006 02 27 | G96 | 0.2+ | 0.4+ | 2008 10 23 | G96 | 0.4+ | 0.3− |
| 2003 09 06 | 461 | 0.6− | 1.2+ | 2006 02 27 | G96 | 0.5+ | 0.4+ | 2009 12 19 | 691 | 0.9+ | 0.0 |
| 2003 09 06 | 461 | 0.0 | 0.1+ | 2006 02 27 | G96 | 0.1− | 0.2+ | 2009 12 19 | 691 | 0.6+ | 0.2− |
| 2003 09 06 | 461 | 0.2− | 0.0 | 2008 09 25 | 691 | 0.2− | 0.0 | 2009 12 19 | 691 | 0.2+ | 0.0 |
| 2003 09 06 | 461 | 0.2+ | 0.1− | 2008 09 25 | 691 | 0.2− | 0.3+ | 2009 12 27 | 691 | 0.4− | 0.1− |
| 2003 09 06 | 461 | 0.1− | 0.1− | 2008 09 25 | 691 | 0.3− | 0.4− | 2009 12 27 | 691 | 1.1− | 0.4+ |
| 2003 09 08 | 461 | 1.2− | 0.9+ | 2008 09 29 | 691 | 0.2+ | 0.3+ | 2009 12 27 | 691 | 0.6− | 0.4+ |

**(228894)∗ 2003 $RD_{11}$ = 2003 $RT_{26}$**

Discovered 2003 Sept. 13 by NEAT at Haleakala.

Id. A. Doppler (d, *MPO* 75917)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 54.56360 | | (2000.0) | | | |
| $n$ | 0.18260470 | $\omega$ | 233.24812 | | +0.96986684 | +0.16842101 |
| $a$ | 3.0770041 | $\Omega$ | 116.44740 | | −0.10784277 | +0.94470994 |
| $e$ | 0.1530374 | $i$ | 11.33969 | | −0.21846794 | +0.28134940 |
| $P$ | 5.40 | $H$ | 14.8 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 01 07 | 691 | 0.0 | 0.0 | 2003 09 19 | 699 | 0.0 | 0.7+ | 2009 10 18 | J75 | 0.7+ | 0.2− |
| 2000 01 07 | 691 | 0.1− | 0.0 | 2003 09 19 | 699 | 0.5+ | 0.4+ | 2009 10 18 | J75 | (1.8+ | 0.3+) |
| 2000 01 07 | 691 | 0.1+ | 0.1+ | 2003 09 22 | 608 | 0.8+ | 1.3− | 2009 10 18 | J75 | 0.5+ | 0.1− |
| 2002 06 16 | 291 | 0.2+ | 0.5+ | 2003 09 22 | 608 | 0.4+ | 0.9− | 2009 10 18 | 703 | 0.5+ | 0.3− |
| 2002 06 16 | 291 | 0.2+ | 0.4+ | 2003 09 22 | 608 | 0.3+ | 0.3− | 2009 10 18 | 703 | (2.2+ | 1.1−) |
| 2002 06 16 | 291 | 0.1+ | 0.3+ | 2003 09 25 | 644 | 0.1− | 0.5+ | 2009 10 18 | 703 | (0.9− | 2.3−) |
| 2003 07 25 | 644 | 0.2− | 0.4+ | 2003 09 25 | 644 | 0.1− | 0.4+ | 2009 10 18 | 703 | 0.2− | 0.3− |
| 2003 07 25 | 644 | 0.0 | 0.6+ | 2003 09 25 | 644 | 0.2− | 0.5+ | 2009 11 08 | 703 | 0.8− | 0.5+ |
| 2003 07 25 | 644 | 0.1− | 0.5+ | 2006 02 20 | 703 | (0.1− | 2.4+) | 2009 11 08 | 703 | 0.2− | 0.5+ |
| 2003 08 31 | 608 | 0.1− | 0.1− | 2006 02 20 | 703 | (0.7− | 1.7+) | 2009 11 08 | 703 | 0.5− | 0.3+ |
| 2003 08 31 | 608 | 0.1− | 0.0 | 2006 02 20 | 703 | (3.2− | 5.0+) | 2009 11 08 | 703 | 0.8− | 1.5+ |
| 2003 08 31 | 608 | 0.2− | 0.1− | 2006 02 20 | 703 | (0.5− | 2.6+) | 2009 11 15 | 704 | 0.1+ | 0.3+ |
| 2003 09 05 | 608 | (0.9+ | 1.7−) | 2007 03 25 | G96 | 0.4− | 0.0 | 2009 11 15 | 704 | 0.8− | 1.0+ |
| 2003 09 05 | 608 | 0.4− | 1.2− | 2007 03 25 | G96 | 0.1− | 0.3− | 2009 11 15 | 704 | 0.1+ | 0.8+ |
| 2003 09 05 | 608 | (0.0 | 1.6−) | 2007 03 25 | G96 | 0.3− | 0.2− | 2009 11 15 | 704 | 0.4− | 0.7+ |
| 2003 09 13 | 608 | 0.1− | 0.8− | 2007 03 25 | G96 | 0.0 | 0.5− | 2009 11 27 | 703 | (0.2− | 1.9+) |
| 2003 09 13 | 608 | 0.3+ | 1.1− | 2008 06 04 | G96 | 0.2+ | 0.2+ | 2009 11 27 | 703 | (0.2+ | 1.6+) |
| 2003 09 13 | 608 | 0.0 | 0.9− | 2008 06 04 | G96 | 0.0 | 0.0 | 2009 11 27 | 703 | 0.3+ | 0.2+ |
| 2003 09 14 | 644 | 0.5− | 0.6+ | 2008 06 04 | G96 | 0.2− | 0.2+ | 2009 11 27 | 703 | 0.3− | 0.4+ |
| 2003 09 14 | 644 | 0.2− | 0.2+ | 2008 07 01 | 704 | (0.0 | 2.2+) | 2009 12 10 | J75 | 0.4+ | 0.3− |
| 2003 09 14 | 644 | 0.3− | 0.2− | 2008 07 01 | 704 | (0.4− | 1.6+) | 2009 12 10 | J75 | 0.3− | 0.4− |
| 2003 09 19 | 699 | 0.0 | 0.2+ | 2008 07 01 | 704 | 0.4+ | 0.7+ | 2009 12 10 | J75 | 0.3+ | 0.1− |
| 2003 09 19 | 699 | 0.3+ | 0.3+ | 2008 07 01 | 704 | (0.3+ | 2.1+) | | | | |

**(228895)∗ 2003 $RQ_{22}$**

Discovered 2003 Sept. 15 by NEAT at Haleakala.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 37.46946 | | (2000.0) | | | |
| $n$ | 0.18477229 | $\omega$ | 150.31167 | | +0.77995454 | −0.59121140 |
| $a$ | 3.0528924 | $\Omega$ | 247.37143 | | +0.52141412 | +0.79527175 |
| $e$ | 0.2077557 | $i$ | 12.85010 | | +0.34611882 | +0.13420853 |
| $P$ | 5.33 | $H$ | 15.0 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 11 11 | 704 | 0.0 | 1.1− | 2003 09 21 | 704 | 0.4− | 0.4+ | 2008 07 31 | G96 | 0.2+ | 0.1− |
| 1998 11 11 | 704 | 1.1+ | 1.2− | 2003 10 19 | 699 | 0.2+ | 0.7− | 2008 07 31 | G96 | 0.0 | 0.1+ |
| 1998 11 11 | 704 | 0.5− | 1.0− | 2003 10 19 | 699 | 0.4− | 0.7+ | 2008 07 31 | G96 | 0.1− | 0.4+ |
| 1998 11 11 | 704 | 0.9− | 0.9− | 2003 10 19 | 699 | 0.6− | 0.2− | 2009 11 19 | 691 | 0.3− | 0.1− |
| 1998 11 15 | 699 | 0.2+ | 1.5+ | 2003 10 19 | 699 | 0.6− | 0.2+ | 2009 11 19 | 691 | 0.1− | 0.2− |
| 1998 11 15 | 699 | 0.3+ | 0.9+ | 2003 10 23 | 691 | 0.0 | 0.0 | 2009 11 19 | 691 | 0.3− | 0.2− |
| 1998 11 15 | 699 | 0.1+ | 0.3− | 2003 10 23 | 691 | 0.0 | 0.0 | 2009 11 21 | 704 | 0.2+ | 0.2− |
| 1999 03 10 | 568 | 0.1+ | 0.7− | 2003 10 23 | 691 | 0.1+ | 0.0 | 2009 11 21 | 704 | 1.0− | 0.1+ |
| 1999 03 10 | 568 | 0.3+ | 0.7− | 2003 11 30 | 704 | 0.1− | 1.4+ | 2009 11 21 | 704 | 0.0 | 0.2− |
| 2003 09 15 | 608 | 0.1+ | 1.3− | 2003 11 30 | 704 | 0.1− | 0.9+ | 2009 11 21 | 704 | 0.7+ | 0.7+ |
| 2003 09 15 | 608 | 0.2+ | 1.0− | 2003 11 30 | 704 | 0.4+ | 0.7+ | 2009 11 27 | 691 | 0.3− | 0.3− |
| 2003 09 15 | 608 | 0.3− | 1.3− | 2003 11 30 | 704 | 0.2+ | 0.3+ | 2009 11 27 | 691 | 0.3− | 0.1− |
| 2003 09 19 | 608 | 0.6+ | 0.3+ | 2003 12 29 | 704 | 0.8− | 0.5− | 2009 11 27 | 691 | 0.2− | 0.2− |
| 2003 09 19 | 608 | 0.8+ | 0.1+ | 2003 12 29 | 704 | 0.9− | 0.2− | 2009 12 12 | 704 | 0.2+ | 0.5+ |
| 2003 09 19 | 608 | 0.8+ | 0.3+ | 2003 12 29 | 704 | 0.3− | 0.2+ | 2009 12 12 | 704 | 0.3− | 0.2+ |
| 2003 09 20 | 691 | 0.1− | 0.1+ | 2003 12 29 | 704 | 0.8− | 0.0 | 2009 12 12 | 704 | 0.1− | 0.0 |
| 2003 09 20 | 691 | 0.1− | 0.1+ | 2003 12 29 | 704 | 0.8− | 0.6− | 2009 12 18 | 704 | 3.0+ | 0.3+ |
| 2003 09 20 | 691 | 0.0 | 0.0 | 2005 01 16 | 703 | 0.4+ | 0.6+ | 2009 12 18 | 704 | 0.4+ | 0.4+ |
| 2003 09 21 | 704 | 0.2+ | 0.5+ | 2005 01 16 | 703 | 0.4− | 0.5+ | 2009 12 18 | 704 | 2.2+ | 1.1+ |
| 2003 09 21 | 704 | 0.1− | 1.3+ | 2005 01 16 | 703 | 0.6+ | 0.8+ | 2009 12 18 | 704 | 0.3+ | 1.2+ |
| 2003 09 21 | 704 | 0.3+ | 0.9+ | 2005 01 16 | 703 | 0.1+ | 0.4+ | | | | |
| 2003 09 21 | 704 | 0.0 | 0.3+ | 2008 07 31 | G96 | 0.3− | 0.2− | | | | |

**(228896)∗ 2003 $SF_{11}$**

Discovered 2003 Sept. 17 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 187.20500 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.35733362 | $\omega$ | 353.45405 | | +0.06404499 | +0.94314269 | |
| $a$ | 1.9667695 | $\Omega$ | 279.85444 | | −0.89993183 | −0.08666953 | |
| $e$ | 0.0590344 | $i$ | 19.33215 | | −0.43130145 | +0.32088979 | |
| $P$ | 2.76 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 12 17 | 704 | 0.7− | 0.5+ | 2003 09 27 | 645 | 0.1+ | 0.1− | 2007 01 17 | 703 | (2.0− | 1.1−) |
| 1998 12 17 | 704 | 1.3+ | 0.9+ | 2003 09 27 | 645 | 0.1+ | 0.1− | 2007 01 17 | 703 | (1.9− | 0.7+) |
| 1998 12 17 | 704 | 1.2+ | 1.7− | 2003 09 30 | 704 | 0.0 | 0.7+ | 2007 02 19 | G96 | 0.2− | 0.2+ |
| 1998 12 17 | 704 | 1.2− | 0.3− | 2003 09 30 | 704 | 0.0 | 0.3+ | 2007 02 19 | G96 | 0.1− | 0.3− |
| 1998 12 17 | 704 | (5.2− | 0.5+) | 2003 09 30 | 704 | 0.0 | 0.3+ | 2007 02 19 | G96 | 0.5+ | 0.4+ |
| 2000 07 04 | 699 | 0.4− | 0.5− | 2003 09 30 | 704 | 0.3− | 0.7+ | 2007 02 19 | G96 | 0.1+ | 0.0 |
| 2000 07 04 | 699 | 0.4− | 0.1+ | 2003 09 30 | 704 | 0.5− | 0.2− | 2008 06 24 | E12 | 1.0+ | 0.1− |
| 2000 07 04 | 699 | 0.4− | 1.1+ | 2005 04 05 | E12 | 0.0 | 0.2+ | 2008 06 24 | E12 | 0.4+ | 0.2+ |
| 2000 07 04 | 699 | 0.5− | 0.6+ | 2005 04 05 | E12 | 0.1+ | 0.6+ | 2008 06 24 | E12 | 0.2− | 1.0+ |
| 2003 08 20 | 704 | 1.1+ | 0.1+ | 2005 04 05 | E12 | 0.1− | 0.6+ | 2009 09 24 | G96 | 0.4− | 0.2− |
| 2003 08 20 | 704 | 1.3− | 0.5− | 2005 04 05 | E12 | 0.2+ | 0.6+ | 2009 09 24 | G96 | 0.0 | 0.3− |
| 2003 08 20 | 704 | 0.4+ | 0.9+ | 2005 04 17 | E12 | 0.2+ | 0.3+ | 2009 09 24 | G96 | 0.3+ | 0.0 |
| 2003 08 20 | 704 | 0.4+ | 0.3− | 2005 04 17 | E12 | 0.1− | 0.6+ | 2009 09 24 | G96 | 0.6− | 0.1− |
| 2003 08 20 | 704 | 0.6− | 0.1− | 2005 04 17 | E12 | 0.4+ | 0.2+ | 2009 12 10 | 704 | (2.0+ | 1.3+) |
| 2003 09 17 | 704 | 0.3− | 1.0+ | 2005 04 17 | E12 | 0.0 | 0.1+ | 2009 12 10 | 704 | (0.3+ | 1.7+) |
| 2003 09 17 | 704 | 1.3+ | 0.5+ | 2006 12 12 | 704 | 0.7+ | 0.5+ | 2009 12 10 | 704 | 0.5+ | 0.3− |
| 2003 09 17 | 704 | 0.6− | 0.8+ | 2006 12 12 | 704 | 0.5− | 0.2+ | 2009 12 10 | 704 | 0.4+ | 0.0 |
| 2003 09 17 | 704 | 0.1− | 0.0 | 2006 12 12 | 704 | 0.4+ | 0.7+ | 2009 12 16 | 704 | 0.2− | 0.2+ |
| 2003 09 18 | 704 | 1.1− | 0.3+ | 2006 12 12 | 704 | 0.3− | 0.3+ | 2009 12 16 | 704 | 0.8+ | 0.4+ |
| 2003 09 18 | 704 | 0.5− | 0.5+ | 2006 12 12 | 704 | 0.8− | 0.9+ | 2009 12 16 | 704 | 0.4+ | 0.9+ |
| 2003 09 18 | 704 | 0.2− | 0.3− | 2007 01 17 | 703 | 0.9− | 0.6− | 2009 12 16 | 704 | 0.4− | 1.0+ |
| 2003 09 18 | 704 | 1.0− | 1.0+ | 2007 01 17 | 703 | 0.2− | 1.0− | 2009 12 16 | 704 | 0.2− | 0.5+ |

**(228897)∗ 2003 SG$_{22}$ = 2008 PU$_1$**

Discovered 2003 Sept. 16 by NEAT at Palomar.

Id. T. B. Spahr (*MPO* 141118)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 40.27255 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17880904 | $\omega$ | 82.06396 | | +0.93357009 | −0.33194303 | |
| $a$ | 3.1203961 | $\Omega$ | 297.23620 | | +0.23853586 | +0.85689922 | |
| $e$ | 0.0997297 | $i$ | 8.74186 | | +0.26748372 | +0.39438249 | |
| $P$ | 5.51 | $H$ | 15.0 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 16 | 644 | 0.4− | 0.2− | 2003 09 30 | 704 | (1.6+ | 1.0−) | 2008 08 01 | J75 | 0.2− | 0.8− |
| 2003 09 16 | 644 | 0.5− | 0.4− | 2003 09 30 | 704 | 0.3− | 0.8+ | 2008 08 01 | J75 | 0.0 | 0.2− |
| 2003 09 16 | 644 | 0.7− | 0.2− | 2003 09 30 | 704 | 0.3− | 0.4+ | 2008 08 03 | J75 | 0.4+ | 0.9− |
| 2003 09 19 | 691 | 0.0 | 0.2− | 2003 09 30 | 704 | 0.3+ | 1.2+ | 2008 08 03 | J75 | 0.2− | 0.1− |
| 2003 09 19 | 691 | 0.1+ | 0.1− | 2004 12 15 | 691 | 0.1+ | 0.3+ | 2008 08 03 | J75 | 0.1− | 0.4+ |
| 2003 09 19 | 691 | 0.1+ | 0.2− | 2004 12 15 | 691 | 0.2+ | 0.4+ | 2009 11 23 | 704 | 0.4+ | 1.5+ |
| 2003 09 20 | 704 | 0.6+ | 0.5+ | 2004 12 15 | 691 | 0.0 | 0.3+ | 2009 11 23 | 704 | (0.7− | 2.2+) |
| 2003 09 20 | 704 | 0.7− | 0.0 | 2005 03 08 | G96 | 0.0 | 0.2+ | 2009 11 23 | 704 | 0.1− | 0.4+ |
| 2003 09 20 | 704 | 0.3+ | 1.1− | 2005 03 08 | G96 | (2.2− | 1.2+) | 2009 11 23 | 704 | 1.1− | 0.4− |
| 2003 09 20 | 704 | (1.7+ | 0.6−) | 2005 03 08 | G96 | 0.1+ | 0.2− | 2009 11 25 | G96 | 0.3− | 0.3− |
| 2003 09 20 | 644 | 0.1− | 0.2− | 2005 03 08 | G96 | 0.4− | 0.0 | 2009 11 25 | G96 | 0.0 | 0.3− |
| 2003 09 20 | 704 | 1.0− | 0.2− | 2008 07 01 | 691 | 0.4− | 0.1+ | 2009 11 25 | G96 | 0.4+ | 0.5− |
| 2003 09 20 | 644 | 0.1+ | 0.4− | 2008 07 01 | 691 | 0.4− | 0.2+ | 2009 11 25 | G96 | 0.2+ | 0.3− |
| 2003 09 20 | 644 | 0.2+ | 0.0 | 2008 07 01 | 691 | 0.3− | 0.3+ | 2009 11 25 | G96 | 0.1+ | 1.1− |
| 2003 09 21 | 704 | 1.2+ | 0.3− | 2008 07 31 | 704 | 0.3+ | 0.1− | 2009 11 25 | G96 | 0.1+ | 0.5− |
| 2003 09 21 | 704 | (1.9− | 1.8+) | 2008 07 31 | 704 | 0.0 | 0.6+ | 2009 11 25 | G96 | 0.2− | 0.4− |
| 2003 09 21 | 704 | 1.0− | 0.4+ | 2008 07 31 | 704 | 0.3+ | 0.5+ | 2009 11 25 | G96 | 0.1+ | 0.6− |
| 2003 09 21 | 704 | 0.4+ | 1.2+ | 2008 07 31 | A50 | 0.9+ | 0.6+ | 2009 12 15 | 704 | 0.2+ | 0.3+ |
| 2003 09 23 | 608 | 0.7+ | 1.0+ | 2008 07 31 | A50 | 0.2− | 0.6+ | 2009 12 15 | 704 | 0.6+ | 1.2− |
| 2003 09 23 | 608 | (0.4+ | 1.6+) | 2008 07 31 | A50 | 0.6+ | 0.3+ | 2009 12 15 | 704 | 0.7+ | 0.6+ |
| 2003 09 23 | 608 | 0.5+ | 0.6+ | 2008 07 31 | A50 | 0.1− | 0.6− | 2009 12 15 | 704 | 0.6− | 0.1− |
| 2003 09 30 | 704 | 0.1+ | 0.6− | 2008 08 01 | J75 | 0.8+ | 0.2+ | 2009 12 15 | 704 | 0.0 | 1.1+ |

**(228898)∗ 2003 SB$_{29}$**

Discovered 2003 Sept. 18 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 67.05134 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18412826 | $\omega$ | 72.27305 | | +0.99172072 | −0.01016337 | |
| $a$ | 3.0600070 | $\Omega$ | 288.15816 | | −0.04662188 | +0.90034577 | |
| $e$ | 0.1504379 | $i$ | 7.74241 | | +0.11965119 | +0.43505655 | |
| $P$ | 5.35 | $H$ | 14.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 07 29 | 704 | 0.6+ | 0.8+ | 2003 10 17 | 699 | 0.7− | 0.2+ | 2005 01 17 | 704 | 0.4+ | 0.9+ |
| 2003 07 29 | 704 | 0.7− | 0.6+ | 2003 10 17 | 699 | 0.5− | 0.9− | 2005 01 17 | 704 | 0.1+ | 0.6+ |
| 2003 07 29 | 704 | 0.5+ | 0.6+ | 2003 10 18 | 644 | 0.1− | 0.0 | 2005 01 17 | 704 | 0.1+ | 0.6+ |
| 2003 07 29 | 704 | 0.4+ | 0.8+ | 2003 10 18 | 644 | 0.1− | 0.1− | 2005 01 17 | 704 | 0.5+ | 1.2− |
| 2003 08 25 | 704 | 0.1− | 0.1− | 2003 10 18 | 644 | 0.1+ | 0.1− | 2008 07 26 | E12 | 0.2+ | 0.0 |
| 2003 08 25 | 704 | 0.4− | 0.2+ | 2003 11 30 | 704 | 0.9+ | 0.9+ | 2008 07 26 | E12 | 0.4− | 0.2+ |
| 2003 08 25 | 704 | 0.0 | 0.3+ | 2003 11 30 | 704 | 0.2+ | 0.1− | 2008 07 26 | E12 | 0.6− | 0.1− |
| 2003 08 25 | 704 | 0.8− | 0.0 | 2003 11 30 | 704 | 0.9+ | 0.5+ | 2008 07 26 | E12 | (1.6− | 0.7+) |
| 2003 09 18 | 644 | 0.2− | 0.1+ | 2004 12 09 | 703 | 0.7− | 0.9+ | 2008 07 31 | 704 | 0.1+ | 1.0+ |
| 2003 09 18 | 644 | 0.3− | 0.1+ | 2004 12 09 | 703 | (0.3− | 2.2+) | 2008 07 31 | 704 | (0.3− | 2.2+) |
| 2003 09 18 | 644 | 0.0 | 0.1+ | 2004 12 09 | 703 | 0.3+ | 0.3+ | 2008 07 31 | 704 | 0.3− | 1.2+ |
| 2003 09 19 | 691 | 0.1− | 0.0 | 2004 12 09 | 703 | 1.1− | 1.0+ | 2008 08 07 | J75 | 0.4+ | 0.2− |
| 2003 09 19 | 691 | 0.0 | 0.0 | 2004 12 20 | G96 | 0.2+ | 0.2− | 2008 08 07 | J75 | 0.0 | 0.0 |
| 2003 09 19 | 691 | 0.0 | 0.1+ | 2004 12 20 | G96 | 0.0 | 0.5− | 2008 08 07 | J75 | 0.8− | 0.3− |
| 2003 09 20 | 644 | 0.2− | 0.3+ | 2004 12 20 | G96 | 0.1− | 0.6− | 2008 11 02 | 704 | 0.0 | 0.2+ |
| 2003 09 20 | 644 | 0.2+ | 0.3+ | 2004 12 20 | G96 | 0.1− | 0.3− | 2008 11 02 | 704 | 0.7+ | 0.2+ |
| 2003 09 20 | 644 | 0.2+ | 0.3+ | 2005 01 04 | 185 | 0.0 | 0.6− | 2008 11 02 | 704 | 0.8− | 1.0+ |
| 2003 09 21 | 704 | 0.3− | 0.4− | 2005 01 04 | 185 | 0.5+ | 0.2+ | 2008 11 02 | 704 | 0.1− | 0.8+ |
| 2003 09 21 | 704 | 0.2+ | 0.3+ | 2005 01 04 | 185 | 0.2+ | 0.7+ | 2009 11 16 | 704 | 0.9+ | 0.4+ |
| 2003 09 21 | 704 | 0.2+ | 0.8− | 2005 01 04 | 185 | 0.8− | 0.2+ | 2009 11 16 | 704 | 0.7+ | 0.4+ |
| 2003 09 21 | 704 | 0.5+ | 0.5− | 2005 01 13 | 291 | 0.3+ | 0.1+ | 2009 11 16 | 704 | 0.2− | 0.0 |
| 2003 09 21 | 704 | 0.3− | 0.4+ | 2005 01 13 | 704 | 0.2+ | 0.6+ | 2009 11 18 | 691 | 1.1+ | 1.1+ |
| 2003 09 23 | 608 | 0.0 | 0.8− | 2005 01 13 | 291 | 0.5− | 0.2+ | 2009 11 18 | 691 | 0.3− | 0.1− |
| 2003 09 23 | 608 | 0.1+ | 0.5− | 2005 01 13 | 704 | 0.2+ | 0.3− | 2009 11 18 | 691 | 0.3− | 0.3− |
| 2003 09 23 | 608 | 0.1− | 0.6− | 2005 01 13 | 704 | 0.7− | 0.7− | 2009 11 26 | 691 | 0.4− | 0.1− |
| 2003 09 24 | 608 | 0.3+ | 1.3− | 2005 01 13 | 291 | 0.7− | 0.2− | 2009 11 26 | 691 | 0.3− | 0.3− |
| 2003 09 24 | 608 | 0.0 | 0.8− | 2005 01 13 | 704 | 0.6+ | 0.7− | 2009 11 26 | 691 | 0.4− | 0.6− |
| 2003 09 24 | 608 | 0.1+ | 0.6− | 2005 01 13 | 704 | 0.1+ | 0.1+ | 2009 12 10 | 704 | 0.5− | 0.2+ |
| 2003 09 30 | 704 | 0.5− | 0.2− | 2005 01 15 | 704 | 0.3+ | 0.8+ | 2009 12 10 | 704 | 0.9− | 0.1+ |
| 2003 09 30 | 704 | 0.1+ | 0.8− | 2005 01 15 | 704 | 0.4+ | 0.2+ | 2009 12 10 | 704 | 0.3− | 0.7− |
| 2003 09 30 | 704 | 0.0 | 0.3− | 2005 01 15 | 704 | 0.3+ | 0.4+ | 2009 12 10 | 704 | 0.3− | 0.0 |
| 2003 09 30 | 704 | 0.3+ | 0.6− | 2005 01 15 | 704 | 0.3+ | 0.6+ | 2009 12 10 | 704 | 0.3− | 0.5− |
| 2003 09 30 | 704 | 0.1+ | 0.0 | 2005 01 16 | 691 | 0.3+ | 0.2+ | 2009 12 16 | 704 | 1.9+ | 0.4+ |
| 2003 10 14 | 644 | 0.3+ | 0.3+ | 2005 01 16 | 691 | 0.2+ | 0.2− | 2009 12 16 | 704 | 0.8+ | 0.6+ |
| 2003 10 14 | 644 | 0.1+ | 0.1− | 2005 01 16 | 691 | 0.4+ | 0.2+ | 2009 12 16 | 704 | 0.4+ | 0.1+ |
| 2003 10 14 | 644 | 0.4+ | 0.3+ | 2005 01 17 | 691 | 0.0 | 0.1− | 2009 12 16 | 704 | 0.3− | 0.7− |
| 2003 10 17 | 699 | 0.6− | 0.7+ | 2005 01 17 | 691 | 0.0 | 0.0 | | | | |
| 2003 10 17 | 699 | 0.5+ | 0.1+ | 2005 01 17 | 691 | 0.1+ | 0.1− | | | | |

**(228899)∗ 2003 SG$_{58}$**

Discovered 2003 Sept. 17 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 61.68435 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18951365 | $\omega$ | 138.98082 | | +0.98751611 | −0.05746583 | |
| $a$ | 3.0017583 | $\Omega$ | 224.97985 | | +0.01847411 | +0.96690501 | |
| $e$ | 0.1614071 | $i$ | 11.97493 | | +0.15643094 | +0.24858072 | |
| $P$ | 5.20 | $H$ | 15.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 05 18 | 644 | 0.3+ | 1.0+ | 2003 10 02 | 691 | 0.1− | 0.0 | 2007 05 13 | G96 | 0.3+ | 0.1− |
| 2002 05 18 | 644 | 0.1+ | 1.2+ | 2006 02 27 | G96 | 0.0 | 0.9+ | 2007 05 13 | G96 | 0.1− | 0.0 |
| 2002 05 18 | 644 | 0.2− | 1.1+ | 2006 02 27 | G96 | 0.0 | 0.9+ | 2007 05 13 | G96 | 0.3− | 0.1− |
| 2003 08 27 | 608 | 0.1− | 0.6+ | 2006 02 27 | G96 | 0.6+ | 1.3+ | 2007 05 13 | G96 | 0.1+ | 0.1+ |
| 2003 08 27 | 608 | 0.2− | 0.8+ | 2006 02 27 | G96 | 0.1+ | 0.8+ | 2008 11 01 | G96 | 0.2+ | 0.2− |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 08 27 | 608 | 0.0 | 0.5+ | 2007 04 11 | 691 | 0.2+ | 0.4− | 2008 11 01 | G96 | 0.1+ | 0.4− |
| 2003 09 17 | 699 | 0.7− | 0.2− | 2007 04 11 | 691 | 0.4− | 0.3− | 2008 11 01 | G96 | 0.0 | 0.6− |
| 2003 09 17 | 699 | 0.7+ | 0.3+ | 2007 04 11 | 691 | 0.2+ | 0.5− | 2008 11 01 | G96 | 0.1− | 0.0 |
| 2003 09 17 | 699 | 0.3− | 0.5+ | 2007 04 15 | 691 | 0.4+ | 0.1+ | 2009 11 20 | 704 | 0.3− | 0.2+ |
| 2003 09 17 | 699 | 0.7− | 0.1+ | 2007 04 15 | 691 | 0.0 | 0.1− | 2009 11 20 | 704 | 0.3+ | 1.2− |
| 2003 09 17 | 699 | 0.0 | 0.3+ | 2007 04 15 | 691 | 0.1− | 0.1− | 2009 11 20 | 704 | 0.4− | 0.2− |
| 2003 09 17 | 699 | 0.3+ | 0.1− | 2007 04 19 | 691 | 0.3− | 0.1− | 2009 11 20 | 704 | 0.4− | 0.4+ |
| 2003 09 17 | 699 | 0.7− | 0.1− | 2007 04 19 | 691 | 0.1− | 0.0 | 2009 11 27 | G96 | 0.2+ | 0.2+ |
| 2003 09 17 | 699 | 0.5− | 0.5+ | 2007 04 19 | 691 | 0.4+ | 0.2+ | 2009 11 27 | G96 | 0.4+ | 0.2+ |
| 2003 09 20 | 704 | 0.1+ | 0.3+ | 2007 04 23 | 691 | 0.3− | 0.1− | 2009 11 27 | G96 | 0.3+ | 0.2+ |
| 2003 09 20 | 704 | 0.1+ | 0.0 | 2007 04 23 | 691 | 0.2+ | 0.0 | 2009 12 12 | 704 | 1.0+ | 0.6+ |
| 2003 09 20 | 704 | 0.5+ | 0.1+ | 2007 04 23 | 691 | 0.1− | 0.0 | 2009 12 12 | 704 | 0.6+ | 0.5− |
| 2003 09 20 | 704 | 1.2+ | 0.4− | 2007 05 09 | G96 | 0.2+ | 0.1− | 2009 12 12 | 704 | 0.0 | 0.5+ |
| 2003 09 20 | 704 | 0.3− | 0.2+ | 2007 05 09 | G96 | 0.1+ | 0.0 | 2009 12 12 | D25 | 0.7− | 0.9− |
| 2003 09 30 | 699 | 0.1+ | 0.2− | 2007 05 09 | G96 | 0.1− | 0.0 | 2009 12 12 | D25 | 0.4+ | 0.2+ |
| 2003 09 30 | 699 | 1.3− | 0.7− | 2007 05 09 | G96 | 0.3− | 0.1− | 2009 12 15 | 703 | 0.1− | 0.0 |
| 2003 09 30 | 699 | 0.2+ | 0.6− | 2007 05 10 | G96 | 0.2− | 0.1+ | 2009 12 15 | 703 | 0.1− | 0.4− |
| 2003 09 30 | 699 | 0.6− | 0.4− | 2007 05 10 | G96 | 0.1+ | 0.3− | 2009 12 15 | 703 | 0.4− | 0.6− |
| 2003 10 02 | 691 | 0.2+ | 0.4− | 2007 05 10 | G96 | 0.0 | 0.0 | 2009 12 15 | 703 | 0.8− | 0.8− |
| 2003 10 02 | 691 | 0.4+ | 0.5+ | 2007 05 10 | G96 | 0.1− | 0.1− | 2009 12 15 | 703 | 0.1− | 0.1+ |

**(228900)∗ 2003 ST$_{69}$**

Discovered 2003 Sept. 17 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 138.05460 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18491106 | $\omega$ | 83.81728 | | +0.29434519 | +0.95514466 | |
| $a$ | 3.0513647 | $\Omega$ | 203.38072 | | −0.90607722 | +0.26806783 | |
| $e$ | 0.0450473 | $i$ | 4.70504 | | −0.30394897 | +0.12585036 | |
| $P$ | 5.33 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 17 | 691 | 0.1+ | 0.1+ | 2003 10 24 | 695 | 0.0 | 0.2+ | 2008 10 07 | 691 | 0.3+ | 0.1+ |
| 2003 09 17 | 691 | 0.1− | 0.0 | 2007 06 08 | 691 | 0.5− | 0.2− | 2008 10 07 | 691 | 0.7− | 0.8− |
| 2003 09 17 | 691 | 0.0 | 0.1− | 2007 06 08 | 691 | 0.6+ | 1.0+ | 2009 11 10 | 691 | 0.2+ | 0.1+ |
| 2003 09 20 | 291 | 0.1+ | 0.0 | 2007 06 08 | 691 | 0.0 | 0.1+ | 2009 11 10 | 691 | 0.3+ | 0.3+ |
| 2003 09 20 | 291 | 0.2+ | 0.2+ | 2007 06 10 | 691 | 0.2+ | 0.1+ | 2009 11 10 | 691 | 0.2+ | 0.1− |
| 2003 09 20 | 291 | 0.1+ | 0.1+ | 2007 06 10 | 691 | 0.0 | 0.1+ | 2009 11 18 | 691 | 0.5− | 0.1+ |
| 2003 09 22 | 644 | 0.1− | 0.0 | 2007 06 10 | 691 | 0.2+ | 0.3+ | 2009 11 18 | 691 | 0.2− | 0.2+ |
| 2003 09 22 | 644 | 0.2+ | 0.1+ | 2007 06 13 | 691 | 0.2+ | 0.6+ | 2009 11 18 | 691 | 0.2− | 0.4+ |
| 2003 09 22 | 644 | 0.0 | 0.0 | 2007 06 13 | 691 | 0.1− | 0.1+ | 2009 11 22 | 691 | 0.5+ | 0.7− |
| 2003 09 29 | 704 | 0.1− | 0.1+ | 2007 06 13 | 691 | 0.3+ | 0.1+ | 2009 11 22 | 691 | 0.1+ | 0.3+ |
| 2003 09 29 | 704 | 0.2+ | 0.5+ | 2007 06 21 | 691 | 0.4− | 0.3− | 2009 11 22 | 691 | 0.1− | 0.1+ |
| 2003 09 29 | 704 | 1.2− | 0.5− | 2007 06 21 | 691 | 0.2− | 0.1+ | 2009 11 23 | J75 | 0.5+ | 0.6− |
| 2003 09 29 | 704 | 0.8− | 0.4− | 2007 06 21 | 691 | 0.2− | 0.6− | 2009 11 23 | J75 | 0.3+ | 0.4− |
| 2003 09 29 | 704 | 0.6− | 0.2+ | 2008 08 02 | 621 | 0.4+ | 0.2− | 2009 11 23 | J75 | 0.5+ | 0.7+ |
| 2003 10 24 | 695 | 0.1+ | 0.1+ | 2008 08 02 | 621 | 0.5+ | 0.0 | 2009 11 26 | 691 | 0.2− | 0.3+ |
| 2003 10 24 | 704 | 0.0 | 0.1+ | 2008 08 02 | 621 | 0.2+ | 0.0 | 2009 11 26 | 691 | 0.3+ | 0.0 |
| 2003 10 24 | 704 | 0.8− | 0.3+ | 2008 09 25 | 691 | 0.4+ | 0.0 | 2009 11 26 | 691 | 0.1− | 0.3+ |
| 2003 10 24 | 704 | 0.4+ | 0.2− | 2008 09 25 | 691 | 0.4− | 0.3− | 2009 12 19 | 691 | 0.5− | 0.3− |
| 2003 10 24 | 704 | 0.6+ | 0.5+ | 2008 09 25 | 691 | 0.3+ | 0.1+ | 2009 12 19 | 691 | 0.0 | 0.1− |
| 2003 10 24 | 704 | 0.1− | 0.8+ | 2008 10 07 | 691 | 0.1− | 0.2+ | 2009 12 19 | 691 | 0.3− | 0.0 |

**(228901)∗ 2003 SG$_{71}$ = 2000 AZ$_{163}$ = 2003 UQ$_{313}$**

Discovered 2003 Sept. 18 by Spacewatch at Kitt Peak.

Id. A. Doppler (*MPO* 100518)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 341.19572 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18689828 | $\omega$ | 203.05507 | | −0.07675848 | −0.98888065 | |
| $a$ | 3.0296969 | $\Omega$ | 251.54054 | | +0.93441951 | −0.02678486 | |
| $e$ | 0.0792190 | $i$ | 7.71695 | | +0.34780500 | −0.14627932 | |
| $P$ | 5.27 | $H$ | 15.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 01 05 | 704 | 0.3− | 0.1+ | 2008 08 30 | 704 | (0.4− | 1.6+) | 2009 11 12 | J75 | 0.4+ | 0.0 |
| 2000 01 05 | 704 | 0.1− | 1.2+ | 2008 08 30 | 704 | 0.4− | 0.1+ | 2009 11 12 | J75 | (0.7+ | 1.6+) |
| 2000 01 05 | 704 | 1.1− | 0.1+ | 2008 08 30 | 704 | 0.2− | 0.2+ | 2009 11 15 | J75 | 0.4+ | 0.2− |
| 2000 01 05 | 704 | 0.4− | 1.6− | 2008 09 05 | 704 | 1.1+ | 0.1− | 2009 11 15 | J75 | 0.8+ | 0.4+ |
| 2000 01 07 | 704 | 0.4+ | 0.4+ | 2008 09 05 | 704 | 1.3+ | 0.0 | 2009 11 15 | J75 | 1.0+ | 0.6− |
| 2000 01 07 | 704 | 0.1− | 0.3− | 2008 09 05 | 704 | 0.6+ | 0.1+ | 2009 11 21 | 704 | 0.7+ | 0.4− |
| 2000 01 07 | 704 | 0.7+ | 0.3+ | 2009 10 26 | 703 | 0.4+ | 0.3− | 2009 11 21 | 704 | 0.0 | 0.2+ |
| 2000 01 07 | 704 | 1.4+ | 1.1+ | 2009 10 26 | 703 | 0.3+ | 1.1+ | 2009 11 21 | 704 | 0.2+ | 0.5+ |
| 2003 09 18 | 691 | 0.1+ | 0.0 | 2009 10 26 | 703 | 0.9− | 0.2− | 2009 12 09 | J75 | 0.2+ | 0.2− |
| 2003 09 18 | 691 | 0.1+ | 0.1− | 2009 10 26 | 703 | 1.1− | 0.5+ | 2009 12 09 | J75 | 0.5+ | 0.7− |
| 2003 09 18 | 691 | 0.2+ | 0.0 | 2009 11 08 | 703 | 1.1+ | 0.1+ | 2009 12 09 | J75 | 0.6+ | 0.0 |
| 2003 09 20 | 704 | 0.5+ | 0.5+ | 2009 11 08 | 703 | 0.5+ | 0.4− | 2009 12 11 | G96 | 0.0 | 0.1− |
| 2003 09 20 | 704 | 0.2− | 0.4+ | 2009 11 08 | 703 | 0.3+ | 1.0− | 2009 12 11 | G96 | 0.1− | 0.3− |
| 2003 09 20 | 704 | 0.3− | 0.5+ | 2009 11 08 | 703 | 0.0 | 0.1− | 2009 12 11 | G96 | 0.3+ | 0.4− |
| 2003 09 20 | 704 | 0.7− | 0.5− | 2009 11 09 | 691 | 0.3− | 0.1+ | 2009 12 11 | G96 | 0.2+ | 0.1+ |
| 2003 10 03 | 691 | 0.1− | 0.1− | 2009 11 09 | 691 | 0.5− | 0.1+ | 2009 12 11 | 704 | 1.0+ | 0.1+ |
| 2003 10 03 | 691 | 0.2− | 0.0 | 2009 11 09 | 691 | 0.2− | 0.2+ | 2009 12 11 | 704 | 1.8+ | 0.0 |
| 2003 10 03 | 691 | 0.0 | 0.2− | 2009 11 09 | 691 | 0.3− | 0.1− | 2009 12 11 | 703 | 0.2− | 0.4− |
| 2003 10 20 | 691 | 0.1− | 0.0 | 2009 11 09 | 691 | 0.5− | 0.0 | 2009 12 11 | 703 | 0.1+ | 0.1− |
| 2003 10 20 | 691 | 0.0 | 0.3+ | 2009 11 09 | 691 | 0.2− | 0.1− | 2009 12 11 | 703 | 0.3+ | 0.4− |
| 2003 10 20 | 691 | 0.1+ | 0.0 | 2009 11 09 | J75 | 0.0 | 0.3− | 2009 12 11 | 704 | 0.2+ | 1.7+ |
| 2008 08 24 | J75 | 0.3− | 0.2− | 2009 11 10 | J75 | 0.2− | 0.2+ | 2009 12 11 | 703 | 0.9− | 0.2− |
| 2008 08 24 | J75 | 0.9− | 0.3+ | 2009 11 10 | J75 | 0.1− | 0.4− | | | | |
| 2008 08 24 | J75 | 1.1− | 0.2− | 2009 11 12 | J75 | 0.7+ | 0.1+ | | | | |

**(228902)∗ 2003 SS$_{79}$**

Discovered 2003 Sept. 19 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 32.13688 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17995916 | $\omega$ | 195.97866 | | +0.81892986 | −0.56526967 | |
| $a$ | 3.1070870 | $\Omega$ | 199.45611 | | +0.55372980 | +0.82366158 | |
| $e$ | 0.1927691 | $i$ | 17.31181 | | +0.15078855 | +0.04529686 | |
| $P$ | 5.48 | $H$ | 15.2 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 06 23 | 691 | 0.6+ | 0.3+ | 2003 10 06 | 699 | 0.4+ | 0.5− | 2008 06 02 | G96 | 0.5+ | 0.1− |
| 1996 06 23 | 691 | 0.2− | 0.2+ | 2003 10 06 | 699 | 1.2− | 0.2+ | 2008 06 02 | G96 | 0.1− | 0.2− |
| 2003 09 17 | 644 | 0.4+ | 0.1+ | 2003 10 06 | 699 | 0.1+ | 0.7− | 2008 06 02 | G96 | 0.1− | 0.2− |
| 2003 09 17 | 644 | 0.0 | 0.2+ | 2003 10 15 | 699 | 0.2+ | 0.6+ | 2008 07 29 | 691 | 0.0 | 0.0 |
| 2003 09 17 | 644 | 0.1+ | 0.2+ | 2003 10 15 | 699 | 0.2− | 0.6− | 2008 07 29 | 691 | 0.2+ | 0.2− |
| 2003 09 19 | 691 | 0.1− | 0.0 | 2003 10 15 | 699 | 0.1− | 0.1− | 2008 07 29 | 691 | 0.3+ | 0.0 |
| 2003 09 19 | 691 | 0.1− | 0.0 | 2003 10 15 | 699 | 1.2− | 0.0 | 2008 08 01 | 691 | 0.2− | 0.0 |
| 2003 09 19 | 691 | 0.0 | 0.0 | 2003 10 16 | 644 | 0.1+ | 0.2+ | 2008 08 01 | 691 | 0.1+ | 0.0 |
| 2003 09 20 | 704 | 0.4+ | 0.5+ | 2003 10 16 | 644 | 0.1+ | 0.2+ | 2008 08 01 | 691 | 0.2+ | 0.3− |
| 2003 09 20 | 704 | 0.8+ | 1.4+ | 2003 10 16 | 644 | 0.2+ | 0.2+ | 2009 10 01 | G96 | 0.2− | 0.2− |
| 2003 09 20 | 704 | 1.1+ | 1.2+ | 2003 10 20 | 704 | 0.3− | 0.7− | 2009 10 01 | G96 | 0.4+ | 0.0 |
| 2003 09 20 | 704 | 0.0 | 0.3+ | 2003 10 20 | 704 | (1.1− | 1.5+) | 2009 10 01 | G96 | 0.2− | 0.0 |
| 2003 09 20 | 704 | 0.2+ | 0.9+ | 2003 10 20 | 704 | 0.1− | 0.4+ | 2009 10 01 | G96 | 0.2− | 0.0 |
| 2003 09 22 | 106 | 0.4− | 0.7− | 2003 10 20 | 704 | (2.0+ | 1.2+) | 2009 10 21 | 703 | 0.8− | 0.1− |
| 2003 09 22 | 106 | 0.1− | 0.2− | 2003 10 21 | 644 | 0.1− | 0.0 | 2009 10 21 | 703 | 0.2+ | 0.0 |
| 2003 09 22 | 106 | 0.1− | 0.5− | 2003 10 21 | 644 | 0.5− | 0.3+ | 2009 10 21 | 703 | 0.2+ | 0.2+ |
| 2003 09 22 | 699 | 0.6− | 0.2− | 2003 10 21 | 644 | 0.2− | 0.1− | 2009 10 21 | 703 | 0.2+ | 0.2− |
| 2003 09 22 | 699 | 0.4− | 0.2+ | 2003 10 24 | 691 | 0.2− | 0.2− | 2009 11 09 | 703 | 1.0− | 0.1− |
| 2003 09 22 | 699 | 0.4+ | 0.4+ | 2003 10 24 | 704 | 0.6− | 0.6− | 2009 11 09 | 703 | 0.4− | 0.5− |
| 2003 09 22 | 699 | 0.1− | 0.6+ | 2003 10 24 | 691 | 0.0 | 0.2− | 2009 11 09 | 703 | 0.2− | 1.3− |
| 2003 09 23 | 608 | 0.5− | 0.1− | 2003 10 24 | 704 | 0.3− | 0.7− | 2009 11 09 | 703 | 1.3− | 0.1− |
| 2003 09 23 | 608 | 0.9− | 0.3− | 2003 10 24 | 704 | 0.4− | 0.6− | 2009 11 15 | 704 | 0.3+ | 1.0+ |
| 2003 09 23 | 608 | 0.9− | 0.2− | 2003 10 24 | 691 | 0.0 | 0.2− | 2009 11 15 | 704 | 0.6+ | 0.4+ |
| 2003 09 24 | 608 | 0.5+ | 0.0 | 2003 10 24 | 704 | 0.1− | 0.1+ | 2009 11 15 | 704 | 0.3+ | 0.5+ |
| 2003 09 24 | 608 | 0.8+ | 0.1+ | 2003 10 24 | 704 | 0.2− | 0.6− | 2009 11 19 | J75 | 0.4− | 0.5+ |
| 2003 09 24 | 608 | 0.4+ | 0.1− | 2003 10 29 | 704 | 0.3+ | 0.8+ | 2009 11 19 | J75 | 0.3+ | 0.1− |
| 2003 09 27 | 704 | 0.3+ | 1.1+ | 2003 10 29 | 704 | 0.0 | 0.3+ | 2009 11 19 | J75 | 0.3− | 0.1+ |
| 2003 09 27 | 704 | 1.1+ | 0.2+ | 2003 10 29 | 704 | 0.7− | 0.9+ | 2009 11 21 | 703 | (2.1+ | 0.1+) |
| 2003 09 27 | 704 | 0.5+ | 0.7+ | 2003 10 29 | 704 | 0.6− | 1.4+ | 2009 11 21 | 703 | 0.1− | 0.3− |
| 2003 09 27 | 704 | 0.2− | 0.4+ | 2003 11 16 | 645 | 0.1+ | 0.1− | 2009 11 21 | 703 | 0.3+ | 0.0 |
| 2003 09 27 | 704 | 0.1− | 0.3+ | 2003 11 16 | 645 | 0.0 | 0.1− | 2009 11 21 | 703 | 0.2− | 0.5+ |
| 2003 09 29 | 699 | 0.1− | 0.1− | 2003 11 21 | 704 | 0.8− | 0.1− | 2009 12 16 | 703 | 0.6+ | 0.7+ |
| 2003 09 29 | 699 | 0.1+ | 0.1− | 2003 11 21 | 704 | 0.3+ | 0.6+ | 2009 12 16 | 703 | 1.0+ | 0.0 |
| 2003 09 29 | 699 | 0.0 | 0.7− | 2003 11 21 | 704 | 0.5+ | 0.9+ | 2009 12 16 | 703 | (0.3+ | 1.7+) |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 29 | 699 | 0.6+ | 0.7− | 2003 11 21 | 704 | 0.6+ | 0.7+ | 2009 12 16 | 703 | 1.0− | 0.5+ | | |
| 2003 10 04 | 608 | 0.4− | 0.4+ | 2007 06 10 | 691 | 0.3− | 0.2+ | 2009 12 20 | 704 | 0.1+ | 0.7+ | | |
| 2003 10 04 | 608 | 0.6− | 0.7+ | 2007 06 10 | 691 | 0.1+ | 0.0 | 2009 12 20 | 704 | 1.6+ | 0.1+ | | |
| 2003 10 04 | 608 | 0.4− | 0.8+ | 2007 06 10 | 691 | 0.5− | 0.2+ | 2009 12 20 | 704 | 0.5+ | 0.8− | | |
| 2003 10 06 | 699 | 0.1+ | 0.1+ | 2008 06 02 | G96 | 0.7− | 0.3− | | | | | | |

**(228903)∗ 2003 SN$_{107}$**

Discovered 2003 Sept. 20 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 65.53050 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18101986 | $\omega$ | 99.34927 | | +0.99619766 | −0.02156358 | |
| $a$ | 3.0949376 | $\Omega$ | 261.91989 | | −0.01267817 | +0.92269002 | |
| $e$ | 0.1418138 | $i$ | 4.89083 | | +0.08619444 | +0.38493912 | |
| $P$ | 5.44 | $H$ | 15.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 20 | 644 | 0.2+ | 0.5− | 2003 10 21 | 704 | 0.3− | 1.0− | 2008 08 07 | J75 | 0.2− | 0.8− | | |
| 2003 09 20 | 644 | 0.3+ | 0.5− | 2003 10 21 | 704 | 1.4− | 1.1− | 2008 09 07 | 703 | 0.7+ | 0.8− | | |
| 2003 09 20 | 644 | 0.3+ | 0.2− | 2003 10 21 | 704 | (1.1+ | 3.8−) | 2008 09 07 | 703 | 0.9− | 0.3+ | | |
| 2003 09 21 | 699 | 0.1+ | 0.8− | 2003 10 26 | 691 | 0.0 | 0.4+ | 2008 09 07 | 703 | 1.0− | 0.6+ | | |
| 2003 09 21 | 644 | 0.2− | 0.2+ | 2003 10 26 | 691 | 0.1+ | 0.1− | 2008 09 07 | 703 | 0.1− | 0.8+ | | |
| 2003 09 21 | 704 | 0.2+ | 0.8+ | 2003 10 26 | 691 | 0.1− | 0.2+ | 2009 11 17 | 691 | 0.3− | 0.3− | | |
| 2003 09 21 | 699 | 0.4+ | 0.3− | 2003 10 30 | 704 | 0.2+ | 0.1− | 2009 11 17 | 691 | 0.3− | 0.0 | | |
| 2003 09 21 | 704 | 0.9+ | 0.4− | 2003 10 30 | 704 | 0.3− | 0.2+ | 2009 11 17 | 691 | 0.2− | 0.0 | | |
| 2003 09 21 | 699 | 0.5− | 0.4− | 2003 10 30 | 704 | 0.7+ | 0.3− | 2009 11 21 | 691 | 0.3− | 0.2− | | |
| 2003 09 21 | 704 | 0.3− | 1.1+ | 2003 11 02 | 695 | 0.1− | 0.0 | 2009 11 21 | 691 | 0.1− | 0.2− | | |
| 2003 09 21 | 699 | 0.6− | 1.1− | 2003 11 02 | 695 | 0.2− | 0.2− | 2009 11 21 | 691 | 0.0 | 0.0 | | |
| 2003 09 21 | 704 | 0.5+ | 0.2− | 2003 11 02 | 695 | 0.2− | 0.1− | 2009 11 22 | 703 | 0.0 | 0.6+ | | |
| 2003 09 21 | 704 | 1.4− | 0.7− | 2003 11 02 | 695 | 0.1− | 0.0 | 2009 11 22 | 703 | 0.1− | 0.6− | | |
| 2003 09 21 | 644 | 0.0 | 0.0 | 2003 11 02 | 695 | 0.1− | 0.0 | 2009 11 22 | 703 | 1.3− | 1.4+ | | |
| 2003 09 21 | 644 | 0.2+ | 0.0 | 2004 12 12 | 599 | 0.7+ | 0.7+ | 2009 11 22 | 703 | 0.0 | 0.1− | | |
| 2003 09 22 | 644 | 0.0 | 0.0 | 2004 12 12 | 599 | 1.0− | 0.1+ | 2009 11 22 | 703 | 0.2+ | 0.9− | | |
| 2003 09 22 | 644 | 0.1+ | 0.2− | 2004 12 12 | 599 | 0.1+ | 0.1− | 2009 11 25 | 691 | 0.0 | 0.1− | | |
| 2003 09 22 | 644 | 0.4+ | 0.0 | 2004 12 12 | 599 | 0.5+ | 0.0 | 2009 11 25 | 691 | 0.1− | 0.1− | | |
| 2003 09 27 | 704 | (0.0 | 2.2+) | 2005 01 13 | 704 | 0.3+ | 0.6− | 2009 11 25 | 691 | 0.1+ | 0.1+ | | |
| 2003 09 27 | 704 | 0.2− | 1.5+ | 2005 01 13 | 704 | 0.4− | 1.4+ | 2009 12 09 | J75 | 0.5+ | 0.7− | | |
| 2003 09 27 | 704 | 0.7+ | 1.1+ | 2005 01 13 | 704 | 0.7+ | 1.4+ | 2009 12 09 | J75 | 0.5+ | 0.9− | | |
| 2003 09 27 | 704 | 0.3− | 0.2+ | 2005 01 13 | 704 | 0.2+ | 0.8+ | 2009 12 09 | J75 | 0.7+ | 0.6− | | |
| 2003 09 27 | 704 | 0.1− | 1.4+ | 2008 07 26 | E12 | 0.4− | 0.3+ | 2009 12 10 | G96 | 0.1+ | 0.1− | | |
| 2003 10 16 | 644 | 0.0 | 0.2+ | 2008 07 26 | E12 | 0.0 | 0.3+ | 2009 12 10 | G96 | 0.3+ | 0.1− | | |
| 2003 10 16 | 691 | 0.1+ | 0.1+ | 2008 07 26 | E12 | 0.4+ | 0.5+ | 2009 12 10 | G96 | 0.3+ | 0.1− | | |
| 2003 10 16 | 691 | 0.1+ | 0.0 | 2008 07 26 | E12 | 0.2+ | 0.7+ | 2009 12 10 | G96 | 0.1+ | 0.1− | | |
| 2003 10 16 | 644 | 0.0 | 0.4+ | 2008 07 29 | 691 | 0.0 | 0.3+ | 2009 12 17 | 704 | 0.3+ | 1.1+ | | |
| 2003 10 16 | 691 | 0.1+ | 0.0 | 2008 07 29 | 691 | 0.0 | 0.1− | 2009 12 17 | 704 | 0.2+ | 0.4+ | | |
| 2003 10 16 | 644 | 0.0 | 0.3+ | 2008 07 29 | 691 | 0.0 | 0.1+ | 2009 12 17 | 704 | 1.0+ | 0.8+ | | |
| 2003 10 17 | 699 | 0.2− | 0.2+ | 2008 08 06 | J75 | 0.6+ | 0.9− | 2009 12 17 | 704 | 0.2+ | 1.7+ | | |
| 2003 10 17 | 699 | 0.4− | 0.3− | 2008 08 06 | J75 | 0.1− | 0.1− | 2009 12 19 | G96 | 0.6+ | 0.1− | | |
| 2003 10 17 | 699 | 0.1+ | 0.4− | 2008 08 06 | J75 | 0.1− | 0.7− | 2009 12 19 | G96 | 0.3+ | 1.3− | | |
| 2003 10 17 | 699 | 0.1− | 0.7+ | 2008 08 07 | J75 | 0.6+ | 0.2− | 2009 12 19 | G96 | 0.5+ | 0.1− | | |
| 2003 10 21 | 704 | (2.6− | 1.8−) | 2008 08 07 | J75 | 0.0 | 0.3− | 2009 12 19 | G96 | 0.3+ | 0.0 | | |

**(228904)∗ 2003 SO$_{133}$**

Discovered 2003 Sept. 20 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 16.72485 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18384951 | $\omega$ | 120.60848 | | +0.70142887 | −0.69841191 | |
| $a$ | 3.0630992 | $\Omega$ | 284.12003 | | +0.59339836 | +0.68275216 | |
| $e$ | 0.0813602 | $i$ | 8.43117 | | +0.39481125 | +0.21463994 | |
| $P$ | 5.36 | $H$ | 14.8 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 02 02 | 704 | 0.9+ | 0.3+ | 2003 09 30 | 704 | 0.3− | 0.2+ | 2008 08 03 | J75 | 0.2+ | 0.0 | | |
| 2000 02 02 | 704 | 0.8+ | 0.0 | 2003 09 30 | 704 | 0.0 | 0.9+ | 2009 10 16 | 704 | 0.3+ | 0.7− | | |
| 2000 02 02 | 704 | 0.4− | 0.9− | 2003 09 30 | 704 | 0.1+ | 0.0 | 2009 10 16 | 704 | 0.0 | 0.3− | | |
| 2003 09 03 | 704 | 0.4− | 0.2+ | 2003 09 30 | 704 | 0.2+ | 0.2+ | 2009 10 16 | 704 | 0.8+ | 0.5+ | | |
| 2003 09 03 | 704 | 0.1− | 0.4+ | 2003 09 30 | 704 | 0.1− | 0.4− | 2009 10 16 | 704 | 0.3+ | 1.0+ | | |
| 2003 09 03 | 704 | 0.1− | 0.4+ | 2003 10 21 | 699 | (1.9+ | 0.1+) | 2009 10 16 | 704 | 0.8− | 0.6+ | | |
| 2003 09 03 | 704 | 0.6+ | 1.1+ | 2003 10 21 | 699 | 0.6− | 0.8− | 2009 10 27 | G96 | 0.0 | 0.5− | | |
| 2003 09 18 | 608 | 0.3+ | 0.0 | 2003 10 21 | 699 | 0.2− | 0.2− | 2009 10 27 | G96 | 0.1− | 0.4− | | |
| 2003 09 18 | 608 | 0.5+ | 0.5− | 2003 10 21 | 699 | 0.0 | 0.0 | 2009 10 27 | G96 | 0.2+ | 0.4− | | |
| 2003 09 18 | 608 | 0.8+ | 0.8− | 2004 12 14 | 704 | (0.5− | 3.7+) | 2009 10 27 | G96 | 0.0 | 0.4− | | |
| 2003 09 20 | 691 | 0.2− | 0.1+ | 2004 12 14 | 704 | 0.2+ | 1.2+ | 2009 11 10 | 703 | 0.8+ | 1.1− | | |
| 2003 09 20 | 691 | 0.2− | 0.1+ | 2004 12 14 | 704 | 0.9− | 0.7+ | 2009 11 10 | 703 | 0.2+ | 0.3− | | |
| 2003 09 20 | 704 | 0.1− | 0.2+ | 2004 12 14 | 704 | 0.4− | 1.3+ | 2009 11 10 | 703 | 0.4+ | 1.1− | | |
| 2003 09 20 | 691 | 0.3− | 0.0 | 2004 12 15 | 691 | 0.0 | 0.1+ | 2009 11 10 | 703 | 0.4+ | 0.4− | | |
| 2003 09 20 | 704 | 0.4− | 0.2+ | 2004 12 15 | 691 | 0.0 | 0.2+ | 2009 11 11 | 704 | 0.5− | 0.3− | | |
| 2003 09 20 | 704 | 0.9+ | 1.3− | 2004 12 15 | 691 | 0.1+ | 0.1+ | 2009 11 11 | 704 | 0.3− | 0.1+ | | |
| 2003 09 20 | 704 | 0.6+ | 0.7+ | 2004 12 20 | 691 | 0.2− | 0.1− | 2009 11 11 | 704 | 1.0− | 0.9+ | | |
| 2003 09 21 | 644 | 0.2− | 0.2+ | 2004 12 20 | 691 | 0.0 | 0.2− | 2009 11 11 | 704 | 0.0 | 0.0 | | |
| 2003 09 21 | 644 | 0.1− | 0.4+ | 2004 12 20 | 691 | 0.1− | 0.1− | 2009 11 11 | 704 | 0.2+ | 0.2+ | | |
| 2003 09 21 | 644 | 0.1− | 0.1− | 2008 07 12 | A50 | 0.1− | 0.3− | 2009 11 16 | 704 | 0.2+ | 0.6+ | | |
| 2003 09 22 | 704 | 0.4+ | 0.6+ | 2008 07 12 | A50 | 0.3+ | 0.5− | 2009 11 16 | 704 | 0.5+ | 0.1− | | |
| 2003 09 22 | 704 | 0.4− | 0.9− | 2008 07 12 | A50 | 0.1+ | 0.4− | 2009 11 16 | 704 | 0.6+ | 0.2− | | |
| 2003 09 22 | 704 | 0.4− | 1.1+ | 2008 07 31 | J75 | 0.6− | 0.3+ | 2009 12 20 | G96 | 0.1− | 0.3− | | |
| 2003 09 22 | 704 | 0.1− | 0.4− | 2008 07 31 | J75 | 1.1− | 0.2+ | 2009 12 20 | G96 | 0.1+ | 0.4− | | |
| 2003 09 25 | 644 | 0.2+ | 0.3+ | 2008 07 31 | J75 | 0.7+ | 0.6− | 2009 12 20 | G96 | 0.1+ | 0.5− | | |
| 2003 09 25 | 644 | 0.0 | 0.2+ | 2008 08 03 | J75 | 0.3+ | 0.9− | 2009 12 20 | G96 | 0.1− | 0.4− | | |
| 2003 09 25 | 644 | 0.1+ | 0.4+ | 2008 08 03 | J75 | 0.7+ | 0.3+ | | | | | | |

**(228905)∗ 2003 SL$_{140}$**

Discovered 2003 Sept. 19 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 25.11487 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18038225 | $\omega$ | 327.67973 | | +0.45630179 | −0.88612989 | |
| $a$ | 3.1022266 | $\Omega$ | 95.05790 | | +0.83271904 | +0.39315591 | |
| $e$ | 0.2829966 | $i$ | 4.66478 | | +0.31363622 | +0.24536146 | |
| $P$ | 5.46 | $H$ | 15.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 02 13 | 809 | (4.4+ | 1.0−) | 2003 10 26 | 291 | 0.1− | 0.3− | 2005 03 04 | 704 | 0.2− | 0.5− | | |
| 1994 02 13 | 809 | (3.2+ | 0.7−) | 2003 10 27 | 704 | 0.2− | 0.3+ | 2005 03 04 | 704 | 0.5+ | 0.1− | | |
| 1994 02 13 | 809 | (3.8+ | 1.6−) | 2003 10 27 | 704 | 0.1− | 0.3+ | 2005 03 04 | 704 | 0.5+ | 0.7− | | |
| 1998 11 22 | 950 | 0.3− | 0.2− | 2003 10 27 | 704 | 0.4− | 0.7+ | 2005 03 08 | 699 | 0.8− | 1.3+ | | |
| 1998 11 22 | 950 | 0.4− | 0.2− | 2003 10 27 | 704 | 0.2− | 0.3+ | 2005 03 08 | 699 | 1.0+ | 1.2+ | | |
| 1998 11 22 | 950 | 0.4− | 0.2− | 2003 10 27 | 704 | 1.3− | 0.2+ | 2005 03 08 | 699 | 0.2+ | 0.6+ | | |
| 1998 12 17 | 704 | 0.1− | 0.1− | 2003 10 28 | 608 | 0.1+ | 1.2+ | 2005 03 08 | 699 | 0.3+ | 0.3+ | | |
| 1998 12 17 | 704 | (0.3− | 2.2−) | 2003 10 28 | 608 | 0.2+ | 1.1+ | 2005 03 12 | 704 | 1.0+ | 0.6− | | |
| 1998 12 17 | 704 | 0.2+ | 1.5− | 2003 10 28 | 608 | 0.1− | 1.1+ | 2005 03 12 | 704 | 0.7+ | 0.1+ | | |
| 1998 12 17 | 704 | (1.3− | 2.2−) | 2003 10 29 | 704 | 0.9+ | 1.2+ | 2005 03 12 | 704 | 0.3+ | 0.3− | | |
| 1998 12 17 | 704 | (6.9− | 0.6−) | 2003 10 29 | 704 | 1.0+ | 1.4+ | 2005 03 12 | 704 | 0.1+ | 0.4+ | | |
| 2003 09 19 | 704 | 0.2+ | 0.4+ | 2003 10 29 | 704 | 0.3− | 0.2− | 2005 03 12 | 704 | 0.9+ | 0.8+ | | |
| 2003 09 19 | 704 | 0.3+ | 0.0 | 2003 11 16 | 683 | 0.5+ | 0.9− | 2005 03 16 | 703 | 0.6− | 0.3− | | |
| 2003 09 19 | 704 | 1.1− | 0.7+ | 2003 11 16 | 683 | 0.2+ | 0.6− | 2005 03 16 | 703 | 0.4+ | 0.8+ | | |
| 2003 09 19 | 704 | 1.4− | 0.1+ | 2003 11 16 | 683 | 0.2− | 1.0− | 2005 03 16 | 703 | 0.7− | 0.6+ | | |
| 2003 09 20 | 699 | 0.1− | 0.0 | 2003 11 16 | 703 | 0.6+ | 0.1+ | 2005 03 16 | 703 | 0.8− | 0.5+ | | |
| 2003 09 20 | 699 | 0.2− | 0.1− | 2003 11 16 | 703 | 0.2− | 0.0 | 2006 05 26 | G96 | 0.2− | 0.7+ | | |
| 2003 09 20 | 699 | 0.2− | 0.7+ | 2003 11 16 | 703 | 0.4+ | 1.0+ | 2006 05 26 | G96 | 0.3− | 1.0+ | | |
| 2003 09 20 | 699 | 1.4− | 0.5− | 2003 11 16 | 703 | (2.6− | 0.3−) | 2006 05 26 | G96 | 0.6+ | 0.8+ | | |
| 2003 09 22 | 644 | 0.1− | 0.1− | 2003 11 18 | 699 | 0.3− | 0.0 | 2006 05 26 | G96 | 0.1− | 0.3+ | | |
| 2003 09 22 | 644 | 0.3− | 0.1− | 2003 11 18 | 699 | 0.4+ | 0.4− | 2008 09 23 | 704 | 0.3+ | 0.1+ | | |
| 2003 09 22 | 644 | 0.2− | 0.1− | 2003 11 18 | 699 | 0.4− | 0.7− | 2008 09 23 | 704 | 0.7+ | 0.9+ | | |
| 2003 09 28 | 704 | 0.4− | 0.0 | 2003 11 18 | 699 | 0.1− | 0.0 | 2008 09 23 | 704 | 0.2− | 0.3− | | |
| 2003 09 28 | 704 | 0.0 | 0.4− | 2003 11 19 | 644 | 0.2− | 0.2− | 2008 09 23 | 704 | 1.3− | 1.1+ | | |
| 2003 09 28 | 704 | 0.1+ | 0.4− | 2003 11 19 | 644 | 0.2− | 0.1− | 2009 11 10 | G96 | 0.1+ | 0.4− | | |
| 2003 09 28 | 704 | 0.2+ | 0.3− | 2003 11 19 | 644 | 0.3− | 0.1+ | 2009 11 10 | G96 | 0.0 | 0.6− | | |
| 2003 10 05 | 608 | 0.8+ | 0.2− | 2003 11 19 | 644 | 0.4− | 0.2− | 2009 11 10 | G96 | 0.2− | 0.5− | | |
| 2003 10 05 | 608 | 0.2+ | 0.6+ | 2003 11 19 | 644 | 0.4− | 0.1− | 2009 11 10 | G96 | 0.6+ | 1.3− | | |
| 2003 10 05 | 608 | 0.5+ | 0.2− | 2003 11 19 | 644 | 0.3− | 0.1− | 2009 11 17 | 704 | 1.3+ | 0.5− | | |
| 2003 10 15 | 699 | 0.0 | 0.8+ | 2003 11 22 | 704 | 0.4+ | 0.8+ | 2009 11 17 | 704 | (0.4+ | 1.8+) | | |
| 2003 10 15 | 699 | 0.7+ | 0.2− | 2003 11 22 | 704 | 1.1+ | 0.2+ | 2009 11 17 | 704 | 0.1+ | 0.8+ | | |
| 2003 10 15 | 699 | 0.6− | 0.0 | 2003 11 22 | 704 | 0.3− | 0.3− | 2009 11 17 | 704 | 1.3+ | 0.4+ | | |
| 2003 10 15 | 699 | 0.0 | 0.0 | 2003 11 24 | 683 | (1.5+ | 0.9−) | 2009 12 11 | 704 | 0.6+ | 1.1+ | | |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 15 | 644 | 0.3− | 0.1− | 2003 11 24 | 683 | 0.6− | 0.2− | 2009 12 11 | 704 | 0.3+ | 1.0− |
| 2003 10 15 | 644 | 0.3− | 0.1+ | 2003 11 26 | 699 | 0.4+ | 0.2− | 2009 12 11 | 704 | 1.0+ | 1.0+ |
| 2003 10 15 | 644 | 0.2− | 0.0 | 2003 11 26 | 699 | 0.1+ | 0.2+ | 2009 12 11 | 704 | 0.1− | 1.0+ |
| 2003 10 20 | 704 | 0.0 | 0.2− | 2003 11 26 | 699 | 0.0 | 0.5− | 2009 12 12 | J75 | 0.6+ | 0.1+ |
| 2003 10 20 | 704 | 0.1− | 0.4− | 2003 11 26 | 699 | 1.0− | 0.1+ | 2009 12 12 | J75 | 0.2+ | 0.3− |
| 2003 10 20 | 704 | 0.1+ | 0.4+ | 2003 12 19 | 644 | 0.3− | 0.2+ | 2009 12 12 | J75 | 0.0 | 0.6− |
| 2003 10 20 | 704 | 0.1+ | 0.2+ | 2003 12 19 | 644 | 0.4− | 0.1+ | 2009 12 16 | 704 | 1.1+ | 1.4+ |
| 2003 10 20 | 704 | 0.9+ | 0.2+ | 2003 12 19 | 644 | 0.0 | 0.4+ | 2009 12 16 | 704 | 0.6− | 1.6+ |
| 2003 10 20 | 704 | 0.7+ | 0.2+ | 2003 12 21 | 704 | 0.4− | 0.5+ | 2009 12 16 | 704 | (0.6− | 1.7+) |
| 2003 10 20 | 704 | 0.4+ | 0.6+ | 2003 12 21 | 704 | 0.2− | 0.2+ | 2009 12 16 | 704 | 0.0 | 1.4+ |
| 2003 10 20 | 691 | 0.0 | 0.0 | 2003 12 21 | 704 | 0.5− | 0.6− | 2009 12 16 | 704 | 0.2− | 1.1+ |
| 2003 10 20 | 691 | 0.0 | 0.1− | 2003 12 21 | 704 | 0.8− | 0.8+ | 2009 12 25 | 691 | 0.4− | 0.4− |
| 2003 10 20 | 691 | 0.1+ | 0.1− | 2003 12 21 | 704 | 0.5− | 0.3+ | 2009 12 25 | 691 | 0.7− | 0.4− |
| 2003 10 26 | 291 | 0.8+ | 0.1− | 2005 03 04 | 704 | 0.3+ | 0.2− | 2009 12 25 | 691 | 0.3− | 0.4− |
| 2003 10 26 | 291 | 0.1+ | 0.2− | 2005 03 04 | 704 | 0.8+ | 0.6+ | | | | |

**(228906)∗ 2003 SC$_{141}$**

Discovered 2003 Sept. 19 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 30.13930 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17621603 | $\omega$ | 145.73060 | | +0.77088710 | −0.61856151 | |
| $a$ | 3.1509326 | $\Omega$ | 253.21640 | | +0.54305489 | +0.76297429 | |
| $e$ | 0.2031823 | $i$ | 9.13724 | | +0.33290308 | +0.18775485 | |
| $P$ | 5.59 | $H$ | 14.8 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 19 | 644 | 0.2− | 0.1+ | 2003 11 02 | 704 | 0.0 | 0.3− | 2008 08 01 | 704 | 0.2+ | 0.4+ |
| 2003 09 19 | 644 | 0.3− | 0.2+ | 2003 11 02 | 704 | 0.2− | 0.5− | 2008 08 01 | 704 | 0.1+ | 0.9+ |
| 2003 09 19 | 644 | 0.1− | 0.2+ | 2003 11 02 | 704 | 0.4− | 0.2+ | 2008 08 01 | 704 | 0.5− | 0.6− |
| 2003 09 22 | 704 | 0.2− | 0.3− | 2003 11 19 | 704 | 0.7− | 0.1+ | 2008 08 01 | 704 | 0.7− | 0.5+ |
| 2003 09 22 | 704 | 0.6− | 0.2− | 2003 11 19 | 704 | 0.5− | 0.3+ | 2008 08 06 | J75 | 0.1− | 0.5− |
| 2003 09 22 | 644 | 0.1− | 0.4+ | 2003 11 19 | 704 | 0.2+ | 0.3+ | 2008 08 06 | J75 | 0.0 | 0.2+ |
| 2003 09 22 | 704 | 1.0+ | 0.4+ | 2003 11 19 | 704 | 0.1+ | 0.2− | 2008 08 06 | J75 | 0.1− | 0.4− |
| 2003 09 22 | 704 | 0.1− | 0.3− | 2003 11 19 | 704 | 0.6− | 0.1+ | 2008 09 05 | 704 | (0.1+ | 2.6+) |
| 2003 09 22 | 704 | 1.2− | 0.4− | 2003 12 17 | 699 | 0.0 | 0.8+ | 2008 09 05 | 704 | (0.6− | 1.9+) |
| 2003 09 22 | 644 | 0.0 | 0.2+ | 2003 12 17 | 699 | 0.1− | 0.2− | 2008 09 05 | 704 | 0.1+ | 0.6+ |
| 2003 09 22 | 644 | 0.0 | 0.3+ | 2003 12 17 | 699 | 0.2− | 0.2+ | 2008 09 05 | 704 | 0.8+ | 0.9+ |
| 2003 09 30 | 704 | 0.3− | 0.5+ | 2003 12 17 | 699 | 1.2+ | 0.9− | 2009 11 09 | 691 | 0.3− | 0.2− |
| 2003 09 30 | 704 | 0.2+ | 0.1+ | 2003 12 28 | 704 | 0.5+ | 0.2− | 2009 11 09 | 691 | 0.4− | 0.1− |
| 2003 09 30 | 704 | 0.0 | 1.5− | 2003 12 28 | 704 | 0.3+ | 0.7+ | 2009 11 09 | 691 | 0.4− | 0.3− |
| 2003 09 30 | 704 | 0.2− | 0.1+ | 2003 12 28 | 704 | 0.2+ | 0.4− | 2009 11 10 | G92 | 0.4− | 0.5− |
| 2003 09 30 | 704 | 0.1− | 0.2+ | 2005 01 13 | 703 | 0.4− | 0.1+ | 2009 11 10 | G92 | 0.5+ | 0.2+ |
| 2003 10 04 | 608 | 0.6+ | 0.2− | 2005 01 13 | 703 | 1.0− | 0.1+ | 2009 11 10 | G92 | 0.4− | 0.8− |
| 2003 10 04 | 608 | 0.7+ | 0.5+ | 2005 01 13 | 703 | 0.0 | 1.2− | 2009 11 21 | 704 | 0.2− | 1.4+ |
| 2003 10 04 | 608 | 0.2+ | 0.8+ | 2005 01 13 | 703 | 0.5+ | 0.6+ | 2009 11 21 | 704 | 0.0 | 0.5+ |
| 2003 10 15 | 644 | 0.5− | 0.0 | 2005 01 18 | 703 | (2.1− | 0.4−) | 2009 11 21 | 704 | 0.2+ | 0.8+ |
| 2003 10 15 | 644 | 0.0 | 0.1+ | 2005 01 18 | 703 | 0.4+ | 0.8+ | 2009 11 21 | 704 | 0.9+ | 0.7+ |
| 2003 10 15 | 644 | 0.3+ | 0.3+ | 2005 01 18 | 703 | 0.9+ | 0.8− | 2009 11 21 | 704 | 0.3− | 0.9+ |
| 2003 10 18 | 691 | 0.1+ | 0.1− | 2005 01 18 | 703 | (0.8+ | 1.7+) | 2009 11 22 | 703 | 1.1+ | 0.6+ |
| 2003 10 18 | 691 | 0.1+ | 0.0 | 2005 02 04 | 703 | 1.3− | 0.5+ | 2009 11 22 | 703 | 0.2+ | 0.2+ |
| 2003 10 18 | 691 | 0.2+ | 0.1− | 2005 02 04 | 703 | 0.4− | 0.0 | 2009 11 22 | 703 | (1.5− | 1.0−) |
| 2003 10 22 | 704 | 0.3+ | 0.4+ | 2005 02 04 | 703 | 0.8− | 0.7− | 2009 12 07 | J75 | 0.3+ | 0.8− |
| 2003 10 22 | 704 | 0.2+ | 0.2+ | 2005 02 04 | 703 | 0.7+ | 0.7− | 2009 12 07 | J75 | 0.1+ | 0.3− |
| 2003 10 22 | 704 | 0.4+ | 0.5+ | 2005 02 05 | 644 | 0.5+ | 0.4+ | 2009 12 07 | J75 | 0.5− | 0.1+ |
| 2003 10 22 | 704 | 0.6+ | 0.1+ | 2005 02 05 | 644 | 0.6+ | 0.7+ | 2009 12 10 | G96 | 0.0 | 0.4− |
| 2003 10 27 | 691 | 0.2+ | 0.0 | 2005 02 05 | 644 | 0.4+ | 0.4+ | 2009 12 10 | G96 | 0.4+ | 0.3− |
| 2003 10 27 | 691 | 0.1+ | 0.0 | 2005 02 05 | 644 | 0.3+ | 0.2+ | 2009 12 10 | G96 | 0.0 | 0.3− |
| 2003 10 27 | 691 | 0.1+ | 0.1− | 2005 02 05 | 644 | 0.5+ | 0.4+ | 2009 12 10 | G96 | 0.2− | 0.3− |
| 2003 10 29 | 699 | 0.8− | 0.1− | 2005 02 05 | 644 | 0.3+ | 0.3+ | 2009 12 11 | 704 | 0.4+ | 0.4+ |
| 2003 10 29 | 699 | 0.1+ | 0.3− | 2005 02 14 | 703 | 0.2− | 0.0 | 2009 12 11 | 704 | 2.1+ | 0.9− |
| 2003 10 29 | 699 | 0.5− | 0.1+ | 2005 02 14 | 703 | 0.0 | 0.5+ | 2009 12 11 | 704 | 1.1+ | 0.8+ |
| 2003 10 29 | 699 | 0.7+ | 0.7− | 2005 02 14 | 703 | (0.6− | 1.6+) | 2009 12 11 | 704 | 0.4− | 0.0 |
| 2003 10 30 | 704 | 0.3− | 0.5− | 2005 02 14 | 703 | 0.5− | 0.1− | 2009 12 17 | 704 | 0.7− | 0.7+ |
| 2003 10 30 | 704 | 0.6− | 0.3+ | 2008 07 26 | E12 | 0.6− | 0.4+ | 2009 12 17 | 704 | 0.2− | 0.7+ |
| 2003 10 30 | 704 | 0.5− | 0.0 | 2008 07 26 | E12 | 0.2+ | 0.1+ | 2009 12 17 | 704 | 0.3+ | 0.4+ |
| 2003 10 30 | 704 | 0.9− | 0.3− | 2008 07 26 | E12 | 0.1− | 0.0 | 2009 12 17 | 704 | 0.1− | 0.5+ |
| 2003 11 02 | 704 | 0.3− | 0.9− | 2008 07 26 | E12 | 0.3− | 0.6+ | 2009 12 17 | 704 | 0.1− | 0.5+ |
| 2003 11 02 | 704 | 0.2+ | 0.1− | 2008 08 01 | 704 | (0.3− | 2.4+) | | | | |

**(228907)∗ 2003 SO$_{145}$ = 2000 CT$_{134}$**

Discovered 2003 Sept. 20 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 53420)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 64.44236 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18537391 | $\omega$ | 53.07007 | | +0.96793827 | −0.22386110 | |
| $a$ | 3.0462835 | $\Omega$ | 319.51024 | | +0.13538476 | +0.84701172 | |
| $e$ | 0.1678585 | $i$ | 10.10623 | | +0.21158087 | +0.48213831 | |
| $P$ | 5.32 | $H$ | 15.3 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 11 14 | 704 | 0.7− | 0.2− | 2003 09 30 | 704 | 0.1+ | 0.3− | 2008 07 30 | G96 | 0.1− | 0.1− |
| 1998 11 14 | 704 | 0.1+ | 0.1− | 2003 09 30 | 704 | 0.2+ | 0.4− | 2008 07 30 | G96 | 0.5+ | 0.4− |
| 1998 11 14 | 704 | 0.9+ | 0.1+ | 2003 09 30 | 704 | 0.0 | 0.1− | 2008 09 07 | 703 | 0.6− | 0.8+ |
| 1998 11 14 | 704 | 0.2− | 0.2− | 2003 10 14 | 644 | 0.2+ | 0.1− | 2008 09 07 | 703 | 0.0 | 0.0 |
| 2000 02 04 | 691 | 0.3− | 0.1+ | 2003 10 14 | 644 | 0.3+ | 0.2− | 2008 09 07 | 703 | 0.4− | 0.2+ |
| 2000 02 04 | 691 | 0.0 | 0.1− | 2003 10 14 | 644 | 0.2+ | 0.3− | 2008 09 07 | 703 | (0.3− | 1.9+) |
| 2000 02 04 | 691 | 0.1+ | 0.0 | 2003 10 20 | 644 | 0.1+ | 0.4− | 2008 09 24 | 704 | 0.3− | 0.1+ |
| 2000 02 11 | 691 | 0.0 | 0.4− | 2003 10 20 | 644 | 0.2+ | 0.2− | 2008 09 24 | 704 | 0.6− | 0.2+ |
| 2000 02 11 | 691 | 0.0 | 0.7− | 2003 10 20 | 644 | 0.3+ | 0.1− | 2008 09 24 | 704 | 0.0 | 0.3+ |
| 2000 02 11 | 691 | 0.2− | 0.3− | 2003 10 21 | 704 | 0.1+ | 0.3− | 2008 09 24 | 704 | 0.3+ | 0.1− |
| 2003 09 20 | 704 | 1.2+ | 0.4+ | 2003 10 21 | 704 | 0.0 | 0.6+ | 2008 09 24 | 704 | 0.5− | 0.6+ |
| 2003 09 20 | 704 | (0.7− | 1.8−) | 2003 10 21 | 704 | 0.0 | 0.1− | 2008 10 07 | G96 | 0.6+ | 0.4− |
| 2003 09 20 | 704 | 0.7− | 0.2+ | 2003 10 22 | 644 | 0.2− | 0.2− | 2008 10 07 | G96 | 0.2+ | 0.4− |
| 2003 09 20 | 704 | 1.4− | 0.0 | 2003 10 22 | 644 | 0.3− | 0.2− | 2008 10 07 | G96 | 0.1+ | 0.2− |
| 2003 09 20 | 704 | 0.6− | 0.4− | 2003 10 22 | 644 | 0.0 | 0.1− | 2008 10 07 | G96 | 0.1+ | 0.5− |
| 2003 09 22 | 704 | 0.4+ | 0.4− | 2005 01 17 | 691 | 0.1− | 0.3+ | 2009 12 15 | 704 | 0.0 | 0.5+ |
| 2003 09 22 | 704 | 0.5+ | 0.7− | 2005 01 17 | 691 | 0.2+ | 0.5+ | 2009 12 15 | 704 | 0.7+ | 0.9− |
| 2003 09 22 | 704 | 0.0 | 0.8+ | 2005 01 17 | 691 | 0.2+ | 0.5+ | 2009 12 15 | 704 | 0.7+ | 0.3+ |
| 2003 09 22 | 704 | 0.1+ | 0.2+ | 2005 03 10 | G96 | 0.3− | 0.1+ | 2009 12 15 | 704 | 0.2− | 1.0+ |
| 2003 09 25 | 608 | 0.2− | 0.4+ | 2005 03 10 | G96 | 0.5− | 0.1− | 2009 12 20 | G96 | 0.1+ | 0.1− |
| 2003 09 25 | 608 | 0.0 | 0.4+ | 2005 03 10 | G96 | 0.5− | 0.1+ | 2009 12 20 | G96 | 0.1− | 0.3− |
| 2003 09 25 | 608 | 0.2+ | 0.5+ | 2005 03 10 | G96 | 0.3− | 0.1+ | 2009 12 20 | G96 | 0.1+ | 0.2− |
| 2003 09 30 | 704 | 0.0 | 0.4− | 2008 07 30 | G96 | 0.0 | 0.1+ | 2009 12 20 | G96 | 0.1− | 0.3− |
| 2003 09 30 | 704 | 0.2+ | 0.4− | 2008 07 30 | G96 | 0.2+ | 0.2+ | | | | |

**(228908)∗ 2003 ST$_{145}$**

Discovered 2003 Sept. 20 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 61.88441 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18073683 | $\omega$ | 84.28438 | | +0.96503504 | +0.11055112 | |
| $a$ | 3.0981678 | $\Omega$ | 269.20398 | | −0.19776136 | +0.90218350 | |
| $e$ | 0.0844131 | $i$ | 13.75027 | | +0.17204014 | +0.41694529 | |
| $P$ | 5.45 | $H$ | 14.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 11 14 | 704 | 0.5+ | 0.6+ | 2003 10 25 | 691 | 0.3− | 0.1+ | 2009 11 10 | 703 | 0.5− | 0.1+ |
| 1998 11 14 | 704 | (1.5+ | 2.8−) | 2004 12 13 | 691 | 0.1+ | 0.2+ | 2009 11 20 | G96 | 0.1− | 0.3− |
| 1998 11 14 | 704 | 1.3+ | 0.3− | 2004 12 13 | 691 | 0.0 | 0.4+ | 2009 11 20 | G96 | 0.2+ | 0.3− |
| 1998 11 14 | 704 | (2.4− | 1.7+) | 2004 12 13 | 691 | 0.1− | 0.3+ | 2009 11 20 | G96 | 0.1+ | 0.4− |
| 2003 08 25 | 644 | 0.1+ | 0.2+ | 2008 05 29 | G96 | 0.1+ | 0.0 | 2009 11 20 | G96 | 0.1− | 0.6− |
| 2003 08 25 | 644 | 0.1− | 0.0 | 2008 05 29 | G96 | 0.2+ | 0.1+ | 2009 11 22 | 704 | 0.6+ | 0.0 |
| 2003 08 25 | 644 | 0.1+ | 0.1+ | 2008 05 29 | G96 | 0.4− | 0.0 | 2009 11 22 | 704 | 0.2− | 0.2+ |
| 2003 08 25 | 644 | 0.0 | 0.2− | 2008 05 29 | G96 | 0.8− | 0.0 | 2009 11 22 | 704 | 0.6+ | 0.3+ |
| 2003 08 25 | 644 | 0.1+ | 0.1− | 2008 09 05 | 704 | 0.9+ | 0.9+ | 2009 11 22 | 704 | 0.1− | 0.3+ |
| 2003 08 25 | 644 | 0.3+ | 0.2+ | 2008 09 05 | 704 | 0.2+ | 0.2+ | 2009 11 26 | 703 | (1.8− | 0.5−) |
| 2003 09 20 | 644 | 0.1− | 0.1+ | 2008 09 05 | 704 | 0.4+ | 0.3+ | 2009 11 26 | 703 | 0.7− | 1.2+ |
| 2003 09 20 | 644 | 0.2− | 0.0 | 2009 10 16 | J75 | 0.3+ | 0.7− | 2009 11 26 | 703 | 0.0 | 0.6− |
| 2003 09 20 | 644 | 0.1− | 0.1+ | 2009 10 16 | J75 | 0.1+ | 0.4− | 2009 11 26 | 703 | 1.2− | 0.1− |
| 2003 09 21 | 699 | 0.6− | 0.2+ | 2009 10 16 | J75 | 0.2+ | 0.4− | 2009 11 26 | 703 | 0.5− | 0.7− |
| 2003 09 21 | 699 | 0.4+ | 0.1+ | 2009 10 18 | 704 | (0.9+ | 1.5+) | 2009 11 26 | A50 | 0.4+ | 0.6+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 21 | 699 | 0.3+ | 0.6− | 2009 10 18 | 704 | 0.6− | 0.3+ | 2009 11 26 | A50 | 0.2+ | 0.4+ | | |
| 2003 09 21 | 699 | 0.1− | 0.5− | 2009 10 18 | 704 | 0.4− | 0.1− | 2009 11 26 | A50 | 0.7+ | 0.0 | | |
| 2003 09 22 | 704 | 0.1+ | 0.1+ | 2009 10 18 | 704 | 0.4− | 0.1− | 2009 12 06 | J75 | 0.0 | 0.3+ | | |
| 2003 09 22 | 704 | 1.1− | 0.5+ | 2009 10 18 | 704 | 1.2− | 0.4− | 2009 12 06 | J75 | 0.1+ | 1.1− | | |
| 2003 09 22 | 704 | 0.2− | 0.0 | 2009 10 27 | G96 | 0.1− | 0.1− | 2009 12 06 | J75 | 0.2+ | 0.7− | | |
| 2003 10 19 | 699 | 0.2+ | 0.6+ | 2009 10 27 | G96 | 0.2− | 0.0 | 2009 12 10 | 704 | 0.3+ | 0.9− | | |
| 2003 10 19 | 699 | 1.1− | 0.0 | 2009 10 27 | G96 | 0.4+ | 0.2− | 2009 12 10 | 704 | 0.1+ | 0.6+ | | |
| 2003 10 19 | 699 | 0.4+ | 0.4+ | 2009 10 27 | G96 | 0.1− | 0.1− | 2009 12 10 | 704 | 0.1− | 0.0 | | |
| 2003 10 19 | 699 | 0.7+ | 0.7+ | 2009 11 09 | 704 | 0.3+ | 0.6+ | 2009 12 10 | 704 | 0.3− | 0.3+ | | |
| 2003 10 24 | 704 | 0.3− | 0.2+ | 2009 11 09 | 704 | 0.0 | 0.5− | 2009 12 15 | 704 | 0.3+ | 0.8+ | | |
| 2003 10 24 | 704 | 0.3− | 0.1− | 2009 11 09 | 704 | 0.5− | 0.3+ | 2009 12 15 | 704 | 0.6+ | 0.1+ | | |
| 2003 10 24 | 704 | 0.1− | 0.1− | 2009 11 09 | 704 | 0.2− | 0.6− | 2009 12 15 | 704 | 1.2+ | 0.2− | | |
| 2003 10 24 | 704 | 0.3+ | 1.4− | 2009 11 09 | 704 | 0.3+ | 0.6+ | 2009 12 15 | 704 | 0.5+ | 0.3− | | |
| 2003 10 24 | 704 | 0.5− | 0.1+ | 2009 11 10 | 703 | 0.1− | 0.0 | 2009 12 15 | 704 | 0.2+ | 0.7+ | | |
| 2003 10 25 | 691 | 0.2− | 0.1− | 2009 11 10 | 703 | 0.4+ | 1.1− | | | | | | |
| 2003 10 25 | 691 | 0.2+ | 0.0 | 2009 11 10 | 703 | 0.0 | 0.6− | | | | | | |

**(228909)∗ 2003 SZ$_{145}$**

Discovered 2003 Sept. 20 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 3.85220 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18082312 | $\omega$ | 143.65336 | | +0.46233183 | −0.85534036 | |
| $a$ | 3.0971821 | $\Omega$ | 277.73262 | | +0.74774737 | +0.51777461 | |
| $e$ | 0.0720989 | $i$ | 13.64478 | | +0.47657439 | +0.01738757 | |
| $P$ | 5.45 | $H$ | 14.8 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 20 | 644 | 0.0 | 0.0 | 2004 12 19 | 691 | 0.1+ | 0.3+ | 2009 11 19 | 703 | 1.0+ | 0.2− | | |
| 2003 09 20 | 644 | 0.0 | 0.0 | 2004 12 19 | 691 | 0.0 | 0.1+ | 2009 11 19 | 703 | 0.1+ | 0.9− | | |
| 2003 09 20 | 644 | 0.0 | 0.0 | 2006 03 24 | 644 | 0.4+ | 0.2+ | 2009 11 23 | 704 | 0.5+ | 0.7+ | | |
| 2003 09 22 | 704 | 0.4− | 0.2− | 2006 03 24 | 644 | 0.3+ | 0.4+ | 2009 11 23 | 704 | 0.1− | 0.2+ | | |
| 2003 09 22 | 704 | 0.2+ | 0.5+ | 2006 03 24 | 644 | 0.7+ | 0.3+ | 2009 11 23 | 704 | 0.2− | 0.2+ | | |
| 2003 09 22 | 704 | 0.6+ | 0.8+ | 2008 08 20 | 691 | 0.2+ | 0.0 | 2009 11 23 | 704 | 0.3+ | 0.3+ | | |
| 2003 09 22 | 704 | 0.2− | 0.8+ | 2008 08 20 | 691 | 0.2− | 0.1+ | 2009 11 26 | 703 | 0.8− | 0.5− | | |
| 2003 10 19 | 699 | 0.7+ | 0.2+ | 2008 08 20 | 691 | 1.0− | 0.8+ | 2009 11 26 | 703 | 0.1+ | 0.2+ | | |
| 2003 10 19 | 699 | 0.2− | 0.1− | 2008 09 24 | 621 | 0.1+ | 0.0 | 2009 11 26 | 703 | 0.1+ | 0.5− | | |
| 2003 10 19 | 699 | 0.3+ | 0.5− | 2008 09 24 | 621 | 0.2+ | 0.2+ | 2009 11 26 | 703 | (0.8− | 1.7−) | | |
| 2003 10 19 | 699 | 0.4+ | 0.5+ | 2008 09 24 | 621 | 0.2− | 0.0 | 2009 11 26 | 703 | 1.3+ | 0.7− | | |
| 2003 10 21 | 691 | 0.2− | 0.2− | 2008 09 24 | 621 | 0.5+ | 0.3+ | 2009 12 10 | 704 | 0.1− | 0.5+ | | |
| 2003 10 21 | 691 | 0.0 | 0.1− | 2009 10 18 | 704 | 0.3+ | 0.3− | 2009 12 10 | 704 | 0.1+ | 0.5− | | |
| 2003 10 21 | 691 | 0.0 | 0.1− | 2009 10 18 | 704 | 0.2+ | 0.2− | 2009 12 10 | 704 | 0.3+ | 0.1− | | |
| 2004 12 14 | 704 | 1.0+ | 0.8+ | 2009 10 18 | 704 | 0.3− | 0.2+ | 2009 12 10 | 704 | 0.2− | 0.0 | | |
| 2004 12 14 | 704 | (0.2+ | 1.8+) | 2009 10 18 | 704 | 0.0 | 0.1− | 2009 12 10 | 704 | 0.0 | 0.6− | | |
| 2004 12 14 | 704 | 0.7− | 0.3− | 2009 11 10 | 703 | 0.9− | 0.4− | 2009 12 18 | 703 | 0.2+ | 0.3− | | |
| 2004 12 14 | 691 | 0.0 | 0.2+ | 2009 11 10 | 703 | 0.7− | 0.3+ | 2009 12 18 | 703 | 0.8− | 0.1− | | |
| 2004 12 14 | 704 | 0.3− | 0.7+ | 2009 11 10 | 703 | 0.2− | 0.2− | 2009 12 18 | 703 | 0.5− | 0.4− | | |
| 2004 12 14 | 691 | 0.1+ | 0.2+ | 2009 11 10 | 703 | 0.9+ | 0.3− | 2009 12 18 | 703 | 0.3− | 0.1+ | | |
| 2004 12 14 | 691 | 0.1+ | 0.1+ | 2009 11 19 | 703 | 0.3+ | 0.4+ | | | | | | |
| 2004 12 19 | 691 | 0.2− | 0.3+ | 2009 11 19 | 703 | 0.4+ | 0.5− | | | | | | |

**(228910)∗ 2003 SD$_{153}$**

Discovered 2003 Sept. 19 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 131.40920 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.20178473 | $\omega$ | 249.44391 | | +0.84321718 | +0.52427997 | |
| $a$ | 2.8787935 | $\Omega$ | 78.76553 | | −0.43699723 | +0.79722101 | |
| $e$ | 0.0729872 | $i$ | 6.95726 | | −0.31307859 | +0.29928109 | |
| $P$ | 4.88 | $H$ | 15.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 06 06 | 704 | (0.9+ | 2.0+) | 2003 10 18 | 699 | 1.5+ | 0.1− | 2008 10 08 | 703 | 0.3+ | 0.5+ | | |
| 2002 06 06 | 704 | (0.8+ | 2.0+) | 2004 12 03 | 691 | 0.1+ | 0.2− | 2008 10 08 | 703 | 0.4+ | 1.3+ | | |
| 2002 06 06 | 704 | 0.0 | 1.1+ | 2004 12 03 | 691 | 0.1+ | 0.2+ | 2008 10 17 | 291 | 0.2− | 0.3− | | |
| 2002 06 06 | 704 | (1.1+ | 2.5+) | 2004 12 03 | 691 | 0.1+ | 0.2− | 2008 10 17 | 291 | 0.2− | 0.3− | | |
| 2003 09 01 | 704 | 0.7− | 0.8− | 2006 03 03 | 703 | 0.6+ | 0.6+ | 2008 10 17 | 291 | 0.4− | 0.2− | | |
| 2003 09 01 | 704 | 0.2− | 0.6+ | 2006 03 03 | 703 | 1.3+ | 0.5− | 2008 10 27 | G96 | 0.1− | 0.6− | | |
| 2003 09 01 | 704 | 0.9− | 0.9+ | 2006 03 03 | 703 | 0.9− | 0.0 | 2008 10 27 | G96 | 0.1+ | 0.6− | | |
| 2003 09 01 | 704 | 0.2+ | 1.4+ | 2006 03 03 | 703 | 0.2− | 0.1+ | 2008 10 27 | G96 | 0.3+ | 0.5− | | |
| 2003 09 18 | 608 | 0.3+ | 0.1+ | 2006 03 23 | 703 | 0.3− | 1.3− | 2008 10 27 | G96 | 0.1− | 0.7− | | |
| 2003 09 18 | 608 | 0.4− | 0.1+ | 2006 03 23 | 703 | 0.7+ | 0.1+ | 2008 10 30 | 704 | 0.1− | 0.3− | | |
| 2003 09 18 | 608 | 0.1− | 0.2+ | 2006 03 23 | 703 | 0.3− | 0.7+ | 2008 10 30 | 704 | 1.1− | 0.9+ | | |
| 2003 09 19 | 699 | 0.3− | 0.3− | 2006 03 23 | 703 | 0.4+ | 1.4+ | 2008 10 30 | 704 | 0.1+ | 0.6+ | | |
| 2003 09 19 | 699 | 0.6− | 0.5− | 2008 09 22 | 704 | 0.4+ | 0.9+ | 2008 10 30 | 704 | 0.9+ | 0.5+ | | |
| 2003 09 19 | 699 | 0.2− | 0.7− | 2008 09 22 | 704 | 0.2− | 0.5− | 2008 10 30 | 704 | 1.2+ | 0.0 | | |
| 2003 09 19 | 699 | 1.2+ | 0.7+ | 2008 09 22 | 704 | 0.2+ | 0.7+ | 2009 12 18 | G96 | 0.2− | 0.1+ | | |
| 2003 09 20 | 644 | 0.0 | 0.0 | 2008 09 22 | 704 | 0.1+ | 0.7+ | 2009 12 18 | G96 | 0.0 | 0.1− | | |
| 2003 09 20 | 644 | 0.2− | 0.3− | 2008 09 22 | 704 | 0.0 | 0.2+ | 2009 12 18 | G96 | 0.0 | 0.0 | | |
| 2003 09 20 | 644 | 0.1+ | 0.1+ | 2008 09 23 | 704 | 0.2− | 0.1+ | 2009 12 18 | G96 | 0.2− | 0.2+ | | |
| 2003 09 22 | 691 | 0.0 | 0.2− | 2008 09 23 | 704 | 0.1− | 0.1+ | 2009 12 19 | 691 | 0.2+ | 0.0 | | |
| 2003 09 22 | 691 | 0.0 | 0.3− | 2008 09 23 | 704 | 0.8− | 0.1− | 2009 12 19 | 691 | 0.1− | 0.0 | | |
| 2003 09 22 | 691 | 0.1− | 0.3− | 2008 09 23 | 704 | 0.1+ | 0.6+ | 2009 12 19 | 691 | 0.2− | 0.2+ | | |
| 2003 10 18 | 699 | 0.1− | 0.9+ | 2008 09 23 | 704 | 0.4− | 0.5+ | 2009 12 27 | 691 | 0.0 | 0.2+ | | |
| 2003 10 18 | 699 | (1.6− | 0.3+) | 2008 10 08 | 703 | 1.4+ | 0.3+ | 2009 12 27 | 691 | 0.2− | 0.1+ | | |
| 2003 10 18 | 699 | 0.3− | 0.9+ | 2008 10 08 | 703 | 1.1+ | 0.3+ | 2009 12 27 | 691 | 0.1+ | 0.1− | | |

**(228911)∗ 2003 SA$_{164}$**

Discovered 2003 Sept. 20 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 120.21302 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17451626 | $\omega$ | 275.10772 | | +0.41796307 | +0.90607369 | |
| $a$ | 3.1713593 | $\Omega$ | 20.00105 | | −0.73842792 | +0.38106742 | |
| $e$ | 0.0808615 | $i$ | 11.10150 | | −0.52917962 | +0.18389694 | |
| $P$ | 5.65 | $H$ | 14.7 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 03 01 | 691 | 0.5+ | 0.2+ | 2003 10 24 | 704 | 0.2+ | 0.5+ | 2008 08 05 | E12 | 0.2− | 0.1− | | |
| 1995 03 01 | 691 | 0.0 | 0.4− | 2003 10 24 | 704 | 0.0 | 0.1+ | 2008 08 05 | E12 | 0.2− | 0.3− | | |
| 1995 03 01 | 691 | 0.1− | 0.4− | 2003 10 25 | 704 | 0.5+ | 0.2+ | 2008 08 05 | E12 | 0.3− | 0.3− | | |
| 2002 08 13 | 644 | 0.2− | 0.1− | 2003 10 25 | 704 | 0.7+ | 0.3+ | 2008 08 05 | E12 | 0.7− | 0.8− | | |
| 2002 08 13 | 644 | 0.5− | 0.4− | 2003 10 25 | 704 | 0.6+ | 0.3+ | 2008 08 23 | 704 | 0.7+ | 0.3− | | |
| 2002 08 13 | 644 | 0.5− | 0.5− | 2003 10 25 | 704 | 0.2+ | 0.1+ | 2008 08 23 | 704 | 0.8+ | 0.2+ | | |
| 2003 09 20 | 699 | 0.6+ | 0.7+ | 2003 10 25 | 704 | 0.4+ | 0.1+ | 2008 08 23 | 704 | (0.2− | 2.1−) | | |
| 2003 09 20 | 699 | 0.8+ | 0.8− | 2003 11 16 | 291 | (1.6+ | 0.7+) | 2008 08 23 | 704 | 0.3+ | 0.0 | | |
| 2003 09 20 | 699 | 0.6− | 0.3− | 2003 11 16 | 291 | 0.2+ | 0.2+ | 2008 08 23 | E12 | 0.8+ | 0.7+ | | |
| 2003 09 20 | 699 | 0.5− | 0.3+ | 2003 11 16 | 291 | 0.6+ | 0.4− | 2008 08 23 | E12 | 1.1+ | 0.4+ | | |
| 2003 09 22 | 291 | 0.3− | 0.2− | 2003 11 18 | 644 | 1.3+ | 0.3− | 2008 08 23 | E12 | 0.7− | 0.1− | | |
| 2003 09 22 | 291 | 0.3− | 0.1− | 2003 11 18 | 644 | 0.1+ | 0.0 | 2008 08 23 | E12 | 0.6+ | 0.4+ | | |
| 2003 09 22 | 691 | 0.1+ | 0.1− | 2003 11 18 | 644 | 0.4− | 0.2+ | 2009 11 10 | G96 | 0.2+ | 0.1− | | |
| 2003 09 22 | 691 | 0.1− | 0.0 | 2003 11 18 | 699 | 0.5− | 0.7− | 2009 11 10 | G96 | 0.1+ | 0.3− | | |
| 2003 09 22 | 291 | 0.7− | 0.2− | 2003 11 18 | 699 | 0.2+ | 0.4− | 2009 11 10 | G96 | 0.2+ | 0.3− | | |
| 2003 09 22 | 691 | 0.3− | 0.0 | 2003 11 18 | 699 | (0.3+ | 1.8−) | 2009 11 10 | G96 | 0.2+ | 0.2− | | |
| 2003 09 27 | 691 | 0.3− | 0.1+ | 2003 11 18 | 699 | 0.0 | 0.5− | 2009 11 11 | 704 | (0.4+ | 1.6−) | | |
| 2003 09 27 | 691 | 0.2− | 0.1− | 2003 11 20 | 704 | 0.8− | 0.5+ | 2009 11 11 | 704 | 0.3+ | 0.7+ | | |
| 2003 09 27 | 691 | 0.2− | 0.1− | 2003 11 20 | 704 | (1.0− | 1.9−) | 2009 11 11 | 704 | 0.8+ | 0.2− | | |
| 2003 09 29 | 704 | 0.2− | 1.2+ | 2003 11 20 | 704 | 0.4− | 0.0 | 2009 11 11 | 704 | 0.5− | 0.1− | | |
| 2003 09 29 | 704 | 0.7− | 1.0+ | 2003 11 20 | 704 | 0.1− | 0.3− | 2009 11 11 | 704 | 0.7− | 0.5+ | | |
| 2003 09 29 | 704 | 0.7− | 0.2− | 2003 11 20 | 704 | 0.8− | 1.0− | 2009 11 16 | 704 | 0.2+ | 0.4− | | |
| 2003 09 29 | 704 | 0.7− | 0.1− | 2003 11 22 | 691 | 0.1+ | 0.0 | 2009 11 16 | 704 | 1.2+ | 0.4+ | | |
| 2003 10 21 | 699 | 0.7− | 0.0 | 2003 11 22 | 691 | 0.1− | 0.1+ | 2009 11 16 | 704 | 0.6+ | 0.9+ | | |
| 2003 10 21 | 699 | 1.0− | 0.5+ | 2003 11 22 | 691 | 0.1− | 0.1− | 2009 11 24 | G96 | 0.2− | 0.2− | | |
| 2003 10 21 | 699 | 0.2+ | 0.1+ | 2003 11 24 | 704 | 1.2+ | 0.0 | 2009 11 24 | G96 | 0.1− | 0.0 | | |
| 2003 10 21 | 699 | 0.4− | 1.0− | 2003 11 24 | 704 | 1.0+ | 0.1− | 2009 11 24 | G96 | 0.1+ | 0.2− | | |
| 2003 10 21 | 704 | 0.2− | 0.6+ | 2003 11 24 | 704 | 1.2+ | 1.2+ | 2009 11 24 | G96 | 0.1+ | 0.3− | | |
| 2003 10 21 | 704 | 0.9+ | 0.2− | 2003 11 24 | 704 | 0.5− | 0.5+ | 2009 12 06 | J75 | 0.2+ | 0.2+ | | |
| 2003 10 21 | 704 | 0.4+ | 0.2− | 2006 02 21 | 703 | 1.1− | 0.4+ | 2009 12 06 | J75 | 0.2+ | 0.2− | | |
| 2003 10 21 | 704 | 0.5+ | 0.3− | 2006 02 21 | 703 | (0.6+ | 1.6+) | 2009 12 06 | J75 | 0.3+ | 0.2− | | |
| 2003 10 21 | 644 | 0.2+ | 0.2+ | 2006 02 21 | 703 | 0.1− | 0.3+ | 2009 12 15 | 704 | 0.3+ | 0.2+ | | |
| 2003 10 21 | 644 | 0.5+ | 0.2+ | 2006 02 21 | 703 | (0.2+ | 1.6+) | 2009 12 15 | 704 | 0.4+ | 0.0 | | |
| 2003 10 21 | 644 | 0.6+ | 0.1+ | 2006 02 23 | 699 | (0.5+ | 1.8+) | 2009 12 15 | 704 | 0.0 | 0.3+ | | |
| 2003 10 24 | 704 | 0.2+ | 0.6− | 2006 02 23 | 699 | 0.0 | 0.5+ | 2009 12 15 | 704 | 0.6− | 0.4− | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 2003 10 24 | 704 | 0.3+ | 0.6+ | 2006 02 23 | 699 | 0.6− | 0.0 | |
| 2003 10 24 | 704 | 0.0 | 0.3+ | 2006 02 23 | 699 | 0.9− | 0.2+ | |

**(228912)∗ 2003 SH$_{169}$**

Discovered 2003 Sept. 23 by NEAT at Haleakala.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 64.15852 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17805983 | $\omega$ | 207.12556 | | +0.95484821 | | +0.28726020 |
| $a$ | 3.1291430 | $\Omega$ | 135.95962 | | −0.24895735 | | +0.91289515 |
| $e$ | 0.1455808 | $i$ | 6.26037 | | −0.16212694 | | +0.29000693 |
| $P$ | 5.54 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 23 | 608 | 0.0 | 0.4− | 2006 03 08 | 691 | 0.1− | 0.7+ | 2008 08 01 | J75 | 0.1+ | 0.3+ |
| 2003 09 23 | 608 | 0.2− | 0.2+ | 2006 03 08 | 691 | 0.1+ | 0.4+ | 2009 10 14 | G96 | 0.1− | 0.0 |
| 2003 09 23 | 608 | 0.7− | 0.2+ | 2006 03 08 | 691 | 0.3+ | 0.4− | 2009 10 14 | G96 | 0.3− | 0.4+ |
| 2003 09 24 | 608 | 0.3− | 0.5− | 2007 05 24 | 291 | 0.0 | 0.1− | 2009 10 14 | G96 | 0.2+ | 0.6+ |
| 2003 09 24 | 608 | 0.2+ | 0.8− | 2007 05 24 | 291 | 0.3− | 0.3+ | 2009 10 14 | G96 | 0.0 | 0.3+ |
| 2003 09 24 | 608 | 0.0 | 0.1− | 2007 05 24 | 291 | 0.4− | 0.3+ | 2009 11 14 | 704 | 0.3− | 1.2+ |
| 2003 09 28 | 704 | 0.2+ | 0.2− | 2008 05 28 | G96 | 0.2+ | 0.3+ | 2009 11 14 | 704 | 0.2+ | 0.2− |
| 2003 09 28 | 704 | 0.0 | 1.1+ | 2008 05 28 | G96 | 0.2− | 0.2+ | 2009 11 14 | 704 | 0.1− | 0.2− |
| 2003 09 28 | 704 | 0.6+ | 0.9+ | 2008 05 28 | G96 | 0.0 | 0.0 | 2009 11 14 | 704 | 0.3+ | 0.4− |
| 2003 09 28 | 704 | 0.8+ | 1.0+ | 2008 05 28 | G96 | 0.2+ | 0.0 | 2009 11 18 | G96 | 0.1− | 0.1+ |
| 2003 10 16 | 699 | 0.0 | 0.0 | 2008 07 25 | J75 | 0.3+ | 0.5− | 2009 11 18 | G96 | 0.0 | 0.1− |
| 2003 10 16 | 699 | 0.2+ | 0.4+ | 2008 07 25 | J75 | 0.4− | 0.0 | 2009 11 18 | G96 | 0.2+ | 0.0 |
| 2003 10 16 | 699 | 0.9− | 0.7+ | 2008 07 25 | J75 | 0.3− | 0.6+ | 2009 11 18 | G96 | 0.2− | 0.1− |
| 2003 10 16 | 699 | 0.1− | 0.5+ | 2008 07 26 | J75 | 0.2+ | 0.4+ | 2009 11 19 | J75 | 0.2+ | 0.3+ |
| 2003 10 18 | 699 | (0.1− | 1.7+) | 2008 07 26 | J75 | 0.1− | 0.1− | 2009 11 19 | J75 | 0.6+ | 0.2− |
| 2003 10 18 | 699 | (1.1− | 2.1+) | 2008 07 26 | J75 | 0.5− | 0.4− | 2009 11 19 | J75 | 1.1− | 1.1+ |
| 2003 10 18 | 699 | 0.5− | 1.0− | 2008 07 27 | J75 | 0.0 | 0.5+ | 2009 12 10 | 703 | 0.5− | 0.2+ |
| 2003 10 18 | 699 | 0.6− | 0.2+ | 2008 07 27 | J75 | 0.7+ | 0.2+ | 2009 12 10 | 703 | 1.6− | 0.9− |
| 2006 03 04 | 691 | 0.3+ | 0.5+ | 2008 07 27 | J75 | 1.1+ | 0.2+ | 2009 12 10 | 703 | 0.5+ | 0.5+ |
| 2006 03 04 | 691 | 0.3+ | 0.9− | 2008 08 01 | J75 | 0.1− | 0.0 | 2009 12 10 | 703 | 0.8+ | 2.0− |
| 2006 03 04 | 691 | 0.1+ | 0.6+ | 2008 08 01 | J75 | 0.4+ | 0.1+ | | | | |

**(228913)∗ 2003 SD$_{184}$ = 2006 BC$_{158}$**

Discovered 2003 Sept. 21 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 95089)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 85.77838 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18039191 | $\omega$ | 319.37670 | | +0.87968382 | | +0.47544208 |
| $a$ | 3.1021159 | $\Omega$ | 12.24813 | | −0.42243158 | | +0.79140184 |
| $e$ | 0.0679671 | $i$ | 2.84924 | | −0.21842147 | | +0.38423684 |
| $P$ | 5.46 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 21 | 644 | 0.2− | 0.3+ | 2006 01 25 | 691 | 0.0 | 0.9+ | 2009 09 21 | G96 | 0.2− | 0.2− |
| 2003 09 21 | 644 | 0.1− | 0.2+ | 2006 01 25 | 691 | 0.3+ | 0.0 | 2009 09 21 | G96 | 0.4+ | 0.7− |
| 2003 09 21 | 691 | 0.1+ | 0.2+ | 2006 01 31 | 691 | 0.2+ | 0.2+ | 2009 09 21 | G96 | 0.4+ | 0.1− |
| 2003 09 21 | 691 | 0.2− | 0.1+ | 2006 01 31 | 691 | 0.1+ | 0.3+ | 2009 09 21 | G96 | 0.4+ | 0.3− |
| 2003 09 21 | 644 | 0.0 | 0.3+ | 2006 01 31 | 691 | 0.0 | 0.6+ | 2009 11 11 | J75 | 0.3+ | 0.3+ |
| 2003 09 21 | 691 | 0.1− | 0.2+ | 2006 02 04 | 691 | 0.3− | 0.0 | 2009 11 11 | J75 | 0.0 | 0.5− |
| 2003 09 22 | 699 | (1.0− | 1.6+) | 2006 02 04 | 691 | 0.1+ | 0.3+ | 2009 11 11 | J75 | 1.0+ | 0.1+ |
| 2003 09 22 | 699 | 0.5− | 0.1+ | 2006 02 04 | 691 | 0.3+ | 0.6+ | 2009 11 24 | G96 | 0.6+ | 0.4− |
| 2003 09 22 | 699 | 0.7+ | 0.7− | 2006 02 20 | 691 | 0.2+ | 0.3+ | 2009 11 24 | G96 | 0.6+ | 0.5− |
| 2003 09 22 | 699 | 1.3− | 0.4+ | 2006 02 20 | 691 | 0.2+ | 0.3− | 2009 11 24 | G96 | 0.7+ | 0.4− |
| 2003 09 26 | 704 | 0.2− | 0.2+ | 2006 02 20 | 691 | 0.2+ | 0.2+ | 2009 11 24 | G96 | 0.7+ | 0.4− |
| 2003 09 26 | 704 | 0.4− | 0.9+ | 2006 02 24 | 691 | 0.2+ | 0.0 | 2009 11 25 | 691 | 0.2− | 0.0 |
| 2003 09 26 | 704 | 0.7− | 0.1− | 2006 02 24 | 691 | 0.3+ | 0.0 | 2009 11 25 | 691 | 0.2+ | 0.0 |
| 2003 09 26 | 704 | 0.5− | 0.4+ | 2006 02 24 | 691 | 0.0 | 0.4+ | 2009 11 25 | 691 | 0.4− | 0.3− |
| 2003 09 26 | 704 | 0.1− | 1.3+ | 2006 03 03 | G96 | 0.8− | 0.4+ | 2009 11 27 | 691 | 0.1+ | 0.0 |
| 2003 09 27 | 691 | 0.3− | 0.4+ | 2006 03 03 | G96 | 0.7− | 0.3+ | 2009 11 27 | 691 | 0.2− | 0.2− |
| 2003 09 27 | 691 | 0.3− | 0.3+ | 2006 03 03 | G96 | 0.1+ | 0.2+ | 2009 11 27 | 691 | 0.5− | 0.6− |
| 2003 09 27 | 691 | 0.3− | 0.3+ | 2006 03 03 | G96 | 0.4+ | 0.4− | 2009 12 17 | G96 | 0.4+ | 0.5− |
| 2003 10 20 | 691 | 0.1+ | 0.6+ | 2008 09 24 | G96 | 0.1− | 0.3+ | 2009 12 17 | G96 | 0.3+ | 0.5− |
| 2003 10 20 | 691 | 0.0 | 0.5+ | 2008 09 24 | G96 | 0.1− | 0.7+ | 2009 12 17 | G96 | 0.2+ | 0.3− |
| 2003 10 20 | 691 | 0.0 | 0.4+ | 2008 09 24 | G96 | 0.1− | 0.6+ | 2009 12 17 | G96 | 0.5+ | 0.4− |
| 2006 01 25 | 691 | 0.0 | 0.0 | 2008 09 24 | G96 | 0.5− | 0.1+ | | | | |

**(228914)∗ 2003 ST$_{200}$**

Discovered 2003 Sept. 22 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 29.43295 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17271525 | $\omega$ | 355.73789 | | +0.82425152 | | −0.56583126 |
| $a$ | 3.1933677 | $\Omega$ | 38.74676 | | +0.52049089 | | +0.74249406 |
| $e$ | 0.1537364 | $i$ | 1.93025 | | +0.22293199 | | +0.35852135 |
| $P$ | 5.71 | $H$ | 15.3 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 22 | 291 | 0.4− | 0.0 | 2003 10 28 | 704 | 0.0 | 0.3+ | 2005 02 03 | 704 | 1.1− | 0.7− |
| 2003 09 22 | 291 | 0.5− | 0.1− | 2003 10 28 | 704 | 0.2− | 0.3+ | 2005 02 03 | 704 | 0.8− | 0.3+ |
| 2003 09 22 | 291 | 0.7− | 0.0 | 2003 10 28 | 704 | 0.0 | 0.2+ | 2005 02 03 | 704 | 0.0 | 0.5− |
| 2003 09 26 | 333 | 0.1+ | 0.3+ | 2003 10 28 | 704 | 0.4− | 0.2+ | 2005 03 14 | G96 | 0.0 | 0.1− |
| 2003 09 26 | 333 | 0.1− | 0.1− | 2003 10 28 | 704 | 0.2− | 1.0+ | 2005 03 14 | G96 | 0.0 | 0.2− |
| 2003 09 26 | 333 | 0.2− | 0.6+ | 2003 10 30 | 704 | 0.2− | 0.5+ | 2005 03 14 | G96 | 0.0 | 0.1+ |
| 2003 09 27 | 333 | 0.2+ | 0.3+ | 2003 10 30 | 704 | 0.0 | 0.2+ | 2005 03 14 | G96 | 0.0 | 0.1+ |
| 2003 09 27 | 333 | 0.3− | 0.6+ | 2003 10 30 | 704 | 0.6+ | 0.6+ | 2006 03 24 | G96 | 0.1− | 0.1+ |
| 2003 09 27 | 333 | 0.4− | 0.2+ | 2003 10 30 | 704 | 0.4− | 0.3+ | 2006 03 24 | G96 | 0.3− | 1.0+ |
| 2003 09 28 | 691 | 0.2+ | 0.1+ | 2003 11 02 | 704 | 0.1+ | 0.0 | 2006 03 24 | G96 | 0.8+ | 0.0 |
| 2003 09 28 | 691 | 0.0 | 0.1+ | 2003 11 02 | 704 | 0.2− | 0.4+ | 2006 03 24 | G96 | 0.3− | 0.2+ |
| 2003 09 28 | 691 | 0.2+ | 0.2+ | 2003 11 02 | 704 | 0.7− | 0.4− | 2008 10 27 | G96 | 0.1+ | 0.4− |
| 2003 09 29 | 704 | 0.1+ | 0.4+ | 2003 11 02 | 704 | 0.5− | 0.2+ | 2008 10 27 | G96 | 0.3+ | 0.0 |
| 2003 09 29 | 704 | 0.2+ | 0.7+ | 2003 11 21 | 704 | 0.7+ | 0.0 | 2008 10 27 | G96 | 0.0 | 0.2− |
| 2003 09 29 | 704 | 0.1+ | 0.7− | 2003 11 21 | 704 | 0.4− | 1.1+ | 2008 10 27 | G96 | 0.3+ | 0.1− |
| 2003 09 29 | 704 | 0.3− | 0.7+ | 2003 11 21 | 704 | 0.4+ | 0.2+ | 2009 10 21 | G96 | 0.2− | 0.3− |
| 2003 09 29 | 704 | 1.0+ | 0.5+ | 2003 11 21 | 704 | 1.3+ | 0.2− | 2009 10 21 | G96 | 0.7− | 0.3− |
| 2003 10 21 | 644 | 0.1− | 0.0 | 2003 11 24 | 704 | 0.5+ | 0.9+ | 2009 10 21 | G96 | 0.3− | 0.3− |
| 2003 10 21 | 644 | 0.5− | 0.0 | 2003 11 24 | 704 | 0.1− | 0.1− | 2009 10 29 | J75 | 0.1− | 0.5− |
| 2003 10 21 | 644 | 0.1− | 0.1+ | 2003 11 24 | 704 | 0.6+ | 0.9+ | 2009 10 29 | J75 | 0.5− | 1.0− |
| 2003 10 22 | 695 | 0.8− | 0.4− | 2003 11 24 | 704 | 0.0 | 0.1− | 2009 10 29 | J75 | 0.4− | 0.8− |
| 2003 10 22 | 695 | 0.1− | 0.3− | 2003 11 24 | 704 | 0.2+ | 0.2+ | 2009 11 17 | 704 | 0.4+ | 1.3+ |
| 2003 10 23 | 704 | 0.2+ | 0.2− | 2003 11 24 | 704 | 0.1+ | 0.7+ | 2009 11 17 | 704 | 0.1− | 0.2+ |
| 2003 10 23 | 704 | 0.1− | 0.2+ | 2003 11 24 | 704 | 0.6+ | 0.2− | 2009 11 17 | 704 | 0.5+ | 0.1− |
| 2003 10 23 | 704 | 0.2− | 0.3− | 2003 11 24 | 704 | 0.6+ | 0.4+ | 2009 12 16 | 704 | 1.1+ | 0.7+ |
| 2003 10 23 | 704 | 0.0 | 0.3− | 2005 01 15 | 691 | 0.3+ | 0.3+ | 2009 12 16 | 704 | 0.0 | 0.4− |
| 2003 10 23 | 704 | 0.0 | 0.2− | 2005 01 15 | 691 | 0.2+ | 0.2+ | 2009 12 16 | 704 | 0.7+ | 0.7− |
| 2003 10 24 | 608 | (0.1+ | 1.7−) | 2005 01 15 | 691 | 0.1− | 0.2+ | 2009 12 16 | G96 | 0.1+ | 0.5− |
| 2003 10 24 | 608 | 0.2+ | 1.3− | 2005 01 19 | 691 | 0.2+ | 0.1+ | 2009 12 16 | G96 | 0.2+ | 0.4− |
| 2003 10 24 | 608 | 0.0 | 1.4− | 2005 01 19 | 691 | 0.1− | 0.0 | 2009 12 16 | 704 | 0.5− | 0.4− |
| 2003 10 26 | 291 | 0.1+ | 0.4− | 2005 01 19 | 691 | 0.2− | 0.2− | 2009 12 16 | G96 | 0.0 | 0.4− |
| 2003 10 26 | 291 | 0.1+ | 0.2− | 2005 02 03 | 704 | 1.4+ | 0.4+ | 2009 12 16 | G96 | 0.2+ | 0.4− |
| 2003 10 26 | 291 | 0.0 | 0.2− | 2005 02 03 | 704 | 0.1− | 0.1+ | | | | |

**(228915)∗ 2003 SF$_{206}$**

Discovered 2003 Sept. 23 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 39.42764 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17466100 | $\omega$ | 136.37255 | | +0.97422149 | | +0.21131064 |
| $a$ | 3.1696070 | $\Omega$ | 211.68168 | | −0.22505794 | | +0.93449108 |
| $e$ | 0.0947696 | $i$ | 8.65072 | | +0.01553749 | | +0.28648600 |
| $P$ | 5.64 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 06 11 | 691 | 0.2− | 0.3− | 2007 03 14 | G96 | 0.3− | 0.8+ | 2009 09 26 | 691 | 0.3− | 0.2+ |
| 1997 06 11 | 691 | 0.1− | 0.1+ | 2007 03 14 | 691 | 0.5+ | 0.4+ | 2009 09 26 | 691 | 0.8− | 0.1+ |
| 1997 06 11 | 691 | 0.5− | 0.2+ | 2007 03 14 | 691 | 0.3+ | 0.1+ | 2009 09 26 | 691 | 0.2− | 0.2+ |
| 1998 10 27 | 691 | 0.2− | 0.3+ | 2007 03 14 | 691 | 0.3− | 0.1+ | 2009 10 09 | A50 | (1.6+ | 1.4+) |
| 1998 10 27 | 691 | 0.2+ | 0.1+ | 2007 04 22 | G96 | 0.3+ | 0.0 | 2009 10 09 | A50 | 1.1+ | 1.1+ |
| 1998 10 27 | 691 | 0.0 | 0.6− | 2007 04 22 | G96 | 0.3− | 0.2− | 2009 10 11 | G96 | 0.5+ | 0.5− |
| 2003 08 23 | 644 | 0.4+ | 0.1− | 2007 04 22 | G96 | 0.2+ | 0.0 | 2009 10 11 | G96 | 0.8+ | 0.2− |
| 2003 08 23 | 644 | 0.1+ | 0.2− | 2007 04 22 | G96 | 0.0 | 0.2+ | 2009 10 11 | G96 | 0.7+ | 0.6− |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 08 23 | 644 | 0.5+ | 0.1+ | 2007 05 09 | G96 | 0.1− | 0.0 | 2009 10 11 | G96 | 0.6+ | 0.4− |
| 2003 09 18 | 644 | 0.5+ | 0.5− | 2007 05 09 | G96 | 0.2− | 0.3+ | 2009 10 22 | 703 | 0.1− | 0.5+ |
| 2003 09 18 | 644 | 0.3+ | 0.1− | 2007 05 09 | G96 | 0.2− | 0.1+ | 2009 10 22 | 703 | 1.0+ | 0.1− |
| 2003 09 18 | 644 | 0.0 | 0.1− | 2007 05 09 | G96 | 0.2− | 0.0 | 2009 10 22 | 703 | 0.7− | 0.4− |
| 2003 09 23 | 644 | 0.1+ | 0.2− | 2009 09 14 | 691 | 0.1− | 0.2+ | 2009 10 22 | 703 | 0.8+ | 1.0− |
| 2003 09 23 | 644 | 0.5+ | 0.0 | 2009 09 14 | 691 | 0.0 | 0.1− | 2009 11 18 | G96 | 0.4+ | 0.0 |
| 2003 09 23 | 644 | 0.6+ | 0.2+ | 2009 09 14 | 691 | 0.0 | 0.0 | 2009 11 18 | G96 | 0.4+ | 0.0 |
| 2003 09 27 | 691 | 0.2+ | 0.2− | 2009 09 22 | 691 | 0.4− | 0.4+ | 2009 11 18 | G96 | 0.4+ | 0.0 |
| 2003 09 27 | 691 | 0.1+ | 0.1− | 2009 09 22 | 691 | 0.0 | 0.2+ | 2009 11 18 | G96 | 0.4+ | 0.1− |
| 2003 09 27 | 691 | 0.4+ | 0.2− | 2009 09 22 | 691 | 0.1− | 0.1+ | 2009 12 13 | G96 | 0.4+ | 0.2+ |
| 2007 03 14 | G96 | 0.1− | 0.2+ | 2009 09 24 | 291 | 0.2− | 0.3+ | 2009 12 13 | G96 | 0.4+ | 0.0 |
| 2007 03 14 | G96 | 0.0 | 0.2+ | 2009 09 24 | 291 | 0.5− | 0.3+ | 2009 12 13 | G96 | 0.0 | 0.1+ |
| 2007 03 14 | G96 | 0.1+ | 0.3+ | 2009 09 24 | 291 | 0.2− | 0.2+ | 2009 12 13 | G96 | 0.2+ | 0.0 |

**(228916)∗ 2003 SF$_{214}$**

Discovered 2003 Sept. 26 by W. K. Y. Yeung at Desert Eagle Observatory.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | (2000.0) | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 353.80258 | | | | | |
| $n$ | 0.17843597 | $\omega$ | 49.04059 | | −0.17545399 | −0.97385728 |
| $a$ | 3.1247441 | $\Omega$ | 51.65337 | | +0.83894691 | −0.22459085 |
| $e$ | 0.1023861 | $i$ | 10.60121 | | +0.51515432 | +0.03407261 |
| $P$ | 5.52 | $H$ | 15.4 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 26 | 333 | 0.2− | 0.4+ | 2003 10 29 | 703 | (2.0− | 0.5−) | 2006 04 24 | 691 | 0.1+ | 0.3+ |
| 2003 09 26 | 333 | 0.2− | 0.1+ | 2003 11 21 | 704 | 0.5+ | 0.7− | 2006 05 01 | 691 | 0.1+ | 0.4+ |
| 2003 09 26 | 333 | 0.1− | 0.2+ | 2003 11 21 | 704 | 0.1− | 0.8+ | 2006 05 01 | 691 | 0.1+ | 0.2+ |
| 2003 09 27 | 333 | 0.5− | 0.5+ | 2003 11 21 | 704 | 0.3+ | 0.9+ | 2006 05 01 | 691 | 0.2+ | 0.2+ |
| 2003 09 27 | 333 | 0.1+ | 0.3+ | 2003 11 21 | 704 | 0.1− | 0.1− | 2006 05 05 | 691 | 0.5+ | 0.2+ |
| 2003 09 27 | 333 | 0.1− | 0.2− | 2003 11 21 | 704 | 0.2+ | 0.1− | 2006 05 05 | 691 | 0.1+ | 0.2+ |
| 2003 09 28 | 333 | 0.2+ | 0.3+ | 2003 12 01 | 704 | 0.5+ | 0.3+ | 2006 05 05 | 691 | 0.2− | 0.4+ |
| 2003 09 28 | 333 | 0.0 | 0.3− | 2003 12 01 | 704 | 0.6+ | 0.1+ | 2006 05 06 | 691 | 0.1+ | 0.3+ |
| 2003 09 28 | 333 | 0.5− | 0.0 | 2003 12 01 | 704 | 0.1− | 0.9+ | 2006 05 06 | 691 | 0.2+ | 0.1+ |
| 2003 09 29 | 333 | 0.1− | 0.1− | 2003 12 01 | 704 | 0.4+ | 0.9+ | 2006 05 06 | 691 | 0.1− | 0.0 |
| 2003 09 29 | 333 | 0.3+ | 0.5− | 2005 01 09 | 703 | 0.2− | 0.7+ | 2009 11 21 | 703 | 0.2− | 0.3− |
| 2003 09 29 | 333 | 0.1+ | 0.4− | 2005 01 09 | 703 | 0.3− | 0.8+ | 2009 11 21 | 703 | 0.1+ | 0.5+ |
| 2003 10 19 | 691 | 0.1− | 0.1+ | 2005 01 09 | 703 | 0.6+ | 0.0 | 2009 11 21 | 703 | 0.7− | 0.2+ |
| 2003 10 19 | 691 | 0.3− | 0.1− | 2005 01 09 | 703 | 0.1+ | 1.3− | 2009 11 21 | 703 | (3.2− | 0.1−) |
| 2003 10 19 | 691 | 0.2− | 0.0 | 2005 03 01 | 703 | 0.7+ | 0.3+ | 2009 11 21 | 703 | 1.4− | 0.2+ |
| 2003 10 24 | 704 | 0.4− | 1.1+ | 2005 03 01 | 703 | 0.6− | 0.2− | 2009 11 27 | G96 | 0.1− | 0.0 |
| 2003 10 24 | 704 | 0.0 | 0.7+ | 2005 03 01 | 703 | 0.2+ | 0.1− | 2009 11 27 | G96 | 0.1− | 0.2− |
| 2003 10 24 | 704 | 1.0− | 0.5+ | 2005 03 01 | 703 | 0.6− | 0.7− | 2009 11 27 | G96 | 0.4− | 0.2− |
| 2003 10 24 | 704 | 0.9− | 0.6+ | 2006 01 31 | 691 | 0.0 | 0.0 | 2009 11 27 | G96 | 0.3− | 0.0 |
| 2003 10 28 | 704 | 0.5+ | 0.0 | 2006 01 31 | 691 | 0.1− | 0.4+ | 2009 11 27 | G96 | 0.2− | 0.2− |
| 2003 10 28 | 704 | 0.1− | 0.4+ | 2006 01 31 | 691 | 0.2+ | 0.4− | 2009 12 15 | 704 | 0.5+ | 0.0 |
| 2003 10 28 | 704 | 0.2+ | 0.2+ | 2006 04 02 | 691 | 0.1+ | 0.1+ | 2009 12 15 | 704 | 0.4+ | 0.8+ |
| 2003 10 28 | 704 | 0.1− | 0.3+ | 2006 04 02 | 691 | 0.0 | 0.1+ | 2009 12 15 | 704 | 0.9+ | 0.2− |
| 2003 10 29 | 703 | (1.8− | 0.2−) | 2006 04 02 | 691 | 0.2− | 0.1+ | 2009 12 15 | 704 | 0.8+ | 0.6+ |
| 2003 10 29 | 703 | 0.7− | 1.1+ | 2006 04 24 | 691 | 0.1− | 0.2− | 2009 12 15 | 704 | 0.4+ | 0.1+ |
| 2003 10 29 | 703 | 0.6− | 0.5+ | 2006 04 24 | 691 | 0.3+ | 0.2+ | | | | |

**(228917)∗ 2003 SU$_{217}$**

Discovered 2003 Sept. 28 at Sierra Nevada Observatory.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | (2000.0) | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 53.62940 | | | | | |
| $n$ | 0.18269090 | $\omega$ | 191.19710 | | +0.92909171 | −0.36939515 |
| $a$ | 3.0760361 | $\Omega$ | 190.53690 | | +0.34660067 | +0.88690949 |
| $e$ | 0.1180790 | $i$ | 5.75127 | | +0.12906034 | +0.27737841 |
| $P$ | 5.39 | $H$ | 15.8 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 17 | 644 | 0.1− | 0.1+ | 2003 10 21 | 704 | 0.6− | 0.7− | 2006 05 04 | G96 | 0.7− | 1.1+ |
| 2003 09 17 | 644 | 0.0 | 0.1+ | 2003 10 23 | 704 | 0.8+ | 0.9− | 2006 05 04 | G96 | 0.0 | 0.4+ |
| 2003 09 17 | 644 | 0.5+ | 0.3+ | 2003 10 23 | 704 | (1.7+ | 0.3−) | 2008 09 19 | 691 | 0.1+ | 0.1− |
| 2003 09 28 | J86 | 0.7− | 0.7− | 2003 10 23 | 704 | 0.1− | 0.5− | 2008 09 19 | 691 | 0.0 | 0.1− |
| 2003 09 28 | J86 | 0.7− | 0.8− | 2003 12 12 | J86 | 0.2− | 0.1+ | 2008 09 19 | 691 | 0.1+ | 0.2+ |
| 2003 09 29 | J86 | 0.5− | 0.2− | 2003 12 12 | J86 | 0.1− | 0.2+ | 2008 09 21 | 691 | 0.2− | 0.2+ |
| 2003 09 29 | J86 | 0.3− | 0.2− | 2003 12 13 | J86 | 0.1− | 0.1+ | 2008 09 21 | 691 | 0.2− | 0.2+ |
| 2003 09 29 | 704 | 0.8+ | 1.2+ | 2003 12 13 | J86 | 0.5− | 0.2+ | 2008 09 21 | 691 | 0.2− | 0.1+ |
| 2003 09 29 | 704 | 0.2− | 0.4+ | 2004 01 12 | J86 | 0.8− | 0.1+ | 2008 09 23 | 691 | 0.1− | 0.3+ |
| 2003 09 29 | 704 | 1.3+ | 0.7+ | 2004 01 12 | J86 | 0.2− | 0.1+ | 2008 09 23 | 691 | 0.1+ | 0.0 |
| 2003 09 29 | 704 | 0.1+ | 1.3+ | 2004 01 12 | J86 | 0.4− | 0.2+ | 2008 09 23 | 691 | 0.2− | 0.1− |
| 2003 10 18 | 691 | 0.1+ | 0.2− | 2006 03 25 | G96 | 0.0 | 0.1+ | 2008 10 24 | G96 | 0.3+ | 0.4− |
| 2003 10 18 | 691 | 0.2− | 0.0 | 2006 03 25 | G96 | 0.3+ | 0.4+ | 2008 10 24 | G96 | 0.1+ | 0.6+ |
| 2003 10 18 | 691 | 0.1+ | 0.0 | 2006 03 25 | G96 | 0.2− | 0.5+ | 2008 10 24 | G96 | 0.4+ | 0.2+ |
| 2003 10 20 | 704 | 0.5+ | 0.1+ | 2006 03 25 | G96 | 0.3+ | 0.1+ | 2008 10 24 | G96 | 0.2+ | 0.2− |
| 2003 10 20 | 704 | 0.3− | 0.6+ | 2006 04 07 | G96 | 0.2+ | 0.3+ | 2009 10 18 | J86 | 0.5− | 0.1+ |
| 2003 10 20 | 704 | 0.1− | 0.7+ | 2006 04 07 | G96 | 0.7+ | 0.1+ | 2009 10 18 | J86 | 0.2− | 0.2+ |
| 2003 10 20 | 704 | 0.0 | 0.6+ | 2006 04 07 | G96 | 0.4+ | 0.4+ | 2009 12 12 | J86 | 0.7+ | 0.1+ |
| 2003 10 20 | 704 | 0.3− | 1.5+ | 2006 04 07 | G96 | 0.2+ | 0.4+ | 2009 12 12 | J86 | 0.1− | 0.2+ |
| 2003 10 21 | 644 | 0.3+ | 0.1+ | 2006 04 19 | G96 | 1.4− | 0.7+ | 2009 12 12 | J86 | 0.1+ | 0.2+ |
| 2003 10 21 | 704 | 0.4+ | 0.5− | 2006 04 19 | G96 | 0.6+ | 0.5+ | 2009 12 17 | G96 | 0.6− | 0.3+ |
| 2003 10 21 | 644 | 0.1+ | 0.3+ | 2006 04 19 | G96 | 0.4+ | 0.2+ | 2009 12 17 | G96 | 0.2+ | 0.2+ |
| 2003 10 21 | 704 | 0.1− | 0.1+ | 2006 04 19 | G96 | 0.6− | 0.2+ | 2009 12 17 | G96 | 0.2+ | 0.1− |
| 2003 10 21 | 704 | 0.2− | 0.8− | 2006 05 04 | G96 | 0.6+ | 1.0+ | 2009 12 17 | G96 | 0.2+ | 0.3− |
| 2003 10 21 | 644 | 0.0 | 0.0 | 2006 05 04 | G96 | 1.2+ | 0.4+ | 2009 12 17 | G96 | 0.0 | 0.1− |

**(228918)∗ 2003 SM$_{225}$**

Discovered 2003 Sept. 26 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | (2000.0) | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 59.68879 | | | | | |
| $n$ | 0.18113195 | $\omega$ | 183.68339 | | +0.98029725 | −0.19611579 |
| $a$ | 3.0936607 | $\Omega$ | 187.74771 | | +0.18540419 | +0.95472441 |
| $e$ | 0.1168159 | $i$ | 10.07236 | | +0.06813647 | +0.22369601 |
| $P$ | 5.44 | $H$ | 15.0 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 06 11 | 691 | 0.2− | 0.2− | 2003 10 16 | 691 | 0.1− | 0.4+ | 2006 03 04 | 691 | 0.1+ | 0.8+ |
| 1996 06 11 | 691 | 0.3− | 0.1− | 2003 10 20 | 704 | 0.0 | 0.5+ | 2006 03 04 | 691 | 0.0 | 0.7+ |
| 1996 06 11 | 691 | 0.2− | 0.3+ | 2003 10 20 | 704 | 0.3− | 0.5+ | 2006 03 25 | G96 | 0.4+ | 0.2+ |
| 2003 09 16 | 691 | 0.0 | 0.1+ | 2003 10 20 | 704 | 0.5− | 0.1− | 2006 03 25 | G96 | 0.3+ | 0.0 |
| 2003 09 16 | 691 | 0.1− | 0.2+ | 2003 10 20 | 704 | 0.3+ | 1.1+ | 2006 03 25 | G96 | 0.2− | 0.2− |
| 2003 09 16 | 691 | 0.1+ | 0.1+ | 2003 10 20 | 704 | 0.1− | 0.5+ | 2006 03 25 | G96 | 0.0 | 0.2+ |
| 2003 09 26 | 704 | 0.3+ | 0.1+ | 2003 10 24 | 704 | 0.4+ | 0.7+ | 2007 06 15 | 691 | 0.1+ | 0.3+ |
| 2003 09 26 | 704 | 0.7− | 0.5+ | 2003 10 24 | 704 | 0.6+ | 0.4+ | 2007 06 15 | 691 | 0.2+ | 0.2+ |
| 2003 09 26 | 704 | 0.4+ | 0.1− | 2003 10 24 | 704 | 0.5+ | 0.3+ | 2007 06 15 | 691 | 0.1− | 0.2+ |
| 2003 09 26 | 704 | 0.1− | 0.2− | 2003 10 24 | 704 | 1.0+ | 0.6− | 2007 06 23 | 691 | 0.1+ | 0.4+ |
| 2003 09 26 | 704 | 0.1+ | 0.2− | 2003 10 29 | 699 | 0.7+ | 0.9+ | 2007 06 23 | 691 | 0.2− | 0.2+ |
| 2003 09 28 | 691 | 0.2− | 0.2+ | 2003 10 29 | 699 | 0.6+ | 0.4− | 2007 06 23 | 691 | 0.1+ | 0.1+ |
| 2003 09 28 | 691 | 0.1+ | 0.1+ | 2003 10 29 | 699 | (2.6+ | 0.7+) | 2008 08 01 | 704 | 0.3+ | 0.4+ |
| 2003 09 28 | 691 | 0.0 | 0.2+ | 2003 10 29 | 699 | 0.3+ | 0.1− | 2008 08 01 | 704 | 0.2− | 0.2+ |
| 2003 09 29 | 704 | 0.1+ | 0.8+ | 2003 11 16 | 703 | 0.5− | 0.7− | 2008 08 01 | 704 | 0.1− | 0.0 |
| 2003 09 29 | 704 | 0.6− | 0.1+ | 2003 11 16 | 703 | 0.8− | 0.2+ | 2009 12 10 | J75 | 0.4+ | 0.1+ |
| 2003 09 29 | 704 | 0.3+ | 0.5+ | 2003 11 16 | 703 | 0.1+ | 0.5+ | 2009 12 10 | J75 | 0.3+ | 0.5+ |
| 2003 09 29 | 704 | 0.4− | 0.1− | 2003 11 16 | 703 | (1.5− | 0.6+) | 2009 12 10 | J75 | 0.6− | 0.3+ |
| 2003 09 29 | 704 | 0.2− | 1.0+ | 2003 11 19 | 644 | 0.3− | 0.8+ | 2009 12 15 | 703 | 0.1+ | 1.4− |
| 2003 10 14 | 699 | 0.1+ | 0.4+ | 2003 11 19 | 644 | 0.3− | 0.7+ | 2009 12 15 | 703 | 0.6− | 0.5− |
| 2003 10 14 | 699 | 0.3− | 0.9− | 2003 11 19 | 644 | 0.1− | 0.8+ | 2009 12 15 | 703 | 0.4+ | 0.3+ |
| 2003 10 14 | 699 | 0.1− | 0.5+ | 2006 02 25 | 691 | 0.2+ | 0.5+ | 2009 12 15 | 703 | 2.4− | 0.0 |
| 2003 10 14 | 699 | 0.0 | 0.6+ | 2006 02 25 | 691 | 0.7+ | 0.8+ | 2009 12 15 | 703 | 0.9− | 1.1− |
| 2003 10 16 | 691 | 0.2− | 0.3+ | 2006 02 25 | 691 | 0.3+ | 0.3+ | | | | |
| 2003 10 16 | 691 | 0.1− | 0.4+ | 2006 03 04 | 691 | 0.4+ | 0.6+ | | | | |

**(228919)∗ 2003 SN$_{225}$ = 1994 CA$_7$ = 2005 FG$_3$**

Discovered 2003 Sept. 26 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 53477), A. Doppler (*MPO* 76000)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 18.17751 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17659386 | $\omega$ | 309.80783 | | +0.60146555 | −0.79836598 | |
| $a$ | 3.1464366 | $\Omega$ | 103.19315 | | +0.74182655 | +0.54457188 | |
| $e$ | 0.1905735 | $i$ | 1.71696 | | +0.29653426 | +0.25700825 | |
| $P$ | 5.58 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 02 15 | 691 | 0.0 | 1.1− | 2003 10 20 | 704 | 0.1+ | 0.2+ | 2009 11 20 | 691 | 0.4− | 0.2+ | |
| 1994 02 15 | 691 | 0.5+ | 0.4− | 2003 10 21 | 699 | 0.0 | 0.2+ | 2009 11 27 | G96 | 0.5+ | 0.1+ | |
| 1994 02 15 | 691 | 0.4+ | 0.2− | 2003 10 21 | 699 | (2.2+ | 0.1+) | 2009 11 27 | G96 | 0.2+ | 0.2+ | |
| 1994 02 19 | 691 | 0.4− | 0.8+ | 2003 10 21 | 699 | 0.3− | 0.4+ | 2009 11 27 | G96 | 0.4+ | 0.1+ | |
| 1994 02 19 | 691 | 0.3− | 0.1− | 2003 10 21 | 699 | 0.6− | 0.3+ | 2009 11 27 | G96 | 0.4+ | 0.1+ | |
| 1994 02 19 | 691 | 0.4− | 0.3+ | 2005 03 13 | G96 | 0.2+ | 0.2+ | 2009 11 27 | G96 | 0.2+ | 0.2+ | |
| 2003 09 19 | 699 | 0.2− | 0.3+ | 2005 03 13 | G96 | 0.2− | 0.4+ | 2009 12 09 | J75 | 0.5+ | 0.5+ | |
| 2003 09 19 | 699 | 0.2− | 0.4+ | 2005 03 13 | G96 | 0.1− | 0.0 | 2009 12 09 | J75 | 0.6+ | 0.5+ | |
| 2003 09 19 | 699 | (1.6− | 0.6+) | 2005 03 13 | G96 | 0.2+ | 0.0 | 2009 12 09 | J75 | 0.5+ | 0.0 | |
| 2003 09 19 | 699 | 0.3− | 0.2− | 2005 03 16 | G96 | 0.6+ | 0.5+ | 2009 12 10 | G96 | 0.1+ | 0.1+ | |
| 2003 09 26 | 704 | 0.1+ | 0.5− | 2005 03 16 | G96 | 0.0 | 0.4+ | 2009 12 10 | G96 | 0.2+ | 0.1− | |
| 2003 09 26 | 704 | 0.5+ | 0.4+ | 2005 03 16 | G96 | 0.4+ | 0.5+ | 2009 12 10 | G96 | 0.2+ | 0.1− | |
| 2003 09 26 | 704 | 0.0 | 0.3− | 2005 03 16 | G96 | 0.1− | 0.2+ | 2009 12 10 | G96 | 0.3+ | 0.0 | |
| 2003 09 26 | 704 | 0.0 | 1.0+ | 2005 03 17 | G96 | 0.4+ | 0.3+ | 2009 12 11 | 703 | 0.2+ | 0.1+ | |
| 2003 09 28 | 691 | 0.1+ | 0.4− | 2005 03 17 | G96 | 0.2− | 0.5+ | 2009 12 11 | 703 | 0.0 | 0.3− | |
| 2003 09 28 | 691 | 0.1− | 0.5+ | 2005 03 17 | G96 | 0.0 | 0.4+ | 2009 12 11 | 703 | 0.4+ | 0.7− | |
| 2003 09 28 | 691 | 0.3+ | 0.0 | 2005 03 17 | G96 | 0.4− | 0.6+ | 2009 12 11 | 703 | 0.2− | 0.2− | |
| 2003 10 16 | 691 | 0.0 | 0.2− | 2009 09 30 | G96 | 0.3+ | 0.3− | 2009 12 15 | G96 | 0.0 | 0.1− | |
| 2003 10 16 | 691 | 0.1+ | 0.1− | 2009 09 30 | G96 | 0.1+ | 0.3− | 2009 12 15 | G96 | 0.4+ | 0.0 | |
| 2003 10 16 | 691 | 0.1− | 0.1− | 2009 09 30 | G96 | 0.2+ | 0.1− | 2009 12 15 | G96 | 0.2+ | 0.0 | |
| 2003 10 20 | 704 | 0.7− | 0.6− | 2009 09 30 | G96 | 0.0 | 0.2− | 2009 12 15 | G96 | 0.0 | 0.2− | |
| 2003 10 20 | 704 | 0.0 | 0.1+ | 2009 11 20 | 691 | 0.6− | 0.1− | | | | | |
| 2003 10 20 | 704 | 0.3− | 0.2− | 2009 11 20 | 691 | 0.4− | 0.1− | | | | | |

**(228920)∗ 2003 SJ$_{234}$ = 2005 AB$_6$**

Discovered 2003 Sept. 25 by NEAT at Palomar.

Id. G. V. Williams (*MPO* 72897)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 338.37729 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17388284 | $\omega$ | 11.73219 | | +0.10014763 | −0.99029805 | |
| $a$ | 3.1790564 | $\Omega$ | 72.57723 | | +0.90450871 | +0.05027661 | |
| $e$ | 0.1402921 | $i$ | 5.79480 | | +0.41452917 | +0.12954547 | |
| $P$ | 5.67 | $H$ | 15.3 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 21 | 644 | 0.2− | 0.2+ | 2005 01 16 | 704 | 0.6+ | 0.5− | 2009 10 25 | 703 | 0.1− | 0.3− | |
| 2003 09 21 | 644 | 0.1− | 0.4+ | 2005 01 16 | 704 | 0.7+ | 0.4+ | 2009 10 25 | 703 | 0.7− | 0.0 | |
| 2003 09 21 | 644 | 0.1− | 0.5+ | 2005 01 16 | 704 | 0.9+ | 0.1+ | 2009 10 26 | 691 | 0.6+ | 0.3+ | |
| 2003 09 25 | 644 | 0.3− | 0.1− | 2005 01 16 | 704 | 0.2− | 0.2− | 2009 10 26 | 691 | 0.5− | 0.1− | |
| 2003 09 25 | 644 | 0.1+ | 0.1+ | 2005 01 16 | 704 | 0.5+ | 0.8− | 2009 10 26 | 691 | 0.3− | 0.1+ | |
| 2003 09 25 | 644 | 0.0 | 0.5+ | 2005 02 01 | 703 | 0.4+ | 0.2− | 2009 10 27 | 704 | 0.3− | 0.4+ | |
| 2003 09 26 | 645 | 0.0 | 0.0 | 2005 02 01 | 703 | 0.1+ | 1.4+ | 2009 10 27 | 704 | 0.1+ | 0.9+ | |
| 2003 09 26 | 645 | 0.0 | 0.0 | 2005 02 01 | 703 | 0.1+ | 0.4− | 2009 10 27 | 704 | 0.2+ | 0.5+ | |
| 2003 09 28 | 704 | 0.3− | 0.2− | 2005 02 01 | 703 | 0.2+ | 0.8− | 2009 10 27 | 704 | 1.0+ | 0.6+ | |
| 2003 09 28 | 704 | 0.1− | 0.1+ | 2005 02 01 | 703 | 0.4− | 1.1+ | 2009 11 09 | 703 | 0.7− | 0.0 | |
| 2003 09 28 | 699 | 0.3− | 1.2− | 2005 02 01 | 703 | 0.3− | 0.3+ | 2009 11 09 | 703 | 1.5− | 0.9− | |
| 2003 09 28 | 704 | 0.4+ | 0.6+ | 2005 02 01 | 703 | 0.2− | 0.6+ | 2009 11 09 | 703 | 0.3+ | 0.8− | |
| 2003 09 28 | 699 | (0.2− | 1.7+) | 2005 02 01 | 703 | 0.1− | 0.5− | 2009 11 09 | 703 | 0.5− | 0.5+ | |
| 2003 09 28 | 704 | 0.1− | 0.0 | 2005 02 03 | 704 | 0.2− | 1.0+ | 2009 11 12 | J75 | 0.7+ | 0.7− | |
| 2003 09 28 | 699 | 0.4− | 0.4+ | 2005 02 03 | 704 | 0.2− | 0.2− | 2009 11 12 | J75 | 0.1+ | 0.5− | |
| 2003 09 28 | 704 | 0.0 | 0.7− | 2005 02 03 | 704 | 0.5+ | 0.3− | 2009 11 12 | J75 | 0.2− | 0.1− | |
| 2003 09 28 | 699 | 0.2+ | 1.1+ | 2005 02 03 | 704 | 1.4− | 0.6− | 2009 11 18 | 704 | 0.0 | 0.5+ | |
| 2003 09 28 | 645 | 0.0 | 0.1− | 2006 05 21 | G96 | 0.1+ | 0.1+ | 2009 11 18 | 704 | 1.1+ | 0.1+ | |
| 2003 09 28 | 645 | 0.0 | 0.1− | 2006 05 21 | G96 | 0.1− | 0.0 | 2009 11 18 | 704 | 0.3+ | 0.8+ | |
| 2004 12 21 | 703 | 0.5− | 0.0 | 2006 05 21 | G96 | 0.2− | 0.1− | 2009 11 18 | 704 | 0.1− | 0.9+ | |
| 2004 12 21 | 703 | 0.9− | 0.1− | 2006 05 21 | G96 | 0.3+ | 0.3+ | 2009 11 18 | 704 | 1.3− | 1.0+ | |
| 2004 12 21 | 703 | 1.0− | 0.2+ | 2009 10 21 | 703 | (0.8− | 1.7−) | 2009 11 18 | G96 | 0.0 | 0.2− | |
| 2004 12 21 | 703 | 0.6− | 0.2− | 2009 10 21 | 703 | 0.6+ | 0.1+ | 2009 11 18 | G96 | 0.3− | 0.4− | |
| 2005 01 06 | 703 | 0.3− | 0.0 | 2009 10 21 | 703 | 0.1+ | 0.2+ | 2009 11 18 | G96 | 0.1− | 0.5− | |
| 2005 01 06 | 703 | 0.6+ | 0.7− | 2009 10 21 | 703 | 0.8+ | 0.5+ | 2009 11 18 | G96 | 0.6− | 0.7− | |
| 2005 01 06 | 703 | 0.1− | 1.0− | 2009 10 24 | 703 | 0.5− | 0.3− | 2009 12 17 | G96 | 0.1− | 0.1− | |
| 2005 01 06 | 703 | 0.0 | 0.7+ | 2009 10 24 | 703 | 0.5+ | 0.0 | 2009 12 17 | G96 | 0.1+ | 0.1− | |
| 2005 01 07 | 704 | 0.1+ | 0.3− | 2009 10 24 | 703 | 0.1− | 0.3− | 2009 12 17 | G96 | 0.1+ | 0.2− | |
| 2005 01 07 | 704 | 0.2+ | 0.0 | 2009 10 24 | 703 | 0.1− | 0.2+ | 2009 12 17 | G96 | 0.1+ | 0.1− | |
| 2005 01 07 | 704 | 0.6+ | 0.2+ | 2009 10 25 | 703 | 0.7+ | 0.0 | | | | | |
| 2005 01 07 | 704 | 0.5+ | 0.2+ | 2009 10 25 | 703 | 0.5+ | 0.5− | | | | | |

**(228921)∗ 2003 SZ$_{238}$ = 2003 SH$_{209}$**

Discovered 2003 Sept. 27 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. A. Doppler (d, *MPO* 87831)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 345.80120 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.16658350 | $\omega$ | 51.20957 | | +0.63878475 | −0.76937024 | |
| $a$ | 3.2712575 | $\Omega$ | 359.04728 | | +0.58409212 | +0.48903372 | |
| $e$ | 0.1153706 | $i$ | 16.94161 | | +0.50078981 | +0.41099326 | |
| $P$ | 5.92 | $H$ | 15.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 04 02 | 691 | 0.3+ | 0.9− | 2003 10 01 | 699 | 0.0 | 0.6+ | 2009 09 15 | 704 | 0.7+ | 0.1− | |
| 1994 04 02 | 691 | 0.7+ | 0.2− | 2003 10 15 | 699 | 0.1− | 0.0 | 2009 09 15 | 704 | 0.8+ | 1.2+ | |
| 1994 04 02 | 691 | 0.0 | 0.4+ | 2003 10 15 | 699 | (2.3+ | 1.9+) | 2009 09 18 | 691 | 0.0 | 0.2+ | |
| 1997 11 01 | 568 | 0.4− | 1.0− | 2003 10 15 | 699 | 0.2− | 0.5+ | 2009 09 18 | 691 | 0.3− | 0.1− | |
| 1997 11 01 | 568 | 0.5− | 1.0− | 2003 10 15 | 699 | 0.0 | 0.5− | 2009 09 18 | 691 | 0.2− | 0.0 | |
| 1997 11 01 | 568 | 0.2− | 0.5− | 2003 10 15 | 644 | 0.8+ | 0.1+ | 2009 09 18 | 691 | 0.0 | 0.1− | |
| 1997 11 01 | 568 | 0.4− | 1.0− | 2003 10 15 | 644 | 0.3+ | 0.1+ | 2009 09 18 | 691 | 0.1− | 0.2+ | |
| 1997 11 01 | 568 | 1.0− | 1.1− | 2003 10 15 | 644 | 0.7+ | 0.1+ | 2009 09 18 | 691 | 0.1− | 0.1− | |
| 1997 11 01 | 568 | 0.8− | 0.8− | 2003 10 20 | 704 | 0.5+ | 0.1− | 2009 09 21 | J75 | 0.3+ | 0.3− | |
| 1997 11 01 | 568 | 0.4− | 0.8− | 2003 10 20 | 704 | 1.0+ | 0.6+ | 2009 09 21 | J75 | 0.5+ | 0.2− | |
| 2003 09 18 | 291 | 0.1− | 0.0 | 2003 10 20 | 704 | 0.1+ | 0.1+ | 2009 09 21 | J75 | 0.3+ | 0.3− | |
| 2003 09 18 | 291 | 0.2+ | 0.0 | 2003 10 20 | 704 | 0.3+ | 0.3+ | 2009 09 22 | 691 | 0.0 | 0.2− | |
| 2003 09 18 | 291 | 0.2+ | 0.0 | 2003 10 25 | 704 | 0.0 | 0.1+ | 2009 09 22 | 691 | 0.0 | 0.2− | |
| 2003 09 18 | 691 | 0.2+ | 0.1− | 2003 10 25 | 704 | 0.7− | 0.3+ | 2009 09 22 | 691 | 0.1− | 0.4− | |
| 2003 09 18 | 691 | 0.2+ | 0.0 | 2003 10 25 | 704 | 0.3+ | 0.4+ | 2009 09 22 | 691 | 0.0 | 0.3+ | |
| 2003 09 18 | 608 | (1.8+ | 0.1+) | 2003 10 25 | 704 | 0.2+ | 0.6− | 2009 09 22 | 691 | 0.2+ | 0.1+ | |
| 2003 09 18 | 608 | 1.1+ | 1.0+ | 2003 10 25 | 704 | 0.9+ | 0.2− | 2009 09 22 | 691 | 0.8− | 0.1− | |
| 2003 09 18 | 608 | 0.4+ | 0.2+ | 2004 12 15 | 703 | 0.9− | 0.8− | 2009 09 25 | 704 | 0.3+ | 0.9+ | |
| 2003 09 18 | 691 | 0.3+ | 0.1+ | 2004 12 15 | 703 | 0.6− | 1.2− | 2009 09 25 | 704 | 0.4− | 1.4+ | |
| 2003 09 21 | 644 | 0.0 | 0.1+ | 2004 12 15 | 703 | 0.4− | 0.2− | 2009 09 25 | 704 | 0.3+ | 0.8+ | |
| 2003 09 21 | 644 | 0.1+ | 0.0 | 2004 12 15 | 703 | 0.5− | 0.8− | 2009 09 25 | 704 | 1.1+ | 1.3+ | |
| 2003 09 21 | 644 | 0.0 | 0.1+ | 2006 02 24 | 691 | 0.0 | 0.5+ | 2009 09 29 | 691 | 0.1− | 0.5− | |
| 2003 09 24 | 608 | 0.1− | 0.1− | 2006 02 24 | 691 | 0.7+ | 0.8+ | 2009 09 29 | 691 | 0.3− | 0.2+ | |
| 2003 09 24 | 608 | 0.1+ | 0.1+ | 2006 02 24 | 691 | 0.1− | 0.4+ | 2009 09 29 | 691 | 0.4− | 0.0 | |
| 2003 09 24 | 608 | 1.1− | 0.0 | 2006 03 02 | 691 | 0.2+ | 0.2+ | 2009 10 15 | 704 | 0.4+ | 0.4+ | |
| 2003 09 27 | 704 | 0.6− | 0.7+ | 2006 03 02 | 691 | 0.4+ | 0.5+ | 2009 10 15 | 704 | 0.5+ | 0.2− | |
| 2003 09 27 | 704 | 0.7− | 0.5+ | 2006 03 02 | 691 | 0.2+ | 0.6+ | 2009 10 15 | 704 | 0.6+ | 0.4− | |
| 2003 09 27 | 704 | 0.5− | 0.2− | 2006 03 21 | G96 | 0.5− | 0.1+ | 2009 10 15 | 704 | 0.4+ | 1.3+ | |
| 2003 09 27 | 291 | 0.4− | 0.3+ | 2006 03 21 | G96 | 0.5+ | 0.1− | 2009 10 15 | 704 | 0.4+ | 0.6+ | |
| 2003 09 27 | 704 | 0.6− | 0.1− | 2006 03 21 | G96 | 0.1− | 0.0 | 2009 10 16 | 703 | 1.2+ | 1.2+ | |
| 2003 09 27 | 291 | 0.3− | 0.3+ | 2006 03 21 | G96 | 0.3− | 0.1+ | 2009 10 16 | 703 | 0.6+ | 0.6+ | |
| 2003 09 27 | 291 | 0.4− | 0.2+ | 2009 09 13 | D29 | 0.3+ | 0.1− | 2009 10 16 | 703 | 0.4− | 0.9+ | |
| 2003 09 27 | 704 | 0.7− | 0.1+ | 2009 09 13 | D29 | 0.2− | 0.1− | 2009 10 16 | 703 | 0.6+ | 0.6+ | |
| 2003 09 29 | 691 | 0.1+ | 0.3+ | 2009 09 13 | D29 | 0.4+ | 0.3− | 2009 11 08 | 703 | 1.7+ | 1.0+ | |
| 2003 09 29 | 691 | 0.1+ | 0.2+ | 2009 09 13 | D29 | 0.8− | 0.3− | 2009 11 08 | 703 | 0.4− | 0.4− | |
| 2003 09 29 | 691 | 0.2+ | 0.5+ | 2009 09 14 | 691 | 0.1− | 0.2− | 2009 11 08 | 703 | 1.4− | 0.4+ | |
| 2003 10 01 | 699 | 1.2− | 1.2− | 2009 09 14 | 691 | 0.1− | 0.3+ | 2009 11 08 | 703 | 2.3− | 0.7− | |
| 2003 10 01 | 699 | 0.5− | 0.0 | 2009 09 14 | 691 | 0.2− | 0.2− | | | | | |
| 2003 10 01 | 699 | 0.1− | 0.7− | 2009 09 15 | 704 | (1.8+ | 0.9+) | | | | | |

**(228922)∗ 2003 SL$_{245}$ = 2009 WG$_{117}$**

Discovered 2003 Sept. 26 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 165369)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 85.16246 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18141069 | $\omega$ | 2.56902 | | +0.79556998 | +0.60582244 | |
| $a$ | 3.0904909 | $\Omega$ | 320.14026 | | −0.55605895 | +0.72560543 | |
| $e$ | 0.1724745 | $i$ | 0.61662 | | −0.24055529 | +0.32630651 | |
| $P$ | 5.43 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 11 19 | 691 | 0.0 | 0.0 | 2003 10 18 | 645 | 0.0 | 0.0 | 2009 09 21 | G96 | 0.4+ | 0.2+ |
| 1998 11 19 | 691 | 0.1+ | 0.0 | 2003 10 18 | 645 | 0.0 | 0.0 | 2009 09 21 | G96 | 0.5+ | 0.0 |
| 1998 11 19 | 691 | 0.3− | 0.2− | 2003 10 23 | 645 | 0.0 | 0.0 | 2009 09 21 | G96 | 0.5+ | 0.1+ |
| 1998 11 26 | 691 | 0.2+ | 0.0 | 2003 10 23 | 645 | 0.0 | 0.1+ | 2009 09 21 | G96 | 0.5+ | 0.1− |
| 1998 11 26 | 691 | 0.1+ | 0.1+ | 2006 01 30 | 691 | 1.3+ | 0.3+ | 2009 11 20 | 691 | 0.1+ | 0.0 |
| 1998 11 26 | 691 | 0.4+ | 0.4− | 2006 01 30 | 691 | 0.3+ | 0.4− | 2009 11 20 | 691 | 0.4− | 0.5− |
| 2001 04 16 | 645 | 0.1− | 0.2+ | 2006 01 30 | 691 | 0.4+ | 0.0 | 2009 11 20 | 691 | 0.1− | 0.0 |
| 2001 04 16 | 645 | 0.1− | 0.2+ | 2008 06 02 | G96 | 0.4− | 0.3+ | 2009 11 24 | 691 | 0.2− | 0.0 |
| 2002 04 11 | 695 | 0.3− | 0.3+ | 2008 06 02 | G96 | 0.6+ | 0.3+ | 2009 11 24 | 691 | 0.3− | 0.0 |
| 2002 04 11 | 695 | 0.3− | 0.4+ | 2008 06 02 | G96 | 0.5+ | 0.7+ | 2009 11 24 | 691 | 0.3− | 0.0 |
| 2003 09 26 | 704 | 0.8+ | 0.1+ | 2008 06 02 | G96 | 0.0 | 0.3+ | 2009 11 24 | 691 | 0.1− | 0.3+ |
| 2003 09 26 | 704 | 0.3+ | 0.7+ | 2008 07 23 | 620 | (1.7− | 0.2+) | 2009 11 24 | 691 | 0.7− | 0.2− |
| 2003 09 26 | 704 | (0.0 | 1.7+) | 2008 07 23 | 620 | 0.2− | 0.4+ | 2009 11 24 | 691 | 0.2+ | 0.2+ |
| 2003 09 29 | 704 | 1.1− | 0.9+ | 2008 07 23 | 620 | 0.2+ | 0.2− | 2009 12 11 | G96 | 0.6+ | 0.2+ |
| 2003 09 29 | 704 | 1.2− | 0.8+ | 2008 10 21 | G96 | 0.5+ | 0.3− | 2009 12 11 | G96 | 0.2+ | 0.0 |
| 2003 09 29 | 704 | 0.9− | 1.2+ | 2008 10 21 | G96 | 0.0 | 0.2− | 2009 12 11 | G96 | 0.1− | 0.0 |
| 2003 09 29 | 704 | 0.9− | 0.5+ | 2008 10 21 | G96 | 0.5− | 0.1+ | 2009 12 11 | G96 | 0.5+ | 1.0+ |
| 2003 09 29 | 704 | 0.9− | 1.0+ | 2008 10 21 | G96 | 0.1+ | 0.2+ | | | | |

**(228923)∗ 2003 SB$_{254}$**

Discovered 2003 Sept. 27 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 58.97575 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18286970 | $\omega$ | 116.09132 | | +0.90454334 | −0.40117594 | |
| $a$ | 3.0740308 | $\Omega$ | 267.84935 | | +0.32099831 | +0.86367301 | |
| $e$ | 0.1289133 | $i$ | 8.31001 | | +0.28064467 | +0.30516683 | |
| $P$ | 5.39 | $H$ | 14.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 27 | 291 | 1.2+ | 0.3− | 2003 11 19 | 704 | 0.7+ | 0.6+ | 2008 09 23 | 683 | 0.6+ | 0.6− |
| 2003 09 27 | 291 | 0.9+ | 0.2− | 2003 11 19 | 704 | 0.2+ | 0.6− | 2008 09 23 | 683 | 0.8− | 1.2− |
| 2003 09 27 | 291 | 1.1+ | 0.5− | 2003 11 19 | 704 | 0.2+ | 0.6+ | 2008 09 23 | 683 | 0.6− | 0.3+ |
| 2003 09 29 | 291 | 0.2+ | 0.3− | 2003 11 19 | 704 | 0.4+ | 1.4+ | 2008 09 29 | 704 | 0.7− | 0.1+ |
| 2003 09 29 | 291 | 0.2+ | 0.3− | 2003 11 19 | 704 | 0.4+ | 0.1− | 2008 09 29 | 704 | 1.0− | 0.1+ |
| 2003 09 29 | 291 | 0.1+ | 0.3− | 2003 11 22 | 691 | 0.4+ | 0.1− | 2008 09 29 | 704 | 0.4− | 0.1− |
| 2003 09 29 | 291 | 0.1− | 0.1− | 2003 11 22 | 691 | 0.4+ | 0.0 | 2008 09 29 | 704 | 1.2− | 0.2− |
| 2003 09 29 | 291 | 0.0 | 0.1− | 2003 11 22 | 691 | 0.6+ | 0.1− | 2008 09 29 | 704 | 1.1− | 0.5− |
| 2003 09 29 | 291 | 0.2− | 0.1− | 2003 12 23 | 704 | 0.2+ | 0.1− | 2008 10 08 | 703 | 0.7+ | 0.3+ |
| 2003 09 30 | 704 | 1.2+ | 0.9− | 2003 12 23 | 704 | 0.2+ | 0.5+ | 2008 10 08 | 703 | 0.3− | 0.1− |
| 2003 09 30 | 704 | 0.0 | 0.1− | 2003 12 23 | 704 | 1.0− | 0.8+ | 2008 10 08 | 703 | 0.1− | 0.4− |
| 2003 09 30 | 704 | 0.6+ | 0.1− | 2005 01 07 | 599 | 0.0 | 0.6+ | 2008 10 08 | 703 | 0.5− | 0.5− |
| 2003 09 30 | 704 | 0.4+ | 0.0 | 2005 01 07 | 599 | (0.0 | 2.2−) | 2008 10 29 | G96 | 0.2− | 0.3− |
| 2003 09 30 | 704 | 0.5+ | 0.5+ | 2005 02 02 | 704 | 0.2− | 0.5+ | 2008 10 29 | G96 | 0.2− | 0.3− |
| 2003 10 02 | 291 | 1.2− | 0.1− | 2005 02 02 | 704 | 0.0 | 0.5+ | 2008 10 29 | G96 | 0.2− | 0.5− |
| 2003 10 02 | 291 | 1.0− | 0.1− | 2005 02 02 | 704 | 0.1+ | 0.3+ | 2008 10 29 | G96 | 0.2− | 0.3− |
| 2003 10 02 | 291 | 0.9− | 0.2− | 2005 02 02 | 704 | 1.0+ | 0.1+ | 2009 11 21 | 704 | 0.2− | 0.5+ |
| 2003 10 05 | 291 | 1.0− | 0.2+ | 2008 08 26 | 704 | 0.3+ | 0.2+ | 2009 11 21 | 704 | 0.2− | 0.6− |
| 2003 10 05 | 291 | 1.0− | 0.4+ | 2008 08 26 | 704 | 0.7+ | 0.5+ | 2009 11 21 | 704 | 0.5− | 0.2− |
| 2003 10 05 | 291 | 1.3− | 0.1− | 2008 08 26 | 704 | 0.2+ | 0.6+ | 2009 12 17 | J47 | 0.5+ | 0.1+ |
| 2003 10 17 | 691 | 0.1+ | 0.1− | 2008 08 26 | 704 | 0.1− | 0.1+ | 2009 12 17 | J47 | 0.4+ | 0.3− |
| 2003 10 17 | 691 | 0.2+ | 0.1− | 2008 08 30 | 704 | 0.1+ | 1.4+ | 2009 12 17 | J47 | 0.1+ | 0.2+ |
| 2003 10 17 | 691 | 0.1+ | 0.0 | 2008 08 30 | 704 | 0.2+ | 0.9+ | 2009 12 17 | 691 | 0.2− | 0.1− |
| 2003 10 22 | 704 | 0.0 | 0.4+ | 2008 08 30 | 704 | 0.2− | 1.4+ | 2009 12 17 | 691 | 0.3− | 0.1+ |
| 2003 10 22 | 704 | 0.3+ | 0.4+ | 2008 08 30 | 704 | 0.4− | 1.0+ | 2009 12 17 | 691 | 0.1− | 0.2+ |
| 2003 10 22 | 704 | 1.0+ | 0.2− | 2008 08 30 | 704 | 0.1− | 1.2+ | 2009 12 17 | 704 | 0.5− | 1.2+ |
| 2003 10 22 | 704 | 0.5+ | 0.7+ | 2008 09 05 | 704 | 0.3+ | 0.6+ | 2009 12 17 | 704 | 1.1+ | 0.4+ |
| 2003 10 23 | 608 | 0.7+ | 1.5− | 2008 09 05 | 704 | 0.1− | 1.0+ | 2009 12 17 | 704 | 0.8+ | 0.2+ |
| 2003 10 23 | 608 | (0.2+ | 1.9−) | 2008 09 05 | 704 | 0.3− | 0.7+ | 2009 12 17 | 704 | 0.3+ | 1.0+ |
| 2003 10 23 | 608 | (0.1+ | 1.8−) | 2008 09 05 | 704 | 0.1+ | 0.7+ | 2009 12 17 | 704 | 0.1+ | 1.0+ |
| 2003 11 02 | 704 | 0.3− | 0.7+ | 2008 09 05 | 704 | 0.2+ | 0.5+ | 2009 12 19 | J47 | 0.5+ | 0.6− |
| 2003 11 02 | 704 | 1.0− | 0.2+ | 2008 09 21 | 703 | 1.1+ | 0.5+ | 2009 12 19 | J47 | 0.2+ | 0.1− |
| 2003 11 02 | 704 | 0.1− | 0.8+ | 2008 09 21 | 703 | 0.3− | 0.1− | 2009 12 19 | J47 | 0.2+ | 0.0 |
| 2003 11 02 | 704 | 0.3+ | 0.2+ | 2008 09 21 | 703 | 1.0+ | 0.4− | | | | |
| 2003 11 02 | 704 | 0.2+ | 0.2+ | 2008 09 21 | 703 | (2.1+ | 0.9+) | | | | |

**(228924)∗ 2003 ST$_{256}$**

Discovered 2003 Sept. 28 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 67.16897 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19380368 | $\omega$ | 105.28335 | | +0.96942136 | −0.24514073 | |
| $a$ | 2.9572954 | $\Omega$ | 268.90780 | | +0.22058252 | +0.89067083 | |
| $e$ | 0.0565236 | $i$ | 0.64901 | | +0.10754339 | +0.38289881 | |
| $P$ | 5.09 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 11 29 | 691 | 0.3− | 0.0 | 2006 02 24 | G96 | 0.2− | 0.7+ | 2008 09 21 | G96 | 0.1+ | 0.2+ |
| 1994 11 29 | 691 | 0.7+ | 0.4+ | 2006 02 24 | G96 | 0.3+ | 0.3+ | 2008 09 21 | G96 | 0.2+ | 0.0 |
| 1994 11 29 | 691 | 0.0 | 1.7+ | 2006 03 02 | 691 | 0.1+ | 0.6+ | 2008 09 21 | G96 | 0.0 | 0.1+ |
| 2003 09 16 | 691 | 0.0 | 0.3+ | 2006 03 02 | 691 | 0.4+ | 0.5+ | 2008 09 21 | G96 | 0.1+ | 0.0 |
| 2003 09 16 | 691 | 0.1+ | 0.4+ | 2006 03 02 | 691 | 0.4+ | 0.5+ | 2008 09 24 | 704 | 0.2− | 1.2+ |
| 2003 09 16 | 691 | 0.1+ | 0.3+ | 2006 03 02 | 691 | 0.2+ | 0.4+ | 2008 09 24 | 704 | 0.4+ | 0.5+ |
| 2003 09 28 | 691 | 0.7− | 0.1+ | 2006 03 02 | 691 | 0.3+ | 0.2+ | 2008 09 24 | 704 | 0.2− | 0.8+ |
| 2003 09 28 | 691 | 0.5− | 0.1− | 2006 03 02 | 691 | 0.3+ | 0.3+ | 2008 09 24 | 704 | 0.9− | 0.4+ |
| 2003 09 28 | 691 | 0.6− | 0.1+ | 2006 03 21 | G96 | 0.3+ | 0.1+ | 2008 09 24 | 704 | 0.6− | 0.6+ |
| 2003 09 29 | 704 | 0.4+ | 0.7+ | 2006 03 21 | G96 | 0.4+ | 0.1− | 2008 10 02 | 691 | 0.0 | 0.2+ |
| 2003 09 29 | 704 | 0.2+ | 0.5+ | 2006 03 21 | G96 | 0.0 | 0.2+ | 2008 10 02 | 691 | 0.4− | 0.1+ |
| 2003 09 29 | 704 | 0.1− | 0.2− | 2006 03 21 | G96 | 0.1+ | 0.3+ | 2008 10 02 | 691 | 1.4+ | 0.5+ |
| 2003 09 29 | 704 | 0.3+ | 1.1+ | 2006 04 24 | G96 | 0.2+ | 0.4− | 2008 10 08 | 691 | 0.2− | 0.6+ |
| 2003 10 17 | 691 | 0.0 | 0.3+ | 2006 04 24 | G96 | 0.2+ | 0.4− | 2008 10 08 | 691 | 0.4− | 0.2+ |
| 2003 10 17 | 691 | 0.0 | 0.3+ | 2006 04 24 | G96 | 0.3− | 0.2− | 2008 10 08 | 691 | 0.6− | 0.4+ |
| 2003 10 17 | 691 | 0.0 | 0.2+ | 2006 04 24 | G96 | 0.2+ | 0.3− | 2008 11 21 | G96 | 0.6+ | 1.1+ |
| 2004 12 20 | 691 | (1.1− | 1.5−) | 2006 05 26 | G96 | 0.2+ | 0.1+ | 2008 11 21 | G96 | 0.6− | 1.0+ |
| 2004 12 20 | 691 | 0.3+ | 0.1− | 2006 05 26 | G96 | 0.2− | 0.5+ | 2008 11 21 | G96 | 0.2+ | 0.2+ |
| 2004 12 20 | 691 | 0.0 | 0.3− | 2006 05 26 | G96 | 0.0 | 0.5+ | 2008 11 21 | G96 | 1.1+ | 1.5− |
| 2006 02 07 | G96 | 0.2+ | 0.2− | 2006 05 26 | G96 | 0.6+ | 0.2+ | 2009 12 10 | G96 | 0.1+ | 0.2− |
| 2006 02 07 | G96 | 0.9− | 0.1+ | 2008 07 30 | 691 | 0.2− | 0.4+ | 2009 12 10 | G96 | 0.3− | 0.6− |
| 2006 02 07 | G96 | 0.1− | 0.2+ | 2008 07 30 | 691 | 0.4− | 0.1+ | 2009 12 10 | G96 | 0.0 | 0.5− |
| 2006 02 07 | G96 | 0.5+ | 0.1+ | 2008 07 30 | 691 | 0.6− | 0.1− | 2009 12 10 | G96 | 0.2+ | 0.3− |
| 2006 02 24 | 691 | 0.3− | 0.3+ | 2008 09 07 | G96 | 0.3− | 0.2− | 2009 12 16 | 704 | (1.9+ | 0.6+) |
| 2006 02 24 | 691 | 0.2+ | 0.3+ | 2008 09 07 | G96 | 0.1− | 0.2− | 2009 12 16 | 704 | 0.7+ | 0.2− |
| 2006 02 24 | 691 | 0.2− | 0.4+ | 2008 09 07 | G96 | 0.4− | 0.2− | 2009 12 16 | 704 | 1.5+ | 1.2+ |
| 2006 02 24 | 691 | 0.4+ | 0.3+ | 2008 09 07 | G96 | 0.2+ | 0.2− | 2009 12 16 | 704 | 0.7+ | 0.2+ |
| 2006 02 24 | 691 | 0.3+ | 0.7+ | 2008 09 07 | 703 | 0.5+ | 0.5+ | 2009 12 25 | 691 | 0.3− | 0.3− |
| 2006 02 24 | 691 | 0.2+ | 0.7+ | 2008 09 07 | 703 | 1.1+ | 0.3− | 2009 12 25 | 691 | 0.3+ | 0.3− |
| 2006 02 24 | G96 | 0.2− | 0.1+ | 2008 09 07 | 703 | 0.6− | 0.6+ | 2009 12 25 | 691 | 1.0− | 0.7− |
| 2006 02 24 | G96 | 0.2− | 0.3+ | 2008 09 07 | 703 | 1.0+ | 0.1− | | | | |

**(228925)∗ 2003 SE$_{267}$**

Discovered 2003 Sept. 29 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 95.84195 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18886036 | $\omega$ | 67.94858 | | +0.98820572 | +0.08929351 | |
| $a$ | 3.0086766 | $\Omega$ | 286.75316 | | −0.13469580 | +0.89331865 | |
| $e$ | 0.1277424 | $i$ | 7.46482 | | +0.07284572 | +0.44046390 | |
| $P$ | 5.22 | $H$ | 14.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 21 | 699 | 0.3− | 0.1+ | 2003 11 18 | 644 | 0.4+ | 0.3+ | 2008 09 05 | 704 | 0.1+ | 0.5+ |
| 2003 09 21 | 699 | 0.3− | 0.0 | 2003 11 19 | 704 | 0.1+ | 0.2+ | 2008 09 05 | 704 | 0.8− | 0.7+ |
| 2003 09 21 | 699 | 0.1− | 0.7− | 2003 11 19 | 704 | 0.9+ | 0.7+ | 2008 09 05 | 704 | 0.3− | 0.8+ |
| 2003 09 21 | 699 | 0.1+ | 0.4− | 2003 11 19 | 704 | 0.5+ | 0.3+ | 2008 09 05 | 704 | 0.4− | 0.1+ |
| 2003 09 29 | 291 | 0.2+ | 0.4− | 2003 11 19 | 704 | 0.3+ | 0.5+ | 2008 09 24 | 703 | 0.5+ | 0.7+ |
| 2003 09 29 | 291 | 0.0 | 0.4− | 2003 11 19 | 704 | 0.7+ | 0.2− | 2008 09 24 | 703 | 0.1+ | 0.1+ |
| 2003 09 29 | 291 | 0.1+ | 0.4− | 2003 11 24 | 291 | 0.3+ | 0.0 | 2008 09 24 | 703 | 0.4− | 0.1+ |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 30 | 704 | 0.4+ | 0.2+ | 2003 11 24 | 291 | 0.2− | 0.2− | 2008 09 24 | 703 | 0.3− | 0.1− |
| 2003 09 30 | 704 | 0.0 | 0.2− | 2003 11 24 | 291 | 0.3− | 0.3− | 2008 10 01 | 704 | 0.1+ | 0.1− |
| 2003 09 30 | 704 | 0.5+ | 0.0 | 2003 11 24 | 291 | 0.3+ | 0.2− | 2008 10 01 | 704 | 0.4+ | 0.2− |
| 2003 09 30 | 704 | 0.0 | 0.1− | 2003 11 24 | 291 | 0.3+ | 0.3− | 2008 10 01 | 704 | 0.3+ | 0.4− |
| 2003 09 30 | 704 | 0.6+ | 0.0 | 2003 11 24 | 291 | 0.5+ | 0.4− | 2008 10 01 | 704 | 0.3+ | 0.3− |
| 2003 09 30 | 691 | 0.2+ | 0.0 | 2003 12 23 | 704 | (0.4− | 1.7+) | 2008 10 10 | 703 | 0.4+ | 0.6− |
| 2003 09 30 | 691 | 0.1+ | 0.0 | 2003 12 23 | 704 | (0.5− | 1.5+) | 2008 10 10 | 703 | 0.4+ | 0.4+ |
| 2003 09 30 | 691 | 0.3+ | 0.0 | 2003 12 23 | 704 | 0.4+ | 1.3+ | 2008 10 10 | 703 | 0.0 | 0.0 |
| 2003 10 02 | 291 | (2.5− | 0.0 ) | 2003 12 23 | 704 | 0.0 | 1.1+ | 2008 10 10 | 703 | 0.4− | 0.3+ |
| 2003 10 02 | 291 | (1.8− | 0.2+) | 2003 12 28 | 704 | 0.6− | 1.2− | 2008 10 25 | 703 | 0.9+ | 0.7+ |
| 2003 10 02 | 291 | 0.7− | 0.4+ | 2003 12 28 | 704 | 0.1− | 0.2+ | 2008 10 25 | 703 | 0.4− | 0.3+ |
| 2003 10 05 | 291 | 1.4− | 0.1+ | 2003 12 28 | 704 | 0.3+ | 0.1− | 2008 10 25 | 703 | 1.4+ | 0.5+ |
| 2003 10 05 | 291 | 1.4− | 0.1+ | 2003 12 28 | 704 | 0.2− | 0.8+ | 2008 10 25 | 703 | 0.2+ | 0.9+ |
| 2003 10 05 | 291 | 1.1− | 0.1+ | 2004 12 20 | G96 | 0.2− | 0.0 | 2008 10 26 | 704 | (1.9+ | 1.2−) |
| 2003 10 17 | 691 | 0.2+ | 0.2− | 2004 12 20 | G96 | 0.4− | 0.1− | 2008 10 26 | 704 | 0.9− | 0.1− |
| 2003 10 17 | 699 | 1.0+ | 0.3+ | 2004 12 20 | G96 | 0.0 | 0.1− | 2008 10 26 | 704 | 0.9+ | 0.7+ |
| 2003 10 17 | 699 | 0.4− | 0.5+ | 2004 12 20 | G96 | 0.0 | 0.1− | 2008 10 26 | 704 | 0.3+ | 0.3+ |
| 2003 10 17 | 691 | 0.2+ | 0.1− | 2005 01 11 | 704 | 0.1+ | 0.0 | 2008 11 07 | 703 | 0.8− | 0.2+ |
| 2003 10 17 | 699 | (1.7− | 1.9+) | 2005 01 11 | 704 | (0.4− | 2.0+) | 2008 11 07 | 703 | 0.5− | 0.3− |
| 2003 10 17 | 699 | 0.3− | 1.0+ | 2005 01 11 | 704 | (1.0− | 1.8+) | 2008 11 07 | 703 | 1.3− | 0.3− |
| 2003 10 17 | 691 | 0.1+ | 0.0 | 2005 01 13 | 691 | 0.0 | 0.2+ | 2008 11 07 | 703 | 0.6− | 0.2+ |
| 2003 10 20 | 644 | 0.4+ | 0.1− | 2005 01 13 | 691 | 0.1+ | 0.3+ | 2008 12 03 | G96 | 0.3+ | 0.1− |
| 2003 10 20 | 644 | 0.3+ | 0.1− | 2005 01 13 | 691 | 0.1+ | 0.3+ | 2008 12 03 | G96 | 0.2+ | 0.2− |
| 2003 10 20 | 644 | 0.2+ | 0.0 | 2005 01 17 | 704 | 0.4+ | 0.3+ | 2008 12 03 | G96 | 0.3+ | 0.1− |
| 2003 10 22 | 704 | 0.6+ | 0.1+ | 2005 01 17 | 704 | 0.9+ | 0.6+ | 2008 12 03 | G96 | 0.2− | 0.2− |
| 2003 10 22 | 704 | 0.8+ | 0.7− | 2005 01 17 | 704 | 0.6+ | 0.9− | 2009 09 28 | 691 | 0.1− | 0.1− |
| 2003 10 22 | 704 | 0.4+ | 0.5+ | 2005 01 19 | 691 | 0.1+ | 0.2+ | 2009 09 28 | 691 | 0.1+ | 0.1− |
| 2003 10 22 | 704 | 0.7+ | 0.2+ | 2005 01 19 | 691 | 0.1+ | 0.0 | 2009 09 28 | 691 | 0.3+ | 0.3− |
| 2003 10 22 | 704 | 0.2− | 0.0 | 2005 01 19 | 691 | 0.1+ | 0.3+ | 2009 12 16 | 691 | 0.3− | 0.0 |
| 2003 10 22 | 704 | 0.6+ | 0.1− | 2005 02 03 | 704 | (0.3− | 2.0+) | 2009 12 16 | 691 | 0.1+ | 0.2− |
| 2003 10 22 | 704 | 0.1− | 0.1− | 2005 02 03 | 704 | 1.1+ | 0.3+ | 2009 12 16 | 691 | 0.3− | 0.0 |
| 2003 10 23 | 608 | 0.5+ | 0.1− | 2005 02 03 | 704 | (0.1+ | 3.0+) | 2009 12 20 | 691 | 0.3+ | 0.1− |
| 2003 10 23 | 608 | 0.3+ | 0.4− | 2005 02 03 | 704 | 0.9− | 1.0+ | 2009 12 20 | 691 | 0.1+ | 0.1− |
| 2003 10 23 | 608 | 0.3+ | 0.2− | 2008 08 30 | 704 | 0.2− | 1.1+ | 2009 12 20 | 691 | 0.1− | 0.3− |
| 2003 11 02 | 704 | 0.7+ | 0.4− | 2008 08 30 | 704 | 0.4− | 0.2+ | 2009 12 25 | 691 | 0.1− | 0.1+ |
| 2003 11 02 | 704 | (1.7+ | 0.2+) | 2008 08 30 | 704 | 0.4− | 0.2− | 2009 12 25 | 691 | 0.1+ | 0.0 |
| 2003 11 02 | 704 | 0.5+ | 0.9+ | 2008 08 30 | 704 | 0.6− | 0.6+ | 2009 12 25 | 691 | 0.5− | 0.1+ |
| 2003 11 18 | 644 | (1.6+ | 0.4−) | 2008 08 30 | 704 | 0.9− | 0.0 | | | | |
| 2003 11 18 | 644 | 0.5+ | 0.1+ | 2008 09 05 | 704 | 0.3− | 1.1+ | | | | |

**(228926)∗ 2003 SQ$_{275}$**

Discovered 2003 Sept. 29 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 65.88658 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18130692 | $\omega$ | 324.18141 | | +0.99992717 | −0.00922546 | |
| $a$ | 3.0916699 | $\Omega$ | 36.34955 | | +0.01159561 | +0.91315647 | |
| $e$ | 0.1710968 | $i$ | 0.75223 | | −0.00334677 | +0.40750479 | |
| $P$ | 5.44 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 16 | 691 | 0.0 | 0.1+ | 2003 10 19 | 701 | 0.1− | 0.4+ | 2008 08 24 | 704 | 0.3− | 1.4+ |
| 2003 09 16 | 691 | 0.1− | 0.0 | 2003 10 20 | 701 | 0.4− | 0.1− | 2008 09 22 | G96 | 0.0 | 0.1− |
| 2003 09 16 | 691 | 0.0 | 0.4+ | 2003 10 20 | 701 | 0.2− | 0.3+ | 2008 09 22 | G96 | 0.2+ | 0.0 |
| 2003 09 17 | 644 | 0.2− | 0.6+ | 2003 10 20 | 701 | 0.3− | 0.5− | 2008 09 22 | G96 | 0.6− | 0.1+ |
| 2003 09 17 | 644 | 0.4− | 0.0 | 2003 10 23 | 704 | 0.6+ | 0.3+ | 2008 09 22 | G96 | 0.3− | 0.2− |
| 2003 09 17 | 644 | 0.4− | 0.1− | 2003 10 23 | 704 | 0.5+ | 0.2− | 2008 10 29 | G96 | 0.1+ | 0.2+ |
| 2003 09 17 | 644 | 0.4− | 0.2+ | 2003 10 23 | 704 | 0.8+ | 0.2+ | 2008 10 29 | G96 | 0.1− | 0.2− |
| 2003 09 17 | 644 | 0.1− | 0.3+ | 2003 10 23 | 704 | 0.8+ | 0.2− | 2008 10 29 | G96 | 0.1+ | 0.1+ |
| 2003 09 17 | 644 | 0.5− | 0.1− | 2003 10 23 | 704 | 0.2+ | 0.1− | 2008 10 29 | G96 | 0.4+ | 0.4− |
| 2003 09 29 | 704 | 0.3+ | 0.3+ | 2006 03 06 | 691 | 0.2+ | 0.5+ | 2009 11 09 | 691 | 0.2− | 0.0 |
| 2003 09 29 | 704 | 1.0+ | 0.8+ | 2006 03 06 | 691 | 0.1+ | 0.4+ | 2009 11 09 | 691 | 0.4− | 0.3+ |
| 2003 09 29 | 704 | 0.8− | 0.7+ | 2006 03 06 | 691 | 0.5+ | 0.6+ | 2009 11 09 | 691 | 0.1+ | 0.2+ |
| 2003 09 29 | 704 | 0.0 | 0.2− | 2008 08 10 | J75 | 0.5− | 0.7− | 2009 12 10 | G96 | 0.2+ | 0.3− |
| 2003 09 29 | 704 | 0.9− | 0.8− | 2008 08 10 | J75 | 0.7+ | 0.3+ | 2009 12 10 | G96 | 0.3+ | 0.4− |
| 2003 10 01 | 691 | 0.1− | 0.2− | 2008 08 10 | J75 | 0.9− | 0.6− | 2009 12 10 | G96 | 0.2+ | 0.5− |
| 2003 10 01 | 691 | 0.2− | 0.1+ | 2008 08 11 | J75 | 0.6+ | 0.1+ | 2009 12 19 | G96 | 0.2+ | 0.1+ |
| 2003 10 01 | 691 | 0.1− | 0.0 | 2008 08 11 | J75 | 0.3+ | 0.5+ | 2009 12 19 | G96 | 0.2+ | 0.2− |
| 2003 10 18 | 691 | 0.0 | 0.2+ | 2008 08 11 | J75 | 0.7− | 0.1− | 2009 12 19 | G96 | 0.2+ | 0.1− |
| 2003 10 18 | 691 | 0.1+ | 0.0 | 2008 08 24 | 704 | 0.0 | 0.7+ | 2009 12 19 | G96 | 0.3+ | 0.2− |
| 2003 10 18 | 691 | 0.1+ | 0.0 | 2008 08 24 | 704 | 0.3+ | 1.0+ | | | | |
| 2003 10 19 | 701 | 0.2+ | 0.5− | 2008 08 24 | 704 | (0.1− | 2.2+) | | | | |

**(228927)∗ 2003 SY$_{284}$**

Discovered 2003 Sept. 20 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 22.87159 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17779792 | $\omega$ | 99.80999 | | +0.79761473 | −0.59481805 | |
| $a$ | 3.1322152 | $\Omega$ | 296.75793 | | +0.50015041 | +0.74491061 | |
| $e$ | 0.1475499 | $i$ | 6.43091 | | +0.33713544 | +0.30215835 | |
| $P$ | 5.54 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 20 | 704 | (0.2− | 1.8+) | 2003 09 30 | 704 | 0.0 | 0.4+ | 2009 11 11 | 704 | 0.1+ | 1.0+ |
| 2003 09 20 | 704 | 0.1+ | 0.2+ | 2003 10 29 | 691 | 0.2− | 0.1− | 2009 11 11 | 704 | 0.6− | 0.5+ |
| 2003 09 20 | 704 | (0.8+ | 1.9−) | 2003 10 29 | 691 | 0.1+ | 0.2+ | 2009 11 11 | 704 | 0.8− | 0.4+ |
| 2003 09 20 | 704 | 0.9+ | 0.0 | 2003 10 29 | 691 | 0.4+ | 0.0 | 2009 11 11 | 704 | 0.2− | 0.8+ |
| 2003 09 20 | 691 | 0.2+ | 0.1− | 2004 12 19 | G96 | 0.3− | 0.4− | 2009 11 11 | 704 | 0.1− | 0.7− |
| 2003 09 20 | 691 | 0.0 | 0.4− | 2004 12 19 | G96 | 0.3+ | 0.6− | 2009 11 22 | G96 | 0.1+ | 0.3− |
| 2003 09 20 | 691 | 0.3+ | 0.2− | 2004 12 19 | G96 | 0.3− | 0.6− | 2009 11 22 | G96 | 0.1− | 0.4− |
| 2003 09 21 | 644 | 0.1− | 0.4− | 2004 12 19 | G96 | 0.3− | 0.5− | 2009 11 22 | G96 | 0.5+ | 0.2− |
| 2003 09 21 | 644 | 0.5+ | 0.4− | 2005 01 13 | 291 | 0.3+ | 0.6+ | 2009 11 22 | G96 | 0.1+ | 0.4− |
| 2003 09 21 | 644 | 0.3+ | 0.3− | 2005 01 13 | 291 | 0.1+ | 0.4+ | 2009 11 24 | G96 | 0.1− | 0.4− |
| 2003 09 29 | 699 | 0.5− | 0.8+ | 2005 01 13 | 291 | 0.2+ | 1.2+ | 2009 11 24 | G96 | 0.3+ | 0.3− |
| 2003 09 29 | 699 | 0.4− | 1.3+ | 2008 07 02 | 691 | 0.3− | 0.5+ | 2009 11 24 | G96 | 0.1− | 0.4− |
| 2003 09 29 | 699 | 0.1− | 0.2+ | 2008 07 02 | 691 | 0.3− | 0.2+ | 2009 11 24 | G96 | 0.4+ | 0.4− |
| 2003 09 29 | 699 | 0.7− | 0.1+ | 2008 07 02 | 691 | 0.0 | 0.2+ | 2009 12 15 | 704 | 0.1− | 0.8− |
| 2003 09 30 | 704 | 0.6− | 1.4+ | 2008 07 29 | G96 | 0.5+ | 0.2+ | 2009 12 15 | 704 | 0.4+ | 0.9− |
| 2003 09 30 | 704 | 1.0− | 0.4+ | 2008 07 29 | G96 | 0.1− | 0.3+ | 2009 12 15 | 704 | 1.0+ | 0.6− |
| 2003 09 30 | 704 | 1.2− | 0.4− | 2008 07 29 | G96 | 0.4+ | 0.0 | | | | |
| 2003 09 30 | 704 | 0.8− | 0.8+ | 2008 07 29 | G96 | 0.0 | 0.5+ | | | | |

**(228928)∗ 2003 SN$_{285}$**

Discovered 2003 Sept. 20 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 55.79679 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18145954 | $\omega$ | 112.32999 | | +0.92292499 | −0.35563592 | |
| $a$ | 3.0899361 | $\Omega$ | 268.75719 | | +0.27604480 | +0.87824436 | |
| $e$ | 0.2201930 | $i$ | 8.47943 | | +0.26834442 | +0.31970290 | |
| $P$ | 5.43 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 12 17 | 704 | 1.6− | 0.0 | 2003 10 17 | 699 | 0.9− | 0.7− | 2008 07 28 | G96 | 0.3− | 0.2+ |
| 1998 12 17 | 704 | 0.3− | 0.7+ | 2003 10 17 | 644 | 0.3− | 0.4− | 2008 07 28 | G96 | 0.3− | 0.1− |
| 1998 12 17 | 704 | (1.6+ | 2.1−) | 2003 10 17 | 699 | 1.2+ | 0.3+ | 2008 07 28 | G96 | 0.7− | 0.0 |
| 1998 12 17 | 704 | (3.9− | 1.2−) | 2003 10 17 | 699 | 0.8+ | 0.4+ | 2008 08 01 | 704 | 0.2− | 0.1− |
| 2000 03 04 | 645 | 0.1+ | 0.2+ | 2003 10 17 | 644 | 0.5+ | 0.2− | 2008 08 01 | 704 | (0.2+ | 1.8+) |
| 2000 03 04 | 645 | 0.3+ | 0.4+ | 2003 10 20 | 644 | 0.1+ | 0.0 | 2008 08 01 | 704 | 1.1− | 0.5− |
| 2003 09 17 | 644 | 0.0 | 0.1− | 2003 10 20 | 644 | 0.3+ | 0.2+ | 2008 08 01 | 704 | 1.3− | 0.8+ |
| 2003 09 17 | 644 | 0.2+ | 0.1− | 2003 10 20 | 644 | 0.2+ | 0.2+ | 2008 08 08 | J75 | 0.5− | 0.3− |
| 2003 09 17 | 644 | 0.1− | 0.0 | 2003 10 22 | 704 | 0.6− | 0.3+ | 2008 08 08 | J75 | 0.4− | 0.0 |
| 2003 09 20 | 704 | (1.6+ | 0.7+) | 2003 10 22 | 704 | 0.6− | 0.2+ | 2008 08 08 | J75 | 0.7+ | 0.7− |
| 2003 09 20 | 704 | 0.9+ | 0.3+ | 2003 10 22 | 704 | 0.0 | 0.1+ | 2008 08 26 | 704 | 0.5+ | 0.9+ |
| 2003 09 20 | 704 | 1.1+ | 0.1+ | 2003 10 22 | 704 | 0.4− | 0.1− | 2008 08 26 | 704 | 0.9+ | 0.3+ |
| 2003 09 20 | 704 | 0.6+ | 1.3+ | 2003 10 22 | 704 | 0.7− | 0.4− | 2008 08 26 | 704 | 0.2+ | 0.4+ |
| 2003 09 21 | 644 | 0.1− | 0.1− | 2003 10 29 | 699 | 0.3+ | 0.3− | 2008 08 26 | 704 | 0.2− | 0.4+ |
| 2003 09 21 | 644 | 0.2+ | 0.0 | 2003 10 29 | 699 | 0.1+ | 0.5− | 2008 08 26 | 704 | 0.0 | 0.1+ |
| 2003 09 21 | 644 | 0.0 | 0.0 | 2003 10 29 | 699 | 0.4− | 0.2+ | 2008 08 30 | 704 | 0.6+ | 1.4+ |
| 2003 09 29 | 699 | 0.2− | 0.0 | 2003 10 29 | 699 | 0.3+ | 0.1+ | 2008 08 30 | 704 | 0.4+ | 0.6+ |
| 2003 09 29 | 699 | 1.1− | 1.3− | 2003 11 02 | 704 | 0.8+ | 0.6+ | 2008 08 30 | 704 | 0.2+ | 0.1+ |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 29 | 699 | 0.5+ | 0.8− | 2003 11 02 | 704 | 0.5− | 0.6+ | 2008 08 30 | 704 | 0.2+ | 0.3+ |
| 2003 09 29 | 699 | 0.2+ | 0.4+ | 2003 11 02 | 704 | 0.7+ | 0.7+ | 2009 01 01 | G96 | 0.2− | 0.3− |
| 2003 09 30 | 704 | 0.2− | 0.2− | 2003 11 02 | 704 | 0.6+ | 0.9+ | 2009 01 01 | G96 | (1.7+ | 0.0 ) |
| 2003 09 30 | 704 | 0.0 | 0.3− | 2003 11 19 | 704 | 0.2+ | 0.1− | 2009 01 01 | G96 | 0.0 | 0.2− |
| 2003 09 30 | 704 | 0.0 | 0.2+ | 2003 11 19 | 704 | 0.1+ | 0.1− | 2009 01 01 | G96 | 0.3− | 0.2+ |
| 2003 09 30 | 704 | 0.0 | 0.2+ | 2003 11 19 | 704 | 0.1− | 0.0 | 2009 10 15 | G96 | 0.0 | 0.4− |
| 2003 09 30 | 704 | 0.4− | 0.4− | 2003 11 19 | 704 | 0.3− | 0.0 | 2009 10 15 | G96 | 0.3+ | 0.1+ |
| 2003 09 30 | 691 | 0.0 | 0.1− | 2003 11 19 | 704 | 0.3+ | 0.1− | 2009 10 15 | G96 | 0.2+ | 0.4− |
| 2003 09 30 | 691 | 0.1+ | 0.1− | 2005 02 02 | 703 | 1.2− | 0.8− | 2009 10 15 | G96 | 0.1− | 0.1− |
| 2003 09 30 | 691 | 0.1+ | 0.1− | 2005 02 02 | 703 | 0.6− | 0.9− | 2009 12 16 | 691 | 0.3− | 0.1+ |
| 2003 10 05 | 704 | 0.2− | 0.8+ | 2005 02 02 | 703 | 1.2− | 1.5− | 2009 12 16 | 691 | 0.1+ | 0.2− |
| 2003 10 05 | 704 | 0.8− | 1.2+ | 2005 02 02 | 703 | 0.4− | 0.4− | 2009 12 16 | 691 | 0.6− | 0.4− |
| 2003 10 05 | 704 | (1.6− | 1.2+) | 2008 07 26 | E12 | 0.8− | 0.3+ | 2009 12 25 | 691 | 0.4− | 0.1− |
| 2003 10 05 | 704 | 1.1− | 0.6+ | 2008 07 26 | E12 | 0.1− | 0.5+ | 2009 12 25 | 691 | 0.8− | 0.2− |
| 2003 10 05 | 704 | 0.6− | 1.3+ | 2008 07 26 | E12 | 0.4− | 0.7+ | 2009 12 25 | 691 | 2.0+ | 1.1+ |
| 2003 10 17 | 644 | 0.3− | 0.0 | 2008 07 26 | E12 | 0.3− | 0.4− | | | | |
| 2003 10 17 | 699 | 0.1+ | 0.3− | 2008 07 28 | G96 | 0.4− | 0.0 | | | | |

**(228929)∗ 2003 SF$_{299}$**

Discovered 2003 Sept. 29 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 49.52192 | | (2000.0) | | | |
| $n$ | 0.17600349 | $\omega$ | 111.46823 | | +0.95175737 | −0.18196653 |
| $a$ | 3.1534688 | $\Omega$ | 259.68922 | | +0.08947220 | +0.93477453 |
| $e$ | 0.2324518 | $i$ | 14.54442 | | +0.29351769 | +0.30509797 |
| $P$ | 5.60 | $H$ | 14.1 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 08 21 | 704 | 0.1− | 0.6+ | 2003 11 22 | 704 | 0.3+ | 0.3+ | 2009 11 11 | 704 | 0.7+ | 0.5+ |
| 2003 08 21 | 704 | 0.4+ | 0.2− | 2003 11 22 | 704 | 0.2+ | 0.2+ | 2009 11 17 | G96 | 0.1+ | 0.3− |
| 2003 08 21 | 704 | 0.5+ | 0.7+ | 2003 11 22 | 704 | 0.0 | 0.2− | 2009 11 17 | G96 | 0.2− | 0.3− |
| 2003 08 21 | 704 | 0.5+ | 1.1− | 2003 11 22 | 704 | 0.1− | 0.5+ | 2009 11 17 | G96 | 0.1+ | 0.1− |
| 2003 09 07 | 704 | 0.3− | 0.2+ | 2003 12 15 | 703 | 1.0− | 0.0 | 2009 11 17 | G96 | 0.0 | 0.3− |
| 2003 09 07 | 704 | 0.3− | 0.0 | 2003 12 15 | 703 | 0.0 | 1.0+ | 2009 11 21 | 691 | 0.1− | 0.0 |
| 2003 09 07 | 704 | 0.2+ | 0.7+ | 2003 12 15 | 703 | 0.0 | 0.3+ | 2009 11 21 | 691 | 0.2+ | 0.1− |
| 2003 09 07 | 704 | 1.1− | 0.8+ | 2003 12 15 | 703 | 1.4− | 0.3− | 2009 11 21 | 691 | 0.4− | 0.0 |
| 2003 09 17 | 644 | 0.1− | 0.1− | 2003 12 19 | 704 | 0.4− | 0.0 | 2009 11 22 | 704 | 0.6− | 0.1+ |
| 2003 09 17 | 644 | 0.1− | 0.0 | 2003 12 19 | 704 | 0.3+ | 0.7+ | 2009 11 22 | 704 | 0.3+ | 0.1− |
| 2003 09 17 | 644 | 0.0 | 0.0 | 2003 12 19 | 704 | 0.3+ | 1.1+ | 2009 11 22 | 704 | 0.7+ | 0.7+ |
| 2003 09 29 | 699 | 0.3− | 0.3− | 2003 12 19 | 704 | 0.1+ | 0.5+ | 2009 11 22 | 704 | 0.4− | 0.2+ |
| 2003 09 29 | 699 | (0.5+ | 1.5−) | 2003 12 19 | 704 | 0.6+ | 0.8+ | 2009 11 22 | 704 | 0.3− | 0.2− |
| 2003 09 29 | 699 | 0.2+ | 0.0 | 2003 12 29 | 704 | 0.7+ | 0.9+ | 2009 11 25 | 691 | 0.0 | 0.4− |
| 2003 09 29 | 699 | 0.3− | 0.8+ | 2003 12 29 | 704 | 0.3+ | 0.8+ | 2009 11 25 | 691 | 1.2− | 1.1+ |
| 2003 10 02 | 704 | 0.0 | 0.4− | 2003 12 29 | 704 | 0.4− | 0.9+ | 2009 11 25 | 691 | 0.1− | 0.1− |
| 2003 10 02 | 704 | 0.1+ | 0.0 | 2003 12 29 | 704 | 0.2+ | 0.5+ | 2009 12 07 | J75 | (0.0 | 1.9+) |
| 2003 10 02 | 704 | 0.8− | 0.0 | 2005 01 15 | 699 | 0.2+ | 0.9+ | 2009 12 07 | J75 | 0.4+ | 0.1+ |
| 2003 10 17 | 699 | 0.1+ | 1.1+ | 2005 01 15 | 699 | 0.2− | 0.7+ | 2009 12 07 | J75 | 0.2+ | 0.7+ |
| 2003 10 17 | 699 | 0.3+ | 0.2+ | 2005 01 15 | 699 | 0.4+ | 0.0 | 2009 12 07 | J75 | 0.1+ | 0.3− |
| 2003 10 17 | 699 | 0.2+ | 0.1− | 2005 01 15 | 699 | 0.1+ | 0.6− | 2009 12 07 | J75 | 0.4− | 0.5− |
| 2003 10 17 | 699 | 0.5+ | 0.4− | 2008 05 14 | G96 | 0.4+ | 0.0 | 2009 12 07 | J75 | 0.0 | 0.1− |
| 2003 10 19 | 644 | 0.3+ | 0.9− | 2008 05 14 | G96 | 0.1+ | 0.4− | 2009 12 09 | J75 | 0.3+ | 0.2− |
| 2003 10 19 | 644 | 0.4+ | 0.1− | 2008 05 14 | G96 | 0.2− | 0.0 | 2009 12 09 | J75 | 0.0 | 0.5− |
| 2003 10 19 | 644 | 0.3+ | 0.0 | 2008 05 14 | G96 | 0.1− | 0.1− | 2009 12 09 | J75 | 0.1− | 0.5− |
| 2003 10 22 | 704 | 0.3− | 0.5− | 2008 07 29 | 704 | 1.2+ | 0.5− | 2009 12 09 | J75 | 0.5+ | 0.3− |
| 2003 10 22 | 704 | 0.2− | 0.4− | 2008 07 29 | 704 | 0.6− | 0.4+ | 2009 12 09 | J75 | 0.0 | 0.1− |
| 2003 10 22 | 704 | 0.1− | 0.7− | 2008 07 29 | 704 | 0.0 | 0.1− | 2009 12 09 | J75 | 0.2+ | 0.4− |
| 2003 10 22 | 704 | 0.7− | 0.2− | 2008 07 29 | 704 | 0.5− | 0.0 | 2009 12 11 | 704 | 0.4+ | 0.0 |
| 2003 10 22 | 704 | 0.4− | 0.5− | 2008 08 02 | 704 | 0.2− | 0.6+ | 2009 12 11 | 704 | 0.1− | 0.9− |
| 2003 11 03 | 704 | 0.3+ | 1.1− | 2008 08 02 | 704 | 0.4− | 0.0 | 2009 12 11 | 704 | 0.2− | 0.3− |
| 2003 11 03 | 704 | 0.3+ | 0.6− | 2008 08 02 | 704 | 0.4+ | 0.3+ | 2009 12 11 | 704 | 0.4+ | 0.7− |
| 2003 11 03 | 704 | 0.5+ | 0.7− | 2008 08 02 | 704 | 0.2− | 0.0 | 2009 12 17 | 704 | 0.1+ | 0.1+ |
| 2003 11 03 | 704 | 0.0 | 0.6− | 2008 08 02 | 704 | 0.4− | 0.7+ | 2009 12 17 | 704 | 0.3+ | 0.0 |
| 2003 11 03 | 704 | 0.0 | 0.3− | 2008 11 03 | 704 | 0.2− | 0.4− | 2009 12 17 | 704 | 0.1+ | 0.0 |
| 2003 11 20 | 704 | 0.1+ | 0.0 | 2008 11 03 | 704 | 0.4+ | 0.0 | 2009 12 17 | 704 | 0.4+ | 0.3+ |
| 2003 11 20 | 704 | 0.0 | 0.4+ | 2008 11 03 | 704 | 0.7+ | 1.1− | 2009 12 17 | 704 | 0.4+ | 0.9− |
| 2003 11 20 | 704 | 0.2− | 0.1+ | 2009 11 11 | 704 | 0.1+ | 0.7+ | 2009 12 19 | G96 | 0.1+ | 0.1− |
| 2003 11 20 | 704 | 0.3− | 0.3− | 2009 11 11 | 704 | 0.7+ | 0.5− | 2009 12 19 | G96 | 0.4+ | 0.3− |
| 2003 11 20 | 704 | 0.2+ | 0.2+ | 2009 11 11 | 704 | 0.4− | 0.5− | 2009 12 19 | G96 | 0.4+ | 0.1− |
| 2003 11 22 | 704 | 0.3+ | 0.3− | 2009 11 11 | 704 | 0.5+ | 0.4+ | 2009 12 19 | G96 | 0.4+ | 0.3− |

**(228930)∗ 2003 SC$_{310}$**

Discovered 2003 Sept. 28 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 33.74210 | | (2000.0) | | | |
| $n$ | 0.17570816 | $\omega$ | 272.15600 | | +0.90696219 | −0.41929170 |
| $a$ | 3.1570013 | $\Omega$ | 112.63596 | | +0.40169064 | +0.83228479 |
| $e$ | 0.2028073 | $i$ | 2.49477 | | +0.12674465 | +0.36262445 |
| $P$ | 5.61 | $H$ | 16.2 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 07 28 | 691 | 0.0 | 0.3+ | 2003 10 22 | 645 | 0.0 | 0.0 | 2009 11 18 | 691 | 0.1− | 0.5− |
| 1997 07 28 | 691 | 0.1+ | 0.0 | 2003 10 22 | 645 | 0.1− | 0.0 | 2009 11 18 | 691 | 0.4− | 0.2+ |
| 1997 07 28 | 691 | 0.1− | 0.4− | 2003 10 24 | 704 | 0.2+ | 0.1+ | 2009 11 18 | 691 | 0.3− | 0.3− |
| 2003 09 28 | 704 | 1.2− | 0.2+ | 2003 10 24 | 645 | 0.1+ | 0.1− | 2009 11 20 | A50 | 0.2+ | 0.6+ |
| 2003 09 28 | 704 | 0.5− | 0.3+ | 2003 10 24 | 645 | 0.1+ | 0.0 | 2009 11 20 | A50 | 0.0 | 0.6+ |
| 2003 09 28 | 699 | 0.3− | 0.2+ | 2003 10 24 | 704 | 0.6− | 0.1+ | 2009 11 22 | 691 | 0.0 | 0.0 |
| 2003 09 28 | 704 | 0.2+ | 0.1+ | 2003 10 24 | 704 | 0.7+ | 0.6+ | 2009 11 22 | 691 | 0.2− | 0.1− |
| 2003 09 28 | 699 | 0.5− | 0.3− | 2003 10 24 | 704 | 0.7− | 0.4+ | 2009 11 22 | 691 | 1.0+ | 0.2+ |
| 2003 09 28 | 704 | 1.5− | 0.5− | 2005 01 15 | 691 | 0.1+ | 0.0 | 2009 11 26 | 691 | 0.3+ | 0.1− |
| 2003 09 28 | 699 | 0.6− | 0.7+ | 2005 01 15 | 691 | 0.2+ | 1.2+ | 2009 11 26 | 691 | 0.3− | 0.1− |
| 2003 09 28 | 704 | 1.0− | 0.0 | 2005 01 15 | 691 | 0.0 | 0.3+ | 2009 11 26 | 691 | 0.0 | 0.2+ |
| 2003 09 28 | 699 | (1.3− | 2.3+) | 2005 01 19 | 691 | 0.2− | 0.0 | 2009 12 11 | 703 | 0.2− | 0.2+ |
| 2003 10 01 | 699 | (0.6+ | 2.2+) | 2005 01 19 | 691 | 0.2+ | 0.1− | 2009 12 11 | 703 | 1.6+ | 1.7− |
| 2003 10 01 | 699 | 1.0− | 0.7− | 2005 01 19 | 691 | 0.2+ | 0.1− | 2009 12 11 | 703 | 0.6− | 0.4− |
| 2003 10 01 | 699 | 0.5− | 1.2+ | 2005 03 04 | G96 | 0.5− | 0.4− | 2009 12 11 | 703 | 0.8+ | 1.3− |
| 2003 10 01 | 699 | 0.1− | 1.0+ | 2005 03 04 | G96 | 0.0 | 0.3− | 2009 12 17 | G96 | 0.4+ | 0.2− |
| 2003 10 19 | 691 | 0.2+ | 0.3+ | 2005 03 04 | G96 | 0.7− | 0.3− | 2009 12 17 | G96 | 0.4+ | 0.3− |
| 2003 10 19 | 691 | 0.2+ | 0.0 | 2005 03 04 | G96 | 0.1− | 0.0 | 2009 12 17 | G96 | 0.4+ | 0.1+ |
| 2003 10 19 | 691 | 0.0 | 0.2+ | 2009 11 10 | 691 | 0.0 | 0.0 | 2009 12 17 | G96 | 0.6+ | 0.6− |
| 2003 10 19 | 645 | 0.0 | 0.0 | 2009 11 10 | 691 | 0.4− | 0.6+ | | | | |
| 2003 10 19 | 645 | 0.0 | 0.0 | 2009 11 10 | 691 | 0.3− | 0.2− | | | | |

**(228931)∗ 2003 SU$_{310}$ = 2005 EE$_{275}$**

Discovered 2003 Sept. 29 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 86126)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 351.01404 | | (2000.0) | | | |
| $n$ | 0.18040204 | $\omega$ | 84.69463 | | +0.03764885 | −0.99917720 |
| $a$ | 3.1019998 | $\Omega$ | 3.26386 | | +0.77939026 | +0.01991454 |
| $e$ | 0.2314715 | $i$ | 15.36164 | | +0.62540658 | +0.03533169 |
| $P$ | 5.46 | $H$ | 15.3 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 12 12 | 704 | 0.5+ | 0.1− | 2003 11 16 | 645 | 0.1− | 0.0 | 2005 04 01 | 703 | 0.9+ | 0.7− |
| 1998 12 12 | 704 | 0.6+ | 0.3+ | 2003 11 16 | 645 | 0.1− | 0.1+ | 2005 04 01 | 703 | 0.8− | 0.1+ |
| 1998 12 12 | 704 | (2.7+ | 1.5−) | 2005 01 15 | 699 | 0.8+ | 0.1+ | 2009 09 29 | 704 | 0.3+ | 0.2− |
| 1998 12 12 | 704 | 0.4+ | 1.0− | 2005 01 15 | 699 | 0.2+ | 0.6+ | 2009 09 29 | 704 | 0.3− | 0.6+ |
| 1998 12 12 | 704 | (4.0− | 0.3−) | 2005 01 15 | 699 | 0.1+ | 0.7+ | 2009 09 29 | 704 | 0.0 | 0.4+ |
| 2000 03 10 | 704 | 0.5+ | 0.1− | 2005 01 15 | 699 | 0.6− | 0.8+ | 2009 09 29 | 704 | 0.1− | 0.5+ |
| 2000 03 10 | 704 | 0.7+ | 0.3+ | 2005 01 15 | 703 | 0.0 | 0.2− | 2009 11 09 | 704 | 0.2+ | 0.5+ |
| 2000 03 10 | 704 | 0.9+ | 0.8+ | 2005 01 15 | 703 | 0.2− | 0.2+ | 2009 11 09 | 704 | 0.2+ | 0.8+ |
| 2003 09 18 | 644 | 0.0 | 0.4+ | 2005 01 15 | 703 | 0.2− | 0.6− | 2009 11 09 | 704 | 1.0+ | 0.3+ |
| 2003 09 18 | 644 | 0.0 | 0.3+ | 2005 01 15 | 703 | 0.6− | 0.1− | 2009 11 09 | 704 | 0.3+ | 0.3+ |
| 2003 09 18 | 644 | 0.0 | 0.3+ | 2005 01 15 | 704 | 0.6+ | 0.6+ | 2009 11 09 | 704 | 0.3+ | 0.4− |
| 2003 09 28 | 645 | 0.1+ | 0.1+ | 2005 01 15 | 704 | 0.3+ | 1.5+ | 2009 11 10 | 704 | 0.9+ | 0.1− |
| 2003 09 28 | 645 | 0.1+ | 0.0 | 2005 01 15 | 704 | 0.2+ | 0.3+ | 2009 11 10 | 704 | 0.4+ | 0.6+ |
| 2003 09 29 | 704 | 0.6− | 1.3+ | 2005 01 15 | 704 | 0.2− | 0.4− | 2009 11 10 | 704 | 0.3+ | 0.6+ |
| 2003 09 29 | 704 | 0.2+ | 0.6+ | 2005 01 15 | 704 | 1.2+ | 0.4+ | 2009 11 20 | 703 | 0.2+ | 0.2− |
| 2003 09 29 | 704 | (0.1− | 2.2+) | 2005 01 31 | 704 | 0.9+ | 0.5+ | 2009 11 20 | 703 | 0.0 | 0.4− |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 29 | 704 | (0.2− | 2.0+) | 2005 01 31 | 704 | 0.3+ | 0.4+ | 2009 11 20 | 703 | 0.2− | 0.2− | | |
| 2003 09 29 | 704 | 0.2+ | 1.0+ | 2005 01 31 | 704 | 0.2+ | 0.0 | 2009 11 20 | 703 | 0.0 | 0.4− | | |
| 2003 10 01 | 699 | 0.5+ | 0.0 | 2005 03 08 | 703 | 0.9− | 1.1− | 2009 11 24 | 704 | 0.3+ | 0.4+ | | |
| 2003 10 01 | 699 | 1.1+ | 1.4− | 2005 03 08 | 703 | 0.2+ | 0.8+ | 2009 11 24 | 704 | 0.2− | 0.5− | | |
| 2003 10 01 | 699 | 1.0− | 0.0 | 2005 03 08 | 703 | (2.1+ | 1.8+) | 2009 11 24 | 704 | 0.4+ | 0.6− | | |
| 2003 10 01 | 699 | 1.0− | 0.5+ | 2005 03 08 | 703 | 0.5− | 0.4− | 2009 11 24 | 704 | 0.3+ | 0.4− | | |
| 2003 10 18 | 645 | 0.0 | 0.0 | 2005 03 14 | 703 | 0.6− | 0.3+ | 2009 11 24 | 704 | 0.1+ | 0.2+ | | |
| 2003 10 18 | 645 | 0.0 | 0.1− | 2005 03 14 | 703 | 1.4− | 0.8− | 2009 12 19 | 703 | 0.3+ | 0.7− | | |
| 2003 10 22 | 645 | 0.1− | 0.1− | 2005 03 14 | 703 | 0.3+ | 0.2− | 2009 12 19 | 703 | 0.0 | 1.0− | | |
| 2003 10 22 | 645 | 0.1− | 0.1− | 2005 03 14 | 703 | 0.6− | 0.1− | 2009 12 19 | 703 | 0.3− | 0.4− | | |
| 2003 10 23 | 645 | 0.0 | 0.0 | 2005 04 01 | 703 | 1.0− | 0.5− | 2009 12 19 | 703 | 2.6− | 0.2− | | |
| 2003 10 23 | 645 | 0.0 | 0.0 | 2005 04 01 | 703 | 0.3+ | 0.6− | | | | | | |

**(228932)∗ 2003 SY$_{319}$**

Discovered 2003 Sept. 16 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 60.60099 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.19158571 | $\omega$ | 96.83844 | | +0.90391759 | | −0.41594286 | | |
| $a$ | 2.9800757 | $\Omega$ | 287.77947 | | +0.33934565 | | +0.83922652 | | |
| $e$ | 0.2000608 | $i$ | 6.00520 | | +0.26034117 | | +0.35027189 | | |
| $P$ | 5.14 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 1 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 16 | 644 | 0.1− | 0.1+ | 2004 12 20 | G96 | 0.4− | 0.1+ | 2009 01 01 | G96 | 0.1− | 0.2+ | | |
| 2003 09 16 | 699 | 0.8+ | 0.7+ | 2005 01 19 | 691 | 0.0 | 0.4+ | 2009 01 01 | G96 | 0.7+ | 0.5− | | |
| 2003 09 16 | 644 | 0.0 | 0.2+ | 2005 01 19 | 691 | 0.1− | 0.3+ | 2009 01 01 | G96 | 0.7+ | 0.1+ | | |
| 2003 09 16 | 699 | 0.0 | 0.8− | 2005 01 19 | 691 | 0.1+ | 0.1+ | 2009 09 28 | 691 | 0.4− | 0.1+ | | |
| 2003 09 16 | 699 | (1.6− | 0.3−) | 2005 02 01 | 703 | 0.4+ | 0.3− | 2009 09 28 | 691 | 0.1+ | 0.1− | | |
| 2003 09 16 | 699 | 0.6+ | 0.3− | 2005 02 01 | 703 | 0.4+ | 0.6+ | 2009 09 28 | 691 | 0.4− | 0.1+ | | |
| 2003 09 16 | 644 | 0.0 | 0.1+ | 2005 02 01 | 703 | 0.6+ | 0.8− | 2009 09 28 | 691 | 0.2− | 0.4− | | |
| 2003 09 21 | 644 | 0.1− | 0.1+ | 2005 02 01 | 703 | 0.1+ | 0.2− | 2009 09 28 | 691 | 0.1+ | 0.2+ | | |
| 2003 09 21 | 644 | 0.1− | 0.0 | 2008 09 07 | 703 | 0.4+ | 0.8− | 2009 09 28 | 691 | 0.1+ | 0.4− | | |
| 2003 09 21 | 644 | 0.3− | 0.0 | 2008 09 07 | 703 | 0.2+ | 0.4+ | 2009 11 11 | G96 | 0.2− | 0.1+ | | |
| 2003 09 30 | 704 | 0.9+ | 0.3+ | 2008 09 07 | 703 | 0.5− | 0.4+ | 2009 11 11 | G96 | 0.4+ | 0.2+ | | |
| 2003 09 30 | 704 | 0.3+ | 0.3− | 2008 09 07 | 703 | 0.1− | 1.2+ | 2009 11 11 | G96 | 0.0 | 0.3− | | |
| 2003 09 30 | 704 | 1.2− | 0.3+ | 2008 10 07 | G96 | 0.3− | 0.1− | 2009 12 10 | G96 | 0.1+ | 0.4− | | |
| 2003 09 30 | 704 | 1.1− | 0.2+ | 2008 10 07 | G96 | 0.2− | 0.3− | 2009 12 10 | G96 | 0.2+ | 0.3− | | |
| 2004 12 20 | G96 | 0.2− | 0.2− | 2008 10 07 | G96 | 0.2− | 0.3− | 2009 12 10 | G96 | 0.3− | 0.0 | | |
| 2004 12 20 | G96 | 0.1− | 0.1− | 2008 10 07 | G96 | 0.1− | 0.5− | 2009 12 10 | G96 | 0.8+ | 0.2+ | | |
| 2004 12 20 | G96 | 0.0 | 0.1+ | 2009 01 01 | G96 | 0.0 | 0.7+ | | | | | | |

**(228933)∗ 2003 SY$_{320}$**

Discovered 2003 Sept. 18 by CINEOS at Campo Imperatore.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 183.35932 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.17815540 | $\omega$ | 187.09665 | | −0.56986882 | | +0.81357040 | | |
| $a$ | 3.1280239 | $\Omega$ | 48.23980 | | −0.74611049 | | −0.45335593 | | |
| $e$ | 0.0271394 | $i$ | 8.91163 | | −0.34433801 | | −0.36410384 | | |
| $P$ | 5.53 | $H$ | 15.0 | $G$ | 0.15 | $U$ | 0 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 04 | 644 | 0.2+ | 0.5+ | 2007 06 23 | E12 | 0.5+ | 0.0 | 2009 11 15 | 703 | 0.6− | 0.7− | | |
| 2002 08 04 | 644 | 0.2+ | 0.5+ | 2008 08 23 | 704 | (0.5− | 1.6−) | 2009 11 15 | 703 | 0.6+ | 0.2+ | | |
| 2002 08 04 | 644 | 0.1+ | 0.5+ | 2008 08 23 | 704 | 0.2− | 0.2− | 2009 11 16 | A50 | 0.3+ | 0.3+ | | |
| 2003 09 18 | 599 | 0.1+ | 0.5+ | 2008 08 23 | 704 | 0.7+ | 0.4− | 2009 11 16 | A50 | 0.4+ | 0.5+ | | |
| 2003 09 18 | 599 | 0.2+ | 0.3+ | 2008 08 23 | 704 | 0.9− | 0.3− | 2009 11 17 | 704 | 0.4− | 0.9+ | | |
| 2003 09 18 | 599 | 0.0 | 0.3+ | 2008 08 23 | E12 | 0.8− | 0.4+ | 2009 11 17 | 704 | 0.3+ | 0.8+ | | |
| 2003 09 19 | 599 | 0.1+ | 0.1+ | 2008 08 23 | E12 | 0.4− | 0.5+ | 2009 11 17 | 704 | 0.7− | 0.6+ | | |
| 2003 09 28 | 704 | 0.1+ | 0.5+ | 2008 08 23 | E12 | 0.4− | 0.8+ | 2009 11 20 | 704 | 0.1+ | 0.4− | | |
| 2003 09 28 | 704 | 0.6+ | 0.3+ | 2008 08 23 | E12 | 0.0 | 0.5− | 2009 11 20 | 704 | 0.4− | 0.2+ | | |
| 2003 09 28 | 704 | 0.0 | 0.7+ | 2009 10 11 | 703 | 0.3− | 0.3+ | 2009 11 20 | 704 | 0.4+ | 1.1+ | | |
| 2003 10 19 | 645 | 0.0 | 0.0 | 2009 10 11 | 703 | 0.4+ | 0.9− | 2009 11 20 | 704 | 0.0 | 1.1− | | |
| 2003 10 19 | 645 | 0.0 | 0.0 | 2009 10 11 | 703 | 1.1− | 0.4+ | 2009 11 20 | J75 | 0.8+ | 0.3+ | | |
| 2003 10 23 | 645 | 0.1− | 0.0 | 2009 10 18 | G96 | 0.3+ | 0.2+ | 2009 11 20 | J75 | 0.3− | 0.3+ | | |
| 2003 10 23 | 645 | 0.0 | 0.0 | 2009 10 18 | G96 | 0.4+ | 0.1+ | 2009 11 20 | J75 | 0.1− | 0.1+ | | |
| 2003 10 25 | 704 | (1.9+ | 0.9+) | 2009 10 18 | G96 | 0.2+ | 0.0 | 2009 11 23 | 703 | 0.6− | 0.3− | | |
| 2003 10 25 | 704 | (1.8+ | 0.3−) | 2009 10 18 | G96 | 0.3+ | 0.2+ | 2009 11 23 | 703 | 0.9− | 0.0 | | |
| 2003 10 25 | 704 | 1.2+ | 0.3+ | 2009 10 23 | 691 | 0.2− | 0.1+ | 2009 11 23 | 703 | 0.8+ | 0.1+ | | |
| 2003 11 19 | 645 | 0.0 | 0.1− | 2009 10 23 | 691 | 0.3− | 0.3+ | 2009 11 23 | 703 | 0.1+ | 0.9− | | |
| 2003 11 19 | 645 | 0.0 | 0.1− | 2009 10 23 | 691 | 0.3− | 0.3+ | 2009 11 23 | 703 | 0.7− | 0.1− | | |
| 2003 11 20 | 645 | 0.0 | 0.0 | 2009 10 24 | 703 | 0.6− | 0.6− | 2009 11 24 | G96 | 0.4+ | 0.2− | | |
| 2003 11 20 | 645 | 0.0 | 0.0 | 2009 10 24 | 703 | 1.3+ | 0.4+ | 2009 11 24 | G96 | 0.0 | 0.0 | | |
| 2006 03 25 | 703 | 0.2− | 1.2+ | 2009 10 24 | 703 | 1.3+ | 0.0 | 2009 11 24 | G96 | 0.3+ | 0.0 | | |
| 2006 03 25 | 703 | (2.1− | 1.4−) | 2009 10 24 | 703 | 0.5− | 1.1+ | 2009 11 24 | G96 | 0.0 | 0.1− | | |
| 2006 03 25 | 703 | 0.7+ | 1.3+ | 2009 10 25 | 703 | 0.6− | 0.4− | 2009 11 25 | G96 | 0.5+ | 0.0 | | |
| 2006 03 25 | 703 | 0.1− | 0.2+ | 2009 10 25 | 703 | 0.8+ | 0.2+ | 2009 11 25 | G96 | 0.3+ | 0.2− | | |
| 2006 04 02 | 703 | (2.2+ | 1.4−) | 2009 10 25 | 703 | 1.3− | 0.3− | 2009 11 25 | G96 | 0.1+ | 0.0 | | |
| 2006 04 02 | 703 | 0.4− | 0.0 | 2009 10 25 | 703 | 0.4+ | 0.4− | 2009 11 25 | G96 | 0.2− | 0.1− | | |
| 2006 04 02 | 703 | 0.1+ | 0.9+ | 2009 11 08 | 703 | 0.0 | 0.7+ | 2009 12 11 | J75 | 0.4+ | 0.6+ | | |
| 2006 04 02 | 703 | 0.3+ | 0.6− | 2009 11 08 | 703 | 0.1+ | 0.7+ | 2009 12 11 | J75 | 0.4+ | 0.4− | | |
| 2007 06 23 | E12 | 0.5+ | 0.0 | 2009 11 08 | 703 | 0.1− | 0.0 | 2009 12 11 | J75 | 0.4− | 0.2+ | | |
| 2007 06 23 | E12 | 0.6− | 0.4+ | 2009 11 15 | 703 | 0.4+ | 0.9− | | | | | | |
| 2007 06 23 | E12 | 0.7+ | 0.2+ | 2009 11 15 | 703 | 0.2+ | 0.3− | | | | | | |

**(228934)∗ 2003 SP$_{330}$**

Discovered 2003 Sept. 26 by the Sloan Digital Sky Survey at Apache Point.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 138.33846 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.18370509 | $\omega$ | 218.20331 | | +0.11783345 | | +0.99071147 | | |
| $a$ | 3.0647044 | $\Omega$ | 58.66015 | | −0.89042588 | | +0.13566649 | | |
| $e$ | 0.1311318 | $i$ | 4.55762 | | −0.43961009 | | −0.00924000 | | |
| $P$ | 5.37 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 0 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 26 | 645 | 0.0 | 0.0 | 2006 02 01 | 691 | 0.1− | 0.0 | 2007 05 10 | G96 | 0.2− | 0.2− | | |
| 2003 09 26 | 645 | 0.0 | 0.1+ | 2006 02 01 | 691 | 0.1− | 0.0 | 2007 05 10 | G96 | 0.1+ | 0.1− | | |
| 2003 09 28 | 645 | 0.0 | 0.0 | 2007 04 14 | 691 | 0.1− | 0.1+ | 2007 05 10 | G96 | 0.2− | 0.1− | | |
| 2003 09 28 | 645 | 0.1− | 0.0 | 2007 04 14 | 691 | 0.2+ | 0.0 | 2009 11 23 | G96 | 0.7+ | 0.1+ | | |
| 2003 10 02 | 691 | 0.1− | 0.3+ | 2007 04 14 | 691 | 0.0 | 0.4+ | 2009 11 23 | G96 | 0.0 | 0.6− | | |
| 2003 10 02 | 691 | 0.2+ | 0.5+ | 2007 04 18 | 691 | 0.0 | 0.1+ | 2009 11 23 | G96 | 0.3+ | 0.0 | | |
| 2003 10 02 | 691 | 0.2− | 0.4+ | 2007 04 18 | 691 | 0.1− | 0.1− | 2009 11 23 | G96 | 0.0 | 0.5− | | |
| 2003 10 19 | 645 | 0.0 | 0.1+ | 2007 04 18 | 691 | 0.3− | 0.0 | 2009 11 25 | 691 | 0.2+ | 0.8+ | | |
| 2003 10 19 | 645 | 0.0 | 0.0 | 2007 04 22 | 691 | 0.3+ | 0.2+ | 2009 11 25 | 691 | 0.1+ | 0.3− | | |
| 2003 10 23 | 645 | 0.0 | 0.1− | 2007 04 22 | 691 | 0.2+ | 0.1+ | 2009 11 25 | 691 | 0.6− | 0.1− | | |
| 2003 10 23 | 645 | 0.0 | 0.0 | 2007 04 22 | 691 | 0.3+ | 0.2+ | 2009 12 11 | G96 | 0.2− | 0.7− | | |
| 2006 01 23 | 691 | 0.0 | 0.2+ | 2007 04 26 | 691 | 0.1+ | 0.4+ | 2009 12 11 | G96 | 0.3+ | 0.2− | | |
| 2006 01 23 | 691 | 0.1− | 0.3− | 2007 04 26 | 691 | 0.2− | 0.1+ | 2009 12 11 | G96 | 0.1− | 0.1+ | | |
| 2006 01 23 | 691 | 0.3+ | 0.1+ | 2007 04 26 | 691 | 0.2+ | 0.0 | 2009 12 11 | G96 | 0.4+ | 0.0 | | |
| 2006 02 01 | 691 | 0.4+ | 0.8+ | 2007 05 10 | G96 | 0.1+ | 0.1+ | | | | | | |

**(228935)∗ 2003 SK$_{350}$ = 1998 VX$_1$ = 2009 VA$_{10}$**

Discovered 2003 Sept. 18 by NEAT at Palomar.

Id. G. V. Williams (*MPO* 165373)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 148.84254 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.18154721 | $\omega$ | 231.48034 | | +0.08115469 | | +0.98614358 | | |
| $a$ | 3.0889414 | $\Omega$ | 43.86194 | | −0.83710258 | | +0.14623198 | | |
| $e$ | 0.0398735 | $i$ | 12.05256 | | −0.54099278 | | −0.07833929 | | |
| $P$ | 5.43 | $H$ | 14.9 | $G$ | 0.15 | $U$ | 0 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 11 09 | 910 | 1.2+ | 0.2+ | 2006 03 25 | 703 | 0.5− | 0.9− | 2009 09 21 | G96 | 0.2− | 0.3− | | |
| 1998 11 09 | 910 | 0.7+ | 0.7+ | 2006 03 25 | 703 | (1.2− | 1.9+) | 2009 09 21 | G96 | 0.1+ | 0.0 | | |
| 1998 11 10 | 910 | 0.7+ | 0.3+ | 2006 03 25 | 703 | 0.2+ | 0.9+ | 2009 09 21 | G96 | 0.3+ | 0.1− | | |
| 1998 11 10 | 910 | 0.7+ | 0.0 | 2006 03 25 | 703 | 0.2+ | 0.7− | 2009 11 08 | 703 | 0.6− | 0.6+ | | |
| 1998 11 10 | 910 | 0.6+ | 0.0 | 2008 08 03 | E12 | 0.6− | 0.7+ | 2009 11 08 | 703 | 0.4− | 0.4− | | |
| 1998 11 10 | 910 | 0.7+ | 0.3− | 2008 08 03 | E12 | 0.1+ | 0.9+ | 2009 11 08 | 703 | 0.1+ | 0.4− | | |
| 2001 03 24 | 699 | (2.0+ | 0.8+) | 2008 09 08 | E12 | 0.8− | 1.3+ | 2009 11 08 | 703 | 0.2+ | 0.7+ | | |
| 2001 03 24 | 699 | (2.0+ | 1.2+) | 2008 09 08 | E12 | 0.7− | 0.9+ | 2009 11 09 | 691 | 0.3+ | 0.4− | | |
| 2001 03 24 | 699 | 0.7+ | 1.2+ | 2008 09 08 | E12 | 0.5− | 0.7+ | 2009 11 09 | 691 | 0.2− | 0.0 | | |
| 2001 03 24 | 699 | 0.6+ | 0.0 | 2008 09 20 | E12 | 0.3− | 0.8+ | 2009 11 09 | 691 | 0.1− | 0.1+ | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 18 | 644 | 0.2− | 0.2+ | 2008 09 20 | E12 | 1.1+ | 0.9+ | 2009 11 11 | 691 | 0.3− | 0.2+ | | |
| 2003 09 18 | 644 | 0.2− | 0.1+ | 2008 09 20 | E12 | 0.0 | 0.9+ | 2009 11 11 | 691 | 0.0 | 0.1+ | | |
| 2003 09 18 | 644 | 0.2− | 0.3+ | 2008 09 20 | E12 | 0.1+ | 0.4− | 2009 11 11 | 691 | 0.2− | 0.2+ | | |
| 2003 09 26 | 645 | 0.1− | 0.3− | 2008 09 25 | E12 | 0.8+ | 1.0+ | 2009 11 17 | 691 | 0.0 | 0.1+ | | |
| 2003 09 26 | 645 | 0.1− | 0.3− | 2008 09 25 | E12 | 0.0 | 0.3+ | 2009 11 17 | 691 | 0.0 | 0.1− | | |
| 2003 09 28 | 704 | 0.1− | 0.6+ | 2008 09 25 | E12 | 0.6− | 0.1+ | 2009 11 17 | 691 | 0.2− | 0.3+ | | |
| 2003 09 28 | 704 | 0.1+ | 0.8+ | 2008 09 25 | E12 | 0.5+ | 0.6− | 2009 12 15 | 704 | 1.0+ | 1.3+ | | |
| 2003 09 28 | 704 | 1.0+ | 0.1− | 2008 10 27 | 703 | 0.7+ | 0.5+ | 2009 12 15 | 704 | 0.8− | 1.0+ | | |
| 2006 03 09 | 703 | 0.0 | 0.3+ | 2008 10 27 | 703 | 1.1+ | 0.6− | 2009 12 15 | 704 | 0.3+ | 0.4+ | | |
| 2006 03 09 | 703 | 0.1+ | 1.1+ | 2008 10 27 | 703 | 0.0 | 0.1− | 2009 12 15 | 704 | 0.5+ | 0.4+ | | |
| 2006 03 09 | 703 | 1.3− | 0.1+ | 2008 10 27 | 703 | (0.8+ | 2.5+) | 2009 12 15 | 704 | 1.0+ | 0.8+ | | |
| 2006 03 09 | 703 | 0.4+ | 0.5+ | 2009 09 21 | G96 | 0.2+ | 0.1− | | | | | | |

**(228936)∗ 2003 $SC_{390}$ = 2009 $WK_{136}$**

Discovered 2003 Sept. 26 by the Sloan Digital Sky Survey at Apache Point. Id. G. V. Williams (*MPO* 165373)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 314.77558 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17789826 | $\omega$ | 50.60839 | | −0.44502292 | −0.89045907 | |
| $a$ | 3.1310374 | $\Omega$ | 66.06180 | | +0.78633185 | −0.43935311 | |
| $e$ | 0.1079623 | $i$ | 5.97019 | | +0.42852867 | −0.11853898 | |
| $P$ | 5.54 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 12 19 | 691 | 0.1− | 0.6− | 2006 03 25 | 691 | 0.2+ | 0.7+ | 2009 11 23 | 703 | (0.7− | 1.6−) | | |
| 1998 12 19 | 691 | 0.2+ | 0.2+ | 2006 03 25 | 691 | 0.2+ | 0.2+ | 2009 11 23 | 703 | 0.4− | 1.4+ | | |
| 1998 12 19 | 691 | 0.4+ | 0.7− | 2006 04 26 | 807 | 0.4+ | 0.1− | 2009 11 23 | 703 | 1.5− | 1.2− | | |
| 2003 09 26 | 645 | 0.0 | 0.0 | 2006 04 26 | 807 | 0.2+ | 0.0 | 2009 11 24 | G96 | 0.6+ | 0.2+ | | |
| 2003 09 26 | 645 | 0.0 | 0.0 | 2009 10 23 | 691 | 0.4− | 0.4+ | 2009 11 24 | G96 | 0.3+ | 0.4+ | | |
| 2003 09 28 | 645 | 0.0 | 0.1+ | 2009 10 23 | 691 | 0.1− | 0.7+ | 2009 11 24 | G96 | 0.6+ | 0.4+ | | |
| 2003 09 28 | 645 | 0.0 | 0.0 | 2009 10 23 | G96 | 0.3− | 0.1+ | 2009 11 24 | G96 | 0.9+ | 0.1+ | | |
| 2003 10 19 | 645 | 0.1+ | 0.1+ | 2009 10 23 | G96 | 0.3+ | 0.1− | 2009 12 10 | G96 | 0.0 | 0.7− | | |
| 2003 10 19 | 645 | 0.0 | 0.1+ | 2009 10 23 | G96 | 0.5+ | 0.2− | 2009 12 10 | G96 | 0.3+ | 0.3+ | | |
| 2003 10 24 | 645 | 0.1− | 0.1− | 2009 10 23 | 691 | 0.2− | 0.3+ | 2009 12 10 | G96 | 0.2− | 0.4+ | | |
| 2003 10 24 | 645 | 0.1− | 0.1− | 2009 10 23 | G96 | 0.3+ | 0.0 | 2009 12 10 | G96 | 0.1+ | 0.3− | | |
| 2006 03 25 | 691 | 0.2+ | 0.5+ | 2009 11 23 | 703 | 1.1− | 0.6+ | | | | | | |

**(228937)∗ 2003 $SG_{411}$ = 2008 $QD_{24}$**

Discovered 2003 Sept. 28 by the Sloan Digital Sky Survey at Apache Point. Id. G. V. Williams (*MPO* 142658)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 152.49662 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19299588 | $\omega$ | 88.44188 | | +0.23041934 | +0.97307744 | |
| $a$ | 2.9655417 | $\Omega$ | 194.88300 | | −0.90067610 | +0.21123949 | |
| $e$ | 0.0443437 | $i$ | 1.16385 | | −0.36836054 | +0.09218549 | |
| $P$ | 5.11 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 02 03 | 691 | 0.0 | 0.6+ | 2006 01 30 | 691 | 0.2+ | 0.3+ | 2008 09 20 | G96 | 0.2+ | 0.1+ | | |
| 2001 02 03 | 691 | 0.4− | 0.7+ | 2006 02 07 | 691 | 0.1− | 0.2+ | 2008 09 20 | G96 | 0.4+ | 0.0 | | |
| 2001 02 03 | 691 | 0.1+ | 1.0+ | 2006 02 07 | 691 | 0.4+ | 0.1− | 2008 09 20 | G96 | 0.2− | 0.0 | | |
| 2003 09 17 | 691 | 0.2+ | 0.2+ | 2006 02 07 | 691 | 0.5+ | 0.2+ | 2008 09 20 | G96 | 0.0 | 0.1− | | |
| 2003 09 17 | 691 | 0.3+ | 0.5+ | 2006 03 25 | G96 | 0.3− | 0.5+ | 2009 11 20 | 691 | 0.6− | 0.2+ | | |
| 2003 09 17 | 691 | 0.0 | 0.3+ | 2006 03 25 | G96 | 0.8+ | 0.2− | 2009 11 20 | 691 | 0.5− | 0.1+ | | |
| 2003 09 26 | 645 | 0.1− | 0.0 | 2006 03 25 | G96 | 0.2+ | 0.1+ | 2009 11 20 | 691 | 0.0 | 1.0− | | |
| 2003 09 26 | 645 | 0.0 | 0.1+ | 2006 03 25 | G96 | 0.0 | 0.2+ | 2009 11 24 | 691 | 0.2− | 0.0 | | |
| 2003 09 27 | 568 | 0.7− | 0.2− | 2008 08 21 | 691 | 0.4− | 0.4+ | 2009 11 24 | 691 | 0.0 | 0.3− | | |
| 2003 09 27 | 568 | 0.7− | 0.1− | 2008 08 21 | 691 | 0.4− | 0.5+ | 2009 11 24 | 691 | 0.8− | 0.5+ | | |
| 2003 09 27 | 568 | 0.7− | 0.0 | 2008 08 21 | 691 | 0.4− | 0.4+ | 2009 11 27 | G96 | 0.6+ | 0.0 | | |
| 2003 09 28 | 645 | 0.1− | 0.0 | 2008 08 29 | 122 | 0.0 | 0.4+ | 2009 11 27 | G96 | 0.3+ | 0.0 | | |
| 2003 09 28 | 645 | 0.1− | 0.0 | 2008 08 29 | 122 | 0.3− | 0.7+ | 2009 11 27 | G96 | 0.6+ | 0.2− | | |
| 2003 09 29 | 691 | 0.3+ | 0.1+ | 2008 08 29 | 122 | 0.2+ | 0.5+ | 2009 11 27 | G96 | 0.0 | 0.4− | | |
| 2003 09 29 | 691 | 0.3+ | 0.1+ | 2008 08 30 | 122 | 0.1+ | 0.3+ | 2009 11 27 | G96 | 1.2− | 1.1+ | | |
| 2003 09 29 | 691 | 0.1+ | 0.1− | 2008 08 30 | 122 | 0.2+ | 0.3+ | 2009 12 10 | G96 | 1.0+ | 0.2− | | |
| 2004 12 14 | 691 | 0.4+ | 0.1− | 2008 08 30 | 122 | 0.5+ | 0.3+ | 2009 12 10 | G96 | 0.8+ | 0.2− | | |
| 2004 12 14 | 691 | 0.3+ | 0.0 | 2008 09 06 | G96 | 0.1− | 0.0 | 2009 12 10 | G96 | 0.8+ | 0.3+ | | |
| 2004 12 14 | 691 | 0.3+ | 0.1+ | 2008 09 06 | G96 | 0.2+ | 0.1+ | 2009 12 10 | G96 | 0.6+ | 0.1− | | |
| 2006 01 30 | 691 | 0.0 | 0.0 | 2008 09 06 | G96 | 0.5+ | 0.2− | | | | | | |
| 2006 01 30 | 691 | 0.4+ | 0.1+ | 2008 09 06 | G96 | 0.3+ | 0.1+ | | | | | | |

**(228938)∗ 2003 TR**

Discovered 2003 Oct. 1 at Volkssternwarte Drebach, Schoenbrunn.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 54.98834 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18324886 | $\omega$ | 75.23488 | | +0.89817505 | −0.43134355 | |
| $a$ | 3.0697890 | $\Omega$ | 310.24117 | | +0.34824656 | +0.81604337 | |
| $e$ | 0.1010523 | $i$ | 6.39307 | | +0.26833919 | +0.38472843 | |
| $P$ | 5.38 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 08 14 | 910 | 0.4+ | 0.4− | 2003 10 15 | 699 | 0.7− | 0.4− | 2008 08 23 | 113 | 0.7− | 0.2+ | | |
| 1997 08 14 | 910 | 0.0 | 0.8− | 2003 10 15 | 699 | 0.1+ | 0.2− | 2008 08 23 | 113 | 0.3− | 0.8+ | | |
| 1997 08 14 | 910 | 0.1− | 0.3− | 2003 10 15 | 699 | 0.4+ | 0.6+ | 2008 08 27 | 113 | 0.1+ | 0.2− | | |
| 2000 01 05 | 691 | 0.0 | 0.3− | 2003 10 15 | 699 | 1.3+ | 0.7+ | 2008 08 27 | 113 | 0.5+ | 0.2− | | |
| 2000 01 05 | 691 | 0.1− | 0.4− | 2003 10 17 | 113 | 0.2− | 0.1+ | 2008 08 27 | 113 | 0.2− | 0.0 | | |
| 2000 01 05 | 691 | 0.1+ | 0.5− | 2003 10 17 | 113 | 0.1+ | 0.2+ | 2008 09 03 | 691 | 0.0 | 0.2+ | | |
| 2000 03 03 | 704 | 0.1+ | 0.3+ | 2003 10 17 | 113 | 0.1− | 0.1− | 2008 09 03 | 691 | 0.1− | 0.0 | | |
| 2000 03 03 | 704 | 0.3+ | 0.6+ | 2003 10 17 | 113 | 0.2+ | 0.3− | 2008 09 03 | 691 | 0.2− | 0.1+ | | |
| 2000 03 03 | 704 | 0.7− | 0.7+ | 2003 10 18 | 691 | 0.1+ | 0.0 | 2008 09 06 | 691 | 0.0 | 0.1+ | | |
| 2000 03 03 | 704 | 0.1+ | 1.8+ | 2003 10 18 | 691 | 0.1+ | 0.1− | 2008 09 06 | 691 | 0.1− | 0.3+ | | |
| 2003 09 17 | 644 | 0.5− | 0.1+ | 2003 10 18 | 691 | 0.1+ | 0.1− | 2008 09 06 | 691 | 0.0 | 0.1+ | | |
| 2003 09 17 | 644 | 0.1− | 0.5+ | 2003 10 19 | 113 | 0.1− | 0.1− | 2008 09 12 | 461 | 0.1+ | 0.1+ | | |
| 2003 09 17 | 644 | 0.2− | 0.3+ | 2003 10 19 | 113 | 0.5+ | 0.3+ | 2008 09 12 | 461 | 0.3+ | 0.3+ | | |
| 2003 09 21 | 699 | 0.6− | 0.0 | 2003 10 20 | 644 | 0.3+ | 0.2+ | 2008 09 12 | 461 | 0.3+ | 0.3+ | | |
| 2003 09 21 | 699 | 0.6− | 0.2− | 2003 10 20 | 644 | 0.0 | 0.2+ | 2008 09 22 | 704 | 0.2+ | 0.2− | | |
| 2003 09 21 | 699 | 1.0− | 0.5+ | 2003 10 20 | 644 | 0.3+ | 0.1+ | 2008 09 22 | 704 | 0.4− | 0.0 | | |
| 2003 09 21 | 699 | 0.3− | 1.0+ | 2003 10 22 | 704 | 0.4+ | 0.0 | 2008 09 22 | 704 | 0.1+ | 0.6+ | | |
| 2003 09 30 | 704 | (0.5− | 1.9+) | 2003 10 22 | 704 | 0.2+ | 0.2+ | 2008 09 22 | 704 | 0.9− | 1.1− | | |
| 2003 09 30 | 704 | 1.3+ | 1.5+ | 2003 10 22 | 704 | 0.3+ | 0.3+ | 2008 09 22 | 704 | 0.5+ | 0.2− | | |
| 2003 09 30 | 704 | 0.4+ | 0.4+ | 2003 10 22 | 704 | 0.1− | 1.3− | 2008 09 26 | G96 | 0.2− | 0.1− | | |
| 2003 10 01 | 113 | 0.6+ | 0.0 | 2003 10 23 | 704 | 0.6− | 0.0 | 2008 09 26 | G96 | 0.5+ | 0.1+ | | |
| 2003 10 01 | 113 | (1.9+ | 0.0 ) | 2003 10 23 | 704 | 0.3+ | 0.0 | 2008 09 26 | G96 | 0.0 | 0.0 | | |
| 2003 10 01 | 113 | 0.6+ | 0.8− | 2003 10 23 | 704 | 0.4− | 0.3+ | 2008 09 26 | G96 | 0.1+ | 0.1+ | | |
| 2003 10 01 | 113 | 0.8+ | 0.1+ | 2003 10 23 | 704 | 0.4− | 0.1− | 2008 09 27 | 113 | 0.3+ | 0.4− | | |
| 2003 10 01 | 113 | 0.9+ | 0.2+ | 2003 10 23 | 704 | 0.2− | 0.2+ | 2008 09 27 | 113 | 0.6+ | 0.6− | | |
| 2003 10 01 | 113 | 0.5− | 0.5− | 2003 10 28 | 113 | 0.5+ | 0.7− | 2008 09 27 | 113 | 0.4+ | 0.6− | | |
| 2003 10 01 | 691 | 0.2− | 0.1+ | 2003 10 28 | 113 | 0.0 | 0.7− | 2008 10 07 | G96 | 0.3− | 0.6− | | |
| 2003 10 01 | 691 | 0.3− | 0.2+ | 2003 10 28 | 113 | 0.3− | 0.6− | 2008 10 07 | G96 | 0.1+ | 0.2− | | |
| 2003 10 01 | 691 | 0.2− | 0.2+ | 2003 11 02 | 113 | 0.1+ | 0.2− | 2008 10 07 | G96 | 0.3− | 0.1− | | |
| 2003 10 03 | 691 | 0.2− | 0.1+ | 2003 11 02 | 113 | 0.4+ | 0.5− | 2008 10 07 | G96 | 0.1+ | 0.2− | | |
| 2003 10 03 | 691 | 0.0 | 0.1− | 2003 11 02 | 113 | 0.2+ | 0.4− | 2009 11 26 | 691 | 0.2− | 0.1+ | | |
| 2003 10 03 | 691 | 0.4− | 0.1+ | 2003 11 12 | 113 | 0.1+ | 0.6− | 2009 11 26 | 691 | 0.1+ | 0.0 | | |
| 2003 10 03 | 113 | 0.2+ | 0.1+ | 2003 11 12 | 113 | 0.6+ | 0.6− | 2009 11 26 | 691 | 0.1− | 0.1− | | |
| 2003 10 03 | 113 | 0.6+ | 0.2+ | 2003 11 12 | 113 | 0.2− | 0.5− | 2009 12 20 | H10 | 0.2+ | 0.3+ | | |
| 2003 10 03 | 113 | 0.2− | 0.3+ | 2005 02 06 | 113 | 0.1− | 0.1− | 2009 12 20 | H10 | 0.1− | 0.4+ | | |
| 2003 10 05 | 636 | (1.7+ | 0.4−) | 2005 02 06 | 113 | 0.3− | 0.2+ | 2009 12 20 | H10 | 0.2+ | 0.1+ | | |
| 2003 10 05 | 636 | 0.1+ | 1.4− | 2005 02 06 | 113 | 0.4+ | 0.7+ | | | | | | |

**(228939)∗ 2003 $TQ_6$**

Discovered 2003 Oct. 1 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 93.73813 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19329013 | $\omega$ | 269.83507 | | +0.97771249 | +0.04925438 | |
| $a$ | 2.9625312 | $\Omega$ | 87.33824 | | +0.03692235 | +0.91660226 | |
| $e$ | 0.1139142 | $i$ | 11.78907 | | −0.20667615 | +0.39675471 | |
| $P$ | 5.10 | $H$ | 15.2 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 02 | 704 | 0.1− | 0.7+ | 2003 10 29 | 699 | 0.2− | 0.1− | 2008 10 09 | 703 | 0.7+ | 0.9+ | | |
| 2003 09 02 | 704 | 0.0 | 0.7+ | 2003 10 29 | 699 | 0.0 | 0.7− | 2008 10 09 | 703 | 0.4+ | 0.5+ | | |
| 2003 09 02 | 704 | 1.0+ | 0.3− | 2003 10 29 | 699 | 0.4− | 0.6− | 2008 10 09 | 703 | 1.3− | 0.1+ | | |
| 2003 10 01 | 699 | 0.7− | 0.3+ | 2004 12 19 | 691 | 0.0 | 0.3+ | 2009 09 27 | 691 | 0.2+ | 0.0 | | |
| 2003 10 01 | 699 | 0.5+ | 0.6− | 2004 12 19 | 691 | 0.0 | 0.2+ | 2009 09 27 | 691 | 0.0 | 0.3+ | | |
| 2003 10 01 | 699 | 0.1+ | 1.1− | 2004 12 19 | 691 | 0.2+ | 0.3+ | 2009 09 27 | 691 | 0.1+ | 0.0 | | |
| 2003 10 01 | 699 | 0.3− | 1.3− | 2005 02 04 | G96 | 0.0 | 0.2− | 2009 11 20 | G96 | 0.1+ | 0.4− | | |
| 2003 10 02 | 608 | 1.4+ | 1.3+ | 2005 02 04 | G96 | 0.0 | 0.1− | 2009 11 20 | G96 | 0.1− | 0.4− | | |
| 2003 10 02 | 608 | (1.5+ | 1.6+) | 2005 02 04 | G96 | 0.1− | 0.1− | 2009 11 20 | G96 | 0.3+ | 0.2− | | |
| 2003 10 02 | 608 | 0.7+ | 1.3+ | 2005 02 04 | G96 | 0.4− | 0.3− | 2009 11 20 | G96 | 0.2+ | 0.2− | | |
| 2003 10 18 | 699 | 1.1+ | 1.0− | 2008 09 19 | 704 | 0.1+ | 0.5+ | 2009 12 17 | 691 | 0.3− | 0.0 | | |
| 2003 10 18 | 699 | 0.3+ | 0.5− | 2008 09 19 | 704 | 0.8− | 0.1− | 2009 12 17 | 691 | 0.1− | 0.0 | | |
| 2003 10 18 | 699 | 1.0− | 0.9− | 2008 09 19 | 704 | 0.3− | 0.5+ | 2009 12 17 | 691 | 0.0 | 0.3− | | |
| 2003 10 18 | 699 | 0.7− | 0.3− | 2008 09 19 | 704 | (0.6+ | 1.8+) | | | | | | |
| 2003 10 29 | 699 | 0.4− | 0.0 | 2008 10 09 | 703 | 0.2− | 0.7+ | | | | | | |

**(228940)∗ 2003 TP$_{14}$**

Discovered 2003 Oct. 14 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 62.88829 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18307419 | $\omega$ | 273.33592 | | +0.96148847 | −0.24936086 | |
| $a$ | 3.0717413 | $\Omega$ | 101.12729 | | +0.27469532 | +0.88575055 | |
| $e$ | 0.2471636 | $i$ | 6.76492 | | −0.00907798 | +0.39149090 | |
| $P$ | 5.38 | $H$ | 15.1 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 08 26 | 704 | 0.7− | 0.4+ | 2003 11 03 | 608 | 0.6+ | 0.7+ | 2008 08 23 | 704 | (1.7+ | 0.6+) | | |
| 2003 08 26 | 704 | 0.9+ | 1.0+ | 2003 11 03 | 608 | 1.1+ | 1.1+ | 2008 08 23 | 704 | 0.3+ | 0.5+ | | |
| 2003 08 26 | 704 | 0.3− | 1.0+ | 2003 11 03 | 608 | 0.9+ | 1.0+ | 2008 08 23 | 704 | 0.3+ | 0.1+ | | |
| 2003 08 26 | 704 | 0.0 | 1.0+ | 2003 11 20 | 645 | 0.0 | 0.1− | 2008 08 23 | E12 | 0.1− | 0.7+ | | |
| 2003 09 20 | 683 | 0.4+ | 0.0 | 2003 11 20 | 645 | 0.0 | 0.1− | 2008 08 23 | E12 | 1.2− | 0.7+ | | |
| 2003 09 20 | 683 | 1.0+ | 0.5− | 2003 11 28 | 645 | 0.1+ | 0.1− | 2008 08 23 | E12 | 0.1+ | 0.1+ | | |
| 2003 09 20 | 683 | 0.3− | 0.3− | 2003 11 28 | 645 | 0.1+ | 0.1− | 2008 08 23 | E12 | 0.1− | 0.4− | | |
| 2003 09 22 | 683 | (2.0+ | 0.4−) | 2003 11 29 | 704 | 0.1+ | 0.3− | 2008 09 19 | E12 | 0.4− | 1.2− | | |
| 2003 09 22 | 683 | 1.2+ | 0.2− | 2003 11 29 | 704 | 0.2− | 0.5− | 2008 09 19 | E12 | 0.3+ | 0.3− | | |
| 2003 09 22 | 683 | 0.4− | 0.1− | 2003 11 29 | 704 | 0.2+ | 0.4− | 2008 09 19 | E12 | 0.5+ | 0.3+ | | |
| 2003 09 28 | 683 | (0.1− | 1.8+) | 2003 12 12 | 644 | 0.1− | 0.3+ | 2008 09 19 | E12 | 0.1+ | 0.3− | | |
| 2003 09 28 | 683 | (1.0+ | 1.7+) | 2003 12 12 | 644 | 0.1− | 0.2− | 2008 10 20 | E12 | (1.8+ | 1.1+) | | |
| 2003 09 28 | 683 | 0.6+ | 0.9+ | 2003 12 12 | 644 | 0.4− | 0.2+ | 2008 10 20 | E12 | 0.1+ | 0.7− | | |
| 2003 09 28 | 699 | 0.0 | 0.1− | 2003 12 19 | 644 | 0.1− | 0.7+ | 2008 10 20 | E12 | 0.0 | 0.8+ | | |
| 2003 09 28 | 699 | 0.1+ | 0.3+ | 2003 12 19 | 644 | 0.2− | 0.5+ | 2008 10 20 | E12 | 0.2+ | 0.3+ | | |
| 2003 09 28 | 699 | 0.1− | 0.1+ | 2003 12 19 | 644 | 0.0 | 0.5+ | 2008 10 30 | 703 | 0.2+ | 0.4+ | | |
| 2003 09 28 | 699 | 0.0 | 0.2+ | 2003 12 19 | 644 | 0.1− | 0.4+ | 2008 10 30 | 703 | (0.2− | 2.0+) | | |
| 2003 10 14 | 699 | 1.4− | 0.4+ | 2003 12 19 | 644 | 0.3+ | 0.4+ | 2008 10 30 | 703 | 0.6+ | 0.1− | | |
| 2003 10 14 | 699 | 1.0+ | 0.3+ | 2003 12 19 | 644 | 0.1− | 0.5+ | 2008 10 30 | 703 | 0.2+ | 1.0+ | | |
| 2003 10 14 | 699 | 0.1− | 0.5+ | 2005 02 01 | 703 | 0.3+ | 0.1+ | 2008 10 30 | 704 | 0.9− | 1.3+ | | |
| 2003 10 14 | 699 | 0.0 | 0.0 | 2005 02 01 | 703 | 0.4− | 0.1+ | 2008 10 30 | 704 | 0.3− | 0.7+ | | |
| 2003 10 15 | 699 | 0.1− | 0.6− | 2005 02 01 | 703 | 1.5− | 0.5− | 2008 10 30 | 704 | 0.6− | 0.7+ | | |
| 2003 10 15 | 699 | 0.4+ | 0.4+ | 2005 02 01 | 703 | 1.0− | 0.3+ | 2008 10 30 | 704 | 1.4− | 1.2− | | |
| 2003 10 15 | 699 | 0.7− | 0.2+ | 2005 02 01 | 703 | 0.4− | 0.3− | 2009 11 23 | G96 | 0.4+ | 0.1− | | |
| 2003 10 15 | 699 | 0.1+ | 0.3+ | 2005 02 01 | 703 | 1.3− | 1.1+ | 2009 11 23 | G96 | 0.2+ | 0.2− | | |
| 2003 10 20 | 644 | 0.1+ | 0.2+ | 2005 02 01 | 703 | 0.6+ | 0.5+ | 2009 11 23 | G96 | 0.0 | 0.1− | | |
| 2003 10 20 | 704 | 0.2+ | 0.5+ | 2005 02 01 | 703 | 0.6+ | 1.5+ | 2009 11 23 | G96 | 0.1− | 0.2− | | |
| 2003 10 20 | 644 | 0.5+ | 0.1+ | 2005 02 03 | 704 | 0.9+ | 0.9+ | 2009 12 10 | G96 | 0.1− | 0.2+ | | |
| 2003 10 20 | 704 | 0.1− | 0.1+ | 2005 02 03 | 704 | 0.8+ | 0.0 | 2009 12 10 | G96 | 0.8+ | 0.2+ | | |
| 2003 10 20 | 704 | 0.6+ | 0.5− | 2005 02 03 | 704 | 0.2+ | 0.1− | 2009 12 10 | G96 | 0.1+ | 0.1+ | | |
| 2003 10 20 | 704 | 1.0− | 1.2+ | 2005 03 04 | 691 | 0.0 | 0.2− | 2009 12 10 | G96 | 1.0+ | 0.2+ | | |
| 2003 10 20 | 704 | 0.2− | 0.5+ | 2005 03 04 | 691 | 0.2+ | 0.1+ | 2009 12 10 | G96 | 0.2− | 0.1+ | | |
| 2003 10 20 | 644 | 0.3+ | 0.3+ | 2005 03 04 | 691 | 0.1− | 0.1+ | 2009 12 10 | G96 | 1.0+ | 0.0 | | |
| 2003 10 23 | 645 | 0.0 | 0.1− | 2005 03 16 | 691 | 0.0 | 0.4+ | 2009 12 10 | G96 | 0.3− | 0.3+ | | |
| 2003 10 23 | 645 | 0.2− | 0.2− | 2005 03 16 | 691 | 0.3+ | 0.3+ | 2009 12 10 | G96 | 1.0+ | 0.4+ | | |
| 2003 10 27 | 699 | 0.0 | 0.3+ | 2005 03 16 | 691 | 0.1+ | 0.3+ | 2009 12 16 | 691 | 0.0 | 0.2+ | | |
| 2003 10 27 | 699 | 0.2− | 0.1+ | 2008 08 03 | 704 | 0.2− | 1.3+ | 2009 12 16 | 691 | 0.2− | 0.1+ | | |
| 2003 10 27 | 699 | 0.1− | 0.1+ | 2008 08 03 | 704 | 0.0 | 1.1+ | 2009 12 16 | 691 | 0.1+ | 0.1+ | | |
| 2003 10 27 | 699 | 0.2− | 0.1− | 2008 08 03 | 704 | 0.6− | 0.7+ | 2009 12 25 | 691 | 0.4− | 0.0 | | |
| 2003 10 28 | 608 | 0.8− | 0.0 | 2008 08 03 | 704 | 0.6− | 0.2+ | 2009 12 25 | 691 | 0.3− | 0.1− | | |
| 2003 10 28 | 608 | 0.9− | 0.0 | 2008 08 23 | 704 | 0.6+ | 0.5+ | 2009 12 25 | 691 | 0.0 | 0.1+ | | |
| 2003 10 28 | 608 | 0.9− | 0.0 | 2008 08 23 | 704 | 0.2+ | 0.8+ | | | | | | |

**(228941)∗ 2003 TU$_{16}$ = 2007 LF$_{32}$**

Discovered 2003 Oct. 14 by NEAT at Palomar.

Id. G. V. Williams (*MPO* 121142)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 53.55967 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18319033 | $\omega$ | 129.02654 | | +0.95203424 | −0.27169041 | |
| $a$ | 3.0704428 | $\Omega$ | 247.14419 | | +0.21156329 | +0.91681142 | |
| $e$ | 0.1378405 | $i$ | 8.78691 | | +0.22106961 | +0.29264506 | |
| $P$ | 5.38 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 19 | 644 | 0.0 | 0.1− | 2003 10 18 | 691 | 0.1− | 0.3− | 2008 09 05 | 704 | 0.0 | 0.1− | | |
| 2003 09 19 | 644 | 0.1− | 0.1− | 2003 10 18 | 691 | 0.1+ | 0.1− | 2008 09 05 | 704 | 1.1+ | 0.6+ | | |
| 2003 09 19 | 691 | 0.1+ | 0.2− | 2003 10 18 | 644 | 0.2+ | 0.1− | 2008 09 05 | 704 | 0.7+ | 0.5− | | |
| 2003 09 19 | 691 | 0.0 | 0.2− | 2003 10 18 | 644 | 0.2− | 0.1+ | 2009 11 20 | 691 | 0.1+ | 0.1+ | | |
| 2003 09 19 | 691 | 0.1− | 0.2− | 2003 10 18 | 644 | 0.2+ | 0.3+ | 2009 11 20 | 691 | 0.0 | 1.3+ | | |
| 2003 09 19 | 644 | 0.0 | 0.1− | 2007 06 15 | 691 | 0.7+ | 0.2+ | 2009 11 20 | 691 | 0.1− | 0.1− | | |
| 2003 09 30 | 704 | 0.1+ | 0.3+ | 2007 06 15 | 691 | 0.1+ | 0.0 | 2009 11 24 | 691 | 0.3− | 0.0 | | |
| 2003 09 30 | 704 | 0.8+ | 0.3+ | 2007 06 15 | 691 | 0.8− | 0.0 | 2009 11 24 | 691 | 0.2− | 0.0 | | |
| 2003 09 30 | 704 | 0.1+ | 0.3− | 2007 06 20 | 691 | 0.2− | 0.1− | 2009 11 24 | 691 | 0.1− | 0.1− | | |
| 2003 09 30 | 704 | 0.0 | 0.4+ | 2007 06 20 | 691 | 0.5+ | 0.0 | 2009 12 10 | G96 | 0.1+ | 0.2− | | |
| 2003 09 30 | 704 | 0.1− | 0.1+ | 2007 06 20 | 691 | 0.3− | 0.4+ | 2009 12 10 | G96 | 0.6+ | 0.1− | | |
| 2003 10 14 | 644 | 0.3+ | 0.2− | 2008 07 31 | 691 | 0.1+ | 0.1− | 2009 12 10 | G96 | 0.6+ | 0.0 | | |
| 2003 10 14 | 644 | 0.5+ | 0.0 | 2008 07 31 | 691 | 0.1− | 0.2+ | 2009 12 10 | G96 | 0.3+ | 0.0 | | |
| 2003 10 14 | 644 | 0.6+ | 0.5+ | 2008 07 31 | 691 | 0.8− | 0.1+ | 2009 12 11 | G96 | 0.5+ | 0.1− | | |
| 2003 10 17 | 699 | 0.3+ | 0.4+ | 2008 08 01 | 704 | 0.1+ | 0.3+ | 2009 12 11 | G96 | 0.5+ | 0.2− | | |
| 2003 10 17 | 699 | 1.4− | 0.5+ | 2008 08 01 | 704 | 0.0 | 0.2− | 2009 12 11 | G96 | 0.6+ | 0.2− | | |
| 2003 10 17 | 699 | 0.5− | 1.1+ | 2008 08 01 | 704 | 0.6+ | 0.4− | 2009 12 11 | G96 | 0.1+ | 0.3− | | |
| 2003 10 17 | 699 | 0.3+ | 0.1+ | 2008 08 01 | 704 | 0.2− | 1.3+ | | | | | | |
| 2003 10 18 | 691 | 0.2− | 0.3− | 2008 09 05 | 704 | 0.1+ | 1.0+ | | | | | | |

**(228942)∗ 2003 TB$_{18}$ = 2004 XL$_{173}$**

Discovered 2003 Oct. 14 by NEAT at Palomar.

Id. A. Doppler (*MPO* 76037)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 86.30820 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17921716 | $\omega$ | 39.94563 | | +0.80966199 | +0.56834796 | |
| $a$ | 3.1156571 | $\Omega$ | 284.82200 | | −0.56970011 | +0.70116482 | |
| $e$ | 0.0892125 | $i$ | 8.70933 | | −0.14102921 | +0.43052118 | |
| $P$ | 5.50 | $H$ | 14.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 02 03 | 704 | 0.1+ | 0.1+ | 2003 10 19 | 644 | 0.7− | 0.2+ | 2009 10 26 | G96 | 0.1− | 0.4− | | |
| 2000 02 03 | 704 | 0.8+ | 0.4+ | 2003 10 19 | 644 | 0.7− | 0.3+ | 2009 10 26 | G96 | 0.4+ | 0.5− | | |
| 2000 02 03 | 704 | 0.8+ | 1.8+ | 2004 12 10 | 691 | 0.1+ | 0.2+ | 2009 10 26 | G96 | 0.2− | 0.6− | | |
| 2003 09 19 | 644 | 0.3− | 0.1− | 2004 12 10 | 691 | 0.1− | 0.2+ | 2009 11 10 | 703 | 1.1− | 0.1− | | |
| 2003 09 19 | 644 | 0.3− | 0.1+ | 2004 12 10 | 691 | 0.2+ | 0.1− | 2009 11 10 | 703 | 0.2+ | 0.5− | | |
| 2003 09 19 | 691 | 0.2− | 0.1+ | 2004 12 20 | 691 | 0.3− | 0.6− | 2009 11 10 | 703 | 0.7− | 0.5− | | |
| 2003 09 19 | 691 | 0.1− | 0.3+ | 2004 12 20 | 691 | 0.2+ | 0.2− | 2009 11 10 | 703 | 1.3− | 0.8+ | | |
| 2003 09 19 | 644 | 0.1− | 0.1+ | 2004 12 20 | 691 | 0.1+ | 0.0 | 2009 11 16 | 704 | (2.1+ | 3.4−) | | |
| 2003 09 19 | 691 | 0.2− | 0.3+ | 2006 01 31 | 703 | (0.3− | 1.7−) | 2009 11 16 | 704 | 0.9+ | 0.9− | | |
| 2003 09 30 | 704 | 0.4− | 0.0 | 2006 01 31 | 703 | 0.7− | 0.1+ | 2009 11 16 | 704 | (2.2+ | 2.7−) | | |
| 2003 09 30 | 704 | 0.3− | 1.0+ | 2006 01 31 | 703 | 0.1− | 0.7+ | 2009 11 22 | 703 | 0.3+ | 0.3− | | |
| 2003 09 30 | 704 | 0.3− | 0.2+ | 2006 01 31 | 703 | 1.1− | 1.2+ | 2009 11 22 | 703 | 0.0 | 0.8+ | | |
| 2003 09 30 | 704 | 0.7+ | 0.9+ | 2006 02 23 | 699 | 0.7+ | 0.9+ | 2009 11 22 | 703 | 0.4+ | 0.1− | | |
| 2003 10 14 | 644 | 0.2+ | 0.3+ | 2006 02 23 | 699 | 1.0+ | 0.4+ | 2009 11 22 | 703 | 0.5+ | 0.3− | | |
| 2003 10 14 | 644 | 0.1− | 0.1+ | 2006 02 23 | 699 | 0.9+ | 0.8+ | 2009 12 20 | G96 | 0.6+ | 0.8− | | |
| 2003 10 14 | 644 | 0.0 | 0.3+ | 2006 02 23 | 699 | (1.5+ | 0.1+) | 2009 12 20 | G96 | 0.2+ | 0.6− | | |
| 2003 10 18 | 644 | 0.1+ | 0.3+ | 2008 08 05 | J75 | 0.1+ | 0.2− | 2009 12 20 | G96 | 0.4+ | 0.7− | | |
| 2003 10 18 | 644 | 0.1+ | 0.4+ | 2008 08 05 | J75 | 0.7+ | 0.2+ | 2009 12 20 | G96 | 0.0 | 0.3− | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 2003 10 18 | 644 | 0.4+ | 0.3+ | 2008 08 05 | J75 | 0.6+ | 0.5− | |
| 2003 10 19 | 644 | 0.9− | 0.3+ | 2009 10 26 | G96 | 0.0 | 0.5− | |

**(228943)∗ 2003 TX$_{49}$**

Discovered 2003 Oct. 3 by NEAT at Haleakala.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 64.29627 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18089215 | $\omega$ | 200.64287 | | +0.98429755 | +0.08993893 | |
| $a$ | 3.0963942 | $\Omega$ | 152.79725 | | −0.07456437 | +0.99177190 | |
| $e$ | 0.1364956 | $i$ | 19.40553 | | −0.15999530 | +0.09110154 | |
| $P$ | 5.45 | $H$ | 15.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 02 25 | 691 | 0.4− | 0.4+ | 2003 10 03 | 608 | 0.4+ | 0.5+ | 2008 08 06 | 185 | 0.6+ | 0.2− |
| 1995 02 25 | 691 | 0.1+ | 0.1− | 2003 10 03 | 608 | 0.4+ | 0.5+ | 2008 08 06 | 185 | 1.0+ | 0.6− |
| 1995 02 25 | 691 | 0.3+ | 0.2− | 2003 10 20 | 704 | 0.8− | 0.1+ | 2008 08 06 | 185 | 0.1− | 0.5− |
| 2002 06 03 | 704 | (0.7+ | 2.0−) | 2003 10 20 | 704 | 1.3− | 0.2+ | 2008 08 06 | 185 | 0.0 | 0.1− |
| 2002 06 03 | 704 | 0.9+ | 1.3− | 2003 10 20 | 704 | 0.7− | 0.5+ | 2008 08 07 | 185 | 0.0 | 0.6− |
| 2002 06 03 | 704 | (1.8+ | 2.1−) | 2003 10 20 | 704 | 0.1− | 0.1+ | 2008 08 07 | 185 | 0.7+ | 0.6− |
| 2002 07 12 | 644 | 0.6+ | 0.3+ | 2006 02 02 | G96 | 0.0 | 0.2+ | 2008 09 24 | 704 | 0.3− | 0.4+ |
| 2002 07 12 | 644 | 0.6+ | 0.4+ | 2006 02 02 | G96 | 0.2− | 0.1− | 2008 09 24 | 704 | 0.2+ | 0.6+ |
| 2002 07 12 | 644 | 1.0+ | 0.2+ | 2006 02 02 | G96 | 0.1− | 0.5− | 2008 09 24 | 704 | 0.1+ | 0.0 |
| 2003 09 17 | 704 | 0.8− | 0.9+ | 2006 02 02 | G96 | 0.1+ | 0.0 | 2008 09 24 | 704 | 0.3+ | 0.4− |
| 2003 09 17 | 704 | 0.8+ | 0.6+ | 2007 06 25 | 691 | 0.2− | 0.0 | 2008 09 24 | 704 | 0.2+ | 0.3− |
| 2003 09 17 | 704 | 0.9+ | 0.5− | 2007 06 25 | 691 | 0.2− | 0.6+ | 2009 10 15 | 703 | (1.6+ | 2.1+) |
| 2003 09 24 | 644 | 0.4− | 0.1− | 2007 06 25 | 691 | 0.1− | 0.3+ | 2009 10 15 | 703 | 0.3+ | 0.2+ |
| 2003 09 24 | 644 | 0.1− | 0.0 | 2008 07 30 | 703 | 0.1− | 0.4− | 2009 10 15 | 703 | 0.5+ | 0.3+ |
| 2003 09 24 | 644 | 0.3− | 0.3+ | 2008 07 30 | 703 | 0.9− | 0.2− | 2009 10 15 | 703 | 0.9− | 1.5+ |
| 2003 09 25 | 608 | 0.9− | 0.2+ | 2008 07 30 | 703 | 1.2− | 0.9+ | 2009 12 15 | 703 | 0.3+ | 0.0 |
| 2003 09 25 | 608 | 0.2− | 0.7− | 2008 07 30 | 703 | 1.0− | 0.2+ | 2009 12 15 | 703 | 0.1− | 0.7− |
| 2003 09 25 | 608 | 0.5− | 0.5− | 2008 08 06 | 185 | 0.1+ | 0.5− | 2009 12 15 | 703 | 0.7+ | 0.8+ |
| 2003 10 03 | 608 | 1.2+ | 0.4+ | 2008 08 06 | 185 | 0.2+ | 0.2− | 2009 12 15 | 703 | 1.0+ | 1.5− |

**(228944)∗ 2003 TD$_{54}$**

Discovered 2003 Oct. 5 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 291.14132 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17460272 | $\omega$ | 77.58613 | | −0.63437736 | −0.76034255 | |
| $a$ | 3.1703123 | $\Omega$ | 52.68528 | | +0.62350454 | −0.60991354 | |
| $e$ | 0.0514810 | $i$ | 10.09792 | | +0.45695455 | −0.22334877 | |
| $P$ | 5.64 | $H$ | 15.3 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 03 04 | 704 | 0.6+ | 0.7+ | 2003 11 16 | 645 | 0.3− | 0.0 | 2009 11 15 | 703 | 0.7+ | 0.2− |
| 2000 03 04 | 704 | 0.3− | 0.6− | 2005 01 06 | 703 | 0.1+ | 0.6− | 2009 11 15 | 703 | 0.3− | 0.4+ |
| 2000 03 04 | 704 | 0.4+ | 0.1+ | 2005 01 06 | 703 | 0.2− | 0.8+ | 2009 11 20 | 704 | (0.3+ | 1.5−) |
| 2000 03 04 | 704 | 0.0 | 0.4− | 2005 01 06 | 703 | 0.4+ | 0.2+ | 2009 11 20 | 704 | 0.2+ | 0.1+ |
| 2000 03 04 | 704 | 0.6− | 0.6+ | 2005 01 06 | 703 | 0.9− | 0.1+ | 2009 11 20 | 704 | 1.1+ | 0.1− |
| 2003 10 05 | 691 | 0.0 | 0.1+ | 2005 02 04 | G96 | 0.1+ | 0.5− | 2009 11 20 | 704 | 1.0+ | 1.3+ |
| 2003 10 05 | 691 | 0.1+ | 0.3+ | 2005 02 04 | G96 | 0.3+ | 0.5− | 2009 11 20 | 704 | (1.1+ | 1.5+) |
| 2003 10 05 | 691 | 0.3− | 0.3+ | 2005 02 04 | G96 | 0.3+ | 0.5− | 2009 11 25 | G96 | 0.5+ | 0.0 |
| 2003 10 16 | 644 | 0.2− | 0.9+ | 2005 02 04 | G96 | 0.3+ | 0.4− | 2009 11 25 | G96 | 0.2+ | 0.3− |
| 2003 10 16 | 644 | 0.3− | 0.9+ | 2009 10 24 | 703 | 1.3− | 0.5+ | 2009 11 25 | G96 | 0.2+ | 0.1+ |
| 2003 10 16 | 644 | 0.0 | 0.5+ | 2009 10 24 | 703 | 0.9− | 0.2− | 2009 11 25 | G96 | 0.3+ | 0.2− |
| 2003 10 19 | 645 | 0.0 | 0.1− | 2009 10 24 | 703 | 0.2+ | 0.3− | 2009 12 10 | 703 | 1.4− | 0.4+ |
| 2003 10 19 | 645 | 0.1+ | 0.1− | 2009 10 24 | 703 | 1.4− | 0.3− | 2009 12 10 | 703 | 0.2− | 1.2− |
| 2003 10 22 | 645 | 0.1+ | 0.1− | 2009 10 26 | 691 | 0.3− | 0.2+ | 2009 12 10 | 703 | 0.1− | 1.1+ |
| 2003 10 22 | 645 | 0.0 | 0.1− | 2009 10 26 | 691 | 0.2− | 0.2+ | 2009 12 10 | 703 | 0.5+ | 0.2− |
| 2003 10 23 | 691 | 0.0 | 0.3+ | 2009 10 26 | 691 | 0.2− | 0.3+ | 2009 12 17 | G96 | 0.4+ | 0.1+ |
| 2003 10 23 | 691 | 0.2+ | 0.5+ | 2009 11 11 | J75 | 0.8+ | 0.5− | 2009 12 17 | G96 | 0.2− | 0.0 |
| 2003 10 23 | 691 | 0.1+ | 0.2+ | 2009 11 11 | J75 | 0.4+ | 0.5− | 2009 12 17 | G96 | 0.0 | 0.0 |
| 2003 10 24 | 645 | 0.1+ | 0.0 | 2009 11 11 | J75 | 0.2+ | 0.1− | 2009 12 17 | G96 | 0.1+ | 0.2+ |
| 2003 10 24 | 645 | 0.1+ | 0.0 | 2009 11 15 | 703 | 0.8− | 0.1+ | | | | |
| 2003 11 16 | 645 | 0.1+ | 0.1− | 2009 11 15 | 703 | 0.8+ | 0.3− | | | | |

**(228945)∗ 2003 TC$_{57}$ = 2004 XM$_{183}$**

Discovered 2003 Oct. 5 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. A. Doppler (*MPO* 76042)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 80.99415 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17945973 | $\omega$ | 65.57058 | | +0.88487607 | +0.41218148 | |
| $a$ | 3.1128490 | $\Omega$ | 269.46602 | | −0.46563078 | +0.79614840 | |
| $e$ | 0.1670257 | $i$ | 12.53503 | | +0.01350247 | +0.44300581 | |
| $P$ | 5.49 | $H$ | 14.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 08 28 | 644 | 0.3− | 0.3− | 2003 11 20 | 704 | 0.3− | 0.0 | 2008 08 02 | 704 | 0.3+ | 0.9+ |
| 2003 08 28 | 644 | 0.2− | 0.2− | 2003 11 20 | 704 | 0.1− | 0.2− | 2009 11 16 | 704 | 0.7+ | 0.6+ |
| 2003 08 28 | 644 | 0.0 | 0.2− | 2003 11 20 | 704 | 0.3+ | 0.7− | 2009 11 16 | 704 | 0.3+ | 1.1+ |
| 2003 09 16 | 644 | 0.7− | 0.5− | 2003 11 20 | 704 | 0.3− | 0.2− | 2009 11 16 | 704 | 0.1− | 1.0+ |
| 2003 09 16 | 644 | 0.6− | 0.4− | 2004 12 03 | 691 | 0.1+ | 0.1− | 2009 11 16 | 704 | 0.1− | 0.1− |
| 2003 09 16 | 644 | 0.2− | 0.5− | 2004 12 03 | 691 | 0.1− | 0.3+ | 2009 11 16 | 704 | 0.0 | 0.7+ |
| 2003 09 29 | 699 | 0.3+ | 0.1− | 2004 12 03 | 691 | 0.0 | 0.2+ | 2009 11 18 | 691 | 0.1− | 0.1− |
| 2003 09 29 | 699 | 0.9− | 0.4− | 2004 12 11 | 691 | 0.1+ | 0.1+ | 2009 11 18 | 691 | 0.1− | 0.2− |
| 2003 09 29 | 699 | 0.2+ | 0.7+ | 2004 12 11 | 691 | 0.2+ | 0.3+ | 2009 11 18 | 691 | 0.2− | 0.0 |
| 2003 09 29 | 699 | 0.4+ | 0.0 | 2004 12 11 | 691 | 0.2+ | 0.5+ | 2009 11 22 | 704 | 0.3+ | 0.5− |
| 2003 10 05 | 704 | 0.6− | 0.6+ | 2008 07 03 | 704 | 1.3+ | 0.9+ | 2009 11 22 | 704 | 0.6+ | 0.1− |
| 2003 10 05 | 704 | 0.4− | 0.6+ | 2008 07 03 | 704 | (1.5+ | 1.8+) | 2009 11 22 | 691 | 0.2− | 0.0 |
| 2003 10 05 | 704 | 0.1− | 0.1− | 2008 07 03 | 704 | (2.0+ | 0.5+) | 2009 11 22 | 691 | 0.2− | 0.3− |
| 2003 10 05 | 704 | 0.5− | 0.5+ | 2008 07 03 | 704 | 1.1+ | 1.4+ | 2009 11 22 | 704 | 0.0 | 0.4+ |
| 2003 10 05 | 704 | 0.1+ | 0.7+ | 2008 07 03 | G96 | 0.4− | 0.1− | 2009 11 22 | 691 | 0.3− | 0.2− |
| 2003 10 17 | 699 | 0.0 | 0.1+ | 2008 07 03 | G96 | 0.0 | 0.0 | 2009 12 09 | J75 | 0.1+ | 0.6+ |
| 2003 10 17 | 699 | 0.5+ | 0.7+ | 2008 07 03 | G96 | 0.0 | 0.0 | 2009 12 09 | J75 | 0.3+ | 0.2+ |
| 2003 10 17 | 699 | 1.2+ | 0.1− | 2008 07 03 | G96 | 0.4+ | 0.2+ | 2009 12 09 | J75 | 0.6+ | 0.4− |
| 2003 10 17 | 699 | 0.6− | 0.0 | 2008 07 26 | E12 | 0.0 | 0.4+ | 2009 12 10 | J75 | 0.1− | 0.6− |
| 2003 10 22 | 704 | (0.2+ | 2.2+) | 2008 07 26 | E12 | 0.3+ | 0.4− | 2009 12 10 | J75 | 0.4− | 0.4− |
| 2003 10 22 | 704 | 0.4+ | 0.3− | 2008 07 26 | E12 | 1.1− | 0.2+ | 2009 12 10 | J75 | 0.1+ | 0.2− |
| 2003 10 22 | 704 | 0.6− | 1.1− | 2008 07 31 | 691 | 0.2− | 0.5− | 2009 12 15 | 704 | 0.0 | 0.4− |
| 2003 10 22 | 704 | 0.7+ | 0.1− | 2008 07 31 | 691 | 0.6− | 0.1+ | 2009 12 15 | 704 | 0.6+ | 0.1+ |
| 2003 10 22 | 704 | 0.1− | 0.1− | 2008 07 31 | 691 | 0.3− | 0.1− | 2009 12 15 | 704 | 0.3− | 0.3+ |
| 2003 11 02 | 704 | 0.8+ | 1.1− | 2008 08 02 | 704 | 0.6+ | 0.7+ | 2009 12 15 | 704 | 1.5+ | 0.5+ |
| 2003 11 02 | 704 | 0.8+ | 0.5+ | 2008 08 02 | 704 | 0.4+ | 0.9+ | 2009 12 15 | 704 | 0.4+ | 0.1+ |
| 2003 11 02 | 704 | 0.5+ | 0.7+ | 2008 08 02 | 704 | 0.4+ | 0.5+ | | | | |
| 2003 11 02 | 704 | 0.9+ | 0.5− | 2008 08 02 | 704 | 0.6− | 0.1+ | | | | |

**(228946)∗ 2003 TD$_{57}$**

Discovered 2003 Oct. 5 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 37.20555 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17989967 | $\omega$ | 136.45714 | | +0.78658314 | −0.56500578 | |
| $a$ | 3.1077719 | $\Omega$ | 259.57599 | | +0.47403237 | +0.81105441 | |
| $e$ | 0.0626433 | $i$ | 14.67226 | | +0.39570226 | +0.15152295 | |
| $P$ | 5.48 | $H$ | 14.5 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 12 17 | 704 | 0.1− | 0.3+ | 2003 10 22 | 704 | 0.9+ | 0.3− | 2008 09 30 | 704 | 0.8+ | 0.1− |
| 1998 12 17 | 704 | 0.9− | 0.6+ | 2003 10 22 | 704 | 0.6+ | 0.4+ | 2009 11 11 | 704 | 0.0 | 0.2+ |
| 1998 12 17 | 704 | 0.5+ | 0.9+ | 2003 10 22 | 704 | 0.7+ | 0.3− | 2009 11 11 | 704 | 0.6+ | 0.1− |
| 1998 12 17 | 704 | 0.1− | 0.9− | 2003 11 14 | 644 | 0.1+ | 0.1+ | 2009 11 11 | 704 | 0.6+ | 0.2+ |
| 1998 12 17 | 704 | (3.0− | 0.4−) | 2003 11 14 | 644 | 0.1+ | 0.2+ | 2009 11 11 | 704 | 0.3− | 0.2− |
| 2000 03 09 | 704 | 1.3+ | 0.4+ | 2003 11 14 | 644 | 0.1+ | 0.3+ | 2009 11 18 | 691 | 0.4− | 0.1− |
| 2000 03 09 | 704 | 0.1− | 0.3− | 2003 11 18 | 691 | 0.1+ | 0.1− | 2009 11 18 | 691 | 0.0 | 0.2− |
| 2000 03 09 | 704 | 0.9+ | 0.1+ | 2003 11 18 | 691 | 0.1− | 0.1− | 2009 11 18 | 691 | 0.4− | 0.2− |
| 2000 03 09 | 704 | 0.4+ | 0.4+ | 2003 11 18 | 691 | 0.1+ | 0.1+ | 2009 11 21 | J75 | 0.1− | 0.2+ |
| 2000 03 09 | 704 | 0.6− | 0.9+ | 2004 12 18 | 704 | 0.4− | 0.4+ | 2009 11 21 | J75 | 0.6+ | 0.7− |
| 2003 09 19 | 644 | 0.1− | 0.4− | 2004 12 18 | 704 | 0.2− | 0.1− | 2009 11 21 | J75 | 1.2+ | 0.3+ |
| 2003 09 19 | 644 | 0.1+ | 0.2− | 2004 12 18 | 704 | 0.2− | 0.2− | 2009 11 25 | 691 | 0.0 | 0.1− |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 19 | 644 | 0.0 | 0.3− | 2004 12 18 | 704 | 0.8− | 0.3− | 2009 11 25 | 691 | 0.2+ | 0.2− |
| 2003 10 05 | 704 | 0.3+ | 0.1− | 2008 08 12 | J75 | 0.6− | 0.1+ | 2009 11 25 | 691 | 0.0 | 0.1− |
| 2003 10 05 | 704 | 0.1+ | 0.2+ | 2008 08 12 | J75 | 0.3− | 0.3− | 2009 12 15 | G96 | 0.2+ | 0.4− |
| 2003 10 05 | 704 | 0.3+ | 0.2+ | 2008 08 12 | J75 | 0.3+ | 0.9+ | 2009 12 15 | G96 | 0.0 | 0.1+ |
| 2003 10 05 | 704 | 0.5− | 0.5+ | 2008 09 28 | G96 | 0.2− | 0.0 | 2009 12 15 | G96 | 0.1− | 0.2− |
| 2003 10 17 | 699 | 0.9− | 0.8− | 2008 09 28 | G96 | 0.4− | 0.1− | 2009 12 15 | G96 | 0.2− | 0.3− |
| 2003 10 17 | 699 | 0.1− | 0.4+ | 2008 09 28 | G96 | 0.6− | 0.1− | 2009 12 16 | 704 | 0.2+ | 1.5+ |
| 2003 10 17 | 699 | 1.3− | 1.3+ | 2008 09 28 | G96 | 0.6− | 0.1− | 2009 12 16 | 704 | 0.7− | 1.0+ |
| 2003 10 17 | 699 | 0.3− | 0.5− | 2008 09 30 | 704 | 0.1− | 0.2− | 2009 12 16 | 704 | 0.0 | 0.7+ |
| 2003 10 22 | 704 | 0.5+ | 0.7+ | 2008 09 30 | 704 | 0.3+ | 1.0+ | 2009 12 16 | 704 | 0.8+ | 0.0 |
| 2003 10 22 | 704 | 0.3− | 0.0 | 2008 09 30 | 704 | 0.3+ | 0.2− | | | | |

**(228947)∗ 2003 TQ$_{59}$ = 1998 XM$_{23}$**

Discovered 2003 Oct. 3 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 159420)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 14.37569 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18226674 | $\omega$ | 178.36467 | | +0.42765358 | | −0.89261996 |
| $a$ | 3.0808066 | $\Omega$ | 246.29637 | | +0.82757296 | | +0.45009200 |
| $e$ | 0.0227039 | $i$ | 8.96124 | | +0.36364187 | | +0.02543203 |
| $P$ | 5.41 | $H$ | 15.3 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 12 11 | 691 | 0.1− | 0.5− | 2003 10 03 | 691 | 0.3− | 0.2+ | 2009 11 08 | 691 | 0.2+ | 0.1− |
| 1998 12 11 | 691 | 0.6+ | 0.6− | 2003 10 20 | 644 | 0.0 | 0.1+ | 2009 11 16 | 691 | 0.1− | 0.1− |
| 1998 12 11 | 691 | 0.3+ | 0.5− | 2003 10 20 | 644 | 0.1+ | 0.1+ | 2009 11 16 | 691 | 0.0 | 0.1+ |
| 1998 12 17 | 691 | 0.0 | 0.7+ | 2003 10 20 | 644 | 0.2+ | 0.2+ | 2009 11 16 | 691 | 0.2+ | 0.2+ |
| 1998 12 17 | 691 | 0.0 | 0.3− | 2003 10 27 | 691 | 0.1− | 0.1− | 2009 11 20 | 691 | 0.0 | 0.1+ |
| 1998 12 17 | 691 | 0.2+ | 0.4− | 2003 10 27 | 691 | 0.0 | 0.0 | 2009 11 20 | 691 | 0.0 | 0.1+ |
| 1998 12 25 | 691 | 0.3− | 0.3− | 2003 10 27 | 691 | 0.2− | 0.0 | 2009 11 20 | 691 | 0.2− | 0.2+ |
| 1998 12 25 | 691 | (3.4+ | 7.0−) | 2005 01 13 | 703 | 0.3− | 1.0+ | 2009 11 24 | 691 | 0.1+ | 0.3+ |
| 1998 12 25 | 691 | 0.2− | 0.4− | 2005 01 13 | 703 | 0.1+ | 0.1− | 2009 11 24 | 691 | 0.1− | 0.1+ |
| 2002 07 03 | 644 | 0.2− | 0.6+ | 2005 01 13 | 703 | 0.8− | 0.2+ | 2009 11 24 | 691 | 0.1− | 0.2+ |
| 2002 07 03 | 644 | 0.4+ | 0.5+ | 2005 01 13 | 703 | 0.0 | 1.0+ | 2009 12 11 | G96 | 0.2+ | 0.1− |
| 2002 07 03 | 644 | 0.2− | 0.6+ | 2009 10 26 | G96 | 0.1+ | 0.1− | 2009 12 11 | G96 | 0.6+ | 0.1− |
| 2002 08 05 | 644 | 0.1+ | 0.7− | 2009 10 26 | G96 | 0.2+ | 0.2− | 2009 12 11 | G96 | 0.4+ | 0.0 |
| 2002 08 05 | 644 | 0.1+ | 0.3− | 2009 10 26 | G96 | 0.0 | 0.3− | 2009 12 11 | G96 | 0.2+ | 0.1− |
| 2002 08 05 | 644 | 0.4+ | 0.6− | 2009 10 26 | G96 | 0.7+ | 0.4− | 2009 12 17 | 704 | 0.5− | 0.1+ |
| 2003 10 03 | 691 | 0.2− | 0.2+ | 2009 11 08 | 691 | (2.0− | 1.3+) | 2009 12 17 | 704 | 0.5− | 1.2+ |
| 2003 10 03 | 691 | 0.1− | 0.3+ | 2009 11 08 | 691 | 0.2+ | 0.1+ | 2009 12 17 | 704 | 0.3− | 0.7+ |

**(228948)∗ 2003 UX$_{8}$**

Discovered 2003 Oct. 16 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 21.18087 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18116204 | $\omega$ | 104.98289 | | +0.25316243 | | −0.94708173 |
| $a$ | 3.0933181 | $\Omega$ | 328.15012 | | +0.67968424 | | +0.31928673 |
| $e$ | 0.2045633 | $i$ | 21.96096 | | +0.68843163 | | +0.03304810 |
| $P$ | 5.44 | $H$ | 14.6 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 15 | 644 | 0.0 | 0.4+ | 2003 10 23 | 704 | 0.2− | 0.1− | 2005 03 17 | 703 | 0.5− | 1.4+ |
| 2003 09 15 | 644 | 0.2+ | 0.3+ | 2003 10 23 | 704 | 0.6+ | 0.0 | 2005 03 17 | 703 | 0.4− | 0.8+ |
| 2003 09 15 | 644 | 0.1− | 0.5+ | 2003 10 23 | 704 | 0.2− | 0.6− | 2005 03 17 | 703 | 0.2+ | 0.7− |
| 2003 09 30 | 704 | 0.7+ | 0.3− | 2003 11 14 | 644 | 0.8− | 0.1− | 2005 03 17 | 703 | 0.3+ | 0.8+ |
| 2003 09 30 | 704 | 0.1+ | 0.1+ | 2003 11 14 | 644 | 0.8− | 0.3+ | 2005 04 04 | 703 | 0.2+ | 0.9+ |
| 2003 09 30 | 704 | 0.4− | 0.3− | 2003 11 14 | 644 | 1.0− | 0.3+ | 2005 04 04 | 703 | 0.1− | 0.6+ |
| 2003 09 30 | 704 | 0.0 | 0.2− | 2003 12 17 | 704 | 0.0 | 0.0 | 2005 04 04 | 703 | (0.6− | 1.8+) |
| 2003 09 30 | 704 | 0.2− | 0.1+ | 2003 12 17 | 704 | 0.2− | 0.6+ | 2005 04 04 | 703 | 0.6− | 0.9− |
| 2003 10 16 | 704 | (0.6− | 1.9+) | 2003 12 17 | 704 | 0.5+ | 0.4− | 2008 09 03 | 691 | 0.5− | 0.4+ |
| 2003 10 16 | 704 | 0.8− | 0.1+ | 2003 12 17 | 704 | 1.2− | 0.2+ | 2008 09 03 | 691 | 0.4− | 0.3+ |
| 2003 10 16 | 704 | 0.7− | 0.6− | 2005 01 17 | 703 | 0.7− | 0.2+ | 2008 09 03 | 691 | 0.4− | 0.4+ |
| 2003 10 16 | 704 | 1.3− | 0.2+ | 2005 01 17 | 703 | 0.1− | 0.7− | 2008 09 06 | 691 | 0.3− | 0.3+ |
| 2003 10 16 | 704 | 0.3+ | 0.1− | 2005 01 17 | 703 | 0.4+ | 0.4+ | 2008 09 06 | 691 | 0.4+ | 0.2+ |
| 2003 10 20 | 704 | 0.4− | 0.2+ | 2005 01 17 | 703 | 0.1− | 0.1+ | 2008 09 06 | 691 | 0.5− | 0.4+ |
| 2003 10 20 | 704 | 0.4+ | 0.2+ | 2005 02 01 | 691 | 0.2+ | 0.1+ | 2008 09 29 | 704 | 0.4+ | 1.0+ |
| 2003 10 20 | 704 | 0.1+ | 0.1+ | 2005 02 01 | 691 | 0.2+ | 0.1+ | 2008 09 29 | 704 | 0.0 | 0.6+ |
| 2003 10 21 | 704 | (1.1+ | 2.1+) | 2005 02 01 | 691 | 0.1+ | 0.2+ | 2008 09 29 | 704 | 0.4+ | 0.6+ |
| 2003 10 21 | 704 | 0.3− | 0.1− | 2005 02 02 | 704 | 0.4+ | 0.7+ | 2008 10 01 | G96 | 0.5− | 0.2− |
| 2003 10 21 | 704 | 0.5− | 0.3+ | 2005 02 02 | 704 | 0.5+ | 0.6+ | 2008 10 01 | G96 | 0.5− | 0.3− |
| 2003 10 21 | 704 | 0.4+ | 0.5+ | 2005 02 02 | 704 | 0.3+ | 0.7+ | 2008 10 01 | G96 | 0.4− | 0.3− |
| 2003 10 21 | 704 | 0.4+ | 0.4+ | 2005 02 02 | 704 | 1.4+ | 0.2+ | 2008 10 01 | G96 | 0.1+ | 0.3− |
| 2003 10 21 | 704 | 0.4+ | 0.1− | 2005 02 02 | 704 | 0.7+ | 0.1− | 2009 09 27 | 703 | 0.5− | 0.4+ |
| 2003 10 21 | 704 | (5.0− | 0.2+) | 2005 02 02 | 703 | 0.5+ | 0.5− | 2009 09 27 | 703 | 0.2+ | 0.1+ |
| 2003 10 21 | 704 | (2.8+ | 0.3+) | 2005 02 02 | 703 | 0.2− | 0.1− | 2009 09 27 | 703 | 0.2+ | 0.2− |
| 2003 10 21 | 704 | 0.3− | 0.3+ | 2005 02 02 | 703 | 1.0+ | 1.1− | 2009 09 27 | 703 | 0.5+ | 1.1− |
| 2003 10 22 | 704 | 0.4+ | 0.4+ | 2005 02 02 | 703 | 0.1+ | 0.8+ | 2009 10 26 | 703 | 0.5− | 0.7− |
| 2003 10 22 | 704 | 0.7− | 0.0 | 2005 02 09 | 704 | 0.7+ | 0.5+ | 2009 10 26 | 703 | 0.5− | 1.0− |
| 2003 10 22 | 699 | 0.4− | 0.2+ | 2005 02 09 | 704 | 0.3+ | 0.2+ | 2009 10 26 | 703 | (2.6− | 0.6+) |
| 2003 10 22 | 704 | 0.3+ | 0.8+ | 2005 02 09 | 704 | 0.0 | 0.4+ | 2009 10 26 | 703 | 0.8− | 0.3− |
| 2003 10 22 | 704 | 0.8− | 0.3− | 2005 02 09 | 704 | 0.6+ | 0.6− | 2009 12 13 | 703 | 0.2+ | 0.2− |
| 2003 10 22 | 704 | 0.4+ | 0.1+ | 2005 02 09 | 704 | 0.6+ | 0.8+ | 2009 12 13 | 703 | 0.0 | 0.3− |
| 2003 10 22 | 699 | 0.2+ | 0.1− | 2005 03 08 | 699 | 0.4+ | 0.1+ | 2009 12 13 | 703 | 0.1− | 0.5− |
| 2003 10 22 | 704 | 0.1+ | 0.3− | 2005 03 08 | 699 | 0.8+ | 0.5+ | 2009 12 13 | 703 | 0.7− | 0.5+ |
| 2003 10 22 | 704 | 0.4+ | 0.2+ | 2005 03 08 | 699 | 1.2+ | 0.8+ | 2009 12 20 | 703 | 0.5− | 0.2− |
| 2003 10 22 | 699 | 0.3+ | 0.3− | 2005 03 08 | 699 | 0.1+ | 1.1+ | 2009 12 20 | 703 | 0.8− | 0.8− |
| 2003 10 22 | 704 | (1.8− | 0.4+) | 2005 03 09 | 699 | 0.2+ | 0.6+ | 2009 12 20 | 703 | 0.2− | 0.6− |
| 2003 10 22 | 704 | 0.1+ | 0.0 | 2005 03 09 | 699 | 0.7+ | 0.6+ | 2009 12 20 | 703 | 0.7− | 0.9− |
| 2003 10 22 | 704 | 1.0+ | 0.4+ | 2005 03 09 | 699 | 0.6+ | 0.4+ | | | | |
| 2003 10 22 | 699 | 0.1+ | 0.1+ | 2005 03 09 | 699 | 0.9+ | 0.9+ | | | | |

**(228949)∗ 2003 UD$_{53}$**

Discovered 2003 Oct. 18 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 69.56105 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17373992 | $\omega$ | 71.88639 | | +0.93477806 | | +0.31444836 |
| $a$ | 3.1807996 | $\Omega$ | 269.52786 | | −0.35480692 | | +0.84922672 |
| $e$ | 0.2141724 | $i$ | 9.51290 | | +0.01737925 | | +0.42418889 |
| $P$ | 5.67 | $H$ | 14.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 30 | 704 | 0.4− | 0.6− | 2003 11 19 | 699 | 0.5− | 0.7+ | 2009 11 10 | 691 | 0.1− | 0.1− |
| 2003 09 30 | 704 | 0.4− | 0.1− | 2003 11 19 | 704 | 0.6+ | 0.2+ | 2009 11 11 | 704 | 1.1+ | 1.0+ |
| 2003 09 30 | 704 | 0.0 | 0.1+ | 2003 11 19 | 699 | 0.2+ | 1.3− | 2009 11 11 | 704 | 0.8+ | 0.2− |
| 2003 09 30 | 704 | 1.1− | 0.1− | 2003 11 19 | 704 | 0.2+ | 0.9+ | 2009 11 11 | 704 | 0.1− | 0.4+ |
| 2003 10 05 | 704 | 0.3− | 0.0 | 2003 11 19 | 704 | 0.6− | 0.2− | 2009 11 12 | J75 | 0.7+ | 1.2− |
| 2003 10 05 | 704 | 0.3+ | 0.5+ | 2003 11 19 | 704 | 0.3+ | 0.4+ | 2009 11 12 | J75 | 0.3+ | 0.4− |
| 2003 10 05 | 704 | 1.4+ | 0.6+ | 2003 11 19 | 704 | 0.0 | 0.4− | 2009 11 12 | J75 | (1.9− | 1.1−) |
| 2003 10 18 | 644 | 0.2+ | 0.0 | 2003 12 19 | 704 | 0.4− | 0.6+ | 2009 11 17 | 704 | 0.3+ | 0.2− |
| 2003 10 18 | 644 | 0.3+ | 0.1+ | 2003 12 19 | 704 | 0.3− | 0.1− | 2009 11 17 | 704 | 0.6+ | 0.9+ |
| 2003 10 18 | 644 | 0.3+ | 0.1+ | 2003 12 19 | 704 | 0.4− | 0.6+ | 2009 11 17 | 704 | 0.2− | 1.0+ |
| 2003 10 19 | 644 | 0.1− | 0.1+ | 2003 12 19 | 704 | 0.5+ | 1.0+ | 2009 11 18 | 691 | 0.3− | 0.2− |
| 2003 10 19 | 644 | 0.0 | 0.1− | 2003 12 28 | 704 | 0.1− | 0.4+ | 2009 11 18 | 691 | 0.1− | 0.2− |
| 2003 10 19 | 644 | 0.2+ | 0.1+ | 2003 12 28 | 704 | (0.5− | 2.3+) | 2009 11 18 | 691 | 0.3− | 0.4+ |
| 2003 10 21 | 644 | 0.1− | 0.0 | 2003 12 28 | 704 | 1.0− | 1.0+ | 2009 11 22 | 704 | 1.1− | 0.4− |
| 2003 10 21 | 644 | 0.3− | 0.1+ | 2003 12 28 | 704 | (2.1− | 0.8+) | 2009 11 22 | 704 | 0.7− | 1.0− |
| 2003 10 21 | 691 | 0.1+ | 0.1− | 2005 01 13 | 691 | 0.2+ | 0.1+ | 2009 11 22 | 704 | 0.0 | 0.5− |
| 2003 10 21 | 644 | 0.2− | 0.2− | 2005 01 13 | 691 | 0.2+ | 0.4+ | 2009 11 24 | J75 | 0.0 | 0.6− |
| 2003 10 21 | 691 | 0.1+ | 0.0 | 2005 01 13 | 691 | 0.2+ | 0.4+ | 2009 11 24 | J75 | 0.3− | 0.8− |
| 2003 10 21 | 691 | 0.0 | 0.0 | 2005 01 19 | 691 | 0.2− | 0.3+ | 2009 11 25 | J75 | 0.5− | 0.7− |
| 2003 10 22 | 704 | 0.7+ | 0.3+ | 2005 01 19 | 691 | 0.0 | 0.1+ | 2009 11 26 | 691 | 0.2− | 0.0 |
| 2003 10 22 | 704 | 0.2+ | 0.6+ | 2005 01 19 | 691 | 0.2+ | 0.1− | 2009 11 26 | 691 | 0.2− | 0.1+ |
| 2003 10 22 | 704 | 0.2− | 0.1+ | 2008 07 30 | 703 | 0.6− | 0.4+ | 2009 11 26 | 691 | 0.2− | 0.2− |
| 2003 10 22 | 704 | 0.0 | 0.3− | 2008 07 30 | 703 | 0.5− | 1.1+ | 2009 12 10 | 704 | 1.0+ | 0.1+ |
| 2003 11 02 | 704 | 0.4+ | 0.3+ | 2008 07 30 | 703 | 0.3− | 0.5+ | 2009 12 10 | 704 | 0.6− | 1.1+ |
| 2003 11 02 | 704 | 0.1− | 0.1− | 2008 07 30 | 703 | 0.2− | 0.8+ | 2009 12 10 | 704 | 0.4+ | 0.9+ |
| 2003 11 02 | 704 | 0.4− | 0.6− | 2008 10 30 | G96 | 0.2− | 0.0 | 2009 12 16 | G96 | 0.0 | 0.2+ |
| 2003 11 02 | 704 | 0.4− | 0.2+ | 2008 10 30 | G96 | 0.2+ | 0.3− | 2009 12 16 | G96 | 0.3+ | 0.3− |
| 2003 11 02 | 704 | 0.2+ | 0.3− | 2008 10 30 | G96 | 1.1+ | 0.1+ | 2009 12 16 | G96 | 0.2+ | 0.3− |
| 2003 11 19 | 699 | 0.3− | 0.5+ | 2009 11 10 | 691 | 0.1− | 0.2− | 2009 12 16 | G96 | 0.5+ | 0.3− |
| 2003 11 19 | 699 | 0.8− | 0.1− | 2009 11 10 | 691 | 0.8+ | 0.8− | | | | |

**(228950)∗ 2003 UT$_{54}$**

Discovered 2003 Oct. 18 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 85.85573 | | (2000.0) | | | |
| $n$ | 0.18571894 | $\omega$ | 73.34411 | | +0.98680450 | −0.00287448 |
| $a$ | 3.0425093 | $\Omega$ | 286.59440 | | −0.06896806 | +0.89714254 |
| $e$ | 0.2574042 | $i$ | 9.72541 | | +0.14649326 | +0.44173182 |
| $P$ | 5.31 | $H$ | 15.0 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 07 13 | 691 | 0.2− | 0.2− | 2003 12 29 | 704 | 0.7+ | 1.2− | 2008 10 01 | 704 | 0.0 | 0.3− |
| 1997 07 13 | 691 | 0.1− | 0.0 | 2003 12 29 | 704 | 0.8+ | 1.2− | 2008 10 06 | 703 | 0.1+ | 0.8− |
| 1997 07 13 | 691 | 0.1+ | 0.1+ | 2003 12 29 | 703 | 1.1− | 0.2− | 2008 10 06 | 703 | 0.4+ | 0.2− |
| 2003 10 18 | 644 | 0.1− | 0.2+ | 2003 12 29 | 703 | 0.0 | 0.7+ | 2008 10 06 | 703 | 0.8+ | 0.1− |
| 2003 10 18 | 644 | 0.1− | 0.1− | 2003 12 29 | 704 | 0.5+ | 1.0− | 2008 10 06 | 703 | 0.3− | 0.5− |
| 2003 10 18 | 644 | 0.1− | 0.1− | 2003 12 29 | 703 | 1.2− | 0.5− | 2008 10 25 | 703 | 0.4+ | 0.3+ |
| 2003 10 19 | 644 | 0.1+ | 0.1− | 2003 12 29 | 704 | 0.1+ | 1.3+ | 2008 10 25 | 703 | 0.1+ | 0.0 |
| 2003 10 19 | 644 | 0.0 | 0.2− | 2005 01 13 | 691 | 0.5+ | 0.1− | 2008 10 25 | 703 | 0.3+ | 0.3+ |
| 2003 10 19 | 644 | 0.0 | 0.1+ | 2005 01 13 | 691 | 0.4+ | 0.1+ | 2008 10 25 | 703 | 0.1− | 0.0 |
| 2003 11 03 | 704 | 0.0 | 0.1+ | 2005 01 13 | 691 | 0.5+ | 0.1+ | 2008 10 26 | 704 | 0.1+ | 0.4− |
| 2003 11 03 | 704 | 0.2+ | 0.7+ | 2008 07 01 | 703 | 0.4− | 0.9− | 2008 10 26 | 704 | 0.1+ | 0.7− |
| 2003 11 03 | 704 | 0.7− | 0.4+ | 2008 07 01 | 703 | 0.1+ | 0.2+ | 2008 10 26 | 704 | 0.5− | 0.0 |
| 2003 11 03 | 704 | 0.5− | 0.3+ | 2008 07 01 | 703 | 0.5− | 0.2− | 2008 10 26 | 704 | 0.1+ | 0.8− |
| 2003 11 03 | 704 | 0.4− | 0.5+ | 2008 07 01 | 703 | 0.6+ | 0.3+ | 2008 10 26 | 704 | 0.5− | 0.5− |
| 2003 11 14 | 644 | 0.3− | 0.2− | 2008 07 30 | 703 | 0.0 | 0.7+ | 2008 11 07 | 703 | 0.6− | 0.8+ |
| 2003 11 14 | 644 | 0.1+ | 0.1− | 2008 07 30 | 703 | 0.2+ | 0.8+ | 2008 11 07 | 703 | 0.7− | 1.0+ |
| 2003 11 14 | 644 | 0.0 | 0.1− | 2008 07 30 | 703 | 0.1− | 0.8+ | 2008 11 07 | 703 | (1.7− | 0.9+) |
| 2003 11 20 | 704 | 0.1+ | 0.6− | 2008 07 30 | 703 | 1.1+ | 0.7+ | 2008 11 07 | 703 | 0.7− | 0.7+ |
| 2003 11 20 | 704 | 0.1− | 0.1− | 2008 08 01 | 704 | 0.6− | 0.1+ | 2008 11 22 | 704 | 0.1+ | 0.5+ |
| 2003 11 20 | 704 | 0.0 | 0.4− | 2008 08 01 | 704 | 0.0 | 0.2− | 2008 11 22 | 704 | 0.2+ | 0.2− |
| 2003 11 20 | 704 | 0.1− | 0.3− | 2008 08 01 | 704 | 0.3− | 0.4+ | 2008 11 22 | 704 | 0.0 | 0.1+ |
| 2003 11 20 | 704 | 0.4− | 0.2− | 2008 08 01 | 704 | 0.1− | 0.4− | 2008 11 22 | 704 | 0.8+ | 0.1+ |
| 2003 11 22 | 704 | 0.3+ | 0.8+ | 2008 08 01 | 704 | 0.8+ | 0.4+ | 2008 11 22 | 704 | 0.0 | 0.2+ |
| 2003 11 22 | 704 | 0.9+ | 0.5+ | 2008 08 12 | 704 | 0.0 | 0.2− | 2008 12 04 | 704 | 0.3− | 0.4+ |
| 2003 11 22 | 704 | 0.3+ | 0.7− | 2008 08 12 | 704 | 0.0 | 0.2+ | 2008 12 04 | 704 | (2.2− | 0.4+) |
| 2003 11 22 | 704 | 1.1+ | 0.9− | 2008 08 12 | 704 | 0.7− | 0.3− | 2008 12 04 | 704 | 0.3− | 1.3+ |
| 2003 11 22 | 704 | 0.1+ | 0.3− | 2008 08 12 | 704 | 0.2− | 0.4+ | 2008 12 04 | 704 | 0.0 | 0.1− |
| 2003 12 03 | 699 | 0.1− | 0.4− | 2008 09 22 | 703 | 0.4+ | 0.2+ | 2009 10 30 | G96 | 0.5+ | 0.3− |
| 2003 12 03 | 699 | 0.3+ | 0.6− | 2008 09 22 | 703 | 0.3− | 0.4+ | 2009 10 30 | G96 | 0.1− | 0.5− |
| 2003 12 03 | 699 | 0.4− | 0.5− | 2008 09 22 | 703 | 0.1− | 0.1+ | 2009 10 30 | G96 | 0.6+ | 0.3+ |
| 2003 12 03 | 699 | 0.1+ | 0.7− | 2008 09 22 | 703 | 0.3+ | 0.4+ | 2009 10 30 | G96 | 0.2− | 0.3− |
| 2003 12 04 | 704 | 0.8+ | 0.2+ | 2008 09 28 | 703 | 0.4− | 0.4− | 2009 12 15 | G96 | 0.1− | 0.1+ |
| 2003 12 04 | 704 | 0.1+ | 0.3+ | 2008 09 28 | 703 | (0.1− | 1.8−) | 2009 12 15 | G96 | 0.2+ | 0.3+ |
| 2003 12 04 | 704 | 0.1− | 1.1+ | 2008 09 28 | 703 | (1.8+ | 1.3−) | 2009 12 15 | G96 | 0.1+ | 0.0 |
| 2003 12 18 | 704 | 0.1− | 0.7+ | 2008 09 28 | 703 | (2.0+ | 0.9−) | 2009 12 15 | G96 | 0.1+ | 0.3+ |
| 2003 12 18 | 704 | 0.2− | 0.1+ | 2008 10 01 | 704 | 0.2+ | 0.2− | 2009 12 25 | 691 | 0.3− | 0.2+ |
| 2003 12 18 | 704 | 0.1+ | 0.7+ | 2008 10 01 | 704 | 0.1+ | 0.4− | 2009 12 25 | 691 | 0.5− | 0.6+ |
| 2003 12 18 | 704 | 0.7− | 0.0 | 2008 10 01 | 704 | 0.0 | 0.2− | 2009 12 25 | 691 | 0.5− | 0.4− |
| 2003 12 29 | 703 | 0.4+ | 0.6+ | 2008 10 01 | 704 | 0.1+ | 0.0 | | | | |

**(228951)∗ 2003 UA$_{75}$**

Discovered 2003 Oct. 17 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 29.78700 | | (2000.0) | | | |
| $n$ | 0.18056928 | $\omega$ | 130.38545 | | +0.74215177 | −0.65420123 |
| $a$ | 3.1000840 | $\Omega$ | 270.99970 | | +0.56227799 | +0.72604112 |
| $e$ | 0.0766885 | $i$ | 8.37970 | | +0.36476598 | +0.21186091 |
| $P$ | 5.46 | $H$ | 15.0 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 05 | 599 | 0.3− | 0.2+ | 2005 01 05 | 941 | 0.2− | 0.3− | 2009 11 11 | 704 | 0.0 | 0.6+ |
| 2003 09 05 | 599 | 0.4+ | 0.1− | 2005 01 05 | 941 | 0.4− | 0.3− | 2009 11 11 | 704 | 0.8+ | 1.0+ |
| 2003 09 05 | 599 | 0.1− | 0.5+ | 2005 01 06 | 704 | 0.1− | 0.0 | 2009 11 11 | 704 | 0.0 | 0.3+ |
| 2003 09 05 | 599 | 0.3− | 0.4+ | 2005 01 06 | 704 | 0.4+ | 0.3− | 2009 11 11 | 704 | 0.6+ | 0.3− |
| 2003 09 16 | 644 | 0.1+ | 0.0 | 2005 01 06 | 704 | 0.1− | 0.4− | 2009 11 12 | J75 | 0.5+ | 0.8− |
| 2003 09 16 | 644 | 0.1+ | 0.0 | 2005 01 06 | 704 | 0.1− | 1.3+ | 2009 11 12 | J75 | 0.0 | 0.4− |
| 2003 09 16 | 644 | 0.3+ | 0.3+ | 2005 01 13 | 691 | 0.1+ | 0.4+ | 2009 11 12 | J75 | 0.2+ | 1.1− |
| 2003 09 30 | 704 | 0.8+ | 0.3+ | 2005 01 13 | 691 | 0.1+ | 0.2+ | 2009 11 17 | 704 | 1.1+ | 0.8+ |
| 2003 09 30 | 704 | 0.6+ | 0.0 | 2005 01 13 | 691 | 0.1− | 0.1+ | 2009 11 17 | 704 | 1.1+ | 1.1− |
| 2003 09 30 | 704 | 0.4− | 0.5+ | 2005 01 13 | 704 | 0.1+ | 1.4+ | 2009 11 17 | 704 | 0.8+ | 0.1− |
| 2003 09 30 | 704 | 0.8+ | 0.5+ | 2005 01 13 | 704 | 0.3+ | 0.3+ | 2009 11 18 | 691 | 0.1− | 0.1− |
| 2003 09 30 | 704 | 0.2+ | 0.5− | 2005 01 13 | 704 | 1.2+ | 0.5+ | 2009 11 18 | 691 | 0.0 | 0.2− |
| 2003 10 17 | 699 | 0.1− | 0.2− | 2005 01 15 | 704 | 0.1+ | 0.1− | 2009 11 18 | 691 | 0.1− | 0.1− |
| 2003 10 17 | 699 | 0.1+ | 0.2− | 2005 01 15 | 704 | 0.3+ | 0.8+ | 2009 11 23 | 691 | 0.1− | 0.1− |
| 2003 10 17 | 699 | 0.6− | 0.4− | 2005 01 15 | 704 | 1.0− | 0.8+ | 2009 11 23 | 691 | 0.1− | 0.0 |
| 2003 10 17 | 699 | 0.2+ | 0.4+ | 2005 01 15 | 704 | 0.5+ | 0.6− | 2009 11 23 | 691 | 0.6− | 0.0 |
| 2003 10 20 | 644 | 0.1+ | 0.2− | 2008 08 26 | 704 | 1.0− | 0.4+ | 2009 11 24 | J75 | 0.0 | 0.3− |
| 2003 10 20 | 644 | 0.0 | 0.0 | 2008 08 26 | 704 | 0.1+ | 0.1− | 2009 11 24 | J75 | 0.2+ | 0.6− |
| 2003 10 20 | 644 | 0.0 | 0.1+ | 2008 08 26 | 704 | 0.9+ | 0.5+ | 2009 11 25 | J75 | 0.3+ | 0.5− |
| 2003 10 22 | 691 | 0.1− | 0.1− | 2008 08 26 | 704 | 0.6− | 0.0 | 2009 11 26 | 691 | 0.2− | 0.2− |
| 2003 10 22 | 691 | 0.1− | 0.1− | 2008 08 26 | 704 | 0.7+ | 0.3+ | 2009 11 26 | 691 | 0.1− | 0.1− |
| 2003 10 22 | 691 | 0.0 | 0.3− | 2008 08 30 | 704 | 0.4− | 1.1− | 2009 11 26 | 691 | 0.1− | 0.1− |
| 2003 11 19 | 704 | 0.2− | 0.1+ | 2008 08 30 | 704 | 0.4− | 0.2− | 2009 11 27 | 691 | 0.2− | 0.0 |
| 2003 11 19 | 704 | (0.7− | 2.6+) | 2008 08 30 | 704 | 0.4+ | 0.4+ | 2009 11 27 | 691 | 0.3− | 0.1− |
| 2003 11 19 | 704 | 0.5− | 0.2+ | 2008 08 30 | 704 | 0.1− | 0.9+ | 2009 11 27 | 691 | 0.2− | 0.0 |
| 2003 11 19 | 704 | 0.7− | 0.9− | 2008 09 05 | 704 | (1.6+ | 1.2−) | 2009 12 16 | G96 | 0.2+ | 0.5− |
| 2003 11 19 | 704 | 0.2− | 0.8+ | 2008 09 05 | 704 | (1.9+ | 0.7+) | 2009 12 16 | G96 | 0.1− | 0.5− |
| 2005 01 05 | 941 | 0.2+ | 0.0 | 2008 09 05 | 704 | 0.4− | 0.1+ | 2009 12 16 | 704 | 1.2+ | 1.0+ |
| 2005 01 05 | 941 | 0.1+ | 0.2− | 2008 09 05 | 704 | 0.7+ | 0.2+ | 2009 12 16 | G96 | 0.8+ | 0.4− |
| 2005 01 05 | 941 | 0.1+ | 0.1− | 2008 09 22 | 704 | 0.2− | 1.3+ | 2009 12 16 | 704 | 0.4+ | 1.6+ |
| 2005 01 05 | 941 | 0.2+ | 0.1− | 2008 09 22 | 704 | 0.5− | 0.5+ | 2009 12 16 | G96 | 0.2+ | 0.4− |
| 2005 01 05 | 941 | 0.1− | 0.2− | 2008 09 22 | 704 | 0.8− | 0.3+ | 2009 12 16 | 704 | 0.2− | 1.1+ |

**(228952)∗ 2003 UM$_{77}$**

Discovered 2003 Oct. 17 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 31.99080 | | (2000.0) | | | |
| $n$ | 0.17308314 | $\omega$ | 126.07417 | | +0.87016144 | −0.46599161 |
| $a$ | 3.1888411 | $\Omega$ | 262.19866 | | +0.38391603 | +0.84494132 |
| $e$ | 0.2141667 | $i$ | 9.30664 | | +0.30891351 | +0.26253759 |
| $P$ | 5.69 | $H$ | 15.6 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 10 10 | 691 | 0.5+ | 0.6− | 2003 11 19 | 704 | 0.6+ | 0.6+ | 2009 11 21 | 691 | 0.6− | 0.2− |
| 1997 10 10 | 691 | 0.3− | 0.6− | 2003 11 19 | 704 | 0.2+ | 0.2− | 2009 11 22 | 704 | 0.9+ | 0.2+ |
| 1997 10 10 | 691 | 0.2+ | 0.3+ | 2003 11 19 | 704 | 0.5+ | 0.4− | 2009 11 22 | 704 | 0.1− | 0.6− |
| 2003 09 17 | 644 | 0.2− | 0.1+ | 2003 11 19 | 704 | 0.5+ | 0.3− | 2009 11 22 | 704 | 0.2+ | 0.5− |
| 2003 09 17 | 644 | 0.1− | 0.1+ | 2003 11 19 | 704 | 1.3+ | 0.0 | 2009 11 22 | 704 | 0.2− | 0.2+ |
| 2003 09 17 | 644 | 0.4− | 0.0 | 2008 05 31 | G96 | 0.4+ | 0.2+ | 2009 11 24 | J75 | 0.2+ | 0.1− |
| 2003 09 29 | 699 | 0.2+ | 0.5− | 2008 05 31 | G96 | 0.1− | 0.4+ | 2009 11 24 | J75 | 0.8+ | 0.2− |
| 2003 09 29 | 699 | 0.4+ | 0.1− | 2008 05 31 | G96 | 0.1− | 0.2+ | 2009 11 25 | J75 | 0.5+ | 0.4− |
| 2003 09 29 | 699 | 0.4− | 1.0− | 2008 05 31 | G96 | 0.1+ | 0.0 | 2009 11 25 | 703 | 0.1+ | 0.0 |
| 2003 09 29 | 699 | 1.0− | 0.7+ | 2008 07 29 | G96 | 0.3− | 0.0 | 2009 11 25 | 703 | 0.6+ | 0.7− |
| 2003 10 05 | 704 | 0.5+ | 0.7+ | 2008 07 29 | G96 | 0.3− | 0.0 | 2009 11 25 | 703 | 0.8− | 0.4− |
| 2003 10 05 | 704 | 0.1− | 0.9+ | 2008 07 29 | G96 | 0.1+ | 0.1+ | 2009 11 25 | 703 | (0.8+ | 1.9−) |
| 2003 10 05 | 704 | 1.1− | 0.8+ | 2008 07 29 | G96 | 0.4− | 0.1− | 2009 11 25 | 703 | 0.4+ | 0.0 |
| 2003 10 05 | 704 | 0.6− | 0.5+ | 2008 10 28 | G96 | 0.2− | 0.8+ | 2009 11 26 | 291 | 0.3− | 0.1− |
| 2003 10 17 | 699 | 0.4+ | 0.5− | 2008 10 28 | G96 | 0.3+ | 0.6+ | 2009 11 26 | 291 | 0.2− | 0.1− |
| 2003 10 17 | 699 | 0.3− | 0.1− | 2008 10 28 | G96 | 0.1− | 0.1+ | 2009 11 26 | 291 | 0.2− | 0.1− |
| 2003 10 17 | 699 | 0.0 | 0.7+ | 2008 10 28 | G96 | 0.1− | 0.7+ | 2009 12 09 | J75 | 0.2+ | 0.1− |
| 2003 10 17 | 699 | 0.3+ | 0.2− | 2009 11 09 | G96 | 0.7− | 0.5− | 2009 12 09 | J75 | 0.1− | 0.6− |
| 2003 10 20 | 644 | 0.1− | 0.0 | 2009 11 09 | G96 | 0.0 | 0.4− | 2009 12 09 | J75 | 0.5+ | 0.6− |
| 2003 10 20 | 644 | 0.1+ | 0.1+ | 2009 11 09 | G96 | 0.4− | 0.2− | 2009 12 11 | 704 | 0.3− | 0.4+ |
| 2003 10 20 | 644 | 0.0 | 0.1+ | 2009 11 11 | 704 | 0.9+ | 1.0+ | 2009 12 11 | 704 | 0.2+ | 0.2− |
| 2003 10 22 | 704 | 0.2− | 1.0+ | 2009 11 11 | 704 | (0.5+ | 1.8+) | 2009 12 11 | 704 | 0.3+ | 0.1+ |
| 2003 10 22 | 704 | 0.8− | 0.8− | 2009 11 11 | 704 | 0.7+ | 0.7+ | 2009 12 16 | 704 | 0.1− | 0.5+ |
| 2003 10 22 | 704 | 0.5+ | 1.2+ | 2009 11 11 | 704 | (0.4+ | 1.8+) | 2009 12 16 | 704 | 0.9+ | 1.3+ |
| 2003 10 22 | 704 | 0.6− | 0.5+ | 2009 11 17 | 704 | 0.2+ | 1.3+ | 2009 12 16 | 704 | 0.9+ | 0.6− |
| 2003 10 23 | 608 | 0.4− | 1.3− | 2009 11 17 | 704 | 0.4+ | 0.6+ | 2009 12 16 | 704 | 0.4+ | 1.2+ |
| 2003 10 23 | 608 | 0.5− | 1.2− | 2009 11 17 | 704 | 0.3+ | 1.1+ | 2009 12 16 | G96 | 0.0 | 0.5− |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 23 | 608 | 0.9− | 0.7− | 2009 11 17 | 704 | 0.2+ | 0.9+ | 2009 12 16 | G96 | 0.1− | 0.6− | | |
| 2003 11 02 | 691 | 0.2+ | 0.0 | 2009 11 17 | 704 | (0.6+ | 1.6+) | 2009 12 16 | G96 | 0.2− | 0.7− | | |
| 2003 11 02 | 691 | 0.1+ | 0.1+ | 2009 11 21 | 691 | (0.6− | 1.7+) | 2009 12 16 | G96 | 0.2− | 0.3− | | |
| 2003 11 02 | 691 | 0.3+ | 0.1+ | 2009 11 21 | 691 | 0.3− | 0.3+ | | | | | | |

**(228953)∗ 2003 UA$_{82}$**

Discovered 2003 Oct. 18 by NEAT at Haleakala.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 30.92932 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17971790 | $\omega$ | 319.58479 | | +0.62877864 | −0.75499072 | |
| $a$ | 3.1098671 | $\Omega$ | 90.61573 | | +0.75277100 | +0.53105501 | |
| $e$ | 0.0558621 | $i$ | 10.72484 | | +0.19486725 | +0.38466816 | |
| $P$ | 5.48 | $H$ | 15.2 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 04 26 | 291 | 0.5+ | 0.2+ | 2003 11 23 | 699 | 1.0+ | 0.4− | 2006 04 02 | 699 | 0.0 | 0.1+ | | |
| 2001 04 26 | 291 | 0.4+ | 0.5+ | 2003 11 23 | 699 | 0.3− | 1.1+ | 2006 04 02 | 699 | 0.8− | 0.7+ | | |
| 2001 04 26 | 291 | 0.3+ | 0.4+ | 2003 11 23 | 699 | 0.0 | 0.6+ | 2006 04 02 | 699 | 1.2+ | 0.6− | | |
| 2002 07 17 | 644 | 0.9− | 0.1+ | 2003 11 23 | 699 | 1.4+ | 1.0+ | 2006 05 24 | G96 | 0.1− | 0.1+ | | |
| 2002 07 17 | 644 | 0.4− | 0.6+ | 2003 11 28 | 645 | 0.0 | 0.0 | 2006 05 24 | G96 | 0.4− | 0.5+ | | |
| 2002 07 17 | 644 | 0.4− | 0.3+ | 2003 11 28 | 645 | 0.1− | 0.0 | 2006 05 24 | G96 | 0.1− | 0.3+ | | |
| 2003 10 18 | 608 | 0.1+ | 1.3+ | 2004 12 21 | 703 | 0.6− | 0.9− | 2006 05 24 | G96 | 0.4− | 0.2+ | | |
| 2003 10 18 | 608 | 0.0 | 0.6+ | 2004 12 21 | 703 | 1.0− | 0.7+ | 2009 11 22 | 691 | 0.2− | 0.1− | | |
| 2003 10 18 | 608 | (0.1+ | 1.5+) | 2004 12 21 | 703 | 0.8− | 0.5+ | 2009 11 22 | 691 | 0.2+ | 0.7+ | | |
| 2003 10 20 | 704 | 0.6− | 0.6+ | 2004 12 21 | 703 | 0.1− | 0.8− | 2009 11 22 | 691 | 0.2− | 0.1− | | |
| 2003 10 20 | 704 | 0.5+ | 0.4+ | 2005 01 07 | 704 | 0.2+ | 0.2+ | 2009 12 11 | G96 | 0.1+ | 0.1− | | |
| 2003 10 20 | 704 | 0.8− | 0.4+ | 2005 01 07 | 704 | 0.0 | 0.4+ | 2009 12 11 | G96 | 0.3+ | 0.1− | | |
| 2003 10 20 | 704 | 0.1+ | 0.2+ | 2005 01 07 | 704 | 0.6+ | 0.1+ | 2009 12 11 | G96 | 0.4+ | 0.1− | | |
| 2003 10 22 | 645 | 0.0 | 0.0 | 2005 01 07 | 704 | (0.3+ | 1.7+) | 2009 12 11 | G96 | 0.4+ | 0.1− | | |
| 2003 10 22 | 645 | 0.0 | 0.0 | 2005 01 16 | 704 | 0.1+ | 0.3+ | 2009 12 17 | 704 | 0.0 | 1.1+ | | |
| 2003 10 24 | 645 | 0.0 | 0.1− | 2005 01 16 | 704 | 0.5+ | 0.2+ | 2009 12 17 | 704 | 0.8+ | 0.3+ | | |
| 2003 10 24 | 645 | 0.0 | 0.1− | 2005 01 16 | 704 | 0.0 | 0.3− | 2009 12 17 | 704 | 1.0+ | 0.6+ | | |
| 2003 11 19 | 644 | 0.2− | 0.1+ | 2005 01 16 | 704 | 0.3+ | 0.3− | 2009 12 17 | 704 | 1.7− | 0.1− | | |
| 2003 11 19 | 644 | 0.2− | 0.1+ | 2005 01 16 | 704 | 0.1+ | 0.4+ | | | | | | |
| 2003 11 19 | 644 | 0.0 | 0.3+ | 2006 04 02 | 699 | 1.0− | 0.2+ | | | | | | |

**(228954)∗ 2003 UQ$_{85}$**

Discovered 2003 Oct. 18 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 61.86263 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17872119 | $\omega$ | 246.59126 | | +0.97984211 | −0.19734792 | |
| $a$ | 3.1214186 | $\Omega$ | 124.77704 | | +0.19429953 | +0.90530427 | |
| $e$ | 0.1897028 | $i$ | 2.16546 | | +0.04644497 | +0.37613558 | |
| $P$ | 5.51 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 18 | 291 | 0.1− | 0.3+ | 2003 11 19 | 644 | 0.1+ | 0.1− | 2007 05 25 | G96 | 0.5+ | 0.2+ | | |
| 2003 10 18 | 291 | 0.1− | 0.1+ | 2003 11 19 | 644 | 0.3+ | 0.0 | 2008 09 02 | J75 | (0.6− | 1.6−) | | |
| 2003 10 18 | 291 | 0.4− | 0.1− | 2003 11 21 | 704 | 0.1+ | 0.2+ | 2008 09 02 | J75 | 0.3+ | 0.3+ | | |
| 2003 10 21 | 704 | 1.1− | 0.2+ | 2003 11 21 | 704 | 0.1− | 0.8+ | 2008 09 02 | J75 | 0.5− | 1.5− | | |
| 2003 10 21 | 704 | 0.7− | 1.2− | 2003 11 21 | 704 | 0.2+ | 0.7+ | 2008 09 06 | 703 | 0.1+ | 0.4− | | |
| 2003 10 21 | 704 | 0.1+ | 1.0+ | 2003 11 30 | 691 | 0.1− | 0.1+ | 2008 09 06 | 703 | 0.0 | 0.6+ | | |
| 2003 10 21 | 704 | (0.5− | 2.1+) | 2003 11 30 | 691 | 0.1− | 0.1+ | 2008 09 06 | 703 | 0.1− | 0.3− | | |
| 2003 10 21 | 691 | 0.0 | 0.1− | 2003 11 30 | 691 | 0.1+ | 0.0 | 2008 09 06 | 703 | 0.7− | 0.0 | | |
| 2003 10 21 | 691 | 0.2− | 0.2− | 2005 03 04 | G96 | 0.5+ | 0.3+ | 2008 09 28 | 704 | 0.6+ | 0.5+ | | |
| 2003 10 21 | 691 | 0.2− | 0.1− | 2005 03 04 | G96 | 0.5+ | 0.0 | 2008 09 28 | 704 | 0.6+ | 0.3+ | | |
| 2003 10 24 | 704 | 0.7+ | 0.7+ | 2005 03 04 | G96 | 0.1− | 0.3+ | 2008 09 28 | 704 | 0.3− | 0.5+ | | |
| 2003 10 24 | 704 | 1.0+ | 0.5+ | 2005 03 04 | G96 | 0.0 | 0.4+ | 2008 09 28 | 704 | 0.3+ | 0.6+ | | |
| 2003 10 24 | 704 | 0.8+ | 0.0 | 2007 04 19 | G96 | 0.7− | 1.1+ | 2009 11 17 | 691 | 0.1− | 0.2− | | |
| 2003 10 24 | 704 | 1.2+ | 0.8− | 2007 04 19 | G96 | 0.3+ | 0.7+ | 2009 11 17 | 691 | 0.0 | 0.1− | | |
| 2003 10 24 | 704 | 0.9− | 0.2+ | 2007 04 19 | G96 | 0.7− | 0.5+ | 2009 11 17 | 691 | 0.1− | 0.1− | | |
| 2003 11 18 | 644 | 0.2+ | 0.3+ | 2007 04 19 | G96 | 0.2+ | 0.3+ | 2009 12 25 | 691 | 0.3− | 0.3+ | | |
| 2003 11 18 | 644 | 0.2+ | 0.3+ | 2007 05 25 | G96 | 0.0 | 0.2+ | 2009 12 25 | 691 | 0.3− | 0.1+ | | |
| 2003 11 18 | 644 | 0.3+ | 0.0 | 2007 05 25 | G96 | 0.5+ | 0.3+ | 2009 12 25 | 691 | 0.7+ | 0.0 | | |
| 2003 11 19 | 644 | 0.3+ | 0.2− | 2007 05 25 | G96 | 0.0 | 0.3+ | | | | | | |

**(228955)∗ 2003 UO$_{99}$**

Discovered 2003 Oct. 19 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 38.96745 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17936145 | $\omega$ | 319.91287 | | +0.47916934 | −0.85027793 | |
| $a$ | 3.1139859 | $\Omega$ | 100.42462 | | +0.85131556 | +0.38981998 | |
| $e$ | 0.0769059 | $i$ | 12.79279 | | +0.21367865 | +0.35364930 | |
| $P$ | 5.50 | $H$ | 14.7 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 19 | 699 | 0.6+ | 1.0+ | 2005 02 01 | 644 | 0.7+ | 0.2+ | 2006 05 26 | 703 | 0.5− | 0.1− | | |
| 2003 10 19 | 699 | 0.2− | 0.1+ | 2005 02 01 | 644 | 1.1+ | 0.2+ | 2006 05 26 | 703 | 0.2+ | 0.8+ | | |
| 2003 10 19 | 699 | 0.0 | 0.8+ | 2005 02 09 | 599 | 0.1+ | 0.1+ | 2006 05 26 | 703 | 0.8− | 0.5− | | |
| 2003 10 19 | 699 | 0.1− | 0.3+ | 2005 02 09 | 599 | 0.1− | 0.1− | 2008 10 02 | 703 | 0.1− | 0.4+ | | |
| 2003 10 21 | 704 | 0.6− | 0.3− | 2005 02 09 | 599 | 0.3+ | 0.2− | 2008 10 02 | 703 | 0.0 | 0.6+ | | |
| 2003 10 21 | 704 | 0.0 | 0.0 | 2005 03 09 | 703 | 0.2− | 0.1+ | 2008 10 02 | 703 | (0.9+ | 2.2+) | | |
| 2003 10 21 | 704 | 0.7+ | 0.8+ | 2005 03 09 | 703 | (0.5+ | 1.6−) | 2008 10 02 | 703 | (0.5− | 1.7+) | | |
| 2003 10 21 | 644 | 0.1+ | 0.2− | 2005 03 09 | 703 | 0.3− | 0.5+ | 2008 10 09 | 703 | 0.2− | 0.7− | | |
| 2003 10 21 | 644 | 0.2+ | 0.2+ | 2005 03 09 | 703 | (1.5− | 0.1−) | 2008 10 09 | 703 | 0.3+ | 0.5− | | |
| 2003 10 21 | 644 | 0.0 | 0.3+ | 2006 04 21 | 703 | 0.1− | 0.4− | 2008 10 09 | 703 | 1.2+ | 0.5− | | |
| 2003 11 01 | 704 | 0.4+ | 0.3+ | 2006 04 21 | 703 | (1.8− | 0.1+) | 2008 10 09 | 703 | 0.5+ | 1.4− | | |
| 2003 11 01 | 704 | 0.5− | 0.8+ | 2006 04 21 | 703 | 0.1− | 0.2+ | 2009 09 29 | 691 | 0.1− | 0.1− | | |
| 2003 11 01 | 704 | 0.1− | 0.0 | 2006 04 21 | 703 | 0.9+ | 0.3+ | 2009 09 29 | 691 | 0.6+ | 0.1+ | | |
| 2003 11 01 | 704 | 0.6− | 0.1+ | 2006 04 24 | 699 | 0.0 | 0.1+ | 2009 09 29 | 691 | 0.0 | 0.1− | | |
| 2003 11 23 | 699 | 0.3− | 0.0 | 2006 04 24 | 699 | (2.5− | 0.7+) | 2009 12 09 | J75 | 0.0 | 0.4− | | |
| 2003 11 23 | 699 | 0.0 | 0.4+ | 2006 04 24 | 699 | 0.9− | 0.3− | 2009 12 09 | J75 | 0.1+ | 0.7− | | |
| 2003 11 23 | 699 | 0.4− | 0.8+ | 2006 04 24 | 699 | 0.1+ | 0.2+ | 2009 12 09 | J75 | 0.7− | 0.4− | | |
| 2003 11 23 | 699 | 0.0 | 0.3+ | 2006 04 27 | 703 | 0.4+ | 0.8+ | 2009 12 10 | G96 | 0.5+ | 0.3− | | |
| 2003 11 30 | 704 | 0.7− | 0.6+ | 2006 04 27 | 703 | 0.5+ | 0.1− | 2009 12 10 | G96 | 0.3+ | 0.4− | | |
| 2003 11 30 | 704 | 0.2+ | 0.2+ | 2006 04 27 | 703 | 1.5− | 0.2− | 2009 12 10 | G96 | 0.0 | 0.2− | | |
| 2003 11 30 | 704 | (2.3− | 1.7+) | 2006 04 27 | 703 | 0.7− | 0.1− | 2009 12 10 | G96 | 0.9+ | 1.2− | | |
| 2003 11 30 | 704 | 0.1− | 0.0 | 2006 05 20 | 691 | 0.1+ | 0.0 | 2009 12 16 | 704 | 0.3+ | 1.5+ | | |
| 2003 11 30 | 704 | 0.1+ | 0.3− | 2006 05 20 | 691 | 0.0 | 0.1+ | 2009 12 16 | 704 | 0.1+ | 0.1+ | | |
| 2003 12 01 | 703 | 0.2− | 0.7+ | 2006 05 20 | 691 | 0.1− | 0.3+ | 2009 12 16 | 704 | 0.4+ | 0.3+ | | |
| 2003 12 01 | 703 | 0.7− | 0.2+ | 2006 05 22 | 691 | 0.0 | 0.2+ | 2009 12 25 | 691 | 0.4− | 0.2− | | |
| 2003 12 01 | 703 | 1.2− | 0.6+ | 2006 05 22 | 691 | 0.2+ | 0.0 | 2009 12 25 | 691 | 0.2− | 0.5− | | |
| 2003 12 01 | 703 | 0.3− | 0.0 | 2006 05 22 | 691 | 0.4+ | 0.1+ | 2009 12 25 | 691 | 0.2− | 0.2− | | |
| 2005 02 01 | 644 | 0.4+ | 0.1+ | 2006 05 26 | 703 | 0.5+ | 0.8− | | | | | | |

**(228956)∗ 2003 UC$_{108}$**

Discovered 2003 Oct. 19 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 358.27273 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17785918 | $\omega$ | 189.37708 | | −0.10562695 | −0.98097947 | |
| $a$ | 3.1314960 | $\Omega$ | 266.81175 | | +0.92259478 | −0.03556985 | |
| $e$ | 0.1800586 | $i$ | 9.38739 | | +0.37102805 | −0.19082469 | |
| $P$ | 5.54 | $H$ | 15.1 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 05 | 644 | 0.4+ | 0.6+ | 2003 10 29 | 699 | 0.6− | 0.5+ | 2005 03 10 | 703 | 0.4− | 0.4− | | |
| 2002 08 05 | 644 | 0.7+ | 0.2+ | 2003 10 29 | 699 | 0.9+ | 0.5+ | 2005 03 17 | 703 | 0.2− | 1.4+ | | |
| 2002 08 05 | 644 | 0.2+ | 0.6+ | 2003 11 21 | 691 | 0.3− | 0.1+ | 2005 03 17 | 703 | 0.2− | 0.8− | | |
| 2003 10 19 | 644 | 0.0 | 0.2− | 2003 11 21 | 691 | 0.1− | 0.0 | 2005 03 17 | 703 | 0.1− | 0.1+ | | |
| 2003 10 19 | 644 | 0.0 | 0.0 | 2003 11 21 | 691 | 0.3− | 0.0 | 2005 03 17 | 703 | 0.3+ | 0.2− | | |
| 2003 10 19 | 644 | 0.1− | 0.1+ | 2003 11 21 | 644 | 0.1+ | 0.4+ | 2008 08 26 | 704 | 0.6+ | 0.4+ | | |
| 2003 10 22 | 704 | 0.0 | 1.1+ | 2003 11 21 | 644 | 0.0 | 0.0 | 2008 08 26 | 704 | 0.1− | 0.3+ | | |
| 2003 10 22 | 704 | 0.2+ | 0.6+ | 2003 11 21 | 644 | 0.3− | 0.2+ | 2008 08 26 | 704 | 1.0− | 0.1− | | |
| 2003 10 22 | 704 | 0.1− | 0.5− | 2003 11 24 | 699 | 0.9− | 0.2+ | 2008 08 26 | 704 | 1.3− | 0.9+ | | |
| 2003 10 22 | 704 | 0.1+ | 0.0 | 2003 11 24 | 699 | 0.1− | 0.4− | 2008 09 28 | A77 | 0.4− | 0.1+ | | |
| 2003 10 22 | 704 | 0.2+ | 0.7+ | 2003 11 24 | 699 | 0.4− | 0.2− | 2008 09 28 | A77 | 0.2+ | 0.6− | | |
| 2003 10 22 | 691 | 0.2+ | 0.3− | 2003 11 24 | 699 | 0.7− | 0.7+ | 2008 09 28 | A77 | 0.2− | 0.3− | | |
| 2003 10 22 | 691 | 0.2+ | 0.1− | 2003 12 19 | 704 | 1.5− | 0.3+ | 2009 11 16 | 691 | 0.2− | 0.2− | | |
| 2003 10 22 | 691 | 0.2+ | 0.0 | 2003 12 19 | 704 | 0.0 | 0.9+ | 2009 11 16 | 691 | 0.0 | 0.2− | | |
| 2003 10 23 | 699 | 0.9+ | 1.2− | 2003 12 19 | 704 | 0.6− | 0.6+ | 2009 11 16 | 691 | 0.0 | 0.1− | | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 23 | 699 | 0.4− | 0.7− | 2005 02 05 | 644 | 0.5+ | 0.5+ | 2009 11 20 | 691 | 0.5+ | 0.5+ |
| 2003 10 23 | 699 | (1.7+ | 3.0−) | 2005 02 05 | 644 | 0.6+ | 0.9+ | 2009 11 20 | 691 | 0.0 | 0.1− |
| 2003 10 23 | 699 | 0.5+ | 0.6− | 2005 02 05 | 644 | 0.6+ | 0.6+ | 2009 11 20 | 691 | 0.1− | 0.3− |
| 2003 10 24 | 704 | 0.2+ | 0.5− | 2005 03 04 | 703 | 0.0 | 0.0 | 2009 11 22 | 704 | 1.2+ | 0.1− |
| 2003 10 24 | 704 | 0.0 | 0.3− | 2005 03 04 | 703 | 0.2− | 0.2+ | 2009 11 22 | 704 | 0.9+ | 0.5+ |
| 2003 10 24 | 704 | 0.3+ | 0.2+ | 2005 03 04 | 703 | 0.6− | 0.1+ | 2009 11 22 | 704 | 0.9+ | 0.4+ |
| 2003 10 24 | 704 | 0.0 | 0.2− | 2005 03 04 | 703 | 0.4− | 0.4− | 2009 11 22 | 704 | 0.9+ | 0.8+ |
| 2003 10 24 | 704 | 1.2+ | 0.1+ | 2005 03 10 | 703 | 0.1+ | 0.4+ | 2009 12 17 | 691 | 0.2− | 0.7− |
| 2003 10 29 | 699 | 0.6+ | 0.4− | 2005 03 10 | 703 | 0.5− | 0.7+ | 2009 12 17 | 691 | 0.2+ | 0.2− |
| 2003 10 29 | 699 | 0.4+ | 0.4+ | 2005 03 10 | 703 | 0.8+ | 0.5− | 2009 12 17 | 691 | 0.8− | 0.4+ |

**(228957)∗ 2003 UU$_{112}$**

Discovered 2003 Oct. 20 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 67.13153 | | (2000.0) | | | |
| $n$ | 0.18279292 | $\omega$ | 313.05367 | | +0.95680601 | −0.23374499 |
| $a$ | 3.0748915 | $\Omega$ | 61.15810 | | +0.28897214 | +0.82986684 |
| $e$ | 0.1211632 | $i$ | 11.38236 | | −0.03189599 | +0.50664022 |
| $P$ | 5.39 | $H$ | 14.7 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 12 13 | 327 | 0.2− | 0.7− | 2003 10 24 | 608 | 0.7+ | 0.7− | 2008 08 23 | E12 | 1.1− | 0.5− |
| 1998 12 13 | 327 | 0.3− | 0.3− | 2003 10 27 | 704 | 0.3− | 0.1+ | 2008 08 23 | E12 | 0.1+ | 0.6− |
| 1998 12 13 | 327 | 0.4− | 0.2− | 2003 10 27 | 704 | 0.0 | 0.1+ | 2008 08 23 | E12 | 0.0 | 0.2− |
| 1998 12 17 | 704 | 1.2+ | 1.7+ | 2003 10 27 | 704 | 1.0− | 1.0+ | 2008 09 19 | 704 | 0.6+ | 0.5− |
| 1998 12 17 | 704 | 0.6+ | 0.5+ | 2003 10 27 | 704 | 0.3− | 0.4+ | 2008 09 19 | 704 | 0.7+ | 0.3− |
| 1998 12 17 | 704 | 0.0 | 1.2− | 2003 10 27 | 704 | 0.2− | 0.2− | 2008 09 19 | 704 | 0.3− | 0.6− |
| 1998 12 17 | 704 | (1.2+ | 2.2−) | 2003 11 19 | 644 | 0.0 | 0.1+ | 2008 09 19 | 704 | 0.1+ | 0.4− |
| 2003 09 22 | 644 | 0.2+ | 0.2+ | 2003 11 19 | 644 | 0.2− | 0.0 | 2008 10 02 | 703 | 0.8− | 0.0 |
| 2003 09 22 | 644 | 0.0 | 0.1+ | 2003 11 19 | 644 | 0.0 | 0.1− | 2008 10 02 | 703 | 0.0 | 0.3+ |
| 2003 09 22 | 644 | 0.1+ | 0.1+ | 2003 12 21 | 704 | 0.2− | 0.2+ | 2008 10 02 | 703 | 0.8+ | 1.2+ |
| 2003 10 14 | 699 | 0.6+ | 0.3+ | 2003 12 21 | 704 | 0.1− | 0.4+ | 2008 10 02 | 703 | 0.3− | 0.7+ |
| 2003 10 14 | 699 | 0.4− | 0.6+ | 2003 12 21 | 704 | 0.2+ | 0.7− | 2008 10 02 | 703 | 0.2− | 0.3+ |
| 2003 10 14 | 699 | 1.2− | 1.0− | 2005 01 07 | 703 | 0.6− | 0.2− | 2008 10 02 | 703 | 0.3+ | 0.3− |
| 2003 10 14 | 699 | (0.8+ | 1.6−) | 2005 01 07 | 703 | 0.1− | 1.2+ | 2008 10 02 | 703 | 0.3+ | 0.1+ |
| 2003 10 20 | 704 | 0.2+ | 0.2+ | 2005 01 07 | 703 | 0.8− | 0.1+ | 2008 10 02 | 703 | 0.8− | 0.8+ |
| 2003 10 20 | 704 | 0.2− | 1.0+ | 2005 01 07 | 703 | 0.7− | 0.3− | 2009 11 16 | 704 | 0.1+ | 0.1− |
| 2003 10 20 | 704 | 0.3+ | 0.1+ | 2005 02 01 | 644 | 0.2+ | 0.7+ | 2009 11 16 | 704 | 0.1+ | 0.4− |
| 2003 10 20 | 704 | 0.2− | 0.3+ | 2005 02 01 | 644 | 0.4− | 0.3− | 2009 11 16 | 704 | 0.2− | 0.7− |
| 2003 10 20 | 704 | 0.0 | 0.3+ | 2005 02 01 | 644 | 0.2+ | 0.3+ | 2009 12 15 | 704 | 0.8+ | 0.1+ |
| 2003 10 22 | 691 | 0.0 | 0.2− | 2006 04 07 | 703 | (1.0− | 2.2+) | 2009 12 15 | 704 | 0.4+ | 0.2− |
| 2003 10 22 | 691 | 0.1+ | 0.0 | 2006 04 07 | 703 | (1.6− | 2.1+) | 2009 12 15 | 704 | 0.2− | 0.1− |
| 2003 10 22 | 691 | 0.1+ | 0.1− | 2006 04 07 | 703 | 0.9+ | 0.8+ | 2009 12 15 | 704 | 0.3+ | 0.0 |
| 2003 10 24 | 608 | 0.6− | 0.4+ | 2006 04 07 | 703 | 0.7+ | 0.1+ | | | | |
| 2003 10 24 | 608 | 0.6+ | 0.2+ | 2008 08 23 | E12 | 0.2+ | 0.2− | | | | |

**(228958)∗ 2003 UV$_{112}$**

Discovered 2003 Oct. 20 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 63.47451 | | (2000.0) | | | |
| $n$ | 0.17631639 | $\omega$ | 290.31939 | | +0.97895082 | +0.12022398 |
| $a$ | 3.1497368 | $\Omega$ | 63.08384 | | −0.02968398 | +0.88336977 |
| $e$ | 0.2323989 | $i$ | 10.65916 | | −0.20192613 | +0.45299454 |
| $P$ | 5.59 | $H$ | 14.6 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 08 23 | 704 | 0.0 | 0.3− | 2003 12 20 | 608 | 0.2− | 0.8+ | 2009 11 11 | 704 | 0.6+ | 0.2+ |
| 2003 08 23 | 704 | 1.1+ | 1.1+ | 2003 12 20 | 608 | 0.7+ | 0.1+ | 2009 11 11 | 704 | 0.1+ | 1.4+ |
| 2003 08 23 | 704 | 0.3− | 0.0 | 2003 12 20 | 608 | 0.7+ | 0.1− | 2009 11 17 | 691 | 0.2− | 0.2− |
| 2003 08 23 | 704 | 0.2− | 0.7− | 2003 12 21 | 704 | 0.1− | 1.4− | 2009 11 17 | 704 | (1.7+ | 0.1−) |
| 2003 09 22 | 644 | 0.0 | 0.0 | 2003 12 21 | 704 | 0.3+ | 0.2− | 2009 11 17 | 704 | 1.2+ | 0.2+ |
| 2003 09 22 | 644 | 0.0 | 0.1+ | 2003 12 21 | 704 | (0.7+ | 2.7−) | 2009 11 17 | 691 | 0.0 | 0.1− |
| 2003 09 22 | 644 | 0.1− | 0.1− | 2003 12 21 | 704 | 0.1+ | 1.4− | 2009 11 17 | 704 | (0.4+ | 1.5+) |
| 2003 10 14 | 699 | 0.3+ | 0.1− | 2003 12 21 | 704 | 0.2+ | 1.5+ | 2009 11 17 | 691 | 0.2− | 0.1+ |
| 2003 10 14 | 699 | 0.6− | 0.6− | 2003 12 23 | 704 | 0.3+ | 0.8+ | 2009 11 17 | 704 | 0.7+ | 0.1+ |
| 2003 10 14 | 699 | 0.2+ | 0.5− | 2003 12 23 | 704 | 0.3+ | 1.3+ | 2009 11 21 | 691 | 0.1− | 0.0 |
| 2003 10 14 | 699 | 0.5− | 0.3+ | 2003 12 23 | 704 | 0.2+ | 0.2+ | 2009 11 21 | 691 | 0.2− | 0.0 |
| 2003 10 20 | 704 | 0.1− | 0.1− | 2003 12 23 | 704 | (0.5− | 1.9+) | 2009 11 21 | 691 | 0.1+ | 0.3− |
| 2003 10 20 | 704 | 0.8− | 0.5+ | 2003 12 23 | 704 | 0.8+ | 1.3+ | 2009 11 22 | 704 | 0.4+ | 1.0+ |
| 2003 10 20 | 704 | 0.0 | 0.6+ | 2007 04 20 | 691 | 0.6+ | 0.4+ | 2009 11 22 | 704 | 0.3+ | 0.5+ |
| 2003 10 20 | 704 | 0.3+ | 0.1+ | 2007 04 20 | 691 | 0.1− | 0.6+ | 2009 11 22 | 704 | 0.4− | 1.2+ |
| 2003 10 20 | 704 | 0.1+ | 0.2+ | 2007 04 20 | 691 | 0.3+ | 0.2+ | 2009 11 22 | 704 | 0.1+ | 1.1+ |
| 2003 10 22 | 691 | 0.1+ | 0.1− | 2007 05 16 | G96 | 0.3− | 0.2+ | 2009 11 22 | 704 | 0.4+ | 1.0+ |
| 2003 10 22 | 691 | 0.1− | 0.1− | 2007 05 16 | G96 | 0.1− | 0.3+ | 2009 11 25 | 691 | 0.6− | 0.0 |
| 2003 10 22 | 691 | 0.3− | 0.1− | 2007 05 16 | G96 | 0.0 | 0.0 | 2009 11 25 | 691 | 0.2− | 0.0 |
| 2003 10 27 | 704 | 0.4+ | 0.4+ | 2007 05 16 | G96 | 0.1+ | 0.2+ | 2009 11 25 | 691 | 0.1+ | 0.0 |
| 2003 10 27 | 704 | 0.2+ | 0.0 | 2008 08 03 | E12 | 0.3+ | 0.2− | 2009 12 08 | J75 | 0.3+ | 0.3− |
| 2003 10 27 | 704 | 0.0 | 0.3+ | 2008 08 03 | E12 | 0.9+ | 0.4+ | 2009 12 08 | J75 | 0.5+ | 0.3− |
| 2003 10 27 | 704 | 0.5+ | 0.4+ | 2008 08 03 | E12 | 0.0 | 0.3− | 2009 12 08 | J75 | 0.5+ | 0.0 |
| 2003 10 27 | 704 | 0.2+ | 0.0 | 2008 08 03 | E12 | 0.1+ | 0.1− | 2009 12 08 | J75 | 0.5+ | 0.7− |
| 2003 11 18 | 699 | 0.7− | 0.5− | 2008 08 26 | E12 | 0.0 | 0.4+ | 2009 12 09 | J75 | 0.3+ | 0.2+ |
| 2003 11 18 | 699 | 0.4+ | 0.8− | 2008 08 26 | E12 | 0.3− | 0.4+ | 2009 12 09 | J75 | 0.4+ | 0.3− |
| 2003 11 18 | 699 | 0.2− | 0.3+ | 2008 08 26 | E12 | 0.3− | 0.2+ | 2009 12 10 | 704 | 0.4− | 0.8+ |
| 2003 11 18 | 699 | 0.5− | 0.8− | 2008 08 26 | E12 | 0.3− | 0.2+ | 2009 12 10 | 704 | 0.3− | 0.6+ |
| 2003 11 19 | 644 | 0.4− | 0.1+ | 2008 10 01 | E12 | 0.4+ | 0.6+ | 2009 12 10 | 704 | 0.1+ | 0.1− |
| 2003 11 19 | 644 | 0.1− | 0.2+ | 2008 10 01 | E12 | 0.7− | 0.3+ | 2009 12 13 | G96 | 0.0 | 0.1− |
| 2003 11 19 | 644 | 0.3− | 0.2+ | 2008 10 01 | E12 | 0.4− | 0.2+ | 2009 12 13 | G96 | 0.4− | 0.8− |
| 2003 11 22 | 704 | 0.4+ | 0.7+ | 2009 11 09 | G96 | 0.2+ | 0.2− | 2009 12 13 | G96 | 0.5+ | 0.9− |
| 2003 11 22 | 704 | 0.8− | 0.8+ | 2009 11 09 | G96 | 0.0 | 0.1− | 2009 12 13 | G96 | 0.4+ | 0.0 |
| 2003 11 22 | 704 | (1.3− | 2.8+) | 2009 11 09 | G96 | 0.3+ | 0.0 | 2009 12 16 | 704 | 0.7− | 0.8+ |
| 2003 12 12 | 644 | 0.1− | 0.5− | 2009 11 09 | G96 | 0.1+ | 0.0 | 2009 12 16 | 704 | 0.2− | 0.6− |
| 2003 12 12 | 644 | 0.0 | 0.4− | 2009 11 11 | 704 | 0.4− | 1.5+ | 2009 12 16 | 704 | 0.0 | 0.1− |
| 2003 12 12 | 644 | 0.3− | 0.3− | 2009 11 11 | 704 | 0.7− | 0.6+ | 2009 12 16 | 704 | 0.2− | 0.6− |

**(228959)∗ 2003 UJ$_{113}$**

Discovered 2003 Oct. 20 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 64.55277 | | (2000.0) | | | |
| $n$ | 0.17697623 | $\omega$ | 294.49411 | | +0.97296499 | +0.04953006 |
| $a$ | 3.1419029 | $\Omega$ | 63.35485 | | +0.06904120 | +0.86969082 |
| $e$ | 0.1780396 | $i$ | 14.61849 | | −0.22039156 | +0.49110554 |
| $P$ | 5.57 | $H$ | 15.5 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 20 | 704 | 0.2+ | 0.9+ | 2003 11 26 | 699 | (1.6− | 0.3−) | 2009 11 23 | 691 | 0.2− | 0.1+ |
| 2003 10 20 | 704 | 0.1− | 0.7− | 2003 11 26 | 699 | 0.4− | 1.3+ | 2009 11 23 | 691 | 0.1− | 0.1+ |
| 2003 10 20 | 704 | 0.4− | 0.4− | 2007 05 10 | 691 | 0.0 | 0.1+ | 2009 11 27 | 691 | 0.1− | 0.1+ |
| 2003 10 21 | 644 | 0.4− | 0.1+ | 2007 05 10 | 691 | 0.1+ | 0.4+ | 2009 11 27 | 691 | 0.1+ | 0.1− |
| 2003 10 21 | 644 | 0.3− | 0.2+ | 2007 05 10 | 691 | 0.3+ | 0.0 | 2009 11 27 | 691 | 0.1− | 0.1+ |
| 2003 10 21 | 644 | 0.1− | 0.3+ | 2007 05 26 | G96 | 0.2− | 0.5+ | 2009 12 13 | G96 | 0.2− | 0.3+ |
| 2003 10 22 | 691 | 0.2− | 0.1+ | 2007 05 26 | G96 | 0.7+ | 0.3+ | 2009 12 13 | G96 | 0.1− | 0.2+ |
| 2003 10 22 | 691 | 0.1− | 0.0 | 2007 05 26 | G96 | 0.0 | 0.2+ | 2009 12 13 | G96 | 0.1− | 0.2+ |
| 2003 10 22 | 644 | 0.1− | 0.2+ | 2007 05 26 | G96 | 0.1− | 0.1+ | 2009 12 13 | G96 | 0.1− | 0.2+ |
| 2003 10 22 | 691 | 0.0 | 0.1+ | 2008 08 02 | E12 | 0.1+ | 0.5+ | 2009 12 15 | 704 | 0.1+ | 0.1− |
| 2003 10 22 | 644 | 0.0 | 0.2+ | 2008 08 02 | E12 | 0.4− | 0.0 | 2009 12 15 | 704 | 1.4+ | 0.9+ |
| 2003 10 22 | 644 | 0.2+ | 0.0 | 2009 11 09 | G96 | 0.3+ | 0.2+ | 2009 12 15 | 704 | 0.2+ | 0.0 |
| 2003 11 19 | 703 | 0.1− | 0.6− | 2009 11 09 | G96 | 0.4+ | 0.1+ | 2009 12 15 | 704 | 0.2+ | 0.0 |
| 2003 11 19 | 703 | (2.1+ | 0.1+) | 2009 11 09 | G96 | 0.5− | 0.1+ | 2009 12 18 | G96 | 0.1+ | 0.1− |
| 2003 11 19 | 703 | (2.0+ | 0.3−) | 2009 11 17 | 691 | 0.7− | 0.2− | 2009 12 18 | G96 | 0.1− | 0.2− |
| 2003 11 19 | 703 | 1.5+ | 0.9− | 2009 11 17 | 691 | 0.1+ | 0.9+ | 2009 12 18 | G96 | 0.3+ | 0.2+ |
| 2003 11 26 | 699 | 0.9+ | 0.5− | 2009 11 17 | 691 | 0.2+ | 0.8− | 2009 12 18 | G96 | 0.2+ | 0.1+ |
| 2003 11 26 | 699 | 0.0 | 0.0 | 2009 11 23 | 691 | 0.1+ | 0.1+ | | | | |

**(228960)∗ 2003 UC$_{114}$**

Discovered 2003 Oct. 20 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 71.01430 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18991203 | $\omega$ | 275.63402 | | +0.85086131 | −0.51730066 | |
| $a$ | 2.9975590 | $\Omega$ | 115.54814 | | +0.51328717 | +0.78115577 | |
| $e$ | 0.1256986 | $i$ | 5.84259 | | +0.11212186 | +0.34956500 | |
| $P$ | 5.19 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 20 | 704 | 0.3− | 0.2+ | 2008 09 21 | 703 | 1.4+ | 0.3+ | 2008 10 29 | 703 | 0.7+ | 0.2− |
| 2003 10 20 | 704 | 0.2− | 0.2− | 2008 09 21 | 703 | (2.6+ | 2.0+) | 2008 10 29 | 703 | 0.3+ | 0.0 |
| 2003 10 20 | 704 | 0.1+ | 0.2+ | 2008 09 21 | 703 | (2.3+ | 1.5+) | 2008 10 29 | 703 | 0.2− | 0.4+ |
| 2003 10 20 | 704 | 0.4+ | 0.4− | 2008 09 22 | 704 | 0.6− | 0.2+ | 2008 10 30 | 704 | 0.6− | 0.6+ |
| 2003 10 22 | 691 | 0.2− | 0.3− | 2008 09 22 | 704 | 1.0+ | 0.4− | 2008 10 30 | 704 | 0.2− | 0.5+ |
| 2003 10 22 | 691 | 0.1+ | 0.1− | 2008 09 22 | 704 | 0.5− | 0.9− | 2008 10 30 | 704 | 1.3− | 0.7+ |
| 2003 10 22 | 691 | 0.1− | 0.1− | 2008 09 22 | 704 | 0.5− | 0.0 | 2008 10 30 | 704 | 0.2− | 0.1+ |
| 2003 10 27 | 704 | 0.1− | 0.2+ | 2008 09 22 | 704 | 0.4− | 0.4− | 2008 10 30 | 704 | 0.5− | 0.2+ |
| 2003 10 27 | 704 | 0.4+ | 0.2+ | 2008 09 23 | 704 | 0.6− | 0.2+ | 2009 09 18 | 691 | 0.2− | 0.0 |
| 2003 10 27 | 704 | 0.4+ | 0.3+ | 2008 09 23 | 704 | 0.1− | 0.5+ | 2009 09 18 | 691 | 0.0 | 0.1− |
| 2003 10 27 | 704 | 0.1+ | 0.4+ | 2008 09 23 | 704 | 0.2− | 0.8+ | 2009 09 18 | 691 | 0.2+ | 0.1− |
| 2003 11 19 | 644 | 0.3− | 0.2+ | 2008 09 23 | 704 | 0.3+ | 0.1+ | 2009 11 16 | G96 | 0.1− | 0.1− |
| 2003 11 19 | 644 | 0.1− | 0.2+ | 2008 09 23 | 704 | 0.1+ | 0.5+ | 2009 11 16 | G96 | 0.1− | 0.5+ |
| 2003 11 19 | 644 | 0.3+ | 0.1+ | 2008 10 01 | 703 | (2.8+ | 2.1+) | 2009 11 16 | G96 | 0.3+ | 0.2+ |
| 2006 03 25 | 691 | 0.2+ | 0.9+ | 2008 10 01 | 703 | (2.1+ | 0.5+) | 2009 11 16 | G96 | 0.3+ | 0.1− |
| 2006 03 25 | 691 | 0.3+ | 0.8+ | 2008 10 01 | 703 | (0.8+ | 2.8+) | 2009 12 15 | G96 | 0.8+ | 0.1− |
| 2006 03 25 | 691 | 0.3+ | 0.5+ | 2008 10 01 | 703 | (1.7+ | 1.2+) | 2009 12 15 | G96 | 0.3+ | 0.1− |
| 2008 09 06 | 703 | 0.5+ | 0.3− | 2008 10 22 | 704 | 0.6− | 0.8+ | 2009 12 15 | G96 | 0.2− | 0.2− |
| 2008 09 06 | 703 | 1.3− | 0.5+ | 2008 10 22 | 704 | 0.2− | 0.6+ | 2009 12 15 | G96 | 0.3+ | 0.1− |
| 2008 09 06 | 703 | 0.1+ | 0.8+ | 2008 10 22 | 704 | 0.1− | 0.9+ | 2009 12 25 | 691 | 0.1− | 0.2+ |
| 2008 09 06 | 703 | 0.6− | 0.2+ | 2008 10 22 | 704 | 1.1+ | 1.0+ | 2009 12 25 | 691 | 0.2− | 0.1+ |
| 2008 09 21 | 703 | 0.3− | 0.4+ | 2008 10 29 | 703 | (1.7+ | 0.2−) | 2009 12 25 | 691 | 0.1+ | 0.3+ |

**(228961)∗ 2003 UM$_{125}$ = 2002 OR$_{25}$**

Discovered 2003 Oct. 20 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 72950)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 19.65019 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18089583 | $\omega$ | 357.68736 | | +0.41783948 | −0.88671605 | |
| $a$ | 3.0963521 | $\Omega$ | 67.55985 | | +0.83694983 | +0.29096361 | |
| $e$ | 0.1213484 | $i$ | 12.36035 | | +0.35344751 | +0.35926985 | |
| $P$ | 5.45 | $H$ | 15.1 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 12 17 | 704 | 1.4− | 1.2+ | 2003 10 22 | 644 | 0.3+ | 0.8+ | 2006 03 29 | D35 | 0.6− | 0.4+ |
| 1998 12 17 | 704 | 1.5− | 1.5+ | 2003 10 24 | 645 | 0.0 | 0.1− | 2006 03 29 | D35 | 0.0 | 0.2− |
| 1998 12 17 | 704 | 0.5− | 0.8+ | 2003 10 24 | 645 | 0.0 | 0.1− | 2006 03 30 | D35 | 0.5− | 0.2+ |
| 1998 12 17 | 704 | (5.9− | 1.2+) | 2003 10 27 | 699 | 0.4− | 0.8− | 2006 03 30 | D35 | 0.4− | 0.2+ |
| 2002 07 16 | 644 | 0.1+ | 0.3+ | 2003 10 27 | 699 | 0.5+ | 0.0 | 2006 03 30 | D35 | 0.5− | 0.1− |
| 2002 07 16 | 644 | 0.2+ | 0.1+ | 2003 10 27 | 699 | 0.1− | 0.4− | 2006 03 31 | D35 | 0.7− | 0.6+ |
| 2002 07 16 | 644 | 0.1+ | 0.8+ | 2003 10 27 | 699 | 0.2− | 0.0 | 2006 03 31 | D35 | 0.5− | 0.4+ |
| 2003 09 22 | 704 | 0.7− | 0.3+ | 2003 11 20 | 645 | 0.1+ | 0.1− | 2006 03 31 | D35 | 0.1− | 0.6+ |
| 2003 09 22 | 704 | 0.7− | 0.1− | 2003 11 20 | 645 | 0.0 | 0.0 | 2008 08 23 | E12 | 0.7− | 1.2+ |
| 2003 09 22 | 704 | 0.5− | 0.5− | 2003 11 28 | 645 | 0.1+ | 0.1− | 2008 08 23 | E12 | 0.8+ | 0.1− |
| 2003 09 26 | 645 | 0.0 | 0.0 | 2003 11 28 | 645 | 0.1+ | 0.1− | 2008 08 23 | E12 | 0.2+ | 0.4+ |
| 2003 09 26 | 645 | 0.0 | 0.0 | 2003 12 19 | 644 | 0.2− | 0.4+ | 2008 08 23 | E12 | 1.1+ | 0.1+ |
| 2003 09 28 | 699 | (0.9− | 1.9+) | 2003 12 19 | 644 | 0.1− | 0.4+ | 2009 08 27 | 691 | (2.5− | 0.3−) |
| 2003 09 28 | 699 | 0.1+ | 0.3− | 2003 12 19 | 644 | 0.1− | 0.2+ | 2009 08 27 | 691 | (2.1− | 0.1+) |
| 2003 09 28 | 699 | 1.2− | 0.6+ | 2005 01 17 | 704 | 0.1+ | 0.6+ | 2009 08 27 | 691 | (1.5− | 0.3−) |
| 2003 09 28 | 699 | (1.9+ | 1.8+) | 2005 01 17 | 704 | 1.0+ | 0.5+ | 2009 12 10 | 704 | 0.1− | 0.5− |
| 2003 10 15 | 699 | 0.6+ | 1.2+ | 2005 01 17 | 704 | 1.0+ | 0.6+ | 2009 12 10 | 704 | 0.0 | 1.5− |
| 2003 10 15 | 699 | (1.8+ | 0.4−) | 2005 01 17 | 704 | 0.6+ | 0.2+ | 2009 12 10 | 704 | 0.4+ | 0.1− |
| 2003 10 15 | 699 | 0.0 | 1.1+ | 2005 01 31 | 704 | 0.6+ | 0.1+ | 2009 12 10 | 704 | 0.1− | 0.5− |
| 2003 10 15 | 699 | 0.9+ | 1.5+ | 2005 01 31 | 704 | 0.9+ | 0.0 | 2009 12 15 | 704 | 0.7− | 0.2+ |
| 2003 10 20 | 704 | 0.4− | 0.1− | 2005 01 31 | 704 | 0.9+ | 0.3− | 2009 12 15 | 704 | 0.6+ | 1.1+ |
| 2003 10 20 | 704 | 0.3− | 0.4+ | 2005 02 28 | 703 | 0.1+ | 0.7− | 2009 12 15 | 704 | 0.5+ | 0.0 |
| 2003 10 20 | 704 | 0.2− | 1.1+ | 2005 02 28 | 703 | 0.3+ | 1.0− | 2009 12 15 | 704 | 0.1+ | 0.2− |
| 2003 10 20 | 704 | 0.8− | 0.0 | 2005 02 28 | 703 | 0.5+ | 0.2− | 2009 12 15 | 704 | 0.1+ | 0.1+ |
| 2003 10 20 | 704 | 0.7− | 0.3+ | 2005 02 28 | 703 | 0.1+ | 1.2− | 2009 12 20 | 691 | 0.3− | 0.2− |
| 2003 10 22 | 645 | 0.0 | 0.1− | 2005 03 14 | 703 | 0.6+ | 0.2− | 2009 12 20 | 691 | 0.1− | 0.0 |
| 2003 10 22 | 645 | 0.0 | 0.1− | 2005 03 14 | 703 | 0.1+ | 1.2− | 2009 12 20 | 691 | 0.5− | 0.2+ |
| 2003 10 22 | 644 | 0.2+ | 0.6+ | 2005 03 14 | 703 | 0.1− | 0.5+ | | | | |
| 2003 10 22 | 644 | 0.1+ | 0.7+ | 2005 03 14 | 703 | (1.6− | 0.1+) | | | | |

**(228962)∗ 2003 UT$_{133}$**

Discovered 2003 Oct. 20 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 81.06206 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17647717 | $\omega$ | 96.84981 | | +0.89581771 | +0.38152097 | |
| $a$ | 3.1478234 | $\Omega$ | 240.94563 | | −0.43440410 | +0.85997390 | |
| $e$ | 0.0623977 | $i$ | 15.11414 | | +0.09382804 | +0.33894932 | |
| $P$ | 5.58 | $H$ | 14.7 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 12 25 | 910 | 1.0+ | 0.9+ | 2007 05 14 | 704 | (0.7+ | 2.1−) | 2009 11 17 | 704 | 0.5+ | 1.0+ |
| 1998 12 26 | 910 | 0.8+ | 0.3+ | 2007 05 14 | 704 | (1.8− | 0.2+) | 2009 11 17 | 704 | 0.2− | 0.5− |
| 1998 12 26 | 910 | 0.6+ | 1.0+ | 2007 05 25 | G96 | 0.1+ | 0.1+ | 2009 11 17 | 704 | 0.8− | 0.1− |
| 2003 09 19 | 644 | 0.6− | 0.3+ | 2007 05 25 | G96 | 0.0 | 0.1− | 2009 11 17 | 704 | 0.2− | 0.9+ |
| 2003 09 19 | 644 | 0.4− | 0.2+ | 2007 05 25 | G96 | 0.1+ | 0.2− | 2009 11 17 | 704 | 0.6+ | 1.2+ |
| 2003 09 19 | 644 | 0.2− | 0.4+ | 2007 05 25 | G96 | 0.2+ | 0.1+ | 2009 11 20 | G96 | 0.2+ | 0.1− |
| 2003 09 29 | 699 | 0.8− | 0.1− | 2007 06 18 | 691 | 0.1− | 0.2+ | 2009 11 20 | G96 | 0.8+ | 0.4− |
| 2003 09 29 | 699 | 0.5+ | 0.4− | 2007 06 18 | 691 | 0.1− | 0.7+ | 2009 11 20 | G96 | 0.1+ | 0.0 |
| 2003 09 29 | 699 | 0.5+ | 0.2+ | 2007 06 18 | 691 | 0.2− | 0.3− | 2009 11 20 | G96 | 0.4+ | 0.1− |
| 2003 09 29 | 699 | 0.2+ | 1.1− | 2008 09 04 | 691 | 0.2− | 0.0 | 2009 11 20 | J75 | 0.9+ | 0.2− |
| 2003 10 05 | 691 | 0.1− | 0.0 | 2008 09 04 | 691 | 0.2+ | 0.0 | 2009 11 20 | J75 | 0.5+ | 0.9− |
| 2003 10 05 | 691 | 0.0 | 0.1− | 2008 09 04 | 691 | 0.0 | 0.0 | 2009 11 20 | J75 | (1.9+ | 0.8+) |
| 2003 10 05 | 691 | 0.1− | 0.2− | 2008 09 06 | 691 | 0.2+ | 0.3+ | 2009 11 21 | 704 | 0.9− | 0.1+ |
| 2003 10 20 | 644 | 0.3− | 0.3− | 2008 09 06 | 691 | 0.1+ | 0.0 | 2009 11 21 | 704 | 0.1+ | 0.6− |
| 2003 10 20 | 644 | 0.3− | 0.1+ | 2008 09 06 | 691 | 0.2+ | 0.0 | 2009 11 21 | 704 | 1.1+ | 0.1+ |
| 2003 10 20 | 644 | 0.3− | 0.2+ | 2009 11 08 | 691 | 0.3− | 0.1+ | 2009 11 24 | G96 | 0.2+ | 0.2− |
| 2003 10 22 | 704 | 0.2− | 0.1− | 2009 11 08 | 691 | 0.2− | 0.0 | 2009 11 24 | G96 | 0.3+ | 0.1− |
| 2003 10 22 | 704 | 0.1+ | 0.0 | 2009 11 08 | 703 | 0.4+ | 0.0 | 2009 11 24 | G96 | 0.5+ | 0.3− |
| 2003 10 22 | 704 | 1.4+ | 0.0 | 2009 11 08 | 691 | 0.2− | 0.1− | 2009 11 24 | G96 | 0.0 | 0.2− |
| 2003 10 22 | 704 | 0.4+ | 0.6− | 2009 11 08 | 703 | 0.8− | 0.4− | 2009 12 11 | G96 | 0.1+ | 0.1+ |
| 2003 10 22 | 704 | 0.5− | 0.8+ | 2009 11 08 | 703 | 0.2+ | 0.7+ | 2009 12 11 | G96 | 0.2− | 0.1− |
| 2003 11 19 | 704 | 0.1− | 0.1− | 2009 11 08 | 703 | 0.2+ | 1.0+ | 2009 12 11 | G96 | 0.1+ | 0.2+ |
| 2003 11 19 | 704 | 0.6− | 0.0 | 2009 11 09 | 691 | 0.1+ | 0.1− | 2009 12 11 | G96 | 0.4+ | 0.2− |
| 2003 11 19 | 704 | 0.4− | 0.3+ | 2009 11 09 | 691 | 0.0 | 0.1+ | 2009 12 11 | 703 | 0.4− | 0.2− |
| 2003 11 19 | 704 | 0.8− | 0.1− | 2009 11 09 | 691 | 0.2− | 0.1+ | 2009 12 11 | 703 | 1.2− | 0.0 |
| 2003 11 19 | 704 | 0.7− | 0.0 | 2009 11 15 | J75 | 0.3− | 0.3− | 2009 12 11 | 703 | 0.2+ | 0.6+ |
| 2007 05 14 | 704 | 0.1+ | 0.3− | 2009 11 15 | J75 | 0.6+ | 0.5− | 2009 12 11 | 703 | 0.4− | 0.2− |
| 2007 05 14 | 704 | (2.0− | 0.2−) | 2009 11 15 | J75 | 0.2+ | 0.3− | | | | |

**(228963)∗ 2003 UX$_{138}$ = 2005 AX$_{25}$**

Discovered 2003 Oct. 16 by NEAT at Palomar.

Id. G. V. Williams (*MPO* 72952)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 14.62984 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18380790 | $\omega$ | 284.73962 | | +0.46416893 | −0.88357315 | |
| $a$ | 3.0635614 | $\Omega$ | 137.42561 | | +0.84383789 | +0.41984079 | |
| $e$ | 0.1334316 | $i$ | 5.25923 | | +0.26923005 | +0.20744205 | |
| $P$ | 5.36 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 22 | 691 | 0.0 | 0.0 | 2005 01 11 | 704 | 1.2− | 0.2− | 2006 03 24 | 691 | 0.2− | 0.3+ |
| 2003 09 22 | 691 | 0.1+ | 0.3+ | 2005 01 11 | 704 | 0.4− | 0.5− | 2006 03 24 | 691 | 0.1− | 0.3+ |
| 2003 09 22 | 691 | 0.4− | 0.2− | 2005 01 11 | 704 | 1.2− | 0.4+ | 2008 08 24 | 704 | 0.9− | 0.5+ |
| 2003 09 27 | 333 | 0.1− | 0.2− | 2005 01 11 | 704 | 0.6− | 0.2− | 2008 08 24 | 704 | 0.8− | 0.1− |
| 2003 09 27 | 333 | 0.3+ | 0.0 | 2005 01 13 | 691 | 0.4+ | 0.0 | 2008 08 24 | 704 | 0.2− | 0.7+ |
| 2003 09 27 | 333 | 0.3− | 0.1+ | 2005 01 13 | 691 | 0.0 | 0.3+ | 2008 08 24 | 704 | 0.0 | 0.3+ |
| 2003 09 28 | 704 | 0.3− | 0.3+ | 2005 01 13 | 691 | 0.1+ | 0.2+ | 2009 11 19 | 704 | 1.1+ | 0.6+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 28 | 704 | 0.3− | 0.8+ | 2005 01 17 | 704 | 0.1+ | 0.5+ | 2009 11 19 | 704 | 0.8+ | 1.0+ | | |
| 2003 09 28 | 704 | 0.2− | 0.5+ | 2005 01 17 | 704 | 0.4+ | 0.2− | 2009 11 19 | 704 | 0.1+ | 0.3+ | | |
| 2003 09 28 | 704 | 0.1+ | 0.7+ | 2005 01 17 | 704 | 0.3+ | 0.2+ | 2009 11 19 | 704 | 0.7+ | 0.5+ | | |
| 2003 09 28 | 704 | 0.5+ | 0.6+ | 2005 01 17 | 704 | 0.6+ | 0.4− | 2009 11 19 | 704 | 0.1+ | 0.1+ | | |
| 2003 10 16 | 644 | 0.0 | 0.2+ | 2005 01 17 | 704 | 0.4+ | 0.2+ | 2009 11 27 | G96 | 0.2− | 0.6− | | |
| 2003 10 16 | 644 | 0.1+ | 0.4+ | 2005 01 17 | 704 | 0.7+ | 0.4− | 2009 11 27 | G96 | 0.6− | 0.6− | | |
| 2003 10 16 | 644 | 0.2+ | 0.1+ | 2005 01 17 | 704 | 0.2+ | 0.1− | 2009 11 27 | G96 | 0.4− | 0.5− | | |
| 2003 10 18 | 699 | 1.3− | 1.3− | 2005 01 17 | 704 | 0.4− | 0.1+ | 2009 11 27 | G96 | 0.7− | 0.6− | | |
| 2003 10 18 | 699 | 0.3+ | 0.0 | 2005 01 17 | 704 | 0.5+ | 0.3− | 2009 11 27 | G96 | 0.4− | 0.6− | | |
| 2003 10 18 | 699 | 0.1+ | 0.4− | 2005 01 17 | 704 | 0.7+ | 0.3− | 2009 12 11 | 703 | 0.1+ | 0.4+ | | |
| 2003 10 18 | 699 | 0.7+ | 0.5− | 2005 02 01 | 703 | 0.1− | 0.2+ | 2009 12 11 | 703 | 1.5− | 1.4− | | |
| 2003 10 25 | 704 | 0.6+ | 0.0 | 2005 02 01 | 703 | 0.3− | 0.8+ | 2009 12 11 | 703 | 0.6+ | 0.4+ | | |
| 2003 10 25 | 704 | 0.3− | 0.9+ | 2005 02 01 | 703 | 0.3+ | 0.5+ | 2009 12 11 | 703 | 1.0− | 0.4− | | |
| 2003 10 25 | 704 | 0.8+ | 0.5+ | 2005 02 01 | 703 | 0.6− | 0.1− | 2009 12 12 | 704 | 0.4+ | 0.1+ | | |
| 2003 10 25 | 704 | 0.2+ | 0.0 | 2005 02 02 | 704 | 1.0+ | 0.1− | 2009 12 12 | 704 | 1.4+ | 0.3+ | | |
| 2004 12 10 | 291 | 0.6− | 0.2+ | 2005 02 02 | 704 | 0.2− | 1.0− | 2009 12 12 | 704 | 0.4+ | 0.9+ | | |
| 2004 12 10 | 291 | 0.2− | 0.1+ | 2005 02 02 | 704 | (1.5− | 3.2−) | | | | | | |
| 2004 12 10 | 291 | 0.4− | 0.1+ | 2006 03 24 | 691 | 0.9+ | 0.3+ | | | | | | |

**(228964)∗ 2003 UN$_{139}$**

Discovered 2003 Oct. 16 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 95.70712 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18247794 | $\omega$ | 268.58690 | | +0.79781856 | +0.56500044 | |
| $a$ | 3.0784290 | $\Omega$ | 56.96483 | | −0.40319223 | +0.75944624 | |
| $e$ | 0.1427605 | $i$ | 14.53376 | | −0.44824277 | +0.32251500 | |
| $P$ | 5.40 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 11 14 | 691 | 0.2− | 0.3− | 2003 10 18 | 699 | 0.6+ | 0.4− | 2007 05 11 | G96 | 0.1− | 0.6+ | | |
| 1998 11 14 | 691 | 0.2− | 1.0− | 2003 10 29 | 699 | 0.7− | 0.6+ | 2007 05 11 | G96 | 0.1+ | 0.1− | | |
| 1998 11 23 | 691 | 0.6+ | 0.3− | 2003 10 29 | 699 | 1.2− | 0.3+ | 2007 05 11 | G96 | 0.0 | 0.1+ | | |
| 1998 11 23 | 691 | 0.6+ | 0.6− | 2003 10 29 | 699 | 0.2+ | 0.1− | 2008 08 03 | E12 | 0.2− | 0.3− | | |
| 1998 11 23 | 691 | 0.6+ | 0.3− | 2003 10 29 | 699 | 0.1+ | 0.2− | 2008 08 03 | E12 | 0.0 | 0.8+ | | |
| 2003 09 28 | 699 | 0.4− | 1.1− | 2007 04 18 | 691 | 0.0 | 0.1− | 2008 08 03 | E12 | 0.1+ | 0.2+ | | |
| 2003 09 28 | 699 | (1.7− | 0.4+) | 2007 04 18 | 691 | 0.0 | 0.1− | 2009 11 09 | 691 | 0.2+ | 0.4+ | | |
| 2003 09 28 | 699 | 0.3+ | 0.8+ | 2007 04 18 | 691 | 0.1− | 0.1− | 2009 11 09 | 691 | 0.6− | 0.1+ | | |
| 2003 09 28 | 699 | 0.8− | 0.1− | 2007 04 22 | 691 | 0.3+ | 0.1− | 2009 11 09 | 691 | 0.0 | 0.2+ | | |
| 2003 10 16 | 644 | 0.1− | 0.4+ | 2007 04 22 | 691 | 0.2+ | 0.0 | 2009 11 18 | 691 | 0.1− | 0.3+ | | |
| 2003 10 16 | 644 | 0.3− | 0.2+ | 2007 04 22 | 691 | 0.9− | 0.2+ | 2009 11 18 | 691 | 0.0 | 0.1+ | | |
| 2003 10 16 | 644 | 0.2− | 0.2+ | 2007 04 26 | 691 | 0.1+ | 0.0 | 2009 11 18 | 691 | 0.6− | 0.3+ | | |
| 2003 10 18 | 699 | 0.1− | 1.0− | 2007 04 26 | 691 | 0.0 | 0.1− | 2009 12 15 | 704 | 0.3+ | 2.2+ | | |
| 2003 10 18 | 699 | 0.2+ | 0.6+ | 2007 04 26 | 691 | 0.2+ | 0.1− | 2009 12 15 | 704 | 0.6+ | 1.0+ | | |
| 2003 10 18 | 699 | 0.7+ | 1.2+ | 2007 05 11 | G96 | 0.5+ | 0.3+ | 2009 12 15 | 704 | 0.1− | 0.0 | | |

**(228965)∗ 2003 UC$_{143}$**

Discovered 2003 Oct. 18 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 44.47998 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17299140 | $\omega$ | 78.73107 | | +0.92799304 | −0.36786439 | |
| $a$ | 3.1899684 | $\Omega$ | 302.82776 | | +0.30843894 | +0.84757793 | |
| $e$ | 0.1629855 | $i$ | 4.03991 | | +0.20903189 | +0.38247541 | |
| $P$ | 5.70 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 03 03 | 645 | 0.0 | 0.2+ | 2003 11 02 | 704 | 0.7+ | 0.5− | 2008 08 01 | J75 | 0.2+ | 0.9− | | |
| 2000 03 03 | 645 | 0.1+ | 0.1+ | 2003 11 19 | 703 | 0.3+ | 0.5− | 2008 09 06 | 703 | 0.3+ | 0.6+ | | |
| 2003 10 18 | 699 | 0.0 | 0.1+ | 2003 11 19 | 703 | 0.6− | 0.2+ | 2008 09 06 | 703 | 0.7+ | 0.1+ | | |
| 2003 10 18 | 699 | 1.3− | 0.1+ | 2003 11 19 | 703 | (1.6− | 2.0+) | 2008 09 06 | 703 | 0.1+ | 1.3+ | | |
| 2003 10 18 | 699 | 0.4− | 0.8+ | 2003 11 19 | 703 | 0.1+ | 0.5− | 2008 09 06 | 703 | 0.0 | 0.6+ | | |
| 2003 10 18 | 699 | 0.2+ | 0.5− | 2003 11 20 | 704 | 0.7+ | 0.9− | 2008 09 21 | G96 | 0.3− | 0.1+ | | |
| 2003 10 22 | 704 | 1.1+ | 0.2− | 2003 11 20 | 704 | (1.7+ | 0.5−) | 2008 09 21 | G96 | 0.0 | 0.3+ | | |
| 2003 10 22 | 704 | 0.1− | 0.6+ | 2003 11 20 | 704 | 0.0 | 0.4− | 2008 09 21 | G96 | 0.1− | 0.0 | | |
| 2003 10 22 | 704 | 0.2+ | 1.0− | 2003 11 20 | 704 | 0.2+ | 0.2+ | 2008 09 21 | G96 | 0.2− | 0.1− | | |
| 2003 10 23 | 699 | 1.0+ | 0.6− | 2003 11 20 | 704 | 0.7− | 0.2+ | 2009 11 10 | 691 | 0.1+ | 0.0 | | |
| 2003 10 23 | 699 | 1.0+ | 0.9+ | 2003 11 23 | 691 | 0.3+ | 0.6+ | 2009 11 10 | 691 | 0.4− | 1.1− | | |
| 2003 10 23 | 699 | 0.2+ | 0.3+ | 2003 11 23 | 691 | 0.9− | 0.4+ | 2009 11 10 | 691 | 0.1− | 0.2+ | | |
| 2003 10 23 | 699 | 0.0 | 0.3+ | 2003 11 23 | 691 | 0.0 | 0.2+ | 2009 12 09 | J75 | 1.1− | 0.3− | | |
| 2003 10 24 | 691 | 0.1− | 0.1+ | 2005 01 15 | 673 | 0.0 | 0.4− | 2009 12 09 | J75 | 0.1− | 0.0 | | |
| 2003 10 24 | 691 | 0.2− | 0.0 | 2005 01 15 | 673 | 0.2+ | 0.1− | 2009 12 09 | J75 | 0.1+ | 0.3− | | |
| 2003 10 24 | 691 | 0.2− | 0.1− | 2005 01 15 | 673 | 0.4+ | 0.0 | 2009 12 10 | J75 | 0.0 | 0.3+ | | |
| 2003 10 25 | 704 | 0.3− | 0.4+ | 2005 01 17 | 673 | 0.1+ | 0.3− | 2009 12 10 | J75 | 0.4+ | 0.3− | | |
| 2003 10 25 | 704 | 0.1+ | 0.6+ | 2005 01 17 | 673 | 0.8+ | 0.2− | 2009 12 10 | J75 | 0.4+ | 0.1+ | | |
| 2003 10 25 | 704 | 0.1− | 0.0 | 2005 01 17 | 673 | 1.1− | 0.2+ | 2009 12 11 | G96 | 0.5+ | 0.2− | | |
| 2003 10 25 | 704 | 0.3− | 0.2+ | 2005 02 02 | 703 | 0.1− | 0.3− | 2009 12 11 | G96 | 0.6+ | 0.4− | | |
| 2003 10 25 | 704 | 0.0 | 0.7+ | 2005 02 02 | 703 | 0.0 | 0.1− | 2009 12 11 | G96 | 0.6+ | 0.1− | | |
| 2003 11 02 | 704 | 0.3+ | 0.5+ | 2005 02 02 | 703 | 0.0 | 0.2+ | 2009 12 11 | G96 | 0.6+ | 0.2− | | |
| 2003 11 02 | 704 | 0.0 | 0.2+ | 2005 02 02 | 703 | (1.2− | 1.6+) | 2009 12 16 | 704 | 0.8− | 0.0 | | |
| 2003 11 02 | 704 | 0.0 | 0.4+ | 2008 08 01 | J75 | (0.1− | 2.2−) | 2009 12 16 | 704 | 0.3− | 0.5− | | |
| 2003 11 02 | 704 | 0.3− | 0.8+ | 2008 08 01 | J75 | 0.8− | 1.4− | 2009 12 16 | 704 | 0.5+ | 0.3+ | | |

**(228966)∗ 2003 UD$_{161}$**

Discovered 2003 Oct. 21 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 32.39089 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17719846 | $\omega$ | 6.60619 | | +0.69687349 | −0.71451362 | |
| $a$ | 3.1392754 | $\Omega$ | 39.24505 | | +0.65345045 | +0.59696377 | |
| $e$ | 0.1481598 | $i$ | 5.61947 | | +0.29558392 | +0.36483497 | |
| $P$ | 5.56 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 26 | 333 | 0.3+ | 0.9− | 2003 11 18 | 699 | 0.7+ | 0.3− | 2005 02 01 | 644 | 0.3+ | 0.5+ | | |
| 2003 09 26 | 333 | 0.3+ | 0.4− | 2003 11 18 | 703 | 1.0+ | 0.6+ | 2005 02 01 | 644 | 0.1+ | 0.1+ | | |
| 2003 09 26 | 333 | 0.1+ | 0.3− | 2003 11 18 | 703 | 1.5− | 1.1− | 2005 02 01 | 644 | 0.1+ | 0.2+ | | |
| 2003 10 02 | 333 | 0.5+ | 0.6− | 2003 11 18 | 699 | 0.6− | 0.1− | 2005 02 09 | 699 | 0.4+ | 0.2− | | |
| 2003 10 02 | 333 | 0.2+ | 0.4− | 2003 11 18 | 703 | 1.2+ | 0.3+ | 2005 02 09 | 699 | 0.7+ | 0.6− | | |
| 2003 10 02 | 333 | 0.0 | 0.7− | 2003 11 18 | 703 | (1.6− | 0.9−) | 2005 02 09 | 699 | 0.5− | 0.6+ | | |
| 2003 10 02 | 691 | 0.1− | 0.2− | 2003 11 18 | 699 | 0.5+ | 0.1+ | 2005 02 09 | 699 | (1.8+ | 1.3+) | | |
| 2003 10 02 | 691 | 0.2− | 0.2− | 2003 11 18 | 699 | 0.7− | 0.3− | 2006 05 06 | G96 | 0.1− | 0.0 | | |
| 2003 10 02 | 691 | 0.1− | 0.4− | 2003 11 20 | 695 | 0.3+ | 0.3− | 2006 05 06 | G96 | 0.1− | 0.7+ | | |
| 2003 10 21 | 691 | 0.2+ | 0.2+ | 2003 11 20 | 695 | 0.3+ | 0.3− | 2006 05 06 | G96 | 0.1− | 0.1+ | | |
| 2003 10 21 | 691 | 0.1+ | 0.1+ | 2003 11 21 | 704 | 0.6+ | 0.4+ | 2006 05 06 | G96 | 0.3− | 0.2+ | | |
| 2003 10 21 | 691 | 0.3+ | 0.1+ | 2003 11 21 | 704 | 0.8− | 0.2+ | 2008 08 23 | 704 | (1.2+ | 3.4+) | | |
| 2003 10 23 | 699 | 0.5+ | 1.0+ | 2003 11 21 | 704 | 0.6+ | 0.4+ | 2008 08 23 | 704 | 0.2+ | 1.0+ | | |
| 2003 10 23 | 699 | 0.0 | 0.1+ | 2003 11 21 | 704 | 0.4+ | 0.1+ | 2008 08 23 | 704 | 0.1+ | 0.8+ | | |
| 2003 10 23 | 699 | 1.1+ | 0.9+ | 2003 11 21 | 704 | 0.4− | 0.1+ | 2008 09 23 | 704 | (1.1− | 1.7+) | | |
| 2003 10 23 | 699 | 0.4+ | 0.3+ | 2003 11 26 | 699 | 0.9− | 0.7− | 2008 09 23 | 704 | 0.1− | 0.0 | | |
| 2003 10 28 | 704 | 0.1− | 0.2+ | 2003 11 26 | 699 | (1.6− | 1.6+) | 2008 09 23 | 704 | 0.2− | 0.4− | | |
| 2003 10 28 | 704 | 0.1+ | 0.6+ | 2003 11 26 | 699 | 0.1− | 0.6+ | 2008 09 23 | 704 | 0.1− | 0.2+ | | |
| 2003 10 28 | 704 | 0.4+ | 0.4+ | 2003 11 26 | 699 | 1.3+ | 0.5− | 2009 12 10 | 704 | 0.5+ | 0.3+ | | |
| 2003 10 28 | 704 | 0.1+ | 0.9+ | 2003 12 01 | 704 | 0.9− | 0.1− | 2009 12 10 | 704 | 1.2− | 0.4− | | |
| 2003 10 28 | 704 | 0.2− | 0.4+ | 2003 12 01 | 704 | 0.2+ | 1.0− | 2009 12 10 | 704 | 0.2− | 0.2+ | | |
| 2003 11 01 | 704 | 0.0 | 0.8+ | 2003 12 01 | 704 | 0.5− | 0.8− | 2009 12 10 | 704 | 0.3− | 0.5+ | | |
| 2003 11 01 | 704 | (2.3+ | 0.0 ) | 2003 12 01 | 704 | 0.3+ | 0.2− | 2009 12 15 | 704 | 0.5+ | 0.0 | | |
| 2003 11 01 | 704 | 0.3+ | 0.6+ | 2003 12 01 | 704 | 0.0 | 0.4− | 2009 12 15 | 704 | 0.1− | 0.6+ | | |
| 2003 11 01 | 704 | 0.6− | 1.0− | 2005 01 18 | 703 | 1.1− | 1.0− | 2009 12 15 | 704 | 0.4+ | 0.4+ | | |
| 2003 11 15 | 291 | 0.4− | 0.0 | 2005 01 18 | 703 | 0.6+ | 0.1− | 2009 12 15 | 704 | 0.2− | 0.4− | | |
| 2003 11 15 | 291 | 0.5− | 0.0 | 2005 01 18 | 703 | (1.7+ | 0.7−) | | | | | | |
| 2003 11 15 | 291 | 0.6− | 0.3+ | 2005 01 18 | 703 | 0.4+ | 0.3− | | | | | | |

**(228967)∗ 2003 UR$_{162}$ = 2005 EQ$_{28}$**

Discovered 2003 Oct. 21 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 76110)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 345.49882 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18257663 | $\omega$ | 25.24541 | | −0.71407797 | −0.69675649 | |
| $a$ | 3.0773195 | $\Omega$ | 110.40854 | | +0.62936294 | −0.68145880 | |
| $e$ | 0.2746007 | $i$ | 4.16027 | | +0.30658594 | −0.22392922 | |
| $P$ | 5.40 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 21 | 704 | 0.9− | 0.8+ | 2005 03 18 | 704 | 1.3+ | 0.8+ | 2008 10 02 | G96 | 0.2− | 0.4+ |
| 2003 10 21 | 704 | 0.7− | 1.5+ | 2005 03 18 | 704 | 0.4+ | 0.5+ | 2008 10 02 | G96 | 0.0 | 0.1− |
| 2003 10 21 | 704 | 0.5+ | 0.7+ | 2005 03 18 | 703 | 0.3− | 0.5− | 2008 10 02 | G96 | 0.2− | 0.2+ |
| 2003 10 21 | 704 | 0.3− | 1.1+ | 2005 03 18 | 704 | 0.0 | 0.8+ | 2008 11 02 | G96 | 0.3− | 0.0 |
| 2003 10 23 | 691 | 0.0 | 0.2+ | 2005 03 18 | 703 | 0.1+ | 0.0 | 2008 11 02 | G96 | 0.2− | 0.1− |
| 2003 10 23 | 691 | 0.2− | 0.2+ | 2005 03 18 | 703 | 0.6+ | 0.3− | 2008 11 02 | G96 | 0.1− | 0.1− |
| 2003 10 23 | 691 | 0.1− | 0.4+ | 2005 03 18 | 703 | 0.6+ | 0.2+ | 2008 11 02 | G96 | 0.1− | 0.2− |
| 2003 11 01 | 704 | (1.7− | 0.2−) | 2005 03 30 | 703 | 0.3− | 0.4+ | 2009 11 17 | G96 | 0.1− | 0.5− |
| 2003 11 01 | 704 | 0.1− | 0.5+ | 2005 03 30 | 703 | 1.2− | 0.2− | 2009 11 17 | G96 | 0.1− | 0.5− |
| 2003 11 01 | 704 | (0.2− | 2.4+) | 2005 03 30 | 703 | 0.1+ | 0.1+ | 2009 11 17 | G96 | 0.2− | 0.6− |
| 2003 11 01 | 704 | (0.1− | 1.6+) | 2005 03 30 | 703 | 0.1+ | 0.0 | 2009 11 17 | G96 | 0.1+ | 0.4− |
| 2005 03 03 | 703 | 0.3− | 0.6+ | 2005 03 31 | 699 | 1.1+ | 0.7+ | 2009 11 18 | 704 | 0.5+ | 0.3− |
| 2005 03 03 | 703 | 0.3− | 0.3+ | 2005 03 31 | 699 | 0.4+ | 0.9+ | 2009 11 18 | 704 | 0.5+ | 0.1+ |
| 2005 03 03 | 703 | 0.3− | 0.7− | 2005 03 31 | 699 | 0.1− | 0.7− | 2009 11 18 | 704 | 0.7+ | 0.2− |
| 2005 03 03 | 703 | 0.2+ | 0.2+ | 2005 03 31 | 699 | 0.2+ | 0.4+ | 2009 11 18 | 704 | 0.7+ | 0.9+ |
| 2005 03 04 | 704 | (1.6+ | 0.5−) | 2005 04 16 | 703 | 0.4− | 0.3+ | 2009 12 26 | 691 | 0.1− | 0.4− |
| 2005 03 04 | 704 | 0.3+ | 0.0 | 2005 04 16 | 703 | 1.0− | 0.6+ | 2009 12 26 | 691 | 0.1− | 0.1− |
| 2005 03 04 | 704 | 0.9+ | 0.3+ | 2005 04 16 | 703 | 0.0 | 0.2− | 2009 12 26 | 691 | 0.1− | 0.2+ |
| 2005 03 10 | 699 | 0.1+ | 0.1+ | 2005 04 16 | 703 | 0.5− | 0.3+ | 2009 12 27 | D29 | 0.3+ | 0.5+ |
| 2005 03 10 | 699 | 0.0 | 0.1+ | 2008 09 24 | G96 | 0.6+ | 0.1− | 2009 12 27 | D29 | 0.1+ | 1.1− |
| 2005 03 10 | 699 | 0.3− | 0.1+ | 2008 09 24 | G96 | 0.1− | 0.1− | 2009 12 27 | D29 | 0.3+ | 0.4− |
| 2005 03 10 | 699 | 0.1+ | 0.4+ | 2008 09 24 | G96 | 0.0 | 0.1− | 2009 12 27 | D29 | 1.7− | 0.8− |
| 2005 03 18 | 704 | 0.4+ | 0.3+ | 2008 09 24 | G96 | 0.2− | 0.0 | | | | |
| 2005 03 18 | 704 | 0.4+ | 0.5+ | 2008 10 02 | G96 | 0.4+ | 0.1− | | | | |

**(228968)∗ 2003 UW$_{170}$ = 2006 JM$_{80}$**

Discovered 2003 Oct. 19 by Spacewatch at Kitt Peak.

Id. A. Doppler (*MPO* 128058)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 354.33658 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18085210 | $\omega$ | 224.43117 | | −0.04909729 | −0.99174154 | |
| $a$ | 3.0968513 | $\Omega$ | 228.76031 | | +0.95464665 | −0.01171746 | |
| $e$ | 0.0473238 | $i$ | 9.06562 | | +0.29366516 | −0.12771616 | |
| $P$ | 5.45 | $H$ | 15.3 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 05 23 | 291 | 0.1+ | 0.4+ | 2003 11 18 | 699 | 1.4+ | 0.8+ | 2008 09 30 | 704 | 0.2+ | 1.2+ |
| 2001 05 23 | 291 | 0.1− | 0.9− | 2003 11 18 | 699 | (2.2+ | 0.1−) | 2008 10 06 | G96 | 0.0 | 0.5− |
| 2001 05 23 | 291 | 0.0 | 0.4+ | 2003 11 18 | 699 | 0.3− | 0.6+ | 2008 10 06 | G96 | 0.3+ | 0.2− |
| 2003 10 19 | 691 | 0.0 | 0.1+ | 2003 11 18 | 699 | 0.2− | 0.5+ | 2008 10 06 | G96 | 0.1+ | 0.6− |
| 2003 10 19 | 691 | 0.0 | 0.2− | 2006 05 07 | G96 | 0.0 | 0.1+ | 2008 10 06 | G96 | 0.4+ | 0.1− |
| 2003 10 19 | 691 | 0.1+ | 0.0 | 2006 05 07 | G96 | 0.2+ | 0.1+ | 2008 10 29 | G96 | 0.2+ | 0.1− |
| 2003 10 20 | 644 | 0.7+ | 0.1− | 2006 05 07 | G96 | 0.1+ | 0.1+ | 2008 10 29 | G96 | 0.5− | 0.1− |
| 2003 10 20 | 644 | 0.1+ | 0.6+ | 2006 05 07 | G96 | 0.3− | 0.3+ | 2008 10 29 | G96 | 0.0 | 0.1+ |
| 2003 10 20 | 644 | 0.2+ | 0.5+ | 2006 06 01 | G96 | 0.3+ | 0.1− | 2008 10 29 | G96 | 0.1− | 0.2+ |
| 2003 10 23 | 699 | 0.1− | 0.6+ | 2006 06 01 | G96 | 0.3+ | 0.4− | 2009 11 23 | 691 | 0.3− | 0.2+ |
| 2003 10 23 | 699 | (1.3+ | 2.1−) | 2006 06 01 | G96 | 0.0 | 0.0 | 2009 11 23 | 691 | 0.1+ | 0.1+ |
| 2003 10 23 | 699 | 0.3− | 0.1− | 2006 06 01 | G96 | 0.4− | 0.2+ | 2009 11 23 | 691 | 0.0 | 0.0 |
| 2003 10 23 | 699 | 0.6− | 0.2− | 2008 08 30 | 704 | 0.1+ | 0.1− | 2009 12 13 | D39 | 0.1− | 0.3− |
| 2003 10 24 | 704 | 0.4− | 1.3− | 2008 08 30 | 704 | 0.4− | 0.9+ | 2009 12 13 | D39 | 0.2− | 0.1− |
| 2003 10 24 | 704 | 0.8− | 1.1− | 2008 08 30 | 704 | 0.3− | 0.1+ | 2009 12 13 | D39 | 0.1− | 0.1+ |
| 2003 10 24 | 704 | 0.5− | 1.2− | 2008 09 05 | 704 | (0.4+ | 1.6+) | 2009 12 17 | G96 | 0.0 | 0.0 |
| 2003 10 24 | 704 | 0.6− | 0.6− | 2008 09 05 | 704 | 0.1− | 0.7− | 2009 12 17 | G96 | 0.5+ | 0.1− |
| 2003 10 24 | 704 | 0.2− | 1.0− | 2008 09 05 | 704 | 0.3− | 0.4− | 2009 12 17 | G96 | 0.3+ | 0.0 |
| 2003 10 29 | 699 | 0.2+ | 1.3+ | 2008 09 05 | 704 | 0.0 | 0.5+ | 2009 12 17 | G96 | 0.3+ | 0.0 |
| 2003 10 29 | 699 | 0.2+ | 0.0 | 2008 09 30 | 704 | 0.1− | 0.8+ | 2009 12 17 | G96 | 0.1+ | 0.0 |
| 2003 10 29 | 699 | 0.2+ | 1.0− | 2008 09 30 | 704 | 0.6− | 0.0 | | | | |
| 2003 10 29 | 699 | 0.8+ | 0.6− | 2008 09 30 | 704 | 0.3+ | 0.8+ | | | | |

**(228969)∗ 2003 UT$_{184}$**

Discovered 2003 Oct. 21 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 299.81928 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18780148 | $\omega$ | 140.45651 | | −0.97588139 | −0.17920595 | |
| $a$ | 3.0199752 | $\Omega$ | 29.92988 | | +0.07389048 | −0.80850903 | |
| $e$ | 0.0639851 | $i$ | 14.46892 | | +0.20541596 | −0.56053400 | |
| $P$ | 5.25 | $H$ | 14.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 03 04 | 704 | 1.5+ | 0.4+ | 2005 01 01 | 703 | (1.7− | 0.1−) | 2008 10 28 | A50 | 0.5+ | 0.4+ |
| 2000 03 04 | 704 | 0.3+ | 0.2+ | 2005 01 01 | 703 | 1.0− | 0.8+ | 2008 10 28 | A50 | 0.1− | 0.5+ |
| 2000 03 04 | 704 | 0.5+ | 0.1− | 2005 01 15 | 703 | 0.0 | 0.7+ | 2008 10 30 | 703 | 0.9− | 1.0− |
| 2003 10 21 | 691 | 0.2− | 0.0 | 2005 01 15 | 703 | 1.2+ | 0.4+ | 2008 10 30 | 703 | 0.2+ | 0.3− |
| 2003 10 21 | 691 | 0.3− | 0.0 | 2005 01 15 | 703 | 0.6− | 0.1+ | 2008 10 30 | 703 | 0.1+ | 0.1− |
| 2003 10 21 | 691 | 0.1− | 0.0 | 2005 01 15 | 703 | 0.1+ | 0.4− | 2008 10 30 | 703 | (0.0 | 2.0−) |
| 2003 10 23 | 699 | 0.5+ | 0.4− | 2005 01 15 | 704 | 0.1− | 0.2− | 2008 10 31 | 704 | 0.7− | 0.3− |
| 2003 10 23 | 699 | 0.3− | 0.6− | 2005 01 15 | 704 | (0.4− | 1.6+) | 2008 10 31 | 704 | 0.5− | 0.5+ |
| 2003 10 23 | 699 | 1.0+ | 1.1− | 2005 01 15 | 704 | 0.4+ | 0.2+ | 2008 10 31 | 704 | 1.1+ | 0.8+ |
| 2003 10 23 | 699 | 0.9− | 0.7− | 2005 01 15 | 704 | 0.6+ | 0.8+ | 2008 11 20 | G96 | 0.3+ | 0.0 |
| 2003 10 24 | 704 | 0.6− | 0.8+ | 2005 01 15 | 704 | 0.3− | 0.3+ | 2008 11 20 | G96 | 0.6+ | 0.2+ |
| 2003 10 24 | 704 | 0.3+ | 0.5+ | 2005 01 31 | 704 | 1.0− | 0.5+ | 2008 11 20 | G96 | 0.1− | 0.2− |
| 2003 10 24 | 704 | 0.2+ | 0.5+ | 2005 01 31 | 704 | 0.9+ | 0.4+ | 2008 11 20 | G96 | 0.1+ | 0.2− |
| 2003 10 24 | 704 | 0.2− | 1.4+ | 2005 01 31 | 704 | 0.0 | 0.2+ | 2008 11 26 | A77 | 0.4− | 1.2+ |
| 2003 10 24 | 704 | 0.4+ | 0.8+ | 2005 01 31 | 704 | 0.5− | 0.7− | 2008 11 26 | A77 | (1.0− | 2.1+) |
| 2003 10 29 | 704 | 0.7− | 0.3− | 2005 01 31 | 704 | 0.7+ | 0.1− | 2008 11 26 | A77 | (0.1+ | 2.1+) |
| 2003 10 29 | 704 | 0.1− | 0.2+ | 2005 02 14 | 704 | 0.5+ | 0.4+ | 2008 11 30 | G96 | 0.1+ | 0.1− |
| 2003 10 29 | 704 | 0.1− | 1.1+ | 2005 02 14 | 704 | 0.2− | 0.3+ | 2008 11 30 | G96 | 0.4+ | 0.2− |
| 2003 10 29 | 704 | 0.3− | 0.6+ | 2005 02 14 | 704 | 0.7− | 0.0 | 2008 11 30 | G96 | 0.1+ | 0.2+ |
| 2003 10 29 | 704 | 1.4− | 1.0+ | 2005 02 14 | 704 | 0.4− | 0.1− | 2008 11 30 | G96 | 0.6− | 1.4+ |
| 2003 11 18 | 644 | 0.3− | 0.0 | 2005 02 14 | 704 | 0.4+ | 0.1+ | 2009 09 24 | G96 | 0.0 | 0.7− |
| 2003 11 18 | 644 | 0.1+ | 0.1+ | 2005 03 01 | 704 | 0.3+ | 0.6+ | 2009 09 24 | G96 | 0.3− | 0.5− |
| 2003 11 18 | 644 | 0.0 | 0.3− | 2005 03 01 | 704 | 1.1+ | 0.7+ | 2009 09 24 | G96 | 0.1+ | 0.4− |
| 2003 11 19 | 644 | 0.3− | 0.0 | 2005 03 01 | 704 | (2.1+ | 0.9+) | 2009 09 24 | G96 | 0.0 | 0.0 |
| 2003 11 19 | 644 | 0.0 | 0.1+ | 2006 04 07 | 691 | 0.3+ | 0.3+ | 2009 12 13 | 703 | 0.7+ | 1.1− |
| 2003 11 19 | 644 | 0.1− | 0.1− | 2006 04 07 | 691 | 0.0 | 0.1+ | 2009 12 13 | 703 | 0.7+ | 0.1− |
| 2003 11 24 | 704 | 0.7+ | 0.1+ | 2006 04 07 | 691 | 0.2− | 0.3+ | 2009 12 13 | 703 | 0.7+ | 1.1− |
| 2003 11 24 | 704 | 0.1− | 0.0 | 2008 10 27 | A50 | 0.4− | 0.2+ | 2009 12 13 | 703 | 1.4+ | 0.1− |
| 2003 11 24 | 704 | 0.2− | 0.8− | 2008 10 27 | A50 | 0.5+ | 0.2+ | 2009 12 20 | 703 | 2.5− | 1.8− |
| 2003 11 24 | 704 | 0.2+ | 0.3− | 2008 10 27 | A50 | 0.2− | 0.2− | 2009 12 20 | 703 | 0.0 | 1.6− |
| 2003 11 24 | 704 | 0.6+ | 1.0− | 2008 10 27 | A50 | 0.0 | 0.3− | 2009 12 20 | 703 | 1.6− | 1.2+ |
| 2005 01 01 | 703 | (1.7− | 0.2−) | 2008 10 28 | A50 | 0.0 | 0.6+ | 2009 12 20 | 703 | 0.3+ | 0.4+ |
| 2005 01 01 | 703 | 1.2− | 1.2− | 2008 10 28 | A50 | 0.5+ | 0.7+ | | | | |

**(228970)∗ 2003 UT$_{196}$**

Discovered 2003 Oct. 21 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 134.35457 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19219393 | $\omega$ | 349.29884 | | +0.87766576 | +0.47920169 | |
| $a$ | 2.9737853 | $\Omega$ | 342.06074 | | −0.43771528 | +0.79440721 | |
| $e$ | 0.0422533 | $i$ | 1.54032 | | −0.19521306 | +0.37320627 | |
| $P$ | 5.13 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 01 28 | 691 | 0.2+ | 0.0 | 2005 01 18 | 691 | 0.1+ | 0.1+ | 2008 10 30 | 704 | (4.0− | 2.9+) |
| 1995 01 28 | 691 | 0.0 | 0.0 | 2005 01 18 | 691 | 0.4+ | 0.3+ | 2008 10 30 | 704 | (2.5+ | 2.5+) |
| 1995 01 28 | 691 | 0.1− | 0.0 | 2005 01 18 | 691 | 0.1+ | 0.3+ | 2008 10 30 | 704 | (2.1+ | 0.3+) |
| 1997 08 07 | 691 | 0.1− | 0.6+ | 2008 09 07 | G96 | 0.2+ | 0.1− | 2008 11 01 | 704 | 0.1− | 0.1+ |
| 1997 08 07 | 691 | 0.1− | 0.0 | 2008 09 07 | G96 | 0.1+ | 0.3− | 2008 11 01 | 704 | 0.6+ | 0.1+ |
| 1997 08 07 | 691 | 0.1+ | 0.8+ | 2008 09 07 | G96 | 0.1+ | 0.3− | 2008 11 01 | 704 | 0.8+ | 0.1− |
| 2001 03 31 | 691 | 0.1+ | 0.8+ | 2008 09 07 | G96 | 0.4+ | 0.3− | 2008 11 01 | 704 | 0.3− | 1.3− |
| 2001 03 31 | 691 | 0.1− | 0.0 | 2008 09 20 | 691 | 0.1− | 0.1− | 2008 11 04 | 703 | 0.1− | 1.0+ |
| 2001 03 31 | 691 | 0.3+ | 0.8+ | 2008 09 20 | 691 | 0.1− | 0.1+ | 2008 11 04 | 703 | 1.3+ | 0.4+ |
| 2003 10 02 | 691 | 0.3− | 0.3− | 2008 09 20 | 691 | 0.1− | 0.0 | 2008 11 04 | 703 | 0.4− | 0.8+ |
| 2003 10 02 | 691 | 0.3− | 0.0 | 2008 09 24 | 704 | (1.7− | 1.1+) | 2008 11 04 | 703 | 1.0+ | 0.3+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 02 | 691 | 0.3− | 0.1− | 2008 09 24 | 704 | (0.0 | 2.2+) | 2008 11 07 | G96 | 0.3+ | 0.3+ | | |
| 2003 10 21 | 691 | 0.0 | 0.2+ | 2008 09 24 | 704 | (0.3+ | 2.2+) | 2008 11 07 | G96 | 0.1+ | 0.2− | | |
| 2003 10 21 | 691 | 0.0 | 0.4+ | 2008 09 24 | 704 | (0.2− | 2.1+) | 2008 11 07 | G96 | 0.0 | 0.2− | | |
| 2003 10 21 | 691 | 0.0 | 0.1+ | 2008 09 24 | 691 | 0.0 | 0.1− | 2008 11 07 | G96 | 0.0 | 0.1− | | |
| 2003 10 24 | 704 | 0.0 | 0.2+ | 2008 09 24 | 691 | 0.1− | 0.0 | 2009 01 01 | G96 | 0.1+ | 0.1− | | |
| 2003 10 24 | 704 | 0.1+ | 0.1+ | 2008 09 24 | 691 | 0.6− | 0.2+ | 2009 01 01 | G96 | 0.2+ | 0.2+ | | |
| 2003 10 24 | 704 | 0.5+ | 0.1+ | 2008 09 24 | 691 | 0.5− | 0.2+ | 2009 01 01 | G96 | 0.4+ | 0.0 | | |
| 2003 10 24 | 704 | 0.3+ | 0.2− | 2008 09 24 | 691 | 0.1+ | 0.5− | 2009 01 01 | G96 | 0.5+ | 0.0 | | |
| 2003 10 24 | 704 | 0.2+ | 0.2− | 2008 09 24 | 691 | 0.1− | 0.2+ | 2009 01 19 | G96 | 0.6+ | 0.2+ | | |
| 2003 10 29 | 704 | 0.5− | 0.6− | 2008 10 03 | J75 | 0.1− | 0.3+ | 2009 01 19 | G96 | 0.1+ | 0.1− | | |
| 2003 10 29 | 704 | 0.2− | 0.3+ | 2008 10 03 | J75 | 0.5− | 0.6− | 2009 01 19 | G96 | 0.6+ | 0.6+ | | |
| 2003 10 29 | 704 | 0.2− | 0.4− | 2008 10 03 | J75 | 0.4+ | 0.1− | 2009 01 19 | G96 | 0.1+ | 0.0 | | |
| 2003 10 30 | 704 | 0.6+ | 0.2+ | 2008 10 04 | J75 | 0.3+ | 0.2− | 2009 11 11 | G96 | 0.5+ | 0.1− | | |
| 2003 10 30 | 704 | 0.6+ | 0.2+ | 2008 10 04 | J75 | 0.0 | 0.2− | 2009 11 11 | G96 | 0.2+ | 0.0 | | |
| 2003 10 30 | 704 | 0.1+ | 0.2− | 2008 10 04 | J75 | 0.3+ | 0.2− | 2009 11 11 | G96 | 0.4+ | 0.2+ | | |
| 2003 10 30 | 704 | 0.5− | 0.1+ | 2008 10 26 | 704 | 0.2− | 0.4− | 2009 11 11 | G96 | 0.6+ | 0.3+ | | |
| 2003 11 03 | 704 | 0.7− | 1.1+ | 2008 10 26 | 704 | 0.2+ | 0.9+ | 2009 12 15 | G96 | 0.2+ | 0.3− | | |
| 2003 11 03 | 704 | 0.2+ | 0.5+ | 2008 10 26 | 704 | 0.1+ | 0.1+ | 2009 12 15 | G96 | 0.3+ | 0.2− | | |
| 2003 11 03 | 704 | (0.6+ | 1.9+) | 2008 10 26 | 704 | 0.4− | 0.7− | 2009 12 15 | G96 | 0.2− | 0.1− | | |
| 2003 11 18 | 644 | 0.8− | 0.1+ | 2008 10 26 | 704 | 0.7+ | 0.7+ | 2009 12 15 | G96 | 0.1− | 0.2+ | | |
| 2003 11 18 | 644 | 0.9− | 0.6+ | 2008 10 26 | 104 | 0.2+ | 0.4− | 2009 12 17 | 691 | 0.1− | 0.0 | | |
| 2003 11 18 | 644 | 0.7− | 0.6+ | 2008 10 26 | 104 | 0.4+ | 0.2− | 2009 12 17 | 691 | 0.3− | 0.3− | | |
| 2003 11 21 | 704 | 0.1− | 0.2− | 2008 10 26 | 104 | 0.3+ | 0.4+ | 2009 12 17 | 691 | 0.1− | 0.5+ | | |
| 2003 11 21 | 704 | 0.3+ | 0.0 | 2008 10 30 | 704 | 0.0 | 0.0 | | | | | | |
| 2003 11 21 | 704 | 0.1+ | 0.5+ | 2008 10 30 | 704 | (3.1− | 0.5+) | | | | | | |

**(228971)∗ 2003 UH$_{199}$**

Discovered 2003 Oct. 21 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 26.90635 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17481208 | $\omega$ | 182.61708 | | +0.81177045 | −0.57141535 | |
| $a$ | 3.1677806 | $\Omega$ | 213.17375 | | +0.53970758 | +0.81288433 | |
| $e$ | 0.1057815 | $i$ | 12.71884 | | +0.22303470 | +0.11271010 | |
| $P$ | 5.64 | $H$ | 15.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1992 11 17 | 691 | 0.3+ | 0.3+ | 2003 10 24 | 704 | 0.3+ | 0.2+ | 2008 07 30 | 703 | 0.3+ | 0.1+ | | |
| 1992 11 17 | 691 | 0.2− | 0.4+ | 2003 10 24 | 704 | 0.1+ | 0.2+ | 2008 07 30 | 703 | 0.3+ | 0.9− | | |
| 1992 11 17 | 691 | 0.2− | 0.3+ | 2003 10 24 | 704 | 0.1+ | 0.5+ | 2008 07 30 | 703 | 1.4− | 0.1− | | |
| 2003 09 20 | 644 | 0.1+ | 0.0 | 2003 10 24 | 704 | 0.1+ | 0.4+ | 2009 10 24 | 703 | 1.1− | 0.3− | | |
| 2003 09 20 | 644 | 0.0 | 0.1+ | 2003 10 24 | 704 | 0.2− | 0.2+ | 2009 10 24 | 703 | 0.0 | 0.4+ | | |
| 2003 09 20 | 644 | 0.2+ | 0.3+ | 2003 10 24 | 704 | 0.7+ | 0.4+ | 2009 10 24 | 703 | 0.5− | 0.2− | | |
| 2003 09 27 | 704 | 0.8+ | 0.0 | 2003 10 26 | 691 | 0.1+ | 0.0 | 2009 10 24 | 703 | 0.6+ | 0.4− | | |
| 2003 09 27 | 704 | 0.1+ | 0.2− | 2003 10 26 | 691 | 0.2+ | 0.1− | 2009 10 26 | 703 | 0.4+ | 0.9− | | |
| 2003 09 27 | 704 | 0.3− | 0.2+ | 2003 10 26 | 691 | 0.1+ | 0.4− | 2009 10 26 | 703 | 0.2+ | 0.5− | | |
| 2003 09 27 | 704 | 0.8+ | 0.1+ | 2003 10 29 | 704 | 0.7+ | 0.4+ | 2009 10 26 | 703 | 1.1− | 0.4− | | |
| 2003 09 27 | 704 | 0.4− | 0.0 | 2003 10 29 | 704 | 0.7− | 0.2+ | 2009 10 26 | 703 | 1.1+ | 0.5− | | |
| 2003 10 14 | 699 | 0.7− | 0.0 | 2003 10 29 | 704 | 0.4− | 1.2+ | 2009 11 12 | J75 | 0.1+ | 0.5+ | | |
| 2003 10 14 | 699 | 0.6− | 0.0 | 2003 11 01 | 704 | 1.2− | 1.1− | 2009 11 12 | J75 | 0.2+ | 0.7+ | | |
| 2003 10 14 | 699 | 0.6+ | 0.8− | 2003 11 01 | 704 | 0.1− | 0.2+ | 2009 11 13 | J75 | 0.1− | 0.4− | | |
| 2003 10 14 | 699 | 0.8+ | 0.3+ | 2003 11 01 | 704 | 0.7− | 0.3− | 2009 11 15 | 703 | 0.6+ | 0.2+ | | |
| 2003 10 21 | 699 | 0.3− | 0.0 | 2003 11 01 | 704 | 0.2− | 0.2− | 2009 11 15 | 703 | 0.6− | 0.2+ | | |
| 2003 10 21 | 699 | 0.0 | 0.1+ | 2003 11 01 | 704 | 0.9+ | 0.0 | 2009 11 15 | 703 | 0.0 | 0.3− | | |
| 2003 10 21 | 699 | 0.1+ | 0.1− | 2003 11 19 | 703 | 1.3− | 1.0− | 2009 11 15 | 703 | 0.5+ | 0.6− | | |
| 2003 10 21 | 644 | 0.3+ | 0.1+ | 2003 11 19 | 703 | 0.9− | 0.1+ | 2009 11 15 | 703 | 0.3+ | 0.2− | | |
| 2003 10 21 | 699 | 0.2− | 0.3+ | 2003 11 19 | 703 | 1.0− | 0.3− | 2009 11 15 | 703 | 0.3− | 0.1− | | |
| 2003 10 21 | 644 | 0.2+ | 0.2+ | 2003 11 19 | 703 | 1.2− | 1.1− | 2009 11 15 | 703 | 0.9− | 0.1− | | |
| 2003 10 21 | 704 | 0.0 | 0.2− | 2003 11 21 | 704 | 0.0 | 0.1− | 2009 11 15 | 703 | 0.7+ | 0.6+ | | |
| 2003 10 21 | 704 | 1.4+ | 0.3− | 2003 11 21 | 704 | 0.6+ | 0.8− | 2009 11 19 | 704 | 1.5− | 0.5+ | | |
| 2003 10 21 | 644 | 0.1+ | 0.2+ | 2003 11 21 | 699 | (1.6− | 0.0 ) | 2009 11 19 | 704 | 0.3+ | 0.7+ | | |
| 2003 10 21 | 644 | 0.1− | 0.3+ | 2003 11 21 | 699 | 0.9− | 0.3− | 2009 11 19 | 704 | 0.2− | 0.3− | | |
| 2003 10 21 | 704 | (1.6+ | 0.4−) | 2003 11 21 | 704 | 0.2+ | 0.4− | 2009 11 19 | 704 | 0.3− | 0.2− | | |
| 2003 10 21 | 704 | 0.9+ | 0.1+ | 2003 11 21 | 699 | 0.2− | 1.2+ | 2009 11 25 | G96 | 0.3+ | 0.3− | | |
| 2003 10 21 | 704 | (1.8+ | 0.6+) | 2003 11 21 | 704 | 0.3− | 0.3− | 2009 11 25 | G96 | 0.3+ | 0.4− | | |
| 2003 10 21 | 644 | 0.2+ | 0.0 | 2003 11 21 | 699 | 0.3+ | 0.2+ | 2009 11 25 | G96 | 0.4+ | 0.5− | | |
| 2003 10 21 | 644 | 0.2+ | 0.5+ | 2008 07 25 | G96 | 0.1− | 0.1− | 2009 11 25 | G96 | 0.1+ | 0.3− | | |
| 2003 10 24 | 704 | 0.1+ | 0.5+ | 2008 07 25 | G96 | 0.2− | 0.1+ | 2009 12 10 | 703 | 0.0 | 0.5+ | | |
| 2003 10 24 | 704 | 0.4− | 0.2+ | 2008 07 25 | G96 | 0.2− | 0.0 | 2009 12 10 | 703 | 1.2+ | 0.3+ | | |
| 2003 10 24 | 704 | 0.8− | 0.1− | 2008 07 25 | G96 | 0.2+ | 0.1+ | 2009 12 10 | 703 | 0.4− | 0.5− | | |
| 2003 10 24 | 704 | 0.2− | 0.1+ | 2008 07 30 | 703 | 1.0+ | 0.8+ | 2009 12 10 | 703 | 0.4− | 0.5− | | |

**(228972)∗ 2003 UL$_{208}$ = 1999 FP$_{60}$**

Discovered 2003 Oct. 22 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 76138)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 345.94211 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17604335 | $\omega$ | 325.34683 | | −0.45920375 | −0.88818133 | |
| $a$ | 3.1529927 | $\Omega$ | 151.97853 | | +0.82267632 | −0.43211842 | |
| $e$ | 0.2484046 | $i$ | 1.98889 | | +0.33516503 | −0.15622931 | |
| $P$ | 5.60 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 10 20 | 691 | 0.8+ | 0.5− | 2005 03 08 | 699 | 0.2− | 0.1− | 2005 04 04 | G96 | 0.3− | 0.1− | | |
| 1998 10 20 | 691 | 1.1+ | 0.1+ | 2005 03 08 | 699 | 0.7− | 0.8+ | 2005 04 04 | 704 | 0.2− | 0.3+ | | |
| 1998 10 20 | 691 | 0.6+ | 0.3− | 2005 03 08 | 699 | 0.2+ | 0.8+ | 2005 04 04 | G96 | 0.2− | 0.2− | | |
| 1998 12 22 | 691 | 0.4− | 0.2− | 2005 03 08 | 683 | (2.5− | 2.7+) | 2005 04 04 | 704 | 0.3+ | 0.3+ | | |
| 1998 12 22 | 691 | 0.3− | 0.1− | 2005 03 08 | 699 | 0.8− | 0.5+ | 2005 04 04 | 704 | 0.8+ | 0.9+ | | |
| 1998 12 22 | 691 | 0.4− | 0.0 | 2005 03 08 | 683 | 0.2− | 1.0+ | 2005 04 04 | 704 | 1.1+ | 0.6+ | | |
| 1999 01 13 | 691 | 0.2− | 0.2− | 2005 03 08 | 683 | (0.1+ | 2.4+) | 2005 04 04 | 704 | (2.0+ | 0.1−) | | |
| 1999 01 13 | 691 | 0.6− | 0.0 | 2005 03 08 | 704 | 0.6+ | 0.6+ | 2005 04 11 | G96 | 0.1− | 0.2− | | |
| 1999 01 13 | 691 | 0.5− | 0.2− | 2005 03 08 | 704 | 0.5+ | 0.3+ | 2005 04 11 | G96 | 0.0 | 0.3− | | |
| 1999 02 11 | 691 | 0.2+ | 0.6− | 2005 03 08 | 704 | 0.2+ | 0.7+ | 2005 04 11 | G96 | 0.2− | 0.1− | | |
| 1999 03 23 | 691 | 0.2− | 0.1+ | 2005 03 08 | 704 | 0.3+ | 0.8+ | 2005 04 11 | G96 | 0.2− | 0.1+ | | |
| 1999 03 23 | 691 | 0.1− | 0.6− | 2005 03 08 | 704 | 0.7+ | 0.9+ | 2005 04 18 | 691 | 0.2+ | 0.3+ | | |
| 1999 03 23 | 691 | 0.4− | 0.8− | 2005 03 09 | 699 | 0.5+ | 0.3− | 2005 04 18 | 691 | 0.3+ | 0.1+ | | |
| 2003 10 22 | 691 | 0.1+ | 0.5+ | 2005 03 09 | 699 | (0.2− | 1.7+) | 2005 04 18 | 691 | 0.3+ | 0.1− | | |
| 2003 10 22 | 691 | 0.1+ | 0.6+ | 2005 03 09 | 699 | 0.5+ | 1.1+ | 2007 06 22 | 691 | 0.3− | 0.1+ | | |
| 2003 10 22 | 691 | 0.2− | 0.6+ | 2005 03 09 | 683 | 0.2+ | 0.9+ | 2007 06 22 | 691 | 0.6− | 0.2− | | |
| 2003 10 24 | 704 | 0.5+ | 0.7+ | 2005 03 09 | 683 | 0.6+ | 0.3− | 2007 06 22 | 691 | 0.0 | 1.1+ | | |
| 2003 10 24 | 704 | 0.0 | 1.1+ | 2005 03 09 | 699 | 0.4+ | 0.1+ | 2008 09 21 | G96 | 0.5− | 0.2− | | |
| 2003 10 24 | 704 | 1.0+ | 0.4+ | 2005 03 09 | 683 | (0.8+ | 1.7+) | 2008 09 21 | G96 | 0.4− | 0.2+ | | |
| 2003 10 24 | 704 | 0.3− | 0.1+ | 2005 03 13 | 683 | (0.2− | 2.3+) | 2008 09 21 | G96 | 0.3− | 0.3+ | | |
| 2003 10 24 | 704 | 0.4+ | 1.2+ | 2005 03 13 | 683 | 0.1+ | 0.2+ | 2008 09 21 | G96 | 0.3− | 0.4+ | | |
| 2003 11 18 | 644 | 0.2− | 0.4+ | 2005 03 13 | 683 | 0.1+ | 1.3+ | 2009 12 11 | 704 | 0.4− | 1.1+ | | |
| 2003 11 18 | 644 | 0.2− | 0.3+ | 2005 03 14 | 704 | 0.3+ | 1.5+ | 2009 12 11 | 704 | 0.8− | 1.0+ | | |
| 2003 11 18 | 644 | 0.2− | 0.2+ | 2005 03 14 | 704 | 0.3+ | 0.3+ | 2009 12 11 | 704 | 0.3− | 1.1+ | | |
| 2003 11 21 | 704 | 0.5− | 0.8+ | 2005 03 14 | 704 | 1.4+ | 1.2+ | 2009 12 17 | 704 | 0.0 | 0.3+ | | |
| 2003 11 21 | 704 | 0.4− | 0.4+ | 2005 03 14 | 704 | 0.1+ | 1.3+ | 2009 12 17 | 704 | 0.1− | 0.1+ | | |
| 2003 11 21 | 704 | 0.2− | 0.6+ | 2005 03 18 | 704 | 0.8+ | 0.2+ | 2009 12 17 | 704 | 0.1− | 0.2− | | |
| 2003 11 21 | 704 | 0.1+ | 0.4+ | 2005 03 18 | 704 | 0.5+ | 0.7− | 2009 12 17 | 704 | 0.3− | 0.1− | | |
| 2005 03 03 | 691 | 0.1+ | 0.0 | 2005 03 18 | 704 | (0.3− | 1.6−) | 2009 12 17 | 704 | 0.0 | 0.1+ | | |
| 2005 03 03 | 691 | 0.2+ | 0.2+ | 2005 04 04 | G96 | 0.3− | 0.4− | | | | | | |
| 2005 03 03 | 691 | 0.2+ | 0.4+ | 2005 04 04 | G96 | 0.3− | 0.2− | | | | | | |

**(228973)∗ 2003 UV$_{217}$**

Discovered 2003 Oct. 21 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 39.32039 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18571149 | $\omega$ | 298.81172 | | +0.59980978 | −0.79755844 | |
| $a$ | 3.0425907 | $\Omega$ | 114.18971 | | +0.75648027 | +0.53908275 | |
| $e$ | 0.0563210 | $i$ | 4.03930 | | +0.26070257 | +0.27072186 | |
| $P$ | 5.31 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 12 26 | 691 | 0.2− | 0.1− | 2003 10 21 | 704 | 0.1+ | 0.2+ | 2006 04 02 | 691 | 0.0 | 0.1+ | | |
| 1998 12 26 | 691 | 0.2− | 0.5− | 2003 10 21 | 704 | 0.3− | 0.2+ | 2006 04 07 | 691 | 0.0 | 0.3− | | |
| 1998 12 26 | 691 | 0.3− | 0.7− | 2003 10 25 | 704 | 1.0+ | 0.7+ | 2006 04 07 | 691 | 0.4+ | 0.3+ | | |
| 2001 04 18 | 691 | 0.0 | 0.2− | 2003 10 25 | 704 | 0.4+ | 0.7+ | 2006 04 07 | 691 | 0.1− | 0.2+ | | |
| 2001 04 18 | 691 | 0.1− | 0.2− | 2003 10 25 | 704 | 1.3+ | 0.4+ | 2006 04 19 | 699 | 0.0 | 0.9+ | | |
| 2001 04 18 | 691 | 0.2− | 0.3− | 2003 10 25 | 704 | 0.1− | 1.0+ | 2006 04 19 | 699 | 0.2+ | 0.1+ | | |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 05 27 | 691 | 0.2+ | 0.5+ | 2003 10 25 | 704 | 0.1+ | 0.4+ | 2006 04 19 | 699 | 0.1+ | 0.3+ |
| 2001 05 27 | 691 | 0.2+ | 0.9+ | 2005 01 13 | G92 | 0.7+ | 0.6+ | 2006 04 19 | 699 | 1.3− | 0.1+ |
| 2001 05 27 | 691 | 0.2+ | 0.8+ | 2005 01 13 | 691 | 0.0 | 0.5+ | 2008 09 04 | 691 | 0.5− | 0.4+ |
| 2001 09 20 | 568 | 0.2− | 0.2+ | 2005 01 13 | G92 | 0.3+ | 0.2+ | 2008 09 04 | 691 | 0.4− | 0.4+ |
| 2001 09 20 | 568 | 0.4+ | 0.1+ | 2005 01 13 | 691 | 0.1+ | 0.3+ | 2008 09 04 | 691 | 0.2− | 0.3+ |
| 2003 09 28 | 704 | 0.4+ | 0.5+ | 2005 01 13 | 691 | 0.1− | 0.3+ | 2009 12 20 | 691 | 0.2− | 0.1+ |
| 2003 09 28 | 704 | 0.1+ | 1.1+ | 2005 01 13 | G92 | 0.4+ | 0.3+ | 2009 12 20 | 691 | 0.1− | 0.2+ |
| 2003 09 28 | 704 | 0.5− | 0.8+ | 2005 01 16 | 568 | 0.5+ | 0.6− | 2009 12 20 | 691 | 0.1− | 0.2+ |
| 2003 10 21 | 699 | 0.1− | 0.4+ | 2005 01 16 | 568 | 0.6+ | 0.6− | 2009 12 25 | 691 | 0.1− | 0.5+ |
| 2003 10 21 | 699 | 0.4+ | 1.2+ | 2005 01 16 | 568 | 0.6+ | 0.5− | 2009 12 25 | 691 | 0.3− | 0.4+ |
| 2003 10 21 | 699 | 0.0 | 0.1− | 2005 01 17 | 568 | 0.4+ | 0.2+ | 2009 12 25 | 691 | 0.3+ | 0.1− |
| 2003 10 21 | 699 | 0.3− | 1.3+ | 2006 04 02 | 691 | 0.0 | 0.3+ | | | | |
| 2003 10 21 | 704 | 0.1− | 0.5+ | 2006 04 02 | 691 | 0.2+ | 0.2+ | | | | |

**(228974)∗ 2003 UV$_{224}$**

Discovered 2003 Oct. 22 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 2.47828 | | (2000.0) | | | |
| $n$ | 0.17524398 | $\omega$ | 114.35365 | | +0.17973643 | −0.98278834 |
| $a$ | 3.1625737 | $\Omega$ | 325.20710 | | +0.87326506 | +0.17938168 |
| $e$ | 0.1567642 | $i$ | 4.28992 | | +0.45288294 | +0.04415072 |
| $P$ | 5.62 | $H$ | 15.3 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 22 | 704 | 0.2+ | 0.5+ | 2003 11 24 | 704 | 0.4− | 0.7+ | 2008 09 07 | G96 | 0.1+ | 0.4+ |
| 2003 10 22 | 644 | 0.3− | 0.0 | 2003 11 24 | 704 | 0.7− | 1.3+ | 2008 09 07 | G96 | 0.2+ | 0.1+ |
| 2003 10 22 | 704 | 0.3+ | 1.2+ | 2003 12 28 | 704 | 0.1+ | 0.6+ | 2008 09 07 | G96 | 0.8+ | 0.2+ |
| 2003 10 22 | 704 | 0.1− | 0.1+ | 2003 12 28 | 704 | 1.3+ | 0.5− | 2008 09 23 | G96 | 0.3+ | 0.2− |
| 2003 10 22 | 704 | (2.1+ | 2.0−) | 2003 12 28 | 704 | 1.5− | 1.0− | 2008 09 23 | G96 | 0.3− | 0.0 |
| 2003 10 22 | 644 | 0.1− | 0.2− | 2003 12 28 | 704 | 0.5+ | 0.5− | 2008 09 23 | G96 | 0.0 | 0.2− |
| 2003 10 22 | 691 | 0.2+ | 0.0 | 2004 12 20 | G96 | 0.1+ | 0.1− | 2008 09 23 | G96 | 0.2− | 0.1− |
| 2003 10 22 | 691 | 0.1+ | 0.2− | 2004 12 20 | G96 | 0.1+ | 0.0 | 2008 10 02 | G96 | 0.3+ | 0.2− |
| 2003 10 22 | 644 | 0.2− | 0.1+ | 2004 12 20 | G96 | 0.0 | 0.1+ | 2008 10 02 | G96 | 0.2+ | 0.1− |
| 2003 10 22 | 691 | 0.0 | 0.2− | 2004 12 20 | G96 | 0.0 | 0.1− | 2008 10 02 | G96 | 0.1− | 0.2− |
| 2003 10 25 | 704 | 0.5− | 0.1+ | 2005 02 14 | 704 | 1.1− | 0.1+ | 2008 10 02 | G96 | 0.2+ | 0.1− |
| 2003 10 25 | 704 | 0.4− | 0.2+ | 2005 02 14 | 704 | 0.5− | 1.2+ | 2009 11 27 | 691 | 0.2+ | 0.0 |
| 2003 10 25 | 704 | 0.8− | 0.3+ | 2005 02 14 | 704 | 0.5+ | 0.3+ | 2009 11 27 | 691 | 0.4− | 0.0 |
| 2003 10 25 | 704 | 0.3+ | 0.1− | 2005 02 14 | 704 | 0.6+ | 0.3+ | 2009 11 27 | 691 | 0.1− | 0.1− |
| 2003 10 25 | 704 | 0.1+ | 0.2− | 2005 03 01 | 691 | 0.4+ | 0.6+ | 2009 11 27 | 691 | 0.1− | 0.2− |
| 2003 11 02 | 704 | 0.0 | 0.2− | 2005 03 01 | 691 | 0.6+ | 0.4+ | 2009 11 27 | 691 | 0.1− | 0.0 |
| 2003 11 02 | 704 | 0.4+ | 0.6+ | 2005 03 01 | 691 | 0.3+ | 0.9+ | 2009 11 27 | 691 | 0.8− | 0.9− |
| 2003 11 02 | 704 | 0.9− | 0.7+ | 2005 03 08 | G96 | 0.2− | 0.2− | 2009 12 15 | 704 | 0.6+ | 0.3+ |
| 2003 11 02 | 704 | 1.1+ | 0.9− | 2005 03 08 | G96 | 0.2− | 0.1− | 2009 12 15 | 704 | 1.0+ | 0.0 |
| 2003 11 20 | 704 | 0.7− | 0.4+ | 2005 03 08 | G96 | 0.1− | 0.1− | 2009 12 15 | 704 | 0.9+ | 0.3+ |
| 2003 11 20 | 704 | 0.2+ | 0.6+ | 2005 03 08 | G96 | 0.2− | 0.3− | 2009 12 15 | 704 | 0.9+ | 0.2− |
| 2003 11 20 | 704 | 0.0 | 1.5+ | 2008 07 29 | 691 | 0.4− | 0.3+ | 2009 12 15 | 704 | 1.0+ | 0.1+ |
| 2003 11 20 | 704 | 0.1+ | 0.8+ | 2008 07 29 | 691 | 0.9− | 1.3+ | 2009 12 18 | G96 | 0.4+ | 0.2− |
| 2003 11 24 | 704 | 0.9− | 0.2− | 2008 07 29 | 691 | (3.3− | 1.8+) | 2009 12 18 | G96 | 0.3+ | 0.0 |
| 2003 11 24 | 704 | (0.1+ | 1.8+) | 2008 09 07 | G96 | 0.5+ | 0.5+ | 2009 12 18 | G96 | 0.6+ | 0.2− |

**(228975)∗ 2003 UB$_{250}$ = 2005 CF$_{74}$**

Discovered 2003 Oct. 25 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. A. Doppler (*MPO* 86148)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 347.78199 | | (2000.0) | | | |
| $n$ | 0.17582094 | $\omega$ | 24.22461 | | −0.14311391 | −0.98454640 |
| $a$ | 3.1556512 | $\Omega$ | 74.12961 | | +0.89005220 | −0.17262961 |
| $e$ | 0.1268981 | $i$ | 6.02309 | | +0.43281116 | +0.02945182 |
| $P$ | 5.61 | $H$ | 15.4 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 02 | 291 | 0.1− | 0.2+ | 2005 02 09 | G96 | 0.1− | 0.1+ | 2009 11 20 | 691 | 0.2− | 0.0 |
| 2003 10 02 | 291 | 0.0 | 0.2+ | 2005 02 09 | G96 | 0.2− | 0.1+ | 2009 11 20 | 691 | 0.6+ | 0.5− |
| 2003 10 02 | 291 | 0.1+ | 0.0 | 2005 02 09 | G96 | 0.0 | 0.0 | 2009 11 20 | 691 | 0.5− | 0.0 |
| 2003 10 25 | 704 | 0.4+ | 0.9+ | 2005 02 09 | G96 | 0.1− | 0.2+ | 2009 11 24 | 691 | 0.3+ | 0.0 |
| 2003 10 25 | 704 | 0.5− | 0.3+ | 2006 04 21 | 703 | 0.9+ | 0.5+ | 2009 11 24 | 691 | 0.6− | 0.3− |
| 2003 10 25 | 704 | 0.1+ | 0.2− | 2006 04 21 | 703 | 0.1+ | 0.3+ | 2009 11 24 | 691 | 0.1+ | 0.0 |
| 2003 10 25 | 704 | 1.2− | 0.1+ | 2006 04 21 | 703 | 0.3+ | 0.5+ | 2009 12 10 | G96 | 0.5+ | 0.2− |
| 2003 10 28 | 704 | 1.3− | 0.5+ | 2006 04 21 | 703 | 1.1− | 0.9+ | 2009 12 10 | G96 | 0.5+ | 0.1− |
| 2003 10 28 | 704 | 1.0+ | 1.1+ | 2006 05 23 | G96 | 0.2+ | 0.1+ | 2009 12 10 | G96 | 0.6+ | 0.0 |
| 2003 10 28 | 704 | 0.1+ | 0.1− | 2006 05 23 | G96 | 0.2+ | 0.0 | 2009 12 10 | G96 | 0.5+ | 0.1− |
| 2003 10 28 | 704 | 0.1+ | 0.6+ | 2006 05 23 | G96 | 0.2+ | 0.1− | 2009 12 19 | G96 | 0.5+ | 0.0 |
| 2003 10 28 | 704 | 1.0− | 0.8+ | 2006 05 23 | G96 | 0.0 | 0.1+ | 2009 12 19 | G96 | 0.4+ | 0.1+ |
| 2005 02 01 | 644 | 0.6+ | 0.8+ | 2009 11 08 | 691 | 0.2− | 0.1− | 2009 12 19 | G96 | 0.2+ | 0.2− |
| 2005 02 01 | 644 | 0.3+ | 0.5+ | 2009 11 08 | 691 | 0.1− | 0.0 | 2009 12 19 | G96 | 0.5+ | 0.1− |
| 2005 02 01 | 644 | 0.4+ | 0.8+ | 2009 11 08 | 691 | 0.3− | 0.0 | | | | |

**(228976)∗ 2003 UK$_{266}$ = 1997 TS$_{6}$**

Discovered 2003 Oct. 28 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 57199)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 143.74446 | | (2000.0) | | | |
| $n$ | 0.17370882 | $\omega$ | 244.10868 | | +0.19239200 | +0.97325443 |
| $a$ | 3.1811792 | $\Omega$ | 37.66921 | | −0.81071413 | +0.22972267 |
| $e$ | 0.0672555 | $i$ | 11.85513 | | −0.55292669 | +0.00182112 |
| $P$ | 5.67 | $H$ | 14.4 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 10 02 | 910 | 0.4+ | 0.2− | 2003 11 21 | 691 | 0.0 | 0.2+ | 2009 10 26 | 691 | 0.1− | 0.1− |
| 1997 10 02 | 910 | 0.7+ | 0.1− | 2003 11 21 | 704 | 0.5− | 1.3+ | 2009 10 26 | 691 | 0.2− | 0.2+ |
| 1997 10 02 | 910 | 0.7+ | 0.3− | 2003 11 21 | 704 | 0.8+ | 1.4+ | 2009 10 26 | 691 | 0.2+ | 0.3− |
| 1997 10 04 | 910 | 0.9+ | 0.2− | 2003 11 21 | 691 | 0.1+ | 0.0 | 2009 10 26 | 691 | 0.1− | 0.3− |
| 1997 10 04 | 910 | 0.7+ | 0.1− | 2003 11 21 | 691 | 0.1+ | 0.2+ | 2009 10 26 | 691 | 0.2+ | 0.3− |
| 1997 10 04 | 910 | 0.6+ | 0.3− | 2003 11 24 | 704 | 0.4− | 0.9− | 2009 11 11 | 691 | 0.1+ | 0.2− |
| 2000 03 04 | 704 | 0.4+ | 0.6+ | 2003 11 24 | 704 | 1.2− | 0.6+ | 2009 11 11 | 691 | 0.0 | 0.6+ |
| 2000 03 04 | 704 | 0.3+ | 0.1+ | 2003 11 24 | 704 | 0.1− | 0.1+ | 2009 11 11 | 691 | 0.3+ | 0.2− |
| 2000 03 04 | 704 | (0.8+ | 2.1+) | 2003 11 24 | 704 | 0.7− | 0.5+ | 2009 11 16 | 704 | 0.6+ | 0.3− |
| 2001 04 26 | 699 | (2.0+ | 0.4−) | 2003 11 30 | 691 | 0.2− | 0.1− | 2009 11 16 | 704 | 0.4+ | 0.5− |
| 2001 04 26 | 699 | 0.1− | 0.8+ | 2003 11 30 | 691 | 0.3− | 0.2− | 2009 11 16 | 704 | 0.7+ | 0.4+ |
| 2001 04 26 | 699 | (2.7+ | 0.1−) | 2003 11 30 | 691 | 0.4− | 0.0 | 2009 11 16 | 704 | 1.0+ | 0.9+ |
| 2001 04 26 | 699 | 0.7− | 0.9− | 2003 12 01 | 704 | 1.3+ | 0.7+ | 2009 11 16 | 704 | 0.6+ | 0.7− |
| 2003 10 23 | 699 | 0.9+ | 0.2− | 2003 12 01 | 704 | 0.8+ | 0.9+ | 2009 11 19 | 691 | 0.1+ | 0.3− |
| 2003 10 23 | 699 | 0.1− | 0.0 | 2003 12 01 | 704 | 0.1− | 0.6+ | 2009 11 19 | 691 | 0.1+ | 0.3− |
| 2003 10 23 | 699 | 0.5− | 0.8+ | 2005 01 07 | 703 | 0.6− | 0.8− | 2009 11 19 | 691 | (0.6+ | 1.8−) |
| 2003 10 23 | 699 | 0.1+ | 0.5− | 2005 01 07 | 703 | 0.9− | 0.8− | 2009 11 22 | 704 | 0.2+ | 0.2+ |
| 2003 10 28 | 704 | 0.5− | 0.7+ | 2005 01 07 | 703 | 0.7− | 0.3+ | 2009 11 22 | 704 | 0.3− | 0.7+ |
| 2003 10 28 | 704 | 0.1− | 0.9+ | 2005 01 07 | 703 | 1.4− | 0.2− | 2009 11 22 | 704 | 0.2− | 0.6+ |
| 2003 10 28 | 704 | 0.4− | 0.3+ | 2006 03 24 | 699 | 0.7+ | 0.5+ | 2009 11 25 | 703 | 0.4− | 0.0 |
| 2003 10 28 | 704 | 0.4− | 0.7+ | 2006 03 24 | 699 | 1.2+ | 0.2− | 2009 11 25 | 703 | 0.9+ | 1.2− |
| 2003 10 28 | 704 | (2.2− | 1.2+) | 2006 03 24 | 699 | 0.2+ | 0.0 | 2009 11 25 | 703 | 1.3+ | 0.5− |
| 2003 10 29 | 703 | 0.1− | 0.2− | 2006 03 24 | 699 | 0.2+ | 0.1+ | 2009 11 25 | 703 | 0.4− | 0.8+ |
| 2003 10 29 | 703 | (0.6− | 1.7+) | 2008 10 02 | 703 | 0.9− | 0.0 | 2009 11 27 | 691 | 0.1− | 0.1− |
| 2003 10 29 | 703 | 0.9− | 0.3− | 2008 10 02 | 703 | 0.1− | 0.9− | 2009 11 27 | 691 | 0.0 | 0.2− |
| 2003 10 29 | 703 | 1.3− | 0.1+ | 2008 10 02 | 703 | (0.7− | 2.0+) | 2009 11 27 | 691 | 0.2+ | 0.2− |
| 2003 11 03 | 704 | 0.7− | 0.4+ | 2008 10 02 | 703 | (0.6+ | 3.0+) | 2009 12 10 | 704 | 0.0 | 0.6+ |
| 2003 11 03 | 704 | 0.5− | 0.3− | 2009 10 15 | 291 | 0.3− | 0.0 | 2009 12 10 | 704 | 0.4+ | 0.4− |
| 2003 11 03 | 704 | 1.1− | 0.5+ | 2009 10 15 | 291 | 0.2− | 0.1− | 2009 12 10 | 704 | 1.0− | 0.3− |
| 2003 11 19 | 699 | 0.6+ | 0.1+ | 2009 10 15 | 291 | 0.3− | 0.1− | 2009 12 10 | 704 | 0.2+ | 0.3− |
| 2003 11 19 | 699 | 1.1− | 0.6− | 2009 10 26 | 703 | 0.4− | 0.5+ | 2009 12 15 | 704 | 1.5+ | 0.5+ |
| 2003 11 19 | 699 | 0.1+ | 0.3+ | 2009 10 26 | 703 | 0.5+ | 0.1+ | 2009 12 15 | 704 | 0.4+ | 1.4+ |
| 2003 11 19 | 699 | 0.7+ | 0.1− | 2009 10 26 | 703 | 0.6− | 0.7+ | 2009 12 15 | 704 | 0.2+ | 0.4+ |
| 2003 11 21 | 704 | (1.6+ | 0.1+) | 2009 10 26 | 703 | 0.1− | 0.8− | 2009 12 15 | 704 | 0.6+ | 0.1+ |
| 2003 11 21 | 704 | 0.1− | 0.3− | 2009 10 26 | 691 | 0.1− | 0.1+ | 2009 12 15 | 704 | 0.5+ | 0.4+ |

**(228977)∗ 2003 UH$_{271}$ = 2006 JE$_{52}$**

Discovered 2003 Oct. 17 by NEAT at Palomar.

Id. G. V. Williams (*MPO* 100651)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 310.38977 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17161779 | $\omega$ | 33.10536 | | −0.68547740 | | −0.66460943 |
| $a$ | 3.2069672 | $\Omega$ | 102.19301 | | +0.58429478 | | −0.74579831 |
| $e$ | 0.1454699 | $i$ | 17.71059 | | +0.43441956 | | −0.04559805 |
| $P$ | 5.74 | $H$ | 14.6 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 11 17 | 691 | 0.0 | 0.3− | 2004 12 09 | 703 | 0.0 | 0.6+ | 2006 05 24 | 699 | (1.9− | 0.2−) |
| 1998 11 17 | 691 | 0.0 | 0.7− | 2005 01 09 | 703 | 0.1− | 0.2− | 2006 05 28 | G96 | 0.1− | 0.0 |
| 1998 11 17 | 691 | 0.3+ | 0.4− | 2005 01 09 | 703 | 0.0 | 0.6− | 2006 05 28 | G96 | 0.0 | 0.3− |
| 2000 05 03 | 704 | 0.7+ | 0.2+ | 2005 01 09 | 703 | 0.3− | 0.5− | 2006 05 28 | G96 | 0.0 | 0.3− |
| 2000 05 03 | 704 | 0.4+ | 0.0 | 2005 01 09 | 703 | 0.9− | 0.7+ | 2006 05 28 | G96 | 1.0− | 0.0 |
| 2000 05 03 | 704 | 0.3+ | 1.5+ | 2005 01 17 | 704 | 0.8+ | 0.8+ | 2006 05 28 | G96 | 0.2− | 0.1− |
| 2000 05 03 | 704 | 0.8+ | 0.6+ | 2005 01 17 | 704 | 0.3+ | 0.3− | 2006 05 28 | G96 | 0.2− | 0.1+ |
| 2000 05 03 | 704 | 0.6+ | 0.6+ | 2005 01 17 | 704 | 0.1+ | 0.5− | 2006 05 28 | G96 | 0.2+ | 0.1+ |
| 2003 10 17 | 644 | 0.4− | 0.5+ | 2005 01 17 | 704 | 0.6+ | 0.2− | 2006 05 28 | G96 | 0.3+ | 0.1+ |
| 2003 10 17 | 644 | 0.6− | 0.8+ | 2005 03 14 | 703 | 0.6+ | 0.2− | 2006 05 28 | G96 | 0.3+ | 0.1− |
| 2003 10 17 | 644 | 0.4− | 0.6+ | 2005 03 14 | 703 | 1.0− | 0.3− | 2006 05 28 | G96 | 0.0 | 0.3− |
| 2003 10 21 | 699 | 0.4− | 0.1− | 2005 03 14 | 703 | 0.9− | 0.0 | 2006 05 28 | G96 | 0.3− | 0.1− |
| 2003 10 21 | 699 | 0.7− | 0.2− | 2005 03 14 | 703 | 0.4+ | 0.3− | 2006 05 28 | G96 | 0.2− | 0.0 |
| 2003 10 21 | 699 | 0.4+ | 0.1− | 2006 04 19 | 691 | 0.3+ | 0.2+ | 2009 11 15 | 704 | 1.0− | 1.4− |
| 2003 10 21 | 699 | 0.3− | 0.7+ | 2006 04 19 | 691 | 0.0 | 0.0 | 2009 11 15 | 704 | (1.3+ | 2.7−) |
| 2003 10 27 | 699 | 0.8+ | 0.1− | 2006 04 19 | 691 | 0.0 | 0.1+ | 2009 11 15 | 704 | 0.6+ | 1.1+ |
| 2003 10 27 | 699 | 0.9− | 0.2+ | 2006 05 04 | 691 | 0.2+ | 0.1+ | 2009 11 15 | 704 | (1.7− | 2.6+) |
| 2003 10 27 | 699 | 0.5− | 0.5+ | 2006 05 04 | 691 | 0.3+ | 0.1+ | 2009 11 18 | J75 | 0.8− | 0.1− |
| 2003 10 27 | 699 | 0.5− | 0.3+ | 2006 05 04 | 691 | 0.2+ | 0.1+ | 2009 11 18 | J75 | 0.3− | 0.3− |
| 2004 12 09 | 704 | 0.2+ | 1.0+ | 2006 05 19 | 699 | 0.5− | 0.2− | 2009 11 18 | J75 | 0.2+ | 0.4+ |
| 2004 12 09 | 704 | 0.5+ | 1.2+ | 2006 05 19 | 699 | 0.5− | 0.1+ | 2009 12 13 | 704 | 1.5+ | 0.5+ |
| 2004 12 09 | 704 | 0.0 | 0.5+ | 2006 05 19 | 699 | 1.1− | 1.0− | 2009 12 13 | 704 | 0.1− | 0.8+ |
| 2004 12 09 | 704 | 0.4− | 0.4− | 2006 05 19 | 699 | 0.6− | 0.7+ | 2009 12 13 | 704 | 0.2− | 0.4+ |
| 2004 12 09 | 703 | 0.3+ | 0.4+ | 2006 05 24 | 699 | (1.5− | 0.7−) | 2009 12 13 | 704 | 0.5+ | 1.1+ |
| 2004 12 09 | 703 | 0.0 | 1.4+ | 2006 05 24 | 699 | (0.4+ | 1.8+) | 2009 12 13 | 704 | 0.1+ | 1.4+ |
| 2004 12 09 | 703 | 0.8− | 0.4+ | 2006 05 24 | 699 | 0.6− | 1.0+ | | | | |

**(228978)∗ 2003 UP$_{272}$ = 2005 EM$_{106}$**

Discovered 2003 Oct. 29 by Spacewatch at Kitt Peak.

Id. A. Doppler (*MPO* 76169)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 40.35956 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18304889 | $\omega$ | 279.17479 | | +0.52627425 | | −0.84810150 |
| $a$ | 3.0720243 | $\Omega$ | 138.88041 | | +0.81217624 | | +0.48000842 |
| $e$ | 0.1025061 | $i$ | 5.34959 | | +0.25180383 | | +0.22431174 |
| $P$ | 5.38 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 03 28 | 691 | 0.3+ | 0.6− | 2005 03 04 | G96 | 0.2− | 0.5+ | 2008 09 22 | 704 | 0.5+ | 0.6+ |
| 1995 03 28 | 691 | 0.0 | 0.0 | 2005 03 04 | G96 | 0.1− | 0.4+ | 2008 09 22 | 704 | 0.3+ | 0.3+ |
| 1995 03 28 | 691 | 0.1− | 1.2− | 2005 03 04 | G96 | 0.1− | 0.0 | 2008 09 22 | 704 | 0.4+ | 0.7+ |
| 2002 08 08 | 644 | 0.1+ | 0.5+ | 2005 03 10 | G96 | 0.1− | 0.4+ | 2008 09 22 | 704 | 1.4+ | 0.3+ |
| 2002 08 08 | 644 | 0.2+ | 0.2+ | 2005 03 10 | G96 | 0.0 | 0.5+ | 2008 10 01 | 703 | 0.5− | 0.7+ |
| 2002 08 08 | 644 | 0.8− | 0.0 | 2005 03 10 | G96 | 0.0 | 0.2+ | 2008 10 01 | 703 | 0.7+ | 0.1− |
| 2003 10 21 | 704 | 0.7− | 0.6+ | 2005 03 10 | G96 | 0.2+ | 0.3+ | 2008 10 01 | 703 | 1.2+ | 0.6+ |
| 2003 10 21 | 704 | 0.6+ | 0.8+ | 2006 04 24 | 691 | 0.4− | 0.5+ | 2008 10 01 | 703 | 0.2− | 0.3+ |
| 2003 10 21 | 704 | 0.2− | 0.7+ | 2006 04 24 | 691 | 0.0 | 0.7+ | 2009 12 17 | G96 | 0.3+ | 0.0 |
| 2003 10 21 | 704 | 0.4− | 0.0 | 2006 04 24 | 691 | 0.2+ | 0.6+ | 2009 12 17 | G96 | 0.5+ | 0.0 |
| 2003 10 29 | 691 | 0.1− | 0.2− | 2006 05 30 | G96 | 0.0 | 0.5+ | 2009 12 17 | G96 | 0.2+ | 0.1− |
| 2003 10 29 | 691 | 0.1− | 0.2− | 2006 05 30 | G96 | 0.5+ | 0.2+ | 2009 12 17 | G96 | 0.2+ | 0.1+ |
| 2003 10 29 | 691 | 0.3− | 0.3− | 2006 05 30 | G96 | 0.1− | 1.1+ | 2009 12 17 | G96 | 0.2+ | 0.0 |
| 2003 11 01 | 704 | (1.3+ | 1.6+) | 2006 05 30 | G96 | 0.1− | 0.3+ | 2009 12 19 | 691 | 0.1− | 0.2+ |
| 2003 11 01 | 704 | 0.1− | 0.1− | 2008 08 23 | 691 | 0.3− | 0.2+ | 2009 12 19 | 691 | 0.2+ | 0.3+ |
| 2003 11 01 | 704 | 0.4+ | 0.1− | 2008 08 23 | 691 | 0.4− | 0.2− | 2009 12 19 | 691 | 0.0 | 0.2+ |
| 2003 11 01 | 704 | 0.1− | 0.2− | 2008 08 23 | 691 | 0.1− | 0.1− | | | | |
| 2005 03 04 | G96 | 0.0 | 0.1+ | 2008 09 22 | 704 | 0.3+ | 0.2+ | | | | |

**(228979)∗ 2003 UD$_{274}$**

Discovered 2003 Oct. 29 by NEAT at Haleakala.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 93.33921 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18342219 | $\omega$ | 250.27592 | | +0.98321675 | | +0.07216662 |
| $a$ | 3.0678548 | $\Omega$ | 105.30125 | | −0.00917077 | | +0.93682864 |
| $e$ | 0.1846928 | $i$ | 10.00414 | | −0.18221065 | | +0.34226317 |
| $P$ | 5.37 | $H$ | 15.2 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 05 18 | 691 | 0.0 | 0.2+ | 2003 11 30 | 704 | 0.2− | 0.4− | 2008 10 09 | 703 | 0.0 | 0.1− |
| 1996 05 18 | 691 | 0.2+ | 0.4+ | 2003 11 30 | 704 | 0.2+ | 0.2− | 2008 10 09 | 703 | 1.2+ | 0.5+ |
| 1996 05 18 | 691 | 0.1+ | 0.1+ | 2003 11 30 | 704 | 0.1− | 0.5− | 2008 10 09 | 703 | 0.7− | 0.3− |
| 2003 10 21 | 704 | 0.2+ | 0.8− | 2003 11 30 | 704 | 0.1− | 0.5− | 2008 10 09 | 703 | 0.4+ | 0.2+ |
| 2003 10 21 | 704 | 0.3+ | 0.0 | 2003 12 22 | 704 | 0.4+ | 1.0+ | 2008 10 27 | 703 | 0.6− | 0.5+ |
| 2003 10 21 | 704 | 0.1+ | 0.2+ | 2003 12 22 | 704 | 0.5− | 0.2+ | 2008 10 27 | 703 | 0.4− | 0.6− |
| 2003 10 21 | 704 | 1.2+ | 0.2+ | 2003 12 22 | 704 | 0.4+ | 0.3− | 2008 10 27 | 703 | 0.6− | 0.2+ |
| 2003 10 29 | 608 | 0.6− | 1.1− | 2003 12 22 | 704 | 0.3+ | 0.6+ | 2008 10 27 | 703 | 0.8− | 1.0− |
| 2003 10 29 | 608 | 0.4− | 0.7− | 2003 12 22 | 704 | 0.1+ | 0.7+ | 2008 11 28 | J47 | 0.1− | 0.3− |
| 2003 10 29 | 608 | 0.3− | 0.7− | 2003 12 22 | 691 | 0.2+ | 0.2+ | 2008 11 28 | J47 | 0.1− | 0.3− |
| 2003 11 01 | 704 | 0.4+ | 0.9+ | 2003 12 22 | 691 | 0.2+ | 0.0 | 2008 11 28 | J47 | 0.1+ | 0.1− |
| 2003 11 01 | 704 | 0.3− | 1.1+ | 2003 12 22 | 691 | 0.1+ | 0.1+ | 2009 11 23 | G96 | 0.3+ | 0.1− |
| 2003 11 01 | 704 | 0.5− | 1.2+ | 2008 09 07 | 703 | 0.4+ | 0.3+ | 2009 11 23 | G96 | 0.4− | 0.7− |
| 2003 11 16 | 703 | 0.7− | 0.2− | 2008 09 07 | 703 | 0.5− | 0.6+ | 2009 11 23 | G96 | 0.3− | 0.2+ |
| 2003 11 16 | 703 | 1.4− | 0.4− | 2008 09 07 | 703 | 0.8+ | 0.3+ | 2009 12 15 | G96 | 0.6+ | 0.4− |
| 2003 11 16 | 703 | 0.2− | 0.4− | 2008 09 07 | 703 | 0.4+ | 0.2+ | 2009 12 15 | G96 | 0.1+ | 0.2− |
| 2003 11 16 | 703 | 0.4− | 0.2+ | 2008 10 02 | 703 | 1.3− | 0.4− | 2009 12 15 | G96 | 0.1+ | 0.2− |
| 2003 11 19 | 644 | 0.1− | 0.2− | 2008 10 02 | 703 | 0.1− | 0.1+ | 2009 12 15 | G96 | 0.1+ | 0.2− |
| 2003 11 19 | 644 | 0.1+ | 0.3− | 2008 10 02 | 703 | 0.6− | 0.1+ | 2009 12 15 | G96 | 0.3+ | 0.1− |
| 2003 11 19 | 644 | 0.2+ | 0.2− | 2008 10 02 | 703 | 0.1+ | 0.2− | 2009 12 17 | 691 | 0.1− | 0.1− |
| 2003 11 29 | 291 | 0.1+ | 0.1+ | 2008 10 09 | 703 | 0.2− | 0.2+ | 2009 12 17 | 691 | 0.0 | 0.6+ |
| 2003 11 29 | 291 | 0.0 | 0.1+ | 2008 10 09 | 703 | 1.0+ | 0.8+ | 2009 12 17 | 691 | 0.0 | 0.1+ |
| 2003 11 29 | 291 | 0.0 | 0.1+ | 2008 10 09 | 703 | 0.1+ | 0.7− | | | | |
| 2003 11 30 | 704 | 0.5− | 0.2+ | 2008 10 09 | 703 | 0.8+ | 0.7+ | | | | |

**(228980)∗ 2003 UZ$_{289}$**

Discovered 2003 Oct. 23 by M. W. Buie at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 54.48492 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17181944 | $\omega$ | 266.97967 | | +0.98674442 | | −0.15623546 |
| $a$ | 3.2044575 | $\Omega$ | 102.00577 | | +0.16092594 | | +0.90715300 |
| $e$ | 0.1804647 | $i$ | 2.57155 | | +0.02093563 | | +0.39072229 |
| $P$ | 5.74 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 23 | 695 | 0.6− | 0.1− | 2005 01 16 | 691 | 0.1+ | 0.8+ | 2009 11 20 | 691 | 0.3− | 0.1− |
| 2003 10 23 | 695 | 0.1− | 0.0 | 2005 03 10 | G96 | 0.0 | 0.7− | 2009 11 24 | 691 | 0.0 | 0.0 |
| 2003 10 24 | 704 | 0.7− | 0.7− | 2005 03 10 | G96 | 0.1− | 0.6− | 2009 11 24 | 691 | 0.7+ | 0.7− |
| 2003 10 24 | 704 | 0.8− | 0.3− | 2005 03 10 | G96 | 0.3− | 0.2− | 2009 11 24 | 691 | 0.1− | 0.1− |
| 2003 10 24 | 704 | (1.6− | 0.4−) | 2005 03 10 | G96 | 0.3− | 0.7− | 2009 12 10 | G96 | 0.7+ | 0.3− |
| 2003 10 24 | 704 | 0.0 | 0.8+ | 2007 05 11 | G96 | 0.0 | 0.2+ | 2009 12 10 | G96 | 0.6+ | 0.3− |
| 2003 11 16 | 691 | 0.0 | 0.2+ | 2007 05 11 | G96 | 0.2− | 0.1− | 2009 12 10 | G96 | 0.3+ | 0.3− |
| 2003 11 16 | 691 | 0.2+ | 0.2+ | 2007 05 11 | G96 | 0.3+ | 0.4+ | 2009 12 10 | G96 | 0.8+ | 0.5− |
| 2003 11 16 | 691 | 0.0 | 0.3+ | 2007 05 11 | G96 | 0.0 | 0.0 | 2009 12 10 | G96 | 0.7+ | 0.2− |
| 2003 12 01 | 704 | 0.1− | 0.1− | 2009 11 16 | 691 | 0.4+ | 0.1− | 2009 12 10 | G96 | 0.7+ | 0.4− |
| 2003 12 01 | 704 | 0.2− | 0.2− | 2009 11 16 | 691 | 0.4− | 0.1− | 2009 12 10 | G96 | 0.5+ | 0.4− |
| 2003 12 01 | 704 | 0.6+ | 0.6+ | 2009 11 16 | 691 | 1.0− | 0.1+ | 2009 12 17 | 704 | 0.1+ | 0.6− |
| 2005 01 16 | 691 | 0.4+ | 0.1− | 2009 11 20 | 691 | 0.3− | 0.0 | 2009 12 17 | 704 | 0.5+ | 1.0+ |
| 2005 01 16 | 691 | 0.1− | 0.3+ | 2009 11 20 | 691 | 0.1− | 0.1+ | 2009 12 17 | 704 | 0.5− | 1.2+ |

**(228981)∗ 2003 UC$_{316}$**

Discovered 2003 Oct. 22 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 98.51756 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17793111 | $\omega$ | 190.97516 | | +0.86309698 | +0.49493008 | |
| $a$ | 3.1306520 | $\Omega$ | 138.85826 | | −0.45102172 | +0.84493210 | |
| $e$ | 0.0619686 | $i$ | 8.78983 | | −0.22725099 | +0.20281508 | |
| $P$ | 5.54 | $H$ | 15.1 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1992 11 16 | 691 | 0.3− | 0.1− | 2003 11 28 | 645 | 0.0 | 0.1+ | 2008 09 23 | 704 | 0.1− | 0.0 | 2006 01 31 | 691 | 0.4+ | 0.2+ | 2008 09 07 | 703 | 0.2− | 0.6+ |
| 1992 11 16 | 691 | 0.3− | 0.2− | 2007 07 04 | 691 | 0.4+ | 0.3+ | 2008 09 23 | 704 | 0.5− | 1.1+ | 2006 01 31 | 691 | 0.1+ | 0.3+ | 2008 09 07 | 703 | (1.4− | 2.0+) |
| 1992 11 16 | 691 | 0.9+ | 0.1− | 2007 07 04 | 691 | 0.0 | 0.1+ | 2008 10 02 | 703 | 0.6+ | 0.3+ | 2007 04 18 | 691 | 0.1− | 0.1+ | 2008 09 07 | 703 | 0.6+ | 0.4+ |
| 2000 02 06 | 695 | 0.6+ | 0.3+ | 2007 07 04 | 691 | 0.2− | 0.2+ | 2008 10 02 | 703 | 0.3+ | 0.0 | 2007 04 18 | G96 | 0.2+ | 0.0 | 2008 09 07 | 703 | 0.5− | 0.8+ |
| 2000 02 06 | 695 | 0.3+ | 0.4+ | 2008 08 11 | A50 | 0.5+ | 0.2+ | 2008 10 02 | 703 | 0.1− | 0.8+ | 2007 04 18 | G96 | 0.6− | 0.3− | 2008 09 25 | G96 | 0.5+ | 0.0 |
| 2002 07 14 | 704 | 0.1− | 1.2− | 2008 08 11 | A50 | 0.1+ | 0.5+ | 2008 10 02 | 703 | (1.8+ | 0.1−) | 2007 04 18 | 691 | 0.3− | 0.2− | 2008 09 25 | G96 | 0.7+ | 0.0 |
| 2002 07 14 | 704 | 0.4+ | 0.9+ | 2008 08 11 | A50 | 0.8+ | 0.5− | 2009 11 19 | J75 | 0.1+ | 0.1+ | 2007 04 18 | G96 | 0.2− | 0.1− | 2008 09 25 | G96 | 0.8+ | 0.2+ |
| 2002 07 14 | 704 | 1.0− | 0.3− | 2008 08 11 | A50 | 0.1+ | 0.4+ | 2009 11 19 | J75 | (1.6+ | 0.5−) | 2007 04 18 | G96 | 0.5− | 0.1+ | 2008 09 25 | G96 | 0.3+ | 0.2+ |
| 2002 07 14 | 704 | 1.1− | 0.4+ | 2008 08 12 | A50 | 0.5+ | 0.3− | 2009 11 19 | J75 | 0.5− | 0.2− | 2007 04 18 | 691 | 0.5+ | 0.1− | 2009 11 27 | G96 | 0.2+ | 0.3− |
| 2003 10 22 | 691 | 0.3− | 0.1+ | 2008 08 12 | A50 | 1.2− | 0.7− | 2009 11 20 | J75 | 0.6+ | 0.4+ | 2003 10 16 | 691 | 0.4− | 0.1+ | 2007 04 26 | 691 | 0.6− | 0.1+ | 2009 11 27 | G96 | 0.2− | 0.1− |
| 2003 10 22 | 691 | 0.3− | 0.2+ | 2008 08 12 | A50 | 0.6+ | 0.3− | 2009 11 20 | J75 | 0.1− | 0.1− | 2003 10 16 | 691 | 0.2− | 0.1+ | 2007 04 26 | 691 | 0.3+ | 0.1+ | 2009 11 27 | G96 | 0.5− | 0.5− |
| 2003 10 22 | 691 | 0.3− | 0.2+ | 2008 08 13 | A50 | 0.1+ | 0.0 | 2009 11 20 | J75 | 0.5− | 0.2+ | 2003 10 16 | 691 | 0.4− | 0.1− | 2007 04 26 | 691 | 0.1− | 0.0 | 2009 12 10 | G96 | 0.0 | 0.1+ |
| 2003 10 24 | 645 | 0.0 | 0.0 | 2008 09 03 | J75 | 0.6− | 0.3− | 2009 11 23 | 703 | 0.7− | 0.6+ | 2003 10 24 | 704 | 0.5− | 0.8+ | 2007 05 26 | G96 | 0.2+ | 0.2− | 2009 12 10 | G96 | 0.4− | 0.1− |
| 2003 10 24 | 645 | 0.0 | 0.0 | 2008 09 03 | J75 | 0.0 | 0.0 | 2009 11 23 | 703 | 0.4+ | 0.2− | 2003 10 24 | 704 | (1.7− | 0.9+) | 2007 05 26 | G96 | 0.3− | 0.0 | 2009 12 10 | G96 | 0.1− | 0.1− |
| 2003 11 20 | 645 | 0.1+ | 0.1− | 2008 09 03 | J75 | 0.1− | 0.2− | 2009 11 23 | 703 | 0.3+ | 0.5+ | 2003 10 24 | 704 | (2.3− | 0.4+) | 2007 05 26 | G96 | 0.1− | 0.1+ | 2009 12 10 | G96 | 0.0 | 0.3+ |
| 2003 11 20 | 645 | 0.1+ | 0.1− | 2008 09 06 | J75 | 0.6− | 0.3− | 2009 11 23 | 703 | 1.3− | 0.5+ | 2006 01 31 | 691 | 0.4+ | 0.4+ | 2007 05 26 | G96 | 0.1+ | 0.2− | | | | |
| 2003 11 24 | 644 | 0.3+ | 0.5+ | 2008 09 06 | J75 | 0.9+ | 0.2+ | 2009 12 11 | 703 | 0.2+ | 0.4− | | | | | | | | |
| 2003 11 24 | 644 | 0.4+ | 0.5+ | 2008 09 06 | J75 | 0.5+ | 0.0 | 2009 12 11 | 703 | 0.7+ | 1.4+ | | | | | | | | |
| 2003 11 24 | 644 | 0.7+ | 0.6− | 2008 09 23 | 704 | 0.2− | 0.1+ | 2009 12 11 | 703 | 0.5− | 0.2− | | | | | | | | |
| 2003 11 28 | 645 | 0.0 | 0.0 | 2008 09 23 | 704 | 0.2+ | 0.4+ | 2009 12 11 | 703 | 0.4− | 0.2+ | | | | | | | | |

**(228982)∗ 2003 UF$_{316}$**

Discovered 2003 Oct. 23 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 350.72889 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.16855607 | $\omega$ | 163.13638 | | +0.08900540 | −0.99471259 | |
| $a$ | 3.2456857 | $\Omega$ | 281.73484 | | +0.90769634 | +0.10218215 | |
| $e$ | 0.1596555 | $i$ | 2.99952 | | +0.41007974 | −0.01027989 | |
| $P$ | 5.85 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 08 | 644 | 0.3− | 0.1− | 2003 11 24 | 704 | 0.4+ | 0.0 | 2009 11 12 | J75 | 0.2+ | 0.0 | 2007 04 18 | G96 | 0.2+ | 0.0 | 2008 09 07 | 703 | 0.2− | 0.6+ |
| 2002 08 08 | 644 | 0.5− | 0.1− | 2003 11 24 | 704 | 1.2− | 0.1+ | 2009 11 12 | J75 | 0.2− | 0.4− | 2007 04 18 | 691 | 0.1− | 0.1+ | 2008 09 07 | 703 | (1.4− | 2.0+) |
| 2002 08 08 | 644 | 0.1− | 0.3− | 2003 11 24 | 699 | 0.8+ | 0.1− | 2009 11 24 | J75 | 0.4+ | 0.1+ | 2007 04 18 | 691 | 0.1− | 0.1+ | 2008 09 07 | 703 | 0.6+ | 0.4+ |
| 2002 08 17 | 644 | 0.2+ | 0.1− | 2003 11 24 | 699 | (1.6− | 1.1−) | 2009 11 24 | J75 | 0.7+ | 0.3+ | 2007 04 18 | G96 | 0.2+ | 0.0 | 2008 09 07 | 703 | 0.5− | 0.8+ |
| 2002 08 17 | 644 | 0.1− | 0.1+ | 2003 11 24 | 699 | 0.3− | 0.3− | 2009 11 24 | J75 | 0.4− | 1.1− | 2007 04 18 | G96 | 0.6− | 0.3− | 2008 09 25 | G96 | 0.5+ | 0.0 |
| 2002 08 17 | 644 | 0.8+ | 0.7+ | 2003 11 30 | 691 | 0.1+ | 0.0 | 2009 11 25 | 691 | 0.2− | 0.0 | 2007 04 18 | 691 | 0.3− | 0.2− | 2008 09 25 | G96 | 0.7+ | 0.0 |
| 2002 08 27 | 644 | 0.1+ | 0.1+ | 2003 11 30 | 691 | 0.2− | 0.0 | 2009 11 25 | 691 | 0.3− | 0.1− | 2007 04 18 | G96 | 0.5− | 0.1+ | 2008 09 25 | G96 | 0.8+ | 0.2+ |
| 2002 08 27 | 644 | 0.0 | 0.0 | 2003 11 30 | 691 | 0.1+ | 0.0 | 2009 11 25 | 691 | 0.2− | 0.1− | 2007 04 18 | 691 | 0.5+ | 0.1− | 2008 09 25 | G96 | 0.3+ | 0.2+ |
| 2002 08 27 | 644 | 0.1− | 0.1+ | 2003 12 16 | 291 | 0.2− | 0.2+ | 2009 12 18 | G96 | 0.4+ | 0.1− | 2007 04 18 | 691 | 0.5+ | 0.1− | 2009 11 27 | G96 | 0.2+ | 0.3− |
| 2003 10 23 | 691 | 0.1+ | 0.1+ | 2003 12 16 | 291 | 0.3− | 0.3+ | 2009 12 18 | G96 | 0.2+ | 0.2− | 2003 10 16 | 691 | 0.4− | 0.1+ | 2007 04 26 | 691 | 0.6− | 0.1+ | 2009 11 27 | G96 | 0.2− | 0.1− |
| 2003 10 23 | 691 | 0.1− | 0.2− | 2003 12 16 | 291 | 0.1+ | 0.0 | 2009 12 18 | G96 | 0.3+ | 0.3− | 2003 10 16 | 691 | 0.2− | 0.1+ | 2007 04 26 | 691 | 0.3+ | 0.1+ | 2009 11 27 | G96 | 0.5− | 0.5− |
| 2003 10 23 | 691 | 0.1+ | 0.1+ | 2008 08 21 | 691 | 0.7− | 0.4− | 2009 12 18 | G96 | 0.2+ | 0.3− | 2003 10 16 | 691 | 0.4− | 0.1− | 2007 04 26 | 691 | 0.1− | 0.0 | 2009 12 10 | G96 | 0.0 | 0.1+ |
| 2003 11 19 | 699 | 1.2+ | 0.7+ | 2008 08 21 | 691 | 0.1+ | 0.0 | 2009 12 18 | G96 | 0.4+ | 0.1− | 2003 10 24 | 704 | 0.5− | 0.8+ | 2007 05 26 | G96 | 0.2+ | 0.2− | 2009 12 10 | G96 | 0.4− | 0.1− |
| 2003 11 19 | 699 | (1.8+ | 2.3+) | 2008 08 21 | 691 | 0.0 | 0.7+ | 2009 12 18 | G96 | 0.4+ | 0.0 | 2003 10 24 | 704 | (1.7− | 0.9+) | 2007 05 26 | G96 | 0.3− | 0.0 | 2009 12 10 | G96 | 0.1− | 0.1− |
| 2003 11 19 | 699 | 0.3+ | 0.0 | 2008 09 19 | 691 | 0.2+ | 0.0 | 2009 12 18 | G96 | 0.5+ | 0.1+ | 2003 10 24 | 704 | (2.3− | 0.4+) | 2007 05 26 | G96 | 0.1− | 0.1+ | 2009 12 10 | G96 | 0.0 | 0.3+ |
| 2003 11 19 | 699 | 0.4− | 0.7+ | 2008 09 19 | 691 | 0.4+ | 0.3− | 2009 12 18 | G96 | 0.2+ | 0.1− | 2006 01 31 | 691 | 0.4+ | 0.4+ | 2007 05 26 | G96 | 0.1+ | 0.2− | | | | |
| 2003 11 24 | 704 | 0.1+ | 0.5+ | 2008 09 19 | 691 | 0.1+ | 0.2− | | | | | | | | | | | | |
| 2003 11 24 | 699 | 0.6− | 0.9− | 2009 11 12 | J75 | 0.1+ | 0.4+ | | | | | | | | | | | | |

**(228983)∗ 2003 UU$_{322}$ = 2006 BM$_{257}$**

Discovered 2003 Oct. 16 by Spacewatch at Kitt Peak.

Id. A. Doppler (*MPO* 157993)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 122.73168 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18344784 | $\omega$ | 222.92077 | | +0.52036038 | +0.85243452 | |
| $a$ | 3.0675688 | $\Omega$ | 78.49588 | | −0.76876869 | +0.49352511 | |
| $e$ | 0.1374903 | $i$ | 2.97153 | | −0.37177919 | +0.17259305 | |
| $P$ | 5.37 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 11 15 | 691 | 0.3+ | 0.0 | 2006 01 31 | 691 | 0.4+ | 0.2+ | 2008 09 07 | 703 | 0.2− | 0.6+ | 2007 04 18 | 691 | 0.1− | 0.1+ | 2008 09 07 | 703 | 0.2− | 0.6+ |
| 1998 11 15 | 691 | 0.1+ | 0.0 | 2006 01 31 | 691 | 0.1+ | 0.3+ | 2008 09 07 | 703 | (1.4− | 2.0+) | 2007 04 18 | G96 | 0.2+ | 0.0 | 2008 09 07 | 703 | 0.5− | 0.8+ |
| 1998 11 15 | 691 | 0.2+ | 0.3− | 2007 04 18 | 691 | 0.1− | 0.1+ | 2008 09 07 | 703 | 0.6+ | 0.4+ | 2007 04 18 | G96 | 0.6− | 0.3− | 2008 09 25 | G96 | 0.5+ | 0.0 |
| 2000 01 13 | 691 | 0.4− | 0.0 | 2007 04 18 | G96 | 0.2+ | 0.0 | 2008 09 07 | 703 | 0.5− | 0.8+ | 2007 04 18 | 691 | 0.3− | 0.2− | 2008 09 25 | G96 | 0.7+ | 0.0 |
| 2000 01 13 | 691 | 0.1+ | 0.2− | 2007 04 18 | G96 | 0.6− | 0.3− | 2008 09 25 | G96 | 0.5+ | 0.0 | 2007 04 18 | G96 | 0.2− | 0.1− | 2008 09 25 | G96 | 0.8+ | 0.2+ |
| 2000 01 13 | 691 | 0.1+ | 0.2− | 2007 04 18 | 691 | 0.3− | 0.2− | 2008 09 25 | G96 | 0.7+ | 0.0 | 2007 04 18 | G96 | 0.5− | 0.1+ | 2008 09 25 | G96 | 0.3+ | 0.2+ |
| 2003 09 28 | 691 | 0.1− | 0.0 | 2007 04 18 | G96 | 0.2− | 0.1− | 2008 09 25 | G96 | 0.8+ | 0.2+ | 2007 04 18 | 691 | 0.5+ | 0.1− | 2009 11 27 | G96 | 0.2+ | 0.3− |
| 2003 09 28 | 691 | 0.2− | 0.2− | 2007 04 18 | G96 | 0.5− | 0.1+ | 2008 09 25 | G96 | 0.3+ | 0.2+ | 2007 04 26 | 691 | 0.6− | 0.1+ | 2009 11 27 | G96 | 0.2− | 0.1− |
| 2003 09 28 | 691 | 0.3+ | 0.2+ | 2007 04 18 | 691 | 0.5+ | 0.1− | 2009 11 27 | G96 | 0.2+ | 0.3− | 2007 04 26 | 691 | 0.3+ | 0.1+ | 2009 11 27 | G96 | 0.5− | 0.5− |
| 2003 10 16 | 691 | 0.4− | 0.1+ | 2007 04 26 | 691 | 0.6− | 0.1+ | 2009 11 27 | G96 | 0.2− | 0.1− | 2007 04 26 | 691 | 0.1− | 0.0 | 2009 12 10 | G96 | 0.0 | 0.1+ |
| 2003 10 16 | 691 | 0.2− | 0.1+ | 2007 04 26 | 691 | 0.3+ | 0.1+ | 2009 11 27 | G96 | 0.5− | 0.5− | 2007 05 26 | G96 | 0.2+ | 0.2− | 2009 12 10 | G96 | 0.4− | 0.1− |
| 2003 10 16 | 691 | 0.4− | 0.1− | 2007 04 26 | 691 | 0.1− | 0.0 | 2009 12 10 | G96 | 0.0 | 0.1+ | 2007 05 26 | G96 | 0.3− | 0.0 | 2009 12 10 | G96 | 0.1− | 0.1− |
| 2003 10 24 | 704 | 0.5− | 0.8+ | 2007 05 26 | G96 | 0.2+ | 0.2− | 2009 12 10 | G96 | 0.4− | 0.1− | 2007 05 26 | G96 | 0.1− | 0.1+ | 2009 12 10 | G96 | 0.0 | 0.3+ |
| 2003 10 24 | 704 | (1.7− | 0.9+) | 2007 05 26 | G96 | 0.3− | 0.0 | 2009 12 10 | G96 | 0.1− | 0.1− | | | | | | | | |
| 2003 10 24 | 704 | (2.3− | 0.4+) | 2007 05 26 | G96 | 0.1− | 0.1+ | 2009 12 10 | G96 | 0.0 | 0.3+ | | | | | | | | |
| 2006 01 31 | 691 | 0.4+ | 0.4+ | 2007 05 26 | G96 | 0.1+ | 0.2− | | | | | | | | | | | | |

**(228984)∗ 2003 UA$_{375}$**

Discovered 2003 Oct. 22 by the Sloan Digital Sky Survey at Apache Point.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 190.84000 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17780808 | $\omega$ | 327.01028 | | −0.87231368 | +0.48232230 | |
| $a$ | 3.1320959 | $\Omega$ | 242.02735 | | −0.42662850 | −0.83096629 | |
| $e$ | 0.0216330 | $i$ | 5.21097 | | −0.23886601 | −0.27723676 | |
| $P$ | 5.54 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 19 | 645 | 0.0 | 0.1− | 2004 11 10 | 691 | 0.1+ | 0.0 | 2009 09 21 | 691 | 0.3− | 0.4+ | 2007 04 20 | G96 | 0.0 | 0.5+ | 2009 09 28 | 691 | 0.1− | 0.1+ |
| 2003 10 19 | 645 | 0.0 | 0.0 | 2004 11 10 | 691 | 0.1+ | 0.2+ | 2009 09 21 | 691 | 0.3− | 0.3+ | 2007 04 20 | G96 | 0.1− | 0.9+ | 2009 12 16 | G96 | 0.1− | 0.2− |
| 2003 10 22 | 691 | 0.0 | 0.0 | 2004 11 10 | 691 | 0.0 | 0.1+ | 2009 09 24 | 691 | 0.1+ | 0.3− | 2007 04 20 | G96 | 0.2+ | 0.6+ | 2009 12 16 | G96 | 0.7+ | 0.4+ |
| 2003 10 22 | 691 | 0.3+ | 0.2+ | 2004 11 20 | 691 | 0.2+ | 0.2+ | 2009 09 24 | 691 | 0.6− | 0.3+ | 2007 05 07 | 691 | 0.0 | 0.2+ | 2009 12 16 | G96 | 0.4+ | 0.5− |
| 2003 10 22 | 691 | 0.1− | 0.2+ | 2004 11 20 | 691 | 0.1+ | 0.2− | 2009 09 24 | 691 | 0.5+ | 0.5+ | 2007 05 07 | 691 | 0.1+ | 0.1+ | 2009 12 16 | G96 | 0.8+ | 0.3− |
| 2003 10 22 | 645 | 0.0 | 0.1− | 2004 11 20 | 691 | 0.0 | 0.1− | 2009 09 28 | 691 | 0.0 | 0.2+ | 2007 05 07 | 691 | 0.0 | 0.1+ | | | | |
| 2003 10 22 | 645 | 0.1+ | 0.0 | 2007 04 20 | G96 | 0.1+ | 0.3+ | 2009 09 28 | 691 | 0.1− | 0.1+ | 2007 05 07 | 691 | 0.0 | 0.1+ | | | | |
| 2003 10 23 | 645 | 0.0 | 0.0 | 2007 04 20 | G96 | 0.0 | 0.5+ | 2009 09 28 | 691 | 0.1− | 0.1+ | 2009 09 21 | 691 | 0.1− | 0.3+ | | | | |

**(228985)∗ 2003 VR$_{7}$**

Discovered 2003 Nov. 15 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 53.79982 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17430541 | $\omega$ | 204.02015 | | +0.95876592 | −0.28418272 | |
| $a$ | 3.1739164 | $\Omega$ | 172.48816 | | +0.26414389 | +0.88737514 | |
| $e$ | 0.2049182 | $i$ | 1.24747 | | +0.10486143 | +0.36305034 | |
| $P$ | 5.65 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 20 | 691 | 0.1− | 0.1− | 2003 11 24 | 699 | 0.1+ | 0.8+ | 2008 08 24 | 704 | (1.6+ | 0.7−) | 2003 10 29 | 699 | 1.0+ | 0.4− | 2003 11 29 | 691 | 0.3+ | 0.1− |
| 2003 10 20 | 691 | 0.0 | 0.1− | 2003 11 29 | 691 | 0.2− | 0.2− | 2008 08 24 | 704 | 0.7+ | 1.2+ | 2003 10 29 | 699 | 0.0 | 0.9− | 2003 12 01 | 704 | 0.5+ | 1.2+ |
| 2003 10 20 | 691 | 0.1− | 0.0 | 2003 11 29 | 691 | 0.2− | 0.0 | 2008 08 24 | 704 | 0.2+ | 1.2+ | | | | | | | | |
| 2003 10 29 | 699 | 1.0+ | 0.4− | 2003 11 29 | 691 | 0.3+ | 0.1− | 2008 08 24 | 704 | 0.9+ | 0.7+ | | | | | | | | |
| 2003 10 29 | 699 | 0.0 | 0.9− | 2003 12 01 | 704 | 0.5+ | 1.2+ | 2008 08 24 | 704 | 0.8+ | 0.9+ | | | | | | | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 29 | 699 | 0.6− | 0.1− | 2003 12 01 | 704 | 0.4+ | 0.5− | 2008 09 06 | G96 | 0.4+ | 0.5− |
| 2003 10 29 | 699 | 1.4− | 0.4− | 2003 12 01 | 704 | 0.1+ | 0.1− | 2008 09 06 | G96 | 0.4− | 0.2− |
| 2003 11 15 | 691 | 0.2+ | 0.1− | 2003 12 01 | 704 | 0.4+ | 0.1− | 2008 09 06 | G96 | 0.1− | 0.3− |
| 2003 11 15 | 691 | 0.0 | 0.3− | 2003 12 01 | 704 | 1.1− | 0.1+ | 2008 09 06 | G96 | 0.4− | 0.2− |
| 2003 11 15 | 691 | 0.1+ | 0.4− | 2003 12 22 | 691 | 0.1− | 0.5+ | 2008 09 20 | G96 | 0.0 | 0.4− |
| 2003 11 18 | 703 | (0.3+ | 1.7+) | 2003 12 22 | 691 | 0.0 | 0.3+ | 2008 09 20 | G96 | 0.2− | 0.4− |
| 2003 11 18 | 703 | 0.5− | 0.7− | 2003 12 22 | 691 | 0.0 | 0.7+ | 2008 09 20 | G96 | 0.1+ | 0.4− |
| 2003 11 18 | 703 | (2.2− | 0.0 ) | 2005 03 08 | G96 | 0.3+ | 0.2− | 2008 09 20 | G96 | 0.3− | 0.1+ |
| 2003 11 18 | 703 | 0.8+ | 0.6+ | 2005 03 08 | G96 | 0.4+ | 0.3− | 2008 11 04 | G96 | 0.1+ | 0.0 |
| 2003 11 21 | 704 | 0.7+ | 0.3− | 2005 03 08 | G96 | 0.5+ | 0.2− | 2008 11 04 | G96 | 0.1− | 0.0 |
| 2003 11 21 | 704 | 0.3+ | 0.4+ | 2005 03 08 | G96 | 0.2+ | 0.1− | 2008 11 04 | G96 | 0.7+ | 0.2+ |
| 2003 11 21 | 704 | 0.7− | 0.4+ | 2006 03 23 | G96 | 0.5+ | 0.3+ | 2008 11 04 | G96 | 0.0 | 0.1− |
| 2003 11 21 | 704 | 0.4+ | 0.2− | 2006 03 23 | G96 | 0.5+ | 0.1− | 2008 11 04 | G96 | 0.1− | 0.2+ |
| 2003 11 21 | 704 | 0.6− | 0.9+ | 2006 03 23 | G96 | 0.4+ | 0.2+ | 2008 11 04 | G96 | 0.3− | 0.1− |
| 2003 11 23 | 704 | 0.1− | 0.8− | 2006 03 23 | G96 | 0.2+ | 0.0 | 2008 11 04 | G96 | 0.0 | 0.4+ |
| 2003 11 23 | 704 | 1.0− | 0.1− | 2007 06 14 | 691 | 0.3− | 0.0 | 2008 11 04 | G96 | 0.3− | 0.0 |
| 2003 11 23 | 704 | 0.1+ | 0.9+ | 2007 06 14 | 691 | 0.3− | 0.3+ | 2009 11 25 | 691 | 0.1− | 0.1− |
| 2003 11 23 | 704 | 1.4− | 0.6+ | 2007 06 14 | 691 | 0.2+ | 0.6+ | 2009 11 25 | 691 | 0.2− | 0.1+ |
| 2003 11 24 | 699 | 0.4+ | 0.4− | 2008 08 01 | H55 | 0.3+ | 0.9+ | 2009 11 25 | 691 | 0.2− | 0.2− |
| 2003 11 24 | 703 | 0.7+ | 0.8+ | 2008 08 02 | H55 | 0.4− | 0.3− | 2009 12 17 | 704 | 0.1− | 0.3− |
| 2003 11 24 | 699 | 0.2− | 0.0 | 2008 08 02 | H55 | 0.3− | 0.6− | 2009 12 17 | 704 | 0.3− | 0.3+ |
| 2003 11 24 | 703 | 0.4+ | 0.4− | 2008 08 02 | H55 | 0.2− | 0.2+ | 2009 12 17 | 704 | 0.1+ | 1.9+ |
| 2003 11 24 | 699 | 0.3− | 0.3+ | 2008 08 02 | H55 | (0.0 | 2.6+) | 2009 12 17 | 704 | 0.2+ | 1.1+ |
| 2003 11 24 | 703 | 1.1− | 0.7− | 2008 08 02 | H55 | 0.1− | 0.2+ | 2009 12 17 | 704 | 0.9+ | 0.6+ |
| 2003 11 24 | 703 | 1.3+ | 1.1− | 2008 08 02 | H55 | 0.1− | 0.2+ | | | | |

**(228986)∗ 2003 VP$_{11}$**

Discovered 2003 Nov. 4 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 58.29763 | | (2000.0) | | **P** | **Q** |
| $n$ | 0.18038528 | $\omega$ | 125.14873 | | +0.86156745 | −0.28578759 |
| $a$ | 3.1021918 | $\Omega$ | 254.79176 | | +0.19106438 | +0.94826018 |
| $e$ | 0.1379653 | $i$ | 25.77144 | | +0.47031471 | +0.13830430 |
| $P$ | 5.46 | $H$ | 14.4 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 16 | 704 | 0.1− | 0.5− | 2004 12 18 | 703 | 0.1+ | 0.3+ | 2008 10 28 | 704 | 1.0+ | 1.1− |
| 2003 10 16 | 704 | 0.9+ | 0.0 | 2004 12 18 | 703 | 1.3+ | 1.6+ | 2008 10 30 | 704 | (0.7+ | 2.2−) |
| 2003 10 16 | 704 | 0.5+ | 0.1− | 2004 12 18 | 703 | 0.3+ | 1.4+ | 2008 10 30 | 704 | 0.1+ | 0.9+ |
| 2003 10 16 | 704 | 0.1− | 0.1+ | 2004 12 18 | 703 | 0.7+ | 0.3+ | 2008 10 30 | 704 | 0.4+ | 0.4+ |
| 2003 10 16 | 704 | 0.4− | 0.3− | 2008 05 15 | 691 | 0.2− | 0.7+ | 2008 10 30 | 704 | 0.0 | 0.4+ |
| 2003 11 04 | 704 | 0.1+ | 0.2− | 2008 05 15 | 691 | 0.4− | 0.0 | 2009 11 18 | 704 | 0.1− | 1.6− |
| 2003 11 04 | 704 | 0.4+ | 0.1+ | 2008 05 15 | 691 | 0.5− | 0.2+ | 2009 11 18 | 704 | 0.3+ | 1.1− |
| 2003 11 04 | 704 | 0.2− | 0.2+ | 2008 10 03 | 704 | 0.7+ | 0.9− | 2009 11 18 | 704 | 1.7+ | 0.2+ |
| 2003 11 04 | 704 | 0.5+ | 0.2+ | 2008 10 03 | 704 | 0.1− | 0.8+ | 2009 11 20 | 704 | 0.7− | 0.5+ |
| 2003 11 21 | 704 | 0.6− | 0.0 | 2008 10 03 | 704 | 0.1+ | 0.2− | 2009 11 20 | 704 | 0.2− | 0.3+ |
| 2003 11 21 | 704 | 0.7− | 0.4+ | 2008 10 03 | 704 | 0.1− | 0.2− | 2009 11 20 | 704 | 0.4− | 0.0 |
| 2003 11 21 | 704 | 0.2+ | 0.1+ | 2008 10 03 | 704 | 0.0 | 0.3− | 2009 12 12 | 704 | 0.1+ | 0.3+ |
| 2003 11 21 | 704 | 0.1+ | 0.6+ | 2008 10 28 | 704 | (2.9+ | 0.8−) | 2009 12 12 | 704 | 0.1− | 0.3− |
| 2003 12 17 | 644 | 0.0 | 0.1+ | 2008 10 28 | 704 | (1.9+ | 0.4−) | 2009 12 12 | 704 | 0.3− | 0.4+ |
| 2003 12 17 | 644 | 0.7− | 0.1+ | 2008 10 28 | 704 | (1.7+ | 1.4−) | 2009 12 12 | 704 | 1.1− | 0.1− |
| 2003 12 17 | 644 | 0.4− | 0.0 | 2008 10 28 | 704 | (2.5+ | 0.5−) | | | | |

**(228987)∗ 2003 WP$_5$**

Discovered 2003 Nov. 18 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 53.15020 | | (2000.0) | | **P** | **Q** |
| $n$ | 0.17741334 | $\omega$ | 345.40234 | | +0.80377127 | −0.59016144 |
| $a$ | 3.1367401 | $\Omega$ | 51.01722 | | +0.55509001 | +0.69840763 |
| $e$ | 0.1382609 | $i$ | 5.55457 | | +0.21407201 | +0.40489044 |
| $P$ | 5.56 | $H$ | 15.1 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 26 | 691 | 0.1+ | 0.0 | 2003 12 04 | 703 | 0.0 | 0.8+ | 2008 09 06 | 703 | 0.1+ | 1.3+ |
| 2003 10 26 | 691 | 0.4+ | 0.2+ | 2003 12 04 | 703 | 0.1+ | 0.5+ | 2008 09 06 | 703 | 0.8+ | 0.6+ |
| 2003 10 26 | 691 | 0.5+ | 0.1− | 2003 12 04 | 703 | 0.4− | 1.2+ | 2008 09 06 | 703 | 0.1+ | 0.1+ |
| 2003 11 02 | 704 | 0.6+ | 0.3+ | 2003 12 04 | 703 | 0.0 | 0.1+ | 2008 09 06 | 703 | 0.5+ | 1.0+ |
| 2003 11 02 | 704 | 1.2− | 1.3+ | 2003 12 19 | 704 | 0.8− | 1.4− | 2008 09 23 | 704 | 0.4− | 1.0+ |
| 2003 11 02 | 704 | (1.7− | 0.5−) | 2003 12 19 | 704 | 1.2− | 0.2− | 2008 09 23 | 704 | 0.7− | 0.3+ |
| 2003 11 02 | 704 | 0.7− | 0.1− | 2003 12 19 | 704 | 1.2− | 1.5− | 2008 09 23 | 704 | 0.2− | 0.6+ |
| 2003 11 18 | 644 | 0.1+ | 0.0 | 2003 12 19 | 704 | (0.4+ | 1.7−) | 2008 09 23 | 704 | 0.1+ | 0.6+ |
| 2003 11 18 | 644 | 0.3− | 0.3− | 2003 12 19 | 704 | 0.5− | 0.1+ | 2008 09 23 | 704 | 0.4− | 0.4+ |
| 2003 11 18 | 644 | 0.1+ | 0.1+ | 2003 12 21 | 691 | 0.1− | 0.0 | 2008 09 29 | 703 | 1.1− | 0.2+ |
| 2003 11 19 | 699 | 0.2− | 0.5− | 2003 12 21 | 691 | 0.2+ | 0.0 | 2008 09 29 | 703 | 1.0− | 0.1− |
| 2003 11 19 | 699 | 0.5− | 0.1+ | 2003 12 21 | 691 | 0.0 | 0.0 | 2008 09 29 | 703 | (1.8− | 1.0+) |
| 2003 11 19 | 691 | 0.2+ | 0.3− | 2003 12 22 | 704 | 0.0 | 0.1+ | 2008 09 29 | 703 | 1.1− | 1.3+ |
| 2003 11 19 | 699 | 0.1− | 0.2+ | 2003 12 22 | 704 | 0.0 | 0.3+ | 2008 10 07 | G96 | 0.6− | 0.3− |
| 2003 11 19 | 691 | 0.1+ | 0.3− | 2003 12 22 | 704 | 0.6− | 0.1− | 2008 10 07 | G96 | 0.2− | 0.0 |
| 2003 11 19 | 699 | 0.3− | 0.4− | 2003 12 22 | 704 | 0.0 | 0.3+ | 2008 10 07 | G96 | 0.2− | 0.1− |
| 2003 11 19 | 691 | 0.2+ | 0.3− | 2003 12 22 | 704 | 0.3− | 0.5+ | 2008 10 07 | G96 | 0.2+ | 0.1− |
| 2003 11 20 | 695 | 0.0 | 0.2− | 2003 12 27 | 704 | 0.4− | 0.2− | 2008 10 22 | 704 | 0.3+ | 1.1+ |
| 2003 11 20 | 695 | 0.1+ | 0.1− | 2003 12 27 | 704 | 0.7− | 0.4+ | 2008 10 22 | 704 | 0.4− | 0.6+ |
| 2003 11 21 | 704 | 0.2− | 0.4+ | 2003 12 27 | 704 | 0.3+ | 0.4+ | 2008 10 22 | 704 | 0.4− | 0.8+ |
| 2003 11 21 | 704 | 0.5− | 0.4+ | 2003 12 27 | 704 | (1.6− | 0.5−) | 2008 10 22 | 704 | 0.4− | 1.0+ |
| 2003 11 21 | 704 | 0.7+ | 0.1+ | 2006 04 07 | 691 | 0.2+ | 0.7+ | 2009 11 21 | G96 | 0.7− | 0.2− |
| 2003 11 21 | 704 | 0.5− | 0.8+ | 2006 04 07 | 691 | 0.2+ | 0.6+ | 2009 11 21 | G96 | 0.6− | 0.2− |
| 2003 11 21 | 704 | 0.4− | 0.5+ | 2006 04 07 | 691 | 0.8+ | 0.2+ | 2009 11 21 | G96 | 0.3− | 0.2− |
| 2003 11 24 | 699 | 0.2− | 0.6− | 2006 05 02 | G96 | 0.4− | 0.4+ | 2009 11 21 | G96 | 0.5− | 0.3− |
| 2003 11 24 | 699 | 0.0 | 0.1+ | 2006 05 02 | G96 | 0.1− | 0.4+ | 2009 12 10 | 704 | 1.4+ | 0.6+ |
| 2003 11 24 | 699 | 0.4+ | 0.2+ | 2006 05 02 | G96 | 0.1− | 0.0 | 2009 12 10 | 704 | 0.6+ | 0.3− |
| 2003 11 24 | 699 | 0.5+ | 0.6− | 2006 05 02 | G96 | 0.3− | 0.4+ | 2009 12 10 | 704 | 1.4+ | 0.7+ |
| 2003 11 30 | 691 | 0.0 | 0.0 | 2006 05 06 | 691 | 0.4− | 1.4+ | 2009 12 10 | 704 | 0.7− | 0.7+ |
| 2003 11 30 | 691 | 0.0 | 0.0 | 2006 05 06 | 691 | 0.2+ | 0.2+ | 2009 12 10 | 704 | 0.9+ | 0.7− |
| 2003 11 30 | 691 | 0.1+ | 0.1+ | 2006 05 06 | 691 | 0.7+ | 0.1+ | 2009 12 15 | 704 | 0.7− | 0.3+ |
| 2003 12 01 | 704 | 0.5+ | 0.4+ | 2006 05 22 | G96 | 0.2+ | 0.4− | 2009 12 15 | 704 | 0.2+ | 1.6+ |
| 2003 12 01 | 704 | 0.5+ | 1.1+ | 2006 05 22 | G96 | 0.4− | 0.1+ | 2009 12 15 | 704 | 1.2− | 0.2+ |
| 2003 12 01 | 704 | 0.1− | 0.2+ | 2006 05 22 | G96 | 0.6+ | 0.3+ | 2009 12 15 | 704 | 0.5+ | 0.7+ |
| 2003 12 01 | 704 | 0.1+ | 0.5+ | 2006 05 22 | G96 | 0.0 | 0.0 | 2009 12 15 | 704 | 0.1− | 1.4+ |

**(228988)∗ 2003 WN$_{10}$**

Discovered 2003 Nov. 18 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 68.51034 | | (2000.0) | | **P** | **Q** |
| $n$ | 0.18579674 | $\omega$ | 114.50906 | | +0.74057028 | −0.65838122 |
| $a$ | 3.0416600 | $\Omega$ | 286.96827 | | +0.55435389 | +0.71170166 |
| $e$ | 0.0373235 | $i$ | 8.08373 | | +0.37979920 | +0.24497940 |
| $P$ | 5.30 | $H$ | 15.9 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 01 07 | 691 | (1.0− | 8.3−) | 2003 12 01 | 691 | 0.0 | 0.3+ | 2008 10 28 | G96 | 0.0 | 0.3− |
| 1994 01 07 | 691 | 0.1+ | 0.6− | 2003 12 01 | 691 | 0.2− | 0.1+ | 2008 10 28 | G96 | 0.1+ | 0.4− |
| 1994 01 07 | 691 | 0.5− | 0.3+ | 2003 12 01 | 691 | 0.0 | 0.2+ | 2008 10 28 | G96 | 0.2+ | 0.4− |
| 2002 08 16 | 644 | 0.4+ | 0.0 | 2003 12 19 | 691 | 0.1− | 0.1− | 2008 10 28 | G96 | 0.1+ | 0.4− |
| 2002 08 16 | 644 | 0.3+ | 0.7+ | 2003 12 19 | 691 | 0.2+ | 0.1+ | 2008 11 02 | 703 | (1.3− | 1.9+) |
| 2002 08 16 | 644 | 0.2− | 0.1− | 2003 12 19 | 691 | 0.1+ | 0.1− | 2008 11 02 | 703 | 0.4− | 0.4− |
| 2002 08 17 | 644 | 0.4− | 0.2− | 2007 06 16 | 691 | 0.1− | 0.8+ | 2008 11 02 | 703 | 0.1+ | 0.8− |
| 2002 08 17 | 644 | 0.4+ | 0.1− | 2007 06 16 | 691 | 0.0 | 0.1+ | 2008 11 02 | 703 | 0.9− | 0.2+ |
| 2002 08 17 | 644 | 0.0 | 0.5+ | 2007 06 16 | 691 | 0.4− | 0.1+ | 2008 11 03 | 704 | 0.7− | 0.7+ |
| 2002 08 26 | 644 | 0.2+ | 0.2− | 2007 09 02 | 413 | 0.3− | 0.0 | 2008 11 03 | 704 | 0.7− | 0.3− |
| 2002 08 26 | 644 | 0.2+ | 0.0 | 2007 09 02 | 413 | 0.4− | 0.1+ | 2008 11 03 | 704 | 0.0 | 0.5+ |
| 2002 08 26 | 644 | 0.9+ | 0.2+ | 2008 10 09 | G96 | 0.8+ | 0.1− | 2008 11 03 | 704 | 0.2− | 0.7+ |
| 2003 11 18 | 691 | 0.0 | 0.3− | 2008 10 09 | G96 | 0.2+ | 0.4− | 2009 11 16 | G96 | 0.3+ | 0.2− |
| 2003 11 18 | 691 | 0.1− | 0.0 | 2008 10 09 | G96 | 0.1+ | 0.4− | 2009 11 16 | G96 | 0.4+ | 0.2+ |
| 2003 11 18 | 691 | 0.1+ | 0.4+ | 2008 10 09 | G96 | 0.0 | 0.5− | 2009 11 16 | G96 | 0.1− | 0.2+ |
| 2003 11 19 | 704 | 0.2+ | 0.4+ | 2008 10 10 | G96 | 0.1+ | 0.2− | 2009 11 16 | G96 | 0.6+ | 0.2+ |
| 2003 11 19 | 704 | 1.0+ | 0.4+ | 2008 10 10 | G96 | 0.1− | 0.4− | 2009 12 17 | 691 | 0.8− | 0.7+ |
| 2003 11 19 | 704 | 0.1− | 0.4+ | 2008 10 10 | G96 | 0.2+ | 0.4− | 2009 12 17 | 691 | 0.3+ | 0.1− |
| 2003 11 19 | 704 | 0.1− | 0.3− | 2008 10 10 | G96 | 0.0 | 0.4− | 2009 12 17 | 691 | 0.9+ | 0.2+ |

**(228989)∗ 2003 WW$_{11}$ = 1999 AJ$_{30}$**

Discovered 2003 Nov. 18 by NEAT at Palomar.

Id. G. V. Williams (*MPO* 57251)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 37.52119 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17680174 | $\omega$ | 121.69310 | | +0.51556456 | −0.84278698 | |
| $a$ | 3.1439698 | $\Omega$ | 296.50297 | | +0.71601707 | +0.52286417 | |
| $e$ | 0.1246083 | $i$ | 9.94846 | | +0.47065140 | +0.12776214 | |
| $P$ | 5.57 | $H$ | 15.0 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 01 14 | 691 | 0.4+ | 0.1+ | 2003 12 17 | 704 | 0.1+ | 0.0 | 2008 09 22 | 703 | (2.2+ | 0.6+) |
| 1999 01 14 | 691 | 0.3+ | 0.2− | 2003 12 17 | 704 | 0.1+ | 0.2− | 2008 09 22 | 703 | 1.4+ | 0.0 |
| 1999 01 14 | 691 | 0.5+ | 0.1− | 2003 12 18 | 691 | 0.1− | 0.1− | 2008 09 22 | 703 | 1.2+ | 0.5+ |
| 1999 01 22 | 691 | 0.3+ | 0.1− | 2003 12 18 | 691 | 0.1− | 0.0 | 2008 09 22 | 703 | (2.0+ | 0.4+) |
| 1999 01 22 | 691 | 0.0 | 0.1− | 2003 12 18 | 691 | 0.2− | 0.2− | 2008 09 28 | 703 | 0.4− | 0.7− |
| 1999 01 22 | 691 | 0.1+ | 0.2+ | 2003 12 29 | 704 | 1.3− | 0.3+ | 2008 09 28 | 703 | 1.1− | 0.6+ |
| 2002 08 26 | 644 | 0.8− | 0.2− | 2003 12 29 | 704 | 0.9− | 0.8+ | 2008 09 28 | 703 | 0.4+ | 0.2+ |
| 2002 08 26 | 644 | 0.7− | 0.2− | 2003 12 29 | 704 | 0.9− | 0.4− | 2008 09 28 | 703 | 0.3− | 0.4+ |
| 2002 08 26 | 644 | 0.7− | 0.3− | 2003 12 29 | 704 | 0.6− | 0.5− | 2008 10 01 | 704 | 0.9+ | 0.3− |
| 2003 11 18 | 644 | 0.3− | 0.4− | 2005 03 10 | 703 | 0.5− | 0.1+ | 2008 10 01 | 704 | 0.3− | 0.2+ |
| 2003 11 18 | 644 | 0.0 | 0.2+ | 2005 03 10 | 703 | 1.3− | 0.6+ | 2008 10 01 | 704 | 0.1+ | 0.5+ |
| 2003 11 18 | 644 | 0.0 | 0.1− | 2005 03 10 | 703 | 1.0− | 0.2+ | 2008 10 01 | 704 | 0.6− | 0.3+ |
| 2003 11 19 | 704 | 0.0 | 0.7− | 2005 03 10 | 703 | 0.3+ | 1.2+ | 2008 10 01 | 704 | 0.0 | 0.7− |
| 2003 11 19 | 704 | 0.5+ | 0.4− | 2008 08 30 | 704 | 0.2+ | 0.6+ | 2008 11 22 | 704 | 1.5− | 1.2+ |
| 2003 11 19 | 704 | 0.2− | 0.4− | 2008 08 30 | 704 | 1.0+ | 0.1+ | 2008 11 22 | 704 | 0.6− | 0.1+ |
| 2003 11 19 | 704 | 0.6+ | 0.4− | 2008 08 30 | 704 | (2.1+ | 0.9−) | 2008 11 22 | 704 | 0.6+ | 1.1+ |
| 2003 11 19 | 704 | 0.2+ | 0.1− | 2008 08 30 | 704 | 0.7+ | 0.1− | 2009 12 16 | 704 | 0.3− | 0.5+ |
| 2003 11 21 | 691 | 0.1− | 0.2+ | 2008 08 30 | 704 | 0.2− | 1.0− | 2009 12 16 | 704 | 0.8− | 0.1+ |
| 2003 11 21 | 691 | 0.1− | 0.0 | 2008 08 30 | 704 | 0.7+ | 0.3+ | 2009 12 16 | 704 | 0.2− | 0.2+ |
| 2003 11 21 | 691 | 0.1− | 0.1+ | 2008 08 30 | 704 | (2.3+ | 0.3+) | 2009 12 16 | 704 | (1.8− | 1.0+) |
| 2003 12 03 | 704 | 0.1− | 0.1− | 2008 08 30 | 704 | 0.5+ | 0.3+ | 2009 12 18 | G96 | 0.2+ | 0.3− |
| 2003 12 03 | 704 | 0.7+ | 0.8+ | 2008 08 30 | 704 | (2.9+ | 0.2−) | 2009 12 18 | G96 | 0.6+ | 0.1− |
| 2003 12 03 | 704 | (1.9− | 0.6+) | 2008 09 05 | 704 | 0.4+ | 0.4+ | 2009 12 18 | G96 | 0.5+ | 0.2− |
| 2003 12 03 | 704 | 0.6− | 0.1− | 2008 09 05 | 704 | 0.4− | 0.2+ | 2009 12 18 | G96 | 0.4+ | 0.1− |
| 2003 12 03 | 704 | 0.5− | 0.4− | 2008 09 05 | 704 | 0.4− | 0.2− | 2009 12 19 | 691 | 0.1− | 0.0 |
| 2003 12 17 | 704 | 0.1+ | 1.4− | 2008 09 05 | 704 | 0.3+ | 0.5+ | 2009 12 19 | 691 | 0.0 | 0.1+ |
| 2003 12 17 | 704 | 0.4+ | 0.4− | 2008 09 05 | 704 | 0.1+ | 0.1+ | 2009 12 19 | 691 | 0.1+ | 0.1− |

**(228990)∗ 2003 WV$_{36}$**

Discovered 2003 Nov. 19 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 4.83696 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18403882 | $\omega$ | 193.74413 | | −0.28764459 | −0.94326647 | |
| $a$ | 3.0609983 | $\Omega$ | 273.17013 | | +0.89365905 | −0.20206409 | |
| $e$ | 0.0665783 | $i$ | 9.56187 | | +0.34443300 | −0.26347387 | |
| $P$ | 5.36 | $H$ | 15.1 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 05 | 644 | 0.1+ | 0.8+ | 2005 02 14 | 703 | 0.3− | 0.0 | 2008 10 28 | 704 | 0.2− | 1.1+ |
| 2002 08 05 | 644 | 0.0 | 0.8+ | 2005 02 14 | 703 | 0.2− | 0.1− | 2008 10 28 | 704 | 0.2− | 0.3− |
| 2002 08 05 | 644 | 0.1− | 0.5+ | 2005 02 14 | 703 | 0.4+ | 0.3− | 2008 10 28 | 704 | 0.5+ | 0.0 |
| 2003 11 14 | 644 | 0.4− | 0.3+ | 2005 03 03 | 703 | 0.4− | 0.1− | 2008 10 28 | 704 | (1.0− | 1.7+) |
| 2003 11 14 | 644 | 0.0 | 0.0 | 2005 03 03 | 703 | 1.4− | 1.2+ | 2008 10 28 | 704 | 0.2+ | 0.4+ |
| 2003 11 14 | 644 | 0.2− | 0.2+ | 2005 03 03 | 703 | 0.7− | 0.2+ | 2008 11 03 | 704 | 0.2+ | 0.1+ |
| 2003 11 19 | 704 | 0.0 | 0.3+ | 2005 03 03 | 703 | 0.2− | 0.1− | 2008 11 03 | 704 | 0.5− | 0.2− |
| 2003 11 19 | 704 | 0.6− | 0.7− | 2005 03 10 | 703 | 1.3+ | 0.2− | 2008 11 03 | 704 | 0.3− | 0.4+ |
| 2003 11 19 | 704 | (1.8+ | 0.1+) | 2005 03 10 | 703 | 0.9− | 0.4− | 2008 11 08 | G96 | 0.3+ | 0.2− |
| 2003 11 19 | 704 | 0.7− | 0.7+ | 2005 03 10 | 703 | 0.9+ | 0.1+ | 2008 11 08 | G96 | 0.0 | 0.2− |
| 2003 11 20 | 704 | 0.2− | 0.8− | 2005 03 10 | 703 | 0.4− | 0.0 | 2008 11 08 | G96 | 0.3+ | 0.4− |
| 2003 11 20 | 704 | 0.1− | 1.0+ | 2007 06 21 | G96 | 0.0 | 0.4+ | 2008 11 08 | G96 | 0.1+ | 0.1− |
| 2003 11 20 | 704 | 1.2− | 0.2− | 2007 06 21 | G96 | 0.2− | 0.2− | 2008 11 19 | 703 | 0.2+ | 0.1+ |
| 2003 11 20 | 704 | 0.6+ | 1.1+ | 2007 06 21 | G96 | 0.4− | 0.1− | 2008 11 19 | 703 | 0.5− | 1.0+ |
| 2003 12 01 | 691 | 0.3+ | 0.1− | 2007 06 21 | G96 | 0.1− | 0.0 | 2008 11 19 | 703 | 0.7− | 0.0 |
| 2003 12 01 | 691 | 0.0 | 0.2− | 2008 09 22 | 703 | (1.9+ | 1.2−) | 2008 11 19 | 703 | 1.1+ | 0.1+ |
| 2003 12 01 | 691 | 0.2+ | 0.1− | 2008 09 22 | 703 | 0.7+ | 0.6+ | 2009 11 16 | G96 | 0.4− | 0.2− |
| 2003 12 19 | 691 | 0.1− | 0.2− | 2008 09 22 | 703 | 0.7− | 0.3+ | 2009 11 16 | G96 | 0.3− | 0.2− |
| 2003 12 19 | 691 | 0.1+ | 0.1− | 2008 09 22 | 703 | 1.0+ | 0.2− | 2009 11 16 | G96 | 0.2− | 0.3− |
| 2003 12 19 | 691 | 0.0 | 0.2− | 2008 10 21 | G96 | 0.1+ | 0.3− | 2009 11 16 | G96 | 0.0 | 0.4− |
| 2005 02 02 | 644 | 0.9+ | 0.3+ | 2008 10 21 | G96 | 0.7− | 0.3− | 2009 12 15 | 703 | 0.6+ | 0.8− |
| 2005 02 02 | 644 | 1.0+ | 0.4+ | 2008 10 21 | G96 | 0.3+ | 0.4− | 2009 12 15 | 703 | 0.1− | 0.9+ |
| 2005 02 02 | 644 | (1.8+ | 0.2+) | 2008 10 21 | G96 | 0.4− | 0.3− | 2009 12 15 | 703 | 0.4+ | 0.9+ |
| 2005 02 02 | 644 | 0.4+ | 0.7+ | 2008 10 21 | G96 | 0.4− | 0.1− | 2009 12 15 | 703 | 0.2− | 0.3+ |
| 2005 02 02 | 644 | (1.8+ | 0.2+) | 2008 10 21 | G96 | 0.6− | 0.2− | 2009 12 15 | 703 | 0.7+ | 0.4+ |
| 2005 02 02 | 644 | 0.4+ | 0.3+ | 2008 10 21 | G96 | 0.0 | 0.3+ | | | | |
| 2005 02 14 | 703 | (2.3+ | 1.6−) | 2008 10 21 | G96 | 0.2− | 0.1+ | | | | |

**(228991)∗ 2003 WH$_{55}$ = 2002 TU$_{154}$ = 2005 EU$_{96}$**

Discovered 2003 Nov. 20 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. A. Doppler (*MPO* 76208)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 329.73924 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17459824 | $\omega$ | 222.37103 | | −0.59626965 | −0.78400250 | |
| $a$ | 3.1703666 | $\Omega$ | 264.96063 | | +0.77516171 | −0.50635769 | |
| $e$ | 0.0436739 | $i$ | 9.97999 | | +0.20877459 | −0.35908492 | |
| $P$ | 5.65 | $H$ | 14.8 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 10 05 | 644 | 0.3− | 0.6+ | 2005 02 14 | 703 | 0.2+ | 0.2− | 2008 10 02 | 704 | 0.8+ | 0.6+ |
| 2002 10 05 | 644 | 0.3− | 0.2+ | 2005 02 14 | 703 | 0.8+ | 0.5+ | 2008 10 09 | G96 | 0.4+ | 0.5− |
| 2002 10 05 | 644 | 0.3− | 0.2+ | 2005 03 03 | 703 | 0.3+ | 0.1+ | 2008 10 09 | G96 | 0.2+ | 0.5− |
| 2002 10 06 | 644 | 0.1+ | 0.3+ | 2005 03 03 | 703 | 0.5+ | 0.1− | 2008 10 09 | G96 | 0.4+ | 0.6− |
| 2002 10 06 | 644 | 0.3− | 0.5+ | 2005 03 03 | 703 | 0.3+ | 0.2+ | 2008 10 09 | G96 | 0.7+ | 0.5− |
| 2002 10 06 | 644 | 0.1− | 0.1− | 2005 03 03 | 703 | 0.3− | 0.5− | 2008 10 24 | 703 | 0.1− | 0.4+ |
| 2003 11 20 | 704 | 0.1− | 0.7− | 2005 03 10 | 703 | 0.5− | 0.4+ | 2008 10 24 | 703 | 0.3+ | 1.2+ |
| 2003 11 20 | 704 | 0.8− | 0.3− | 2005 03 10 | 703 | 0.4+ | 0.5+ | 2008 10 24 | 703 | 1.3+ | 0.8+ |
| 2003 11 20 | 704 | 0.8− | 0.6− | 2005 03 10 | 703 | 0.8+ | 0.0 | 2008 10 24 | 703 | 0.3− | 0.6− |
| 2003 11 20 | 704 | 0.9− | 0.3− | 2005 03 10 | 703 | 0.4+ | 0.3+ | 2008 12 02 | G96 | 0.2+ | 0.1− |
| 2003 11 21 | 691 | 0.1+ | 0.0 | 2007 06 19 | 691 | 0.4− | 0.0 | 2008 12 02 | G96 | 0.1− | 0.7− |
| 2003 11 21 | 691 | 0.0 | 0.1− | 2007 06 19 | 691 | 0.2− | 0.1+ | 2008 12 02 | G96 | 0.2+ | 0.5− |
| 2003 11 21 | 691 | 0.1+ | 0.0 | 2007 06 19 | 691 | 0.0 | 0.0 | 2008 12 02 | G96 | 0.0 | 0.7− |
| 2003 11 24 | 704 | 0.8− | 1.3+ | 2007 06 26 | 691 | (2.2− | 0.1−) | 2009 11 11 | 130 | 0.8+ | 0.3+ |
| 2003 11 24 | 704 | 0.2+ | 0.8+ | 2007 06 26 | 691 | 0.1− | 0.2+ | 2009 11 12 | 130 | 0.1− | 0.7− |
| 2003 11 24 | 704 | 0.7+ | 0.7+ | 2007 06 26 | 691 | 0.1− | 0.2− | 2009 11 12 | 130 | 0.5+ | 0.4+ |
| 2003 11 24 | 704 | 0.2− | 0.0 | 2008 10 02 | 704 | 0.3+ | 0.5+ | 2009 12 25 | 691 | 0.3− | 0.1+ |
| 2005 02 14 | 703 | 0.3+ | 0.0 | 2008 10 02 | 704 | 0.1+ | 0.3+ | 2009 12 25 | 691 | 0.4− | 0.1+ |
| 2005 02 14 | 703 | 0.2+ | 0.2− | 2008 10 02 | 704 | 0.3+ | 1.6+ | 2009 12 25 | 691 | 0.2− | 0.0 |

**(228992)∗ 2003 WV$_{71}$**

Discovered 2003 Nov. 20 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 95.07817 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18741944 | $\omega$ | 51.93020 | | +0.97128698 | +0.17860014 | |
| $a$ | 3.0240778 | $\Omega$ | 297.27818 | | −0.23238248 | +0.85379479 | |
| $e$ | 0.3064747 | $i$ | 10.18574 | | +0.05099011 | +0.48901579 | |
| $P$ | 5.26 | $H$ | 15.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 11 03 | 704 | 0.7+ | 0.8− | 2008 07 01 | 703 | 0.5− | 0.8− | 2008 10 27 | 704 | 0.3+ | 0.5− |
| 2003 11 03 | 704 | 0.3− | 0.4+ | 2008 07 01 | 703 | 0.3− | 0.6− | 2008 10 27 | 704 | 0.1− | 0.4− |
| 2003 11 03 | 704 | 0.1+ | 0.1+ | 2008 07 01 | 703 | 0.8− | 0.3− | 2008 10 28 | 704 | 0.7+ | 1.2+ |
| 2003 11 03 | 704 | 0.1− | 0.8+ | 2008 07 01 | 703 | 0.0 | 0.1− | 2008 10 28 | 704 | 0.5+ | 0.0 |
| 2003 11 14 | 644 | 0.1− | 0.1− | 2008 07 01 | 703 | 0.5+ | 0.3+ | 2008 10 28 | 704 | (0.5+ | 1.6+) |
| 2003 11 14 | 644 | 0.0 | 0.1− | 2008 07 01 | 703 | 0.1− | 0.1+ | 2008 10 28 | 704 | (2.0+ | 0.3+) |
| 2003 11 14 | 644 | 0.1+ | 0.1− | 2008 07 01 | 703 | (0.5− | 1.5+) | 2008 10 28 | 704 | 0.6+ | 0.1− |
| 2003 11 20 | 704 | (1.7+ | 0.8−) | 2008 07 01 | 703 | 0.4− | 0.4+ | 2008 11 22 | 704 | 0.0 | 0.4+ |
| 2003 11 20 | 704 | 0.3− | 0.4+ | 2008 08 01 | 704 | 0.1+ | 0.6− | 2008 11 22 | 704 | 0.3+ | 0.5+ |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 11 20 | 704 | 0.1− | 0.2− | 2008 08 01 | 704 | 0.3− | 0.7− | 2008 11 22 | 704 | 0.2+ | 0.5+ |
| 2003 11 20 | 704 | 0.3− | 0.4+ | 2008 08 01 | 704 | 0.4+ | 0.7− | 2008 11 22 | 704 | 0.0 | 0.4+ |
| 2003 11 20 | 704 | 0.1− | 0.1− | 2008 08 01 | 704 | 0.0 | 1.0− | 2008 11 22 | 704 | 0.8+ | 0.3+ |
| 2003 11 21 | 704 | 0.3− | 0.2+ | 2008 08 01 | 704 | 0.3+ | 0.1− | 2008 12 04 | 704 | 1.0− | 0.8− |
| 2003 11 21 | 704 | 0.4− | 0.1− | 2008 08 26 | 106 | 0.7− | 0.3− | 2008 12 04 | 704 | 0.2− | 0.1+ |
| 2003 11 21 | 704 | 0.2− | 0.2− | 2008 08 26 | 106 | 0.1− | 0.5+ | 2008 12 04 | 703 | 0.1− | 0.6− |
| 2003 11 21 | 704 | 0.3− | 0.5− | 2008 08 26 | 106 | 0.6+ | 0.8− | 2008 12 04 | 703 | 0.7− | 1.4− |
| 2003 11 21 | 704 | 0.3− | 0.3+ | 2008 08 26 | 106 | 0.3− | 0.2− | 2008 12 04 | 704 | 0.6− | 0.2+ |
| 2003 11 22 | 704 | 0.8− | 1.5− | 2008 09 04 | J75 | 0.4− | 0.9− | 2008 12 04 | 703 | 0.4− | 0.3− |
| 2003 11 22 | 704 | 0.0 | 0.9− | 2008 09 04 | J75 | 0.3− | 0.1− | 2008 12 04 | 704 | 0.1+ | 1.5+ |
| 2003 11 22 | 704 | 0.2+ | 0.5− | 2008 09 05 | J75 | 0.1+ | 0.0 | 2008 12 04 | 704 | 0.5− | 0.2− |
| 2003 11 26 | 704 | 0.1+ | 0.6+ | 2008 09 07 | 704 | 0.0 | 0.4+ | 2009 01 17 | 704 | 0.5− | 0.9+ |
| 2003 11 26 | 704 | 0.5− | 0.0 | 2008 09 07 | 704 | 0.7− | 0.8+ | 2009 01 17 | 704 | 0.5+ | 0.2+ |
| 2003 11 26 | 704 | 0.7+ | 0.0 | 2008 09 07 | 704 | 0.6− | 0.3+ | 2009 01 17 | 704 | 0.4+ | 0.1+ |
| 2003 11 26 | 704 | 0.1+ | 0.1− | 2008 09 07 | 704 | 0.0 | 0.2+ | 2009 01 17 | 704 | 0.2− | 0.7+ |
| 2003 11 26 | 704 | 0.1− | 0.3+ | 2008 09 07 | 704 | 0.0 | 0.7+ | 2009 09 28 | G96 | 0.4+ | 0.5− |
| 2003 12 04 | 704 | 0.5− | 0.6− | 2008 09 22 | 703 | 0.5+ | 0.1+ | 2009 09 28 | G96 | 0.0 | 0.2+ |
| 2003 12 04 | 704 | 0.0 | 0.1+ | 2008 09 22 | 703 | 0.1− | 0.4− | 2009 09 28 | G96 | 0.1+ | 0.0 |
| 2003 12 04 | 704 | 0.1− | 0.4+ | 2008 09 22 | 703 | 0.0 | 0.1+ | 2009 09 28 | G96 | 0.2+ | 0.5− |
| 2003 12 04 | 704 | 0.8+ | 0.2− | 2008 09 22 | 703 | 0.0 | 0.3+ | 2009 12 17 | G96 | 0.2+ | 0.0 |
| 2003 12 18 | 704 | 0.8− | 0.1− | 2008 10 02 | 704 | 0.0 | 0.2+ | 2009 12 17 | G96 | 0.2+ | 0.4− |
| 2003 12 18 | 704 | 0.0 | 0.2− | 2008 10 02 | 704 | 0.1+ | 0.4+ | 2009 12 17 | G96 | 0.7+ | 0.5− |
| 2003 12 18 | 704 | 0.0 | 0.3− | 2008 10 02 | 704 | 0.2+ | 0.2+ | 2009 12 17 | 691 | 0.0 | 0.3− |
| 2003 12 18 | 704 | 0.5+ | 0.9− | 2008 10 02 | 704 | 0.1+ | 0.3+ | 2009 12 17 | G96 | 0.2− | 0.6− |
| 2003 12 29 | 704 | 0.0 | 0.2+ | 2008 10 02 | 704 | 0.3− | 0.2+ | 2009 12 17 | 691 | 0.5+ | 0.1+ |
| 2003 12 29 | 704 | 0.3+ | 1.0+ | 2008 10 06 | 703 | 0.7− | 0.1+ | 2009 12 17 | 691 | 0.1+ | 0.1− |
| 2003 12 29 | 704 | 0.4+ | 0.5+ | 2008 10 06 | 703 | 0.5− | 0.1+ | 2009 12 18 | 291 | 0.0 | 0.0 |
| 2003 12 29 | 704 | 0.1+ | 0.4+ | 2008 10 06 | 703 | 0.3− | 0.0 | 2009 12 18 | 291 | 0.1− | 0.1− |
| 2003 12 29 | 704 | 1.4+ | 0.1− | 2008 10 06 | 703 | 0.1+ | 0.0 | 2009 12 18 | 291 | 0.3− | 0.1+ |
| 2005 02 04 | 691 | 0.5+ | 0.3+ | 2008 10 25 | 703 | 0.9+ | 0.4+ | 2009 12 20 | 291 | 0.4− | 0.0 |
| 2005 02 04 | 691 | 0.5+ | 0.5+ | 2008 10 25 | 703 | 1.1+ | 1.1+ | 2009 12 20 | 291 | 0.2− | 0.1− |
| 2005 02 04 | 691 | 0.4+ | 0.4+ | 2008 10 25 | 703 | 0.6+ | 0.8+ | 2009 12 20 | 291 | 0.1− | 0.1− |
| 2005 03 13 | G96 | 0.2− | 0.0 | 2008 10 25 | 703 | 0.2+ | 0.5+ | 2009 12 25 | 691 | 0.2− | 0.1− |
| 2005 03 13 | G96 | 0.0 | 0.1+ | 2008 10 27 | 704 | 0.3− | 0.5− | 2009 12 25 | 691 | 0.5− | 0.1+ |
| 2005 03 13 | G96 | 0.2− | 0.3− | 2008 10 27 | 704 | 0.5+ | 0.5− | 2009 12 25 | 691 | 0.5− | 0.0 |
| 2005 03 13 | G96 | 0.4+ | 0.3− | 2008 10 27 | 704 | 0.4+ | 0.2− | | | | |

**(228993)∗ 2003 WJ$_{72}$**

Discovered 2003 Nov. 20 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 92.47322 | | (2000.0) | | **P** | **Q** |
| $n$ | 0.18371109 | $\omega$ | 102.61311 | | +0.92832491 | −0.32728725 |
| $a$ | 3.0646377 | $\Omega$ | 276.70017 | | +0.23285984 | +0.88164401 |
| $e$ | 0.0487537 | $i$ | 10.22726 | | +0.28980883 | +0.33998073 |
| $P$ | 5.36 | $H$ | 15.5 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 09 04 | 644 | 0.3+ | 0.5+ | 2003 11 24 | 704 | (1.6+ | 0.3−) | 2008 11 04 | 704 | 0.9+ | 0.4+ |
| 2002 09 04 | 644 | 0.1+ | 0.1+ | 2003 11 24 | 704 | 0.4− | 0.1+ | 2008 11 04 | 704 | (2.2+ | 0.1−) |
| 2002 09 04 | 644 | 0.1+ | 0.0 | 2003 12 18 | 691 | 0.1− | 0.2− | 2008 11 04 | 704 | 0.7− | 0.6+ |
| 2002 09 12 | 644 | 0.2− | 0.3+ | 2003 12 18 | 691 | 0.1+ | 0.2− | 2008 11 04 | 704 | 1.0+ | 1.3+ |
| 2002 09 12 | 644 | 0.1+ | 0.1+ | 2003 12 18 | 691 | 0.1+ | 0.1− | 2008 11 17 | 703 | 0.0 | 0.2− |
| 2002 09 12 | 644 | 0.1− | 0.3+ | 2005 02 14 | 703 | 1.8+ | 1.4− | 2008 11 17 | 703 | 0.4− | 0.2+ |
| 2002 10 11 | 645 | 0.0 | 0.1− | 2005 02 14 | 703 | 0.9+ | 0.0 | 2008 11 17 | 703 | 0.0 | 0.8− |
| 2002 10 11 | 645 | 0.0 | 0.1− | 2005 02 14 | 703 | 0.4− | 0.1− | 2008 11 17 | 703 | 0.4+ | 0.5− |
| 2002 10 31 | 645 | 0.0 | 0.0 | 2005 02 14 | 703 | 0.5− | 0.2+ | 2008 11 22 | 704 | 1.4+ | 0.2− |
| 2002 10 31 | 645 | 0.0 | 0.0 | 2007 06 27 | 691 | 0.1+ | 0.0 | 2008 11 22 | 704 | 0.8− | 0.6− |
| 2002 11 08 | 645 | 0.0 | 0.1− | 2007 06 27 | 691 | 0.1− | 0.5+ | 2008 11 22 | 704 | 0.6+ | 0.6− |
| 2002 11 08 | 645 | 0.0 | 0.1− | 2007 06 27 | 691 | 0.1− | 0.5+ | 2008 11 22 | 704 | 0.8− | 0.2+ |
| 2003 11 20 | 704 | 0.7+ | 0.2+ | 2008 10 31 | G96 | 0.1+ | 0.0 | 2009 10 18 | G96 | 0.3+ | 0.4+ |
| 2003 11 20 | 704 | 0.2+ | 0.3− | 2008 10 31 | G96 | 0.0 | 0.1+ | 2009 10 18 | G96 | 0.1+ | 0.1− |
| 2003 11 20 | 704 | 0.7− | 0.2− | 2008 10 31 | G96 | 0.3+ | 0.0 | 2009 10 18 | G96 | 0.1− | 0.0 |
| 2003 11 20 | 704 | 0.2− | 0.5+ | 2008 10 31 | G96 | 0.1+ | 0.0 | 2009 10 18 | G96 | 0.3+ | 0.0 |
| 2003 11 21 | 704 | 0.1+ | 1.0+ | 2008 11 03 | 703 | 0.6− | 1.1+ | 2009 12 27 | 691 | 0.4− | 0.1+ |
| 2003 11 21 | 704 | 0.5+ | 0.3+ | 2008 11 03 | 703 | 0.6− | 0.1+ | 2009 12 27 | 691 | 0.1− | 0.0 |
| 2003 11 21 | 704 | 0.7+ | 0.7+ | 2008 11 03 | 703 | 0.1− | 1.3+ | 2009 12 27 | 691 | 0.5− | 0.1+ |
| 2003 11 24 | 704 | 0.4− | 0.1− | 2008 11 03 | 703 | 0.2− | 0.8+ | | | | |
| 2003 11 24 | 704 | 0.3+ | 0.4+ | 2008 11 04 | 704 | 0.0 | 1.1+ | | | | |

**(228994)∗ 2003 WO$_{87}$ = 2002 RE$_{214}$**

Discovered 2003 Nov. 21 by NEAT at Palomar.

Id. G. V. Williams (*MPO* 57318)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 22.36303 | | (2000.0) | | **P** | **Q** |
| $n$ | 0.16917750 | $\omega$ | 91.35629 | | −0.12907344 | −0.99118307 |
| $a$ | 3.2377326 | $\Omega$ | 6.30025 | | +0.76624273 | −0.11885311 |
| $e$ | 0.3454000 | $i$ | 15.83066 | | +0.62945384 | −0.05856678 |
| $P$ | 5.83 | $H$ | 14.5 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 09 13 | 704 | 0.3− | 0.2− | 2004 01 31 | 699 | 0.6− | 0.2− | 2008 10 09 | G96 | 0.4+ | 0.2− |
| 2002 09 13 | 704 | 0.0 | 0.2− | 2004 02 11 | 704 | 0.6+ | 0.4− | 2008 10 09 | G96 | 0.2− | 0.2− |
| 2002 09 13 | 704 | 0.4− | 0.1− | 2004 02 11 | 704 | 0.5+ | 0.6− | 2008 10 20 | G96 | 0.1+ | 0.4− |
| 2002 09 16 | 644 | 0.5− | 0.1+ | 2004 02 11 | 704 | 0.6+ | 0.5− | 2008 10 20 | G96 | 0.2+ | 0.2− |
| 2002 09 16 | 644 | 0.5− | 0.1+ | 2004 02 11 | 704 | 0.7+ | 0.6− | 2008 10 20 | G96 | 0.1+ | 0.3− |
| 2002 09 16 | 644 | 0.2− | 0.1− | 2004 02 11 | 704 | 1.0+ | 0.5− | 2008 10 20 | G96 | 0.2+ | 0.4− |
| 2002 10 05 | 704 | (0.0 | 2.1−) | 2004 03 20 | 703 | 0.1− | 0.1+ | 2008 10 23 | 704 | 0.5+ | 0.1+ |
| 2002 10 05 | 704 | 0.2− | 0.3− | 2004 03 20 | 703 | 0.6− | 0.1+ | 2008 10 23 | 704 | 1.1+ | 0.7+ |
| 2002 10 05 | 704 | 0.5− | 0.2− | 2004 03 20 | 703 | 0.6− | 0.6+ | 2008 10 23 | 704 | 0.2+ | 0.6+ |
| 2003 11 21 | 704 | 0.4− | 0.3+ | 2004 03 20 | 703 | 0.2− | 1.1+ | 2008 10 23 | 704 | 0.2− | 0.1+ |
| 2003 11 21 | 704 | 0.0 | 0.5− | 2004 03 25 | 704 | 0.7+ | 0.1+ | 2008 10 30 | 703 | 1.2− | 0.0 |
| 2003 11 21 | 704 | 0.1+ | 0.1+ | 2004 03 25 | 704 | 0.4+ | 0.5+ | 2008 10 30 | 703 | 0.8− | 0.2− |
| 2003 11 21 | 704 | 0.4− | 0.2+ | 2004 03 25 | 704 | 0.6+ | 0.5+ | 2008 10 30 | 703 | 0.1+ | 1.2+ |
| 2003 11 21 | 644 | 0.1− | 0.4− | 2004 03 25 | 704 | 0.5+ | 0.3+ | 2008 10 30 | 703 | 0.5+ | 0.5− |
| 2003 11 21 | 644 | 0.0 | 0.5− | 2004 03 25 | 704 | 0.5+ | 0.2− | 2008 11 01 | 704 | 0.6+ | 0.4+ |
| 2003 11 21 | 644 | 0.1− | 0.3− | 2004 04 14 | 704 | 0.2+ | 0.5− | 2008 11 01 | 704 | 0.6− | 0.7− |
| 2003 11 23 | 704 | 1.1+ | 0.6+ | 2004 04 14 | 704 | 0.2+ | 0.3+ | 2008 11 01 | 704 | 0.4− | 0.2− |
| 2003 11 23 | 704 | (2.0+ | 1.6−) | 2004 04 14 | 704 | 0.2+ | 0.9+ | 2008 11 01 | 704 | 0.0 | 0.3− |
| 2003 11 23 | 704 | 0.4− | 0.1− | 2004 04 14 | 704 | 0.5− | 0.1− | 2008 11 01 | 704 | 0.1− | 0.3+ |
| 2003 11 23 | 704 | 1.3+ | 1.2+ | 2004 04 14 | 704 | 0.7+ | 0.3+ | 2008 11 19 | G96 | 0.2+ | 0.1+ |
| 2003 11 23 | 704 | 0.6− | 0.2+ | 2004 04 16 | 645 | 0.0 | 0.2− | 2008 11 19 | G96 | 0.2+ | 0.3− |
| 2003 12 03 | 704 | 0.6+ | 0.7− | 2004 04 16 | 645 | 0.0 | 0.1− | 2008 11 19 | G96 | 0.1− | 0.4− |
| 2003 12 03 | 704 | 0.6− | 0.2− | 2004 04 22 | 703 | 0.5− | 0.0 | 2008 11 19 | G96 | 0.7+ | 0.1+ |
| 2003 12 03 | 704 | 0.9− | 0.4− | 2004 04 22 | 703 | 1.1+ | 0.8+ | 2008 11 19 | G96 | 0.1+ | 0.3− |
| 2003 12 03 | 704 | 0.4− | 0.2− | 2004 04 22 | 703 | 0.9+ | 1.4+ | 2008 11 19 | G96 | 0.4+ | 0.0 |
| 2003 12 03 | 704 | 0.1+ | 0.6− | 2004 04 22 | 703 | 0.9+ | 0.3− | 2008 11 19 | G96 | 0.1− | 0.2− |
| 2003 12 17 | 704 | 0.0 | 0.8+ | 2008 09 03 | 691 | 0.0 | 0.3+ | 2008 12 02 | 704 | 0.0 | 0.4+ |
| 2003 12 17 | 704 | 0.4+ | 1.4+ | 2008 09 03 | 691 | 0.3− | 0.3+ | 2008 12 02 | 704 | 0.3− | 0.5− |
| 2003 12 17 | 704 | 0.7+ | 1.0+ | 2008 09 03 | 691 | 1.0+ | 0.6− | 2008 12 02 | 704 | 0.7+ | 0.4− |
| 2003 12 17 | 704 | 0.4+ | 0.0 | 2008 09 22 | 704 | 0.2+ | 0.1+ | 2009 11 19 | 703 | 0.5− | 0.3+ |
| 2003 12 17 | 644 | 0.5− | 0.3− | 2008 09 22 | 704 | 0.2+ | 0.3+ | 2009 11 19 | 703 | 0.8− | 0.1− |
| 2003 12 17 | 644 | 0.4− | 0.1− | 2008 09 22 | 704 | 0.7+ | 0.1+ | 2009 11 19 | 703 | 0.5− | 0.3+ |
| 2003 12 17 | 644 | 0.3− | 0.4− | 2008 09 22 | 704 | 0.0 | 0.5+ | 2009 11 19 | 703 | 1.3− | 0.2− |
| 2004 01 02 | 704 | 0.2+ | 0.6− | 2008 09 22 | 704 | 0.1+ | 0.4+ | 2009 11 21 | 704 | 0.5+ | 0.4+ |
| 2004 01 02 | 704 | 0.3+ | 0.2+ | 2008 09 24 | G96 | 0.3+ | 0.1− | 2009 11 21 | 704 | 0.0 | 0.4− |
| 2004 01 02 | 704 | 0.7+ | 0.9+ | 2008 09 24 | G96 | 0.3+ | 0.1− | 2009 11 21 | 704 | 0.2− | 0.0 |
| 2004 01 02 | 704 | 0.7+ | 0.7+ | 2008 09 24 | G96 | 0.4+ | 0.1− | 2009 11 21 | 704 | 0.4+ | 1.1+ |
| 2004 01 19 | 704 | 0.3− | 0.2+ | 2008 09 24 | G96 | 0.0 | 0.1− | 2009 11 21 | 704 | 0.6+ | 0.9+ |
| 2004 01 19 | 704 | 0.7− | 0.1− | 2008 09 28 | 704 | 0.9− | 0.1− | 2009 12 11 | 704 | 0.8+ | 1.0+ |
| 2004 01 19 | 704 | 0.3− | 0.3+ | 2008 09 28 | 704 | 0.9− | 0.1− | 2009 12 11 | 704 | 1.4+ | 1.5+ |
| 2004 01 19 | 704 | 0.6− | 0.1− | 2008 09 28 | 704 | 0.9− | 0.4− | 2009 12 11 | 704 | 0.2− | 0.0 |
| 2004 01 19 | 704 | 0.5− | 0.2+ | 2008 09 28 | 704 | 0.9− | 0.4+ | 2009 12 11 | 704 | 0.2+ | 0.5+ |
| 2004 01 30 | 703 | 0.7− | 0.3− | 2008 09 28 | 704 | 0.5− | 0.3+ | 2009 12 11 | 704 | 0.7+ | 0.8+ |
| 2004 01 30 | 703 | 0.3− | 0.1− | 2008 10 09 | 703 | 0.0 | 0.5+ | 2009 12 18 | 703 | 0.9− | 1.2− |
| 2004 01 30 | 703 | 0.0 | 0.0 | 2008 10 09 | 703 | 1.3− | 0.6+ | 2009 12 18 | 703 | 0.9− | 1.4− |
| 2004 01 30 | 703 | 0.8− | 0.4− | 2008 10 09 | 703 | 0.6− | 0.9+ | 2009 12 18 | 703 | 0.4− | 0.1− |
| 2004 01 31 | 699 | 0.5− | 0.6− | 2008 10 09 | 703 | 1.2+ | 0.1+ | 2009 12 18 | 703 | 0.8+ | 0.2− |
| 2004 01 31 | 699 | 0.5− | 0.0 | 2008 10 09 | G96 | 0.3+ | 0.3− | | | | |
| 2004 01 31 | 699 | 0.6− | 0.2− | 2008 10 09 | G96 | 0.1+ | 0.1− | | | | |

**(228995)∗ 2003 $WO_{95}$**

Discovered 2003 Nov. 19 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 57.39819 | | (2000.0) | | | |
| $n$ | 0.17669550 | $\omega$ | 324.24941 | | +0.86171094 | −0.46857024 |
| $a$ | 3.1452299 | $\Omega$ | 64.81319 | | +0.50101695 | +0.72509599 |
| $e$ | 0.0720401 | $i$ | 12.42269 | | +0.08022636 | +0.50465605 |
| $P$ | 5.58 | $H$ | 14.6 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 12 17 | 704 | 0.3− | 0.7− | 2003 12 11 | 703 | 0.6+ | 0.8+ | 2006 04 25 | 691 | 0.1+ | 0.6+ |
| 1998 12 17 | 704 | 0.4− | 1.6− | 2003 12 18 | 691 | 0.1− | 0.3− | 2006 04 25 | 691 | 0.3+ | 0.7+ |
| 1998 12 17 | 704 | (0.7− | 2.4−) | 2003 12 18 | 691 | 0.1− | 0.1− | 2006 04 25 | 691 | 0.2+ | 0.2+ |
| 1998 12 17 | 704 | (4.9− | 1.0−) | 2003 12 18 | 691 | 0.0 | 0.0 | 2006 04 27 | 703 | (0.4+ | 1.8+) |
| 2003 10 29 | 699 | 0.1+ | 0.1+ | 2003 12 19 | 704 | 0.8+ | 0.6+ | 2006 04 27 | 703 | (1.4+ | 1.9+) |
| 2003 10 29 | 699 | 0.9− | 0.4− | 2003 12 19 | 704 | 0.5+ | 0.4+ | 2006 04 27 | 703 | (0.0 | 1.7+) |
| 2003 10 29 | 699 | 0.0 | 0.1− | 2003 12 19 | 704 | 1.4+ | 0.6+ | 2006 04 27 | 703 | 0.5+ | 0.9+ |
| 2003 10 29 | 699 | 0.2− | 0.7− | 2003 12 19 | 704 | 0.1+ | 1.1+ | 2006 05 26 | 703 | 0.4− | 0.7− |
| 2003 11 16 | 703 | (0.8− | 2.6+) | 2003 12 19 | 704 | 0.0 | 0.6+ | 2006 05 26 | 703 | 0.4− | 0.8+ |
| 2003 11 16 | 703 | 0.9+ | 0.2+ | 2003 12 21 | 291 | 0.1+ | 0.1+ | 2006 05 26 | 703 | 0.2+ | 0.2+ |
| 2003 11 16 | 703 | 0.6− | 0.2+ | 2003 12 21 | 291 | 0.1+ | 0.2+ | 2006 05 26 | 703 | 0.2+ | 0.1− |
| 2003 11 16 | 703 | 0.2+ | 0.2− | 2003 12 21 | 291 | 0.0 | 0.1+ | 2008 10 02 | 703 | (0.1+ | 1.8−) |
| 2003 11 18 | 691 | 0.4− | 0.2+ | 2003 12 21 | 704 | 0.2− | 0.3+ | 2008 10 02 | 703 | 1.4+ | 0.6+ |
| 2003 11 18 | 691 | 0.2+ | 0.1+ | 2003 12 21 | 704 | 0.2+ | 0.1− | 2008 10 02 | 703 | 0.1+ | 0.2− |
| 2003 11 18 | 691 | 0.3− | 0.2− | 2003 12 21 | 704 | 0.3− | 0.1+ | 2008 10 02 | 703 | 0.6+ | 0.3− |
| 2003 11 19 | 699 | 0.2+ | 0.3− | 2003 12 21 | 704 | 0.3− | 0.3+ | 2008 10 09 | 703 | 0.0 | 0.2− |
| 2003 11 19 | 699 | 0.6− | 0.2− | 2003 12 21 | 704 | 0.1− | 0.3+ | 2008 10 09 | 703 | 0.1− | 0.2+ |
| 2003 11 19 | 699 | 0.0 | 1.4+ | 2003 12 22 | 691 | 0.3− | 0.0 | 2008 10 09 | 703 | 1.2− | 0.9+ |
| 2003 11 19 | 699 | 0.1− | 0.7+ | 2003 12 22 | 691 | 0.4− | 0.2− | 2008 10 09 | 703 | 0.8− | 1.2+ |
| 2003 11 21 | 704 | 0.2+ | 0.0 | 2003 12 22 | 691 | 0.3− | 0.3− | 2009 11 22 | 691 | 0.0 | 0.2− |
| 2003 11 21 | 704 | 0.4− | 0.1+ | 2005 01 09 | 703 | 1.1+ | 0.2− | 2009 11 22 | 691 | 0.1− | 0.1− |
| 2003 11 21 | 704 | 0.5− | 0.7+ | 2005 01 09 | 703 | 0.3+ | 0.3+ | 2009 11 22 | 691 | 0.1− | 0.2− |
| 2003 11 21 | 704 | 0.3+ | 0.3+ | 2005 01 09 | 703 | 0.2+ | 0.8− | 2009 12 15 | 704 | 0.8− | 0.7− |
| 2003 11 21 | 704 | 0.4− | 0.1+ | 2005 01 09 | 703 | 0.2+ | 0.2+ | 2009 12 15 | 704 | 0.3+ | 0.6+ |
| 2003 12 11 | 703 | 0.7+ | 1.4+ | 2005 01 17 | 704 | 1.0+ | 0.6− | 2009 12 15 | 704 | 0.3+ | 0.0 |
| 2003 12 11 | 703 | (1.4+ | 1.7+) | 2005 01 17 | 704 | 0.8+ | 0.2+ | 2009 12 15 | 704 | 0.0 | 0.1+ |
| 2003 12 11 | 703 | 0.3+ | 0.7+ | 2005 01 17 | 704 | (1.7+ | 0.6+) | | | | |

**(228996)∗ 2003 $WF_{101}$ = 2005 $CZ_{75}$**

Discovered 2003 Nov. 21 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. A. Doppler (*MPO* 76231)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 12.83182 | | (2000.0) | | | |
| $n$ | 0.18639933 | $\omega$ | 162.00733 | | −0.11265066 | −0.98624149 |
| $a$ | 3.0351011 | $\Omega$ | 294.31714 | | +0.89455218 | −0.04765972 |
| $e$ | 0.0793363 | $i$ | 7.62938 | | +0.43253465 | −0.15829172 |
| $P$ | 5.29 | $H$ | 15.8 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 07 22 | 644 | 0.1− | 0.3+ | 2003 11 21 | 704 | 1.1− | 0.1− | 2008 10 10 | G96 | 0.1+ | 0.1+ |
| 2002 07 22 | 644 | 0.2+ | 0.6+ | 2003 11 21 | 704 | 0.4+ | 0.5+ | 2008 10 10 | G96 | 0.2− | 0.2− |
| 2002 07 22 | 644 | 0.5− | 0.5+ | 2003 11 21 | 704 | 0.1− | 0.7+ | 2008 10 10 | G96 | 0.2− | 0.1+ |
| 2002 08 07 | 644 | 0.7− | 0.2+ | 2003 11 21 | 704 | 0.5+ | 0.1− | 2008 10 31 | G96 | 0.0 | 0.0 |
| 2002 08 07 | 644 | 0.2− | 0.4+ | 2003 11 24 | 691 | 0.1− | 0.0 | 2008 10 31 | G96 | 0.1+ | 0.1− |
| 2002 08 07 | 644 | 0.1− | 0.3+ | 2003 11 24 | 691 | 0.3− | 0.0 | 2008 10 31 | G96 | 0.4− | 0.1+ |
| 2002 08 16 | 644 | 0.5+ | 0.0 | 2003 11 24 | 691 | 0.0 | 0.0 | 2008 10 31 | G96 | 0.4+ | 0.0 |
| 2002 08 16 | 644 | 0.1+ | 0.3− | 2003 12 18 | 291 | 0.3+ | 0.0 | 2009 11 11 | G96 | 0.3− | 0.3− |
| 2002 08 17 | 644 | 0.6− | 0.1+ | 2003 12 18 | 291 | 0.3+ | 0.0 | 2009 11 11 | G96 | 0.0 | 0.0 |
| 2002 08 17 | 644 | 0.2− | 0.2− | 2003 12 18 | 291 | 0.0 | 0.1− | 2009 11 11 | G96 | 0.2− | 0.3+ |
| 2002 08 17 | 644 | 0.1− | 0.3+ | 2005 02 02 | 703 | 0.5− | 0.5− | 2009 11 11 | G96 | 0.3− | 0.1+ |
| 2002 08 26 | 644 | 0.8+ | 0.3+ | 2005 02 02 | 703 | 0.6+ | 0.2− | 2009 12 12 | A77 | 0.4− | 0.6+ |
| 2002 08 26 | 644 | 0.0 | 0.1+ | 2005 02 02 | 703 | 0.2+ | 0.4− | 2009 12 12 | A77 | 0.9+ | 1.2+ |
| 2002 08 27 | 644 | 0.4+ | 0.4+ | 2005 02 02 | 703 | 0.3− | 0.6+ | 2009 12 12 | A77 | 1.7+ | 1.2− |
| 2002 08 27 | 644 | 0.2− | 0.3− | 2005 02 14 | 691 | 0.1+ | 0.3+ | 2009 12 15 | G96 | 0.4− | 0.4− |
| 2003 10 23 | 691 | 0.0 | 0.0 | 2005 02 14 | 691 | 0.0 | 0.3+ | 2009 12 15 | G96 | 0.3− | 0.3− |
| 2003 10 23 | 691 | 0.0 | 0.0 | 2005 02 14 | 691 | 0.1+ | 0.3+ | 2009 12 15 | G96 | 0.1− | 0.1− |
| 2003 10 23 | 691 | 0.1− | 0.1− | 2008 10 10 | G96 | 0.3− | 0.1− | 2009 12 15 | G96 | 0.4− | 0.4− |

**(228997)∗ 2003 $WM_{101}$ = 2005 $BX_{27}$**

Discovered 2003 Nov. 21 by the Catalina Sky Survey.

Id. A. Doppler (*MPO* 76231)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 112.94645 | | (2000.0) | | | |
| $n$ | 0.18317605 | $\omega$ | 248.74941 | | +0.82669311 | +0.41152832 |
| $a$ | 3.0706024 | $\Omega$ | 85.18647 | | −0.25483633 | +0.88184301 |
| $e$ | 0.1204337 | $i$ | 22.64712 | | −0.50163428 | +0.23021153 |
| $P$ | 5.38 | $H$ | 14.6 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 01 29 | 704 | 0.6− | 0.2− | 2003 11 29 | 704 | 0.3− | 0.3− | 2008 09 10 | E12 | 0.6− | 0.3+ |
| 2000 01 29 | 704 | 0.5+ | 0.7− | 2003 11 29 | 704 | 0.2+ | 0.2− | 2008 09 10 | E12 | 0.3+ | 0.1+ |
| 2000 01 29 | 704 | 1.0+ | 0.3+ | 2003 11 29 | 704 | 0.3− | 0.3+ | 2008 09 28 | E12 | 0.4+ | 1.1+ |
| 2003 10 22 | 645 | 0.0 | 0.0 | 2005 01 31 | 704 | 0.6− | 0.3+ | 2008 09 28 | E12 | 0.1+ | 0.4+ |
| 2003 10 22 | 645 | 0.0 | 0.1− | 2005 01 31 | 704 | 0.5− | 1.3+ | 2008 09 28 | E12 | 0.7− | 0.4+ |
| 2003 10 24 | 645 | 0.1+ | 0.0 | 2005 01 31 | 704 | 0.8+ | 1.1+ | 2008 10 24 | E12 | 0.2− | 0.3+ |
| 2003 10 24 | 645 | 0.1+ | 0.0 | 2005 01 31 | 704 | (1.2+ | 1.9+) | 2008 10 24 | E12 | 0.6− | 0.9+ |
| 2003 11 21 | 703 | 0.5− | 0.7+ | 2005 02 02 | 644 | 0.1+ | 0.2− | 2008 10 24 | E12 | 1.0− | 0.1+ |
| 2003 11 21 | 703 | (1.9− | 0.7+) | 2005 02 02 | 644 | 0.4+ | 0.0 | 2009 11 17 | 704 | 0.5− | 0.5− |
| 2003 11 21 | 703 | 1.3− | 0.4+ | 2005 02 02 | 644 | 0.4+ | 0.2− | 2009 11 17 | 704 | 1.0+ | 0.5+ |
| 2003 11 21 | 703 | 0.4− | 0.4− | 2006 03 02 | G96 | 0.3− | 0.3− | 2009 11 17 | 704 | 0.3− | 0.7+ |
| 2003 11 24 | 644 | 0.3− | 0.2+ | 2006 03 02 | G96 | 0.3+ | 0.1+ | 2009 11 17 | 704 | 0.2+ | 1.4+ |
| 2003 11 24 | 644 | 0.1− | 0.1+ | 2006 03 02 | G96 | 0.4− | 0.1+ | 2009 12 10 | 704 | 0.6+ | 1.0+ |
| 2003 11 24 | 644 | 0.1− | 0.1+ | 2006 03 02 | G96 | 0.9− | 0.4− | 2009 12 10 | 704 | 0.6− | 0.1− |
| 2003 11 26 | 699 | 0.1− | 0.3+ | 2006 03 25 | 703 | 0.1+ | 0.7+ | 2009 12 10 | 704 | 0.7− | 0.5− |
| 2003 11 26 | 699 | 0.2− | 0.3− | 2006 03 25 | 703 | 0.9+ | 1.3+ | 2009 12 10 | 704 | 0.2− | 0.6+ |
| 2003 11 26 | 699 | 0.1+ | 0.2− | 2006 03 25 | 703 | 0.4− | 1.0+ | 2009 12 16 | 704 | 0.4+ | 0.7− |
| 2003 11 26 | 699 | 0.5+ | 0.2− | 2006 03 25 | 703 | 0.8+ | 0.6+ | 2009 12 16 | 704 | 0.1− | 0.4− |
| 2003 11 29 | 704 | (0.4− | 1.8−) | 2008 09 10 | E12 | 0.2− | 0.6+ | 2009 12 16 | 704 | 0.2+ | 0.9− |
| 2003 11 29 | 704 | 0.9+ | 0.5− | 2008 09 10 | E12 | 0.3− | 1.1+ | 2009 12 16 | 704 | 0.3+ | 1.1− |

**(228998)∗ 2003 $WJ_{112}$**

Discovered 2003 Nov. 20 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 11.13749 | | (2000.0) | | | |
| $n$ | 0.16815489 | $\omega$ | 149.72036 | | +0.42081589 | −0.89443189 |
| $a$ | 3.2508459 | $\Omega$ | 275.02470 | | +0.79884508 | +0.44443575 |
| $e$ | 0.1251550 | $i$ | 8.73877 | | +0.42983778 | +0.04968349 |
| $P$ | 5.86 | $H$ | 15.1 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 11 20 | 704 | 1.1− | 0.8− | 2003 12 23 | 704 | 0.4+ | 0.6+ | 2009 11 11 | 704 | 0.3+ | 1.0− |
| 2003 11 20 | 704 | (2.7− | 0.3+) | 2003 12 23 | 704 | 0.2+ | 0.4+ | 2009 11 11 | 704 | 0.3+ | 0.5+ |
| 2003 11 20 | 704 | (0.4+ | 1.7−) | 2003 12 23 | 704 | 0.7+ | 0.4+ | 2009 11 11 | 704 | 0.1+ | 0.6− |
| 2003 11 20 | 704 | 1.3− | 1.1− | 2003 12 23 | 704 | 0.3− | 0.1− | 2009 11 11 | 704 | 0.0 | 0.5− |
| 2003 11 20 | 704 | (2.1− | 1.4−) | 2003 12 28 | 691 | 0.1− | 0.1+ | 2009 11 11 | 704 | 0.4+ | 0.4+ |
| 2003 11 20 | 691 | 0.1+ | 0.0 | 2003 12 28 | 691 | 0.2− | 0.2+ | 2009 11 18 | 691 | 0.0 | 0.1− |
| 2003 11 20 | 691 | 0.1− | 0.2− | 2003 12 28 | 691 | 0.1− | 0.2+ | 2009 11 18 | 691 | 0.1+ | 0.3+ |
| 2003 11 20 | 691 | 0.0 | 0.1− | 2005 02 14 | 703 | 1.4+ | 0.2+ | 2009 11 18 | 691 | 0.4− | 0.1− |
| 2003 11 20 | 691 | 0.0 | 0.0 | 2005 02 14 | 703 | 0.2− | 0.8+ | 2009 11 22 | 704 | 0.9+ | 0.5+ |
| 2003 11 20 | 691 | 0.2− | 0.1− | 2005 02 14 | 703 | (1.4+ | 1.6+) | 2009 11 22 | 704 | 1.0+ | 0.6+ |
| 2003 11 20 | 691 | 0.1− | 0.1− | 2005 02 14 | 703 | 0.1− | 0.4− | 2009 11 22 | 704 | (0.7+ | 2.7−) |
| 2003 11 24 | 704 | 0.2+ | 0.4+ | 2005 03 03 | 703 | 0.1− | 0.3+ | 2009 11 22 | 691 | 0.0 | 0.1+ |
| 2003 11 24 | 704 | 0.5+ | 0.7+ | 2005 03 03 | 703 | 0.9+ | 0.5+ | 2009 11 22 | 704 | 0.2− | 0.5+ |
| 2003 11 24 | 704 | 0.4+ | 0.3− | 2005 03 03 | 703 | 0.4+ | 1.0+ | 2009 11 22 | 691 | 0.4− | 0.5− |
| 2003 11 24 | 704 | 0.4+ | 0.3− | 2005 03 03 | 703 | 1.1− | 0.1− | 2009 11 22 | 691 | 0.5− | 0.2− |
| 2003 11 24 | 704 | 1.1+ | 0.1+ | 2008 08 23 | 185 | (1.8− | 0.7−) | 2009 11 26 | 691 | (2.7+ | 0.5−) |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 12 04 | 704 | 0.2− | 0.2+ | 2008 08 24 | 185 | (0.7+ | 2.7−) | 2009 11 26 | 691 | 0.1+ | 0.0 |
| 2003 12 04 | 704 | 0.0 | 0.6− | 2008 08 26 | 704 | 0.7− | 1.2+ | 2009 11 26 | 691 | 0.2− | 0.1− |
| 2003 12 04 | 704 | 0.6+ | 0.9− | 2008 08 26 | 704 | 1.0− | 0.2+ | 2009 12 09 | J75 | 0.6+ | 0.2+ |
| 2003 12 15 | 703 | (3.5− | 0.1−) | 2008 08 26 | 704 | 0.1+ | 0.7+ | 2009 12 09 | J75 | 0.1+ | 0.4− |
| 2003 12 15 | 703 | (0.5− | 1.5+) | 2008 08 26 | 704 | (0.1− | 1.6+) | 2009 12 09 | J75 | 0.3− | 0.2− |
| 2003 12 15 | 703 | 0.5− | 0.9+ | 2008 09 05 | 704 | 0.8+ | 0.2− | 2009 12 10 | 704 | 0.8− | 0.1− |
| 2003 12 15 | 703 | 1.0− | 0.3+ | 2008 09 05 | 704 | 0.1− | 0.0 | 2009 12 10 | 704 | 0.6+ | 0.1+ |
| 2003 12 18 | 691 | 0.0 | 0.2+ | 2008 09 05 | 704 | 0.2+ | 0.6+ | 2009 12 10 | 704 | 0.4+ | 0.0 |
| 2003 12 18 | 691 | 0.0 | 0.2+ | 2008 09 27 | 198 | 0.4− | 0.5+ | 2009 12 10 | 704 | 0.8− | 0.0 |
| 2003 12 18 | 704 | 0.1+ | 0.9+ | 2008 09 27 | 198 | 0.0 | 0.0 | 2009 12 10 | 704 | 0.4− | 0.0 |
| 2003 12 18 | 704 | 0.8+ | 0.3+ | 2008 09 27 | 198 | 0.1− | 0.0 | 2009 12 16 | 704 | 0.9+ | 0.3+ |
| 2003 12 18 | 691 | 0.1+ | 0.2+ | 2008 09 27 | 198 | 0.1+ | 0.0 | 2009 12 16 | 704 | 1.3+ | 0.7− |
| 2003 12 18 | 704 | 0.7+ | 0.9− | 2008 09 27 | 198 | 0.0 | 0.0 | 2009 12 16 | 704 | 0.4+ | 0.5− |
| 2003 12 18 | 704 | 0.2− | 0.4+ | 2008 09 27 | 198 | 0.1− | 0.4− | | | | |

**(228999)∗ 2003 WN$_{141}$**

Discovered 2003 Nov. 21 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 68.94757 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17121916 | $\omega$ | 289.88805 | | +0.91416474 | | −0.26339885 |
| $a$ | 3.2119429 | $\Omega$ | 86.37108 | | +0.37502222 | | +0.83804802 |
| $e$ | 0.2281466 | $i$ | 17.98188 | | −0.15382187 | | +0.47780390 |
| $P$ | 5.76 | $H$ | 14.3 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 05 23 | 291 | 0.2+ | 0.4+ | 2003 12 27 | 704 | 0.7+ | 0.2+ | 2008 10 24 | E12 | 0.2− | 0.1− |
| 2001 05 23 | 291 | 0.3+ | 0.2+ | 2004 01 22 | 704 | 0.5− | 0.2+ | 2008 10 24 | E12 | 0.2+ | 0.2+ |
| 2001 05 23 | 291 | 0.3− | 0.1+ | 2004 01 22 | 704 | 0.3− | 0.4+ | 2008 10 24 | E12 | 0.0 | 0.6+ |
| 2003 11 21 | 704 | 0.2+ | 0.0 | 2004 01 22 | 704 | 0.1− | 0.1+ | 2008 10 24 | E12 | 0.0 | 0.3+ |
| 2003 11 21 | 704 | 0.2− | 0.3− | 2004 01 22 | 704 | 0.1− | 0.0 | 2008 11 24 | 703 | 0.5+ | 0.7− |
| 2003 11 21 | 704 | 0.2− | 0.0 | 2004 01 22 | 704 | 0.7− | 0.2+ | 2008 11 24 | 703 | 0.6− | 0.7− |
| 2003 11 21 | 704 | 0.0 | 0.5− | 2008 06 29 | E12 | 0.3+ | 0.7+ | 2008 11 24 | 703 | 0.2− | 1.1− |
| 2003 11 21 | 704 | 0.0 | 0.1− | 2008 06 29 | E12 | 0.4− | 0.7+ | 2008 11 24 | 703 | (2.3− | 1.5−) |
| 2003 11 23 | 704 | (2.3+ | 1.4+) | 2008 06 29 | E12 | 1.2+ | 0.5− | 2008 12 30 | E12 | 0.0 | 0.0 |
| 2003 11 23 | 704 | (2.4+ | 1.9+) | 2008 06 29 | E12 | 0.1− | 0.3+ | 2008 12 30 | E12 | 0.4+ | 0.3+ |
| 2003 11 23 | 704 | (1.9+ | 1.4+) | 2008 08 23 | E12 | 0.3− | 0.3− | 2008 12 30 | E12 | 0.7− | 0.3− |
| 2003 11 23 | 704 | (2.1+ | 2.1+) | 2008 08 23 | E12 | 0.5+ | 0.1− | 2009 09 28 | 691 | 0.3− | 0.0 |
| 2003 12 18 | 704 | 0.4− | 0.2+ | 2008 08 23 | E12 | 0.2− | 0.6+ | 2009 09 28 | 691 | 0.4− | 0.1+ |
| 2003 12 18 | 704 | 0.3− | 0.1+ | 2008 08 23 | E12 | 0.4− | 0.2+ | 2009 09 28 | 691 | 0.4− | 0.0 |
| 2003 12 18 | 704 | 0.0 | 0.0 | 2008 09 10 | E12 | 0.3− | 0.4+ | 2009 12 10 | 704 | 0.4+ | 0.8+ |
| 2003 12 22 | 704 | 0.3− | 0.1− | 2008 09 10 | E12 | 0.2+ | 0.0 | 2009 12 10 | 704 | 1.5+ | 0.8+ |
| 2003 12 22 | 704 | 0.5− | 0.1+ | 2008 09 10 | E12 | 0.2− | 0.0 | 2009 12 10 | 704 | 1.2+ | 0.5+ |
| 2003 12 22 | 704 | 0.3+ | 0.1+ | 2008 09 10 | E12 | 0.2− | 0.1+ | 2009 12 10 | 704 | 0.4− | 0.3− |
| 2003 12 22 | 704 | 0.2− | 0.3+ | 2008 10 01 | E12 | 0.1+ | 0.3+ | 2009 12 16 | A77 | 0.0 | 0.0 |
| 2003 12 27 | 704 | 1.1+ | 0.0 | 2008 10 01 | E12 | 0.4− | 0.4+ | 2009 12 16 | A77 | 0.1− | 0.1+ |
| 2003 12 27 | 704 | 0.7+ | 0.3− | 2008 10 01 | E12 | 0.0 | 0.1+ | 2009 12 16 | A77 | 0.0 | 0.1− |
| 2003 12 27 | 704 | 0.8+ | 0.8+ | 2008 10 01 | E12 | 0.0 | 0.3+ | | | | |

**(229000)∗ 2003 WQ$_{148}$**

Discovered 2003 Nov. 24 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 353.00511 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17518692 | $\omega$ | 16.23726 | | −0.04490755 | | −0.87801713 |
| $a$ | 3.1632603 | $\Omega$ | 78.32319 | | +0.85389544 | | −0.28131224 |
| $e$ | 0.1184126 | $i$ | 29.11656 | | +0.51850351 | | +0.38723294 |
| $P$ | 5.63 | $H$ | 14.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 12 17 | 704 | 0.8− | 0.7+ | 2003 12 13 | 644 | 0.3− | 0.1− | 2009 11 21 | 704 | 0.1− | 0.2+ |
| 1998 12 17 | 704 | 1.1+ | 0.5− | 2003 12 13 | 644 | 0.0 | 0.0 | 2009 11 21 | 704 | 0.2− | 0.3+ |
| 1998 12 17 | 704 | 0.4+ | 0.6+ | 2003 12 14 | 703 | (1.8− | 0.2−) | 2009 12 09 | J75 | 0.2+ | 0.4− |
| 1998 12 17 | 704 | (3.0− | 1.8−) | 2003 12 14 | 703 | 0.2− | 0.0 | 2009 12 09 | J75 | 0.2− | 0.8− |
| 1999 01 14 | 704 | 0.8− | 0.0 | 2003 12 14 | 703 | 0.0 | 0.3+ | 2009 12 09 | J75 | 0.4+ | 0.8− |
| 1999 01 14 | 704 | 0.0 | 1.6+ | 2003 12 14 | 703 | 0.6− | 0.7+ | 2009 12 10 | 704 | 0.8+ | 0.3+ |
| 1999 01 14 | 704 | 2.0− | 0.6− | 2006 05 21 | 703 | 0.0 | 0.5+ | 2009 12 10 | 704 | 0.7+ | 0.2+ |
| 1999 01 14 | 704 | 0.7+ | 1.6+ | 2006 05 21 | 703 | 1.2− | 0.1+ | 2009 12 10 | 704 | 0.5+ | 0.1− |
| 1999 01 14 | 704 | 0.5+ | 0.5− | 2006 05 21 | 703 | 0.4− | 1.5− | 2009 12 10 | 704 | 1.1+ | 0.2+ |
| 2003 11 24 | 644 | 0.0 | 0.6+ | 2006 05 21 | 703 | 0.9+ | 0.3+ | 2009 12 10 | 704 | 0.2+ | 0.3− |
| 2003 11 24 | 644 | 0.1− | 0.4+ | 2009 11 16 | 691 | 0.2− | 0.1+ | 2009 12 10 | G96 | 0.1− | 0.2− |
| 2003 11 24 | 644 | 0.0 | 0.3+ | 2009 11 16 | 691 | 0.6− | 0.1+ | 2009 12 10 | G96 | 0.2− | 0.5− |
| 2003 11 26 | 699 | 0.5− | 0.1− | 2009 11 16 | 691 | 0.7+ | 0.6− | 2009 12 10 | G96 | 0.0 | 0.3− |
| 2003 11 26 | 699 | 0.1+ | 0.0 | 2009 11 18 | 704 | 0.7+ | 0.5+ | 2009 12 10 | G96 | 0.2− | 0.5− |
| 2003 11 26 | 699 | 0.4− | 0.5− | 2009 11 18 | 704 | 0.0 | 0.1− | 2009 12 16 | 704 | 0.1+ | 0.8− |
| 2003 11 26 | 699 | 1.0+ | 0.0 | 2009 11 18 | 704 | 0.2− | 0.6+ | 2009 12 16 | 704 | 0.1+ | 0.2+ |
| 2003 11 29 | 446 | 0.0 | 0.1− | 2009 11 21 | 704 | 0.2− | 0.2+ | 2009 12 16 | 704 | 0.5+ | 0.1+ |
| 2003 11 29 | 446 | 0.3− | 0.2− | 2009 11 21 | 704 | 0.6− | 0.4+ | 2009 12 16 | 704 | 1.3+ | 0.5− |
| 2003 12 13 | 644 | 0.0 | 0.3+ | 2009 11 21 | 704 | 0.1− | 0.7+ | 2009 12 16 | 704 | 1.1− | 1.0− |

**(229001)∗ 2003 WL$_{155}$**

Discovered 2003 Nov. 26 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 106.86509 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18139692 | $\omega$ | 232.01064 | | +0.91109024 | | +0.36843070 |
| $a$ | 3.0906473 | $\Omega$ | 105.68928 | | −0.29158776 | | +0.89303359 |
| $e$ | 0.1899327 | $i$ | 11.07037 | | −0.29136085 | | +0.25835989 |
| $P$ | 5.43 | $H$ | 15.3 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 01 08 | 691 | 0.4+ | 0.4− | 2003 11 30 | 704 | 0.4+ | 0.2+ | 2008 10 09 | 703 | 1.1+ | 0.2+ |
| 1994 01 08 | 691 | 1.4− | 0.5− | 2003 11 30 | 704 | 0.6+ | 0.4− | 2008 10 09 | 703 | 0.5+ | 0.5− |
| 1994 01 08 | 691 | 0.6+ | 0.2− | 2003 11 30 | 704 | 0.1+ | 0.6+ | 2008 10 27 | 703 | 0.5− | 0.5− |
| 1996 06 17 | 691 | 0.3+ | 0.5+ | 2003 12 20 | 704 | 0.4+ | 0.4+ | 2008 10 27 | 703 | 0.0 | 0.3+ |
| 1996 06 17 | 691 | 0.0 | 0.3+ | 2003 12 20 | 704 | 0.4− | 0.2+ | 2008 10 27 | 703 | 0.2− | 0.3+ |
| 1996 06 17 | 691 | 0.4+ | 0.4+ | 2003 12 20 | 704 | 0.4+ | 1.2− | 2008 10 27 | 703 | 1.3+ | 0.8+ |
| 2002 07 05 | 704 | 0.6− | 0.8− | 2003 12 22 | 691 | 0.1+ | 0.2− | 2008 11 06 | 703 | (1.8+ | 0.9+) |
| 2002 07 05 | 704 | 1.0− | 0.5+ | 2003 12 22 | 691 | 0.4+ | 0.1+ | 2008 11 06 | 703 | 0.4+ | 0.5+ |
| 2002 07 05 | 644 | 0.1− | 0.5− | 2003 12 22 | 691 | 0.3+ | 0.1+ | 2008 11 06 | 703 | 1.2+ | 0.3− |
| 2002 07 05 | 704 | 0.8− | 0.9+ | 2005 01 13 | 691 | 0.6+ | 0.5+ | 2008 11 06 | 703 | (1.6+ | 1.7+) |
| 2002 07 05 | 644 | 0.5− | 0.6− | 2005 01 13 | 691 | 0.4+ | 0.1+ | 2008 12 01 | 703 | 0.7− | 0.0 |
| 2002 07 05 | 644 | 0.5− | 0.6− | 2005 01 13 | 691 | 0.7+ | 0.3− | 2008 12 01 | 703 | 0.0 | 0.0 |
| 2002 07 14 | 644 | 0.3+ | 0.6+ | 2008 09 07 | 703 | 0.4− | 0.2− | 2008 12 01 | 703 | (2.3− | 0.4−) |
| 2002 07 14 | 644 | 0.2+ | 0.6+ | 2008 09 07 | 703 | 0.2− | 0.2+ | 2008 12 01 | 703 | 1.0− | 0.1+ |
| 2002 07 14 | 644 | 0.8+ | 0.6+ | 2008 09 07 | 703 | (1.0− | 3.8−) | 2009 11 18 | G96 | 0.3+ | 0.3− |
| 2003 11 23 | 699 | 1.1+ | 0.2− | 2008 09 07 | 703 | (0.1− | 3.0−) | 2009 11 18 | G96 | 0.4+ | 0.7− |
| 2003 11 23 | 699 | 0.5− | 0.1− | 2008 10 02 | 703 | 0.0 | 0.0 | 2009 11 18 | G96 | 0.0 | 0.5− |
| 2003 11 23 | 699 | 1.2+ | 0.0 | 2008 10 02 | 703 | 0.6− | 0.1− | 2009 11 18 | G96 | 0.2+ | 0.6− |
| 2003 11 23 | 699 | 0.4− | 0.1+ | 2008 10 02 | 703 | 0.0 | 0.7− | 2009 12 16 | 691 | 0.7− | 0.6+ |
| 2003 11 26 | 691 | 0.1− | 0.2+ | 2008 10 02 | 703 | 0.0 | 0.5− | 2009 12 16 | 691 | 0.0 | 0.0 |
| 2003 11 26 | 691 | 0.8− | 0.3+ | 2008 10 09 | 703 | (0.6+ | 1.7+) | 2009 12 16 | 691 | 1.1− | 1.0+ |
| 2003 11 26 | 691 | 0.9− | 0.6+ | 2008 10 09 | 703 | 1.1+ | 1.4+ | | | | |

**(229002)∗ 2003 WN$_{169}$**

Discovered 2003 Nov. 19 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 31.56370 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17204992 | $\omega$ | 325.21661 | | +0.55902307 | | −0.70119455 |
| $a$ | 3.2015951 | $\Omega$ | 86.61073 | | +0.82507896 | | +0.41759532 |
| $e$ | 0.2219528 | $i$ | 26.31400 | | +0.08208480 | | +0.57787572 |
| $P$ | 5.73 | $H$ | 14.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 11 19 | 644 | 0.1− | 0.3− | 2004 01 12 | 644 | 0.3− | 0.3+ | 2008 09 02 | E12 | 0.2+ | 0.3+ |
| 2003 11 19 | 644 | 0.1+ | 0.2− | 2004 01 13 | 699 | 1.2− | 0.2− | 2008 09 02 | E12 | 0.3+ | 0.2+ |
| 2003 11 19 | 644 | 0.1+ | 0.1− | 2004 01 13 | 699 | 1.0+ | 0.3− | 2008 09 02 | E12 | 0.2+ | 0.5+ |
| 2003 11 23 | 699 | 0.8+ | 0.1− | 2004 01 13 | 699 | 0.3+ | 0.1− | 2008 09 02 | E12 | 0.1− | 0.8+ |
| 2003 11 23 | 699 | 0.3− | 0.7− | 2004 01 13 | 699 | 0.9+ | 0.1− | 2008 09 28 | E12 | 0.2− | 0.2− |
| 2003 11 23 | 699 | 0.4+ | 0.2+ | 2004 01 21 | 704 | (2.6− | 0.3−) | 2008 09 28 | E12 | (1.6− | 0.1−) |
| 2003 11 23 | 699 | 0.1+ | 0.1+ | 2004 01 21 | 704 | (1.6− | 0.9+) | 2008 09 28 | E12 | 0.3+ | 0.4+ |
| 2003 11 30 | 704 | 0.1+ | 0.2− | 2004 01 21 | 704 | 0.2+ | 0.2+ | 2008 09 28 | E12 | 0.1− | 0.4− |
| 2003 11 30 | 704 | 0.1+ | 0.4− | 2004 01 21 | 704 | (0.6− | 1.5+) | 2009 11 17 | 704 | 0.7+ | 0.4− |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 11 30 | 704 | 0.3− | 0.0 | 2004 01 21 | 704 | 0.1− | 0.8+ | 2009 11 17 | 704 | 0.5+ | 0.4+ |
| 2003 11 30 | 704 | 0.6− | 1.1− | 2004 01 24 | 704 | 1.1− | 1.0+ | 2009 11 17 | 704 | 0.3+ | 0.3− |
| 2003 11 30 | 704 | 0.4− | 1.3− | 2004 01 24 | 704 | 0.2− | 0.5+ | 2009 11 17 | G96 | 0.4− | 0.2− |
| 2003 12 05 | 703 | 0.2− | 0.1+ | 2004 01 24 | 704 | 0.2− | 0.5+ | 2009 11 17 | 704 | 0.0 | 0.3+ |
| 2003 12 05 | 703 | 0.5− | 0.0 | 2004 01 24 | 704 | 0.4− | 0.4+ | 2009 11 17 | G96 | 0.1+ | 0.2− |
| 2003 12 05 | 703 | 0.2− | 0.4− | 2004 01 24 | 704 | (1.1+ | 1.8+) | 2009 11 17 | G96 | 0.1+ | 0.0 |
| 2003 12 05 | 703 | 0.1+ | 0.3+ | 2004 02 10 | 644 | 0.2+ | 0.6+ | 2009 11 17 | G96 | 0.2− | 0.0 |
| 2003 12 16 | 703 | 1.0− | 0.1− | 2004 02 10 | 644 | 0.3+ | 0.6+ | 2009 11 22 | 704 | 0.0 | 0.5+ |
| 2003 12 16 | 703 | 0.8− | 0.2− | 2004 02 10 | 644 | 0.4+ | 0.4+ | 2009 11 22 | 704 | 0.4− | 0.0 |
| 2003 12 16 | 703 | 0.4+ | 0.5− | 2004 03 22 | 704 | 0.2− | 0.1+ | 2009 11 22 | 704 | 0.2+ | 0.2+ |
| 2003 12 16 | 703 | 0.7− | 0.6− | 2004 03 22 | 704 | 1.4+ | 0.7+ | 2009 11 22 | 704 | 0.4+ | 0.4+ |
| 2003 12 22 | 704 | 0.6+ | 0.4− | 2004 03 22 | 704 | 0.2+ | 0.9+ | 2009 11 22 | 704 | 0.4+ | 0.5+ |
| 2003 12 22 | 704 | 0.3+ | 0.1+ | 2004 03 22 | 704 | 0.2+ | 1.0+ | 2009 12 10 | 704 | 0.2+ | 0.3+ |
| 2003 12 22 | 704 | 1.3+ | 0.8− | 2004 03 22 | 704 | 1.3+ | 0.8+ | 2009 12 10 | 704 | 0.2− | 0.4+ |
| 2003 12 22 | 704 | 1.2+ | 0.5− | 2005 03 08 | 703 | 0.4− | 0.1− | 2009 12 10 | 704 | 0.0 | 0.3+ |
| 2003 12 22 | 704 | 0.1− | 0.1− | 2005 03 08 | 703 | 1.1− | 0.2− | 2009 12 10 | 704 | 0.9+ | 0.3− |
| 2004 01 11 | 699 | 0.7− | 0.2− | 2005 03 08 | 703 | 0.6+ | 0.3+ | 2009 12 10 | J75 | 0.0 | 0.2− |
| 2004 01 11 | 699 | 0.3+ | 0.3+ | 2005 03 08 | 703 | (0.3+ | 1.8+) | 2009 12 10 | J75 | 0.2− | 0.2− |
| 2004 01 11 | 699 | (0.6+ | 1.6+) | 2008 07 11 | E12 | 0.1+ | 0.1− | 2009 12 10 | J75 | 0.2+ | 0.2+ |
| 2004 01 11 | 699 | 0.5− | 0.3+ | 2008 07 11 | E12 | 0.2− | 0.3+ | 2009 12 19 | 691 | 0.2− | 0.1− |
| 2004 01 12 | 644 | 0.1− | 0.3+ | 2008 07 11 | E12 | 0.1+ | 0.1− | 2009 12 19 | 691 | 0.2− | 0.0 |
| 2004 01 12 | 644 | 0.1+ | 0.3+ | 2008 07 11 | E12 | 0.6− | 0.4+ | 2009 12 19 | 691 | 0.3− | 0.0 |

**(229003)∗ 2003 WZ$_{170}$**

Discovered 2003 Nov. 21 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 77.29591 | | (2000.0) | | | |
| $n$ | 0.18089543 | $\omega$ | 265.63266 | | +0.93715780 | −0.19163013 |
| $a$ | 3.0963567 | $\Omega$ | 105.21483 | | +0.28128746 | +0.90938383 |
| $e$ | 0.1580644 | $i$ | 17.58746 | | −0.20642826 | +0.36918687 |
| $P$ | 5.45 | $H$ | 14.8 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 06 17 | 644 | 0.9+ | 0.2+ | 2003 11 29 | 704 | 0.2− | 0.2− | 2009 11 19 | G96 | 0.5+ | 0.0 |
| 2002 06 17 | 644 | 0.2− | 0.1+ | 2003 11 29 | 704 | 0.2− | 0.5− | 2009 11 19 | G96 | 0.4+ | 0.0 |
| 2002 06 17 | 644 | 0.1− | 0.0 | 2003 12 21 | 683 | (1.5+ | 1.8+) | 2009 11 19 | G96 | 0.2+ | 0.1+ |
| 2002 08 05 | 644 | 0.0 | 0.7+ | 2003 12 21 | 683 | 0.6− | 1.2+ | 2009 11 26 | 703 | 0.3+ | 0.2+ |
| 2002 08 05 | 644 | 0.1− | 0.7+ | 2003 12 21 | 683 | 0.1− | 0.7+ | 2009 11 26 | 703 | 0.0 | 0.3− |
| 2002 08 05 | 644 | 0.2− | 0.6+ | 2003 12 22 | 683 | 1.3+ | 0.7+ | 2009 11 26 | 703 | 0.4+ | 0.2− |
| 2003 10 21 | 699 | 0.5− | 1.5− | 2003 12 22 | 683 | 0.7− | 0.7+ | 2009 11 26 | 703 | 1.6+ | 0.8+ |
| 2003 10 21 | 699 | 0.4− | 0.7+ | 2003 12 22 | 683 | 1.3− | 1.0+ | 2009 12 09 | J75 | 0.3+ | 0.1+ |
| 2003 10 21 | 699 | 0.3+ | 0.7− | 2004 01 14 | 644 | 0.2+ | 0.3+ | 2009 12 09 | J75 | 0.5+ | 0.0 |
| 2003 10 21 | 699 | 0.2+ | 0.1− | 2004 01 14 | 644 | 0.3+ | 0.2+ | 2009 12 09 | J75 | 0.5+ | 0.3− |
| 2003 11 21 | 703 | (1.8− | 1.0+) | 2004 01 14 | 644 | 0.1− | 0.3+ | 2009 12 10 | G96 | 0.3+ | 0.0 |
| 2003 11 21 | 703 | 0.2− | 0.2+ | 2008 08 23 | E12 | 0.2+ | 0.3− | 2009 12 10 | G96 | 0.3+ | 0.2− |
| 2003 11 21 | 644 | 0.1− | 0.0 | 2008 08 23 | E12 | 0.4− | 0.2+ | 2009 12 10 | G96 | 0.3+ | 0.2+ |
| 2003 11 21 | 703 | 0.9− | 0.9+ | 2008 08 23 | E12 | 0.1+ | 0.2+ | 2009 12 10 | G96 | 0.4+ | 0.1− |
| 2003 11 21 | 703 | 0.8− | 0.1+ | 2008 08 23 | E12 | 0.4+ | 0.1+ | 2009 12 24 | G92 | 0.1+ | 1.3− |
| 2003 11 21 | 644 | 0.0 | 0.1− | 2008 09 10 | E12 | 0.1− | 0.3− | 2009 12 24 | G92 | 0.5+ | 0.1+ |
| 2003 11 21 | 644 | 0.3+ | 0.2+ | 2008 09 10 | E12 | 0.1+ | 0.3− | 2009 12 24 | G92 | 0.6+ | 0.5+ |
| 2003 11 23 | 699 | 1.2+ | 0.8− | 2008 09 10 | E12 | 0.4+ | 0.3− | 2009 12 24 | G92 | 0.5− | 1.3− |
| 2003 11 23 | 699 | 0.5+ | 1.1− | 2008 09 10 | E12 | 0.0 | 0.0 | 2009 12 24 | G92 | 0.0 | 0.3+ |
| 2003 11 23 | 699 | 0.8+ | 0.2+ | 2008 11 24 | 703 | 0.8− | 0.0 | 2009 12 25 | 691 | 0.7− | 0.0 |
| 2003 11 23 | 699 | 0.4+ | 0.4− | 2008 11 24 | 703 | 0.1− | 0.7− | 2009 12 25 | 691 | 0.5− | 0.3+ |
| 2003 11 29 | 704 | 0.1+ | 0.2+ | 2008 11 24 | 703 | 1.0+ | 0.1+ | 2009 12 25 | 691 | 0.5− | 0.2+ |
| 2003 11 29 | 704 | 0.3− | 0.1− | 2008 11 24 | 703 | 0.4− | 0.1+ | | | | |
| 2003 11 29 | 704 | 0.0 | 0.4− | 2009 11 19 | G96 | 0.1+ | 0.3− | | | | |

**(229004)∗ 2003 WL$_{178}$**

Discovered 2003 Nov. 20 by M. W. Buie at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 248.00499 | | (2000.0) | | | |
| $n$ | 0.17593067 | $\omega$ | 136.74267 | | −0.99133402 | +0.10457382 |
| $a$ | 3.1543389 | $\Omega$ | 49.43502 | | −0.12950622 | −0.87944888 |
| $e$ | 0.0810976 | $i$ | 6.00749 | | +0.02202262 | −0.46436407 |
| $P$ | 5.60 | $H$ | 16.2 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 19 | 691 | 0.4+ | 0.3+ | 2006 03 24 | 691 | 0.3− | 0.1+ | 2009 11 20 | G96 | 0.5+ | 0.3+ |
| 2003 10 19 | 691 | 0.5− | 0.1+ | 2006 03 24 | 691 | 0.1− | 0.0 | 2009 11 20 | G96 | 0.9+ | 0.1+ |
| 2003 10 19 | 691 | 0.1+ | 0.3+ | 2006 03 24 | 691 | 0.0 | 0.5+ | 2009 11 20 | G96 | 0.1− | 0.2− |
| 2003 10 23 | 695 | 0.1− | 0.2+ | 2006 05 01 | 691 | 0.4+ | 0.3+ | 2009 11 20 | G96 | 0.2+ | 0.0 |
| 2003 10 23 | 695 | 0.2− | 0.2+ | 2006 05 01 | 691 | 0.0 | 0.0 | 2009 11 24 | 691 | 0.1+ | 0.0 |
| 2003 11 20 | 695 | 0.1− | 0.1− | 2006 05 01 | 691 | 0.4+ | 0.1+ | 2009 11 24 | 691 | 0.0 | 0.1+ |
| 2003 11 20 | 695 | 0.3− | 0.2+ | 2008 10 01 | G96 | 0.7− | 0.0 | 2009 11 24 | 691 | 0.1− | 0.0 |
| 2003 11 22 | 695 | 0.5− | 0.2+ | 2008 10 01 | G96 | 0.1+ | 0.2+ | 2009 12 17 | G96 | 0.1+ | 0.1− |
| 2003 11 22 | 695 | 0.7− | 0.1+ | 2008 10 01 | G96 | 0.1− | 0.4+ | 2009 12 17 | G96 | 0.2+ | 0.1+ |
| 2003 11 22 | 695 | 0.6+ | 0.2+ | 2008 10 01 | G96 | 0.2+ | 0.4+ | 2009 12 17 | G96 | 0.2+ | 0.3− |
| 2006 03 02 | 695 | 0.1+ | 0.1− | 2009 11 08 | 691 | 0.6− | 0.1− | 2009 12 17 | G96 | 0.4+ | 0.1+ |
| 2006 03 02 | 695 | 0.1+ | 0.2− | 2009 11 08 | 691 | 0.1+ | 0.5+ | | | | |
| 2006 03 02 | 695 | 0.1+ | 0.1− | 2009 11 08 | 691 | 0.1− | 0.8− | | | | |

**(229005)∗ 2003 WX$_{188}$**

Discovered 2003 Nov. 19 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 37.77166 | | (2000.0) | | | |
| $n$ | 0.17938283 | $\omega$ | 118.34513 | | +0.81752150 | −0.44135161 |
| $a$ | 3.1137385 | $\Omega$ | 270.01667 | | +0.30630583 | +0.87723038 |
| $e$ | 0.1565589 | $i$ | 21.71290 | | +0.48768364 | +0.18887992 |
| $P$ | 5.49 | $H$ | 14.4 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 06 | 699 | 0.1− | 1.1− | 2003 11 19 | 644 | 0.3+ | 0.2+ | 2008 07 01 | 703 | 1.1− | 1.2+ |
| 2003 09 06 | 699 | (0.1− | 1.7−) | 2003 11 19 | 644 | 0.1+ | 0.0 | 2008 07 01 | 703 | 0.7− | 0.6− |
| 2003 09 06 | 699 | 0.6− | 0.1− | 2003 11 24 | 704 | 0.0 | 0.1+ | 2008 07 01 | 703 | (0.8− | 1.6−) |
| 2003 09 06 | 699 | 0.4− | 0.5− | 2003 11 24 | 704 | 0.2+ | 0.4− | 2008 07 29 | 691 | 1.0+ | 0.1− |
| 2003 09 29 | 704 | 0.3+ | 0.8− | 2003 11 24 | 704 | 1.1− | 0.1+ | 2008 07 29 | 691 | (1.9+ | 0.2+) |
| 2003 09 29 | 704 | 1.4− | 0.2− | 2003 11 24 | 704 | 0.8− | 0.6− | 2008 07 29 | 691 | (1.1+ | 1.7−) |
| 2003 09 29 | 704 | 0.8− | 0.8− | 2003 11 24 | 704 | 0.5+ | 0.5− | 2008 08 01 | 691 | (2.3− | 0.4+) |
| 2003 09 29 | 704 | 0.9− | 1.0+ | 2003 12 18 | 704 | 0.1− | 0.4− | 2008 08 01 | 691 | 0.1+ | 0.2+ |
| 2003 09 29 | 704 | (0.5+ | 1.7+) | 2003 12 18 | 704 | 0.6+ | 0.2− | 2008 08 01 | 691 | 0.4− | 0.0 |
| 2003 09 29 | 704 | 1.5− | 1.2+ | 2003 12 18 | 704 | (0.4− | 1.6−) | 2009 11 10 | 114 | 0.4− | 0.4− |
| 2003 09 29 | 704 | 0.3+ | 1.0+ | 2003 12 18 | 704 | 0.7− | 0.2− | 2009 11 10 | 114 | 1.2− | 0.1− |
| 2003 09 29 | 704 | 0.2+ | 0.1+ | 2004 12 20 | 699 | 1.1+ | 0.1− | 2009 11 10 | 114 | 0.2− | 0.2− |
| 2003 09 29 | 704 | 0.6+ | 1.3+ | 2004 12 20 | 699 | 0.1− | 0.6+ | 2009 11 10 | 114 | 0.2− | 0.3− |
| 2003 10 23 | 704 | 0.2+ | 0.3+ | 2004 12 20 | 699 | 0.8+ | 0.0 | 2009 11 23 | 704 | 1.5+ | 0.1+ |
| 2003 10 23 | 704 | 0.8+ | 0.3+ | 2004 12 20 | 699 | 0.0 | 0.0 | 2009 11 23 | 704 | 0.9+ | 0.7− |
| 2003 10 23 | 704 | 1.3+ | 0.4− | 2005 01 16 | 703 | (0.2− | 2.8+) | 2009 11 23 | 704 | 0.1+ | 0.7− |
| 2003 10 23 | 704 | 0.5+ | 0.8+ | 2005 01 16 | 703 | 0.7+ | 1.2+ | 2009 12 15 | 704 | 0.4− | 0.5+ |
| 2003 11 03 | 704 | 0.2− | 0.3+ | 2005 01 16 | 703 | 0.6− | 0.8+ | 2009 12 15 | 704 | 0.3− | 0.2+ |
| 2003 11 03 | 704 | 0.7+ | 0.2+ | 2005 01 16 | 703 | 0.4+ | 1.1+ | 2009 12 15 | 704 | 0.3− | 0.1+ |
| 2003 11 03 | 704 | 0.6+ | 0.1− | 2008 06 29 | 941 | 1.0− | 0.1+ | 2009 12 15 | 704 | 0.1− | 0.1+ |
| 2003 11 03 | 704 | 0.3+ | 0.1− | 2008 06 29 | 941 | 0.5− | 0.3+ | 2009 12 15 | 704 | 0.1− | 0.0 |
| 2003 11 03 | 704 | 0.5+ | 0.1+ | 2008 06 29 | 941 | 0.2− | 0.7+ | | | | |
| 2003 11 19 | 644 | 0.1+ | 0.1− | 2008 07 01 | 703 | 0.9− | 0.3+ | | | | |

**(229006)∗ 2003 WT$_{192}$**

Discovered 2003 Nov. 18 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 17.47396 | | (2000.0) | | | |
| $n$ | 0.17796132 | $\omega$ | 3.39939 | | +0.05249387 | −0.95439588 |
| $a$ | 3.1302976 | $\Omega$ | 83.74273 | | +0.90910245 | −0.07611547 |
| $e$ | 0.1087841 | $i$ | 17.19676 | | +0.41325189 | +0.28867792 |
| $P$ | 5.54 | $H$ | 15.0 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 11 18 | 644 | 0.1− | 0.4+ | 2003 12 22 | 704 | 0.1+ | 0.9+ | 2009 09 16 | 691 | 0.1− | 0.0 |
| 2003 11 18 | 644 | 0.1+ | 0.2+ | 2003 12 26 | 608 | 0.1− | 0.1− | 2009 09 16 | 691 | 0.3− | 0.1− |
| 2003 11 18 | 644 | 1.0+ | 0.3− | 2003 12 26 | 608 | 0.7+ | 0.9− | 2009 09 27 | 691 | 0.0 | 0.0 |
| 2003 12 01 | 704 | 0.3− | 0.0 | 2003 12 26 | 608 | 0.0 | 0.2+ | 2009 09 27 | 691 | 0.1+ | 0.1+ |
| 2003 12 01 | 704 | 0.0 | 0.3+ | 2005 03 01 | 703 | 0.9+ | 0.2+ | 2009 09 27 | 691 | 0.1− | 0.2− |
| 2003 12 01 | 704 | 0.1− | 0.5+ | 2005 03 01 | 703 | 0.8− | 0.3− | 2009 11 21 | G96 | 0.7− | 0.3− |
| 2003 12 01 | 704 | 0.3+ | 0.4+ | 2005 03 01 | 703 | 0.5− | 0.5− | 2009 11 21 | G96 | 0.2+ | 0.6− |
| 2003 12 01 | 704 | 0.4+ | 0.9+ | 2005 03 01 | 703 | 0.4− | 0.4− | 2009 11 21 | G96 | 0.1+ | 0.4− |
| 2003 12 16 | 703 | 0.7− | 0.6− | 2006 05 02 | 691 | 0.2+ | 0.3+ | 2009 11 21 | G96 | 0.1+ | 0.4− |
| 2003 12 16 | 703 | 1.4− | 0.4+ | 2006 05 02 | 691 | 0.2+ | 0.4+ | 2009 12 15 | 704 | 1.2+ | 0.6+ |
| 2003 12 16 | 703 | 0.9− | 0.0 | 2006 05 02 | 691 | 0.1+ | 0.2+ | 2009 12 15 | 704 | 0.4+ | 0.0 |
| 2003 12 16 | 703 | 1.0− | 1.3+ | 2006 05 23 | 691 | 0.0 | 0.0 | 2009 12 15 | 704 | 0.2− | 1.0+ |
| 2003 12 22 | 704 | 0.5+ | 0.9+ | 2006 05 23 | 691 | 0.3− | 0.0 | 2009 12 15 | 704 | 1.1+ | 0.1+ |
| 2003 12 22 | 704 | 0.4− | 0.1+ | 2006 05 23 | 691 | 0.4+ | 0.2+ | | | | |
| 2003 12 22 | 704 | 0.5− | 0.2+ | 2009 09 16 | 691 | 0.3− | 0.1− | | | | |

**(229007)∗ 2003 XF$_{11}$**

Discovered 2003 Dec. 13 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 330.39075 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.30345832 | $\omega$ | 173.86534 | | +0.34154212 | | +0.93012803 |
| $a$ | 2.1931585 | $\Omega$ | 116.03913 | | −0.86856938 | | +0.36721820 |
| $e$ | 0.8488242 | $i$ | 8.63811 | | −0.35907689 | | −0.00355518 |
| $P$ | 3.25 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 12 13 | 704 | 0.2− | 0.0 | 2003 12 16 | 185 | 0.8+ | 0.0 | 2003 12 25 | 941 | 0.3− | 0.3− |
| 2003 12 13 | 704 | 0.3− | 0.5+ | 2003 12 16 | 185 | 0.2− | 0.8− | 2003 12 25 | 941 | 0.0 | 0.3− |
| 2003 12 13 | 704 | 0.8− | 0.4+ | 2003 12 16 | 185 | 0.2− | 0.1+ | 2003 12 25 | 941 | 0.1− | 0.1+ |
| 2003 12 13 | 704 | 0.9− | 0.5+ | 2003 12 16 | 185 | 0.0 | 0.5− | 2003 12 26 | 608 | (0.6− | 1.6+) |
| 2003 12 13 | 704 | 0.1− | 0.7+ | 2003 12 16 | 113 | 0.1+ | 0.5+ | 2003 12 26 | 608 | 0.6− | 1.5+ |
| 2003 12 14 | 704 | 0.4+ | 0.2+ | 2003 12 16 | 113 | 0.5+ | 0.5+ | 2003 12 26 | 608 | 0.5− | 1.5+ |
| 2003 12 14 | 704 | 0.4− | 0.5+ | 2003 12 16 | 113 | 0.2+ | 0.4+ | 2003 12 30 | 413 | 0.1+ | 0.2− |
| 2003 12 14 | 448 | 0.3+ | 0.3− | 2003 12 16 | 113 | 0.0 | 0.2+ | 2003 12 30 | 413 | 0.0 | 0.2− |
| 2003 12 14 | 704 | 0.5− | 0.3+ | 2003 12 16 | 113 | 0.2+ | 0.6+ | 2003 12 30 | 413 | 0.1+ | 0.2− |
| 2003 12 14 | 448 | 0.3+ | 0.1− | 2003 12 17 | J95 | 0.3+ | 0.0 | 2004 01 05 | 413 | 0.1+ | 0.2− |
| 2003 12 14 | 704 | 0.1− | 0.2+ | 2003 12 17 | J95 | 0.2+ | 0.2− | 2004 01 05 | 413 | 0.2+ | 0.2− |
| 2003 12 14 | 704 | 0.6− | 0.1+ | 2003 12 17 | J95 | 0.3+ | 0.3− | 2004 01 05 | 941 | 0.1+ | 0.1− |
| 2003 12 14 | 448 | 0.4+ | 0.3− | 2003 12 17 | A17 | 0.8+ | 1.1− | 2004 01 05 | 941 | 0.1+ | 0.2+ |
| 2003 12 14 | 704 | 0.3− | 0.2+ | 2003 12 18 | 715 | 0.0 | 0.2+ | 2004 01 05 | 941 | 0.1− | 0.2+ |
| 2003 12 14 | 704 | 0.3− | 0.3+ | 2003 12 18 | 715 | 0.3− | 0.0 | 2004 01 05 | 941 | 0.1+ | 0.4+ |
| 2003 12 14 | 704 | 0.7− | 0.3+ | 2003 12 18 | 715 | 0.3− | 0.1+ | 2004 01 06 | 926 | 0.3+ | 0.4+ |
| 2003 12 14 | 673 | 0.3+ | 0.1− | 2003 12 18 | 715 | 0.3− | 0.1+ | 2004 01 06 | 926 | 0.1− | 0.5− |
| 2003 12 14 | 673 | 0.2− | 0.0 | 2003 12 18 | 113 | 0.4+ | 0.4+ | 2004 01 06 | 926 | 1.4+ | 0.9+ |
| 2003 12 14 | 673 | 0.2− | 0.1+ | 2003 12 18 | 113 | 0.3+ | 0.3+ | 2004 01 09 | 926 | 0.6+ | 1.2+ |
| 2003 12 14 | 673 | 0.5+ | 0.5+ | 2003 12 18 | 113 | 0.2+ | 0.2− | 2004 01 09 | 926 | 0.5+ | 0.1+ |
| 2003 12 14 | 673 | 0.5− | 0.4+ | 2003 12 18 | 246 | 0.3− | 0.2+ | 2004 01 09 | 926 | 0.5− | 0.1+ |
| 2003 12 14 | 673 | 0.3− | 0.8+ | 2003 12 18 | 246 | 0.9− | 0.4+ | 2004 01 12 | 926 | 0.4− | 1.0+ |
| 2003 12 14 | 926 | 0.3+ | 0.5+ | 2003 12 18 | 246 | 0.5− | 0.1+ | 2004 01 12 | 926 | 0.4+ | 0.0 |
| 2003 12 14 | 926 | 0.2+ | 0.5+ | 2003 12 18 | 246 | 0.4− | 0.3+ | 2004 01 12 | 926 | 0.7+ | 0.4+ |
| 2003 12 14 | 926 | 0.2+ | 0.7+ | 2003 12 18 | 246 | 0.5− | 0.3+ | 2004 01 24 | 941 | 0.3+ | 1.2+ |
| 2003 12 15 | J95 | 0.3− | 0.2+ | 2003 12 19 | H72 | 0.0 | 0.7− | 2004 01 24 | 941 | 0.2+ | 1.4+ |
| 2003 12 15 | J95 | 0.8+ | 0.5− | 2003 12 19 | H72 | 0.9− | 0.9− | 2004 01 24 | 941 | 0.0 | 0.8+ |
| 2003 12 15 | J95 | 0.3+ | 1.0− | 2003 12 19 | H72 | 0.6− | 0.5+ | 2004 01 24 | 941 | 0.2− | 0.4+ |
| 2003 12 15 | J95 | 0.1+ | 0.1− | 2003 12 19 | H72 | (1.1+ | 2.1−) | 2004 01 24 | 941 | 1.3− | 0.8+ |
| 2003 12 15 | H72 | (2.7− | 1.0+) | 2003 12 19 | 703 | 1.3− | 0.3− | 2006 01 07 | 291 | 0.5− | 1.3+ |
| 2003 12 15 | H72 | 0.2+ | 0.2− | 2003 12 19 | 703 | (1.7− | 0.3+) | 2006 01 07 | 291 | (0.1− | 1.9+) |
| 2003 12 15 | H72 | 0.2− | 1.3− | 2003 12 19 | 703 | 0.7− | 0.0 | 2006 01 07 | 291 | 0.3+ | 0.8− |
| 2003 12 16 | 704 | 0.5+ | 1.0+ | 2003 12 20 | H72 | (3.0− | 3.4−) | 2006 01 23 | G96 | 0.3− | 0.3+ |
| 2003 12 16 | 704 | 0.7− | 0.7+ | 2003 12 20 | H72 | (1.8+ | 1.5−) | 2006 01 23 | G96 | 0.5+ | 0.0 |
| 2003 12 16 | 704 | 0.2− | 0.3+ | 2003 12 20 | H72 | (0.8− | 1.7−) | 2006 01 23 | G96 | 0.8− | 0.4+ |
| 2003 12 16 | 704 | 0.0 | 0.5+ | 2003 12 20 | H72 | (1.1+ | 1.6+) | 2006 01 23 | G96 | 0.0 | 0.4+ |
| 2003 12 16 | 704 | 0.0 | 0.9+ | 2003 12 22 | 644 | 0.1− | 0.3+ | 2007 12 20 | 691 | 0.8+ | 0.3− |
| 2003 12 16 | E14 | 0.0 | 0.7− | 2003 12 22 | 644 | 0.2− | 0.2+ | 2007 12 20 | 691 | 0.6− | 0.9− |
| 2003 12 16 | E14 | 0.1− | 0.3− | 2003 12 22 | 644 | 0.1− | 0.3+ | 2007 12 20 | 691 | 0.4− | 0.7− |
| 2003 12 16 | 413 | 0.0 | 0.2− | 2003 12 23 | 113 | 0.5− | 0.0 | 2009 11 19 | 291 | 0.5+ | 0.8− |
| 2003 12 16 | 413 | 0.2+ | 0.1− | 2003 12 23 | 113 | 0.6− | 0.4+ | 2009 11 19 | 291 | 0.9+ | 0.3− |
| 2003 12 16 | 413 | 0.1+ | 0.1− | 2003 12 23 | 113 | 0.4− | 0.1− | 2009 11 19 | 291 | 0.5+ | 0.6+ |
| 2003 12 16 | E14 | 0.3− | 0.2+ | 2003 12 23 | 215 | (0.0 | 2.4−) | 2009 12 17 | 691 | 0.8− | 0.2+ |
| 2003 12 16 | 185 | 0.6+ | 1.0− | 2003 12 25 | 941 | 0.6− | 0.3− | 2009 12 17 | 691 | 0.1− | 0.0 |
| 2003 12 16 | 185 | 1.1− | 0.8+ | 2003 12 25 | 941 | 0.6− | 0.3− | 2009 12 17 | 691 | 0.0 | 0.5+ |

**(229008)∗ 2003 XT$_{11}$**

Discovered 2003 Dec. 12 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 20.58332 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17563704 | $\omega$ | 229.62842 | | −0.04402519 | | −0.97775672 |
| $a$ | 3.1578535 | $\Omega$ | 224.24223 | | +0.98234424 | | −0.00500813 |
| $e$ | 0.2370257 | $i$ | 17.09310 | | +0.18182841 | | −0.20968240 |
| $P$ | 5.61 | $H$ | 14.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 14 | 644 | 0.3+ | 0.6+ | 2003 12 15 | 644 | 0.1− | 0.4− | 2008 10 09 | G96 | 0.4− | 0.3+ |
| 2002 08 14 | 644 | 0.2+ | 0.7+ | 2003 12 15 | 644 | 0.1− | 0.2− | 2008 10 09 | G96 | 0.6− | 0.3+ |
| 2002 08 14 | 644 | 0.1− | 1.2+ | 2003 12 15 | 644 | 0.1− | 0.4− | 2008 10 25 | 703 | 1.3− | 0.1+ |
| 2002 09 03 | 644 | 0.0 | 0.4+ | 2004 02 18 | 644 | 0.5− | 0.3− | 2008 10 25 | 703 | 1.4− | 0.0 |
| 2002 09 03 | 644 | 0.1+ | 0.2+ | 2004 02 18 | 644 | 0.5− | 0.3− | 2008 10 25 | 703 | 0.3+ | 0.5− |
| 2002 09 03 | 644 | 0.4+ | 0.3+ | 2004 02 18 | 644 | 0.5− | 0.0 | 2008 10 25 | 703 | 0.3+ | 0.3+ |
| 2002 09 10 | 644 | 0.3− | 0.2+ | 2008 09 22 | 703 | 0.8− | 0.6− | 2008 12 03 | G96 | 0.1+ | 0.5− |
| 2002 09 10 | 644 | 0.4− | 0.2+ | 2008 09 22 | 703 | 0.0 | 0.5+ | 2008 12 03 | G96 | 0.2+ | 0.2− |
| 2002 09 10 | 644 | 0.4− | 0.1+ | 2008 09 22 | 703 | 0.6+ | 0.1− | 2008 12 03 | G96 | 0.2+ | 0.3− |
| 2002 09 11 | 644 | 0.6− | 0.4+ | 2008 09 22 | 703 | 0.3+ | 0.0 | 2009 11 22 | 703 | 1.1− | 0.1+ |
| 2002 09 11 | 644 | 0.0 | 0.4+ | 2008 09 28 | 703 | 0.9− | 1.0− | 2009 11 22 | 703 | 0.8− | 0.4+ |
| 2002 09 11 | 644 | 0.2+ | 0.4+ | 2008 09 28 | 703 | 0.3+ | 0.7+ | 2009 11 22 | 703 | 0.1+ | 0.3− |
| 2003 11 01 | 704 | 0.5+ | 0.8− | 2008 09 28 | 703 | 0.5+ | 0.8− | 2009 11 22 | 703 | 0.7− | 0.1+ |
| 2003 11 01 | 704 | 0.6+ | 0.8+ | 2008 09 28 | 703 | 0.3− | 0.6+ | 2009 12 16 | 703 | 1.4+ | 2.2+ |
| 2003 11 01 | 704 | 0.2+ | 0.5− | 2008 10 02 | 704 | 0.3+ | 0.3− | 2009 12 16 | 703 | 1.5+ | 2.1+ |
| 2003 11 30 | 704 | 0.4− | 1.2− | 2008 10 02 | 704 | 0.8+ | 0.9+ | 2009 12 16 | 703 | 0.5− | 0.2− |
| 2003 11 30 | 704 | 0.3− | 0.8− | 2008 10 02 | 704 | 0.5+ | 0.4+ | 2009 12 16 | 703 | 1.4− | 0.2− |
| 2003 11 30 | 704 | 0.2+ | 0.7− | 2008 10 02 | 704 | 0.7+ | 0.8+ | 2009 12 19 | 704 | 1.5+ | 1.3+ |
| 2003 12 12 | 644 | 0.8− | 0.1− | 2008 10 02 | 704 | 1.2+ | 0.4− | 2009 12 19 | 704 | 0.6+ | 1.3+ |
| 2003 12 12 | 644 | 0.5+ | 0.1+ | 2008 10 09 | G96 | 0.9− | 0.2+ | 2009 12 19 | 704 | 1.7+ | 2.0+ |
| 2003 12 12 | 644 | 0.1− | 0.2− | 2008 10 09 | G96 | 0.6− | 0.1+ | | | | |

**(229009)∗ 2003 XJ$_{22}$**

Discovered 2003 Dec. 4 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 28.38517 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17571825 | $\omega$ | 65.38673 | | +0.53257751 | | −0.84473226 |
| $a$ | 3.1568805 | $\Omega$ | 351.80696 | | +0.57837036 | | +0.40877706 |
| $e$ | 0.2043212 | $i$ | 21.74981 | | +0.61793926 | | +0.34543989 |
| $P$ | 5.61 | $H$ | 14.4 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 16 | 704 | 0.2− | 0.1− | 2005 02 18 | 941 | 0.3− | 0.6+ | 2008 08 23 | 704 | 0.4+ | 0.6+ |
| 2003 10 16 | 704 | 0.2+ | 0.4+ | 2005 02 18 | 941 | 0.2− | 0.4+ | 2008 08 23 | 704 | 0.1+ | 1.1+ |
| 2003 10 16 | 704 | 0.1+ | 0.2+ | 2005 02 18 | 941 | 0.3− | 0.2+ | 2008 08 23 | 704 | 0.8− | 0.5+ |
| 2003 10 16 | 704 | 0.5− | 0.2+ | 2005 02 18 | 941 | 0.1− | 0.2+ | 2008 08 23 | 704 | 0.1− | 1.0+ |
| 2003 10 16 | 704 | 0.6− | 0.4+ | 2005 03 04 | 704 | 0.1+ | 0.1− | 2008 09 23 | 704 | 0.2+ | 0.4+ |
| 2003 11 04 | 704 | 0.2+ | 0.0 | 2005 03 04 | 704 | 0.5− | 0.2− | 2008 09 23 | 704 | 0.7− | 0.6+ |
| 2003 11 04 | 704 | 0.1+ | 0.6− | 2005 03 04 | 704 | 0.9+ | 0.1− | 2008 09 23 | 704 | 0.5− | 0.1+ |
| 2003 11 04 | 704 | 0.1+ | 0.5+ | 2005 03 04 | 704 | 0.3+ | 0.2− | 2008 09 23 | 704 | 0.0 | 0.1+ |
| 2003 11 04 | 704 | 0.7− | 0.8+ | 2005 03 04 | 704 | 0.7+ | 0.7− | 2008 09 23 | 704 | 1.0− | 0.8+ |
| 2003 11 04 | 704 | 0.6− | 0.5− | 2005 03 09 | 699 | (1.5+ | 0.5+) | 2008 11 04 | G96 | 0.2− | 0.1− |
| 2003 12 04 | 704 | 0.1+ | 0.4+ | 2005 03 09 | 699 | 0.2+ | 0.1+ | 2008 11 04 | G96 | 0.5− | 0.1− |
| 2003 12 04 | 704 | 0.3− | 0.3− | 2005 03 09 | 699 | (2.2+ | 1.1+) | 2008 11 04 | G96 | 0.1− | 0.4− |
| 2003 12 04 | 704 | 0.1− | 0.6− | 2005 03 09 | 699 | 0.3+ | 0.2+ | 2008 11 04 | G96 | 0.1+ | 0.0 |
| 2003 12 04 | 704 | 0.2− | 0.3− | 2005 03 09 | 704 | 0.0 | 1.4+ | 2008 11 21 | G96 | 0.2− | 0.2− |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 12 04 | 704 | 0.1+ | 0.3+ | 2005 03 09 | 704 | 0.3+ | 1.0+ | 2008 11 21 | G96 | 0.1− | 0.3− |
| 2003 12 15 | 704 | 0.1− | 0.1+ | 2005 03 09 | 704 | 0.1− | 0.9+ | 2008 11 21 | G96 | 0.5− | 0.3− |
| 2003 12 15 | 704 | 0.8− | 0.2− | 2005 03 09 | 704 | 0.3+ | 0.6+ | 2008 11 21 | G96 | 0.1+ | 0.6+ |
| 2003 12 15 | 704 | 0.3+ | 0.1+ | 2005 03 12 | 704 | 1.2+ | 1.0− | 2008 12 01 | G96 | 0.0 | 0.5− |
| 2003 12 15 | 704 | 0.5− | 0.2+ | 2005 03 12 | 704 | 0.1+ | 0.4− | 2008 12 01 | G96 | 0.1+ | 0.2+ |
| 2003 12 15 | 704 | 0.1+ | 0.1+ | 2005 03 12 | 704 | (1.6+ | 0.4+) | 2008 12 01 | G96 | 0.1+ | 0.3− |
| 2004 01 19 | 704 | 0.1− | 0.2− | 2005 03 12 | 704 | 0.2− | 0.1+ | 2008 12 01 | G96 | 0.3+ | 0.6− |
| 2004 01 19 | 704 | 0.1+ | 0.4+ | 2005 03 12 | 704 | 1.1− | 0.6+ | 2009 09 27 | 703 | 0.1+ | 1.1+ |
| 2004 01 19 | 704 | 0.7+ | 0.7− | 2005 03 16 | 704 | 0.3+ | 0.1− | 2009 09 27 | 703 | 0.6− | 0.0 |
| 2004 01 19 | 704 | 1.3+ | 0.0 | 2005 03 16 | 704 | 0.3− | 0.3− | 2009 09 27 | 703 | 0.2+ | 0.0 |
| 2004 01 19 | 704 | 0.2+ | 0.3− | 2005 03 16 | 704 | 0.6+ | 0.6+ | 2009 09 27 | 703 | 0.5− | 0.6+ |
| 2004 02 11 | 704 | 0.5− | 0.7− | 2005 03 16 | 704 | 0.0 | 0.4+ | 2009 10 29 | 703 | 0.5+ | 0.6− |
| 2004 02 11 | 704 | 0.5+ | 0.6− | 2005 04 02 | 691 | 0.2+ | 0.1+ | 2009 10 29 | 703 | 0.7+ | 0.8+ |
| 2004 02 11 | 704 | 0.6+ | 0.4+ | 2005 04 02 | 691 | 0.4+ | 0.3+ | 2009 10 29 | 703 | 0.2− | 0.2+ |
| 2004 02 11 | 704 | 0.4+ | 0.3+ | 2005 04 02 | 691 | 0.3+ | 0.1− | 2009 10 29 | 703 | 0.3− | 1.0− |
| 2004 02 11 | 704 | 1.3+ | 0.4+ | 2005 05 10 | G96 | 0.0 | 0.2− | 2009 12 19 | 703 | 0.3− | 0.0 |
| 2005 01 16 | 703 | 0.4− | 0.3+ | 2005 05 10 | G96 | 0.1− | 0.3− | 2009 12 19 | 703 | 0.6+ | 0.4+ |
| 2005 01 16 | 703 | 0.4− | 1.2+ | 2005 05 10 | G96 | 0.2− | 0.4− | 2009 12 19 | 703 | 0.0 | 0.3− |
| 2005 01 16 | 703 | 0.5− | 0.8− | 2005 05 10 | G96 | 0.2− | 0.2− | 2009 12 19 | 703 | 0.2− | 0.3− |
| 2005 01 16 | 703 | 0.4+ | 0.3+ | 2008 08 23 | 704 | 0.4− | 0.2+ | | | | |

**(229010)∗ 2003 XJ$_{26}$ = 2005 GW$_{63}$**

Discovered 2003 Dec. 1 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. A. Doppler (*MPO* 86182)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 327.32894 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17599606 | $\omega$ | 46.50085 | | −0.85401794 | −0.49219977 | |
| $a$ | 3.1535575 | $\Omega$ | 103.34558 | | +0.41322114 | −0.83854520 | |
| $e$ | 0.1091488 | $i$ | 9.97265 | | +0.31607221 | −0.23362648 | |
| $P$ | 5.60 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 11 18 | 691 | 0.3+ | 0.2− | 2005 04 02 | 703 | 0.9− | 0.6− | 2009 11 10 | G96 | 0.0 | 0.3− |
| 2003 11 18 | 691 | 0.4+ | 0.3− | 2005 04 02 | 703 | 0.3− | 0.6+ | 2009 11 10 | G96 | 0.7+ | 0.1+ |
| 2003 11 18 | 691 | 0.2+ | 0.0 | 2005 04 09 | 703 | 0.3− | 0.3+ | 2009 11 10 | G96 | 0.5+ | 0.0 |
| 2003 12 01 | 704 | 0.7− | 0.7− | 2005 04 09 | 703 | 0.8− | 1.4− | 2009 12 15 | G96 | 1.1+ | 0.2− |
| 2003 12 01 | 704 | 0.3− | 0.2− | 2005 04 09 | 703 | 0.2− | 0.8− | 2009 12 15 | G96 | 0.1+ | 0.7− |
| 2003 12 01 | 704 | 1.0− | 1.5− | 2005 04 09 | 703 | 0.5+ | 0.9+ | 2009 12 15 | G96 | 0.1+ | 0.1− |
| 2003 12 17 | 691 | 0.1− | 0.1− | 2008 10 07 | G96 | 0.1− | 0.2+ | 2009 12 15 | G96 | 0.4− | 0.2− |
| 2003 12 17 | 691 | 0.1− | 0.2+ | 2008 10 07 | G96 | 0.2− | 0.3+ | 2009 12 15 | G96 | 0.2+ | 0.1− |
| 2003 12 17 | 691 | 0.1+ | 0.4+ | 2008 10 07 | G96 | 0.9− | 0.1+ | 2009 12 17 | 691 | 0.1+ | 0.1− |
| 2005 03 16 | 703 | 1.1+ | 0.4+ | 2008 10 07 | G96 | 0.1+ | 0.2− | 2009 12 17 | 691 | 0.2− | 0.2+ |
| 2005 03 16 | 703 | 0.5+ | 1.3+ | 2008 10 21 | G96 | 0.3+ | 0.3+ | 2009 12 17 | 691 | 0.0 | 0.1+ |
| 2005 03 16 | 703 | 0.4+ | 1.3+ | 2008 10 21 | G96 | 0.2+ | 0.2+ | 2009 12 25 | 691 | 0.0 | 0.1+ |
| 2005 03 16 | 703 | 0.8+ | 0.7− | 2008 10 21 | G96 | 0.1− | 0.1+ | 2009 12 25 | 691 | 0.2+ | 0.1+ |
| 2005 04 02 | 703 | 0.7− | 1.3− | 2008 10 21 | G96 | 0.3+ | 0.2+ | 2009 12 25 | 691 | 0.5− | 0.3+ |
| 2005 04 02 | 703 | 0.2− | 0.6− | 2009 11 10 | G96 | 0.5− | 1.0+ | | | | |

**(229011)∗ 2003 YF**

Discovered 2003 Dec. 16 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 120.00478 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.35325331 | $\omega$ | 232.03488 | | +0.94161606 | −0.02438169 | |
| $a$ | 1.9818855 | $\Omega$ | 126.76162 | | +0.07231419 | +0.98874360 | |
| $e$ | 0.0937158 | $i$ | 24.78172 | | −0.32883105 | +0.14761989 | |
| $P$ | 2.79 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 02 10 | 691 | 0.3− | 0.2− | 2003 12 21 | 704 | 0.8+ | 0.3− | 2005 06 03 | 699 | 0.1+ | 1.2+ |
| 1996 02 10 | 691 | 0.2+ | 0.5− | 2003 12 21 | 704 | 0.2+ | 0.2+ | 2005 06 03 | 699 | 0.1− | 1.2− |
| 1996 02 10 | 691 | 0.1+ | 0.1− | 2003 12 21 | 704 | 0.5+ | 0.1− | 2005 06 03 | 699 | 0.2− | 0.3− |
| 2002 02 21 | 704 | 0.8+ | 0.2+ | 2004 02 14 | 699 | 0.8− | 0.9+ | 2005 06 03 | 699 | 0.1+ | 0.2+ |
| 2002 02 21 | 704 | 0.3+ | 0.4+ | 2004 02 14 | 699 | 0.7+ | 0.2+ | 2005 06 07 | 704 | 0.5+ | 1.1+ |
| 2002 02 21 | 704 | 1.0+ | 0.2+ | 2004 02 14 | 699 | 1.1− | 0.0 | 2005 06 07 | 704 | 0.7+ | 0.1− |
| 2002 04 04 | 704 | 0.1+ | 0.3+ | 2004 02 14 | 699 | 0.1+ | 0.4+ | 2005 06 07 | 704 | (1.9+ | 0.3−) |
| 2002 04 04 | 704 | 1.3+ | 1.1+ | 2005 04 15 | 703 | 0.7− | 0.3− | 2005 06 07 | 704 | 0.7+ | 0.5+ |
| 2002 04 04 | 704 | 0.3+ | 0.3− | 2005 04 15 | 703 | 0.1− | 0.7− | 2005 07 28 | 704 | (1.5− | 0.3+) |
| 2003 12 16 | 704 | 0.4− | 0.9+ | 2005 04 15 | 703 | 1.1− | 0.2+ | 2005 07 28 | 704 | 0.5+ | 0.6+ |
| 2003 12 16 | 704 | 0.1− | 0.3+ | 2005 04 15 | 703 | 0.8− | 0.5− | 2005 07 28 | 704 | 0.4+ | 0.6+ |
| 2003 12 16 | 704 | 0.5− | 1.1− | 2005 05 10 | 704 | 0.0 | 0.5− | 2005 07 28 | 704 | 0.3+ | 0.9− |
| 2003 12 16 | 704 | 0.0 | 1.4+ | 2005 05 10 | 704 | 0.2− | 0.3+ | 2009 11 27 | 703 | (2.8− | 0.1−) |
| 2003 12 16 | 704 | (0.7− | 1.8−) | 2005 05 10 | 704 | 0.5− | 0.0 | 2009 11 27 | 703 | (2.4− | 0.7+) |
| 2003 12 17 | 704 | 0.1− | 0.2+ | 2005 05 10 | 704 | 0.3− | 0.1+ | 2009 11 27 | 703 | 0.3− | 0.8− |
| 2003 12 17 | 704 | 0.1− | 0.1+ | 2005 05 10 | 704 | 0.2+ | 0.8− | 2009 11 27 | 703 | (2.2− | 0.7−) |
| 2003 12 17 | 704 | 0.1− | 0.4+ | 2005 05 11 | 704 | 0.2+ | 0.2+ | 2009 12 17 | 704 | 0.8+ | 0.2+ |
| 2003 12 17 | 704 | 0.3− | 0.4+ | 2005 05 11 | 704 | 0.2− | 0.4+ | 2009 12 17 | 704 | 0.2+ | 0.7+ |
| 2003 12 17 | 704 | 0.4− | 0.7+ | 2005 05 11 | 704 | 0.3− | 1.4+ | 2009 12 17 | 704 | 0.6− | 0.6+ |
| 2003 12 21 | 704 | 0.2− | 0.1− | 2005 05 11 | 704 | 0.7− | 0.5+ | 2009 12 17 | 704 | 0.1− | 0.7+ |
| 2003 12 21 | 704 | 0.2+ | 0.5− | 2005 05 11 | 704 | 0.0 | 0.3+ | | | | |

**(229012)∗ 2003 YD$_{14}$**

Discovered 2003 Dec. 17 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 24.53077 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17416980 | $\omega$ | 32.69431 | | −0.12313308 | −0.96079608 | |
| $a$ | 3.1755636 | $\Omega$ | 65.45826 | | +0.84171050 | −0.23371385 | |
| $e$ | 0.2508427 | $i$ | 15.84786 | | +0.52570113 | +0.14916007 | |
| $P$ | 5.66 | $H$ | 14.9 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 11 23 | 691 | 0.3+ | 0.2− | 2003 12 19 | 704 | 0.1− | 0.3− | 2008 10 24 | 704 | 0.0 | 0.0 |
| 1997 11 23 | 691 | 0.1− | 0.1+ | 2003 12 19 | 704 | 0.3− | 0.7− | 2008 10 24 | 704 | 0.4− | 1.1+ |
| 1997 11 23 | 691 | 0.4+ | 0.5− | 2003 12 28 | 704 | 0.4+ | 0.2− | 2008 10 26 | 703 | 0.6− | 0.2+ |
| 1997 12 04 | 704 | 1.1− | 0.1− | 2003 12 28 | 704 | 0.4+ | 0.0 | 2008 10 26 | 703 | 0.8− | 0.9− |
| 1997 12 04 | 704 | 0.8− | 0.0 | 2003 12 28 | 704 | 1.0+ | 0.7− | 2008 10 26 | 703 | 0.4− | 0.3− |
| 1997 12 04 | 704 | 2.0− | 0.7− | 2003 12 28 | 704 | 1.2+ | 0.4− | 2008 10 26 | 703 | 0.1+ | 0.2+ |
| 1997 12 04 | 704 | (6.3− | 0.3+) | 2003 12 28 | 704 | 0.2+ | 0.2+ | 2008 11 20 | 703 | 1.3+ | 1.4− |
| 2003 11 19 | 704 | 0.7− | 0.0 | 2003 12 30 | 704 | 1.2+ | 0.8+ | 2008 11 20 | 703 | 0.2+ | 0.3− |
| 2003 11 19 | 704 | 1.4− | 1.1+ | 2003 12 30 | 704 | 0.9+ | 0.3− | 2008 11 20 | 703 | 0.7− | 0.7− |
| 2003 11 19 | 704 | 0.8− | 0.3+ | 2003 12 30 | 704 | 0.5+ | 0.1+ | 2008 11 20 | 703 | 0.4+ | 0.6− |
| 2003 11 19 | 704 | (1.7− | 0.6+) | 2003 12 30 | 704 | 0.8+ | 0.0 | 2008 12 01 | 703 | 0.2+ | 0.7+ |
| 2003 11 19 | 704 | 0.8− | 1.0+ | 2004 01 11 | 644 | 0.2− | 0.1+ | 2008 12 01 | 703 | (1.6− | 0.6+) |
| 2003 12 03 | 704 | 0.8+ | 0.1− | 2004 01 11 | 644 | 0.1+ | 0.3+ | 2008 12 01 | 703 | 0.2− | 0.2− |
| 2003 12 03 | 704 | 0.0 | 1.3+ | 2004 01 11 | 644 | 0.2− | 0.1+ | 2008 12 01 | 703 | 0.5− | 0.8+ |
| 2003 12 03 | 704 | 0.8+ | 0.1+ | 2004 01 16 | 644 | 0.2− | 0.1+ | 2009 10 27 | 291 | 0.8− | 0.7+ |
| 2003 12 03 | 704 | 0.5+ | 0.0 | 2004 01 16 | 644 | 0.2− | 0.1− | 2009 10 27 | 291 | 0.5− | 0.4+ |
| 2003 12 17 | 704 | 0.7− | 0.2− | 2004 01 16 | 644 | 0.2− | 0.1− | 2009 10 27 | 291 | 0.6− | 0.2+ |
| 2003 12 17 | 704 | 0.7− | 0.4+ | 2008 10 04 | 703 | 0.3+ | 1.0+ | 2009 11 19 | 703 | (1.7+ | 1.7+) |
| 2003 12 17 | 704 | 0.6+ | 0.5+ | 2008 10 04 | 703 | 0.1− | 0.4+ | 2009 11 19 | 703 | (0.6+ | 1.6+) |
| 2003 12 17 | 704 | 0.4+ | 0.1+ | 2008 10 04 | 703 | 1.4+ | 0.4+ | 2009 11 19 | 703 | 0.2+ | 1.1+ |
| 2003 12 17 | 704 | 0.4− | 0.5− | 2008 10 04 | 703 | 0.5+ | 0.8+ | 2009 11 19 | 703 | (2.4+ | 2.1+) |
| 2003 12 18 | 704 | 0.2+ | 0.4− | 2008 10 22 | 704 | 1.0− | 1.0− | 2009 12 19 | 703 | 0.2+ | 0.8− |
| 2003 12 18 | 704 | 0.2+ | 0.0 | 2008 10 22 | 704 | 0.4+ | 1.5− | 2009 12 19 | 703 | 0.8+ | 0.8− |
| 2003 12 18 | 704 | 0.8+ | 0.2− | 2008 10 22 | 704 | 0.5+ | 1.1+ | 2009 12 19 | 703 | 0.8+ | 1.0− |
| 2003 12 19 | 704 | 0.4+ | 0.5− | 2008 10 22 | 704 | 0.1+ | 1.3+ | 2009 12 19 | 703 | (2.7− | 0.2−) |
| 2003 12 19 | 704 | 0.1− | 0.2− | 2008 10 24 | 704 | 0.3− | 0.0 | | | | |
| 2003 12 19 | 704 | 0.2− | 0.2− | 2008 10 24 | 704 | 0.4− | 0.3+ | | | | |

**(229013)∗ 2003 YR$_{23}$**

Discovered 2003 Dec. 17 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 74.87911 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17699090 | $\omega$ | 89.73905 | | +0.92813235 | −0.20640679 | |
| $a$ | 3.1417292 | $\Omega$ | 282.15938 | | +0.05315221 | +0.89715016 | |
| $e$ | 0.2166225 | $i$ | 18.47520 | | +0.36843613 | +0.39053530 | |
| $P$ | 5.57 | $H$ | 15.0 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 06 06 | 291 | 0.2− | 0.1+ | 2003 12 20 | 704 | 0.0 | 0.7+ | 2008 08 30 | A74 | 0.1− | 0.2− | 2003 12 19 | 704 | 0.0 | 0.4− | 2008 11 04 | 704 | 1.0+ | 0.5− | 2009 12 10 | 704 | 0.2− | 0.6+ |
| 2002 06 06 | 291 | 0.2− | 0.2+ | 2003 12 20 | 704 | 0.8+ | 0.4+ | 2008 08 30 | A74 | 0.2− | 0.3− | 2003 12 19 | 704 | 0.1− | 0.6+ | 2008 11 04 | 704 | (0.6+ | 2.1−) | 2009 12 10 | 704 | 0.2− | 0.6+ |
| 2002 06 06 | 291 | 0.3− | 0.1+ | 2003 12 21 | 704 | 0.7− | 0.6+ | 2008 08 30 | A17 | 0.2+ | 0.7− | 2003 12 19 | 704 | 0.5+ | 0.4− | 2008 11 04 | 704 | 0.0 | 0.6− | 2009 12 10 | 704 | 0.2+ | 0.8+ |
| 2002 07 03 | 644 | 0.3− | 0.2+ | 2003 12 21 | 704 | 0.9+ | 0.6+ | 2008 08 30 | A17 | 0.1+ | 0.7− | 2003 12 19 | 704 | 0.4− | 0.4+ | 2008 11 04 | 704 | 0.8+ | 0.2− | 2009 12 10 | 704 | 0.4− | 1.4+ |
| 2002 07 03 | 644 | 0.3− | 0.1− | 2003 12 21 | 704 | 0.5− | 0.5− | 2008 08 30 | A17 | 0.7+ | 0.5− | 2003 12 20 | 704 | 0.5− | 0.2+ | 2009 11 10 | 691 | 0.0 | 0.3− | 2009 12 10 | 704 | 0.2+ | 0.3+ |
| 2002 07 03 | 644 | 0.4− | 0.0 | 2003 12 21 | 704 | 0.3− | 0.7+ | 2008 09 23 | 703 | 0.1− | 0.9− | 2003 12 20 | 704 | 1.3+ | 0.3+ | 2009 11 10 | 691 | 0.0 | 0.3− | 2009 12 11 | G96 | 1.4+ | 0.7+ |
| 2002 07 21 | 644 | 0.4+ | 0.1+ | 2003 12 21 | 704 | 0.7− | 0.3+ | 2008 09 23 | 703 | 0.1− | 0.1− | 2003 12 20 | 704 | 0.4− | 0.6− | 2009 11 10 | 691 | 0.2− | 0.3− | 2009 12 11 | G96 | 0.4+ | 0.2− |
| 2002 07 21 | 644 | 0.5− | 0.6+ | 2003 12 21 | 704 | 0.2− | 0.2+ | 2008 09 23 | 703 | 0.5+ | 0.4− | 2003 12 20 | 704 | 0.5− | 0.6− | 2009 11 11 | 704 | 0.7+ | 0.2+ | 2009 12 11 | G96 | 0.1− | 0.3− |
| 2002 07 21 | 644 | 0.1− | 0.4+ | 2003 12 21 | 704 | 0.6+ | 0.3− | 2008 09 23 | 703 | 0.1− | 0.0 | 2003 12 20 | 704 | 0.4− | 0.7+ | 2009 11 11 | 704 | 0.4+ | 0.8+ | 2009 12 11 | G96 | 0.4+ | 0.3− |
| 2002 08 05 | 644 | 0.2− | 0.2+ | 2003 12 21 | 704 | 0.6+ | 1.0+ | 2008 10 03 | 704 | 0.6+ | 0.4+ | 2003 12 21 | 704 | 0.0 | 0.3+ | 2009 11 11 | 704 | 1.0+ | 0.1+ | 2009 12 16 | 704 | 0.2− | 1.5− |
| 2002 08 05 | 644 | 0.2− | 0.2+ | 2003 12 22 | 704 | 0.5+ | 0.2+ | 2008 10 03 | 704 | 0.4− | 0.4+ | 2003 12 21 | 704 | 0.0 | 0.6+ | 2009 11 17 | 704 | (0.3+ | 1.7+) | 2009 12 16 | 704 | 0.3+ | 1.0− |
| 2002 08 05 | 644 | 1.3+ | 1.0+ | 2003 12 22 | 704 | 0.4+ | 0.0 | 2008 10 03 | 704 | 1.1− | 0.3+ | 2003 12 21 | 704 | 0.1− | 0.2+ | 2009 11 17 | 704 | 1.5+ | 1.0+ | 2009 12 16 | 704 | 0.0 | 0.6− |
| 2003 12 03 | 704 | 0.4+ | 0.1+ | 2003 12 22 | 704 | 0.3+ | 0.1+ | 2008 10 03 | 704 | 0.1− | 0.3+ | 2003 12 21 | 704 | 0.4− | 0.3+ | 2009 11 17 | 704 | 1.2+ | 0.1− | 2009 12 16 | 704 | 0.1− | 0.4− |
| 2003 12 03 | 704 | 0.1+ | 0.2− | 2003 12 22 | 704 | 0.8+ | 0.3+ | 2008 10 03 | 704 | 0.4− | 0.1− | 2003 12 21 | 704 | 0.8+ | 0.9+ | 2009 11 17 | 704 | 1.1+ | 0.8+ | 2009 12 19 | G96 | 0.1+ | 0.4− |
| 2003 12 03 | 704 | 0.1+ | 0.0 | 2003 12 22 | 704 | 0.2− | 0.4+ | 2008 10 06 | 703 | 0.2+ | 0.1+ | 2003 12 29 | 704 | 0.7+ | 1.0+ | 2009 11 17 | G96 | 0.3+ | 0.5− | 2009 12 19 | G96 | 0.0 | 0.5− |
| 2003 12 03 | 704 | 0.3+ | 0.7− | 2003 12 29 | 704 | 1.0− | 0.1+ | 2008 10 06 | 703 | 0.0 | 0.0 | 2003 12 29 | 704 | 1.2+ | 0.2+ | 2009 11 17 | G96 | 0.2+ | 0.5− | 2009 12 19 | G96 | 0.3+ | 0.0 |
| 2003 12 03 | 704 | 0.1+ | 0.4− | 2003 12 29 | 704 | 0.2+ | 0.3− | 2008 10 06 | 703 | 0.0 | 0.1− | 2003 12 29 | 704 | 0.3− | 0.3+ | 2009 11 17 | G96 | 0.0 | 0.4− | 2009 12 19 | G96 | 0.2+ | 0.5− |
| 2003 12 17 | 704 | 0.7− | 0.4+ | 2003 12 29 | 704 | 0.3− | 0.2+ | 2008 10 06 | 703 | 0.4+ | 0.2− | | | | | | | | | | | | |
| 2003 12 17 | 704 | 0.2− | 0.4+ | 2003 12 29 | 704 | 0.4− | 0.3+ | 2009 11 11 | G96 | 0.3+ | 0.3− | | | | | | | | | | | | |
| 2003 12 17 | 704 | 0.2+ | 0.3+ | 2003 12 29 | 704 | 0.1+ | 0.4− | 2009 11 11 | G96 | 0.1− | 0.9− | | | | | | | | | | | | |
| 2003 12 17 | 704 | 0.0 | 0.3− | 2003 12 30 | 704 | 0.3+ | 0.2− | 2009 11 11 | G96 | 0.4− | 0.2− | | | | | | | | | | | | |
| 2003 12 18 | 704 | (1.2+ | 2.3−) | 2003 12 30 | 704 | 0.4+ | 0.6− | 2009 11 11 | G96 | 0.3− | 0.3+ | | | | | | | | | | | | |
| 2003 12 18 | 704 | 0.2− | 0.1− | 2003 12 30 | 704 | (1.7+ | 1.4−) | 2009 11 25 | G96 | 0.1+ | 0.1+ | | | | | | | | | | | | |
| 2003 12 18 | 704 | 1.4− | 0.2− | 2003 12 30 | 704 | 1.1+ | 0.4− | 2009 11 25 | G96 | 0.4+ | 0.1− | | | | | | | | | | | | |
| 2003 12 18 | 704 | 0.1+ | 0.5+ | 2008 08 27 | J75 | 1.0+ | 1.0+ | 2009 11 25 | G96 | 0.2+ | 0.1− | | | | | | | | | | | | |
| 2003 12 18 | 704 | (1.8+ | 0.5+) | 2008 08 27 | J75 | 1.0− | 1.0+ | 2009 11 25 | G96 | 0.1+ | 0.1+ | | | | | | | | | | | | |
| 2003 12 19 | 704 | 0.6+ | 0.5− | 2008 08 27 | J75 | 0.1+ | 0.4+ | 2009 12 17 | 691 | 0.1− | 0.1− | | | | | | | | | | | | |
| 2003 12 19 | 704 | (0.7− | 1.7+) | 2008 08 28 | 620 | 0.0 | 0.7− | 2009 12 17 | 691 | 0.1− | 0.1+ | | | | | | | | | | | | |
| 2003 12 19 | 704 | 0.1+ | 0.8+ | 2008 08 28 | 620 | 0.6+ | 0.6− | 2009 12 17 | 691 | 0.0 | 0.1+ | | | | | | | | | | | | |
| 2003 12 19 | 704 | 0.0 | 0.0 | 2008 08 28 | 620 | 1.0+ | 0.6− | 2009 12 18 | G96 | 0.1+ | 0.3− | | | | | | | | | | | | |
| 2003 12 19 | 704 | 0.3+ | 0.4− | 2008 08 30 | A74 | 0.0 | 0.3− | 2009 12 18 | G96 | 0.2− | 0.2+ | | | | | | | | | | | | |
| 2003 12 20 | 704 | 1.3− | 0.9+ | 2008 08 30 | A74 | 0.1+ | 0.2− | 2009 12 18 | G96 | 0.3+ | 0.1+ | | | | | | | | | | | | |
| 2003 12 20 | 704 | 0.6− | 0.1+ | 2008 08 30 | A74 | 0.3− | 0.2− | 2009 12 18 | G96 | 0.0 | 0.3+ | | | | | | | | | | | | |

**(229014)∗ 2003 YN$_{27}$**

Discovered 2003 Dec. 17 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 338.48351 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17279362 | $\omega$ | 206.41058 | | −0.31695571 | −0.84986488 | |
| $a$ | 3.1924020 | $\Omega$ | 264.59786 | | +0.92771623 | −0.18551431 | |
| $e$ | 0.0955574 | $i$ | 25.01853 | | +0.19718436 | −0.49326881 | |
| $P$ | 5.70 | $H$ | 14.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 11 20 | 704 | (1.8− | 0.2+) | 2004 01 11 | 644 | 0.2− | 0.4+ | 2009 11 17 | G96 | 0.2+ | 0.5− | 2003 12 19 | 704 | 0.0 | 0.4− | 2008 11 04 | 704 | 1.0+ | 0.5− | 2009 12 10 | 704 | 0.2− | 0.6+ |
| 2003 11 20 | 704 | 0.1− | 0.9+ | 2004 01 11 | 644 | 0.2− | 0.4+ | 2009 11 18 | 691 | 0.4− | 0.2− | 2003 12 19 | 704 | 0.1− | 0.6+ | 2008 11 04 | 704 | (0.6+ | 2.1−) | 2009 12 10 | 704 | 0.2− | 0.6+ |
| 2003 11 20 | 704 | 0.1+ | 0.7+ | 2004 01 11 | 644 | 0.1− | 0.2+ | 2009 11 18 | 691 | 0.2− | 0.2− | 2003 12 19 | 704 | 0.5+ | 0.4− | 2008 11 04 | 704 | 0.0 | 0.6− | 2009 12 10 | 704 | 0.2+ | 0.8+ |
| 2003 11 20 | 704 | 0.2+ | 0.6+ | 2005 01 18 | 291 | 0.1− | 0.1+ | 2009 11 18 | 691 | 0.8− | 0.3+ | 2003 12 19 | 704 | 0.4− | 0.4+ | 2008 11 04 | 704 | 0.8+ | 0.2− | 2009 12 10 | 704 | 0.4− | 1.4+ |
| 2003 11 20 | 704 | 0.5− | 1.2+ | 2005 01 18 | 291 | 0.2− | 0.2+ | 2009 11 19 | 691 | 0.0 | 0.2− | 2003 12 20 | 704 | 0.5− | 0.2+ | 2009 11 10 | 691 | 0.0 | 0.3− | 2009 12 10 | 704 | 0.2+ | 0.3+ |
| 2003 12 03 | 704 | 0.5+ | 0.7+ | 2005 01 18 | 291 | 0.1− | 0.0 | 2009 11 19 | 691 | 0.4− | 0.2− | 2003 12 20 | 704 | 1.3+ | 0.3+ | 2009 11 10 | 691 | 0.0 | 0.3− | 2009 12 11 | G96 | 1.4+ | 0.7+ |
| 2003 12 03 | 704 | 0.5+ | 0.0 | 2005 02 04 | 704 | 0.8+ | 0.3− | 2009 11 19 | 691 | 0.1− | 0.5− | 2003 12 20 | 704 | 0.4− | 0.6− | 2009 11 10 | 691 | 0.2− | 0.3− | 2009 12 11 | G96 | 0.4+ | 0.2− |
| 2003 12 03 | 704 | 0.4− | 0.4+ | 2005 02 04 | 704 | 0.5+ | 0.9+ | 2009 11 22 | 704 | (2.0− | 0.4+) | 2003 12 20 | 704 | 0.5− | 0.6− | 2009 11 11 | 704 | 0.7+ | 0.2+ | 2009 12 11 | G96 | 0.1− | 0.3− |
| 2003 12 03 | 704 | 0.4− | 0.0 | 2005 02 04 | 704 | 0.6+ | 0.6+ | 2009 11 22 | 704 | 0.6− | 0.3+ | 2003 12 20 | 704 | 0.4− | 0.7+ | 2009 11 11 | 704 | 0.4+ | 0.8+ | 2009 12 11 | G96 | 0.4+ | 0.3− |
| 2003 12 03 | 704 | 0.5− | 0.3− | 2005 02 04 | 704 | 1.4+ | 0.3+ | 2009 11 22 | 704 | 0.7− | 0.2+ | 2003 12 21 | 704 | 0.0 | 0.3+ | 2009 11 11 | 704 | 1.0+ | 0.1+ | 2009 12 16 | 704 | 0.2− | 1.5− |
| 2003 12 17 | 691 | 0.0 | 0.0 | 2008 10 31 | 703 | (1.9− | 0.6−) | 2009 11 22 | 704 | 0.2− | 0.2− | 2003 12 21 | 704 | 0.0 | 0.6+ | 2009 11 17 | 704 | (0.3+ | 1.7+) | 2009 12 16 | 704 | 0.3+ | 1.0− |
| 2003 12 17 | 691 | 0.1− | 0.0 | 2008 10 31 | 703 | 1.3− | 1.2+ | 2009 11 26 | 691 | 0.2− | 0.3− | 2003 12 21 | 704 | 0.1− | 0.2+ | 2009 11 17 | 704 | 1.5+ | 1.0+ | 2009 12 16 | 704 | 0.0 | 0.6− |
| 2003 12 17 | 691 | 0.0 | 0.1− | 2008 10 31 | 703 | 1.3− | 0.7+ | 2009 11 26 | 691 | 0.0 | 0.3− | 2003 12 21 | 704 | 0.4− | 0.3+ | 2009 11 17 | 704 | 1.2+ | 0.1− | 2009 12 16 | 704 | 0.1− | 0.4− |
| 2003 12 19 | 704 | 0.6+ | 0.7− | 2008 10 31 | 703 | 0.6+ | 0.5+ | 2009 11 26 | 691 | 0.4− | 0.7+ | 2003 12 21 | 704 | 0.8+ | 0.9+ | 2009 11 17 | 704 | 1.1+ | 0.8+ | 2009 12 19 | G96 | 0.1+ | 0.4− |
| | | | | | | | | | | | | 2003 12 29 | 704 | 0.7+ | 1.0+ | 2009 11 17 | G96 | 0.3+ | 0.5− | 2009 12 19 | G96 | 0.0 | 0.5− |
| | | | | | | | | | | | | 2003 12 29 | 704 | 1.2+ | 0.2+ | 2009 11 17 | G96 | 0.2+ | 0.5− | 2009 12 19 | G96 | 0.3+ | 0.0 |
| | | | | | | | | | | | | 2003 12 29 | 704 | 0.3− | 0.3+ | 2009 11 17 | G96 | 0.0 | 0.4− | 2009 12 19 | G96 | 0.2+ | 0.5− |

**(229015)∗ 2003 YV$_{45}$**

Discovered 2003 Dec. 17 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 43.15995 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17658646 | $\omega$ | 124.97358 | | +0.64076760 | −0.71887718 | |
| $a$ | 3.1465245 | $\Omega$ | 282.81317 | | +0.58295087 | +0.68400950 | |
| $e$ | 0.3101636 | $i$ | 16.04466 | | +0.49958499 | +0.12388138 | |
| $P$ | 5.58 | $H$ | 14.8 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 03 22 | 645 | 0.1+ | 0.1+ | 2003 12 29 | 704 | 0.6+ | 0.1− | 2008 08 02 | 704 | 0.4− | 0.3− | 2003 11 04 | 704 | 0.1+ | 0.4+ | 2004 01 22 | 704 | 0.3− | 0.4+ | 2008 08 10 | 106 | 0.4+ | 0.2+ |
| 1999 03 22 | 645 | 0.1+ | 0.1+ | 2003 12 29 | 704 | 0.9+ | 0.3− | 2008 08 02 | 704 | 0.1− | 0.7+ | 2003 11 04 | 704 | 0.7+ | 0.6+ | 2004 01 22 | 704 | 0.2− | 0.0 | 2008 08 10 | 106 | 0.4− | 0.2− |
| 2003 11 04 | 704 | (2.1+ | 0.4−) | 2004 01 22 | 704 | 0.7− | 0.1+ | 2008 08 02 | 704 | 1.1− | 0.2− | 2003 11 04 | 704 | 1.3+ | 0.7− | 2004 01 22 | 704 | 0.5− | 0.2+ | 2008 08 10 | 106 | 0.5+ | 0.2− |
| 2003 11 04 | 704 | 0.1+ | 0.4+ | 2004 01 22 | 704 | 0.3− | 0.4+ | 2008 08 10 | 106 | 0.4+ | 0.2+ | 2003 11 04 | 704 | 0.2+ | 1.0+ | 2004 01 22 | 704 | 0.6− | 0.3+ | 2008 08 10 | 106 | 0.4+ | 0.1+ |
| 2003 11 04 | 704 | 0.7+ | 0.6+ | 2004 01 22 | 704 | 0.2− | 0.0 | 2008 08 10 | 106 | 0.4− | 0.2− | 2003 12 17 | 704 | 0.1− | 0.2+ | 2004 02 15 | 704 | 1.2− | 0.5− | 2008 10 24 | 704 | (2.2− | 3.0+) |
| 2003 11 04 | 704 | 1.3+ | 0.7− | 2004 01 22 | 704 | 0.5− | 0.2+ | 2008 08 10 | 106 | 0.5+ | 0.2− | 2003 12 17 | 704 | 0.1− | 0.5+ | 2004 02 15 | 704 | 0.5+ | 0.1− | 2008 10 24 | 704 | 0.4− | 0.8+ |
| 2003 11 04 | 704 | 0.2+ | 1.0+ | 2004 01 22 | 704 | 0.6− | 0.3+ | 2008 08 10 | 106 | 0.4+ | 0.1+ | 2003 12 17 | 704 | 1.4− | 0.1+ | 2004 02 15 | 704 | 0.1+ | 0.7+ | 2008 10 24 | 704 | (0.3+ | 1.6+) |
| 2003 12 17 | 704 | 0.1− | 0.2+ | 2004 02 15 | 704 | 1.2− | 0.5− | 2008 10 24 | 704 | (2.2− | 3.0+) | 2003 12 17 | 704 | 0.4− | 0.1+ | 2004 02 22 | 704 | 0.2+ | 0.3+ | 2008 10 24 | 704 | 0.2+ | 0.6+ |
| 2003 12 17 | 704 | 0.1− | 0.5+ | 2004 02 15 | 704 | 0.5+ | 0.1− | 2008 10 24 | 704 | 0.4− | 0.8+ | 2003 12 17 | 704 | 0.3− | 0.2+ | 2004 02 22 | 704 | 0.4+ | 0.1+ | 2008 11 22 | 704 | 0.6+ | 0.4+ |
| 2003 12 17 | 704 | 1.4− | 0.1+ | 2004 02 15 | 704 | 0.1+ | 0.7+ | 2008 10 24 | 704 | (0.3+ | 1.6+) | 2003 12 21 | 704 | 0.0 | 0.0 | 2004 02 22 | 704 | 0.3− | 0.6+ | 2008 11 22 | 704 | 0.4− | 0.3+ |
| 2003 12 17 | 704 | 0.4− | 0.1+ | 2004 02 22 | 704 | 0.2+ | 0.3+ | 2008 10 24 | 704 | 0.2+ | 0.6+ | 2003 12 21 | 704 | 0.1− | 0.2+ | 2008 07 01 | 703 | 0.9+ | 0.2+ | 2008 11 22 | 704 | 0.0 | 0.7+ |
| 2003 12 17 | 704 | 0.3− | 0.2+ | 2004 02 22 | 704 | 0.4+ | 0.1+ | 2008 11 22 | 704 | 0.6+ | 0.4+ | 2003 12 21 | 704 | 0.2− | 0.1− | 2008 07 01 | 703 | 0.7− | 0.3+ | 2008 11 22 | 704 | 0.8− | 0.2− |
| 2003 12 21 | 704 | 0.0 | 0.0 | 2004 02 22 | 704 | 0.3− | 0.6+ | 2008 11 22 | 704 | 0.4− | 0.3+ | 2003 12 21 | 704 | 0.3+ | 0.2− | 2008 07 01 | 703 | 0.6+ | 0.7+ | 2008 11 22 | 704 | 0.2+ | 0.9+ |
| 2003 12 21 | 704 | 0.1− | 0.2+ | 2008 07 01 | 703 | 0.9+ | 0.2+ | 2008 11 22 | 704 | 0.0 | 0.7+ | 2003 12 21 | 704 | 0.0 | 0.0 | 2008 07 01 | 703 | 1.5− | 0.8− | 2009 09 30 | G96 | 0.6− | 0.5− |
| 2003 12 21 | 704 | 0.2− | 0.1− | 2008 07 01 | 703 | 0.7− | 0.3+ | 2008 11 22 | 704 | 0.8− | 0.2− | 2003 12 22 | 704 | 0.1+ | 0.3+ | 2008 07 28 | 106 | 0.1+ | 0.0 | 2009 09 30 | G96 | 0.3+ | 0.2+ |
| 2003 12 21 | 704 | 0.3+ | 0.2− | 2008 07 01 | 703 | 0.6+ | 0.7+ | 2008 11 22 | 704 | 0.2+ | 0.9+ | 2003 12 22 | 704 | 0.4− | 1.4− | 2008 07 28 | 106 | 0.3− | 0.2− | 2009 09 30 | G96 | 0.1− | 0.3− |
| 2003 12 21 | 704 | 0.0 | 0.0 | 2008 07 01 | 703 | 1.5− | 0.8− | 2009 09 30 | G96 | 0.6− | 0.5− | 2003 12 22 | 704 | 0.2− | 0.1− | 2008 07 28 | 106 | 0.7− | 1.0− | 2009 09 30 | G96 | 0.2+ | 0.3− |
| 2003 12 22 | 704 | 0.1+ | 0.3+ | 2008 07 28 | 106 | 0.1+ | 0.0 | 2009 09 30 | G96 | 0.3+ | 0.2+ | 2003 12 22 | 704 | 0.2− | 0.1− | 2008 07 28 | 106 | 0.3− | 0.1− | 2009 11 26 | 703 | 0.6− | 0.3− |
| 2003 12 22 | 704 | 0.4− | 1.4− | 2008 07 28 | 106 | 0.3− | 0.2− | 2009 09 30 | G96 | 0.1− | 0.3− | 2003 12 22 | 704 | 0.1+ | 0.3− | 2008 07 29 | 106 | 0.1+ | 0.1− | 2009 11 26 | 703 | 0.7− | 0.5− |
| 2003 12 22 | 704 | 0.2− | 0.1− | 2008 07 28 | 106 | 0.7− | 1.0− | 2009 09 30 | G96 | 0.2+ | 0.3− | 2003 12 27 | 704 | 0.2+ | 0.1+ | 2008 07 29 | 106 | 0.7+ | 0.4− | 2009 11 26 | 703 | 1.1− | 1.1− |
| 2003 12 22 | 704 | 0.2− | 0.1− | 2008 07 28 | 106 | 0.3− | 0.1− | 2009 11 26 | 703 | 0.6− | 0.3− | 2003 12 27 | 704 | 0.1− | 0.2− | 2008 07 29 | 106 | 0.0 | 0.3+ | 2009 11 26 | 703 | 1.2− | 0.7− |
| 2003 12 22 | 704 | 0.1+ | 0.3− | 2008 07 29 | 106 | 0.1+ | 0.1− | 2009 11 26 | 703 | 0.7− | 0.5− | 2003 12 27 | 704 | 0.2− | 0.0 | 2008 07 29 | 106 | 0.8− | 0.1− | 2009 12 17 | 704 | 0.5+ | 0.1+ |
| 2003 12 27 | 704 | 0.2+ | 0.1+ | 2008 07 29 | 106 | 0.7+ | 0.4− | 2009 11 26 | 703 | 1.1− | 1.1− | 2003 12 27 | 704 | 0.3+ | 0.6+ | 2008 07 31 | 106 | 0.1+ | 0.3− | 2009 12 17 | 704 | 0.4+ | 0.5+ |
| 2003 12 27 | 704 | 0.1− | 0.2− | 2008 07 29 | 106 | 0.0 | 0.3+ | 2009 11 26 | 703 | 1.2− | 0.7− | 2003 12 27 | 704 | (0.3+ | 1.8+) | 2008 07 31 | 106 | 0.6− | 0.4+ | 2009 12 17 | 704 | 0.7+ | 0.5+ |
| 2003 12 27 | 704 | 0.2− | 0.0 | 2008 07 29 | 106 | 0.8− | 0.1− | 2009 12 17 | 704 | 0.5+ | 0.1+ | 2003 12 29 | 704 | 0.3+ | 0.1+ | 2008 07 31 | 106 | 0.4+ | 0.8+ | 2009 12 17 | 704 | 0.3− | 1.6− |
| 2003 12 27 | 704 | 0.3+ | 0.6+ | 2008 07 31 | 106 | 0.1+ | 0.3− | 2009 12 17 | 704 | 0.4+ | 0.5+ | 2003 12 29 | 704 | 0.3+ | 0.5− | 2008 07 31 | 106 | 0.4+ | 0.3+ | | | | |
| 2003 12 27 | 704 | (0.3+ | 1.8+) | 2008 07 31 | 106 | 0.6− | 0.4+ | 2009 12 17 | 704 | 0.7+ | 0.5+ | 2003 12 29 | 704 | 0.6+ | 0.1− | 2008 08 02 | 704 | 0.9+ | 0.2+ | | | | |
| 2003 12 29 | 704 | 0.3+ | 0.1+ | 2008 07 31 | 106 | 0.4+ | 0.8+ | 2009 12 17 | 704 | 0.3− | 1.6− | | | | | | | | | | | | |
| 2003 12 29 | 704 | 0.3+ | 0.5− | 2008 07 31 | 106 | 0.4+ | 0.3+ | | | | | | | | | | | | | | | | |
| 2003 12 29 | 704 | 0.6+ | 0.1− | 2008 08 02 | 704 | 0.9+ | 0.2+ | | | | | | | | | | | | | | | | |

**(229016)∗ 2003 YW$_{49}$ = 2005 EU$_{7}$**

Discovered 2003 Dec. 18 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 76315)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 319.69160 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17092890 | $\omega$ | 106.26991 | | −0.91592837 | −0.40119384 | |
| $a$ | 3.2155780 | $\Omega$ | 50.07862 | | +0.36258590 | −0.83881600 | |
| $e$ | 0.1303374 | $i$ | 0.81409 | | +0.17206597 | −0.36800982 | |
| $P$ | 5.77 | $H$ | 15.1 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 11 06 | 291 | 0.4+ | 0.4+ | 2005 03 04 | G96 | 0.2− | 0.3+ | 2007 09 14 | G96 | 0.5+ | 0.2− |
| 2002 11 06 | 291 | 0.1− | 0.4+ | 2005 03 04 | G96 | 0.2− | 0.2+ | 2007 09 14 | G96 | 0.1+ | 0.0 |
| 2002 11 06 | 291 | 0.4− | 0.1+ | 2005 03 04 | G96 | 0.4− | 0.2+ | 2008 09 06 | G96 | 0.0 | 0.6− |
| 2003 12 18 | 704 | 0.5− | 0.2− | 2005 03 04 | G96 | 0.3− | 0.2+ | 2008 09 06 | G96 | 0.3− | 0.0 |
| 2003 12 18 | 704 | 0.3+ | 0.9+ | 2005 03 12 | 691 | 0.2− | 0.0 | 2008 09 06 | G96 | 0.1+ | 0.0 |
| 2003 12 18 | 704 | 0.6− | 0.3− | 2005 03 12 | 691 | 0.8+ | 0.5− | 2008 09 06 | G96 | 0.1− | 0.2+ |
| 2003 12 18 | 704 | 1.0+ | 0.5− | 2005 03 12 | 691 | 0.1− | 0.3+ | 2008 09 20 | 691 | 0.1+ | 0.3+ |
| 2003 12 21 | 704 | 0.4− | 0.6− | 2005 03 16 | 691 | 0.0 | 0.4+ | 2008 09 20 | 691 | 0.8− | 0.6+ |
| 2003 12 21 | 704 | 0.5+ | 0.3+ | 2005 03 16 | 691 | 0.0 | 0.3+ | 2008 09 20 | 691 | 0.0 | 0.1+ |
| 2003 12 21 | 704 | 0.7− | 1.1− | 2005 03 16 | 691 | 0.1+ | 0.3+ | 2008 09 24 | 691 | 0.1+ | 0.0 |
| 2003 12 21 | 704 | 0.3− | 1.2− | 2005 03 31 | 699 | 0.7+ | 0.5+ | 2008 09 24 | 691 | 0.4− | 0.1+ |
| 2003 12 22 | 704 | 0.2− | 0.2+ | 2005 03 31 | 699 | 1.0+ | 0.6− | 2008 09 24 | 691 | 0.7− | 0.4+ |
| 2003 12 22 | 704 | 0.1− | 0.7− | 2005 03 31 | 699 | 0.2+ | 0.8+ | 2008 10 01 | 691 | 0.1+ | 0.3+ |
| 2003 12 22 | 704 | 0.8+ | 0.1+ | 2005 03 31 | 699 | 1.3− | 0.4+ | 2008 10 01 | 691 | 0.1− | 0.0 |
| 2003 12 22 | 704 | 0.7− | 0.2− | 2005 04 02 | G96 | 0.2− | 0.2+ | 2008 10 01 | 691 | 0.2− | 0.3+ |
| 2003 12 22 | 704 | 0.3− | 0.4− | 2005 04 02 | G96 | 0.0 | 0.1+ | 2008 10 20 | G96 | 0.2− | 0.3− |
| 2003 12 22 | 704 | 0.7+ | 0.1+ | 2005 04 02 | G96 | 0.2− | 0.1+ | 2008 10 20 | G96 | 0.5+ | 0.3− |
| 2003 12 22 | 704 | 0.2+ | 1.1− | 2005 04 02 | G96 | 0.2− | 0.1+ | 2008 10 20 | G96 | 0.2+ | 0.4− |
| 2003 12 22 | 704 | 0.9+ | 0.8− | 2005 04 02 | G96 | 0.2− | 0.0 | 2008 10 20 | G96 | 0.4+ | 0.2− |
| 2003 12 22 | 704 | 0.3+ | 0.1+ | 2005 04 02 | G96 | 0.3− | 0.2+ | 2008 10 21 | 691 | 0.1− | 0.1+ |
| 2003 12 22 | 704 | 0.4− | 0.3+ | 2005 04 02 | G96 | 0.2− | 0.1+ | 2008 10 21 | 691 | 0.1+ | 0.5+ |
| 2003 12 22 | 704 | 1.5− | 0.5− | 2005 04 02 | G96 | 0.2− | 0.1+ | 2008 10 21 | 691 | 0.2− | 0.2+ |
| 2003 12 22 | 704 | 0.2+ | 0.6+ | 2005 04 04 | 703 | 0.2+ | 0.2+ | 2008 11 08 | G96 | 0.2+ | 0.1− |
| 2003 12 22 | 704 | 0.3+ | 0.3+ | 2005 04 04 | 703 | 0.6− | 0.3+ | 2008 11 08 | G96 | 0.6+ | 0.1− |
| 2003 12 22 | 704 | 0.2+ | 0.1+ | 2005 04 04 | 703 | 0.8− | 0.1+ | 2008 11 08 | G96 | 0.4+ | 0.1+ |
| 2003 12 23 | 704 | 0.5− | 0.0 | 2005 04 04 | 703 | 1.0− | 0.4− | 2008 11 08 | G96 | 0.3+ | 0.1+ |
| 2003 12 23 | 704 | 0.3+ | 1.2+ | 2005 04 04 | 704 | 0.3+ | 0.1− | 2008 11 24 | G96 | 0.1+ | 0.1− |
| 2003 12 23 | 704 | 0.2+ | 1.0+ | 2005 04 04 | 704 | 1.2+ | 0.4+ | 2008 11 24 | G96 | 0.1− | 0.0 |
| 2003 12 23 | 704 | 0.2− | 0.5+ | 2005 04 04 | 704 | (1.8+ | 1.1−) | 2008 11 24 | G96 | 0.5− | 0.0 |
| 2003 12 23 | 704 | 0.7− | 0.0 | 2005 04 04 | 704 | (2.0+ | 0.7−) | 2008 11 24 | G96 | 0.3+ | 0.1− |
| 2003 12 23 | 704 | 0.7− | 0.1+ | 2005 04 07 | 704 | 1.3− | 0.3+ | 2008 12 30 | G96 | 0.3− | 0.0 |
| 2003 12 23 | 704 | 0.7− | 0.7− | 2005 04 07 | 704 | 0.0 | 0.2+ | 2008 12 30 | G96 | 0.5− | 0.1+ |
| 2003 12 23 | 704 | 0.3+ | 0.2− | 2005 04 07 | 704 | 0.7+ | 1.4+ | 2008 12 30 | G96 | 0.3− | 0.6+ |
| 2003 12 23 | 704 | 0.4− | 0.1− | 2005 04 07 | 704 | 1.3+ | 0.7+ | 2008 12 30 | G96 | 1.1− | 0.0 |
| 2003 12 27 | 704 | (0.5− | 2.0−) | 2005 04 07 | 704 | (1.4− | 1.7+) | 2009 12 16 | 691 | 0.1− | 0.0 |
| 2003 12 27 | 704 | 0.3+ | 0.9− | 2005 04 13 | 699 | (0.2+ | 1.9+) | 2009 12 16 | 691 | 0.1− | 0.1− |
| 2003 12 27 | 704 | 0.0 | 1.1− | 2005 04 13 | 699 | 1.4+ | 0.7+ | 2009 12 16 | 691 | 0.0 | 0.1− |
| 2003 12 27 | 704 | 0.3− | 0.1+ | 2005 04 13 | 699 | 1.3+ | 0.2+ | 2009 12 16 | 704 | 0.2− | 1.4+ |
| 2003 12 29 | 704 | 1.4+ | 0.4− | 2005 04 13 | 699 | (1.5+ | 0.0 ) | 2009 12 16 | 704 | 0.8+ | 0.6+ |
| 2003 12 29 | 704 | 0.7+ | 0.5− | 2007 09 13 | G96 | 0.5+ | 0.6+ | 2009 12 16 | 704 | 1.0+ | 1.2+ |
| 2003 12 29 | 704 | 1.0+ | 0.6− | 2007 09 13 | G96 | 0.4+ | 0.4+ | 2009 12 20 | 691 | 0.0 | 0.0 |
| 2003 12 29 | 704 | 0.4+ | 0.2− | 2007 09 13 | G96 | 0.1+ | 0.7+ | 2009 12 20 | 691 | 0.1+ | 0.0 |
| 2005 03 01 | 691 | 0.0 | 0.2+ | 2007 09 13 | G96 | 0.1+ | 0.5+ | 2009 12 20 | 691 | 0.2+ | 0.2− |
| 2005 03 01 | 691 | 0.1+ | 0.1+ | 2007 09 14 | G96 | 0.1+ | 0.1+ | | | | |
| 2005 03 01 | 691 | 0.1+ | 0.5+ | 2007 09 14 | G96 | 0.4− | 0.1+ | | | | |

**(229017)∗ 2003 YS$_{61}$ = 2005 GK$_8$**

Discovered 2003 Dec. 19 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. T. B. Spahr (*MPO* 76321)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 23.26569 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17152691 | $\omega$ | 325.47345 | | +0.12758108 | −0.98700717 | |
| $a$ | 3.2080998 | $\Omega$ | 117.02084 | | +0.93291571 | +0.08598567 | |
| $e$ | 0.1366218 | $i$ | 6.29460 | | +0.33673631 | +0.13573247 | |
| $P$ | 5.75 | $H$ | 14.9 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 12 19 | 704 | 0.6+ | 0.3+ | 2005 04 02 | 246 | 0.5+ | 0.4+ | 2008 09 23 | 704 | 0.1+ | 1.2− |
| 2003 12 19 | 704 | 0.6− | 0.0 | 2005 04 02 | 246 | 0.5+ | 0.3− | 2008 09 23 | 704 | 0.5+ | 0.7+ |
| 2003 12 19 | 704 | 0.6− | 0.4+ | 2005 04 02 | 246 | 0.6− | 0.1− | 2008 09 23 | 704 | 0.2− | 0.2+ |
| 2003 12 19 | 704 | 0.2+ | 0.2+ | 2005 04 03 | 246 | 0.9+ | 0.5+ | 2008 09 29 | 703 | 0.9− | 0.1+ |
| 2003 12 19 | 704 | 0.3+ | 0.2+ | 2005 04 03 | 246 | 1.2+ | 0.2+ | 2008 09 29 | 703 | 0.0 | 0.8+ |
| 2003 12 21 | 704 | (1.7− | 0.8+) | 2005 04 03 | 246 | 0.1+ | 1.0+ | 2008 09 29 | 703 | 0.1− | 0.8+ |
| 2003 12 21 | 704 | 0.7− | 0.1+ | 2005 04 03 | 246 | (1.2+ | 1.7+) | 2008 09 29 | 703 | 0.4+ | 0.2+ |
| 2003 12 21 | 704 | 0.6− | 0.5− | 2005 04 03 | 246 | 0.1+ | 0.7+ | 2008 10 27 | G96 | 0.2− | 0.5+ |
| 2003 12 23 | 704 | 0.2+ | 1.2+ | 2005 04 03 | 246 | 0.1+ | 0.3+ | 2008 10 27 | G96 | 0.3+ | 0.5+ |
| 2003 12 23 | 704 | 0.2+ | 0.7+ | 2005 04 03 | 246 | 0.4− | 0.6+ | 2008 10 27 | G96 | 0.2+ | 0.5+ |
| 2003 12 23 | 704 | 0.7+ | 0.3+ | 2005 04 03 | 246 | 0.2+ | 0.4+ | 2008 10 27 | G96 | 0.0 | 0.5+ |
| 2003 12 23 | 704 | 0.2− | 0.6+ | 2005 04 04 | 246 | 0.7− | 0.5+ | 2009 11 16 | G96 | 0.3+ | 0.1− |
| 2003 12 23 | 704 | 0.6− | 0.7+ | 2005 04 04 | 246 | 0.5− | 0.4+ | 2009 11 16 | G96 | 0.4+ | 0.1+ |
| 2005 03 10 | 703 | 0.7− | 0.9− | 2005 04 04 | 246 | (0.4+ | 1.8+) | 2009 11 16 | G96 | 0.1− | 0.1+ |
| 2005 03 10 | 703 | 0.3+ | 0.9− | 2005 04 04 | 246 | 1.1− | 0.2+ | 2009 11 16 | G96 | 0.0 | 0.2+ |
| 2005 03 10 | 703 | 0.1− | 1.2+ | 2006 05 26 | G96 | 0.2− | 0.1+ | 2009 12 15 | G96 | 0.0 | 0.2− |
| 2005 03 10 | 703 | 1.1− | 0.3+ | 2006 05 26 | G96 | 0.3− | 0.0 | 2009 12 15 | G96 | 0.5+ | 0.2+ |
| 2005 04 02 | 246 | 1.1+ | 0.2+ | 2006 05 26 | G96 | 0.5− | 0.1− | 2009 12 15 | G96 | 0.1− | 0.5− |
| 2005 04 02 | 246 | 1.4+ | 0.1− | 2006 05 26 | G96 | 0.6− | 0.1+ | 2009 12 15 | G96 | 0.1− | 0.3− |
| 2005 04 02 | 246 | 1.1+ | 0.9− | 2007 06 23 | 691 | 0.8− | 0.3+ | 2009 12 17 | 691 | 0.0 | 0.1− |
| 2005 04 02 | 246 | (2.2+ | 0.6+) | 2007 06 23 | 691 | 0.3+ | 0.6+ | 2009 12 17 | 691 | 0.0 | 0.0 |
| 2005 04 02 | 246 | 0.2− | 0.7+ | 2007 06 23 | 691 | 0.1+ | 0.1− | 2009 12 17 | 691 | 0.2+ | 0.0 |
| 2005 04 02 | 246 | 1.2+ | 0.1− | 2007 06 27 | 691 | 0.1− | 0.3+ | 2009 12 25 | 691 | 0.4− | 0.0 |
| 2005 04 02 | 246 | 0.6+ | 0.1− | 2007 06 27 | 691 | 0.4+ | 0.1+ | 2009 12 25 | 691 | 0.1− | 0.0 |
| 2005 04 02 | 246 | 0.1+ | 0.2+ | 2007 06 27 | 691 | 0.2− | 0.3+ | 2009 12 25 | 691 | 0.1− | 0.2+ |
| 2005 04 02 | 246 | 0.2+ | 0.6+ | 2008 09 23 | 704 | (0.3+ | 2.5−) | | | | |

**(229018)∗ 2003 YT$_{61}$ = 2005 GC$_{104}$**

Discovered 2003 Dec. 19 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 76321)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 324.31936 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17249141 | $\omega$ | 269.04211 | | −0.94933808 | −0.20120215 | |
| $a$ | 3.1961298 | $\Omega$ | 259.32118 | | +0.27755510 | −0.89707784 | |
| $e$ | 0.1929918 | $i$ | 14.22063 | | −0.14737836 | −0.39340698 | |
| $P$ | 5.71 | $H$ | 14.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 21 | 644 | 1.0− | 0.8+ | 2005 04 09 | E12 | 0.2+ | 0.3+ | 2008 10 24 | 703 | 0.5− | 0.0 |
| 2001 08 21 | 644 | 1.0− | 0.8+ | 2005 04 09 | E12 | 1.3+ | 0.3− | 2008 10 24 | 703 | (1.1− | 1.6+) |
| 2001 08 21 | 644 | 1.0− | 0.7+ | 2005 04 10 | E12 | 0.4− | 0.2− | 2008 10 24 | 703 | 1.5+ | 1.2+ |
| 2003 12 19 | 704 | 0.7+ | 0.7+ | 2005 04 10 | E12 | 0.1− | 0.1+ | 2008 10 24 | 703 | 0.5+ | 0.7+ |
| 2003 12 19 | 704 | 0.5+ | 0.5+ | 2005 04 10 | E12 | 0.1− | 0.2− | 2008 10 30 | 703 | 0.1+ | 0.4+ |
| 2003 12 19 | 704 | 1.0+ | 0.9+ | 2005 04 10 | E12 | 0.2+ | 0.2+ | 2008 10 30 | 703 | 0.5+ | 0.9+ |
| 2003 12 19 | 704 | 0.9+ | 0.1− | 2005 04 19 | E12 | 0.0 | 0.2+ | 2008 10 30 | 703 | 0.5+ | 0.0 |
| 2003 12 19 | 704 | 0.1+ | 0.7+ | 2005 04 19 | E12 | 0.1+ | 0.3+ | 2008 10 30 | 703 | 0.5− | 0.4+ |
| 2003 12 21 | 704 | 0.1− | 0.2+ | 2005 04 19 | E12 | 0.9− | 0.5+ | 2008 11 04 | 704 | (2.1+ | 1.2+) |
| 2003 12 21 | 704 | 0.1− | 0.6+ | 2005 04 19 | E12 | 0.8+ | 0.9+ | 2008 11 04 | 704 | (1.9+ | 0.1−) |
| 2003 12 21 | 704 | 0.9− | 0.1− | 2005 04 27 | E12 | 0.2+ | 0.0 | 2008 11 04 | 704 | (2.6+ | 0.2−) |
| 2003 12 21 | 704 | 0.2− | 0.4+ | 2005 04 27 | E12 | 0.1+ | 0.2+ | 2008 11 22 | 704 | 1.1+ | 1.2+ |
| 2003 12 21 | 704 | 0.2− | 0.3+ | 2005 04 27 | E12 | 1.2+ | 0.8+ | 2008 11 22 | 704 | (1.9− | 1.6−) |
| 2003 12 21 | 704 | 0.9− | 0.6− | 2005 04 27 | E12 | 0.4− | 0.2+ | 2008 11 22 | 704 | 0.4+ | 0.7+ |
| 2003 12 21 | 704 | 0.7− | 0.2− | 2005 05 09 | E12 | 0.1− | 0.1+ | 2008 11 22 | 704 | 0.8− | 1.0+ |
| 2003 12 23 | 704 | 0.3− | 0.5− | 2005 05 09 | E12 | 0.0 | 0.2+ | 2009 09 30 | G96 | 0.3+ | 0.2− |
| 2003 12 23 | 704 | 0.0 | 0.3− | 2005 05 09 | E12 | 0.2− | 0.6+ | 2009 09 30 | G96 | 0.3+ | 0.3− |
| 2003 12 23 | 704 | 0.4− | 0.5− | 2005 05 09 | E12 | 0.1− | 0.6+ | 2009 09 30 | G96 | 0.3+ | 0.2− |
| 2003 12 23 | 704 | 0.3+ | 0.5− | 2005 05 10 | 699 | 0.4+ | 0.4+ | 2009 09 30 | G96 | 0.2− | 0.4− |
| 2005 03 18 | E12 | (2.0+ | 0.9−) | 2005 05 10 | 699 | 0.5− | 0.1− | 2009 12 13 | 704 | 0.7+ | 1.2+ |
| 2005 03 18 | E12 | 0.3+ | 0.1+ | 2005 05 10 | 699 | 0.5+ | 0.8+ | 2009 12 13 | 704 | 0.2+ | 0.3+ |
| 2005 03 18 | E12 | 0.3+ | 0.8− | 2005 05 10 | 699 | 0.5+ | 0.1+ | 2009 12 13 | 704 | 0.0 | 0.1+ |
| 2005 03 18 | E12 | 0.1+ | 0.1+ | 2005 05 11 | 644 | 0.0 | 0.2+ | 2009 12 15 | 703 | 0.2+ | 0.6− |
| 2005 03 31 | E12 | 0.5− | 0.4+ | 2005 05 11 | 644 | 0.0 | 0.2+ | 2009 12 15 | 703 | 0.2+ | 1.7− |
| 2005 03 31 | E12 | 0.1+ | 0.4+ | 2005 05 11 | 644 | 0.0 | 0.2+ | 2009 12 15 | 703 | 0.2+ | 0.3− |
| 2005 03 31 | E12 | 0.1+ | 0.8+ | 2008 09 30 | 703 | 0.6+ | 0.2+ | 2009 12 15 | 703 | 0.9− | 0.8+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 03 31 | E12 | 0.2+ | 0.3+ | 2008 09 30 | 703 | 0.6− | 0.5− | 2009 12 15 | 703 | 3.0− | 1.7+ | | |
| 2005 04 09 | E12 | 0.2+ | 0.1+ | 2008 09 30 | 703 | 0.3− | 0.6+ | | | | | | |
| 2005 04 09 | E12 | 0.2+ | 0.4+ | 2008 09 30 | 703 | 0.9− | 1.2+ | | | | | | |

**(229019)∗ 2003 YD$_{65}$**

Discovered 2003 Dec. 19 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 312.73729 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18149337 | $\omega$ | 109.83709 | | −0.64489831 | +0.71802647 | |
| $a$ | 3.0895523 | $\Omega$ | 117.16635 | | −0.76370274 | −0.59225311 | |
| $e$ | 0.1951585 | $i$ | 17.11390 | | −0.02939906 | −0.36561489 | |
| $P$ | 5.43 | $H$ | 14.3 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 03 21 | 699 | 0.3− | 0.2− | 2004 02 13 | 691 | 0.0 | 0.1− | 2005 05 13 | 704 | 0.1+ | 0.4+ | | |
| 1999 03 21 | 699 | 0.0 | 0.1+ | 2004 02 13 | 691 | 0.2− | 0.0 | 2005 05 19 | 703 | 1.0− | 0.6+ | | |
| 1999 03 21 | 699 | 0.1+ | 0.5− | 2004 02 15 | 704 | 0.3+ | 0.1+ | 2005 05 19 | 703 | 0.5+ | 1.0+ | | |
| 2003 10 24 | 691 | 0.6+ | 0.0 | 2004 02 15 | 704 | 0.3+ | 0.3+ | 2005 05 19 | 703 | 0.2+ | 0.5+ | | |
| 2003 10 24 | 691 | 0.1+ | 0.0 | 2004 02 15 | 704 | 0.4+ | 0.0 | 2005 05 21 | 644 | 0.1− | 0.2− | | |
| 2003 10 24 | 691 | 0.0 | 0.1+ | 2004 02 15 | 704 | 0.3+ | 0.1+ | 2005 05 21 | 644 | 0.4− | 0.1− | | |
| 2003 12 18 | 644 | 0.0 | 0.2+ | 2004 02 15 | 704 | 0.4+ | 0.5+ | 2005 05 21 | 644 | 0.2− | 0.1− | | |
| 2003 12 18 | 644 | 0.2− | 0.0 | 2004 02 23 | 704 | 0.2− | 1.0+ | 2005 05 21 | 644 | 0.2− | 0.2− | | |
| 2003 12 18 | 644 | 0.1+ | 0.2+ | 2004 02 23 | 704 | 0.7− | 1.2+ | 2005 05 21 | 644 | 0.1− | 0.1− | | |
| 2003 12 19 | 704 | 0.7− | 0.7− | 2004 02 23 | 704 | 0.9− | 1.2+ | 2005 05 21 | 644 | 0.2− | 0.2− | | |
| 2003 12 19 | 704 | 0.6− | 0.4+ | 2004 02 23 | 704 | 0.8− | 0.6+ | 2005 05 31 | 703 | 0.8− | 0.1− | | |
| 2003 12 19 | 704 | 0.2− | 0.5+ | 2004 02 23 | 704 | 0.2+ | 1.0+ | 2005 05 31 | 703 | 0.3− | 0.2+ | | |
| 2003 12 19 | 704 | 0.6− | 0.7+ | 2005 03 04 | 703 | 1.3+ | 0.6− | 2005 05 31 | 703 | 0.8− | 0.3+ | | |
| 2003 12 21 | 704 | 0.2− | 1.1+ | 2005 03 04 | 703 | 0.0 | 0.4− | 2005 05 31 | 703 | 0.4− | 0.7− | | |
| 2003 12 21 | 704 | 0.3− | 1.3+ | 2005 03 04 | 703 | 0.4− | 0.2+ | 2005 06 06 | 704 | 1.2+ | 0.2+ | | |
| 2003 12 21 | 704 | 0.3− | 0.7+ | 2005 03 04 | 703 | (1.7− | 0.3+) | 2005 06 06 | 704 | 0.9+ | 0.2− | | |
| 2003 12 21 | 704 | (0.9+ | 1.6+) | 2005 04 18 | 704 | 0.4− | 0.2+ | 2005 06 06 | 704 | 0.5+ | 0.5− | | |
| 2003 12 27 | 608 | 0.6+ | 0.1− | 2005 04 18 | 704 | 0.4+ | 0.3+ | 2005 06 06 | 704 | 0.7+ | 0.0 | | |
| 2003 12 27 | 608 | 0.4+ | 0.8− | 2005 04 18 | 704 | 0.2+ | 0.8+ | 2005 06 06 | 704 | 0.8+ | 0.2+ | | |
| 2003 12 27 | 608 | 0.1+ | 0.2− | 2005 04 18 | 704 | 0.2− | 0.4+ | 2005 06 07 | 699 | 0.7+ | 0.1− | | |
| 2003 12 29 | 699 | 0.2− | 0.0 | 2005 04 18 | 704 | 0.2− | 0.8+ | 2005 06 07 | 699 | 0.2− | 0.5− | | |
| 2003 12 29 | 699 | 0.4+ | 0.6− | 2005 04 19 | 704 | 0.3+ | 0.5− | 2005 06 07 | 699 | 1.1+ | 0.5− | | |
| 2003 12 29 | 699 | 0.0 | 0.3+ | 2005 04 19 | 704 | 1.4− | 0.6− | 2005 06 16 | 703 | 1.4− | 0.2+ | | |
| 2003 12 29 | 699 | 0.3− | 0.6− | 2005 04 19 | 704 | (1.3+ | 1.5+) | 2005 06 16 | 703 | 0.2− | 0.2+ | | |
| 2004 01 12 | 644 | 0.1− | 0.3+ | 2005 04 19 | 704 | (0.6+ | 1.7+) | 2005 06 16 | 703 | 0.5− | 0.2− | | |
| 2004 01 12 | 644 | 0.2− | 0.2+ | 2005 04 19 | 704 | 0.4− | 1.1+ | 2005 06 16 | 703 | (3.0− | 2.0−) | | |
| 2004 01 12 | 644 | 0.0 | 0.0 | 2005 05 03 | 608 | 0.2+ | 0.1− | 2005 06 27 | 699 | 0.7+ | 1.0+ | | |
| 2004 01 16 | 644 | 0.1+ | 0.3+ | 2005 05 03 | 608 | 0.1+ | 0.1− | 2005 06 27 | 699 | 0.5+ | 1.1+ | | |
| 2004 01 16 | 644 | 0.1− | 0.1+ | 2005 05 03 | 608 | 0.3+ | 0.1+ | 2005 06 27 | 699 | 1.3+ | 0.0 | | |
| 2004 01 16 | 644 | 0.1− | 0.3+ | 2005 05 04 | 703 | 0.2− | 0.1− | 2005 06 30 | 644 | 0.0 | 0.1+ | | |
| 2004 01 16 | 691 | 0.0 | 0.0 | 2005 05 04 | 703 | 0.0 | 0.1− | 2005 06 30 | 644 | 0.1+ | 0.1+ | | |
| 2004 01 16 | 691 | 0.1+ | 0.1− | 2005 05 04 | 703 | 0.6− | 0.0 | 2005 06 30 | 644 | 0.1+ | 0.0 | | |
| 2004 01 16 | 691 | 0.1+ | 0.1− | 2005 05 04 | 703 | 1.1− | 0.2+ | 2006 08 18 | 644 | 0.0 | 0.4+ | | |
| 2004 01 22 | 704 | 0.2+ | 0.1+ | 2005 05 06 | 699 | 1.4+ | 0.2+ | 2006 08 18 | 644 | 0.2− | 0.5+ | | |
| 2004 01 22 | 704 | 0.5+ | 0.7+ | 2005 05 06 | 699 | 0.2+ | 0.4+ | 2006 08 18 | 644 | 0.0 | 0.6+ | | |
| 2004 01 22 | 704 | 0.4+ | 0.9+ | 2005 05 06 | 699 | 0.3+ | 0.5− | 2006 08 20 | 644 | 0.4− | 0.6+ | | |
| 2004 01 22 | 704 | 1.2+ | 1.1+ | 2005 05 11 | 608 | 0.2− | 0.1− | 2006 08 20 | 644 | 0.2− | 0.5+ | | |
| 2004 01 22 | 704 | (0.7+ | 1.8+) | 2005 05 11 | 608 | 0.3− | 0.4− | 2006 08 20 | 644 | 0.1− | 0.6+ | | |
| 2004 01 30 | 704 | 0.5+ | 0.1− | 2005 05 11 | 608 | 0.2+ | 0.6− | 2006 08 28 | E12 | 0.2− | 0.5+ | | |
| 2004 01 30 | 704 | 0.1+ | 0.2− | 2005 05 12 | 699 | 0.1+ | 0.2− | 2006 08 28 | E12 | 0.3− | 0.1+ | | |
| 2004 01 30 | 704 | 0.2− | 0.0 | 2005 05 12 | 699 | 1.0+ | 0.0 | 2006 08 28 | E12 | 0.1− | 1.0+ | | |
| 2004 01 30 | 704 | 0.0 | 0.6+ | 2005 05 12 | 699 | 0.5+ | 0.1+ | 2006 08 28 | E12 | 0.2− | 0.9+ | | |
| 2004 01 30 | 704 | 0.5− | 0.0 | 2005 05 12 | 699 | 0.1+ | 0.0 | 2009 11 18 | 691 | 0.3+ | 0.2− | | |
| 2004 02 11 | 691 | 0.1+ | 0.0 | 2005 05 13 | 703 | 1.1− | 0.2+ | 2009 11 18 | 691 | 0.0 | 0.2− | | |
| 2004 02 11 | 691 | 0.1+ | 0.1+ | 2005 05 13 | 703 | 1.4− | 0.5+ | 2009 11 18 | 691 | 0.1− | 0.2− | | |
| 2004 02 11 | 691 | 0.0 | 0.0 | 2005 05 13 | 703 | 0.4− | 0.2+ | 2009 12 18 | 703 | 0.6− | 1.0+ | | |
| 2004 02 11 | 699 | 0.0 | 0.3− | 2005 05 13 | 704 | 0.4+ | 0.2+ | 2009 12 18 | 703 | 1.6− | 0.8− | | |
| 2004 02 11 | 699 | 0.6− | 0.1+ | 2005 05 13 | 703 | 0.0 | 0.8+ | 2009 12 18 | 703 | 0.6+ | 1.0− | | |
| 2004 02 11 | 699 | 0.9− | 1.0− | 2005 05 13 | 704 | 0.3+ | 0.1+ | 2009 12 18 | 703 | 0.1+ | 0.2+ | | |
| 2004 02 11 | 699 | 0.3− | 0.6− | 2005 05 13 | 704 | 0.3+ | 0.4− | | | | | | |
| 2004 02 13 | 691 | 0.2− | 0.0 | 2005 05 13 | 704 | 0.2+ | 0.1+ | | | | | | |

**(229020)∗ 2003 YU$_{68}$ = 2009 VV$_{50}$**

Discovered 2003 Dec. 19 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 165382)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 70.95901 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.31164728 | $\omega$ | 144.26109 | | +0.97951306 | +0.20095462 | |
| $a$ | 2.1545694 | $\Omega$ | 204.15607 | | −0.19139895 | +0.90877938 | |
| $e$ | 0.1691815 | $i$ | 1.83332 | | −0.06261467 | +0.36570108 | |
| $P$ | 3.16 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 12 19 | 704 | 1.2− | 0.2− | 2008 04 26 | G96 | 0.2− | 0.5+ | 2009 11 20 | 691 | 0.2− | 0.1− | | |
| 2003 12 19 | 704 | 0.1+ | 0.2− | 2008 05 26 | G96 | 0.4− | 0.6+ | 2009 11 21 | 704 | 0.5+ | 0.3− | | |
| 2003 12 19 | 704 | 1.2+ | 0.5− | 2008 05 26 | G96 | 0.2+ | 0.6+ | 2009 11 21 | 704 | 0.1− | 0.1− | | |
| 2003 12 22 | 691 | 0.1+ | 0.1− | 2008 05 26 | G96 | 0.8− | 0.2+ | 2009 11 21 | 704 | 0.6+ | 0.5+ | | |
| 2003 12 22 | 691 | 0.0 | 0.2− | 2008 05 26 | G96 | 0.2+ | 0.5+ | 2009 11 22 | 691 | 0.1− | 0.7+ | | |
| 2003 12 22 | 691 | 0.0 | 0.1− | 2009 09 20 | G96 | 0.5+ | 0.4− | 2009 11 22 | 691 | 0.2− | 0.1− | | |
| 2003 12 27 | 691 | 0.0 | 0.1− | 2009 09 20 | G96 | 0.2− | 0.1− | 2009 11 22 | 691 | 0.2− | 0.2− | | |
| 2003 12 27 | 691 | 0.0 | 0.2+ | 2009 09 20 | G96 | 0.4+ | 0.1− | 2009 11 26 | 691 | 0.1− | 0.1− | | |
| 2003 12 27 | 691 | 0.2− | 0.0 | 2009 09 20 | G96 | 0.1− | 0.2− | 2009 11 26 | 691 | 0.1− | 0.0 | | |
| 2005 04 07 | G96 | 0.1+ | 0.1− | 2009 10 24 | 703 | 0.0 | 0.8− | 2009 11 26 | 691 | 0.1− | 0.0 | | |
| 2005 04 07 | G96 | 0.2+ | 0.0 | 2009 10 24 | 703 | 0.3− | 0.5− | 2009 12 11 | 704 | 1.1+ | 0.4+ | | |
| 2005 04 07 | G96 | 0.3− | 0.4− | 2009 10 24 | 703 | 0.3− | 0.3− | 2009 12 11 | 704 | 0.4+ | 0.2− | | |
| 2005 04 07 | G96 | 0.3− | 0.5− | 2009 10 24 | 703 | 0.4+ | 0.4− | 2009 12 11 | 704 | 0.7+ | 0.2− | | |
| 2005 06 12 | G96 | 0.2− | 0.2+ | 2009 11 08 | 691 | 0.2− | 0.0 | 2009 12 11 | 703 | 0.3− | 0.7+ | | |
| 2005 06 12 | G96 | 0.4+ | 0.2+ | 2009 11 08 | 691 | 0.6+ | 1.3+ | 2009 12 11 | 703 | 0.9+ | 0.6+ | | |
| 2005 06 12 | G96 | 0.4+ | 0.2+ | 2009 11 08 | 691 | 0.3− | 0.1+ | 2009 12 11 | 703 | 0.5− | 0.1+ | | |
| 2005 06 12 | G96 | 0.2− | 0.5+ | 2009 11 15 | J75 | 0.4+ | 0.1+ | 2009 12 11 | 703 | 0.4− | 1.0− | | |
| 2008 04 11 | G96 | 0.3+ | 0.0 | 2009 11 15 | J75 | 0.7+ | 0.7− | 2009 12 17 | 704 | 0.0 | 1.0+ | | |
| 2008 04 11 | G96 | 0.4+ | 0.2+ | 2009 11 15 | J75 | 0.7+ | 0.4− | 2009 12 17 | 704 | 0.3+ | 1.2+ | | |
| 2008 04 11 | G96 | 0.1+ | 0.0 | 2009 11 16 | 691 | 0.7− | 0.3− | 2009 12 17 | 704 | 0.1− | 0.7+ | | |
| 2008 04 11 | G96 | 0.9+ | 0.2− | 2009 11 16 | 691 | (2.4− | 0.7−) | 2009 12 17 | G96 | 0.3+ | 0.3− | | |
| 2008 04 26 | G96 | 0.1− | 0.0 | 2009 11 16 | 691 | (1.7− | 0.9+) | 2009 12 17 | G96 | 0.3+ | 0.2− | | |
| 2008 04 26 | G96 | 0.1− | 0.3+ | 2009 11 20 | 691 | 0.0 | 0.2− | 2009 12 17 | G96 | 0.2+ | 0.2− | | |
| 2008 04 26 | G96 | 0.4+ | 0.0 | 2009 11 20 | 691 | 0.0 | 0.1+ | 2009 12 17 | G96 | 0.2+ | 0.1− | | |

**(229021)∗ 2003 YG$_{92}$**

Discovered 2003 Dec. 21 by the Catalina Sky Survey.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 39.04558 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17213285 | $\omega$ | 301.89137 | | +0.71622294 | −0.60832344 | |
| $a$ | 3.2005666 | $\Omega$ | 97.93848 | | +0.69766239 | +0.63613053 | |
| $e$ | 0.2053513 | $i$ | 20.20096 | | −0.01708492 | +0.47463728 | |
| $P$ | 5.73 | $H$ | 14.7 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 06 26 | 691 | 0.1− | 0.3+ | 2003 12 22 | 608 | (1.7− | 0.8−) | 2008 08 03 | E12 | 0.2− | 0.1+ | | |
| 2001 06 26 | 691 | 0.3+ | 0.5+ | 2003 12 22 | 608 | 0.1+ | 0.9− | 2008 08 03 | E12 | 0.3− | 0.3+ | | |
| 2001 06 26 | 691 | 0.3+ | 0.5− | 2003 12 22 | 608 | 0.1+ | 0.8− | 2008 08 03 | E12 | 0.0 | 0.2+ | | |
| 2002 06 20 | 644 | 0.3− | 0.2− | 2003 12 28 | 699 | 0.6− | 0.8− | 2008 08 28 | E12 | 0.4− | 0.7+ | | |
| 2002 06 20 | 644 | 0.2− | 0.0 | 2003 12 28 | 699 | 0.2− | 0.3− | 2008 08 28 | E12 | 1.0− | 0.8− | | |
| 2002 06 20 | 644 | 0.2− | 0.2+ | 2003 12 28 | 699 | 0.6− | 0.3− | 2008 08 28 | E12 | 1.1+ | 0.4+ | | |
| 2003 10 24 | 704 | 0.2− | 0.1+ | 2003 12 28 | 699 | (1.7− | 0.5+) | 2008 08 28 | E12 | 0.5− | 0.2− | | |
| 2003 10 24 | 704 | (1.8− | 0.1+) | 2004 01 13 | 691 | 0.4+ | 0.4− | 2008 09 09 | E12 | 0.6+ | 0.0 | | |
| 2003 10 24 | 704 | (1.7− | 0.3+) | 2004 01 13 | 644 | 0.1− | 0.1+ | 2008 09 09 | E12 | 0.4− | 0.3+ | | |
| 2003 11 30 | 704 | 0.1+ | 0.4− | 2004 01 13 | 691 | 0.0 | 0.0 | 2008 09 09 | E12 | 1.2+ | 0.3− | | |
| 2003 11 30 | 704 | 0.5+ | 0.2+ | 2004 01 13 | 644 | 0.0 | 0.0 | 2008 10 25 | E12 | 0.2− | 0.9+ | | |
| 2003 11 30 | 704 | 0.2− | 0.3− | 2004 01 13 | 691 | 0.0 | 0.1+ | 2008 10 25 | E12 | (0.0 | 1.6+) | | |
| 2003 11 30 | 704 | 0.1+ | 0.0 | 2004 01 13 | 644 | 0.0 | 0.2+ | 2008 10 25 | E12 | 0.1− | 0.4+ | | |
| 2003 11 30 | 704 | 0.7+ | 0.3+ | 2004 01 18 | 644 | 0.3+ | 0.8+ | 2009 11 18 | 704 | 0.4+ | 0.1+ | | |
| 2003 11 30 | 735 | 0.4+ | 0.6− | 2004 01 18 | 644 | 0.3+ | 0.4+ | 2009 11 18 | 704 | 0.8+ | 0.1− | | |
| 2003 11 30 | 735 | 0.2+ | 0.2+ | 2004 01 18 | 644 | 0.2+ | 0.3+ | 2009 11 18 | 704 | 1.4+ | 0.1− | | |
| 2003 12 05 | 703 | 0.3− | 0.3− | 2004 02 10 | 644 | 0.0 | 0.8+ | 2009 12 17 | 704 | 0.1+ | 0.6+ | | |
| 2003 12 05 | 703 | 1.2− | 0.7− | 2004 02 10 | 644 | 0.3− | 0.7+ | 2009 12 17 | 704 | 0.6− | 0.1+ | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 12 05 | 703 | (0.8− | 1.8−) | 2004 02 10 | 644 | 0.2+ | 0.2+ | 2009 12 17 | 704 | 1.2+ | 1.4+ |
| 2003 12 05 | 703 | 0.4− | 1.1− | 2005 03 08 | 703 | 0.4+ | 0.5− | 2009 12 17 | 704 | 0.7+ | 1.3+ |
| 2003 12 14 | 703 | 0.5− | 0.0 | 2005 03 08 | 703 | 1.1− | 0.3− | 2009 12 17 | 704 | (1.6+ | 1.9+) |
| 2003 12 14 | 703 | 0.5+ | 0.8+ | 2005 03 08 | 703 | 0.3+ | 0.6+ | 2009 12 20 | 691 | 0.4− | 0.2+ |
| 2003 12 14 | 703 | 0.6− | 0.5+ | 2005 03 08 | 703 | 0.2− | 0.6− | 2009 12 20 | 691 | 0.2− | 0.0 |
| 2003 12 14 | 703 | 1.0+ | 1.0− | 2005 03 08 | 704 | 0.5− | 0.1− | 2009 12 20 | 691 | 0.2− | 0.1+ |
| 2003 12 21 | 703 | 0.1+ | 0.9+ | 2005 03 08 | 704 | 0.7− | 0.3+ | 2009 12 25 | 691 | 0.2− | 0.0 |
| 2003 12 21 | 703 | 0.0 | 0.2+ | 2005 03 08 | 704 | 0.6+ | 0.9+ | 2009 12 25 | 691 | 0.1− | 0.1+ |
| 2003 12 21 | 703 | 0.2− | 0.2+ | 2005 03 08 | 704 | (0.5− | 1.7+) | 2009 12 25 | 691 | 0.2− | 0.0 |
| 2003 12 21 | 703 | 0.9+ | 0.5+ | 2008 08 03 | E12 | 0.3− | 0.4+ | | | | |

**(229022)**∗ **2003 YO$_{100}$ = 2002 TF$_{123}$**

Discovered 2003 Dec. 19 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 57535)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 56.63275 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17609083 | $\omega$ | 117.85272 | | +0.24642749 | −0.95593827 | |
| $a$ | 3.1524259 | $\Omega$ | 316.89169 | | +0.78667517 | +0.29344929 | |
| $e$ | 0.2107687 | $i$ | 13.50138 | | +0.56605271 | +0.00833881 | |
| $P$ | 5.60 | $H$ | 14.7 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 09 12 | 644 | 0.3− | 0.1+ | 2003 12 28 | 704 | 0.5− | 0.5− | 2004 02 23 | 704 | 0.3+ | 0.5+ |
| 2002 09 12 | 644 | 0.4− | 0.3+ | 2004 01 16 | 644 | 0.1− | 0.4+ | 2004 02 23 | 704 | 0.2+ | 0.3− |
| 2002 09 12 | 644 | 0.1− | 0.1+ | 2004 01 16 | 644 | 0.3− | 0.3+ | 2004 02 23 | 704 | 0.1− | 0.2+ |
| 2002 10 04 | 644 | 0.4− | 0.2+ | 2004 01 16 | 644 | 0.3− | 0.2+ | 2004 02 23 | 704 | 0.5− | 1.1+ |
| 2002 10 04 | 644 | 0.3− | 0.2+ | 2004 01 19 | 703 | 0.7− | 0.9+ | 2004 02 27 | 704 | 0.5+ | 0.2− |
| 2002 10 04 | 644 | 0.1− | 0.4+ | 2004 01 19 | 703 | 0.7− | 0.8− | 2004 02 27 | 704 | 0.4+ | 0.5− |
| 2002 10 05 | 704 | 0.4+ | 0.2+ | 2004 01 19 | 703 | 0.5+ | 0.5+ | 2004 02 27 | 704 | 0.2+ | 0.6− |
| 2002 10 05 | 704 | 0.1− | 0.4+ | 2004 01 19 | 703 | 0.2+ | 1.0+ | 2008 10 08 | 704 | 1.1+ | 1.0+ |
| 2002 10 05 | 704 | 0.6+ | 0.4+ | 2004 01 22 | 704 | 0.0 | 0.0 | 2008 10 08 | 704 | 0.4+ | 0.1+ |
| 2002 10 05 | 704 | 1.0+ | 0.9+ | 2004 01 22 | 704 | 0.1+ | 0.0 | 2008 10 08 | 704 | 0.4− | 1.2+ |
| 2002 10 05 | 704 | 0.4+ | 0.8+ | 2004 01 22 | 704 | 0.0 | 0.6+ | 2008 10 08 | 704 | 0.6+ | 0.4+ |
| 2002 10 09 | 704 | 0.1− | 0.3+ | 2004 01 22 | 704 | 0.3+ | 0.0 | 2008 10 26 | 703 | 0.4+ | 0.8− |
| 2002 10 09 | 704 | 0.1− | 0.2+ | 2004 01 22 | 704 | 0.0 | 0.4+ | 2008 10 26 | 703 | 0.7+ | 0.4− |
| 2002 10 09 | 704 | 0.2− | 0.8− | 2004 01 26 | 699 | 0.0 | 0.2− | 2008 10 26 | 703 | 1.0+ | 0.3+ |
| 2002 10 09 | 704 | 1.1− | 0.9− | 2004 01 26 | 699 | 0.5+ | 0.2− | 2008 10 26 | 703 | 0.0 | 0.5− |
| 2002 10 09 | 704 | 0.3− | 1.0− | 2004 01 26 | 699 | 0.4+ | 0.0 | 2008 11 06 | 704 | 1.2− | 0.4− |
| 2003 11 20 | 704 | 0.6+ | 0.4+ | 2004 01 26 | 699 | 0.4− | 0.5+ | 2008 11 06 | 704 | 0.6− | 0.2− |
| 2003 11 20 | 704 | 0.1− | 0.0 | 2004 01 30 | 691 | 0.2− | 0.0 | 2008 11 06 | 704 | 0.1+ | 0.5+ |
| 2003 11 20 | 704 | 0.1− | 0.0 | 2004 01 30 | 691 | 0.1− | 0.1+ | 2008 11 06 | 704 | 0.3− | 0.2+ |
| 2003 11 20 | 704 | 0.6− | 0.0 | 2004 01 30 | 691 | 0.3− | 0.1− | 2008 11 06 | 704 | 0.4− | 1.2− |
| 2003 11 20 | 704 | 0.6− | 0.3+ | 2004 01 30 | 704 | 0.6− | 0.1+ | 2008 11 17 | 703 | 0.3− | 0.5− |
| 2003 12 19 | 704 | 0.4+ | 0.1− | 2004 01 30 | 704 | 0.0 | 0.7+ | 2008 11 17 | 703 | 0.6− | 0.7− |
| 2003 12 19 | 704 | 0.8+ | 0.0 | 2004 01 30 | 704 | 0.3− | 0.3+ | 2008 12 07 | 704 | 0.4− | 0.1− |
| 2003 12 19 | 704 | 0.5+ | 0.5+ | 2004 01 30 | 704 | 0.2− | 0.3+ | 2008 12 07 | 704 | 0.2− | 0.1− |
| 2003 12 19 | 704 | 0.0 | 0.7+ | 2004 02 13 | 699 | 0.3− | 0.1+ | 2008 12 07 | 704 | 0.9+ | 0.5+ |
| 2003 12 19 | 704 | 0.2+ | 0.5− | 2004 02 13 | 699 | 0.2− | 0.8+ | 2008 12 07 | 704 | 0.1− | 0.1− |
| 2003 12 23 | 704 | 0.4+ | 0.2− | 2004 02 13 | 699 | 0.8− | 0.3− | 2008 12 07 | 704 | 0.0 | 0.0 |
| 2003 12 23 | 704 | 0.4+ | 0.4+ | 2004 02 13 | 699 | 0.5+ | 0.6+ | 2009 11 08 | G96 | 0.2− | 0.2+ |
| 2003 12 23 | 704 | 0.4+ | 0.5− | 2004 02 14 | 691 | 0.0 | 0.2− | 2009 11 08 | G96 | 0.2+ | 0.1+ |
| 2003 12 23 | 704 | 0.3+ | 1.2− | 2004 02 14 | 691 | 0.2− | 0.0 | 2009 11 08 | G96 | 0.1+ | 0.1+ |
| 2003 12 23 | 704 | 0.0 | 0.8− | 2004 02 14 | 691 | 0.0 | 0.0 | 2009 11 08 | G96 | 0.1+ | 0.5+ |
| 2003 12 23 | 608 | 1.0− | 1.3− | 2004 02 17 | 608 | 0.2+ | 0.5− | 2009 12 15 | 703 | 2.0+ | 1.3− |
| 2003 12 23 | 608 | 0.5− | 0.2− | 2004 02 17 | 608 | 0.1+ | 0.3− | 2009 12 15 | 703 | 0.9+ | 0.7− |
| 2003 12 23 | 608 | 0.3− | 0.2− | 2004 02 17 | 608 | 0.1− | 0.2− | 2009 12 15 | 703 | 0.3+ | 0.4− |
| 2003 12 28 | 704 | 0.2− | 0.3− | 2004 02 22 | 291 | 1.2+ | 0.0 | 2009 12 15 | 703 | 1.5− | 0.9− |
| 2003 12 28 | 704 | 0.3− | 0.3− | 2004 02 22 | 291 | 0.3+ | 0.0 | 2009 12 19 | 291 | 0.2− | 0.4+ |
| 2003 12 28 | 704 | 0.2− | 0.8− | 2004 02 22 | 291 | 0.1+ | 0.2+ | 2009 12 19 | 291 | 0.2+ | 0.2+ |
| 2003 12 28 | 704 | 0.7− | 0.0 | 2004 02 23 | 704 | 0.2− | 0.5+ | 2009 12 19 | 291 | 0.3− | 0.2+ |

**(229023)**∗ **2003 YT$_{160}$**

Discovered 2003 Dec. 17 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 325.38339 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17872106 | $\omega$ | 86.11902 | | −0.89649626 | −0.07059634 | |
| $a$ | 3.1214201 | $\Omega$ | 89.44102 | | −0.10346659 | −0.92656625 | |
| $e$ | 0.2646649 | $i$ | 25.93884 | | +0.43080056 | −0.36944707 | |
| $P$ | 5.51 | $H$ | 14.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 01 14 | 704 | 0.6− | 0.5− | 2003 12 28 | 691 | 0.1− | 0.1+ | 2005 05 10 | 703 | 0.6− | 0.1− |
| 1999 01 14 | 704 | 1.0− | 0.8+ | 2005 01 01 | 703 | 1.2− | 0.4+ | 2005 05 10 | 703 | 0.1− | 0.5− |
| 1999 01 14 | 704 | (0.8− | 2.1+) | 2005 01 01 | 703 | 0.9− | 0.3− | 2005 05 16 | 703 | 0.6+ | 0.3+ |
| 1999 01 14 | 704 | 0.5+ | 1.0− | 2005 01 01 | 703 | 1.4− | 1.5− | 2005 05 16 | 703 | 0.3+ | 0.3+ |
| 1999 01 14 | 704 | 0.8− | 1.0− | 2005 01 01 | 703 | 0.1− | 0.4+ | 2005 05 16 | 703 | 0.7+ | 0.2+ |
| 1999 02 18 | 704 | 1.5+ | 0.8+ | 2005 04 01 | 703 | 0.8+ | 0.1+ | 2005 05 16 | 703 | 0.0 | 0.1+ |
| 1999 02 18 | 704 | 0.9− | 0.9− | 2005 04 01 | 703 | 0.7− | 0.1+ | 2005 06 08 | 704 | 0.7+ | 0.4+ |
| 1999 02 18 | 704 | 1.3+ | 0.5− | 2005 04 01 | 703 | 0.6− | 0.1− | 2005 06 08 | 704 | 0.6+ | 0.0 |
| 1999 02 18 | 704 | 0.7− | 0.2− | 2005 04 01 | 703 | 0.6− | 0.1− | 2005 06 08 | 704 | 0.7+ | 0.2+ |
| 1999 02 18 | 704 | 1.0+ | 1.4− | 2005 04 13 | 704 | 0.9− | 0.5+ | 2005 06 08 | 704 | 0.8+ | 0.6+ |
| 1999 02 23 | 699 | 0.7+ | 0.4− | 2005 04 13 | 704 | 0.6+ | 0.2+ | 2005 07 09 | 703 | 0.8+ | 0.2− |
| 1999 02 23 | 699 | 0.2+ | 0.1+ | 2005 04 13 | 704 | 0.4+ | 0.7+ | 2005 07 09 | 703 | 1.4− | 1.1+ |
| 1999 02 23 | 699 | 0.6+ | 0.4+ | 2005 04 17 | 703 | 0.3+ | 1.1+ | 2005 07 09 | 703 | 0.3+ | 0.2+ |
| 2003 11 20 | 599 | 0.1+ | 0.2+ | 2005 04 17 | 703 | (1.5− | 2.4+) | 2005 07 09 | 703 | 1.3+ | 0.4+ |
| 2003 11 20 | 599 | (0.7+ | 1.9+) | 2005 04 17 | 703 | (0.9+ | 2.9+) | 2005 09 23 | 413 | 0.1− | 0.0 |
| 2003 11 20 | 599 | 0.1+ | 0.4+ | 2005 04 17 | 703 | 0.2− | 0.6+ | 2005 09 23 | 413 | 0.2− | 0.0 |
| 2003 11 20 | 644 | 0.4− | 0.6+ | 2005 04 30 | 703 | 0.4− | 0.0 | 2009 11 11 | 704 | 0.1+ | 1.3− |
| 2003 11 20 | 644 | 0.2− | 0.4+ | 2005 04 30 | 703 | 0.1− | 0.8− | 2009 11 11 | 704 | (0.5+ | 2.1−) |
| 2003 11 20 | 644 | 0.0 | 0.5+ | 2005 04 30 | 703 | 0.4− | 0.2+ | 2009 11 11 | 704 | 1.3+ | 0.4− |
| 2003 11 30 | 704 | 0.0 | 0.1− | 2005 04 30 | 703 | 0.3− | 0.1− | 2009 11 11 | 704 | 0.7+ | 1.3+ |
| 2003 11 30 | 704 | 1.4+ | 1.0+ | 2005 05 03 | 608 | 0.2+ | 0.4− | 2009 11 24 | 703 | 0.9− | 0.1− |
| 2003 11 30 | 704 | (1.2+ | 2.7+) | 2005 05 03 | 608 | 0.7+ | 0.1− | 2009 11 24 | 703 | 0.3− | 0.8− |
| 2003 11 30 | 704 | 1.0− | 1.4+ | 2005 05 03 | 608 | 0.4+ | 0.4− | 2009 11 24 | 703 | 0.5− | 0.1− |
| 2003 12 17 | 691 | 0.2− | 0.2+ | 2005 05 04 | 695 | 0.1− | 0.1+ | 2009 11 24 | 703 | 0.5− | 0.3+ |
| 2003 12 17 | 691 | 0.0 | 0.2+ | 2005 05 04 | 695 | 0.2− | 0.0 | 2009 12 09 | J75 | 0.1+ | 0.1− |
| 2003 12 17 | 691 | 0.0 | 0.0 | 2005 05 10 | 704 | 0.1+ | 0.4+ | 2009 12 09 | J75 | 0.1+ | 0.2− |
| 2003 12 22 | 704 | 1.4− | 1.1− | 2005 05 10 | 704 | 0.9+ | 0.2− | 2009 12 09 | J75 | 0.2+ | 0.1− |
| 2003 12 22 | 704 | 0.5− | 0.4− | 2005 05 10 | 704 | 0.9+ | 0.5+ | 2009 12 09 | 704 | 0.1− | 0.3+ |
| 2003 12 22 | 704 | 0.0 | 0.7− | 2005 05 10 | 704 | 0.0 | 0.7+ | 2009 12 09 | 704 | (1.2− | 1.6+) |
| 2003 12 22 | 704 | 0.3− | 0.1− | 2005 05 10 | 704 | 0.7+ | 0.6+ | 2009 12 09 | 704 | 0.5+ | 1.2+ |
| 2003 12 28 | 691 | 0.0 | 0.2+ | 2005 05 10 | 703 | 0.4− | 0.6− | 2009 12 09 | 704 | 0.5+ | 0.8+ |
| 2003 12 28 | 691 | 0.4− | 0.2+ | 2005 05 10 | 703 | 0.1− | 0.2+ | | | | |

**(229024)**∗ **2003 YT$_{164}$**

Discovered 2003 Dec. 17 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 36.15587 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17380908 | $\omega$ | 339.30474 | | +0.54367193 | −0.83894083 | |
| $a$ | 3.1799557 | $\Omega$ | 77.75391 | | +0.77351876 | +0.48953144 | |
| $e$ | 0.1704734 | $i$ | 1.43522 | | +0.32571392 | +0.23777562 | |
| $P$ | 5.67 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 11 19 | 291 | 0.1+ | 0.1+ | 2008 09 07 | G96 | 0.3− | 0.2+ | 2008 12 04 | G96 | 0.6+ | 0.4− |
| 2003 11 19 | 291 | 0.4− | 1.1− | 2008 09 07 | G96 | 0.4− | 0.1+ | 2008 12 04 | G96 | 0.5− | 0.0 |
| 2003 11 19 | 291 | 0.3+ | 0.1+ | 2008 09 07 | G96 | 0.8− | 0.1+ | 2009 10 18 | G96 | 0.5+ | 0.1− |
| 2003 12 17 | 691 | 0.2+ | 0.1+ | 2008 09 22 | 704 | 0.4− | 1.3− | 2009 10 18 | G96 | 0.2+ | 0.2+ |
| 2003 12 17 | 691 | 0.1− | 0.4+ | 2008 09 22 | G96 | 0.6+ | 0.1− | 2009 10 18 | G96 | 0.1− | 0.2− |
| 2003 12 17 | 691 | 0.4+ | 0.2+ | 2008 09 22 | 704 | 0.2+ | 0.6+ | 2009 10 18 | G96 | 0.1+ | 0.2− |
| 2003 12 24 | 704 | 0.0 | 0.0 | 2008 09 22 | G96 | 0.0 | 0.1− | 2009 11 11 | G96 | 0.1− | 0.1− |
| 2003 12 24 | 704 | 0.1+ | 0.4+ | 2008 09 22 | 704 | 1.4− | 1.4+ | 2009 11 11 | G96 | 0.3+ | 0.1− |
| 2003 12 24 | 704 | 0.8− | 0.2+ | 2008 09 22 | G96 | 0.4+ | 0.0 | 2009 11 11 | G96 | 0.1+ | 0.0 |
| 2003 12 29 | 691 | 0.1− | 0.0 | 2008 09 22 | G96 | 0.1+ | 0.2+ | 2009 11 11 | G96 | 0.9+ | 0.2− |
| 2003 12 29 | 691 | 0.3− | 0.1+ | 2008 09 23 | E12 | 0.1+ | 0.2+ | 2009 12 10 | G96 | 0.4+ | 0.3− |
| 2003 12 29 | 691 | 0.1+ | 0.1+ | 2008 09 23 | E12 | 0.8+ | 0.3+ | 2009 12 10 | G96 | 0.0 | 0.2+ |
| 2005 03 10 | G96 | 0.1+ | 0.2+ | 2008 09 23 | E12 | 0.3+ | 1.0− | 2009 12 10 | G96 | 0.1+ | 0.2− |
| 2005 03 10 | G96 | 0.2− | 0.3+ | 2008 09 23 | E12 | 0.2− | 0.5+ | 2009 12 10 | G96 | 0.0 | 0.1− |
| 2005 03 10 | G96 | 0.2− | 0.1− | 2008 09 28 | 704 | 0.5+ | 0.2+ | 2009 12 17 | 691 | 0.1− | 0.0 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 03 10 | G96 | 0.0 | 0.0 | 2008 09 28 | 704 | 0.2+ | 0.2− | 2009 12 17 | 691 | 0.2− | 0.2− | | |
| 2005 04 11 | G96 | 0.2+ | 0.1+ | 2008 09 28 | 704 | 0.1+ | 0.3+ | 2009 12 17 | 691 | 0.2− | 0.0 | | |
| 2005 04 11 | G96 | 0.1+ | 0.2− | 2008 09 28 | 704 | 0.2+ | 0.0 | 2009 12 25 | 691 | 0.1− | 0.3+ | | |
| 2005 04 11 | G96 | 0.1+ | 0.3− | 2008 09 28 | 704 | 0.6− | 0.4− | 2009 12 25 | 691 | 0.0 | 0.0 | | |
| 2005 04 11 | G96 | 0.1+ | 0.0 | 2008 12 04 | G96 | 0.1+ | 0.1− | 2009 12 25 | 691 | 0.0 | 0.0 | | |
| 2008 09 07 | G96 | 0.0 | 0.2+ | 2008 12 04 | G96 | 0.4+ | 0.2− | | | | | | |

**(229025)∗ 2004 BJ$_{13}$**

Discovered 2004 Jan. 17 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 313.09757 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.30989083 | $\omega$ | 197.73784 | | −0.59150768 | −0.80536747 | |
| $a$ | 2.1627031 | $\Omega$ | 288.54339 | | +0.74463071 | −0.52720006 | |
| $e$ | 0.0555231 | $i$ | 2.34272 | | +0.30926327 | −0.27100431 | |
| $P$ | 3.18 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 07 22 | 644 | 0.1+ | 1.3+ | 2004 01 24 | 704 | 0.2+ | 0.1+ | 2005 06 17 | G96 | 0.2+ | 0.1+ | | |
| 2002 07 22 | 644 | 0.2− | 0.7+ | 2004 01 24 | 704 | 0.5+ | 0.7+ | 2005 06 17 | G96 | 0.0 | 0.1+ | | |
| 2002 07 29 | 644 | 0.1− | 0.8+ | 2004 01 24 | 704 | 0.3+ | 1.0+ | 2005 06 17 | G96 | 0.1+ | 0.4+ | | |
| 2002 07 29 | 644 | 0.0 | 0.3+ | 2004 01 24 | 704 | 0.1− | 1.0+ | 2005 06 17 | G96 | 0.3+ | 0.3+ | | |
| 2002 07 29 | 644 | 0.8− | 0.4+ | 2004 01 27 | 704 | 0.3+ | 0.2+ | 2006 12 14 | 704 | 0.7− | 1.3− | | |
| 2002 08 07 | 644 | 0.4− | 0.3+ | 2004 01 27 | 704 | 0.8+ | 0.3− | 2006 12 14 | 704 | 0.7+ | 0.3− | | |
| 2002 08 07 | 644 | 0.0 | 0.1+ | 2004 01 27 | 704 | 0.0 | 1.2− | 2006 12 14 | 704 | 0.3+ | 0.3+ | | |
| 2002 08 07 | 644 | 0.1− | 0.0 | 2004 01 27 | 704 | 0.6− | 1.3− | 2006 12 21 | 691 | 0.6+ | 0.1− | | |
| 2002 08 17 | 644 | 0.3− | 0.2+ | 2004 01 28 | 704 | 0.3+ | 0.3− | 2006 12 21 | 691 | 0.1+ | 0.3− | | |
| 2002 08 17 | 644 | 0.0 | 0.4+ | 2004 01 28 | 704 | 0.3+ | 0.2+ | 2006 12 21 | 691 | 0.1+ | 0.1+ | | |
| 2002 08 17 | 644 | 0.0 | 0.4+ | 2004 01 28 | 704 | 0.1− | 0.4+ | 2009 11 09 | 691 | 0.3− | 0.0 | | |
| 2002 08 27 | 644 | 0.2− | 0.0 | 2004 01 28 | 704 | 0.2− | 0.1− | 2009 11 09 | 691 | 0.5− | 0.0 | | |
| 2002 08 27 | 644 | 0.5− | 0.4+ | 2004 01 28 | 704 | 0.2+ | 0.1− | 2009 11 09 | 691 | 1.0+ | 0.1− | | |
| 2002 08 27 | 644 | 0.0 | 0.0 | 2004 01 29 | 704 | 0.3− | 0.9+ | 2009 11 11 | J75 | 0.5− | 0.7+ | | |
| 2002 09 14 | 644 | 0.0 | 0.6+ | 2004 01 29 | 704 | 1.3− | 0.8+ | 2009 11 11 | J75 | 0.6+ | 0.5+ | | |
| 2002 09 14 | 644 | 0.2− | 0.5+ | 2004 01 29 | 704 | 0.1+ | 0.3+ | 2009 11 12 | J75 | 0.1+ | 0.2+ | | |
| 2004 01 17 | 644 | 0.2+ | 0.5+ | 2004 01 29 | 704 | 0.4+ | 0.1+ | 2009 11 17 | 691 | 0.5− | 0.2− | | |
| 2004 01 17 | 644 | 0.3+ | 0.4+ | 2004 01 30 | 691 | 0.0 | 0.0 | 2009 11 17 | 691 | 0.3− | 0.1− | | |
| 2004 01 17 | 644 | 0.7+ | 0.4+ | 2004 01 30 | 691 | 0.0 | 0.0 | 2009 11 17 | 691 | 0.2− | 0.0 | | |
| 2004 01 19 | 691 | 0.0 | 0.2+ | 2004 01 30 | 691 | 0.0 | 0.1+ | 2009 12 17 | G96 | 0.0 | 0.0 | | |
| 2004 01 19 | 691 | 0.3− | 0.1+ | 2004 02 14 | 691 | 0.1− | 0.3+ | 2009 12 17 | G96 | 0.2+ | 0.4+ | | |
| 2004 01 19 | 691 | 0.1+ | 0.3− | 2004 02 14 | 691 | 0.1+ | 0.1+ | 2009 12 17 | G96 | 0.2+ | 0.0 | | |
| 2004 01 24 | 704 | 0.4− | 1.2+ | 2004 02 14 | 691 | 0.1− | 0.3+ | 2009 12 17 | G96 | 0.1+ | 0.1+ | | |

**(229026)∗ 2004 BS$_{32}$ = 1999 TE$_{73}$**

Discovered 2004 Jan. 19 by Spacewatch at Kitt Peak.

Id. A. Doppler (*MPO* 69634)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 301.39403 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.30752831 | $\omega$ | 153.32004 | | −0.66842956 | −0.74339250 | |
| $a$ | 2.1737653 | $\Omega$ | 338.59892 | | +0.67018759 | −0.58807090 | |
| $e$ | 0.0335169 | $i$ | 3.74990 | | +0.32256862 | −0.31865375 | |
| $P$ | 3.20 | $H$ | 17.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 10 04 | 691 | 0.2+ | 0.0 | 2003 12 29 | 691 | 0.3+ | 0.1+ | 2006 11 19 | 691 | 0.0 | 0.1− | | |
| 1996 10 04 | 691 | 0.3− | 0.4+ | 2003 12 29 | 691 | 0.3+ | 0.4+ | 2006 12 15 | 691 | 0.0 | 0.1− | | |
| 1996 10 04 | 691 | 0.6− | 0.4+ | 2003 12 29 | 691 | 0.5+ | 0.3+ | 2006 12 15 | 691 | 0.1− | 0.1− | | |
| 1999 10 10 | 691 | 0.4+ | 0.1+ | 2004 01 19 | 691 | 0.3+ | 0.1+ | 2006 12 15 | 691 | 0.1− | 0.1+ | | |
| 1999 10 10 | 691 | 0.6− | 0.5− | 2004 01 19 | 691 | 0.1+ | 0.1− | 2007 01 10 | 691 | 0.1− | 0.0 | | |
| 1999 10 10 | 691 | 0.7+ | 0.4− | 2004 01 19 | 691 | 0.0 | 0.0 | 2007 01 10 | 691 | 0.4− | 0.0 | | |
| 1999 10 13 | 691 | 0.3+ | 0.3− | 2004 01 22 | 704 | 1.1− | 0.2− | 2007 01 10 | 691 | 0.3− | 0.2− | | |
| 1999 10 13 | 691 | 0.6+ | 0.2− | 2004 01 22 | 704 | 0.6+ | 0.4− | 2009 11 11 | 691 | 0.1− | 0.2+ | | |
| 1999 10 13 | 691 | 0.1+ | 0.5− | 2004 01 22 | 704 | 0.8+ | 0.3+ | 2009 11 11 | 691 | 0.4− | 0.1− | | |
| 2001 02 20 | 645 | 0.2− | 0.1− | 2004 02 12 | 691 | 0.2+ | 0.2+ | 2009 11 11 | 691 | 0.3− | 0.2+ | | |
| 2001 02 20 | 645 | 0.1− | 0.1− | 2004 02 12 | 691 | 0.1+ | 0.0 | 2009 12 20 | G96 | 0.0 | 0.1− | | |
| 2002 08 18 | 644 | 0.0 | 0.4+ | 2004 02 12 | 691 | 0.1− | 0.2+ | 2009 12 20 | G96 | 0.5+ | 0.0 | | |
| 2002 08 18 | 644 | 0.1+ | 0.1− | 2006 11 19 | 691 | 0.2− | 0.1− | 2009 12 20 | G96 | 0.4+ | 0.4− | | |
| 2002 08 18 | 644 | 0.1− | 0.8+ | 2006 11 19 | 691 | 1.3+ | 0.9− | 2009 12 20 | G96 | 0.0 | 0.3+ | | |

**(229027)∗ 2004 BK$_{46}$**

Discovered 2004 Jan. 21 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 57.24825 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18109541 | $\omega$ | 314.05818 | | −0.14658344 | −0.98683602 | |
| $a$ | 3.0940768 | $\Omega$ | 144.20417 | | +0.93768902 | −0.16061598 | |
| $e$ | 0.1001903 | $i$ | 6.70808 | | +0.31504381 | +0.01889904 | |
| $P$ | 5.44 | $H$ | 15.3 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 09 11 | 691 | 0.6− | 0.3+ | 2004 02 11 | 703 | 0.6+ | 0.9+ | 2007 09 14 | 691 | 0.2+ | 0.3+ | | |
| 1996 09 11 | 691 | 0.3− | 0.4+ | 2004 02 11 | 703 | 0.2− | 0.5+ | 2007 09 20 | 691 | 0.2+ | 0.1+ | | |
| 1996 09 11 | 691 | 0.7− | 0.1+ | 2004 02 11 | 703 | 0.2+ | 1.0+ | 2007 09 20 | 691 | 0.2+ | 0.2+ | | |
| 2002 10 31 | 704 | 0.1− | 0.9+ | 2004 02 12 | 691 | 0.4+ | 0.4+ | 2007 09 20 | 691 | 0.1− | 0.0 | | |
| 2002 10 31 | 704 | 0.3+ | 0.1+ | 2004 02 12 | 691 | 0.1− | 0.2+ | 2007 10 06 | 691 | 0.3− | 0.1+ | | |
| 2002 10 31 | 704 | 0.8− | 0.7+ | 2004 02 12 | 691 | 0.1− | 0.4+ | 2007 10 06 | 691 | 0.1+ | 0.1+ | | |
| 2002 10 31 | 704 | 0.3− | 0.5+ | 2004 02 22 | 704 | 1.1+ | 0.3+ | 2007 10 06 | 691 | 0.0 | 0.3+ | | |
| 2003 12 30 | 691 | 0.1− | 0.1+ | 2004 02 22 | 704 | 0.6+ | 1.3+ | 2007 10 08 | 691 | 0.1+ | 0.1+ | | |
| 2003 12 30 | 691 | 0.2+ | 0.1− | 2004 02 22 | 704 | 0.4+ | 1.2+ | 2007 10 08 | 691 | 0.1+ | 0.1+ | | |
| 2003 12 30 | 691 | 0.3+ | 0.1+ | 2004 02 26 | 704 | 0.6+ | 0.9+ | 2007 10 08 | 691 | 0.4+ | 0.2+ | | |
| 2004 01 21 | 704 | 0.2+ | 0.8+ | 2004 02 26 | 704 | 0.7+ | 0.6+ | 2007 10 10 | 691 | 0.0 | 0.4+ | | |
| 2004 01 21 | 704 | 0.0 | 0.9+ | 2004 02 26 | 704 | 0.6+ | 0.5+ | 2007 10 10 | 691 | 0.2+ | 0.1+ | | |
| 2004 01 21 | 704 | 0.7+ | 0.5+ | 2004 04 15 | 645 | 0.1− | 0.1+ | 2007 10 10 | 691 | 0.1− | 0.2+ | | |
| 2004 01 24 | 704 | 0.6+ | 0.0 | 2004 04 15 | 645 | 0.0 | 0.1+ | 2007 10 12 | 691 | 0.1− | 0.2+ | | |
| 2004 01 24 | 704 | 0.5− | 0.5+ | 2005 04 07 | 691 | 0.3+ | 0.5+ | 2007 10 12 | 691 | 0.1− | 0.2+ | | |
| 2004 01 24 | 704 | 0.8+ | 0.6+ | 2005 04 07 | 691 | 0.1+ | 0.6+ | 2007 10 12 | 691 | 0.2− | 0.1+ | | |
| 2004 01 26 | 699 | 0.6− | 1.0− | 2005 04 07 | 691 | 0.3+ | 0.7+ | 2008 12 21 | 703 | 0.5− | 1.4− | | |
| 2004 01 26 | 699 | 0.3− | 0.0 | 2005 04 15 | 691 | 0.5+ | 0.7+ | 2008 12 21 | 703 | 1.4− | 0.8− | | |
| 2004 01 26 | 699 | 1.1− | 0.5+ | 2005 04 15 | 691 | 0.4+ | 0.5+ | 2008 12 21 | 703 | 1.0− | 0.9− | | |
| 2004 01 26 | 699 | 1.1+ | 0.6+ | 2005 04 15 | 691 | 0.1+ | 0.7+ | 2008 12 21 | 703 | 0.3− | 0.8− | | |
| 2004 01 30 | 691 | 0.0 | 0.0 | 2007 09 10 | 691 | 0.3+ | 0.2+ | 2008 12 21 | 703 | (1.6− | 1.2−) | | |
| 2004 01 30 | 691 | 0.1+ | 0.0 | 2007 09 10 | 691 | 0.6− | 1.3+ | 2009 12 25 | 691 | 0.1− | 0.1− | | |
| 2004 01 30 | 691 | 0.0 | 0.1+ | 2007 09 10 | 691 | 0.1+ | 0.1+ | 2009 12 25 | 691 | 0.4− | 0.2+ | | |
| 2004 01 30 | 704 | 0.7+ | 1.3− | 2007 09 12 | 703 | 0.5− | 0.9+ | 2009 12 25 | 691 | 0.2− | 0.1+ | | |
| 2004 01 30 | 704 | 0.5+ | 0.6− | 2007 09 12 | 703 | 0.3+ | 0.4+ | 2009 12 26 | 691 | 0.3− | 0.0 | | |
| 2004 01 30 | 704 | 0.9+ | 0.0 | 2007 09 12 | 703 | 1.2− | 0.1+ | 2009 12 26 | 691 | 0.3− | 0.1+ | | |
| 2004 01 30 | 704 | 0.0 | 1.0+ | 2007 09 12 | 703 | 0.1− | 0.7+ | 2009 12 26 | 691 | 0.7− | 0.0 | | |
| 2004 01 30 | 704 | 0.5+ | 0.1+ | 2007 09 14 | 691 | 0.1+ | 0.1− | | | | | | |
| 2004 02 11 | 703 | 1.1+ | 0.5+ | 2007 09 14 | 691 | 0.1− | 0.2+ | | | | | | |

**(229028)∗ 2004 CZ$_{3}$**

Discovered 2004 Feb. 10 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 50.90881 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.30992716 | $\omega$ | 27.56526 | | +0.95090890 | −0.30917951 | |
| $a$ | 2.1625341 | $\Omega$ | 350.41557 | | +0.26701701 | +0.84162217 | |
| $e$ | 0.1405070 | $i$ | 4.62571 | | +0.15644229 | +0.44280939 | |
| $P$ | 3.18 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1993 11 08 | 691 | 0.4− | 0.6+ | 2006 12 13 | 703 | 0.1+ | 0.8− | 2009 11 20 | 152 | 0.0 | 0.1− | | |
| 1993 11 08 | 691 | 0.2+ | 0.0 | 2006 12 13 | 703 | 1.1− | 0.1− | 2009 11 20 | 152 | 0.0 | 0.4− | | |
| 1993 11 08 | 691 | 0.2− | 0.5+ | 2006 12 13 | 703 | (0.0 | 2.3−) | 2009 11 21 | 152 | 0.6+ | 0.2+ | | |
| 1999 08 13 | 699 | 0.9+ | 0.9+ | 2006 12 15 | 704 | 0.9+ | 1.3− | 2009 11 21 | 703 | 0.2− | 0.3− | | |
| 1999 08 13 | 699 | 0.6− | 0.4− | 2006 12 15 | 704 | 0.7+ | 1.4− | 2009 11 21 | 703 | 0.5+ | 0.3− | | |
| 1999 08 13 | 699 | 0.5− | 0.5+ | 2006 12 15 | 704 | (1.7− | 1.5−) | 2009 11 21 | 703 | 1.4+ | 0.6− | | |
| 2004 01 22 | 704 | 0.6− | 0.8+ | 2006 12 15 | 704 | 0.3− | 0.1− | 2009 11 23 | 704 | 0.3− | 0.1− | | |
| 2004 01 22 | 704 | 0.9+ | 0.2+ | 2006 12 15 | 704 | (0.9+ | 2.0−) | 2009 11 23 | 704 | 0.7+ | 0.4+ | | |
| 2004 01 22 | 704 | 0.0 | 0.1− | 2006 12 18 | 704 | 0.5+ | 0.1+ | 2009 11 23 | 704 | 1.3+ | 0.8+ | | |
| 2004 01 22 | 704 | 0.0 | 0.4+ | 2006 12 18 | 704 | 0.5+ | 0.9+ | 2009 11 23 | 704 | (1.5+ | 3.7+) | | |
| 2004 01 22 | 704 | 0.5+ | 0.8+ | 2006 12 18 | 704 | 1.2+ | 0.2+ | 2009 11 23 | 704 | 1.1+ | 0.6+ | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 01 30 | 704 | 1.0− | 0.3− | 2006 12 18 | 704 | (1.8+ | 0.7+) | 2009 12 10 | H10 | 1.1− | 0.7− |
| 2004 01 30 | 704 | 0.3+ | 1.4+ | 2006 12 18 | 704 | (0.1+ | 2.0+) | 2009 12 10 | H10 | 0.6− | 0.7− |
| 2004 01 30 | 704 | 1.1+ | 1.2+ | 2007 01 24 | 704 | 0.5+ | 0.6+ | 2009 12 10 | H10 | 0.2− | 0.3− |
| 2004 02 10 | 644 | 0.6+ | 0.4+ | 2007 01 24 | 704 | 0.1− | 0.3+ | 2009 12 13 | H10 | 1.0− | 0.4− |
| 2004 02 10 | 644 | 0.1+ | 0.3+ | 2007 01 24 | 704 | 0.1+ | 0.2+ | 2009 12 13 | H10 | 1.2− | 0.5− |
| 2004 02 10 | 644 | 0.4− | 0.7+ | 2007 01 24 | 704 | 0.7− | 0.3− | 2009 12 13 | H10 | 1.3− | 0.3− |
| 2004 02 11 | 691 | 0.1− | 0.0 | 2007 01 24 | 704 | 0.6+ | 0.5+ | 2009 12 13 | H10 | 1.2− | 0.6− |
| 2004 02 11 | 691 | 0.1− | 0.1+ | 2009 07 30 | 691 | 0.3− | 0.0 | 2009 12 13 | H10 | 0.9− | 0.5− |
| 2004 02 11 | 691 | 0.2− | 0.2+ | 2009 07 30 | 691 | 0.6+ | 0.8+ | 2009 12 13 | H10 | 1.2− | 0.3− |
| 2004 02 23 | 704 | 0.0 | 0.7− | 2009 07 30 | 691 | 0.6− | 0.3− | 2009 12 13 | H10 | 1.0− | 0.3− |
| 2004 02 23 | 704 | 0.6+ | 0.3− | 2009 11 16 | 704 | 1.3+ | 0.7− | 2009 12 13 | H10 | 1.3− | 0.5− |
| 2004 02 23 | 704 | 0.9+ | 0.6+ | 2009 11 16 | 704 | 0.4+ | 0.3+ | 2009 12 15 | 704 | 0.8+ | 0.0 |
| 2004 02 23 | 704 | 0.3+ | 0.5− | 2009 11 16 | 704 | 0.5+ | 0.1+ | 2009 12 15 | 704 | 0.0 | 0.3− |
| 2004 02 26 | 695 | 0.3− | 0.2− | 2009 11 16 | 704 | 0.8+ | 0.0 | 2009 12 15 | 704 | 0.4+ | 1.1− |
| 2004 02 26 | 695 | 0.5− | 0.1− | 2009 11 16 | 704 | 0.2+ | 0.1+ | 2009 12 15 | 704 | 0.8+ | 0.2+ |
| 2006 12 13 | 703 | 0.9− | 0.9− | 2009 11 20 | 152 | 0.2+ | 0.0 | 2009 12 15 | 704 | 0.7+ | 0.0 |

**(229029)∗ 2004 CS$_{45}$**

Discovered 2004 Feb. 13 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 167.26115 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28922778 | $\omega$ | 256.30874 | | −0.27344487 | +0.96187915 | |
| $a$ | 2.2645194 | $\Omega$ | 357.80944 | | −0.83650158 | −0.23987646 | |
| $e$ | 0.1568851 | $i$ | 6.08165 | | −0.47486105 | −0.13133080 | |
| $P$ | 3.41 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 04 26 | 608 | 1.4− | 0.3+ | 2005 08 10 | 185 | 0.4− | 0.2+ | 2005 09 23 | 703 | 0.2+ | 0.2+ |
| 2001 04 26 | 608 | 1.4− | 0.4+ | 2005 08 10 | 185 | 0.0 | 0.6− | 2005 09 23 | 703 | 0.1− | 0.2+ |
| 2001 04 26 | 608 | 1.3− | 0.3+ | 2005 08 11 | 185 | 0.5+ | 0.2+ | 2005 09 23 | 699 | (0.3+ | 1.6+) |
| 2002 10 31 | 644 | 0.0 | 0.1+ | 2005 08 11 | 185 | 0.7+ | 0.1+ | 2005 09 23 | 703 | (0.2+ | 1.6−) |
| 2002 10 31 | 644 | 0.7− | 0.0 | 2005 08 11 | 185 | 0.4+ | 0.2− | 2005 09 23 | 699 | 1.3+ | 0.8+ |
| 2002 10 31 | 644 | 0.1+ | 0.1− | 2005 08 11 | 185 | 0.2+ | 0.2+ | 2005 09 23 | 699 | (1.5+ | 1.6+) |
| 2004 01 19 | 703 | 0.9+ | 0.4+ | 2005 08 11 | 185 | 0.7+ | 0.3− | 2005 09 23 | 699 | 0.0 | 1.3+ |
| 2004 01 19 | 703 | (1.2+ | 2.2+) | 2005 08 11 | 185 | 0.8+ | 0.2+ | 2005 10 01 | G96 | 0.0 | 0.3− |
| 2004 01 19 | 703 | 1.1− | 0.2− | 2005 08 11 | 185 | 0.4+ | 0.3− | 2005 10 01 | G96 | 0.3− | 0.4− |
| 2004 01 19 | 703 | 0.5+ | 0.1+ | 2005 08 11 | 185 | 0.7+ | 0.6+ | 2005 10 01 | G96 | 0.2+ | 0.2− |
| 2004 01 30 | 704 | 0.1− | 0.2+ | 2005 08 28 | 699 | 0.8+ | 0.6+ | 2005 10 01 | G96 | 0.5− | 0.3− |
| 2004 01 30 | 704 | 0.4+ | 1.5+ | 2005 08 28 | 699 | 0.3− | 0.4+ | 2005 10 27 | G96 | 0.1− | 0.7− |
| 2004 01 30 | 704 | (2.0+ | 2.2+) | 2005 08 28 | 699 | 1.4− | 0.1− | 2005 10 27 | G96 | 0.2− | 0.8− |
| 2004 02 13 | 691 | 0.1+ | 0.1+ | 2005 08 28 | 699 | 0.1− | 0.1+ | 2005 10 27 | G96 | 0.3− | 0.7− |
| 2004 02 13 | 691 | 0.1+ | 0.1+ | 2005 08 29 | 704 | 0.8− | 1.3+ | 2005 10 27 | G96 | 0.4− | 0.6− |
| 2004 02 13 | 691 | 0.2+ | 0.1+ | 2005 08 29 | 704 | 0.1− | 0.7+ | 2009 11 10 | 703 | 0.6− | 0.6− |
| 2004 02 16 | 691 | 0.2+ | 0.3+ | 2005 08 29 | 704 | 0.1− | 1.0+ | 2009 11 10 | 703 | 1.2− | 0.8− |
| 2004 02 16 | 691 | 0.2+ | 0.2+ | 2005 08 29 | 704 | 0.6+ | 0.4+ | 2009 11 10 | 703 | 1.3− | 0.9+ |
| 2004 02 16 | 691 | 0.1+ | 0.2+ | 2005 09 07 | 699 | 0.7− | 1.2+ | 2009 11 10 | 703 | 1.1− | 0.7− |
| 2004 02 16 | 704 | (1.6+ | 0.1−) | 2005 09 07 | 699 | 0.2− | 0.3+ | 2009 11 16 | 704 | 0.1+ | 0.6+ |
| 2004 02 16 | 704 | 1.2+ | 0.3+ | 2005 09 07 | 699 | 0.6− | 1.4+ | 2009 11 16 | 704 | 0.5− | 0.6+ |
| 2004 02 16 | 704 | 1.2+ | 1.1− | 2005 09 07 | 699 | 1.0+ | 0.5− | 2009 11 16 | 704 | 0.7− | 0.1+ |
| 2004 02 16 | 704 | 1.2+ | 0.4+ | 2005 09 11 | 291 | 0.3− | 0.3+ | 2009 11 16 | 704 | 0.1− | 0.7− |
| 2004 02 16 | 704 | 1.1+ | 0.2− | 2005 09 11 | 291 | 0.1− | 0.3+ | 2009 11 24 | G96 | 0.2+ | 0.5− |
| 2004 03 19 | 704 | 0.2+ | 1.1+ | 2005 09 11 | 291 | 0.3− | 0.4+ | 2009 11 24 | G96 | 0.2+ | 0.8− |
| 2004 03 19 | 704 | 0.6+ | 0.9+ | 2005 09 22 | 644 | 0.1+ | 0.3+ | 2009 11 24 | G96 | 0.3+ | 0.7− |
| 2004 03 19 | 704 | 1.0+ | 0.4+ | 2005 09 22 | 644 | 0.0 | 0.3+ | 2009 11 24 | G96 | 0.3+ | 0.7− |
| 2004 03 19 | 704 | 0.7+ | 0.7+ | 2005 09 22 | 644 | 0.1+ | 0.1+ | 2009 12 20 | G96 | 0.2+ | 0.9− |
| 2005 07 29 | 644 | 0.2− | 0.2+ | 2005 09 22 | 644 | 0.1− | 0.5+ | 2009 12 20 | G96 | 0.1+ | 0.8− |
| 2005 07 29 | 644 | 0.1+ | 0.4+ | 2005 09 22 | 644 | 0.1+ | 0.2+ | 2009 12 20 | G96 | 0.2− | 0.9− |
| 2005 07 29 | 644 | 0.0 | 0.3+ | 2005 09 22 | 644 | 0.1+ | 0.1+ | 2009 12 20 | G96 | 0.1+ | 0.6− |
| 2005 08 10 | 185 | (1.8− | 0.7+) | 2005 09 23 | 703 | 0.7− | 0.8− | | | | |

**(229030)∗ 2004 CQ$_{58}$**

Discovered 2004 Feb. 10 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 45.83553 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17855811 | $\omega$ | 131.69475 | | −0.36809508 | −0.92786714 | |
| $a$ | 3.1233189 | $\Omega$ | 339.66560 | | +0.79383539 | −0.28017332 | |
| $e$ | 0.0903164 | $i$ | 9.89874 | | +0.48407787 | −0.24610056 | |
| $P$ | 5.52 | $H$ | 14.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 10 21 | 691 | 0.0 | 0.2+ | 2004 02 10 | 644 | 0.1+ | 0.0 | 2007 10 01 | A50 | 0.9− | 0.3− |
| 1996 10 21 | 691 | 0.3+ | 0.2− | 2004 02 10 | 644 | 0.2− | 0.1+ | 2007 10 01 | A50 | 0.7− | 0.2− |
| 1996 10 21 | 691 | 0.5− | 0.1+ | 2004 02 10 | 644 | 0.0 | 0.1+ | 2007 10 01 | A50 | 0.7− | 1.0− |
| 2002 11 06 | 704 | 0.5+ | 0.4+ | 2004 02 10 | 644 | 0.3+ | 0.0 | 2007 10 15 | 704 | 0.9+ | 1.0+ |
| 2002 11 06 | 699 | 0.5+ | 1.3+ | 2004 02 10 | 644 | 0.1− | 0.2− | 2007 10 15 | 704 | (0.7− | 1.7+) |
| 2002 11 06 | 704 | 0.1− | 0.7+ | 2004 02 10 | 644 | 0.1− | 0.1+ | 2007 10 15 | 704 | 1.0− | 0.6+ |
| 2002 11 06 | 699 | 0.8+ | 0.4− | 2004 02 13 | 699 | 0.2+ | 0.2+ | 2007 10 15 | 704 | (0.5+ | 2.7+) |
| 2002 11 06 | 704 | 0.2+ | 1.4+ | 2004 02 13 | 699 | 0.1− | 0.8+ | 2008 12 04 | 704 | 1.4− | 0.7− |
| 2002 11 06 | 699 | 0.6+ | 0.2− | 2004 02 13 | 699 | 1.4− | 0.6− | 2008 12 04 | 704 | 0.5− | 0.6− |
| 2002 11 06 | 699 | 1.1+ | 0.7+ | 2004 02 13 | 699 | 0.2− | 0.3− | 2008 12 04 | 704 | 0.1+ | 0.4− |
| 2002 11 14 | 644 | 0.1+ | 0.3− | 2004 02 15 | 704 | 0.2− | 0.2+ | 2009 11 24 | G96 | 0.3+ | 0.5− |
| 2002 11 14 | 644 | 0.1− | 0.0 | 2004 02 15 | 704 | 0.2− | 0.1+ | 2009 11 24 | G96 | 0.5− | 0.0 |
| 2002 11 14 | 644 | 0.3+ | 0.1+ | 2004 02 15 | 704 | 0.1− | 0.3+ | 2009 11 24 | G96 | 0.1+ | 0.3− |
| 2002 11 24 | 644 | 0.0 | 0.5− | 2004 02 15 | 704 | 0.8+ | 0.4+ | 2009 11 24 | G96 | 0.3− | 0.3− |
| 2002 11 24 | 644 | 0.6+ | 0.4− | 2004 03 18 | 644 | 0.1− | 0.0 | 2009 12 20 | G96 | 0.4+ | 0.0 |
| 2002 11 24 | 644 | 0.4+ | 0.4− | 2004 03 18 | 644 | 0.2+ | 0.3+ | 2009 12 20 | G96 | 0.2+ | 0.4− |
| 2004 01 05 | 703 | (1.4+ | 1.6+) | 2004 03 18 | 644 | 0.1− | 0.0 | 2009 12 20 | G96 | 0.0 | 0.2− |
| 2004 01 05 | 703 | 0.5− | 1.2+ | 2004 05 09 | 291 | 0.4− | 0.7+ | 2009 12 20 | G96 | 0.3+ | 0.2+ |
| 2004 01 05 | 703 | 0.8+ | 0.1− | 2004 05 09 | 291 | 0.1− | 0.0 | 2009 12 25 | 691 | 0.3+ | 0.2− |
| 2004 01 05 | 703 | 1.4+ | 1.2+ | 2004 05 09 | 291 | 0.4+ | 0.3+ | 2009 12 25 | 691 | 0.3+ | 0.1− |
| 2004 01 30 | 704 | 0.1− | 1.0− | 2007 09 14 | 704 | (2.9− | 0.8+) | 2009 12 25 | 691 | 0.3+ | 0.1+ |
| 2004 01 30 | 704 | 0.8− | 0.8− | 2007 09 14 | 704 | 1.0− | 0.4+ | | | | |
| 2004 01 30 | 704 | 0.7− | 0.5− | 2007 09 14 | 704 | (1.8− | 0.1+) | | | | |

**(229031)∗ 2004 DE$_{33}$ = 2002 VD$_{117}$**

Discovered 2004 Feb. 18 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 61969)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 160.55857 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27925103 | $\omega$ | 258.38565 | | −0.26642656 | +0.96381409 | |
| $a$ | 2.3181393 | $\Omega$ | 356.12827 | | −0.82496072 | −0.23280152 | |
| $e$ | 0.1194880 | $i$ | 7.57781 | | −0.49845431 | −0.12986860 | |
| $P$ | 3.53 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 03 14 | 691 | (3.6+ | 1.0+) | 2004 03 16 | 704 | 0.3+ | 0.3− | 2005 09 12 | 691 | 0.0 | 0.6+ |
| 1997 03 14 | 691 | 0.6− | 0.2− | 2004 03 18 | 704 | 0.4+ | 0.6+ | 2005 09 22 | 644 | 0.2+ | 0.2+ |
| 1997 03 14 | 691 | 0.2− | 0.2− | 2004 03 18 | 704 | 0.2+ | 0.7+ | 2005 09 22 | 644 | 0.4− | 0.3+ |
| 1998 09 19 | 645 | 0.0 | 0.0 | 2004 03 18 | 704 | 1.1+ | 0.0 | 2005 09 22 | 644 | 0.2− | 0.0 |
| 1998 09 19 | 645 | 0.0 | 0.0 | 2004 03 18 | 704 | (1.7+ | 0.6+) | 2005 09 22 | 644 | 0.0 | 0.1− |
| 1998 09 25 | 645 | 0.0 | 0.0 | 2004 03 18 | 704 | 0.1− | 0.6+ | 2005 09 22 | 644 | 0.0 | 0.2+ |
| 1998 09 25 | 645 | 0.0 | 0.0 | 2004 03 27 | 704 | 0.6+ | 0.5+ | 2005 09 22 | 644 | 0.2− | 0.1+ |
| 2002 11 13 | 644 | 0.3+ | 0.1+ | 2004 03 27 | 704 | 1.2+ | 0.9+ | 2005 09 23 | 644 | 0.6− | 0.3+ |
| 2002 11 13 | 644 | 0.1+ | 0.3+ | 2004 03 27 | 704 | 1.2+ | 1.1+ | 2005 09 23 | 703 | 0.7− | 0.7+ |
| 2002 11 13 | 644 | 0.2+ | 0.3+ | 2004 03 27 | 704 | (1.6+ | 0.8+) | 2005 09 23 | 703 | 0.3− | 0.2+ |
| 2002 11 14 | 644 | 0.0 | 0.2+ | 2004 03 27 | 704 | 0.9+ | 0.5+ | 2005 09 23 | 703 | 0.1+ | 0.0 |
| 2002 11 14 | 644 | 0.3+ | 0.3+ | 2004 03 28 | 691 | 0.2+ | 0.6+ | 2005 09 23 | 644 | 0.3− | 0.4+ |
| 2002 11 14 | 644 | 0.3+ | 0.4+ | 2004 03 28 | 691 | 0.0 | 0.4+ | 2005 09 23 | 703 | 0.5+ | 1.0+ |
| 2004 02 15 | 703 | 1.1− | 0.6− | 2004 03 28 | 691 | 0.0 | 0.4+ | 2005 09 23 | 644 | 0.1− | 0.1+ |
| 2004 02 15 | 703 | 0.2+ | 1.1− | 2004 04 12 | 703 | 0.5+ | 0.4+ | 2005 09 30 | 691 | 0.0 | 0.2+ |
| 2004 02 15 | 703 | 0.5+ | 0.1+ | 2004 04 12 | 703 | 0.4− | 0.9+ | 2005 09 30 | 691 | 0.0 | 0.1+ |
| 2004 02 15 | 703 | 1.1+ | 0.2+ | 2004 04 12 | 703 | (0.3+ | 2.2+) | 2005 09 30 | 691 | 0.1− | 0.3+ |
| 2004 02 18 | 704 | 0.1− | 0.5+ | 2004 04 12 | 703 | 1.3+ | 0.7− | 2005 10 01 | G96 | 0.3− | 0.1− |
| 2004 02 18 | 704 | 0.5+ | 0.7+ | 2005 08 26 | 699 | 0.2− | 0.4− | 2005 10 01 | G96 | 0.2− | 0.1− |
| 2004 02 18 | 704 | 0.4− | 0.6− | 2005 08 26 | 699 | 1.2+ | 0.2+ | 2005 10 01 | G96 | 0.1− | 0.3− |
| 2004 02 23 | 704 | 0.1+ | 0.9+ | 2005 08 26 | 699 | 0.4− | 0.2+ | 2005 10 01 | G96 | 0.0 | 0.1− |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 02 23 | 704 | 0.5+ | 0.5+ | 2005 08 26 | 699 | 0.0 | 0.3+ | 2005 10 27 | G96 | 0.1− | 0.1− |
| 2004 02 23 | 704 | 0.3− | 0.5+ | 2005 08 29 | 704 | 0.6− | 0.2− | 2005 10 27 | G96 | 0.1− | 0.1+ |
| 2004 02 23 | 704 | 0.0 | 0.1− | 2005 08 29 | 704 | 1.0− | 1.1+ | 2005 10 27 | G96 | 0.4+ | 0.0 |
| 2004 02 23 | 704 | 0.5+ | 0.8+ | 2005 08 29 | 704 | 0.3− | 1.4+ | 2005 10 27 | G96 | 0.1− | 0.0 |
| 2004 03 14 | 703 | 0.5− | 0.6+ | 2005 08 29 | 691 | 1.3− | 0.3− | 2005 11 30 | G96 | 0.2+ | 0.1+ |
| 2004 03 14 | 691 | 0.3+ | 0.4+ | 2005 08 29 | 691 | 0.1− | 0.3+ | 2005 11 30 | G96 | 0.1− | 0.5+ |
| 2004 03 14 | 703 | 0.1− | 0.8+ | 2005 08 29 | 699 | 0.1− | 1.0+ | 2005 11 30 | G96 | 0.4− | 0.9− |
| 2004 03 14 | 703 | 0.1+ | 0.3+ | 2005 08 29 | 691 | 0.5− | 0.1+ | 2005 11 30 | G96 | 0.7− | 0.3+ |
| 2004 03 14 | 703 | 0.4− | 0.2+ | 2005 08 29 | 699 | 0.1+ | 0.2− | 2007 01 17 | 644 | 0.2− | 0.4+ |
| 2004 03 14 | 691 | 0.3+ | 0.4+ | 2005 08 29 | 699 | 0.8− | 1.0+ | 2007 01 17 | 644 | 0.2− | 0.1+ |
| 2004 03 14 | 691 | 0.2+ | 0.4+ | 2005 08 29 | 699 | (0.7+ | 1.6+) | 2007 01 17 | 644 | 0.3− | 0.2+ |
| 2004 03 15 | 704 | 0.4+ | 0.2+ | 2005 09 06 | 699 | 0.3+ | 0.1+ | 2009 11 08 | 703 | 0.7− | 0.9− |
| 2004 03 15 | 704 | 0.9+ | 0.1+ | 2005 09 06 | 699 | 0.1+ | 0.8+ | 2009 11 08 | 703 | 0.2+ | 1.0− |
| 2004 03 15 | 704 | 0.3+ | 0.3+ | 2005 09 06 | 699 | 0.2− | 1.0+ | 2009 11 08 | 703 | 0.9− | 0.2− |
| 2004 03 15 | 704 | 0.2+ | 0.3+ | 2005 09 06 | 699 | 0.5− | 0.4+ | 2009 11 08 | 703 | 0.2− | 0.1+ |
| 2004 03 15 | 704 | 0.4+ | 0.0 | 2005 09 08 | 704 | 1.4+ | 0.1− | 2009 12 09 | J47 | 0.6+ | 0.0 |
| 2004 03 16 | 704 | 0.2+ | 0.5− | 2005 09 08 | 704 | 0.8+ | 0.3− | 2009 12 09 | J47 | 0.1− | 0.2− |
| 2004 03 16 | 704 | 0.5+ | 0.3+ | 2005 09 08 | 704 | 0.8− | 0.7+ | 2009 12 09 | J47 | 0.0 | 0.7+ |
| 2004 03 16 | 704 | (1.8+ | 0.5−) | 2005 09 12 | 691 | 0.1− | 0.4+ | | | | |
| 2004 03 16 | 704 | (1.8+ | 0.6−) | 2005 09 12 | 691 | 0.0 | 0.5+ | | | | |

**(229032)∗ 2004 DN$_{34}$ = 2002 VM$_{52}$**

Discovered 2004 Feb. 18 by Uppsala-DLR Asteroid Survey at Kvistaberg.

Id. A. Doppler (*MPO* 69681)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 70.87537 | | (2000.0) | | | |
| $n$ | 0.17608319 | $\omega$ | 313.42578 | | +0.24032759 | −0.96665098 |
| $a$ | 3.1525170 | $\Omega$ | 122.46882 | | +0.91814330 | +0.19678725 |
| $e$ | 0.1756295 | $i$ | 6.01981 | | +0.31504845 | +0.16389225 |
| $P$ | 5.60 | $H$ | 15.3 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 03 20 | 645 | 0.1+ | 0.0 | 2004 02 16 | 704 | 0.1− | 0.5+ | 2008 12 31 | G96 | 0.3+ | 0.3− |
| 1999 03 20 | 645 | 0.0 | 0.0 | 2004 02 18 | 049 | 0.7− | 1.4− | 2008 12 31 | G96 | 0.1− | 0.1− |
| 2002 10 31 | 704 | 0.6+ | 0.3+ | 2004 02 18 | 049 | 0.6− | 1.3− | 2008 12 31 | G96 | 0.1− | 0.3+ |
| 2002 10 31 | 704 | 0.3− | 0.8− | 2004 02 19 | 049 | 0.4− | 1.2− | 2009 01 14 | D29 | 0.2+ | 0.7− |
| 2002 10 31 | 704 | 0.4+ | 0.2+ | 2004 02 23 | 704 | 0.1− | 0.1− | 2009 01 14 | D29 | 0.2− | 0.2− |
| 2002 10 31 | 704 | 0.3+ | 1.0+ | 2004 02 23 | 704 | 0.4+ | 0.2− | 2009 01 14 | D29 | 0.5+ | 0.1− |
| 2002 10 31 | 704 | 0.5− | 0.8+ | 2004 02 23 | 704 | 0.3− | 0.5+ | 2009 01 14 | D29 | 0.3+ | 0.2− |
| 2002 11 06 | 699 | 0.1+ | 0.4+ | 2004 02 23 | 704 | 0.0 | 0.5+ | 2009 01 17 | 704 | 0.1− | 0.2− |
| 2002 11 06 | 699 | 0.9− | 0.3− | 2004 02 23 | 704 | 0.8− | 0.3+ | 2009 01 17 | 704 | 1.1+ | 0.4− |
| 2002 11 06 | 699 | 0.7− | 0.2+ | 2005 04 10 | 691 | 0.6+ | 0.2+ | 2009 01 17 | 704 | 0.7+ | 0.9+ |
| 2002 11 06 | 699 | 0.4+ | 0.3− | 2005 04 10 | 691 | 0.3+ | 0.2+ | 2009 01 17 | 704 | 0.9+ | 0.3+ |
| 2002 11 07 | 704 | 0.2− | 1.0− | 2005 04 10 | 691 | 0.4+ | 0.0 | 2009 01 17 | 704 | 0.1+ | 0.3+ |
| 2002 11 07 | 704 | 0.8+ | 0.8− | 2008 11 23 | 704 | 0.5+ | 0.1+ | 2009 01 20 | G92 | 0.8+ | 0.7− |
| 2002 11 07 | 704 | 1.2− | 0.1+ | 2008 11 23 | 704 | (1.6− | 0.4+) | 2009 01 20 | G92 | 0.4− | 0.4+ |
| 2002 11 07 | 704 | 1.0− | 0.5+ | 2008 11 23 | 704 | 0.2+ | 0.1+ | 2009 01 20 | G92 | 0.3− | 0.2+ |
| 2002 11 07 | 704 | 0.5− | 0.3+ | 2008 11 23 | 704 | 0.6+ | 0.1+ | 2009 01 26 | G96 | 0.4+ | 0.1− |
| 2002 11 07 | 704 | 1.3− | 0.0 | 2008 11 30 | 704 | 0.7+ | 0.2+ | 2009 01 26 | G96 | 0.1+ | 0.5− |
| 2002 11 07 | 704 | 0.4+ | 0.1− | 2008 11 30 | 704 | 0.7+ | 0.2− | 2009 01 26 | G96 | 0.4− | 0.4− |
| 2002 11 07 | 704 | 1.1− | 0.4+ | 2008 11 30 | 704 | 0.1+ | 0.5+ | 2009 11 26 | G96 | 0.6− | 0.3+ |
| 2004 01 22 | 704 | 0.2+ | 0.7− | 2008 11 30 | 704 | 0.4+ | 0.3+ | 2009 11 26 | G96 | 0.0 | 0.2− |
| 2004 01 22 | 704 | 0.9+ | 0.3+ | 2008 11 30 | 704 | 0.6+ | 0.3+ | 2009 11 26 | G96 | 1.2− | 0.0 |
| 2004 01 22 | 704 | 0.3+ | 0.2+ | 2008 12 22 | 704 | 0.5− | 0.2− | 2009 11 26 | G96 | 0.2+ | 0.8− |
| 2004 01 22 | 704 | 0.3+ | 0.3− | 2008 12 22 | 704 | 0.7− | 0.1− | 2009 12 25 | 691 | 0.0 | 0.1+ |
| 2004 01 22 | 704 | 0.9+ | 0.1− | 2008 12 22 | 704 | 0.2− | 0.3− | 2009 12 25 | 691 | 0.4− | 0.0 |
| 2004 02 15 | 049 | 0.6− | 0.2+ | 2008 12 28 | 704 | 0.1+ | 0.1+ | 2009 12 25 | 691 | 0.1− | 1.1+ |
| 2004 02 15 | 049 | 0.3− | 0.3− | 2008 12 28 | 704 | 0.6− | 0.3+ | 2009 12 26 | 691 | 0.2+ | 0.1+ |
| 2004 02 15 | 049 | 0.3+ | 0.0 | 2008 12 28 | 704 | 0.2+ | 0.4+ | 2009 12 26 | 691 | 0.5− | 0.2− |
| 2004 02 16 | 704 | 0.1− | 1.2+ | 2008 12 28 | 704 | 0.6− | 0.2+ | 2009 12 26 | 691 | 1.1− | 0.5+ |
| 2004 02 16 | 704 | 0.8+ | 0.7+ | 2008 12 28 | 704 | 0.0 | 0.8+ | | | | |
| 2004 02 16 | 704 | 0.8+ | 0.1− | 2008 12 31 | G96 | 0.2− | 0.2− | | | | |

**(229033)∗ 2004 DF$_{46}$**

Discovered 2004 Feb. 19 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 148.87065 | | (2000.0) | | | |
| $n$ | 0.29363654 | $\omega$ | 36.54663 | | +0.31892035 | +0.94321134 |
| $a$ | 2.2417955 | $\Omega$ | 252.21484 | | −0.89106026 | +0.26496575 |
| $e$ | 0.1812482 | $i$ | 5.60266 | | −0.32295730 | +0.20036346 |
| $P$ | 3.36 | $H$ | 16.3 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 03 21 | 704 | 0.9− | 1.2+ | 2005 08 29 | 644 | 0.5+ | 0.2+ | 2005 09 29 | 699 | 0.1+ | 1.0+ |
| 2001 03 21 | 704 | 0.5+ | 0.9+ | 2005 08 29 | 644 | 0.1+ | 0.1+ | 2005 09 29 | 699 | 0.4+ | 0.0 |
| 2001 03 21 | 704 | 0.4− | 0.7+ | 2005 08 29 | 644 | 0.3+ | 0.0 | 2005 10 01 | 703 | 0.5+ | 0.2+ |
| 2001 04 23 | 704 | 0.0 | 0.2+ | 2005 08 31 | 699 | 0.3+ | 0.5+ | 2005 10 01 | 703 | 0.8− | 0.4+ |
| 2001 04 23 | 704 | 0.7− | 0.8+ | 2005 08 31 | 699 | 0.0 | 1.1+ | 2005 10 01 | 703 | 0.5+ | 0.5− |
| 2001 04 23 | 704 | 0.7+ | 1.2+ | 2005 08 31 | 699 | 0.6+ | 0.9+ | 2005 10 01 | 703 | 0.4− | 0.2− |
| 2002 11 05 | 644 | 0.5− | 0.3+ | 2005 08 31 | 699 | 0.3+ | 0.7+ | 2005 10 08 | 704 | (0.6− | 2.2+) |
| 2002 11 05 | 644 | 0.7− | 0.4+ | 2005 09 11 | 704 | 0.3− | 0.4+ | 2005 10 08 | 704 | 0.5− | 0.7+ |
| 2002 11 05 | 644 | 0.0 | 0.4+ | 2005 09 11 | 704 | 0.8− | 0.7+ | 2005 10 08 | 704 | 0.0 | 0.1+ |
| 2004 02 19 | 704 | 0.3+ | 0.5− | 2005 09 11 | 704 | 0.6− | 0.3+ | 2005 10 08 | 704 | 0.5− | 0.3+ |
| 2004 02 19 | 704 | 1.5+ | 0.3+ | 2005 09 11 | 704 | 0.0 | 0.1− | 2006 12 21 | G96 | 0.5+ | 0.6− |
| 2004 02 19 | 704 | 0.4− | 0.5− | 2005 09 11 | 704 | 0.3− | 0.1+ | 2006 12 21 | G96 | 0.7+ | 0.1− |
| 2004 02 19 | 704 | 0.4+ | 0.5+ | 2005 09 23 | 699 | 0.2− | 0.9+ | 2006 12 21 | G96 | 0.7+ | 0.2− |
| 2004 02 26 | 704 | 0.1− | 0.9+ | 2005 09 23 | 699 | 0.5+ | 0.2+ | 2006 12 21 | G96 | 0.2+ | 0.1+ |
| 2004 02 26 | 704 | 1.1+ | 0.7+ | 2005 09 23 | 699 | 0.5+ | 0.1+ | 2009 12 10 | G96 | 0.5+ | 0.3− |
| 2004 02 26 | 704 | 0.6+ | 0.0 | 2005 09 23 | 699 | 0.8− | 0.4+ | 2009 12 10 | G96 | 0.6+ | 0.3− |
| 2004 02 28 | 460 | 0.7− | 0.1− | 2005 09 24 | 703 | 0.2+ | 0.4− | 2009 12 10 | G96 | 0.5+ | 0.1− |
| 2004 02 28 | 460 | 0.3+ | 0.5+ | 2005 09 24 | 703 | 0.3− | 0.0 | 2009 12 25 | 691 | 0.8− | 0.3+ |
| 2004 03 14 | 644 | 0.7+ | 0.7+ | 2005 09 24 | 703 | 0.3+ | 0.6− | 2009 12 25 | 691 | 0.5− | 0.0 |
| 2004 03 14 | 644 | 0.9+ | 0.4+ | 2005 09 29 | 699 | 0.8− | 0.1+ | 2009 12 25 | 691 | 0.2− | 0.3− |
| 2004 03 14 | 644 | 0.8+ | 0.8+ | 2005 09 29 | 699 | 0.3+ | 0.0 | | | | |

**(229034)∗ 2004 DP$_{70}$**

Discovered 2004 Feb. 26 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 238.94748 | | (2000.0) | | | |
| $n$ | 0.30825021 | $\omega$ | 183.46897 | | −0.57956960 | +0.81484632 |
| $a$ | 2.1703701 | $\Omega$ | 51.11110 | | −0.74733147 | −0.52598820 |
| $e$ | 0.0895401 | $i$ | 0.82155 | | −0.32495345 | −0.24364296 |
| $P$ | 3.20 | $H$ | 17.6 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 12 05 | 691 | 0.4− | 0.1+ | 2004 03 18 | 704 | 0.8+ | 1.1+ | 2007 02 06 | G96 | 0.4− | 0.5− |
| 1999 12 05 | 691 | 0.3− | 0.5+ | 2004 03 18 | 704 | 0.0 | 1.0+ | 2007 02 06 | G96 | 0.6+ | 0.6− |
| 1999 12 05 | 691 | 0.1+ | 0.7+ | 2004 03 18 | 704 | 1.1+ | 1.2+ | 2007 02 06 | G96 | 0.2+ | 0.6− |
| 2002 10 10 | 644 | 0.2− | 1.2+ | 2004 03 21 | 691 | 0.1+ | 0.3+ | 2007 02 08 | 644 | 0.1+ | 0.1+ |
| 2002 10 10 | 644 | 0.1− | 1.1+ | 2004 03 21 | 691 | 0.1+ | 0.2+ | 2007 02 08 | 644 | 0.2+ | 0.1− |
| 2002 10 10 | 644 | 0.3− | 1.1+ | 2004 03 21 | 691 | 0.1− | 0.2+ | 2007 02 08 | 644 | 0.0 | 0.2− |
| 2004 02 26 | 704 | 0.1− | 0.2+ | 2004 03 28 | 691 | 0.4− | 0.1− | 2007 02 10 | 644 | 0.1− | 0.1+ |
| 2004 02 26 | 704 | 0.1+ | 1.1+ | 2004 03 28 | 691 | 0.2− | 0.2+ | 2007 02 10 | 644 | 0.5+ | 0.3− |
| 2004 02 26 | 704 | 0.1− | 0.3+ | 2004 03 28 | 691 | 0.0 | 0.0 | 2007 02 10 | 644 | 0.2− | 0.2− |
| 2004 02 26 | 704 | 0.4+ | 0.7+ | 2005 08 31 | 691 | 0.3− | 0.4+ | 2007 03 10 | G96 | 0.1+ | 0.6− |
| 2004 02 27 | 695 | 0.4+ | 0.0 | 2005 08 31 | 691 | 0.4− | 0.5+ | 2007 03 10 | G96 | 0.4+ | 0.3− |
| 2004 02 27 | 695 | 0.2+ | 0.1+ | 2005 08 31 | 691 | 0.4− | 0.5+ | 2007 03 10 | G96 | 0.2+ | 0.2− |
| 2004 03 14 | 703 | 1.2+ | 1.1− | 2005 09 22 | 705 | 0.4+ | 0.3+ | 2007 03 10 | G96 | 0.1− | 0.7− |
| 2004 03 14 | 691 | 0.1+ | 0.5+ | 2005 09 22 | 705 | 0.5+ | 0.2+ | 2008 09 23 | G96 | 0.0 | 0.1+ |
| 2004 03 14 | 703 | 0.3− | 0.7+ | 2005 09 29 | G96 | 0.5+ | 0.2+ | 2008 09 23 | G96 | 0.5− | 0.5+ |
| 2004 03 14 | 703 | 1.1+ | 0.5− | 2005 09 29 | G96 | 0.1+ | 0.2− | 2008 09 23 | G96 | 0.4− | 0.6+ |
| 2004 03 14 | 703 | 0.6− | 0.2− | 2005 09 29 | G96 | 0.1+ | 0.2− | 2008 09 23 | G96 | 0.5− | 0.3+ |
| 2004 03 14 | 691 | 0.1+ | 0.4+ | 2005 09 29 | G96 | 0.6+ | 0.1+ | 2009 12 10 | G96 | 0.5+ | 0.6− |
| 2004 03 14 | 691 | 0.2+ | 0.6+ | 2007 01 17 | 691 | 0.0 | 0.2− | 2009 12 10 | G96 | 0.0 | 0.4− |
| 2004 03 15 | 704 | (0.7+ | 2.3+) | 2007 01 17 | 691 | 0.4− | 0.1+ | 2009 12 10 | G96 | 0.1+ | 0.5− |
| 2004 03 15 | 704 | 0.5+ | 0.2− | 2007 01 17 | 691 | 0.3− | 0.0 | 2009 12 17 | 691 | 0.0 | 0.2− |
| 2004 03 15 | 704 | 0.5+ | 0.5+ | 2007 01 26 | 691 | 0.1− | 0.1− | 2009 12 17 | 691 | 0.1− | 0.0 |
| 2004 03 15 | 704 | 0.9+ | 0.3+ | 2007 01 26 | 691 | 0.1− | 0.1− | 2009 12 17 | 691 | 0.2− | 0.4− |
| 2004 03 18 | 704 | 1.2+ | 0.8+ | 2007 01 26 | 691 | 0.2− | 0.1+ | | | | |
| 2004 03 18 | 704 | 0.5− | 0.7+ | 2007 02 06 | G96 | 0.6+ | 0.4− | | | | |

**(229035)∗ 2004 EJ$_3$**

Discovered 2004 Mar. 10 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 329.75161 | | (2000.0) | | | |
| $n$ | 0.17325287 | $\omega$ | 101.77798 | | −0.61817331 | +0.76836121 |
| $a$ | 3.1867581 | $\Omega$ | 128.75581 | | −0.77822563 | −0.56859162 |
| $e$ | 0.2551376 | $i$ | 12.27397 | | −0.11057406 | −0.29381053 |
| $P$ | 5.69 | $H$ | 15.1 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 01 30 | 691 | 0.4− | 0.3− | 2004 03 15 | 704 | 0.2− | 0.5+ | 2005 06 18 | G96 | 0.1− | 0.0 |
| 1998 01 30 | 691 | 0.4− | 0.2− | 2004 03 15 | 704 | 0.3+ | 0.4− | 2005 06 21 | 644 | 0.1− | 0.3+ |
| 1998 01 30 | 691 | (2.9− | 0.0 ) | 2004 03 15 | 704 | 0.2+ | 0.4− | 2005 06 21 | 644 | 0.5+ | 0.3+ |
| 1999 06 14 | 704 | 0.4+ | 1.1− | 2004 03 15 | 704 | 0.3+ | 0.2− | 2005 06 21 | 644 | 0.3− | 0.1+ |
| 1999 06 14 | 704 | 0.3− | 1.5− | 2004 03 15 | 704 | 0.0 | 0.6+ | 2005 06 27 | 691 | 0.0 | 0.0 |
| 1999 06 14 | 704 | 0.4− | 1.4− | 2004 03 15 | 704 | 0.6+ | 0.1− | 2005 06 27 | 691 | 0.2+ | 0.0 |
| 1999 06 14 | 704 | 0.8+ | 0.5− | 2004 03 15 | 704 | 0.1− | 0.2− | 2005 06 27 | 691 | 0.1+ | 0.0 |
| 1999 07 13 | 704 | 0.1+ | 0.5− | 2004 03 15 | 704 | 0.2+ | 0.5− | 2005 07 02 | 691 | 0.2+ | 0.4+ |
| 1999 07 13 | 704 | 0.7− | 0.4− | 2004 03 19 | 644 | 0.2+ | 0.0 | 2005 07 02 | 691 | 0.2− | 0.4+ |
| 1999 07 13 | 704 | 0.5− | 0.1− | 2004 03 19 | 644 | 0.1+ | 0.1− | 2005 07 02 | 691 | 0.1− | 0.6+ |
| 1999 07 13 | 704 | 0.3− | 0.5+ | 2004 03 19 | 644 | 0.0 | 0.2+ | 2005 07 07 | 691 | 0.1+ | 0.2+ |
| 2004 02 17 | 704 | 0.7+ | 0.4+ | 2004 03 23 | 704 | 0.4+ | 1.0+ | 2005 07 07 | 691 | 0.1− | 0.4+ |
| 2004 02 17 | 704 | 0.7+ | 0.7+ | 2004 03 23 | 704 | 0.3+ | 1.2+ | 2005 07 07 | 691 | 0.1− | 0.2+ |
| 2004 02 17 | 704 | 0.2+ | 0.1− | 2004 03 23 | 704 | 0.0 | 1.3+ | 2005 07 12 | 703 | 0.1− | 0.1− |
| 2004 02 17 | 704 | (0.4− | 2.2+) | 2004 03 23 | 704 | 0.0 | 1.0+ | 2005 07 12 | 703 | 0.4− | 0.4− |
| 2004 02 17 | 703 | 0.4− | 0.1− | 2004 03 23 | 704 | 0.0 | 1.1+ | 2005 07 12 | 703 | 0.5+ | 1.0− |
| 2004 02 17 | 703 | 0.5+ | 0.3− | 2004 03 25 | 704 | 0.5− | 0.4+ | 2005 07 12 | 703 | 0.3− | 0.2+ |
| 2004 02 17 | 703 | 0.8+ | 1.1+ | 2004 03 25 | 704 | 0.2− | 0.7+ | 2007 11 19 | G96 | 0.2+ | 0.5+ |
| 2004 02 17 | 703 | 1.1− | 1.1+ | 2004 03 25 | 704 | 0.1+ | 0.4+ | 2007 11 19 | G96 | 0.1+ | 0.5+ |
| 2004 02 27 | 704 | 0.0 | 0.5− | 2004 03 26 | 703 | 0.2− | 0.1+ | 2007 11 19 | G96 | 0.1+ | 0.3+ |
| 2004 02 27 | 704 | 0.1− | 0.9+ | 2004 03 26 | 703 | 0.9+ | 0.6− | 2007 11 19 | G96 | 0.4− | 0.5+ |
| 2004 02 27 | 704 | 0.6− | 0.5+ | 2004 03 26 | 703 | 0.8+ | 0.5+ | 2009 04 19 | G96 | 0.1− | 1.0− |
| 2004 03 10 | 644 | 0.1− | 0.2− | 2004 03 26 | 703 | 1.1+ | 0.3− | 2009 04 19 | G96 | 0.2− | 0.1− |
| 2004 03 10 | 644 | 0.1− | 0.1− | 2004 04 14 | 703 | 0.2+ | 1.4− | 2009 04 19 | G96 | 1.1+ | 0.1− |
| 2004 03 10 | 644 | 0.1− | 0.1− | 2004 04 14 | 703 | 0.2+ | 0.5− | 2009 04 19 | G96 | 0.3+ | 0.3− |
| 2004 03 14 | 704 | 0.4+ | 0.4+ | 2004 04 14 | 703 | (0.7+ | 1.8−) | 2009 12 20 | G96 | 1.2− | 0.0 |
| 2004 03 14 | 704 | 0.6− | 0.2− | 2004 04 14 | 703 | 0.4+ | 1.4− | 2009 12 20 | G96 | 0.9− | 0.2− |
| 2004 03 14 | 704 | 0.2− | 0.2− | 2005 06 18 | G96 | 0.2− | 0.3− | 2009 12 20 | G96 | 0.6− | 0.3− |
| 2004 03 15 | 704 | 0.5+ | 0.6+ | 2005 06 18 | G96 | 0.3− | 0.0 | 2009 12 20 | G96 | 1.4− | 0.4− |
| 2004 03 15 | 704 | 0.4+ | 0.8+ | 2005 06 18 | G96 | 0.4− | 0.1− | | | | |

**(229036)∗ 2004 EX$_{55}$**

Discovered 2004 Mar. 14 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 240.54075 | | (2000.0) | | | |
| $n$ | 0.30090568 | $\omega$ | 317.61696 | | −0.64489818 | +0.76029870 |
| $a$ | 2.2055443 | $\Omega$ | 272.07157 | | −0.67867437 | −0.61650542 |
| $e$ | 0.1271628 | $i$ | 4.46481 | | −0.35143626 | −0.20461414 |
| $P$ | 3.28 | $H$ | 17.0 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 03 14 | 644 | 0.3+ | 0.4+ | 2004 04 20 | 704 | 0.4+ | 0.6+ | 2007 02 07 | 644 | 0.3+ | 0.1+ |
| 2004 03 14 | 644 | 0.3+ | 0.4+ | 2004 04 22 | 704 | 0.2− | 0.7+ | 2007 02 07 | 644 | 0.1+ | 0.0 |
| 2004 03 14 | 644 | 0.4+ | 0.5+ | 2004 04 22 | 704 | 0.9+ | 0.6+ | 2007 02 08 | 644 | 0.2− | 0.0 |
| 2004 03 16 | 703 | 1.2+ | 0.1− | 2004 04 22 | 704 | 0.6+ | 0.5+ | 2007 02 08 | 644 | 0.1+ | 0.2+ |
| 2004 03 16 | 703 | 0.1− | 1.2+ | 2005 09 23 | 691 | 0.3+ | 0.2+ | 2007 02 08 | 644 | 0.1− | 0.3+ |
| 2004 03 16 | 703 | 0.1− | 0.7+ | 2005 09 23 | 691 | 0.1+ | 0.5+ | 2007 02 10 | 644 | 0.3− | 0.5+ |
| 2004 03 16 | 703 | 0.6+ | 0.4+ | 2005 09 23 | 691 | 0.1+ | 0.3+ | 2007 02 10 | 644 | 0.1− | 0.1+ |
| 2004 03 17 | 704 | 1.3+ | 0.1+ | 2005 09 29 | 691 | 0.2− | 0.6+ | 2007 02 10 | G96 | 0.1− | 0.1− |
| 2004 03 17 | 704 | 0.8+ | 0.9+ | 2005 09 29 | 691 | 0.4− | 0.6+ | 2007 02 10 | G96 | 0.0 | 0.0 |
| 2004 03 17 | 704 | 0.7+ | 0.3− | 2005 09 29 | 691 | 0.3− | 0.8+ | 2007 02 10 | 644 | 0.1+ | 0.0 |
| 2004 03 21 | 608 | 0.4− | 0.2− | 2005 09 29 | 291 | 0.2− | 0.3+ | 2007 02 10 | G96 | 0.0 | 0.1− |
| 2004 03 21 | 608 | 0.1− | 0.4− | 2005 09 29 | 291 | 0.2− | 0.2+ | 2007 02 10 | G96 | 0.4− | 0.0 |
| 2004 03 21 | 608 | 0.4+ | 0.8− | 2005 09 29 | 291 | 0.2− | 0.3+ | 2007 02 10 | G96 | 0.2− | 0.3+ |
| 2004 03 31 | 704 | 0.4− | 0.6+ | 2005 09 30 | 291 | 0.4− | 0.6+ | 2007 02 10 | G96 | 0.5− | 0.3+ |
| 2004 03 31 | 704 | 0.1+ | 0.8+ | 2005 09 30 | 291 | 0.6− | 0.5+ | 2007 02 10 | G96 | 0.6+ | 0.1+ |
| 2004 03 31 | 704 | 0.6+ | 0.1+ | 2005 09 30 | 291 | 0.2− | 0.2+ | 2007 02 10 | G96 | 0.1+ | 0.0 |
| 2004 03 31 | 704 | 0.3− | 0.1− | 2006 11 21 | G96 | 0.0 | 0.2+ | 2007 02 17 | 644 | 0.1− | 0.2+ |
| 2004 04 08 | 608 | 0.0 | 0.1− | 2006 11 21 | G96 | 0.1− | 0.2− | 2007 02 17 | 644 | 0.5+ | 0.3+ |
| 2004 04 08 | 608 | 0.3+ | 0.3+ | 2006 11 21 | G96 | 0.3− | 0.2+ | 2007 02 17 | 644 | 0.0 | 0.0 |
| 2004 04 08 | 608 | 0.3− | 0.3+ | 2006 11 21 | G96 | 0.0 | 0.1+ | 2009 10 14 | G96 | 0.7+ | 0.3+ |
| 2004 04 16 | 704 | 0.3+ | 1.4+ | 2007 01 10 | 691 | 0.1− | 0.1− | 2009 10 14 | G96 | 0.1+ | 0.0 |
| 2004 04 16 | 704 | 0.6+ | 0.8+ | 2007 01 10 | 691 | 0.4− | 0.2+ | 2009 10 14 | G96 | 0.2− | 0.5− |
| 2004 04 16 | 704 | 0.1+ | 0.6+ | 2007 01 10 | 691 | 0.4− | 0.1+ | 2009 10 14 | G96 | 0.1+ | 0.5− |
| 2004 04 16 | 704 | 0.3− | 0.4+ | 2007 01 12 | H07 | 0.3+ | 0.7+ | 2009 11 17 | G96 | 0.5+ | 0.2− |
| 2004 04 19 | 704 | 0.8+ | 0.2− | 2007 01 12 | H07 | 0.6+ | 0.5+ | 2009 11 17 | G96 | 0.2+ | 0.0 |
| 2004 04 19 | 704 | 0.3− | 0.5+ | 2007 01 12 | H07 | 0.1+ | 0.3+ | 2009 11 17 | G96 | 0.0 | 0.1+ |
| 2004 04 19 | 704 | 0.1− | 0.4− | 2007 01 14 | H07 | (0.5+ | 3.3+) | 2009 11 17 | G96 | 0.2+ | 0.1− |
| 2004 04 19 | 704 | 0.1+ | 0.7+ | 2007 01 14 | H07 | (0.1+ | 2.1+) | 2009 12 20 | 691 | 0.1− | 0.1− |
| 2004 04 19 | 704 | 0.9+ | 0.6+ | 2007 01 25 | 703 | 1.4− | 0.5+ | 2009 12 20 | 691 | 0.2+ | 0.1+ |
| 2004 04 20 | 704 | 0.3+ | 0.9+ | 2007 01 25 | 703 | 1.3− | 0.3− | 2009 12 20 | 691 | 0.6+ | 0.2− |
| 2004 04 20 | 704 | 0.2+ | 1.4+ | 2007 01 25 | 703 | (2.2− | 1.5−) | 2009 12 25 | 691 | 0.1+ | 0.1− |
| 2004 04 20 | 704 | 1.1+ | 0.3+ | 2007 01 25 | 703 | (1.8+ | 0.7−) | 2009 12 25 | 691 | 0.2− | 0.1− |
| 2004 04 20 | 704 | 0.6− | 0.8+ | 2007 02 07 | 644 | 0.2− | 0.2+ | 2009 12 25 | 691 | 0.2+ | 0.2− |

**(229037)∗ 2004 EE$_{62}$**

Discovered 2004 Mar. 12 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 200.80370 | | (2000.0) | | | |
| $n$ | 0.22511215 | $\omega$ | 281.33639 | | −0.03909233 | −0.99921462 |
| $a$ | 2.6763121 | $\Omega$ | 170.89655 | | +0.93200396 | −0.03879827 |
| $e$ | 0.0177712 | $i$ | 2.34569 | | +0.36033376 | −0.00805222 |
| $P$ | 4.38 | $H$ | 16.3 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 12 10 | 644 | 0.1+ | 0.2− | 2006 10 17 | G96 | 0.1+ | 0.0 | 2008 02 11 | 704 | 1.2+ | 0.6+ |
| 2002 12 10 | 644 | 0.6− | 0.8+ | 2006 10 17 | G96 | 0.0 | 0.4− | 2008 02 11 | 704 | 0.9+ | 1.0− |
| 2002 12 10 | 644 | 0.1+ | 0.6− | 2006 10 17 | G96 | 0.2− | 0.2+ | 2008 02 11 | 704 | 1.2+ | 0.1+ |
| 2004 02 26 | 704 | 0.6+ | 0.7+ | 2006 10 21 | G96 | 0.3− | 0.1− | 2008 02 11 | 704 | 0.2+ | 0.3+ |
| 2004 02 26 | 704 | 0.4+ | 0.8− | 2006 10 21 | G96 | 0.1− | 0.2− | 2008 02 26 | 691 | 0.1− | 0.2+ |
| 2004 02 26 | 704 | 0.5+ | 0.4+ | 2006 10 21 | G96 | 0.1− | 0.4− | 2008 02 26 | 691 | 0.0 | 0.0 |
| 2004 03 12 | 644 | 0.1+ | 0.4+ | 2006 10 21 | G96 | 0.1+ | 0.3− | 2008 02 26 | 691 | 0.2− | 0.1+ |
| 2004 03 12 | 644 | 0.1+ | 0.2+ | 2006 10 22 | 691 | 0.2− | 0.3+ | 2008 03 14 | G96 | 0.2+ | 0.1+ |
| 2004 03 12 | 644 | 0.1− | 0.3+ | 2006 10 22 | 691 | 0.3− | 0.1+ | 2008 03 14 | G96 | 0.3− | 0.1− |
| 2004 03 18 | 704 | 0.2+ | 0.2− | 2006 10 22 | 691 | 0.2− | 0.2+ | 2008 03 14 | G96 | 0.1− | 0.3− |
| 2004 03 18 | 704 | 0.0 | 0.6+ | 2006 11 16 | G96 | 0.3+ | 0.4− | 2008 03 14 | G96 | 0.0 | 0.1− |
| 2004 03 18 | 704 | 0.4+ | 0.8+ | 2006 11 16 | G96 | 0.5+ | 0.2+ | 2008 04 11 | G96 | 0.4− | 0.5− |
| 2004 03 18 | 704 | 0.9+ | 0.3+ | 2006 11 16 | G96 | 0.0 | 0.1+ | 2008 04 11 | G96 | 0.7+ | 0.8− |
| 2004 03 18 | 704 | 1.4+ | 0.7+ | 2006 11 16 | G96 | 0.2+ | 0.1− | 2008 04 11 | G96 | 0.1− | 0.2+ |
| 2004 03 23 | 691 | 0.1− | 0.4+ | 2006 11 20 | 691 | 0.3+ | 0.1+ | 2008 04 11 | G96 | 0.1+ | 0.3− |
| 2004 03 23 | 691 | 0.1− | 0.4+ | 2006 11 20 | 691 | 0.1+ | 0.0 | 2008 04 25 | G96 | 0.4− | 0.0 |
| 2004 03 23 | 691 | 0.0 | 0.3+ | 2006 11 20 | 691 | 0.0 | 0.1− | 2008 04 25 | G96 | 0.1+ | 0.4+ |
| 2004 03 27 | 704 | 0.2− | 1.2+ | 2007 11 19 | G96 | 0.1− | 0.1− | 2008 04 25 | G96 | 0.1− | 0.7+ |
| 2004 03 27 | 704 | 0.5+ | 0.1+ | 2007 11 19 | G96 | 0.2+ | 0.0 | 2008 04 25 | G96 | 0.4− | 0.3− |
| 2004 03 27 | 704 | 0.0 | 0.2− | 2007 11 19 | G96 | 0.1− | 0.1− | 2009 05 29 | G96 | 0.2− | 0.1+ |
| 2004 03 27 | 704 | 0.3+ | 0.2− | 2007 11 19 | G96 | 0.2+ | 0.2− | 2009 05 29 | G96 | 0.1+ | 0.1+ |
| 2004 04 25 | 691 | 0.3− | 0.5+ | 2008 01 12 | 691 | 0.4− | 0.3− | 2009 05 29 | G96 | 0.2− | 0.2+ |
| 2004 04 25 | 691 | 0.4+ | 0.3− | 2008 01 12 | 691 | 0.0 | 0.3− | 2009 05 29 | G96 | 0.3+ | 0.0 |
| 2004 04 25 | 691 | 0.2− | 0.0 | 2008 01 12 | 691 | 0.2+ | 0.1− | 2009 05 29 | G96 | 0.2+ | 0.2+ |
| 2006 09 19 | 691 | 0.0 | 0.2+ | 2008 01 20 | 691 | 0.3− | 0.1− | 2009 05 29 | G96 | 0.2− | 0.2+ |
| 2006 09 19 | 691 | 0.2+ | 0.6+ | 2008 01 20 | 691 | 0.2+ | 0.1+ | 2009 05 29 | G96 | 0.0 | 0.2+ |
| 2006 09 19 | 691 | 0.0 | 0.3+ | 2008 01 20 | 691 | 0.1− | 0.1− | 2009 05 29 | G96 | 0.1+ | 0.1+ |
| 2006 09 27 | 691 | 0.1+ | 0.2+ | 2008 02 07 | 703 | 0.6− | 0.3+ | 2009 06 01 | G96 | 0.1+ | 0.0 |
| 2006 09 27 | 691 | 0.5− | 0.6+ | 2008 02 07 | 703 | 0.2+ | 0.5− | 2009 06 01 | G96 | 0.1− | 0.2+ |
| 2006 09 27 | 691 | 0.3− | 0.4+ | 2008 02 07 | 703 | 1.3− | 0.4+ | 2009 06 01 | G96 | 0.2− | 0.5+ |
| 2006 10 17 | G96 | 0.2+ | 0.4− | 2008 02 07 | 703 | (2.7− | 1.1+) | 2009 06 01 | G96 | 0.2+ | 0.2+ |

**(229038)∗ 2004 EG$_{63}$**

Discovered 2004 Mar. 13 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 171.14230 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28748268 | $\omega$ | 2.56375 | | +0.01334743 | +0.99910139 | |
| $a$ | 2.2736743 | $\Omega$ | 268.20310 | | −0.91811497 | −0.00369095 | |
| $e$ | 0.1259075 | $i$ | 2.30663 | | −0.39608933 | +0.04222317 | |
| $P$ | 3.43 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 03 13 | 644 | 0.4− | 0.6+ | 2005 09 30 | 644 | 0.3− | 0.2− | 2007 01 24 | G96 | 0.2− | 0.0 |
| 2004 03 13 | 644 | 0.1+ | 0.3+ | 2005 09 30 | 644 | 0.2− | 0.1+ | 2007 01 24 | G96 | 0.2− | 0.1− |
| 2004 03 13 | 644 | 0.6+ | 0.5+ | 2005 10 01 | 703 | 0.7+ | 1.5+ | 2007 01 24 | G96 | 0.1− | 0.1+ |
| 2004 03 16 | 691 | 0.1+ | 0.2+ | 2005 10 01 | 703 | 0.2+ | 0.1− | 2007 01 24 | G96 | 0.2+ | 0.3+ |
| 2004 03 16 | 691 | 0.3+ | 0.6+ | 2005 10 01 | 703 | 0.3− | 1.1+ | 2007 01 24 | G96 | 0.2− | 0.4+ |
| 2004 03 16 | 691 | 0.5+ | 0.4+ | 2005 10 01 | 703 | 0.4− | 1.0+ | 2007 01 24 | G96 | 0.0 | 0.1+ |
| 2004 03 18 | 704 | 0.0 | 0.8+ | 2005 10 03 | 691 | 0.2− | 0.3+ | 2007 01 24 | G96 | 0.1− | 0.2− |
| 2004 03 18 | 704 | 0.3+ | 0.2+ | 2005 10 03 | 691 | 0.3− | 0.4+ | 2007 02 08 | G96 | 0.1− | 0.4− |
| 2004 03 18 | 704 | 0.0 | 0.8+ | 2005 10 03 | 691 | 0.3− | 0.2+ | 2007 02 08 | G96 | 0.2+ | 0.0 |
| 2004 03 20 | 704 | 0.2− | 0.0 | 2005 10 03 | 644 | 0.1− | 0.2+ | 2007 02 08 | G96 | 0.3− | 0.1+ |
| 2004 03 20 | 704 | (4.0− | 0.5−) | 2005 10 03 | 644 | 0.1− | 0.6+ | 2007 02 08 | G96 | 0.2− | 0.1+ |
| 2004 03 20 | 704 | (3.1+ | 1.0−) | 2005 10 03 | 644 | 0.2− | 0.2+ | 2007 02 25 | G96 | 0.1+ | 0.1− |
| 2004 03 20 | 704 | (0.8− | 1.6+) | 2005 10 10 | 291 | 0.4− | 0.6+ | 2007 02 25 | G96 | 0.0 | 0.1+ |
| 2004 03 27 | 704 | 1.1+ | 0.2+ | 2005 10 10 | 291 | 0.3− | 0.6+ | 2007 02 25 | G96 | 0.1− | 0.3− |
| 2004 03 27 | 704 | 0.2+ | 0.3− | 2005 10 10 | 291 | 0.1− | 0.5+ | 2007 02 25 | G96 | 0.0 | 0.5+ |
| 2004 03 27 | 704 | 0.3+ | 0.9+ | 2005 10 24 | 691 | 0.0 | 0.1+ | 2009 11 20 | G96 | 0.1+ | 0.2− |
| 2004 03 27 | 704 | 0.9+ | 0.1− | 2005 10 24 | 691 | 0.0 | 0.0 | 2009 11 20 | G96 | 0.5+ | 0.3− |
| 2004 03 31 | 691 | 0.1+ | 0.6+ | 2005 10 24 | 691 | 0.1+ | 0.0 | 2009 11 20 | G96 | 0.1− | 0.1+ |
| 2004 03 31 | 691 | 0.1+ | 0.3+ | 2006 12 15 | G96 | 0.1+ | 0.7− | 2009 11 20 | G96 | 0.3+ | 0.3− |
| 2004 03 31 | 691 | 0.0 | 0.5+ | 2006 12 15 | G96 | 0.3− | 0.3− | 2009 11 25 | 691 | 0.4− | 0.1− |
| 2004 04 21 | 691 | 0.3+ | 0.4+ | 2006 12 15 | G96 | 0.4+ | 0.2− | 2009 11 25 | 691 | 0.1− | 0.1− |
| 2004 04 21 | 691 | 0.4+ | 0.1+ | 2006 12 15 | G96 | 0.2− | 0.4− | 2009 11 25 | 691 | 0.1+ | 0.1− |
| 2004 04 21 | 691 | 0.1− | 0.4+ | 2007 01 09 | G96 | 0.7+ | 0.3− | 2009 12 10 | G96 | 0.2+ | 0.1− |
| 2005 09 29 | 691 | 0.1− | 0.3+ | 2007 01 09 | G96 | 0.1+ | 0.1− | 2009 12 10 | G96 | 0.3+ | 0.1− |
| 2005 09 29 | 691 | 0.1− | 0.3+ | 2007 01 09 | G96 | 0.3− | 0.1+ | 2009 12 10 | G96 | 0.1+ | 0.2− |
| 2005 09 29 | 691 | 0.2− | 0.2+ | 2007 01 09 | G96 | 0.3− | 0.0 | 2009 12 10 | G96 | 0.4+ | 0.1+ |
| 2005 09 29 | 699 | 0.8− | 0.8− | 2007 01 24 | G96 | 0.3− | 0.2+ | 2009 12 19 | G96 | 0.0 | 0.0 |
| 2005 09 29 | 699 | 0.3− | 0.1+ | 2007 01 24 | G96 | 0.1− | 0.2− | 2009 12 19 | G96 | 0.6+ | 0.0 |
| 2005 09 29 | 699 | 0.3+ | 0.7+ | 2007 01 24 | G96 | 0.0 | 0.1+ | 2009 12 19 | G96 | 0.4+ | 0.0 |
| 2005 09 29 | 699 | 0.9+ | 0.3− | 2007 01 24 | G96 | 0.4− | 0.1− | | | | |
| 2005 09 30 | 644 | 0.1− | 0.2+ | 2007 01 24 | G96 | 0.9− | 0.4+ | | | | |

**(229039)**∗ **2004 EN$_{73}$**

Discovered 2004 Mar. 15 by the Catalina Sky Survey.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 327.05556 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.29683729 | $\omega$ | 298.02811 | | −0.47990795 | −0.87731744 | |
| $a$ | 2.2256511 | $\Omega$ | 180.65752 | | +0.84533295 | −0.46193111 | |
| $e$ | 0.0725223 | $i$ | 7.87145 | | +0.23473507 | −0.13012981 | |
| $P$ | 3.32 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1992 09 27 | 691 | 0.1+ | 0.3+ | 2004 03 18 | 704 | 0.9+ | 0.3+ | 2007 01 25 | 703 | (0.0 | 1.6−) |
| 1992 09 27 | 691 | 0.0 | 0.2+ | 2004 03 18 | 704 | 0.4+ | 0.9− | 2007 02 06 | 644 | 0.6− | 0.0 |
| 1992 09 27 | 691 | 0.6− | 0.6+ | 2004 03 18 | 704 | 0.3+ | 0.0 | 2007 02 06 | 644 | 0.4− | 0.1+ |
| 1995 08 28 | 691 | 0.1− | 0.2+ | 2004 03 19 | 291 | 0.3− | 0.2+ | 2007 02 06 | 644 | 0.3− | 0.0 |
| 1995 08 28 | 691 | 0.7− | 0.2+ | 2004 03 19 | 291 | 0.3− | 0.2+ | 2007 02 16 | 644 | 0.1+ | 0.2+ |
| 1995 08 28 | 691 | 0.1− | 0.2+ | 2004 03 19 | 291 | 0.1− | 0.2+ | 2007 02 16 | 644 | 0.2− | 0.2− |
| 1999 12 05 | 704 | 1.2+ | 0.6− | 2004 03 22 | 704 | 1.0+ | 0.3− | 2007 02 16 | 644 | 0.0 | 0.0 |
| 1999 12 05 | 704 | 1.6+ | 0.4+ | 2004 03 22 | 704 | 0.3+ | 0.4+ | 2007 02 17 | 703 | (0.2+ | 1.8−) |
| 1999 12 05 | 704 | 0.1+ | 1.1+ | 2004 03 22 | 704 | 1.1+ | 0.0 | 2007 02 17 | 703 | 0.9+ | 1.1− |
| 2002 09 28 | 644 | 0.3+ | 0.5+ | 2004 03 23 | 704 | 0.6+ | 0.4− | 2007 02 17 | 703 | 0.7− | 0.1+ |
| 2002 09 28 | 644 | 0.4− | 0.6+ | 2004 03 23 | 704 | 0.3+ | 0.2− | 2007 02 17 | 703 | 1.1− | 0.5− |
| 2002 09 28 | 644 | 0.3+ | 0.8+ | 2004 03 23 | 704 | 0.5+ | 0.1+ | 2009 11 19 | J75 | 0.4+ | 0.2− |
| 2002 10 03 | 704 | 0.4+ | 0.1− | 2004 03 23 | 704 | 0.3+ | 0.4− | 2009 11 19 | J75 | 0.3+ | 0.4+ |
| 2002 10 03 | 704 | 0.1+ | 0.7+ | 2004 03 23 | 704 | 0.5+ | 0.8− | 2009 11 19 | J75 | 0.5− | 0.2− |
| 2002 10 03 | 704 | 0.8− | 0.5− | 2004 03 27 | 704 | 0.5+ | 0.3− | 2009 11 23 | 703 | 1.3+ | 0.7− |
| 2002 10 03 | 704 | 0.2− | 0.5+ | 2004 03 27 | 704 | 0.5+ | 0.4+ | 2009 11 23 | 703 | 0.7− | 0.4− |
| 2004 02 26 | 704 | (1.7+ | 0.1−) | 2004 03 27 | 704 | 0.1+ | 0.5+ | 2009 11 23 | 703 | 0.1+ | 0.1+ |
| 2004 02 26 | 704 | 0.6− | 0.1+ | 2004 03 27 | 704 | 0.6+ | 0.1− | 2009 11 23 | 703 | 0.1+ | 1.1+ |
| 2004 02 26 | 704 | (0.2− | 1.7+) | 2004 03 27 | 704 | 0.1+ | 0.1+ | 2009 11 23 | 703 | 0.2− | 0.1+ |
| 2004 03 15 | 703 | (0.4− | 1.6+) | 2004 04 19 | 691 | 0.2+ | 0.5+ | 2009 12 11 | 703 | 0.3− | 0.3+ |
| 2004 03 15 | 703 | 1.4+ | 1.1+ | 2004 04 19 | 691 | 0.2− | 0.6+ | 2009 12 11 | 703 | 0.7+ | 1.3+ |
| 2004 03 15 | 703 | 0.0 | 1.3+ | 2004 04 19 | 691 | 0.2− | 0.6+ | 2009 12 11 | 703 | 0.5+ | 0.9+ |
| 2004 03 15 | 703 | (1.6− | 1.8+) | 2007 01 25 | 703 | 1.5− | 0.0 | 2009 12 11 | 703 | 0.1− | 0.3+ |
| 2004 03 18 | 704 | 0.6+ | 0.1− | 2007 01 25 | 703 | 1.3− | 1.3+ | | | | |
| 2004 03 18 | 704 | 1.2+ | 0.7− | 2007 01 25 | 703 | 1.5− | 0.3+ | | | | |

**(229040)**∗ **2004 EC$_{77}$**

Discovered 2004 Mar. 15 by the Catalina Sky Survey.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 200.02031 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.29102946 | $\omega$ | 159.23910 | | −0.32059678 | +0.94688759 | |
| $a$ | 2.2551638 | $\Omega$ | 92.05521 | | −0.87253325 | −0.28497317 | |
| $e$ | 0.1692868 | $i$ | 1.42956 | | −0.36865082 | −0.14897714 | |
| $P$ | 3.39 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 03 11 | 644 | 0.3− | 0.0 | 2004 04 13 | 691 | 0.2+ | 0.1+ | 2007 02 06 | 691 | 0.1− | 0.0 |
| 2004 03 11 | 644 | 0.3− | 0.0 | 2004 04 13 | 691 | 0.2+ | 0.4+ | 2007 02 06 | 691 | 0.0 | 0.3+ |
| 2004 03 11 | 644 | 0.0 | 0.2− | 2004 04 13 | 691 | 0.2+ | 0.3+ | 2007 02 06 | 691 | 0.1− | 0.0 |
| 2004 03 15 | 703 | 0.5− | 0.1− | 2004 04 21 | 691 | 0.3+ | 0.2+ | 2007 02 08 | 691 | 0.4− | 0.3− |
| 2004 03 15 | 703 | 0.2− | 1.2+ | 2004 04 21 | 691 | 0.2+ | 0.2+ | 2007 02 08 | 691 | 0.2+ | 0.0 |
| 2004 03 15 | 703 | 0.3+ | 0.8+ | 2004 04 21 | 691 | 0.1+ | 0.3+ | 2007 02 08 | 691 | 0.2− | 0.1+ |
| 2004 03 15 | 703 | (0.0 | 1.9+) | 2005 10 01 | 691 | 0.2− | 0.5+ | 2008 07 28 | E12 | 0.8− | 0.1+ |
| 2004 03 19 | 704 | 0.7+ | 1.0+ | 2005 10 01 | 691 | 0.3− | 0.6+ | 2008 07 28 | E12 | 0.6+ | 1.0+ |
| 2004 03 19 | 704 | 1.0+ | 0.6+ | 2005 10 01 | 691 | 0.4− | 0.6+ | 2008 07 28 | E12 | 1.0− | 0.3+ |
| 2004 03 19 | 704 | 0.1+ | 1.1+ | 2005 10 12 | 691 | 0.2− | 0.4+ | 2008 07 28 | E12 | 1.2+ | 0.2− |
| 2004 03 19 | 704 | 0.2− | 0.6+ | 2005 10 12 | 691 | 0.0 | 0.5+ | 2008 08 24 | 704 | 0.7− | 0.8+ |
| 2004 03 19 | 704 | 0.3+ | 1.1+ | 2005 10 12 | 691 | 0.0 | 0.4+ | 2008 08 24 | 704 | 0.4− | 1.1+ |
| 2004 03 20 | 699 | 0.3+ | 0.2+ | 2005 10 28 | G96 | 0.2+ | 0.2+ | 2008 08 24 | 704 | 1.1− | 1.3+ |
| 2004 03 20 | 699 | 0.7− | 0.2+ | 2005 10 28 | G96 | 0.4− | 0.4+ | 2008 08 24 | 704 | (0.4+ | 2.0+) |
| 2004 03 20 | 699 | 0.8+ | 0.0 | 2005 10 28 | G96 | 0.4− | 0.2+ | 2009 12 09 | J75 | 0.0 | 0.4+ |
| 2004 03 20 | 699 | 0.5+ | 0.0 | 2005 10 28 | G96 | 0.5− | 0.3+ | 2009 12 09 | J75 | 0.5+ | 0.6+ |
| 2004 03 22 | 704 | 0.7+ | 0.2− | 2006 12 21 | G96 | 0.6− | 0.9− | 2009 12 09 | J75 | 0.4− | 0.2+ |
| 2004 03 22 | 704 | 0.1+ | 0.8+ | 2006 12 21 | G96 | 0.2− | 0.0 | 2009 12 10 | G96 | 0.3+ | 0.4− |
| 2004 03 22 | 704 | 0.1− | 0.1+ | 2006 12 21 | G96 | 0.2+ | 0.3− | 2009 12 10 | G96 | 0.3+ | 0.1+ |
| 2004 03 22 | 704 | 0.6+ | 0.7+ | 2006 12 21 | G96 | 0.1+ | 0.4− | 2009 12 10 | G96 | 0.4+ | 0.0 |
| 2004 03 22 | 704 | 1.0+ | 0.6+ | 2006 12 24 | 691 | 0.6− | 0.1− | 2009 12 10 | G96 | 0.5+ | 0.3+ |
| 2004 03 23 | 691 | 0.0 | 0.1− | 2006 12 24 | 691 | 0.4− | 0.1− | 2009 12 10 | G96 | 0.4+ | 0.0 |
| 2004 03 23 | 691 | 0.1− | 0.0 | 2006 12 24 | 691 | 0.2− | 0.0 | 2009 12 10 | G96 | 0.5+ | 0.0 |
| 2004 03 23 | 691 | 0.2− | 0.1− | 2007 01 24 | G96 | 0.1− | 0.4− | 2009 12 10 | G96 | 0.5+ | 0.4+ |
| 2004 03 28 | 704 | 0.5+ | 0.5+ | 2007 01 24 | G96 | 0.1− | 0.3− | 2009 12 19 | G96 | 0.3+ | 0.1+ |
| 2004 03 28 | 704 | 0.1− | 0.2− | 2007 01 24 | G96 | 0.0 | 0.2− | 2009 12 19 | G96 | 0.2+ | 0.0 |
| 2004 03 28 | 704 | 0.8− | 0.6− | 2007 01 24 | G96 | 0.4+ | 0.3− | 2009 12 19 | G96 | 0.1+ | 0.0 |
| 2004 03 30 | 291 | 0.1+ | 0.2+ | 2007 01 27 | 691 | 0.3+ | 0.1+ | 2009 12 19 | G96 | 0.4+ | 0.1− |
| 2004 03 30 | 291 | 0.1+ | 0.1+ | 2007 01 27 | 691 | 0.0 | 0.6+ | | | | |
| 2004 03 30 | 291 | 0.1+ | 0.1+ | 2007 01 27 | 691 | 0.2+ | 0.2− | | | | |

**(229041)**∗ **2004 EJ$_{94}$**

Discovered 2004 Mar. 15 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 326.19806 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.30376789 | $\omega$ | 56.36657 | | −0.59844934 | −0.79877751 | |
| $a$ | 2.1916682 | $\Omega$ | 70.51299 | | +0.71165257 | −0.56540810 | |
| $e$ | 0.0680693 | $i$ | 3.75559 | | +0.36797963 | −0.20559224 | |
| $P$ | 3.24 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 02 25 | 704 | 0.8+ | 0.5− | 2005 11 06 | G96 | 0.4− | 0.2− | 2007 01 28 | G96 | 0.3− | 0.3− |
| 2004 02 25 | 704 | 0.6+ | 0.4− | 2005 11 06 | G96 | 0.1+ | 0.3− | 2007 02 05 | 644 | 0.1− | 0.2+ |
| 2004 02 25 | 704 | 1.1+ | 0.3− | 2005 11 06 | G96 | 1.0− | 0.1− | 2007 02 05 | 644 | 0.2+ | 0.1− |
| 2004 02 25 | 704 | 1.3+ | 0.3− | 2005 11 06 | G96 | 0.1− | 0.1+ | 2007 02 05 | 644 | 0.5+ | 0.1− |
| 2004 02 25 | 704 | 0.4+ | 0.2− | 2006 09 28 | G96 | 0.1+ | 0.5− | 2007 02 07 | 703 | 1.1− | 0.4+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 03 11 | 644 | 0.1+ | 0.2+ | 2006 09 28 | G96 | 0.3+ | 0.7− | 2007 02 07 | 703 | 0.6− | 0.6+ |
| 2004 03 11 | 644 | 0.1+ | 0.3+ | 2006 09 28 | G96 | 0.4+ | 0.2− | 2007 02 07 | 703 | 0.0 | 0.2− |
| 2004 03 11 | 644 | 0.0 | 0.2+ | 2006 09 28 | G96 | 0.2+ | 0.1− | 2007 02 07 | 703 | 1.0− | 0.6+ |
| 2004 03 15 | 704 | (1.6+ | 0.1−) | 2006 10 31 | G96 | 0.5+ | 0.3+ | 2007 02 10 | 644 | 0.3+ | 0.8+ |
| 2004 03 15 | 704 | 0.0 | 0.0 | 2006 10 31 | G96 | 0.0 | 0.9+ | 2007 02 10 | 644 | 0.0 | 0.0 |
| 2004 03 15 | 704 | (0.6+ | 1.6−) | 2006 10 31 | G96 | 0.4+ | 0.4+ | 2007 02 10 | 644 | 0.0 | 0.2− |
| 2004 03 15 | 704 | 1.0− | 1.2− | 2006 10 31 | G96 | 0.4+ | 0.0 | 2007 02 16 | 644 | 0.1− | 0.0 |
| 2004 03 15 | 691 | 0.0 | 0.0 | 2006 12 21 | 644 | 0.1+ | 0.3− | 2007 02 16 | 644 | 0.3− | 0.2+ |
| 2004 03 15 | 691 | 0.1− | 0.0 | 2006 12 21 | 644 | 0.0 | 0.1− | 2007 02 16 | 703 | 0.4− | 0.6− |
| 2004 03 15 | 691 | 0.1− | 0.0 | 2006 12 21 | 644 | 0.2− | 0.2+ | 2007 02 16 | 644 | 0.1− | 0.0 |
| 2004 03 20 | 699 | 1.1− | 0.2− | 2007 01 16 | 703 | (1.7− | 1.0−) | 2007 02 16 | 703 | 0.6− | 1.1− |
| 2004 03 20 | 699 | 0.6− | 0.2+ | 2007 01 16 | 703 | 1.2− | 0.6− | 2007 02 16 | 703 | 1.1− | 0.4− |
| 2004 03 20 | 704 | 0.8+ | 0.2− | 2007 01 16 | 703 | 0.4− | 0.7− | 2007 02 16 | 703 | (0.1− | 1.7−) |
| 2004 03 20 | 704 | 0.7+ | 0.2+ | 2007 01 16 | 703 | 0.3− | 0.3− | 2009 11 21 | 704 | 0.6+ | 1.0− |
| 2004 03 20 | 704 | 0.8+ | 0.2+ | 2007 01 17 | 644 | 0.2+ | 0.2+ | 2009 11 21 | 704 | 0.1+ | 0.9− |
| 2004 03 20 | 699 | 0.3− | 0.7+ | 2007 01 17 | 644 | 0.4+ | 0.1+ | 2009 11 21 | 704 | 0.1+ | 0.5− |
| 2004 03 20 | 704 | 0.9+ | 0.0 | 2007 01 17 | 644 | 0.4+ | 0.2+ | 2009 11 21 | 704 | 0.9+ | 0.1+ |
| 2004 03 20 | 704 | 1.1+ | 0.3− | 2007 01 21 | 704 | 0.0 | 0.6+ | 2009 11 21 | 691 | 1.3+ | 0.9+ |
| 2004 03 20 | 699 | 0.1− | 0.2− | 2007 01 21 | 704 | 0.4+ | 0.2− | 2009 11 21 | 691 | 0.5− | 0.2+ |
| 2004 03 22 | 704 | 1.1− | 0.1− | 2007 01 21 | 704 | 0.4+ | 0.5+ | 2009 11 21 | 691 | 0.4− | 0.3+ |
| 2004 03 22 | 704 | 0.5− | 0.1− | 2007 01 21 | 704 | 0.0 | 0.4+ | 2009 12 09 | J75 | 0.2+ | 0.0 |
| 2004 03 22 | 704 | 0.9− | 0.6− | 2007 01 21 | 704 | 0.8+ | 0.0 | 2009 12 09 | J75 | 0.5+ | 0.3− |
| 2004 03 22 | 704 | 0.0 | 0.1+ | 2007 01 24 | 704 | 0.1+ | 0.4+ | 2009 12 09 | J75 | 0.1+ | 0.4− |
| 2004 03 22 | 704 | 0.3− | 0.0 | 2007 01 24 | 704 | 0.4+ | 0.4− | 2009 12 09 | J75 | 0.1+ | 0.0 |
| 2004 03 27 | 691 | 1.4− | 0.2+ | 2007 01 24 | 704 | 0.2+ | 0.2+ | 2009 12 09 | J75 | 0.0 | 0.3− |
| 2004 03 27 | 691 | 0.3− | 0.1− | 2007 01 24 | 704 | 0.6+ | 0.2+ | 2009 12 09 | J75 | 0.8− | 0.4− |
| 2004 03 27 | 691 | 0.2+ | 0.2+ | 2007 01 24 | 704 | 0.1+ | 0.4+ | 2009 12 10 | G96 | 0.1− | 0.0 |
| 2004 04 12 | 291 | 0.4+ | 0.2+ | 2007 01 28 | 691 | 0.0 | 0.1+ | 2009 12 10 | G96 | 0.2− | 0.1− |
| 2004 04 12 | 291 | 0.5+ | 0.0 | 2007 01 28 | 691 | 0.0 | 0.1+ | 2009 12 10 | G96 | 0.4− | 0.1− |
| 2004 04 12 | 291 | 0.2+ | 0.1+ | 2007 01 28 | G96 | 0.2− | 0.1− | 2009 12 10 | G96 | 0.1− | 0.1− |
| 2004 04 13 | 291 | 0.4+ | 0.1+ | 2007 01 28 | G96 | 0.2+ | 0.1− | 2009 12 19 | G96 | 0.0 | 0.2− |
| 2004 04 13 | 291 | 0.2+ | 0.1+ | 2007 01 28 | 691 | 0.1− | 0.1+ | 2009 12 19 | G96 | 0.3− | 0.1− |
| 2004 04 13 | 291 | 0.1− | 0.1+ | 2007 01 28 | G96 | 0.1− | 0.1− | 2009 12 19 | G96 | 0.3− | 0.1− |
| 2005 08 05 | 644 | 0.0 | 0.2+ | 2007 01 28 | G96 | 0.1− | 0.2− | 2009 12 19 | G96 | 0.0 | 0.1− |
| 2005 08 05 | 644 | 0.0 | 0.3+ | 2007 01 28 | G96 | 0.1+ | 0.3− | | | | |
| 2005 08 05 | 644 | 0.2− | 0.4+ | 2007 01 28 | G96 | 0.2− | 0.9− | | | | |

**(229042)∗ 2004 $EQ_{98}$**

Discovered 2004 Mar. 15 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 51.13294 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28145373 | $\omega$ | 193.22885 | | +0.99771805 | +0.04454255 | |
| $a$ | 2.3060287 | $\Omega$ | 163.95590 | | −0.03178045 | +0.97287608 | |
| $e$ | 0.2318059 | $i$ | 10.57912 | | −0.05957085 | +0.22699800 | |
| $P$ | 3.50 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 10 10 | 644 | 0.5+ | 0.2+ | 2004 03 15 | 691 | 0.1+ | 0.0 | 2008 04 27 | G96 | 0.2− | 0.3+ |
| 2002 10 10 | 644 | 0.2+ | 0.2+ | 2004 03 15 | 691 | 0.3− | 0.1+ | 2008 04 27 | G96 | 0.0 | 0.5+ |
| 2002 10 10 | 644 | 0.5+ | 0.1+ | 2004 03 18 | 704 | 0.4− | 0.9+ | 2008 04 27 | G96 | 0.3+ | 0.1+ |
| 2002 10 31 | 704 | 0.5− | 0.2+ | 2004 03 18 | 704 | 0.4+ | 0.4+ | 2008 04 27 | G96 | 0.0 | 0.6+ |
| 2002 10 31 | 704 | 0.1− | 0.5+ | 2004 03 18 | 704 | 0.6+ | 0.4− | 2009 08 28 | 703 | (2.4+ | 0.9+) |
| 2002 10 31 | 704 | 0.7− | 0.0 | 2004 03 18 | 704 | 0.6+ | 0.3− | 2009 08 28 | 703 | 1.2+ | 0.2− |
| 2002 10 31 | 704 | 0.6− | 0.4+ | 2004 03 18 | 704 | 0.6+ | 0.8− | 2009 08 28 | 703 | (1.6+ | 2.5+) |
| 2002 10 31 | 704 | 0.8− | 0.1− | 2004 03 18 | 704 | (1.0+ | 1.6−) | 2009 08 28 | 703 | 0.1+ | 1.3+ |
| 2002 11 06 | 699 | 0.8+ | 0.2− | 2004 03 18 | 704 | 0.2+ | 0.3− | 2009 11 08 | 703 | 1.0− | 0.9− |
| 2002 11 06 | 699 | 0.2− | 0.9+ | 2004 03 18 | 704 | 1.4+ | 0.4− | 2009 11 08 | 703 | 0.2− | 0.3− |
| 2002 11 06 | 699 | 0.7+ | 0.5+ | 2004 03 23 | 691 | 0.5− | 0.2+ | 2009 11 08 | 703 | 0.0 | 0.1− |
| 2002 11 06 | 699 | 0.5+ | 0.5− | 2004 03 23 | 691 | 0.0 | 0.3+ | 2009 11 08 | 703 | 0.5− | 0.8− |
| 2002 11 30 | 704 | 0.7+ | 0.0 | 2004 03 23 | 691 | 0.0 | 0.2+ | 2009 11 17 | 703 | 0.6+ | 0.1+ |
| 2002 11 30 | 704 | 0.3− | 0.2+ | 2007 01 25 | 703 | (1.1− | 2.1−) | 2009 11 17 | 703 | 0.4− | 0.2− |
| 2002 11 30 | 704 | 1.0− | 0.1+ | 2007 01 25 | 703 | 0.6+ | 0.1− | 2009 11 17 | 703 | 0.2+ | 0.0 |
| 2002 11 30 | 704 | 0.7− | 0.1− | 2007 01 25 | 703 | (1.6− | 0.8−) | 2009 11 17 | 703 | 0.3+ | 0.6+ |
| 2002 12 13 | 644 | 0.2+ | 0.0 | 2007 01 25 | 703 | 0.1+ | 1.0− | 2009 12 13 | 703 | 0.5− | 0.0 |
| 2002 12 13 | 644 | 0.2+ | 0.1− | 2007 02 08 | 644 | 0.1− | 0.7− | 2009 12 13 | 703 | 0.2+ | 0.4+ |
| 2002 12 13 | 644 | 0.2+ | 0.2+ | 2007 02 08 | 644 | 0.3+ | 0.4− | 2009 12 13 | 703 | 0.2− | 0.7+ |
| 2004 03 15 | 691 | 0.1− | 0.0 | 2007 02 08 | 644 | 0.1− | 0.2− | 2009 12 13 | 703 | 0.5+ | 0.1− |

**(229043)∗ 2004 $EG_{102}$ = 2005 $QK_{63}$**

Discovered 2004 Mar. 15 by Spacewatch at Kitt Peak.

Id. A. Doppler (*MPO* 86383)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 125.68510 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28367195 | $\omega$ | 240.09655 | | +0.48868339 | +0.87210274 | |
| $a$ | 2.2939914 | $\Omega$ | 59.17826 | | −0.79009138 | +0.45452191 | |
| $e$ | 0.0945652 | $i$ | 1.66867 | | −0.37005966 | +0.18123641 | |
| $P$ | 3.47 | $H$ | 17.8 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 03 15 | 691 | 0.1− | 0.4+ | 2005 08 30 | 691 | 0.5− | 0.4+ | 2007 02 06 | 691 | 0.2+ | 0.1+ |
| 2004 03 15 | 691 | 0.2− | 0.3+ | 2005 08 30 | 691 | 0.1− | 0.2+ | 2009 09 19 | G96 | 0.3+ | 0.2+ |
| 2004 03 15 | 691 | 0.2+ | 0.1− | 2005 08 30 | 691 | 0.1− | 0.0 | 2009 09 19 | G96 | 0.4+ | 1.0+ |
| 2004 03 23 | 691 | 0.0 | 0.4+ | 2005 09 14 | 691 | 0.1+ | 0.7+ | 2009 09 19 | G96 | 1.0+ | 0.7+ |
| 2004 03 23 | 691 | 0.3+ | 0.7+ | 2005 09 14 | 691 | 0.5− | 0.9+ | 2009 09 19 | G96 | 0.1+ | 0.3+ |
| 2004 03 23 | 691 | 0.1+ | 0.3+ | 2005 09 14 | 691 | 0.0 | 0.1+ | 2009 11 24 | 691 | 0.4− | 0.6− |
| 2004 04 13 | 691 | 0.2+ | 0.7+ | 2006 12 27 | G96 | 0.3+ | 0.1+ | 2009 11 24 | 691 | 0.5− | 0.0 |
| 2004 04 13 | 691 | 0.2+ | 0.4+ | 2006 12 27 | G96 | 0.4+ | 0.3− | 2009 11 24 | 691 | 0.4− | 0.4+ |
| 2004 04 13 | 691 | 0.5+ | 0.2+ | 2006 12 27 | G96 | 0.7+ | 0.5− | 2009 12 11 | G96 | 0.9+ | 0.3+ |
| 2005 08 26 | 644 | 0.2− | 0.4+ | 2006 12 27 | G96 | 0.3+ | 0.1− | 2009 12 11 | G96 | 0.6+ | 0.5+ |
| 2005 08 26 | 644 | 0.3− | 0.4+ | 2007 02 06 | 691 | 0.4− | 0.0 | 2009 12 11 | G96 | 0.7+ | 0.3+ |
| 2005 08 26 | 644 | 0.6+ | 0.6+ | 2007 02 06 | 691 | 0.0 | 0.3+ | 2009 12 11 | G96 | 0.8+ | 0.9+ |

**(229044)∗ 2004 $FX_8$ = 1998 $SA_{165}$ = 2005 $SO_{24}$**

Discovered 2004 Mar. 16 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 86387)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 106.15541 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28330557 | $\omega$ | 263.97393 | | +0.88677512 | +0.44818309 | |
| $a$ | 2.2959688 | $\Omega$ | 69.35284 | | −0.36175094 | +0.82513437 | |
| $e$ | 0.1500218 | $i$ | 6.93378 | | −0.28769105 | +0.34392615 | |
| $P$ | 3.48 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 09 22 | 699 | 0.2+ | 1.2+ | 2005 09 14 | 703 | 0.7− | 0.1− | 2005 10 31 | 699 | 0.9+ | 0.6+ |
| 1998 09 22 | 699 | 0.2− | 0.2+ | 2005 09 14 | 703 | 0.2+ | 0.0 | 2005 10 31 | 699 | 0.9− | 0.0 |
| 1998 09 22 | 699 | 0.4+ | 0.7+ | 2005 09 14 | 703 | 0.1− | 0.6− | 2005 11 15 | 644 | 0.2− | 0.3+ |
| 1998 09 27 | 699 | 1.4− | 1.2+ | 2005 09 24 | 699 | 0.5− | 0.0 | 2005 11 15 | 644 | 0.3− | 0.1+ |
| 1998 09 27 | 699 | 0.0 | 0.4+ | 2005 09 24 | 699 | 1.0+ | 0.5+ | 2005 11 15 | 644 | 0.5− | 0.2+ |
| 1998 09 27 | 699 | 0.6− | 0.5− | 2005 09 24 | 699 | 0.3− | 0.9+ | 2005 11 29 | 644 | 0.2− | 0.6+ |
| 2003 01 05 | 704 | 0.4+ | 0.1− | 2005 09 24 | 699 | 0.2+ | 0.2− | 2005 11 29 | 644 | 0.2+ | 0.0 |
| 2003 01 05 | 704 | 0.5+ | 0.4− | 2005 09 28 | 644 | 0.3− | 0.2− | 2005 11 29 | 644 | 0.3− | 0.4+ |
| 2003 01 05 | 704 | 0.0 | 0.7− | 2005 09 28 | 644 | 0.4− | 0.2− | 2007 02 09 | 703 | 0.5− | 1.1− |
| 2003 01 05 | 704 | 0.1+ | 0.1+ | 2005 09 28 | 644 | 0.2− | 0.2− | 2007 02 09 | 703 | 0.7− | 0.9+ |
| 2004 03 16 | 704 | 1.5+ | 1.2+ | 2005 09 30 | 699 | 0.6+ | 0.8+ | 2007 02 09 | 703 | 0.7+ | 1.0− |
| 2004 03 16 | 704 | (1.3+ | 1.6+) | 2005 09 30 | 699 | (1.5− | 2.0−) | 2007 02 09 | 703 | 0.0 | 0.2− |
| 2004 03 16 | 704 | 0.6+ | 0.4+ | 2005 09 30 | 699 | 0.4+ | 0.1+ | 2007 02 16 | 703 | 0.7+ | 1.1− |
| 2004 03 16 | 704 | (0.8+ | 1.5+) | 2005 09 30 | 699 | 0.3+ | 0.2+ | 2007 02 16 | 703 | 0.9− | 1.1+ |
| 2004 03 18 | 691 | 0.2+ | 0.6+ | 2005 10 03 | 703 | 0.3− | 0.4− | 2007 02 16 | 703 | 0.7− | 1.1+ |
| 2004 03 18 | 691 | 0.2− | 0.5+ | 2005 10 03 | 703 | 0.2+ | 0.5− | 2007 02 16 | 703 | 0.1+ | 1.0+ |
| 2004 03 18 | 691 | 0.2+ | 0.5+ | 2005 10 03 | 703 | 0.2+ | 0.1− | 2007 03 06 | 644 | 0.3+ | 0.2+ |
| 2004 03 20 | 704 | 0.6− | 0.4− | 2005 10 03 | 703 | 0.3− | 0.5+ | 2007 03 06 | 644 | 0.1+ | 0.1− |
| 2004 03 20 | 704 | 0.7+ | 0.1− | 2005 10 09 | 703 | 0.2− | 0.3− | 2007 03 06 | 644 | 0.2− | 0.2+ |
| 2004 03 20 | 704 | 0.4+ | 0.8+ | 2005 10 09 | 703 | 0.4− | 0.7+ | 2009 12 10 | 704 | 0.1+ | 0.7+ |
| 2004 03 23 | 704 | 0.9+ | 1.2+ | 2005 10 09 | 703 | 1.4− | 0.9+ | 2009 12 10 | 704 | 0.4− | 0.1− |
| 2004 03 23 | 704 | 1.0+ | 0.5+ | 2005 10 26 | 704 | 0.2+ | 0.2+ | 2009 12 10 | 704 | 0.1+ | 0.4− |
| 2004 03 23 | 704 | 0.2+ | 0.1+ | 2005 10 26 | 704 | 0.3− | 0.4− | 2009 12 10 | 704 | 0.7+ | 0.8− |
| 2005 09 03 | 644 | 0.4− | 0.2+ | 2005 10 26 | 704 | 1.0+ | 0.4+ | 2009 12 18 | 691 | 0.0 | 0.1− |
| 2005 09 03 | 644 | 0.5− | 0.1− | 2005 10 26 | 704 | (2.4− | 1.0−) | 2009 12 18 | 691 | 0.5+ | 0.0 |
| 2005 09 03 | 644 | 0.4− | 0.0 | 2005 10 31 | 699 | 0.5− | 0.9+ | 2009 12 18 | 691 | 0.4− | 0.4+ |
| 2005 09 14 | 703 | 0.1+ | 0.1+ | 2005 10 31 | 699 | 0.4+ | 0.9+ | | | | |

**(229045)∗ 2004 FM$_{11}$ = 2006 YT$_{31}$**

Discovered 2004 Mar. 16 by the Catalina Sky Survey.

Id. G. V. Williams (*MPO* 112340)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 252.21395 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.29246750 | $\omega$ | 244.40305 | | −0.99005480 | +0.10534731 | |
| $a$ | 2.2477654 | $\Omega$ | 301.51683 | | −0.05279615 | −0.89254993 | |
| $e$ | 0.0986205 | $i$ | 6.27914 | | −0.13039961 | −0.43847071 | |
| $P$ | 3.37 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 07 16 | 691 | 0.5+ | 0.9+ | 2004 03 17 | 704 | 0.7+ | 0.4+ | 2006 12 25 | 691 | 0.2− | 0.3+ |
| 1998 07 16 | 691 | 0.3+ | 0.7+ | 2004 03 17 | 704 | 0.5+ | 0.3+ | 2006 12 25 | 691 | 0.4− | 0.2+ |
| 1998 07 16 | 691 | 0.3+ | 0.5+ | 2004 03 18 | 704 | 1.4+ | 0.3+ | 2007 01 10 | 691 | 0.1+ | 0.1+ |
| 1998 07 25 | 691 | 1.0− | 0.8+ | 2004 03 18 | 704 | (2.1+ | 0.2−) | 2007 01 10 | 691 | 0.1− | 0.3+ |
| 1998 07 25 | 691 | (6.8+ | 2.6+) | 2004 03 18 | 704 | 0.4+ | 0.6+ | 2007 01 10 | 691 | 0.1− | 0.0 |
| 1998 07 25 | 691 | 1.6− | 0.8+ | 2004 03 18 | 704 | (1.8+ | 0.1−) | 2007 01 10 | 703 | 0.5− | 0.3− |
| 2004 02 23 | 704 | 0.2+ | 0.2+ | 2004 03 18 | 704 | 0.0 | 0.2+ | 2007 01 10 | 703 | 0.1+ | 0.8− |
| 2004 02 23 | 704 | (1.5− | 4.1−) | 2004 03 26 | 699 | 0.3− | 1.1− | 2007 01 10 | 703 | 0.8+ | 0.2− |
| 2004 02 23 | 704 | (2.0+ | 3.9−) | 2004 03 26 | 699 | 0.3− | 0.1+ | 2007 01 10 | 703 | 0.7− | 0.7+ |
| 2004 02 23 | 704 | 0.0 | 0.8− | 2004 03 26 | 699 | 0.8− | 0.6+ | 2009 10 27 | G96 | 0.1+ | 0.4+ |
| 2004 03 16 | 703 | 0.1+ | 0.5+ | 2004 03 26 | 699 | 0.4+ | 0.8+ | 2009 10 27 | G96 | 0.2+ | 0.2+ |
| 2004 03 16 | 703 | 0.2+ | 1.0+ | 2005 09 25 | 691 | 0.2− | 0.2+ | 2009 10 27 | G96 | 0.3− | 0.3+ |
| 2004 03 16 | 703 | 0.5+ | 0.2+ | 2005 09 25 | 691 | 0.1− | 0.0 | 2009 10 27 | G96 | 0.2− | 0.1− |
| 2004 03 16 | 703 | 0.2− | 0.0 | 2005 09 25 | 691 | 0.2+ | 0.2+ | 2009 11 20 | G96 | 0.3+ | 0.0 |
| 2004 03 17 | 704 | 0.1+ | 1.1+ | 2006 12 14 | 691 | 0.4+ | 0.4+ | 2009 11 20 | G96 | 0.1+ | 0.2+ |
| 2004 03 17 | 704 | 0.2+ | 0.9+ | 2006 12 14 | 691 | 0.6+ | 0.4+ | 2009 11 20 | G96 | 0.2− | 0.2+ |
| 2004 03 17 | 704 | 0.1− | 0.6+ | 2006 12 14 | 691 | 0.3+ | 0.5+ | 2009 11 20 | G96 | 0.1+ | 0.1− |
| 2004 03 17 | 704 | 0.1− | 0.3− | 2006 12 21 | 691 | 0.3+ | 0.3+ | 2009 12 20 | G96 | 0.2+ | 0.0 |
| 2004 03 17 | 704 | 0.2+ | 0.6+ | 2006 12 21 | 691 | 0.1+ | 0.2+ | 2009 12 20 | G96 | 0.2− | 0.3+ |
| 2004 03 17 | 704 | 0.3− | 0.3+ | 2006 12 21 | 691 | 0.1+ | 0.3+ | 2009 12 20 | G96 | 0.5+ | 0.2− |
| 2004 03 17 | 704 | 0.6+ | 0.4+ | 2006 12 25 | 691 | 0.2− | 0.2+ | 2009 12 20 | G96 | 0.3− | 0.5− |

**(229046)∗ 2004 FB$_{23}$**

Discovered 2004 Mar. 17 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 107.60080 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26027634 | $\omega$ | 270.60895 | | +0.07645023 | +0.99704832 | |
| $a$ | 2.4294777 | $\Omega$ | 3.79736 | | −0.86706491 | +0.06998204 | |
| $e$ | 0.1095596 | $i$ | 6.12966 | | −0.49229443 | +0.03157784 | |
| $P$ | 3.79 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 03 17 | 691 | 0.1+ | 0.5+ | 2005 10 29 | G96 | 0.1− | 0.3− | 2009 09 12 | 691 | 0.2− | 0.6+ |
| 2004 03 17 | 691 | 0.3+ | 0.5+ | 2005 10 29 | G96 | 0.4+ | 0.2− | 2009 09 14 | 704 | 0.3+ | 1.0+ |
| 2004 03 17 | 691 | 0.2+ | 0.4+ | 2005 10 29 | G96 | 0.4+ | 0.2− | 2009 09 14 | 704 | 0.3+ | 0.5+ |
| 2004 03 18 | 704 | 0.2− | 1.0+ | 2008 02 02 | G96 | 0.3+ | 0.4+ | 2009 09 14 | 704 | 0.6+ | 0.6+ |
| 2004 03 18 | 704 | 1.2+ | 0.5+ | 2008 02 02 | G96 | 1.0+ | 0.5− | 2009 09 14 | 704 | 0.1+ | 0.4+ |
| 2004 03 18 | 704 | (1.7+ | 0.1+) | 2008 02 02 | G96 | 0.5+ | 1.0+ | 2009 09 14 | 704 | 1.0+ | 0.6+ |
| 2004 03 18 | 704 | 0.0 | 0.3+ | 2008 02 02 | G96 | 0.0 | 0.1− | 2009 09 19 | 291 | 0.3− | 0.3+ |
| 2004 03 22 | 704 | 0.6− | 1.0+ | 2008 02 13 | G96 | 0.1− | 0.2+ | 2009 09 19 | 291 | 0.1− | 0.3+ |
| 2004 03 22 | 704 | 0.8+ | 1.0+ | 2008 02 13 | G96 | 0.4+ | 0.1− | 2009 09 19 | 291 | 0.3− | 0.2+ |
| 2004 03 22 | 704 | 0.9+ | 0.3− | 2008 02 13 | G96 | 0.1− | 0.0 | 2009 09 20 | 691 | 0.2− | 0.1+ |
| 2004 03 27 | 704 | 0.6+ | 0.6+ | 2008 02 13 | G96 | 0.4+ | 0.2+ | 2009 09 20 | 691 | 0.0 | 0.0 |
| 2004 03 27 | 704 | 0.6+ | 0.6+ | 2008 03 30 | 691 | 0.0 | 0.4+ | 2009 09 20 | 691 | 0.1− | 0.1+ |
| 2004 03 27 | 704 | 1.1+ | 0.5+ | 2008 03 30 | 691 | 0.1+ | 0.4+ | 2009 09 22 | A77 | 0.1+ | 0.0 |
| 2004 03 31 | 691 | 0.2+ | 0.6+ | 2008 03 30 | 691 | 0.1− | 0.1+ | 2009 09 23 | A77 | 0.2− | 0.2− |
| 2004 03 31 | 691 | 0.5+ | 0.6+ | 2008 04 05 | 704 | (1.8+ | 0.5−) | 2009 09 23 | A77 | 0.2− | 0.1− |
| 2004 03 31 | 691 | 0.0 | 0.4+ | 2008 04 05 | 704 | 1.0+ | 0.4+ | 2009 09 23 | 691 | 0.1+ | 0.4+ |
| 2005 07 30 | 644 | 0.1+ | 0.2+ | 2008 04 05 | 704 | 1.1+ | 0.9+ | 2009 09 23 | 691 | 0.6− | 0.2+ |
| 2005 07 30 | 644 | 0.3− | 0.3+ | 2008 04 05 | 704 | 1.3+ | 1.1+ | 2009 09 23 | 691 | 0.2− | 0.1+ |
| 2005 07 30 | 644 | 0.1− | 0.0 | 2008 04 14 | G96 | 0.1− | 0.1+ | 2009 09 24 | A77 | 0.0 | 0.3− |
| 2005 08 27 | 644 | 0.1+ | 0.1+ | 2008 04 14 | G96 | 0.2− | 0.0 | 2009 09 24 | A77 | 0.0 | 0.0 |
| 2005 08 27 | 644 | 0.1− | 0.0 | 2008 04 14 | G96 | 0.2− | 0.2− | 2009 09 24 | A77 | 0.5+ | 0.2+ |
| 2005 08 27 | 644 | 0.2+ | 0.0 | 2008 04 14 | G96 | 0.4− | 0.3− | 2009 09 24 | 691 | 0.5− | 0.5+ |
| 2005 08 28 | 699 | 0.1− | 1.3+ | 2008 05 09 | F85 | 0.0 | 0.2− | 2009 09 24 | 691 | 0.4− | 0.5+ |
| 2005 08 28 | 699 | 1.0− | 0.7− | 2008 05 09 | F85 | 0.1+ | 0.6+ | 2009 09 24 | 691 | 0.1− | 0.2+ |
| 2005 08 28 | 699 | (1.7− | 0.1−) | 2008 05 09 | F85 | 0.5− | 0.8+ | 2009 09 28 | 691 | 0.2− | 0.5+ |
| 2005 08 28 | 699 | (1.8− | 1.1−) | 2008 05 11 | F85 | 0.1− | 0.4− | 2009 09 28 | 691 | 0.1− | 0.4+ |
| 2005 09 22 | 644 | 0.1− | 0.1+ | 2008 05 11 | F85 | 0.6− | 0.6− | 2009 09 28 | 691 | 0.1− | 0.2+ |
| 2005 09 22 | 644 | 0.1+ | 0.0 | 2008 05 11 | F85 | 0.1+ | 0.1− | 2009 12 17 | G96 | 0.2− | 0.1+ |
| 2005 09 22 | 644 | 0.1+ | 0.5+ | 2009 09 12 | 691 | 0.1− | 0.3+ | 2009 12 17 | G96 | 0.2− | 0.1+ |
| 2005 10 29 | G96 | 0.1− | 0.2− | 2009 09 12 | 691 | 0.4− | 0.1+ | 2009 12 17 | G96 | 0.4+ | 0.1+ |

**(229047)∗ 2004 FP$_{28}$**

Discovered 2004 Mar. 18 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 180.53837 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27224566 | $\omega$ | 138.01888 | | −0.50737007 | +0.86076255 | |
| $a$ | 2.3577372 | $\Omega$ | 101.45455 | | −0.80127984 | −0.45383624 | |
| $e$ | 0.1501419 | $i$ | 2.38500 | | −0.31705873 | −0.23047884 | |
| $P$ | 3.62 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 03 18 | 291 | 0.1− | 0.3+ | 2004 04 09 | E12 | 0.6− | 0.1− | 2005 10 27 | 691 | 0.6− | 0.1+ |
| 2004 03 18 | 291 | 0.0 | 0.2+ | 2004 04 09 | E12 | 0.4− | 0.2− | 2005 10 27 | 705 | 0.0 | 0.1+ |
| 2004 03 18 | 291 | 0.1− | 0.2+ | 2004 04 16 | 704 | 0.3+ | 1.0+ | 2005 10 27 | 705 | 0.0 | 0.3+ |
| 2004 03 19 | 291 | 0.1+ | 0.4+ | 2004 04 16 | 704 | 0.7+ | 1.2+ | 2005 10 31 | 705 | 0.1+ | 0.2+ |
| 2004 03 19 | 291 | 0.4+ | 0.4+ | 2004 04 16 | 704 | 0.5+ | 1.0+ | 2005 10 31 | 705 | 0.1+ | 0.2+ |
| 2004 03 19 | 291 | 0.4+ | 0.3+ | 2004 04 16 | 704 | 0.4− | 1.2+ | 2005 11 02 | 705 | 0.1− | 0.1+ |
| 2004 03 19 | 704 | (0.1− | 1.6−) | 2004 04 19 | 704 | 1.4− | 1.0− | 2005 11 02 | 705 | 0.0 | 0.0 |
| 2004 03 19 | 704 | 0.1+ | 0.7− | 2004 04 19 | 704 | 1.0− | 1.5+ | 2006 12 12 | G96 | 0.6+ | 0.0 |
| 2004 03 19 | 704 | (2.5+ | 0.4+) | 2004 04 19 | 704 | 0.6− | 0.1− | 2006 12 12 | G96 | 0.5+ | 0.3− |
| 2004 03 22 | 704 | 0.6+ | 0.1− | 2004 04 22 | 704 | 0.9+ | 0.9+ | 2006 12 12 | G96 | 0.1− | 0.1− |
| 2004 03 22 | 704 | 0.6+ | 0.1+ | 2004 04 22 | 704 | 0.6+ | 0.4− | 2006 12 12 | G96 | 0.0 | 0.3+ |
| 2004 03 22 | 704 | 0.3+ | 0.6+ | 2004 04 22 | 704 | 1.1+ | 0.0 | 2009 10 23 | G96 | 0.1+ | 0.1+ |
| 2004 03 22 | 704 | 0.8− | 0.3+ | 2005 09 25 | 691 | 0.1− | 0.5+ | 2009 10 23 | G96 | 0.4− | 0.0 |
| 2004 03 23 | 691 | 0.2+ | 0.1− | 2005 09 25 | 691 | 0.1− | 0.1+ | 2009 10 23 | G96 | 0.4− | 0.8+ |
| 2004 03 23 | 691 | 0.0 | 0.2+ | 2005 09 25 | 691 | 0.0 | 0.4+ | 2009 10 23 | G96 | 0.5− | 0.2+ |
| 2004 03 23 | 691 | 0.0 | 0.3+ | 2005 10 06 | 691 | 0.1+ | 0.0 | 2009 11 24 | G96 | 0.1+ | 0.0 |
| 2004 03 28 | 704 | 0.1− | 0.9+ | 2005 10 06 | 691 | 0.1− | 0.1+ | 2009 11 24 | G96 | 0.0 | 0.1− |
| 2004 03 28 | 704 | 0.1− | 0.3− | 2005 10 06 | 691 | 0.1+ | 0.3+ | 2009 11 24 | G96 | 0.4+ | 0.1− |
| 2004 03 28 | 704 | 0.7+ | 0.3+ | 2005 10 12 | 691 | 0.1+ | 0.5+ | 2009 11 24 | G96 | 0.3+ | 0.4+ |
| 2004 03 28 | 704 | 0.5+ | 0.4− | 2005 10 12 | 691 | 0.2+ | 0.2+ | 2009 12 15 | G96 | 0.1+ | 0.3+ |
| 2004 03 28 | 704 | 0.3+ | 0.8− | 2005 10 12 | 691 | 0.4− | 0.2+ | 2009 12 15 | G96 | 0.7− | 0.1− |
| 2004 04 09 | E12 | 0.2− | 0.1− | 2005 10 27 | 691 | 0.9− | 1.5+ | 2009 12 15 | G96 | 0.1− | 0.3+ |
| 2004 04 09 | E12 | 0.6+ | 1.1+ | 2005 10 27 | 691 | 0.1− | 0.0 | 2009 12 15 | G96 | 0.1− | 0.3− |

**(229048)∗ 2004 FE$_{34}$**

Discovered 2004 Mar. 16 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 255.64273 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.29709921 | $\omega$ | 314.61529 | | −0.94263774 | +0.32933272 | |
| $a$ | 2.2243428 | $\Omega$ | 244.68318 | | −0.28664420 | −0.88228113 | |
| $e$ | 0.1400271 | $i$ | 3.45870 | | −0.17108242 | −0.33633313 | |
| $P$ | 3.32 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 10 20 | 691 | 0.2− | 0.2+ | 2005 08 29 | 691 | 0.1+ | 0.5+ | 2007 02 05 | 644 | 0.1− | 0.2+ |
| 1995 10 20 | 691 | 0.4− | 0.6+ | 2005 08 29 | 691 | 0.1+ | 0.4+ | 2007 03 20 | G96 | 0.1+ | 0.3− |
| 1995 10 20 | 691 | 0.1− | 0.0 | 2006 10 22 | G96 | 0.3− | 0.4+ | 2007 03 20 | G96 | 0.0 | 0.4− |
| 2004 03 16 | 704 | 0.1+ | 1.3+ | 2006 10 22 | G96 | 0.3+ | 0.4− | 2007 03 20 | G96 | 0.2− | 0.8− |
| 2004 03 16 | 703 | 1.4− | 1.5− | 2006 10 22 | G96 | 0.2+ | 0.4+ | 2007 03 20 | G96 | 0.1+ | 0.5− |
| 2004 03 16 | 703 | 0.5+ | 0.3+ | 2006 10 22 | G96 | 0.0 | 0.0 | 2009 10 26 | G96 | 0.3+ | 0.0 |
| 2004 03 16 | 704 | 1.0+ | 0.1− | 2006 11 18 | G96 | 0.2− | 0.0 | 2009 10 26 | G96 | 0.3− | 0.5+ |
| 2004 03 16 | 703 | 0.1− | 0.5+ | 2006 11 18 | G96 | 0.0 | 0.2− | 2009 10 26 | G96 | 0.2+ | 0.1− |
| 2004 03 16 | 704 | 1.3+ | 0.6− | 2006 11 18 | G96 | 0.4+ | 0.1− | 2009 10 26 | G96 | 0.5+ | 0.0 |
| 2004 03 16 | 703 | 0.9+ | 0.1− | 2006 11 18 | G96 | 0.0 | 0.0 | 2009 11 08 | 691 | 0.6− | 0.5+ |
| 2004 03 19 | 704 | 0.4− | 0.2− | 2006 11 20 | G96 | 0.4+ | 0.3− | 2009 11 08 | 691 | 0.3− | 0.1− |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 03 19 | 704 | 0.1− | 0.2+ | 2006 11 20 | G96 | 0.2+ | 0.2− | 2009 11 08 | 691 | 0.6− | 0.2+ |
| 2004 03 19 | 704 | 0.5− | 0.1+ | 2006 11 20 | G96 | 0.7+ | 0.4− | 2009 11 08 | G96 | 0.8+ | 0.2+ |
| 2004 03 19 | 704 | 0.0 | 0.9+ | 2006 11 20 | G96 | 0.1+ | 0.1− | 2009 11 08 | G96 | 0.6+ | 0.1+ |
| 2004 03 26 | 699 | 1.0− | 0.2− | 2006 11 21 | G96 | 0.0 | 0.3− | 2009 11 08 | G96 | 0.2+ | 0.3+ |
| 2004 03 26 | 699 | 0.4− | 1.0+ | 2006 11 21 | G96 | 0.2+ | 0.2− | 2009 11 08 | G96 | 0.7+ | 0.2− |
| 2004 03 26 | 699 | (2.1− | 0.6+) | 2006 11 21 | G96 | 0.3+ | 0.4− | 2009 11 24 | 691 | 0.5− | 0.1+ |
| 2004 03 26 | 699 | 0.1+ | 0.1− | 2006 11 21 | G96 | 0.4+ | 0.6− | 2009 11 24 | 691 | 0.3− | 0.1+ |
| 2004 03 27 | 703 | (1.9+ | 0.5+) | 2006 12 16 | G96 | 0.1− | 0.6− | 2009 11 24 | 691 | 0.8− | 0.1+ |
| 2004 03 27 | 703 | 0.2+ | 0.5+ | 2006 12 16 | G96 | 0.3+ | 0.2− | 2009 11 27 | G96 | 0.1− | 0.2+ |
| 2004 03 27 | 703 | 0.1+ | 0.7+ | 2006 12 16 | G96 | 0.2− | 0.1− | 2009 11 27 | G96 | 0.4+ | 0.1+ |
| 2004 03 27 | 703 | 0.1+ | 0.7+ | 2006 12 16 | G96 | 0.3+ | 0.3− | 2009 11 27 | G96 | 0.1+ | 0.4+ |
| 2004 04 16 | 704 | 0.1− | 0.8+ | 2007 01 10 | G96 | 0.1− | 0.1− | 2009 11 27 | G96 | 0.3+ | 0.4+ |
| 2004 04 16 | 704 | 0.9+ | 1.1+ | 2007 01 10 | G96 | 0.5+ | 0.0 | 2009 11 27 | G96 | 0.3+ | 0.2+ |
| 2004 04 16 | 704 | 0.7− | 0.4+ | 2007 01 10 | G96 | 0.4+ | 0.1− | 2009 12 10 | G96 | 0.5+ | 0.1− |
| 2004 04 16 | 704 | 0.7+ | 1.3+ | 2007 01 10 | G96 | 0.1+ | 0.2− | 2009 12 10 | G96 | 0.2− | 0.1+ |
| 2004 04 19 | 704 | 0.4+ | 0.1− | 2007 01 24 | 703 | 1.5+ | 0.6+ | 2009 12 10 | G96 | 0.2+ | 0.2− |
| 2004 04 19 | 704 | 0.4+ | 0.6+ | 2007 01 24 | 703 | 0.9− | 0.5+ | 2009 12 10 | G96 | 0.2+ | 0.1− |
| 2004 04 19 | 704 | 0.3+ | 0.2+ | 2007 01 24 | 703 | 1.3− | 0.3− | 2009 12 15 | G96 | 0.7+ | 0.2+ |
| 2004 04 19 | 704 | 0.4+ | 0.3+ | 2007 01 24 | 703 | 0.0 | 0.8+ | 2009 12 15 | G96 | 0.8+ | 0.6− |
| 2004 04 19 | 704 | 0.4− | 0.9+ | 2007 02 05 | 644 | 0.7+ | 0.2− | 2009 12 15 | G96 | 0.5+ | 0.1+ |
| 2005 08 29 | 691 | 0.1+ | 0.5+ | 2007 02 05 | 644 | 0.6+ | 0.2+ | 2009 12 15 | G96 | 0.7+ | 0.1− |

**(229049)∗ 2004 FH$_{36}$**

Discovered 2004 Mar. 16 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 185.12569 | | (2000.0) | | | |
| $n$ | 0.28547296 | $\omega$ | 183.59897 | | −0.12651661 | +0.99029529 |
| $a$ | 2.2843329 | $\Omega$ | 79.13880 | | −0.90864088 | −0.09243106 |
| $e$ | 0.1465292 | $i$ | 3.35781 | | −0.39795137 | −0.10378696 |
| $P$ | 3.45 | $H$ | 17.2 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 09 25 | 645 | 0.2− | 0.1− | 2004 03 22 | 699 | 0.1− | 0.8+ | 2007 01 17 | 691 | 0.9− | 0.2+ |
| 1998 09 25 | 645 | 0.3+ | 0.1− | 2004 03 24 | 699 | 0.3+ | 1.0+ | 2007 01 17 | 691 | 0.9− | 0.0 |
| 2001 07 10 | 644 | 1.3− | 0.2+ | 2004 03 24 | 699 | 0.9+ | 0.7− | 2007 01 17 | 691 | 0.2− | 0.4− |
| 2001 07 10 | 644 | 1.3− | 0.1− | 2004 03 24 | 699 | 0.5+ | 0.6+ | 2007 01 25 | 691 | 0.0 | 0.2− |
| 2001 07 10 | 644 | 1.4− | 0.1+ | 2004 03 24 | 699 | (0.5+ | 1.7+) | 2007 01 25 | 691 | 0.3+ | 0.3+ |
| 2004 03 16 | 704 | 1.4+ | 0.3+ | 2004 04 15 | 644 | 0.1− | 0.3+ | 2007 01 25 | 691 | 0.2− | 0.0 |
| 2004 03 16 | 704 | 0.3+ | 0.5− | 2004 04 15 | 644 | 0.4+ | 0.2+ | 2007 02 21 | H55 | 0.3+ | 0.1+ |
| 2004 03 16 | 704 | 0.7+ | 0.5− | 2004 04 15 | 644 | 0.6+ | 0.2+ | 2007 02 21 | H55 | 0.0 | 0.3+ |
| 2004 03 19 | 704 | 0.5+ | 1.0− | 2004 04 24 | 683 | 0.1+ | 0.6− | 2007 02 21 | H55 | 0.2+ | 0.3+ |
| 2004 03 19 | 704 | 1.1+ | 0.0 | 2004 04 24 | 683 | (1.2+ | 2.2+) | 2008 07 28 | E12 | 0.1+ | 0.5+ |
| 2004 03 19 | 704 | 0.1− | 0.6− | 2004 04 24 | 683 | 0.2− | 0.9+ | 2008 07 28 | E12 | 0.5− | 0.1+ |
| 2004 03 21 | 691 | 0.1+ | 0.1+ | 2005 09 29 | 691 | 0.0 | 0.5+ | 2008 07 28 | E12 | 0.8+ | 0.8− |
| 2004 03 21 | 691 | 0.1+ | 0.1+ | 2005 09 29 | 691 | 0.2− | 0.6+ | 2008 07 28 | E12 | 0.4− | 0.0 |
| 2004 03 21 | 691 | 0.0 | 0.0 | 2005 09 29 | 691 | 0.1− | 0.3+ | 2009 11 20 | 691 | 0.9− | 0.2− |
| 2004 03 22 | 699 | (0.8+ | 1.5+) | 2005 10 08 | 691 | 0.0 | 0.4+ | 2009 11 20 | 691 | 0.2− | 0.3+ |
| 2004 03 22 | 699 | (1.4− | 2.4+) | 2005 10 08 | 691 | 0.0 | 0.3+ | 2009 11 20 | 691 | 0.0 | 0.1+ |
| 2004 03 22 | 704 | 1.0+ | 0.9+ | 2005 10 08 | 691 | 0.1+ | 0.2+ | 2009 12 10 | G96 | 1.5+ | 0.3+ |
| 2004 03 22 | 704 | 0.5+ | 0.8+ | 2005 10 12 | 691 | 0.0 | 0.2+ | 2009 12 10 | G96 | 1.0+ | 0.0 |
| 2004 03 22 | 704 | 0.4+ | 0.6+ | 2005 10 12 | 691 | 0.1+ | 0.0 | 2009 12 10 | G96 | 0.5+ | 0.3− |
| 2004 03 22 | 699 | 1.3− | 0.2+ | 2005 10 12 | 691 | 0.1− | 0.4+ | 2009 12 10 | G96 | 0.7+ | 0.4− |

**(229050)∗ 2004 FK$_{57}$**

Discovered 2004 Mar. 17 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 325.30072 | | (2000.0) | | | |
| $n$ | 0.12699463 | $\omega$ | 123.28926 | | −0.39369418 | −0.91893438 |
| $a$ | 3.9199374 | $\Omega$ | 349.81181 | | +0.79240970 | −0.32616047 |
| $e$ | 0.1057790 | $i$ | 7.71940 | | +0.46593106 | −0.22176327 |
| $P$ | 7.76 | $H$ | 14.7 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 10 02 | 645 | 0.1− | 0.1+ | 2004 03 27 | 704 | 0.3+ | 0.5+ | 2008 10 07 | 691 | 0.4− | 0.8+ |
| 2000 10 02 | 645 | 0.0 | 0.1+ | 2004 03 27 | 704 | 0.1− | 0.2+ | 2008 10 07 | 691 | 0.4− | 0.4+ |
| 2002 11 07 | 645 | 0.0 | 0.0 | 2004 03 27 | 704 | 0.3− | 0.9− | 2009 11 16 | 704 | 0.6− | 0.3− |
| 2002 11 07 | 645 | 0.0 | 0.0 | 2004 04 23 | 621 | 0.3+ | 0.8− | 2009 11 16 | 704 | 0.2− | 1.1− |
| 2002 12 13 | 645 | 0.0 | 0.1+ | 2004 04 23 | 621 | 0.5+ | 0.1+ | 2009 11 16 | 704 | 0.8+ | 1.1+ |
| 2002 12 13 | 645 | 0.0 | 0.0 | 2004 04 24 | 621 | 0.2− | 0.6+ | 2009 11 16 | 704 | 0.1− | 1.1− |
| 2004 02 26 | 704 | 0.6+ | 0.3+ | 2004 04 24 | 621 | 0.7− | 0.2− | 2009 11 25 | G96 | 0.3+ | 0.1+ |
| 2004 02 26 | 704 | 0.1− | 0.6− | 2004 04 24 | 621 | 0.6+ | 0.2+ | 2009 11 25 | G96 | 0.1− | 0.2+ |
| 2004 02 26 | 704 | 0.6+ | 0.2− | 2004 04 25 | 691 | 0.4+ | 0.8+ | 2009 11 25 | G96 | 0.0 | 0.1− |
| 2004 03 17 | 691 | 0.1+ | 0.1+ | 2004 04 25 | 691 | 0.2+ | 0.4+ | 2009 11 25 | G96 | 0.5+ | 0.0 |
| 2004 03 17 | 691 | 0.2− | 0.2+ | 2004 04 25 | 691 | 0.0 | 0.4+ | 2009 12 15 | 704 | 0.0 | 0.1+ |
| 2004 03 17 | 691 | 0.0 | 0.0 | 2008 08 24 | 691 | 0.5− | 0.1− | 2009 12 15 | 704 | 0.2+ | 0.2+ |
| 2004 03 21 | 291 | 0.3− | 0.2+ | 2008 08 24 | 691 | 0.5− | 0.4+ | 2009 12 15 | 704 | 0.3+ | 0.2+ |
| 2004 03 21 | 291 | 0.3+ | 0.2+ | 2008 08 24 | 691 | 0.2− | 0.2+ | | | | |
| 2004 03 21 | 291 | 0.6+ | 0.2+ | 2008 10 07 | 691 | 0.6+ | 0.1− | | | | |

**(229051)∗ 2004 FR$_{60}$**

Discovered 2004 Mar. 18 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 191.53108 | | (2000.0) | | | |
| $n$ | 0.28466116 | $\omega$ | 151.65964 | | +0.15170445 | +0.98307224 |
| $a$ | 2.2886738 | $\Omega$ | 126.88380 | | −0.92938971 | +0.17725418 |
| $e$ | 0.1935270 | $i$ | 7.37967 | | −0.33648259 | −0.04636727 |
| $P$ | 3.46 | $H$ | 17.2 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1993 01 29 | 691 | 0.4+ | 0.1+ | 2004 03 21 | 291 | 0.2− | 0.1+ | 2007 01 17 | 691 | 0.2− | 0.3+ |
| 1993 01 29 | 691 | 0.1− | 0.4− | 2004 03 21 | 291 | 0.2− | 0.1+ | 2008 09 06 | 703 | 1.5− | 0.8+ |
| 1993 01 29 | 691 | 0.3− | 0.1− | 2004 03 21 | 291 | 0.4− | 0.1+ | 2008 09 06 | 703 | 0.1− | 0.6+ |
| 2001 07 14 | 644 | 0.4+ | 1.1+ | 2004 03 26 | 291 | 0.6− | 0.5− | 2008 09 06 | 703 | 0.4+ | 1.2+ |
| 2001 07 14 | 644 | 0.2− | 1.3+ | 2004 03 26 | 291 | 0.2− | 0.3+ | 2008 09 06 | 703 | 0.6− | 1.1+ |
| 2001 07 14 | 644 | 0.3− | 0.9+ | 2004 03 26 | 291 | 0.0 | 0.5+ | 2008 10 01 | 703 | (0.8− | 4.0+) |
| 2001 08 14 | 608 | 0.3+ | 0.0 | 2004 04 23 | 691 | 0.2+ | 0.1+ | 2008 10 01 | 703 | (0.3− | 2.4+) |
| 2001 08 14 | 608 | 0.1+ | 0.6− | 2004 04 23 | 691 | 0.3+ | 0.1+ | 2008 10 01 | 703 | (0.9− | 1.6+) |
| 2001 08 14 | 608 | 0.2+ | 0.3− | 2004 04 23 | 691 | 0.3+ | 0.1+ | 2008 10 01 | 703 | 0.4− | 1.1+ |
| 2001 08 25 | 644 | 0.1− | 0.3+ | 2004 05 14 | 704 | 0.7− | 0.9+ | 2009 12 17 | G96 | 0.2− | 0.5+ |
| 2001 08 25 | 704 | 0.6+ | 0.3+ | 2004 05 14 | 704 | 0.5− | 0.0 | 2009 12 17 | G96 | 0.2+ | 0.0 |
| 2001 08 25 | 704 | 0.7− | 0.0 | 2004 05 14 | 704 | 0.9− | 0.0 | 2009 12 17 | G96 | 0.1− | 0.6+ |
| 2001 08 25 | 644 | 0.1− | 0.2− | 2004 05 23 | 704 | 0.4+ | 0.3+ | 2009 12 17 | G96 | 0.0 | 0.3+ |
| 2001 08 25 | 704 | 0.0 | 1.0− | 2004 05 23 | 704 | 0.2+ | 0.6+ | 2009 12 17 | G96 | 0.0 | 0.4+ |
| 2001 08 25 | 644 | 0.0 | 0.1− | 2004 05 23 | 704 | 0.8+ | 0.5− | 2009 12 18 | 691 | 0.0 | 0.1+ |
| 2001 08 25 | 704 | 0.1+ | 1.1− | 2004 05 23 | 704 | 0.7+ | 0.4+ | 2009 12 18 | 691 | 0.0 | 0.7+ |
| 2004 03 18 | 291 | 0.3+ | 0.0 | 2004 05 23 | 704 | 0.4+ | 0.3− | 2009 12 18 | 691 | 0.2+ | 0.2+ |
| 2004 03 18 | 291 | 0.3+ | 0.0 | 2007 01 17 | 691 | 0.1+ | 0.1+ | | | | |
| 2004 03 18 | 291 | 0.5+ | 0.0 | 2007 01 17 | 691 | 0.1+ | 0.2− | | | | |

**(229052)∗ 2004 FH$_{64}$**

Discovered 2004 Mar. 19 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 192.84517 | | (2000.0) | | | |
| $n$ | 0.28421708 | $\omega$ | 205.51229 | | −0.27504159 | +0.95910060 |
| $a$ | 2.2910572 | $\Omega$ | 48.59997 | | −0.86610792 | −0.21695398 |
| $e$ | 0.1349609 | $i$ | 5.11829 | | −0.41738375 | −0.18181587 |
| $P$ | 3.47 | $H$ | 16.9 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 09 15 | 691 | 0.0 | 0.3− | 2004 03 28 | 704 | 0.3− | 0.8− | 2005 10 12 | 691 | 0.4− | 0.4+ |
| 1998 09 15 | 691 | 0.1− | 0.1− | 2004 04 09 | E12 | 0.2− | 0.1− | 2005 10 27 | 691 | 0.1− | 0.1+ |
| 1998 09 15 | 691 | 0.4− | 0.0 | 2004 04 09 | E12 | 0.2− | 0.0 | 2005 10 27 | 691 | 0.8+ | 0.6+ |
| 2002 12 03 | 644 | 0.4+ | 0.2+ | 2004 04 09 | E12 | 0.1− | 0.1+ | 2005 10 27 | 691 | 0.2+ | 0.2− |
| 2002 12 03 | 644 | 0.6+ | 0.3+ | 2004 04 09 | E12 | 0.4− | 0.7+ | 2007 01 10 | 691 | 0.2− | 0.2+ |
| 2002 12 03 | 644 | 0.3+ | 0.8+ | 2004 04 19 | 704 | 0.4− | 0.3+ | 2007 01 10 | 691 | 0.2− | 0.0 |
| 2004 03 19 | 704 | 1.3+ | 0.2− | 2004 04 19 | 704 | 1.0− | 0.1+ | 2007 01 10 | 691 | 0.3− | 0.0 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 03 19 | 704 | 0.8+ | 0.8+ | 2004 04 19 | 704 | 0.3+ | 1.0+ | 2007 01 27 | 691 | 0.0 | 0.0 | |
| 2004 03 19 | 704 | 0.6+ | 0.2+ | 2004 04 19 | 704 | 0.2+ | 0.6− | 2007 01 27 | 691 | 0.2− | 0.1+ | |
| 2004 03 19 | 704 | 1.4+ | 0.3− | 2004 04 22 | 704 | 0.9+ | 0.3+ | 2007 01 27 | 691 | 0.2− | 0.1+ | |
| 2004 03 19 | 704 | 0.7+ | 0.5+ | 2004 04 22 | 704 | 0.7− | 0.8+ | 2008 08 04 | E12 | 0.1− | 0.1− | |
| 2004 03 20 | 699 | 0.5+ | 0.2− | 2004 04 22 | 704 | 0.4+ | 0.7+ | 2008 08 04 | E12 | 1.3− | 0.4+ | |
| 2004 03 20 | 699 | 1.1+ | 0.0 | 2004 04 22 | 704 | 0.3+ | 0.8+ | 2008 08 04 | E12 | 0.5− | 0.0 | |
| 2004 03 20 | 699 | 0.1+ | 0.7+ | 2005 09 23 | 691 | 0.2+ | 0.5+ | 2009 11 17 | G96 | 0.0 | 0.4− | |
| 2004 03 20 | 699 | 0.1+ | 0.5+ | 2005 09 23 | 691 | 0.2+ | 0.7+ | 2009 11 17 | G96 | 0.4+ | 0.4− | |
| 2004 03 22 | 704 | 0.3+ | 1.1+ | 2005 09 23 | 691 | 0.2− | 0.2+ | 2009 11 17 | G96 | 0.1− | 0.2− | |
| 2004 03 22 | 704 | 0.1+ | 0.7+ | 2005 09 29 | 691 | 0.1− | 0.1+ | 2009 12 11 | G96 | 0.7+ | 0.3− | |
| 2004 03 22 | 704 | 1.0+ | 0.3+ | 2005 09 29 | 691 | 0.4− | 0.1+ | 2009 12 11 | G96 | 0.2+ | 0.0 | |
| 2004 03 22 | 704 | 0.9+ | 0.4+ | 2005 09 29 | 691 | 0.2− | 0.3+ | 2009 12 11 | G96 | 0.1+ | 0.0 | |
| 2004 03 28 | 704 | 0.5+ | 1.4+ | 2005 10 12 | 691 | 0.3− | 0.5+ | 2009 12 11 | G96 | 0.5+ | 0.2− | |
| 2004 03 28 | 704 | 0.2− | 0.3+ | 2005 10 12 | 691 | 0.3− | 0.3+ | | | | | |

**(229053)∗ 2004 FS$_{67}$ = 1994 PB$_{11}$**

Discovered 2004 Mar. 20 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 62112)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 187.83700 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27379410 | $\omega$ | 74.50331 | | −0.61343271 | +0.78796947 | |
| $a$ | 2.3488394 | $\Omega$ | 157.40178 | | −0.76708649 | −0.57854238 | |
| $e$ | 0.0941109 | $i$ | 7.92128 | | −0.18782605 | −0.21069604 | |
| $P$ | 3.60 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 08 10 | 809 | 0.1+ | 0.1− | 2004 03 24 | 699 | 1.1+ | 0.6− | 2005 08 28 | 691 | 0.3− | 0.2+ | |
| 1994 08 10 | 809 | 1.9− | 0.5− | 2004 03 24 | 699 | 0.4+ | 0.2− | 2005 08 28 | 691 | 0.2− | 0.2+ | |
| 1994 08 10 | 809 | (2.0− | 2.3−) | 2004 03 24 | 699 | 0.2+ | 0.6+ | 2005 08 28 | 691 | 0.0 | 0.3+ | |
| 1994 08 11 | 809 | 0.8+ | 0.7− | 2004 03 24 | 699 | 0.2+ | 0.4− | 2005 09 11 | 691 | 0.4− | 0.7+ | |
| 1994 08 11 | 809 | 1.0+ | 0.1− | 2004 04 14 | 691 | 0.3+ | 0.4+ | 2005 09 11 | 691 | 0.1− | 0.2+ | |
| 1994 08 11 | 809 | 0.1+ | 0.4− | 2004 04 14 | 691 | 0.2+ | 0.6+ | 2005 09 11 | 691 | 0.1+ | 0.4+ | |
| 2000 02 02 | 704 | 0.8+ | 0.3− | 2004 04 14 | 691 | (0.5− | 2.0+) | 2005 09 24 | 644 | 0.4+ | 0.3+ | |
| 2000 02 02 | 704 | 0.3+ | 0.0 | 2004 04 15 | 683 | 1.0− | 0.7− | 2005 09 24 | 644 | 0.3+ | 0.2+ | |
| 2000 02 02 | 704 | 0.0 | 0.4+ | 2004 04 15 | 683 | 0.9− | 1.0+ | 2005 09 24 | 644 | 0.2+ | 0.6+ | |
| 2000 02 02 | 704 | 0.4− | 0.6+ | 2004 04 15 | 683 | (2.1− | 3.8−) | 2005 09 25 | 644 | 0.0 | 0.1+ | |
| 2000 02 02 | 704 | 0.4+ | 0.0 | 2004 04 16 | 683 | 1.4− | 1.3+ | 2005 09 25 | 644 | 0.1− | 0.3+ | |
| 2001 07 18 | 608 | 0.0 | 0.2+ | 2004 04 16 | 683 | (1.8− | 1.9+) | 2005 09 25 | 644 | 0.1+ | 0.3+ | |
| 2001 07 18 | 608 | 0.1+ | 1.1− | 2004 04 16 | 683 | (0.5+ | 1.7+) | 2005 09 26 | 703 | 0.7− | 0.3+ | |
| 2001 07 18 | 608 | 0.6− | 0.8− | 2004 04 19 | 683 | (0.3+ | 1.6−) | 2005 09 26 | 703 | 0.1+ | 0.8+ | |
| 2004 03 20 | 699 | 0.5+ | 0.4+ | 2004 04 19 | 683 | (0.7+ | 3.1−) | 2005 09 26 | 703 | 0.8− | 1.4+ | |
| 2004 03 20 | 704 | 0.3+ | 0.2− | 2004 04 19 | 683 | (0.8− | 1.7+) | 2005 09 26 | 703 | 0.7− | 0.7+ | |
| 2004 03 20 | 699 | 0.9− | 0.1+ | 2004 04 20 | 683 | 0.6+ | 1.5+ | 2008 01 19 | G96 | 0.0 | 0.1+ | |
| 2004 03 20 | 704 | 0.1+ | 0.2+ | 2004 04 20 | 683 | 0.9+ | 0.4− | 2008 01 19 | G96 | 0.2− | 0.3+ | |
| 2004 03 20 | 704 | 0.4− | 0.6+ | 2004 04 20 | 683 | 0.4+ | 0.4+ | 2008 01 19 | G96 | 0.6+ | 0.3− | |
| 2004 03 20 | 699 | 0.9+ | 0.8+ | 2004 04 23 | 704 | 0.6+ | 0.2− | 2008 01 19 | G96 | 0.4+ | 0.2− | |
| 2004 03 20 | 704 | 0.6− | 0.4− | 2004 04 23 | 704 | 0.8+ | 1.1+ | 2009 10 18 | 703 | 1.2+ | 0.2− | |
| 2004 03 20 | 704 | 0.3− | 1.3+ | 2004 04 23 | 704 | 1.3− | 1.1+ | 2009 10 18 | 703 | (2.1+ | 0.4+) | |
| 2004 03 20 | 699 | 0.7+ | 0.4+ | 2004 04 23 | 704 | 0.3− | 0.2+ | 2009 10 18 | 703 | 0.7− | 1.1+ | |
| 2004 03 22 | 704 | 0.0 | 0.4+ | 2004 05 22 | 850 | (4.1+ | 3.3+) | 2009 10 18 | 703 | 0.7+ | 0.5+ | |
| 2004 03 22 | 704 | 0.5− | 0.2+ | 2004 05 22 | 850 | 0.8− | 0.2+ | 2009 12 10 | 703 | 1.0− | 0.3+ | |
| 2004 03 22 | 704 | 0.4+ | 0.3− | 2005 08 27 | 691 | 0.1+ | 0.4+ | 2009 12 10 | 703 | 0.0 | 0.7+ | |
| 2004 03 22 | 704 | 1.1+ | 0.8+ | 2005 08 27 | 691 | 0.0 | 0.3+ | 2009 12 10 | 703 | 0.8− | 0.7− | |
| 2004 03 22 | 704 | 0.1− | 0.8− | 2005 08 27 | 691 | 0.4+ | 0.4− | 2009 12 10 | 703 | 1.5− | 1.6+ | |

**(229054)∗ 2004 FT$_{85}$ = 2002 SH$_{60}$**

Discovered 2004 Mar. 19 by NEAT at Palomar.

Id. A. Doppler (*MPO* 69703)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 354.28474 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.30275602 | $\omega$ | 338.22946 | | +0.05081878 | −0.99117743 | |
| $a$ | 2.1965488 | $\Omega$ | 108.68857 | | +0.93430571 | +0.00388047 | |
| $e$ | 0.0442165 | $i$ | 7.42485 | | +0.35283183 | +0.13248489 | |
| $P$ | 3.26 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 09 16 | 644 | 0.3− | 1.0+ | 2005 07 09 | 691 | 0.1+ | 0.2+ | 2007 01 16 | 704 | 0.6− | 0.9+ | |
| 2002 09 16 | 644 | 0.1+ | 0.9+ | 2005 07 09 | 691 | 0.1− | 0.2+ | 2007 01 16 | 704 | 0.5+ | 0.2− | |
| 2002 09 16 | 644 | 0.7− | 0.6+ | 2005 07 09 | 691 | 0.0 | 0.1+ | 2007 01 16 | 704 | 0.1− | 0.4+ | |
| 2002 09 17 | 644 | 0.1− | 1.3+ | 2005 07 09 | 691 | 0.0 | 0.3+ | 2007 01 16 | 704 | 0.2+ | 0.0 | |
| 2002 09 17 | 644 | 0.0 | 1.0+ | 2005 07 09 | 691 | 0.0 | 0.2+ | 2007 01 17 | 691 | 0.3− | 0.3+ | |
| 2002 09 17 | 644 | 0.2− | 1.3+ | 2006 11 01 | G96 | 0.4− | 0.1+ | 2007 01 17 | 691 | 0.2− | 0.0 | |
| 2004 03 13 | 691 | 0.4+ | 0.1+ | 2006 11 01 | G96 | 0.0 | 0.2− | 2007 01 17 | 691 | 0.2− | 0.2+ | |
| 2004 03 13 | 691 | 0.3− | 0.4+ | 2006 11 01 | G96 | 0.2+ | 0.7− | 2007 02 06 | 644 | 0.0 | 0.1+ | |
| 2004 03 13 | 691 | 0.2+ | 0.2+ | 2006 11 01 | G96 | 0.2− | 0.4− | 2007 02 06 | 644 | 0.3− | 0.4+ | |
| 2004 03 19 | 644 | 0.1− | 0.8+ | 2006 11 27 | G96 | 0.2+ | 0.2− | 2007 02 06 | 644 | 0.0 | 0.1+ | |
| 2004 03 19 | 644 | 0.0 | 0.7+ | 2006 11 27 | G96 | 0.1− | 0.4− | 2009 11 19 | 704 | 0.0 | 0.0 | |
| 2004 03 19 | 644 | 0.1− | 0.1+ | 2006 11 27 | G96 | 0.3− | 0.3− | 2009 11 19 | 704 | 0.5− | 1.2+ | |
| 2004 03 23 | 704 | 0.1− | 1.0+ | 2006 11 27 | G96 | 0.1+ | 0.1− | 2009 11 19 | 704 | (0.5− | 2.1+) | |
| 2004 03 23 | 704 | 0.4+ | 0.5+ | 2006 12 16 | 691 | 0.2− | 0.1+ | 2009 11 19 | 704 | (1.7+ | 0.5+) | |
| 2004 03 23 | 704 | 0.4+ | 1.5+ | 2006 12 16 | 691 | 0.1+ | 0.0 | 2009 11 20 | 704 | 0.9+ | 1.3+ | |
| 2004 03 23 | 704 | 0.4+ | 1.1+ | 2006 12 16 | 691 | 0.1+ | 0.2+ | 2009 11 20 | 704 | 0.7− | 1.0+ | |
| 2004 03 23 | 704 | 0.6+ | 1.3+ | 2006 12 21 | 644 | 0.5+ | 0.6+ | 2009 11 20 | 704 | (0.5+ | 2.3+) | |
| 2004 03 26 | 291 | 0.1+ | 0.1+ | 2006 12 21 | 644 | 0.1+ | 0.0 | 2009 11 20 | 704 | 1.2− | 0.6+ | |
| 2004 03 26 | 291 | 0.4+ | 0.0 | 2006 12 21 | 644 | 0.3+ | 0.3+ | 2009 11 26 | G96 | 0.1− | 0.1+ | |
| 2004 03 26 | 291 | 0.5+ | 0.6+ | 2007 01 13 | 704 | 0.2+ | 0.4− | 2009 11 26 | G96 | 0.0 | 0.1− | |
| 2005 06 30 | 691 | 0.1+ | 0.1+ | 2007 01 13 | 704 | 0.3+ | 0.7+ | 2009 11 26 | G96 | 0.1+ | 0.1+ | |
| 2005 06 30 | 691 | 0.0 | 0.2+ | 2007 01 13 | 704 | 0.2− | 0.4− | 2009 11 26 | G96 | 0.4− | 0.0 | |
| 2005 06 30 | 691 | 0.4− | 0.2+ | 2007 01 13 | 704 | 1.2− | 0.8− | 2009 11 26 | G96 | 0.7+ | 0.0 | |
| 2005 07 05 | 691 | 0.7− | 1.3+ | 2007 01 15 | 699 | 0.0 | 0.4+ | 2009 12 12 | 704 | 0.1− | 0.0 | |
| 2005 07 05 | 691 | 0.0 | 0.2+ | 2007 01 15 | 699 | 0.1− | 1.3+ | 2009 12 12 | 704 | 0.5+ | 0.3− | |
| 2005 07 05 | 691 | 0.1− | 0.2+ | 2007 01 15 | 699 | 0.5+ | 0.8+ | 2009 12 12 | 704 | 0.1− | 0.7+ | |
| 2005 07 09 | 691 | 0.1− | 0.5+ | 2007 01 15 | 699 | 0.2− | 0.6− | 2009 12 12 | 704 | 1.7+ | 2.0+ | |

**(229055)∗ 2004 FD$_{112}$**

Discovered 2004 Mar. 26 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 222.48069 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.29484167 | $\omega$ | 117.22336 | | −0.57005482 | +0.82157475 | |
| $a$ | 2.2356826 | $\Omega$ | 118.02075 | | −0.75668104 | −0.52155334 | |
| $e$ | 0.1238558 | $i$ | 0.46998 | | −0.32011139 | −0.23021088 | |
| $P$ | 3.34 | $H$ | 17.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 03 15 | 703 | (2.9− | 0.2−) | 2005 10 25 | 691 | 0.8− | 0.9+ | 2007 01 27 | 691 | 0.1− | 0.0 | |
| 2004 03 15 | 703 | 1.4+ | 0.1− | 2005 10 25 | 691 | 0.8− | 1.3+ | 2007 01 28 | 703 | 0.7+ | 0.6− | |
| 2004 03 15 | 703 | 0.2− | 0.8− | 2005 10 25 | G96 | 0.5+ | 0.2+ | 2007 01 28 | 703 | 0.8− | 0.2+ | |
| 2004 03 15 | 703 | (0.9− | 1.9+) | 2005 10 25 | G96 | 0.2− | 0.7− | 2007 01 28 | 703 | 0.3− | 0.2+ | |
| 2004 03 18 | 704 | 0.0 | 0.2+ | 2005 10 25 | G96 | 0.8+ | 0.3− | 2007 01 28 | 703 | 0.8+ | 0.9− | |
| 2004 03 18 | 704 | 0.5+ | 0.4+ | 2005 10 25 | G96 | 0.1+ | 0.1− | 2007 02 06 | G96 | 0.2+ | 0.0 | |
| 2004 03 18 | 704 | 0.7+ | 0.0 | 2005 10 30 | 705 | 0.3+ | 0.1+ | 2007 02 06 | G96 | 0.3− | 0.4+ | |
| 2004 03 18 | 704 | 0.1+ | 0.7+ | 2005 10 30 | 705 | 0.3+ | 0.0 | 2007 02 06 | G96 | 0.0 | 0.2+ | |
| 2004 03 26 | 691 | 0.0 | 0.1+ | 2005 11 02 | 705 | 0.3+ | 0.0 | 2007 02 06 | G96 | 0.1− | 0.0 | |
| 2004 03 26 | 691 | 0.0 | 0.0 | 2005 11 02 | 705 | 0.4+ | 0.1+ | 2007 02 13 | G96 | 0.5+ | 0.3− | |
| 2004 03 26 | 691 | 0.1+ | 0.1+ | 2005 11 06 | 705 | 0.3+ | 0.1+ | 2007 02 13 | G96 | (1.6+ | 0.4−) | |
| 2004 03 27 | 704 | 0.6− | 0.2− | 2005 11 06 | 705 | 0.3+ | 0.1+ | 2007 02 13 | G96 | 0.5+ | 0.6− | |
| 2004 03 27 | 704 | 0.2− | 0.5+ | 2005 11 09 | 705 | 0.4+ | 0.0 | 2007 02 13 | G96 | 0.2− | 0.5− | |
| 2004 03 27 | 704 | 0.5− | 0.1− | 2005 11 09 | 705 | 0.2+ | 0.2+ | 2007 02 19 | 850 | 0.9+ | 0.8− | |
| 2004 03 27 | 704 | 0.4− | 0.3+ | 2005 11 23 | 705 | 0.2+ | 0.1+ | 2007 02 19 | 850 | 0.6− | 0.4− | |
| 2004 03 27 | 704 | 0.1+ | 0.1+ | 2005 11 23 | 705 | 0.1− | 0.0 | 2007 02 19 | 691 | 0.1− | 0.2+ | |
| 2004 04 12 | 644 | 0.3+ | 0.6+ | 2005 11 24 | 705 | 0.0 | 0.2+ | 2007 02 19 | 691 | 0.1− | 0.2+ | |
| 2004 04 12 | 644 | 0.5+ | 0.6+ | 2005 11 24 | 705 | 0.2− | 0.1+ | 2007 02 19 | 691 | 0.0 | 0.2+ | |
| 2004 04 12 | 644 | 0.8+ | 0.6+ | 2005 11 25 | 705 | 0.1+ | 0.1+ | 2007 02 21 | 691 | 0.1− | 0.1− | |
| 2004 04 12 | 185 | 0.5+ | 0.9+ | 2005 11 25 | 705 | 0.2− | 0.1− | 2007 02 21 | 691 | 0.2− | 0.5+ | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 04 12 | 185 | 0.2− | 0.2+ | 2005 11 30 | 705 | 0.0 | 0.1+ | 2007 02 21 | 691 | 0.1− | 0.5+ | | |
| 2004 04 15 | 644 | 0.3+ | 0.9+ | 2005 11 30 | 705 | 0.0 | 0.0 | 2007 02 21 | G96 | 0.5+ | 0.0 | | |
| 2004 04 15 | 644 | 0.3+ | 0.7+ | 2007 01 09 | G96 | 0.3− | 0.4− | 2007 02 21 | G96 | 0.4+ | 0.1− | | |
| 2004 04 15 | 644 | 0.2+ | 0.5+ | 2007 01 09 | G96 | 0.2− | 0.0 | 2007 02 21 | G96 | 0.2+ | 0.2+ | | |
| 2004 04 16 | 185 | 0.1+ | 0.2− | 2007 01 09 | G96 | 0.1+ | 0.1− | 2007 02 21 | G96 | 0.2+ | 0.3− | | |
| 2004 04 16 | 185 | 0.5+ | 0.0 | 2007 01 09 | G96 | 0.2− | 0.1− | 2008 09 06 | G96 | 0.4− | 0.0 | | |
| 2004 04 22 | 691 | 0.3+ | 0.4+ | 2007 01 19 | 568 | 0.3− | 0.2− | 2008 09 06 | G96 | 0.0 | 0.5+ | | |
| 2004 04 22 | 691 | 0.2+ | 0.6+ | 2007 01 19 | 568 | 0.4− | 0.1− | 2008 09 06 | G96 | 0.1− | 0.1+ | | |
| 2004 04 22 | 691 | 0.1+ | 0.3+ | 2007 01 19 | 568 | 0.4− | 0.0 | 2008 09 06 | G96 | 0.2− | 0.1+ | | |
| 2005 09 29 | G96 | 0.1− | 0.1+ | 2007 01 20 | 568 | 0.4− | 0.0 | 2009 11 21 | 691 | 0.5− | 0.2− | | |
| 2005 09 29 | G96 | 0.4+ | 0.2+ | 2007 01 24 | G96 | 0.2+ | 0.5− | 2009 11 21 | 691 | 0.1+ | 0.2+ | | |
| 2005 09 29 | G96 | 0.2− | 0.1+ | 2007 01 24 | G96 | 0.2+ | 0.4− | 2009 11 21 | 691 | 0.3+ | 0.0 | | |
| 2005 10 06 | 691 | 0.1− | 0.1+ | 2007 01 24 | G96 | 1.3− | 0.4− | 2009 12 10 | G96 | 0.1+ | 0.1− | | |
| 2005 10 06 | 691 | 0.0 | 0.4+ | 2007 01 24 | G96 | 0.6+ | 0.9− | 2009 12 10 | G96 | 0.6+ | 0.2− | | |
| 2005 10 06 | 691 | 0.4− | 0.2+ | 2007 01 27 | 691 | 0.1− | 0.3+ | 2009 12 10 | G96 | 0.6+ | 0.2+ | | |
| 2005 10 25 | 691 | 0.4− | 0.5+ | 2007 01 27 | 691 | 0.1+ | 0.0 | 2009 12 10 | G96 | 1.0+ | 0.2+ | | |

**(229056)∗ 2004 FC$_{126}$**

Discovered 2004 Mar. 27 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 181.32543 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28642702 | $\omega$ | 251.16140 | | −0.11056380 | +0.99379119 | |
| $a$ | 2.2792575 | $\Omega$ | 12.51028 | | −0.88887563 | −0.09327742 | |
| $e$ | 0.1023230 | $i$ | 3.29178 | | −0.44460742 | −0.06064970 | |
| $P$ | 3.44 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 03 27 | 704 | 0.2+ | 0.6+ | 2005 09 24 | 691 | 0.1+ | 0.1+ | 2007 01 17 | 691 | 0.4− | 0.2+ | | |
| 2004 03 27 | 704 | 0.0 | 0.7− | 2005 09 24 | 691 | 0.0 | 0.1+ | 2007 01 17 | 691 | 0.0 | 0.3+ | | |
| 2004 03 27 | 704 | 0.8+ | 0.3− | 2005 09 26 | 691 | 0.0 | 0.2+ | 2007 01 28 | 691 | 0.1+ | 0.2− | | |
| 2004 03 27 | 704 | 0.2+ | 0.8+ | 2005 09 26 | 691 | 0.1− | 0.6+ | 2007 01 28 | 691 | 0.1− | 0.0 | | |
| 2004 03 27 | 704 | 1.0− | 0.2+ | 2005 09 26 | 691 | 0.1− | 0.4+ | 2007 01 28 | 691 | 0.4+ | 0.5− | | |
| 2004 03 29 | 704 | (1.7+ | 0.9+) | 2005 09 27 | 691 | 0.2− | 0.4+ | 2009 11 17 | G96 | 0.3+ | 0.3− | | |
| 2004 03 29 | 704 | (2.3+ | 0.6+) | 2005 09 27 | 691 | 0.1− | 0.2+ | 2009 11 17 | G96 | 0.1+ | 0.0 | | |
| 2004 03 29 | 704 | 0.8+ | 0.4− | 2005 09 27 | 691 | 0.1− | 0.2+ | 2009 11 17 | G96 | 0.5+ | 0.1− | | |
| 2004 03 29 | 691 | 0.2+ | 0.0 | 2005 09 29 | G96 | 0.1+ | 0.1+ | 2009 11 17 | G96 | 0.1− | 0.3− | | |
| 2004 03 29 | 704 | 1.5+ | 0.7+ | 2005 09 29 | G96 | 0.1+ | 0.1+ | 2009 11 22 | 691 | 0.1+ | 0.2+ | | |
| 2004 03 29 | 691 | 0.3+ | 0.4+ | 2005 09 29 | G96 | 0.2+ | 0.3+ | 2009 11 22 | 691 | 0.1+ | 0.1+ | | |
| 2004 03 29 | 691 | 0.1+ | 0.2+ | 2005 09 29 | G96 | (1.5+ | 1.6+) | 2009 11 22 | 691 | 0.2+ | 0.1− | | |
| 2004 04 14 | 691 | 0.0 | 0.3+ | 2005 10 01 | 691 | 0.3− | 0.0 | 2009 11 26 | 691 | 0.1+ | 0.1+ | | |
| 2004 04 14 | 691 | 0.1+ | 0.4+ | 2005 10 01 | 691 | 0.1+ | 0.1− | 2009 11 26 | 691 | 1.0− | 0.4+ | | |
| 2004 04 14 | 691 | 0.0 | 0.3+ | 2005 10 01 | 691 | 0.1+ | 0.0 | 2009 11 26 | 691 | 0.0 | 0.1+ | | |
| 2004 04 23 | 291 | 0.3+ | 0.5+ | 2005 10 05 | 691 | 0.3− | 0.3+ | 2009 12 13 | G96 | 0.2+ | 0.2− | | |
| 2004 04 23 | 291 | 0.0 | 0.4+ | 2005 10 05 | 691 | 0.5− | 0.3+ | 2009 12 13 | G96 | 0.7+ | 0.3− | | |
| 2004 04 23 | 291 | 0.1− | 0.4+ | 2005 10 05 | 691 | 0.0 | 0.0 | 2009 12 13 | G96 | 0.4+ | 0.6+ | | |
| 2005 09 24 | 691 | 0.2+ | 0.0 | 2007 01 17 | 691 | 0.0 | 0.0 | | | | | | |

**(229057)∗ 2004 FB$_{137}$ = 2001 RV$_{146}$**

Discovered 2004 Mar. 28 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 62136)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 165.53951 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27502850 | $\omega$ | 207.30930 | | +0.10724662 | +0.97924304 | |
| $a$ | 2.3418060 | $\Omega$ | 69.26921 | | −0.87533889 | +0.17503003 | |
| $e$ | 0.2013847 | $i$ | 10.59693 | | −0.47146578 | −0.10221333 | |
| $P$ | 3.58 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 12 10 | 691 | 0.1− | 0.5+ | 2004 03 29 | 704 | 0.5+ | 1.2+ | 2005 11 05 | 703 | 1.2− | 0.3+ | | |
| 1998 12 10 | 691 | 0.5− | 0.4+ | 2004 03 29 | 704 | 0.4+ | 0.2− | 2005 11 05 | 703 | 0.1+ | 0.2+ | | |
| 1998 12 10 | 691 | 0.2− | 0.5+ | 2004 03 29 | 704 | 0.1+ | 1.0+ | 2005 11 10 | 703 | 0.0 | 0.4+ | | |
| 2001 09 09 | 644 | 0.7− | 1.0+ | 2004 04 10 | 644 | 0.1− | 0.3+ | 2005 11 10 | 703 | 1.3+ | 0.5+ | | |
| 2001 09 09 | 644 | 0.8− | 0.9+ | 2004 04 10 | 644 | 0.4+ | 0.4+ | 2005 11 10 | 703 | (1.2− | 1.9+) | | |
| 2001 09 09 | 644 | 0.7− | 1.1+ | 2004 04 10 | 644 | 0.1+ | 0.1+ | 2005 11 10 | 703 | 0.5− | 0.9+ | | |
| 2001 09 11 | 704 | 0.1− | 0.2+ | 2004 04 15 | 644 | 0.3+ | 0.2+ | 2008 06 07 | E12 | 0.1− | 0.8+ | | |
| 2001 09 11 | 704 | 0.4− | 0.7+ | 2004 04 15 | 644 | 0.2+ | 0.2+ | 2008 06 07 | E12 | 0.2+ | 0.1+ | | |
| 2001 09 11 | 704 | 0.6− | 0.5+ | 2004 04 15 | 644 | 0.2+ | 0.1+ | 2008 06 07 | E12 | 0.2+ | 0.9− | | |
| 2001 09 11 | 704 | 1.0+ | 0.1+ | 2004 05 14 | 704 | 0.6+ | 0.9+ | 2008 06 07 | E12 | 0.6− | 0.6+ | | |
| 2001 09 11 | 704 | 0.7− | 0.4− | 2004 05 14 | 704 | 0.3− | 1.0+ | 2008 08 03 | E12 | 0.1− | 0.7+ | | |
| 2004 03 28 | 704 | 0.8− | 0.5+ | 2004 05 14 | 704 | 0.7+ | 0.5+ | 2008 08 03 | E12 | 0.3− | 0.6+ | | |
| 2004 03 28 | 704 | 0.7+ | 0.2− | 2004 05 14 | 704 | 0.3+ | 0.5− | 2008 08 03 | E12 | 0.2− | 0.3+ | | |
| 2004 03 28 | 704 | 0.4− | 0.0 | 2004 05 14 | 704 | 0.5− | 0.0 | 2008 08 03 | E12 | 0.3+ | 0.3+ | | |
| 2004 03 28 | 704 | 0.9+ | 0.4+ | 2004 05 23 | 704 | 0.1+ | 0.8+ | 2008 08 26 | E12 | 0.3− | 0.4+ | | |
| 2004 03 28 | 704 | 0.2+ | 0.6+ | 2004 05 23 | 704 | 0.5+ | 0.0 | 2008 08 26 | E12 | 0.2− | 0.2+ | | |
| 2004 03 28 | 704 | 0.1+ | 1.0+ | 2004 05 23 | 704 | 0.3+ | 0.2+ | 2008 08 26 | E12 | 0.1− | 0.0 | | |
| 2004 03 28 | 704 | 0.2− | 0.3+ | 2004 05 23 | 704 | 0.2+ | 0.1+ | 2008 08 26 | E12 | 0.7− | 0.5+ | | |
| 2004 03 28 | 704 | 0.1+ | 0.9+ | 2005 10 30 | A50 | (0.2+ | 1.5+) | 2009 11 25 | 691 | 0.3− | 0.6+ | | |
| 2004 03 28 | 704 | 0.3− | 0.3+ | 2005 11 04 | G96 | 0.2+ | 0.5+ | 2009 11 25 | 691 | 0.5− | 0.3+ | | |
| 2004 03 29 | 704 | 0.2+ | 0.6+ | 2005 11 04 | G96 | 0.1+ | 0.4+ | 2009 11 25 | 691 | 0.1+ | 0.0 | | |
| 2004 03 29 | 704 | 0.6+ | 0.2+ | 2005 11 04 | G96 | 0.5+ | 0.5+ | 2009 12 11 | G96 | 0.2+ | 0.1− | | |
| 2004 03 29 | 704 | 0.5+ | 0.1− | 2005 11 04 | G96 | 0.4+ | 0.5+ | 2009 12 11 | G96 | 0.5+ | 0.2+ | | |
| 2004 03 29 | 704 | 1.2+ | 0.3+ | 2005 11 05 | 703 | (1.6− | 1.1+) | 2009 12 11 | G96 | 0.2+ | 0.4+ | | |
| 2004 03 29 | 704 | 0.1+ | 1.1+ | 2005 11 05 | 703 | 0.8+ | 0.3+ | | | | | | |

**(229058)∗ 2004 FR$_{142}$**

Discovered 2004 Mar. 27 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 238.70947 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28785527 | $\omega$ | 173.17142 | | −0.83131729 | +0.55493501 | |
| $a$ | 2.2717119 | $\Omega$ | 40.58525 | | −0.51215932 | −0.74321806 | |
| $e$ | 0.1864761 | $i$ | 2.72790 | | −0.21588053 | −0.37372992 | |
| $P$ | 3.42 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 03 27 | 704 | 0.5+ | 1.0+ | 2004 05 09 | 703 | (1.7+ | 0.7+) | 2006 12 26 | 691 | 0.1+ | 0.1− | | |
| 2004 03 27 | 704 | 0.4+ | 0.9+ | 2004 05 11 | 699 | 0.2+ | 0.7+ | 2006 12 26 | 691 | 0.1+ | 0.1+ | | |
| 2004 03 27 | 704 | 0.7− | 1.2+ | 2004 05 11 | 699 | 0.3+ | 0.1+ | 2007 01 17 | 691 | 0.4− | 0.1+ | | |
| 2004 03 27 | 704 | 0.0 | 0.9− | 2004 05 11 | 699 | 0.9− | 0.2− | 2007 01 17 | 691 | 0.3− | 0.0 | | |
| 2004 03 31 | 704 | 0.2+ | 0.5+ | 2004 05 11 | 699 | 0.6− | 0.4− | 2007 01 17 | 691 | 0.2− | 0.0 | | |
| 2004 03 31 | 704 | 1.2+ | 0.5− | 2004 05 12 | 699 | 0.1− | 0.0 | 2007 01 17 | 644 | 0.6+ | 0.4+ | | |
| 2004 03 31 | 704 | (1.7+ | 0.1−) | 2004 05 12 | 699 | 0.3− | 0.9+ | 2007 01 17 | 644 | 0.8+ | 0.3− | | |
| 2004 03 31 | 704 | 0.1+ | 0.3+ | 2004 05 12 | 699 | 0.0 | 0.5+ | 2007 01 17 | 644 | 0.9+ | 0.1− | | |
| 2004 04 11 | 703 | 1.3+ | 0.2+ | 2004 05 12 | 699 | 0.8− | 0.1+ | 2007 01 24 | 704 | 0.2+ | 0.7+ | | |
| 2004 04 11 | 703 | 0.5+ | 0.3− | 2004 05 15 | 704 | 0.9+ | 0.7− | 2007 01 24 | 704 | 1.0+ | 0.6+ | | |
| 2004 04 11 | 703 | 0.1− | 0.4+ | 2004 05 15 | 704 | 0.3− | 0.1− | 2007 01 24 | 704 | 1.2+ | 0.0 | | |
| 2004 04 11 | 703 | 0.7+ | 0.2− | 2004 05 15 | 704 | 0.9+ | 0.2− | 2007 01 25 | 691 | 0.2+ | 0.0 | | |
| 2004 04 12 | 699 | 0.3− | 0.2− | 2004 05 15 | 704 | 0.5+ | 1.4+ | 2007 01 25 | 691 | 0.2− | 0.1+ | | |
| 2004 04 12 | 699 | 0.1+ | 0.2+ | 2004 05 15 | 704 | 0.5+ | 0.0 | 2007 01 25 | 691 | 0.1− | 0.3− | | |
| 2004 04 12 | 699 | (1.5− | 0.6−) | 2004 05 16 | 704 | 0.2+ | 0.5+ | 2007 01 25 | 691 | 0.1− | 0.1− | | |
| 2004 04 12 | 699 | 0.0 | 0.2+ | 2004 05 16 | 704 | 0.1+ | 0.4+ | 2007 01 25 | 691 | 0.2− | 0.1+ | | |
| 2004 04 15 | 699 | 0.6− | 0.1− | 2004 05 16 | 704 | 0.5− | 0.0 | 2007 01 25 | 691 | 0.2+ | 0.3− | | |
| 2004 04 15 | 699 | 0.1+ | 0.3− | 2005 09 30 | 691 | 0.1− | 0.2+ | 2007 02 05 | 644 | 0.3+ | 0.4− | | |
| 2004 04 15 | 699 | 0.4− | 0.1+ | 2005 09 30 | 691 | 0.1+ | 0.2+ | 2007 02 05 | 644 | 0.0 | 0.1− | | |
| 2004 04 15 | 699 | 0.3− | 0.2− | 2005 09 30 | 691 | 0.1+ | 0.4+ | 2007 02 05 | 644 | 0.3− | 0.1− | | |
| 2004 04 17 | 704 | 0.1− | 0.2− | 2005 10 01 | G96 | 0.2+ | 0.0 | 2009 11 09 | G96 | (0.4− | 2.1−) | | |
| 2004 04 17 | 704 | 0.4+ | 0.2+ | 2005 10 01 | G96 | 0.0 | 0.0 | 2009 11 09 | G96 | 0.1− | 0.3− | | |
| 2004 04 17 | 704 | 0.2− | 0.5− | 2005 10 01 | G96 | 0.4+ | 0.1+ | 2009 11 09 | G96 | 0.2+ | 0.1− | | |
| 2004 04 21 | 704 | 0.7+ | 0.5+ | 2005 10 01 | G96 | 0.4+ | 0.2− | 2009 11 09 | G96 | 0.0 | 0.1− | | |
| 2004 04 21 | 704 | (1.7+ | 0.4+) | 2005 10 05 | 691 | 0.1− | 0.2+ | 2009 11 17 | 691 | 0.1− | 0.1− | | |
| 2004 04 21 | 704 | (0.3+ | 1.5−) | 2005 10 05 | 691 | 0.2− | 0.1− | 2009 11 17 | 691 | 0.3− | 0.2+ | | |
| 2004 04 21 | 704 | 0.3− | 0.2+ | 2005 10 05 | 691 | 0.2− | 0.2+ | 2009 11 17 | 691 | 0.0 | 0.9+ | | |
| 2004 04 21 | 704 | 0.7+ | 0.2+ | 2005 10 12 | 291 | 0.4− | 0.3+ | 2009 11 21 | 691 | 0.1− | 0.3+ | | |
| 2004 04 25 | 703 | 0.6− | 1.1+ | 2005 10 12 | 291 | 0.2− | 0.5+ | 2009 11 21 | 691 | 0.3+ | 0.9+ | | |
| 2004 04 25 | 703 | 0.0 | 0.9+ | 2005 10 12 | 291 | 0.3− | 0.3+ | 2009 11 21 | 691 | 0.2− | 0.0 | | |
| 2004 04 25 | 703 | 0.0 | 0.6+ | 2005 10 28 | G96 | 0.0 | 0.1+ | 2009 12 16 | G96 | 0.3+ | 0.1+ | | |
| 2004 04 25 | 703 | 0.1− | 1.0+ | 2005 10 28 | G96 | 0.3+ | 0.0 | 2009 12 16 | G96 | 0.0 | 0.2− | | |
| 2004 05 09 | 703 | 0.6+ | 0.9+ | 2005 10 28 | G96 | 1.0− | 0.9+ | 2009 12 16 | G96 | 0.4− | 0.0 | | |
| 2004 05 09 | 703 | 1.2+ | 0.9+ | 2005 10 28 | G96 | 0.4+ | 0.5+ | 2009 12 16 | G96 | 0.1− | 0.6+ | | |
| 2004 05 09 | 703 | 0.4+ | 1.4+ | 2006 12 26 | 691 | 0.1− | 0.1+ | | | | | | |

**(229059)∗ 2004 FA$_{165}$ = 2002 TL$_{18}$**

Discovered 2004 Mar. 20 by Spacewatch at Kitt Peak.

Id. A. Doppler (*MPO* 156939)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 57.27066 | | (2000.0) | | | |
| $n$ | 0.29210378 | $\omega$ | 33.15345 | | +0.99623360 | −0.08661228 |
| $a$ | 2.2496309 | $\Omega$ | 331.81443 | | +0.07754034 | +0.91110977 |
| $e$ | 0.1712942 | $i$ | 0.49895 | | +0.03880851 | +0.40296067 |
| $P$ | 3.37 | $H$ | 18.1 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 09 26 | 644 | 0.8− | 0.7+ | 2002 10 07 | 704 | 0.9+ | 0.1+ | 2007 02 21 | G96 | 0.3+ | 0.2− | |
| 2002 09 26 | 644 | 1.0− | 0.9+ | 2002 10 07 | 704 | 0.1+ | 0.6+ | 2007 02 21 | G96 | 0.1− | 0.0 | |
| 2002 09 26 | 644 | 0.9− | 0.9+ | 2002 10 11 | 704 | 0.6+ | 0.8+ | 2007 02 21 | G96 | 0.2− | 0.1+ | |
| 2002 10 02 | 704 | 0.7− | 0.3+ | 2002 10 11 | 704 | 1.1+ | 0.8+ | 2009 09 21 | G96 | 0.1+ | 0.2− | |
| 2002 10 02 | 704 | 0.7+ | 0.7− | 2002 10 11 | 704 | 0.1− | 1.0− | 2009 09 21 | G96 | 0.1+ | 0.0 | |
| 2002 10 02 | 704 | 0.2+ | 0.0 | 2002 10 11 | 704 | 0.0 | 0.1− | 2009 09 21 | G96 | 0.2− | 0.4+ | |
| 2002 10 02 | 704 | 0.2− | 1.0− | 2004 03 15 | 291 | 0.2+ | 0.5+ | 2009 09 21 | G96 | 0.2+ | 0.1+ | |
| 2002 10 03 | 704 | 0.1− | 0.2− | 2004 03 15 | 291 | 0.4+ | 0.4+ | 2009 11 09 | 691 | 0.3+ | 0.2+ | |
| 2002 10 03 | 704 | 0.1+ | 0.4+ | 2004 03 15 | 291 | 0.4+ | 0.4+ | 2009 11 09 | 691 | 0.2− | 0.2− | |
| 2002 10 03 | 704 | 0.3− | 0.2+ | 2004 03 20 | 291 | 0.0 | 0.4+ | 2009 11 09 | 691 | 0.2− | 0.2− | |
| 2002 10 03 | 704 | 0.4+ | 0.3− | 2004 03 20 | 291 | 0.0 | 0.5+ | 2009 11 17 | 691 | 0.1− | 0.1+ | |
| 2002 10 03 | 704 | 0.1+ | 0.3+ | 2004 03 20 | 291 | 0.3+ | 0.6+ | 2009 11 17 | 691 | 0.1+ | 0.1+ | |
| 2002 10 05 | 644 | 0.6− | 0.5+ | 2007 01 19 | 568 | 0.2− | 0.3− | 2009 11 17 | 691 | 0.1− | 0.1− | |
| 2002 10 05 | 644 | 0.6− | 0.5+ | 2007 01 19 | 568 | 0.2− | 0.5− | 2009 11 25 | 691 | 0.1+ | 0.1− | |
| 2002 10 05 | 644 | 0.7− | 0.6+ | 2007 01 19 | 568 | 0.3− | 0.4− | 2009 11 25 | 691 | 0.0 | 0.0 | |
| 2002 10 06 | 644 | 0.2− | 0.8+ | 2007 01 24 | G96 | 0.2+ | 0.1− | 2009 11 25 | 691 | 0.1+ | 0.1+ | |
| 2002 10 06 | 644 | 0.4− | 0.7+ | 2007 01 24 | G96 | 0.2− | 0.1− | 2009 12 15 | G96 | 0.3− | 0.2− | |
| 2002 10 06 | 644 | 0.3− | 0.8+ | 2007 01 24 | G96 | 0.3+ | 0.7− | 2009 12 15 | G96 | 0.1+ | 0.1− | |
| 2002 10 07 | 704 | 0.1+ | 0.0 | 2007 01 24 | G96 | 0.7− | 0.1− | 2009 12 15 | G96 | 0.3+ | 0.2− | |
| 2002 10 07 | 704 | 0.4− | 0.1+ | 2007 02 21 | G96 | 0.3+ | 0.5− | 2009 12 15 | G96 | 0.0 | 0.2− | |

**(229060)∗ 2004 GM$_4$**

Discovered 2004 Apr. 11 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 248.43268 | | (2000.0) | | | |
| $n$ | 0.29105384 | $\omega$ | 162.68789 | | −0.92451115 | +0.37926177 |
| $a$ | 2.2550378 | $\Omega$ | 39.66681 | | −0.35636214 | −0.82476507 |
| $e$ | 0.1020146 | $i$ | 3.40774 | | −0.13522267 | −0.41943185 |
| $P$ | 3.39 | $H$ | 17.6 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 11 14 | 291 | 0.2− | 0.7+ | 2004 05 24 | 691 | 0.0 | 0.4+ | 2007 01 28 | 691 | 0.1+ | 0.0 | |
| 2002 11 14 | 291 | 0.1− | 0.4+ | 2004 05 24 | 691 | 0.4+ | 0.5+ | 2007 01 28 | G96 | 0.1+ | 0.1− | |
| 2002 11 14 | 291 | 0.1− | 0.6+ | 2004 05 24 | 691 | 0.2+ | 0.1+ | 2007 01 28 | G96 | 0.0 | 0.1− | |
| 2004 04 11 | 644 | 0.5+ | 0.2+ | 2005 08 27 | 691 | 0.6− | 0.1− | 2007 01 28 | G96 | 0.0 | 0.3+ | |
| 2004 04 11 | 644 | 0.3+ | 0.1+ | 2005 08 27 | 691 | 0.3− | 0.3+ | 2007 01 28 | G96 | 0.5− | 0.4+ | |
| 2004 04 11 | 644 | 0.2+ | 0.0 | 2005 08 27 | 691 | 0.1+ | 0.4+ | 2007 01 28 | G96 | 0.3− | 1.3− | |
| 2004 04 13 | 691 | 0.1− | 0.1+ | 2005 10 06 | G96 | 0.1+ | 0.2+ | 2007 01 28 | G96 | 0.1+ | 0.4− | |
| 2004 04 13 | 691 | 0.1+ | 0.2+ | 2005 10 06 | G96 | 0.7− | 0.7+ | 2007 01 28 | G96 | 0.2+ | 0.3− | |
| 2004 04 13 | 691 | 0.0 | 0.2+ | 2005 10 06 | G96 | 0.2− | 0.0 | 2007 01 28 | G96 | 0.1− | 0.2− | |
| 2004 04 15 | 699 | 0.5− | 0.0 | 2005 10 06 | G96 | 0.2+ | 0.1+ | 2009 11 08 | G96 | 0.1+ | 0.0 | |
| 2004 04 15 | 699 | 0.5− | 0.6− | 2007 01 10 | 691 | 0.1− | 0.0 | 2009 11 08 | G96 | 0.7+ | 0.2+ | |
| 2004 04 15 | 699 | 0.1− | 0.3+ | 2007 01 10 | 691 | 0.2− | 0.1+ | 2009 11 08 | G96 | 0.3+ | 0.8− | |
| 2004 04 15 | 699 | 0.7− | 1.1− | 2007 01 10 | 691 | 0.1− | 0.4− | 2009 11 08 | G96 | 0.5− | 0.4+ | |
| 2004 04 20 | 691 | 0.1− | 0.1+ | 2007 01 24 | 704 | (2.0+ | 0.8−) | 2009 12 18 | G96 | 1.4+ | 1.4+ | |
| 2004 04 20 | 691 | 0.0 | 0.1+ | 2007 01 24 | 704 | 1.2+ | 0.5+ | 2009 12 18 | G96 | 0.1− | 0.2+ | |
| 2004 04 20 | 691 | 0.0 | 0.1− | 2007 01 24 | 704 | 0.1+ | 1.2+ | 2009 12 18 | G96 | 0.1− | 0.1− | |
| 2004 05 09 | 691 | 0.1+ | 0.1+ | 2007 01 24 | 704 | 0.4− | 1.4+ | 2009 12 18 | G96 | 0.4+ | 0.2− | |
| 2004 05 09 | 691 | 0.3+ | 0.5+ | 2007 01 28 | 691 | 0.2− | 0.0 | | | | | |
| 2004 05 09 | 691 | 0.6+ | 0.3+ | 2007 01 28 | 691 | 0.3− | 0.3+ | | | | | |

**(229061)∗ 2004 GJ$_{12}$**

Discovered 2004 Apr. 9 by the Siding Spring Survey at Siding Spring.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 180.00850 | | (2000.0) | | | |
| $n$ | 0.28164279 | $\omega$ | 10.65137 | | −0.07106017 | +0.99394533 |
| $a$ | 2.3049966 | $\Omega$ | 255.31236 | | −0.92141437 | −0.09758779 |
| $e$ | 0.1404073 | $i$ | 4.97006 | | −0.38202882 | +0.05049061 |
| $P$ | 3.50 | $H$ | 16.5 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 03 15 | 644 | 0.2− | 0.3+ | 2004 04 19 | 704 | 0.0 | 0.9− | 2005 10 30 | 704 | 0.4− | 0.0 | |
| 2004 03 15 | 644 | 0.1− | 0.0 | 2004 04 19 | 704 | 0.0 | 0.2+ | 2005 10 30 | 704 | 0.4+ | 0.7+ | |
| 2004 03 15 | 644 | 0.3+ | 0.3+ | 2004 04 19 | 704 | 0.4+ | 0.1− | 2008 07 02 | 691 | 0.1+ | 0.1+ | |
| 2004 04 09 | E12 | (0.7− | 2.1+) | 2004 04 21 | 704 | 0.1+ | 0.1− | 2008 07 02 | 691 | 0.1− | 0.1− | |
| 2004 04 09 | E12 | 1.5− | 1.3+ | 2004 04 21 | 704 | 0.0 | 0.3+ | 2008 07 02 | 691 | 0.0 | 0.0 | |
| 2004 04 09 | E12 | 0.7− | 1.1+ | 2004 04 21 | 704 | 0.1− | 0.2+ | 2009 11 09 | 691 | 0.6− | 0.5− | |
| 2004 04 09 | E12 | 1.0− | 0.6+ | 2004 04 21 | 704 | 0.4+ | 0.4− | 2009 11 09 | 691 | 0.3+ | 0.1− | |
| 2004 04 14 | 699 | 0.2+ | 0.5+ | 2005 09 30 | 703 | 0.2+ | 0.8+ | 2009 11 09 | 691 | 0.4− | 0.2+ | |
| 2004 04 14 | 699 | (1.7− | 0.1−) | 2005 09 30 | 703 | 0.3+ | 1.0− | 2009 12 10 | G96 | 0.1+ | 0.6+ | |
| 2004 04 14 | 699 | 0.3+ | 0.8− | 2005 09 30 | 703 | (2.2− | 0.6+) | 2009 12 10 | G96 | 0.1+ | 0.1− | |
| 2004 04 14 | 699 | 1.2+ | 0.5− | 2005 09 30 | 703 | (2.0+ | 0.8−) | 2009 12 10 | G96 | 0.1+ | 0.1+ | |
| 2004 04 17 | 704 | 0.3− | 0.3− | 2005 10 29 | 703 | 0.2+ | 0.3+ | 2009 12 10 | G96 | 0.5+ | 0.2+ | |
| 2004 04 17 | 704 | 1.3+ | 1.1− | 2005 10 29 | 703 | 1.4− | 0.4+ | 2009 12 19 | G96 | 0.2+ | 0.1+ | |
| 2004 04 17 | 704 | 0.1− | 0.3+ | 2005 10 29 | 703 | 0.1− | 0.2− | 2009 12 19 | G96 | 0.8+ | 0.7− | |
| 2004 04 17 | 704 | 0.2− | 0.3− | 2005 10 29 | 703 | 0.5− | 0.3− | 2009 12 19 | G96 | 0.4+ | 0.2+ | |
| 2004 04 19 | 704 | 0.3+ | 0.3+ | 2005 10 30 | 704 | 0.6+ | 1.1+ | | | | | |

**(229062)∗ 2004 GB$_{24}$ = 2001 PB$_{55}$**

Discovered 2004 Apr. 13 by the Catalina Sky Survey.

Id. A. Doppler (*MPO* 69714)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 180.40855 | | (2000.0) | | | |
| $n$ | 0.27821115 | $\omega$ | 161.41561 | | −0.15098931 | +0.98414703 |
| $a$ | 2.3239121 | $\Omega$ | 99.81879 | | −0.91851362 | −0.10487828 |
| $e$ | 0.1217636 | $i$ | 5.41824 | | −0.36542436 | −0.14302154 |
| $P$ | 3.54 | $H$ | 16.9 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 14 | 608 | 0.2+ | 0.5− | 2004 05 18 | 704 | 0.2+ | 0.9− | 2009 11 10 | 691 | 0.2+ | 0.0 | |
| 2001 08 14 | 608 | 0.0 | 0.3− | 2004 05 18 | 704 | (0.1+ | 2.3+) | 2009 11 19 | 691 | 0.1− | 0.5+ | |
| 2001 08 14 | 608 | 0.4+ | 0.5− | 2004 05 18 | 704 | 0.1− | 0.9− | 2009 11 19 | 691 | 0.3− | 0.1− | |
| 2001 08 19 | 704 | 0.6− | 0.6− | 2005 11 03 | 703 | (0.5− | 1.6−) | 2009 11 19 | 691 | 1.2− | 0.0 | |
| 2001 08 19 | 704 | 0.6− | 0.1− | 2005 11 03 | 703 | 0.4− | 0.2+ | 2009 11 22 | 691 | 0.5+ | 0.1− | |
| 2001 08 19 | 704 | 0.9+ | 0.9− | 2005 11 03 | 703 | (1.8+ | 2.1+) | 2009 11 22 | 691 | 0.4+ | 0.1+ | |
| 2004 04 13 | 703 | 0.5+ | 0.0 | 2005 11 03 | 703 | 0.1+ | 0.2+ | 2009 11 22 | 691 | 0.6+ | 0.1+ | |
| 2004 04 13 | 703 | 1.0+ | 0.2+ | 2007 01 28 | 691 | 0.3− | 0.0 | 2009 11 23 | 691 | 0.2− | 0.2− | |
| 2004 04 13 | 703 | (1.6+ | 0.5+) | 2007 01 28 | 691 | 0.3− | 0.3− | 2009 11 23 | 691 | 0.4− | 0.2+ | |
| 2004 04 13 | 703 | 0.5+ | 0.0 | 2007 01 28 | 691 | 0.3− | 0.1− | 2009 11 23 | 691 | 0.0 | 0.2− | |
| 2004 04 16 | 704 | (0.1+ | 1.9+) | 2008 06 02 | G96 | 0.3+ | 0.3+ | 2009 11 26 | 691 | 0.4+ | 0.1+ | |
| 2004 04 16 | 704 | (1.0+ | 1.9+) | 2008 06 02 | G96 | 0.3+ | 0.5+ | 2009 11 26 | 691 | 0.3+ | 0.5+ | |
| 2004 04 16 | 704 | 0.2+ | 0.9+ | 2008 06 02 | G96 | 0.4− | 0.3+ | 2009 11 26 | 691 | 0.3+ | 0.2+ | |
| 2004 04 16 | 704 | 0.8+ | 0.8+ | 2008 06 02 | G96 | 0.2+ | 0.2+ | 2009 11 27 | 691 | 0.1+ | 0.3+ | |
| 2004 04 20 | 691 | 0.1− | 0.2+ | 2008 06 13 | 691 | 0.3− | 0.4+ | 2009 11 27 | 691 | 0.4− | 0.1+ | |
| 2004 04 20 | 691 | 0.0 | 0.2+ | 2008 06 13 | 691 | 0.1− | 0.4+ | 2009 11 27 | 691 | 0.1− | 0.3+ | |
| 2004 04 20 | 691 | 0.3− | 0.2+ | 2008 06 13 | 691 | 0.3− | 0.2+ | 2009 11 27 | 691 | 0.4− | 0.3+ | |
| 2004 04 23 | 704 | 0.4+ | 0.4− | 2008 07 28 | E12 | 0.3− | 0.6+ | 2009 11 27 | 691 | 0.5− | 0.4+ | |
| 2004 04 23 | 704 | 1.0+ | 1.4+ | 2008 07 28 | E12 | 0.1+ | 0.2+ | 2009 11 27 | 691 | 0.1+ | 0.1+ | |
| 2004 04 23 | 704 | 1.3+ | 1.1+ | 2008 07 28 | E12 | 0.1+ | 0.4+ | 2009 12 11 | G96 | 0.3+ | 0.2− | |
| 2004 04 23 | 704 | 0.5− | 0.2− | 2008 07 28 | E12 | 0.0 | 0.8+ | 2009 12 11 | G96 | 0.3+ | 0.2− | |
| 2004 04 23 | 704 | 0.0 | 0.8+ | 2009 11 10 | 691 | 0.3+ | 0.2+ | 2009 12 11 | G96 | 0.4+ | 0.2− | |
| 2004 05 18 | 704 | 0.2+ | 0.5− | 2009 11 10 | 691 | 0.0 | 0.1+ | 2009 12 11 | G96 | 0.9+ | 0.0 | |

**(229063)∗ 2004 GP$_{31}$**

Discovered 2004 Apr. 15 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| $M$ | 173.01443 | | | (2000.0) | | **P** | | **Q** | | | |
| $n$ | 0.26996502 | $\omega$ | 201.47191 | | | −0.26923687 | | +0.96212986 | | | |
| $a$ | 2.3709973 | $\Omega$ | 52.93405 | | | −0.87564129 | | −0.22612406 | | | |
| $e$ | 0.1855296 | $i$ | 3.06275 | | | −0.40095365 | | −0.15223024 | | | |
| $P$ | 3.65 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 1 | | | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 10 08 | 691 | 0.6+ | 0.1− | 2004 04 28 | 608 | 0.2+ | 0.5− | 2005 10 01 | G96 | 0.1+ | 0.7+ | 2004 04 22 | 704 | 0.4+ | 0.5+ | 2004 05 11 | 699 | 1.5+ | 0.1− | 2009 11 21 | A50 | 0.1− | 0.3+ |
| 1994 10 08 | 691 | 0.1− | 0.2− | 2004 04 28 | 608 | 0.1− | 0.1− | 2005 10 01 | G96 | 0.2+ | 0.5+ | 2004 04 22 | 704 | 0.1− | 0.8+ | 2004 05 11 | 699 | 1.2− | 1.5+ | 2009 11 26 | 691 | 0.4− | 0.3+ |
| 1994 10 08 | 691 | 0.1+ | 1.1− | 2004 05 09 | 703 | 1.0− | 0.4+ | 2005 12 02 | G96 | 0.1+ | 0.1+ | 2004 04 22 | 704 | 0.0 | 0.7+ | 2004 05 15 | 704 | (2.5+ | 0.8+) | 2009 11 26 | 691 | 0.3− | 0.3+ |
| 2004 03 31 | 704 | 0.6+ | 0.4+ | 2004 05 09 | 703 | 0.6− | 0.5− | 2005 12 02 | G96 | 0.3− | 0.1− | 2004 04 22 | 704 | 0.1+ | 0.2+ | 2004 05 15 | 704 | 0.6− | 0.5+ | 2009 11 26 | 691 | 0.1− | 0.3+ |
| 2004 03 31 | 704 | 0.1+ | 0.3− | 2004 05 09 | 703 | 0.1− | 1.0+ | 2005 12 02 | G96 | 0.3− | 0.5+ | 2004 04 22 | 704 | 0.4+ | 0.4+ | 2004 05 15 | 704 | 1.2− | 0.1− | 2009 12 17 | G96 | 0.2+ | 0.0 |
| 2004 03 31 | 704 | 1.0+ | 0.2+ | 2004 05 09 | 703 | 0.3− | 0.4+ | 2005 12 02 | G96 | 0.1− | 0.2+ | 2004 04 22 | 704 | 0.1+ | 0.3+ | 2004 05 27 | 691 | 0.2+ | 0.0 | 2009 12 17 | G96 | 0.0 | 0.1− |
| 2004 04 15 | 699 | 0.2+ | 0.4− | 2004 05 12 | 699 | 0.1+ | 0.7− | 2007 01 17 | 691 | 0.1+ | 0.3+ | 2004 04 22 | 704 | 0.1− | 0.4+ | 2004 05 27 | 691 | 0.1− | 0.0 | 2009 12 17 | G96 | 0.7+ | 0.2− |
| 2004 04 15 | 699 | 0.0 | 0.7+ | 2004 05 12 | 699 | 0.3+ | 0.0 | 2007 01 17 | 691 | 0.1+ | 0.4− | 2004 04 22 | 704 | 0.2− | 0.4+ | 2004 05 27 | 691 | 0.0 | 0.2+ | 2009 12 17 | G96 | 0.1+ | 0.2+ |
| 2004 04 15 | 699 | 0.1− | 0.8− | 2004 05 12 | 699 | 0.3− | 0.6− | 2007 01 17 | 691 | 0.1+ | 0.4− | 2004 04 22 | 704 | 0.5+ | 0.5− | 2005 09 27 | 691 | 0.2− | 0.4+ | | | | |
| 2004 04 15 | 699 | 0.6+ | 1.0+ | 2004 05 12 | 699 | 0.3− | 0.9+ | 2007 01 25 | 691 | 0.9− | 0.4− | 2004 04 22 | 704 | 0.1− | 0.1− | 2005 09 27 | 691 | 0.0 | 0.2+ | | | | |
| 2004 04 16 | 152 | 0.0 | 0.5+ | 2004 05 13 | 691 | 0.1− | 0.3+ | 2007 01 25 | 691 | 0.4+ | 0.2− | | | | | | | | | | | | |
| 2004 04 17 | 152 | 0.0 | 0.2+ | 2004 05 13 | 691 | 0.1+ | 0.2+ | 2007 01 25 | 691 | 0.1+ | 0.1− | | | | | | | | | | | | |
| 2004 04 21 | 704 | 0.5+ | 0.2+ | 2004 05 13 | 691 | 0.1+ | 0.3+ | 2009 09 19 | G96 | 0.3+ | 0.2+ | | | | | | | | | | | | |
| 2004 04 21 | 704 | 0.4+ | 0.3− | 2004 05 21 | 691 | 0.2− | 0.2− | 2009 09 19 | G96 | 0.0 | 0.8+ | | | | | | | | | | | | |
| 2004 04 21 | 704 | 0.8+ | 0.1+ | 2004 05 21 | 691 | 0.0 | 0.2− | 2009 09 19 | G96 | 0.2− | 0.3+ | | | | | | | | | | | | |
| 2004 04 21 | 704 | 1.1+ | 0.5+ | 2004 05 21 | 691 | 0.2+ | 0.2− | 2009 09 19 | G96 | 0.5+ | 0.1+ | | | | | | | | | | | | |
| 2004 04 21 | 704 | 0.2− | 0.2+ | 2004 05 29 | 691 | 0.4− | 0.4+ | 2009 11 24 | 691 | 0.1− | 0.8+ | | | | | | | | | | | | |
| 2004 04 25 | 703 | 0.4− | 0.2+ | 2004 05 29 | 691 | 0.1+ | 0.0 | 2009 11 24 | 691 | 0.6− | 0.1+ | | | | | | | | | | | | |
| 2004 04 25 | 703 | 0.2− | 0.7− | 2004 05 29 | 691 | 0.1− | 0.0 | 2009 11 24 | 691 | 0.6− | 0.3+ | | | | | | | | | | | | |
| 2004 04 25 | 703 | 0.4+ | 0.6+ | 2005 10 01 | G96 | 0.3+ | 0.7+ | 2009 12 11 | G96 | 0.2+ | 0.7+ | | | | | | | | | | | | |
| 2004 04 25 | 703 | 0.5− | 0.5+ | 2005 10 01 | G96 | 0.4− | 0.6+ | 2009 12 11 | G96 | 0.7+ | 0.1+ | | | | | | | | | | | | |
| 2004 04 26 | 621 | 0.5− | 0.3+ | 2005 10 01 | G96 | 0.3+ | 0.8+ | 2009 12 11 | G96 | 0.2− | 1.0+ | | | | | | | | | | | | |
| 2004 04 26 | 621 | 0.0 | 0.1+ | 2005 10 01 | G96 | 0.2− | 0.2+ | 2009 12 11 | G96 | 0.3+ | 0.8+ | | | | | | | | | | | | |
| 2004 04 26 | 621 | 0.5+ | 0.5− | 2005 10 01 | G96 | 0.2− | 0.4+ | | | | | | | | | | | | | | | | |
| 2004 04 28 | 608 | 0.9+ | 1.2− | 2005 10 01 | G96 | 0.1− | 0.5+ | | | | | | | | | | | | | | | | |

**(229064)∗ 2004 GJ$_{33}$**

Discovered 2004 Apr. 12 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| $M$ | 217.82611 | | | (2000.0) | | **P** | | **Q** | | | |
| $n$ | 0.28210236 | $\omega$ | 12.01740 | | | −0.68048514 | | +0.73102339 | | | |
| $a$ | 2.3024926 | $\Omega$ | 215.13708 | | | −0.67934660 | | −0.65518657 | | | |
| $e$ | 0.1227803 | $i$ | 5.02844 | | | −0.27464189 | | −0.19061838 | | | |
| $P$ | 3.49 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 1 | | | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 04 29 | 691 | 0.3− | 0.2+ | 2004 04 22 | 704 | 0.1+ | 0.4+ | 2005 09 27 | 691 | 0.0 | 0.4+ | 2004 04 22 | 704 | 0.4+ | 0.5+ | 2004 05 11 | 699 | 1.5+ | 0.1− | 2009 11 21 | A50 | 0.1− | 0.3+ |
| 1997 04 29 | 691 | 0.0 | 0.2− | 2004 04 22 | 704 | 0.5+ | 0.7− | 2005 10 03 | 703 | (1.5− | 0.3−) | 2004 04 22 | 704 | 0.1− | 0.8+ | 2004 05 11 | 699 | 1.2− | 1.5+ | 2009 11 26 | 691 | 0.4− | 0.3+ |
| 1997 04 29 | 691 | 0.0 | 0.2− | 2004 04 22 | 704 | 0.3+ | 0.2− | 2005 10 03 | 703 | 0.8+ | 0.7+ | 2004 04 22 | 704 | 0.0 | 0.7+ | 2004 05 15 | 704 | (2.5+ | 0.8+) | 2009 11 26 | 691 | 0.3− | 0.3+ |
| 2002 11 25 | 644 | 0.9+ | 0.6+ | 2004 04 22 | 704 | 0.0 | 0.3− | 2005 10 03 | 703 | (2.1− | 0.7−) | 2004 04 22 | 704 | 0.1+ | 0.2+ | 2004 05 15 | 704 | 0.6− | 0.5+ | 2009 11 26 | 691 | 0.1− | 0.3+ |
| 2002 11 25 | 644 | 0.2− | 0.1+ | 2004 04 22 | 704 | 0.8+ | 0.4+ | 2005 10 03 | 703 | 0.7− | 1.2+ | 2004 04 22 | 704 | 0.4+ | 0.4+ | 2004 05 15 | 704 | 1.2− | 0.1− | 2009 12 17 | G96 | 0.2+ | 0.0 |
| 2002 11 25 | 644 | 0.6+ | 0.5+ | 2004 04 22 | 704 | 0.3− | 0.2+ | 2005 10 07 | 691 | 0.2− | 0.2+ | 2004 04 22 | 704 | 0.1+ | 0.3+ | 2004 05 27 | 691 | 0.2+ | 0.0 | 2009 12 17 | G96 | 0.0 | 0.1− |
| 2004 04 12 | 644 | 1.1+ | 0.6+ | 2004 04 22 | 704 | 0.2+ | 0.7+ | 2005 10 07 | 691 | 0.2− | 0.2+ | 2004 04 22 | 704 | 0.1− | 0.4+ | 2004 05 27 | 691 | 0.1− | 0.0 | 2009 12 17 | G96 | 0.7+ | 0.2− |
| 2004 04 12 | 644 | 0.3+ | 0.3− | 2004 04 22 | 704 | 0.5− | 0.2+ | 2005 10 07 | 691 | 0.1+ | 0.2+ | 2004 04 22 | 704 | 0.2− | 0.4+ | 2004 05 27 | 691 | 0.0 | 0.2+ | 2009 12 17 | G96 | 0.1+ | 0.2+ |
| 2004 04 12 | 644 | 0.4+ | 0.2+ | 2004 04 22 | 704 | 0.1+ | 0.0 | 2005 12 02 | G96 | 0.1− | 0.2+ | 2004 04 22 | 704 | 0.5+ | 0.5− | 2005 09 27 | 691 | 0.2− | 0.4+ | | | | |
| 2004 04 12 | 699 | 0.5− | 0.1+ | 2004 04 22 | 704 | 0.2+ | 0.8+ | 2005 12 02 | G96 | 0.1− | 0.0 | 2004 04 22 | 704 | 0.1− | 0.1− | 2005 09 27 | 691 | 0.0 | 0.2+ | | | | |
| 2004 04 12 | 699 | 0.9+ | 0.1+ | 2004 04 22 | 704 | (0.1− | 1.6+) | 2005 12 02 | G96 | 0.2+ | 0.1+ | | | | | | | | | | | | |
| 2004 04 12 | 699 | 0.6− | 0.4− | 2004 04 22 | 704 | 0.2+ | 0.8+ | 2005 12 02 | G96 | 0.4− | 0.3+ | | | | | | | | | | | | |
| 2004 04 12 | 699 | 1.1− | 1.4− | 2004 04 22 | 704 | 0.1+ | 0.9+ | 2007 01 17 | 644 | 0.3+ | 0.1− | | | | | | | | | | | | |
| 2004 04 17 | 704 | (0.3+ | 2.0+) | 2004 04 24 | 691 | 0.1+ | 0.3+ | 2007 01 17 | 644 | 0.4+ | 0.2+ | | | | | | | | | | | | |
| 2004 04 17 | 704 | 1.2− | 0.5+ | 2004 04 24 | 691 | 0.0 | 0.4+ | 2007 01 17 | 644 | 0.4+ | 0.3− | | | | | | | | | | | | |
| 2004 04 17 | 704 | 0.2− | 0.3+ | 2004 04 24 | 691 | 0.2+ | 0.3+ | 2008 08 06 | A77 | 0.1+ | 0.0 | | | | | | | | | | | | |
| 2004 04 21 | 704 | 0.6+ | 0.1+ | 2004 04 25 | 703 | (0.4− | 2.1+) | 2008 08 06 | A77 | 0.2− | 0.5+ | | | | | | | | | | | | |
| 2004 04 21 | 704 | 0.5+ | 0.2+ | 2004 04 25 | 703 | (2.2+ | 0.2+) | 2008 08 06 | A77 | 0.1+ | 0.7+ | | | | | | | | | | | | |
| 2004 04 21 | 704 | 0.5+ | 0.2− | 2004 04 25 | 703 | 0.2+ | 0.1− | 2009 11 10 | 691 | 0.3− | 0.0 | | | | | | | | | | | | |
| 2004 04 21 | 704 | 0.6+ | 0.5+ | 2004 04 25 | 703 | 0.2+ | 0.6− | 2009 11 10 | 691 | 0.2+ | 0.4+ | | | | | | | | | | | | |
| 2004 04 22 | 704 | 0.3+ | 0.4+ | 2004 05 11 | 699 | 0.5− | 0.2+ | 2009 11 10 | 691 | 0.2− | 0.6+ | | | | | | | | | | | | |
| 2004 04 22 | 704 | 0.4+ | 0.5+ | 2004 05 11 | 699 | 0.6− | 0.8+ | 2009 11 20 | A50 | 0.2− | 0.1+ | | | | | | | | | | | | |

**(229065)∗ 2004 GK$_{46}$ = 1994 SJ$_{11}$**

Discovered 2004 Apr. 12 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 62160)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| $M$ | 144.80492 | | | (2000.0) | | **P** | | **Q** | | | |
| $n$ | 0.26994134 | $\omega$ | 177.13883 | | | +0.09911270 | | +0.99470771 | | | |
| $a$ | 2.3711359 | $\Omega$ | 98.54818 | | | −0.91350741 | | +0.10174468 | | | |
| $e$ | 0.1106467 | $i$ | 1.56911 | | | −0.39456417 | | +0.01430349 | | | |
| $P$ | 3.65 | $H$ | 17.7 | $G$ | 0.15 | $U$ | 0 | | | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 09 29 | 691 | 0.2− | 0.5− | 2004 05 19 | 691 | 0.1− | 0.6+ | 2005 10 30 | G96 | 0.1− | 0.3− | 2004 04 22 | 704 | 0.4+ | 0.5+ | 2004 05 11 | 699 | 1.5+ | 0.1− | 2009 11 21 | A50 | 0.1− | 0.3+ |
| 1994 09 29 | 691 | 0.4− | 0.3− | 2004 05 19 | 691 | 0.5− | 0.6+ | 2005 10 30 | G96 | 0.1− | 0.4− | 2004 04 22 | 704 | 0.1− | 0.8+ | 2004 05 11 | 699 | 1.2− | 1.5+ | 2009 11 26 | 691 | 0.4− | 0.3+ |
| 1994 09 29 | 691 | 0.4− | 0.0 | 2005 09 24 | 691 | 0.8− | 0.2+ | 2005 10 30 | G96 | 0.1− | 0.6− | 2004 04 22 | 704 | 0.0 | 0.7+ | 2004 05 15 | 704 | (2.5+ | 0.8+) | 2009 11 26 | 691 | 0.3− | 0.3+ |
| 1994 10 06 | 691 | 0.1− | 0.2+ | 2005 09 24 | 691 | 0.4+ | 0.5+ | 2005 10 30 | G96 | 0.6+ | 0.4− | 2004 04 22 | 704 | 0.1+ | 0.2+ | 2004 05 15 | 704 | 0.6− | 0.5+ | 2009 11 26 | 691 | 0.1− | 0.3+ |
| 1994 10 06 | 691 | 0.0 | 0.1− | 2005 09 24 | 691 | 0.2+ | 0.0 | 2005 10 30 | G96 | 1.1− | 0.0 | 2004 04 22 | 704 | 0.4+ | 0.4+ | 2004 05 15 | 704 | 1.2− | 0.1− | 2009 12 17 | G96 | 0.2+ | 0.0 |
| 1994 10 06 | 691 | 0.2+ | 0.2+ | 2005 09 30 | 691 | 0.3+ | 0.7+ | 2005 11 01 | G96 | 0.1+ | 0.2+ | 2004 04 22 | 704 | 0.1+ | 0.3+ | 2004 05 27 | 691 | 0.2+ | 0.0 | 2009 12 17 | G96 | 0.0 | 0.1− |
| 1998 11 14 | 691 | 0.5+ | 0.0 | 2005 09 30 | 691 | 0.3+ | 0.6+ | 2005 11 01 | G96 | 0.4+ | 0.1− | 2004 04 22 | 704 | 0.1− | 0.4+ | 2004 05 27 | 691 | 0.1− | 0.0 | 2009 12 17 | G96 | 0.7+ | 0.2− |
| 1998 11 14 | 691 | 0.6+ | 0.6+ | 2005 09 30 | 691 | 0.2+ | 0.7+ | 2005 11 01 | G96 | 0.0 | 0.2− | 2004 04 22 | 704 | 0.2− | 0.4+ | 2004 05 27 | 691 | 0.0 | 0.2+ | 2009 12 17 | G96 | 0.1+ | 0.2+ |
| 1998 11 14 | 691 | 0.3+ | 0.4+ | 2005 10 05 | 691 | 0.4− | 0.1− | 2005 11 01 | G96 | 0.4+ | 0.3− | 2004 04 22 | 704 | 0.5+ | 0.5− | 2005 09 27 | 691 | 0.2− | 0.4+ | | | | |
| 2004 04 12 | 691 | 0.1+ | 0.2− | 2005 10 05 | 691 | 0.6− | 0.1− | 2007 01 24 | G96 | (1.6− | 2.6+) | 2004 04 22 | 704 | 0.1− | 0.1− | 2005 09 27 | 691 | 0.0 | 0.2+ | | | | |
| 2004 04 12 | 691 | 0.3+ | 0.3+ | 2005 10 05 | 691 | 0.2− | 0.1− | 2007 01 24 | G96 | 0.4− | 0.6+ | | | | | | | | | | | | |
| 2004 04 12 | 691 | 0.2+ | 0.1− | 2005 10 29 | G96 | 0.8+ | 0.6− | 2007 01 24 | G96 | 1.0− | 0.5+ | | | | | | | | | | | | |
| 2004 04 19 | 691 | 0.2+ | 0.1+ | 2005 10 29 | G96 | 0.5+ | 0.6− | 2007 01 24 | G96 | 1.2− | 0.3− | | | | | | | | | | | | |
| 2004 04 19 | 691 | 0.1+ | 0.1+ | 2005 10 29 | G96 | 0.0 | 0.3− | 2009 11 23 | G96 | 0.6− | 0.0 | | | | | | | | | | | | |
| 2004 04 19 | 691 | 0.1+ | 0.1+ | 2005 10 29 | G96 | 0.2+ | 0.0 | 2009 11 23 | G96 | 0.3− | 0.1+ | | | | | | | | | | | | |
| 2004 04 25 | 691 | 0.2+ | 0.1− | 2005 10 29 | G96 | 0.2− | 0.1− | 2009 11 23 | G96 | 0.1− | 0.2+ | | | | | | | | | | | | |
| 2004 04 25 | 691 | 0.2+ | 0.1+ | 2005 10 29 | G96 | 0.4+ | 0.2+ | 2009 11 23 | G96 | 0.9− | 0.2+ | | | | | | | | | | | | |
| 2004 04 25 | 691 | 0.1− | 0.1+ | 2005 10 29 | G96 | 0.1− | 0.1+ | 2009 12 11 | G96 | 0.1+ | 0.2− | | | | | | | | | | | | |
| 2004 05 10 | 691 | 0.3+ | 0.2+ | 2005 10 29 | G96 | 0.6− | 0.1− | 2009 12 11 | G96 | 0.1+ | 0.4+ | | | | | | | | | | | | |
| 2004 05 10 | 691 | 0.3+ | 0.1+ | 2005 10 30 | G96 | 0.1+ | 0.3− | 2009 12 11 | G96 | 0.5− | 0.1+ | | | | | | | | | | | | |
| 2004 05 10 | 691 | 0.2− | 0.3− | 2005 10 30 | G96 | 0.4+ | 0.0 | 2009 12 11 | G96 | 0.6− | 0.5+ | | | | | | | | | | | | |
| 2004 05 19 | 691 | 0.1− | 0.3+ | 2005 10 30 | G96 | 0.2+ | 0.4+ | | | | | | | | | | | | | | | | |

**(229066)∗ 2004 GM$_{46}$ = 1998 SD$_{154}$**

Discovered 2004 Apr. 12 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 62160)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| $M$ | 70.64578 | | | (2000.0) | | **P** | | **Q** | | | |
| $n$ | 0.27892780 | $\omega$ | 317.74447 | | | +0.99675662 | | −0.05603258 | | | |
| $a$ | 2.3199298 | $\Omega$ | 45.56705 | | | +0.07605077 | | +0.89057591 | | | |
| $e$ | 0.1255188 | $i$ | 4.63989 | | | −0.02631576 | | +0.45137003 | | | |
| $P$ | 3.53 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 1 | | | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 09 25 | 699 | 0.2− | 0.3− | 2004 05 19 | 691 | 0.2− | 0.1+ | 2007 02 17 | 691 | 0.1+ | 0.1− | 2004 04 22 | 704 | 0.4+ | 0.5+ | 2004 05 11 | 699 | 1.5+ | 0.1− | 2009 11 21 | A50 | 0.1− | 0.3+ |
| 1998 09 25 | 699 | 0.5− | 0.3+ | 2004 05 19 | 691 | 0.2− | 0.2− | 2007 02 21 | 691 | 0.0 | 0.1+ | 2004 04 22 | 704 | 0.1− | 0.8+ | 2004 05 11 | 699 | 1.2− | 1.5+ | 2009 11 26 | 691 | 0.4− | 0.3+ |
| 1998 09 25 | 699 | 1.0+ | 1.3+ | 2004 05 19 | 691 | 0.7+ | 0.1+ | 2007 02 21 | 691 | 0.3− | 0.4− | 2004 04 22 | 704 | 0.0 | 0.7+ | 2004 05 15 | 704 | (2.5+ | 0.8+) | 2009 11 26 | 691 | 0.3− | 0.3+ |
| 1998 09 26 | 704 | 0.1− | 0.1− | 2004 05 24 | 691 | 0.2+ | 0.1+ | 2007 02 21 | 691 | 0.1+ | 0.2+ | 2004 04 22 | 704 | 0.1+ | 0.2+ | 2004 05 15 | 704 | 0.6− | 0.5+ | 2009 11 26 | 691 | 0.1− | 0.3+ |
| 1998 09 26 | 704 | 0.9+ | 0.9− | 2004 05 24 | 691 | 0.1+ | 0.1+ | 2007 02 25 | 691 | 0.3− | 0.2− | 2004 04 22 | 704 | 0.4+ | 0.4+ | 2004 05 15 | 704 | 1.2− | 0.1− | 2009 12 17 | G96 | 0.2+ | 0.0 |
| 1998 09 26 | 704 | 0.3− | 0.4+ | 2004 05 24 | 691 | 0.5+ | 0.1+ | 2007 02 25 | 691 | 0.0 | 0.0 | 2004 04 22 | 704 | 0.1+ | 0.3+ | 2004 05 27 | 691 | 0.2+ | 0.0 | 2009 12 17 | G96 | 0.0 | 0.1− |
| 1998 09 26 | 704 | 0.2− | 0.8+ | 2005 09 23 | 703 | 0.1+ | 1.4+ | 2007 02 25 | 691 | 0.0 | 0.1− | 2004 04 22 | 704 | 0.1− | 0.4+ | 2004 05 27 | 691 | 0.1− | 0.0 | 2009 12 17 | G96 | 0.7+ | 0.2− |
| 1998 09 27 | 704 | 1.1− | 0.2+ | 2005 09 23 | 703 | 1.0+ | 0.3− | 2007 02 25 | 291 | 0.2− | 0.1− | 2004 04 22 | 704 | 0.2− | 0.4+ | 2004 05 27 | 691 | 0.0 | 0.2+ | 2009 12 17 | G96 | 0.1+ | 0.2+ |
| 1998 09 27 | 704 | 0.3+ | 0.7− | 2005 09 23 | 703 | 1.3− | 0.1+ | 2007 02 25 | 291 | 0.1− | 0.2− | 2004 04 22 | 704 | 0.5+ | 0.5− | 2005 09 27 | 691 | 0.2− | 0.4+ | | | | |
| | | | | | | | | | | | | 2004 04 22 | 704 | 0.1− | 0.1− | 2005 09 27 | 691 | 0.0 | 0.2+ | | | | |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 09 27 | 704 | 0.5− | 1.0− | 2005 09 23 | 703 | 0.3− | 0.3− | 2007 02 25 | 291 | 0.2− | 0.0 |
| 1998 09 27 | 704 | 1.7+ | 1.4− | 2005 09 24 | 644 | 0.4− | 0.0 | 2009 11 18 | 691 | 0.6− | 0.0 |
| 2004 04 12 | 691 | 0.1+ | 0.1− | 2005 09 24 | 644 | 0.2− | 0.1− | 2009 11 18 | 691 | 0.0 | 0.1+ |
| 2004 04 12 | 691 | 0.0 | 0.0 | 2005 09 24 | 644 | 0.2− | 0.3+ | 2009 11 18 | 691 | 0.1+ | 0.2+ |
| 2004 04 12 | 691 | 0.2+ | 0.2+ | 2005 10 01 | 703 | 0.0 | 0.4− | 2009 11 22 | 691 | 0.4+ | 0.1− |
| 2004 04 19 | 691 | 0.1+ | 0.4+ | 2005 10 01 | 703 | 0.3+ | 0.1+ | 2009 11 22 | 691 | 0.2+ | 0.3+ |
| 2004 04 19 | 691 | 0.3+ | 0.1+ | 2005 10 01 | 703 | 0.4− | 0.5− | 2009 11 22 | 691 | 0.3+ | 0.0 |
| 2004 04 19 | 691 | 0.1+ | 0.4+ | 2005 10 01 | 703 | 0.1− | 0.8+ | 2009 12 11 | G96 | 0.8+ | 0.3+ |
| 2004 04 25 | 691 | 0.0 | 0.0 | 2005 10 10 | 703 | 1.3− | 0.4− | 2009 12 11 | G96 | 0.6+ | 0.1+ |
| 2004 04 25 | 691 | 0.2+ | 0.0 | 2005 10 10 | 703 | 0.3+ | 0.0 | 2009 12 11 | G96 | 0.9+ | 0.0 |
| 2004 04 25 | 691 | 0.1+ | 0.1− | 2005 10 10 | 703 | 0.5− | 0.3+ | 2009 12 11 | G96 | 0.5+ | 0.1+ |
| 2004 05 10 | 691 | 0.6− | 0.0 | 2005 10 10 | 703 | 0.7+ | 0.6+ | 2009 12 20 | 691 | 1.1− | 0.0 |
| 2004 05 10 | 691 | 0.0 | 0.3− | 2007 02 17 | 691 | 0.1+ | 0.1+ | 2009 12 20 | 691 | 0.3+ | 0.6+ |
| 2004 05 10 | 691 | 0.4− | 0.0 | 2007 02 17 | 691 | 0.2− | 0.2+ | 2009 12 20 | 691 | 0.0 | 0.1− |

**(229067)∗ 2004 GZ$_{59}$ = 2007 BY$_{44}$**

Discovered 2004 Apr. 13 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 114114)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 248.06659 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.28712241 | $\omega$ | 36.47243 | | −0.93348127 | | +0.35828548 |
| $a$ | 2.2755759 | $\Omega$ | 164.49994 | | −0.34131130 | | −0.87419085 |
| $e$ | 0.1029705 | $i$ | 3.35254 | | −0.11008776 | | −0.32775278 |
| $P$ | 3.43 | $H$ | 17.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 04 13 | 691 | 0.1+ | 0.1+ | 2005 10 29 | G96 | 0.1+ | 0.1+ | 2007 02 26 | G96 | 0.2+ | 0.6+ |
| 2004 04 13 | 691 | 0.4+ | 0.1+ | 2005 10 29 | G96 | 0.2− | 0.2− | 2007 02 26 | G96 | 0.3+ | 0.1− |
| 2004 04 13 | 691 | 0.0 | 0.0 | 2005 10 29 | G96 | 0.4− | 0.1+ | 2007 02 26 | G96 | 0.2− | 0.0 |
| 2004 04 19 | 704 | 0.2+ | 0.2+ | 2005 10 29 | G96 | 0.2− | 0.4+ | 2007 04 07 | G96 | 0.2− | 0.1− |
| 2004 04 19 | 704 | 0.0 | 1.0− | 2007 01 25 | 703 | 0.3− | 1.1+ | 2007 04 07 | G96 | 0.0 | 0.1− |
| 2004 04 19 | 704 | 0.2+ | 0.4+ | 2007 01 25 | 703 | 0.5− | 0.4+ | 2007 04 07 | G96 | 0.2+ | 0.2+ |
| 2004 04 19 | 704 | 0.3+ | 0.1− | 2007 01 25 | 703 | 0.9+ | 0.8+ | 2007 04 07 | G96 | 0.1− | 0.2− |
| 2004 04 19 | 704 | 0.1+ | 0.1+ | 2007 01 25 | 703 | 0.4− | 0.4+ | 2007 04 20 | G96 | 0.6+ | 0.4+ |
| 2004 04 20 | 691 | 0.1− | 0.2+ | 2007 01 27 | G96 | 0.1+ | 0.5− | 2007 04 20 | G96 | 0.6− | 0.5− |
| 2004 04 20 | 691 | 0.1− | 0.2+ | 2007 01 27 | G96 | 0.3− | 0.3− | 2007 04 20 | G96 | 0.7− | 0.6− |
| 2004 04 20 | 691 | 0.0 | 0.2+ | 2007 01 27 | G96 | 0.1+ | 0.3− | 2007 04 20 | G96 | 0.1+ | 0.5+ |
| 2004 04 22 | 704 | 0.2+ | 0.1− | 2007 01 27 | G96 | 0.1+ | 0.4− | 2008 07 30 | G96 | 0.1+ | 0.1− |
| 2004 04 22 | 704 | 0.6− | 0.1+ | 2007 01 28 | G96 | 0.1+ | 0.2− | 2008 07 30 | G96 | 0.0 | 0.0 |
| 2004 04 22 | 704 | 0.6+ | 0.4+ | 2007 01 28 | G96 | 0.1+ | 0.1− | 2008 07 30 | G96 | 0.3− | 0.2+ |
| 2004 04 22 | 704 | (1.8+ | 0.2+) | 2007 01 28 | G96 | 0.2+ | 0.3− | 2008 07 30 | G96 | 0.5− | 0.1+ |
| 2004 04 25 | 703 | (1.7− | 0.2−) | 2007 01 28 | G96 | 0.2+ | 0.2− | 2008 08 03 | J75 | 0.3+ | 0.3− |
| 2004 04 25 | 703 | 0.9− | 0.4− | 2007 01 28 | G96 | 0.2+ | 0.1− | 2008 08 03 | J75 | 0.6+ | 0.3+ |
| 2004 04 25 | 703 | 0.6− | 0.9− | 2007 01 28 | G96 | 0.5+ | 0.2− | 2008 08 03 | J75 | 0.5− | 0.1− |
| 2004 04 25 | 703 | 0.1+ | 0.0 | 2007 01 28 | G96 | 0.3+ | 0.2− | 2009 11 26 | G96 | 0.2+ | 0.2− |
| 2005 08 30 | 691 | 0.2− | 0.1+ | 2007 01 28 | G96 | 0.0 | 0.1− | 2009 11 26 | G96 | 0.2+ | 0.2− |
| 2005 08 30 | 691 | 0.2− | 0.1− | 2007 02 07 | 703 | 1.0− | 0.7+ | 2009 11 26 | G96 | 0.4+ | 0.2− |
| 2005 08 30 | 691 | 0.1− | 0.1− | 2007 02 07 | 703 | 0.6− | 0.4− | 2009 12 11 | 703 | 0.3+ | 0.5+ |
| 2005 09 13 | 691 | 0.4+ | 0.2− | 2007 02 07 | 703 | 0.7+ | 0.1+ | 2009 12 11 | 703 | 0.5− | 0.6− |
| 2005 09 13 | 691 | 0.0 | 0.1+ | 2007 02 07 | 703 | 1.1− | 0.2− | 2009 12 11 | 703 | 0.2+ | 0.6+ |
| 2005 09 13 | 691 | 0.0 | 0.4+ | 2007 02 26 | G96 | 0.0 | 0.1− | 2009 12 11 | 703 | 0.2− | 1.6+ |

**(229068)∗ 2004 GD$_{71}$ = 2005 VO$_{64}$**

Discovered 2004 Apr. 13 by Spacewatch at Kitt Peak.

Id. A. Doppler (*MPO* 95206)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 127.24566 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.26200240 | $\omega$ | 219.41389 | | +0.34484874 | | +0.93440277 |
| $a$ | 2.4187958 | $\Omega$ | 70.92255 | | −0.83558375 | | +0.34892197 |
| $e$ | 0.1868490 | $i$ | 5.42069 | | −0.42764371 | | +0.07172814 |
| $P$ | 3.76 | $H$ | 17.4 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 10 08 | 644 | 0.4− | 0.2− | 2004 05 24 | 291 | 0.2+ | 0.3+ | 2005 11 30 | G96 | 0.3+ | 0.2+ |
| 2001 10 08 | 644 | 0.3− | 0.1− | 2004 05 24 | 291 | 0.1− | 0.2+ | 2005 11 30 | G96 | 0.2+ | 0.3+ |
| 2001 10 08 | 644 | 0.5− | 0.5− | 2004 05 24 | 291 | 0.0 | 0.4+ | 2009 11 20 | 691 | 0.2− | 0.4+ |
| 2001 10 16 | 644 | 0.0 | 0.3− | 2005 11 01 | G96 | 0.0 | 0.2− | 2009 11 20 | 691 | 0.3− | 0.0 |
| 2001 10 16 | 644 | 0.0 | 0.6+ | 2005 11 01 | G96 | 0.8+ | 0.2− | 2009 11 20 | 691 | 0.2− | 0.0 |
| 2001 10 16 | 644 | 0.4− | 0.4+ | 2005 11 01 | G96 | 0.0 | 0.1+ | 2009 11 24 | 691 | 0.1+ | 0.1− |
| 2004 04 13 | 691 | 0.1+ | 0.0 | 2005 11 01 | G96 | 0.3+ | 0.2− | 2009 11 24 | 691 | 0.2− | 0.3+ |
| 2004 04 13 | 691 | 0.0 | 0.1− | 2005 11 03 | 691 | 0.0 | 0.0 | 2009 11 24 | 691 | 0.1− | 0.1− |
| 2004 04 13 | 691 | 0.2+ | 0.1− | 2005 11 03 | 691 | 0.3+ | 0.1+ | 2009 12 11 | G96 | 0.2+ | 0.8− |
| 2004 04 20 | 704 | 0.2+ | 0.3− | 2005 11 03 | 691 | 0.0 | 0.4+ | 2009 12 11 | G96 | 0.0 | 0.2− |
| 2004 04 20 | 704 | 0.6+ | 0.5− | 2005 11 30 | G96 | 0.1+ | 0.1− | 2009 12 11 | G96 | 0.7+ | 0.1+ |
| 2004 04 20 | 704 | 0.7− | 0.2+ | 2005 11 30 | G96 | 0.5+ | 0.2− | 2009 12 11 | G96 | 0.3+ | 0.2+ |

**(229069)∗ 2004 GK$_{79}$ = 2005 SL$_{260}$**

Discovered 2004 Apr. 12 by Spacewatch at Kitt Peak.

Id. A. Doppler (*MPO* 100718)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 163.99950 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.29913305 | $\omega$ | 241.28223 | | +0.51150796 | | +0.85847608 |
| $a$ | 2.2142490 | $\Omega$ | 59.52889 | | −0.77258304 | | +0.47838389 |
| $e$ | 0.0730736 | $i$ | 2.46888 | | −0.37613168 | | +0.18484503 |
| $P$ | 3.29 | $H$ | 17.4 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1992 10 25 | 691 | 0.0 | 0.5+ | 2005 09 15 | 705 | 0.6+ | 0.2+ | 2007 02 08 | G96 | 0.4+ | 0.3− |
| 1992 10 25 | 691 | 0.0 | 0.3+ | 2005 09 23 | 691 | 0.1+ | 0.2+ | 2007 03 12 | 691 | 0.2− | 0.5+ |
| 1992 10 25 | 691 | 0.0 | 0.2+ | 2005 09 23 | 691 | 0.3− | 0.4+ | 2007 03 12 | 691 | 0.1− | 0.0 |
| 2001 05 26 | 291 | 0.4− | 0.4+ | 2005 09 23 | 691 | 0.1− | 0.4+ | 2007 03 12 | 691 | 0.2− | 0.4+ |
| 2001 05 26 | 291 | 0.6− | 0.4+ | 2005 09 29 | 699 | 0.0 | 0.5+ | 2007 03 16 | 691 | 0.2+ | 0.2+ |
| 2001 05 26 | 291 | 0.3− | 0.4+ | 2005 09 29 | 699 | 0.0 | 0.4− | 2007 03 16 | 691 | 0.0 | 0.1+ |
| 2004 03 23 | 704 | (1.1+ | 1.8+) | 2005 09 29 | 699 | (3.0− | 0.0 ) | 2007 03 16 | 691 | 0.1+ | 0.0 |
| 2004 03 23 | 704 | 0.9+ | 0.6+ | 2005 09 29 | 699 | 0.9− | 0.1− | 2008 07 28 | E12 | 0.4+ | 0.3+ |
| 2004 03 23 | 704 | 0.5+ | 0.8+ | 2005 10 09 | 691 | 0.2− | 0.2+ | 2008 07 28 | E12 | 0.1+ | 0.2− |
| 2004 03 23 | 704 | 1.1+ | 1.0+ | 2005 10 09 | 691 | 0.4− | 0.3+ | 2008 07 28 | E12 | 0.7+ | 0.9+ |
| 2004 03 23 | 704 | (2.0+ | 0.3+) | 2005 10 09 | 691 | 0.3− | 0.2+ | 2008 07 28 | E12 | 0.3+ | 0.8+ |
| 2004 04 12 | 691 | 0.0 | 0.0 | 2005 12 01 | G96 | 0.1− | 0.4− | 2009 11 11 | G96 | 0.0 | 0.2− |
| 2004 04 12 | 691 | 0.2+ | 0.6+ | 2005 12 01 | G96 | 0.1− | 0.0 | 2009 11 11 | G96 | 0.2− | 0.1− |
| 2004 04 12 | 691 | 1.0+ | 0.2− | 2005 12 01 | G96 | 0.3+ | 0.0 | 2009 11 11 | G96 | 0.3− | 0.2− |
| 2004 04 21 | 691 | 0.2+ | 0.1− | 2005 12 01 | G96 | 0.7+ | 0.1− | 2009 11 11 | G96 | 0.1+ | 0.4− |
| 2004 04 21 | 691 | 0.4+ | 0.0 | 2005 12 01 | 705 | 0.1− | 0.1− | 2009 12 27 | 691 | 0.8− | 0.1− |
| 2004 04 21 | 691 | 0.0 | 0.0 | 2005 12 01 | 705 | 0.0 | 0.2− | 2009 12 27 | 691 | 0.3− | 0.3+ |
| 2005 09 09 | 705 | 0.5+ | 0.1+ | 2007 02 08 | G96 | 0.9+ | 0.0 | 2009 12 27 | 691 | 0.3+ | 0.1− |
| 2005 09 09 | 705 | 0.4+ | 0.3+ | 2007 02 08 | G96 | 0.3+ | 0.2− | | | | |
| 2005 09 15 | 705 | 0.5+ | 0.1+ | 2007 02 08 | G96 | 0.4+ | 0.2+ | | | | |

**(229070)∗ 2004 HJ$_{8}$**

Discovered 2004 Apr. 16 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 269.20897 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.29146031 | $\omega$ | 110.35475 | | −0.99464230 | | +0.05267677 |
| $a$ | 2.2529407 | $\Omega$ | 72.74766 | | −0.08549897 | | −0.90283929 |
| $e$ | 0.0901387 | $i$ | 5.34423 | | +0.05810875 | | −0.42673924 |
| $P$ | 3.38 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 10 30 | 644 | 0.3− | 0.3+ | 2004 04 20 | 704 | 0.2+ | 0.9+ | 2007 01 28 | 703 | (0.3+ | 2.0−) |
| 2002 10 30 | 644 | 0.4+ | 0.5+ | 2004 04 20 | 704 | 0.2+ | 0.0 | 2007 02 06 | 644 | 0.4+ | 0.3− |
| 2002 10 30 | 644 | 0.2− | 0.1− | 2004 04 20 | 704 | 0.2− | 0.5− | 2007 02 06 | 644 | 0.5+ | 0.1+ |
| 2002 10 30 | 644 | 0.0 | 0.8+ | 2004 04 20 | 704 | 0.3+ | 0.0 | 2007 02 06 | 644 | 0.4+ | 0.1+ |
| 2002 11 05 | 644 | 0.6− | 1.0+ | 2004 04 21 | 703 | 0.8− | 0.2+ | 2007 02 16 | 703 | (0.1+ | 1.7−) |
| 2002 11 05 | 644 | 0.1− | 1.0+ | 2004 04 21 | 703 | 0.5− | 0.8+ | 2007 02 16 | 703 | 0.2− | 1.4− |
| 2002 11 05 | 644 | 0.2− | 0.6+ | 2004 04 21 | 703 | (2.2− | 0.1+) | 2007 02 16 | 703 | 0.4− | 0.8− |
| 2002 11 06 | 644 | 0.3− | 0.3+ | 2004 04 21 | 703 | 0.8− | 0.2+ | 2007 02 16 | 703 | 0.1− | 1.3− |
| 2002 11 06 | 644 | 0.2+ | 0.6+ | 2004 04 22 | 704 | 1.5+ | 0.0 | 2007 02 22 | 703 | 0.2− | 0.3+ |
| 2002 11 12 | 644 | 0.1+ | 0.2− | 2004 04 22 | 704 | 0.7− | 0.0 | 2007 02 22 | 703 | 0.6− | 0.2+ |
| 2002 11 12 | 644 | 0.7− | 0.7− | 2004 04 22 | 704 | 0.5+ | 0.7− | 2007 02 22 | 703 | 0.4− | 0.6− |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 03 16 | 691 | 0.2− | 0.0 | 2004 04 22 | 704 | 1.4+ | 0.0 | 2007 02 22 | 703 | 0.2− | 0.2− | |
| 2004 03 16 | 691 | 0.5− | 0.3− | 2004 04 22 | 704 | 0.6+ | 0.3− | 2009 11 08 | 691 | 0.2+ | 0.4+ | |
| 2004 03 16 | 691 | 0.2+ | 0.2+ | 2004 04 23 | 691 | 0.1− | 0.4+ | 2009 11 08 | 691 | 0.0 | 0.0 | |
| 2004 04 16 | 704 | 0.5+ | 0.6+ | 2004 04 23 | 691 | 0.2+ | 0.2+ | 2009 11 08 | 691 | 0.0 | 0.4+ | |
| 2004 04 16 | 704 | 0.4− | 0.3− | 2004 04 23 | 691 | 0.0 | 0.4+ | 2009 11 20 | 691 | 0.3− | 0.1+ | |
| 2004 04 16 | 704 | 1.2+ | 0.7+ | 2007 01 10 | 703 | (1.6+ | 2.2−) | 2009 11 20 | 691 | 0.3− | 0.0 | |
| 2004 04 16 | 644 | 0.1+ | 0.0 | 2007 01 10 | 703 | 0.5− | 0.3− | 2009 11 20 | 691 | 0.2− | 0.1+ | |
| 2004 04 16 | 704 | 0.0 | 0.3+ | 2007 01 10 | 703 | 0.5+ | 0.7− | 2009 12 10 | G96 | 0.4+ | 0.1− | |
| 2004 04 16 | 644 | 0.1+ | 0.2+ | 2007 01 10 | 703 | 0.1− | 1.1+ | 2009 12 10 | G96 | 0.3+ | 0.3+ | |
| 2004 04 16 | 644 | 0.2+ | 0.2+ | 2007 01 28 | 703 | 0.4− | 1.2+ | 2009 12 10 | G96 | 0.6+ | 0.1− | |
| 2004 04 20 | 704 | 1.0+ | 0.8+ | 2007 01 28 | 703 | 1.1+ | 0.9− | | | | | |

**(229071)∗ 2004 HS$_{34}$**

Discovered 2004 Apr. 17 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 160.49854 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27660210 | $\omega$ | 195.78393 | | +0.03385045 | +0.98990724 | |
| $a$ | 2.3329158 | $\Omega$ | 76.30868 | | −0.90094937 | +0.08982503 | |
| $e$ | 0.0976660 | $i$ | 8.14272 | | −0.43260186 | −0.10961348 | |
| $P$ | 3.56 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 05 07 | 704 | 0.4− | 0.7+ | 2004 04 17 | 699 | 0.5+ | 0.4+ | 2005 10 03 | 703 | 0.3− | 1.3− | |
| 1997 05 07 | 704 | 0.2− | 0.2− | 2004 04 17 | 699 | 0.2+ | 1.1+ | 2005 10 10 | 703 | 1.0+ | 0.1− | |
| 1997 05 07 | 704 | 1.2+ | 0.5+ | 2004 04 17 | 699 | 0.6− | 0.0 | 2005 10 10 | 703 | 1.1− | 0.7− | |
| 1997 05 07 | 704 | 0.8+ | 1.1+ | 2004 04 17 | 699 | 1.2− | 0.6+ | 2005 10 10 | 703 | 0.4− | 0.3+ | |
| 2001 07 14 | 644 | 0.0 | 0.3+ | 2004 04 23 | 704 | 0.5+ | 0.4− | 2005 10 10 | 703 | 0.3− | 0.2− | |
| 2001 07 14 | 644 | 0.0 | 0.1+ | 2004 04 23 | 704 | 0.5+ | 0.1− | 2005 10 26 | 704 | 0.9+ | 1.3+ | |
| 2001 07 14 | 644 | 0.5− | 0.5+ | 2004 04 23 | 704 | 0.1+ | 0.2− | 2005 10 26 | 704 | (1.0+ | 1.8+) | |
| 2001 08 24 | 644 | 0.1− | 0.5+ | 2004 04 25 | 699 | 0.7+ | 0.2+ | 2005 10 26 | 704 | (0.2− | 1.9+) | |
| 2001 08 24 | 644 | 0.2+ | 0.3+ | 2004 04 25 | 699 | 0.1− | 0.1− | 2009 11 10 | 691 | 0.4− | 0.4+ | |
| 2001 08 24 | 644 | 0.2− | 0.1+ | 2004 04 25 | 699 | 0.7− | 0.0 | 2009 11 10 | 691 | 0.1+ | 0.5+ | |
| 2002 12 05 | 704 | 0.0 | 0.2− | 2004 04 25 | 699 | (1.8+ | 0.2+) | 2009 11 10 | 691 | 0.2− | 0.4+ | |
| 2002 12 05 | 704 | 0.3− | 0.1− | 2004 06 09 | E12 | 0.3+ | 0.9− | 2009 12 11 | 703 | 0.2+ | 0.9− | |
| 2002 12 05 | 704 | (1.9+ | 0.2−) | 2004 06 09 | E12 | 0.4− | 0.3− | 2009 12 11 | 703 | 0.3− | 0.4− | |
| 2004 03 16 | 704 | 0.3+ | 0.4− | 2004 06 09 | E12 | 1.1+ | 0.2− | 2009 12 11 | 703 | 0.4+ | 0.5+ | |
| 2004 03 16 | 704 | 0.3+ | 0.2+ | 2004 06 09 | E12 | 0.1+ | 0.6+ | 2009 12 11 | 703 | 1.1+ | 0.9+ | |
| 2004 03 16 | 704 | 0.5+ | 0.4+ | 2005 10 03 | 703 | 0.5− | 0.5+ | | | | | |
| 2004 03 16 | 704 | 1.3− | 1.1+ | 2005 10 03 | 703 | 0.2+ | 0.8+ | | | | | |

**(229072)∗ 2004 HO$_{36}$ = 2007 DA$_{12}$**

Discovered 2004 Apr. 21 by CINEOS at Campo Imperatore.

Id. G. V. Williams (*MPO* 115793)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 252.11128 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28541144 | $\omega$ | 88.47962 | | −0.95887729 | +0.26216084 | |
| $a$ | 2.2846612 | $\Omega$ | 106.70895 | | −0.28382021 | −0.88658640 | |
| $e$ | 0.0447261 | $i$ | 6.51951 | | +0.00065879 | −0.38109874 | |
| $P$ | 3.45 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 04 13 | 703 | 0.0 | 0.7+ | 2007 02 16 | 703 | 0.6+ | 0.3+ | 2009 11 19 | 691 | 0.0 | 0.1+ | |
| 2004 04 13 | 703 | 0.5− | 0.7+ | 2007 02 16 | 703 | 0.2− | 0.0 | 2009 11 19 | 691 | 0.3− | 0.2+ | |
| 2004 04 13 | 703 | 0.1− | 0.0 | 2007 02 17 | 644 | 0.3+ | 0.2+ | 2009 11 19 | 704 | 0.4+ | 0.3+ | |
| 2004 04 13 | 703 | 0.2+ | 0.5+ | 2007 02 17 | 644 | 0.0 | 0.4+ | 2009 11 19 | 691 | 0.4− | 0.1+ | |
| 2004 04 21 | 599 | 0.1− | 0.4+ | 2007 02 17 | 644 | 0.1− | 0.3+ | 2009 11 19 | 704 | 0.4− | 0.7− | |
| 2004 04 21 | 599 | 0.2+ | 0.2+ | 2007 02 17 | 644 | 0.3+ | 0.3+ | 2009 11 19 | 704 | 1.0+ | 1.2− | |
| 2004 04 21 | 599 | 0.0 | 0.1+ | 2007 02 17 | 644 | 0.2+ | 0.2+ | 2009 11 19 | 704 | 0.7− | 0.7− | |
| 2004 04 21 | 599 | 0.5+ | 0.3+ | 2007 02 17 | 644 | 0.0 | 0.1+ | 2009 11 22 | 691 | 0.1− | 0.1+ | |
| 2004 04 23 | 704 | 0.9+ | 1.3+ | 2007 02 18 | D29 | 0.7+ | 0.2− | 2009 11 22 | 691 | 0.1− | 0.0 | |
| 2004 04 23 | 704 | 0.5+ | 1.0+ | 2007 02 18 | D29 | 0.4− | 0.1+ | 2009 11 22 | 691 | 1.0− | 0.4+ | |
| 2004 04 23 | 704 | (0.6+ | 2.3+) | 2007 02 18 | D29 | 0.4+ | 0.3− | 2009 11 23 | 691 | 0.0 | 0.4+ | |
| 2007 01 17 | 691 | 0.1− | 0.0 | 2008 06 01 | G96 | 0.1+ | 0.1+ | 2009 11 23 | 691 | 0.1− | 0.0 | |
| 2007 01 17 | 691 | 0.1+ | 0.2− | 2008 06 01 | G96 | 0.5+ | 0.0 | 2009 11 23 | 691 | 0.3− | 0.1+ | |
| 2007 01 17 | 691 | 0.0 | 0.1− | 2008 06 01 | G96 | 0.3+ | 0.3+ | 2009 11 26 | 691 | 0.1+ | 0.1+ | |
| 2007 01 26 | 691 | 0.0 | 0.1− | 2008 06 01 | G96 | 0.1+ | 0.2+ | 2009 11 26 | 691 | 0.0 | 0.1+ | |
| 2007 01 26 | 691 | 0.0 | 0.1− | 2008 06 13 | 691 | 0.2− | 0.2+ | 2009 11 26 | 691 | 0.1+ | 0.0 | |
| 2007 01 26 | 691 | 0.0 | 0.0 | 2008 06 13 | 691 | 0.2− | 0.6+ | 2009 11 27 | 691 | 0.3+ | 0.3+ | |
| 2007 02 11 | D29 | 0.0 | 0.6− | 2008 06 13 | 691 | 0.1− | 0.5+ | 2009 11 27 | 691 | 0.1+ | 0.0 | |
| 2007 02 11 | D29 | 0.7+ | 0.6+ | 2009 11 16 | G96 | 0.5+ | 0.2− | 2009 11 27 | 691 | 0.1− | 0.2− | |
| 2007 02 11 | D29 | 0.8+ | 0.6− | 2009 11 16 | G96 | 0.1+ | 0.1− | 2009 12 08 | J75 | 0.6+ | 0.1− | |
| 2007 02 16 | 703 | 0.7− | 0.1+ | 2009 11 16 | G96 | 0.3+ | 0.0 | 2009 12 09 | J75 | 1.4+ | 0.1+ | |
| 2007 02 16 | 703 | 0.7− | 0.1− | 2009 11 16 | G96 | 0.5+ | 0.2− | 2009 12 09 | J75 | 0.2+ | 0.0 | |
| 2007 02 16 | 703 | 0.5− | 0.1− | 2009 11 18 | 691 | 0.2− | 0.2+ | 2009 12 17 | 704 | 1.8+ | 1.4+ | |
| 2007 02 16 | 703 | 0.9− | 0.5− | 2009 11 18 | 691 | 0.1− | 0.0 | 2009 12 17 | 704 | 0.2− | 1.0+ | |
| 2007 02 16 | 703 | 0.0 | 1.0+ | 2009 11 18 | 691 | 0.0 | 0.1+ | 2009 12 17 | 704 | 0.1− | 0.8+ | |

**(229073)∗ 2004 HO$_{57}$ = 2006 WE$_{189}$**

Discovered 2004 Apr. 21 by Spacewatch at Kitt Peak.

Id. A. Doppler (*MPO* 122482)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 339.01775 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28435322 | $\omega$ | 24.43028 | | −0.19180280 | −0.98044987 | |
| $a$ | 2.2903259 | $\Omega$ | 76.65169 | | +0.89285702 | −0.19289987 | |
| $e$ | 0.1709237 | $i$ | 2.58770 | | +0.40745311 | −0.03882906 | |
| $P$ | 3.47 | $H$ | 17.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1993 01 26 | 691 | 0.4+ | 0.1− | 2007 03 09 | 703 | 0.9− | 0.4+ | 2009 11 18 | 704 | 0.0 | 0.0 | |
| 1993 01 26 | 691 | 0.3− | 0.1+ | 2007 03 09 | 703 | 0.6− | 0.7+ | 2009 11 18 | 704 | 0.6+ | 0.1+ | |
| 1993 01 26 | 691 | 0.2− | 0.1+ | 2007 03 09 | 703 | 0.6+ | 0.6+ | 2009 11 18 | 704 | 0.1− | 0.0 | |
| 2002 10 30 | 644 | 0.0 | 0.7+ | 2007 03 09 | 703 | 0.3+ | 0.5+ | 2009 11 18 | 704 | 0.1− | 0.5+ | |
| 2002 10 30 | 644 | 0.2+ | 0.7+ | 2007 03 09 | 644 | 0.6+ | 0.2− | 2009 11 20 | 704 | 0.8+ | 1.3+ | |
| 2002 10 30 | 644 | 0.6+ | 0.4+ | 2007 03 09 | 644 | 0.6+ | 0.1− | 2009 11 20 | 704 | 0.1+ | 1.1+ | |
| 2002 11 22 | 644 | 0.2− | 0.3+ | 2007 03 09 | 644 | 0.3+ | 0.0 | 2009 11 20 | 704 | 0.1− | 0.7+ | |
| 2002 11 22 | 644 | 0.5− | 0.5+ | 2007 03 15 | 703 | 0.2+ | 0.7+ | 2009 11 20 | 704 | 0.1− | 1.4+ | |
| 2002 11 22 | 644 | 0.0 | 0.4+ | 2007 03 15 | 703 | 0.1+ | 0.7− | 2009 11 20 | J75 | 0.4− | 0.3− | |
| 2004 04 21 | 691 | 0.3− | 0.2+ | 2007 03 15 | 703 | (0.1− | 1.6−) | 2009 11 20 | J75 | 0.1− | 0.1+ | |
| 2004 04 21 | 691 | 0.1− | 0.4+ | 2007 03 15 | 703 | 0.2+ | 0.2+ | 2009 11 20 | J75 | 0.0 | 0.1+ | |
| 2004 04 21 | 691 | 0.1− | 0.3+ | 2007 03 16 | 704 | 0.6+ | 0.2− | 2009 11 23 | 703 | 0.2− | 0.1− | |
| 2004 04 28 | 691 | 0.2+ | 0.1+ | 2007 03 16 | 704 | 0.0 | 0.6+ | 2009 11 23 | 703 | 1.4+ | 0.8− | |
| 2004 04 28 | 691 | 0.3+ | 0.1+ | 2007 03 16 | 704 | 0.2+ | 0.4− | 2009 11 23 | 703 | 0.1− | 0.1+ | |
| 2004 04 28 | 691 | 0.3+ | 0.4+ | 2007 03 16 | 704 | 0.3− | 1.0+ | 2009 11 23 | 703 | 0.6− | 0.1− | |
| 2006 11 24 | G96 | 0.3+ | 0.8− | 2009 10 27 | 691 | 0.4− | 0.1+ | 2009 11 23 | 703 | 1.1− | 0.1+ | |
| 2006 11 24 | G96 | 0.3− | 0.8− | 2009 10 27 | 691 | 0.3− | 0.1+ | 2009 11 23 | J75 | 0.1+ | 0.4+ | |
| 2006 11 24 | G96 | 0.2− | 0.1− | 2009 10 27 | 691 | 0.4− | 0.6− | 2009 11 23 | J75 | 0.5+ | 0.1+ | |
| 2006 11 24 | G96 | 0.3+ | 0.4− | 2009 11 14 | J75 | 0.4+ | 0.1− | 2009 11 23 | J75 | 0.2+ | 0.4− | |
| 2006 12 01 | G96 | 0.2− | 0.1+ | 2009 11 14 | J75 | 0.4+ | 0.1+ | 2009 11 24 | G96 | 0.6+ | 0.6− | |
| 2006 12 01 | G96 | 0.3− | 0.3− | 2009 11 14 | J75 | 0.3− | 0.3+ | 2009 11 24 | G96 | 0.1− | 0.2− | |
| 2006 12 01 | G96 | 0.4+ | 0.0 | 2009 11 15 | 703 | 0.2+ | 0.1− | 2009 11 24 | G96 | 0.3− | 0.1− | |
| 2006 12 01 | G96 | 0.1− | 0.3− | 2009 11 15 | 703 | 0.4− | 0.5+ | 2009 11 24 | G96 | 0.4+ | 0.0 | |
| 2007 02 15 | 703 | 0.0 | 1.0− | 2009 11 15 | 703 | 1.5− | 0.7− | 2009 12 10 | G96 | 0.3+ | 0.1− | |
| 2007 02 15 | 703 | 0.7− | 0.9− | 2009 11 15 | 703 | 0.4− | 0.3+ | 2009 12 10 | G96 | 0.2− | 0.1− | |
| 2007 02 15 | 703 | (1.8+ | 1.2−) | 2009 11 16 | G96 | 0.1+ | 0.1+ | 2009 12 10 | G96 | 0.1− | 0.1− | |
| 2007 02 15 | 703 | 0.9+ | 0.7+ | 2009 11 16 | G96 | 0.4+ | 0.1− | 2009 12 10 | G96 | 0.0 | 0.2− | |
| 2007 02 23 | 691 | 0.1+ | 0.1− | 2009 11 16 | G96 | 0.0 | 0.1− | 2009 12 18 | A77 | 0.8+ | 1.0+ | |
| 2007 02 23 | 691 | 0.1− | 0.1− | 2009 11 16 | G96 | 0.0 | 0.2− | 2009 12 18 | A77 | 1.2+ | 0.4− | |
| 2007 02 23 | 691 | 0.4− | 0.1− | 2009 11 18 | 704 | 0.0 | 1.4+ | 2009 12 19 | A77 | 0.5+ | 0.2− | |

**(229074)∗ 2004 JL$_{6}$**

Discovered 2004 May 9 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 207.00403 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27570608 | $\omega$ | 343.62660 | | −0.56211282 | +0.82350209 | |
| $a$ | 2.3379676 | $\Omega$ | 252.11097 | | −0.74949711 | −0.54638431 | |
| $e$ | 0.1911287 | $i$ | 4.61915 | | −0.34969023 | −0.15267118 | |
| $P$ | 3.57 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 04 29 | 608 | 0.3− | 0.4+ | 2004 05 18 | 704 | 0.1− | 0.3+ | 2007 01 28 | G96 | 0.1+ | 0.2+ |
| 2004 04 29 | 608 | 0.5− | 0.1+ | 2004 05 18 | 704 | 0.2+ | 0.6− | 2007 01 28 | G96 | 0.0 | 0.0 |
| 2004 04 29 | 608 | 0.1− | 0.2+ | 2004 05 18 | 704 | 0.1+ | 0.4− | 2007 01 28 | G96 | 0.2− | 0.1− |
| 2004 05 09 | 644 | 0.0 | 0.7+ | 2004 06 07 | 699 | 0.4+ | 0.5− | 2007 02 10 | G96 | 0.1+ | 0.5− |
| 2004 05 09 | 644 | 0.1+ | 0.7+ | 2004 06 07 | 699 | 1.1− | 0.0 | 2007 02 10 | G96 | 0.2+ | 0.0 |
| 2004 05 09 | 644 | 0.1+ | 0.4+ | 2004 06 07 | 699 | 0.5− | 0.4+ | 2007 02 10 | G96 | 0.1+ | 0.0 |
| 2004 05 13 | 644 | 0.1+ | 0.1− | 2004 06 07 | 699 | 0.1+ | 0.5− | 2007 02 10 | G96 | 0.2+ | 0.1− |
| 2004 05 13 | 644 | 0.1− | 0.0 | 2004 06 14 | 704 | 0.4+ | 0.4+ | 2008 08 07 | J75 | 0.1+ | 0.4− |
| 2004 05 13 | 644 | 0.0 | 0.2+ | 2004 06 14 | 704 | 0.6+ | 0.9+ | 2008 08 07 | J75 | 0.4− | 0.2− |
| 2004 05 15 | 704 | 0.4− | 0.1+ | 2004 06 14 | 704 | 0.1+ | 0.2− | 2008 08 07 | J75 | 0.5+ | 0.0 |
| 2004 05 15 | 704 | 0.1− | 0.2+ | 2004 06 14 | 704 | 1.4+ | 0.3+ | 2009 11 20 | 691 | 0.4− | 0.1− |
| 2004 05 15 | 704 | 0.2− | 0.4− | 2004 06 14 | 704 | (0.2+ | 1.7+) | 2009 11 20 | 691 | 0.3+ | 0.5+ |
| 2004 05 15 | 704 | 0.0 | 0.5− | 2004 06 17 | 691 | 0.1+ | 0.3+ | 2009 11 20 | 691 | 0.7− | 0.1− |
| 2004 05 15 | 704 | 0.9+ | 0.3+ | 2004 06 17 | 691 | 0.0 | 0.2+ | 2009 11 24 | 691 | 0.1+ | 0.5+ |
| 2004 05 16 | 704 | 0.1+ | 0.2− | 2004 06 17 | 691 | 0.1+ | 0.0 | 2009 11 24 | 691 | 0.1− | 0.1+ |
| 2004 05 16 | 704 | 0.2+ | 0.2− | 2006 12 21 | G96 | 0.1− | 0.6+ | 2009 11 24 | 691 | 0.3+ | 0.2+ |
| 2004 05 16 | 704 | 0.4− | 0.2− | 2006 12 21 | G96 | 0.4− | 0.3− | 2009 12 15 | G96 | 0.3+ | 0.1+ |
| 2004 05 16 | 704 | 0.3− | 0.4− | 2006 12 21 | G96 | 0.1− | 0.8− | 2009 12 15 | G96 | 0.3+ | 0.1+ |
| 2004 05 16 | 704 | 0.4− | 0.2− | 2006 12 21 | G96 | 0.3− | 0.4− | 2009 12 15 | G96 | 0.8+ | 0.0 |
| 2004 05 18 | 704 | 0.1+ | 0.0 | 2007 01 28 | G96 | 0.3+ | 0.1+ | 2009 12 15 | G96 | 0.2+ | 0.2+ |

**(229075)∗ 2004 JX$_{18}$ = 2005 SA$_{53}$**

Discovered 2004 May 13 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 86508)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 231.97285 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28031111 | $\omega$ | 334.01815 | | −0.81911642 | +0.56968706 | |
| $a$ | 2.3122911 | $\Omega$ | 240.87225 | | −0.51199640 | −0.77885033 | |
| $e$ | 0.0935431 | $i$ | 4.40671 | | −0.25866574 | −0.26239059 | |
| $P$ | 3.52 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 04 12 | 691 | 0.3− | 0.0 | 2005 09 29 | 691 | 0.1+ | 0.1+ | 2007 01 25 | 703 | 0.9− | 0.2− |
| 2004 04 12 | 691 | 0.2− | 0.3+ | 2005 09 29 | 691 | 0.1+ | 0.0 | 2007 02 08 | 644 | 0.2+ | 0.4+ |
| 2004 04 12 | 691 | 0.6− | 0.5− | 2005 09 29 | 691 | 0.1− | 0.1+ | 2007 02 08 | 644 | 0.2+ | 0.3+ |
| 2004 05 12 | E12 | (1.3+ | 3.4+) | 2005 10 03 | 691 | 0.0 | 0.1− | 2007 02 08 | 644 | 0.2+ | 0.5+ |
| 2004 05 12 | E12 | 0.1− | 0.6− | 2005 10 03 | 691 | 0.2+ | 0.0 | 2007 02 08 | 644 | 0.3+ | 0.9+ |
| 2004 05 12 | E12 | 1.3+ | 0.4− | 2005 10 03 | 691 | 0.1− | 0.3− | 2007 02 08 | 644 | 0.3+ | 0.1+ |
| 2004 05 12 | E12 | 0.4+ | 0.4+ | 2005 10 09 | 691 | 0.4+ | 0.3+ | 2007 02 08 | 644 | 0.4+ | 0.5+ |
| 2004 05 13 | 691 | 0.1+ | 0.3+ | 2005 10 09 | 691 | 0.1+ | 0.1− | 2007 02 15 | 703 | 0.2− | 0.1+ |
| 2004 05 13 | 691 | (1.1+ | 1.9+) | 2005 10 09 | 691 | 0.0 | 0.0 | 2007 02 15 | 703 | 0.1+ | 0.9− |
| 2004 05 13 | 691 | 0.1+ | 0.0 | 2005 10 13 | 691 | 0.2− | 0.3+ | 2007 02 15 | 703 | 0.1− | 0.3− |
| 2004 05 15 | 704 | 0.8+ | 0.4− | 2005 10 13 | 691 | 0.0 | 0.1− | 2007 02 15 | 703 | 0.2+ | 0.9+ |
| 2004 05 15 | 704 | 0.4+ | 0.5− | 2005 10 13 | 691 | 0.3+ | 0.1+ | 2008 08 03 | B44 | 0.7+ | 1.3− |
| 2004 05 15 | 704 | 0.7+ | 0.5− | 2005 10 28 | 691 | 0.0 | 0.4+ | 2008 08 03 | B44 | (2.0+ | 0.8−) |
| 2004 05 15 | 704 | 0.5− | 0.6+ | 2005 10 28 | 691 | 0.2− | 0.1+ | 2008 08 03 | B44 | 0.2− | 1.0− |
| 2004 05 15 | 704 | 0.3+ | 0.5+ | 2005 10 28 | 691 | 0.2+ | 0.0 | 2009 10 26 | G96 | 0.1− | 0.3− |
| 2004 05 16 | 704 | 0.1+ | 1.0+ | 2005 11 03 | 691 | 0.2− | 0.2+ | 2009 10 26 | G96 | 0.0 | 0.6− |
| 2004 05 16 | 704 | 0.3− | 1.0+ | 2005 11 03 | 691 | 0.4− | 0.1+ | 2009 10 26 | G96 | 0.2+ | 0.3− |
| 2004 05 16 | 704 | 0.5+ | 0.1+ | 2005 11 03 | 691 | 0.2+ | 0.2+ | 2009 10 26 | G96 | 0.1− | 0.3− |
| 2004 06 13 | 691 | 0.0 | 0.4+ | 2005 11 05 | 691 | 0.0 | 0.6+ | 2009 12 15 | G96 | 0.3+ | 0.0 |
| 2004 06 13 | 691 | 0.3+ | 0.1+ | 2005 11 05 | 691 | 0.5− | 0.1− | 2009 12 15 | G96 | 0.5+ | 0.3− |
| 2004 06 13 | 691 | 0.0 | 0.3+ | 2005 11 05 | 691 | 0.1− | 0.0 | 2009 12 15 | G96 | 0.1+ | 0.2+ |
| 2005 09 25 | 291 | 0.1− | 0.1+ | 2007 01 25 | 703 | 0.2− | 0.7+ | 2009 12 15 | G96 | 0.2− | 0.0 |
| 2005 09 25 | 291 | 0.2− | 0.0 | 2007 01 25 | 703 | (2.0− | 1.4−) | | | | |
| 2005 09 25 | 291 | 0.2− | 0.1+ | 2007 01 25 | 703 | (0.4+ | 1.7−) | | | | |

**(229076)∗ 2004 JO$_{50}$**

Discovered 2004 May 14 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 68.19387 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27884404 | $\omega$ | 325.41240 | | +0.95742425 | −0.27031944 | |
| $a$ | 2.3203944 | $\Omega$ | 50.59801 | | +0.28551577 | +0.83481455 | |
| $e$ | 0.1341020 | $i$ | 7.53464 | | +0.04265607 | +0.47959574 | |
| $P$ | 3.53 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 10 01 | 910 | 0.5+ | 0.1− | 2005 09 14 | 703 | 0.8− | 1.3− | 2005 10 26 | 704 | 0.3+ | 1.5+ |
| 1998 10 01 | 910 | 0.7+ | 0.1+ | 2005 09 14 | 703 | 0.9+ | 0.4+ | 2005 11 17 | 644 | 0.2+ | 0.1+ |
| 1998 10 01 | 910 | 0.2+ | 0.1+ | 2005 09 14 | 703 | 0.1− | 0.1− | 2005 11 17 | 644 | 0.3− | 0.3+ |
| 1998 10 11 | 699 | 0.1− | 0.6− | 2005 09 24 | 703 | 0.4− | 0.3− | 2005 11 17 | 644 | 0.2+ | 0.0 |
| 1998 10 11 | 699 | 1.5− | 0.4+ | 2005 09 24 | 703 | 0.5− | 0.3+ | 2005 12 01 | G96 | 0.2+ | 0.1+ |
| 1998 10 11 | 699 | 0.5+ | 0.2− | 2005 09 24 | 699 | 0.2− | 0.5+ | 2005 12 01 | G96 | 0.3+ | 0.1+ |
| 1998 10 20 | 699 | 0.3+ | 0.2− | 2005 09 24 | 703 | 0.2+ | 0.4− | 2005 12 01 | G96 | 0.2+ | 0.2+ |
| 1998 10 20 | 699 | 0.4+ | 0.0 | 2005 09 24 | 703 | 0.4− | 0.4− | 2005 12 01 | G96 | 0.2+ | 0.2+ |
| 1998 10 20 | 699 | 0.4− | 0.3− | 2005 09 24 | 699 | 1.0+ | 0.3+ | 2006 01 05 | G96 | 0.5− | 0.1− |
| 2004 03 26 | 291 | 0.1− | 0.2+ | 2005 09 24 | 699 | 0.3− | 0.5+ | 2006 01 05 | G96 | 0.6− | 0.1+ |
| 2004 03 26 | 291 | 0.3+ | 0.3+ | 2005 09 24 | 699 | 0.1+ | 0.4+ | 2006 01 05 | G96 | 0.2− | 0.1− |
| 2004 03 26 | 291 | 0.1− | 0.5+ | 2005 09 28 | 644 | 0.0 | 0.0 | 2006 01 05 | G96 | 0.3− | 0.2+ |
| 2004 04 20 | 291 | 0.0 | 0.4− | 2005 09 28 | 644 | 0.1− | 0.2+ | 2006 01 05 | G96 | 0.0 | 0.2− |
| 2004 04 20 | 291 | 0.2+ | 0.4− | 2005 09 28 | 644 | 0.3− | 0.1− | 2006 01 05 | G96 | 0.5− | 0.3− |
| 2004 04 20 | 291 | (0.2− | 1.7+) | 2005 10 03 | 703 | 0.0 | 0.1− | 2006 01 05 | G96 | 0.3+ | 0.6+ |
| 2004 05 14 | 691 | 0.3+ | 0.4+ | 2005 10 03 | 703 | 0.1− | 0.7− | 2006 01 05 | G96 | 0.7− | 0.1− |
| 2004 05 14 | 691 | 0.2+ | 0.6+ | 2005 10 03 | 703 | 0.2− | 0.3+ | 2007 02 22 | 703 | 0.5− | 0.8+ |
| 2004 05 14 | 691 | 0.2+ | 0.1− | 2005 10 03 | 703 | 0.3− | 0.7− | 2007 02 22 | 703 | 1.0− | 0.5+ |
| 2004 05 27 | 691 | 0.2+ | 0.4+ | 2005 10 21 | 699 | 0.2− | 0.1− | 2007 02 22 | 703 | 0.6+ | 0.5− |
| 2004 05 27 | 691 | 0.1− | 0.2+ | 2005 10 21 | 699 | 0.9− | 1.0+ | 2007 02 22 | 703 | 0.0 | 1.1+ |
| 2004 05 27 | 691 | 0.3+ | 0.4+ | 2005 10 21 | 699 | 0.2− | 0.4− | 2009 10 14 | G96 | 0.3+ | 0.1+ |
| 2005 08 31 | 644 | 0.1− | 0.3+ | 2005 10 21 | 699 | (0.4− | 1.8+) | 2009 10 14 | G96 | 0.2+ | 0.2+ |
| 2005 08 31 | 644 | 0.2− | 0.2+ | 2005 10 22 | 699 | 0.2+ | 0.4+ | 2009 10 14 | G96 | 0.1+ | 0.1+ |
| 2005 08 31 | 644 | 0.1− | 0.4+ | 2005 10 22 | 699 | 0.0 | 0.5+ | 2009 10 14 | G96 | 0.4+ | 0.2+ |
| 2005 09 06 | 704 | 0.8− | 1.0+ | 2005 10 22 | 699 | 0.3− | 0.3+ | 2009 12 15 | 704 | 1.2+ | 0.4+ |
| 2005 09 06 | 704 | 0.7− | 0.1+ | 2005 10 22 | 699 | 1.1+ | 0.2− | 2009 12 15 | 704 | 0.6− | 0.2− |
| 2005 09 06 | 704 | 0.5− | 0.0 | 2005 10 26 | 704 | 0.7+ | 1.0+ | 2009 12 15 | 704 | 0.7+ | 0.5+ |
| 2005 09 06 | 704 | 0.6− | 0.5+ | 2005 10 26 | 704 | 0.5+ | 1.1+ | 2009 12 15 | 704 | 0.4− | 0.1− |
| 2005 09 06 | 704 | 1.0− | 0.0 | 2005 10 26 | 704 | 0.1+ | 0.1+ | 2009 12 18 | H10 | 1.3+ | 0.1− |
| 2005 09 14 | 703 | 0.2− | 0.2− | 2005 10 26 | 704 | 0.1+ | 0.3+ | 2009 12 18 | H10 | 1.4− | 3.0+ |

**(229077)∗ 2004 LA$_{13}$**

Discovered 2004 June 9 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 196.74516 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27987232 | $\omega$ | 157.11659 | | −0.32481457 | +0.93366719 | |
| $a$ | 2.3147073 | $\Omega$ | 93.65865 | | −0.88943993 | −0.24732190 | |
| $e$ | 0.1476530 | $i$ | 8.69507 | | −0.32154643 | −0.25903175 | |
| $P$ | 3.52 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 10 | 644 | 0.5− | 0.3+ | 2004 05 14 | 704 | 0.2− | 0.2− | 2008 08 04 | E12 | 0.3− | 0.0 |
| 2001 08 10 | 644 | 0.5− | 0.1+ | 2004 06 09 | 699 | (0.9+ | 1.8−) | 2008 08 04 | E12 | 0.5− | 0.1+ |
| 2001 08 10 | 644 | 0.2− | 0.1− | 2004 06 09 | 699 | 0.0 | 0.5− | 2008 08 04 | E12 | 0.9− | 0.2− |
| 2001 08 27 | 644 | 0.2+ | 0.1+ | 2004 06 09 | 699 | 0.0 | 0.7− | 2008 08 23 | E12 | 1.3+ | 1.4+ |
| 2001 08 27 | 644 | 0.3+ | 0.3− | 2004 06 09 | 699 | 0.3− | 1.3− | 2008 08 23 | E12 | 0.4− | 0.1+ |
| 2001 08 27 | 644 | 0.3+ | 0.1− | 2004 06 16 | 704 | 1.0+ | 0.3+ | 2008 08 23 | E12 | 0.1+ | 0.5+ |
| 2004 04 16 | 704 | 0.5+ | 0.5+ | 2004 06 16 | 704 | 0.5+ | 0.4+ | 2008 08 23 | E12 | 0.4− | 0.6− |
| 2004 04 16 | 704 | 0.1− | 0.8+ | 2004 06 16 | 704 | (2.5+ | 0.7+) | 2009 11 20 | G96 | 0.1− | 0.3+ |
| 2004 04 16 | 704 | 0.3− | 0.7+ | 2005 11 23 | 705 | 0.1+ | 0.2+ | 2009 11 20 | G96 | 0.4− | 0.3+ |
| 2004 04 16 | 704 | 0.4− | 0.6+ | 2005 11 23 | 705 | 0.2+ | 0.3+ | 2009 11 20 | G96 | 0.1− | 0.3+ |
| 2004 04 16 | 704 | 0.4− | 0.2− | 2005 11 24 | 705 | 0.1+ | 0.2+ | 2009 11 20 | G96 | 0.0 | 0.2+ |
| 2004 05 14 | 704 | 0.3+ | 0.1+ | 2005 11 24 | 705 | 0.1+ | 0.2+ | 2009 12 11 | G96 | 0.0 | 0.7+ |
| 2004 05 14 | 704 | 1.1+ | 0.7+ | 2005 12 01 | 705 | 0.1+ | 0.1+ | 2009 12 11 | G96 | 0.4− | 0.5+ |
| 2004 05 14 | 704 | 0.3− | 0.4+ | 2005 12 01 | 705 | 0.0 | 0.1+ | 2009 12 11 | G96 | 0.1− | 0.5+ |
| 2004 05 14 | 704 | 0.3+ | 0.9+ | 2008 08 04 | E12 | 0.4+ | 0.4+ | 2009 12 11 | G96 | 0.2+ | 0.4+ |

**(229078)∗ 2004 LY$_{15}$**

Discovered 2004 June 12 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 100.73880 | | (2000.0) | | | |
| $n$ | 0.23882402 | $\omega$ | 199.57090 | | +0.68628507 | +0.68706497 |
| $a$ | 2.5728673 | $\Omega$ | 114.61309 | | −0.62744308 | +0.72521136 |
| $e$ | 0.2201021 | $i$ | 15.21858 | | −0.36786952 | +0.04483543 |
| $P$ | 4.13 | $H$ | 15.2 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 01 12 | 691 | 0.5− | 0.1+ | | 2003 03 22 | 644 | 0.6+ | 0.2+ | | 2004 07 16 | 704 | 0.2+ | 0.3+ | | |
| 1994 01 12 | 691 | 0.4− | 0.9+ | | 2004 06 12 | 704 | 0.9+ | 0.3+ | | 2004 07 16 | 704 | 0.2+ | 0.0 | | |
| 1994 01 12 | 691 | 0.5+ | 0.3+ | | 2004 06 12 | 704 | 0.6+ | 0.3− | | 2004 07 16 | 704 | 0.2+ | 0.1+ | | |
| 2000 06 01 | 699 | 0.2− | 0.6+ | | 2004 06 12 | 704 | 0.4+ | 0.0 | | 2008 04 01 | 291 | 0.5− | 0.2+ | | |
| 2000 06 01 | 699 | 0.2− | 0.4+ | | 2004 06 12 | 704 | 0.6+ | 0.1+ | | 2008 04 01 | 291 | 0.4− | 0.3+ | | |
| 2000 06 01 | 699 | 0.2− | 1.2+ | | 2004 06 16 | 704 | 0.2+ | 0.6− | | 2008 04 01 | 291 | 0.5− | 0.2+ | | |
| 2000 06 01 | 699 | 0.3− | 0.9+ | | 2004 06 16 | 704 | 0.0 | 0.5− | | 2008 06 03 | 704 | 0.1+ | 0.3+ | | |
| 2000 07 07 | 704 | 0.0 | 0.4− | | 2004 06 16 | 704 | 0.3− | 0.3+ | | 2008 06 03 | 704 | 0.1+ | 0.4− | | |
| 2000 07 07 | 704 | 0.2− | 0.6+ | | 2004 06 16 | 704 | 0.1+ | 0.4+ | | 2008 06 03 | 704 | 0.4− | 0.2+ | | |
| 2000 07 07 | 704 | 0.3− | 0.4+ | | 2004 06 18 | 704 | 0.2− | 0.0 | | 2008 06 03 | 704 | 0.1+ | 0.2− | | |
| 2000 08 20 | 699 | 0.4+ | 0.2+ | | 2004 06 18 | 704 | 0.5− | 0.0 | | 2009 11 21 | 703 | 0.0 | 0.2− | | |
| 2000 08 20 | 699 | 1.0− | 0.2+ | | 2004 06 18 | 704 | 0.5+ | 1.1+ | | 2009 11 21 | 703 | 1.1+ | 0.6+ | | |
| 2000 08 20 | 699 | 0.2− | 0.4− | | 2004 06 18 | 704 | 0.8− | 0.0 | | 2009 11 21 | 703 | (1.8− | 1.0−) | | |
| 2000 08 20 | 699 | 0.2− | 1.0+ | | 2004 07 11 | 704 | 0.4+ | 0.2+ | | 2009 11 21 | 703 | 1.3− | 0.0 | | |
| 2003 03 08 | 644 | 0.6+ | 0.3+ | | 2004 07 11 | 704 | 0.4+ | 0.2− | | 2009 12 13 | 704 | 0.6− | 1.0+ | | |
| 2003 03 08 | 644 | 0.7+ | 0.4+ | | 2004 07 11 | 704 | 0.3+ | 0.1+ | | 2009 12 13 | 704 | 0.0 | 0.6+ | | |
| 2003 03 08 | 644 | 0.7+ | 0.0 | | 2004 07 11 | 704 | 0.7+ | 0.2− | | 2009 12 13 | 704 | 0.2+ | 0.5+ | | |
| 2003 03 22 | 644 | 0.0 | 0.6+ | | 2004 07 11 | 704 | 0.6+ | 0.0 | | 2009 12 13 | 704 | (1.1+ | 1.8+) | | |
| 2003 03 22 | 644 | 0.4+ | 0.2− | | 2004 07 16 | 704 | 0.9+ | 0.6+ | | 2009 12 13 | 704 | 0.2− | 0.5+ | | |

**(229079)∗ 2004 LH$_{17}$**

Discovered 2004 June 14 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 217.27161 | | (2000.0) | | | |
| $n$ | 0.27616759 | $\omega$ | 324.81157 | | −0.55047862 | +0.83011845 |
| $a$ | 2.3353622 | $\Omega$ | 271.63230 | | −0.74416722 | −0.53608925 |
| $e$ | 0.1083439 | $i$ | 5.09380 | | −0.37840247 | −0.15333518 |
| $P$ | 3.57 | $H$ | 16.4 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 25 | 704 | 0.4+ | 0.2− | | 2004 07 16 | E12 | (1.9+ | 1.1−) | | 2007 03 10 | 644 | 0.1+ | 0.3+ | | |
| 2001 08 25 | 704 | 0.5− | 1.3− | | 2004 07 16 | E12 | 0.4+ | 0.7+ | | 2007 03 10 | 644 | 0.0 | 0.4+ | | |
| 2001 08 25 | 704 | 0.6− | 0.3− | | 2004 07 16 | E12 | 0.0 | 0.0 | | 2007 03 10 | 644 | 0.1+ | 0.3+ | | |
| 2001 08 25 | 704 | 0.4− | 1.0− | | 2004 07 16 | E12 | 0.6− | 0.2− | | 2007 03 21 | 704 | 0.1+ | 1.4− | | |
| 2001 09 11 | 699 | 0.3+ | 0.9+ | | 2005 11 02 | G96 | 0.2+ | 0.2− | | 2007 03 21 | 704 | 1.0+ | 0.9+ | | |
| 2001 09 11 | 699 | 0.0 | 0.4+ | | 2005 11 02 | G96 | 0.4+ | 0.0 | | 2007 03 21 | 704 | 0.4+ | 0.7+ | | |
| 2001 09 11 | 699 | 0.0 | 1.0+ | | 2005 11 02 | G96 | 0.5+ | 0.1− | | 2007 03 21 | 704 | 0.4− | 0.2+ | | |
| 2001 09 11 | 704 | 0.2− | 0.0 | | 2005 11 02 | G96 | 0.1+ | 0.2+ | | 2008 08 06 | J75 | 0.5− | 0.2− | | |
| 2001 09 11 | 699 | 0.3+ | 0.4− | | 2007 02 10 | 703 | 0.6− | 0.9− | | 2008 08 06 | J75 | 0.1+ | 0.5+ | | |
| 2001 09 11 | 704 | 0.2+ | 0.7+ | | 2007 02 10 | 703 | 0.3+ | 0.5+ | | 2008 08 06 | J75 | 0.5+ | 0.1+ | | |
| 2001 09 11 | 704 | 0.9− | 1.0+ | | 2007 02 10 | 703 | 0.9+ | 1.4− | | 2009 11 09 | 691 | 1.1− | 0.8+ | | |
| 2001 09 11 | 704 | 0.0 | 0.4+ | | 2007 02 10 | 703 | 0.7+ | 0.9+ | | 2009 11 09 | 691 | 0.3− | 0.1+ | | |
| 2001 09 11 | 704 | 0.0 | 0.7+ | | 2007 02 16 | 644 | 0.1− | 0.1+ | | 2009 11 09 | 691 | 0.0 | 0.1− | | |
| 2004 06 14 | 704 | 0.1+ | 0.2− | | 2007 02 16 | 644 | 0.4+ | 0.2+ | | 2009 12 10 | G96 | 0.1+ | 0.2− | | |
| 2004 06 14 | 704 | 0.5+ | 0.4+ | | 2007 02 16 | 644 | 0.2+ | 0.1− | | 2009 12 10 | G96 | 0.6+ | 0.0 | | |
| 2004 06 14 | 704 | 0.1+ | 0.7− | | 2007 02 17 | 703 | 0.2− | 0.6− | | 2009 12 10 | G96 | 0.6+ | 0.0 | | |
| 2004 06 14 | 704 | 0.2+ | 0.6+ | | 2007 02 17 | 703 | 0.4− | 1.0+ | | 2009 12 10 | G96 | 0.5+ | 0.1+ | | |
| 2004 06 14 | 704 | 0.3+ | 1.0+ | | 2007 02 17 | 703 | 0.1− | 0.2− | | 2009 12 19 | G96 | 0.7+ | 0.1− | | |
| 2004 06 16 | 704 | 0.6− | 0.9+ | | 2007 02 17 | 703 | 0.8− | 0.6+ | | 2009 12 19 | G96 | 0.5+ | 0.1− | | |
| 2004 06 16 | 704 | (0.7− | 2.1+) | | 2007 03 10 | 644 | 0.0 | 0.5+ | | 2009 12 19 | G96 | 0.7+ | 0.2− | | |
| 2004 06 16 | 704 | (2.0− | 2.3+) | | 2007 03 10 | 644 | 0.1− | 0.2+ | | 2009 12 19 | G96 | 0.6+ | 0.1− | | |
| 2004 06 16 | 704 | 0.3− | 0.4− | | 2007 03 10 | 644 | 0.1− | 0.2+ | | | | | | | |

**(229080)∗ 2004 LS$_{19}$ = 2005 SD$_{253}$ = 2005 TC$_{90}$**

Discovered 2004 June 11 by Spacewatch at Kitt Peak.

Id. A. Doppler (*MPO* 95233)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 58.10514 | | (2000.0) | | | |
| $n$ | 0.26999835 | $\omega$ | 325.44897 | | +0.92808982 | −0.35511728 |
| $a$ | 2.3708021 | $\Omega$ | 55.73693 | | +0.36484389 | +0.80715564 |
| $e$ | 0.1074258 | $i$ | 7.78761 | | +0.07441926 | +0.47158402 |
| $P$ | 3.65 | $H$ | 16.5 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 12 17 | 704 | 0.5+ | 0.1+ | | 2005 09 24 | 644 | 0.3− | 0.1− | | 2005 12 01 | 704 | 0.6− | 0.1− | | |
| 1998 12 17 | 704 | (2.5− | 2.0−) | | 2005 09 24 | 644 | 0.1− | 0.2+ | | 2005 12 01 | 704 | (2.5− | 1.6−) | | |
| 1998 12 17 | 704 | 0.5− | 1.7− | | 2005 09 24 | 644 | 0.2+ | 0.1+ | | 2005 12 01 | 704 | 0.8− | 0.2+ | | |
| 1998 12 17 | 704 | (3.4− | 1.5−) | | 2005 10 01 | 699 | 0.7+ | 0.9− | | 2005 12 28 | G96 | 0.7− | 0.1+ | | |
| 2001 07 27 | 644 | 0.5− | 0.2− | | 2005 10 01 | 699 | 0.8+ | 0.0 | | 2005 12 28 | G96 | 0.2+ | 0.6− | | |
| 2001 07 27 | 644 | 0.0 | 0.2+ | | 2005 10 01 | 699 | 0.1+ | 0.2+ | | 2005 12 28 | G96 | 1.1− | 0.2+ | | |
| 2001 07 27 | 644 | 0.4− | 0.1+ | | 2005 10 01 | 699 | 0.5− | 0.3− | | 2005 12 28 | G96 | 0.2+ | 0.1− | | |
| 2003 01 10 | 704 | 0.4− | 0.4+ | | 2005 10 05 | 703 | 0.0 | 0.0 | | 2006 01 05 | G96 | 0.1+ | 0.2− | | |
| 2003 01 10 | 704 | 0.0 | 1.1+ | | 2005 10 05 | 703 | 0.2+ | 0.4− | | 2006 01 05 | G96 | 0.4− | 0.3− | | |
| 2003 01 10 | 704 | 0.0 | 1.2+ | | 2005 10 05 | 703 | 0.5− | 0.2− | | 2006 01 05 | G96 | 0.5− | 0.3− | | |
| 2003 01 10 | 704 | 0.6+ | 1.0+ | | 2005 10 05 | 703 | 0.7+ | 0.0 | | 2006 01 05 | G96 | 0.6+ | 0.4− | | |
| 2003 01 10 | 644 | 0.4+ | 0.2+ | | 2005 10 10 | 704 | 0.1− | 0.5+ | | 2006 01 05 | G96 | 0.2− | 0.2− | | |
| 2003 01 10 | 644 | 0.9+ | 0.8+ | | 2005 10 10 | 704 | 0.3+ | 0.6+ | | 2006 01 05 | G96 | 0.3+ | 0.2− | | |
| 2003 01 10 | 644 | 0.6+ | 0.6+ | | 2005 10 10 | 704 | 0.1− | 1.2+ | | 2006 01 05 | G96 | 0.2+ | 0.2+ | | |
| 2003 01 29 | 645 | 0.0 | 0.0 | | 2005 10 10 | 704 | 0.2+ | 1.0+ | | 2006 01 05 | G96 | 0.9− | 0.2+ | | |
| 2003 01 29 | 645 | 0.1− | 0.0 | | 2005 10 31 | 699 | 0.7+ | 0.2+ | | 2007 03 16 | 703 | 0.2− | 1.3− | | |
| 2003 04 26 | 645 | 0.1+ | 0.0 | | 2005 10 31 | 699 | 0.5+ | 0.4− | | 2007 03 16 | 703 | 0.3+ | 0.5− | | |
| 2003 04 26 | 645 | 0.1+ | 0.0 | | 2005 10 31 | 699 | 0.4− | 0.2− | | 2007 03 16 | 703 | 0.6− | 0.1+ | | |
| 2004 05 16 | 704 | 0.6− | 1.4+ | | 2005 11 03 | 703 | 0.7+ | 0.3+ | | 2007 03 16 | 703 | 1.0− | 0.9− | | |
| 2004 05 16 | 704 | 0.3− | 0.9+ | | 2005 11 03 | 703 | 0.2+ | 0.1− | | 2009 12 10 | 704 | 0.2+ | 0.6− | | |
| 2004 05 16 | 704 | 0.5− | 0.3+ | | 2005 11 03 | 703 | 0.8− | 0.2− | | 2009 12 10 | 704 | 0.7+ | 0.0 | | |
| 2004 06 11 | 691 | 0.1− | 0.2− | | 2005 11 03 | 703 | 0.3+ | 1.1+ | | 2009 12 10 | 704 | 0.4− | 0.1− | | |
| 2004 06 11 | 691 | 0.3+ | 0.0 | | 2005 11 30 | G96 | 0.3+ | 0.2− | | 2009 12 10 | 704 | 0.1+ | 0.9+ | | |
| 2004 06 11 | 691 | 0.0 | 0.3+ | | 2005 11 30 | G96 | 0.3+ | 0.1− | | 2009 12 10 | 704 | 0.1+ | 0.1− | | |
| 2004 06 17 | 691 | 0.1− | 0.3+ | | 2005 11 30 | G96 | 0.5+ | 0.1− | | 2009 12 15 | 704 | 0.2− | 0.2− | | |
| 2004 06 17 | 691 | 0.5+ | 0.1+ | | 2005 12 01 | 704 | 0.6+ | 0.1− | | 2009 12 15 | 704 | 1.7− | 1.6+ | | |
| 2004 06 17 | 691 | 0.3+ | 0.0 | | 2005 12 01 | 704 | 0.9− | 1.4+ | | 2009 12 15 | 704 | 0.3− | 1.1+ | | |

**(229081)∗ 2004 MV$_5$**

Discovered 2004 June 20 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 258.24850 | | (2000.0) | | | |
| $n$ | 0.28462717 | $\omega$ | 297.88691 | | −0.60154636 | +0.79523026 |
| $a$ | 2.2888560 | $\Omega$ | 294.93073 | | −0.70037344 | −0.57067636 |
| $e$ | 0.1199850 | $i$ | 4.79705 | | −0.38421220 | −0.20478606 |
| $P$ | 3.46 | $H$ | 16.6 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 01 03 | 291 | 0.3− | 0.1+ | | 2007 04 13 | E12 | 0.2− | 0.2− | | 2008 10 01 | G96 | 0.4+ | 0.1− | | |
| 2003 01 03 | 291 | 0.4+ | 0.2+ | | 2007 04 13 | E12 | 0.3− | 0.2+ | | 2008 10 01 | G96 | 0.0 | 0.2− | | |
| 2003 01 03 | 291 | 0.1+ | 0.4+ | | 2007 04 13 | E12 | (0.8− | 2.2+) | | 2008 10 09 | G96 | 0.5+ | 0.3+ | | |
| 2004 06 20 | 691 | 0.2+ | 0.2+ | | 2007 04 13 | E12 | (1.9+ | 0.7+) | | 2008 10 09 | G96 | 0.3+ | 0.0 | | |
| 2004 06 20 | 691 | 0.4+ | 0.1+ | | 2007 04 18 | E12 | 0.6+ | 0.8+ | | 2008 10 09 | G96 | 0.7+ | 0.2+ | | |
| 2004 06 20 | 691 | 0.1+ | 0.0 | | 2007 04 18 | E12 | 0.2+ | 0.1+ | | 2008 10 09 | G96 | 0.2+ | 0.1+ | | |
| 2004 06 22 | 291 | 0.2− | 0.0 | | 2007 04 18 | E12 | 0.6+ | 0.4+ | | 2008 10 27 | G96 | 0.4+ | 0.2+ | | |
| 2004 06 22 | 291 | 0.2− | 0.1− | | 2007 04 18 | E12 | 0.2+ | 0.7+ | | 2008 10 27 | G96 | 0.0 | 0.1+ | | |
| 2004 06 22 | 291 | 0.3− | 0.0 | | 2008 09 05 | 691 | 0.5− | 0.4+ | | 2008 10 27 | G96 | 0.2+ | 0.1− | | |
| 2007 03 20 | 703 | 0.2+ | 0.3− | | 2008 09 05 | 691 | 0.4− | 0.3+ | | 2008 10 27 | G96 | 0.5+ | 0.1+ | | |
| 2007 03 20 | 703 | 0.9− | 0.2− | | 2008 09 05 | 691 | 0.5− | 0.4+ | | 2009 11 17 | G96 | 0.1− | 0.0 | | |
| 2007 03 20 | 703 | 0.9− | 0.6+ | | 2008 09 23 | 691 | 0.3− | 0.1+ | | 2009 11 17 | G96 | 0.4− | 0.3+ | | |
| 2007 03 20 | 703 | 0.4− | 0.6+ | | 2008 09 23 | 691 | 0.2− | 0.3+ | | 2009 11 17 | G96 | 0.4+ | 0.3+ | | |
| 2007 03 29 | 644 | 0.7+ | 0.5+ | | 2008 09 23 | 691 | 0.2− | 0.0 | | 2009 11 17 | G96 | 0.3− | 0.2− | | |
| 2007 03 29 | 644 | 0.9+ | 0.1+ | | 2008 10 01 | G96 | 0.1− | 0.1− | | 2009 12 15 | G96 | 0.1+ | 0.2− | | |
| 2007 03 29 | 644 | 0.6+ | 0.2+ | | 2008 10 01 | G96 | 0.3+ | 0.1− | | 2009 12 15 | G96 | 0.2− | 0.4− | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 04 08 | E12 | 0.0 | 0.2+ | 2008 10 01 | G96 | 1.2+ | 1.1− | 2009 12 15 | G96 | 0.1− | 0.1+ | | |
| 2007 04 08 | E12 | 0.8+ | 0.3+ | 2008 10 01 | G96 | 0.4+ | 0.1− | 2009 12 15 | G96 | 0.0 | 0.2+ | | |
| 2007 04 08 | E12 | 0.1− | 0.2+ | 2008 10 01 | G96 | 0.3+ | 0.1− | | | | | | |
| 2007 04 08 | E12 | 0.1+ | 0.0 | 2008 10 01 | G96 | 0.2+ | 0.2− | | | | | | |

**(229082)∗ 2004 NR$_6$**

Discovered 2004 July 11 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 62.86903 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22069026 | $\omega$ | 227.96008 | | +0.98673769 | +0.07529209 | |
| $a$ | 2.7119433 | $\Omega$ | 127.21800 | | −0.03055064 | +0.95622734 | |
| $e$ | 0.2134154 | $i$ | 10.40367 | | −0.15942202 | +0.28277266 | |
| $P$ | 4.47 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 26 | 704 | 0.0 | 1.3− | 2004 09 07 | 704 | 0.2− | 0.3+ | 2006 01 09 | 691 | 0.2− | 0.0 | | |
| 2000 11 26 | 704 | 0.1− | 0.5− | 2004 09 07 | 704 | 0.0 | 0.1− | 2006 01 21 | 691 | 0.2+ | 0.0 | | |
| 2000 11 26 | 704 | 0.7− | 0.5+ | 2004 09 16 | E12 | 0.4+ | 0.1+ | 2006 01 21 | 691 | 0.1+ | 0.3+ | | |
| 2000 11 26 | 704 | 0.7+ | 1.3+ | 2004 09 16 | E12 | 1.3+ | 0.3− | 2006 01 21 | 691 | 0.1− | 0.2+ | | |
| 2002 04 09 | 291 | 0.4− | 0.7+ | 2004 09 16 | E12 | 0.2− | 0.3+ | 2006 01 22 | 699 | 0.2+ | 0.1+ | | |
| 2002 04 09 | 291 | 0.4+ | 0.4+ | 2004 09 16 | E12 | 0.0 | 0.3− | 2006 01 22 | 699 | 1.0− | 0.3+ | | |
| 2002 04 09 | 291 | 0.3+ | 0.6+ | 2004 09 21 | 704 | 0.1− | 0.3− | 2006 01 22 | 699 | 0.8+ | 0.5+ | | |
| 2004 07 11 | 704 | 0.7− | 0.6+ | 2004 09 21 | 704 | 0.1− | 0.1+ | 2006 01 22 | 699 | 0.9− | 1.4− | | |
| 2004 07 11 | 704 | 0.8− | 0.5+ | 2004 09 21 | 704 | 0.6+ | 0.8− | 2006 01 22 | G96 | 0.2+ | 0.0 | | |
| 2004 07 11 | 704 | 0.4− | 0.1+ | 2004 09 21 | 704 | 0.6+ | 0.8− | 2006 01 22 | G96 | 0.0 | 0.1+ | | |
| 2004 07 11 | 704 | 0.2− | 0.6+ | 2004 09 21 | 704 | 0.3− | 0.1+ | 2006 01 22 | G96 | 0.1− | 0.0 | | |
| 2004 07 15 | 704 | 0.4− | 0.7− | 2004 10 06 | 704 | 0.1− | 0.0 | 2006 01 22 | G96 | 0.3+ | 0.0 | | |
| 2004 07 15 | 704 | 0.2− | 0.4− | 2004 10 06 | 704 | 0.0 | 0.6+ | 2006 01 24 | 704 | 1.3+ | 0.7+ | | |
| 2004 07 15 | 704 | 0.5+ | 0.2+ | 2004 10 06 | 704 | 0.5− | 0.4+ | 2006 01 24 | 704 | (1.9+ | 0.8+) | | |
| 2004 07 15 | 704 | 0.4− | 0.9+ | 2004 10 06 | 704 | 0.2+ | 0.2− | 2006 01 24 | 704 | (2.3+ | 1.0+) | | |
| 2004 07 27 | 704 | 0.4− | 0.7+ | 2004 10 06 | 704 | 1.0+ | 0.5− | 2006 02 20 | G96 | 0.1− | 0.1+ | | |
| 2004 07 27 | 704 | 0.6− | 0.4+ | 2004 11 07 | 644 | 0.2− | 0.3+ | 2006 02 20 | G96 | 0.4− | 0.1− | | |
| 2004 07 27 | 704 | 0.3− | 0.5+ | 2004 11 07 | 644 | 0.3− | 0.3− | 2006 02 20 | G96 | 0.1+ | 0.0 | | |
| 2004 07 27 | 704 | 0.1+ | 0.1+ | 2004 11 07 | 644 | 0.1− | 0.1+ | 2006 02 20 | G96 | 0.0 | 0.0 | | |
| 2004 07 28 | 704 | 0.0 | 0.0 | 2005 12 28 | 691 | 0.2+ | 0.1− | 2009 11 17 | 703 | 0.2+ | 0.6+ | | |
| 2004 07 28 | 704 | 0.1+ | 0.5+ | 2005 12 28 | 691 | 0.1+ | 0.0 | 2009 11 17 | 703 | 0.0 | 0.6− | | |
| 2004 07 28 | 704 | 0.1− | 0.5+ | 2005 12 28 | 691 | 0.4+ | 0.0 | 2009 11 17 | 703 | (1.7− | 0.8−) | | |
| 2004 08 07 | 644 | 0.4+ | 0.3+ | 2006 01 06 | G96 | 0.2+ | 0.0 | 2009 11 17 | 703 | 0.1+ | 0.0 | | |
| 2004 08 07 | 644 | 0.3+ | 0.3+ | 2006 01 06 | G96 | 0.5− | 0.1− | 2009 12 13 | 704 | 0.4− | 0.3+ | | |
| 2004 08 07 | 644 | 0.3+ | 0.3+ | 2006 01 06 | G96 | 0.2+ | 0.2+ | 2009 12 13 | 704 | 0.4− | 0.1+ | | |
| 2004 08 23 | 699 | 0.2− | 0.6+ | 2006 01 06 | G96 | 0.0 | 0.1− | 2009 12 13 | 704 | 0.4− | 0.2− | | |
| 2004 08 23 | 699 | 0.4− | 0.4+ | 2006 01 09 | G96 | 0.6− | 0.1− | 2009 12 13 | 704 | 0.5+ | 0.6+ | | |
| 2004 08 23 | 699 | 0.2+ | 0.5+ | 2006 01 09 | G96 | 1.1− | 0.2− | 2009 12 15 | 703 | (2.1− | 1.1−) | | |
| 2004 08 23 | 699 | 0.2− | 0.7+ | 2006 01 09 | G96 | 0.6− | 0.2− | 2009 12 15 | 703 | (2.0− | 1.0−) | | |
| 2004 09 07 | 704 | 0.4− | 0.1+ | 2006 01 09 | G96 | 0.7− | 0.4− | 2009 12 15 | 703 | (1.9− | 3.2−) | | |
| 2004 09 07 | 704 | 0.2− | 0.1+ | 2006 01 09 | 691 | 0.1− | 0.0 | 2009 12 15 | 703 | (1.0+ | 4.2−) | | |
| 2004 09 07 | 704 | 0.2− | 0.3− | 2006 01 09 | 691 | 0.2+ | 0.1+ | | | | | | |

**(229083)∗ 2004 NE$_{11}$ = 2000 WC$_{22}$**

Discovered 2004 July 10 by NEAT at Palomar.

Id. T. B. Spahr (*MPO* 65895)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 77.81933 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22576043 | $\omega$ | 246.22428 | | +0.90657741 | +0.39622487 | |
| $a$ | 2.6711862 | $\Omega$ | 90.16593 | | −0.31457652 | +0.86397977 | |
| $e$ | 0.2930221 | $i$ | 8.35691 | | −0.28135210 | +0.31071661 | |
| $P$ | 4.37 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 10 31 | 704 | 0.4− | 0.0 | 2004 07 11 | 699 | 0.3+ | 0.2+ | 2005 12 30 | 691 | 0.1+ | 0.4+ | | |
| 2000 10 31 | 704 | 0.4− | 0.6+ | 2004 07 16 | 704 | 0.5− | 0.0 | 2005 12 30 | 691 | 0.2+ | 0.0 | | |
| 2000 10 31 | 704 | 0.6− | 0.3− | 2004 07 16 | 704 | 0.4+ | 0.1− | 2005 12 30 | G96 | 0.0 | 0.1+ | | |
| 2000 10 31 | 704 | 0.1− | 0.4+ | 2004 07 16 | 704 | 0.2− | 0.3− | 2005 12 30 | G96 | 0.2− | 0.1− | | |
| 2000 11 20 | 704 | (2.4+ | 0.3+) | 2004 07 16 | 704 | 0.4+ | 0.3− | 2005 12 30 | G96 | 0.0 | 0.2− | | |
| 2000 11 20 | 704 | 0.1− | 0.7+ | 2004 08 11 | 428 | 0.4− | 0.3− | 2005 12 30 | G96 | 0.1+ | 0.1− | | |
| 2000 11 20 | 704 | 1.6+ | 0.6− | 2004 09 03 | 699 | 0.2+ | 0.3+ | 2006 01 10 | G96 | 0.5− | 0.3− | | |
| 2000 11 20 | 704 | 0.7− | 0.5+ | 2004 09 03 | 699 | 0.1− | 0.2− | 2006 01 10 | G96 | 0.2− | 0.6− | | |
| 2000 11 20 | 704 | 0.3− | 0.3− | 2004 09 03 | 699 | 0.4+ | 0.4+ | 2006 01 10 | G96 | 0.7− | 0.9− | | |
| 2000 11 26 | 704 | (2.8+ | 0.2−) | 2004 09 03 | 699 | 0.3− | 0.5+ | 2006 01 10 | G96 | 0.4− | 0.9− | | |
| 2000 11 26 | 704 | 1.0+ | 0.0 | 2004 09 05 | E12 | 0.1+ | 0.1+ | 2008 05 28 | G96 | 0.2+ | 0.8+ | | |
| 2000 11 26 | 704 | 1.0+ | 1.0− | 2004 09 05 | E12 | 0.3+ | 0.2− | 2008 05 28 | G96 | 0.2+ | 0.3+ | | |
| 2000 11 26 | 704 | 0.6− | 0.9+ | 2004 09 05 | E12 | 0.1− | 0.1+ | 2008 05 28 | G96 | 0.5+ | 0.4+ | | |
| 2004 05 15 | E12 | 1.1− | 0.1+ | 2004 09 05 | E12 | 0.2+ | 0.2− | 2008 05 28 | G96 | 0.4+ | 0.5+ | | |
| 2004 05 15 | E12 | 0.2− | 0.0 | 2004 09 15 | E12 | 0.4+ | 0.0 | 2008 06 24 | E12 | 0.1− | 0.9+ | | |
| 2004 05 15 | E12 | 0.4+ | 0.6− | 2004 09 15 | E12 | 0.5+ | 0.3− | 2008 06 24 | E12 | 0.8+ | 0.2+ | | |
| 2004 05 15 | E12 | 0.3+ | 0.4+ | 2004 09 15 | E12 | 0.2+ | 0.2− | 2008 06 24 | E12 | 0.1− | 0.4− | | |
| 2004 06 15 | 704 | 0.0 | 0.8− | 2004 09 15 | E12 | 0.0 | 0.2+ | 2008 06 24 | E12 | 0.2+ | 1.2+ | | |
| 2004 06 15 | 704 | 0.0 | 0.2− | 2005 12 05 | G96 | 0.4− | 0.1− | 2009 11 20 | 691 | 0.5− | 0.0 | | |
| 2004 06 15 | 704 | 0.1− | 0.3− | 2005 12 05 | G96 | 0.5− | 0.2− | 2009 11 20 | 691 | 0.0 | 0.2+ | | |
| 2004 06 15 | 704 | 0.0 | 0.2− | 2005 12 05 | G96 | 0.1− | 0.3− | 2009 11 20 | 691 | 0.4− | 0.1+ | | |
| 2004 07 10 | 644 | 0.3− | 0.0 | 2005 12 05 | G96 | 0.6− | 0.2− | 2009 12 17 | 704 | 0.7+ | 0.4+ | | |
| 2004 07 10 | 644 | 0.5− | 0.6+ | 2005 12 28 | G96 | 0.1+ | 0.1− | 2009 12 17 | 704 | 0.9+ | 0.9+ | | |
| 2004 07 10 | 644 | 0.8− | 0.4+ | 2005 12 28 | G96 | 0.0 | 0.1+ | 2009 12 17 | 704 | 0.0 | 0.5+ | | |
| 2004 07 11 | 699 | 0.3− | 0.4+ | 2005 12 28 | G96 | 0.2+ | 0.2− | 2009 12 17 | 704 | 1.0+ | 0.8+ | | |
| 2004 07 11 | 699 | 0.2+ | 0.4+ | 2005 12 28 | G96 | 0.2+ | 0.2− | | | | | | |
| 2004 07 11 | 699 | 0.6− | 0.2− | 2005 12 30 | 691 | 0.2+ | 0.7+ | | | | | | |

**(229084)∗ 2004 NL$_{11}$ = 2000 QB$_{222}$**

Discovered 2004 July 11 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. T. B. Spahr (*MPO* 65895)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 84.36752 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23863546 | $\omega$ | 248.68637 | | +0.96953113 | +0.18024570 | |
| $a$ | 2.5742224 | $\Omega$ | 100.63085 | | −0.10978818 | +0.92510209 | |
| $e$ | 0.1819198 | $i$ | 9.71755 | | −0.21898844 | +0.33421192 | |
| $P$ | 4.13 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 03 20 | 645 | 0.1− | 0.1− | 2003 04 27 | 645 | 0.1− | 0.1+ | 2005 12 02 | G96 | 0.2− | 0.1− | | |
| 1999 03 20 | 645 | 0.1+ | 0.0 | 2004 07 11 | 704 | 0.8− | 0.2+ | 2005 12 28 | G96 | 0.1− | 0.1− | | |
| 1999 03 21 | 645 | 0.0 | 0.1+ | 2004 07 11 | 704 | 0.2+ | 1.1+ | 2005 12 28 | G96 | 0.2− | 0.3− | | |
| 1999 03 21 | 645 | 0.0 | 0.0 | 2004 07 11 | 704 | 0.1+ | 0.4+ | 2005 12 28 | G96 | 0.1− | 0.1− | | |
| 2000 08 21 | 699 | 0.3− | 0.3− | 2004 07 16 | 704 | 0.4− | 0.4+ | 2006 01 05 | 691 | 0.4+ | 0.1− | | |
| 2000 08 21 | 699 | 0.5+ | 0.7− | 2004 07 16 | 704 | 0.1− | 0.1+ | 2006 01 05 | 691 | 1.1+ | 0.4− | | |
| 2000 08 21 | 699 | 0.2− | 0.5+ | 2004 07 16 | 704 | 1.5+ | 0.7+ | 2006 01 05 | 691 | 0.3+ | 0.1− | | |
| 2000 08 21 | 699 | 0.3− | 0.5− | 2004 07 16 | 704 | 0.4+ | 0.0 | 2009 12 17 | 704 | 0.8− | 1.2+ | | |
| 2000 08 26 | 704 | 0.7− | 0.4+ | 2004 07 22 | 428 | (1.8+ | 0.6−) | 2009 12 17 | 704 | 0.5+ | 0.0 | | |
| 2000 08 26 | 704 | 0.8− | 1.1+ | 2004 07 22 | 428 | 0.2− | 0.7+ | 2009 12 17 | 704 | 0.5+ | 0.3− | | |
| 2000 08 26 | 704 | 1.0− | 0.1+ | 2004 07 27 | 428 | 0.4+ | 0.0 | 2009 12 17 | 704 | 0.3+ | 0.6+ | | |
| 2002 01 22 | 691 | 0.1+ | 0.1+ | 2004 07 27 | 428 | 0.7+ | 0.5+ | 2009 12 17 | 704 | 0.4+ | 0.0 | | |
| 2002 01 22 | 691 | 0.2− | 0.2− | 2004 07 28 | 428 | 0.8+ | 0.4+ | 2009 12 25 | 691 | 0.5− | 0.3+ | | |
| 2002 01 22 | 691 | 0.2+ | 0.0 | 2004 07 28 | 428 | 0.1− | 0.1+ | 2009 12 25 | 691 | 0.7− | 1.1+ | | |
| 2003 04 01 | 645 | 0.0 | 0.1+ | 2005 12 02 | G96 | 0.0 | 0.1+ | 2009 12 25 | 691 | 0.5− | 0.3+ | | |
| 2003 04 01 | 645 | 0.0 | 0.0 | 2005 12 02 | G96 | 0.1− | 0.1− | | | | | | |
| 2003 04 27 | 645 | 0.0 | 0.1+ | 2005 12 02 | G96 | 0.1− | 0.1− | | | | | | |

**(229085)∗ 2004 NC$_{13}$**

Discovered 2004 July 11 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 265.13153 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28395526 | $\omega$ | 308.65016 | | −0.87878768 | +0.46816710 | |
| $a$ | 2.2924653 | $\Omega$ | 259.44191 | | −0.40339233 | −0.83229993 | |
| $e$ | 0.2586171 | $i$ | 5.39771 | | −0.25496440 | −0.29681036 | |
| $P$ | 3.47 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 06 18 | 704 | (2.5+ | 2.3−) | 2004 07 16 | 704 | 0.9− | 0.2+ | 2007 02 25 | 704 | 0.7+ | 1.4+ |
| 2004 06 18 | 704 | 0.5− | 0.1+ | 2004 07 16 | 704 | 0.3+ | 0.6+ | 2007 02 25 | 704 | 0.5+ | 0.5+ |
| 2004 06 18 | 704 | 0.5− | 0.4+ | 2004 07 16 | 704 | 0.7+ | 0.2+ | 2007 02 25 | 704 | (2.7+ | 0.3+) |
| 2004 06 25 | 691 | 0.2+ | 0.3+ | 2004 07 16 | 704 | 0.4− | 0.3+ | 2007 03 12 | 703 | 0.2− | 0.3+ |
| 2004 06 25 | 691 | 0.2+ | 0.2+ | 2004 07 18 | 704 | 1.0+ | 0.9+ | 2007 03 12 | 703 | 0.2− | 0.1+ |
| 2004 06 25 | 691 | 0.0 | 0.1+ | 2004 07 18 | 704 | 0.6+ | 0.1− | 2007 03 12 | 703 | (1.7− | 1.0+) |
| 2004 07 11 | 704 | 0.4− | 0.2+ | 2004 07 18 | 704 | 0.6+ | 0.3− | 2007 03 12 | 703 | 0.6− | 0.1+ |
| 2004 07 11 | 704 | 0.0 | 0.2+ | 2004 07 18 | 704 | 0.1− | 0.2− | 2008 09 05 | 691 | 0.1+ | 0.0 |
| 2004 07 11 | 704 | 0.1− | 0.3− | 2007 01 26 | 291 | 0.3− | 0.4+ | 2008 09 05 | 691 | 0.1− | 0.6+ |
| 2004 07 11 | 704 | 0.0 | 0.4+ | 2007 01 26 | 291 | 0.3− | 0.2+ | 2008 09 05 | 691 | 0.0 | 0.1+ |
| 2004 07 11 | 704 | 0.5− | 0.4+ | 2007 01 26 | 291 | 0.3− | 0.3+ | 2009 11 17 | 691 | 0.6+ | 0.9+ |
| 2004 07 14 | 704 | 0.0 | 0.0 | 2007 01 27 | 703 | 1.0+ | 0.0 | 2009 11 17 | 691 | 0.4− | 0.1− |
| 2004 07 14 | 704 | (4.1− | 6.5−) | 2007 01 27 | 703 | 0.5+ | 0.1+ | 2009 11 17 | 691 | 0.4− | 0.2+ |
| 2004 07 14 | 704 | (5.0+ | 5.4−) | 2007 01 27 | 703 | 0.9+ | 1.2− | 2009 12 10 | G96 | 0.1+ | 0.0 |
| 2004 07 14 | 704 | (1.8+ | 1.6+) | 2007 01 27 | 703 | 1.3+ | 0.2− | 2009 12 10 | G96 | 0.2− | 0.0 |
| 2004 07 16 | 704 | 0.5− | 0.8+ | 2007 02 22 | 704 | 0.0 | 0.6+ | 2009 12 10 | G96 | 0.0 | 0.1+ |
| 2004 07 16 | 704 | 1.0− | 0.4+ | 2007 02 22 | 704 | 1.2+ | 1.1− | 2009 12 10 | G96 | 0.4− | 0.1− |
| 2004 07 16 | 704 | 0.6− | 0.1+ | 2007 02 22 | 704 | 1.4+ | 0.2+ | 2009 12 19 | G96 | 0.2+ | 0.2+ |
| 2004 07 16 | 704 | 1.0− | 0.3− | 2007 02 22 | 704 | 0.2+ | 0.5− | 2009 12 19 | G96 | 0.3− | 0.2+ |
| 2004 07 16 | 704 | 0.3− | 0.3+ | 2007 02 25 | 704 | (3.0+ | 1.7+) | 2009 12 19 | G96 | 0.3+ | 0.1+ |
| 2004 07 16 | 704 | 0.6− | 0.2+ | 2007 02 25 | 704 | 0.6− | 1.3+ | 2009 12 19 | G96 | 0.3+ | 0.3+ |

**(229086)∗ 2004 $NG_{14}$**

Discovered 2004 July 11 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 90.94043 | | (2000.0) | | | |
| $n$ | 0.23435629 | $\omega$ | 78.66426 | | +0.82569264 | +0.56212353 |
| $a$ | 2.6054634 | $\Omega$ | 247.11632 | | −0.53557004 | +0.75472532 |
| $e$ | 0.2406695 | $i$ | 2.95047 | | −0.17719030 | +0.33824079 |
| $P$ | 4.21 | $H$ | 17.0 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 10 17 | 691 | 0.6− | 0.7+ | 2004 07 11 | 704 | 0.3+ | 0.8+ | 2004 08 11 | 704 | 0.9+ | 0.3+ |
| 1996 10 17 | 691 | 0.3+ | 0.8+ | 2004 07 11 | 704 | 0.6+ | 0.5+ | 2004 08 11 | 704 | 0.1− | 1.1+ |
| 1996 10 17 | 691 | 0.4− | 0.7+ | 2004 07 11 | 704 | 0.1+ | 0.1+ | 2004 08 11 | 704 | 0.6− | 1.2+ |
| 2000 09 04 | 704 | 1.0− | 0.4− | 2004 07 11 | 704 | 0.5+ | 0.8+ | 2009 11 20 | 691 | 0.1− | 0.0 |
| 2000 09 04 | 704 | 0.5+ | 0.0 | 2004 07 16 | 704 | 0.2− | 1.5+ | 2009 11 20 | 691 | 0.3− | 0.1− |
| 2000 09 04 | 704 | 0.1+ | 0.5+ | 2004 07 16 | 704 | 0.5+ | 0.0 | 2009 11 20 | 691 | 0.1− | 0.2− |
| 2000 09 21 | 695 | 0.0 | 0.3+ | 2004 07 16 | 704 | 0.7+ | 0.2− | 2009 12 10 | G96 | 0.4+ | 0.2− |
| 2000 09 21 | 695 | 0.3− | 0.3+ | 2004 07 16 | 704 | 0.6+ | 0.1+ | 2009 12 10 | G96 | 0.1− | 0.0 |
| 2000 10 03 | 704 | 0.8+ | 0.8+ | 2004 07 18 | 704 | 1.5− | 1.0− | 2009 12 10 | G96 | 1.4+ | 0.3+ |
| 2000 10 03 | 704 | 1.1+ | 1.4− | 2004 07 18 | 704 | 1.3− | 0.1+ | 2009 12 10 | G96 | 0.6+ | 0.0 |
| 2000 10 03 | 704 | 0.4+ | 0.2− | 2004 07 18 | 704 | 0.5− | 1.2− | 2009 12 19 | 291 | 0.2− | 0.0 |
| 2000 10 03 | 704 | 1.0+ | 1.0+ | 2004 07 18 | 704 | 0.3− | 0.5− | 2009 12 19 | 291 | 0.1+ | 0.1+ |
| 2000 11 02 | 691 | 0.3+ | 1.3− | 2004 07 18 | 704 | 1.2− | 0.7− | 2009 12 19 | 291 | 0.1+ | 0.1− |
| 2000 11 02 | 691 | 0.5− | 1.1− | 2004 08 08 | 704 | 0.0 | 0.2+ | 2009 12 19 | 291 | 0.1− | 0.1+ |
| 2000 11 02 | 691 | 0.4+ | 0.7− | 2004 08 08 | 704 | 0.0 | 0.4+ | 2009 12 19 | 291 | 0.0 | 0.4+ |
| 2004 07 11 | 704 | 0.8+ | 0.6+ | 2004 08 08 | 704 | 0.3− | 0.2− | 2009 12 19 | 291 | 0.1+ | 0.2+ |

**(229087)∗ 2004 $NS_{16}$ = 2001 $WF_{85}$**

Discovered 2004 July 11 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 65900)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 122.07016 | | (2000.0) | | | |
| $n$ | 0.24734738 | $\omega$ | 69.23252 | | +0.64658919 | +0.76141406 |
| $a$ | 2.5134168 | $\Omega$ | 241.13957 | | −0.71818849 | +0.58701664 |
| $e$ | 0.1025245 | $i$ | 3.04971 | | −0.25715308 | +0.27506380 |
| $P$ | 3.98 | $H$ | 16.3 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 12 29 | 688 | 0.9+ | 0.3− | 2004 07 18 | 704 | 0.8− | 0.9+ | 2005 12 29 | G96 | 0.5+ | 0.3− |
| 1997 12 29 | 688 | 0.5+ | 0.5− | 2004 07 21 | E12 | 0.6− | 0.2+ | 2005 12 29 | G96 | 0.3− | 0.1+ |
| 2001 11 20 | 704 | 0.7+ | 0.0 | 2004 07 21 | E12 | 0.6− | 0.2− | 2007 03 13 | G96 | 0.1+ | 0.4+ |
| 2001 11 20 | 704 | 1.3+ | 0.8+ | 2004 07 21 | E12 | 0.5− | 0.3+ | 2007 03 13 | G96 | 0.1+ | 0.3+ |
| 2001 11 20 | 704 | 0.6− | 0.7+ | 2004 07 21 | E12 | 0.3− | 0.2− | 2007 03 13 | G96 | 0.2+ | 0.4+ |
| 2001 11 20 | 704 | 0.3− | 0.0 | 2005 11 25 | G96 | 0.4+ | 0.1− | 2008 05 15 | G96 | 0.3− | 0.3− |
| 2001 11 20 | 704 | 0.8+ | 0.3− | 2005 11 25 | G96 | 0.2+ | 0.1− | 2008 05 15 | G96 | 0.4+ | 0.5− |
| 2001 11 20 | 291 | 0.2+ | 0.1+ | 2005 11 25 | G96 | 0.3− | 0.0 | 2008 05 15 | G96 | 0.1+ | 0.4− |
| 2001 11 20 | 291 | 1.3− | 0.0 | 2005 11 25 | G96 | 0.1+ | 0.2− | 2008 05 15 | G96 | 0.4+ | 0.1− |
| 2001 11 20 | 291 | 0.1− | 0.3+ | 2005 11 25 | G96 | 0.1− | 0.1− | 2008 08 04 | E12 | 0.6− | 0.8− |
| 2001 11 21 | 704 | 0.2− | 0.4− | 2005 11 25 | G96 | 0.5+ | 0.0 | 2008 08 04 | E12 | 1.2+ | 0.6− |
| 2001 11 21 | 704 | 0.1+ | 0.2− | 2005 11 25 | G96 | 0.1− | 0.2− | 2008 08 04 | E12 | 0.0 | 0.5− |
| 2001 11 21 | 704 | 0.0 | 0.4+ | 2005 11 25 | G96 | 0.1+ | 0.2− | 2008 08 04 | E12 | 0.2+ | 0.3+ |
| 2004 07 11 | 704 | 0.5+ | 0.7− | 2005 12 02 | 703 | 1.1− | 0.1− | 2009 11 16 | 691 | 0.0 | 0.2+ |
| 2004 07 11 | 704 | 1.0+ | 0.1− | 2005 12 02 | 703 | 0.8− | 0.5+ | 2009 11 16 | 691 | 0.0 | 0.0 |
| 2004 07 11 | 704 | 0.2+ | 0.5+ | 2005 12 02 | 703 | 0.3+ | 0.3− | 2009 11 16 | 691 | 0.5− | 0.3+ |
| 2004 07 11 | 704 | 1.4+ | 0.7+ | 2005 12 02 | 703 | (3.1− | 1.8+) | 2009 12 10 | G96 | 0.7+ | 0.1− |
| 2004 07 16 | 807 | 0.3− | 0.1− | 2005 12 04 | 691 | 0.0 | 0.5+ | 2009 12 10 | G96 | 0.1− | 0.3− |
| 2004 07 16 | 704 | 0.6+ | 0.7+ | 2005 12 04 | 691 | 0.0 | 0.3− | 2009 12 10 | G96 | 0.1+ | 0.1− |
| 2004 07 16 | 704 | 0.2− | 0.4+ | 2005 12 04 | 691 | 0.4+ | 0.2− | 2009 12 10 | G96 | 0.2− | 0.2− |
| 2004 07 16 | 704 | 0.3+ | 0.1+ | 2005 12 04 | G96 | 0.2− | 0.1− | 2009 12 19 | G96 | 0.3+ | 0.2− |
| 2004 07 16 | 704 | 0.1+ | 0.8+ | 2005 12 04 | G96 | 0.0 | 0.1− | 2009 12 19 | G96 | 0.0 | 0.1− |
| 2004 07 16 | 807 | 0.4− | 0.0 | 2005 12 04 | G96 | 0.5+ | 0.1− | 2009 12 19 | G96 | 0.2+ | 0.0 |
| 2004 07 18 | 704 | 0.5− | 0.6− | 2005 12 04 | G96 | 0.1+ | 0.3− | 2009 12 19 | G96 | 0.1+ | 0.1+ |
| 2004 07 18 | 704 | 0.4− | 0.4− | 2005 12 29 | G96 | 0.3+ | 0.0 | | | | |
| 2004 07 18 | 704 | 0.7− | 0.9+ | 2005 12 29 | G96 | 0.2+ | 0.5− | | | | |

**(229088)∗ 2004 $NM_{31}$**

Discovered 2004 July 11 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 186.09919 | | (2000.0) | | | |
| $n$ | 0.26966967 | $\omega$ | 196.91805 | | +0.47760114 | +0.85525809 |
| $a$ | 2.3727281 | $\Omega$ | 102.00800 | | −0.78041175 | +0.51810069 |
| $e$ | 0.2050867 | $i$ | 11.86300 | | −0.40355254 | +0.01025982 |
| $P$ | 3.65 | $H$ | 16.2 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 06 04 | 699 | 0.1+ | 0.6+ | 2004 07 25 | 699 | 0.1+ | 0.2− | 2008 10 09 | 703 | 0.7− | 0.9− |
| 2000 06 04 | 699 | 0.4+ | 0.5+ | 2004 07 25 | 699 | 0.0 | 0.4− | 2008 10 09 | 703 | 0.7− | 0.9− |
| 2000 06 04 | 699 | 0.2− | 0.1+ | 2004 08 15 | 428 | 0.1+ | 0.2+ | 2008 10 09 | 703 | 1.3− | 0.8− |
| 2000 06 04 | 699 | 0.5+ | 0.9+ | 2004 09 03 | 699 | 0.6− | 0.4+ | 2008 10 09 | 703 | 0.9− | 0.1− |
| 2001 12 11 | 704 | 0.1− | 0.4− | 2004 09 03 | 699 | 0.4− | 0.3− | 2008 10 22 | 704 | 0.5+ | 0.6+ |
| 2001 12 11 | 704 | 0.7+ | 0.7+ | 2004 09 03 | 699 | 1.3+ | 0.8− | 2008 10 22 | 704 | 0.6+ | 1.1+ |
| 2001 12 11 | 704 | (1.6− | 0.1−) | 2004 09 03 | 699 | 0.3+ | 0.2+ | 2008 10 22 | 704 | 0.6+ | 1.1+ |
| 2001 12 11 | 704 | 0.4− | 0.5− | 2004 09 03 | E12 | 0.4+ | 0.0 | 2008 10 22 | 704 | 0.6+ | 0.4+ |
| 2004 06 15 | 704 | (0.8+ | 2.1+) | 2004 09 03 | E12 | 0.1+ | 0.0 | 2008 10 22 | 704 | 0.3+ | 1.3+ |
| 2004 06 15 | 704 | 0.4− | 0.1− | 2004 09 03 | E12 | 0.3+ | 0.0 | 2008 11 02 | 703 | 0.4+ | 0.6+ |
| 2004 06 15 | 704 | 0.4− | 0.0 | 2004 09 03 | E12 | 0.4− | 0.4− | 2008 11 02 | 703 | 0.9− | 0.4+ |
| 2004 06 15 | 704 | 0.5+ | 0.5− | 2005 12 01 | 691 | 0.0 | 0.2− | 2008 11 02 | 703 | 0.1− | 0.5− |
| 2004 07 11 | 699 | 0.0 | 0.2+ | 2005 12 01 | 691 | 0.1− | 0.3+ | 2008 11 02 | 703 | 0.2+ | 0.5+ |
| 2004 07 11 | 699 | 0.5+ | 1.3− | 2005 12 01 | 691 | 0.1+ | 0.1+ | 2009 11 21 | G96 | 0.3− | 0.1+ |
| 2004 07 11 | 699 | 0.0 | 0.2− | 2007 03 20 | 703 | 0.5− | 0.1+ | 2009 11 21 | G96 | 0.2− | 0.2− |
| 2004 07 11 | 699 | 1.2− | 0.5− | 2007 03 20 | 703 | 0.5+ | 0.9+ | 2009 11 21 | G96 | 0.3+ | 0.1+ |
| 2004 07 16 | 704 | 0.2− | 0.4− | 2007 03 20 | 703 | 0.1− | 0.7− | 2009 11 21 | G96 | 0.8− | 0.2− |
| 2004 07 16 | 704 | 0.4− | 1.2+ | 2007 03 20 | 703 | 0.4− | 1.4+ | 2009 12 20 | G96 | 0.3+ | 0.2− |
| 2004 07 16 | 704 | 0.0 | 1.3+ | 2007 04 14 | 703 | 0.8+ | 0.4− | 2009 12 20 | G96 | 0.1+ | 0.1+ |
| 2004 07 16 | 704 | 0.2− | 1.1+ | 2007 04 14 | 703 | 0.6− | 0.1+ | 2009 12 20 | G96 | 0.8+ | 0.5+ |
| 2004 07 25 | 699 | (1.8+ | 1.0+) | 2007 04 14 | 703 | 0.2+ | 0.0 | 2009 12 20 | G96 | 0.0 | 0.1− |
| 2004 07 25 | 699 | 0.4+ | 0.2+ | 2007 04 14 | 703 | 0.5+ | 0.3− | | | | |

**(229089)∗ 2004 $OG_8$ = 2001 $XG_{35}$**

Discovered 2004 July 16 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 65925)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 154.09411 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26530778 | $\omega$ | 23.58060 | | +0.75539110 | +0.63123582 | |
| $a$ | 2.3986639 | $\Omega$ | 296.09085 | | −0.62804989 | +0.62089486 | |
| $e$ | 0.0999814 | $i$ | 11.29207 | | −0.18691608 | +0.46479126 | |
| $P$ | 3.71 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1993 09 15 | 691 | 0.1+ | 0.4+ | 2004 08 09 | 699 | 0.1− | 0.2− | 2008 09 09 | 703 | 0.0 | 0.8+ |
| 1993 09 15 | 691 | 0.1− | 0.1− | 2004 08 11 | 704 | 0.8− | 0.7+ | 2008 09 22 | 703 | 1.0+ | 0.2+ |
| 2001 12 09 | 704 | (0.5+ | 3.6+) | 2004 08 11 | 704 | 0.6− | 0.3+ | 2008 09 22 | 703 | 0.8+ | 0.2+ |
| 2001 12 09 | 704 | (1.0+ | 2.7+) | 2004 08 11 | 704 | 0.7− | 0.1+ | 2008 09 22 | 703 | 0.2− | 0.4+ |
| 2001 12 09 | 704 | (0.3− | 2.1+) | 2004 08 11 | 704 | 0.2− | 1.3+ | 2008 09 22 | 703 | 0.6+ | 0.3− |
| 2001 12 09 | 704 | (0.3− | 2.4+) | 2006 02 01 | G96 | (1.7− | 0.0 ) | 2008 10 01 | 704 | 0.8− | 0.1+ |
| 2001 12 14 | 704 | 0.0 | 0.3+ | 2006 02 01 | G96 | (0.6− | 1.8+) | 2008 10 01 | 704 | 0.3− | 0.9− |
| 2001 12 14 | 704 | 1.1− | 1.0+ | 2006 02 01 | G96 | 0.0 | 0.1+ | 2008 10 01 | 704 | 0.4− | 0.2− |
| 2001 12 14 | 704 | 0.8+ | 0.2+ | 2006 02 01 | G96 | 0.0 | 0.1+ | 2008 10 01 | 704 | 0.4− | 0.7− |
| 2001 12 14 | 704 | 0.8− | 1.0− | 2008 07 01 | 703 | 1.2+ | 0.2+ | 2008 10 01 | 704 | 1.2− | 0.6+ |
| 2001 12 22 | 704 | 0.2+ | 0.6− | 2008 07 01 | 703 | (0.1+ | 1.6−) | 2008 10 06 | 703 | 0.5+ | 0.1− |
| 2001 12 22 | 704 | 0.1+ | 0.4+ | 2008 07 01 | 703 | 0.6− | 0.2+ | 2008 10 06 | 703 | 0.2+ | 0.6− |
| 2001 12 22 | 704 | 0.8− | 0.4+ | 2008 07 01 | 703 | 0.7− | 0.6+ | 2008 10 06 | 703 | 0.9+ | 0.4+ |
| 2004 06 27 | E12 | 0.9+ | 0.1− | 2008 07 30 | 703 | (1.8− | 0.2−) | 2008 10 06 | 703 | 0.6+ | 0.4− |
| 2004 06 27 | E12 | 0.4+ | 0.2− | 2008 07 30 | 703 | 0.8− | 0.5− | 2008 11 21 | 703 | (2.6− | 1.1+) |
| 2004 06 27 | E12 | 0.6− | 0.7+ | 2008 07 30 | 703 | 0.5− | 0.5+ | 2008 11 21 | 703 | 0.5− | 0.1− |
| 2004 06 27 | E12 | 1.0+ | 0.7+ | 2008 07 30 | 703 | 0.0 | 0.4− | 2008 11 21 | 703 | 0.3+ | 0.6+ |
| 2004 07 16 | 704 | 0.6− | 0.9− | 2008 08 01 | 704 | 0.3− | 0.2− | 2008 11 21 | 703 | 1.4+ | 1.3− |
| 2004 07 16 | 704 | 0.5+ | 0.3− | 2008 08 01 | 704 | 0.5− | 0.2+ | 2009 11 17 | G96 | 0.4+ | 0.3+ |
| 2004 07 16 | 704 | 0.4− | 0.5− | 2008 08 01 | 704 | 0.1+ | 0.5+ | 2009 11 17 | G96 | 0.2− | 0.2− |
| 2004 07 21 | E12 | 0.4+ | 0.2− | 2008 08 01 | 704 | 0.7− | 0.2− | 2009 11 17 | G96 | 0.2− | 0.1+ |
| 2004 07 21 | E12 | 0.4+ | 0.7+ | 2008 08 26 | J75 | 0.2+ | 0.4− | 2009 11 17 | G96 | 0.2− | 0.2+ |
| 2004 07 21 | E12 | 0.1− | 0.1+ | 2008 08 26 | J75 | 0.0 | 1.0− | 2009 12 15 | G96 | 0.0 | 0.4+ |
| 2004 07 21 | E12 | 0.9− | 0.0 | 2008 08 26 | J75 | 0.5− | 1.0− | 2009 12 15 | G96 | 0.7+ | 0.0 |
| 2004 08 08 | 704 | 0.2− | 0.5+ | 2008 09 04 | J75 | 0.1− | 0.5− | 2009 12 15 | G96 | 0.4+ | 0.1+ |
| 2004 08 08 | 704 | 0.4+ | 0.0 | 2008 09 04 | J75 | 0.8+ | 0.2+ | 2009 12 15 | G96 | 0.5+ | 0.3+ |
| 2004 08 08 | 704 | 0.2+ | 0.2+ | 2008 09 04 | J75 | 0.5+ | 0.3+ | 2009 12 17 | 691 | 0.2− | 0.1+ |
| 2004 08 09 | 699 | 0.5− | 0.3− | 2008 09 09 | 703 | 0.7+ | 1.1+ | 2009 12 17 | 691 | 0.8+ | 0.1+ |
| 2004 08 09 | 699 | 0.1+ | 0.8− | 2008 09 09 | 703 | 0.6+ | 0.2+ | 2009 12 17 | 691 | 0.4− | 0.2+ |
| 2004 08 09 | 699 | 0.8− | 1.0+ | 2008 09 09 | 703 | (1.9+ | 1.0+) | | | | |

**(229090)∗ 2004 PQ$_{10}$ = 2000 QT$_{155}$**

Discovered 2004 Aug. 7 by NEAT at Palomar.

Id. A. Doppler (*MPO* 69759)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 85.47428 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23958370 | $\omega$ | 57.19715 | | +0.98253954 | +0.06840740 | |
| $a$ | 2.5674256 | $\Omega$ | 298.34578 | | −0.14417529 | +0.86773700 | |
| $e$ | 0.2118349 | $i$ | 11.33783 | | +0.11759905 | +0.49229354 | |
| $P$ | 4.11 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 08 31 | 704 | 0.4− | 0.1+ | 2004 08 11 | 704 | 0.3− | 0.8+ | 2006 01 07 | G96 | 0.2− | 0.2+ |
| 2000 08 31 | 704 | 0.2+ | 0.4+ | 2004 08 11 | 704 | 0.0 | 0.4+ | 2006 01 07 | G96 | 0.2+ | 0.2− |
| 2000 08 31 | 704 | 0.5− | 0.1+ | 2004 08 11 | 704 | 0.0 | 0.0 | 2006 01 07 | G96 | 0.1− | 0.3− |
| 2000 08 31 | 704 | 0.3− | 0.2+ | 2004 08 11 | 704 | 0.2− | 0.8+ | 2006 01 07 | G96 | 0.2− | 0.1− |
| 2000 08 31 | 704 | 0.3+ | 0.7+ | 2004 08 23 | 691 | 0.1− | 0.1+ | 2006 01 07 | G96 | 0.7− | 0.2− |
| 2000 09 03 | 704 | 0.1− | 0.3+ | 2004 08 23 | 691 | 0.0 | 0.2+ | 2006 01 07 | G96 | 0.8− | 0.2− |
| 2000 09 03 | 704 | 0.3+ | 1.2− | 2004 08 23 | 691 | 0.2− | 0.0 | 2006 01 08 | 691 | 0.7+ | 0.1+ |
| 2000 09 03 | 704 | 0.4+ | 1.0− | 2005 12 05 | G96 | 0.1+ | 0.1− | 2006 01 08 | 691 | 0.2+ | 0.1− |
| 2000 09 03 | 704 | 0.4+ | 0.0 | 2005 12 05 | G96 | 0.1+ | 0.3+ | 2006 01 08 | 691 | 0.1+ | 0.3+ |
| 2000 09 26 | 704 | 0.0 | 0.8+ | 2005 12 05 | G96 | 0.1+ | 0.2+ | 2006 01 24 | 291 | 0.1+ | 0.4+ |
| 2000 09 26 | 704 | 0.6− | 0.4− | 2005 12 05 | G96 | 0.1+ | 0.3− | 2006 01 24 | 291 | 0.0 | 0.1+ |
| 2000 09 26 | 704 | 0.8+ | 1.3− | 2005 12 26 | 691 | 0.2+ | 0.4− | 2006 01 24 | 291 | 0.4− | 0.4+ |
| 2002 01 05 | 691 | 0.3+ | 0.1+ | 2005 12 26 | 691 | 0.0 | 0.2+ | 2006 01 24 | G96 | 0.0 | 0.2− |
| 2002 01 05 | 691 | 0.4+ | 0.1− | 2005 12 26 | 691 | 0.0 | 0.3− | 2006 01 24 | G96 | 0.1+ | 0.0 |
| 2002 01 05 | 691 | 0.2− | 0.0 | 2005 12 30 | 691 | 0.1+ | 0.5+ | 2006 01 24 | G96 | 0.4− | 0.0 |
| 2004 07 18 | 704 | 0.7− | 0.2+ | 2005 12 30 | 691 | 0.3− | 0.6+ | 2006 01 24 | G96 | 0.1+ | 0.3− |
| 2004 07 18 | 704 | 0.5− | 1.5+ | 2005 12 30 | 691 | 0.3+ | 0.3+ | 2006 01 25 | 291 | 0.1+ | 0.0 |
| 2004 07 18 | 704 | 0.5+ | 0.4+ | 2006 01 04 | 691 | 0.2− | 0.1− | 2006 01 25 | 291 | 0.3+ | 0.4+ |
| 2004 07 18 | 704 | 0.0 | 0.0 | 2006 01 04 | 691 | 0.6− | 0.1+ | 2006 01 25 | 291 | 0.1+ | 0.1+ |
| 2004 08 07 | 644 | 0.0 | 0.2+ | 2006 01 04 | 691 | 0.0 | 0.7+ | 2009 12 18 | G96 | 0.1+ | 0.3− |
| 2004 08 07 | 644 | 0.0 | 0.3+ | 2006 01 07 | G96 | 0.1− | 0.2− | 2009 12 18 | G96 | 0.6+ | 0.3− |
| 2004 08 07 | 644 | 0.0 | 0.4+ | 2006 01 07 | G96 | 0.1− | 0.2− | 2009 12 18 | G96 | 0.0 | 0.1− |
| 2004 08 08 | 704 | 0.1+ | 0.1+ | 2006 01 07 | G96 | 0.3− | 0.2− | 2009 12 18 | G96 | 0.5+ | 0.2− |
| 2004 08 08 | 704 | 0.2− | 0.0 | 2006 01 07 | G96 | 0.2+ | 0.3− | 2009 12 27 | 691 | 0.1+ | 0.3− |
| 2004 08 08 | 704 | 0.1− | 0.1− | 2006 01 07 | G96 | 0.2− | 0.4− | 2009 12 27 | 691 | 0.4− | 0.2− |
| 2004 08 11 | 704 | 0.2− | 0.2+ | 2006 01 07 | G96 | 0.2− | 0.3− | 2009 12 27 | 691 | 0.0 | 0.4− |

**(229091)∗ 2004 PV$_{36}$ = 2001 XH$_{221}$**

Discovered 2004 Aug. 9 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 65955)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 322.71394 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26175373 | $\omega$ | 240.10086 | | −0.90739140 | −0.41031014 | |
| $a$ | 2.4203275 | $\Omega$ | 275.54411 | | +0.41021979 | −0.81751359 | |
| $e$ | 0.0675170 | $i$ | 5.24747 | | +0.09143615 | −0.40412514 | |
| $P$ | 3.77 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 03 21 | 645 | 0.0 | 0.1+ | 2004 08 10 | 704 | (1.6+ | 0.1−) | 2005 12 26 | G96 | 0.4+ | 0.1− |
| 1999 03 21 | 645 | 0.0 | 0.0 | 2004 08 10 | 704 | 0.4− | 0.6+ | 2006 01 06 | G96 | 0.6− | 0.7− |
| 1999 03 22 | 645 | 0.0 | 0.0 | 2004 08 10 | 704 | 0.3+ | 0.8+ | 2006 01 06 | G96 | 0.2− | 0.6− |
| 1999 03 22 | 645 | 0.0 | 0.0 | 2004 08 12 | 704 | 0.3+ | 0.2+ | 2006 01 06 | G96 | 0.7− | 0.5− |
| 2001 11 12 | 704 | 0.7+ | 0.9− | 2004 08 12 | 704 | 0.5+ | 1.2+ | 2006 01 06 | G96 | 0.1− | 0.4− |
| 2001 11 12 | 704 | (0.4+ | 1.7−) | 2004 08 12 | 704 | 0.1+ | 0.1+ | 2006 02 24 | G96 | 0.2+ | 0.1− |
| 2001 11 12 | 704 | (0.0 | 1.7−) | 2004 08 23 | 691 | 0.2+ | 0.3+ | 2006 02 24 | G96 | 0.3− | 0.1+ |
| 2001 11 12 | 704 | 0.4− | 0.5− | 2004 08 23 | 691 | 0.3− | 0.0 | 2006 02 24 | G96 | 0.2− | 0.1+ |
| 2001 12 15 | 704 | 0.5+ | 0.5+ | 2004 08 23 | 691 | 0.2− | 0.1+ | 2006 02 24 | G96 | 0.6+ | 0.5+ |
| 2001 12 15 | 704 | 0.5− | 0.3− | 2005 11 21 | 691 | 0.0 | 0.0 | 2008 10 01 | G96 | 0.4− | 0.1− |
| 2001 12 15 | 704 | 0.3+ | 0.4+ | 2005 11 21 | 691 | 0.1+ | 0.2+ | 2008 10 01 | G96 | 0.3− | 0.1+ |
| 2001 12 15 | 704 | 0.6− | 0.3− | 2005 11 21 | 691 | 0.2+ | 0.2+ | 2008 10 01 | G96 | 0.7− | 0.0 |
| 2001 12 18 | 704 | 0.9− | 0.0 | 2005 11 25 | 691 | 0.1+ | 0.0 | 2008 10 01 | G96 | 1.0− | 0.1− |
| 2001 12 18 | 704 | 1.6− | 0.8− | 2005 11 25 | 691 | 0.1+ | 0.1+ | 2009 11 16 | G96 | 0.0 | 0.0 |
| 2001 12 18 | 704 | (2.3− | 0.4+) | 2005 11 25 | 691 | 0.1+ | 0.0 | 2009 11 16 | G96 | 0.1− | 0.2− |
| 2001 12 18 | 704 | 0.2+ | 0.4− | 2005 12 07 | 691 | 0.2+ | 0.2+ | 2009 11 16 | G96 | 0.3+ | 0.0 |
| 2001 12 18 | 704 | 1.3− | 0.3+ | 2005 12 07 | 691 | 0.4+ | 0.6+ | 2009 11 16 | G96 | 0.0 | 0.0 |
| 2003 04 07 | 704 | 1.3+ | 0.5+ | 2005 12 07 | 691 | 0.2+ | 0.0 | 2009 12 15 | G96 | 0.1− | 0.1+ |
| 2003 04 07 | 704 | 0.1+ | 0.2+ | 2005 12 21 | 703 | 0.2+ | 0.5+ | 2009 12 15 | G96 | 0.1− | 0.3− |
| 2003 04 07 | 704 | 0.5+ | 1.2+ | 2005 12 21 | 703 | 0.9− | 0.1− | 2009 12 15 | G96 | 0.4+ | 0.1− |
| 2003 04 07 | 704 | 0.2− | 0.1+ | 2005 12 21 | 703 | 1.2+ | 0.6+ | 2009 12 15 | G96 | 0.5+ | 0.3− |
| 2003 04 07 | 704 | 0.2− | 0.3− | 2005 12 21 | 703 | 1.0+ | 0.5+ | 2009 12 25 | 691 | 0.1+ | 0.5− |
| 2004 08 09 | 704 | 0.2− | 0.7+ | 2005 12 26 | G96 | 0.6+ | 0.1− | 2009 12 25 | 691 | 1.0− | 0.2+ |
| 2004 08 09 | 704 | 0.2+ | 0.1+ | 2005 12 26 | G96 | 0.0 | 0.1− | 2009 12 25 | 691 | 0.2− | 0.3+ |
| 2004 08 09 | 704 | 0.4+ | 0.1− | 2005 12 26 | G96 | 0.5+ | 0.2− | | | | |

**(229092)∗ 2004 PL$_{95}$ = 2000 WS$_{193}$**

Discovered 2004 Aug. 13 by NEAT at Palomar.

Id. G. V. Williams (*MPO* 69850)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 99.37832 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22831935 | $\omega$ | 51.64110 | | +0.59160187 | +0.79859779 | |
| $a$ | 2.6511903 | $\Omega$ | 254.98499 | | −0.77083471 | +0.52004642 | |
| $e$ | 0.2372467 | $i$ | 6.57977 | | −0.23626483 | +0.30297407 | |
| $P$ | 4.32 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 01 28 | 691 | 0.3+ | 0.2− | 2004 08 14 | 644 | 0.4− | 0.6+ | 2004 09 15 | 699 | 0.4+ | 0.0 |
| 1998 01 28 | 691 | 0.2− | 0.3+ | 2004 08 14 | 644 | 0.5− | 0.5+ | 2004 10 10 | 704 | 1.0+ | 0.7− |
| 1998 01 28 | 691 | (0.1− | 2.7+) | 2004 08 14 | 644 | 0.1− | 0.5+ | 2004 10 10 | 704 | 0.5− | 0.2+ |
| 2000 09 23 | 704 | 0.5− | 0.1− | 2004 08 14 | 644 | 0.5− | 0.5+ | 2004 10 10 | 704 | 0.6− | 0.4− |
| 2000 09 23 | 704 | 0.5+ | 0.1− | 2004 08 14 | 644 | 0.0 | 0.7+ | 2004 10 10 | 704 | 0.3− | 0.2− |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 23 | 704 | 0.8+ | 0.3− | 2004 08 14 | 644 | 0.6− | 0.3+ | 2009 10 22 | G96 | 0.1− | 0.1− |
| 2000 11 24 | 695 | 0.2− | 0.2− | 2004 09 08 | 704 | 0.4+ | 0.4+ | 2009 10 22 | G96 | 0.0 | 0.0 |
| 2000 11 24 | 695 | 0.2− | 0.1− | 2004 09 08 | 704 | 1.3+ | 0.4− | 2009 10 22 | G96 | 0.6+ | 0.2− |
| 2000 11 24 | 695 | 0.1− | 0.2+ | 2004 09 08 | 704 | 0.4− | 1.0− | 2009 11 09 | 691 | 0.2− | 0.3+ |
| 2000 11 24 | 695 | 0.2− | 0.2− | 2004 09 08 | 704 | 0.4+ | 0.2− | 2009 11 09 | 691 | 0.2+ | 0.1− |
| 2000 11 25 | 695 | 0.4+ | 0.0 | 2004 09 10 | 704 | 1.5− | 1.3− | 2009 11 09 | 691 | 0.3− | 0.0 |
| 2000 11 25 | 695 | 0.3− | 0.4− | 2004 09 10 | 704 | (2.4− | 1.4−) | 2009 11 17 | 691 | 0.1+ | 0.2+ |
| 2000 11 25 | 695 | 0.3+ | 0.3+ | 2004 09 10 | 704 | 0.2+ | 0.0 | 2009 11 17 | 691 | 0.2− | 0.1+ |
| 2000 11 25 | 695 | 0.1+ | 0.2− | 2004 09 10 | 704 | 1.1+ | 0.3+ | 2009 11 17 | 691 | 0.0 | 0.1+ |
| 2000 11 25 | 695 | 0.1− | 0.3− | 2004 09 13 | 704 | 0.4+ | 0.0 | 2009 11 25 | 691 | 0.1− | 0.0 |
| 2000 11 25 | 695 | 0.1+ | 0.3− | 2004 09 13 | 704 | 1.3+ | 0.4− | 2009 11 25 | 691 | 0.0 | 0.3+ |
| 2000 11 25 | 695 | 0.0 | 0.4− | 2004 09 13 | 704 | 0.5+ | 0.3− | 2009 11 25 | 691 | 0.1+ | 0.0 |
| 2000 11 25 | 695 | 0.2− | 0.1+ | 2004 09 13 | 704 | 0.3+ | 0.2+ | 2009 12 11 | G96 | 0.0 | 0.0 |
| 2000 11 25 | 695 | 0.0 | 0.4− | 2004 09 13 | 704 | 0.5+ | 1.4− | 2009 12 11 | G96 | 0.7+ | 0.1− |
| 2004 08 13 | 644 | 0.4− | 0.7+ | 2004 09 15 | 699 | 0.5− | 0.4+ | 2009 12 11 | G96 | 0.2− | 0.4+ |
| 2004 08 13 | 644 | 0.5− | 0.6+ | 2004 09 15 | 699 | 0.4− | 0.1+ | 2009 12 11 | G96 | 0.1− | 0.1− |
| 2004 08 13 | 644 | 0.3− | 0.6+ | 2004 09 15 | 699 | 0.5− | 1.0+ | | | | |

**(229093)∗ 2004 PV$_{112}$**

Discovered 2004 Aug. 8 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 327.96473 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.24219111 | $\omega$ | 0.25392 | | −0.48757074 | | −0.84126372 |
| $a$ | 2.5489652 | $\Omega$ | 118.93635 | | +0.80056723 | | −0.53752279 |
| $e$ | 0.0451708 | $i$ | 15.47853 | | +0.34837750 | | +0.05783253 |
| $P$ | 4.07 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 01 09 | 691 | 0.7− | 0.1+ | 2004 08 22 | E12 | 0.3+ | 0.5+ | 2007 05 13 | 703 | (1.6+ | 3.0−) |
| 1994 01 09 | 691 | 0.0 | 0.3+ | 2004 08 22 | E12 | 0.9+ | 0.2+ | 2007 05 13 | 703 | 0.7− | 0.8− |
| 1994 01 09 | 691 | 0.6+ | 0.6− | 2004 08 22 | E12 | 0.1+ | 0.6+ | 2007 05 22 | 703 | 0.6+ | 1.0+ |
| 1999 03 20 | 645 | 0.0 | 0.0 | 2004 08 23 | 699 | 0.8+ | 0.6− | 2007 05 22 | 703 | 0.7+ | 0.2− |
| 1999 03 20 | 645 | 0.0 | 0.0 | 2004 08 23 | 699 | 0.1− | 0.2− | 2007 05 22 | 703 | 0.2− | 0.7+ |
| 2001 12 11 | 704 | 0.9+ | 0.4− | 2004 08 23 | 699 | 0.1+ | 0.8− | 2007 05 22 | 703 | (1.5+ | 0.8−) |
| 2001 12 11 | 704 | 0.2+ | 0.0 | 2004 08 23 | 699 | 0.6− | 0.2− | 2008 08 23 | E12 | 0.5− | 0.0 |
| 2001 12 11 | 704 | 0.3− | 0.4+ | 2004 09 05 | E12 | 0.2− | 0.3− | 2008 08 23 | E12 | 0.4− | 0.8+ |
| 2001 12 11 | 704 | 0.1+ | 0.4+ | 2004 09 05 | E12 | 0.7+ | 0.1− | 2008 08 23 | E12 | 0.9− | 0.9+ |
| 2002 01 09 | 704 | 0.1− | 0.1+ | 2004 09 05 | E12 | 0.7+ | 0.3− | 2008 08 23 | E12 | 0.1+ | 0.3+ |
| 2002 01 09 | 704 | 0.2− | 0.2+ | 2004 09 05 | E12 | 1.1− | 0.0 | 2009 12 13 | 704 | 0.0 | 0.6+ |
| 2002 01 09 | 704 | 0.6− | 0.4+ | 2006 01 03 | 704 | 0.3− | 0.3− | 2009 12 13 | 704 | 0.4+ | 0.1+ |
| 2002 01 09 | 704 | 0.5− | 0.2− | 2006 01 03 | 704 | 0.5− | 0.4+ | 2009 12 13 | 704 | 0.3+ | 1.4+ |
| 2002 02 11 | 704 | 0.5+ | 0.4+ | 2006 01 03 | 704 | 1.5− | 0.3− | 2009 12 13 | 704 | 0.4+ | 0.9+ |
| 2002 02 11 | 704 | 0.4+ | 0.0 | 2006 01 03 | 704 | 0.2+ | 0.5− | 2009 12 13 | 704 | 0.2+ | 0.1+ |
| 2002 02 11 | 704 | 0.2+ | 0.2+ | 2006 01 03 | 704 | 0.3− | 0.6+ | 2009 12 15 | 703 | 0.3− | 0.4+ |
| 2003 04 28 | 645 | 0.1+ | 0.0 | 2007 04 22 | 703 | 0.4− | 0.2+ | 2009 12 15 | 703 | 0.8− | 1.2− |
| 2003 04 28 | 645 | 0.1+ | 0.0 | 2007 04 22 | 703 | (1.6− | 0.7−) | 2009 12 15 | 703 | 0.2− | 0.8− |
| 2004 08 08 | 644 | 0.2+ | 0.1+ | 2007 04 22 | 703 | 0.1+ | 0.0 | 2009 12 15 | 703 | 0.1− | 0.3− |
| 2004 08 08 | 644 | 0.1− | 0.0 | 2007 04 22 | 703 | (1.7− | 1.0−) | 2009 12 15 | 703 | 1.7+ | 0.5− |
| 2004 08 08 | 644 | 0.1+ | 0.3+ | 2007 05 13 | 703 | 0.4− | 0.3− | | | | |
| 2004 08 22 | E12 | 0.3− | 0.4− | 2007 05 13 | 703 | 0.5− | 0.1− | | | | |

**(229094)∗ 2004 QT$_4$**

Discovered 2004 Aug. 19 by the Siding Spring Survey at Siding Spring.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 61.00000 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22222749 | $\omega$ | 283.54639 | | +0.90532587 | | −0.41748983 |
| $a$ | 2.6994225 | $\Omega$ | 101.17572 | | +0.41391451 | | +0.82611392 |
| $e$ | 0.2407944 | $i$ | 4.56151 | | +0.09518321 | | +0.37846800 |
| $P$ | 4.44 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 12 30 | 704 | 0.2− | 1.1− | 2004 09 17 | 699 | 0.4− | 0.7− | 2006 01 31 | 691 | 0.1− | 0.5+ |
| 2000 12 30 | 704 | 0.9+ | 1.9− | 2004 09 17 | 699 | 0.3− | 1.0+ | 2006 01 31 | 691 | 0.3+ | 0.2− |
| 2000 12 30 | 704 | 0.0 | 1.4− | 2004 09 17 | 699 | 0.4− | 0.5− | 2006 02 04 | 691 | 0.0 | 0.1+ |
| 2004 08 11 | 704 | (0.3+ | 2.1−) | 2004 10 05 | 699 | 0.9+ | 0.3+ | 2006 02 04 | 691 | 0.0 | 0.5+ |
| 2004 08 11 | 704 | 0.2+ | 0.5− | 2004 10 05 | 699 | 0.3+ | 0.2+ | 2006 02 04 | 691 | 0.1− | 0.1+ |
| 2004 08 11 | 704 | 0.6+ | 0.1+ | 2004 10 05 | 699 | 0.1− | 0.3+ | 2007 04 20 | 691 | 0.0 | 0.3+ |
| 2004 08 11 | 704 | 0.5− | 0.2− | 2004 10 05 | 699 | 0.2+ | 0.3+ | 2007 04 20 | 691 | 0.3+ | 0.1− |
| 2004 08 19 | E12 | 0.4− | 1.3− | 2004 10 07 | 699 | 0.2− | 0.3+ | 2007 04 20 | 691 | 0.4− | 0.3− |
| 2004 08 19 | E12 | 0.1+ | 0.2− | 2004 10 07 | 699 | 0.4+ | 0.5− | 2007 04 22 | G96 | 0.4− | 0.3− |
| 2004 08 19 | E12 | 0.2+ | 0.5− | 2004 10 07 | 704 | 0.5− | 0.1+ | 2007 04 22 | G96 | 0.2+ | 0.1− |
| 2004 08 19 | E12 | 0.2− | 0.2− | 2004 10 07 | 704 | 0.2+ | 0.1− | 2007 04 22 | G96 | 0.3− | 0.4+ |
| 2004 08 20 | 683 | 1.5− | 0.3+ | 2004 10 07 | 699 | 0.3+ | 0.1+ | 2007 04 22 | G96 | 0.4+ | 0.1+ |
| 2004 08 20 | 683 | 0.4− | 1.5− | 2004 10 07 | 704 | 0.4− | 0.1− | 2008 06 02 | G96 | 0.2+ | 0.0 |
| 2004 08 20 | 683 | 0.3− | 0.8+ | 2004 10 07 | 704 | 0.6− | 0.1+ | 2008 06 02 | G96 | 0.7+ | 0.5− |
| 2004 08 21 | 683 | (1.2− | 2.5+) | 2004 10 07 | 699 | (2.0+ | 0.3−) | 2008 06 02 | G96 | 0.2+ | 0.4+ |
| 2004 08 21 | 683 | 1.3+ | 1.3− | 2004 10 07 | 704 | 0.2− | 0.1+ | 2008 06 02 | G96 | 0.3+ | 0.4− |
| 2004 08 21 | 683 | 1.1+ | 0.3− | 2004 10 09 | 704 | 0.4− | 0.3+ | 2009 10 18 | G96 | 0.2− | 0.3− |
| 2004 08 22 | 683 | (0.5+ | 2.3+) | 2004 10 09 | 704 | 0.3− | 0.1+ | 2009 10 18 | G96 | 0.2− | 0.5− |
| 2004 08 22 | 683 | 0.7− | 0.7− | 2004 10 09 | 704 | 0.3− | 0.3− | 2009 10 18 | G96 | 0.4+ | 0.3− |
| 2004 08 22 | 683 | (0.3− | 2.6+) | 2004 10 09 | 704 | 0.2− | 0.1− | 2009 11 16 | G96 | 0.3− | 0.2− |
| 2004 09 09 | 704 | 0.2− | 0.8+ | 2004 10 09 | 704 | 0.2+ | 0.2− | 2009 11 16 | G96 | 0.1+ | 0.3− |
| 2004 09 09 | 704 | 1.0− | 0.7+ | 2004 10 18 | 704 | 0.7+ | 0.3+ | 2009 11 16 | G96 | 0.4+ | 0.0 |
| 2004 09 09 | 704 | 0.5+ | 0.3+ | 2004 10 18 | 704 | 0.0 | 0.6+ | 2009 11 16 | G96 | 0.2+ | 0.0 |
| 2004 09 09 | 704 | 0.7− | 0.5− | 2004 10 18 | 704 | 0.6+ | 0.3− | 2009 12 15 | G96 | 0.3− | 0.3+ |
| 2004 09 12 | 704 | 0.1− | 0.6+ | 2004 10 18 | 704 | 0.0 | 0.5− | 2009 12 15 | G96 | 0.8+ | 0.1− |
| 2004 09 12 | 704 | 0.5− | 0.4+ | 2004 10 18 | 704 | 0.0 | 0.6+ | 2009 12 15 | G96 | 0.4+ | 0.0 |
| 2004 09 12 | 704 | 0.1− | 0.0 | 2004 11 06 | 704 | 1.3+ | 0.4+ | 2009 12 15 | G96 | 0.2− | 0.1− |
| 2004 09 12 | 704 | 1.0+ | 0.6− | 2004 11 06 | 704 | (1.9+ | 0.9+) | 2009 12 18 | 691 | 0.3− | 0.0 |
| 2004 09 12 | 704 | 0.2− | 0.3− | 2004 11 06 | 704 | 0.2+ | 0.0 | 2009 12 18 | 691 | 0.0 | 0.2+ |
| 2004 09 17 | 704 | 0.3− | 0.7+ | 2004 11 06 | 704 | 0.3− | 0.3− | 2009 12 18 | 691 | 0.1− | 0.2+ |
| 2004 09 17 | 704 | 0.8− | 1.1+ | 2004 11 12 | 704 | 0.4+ | 1.1+ | 2009 12 26 | 691 | 0.2− | 0.0 |
| 2004 09 17 | 704 | 0.1+ | 0.3+ | 2004 11 12 | 704 | 0.0 | 0.2+ | 2009 12 26 | 691 | 0.1+ | 0.0 |
| 2004 09 17 | 704 | 0.3− | 0.5+ | 2004 11 12 | 704 | 0.4− | 0.2− | 2009 12 26 | 691 | 0.2+ | 0.1− |
| 2004 09 17 | 704 | 0.1+ | 0.3− | 2004 11 12 | 704 | 0.3+ | 0.9+ | | | | |
| 2004 09 17 | 699 | 0.0 | 0.5− | 2006 01 31 | 691 | 0.2+ | 0.1+ | | | | |

**(229095)∗ 2004 QC$_7$ = 2000 YW$_{121}$**

Discovered 2004 Aug. 22 by J. Broughton at Reedy Creek.

Id. G. V. Williams (*MPO* 69876)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 37.46342 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21755764 | $\omega$ | 251.70811 | | +0.90734378 | | −0.33770322 |
| $a$ | 2.7379142 | $\Omega$ | 127.25879 | | +0.39023401 | | +0.89809097 |
| $e$ | 0.2166268 | $i$ | 18.33472 | | −0.15634795 | | +0.28176079 |
| $P$ | 4.53 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 25 | 704 | 0.2+ | 0.2− | 2004 08 21 | E12 | 0.3− | 0.4+ | 2006 01 24 | 704 | 0.7+ | 0.1+ |
| 2000 11 25 | 704 | 0.6+ | 0.8+ | 2004 08 22 | 428 | 0.3− | 0.5+ | 2006 01 30 | 691 | 1.2− | 0.2+ |
| 2000 11 25 | 704 | (1.1− | 2.4+) | 2004 08 22 | 428 | 0.0 | 0.8+ | 2006 01 30 | 691 | 0.0 | 0.1− |
| 2000 12 22 | 608 | 0.9− | 0.7− | 2004 08 23 | 428 | 1.0+ | 0.1− | 2006 01 30 | 691 | 0.2+ | 0.1− |
| 2000 12 22 | 608 | 0.8− | 0.6− | 2004 08 23 | 428 | 0.7+ | 0.9+ | 2009 11 10 | 703 | 1.0− | 0.7− |
| 2000 12 22 | 608 | 1.0− | 0.5+ | 2004 09 15 | E12 | 0.4+ | 0.1+ | 2009 11 10 | 703 | 0.3+ | 1.3− |
| 2000 12 23 | 704 | 0.4− | 0.6+ | 2004 09 15 | E12 | 0.7− | 0.5− | 2009 11 10 | 703 | 0.5+ | 0.6+ |
| 2000 12 23 | 704 | 0.1− | 0.4+ | 2004 09 15 | E12 | 0.3+ | 0.2+ | 2009 11 10 | 703 | 0.6+ | 0.2− |
| 2000 12 23 | 704 | 1.2+ | 0.1+ | 2004 09 15 | E12 | 0.7+ | 0.5+ | 2009 11 18 | 703 | 0.3+ | 0.2− |
| 2000 12 23 | 704 | 0.2+ | 0.7+ | 2006 01 06 | 691 | 0.1+ | 0.3+ | 2009 11 18 | 703 | 0.0 | 0.0 |
| 2000 12 23 | 704 | 0.5+ | 0.0 | 2006 01 06 | 691 | 0.1− | 0.4+ | 2009 11 18 | 703 | 0.6− | 0.6+ |
| 2004 08 08 | 704 | 0.1− | 0.5− | 2006 01 06 | 691 | 0.2+ | 0.1+ | 2009 11 18 | 703 | 0.6+ | 0.1− |
| 2004 08 08 | 704 | 1.1− | 0.1+ | 2006 01 23 | G96 | 0.1− | 0.2− | 2009 12 15 | 703 | 0.1+ | 0.1− |
| 2004 08 08 | 704 | 0.7− | 1.1− | 2006 01 23 | G96 | 0.1− | 0.3− | 2009 12 15 | 703 | 0.8+ | 0.2− |
| 2004 08 08 | 704 | 0.3+ | 0.4− | 2006 01 23 | G96 | 0.0 | 0.3− | 2009 12 15 | 703 | 0.6− | 0.9− |
| 2004 08 21 | E12 | 0.5− | 1.2+ | 2006 01 24 | 704 | 1.0+ | 0.3+ | 2009 12 15 | 703 | 0.2+ | 0.5− |
| 2004 08 21 | E12 | 0.3− | 0.2+ | 2006 01 24 | 704 | 0.7+ | 0.5+ | | | | |
| 2004 08 21 | E12 | 0.3+ | 0.5+ | 2006 01 24 | 704 | 1.1+ | 0.2+ | | | | |

**(229096)∗ 2004 QQ$_7$ = 2001 YH$_{161}$**

Discovered 2004 Aug. 22 by W. Bickel at Bergisch Gladbach.

Id. A. Doppler (*MPO* 100742)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 148.09030 | | (2000.0) | | | |
| $n$ | 0.23096817 | $\omega$ | 291.03264 | | +0.13299389 | +0.99106412 |
| $a$ | 2.6308816 | $\Omega$ | 346.59781 | | −0.89216964 | +0.11521714 |
| $e$ | 0.1031020 | $i$ | 2.52820 | | −0.43167806 | +0.06720805 |
| $P$ | 4.27 | $H$ | 16.8 | $G$ 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 12 20 | 645 | 0.1+ | 0.3+ | 2004 09 13 | 246 | (0.5− | 1.7+) | 2007 03 10 | G96 | 0.4+ | 0.2+ |
| 2001 12 20 | 645 | 0.0 | 0.4+ | 2004 09 13 | 246 | 0.2− | 1.1+ | 2007 03 10 | G96 | 0.0 | 0.5+ |
| 2003 04 25 | 691 | 0.3+ | 0.2+ | 2004 09 13 | 246 | 0.1− | 0.6+ | 2007 03 10 | G96 | 0.3− | 0.2+ |
| 2003 04 25 | 691 | 0.4+ | 0.5+ | 2004 09 13 | 246 | 0.6+ | 1.1+ | 2007 03 10 | G96 | 0.1− | 0.1− |
| 2003 04 25 | 691 | 0.2+ | 0.4+ | 2004 09 13 | 246 | 0.7+ | 0.4+ | 2007 04 19 | G96 | 0.6− | 0.0 |
| 2004 08 22 | 621 | 0.2+ | 0.2+ | 2004 09 13 | 246 | 1.1− | 0.8− | 2007 04 19 | G96 | 0.4− | 0.3+ |
| 2004 08 22 | 621 | 0.3+ | 0.4− | 2004 10 09 | 691 | 0.0 | 0.1+ | 2007 04 19 | G96 | 0.1− | 0.3− |
| 2004 08 22 | 621 | 0.6− | 0.2− | 2004 10 09 | 691 | 0.1− | 0.1+ | 2007 04 19 | G96 | 0.3− | 0.4+ |
| 2004 08 23 | 621 | 0.0 | 0.6− | 2004 10 09 | 691 | 0.1+ | 0.1+ | 2009 10 22 | G96 | 0.2− | 0.2+ |
| 2004 08 23 | 621 | 0.1+ | 0.9− | 2005 12 21 | 291 | 0.1+ | 0.7− | 2009 10 22 | G96 | 0.5− | 0.9+ |
| 2004 08 23 | 621 | 0.3− | 0.1+ | 2005 12 21 | 291 | 0.2+ | 1.0− | 2009 10 22 | G96 | 0.2− | 0.1+ |
| 2004 09 07 | 691 | 0.1− | 0.2+ | 2005 12 21 | 291 | 0.1+ | 0.8− | 2009 10 22 | G96 | 0.5+ | 0.2+ |
| 2004 09 07 | 691 | 0.4− | 0.4+ | 2006 01 31 | G96 | 0.2+ | 0.2+ | 2009 12 18 | G96 | 0.3+ | 0.5− |
| 2004 09 07 | 691 | 0.4− | 0.4+ | 2006 01 31 | G96 | 0.0 | 0.1+ | 2009 12 18 | G96 | 0.0 | 0.3+ |
| 2004 09 13 | 246 | 0.5− | 1.1+ | 2006 01 31 | G96 | 0.2− | 0.3+ | 2009 12 18 | G96 | 0.4+ | 0.0 |
| 2004 09 13 | 246 | 0.3− | 0.9+ | 2006 01 31 | G96 | 0.1+ | 0.0 | 2009 12 18 | G96 | 0.2+ | 0.1+ |

**(229097)∗ 2004 QC$_9$**

Discovered 2004 Aug. 20 by the Catalina Sky Survey.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 68.31129 | | (2000.0) | | | |
| $n$ | 0.21077809 | $\omega$ | 327.80204 | | +0.96613972 | +0.25574292 |
| $a$ | 2.7963127 | $\Omega$ | 17.47830 | | −0.20595544 | +0.84422624 |
| $e$ | 0.3362957 | $i$ | 6.53829 | | −0.15542328 | +0.47103888 |
| $P$ | 4.68 | $H$ | 15.5 | $G$ 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 09 11 | 704 | 0.3− | 0.1− | 2004 10 10 | 704 | 0.1+ | 0.3+ | 2004 11 20 | 699 | 0.3− | 0.4+ |
| 1999 09 11 | 704 | 0.3− | 0.2+ | 2004 10 10 | 704 | 1.3+ | 1.1+ | 2004 12 02 | 644 | 0.1− | 0.1+ |
| 1999 09 11 | 704 | 0.1+ | 0.8+ | 2004 10 10 | 704 | 1.5+ | 0.9+ | 2004 12 02 | 644 | 0.1+ | 0.0 |
| 1999 09 11 | 704 | 0.1− | 0.0 | 2004 10 10 | 704 | 1.4+ | 0.8+ | 2004 12 02 | 644 | 0.2+ | 0.1+ |
| 1999 09 11 | 704 | 0.9+ | 1.4− | 2004 10 18 | 695 | 0.4− | 0.1− | 2004 12 03 | 699 | 0.0 | 0.3− |
| 2001 02 22 | 645 | 0.0 | 0.1− | 2004 10 18 | 695 | 0.3− | 0.1− | 2004 12 03 | 699 | 0.6+ | 0.0 |
| 2001 02 22 | 645 | 0.0 | 0.1− | 2004 10 21 | 704 | 0.2− | 0.0 | 2004 12 03 | 699 | (0.6+ | 1.7−) |
| 2004 08 20 | 703 | 0.1− | 0.2− | 2004 10 21 | 704 | 0.0 | 0.4+ | 2004 12 03 | 699 | 0.8+ | 0.8− |
| 2004 08 20 | 703 | 0.1+ | 0.4− | 2004 10 21 | 704 | 0.0 | 0.3+ | 2005 01 07 | 704 | 0.2− | 0.3+ |
| 2004 08 20 | 703 | 0.4+ | 0.4+ | 2004 10 21 | 704 | 0.0 | 0.5+ | 2005 01 07 | 704 | 0.0 | 0.6− |
| 2004 08 20 | 703 | 0.1+ | 0.4− | 2004 10 21 | 704 | 0.1+ | 0.3+ | 2005 01 07 | 704 | (0.9− | 3.6−) |
| 2004 08 23 | 699 | 0.5− | 0.7+ | 2004 11 02 | 699 | 0.6− | 0.4− | 2007 03 26 | 691 | 0.6− | 0.4− |
| 2004 08 23 | 699 | 0.4+ | 0.6− | 2004 11 02 | 699 | 0.6− | 0.4+ | 2007 03 26 | 691 | 0.4+ | 0.1+ |
| 2004 08 23 | 699 | 0.6+ | 0.3− | 2004 11 02 | 699 | 0.0 | 0.0 | 2007 03 26 | 691 | 0.2+ | 0.3− |
| 2004 08 23 | 699 | 0.0 | 0.5+ | 2004 11 02 | 699 | 0.5− | 0.1+ | 2007 03 26 | G96 | 0.7+ | 0.1− |
| 2004 08 26 | 699 | 0.3− | 0.2− | 2004 11 04 | 699 | (1.6+ | 1.0+) | 2007 03 26 | G96 | 0.3+ | 0.0 |
| 2004 08 26 | 699 | 0.5− | 0.5− | 2004 11 04 | 699 | 0.2− | 0.4+ | 2007 03 26 | G96 | 0.3+ | 0.4− |
| 2004 08 26 | 699 | 0.9− | 0.3+ | 2004 11 04 | 699 | 0.5− | 0.2− | 2007 03 26 | G96 | 0.8+ | 0.0 |
| 2004 08 26 | 699 | 0.5− | 0.0 | 2004 11 04 | 699 | 0.3+ | 0.6− | 2007 04 14 | 691 | 0.3− | 0.0 |
| 2004 09 09 | 704 | 0.9− | 0.2+ | 2004 11 04 | 333 | 0.4+ | 1.2− | 2007 04 14 | 691 | 0.3− | 0.8+ |
| 2004 09 09 | 704 | 0.7− | 0.5+ | 2004 11 04 | 333 | (0.3− | 2.5−) | 2007 04 14 | 691 | 0.3+ | 0.2+ |
| 2004 09 09 | 704 | 0.4− | 0.6− | 2004 11 06 | 703 | 0.8+ | 0.3+ | 2007 04 18 | 691 | 0.0 | 0.2+ |
| 2004 09 09 | 704 | 0.4− | 0.2+ | 2004 11 06 | 703 | 0.5+ | 0.6− | 2007 04 18 | 691 | 0.1+ | 0.0 |
| 2004 09 09 | 704 | 0.9− | 0.3+ | 2004 11 06 | 703 | 0.5− | 0.3− | 2007 04 18 | 691 | 0.2+ | 0.2+ |
| 2004 09 17 | 704 | 0.5+ | 0.0 | 2004 11 06 | 703 | 0.7− | 0.2− | 2007 05 11 | G96 | 0.2+ | 0.2− |
| 2004 09 17 | 704 | 0.3+ | 0.3− | 2004 11 06 | 703 | 0.0 | 0.2− | 2007 05 11 | G96 | 0.1− | 0.2+ |
| 2004 09 17 | 704 | 0.0 | 0.2− | 2004 11 06 | 703 | 0.1+ | 0.4− | 2007 05 11 | G96 | 0.2− | 0.2+ |
| 2004 09 17 | 704 | 0.0 | 0.3+ | 2004 11 06 | 703 | 0.3− | 0.1+ | 2007 05 11 | G96 | 0.1+ | 0.8+ |
| 2004 09 17 | 704 | 0.3+ | 0.6+ | 2004 11 06 | 703 | 0.1− | 0.1− | 2009 11 21 | 703 | 0.1− | 0.8− |
| 2004 09 22 | 699 | 0.0 | 0.1+ | 2004 11 09 | 703 | 0.5− | 0.4− | 2009 11 21 | 703 | 0.0 | 0.2+ |
| 2004 09 22 | 699 | 0.0 | 0.3+ | 2004 11 09 | 703 | 0.5− | 0.1− | 2009 11 21 | 703 | 0.2+ | 0.4− |
| 2004 09 22 | 699 | 1.1− | 0.0 | 2004 11 09 | 703 | 0.1− | 0.4− | 2009 11 21 | 703 | 0.3− | 0.6− |
| 2004 09 22 | 699 | 0.3− | 0.1+ | 2004 11 09 | 703 | 0.3− | 0.3− | 2009 11 23 | 704 | 1.0− | 0.5+ |
| 2004 09 23 | 704 | 0.8+ | 0.0 | 2004 11 19 | 704 | 0.2+ | 0.5+ | 2009 11 23 | 704 | 0.1+ | 0.4+ |
| 2004 09 23 | 704 | 1.3+ | 0.1− | 2004 11 19 | 704 | 0.6− | 0.0 | 2009 11 23 | 704 | 0.9− | 0.9+ |
| 2004 09 23 | 704 | 1.4+ | 0.8+ | 2004 11 19 | 704 | 0.1− | 0.0 | 2009 12 15 | 704 | 1.6+ | 0.4+ |
| 2004 10 09 | 699 | 0.0 | 0.1− | 2004 11 19 | 704 | 0.2− | 0.1− | 2009 12 15 | 704 | 0.1+ | 0.8+ |
| 2004 10 09 | 699 | 0.1− | 0.0 | 2004 11 19 | 704 | 0.4− | 0.2+ | 2009 12 15 | 704 | 0.7− | 0.8+ |
| 2004 10 09 | 699 | 0.3+ | 0.1+ | 2004 11 20 | 699 | 0.2− | 0.6− | 2009 12 15 | 704 | 0.5+ | 0.1+ |
| 2004 10 09 | 699 | 0.0 | 0.4− | 2004 11 20 | 699 | 0.2− | 0.1− | 2009 12 15 | 704 | 0.6+ | 0.5− |
| 2004 10 10 | 704 | 1.4+ | 1.2+ | 2004 11 20 | 699 | 0.8− | 0.0 | | | | |

**(229098)∗ 2004 QO$_{18}$**

Discovered 2004 Aug. 20 by the Siding Spring Survey at Siding Spring.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 70.41898 | | (2000.0) | | | |
| $n$ | 0.22361345 | $\omega$ | 263.45215 | | +0.84241979 | +0.49505710 |
| $a$ | 2.6882569 | $\Omega$ | 66.68636 | | −0.35547409 | +0.80730193 |
| $e$ | 0.2817478 | $i$ | 13.39282 | | −0.40492848 | +0.32121964 |
| $P$ | 4.41 | $H$ | 16.5 | $G$ 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 02 08 | 645 | 0.0 | 0.2− | 2004 08 25 | E12 | 0.4− | 0.2− | 2009 11 09 | G96 | 0.3+ | 0.1+ |
| 2002 02 08 | 645 | 0.3− | 0.2− | 2004 08 25 | E12 | 0.3− | 0.5+ | 2009 11 09 | G96 | 0.3+ | 0.0 |
| 2003 03 23 | 645 | 0.0 | 0.1+ | 2004 09 10 | E12 | 0.2− | 0.2+ | 2009 11 10 | 691 | 0.5− | 0.3+ |
| 2003 03 23 | 645 | 0.1+ | 0.1+ | 2004 09 10 | E12 | 0.1− | 0.5+ | 2009 11 10 | 691 | 0.0 | 0.1− |
| 2003 03 31 | 645 | 0.1+ | 0.0 | 2004 09 10 | E12 | 0.5− | 0.4+ | 2009 11 10 | 691 | 0.1+ | 0.1+ |
| 2003 03 31 | 645 | 0.1+ | 0.1− | 2004 09 10 | E12 | 0.2− | 0.0 | 2009 11 23 | J75 | 0.5+ | 0.3+ |
| 2004 06 29 | E12 | 0.2+ | 1.1− | 2008 05 06 | 691 | 0.3+ | 0.2− | 2009 11 23 | J75 | 0.7+ | 0.5+ |
| 2004 06 29 | E12 | 0.5+ | 0.9− | 2008 05 06 | 691 | 0.1+ | 0.5+ | 2009 11 24 | J75 | 0.8+ | 0.4+ |
| 2004 06 29 | E12 | 1.3+ | 0.9− | 2008 05 06 | 691 | 0.3− | 0.5+ | 2009 11 24 | 691 | 0.1+ | 0.4+ |
| 2004 06 29 | E12 | 0.6+ | 0.5− | 2008 05 11 | 691 | 0.0 | 0.0 | 2009 11 24 | 691 | 0.1− | 0.3+ |
| 2004 08 09 | E12 | 0.3− | 0.4+ | 2008 05 11 | 691 | 0.2+ | 0.1+ | 2009 11 24 | 691 | 0.1− | 0.4+ |
| 2004 08 09 | E12 | 0.3− | 0.0 | 2008 05 11 | 691 | 0.3+ | 0.1+ | 2009 12 11 | G96 | 0.1− | 0.2+ |
| 2004 08 09 | E12 | 0.3− | 0.0 | 2008 05 30 | 691 | 0.4+ | 0.1− | 2009 12 11 | G96 | 0.1+ | 0.1+ |
| 2004 08 09 | E12 | 0.1− | 0.3+ | 2008 05 30 | 691 | 1.2− | 0.2− | 2009 12 11 | G96 | 0.4+ | 0.3+ |
| 2004 08 20 | E12 | 0.1− | 0.3+ | 2008 05 30 | 691 | 0.2+ | 0.0 | 2009 12 11 | G96 | 0.2+ | 0.4+ |
| 2004 08 20 | E12 | 0.3+ | 0.0 | 2008 06 07 | 691 | 0.0 | 0.1+ | 2009 12 11 | 703 | 0.9− | 0.1− |
| 2004 08 20 | E12 | 0.0 | 0.4+ | 2008 06 07 | 691 | 0.3− | 0.0 | 2009 12 11 | 703 | 0.1+ | 0.2− |
| 2004 08 20 | E12 | 0.2− | 0.2− | 2008 06 07 | 691 | 0.3+ | 0.2+ | 2009 12 11 | 703 | 1.3− | 0.1− |
| 2004 08 25 | E12 | 0.4− | 0.7− | 2009 11 09 | G96 | 0.7+ | 0.1+ | 2009 12 11 | 703 | 1.2− | 0.7− |
| 2004 08 25 | E12 | 1.1+ | 0.4+ | 2009 11 09 | G96 | 0.5+ | 0.0 | | | | |

**(229099)∗ 2004 RM$_{13}$**

Discovered 2004 Sept. 6 at George Observatory, Needville.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 59.66552 | | (2000.0) | | | |
| $n$ | 0.21971207 | $\omega$ | 188.83718 | | +0.99982365 | +0.01194074 |
| $a$ | 2.7199867 | $\Omega$ | 170.44276 | | −0.00672604 | +0.94830907 |
| $e$ | 0.1239171 | $i$ | 5.00812 | | −0.01753345 | +0.31712352 |
| $P$ | 4.49 | $H$ | 16.6 | $G$ 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 02 13 | 645 | 0.0 | 0.2+ | 2004 09 09 | 699 | 0.4+ | 0.3+ | 2004 10 11 | 691 | 0.4− | 0.2+ |
| 2002 02 13 | 645 | 0.1+ | 0.2+ | 2004 09 09 | 699 | 0.3− | 1.2+ | 2004 10 11 | 691 | 0.2+ | 0.4+ |
| 2002 02 21 | 691 | 0.2+ | 0.5+ | 2004 09 09 | 699 | 0.2+ | 0.6+ | 2006 02 01 | G96 | 0.2+ | 0.2+ |
| 2002 02 21 | 691 | 0.7+ | 0.4+ | 2004 09 11 | 691 | 0.1− | 0.0 | 2006 02 01 | G96 | 0.0 | 0.4− |
| 2002 02 21 | 691 | 0.3+ | 0.2+ | 2004 09 11 | 691 | 0.2− | 0.1− | 2006 02 01 | G96 | 0.4+ | 0.1− |
| 2002 03 12 | 645 | 0.0 | 0.1+ | 2004 09 11 | 691 | 0.3− | 0.0 | 2006 02 01 | G96 | 0.2+ | 0.1− |
| 2002 03 12 | 645 | 0.0 | 0.2+ | 2004 09 13 | 699 | 0.4+ | 0.4− | 2007 04 20 | G96 | 0.0 | 0.2+ |
| 2003 05 22 | 691 | 0.4− | 0.9+ | 2004 09 13 | 699 | 0.2− | 0.9+ | 2007 04 20 | G96 | 0.0 | 0.1+ |
| 2003 05 22 | 691 | 0.2+ | 0.6+ | 2004 09 13 | 699 | 1.0− | 1.0+ | 2007 04 20 | G96 | 0.1+ | 0.3+ |
| 2003 05 22 | 691 | 0.5+ | 0.2+ | 2004 09 13 | 699 | 1.2+ | 0.2− | 2007 04 20 | G96 | 0.2+ | 0.1+ |
| 2004 09 06 | 735 | 0.8+ | 0.6+ | 2004 09 14 | 699 | 0.3+ | 0.6+ | 2007 04 20 | A50 | 0.3− | 0.0 |
| 2004 09 06 | 735 | 0.1− | 0.2+ | 2004 09 14 | 699 | (2.0− | 0.2+) | 2007 04 20 | A50 | 0.4+ | 0.3− |
| 2004 09 06 | 735 | 0.3+ | 0.8+ | 2004 09 14 | 699 | (0.5− | 1.5+) | 2009 11 19 | J75 | 0.3+ | 0.2− |
| 2004 09 08 | 704 | 0.4− | 0.8− | 2004 09 14 | 699 | 0.9− | 0.7+ | 2009 11 20 | J75 | 0.6− | 0.1+ |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 08 | 704 | 0.5− | 0.6+ | 2004 09 16 | 691 | 0.0 | 0.2+ | 2009 11 20 | J75 | 0.9+ | 0.3− |
| 2004 09 08 | 704 | 0.8− | 0.5+ | 2004 09 16 | 691 | 0.1− | 0.3+ | 2009 11 23 | G96 | 0.6+ | 0.0 |
| 2004 09 08 | 704 | 0.7− | 0.6+ | 2004 09 16 | 691 | 0.1− | 0.3+ | 2009 11 23 | G96 | 0.3+ | 0.2− |
| 2004 09 09 | 704 | 0.0 | 1.1+ | 2004 09 23 | 691 | 0.2+ | 0.2+ | 2009 11 23 | G96 | 0.5+ | 0.1− |
| 2004 09 09 | 704 | 0.3+ | 1.5+ | 2004 09 23 | 691 | 0.0 | 0.2+ | 2009 11 23 | G96 | 0.8+ | 0.3− |
| 2004 09 09 | 704 | 0.8− | 0.3− | 2004 09 23 | 691 | 0.0 | 0.3+ | 2009 12 19 | 691 | 0.2− | 0.3+ |
| 2004 09 09 | 704 | 0.4− | 0.3+ | 2004 10 10 | 695 | 0.1− | 0.1+ | 2009 12 19 | 691 | 0.4− | 0.2+ |
| 2004 09 09 | 704 | 0.5+ | 0.5+ | 2004 10 10 | 695 | 0.1− | 0.0 | 2009 12 19 | 691 | 0.3− | 0.1− |
| 2004 09 09 | 699 | 0.2− | 0.2+ | 2004 10 11 | 691 | 0.1− | 0.0 | | | | |

**(229100)∗ 2004 RC$_{26}$**

Discovered 2004 Sept. 4 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 71.49087 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22934358 | $\omega$ | 268.86234 | | +0.96010404 | −0.18036433 | |
| $a$ | 2.6432911 | $\Omega$ | 101.50136 | | +0.24737996 | +0.90414884 | |
| $e$ | 0.2229288 | $i$ | 12.59641 | | −0.13039703 | +0.38727715 | |
| $P$ | 4.30 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 25 | 699 | 0.4+ | 0.2+ | 2004 09 15 | E12 | 0.6+ | 0.8− | 2008 06 01 | G96 | 0.4+ | 0.2+ |
| 2000 09 25 | 699 | 0.0 | 1.6+ | 2004 09 15 | E12 | 0.3+ | 0.3− | 2008 06 01 | G96 | 0.1− | 0.1− |
| 2000 09 25 | 699 | 1.0− | 0.6− | 2004 09 15 | E12 | 0.7+ | 0.2− | 2008 06 24 | 691 | 0.1− | 0.2+ |
| 2000 09 25 | 699 | 0.1+ | 0.5+ | 2004 09 17 | 699 | 0.1+ | 0.1+ | 2008 06 24 | 691 | 0.2+ | 0.1+ |
| 2000 11 26 | 704 | 0.2+ | 0.3+ | 2004 09 17 | 699 | 0.7− | 0.1+ | 2008 06 24 | 691 | 0.1+ | 0.2+ |
| 2000 11 26 | 704 | 0.0 | 0.6+ | 2004 09 17 | 699 | 0.1− | 0.4− | 2009 11 17 | G96 | 0.2+ | 0.2− |
| 2000 11 26 | 704 | 0.2− | 0.2− | 2004 09 17 | 699 | 0.0 | 0.2− | 2009 11 17 | G96 | 0.2+ | 0.1− |
| 2004 08 23 | 699 | 0.7− | 0.6− | 2006 01 26 | 703 | 0.4− | 0.0 | 2009 11 17 | G96 | 0.7+ | 0.2− |
| 2004 08 23 | 699 | 0.5+ | 0.0 | 2006 01 26 | 703 | (0.6− | 1.6+) | 2009 11 17 | G96 | 0.7+ | 0.2− |
| 2004 08 23 | 699 | 0.6+ | 0.6− | 2006 01 26 | 703 | 0.1+ | 0.7+ | 2009 11 23 | G96 | 0.3+ | 0.2− |
| 2004 08 23 | 699 | 0.7− | 0.3+ | 2006 01 26 | 703 | (0.6− | 1.7+) | 2009 11 23 | G96 | 0.1+ | 0.2− |
| 2004 09 04 | 644 | 0.0 | 0.0 | 2008 05 15 | G96 | 0.2− | 0.0 | 2009 11 23 | G96 | 0.5+ | 0.3− |
| 2004 09 04 | 644 | 0.1− | 0.0 | 2008 05 15 | G96 | 0.0 | 0.1− | 2009 11 23 | G96 | 0.1− | 0.1− |
| 2004 09 04 | 644 | 0.0 | 0.1+ | 2008 05 15 | G96 | 0.0 | 0.4− | 2009 12 25 | 691 | 0.1− | 0.1+ |
| 2004 09 08 | 644 | 0.3− | 0.0 | 2008 05 15 | G96 | 0.3+ | 0.0 | 2009 12 25 | 691 | 0.3− | 0.0 |
| 2004 09 08 | 644 | 0.4− | 0.2+ | 2008 06 01 | G96 | 0.2− | 0.2+ | 2009 12 25 | 691 | 0.1− | 0.1+ |
| 2004 09 08 | 644 | 0.1− | 0.2+ | 2008 06 01 | G96 | 0.1− | 0.2+ | | | | |

**(229101)∗ 2004 RU$_{28}$**

Discovered 2004 Sept. 6 by the Siding Spring Survey at Siding Spring.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 30.58587 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22247832 | $\omega$ | 54.80204 | | +0.66122068 | −0.75008749 | |
| $a$ | 2.6973932 | $\Omega$ | 353.75999 | | +0.64552761 | +0.57737231 | |
| $e$ | 0.2471536 | $i$ | 6.59776 | | +0.38220586 | +0.32250576 | |
| $P$ | 4.43 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 19 | 704 | 0.2+ | 0.3− | 2004 09 07 | 704 | 0.1− | 0.3− | 2006 01 25 | 691 | 0.1+ | 0.0 |
| 2000 11 19 | 704 | 0.3− | 0.0 | 2004 09 07 | 691 | 0.1+ | 0.3+ | 2006 01 25 | 691 | 0.0 | 0.4+ |
| 2000 11 19 | 704 | 0.3− | 0.3− | 2004 09 07 | 704 | 0.4− | 0.6− | 2006 02 20 | 703 | (2.0− | 0.0 ) |
| 2000 11 19 | 704 | 0.4+ | 0.0 | 2004 09 07 | 704 | 0.1− | 0.2+ | 2006 02 20 | 703 | (2.1− | 0.1−) |
| 2000 11 19 | 704 | 0.0 | 0.7+ | 2004 09 07 | 691 | 0.1− | 0.1+ | 2006 02 20 | 703 | 1.0+ | 0.2− |
| 2000 12 04 | 704 | 0.1− | 0.3− | 2004 09 07 | 691 | 0.1+ | 0.1+ | 2006 02 20 | 703 | (2.0+ | 0.5−) |
| 2000 12 04 | 704 | 0.3− | 0.3− | 2004 09 09 | 704 | 0.2+ | 0.6+ | 2006 05 03 | G96 | 0.2+ | 0.2− |
| 2000 12 04 | 704 | 0.1+ | 0.2− | 2004 09 09 | 704 | 0.0 | 0.1− | 2006 05 03 | G96 | 0.1+ | 0.4+ |
| 2000 12 04 | 704 | 0.5− | 0.8− | 2004 09 09 | 704 | 1.1− | 0.4− | 2006 05 03 | G96 | 0.5− | 0.4− |
| 2000 12 19 | 704 | 0.0 | 0.2− | 2004 09 17 | 704 | 0.9− | 0.6+ | 2006 05 03 | G96 | 0.2− | 0.4+ |
| 2000 12 19 | 704 | 0.1+ | 0.2+ | 2004 09 17 | 704 | 0.3+ | 0.8+ | 2009 11 23 | 704 | 0.6+ | 0.3+ |
| 2000 12 19 | 704 | 0.6+ | 0.4+ | 2004 09 17 | 704 | 0.3− | 0.6+ | 2009 11 23 | 704 | 0.5− | 1.4+ |
| 2000 12 19 | 704 | 0.5+ | 0.4+ | 2004 09 17 | 704 | 0.0 | 0.8+ | 2009 11 23 | 704 | 0.6− | 0.4+ |
| 2002 04 07 | 807 | 0.3+ | 0.6+ | 2004 09 17 | 704 | 0.3+ | 1.0+ | 2009 11 23 | 704 | 0.1+ | 0.3− |
| 2002 04 07 | 807 | 0.4+ | 0.5+ | 2004 10 15 | 691 | 0.0 | 0.1+ | 2009 12 20 | J47 | 0.1+ | 0.1− |
| 2004 09 06 | E12 | 0.3− | 0.2+ | 2004 10 15 | 691 | 0.0 | 0.0 | 2009 12 20 | J47 | 0.2+ | 0.0 |
| 2004 09 06 | E12 | 0.0 | 0.1− | 2004 10 15 | 691 | 0.1+ | 0.1+ | 2009 12 20 | J47 | 0.6+ | 0.2− |
| 2004 09 06 | E12 | 0.3− | 0.5− | 2006 01 23 | 691 | 0.0 | 0.1+ | 2009 12 20 | G96 | 0.1− | 0.4− |
| 2004 09 06 | E12 | 0.0 | 0.3− | 2006 01 23 | 691 | 0.1+ | 0.3+ | 2009 12 20 | G96 | 0.1− | 0.3− |
| 2004 09 07 | 704 | 0.5− | 0.5− | 2006 01 23 | 691 | 0.1+ | 0.2− | 2009 12 20 | G96 | 0.2− | 0.4− |
| 2004 09 07 | 704 | 0.1− | 0.8+ | 2006 01 25 | 691 | 0.2+ | 0.6+ | 2009 12 20 | G96 | 0.1+ | 0.3− |

**(229102)∗ 2004 RV$_{31}$ = 1991 PB$_{25}$**

Discovered 2004 Sept. 7 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 100750)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 113.08077 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23069541 | $\omega$ | 197.56022 | | +0.64681585 | +0.75984304 | |
| $a$ | 2.6329549 | $\Omega$ | 112.79429 | | −0.69093480 | +0.62010558 | |
| $e$ | 0.1186162 | $i$ | 4.06354 | | −0.32285965 | +0.19521174 | |
| $P$ | 4.27 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1991 08 02 | 809 | 1.4+ | 0.5− | 2004 09 06 | 644 | 0.2− | 0.7+ | 2005 12 28 | 691 | 0.2+ | 0.3+ |
| 1991 08 02 | 809 | 0.0 | 0.1+ | 2004 09 06 | 644 | 0.0 | 0.4+ | 2007 02 26 | G96 | 0.7+ | 0.1− |
| 1991 08 02 | 809 | (2.7− | 1.0−) | 2004 09 07 | 704 | 0.7− | 1.0+ | 2007 02 26 | G96 | 0.3+ | 0.2− |
| 1994 02 15 | 691 | 0.5− | 0.1+ | 2004 09 07 | 704 | 1.2+ | 0.7+ | 2007 02 26 | G96 | 0.6+ | 0.0 |
| 1994 02 15 | 691 | 0.3− | 0.1+ | 2004 09 07 | 704 | 0.1− | 0.5+ | 2007 02 26 | G96 | 0.2+ | 0.2− |
| 1994 02 15 | 691 | 0.3− | 0.5+ | 2004 09 07 | 704 | 1.0− | 0.1− | 2007 03 13 | G96 | 0.2− | 0.0 |
| 2002 01 14 | 704 | 0.2− | 0.2− | 2004 09 07 | 704 | 0.2+ | 0.9+ | 2007 03 13 | G96 | 0.0 | 0.1+ |
| 2002 01 14 | 704 | 1.0+ | 1.3− | 2004 09 09 | 704 | 0.4− | 1.3+ | 2007 03 13 | G96 | 0.1− | 0.1− |
| 2002 01 14 | 704 | 0.6+ | 0.4− | 2004 09 09 | 704 | 1.1− | 0.9+ | 2007 03 13 | G96 | 0.3− | 0.2− |
| 2002 01 14 | 704 | (2.6+ | 0.3+) | 2004 09 09 | 704 | (0.2− | 1.8+) | 2007 03 16 | 691 | 0.0 | 0.3− |
| 2002 01 14 | 704 | 1.2+ | 0.9− | 2004 09 09 | 704 | 0.8− | 1.1+ | 2007 03 16 | 691 | 0.2− | 0.2− |
| 2003 04 10 | 691 | 0.3+ | 1.1+ | 2004 09 17 | 704 | 0.8− | 0.6+ | 2007 03 16 | 691 | 0.1− | 0.0 |
| 2003 04 10 | 691 | 0.6+ | 1.1+ | 2004 09 17 | 704 | 0.4+ | 0.4+ | 2009 11 10 | 691 | 0.8− | 0.0 |
| 2003 04 10 | 691 | 0.5+ | 0.9+ | 2004 09 17 | 704 | 0.1− | 0.6+ | 2009 11 10 | 691 | 0.3− | 0.2+ |
| 2004 08 10 | 704 | 0.0 | 0.8− | 2005 12 01 | 691 | 0.2+ | 0.4+ | 2009 11 10 | 691 | 0.2− | 0.3+ |
| 2004 08 10 | 704 | 0.7+ | 0.1− | 2005 12 01 | 691 | 0.2+ | 0.2+ | 2009 12 17 | G96 | 0.2+ | 0.1+ |
| 2004 08 10 | 704 | 1.1− | 0.8− | 2005 12 01 | 691 | 0.0 | 0.5+ | 2009 12 17 | G96 | 0.3+ | 0.2+ |
| 2004 08 10 | 704 | 0.3− | 0.4− | 2005 12 28 | 691 | 0.3+ | 0.0 | 2009 12 17 | G96 | 0.2− | 0.4+ |
| 2004 09 06 | 644 | 0.3+ | 0.6+ | 2005 12 28 | 691 | 0.3+ | 0.2+ | 2009 12 17 | G96 | 0.0 | 0.2+ |

**(229103)∗ 2004 RC$_{32}$**

Discovered 2004 Sept. 7 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 60.94896 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22858316 | $\omega$ | 214.73911 | | +0.98669537 | −0.15751979 | |
| $a$ | 2.6491501 | $\Omega$ | 154.23484 | | +0.16207811 | +0.93359945 | |
| $e$ | 0.0701157 | $i$ | 5.31247 | | +0.01276425 | +0.32183782 | |
| $P$ | 4.31 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 10 02 | 688 | 0.5+ | 0.0 | 2004 09 21 | 704 | 0.4− | 0.2+ | 2008 10 28 | G96 | 0.9− | 0.3+ |
| 2000 10 02 | 688 | 0.0 | 0.2+ | 2004 09 21 | 704 | (0.1+ | 1.6−) | 2009 11 17 | 703 | 0.2+ | 1.3+ |
| 2000 10 02 | 704 | 0.0 | 0.0 | 2004 09 21 | 704 | 0.4+ | 0.1− | 2009 11 17 | 703 | 0.0 | 0.1− |
| 2000 10 02 | 704 | 0.6− | 0.0 | 2004 10 04 | 644 | 0.1− | 0.3+ | 2009 11 17 | 703 | 0.3+ | 1.2+ |
| 2000 10 02 | 704 | 1.0− | 0.1− | 2004 10 04 | 644 | 0.3− | 0.6+ | 2009 11 17 | 703 | 0.9− | 0.7+ |
| 2000 10 02 | 704 | 0.9− | 0.4+ | 2004 10 04 | 644 | 0.1+ | 0.3+ | 2009 11 19 | 704 | 0.7+ | 1.0+ |
| 2002 02 13 | 291 | 0.8+ | 0.7+ | 2007 03 14 | G96 | 0.4− | 0.2+ | 2009 11 19 | 704 | 0.3+ | 0.4+ |
| 2002 02 13 | 291 | 0.2− | 0.5+ | 2007 03 14 | G96 | 0.7− | 0.0 | 2009 11 19 | 704 | 0.4+ | 1.4+ |
| 2002 02 13 | 291 | 0.4− | 0.6+ | 2007 03 14 | G96 | 0.2− | 0.1+ | 2009 11 19 | 704 | 0.4+ | 0.3+ |
| 2003 05 27 | 691 | 0.5+ | 1.3+ | 2007 03 14 | G96 | 0.0 | 0.1+ | 2009 11 25 | J75 | 0.2− | 0.1− |
| 2003 05 27 | 691 | 0.5+ | 1.1+ | 2008 05 28 | G96 | 0.3− | 0.3− | 2009 11 25 | J75 | 0.0 | 0.0 |
| 2003 05 27 | 691 | 0.5+ | 0.9+ | 2008 05 28 | G96 | 0.4− | 0.1− | 2009 11 25 | J75 | 0.4+ | 0.1− |
| 2004 08 10 | 599 | 0.1− | 0.3+ | 2008 05 28 | G96 | 0.0 | 0.2− | 2009 11 26 | G96 | 0.1+ | 0.1+ |
| 2004 08 10 | 599 | 0.2− | 0.3+ | 2008 05 28 | G96 | 0.4+ | 0.0 | 2009 11 26 | G96 | 0.1+ | 0.1+ |
| 2004 08 10 | 599 | 0.3− | 0.3+ | 2008 07 25 | E12 | 0.0 | 0.1+ | 2009 11 26 | G96 | 0.2− | 0.4+ |
| 2004 09 07 | 704 | 0.2+ | 1.0+ | 2008 07 25 | E12 | (1.7+ | 0.5+) | 2009 11 26 | G96 | 0.0 | 0.3+ |
| 2004 09 07 | 704 | 0.1+ | 0.6+ | 2008 07 25 | E12 | 0.4+ | 0.2− | 2009 11 26 | G96 | 0.1+ | 0.2+ |
| 2004 09 07 | 704 | 0.3+ | 0.9− | 2008 07 25 | E12 | 0.3+ | 0.2+ | 2009 11 26 | G96 | 0.1+ | 0.0 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 09 | 704 | 0.2+ | 0.8+ | 2008 07 27 | J75 | 0.6− | 0.7− | 2009 11 26 | G96 | 0.2+ | 0.2+ | | |
| 2004 09 09 | 704 | 0.7− | 0.3− | 2008 07 27 | J75 | 0.4− | 0.3− | 2009 11 26 | G96 | 0.3+ | 0.2+ | | |
| 2004 09 09 | 704 | 0.2− | 0.9+ | 2008 07 27 | J75 | 0.3− | 0.2− | 2009 11 26 | G96 | 0.2− | 0.1+ | | |
| 2004 09 09 | 704 | 0.1− | 0.5+ | 2008 10 02 | G96 | 0.8− | 0.0 | 2009 11 26 | G96 | 0.0 | 0.1+ | | |
| 2004 09 17 | 704 | 1.1− | 1.3+ | 2008 10 02 | G96 | 0.4− | 0.1+ | 2009 12 11 | 703 | 0.8− | 0.2+ | | |
| 2004 09 17 | 704 | (2.2+ | 1.1+) | 2008 10 02 | G96 | 0.3− | 0.1− | 2009 12 11 | 703 | 0.0 | 0.9− | | |
| 2004 09 17 | 704 | 1.5+ | 1.3+ | 2008 10 02 | G96 | 0.2+ | 0.5+ | 2009 12 11 | 703 | 1.0− | 0.4+ | | |
| 2004 09 17 | 704 | 0.3+ | 1.3+ | 2008 10 28 | G96 | 0.0 | 0.0 | 2009 12 11 | 703 | 0.2− | 0.6+ | | |
| 2004 09 17 | 704 | 1.1+ | 0.3+ | 2008 10 28 | G96 | 0.1− | 0.3− | | | | | | |
| 2004 09 21 | 704 | 0.8− | 0.4+ | 2008 10 28 | G96 | 0.2− | 0.5− | | | | | | |

**(229104)∗ 2004 RW$_{33}$**

Discovered 2004 Sept. 7 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 136.64203 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.23546412 | $\omega$ | 241.85255 | | | +0.36466412 | | +0.92919251 | |
| $a$ | 2.5972847 | $\Omega$ | 49.66350 | | | −0.82422341 | | +0.35218612 | |
| $e$ | 0.1702133 | $i$ | 4.52804 | | | −0.43321571 | | +0.11209917 | |
| $P$ | 4.19 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 0 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 04 10 | 691 | 0.1− | 0.3+ | 2004 09 09 | 704 | 0.0 | 0.0 | 2007 03 19 | G96 | 0.1− | 0.1− | | |
| 2003 04 10 | 691 | 0.3+ | 0.4+ | 2004 09 09 | 704 | 0.2− | 0.4− | 2008 08 04 | E12 | 0.0 | 0.5+ | | |
| 2003 04 10 | 691 | 1.1+ | 0.3+ | 2004 09 21 | 704 | (0.9− | 2.1+) | 2008 08 04 | E12 | 1.2+ | 0.1+ | | |
| 2004 08 11 | 704 | 0.0 | 0.4+ | 2004 09 21 | 704 | 0.7− | 0.6+ | 2008 08 04 | E12 | 0.2+ | 0.2− | | |
| 2004 08 11 | 704 | 0.7− | 0.7+ | 2004 09 21 | 704 | 0.1− | 1.3+ | 2008 08 04 | E12 | 0.2+ | 0.4+ | | |
| 2004 08 11 | 704 | 0.1− | 0.4+ | 2004 09 21 | 704 | 0.6− | 1.0+ | 2008 08 23 | E12 | 0.1+ | 0.1+ | | |
| 2004 08 11 | 704 | 0.2− | 0.6+ | 2005 12 06 | 691 | 0.0 | 0.1− | 2008 08 23 | E12 | 0.2+ | 0.5+ | | |
| 2004 08 11 | 704 | 0.2+ | 0.4− | 2005 12 06 | 691 | 0.1+ | 0.2+ | 2008 08 23 | E12 | 0.0 | 0.1− | | |
| 2004 09 06 | 644 | 0.6− | 0.2+ | 2005 12 06 | 691 | 0.1+ | 0.2+ | 2008 08 23 | E12 | 1.3− | 0.0 | | |
| 2004 09 06 | 644 | 0.3− | 0.1+ | 2007 02 23 | 691 | 0.5− | 0.5+ | 2009 11 17 | 691 | 0.1+ | 0.5+ | | |
| 2004 09 06 | 644 | 0.2− | 0.2+ | 2007 02 23 | 691 | 0.0 | 0.1+ | 2009 11 17 | 691 | 0.0 | 0.1+ | | |
| 2004 09 07 | 704 | 0.4− | 0.7+ | 2007 02 23 | 691 | 0.1− | 0.4+ | 2009 11 17 | 691 | 0.1− | 0.1+ | | |
| 2004 09 07 | 704 | 0.8− | 0.3+ | 2007 02 27 | 691 | 0.1+ | 0.0 | 2009 12 11 | G96 | 0.5+ | 0.1− | | |
| 2004 09 07 | 704 | 0.7− | 0.4− | 2007 02 27 | 691 | 0.0 | 0.0 | 2009 12 11 | G96 | 0.2+ | 0.0 | | |
| 2004 09 07 | 704 | 1.0+ | 0.2− | 2007 02 27 | 691 | 0.0 | 0.3+ | 2009 12 11 | G96 | 0.3+ | 0.0 | | |
| 2004 09 07 | 704 | 0.0 | 0.2− | 2007 03 19 | G96 | 0.1− | 1.0+ | 2009 12 11 | G96 | 0.5+ | 0.1− | | |
| 2004 09 09 | 704 | 0.3− | 0.7+ | 2007 03 19 | G96 | 0.1+ | 0.0 | | | | | | |
| 2004 09 09 | 704 | 0.3− | 0.5+ | 2007 03 19 | G96 | 0.1+ | 0.0 | | | | | | |

**(229105)∗ 2004 RP$_{39}$**

Discovered 2004 Sept. 7 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 40.35501 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.21680427 | $\omega$ | 359.88477 | | | +0.90047869 | | −0.43448669 | |
| $a$ | 2.7442531 | $\Omega$ | 25.89406 | | | +0.39904780 | | +0.80812674 | |
| $e$ | 0.3055692 | $i$ | 2.48820 | | | +0.17291323 | | +0.39768392 | |
| $P$ | 4.55 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 1 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 01 04 | 704 | 0.4+ | 0.1− | 2004 09 12 | 691 | 0.1+ | 0.2+ | 2004 10 08 | 691 | 0.2− | 0.0 | | |
| 2001 01 04 | 704 | 0.9+ | 0.2+ | 2004 09 12 | 691 | 0.2+ | 0.1+ | 2004 10 08 | 691 | 0.0 | 0.0 | | |
| 2001 01 04 | 704 | 0.2− | 0.2+ | 2004 09 12 | 691 | 0.1+ | 0.1+ | 2004 10 10 | 644 | 0.1− | 0.3+ | | |
| 2001 01 04 | 704 | 0.5+ | 0.8+ | 2004 09 13 | 699 | 0.0 | 0.0 | 2004 10 10 | 644 | 0.1− | 0.1+ | | |
| 2001 01 04 | 704 | 0.7+ | 0.8+ | 2004 09 13 | 699 | 0.2− | 0.5− | 2004 10 10 | 644 | 0.0 | 0.1+ | | |
| 2001 02 02 | 691 | 0.3− | 1.1− | 2004 09 13 | 699 | 0.1− | 0.3+ | 2004 11 13 | 703 | 1.4− | 0.5− | | |
| 2001 02 02 | 691 | 0.1− | 0.5+ | 2004 09 13 | 699 | 0.3− | 0.3+ | 2004 11 13 | 703 | 0.6− | 0.7− | | |
| 2001 02 02 | 691 | 0.0 | 0.8+ | 2004 09 14 | 699 | 0.2+ | 0.2− | 2004 11 13 | 703 | 1.0− | 0.1+ | | |
| 2004 08 12 | 704 | 0.3− | 0.1− | 2004 09 14 | 699 | 0.1− | 0.0 | 2004 11 13 | 703 | 0.9+ | 0.5− | | |
| 2004 08 12 | 704 | 0.6− | 0.7+ | 2004 09 14 | 699 | 0.2− | 0.1+ | 2006 01 25 | 691 | 0.1− | 0.9+ | | |
| 2004 08 12 | 704 | 0.2− | 0.5− | 2004 09 14 | 699 | 0.1+ | 0.4+ | 2006 01 25 | 691 | 0.2+ | 0.6+ | | |
| 2004 08 12 | 704 | 1.4− | 0.0 | 2004 09 17 | 704 | 0.1+ | 0.7+ | 2006 01 25 | 691 | 0.0 | 0.3+ | | |
| 2004 08 21 | 703 | 0.8− | 0.9− | 2004 09 17 | 704 | 0.1+ | 0.8+ | 2006 01 31 | 691 | 0.1+ | 0.3+ | | |
| 2004 08 21 | 703 | 1.1− | 0.7+ | 2004 09 17 | 704 | 0.8+ | 0.5+ | 2006 01 31 | 691 | 0.5+ | 0.4+ | | |
| 2004 08 21 | 703 | 0.8− | 0.5− | 2004 09 17 | 704 | 0.2+ | 0.8+ | 2006 01 31 | 691 | 0.1+ | 0.6+ | | |
| 2004 08 21 | 703 | 0.2+ | 1.3− | 2004 09 17 | 704 | 0.2+ | 1.3+ | 2006 02 24 | 691 | 0.3+ | 0.5+ | | |
| 2004 09 07 | 704 | 0.7+ | 0.0 | 2004 09 21 | 704 | 0.5− | 0.2+ | 2006 02 24 | 691 | 0.3+ | 0.3+ | | |
| 2004 09 07 | 704 | 0.9+ | 0.3+ | 2004 09 21 | 704 | 0.2− | 0.1− | 2006 02 24 | 691 | 0.4+ | 0.4+ | | |
| 2004 09 07 | 704 | 0.2− | 0.4+ | 2004 09 21 | 704 | 0.3− | 0.1+ | 2009 08 29 | 691 | 0.3− | 0.2+ | | |
| 2004 09 07 | 691 | 0.1− | 0.1− | 2004 09 21 | 704 | 0.6− | 0.2+ | 2009 08 29 | 691 | 0.3− | 0.4− | | |
| 2004 09 07 | 704 | 0.2+ | 0.1+ | 2004 09 21 | 704 | 0.6− | 0.2+ | 2009 08 29 | 691 | 0.5+ | 0.6− | | |
| 2004 09 07 | 704 | 0.1+ | 0.1+ | 2004 10 04 | 699 | 0.4− | 0.4+ | 2009 12 10 | 704 | 0.4− | 0.8− | | |
| 2004 09 07 | 691 | 0.2− | 0.1+ | 2004 10 04 | 699 | 0.2+ | 0.3+ | 2009 12 10 | 704 | 1.4+ | 0.5− | | |
| 2004 09 07 | 691 | 0.2− | 0.0 | 2004 10 04 | 699 | 1.5− | 0.4− | 2009 12 10 | 704 | 0.3+ | 0.5− | | |
| 2004 09 09 | 704 | 0.2− | 0.1+ | 2004 10 04 | 699 | 1.3+ | 0.7+ | 2009 12 10 | 704 | 0.8+ | 0.6− | | |
| 2004 09 09 | 704 | 0.6− | 0.1+ | 2004 10 06 | 699 | 0.9+ | 0.4− | 2009 12 10 | 704 | 0.4+ | 0.5− | | |
| 2004 09 09 | 704 | 0.0 | 0.2+ | 2004 10 06 | 699 | 0.7+ | 0.6− | 2009 12 16 | 704 | 0.0 | 0.7− | | |
| 2004 09 09 | 704 | 0.1+ | 0.2+ | 2004 10 06 | 699 | 1.1+ | 0.8+ | 2009 12 16 | 704 | 0.0 | 0.0 | | |
| 2004 09 09 | 704 | 0.1+ | 0.3+ | 2004 10 06 | 699 | 0.4− | 0.3+ | 2009 12 16 | 704 | 0.2− | 0.1+ | | |
| 2004 09 12 | 704 | 0.7− | 1.3+ | 2004 10 06 | 704 | 1.0+ | 0.1− | 2009 12 16 | 704 | 0.5− | 0.2− | | |
| 2004 09 12 | 704 | 0.9− | 1.0+ | 2004 10 06 | 704 | 1.2+ | 0.2− | 2009 12 18 | 691 | 0.0 | 0.2− | | |
| 2004 09 12 | 704 | 0.1− | 0.6+ | 2004 10 06 | 704 | (2.5+ | 1.2+) | 2009 12 18 | 691 | 0.1− | 0.2− | | |
| 2004 09 12 | 704 | 0.0 | 1.2+ | 2004 10 06 | 704 | 0.5+ | 0.6+ | 2009 12 18 | 691 | 0.2− | 0.0 | | |
| 2004 09 12 | 704 | 0.1− | 0.6+ | 2004 10 08 | 691 | 0.1− | 0.0 | | | | | | |

**(229106)∗ 2004 RJ$_{40}$**

Discovered 2004 Sept. 7 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 326.89124 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.23213738 | $\omega$ | 297.42781 | | | −0.54941437 | | −0.83544922 | |
| $a$ | 2.6220401 | $\Omega$ | 185.94871 | | | +0.80400343 | | −0.52437923 | |
| $e$ | 0.1533474 | $i$ | 7.19419 | | | +0.22742543 | | −0.16447198 | |
| $P$ | 4.25 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 0 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1992 11 18 | 691 | 0.7− | 0.1− | 2002 03 23 | 691 | 0.4+ | 0.2+ | 2007 06 16 | 691 | 0.8− | 0.1− | | |
| 1992 11 18 | 691 | (3.5− | 5.7−) | 2002 03 23 | 691 | 0.6+ | 0.3+ | 2007 06 16 | 691 | 0.1+ | 1.1+ | | |
| 2000 10 01 | 704 | 1.8+ | 0.5+ | 2002 03 23 | 691 | 0.7+ | 0.0 | 2007 06 16 | 691 | 0.0 | 0.1− | | |
| 2000 10 01 | 704 | 1.8+ | 0.1− | 2004 08 25 | 691 | 0.1+ | 0.1+ | 2009 11 17 | 703 | (2.7− | 1.3−) | | |
| 2000 10 01 | 704 | 0.9+ | 0.2− | 2004 08 25 | 691 | 0.2− | 0.2+ | 2009 11 17 | 703 | (2.3− | 0.0 ) | | |
| 2002 02 11 | 704 | 0.4+ | 0.8+ | 2004 08 25 | 691 | 0.0 | 0.2+ | 2009 11 17 | 703 | 0.3− | 0.8+ | | |
| 2002 02 11 | 704 | 0.9− | 0.1+ | 2004 09 07 | 691 | 0.3− | 0.1− | 2009 11 17 | 703 | 0.9− | 0.5− | | |
| 2002 02 11 | 704 | 0.4+ | 0.2− | 2004 09 07 | 691 | 0.4− | 0.3+ | 2009 11 26 | G96 | 0.2− | 0.3− | | |
| 2002 02 11 | 704 | 0.4+ | 0.2− | 2004 09 07 | 691 | 0.2− | 0.3+ | 2009 11 26 | G96 | 0.3− | 0.2− | | |
| 2002 02 11 | 704 | 0.9+ | 0.6− | 2004 09 09 | 691 | 0.1+ | 0.1+ | 2009 11 26 | G96 | 0.2− | 0.3− | | |
| 2002 02 16 | 644 | 0.7+ | 0.6+ | 2004 09 09 | 691 | 0.1+ | 0.1+ | 2009 11 26 | G96 | 0.8− | 0.3− | | |
| 2002 02 16 | 644 | 0.7+ | 0.5+ | 2004 09 09 | 691 | 0.0 | 0.1− | 2009 11 26 | G96 | 0.3− | 0.3− | | |
| 2002 02 16 | 644 | 0.7+ | 0.3+ | 2004 10 08 | 691 | 0.0 | 0.7+ | 2009 12 13 | 704 | 0.9+ | 0.3− | | |
| 2002 03 06 | 644 | 0.1+ | 0.0 | 2004 10 08 | 691 | 0.0 | 0.1+ | 2009 12 13 | 704 | 0.7+ | 0.6+ | | |
| 2002 03 06 | 644 | 0.1+ | 0.3− | 2004 10 08 | 691 | 0.1+ | 0.3+ | 2009 12 13 | 704 | 0.5+ | 0.7+ | | |
| 2002 03 06 | 644 | 0.0 | 0.3− | 2006 01 02 | 704 | 0.0 | 1.4+ | 2009 12 13 | 704 | 0.3− | 0.5+ | | |
| 2002 03 12 | 645 | 0.1− | 0.0 | 2006 01 02 | 704 | 0.3− | 0.6+ | | | | | | |
| 2002 03 12 | 645 | 0.1− | 0.1+ | 2006 01 02 | 704 | 0.3− | 0.3− | | | | | | |

**(229107)∗ 2004 RZ$_{49}$**

Discovered 2004 Sept. 8 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 49.01758 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.21711349 | $\omega$ | 203.27076 | | | +0.98547952 | | −0.16909183 | |
| $a$ | 2.7416468 | $\Omega$ | 166.43713 | | | +0.16428658 | | +0.92661076 | |
| $e$ | 0.2052733 | $i$ | 3.77242 | | | +0.04289561 | | +0.33585778 | |
| $P$ | 4.54 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 1 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 02 12 | 691 | 0.7+ | 0.2− | 2004 09 16 | 691 | 0.4− | 0.1+ | 2006 02 20 | 691 | 0.2− | 0.3+ | | |
| 2002 02 12 | 691 | 0.1− | 0.3+ | 2004 09 16 | 691 | 0.1− | 0.1+ | 2007 04 19 | G96 | 0.2+ | 0.4+ | | |
| 2002 02 12 | 691 | 0.1+ | 0.6+ | 2004 09 16 | 691 | 0.2− | 0.2+ | 2007 04 19 | G96 | 0.3+ | 0.5+ | | |
| 2002 03 11 | 209 | 0.0 | 0.6+ | 2004 09 16 | 691 | 0.1− | 0.2+ | 2007 04 19 | G96 | 0.4+ | 0.1+ | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 03 11 | 209 | 0.5+ | 0.5+ | 2004 09 16 | 691 | 0.3− | 0.2+ | 2007 04 19 | G96 | 0.7− | 0.6+ | | |
| 2002 03 11 | 209 | 0.3− | 0.8+ | 2004 09 16 | 691 | 0.1− | 0.2+ | 2009 11 19 | 704 | (1.8+ | 0.0 ) | | |
| 2004 09 08 | 704 | 0.2− | 0.1− | 2004 09 17 | 704 | 0.4+ | 0.1+ | 2009 11 19 | 704 | 0.4+ | 0.7+ | | |
| 2004 09 08 | 704 | 0.2+ | 0.2+ | 2004 09 17 | 704 | 0.6+ | 0.5− | 2009 11 19 | 704 | 1.1− | 0.8− | | |
| 2004 09 08 | 704 | 0.4− | 0.3+ | 2004 09 17 | 704 | 0.2− | 0.4+ | 2009 11 26 | G96 | 0.5+ | 0.2− | | |
| 2004 09 09 | 704 | 0.2+ | 0.2+ | 2004 09 17 | 704 | 0.5+ | 0.3+ | 2009 11 26 | G96 | 0.7+ | 0.3− | | |
| 2004 09 09 | 704 | 0.1+ | 0.5+ | 2004 09 17 | 704 | (0.4+ | 1.5+) | 2009 11 26 | G96 | 0.4+ | 0.2− | | |
| 2004 09 09 | 704 | 0.1− | 0.7− | 2004 09 23 | 691 | 0.1− | 0.1+ | 2009 11 26 | G96 | 0.5+ | 0.1− | | |
| 2004 09 09 | 704 | 0.3+ | 0.6+ | 2004 09 23 | 691 | 0.0 | 0.1+ | 2009 11 26 | G96 | 0.5+ | 0.2− | | |
| 2004 09 09 | 704 | 0.6+ | 0.0 | 2004 09 23 | 691 | 0.1− | 0.0 | 2009 11 26 | G96 | 0.2+ | 0.5− | | |
| 2004 09 09 | 699 | 0.4+ | 0.1+ | 2004 10 04 | 644 | 0.0 | 0.1− | 2009 11 26 | G96 | 0.2+ | 0.4− | | |
| 2004 09 09 | 699 | 0.2+ | 0.6+ | 2004 10 04 | 644 | 0.0 | 0.0 | 2009 11 26 | G96 | 0.3+ | 0.4− | | |
| 2004 09 09 | 699 | 0.1+ | 0.5+ | 2004 10 04 | 644 | 0.0 | 0.0 | 2009 11 26 | G96 | 0.4+ | 0.3− | | |
| 2004 09 09 | 699 | (1.5− | 0.1+) | 2004 10 07 | 704 | 0.5+ | 1.2+ | 2009 11 26 | G96 | 0.0 | 0.5− | | |
| 2004 09 11 | H07 | 0.3− | 0.6+ | 2004 10 07 | 704 | 0.3− | 0.8+ | 2009 11 27 | 291 | 0.2− | 0.1+ | | |
| 2004 09 11 | H07 | 1.1+ | 0.3+ | 2004 10 07 | 704 | 0.4− | 0.5+ | 2009 11 27 | 291 | 0.2− | 0.1+ | | |
| 2004 09 12 | H07 | 0.5+ | 0.1− | 2004 10 07 | 704 | 0.9− | 0.4− | 2009 11 27 | 291 | 0.2− | 0.0 | | |
| 2004 09 12 | H07 | 0.3+ | 0.6+ | 2004 10 11 | 691 | 0.2− | 0.1− | 2009 11 27 | G96 | 0.3+ | 0.2− | | |
| 2004 09 13 | 699 | 0.2+ | 0.6+ | 2004 10 11 | 691 | 0.1+ | 0.2− | 2009 11 27 | G96 | 0.1+ | 0.2− | | |
| 2004 09 13 | 699 | 0.5− | 0.4+ | 2004 10 11 | 691 | 0.1− | 0.0 | 2009 11 27 | G96 | 0.4+ | 0.3− | | |
| 2004 09 13 | 699 | 0.9− | 0.1+ | 2006 01 08 | G96 | 0.0 | 0.0 | 2009 11 27 | G96 | 0.7− | 0.0 | | |
| 2004 09 13 | 699 | 0.1− | 0.1+ | 2006 01 08 | G96 | 0.1− | 0.0 | 2009 11 27 | G96 | 0.9+ | 0.0 | | |
| 2004 09 14 | 699 | 0.2+ | 0.2− | 2006 01 08 | G96 | 0.1− | 0.2− | 2009 12 11 | 703 | 0.2− | 0.3+ | | |
| 2004 09 14 | 699 | 0.1+ | 0.1− | 2006 01 08 | G96 | 0.1− | 0.1− | 2009 12 11 | 703 | 0.0 | 0.9− | | |
| 2004 09 14 | 699 | 0.3+ | 0.3+ | 2006 02 20 | 691 | 0.4+ | 1.0+ | 2009 12 11 | 703 | 0.3− | 0.1− | | |
| 2004 09 14 | 699 | 0.2+ | 0.4− | 2006 02 20 | 691 | 0.1+ | 0.5+ | 2009 12 11 | 703 | 0.3− | 0.1− | | |

**(229108)∗ 2004 RA$_{51}$ = 1991 PW$_6$**

Discovered 2004 Sept. 8 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 69939)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 119.56656 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23008687 | $\omega$ | 170.68143 | | +0.44288499 | +0.89521444 | |
| $a$ | 2.6375953 | $\Omega$ | 125.59111 | | −0.82646073 | +0.42900410 | |
| $e$ | 0.2521599 | $i$ | 3.48536 | | −0.34758532 | +0.12060924 | |
| $P$ | 4.28 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1991 08 06 | 809 | (1.2+ | 2.2+) | 2004 09 09 | 699 | 0.6+ | 0.2− | 2007 01 27 | G96 | 0.8+ | 0.0 | | |
| 1991 08 06 | 809 | 0.8− | 1.5+ | 2004 09 12 | 704 | (0.5− | 1.6+) | 2007 01 27 | G96 | 0.8− | 0.3+ | | |
| 1991 08 06 | 809 | 1.4− | 0.5+ | 2004 09 12 | 704 | 0.6− | 0.8+ | 2007 02 26 | G96 | 0.2+ | 0.3− | | |
| 1991 08 14 | 809 | 0.9+ | 1.1+ | 2004 09 12 | 704 | 0.7− | 0.5+ | 2007 02 26 | G96 | 0.5+ | 0.5+ | | |
| 1991 08 14 | 809 | 0.2− | 0.7+ | 2004 09 12 | 704 | 0.2+ | 0.4+ | 2007 02 26 | G96 | 0.5+ | 0.7+ | | |
| 1991 08 14 | 809 | (0.1+ | 2.3+) | 2004 09 13 | 699 | 0.7+ | 0.7+ | 2007 02 26 | G96 | 0.8− | 0.1+ | | |
| 1996 12 08 | 691 | 0.4− | 0.2− | 2004 09 13 | 699 | 0.6+ | 0.5+ | 2007 03 15 | 691 | 0.1− | 0.6+ | | |
| 1996 12 08 | 691 | 0.2− | 0.1− | 2004 09 13 | 699 | 0.5+ | 0.3+ | 2007 03 15 | 691 | 0.4+ | 0.2− | | |
| 1996 12 08 | 691 | 0.0 | 0.1+ | 2004 09 13 | 699 | 0.3− | 0.5+ | 2007 03 15 | 691 | 0.0 | 0.6+ | | |
| 2003 03 23 | 691 | 0.3+ | 0.0 | 2004 09 14 | 699 | 1.4+ | 0.5+ | 2007 03 17 | 691 | (2.1− | 0.5+) | | |
| 2003 03 23 | 691 | 0.2+ | 0.4+ | 2004 09 14 | 699 | 0.5− | 0.8− | 2007 03 17 | 691 | 0.0 | 0.4+ | | |
| 2003 03 23 | 691 | 0.3+ | 0.1+ | 2004 09 14 | 699 | 0.8+ | 0.2− | 2007 03 17 | 691 | 0.1− | 0.2+ | | |
| 2004 08 26 | 703 | 0.5+ | 0.8+ | 2004 09 14 | 699 | 0.1+ | 0.2− | 2007 03 20 | 691 | 0.1− | 0.5+ | | |
| 2004 08 26 | 703 | (2.0− | 0.4−) | 2004 09 17 | 704 | 0.5+ | 0.6− | 2007 03 20 | 691 | 0.3+ | 0.5+ | | |
| 2004 08 26 | 703 | 0.6− | 0.4− | 2004 09 17 | 704 | 0.5+ | 1.1+ | 2007 03 20 | 691 | 0.3+ | 0.2+ | | |
| 2004 08 26 | 703 | 0.9+ | 0.0 | 2004 09 17 | 704 | 0.7+ | 0.5+ | 2008 07 01 | 704 | (0.1− | 1.7−) | | |
| 2004 09 08 | 704 | 0.7− | 0.1+ | 2004 09 17 | 704 | 0.3+ | 1.1+ | 2008 07 01 | 704 | 1.0− | 1.0− | | |
| 2004 09 08 | 704 | 0.4− | 0.2+ | 2004 09 17 | 704 | 0.3− | 0.5+ | 2008 07 01 | 704 | 1.5− | 0.5+ | | |
| 2004 09 08 | 704 | 0.5− | 0.2− | 2004 09 21 | 704 | 0.3− | 1.0− | 2009 11 26 | G96 | 0.2− | 0.0 | | |
| 2004 09 08 | 704 | 0.4− | 0.0 | 2004 09 21 | 704 | 0.9− | 0.1− | 2009 11 26 | G96 | 0.2+ | 0.1− | | |
| 2004 09 08 | 704 | 0.1+ | 0.2+ | 2004 09 21 | 704 | 0.2− | 0.5+ | 2009 11 26 | G96 | 0.1+ | 0.3− | | |
| 2004 09 09 | 704 | 0.7− | 0.2+ | 2004 09 21 | 704 | 0.3+ | 0.0 | 2009 11 26 | G96 | 0.1+ | 0.1+ | | |
| 2004 09 09 | 704 | 0.0 | 0.2+ | 2004 09 21 | 704 | 0.6− | 0.4− | 2009 11 26 | G96 | 0.0 | 0.2− | | |
| 2004 09 09 | 704 | 0.6− | 0.6+ | 2004 10 05 | 699 | 0.7+ | 0.8+ | 2009 12 11 | G96 | 0.4− | 0.1− | | |
| 2004 09 09 | 704 | 0.6− | 0.2+ | 2004 10 05 | 699 | 0.2+ | 0.1− | 2009 12 11 | G96 | 0.1− | 0.3+ | | |
| 2004 09 09 | 704 | 0.7− | 0.1− | 2004 10 05 | 699 | 0.7− | 1.2+ | 2009 12 11 | G96 | 0.3− | 0.1+ | | |
| 2004 09 09 | 699 | 0.8+ | 0.7+ | 2004 10 05 | 699 | (1.6+ | 0.9+) | 2009 12 11 | G96 | 0.1− | 0.0 | | |
| 2004 09 09 | 699 | 0.6+ | 0.8+ | 2007 01 27 | G96 | 0.6+ | 0.1+ | | | | | | |
| 2004 09 09 | 699 | 0.2+ | 0.0 | 2007 01 27 | G96 | 0.3− | 0.2− | | | | | | |

**(229109)∗ 2004 RQ$_{56}$**

Discovered 2004 Sept. 8 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 114.85455 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23200821 | $\omega$ | 98.94266 | | +0.71191038 | +0.70153250 | |
| $a$ | 2.6230132 | $\Omega$ | 216.51813 | | −0.66370448 | +0.65713065 | |
| $e$ | 0.1324966 | $i$ | 3.10020 | | −0.22952118 | +0.27573801 | |
| $P$ | 4.25 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 11 17 | 691 | 0.6+ | 0.0 | 2004 09 17 | 691 | 0.1− | 0.1− | 2008 07 28 | J75 | 0.1− | 0.1+ | | |
| 1996 11 17 | 691 | 0.1+ | 0.3− | 2004 09 17 | 691 | 0.3− | 0.4− | 2008 07 28 | J75 | 0.1+ | 0.4− | | |
| 2000 11 17 | 691 | 0.1− | 0.3− | 2004 10 08 | 691 | 0.0 | 0.0 | 2008 07 28 | J75 | 0.3+ | 0.6+ | | |
| 2000 11 17 | 691 | 0.8− | 0.1− | 2004 10 08 | 691 | 0.1− | 0.1− | 2008 07 30 | G96 | 0.2− | 0.0 | | |
| 2000 11 17 | 691 | 0.4− | 0.7+ | 2004 10 08 | 691 | 0.1− | 0.1− | 2008 07 30 | G96 | 0.3+ | 0.0 | | |
| 2001 12 23 | 291 | 0.2− | 0.4+ | 2004 10 13 | 291 | 0.2+ | 0.4+ | 2008 07 30 | G96 | 0.4− | 0.0 | | |
| 2001 12 23 | 291 | 0.4+ | 0.9+ | 2004 10 13 | 291 | 0.5+ | 0.1+ | 2008 07 30 | G96 | 0.1− | 0.1− | | |
| 2001 12 23 | 291 | 0.0 | 0.9+ | 2004 10 13 | 291 | 0.3+ | 0.0 | 2008 07 30 | 703 | 0.3+ | 0.6+ | | |
| 2003 05 10 | 291 | 0.1− | 0.4+ | 2004 10 13 | 291 | 0.2+ | 0.3+ | 2008 07 30 | 703 | 0.6− | 0.4− | | |
| 2003 05 10 | 291 | 0.2+ | 0.6+ | 2004 10 13 | 291 | 0.4+ | 0.4+ | 2008 07 30 | 703 | 0.9− | 0.4− | | |
| 2003 05 10 | 291 | 0.4+ | 0.5+ | 2004 10 13 | 291 | 0.4+ | 0.5+ | 2008 07 30 | 703 | 0.3+ | 0.7+ | | |
| 2004 08 25 | 691 | 0.2− | 0.1− | 2004 10 14 | 291 | (0.4− | 2.6+) | 2009 11 20 | 691 | 0.8+ | 0.1− | | |
| 2004 08 25 | 691 | 0.0 | 0.1+ | 2004 10 14 | 291 | 0.0 | 0.2+ | 2009 11 20 | 691 | 0.0 | 0.1− | | |
| 2004 08 25 | 691 | 0.1− | 0.0 | 2004 10 14 | 291 | 0.1− | 0.0 | 2009 11 20 | 691 | 0.3− | 0.3− | | |
| 2004 09 08 | 704 | 0.4− | 1.2+ | 2007 04 19 | G96 | 0.9+ | 0.2− | 2009 11 24 | 691 | 0.2− | 0.0 | | |
| 2004 09 08 | 704 | (2.0+ | 0.7+) | 2007 04 19 | G96 | 0.8− | 0.1− | 2009 11 24 | 691 | 0.7− | 0.3+ | | |
| 2004 09 08 | 704 | (1.7− | 0.5+) | 2007 04 19 | G96 | 0.2− | 0.0 | 2009 11 24 | 691 | 0.2− | 0.2− | | |
| 2004 09 08 | 704 | 1.3− | 0.9+ | 2007 04 19 | G96 | 0.2+ | 0.3+ | 2009 12 11 | G96 | 1.1+ | 0.2− | | |
| 2004 09 09 | 691 | 0.1− | 0.1+ | 2007 04 20 | G96 | 0.3+ | 0.1+ | 2009 12 11 | G96 | 0.6+ | 0.1− | | |
| 2004 09 09 | 691 | 0.1− | 0.1+ | 2007 04 20 | G96 | 0.0 | 0.1− | 2009 12 11 | G96 | 0.7+ | 0.0 | | |
| 2004 09 09 | 691 | 0.0 | 0.1+ | 2007 04 20 | G96 | 0.6+ | 0.2+ | 2009 12 11 | G96 | 0.7+ | 0.2− | | |
| 2004 09 17 | 691 | 0.1− | 0.1− | 2007 04 20 | G96 | (2.3+ | 0.4+) | | | | | | |

**(229110)∗ 2004 RG$_{64}$**

Discovered 2004 Sept. 8 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 52.88414 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21782020 | $\omega$ | 36.39005 | | +0.98421613 | −0.17578292 | |
| $a$ | 2.7357135 | $\Omega$ | 333.71200 | | +0.14949973 | +0.88775149 | |
| $e$ | 0.2070233 | $i$ | 2.64899 | | +0.09470183 | +0.42543819 | |
| $P$ | 4.52 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 10 16 | 691 | 0.1+ | 0.5− | 2004 09 15 | 691 | 0.0 | 0.2+ | 2006 02 02 | 691 | 0.4+ | 0.3+ | | |
| 1995 10 16 | 691 | 0.3+ | 0.7− | 2004 09 15 | 691 | 0.0 | 0.0 | 2006 02 06 | G96 | 0.3− | 0.0 | | |
| 1995 10 16 | 691 | 0.4+ | 0.4− | 2004 09 17 | 704 | 0.1− | 0.1+ | 2006 02 06 | G96 | 0.2+ | 0.1+ | | |
| 2004 09 08 | 704 | 0.3− | 1.3+ | 2004 09 17 | 704 | 0.0 | 0.4− | 2006 02 06 | G96 | 0.4− | 0.3+ | | |
| 2004 09 08 | 704 | 0.2− | 0.9+ | 2004 09 17 | 704 | 0.1− | 0.1+ | 2006 02 06 | G96 | 0.0 | 0.4+ | | |
| 2004 09 08 | 704 | 0.7− | 0.7+ | 2004 09 17 | 704 | 0.2− | 0.4+ | 2006 02 25 | G96 | 0.1− | 0.2+ | | |
| 2004 09 08 | 704 | 0.2− | 0.4+ | 2004 09 17 | 704 | 0.2− | 0.1+ | 2006 02 25 | G96 | 0.8− | 0.1+ | | |
| 2004 09 08 | 704 | 0.1− | 0.1− | 2004 10 06 | 699 | 0.5+ | 0.1+ | 2006 02 25 | G96 | 0.2+ | 0.4+ | | |
| 2004 09 09 | 704 | 0.5+ | 1.3+ | 2004 10 06 | 699 | 0.1+ | 0.1+ | 2006 02 25 | G96 | 0.2+ | 0.7+ | | |
| 2004 09 09 | 704 | 0.9− | 0.3− | 2004 10 06 | 699 | 1.2+ | 0.3− | 2009 11 17 | G96 | 0.4+ | 0.1− | | |
| 2004 09 09 | 704 | 0.4− | 0.7+ | 2004 10 06 | 699 | 0.3− | 0.6− | 2009 11 17 | G96 | 0.5+ | 0.0 | | |
| 2004 09 09 | 704 | 0.0 | 0.0 | 2004 10 09 | 704 | 0.2− | 0.2+ | 2009 11 17 | G96 | 0.5+ | 0.0 | | |
| 2004 09 09 | 704 | 0.4− | 0.5+ | 2004 10 09 | 704 | 0.1− | 0.3− | 2009 11 17 | G96 | 0.2+ | 0.2− | | |
| 2004 09 09 | 704 | 0.1+ | 0.3+ | 2004 10 09 | 704 | 0.5− | 0.7− | 2009 11 19 | 691 | 0.3− | 0.0 | | |
| 2004 09 09 | 704 | 0.2+ | 0.0 | 2006 01 10 | G96 | 0.3− | 0.3+ | 2009 11 19 | 691 | 0.3− | 0.0 | | |
| 2004 09 09 | 704 | 0.2− | 0.4− | 2006 01 10 | G96 | 0.5− | 0.2− | 2009 11 19 | 691 | 0.4− | 0.3− | | |
| 2004 09 09 | 704 | 0.0 | 0.1+ | 2006 01 10 | G96 | 0.6− | 0.0 | 2009 12 08 | J75 | 0.6− | 0.3+ | | |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 09 | 704 | 0.4+ | 1.1+ | 2006 01 10 | G96 | 0.7− | 0.1− | 2009 12 08 | J75 | 0.6+ | 0.0 |
| 2004 09 10 | 704 | 0.4− | 0.4+ | 2006 01 23 | G96 | 0.2− | 0.0 | 2009 12 09 | J75 | 0.1+ | 0.4+ |
| 2004 09 10 | 704 | 0.4− | 0.5+ | 2006 01 23 | G96 | 0.1− | 0.0 | 2009 12 10 | 704 | 0.1+ | 0.0 |
| 2004 09 10 | 704 | 1.2− | 0.1+ | 2006 01 23 | G96 | 0.1− | 0.1− | 2009 12 10 | 704 | 0.8+ | 0.4+ |
| 2004 09 10 | 704 | 0.1+ | 0.8+ | 2006 01 23 | G96 | 0.1− | 0.3− | 2009 12 10 | 704 | 0.5+ | 0.6+ |
| 2004 09 10 | 704 | 0.0 | 1.1+ | 2006 02 02 | 691 | 0.2+ | 0.5+ | 2009 12 10 | 704 | 0.7+ | 0.0 |
| 2004 09 15 | 691 | 0.1− | 0.1− | 2006 02 02 | 691 | 0.6+ | 0.0 | | | | |

**(229111)∗ 2004 RR$_{74}$**

Discovered 2004 Sept. 8 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 48.48285 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.22541655 | $\omega$ | 297.05351 | | | +0.74566274 | | −0.66340661 | |
| $a$ | 2.6739022 | $\Omega$ | 104.57659 | | | +0.63187101 | | +0.67434668 | |
| $e$ | 0.1796587 | $i$ | 3.68958 | | | +0.21148546 | | +0.32426565 | |
| $P$ | 4.37 | $H$ | 16.4 | $G$ | 0.15 | | $U$ | 0 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 29 | 691 | 0.1+ | 0.6− | 2004 09 14 | 699 | 0.2− | 0.2+ | 2006 02 01 | 691 | 0.1+ | 0.4+ |
| 2000 11 29 | 691 | 0.1+ | 0.5− | 2004 09 17 | 704 | 0.3− | 0.2+ | 2006 02 01 | 691 | 0.2+ | 0.8+ |
| 2000 11 29 | 691 | 0.0 | 0.6− | 2004 09 17 | 704 | 1.3+ | 0.2− | 2006 02 24 | 691 | 0.1+ | 0.1+ |
| 2004 09 08 | 704 | 0.7− | 0.7+ | 2004 09 17 | 704 | 0.9− | 0.9− | 2006 02 24 | 691 | 0.1+ | 0.6+ |
| 2004 09 08 | 704 | 0.3− | 0.9+ | 2004 09 17 | 704 | 0.3+ | 0.4+ | 2006 02 24 | 691 | 0.6+ | 0.7+ |
| 2004 09 08 | 704 | 0.3− | 0.9+ | 2004 09 17 | 704 | 0.2− | 0.3+ | 2007 04 18 | 691 | 0.3− | 0.4+ |
| 2004 09 08 | 704 | 0.6+ | 0.8+ | 2004 10 07 | 704 | 0.2− | 1.1+ | 2007 04 18 | 691 | 0.3+ | 0.3− |
| 2004 09 08 | 704 | 0.3− | 1.3+ | 2004 10 07 | 704 | 0.2+ | 0.7− | 2007 04 18 | 691 | 0.2+ | 0.0 |
| 2004 09 09 | 704 | 0.7− | 0.7+ | 2004 10 07 | 704 | 0.1− | 0.7+ | 2007 05 12 | G96 | 0.4− | 0.4+ |
| 2004 09 09 | 704 | 0.3− | 1.0+ | 2004 10 07 | 704 | 0.3+ | 1.5− | 2007 05 12 | G96 | 0.2− | 0.5+ |
| 2004 09 09 | 704 | 0.2− | 0.3+ | 2004 10 09 | 704 | 0.6− | 0.3− | 2007 05 12 | G96 | 0.3− | 0.1+ |
| 2004 09 09 | 704 | (0.5+ | 1.6+) | 2004 10 09 | 704 | 0.2+ | 0.5+ | 2007 05 12 | G96 | 0.2+ | 0.4+ |
| 2004 09 09 | 704 | 0.3+ | 0.8+ | 2004 10 09 | 704 | 0.5+ | 0.4+ | 2008 10 27 | G96 | 0.1+ | 0.2− |
| 2004 09 09 | 704 | (0.6− | 2.3+) | 2004 10 09 | 704 | 0.0 | 0.2+ | 2008 10 27 | G96 | 0.4− | 0.6+ |
| 2004 09 09 | 704 | 0.4+ | 1.1+ | 2004 10 09 | 704 | 0.7− | 0.3+ | 2008 10 27 | G96 | 0.6− | 0.4− |
| 2004 09 09 | 704 | 0.1− | 0.2− | 2004 10 09 | 699 | (1.6+ | 0.2+) | 2008 10 27 | G96 | 0.2− | 0.3− |
| 2004 09 09 | 704 | 0.4+ | 1.1+ | 2004 10 09 | 699 | 0.7− | 0.4+ | 2009 12 15 | G96 | 0.4+ | 0.0 |
| 2004 09 09 | 704 | 0.6− | 1.0+ | 2004 10 09 | 699 | 0.1+ | 0.1− | 2009 12 15 | G96 | 0.3+ | 0.1− |
| 2004 09 09 | 704 | 0.4− | 0.4+ | 2004 10 09 | 699 | 0.8+ | 0.5− | 2009 12 15 | G96 | 0.6+ | 0.3− |
| 2004 09 09 | 704 | (3.7+ | 3.4+) | 2004 10 10 | 704 | 0.9− | 0.4+ | 2009 12 15 | G96 | (1.2− | 1.9−) |
| 2004 09 09 | 704 | 0.2− | 1.0+ | 2004 10 10 | 704 | 1.2− | 1.3+ | 2009 12 17 | 691 | 0.2+ | 0.0 |
| 2004 09 12 | 704 | 1.2− | 0.1+ | 2004 10 10 | 704 | 0.3+ | 0.4+ | 2009 12 17 | 691 | 0.3+ | 0.2− |
| 2004 09 12 | 704 | 0.6− | 0.4− | 2004 10 10 | 704 | 0.8+ | 0.6+ | 2009 12 17 | 691 | 0.2+ | 0.1+ |
| 2004 09 12 | 704 | 1.1− | 0.6− | 2004 10 10 | 704 | 0.3+ | 0.3+ | 2009 12 25 | 691 | 0.7− | 0.1+ |
| 2004 09 12 | 704 | 0.5− | 0.2− | 2006 01 23 | 691 | 0.3− | 0.1− | 2009 12 25 | 691 | 0.4− | 0.1+ |
| 2004 09 14 | 699 | 0.0 | 0.8+ | 2006 01 23 | 691 | 0.3+ | 0.2+ | 2009 12 25 | 691 | 0.1+ | 0.2− |
| 2004 09 14 | 699 | 0.3+ | 0.3+ | 2006 01 23 | 691 | 0.1+ | 0.4+ | | | | |
| 2004 09 14 | 699 | 1.3+ | 0.1− | 2006 02 01 | 691 | 0.2+ | 0.8+ | | | | |

**(229112)∗ 2004 RV$_{75}$ = 1995 UQ$_{14}$**

Discovered 2004 Sept. 8 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 69963)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 58.75945 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.21422686 | $\omega$ | 337.18733 | | | +0.99808409 | | +0.03863766 | |
| $a$ | 2.7662204 | $\Omega$ | 20.77315 | | | −0.00853653 | | +0.85956776 | |
| $e$ | 0.1562539 | $i$ | 7.83107 | | | −0.06128024 | | +0.50955902 | |
| $P$ | 4.60 | $H$ | 16.3 | $G$ | 0.15 | | $U$ | 1 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 10 17 | 691 | 0.0 | 0.3− | 2004 10 07 | 704 | 1.1− | 0.2+ | 2004 10 15 | 691 | 0.2− | 0.2+ |
| 1995 10 17 | 691 | 0.1+ | 0.0 | 2004 10 07 | 704 | 0.8− | 0.7− | 2004 10 15 | 691 | 0.1− | 0.3+ |
| 1995 10 17 | 691 | 0.2+ | 0.2− | 2004 10 07 | 704 | (0.1+ | 1.6+) | 2007 03 13 | 691 | 0.0 | 0.2− |
| 1995 10 24 | 691 | 0.1− | 0.2− | 2004 10 08 | 699 | 0.5+ | 0.4− | 2007 03 13 | 691 | 0.0 | 0.1+ |
| 1995 10 24 | 691 | 0.0 | 0.3− | 2004 10 08 | 699 | 0.2+ | 0.6− | 2007 03 13 | 691 | 0.0 | 0.3+ |
| 1995 10 24 | 691 | 0.4+ | 0.2− | 2004 10 08 | 699 | 0.6+ | 0.7+ | 2007 05 09 | G96 | 0.0 | 0.2− |
| 2004 08 19 | E12 | 0.8+ | 1.1− | 2004 10 08 | 699 | 0.8+ | 0.7+ | 2007 05 09 | G96 | 0.4+ | 0.1− |
| 2004 08 19 | E12 | 0.4+ | 0.2+ | 2004 10 08 | 699 | (2.2+ | 0.1+) | 2007 05 09 | G96 | 0.5+ | 0.2+ |
| 2004 08 19 | E12 | 0.4+ | 0.2− | 2004 10 09 | 704 | 0.3+ | 0.4− | 2007 05 09 | G96 | 0.4− | 0.6+ |
| 2004 08 19 | E12 | 0.7− | 0.0 | 2004 10 09 | 704 | 1.2− | 0.0 | 2009 11 11 | 691 | 0.1− | 0.2− |
| 2004 09 08 | 704 | 0.1+ | 0.6+ | 2004 10 09 | 704 | 0.2− | 1.2− | 2009 11 11 | 691 | 0.1− | 0.2− |
| 2004 09 08 | 704 | 0.5+ | 1.1+ | 2004 10 09 | 704 | 0.5− | 0.2− | 2009 11 11 | 691 | 0.2− | 0.3− |
| 2004 09 08 | 704 | 0.1+ | 1.1+ | 2004 10 09 | 704 | 0.0 | 0.3− | 2009 11 19 | 691 | 0.4− | 0.1− |
| 2004 09 08 | 704 | 0.3+ | 1.4+ | 2004 10 09 | 704 | 0.4+ | 1.0− | 2009 11 19 | 691 | 0.2− | 0.2− |
| 2004 09 08 | 704 | 0.9+ | 0.3+ | 2004 10 09 | 704 | 0.1+ | 1.2− | 2009 11 19 | 691 | 0.3− | 0.4− |
| 2004 09 09 | 704 | 0.1− | 0.1− | 2004 10 09 | 704 | 1.3− | 0.2− | 2009 11 25 | 703 | (1.5+ | 0.4−) |
| 2004 09 09 | 704 | 0.6+ | 0.4+ | 2004 10 09 | 704 | 0.7− | 1.0− | 2009 11 25 | 703 | 0.0 | 1.1+ |
| 2004 09 09 | 704 | 0.1+ | 0.0 | 2004 10 09 | 704 | 0.4− | 1.3− | 2009 11 25 | 703 | 0.3+ | 1.2− |
| 2004 09 09 | 704 | 0.2− | 0.4+ | 2004 10 09 | 704 | 0.9− | 0.7− | 2009 11 25 | 703 | 0.2+ | 0.7− |
| 2004 09 17 | 704 | 0.7− | 0.2+ | 2004 10 09 | 704 | (1.7− | 0.1−) | 2009 11 25 | 703 | 0.4− | 0.6− |
| 2004 09 17 | 704 | (2.1− | 0.5+) | 2004 10 09 | 704 | 0.3− | 0.6− | 2009 11 27 | 691 | 0.4− | 0.1− |
| 2004 09 17 | 704 | 1.2+ | 0.8+ | 2004 10 10 | 691 | 0.1+ | 0.0 | 2009 11 27 | 691 | 0.2− | 0.0 |
| 2004 10 05 | 699 | 0.9− | 0.2+ | 2004 10 10 | 691 | 0.1+ | 0.1+ | 2009 11 27 | 691 | 0.1− | 0.1+ |
| 2004 10 05 | 699 | 0.1+ | 0.8− | 2004 10 10 | 691 | 0.1− | 0.0 | 2009 12 10 | 704 | 1.9+ | 2.7+ |
| 2004 10 05 | 699 | 0.4− | 0.8+ | 2004 10 11 | 691 | 0.4+ | 0.1− | 2009 12 10 | 704 | (1.4+ | 3.8+) |
| 2004 10 05 | 699 | 0.5+ | 0.5+ | 2004 10 11 | 691 | 0.3+ | 0.1+ | 2009 12 10 | 704 | 2.5+ | 1.8+ |
| 2004 10 07 | 704 | 0.9− | 0.1+ | 2004 10 11 | 691 | 0.1− | 0.2+ | 2009 12 10 | 704 | 1.3+ | 1.9+ |
| 2004 10 07 | 704 | 0.0 | 0.9+ | 2004 10 15 | 691 | 0.2− | 0.4+ | | | | |

**(229113)∗ 2004 RN$_{82}$**

Discovered 2004 Sept. 9 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 33.64052 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.22373652 | $\omega$ | 153.21908 | | | +0.56398860 | | −0.82567968 | |
| $a$ | 2.6872710 | $\Omega$ | 262.44615 | | | +0.75526440 | | +0.52214507 | |
| $e$ | 0.2405478 | $i$ | 0.75343 | | | +0.33390499 | | +0.21358275 | |
| $P$ | 4.41 | $H$ | 17.1 | $G$ | 0.15 | | $U$ | 0 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1960 09 24 | 675 | 0.2− | 1.0− | 2004 09 13 | 699 | 0.0 | 0.2+ | 2006 03 03 | 691 | 0.1+ | 0.2+ |
| 1960 09 24 | 675 | 0.2+ | 0.4+ | 2004 09 13 | 699 | 0.9+ | 0.8+ | 2006 03 03 | 691 | 0.3+ | 0.5+ |
| 1960 09 26 | 675 | 0.4+ | 0.7+ | 2004 09 13 | 699 | (1.5− | 1.9+) | 2009 11 10 | G96 | 0.2− | 0.5− |
| 1960 09 26 | 675 | 0.3− | 0.3− | 2004 09 13 | 699 | 0.2+ | 0.5+ | 2009 11 10 | G96 | 0.5+ | 0.3− |
| 2000 11 29 | 704 | 0.0 | 0.0 | 2004 09 17 | 704 | 0.6+ | 0.5+ | 2009 11 10 | G96 | 0.7+ | 0.9− |
| 2000 11 29 | 704 | 0.0 | 0.5− | 2004 09 17 | 704 | 0.3− | 0.4− | 2009 11 10 | G96 | 0.5− | 0.1− |
| 2000 11 29 | 704 | 0.0 | 1.0+ | 2004 09 17 | 704 | 0.1+ | 0.3− | 2009 12 15 | G96 | 0.1− | 0.1+ |
| 2000 11 29 | 704 | 0.0 | 0.5+ | 2004 09 17 | 704 | 0.6+ | 1.0+ | 2009 12 15 | G96 | 0.3− | 0.3− |
| 2000 11 29 | 704 | 0.3− | 0.1− | 2004 10 12 | 691 | 0.6− | 0.3+ | 2009 12 15 | G96 | 0.0 | 0.2− |
| 2004 09 09 | 704 | 0.7− | 0.2+ | 2004 10 12 | 691 | 0.0 | 0.1+ | 2009 12 15 | G96 | 0.2− | 0.9− |
| 2004 09 09 | 704 | (0.7− | 1.6+) | 2004 10 12 | 691 | 0.1+ | 0.1+ | 2009 12 18 | 691 | 0.5+ | 0.3− |
| 2004 09 09 | 704 | 0.2− | 1.0+ | 2006 01 30 | 691 | 0.2− | 0.6+ | 2009 12 18 | 691 | 0.3− | 0.2+ |
| 2004 09 10 | 691 | 0.3− | 0.2+ | 2006 01 30 | 691 | 0.3+ | 0.4+ | 2009 12 18 | 691 | 0.3− | 0.1− |
| 2004 09 10 | 691 | 0.1− | 0.2+ | 2006 01 30 | 691 | 0.1+ | 0.2+ | | | | |
| 2004 09 10 | 691 | 0.3− | 0.1− | 2006 03 03 | 691 | 0.3+ | 0.5+ | | | | |

**(229114)∗ 2004 RE$_{89}$**

Discovered 2004 Sept. 8 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 40.58413 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.21242028 | $\omega$ | 131.48763 | | | +0.99694134 | | −0.00106856 | |
| $a$ | 2.7818822 | $\Omega$ | 228.72822 | | | −0.02506824 | | +0.94270097 | |
| $e$ | 0.3305611 | $i$ | 5.96809 | | | +0.07402396 | | +0.33363714 | |
| $P$ | 4.64 | $H$ | 15.9 | $G$ | 0.15 | | $U$ | 0 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 12 25 | 691 | 0.1− | 0.0 | 2004 10 10 | 704 | 0.0 | 0.0 | 2009 11 12 | 704 | 0.4+ | 0.0 |
| 1995 12 25 | 691 | 0.0 | 0.2+ | 2004 11 04 | 699 | 0.9+ | 0.8+ | 2009 11 12 | 704 | 0.8+ | 0.1− |
| 1995 12 25 | 691 | 0.0 | 0.0 | 2004 11 04 | 699 | 0.9+ | 0.7+ | 2009 11 12 | 704 | 1.1+ | 0.5+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 06 16 | 704 | 0.1+ | 0.3+ | 2004 11 04 | 699 | 0.6+ | 0.3+ | 2009 11 16 | J75 | 0.3+ | 0.2− |
| 2004 06 16 | 704 | 0.7+ | 1.1+ | 2004 11 04 | 699 | (1.6− | 0.3−) | 2009 11 16 | J75 | 0.2+ | 0.0 |
| 2004 06 16 | 704 | 0.3+ | 1.3+ | 2008 05 27 | G96 | 1.3+ | 0.5+ | 2009 11 16 | J75 | 0.5+ | 0.1− |
| 2004 06 16 | 704 | (0.2− | 2.3+) | 2008 05 27 | G96 | 0.2− | 0.7+ | 2009 11 18 | 691 | 0.1− | 0.0 |
| 2004 06 25 | 703 | 1.0− | 0.3+ | 2008 05 27 | G96 | 0.1− | 0.2+ | 2009 11 18 | 691 | 0.1+ | 0.4+ |
| 2004 06 25 | 703 | 1.3− | 0.6− | 2008 05 27 | G96 | 0.4− | 0.2+ | 2009 11 18 | 691 | 0.2− | 0.0 |
| 2004 06 25 | 703 | 0.9− | 0.0 | 2009 10 14 | 704 | (0.1+ | 1.6+) | 2009 11 18 | 704 | 0.2+ | 1.3+ |
| 2004 06 25 | 703 | 0.4− | 0.1− | 2009 10 14 | 704 | 0.1+ | 0.5+ | 2009 11 18 | 704 | 0.5+ | 0.7+ |
| 2004 08 05 | 644 | 0.3− | 0.0 | 2009 10 14 | 704 | 0.5− | 0.9+ | 2009 11 18 | 704 | (0.7+ | 1.6+) |
| 2004 08 05 | 644 | 0.2− | 0.1− | 2009 10 19 | 704 | 0.1− | 0.8+ | 2009 11 18 | 704 | 0.3− | 0.6+ |
| 2004 08 05 | 644 | 0.3− | 0.0 | 2009 10 19 | 704 | 0.3− | 0.7+ | 2009 11 18 | 704 | 0.2+ | 1.1+ |
| 2004 09 08 | 704 | 0.7+ | 0.1+ | 2009 10 19 | 704 | 0.3+ | 0.7+ | 2009 11 21 | 704 | 0.6+ | 0.3+ |
| 2004 09 08 | 704 | 0.5+ | 0.1− | 2009 10 19 | 704 | 0.3− | 0.2+ | 2009 11 21 | 704 | 0.4+ | 0.1− |
| 2004 09 08 | 704 | 0.8+ | 0.3− | 2009 10 19 | 704 | 0.6− | 0.1+ | 2009 11 21 | 704 | 1.2+ | 1.0+ |
| 2004 09 08 | 704 | 0.8+ | 0.3+ | 2009 10 22 | 704 | (0.6+ | 1.7+) | 2009 11 22 | 691 | 0.2− | 0.3− |
| 2004 09 08 | 704 | 0.3+ | 0.3− | 2009 10 22 | 704 | 0.5+ | 1.5+ | 2009 11 22 | 691 | 0.0 | 0.4− |
| 2004 09 10 | 704 | 0.2+ | 0.4+ | 2009 10 22 | 704 | 0.1+ | 0.8+ | 2009 11 22 | 691 | 0.0 | 0.1− |
| 2004 09 10 | 704 | 0.4+ | 0.0 | 2009 10 22 | 703 | 0.7+ | 0.0 | 2009 11 25 | 703 | 0.4− | 0.5− |
| 2004 09 10 | 704 | 0.6+ | 0.4− | 2009 10 22 | 703 | 1.1+ | 0.3+ | 2009 11 25 | 703 | 0.2− | 0.1− |
| 2004 09 10 | 704 | 0.7+ | 0.1+ | 2009 10 22 | 703 | 1.1+ | 0.0 | 2009 11 25 | 703 | 0.4− | 0.3− |
| 2004 09 10 | 704 | 0.1+ | 0.7− | 2009 10 22 | 703 | 0.0 | 0.4− | 2009 11 25 | 703 | 0.4− | 0.4− |
| 2004 09 13 | 704 | 0.3− | 0.5+ | 2009 10 23 | 691 | 0.3− | 0.3− | 2009 11 25 | 703 | 0.2− | 0.2− |
| 2004 09 13 | 704 | 0.2− | 0.5+ | 2009 10 23 | 691 | 0.3− | 0.2− | 2009 11 26 | 691 | 0.2− | 0.1− |
| 2004 09 13 | 704 | 0.2− | 0.1+ | 2009 10 23 | 691 | 0.4− | 0.2− | 2009 11 26 | 691 | 0.1− | 0.1− |
| 2004 09 13 | 704 | 0.1+ | 0.6+ | 2009 10 24 | 703 | 0.3+ | 0.6− | 2009 11 26 | 691 | 0.1− | 0.0 |
| 2004 09 13 | 704 | 0.0 | 0.1− | 2009 10 24 | 703 | 0.7+ | 0.8− | 2009 12 09 | J75 | 0.5+ | 0.2+ |
| 2004 09 15 | 699 | 0.6− | 0.0 | 2009 10 24 | 703 | 0.6+ | 0.3− | 2009 12 09 | J75 | 0.1− | 0.3− |
| 2004 09 15 | 699 | 0.2− | 0.7− | 2009 10 24 | 703 | 0.6+ | 0.4− | 2009 12 09 | J75 | 0.6+ | 0.0 |
| 2004 09 15 | 699 | 0.4− | 0.3− | 2009 10 27 | 691 | 0.1− | 0.0 | 2009 12 11 | 703 | 0.4− | 0.1− |
| 2004 09 15 | 699 | 0.5− | 0.4+ | 2009 10 27 | 691 | 0.0 | 0.1− | 2009 12 11 | 703 | 0.0 | 0.1− |
| 2004 09 18 | 704 | 0.7− | 0.1+ | 2009 10 27 | 691 | 0.2− | 0.1− | 2009 12 11 | 703 | 0.5− | 0.2+ |
| 2004 09 18 | 704 | 0.6+ | 1.0− | 2009 11 08 | 703 | 0.4− | 0.1− | 2009 12 11 | 703 | 0.4+ | 0.6− |
| 2004 09 18 | 704 | 0.5− | 0.7− | 2009 11 08 | 703 | 0.3− | 0.2− | 2009 12 12 | 704 | 0.0 | 1.3+ |
| 2004 09 18 | 704 | 0.4+ | 0.9− | 2009 11 08 | 703 | 0.2− | 0.9− | 2009 12 12 | 704 | 0.9+ | 1.1+ |
| 2004 09 18 | 704 | 0.0 | 1.2− | 2009 11 08 | 703 | 0.2+ | 0.1− | 2009 12 12 | 704 | 0.8− | 0.7+ |
| 2004 09 30 | 644 | 0.2− | 0.2+ | 2009 11 10 | 691 | 0.0 | 0.1− | 2009 12 12 | 704 | 0.1+ | 0.9+ |
| 2004 09 30 | 644 | 0.2− | 0.3+ | 2009 11 10 | 691 | 0.1− | 0.2− | 2009 12 12 | 704 | 0.0 | 0.0 |
| 2004 09 30 | 644 | 1.5− | 0.2+ | 2009 11 10 | 691 | 0.2− | 0.1− | 2009 12 18 | 691 | 0.2− | 0.1− |
| 2004 10 10 | 704 | 0.4− | 0.3− | 2009 11 12 | J75 | 0.2+ | 0.2+ | 2009 12 18 | 691 | 0.1− | 0.2− |
| 2004 10 10 | 704 | 0.5− | 0.5+ | 2009 11 12 | J75 | 0.2+ | 0.1− | 2009 12 18 | 691 | 0.1− | 0.0 |
| 2004 10 10 | 704 | 0.7+ | 0.5+ | 2009 11 12 | J75 | 0.4+ | 0.0 | | | | |

**(229115)∗ 2004 RZ$_{96}$**

Discovered 2004 Sept. 8 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 58.67540 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21762857 | $\omega$ | 61.70056 | | +0.99184628 | −0.00400469 | |
| $a$ | 2.7373192 | $\Omega$ | 298.27735 | | −0.05503507 | +0.88803979 | |
| $e$ | 0.2220569 | $i$ | 8.31629 | | +0.11494392 | +0.45974916 | |
| $P$ | 4.53 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 01 17 | 691 | 0.1− | 0.2− | 2004 09 13 | 704 | 0.1+ | 0.2+ | 2005 12 25 | G96 | 0.3− | 0.3− |
| 1997 01 17 | 691 | 0.2− | 0.3− | 2004 09 13 | 704 | 0.1− | 0.2− | 2005 12 25 | G96 | 0.4− | 0.7+ |
| 1997 01 17 | 691 | 0.1− | 0.2− | 2004 09 13 | 704 | 0.8− | 0.2+ | 2005 12 25 | G96 | 0.8+ | 0.4+ |
| 2004 08 19 | 704 | 0.4+ | 0.5− | 2004 09 14 | 699 | 0.2− | 0.0 | 2005 12 25 | G96 | 0.3− | 0.3+ |
| 2004 08 19 | 704 | 0.2+ | 0.4+ | 2004 09 14 | 699 | 0.7+ | 0.0 | 2006 01 05 | G96 | 0.4− | 0.1+ |
| 2004 08 19 | 704 | 0.2+ | 1.0+ | 2004 09 14 | 699 | 0.5− | 0.1− | 2006 01 05 | G96 | 0.7− | 0.1− |
| 2004 09 08 | 644 | 0.1+ | 0.4+ | 2004 09 14 | 699 | 0.3− | 0.1− | 2006 01 05 | G96 | 1.1+ | 1.2+ |
| 2004 09 08 | 644 | 0.2+ | 0.3+ | 2004 09 18 | 704 | 0.1− | 0.8+ | 2006 01 05 | G96 | 0.4− | 0.2+ |
| 2004 09 08 | 644 | 0.3+ | 0.3+ | 2004 09 18 | 704 | 0.0 | 0.5+ | 2006 01 06 | 691 | 0.2+ | 0.6+ |
| 2004 09 10 | 704 | 0.4− | 0.1+ | 2004 09 18 | 704 | 0.2− | 0.0 | 2006 01 06 | 691 | 0.3+ | 0.3+ |
| 2004 09 10 | 704 | 0.5− | 0.6− | 2004 09 18 | 704 | 0.1+ | 0.1− | 2006 01 06 | 691 | 0.2+ | 0.0 |
| 2004 09 10 | 704 | 1.1− | 0.8− | 2004 09 18 | 704 | 0.1+ | 0.1+ | 2006 01 27 | 691 | 0.3+ | 0.2+ |
| 2004 09 10 | 704 | 0.3− | 0.5+ | 2004 09 22 | 704 | 0.1+ | 0.2− | 2006 01 27 | 691 | 0.3+ | 0.1− |
| 2004 09 10 | 704 | 0.5− | 0.4+ | 2004 09 22 | 704 | 0.1− | 0.1+ | 2006 01 27 | 691 | 0.1+ | 0.2+ |
| 2004 09 11 | 704 | 0.2+ | 0.4+ | 2004 09 22 | 704 | 0.2− | 0.1+ | 2006 03 03 | G96 | 0.4+ | 0.8+ |
| 2004 09 11 | 704 | 0.1+ | 0.1− | 2004 09 22 | 704 | 0.2− | 0.0 | 2006 03 03 | G96 | 0.1− | 0.2+ |
| 2004 09 11 | 704 | 0.0 | 0.3+ | 2004 09 24 | 704 | 1.0+ | 0.6− | 2006 03 03 | G96 | 0.0 | 0.2+ |
| 2004 09 11 | 704 | 0.4+ | 0.1+ | 2004 09 24 | 704 | 0.9+ | 1.0− | 2006 03 03 | G96 | 0.4− | 0.1+ |
| 2004 09 11 | 704 | 0.0 | 0.2+ | 2004 09 24 | 704 | 0.9+ | 0.1+ | 2009 11 14 | J47 | 0.1+ | 0.1+ |
| 2004 09 11 | 704 | 0.2+ | 0.2− | 2004 09 24 | 704 | 0.1+ | 0.1− | 2009 11 14 | J47 | 0.1+ | 0.0 |
| 2004 09 11 | 704 | 0.6− | 0.2+ | 2004 09 24 | 704 | 0.5− | 0.4− | 2009 11 14 | J47 | 0.0 | 0.1− |
| 2004 09 11 | 704 | 0.3+ | 0.4+ | 2004 10 10 | 704 | 0.1− | 0.5− | 2009 11 27 | G96 | 0.2− | 0.5− |
| 2004 09 11 | 704 | 0.4− | 0.3+ | 2004 10 10 | 704 | 0.1− | 0.8+ | 2009 11 27 | G96 | 0.1+ | 0.5− |
| 2004 09 11 | 704 | 0.2− | 0.0 | 2004 10 10 | 704 | 0.1− | 1.3− | 2009 11 27 | G96 | 0.1+ | 0.5− |
| 2004 09 12 | 704 | 0.8− | 0.4+ | 2004 10 10 | 704 | 0.4− | 0.2+ | 2009 11 27 | G96 | 0.1− | 0.6− |
| 2004 09 12 | 704 | 0.2− | 0.8+ | 2004 10 10 | 704 | 0.2− | 0.6− | 2009 11 27 | G96 | 0.3− | 0.4− |
| 2004 09 12 | 704 | 0.4− | 0.1− | 2004 10 15 | 704 | 0.0 | 0.4+ | 2009 12 18 | G96 | 0.6− | 0.4− |
| 2004 09 12 | 704 | 0.1+ | 0.6+ | 2004 10 15 | 704 | 0.3− | 0.2− | 2009 12 18 | G96 | 1.3+ | 0.2− |
| 2004 09 12 | 704 | 0.5+ | 0.4− | 2004 10 15 | 704 | 0.1− | 0.3+ | 2009 12 18 | G96 | 0.5− | 0.4− |
| 2004 09 13 | 704 | 0.1+ | 0.1+ | 2004 10 15 | 704 | 0.9+ | 0.3+ | 2009 12 18 | G96 | 0.4− | 0.3− |

**(229116)∗ 2004 RK$_{99}$ = 2002 CT$_{281}$**

Discovered 2004 Sept. 8 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. A. Doppler (*MPO* 69986)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 79.42922 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22761262 | $\omega$ | 55.87625 | | +0.98898048 | +0.13735503 | |
| $a$ | 2.6566754 | $\Omega$ | 296.17371 | | −0.14779917 | +0.89449940 | |
| $e$ | 0.0997255 | $i$ | 3.52872 | | −0.00854439 | +0.42544615 | |
| $P$ | 4.33 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 02 08 | 291 | 0.4+ | 1.1+ | 2004 09 13 | 704 | 0.8− | 0.9+ | 2008 07 25 | E12 | 0.9− | 0.7+ |
| 2002 02 08 | 291 | 0.1− | 1.0+ | 2004 09 13 | 704 | 0.5− | 0.7+ | 2008 07 25 | E12 | 0.6− | 0.9+ |
| 2002 02 08 | 291 | 0.3− | 1.4+ | 2004 09 23 | 691 | 0.3+ | 0.0 | 2008 07 25 | E12 | 0.1+ | 1.1+ |
| 2002 02 11 | 704 | 0.2− | 0.3− | 2004 09 23 | 691 | 0.2+ | 0.1− | 2008 07 25 | E12 | 0.0 | 0.6+ |
| 2002 02 11 | 704 | 0.0 | 0.7+ | 2004 09 23 | 691 | 0.1+ | 0.2+ | 2008 07 30 | G96 | 0.4+ | 0.2+ |
| 2002 02 11 | 704 | 0.3+ | 0.0 | 2004 10 09 | 691 | 0.0 | 0.1− | 2008 07 30 | G96 | 0.1+ | 0.4+ |
| 2002 02 11 | 704 | 0.5− | 0.5+ | 2004 10 09 | 691 | 0.0 | 0.0 | 2008 07 30 | G96 | 0.2+ | 0.2+ |
| 2002 02 11 | 704 | 0.1+ | 0.6+ | 2004 10 09 | 691 | 0.1− | 0.1+ | 2008 07 30 | G96 | 0.4+ | 0.1+ |
| 2004 09 08 | 704 | 1.3− | 0.0 | 2005 12 24 | 691 | 0.5+ | 0.1− | 2008 09 23 | G96 | 0.4+ | 0.1+ |
| 2004 09 08 | 704 | (1.2− | 1.9−) | 2005 12 24 | 691 | 0.1+ | 0.1− | 2008 09 23 | G96 | 0.3− | 0.4− |
| 2004 09 08 | 704 | (1.9− | 0.8+) | 2005 12 24 | 691 | 0.2+ | 0.0 | 2008 09 23 | G96 | 0.3− | 0.0 |
| 2004 09 08 | 704 | 0.4− | 0.0 | 2005 12 25 | G96 | 0.2− | 0.9− | 2008 09 23 | G96 | 0.2+ | 0.5+ |
| 2004 09 09 | 699 | (2.8− | 0.2+) | 2005 12 25 | G96 | 0.2+ | 0.3− | 2009 11 19 | 691 | 0.1− | 0.1− |
| 2004 09 09 | 699 | 1.0− | 0.3+ | 2005 12 25 | G96 | 0.1+ | 0.6− | 2009 11 19 | 691 | 0.2− | 0.1− |
| 2004 09 09 | 699 | 1.5− | 1.0+ | 2005 12 25 | G96 | 0.0 | 0.4− | 2009 11 19 | 691 | 0.1+ | 0.3− |
| 2004 09 09 | 699 | 0.6− | 0.1+ | 2005 12 28 | 691 | 0.1+ | 0.6+ | 2009 11 23 | 691 | 0.3− | 0.1− |
| 2004 09 10 | 704 | 0.8− | 0.7+ | 2005 12 28 | 691 | 0.5+ | 0.0 | 2009 11 23 | 691 | 0.3− | 0.1− |
| 2004 09 10 | 704 | 0.1− | 0.5+ | 2005 12 28 | 691 | 0.5+ | 0.5+ | 2009 11 23 | 691 | 0.0 | 0.2− |
| 2004 09 10 | 704 | (0.4+ | 2.0+) | 2006 01 04 | G96 | 0.1− | 0.5− | 2009 11 27 | 691 | 0.2− | 0.1− |
| 2004 09 10 | 704 | 0.1− | 1.0+ | 2006 01 04 | G96 | 0.3+ | 0.3− | 2009 11 27 | 691 | 0.2− | 0.1− |
| 2004 09 12 | 691 | 0.1− | 0.0 | 2006 01 04 | G96 | 0.1+ | 0.4− | 2009 11 27 | 691 | 0.4− | 0.1− |
| 2004 09 12 | 691 | 0.1+ | 0.4+ | 2006 01 04 | G96 | 0.6+ | 0.4− | 2009 12 11 | G96 | 0.4+ | 0.2− |
| 2004 09 12 | 691 | 0.2+ | 0.3+ | 2006 01 05 | 691 | 0.2+ | 0.3+ | 2009 12 11 | G96 | 0.0 | 0.4− |
| 2004 09 13 | 704 | 0.0 | 0.3+ | 2006 01 05 | 691 | 0.2+ | 0.0 | 2009 12 11 | G96 | 0.6+ | 0.3− |
| 2004 09 13 | 704 | (0.3− | 1.6+) | 2006 01 05 | 691 | 0.2+ | 0.1+ | 2009 12 11 | G96 | 0.1− | 0.1− |

**(229117)∗ 2004 RH$_{102}$**

Discovered 2004 Sept. 8 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 131.44536 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23110368 | $\omega$ | 25.58399 | | +0.44380772 | +0.89402886 | |
| $a$ | 2.6298530 | $\Omega$ | 270.81488 | | −0.83233399 | +0.38594240 | |
| $e$ | 0.1072037 | $i$ | 3.50983 | | −0.33204645 | +0.22751014 | |
| $P$ | 4.26 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 08 23 | 691 | 0.0 | 0.1+ | 2004 09 23 | 691 | 0.1+ | 0.3− | 2008 07 30 | G96 | 0.2+ | 0.1− | | |
| 2004 08 23 | 691 | 0.0 | 0.1− | 2005 12 01 | 691 | 0.2− | 0.2+ | 2008 07 30 | G96 | 0.2+ | 0.1− | | |
| 2004 08 23 | 691 | 0.0 | 0.2− | 2005 12 01 | 691 | 0.0 | 0.1+ | 2008 07 30 | G96 | 0.2+ | 0.3− | | |
| 2004 09 08 | 704 | 0.1− | 0.0 | 2005 12 01 | 691 | 0.0 | 0.4+ | 2009 11 09 | G96 | 0.3+ | 0.0 | | |
| 2004 09 08 | 704 | 0.3− | 0.4− | 2005 12 04 | 691 | 0.2+ | 0.4− | 2009 11 09 | G96 | 0.1+ | 0.0 | | |
| 2004 09 08 | 704 | 0.6− | 0.7+ | 2005 12 04 | 691 | 0.0 | 0.2− | 2009 11 09 | G96 | 0.4+ | 0.0 | | |
| 2004 09 08 | 704 | 0.4− | 0.0 | 2005 12 04 | 691 | 0.1+ | 0.1− | 2009 11 09 | G96 | 0.2+ | 0.3− | | |
| 2004 09 10 | 704 | 0.3+ | 0.3+ | 2008 06 30 | 691 | 0.2+ | 0.2− | 2009 11 21 | 691 | 0.4− | 0.2− | | |
| 2004 09 10 | 704 | 0.1+ | 0.1+ | 2008 06 30 | 691 | 0.2− | 0.2− | 2009 11 21 | 691 | 0.1− | 0.1− | | |
| 2004 09 10 | 704 | 1.0+ | 1.0+ | 2008 06 30 | 691 | 0.2− | 0.1− | 2009 11 21 | 691 | 0.2+ | 0.2− | | |
| 2004 09 10 | 704 | 0.1+ | 0.6+ | 2008 07 02 | 691 | 0.0 | 0.4+ | 2009 11 25 | 691 | 0.1+ | 0.2+ | | |
| 2004 09 10 | 704 | 0.5− | 0.2+ | 2008 07 02 | 691 | 0.6− | 0.3+ | 2009 11 25 | 691 | 0.1+ | 0.1+ | | |
| 2004 09 17 | 691 | 0.0 | 0.1− | 2008 07 02 | 691 | 0.1− | 0.2− | 2009 11 25 | 691 | 0.0 | 0.2+ | | |
| 2004 09 17 | 691 | 0.1+ | 0.0 | 2008 07 30 | J75 | 1.2+ | 0.1− | 2009 12 16 | G96 | 0.1+ | 0.1+ | | |
| 2004 09 17 | 691 | 0.0 | 0.1− | 2008 07 30 | J75 | 0.8+ | 0.6+ | 2009 12 16 | G96 | 0.2+ | 0.0 | | |
| 2004 09 23 | 691 | 0.0 | 0.0 | 2008 07 30 | J75 | 0.3+ | 0.3+ | 2009 12 16 | G96 | 0.8− | 0.7+ | | |
| 2004 09 23 | 691 | 0.0 | 0.1+ | 2008 07 30 | G96 | 0.3+ | 0.1− | | | | | | |

**(229118)∗ 2004 RJ$_{105}$**

Discovered 2004 Sept. 8 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 29.31859 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21425524 | $\omega$ | 156.35979 | | +0.79625995 | | −0.59286320 |
| $a$ | 2.7659761 | $\Omega$ | 240.54725 | | +0.53065600 | | +0.78002518 |
| $e$ | 0.1528458 | $i$ | 7.94419 | | +0.29047254 | | +0.20018479 |
| $P$ | 4.60 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 11 17 | 691 | 0.1+ | 0.1+ | 2004 10 15 | 704 | 0.6+ | 0.8+ | 2009 11 16 | 691 | 0.0 | 0.1+ | | |
| 1995 11 17 | 691 | 0.1− | 0.0 | 2004 10 15 | 704 | 0.7− | 0.2− | 2009 11 16 | 691 | 0.1− | 0.0 | | |
| 1995 11 17 | 691 | 0.2− | 0.1− | 2004 10 15 | 704 | 0.1− | 0.2− | 2009 11 16 | 691 | 0.0 | 0.2+ | | |
| 2004 09 08 | 644 | 0.1− | 0.1+ | 2004 10 15 | 704 | 0.0 | 0.4+ | 2009 11 23 | J75 | 0.7+ | 0.1− | | |
| 2004 09 08 | 644 | 0.4+ | 0.1− | 2007 04 23 | 691 | 0.2+ | 0.0 | 2009 11 23 | J75 | 0.7+ | 0.3+ | | |
| 2004 09 08 | 644 | 0.2+ | 0.4− | 2007 04 23 | 691 | 0.2+ | 0.3+ | 2009 11 23 | J75 | 0.6+ | 0.2+ | | |
| 2004 09 10 | 704 | 0.7− | 0.8+ | 2007 04 23 | 691 | 0.1− | 0.8+ | 2009 11 23 | J75 | 0.4+ | 0.6− | | |
| 2004 09 10 | 704 | 0.9− | 0.9+ | 2007 05 16 | G96 | 0.2+ | 0.6− | 2009 11 24 | J75 | 0.3+ | 0.5+ | | |
| 2004 09 10 | 704 | 0.2− | 1.1+ | 2007 05 16 | G96 | 0.2− | 0.0 | 2009 11 24 | J75 | 0.5+ | 0.3− | | |
| 2004 09 13 | 704 | 0.5− | 0.2− | 2007 05 16 | G96 | 0.2− | 0.2− | 2009 11 24 | 691 | 0.2− | 0.1+ | | |
| 2004 09 13 | 704 | 0.4+ | 0.2− | 2007 05 16 | G96 | 0.6− | 1.2+ | 2009 11 24 | 691 | 0.0 | 0.1+ | | |
| 2004 09 13 | 704 | 0.6+ | 0.6− | 2009 07 31 | 291 | 0.8− | 0.3+ | 2009 11 24 | 691 | 0.1+ | 0.1+ | | |
| 2004 09 13 | 704 | 0.2+ | 0.1+ | 2009 07 31 | 291 | 0.9− | 0.3+ | 2009 12 09 | J75 | 0.6+ | 0.4+ | | |
| 2004 09 18 | 704 | 0.6+ | 0.9+ | 2009 07 31 | 291 | 0.8− | 0.1+ | 2009 12 09 | J75 | 0.3− | 1.0− | | |
| 2004 09 18 | 704 | 1.1+ | 0.2+ | 2009 11 08 | 691 | 0.2+ | 0.1+ | 2009 12 09 | J75 | 0.4− | 0.4+ | | |
| 2004 09 18 | 704 | 0.6− | 0.2− | 2009 11 08 | 691 | 0.0 | 0.1+ | 2009 12 11 | 703 | 0.1− | 0.8+ | | |
| 2004 09 18 | 704 | 0.7+ | 0.3+ | 2009 11 08 | 691 | 0.3− | 0.1+ | 2009 12 11 | 703 | 0.1− | 0.5− | | |
| 2004 09 18 | 704 | 0.3+ | 0.1− | 2009 11 11 | J75 | 0.1+ | 0.8− | 2009 12 11 | 703 | 0.4+ | 0.4− | | |
| 2004 09 22 | 704 | 0.0 | 0.3− | 2009 11 11 | J75 | 0.4+ | 0.1+ | 2009 12 11 | 703 | 0.1− | 1.3+ | | |
| 2004 09 22 | 704 | 0.7− | 0.4− | 2009 11 11 | J75 | 1.2− | 0.3− | 2009 12 17 | G96 | 0.1+ | 0.2− | | |
| 2004 09 22 | 704 | 0.3+ | 0.9− | 2009 11 12 | J75 | 0.7+ | 0.3− | 2009 12 17 | G96 | 0.3+ | 0.1− | | |
| 2004 09 22 | 704 | 0.0 | 0.4− | 2009 11 12 | J75 | 0.1+ | 0.4− | 2009 12 17 | G96 | 0.4+ | 0.1− | | |
| 2004 10 15 | 704 | 1.1+ | 0.8+ | 2009 11 12 | J75 | 0.2+ | 0.8− | 2009 12 17 | G96 | 0.5+ | 0.1− | | |

**(229119)∗ 2004 RR$_{108}$**

Discovered 2004 Sept. 9 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 52.73654 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23499623 | $\omega$ | 131.61104 | | +0.83621781 | | −0.54463500 |
| $a$ | 2.6007311 | $\Omega$ | 261.48316 | | +0.48188985 | | +0.78558130 |
| $e$ | 0.0470251 | $i$ | 3.71788 | | +0.26176696 | | +0.29365751 |
| $P$ | 4.19 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1992 11 25 | 691 | 0.3+ | 0.2+ | 2004 09 23 | 691 | 0.2− | 0.1− | 2007 05 16 | G96 | 0.2+ | 0.1+ | | |
| 1992 11 25 | 691 | 0.3− | 0.3− | 2004 09 23 | 691 | 0.2+ | 0.1+ | 2007 05 16 | G96 | 0.2+ | 0.2+ | | |
| 1992 11 25 | 691 | 0.1+ | 0.2− | 2005 11 30 | G96 | 0.2+ | 0.3− | 2007 05 16 | G96 | 0.3+ | 0.0 | | |
| 2002 02 11 | 704 | 0.6− | 0.9+ | 2005 11 30 | G96 | 0.6+ | 0.3− | 2008 08 02 | A50 | 0.3+ | 0.4− | | |
| 2002 02 11 | 704 | (1.7+ | 2.0+) | 2005 11 30 | G96 | 0.2− | 0.3− | 2008 08 02 | A50 | 0.1+ | 0.0 | | |
| 2002 02 11 | 704 | 0.1+ | 1.2+ | 2005 11 30 | G96 | 0.4− | 0.4− | 2008 08 02 | A50 | 0.2− | 0.9− | | |
| 2002 02 11 | 704 | 0.8− | 1.0+ | 2005 12 25 | 691 | 0.6+ | 0.1− | 2008 08 02 | A50 | 0.8− | 0.3+ | | |
| 2002 02 11 | 704 | 0.8− | 0.5+ | 2005 12 25 | 691 | 0.3+ | 0.3+ | 2008 10 23 | 304 | 0.6+ | 0.1+ | | |
| 2004 09 09 | 691 | 0.0 | 0.1+ | 2005 12 25 | 691 | 0.3+ | 0.1+ | 2008 10 23 | 304 | 0.7− | 0.2− | | |
| 2004 09 09 | 691 | 0.3− | 0.0 | 2005 12 29 | 691 | 0.0 | 0.4+ | 2008 10 23 | 304 | 0.1+ | 0.3+ | | |
| 2004 09 09 | 691 | 0.0 | 0.0 | 2005 12 29 | 691 | 0.2+ | 0.4+ | 2008 10 23 | 304 | 0.1+ | 0.3+ | | |
| 2004 09 10 | 704 | 0.0 | 0.6+ | 2005 12 29 | 691 | 0.2+ | 0.1+ | 2008 10 23 | 304 | 0.5+ | 0.1+ | | |
| 2004 09 10 | 704 | 0.2+ | 0.2− | 2006 01 04 | 691 | 0.1+ | 0.1− | 2008 10 23 | 304 | 0.4+ | 0.2+ | | |
| 2004 09 10 | 704 | 1.3− | 1.2+ | 2006 01 04 | 691 | 0.0 | 0.1− | 2009 11 16 | 691 | 0.3− | 0.2− | | |
| 2004 09 10 | 704 | 0.1− | 0.6+ | 2006 01 04 | 691 | 0.3− | 0.2+ | 2009 11 16 | 691 | 0.2− | 0.5− | | |
| 2004 09 10 | 704 | 0.1+ | 1.0+ | 2006 01 06 | G96 | 0.1+ | 0.5− | 2009 11 16 | 691 | 0.5− | 0.0 | | |
| 2004 09 13 | 691 | 0.1− | 0.2+ | 2006 01 06 | G96 | 0.2+ | 0.2− | 2009 12 17 | 704 | 0.6− | 0.4− | | |
| 2004 09 13 | 691 | 0.1+ | 0.1+ | 2006 01 06 | G96 | 0.3− | 0.3− | 2009 12 17 | 704 | 0.3− | 0.2− | | |
| 2004 09 13 | 691 | 0.1+ | 0.0 | 2006 01 06 | G96 | 0.2− | 0.3− | 2009 12 17 | 704 | 0.5+ | 0.5+ | | |
| 2004 09 23 | 691 | 0.0 | 0.1+ | 2007 05 16 | G96 | 0.0 | 0.5+ | 2009 12 17 | 704 | 1.5+ | 0.3+ | | |

**(229120)∗ 2004 RE$_{121}$**

Discovered 2004 Sept. 7 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 144.64766 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23235377 | $\omega$ | 280.78202 | | +0.27835873 | | +0.96046554 |
| $a$ | 2.6204119 | $\Omega$ | 5.38723 | | −0.86036777 | | +0.25153138 |
| $e$ | 0.0544431 | $i$ | 2.88726 | | −0.42694697 | | +0.11932272 |
| $P$ | 4.24 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 03 05 | 691 | 0.1+ | 0.4+ | 2004 09 07 | 691 | 0.3− | 0.3+ | 2007 06 18 | 291 | 0.2+ | 0.1+ | | |
| 1994 03 05 | 691 | 0.3− | 0.2+ | 2004 09 07 | 691 | 0.6− | 0.5+ | 2007 06 18 | 291 | 0.6+ | 0.1+ | | |
| 1994 03 05 | 691 | 0.0 | 0.5+ | 2004 09 12 | 691 | 0.1− | 0.3+ | 2007 06 18 | 291 | 0.0 | 0.3− | | |
| 1996 10 11 | 691 | 0.3+ | 0.0 | 2004 09 12 | 691 | 0.3− | 0.5+ | 2009 10 17 | G96 | 0.2− | 0.2− | | |
| 1996 10 11 | 691 | 0.5+ | 0.3− | 2004 09 12 | 691 | 0.3− | 0.3+ | 2009 10 17 | G96 | 0.2+ | 0.2+ | | |
| 1996 10 11 | 691 | 0.2+ | 0.7− | 2005 12 02 | 691 | 0.2− | 0.4+ | 2009 10 17 | G96 | 0.0 | 0.1− | | |
| 2000 09 21 | 691 | 0.1+ | 0.1− | 2005 12 02 | 691 | 0.0 | 0.3+ | 2009 10 17 | G96 | 0.0 | 0.1− | | |
| 2000 09 21 | 691 | 0.3+ | 0.3+ | 2005 12 02 | 691 | 0.1− | 0.4+ | 2009 11 09 | G96 | 0.5− | 0.1− | | |
| 2000 09 21 | 691 | 0.1+ | 0.3− | 2005 12 10 | 691 | 0.0 | 0.2+ | 2009 11 09 | G96 | 0.0 | 0.0 | | |
| 2002 01 09 | 645 | 0.1− | 0.0 | 2005 12 10 | 691 | 0.2− | 0.0 | 2009 11 09 | G96 | 0.8− | 0.1− | | |
| 2002 01 09 | 645 | 0.1− | 0.1− | 2005 12 10 | 691 | 0.2− | 0.0 | 2009 11 09 | G96 | 0.8+ | 0.4− | | |
| 2002 01 22 | 691 | 0.1+ | 0.8+ | 2006 02 01 | G96 | 1.0+ | 0.1+ | 2009 12 16 | G96 | 0.1− | 0.1− | | |
| 2002 01 22 | 691 | 0.6+ | 0.4+ | 2006 02 01 | G96 | 0.3+ | 0.1+ | 2009 12 16 | G96 | 0.4+ | 1.1− | | |
| 2002 01 22 | 691 | 0.5+ | 0.4+ | 2006 02 01 | G96 | 0.0 | 0.2− | 2009 12 16 | G96 | 0.0 | 0.2− | | |
| 2004 09 07 | 691 | 0.2− | 0.5+ | 2006 02 01 | G96 | 0.3+ | 0.0 | 2009 12 16 | G96 | 0.6− | 0.0 | | |

**(229121)∗ 2004 RQ$_{136}$**

Discovered 2004 Sept. 7 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 73.70270 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22100897 | $\omega$ | 107.15837 | | +0.96764947 | | +0.22192512 |
| $a$ | 2.7093355 | $\Omega$ | 240.16408 | | −0.24974439 | | +0.91005512 |
| $e$ | 0.2456981 | $i$ | 7.95260 | | +0.03580835 | | +0.35006988 |
| $P$ | 4.46 | $H$ | 15.3 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 06 | 704 | 0.4+ | 0.4− | 2004 09 18 | 704 | 0.1− | 0.1− | 2004 10 16 | 699 | 0.1− | 0.4− | | |
| 2000 09 06 | 704 | 0.1− | 0.6+ | 2004 09 18 | 704 | (0.7− | 2.5+) | 2004 10 31 | 699 | (1.7+ | 2.6−) | | |
| 2000 09 06 | 704 | 0.1+ | 0.2− | 2004 09 18 | 704 | 1.4− | 0.2+ | 2004 10 31 | 699 | (1.6+ | 0.1−) | | |
| 2000 09 06 | 704 | 0.7− | 0.1− | 2004 09 18 | 704 | 0.0 | 0.6− | 2004 10 31 | 699 | 1.2+ | 0.3+ | | |
| 2000 11 21 | 704 | 0.4− | 0.4+ | 2004 09 22 | 704 | 0.5− | 0.2− | 2004 10 31 | 699 | 0.8+ | 0.4+ | | |
| 2000 11 21 | 704 | 0.5+ | 0.1− | 2004 09 22 | 704 | 0.0 | 0.0 | 2004 12 12 | 699 | (2.2+ | 0.2−) | | |
| 2000 11 21 | 704 | 0.1− | 0.6− | 2004 09 22 | 704 | 0.1− | 0.2− | 2004 12 12 | 699 | (2.4+ | 1.8−) | | |
| 2000 11 21 | 704 | 0.7− | 0.1− | 2004 09 22 | 704 | 0.5− | 0.0 | 2004 12 12 | 699 | (2.3+ | 0.6−) | | |
| 2000 11 21 | 704 | 0.1+ | 0.2− | 2004 09 22 | 704 | 0.4− | 0.0 | 2004 12 12 | 699 | 0.2− | 0.5+ | | |
| 2004 08 20 | 703 | 0.2− | 0.3− | 2004 09 24 | 704 | 0.3− | 0.2+ | 2008 07 10 | B03 | 0.6− | 0.6− | | |
| 2004 08 20 | 703 | 0.8− | 0.4− | 2004 09 24 | 704 | 0.7− | 0.2+ | 2008 07 10 | B03 | 0.5+ | 1.2− | | |
| 2004 08 20 | 703 | 0.6− | 0.3+ | 2004 09 24 | 704 | 0.5− | 0.2− | 2008 07 10 | B03 | 0.2− | 0.2− | | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 08 20 | 703 | 0.6− | 0.0 | 2004 09 24 | 704 | 0.1− | 0.1− | 2009 08 29 | 691 | 0.5− | 0.7+ |
| 2004 09 07 | 644 | 0.1+ | 0.2− | 2004 09 24 | 704 | 0.2− | 0.1+ | 2009 08 29 | 691 | 0.5− | 0.4− |
| 2004 09 07 | 644 | 0.3+ | 0.0 | 2004 10 10 | 704 | 0.3+ | 0.0 | 2009 08 29 | 691 | 0.3− | 0.3− |
| 2004 09 07 | 644 | 0.2+ | 0.1+ | 2004 10 10 | 704 | 0.3+ | 0.5+ | 2009 11 27 | 691 | 0.1− | 0.2− |
| 2004 09 11 | 704 | 0.2− | 0.2− | 2004 10 10 | 704 | 0.5+ | 0.1+ | 2009 11 27 | 691 | 0.1− | 0.3− |
| 2004 09 11 | 704 | 0.3+ | 0.5− | 2004 10 10 | 704 | 0.4+ | 0.2+ | 2009 11 27 | 691 | 0.0 | 0.1+ |
| 2004 09 11 | 704 | 0.4+ | 0.4− | 2004 10 10 | 704 | 0.3+ | 0.1+ | 2009 12 12 | 704 | 0.9+ | 0.1+ |
| 2004 09 11 | 704 | 0.4+ | 0.1+ | 2004 10 15 | 704 | 0.5− | 0.2+ | 2009 12 12 | 704 | 0.9+ | 0.5− |
| 2004 09 11 | 704 | 0.0 | 0.5− | 2004 10 15 | 704 | 0.6− | 0.1− | 2009 12 12 | 704 | 0.9+ | 0.0 |
| 2004 09 13 | 704 | 0.3+ | 0.4+ | 2004 10 15 | 704 | 0.1− | 0.0 | 2009 12 17 | 704 | 0.2− | 0.2+ |
| 2004 09 13 | 704 | 1.0+ | 0.2+ | 2004 10 15 | 704 | 0.5− | 0.3+ | 2009 12 17 | 704 | 0.2+ | 0.3− |
| 2004 09 13 | 704 | 1.1+ | 0.6+ | 2004 10 15 | 704 | 0.3− | 0.8+ | 2009 12 17 | 704 | 0.3+ | 0.4− |
| 2004 09 13 | 704 | 1.1+ | 0.5+ | 2004 10 16 | 699 | 0.1+ | 0.0 | 2009 12 17 | 704 | 0.2+ | 0.9+ |
| 2004 09 13 | 704 | 0.8+ | 0.2+ | 2004 10 16 | 699 | 0.2+ | 0.4− | 2009 12 17 | 704 | 0.3+ | 0.4− |
| 2004 09 18 | 704 | 0.1− | 0.3+ | 2004 10 16 | 699 | 0.2+ | 0.4− | | | | |

**(229122)∗ 2004 $RM_{138}$ = 2000 $SL_{369}$**

Discovered 2004 Sept. 8 by NEAT at Palomar.

Id. A. Doppler (*MPO* 73099)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 325.31352 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23890711 | $\omega$ | 258.41134 | | −0.53958346 | | −0.82379497 |
| $a$ | 2.5722707 | $\Omega$ | 225.68455 | | +0.83561931 | | −0.49876723 |
| $e$ | 0.0581604 | $i$ | 14.05930 | | +0.10290798 | | −0.26943106 |
| $P$ | 4.13 | $H$ | 15.3 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 23 | 699 | 0.1− | 0.6− | 2004 09 11 | 704 | (0.3− | 1.5+) | 2009 11 19 | 704 | 1.2+ | 0.4+ |
| 2000 09 23 | 699 | 0.9− | 0.1+ | 2004 09 11 | 704 | 0.6− | 0.8+ | 2009 11 19 | 704 | 0.5− | 0.3+ |
| 2000 09 23 | 699 | 0.2− | 0.7+ | 2004 09 11 | 704 | (0.4+ | 2.3+) | 2009 11 19 | 704 | 0.3− | 0.4+ |
| 2000 09 23 | 699 | 0.7− | 0.1− | 2004 09 22 | 704 | 1.1− | 0.3− | 2009 11 20 | 704 | 0.1+ | 1.0+ |
| 2000 09 28 | 704 | 0.0 | 0.5+ | 2004 09 22 | 704 | 1.4− | 0.5− | 2009 11 20 | 704 | 0.5+ | 0.6+ |
| 2000 09 28 | 704 | 0.1+ | 0.6+ | 2004 09 22 | 704 | 0.1+ | 0.1− | 2009 11 20 | 704 | 0.3− | 0.6+ |
| 2000 09 28 | 704 | 0.3+ | 0.0 | 2004 09 22 | 704 | 0.2+ | 0.4− | 2009 11 20 | H10 | 0.3+ | 0.2− |
| 2000 09 28 | 704 | 0.1− | 0.3+ | 2007 03 31 | 644 | 0.1− | 0.4+ | 2009 11 20 | H10 | (1.9+ | 0.3+) |
| 2001 11 18 | 704 | (0.2+ | 1.8−) | 2007 03 31 | 644 | 0.3+ | 0.1− | 2009 11 20 | H10 | 0.9+ | 0.4+ |
| 2001 11 18 | 704 | 0.1+ | 0.4− | 2007 03 31 | 644 | 0.3+ | 0.2+ | 2009 11 24 | J75 | 0.6− | 1.1+ |
| 2001 11 18 | 704 | 0.9+ | 0.9+ | 2007 04 19 | 691 | 0.0 | 0.2+ | 2009 11 24 | J75 | 0.1+ | 1.2+ |
| 2003 05 05 | 704 | 0.7+ | 0.3+ | 2007 04 19 | 691 | 0.2− | 0.2+ | 2009 11 24 | J75 | 0.2− | 0.3+ |
| 2003 05 05 | 704 | 0.1+ | 0.2+ | 2007 04 19 | 691 | 0.2− | 0.1+ | 2009 12 10 | J75 | 0.4+ | 0.0 |
| 2003 05 05 | 704 | 0.2+ | 1.2+ | 2007 04 23 | 691 | 0.3− | 0.3+ | 2009 12 10 | J75 | 0.4+ | 0.3+ |
| 2003 05 05 | 704 | 0.3+ | 0.9+ | 2007 04 23 | 691 | 0.1− | 0.2+ | 2009 12 10 | J75 | 0.5+ | 0.3+ |
| 2003 05 05 | 704 | 0.4+ | 1.1+ | 2007 04 23 | 691 | 0.3− | 0.3+ | 2009 12 10 | J75 | 0.4+ | 0.1+ |
| 2004 08 20 | 704 | 1.1+ | 0.3+ | 2007 05 11 | G96 | 0.1+ | 0.3+ | 2009 12 10 | J75 | 1.0+ | 0.7+ |
| 2004 08 20 | 704 | 0.0 | 0.5+ | 2007 05 11 | G96 | 0.2− | 0.2+ | 2009 12 10 | J75 | 0.4− | 0.2+ |
| 2004 08 20 | 704 | 0.5− | 0.7+ | 2007 05 11 | G96 | 0.0 | 0.0 | 2009 12 13 | 704 | 0.2+ | 0.3+ |
| 2004 08 20 | 703 | 1.1+ | 1.0+ | 2007 05 11 | G96 | 0.2+ | 0.3+ | 2009 12 13 | 704 | 0.0 | 0.2+ |
| 2004 08 20 | 703 | 0.7− | 0.9+ | 2007 05 14 | 704 | 0.2− | 0.0 | 2009 12 13 | 704 | 0.1− | 0.1+ |
| 2004 08 20 | 703 | 0.6− | 0.8+ | 2007 05 14 | 704 | 0.8+ | 0.9+ | 2009 12 13 | 704 | 0.9− | 0.8+ |
| 2004 08 20 | 703 | (0.1− | 1.6−) | 2007 05 14 | 704 | 1.0+ | 0.9+ | 2009 12 13 | 704 | 0.0 | 1.5+ |
| 2004 09 08 | 644 | 0.2+ | 0.0 | 2007 05 14 | 704 | 0.9+ | 0.8+ | 2009 12 15 | 703 | 0.2− | 0.7− |
| 2004 09 08 | 644 | 0.1− | 0.1+ | 2008 08 20 | 691 | 0.4+ | 0.1− | 2009 12 15 | 703 | 0.1+ | 0.0 |
| 2004 09 08 | 644 | 0.1+ | 0.2+ | 2008 08 20 | 691 | 0.1− | 0.0 | 2009 12 15 | 703 | 1.3− | 0.1− |
| 2004 09 11 | 704 | 0.0 | 1.1+ | 2008 08 20 | 691 | 0.1+ | 0.1+ | 2009 12 15 | 703 | 0.5− | 0.1+ |
| 2004 09 11 | 704 | (0.5− | 1.8+) | 2009 11 19 | 704 | 0.2+ | 0.6+ | | | | |

**(229123)∗ 2004 $RC_{139}$**

Discovered 2004 Sept. 8 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 67.39660 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21720056 | $\omega$ | 69.70237 | | +0.92665943 | | +0.32697945 |
| $a$ | 2.7409141 | $\Omega$ | 270.84687 | | −0.37492866 | | +0.83944718 |
| $e$ | 0.1487274 | $i$ | 10.68777 | | +0.02703329 | | +0.43406552 |
| $P$ | 4.54 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 20 | 704 | 0.1− | 0.5− | 2004 10 13 | 049 | 0.4− | 0.5+ | 2009 10 27 | G96 | 0.1− | 0.4− |
| 2000 11 20 | 704 | 0.8+ | 0.7− | 2004 10 13 | 049 | 0.3− | 0.3+ | 2009 10 27 | G96 | 0.2− | 0.2− |
| 2000 11 20 | 704 | 0.3− | 0.6+ | 2004 10 13 | 049 | 0.3− | 0.6+ | 2009 10 27 | G96 | 0.3− | 0.1− |
| 2000 11 20 | 704 | 0.3− | 0.1− | 2004 10 13 | 049 | 0.2− | 0.6+ | 2009 10 28 | F85 | 0.2+ | 0.2− |
| 2004 09 08 | 644 | 0.1− | 0.1+ | 2004 10 16 | 699 | 0.0 | 0.2+ | 2009 10 28 | F85 | 0.2+ | 0.0 |
| 2004 09 08 | 644 | 0.1− | 0.2+ | 2004 10 16 | 699 | 0.3− | 0.5− | 2009 11 10 | 703 | 0.1+ | 0.6− |
| 2004 09 08 | 644 | 0.1+ | 0.1+ | 2004 10 16 | 699 | 1.0− | 0.9− | 2009 11 10 | 703 | 0.4− | 0.4− |
| 2004 09 11 | 704 | 0.4− | 0.1− | 2004 10 16 | 699 | 0.0 | 0.3− | 2009 11 10 | 703 | 0.8− | 0.9+ |
| 2004 09 11 | 704 | 0.0 | 0.6− | 2005 11 30 | G96 | 0.4+ | 0.4− | 2009 11 10 | 703 | 0.2+ | 0.9− |
| 2004 09 11 | 704 | 0.2− | 0.2− | 2005 11 30 | G96 | 0.2− | 0.1− | 2009 11 11 | 704 | 0.1+ | 0.3− |
| 2004 09 11 | 704 | 0.0 | 0.2− | 2005 11 30 | G96 | 0.3− | 0.2− | 2009 11 11 | 704 | (0.1− | 2.2−) |
| 2004 09 11 | 704 | 0.1+ | 0.4− | 2005 11 30 | G96 | 0.2+ | 0.5− | 2009 11 11 | 704 | 0.5+ | 0.4− |
| 2004 09 14 | 704 | 1.3− | 0.8+ | 2005 12 27 | 691 | 0.2+ | 0.0 | 2009 11 11 | 704 | 0.3− | 0.0 |
| 2004 09 14 | 704 | 0.3+ | 0.9+ | 2005 12 27 | 691 | 0.3+ | 0.2+ | 2009 11 16 | 704 | 0.4+ | 0.9+ |
| 2004 09 14 | 704 | 0.1− | 0.3+ | 2005 12 27 | 691 | 0.1− | 0.0 | 2009 11 16 | 704 | 0.4− | 0.3− |
| 2004 09 14 | 704 | 0.1+ | 0.7+ | 2005 12 27 | G96 | 0.5− | 0.1+ | 2009 11 16 | 704 | 0.1− | 0.6+ |
| 2004 09 16 | 699 | 0.7− | 0.6− | 2005 12 27 | G96 | 0.1+ | 0.2− | 2009 11 16 | 704 | 0.7+ | 0.4+ |
| 2004 09 16 | 699 | 1.4+ | 1.0+ | 2005 12 27 | G96 | 0.3+ | 0.2− | 2009 11 16 | 704 | 0.3+ | 0.6+ |
| 2004 09 16 | 699 | 0.1+ | 0.2− | 2005 12 27 | G96 | 0.1− | 0.3− | 2009 11 19 | 703 | 0.2+ | 1.0− |
| 2004 09 16 | 699 | 0.1+ | 0.2− | 2005 12 31 | 691 | 0.1+ | 0.1+ | 2009 11 19 | 703 | 0.0 | 0.9− |
| 2004 09 22 | 704 | 0.5+ | 1.4+ | 2005 12 31 | 691 | 0.3− | 0.0 | 2009 11 19 | 703 | 0.7− | 0.4− |
| 2004 09 22 | 704 | 0.2+ | 0.6+ | 2005 12 31 | 691 | 0.0 | 0.5+ | 2009 11 19 | 703 | 0.9+ | 0.1+ |
| 2004 09 22 | 704 | 0.9+ | 0.3+ | 2009 10 18 | 704 | 0.2+ | 1.1+ | 2009 11 22 | 704 | 1.0+ | 0.2+ |
| 2004 09 22 | 704 | 0.6+ | 0.4+ | 2009 10 18 | 704 | 0.4− | 0.3− | 2009 11 22 | 703 | 0.7+ | 0.8+ |
| 2004 09 24 | 704 | 0.4+ | 0.9− | 2009 10 18 | 704 | 1.2− | 0.3− | 2009 11 22 | 703 | (0.6− | 1.8+) |
| 2004 09 24 | 704 | 0.1+ | 0.3− | 2009 10 18 | 704 | 1.1− | 0.3+ | 2009 11 22 | 704 | 1.0+ | 0.2+ |
| 2004 09 24 | 704 | 0.1+ | 0.0 | 2009 10 18 | 704 | 0.2+ | 0.1+ | 2009 11 22 | 703 | 0.8+ | 0.6+ |
| 2004 09 24 | 704 | 1.1+ | 0.6− | 2009 10 24 | 704 | 0.1+ | 1.0+ | 2009 11 22 | 703 | 0.8+ | 0.9+ |
| 2004 09 24 | 704 | 0.3+ | 0.5− | 2009 10 24 | 704 | 1.0− | 0.9+ | 2009 11 22 | 704 | 0.4− | 1.4− |
| 2004 10 08 | 699 | 0.9− | 0.5− | 2009 10 24 | 704 | 0.0 | 0.0 | 2009 12 20 | G96 | 0.1− | 0.5− |
| 2004 10 08 | 699 | 0.1+ | 0.2− | 2009 10 25 | F85 | 0.9− | 0.0 | 2009 12 20 | G96 | 0.1− | 0.4− |
| 2004 10 08 | 699 | 0.6− | 1.0− | 2009 10 25 | F85 | 0.6− | 0.2− | 2009 12 20 | G96 | 0.2− | 0.2− |
| 2004 10 08 | 699 | 0.3− | 0.4− | 2009 10 27 | G96 | 0.1+ | 0.5− | 2009 12 20 | G96 | 0.1+ | 0.2− |

**(229124)∗ 2004 $RV_{157}$ = 2005 $WL_{134}$**

Discovered 2004 Sept. 10 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 95385)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 200.44172 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.25413048 | $\omega$ | 359.94886 | | +0.10273824 | | +0.99040748 |
| $a$ | 2.4684910 | $\Omega$ | 275.94779 | | −0.91259415 | | +0.05689206 |
| $e$ | 0.0948958 | $i$ | 5.33050 | | −0.39574836 | | +0.12592184 |
| $P$ | 3.88 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 10 | 704 | 0.5+ | 0.0 | 2005 12 25 | G96 | 0.0 | 0.4− | 2008 10 01 | G96 | 0.7+ | 0.1− |
| 2004 09 10 | 704 | 0.2+ | 0.1+ | 2005 12 29 | 691 | 0.4+ | 0.2+ | 2008 10 01 | G96 | 0.6+ | 0.1− |
| 2004 09 10 | 704 | 0.4− | 0.5− | 2005 12 29 | 691 | 0.1− | 0.2+ | 2008 10 01 | G96 | 0.1+ | 0.1− |
| 2004 09 12 | 691 | 0.0 | 0.1− | 2005 12 29 | 691 | 0.0 | 0.3+ | 2008 10 29 | G96 | 0.0 | 0.2− |
| 2004 09 12 | 691 | 0.3− | 0.2− | 2006 01 10 | 691 | 0.1+ | 0.1− | 2008 10 29 | G96 | 0.7+ | 0.4− |
| 2004 09 12 | 691 | 0.1− | 0.1− | 2006 01 10 | 691 | 0.3+ | 0.3+ | 2008 10 29 | G96 | 0.5+ | 0.0 |
| 2004 09 13 | 704 | 0.2− | 0.8+ | 2006 01 10 | 691 | 0.2− | 0.6+ | 2008 10 29 | G96 | 0.7+ | 0.1− |
| 2004 09 13 | 704 | 0.1− | 0.1− | 2007 04 11 | D35 | 0.5+ | 0.4+ | 2008 12 01 | G96 | 0.1+ | 0.0 |
| 2004 09 13 | 704 | 0.6− | 0.9+ | 2007 04 11 | D35 | 0.4+ | 0.6+ | 2008 12 01 | G96 | 0.2+ | 0.3− |
| 2004 09 13 | 704 | 0.3− | 0.8+ | 2007 04 11 | D35 | 0.2+ | 0.4+ | 2008 12 01 | G96 | 0.0 | 0.3− |
| 2005 11 25 | G96 | 0.1+ | 0.3− | 2008 09 05 | 691 | 0.2+ | 0.2+ | 2008 12 01 | G96 | 0.5+ | 1.0− |
| 2005 11 25 | G96 | 0.0 | 0.2− | 2008 09 05 | 691 | 0.0 | 0.3+ | 2009 11 16 | G96 | 0.2− | 0.1− |
| 2005 11 25 | G96 | 0.0 | 0.3− | 2008 09 05 | 691 | 0.0 | 0.2+ | 2009 11 16 | G96 | 0.2+ | 0.2+ |
| 2005 11 25 | G96 | 0.1− | 0.1+ | 2008 09 09 | 691 | 0.9− | 0.1− | 2009 11 16 | G96 | 0.7+ | 0.0 |
| 2005 12 02 | G96 | 0.2+ | 0.2− | 2008 09 09 | 691 | 0.1− | 0.5+ | 2009 11 16 | G96 | 0.6+ | 0.4+ |
| 2005 12 02 | G96 | 0.1− | 0.1− | 2008 09 09 | 691 | 0.4− | 0.0 | 2009 12 17 | 691 | 0.4− | 0.2− |
| 2005 12 02 | G96 | 0.8+ | 0.6− | 2008 09 29 | G96 | 0.5+ | 0.5+ | 2009 12 17 | 691 | 0.2− | 0.1− |
| 2005 12 02 | G96 | 0.3+ | 0.3− | 2008 09 29 | G96 | 0.7+ | 0.6− | 2009 12 17 | 691 | 0.2+ | 0.3+ |
| 2005 12 25 | G96 | 0.0 | 0.2− | 2008 09 29 | G96 | 0.4+ | 0.2− | 2009 12 25 | 691 | 0.7− | 0.2+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 25 | G96 | 0.1− | 0.5− | 2008 09 29 | G96 | 0.7+ | 0.5− | 2009 12 25 | 691 | 0.1− | 0.2− |
| 2005 12 25 | G96 | 0.2+ | 0.5− | 2008 10 01 | G96 | 0.7+ | 0.0 | 2009 12 25 | 691 | 0.0 | 0.1− |

**(229125)∗ 2004 RE$_{162}$**

Discovered 2004 Sept. 11 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 101.16043 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23743334 | $\omega$ | 50.74779 | | +0.98475041 | +0.09246407 | |
| $a$ | 2.5829039 | $\Omega$ | 303.46895 | | −0.15302891 | +0.86331384 | |
| $e$ | 0.1905267 | $i$ | 10.17526 | | +0.08275733 | +0.49612459 | |
| $P$ | 4.15 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 11 | 850 | 0.1− | 1.0− | 2004 09 18 | 704 | (1.8− | 1.0+) | 2006 01 06 | 691 | 0.2− | 0.2− |
| 2004 09 11 | 704 | 0.5− | 0.2− | 2004 09 18 | 704 | 1.0+ | 1.2− | 2006 01 06 | 691 | 0.3− | 0.1+ |
| 2004 09 11 | 850 | 0.8− | 0.2− | 2004 09 18 | 704 | (1.6− | 1.7−) | 2006 01 27 | 691 | 0.4+ | 0.6+ |
| 2004 09 11 | 704 | 0.2− | 0.1− | 2004 09 18 | 704 | 0.6− | 0.2− | 2006 01 27 | 691 | 0.2+ | 0.1+ |
| 2004 09 11 | 850 | 0.1− | 0.5− | 2004 09 18 | 704 | (2.1− | 0.3−) | 2006 01 27 | 691 | 0.3+ | 0.0 |
| 2004 09 11 | 704 | 0.3− | 0.8− | 2004 09 18 | 704 | 1.4− | 0.8− | 2006 01 31 | G96 | 0.6− | 0.7+ |
| 2004 09 11 | 704 | 1.0− | 0.3+ | 2004 09 18 | 704 | (1.6− | 1.0−) | 2006 01 31 | G96 | 0.1− | 0.5+ |
| 2004 09 11 | 704 | 0.3− | 0.6− | 2004 09 18 | 704 | 0.8− | 0.5+ | 2006 01 31 | G96 | 0.2− | 1.0+ |
| 2004 09 12 | 704 | 0.7− | 0.1+ | 2004 09 22 | 704 | 0.5+ | 0.2+ | 2006 01 31 | G96 | 0.5− | 1.1+ |
| 2004 09 12 | 704 | 0.1+ | 0.5+ | 2004 09 22 | 699 | 0.0 | 0.2− | 2008 07 29 | 691 | 0.0 | 0.2+ |
| 2004 09 12 | 704 | 0.5+ | 0.4− | 2004 09 22 | 704 | 0.1− | 0.2− | 2008 07 29 | 691 | 0.0 | 0.3+ |
| 2004 09 12 | 704 | (0.4+ | 1.8+) | 2004 09 22 | 704 | 0.5+ | 0.2+ | 2008 07 29 | 691 | 0.4− | 0.1− |
| 2004 09 12 | 704 | 0.8+ | 0.5+ | 2004 09 22 | 699 | 0.0 | 0.0 | 2008 08 06 | J75 | 0.3+ | 0.2+ |
| 2004 09 14 | 704 | 1.1+ | 0.8+ | 2004 09 22 | 704 | 0.5− | 0.6+ | 2008 08 06 | J75 | 0.4+ | 0.2− |
| 2004 09 14 | 850 | (1.5− | 1.7−) | 2004 09 22 | 699 | 0.3+ | 0.5+ | 2008 08 06 | J75 | 0.4+ | 0.0 |
| 2004 09 14 | 704 | 0.6+ | 0.5− | 2004 09 22 | 699 | 0.5− | 0.2+ | 2008 10 30 | G96 | 0.1− | 0.1+ |
| 2004 09 14 | 850 | 0.3− | 0.5− | 2004 09 24 | 704 | 0.3− | 0.4+ | 2008 10 30 | G96 | 0.2+ | 0.1+ |
| 2004 09 14 | 850 | 1.4+ | 0.4+ | 2004 09 24 | 704 | 0.2− | 0.2+ | 2008 10 30 | G96 | 0.0 | 0.2+ |
| 2004 09 14 | 704 | 1.1+ | 0.0 | 2004 09 24 | 704 | 0.5− | 0.6+ | 2008 10 30 | G96 | 0.1− | 0.1− |
| 2004 09 14 | 704 | 0.2− | 0.9− | 2004 09 24 | 704 | 0.4+ | 0.3+ | 2009 11 21 | G96 | 0.1+ | 0.7+ |
| 2004 09 14 | 704 | 0.2+ | 0.0 | 2004 09 24 | 704 | 0.8+ | 0.1+ | 2009 11 21 | G96 | 0.0 | 0.3+ |
| 2004 09 16 | 704 | 0.3− | 0.1− | 2004 10 10 | 704 | 0.2+ | 0.7+ | 2009 11 21 | G96 | 0.1− | 0.2+ |
| 2004 09 16 | 704 | 0.5− | 0.2− | 2004 10 10 | 704 | 0.1+ | 1.1+ | 2009 11 21 | G96 | 0.0 | 0.1+ |
| 2004 09 16 | 704 | 0.4− | 0.1+ | 2004 10 10 | 704 | 1.0− | 0.0 | 2009 12 17 | G96 | 0.2+ | 0.2− |
| 2004 09 16 | 704 | 0.1+ | 0.2− | 2004 10 10 | 704 | 0.6+ | 0.6+ | 2009 12 17 | G96 | 0.3+ | 0.1+ |
| 2004 09 16 | 704 | 0.5− | 0.3+ | 2004 10 10 | 704 | 1.3− | 0.7+ | 2009 12 17 | G96 | 0.7− | 0.4− |
| 2004 09 17 | 704 | (0.7− | 1.8−) | 2004 10 12 | 699 | 0.7+ | 1.3− | 2009 12 17 | G96 | 0.0 | 0.0 |
| 2004 09 17 | 704 | 1.1+ | 0.6+ | 2004 10 12 | 699 | 1.1+ | 0.8+ | 2009 12 18 | 691 | 0.3− | 0.1+ |
| 2004 09 17 | 704 | 0.3+ | 0.1+ | 2004 10 12 | 699 | 0.7− | 1.3− | 2009 12 18 | 691 | 0.3− | 0.4− |
| 2004 09 17 | 704 | 0.2+ | 0.0 | 2004 10 12 | 699 | (2.1+ | 0.9−) | 2009 12 18 | 691 | 0.4+ | 0.3− |
| 2004 09 17 | 704 | 0.1+ | 0.1− | 2006 01 06 | 691 | 0.3+ | 0.7− | | | | |

**(229126)∗ 2004 RP$_{176}$ = 2000 VK$_{32}$**

Discovered 2004 Sept. 10 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 70034)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 44.97339 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22083223 | $\omega$ | 150.92874 | | +0.91416455 | −0.38921919 | |
| $a$ | 2.7107808 | $\Omega$ | 232.41961 | | +0.33879913 | +0.88699273 | |
| $e$ | 0.1894369 | $i$ | 8.21133 | | +0.22252712 | +0.24850013 | |
| $P$ | 4.46 | $H$ | 15.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 01 | 704 | 0.1+ | 0.4− | 2004 09 24 | 704 | 0.2+ | 0.4+ | 2006 02 07 | 703 | 0.4+ | 0.7+ |
| 2000 11 01 | 704 | 0.6+ | 0.2+ | 2004 09 24 | 704 | 0.3+ | 0.5+ | 2006 02 07 | 703 | 0.8− | 0.1− |
| 2000 11 01 | 704 | 0.3+ | 1.3− | 2004 10 07 | 704 | 0.1+ | 0.0 | 2006 02 07 | 703 | 0.3+ | 0.2+ |
| 2000 11 01 | 704 | 0.4− | 0.7+ | 2004 10 07 | 704 | 0.5+ | 0.4+ | 2006 02 07 | 703 | (0.2+ | 1.6−) |
| 2000 11 02 | 704 | 0.1+ | 0.2+ | 2004 10 07 | 704 | 0.8+ | 1.1− | 2009 11 10 | 691 | 0.4− | 0.1− |
| 2000 11 02 | 704 | 0.4− | 0.2− | 2004 10 07 | 704 | 0.8− | 0.2− | 2009 11 10 | 691 | 0.0 | 0.2− |
| 2000 11 02 | 704 | 0.3− | 0.1+ | 2004 10 07 | 704 | 0.6− | 0.2− | 2009 11 10 | 691 | 0.1− | 0.1− |
| 2000 11 02 | 704 | 0.1+ | 1.3− | 2004 10 08 | 699 | 0.2− | 0.2+ | 2009 11 18 | 691 | 0.2− | 0.1− |
| 2000 11 02 | 704 | 0.1− | 0.5+ | 2004 10 08 | 699 | 0.4− | 0.3+ | 2009 11 18 | 704 | 0.3+ | 0.5− |
| 2000 11 21 | 704 | 0.6+ | 0.4+ | 2004 10 08 | 699 | 0.0 | 0.1− | 2009 11 18 | 691 | 0.4− | 0.1+ |
| 2000 11 21 | 704 | 0.2− | 0.0 | 2004 10 08 | 699 | 0.4− | 0.3− | 2009 11 18 | 704 | 0.2+ | 0.5+ |
| 2000 11 21 | 704 | 0.3− | 0.0 | 2004 10 10 | 704 | 0.3− | 0.2+ | 2009 11 18 | 691 | 0.4− | 0.1− |
| 2000 11 21 | 704 | (3.6− | 0.1+) | 2004 10 10 | 704 | (2.2+ | 0.2−) | 2009 11 18 | 704 | 0.4+ | 0.3− |
| 2004 09 10 | 704 | 0.3− | 0.1− | 2004 10 10 | 704 | (1.5+ | 1.6−) | 2009 11 18 | 704 | 0.0 | 0.2+ |
| 2004 09 10 | 704 | 0.3− | 0.3− | 2004 10 10 | 704 | 0.0 | 0.9− | 2009 11 18 | 704 | (2.0+ | 1.3+) |
| 2004 09 10 | 704 | 0.3− | 0.5− | 2004 10 15 | 704 | 0.9− | 0.1− | 2009 11 21 | 704 | 1.3+ | 0.3− |
| 2004 09 10 | 704 | 0.2− | 0.1− | 2004 10 15 | 704 | 0.0 | 0.3− | 2009 11 21 | 704 | 1.4+ | 1.1− |
| 2004 09 10 | 704 | 0.3− | 0.2− | 2004 10 15 | 704 | 0.2− | 0.3− | 2009 11 21 | 704 | 1.0+ | 0.4− |
| 2004 09 13 | 704 | 0.4+ | 0.0 | 2004 10 15 | 704 | 0.1+ | 0.3− | 2009 11 21 | 704 | 1.2+ | 0.5− |
| 2004 09 13 | 704 | 0.5+ | 0.3+ | 2004 10 15 | 704 | 0.1+ | 0.5− | 2009 11 21 | 704 | (1.9+ | 1.3−) |
| 2004 09 13 | 704 | 0.2+ | 0.6+ | 2004 11 12 | 704 | 1.4− | 0.9+ | 2009 11 22 | 691 | 0.4+ | 0.2− |
| 2004 09 13 | 704 | 0.0 | 0.2+ | 2004 11 12 | 704 | (1.6− | 1.2+) | 2009 11 22 | 691 | 0.1− | 0.1− |
| 2004 09 13 | 704 | 0.2+ | 1.0− | 2004 11 12 | 704 | 1.4− | 0.6+ | 2009 11 22 | 691 | 0.6− | 0.2+ |
| 2004 09 16 | 699 | 0.1− | 0.2+ | 2004 11 12 | 704 | (2.0− | 0.9+) | 2009 12 09 | J75 | 0.0 | 0.2− |
| 2004 09 16 | 699 | 0.0 | 0.1+ | 2004 11 12 | 704 | (2.0− | 1.8+) | 2009 12 09 | J75 | 0.4− | 0.3− |
| 2004 09 16 | 699 | 0.6+ | 0.4− | 2004 12 07 | 704 | 0.9− | 1.2+ | 2009 12 09 | J75 | 0.0 | 0.3− |
| 2004 09 16 | 699 | 0.1− | 0.4− | 2004 12 07 | 704 | 0.0 | 0.1+ | 2009 12 12 | 704 | 0.3+ | 0.5+ |
| 2004 09 18 | 704 | 0.2+ | 0.4+ | 2004 12 07 | 704 | 0.7+ | 1.1+ | 2009 12 12 | 704 | 0.1+ | 0.0 |
| 2004 09 18 | 704 | 0.1+ | 0.4+ | 2006 01 04 | 703 | 0.4− | 0.5+ | 2009 12 12 | 704 | 0.3+ | 0.3+ |
| 2004 09 18 | 704 | 0.3+ | 0.3+ | 2006 01 04 | 703 | 0.5− | 1.0− | 2009 12 12 | 704 | 0.3+ | 0.4+ |
| 2004 09 18 | 704 | 0.0 | 0.1+ | 2006 01 04 | 703 | 0.2− | 0.1+ | 2009 12 12 | 704 | 0.5+ | 0.2+ |
| 2004 09 18 | 704 | 0.2+ | 0.2+ | 2006 01 04 | 703 | 0.3+ | 0.1− | 2009 12 17 | G96 | 0.3+ | 0.1− |
| 2004 09 22 | 704 | 0.3+ | 0.4+ | 2006 01 23 | 703 | 0.3+ | 0.7− | 2009 12 17 | G96 | 0.3+ | 0.2− |
| 2004 09 22 | 704 | 0.1+ | 0.6+ | 2006 01 23 | 703 | 0.7+ | 1.4+ | 2009 12 17 | G96 | 0.3+ | 0.2− |
| 2004 09 22 | 704 | 0.3− | 0.1− | 2006 01 23 | 703 | 0.3+ | 0.3− | 2009 12 17 | G96 | 0.2+ | 0.3− |
| 2004 09 22 | 704 | 0.2− | 0.0 | 2006 01 23 | 703 | 0.4− | 0.1− | 2009 12 18 | 704 | 1.2− | 1.3+ |
| 2004 09 22 | 704 | 0.2+ | 0.4+ | 2006 01 30 | 703 | 0.2+ | 0.1− | 2009 12 18 | 704 | 0.1+ | 0.7+ |
| 2004 09 24 | 704 | 0.5+ | 0.4+ | 2006 01 30 | 703 | 0.1+ | 0.4+ | 2009 12 18 | 704 | 0.1− | 1.3+ |
| 2004 09 24 | 704 | 0.5+ | 0.3+ | 2006 01 30 | 703 | 0.5+ | 0.8+ | 2009 12 18 | 704 | 0.3+ | 0.0 |
| 2004 09 24 | 704 | 0.5+ | 0.4+ | 2006 01 30 | 703 | 0.2− | 0.5+ | 2009 12 18 | 704 | 0.3− | 0.7+ |

**(229127)∗ 2004 RD$_{178}$**

Discovered 2004 Sept. 10 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 35.11761 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22337754 | $\omega$ | 164.41052 | | +0.85903172 | −0.50576117 | |
| $a$ | 2.6901493 | $\Omega$ | 226.25025 | | +0.45718315 | +0.82753622 | |
| $e$ | 0.0528660 | $i$ | 6.29328 | | +0.23032167 | +0.24369948 | |
| $P$ | 4.41 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 05 10 | 691 | 0.2− | 0.3+ | 2004 09 23 | 691 | 0.2+ | 0.1− | 2009 11 11 | J75 | 0.4− | 0.1− |
| 1994 05 10 | 691 | 0.1− | 0.3+ | 2004 09 23 | 691 | 0.2+ | 0.1+ | 2009 11 11 | J75 | 0.4− | 0.4+ |
| 1994 05 10 | 691 | 0.2− | 0.2+ | 2007 03 29 | 691 | 1.0+ | 0.5− | 2009 11 18 | 704 | 0.7− | 0.7+ |
| 2004 08 12 | 704 | 0.2− | 0.1− | 2007 03 29 | 691 | 0.1+ | 0.5+ | 2009 11 18 | 704 | 0.6− | 0.4+ |
| 2004 08 12 | 704 | 0.3+ | 0.2+ | 2007 03 29 | 691 | 0.1− | 0.2+ | 2009 11 18 | 704 | 0.2− | 0.0 |
| 2004 08 12 | 704 | 0.6+ | 0.3+ | 2008 06 08 | 691 | 0.6− | 0.1− | 2009 11 18 | 704 | 0.2− | 0.3− |
| 2004 08 12 | 704 | 0.1− | 0.4+ | 2008 06 08 | 691 | 0.3− | 0.1+ | 2009 11 18 | 704 | 0.1− | 0.4+ |
| 2004 08 12 | 704 | 0.6− | 0.2− | 2008 06 08 | 691 | 0.4− | 0.0 | 2009 11 20 | 704 | 0.8+ | 1.4+ |
| 2004 08 25 | 691 | 0.1− | 0.0 | 2008 07 29 | G96 | 0.3+ | 0.1− | 2009 11 20 | 704 | 0.3+ | 0.0 |
| 2004 08 25 | 691 | 0.1− | 0.1− | 2008 07 29 | G96 | 0.1− | 0.2− | 2009 11 20 | 704 | 0.5+ | 1.3+ |
| 2004 08 25 | 691 | 0.1− | 0.0 | 2008 07 29 | G96 | 0.1+ | 0.1− | 2009 11 20 | 704 | 1.4+ | 0.2− |
| 2004 09 10 | 704 | 0.3− | 0.2− | 2008 07 29 | G96 | 0.3+ | 0.1− | 2009 11 20 | 704 | 0.7+ | 0.5+ |
| 2004 09 10 | 704 | 0.9+ | 0.4− | 2009 09 19 | G96 | 0.4+ | 0.2− | 2009 11 20 | G96 | 0.0 | 0.2− |
| 2004 09 10 | 704 | 0.7+ | 0.6+ | 2009 09 19 | G96 | 0.1+ | 0.0 | 2009 11 20 | G96 | 0.4+ | 0.2− |
| 2004 09 10 | 704 | 0.2− | 0.8− | 2009 09 19 | G96 | 0.4+ | 0.1− | 2009 11 20 | G96 | 0.6+ | 1.2− |
| 2004 09 10 | 704 | 0.8+ | 0.2+ | 2009 09 19 | G96 | 0.6+ | 0.2− | 2009 11 20 | G96 | 0.4+ | 0.1− |
| 2004 09 13 | 704 | 0.2+ | 0.6− | 2009 10 23 | 691 | 0.1+ | 0.4− | 2009 12 11 | 703 | 0.3+ | 0.3+ |
| 2004 09 13 | 704 | 0.2− | 0.4+ | 2009 10 23 | 691 | 0.2+ | 0.2+ | 2009 12 11 | 703 | 0.9− | 0.1+ |
| 2004 09 13 | 704 | 0.5+ | 0.3− | 2009 10 23 | 691 | 0.1− | 0.1+ | 2009 12 11 | 703 | (2.2− | 1.7−) |
| 2004 09 13 | 704 | 0.9+ | 0.3+ | 2009 10 27 | 691 | 0.2− | 0.2− | 2009 12 11 | 703 | (1.9− | 0.2+) |
| 2004 09 16 | 699 | 0.6+ | 0.3+ | 2009 10 27 | 691 | 0.2− | 0.0 | 2009 12 19 | 691 | 0.3− | 0.2+ |
| 2004 09 16 | 699 | 0.3− | 0.8+ | 2009 10 27 | 691 | 0.2+ | 0.1+ | 2009 12 19 | 691 | 0.4− | 0.1+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 16 | 699 | 0.2+ | 0.5+ | 2009 11 08 | 691 | 0.0 | 0.0 | 2009 12 19 | 691 | 0.2− | 0.2+ | | |
| 2004 09 16 | 699 | 0.1− | 0.0 | 2009 11 08 | 691 | 0.9− | 0.4+ | 2009 12 19 | G96 | 0.0 | 0.4− | | |
| 2004 09 18 | 704 | 0.1+ | 0.2− | 2009 11 08 | 691 | 0.5− | 0.0 | 2009 12 19 | G96 | 0.3+ | 0.0 | | |
| 2004 09 18 | 704 | 0.5− | 0.2− | 2009 11 09 | J75 | 0.5+ | 0.2− | 2009 12 19 | G96 | 0.5+ | 0.3− | | |
| 2004 09 18 | 704 | 0.0 | 0.6+ | 2009 11 09 | J75 | 0.4+ | 0.3+ | 2009 12 19 | G96 | 0.6+ | 0.2− | | |
| 2004 09 18 | 704 | 0.2+ | 0.3+ | 2009 11 09 | J75 | 0.3+ | 0.6− | | | | | | |
| 2004 09 23 | 691 | 0.1+ | 0.3+ | 2009 11 11 | J75 | 0.2− | 0.4− | | | | | | |

**(229128)∗ 2004 RG$_{178}$**

Discovered 2004 Sept. 10 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 7.39483 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22981661 | $\omega$ | 148.61032 | | +0.03383765 | −0.98829723 | |
| $a$ | 2.6396628 | $\Omega$ | 299.06982 | | +0.87808512 | +0.10047424 | |
| $e$ | 0.1362713 | $i$ | 9.79814 | | +0.47730654 | −0.11477589 | |
| $P$ | 4.29 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 22 | 699 | 0.6− | 0.7+ | 2004 09 14 | 699 | 0.9+ | 0.2− | 2006 01 23 | 704 | (2.1+ | 0.3−) | | |
| 2000 09 22 | 699 | 0.2+ | 0.3+ | 2004 09 14 | 699 | 0.4− | 0.7− | 2006 01 23 | 704 | (2.8+ | 0.1+) | | |
| 2000 09 22 | 699 | 0.8+ | 0.3+ | 2004 09 14 | 699 | 0.1− | 0.5+ | 2006 01 30 | 703 | 0.1− | 0.0 | | |
| 2000 09 22 | 699 | 0.4+ | 0.4+ | 2004 09 22 | 704 | 0.1+ | 0.2+ | 2006 01 30 | 703 | (2.5− | 1.1+) | | |
| 2000 10 03 | 704 | 0.3− | 0.1− | 2004 09 22 | 704 | 0.3+ | 0.3+ | 2006 01 30 | 703 | 1.4− | 0.5+ | | |
| 2000 10 03 | 704 | 0.2+ | 0.7− | 2004 09 22 | 704 | 0.0 | 0.3+ | 2006 01 30 | 703 | 0.3− | 0.9+ | | |
| 2000 10 03 | 704 | 0.9− | 0.6− | 2004 09 22 | 704 | 0.4+ | 0.3+ | 2006 02 02 | 699 | 0.0 | 1.3+ | | |
| 2000 10 25 | 704 | 1.1+ | 0.5− | 2004 09 24 | 704 | 1.3+ | 0.0 | 2006 02 02 | 699 | 0.2− | 0.9+ | | |
| 2000 10 25 | 704 | 0.2+ | 0.4− | 2004 09 24 | 704 | 1.0+ | 0.8+ | 2006 02 02 | 699 | 0.5− | 0.1+ | | |
| 2000 10 25 | 704 | 0.9− | 1.1− | 2004 09 24 | 704 | 0.2+ | 0.1+ | 2006 02 02 | 699 | 0.8+ | 0.1− | | |
| 2000 10 25 | 704 | 0.5− | 0.8− | 2004 10 05 | 644 | 0.4− | 0.2+ | 2006 03 05 | 703 | 0.3− | 0.1+ | | |
| 2002 03 09 | 644 | 0.7+ | 0.5+ | 2004 10 05 | 644 | 0.1− | 0.1+ | 2006 03 05 | 703 | 0.0 | 1.1− | | |
| 2002 03 09 | 644 | 0.2+ | 0.9+ | 2004 10 05 | 644 | 0.0 | 0.4+ | 2006 03 05 | 703 | 0.4− | 0.3− | | |
| 2002 03 09 | 644 | 0.6+ | 0.7+ | 2005 12 06 | G96 | 0.4+ | 0.2− | 2006 03 05 | 703 | 0.7− | 0.1− | | |
| 2002 04 08 | 644 | 0.6+ | 0.6+ | 2005 12 06 | G96 | 0.4+ | 0.1− | 2006 03 05 | 704 | 0.3+ | 1.1+ | | |
| 2002 04 08 | 644 | 0.7+ | 0.3+ | 2005 12 06 | G96 | 0.2− | 0.5− | 2006 03 05 | 704 | 0.8+ | 0.3+ | | |
| 2002 04 08 | 644 | 0.7+ | 0.5+ | 2005 12 06 | G96 | 0.2+ | 0.2− | 2006 03 05 | 704 | 0.6+ | 0.0 | | |
| 2004 09 10 | 704 | 1.0− | 0.5+ | 2006 01 02 | 704 | 0.3− | 1.0+ | 2006 03 05 | 704 | 0.8+ | 0.7+ | | |
| 2004 09 10 | 704 | (1.8− | 0.4+) | 2006 01 02 | 704 | 0.4+ | 0.8− | 2008 10 26 | G96 | 0.5− | 0.3+ | | |
| 2004 09 10 | 704 | 0.9− | 0.4+ | 2006 01 02 | 704 | 0.2− | 0.2− | 2008 10 26 | G96 | 0.6− | 0.1− | | |
| 2004 09 10 | 704 | 1.1− | 0.4+ | 2006 01 02 | 704 | 0.8− | 1.3+ | 2008 10 26 | G96 | 1.0− | 0.4+ | | |
| 2004 09 12 | 704 | (1.6+ | 0.1−) | 2006 01 02 | 704 | 0.1− | 0.3+ | 2008 10 26 | G96 | 0.4− | 0.3+ | | |
| 2004 09 12 | 704 | 0.5− | 0.2− | 2006 01 08 | G96 | 0.1− | 0.4− | 2008 10 26 | G96 | 0.4+ | 0.6+ | | |
| 2004 09 12 | 704 | 0.3+ | 1.3+ | 2006 01 08 | G96 | 0.0 | 0.5− | 2008 10 26 | G96 | 0.0 | 0.3+ | | |
| 2004 09 12 | 704 | (3.0− | 1.9+) | 2006 01 08 | G96 | 0.0 | 0.4− | 2008 10 26 | G96 | 0.4− | 0.2+ | | |
| 2004 09 12 | 704 | (0.2+ | 2.0+) | 2006 01 08 | G96 | 0.2+ | 0.6− | 2008 10 26 | G96 | 0.5− | 0.0 | | |
| 2004 09 12 | 704 | 0.0 | 0.4+ | 2006 01 20 | 703 | (2.5− | 0.3−) | 2009 11 23 | 704 | 0.8+ | 0.2− | | |
| 2004 09 12 | 704 | 0.5+ | 0.3+ | 2006 01 20 | 703 | 0.1− | 0.3− | 2009 11 23 | 704 | (1.8+ | 0.7−) | | |
| 2004 09 13 | 704 | 1.0− | 0.3− | 2006 01 20 | 703 | 0.3− | 0.0 | 2009 11 23 | 704 | 0.5− | 1.2+ | | |
| 2004 09 13 | 704 | 0.6− | 0.4+ | 2006 01 20 | 703 | 0.0 | 0.3+ | 2009 11 23 | 704 | (3.2+ | 1.9−) | | |
| 2004 09 13 | 704 | 0.1+ | 0.2+ | 2006 01 22 | 699 | 0.9+ | 0.6+ | 2009 11 23 | 704 | 0.1+ | 0.7+ | | |
| 2004 09 13 | 704 | (1.3− | 1.9+) | 2006 01 22 | 699 | 1.1+ | 0.0 | 2009 11 23 | 704 | 0.6+ | 1.4− | | |
| 2004 09 13 | 704 | (0.4− | 1.9+) | 2006 01 22 | 699 | 0.2− | 0.6+ | 2009 11 23 | 704 | 1.1− | 0.0 | | |
| 2004 09 13 | 704 | 0.4− | 0.5+ | 2006 01 22 | 699 | 0.2− | 1.2− | 2009 12 15 | 704 | 0.2+ | 0.2− | | |
| 2004 09 13 | 704 | 0.5− | 1.0+ | 2006 01 23 | 704 | (2.1+ | 0.6−) | 2009 12 15 | 704 | 0.6+ | 0.5+ | | |
| 2004 09 14 | 699 | 0.2+ | 0.1+ | 2006 01 23 | 704 | (3.1+ | 0.0 ) | 2009 12 15 | 704 | 0.1− | 0.2− | | |

**(229129)∗ 2004 RV$_{187}$**

Discovered 2004 Sept. 10 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 93.91281 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23513430 | $\omega$ | 99.67014 | | +0.98981397 | −0.06535376 | |
| $a$ | 2.5997129 | $\Omega$ | 264.15490 | | +0.01209738 | +0.92380609 | |
| $e$ | 0.0990817 | $i$ | 7.30442 | | +0.14185190 | +0.37724156 | |
| $P$ | 4.19 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 02 10 | 691 | 0.1+ | 0.5− | 2004 09 18 | 704 | 0.1+ | 0.7+ | 2008 09 29 | G96 | 0.2− | 0.6− | | |
| 1997 02 10 | 691 | 0.1− | 0.4− | 2004 09 18 | 704 | 0.3− | 0.1− | 2008 10 01 | 703 | (1.9+ | 0.4+) | | |
| 1997 02 10 | 691 | 0.2− | 0.0 | 2004 09 18 | 704 | 0.7+ | 0.6+ | 2008 10 01 | 703 | 0.1− | 0.2+ | | |
| 2004 08 11 | 644 | 0.1− | 0.2+ | 2004 09 18 | 704 | 0.0 | 0.2+ | 2008 10 01 | 703 | 0.5+ | 0.9+ | | |
| 2004 08 11 | 644 | 0.0 | 0.2+ | 2004 09 18 | 704 | 0.3+ | 0.0 | 2008 10 01 | 703 | 0.1− | 0.3+ | | |
| 2004 08 11 | 644 | 0.1+ | 0.2+ | 2004 09 22 | 704 | 0.4+ | 0.8− | 2008 10 30 | G96 | 0.1− | 0.3− | | |
| 2004 08 27 | 703 | 1.3− | 0.3− | 2004 09 22 | 704 | 0.1− | 0.3− | 2008 10 30 | G96 | 0.1+ | 0.1− | | |
| 2004 08 27 | 703 | 0.7− | 0.6− | 2004 09 22 | 704 | 0.2− | 0.3+ | 2008 10 30 | G96 | 0.2+ | 0.6− | | |
| 2004 08 27 | 703 | 0.6− | 0.6+ | 2008 08 24 | J75 | 0.2+ | 0.9− | 2008 10 30 | G96 | 0.1− | 0.5− | | |
| 2004 08 27 | 703 | (0.6− | 2.0−) | 2008 08 24 | J75 | 0.4+ | 0.3− | 2009 09 16 | 691 | 0.0 | 0.2+ | | |
| 2004 09 10 | 704 | 0.6− | 0.4+ | 2008 08 24 | J75 | 0.3+ | 0.7− | 2009 09 16 | 691 | 0.8− | 0.1+ | | |
| 2004 09 10 | 704 | 0.2+ | 0.0 | 2008 08 30 | 704 | 0.1− | 0.6+ | 2009 09 16 | 691 | 0.1+ | 0.0 | | |
| 2004 09 10 | 704 | 0.5− | 0.2− | 2008 08 30 | 704 | 0.3− | 0.8+ | 2009 12 18 | 691 | 0.0 | 0.2+ | | |
| 2004 09 13 | 704 | 0.2− | 0.8+ | 2008 08 30 | 704 | 0.5+ | 0.0 | 2009 12 18 | G96 | 0.8+ | 0.5− | | |
| 2004 09 13 | 704 | 0.5− | 0.3+ | 2008 08 30 | 704 | (1.9+ | 0.4+) | 2009 12 18 | 691 | 0.3+ | 0.1+ | | |
| 2004 09 13 | 704 | 0.2+ | 0.7+ | 2008 09 05 | 704 | 0.6− | 0.1− | 2009 12 18 | G96 | 0.7+ | 0.0 | | |
| 2004 09 13 | 704 | 0.3+ | 1.3− | 2008 09 05 | 704 | 0.5− | 1.1+ | 2009 12 18 | G96 | 0.5+ | 0.0 | | |
| 2004 09 13 | 704 | 0.9− | 0.0 | 2008 09 05 | 704 | 0.7− | 0.3+ | 2009 12 18 | 691 | 0.0 | 0.2+ | | |
| 2004 09 18 | 704 | 0.9+ | 0.3+ | 2008 09 05 | 704 | 0.1− | 0.2− | 2009 12 18 | G96 | 0.2+ | 0.1− | | |
| 2004 09 18 | 704 | 0.6+ | 0.6+ | 2008 09 05 | 704 | 0.3− | 0.1+ | 2009 12 26 | 691 | 0.2+ | 0.1− | | |
| 2004 09 18 | 704 | 0.9+ | 0.0 | 2008 09 29 | G96 | 0.1− | 0.8− | 2009 12 26 | 691 | 0.1− | 0.2+ | | |
| 2004 09 18 | 704 | 1.0+ | 0.1+ | 2008 09 29 | G96 | 0.2− | 0.5− | 2009 12 26 | 691 | 0.3− | 0.1+ | | |
| 2004 09 18 | 704 | 1.0+ | 0.3+ | 2008 09 29 | G96 | 0.3+ | 0.6− | | | | | | |

**(229130)∗ 2004 RR$_{191}$**

Discovered 2004 Sept. 10 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 66.13724 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21530673 | $\omega$ | 114.05477 | | +0.99075275 | +0.09298588 | |
| $a$ | 2.7569632 | $\Omega$ | 240.74147 | | −0.12171689 | +0.93088746 | |
| $e$ | 0.2352368 | $i$ | 6.50296 | | +0.05994988 | +0.35327348 | |
| $P$ | 4.58 | $H$ | 15.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 07 13 | 704 | 0.7− | 0.8+ | 2004 09 23 | 704 | 0.4− | 0.1+ | 2005 03 11 | G96 | 0.3+ | 0.3− | | |
| 1999 07 13 | 704 | 0.6+ | 0.4+ | 2004 09 23 | 704 | 0.1− | 0.3− | 2005 03 11 | G96 | 0.4− | 0.3− | | |
| 1999 07 13 | 704 | 0.3− | 1.9+ | 2004 09 23 | 704 | 0.8− | 0.7− | 2005 03 11 | G96 | 0.4− | 0.0 | | |
| 1999 07 13 | 704 | 0.1+ | 0.6+ | 2004 09 23 | 704 | 0.7− | 0.2+ | 2005 03 11 | G96 | 0.2− | 0.0 | | |
| 2000 12 30 | 704 | 0.8− | 0.1+ | 2004 10 07 | 699 | 0.6− | 0.2− | 2006 01 30 | 703 | 1.1− | 0.4+ | | |
| 2000 12 30 | 704 | 0.7+ | 0.1− | 2004 10 07 | 699 | 0.4− | 0.3− | 2006 01 30 | 703 | 0.8− | 0.4− | | |
| 2000 12 30 | 704 | 0.2− | 0.2− | 2004 10 07 | 699 | 0.4− | 0.2− | 2006 01 30 | 703 | 0.4− | 0.4− | | |
| 2000 12 30 | 704 | 1.0+ | 0.7+ | 2004 10 07 | 699 | 0.9− | 0.3− | 2006 01 30 | 703 | 1.1− | 0.8− | | |
| 2000 12 30 | 704 | 0.4− | 0.5+ | 2004 10 10 | 704 | 0.5− | 0.3+ | 2007 03 12 | 691 | 0.1+ | 0.1+ | | |
| 2002 03 09 | 644 | 0.9+ | 0.2+ | 2004 10 10 | 704 | 0.4− | 0.2+ | 2007 03 12 | 691 | 0.0 | 0.0 | | |
| 2002 03 09 | 644 | 0.5+ | 0.4+ | 2004 10 10 | 704 | 0.6− | 0.2+ | 2007 03 12 | 691 | 0.7− | 0.1− | | |
| 2002 03 09 | 644 | 1.3+ | 0.0 | 2004 10 10 | 704 | 0.5− | 0.3+ | 2007 03 16 | 691 | 0.3+ | 0.4+ | | |
| 2003 04 26 | 608 | 0.1+ | 0.7− | 2004 10 10 | 704 | 0.6+ | 0.0 | 2007 03 16 | 691 | 0.1+ | 0.4+ | | |
| 2003 04 26 | 608 | 0.1− | 1.3− | 2004 10 13 | 704 | 0.2+ | 0.0 | 2007 03 16 | 691 | 0.2+ | 0.1+ | | |
| 2003 04 26 | 608 | 0.1+ | 0.0 | 2004 10 13 | 704 | 0.2+ | 0.0 | 2009 11 18 | 704 | 0.9+ | 0.6+ | | |
| 2004 08 19 | 704 | 0.6− | 0.6− | 2004 10 13 | 704 | 0.6+ | 0.1+ | 2009 11 18 | 704 | 1.0+ | 0.7− | | |
| 2004 08 19 | 704 | 0.6+ | 0.9− | 2004 10 13 | 704 | 0.2+ | 0.0 | 2009 11 18 | 704 | (1.6+ | 0.4−) | | |
| 2004 08 19 | 704 | 0.7+ | 0.4+ | 2004 10 13 | 704 | 0.2+ | 0.1+ | 2009 11 18 | 704 | 0.4+ | 0.3− | | |
| 2004 09 10 | 704 | 0.7+ | 0.3+ | 2004 10 21 | 704 | 0.5+ | 0.6+ | 2009 11 18 | 704 | 1.4+ | 0.2− | | |
| 2004 09 10 | 704 | 1.0+ | 0.1− | 2004 10 21 | 704 | 0.3+ | 0.3+ | 2009 11 21 | 704 | 1.3− | 1.1+ | | |
| 2004 09 10 | 704 | 0.5+ | 0.1− | 2004 10 21 | 704 | 0.4+ | 0.4+ | 2009 11 21 | 704 | 0.6− | 0.4+ | | |
| 2004 09 10 | 704 | 0.9− | 0.4+ | 2004 10 21 | 704 | 0.3+ | 0.6+ | 2009 11 21 | 704 | 0.4− | 0.3+ | | |
| 2004 09 13 | 704 | 0.5+ | 0.4+ | 2004 10 21 | 704 | 0.4+ | 0.4+ | 2009 11 21 | 704 | (2.5− | 1.0+) | | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 13 | 704 | 0.4+ | 0.2+ | 2004 11 04 | 703 | 0.8− | 0.5− | 2009 11 24 | 691 | 0.2− | 0.5+ |
| 2004 09 13 | 704 | 0.3− | 0.3+ | 2004 11 04 | 703 | 0.5− | 0.5− | 2009 11 24 | 691 | 0.2− | 0.1− |
| 2004 09 13 | 704 | 0.2+ | 0.7+ | 2004 11 04 | 703 | 0.1+ | 0.2+ | 2009 11 24 | 691 | 0.0 | 0.1− |
| 2004 09 13 | 704 | 0.6− | 0.3− | 2004 11 04 | 703 | 0.1+ | 0.3− | 2009 12 17 | 704 | 1.0+ | 0.4+ |
| 2004 09 15 | 699 | 0.2− | 0.2− | 2004 11 10 | 699 | 0.2+ | 0.2+ | 2009 12 17 | 704 | 1.2+ | 0.1− |
| 2004 09 15 | 699 | 0.3− | 0.3− | 2004 11 10 | 699 | 0.4+ | 0.1+ | 2009 12 17 | 704 | 0.2− | 0.1− |
| 2004 09 15 | 699 | 0.5− | 0.2− | 2004 11 10 | 699 | 0.2− | 0.2− | 2009 12 17 | 704 | 0.2− | 0.5+ |
| 2004 09 15 | 699 | 0.1+ | 0.3− | 2004 11 10 | 699 | 0.6+ | 0.2+ | 2009 12 17 | 704 | 0.2− | 0.2+ |
| 2004 09 18 | 704 | 0.1+ | 0.4+ | 2004 11 19 | 704 | 0.9+ | 0.5− | 2009 12 21 | 704 | 0.6+ | 0.1+ |
| 2004 09 18 | 704 | 0.2+ | 0.2+ | 2004 11 19 | 704 | 0.1+ | 0.9− | 2009 12 21 | 704 | 0.2+ | 1.0− |
| 2004 09 18 | 704 | 0.3− | 0.7− | 2004 11 19 | 704 | 0.7+ | 0.9− | 2009 12 21 | 704 | 0.1+ | 0.0 |
| 2004 09 18 | 704 | 0.3+ | 0.1− | 2004 12 03 | 704 | 0.0 | 1.0+ | 2009 12 21 | 704 | 0.3+ | 0.9+ |
| 2004 09 18 | 704 | 0.3− | 0.4− | 2004 12 03 | 704 | 0.6− | 0.1− | | | | |
| 2004 09 23 | 704 | 0.3− | 0.1+ | 2004 12 03 | 704 | 0.1− | 0.1+ | | | | |

**(229131)∗ 2004 RC$_{206}$**

Discovered 2004 Sept. 10 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 68.04146 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21939956 | $\omega$ | 73.57224 | | +0.96969009 | −0.21147474 | |
| $a$ | 2.7225689 | $\Omega$ | 298.49461 | | +0.13457781 | +0.88033751 | |
| $e$ | 0.2701296 | $i$ | 8.00507 | | +0.20393610 | +0.42459899 | |
| $P$ | 4.49 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 08 19 | 704 | 0.1+ | 0.9− | 2004 10 04 | 704 | 0.2− | 0.4+ | 2005 12 25 | 291 | 0.1+ | 0.3+ |
| 2004 08 19 | 704 | 0.1− | 0.5− | 2004 10 04 | 704 | 0.1+ | 0.3− | 2005 12 25 | 291 | 0.3+ | 0.3+ |
| 2004 08 19 | 704 | 0.8− | 0.1+ | 2004 10 04 | 704 | 0.3− | 0.0 | 2006 02 02 | 691 | 0.0 | 0.0 |
| 2004 08 19 | 704 | 0.2− | 0.5+ | 2004 10 04 | 704 | 0.1− | 0.1− | 2006 02 02 | 691 | 0.2+ | 0.4+ |
| 2004 09 10 | 704 | 0.2− | 0.5+ | 2004 10 14 | 644 | 0.0 | 0.3− | 2006 02 02 | 691 | 0.3+ | 0.3+ |
| 2004 09 10 | 704 | 0.2+ | 0.4− | 2004 10 14 | 644 | 0.5+ | 0.3− | 2008 06 24 | 691 | 0.0 | 0.2+ |
| 2004 09 10 | 704 | 0.6+ | 0.5− | 2004 10 14 | 644 | 0.0 | 0.0 | 2008 06 24 | 691 | 0.1+ | 0.6+ |
| 2004 09 10 | 704 | 0.1+ | 0.1+ | 2004 10 24 | 699 | 0.2− | 0.2+ | 2008 06 24 | 691 | 0.7− | 0.9+ |
| 2004 09 10 | 704 | 0.3+ | 0.1+ | 2004 10 24 | 699 | 0.3− | 0.2+ | 2009 11 11 | G96 | 0.1+ | 0.6− |
| 2004 09 14 | 704 | 0.2+ | 0.0 | 2004 10 24 | 699 | 0.1+ | 0.7− | 2009 11 11 | G96 | 0.2+ | 0.2− |
| 2004 09 14 | 704 | 0.6+ | 0.1+ | 2004 10 24 | 699 | 0.2+ | 0.2+ | 2009 11 11 | G96 | 0.2+ | 0.2− |
| 2004 09 14 | 704 | 0.1+ | 0.3+ | 2004 11 07 | 644 | 0.1+ | 0.0 | 2009 11 11 | G96 | 0.3+ | 0.3− |
| 2004 09 14 | 704 | 0.4+ | 0.1+ | 2004 11 07 | 644 | 0.1+ | 0.0 | 2009 12 15 | G96 | 0.4+ | 0.0 |
| 2004 09 14 | 704 | 0.2− | 0.0 | 2004 11 07 | 644 | 0.4+ | 0.1− | 2009 12 15 | G96 | 0.3+ | 0.0 |
| 2004 09 23 | 704 | 0.4− | 0.8+ | 2004 11 19 | 704 | 0.2− | 0.6+ | 2009 12 15 | G96 | 0.3− | 0.2− |
| 2004 09 23 | 704 | 0.8+ | 0.3+ | 2004 11 19 | 704 | 0.6+ | 0.1− | 2009 12 15 | G96 | 0.2+ | 0.0 |
| 2004 09 23 | 704 | 0.9− | 0.3− | 2004 11 19 | 704 | 0.3− | 0.6− | 2009 12 18 | 691 | 0.3+ | 0.2− |
| 2004 09 23 | 704 | 0.2− | 0.5+ | 2004 11 19 | 704 | 0.7+ | 0.6+ | 2009 12 18 | 691 | 0.4+ | 0.0 |
| 2004 09 23 | 704 | 0.2− | 0.9+ | 2004 12 02 | 703 | 0.5− | 0.7+ | 2009 12 18 | 691 | 0.3+ | 0.1+ |
| 2004 09 25 | 699 | 0.2+ | 0.8+ | 2004 12 02 | 703 | 0.4− | 1.0+ | 2009 12 26 | 691 | 0.8− | 0.1+ |
| 2004 09 25 | 699 | 0.0 | 0.1+ | 2004 12 02 | 703 | 0.7− | 0.2− | 2009 12 26 | 691 | 0.4− | 0.7+ |
| 2004 09 25 | 699 | 0.2− | 0.3+ | 2004 12 02 | 703 | 0.8− | 0.2− | 2009 12 26 | 691 | 0.0 | 0.0 |
| 2004 09 25 | 699 | 0.8− | 0.4− | 2005 12 25 | 291 | 0.1− | 0.5+ | | | | |

**(229132)∗ 2004 RH$_{218}$**

Discovered 2004 Sept. 11 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 108.46855 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22874169 | $\omega$ | 59.96246 | | +0.89667549 | +0.40620586 | |
| $a$ | 2.6479259 | $\Omega$ | 275.57766 | | −0.44199390 | +0.79922874 | |
| $e$ | 0.1968367 | $i$ | 10.18457 | | −0.02478810 | +0.44297880 | |
| $P$ | 4.31 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 20 | 704 | 0.2− | 0.1+ | 2004 10 12 | 699 | 0.2+ | 0.2− | 2008 09 05 | 704 | 0.2− | 0.7+ |
| 2000 11 20 | 704 | 0.0 | 0.8− | 2004 10 12 | 699 | 0.2+ | 0.1− | 2008 09 05 | 704 | 0.4− | 0.1− |
| 2000 11 20 | 704 | 0.5+ | 1.1+ | 2004 10 12 | 699 | 0.4+ | 0.1− | 2008 09 05 | 704 | 0.3+ | 0.8+ |
| 2000 11 20 | 704 | 0.3+ | 0.7+ | 2004 10 12 | 699 | 0.1+ | 0.4+ | 2008 09 05 | 704 | 0.3+ | 0.6+ |
| 2000 11 20 | 704 | 0.8+ | 0.0 | 2004 10 14 | 644 | 0.2+ | 0.0 | 2008 09 05 | 704 | 0.5− | 0.3+ |
| 2000 11 30 | 704 | 0.4− | 0.4− | 2004 10 14 | 644 | 0.1+ | 0.0 | 2008 09 20 | 621 | 0.6+ | 0.2− |
| 2000 11 30 | 704 | 0.9− | 0.3+ | 2004 10 14 | 644 | 0.3+ | 0.0 | 2008 09 20 | 621 | 0.3+ | 0.7− |
| 2000 11 30 | 704 | 1.0− | 1.1+ | 2004 12 16 | 703 | 0.4+ | 0.6+ | 2008 09 20 | 621 | 0.4+ | 0.2− |
| 2004 08 19 | 704 | 0.2+ | 0.1+ | 2004 12 16 | 703 | (1.7− | 0.3+) | 2008 09 20 | 621 | 0.5− | 0.2− |
| 2004 08 19 | 704 | 0.5+ | 0.1− | 2004 12 16 | 703 | (0.5− | 2.2−) | 2008 09 24 | 621 | 0.5− | 0.2− |
| 2004 08 19 | 704 | 0.3− | 0.4+ | 2004 12 16 | 703 | (1.8− | 2.0−) | 2008 09 24 | 621 | 0.4+ | 0.4+ |
| 2004 09 11 | 704 | 0.1− | 0.0 | 2004 12 16 | 703 | (1.7− | 0.8−) | 2008 09 24 | 621 | 0.2+ | 0.5− |
| 2004 09 11 | 704 | 0.4− | 0.5− | 2004 12 16 | 703 | 1.1− | 0.5− | 2008 09 24 | 621 | 0.3+ | 0.3− |
| 2004 09 11 | 704 | 0.3− | 0.6− | 2004 12 16 | 703 | 0.4− | 0.3− | 2009 01 01 | G96 | 0.3+ | 0.0 |
| 2004 09 11 | 704 | 0.7+ | 0.3+ | 2004 12 16 | 703 | (2.0− | 0.7−) | 2009 01 01 | G96 | 0.3+ | 0.2− |
| 2004 09 14 | 704 | 0.6+ | 0.2− | 2008 07 25 | E12 | 0.1− | 0.6− | 2009 01 01 | G96 | 0.1+ | 0.4− |
| 2004 09 14 | 704 | 0.0 | 0.1+ | 2008 07 25 | E12 | 0.1+ | 0.2+ | 2009 01 01 | G96 | 0.2+ | 0.1− |
| 2004 09 14 | 704 | 0.4− | 0.2− | 2008 07 25 | E12 | 0.2− | 0.2+ | 2009 09 28 | 691 | 0.2+ | 0.1− |
| 2004 09 14 | 704 | 0.1+ | 0.4− | 2008 07 25 | E12 | 0.1+ | 0.0 | 2009 09 28 | 691 | 0.0 | 0.1+ |
| 2004 09 14 | 704 | 0.3+ | 0.3− | 2008 07 26 | E12 | 0.0 | 0.1− | 2009 09 28 | 691 | 1.4− | 1.2+ |
| 2004 09 23 | 704 | 0.1+ | 0.6+ | 2008 07 26 | E12 | 0.0 | 0.1− | 2009 12 16 | 691 | 0.4+ | 0.2+ |
| 2004 09 23 | 704 | 0.5− | 0.3− | 2008 07 26 | E12 | 0.0 | 0.1− | 2009 12 16 | 691 | 0.1− | 0.0 |
| 2004 09 23 | 704 | 0.5+ | 1.1+ | 2008 07 26 | E12 | 0.4− | 0.2− | 2009 12 16 | 691 | 0.1+ | 0.0 |
| 2004 09 23 | 704 | 0.1− | 0.4− | 2008 08 01 | 704 | 0.1+ | 0.0 | 2009 12 20 | 691 | 0.0 | 0.4− |
| 2004 09 23 | 704 | 0.3+ | 0.7+ | 2008 08 01 | 704 | 0.4− | 0.1+ | 2009 12 20 | 691 | 0.1− | 0.6− |
| 2004 10 10 | 644 | 0.1+ | 0.2− | 2008 08 01 | 704 | 0.2− | 0.1− | 2009 12 20 | 691 | 0.4+ | 0.1− |
| 2004 10 10 | 644 | 0.1+ | 0.1− | 2008 08 01 | 704 | 0.0 | 0.0 | | | | |
| 2004 10 10 | 644 | 0.4− | 0.7− | 2008 08 01 | 704 | 0.2− | 0.3+ | | | | |

**(229133)∗ 2004 RQ$_{218}$**

Discovered 2004 Sept. 11 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 125.74912 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23542394 | $\omega$ | 34.66709 | | +0.87660445 | +0.44791711 | |
| $a$ | 2.5975802 | $\Omega$ | 297.78811 | | −0.47412145 | +0.74141962 | |
| $e$ | 0.1816567 | $i$ | 11.46741 | | −0.08230117 | +0.49966710 | |
| $P$ | 4.19 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 19 | 704 | 0.2− | 1.0− | 2006 01 06 | 691 | 0.4− | 0.4− | 2008 08 26 | J75 | 0.1− | 0.3− |
| 2000 11 19 | 704 | 0.6+ | 0.9+ | 2006 01 06 | G96 | 0.6− | 0.2− | 2008 09 09 | 703 | 0.4+ | 0.2+ |
| 2000 11 19 | 704 | 1.1− | 0.3+ | 2006 01 06 | G96 | 0.2− | 0.3− | 2008 09 09 | 703 | 0.2+ | 0.0 |
| 2004 09 11 | 704 | 0.0 | 0.8+ | 2006 01 06 | G96 | 0.3− | 0.3− | 2008 09 09 | 703 | 0.3− | 0.4+ |
| 2004 09 11 | 704 | 0.0 | 0.6− | 2006 01 06 | 691 | 0.1+ | 0.3− | 2008 09 09 | 703 | 0.2− | 0.3+ |
| 2004 09 11 | 704 | 0.3− | 1.1− | 2006 01 06 | 691 | 0.1+ | 0.2− | 2008 09 22 | 703 | 0.0 | 0.2− |
| 2004 09 11 | 704 | 0.3+ | 0.8− | 2006 01 10 | 691 | 0.3− | 0.0 | 2008 09 22 | 703 | 0.2+ | 0.1− |
| 2004 09 11 | 704 | 0.0 | 0.3− | 2006 01 10 | 691 | 0.4− | 0.3+ | 2008 09 22 | 703 | 0.3+ | 0.6− |
| 2004 09 14 | 704 | 0.3+ | 0.3+ | 2006 01 10 | 691 | 0.1+ | 0.2+ | 2008 09 22 | 703 | 0.5− | 0.2+ |
| 2004 09 14 | 704 | 1.0+ | 0.0 | 2006 01 31 | G96 | 0.4+ | 0.1− | 2008 10 01 | 704 | 0.0 | 0.2+ |
| 2004 09 14 | 704 | 0.2+ | 0.1+ | 2006 01 31 | G96 | 0.1+ | 0.0 | 2008 10 01 | 704 | 0.3− | 0.5+ |
| 2004 09 14 | 704 | 0.6+ | 0.2+ | 2006 01 31 | G96 | 0.2− | 0.3− | 2008 10 01 | 704 | 0.5− | 0.6+ |
| 2004 09 14 | 704 | 0.0 | 0.2+ | 2006 01 31 | G96 | 0.6+ | 0.2− | 2008 10 01 | 704 | 0.1− | 0.4+ |
| 2004 10 08 | 704 | 0.9− | 0.2− | 2006 02 20 | 691 | 0.3+ | 0.6+ | 2008 10 01 | 704 | 0.3− | 0.3+ |
| 2004 10 08 | 704 | 0.8− | 0.1− | 2006 02 20 | 691 | 0.3+ | 0.5+ | 2008 11 21 | 703 | 0.7− | 1.4− |
| 2004 10 08 | 704 | 0.5− | 0.0 | 2006 02 20 | 691 | 0.4+ | 0.3+ | 2008 11 21 | 703 | 0.9+ | 0.2− |
| 2004 10 08 | 704 | 0.5− | 0.1− | 2008 07 30 | 703 | 0.3+ | 0.1− | 2008 11 21 | 703 | 0.5+ | 0.1+ |
| 2004 10 14 | 644 | 0.0 | 0.3− | 2008 07 30 | 703 | 1.0− | 0.4− | 2008 11 21 | 703 | 1.1− | 0.1+ |
| 2004 10 14 | 644 | 0.3+ | 0.2− | 2008 07 30 | 703 | 0.6− | 0.2− | 2008 11 22 | 704 | 0.3− | 1.3+ |
| 2004 10 14 | 644 | 0.3+ | 0.2− | 2008 07 30 | 703 | 0.7− | 0.2+ | 2008 11 22 | 704 | 0.2− | 1.1− |
| 2004 10 23 | 699 | 1.0+ | 0.0 | 2008 08 01 | 704 | (0.3+ | 2.2+) | 2008 11 22 | 704 | 0.3+ | 0.0 |
| 2004 10 23 | 699 | 0.3− | 0.9+ | 2008 08 01 | 704 | 1.4+ | 0.5+ | 2008 11 22 | 704 | 0.4− | 0.6− |
| 2004 10 23 | 699 | 0.4+ | 0.2+ | 2008 08 01 | 704 | 0.3+ | 1.2+ | 2009 12 15 | G96 | 0.8+ | 0.1+ |
| 2004 10 23 | 699 | 1.0− | 0.8+ | 2008 08 01 | 704 | 0.3− | 0.5+ | 2009 12 15 | G96 | 0.2+ | 0.0 |
| 2004 11 04 | 644 | 0.1− | 0.0 | 2008 08 12 | 704 | 0.7− | 0.1− | 2009 12 15 | G96 | 0.6+ | 0.2− |
| 2004 11 04 | 644 | 0.2− | 0.0 | 2008 08 12 | 704 | 0.6+ | 0.2− | 2009 12 15 | G96 | 0.5− | 0.4+ |
| 2004 11 04 | 644 | 0.2+ | 0.1+ | 2008 08 12 | 704 | 0.0 | 0.3− | 2009 12 18 | 691 | 0.0 | 0.1− |
| 2004 11 05 | 644 | 0.1+ | 0.1− | 2008 08 12 | 704 | 0.4+ | 0.7+ | 2009 12 18 | 691 | 0.2− | 0.1− |
| 2004 11 05 | 644 | 0.5+ | 0.1− | 2008 08 12 | 704 | 0.1+ | 0.4+ | 2009 12 18 | 691 | 0.2− | 0.0 |
| 2004 11 05 | 644 | 0.2+ | 0.2+ | 2008 08 26 | J75 | 0.4+ | 0.2− | | | | |
| 2006 01 06 | G96 | 0.1− | 0.3− | 2008 08 26 | J75 | 0.2+ | 1.0− | | | | |

**(229134)∗ 2004 RU$_{218}$**

Discovered 2004 Sept. 11 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 53.28100 | | | (2000.0) | | |
| $n$ | 0.22359731 | $\omega$ | 101.88129 | | +0.70850073 | −0.67820801 |
| $a$ | 2.6883862 | $\Omega$ | 301.18539 | | +0.52548432 | +0.69152853 |
| $e$ | 0.1274937 | $i$ | 13.18197 | | +0.47105515 | +0.24864068 |
| $P$ | 4.41 | $H$ | 15.6 | $G$ 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 06 21 | 691 | 1.9− | 0.7− | 2004 10 23 | 699 | (1.9− | 1.5+) | 2008 08 09 | J75 | 0.5− | 0.3− |
| 1999 06 21 | 691 | (1.0+ | 4.9−) | 2004 10 23 | 699 | 0.7+ | 0.3− | 2008 08 09 | J75 | 0.0 | 0.7− |
| 1999 06 21 | 691 | 0.8+ | 0.7+ | 2004 10 23 | 699 | 0.2+ | 1.2+ | 2008 08 26 | 704 | 0.9− | 0.3+ |
| 2000 12 04 | 704 | 1.1+ | 0.2− | 2004 10 23 | 699 | (2.5+ | 0.5−) | 2008 08 26 | 704 | 0.1+ | 0.4+ |
| 2000 12 04 | 704 | 0.4+ | 0.1− | 2004 10 23 | 704 | 0.3+ | 0.3+ | 2008 08 26 | 704 | 0.4+ | 0.7+ |
| 2000 12 04 | 704 | 0.7+ | 0.8− | 2004 10 23 | 704 | 0.0 | 0.5− | 2008 08 26 | 704 | 0.3− | 0.8+ |
| 2000 12 04 | 704 | 0.5+ | 0.2− | 2004 10 23 | 704 | (1.9+ | 1.4−) | 2008 08 26 | 704 | 0.2− | 0.7+ |
| 2000 12 19 | 704 | 0.7+ | 0.0 | 2004 10 23 | 704 | 0.5+ | 0.1− | 2008 08 30 | 704 | 0.7− | 0.7− |
| 2000 12 19 | 704 | 0.8+ | 0.1+ | 2004 10 23 | 704 | 0.5− | 0.4− | 2008 08 30 | 704 | 1.4− | 0.8− |
| 2000 12 19 | 704 | 0.1− | 0.7+ | 2004 11 03 | 703 | 0.2− | 0.3− | 2008 08 30 | 704 | 0.0 | 0.4+ |
| 2004 09 11 | 704 | 0.1− | 0.5− | 2004 11 03 | 703 | 0.3+ | 0.6− | 2008 08 30 | 704 | 0.3− | 0.0 |
| 2004 09 11 | 704 | 0.2− | 0.7− | 2004 11 03 | 703 | 0.2− | 0.4− | 2008 08 30 | 704 | 0.0 | 0.4+ |
| 2004 09 11 | 704 | 0.0 | 0.2− | 2004 11 03 | 703 | 0.3+ | 0.3+ | 2008 09 05 | 704 | 0.0 | 0.6+ |
| 2004 09 11 | 704 | 0.7− | 0.7− | 2004 11 04 | 704 | 0.2+ | 0.1− | 2008 09 05 | 704 | 1.0+ | 1.1+ |
| 2004 09 14 | 704 | 0.3+ | 0.0 | 2004 11 04 | 704 | (0.4− | 1.5+) | 2008 09 05 | 704 | 0.2+ | 0.9+ |
| 2004 09 14 | 704 | 0.1− | 0.2+ | 2004 11 04 | 704 | 0.6− | 1.1+ | 2008 09 05 | 704 | 0.3+ | 0.2− |
| 2004 09 14 | 704 | 0.2− | 0.4− | 2004 11 04 | 704 | 0.2+ | 0.7+ | 2008 09 05 | 704 | 0.4+ | 0.1− |
| 2004 09 14 | 704 | 0.6+ | 0.3− | 2004 11 04 | 704 | 0.5+ | 0.4+ | 2008 09 22 | 704 | 1.2+ | 0.1+ |
| 2004 09 14 | 704 | 0.4+ | 1.2− | 2004 11 19 | 699 | 0.3+ | 0.5+ | 2008 09 22 | 704 | 1.1+ | 0.8+ |
| 2004 09 14 | 704 | 0.2− | 0.9− | 2004 11 19 | 699 | 0.3+ | 0.1− | 2008 09 22 | 704 | 0.4+ | 0.2+ |
| 2004 10 04 | 704 | 0.9− | 0.9− | 2004 11 19 | 699 | 0.2+ | 0.5− | 2008 09 22 | 704 | 0.6+ | 0.4+ |
| 2004 10 04 | 704 | 0.4− | 0.2+ | 2004 11 19 | 699 | 0.1+ | 0.2− | 2008 09 22 | 704 | (0.4+ | 1.9+) |
| 2004 10 04 | 704 | 0.4− | 0.3− | 2004 12 16 | 703 | (1.6− | 0.0 ) | 2009 10 27 | G96 | 0.2− | 0.0 |
| 2004 10 05 | 644 | 0.3− | 0.1− | 2004 12 16 | 703 | 1.0− | 0.6+ | 2009 10 27 | G96 | 0.0 | 0.2− |
| 2004 10 05 | 644 | 0.0 | 0.1+ | 2004 12 16 | 703 | 0.4− | 0.3− | 2009 10 27 | G96 | 0.2− | 0.1− |
| 2004 10 05 | 644 | 0.2− | 0.1− | 2004 12 16 | 703 | 0.4+ | 1.0− | 2009 10 27 | G96 | 0.3− | 0.1+ |
| 2004 10 07 | 644 | 0.2+ | 0.1+ | 2006 01 31 | 703 | 0.2− | 1.3+ | 2009 12 18 | G96 | 0.2− | 0.1− |
| 2004 10 07 | 644 | 0.1+ | 0.1+ | 2006 01 31 | 703 | 1.4+ | 0.4− | 2009 12 18 | G96 | 0.1+ | 0.2− |
| 2004 10 07 | 644 | 0.3+ | 0.0 | 2006 01 31 | 703 | 0.6− | 0.0 | 2009 12 18 | G96 | 0.1− | 0.0 |
| 2004 10 08 | 704 | 0.3− | 0.2− | 2006 01 31 | 703 | 0.1− | 1.3− | 2009 12 18 | G96 | 0.1+ | 0.1− |
| 2004 10 08 | 704 | 0.4− | 0.3+ | 2008 07 26 | E12 | 0.9+ | 0.7+ | 2009 12 19 | 691 | 0.1− | 0.0 |
| 2004 10 08 | 704 | 1.0− | 0.4+ | 2008 07 26 | E12 | 0.3+ | 0.3− | 2009 12 19 | 691 | 0.2− | 0.2+ |
| 2004 10 08 | 704 | 0.7− | 0.1− | 2008 07 26 | E12 | 0.2− | 0.2− | 2009 12 19 | 691 | 0.0 | 0.2+ |
| 2004 10 16 | 704 | 0.4+ | 0.4+ | 2008 07 26 | E12 | 0.8+ | 0.3− | 2009 12 27 | 691 | 0.0 | 0.2+ |
| 2004 10 16 | 704 | 0.1+ | 0.5+ | 2008 08 05 | J75 | 0.4+ | 0.0 | 2009 12 27 | 691 | 0.1− | 0.2+ |
| 2004 10 16 | 704 | 0.2− | 0.2+ | 2008 08 05 | J75 | 0.0 | 0.4− | 2009 12 27 | 691 | 0.0 | 0.1+ |
| 2004 10 16 | 704 | 0.2− | 0.7+ | 2008 08 05 | J75 | 0.5+ | 0.1− | | | | |
| 2004 10 16 | 704 | 0.3− | 0.2− | 2008 08 09 | J75 | 0.2− | 0.4− | | | | |

**(229135)∗ 2004 RO$_{219}$**

Discovered 2004 Sept. 11 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 68.07733 | | | (2000.0) | | |
| $n$ | 0.21374492 | $\omega$ | 63.77957 | | +0.97411155 | +0.12339588 |
| $a$ | 2.7703768 | $\Omega$ | 288.64412 | | −0.19761598 | +0.87172257 |
| $e$ | 0.1173051 | $i$ | 11.53178 | | +0.10979351 | +0.47420800 |
| $P$ | 4.61 | $H$ | 15.2 | $G$ 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 20 | 704 | 0.6− | 0.3+ | 2004 12 09 | 703 | 0.1+ | 0.1− | 2006 01 24 | 691 | 0.0 | 0.1+ |
| 2000 11 20 | 704 | 0.1− | 0.2+ | 2005 10 29 | G96 | 0.2+ | 0.2− | 2006 01 24 | 691 | 0.0 | 0.0 |
| 2000 11 20 | 704 | 1.1− | 0.6+ | 2005 10 29 | G96 | 0.0 | 0.2− | 2006 01 24 | 691 | 0.1− | 0.3+ |
| 2000 11 20 | 704 | 0.3− | 0.5− | 2005 10 29 | G96 | 0.4+ | 0.6− | 2006 01 28 | 699 | (1.7+ | 0.6−) |
| 2004 08 20 | 704 | 0.3− | 0.1− | 2005 10 29 | G96 | 0.2+ | 0.4− | 2006 01 28 | 699 | 0.3+ | 1.2+ |
| 2004 08 20 | 704 | 0.9+ | 0.2+ | 2005 12 24 | 691 | 0.1− | 0.1− | 2006 01 28 | 699 | (2.4+ | 2.2+) |
| 2004 08 20 | 704 | 0.7+ | 0.3+ | 2005 12 24 | 691 | 0.1− | 0.0 | 2006 01 28 | 699 | 0.4+ | 0.6+ |
| 2004 08 20 | 704 | 0.6+ | 0.4+ | 2005 12 24 | 691 | 0.2− | 0.2− | 2006 01 29 | 703 | 0.6− | 0.3+ |
| 2004 09 11 | 704 | 0.2− | 1.0+ | 2005 12 26 | G96 | 0.1+ | 0.3− | 2006 01 29 | 703 | 0.3+ | 0.3+ |
| 2004 09 11 | 704 | 0.6− | 1.3+ | 2005 12 26 | G96 | 0.2− | 0.1− | 2006 01 29 | 703 | 0.4− | 0.0 |
| 2004 09 11 | 704 | 0.2− | 1.4+ | 2005 12 26 | G96 | 0.9− | 0.5− | 2006 01 29 | 703 | 0.6− | 1.0− |
| 2004 09 11 | 704 | 0.0 | 0.2+ | 2005 12 26 | G96 | 0.3+ | 0.4− | 2008 07 01 | 704 | 1.0− | 0.5+ |
| 2004 09 14 | 704 | 0.3+ | 1.0+ | 2005 12 28 | 691 | 0.0 | 0.0 | 2008 07 01 | 704 | 0.0 | 0.6− |
| 2004 09 14 | 704 | 1.1+ | 0.1+ | 2005 12 28 | 691 | 0.0 | 0.3+ | 2008 07 01 | 704 | 0.2+ | 0.2− |
| 2004 09 14 | 704 | 0.5− | 0.9+ | 2005 12 28 | 691 | 0.2+ | 0.3+ | 2009 11 10 | 703 | 0.6− | 0.2+ |
| 2004 09 14 | 704 | 0.1− | 0.7+ | 2006 01 05 | 691 | 0.1+ | 0.1+ | 2009 11 10 | 703 | 0.3− | 0.1− |
| 2004 09 14 | 704 | 0.1− | 0.9+ | 2006 01 05 | 691 | 0.3+ | 0.1− | 2009 11 10 | 703 | 0.9− | 0.9− |
| 2004 09 23 | 704 | 0.4− | 0.5− | 2006 01 05 | 691 | 0.4+ | 0.0 | 2009 11 10 | 703 | 0.2− | 0.2− |
| 2004 09 23 | 704 | 0.2− | 0.1+ | 2006 01 09 | 691 | 0.3+ | 0.2− | 2009 11 23 | 704 | 1.0+ | 0.0 |
| 2004 09 23 | 704 | 0.3− | 0.4− | 2006 01 09 | 691 | 0.3+ | 0.2− | 2009 11 23 | 704 | 0.5− | 0.4+ |
| 2004 09 23 | 704 | 0.3− | 0.2− | 2006 01 09 | 691 | 0.4+ | 0.1− | 2009 11 23 | 704 | (1.6− | 0.6−) |
| 2004 09 23 | 704 | 0.4− | 0.1− | 2006 01 10 | G96 | 0.4− | 0.1+ | 2009 11 26 | 703 | 1.0+ | 0.4+ |
| 2004 10 10 | 644 | 0.0 | 0.1+ | 2006 01 10 | G96 | 0.1− | 0.2+ | 2009 11 26 | 703 | (1.8+ | 1.2+) |
| 2004 10 10 | 644 | 0.1+ | 0.3+ | 2006 01 10 | G96 | 0.1+ | 0.1+ | 2009 11 26 | 703 | (2.5+ | 0.7+) |
| 2004 10 10 | 644 | 0.5+ | 0.1+ | 2006 01 10 | G96 | 0.0 | 0.1− | 2009 11 26 | 703 | 0.5+ | 0.8+ |
| 2004 10 12 | 699 | 0.6+ | 0.0 | 2006 01 22 | 699 | 0.7− | 0.5+ | 2009 12 06 | J75 | 1.2− | 1.4− |
| 2004 10 12 | 699 | 1.2+ | 0.3− | 2006 01 22 | 699 | 1.1+ | 0.1− | 2009 12 06 | J75 | 0.1+ | 0.1+ |
| 2004 10 12 | 699 | 0.1+ | 0.6− | 2006 01 22 | 699 | 1.0+ | 0.0 | 2009 12 06 | J75 | 0.5− | 0.8− |
| 2004 10 12 | 699 | 0.0 | 0.2− | 2006 01 22 | 699 | (0.8+ | 3.0−) | 2009 12 09 | 704 | 0.3− | 1.1− |
| 2004 11 09 | 703 | 0.0 | 0.8− | 2006 01 22 | A13 | 0.3− | 0.3− | 2009 12 09 | 704 | 0.3− | 0.4− |
| 2004 11 09 | 703 | 0.2− | 0.4− | 2006 01 22 | A13 | 0.0 | 0.3− | 2009 12 09 | 704 | 1.3+ | 0.7− |
| 2004 11 09 | 703 | 0.1+ | 0.4− | 2006 01 22 | A13 | 0.2+ | 0.1− | 2009 12 15 | 704 | 0.1+ | 0.7+ |
| 2004 11 09 | 703 | 0.5− | 0.6− | 2006 01 23 | 704 | 0.6− | 0.2− | 2009 12 15 | 704 | 0.1+ | 0.3− |
| 2004 12 09 | 703 | 1.3− | 0.6− | 2006 01 23 | 704 | 1.0− | 0.3− | 2009 12 15 | 704 | 0.3− | 1.8+ |
| 2004 12 09 | 703 | 0.4+ | 0.1− | 2006 01 23 | 704 | 0.9− | 0.7+ | 2009 12 15 | 704 | 0.0 | 0.2− |
| 2004 12 09 | 703 | 0.1− | 0.6− | 2006 01 23 | 704 | 0.1− | 0.5+ | 2009 12 15 | 704 | 0.1− | 0.7− |

**(229136)∗ 2004 RM$_{227}$**

Discovered 2004 Sept. 9 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 11.69770 | | | (2000.0) | | |
| $n$ | 0.21568081 | $\omega$ | 120.67093 | | +0.31334287 | −0.94866765 |
| $a$ | 2.7537745 | $\Omega$ | 311.00473 | | +0.85064019 | +0.30050253 |
| $e$ | 0.1044094 | $i$ | 3.26375 | | +0.42217001 | +0.09863022 |
| $P$ | 4.57 | $H$ | 16.9 | $G$ 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 09 | 691 | 0.2− | 0.2+ | 2006 01 28 | G96 | 0.5− | 0.3− | 2006 02 20 | G96 | 0.8− | 0.3− |
| 2004 09 09 | 691 | 0.5− | 0.1+ | 2006 01 28 | G96 | 0.2+ | 0.1− | 2008 07 30 | G96 | 0.4− | 0.3+ |
| 2004 09 09 | 691 | 0.4− | 0.1+ | 2006 01 28 | G96 | 0.9− | 0.5− | 2008 07 30 | G96 | 0.0 | 0.0 |
| 2004 09 15 | 691 | 0.3− | 0.2+ | 2006 01 31 | 691 | 0.6+ | 0.3+ | 2008 07 30 | G96 | 1.0+ | 0.7+ |
| 2004 09 15 | 691 | 0.1− | 0.1+ | 2006 01 31 | 691 | 0.3+ | 0.4+ | 2008 07 30 | G96 | 0.7− | 0.3− |
| 2004 09 15 | 691 | 0.1− | 0.3+ | 2006 01 31 | 691 | 0.3+ | 0.3+ | 2009 11 19 | 691 | 0.4− | 0.2+ |
| 2004 09 22 | 691 | 0.0 | 0.1+ | 2006 02 04 | G96 | 0.2− | 0.1+ | 2009 11 19 | 691 | 0.1− | 0.1+ |
| 2004 09 22 | 691 | 0.1− | 0.2+ | 2006 02 04 | G96 | 0.1− | 0.1− | 2009 11 19 | 691 | 0.0 | 0.1− |
| 2004 09 22 | 691 | 0.2− | 0.1− | 2006 02 04 | G96 | 0.4+ | 0.1+ | 2009 12 11 | G96 | 0.2+ | 0.3− |
| 2004 10 04 | 691 | 0.0 | 0.2+ | 2006 02 04 | G96 | 0.1− | 0.1− | 2009 12 11 | G96 | 0.2+ | 0.4− |
| 2004 10 04 | 691 | 0.1+ | 0.3− | 2006 02 07 | 691 | 0.1+ | 0.1− | 2009 12 11 | G96 | 0.3+ | 0.4− |
| 2004 10 04 | 691 | 0.6+ | 0.1− | 2006 02 07 | 691 | 0.2− | 0.5+ | 2009 12 11 | G96 | 0.0 | 0.1+ |
| 2004 10 08 | 691 | 0.1+ | 0.3− | 2006 02 07 | 691 | 0.3+ | 0.4− | 2009 12 13 | G96 | 0.5+ | 0.3− |
| 2004 10 08 | 691 | 0.5+ | 0.3− | 2006 02 20 | G96 | 0.8− | 0.3− | 2009 12 13 | G96 | 0.2+ | 0.1− |
| 2004 10 08 | 691 | 0.3+ | 0.0 | 2006 02 20 | G96 | 0.5− | 0.4− | 2009 12 13 | G96 | 0.3+ | 0.1− |
| 2006 01 28 | G96 | 0.5− | 0.1− | 2006 02 20 | G96 | 0.7− | 0.2− | 2009 12 13 | G96 | 0.4+ | 0.0 |

**(229137)∗ 2004 RK$_{269}$**

Discovered 2004 Sept. 11 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 121.66616 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23190022 | $\omega$ | 32.78942 | | +0.71624646 | +0.69760185 | |
| $a$ | 2.6238275 | $\Omega$ | 282.96385 | | −0.64428479 | +0.65084749 | |
| $e$ | 0.0659765 | $i$ | 1.08841 | | −0.26811958 | +0.29958170 | |
| $P$ | 4.25 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 11 06 | 691 | 0.4− | 0.1− | 2005 12 25 | G96 | 0.2+ | 0.6− | 2007 04 18 | G96 | 0.4− | 0.1+ | |
| 1996 11 06 | 691 | 0.7− | 0.6− | 2005 12 25 | G96 | 0.2− | 0.2+ | 2008 07 30 | G96 | 0.0 | 0.4+ | |
| 1996 11 06 | 691 | 0.1+ | 0.3− | 2005 12 25 | G96 | 0.3− | 0.2− | 2008 07 30 | G96 | 0.1+ | 0.2+ | |
| 2002 02 12 | 291 | 0.7+ | 0.8+ | 2005 12 29 | 691 | 0.0 | 0.4+ | 2008 07 30 | G96 | 0.7+ | 0.6+ | |
| 2002 02 12 | 291 | 1.1+ | 0.3+ | 2005 12 29 | 691 | 0.1+ | 0.1+ | 2008 07 30 | G96 | 0.8− | 0.2+ | |
| 2002 02 12 | 291 | 0.7+ | 0.4+ | 2005 12 29 | 691 | 0.4− | 0.0 | 2008 08 11 | J75 | 0.3+ | 0.7− | |
| 2003 05 24 | 691 | 0.0 | 0.6+ | 2006 01 06 | 691 | 0.1+ | 0.0 | 2008 08 11 | J75 | 0.0 | 0.3+ | |
| 2003 05 24 | 691 | 0.0 | 0.1+ | 2006 01 06 | 691 | 0.1− | 0.2+ | 2008 08 11 | J75 | 1.0− | 0.8− | |
| 2003 05 24 | 691 | 0.0 | 0.9+ | 2006 01 06 | 691 | 0.0 | 0.3+ | 2008 09 21 | G96 | 0.2+ | 0.2+ | |
| 2004 09 11 | 691 | 0.2− | 0.3+ | 2007 03 14 | 691 | 0.1− | 0.2+ | 2008 09 21 | G96 | 0.1− | 0.1+ | |
| 2004 09 11 | 691 | 0.1− | 0.5+ | 2007 03 14 | 691 | 0.1+ | 0.2+ | 2008 09 21 | G96 | 0.2+ | 0.1+ | |
| 2004 09 11 | 691 | 0.1+ | 0.6+ | 2007 03 14 | 691 | 0.4+ | 0.5+ | 2008 09 21 | G96 | 0.2− | 0.2+ | |
| 2004 09 16 | 691 | 0.2+ | 0.5+ | 2007 04 18 | G96 | 0.4− | 0.3+ | 2009 12 10 | G96 | 0.9− | 0.6+ | |
| 2004 09 16 | 691 | 0.1− | 0.3+ | 2007 04 18 | G96 | 0.3− | 0.1− | 2009 12 10 | G96 | 0.0 | 0.1+ | |
| 2004 09 16 | 691 | 0.2+ | 0.5+ | 2007 04 18 | G96 | 0.1− | 0.1+ | 2009 12 10 | G96 | 0.3− | 0.3− | |
| 2004 09 22 | 691 | 0.2+ | 0.1+ | 2007 04 18 | G96 | 0.1+ | 0.0 | 2009 12 19 | G96 | 0.4+ | 0.2+ | |
| 2004 09 22 | 691 | 0.1− | 0.4+ | 2007 04 18 | G96 | 0.1− | 0.3− | 2009 12 19 | G96 | 0.1− | 0.1− | |
| 2004 09 22 | 691 | 0.5− | 0.4+ | 2007 04 18 | G96 | 0.1+ | 0.3+ | 2009 12 19 | G96 | 0.3− | 0.1+ | |
| 2005 12 25 | G96 | 0.1+ | 0.1− | 2007 04 18 | G96 | 0.0 | 0.1+ | 2009 12 19 | G96 | 1.4− | 0.3+ | |

**(229138)∗ 2004 RF$_{289}$**

Discovered 2004 Sept. 15 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 33.72016 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23579802 | $\omega$ | 157.36837 | | +0.26450193 | −0.89448621 | |
| $a$ | 2.5948322 | $\Omega$ | 275.74308 | | +0.82005956 | +0.40530559 | |
| $e$ | 0.0729631 | $i$ | 21.24034 | | +0.50748501 | −0.18873739 | |
| $P$ | 4.18 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 15 | 704 | 0.0 | 0.2+ | 2004 10 15 | 704 | 0.5− | 0.1− | 2006 02 25 | 703 | 0.5− | 1.0− | |
| 2004 09 15 | 704 | 0.1+ | 0.2+ | 2004 10 15 | 704 | 0.3+ | 0.6+ | 2009 01 18 | G96 | 0.1+ | 0.1− | |
| 2004 09 15 | 704 | 0.3− | 0.0 | 2004 10 15 | 704 | 0.1− | 0.2− | 2009 01 18 | G96 | 0.2+ | 0.1+ | |
| 2004 09 15 | 704 | 0.1− | 0.3+ | 2004 10 15 | 704 | 0.1+ | 0.8+ | 2009 01 18 | G96 | 0.3+ | 0.0 | |
| 2004 09 15 | 704 | 0.5− | 0.4− | 2004 10 15 | 704 | 0.3− | 0.1+ | 2009 01 18 | G96 | 0.1− | 0.2− | |
| 2004 09 17 | 704 | 0.7− | 0.4+ | 2005 12 06 | 703 | 1.2− | 0.4+ | 2009 11 17 | G96 | 0.1+ | 0.3− | |
| 2004 09 17 | 704 | 0.3− | 0.0 | 2005 12 06 | 703 | 0.2− | 0.9− | 2009 11 17 | G96 | 0.5+ | 0.4− | |
| 2004 09 17 | 704 | 0.6+ | 0.0 | 2005 12 06 | 703 | (1.9− | 0.3+) | 2009 11 17 | G96 | 0.3+ | 0.1− | |
| 2004 09 17 | 704 | 0.3+ | 0.3+ | 2005 12 06 | 703 | (3.1− | 0.8+) | 2009 11 17 | G96 | 0.1+ | 0.3− | |
| 2004 09 17 | 704 | 0.2+ | 0.7− | 2006 01 26 | 699 | 0.9+ | 0.5− | 2009 11 24 | J75 | 0.3− | 0.1+ | |
| 2004 10 08 | 704 | 0.2− | 0.3− | 2006 01 26 | 699 | 0.9+ | 0.2+ | 2009 11 24 | J75 | 0.4+ | 0.4− | |
| 2004 10 08 | 704 | 0.0 | 0.1+ | 2006 01 26 | 699 | 0.0 | 0.6+ | 2009 11 24 | J75 | 0.1− | 0.1− | |
| 2004 10 08 | 704 | 0.0 | 0.1+ | 2006 01 26 | 699 | 0.4+ | 0.2− | 2009 11 27 | 703 | 1.7+ | 0.1+ | |
| 2004 10 10 | 704 | 0.3− | 0.5− | 2006 01 28 | 703 | 0.2− | 0.5− | 2009 11 27 | 703 | (2.5+ | 0.1+) | |
| 2004 10 10 | 704 | 0.1− | 0.4− | 2006 01 28 | 703 | 1.1− | 0.2+ | 2009 11 27 | 703 | 0.6+ | 0.3+ | |
| 2004 10 10 | 704 | 0.5+ | 0.6− | 2006 01 28 | 703 | 0.3− | 0.8+ | 2009 11 27 | 703 | 1.8+ | 1.2− | |
| 2004 10 13 | 704 | 0.0 | 0.1+ | 2006 01 28 | 703 | 0.6+ | 0.1+ | 2009 12 20 | 691 | 0.1+ | 0.1− | |
| 2004 10 13 | 704 | 0.2+ | 0.3− | 2006 02 25 | 703 | 0.8− | 0.5+ | 2009 12 20 | 691 | 1.0− | 1.0+ | |
| 2004 10 13 | 704 | 0.5+ | 0.0 | 2006 02 25 | 703 | 0.3− | 0.1− | 2009 12 20 | 691 | 0.0 | 0.2− | |
| 2004 10 13 | 704 | 0.5+ | 0.1+ | 2006 02 25 | 703 | 1.2+ | 0.6− | | | | | |

**(229139)∗ 2004 RF$_{292}$**

Discovered 2004 Sept. 10 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 328.19572 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19761523 | $\omega$ | 125.42051 | | +0.20976132 | −0.97168590 | |
| $a$ | 2.9191457 | $\Omega$ | 312.08827 | | +0.84285179 | +0.23607385 | |
| $e$ | 0.1779985 | $i$ | 8.42658 | | +0.49558152 | +0.00978013 | |
| $P$ | 4.99 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 02 16 | 691 | 0.1+ | 0.2− | 2004 10 09 | 699 | 0.3+ | 1.2+ | 2006 01 30 | 691 | 0.2+ | 0.0 | |
| 1996 02 16 | 691 | 0.1+ | 0.1− | 2004 10 10 | 704 | 0.5− | 0.8+ | 2006 02 03 | 691 | 0.1+ | 0.0 | |
| 1996 02 16 | 691 | 0.3− | 0.2− | 2004 10 10 | 704 | 0.5+ | 0.9− | 2006 02 03 | 691 | 0.1+ | 0.1+ | |
| 1999 10 10 | 704 | 0.5− | 1.5+ | 2004 10 10 | 704 | 1.0+ | 0.1− | 2006 02 03 | 691 | 0.0 | 0.1+ | |
| 1999 10 10 | 704 | 0.4+ | 0.2+ | 2004 10 10 | 704 | 0.6+ | 0.4− | 2006 03 05 | 691 | 0.3+ | 0.1+ | |
| 1999 10 10 | 704 | 0.2− | 0.7+ | 2004 10 15 | 704 | 0.2+ | 0.8− | 2006 03 05 | 691 | 0.1+ | 0.2+ | |
| 2001 01 21 | 704 | 0.3− | 1.0− | 2004 10 15 | 704 | 0.7− | 0.3− | 2006 03 05 | 691 | 0.2− | 0.2+ | |
| 2001 01 21 | 704 | 0.6+ | 0.4+ | 2004 10 15 | 704 | 1.1− | 0.9− | 2009 09 25 | 703 | 0.7+ | 1.0− | |
| 2001 01 21 | 704 | 0.1− | 0.3+ | 2004 10 16 | 704 | 0.6− | 0.7− | 2009 09 25 | 703 | 0.3− | 0.9+ | |
| 2004 09 10 | 704 | 0.4+ | 1.4− | 2004 10 16 | 704 | 0.2+ | 0.2+ | 2009 09 25 | 703 | 0.1+ | 0.2− | |
| 2004 09 10 | 704 | 0.6+ | 0.1+ | 2004 10 16 | 704 | 0.4+ | 0.5− | 2009 09 25 | 703 | 0.7+ | 0.4− | |
| 2004 09 10 | 704 | 0.7− | 0.5+ | 2004 10 16 | 704 | 0.7− | 0.1− | 2009 09 27 | H10 | 0.2+ | 0.0 | |
| 2004 09 10 | 704 | 0.8− | 0.2+ | 2005 11 12 | 691 | 0.0 | 0.1− | 2009 09 27 | H10 | 0.2+ | 0.1− | |
| 2004 09 15 | 699 | 0.1− | 0.5+ | 2005 11 12 | 691 | 0.3− | 0.1+ | 2009 10 01 | 291 | 0.0 | 0.2+ | |
| 2004 09 15 | 699 | 0.9− | 1.1− | 2005 11 12 | 691 | 0.0 | 0.4+ | 2009 10 01 | 291 | 0.1+ | 0.3+ | |
| 2004 09 15 | 699 | 0.5+ | 0.6− | 2006 01 05 | G96 | 1.0− | 0.3− | 2009 10 01 | 291 | 0.1− | 0.0 | |
| 2004 09 15 | 699 | 0.3+ | 0.0 | 2006 01 05 | G96 | 0.3− | 0.1− | 2009 10 16 | 704 | 1.2− | 0.7− | |
| 2004 09 18 | 704 | 0.1+ | 0.3− | 2006 01 05 | G96 | 0.6− | 0.1− | 2009 10 16 | 704 | (0.2− | 1.8+) | |
| 2004 09 18 | 704 | 0.3− | 0.4− | 2006 01 05 | G96 | 0.1+ | 0.2− | 2009 10 16 | 704 | 0.3− | 0.3− | |
| 2004 09 18 | 704 | 0.1+ | 0.1− | 2006 01 22 | 691 | 0.1− | 0.1+ | 2009 10 16 | 704 | 0.2− | 0.7+ | |
| 2004 09 18 | 704 | 0.0 | 0.4+ | 2006 01 22 | 691 | 0.1− | 0.0 | 2009 10 16 | 704 | 1.1+ | 0.4− | |
| 2004 10 08 | A50 | (3.4+ | 2.4−) | 2006 01 22 | 691 | 0.1− | 0.2− | 2009 10 16 | 704 | 0.6+ | 0.5+ | |
| 2004 10 08 | A50 | (4.0+ | 2.8−) | 2006 01 23 | G96 | 0.3− | 0.3+ | 2009 10 16 | 704 | 0.2− | 0.6+ | |
| 2004 10 08 | A50 | 0.0 | 0.8− | 2006 01 23 | G96 | 0.1− | 0.1− | 2009 10 16 | 704 | 0.3− | 0.8+ | |
| 2004 10 08 | A50 | (1.8+ | 3.6−) | 2006 01 23 | G96 | 0.0 | 0.2+ | 2009 12 20 | G96 | 0.2+ | 0.1− | |
| 2004 10 09 | 699 | 0.0 | 0.9+ | 2006 01 23 | G96 | 0.2− | 0.5+ | 2009 12 20 | G96 | 0.0 | 0.2− | |
| 2004 10 09 | 699 | 1.1+ | 0.7+ | 2006 01 30 | 691 | 0.1+ | 0.1+ | 2009 12 20 | G96 | 0.0 | 0.5− | |
| 2004 10 09 | 699 | 1.3− | 0.1+ | 2006 01 30 | 691 | 0.1+ | 0.2− | 2009 12 20 | G96 | 0.1+ | 0.1+ | |

**(229140)∗ 2004 RQ$_{292}$**

Discovered 2004 Sept. 10 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 94.76960 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21540824 | $\omega$ | 225.10772 | | +0.70687382 | +0.69870192 | |
| $a$ | 2.7560970 | $\Omega$ | 90.22402 | | −0.61395040 | +0.68342693 | |
| $e$ | 0.2353966 | $i$ | 6.32715 | | −0.35127526 | +0.21152602 | |
| $P$ | 4.58 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 04 11 | 691 | 0.1+ | 0.3+ | 2004 09 10 | 704 | 0.5− | 0.2+ | 2006 01 07 | 691 | 0.1+ | 0.0 | |
| 2003 04 11 | 691 | 0.1− | 0.4+ | 2004 09 17 | 704 | 1.1+ | 0.1+ | 2006 01 07 | G96 | 0.2− | 0.3− | |
| 2003 04 11 | 691 | 0.1− | 0.4+ | 2004 09 17 | 704 | 0.2− | 0.5+ | 2006 01 07 | G96 | 0.0 | 0.0 | |
| 2003 05 06 | 691 | 0.2+ | 0.3+ | 2004 09 17 | 704 | 0.3+ | 1.4+ | 2006 01 07 | G96 | 0.2− | 0.1− | |
| 2003 05 06 | 691 | 0.2+ | 0.3+ | 2004 09 17 | 704 | 0.3− | 0.2+ | 2006 01 07 | G96 | 0.2+ | 0.0 | |
| 2003 05 06 | 691 | 0.5+ | 0.5+ | 2004 09 17 | 704 | 0.2+ | 0.3+ | 2009 11 10 | 691 | 0.3− | 0.3+ | |
| 2004 08 11 | 704 | 0.2− | 0.8− | 2004 10 07 | 704 | 0.8− | 0.1+ | 2009 11 10 | 691 | 0.2− | 0.2+ | |
| 2004 08 11 | 704 | 0.1+ | 0.2− | 2004 10 07 | 704 | 0.1− | 0.4+ | 2009 11 10 | 691 | 0.0 | 0.1− | |
| 2004 08 11 | 704 | 0.6+ | 0.0 | 2004 10 07 | 704 | 0.0 | 0.2+ | 2009 11 18 | 691 | 0.1− | 0.1+ | |
| 2004 09 10 | 704 | (0.6− | 1.6+) | 2004 10 18 | 704 | 0.3− | 0.9+ | 2009 11 18 | 691 | 0.3+ | 0.2+ | |
| 2004 09 10 | 704 | 0.2− | 0.4− | 2004 10 18 | 704 | 0.5− | 0.3+ | 2009 11 18 | 691 | 0.3− | 0.0 | |
| 2004 09 10 | 704 | 0.8− | 1.2+ | 2004 10 18 | 704 | 0.9− | 0.9+ | 2009 12 17 | G96 | 0.7+ | 0.3− | |
| 2004 09 10 | 704 | 0.4+ | 0.0 | 2004 10 18 | 704 | 0.4− | 0.1+ | 2009 12 17 | G96 | 0.4+ | 0.4− | |
| 2004 09 10 | 704 | 0.3+ | 0.3+ | 2004 10 18 | 704 | 0.2− | 0.1+ | 2009 12 17 | G96 | 0.5+ | 0.2− | |
| 2004 09 10 | 704 | 0.4+ | 0.8+ | 2006 01 07 | 691 | 0.2− | 0.0 | 2009 12 17 | G96 | 0.0 | 0.3− | |
| 2004 09 10 | 704 | 0.9− | 0.8− | 2006 01 07 | 691 | 0.3+ | 0.4+ | | | | | |

**(229141)∗ 2004 $RD_{299}$ = 2006 $BH_{42}$**

Discovered 2004 Sept. 11 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 95440)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 85.41709 | | | (2000.0) | | |
| $n$ | 0.23205108 | $\omega$ | 338.57946 | | +0.99895925 | −0.04487302 |
| $a$ | 2.6226901 | $\Omega$ | 23.99683 | | +0.04422230 | +0.90895375 |
| $e$ | 0.0984204 | $i$ | 1.15177 | | +0.01117145 | +0.41447496 |
| $P$ | 4.25 | $H$ | 17.3 | $G$ 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 01 | 691 | 0.1+ | 0.4− | 2004 09 21 | 691 | 0.1− | 0.4+ | 2007 04 19 | G96 | 0.7− | 0.5− |
| 2000 11 01 | 691 | 0.2− | 0.6− | 2005 12 22 | 691 | 0.2+ | 0.9+ | 2007 04 26 | G96 | 0.0 | 0.1+ |
| 2000 11 01 | 691 | 0.1− | 0.8− | 2005 12 22 | 691 | 0.1+ | 0.4+ | 2007 04 26 | G96 | 0.2+ | 0.2− |
| 2002 02 08 | 695 | 0.2+ | 1.0+ | 2005 12 22 | 691 | 0.8+ | 0.9+ | 2007 04 26 | G96 | 0.8− | 0.0 |
| 2002 02 08 | 695 | 0.3+ | 1.0+ | 2006 01 23 | 691 | 0.1+ | 0.3+ | 2007 04 26 | G96 | 0.6− | 0.4− |
| 2004 09 11 | 691 | 0.1+ | 0.0 | 2006 01 23 | 691 | 0.2+ | 0.1− | 2007 05 07 | 691 | 0.2+ | 0.4− |
| 2004 09 11 | 691 | 0.1− | 0.0 | 2006 01 23 | 691 | 0.5+ | 0.6+ | 2007 05 07 | 691 | 0.1− | 0.6+ |
| 2004 09 11 | 691 | 0.0 | 0.1+ | 2006 01 26 | G96 | 0.1+ | 0.0 | 2007 05 07 | 691 | 0.1+ | 0.2+ |
| 2004 09 16 | 699 | (0.8+ | 2.0+) | 2006 01 26 | G96 | 0.0 | 0.3− | 2008 09 03 | 291 | 0.3− | 0.5+ |
| 2004 09 16 | 699 | 0.1+ | 0.1− | 2006 01 26 | G96 | 0.2− | 0.0 | 2008 09 03 | 291 | 0.3− | 0.5+ |
| 2004 09 16 | 699 | (1.1− | 2.1−) | 2006 01 26 | G96 | 0.3+ | 0.3− | 2008 09 03 | 291 | 0.5− | 0.9+ |
| 2004 09 16 | 699 | 0.6+ | 0.3− | 2006 02 20 | 691 | 0.1+ | 0.1+ | 2009 12 17 | 691 | 0.0 | 0.3− |
| 2004 09 17 | 691 | 0.3+ | 0.1+ | 2006 02 20 | 691 | 0.5− | 0.5+ | 2009 12 17 | 691 | 0.0 | 0.0 |
| 2004 09 17 | 691 | 0.1+ | 0.3+ | 2006 02 20 | 691 | 0.5+ | 0.1+ | 2009 12 17 | 691 | 0.1+ | 0.0 |
| 2004 09 17 | 691 | 0.2+ | 0.2+ | 2007 04 19 | G96 | 0.6+ | 0.4− | 2009 12 26 | 691 | 0.1− | 0.1+ |
| 2004 09 21 | 691 | 0.2− | 0.5+ | 2007 04 19 | G96 | 0.4− | 0.1− | 2009 12 26 | 691 | 0.3− | 0.6− |
| 2004 09 21 | 691 | 0.0 | 0.3+ | 2007 04 19 | G96 | 0.3− | 0.0 | 2009 12 26 | 691 | 0.5− | 0.5− |

**(229142)∗ 2004 $RH_{311}$**

Discovered 2004 Sept. 13 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 51.37943 | | | (2000.0) | | |
| $n$ | 0.21325201 | $\omega$ | 335.28699 | | +0.93174864 | −0.35381061 |
| $a$ | 2.7746442 | $\Omega$ | 45.69370 | | +0.34922439 | +0.81163903 |
| $e$ | 0.1286191 | $i$ | 6.54950 | | +0.09943234 | +0.46482269 |
| $P$ | 4.62 | $H$ | 15.5 | $G$ 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 13 | 644 | 0.2+ | 0.2+ | 2004 10 20 | 704 | 0.3− | 0.4+ | 2007 03 11 | G96 | 0.5+ | 0.1+ |
| 2004 09 13 | 644 | 0.1+ | 0.2+ | 2004 10 20 | 704 | 0.2+ | 0.3+ | 2007 03 11 | G96 | 1.0− | 0.8+ |
| 2004 09 13 | 644 | 0.2− | 0.2+ | 2004 10 21 | 704 | 0.0 | 0.8+ | 2007 04 14 | 691 | 0.1+ | 0.1+ |
| 2004 09 17 | 704 | 0.8− | 0.1− | 2004 10 21 | 704 | 0.1+ | 1.0+ | 2007 04 14 | 691 | 0.1+ | 0.0 |
| 2004 09 17 | 704 | 0.9− | 0.6+ | 2004 10 21 | 704 | 0.5− | 0.3+ | 2007 04 14 | 691 | 1.2+ | 0.7+ |
| 2004 09 17 | 704 | 1.1− | 0.0 | 2004 10 21 | 704 | 0.3− | 0.1+ | 2007 04 18 | 691 | 0.0 | 0.3+ |
| 2004 09 17 | 704 | 1.2− | 0.3+ | 2004 10 21 | 704 | 0.0 | 0.9+ | 2007 04 18 | 691 | 0.0 | 0.2+ |
| 2004 09 24 | 704 | (0.6− | 1.6+) | 2004 11 03 | 644 | 0.0 | 0.0 | 2007 04 18 | 691 | 0.2− | 0.5+ |
| 2004 09 24 | 704 | (0.1− | 2.0+) | 2004 11 03 | 644 | 0.0 | 0.1+ | 2007 04 22 | 691 | 0.1− | 0.2+ |
| 2004 09 24 | 704 | (0.0 | 4.0−) | 2004 11 03 | 644 | 0.2+ | 0.1+ | 2007 04 22 | 691 | 0.0 | 0.3+ |
| 2004 09 24 | 704 | 0.1+ | 0.3− | 2004 11 04 | 699 | 0.5+ | 0.0 | 2007 04 22 | 691 | 0.1+ | 0.1+ |
| 2004 10 08 | 699 | 0.1+ | 0.7+ | 2004 11 04 | 699 | 0.6− | 0.7− | 2007 05 09 | G96 | 0.0 | 0.1− |
| 2004 10 08 | 699 | 0.6+ | 0.4+ | 2004 11 04 | 699 | 0.2+ | 0.9+ | 2007 05 09 | G96 | 0.4− | 0.0 |
| 2004 10 08 | 699 | 0.3+ | 0.8+ | 2004 11 04 | 699 | 0.6+ | 1.0− | 2007 05 09 | G96 | 0.4− | 0.1+ |
| 2004 10 08 | 699 | 0.2− | 0.4+ | 2004 11 06 | 704 | 0.5− | 0.1− | 2007 05 09 | G96 | 0.1+ | 0.0 |
| 2004 10 09 | 704 | 0.5− | 0.4+ | 2004 11 06 | 704 | 0.2− | 1.5− | 2009 11 23 | 691 | 0.2− | 0.1+ |
| 2004 10 09 | 704 | 0.7− | 0.2− | 2004 11 06 | 704 | 0.2+ | 0.3− | 2009 11 23 | 691 | 0.2− | 0.0 |
| 2004 10 09 | 704 | 0.5+ | 0.9+ | 2004 11 06 | 704 | 0.8− | 1.0− | 2009 11 23 | 691 | 0.6− | 0.8+ |
| 2004 10 09 | 704 | 0.0 | 0.3+ | 2004 11 18 | 704 | 0.3+ | 0.2+ | 2009 11 27 | 691 | 0.7+ | 0.5− |
| 2004 10 09 | 704 | 0.4− | 0.6+ | 2004 11 18 | 704 | 0.1+ | 0.9+ | 2009 11 27 | 691 | 0.3− | 0.1− |
| 2004 10 14 | 704 | 0.8− | 0.1+ | 2004 11 18 | 704 | 0.4− | 1.0+ | 2009 11 27 | 691 | 0.2− | 0.1− |
| 2004 10 14 | 704 | 0.1+ | 0.1+ | 2004 11 18 | 704 | 0.2+ | 0.4+ | 2009 12 10 | 704 | 0.3− | 0.2− |
| 2004 10 14 | 704 | 0.0 | 0.3+ | 2006 02 22 | 699 | 0.5+ | 0.8+ | 2009 12 10 | 704 | 0.1− | 1.1+ |
| 2004 10 14 | 704 | 0.0 | 0.1− | 2006 02 22 | 699 | (1.6− | 1.4+) | 2009 12 10 | 704 | 0.8+ | 0.0 |
| 2004 10 14 | 704 | 0.1+ | 0.2+ | 2006 02 22 | 699 | (1.1+ | 2.0+) | 2009 12 18 | G96 | 0.6+ | 0.0 |
| 2004 10 20 | 704 | 0.3+ | 0.1+ | 2006 02 22 | 699 | 0.1+ | 0.1+ | 2009 12 18 | G96 | 0.8+ | 0.1− |
| 2004 10 20 | 704 | 0.1− | 0.1− | 2007 03 11 | G96 | 1.0+ | 0.1+ | 2009 12 18 | G96 | 0.7+ | 0.3− |
| 2004 10 20 | 704 | 0.5+ | 0.0 | 2007 03 11 | G96 | 0.1− | 0.3+ | | | | |

**(229143)∗ 2004 $RO_{315}$**

Discovered 2004 Sept. 15 by the Siding Spring Survey at Siding Spring.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 67.11774 | | | (2000.0) | | |
| $n$ | 0.22155154 | $\omega$ | 261.47437 | | +0.96048409 | +0.18732995 |
| $a$ | 2.7049103 | $\Omega$ | 87.54318 | | −0.09289775 | +0.91295494 |
| $e$ | 0.2207650 | $i$ | 11.89086 | | −0.26237439 | +0.36252002 |
| $P$ | 4.45 | $H$ | 16.0 | $G$ 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 20 | 699 | 0.9+ | 0.0 | 2004 08 21 | E12 | 0.2− | 0.2+ | 2009 11 16 | G96 | 0.3+ | 0.3− |
| 2000 11 20 | 699 | 0.7+ | 0.9+ | 2004 08 21 | E12 | 0.1− | 0.0 | 2009 11 16 | G96 | 0.2+ | 0.2− |
| 2000 11 20 | 699 | 0.4+ | 0.0 | 2004 08 21 | E12 | 0.1+ | 0.0 | 2009 11 19 | 691 | 0.4− | 0.1+ |
| 2000 11 20 | 699 | 1.8− | 1.0− | 2004 09 04 | 644 | 0.0 | 0.0 | 2009 11 19 | 691 | 0.1− | 0.1+ |
| 2000 11 27 | 704 | 0.4− | 0.4+ | 2004 09 04 | 644 | 0.3− | 0.2− | 2009 11 19 | 691 | (2.3− | 1.3+) |
| 2000 11 27 | 704 | 0.1+ | 0.3+ | 2004 09 04 | 644 | 0.0 | 0.0 | 2009 11 22 | 691 | 0.0 | 0.0 |
| 2000 11 27 | 704 | 0.4+ | 0.3+ | 2004 09 15 | E12 | 0.5− | 0.2+ | 2009 11 22 | 691 | 0.1+ | 0.0 |
| 2000 11 27 | 704 | 0.4+ | 1.3+ | 2004 09 15 | E12 | 0.1+ | 0.4+ | 2009 11 22 | 691 | 0.2− | 0.0 |
| 2000 11 27 | 704 | 0.1− | 0.4− | 2004 09 15 | E12 | 0.1− | 0.2− | 2009 11 24 | J75 | 0.8+ | 0.0 |
| 2000 12 31 | 691 | 0.2+ | 0.5− | 2004 09 15 | E12 | 0.0 | 0.5− | 2009 11 24 | J75 | 0.9+ | 0.5− |
| 2000 12 31 | 691 | 0.0 | 0.2− | 2004 09 17 | 699 | 0.2+ | 0.1− | 2009 11 24 | J75 | 0.4+ | 0.3− |
| 2000 12 31 | 691 | 0.0 | 0.3− | 2004 09 17 | 699 | 0.4− | 0.4− | 2009 11 26 | 691 | 0.1− | 0.1+ |
| 2001 01 21 | 691 | 0.2− | 0.2+ | 2004 09 17 | 699 | 0.1− | 1.2− | 2009 11 26 | 691 | 0.1− | 0.3+ |
| 2001 01 21 | 691 | 0.1+ | 0.3− | 2004 09 17 | 699 | 0.2+ | 0.3+ | 2009 11 26 | 691 | 0.2− | 0.2+ |
| 2001 01 21 | 691 | 0.3− | 0.0 | 2006 01 06 | G96 | 0.0 | 0.3− | 2009 12 11 | G96 | 0.2+ | 0.2− |
| 2004 07 19 | E12 | 1.0− | 0.2− | 2006 01 06 | G96 | 0.1− | 0.2− | 2009 12 11 | G96 | 0.1+ | 0.2− |
| 2004 07 19 | E12 | 1.3+ | 1.2− | 2006 01 06 | G96 | 0.1− | 0.5− | 2009 12 11 | G96 | 0.3+ | 0.2− |
| 2004 07 19 | E12 | 0.6+ | 0.9+ | 2006 01 06 | G96 | 0.4+ | 0.2− | 2009 12 11 | G96 | 0.0 | 0.1− |
| 2004 07 19 | E12 | 0.6+ | 0.3+ | 2009 11 10 | 691 | 0.2+ | 0.1− | 2009 12 11 | 703 | 0.2+ | 0.7+ |
| 2004 08 08 | 644 | 0.0 | 0.2− | 2009 11 10 | 691 | 0.1− | 0.3+ | 2009 12 11 | 703 | 0.5− | 0.7+ |
| 2004 08 08 | 644 | 0.2+ | 0.0 | 2009 11 10 | 691 | 0.3− | 0.1+ | 2009 12 11 | 703 | 0.7+ | 0.2− |
| 2004 08 08 | 644 | 0.2+ | 0.9+ | 2009 11 16 | G96 | 0.1+ | 0.3− | 2009 12 11 | 703 | 0.5+ | 0.6− |
| 2004 08 21 | E12 | 0.2− | 0.1+ | 2009 11 16 | G96 | 0.1− | 0.1− | | | | |

**(229144)∗ 2004 $RF_{318}$ = 2002 $CA_{149}$**

Discovered 2004 Sept. 12 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 70107)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 137.36763 | | | (2000.0) | | |
| $n$ | 0.24082991 | $\omega$ | 24.71967 | | +0.91987702 | +0.37980106 |
| $a$ | 2.5585609 | $\Omega$ | 312.59089 | | −0.37832213 | +0.79344049 |
| $e$ | 0.1792633 | $i$ | 7.63899 | | −0.10343419 | +0.47560840 |
| $P$ | 4.09 | $H$ | 15.9 | $G$ 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 01 | 704 | 0.8− | 0.3− | 2004 11 02 | 699 | (0.0 | 1.7−) | 2008 10 03 | 704 | 0.1+ | 0.1+ |
| 2000 11 01 | 704 | 0.5− | 0.2− | 2004 11 02 | 699 | 0.6+ | 0.1− | 2008 10 03 | 704 | 0.1+ | 0.0 |
| 2000 11 01 | 704 | 0.5+ | 0.7+ | 2004 11 02 | 699 | 0.1− | 0.5− | 2008 10 03 | 704 | 0.2− | 0.4+ |
| 2000 11 19 | 704 | 0.0 | 0.0 | 2004 11 02 | 699 | 0.6− | 0.0 | 2008 10 03 | 704 | 0.6− | 0.3+ |
| 2000 11 19 | 704 | 0.6+ | 0.3− | 2004 12 16 | 703 | 1.4− | 0.3− | 2008 10 03 | 704 | 0.0 | 0.2+ |
| 2000 11 19 | 704 | 0.2+ | 0.2+ | 2004 12 16 | 703 | 0.2− | 0.8− | 2008 10 24 | 703 | 0.0 | 0.7− |
| 2000 11 19 | 704 | 0.8+ | 0.3− | 2004 12 16 | 703 | 0.7− | 0.8+ | 2008 10 24 | 703 | 0.1+ | 0.8− |
| 2000 11 19 | 704 | 1.0+ | 0.1+ | 2004 12 16 | 703 | 0.1+ | 0.5− | 2008 10 24 | 703 | 0.2+ | 0.9− |
| 2002 02 10 | 704 | 0.2+ | 1.3+ | 2006 01 05 | G96 | 0.1+ | 0.4− | 2008 10 24 | 703 | 0.2− | 0.6− |
| 2002 02 10 | 704 | (0.2+ | 1.7+) | 2006 01 05 | G96 | 0.1− | 0.4− | 2008 10 27 | 704 | 0.7+ | 0.1− |
| 2002 02 10 | 704 | 0.6− | 0.5+ | 2006 01 05 | G96 | 0.7− | 0.5− | 2008 10 27 | 704 | 0.1− | 0.5− |
| 2002 02 10 | 704 | 0.4+ | 0.1+ | 2006 01 05 | G96 | 0.3+ | 0.3− | 2008 10 27 | 704 | 0.3− | 0.8+ |
| 2002 02 10 | 704 | 0.5− | 1.4+ | 2006 01 22 | 691 | 0.2+ | 0.1+ | 2008 10 27 | 704 | 0.4+ | 0.1+ |
| 2002 02 11 | 704 | 0.1− | 0.2+ | 2006 01 22 | 691 | 0.2+ | 0.0 | 2008 10 27 | 704 | 0.5− | 0.6+ |
| 2002 02 11 | 704 | 0.0 | 1.0+ | 2006 01 22 | 691 | 0.0 | 0.0 | 2008 11 01 | G96 | 0.1− | 0.4− |
| 2002 02 11 | 704 | 0.2+ | 0.3+ | 2006 02 01 | 691 | 0.1+ | 0.2− | 2008 11 01 | G96 | 0.0 | 0.3− |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 02 11 | 704 | 0.3+ | 1.2+ | 2006 02 01 | 691 | 0.0 | 0.2− | 2008 11 01 | G96 | 0.2− | 0.4− |
| 2002 02 11 | 704 | (0.3+ | 1.7+) | 2006 02 01 | 691 | 0.3+ | 0.1− | 2008 11 01 | G96 | 0.0 | 0.4− |
| 2004 09 12 | 704 | 0.2+ | 1.0+ | 2006 02 24 | G96 | 0.2+ | 0.1− | 2008 11 02 | 703 | 0.7+ | 0.2− |
| 2004 09 12 | 704 | 0.5− | 0.2+ | 2006 02 24 | G96 | 0.2+ | 0.1+ | 2008 11 02 | 703 | 0.6+ | 0.3− |
| 2004 09 12 | 704 | 1.2− | 0.9+ | 2006 02 24 | G96 | 0.3− | 0.2+ | 2008 11 02 | 703 | 0.6− | 0.2− |
| 2004 09 12 | 704 | 0.1− | 1.1+ | 2006 02 24 | G96 | 0.4− | 0.2− | 2008 11 02 | 703 | 0.2+ | 0.4+ |
| 2004 09 18 | 704 | 0.1+ | 0.2− | 2008 08 30 | 704 | 0.5− | 0.7+ | 2008 11 03 | 704 | 0.3− | 0.1− |
| 2004 09 18 | 704 | 0.5− | 0.3+ | 2008 08 30 | 704 | 0.1+ | 0.2− | 2008 11 03 | 704 | 0.1− | 0.2− |
| 2004 09 18 | 704 | 0.2− | 0.6+ | 2008 08 30 | 704 | 1.1+ | 0.1+ | 2008 11 03 | 704 | 0.1+ | 0.6− |
| 2004 09 18 | 704 | 0.7− | 1.0+ | 2008 08 30 | 704 | (1.7+ | 0.1−) | 2008 11 03 | 704 | 0.6− | 0.0 |
| 2004 09 18 | 704 | 0.4+ | 0.3+ | 2008 09 05 | 704 | 0.1− | 0.4+ | 2008 11 06 | G96 | 0.1+ | 0.3− |
| 2004 09 23 | 704 | 0.6− | 0.1− | 2008 09 05 | 704 | 0.4− | 0.4+ | 2008 11 06 | G96 | 0.0 | 0.2− |
| 2004 09 23 | 704 | 1.2+ | 0.3+ | 2008 09 05 | 704 | 0.6− | 0.4+ | 2008 11 06 | G96 | 0.1− | 0.3− |
| 2004 09 23 | 704 | 0.1− | 0.1+ | 2008 09 05 | 704 | 0.1− | 1.0+ | 2008 11 06 | G96 | 0.2+ | 0.2− |
| 2004 09 23 | 704 | 0.6− | 0.3+ | 2008 09 05 | 704 | 1.0− | 0.2+ | 2008 11 30 | G96 | 0.3+ | 0.2− |
| 2004 10 10 | 704 | 0.2− | 0.3+ | 2008 09 07 | 704 | 0.2+ | 0.7+ | 2008 11 30 | G96 | 0.2+ | 0.4− |
| 2004 10 10 | 704 | 0.3− | 0.1− | 2008 09 07 | 704 | 0.0 | 0.0 | 2008 11 30 | G96 | 0.1+ | 0.5− |
| 2004 10 10 | 704 | 0.1+ | 0.5+ | 2008 09 07 | 704 | 1.4+ | 0.6+ | 2008 12 17 | A77 | (1.6+ | 1.3−) |
| 2004 10 10 | 704 | 0.1− | 0.2− | 2008 09 07 | 704 | 0.4+ | 0.3− | 2008 12 17 | A77 | 0.7− | 0.5− |
| 2004 10 10 | 704 | 0.2− | 0.1− | 2008 09 07 | 704 | 0.4+ | 0.0 | 2009 11 21 | G96 | 0.6− | 0.1+ |
| 2004 10 14 | 644 | 0.1+ | 0.0 | 2008 09 22 | 703 | 0.6+ | 0.8− | 2009 11 21 | G96 | 0.7− | 0.7− |
| 2004 10 14 | 644 | 0.2+ | 0.1− | 2008 09 22 | 703 | 1.0+ | 0.6+ | 2009 11 21 | G96 | 0.5− | 0.3+ |
| 2004 10 14 | 644 | 0.1+ | 0.1+ | 2008 09 22 | 703 | 1.5+ | 0.9+ | 2009 12 17 | G96 | 0.0 | 0.2+ |
| 2004 10 15 | 704 | 0.2− | 0.2+ | 2008 09 22 | 703 | 0.4+ | 0.9+ | 2009 12 17 | G96 | 0.0 | 0.4− |
| 2004 10 15 | 704 | 0.3− | 0.3+ | 2008 09 30 | 703 | 1.3− | 0.3− | 2009 12 17 | G96 | 0.1− | 0.6− |
| 2004 10 15 | 704 | 0.3+ | 0.5+ | 2008 09 30 | 703 | 0.9− | 1.1− | 2009 12 17 | G96 | 0.2− | 0.3− |
| 2004 10 15 | 704 | 0.1− | 0.6+ | 2008 09 30 | 703 | 0.6+ | 0.7− | | | | |
| 2004 10 15 | 704 | 0.1+ | 0.5− | 2008 09 30 | 703 | 0.5+ | 0.6− | | | | |

**(229145)∗ 2004 RD$_{326}$ = 1999 RA$_{205}$**

Discovered 2004 Sept. 13 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 73190)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 51.21790 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21104268 | $\omega$ | 125.60467 | | +0.79300298 | −0.56970838 | |
| $a$ | 2.7939750 | $\Omega$ | 270.08740 | | +0.46545912 | +0.79514553 | |
| $e$ | 0.1650679 | $i$ | 12.46370 | | +0.39305736 | +0.20778825 | |
| $P$ | 4.67 | $H$ | 15.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 09 08 | 704 | 0.4+ | 0.4+ | 2004 11 19 | 704 | 0.0 | 0.4− | 2004 12 17 | 699 | 0.2+ | 0.1+ |
| 1999 09 08 | 704 | 0.9− | 0.6− | 2004 11 19 | 704 | 0.0 | 0.3+ | 2005 01 07 | 704 | 0.6− | 0.4+ |
| 1999 09 08 | 704 | 0.0 | 0.4− | 2004 11 19 | 704 | 0.0 | 0.4+ | 2005 01 07 | 704 | 0.9− | 0.8− |
| 1999 09 08 | 704 | 0.7− | 1.0− | 2004 11 19 | 704 | 0.0 | 0.1+ | 2005 01 07 | 704 | 0.7− | 0.1+ |
| 1999 09 08 | 704 | 0.1+ | 0.3− | 2004 12 01 | 644 | 0.1+ | 0.1− | 2005 01 07 | 704 | 0.4− | 0.5+ |
| 1999 09 18 | 704 | 0.6+ | 0.2+ | 2004 12 01 | 644 | 0.2+ | 0.1− | 2005 01 07 | 704 | 0.2− | 0.4− |
| 1999 09 18 | 704 | 1.1+ | 0.2+ | 2004 12 01 | 644 | 0.0 | 0.0 | 2005 01 12 | 704 | 0.2− | 0.2− |
| 1999 09 18 | 704 | 0.9− | 0.8− | 2004 12 02 | 704 | 0.1− | 1.1+ | 2005 01 12 | 704 | 0.9− | 0.6+ |
| 1999 09 18 | 704 | 0.1− | 0.2+ | 2004 12 02 | 704 | 0.3− | 1.1+ | 2005 01 12 | 704 | 1.0− | 1.1− |
| 1999 09 18 | 704 | 0.6− | 0.3− | 2004 12 02 | 704 | (1.1+ | 2.0+) | 2005 01 12 | 704 | 0.6+ | 0.3− |
| 1999 10 03 | 704 | 0.2+ | 0.0 | 2004 12 02 | 704 | 0.3− | 0.2+ | 2005 01 12 | 704 | 1.2+ | 0.5− |
| 1999 10 03 | 704 | 0.7+ | 0.5− | 2004 12 02 | 704 | (1.6+ | 0.4+) | 2008 08 02 | 704 | 0.9− | 0.1− |
| 1999 10 03 | 704 | 0.5+ | 0.2− | 2004 12 02 | 704 | 0.8− | 0.6+ | 2008 08 02 | 704 | 0.6+ | 0.0 |
| 1999 10 03 | 704 | 0.8+ | 0.4+ | 2004 12 02 | 704 | 0.4+ | 0.4− | 2008 08 02 | 704 | 0.1− | 1.0+ |
| 1999 10 03 | 704 | 0.4+ | 0.5− | 2004 12 11 | 704 | 1.0+ | 0.2+ | 2008 08 02 | 704 | 0.7− | 0.2+ |
| 2004 08 26 | 704 | 0.3+ | 0.4+ | 2004 12 11 | 704 | 0.3+ | 0.1− | 2008 08 02 | 704 | 0.3+ | 0.3− |
| 2004 08 26 | 704 | 0.2+ | 1.2+ | 2004 12 11 | 704 | 0.4+ | 1.3+ | 2009 11 10 | G96 | 0.1− | 0.4− |
| 2004 08 26 | 704 | 0.0 | 1.2+ | 2004 12 11 | 704 | 0.1+ | 0.3+ | 2009 11 10 | G96 | 0.4− | 0.4− |
| 2004 09 13 | 704 | 0.3+ | 0.2+ | 2004 12 15 | 704 | 0.3+ | 0.5+ | 2009 11 10 | G96 | 0.3− | 0.5− |
| 2004 09 13 | 704 | 0.4+ | 0.1− | 2004 12 15 | 704 | 1.2− | 0.1+ | 2009 11 10 | G96 | 0.4− | 0.7− |
| 2004 09 13 | 704 | 0.7+ | 0.3+ | 2004 12 15 | 704 | 0.1+ | 0.2− | 2009 11 21 | 704 | 1.3+ | 0.7+ |
| 2004 09 18 | 704 | 0.5− | 0.2+ | 2004 12 15 | 704 | 0.9− | 0.2− | 2009 11 21 | 704 | (1.9+ | 0.2+) |
| 2004 09 18 | 704 | (1.6− | 1.2+) | 2004 12 17 | 704 | 0.8+ | 0.5− | 2009 11 21 | 704 | 0.9+ | 0.7− |
| 2004 09 18 | 704 | (0.2+ | 1.7+) | 2004 12 17 | 704 | 0.4− | 0.4+ | 2009 11 21 | 704 | 1.3− | 0.2− |
| 2004 09 18 | 704 | 0.1+ | 0.3+ | 2004 12 17 | 704 | 0.3+ | 0.0 | 2009 12 10 | 106 | 0.4− | 0.8− |
| 2004 10 24 | 704 | 0.3+ | 0.4− | 2004 12 17 | 704 | 0.0 | 0.3+ | 2009 12 10 | 106 | 0.4+ | 0.0 |
| 2004 10 24 | 704 | 0.2− | 0.9− | 2004 12 17 | 704 | 0.5− | 0.1− | 2009 12 10 | 106 | 0.2+ | 0.4− |
| 2004 10 24 | 704 | 0.0 | 0.4− | 2004 12 17 | 704 | 0.4− | 0.5+ | 2009 12 10 | 106 | 0.4− | 0.2− |
| 2004 10 24 | 704 | 0.1+ | 0.5− | 2004 12 17 | 704 | 0.6+ | 0.0 | 2009 12 17 | 704 | 0.4+ | 0.4+ |
| 2004 11 04 | 704 | 0.2+ | 0.4− | 2004 12 17 | 704 | 0.3− | 0.6+ | 2009 12 17 | 704 | 0.0 | 0.4+ |
| 2004 11 04 | 704 | 0.6+ | 0.2− | 2004 12 17 | 699 | (1.5+ | 0.0 ) | 2009 12 17 | 704 | 0.3+ | 0.2− |
| 2004 11 04 | 704 | 0.2− | 0.0 | 2004 12 17 | 704 | 0.2− | 0.3+ | 2009 12 17 | 704 | 0.1− | 0.0 |
| 2004 11 04 | 704 | 0.8+ | 0.4− | 2004 12 17 | 704 | 0.4− | 0.3− | 2009 12 17 | 704 | 0.3− | 0.3− |
| 2004 11 04 | 704 | 0.2+ | 0.4− | 2004 12 17 | 699 | 0.2+ | 0.2+ | | | | |
| 2004 11 19 | 704 | 0.3− | 0.1+ | 2004 12 17 | 699 | 0.7− | 0.1+ | | | | |

**(229146)∗ 2004 SV$_1$**

Discovered 2004 Sept. 16 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 351.13708 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21756936 | $\omega$ | 171.88823 | | +0.02630623 | −0.97773337 | |
| $a$ | 2.7378158 | $\Omega$ | 276.42599 | | +0.90500386 | +0.11175210 | |
| $e$ | 0.1456250 | $i$ | 12.09375 | | +0.42458920 | −0.17762015 | |
| $P$ | 4.53 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 30 | 704 | 0.4+ | 0.7− | 2004 09 17 | 704 | 0.5+ | 0.6+ | 2009 11 19 | 703 | 0.2− | 0.4+ |
| 2000 11 30 | 704 | 0.3− | 0.2+ | 2004 09 17 | 704 | 0.6− | 0.6− | 2009 11 19 | 113 | 0.4− | 0.4− |
| 2000 11 30 | 704 | 0.1− | 0.9+ | 2004 09 17 | 704 | 0.0 | 0.7− | 2009 11 19 | 113 | 0.1+ | 0.5− |
| 2000 11 30 | 704 | 0.8+ | 0.0 | 2004 09 17 | 704 | 1.1+ | 0.7+ | 2009 11 19 | 113 | 0.5− | 1.3− |
| 2000 12 20 | 704 | (2.4+ | 1.4+) | 2004 09 17 | 704 | 0.1+ | 0.4+ | 2009 11 23 | 704 | 0.4+ | 0.4− |
| 2000 12 20 | 704 | 0.9+ | 0.1− | 2004 10 06 | 644 | 0.5− | 0.1+ | 2009 11 23 | 704 | 0.3+ | 0.1+ |
| 2000 12 20 | 704 | 0.1+ | 0.9+ | 2004 10 06 | 644 | 0.5− | 0.7+ | 2009 11 23 | 704 | (1.2+ | 1.6+) |
| 2000 12 20 | 704 | 1.8− | 0.6− | 2004 10 06 | 644 | 0.6− | 0.5+ | 2009 12 06 | J75 | 0.1− | 0.3+ |
| 2004 09 08 | 644 | 0.3− | 0.3+ | 2005 10 07 | G96 | 0.1+ | 0.2+ | 2009 12 06 | J75 | 0.2+ | 0.4− |
| 2004 09 08 | 644 | 0.2− | 0.2+ | 2005 10 07 | G96 | 0.2+ | 0.4− | 2009 12 06 | J75 | 0.2+ | 0.6− |
| 2004 09 08 | 644 | 0.2− | 0.2+ | 2005 10 07 | G96 | 0.0 | 0.4− | 2009 12 10 | 704 | (0.3+ | 2.6+) |
| 2004 09 11 | 704 | (1.1− | 1.9−) | 2005 10 07 | G96 | 0.6+ | 0.1− | 2009 12 10 | 704 | 1.0− | 1.0+ |
| 2004 09 11 | 704 | 0.0 | 1.1− | 2006 01 23 | 703 | 1.2− | 0.7− | 2009 12 10 | 704 | 0.4− | 1.4+ |
| 2004 09 11 | 704 | 0.8− | 0.6+ | 2006 01 23 | 703 | 0.5+ | 0.9− | 2009 12 15 | 704 | 0.1− | 0.3+ |
| 2004 09 14 | 704 | 0.3− | 0.5− | 2006 01 23 | 703 | 0.5− | 1.3+ | 2009 12 15 | 704 | 0.3− | 0.1− |
| 2004 09 14 | 704 | 0.5+ | 0.9− | 2006 01 23 | 703 | 0.3+ | 0.8− | 2009 12 15 | 704 | 0.0 | 0.0 |
| 2004 09 14 | 704 | (3.2− | 0.1+) | 2006 01 25 | 699 | 0.2− | 0.5+ | 2009 12 15 | 704 | 0.2− | 0.2+ |
| 2004 09 14 | 704 | (2.9+ | 1.2+) | 2006 01 25 | 699 | 0.1− | 0.3+ | 2009 12 15 | 704 | 0.2+ | 0.3− |
| 2004 09 16 | 704 | 1.2+ | 0.8+ | 2006 01 25 | 699 | 0.3+ | 0.3+ | 2009 12 23 | 114 | 1.1+ | 0.3+ |
| 2004 09 16 | 704 | 0.9+ | 0.1− | 2006 01 25 | 699 | 0.5+ | 0.2+ | 2009 12 23 | 114 | 0.2− | 1.0− |
| 2004 09 16 | 704 | 0.5− | 0.5− | 2009 11 19 | 703 | 0.7+ | 0.1+ | 2009 12 23 | 114 | 0.4+ | 0.4− |
| 2004 09 16 | 704 | 0.5+ | 0.4− | 2009 11 19 | 703 | 0.2+ | 0.8+ | 2009 12 23 | 114 | 0.2− | 0.3− |
| 2004 09 16 | 704 | 0.2− | 0.3− | 2009 11 19 | 703 | 0.4− | 0.2+ | | | | |

**(229147)∗ 2004 SD$_{13}$**

Discovered 2004 Sept. 17 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 82.31592 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22864264 | $\omega$ | 308.32979 | | +0.99458554 | +0.08173555 | |
| $a$ | 2.6486906 | $\Omega$ | 47.08233 | | −0.04415635 | +0.89143210 | |
| $e$ | 0.0729256 | $i$ | 5.02762 | | −0.09407346 | +0.44572202 | |
| $P$ | 4.31 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 08 27 | 699 | 0.6+ | 0.2+ | 2004 10 20 | 703 | 0.2− | 0.1− | 2007 03 26 | 691 | 0.4+ | 0.4+ |
| 2004 08 27 | 699 | 1.0+ | 0.6− | 2004 10 20 | 703 | 1.3− | 0.3− | 2007 03 26 | 691 | 0.5+ | 0.3+ |
| 2004 08 27 | 699 | 0.7+ | 0.7+ | 2005 12 29 | 703 | (2.0− | 0.0 ) | 2007 04 19 | G96 | 0.4+ | 0.3+ |
| 2004 08 27 | 699 | (2.4− | 1.7+) | 2005 12 29 | 703 | (2.7− | 1.5−) | 2007 04 19 | G96 | 0.0 | 0.2+ |
| 2004 09 08 | 704 | 0.3+ | 0.9+ | 2005 12 29 | 703 | 1.1− | 0.4+ | 2007 04 19 | G96 | 0.2− | 0.5+ |
| 2004 09 08 | 704 | 0.1− | 0.1+ | 2005 12 29 | 703 | (1.0+ | 2.1−) | 2007 04 19 | G96 | 0.1+ | 0.7+ |
| 2004 09 08 | 704 | 0.0 | 0.9+ | 2005 12 29 | 703 | (0.7+ | 1.6+) | 2007 05 06 | 691 | 0.1+ | 0.5+ |
| 2004 09 08 | 704 | 0.0 | 0.7+ | 2005 12 29 | 703 | 0.9− | 1.2− | 2007 05 06 | 691 | 0.1− | 0.1+ |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 08 | 704 | 0.4+ | 0.0 | 2005 12 29 | 703 | 0.7+ | 0.9+ | 2007 05 06 | 691 | 0.3+ | 0.1+ |
| 2004 09 09 | 704 | 0.5− | 1.5+ | 2005 12 29 | 703 | 0.6− | 0.6+ | 2008 07 28 | E12 | 0.6+ | 0.0 |
| 2004 09 09 | 704 | 1.1− | 0.2+ | 2006 01 06 | 704 | 0.2− | 1.4− | 2008 07 28 | E12 | 0.1− | 0.3+ |
| 2004 09 09 | 704 | 0.2+ | 1.3+ | 2006 01 06 | 704 | 0.7+ | 0.8+ | 2008 07 28 | E12 | 0.3− | 0.6− |
| 2004 09 09 | 704 | 0.2+ | 0.1− | 2006 01 06 | 704 | 0.8+ | 0.6+ | 2008 07 28 | E12 | 0.2+ | 0.1+ |
| 2004 09 09 | 704 | 0.5− | 1.0− | 2006 01 06 | 704 | (2.1+ | 0.4+) | 2008 08 04 | E12 | 0.4− | 0.3− |
| 2004 09 17 | 704 | 0.1+ | 0.6+ | 2006 01 18 | 703 | 0.2+ | 0.5− | 2008 08 04 | E12 | 0.2− | 0.2− |
| 2004 09 17 | 704 | 0.9− | 0.5+ | 2006 01 18 | 703 | (1.1− | 2.1+) | 2008 08 04 | E12 | 0.6− | 0.4+ |
| 2004 09 17 | 704 | 1.1− | 0.7+ | 2006 01 18 | 703 | 0.0 | 0.6+ | 2009 11 22 | 691 | 0.1+ | 0.1+ |
| 2004 09 17 | 704 | 0.9− | 0.0 | 2006 01 18 | 703 | (2.6+ | 0.9−) | 2009 11 22 | 691 | 0.2− | 0.1+ |
| 2004 09 17 | 704 | 0.0 | 0.1− | 2006 01 18 | 703 | 1.1+ | 0.8− | 2009 11 22 | 691 | 0.2− | 0.2+ |
| 2004 09 21 | 704 | 0.7− | 0.4+ | 2006 01 18 | 703 | 0.8− | 0.3+ | 2009 12 10 | 704 | 0.3+ | 0.8+ |
| 2004 09 21 | 704 | 0.3− | 0.3+ | 2006 01 18 | 703 | 0.2+ | 0.6+ | 2009 12 10 | 704 | 1.0+ | 1.1+ |
| 2004 09 21 | 704 | 0.6− | 0.4+ | 2006 01 18 | 703 | 0.7− | 0.3+ | 2009 12 10 | 704 | 0.4+ | 1.0+ |
| 2004 09 21 | 704 | 0.6− | 0.7+ | 2007 03 13 | G96 | 0.1+ | 0.2+ | 2009 12 10 | 704 | 0.8− | 1.2− |
| 2004 09 21 | 704 | 0.3− | 0.2+ | 2007 03 13 | G96 | 0.1+ | 0.1+ | 2009 12 11 | G96 | 0.2+ | 0.0 |
| 2004 10 06 | 699 | 0.1+ | 1.2+ | 2007 03 13 | G96 | 0.4+ | 0.2+ | 2009 12 11 | G96 | 0.1+ | 0.1+ |
| 2004 10 06 | 699 | 0.1+ | 0.7+ | 2007 03 13 | G96 | 0.2− | 0.4+ | 2009 12 11 | G96 | 0.3+ | 0.1+ |
| 2004 10 06 | 699 | 0.4+ | 0.1− | 2007 03 15 | 691 | 0.4+ | 0.3+ | 2009 12 11 | G96 | 0.3+ | 0.4− |
| 2004 10 06 | 699 | 0.1+ | 0.2− | 2007 03 15 | 691 | 0.0 | 0.5+ | 2009 12 20 | 691 | 0.2+ | 0.0 |
| 2004 10 20 | 703 | 0.8− | 0.2+ | 2007 03 15 | 691 | 0.0 | 0.4+ | 2009 12 20 | 691 | 0.3− | 0.0 |
| 2004 10 20 | 703 | 0.7+ | 1.1+ | 2007 03 26 | 691 | 0.0 | 0.3+ | 2009 12 20 | 691 | 0.0 | 0.5+ |

**(229148)∗ 2004 SP$_{17}$**

Discovered 2004 Sept. 17 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 157.70624 | | (2000.0) | | | |
| $n$ | 0.24539337 | $\omega$ | 199.51154 | | +0.44022806 | +0.88323876 |
| $a$ | 2.5267416 | $\Omega$ | 96.88915 | | −0.80066937 | +0.46757225 |
| $e$ | 0.2307994 | $i$ | 9.36331 | | −0.40635922 | +0.03557371 |
| $P$ | 4.02 | $H$ | 15.9 | $G$ 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 08 04 | 608 | 0.2− | 1.5− | 2004 09 17 | 699 | 0.3+ | 0.5+ | 2007 04 14 | 703 | (2.2− | 0.6−) |
| 2000 08 04 | 608 | 0.0 | 0.0 | 2004 09 17 | 699 | 0.1− | 0.5− | 2007 04 14 | 703 | (2.8− | 1.1−) |
| 2000 08 04 | 608 | 0.5− | 0.6− | 2004 09 17 | 699 | 0.4− | 0.1− | 2007 04 14 | 703 | 1.2− | 1.2+ |
| 2000 10 02 | 699 | 0.5+ | 0.3− | 2004 09 21 | 704 | 0.3+ | 0.4− | 2007 05 02 | 540 | 0.6+ | 0.9− |
| 2000 10 02 | 699 | 0.9+ | 0.3− | 2004 09 21 | 704 | 0.0 | 0.1+ | 2007 05 02 | 540 | 0.2− | 0.3− |
| 2000 10 02 | 699 | 0.2− | 1.4+ | 2004 09 21 | 704 | 0.0 | 0.7− | 2009 10 15 | G96 | 0.5+ | 0.2− |
| 2000 10 02 | 699 | 0.4− | 0.1+ | 2004 09 21 | 704 | 0.1− | 0.4− | 2009 10 15 | G96 | 0.1− | 0.1− |
| 2004 08 18 | E12 | 1.0− | 0.1+ | 2004 09 21 | 704 | 0.2+ | 0.3+ | 2009 10 15 | G96 | 0.2− | 0.0 |
| 2004 08 18 | E12 | 0.1− | 0.2+ | 2004 10 06 | 704 | 0.5+ | 0.3+ | 2009 10 15 | G96 | 0.3− | 0.1− |
| 2004 08 18 | E12 | 0.0 | 0.0 | 2004 10 06 | 704 | 0.4+ | 1.0+ | 2009 11 18 | G96 | 0.2− | 0.4− |
| 2004 08 18 | E12 | 0.5+ | 0.2− | 2004 10 06 | 704 | 0.2− | 0.2+ | 2009 11 18 | G96 | 0.4+ | 0.6− |
| 2004 08 27 | 699 | 0.6+ | 0.1+ | 2004 10 06 | 704 | 0.0 | 0.7− | 2009 11 18 | G96 | 0.4+ | 0.5− |
| 2004 08 27 | 699 | 1.0+ | 0.6− | 2004 10 09 | 699 | 0.3− | 0.4− | 2009 11 18 | G96 | 0.2− | 0.3− |
| 2004 08 27 | 699 | 1.2− | 0.8+ | 2004 10 09 | 699 | 0.9− | 0.6+ | 2009 12 16 | G96 | 0.1+ | 0.0 |
| 2004 08 27 | 699 | 1.2− | 0.8− | 2004 10 09 | 699 | 1.0+ | 1.2+ | 2009 12 16 | G96 | 0.1− | 0.4− |
| 2004 09 07 | 704 | 0.3+ | 0.1− | 2004 10 09 | 699 | 0.3− | 0.1− | 2009 12 16 | G96 | 0.3+ | 0.1− |
| 2004 09 07 | 704 | 0.1+ | 0.4+ | 2007 03 12 | 703 | 1.2+ | 0.5+ | 2009 12 25 | 691 | 0.1− | 0.3+ |
| 2004 09 07 | 704 | 0.2+ | 0.4− | 2007 03 12 | 703 | 0.7+ | 1.0+ | 2009 12 25 | 691 | 0.1+ | 0.1− |
| 2004 09 07 | 704 | 0.2+ | 0.3− | 2007 03 12 | 703 | (0.3− | 2.0+) | 2009 12 25 | 691 | 0.1− | 0.2+ |
| 2004 09 07 | 704 | 0.1− | 0.1+ | 2007 03 12 | 703 | 0.4− | 0.3− | | | | |
| 2004 09 17 | 699 | 0.4− | 1.2+ | 2007 04 14 | 703 | 0.5− | 0.7− | | | | |

**(229149)∗ 2004 SN$_{23}$**

Discovered 2004 Sept. 17 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 90.07818 | | (2000.0) | | | |
| $n$ | 0.21411590 | $\omega$ | 138.35575 | | +0.90263648 | +0.43002961 |
| $a$ | 2.7671760 | $\Omega$ | 196.20219 | | −0.40993352 | +0.84625625 |
| $e$ | 0.0983149 | $i$ | 3.68678 | | −0.13115600 | +0.31452328 |
| $P$ | 4.60 | $H$ | 16.8 | $G$ 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 07 | 691 | 0.1+ | 0.4+ | 2006 03 03 | G96 | 0.3+ | 0.4+ | 2007 04 19 | G96 | 0.1+ | 0.2+ |
| 2004 09 07 | 691 | 0.1+ | 0.1+ | 2006 03 03 | G96 | 0.3− | 0.3+ | 2007 04 19 | G96 | 0.1− | 0.3+ |
| 2004 09 07 | 691 | 0.2− | 0.1+ | 2006 03 03 | G96 | 0.0 | 0.1+ | 2007 04 19 | G96 | 0.4− | 0.1+ |
| 2004 09 17 | 691 | 0.2+ | 0.0 | 2006 03 03 | G96 | 0.4+ | 0.3− | 2007 04 19 | G96 | 0.1− | 0.0 |
| 2004 09 17 | 691 | 0.0 | 0.1+ | 2007 04 07 | G96 | 0.4− | 0.3+ | 2007 05 09 | G96 | 0.2− | 0.2− |
| 2004 09 17 | 691 | 0.3− | 0.1− | 2007 04 07 | G96 | 0.0 | 0.1− | 2007 05 09 | G96 | 0.7+ | 0.4+ |
| 2004 09 22 | 691 | 0.1+ | 0.3+ | 2007 04 07 | G96 | 0.1− | 0.1− | 2007 05 09 | G96 | 0.1+ | 0.2+ |
| 2004 09 22 | 691 | 0.2+ | 0.1+ | 2007 04 07 | G96 | 0.2− | 0.0 | 2007 05 09 | G96 | 0.1− | 0.2+ |
| 2004 09 22 | 691 | 0.0 | 0.0 | 2007 04 18 | G96 | 0.1+ | 0.2+ | 2009 11 10 | 691 | 0.2+ | 0.2+ |
| 2004 10 04 | 691 | 0.1+ | 0.1+ | 2007 04 18 | G96 | 0.6+ | 0.4− | 2009 11 10 | 691 | 0.3− | 0.1+ |
| 2004 10 04 | 691 | 0.2+ | 0.1− | 2007 04 18 | G96 | 0.6+ | 0.1+ | 2009 11 10 | 691 | 0.3+ | 0.3− |
| 2004 10 04 | 691 | 0.5− | 0.2− | 2007 04 18 | G96 | 0.1+ | 0.1+ | 2009 11 26 | 691 | 0.1− | 0.0 |
| 2004 10 15 | G96 | 0.0 | 0.3− | 2007 04 18 | G96 | 0.3− | 0.3− | 2009 11 26 | 691 | 0.1− | 0.0 |
| 2004 10 15 | G96 | 0.1− | 0.3− | 2007 04 18 | G96 | 0.1− | 0.3+ | 2009 11 26 | 691 | 0.4− | 0.2+ |
| 2004 10 15 | G96 | 0.1+ | 0.1− | 2007 04 18 | G96 | 0.0 | 0.2+ | 2009 12 17 | G96 | 0.4+ | 0.2+ |
| 2004 10 15 | G96 | 0.1+ | 0.3− | 2007 04 18 | G96 | 0.0 | 0.1+ | 2009 12 17 | G96 | 0.3+ | 0.2− |
| 2006 02 03 | G96 | 0.2+ | 0.4+ | 2007 04 19 | G96 | 0.2+ | 0.3+ | 2009 12 17 | G96 | 0.5+ | 0.1+ |
| 2006 02 03 | G96 | 0.4+ | 1.0− | 2007 04 19 | G96 | 0.1− | 0.5+ | 2009 12 17 | G96 | 0.4+ | 0.3+ |
| 2006 02 03 | G96 | 0.9− | 0.1− | 2007 04 19 | G96 | 0.2− | 0.5+ | | | | |
| 2006 02 03 | G96 | 0.2− | 0.1− | 2007 04 19 | G96 | 0.7+ | 0.0 | | | | |

**(229150)∗ 2004 ST$_{31}$**

Discovered 2004 Sept. 17 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 48.09211 | | (2000.0) | | | |
| $n$ | 0.21749355 | $\omega$ | 56.30546 | | +0.94043407 | −0.33881288 |
| $a$ | 2.7384520 | $\Omega$ | 323.47668 | | +0.29420702 | +0.85246295 |
| $e$ | 0.1117229 | $i$ | 2.70619 | | +0.17037014 | +0.39813660 |
| $P$ | 4.53 | $H$ | 16.9 | $G$ 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 02 20 | 291 | 0.5+ | 0.1− | 2004 10 07 | 704 | 1.0− | 1.0+ | 2006 01 08 | 291 | 0.3+ | 0.2+ |
| 2002 02 20 | 291 | 0.1+ | 0.7+ | 2004 10 08 | 699 | 1.3− | 0.6+ | 2006 01 08 | 291 | 0.2+ | 0.1+ |
| 2002 02 20 | 291 | 0.9+ | 0.4+ | 2004 10 08 | 699 | 0.1+ | 0.4+ | 2006 01 08 | 291 | 0.3+ | 0.4+ |
| 2002 03 10 | 291 | 0.0 | 0.2+ | 2004 10 08 | 699 | 0.2+ | 1.0+ | 2006 01 30 | 691 | 0.1− | 0.1+ |
| 2002 03 10 | 291 | 0.1+ | 0.5+ | 2004 10 08 | 699 | 0.4+ | 0.4+ | 2006 01 30 | 691 | 0.1− | 0.1− |
| 2002 03 10 | 291 | 0.4+ | 0.4+ | 2006 01 07 | G96 | 0.1− | 0.2− | 2006 01 30 | 691 | 0.1− | 0.0 |
| 2002 04 09 | 291 | 0.2− | 0.7+ | 2006 01 07 | G96 | 0.5− | 0.4− | 2009 11 09 | 691 | 0.0 | 0.0 |
| 2002 04 09 | 291 | 0.3− | 0.1+ | 2006 01 07 | G96 | 0.4− | 0.3− | 2009 11 09 | 691 | 0.2+ | 0.1− |
| 2002 04 09 | 291 | 0.2+ | 0.1+ | 2006 01 07 | G96 | 0.4− | 0.6− | 2009 11 09 | 691 | 0.0 | 0.4− |
| 2004 09 17 | 704 | 0.6+ | 0.0 | 2006 01 07 | G96 | 1.1− | 0.2− | 2009 11 22 | 691 | 0.0 | 0.2+ |
| 2004 09 17 | 704 | 0.3− | 0.2− | 2006 01 07 | G96 | 1.0− | 0.1− | 2009 11 22 | 691 | 0.1− | 0.2+ |
| 2004 09 17 | 704 | 0.2− | 0.4− | 2006 01 07 | G96 | (1.8− | 0.3−) | 2009 11 22 | 691 | 0.2+ | 0.0 |
| 2004 09 22 | 704 | 1.2− | 0.2− | 2006 01 07 | G96 | (1.7− | 0.6−) | 2009 11 26 | 691 | 0.1− | 0.1− |
| 2004 09 22 | 704 | 0.4− | 1.3+ | 2006 01 08 | G96 | 0.5+ | 0.0 | 2009 11 26 | 691 | 0.1− | 0.0 |
| 2004 09 22 | 704 | 0.4+ | 0.4+ | 2006 01 08 | G96 | 0.4− | 0.3− | 2009 11 26 | 691 | 0.5− | 0.3− |
| 2004 10 07 | 691 | 0.2− | 0.4+ | 2006 01 08 | G96 | 0.1+ | 0.4− | 2009 12 16 | G96 | 1.0+ | 0.1+ |
| 2004 10 07 | 691 | 0.1− | 0.3+ | 2006 01 08 | G96 | 0.3− | 0.2+ | 2009 12 16 | G96 | 0.4+ | 0.3− |
| 2004 10 07 | 691 | 0.1− | 0.4+ | 2006 01 08 | 691 | 0.3+ | 0.3− | 2009 12 16 | G96 | 0.4+ | 0.2− |
| 2004 10 07 | 704 | 0.1− | 0.8+ | 2006 01 08 | 691 | 0.0 | 0.3− | 2009 12 16 | G96 | 0.4+ | 0.2− |
| 2004 10 07 | 704 | 0.7− | 1.3+ | 2006 01 08 | 691 | 0.1− | 0.1+ | | | | |

**(229151)∗ 2004 SY$_{37}$ = 1998 HL$_{26}$**

Discovered 2004 Sept. 17 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 70130)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 63.84362 | | (2000.0) | | | |
| $n$ | 0.21639241 | $\omega$ | 267.65673 | | +0.97001761 | −0.22847150 |
| $a$ | 2.7477341 | $\Omega$ | 105.54178 | | +0.24275853 | +0.89460822 |
| $e$ | 0.0879447 | $i$ | 4.93410 | | +0.01158148 | +0.38402721 |
| $P$ | 4.55 | $H$ | 15.8 | $G$ 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 04 20 | 691 | 0.4− | 0.2+ | 2004 10 07 | 704 | 0.5− | 0.4+ | 2006 01 30 | 691 | 0.4+ | 0.3+ |
| 1998 04 20 | 691 | 0.5− | 0.6+ | 2004 10 08 | 704 | 0.8− | 0.2+ | 2006 01 30 | 691 | 0.2+ | 0.5+ |
| 1998 04 20 | 691 | 0.3− | 0.1+ | 2004 10 08 | 704 | 0.6− | 0.8+ | 2006 01 30 | 691 | 0.3+ | 0.2+ |
| 1998 04 28 | 691 | 0.3+ | 0.4+ | 2004 10 08 | 699 | 1.4+ | 0.3− | 2006 02 21 | 699 | 0.3+ | 0.1− |
| 1998 04 28 | 691 | 0.2+ | 0.1+ | 2004 10 08 | 704 | 1.2− | 0.9+ | 2006 02 21 | 699 | 0.3+ | 0.2+ |
| 1998 04 28 | 691 | 0.5+ | 0.3+ | 2004 10 08 | 699 | 0.4− | 0.9+ | 2006 02 21 | 699 | (0.3− | 2.1+) |
| 1999 09 08 | 703 | 0.3+ | 0.6− | 2004 10 08 | 699 | 0.6− | 0.0 | 2006 02 21 | 699 | (1.5− | 1.1−) |
| 1999 09 08 | 703 | 0.4− | 0.4+ | 2004 10 08 | 699 | (0.0 | 1.7+) | 2007 04 22 | G96 | 0.3+ | 0.4− |
| 1999 09 08 | 703 | 0.1− | 0.3− | 2004 10 09 | 704 | 0.1+ | 0.0 | 2007 04 22 | G96 | 0.1− | 0.4− |
| 1999 09 08 | 703 | 0.7− | 0.7+ | 2004 10 09 | 704 | 0.3− | 0.7+ | 2007 04 22 | G96 | 0.5+ | 0.8− |
| 2000 12 17 | 691 | 0.2+ | 0.1− | 2004 10 09 | 704 | (1.1+ | 1.8+) | 2007 04 22 | G96 | 0.6+ | 0.3− |
| 2000 12 17 | 691 | 0.2+ | 0.3− | 2006 01 25 | 691 | 0.1− | 0.4+ | 2008 08 23 | E12 | 0.2+ | 0.7+ |
| 2000 12 17 | 691 | 0.6+ | 0.4− | 2006 01 25 | 691 | 0.8− | 0.1+ | 2008 08 23 | E12 | 0.4+ | 0.6+ |
| 2004 09 17 | 704 | 1.1+ | 0.7− | 2006 01 25 | 691 | 0.3− | 0.0 | 2008 08 23 | E12 | 0.2+ | 0.4+ |
| 2004 09 17 | 704 | 0.6− | 0.3− | 2006 01 26 | 703 | 0.4− | 0.9− | 2008 08 23 | E12 | 0.5+ | 0.1+ |
| 2004 09 17 | 704 | 0.4− | 0.0 | 2006 01 26 | 703 | (0.6+ | 1.6−) | 2009 12 17 | 704 | 0.6− | 0.0 |
| 2004 09 22 | 704 | 0.5+ | 1.1+ | 2006 01 26 | 703 | 1.5+ | 0.4− | 2009 12 17 | 704 | 1.1− | 0.7+ |
| 2004 09 22 | 704 | 0.2+ | 0.4− | 2006 01 26 | 703 | 0.6+ | 1.1+ | 2009 12 17 | 704 | 0.3+ | 0.4+ |
| 2004 09 22 | 704 | 0.7− | 0.2+ | 2006 01 27 | 699 | 1.4− | 0.5− | 2009 12 25 | 691 | 0.1+ | 0.2− |
| 2004 10 07 | 704 | 0.3+ | 0.2+ | 2006 01 27 | 699 | (1.1+ | 2.0+) | 2009 12 25 | 691 | 0.2− | 0.2+ |
| 2004 10 07 | 704 | 0.6− | 0.7+ | 2006 01 27 | 699 | (4.2+ | 0.1+) | 2009 12 25 | 691 | 0.1− | 0.2+ |
| 2004 10 07 | 704 | 0.2+ | 0.2+ | 2006 01 27 | 699 | (10.5+ | 0.5−) | | | | |

**(229152)∗ 2004 SY$_{40}$**

Discovered 2004 Sept. 17 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 7.90484 | | (2000.0) | | +0.96674571 | −0.24612884 |
| $n$ | 0.18997071 | $\omega$ | 352.30736 | | +0.24329730 | +0.80147388 |
| $a$ | 2.9969417 | $\Omega$ | 22.31673 | | +0.07879822 | +0.54503231 |
| $e$ | 0.1160500 | $i$ | 10.53845 | | | |
| $P$ | 5.19 | $H$ | 15.6 | $G$ 0.15 | $U$ 2 | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 10 12 | 704 | 0.8+ | 0.3+ | 2004 10 07 | 699 | 0.9− | 0.5− | 2007 03 20 | 691 | 0.4+ | 0.1− |
| 1999 10 12 | 704 | 0.7− | 0.6− | 2004 10 07 | 699 | 0.5− | 0.5+ | 2007 03 20 | 691 | 0.1+ | 0.3+ |
| 1999 10 12 | 704 | 0.7− | 0.2+ | 2004 10 07 | 699 | 0.4+ | 0.4− | 2007 04 20 | G96 | 0.8+ | 0.8+ |
| 2002 04 08 | 644 | 0.2+ | 0.6+ | 2004 10 07 | 699 | 0.2+ | 0.3+ | 2007 04 20 | G96 | 0.3+ | 0.1− |
| 2002 04 08 | 644 | 0.6+ | 0.9+ | 2004 10 09 | 704 | 0.2+ | 0.8+ | 2007 04 20 | G96 | 0.5+ | 0.1− |
| 2002 04 08 | 644 | 0.5+ | 1.0+ | 2004 10 09 | 704 | 0.6+ | 0.4+ | 2007 04 20 | G96 | 0.1+ | 0.2+ |
| 2004 09 09 | 691 | 0.0 | 0.0 | 2004 10 09 | 704 | 0.4+ | 0.6+ | 2009 09 19 | 703 | 0.5− | 1.3− |
| 2004 09 09 | 691 | 0.2+ | 0.1− | 2004 10 09 | 704 | 0.1− | 1.0+ | 2009 09 19 | 703 | 0.1+ | 0.3− |
| 2004 09 09 | 691 | 0.1+ | 0.2− | 2004 10 09 | 704 | 0.1− | 1.2+ | 2009 09 19 | 703 | 0.1− | 0.3− |
| 2004 09 17 | 699 | 0.5+ | 0.5− | 2004 10 14 | 704 | 0.9− | 0.6− | 2009 09 19 | 703 | 1.1− | 0.0 |
| 2004 09 17 | 699 | 0.3+ | 0.8− | 2004 10 14 | 704 | 0.6− | 0.2+ | 2009 09 20 | 704 | 0.2− | 1.0+ |
| 2004 09 17 | 699 | 1.0+ | 0.2+ | 2004 10 14 | 704 | 0.4− | 1.0+ | 2009 09 20 | 704 | 0.2− | 1.1+ |
| 2004 09 17 | 699 | 0.5+ | 0.1− | 2004 10 14 | 704 | 1.1− | 0.8+ | 2009 09 20 | 704 | 0.3− | 1.4+ |
| 2004 09 22 | 704 | 0.6+ | 0.2+ | 2004 10 20 | 704 | 0.8− | 0.1+ | 2009 09 20 | 704 | 0.7− | 0.8+ |
| 2004 09 22 | 704 | 0.6+ | 0.1− | 2004 10 20 | 704 | 0.2+ | 0.8+ | 2009 09 24 | G96 | 0.6+ | 0.0 |
| 2004 09 22 | 704 | 0.6+ | 0.8+ | 2004 10 20 | 704 | 0.1+ | 0.2− | 2009 09 24 | G96 | 0.1+ | 0.1− |
| 2004 09 22 | 704 | 1.1+ | 0.4+ | 2004 10 20 | 704 | 0.2+ | 0.5− | 2009 09 24 | G96 | 0.1+ | 0.0 |
| 2004 09 22 | 704 | 1.5+ | 0.0 | 2004 11 11 | 691 | 0.1+ | 0.0 | 2009 09 24 | G96 | 0.2+ | 0.1− |
| 2004 09 23 | 691 | 0.6− | 0.1+ | 2004 11 11 | 691 | 0.1− | 0.1− | 2009 10 23 | G96 | 0.5+ | 0.1+ |
| 2004 09 23 | 691 | 0.2+ | 0.0 | 2004 11 11 | 691 | 0.2− | 0.1+ | 2009 10 23 | G96 | 0.3+ | 0.1− |
| 2004 09 23 | 691 | 0.4+ | 0.0 | 2007 02 26 | G96 | 0.4+ | 0.1− | 2009 10 23 | G96 | 0.0 | 0.3− |
| 2004 10 04 | 699 | 1.4− | 1.3− | 2007 02 26 | G96 | 0.0 | 0.4− | 2009 10 23 | G96 | 0.2− | 0.0 |
| 2004 10 04 | 699 | 0.8− | 0.1− | 2007 02 26 | G96 | 0.1+ | 0.6− | 2009 12 12 | G96 | 0.1− | 0.1+ |
| 2004 10 04 | 699 | 0.9− | 1.5+ | 2007 02 26 | G96 | 0.1+ | 0.4− | 2009 12 12 | G96 | 0.2− | 0.3− |
| 2004 10 04 | 699 | 0.9− | 0.6+ | 2007 03 09 | 691 | 0.4− | 0.1− | 2009 12 12 | G96 | 0.8− | 0.0 |
| 2004 10 04 | 291 | 0.1+ | 0.4− | 2007 03 09 | 691 | 0.2− | 0.5+ | 2009 12 12 | G96 | 0.1− | 0.0 |
| 2004 10 04 | 291 | 0.0 | 0.0 | 2007 03 09 | 691 | 0.4+ | 0.0 | | | | |
| 2004 10 04 | 291 | 0.0 | 0.0 | 2007 03 20 | 691 | 0.2− | 0.3+ | | | | |

**(229153)∗ 2004 SZ$_{43}$**

Discovered 2004 Sept. 18 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 26.72631 | | (2000.0) | | +0.45127855 | −0.89003505 |
| $n$ | 0.21980625 | $\omega$ | 172.69452 | | +0.81523413 | +0.44066579 |
| $a$ | 2.7192097 | $\Omega$ | 250.46158 | | +0.36296141 | +0.11683868 |
| $e$ | 0.1511061 | $i$ | 3.93626 | | | |
| $P$ | 4.48 | $H$ | 15.7 | $G$ 0.15 | $U$ 0 | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 12 21 | 704 | 0.9+ | 0.6+ | 2004 09 18 | 704 | 0.2− | 0.5+ | 2004 10 21 | 704 | 0.1− | 0.6+ |
| 2000 12 21 | 704 | 0.3+ | 1.1− | 2004 09 18 | 704 | 0.3− | 0.5+ | 2004 10 21 | 704 | 1.1− | 0.5+ |
| 2000 12 21 | 704 | 0.4− | 0.1+ | 2004 09 18 | 704 | 0.2− | 0.4− | 2004 10 21 | 704 | 0.7− | 0.8+ |
| 2000 12 21 | 691 | 0.2− | 0.5− | 2004 09 18 | 704 | 0.1+ | 0.8+ | 2004 10 21 | 704 | 0.1− | 0.9+ |
| 2000 12 21 | 704 | 0.2+ | 0.3− | 2004 09 18 | 704 | 0.1+ | 0.1+ | 2006 02 02 | 691 | 0.4+ | 0.5+ |
| 2000 12 21 | 691 | 0.4− | 0.5− | 2004 09 18 | 704 | 0.5+ | 0.4+ | 2006 02 02 | 691 | 0.3+ | 0.5+ |
| 2000 12 21 | 704 | 1.2+ | 0.8− | 2004 09 22 | 704 | 0.2− | 0.6+ | 2006 02 02 | 691 | 0.5+ | 0.5+ |
| 2000 12 21 | 691 | 0.2− | 0.5− | 2004 09 22 | 704 | 0.6− | 0.1+ | 2006 02 07 | 703 | (1.5− | 0.6+) |
| 2000 12 30 | 704 | 0.5− | 0.0 | 2004 09 22 | 704 | 0.6+ | 0.3− | 2006 02 07 | 703 | 0.7+ | 0.9− |
| 2000 12 30 | 704 | 0.1− | 0.2+ | 2004 09 22 | 704 | 0.3− | 0.3+ | 2006 02 07 | 703 | 0.3+ | 1.1− |
| 2000 12 30 | 704 | 0.2− | 0.5+ | 2004 10 04 | 699 | (0.4− | 1.9−) | 2006 02 07 | 703 | 0.3− | 0.0 |
| 2000 12 30 | 704 | 0.1− | 0.6+ | 2004 10 04 | 699 | 0.1+ | 0.2+ | 2008 08 02 | A50 | 0.5− | 0.4+ |
| 2000 12 30 | 704 | 1.0− | 1.4+ | 2004 10 04 | 699 | (0.1− | 2.0−) | 2008 08 20 | 691 | 0.4− | 0.2− |
| 2003 05 31 | 807 | 0.6− | 0.2+ | 2004 10 04 | 699 | 0.1− | 0.4− | 2008 08 20 | 691 | 0.4− | 0.4+ |
| 2003 05 31 | 807 | 0.1− | 0.1+ | 2004 10 07 | 699 | 0.5− | 0.2− | 2008 08 20 | 691 | 0.2− | 0.0 |
| 2004 09 10 | 615 | 0.0 | 0.0 | 2004 10 07 | 699 | 0.2+ | 0.3− | 2008 08 26 | J75 | 1.0+ | 0.8+ |
| 2004 09 10 | 615 | 0.2− | 0.0 | 2004 10 07 | 699 | 1.4− | 0.3− | 2008 08 26 | J75 | 0.2+ | 0.5− |
| 2004 09 10 | 615 | 0.2− | 0.1+ | 2004 10 07 | 699 | 0.3+ | 0.4− | 2008 08 26 | J75 | 0.1+ | 0.4− |
| 2004 09 10 | 704 | 0.1+ | 0.1+ | 2004 10 10 | 704 | 0.1− | 0.1+ | 2009 12 16 | 691 | 0.1+ | 0.1+ |
| 2004 09 10 | 704 | 0.5+ | 0.0 | 2004 10 10 | 704 | 0.7+ | 0.6+ | 2009 12 16 | 691 | 0.1+ | 0.0 |
| 2004 09 10 | 704 | 0.3− | 0.0 | 2004 10 10 | 704 | 0.1− | 0.3− | 2009 12 16 | 691 | 0.1+ | 0.2+ |
| 2004 09 18 | 704 | 0.1− | 0.3+ | 2004 10 10 | 704 | 0.2+ | 0.2+ | 2009 12 17 | 704 | 0.1+ | 0.0 |
| 2004 09 18 | 704 | 0.9+ | 0.2− | 2004 10 10 | 704 | 0.1− | 0.5+ | 2009 12 17 | 704 | 1.7+ | 0.5− |
| 2004 09 18 | 704 | 0.2+ | 0.3+ | 2004 10 11 | 691 | 0.3+ | 0.2− | 2009 12 17 | 704 | 0.9+ | 0.6− |
| 2004 09 18 | 704 | 0.1− | 0.3+ | 2004 10 11 | 691 | 0.1+ | 0.1− | 2009 12 17 | 704 | 1.0+ | 0.3− |
| 2004 09 18 | 704 | 0.2+ | 0.3− | 2004 10 11 | 691 | 0.1+ | 0.1− | 2009 12 20 | 691 | 2.1− | 0.8+ |
| 2004 09 18 | 704 | 0.2+ | 0.7+ | 2004 10 15 | 691 | 0.2+ | 0.0 | 2009 12 20 | 691 | 0.3+ | 0.2+ |
| 2004 09 18 | 704 | 0.6+ | 0.7+ | 2004 10 15 | 691 | 0.3+ | 0.2− | 2009 12 20 | 691 | 0.3+ | 0.0 |
| 2004 09 18 | 704 | 0.1+ | 0.2− | 2004 10 15 | 691 | 0.3+ | 0.2− | | | | |
| 2004 09 18 | 704 | 0.2− | 0.3+ | 2004 10 21 | 704 | 0.4− | 0.5+ | | | | |

**(229154)∗ 2004 SG$_{49}$**

Discovered 2004 Sept. 21 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 48.97866 | | (2000.0) | | +0.95481085 | −0.22068748 |
| $n$ | 0.21363861 | $\omega$ | 238.55859 | | +0.26156061 | +0.94201718 |
| $a$ | 2.7712958 | $\Omega$ | 133.34103 | | −0.14114632 | +0.25278581 |
| $e$ | 0.1107289 | $i$ | 15.88654 | | | |
| $P$ | 4.61 | $H$ | 15.4 | $G$ 0.15 | $U$ 1 | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 07 | 704 | 0.4+ | 0.4+ | 2006 01 23 | 704 | 0.1− | 1.2+ | 2006 02 24 | G96 | 0.2− | 0.0 |
| 2004 09 07 | 704 | 0.5− | 0.5− | 2006 01 23 | 704 | 1.2+ | 0.5+ | 2006 02 24 | G96 | 0.1− | 0.0 |
| 2004 09 07 | 704 | 0.1+ | 0.1+ | 2006 01 23 | 704 | 0.1− | 0.7+ | 2006 03 24 | G96 | 0.6− | 0.2− |
| 2004 09 21 | 704 | 0.1+ | 0.4+ | 2006 01 27 | 699 | 0.1− | 0.5− | 2006 03 24 | G96 | 0.1+ | 0.4− |
| 2004 09 21 | 704 | 0.6− | 1.0+ | 2006 01 27 | 699 | 0.2− | 0.7− | 2006 03 24 | G96 | 0.2+ | 0.1+ |
| 2004 09 21 | 704 | 1.0− | 0.1+ | 2006 01 27 | 699 | 1.2+ | 0.6+ | 2006 03 24 | G96 | 0.3− | 0.0 |
| 2004 09 21 | 704 | 0.1− | 0.6+ | 2006 01 27 | 699 | 0.4+ | 0.7− | 2007 04 18 | 703 | 0.0 | 1.2− |
| 2004 09 21 | 704 | 0.3− | 0.2+ | 2006 01 29 | 703 | (1.7− | 0.4−) | 2007 04 18 | 703 | 0.3+ | 0.3− |
| 2004 09 23 | 704 | 0.5− | 0.6+ | 2006 01 29 | 703 | 0.3− | 0.1+ | 2007 04 18 | 703 | 0.5+ | 1.2+ |
| 2004 09 23 | 704 | 0.2− | 1.2+ | 2006 01 29 | 703 | 0.7− | 0.2− | 2007 04 18 | 703 | 1.2− | 0.9− |
| 2004 09 23 | 704 | 0.3+ | 1.3+ | 2006 01 29 | 703 | 0.2− | 0.6+ | 2009 09 17 | 703 | 0.6+ | 0.8+ |
| 2004 09 23 | 704 | 0.2+ | 1.0+ | 2006 02 04 | G96 | 0.6− | 0.5− | 2009 09 17 | 703 | 0.4− | 0.2− |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 06 | 704 | 0.5− | 1.3− | 2006 02 04 | G96 | 0.6− | 0.4− | 2009 09 17 | 703 | 0.2+ | 0.4− |
| 2004 10 06 | 704 | 0.4+ | 0.4− | 2006 02 04 | G96 | 0.4− | 0.6− | 2009 09 17 | 703 | (2.4− | 0.0 ) |
| 2004 10 06 | 704 | 0.2− | 0.4− | 2006 02 04 | G96 | 0.3− | 0.6− | 2009 09 26 | 703 | 1.4+ | 0.4− |
| 2004 10 06 | 704 | 0.8+ | 1.3− | 2006 02 20 | 691 | 0.2+ | 0.0 | 2009 09 26 | 703 | 0.5+ | 0.5− |
| 2004 10 13 | 704 | 0.2+ | 1.0− | 2006 02 20 | 691 | 0.2+ | 0.3− | 2009 09 26 | 703 | 0.5+ | 0.6− |
| 2004 10 13 | 704 | 0.4− | 1.3− | 2006 02 20 | 691 | 0.1+ | 0.1+ | 2009 09 26 | 703 | 1.0− | 0.2+ |
| 2004 10 13 | 704 | 1.4+ | 0.7+ | 2006 02 24 | 291 | 0.0 | 0.5+ | 2009 12 17 | 703 | 0.3+ | 0.4+ |
| 2006 01 10 | 691 | 0.1− | 0.1− | 2006 02 24 | 291 | 0.0 | 0.3+ | 2009 12 17 | 703 | 0.8− | 0.7− |
| 2006 01 10 | 691 | 0.2− | 0.2− | 2006 02 24 | 291 | 0.0 | 0.2+ | 2009 12 17 | 703 | 0.2− | 0.2− |
| 2006 01 10 | 691 | 0.0 | 0.0 | 2006 02 24 | G96 | 0.2− | 0.2+ | 2009 12 17 | 703 | 0.2− | 0.9− |
| 2006 01 23 | 704 | 0.6+ | 0.8+ | 2006 02 24 | G96 | 0.2− | 0.0 | | | | |

**(229155)∗ 2004 SP$_{54}$**

Discovered 2004 Sept. 22 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 54.24316 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21186105 | $\omega$ | 284.51435 | | +0.96858794 | | −0.22696026 |
| $a$ | 2.7867754 | $\Omega$ | 88.68018 | | +0.24867063 | | +0.88310045 |
| $e$ | 0.1696356 | $i$ | 5.83396 | | +0.00055969 | | +0.41063687 |
| $P$ | 4.65 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 08 20 | 703 | 0.3− | 1.1+ | 2004 11 03 | 699 | 0.6+ | 0.2− | 2007 04 20 | H07 | (0.2− | 2.2+) |
| 2004 08 20 | 703 | 0.9− | 0.2− | 2004 11 03 | 699 | 0.2+ | 0.1+ | 2007 05 07 | 691 | 0.0 | 0.4+ |
| 2004 08 20 | 703 | 0.1− | 0.5+ | 2004 11 03 | 699 | 0.1+ | 0.7+ | 2007 05 07 | 691 | 0.3− | 0.2− |
| 2004 08 20 | 703 | (1.8− | 0.8−) | 2004 11 03 | 699 | 0.1+ | 1.2− | 2007 05 07 | 691 | 0.4+ | 0.0 |
| 2004 09 22 | 704 | 0.3+ | 0.7− | 2006 02 01 | 691 | 0.1+ | 0.0 | 2007 05 11 | 691 | 0.4+ | 0.4+ |
| 2004 09 22 | 704 | 0.2− | 0.0 | 2006 02 01 | 691 | 0.2− | 0.4− | 2007 05 11 | 691 | 0.6− | 0.2− |
| 2004 09 22 | 704 | 0.2− | 0.3+ | 2006 02 01 | 691 | 0.0 | 0.1− | 2007 05 11 | 691 | 0.1− | 0.4+ |
| 2004 09 24 | 704 | 0.4− | 0.6+ | 2007 03 15 | G96 | 0.4+ | 0.3+ | 2009 11 16 | 691 | 0.0 | 0.2− |
| 2004 09 24 | 704 | 0.1− | 0.1+ | 2007 03 15 | G96 | 0.0 | 0.3+ | 2009 11 16 | 691 | 0.0 | 0.2− |
| 2004 09 24 | 704 | 0.7− | 0.0 | 2007 03 15 | G96 | 0.3+ | 0.3+ | 2009 11 16 | 691 | 0.3− | 0.4+ |
| 2004 09 24 | 704 | 0.6+ | 0.1+ | 2007 03 15 | G96 | 0.1− | 0.3+ | 2009 11 24 | 691 | 0.2− | 0.4+ |
| 2004 10 07 | 704 | 0.2+ | 0.3− | 2007 03 16 | G96 | 0.0 | 0.3− | 2009 11 24 | 691 | 0.0 | 0.3− |
| 2004 10 07 | 704 | 0.0 | 0.2− | 2007 03 16 | G96 | 0.2− | 0.4− | 2009 11 24 | 691 | 0.1− | 0.7+ |
| 2004 10 07 | 704 | 0.0 | 0.2+ | 2007 03 16 | G96 | 0.1− | 0.1− | 2009 12 10 | G96 | 1.0+ | 0.6− |
| 2004 10 07 | 704 | 0.4− | 0.6+ | 2007 03 16 | G96 | 0.3− | 0.1+ | 2009 12 10 | G96 | 0.4+ | 0.5− |
| 2004 10 09 | 704 | 0.1+ | 0.3+ | 2007 04 15 | 691 | 0.5+ | 0.1− | 2009 12 10 | G96 | 0.2+ | 0.6− |
| 2004 10 09 | 704 | 0.2+ | 0.2+ | 2007 04 15 | 691 | 0.1+ | 0.2+ | 2009 12 17 | 704 | 0.1+ | 1.2+ |
| 2004 10 09 | 704 | 0.1+ | 0.2+ | 2007 04 15 | 691 | 0.1+ | 0.0 | 2009 12 17 | 704 | 0.6− | 0.0 |
| 2004 10 09 | 704 | 0.1− | 0.1+ | 2007 04 20 | H07 | 1.0+ | 1.2+ | 2009 12 17 | 704 | 0.4+ | 0.8+ |
| 2004 10 18 | 704 | 0.3+ | 0.1+ | 2007 04 20 | H07 | (0.5− | 1.7+) | 2009 12 17 | 704 | 0.1+ | 0.3+ |
| 2004 10 18 | 704 | 0.0 | 0.0 | 2007 04 20 | H07 | (1.1− | 2.0+) | 2009 12 17 | 704 | 0.1+ | 0.1+ |
| 2004 10 18 | 704 | 0.2− | 0.3+ | 2007 04 20 | H07 | 0.3− | 1.2+ | | | | |
| 2004 10 18 | 704 | 0.7− | 0.1− | 2007 04 20 | H07 | (0.8− | 1.7+) | | | | |

**(229156)∗ 2004 TU = 2002 GK$_{43}$**

Discovered 2004 Oct. 4 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Id. G. V. Williams (*MPO* 73247)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 1.74654 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21291616 | $\omega$ | 60.60618 | | +0.36722469 | | −0.93009981 |
| $a$ | 2.7775611 | $\Omega$ | 7.86112 | | +0.83248116 | | +0.32493348 |
| $e$ | 0.0733884 | $i$ | 3.25683 | | +0.41487486 | | +0.17126756 |
| $P$ | 4.63 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 04 04 | 644 | 0.0 | 0.1+ | 2004 10 13 | 691 | 0.1+ | 0.1+ | 2009 11 08 | 703 | 0.4− | 0.2− |
| 2002 04 04 | 644 | 0.4+ | 0.3− | 2004 10 13 | 691 | 0.1+ | 0.3+ | 2009 11 08 | 703 | 0.7+ | 0.2− |
| 2002 04 04 | 644 | 0.2+ | 0.1− | 2006 01 20 | 703 | 1.0− | 0.3− | 2009 11 09 | 691 | 0.1− | 0.2+ |
| 2002 04 05 | 644 | 0.7+ | 0.5+ | 2006 01 20 | 703 | (2.0− | 1.1−) | 2009 11 09 | 691 | 0.1+ | 0.0 |
| 2002 04 05 | 644 | 1.0+ | 1.0+ | 2006 01 20 | 703 | 0.4− | 0.9− | 2009 11 09 | 691 | 0.1− | 0.2+ |
| 2002 04 05 | 644 | 0.7+ | 0.9+ | 2006 01 20 | 703 | 0.1+ | 0.5+ | 2009 11 09 | 691 | 0.2− | 0.1− |
| 2002 04 14 | 704 | (0.6+ | 2.0+) | 2006 01 23 | 691 | 0.3− | 0.3+ | 2009 11 09 | 691 | 0.1+ | 0.0 |
| 2002 04 14 | 704 | 1.1+ | 0.7+ | 2006 01 23 | 691 | 0.0 | 0.3+ | 2009 11 09 | 691 | 0.0 | 0.0 |
| 2002 04 14 | 704 | 0.5+ | 0.6+ | 2006 01 23 | 691 | 0.0 | 0.1+ | 2009 11 17 | 691 | 0.1− | 0.2+ |
| 2004 09 09 | 599 | 0.7− | 0.0 | 2006 01 26 | 703 | 0.3− | 0.7− | 2009 11 17 | 691 | 0.0 | 0.1− |
| 2004 09 09 | 599 | 0.0 | 0.3− | 2006 01 26 | 703 | (2.2+ | 2.8−) | 2009 11 17 | 691 | 0.2− | 0.0 |
| 2004 09 09 | 599 | 0.3− | 0.6− | 2006 01 26 | 703 | 0.6+ | 0.4− | 2009 11 17 | 691 | 0.1+ | 0.2+ |
| 2004 09 13 | 699 | 0.0 | 0.1− | 2006 01 26 | 703 | 1.1+ | 0.2− | 2009 11 17 | 691 | 0.1− | 0.0 |
| 2004 09 13 | 699 | 0.0 | 0.9− | 2006 01 27 | 699 | 0.4+ | 0.8− | 2009 11 17 | 691 | 0.2+ | 0.1− |
| 2004 09 13 | 699 | 1.0− | 0.2− | 2006 01 27 | 699 | 0.8+ | 0.3+ | 2009 11 17 | 704 | 1.2+ | 0.8+ |
| 2004 09 13 | 699 | 0.1− | 0.8− | 2006 01 27 | 699 | 0.9− | 0.7− | 2009 11 17 | 704 | 0.9+ | 1.3+ |
| 2004 10 04 | 699 | 0.3+ | 0.0 | 2006 01 27 | 699 | 0.2+ | 0.9− | 2009 11 17 | 704 | 1.0+ | 1.0+ |
| 2004 10 04 | 699 | 1.4+ | 0.2+ | 2006 01 28 | G96 | 0.3− | 0.3− | 2009 11 17 | 704 | 0.8+ | 0.2+ |
| 2004 10 04 | 699 | 0.3− | 0.4− | 2006 01 28 | G96 | 0.4− | 0.1− | 2009 11 17 | 704 | 0.2− | 0.4+ |
| 2004 10 04 | 291 | 0.2− | 0.2+ | 2006 01 28 | G96 | 0.1+ | 0.1− | 2009 11 21 | 691 | 0.1+ | 0.1− |
| 2004 10 04 | 699 | 0.1+ | 0.7+ | 2006 01 28 | G96 | 0.0 | 0.4− | 2009 11 21 | 691 | 1.3− | 0.2− |
| 2004 10 04 | G92 | 0.6+ | 0.1+ | 2006 02 03 | 691 | 0.2− | 0.1+ | 2009 11 21 | 691 | 0.0 | 0.2− |
| 2004 10 04 | 291 | 0.4− | 0.2+ | 2006 02 03 | 691 | 0.0 | 0.2+ | 2009 11 24 | D29 | 0.0 | 1.1+ |
| 2004 10 04 | 291 | 0.2− | 0.0 | 2006 02 03 | 691 | 0.2− | 0.2+ | 2009 11 24 | D29 | (1.9+ | 0.0 ) |
| 2004 10 04 | G92 | 0.2+ | 0.0 | 2006 02 07 | 691 | 0.4+ | 0.1+ | 2009 11 24 | D29 | 1.1+ | 0.2+ |
| 2004 10 04 | G92 | 0.7+ | 0.3+ | 2006 02 07 | 691 | 0.0 | 0.2+ | 2009 11 24 | D29 | 0.1− | 0.8+ |
| 2004 10 05 | G92 | 0.1− | 0.3+ | 2006 02 07 | 691 | 0.1+ | 0.2+ | 2009 11 24 | J75 | 0.3+ | 0.0 |
| 2004 10 05 | G92 | 0.2− | 0.2+ | 2006 02 21 | 699 | 0.8+ | 0.7− | 2009 11 24 | J75 | 0.5+ | 0.4− |
| 2004 10 05 | G92 | 0.1− | 0.7+ | 2006 02 21 | 699 | 0.1− | 0.2+ | 2009 11 24 | J75 | 0.4− | 0.5− |
| 2004 10 07 | 699 | 0.4− | 0.5+ | 2006 02 21 | 699 | 1.3− | 0.7− | 2009 11 24 | J75 | 0.2+ | 0.2− |
| 2004 10 07 | 699 | 0.2− | 0.6− | 2006 02 21 | 699 | 0.4− | 0.7+ | 2009 11 24 | J75 | 0.5− | 0.9− |
| 2004 10 07 | 699 | (1.7− | 0.3+) | 2007 04 20 | G96 | 0.1+ | 0.4+ | 2009 11 24 | J75 | 1.5+ | 0.6− |
| 2004 10 07 | 699 | 0.5− | 0.1− | 2007 04 20 | G96 | 0.1+ | 0.4+ | 2009 12 19 | G96 | 0.3+ | 0.3− |
| 2004 10 07 | 691 | 0.2− | 0.2+ | 2007 04 20 | G96 | 0.5− | 1.0+ | 2009 12 19 | G96 | 0.1+ | 0.3− |
| 2004 10 07 | 691 | 0.1− | 0.2+ | 2007 04 20 | G96 | 0.2− | 0.6+ | 2009 12 19 | G96 | 0.4+ | 0.0 |
| 2004 10 07 | 691 | 0.0 | 0.3+ | 2009 11 08 | 703 | 0.1− | 1.4− | 2009 12 19 | G96 | 0.5+ | 0.1− |
| 2004 10 13 | 691 | 0.0 | 0.2+ | 2009 11 08 | 703 | 0.4− | 0.3+ | | | | |

**(229157)∗ 2004 TC$_2$ = 2005 YC$_{217}$**

Discovered 2004 Oct. 4 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 95473)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 87.47157 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21437618 | $\omega$ | 325.79716 | | +0.86221318 | | +0.50649871 |
| $a$ | 2.7649356 | $\Omega$ | 3.79174 | | −0.43832935 | | +0.75284850 |
| $e$ | 0.0718484 | $i$ | 5.98117 | | −0.25388148 | | +0.42033105 |
| $P$ | 4.60 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 17 | 704 | 0.6− | 0.2− | 2004 10 12 | 691 | 0.2− | 0.2+ | 2009 10 26 | 691 | 0.1+ | 0.1− |
| 2004 09 17 | 704 | 0.5− | 0.6− | 2004 10 14 | 691 | 0.9+ | 0.5− | 2009 10 26 | 691 | 0.1− | 0.2− |
| 2004 09 17 | 704 | 0.3+ | 0.9+ | 2004 10 14 | 691 | 0.2+ | 0.2+ | 2009 10 26 | 691 | 0.4+ | 0.4+ |
| 2004 10 04 | 691 | 0.2− | 0.2+ | 2004 10 14 | 691 | 0.0 | 0.4+ | 2009 11 09 | G96 | 0.2+ | 0.2− |
| 2004 10 04 | 691 | 0.2− | 0.1+ | 2005 12 30 | 691 | 0.2− | 0.4+ | 2009 11 09 | G96 | 0.1− | 0.1+ |
| 2004 10 04 | 691 | 0.1− | 0.1+ | 2005 12 30 | 691 | 0.2+ | 0.1+ | 2009 11 09 | G96 | 0.1− | 0.0 |
| 2004 10 05 | 699 | 0.3+ | 0.2− | 2005 12 30 | 691 | 0.1+ | 0.1+ | 2009 11 09 | G96 | 0.1− | 0.1+ |
| 2004 10 05 | 699 | 0.0 | 0.4+ | 2006 01 05 | 703 | 0.2− | 0.0 | 2009 11 10 | 703 | 0.0 | 0.7+ |
| 2004 10 05 | 699 | 0.7+ | 0.9+ | 2006 01 05 | 703 | 0.5− | 0.6− | 2009 11 10 | 703 | 0.7− | 0.5− |
| 2004 10 05 | 699 | 0.0 | 0.2+ | 2006 01 05 | 703 | 0.7− | 0.5+ | 2009 11 10 | 703 | 0.5+ | 0.3− |
| 2004 10 07 | 704 | 1.1− | 0.6+ | 2006 01 05 | 703 | 0.4+ | 0.2− | 2009 11 10 | 703 | 0.8− | 1.1− |
| 2004 10 07 | 704 | 0.8+ | 0.4+ | 2006 01 06 | 704 | 0.4+ | 0.6+ | 2009 11 11 | 691 | 0.5− | 0.2− |
| 2004 10 07 | 704 | 0.6− | 0.8− | 2006 01 06 | 704 | 0.1+ | 0.1+ | 2009 11 11 | 691 | 0.1+ | 0.2− |
| 2004 10 08 | 691 | 0.0 | 0.1− | 2006 01 06 | 704 | 0.4+ | 0.7− | 2009 11 11 | 691 | 0.0 | 0.1− |
| 2004 10 08 | 691 | 0.1− | 0.0 | 2006 01 07 | 691 | 0.0 | 0.1− | 2009 11 11 | 704 | (1.7+ | 0.3+) |
| 2004 10 08 | 699 | 0.8− | 0.1+ | 2006 01 07 | 691 | 0.0 | 0.0 | 2009 11 11 | 704 | 0.3− | 0.3− |
| 2004 10 08 | 691 | 0.0 | 0.0 | 2006 01 07 | 691 | 0.0 | 0.2− | 2009 11 11 | 704 | 0.1− | 0.6+ |
| 2004 10 08 | 699 | 0.7− | 0.3+ | 2007 03 09 | 691 | 0.5+ | 0.1+ | 2009 11 11 | 704 | (0.0 | 1.8+) |
| 2004 10 08 | 699 | 0.1− | 0.1+ | 2007 03 09 | 691 | 0.1+ | 0.1− | 2009 11 16 | 704 | 0.0 | 0.9+ |
| 2004 10 08 | 699 | 0.8− | 0.3+ | 2007 03 09 | 691 | 0.1+ | 0.0 | 2009 11 16 | 704 | 0.2+ | 0.5+ |
| 2004 10 09 | 704 | 0.2− | 0.6+ | 2007 03 13 | 691 | 0.1− | 0.6+ | 2009 11 16 | 704 | 0.4+ | 1.2+ |
| 2004 10 09 | 704 | 0.4− | 0.4+ | 2007 03 13 | 691 | 0.1− | 0.5+ | 2009 12 20 | G96 | 0.1+ | 0.3− |
| 2004 10 09 | 704 | 0.1− | 0.7− | 2007 03 13 | 691 | 0.1− | 0.0 | 2009 12 20 | G96 | 0.1+ | 0.3− |
| 2004 10 09 | 704 | 0.0 | 1.1+ | 2007 03 18 | 691 | 0.0 | 0.0 | 2009 12 20 | G96 | 0.7+ | 0.2− |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 12 | 691 | 0.1− | 0.2− | 2007 03 18 | 691 | 0.2+ | 0.1+ | 2009 12 20 | G96 | 0.2+ | 0.2− |
| 2004 10 12 | 691 | 0.0 | 0.1− | 2007 03 18 | 691 | 0.0 | 0.3+ | | | | |

**(229158)∗ 2004 TF$_4$**

Discovered 2004 Oct. 4 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 104.38296 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21783501 | $\omega$ | 270.24620 | | +0.80330061 | | +0.59516614 |
| $a$ | 2.7355895 | $\Omega$ | 53.22942 | | −0.53490506 | | +0.73724402 |
| $e$ | 0.0990808 | $i$ | 1.57604 | | −0.26188681 | | +0.31976322 |
| $P$ | 4.52 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 09 05 | 691 | 0.2+ | 0.1− | 2005 12 22 | 691 | 0.2+ | 0.0 | 2007 05 09 | G96 | 0.2+ | 0.2+ |
| 1999 09 05 | 691 | 0.0 | 0.0 | 2005 12 22 | 691 | 0.0 | 0.5− | 2007 05 09 | G96 | 0.2+ | 0.3+ |
| 1999 09 05 | 691 | 0.1+ | 0.1+ | 2005 12 22 | 691 | 0.0 | 0.0 | 2007 05 09 | G96 | 0.4− | 0.1+ |
| 2004 09 09 | 691 | 0.1+ | 0.0 | 2005 12 26 | 691 | 0.4+ | 0.2+ | 2008 09 25 | G96 | (0.7− | 1.8−) |
| 2004 09 09 | 691 | 0.1+ | 0.3+ | 2005 12 26 | 691 | 0.2+ | 0.2+ | 2008 09 25 | G96 | 0.2+ | 0.1− |
| 2004 09 09 | 691 | 0.0 | 0.2+ | 2005 12 26 | 691 | 0.1+ | 0.3+ | 2008 09 25 | G96 | 0.6+ | 0.2− |
| 2004 09 22 | 691 | 0.1− | 0.0 | 2005 12 27 | G96 | 0.9− | 0.3− | 2008 09 25 | G96 | 0.5+ | 0.2+ |
| 2004 09 22 | 691 | 0.1+ | 0.1+ | 2005 12 27 | G96 | 1.0− | 0.6+ | 2009 11 08 | G96 | 0.1+ | 0.2+ |
| 2004 09 22 | 691 | 0.1+ | 0.2+ | 2005 12 27 | G96 | 0.4− | 0.0 | 2009 11 08 | G96 | 0.8+ | 0.0 |
| 2004 10 04 | 291 | 0.3− | 0.2+ | 2005 12 27 | G96 | 1.0+ | 0.1+ | 2009 11 08 | G96 | 0.7− | 0.4− |
| 2004 10 04 | 291 | 0.7− | 0.3+ | 2007 03 13 | 691 | 0.0 | 0.1+ | 2009 11 08 | G96 | 0.7+ | 0.1− |
| 2004 10 04 | 291 | 0.6− | 0.0 | 2007 03 13 | 691 | 0.2+ | 0.5+ | 2009 11 09 | 691 | 0.0 | 0.1− |
| 2004 10 06 | 691 | 0.0 | 0.1+ | 2007 03 13 | 691 | 0.3− | 0.0 | 2009 11 09 | 691 | 0.0 | 0.3− |
| 2004 10 06 | 691 | 0.0 | 0.0 | 2007 03 20 | G96 | 0.5− | 0.3+ | 2009 11 09 | 691 | 0.3− | 0.0 |
| 2004 10 06 | 691 | 0.1− | 0.1− | 2007 03 20 | G96 | 0.3+ | 0.1+ | 2009 12 16 | G96 | 0.0 | 0.1− |
| 2004 10 14 | 691 | 0.1+ | 0.2− | 2007 03 20 | G96 | 0.0 | 0.1+ | 2009 12 16 | G96 | 0.6+ | 0.1− |
| 2004 10 14 | 691 | 0.1− | 0.1+ | 2007 03 20 | G96 | 0.3− | 0.4+ | 2009 12 16 | G96 | 0.4+ | 0.2− |
| 2004 10 14 | 691 | 0.3+ | 0.0 | 2007 05 09 | G96 | 0.8+ | 0.4+ | 2009 12 16 | G96 | 0.2+ | 0.1− |

**(229159)∗ 2004 TW$_{14}$**

Discovered 2004 Oct. 10 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 101.92817 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21346185 | $\omega$ | 60.68571 | | +0.62518644 | | +0.77004602 |
| $a$ | 2.7728255 | $\Omega$ | 248.57098 | | −0.75506501 | | +0.55551254 |
| $e$ | 0.2419765 | $i$ | 7.85168 | | −0.19753162 | | +0.31374345 |
| $P$ | 4.62 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 09 09 | 704 | 0.4+ | 0.0 | 2004 10 11 | 152 | 1.2+ | 0.2+ | 2004 11 04 | 703 | 0.2− | 0.9− |
| 1999 09 09 | 704 | 0.6− | 0.0 | 2004 10 11 | 152 | 1.2+ | 0.4+ | 2004 11 04 | 703 | 0.2+ | 0.7+ |
| 1999 09 09 | 704 | 0.6+ | 0.8− | 2004 10 11 | 152 | 0.6+ | 0.9+ | 2004 11 04 | 703 | 0.6− | 0.2+ |
| 1999 09 09 | 704 | 0.2+ | 0.1− | 2004 10 11 | 152 | 0.6− | 0.5+ | 2004 11 12 | 703 | 0.1+ | 0.9− |
| 1999 09 09 | 704 | 0.3− | 0.9− | 2004 10 11 | 152 | 0.8+ | 0.8+ | 2004 11 12 | 703 | 0.3− | 0.6− |
| 1999 09 30 | 703 | 0.0 | 1.0+ | 2004 10 12 | 152 | 0.1− | 0.2+ | 2004 11 12 | 703 | 0.5− | 0.0 |
| 1999 09 30 | 703 | 0.3− | 0.2+ | 2004 10 12 | 152 | 0.3+ | 0.0 | 2004 11 12 | 703 | 0.8+ | 1.1− |
| 1999 09 30 | 703 | 0.9+ | 0.4+ | 2004 10 12 | 152 | 0.5− | 0.3− | 2009 11 17 | 114 | 0.4+ | 0.3− |
| 1999 09 30 | 703 | 0.5+ | 0.3+ | 2004 10 12 | 152 | 0.1+ | 0.4− | 2009 11 17 | 114 | 0.7+ | 0.1− |
| 1999 10 13 | 645 | 0.0 | 0.0 | 2004 10 12 | 152 | 0.2− | 0.3+ | 2009 11 17 | 114 | 1.2+ | 0.3− |
| 1999 10 13 | 645 | 0.0 | 0.0 | 2004 10 12 | 152 | 1.0+ | 0.4− | 2009 11 17 | 114 | 0.3+ | 0.5− |
| 1999 10 16 | 645 | 0.0 | 0.0 | 2004 10 12 | 152 | 0.5+ | 0.5+ | 2009 11 17 | 114 | (1.7+ | 0.1+) |
| 1999 10 16 | 645 | 0.1− | 0.1− | 2004 10 12 | 152 | 0.3+ | 0.5− | 2009 11 18 | 291 | 0.2− | 0.2− |
| 2003 04 30 | 704 | 0.1− | 0.9+ | 2004 10 12 | 152 | 0.2− | 0.5+ | 2009 11 18 | 291 | 0.9− | 0.4+ |
| 2003 04 30 | 704 | 0.1+ | 0.2+ | 2004 10 12 | 152 | 0.1+ | 0.2+ | 2009 11 18 | 291 | 0.6+ | 0.9+ |
| 2003 04 30 | 704 | 0.3+ | 0.2− | 2004 10 15 | 152 | 0.1+ | 0.2+ | 2009 11 20 | 691 | 0.2− | 0.2− |
| 2003 04 30 | 704 | 0.1+ | 0.2+ | 2004 10 15 | 152 | 0.6− | 0.1− | 2009 11 20 | 691 | 0.4− | 0.0 |
| 2004 09 23 | 704 | (1.1+ | 1.8+) | 2004 10 21 | 704 | 0.2+ | 0.9+ | 2009 11 20 | 691 | 0.4− | 0.3− |
| 2004 09 23 | 704 | 0.4+ | 0.4+ | 2004 10 21 | 704 | 0.3− | 0.6+ | 2009 12 15 | G96 | 0.4+ | 0.4− |
| 2004 09 23 | 704 | 0.3− | 0.6+ | 2004 10 21 | 704 | 0.5− | 0.6− | 2009 12 15 | G96 | 0.5+ | 0.2− |
| 2004 10 10 | 704 | 0.3− | 0.5+ | 2004 10 21 | 704 | 0.3− | 0.2+ | 2009 12 15 | G96 | 0.5+ | 0.5− |
| 2004 10 10 | 704 | 0.2− | 0.1− | 2004 10 21 | 704 | 0.5− | 0.0 | 2009 12 15 | G96 | 0.7+ | 0.3− |
| 2004 10 10 | 704 | 0.4+ | 0.2− | 2004 11 04 | 703 | 0.9− | 0.3− | | | | |

**(229160)∗ 2004 TW$_{42}$ = 2005 YL$_{251}$ = 2008 SF$_{97}$**

Discovered 2004 Oct. 4 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 146194), A. Doppler (*MPO* 158841)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 260.63775 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23966808 | $\omega$ | 333.44817 | | −0.72049994 | | +0.69194315 |
| $a$ | 2.5668230 | $\Omega$ | 250.41497 | | −0.62728323 | | −0.67846173 |
| $e$ | 0.1216222 | $i$ | 2.78431 | | −0.29562744 | | −0.24678809 |
| $P$ | 4.11 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1992 11 24 | 691 | 0.7− | 0.2− | 2006 01 08 | G96 | 0.4− | 0.2+ | 2008 10 10 | 291 | 0.1− | 0.1+ |
| 1992 11 24 | 691 | (0.3− | 2.2−) | 2006 01 08 | G96 | 0.1+ | 0.1− | 2008 10 10 | 291 | 0.3− | 0.1+ |
| 1992 11 24 | 691 | 0.3− | 0.8− | 2006 01 24 | 691 | 0.1+ | 0.3+ | 2008 10 10 | 291 | 0.1− | 0.2+ |
| 1996 11 09 | 691 | 0.4+ | 0.4− | 2006 01 24 | 691 | 0.2+ | 0.3+ | 2008 10 24 | G96 | 0.7+ | 0.9− |
| 1996 11 09 | 691 | (5.6+ | 0.8−) | 2006 01 24 | 691 | 0.2+ | 0.5+ | 2008 10 24 | G96 | 0.7+ | 0.1+ |
| 1996 11 09 | 691 | 0.5+ | 0.8− | 2008 09 21 | 691 | 0.2− | 0.0 | 2008 10 24 | G96 | 0.3+ | 0.2+ |
| 2002 02 16 | 644 | 0.2− | 0.2− | 2008 09 21 | 691 | 0.0 | 0.2− | 2008 10 24 | G96 | 0.4+ | 0.0 |
| 2002 02 16 | 644 | 0.3+ | 0.1− | 2008 09 21 | 691 | 0.5− | 0.2− | 2008 11 08 | G96 | 0.4+ | 0.1+ |
| 2002 02 16 | 644 | 0.1+ | 0.5− | 2008 09 25 | 691 | 0.1− | 0.1− | 2008 11 08 | G96 | 0.2+ | 0.4+ |
| 2004 10 04 | 691 | 0.1+ | 0.2+ | 2008 09 25 | 691 | 0.2− | 0.0 | 2008 11 08 | G96 | 0.4+ | 0.0 |
| 2004 10 04 | 691 | 0.0 | 0.4+ | 2008 09 25 | 691 | 0.0 | 0.0 | 2008 11 08 | G96 | 0.6+ | 0.5+ |
| 2004 10 04 | 691 | 0.3+ | 0.4+ | 2008 09 29 | 691 | 0.1+ | 0.0 | 2009 12 15 | G96 | 0.3+ | 0.0 |
| 2004 10 07 | 691 | 0.1+ | 0.4+ | 2008 09 29 | 691 | 0.1− | 0.0 | 2009 12 15 | G96 | 0.6+ | 1.0− |
| 2004 10 07 | 691 | 0.2+ | 0.4+ | 2008 09 29 | 691 | 0.2− | 0.0 | 2009 12 15 | G96 | 0.5+ | 0.2− |
| 2004 10 07 | 691 | 0.1+ | 0.4+ | 2008 10 03 | 691 | 0.4− | 0.1+ | 2009 12 15 | G96 | 0.2+ | 0.1− |
| 2004 10 15 | 691 | 0.2+ | 0.0 | 2008 10 03 | 691 | 0.0 | 0.1− | 2009 12 17 | 691 | 0.2+ | 0.1− |
| 2004 10 15 | 691 | 0.4+ | 0.2+ | 2008 10 03 | 691 | 0.7− | 0.5− | 2009 12 17 | 691 | 0.0 | 0.0 |
| 2004 10 15 | 691 | 0.2+ | 0.0 | 2008 10 07 | 691 | 0.1− | 0.2+ | 2009 12 17 | 691 | 0.3+ | 0.2− |
| 2005 12 28 | 691 | 0.1+ | 0.4+ | 2008 10 07 | 691 | 0.1+ | 0.1− | 2009 12 25 | 691 | 0.0 | 0.3− |
| 2005 12 28 | 691 | 0.2+ | 0.5+ | 2008 10 07 | 691 | 0.1− | 0.0 | 2009 12 25 | 691 | 0.8− | 0.2+ |
| 2005 12 28 | 691 | 0.3+ | 0.2+ | 2008 10 08 | 291 | 0.0 | 0.0 | 2009 12 25 | 691 | 0.5− | 0.3− |
| 2006 01 08 | G96 | 0.1− | 0.3− | 2008 10 08 | 291 | 0.2− | 0.1+ | | | | |
| 2006 01 08 | G96 | 0.2− | 0.0 | 2008 10 08 | 291 | 0.3+ | 0.1+ | | | | |

**(229161)∗ 2004 TL$_{52}$**

Discovered 2004 Oct. 4 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 10.09704 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18447966 | $\omega$ | 85.74690 | | +0.96007423 | | −0.27945732 |
| $a$ | 3.0561199 | $\Omega$ | 290.48054 | | +0.25098769 | | +0.88052770 |
| $e$ | 0.1074705 | $i$ | 0.77625 | | +0.12354207 | | +0.38285058 |
| $P$ | 5.34 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 04 | 691 | 0.1− | 0.2− | 2004 11 19 | 703 | 0.3+ | 0.4+ | 2007 03 20 | 691 | 0.1+ | 0.1− |
| 2004 10 04 | 691 | 0.3− | 0.4+ | 2004 12 10 | 691 | 0.2− | 0.2− | 2007 03 20 | 691 | 0.1− | 0.4+ |
| 2004 10 04 | 691 | 0.5+ | 0.4− | 2004 12 10 | 691 | 0.6+ | 0.3− | 2007 03 26 | 691 | 0.2+ | 0.5+ |
| 2004 10 08 | 691 | 0.1− | 0.0 | 2004 12 10 | 691 | 0.2+ | 0.3− | 2007 03 26 | 691 | 0.3− | 0.4+ |
| 2004 10 08 | 691 | 0.0 | 0.2+ | 2006 01 20 | 691 | 0.5+ | 0.3+ | 2007 03 26 | 691 | 0.2− | 0.0 |
| 2004 10 08 | 691 | 0.0 | 0.2+ | 2006 01 20 | 691 | 0.0 | 0.3+ | 2007 04 18 | G96 | 0.6+ | 0.0 |
| 2004 10 18 | 695 | 0.1− | 0.0 | 2006 01 20 | 691 | 0.1− | 0.0 | 2007 04 18 | G96 | 0.3+ | 0.2− |
| 2004 10 18 | 695 | 0.0 | 0.0 | 2006 01 24 | 691 | 0.1− | 0.1+ | 2007 04 18 | G96 | 0.0 | 0.4− |
| 2004 11 04 | 691 | 0.1+ | 0.1− | 2006 01 24 | 691 | 0.5+ | 0.2− | 2007 04 18 | G96 | 0.1+ | 0.4− |
| 2004 11 04 | 691 | 0.1− | 0.1+ | 2006 01 24 | 691 | 0.2+ | 0.2− | 2009 09 19 | 691 | 0.4− | 0.4+ |
| 2004 11 04 | 691 | 0.1− | 0.2+ | 2006 02 02 | 691 | 0.1+ | 0.2+ | 2009 09 19 | 691 | 0.0 | 0.3+ |
| 2004 11 04 | 703 | 0.1− | 0.4− | 2006 02 02 | 691 | 0.0 | 0.1− | 2009 09 19 | 691 | 0.2− | 0.4+ |
| 2004 11 04 | 703 | 0.2− | 0.9− | 2006 02 02 | 691 | 0.9− | 0.5+ | 2009 09 27 | G96 | 0.3+ | 0.0 |
| 2004 11 04 | 703 | 0.1+ | 1.1− | 2007 03 10 | G96 | 0.3− | 1.1− | 2009 09 27 | G96 | 0.4+ | 0.1+ |
| 2004 11 04 | 703 | 0.6− | 0.2− | 2007 03 10 | G96 | 0.0 | 0.0 | 2009 09 27 | G96 | 0.1− | 0.0 |
| 2004 11 07 | 704 | 0.7+ | 0.1+ | 2007 03 10 | G96 | 0.0 | 0.1+ | 2009 12 11 | G96 | 0.2− | 0.3+ |
| 2004 11 07 | 704 | 0.5+ | 0.3− | 2007 03 10 | G96 | 0.4+ | 0.0 | 2009 12 11 | G96 | 0.1− | 0.3+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 11 07 | 704 | 0.9+ | 0.4− | 2007 03 15 | 691 | 0.1− | 0.3− | 2009 12 11 | G96 | 0.1− | 0.6+ | | |
| 2004 11 19 | 703 | 0.8− | 1.4+ | 2007 03 15 | 691 | 0.2− | 0.2− | 2009 12 11 | G96 | 0.1− | 0.1− | | |
| 2004 11 19 | 703 | 1.0− | 0.1− | 2007 03 15 | 691 | 0.1− | 0.2+ | | | | | | |
| 2004 11 19 | 703 | 0.4− | 0.2− | 2007 03 20 | 691 | 0.4+ | 0.1+ | | | | | | |

**(229162)∗ 2004 TU$_{65}$**

Discovered 2004 Oct. 5 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 90.87527 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.22141805 | $\omega$ | 308.47802 | | | +0.95473960 | | +0.28973563 | |
| $a$ | 2.7059974 | $\Omega$ | 34.82789 | | | −0.22277293 | | +0.84639614 | |
| $e$ | 0.0947291 | $i$ | 6.76466 | | | −0.19709011 | | +0.44684095 | |
| $P$ | 4.45 | $H$ | 16.0 | $G$ | 0.15 | | $U$ | 0 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 03 11 | 644 | 0.8+ | 0.4+ | 2004 10 13 | 691 | 0.1− | 0.0 | 2007 04 11 | 691 | 0.6+ | 0.2− | | |
| 2002 03 11 | 644 | 0.8+ | 0.6+ | 2004 10 13 | 691 | 0.4− | 0.0 | 2007 04 11 | 691 | 0.1− | 0.0 | | |
| 2002 03 11 | 644 | 0.6+ | 0.5+ | 2004 10 13 | 691 | 0.1− | 0.0 | 2007 04 24 | 291 | 0.1− | 0.5+ | | |
| 2004 09 22 | 704 | 1.2+ | 0.3− | 2004 10 13 | 291 | 0.2+ | 0.1+ | 2007 04 24 | 291 | 0.4+ | 0.5+ | | |
| 2004 09 22 | 704 | 0.3− | 0.1− | 2004 10 13 | 291 | 0.4+ | 0.2+ | 2007 04 24 | 291 | 0.1− | 0.4+ | | |
| 2004 09 22 | 704 | 0.1+ | 0.4+ | 2004 10 13 | 291 | 0.3+ | 0.1− | 2008 08 04 | E12 | 0.5+ | 0.3+ | | |
| 2004 09 22 | 704 | 0.0 | 0.5− | 2004 10 14 | 291 | 0.2− | 0.3+ | 2008 08 04 | E12 | 0.1+ | 1.1+ | | |
| 2004 09 22 | 704 | 0.4− | 0.6− | 2004 10 14 | 291 | 0.3− | 0.4+ | 2008 08 04 | E12 | 0.3− | 0.4+ | | |
| 2004 10 05 | 699 | 0.3+ | 1.1+ | 2004 10 14 | 291 | 0.3− | 0.4+ | 2009 08 28 | 691 | 0.0 | 0.1− | | |
| 2004 10 05 | 699 | 0.2− | 0.6− | 2004 10 14 | 704 | 0.2+ | 0.4− | 2009 08 28 | 691 | 0.1+ | 0.2+ | | |
| 2004 10 05 | 699 | 0.6− | 0.7+ | 2004 10 14 | 704 | 0.6− | 0.8− | 2009 08 28 | 691 | 0.0 | 0.1+ | | |
| 2004 10 05 | 699 | 0.3− | 0.2+ | 2004 10 14 | 704 | 0.5− | 0.0 | 2009 11 10 | 691 | 0.0 | 0.2+ | | |
| 2004 10 07 | 704 | 0.2− | 0.7+ | 2004 11 10 | 695 | 0.0 | 0.1+ | 2009 11 10 | 691 | 0.1+ | 0.3− | | |
| 2004 10 07 | 704 | 0.4− | 0.3− | 2004 11 10 | 695 | 0.0 | 0.1+ | 2009 11 10 | 691 | 0.1− | 0.0 | | |
| 2004 10 07 | 704 | 0.5− | 0.7+ | 2004 11 11 | 695 | 0.0 | 0.2+ | 2009 11 19 | 691 | 0.1− | 0.0 | | |
| 2004 10 07 | 704 | 1.3− | 0.5+ | 2004 11 11 | 695 | 0.1− | 0.2+ | 2009 11 19 | 691 | 0.0 | 0.2+ | | |
| 2004 10 07 | 704 | 0.2− | 0.9+ | 2007 03 13 | G96 | 0.5+ | 0.5+ | 2009 11 19 | 691 | 0.2+ | 0.0 | | |
| 2004 10 09 | 691 | 0.1− | 0.1− | 2007 03 13 | G96 | 0.2+ | 0.5+ | 2009 11 22 | 691 | 0.4− | 0.1− | | |
| 2004 10 09 | 704 | 0.7+ | 0.8− | 2007 03 13 | G96 | 0.3+ | 0.2+ | 2009 11 22 | 691 | 0.0 | 0.2+ | | |
| 2004 10 09 | 691 | 0.2− | 0.1+ | 2007 03 13 | G96 | 0.6− | 0.0 | 2009 11 22 | 691 | 0.1− | 0.1+ | | |
| 2004 10 09 | 704 | 1.0+ | 0.8+ | 2007 03 26 | 691 | (2.0− | 0.3+) | 2009 12 18 | G96 | 0.3+ | 0.1− | | |
| 2004 10 09 | 704 | 0.3+ | 0.3− | 2007 03 26 | 691 | 0.2+ | 0.1+ | 2009 12 18 | G96 | 0.3+ | 0.2− | | |
| 2004 10 09 | 691 | 0.0 | 0.0 | 2007 03 26 | 691 | 0.1+ | 0.1− | 2009 12 18 | G96 | 0.3+ | 0.1+ | | |
| 2004 10 09 | 704 | 0.2+ | 0.7+ | 2007 04 11 | 691 | 0.4− | 0.6+ | 2009 12 18 | G96 | 0.4+ | 0.1+ | | |

**(229163)∗ 2004 TC$_{67}$**

Discovered 2004 Oct. 5 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 101.59633 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.22330581 | $\omega$ | 236.51553 | | | +0.87480027 | | +0.47244310 | |
| $a$ | 2.6907253 | $\Omega$ | 95.08322 | | | −0.40103715 | | +0.83044086 | |
| $e$ | 0.2683524 | $i$ | 6.18646 | | | −0.27183393 | | +0.29523803 | |
| $P$ | 4.41 | $H$ | 16.0 | $G$ | 0.15 | | $U$ | 1 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 04 11 | 691 | 0.0 | 0.5+ | 2004 10 09 | 704 | 0.1− | 0.2+ | 2008 08 23 | 704 | 0.1+ | 0.2+ | | |
| 2003 04 11 | 691 | 0.3+ | 0.5+ | 2004 10 09 | 704 | 0.5− | 0.1− | 2008 08 23 | 704 | 0.4− | 0.0 | | |
| 2003 04 11 | 691 | 0.0 | 0.6+ | 2004 11 02 | 699 | 0.1+ | 0.4− | 2008 08 23 | 704 | 0.6− | 0.8+ | | |
| 2004 08 11 | 704 | 0.3− | 0.0 | 2004 11 02 | 699 | 1.1− | 0.2− | 2008 08 23 | 704 | 0.8− | 0.2− | | |
| 2004 08 11 | 704 | 0.9+ | 0.6+ | 2004 11 02 | 699 | (1.9− | 2.0−) | 2008 09 20 | E12 | 1.3− | 1.2+ | | |
| 2004 08 11 | 704 | 0.3+ | 1.4+ | 2004 11 02 | 644 | 0.6− | 0.5− | 2008 09 20 | E12 | 0.1− | 0.0 | | |
| 2004 08 11 | 704 | 0.1+ | 1.1+ | 2004 11 02 | 699 | 0.1− | 0.1− | 2008 09 20 | E12 | 0.6+ | 0.2+ | | |
| 2004 09 24 | 704 | 1.5+ | 0.2− | 2004 11 02 | 644 | 0.3− | 0.2+ | 2008 09 20 | E12 | 0.2+ | 0.0 | | |
| 2004 09 24 | 704 | 0.0 | 0.4− | 2004 11 02 | 644 | 0.3− | 0.3+ | 2008 09 23 | 704 | 0.5+ | 0.1− | | |
| 2004 09 24 | 704 | 0.2− | 0.7− | 2004 12 10 | 201 | 0.1− | 0.2− | 2008 09 23 | 704 | 0.2− | 0.2+ | | |
| 2004 09 24 | 704 | (0.0 | 1.9−) | 2004 12 10 | 201 | 0.6+ | 0.3− | 2008 09 23 | 704 | 0.1− | 0.6+ | | |
| 2004 10 05 | 699 | 0.1+ | 0.1+ | 2006 01 07 | 691 | 0.2+ | 0.3+ | 2008 09 23 | 704 | 0.2− | 0.3− | | |
| 2004 10 05 | 699 | 0.0 | 0.5+ | 2006 01 07 | 691 | 0.4+ | 0.4+ | 2009 11 17 | G96 | 0.3+ | 0.4− | | |
| 2004 10 05 | 699 | 0.8− | 0.2+ | 2006 01 07 | 691 | 0.3+ | 0.3+ | 2009 11 17 | G96 | 0.3+ | 0.0 | | |
| 2004 10 05 | 699 | 1.0− | 0.1+ | 2007 03 11 | 691 | 0.3− | 0.2+ | 2009 11 17 | G96 | 0.1− | 0.2− | | |
| 2004 10 07 | 699 | 0.3− | 0.8+ | 2007 03 11 | 691 | 0.3− | 0.4− | 2009 11 17 | G96 | 0.4+ | 0.1+ | | |
| 2004 10 07 | 699 | 0.5+ | 0.2− | 2007 03 11 | 691 | 0.6+ | 0.0 | 2009 12 16 | G96 | 0.6+ | 0.0 | | |
| 2004 10 07 | 699 | 0.6+ | 0.0 | 2008 07 28 | E12 | 0.2+ | 0.2− | 2009 12 16 | G96 | 0.9+ | 0.0 | | |
| 2004 10 07 | 699 | 0.7+ | 0.2+ | 2008 07 28 | E12 | 0.1− | 1.4+ | 2009 12 16 | G96 | 0.4+ | 0.4− | | |
| 2004 10 07 | 704 | 0.6+ | 0.6+ | 2008 07 28 | E12 | 0.5+ | 0.2+ | 2009 12 16 | G96 | 0.6+ | 0.2− | | |
| 2004 10 07 | 704 | 0.2− | 0.4+ | 2008 07 28 | E12 | 0.5+ | 0.5+ | 2009 12 20 | 691 | 0.6− | 0.0 | | |
| 2004 10 07 | 704 | 0.1+ | 1.4+ | 2008 08 03 | 704 | 0.8− | 1.2− | 2009 12 20 | 691 | 0.8− | 0.1+ | | |
| 2004 10 07 | 704 | 0.8− | 0.0 | 2008 08 03 | 704 | 0.7+ | 0.5− | 2009 12 20 | 691 | 0.2+ | 0.1+ | | |
| 2004 10 07 | 704 | 0.0 | 0.7− | 2008 08 03 | 704 | 0.7+ | 0.3− | | | | | | |
| 2004 10 09 | 704 | 0.7− | 0.7+ | 2008 08 03 | 704 | 0.2+ | 0.2− | | | | | | |

**(229164)∗ 2004 TA$_{75}$**

Discovered 2004 Oct. 6 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 54.53911 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.21499547 | $\omega$ | 0.01576 | | | +0.86530679 | | −0.50033781 | |
| $a$ | 2.7596236 | $\Omega$ | 30.06651 | | | +0.45987454 | | +0.76856734 | |
| $e$ | 0.1430224 | $i$ | 3.44480 | | | +0.19939803 | | +0.39870581 | |
| $P$ | 4.58 | $H$ | 15.7 | $G$ | 0.15 | | $U$ | 1 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1992 01 31 | 691 | 0.1− | 0.1+ | 2004 10 09 | 704 | (0.0 | 3.2+) | 2004 11 18 | 704 | 0.5− | 0.1+ | | |
| 1992 01 31 | 691 | 0.1+ | 0.0 | 2004 10 10 | 691 | 0.1− | 0.1− | 2004 11 18 | 704 | 0.1− | 0.2− | | |
| 1992 01 31 | 691 | 0.6− | 0.2− | 2004 10 10 | 691 | 0.1+ | 0.1− | 2004 11 18 | 704 | 0.4− | 0.8− | | |
| 1999 09 07 | 704 | 0.4− | 0.2− | 2004 10 10 | 691 | 0.1+ | 0.1− | 2004 11 18 | 704 | 0.0 | 1.3− | | |
| 1999 09 07 | 704 | 0.2+ | 0.4+ | 2004 10 14 | 704 | 0.3− | 0.5+ | 2004 11 19 | 703 | 0.2+ | 0.1− | | |
| 1999 09 07 | 704 | 0.2+ | 0.9+ | 2004 10 14 | 704 | 0.4+ | 0.4− | 2004 11 19 | 703 | 0.3− | 0.6+ | | |
| 1999 09 07 | 704 | 0.5+ | 1.6+ | 2004 10 14 | 704 | 1.0− | 0.8+ | 2004 11 19 | 703 | 0.5− | 0.1+ | | |
| 2001 01 04 | 704 | 0.1− | 0.6− | 2004 10 14 | 704 | 0.0 | 0.6− | 2004 11 19 | 703 | 0.6+ | 0.4+ | | |
| 2001 01 04 | 704 | 0.2− | 0.5− | 2004 10 14 | 691 | 0.2+ | 0.2− | 2006 01 31 | 691 | 0.1+ | 0.2+ | | |
| 2001 01 04 | 704 | 0.5+ | 0.7− | 2004 10 14 | 691 | 0.1+ | 0.0 | 2006 01 31 | 691 | 0.2+ | 0.1+ | | |
| 2001 01 19 | 704 | 0.3+ | 0.2− | 2004 10 14 | 691 | 0.4+ | 0.2− | 2006 01 31 | 691 | 0.1+ | 0.3− | | |
| 2001 01 19 | 704 | 0.5+ | 0.9+ | 2004 10 20 | 704 | 0.6− | 0.0 | 2006 02 22 | 699 | 0.4− | 0.4− | | |
| 2001 01 19 | 704 | 0.6+ | 0.7− | 2004 10 20 | 704 | 0.7− | 0.2+ | 2006 02 22 | 699 | 0.5− | 0.1+ | | |
| 2001 01 19 | 704 | 0.4+ | 0.1− | 2004 10 20 | 704 | 0.4− | 0.5− | 2006 02 22 | 699 | 1.4− | 0.9+ | | |
| 2001 01 19 | 704 | 0.3+ | 0.7+ | 2004 10 20 | 704 | 0.3− | 0.7+ | 2006 02 22 | 699 | (1.4− | 1.8+) | | |
| 2002 04 07 | 807 | 0.3+ | 0.2+ | 2004 10 21 | 704 | 0.2− | 0.7+ | 2007 05 09 | G96 | 0.8+ | 0.1− | | |
| 2002 04 07 | 807 | 0.3+ | 0.4+ | 2004 10 21 | 704 | 0.4− | 0.1+ | 2007 05 09 | G96 | 0.1− | 0.5+ | | |
| 2002 04 14 | 704 | 0.9+ | 1.2+ | 2004 10 21 | 704 | 0.4− | 0.4+ | 2007 05 09 | G96 | 0.3− | 0.5+ | | |
| 2002 04 14 | 704 | 1.3+ | 0.7+ | 2004 10 21 | 704 | 0.5− | 0.4+ | 2007 05 09 | G96 | 0.4− | 0.5+ | | |
| 2002 04 14 | 704 | (1.9+ | 1.0+) | 2004 10 21 | 704 | 0.4− | 0.1+ | 2008 10 27 | G96 | 0.3− | 0.4+ | | |
| 2004 10 06 | 691 | 0.2+ | 0.0 | 2004 11 04 | 691 | 0.2− | 0.0 | 2008 10 27 | G96 | 0.6− | 0.2− | | |
| 2004 10 06 | 691 | 0.0 | 0.1− | 2004 11 04 | 691 | 0.2− | 0.2− | 2008 10 27 | G96 | 0.4− | 0.2− | | |
| 2004 10 06 | 691 | 0.3+ | 0.0 | 2004 11 04 | 691 | 0.1− | 0.2− | 2008 10 27 | G96 | 0.7− | 0.0 | | |
| 2004 10 07 | 699 | 0.3− | 0.3+ | 2004 11 07 | 704 | 0.0 | 0.4− | 2009 12 10 | 704 | 0.4+ | 0.0 | | |
| 2004 10 07 | 699 | 0.1− | 0.8+ | 2004 11 07 | 704 | 0.2+ | 0.5− | 2009 12 10 | 704 | 0.2+ | 0.6+ | | |
| 2004 10 07 | 699 | 0.3− | 0.0 | 2004 11 07 | 704 | 0.2− | 0.2+ | 2009 12 10 | 704 | 0.6+ | 0.2− | | |
| 2004 10 07 | 699 | 1.1+ | 0.0 | 2004 11 07 | 704 | 0.8− | 0.4− | 2009 12 16 | 704 | 0.4+ | 0.3+ | | |
| 2004 10 09 | 704 | 0.0 | 0.4+ | 2004 11 10 | 608 | 0.4+ | 0.5+ | 2009 12 16 | 704 | 0.8− | 0.9+ | | |
| 2004 10 09 | 704 | 0.0 | 0.7+ | 2004 11 10 | 608 | 0.4+ | 0.7+ | 2009 12 16 | 704 | 0.2+ | 1.4+ | | |
| 2004 10 09 | 704 | 0.8+ | 0.3+ | 2004 11 10 | 608 | 0.7+ | 0.6+ | 2009 12 16 | 704 | 0.5− | 1.5+ | | |

**(229165)∗ 2004 TK$_{75}$**

Discovered 2004 Oct. 6 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 100.95352 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.22672783 | $\omega$ | 152.64195 | | | +0.99957092 | | +0.00895195 | |
| $a$ | 2.6635826 | $\Omega$ | 206.88894 | | | −0.01806878 | | +0.93785424 | |
| $e$ | 0.1267038 | $i$ | 3.53550 | | | +0.02305406 | | +0.34691395 | |
| $P$ | 4.35 | $H$ | 16.1 | $G$ | 0.15 | | $U$ | 0 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1991 11 06 | 691 | 0.0 | 0.5+ | 2004 11 12 | 703 | 0.9− | 0.5+ | 2008 09 05 | 691 | 0.1− | 0.4+ | | |
| 1991 11 06 | 691 | 0.5− | 0.8+ | 2004 11 12 | 703 | 0.8− | 1.3− | 2008 09 22 | G96 | 0.2− | 0.3− | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1991 11 06 | 691 | 0.8− | 0.3+ | 2004 11 19 | 703 | (0.2+ | 1.6−) | 2008 09 22 | G96 | 0.4+ | 0.2− | | |
| 2002 03 10 | 691 | 0.8+ | 0.6+ | 2004 11 19 | 703 | 0.4+ | 0.1− | 2008 09 22 | 704 | 0.1+ | 0.5+ | | |
| 2002 03 10 | 691 | 0.7+ | 0.1+ | 2004 11 19 | 703 | 0.0 | 1.0+ | 2008 09 22 | G96 | 0.2− | 0.0 | | |
| 2002 03 10 | 691 | 0.9+ | 0.6+ | 2004 11 19 | 703 | 0.3− | 0.1− | 2008 09 22 | 704 | 0.6− | 0.4+ | | |
| 2004 10 06 | 691 | 0.1+ | 0.1− | 2004 12 02 | G92 | 0.5− | 1.2− | 2008 09 22 | G96 | 0.1− | 0.2− | | |
| 2004 10 06 | 691 | 0.1+ | 0.1+ | 2004 12 02 | G92 | 0.0 | 0.4− | 2008 09 22 | 704 | 0.3− | 0.9+ | | |
| 2004 10 06 | 691 | 0.2− | 0.1+ | 2004 12 02 | G92 | 0.4+ | 0.2− | 2008 09 22 | 704 | 0.0 | 1.0+ | | |
| 2004 10 07 | 291 | 0.1+ | 0.3+ | 2006 02 02 | 691 | 0.6+ | 0.4+ | 2008 09 22 | 704 | 0.2− | 0.8+ | | |
| 2004 10 07 | 291 | 0.1+ | 0.2+ | 2006 02 02 | 691 | 0.1+ | 0.4+ | 2008 09 24 | 704 | 0.3− | 0.2− | | |
| 2004 10 07 | 291 | 0.3+ | 0.2+ | 2006 02 02 | 691 | 0.2− | 0.4+ | 2008 09 24 | 704 | 0.6− | 0.3+ | | |
| 2004 10 10 | 691 | 0.1+ | 0.2− | 2007 04 15 | 691 | 0.0 | 0.1+ | 2008 09 24 | 704 | 0.4− | 0.2+ | | |
| 2004 10 10 | 691 | 0.0 | 0.3− | 2007 04 15 | 691 | 0.2− | 0.3+ | 2008 09 24 | 704 | 0.3− | 0.2+ | | |
| 2004 10 10 | 691 | 0.3+ | 0.0 | 2007 04 15 | 691 | 0.1+ | 0.1− | 2008 09 24 | 704 | 0.7− | 0.1− | | |
| 2004 10 14 | 704 | 1.3+ | 0.4− | 2007 04 19 | 691 | 0.1− | 0.2+ | 2008 09 25 | G96 | 0.1+ | 0.4− | | |
| 2004 10 14 | 704 | 0.6− | 0.4− | 2007 04 19 | 691 | 0.2− | 0.2+ | 2008 09 25 | G96 | 0.2+ | 0.2+ | | |
| 2004 10 14 | 704 | 0.4+ | 0.1+ | 2007 04 19 | 691 | 0.1+ | 0.0 | 2008 09 25 | G96 | 0.1+ | 0.2− | | |
| 2004 10 14 | 704 | 0.1− | 0.4− | 2007 04 23 | 691 | 0.2+ | 0.6+ | 2008 09 25 | G96 | 0.2+ | 0.1− | | |
| 2004 10 14 | 704 | 1.3+ | 0.4+ | 2007 04 23 | 691 | 0.1− | 0.0 | 2008 09 25 | G96 | 0.1+ | 0.1+ | | |
| 2004 10 20 | 704 | (1.8− | 0.4−) | 2007 04 23 | 691 | 0.1− | 0.2+ | 2008 09 25 | G96 | 0.4+ | 0.1+ | | |
| 2004 10 20 | 704 | 0.9+ | 0.6+ | 2008 08 24 | J75 | 0.2− | 0.2− | 2008 09 25 | G96 | 0.4+ | 0.1+ | | |
| 2004 10 20 | 704 | 0.3+ | 0.1+ | 2008 08 24 | J75 | 0.1+ | 0.5− | 2008 09 25 | G96 | 0.2+ | 0.0 | | |
| 2004 10 20 | 704 | 0.5+ | 0.6+ | 2008 08 24 | J75 | 0.1− | 0.4− | 2008 09 25 | G96 | 0.0 | 0.0 | | |
| 2004 10 21 | 017 | 0.4+ | 1.1+ | 2008 08 24 | 704 | 0.8+ | 1.0− | 2008 09 25 | G96 | 0.3+ | 0.1+ | | |
| 2004 10 21 | 017 | 0.2+ | 0.0 | 2008 08 24 | 704 | 0.5− | 1.3+ | 2008 09 25 | G96 | 0.2+ | 0.1− | | |
| 2004 10 24 | 017 | 1.0+ | 0.5+ | 2008 08 24 | 704 | 0.4+ | 0.6+ | 2008 09 25 | G96 | 0.5+ | 0.7− | | |
| 2004 10 24 | 017 | 0.0 | 0.2− | 2008 08 24 | 704 | 0.2+ | 1.4+ | 2008 10 01 | 703 | (0.2− | 1.6−) | | |
| 2004 11 03 | 691 | 0.0 | 0.1+ | 2008 08 24 | 704 | 0.4+ | 0.5+ | 2008 10 01 | 703 | 0.2− | 0.8− | | |
| 2004 11 03 | 691 | 0.3+ | 0.2+ | 2008 08 25 | J75 | 0.0 | 0.2+ | 2008 10 01 | 703 | 0.1− | 1.4− | | |
| 2004 11 03 | 691 | 0.1+ | 0.1+ | 2008 08 25 | J75 | 0.3+ | 0.1+ | 2008 10 01 | 703 | 0.0 | 0.1− | | |
| 2004 11 07 | 704 | 1.1− | 0.8− | 2008 08 25 | J75 | 0.0 | 0.0 | 2009 12 19 | 691 | 0.4− | 0.1− | | |
| 2004 11 07 | 704 | 0.6+ | 0.5− | 2008 09 05 | A50 | 1.0− | 0.3− | 2009 12 19 | 691 | 0.0 | 0.2− | | |
| 2004 11 07 | 704 | 0.1− | 0.8− | 2008 09 05 | A50 | 1.1− | 0.1+ | 2009 12 19 | 691 | 0.6− | 0.2− | | |
| 2004 11 11 | 695 | 0.1− | 0.2− | 2008 09 05 | A50 | 0.6− | 0.4+ | 2009 12 27 | 691 | 0.2− | 0.1+ | | |
| 2004 11 11 | 695 | 0.1− | 0.1− | 2008 09 05 | A50 | 0.6− | 0.6+ | 2009 12 27 | 691 | 0.4− | 0.1− | | |
| 2004 11 12 | 703 | 0.2+ | 0.4+ | 2008 09 05 | 691 | 0.3− | 0.3+ | 2009 12 27 | 691 | 0.5− | 0.1+ | | |
| 2004 11 12 | 703 | 0.3+ | 0.2+ | 2008 09 05 | 691 | 0.2− | 0.5+ | | | | | | |

**(229166)∗ 2004 TP$_{96}$**

Discovered 2004 Oct. 5 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 22.76340 | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.21411829 | $\omega$ | 294.40508 | | +0.58546895 | | −0.81063906 | |
| $a$ | 2.7671553 | $\Omega$ | 119.75544 | | +0.74770937 | | +0.53541181 | |
| $e$ | 0.0624568 | $i$ | 0.62760 | | +0.31329986 | | +0.23706227 | |
| $P$ | 4.60 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 0 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 05 | 691 | 0.0 | 0.1− | 2006 02 20 | G96 | 0.1− | 0.3+ | 2009 11 20 | 691 | 0.0 | 0.0 | | |
| 2004 10 05 | 691 | 0.1+ | 0.1+ | 2007 04 26 | 691 | 0.2− | 0.1− | 2009 11 20 | 691 | 0.2− | 0.0 | | |
| 2004 10 05 | 691 | 0.0 | 0.0 | 2007 04 26 | 691 | 0.0 | 0.2− | 2009 11 20 | 691 | 0.8− | 0.4+ | | |
| 2004 10 09 | 691 | 0.1− | 0.1+ | 2007 04 26 | 691 | 0.3+ | 0.1+ | 2009 11 27 | G96 | 0.6+ | 0.0 | | |
| 2004 10 09 | 691 | 0.1− | 0.0 | 2007 05 09 | G96 | 0.1+ | 0.0 | 2009 11 27 | G96 | 0.8+ | 0.3− | | |
| 2004 10 09 | 691 | 0.3+ | 0.1+ | 2007 05 09 | G96 | 0.4− | 0.3+ | 2009 11 27 | G96 | 0.6+ | 0.0 | | |
| 2004 10 15 | G96 | 0.1+ | 0.5− | 2007 05 09 | G96 | 0.1+ | 0.1+ | 2009 11 27 | G96 | 0.6+ | 0.1+ | | |
| 2004 10 15 | G96 | 0.4− | 0.2− | 2007 05 09 | G96 | 0.1− | 0.4+ | 2009 11 27 | G96 | 0.1+ | 0.2+ | | |
| 2004 10 15 | G96 | 0.1+ | 0.5− | 2008 09 20 | G96 | 0.1+ | 0.4− | 2009 12 10 | G96 | 0.4+ | 0.2− | | |
| 2004 10 15 | G96 | 0.2+ | 0.9− | 2008 09 20 | G96 | 0.2− | 0.1+ | 2009 12 10 | G96 | 0.7+ | 0.0 | | |
| 2004 10 20 | 704 | 1.2− | 1.1+ | 2008 09 20 | G96 | 0.6+ | 0.1− | 2009 12 10 | G96 | 0.8+ | 0.2− | | |
| 2004 10 20 | 704 | 0.2+ | 0.6+ | 2008 09 20 | G96 | 0.6− | 0.0 | 2009 12 10 | G96 | 0.6+ | 0.3− | | |
| 2004 10 20 | 704 | 0.3+ | 0.1+ | 2009 09 20 | G96 | 0.3+ | 0.0 | 2009 12 11 | 703 | 0.6+ | 0.7− | | |
| 2006 01 26 | G96 | 0.0 | 0.2+ | 2009 09 20 | G96 | 0.3+ | 0.0 | 2009 12 11 | 703 | 0.9+ | 0.0 | | |
| 2006 01 26 | G96 | 0.1+ | 0.2+ | 2009 09 20 | G96 | 0.2− | 0.1+ | 2009 12 11 | 703 | 0.6− | 0.6− | | |
| 2006 01 26 | G96 | 0.2+ | 0.1+ | 2009 09 20 | G96 | 0.4+ | 0.2+ | 2009 12 11 | 703 | 1.3+ | 0.9− | | |
| 2006 01 26 | G96 | 0.3+ | 0.3+ | 2009 11 08 | 691 | 0.0 | 0.1+ | 2009 12 15 | G96 | 0.9+ | 0.0 | | |
| 2006 02 01 | 691 | 0.7− | 0.4− | 2009 11 08 | 691 | 0.3− | 0.2+ | 2009 12 15 | G96 | 0.2+ | 0.1+ | | |
| 2006 02 01 | 691 | 0.5+ | 0.3+ | 2009 11 08 | 691 | 0.1+ | 0.1+ | 2009 12 15 | G96 | 0.1− | 0.1− | | |
| 2006 02 01 | 691 | 0.1+ | 0.0 | 2009 11 16 | 691 | 0.0 | 0.1+ | 2009 12 15 | G96 | 0.4+ | 0.1− | | |
| 2006 02 20 | G96 | 0.1+ | 0.2+ | 2009 11 16 | 691 | 0.4− | 0.3− | | | | | | |
| 2006 02 20 | G96 | 0.5− | 0.3− | 2009 11 16 | 691 | 0.8− | 0.0 | | | | | | |

**(229167)∗ 2004 TM$_{97}$**

Discovered 2004 Oct. 5 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 190.93402 | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.21971375 | $\omega$ | 211.69938 | | −0.33016404 | | +0.94293587 | |
| $a$ | 2.7199728 | $\Omega$ | 39.06910 | | −0.85108635 | | −0.27760115 | |
| $e$ | 0.0415178 | $i$ | 3.92760 | | −0.40822020 | | −0.18387372 | |
| $P$ | 4.49 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 0 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 10 15 | 691 | 0.2+ | 0.6+ | 2004 10 13 | 691 | 0.0 | 0.1− | 2007 05 10 | G96 | 0.5+ | 0.0 | | |
| 1995 10 15 | 691 | 0.2− | 0.1+ | 2004 10 15 | G96 | 0.5+ | 0.6− | 2007 05 10 | G96 | 0.1+ | 0.4− | | |
| 1995 10 15 | 691 | 0.1+ | 0.4− | 2004 10 15 | G96 | 0.1− | 0.4− | 2007 05 10 | G96 | 0.3+ | 0.1− | | |
| 1996 12 08 | 691 | 0.4+ | 0.3+ | 2004 10 15 | G96 | 0.1− | 0.5− | 2008 10 27 | G96 | 0.4− | 0.5+ | | |
| 1996 12 08 | 691 | 0.4− | 0.8− | 2004 10 15 | G96 | 0.1+ | 0.3− | 2008 10 27 | G96 | 0.7+ | 0.1+ | | |
| 1996 12 08 | 691 | 1.0+ | 0.1+ | 2005 12 30 | G96 | 0.2− | 0.2− | 2008 10 27 | G96 | 0.4− | 0.1+ | | |
| 2000 12 22 | 691 | 0.5− | 0.6− | 2005 12 30 | G96 | 0.4− | 0.3− | 2008 10 27 | G96 | 0.2+ | 0.3+ | | |
| 2000 12 22 | 691 | 0.4− | 0.2− | 2005 12 30 | G96 | 0.5+ | 0.1− | 2009 11 08 | G96 | 0.8+ | 0.3+ | | |
| 2000 12 22 | 691 | 0.4− | 0.4− | 2005 12 30 | G96 | 0.4+ | 0.1− | 2009 11 08 | G96 | 0.0 | 0.5+ | | |
| 2002 03 09 | 291 | 0.0 | 0.5+ | 2007 04 19 | 691 | 0.0 | 0.0 | 2009 11 08 | G96 | 0.6+ | 0.6+ | | |
| 2002 03 09 | 291 | 0.0 | 0.4+ | 2007 04 19 | 691 | 0.2+ | 0.1− | 2009 11 08 | G96 | 0.1+ | 0.5+ | | |
| 2002 03 09 | 291 | 0.1+ | 0.4+ | 2007 04 19 | 691 | 0.0 | 0.0 | 2009 11 09 | G96 | 0.1+ | 0.1+ | | |
| 2004 09 17 | 691 | 0.4− | 0.3+ | 2007 04 20 | G96 | 0.1− | 0.3+ | 2009 11 09 | G96 | 0.2− | 0.3+ | | |
| 2004 09 17 | 691 | 0.9− | 0.4+ | 2007 04 20 | G96 | 0.1+ | 0.3+ | 2009 11 09 | G96 | 0.4+ | 0.2− | | |
| 2004 09 17 | 691 | 0.4+ | 0.6− | 2007 04 20 | G96 | 0.2+ | 0.7+ | 2009 11 21 | 691 | 0.1+ | 0.2+ | | |
| 2004 10 05 | 691 | 0.1+ | 0.3+ | 2007 04 20 | G96 | 0.1− | 0.1+ | 2009 11 21 | 691 | 0.2− | 0.3+ | | |
| 2004 10 05 | 691 | 0.4+ | 0.4+ | 2007 04 20 | 691 | 0.1+ | 0.0 | 2009 11 21 | 691 | 0.1− | 0.1− | | |
| 2004 10 05 | 691 | 0.1+ | 0.3+ | 2007 04 20 | 691 | 0.3+ | 0.2+ | 2009 12 11 | G96 | 0.3+ | 0.0 | | |
| 2004 10 09 | 691 | 0.3− | 0.1+ | 2007 04 20 | 691 | 0.3− | 0.1− | 2009 12 11 | G96 | 0.2+ | 0.3− | | |
| 2004 10 09 | 691 | 0.2− | 0.1+ | 2007 04 27 | 691 | 0.1− | 0.3+ | 2009 12 11 | G96 | 0.3+ | 0.2− | | |
| 2004 10 09 | 691 | 0.0 | 0.1+ | 2007 04 27 | 691 | 0.3− | 0.1− | 2009 12 11 | G96 | 0.2+ | 0.1− | | |
| 2004 10 13 | 691 | 0.1+ | 0.1− | 2007 04 27 | 691 | 0.0 | 0.3− | | | | | | |
| 2004 10 13 | 691 | 0.0 | 0.1+ | 2007 05 10 | G96 | 0.2− | 0.1+ | | | | | | |

**(229168)∗ 2004 TP$_{129}$ = 2000 YA$_{67}$**

Discovered 2004 Oct. 7 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. A. Doppler (*MPO* 86569)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 15.85344 | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.21666139 | $\omega$ | 344.83601 | | +0.49283200 | | −0.86672081 | |
| $a$ | 2.7454595 | $\Omega$ | 75.58443 | | +0.80635653 | | +0.42172365 | |
| $e$ | 0.1818009 | $i$ | 4.55331 | | +0.32696447 | | +0.26635352 | |
| $P$ | 4.55 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 1 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 12 31 | 691 | 0.4+ | 0.1− | 2007 04 26 | 691 | 0.3+ | 0.5+ | 2009 11 20 | 691 | 0.2+ | 0.0 | | |
| 2000 12 31 | 691 | 0.4+ | 0.0 | 2007 04 26 | 691 | 0.3+ | 0.2+ | 2009 11 20 | 691 | 0.3− | 0.1+ | | |
| 2000 12 31 | 691 | 0.5+ | 0.1+ | 2007 04 26 | 691 | 0.0 | 0.0 | 2009 11 24 | 691 | 0.6− | 0.4+ | | |
| 2001 01 04 | 691 | 0.4− | 0.1− | 2007 05 13 | G96 | 0.2− | 0.1+ | 2009 11 24 | 691 | 0.5− | 0.0 | | |
| 2001 01 04 | 691 | 0.5− | 0.1− | 2007 05 13 | G96 | 0.5− | 0.3+ | 2009 11 24 | 691 | 0.2+ | 0.7− | | |
| 2001 01 04 | 691 | 0.4− | 0.0 | 2007 05 13 | G96 | 0.2− | 0.6+ | 2009 12 10 | G96 | 0.5+ | 0.2− | | |
| 2004 09 12 | 704 | 0.3− | 1.0+ | 2007 05 13 | G96 | 0.5− | 0.3+ | 2009 12 10 | G96 | 0.2+ | 0.5− | | |
| 2004 09 12 | 704 | 0.4+ | 1.1+ | 2009 09 22 | G96 | 0.2− | 0.0 | 2009 12 10 | G96 | 0.5+ | 0.4− | | |
| 2004 09 12 | 704 | 0.1+ | 0.7+ | 2009 09 22 | G96 | 1.4+ | 1.5− | 2009 12 10 | G96 | 0.6+ | 0.1− | | |
| 2004 09 17 | 704 | 0.4− | 0.6+ | 2009 09 22 | G96 | 0.1+ | 0.4− | 2009 12 10 | 114 | 0.7+ | 0.1+ | | |
| 2004 09 17 | 704 | 0.5+ | 0.1− | 2009 09 22 | G96 | 0.2− | 0.1+ | 2009 12 10 | 114 | 0.5+ | 0.2− | | |
| 2004 10 07 | 704 | 0.3− | 1.0+ | 2009 09 30 | G96 | 0.3− | 0.4− | 2009 12 10 | 114 | 0.1+ | 0.2− | | |
| 2004 10 07 | 704 | 0.3− | 0.8+ | 2009 09 30 | G96 | 0.2+ | 0.3− | 2009 12 11 | 704 | 0.3+ | 0.7− | | |
| 2004 10 07 | 704 | 1.0− | 0.9+ | 2009 09 30 | G96 | 0.1+ | 0.0 | 2009 12 11 | 704 | 0.0 | 1.3+ | | |
| 2004 10 09 | 704 | 0.4− | 1.4− | 2009 11 08 | 691 | 0.1− | 0.0 | 2009 12 11 | 704 | 0.7+ | 0.6+ | | |
| 2004 10 09 | 704 | 0.5− | 0.8+ | 2009 11 08 | 691 | 0.2− | 0.2+ | 2009 12 16 | 704 | 0.3+ | 0.6+ | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 09 | 704 | 0.7+ | 0.3+ | 2009 11 08 | 691 | 0.1+ | 0.1+ | 2009 12 16 | 704 | 1.0+ | 1.1+ | | |
| 2004 10 09 | 704 | 0.6− | 0.5− | 2009 11 18 | 704 | (1.5− | 3.2+) | 2009 12 16 | 704 | 0.8+ | 0.1+ | | |
| 2006 01 23 | 691 | 0.1+ | 0.4+ | 2009 11 18 | 704 | (0.2+ | 1.7+) | 2009 12 16 | 704 | 0.5− | 0.7+ | | |
| 2006 01 23 | 691 | 0.4+ | 0.1+ | 2009 11 18 | 704 | (1.7+ | 1.5+) | | | | | | |
| 2006 01 23 | 691 | 0.0 | 0.4+ | 2009 11 20 | 691 | 0.5− | 0.0 | | | | | | |

**(229169)∗ 2004 TQ$_{130}$ = 2007 HF$_{78}$**

Discovered 2004 Oct. 7 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 119163)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 157.37524 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22266526 | $\omega$ | 223.27812 | | +0.08244563 | +0.97973912 | |
| $a$ | 2.6958832 | $\Omega$ | 52.29273 | | −0.83985965 | +0.16689796 | |
| $e$ | 0.1059189 | $i$ | 13.33857 | | −0.53650580 | −0.11070831 | |
| $P$ | 4.43 | $H$ | 15.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 17 | 699 | (1.6− | 1.4+) | 2007 03 30 | 644 | 0.4+ | 0.1+ | 2008 08 28 | E12 | (0.0 | 3.5+) | | |
| 2004 09 17 | 699 | 0.3+ | 0.1− | 2007 04 16 | 703 | 0.5− | 0.0 | 2008 09 09 | E12 | 0.6− | 1.1+ | | |
| 2004 09 17 | 699 | 0.1+ | 0.6+ | 2007 04 16 | 703 | 0.5− | 0.0 | 2008 09 09 | E12 | 0.3− | 0.1+ | | |
| 2004 09 17 | 699 | 1.0− | 1.5+ | 2007 04 16 | 703 | 0.2+ | 0.2+ | 2008 09 09 | E12 | 0.2+ | 0.2+ | | |
| 2004 10 07 | 704 | 0.2+ | 0.7− | 2007 04 16 | 703 | 0.7+ | 0.6− | 2008 09 09 | E12 | 0.3− | 0.1+ | | |
| 2004 10 07 | 704 | 0.2+ | 0.4+ | 2007 04 23 | 703 | 0.0 | 1.0+ | 2009 11 09 | G96 | 0.4+ | 0.5− | | |
| 2004 10 07 | 704 | (1.9− | 1.0−) | 2007 04 23 | 703 | 0.9− | 0.0 | 2009 11 09 | G96 | 0.2+ | 0.3− | | |
| 2004 10 07 | 704 | 0.8+ | 1.5− | 2007 04 23 | 703 | 0.2+ | 0.8+ | 2009 11 09 | G96 | 0.4+ | 0.1− | | |
| 2004 10 10 | 704 | 0.8− | 0.1− | 2007 04 23 | 703 | 0.3+ | 0.2− | 2009 11 09 | G96 | 0.9+ | 0.5− | | |
| 2004 10 10 | 704 | 0.5− | 0.8− | 2007 04 26 | G96 | 0.4+ | 0.2+ | 2009 11 10 | 691 | 0.2− | 0.3− | | |
| 2004 10 10 | 704 | 1.3− | 0.9+ | 2007 04 26 | G96 | 0.3+ | 0.1+ | 2009 11 10 | 691 | 0.3− | 0.1− | | |
| 2004 10 10 | 704 | 0.6+ | 0.6− | 2007 04 26 | G96 | 0.0 | 0.2+ | 2009 11 10 | 691 | 0.2− | 0.2− | | |
| 2004 10 11 | 644 | 0.3+ | 0.4+ | 2007 04 26 | G96 | 0.4+ | 0.2+ | 2009 11 18 | 691 | 0.0 | 0.1− | | |
| 2004 10 11 | 644 | 0.1− | 0.1+ | 2007 05 09 | 703 | 0.5+ | 0.3− | 2009 11 18 | 691 | 0.8− | 0.6+ | | |
| 2004 10 11 | 644 | 0.6+ | 0.2+ | 2007 05 09 | 703 | 1.3− | 1.0+ | 2009 11 18 | 691 | 0.2− | 0.1+ | | |
| 2004 10 18 | 704 | 1.1+ | 0.3+ | 2007 05 09 | 703 | (2.0− | 1.2+) | 2009 12 10 | 704 | 0.8+ | 0.5+ | | |
| 2004 10 18 | 704 | 0.8− | 0.6+ | 2007 05 09 | 703 | 0.6+ | 0.7+ | 2009 12 10 | 704 | 1.0+ | 0.0 | | |
| 2004 10 18 | 704 | 1.4− | 1.4+ | 2008 08 03 | E12 | 0.4− | 0.2+ | 2009 12 10 | 704 | 1.1+ | 0.3− | | |
| 2007 03 12 | 703 | 0.8+ | 1.3+ | 2008 08 03 | E12 | 0.6+ | 0.3+ | 2009 12 10 | 704 | 0.7+ | 0.1− | | |
| 2007 03 12 | 703 | 0.1+ | 0.3− | 2008 08 03 | E12 | 0.4− | 0.5+ | 2009 12 15 | 704 | 1.3+ | 0.7+ | | |
| 2007 03 12 | 703 | 1.3+ | 0.1+ | 2008 08 03 | E12 | 0.7− | 0.7+ | 2009 12 15 | 704 | 0.3− | 1.1+ | | |
| 2007 03 12 | 703 | (0.5+ | 2.4+) | 2008 08 28 | E12 | 0.4− | 1.2− | 2009 12 15 | 704 | 0.9− | 0.7+ | | |
| 2007 03 30 | 644 | 0.1+ | 0.3+ | 2008 08 28 | E12 | 0.3+ | 0.1+ | 2009 12 15 | 704 | 0.3+ | 0.9+ | | |
| 2007 03 30 | 644 | 0.3+ | 0.5+ | 2008 08 28 | E12 | 0.5+ | 0.2+ | | | | | | |

**(229170)∗ 2004 TR$_{136}$**

Discovered 2004 Oct. 8 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 19.43425 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22080168 | $\omega$ | 141.21747 | | +0.25084040 | −0.96458255 | |
| $a$ | 2.7110309 | $\Omega$ | 294.11971 | | +0.86438357 | +0.26113798 | |
| $e$ | 0.1193741 | $i$ | 5.12982 | | +0.43579828 | +0.03724864 | |
| $P$ | 4.46 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 12 30 | 704 | 0.1− | 0.9+ | 2004 10 21 | 704 | 0.5− | 0.8− | 2008 08 06 | J75 | 0.4− | 0.1− | | |
| 2000 12 30 | 704 | 0.3− | 0.0 | 2004 10 21 | 704 | 0.5− | 1.2− | 2008 08 06 | J75 | 0.1+ | 0.1+ | | |
| 2000 12 30 | 704 | 0.4+ | 0.9+ | 2004 10 21 | 704 | 0.4− | 0.1− | 2008 09 19 | 691 | 0.3− | 0.1+ | | |
| 2004 09 22 | 699 | 1.1− | 0.4+ | 2004 11 02 | 699 | 1.3− | 1.1+ | 2008 09 19 | 691 | 0.1− | 0.4+ | | |
| 2004 09 22 | 699 | 0.9− | 0.5+ | 2004 11 02 | 699 | 0.7+ | 1.0+ | 2008 09 19 | 691 | 0.4− | 0.1+ | | |
| 2004 09 22 | 699 | 0.4− | 0.1+ | 2004 11 02 | 699 | 0.2− | 0.9− | 2008 09 22 | 691 | 0.0 | 0.1− | | |
| 2004 09 22 | 699 | 1.1− | 1.2− | 2004 11 02 | 699 | (2.0+ | 0.2+) | 2008 09 22 | 691 | 0.3− | 0.3+ | | |
| 2004 10 08 | 699 | 0.1+ | 0.4+ | 2006 02 02 | 691 | 0.3+ | 0.2+ | 2008 09 22 | 691 | 0.3+ | 0.2+ | | |
| 2004 10 08 | 699 | 0.5+ | 0.3+ | 2006 02 02 | 691 | 0.4+ | 0.5+ | 2008 10 07 | G96 | 0.5+ | 0.3− | | |
| 2004 10 08 | 699 | 0.5+ | 0.3− | 2006 02 02 | 691 | 0.5+ | 0.6+ | 2008 10 07 | G96 | 0.3+ | 0.4− | | |
| 2004 10 08 | 699 | 0.2+ | 0.1− | 2006 02 07 | 703 | 0.5− | 0.8+ | 2008 10 07 | G96 | 0.0 | 0.3− | | |
| 2004 10 10 | 704 | 1.1+ | 0.6+ | 2006 02 07 | 703 | (1.4− | 2.7+) | 2008 10 07 | G96 | 0.0 | 0.0 | | |
| 2004 10 10 | 704 | 0.1− | 0.1− | 2006 02 07 | 703 | 0.6− | 0.1+ | 2009 10 14 | G96 | 0.0 | 0.0 | | |
| 2004 10 10 | 704 | 1.1+ | 0.4+ | 2006 02 07 | 703 | 0.9− | 0.9− | 2009 10 14 | G96 | 0.0 | 0.2− | | |
| 2004 10 10 | 704 | 0.4+ | 1.4+ | 2008 07 30 | 691 | 0.0 | 0.3+ | 2009 10 14 | G96 | 0.3+ | 0.2+ | | |
| 2004 10 10 | 704 | 1.4+ | 1.3+ | 2008 07 30 | 691 | 0.2+ | 0.1+ | 2009 10 14 | G96 | 0.0 | 0.1− | | |
| 2004 10 19 | 704 | (1.6− | 0.1+) | 2008 07 30 | 691 | 0.2+ | 0.2− | 2009 12 10 | J75 | 0.0 | 0.3− | | |
| 2004 10 19 | 704 | 0.1− | 0.3− | 2008 07 30 | G96 | 0.1+ | 0.2+ | 2009 12 10 | J75 | 0.4− | 0.2− | | |
| 2004 10 19 | 704 | 0.5− | 0.2− | 2008 07 30 | G96 | 0.0 | 0.0 | 2009 12 10 | J75 | 0.0 | 0.4− | | |
| 2004 10 19 | 704 | 0.1+ | 0.1− | 2008 07 30 | G96 | 0.0 | 0.1− | 2009 12 17 | 691 | 0.1− | 0.1− | | |
| 2004 10 21 | 704 | 0.2+ | 0.4− | 2008 07 30 | G96 | 0.4+ | 0.2+ | 2009 12 17 | 691 | 0.0 | 0.2− | | |
| 2004 10 21 | 704 | 0.4+ | 0.8− | 2008 08 06 | J75 | 1.1− | 0.1− | 2009 12 17 | 691 | 0.1+ | 0.1− | | |

**(229171)∗ 2004 TW$_{136}$**

Discovered 2004 Oct. 8 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 40.96940 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.20908638 | $\omega$ | 125.94950 | | +0.90033867 | −0.42765576 | |
| $a$ | 2.8113757 | $\Omega$ | 259.49267 | | +0.36820022 | +0.84732287 | |
| $e$ | 0.0794794 | $i$ | 4.70369 | | +0.23198895 | +0.31488809 | |
| $P$ | 4.71 | $H$ | 15.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 10 09 | 704 | 1.0− | 1.3− | 2004 11 19 | 704 | 0.8+ | 0.7+ | 2009 11 10 | J75 | 0.4− | 0.2− | | |
| 1999 10 09 | 704 | 0.3+ | 0.4− | 2004 11 19 | 703 | 0.4− | 1.0− | 2009 11 10 | J75 | 0.7− | 0.6− | | |
| 1999 10 09 | 704 | 0.5− | 0.2+ | 2004 11 19 | 703 | 0.6− | 0.4− | 2009 11 15 | J75 | 0.2− | 0.5− | | |
| 1999 10 09 | 704 | 0.0 | 0.2+ | 2004 11 19 | 704 | 0.5− | 0.4+ | 2009 11 15 | J75 | (1.9+ | 0.7−) | | |
| 2002 04 04 | 644 | 0.9+ | 0.8+ | 2004 11 19 | 703 | 0.1+ | 0.0 | 2009 11 15 | J75 | 0.2− | 0.3− | | |
| 2002 04 04 | 644 | 0.6+ | 1.1+ | 2004 11 19 | 704 | 0.4− | 0.2− | 2009 11 17 | 691 | 0.2− | 0.0 | | |
| 2002 04 04 | 644 | 0.6+ | 1.1+ | 2004 11 19 | 703 | 0.1− | 0.4− | 2009 11 17 | 691 | 0.1− | 0.0 | | |
| 2004 09 16 | 699 | 0.8+ | 0.2− | 2005 03 10 | G96 | 0.3− | 0.8− | 2009 11 17 | 691 | 0.1− | 0.1− | | |
| 2004 09 16 | 699 | 0.3+ | 0.5− | 2005 03 10 | G96 | 0.1− | 0.4− | 2009 11 17 | 704 | 0.7+ | 0.2+ | | |
| 2004 09 16 | 699 | 0.3− | 0.3− | 2005 03 10 | G96 | 0.7− | 0.3− | 2009 11 17 | 704 | 0.4+ | 0.6+ | | |
| 2004 09 16 | 699 | 0.8− | 0.7+ | 2005 03 10 | G96 | 0.0 | 0.1− | 2009 11 17 | 704 | 0.7+ | 0.6+ | | |
| 2004 10 08 | 699 | 0.1+ | 0.0 | 2005 10 07 | G96 | 0.1− | 1.0+ | 2009 11 17 | 704 | 0.6+ | 0.4+ | | |
| 2004 10 08 | 699 | 1.2− | 0.1+ | 2005 10 07 | G96 | 0.1− | 0.8+ | 2009 11 17 | 704 | 0.5+ | 0.4+ | | |
| 2004 10 08 | 699 | 0.2− | 0.1+ | 2005 10 07 | G96 | 0.1− | 0.1− | 2009 11 20 | J75 | 0.4− | 0.3− | | |
| 2004 10 08 | 699 | 0.3+ | 0.5+ | 2005 10 07 | G96 | 0.0 | 0.1+ | 2009 11 20 | J75 | 0.1− | 0.0 | | |
| 2004 10 10 | 704 | 0.5− | 0.9+ | 2007 05 13 | G96 | 0.3+ | 0.2+ | 2009 11 20 | J75 | 0.1+ | 1.1− | | |
| 2004 10 10 | 704 | 0.1− | 0.1+ | 2007 05 13 | G96 | 0.1− | 0.2+ | 2009 11 21 | 704 | 0.6+ | 0.0 | | |
| 2004 10 10 | 704 | 0.3− | 0.2+ | 2007 05 13 | G96 | 0.1− | 0.2+ | 2009 11 21 | 704 | 0.1+ | 0.3+ | | |
| 2004 10 10 | 704 | 0.4− | 0.1+ | 2007 05 13 | G96 | 0.4− | 0.2+ | 2009 11 21 | 704 | 0.3+ | 0.5+ | | |
| 2004 10 10 | 704 | 0.7− | 1.0+ | 2008 07 28 | J75 | 0.3− | 0.4− | 2009 11 25 | 691 | 0.2− | 0.0 | | |
| 2004 10 21 | 704 | 1.0+ | 0.7+ | 2008 07 28 | J75 | 0.0 | 0.4− | 2009 11 25 | 691 | 0.1− | 0.1− | | |
| 2004 10 21 | 704 | 1.2+ | 0.1+ | 2008 07 28 | J75 | 0.0 | 0.1− | 2009 11 25 | 691 | 0.0 | 0.2− | | |
| 2004 10 21 | 704 | (1.6+ | 0.2+) | 2008 07 29 | J75 | 0.5+ | 0.1− | 2009 11 25 | 703 | 0.5− | 0.9− | | |
| 2004 10 21 | 704 | 0.5+ | 0.5+ | 2008 07 29 | J75 | 0.0 | 0.5− | 2009 11 25 | 703 | 0.6− | 0.6− | | |
| 2004 10 21 | 704 | 1.0+ | 0.5+ | 2008 07 29 | J75 | 0.7+ | 0.5− | 2009 11 25 | 703 | 0.7− | 1.0− | | |
| 2004 10 23 | 704 | 0.0 | 0.1− | 2009 07 28 | 691 | 0.1− | 0.1+ | 2009 11 25 | 703 | 0.2+ | 0.4− | | |
| 2004 10 23 | 704 | 0.4+ | 0.8+ | 2009 07 28 | 691 | 0.2− | 0.0 | 2009 11 25 | 703 | 0.3− | 0.3− | | |
| 2004 10 23 | 704 | 0.1+ | 1.4+ | 2009 07 28 | 691 | 0.1− | 0.4+ | 2009 12 05 | J75 | 1.0+ | 0.1+ | | |
| 2004 10 23 | 704 | 0.1+ | 0.1− | 2009 10 23 | 704 | 1.1+ | 0.4− | 2009 12 05 | J75 | 1.1− | 0.5+ | | |
| 2004 10 23 | 704 | 0.4+ | 0.4+ | 2009 10 23 | 704 | 0.9+ | 0.6+ | 2009 12 05 | J75 | 0.5+ | 0.1− | | |
| 2004 10 24 | 704 | 0.4+ | 0.5+ | 2009 10 23 | 704 | 0.9− | 0.8+ | 2009 12 09 | 106 | 0.5− | 0.7− | | |
| 2004 10 24 | 704 | 0.2+ | 0.7+ | 2009 10 26 | 703 | 0.9+ | 0.4− | 2009 12 09 | 106 | 0.6− | 0.7− | | |
| 2004 10 24 | 704 | 0.4− | 0.6+ | 2009 10 26 | 703 | 0.2+ | 0.3− | 2009 12 09 | 106 | 0.8+ | 0.2− | | |
| 2004 10 24 | 704 | 0.2− | 0.3+ | 2009 10 26 | 703 | 0.2− | 0.1+ | 2009 12 09 | 106 | 1.5+ | 0.2− | | |
| 2004 10 24 | 704 | 0.2− | 0.5+ | 2009 10 26 | 703 | 0.6− | 0.2− | 2009 12 11 | 703 | 0.1+ | 0.3+ | | |
| 2004 11 02 | 699 | 0.2− | 0.1+ | 2009 11 08 | 703 | 0.3+ | 0.3− | 2009 12 11 | 703 | 0.1− | 0.0 | | |
| 2004 11 02 | 699 | 0.0 | 0.5+ | 2009 11 08 | 703 | 0.4+ | 0.3+ | 2009 12 11 | 703 | 0.3+ | 0.1− | | |
| 2004 11 02 | 699 | 0.3+ | 0.2+ | 2009 11 08 | 703 | 0.1+ | 0.1+ | 2009 12 11 | 703 | 0.2+ | 0.6− | | |
| 2004 11 02 | 699 | 0.1+ | 0.3+ | 2009 11 08 | 703 | 0.3− | 0.9− | 2009 12 16 | 704 | 1.5+ | 0.7+ | | |
| 2004 11 04 | 703 | 0.3+ | 0.3− | 2009 11 09 | 691 | 0.3− | 0.0 | 2009 12 16 | 704 | 0.5+ | 0.5+ | | |
| 2004 11 04 | 703 | 0.7− | 0.0 | 2009 11 09 | 691 | 0.3− | 0.0 | 2009 12 16 | 704 | 0.3+ | 0.4− | | |
| 2004 11 04 | 703 | 0.1− | 0.2+ | 2009 11 09 | 691 | 0.3− | 0.1+ | 2009 12 16 | 704 | 0.1+ | 0.2+ | | |
| 2004 11 04 | 703 | (1.9− | 2.3+) | 2009 11 09 | J75 | 0.2+ | 1.0− | | | | | | |

**(229172)∗ 2004 TR$_{138}$**

Discovered 2004 Oct. 9 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 104.56808 | | (2000.0) | | | |
| $n$ | 0.22116396 | $\omega$ | 69.41386 | | +0.84320807 | +0.51896027 |
| $a$ | 2.7080695 | $\Omega$ | 259.08590 | | −0.53091995 | +0.76292407 |
| $e$ | 0.0576285 | $i$ | 8.21402 | | −0.08440477 | +0.38552186 |
| $P$ | 4.46 | $H$ | 15.6 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 18 | 704 | 0.8− | 0.2− | 2004 10 15 | 704 | (1.7+ | 0.3+) | 2008 10 30 | G96 | 0.2+ | 0.2+ |
| 2004 09 18 | 704 | 0.1− | 0.2− | 2004 10 15 | 704 | 0.3− | 0.6+ | 2009 11 08 | G96 | 0.1− | 0.4− |
| 2004 09 18 | 704 | 0.2+ | 0.2− | 2004 10 15 | 704 | 0.1+ | 0.3− | 2009 11 08 | G96 | 0.3+ | 0.1− |
| 2004 09 18 | 704 | 1.0+ | 0.2+ | 2005 12 27 | 691 | 0.2− | 0.1+ | 2009 11 08 | G96 | 0.1+ | 0.2− |
| 2004 09 18 | 704 | 0.3+ | 0.0 | 2005 12 27 | 691 | 0.0 | 0.4+ | 2009 11 08 | G96 | 0.3+ | 0.2− |
| 2004 10 09 | 699 | 1.3− | 0.9+ | 2005 12 27 | 691 | 0.4+ | 0.1+ | 2009 11 09 | 691 | 0.1+ | 0.0 |
| 2004 10 09 | 699 | 1.0− | 0.5+ | 2006 02 02 | G96 | 0.0 | 0.3− | 2009 11 09 | 691 | 0.2− | 0.0 |
| 2004 10 09 | 699 | 0.2+ | 0.7+ | 2006 02 02 | G96 | 0.2− | 0.3− | 2009 11 09 | 691 | 0.4− | 0.2− |
| 2004 10 09 | 699 | 1.2− | 0.0 | 2006 02 02 | G96 | 0.1+ | 0.4− | 2009 11 25 | 691 | 0.1− | 0.0 |
| 2004 10 10 | 704 | 0.4− | 0.1+ | 2006 02 02 | G96 | 0.2− | 0.3− | 2009 11 25 | 691 | 0.1+ | 0.1+ |
| 2004 10 10 | 704 | 0.8+ | 0.6− | 2008 08 01 | 704 | 0.0 | 0.9+ | 2009 11 25 | 691 | 0.0 | 0.2− |
| 2004 10 10 | 704 | 0.3+ | 0.1− | 2008 08 01 | 704 | 0.1+ | 0.1− | 2009 12 09 | J75 | 0.6+ | 0.2− |
| 2004 10 10 | 704 | 0.8+ | 0.2− | 2008 08 01 | 704 | 0.1− | 0.9+ | 2009 12 09 | J75 | 0.7+ | 0.3+ |
| 2004 10 10 | 704 | 0.3+ | 0.1− | 2008 08 23 | 691 | 0.2− | 0.3+ | 2009 12 09 | J75 | 0.3− | 0.6− |
| 2004 10 12 | 704 | 0.6+ | 0.4+ | 2008 08 23 | 691 | 0.6− | 0.8− | 2009 12 15 | G96 | 0.3+ | 0.2− |
| 2004 10 12 | 704 | 0.9− | 0.1− | 2008 08 23 | 691 | 0.9+ | 0.4− | 2009 12 15 | G96 | 0.4− | 0.3− |
| 2004 10 12 | 704 | 0.0 | 1.0+ | 2008 10 30 | G96 | (1.8− | 0.8+) | 2009 12 15 | G96 | 0.4+ | 0.2− |
| 2004 10 15 | 704 | (1.6+ | 1.1+) | 2008 10 30 | G96 | 0.0 | 0.1− | 2009 12 15 | G96 | 0.1− | 0.2− |
| 2004 10 15 | 704 | 0.3+ | 0.8+ | 2008 10 30 | G96 | 0.1+ | 0.1− | | | | |

**(229173)∗ 2004 TU$_{145}$ = 2006 BG$_{128}$**

Discovered 2004 Oct. 5 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 95533)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 346.46915 | | (2000.0) | | | |
| $n$ | 0.21789510 | $\omega$ | 291.90064 | | −0.20829848 | −0.97800964 |
| $a$ | 2.7350866 | $\Omega$ | 170.10479 | | +0.91827810 | −0.19922743 |
| $e$ | 0.1613538 | $i$ | 3.48126 | | +0.33671512 | −0.06168935 |
| $P$ | 4.52 | $H$ | 16.1 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 01 03 | 704 | 0.8+ | 1.0− | 2006 02 07 | 703 | 0.7− | 0.2+ | 2008 10 21 | G96 | 1.0− | 0.2+ |
| 2001 01 03 | 704 | 0.2+ | 0.6+ | 2006 02 07 | 703 | 0.4+ | 0.3− | 2008 10 21 | G96 | 0.3+ | 0.1+ |
| 2001 01 03 | 704 | 0.4− | 1.0− | 2006 02 07 | 703 | 0.7− | 1.5− | 2008 10 21 | G96 | 0.0 | 0.1+ |
| 2001 01 03 | 704 | 0.7− | 0.0 | 2006 02 20 | 703 | 1.3− | 0.5+ | 2008 10 21 | G96 | 0.2+ | 0.2+ |
| 2004 09 17 | 704 | (2.3+ | 0.0 ) | 2006 02 20 | 703 | 0.4+ | 0.2− | 2009 09 30 | G96 | 1.3− | 0.2− |
| 2004 09 17 | 704 | 0.3+ | 0.7+ | 2006 02 20 | 703 | 0.7− | 0.5− | 2009 09 30 | G96 | 0.0 | 0.1− |
| 2004 09 17 | 704 | 0.1− | 0.8+ | 2006 02 20 | 703 | 0.1− | 0.4+ | 2009 09 30 | G96 | 0.3+ | 0.1− |
| 2004 10 05 | 691 | 0.2+ | 0.1− | 2006 02 21 | 699 | 0.3+ | 0.3− | 2009 09 30 | G96 | 0.1− | 0.0 |
| 2004 10 05 | 691 | 0.2− | 0.2+ | 2006 02 21 | 699 | 0.4+ | 0.5+ | 2009 11 18 | 704 | 0.5+ | 0.1+ |
| 2004 10 05 | 691 | 0.1− | 0.0 | 2006 02 21 | 699 | 0.8+ | 0.7+ | 2009 11 18 | 704 | 0.5+ | 1.3+ |
| 2004 10 09 | 704 | 0.3+ | 1.3+ | 2006 02 21 | 699 | 0.5+ | 0.4+ | 2009 11 18 | 704 | 0.2+ | 0.2+ |
| 2004 10 09 | 704 | 0.2− | 0.5+ | 2006 02 24 | 704 | 0.1− | 0.5+ | 2009 11 18 | 704 | 0.3− | 0.8− |
| 2004 10 09 | 704 | 0.3− | 0.4+ | 2006 02 24 | 704 | 0.9− | 0.7− | 2009 11 19 | 691 | 0.3− | 0.1+ |
| 2004 10 10 | 704 | (0.2− | 1.5−) | 2006 02 24 | 704 | 1.0+ | 0.6− | 2009 11 19 | 691 | 0.3− | 0.1− |
| 2004 10 10 | 704 | 0.3− | 1.0− | 2006 02 24 | 704 | 0.6+ | 0.2+ | 2009 11 19 | 691 | 0.3− | 0.0 |
| 2004 10 10 | 704 | 0.8− | 0.2− | 2006 02 25 | 691 | 0.1− | 0.0 | 2009 11 20 | 704 | 1.3+ | 1.0+ |
| 2004 10 10 | 704 | 0.4+ | 0.3+ | 2006 02 25 | 691 | 0.2− | 0.0 | 2009 11 20 | 704 | 0.7+ | 0.4− |
| 2004 10 10 | 704 | 0.4+ | 0.5− | 2006 02 25 | 691 | 0.1− | 0.0 | 2009 11 20 | 704 | 1.1+ | 0.1− |
| 2006 01 26 | 691 | 0.2+ | 0.2+ | 2006 03 05 | 704 | 1.0+ | 0.1− | 2009 11 20 | 704 | 0.7+ | 0.3+ |
| 2006 01 26 | 691 | 0.1+ | 0.0 | 2006 03 05 | 704 | 0.7− | 0.3+ | 2009 11 20 | 704 | 0.4+ | 0.0 |
| 2006 01 26 | 691 | 0.0 | 0.2+ | 2006 03 05 | 704 | 0.2− | 0.9+ | 2009 11 22 | 691 | 0.6− | 0.4− |
| 2006 01 30 | 691 | 0.1+ | 0.1+ | 2006 03 05 | 704 | (2.3+ | 0.7+) | 2009 11 22 | 691 | 0.0 | 0.0 |
| 2006 01 30 | 691 | 0.2+ | 0.4+ | 2006 03 05 | 704 | (0.1+ | 1.8+) | 2009 11 22 | 691 | 0.2− | 0.1+ |
| 2006 01 30 | 691 | 0.0 | 0.1+ | 2006 03 05 | 704 | 0.9− | 0.4+ | 2009 12 08 | J75 | 0.1+ | 0.2− |
| 2006 01 31 | 703 | 0.2+ | 0.1− | 2006 03 05 | 704 | 0.3− | 0.3− | 2009 12 09 | J75 | 0.8+ | 0.2+ |
| 2006 01 31 | 703 | 0.4− | 0.6− | 2006 03 05 | 704 | 0.7− | 0.5+ | 2009 12 09 | J75 | 0.2+ | 0.0 |
| 2006 01 31 | 703 | 0.3− | 1.2− | 2006 03 24 | 291 | 0.5+ | 0.0 | 2009 12 12 | 704 | 0.2+ | 0.3− |
| 2006 01 31 | 703 | 0.3− | 0.1− | 2006 03 24 | 291 | 0.6+ | 0.1− | 2009 12 12 | 704 | 0.6− | 0.5+ |
| 2006 02 06 | 703 | (2.4+ | 1.0+) | 2006 03 24 | 291 | 0.1+ | 0.0 | 2009 12 12 | 704 | 0.4− | 0.1+ |
| 2006 02 06 | 703 | (1.7− | 0.3+) | 2006 03 25 | G96 | 0.0 | 0.3+ | 2009 12 12 | 704 | 1.0+ | 0.5− |
| 2006 02 06 | 703 | 0.1− | 0.0 | 2006 03 25 | G96 | 0.4− | 0.2+ | 2009 12 12 | 704 | 0.8+ | 0.2− |
| 2006 02 06 | 703 | 0.0 | 0.8− | 2006 03 25 | G96 | 0.1− | 0.1− | | | | |
| 2006 02 07 | 703 | 0.7− | 0.6+ | 2006 03 25 | G96 | 0.0 | 0.0 | | | | |

**(229174)∗ 2004 TA$_{151}$**

Discovered 2004 Oct. 6 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 35.92578 | | (2000.0) | | | |
| $n$ | 0.21371511 | $\omega$ | 42.75126 | | +0.82127231 | −0.57050600 |
| $a$ | 2.7706345 | $\Omega$ | 352.02785 | | +0.51132100 | +0.74057393 |
| $e$ | 0.0759107 | $i$ | 2.43400 | | +0.25310596 | +0.35506782 |
| $P$ | 4.61 | $H$ | 16.7 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 10 | 691 | 0.2− | 0.0 | 2006 02 02 | 691 | 0.2+ | 0.0 | 2007 05 13 | G96 | 0.2+ | 0.0 |
| 2004 09 10 | 691 | 0.2+ | 0.3− | 2006 02 02 | 691 | 0.4− | 0.2+ | 2007 05 13 | G96 | 0.2+ | 0.0 |
| 2004 09 10 | 691 | 0.2+ | 0.0 | 2006 02 02 | 691 | 0.2+ | 0.1− | 2009 11 09 | 691 | 0.1+ | 0.0 |
| 2004 10 06 | 691 | 0.1− | 0.0 | 2006 02 07 | G96 | 0.4+ | 0.3− | 2009 11 09 | 691 | 0.1− | 0.1+ |
| 2004 10 06 | 691 | 0.3− | 0.1− | 2006 02 07 | G96 | 0.3+ | 0.3− | 2009 11 09 | 691 | 0.2+ | 0.0 |
| 2004 10 06 | 691 | 0.2− | 0.1+ | 2006 02 07 | G96 | 0.3− | 0.1+ | 2009 11 09 | G96 | 0.9+ | 0.2+ |
| 2004 10 10 | 691 | 0.3+ | 0.1+ | 2006 02 07 | G96 | 1.0− | 0.6− | 2009 11 09 | G96 | 0.4+ | 0.0 |
| 2004 10 10 | 691 | 0.3+ | 0.0 | 2007 04 15 | 691 | 0.2+ | 0.1− | 2009 11 09 | G96 | 0.1− | 0.1+ |
| 2004 10 10 | 691 | 0.2+ | 0.1− | 2007 04 15 | 691 | 0.4+ | 0.2− | 2009 11 09 | G96 | 0.2+ | 0.1+ |
| 2004 10 15 | 691 | 0.3− | 0.0 | 2007 04 15 | 691 | 0.1− | 0.4+ | 2009 11 17 | 691 | 0.3− | 0.1− |
| 2004 10 15 | 691 | 0.2− | 0.0 | 2007 04 19 | 691 | 0.2− | 0.7+ | 2009 11 17 | 691 | 0.1− | 0.1+ |
| 2004 10 15 | 691 | 0.3− | 0.0 | 2007 04 19 | 691 | 0.2− | 0.1+ | 2009 11 17 | 691 | 0.3− | 0.1− |
| 2004 11 11 | 691 | 0.0 | 0.2+ | 2007 04 19 | 691 | 0.0 | 0.0 | 2009 11 25 | 691 | 0.3− | 0.3+ |
| 2004 11 11 | 691 | 0.1+ | 0.3+ | 2007 05 11 | G96 | 0.1+ | 0.3− | 2009 11 25 | 691 | 0.2− | 0.2+ |
| 2004 11 11 | 691 | 0.3+ | 0.2+ | 2007 05 11 | G96 | 0.1− | 0.3− | 2009 11 25 | 691 | 0.0 | 0.3+ |
| 2006 01 23 | G96 | 0.2+ | 0.1+ | 2007 05 11 | G96 | 0.5− | 0.9+ | 2009 12 16 | G96 | 0.5+ | 0.1+ |
| 2006 01 23 | G96 | 0.0 | 0.0 | 2007 05 11 | G96 | 1.5+ | 1.2+ | 2009 12 16 | G96 | 0.6+ | 0.2− |
| 2006 01 23 | G96 | 0.2+ | 0.4− | 2007 05 13 | G96 | 0.0 | 0.6+ | 2009 12 16 | G96 | 0.3+ | 0.0 |
| 2006 01 23 | G96 | 0.1− | 0.4− | 2007 05 13 | G96 | 0.8+ | 0.4− | 2009 12 16 | G96 | 0.5+ | 0.1− |

**(229175)∗ 2004 TV$_{157}$**

Discovered 2004 Oct. 6 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 40.54815 | | (2000.0) | | | |
| $n$ | 0.21083351 | $\omega$ | 123.58216 | | +0.78303804 | −0.61936337 |
| $a$ | 2.7958227 | $\Omega$ | 274.75321 | | +0.55004791 | +0.73230376 |
| $e$ | 0.0748043 | $i$ | 3.27460 | | +0.29034243 | +0.28305515 |
| $P$ | 4.67 | $H$ | 16.2 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 12 22 | 691 | 0.3− | 0.1− | 2005 10 24 | 568 | 0.1− | 0.1+ | 2006 02 07 | 691 | 0.1+ | 0.1+ |
| 2000 12 22 | 691 | 0.6− | 0.3+ | 2005 10 24 | 568 | 0.2− | 0.1+ | 2006 02 07 | 691 | 0.0 | 0.1+ |
| 2000 12 22 | 691 | 0.1− | 0.1+ | 2005 11 07 | 568 | 0.0 | 0.1− | 2007 04 24 | F85 | 0.1+ | 0.7− |
| 2004 10 06 | 691 | 0.0 | 0.3+ | 2005 11 07 | 568 | 0.0 | 0.1− | 2007 04 24 | F85 | 0.2− | 0.2+ |
| 2004 10 06 | 691 | 0.1− | 0.2+ | 2005 11 07 | 568 | 0.1− | 0.2− | 2007 04 24 | F85 | (1.8− | 2.0−) |
| 2004 10 06 | 691 | 0.0 | 0.2+ | 2006 01 09 | G96 | 0.1+ | 0.3− | 2008 09 24 | G96 | 0.5− | 0.2− |
| 2004 10 10 | 691 | 0.1+ | 0.1+ | 2006 01 09 | G96 | 0.5+ | 0.5+ | 2008 09 24 | G96 | 0.0 | 0.2− |
| 2004 10 10 | 691 | 0.1+ | 0.1+ | 2006 01 09 | G96 | 0.9− | 0.4− | 2008 09 24 | G96 | 0.1− | 0.3− |
| 2004 10 10 | 691 | 0.3+ | 0.0 | 2006 01 09 | G96 | 1.0− | 0.7− | 2008 09 24 | G96 | 0.1− | 0.0 |
| 2004 10 14 | 691 | 0.3+ | 0.2− | 2006 01 30 | 691 | 0.1− | 0.3+ | 2008 09 24 | G96 | 0.5− | 0.0 |
| 2004 10 14 | 691 | 0.1+ | 0.0 | 2006 01 30 | 691 | 0.2+ | 0.1− | 2008 09 24 | G96 | 0.5− | 0.1+ |
| 2004 10 14 | 691 | 0.1− | 0.1+ | 2006 01 30 | 691 | 0.0 | 0.1− | 2008 09 24 | G96 | (3.4− | 1.3−) |
| 2004 10 21 | 704 | 0.0 | 0.2− | 2006 01 31 | G96 | 0.0 | 0.4− | 2009 11 17 | G96 | 0.5− | 0.4− |
| 2004 10 21 | 704 | 1.1+ | 0.5+ | 2006 01 31 | G96 | 0.5− | 0.4− | 2009 11 17 | G96 | 0.3− | 0.3− |
| 2004 10 21 | 704 | (0.6+ | 2.1+) | 2006 01 31 | G96 | 0.3− | 0.4− | 2009 11 17 | G96 | 0.1− | 0.4− |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 11 04 | 691 | 0.0 | 0.3+ | 2006 01 31 | G96 | 0.2− | 0.2− | 2009 11 17 | G96 | 0.4− | 0.4− |
| 2004 11 04 | 691 | 0.1− | 0.2+ | 2006 02 02 | 691 | 0.2+ | 0.2− | 2009 12 10 | G96 | 0.0 | 0.5− |
| 2004 11 04 | 691 | 0.1− | 0.3+ | 2006 02 02 | 691 | 0.1+ | 0.2+ | 2009 12 10 | G96 | 0.4− | 0.5− |
| 2004 11 19 | 703 | 0.3+ | 0.7− | 2006 02 02 | 691 | 0.1+ | 0.0 | 2009 12 10 | G96 | 0.4− | 0.5− |
| 2004 11 19 | 703 | 1.0− | 0.4− | 2006 02 06 | 691 | 0.0 | 0.0 | 2009 12 10 | G96 | 0.1− | 0.5− |
| 2004 11 19 | 703 | 1.0+ | 0.1− | 2006 02 06 | 691 | 0.1+ | 0.4+ | 2009 12 19 | G96 | 0.1− | 0.3− |
| 2004 11 19 | 703 | 0.3− | 0.0 | 2006 02 06 | 691 | 0.2+ | 0.2+ | 2009 12 19 | G96 | 0.2+ | 0.3− |
| 2005 10 24 | 568 | 0.1− | 0.1+ | 2006 02 07 | 691 | 0.7+ | 0.1− | 2009 12 19 | G96 | 0.2− | 0.6− |

**(229176)∗ 2004 TW$_{157}$**

Discovered 2004 Oct. 6 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 171.53277 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.21929252 | $\omega$ | 6.60073 | | +0.03390766 | | +0.99708725 | | |
| $a$ | 2.7234548 | $\Omega$ | 265.35785 | | −0.92006005 | | +0.00444651 | | |
| $e$ | 0.1278937 | $i$ | 3.93027 | | −0.39030729 | | +0.07613958 | | |
| $P$ | 4.49 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 0 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 04 21 | 704 | (1.3+ | 2.1+) | 2005 12 26 | G96 | 0.4+ | 0.3− | 2007 05 09 | 699 | 1.2+ | 1.0+ |
| 1998 04 21 | 704 | 0.8+ | 1.2+ | 2006 01 02 | G96 | 0.0 | 0.1+ | 2007 05 09 | 699 | (1.9+ | 0.5+) |
| 1998 04 21 | 704 | 0.1+ | 0.1− | 2006 01 02 | G96 | 0.2− | 0.0 | 2007 05 09 | 699 | 0.2− | 0.5+ |
| 1998 04 21 | 704 | 1.3− | 0.3+ | 2006 01 02 | G96 | 0.3+ | 0.2+ | 2008 09 04 | 704 | 0.4+ | 0.8+ |
| 1998 04 21 | 704 | (3.8− | 0.4+) | 2006 01 02 | G96 | 0.3− | 0.0 | 2008 09 04 | 704 | (0.0 | 1.6+) |
| 2002 03 23 | 691 | 0.4+ | 0.7− | 2006 01 07 | 691 | 0.2+ | 0.4+ | 2008 09 04 | 704 | 0.0 | 1.2+ |
| 2002 03 23 | 691 | 0.3+ | 0.1− | 2006 01 07 | 691 | 0.1+ | 0.1+ | 2008 09 04 | 704 | 0.2− | 0.8+ |
| 2002 03 23 | 691 | 0.3+ | 0.2− | 2006 01 07 | 691 | 0.7− | 0.2+ | 2008 09 04 | 704 | 0.3− | 0.6+ |
| 2004 10 06 | 691 | 0.1− | 0.3+ | 2006 01 09 | G96 | 0.5+ | 0.1− | 2008 09 09 | G96 | 0.3− | 0.3− |
| 2004 10 06 | 691 | 0.4− | 0.3+ | 2006 01 09 | G96 | 0.0 | 0.1+ | 2008 09 09 | G96 | 0.1+ | 0.2− |
| 2004 10 06 | 691 | 0.0 | 0.6+ | 2006 01 09 | G96 | 0.4− | 0.0 | 2008 09 09 | G96 | 0.1− | 0.3− |
| 2004 10 10 | 691 | 0.2− | 0.3+ | 2006 01 09 | G96 | 0.3− | 0.4+ | 2008 09 09 | G96 | 0.3+ | 0.7− |
| 2004 10 10 | 691 | 0.1− | 0.3+ | 2006 01 09 | 691 | 0.1+ | 0.2− | 2008 09 29 | 704 | (0.8+ | 2.2+) |
| 2004 10 10 | 691 | 0.1− | 0.3+ | 2006 01 09 | 691 | 0.4+ | 0.0 | 2008 09 29 | 704 | (0.7+ | 2.0+) |
| 2004 10 14 | 691 | 0.2− | 0.2+ | 2006 01 09 | 691 | 0.3+ | 0.3− | 2008 09 29 | 704 | 0.5+ | 0.5+ |
| 2004 10 14 | 691 | 0.3− | 0.1+ | 2007 04 15 | 704 | 1.4+ | 0.3+ | 2008 09 29 | 704 | 1.4+ | 1.0+ |
| 2004 10 14 | 691 | 0.1− | 0.2− | 2007 04 15 | 704 | 0.2− | 0.1− | 2008 09 29 | 704 | 1.0+ | 0.5+ |
| 2004 10 15 | 695 | 0.3− | 0.2+ | 2007 04 15 | 704 | 0.7+ | 0.0 | 2009 12 10 | G96 | 0.0 | 0.2− |
| 2004 10 15 | 695 | 0.3− | 0.2+ | 2007 04 19 | 691 | 0.2+ | 1.1+ | 2009 12 10 | G96 | 0.2+ | 0.0 |
| 2005 12 24 | 691 | 0.1− | 0.2+ | 2007 04 19 | 691 | 0.0 | 0.1+ | 2009 12 10 | G96 | 0.1+ | 0.3− |
| 2005 12 24 | 691 | 0.3− | 0.5+ | 2007 04 19 | 691 | 0.0 | 0.1+ | 2009 12 19 | G96 | 0.1− | 0.1+ |
| 2005 12 24 | 691 | 0.0 | 0.3+ | 2007 04 23 | 691 | 0.1− | 0.3+ | 2009 12 19 | G96 | 0.2+ | 0.3− |
| 2005 12 26 | G96 | 0.6+ | 0.2− | 2007 04 23 | 691 | 0.2− | 0.3+ | 2009 12 19 | G96 | 0.6− | 0.4− |
| 2005 12 26 | G96 | 0.0 | 0.3− | 2007 04 23 | 691 | 0.4− | 0.3+ | 2009 12 19 | G96 | 0.1− | 0.0 |
| 2005 12 26 | G96 | 0.6− | 0.1− | 2007 05 09 | 699 | 0.7− | 0.7+ | | | | |

**(229177)∗ 2004 TF$_{158}$ = 2006 BK$_{143}$**

Discovered 2004 Oct. 6 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 95539)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 8.07585 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.20994173 | $\omega$ | 145.83180 | | +0.27524753 | | −0.96054133 | | |
| $a$ | 2.8037344 | $\Omega$ | 288.16326 | | +0.87237403 | | +0.26702955 | | |
| $e$ | 0.0760003 | $i$ | 2.41209 | | +0.40398310 | | +0.07781757 | | |
| $P$ | 4.69 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 0 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 06 | 691 | 0.0 | 0.4+ | 2006 01 30 | 691 | 0.3+ | 0.1+ | 2008 09 24 | G96 | 0.3+ | 0.2+ |
| 2004 10 06 | 691 | 0.3− | 0.3+ | 2006 02 25 | 691 | 0.2+ | 0.0 | 2008 09 24 | G96 | 0.5+ | 0.8+ |
| 2004 10 06 | 691 | 0.1− | 0.2+ | 2006 02 25 | 691 | 0.1+ | 0.0 | 2009 11 25 | 691 | 0.2− | 0.4− |
| 2004 10 10 | 691 | 0.3− | 0.2+ | 2006 02 25 | 691 | 0.1+ | 0.2+ | 2009 11 25 | 691 | 0.0 | 0.2− |
| 2004 10 10 | 691 | 0.1− | 0.4+ | 2006 03 03 | G96 | 0.2− | 0.2− | 2009 11 25 | 691 | 0.3− | 0.1− |
| 2004 10 10 | 691 | 0.1− | 0.3+ | 2006 03 03 | G96 | 0.2− | 0.0 | 2009 12 10 | G96 | 0.3+ | 0.3− |
| 2004 10 14 | 152 | (1.5+ | 1.5−) | 2006 03 03 | G96 | 0.4− | 0.0 | 2009 12 10 | G96 | 0.2+ | 0.2− |
| 2004 10 14 | 152 | 1.0+ | 0.3+ | 2006 03 03 | G96 | 0.1+ | 0.0 | 2009 12 10 | G96 | 0.3+ | 0.3− |
| 2004 10 14 | 152 | 0.1+ | 0.1− | 2006 03 24 | 691 | 0.5− | 0.2+ | 2009 12 10 | G96 | 0.3− | 0.4− |
| 2004 11 04 | 691 | 0.1− | 0.1− | 2006 03 24 | 691 | 0.3+ | 0.3+ | 2009 12 10 | G96 | 0.0 | 0.9− |
| 2004 11 04 | 691 | 0.1+ | 0.1+ | 2006 03 24 | 691 | 0.1+ | 0.3− | 2009 12 10 | G96 | 0.0 | 0.6− |
| 2004 11 04 | 691 | 0.1+ | 0.2+ | 2008 09 07 | G96 | 0.0 | 0.1+ | 2009 12 10 | G96 | 0.5+ | 0.5− |
| 2006 01 27 | 291 | 0.2− | 0.5+ | 2008 09 07 | G96 | 1.0− | 0.3+ | 2009 12 10 | G96 | 0.1− | 0.3− |
| 2006 01 27 | 291 | 0.4+ | 0.3+ | 2008 09 07 | G96 | 1.0− | 0.3− | 2009 12 19 | G96 | 0.7+ | 0.2− |
| 2006 01 27 | 291 | 0.4− | 0.5+ | 2008 09 07 | G96 | 0.1+ | 0.2+ | 2009 12 19 | G96 | 0.2+ | 0.5− |
| 2006 01 30 | 691 | 0.4+ | 0.1− | 2008 09 24 | G96 | 0.5+ | 0.2+ | 2009 12 19 | G96 | 0.3+ | 0.3− |
| 2006 01 30 | 691 | 0.3+ | 0.2+ | 2008 09 24 | G96 | 0.2+ | 0.2+ | 2009 12 19 | G96 | 0.4+ | 0.4− |

**(229178)∗ 2004 TD$_{160}$**

Discovered 2004 Oct. 6 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 161.13060 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.21264167 | $\omega$ | 32.57889 | | +0.15653255 | | +0.98621610 | | |
| $a$ | 2.7799509 | $\Omega$ | 246.47582 | | −0.91823764 | | +0.12531657 | | |
| $e$ | 0.0351792 | $i$ | 3.35273 | | −0.36378180 | | +0.10804424 | | |
| $P$ | 4.64 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 0 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 06 | 691 | 0.0 | 0.2+ | 2008 09 09 | G96 | 0.1+ | 0.3− | 2008 09 25 | 691 | 0.1− | 0.1− |
| 2004 10 06 | 691 | 0.1+ | 0.0 | 2008 09 24 | G96 | 0.6+ | 0.2− | 2008 09 25 | G96 | 0.3+ | 0.0 |
| 2004 10 06 | 691 | 0.0 | 0.0 | 2008 09 24 | G96 | 0.1+ | 0.2+ | 2008 09 25 | G96 | 0.2+ | 0.1+ |
| 2004 10 10 | 691 | 0.2+ | 0.2− | 2008 09 24 | G96 | 0.3− | 0.3+ | 2008 09 25 | G96 | 0.4+ | 0.4+ |
| 2004 10 10 | 691 | 0.3+ | 0.1− | 2008 09 24 | G96 | 0.3+ | 0.2+ | 2008 09 25 | G96 | 0.1− | 0.2+ |
| 2004 10 10 | 691 | 0.3+ | 0.3+ | 2008 09 24 | G96 | 0.2+ | 0.4+ | 2009 11 16 | 691 | 0.0 | 0.2− |
| 2004 11 04 | 691 | 0.5− | 0.1− | 2008 09 24 | G96 | 0.3+ | 0.4+ | 2009 11 16 | 691 | 0.4− | 0.2− |
| 2004 11 04 | 691 | 0.3− | 0.2− | 2008 09 24 | G96 | 0.2+ | 0.3+ | 2009 11 16 | 691 | 0.2− | 0.2− |
| 2004 11 04 | 691 | 0.1− | 0.2+ | 2008 09 24 | G96 | 0.3+ | 0.3− | 2009 12 10 | G96 | 0.2+ | 0.5− |
| 2006 01 09 | 691 | 0.0 | 0.2+ | 2008 09 24 | G96 | 0.3+ | 0.3− | 2009 12 10 | G96 | 0.4+ | 0.2− |
| 2006 01 09 | 691 | 0.1+ | 0.3+ | 2008 09 24 | G96 | 0.5+ | 0.3− | 2009 12 10 | G96 | 0.1+ | 0.3− |
| 2006 01 09 | 691 | 0.0 | 0.2+ | 2008 09 24 | G96 | 0.3− | 0.1+ | 2009 12 10 | G96 | 0.2+ | 0.2− |
| 2006 02 04 | 691 | 0.1+ | 0.6+ | 2008 09 24 | G96 | 0.2− | 0.5+ | 2009 12 10 | G96 | 0.1− | 0.2− |
| 2006 02 04 | 691 | 0.3+ | 0.5+ | 2008 09 25 | 691 | 0.5− | 0.4+ | 2009 12 10 | G96 | 0.2+ | 0.4− |
| 2006 02 04 | 691 | 0.2+ | 0.4+ | 2008 09 25 | 291 | 0.4− | 0.2+ | 2009 12 10 | G96 | 0.1+ | 0.1− |
| 2008 09 09 | G96 | 0.5+ | 0.1+ | 2008 09 25 | 691 | 0.3− | 0.3+ | 2009 12 19 | G96 | 0.9+ | 0.1− |
| 2008 09 09 | G96 | 0.3+ | 0.1+ | 2008 09 25 | 291 | 0.0 | 0.2+ | 2009 12 19 | G96 | 0.3− | 0.3− |
| 2008 09 09 | G96 | 0.1− | 0.2+ | 2008 09 25 | 291 | 0.2− | 0.3+ | 2009 12 19 | G96 | 0.8+ | 0.1− |

**(229179)∗ 2004 TD$_{166}$**

Discovered 2004 Oct. 7 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 92.20854 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.22162363 | $\omega$ | 130.40943 | | +0.94273176 | | +0.33124423 | | |
| $a$ | 2.7043237 | $\Omega$ | 210.30617 | | −0.32469450 | | +0.88446816 | | |
| $e$ | 0.0207369 | $i$ | 4.45163 | | −0.07635644 | | +0.32862340 | | |
| $P$ | 4.45 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 0 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 22 | 704 | 0.0 | 1.1+ | 2006 01 04 | 691 | 0.2+ | 0.8+ | 2007 05 07 | 691 | 0.1+ | 0.7+ |
| 2004 09 22 | 704 | 0.3+ | 0.6+ | 2006 01 04 | 691 | 0.3+ | 0.3+ | 2007 05 07 | 691 | 0.3− | 0.6− |
| 2004 09 22 | 704 | 1.2+ | 0.7+ | 2006 02 01 | G96 | 0.1− | 0.0 | 2007 05 07 | 691 | 0.1+ | 0.4+ |
| 2004 09 22 | 704 | 0.1− | 0.4+ | 2006 02 01 | G96 | 0.2+ | 0.2− | 2007 05 09 | G96 | 0.0 | 0.2+ |
| 2004 10 07 | 691 | 0.0 | 0.1+ | 2006 02 01 | G96 | 0.0 | 0.1− | 2007 05 09 | G96 | 0.2+ | 0.2+ |
| 2004 10 07 | 691 | 0.1− | 0.0 | 2006 02 01 | G96 | 0.4+ | 0.0 | 2007 05 09 | G96 | 0.3+ | 0.5+ |
| 2004 10 07 | 691 | 0.1− | 0.1+ | 2007 03 18 | 691 | 0.1− | 0.0 | 2007 05 09 | G96 | 0.0 | 0.3+ |
| 2004 10 10 | 691 | 0.2− | 0.2+ | 2007 03 18 | 691 | 0.3+ | 0.0 | 2009 11 10 | 691 | 0.4− | 0.7− |
| 2004 10 10 | 691 | 0.0 | 0.3+ | 2007 03 18 | 691 | 1.0− | 0.4− | 2009 11 10 | 691 | 0.1+ | 0.1− |
| 2004 10 10 | 691 | 0.3− | 0.3+ | 2007 03 26 | 691 | 0.3+ | 0.2+ | 2009 11 10 | 691 | 0.3− | 0.0 |
| 2004 10 15 | 691 | 0.1− | 0.0 | 2007 03 26 | 691 | 0.6+ | 0.1+ | 2009 11 15 | 926 | 0.8+ | 0.3− |
| 2004 10 15 | 691 | 0.0 | 0.0 | 2007 03 26 | 691 | 0.2+ | 0.3+ | 2009 11 15 | 926 | 0.7+ | 0.1− |
| 2004 10 15 | 691 | 0.1− | 0.1− | 2007 04 14 | G96 | 0.1+ | 0.1+ | 2009 11 15 | 926 | 0.0 | 0.2− |
| 2004 11 05 | 291 | 0.1+ | 0.1+ | 2007 04 14 | G96 | 0.4+ | 0.3− | 2009 11 15 | 926 | 0.2+ | 0.4+ |
| 2004 11 05 | 291 | 0.3− | 0.3+ | 2007 04 14 | G96 | 0.1+ | 0.3+ | 2009 12 17 | G96 | 0.2+ | 0.1− |
| 2004 11 05 | 291 | 0.0 | 0.3+ | 2007 04 14 | G96 | 0.0 | 0.2+ | 2009 12 17 | G96 | 0.4+ | 0.3− |
| 2005 12 27 | 691 | 0.0 | 0.2+ | 2007 04 16 | G96 | 0.0 | 0.3+ | 2009 12 17 | G96 | 0.1+ | 0.2− |
| 2005 12 27 | 691 | 0.0 | 0.0 | 2007 04 16 | G96 | 0.1− | 0.5+ | 2009 12 17 | G96 | 0.4+ | 0.2− |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 2005 12 27 | 691 | 0.6− | 0.1+ | 2007 04 16 | G96 | 0.2− | 0.5+ | |
| 2006 01 04 | 691 | 0.3+ | 0.2+ | 2007 04 16 | G96 | 0.3+ | 0.4+ | |

**(229180)∗ 2004 TU$_{177}$ = 1995 OY$_{12}$ = 2005 YW$_{270}$**

Discovered 2004 Oct. 7 by Spacewatch at Kitt Peak.

Id. A. Doppler (*MPO* 112351)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | | **P** | **Q** | |
| $M$ | 97.24662 | | | (2000.0) | +0.93032450 | +0.36637672 | |
| $n$ | 0.22550587 | $\omega$ | 30.86242 | | −0.34052629 | +0.84652162 | |
| $a$ | 2.6731961 | $\Omega$ | 307.63642 | | −0.13615499 | +0.38622435 | |
| $e$ | 0.1048983 | $i$ | 1.17663 | | | | |
| $P$ | 4.37 | $H$ | 17.1 | $G$ 0.15 | $U$ 0 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 07 22 | 691 | 0.2− | 0.4− | 2004 10 15 | 691 | 0.1− | 0.3+ | 2008 07 30 | G96 | 0.2− | 0.0 | |
| 1995 07 22 | 691 | 0.2− | 0.2+ | 2004 10 15 | 691 | 0.0 | 0.1− | 2008 07 30 | G96 | 0.4− | 0.0 | |
| 1995 07 22 | 691 | 0.1− | 0.1+ | 2004 10 15 | 691 | 0.1− | 0.2+ | 2008 08 09 | J75 | (0.2+ | 1.7+) | |
| 1995 07 27 | 691 | 0.1+ | 0.1− | 2005 12 28 | 691 | 0.4+ | 0.1+ | 2008 08 09 | J75 | 0.1+ | 0.6− | |
| 1995 07 27 | 691 | 0.3− | 0.1− | 2005 12 28 | 691 | 0.1+ | 0.6+ | 2008 08 09 | J75 | 0.2+ | 1.0− | |
| 1995 07 27 | 691 | 0.2− | 0.1+ | 2005 12 28 | 691 | 0.3+ | 0.3− | 2009 11 25 | 691 | 0.3− | 0.6+ | |
| 2000 11 19 | 691 | 0.1− | 0.2+ | 2006 01 10 | G96 | 0.3+ | 0.2− | 2009 11 25 | 691 | 0.6− | 0.2− | |
| 2000 11 19 | 691 | 0.1+ | 0.3− | 2006 01 10 | G96 | 0.2+ | 0.3− | 2009 11 25 | 691 | 0.5− | 0.2− | |
| 2000 11 19 | 691 | 0.4+ | 0.6− | 2006 01 10 | G96 | 0.1+ | 0.2− | 2009 12 10 | G96 | 0.1+ | 0.4− | |
| 2004 10 07 | 691 | 0.4+ | 0.3+ | 2006 01 10 | G96 | 0.1− | 0.2− | 2009 12 10 | G96 | 0.9+ | 0.1+ | |
| 2004 10 07 | 691 | 0.5+ | 0.4+ | 2007 04 18 | G96 | 0.6+ | 0.0 | 2009 12 10 | G96 | 0.1− | 0.4− | |
| 2004 10 07 | 691 | 0.2+ | 0.2+ | 2007 04 18 | G96 | 0.1− | 0.3+ | 2009 12 20 | G96 | 0.4− | 0.2+ | |
| 2004 10 11 | 691 | 0.3− | 0.2− | 2007 04 18 | G96 | 0.2+ | 0.0 | 2009 12 20 | G96 | 0.8− | 0.2+ | |
| 2004 10 11 | 691 | 0.0 | 0.3− | 2007 04 18 | G96 | 0.0 | 0.4+ | 2009 12 20 | G96 | 0.4− | 0.2+ | |
| 2004 10 11 | 691 | 0.2+ | 0.3+ | 2008 07 30 | G96 | 0.1− | 0.6+ | 2009 12 20 | G96 | 0.3− | 0.2+ | |

**(229181)∗ 2004 TX$_{178}$ = 2005 YD$_{63}$**

Discovered 2004 Oct. 7 by Spacewatch at Kitt Peak.

Id. A. Doppler (*MPO* 109079)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | | **P** | **Q** | |
| $M$ | 168.81741 | | | (2000.0) | +0.01678041 | +0.99977000 | |
| $n$ | 0.22896306 | $\omega$ | 223.43354 | | −0.91233059 | +0.02077534 | |
| $a$ | 2.6462189 | $\Omega$ | 47.53272 | | −0.40911040 | −0.00532234 | |
| $e$ | 0.0612972 | $i$ | 1.03738 | | | | |
| $P$ | 4.30 | $H$ | 16.7 | $G$ 0.15 | $U$ 0 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 02 14 | 291 | 0.5− | 0.2+ | 2006 01 05 | 691 | 0.4+ | 0.1+ | 2007 04 18 | G96 | 0.5+ | 0.1+ | |
| 2002 02 14 | 291 | 0.2− | 0.1+ | 2006 01 05 | 691 | 0.3+ | 0.1+ | 2007 04 18 | G96 | 0.4+ | 0.1+ | |
| 2002 02 14 | 291 | 0.4− | 0.2+ | 2006 01 05 | 691 | 0.2+ | 0.0 | 2007 05 07 | 691 | 0.0 | 0.0 | |
| 2004 10 07 | 691 | 0.5− | 0.4+ | 2007 03 10 | G96 | 0.0 | 0.3− | 2007 05 07 | 691 | 0.4− | 0.0 | |
| 2004 10 07 | 691 | 0.5− | 0.4+ | 2007 03 10 | G96 | 0.4− | 0.0 | 2007 05 07 | 691 | 0.3+ | 0.3+ | |
| 2004 10 07 | 691 | 0.5− | 0.2+ | 2007 03 10 | G96 | 0.0 | 0.3− | 2008 09 23 | G96 | 0.1− | 0.1− | |
| 2004 10 11 | 691 | 0.4+ | 0.0 | 2007 03 10 | G96 | 0.3− | 0.2− | 2008 09 23 | G96 | 0.1+ | 0.0 | |
| 2004 10 11 | 691 | 0.3+ | 0.4+ | 2007 03 11 | H55 | 0.0 | 0.4+ | 2008 09 23 | G96 | 0.5+ | 0.2− | |
| 2004 10 11 | 691 | 0.1− | 0.1+ | 2007 03 11 | H55 | 0.2+ | 0.9+ | 2008 09 23 | G96 | 0.2+ | 0.2− | |
| 2004 10 15 | 691 | 0.2− | 0.2+ | 2007 03 11 | H55 | 0.3+ | 1.0+ | 2009 11 09 | 691 | 0.3+ | 0.4+ | |
| 2004 10 15 | 691 | 0.5+ | 0.0 | 2007 03 13 | 691 | 0.2+ | 0.1− | 2009 11 09 | 691 | 0.1− | 0.2− | |
| 2004 10 15 | 691 | 0.0 | 0.2− | 2007 03 13 | 691 | 0.3+ | 0.1− | 2009 11 09 | 691 | 0.7− | 0.3− | |
| 2005 12 24 | 691 | 0.2+ | 0.1+ | 2007 03 13 | 691 | 0.1− | 0.0 | 2009 11 21 | 691 | 0.1− | 0.1+ | |
| 2005 12 24 | 691 | 0.5+ | 0.0 | 2007 03 17 | 691 | 0.2− | 0.2− | 2009 11 21 | 691 | 0.6− | 0.0 | |
| 2005 12 24 | 691 | 0.3+ | 0.2+ | 2007 03 17 | 691 | 0.2+ | 0.1+ | 2009 11 21 | 691 | 0.1− | 0.1− | |
| 2005 12 28 | G96 | 0.2− | 0.4− | 2007 03 17 | 691 | 0.2− | 0.6+ | 2009 11 25 | 691 | 0.4− | 0.1− | |
| 2005 12 28 | G96 | 0.0 | 0.2− | 2007 04 07 | G96 | 0.0 | 0.2+ | 2009 11 25 | 691 | 0.2− | 0.1+ | |
| 2005 12 28 | G96 | 0.2− | 0.3− | 2007 04 07 | G96 | 0.1+ | 0.1+ | 2009 11 25 | 691 | 0.1+ | 0.1− | |
| 2005 12 28 | 691 | 0.1+ | 0.0 | 2007 04 07 | G96 | 0.2+ | 0.0 | 2009 12 10 | G96 | 0.7+ | 0.8− | |
| 2005 12 28 | G96 | 0.0 | 0.1− | 2007 04 07 | G96 | 0.2+ | 0.1− | 2009 12 10 | G96 | 0.8+ | 0.1− | |
| 2005 12 28 | 691 | 0.2+ | 0.1− | 2007 04 18 | G96 | 0.1+ | 0.3+ | 2009 12 10 | G96 | 0.3+ | 0.2− | |
| 2005 12 28 | 691 | 0.2+ | 0.2+ | 2007 04 18 | G96 | 0.0 | 0.1+ | 2009 12 10 | G96 | 0.3+ | 0.1− | |

**(229182)∗ 2004 TK$_{187}$ = 2006 BK$_{9}$**

Discovered 2004 Oct. 7 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 95546)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | | **P** | **Q** | |
| $M$ | 310.94710 | | | (2000.0) | −0.60308137 | −0.79716288 | |
| $n$ | 0.21119048 | $\omega$ | 281.55001 | | +0.75530377 | −0.55909876 | |
| $a$ | 2.7926713 | $\Omega$ | 205.60810 | | +0.25653281 | −0.22790332 | |
| $e$ | 0.1541699 | $i$ | 3.80858 | | | | |
| $P$ | 4.67 | $H$ | 16.0 | $G$ 0.15 | $U$ 1 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 05 06 | 691 | 0.3− | 0.5− | 2006 02 09 | 644 | 0.0 | 0.4+ | 2009 11 11 | J75 | 0.1+ | 0.1+ | |
| 1997 05 06 | 691 | 0.1+ | 0.4− | 2006 02 21 | 699 | 1.0− | 0.6+ | 2009 11 11 | J75 | 0.0 | 0.1+ | |
| 1997 05 06 | 691 | 0.0 | 0.5− | 2006 02 21 | 699 | (1.6+ | 0.9+) | 2009 11 11 | J75 | 0.2+ | 0.0 | |
| 2003 07 06 | 691 | 0.2− | 0.2+ | 2006 02 21 | 699 | 0.4− | 0.5+ | 2009 11 14 | J75 | 0.3+ | 0.4− | |
| 2003 07 06 | 691 | 0.0 | 0.7+ | 2006 02 21 | 699 | 1.0− | 0.7+ | 2009 11 14 | J75 | 1.3+ | 0.5− | |
| 2003 07 06 | 691 | 0.1− | 0.7+ | 2006 02 26 | 704 | 1.2+ | 0.5+ | 2009 11 14 | J75 | 0.1+ | 0.4− | |
| 2004 09 10 | 691 | 0.2− | 0.2+ | 2006 02 26 | 704 | 0.3+ | 0.9+ | 2009 11 15 | 703 | 0.9+ | 0.1+ | |
| 2004 09 10 | 691 | 0.3− | 0.3+ | 2006 02 26 | 704 | 1.1+ | 0.6− | 2009 11 15 | 703 | 0.6+ | 1.2− | |
| 2004 09 10 | 691 | 0.5− | 0.4+ | 2006 02 26 | 704 | 1.0+ | 1.3+ | 2009 11 15 | 703 | 0.7− | 0.8+ | |
| 2004 10 07 | 691 | 0.1+ | 0.2− | 2006 02 26 | 704 | 0.8+ | 1.2+ | 2009 11 15 | 703 | 0.6+ | 0.9− | |
| 2004 10 07 | 691 | 0.0 | 0.0 | 2006 03 04 | 699 | 1.3− | 0.3+ | 2009 11 17 | G96 | 0.2+ | 0.1− | |
| 2004 10 07 | 691 | 0.1+ | 0.1+ | 2006 03 04 | 699 | 0.4+ | 0.8+ | 2009 11 17 | G96 | 0.0 | 0.1− | |
| 2004 10 11 | 691 | 0.2− | 0.1+ | 2006 03 04 | 699 | 0.2+ | 0.6− | 2009 11 17 | G96 | 0.3+ | 0.1− | |
| 2004 10 11 | 691 | 0.1− | 0.1− | 2006 03 04 | 699 | 0.7+ | 0.3+ | 2009 11 17 | G96 | 0.2+ | 0.1− | |
| 2004 10 11 | 691 | 0.0 | 0.0 | 2009 10 22 | 704 | 0.7− | 0.0 | 2009 11 23 | G96 | 0.3+ | 0.1− | |
| 2004 10 15 | 691 | 0.1+ | 0.1− | 2009 10 22 | 704 | 0.1+ | 1.0− | 2009 11 23 | G96 | 0.4+ | 0.2− | |
| 2004 10 15 | 691 | 0.1+ | 0.1− | 2009 10 22 | 704 | (1.8− | 2.9−) | 2009 11 23 | G96 | 0.4+ | 0.5− | |
| 2004 10 15 | 691 | 0.0 | 0.1+ | 2009 10 22 | 704 | 1.0− | 1.1− | 2009 11 23 | 703 | 0.4+ | 0.8− | |
| 2006 01 20 | 703 | 0.3− | 0.0 | 2009 10 23 | 691 | 0.6− | 0.1+ | 2009 11 23 | G96 | 1.0+ | 0.6− | |
| 2006 01 20 | 703 | 0.5− | 0.3+ | 2009 10 23 | 691 | 0.5− | 0.2− | 2009 11 23 | 703 | 1.4+ | 0.1+ | |
| 2006 01 20 | 703 | 0.9− | 0.0 | 2009 10 23 | 691 | 0.7− | 0.2+ | 2009 11 23 | 703 | 0.7+ | 0.4+ | |
| 2006 01 20 | 703 | 0.1+ | 1.0+ | 2009 10 23 | G96 | 0.2+ | 0.3− | 2009 11 23 | 703 | 0.1+ | 0.1+ | |
| 2006 01 23 | 704 | (2.6+ | 0.4−) | 2009 10 23 | G96 | 0.3+ | 0.0 | 2009 11 23 | 703 | (0.4− | 1.7−) | |
| 2006 01 23 | 704 | 0.6+ | 0.9+ | 2009 10 23 | G96 | 0.2+ | 0.3− | 2009 12 10 | 703 | 1.0+ | 0.0 | |
| 2006 01 23 | 704 | 0.1− | 0.8− | 2009 10 23 | G96 | 0.8+ | 0.2+ | 2009 12 10 | 703 | 0.0 | 0.0 | |
| 2006 01 23 | 704 | 0.6+ | 0.8+ | 2009 11 08 | 703 | 0.7+ | 0.2+ | 2009 12 10 | 703 | 0.1− | 0.9+ | |
| 2006 01 30 | 703 | 0.3− | 0.2− | 2009 11 08 | 703 | 0.3+ | 0.0 | 2009 12 10 | 703 | 0.5+ | 0.2+ | |
| 2006 01 30 | 703 | 0.2+ | 0.1− | 2009 11 08 | 703 | 0.9− | 0.0 | 2009 12 19 | G96 | 0.1+ | 0.4− | |
| 2006 01 30 | 703 | 0.2− | 0.3+ | 2009 11 08 | 703 | 0.9− | 0.7+ | 2009 12 19 | G96 | 0.0 | 0.5− | |
| 2006 01 30 | 703 | 0.1− | 0.8+ | 2009 11 09 | J75 | 0.9+ | 0.9+ | 2009 12 19 | G96 | 0.2+ | 0.5− | |
| 2006 02 09 | 644 | 0.5+ | 0.7+ | 2009 11 09 | J75 | 0.2− | 0.4+ | 2009 12 19 | G96 | 0.0 | 0.4− | |
| 2006 02 09 | 644 | 0.0 | 0.3+ | 2009 11 09 | J75 | 0.6− | 0.3+ | | | | | |

**(229183)∗ 2004 TH$_{188}$**

Discovered 2004 Oct. 7 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | | **P** | **Q** | |
| $M$ | 146.65878 | | | (2000.0) | +0.07322024 | +0.99698074 | |
| $n$ | 0.21177724 | $\omega$ | 69.26721 | | −0.93628654 | +0.05978880 | |
| $a$ | 2.7875106 | $\Omega$ | 204.97432 | | −0.34352046 | +0.04954500 | |
| $e$ | 0.0214312 | $i$ | 3.51009 | | | | |
| $P$ | 4.65 | $H$ | 16.7 | $G$ 0.15 | $U$ 0 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1993 04 21 | 691 | 0.6− | 1.5− | 2005 12 31 | 691 | 0.3+ | 0.1− | 2009 10 22 | G96 | 0.8− | 0.2− | |
| 1993 04 21 | 691 | 0.3− | 1.6+ | 2007 03 26 | 691 | 0.0 | 0.7− | 2009 10 23 | 691 | 0.0 | 0.3− | |
| 1993 04 21 | 691 | 0.1+ | 0.5+ | 2007 03 26 | 691 | 0.0 | 0.4+ | 2009 10 23 | 691 | 0.3− | 0.1+ | |
| 2002 03 10 | 291 | 0.1+ | 0.5+ | 2007 03 26 | 691 | 0.0 | 0.2− | 2009 10 23 | 691 | 0.4− | 0.0 | |
| 2002 03 10 | 291 | 0.1− | 0.3+ | 2007 04 14 | G96 | 0.3− | 0.1+ | 2009 10 27 | 691 | 0.3− | 0.1− | |
| 2002 03 10 | 291 | 0.0 | 0.5+ | 2007 04 14 | G96 | 0.2− | 0.3− | 2009 10 27 | 691 | 0.2− | 0.1+ | |
| 2002 03 10 | 691 | 0.6+ | 0.2+ | 2007 04 14 | G96 | 0.6+ | 0.4− | 2009 10 27 | 691 | 0.5− | 0.3+ | |
| 2002 03 10 | 691 | 0.5+ | 0.3+ | 2007 04 14 | G96 | 0.2− | 0.2+ | 2009 11 16 | G96 | 0.1+ | 0.1− | |
| 2002 03 10 | 691 | 0.7+ | 0.5+ | 2007 04 25 | G96 | 0.2+ | 0.4+ | 2009 11 16 | G96 | 0.3+ | 0.5− | |
| 2004 09 10 | 691 | 0.2− | 0.1+ | 2007 04 25 | G96 | 0.1+ | 0.1− | 2009 11 16 | G96 | 0.2+ | 0.4− | |
| 2004 09 10 | 691 | 0.1− | 0.4+ | 2007 04 25 | G96 | 0.0 | 0.3+ | 2009 11 16 | G96 | 0.3+ | 0.3− | |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 10 | 691 | 0.1− | 0.1+ | 2007 04 25 | G96 | 0.1− | 0.1+ | 2009 11 17 | G96 | 0.3− | 0.3− |
| 2004 10 07 | 691 | 0.2+ | 0.2+ | 2007 04 25 | G96 | 0.1− | 0.1+ | 2009 11 17 | G96 | 0.0 | 0.2+ |
| 2004 10 07 | 691 | 0.0 | 0.5+ | 2007 04 25 | G96 | 0.1− | 0.1+ | 2009 11 17 | G96 | 0.1+ | 0.4− |
| 2004 10 07 | 691 | 0.2+ | 0.3+ | 2007 04 25 | G96 | 0.3+ | 0.1+ | 2009 11 17 | G96 | 0.0 | 0.2− |
| 2004 10 11 | 691 | 0.2+ | 0.3+ | 2007 04 25 | G96 | 0.3− | 0.2− | 2009 11 24 | G96 | 0.2+ | 0.1− |
| 2004 10 11 | 691 | 0.1− | 0.4+ | 2007 05 09 | G96 | 0.3− | 0.1− | 2009 11 24 | G96 | 0.5− | 0.1− |
| 2004 10 11 | 691 | 0.1+ | 0.3+ | 2007 05 09 | G96 | 0.5+ | 0.1− | 2009 11 24 | G96 | 0.3− | 0.1− |
| 2004 10 15 | 691 | 0.2+ | 0.3+ | 2007 05 09 | G96 | 0.2− | 0.4+ | 2009 11 24 | G96 | 0.1− | 0.1− |
| 2004 10 15 | 691 | 0.1+ | 0.1+ | 2007 05 09 | G96 | 0.2− | 0.1− | 2009 12 19 | G96 | 0.7+ | 0.8− |
| 2004 10 15 | 691 | 0.1+ | 0.2+ | 2009 10 22 | G96 | 0.3− | 0.1+ | 2009 12 19 | G96 | 0.6+ | 1.2− |
| 2005 12 31 | 691 | 0.2+ | 0.4− | 2009 10 22 | G96 | 0.4− | 0.0 | 2009 12 19 | G96 | 0.1+ | 0.5− |
| 2005 12 31 | 691 | 0.0 | 0.1− | 2009 10 22 | G96 | 0.9− | 0.1− | 2009 12 19 | G96 | 0.6+ | 0.2− |

**(229184)∗ 2004 TV$_{196}$ = 2005 YB$_{273}$**

Discovered 2004 Oct. 7 by Spacewatch at Kitt Peak.

Id. A. Doppler (*MPO* 100817)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 156.43783 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.20978069 | $\omega$ | 64.56257 | | +0.00587985 | | +0.99956826 |
| $a$ | 2.8051691 | $\Omega$ | 205.82359 | | −0.93957008 | | −0.00433211 |
| $e$ | 0.0216544 | $i$ | 3.78924 | | −0.34230614 | | +0.02906064 |
| $P$ | 4.70 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 04 13 | 291 | 0.4+ | 0.5+ | 2006 01 10 | 691 | 0.4+ | 0.4− | 2009 10 23 | G96 | 0.4+ | 0.2− |
| 2002 04 13 | 291 | 0.4+ | 0.8+ | 2006 01 10 | 691 | 0.3− | 0.1+ | 2009 10 23 | G96 | 0.4+ | 0.3− |
| 2002 04 13 | 291 | 0.6+ | 0.7+ | 2006 01 10 | 691 | 0.1− | 0.4+ | 2009 11 08 | 691 | 0.1+ | 0.8+ |
| 2004 10 07 | 691 | 0.2− | 0.1+ | 2007 04 14 | 691 | 0.2+ | 0.1+ | 2009 11 08 | 691 | 0.3− | 0.0 |
| 2004 10 07 | 691 | 0.2− | 0.3− | 2007 04 14 | 691 | 0.2+ | 0.1− | 2009 11 08 | 691 | 0.6− | 0.2+ |
| 2004 10 07 | 691 | 0.3− | 0.2+ | 2007 04 14 | 691 | 0.7− | 0.0 | 2009 11 23 | G96 | 0.5+ | 0.0 |
| 2004 10 11 | 691 | 0.2− | 0.1+ | 2007 04 26 | 691 | 0.4− | 0.3+ | 2009 11 23 | G96 | 0.4+ | 0.1− |
| 2004 10 11 | 691 | 0.1− | 0.5+ | 2007 04 26 | 691 | 0.3+ | 0.1+ | 2009 11 23 | G96 | 0.1− | 0.1− |
| 2004 10 11 | 691 | 0.0 | 0.2+ | 2007 04 26 | 691 | 0.4− | 0.6+ | 2009 11 23 | G96 | 0.5+ | 0.2− |
| 2004 10 12 | 695 | 0.2− | 0.2+ | 2007 05 09 | G96 | 0.1+ | 0.3− | 2009 11 23 | G96 | 0.4+ | 0.1− |
| 2004 10 12 | 695 | 0.5− | 0.1− | 2007 05 09 | G96 | 0.0 | 0.3− | 2009 11 23 | G96 | 0.5+ | 0.2− |
| 2004 10 15 | 691 | 0.1− | 0.3+ | 2007 05 09 | G96 | 0.1+ | 0.2− | 2009 11 23 | G96 | 0.6+ | 0.0 |
| 2004 10 15 | 691 | 0.2+ | 0.2+ | 2007 05 09 | G96 | 1.0+ | 0.2− | 2009 11 23 | G96 | 0.2+ | 0.6− |
| 2004 10 15 | 691 | 0.0 | 0.4+ | 2008 08 20 | 691 | 0.2− | 0.6+ | 2009 12 19 | G96 | 0.1− | 0.6− |
| 2005 12 30 | 691 | 0.0 | 0.1− | 2008 08 20 | 691 | 0.3+ | 0.1+ | 2009 12 19 | G96 | 0.4+ | 0.2+ |
| 2005 12 30 | 691 | 0.3− | 0.1− | 2008 08 20 | 691 | 0.1− | 0.2+ | 2009 12 19 | G96 | 0.4+ | 0.1+ |
| 2005 12 30 | 691 | 0.0 | 0.2+ | 2009 10 23 | G96 | 0.6+ | 0.2− | 2009 12 19 | G96 | 0.2− | 0.0 |

**(229185)∗ 2004 TH$_{210}$**

Discovered 2004 Oct. 8 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 63.72124 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21654843 | $\omega$ | 32.64014 | | +0.97944542 | | −0.19952072 |
| $a$ | 2.7464141 | $\Omega$ | 338.80889 | | +0.16297567 | | +0.86934188 |
| $e$ | 0.1232397 | $i$ | 4.70228 | | +0.11885113 | | +0.45214620 |
| $P$ | 4.55 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 04 04 | 644 | 0.0 | 0.5+ | 2004 11 13 | 703 | 1.0− | 1.3− | 2006 03 04 | 691 | 0.0 | 0.3+ |
| 2002 04 04 | 644 | 0.2+ | 1.1+ | 2004 11 13 | 703 | (0.6− | 1.8−) | 2006 03 04 | 691 | 0.2+ | 0.5+ |
| 2002 04 04 | 644 | 0.4+ | 0.8+ | 2004 11 13 | 703 | 0.6− | 0.1+ | 2007 04 11 | 691 | 0.3− | 0.4+ |
| 2004 09 18 | 704 | 0.1+ | 1.3+ | 2004 11 13 | 703 | 1.3− | 1.4− | 2007 04 11 | 691 | 0.0 | 0.1+ |
| 2004 09 18 | 704 | 0.2+ | 0.8+ | 2006 01 25 | 691 | 0.0 | 0.2− | 2007 04 11 | 691 | 0.2+ | 0.1− |
| 2004 09 18 | 704 | 0.1+ | 0.8+ | 2006 01 25 | 691 | 0.0 | 0.1+ | 2008 07 28 | E12 | 0.5− | 0.7+ |
| 2004 10 08 | 691 | 0.2− | 0.3− | 2006 01 25 | 691 | 0.4+ | 0.0 | 2008 07 28 | E12 | 0.2− | 0.3+ |
| 2004 10 08 | 691 | 0.0 | 0.2− | 2006 01 26 | 703 | 0.5− | 0.1− | 2008 07 28 | E12 | 0.2+ | 0.6+ |
| 2004 10 08 | 691 | 0.2− | 0.3− | 2006 01 26 | 703 | 0.5− | 0.4+ | 2008 07 28 | E12 | 0.6+ | 0.4− |
| 2004 10 10 | 704 | 0.6− | 1.2+ | 2006 01 26 | 703 | 0.2+ | 0.4+ | 2008 09 25 | G96 | 0.3+ | 0.4+ |
| 2004 10 10 | 704 | 0.2− | 0.2+ | 2006 01 26 | 703 | 0.3+ | 0.7− | 2008 09 25 | G96 | 0.1+ | 0.1+ |
| 2004 10 10 | 704 | 0.8+ | 0.6+ | 2006 01 28 | G96 | 0.0 | 0.1− | 2008 09 25 | G96 | 0.5− | 0.4+ |
| 2004 10 12 | 691 | 0.1+ | 0.2+ | 2006 01 28 | G96 | 0.2+ | 0.1− | 2008 09 25 | G96 | 0.1− | 0.1+ |
| 2004 10 12 | 691 | 0.1+ | 0.2+ | 2006 01 28 | G96 | 0.1− | 0.2− | 2009 11 10 | 691 | 0.0 | 0.2− |
| 2004 10 12 | 691 | 0.1+ | 0.3+ | 2006 01 28 | G96 | 0.6+ | 0.2− | 2009 11 10 | 691 | 0.1− | 0.1+ |
| 2004 10 21 | 704 | 0.1+ | 0.0 | 2006 02 25 | G96 | 0.1− | 0.0 | 2009 11 10 | 691 | 0.4− | 0.2− |
| 2004 10 21 | 704 | 0.2+ | 0.8+ | 2006 02 25 | G96 | 0.2− | 0.2− | 2009 12 15 | 704 | 0.6+ | 0.7− |
| 2004 10 21 | 704 | 0.3+ | 1.0+ | 2006 02 25 | G96 | 0.1− | 0.3+ | 2009 12 15 | 704 | 0.0 | 0.5− |
| 2004 10 21 | 704 | 0.1− | 0.1+ | 2006 02 25 | G96 | 0.1− | 0.1+ | 2009 12 15 | 704 | 0.6+ | 0.8+ |
| 2004 10 21 | 704 | 0.2+ | 0.7+ | 2006 03 04 | 691 | 0.1+ | 0.1+ | | | | |

**(229186)∗ 2004 TO$_{219}$**

Discovered 2004 Oct. 5 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 57.31843 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21549422 | $\omega$ | 174.90852 | | +0.94645565 | | −0.31734948 |
| $a$ | 2.7553639 | $\Omega$ | 203.85702 | | +0.29078226 | | +0.91773907 |
| $e$ | 0.0335022 | $i$ | 8.42431 | | +0.14024045 | | +0.23883951 |
| $P$ | 4.57 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 04 04 | 644 | 0.2+ | 0.2+ | 2004 10 15 | G96 | 0.2− | 0.2− | 2007 05 12 | G96 | 0.1+ | 0.1− |
| 2002 04 04 | 644 | 0.5+ | 0.5+ | 2004 10 20 | 704 | 0.1+ | 0.4+ | 2007 05 16 | G96 | 0.3+ | 0.0 |
| 2002 04 04 | 644 | 0.6+ | 0.6+ | 2004 10 20 | 704 | 0.3− | 0.1+ | 2007 05 16 | G96 | 0.3+ | 0.2+ |
| 2002 04 04 | 644 | 0.2+ | 0.4+ | 2004 10 20 | 704 | 0.2+ | 0.3+ | 2007 05 16 | G96 | 0.3+ | 0.1+ |
| 2002 04 04 | 644 | 0.3− | 0.2+ | 2004 10 20 | 704 | 0.2+ | 0.9+ | 2007 05 16 | G96 | 0.2− | 0.3− |
| 2002 04 15 | 644 | 0.2− | 1.2+ | 2007 03 13 | G96 | 0.9− | 0.5− | 2008 08 09 | J75 | 0.6+ | 0.1+ |
| 2002 04 15 | 644 | 0.1− | 1.4+ | 2007 03 13 | G96 | 0.1+ | 0.2− | 2008 08 09 | J75 | 1.4+ | 0.1− |
| 2002 04 15 | 644 | 0.0 | 1.2+ | 2007 03 13 | G96 | 0.2+ | 0.1+ | 2008 08 09 | J75 | 0.2− | 0.2− |
| 2004 09 07 | 691 | 0.2− | 0.2+ | 2007 03 13 | G96 | 0.4− | 0.7+ | 2008 09 03 | 691 | 0.4− | 0.2+ |
| 2004 09 07 | 691 | 0.2− | 0.2+ | 2007 04 20 | D35 | 0.7+ | 0.3+ | 2008 09 03 | 691 | 0.1− | 0.1+ |
| 2004 09 07 | 691 | 0.0 | 0.0 | 2007 04 20 | D35 | 0.0 | 0.4− | 2008 09 03 | 691 | 0.2− | 0.1− |
| 2004 10 05 | 691 | 0.0 | 0.3+ | 2007 04 20 | D35 | 1.0+ | 0.7+ | 2009 11 26 | G96 | 0.1− | 0.1+ |
| 2004 10 05 | 691 | 0.1+ | 0.0 | 2007 04 26 | 691 | 0.1+ | 0.0 | 2009 11 26 | G96 | 0.1− | 0.1+ |
| 2004 10 05 | 691 | 0.3+ | 0.3+ | 2007 04 26 | 691 | 0.2+ | 0.2− | 2009 11 26 | G96 | 0.3+ | 0.1+ |
| 2004 10 12 | 691 | 0.1− | 0.2+ | 2007 04 26 | 691 | 0.3− | 0.5+ | 2009 11 26 | G96 | 0.1+ | 0.1+ |
| 2004 10 12 | 691 | 0.1+ | 0.2+ | 2007 05 09 | A50 | 0.3+ | 0.8+ | 2009 11 26 | G96 | 0.1− | 0.2+ |
| 2004 10 12 | 691 | 0.0 | 0.3+ | 2007 05 09 | A50 | 0.3+ | 0.3+ | 2009 12 11 | 703 | 0.4+ | 0.2− |
| 2004 10 15 | G96 | 0.1− | 0.3− | 2007 05 12 | G96 | 0.3− | 0.2+ | 2009 12 11 | 703 | 0.1− | 0.1+ |
| 2004 10 15 | G96 | 0.2− | 0.5− | 2007 05 12 | G96 | 0.1− | 0.1− | 2009 12 11 | 703 | 0.5− | 0.6− |
| 2004 10 15 | G96 | 0.0 | 0.3− | 2007 05 12 | G96 | 0.4− | 0.1+ | 2009 12 11 | 703 | 0.0 | 0.4+ |

**(229187)∗ 2004 TP$_{219}$ = 2002 GA$_{58}$**

Discovered 2004 Oct. 5 by Spacewatch at Kitt Peak.

Id. A. Doppler (*MPO* 76523)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 25.91270 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21725447 | $\omega$ | 53.87849 | | +0.52371488 | | −0.85189112 |
| $a$ | 2.7404607 | $\Omega$ | 4.54119 | | +0.77300341 | | +0.47419869 |
| $e$ | 0.0742388 | $i$ | 1.49020 | | +0.35803415 | | +0.22229963 |
| $P$ | 4.54 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 04 08 | 691 | 0.1+ | 0.2+ | 2004 10 15 | G96 | 0.6+ | 0.7− | 2008 07 30 | G96 | 0.6− | 0.1− |
| 2002 04 08 | 691 | 0.3+ | 0.7+ | 2004 10 15 | G96 | 0.3− | 0.0 | 2008 07 30 | G96 | 0.6− | 0.2− |
| 2002 04 08 | 691 | 0.4+ | 0.4+ | 2004 10 15 | G96 | 0.3+ | 0.5− | 2008 07 30 | G96 | 0.1+ | 0.0 |
| 2002 04 09 | 691 | 0.1+ | 0.4+ | 2004 10 15 | G96 | 1.0+ | 1.0− | 2008 07 30 | G96 | 0.1+ | 0.2+ |
| 2002 04 09 | 691 | 0.3− | 0.1+ | 2006 01 27 | G96 | 0.3+ | 0.3− | 2008 09 22 | G96 | 0.2+ | 0.5+ |
| 2002 04 09 | 691 | 0.1+ | 0.3+ | 2006 01 27 | G96 | 0.2− | 0.5− | 2008 09 22 | G96 | 0.3+ | 0.0 |
| 2004 09 17 | 691 | 0.4+ | 0.3+ | 2006 01 27 | G96 | 0.1− | 1.0− | 2008 09 22 | G96 | 0.9+ | 0.3− |
| 2004 09 17 | 691 | 0.3− | 0.5+ | 2006 01 27 | G96 | (1.6+ | 1.7−) | 2008 09 22 | G96 | 0.2− | 0.2− |
| 2004 09 17 | 691 | 0.5− | 0.6+ | 2006 03 05 | G96 | 0.6+ | 0.3+ | 2009 11 09 | 691 | 0.0 | 0.2+ |
| 2004 10 05 | 691 | 0.1− | 0.6+ | 2006 03 05 | G96 | 0.0 | 0.3+ | 2009 11 09 | 691 | 0.1+ | 0.1− |
| 2004 10 05 | 691 | 0.2− | 0.2+ | 2006 03 05 | G96 | 0.0 | 0.2+ | 2009 11 09 | 691 | 0.9− | 0.2− |
| 2004 10 05 | 691 | 0.1− | 0.3+ | 2006 03 05 | G96 | 0.6+ | 0.4+ | 2009 12 11 | G96 | 0.5+ | 0.1+ |
| 2004 10 12 | 691 | 0.1− | 0.3+ | 2007 04 21 | 807 | 0.1− | 0.2+ | 2009 12 11 | G96 | 0.5+ | 0.0 |
| 2004 10 12 | 691 | 0.3− | 0.0 | 2007 04 22 | 807 | 0.3+ | 0.0 | 2009 12 11 | G96 | 0.5+ | 0.2+ |
| 2004 10 12 | 691 | 0.1− | 0.1+ | 2007 04 22 | 807 | 0.1+ | 0.1+ | 2009 12 11 | G96 | 0.6+ | 0.2− |

**(229188)∗ 2004 TF$_{221}$**

Discovered 2004 Oct. 7 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 1.38085 | | (2000.0) | | | |
| $n$ | 0.22077299 | $\omega$ | 28.70095 | | −0.17587429 | −0.96800834 |
| $a$ | 2.7112657 | $\Omega$ | 71.90410 | | +0.86339709 | −0.23901265 |
| $e$ | 0.2229602 | $i$ | 10.85222 | | +0.47287810 | +0.07637285 |
| $P$ | 4.46 | $H$ | 15.7 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 03 18 | 599 | 0.1+ | 0.7− | 2004 10 10 | 644 | 0.2+ | 0.2− | 2009 11 17 | 704 | 0.9+ | 0.5+ |
| 1997 03 18 | 599 | 0.2− | 0.4+ | 2004 10 10 | 644 | 0.3− | 0.4+ | 2009 11 17 | 704 | 0.5+ | 0.5− |
| 2000 11 30 | 704 | 1.0− | 0.5− | 2004 10 14 | 699 | (1.0− | 2.9+) | 2009 11 17 | 704 | 0.8+ | 0.3+ |
| 2000 11 30 | 704 | 0.6− | 0.6− | 2004 10 14 | 699 | 1.0+ | 0.4+ | 2009 11 18 | G92 | 0.3+ | 0.4− |
| 2000 11 30 | 704 | 0.0 | 0.1− | 2004 10 14 | 699 | 0.6+ | 0.3− | 2009 11 18 | G92 | 0.3+ | 0.3+ |
| 2000 11 30 | 704 | 0.3− | 0.0 | 2004 10 14 | 699 | (0.7− | 2.2−) | 2009 11 18 | G92 | 0.3+ | 0.0 |
| 2000 11 30 | 704 | 0.2+ | 0.3− | 2004 10 20 | 703 | 0.1+ | 0.2− | 2009 11 21 | G96 | 0.0 | 0.2− |
| 2000 12 20 | 704 | 0.4− | 0.4+ | 2004 10 20 | 703 | 0.2+ | 0.7− | 2009 11 21 | G96 | 0.2+ | 0.1− |
| 2000 12 20 | 704 | 0.2+ | 0.3− | 2004 10 20 | 703 | (1.6− | 0.7+) | 2009 11 21 | G96 | 0.1− | 0.2− |
| 2000 12 20 | 704 | 0.3+ | 0.4+ | 2004 10 20 | 703 | 0.5+ | 0.0 | 2009 11 21 | G96 | 0.3− | 0.3− |
| 2000 12 20 | 704 | 0.2+ | 0.0 | 2006 03 03 | 703 | 0.1+ | 0.2+ | 2009 11 27 | 703 | 0.4− | 0.3+ |
| 2000 12 20 | 704 | 0.4− | 0.1+ | 2006 03 03 | 703 | 0.2+ | 0.2+ | 2009 11 27 | 703 | 0.4− | 0.6+ |
| 2001 01 04 | 704 | 0.4+ | 0.2− | 2006 03 03 | 703 | 0.5− | 1.0+ | 2009 11 27 | 703 | 0.9− | 0.4− |
| 2001 01 04 | 704 | 0.5− | 0.1− | 2006 03 03 | 703 | 0.5− | 0.5+ | 2009 11 27 | 703 | 0.3− | 0.0 |
| 2001 01 04 | 704 | 0.5+ | 0.3+ | 2006 03 25 | 703 | (1.9+ | 1.0−) | 2009 12 15 | 704 | 0.4− | 0.1+ |
| 2001 01 19 | 704 | 0.3+ | 0.6+ | 2006 03 25 | 703 | 0.6− | 0.6+ | 2009 12 15 | 704 | 0.5− | 0.5+ |
| 2001 01 19 | 704 | 0.0 | 0.2+ | 2006 03 25 | 703 | 0.7+ | 0.2+ | 2009 12 15 | 704 | 1.0− | 0.4+ |
| 2001 01 19 | 704 | 1.2+ | 0.3− | 2006 03 25 | 703 | 0.2+ | 0.1+ | 2009 12 15 | 704 | 0.2− | 0.5+ |
| 2004 10 07 | 704 | 0.3+ | 0.2+ | 2006 04 02 | 703 | 1.0+ | 0.5− | 2009 12 15 | 704 | 0.3− | 0.3+ |
| 2004 10 07 | 704 | 0.4− | 0.1− | 2006 04 02 | 703 | 0.3− | 0.7− | 2009 12 20 | G96 | 0.2+ | 0.3− |
| 2004 10 07 | 704 | 1.0− | 0.7+ | 2006 04 02 | 703 | 0.1+ | 0.0 | 2009 12 20 | G96 | 0.2+ | 0.3− |
| 2004 10 07 | 704 | 1.2− | 0.2− | 2006 04 02 | 703 | 0.0 | 0.8− | 2009 12 20 | G96 | 0.1+ | 0.2− |
| 2004 10 07 | 704 | 0.1− | 0.9+ | 2009 11 17 | 704 | 0.8+ | 0.1+ | 2009 12 20 | G96 | 0.1− | 0.3− |
| 2004 10 10 | 644 | 0.5− | 0.2− | 2009 11 17 | 704 | 1.1+ | 0.3− | | | | |

**(229189)∗ 2004 TH$_{222}$**

Discovered 2004 Oct. 7 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 62.47801 | | (2000.0) | | | |
| $n$ | 0.21628056 | $\omega$ | 291.11953 | | +0.94956838 | −0.19916397 |
| $a$ | 2.7486813 | $\Omega$ | 81.00448 | | +0.28776631 | +0.86029655 |
| $e$ | 0.2438661 | $i$ | 14.19371 | | −0.12454095 | +0.46927983 |
| $P$ | 4.56 | $H$ | 15.4 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 05 27 | 926 | (0.2+ | 1.9+) | 2004 11 12 | 704 | 0.1+ | 0.0 | 2008 06 27 | E12 | 0.2− | 0.4+ |
| 2003 05 27 | 926 | 0.1− | 1.0+ | 2004 11 12 | 704 | 0.0 | 0.5+ | 2008 06 27 | E12 | 0.1+ | 0.6+ |
| 2003 05 27 | 926 | (0.0 | 1.7+) | 2004 11 14 | 608 | (0.0 | 2.1−) | 2009 10 15 | G96 | 0.1− | 0.5− |
| 2004 08 09 | 704 | 0.6+ | 1.1+ | 2004 11 14 | 608 | (0.1+ | 1.9−) | 2009 10 15 | G96 | 0.4+ | 0.1− |
| 2004 08 09 | 704 | 1.1+ | 0.7+ | 2004 11 14 | 608 | (0.2+ | 1.9−) | 2009 10 15 | G96 | 0.2+ | 0.3− |
| 2004 08 09 | 704 | 0.1+ | 0.3+ | 2004 11 20 | 703 | 0.3− | 0.5+ | 2009 10 15 | G96 | 0.2+ | 0.3− |
| 2004 10 04 | 644 | 0.2− | 0.1− | 2004 11 20 | 703 | 1.2+ | 0.6− | 2009 11 20 | G96 | 0.1− | 0.1− |
| 2004 10 04 | 644 | 0.0 | 0.0 | 2004 11 20 | 703 | 0.3− | 0.4+ | 2009 11 20 | G96 | 0.2− | 0.3− |
| 2004 10 04 | 644 | 0.2− | 0.1+ | 2004 11 20 | 703 | 0.3− | 1.1+ | 2009 11 20 | G96 | 0.2− | 0.0 |
| 2004 10 07 | 704 | 0.2+ | 0.1− | 2004 12 04 | 699 | 0.8+ | 0.0 | 2009 11 20 | G96 | 0.2− | 0.1− |
| 2004 10 07 | 704 | 0.5− | 0.0 | 2004 12 04 | 699 | 1.3+ | 0.7− | 2009 11 22 | 704 | 0.6− | 0.5− |
| 2004 10 07 | 704 | 0.0 | 0.2− | 2004 12 04 | 699 | 1.3− | 0.0 | 2009 11 22 | 704 | 0.3+ | 0.0 |
| 2004 10 07 | 704 | 0.1+ | 0.4− | 2004 12 04 | 699 | 1.1+ | 0.7− | 2009 11 22 | 704 | 0.0 | 0.6− |
| 2004 10 07 | 704 | 0.0 | 0.1− | 2004 12 07 | 704 | 0.5− | 0.3+ | 2009 11 22 | 704 | 0.6− | 0.3− |
| 2004 10 11 | 644 | 0.0 | 0.1+ | 2004 12 07 | 704 | 0.6+ | 0.1+ | 2009 11 22 | 704 | 0.6+ | 0.5+ |
| 2004 10 11 | 644 | 0.2− | 0.2+ | 2004 12 07 | 704 | 0.7+ | 0.1− | 2009 11 27 | 703 | 0.5+ | 0.4− |
| 2004 10 11 | 644 | 0.1− | 0.1+ | 2004 12 07 | 704 | 0.1+ | 0.6+ | 2009 11 27 | 703 | 0.1+ | 0.1− |
| 2004 10 13 | 699 | 0.5− | 0.2− | 2004 12 07 | 704 | 0.9+ | 0.2− | 2009 11 27 | 703 | 0.4+ | 0.1+ |
| 2004 10 13 | 699 | 0.1− | 0.2− | 2004 12 12 | 704 | 0.4+ | 0.3− | 2009 11 27 | 703 | 0.5+ | 0.6− |
| 2004 10 13 | 699 | 0.1− | 0.4− | 2004 12 12 | 704 | 0.3− | 0.9+ | 2009 12 10 | 704 | 0.7+ | 0.3+ |
| 2004 10 13 | 699 | 0.2− | 0.1+ | 2004 12 12 | 704 | 0.1− | 0.3+ | 2009 12 10 | 704 | 1.0+ | 0.1+ |
| 2004 10 18 | 704 | 0.7− | 0.1− | 2004 12 12 | 704 | 0.5− | 0.0 | 2009 12 10 | 704 | 1.3+ | 0.3+ |
| 2004 10 18 | 704 | 0.7− | 0.2− | 2005 01 13 | 704 | 0.8− | 0.4− | 2009 12 10 | 704 | (0.4+ | 2.1+) |
| 2004 10 18 | 704 | 0.5− | 0.6− | 2005 01 13 | 704 | 0.1+ | 0.3− | 2009 12 15 | 704 | 0.4+ | 0.3+ |
| 2004 10 18 | 704 | 0.7− | 0.6− | 2007 03 25 | G96 | 0.1− | 0.1+ | 2009 12 15 | 704 | 0.0 | 0.4− |
| 2004 10 18 | 704 | 1.0− | 0.2+ | 2007 03 25 | G96 | 0.2− | 0.4+ | 2009 12 15 | 704 | 0.7+ | 0.2+ |
| 2004 11 01 | 644 | 0.2− | 0.0 | 2007 03 25 | G96 | 0.2+ | 0.1+ | 2009 12 15 | 704 | 0.2+ | 0.1− |
| 2004 11 01 | 644 | 0.2− | 0.1+ | 2007 03 25 | G96 | 0.7+ | 0.4+ | 2009 12 15 | 704 | 0.7+ | 0.5− |
| 2004 11 01 | 644 | 0.3− | 0.2− | 2007 04 26 | G96 | 0.4+ | 0.4+ | 2009 12 18 | 691 | 0.5− | 0.0 |
| 2004 11 05 | 699 | 0.1− | 0.2− | 2007 04 26 | G96 | 0.6− | 0.2+ | 2009 12 18 | 691 | 0.3− | 0.2+ |
| 2004 11 05 | 699 | 0.1+ | 0.1+ | 2007 04 26 | G96 | 0.9+ | 0.3+ | 2009 12 18 | 691 | 0.8− | 0.5− |
| 2004 11 05 | 699 | 1.4+ | 0.5− | 2007 04 26 | G96 | 0.4+ | 0.1+ | 2009 12 27 | 691 | 0.5− | 0.1+ |
| 2004 11 05 | 699 | 0.1+ | 1.2+ | 2008 06 27 | F85 | 0.1− | 0.3− | 2009 12 27 | 691 | 0.5− | 0.1− |
| 2004 11 12 | 704 | 0.2− | 0.7+ | 2008 06 27 | F85 | 0.1− | 0.0 | 2009 12 27 | 691 | 1.2+ | 1.6+ |
| 2004 11 12 | 704 | 0.1− | 0.4+ | 2008 06 27 | E12 | 0.6− | 0.6+ | | | | |
| 2004 11 12 | 704 | 0.1+ | 0.4+ | 2008 06 27 | E12 | 0.6+ | 0.6+ | | | | |

**(229190)∗ 2004 TN$_{225}$ = 1996 VR$_{39}$**

Discovered 2004 Oct. 8 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 73404)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 195.09794 | | (2000.0) | | | |
| $n$ | 0.23507246 | $\omega$ | 201.07435 | | −0.30033787 | +0.95363198 |
| $a$ | 2.6001688 | $\Omega$ | 51.45305 | | −0.87150553 | −0.26601629 |
| $e$ | 0.1545284 | $i$ | 1.43425 | | −0.38765355 | −0.14078842 |
| $P$ | 4.19 | $H$ | 16.8 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 11 05 | 691 | 1.0+ | 0.8− | 2004 10 15 | G96 | 0.3+ | 0.2− | 2007 05 09 | G96 | 0.1− | 0.1− |
| 1996 11 05 | 691 | 0.6+ | 0.1− | 2007 03 09 | 691 | 0.2+ | 0.1+ | 2007 05 09 | G96 | 0.1− | 0.1+ |
| 1996 11 05 | 691 | 0.4+ | 0.3+ | 2007 03 09 | 691 | 0.5+ | 0.5− | 2007 05 09 | G96 | 0.0 | 0.1− |
| 1996 11 10 | 691 | 0.8− | 0.1− | 2007 03 09 | 691 | 0.2+ | 0.2+ | 2008 09 07 | G96 | 0.3+ | 0.0 |
| 1996 11 10 | 691 | 0.5− | 0.0 | 2007 03 20 | G96 | 0.2− | 0.1− | 2008 09 07 | G96 | 0.2+ | 0.1− |
| 1996 11 10 | 691 | 0.4− | 1.2− | 2007 03 20 | G96 | 0.0 | 0.2− | 2008 09 07 | G96 | 0.2+ | 0.1− |
| 2002 01 09 | 645 | 0.1+ | 0.0 | 2007 03 20 | G96 | 0.3− | 0.4− | 2008 09 07 | G96 | 0.1+ | 0.1+ |
| 2002 01 09 | 645 | 0.1+ | 0.1− | 2007 03 20 | G96 | 0.1− | 0.1− | 2008 09 22 | G96 | 0.3+ | 0.6+ |
| 2003 05 05 | 704 | 0.1+ | 0.7+ | 2007 03 29 | 691 | 0.0 | 0.1+ | 2008 09 22 | G96 | 0.3+ | 0.3+ |
| 2003 05 05 | 704 | (0.5− | 2.0+) | 2007 03 29 | 691 | 0.1+ | 0.1− | 2008 09 22 | G96 | 0.4− | 0.0 |
| 2003 05 05 | 704 | 0.4− | 1.0+ | 2007 03 29 | 691 | 0.7− | 0.0 | 2008 09 22 | G96 | 0.0 | 0.2+ |
| 2004 10 08 | 691 | 0.2− | 0.1+ | 2007 04 16 | 703 | (1.4+ | 3.1+) | 2009 11 17 | 691 | 0.3− | 0.6+ |
| 2004 10 08 | 691 | 0.0 | 0.2+ | 2007 04 16 | 703 | 0.2− | 0.2+ | 2009 11 17 | 691 | 0.1− | 0.2+ |
| 2004 10 08 | 691 | 0.0 | 0.0 | 2007 04 16 | 703 | 0.6− | 0.5− | 2009 11 17 | 691 | 0.4− | 0.8+ |
| 2004 10 12 | 691 | 0.6+ | 0.1− | 2007 04 16 | 703 | 0.6− | 0.6− | 2009 12 10 | G96 | 0.0 | 0.2+ |
| 2004 10 12 | 691 | 0.0 | 0.4+ | 2007 04 16 | G96 | 0.2+ | 0.1− | 2009 12 10 | G96 | 0.3+ | 0.1− |
| 2004 10 12 | 691 | 0.3− | 0.3− | 2007 04 16 | G96 | 1.1− | 0.1− | 2009 12 10 | G96 | 0.0 | 0.2− |
| 2004 10 15 | G96 | 0.5+ | 0.5− | 2007 04 16 | G96 | 0.2+ | 0.6− | 2009 12 10 | G96 | 0.1− | 0.1+ |
| 2004 10 15 | G96 | 0.1− | 0.1− | 2007 04 16 | G96 | 0.3+ | 0.0 | | | | |
| 2004 10 15 | G96 | 0.3− | 0.3− | 2007 05 09 | G96 | 0.4+ | 0.0 | | | | |

**(229191)∗ 2004 TD$_{241}$**

Discovered 2004 Oct. 10 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 10.14211 | | (2000.0) | | | |
| $n$ | 0.20378139 | $\omega$ | 160.86574 | | +0.58398865 | −0.80288117 |
| $a$ | 2.8599583 | $\Omega$ | 253.22857 | | +0.72751996 | +0.58309595 |
| $e$ | 0.2036063 | $i$ | 7.18455 | | +0.36009993 | +0.12401990 |
| $P$ | 4.84 | $H$ | 15.6 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 09 08 | 704 | 0.4+ | 0.2+ | 2004 10 15 | 704 | 0.2+ | 0.6+ | 2009 11 21 | 704 | 0.3+ | 0.3+ |
| 1999 09 08 | 704 | 1.3+ | 0.7− | 2004 11 02 | 699 | 0.4− | 0.2+ | 2009 11 21 | 704 | 0.1+ | 0.7+ |
| 1999 09 08 | 704 | 0.9+ | 0.1− | 2004 11 02 | 699 | 1.2+ | 0.1− | 2009 11 21 | 704 | 0.3+ | 0.0 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 09 08 | 704 | 0.3+ | 0.0 | 2004 11 02 | 699 | 0.0 | 0.8− | 2009 11 23 | 703 | 0.9+ | 0.4+ |
| 1999 10 10 | 704 | 0.3− | 0.2+ | 2004 11 02 | 699 | 0.4− | 0.3− | 2009 11 23 | 703 | 0.1+ | 0.1+ |
| 1999 10 10 | 704 | 0.5+ | 0.0 | 2004 11 04 | 703 | 0.7− | 1.0− | 2009 11 23 | 703 | 0.5+ | 0.9+ |
| 1999 10 10 | 704 | 1.1− | 0.6+ | 2004 11 04 | 703 | 0.0 | 0.6− | 2009 11 23 | 703 | 0.3+ | 0.9+ |
| 1999 10 10 | 704 | 0.1+ | 0.3− | 2004 11 04 | 703 | 0.9− | 0.1+ | 2009 11 23 | 703 | 0.5+ | 0.6+ |
| 1999 10 10 | 704 | 0.3− | 0.7+ | 2004 11 04 | 703 | 0.8− | 0.4+ | 2009 11 24 | G96 | 0.2+ | 0.5− |
| 2000 12 23 | 645 | 0.0 | 0.0 | 2004 11 19 | 703 | 0.2+ | 0.7− | 2009 11 24 | G96 | 0.6+ | 0.4− |
| 2000 12 23 | 645 | 0.1− | 0.0 | 2004 11 19 | 703 | 0.2+ | 0.5− | 2009 11 24 | G96 | 0.4+ | 0.2− |
| 2001 02 20 | 645 | 0.1+ | 0.1+ | 2004 11 19 | 703 | 0.0 | 0.7+ | 2009 11 24 | G96 | 0.2+ | 0.4− |
| 2001 02 20 | 645 | 0.1+ | 0.1+ | 2004 11 19 | 703 | 0.3+ | 0.1− | 2009 11 24 | J75 | 0.6− | 0.4− |
| 2004 08 19 | 704 | (0.6+ | 2.1+) | 2004 12 02 | 644 | 0.2− | 0.0 | 2009 11 24 | J75 | 0.6− | 0.8− |
| 2004 08 19 | 704 | (0.9+ | 1.8+) | 2004 12 02 | 644 | 0.2+ | 0.4+ | 2009 11 24 | J75 | 0.7− | 0.7− |
| 2004 08 19 | 704 | (0.4− | 1.8+) | 2004 12 02 | 644 | 0.3− | 0.0 | 2009 11 27 | 691 | 0.5− | 0.2− |
| 2004 09 18 | 704 | 0.0 | 0.9+ | 2009 11 10 | J75 | 0.6+ | 0.1− | 2009 11 27 | 691 | 0.5− | 0.2− |
| 2004 09 18 | 704 | 0.3− | 0.1− | 2009 11 10 | J75 | 0.6+ | 0.1− | 2009 11 27 | 691 | 0.4− | 0.1− |
| 2004 09 18 | 704 | 0.7− | 0.1− | 2009 11 10 | J75 | 0.3+ | 0.4+ | 2009 12 05 | J75 | 0.6+ | 0.6− |
| 2004 09 18 | 704 | 0.5− | 0.6+ | 2009 11 11 | 691 | 0.3− | 0.1− | 2009 12 05 | J75 | 0.6− | 0.8− |
| 2004 10 10 | 704 | 0.1− | 0.7+ | 2009 11 11 | 691 | 0.2− | 0.0 | 2009 12 05 | J75 | 0.5+ | 0.2− |
| 2004 10 10 | 704 | 0.3− | 0.9+ | 2009 11 11 | 691 | 0.1− | 0.2− | 2009 12 09 | 106 | 0.1+ | 0.4− |
| 2004 10 10 | 704 | 0.9− | 0.0 | 2009 11 11 | J75 | 0.5+ | 0.1+ | 2009 12 09 | 106 | 0.4+ | 0.4− |
| 2004 10 10 | 704 | 0.2− | 1.0+ | 2009 11 11 | J75 | 0.4+ | 0.2− | 2009 12 09 | 106 | 0.0 | 0.1+ |
| 2004 10 12 | 704 | 0.1− | 0.1+ | 2009 11 11 | J75 | 0.5+ | 0.4− | 2009 12 09 | 106 | 0.3− | 0.5− |
| 2004 10 12 | 704 | 0.3− | 0.2− | 2009 11 14 | J75 | 0.2+ | 0.2− | 2009 12 16 | 704 | 1.3+ | 0.2+ |
| 2004 10 12 | 704 | 0.2− | 0.7+ | 2009 11 14 | J75 | 0.1+ | 0.0 | 2009 12 16 | 704 | 0.5+ | 0.3+ |
| 2004 10 12 | 704 | 0.3+ | 0.2− | 2009 11 14 | J75 | 0.4+ | 0.1− | 2009 12 16 | 704 | 0.1− | 0.7+ |
| 2004 10 12 | 704 | 0.4+ | 0.7+ | 2009 11 17 | 704 | 0.2+ | 0.3+ | 2009 12 16 | 704 | 0.1+ | 0.3+ |
| 2004 10 15 | 704 | 0.1− | 0.1+ | 2009 11 17 | 704 | 0.3+ | 0.4+ | 2009 12 18 | G96 | 0.0 | 0.0 |
| 2004 10 15 | 704 | 0.0 | 0.1+ | 2009 11 17 | 704 | 0.1+ | 0.0 | 2009 12 18 | G96 | 0.1+ | 0.0 |
| 2004 10 15 | 704 | 0.2− | 0.2+ | 2009 11 17 | 704 | 0.3+ | 0.3− | 2009 12 18 | G96 | 0.3+ | 0.0 |
| 2004 10 15 | 704 | 0.3+ | 0.3+ | 2009 11 17 | 704 | 0.3+ | 0.3+ | 2009 12 18 | G96 | 0.4+ | 0.2− |

**(229192)∗ 2004 TN$_{256}$ = 2006 BD$_{43}$**

Discovered 2004 Oct. 9 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 95564)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 310.27000 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21318175 | $\omega$ | 132.52713 | | −0.62974599 | −0.77679067 | |
| $a$ | 2.7752538 | $\Omega$ | 356.49702 | | +0.69196768 | −0.55860703 | |
| $e$ | 0.0491789 | $i$ | 3.78211 | | +0.35298827 | −0.29078246 | |
| $P$ | 4.62 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 11 24 | 691 | 0.6− | 0.0 | 2004 10 21 | 704 | 0.1− | 0.8+ | 2009 11 09 | G96 | 0.4+ | 0.3− |
| 1995 11 24 | 691 | 0.4+ | 0.1+ | 2004 10 21 | 704 | 0.5+ | 1.3+ | 2009 11 09 | G96 | 0.2+ | 0.3− |
| 1995 11 24 | 691 | 0.1+ | 0.1+ | 2006 01 23 | 691 | 0.1− | 0.2+ | 2009 11 11 | 691 | 0.0 | 0.1+ |
| 1999 09 05 | 691 | 1.1− | 0.3+ | 2006 01 23 | 691 | 0.1− | 0.2− | 2009 11 11 | 691 | 0.1+ | 0.1− |
| 1999 09 05 | 691 | 0.8− | 0.2− | 2006 01 23 | 691 | 0.2+ | 0.4+ | 2009 11 11 | 691 | 0.0 | 0.1− |
| 1999 09 05 | 691 | 0.5− | 0.1+ | 2006 01 26 | 703 | 0.5− | 0.3+ | 2009 11 19 | 691 | 0.1− | 0.2− |
| 1999 09 30 | 691 | 0.2+ | 0.2− | 2006 01 26 | 703 | 0.1− | 0.5+ | 2009 11 19 | 691 | 0.2− | 0.0 |
| 1999 09 30 | 691 | 0.0 | 0.2+ | 2006 01 26 | 703 | 0.1+ | 0.1− | 2009 11 19 | 691 | 0.2+ | 0.2− |
| 1999 09 30 | 691 | 0.4+ | 0.0 | 2006 01 26 | 703 | 0.5− | 0.3+ | 2009 11 23 | 691 | 0.2− | 0.0 |
| 2002 04 14 | 704 | 0.7+ | 0.7+ | 2006 01 28 | G96 | 0.4+ | 0.0 | 2009 11 23 | 691 | 0.3− | 0.0 |
| 2002 04 14 | 704 | 0.9+ | 0.3+ | 2006 01 28 | G96 | 0.2+ | 0.1− | 2009 11 23 | 691 | 0.1− | 0.0 |
| 2002 04 14 | 704 | 0.3+ | 0.4+ | 2006 01 28 | G96 | 0.4+ | 0.0 | 2009 11 27 | 691 | 0.2− | 0.2− |
| 2002 04 14 | 704 | 0.2+ | 1.0+ | 2006 01 28 | G96 | 0.2+ | 0.2+ | 2009 11 27 | 691 | 0.1− | 0.1− |
| 2002 04 14 | 704 | 1.4+ | 1.0+ | 2006 02 02 | 703 | 0.7+ | 0.7+ | 2009 11 27 | 691 | 0.2− | 0.1− |
| 2004 10 09 | 691 | 0.3+ | 0.0 | 2006 02 02 | 703 | 0.2− | 0.3− | 2009 12 10 | 704 | 0.5− | 0.4+ |
| 2004 10 09 | 691 | 0.2+ | 0.2+ | 2006 02 02 | 703 | 0.2− | 0.1+ | 2009 12 10 | 704 | 0.6+ | 1.3+ |
| 2004 10 09 | 691 | 0.6+ | 0.8− | 2006 02 02 | 703 | 0.7− | 0.6+ | 2009 12 10 | 704 | 0.0 | 0.1− |
| 2004 10 13 | 691 | 0.1+ | 0.6+ | 2006 05 03 | G96 | 0.2− | 0.3− | 2009 12 10 | 704 | 0.2+ | 0.2− |
| 2004 10 13 | 691 | 0.1+ | 0.1+ | 2006 05 03 | G96 | 0.3− | 0.3− | 2009 12 15 | 704 | 0.9− | 0.1− |
| 2004 10 13 | 691 | 0.3+ | 0.3+ | 2006 05 03 | G96 | 0.3+ | 0.4− | 2009 12 15 | 704 | 0.5+ | 0.3− |
| 2004 10 21 | 704 | 0.2+ | 0.8+ | 2006 05 03 | G96 | 0.4− | 0.1− | 2009 12 15 | 704 | 0.2+ | 0.2+ |
| 2004 10 21 | 704 | 0.4− | 0.6+ | 2009 11 09 | G96 | 0.1+ | 0.3− | 2009 12 15 | 704 | 0.2− | 0.0 |
| 2004 10 21 | 704 | 0.2+ | 0.7+ | 2009 11 09 | G96 | 0.4+ | 0.1+ | | | | |

**(229193)∗ 2004 TE$_{276}$**

Discovered 2004 Oct. 9 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 243.78280 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23016996 | $\omega$ | 184.16650 | | −0.54816368 | +0.83466432 | |
| $a$ | 2.6369605 | $\Omega$ | 52.60132 | | −0.76539957 | −0.47488385 | |
| $e$ | 0.0667317 | $i$ | 3.85456 | | −0.33716477 | −0.27896381 | |
| $P$ | 4.28 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 09 18 | 691 | 0.1− | 0.6− | 2004 10 23 | 691 | 0.4+ | 0.3+ | 2008 11 07 | G96 | 0.5+ | 0.4− |
| 1995 09 18 | 691 | 0.2− | 0.1− | 2004 10 23 | 691 | 0.3+ | 0.2+ | 2008 11 07 | G96 | 0.2− | 0.3− |
| 1995 09 18 | 691 | 0.5− | 0.2− | 2004 10 23 | 691 | 0.3+ | 0.0 | 2008 11 07 | G96 | 0.3+ | 0.2− |
| 1998 04 22 | 704 | (3.6− | 0.2−) | 2004 12 13 | 691 | 0.1+ | 0.0 | 2008 11 19 | A77 | 0.5− | 0.9+ |
| 1998 04 22 | 704 | 1.4− | 2.0− | 2004 12 13 | 691 | 0.2+ | 0.0 | 2008 11 19 | A77 | 0.1+ | 0.5+ |
| 2002 03 12 | 691 | 0.6+ | 0.0 | 2004 12 13 | 691 | 0.1+ | 0.1− | 2008 11 19 | A77 | 0.6− | 0.7+ |
| 2002 03 12 | 691 | 0.1+ | 0.5+ | 2005 03 11 | 695 | 1.5+ | 0.7+ | 2008 12 31 | G96 | 0.2− | 0.0 |
| 2002 03 12 | 691 | 0.0 | 0.4+ | 2005 03 11 | 695 | 0.6+ | 0.1+ | 2008 12 31 | G96 | 0.9− | 0.0 |
| 2002 04 15 | 704 | 0.6+ | 0.3+ | 2006 01 20 | 691 | 0.3+ | 0.6+ | 2008 12 31 | G96 | 0.4+ | 0.1− |
| 2002 04 15 | 704 | (1.7+ | 0.3−) | 2006 01 20 | 691 | 0.0 | 0.2− | 2008 12 31 | G96 | 0.2+ | 0.1− |
| 2002 04 15 | 704 | (3.2+ | 0.3+) | 2006 01 20 | 691 | 0.1− | 0.7− | 2009 12 19 | G96 | 0.5+ | 0.3− |
| 2002 04 15 | 704 | (1.9+ | 0.7+) | 2006 01 25 | 691 | 0.4+ | 0.1− | 2009 12 19 | G96 | 0.9+ | 0.4− |
| 2004 10 09 | 691 | 0.2− | 0.2+ | 2006 01 25 | 691 | 0.6− | 0.1− | 2009 12 19 | G96 | 1.0+ | 0.4− |
| 2004 10 09 | 691 | 0.0 | 0.2+ | 2006 01 25 | 691 | (1.3+ | 1.8−) | 2009 12 19 | G96 | 0.6− | 0.4− |
| 2004 10 09 | 691 | 0.3− | 0.0 | 2006 01 31 | 691 | 0.3+ | 0.0 | 2009 12 19 | 691 | 0.8− | 0.1+ |
| 2004 10 13 | 691 | 0.2− | 0.3− | 2006 01 31 | 691 | 0.4+ | 0.0 | 2009 12 19 | 691 | 0.8− | 0.4− |
| 2004 10 13 | 691 | 0.6+ | 0.3+ | 2006 01 31 | 691 | 0.3+ | 0.0 | 2009 12 19 | 691 | 0.4− | 0.0 |
| 2004 10 13 | 691 | 0.1+ | 0.6+ | 2008 10 27 | A50 | 1.0+ | 0.4− | 2009 12 27 | 691 | 0.6− | 0.4− |
| 2004 10 15 | G96 | 0.1+ | 0.1− | 2008 10 27 | A50 | 0.6− | 0.5+ | 2009 12 27 | 691 | 0.4− | 0.4+ |
| 2004 10 15 | G96 | 0.4+ | 0.0 | 2008 10 27 | A50 | 0.3+ | 0.3+ | 2009 12 27 | 691 | 0.2− | 0.1+ |
| 2004 10 15 | G96 | 0.0 | 0.3− | 2008 10 27 | A50 | 0.4− | 0.8+ | | | | |
| 2004 10 15 | G96 | 0.2+ | 0.3− | 2008 11 07 | G96 | 0.0 | 0.4+ | | | | |

**(229194)∗ 2004 TD$_{281}$**

Discovered 2004 Oct. 10 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 49.44608 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.20948585 | $\omega$ | 316.86297 | | +0.87591829 | −0.47634549 | |
| $a$ | 2.8078006 | $\Omega$ | 71.73114 | | +0.46167779 | +0.78149178 | |
| $e$ | 0.1214621 | $i$ | 4.62469 | | +0.14007414 | +0.40294612 | |
| $P$ | 4.70 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 01 19 | 704 | 1.3+ | 0.6+ | 2004 11 07 | 704 | 0.1− | 1.1+ | 2006 02 01 | 691 | 0.4− | 0.1− |
| 2001 01 19 | 704 | 1.3+ | 0.2+ | 2004 11 07 | 704 | 0.0 | 0.3+ | 2006 02 20 | 691 | 0.1− | 0.1− |
| 2001 01 19 | 704 | 0.1+ | 0.1+ | 2004 11 07 | 704 | 0.5− | 0.5+ | 2006 02 20 | 691 | 0.3+ | 0.1− |
| 2001 01 19 | 704 | (1.8+ | 0.7+) | 2004 11 12 | 703 | (1.8− | 0.2−) | 2006 02 20 | 691 | 0.2− | 0.1− |
| 2002 04 09 | 644 | 0.4+ | 1.3+ | 2004 11 12 | 703 | 0.1+ | 0.5− | 2006 02 24 | 691 | 0.3+ | 0.2− |
| 2002 04 09 | 644 | 0.4+ | 1.2+ | 2004 11 12 | 703 | 0.5+ | 0.3− | 2006 02 24 | 691 | 0.2+ | 0.0 |
| 2002 04 09 | 644 | 0.6+ | 1.2+ | 2004 11 12 | 703 | 0.2− | 0.1+ | 2006 02 24 | 691 | 0.3+ | 0.2− |
| 2004 10 10 | 691 | 0.1− | 0.1− | 2004 11 18 | 704 | 0.7− | 0.3+ | 2007 04 14 | 691 | 0.0 | 0.1+ |
| 2004 10 10 | 691 | 0.1+ | 0.0 | 2004 11 18 | 704 | 0.5− | 0.7+ | 2007 04 14 | 691 | 0.1+ | 0.4+ |
| 2004 10 10 | 691 | 0.0 | 0.1− | 2004 11 18 | 704 | 0.2− | 1.2+ | 2007 04 14 | 691 | 0.1− | 0.2− |
| 2004 10 13 | 691 | 0.1− | 0.3− | 2004 11 18 | 704 | (0.4+ | 1.6+) | 2007 04 18 | 691 | 0.1+ | 0.5+ |
| 2004 10 13 | 691 | 0.1+ | 0.3− | 2004 11 19 | 703 | 0.4+ | 0.1− | 2007 04 18 | 691 | 0.2+ | 0.2+ |
| 2004 10 13 | 691 | 0.1− | 0.3− | 2004 11 19 | 703 | 1.0+ | 0.8− | 2007 04 18 | 691 | 0.5− | 0.3+ |
| 2004 10 14 | 704 | 0.4+ | 0.5− | 2004 11 19 | 703 | 0.7− | 0.5+ | 2007 04 18 | 691 | 0.2+ | 0.0 |
| 2004 10 14 | 704 | 0.5− | 0.2+ | 2004 11 19 | 703 | 0.2− | 0.4+ | 2007 04 18 | 691 | 0.1+ | 0.5− |
| 2004 10 14 | 704 | 1.4− | 0.4− | 2004 12 09 | 703 | 0.3− | 0.7− | 2007 04 18 | 691 | 0.2− | 0.0 |
| 2004 10 20 | 704 | 0.2+ | 0.5+ | 2004 12 09 | 703 | (1.9− | 0.5−) | 2008 07 28 | E12 | 1.1+ | 0.2− |
| 2004 10 20 | 704 | 0.3− | 0.5+ | 2004 12 09 | 703 | 0.5− | 0.3+ | 2008 07 28 | E12 | (0.6+ | 1.5+) |
| 2004 10 20 | 704 | 0.0 | 0.7+ | 2004 12 09 | 703 | 0.4+ | 0.8− | 2008 07 28 | E12 | 1.1+ | 1.1+ |
| 2004 10 20 | 704 | 0.4+ | 0.1+ | 2004 12 13 | 691 | 0.1− | 0.2+ | 2008 07 28 | E12 | 0.9− | 0.9+ |
| 2004 10 23 | 691 | 0.0 | 0.1+ | 2004 12 13 | 691 | 0.1+ | 0.2+ | 2009 11 16 | 691 | 0.2− | 0.3− |
| 2004 10 23 | 691 | 0.1+ | 0.3+ | 2004 12 13 | 691 | 0.7− | 0.3+ | 2009 11 16 | 691 | 0.0 | 0.5+ |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 23 | 691 | 0.0 | 0.1+ | 2006 01 23 | 691 | 0.0 | 0.1− | 2009 11 16 | 691 | 0.3− | 0.5− |
| 2004 11 03 | 691 | 0.2+ | 0.2+ | 2006 01 23 | 691 | 0.0 | 0.2− | 2009 12 10 | 704 | 0.5+ | 0.1+ |
| 2004 11 03 | 691 | 0.2+ | 0.4+ | 2006 01 23 | 691 | 0.2+ | 0.2+ | 2009 12 10 | 704 | 0.5+ | 0.1+ |
| 2004 11 03 | 691 | 0.0 | 0.3+ | 2006 01 26 | 703 | 0.8− | 0.5− | 2009 12 10 | 704 | 0.3+ | 0.1− |
| 2004 11 04 | 703 | 0.2− | 0.4− | 2006 01 26 | 703 | 0.0 | 0.8− | 2009 12 10 | 704 | 0.2+ | 1.1+ |
| 2004 11 04 | 703 | 0.1+ | 0.3− | 2006 01 26 | 703 | (1.8− | 0.2+) | 2009 12 16 | 704 | 0.1− | 0.7− |
| 2004 11 04 | 703 | 0.4+ | 0.6− | 2006 01 26 | 703 | 0.5− | 0.7+ | 2009 12 16 | 704 | 0.1+ | 0.5− |
| 2004 11 04 | 703 | 0.4− | 0.7− | 2006 02 01 | 691 | 0.6− | 0.6+ | 2009 12 16 | 704 | 0.8+ | 0.3− |
| 2004 11 07 | 704 | 0.2+ | 0.5+ | 2006 02 01 | 691 | 0.0 | 0.0 | 2009 12 16 | 704 | 0.3+ | 0.3− |

**(229195)∗ 2004 TV$_{285}$ = 1999 RZ$_{219}$ = 2008 ND$_2$**

Discovered 2004 Oct. 8 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Id. G. V. Williams (*MPO* 141166)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 103.61048 | | (2000.0) | | | |
| $n$ | 0.21127953 | $\omega$ | 32.38060 | | +0.62223831 | +0.77384129 |
| $a$ | 2.7918866 | $\Omega$ | 276.37656 | | −0.74119872 | +0.53377211 |
| $e$ | 0.2133037 | $i$ | 6.83509 | | −0.25188081 | +0.34096480 |
| $P$ | 4.66 | $H$ | 16.1 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 09 04 | 703 | 0.2− | 0.8+ | 2004 10 15 | 704 | 1.1− | 0.4− | 2008 07 01 | 704 | 0.2− | 0.5+ |
| 1999 09 04 | 703 | 0.4− | 0.3+ | 2004 10 16 | 704 | 0.1− | 1.3+ | 2008 07 05 | J75 | 0.4− | 0.8+ |
| 1999 09 04 | 703 | 0.6− | 0.1− | 2004 10 16 | 704 | 0.4+ | 0.2+ | 2008 07 06 | J75 | 0.4− | 1.1+ |
| 1999 09 04 | 703 | 1.4+ | 0.3− | 2004 10 16 | 704 | 0.6− | 0.6+ | 2008 07 06 | J75 | 0.1− | 0.3+ |
| 1999 09 08 | 704 | 1.2+ | 1.0− | 2004 10 16 | 704 | 0.7− | 0.9+ | 2008 07 09 | 620 | 0.1+ | 0.0 |
| 1999 09 08 | 704 | 0.7+ | 0.6− | 2004 10 16 | 704 | 0.5− | 0.2+ | 2008 07 09 | 620 | 0.4+ | 0.5− |
| 1999 09 08 | 704 | 0.7− | 1.4− | 2005 12 27 | G96 | 0.1− | 0.5− | 2008 07 09 | 620 | 0.1− | 0.4− |
| 1999 09 08 | 704 | 1.4+ | 1.5− | 2005 12 27 | G96 | 0.3+ | 0.2− | 2008 07 23 | 620 | 0.2+ | 0.3+ |
| 2004 10 08 | 699 | 0.2+ | 0.0 | 2005 12 27 | G96 | 0.4− | 0.6+ | 2008 07 23 | 620 | 0.1− | 0.0 |
| 2004 10 08 | 699 | 0.4− | 0.4− | 2005 12 27 | G96 | 0.1− | 0.7− | 2008 07 23 | 620 | 0.0 | 0.3+ |
| 2004 10 08 | 699 | 0.6+ | 0.1+ | 2006 01 22 | G96 | 0.3− | 0.4− | 2009 11 25 | 703 | 0.4− | 0.6+ |
| 2004 10 08 | 699 | 0.4− | 0.0 | 2006 01 22 | G96 | 0.3− | 0.3− | 2009 11 25 | 703 | 0.7+ | 0.7− |
| 2004 10 14 | 644 | 0.2+ | 0.1+ | 2006 01 22 | G96 | 0.4− | 0.3+ | 2009 11 25 | 703 | 1.3+ | 0.7+ |
| 2004 10 14 | 644 | 0.1+ | 0.1+ | 2006 01 22 | G96 | 0.0 | 0.4− | 2009 11 25 | 703 | 0.3+ | 0.6+ |
| 2004 10 14 | 644 | 0.3+ | 0.0 | 2006 02 04 | G96 | 0.3+ | 0.3− | 2009 11 27 | 691 | 0.2− | 0.1+ |
| 2004 10 14 | 644 | 0.2+ | 0.0 | 2006 02 04 | G96 | 0.2− | 0.1− | 2009 11 27 | 691 | 0.0 | 0.1+ |
| 2004 10 14 | 644 | 0.3+ | 0.2+ | 2006 02 04 | G96 | 0.1− | 0.0 | 2009 11 27 | 691 | 0.3− | 0.2+ |
| 2004 10 14 | 644 | 0.4+ | 0.2+ | 2006 02 04 | G96 | 0.0 | 0.1− | 2009 12 16 | G96 | 0.7+ | 0.5− |
| 2004 10 15 | 704 | 1.3− | 0.8+ | 2008 07 01 | 704 | 0.8+ | 0.1+ | 2009 12 16 | G96 | 0.4+ | 0.3− |
| 2004 10 15 | 704 | 1.1− | 0.5− | 2008 07 01 | 704 | 0.4− | 0.8− | 2009 12 16 | G96 | 0.4+ | 0.3− |
| 2004 10 15 | 704 | 0.4− | 0.5− | 2008 07 01 | 704 | 0.7− | 0.1− | 2009 12 16 | G96 | 0.6+ | 0.0 |
| 2004 10 15 | 704 | 0.8+ | 0.2− | 2008 07 01 | 704 | 0.1+ | 0.2+ | | | | |

**(229196)∗ 2004 TN$_{303}$**

Discovered 2004 Oct. 10 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 38.77414 | | (2000.0) | | | |
| $n$ | 0.22074529 | $\omega$ | 108.08106 | | +0.77555103 | −0.63001591 |
| $a$ | 2.7114926 | $\Omega$ | 290.98988 | | +0.56178235 | +0.71768586 |
| $e$ | 0.1000364 | $i$ | 2.45589 | | +0.28796040 | +0.29665966 |
| $P$ | 4.46 | $H$ | 16.5 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 29 | 704 | 0.8− | 1.2+ | 2006 01 22 | G96 | 0.2− | 0.2− | 2008 07 30 | G96 | 0.2+ | 0.1+ |
| 2000 11 29 | 704 | 0.1− | 0.6− | 2006 01 31 | G96 | 0.7− | 0.2+ | 2009 11 17 | 691 | 0.1+ | 0.3− |
| 2000 11 29 | 704 | 1.2− | 0.2− | 2006 01 31 | G96 | 0.3− | 0.3+ | 2009 11 17 | 691 | 0.2− | 0.1− |
| 2000 11 29 | 704 | 0.7+ | 0.8+ | 2006 01 31 | G96 | 0.5− | 0.2+ | 2009 11 17 | G96 | 0.0 | 0.2− |
| 2000 11 29 | 704 | 0.5+ | 0.1− | 2006 02 04 | 691 | 0.4+ | 0.1+ | 2009 11 17 | 691 | 0.0 | 0.0 |
| 2004 09 22 | 704 | 0.8− | 0.5+ | 2006 02 04 | 691 | 0.6+ | 0.1+ | 2009 11 17 | G96 | 0.1+ | 0.3− |
| 2004 09 22 | 704 | 1.4− | 0.1+ | 2006 02 04 | 691 | 0.4+ | 0.5+ | 2009 11 17 | G96 | 0.2+ | 0.0 |
| 2004 09 22 | 704 | 0.4− | 0.0 | 2006 02 24 | G96 | 0.7− | 0.4+ | 2009 11 17 | G96 | 0.0 | 0.3− |
| 2004 10 10 | 691 | 0.2+ | 0.2+ | 2006 02 24 | G96 | 0.0 | 0.4+ | 2009 12 10 | 704 | 0.3+ | 0.0 |
| 2004 10 10 | 691 | 0.3+ | 0.1+ | 2006 02 24 | G96 | 0.0 | 0.9+ | 2009 12 10 | 704 | 0.5− | 0.3− |
| 2004 10 10 | 691 | 0.2+ | 0.1+ | 2006 02 24 | G96 | 0.1+ | 0.6+ | 2009 12 10 | 704 | 0.5− | 0.0 |
| 2004 10 15 | 691 | 0.0 | 0.0 | 2006 03 05 | G96 | 0.2− | 0.0 | 2009 12 10 | 704 | 0.3− | 1.1+ |
| 2004 10 15 | 691 | 0.1− | 0.0 | 2006 03 05 | G96 | 0.3− | 0.6+ | 2009 12 10 | 704 | (0.2+ | 2.0+) |
| 2004 10 15 | 691 | 0.0 | 0.1+ | 2006 03 05 | G96 | 0.4− | 0.3+ | 2009 12 11 | G96 | 0.5+ | 0.3+ |
| 2006 01 05 | G96 | 0.0 | 0.3− | 2006 03 05 | G96 | 0.5+ | 0.4+ | 2009 12 11 | G96 | 0.2+ | 0.2− |
| 2006 01 05 | G96 | 0.3− | 0.1+ | 2008 07 02 | 691 | 0.1+ | 0.4+ | 2009 12 11 | G96 | 0.4+ | 0.0 |
| 2006 01 05 | G96 | 0.2− | 0.4− | 2008 07 02 | 691 | 0.6− | 0.4+ | 2009 12 19 | G96 | 0.0 | 0.0 |
| 2006 01 05 | G96 | 0.5+ | 0.4− | 2008 07 02 | 691 | 0.5− | 0.3+ | 2009 12 19 | G96 | 0.1− | 0.1+ |
| 2006 01 22 | G96 | 0.1− | 0.1− | 2008 07 30 | G96 | 0.4+ | 0.2+ | 2009 12 19 | G96 | 0.2+ | 0.2− |
| 2006 01 22 | G96 | 0.1+ | 0.2− | 2008 07 30 | G96 | 0.3+ | 0.1− | 2009 12 19 | G96 | 0.2− | 0.4− |
| 2006 01 22 | G96 | 0.0 | 0.0 | 2008 07 30 | G96 | 0.7+ | 0.1+ | | | | |

**(229197)∗ 2004 TV$_{346}$**

Discovered 2004 Oct. 15 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 75.16610 | | (2000.0) | | | |
| $n$ | 0.22462757 | $\omega$ | 96.33753 | | +0.91267661 | −0.40323645 |
| $a$ | 2.6801597 | $\Omega$ | 287.45917 | | +0.34197302 | +0.84261510 |
| $e$ | 0.0653859 | $i$ | 3.99720 | | +0.22377636 | +0.35693158 |
| $P$ | 4.39 | $H$ | 15.8 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 03 23 | 704 | 0.9+ | 0.2+ | 2005 10 24 | 568 | 0.2− | 0.2+ | 2008 09 05 | 691 | 0.8+ | 0.9− |
| 2002 03 23 | 704 | 1.0+ | 0.1+ | 2005 10 24 | 568 | 0.3− | 0.2+ | 2008 09 05 | 691 | 0.3− | 0.5+ |
| 2002 03 23 | 704 | 0.5+ | 0.3− | 2005 11 07 | 568 | 0.2+ | 0.0 | 2008 09 26 | G96 | 0.2+ | 0.0 |
| 2004 10 15 | 699 | 0.7− | 0.0 | 2005 11 07 | 568 | 0.1+ | 0.0 | 2008 09 26 | G96 | 0.5+ | 0.1+ |
| 2004 10 15 | 699 | 0.1− | 0.4+ | 2005 11 07 | 568 | 0.1+ | 0.0 | 2008 09 26 | G96 | 0.2− | 0.1+ |
| 2004 10 15 | 699 | 0.3+ | 1.0− | 2006 01 08 | G96 | 0.1− | 0.4− | 2008 09 26 | G96 | 0.2+ | 0.0 |
| 2004 10 15 | 699 | 0.2+ | 0.8+ | 2006 01 08 | G96 | 0.2− | 0.4− | 2008 10 01 | 703 | 0.4− | 0.2− |
| 2004 10 21 | 704 | 0.2+ | 0.2+ | 2006 01 08 | G96 | 0.1+ | 0.3− | 2008 10 01 | 703 | 0.7− | 0.0 |
| 2004 10 21 | 704 | (0.9+ | 1.8+) | 2006 01 08 | G96 | 0.2− | 0.6− | 2008 10 01 | 703 | 0.5+ | 0.3+ |
| 2004 10 21 | 704 | 0.2+ | 0.9+ | 2006 01 31 | 703 | (0.7+ | 2.1+) | 2008 10 01 | 703 | (0.0 | 1.6−) |
| 2004 10 21 | 704 | (1.8+ | 1.2−) | 2006 01 31 | 703 | 0.4+ | 0.7+ | 2008 10 08 | G96 | 0.2+ | 0.1− |
| 2004 10 21 | 704 | 0.7+ | 0.5+ | 2006 01 31 | 703 | 1.2− | 0.4+ | 2008 10 08 | G96 | 0.2+ | 0.2+ |
| 2004 11 02 | 699 | 0.1+ | 0.0 | 2006 01 31 | 703 | 0.5− | 0.6+ | 2008 10 08 | G96 | 0.2+ | 0.2− |
| 2004 11 02 | 699 | 0.0 | 0.2+ | 2006 01 31 | G96 | 0.2− | 1.1− | 2008 10 08 | G96 | 0.2+ | 0.1+ |
| 2004 11 02 | 699 | 0.3+ | 0.7+ | 2006 01 31 | G96 | 0.4+ | 0.1− | 2009 11 11 | G96 | 0.1+ | 0.4− |
| 2004 11 02 | 699 | 0.2+ | 0.4+ | 2006 01 31 | G96 | 0.3− | 0.1− | 2009 11 11 | G96 | 0.3− | 0.2− |
| 2004 11 04 | 703 | 0.4− | 0.3+ | 2006 01 31 | G96 | 0.2− | 0.0 | 2009 11 11 | G96 | 0.3+ | 0.2− |
| 2004 11 04 | 703 | 0.9− | 0.4− | 2006 02 07 | 703 | 0.2− | 0.5+ | 2009 11 11 | G96 | 0.2− | 0.4− |
| 2004 11 04 | 703 | 0.6− | 0.6− | 2006 02 07 | 703 | (1.3+ | 1.9+) | 2009 12 09 | 130 | 0.2+ | 0.1+ |
| 2004 11 04 | 703 | 0.5− | 0.8+ | 2006 02 07 | 703 | (1.0− | 1.6+) | 2009 12 10 | 130 | 0.4+ | 0.2− |
| 2004 11 12 | 703 | 0.2+ | 0.5+ | 2006 02 07 | 703 | 1.2− | 1.1+ | 2009 12 10 | G96 | 0.3+ | 0.3− |
| 2004 11 12 | 703 | 1.0− | 0.4+ | 2006 02 21 | 699 | (2.1+ | 1.2−) | 2009 12 10 | G96 | 0.5+ | 0.1− |
| 2004 11 12 | 703 | 0.1+ | 0.5+ | 2006 02 21 | 699 | 1.2+ | 1.0− | 2009 12 10 | G96 | 0.4+ | 0.5− |
| 2004 11 12 | 703 | 0.7+ | 0.8+ | 2006 02 21 | 699 | 0.4+ | 1.0+ | 2009 12 10 | G96 | 0.5+ | 0.7− |
| 2004 11 19 | 703 | 0.5− | 0.5− | 2006 02 21 | 699 | 0.9+ | 0.8+ | 2009 12 17 | 691 | 0.0 | 0.1− |
| 2004 11 19 | 703 | (2.4− | 0.6−) | 2007 06 20 | 691 | 0.1− | 0.0 | 2009 12 17 | 691 | 0.8− | 0.2+ |
| 2004 11 19 | 703 | 0.8− | 0.3− | 2007 06 20 | 691 | 0.3− | 0.3+ | 2009 12 17 | 691 | 0.2+ | 0.4− |
| 2004 11 19 | 703 | 0.5− | 0.2+ | 2007 06 20 | 691 | 0.0 | 0.1+ | | | | |
| 2005 10 24 | 568 | 0.2− | 0.2+ | 2008 09 05 | 691 | 0.2− | 0.0 | | | | |

**(229198)∗ 2004 TS$_{357}$**

Discovered 2004 Oct. 15 by K. Černis at Moletai Astronomical Observatory.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 43.56702 | | (2000.0) | | | |
| $n$ | 0.18767949 | $\omega$ | 56.90532 | | +0.92140477 | +0.38712829 |
| $a$ | 3.0212837 | $\Omega$ | 280.29900 | | −0.36701680 | +0.83829712 |
| $e$ | 0.0761171 | $i$ | 1.97085 | | −0.12771814 | +0.38391356 |
| $P$ | 5.25 | $H$ | 15.9 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 04 16 | 704 | 0.2+ | 1.0+ | 2005 12 02 | G96 | 0.2− | 0.1+ | 2007 03 16 | 691 | 0.1− | 0.5+ |
| 2002 04 16 | 704 | 1.0+ | 0.4+ | 2006 01 04 | G96 | 0.6− | 0.1− | 2007 03 26 | G96 | 0.2+ | 0.4+ |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 04 16 | 704 | 0.7− | 1.0+ | 2006 01 04 | G96 | 0.6+ | 0.4− | 2007 03 26 | G96 | 0.2+ | 0.2− |
| 2002 04 16 | 704 | (0.6− | 2.6+) | 2006 01 04 | G96 | 1.0− | 0.0 | 2007 03 26 | G96 | 0.0 | 0.1+ |
| 2004 10 07 | 691 | 0.1− | 0.1+ | 2006 01 04 | G96 | 0.3− | 0.1− | 2007 03 26 | G96 | 0.4+ | 0.2+ |
| 2004 10 07 | 691 | 0.0 | 0.0 | 2006 01 05 | 691 | 0.1+ | 0.0 | 2007 04 20 | G96 | 0.3+ | 0.1+ |
| 2004 10 07 | 691 | 0.3− | 0.1− | 2006 01 05 | 691 | 0.0 | 0.1− | 2007 04 20 | G96 | 0.2+ | 0.0 |
| 2004 10 13 | 152 | 0.0 | 0.2+ | 2006 01 05 | 691 | 0.2− | 0.1− | 2007 04 20 | G96 | 0.3− | 0.0 |
| 2004 10 13 | 152 | 0.4− | 0.5+ | 2006 01 09 | 691 | 0.1+ | 0.7+ | 2007 04 20 | G96 | 0.5+ | 0.0 |
| 2004 10 15 | 152 | 0.4+ | 0.5+ | 2006 01 09 | 691 | 0.0 | 0.1+ | 2009 09 16 | 691 | 0.3− | 0.6+ |
| 2004 10 15 | 152 | 0.1− | 0.2− | 2006 01 09 | 691 | 0.2+ | 0.0 | 2009 09 16 | 691 | 0.5− | 0.4+ |
| 2004 10 15 | 152 | 0.9+ | 1.1− | 2006 01 10 | G96 | 0.5− | 0.5+ | 2009 09 16 | 691 | 0.1− | 0.4+ |
| 2004 10 15 | 152 | 0.3− | 0.1− | 2006 01 10 | G96 | 1.1+ | 0.5+ | 2009 09 27 | G96 | 0.2+ | 0.0 |
| 2004 10 15 | 152 | 0.4+ | 1.4− | 2006 01 10 | G96 | 0.4− | 0.0 | 2009 09 27 | G96 | 0.3+ | 0.0 |
| 2004 10 21 | 704 | 0.4− | 0.5− | 2006 01 10 | G96 | 0.4− | 0.1− | 2009 09 27 | G96 | 0.4+ | 0.1+ |
| 2004 10 21 | 704 | 0.3− | 0.1+ | 2006 01 21 | G96 | 0.7+ | 0.1− | 2009 09 27 | G96 | 0.2+ | 0.1− |
| 2004 10 21 | 704 | 0.7+ | 0.2+ | 2006 01 21 | G96 | 0.2+ | 0.1+ | 2009 12 16 | G96 | 0.2− | 0.2− |
| 2004 10 21 | 704 | 1.2+ | 0.4+ | 2006 01 21 | G96 | 0.2+ | 0.2− | 2009 12 16 | G96 | 0.0 | 0.3+ |
| 2005 12 02 | G96 | 0.2− | 0.1− | 2006 01 21 | G96 | 0.3+ | 0.5− | 2009 12 16 | G96 | 0.0 | 0.3− |
| 2005 12 02 | G96 | 0.1+ | 0.2− | 2007 03 16 | 691 | 0.3− | 0.2− | 2009 12 16 | G96 | 0.2+ | 0.2− |
| 2005 12 02 | G96 | 0.1− | 0.3+ | 2007 03 16 | 691 | 0.3+ | 0.1− | | | | |

**(229199)∗ 2004 TB$_{368}$**

Discovered 2004 Oct. 7 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 55.46649 | | (2000.0) | | | |
| $n$ | 0.24477855 | $\omega$ | 70.31463 | | −0.40632594 | −0.91240918 |
| $a$ | 2.5309709 | $\Omega$ | 43.76259 | | +0.80950986 | −0.38437318 |
| $e$ | 0.1809791 | $i$ | 4.06894 | | +0.42378416 | −0.14059428 |
| $P$ | 4.03 | $H$ | 16.9 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 05 09 | 644 | 0.5− | 1.1+ | 2008 09 06 | G96 | 0.2− | 0.1+ | 2008 10 31 | 691 | 0.3− | 0.0 |
| 2002 05 09 | 644 | 0.0 | 0.7+ | 2008 09 06 | G96 | 0.2+ | 0.1− | 2008 10 31 | 691 | 0.2− | 0.1+ |
| 2004 10 07 | 691 | 0.1+ | 0.2− | 2008 09 06 | G96 | 0.5− | 0.4+ | 2008 11 07 | 703 | 0.3+ | 0.5− |
| 2004 10 07 | 691 | 0.0 | 0.1− | 2008 09 06 | G96 | 0.4+ | 0.0 | 2008 11 07 | 703 | 0.1− | 0.2+ |
| 2004 10 07 | 691 | 0.1− | 0.0 | 2008 09 22 | G96 | 0.3+ | 0.0 | 2008 11 07 | 703 | 0.1+ | 0.8− |
| 2004 10 15 | 691 | 0.2+ | 0.1+ | 2008 09 22 | G96 | 0.1+ | 0.1+ | 2008 11 07 | 703 | 0.2− | 0.8− |
| 2004 10 15 | 691 | 0.1+ | 0.0 | 2008 09 22 | G96 | 0.3− | 0.0 | 2008 11 09 | 691 | 0.0 | 0.1− |
| 2004 10 15 | 691 | 0.3+ | 0.0 | 2008 09 22 | G96 | 0.2+ | 0.0 | 2008 11 09 | 691 | 0.1− | 0.1− |
| 2004 11 11 | 291 | 0.1+ | 0.0 | 2008 10 02 | G96 | 0.6+ | 0.1+ | 2008 11 09 | 691 | 0.0 | 0.0 |
| 2004 11 11 | 291 | 0.1+ | 0.0 | 2008 10 02 | G96 | 0.4+ | 0.2+ | 2008 11 18 | 703 | (2.0+ | 0.1+) |
| 2004 11 11 | 291 | 0.2− | 0.0 | 2008 10 02 | G96 | 0.3+ | 0.0 | 2008 11 18 | 703 | 0.1− | 0.2+ |
| 2004 12 09 | 703 | 0.3− | 0.9+ | 2008 10 02 | G96 | 0.1+ | 0.0 | 2008 11 18 | 703 | 0.8+ | 0.1+ |
| 2004 12 09 | 703 | 0.5+ | 0.3+ | 2008 10 19 | 691 | 0.2− | 0.2+ | 2008 11 18 | 703 | 0.3− | 0.4− |
| 2004 12 09 | 703 | 0.4− | 0.5+ | 2008 10 19 | 691 | 0.3− | 0.1− | 2008 11 19 | 704 | 1.3+ | 0.5− |
| 2004 12 09 | 703 | 1.1− | 0.4− | 2008 10 19 | 691 | 0.0 | 0.3+ | 2008 11 19 | 704 | 0.7+ | 0.7− |
| 2006 04 19 | 691 | 0.3+ | 0.1− | 2008 10 23 | 691 | 0.1+ | 0.5+ | 2008 11 19 | 704 | 0.7+ | 0.6+ |
| 2006 04 19 | 691 | 0.4+ | 0.1+ | 2008 10 23 | 691 | 0.2− | 0.3+ | 2008 11 19 | 704 | 0.2− | 0.5− |
| 2006 04 19 | 691 | 0.2+ | 0.5+ | 2008 10 23 | 691 | 0.4− | 0.0 | 2008 11 20 | G96 | 0.3+ | 0.4− |
| 2006 05 25 | G96 | 0.8− | 0.3+ | 2008 10 27 | 691 | 0.0 | 0.3+ | 2008 11 20 | G96 | 0.2+ | 0.6− |
| 2006 05 25 | G96 | 0.1− | 0.3+ | 2008 10 27 | 691 | 0.0 | 0.1+ | 2008 11 20 | G96 | 1.1+ | 0.7− |
| 2006 05 25 | G96 | 0.1− | 0.2+ | 2008 10 27 | 691 | 0.1− | 0.2+ | 2008 11 20 | G96 | 0.4+ | 0.2− |
| 2006 05 25 | G96 | 0.5− | 0.2+ | 2008 10 31 | 691 | 0.5− | 0.4+ | | | | |

**(229200)∗ 2004 UT$_7$**

Discovered 2004 Oct. 21 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 350.60177 | | (2000.0) | | | |
| $n$ | 0.21833744 | $\omega$ | 227.08953 | | −0.47824567 | −0.86985344 |
| $a$ | 2.7313912 | $\Omega$ | 251.85150 | | +0.83829338 | −0.41108129 |
| $e$ | 0.1145783 | $i$ | 7.31436 | | +0.26181157 | −0.27270346 |
| $P$ | 4.51 | $H$ | 15.9 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 01 02 | 704 | 0.1+ | 0.2+ | 2004 10 23 | 691 | 0.1+ | 0.0 | 2006 03 25 | 644 | 0.7+ | 0.3+ |
| 2001 01 02 | 704 | 0.3− | 0.5+ | 2004 11 03 | 699 | 0.4+ | 0.6+ | 2006 03 25 | 644 | 0.2+ | 0.0 |
| 2001 01 02 | 704 | 0.4− | 0.5− | 2004 11 03 | 699 | 0.2− | 0.3− | 2006 03 25 | 644 | 0.8+ | 0.2+ |
| 2001 01 02 | 704 | 0.1− | 0.2+ | 2004 11 03 | 699 | 0.9+ | 1.5+ | 2006 03 25 | 644 | 0.7+ | 0.4+ |
| 2001 01 19 | 704 | 0.4− | 1.5+ | 2004 11 03 | 699 | 0.6+ | 0.5− | 2008 10 29 | G96 | 0.1− | 0.3− |
| 2001 01 19 | 704 | 0.0 | 0.2− | 2004 11 04 | 699 | 1.0− | 0.1− | 2008 10 29 | G96 | 0.3− | 0.2− |
| 2001 01 19 | 704 | 0.5+ | 1.3+ | 2004 11 04 | 699 | 0.3+ | 0.1− | 2008 10 29 | G96 | 0.5− | 0.6− |
| 2001 01 19 | 704 | 0.1− | 0.2+ | 2004 11 04 | 699 | 1.1+ | 0.5− | 2008 10 29 | G96 | 0.3+ | 0.2− |
| 2002 05 11 | 704 | 0.1− | 0.6+ | 2004 11 04 | 699 | 1.1+ | 0.8− | 2009 11 19 | G96 | 0.2− | 0.1− |
| 2002 05 11 | 704 | 0.2− | 0.8+ | 2004 12 12 | 691 | 0.0 | 0.2+ | 2009 11 19 | G96 | 0.1− | 0.3− |
| 2002 05 11 | 704 | 0.4− | 0.8+ | 2004 12 12 | 691 | 0.2− | 0.1+ | 2009 11 19 | G96 | 0.4+ | 0.1− |
| 2002 05 11 | 704 | (0.5+ | 1.7+) | 2004 12 12 | 691 | 0.0 | 0.2+ | 2009 11 19 | G96 | 0.1− | 0.3− |
| 2003 07 03 | 691 | 0.4− | 0.1+ | 2004 12 12 | 691 | 0.0 | 0.2+ | 2009 12 15 | 703 | 0.1+ | 0.4− |
| 2003 07 03 | 691 | 0.1− | 0.3− | 2004 12 12 | 691 | 0.0 | 0.2+ | 2009 12 15 | 703 | 0.7− | 0.1+ |
| 2003 07 03 | 691 | 0.3+ | 0.4+ | 2004 12 12 | 691 | 0.1+ | 0.1+ | 2009 12 15 | 703 | 1.1− | 0.5+ |
| 2004 10 21 | 704 | 0.3− | 0.1+ | 2006 03 04 | 703 | 0.2− | 1.1− | 2009 12 15 | 703 | 0.5− | 0.8− |
| 2004 10 21 | 704 | 0.6− | 0.4− | 2006 03 04 | 703 | 0.7− | 0.8− | 2009 12 17 | G96 | 0.1− | 0.1+ |
| 2004 10 21 | 704 | 0.6− | 0.0 | 2006 03 04 | 703 | 0.7− | 1.4− | 2009 12 17 | G96 | 0.0 | 0.1+ |
| 2004 10 21 | 704 | 1.0− | 0.2+ | 2006 03 04 | 703 | 0.1− | 1.0− | 2009 12 17 | G96 | 0.0 | 0.1− |
| 2004 10 23 | 691 | 0.5+ | 0.1− | 2006 03 25 | 644 | 0.6+ | 0.3+ | 2009 12 17 | G96 | 0.2+ | 0.0 |
| 2004 10 23 | 691 | 0.0 | 0.2− | 2006 03 25 | 644 | 0.6+ | 0.2+ | | | | |

**(229201)∗ 2004 UA$_{10}$**

Discovered 2004 Oct. 21 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 246.47484 | | (2000.0) | | | |
| $n$ | 0.37722207 | $\omega$ | 293.06484 | | −0.92060406 | −0.30277610 |
| $a$ | 1.8970174 | $\Omega$ | 230.26481 | | +0.35205798 | −0.91676084 |
| $e$ | 0.1039184 | $i$ | 18.70416 | | −0.16894777 | −0.26053061 |
| $P$ | 2.61 | $H$ | 17.0 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 01 10 | 704 | 0.4− | 0.2+ | 2003 06 05 | 691 | (0.2+ | 1.7+) | 2004 12 03 | 699 | 0.1− | 0.2− |
| 2000 01 10 | 704 | 0.5− | 0.5+ | 2004 10 21 | 704 | 0.4− | 0.2− | 2004 12 03 | 699 | 0.7− | 0.9+ |
| 2000 01 10 | 704 | 0.2+ | 1.0+ | 2004 10 21 | 704 | 0.9+ | 0.5+ | 2008 03 01 | E12 | 0.0 | 0.7+ |
| 2000 01 10 | 704 | 0.3+ | 0.4+ | 2004 10 21 | 704 | 0.6+ | 0.4+ | 2008 03 01 | E12 | 0.3+ | 0.4+ |
| 2000 01 10 | 704 | 0.3− | 0.1+ | 2004 10 21 | 704 | 0.2+ | 0.0 | 2008 03 01 | E12 | 0.3+ | 0.3+ |
| 2001 07 22 | 644 | 0.2− | 0.7+ | 2004 10 21 | 704 | 0.5− | 0.3+ | 2009 09 24 | J75 | 0.1+ | 0.3+ |
| 2001 07 22 | 644 | 0.5− | 0.9+ | 2004 11 07 | 704 | 0.8+ | 0.4+ | 2009 09 24 | J75 | 0.6+ | 0.4+ |
| 2001 07 22 | 644 | 0.2− | 0.7+ | 2004 11 07 | 704 | (1.6+ | 0.2+) | 2009 09 25 | J75 | 0.2− | 0.7+ |
| 2003 04 30 | 704 | 0.0 | 0.5− | 2004 11 07 | 704 | 0.8+ | 0.3+ | 2009 10 12 | J75 | 0.0 | 0.3− |
| 2003 04 30 | 704 | 0.1− | 0.7+ | 2004 11 10 | 691 | 0.3+ | 0.3+ | 2009 10 12 | J75 | 0.5− | 0.5− |
| 2003 04 30 | 704 | 0.2− | 0.2− | 2004 11 10 | 691 | 0.1+ | 0.3+ | 2009 10 12 | J75 | 0.8− | 0.4− |
| 2003 04 30 | 704 | 0.2− | 0.3+ | 2004 11 10 | 691 | 0.2+ | 0.3+ | 2009 10 25 | 703 | 0.3+ | 0.0 |
| 2003 04 30 | 704 | 1.1− | 0.1− | 2004 11 12 | 703 | 0.2− | 0.2− | 2009 10 25 | 703 | 0.7− | 0.5+ |
| 2003 05 11 | 608 | 0.1+ | 0.2+ | 2004 11 12 | 703 | 0.2− | 0.3− | 2009 10 25 | 703 | 0.6− | 0.2+ |
| 2003 05 11 | 608 | 0.1− | 0.1+ | 2004 11 12 | 703 | 0.2− | 0.0 | 2009 10 25 | 703 | 0.0 | 1.4+ |
| 2003 05 11 | 608 | 0.0 | 0.2+ | 2004 11 12 | 703 | 0.4− | 0.1− | 2009 12 20 | G96 | 0.3− | 0.1− |
| 2003 05 22 | 691 | 0.3+ | 0.7+ | 2004 11 18 | 704 | 0.2+ | 0.9+ | 2009 12 20 | G96 | 0.5− | 0.1− |
| 2003 05 22 | 691 | 0.2+ | 0.7+ | 2004 11 18 | 704 | 0.3− | 0.4+ | 2009 12 20 | G96 | 0.3− | 0.1+ |
| 2003 05 22 | 691 | 0.2+ | 0.7+ | 2004 11 18 | 704 | 0.1+ | 0.7+ | 2009 12 20 | G96 | 0.1− | 0.1− |
| 2003 06 05 | 691 | (0.1+ | 2.5+) | 2004 12 03 | 699 | (0.9+ | 1.8+) | | | | |
| 2003 06 05 | 691 | (0.4− | 1.8+) | 2004 12 03 | 699 | 0.1+ | 0.3− | | | | |

**(229202)∗ 2004 VR$_6$**

Discovered 2004 Nov. 3 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 307.90573 | | (2000.0) | | | |
| $n$ | 0.17569355 | $\omega$ | 221.77796 | | +0.21909222 | −0.96973998 |
| $a$ | 3.1571763 | $\Omega$ | 215.95590 | | +0.93675790 | +0.23994116 |
| $e$ | 0.0499852 | $i$ | 10.57099 | | +0.27291616 | −0.04508453 |
| $P$ | 5.61 | $H$ | 15.4 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 07 | 691 | 0.1+ | 0.3+ | 2004 11 19 | 703 | 0.1− | 0.3+ | 2007 04 22 | 691 | 0.4+ | 0.5+ |
| 2004 10 07 | 691 | 0.3− | 0.2+ | 2004 11 19 | 703 | (1.9+ | 0.0 ) | 2007 04 26 | 691 | 0.2+ | 0.0 |
| 2004 10 07 | 691 | 0.1+ | 0.1+ | 2004 11 19 | 703 | 0.4+ | 0.9+ | 2007 04 26 | 691 | 0.0 | 0.5+ |
| 2004 10 15 | 691 | 0.2+ | 0.3+ | 2004 11 19 | 703 | 0.3+ | 1.0+ | 2007 04 26 | 691 | 0.2− | 0.3+ |
| 2004 10 15 | 691 | 0.1+ | 0.4+ | 2006 01 23 | 703 | (2.8+ | 3.0+) | 2007 05 09 | G96 | 0.1+ | 0.2+ |
| 2004 10 15 | 691 | 0.2+ | 0.1+ | 2006 01 23 | 703 | 0.6− | 0.7+ | 2007 05 09 | G96 | 0.2+ | 0.2+ |
| 2004 11 03 | 691 | 0.5+ | 0.6+ | 2006 01 23 | 703 | 0.7+ | 0.2+ | 2007 05 09 | G96 | 0.2− | 0.2+ |
| 2004 11 03 | 691 | 0.3+ | 0.4+ | 2006 01 23 | 703 | 0.3− | 0.7− | 2007 05 09 | G96 | 0.1+ | 0.2+ |
| 2004 11 03 | 691 | 0.4+ | 0.5+ | 2007 03 15 | G96 | 0.2− | 0.0 | 2009 09 17 | 703 | 0.5− | 1.0+ |
| 2004 11 04 | 703 | 0.8− | 0.4+ | 2007 03 15 | G96 | 0.2− | 0.2+ | 2009 09 17 | 703 | 1.3− | 0.5+ |
| 2004 11 04 | 703 | 0.7− | 0.5− | 2007 03 15 | G96 | 0.0 | 0.4+ | 2009 09 17 | 703 | 1.0− | 0.3+ |
| 2004 11 04 | 703 | 0.9− | 0.1− | 2007 03 15 | G96 | 0.5− | 0.2− | 2009 09 17 | 703 | 0.1− | 1.3+ |
| 2004 11 04 | 703 | 0.0 | 0.5− | 2007 04 14 | 691 | 0.0 | 0.1+ | 2009 09 25 | 704 | 0.7+ | 1.2+ |
| 2004 11 10 | 691 | 0.6− | 0.1− | 2007 04 14 | 691 | 0.1− | 0.0 | 2009 09 25 | 704 | 0.8+ | 0.1+ |
| 2004 11 10 | 691 | 0.3− | 0.1+ | 2007 04 14 | 691 | 0.0 | 0.4+ | 2009 09 25 | 704 | 0.3+ | 0.8+ |
| 2004 11 10 | 691 | 0.5− | 0.1+ | 2007 04 18 | 691 | 0.1+ | 0.1− | 2009 09 25 | 704 | 0.6− | 0.5− |
| 2004 11 12 | 703 | (1.5+ | 0.0 ) | 2007 04 18 | 691 | 0.1− | 0.3+ | 2009 12 18 | G96 | 0.2+ | 0.0 |
| 2004 11 12 | 703 | 1.0+ | 0.4− | 2007 04 18 | 691 | 0.5+ | 0.6+ | 2009 12 18 | G96 | 0.4+ | 0.4− |
| 2004 11 12 | 703 | 0.1− | 1.4− | 2007 04 22 | 691 | 0.0 | 0.4+ | 2009 12 18 | G96 | 0.1+ | 0.5+ |
| 2004 11 12 | 703 | 0.4+ | 0.1+ | 2007 04 22 | 691 | 0.1− | 0.4+ | 2009 12 18 | G96 | 0.2− | 0.2+ |

**(229203)∗ 2004 VA$_8$ = 1999 TL$_{22}$**

Discovered 2004 Nov. 3 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 73498)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 48.50320 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.20950670 | $\omega$ | 269.17994 | | +0.86128663 | | −0.50719648 |
| $a$ | 2.8076143 | $\Omega$ | 121.29680 | | +0.47927927 | | +0.79091779 |
| $e$ | 0.0872500 | $i$ | 2.05303 | | +0.16875048 | | +0.34234599 |
| $P$ | 4.70 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 10 03 | 691 | 0.1− | 0.0 | 2004 11 04 | 703 | 0.9+ | 0.5− | 2008 08 11 | J75 | 0.6+ | 0.6+ |
| 1999 10 03 | 691 | 0.1− | 0.0 | 2004 11 19 | 703 | 1.0+ | 0.3+ | 2008 08 11 | J75 | 0.3+ | 0.2+ |
| 1999 10 03 | 691 | 0.1− | 0.1+ | 2004 11 19 | 703 | 0.6− | 0.5+ | 2008 08 11 | J75 | 0.6− | 0.6− |
| 1999 10 06 | 691 | 0.3− | 0.2+ | 2004 11 19 | 703 | 0.4+ | 0.0 | 2008 09 24 | G96 | 0.3− | 0.2− |
| 1999 10 06 | 691 | 0.3− | 0.5− | 2004 11 19 | 703 | 0.5− | 1.0+ | 2008 09 24 | G96 | 0.0 | 0.3+ |
| 1999 10 06 | 691 | 0.3− | 0.6− | 2004 12 13 | 691 | 0.1+ | 0.3− | 2008 09 24 | G96 | 0.2− | 0.2+ |
| 2001 02 19 | 691 | 0.1+ | 0.5+ | 2004 12 13 | 691 | 0.2+ | 0.1+ | 2008 09 24 | G96 | 0.5− | 0.3+ |
| 2001 02 19 | 691 | 0.1+ | 0.0 | 2004 12 13 | 691 | 0.2+ | 0.1+ | 2009 11 16 | 691 | 0.1+ | 0.1− |
| 2001 02 19 | 691 | 0.3+ | 0.2+ | 2006 01 31 | 691 | 0.2− | 0.0 | 2009 11 16 | 691 | 0.6+ | 0.1+ |
| 2004 10 13 | 691 | 0.0 | 0.2+ | 2006 01 31 | 691 | 0.3+ | 0.2+ | 2009 11 16 | 691 | 0.2− | 0.1− |
| 2004 10 13 | 691 | 0.3+ | 0.0 | 2006 01 31 | 691 | 0.0 | 0.1− | 2009 12 10 | G96 | 0.8+ | 0.2− |
| 2004 10 13 | 691 | 0.5+ | 0.3− | 2006 02 25 | G96 | 0.1− | 0.4− | 2009 12 10 | G96 | 0.7+ | 0.3− |
| 2004 11 03 | 691 | 0.0 | 0.4+ | 2006 02 25 | G96 | 0.1+ | 0.0 | 2009 12 10 | G96 | 0.5+ | 0.2− |
| 2004 11 03 | 691 | 0.1+ | 0.3+ | 2006 02 25 | G96 | 0.2− | 0.1− | 2009 12 10 | G96 | 1.1+ | 0.2− |
| 2004 11 03 | 691 | 0.2+ | 0.6+ | 2006 02 25 | G96 | 0.3+ | 0.1− | 2009 12 25 | 691 | 0.9− | 0.2− |
| 2004 11 04 | 703 | 0.2+ | 0.8+ | 2008 08 10 | J75 | 0.2+ | 0.0 | 2009 12 25 | 691 | 1.0− | 0.3− |
| 2004 11 04 | 703 | 1.1+ | 0.1− | 2008 08 10 | J75 | 0.3+ | 0.7+ | 2009 12 25 | 691 | 0.9− | 0.4− |
| 2004 11 04 | 703 | 0.1− | 0.2− | 2008 08 10 | J75 | 0.8+ | 0.2+ | | | | |

**(229204)∗ 2004 VJ$_{14}$**

Discovered 2004 Nov. 4 by the Catalina Sky Survey.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 83.70821 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21990850 | $\omega$ | 288.24650 | | +0.98108317 | | −0.18412257 |
| $a$ | 2.7183667 | $\Omega$ | 82.39642 | | +0.19244467 | | +0.89411713 |
| $e$ | 0.2028267 | $i$ | 3.45813 | | +0.02099659 | | +0.40823209 |
| $P$ | 4.48 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1993 03 23 | 691 | 0.1− | 0.2− | 2004 12 09 | 703 | 0.2+ | 0.3− | 2007 04 14 | 691 | 0.3− | 0.1+ |
| 1993 03 23 | 691 | 0.3+ | 0.1− | 2004 12 09 | 703 | 0.4− | 0.4− | 2008 08 23 | 704 | 0.0 | 0.8+ |
| 1993 03 23 | 691 | 0.0 | 0.3+ | 2004 12 09 | 703 | 0.5− | 1.1− | 2008 08 23 | 704 | 0.1+ | 0.5+ |
| 1999 09 07 | 704 | 1.2− | 0.2− | 2004 12 09 | 703 | 0.5− | 0.2− | 2008 08 23 | 704 | 0.2+ | 1.2+ |
| 1999 09 07 | 704 | 0.8− | 0.9+ | 2004 12 14 | 699 | 0.1+ | 0.8+ | 2008 08 23 | 704 | 0.5− | 0.7+ |
| 1999 09 07 | 704 | 0.3− | 0.6− | 2004 12 14 | 704 | 0.7+ | 0.1− | 2008 08 23 | 704 | 0.0 | 0.6+ |
| 1999 09 07 | 704 | 0.3+ | 1.1+ | 2004 12 14 | 703 | 0.1+ | 0.5− | 2008 08 25 | 428 | 0.2− | 0.3− |
| 2004 11 04 | 703 | 0.5+ | 0.7− | 2004 12 14 | 699 | 0.3− | 0.5+ | 2008 08 25 | 428 | 0.1− | 0.6− |
| 2004 11 04 | 703 | 0.4+ | 0.1− | 2004 12 14 | 703 | 0.3+ | 0.3+ | 2008 09 19 | 704 | 0.1+ | 0.1− |
| 2004 11 04 | 703 | 0.6− | 0.3− | 2004 12 14 | 703 | 0.0 | 0.4− | 2008 09 19 | 704 | 0.0 | 0.4− |
| 2004 11 04 | 703 | 0.6+ | 0.2− | 2004 12 14 | 704 | 0.1− | 0.5+ | 2008 09 19 | 704 | 0.9− | 0.2+ |
| 2004 11 05 | 644 | 0.0 | 0.2+ | 2004 12 14 | 703 | 0.5+ | 0.6− | 2008 09 19 | 704 | 0.8− | 0.4− |
| 2004 11 05 | 644 | 0.0 | 0.1+ | 2004 12 14 | 699 | 0.2+ | 0.2+ | 2008 09 23 | 704 | 0.2+ | 0.1− |
| 2004 11 05 | 644 | 0.3+ | 0.5+ | 2004 12 14 | 704 | 0.6− | 0.1+ | 2008 09 23 | 704 | 0.4+ | 0.6+ |
| 2004 11 17 | 599 | 0.0 | 0.4+ | 2004 12 14 | 704 | 0.4− | 1.3+ | 2008 09 23 | 704 | 0.4+ | 0.5+ |
| 2004 11 17 | 599 | 0.3+ | 0.3+ | 2004 12 14 | 699 | (1.6− | 0.7+) | 2008 09 23 | 704 | 0.5+ | 0.7+ |
| 2004 11 17 | 599 | 0.9+ | 0.0 | 2005 03 13 | G96 | 0.4− | 0.0 | 2008 09 23 | 704 | 0.4− | 0.1− |
| 2004 11 17 | 599 | 0.2+ | 0.2+ | 2005 03 13 | G96 | 0.0 | 0.4+ | 2009 11 17 | G96 | 0.1+ | 0.0 |
| 2004 11 19 | 703 | 0.2+ | 0.1− | 2005 03 13 | G96 | 0.2− | 0.1− | 2009 11 17 | G96 | 0.0 | 0.5− |
| 2004 11 19 | 703 | 0.4− | 0.0 | 2005 03 13 | G96 | 0.1+ | 0.2− | 2009 11 17 | G96 | 0.1− | 0.1+ |
| 2004 11 19 | 703 | 0.4+ | 0.5− | 2006 03 04 | 691 | 0.7+ | 0.9+ | 2009 11 17 | G96 | 0.2− | 0.1− |
| 2004 11 19 | 703 | 0.2− | 0.8− | 2006 03 04 | 691 | 0.1− | 0.0 | 2009 12 26 | 691 | 0.9− | 0.8+ |
| 2004 11 20 | 599 | 0.2− | 0.2+ | 2006 03 04 | 691 | 0.2− | 0.5− | 2009 12 26 | 691 | 0.0 | 0.2+ |
| 2004 11 20 | 599 | 0.4+ | 0.2+ | 2007 04 14 | 691 | 0.2+ | 0.4+ | 2009 12 26 | 691 | 0.5+ | 0.3+ |
| 2004 11 20 | 599 | 0.1+ | 0.4+ | 2007 04 14 | 691 | 0.3+ | 0.2− | | | | |

**(229205)∗ 2004 VN$_{24}$**

Discovered 2004 Nov. 3 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 329.54946 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18427775 | $\omega$ | 119.36564 | | +0.25838602 | | −0.96410537 |
| $a$ | 3.0583519 | $\Omega$ | 315.52187 | | +0.85332686 | | +0.25744615 |
| $e$ | 0.1749390 | $i$ | 5.00578 | | +0.45284647 | | +0.06497929 |
| $P$ | 5.35 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 02 07 | 691 | 0.1− | 0.1− | 2004 12 02 | 703 | (2.1+ | 0.5+) | 2009 09 17 | 703 | 1.2− | 0.4+ |
| 1995 02 07 | 691 | 0.3− | 0.4− | 2004 12 02 | 703 | 0.4− | 0.4− | 2009 09 18 | 691 | 0.1− | 0.1+ |
| 1995 02 07 | 691 | 0.3+ | 0.4+ | 2004 12 11 | 703 | 1.0+ | 0.7− | 2009 09 18 | 691 | 0.2− | 0.1+ |
| 2000 01 04 | 704 | 0.1+ | 0.4− | 2004 12 11 | 703 | (1.8+ | 1.7+) | 2009 09 18 | 691 | 0.1− | 0.1+ |
| 2000 01 04 | 704 | 0.2+ | 0.2− | 2004 12 11 | 703 | 0.1− | 0.2+ | 2009 09 21 | J75 | 0.8+ | 1.4+ |
| 2000 01 04 | 704 | 0.1+ | 0.2+ | 2004 12 11 | 703 | (0.5+ | 2.0+) | 2009 09 21 | J75 | 0.7+ | 0.0 |
| 2000 01 04 | 704 | 0.7+ | 0.2+ | 2005 03 13 | G96 | 0.4+ | 0.6+ | 2009 09 21 | J75 | 1.2− | 0.8− |
| 2003 07 05 | 691 | 0.3+ | 0.5+ | 2005 03 13 | G96 | 0.7− | 0.1+ | 2009 09 25 | 691 | 0.1− | 0.1+ |
| 2003 07 05 | 691 | 0.2− | 0.1− | 2005 03 13 | G96 | 1.2− | 0.2− | 2009 09 25 | 691 | 0.4− | 0.1+ |
| 2003 07 05 | 691 | 0.4− | 0.2+ | 2005 03 13 | G96 | 0.9− | 0.4− | 2009 09 25 | 691 | 0.1− | 0.2+ |
| 2004 11 03 | 699 | (2.0+ | 1.6−) | 2006 01 08 | G96 | 0.1− | 0.2− | 2009 09 29 | 691 | 0.2− | 0.2+ |
| 2004 11 03 | 699 | 0.3+ | 1.1− | 2006 01 08 | G96 | 0.0 | 0.2− | 2009 09 29 | 691 | 0.1− | 0.3+ |
| 2004 11 03 | 699 | 0.0 | 0.2− | 2006 01 08 | G96 | 0.8− | 0.0 | 2009 09 29 | 691 | 0.2+ | 0.2+ |
| 2004 11 03 | 699 | 0.1+ | 0.6− | 2006 01 08 | G96 | 0.6+ | 0.3+ | 2009 10 15 | 704 | 0.5− | 0.7+ |
| 2004 11 09 | 703 | 0.6− | 0.1+ | 2006 03 05 | 691 | 0.2+ | 0.3+ | 2009 10 15 | 704 | 0.7+ | 0.7+ |
| 2004 11 09 | 703 | 0.4+ | 0.3+ | 2006 03 05 | 691 | 0.1+ | 0.1+ | 2009 10 15 | 704 | (1.6− | 1.3+) |
| 2004 11 09 | 703 | 0.0 | 0.1− | 2006 03 05 | 691 | 0.2+ | 0.3+ | 2009 10 15 | 704 | 1.4+ | 0.4− |
| 2004 11 09 | 703 | 0.2− | 0.3+ | 2006 03 09 | 691 | 0.2+ | 0.6+ | 2009 12 16 | G96 | 0.0 | 0.4+ |
| 2004 11 19 | 704 | 0.6− | 0.6+ | 2006 03 09 | 691 | 0.2+ | 0.6+ | 2009 12 16 | G96 | 0.2+ | 0.0 |
| 2004 11 19 | 704 | 0.0 | 0.5+ | 2006 03 09 | 691 | 0.4+ | 0.3+ | 2009 12 16 | G96 | 0.1+ | 0.1+ |
| 2004 11 19 | 704 | 0.3− | 0.9+ | 2009 09 17 | 703 | 0.6+ | 0.9− | 2009 12 16 | G96 | 0.2+ | 0.2+ |
| 2004 12 02 | 703 | 0.8+ | 1.2− | 2009 09 17 | 703 | 0.5− | 0.9+ | | | | |
| 2004 12 02 | 703 | 0.3− | 0.6− | 2009 09 17 | 703 | 0.0 | 0.7+ | | | | |

**(229206)∗ 2004 VE$_{25}$**

Discovered 2004 Nov. 4 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| $M$ | 29.61340 | | | (2000.0) | | | **P** | | **Q** | | |
| $n$ | 0.20536284 | | $\omega$ | 135.53389 | | | +0.68422840 | | −0.72432041 | | |
| $a$ | 2.8452568 | | $\Omega$ | 271.09254 | | | +0.64323244 | | +0.65420582 | | |
| $e$ | 0.0575097 | | $i$ | 4.86555 | | | +0.34363282 | | +0.21765727 | | |
| $P$ | 4.80 | | $H$ | 15.4 | $G$ | 0.15 | $U$ | 1 | | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 10 10 | 704 | 0.3− | 0.2− | 2005 12 25 | 291 | 0.6− | 0.1+ | 2009 11 21 | 691 | 0.3+ | 0.3+ | | | | | |
| 1999 10 10 | 704 | 0.1+ | 0.8− | 2005 12 25 | 291 | 0.4− | 0.3+ | 2009 11 21 | 691 | 0.3− | 0.0 | | | | | |
| 1999 10 10 | 704 | 0.0 | 1.0− | 2005 12 25 | 291 | 0.2+ | 0.2+ | 2009 11 21 | 691 | 0.5− | 0.0 | | | | | |
| 2004 10 21 | 704 | 0.5− | 0.1− | 2006 02 02 | 691 | 0.1+ | 0.2− | 2009 11 25 | 691 | 0.3− | 0.0 | | | | | |
| 2004 10 21 | 704 | 0.8+ | 0.9+ | 2006 02 02 | 691 | 0.1+ | 0.4− | 2009 11 25 | 691 | (1.7− | 1.1−) | | | | | |
| 2004 10 21 | 704 | 0.5+ | 0.3− | 2006 02 02 | 691 | 0.2+ | 0.4− | 2009 11 25 | 691 | 0.3− | 0.2− | | | | | |
| 2004 10 21 | 704 | 0.6− | 0.1− | 2006 02 23 | 699 | 0.7+ | 0.6− | 2009 12 06 | J75 | 0.4+ | 0.7− | | | | | |
| 2004 11 04 | 699 | 0.7+ | 0.7− | 2006 02 23 | 699 | 1.0− | 0.3+ | 2009 12 06 | J75 | 0.8+ | 0.5− | | | | | |
| 2004 11 04 | 699 | 0.6+ | 0.7− | 2006 02 23 | 699 | 1.3+ | 0.6+ | 2009 12 06 | J75 | 0.3+ | 0.1+ | | | | | |
| 2004 11 04 | 699 | 0.2− | 0.2+ | 2006 02 23 | 699 | 0.0 | 0.8+ | 2009 12 10 | G96 | 0.2+ | 0.2− | | | | | |
| 2004 11 04 | 699 | 0.2− | 0.8− | 2008 08 06 | J75 | 0.1+ | 0.1− | 2009 12 10 | G96 | 0.1− | 0.3− | | | | | |
| 2004 11 09 | 703 | 0.1− | 0.1− | 2008 08 06 | J75 | 0.3+ | 0.6+ | 2009 12 10 | G96 | 0.1+ | 0.5− | | | | | |
| 2004 11 09 | 703 | 0.3− | 0.6− | 2008 08 06 | J75 | 0.7− | 0.3+ | 2009 12 10 | G96 | 0.1+ | 0.2− | | | | | |
| 2004 11 09 | 703 | 0.3− | 1.3− | 2008 08 07 | J75 | 0.0 | 0.1+ | 2009 12 10 | 704 | (2.0+ | 1.6−) | | | | | |
| 2004 11 09 | 703 | 0.2+ | 0.2− | 2008 08 07 | J75 | 0.2− | 0.1− | 2009 12 10 | 704 | (1.7+ | 1.5−) | | | | | |
| 2004 11 19 | 704 | 0.2+ | 0.1+ | 2008 08 07 | J75 | 0.0 | 0.2− | 2009 12 10 | 704 | (2.0+ | 1.3−) | | | | | |
| 2004 11 19 | 704 | 0.6− | 1.2+ | 2009 11 08 | G96 | 0.1− | 0.3− | 2009 12 10 | 704 | (2.4+ | 1.3−) | | | | | |
| 2004 11 19 | 704 | 0.2− | 0.3+ | 2009 11 08 | G96 | 0.1− | 0.4− | 2009 12 10 | 704 | (3.7+ | 0.9−) | | | | | |
| 2004 11 19 | 704 | 0.9+ | 0.9+ | 2009 11 08 | G96 | 0.1+ | 0.4− | 2009 12 15 | G96 | 0.2+ | 0.4− | | | | | |
| 2004 11 19 | 704 | 0.0 | 0.4+ | 2009 11 08 | G96 | 0.0 | 0.2− | 2009 12 15 | G96 | 0.1− | 0.2− | | | | | |
| 2004 12 02 | 644 | 0.5+ | 0.5+ | 2009 11 12 | J75 | 0.6+ | 0.6− | 2009 12 15 | G96 | 0.2+ | 0.7− | | | | | |
| 2004 12 02 | 644 | 0.3+ | 0.5+ | 2009 11 12 | J75 | 0.5+ | 0.9− | 2009 12 15 | G96 | 0.4+ | 0.3− | | | | | |
| 2004 12 02 | 644 | 0.1− | 0.8+ | 2009 11 12 | J75 | 0.5+ | 0.6− | 2009 12 16 | 704 | 0.7+ | 2.2+ | | | | | |
| 2004 12 16 | 691 | 0.2− | 0.3+ | 2009 11 17 | 691 | 0.0 | 0.0 | 2009 12 16 | 704 | 0.2+ | 1.3+ | | | | | |
| 2004 12 16 | 691 | 0.0 | 0.2+ | 2009 11 17 | 691 | 0.2− | 0.0 | 2009 12 16 | 704 | 0.1+ | 0.7+ | | | | | |
| 2004 12 16 | 691 | 0.1− | 0.3+ | 2009 11 17 | 691 | 0.0 | 0.1− | 2009 12 16 | 704 | 0.6− | 0.8+ | | | | | |

**(229207)∗ 2004 VW$_{29}$ = 2002 FO$_{15}$**

Discovered 2004 Nov. 3 by Spacewatch at Kitt Peak.

Id. A. Doppler (*MPO* 86588)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| $M$ | 188.46508 | | | (2000.0) | | | **P** | | **Q** | | |
| $n$ | 0.21537924 | | $\omega$ | 196.31532 | | | −0.21658524 | | +0.96073131 | | |
| $a$ | 2.7563445 | | $\Omega$ | 61.46110 | | | −0.87219418 | | −0.11059800 | | |
| $e$ | 0.1521988 | | $i$ | 11.38757 | | | −0.43859792 | | −0.25448660 | | |
| $P$ | 4.58 | | $H$ | 15.8 | $G$ | 0.15 | $U$ | 1 | | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 03 16 | 608 | 0.8− | 0.4− | 2007 04 14 | 691 | 0.2− | 0.2+ | 2007 05 13 | 704 | 0.5+ | 0.8+ | | | | | |
| 2002 03 16 | 608 | 0.4− | 0.2+ | 2007 04 14 | 691 | 0.2− | 0.2+ | 2007 05 13 | 704 | 1.1+ | 0.8+ | | | | | |
| 2002 03 16 | 608 | 0.5+ | 0.3− | 2007 04 18 | 691 | 0.1+ | 0.0 | 2007 05 13 | 704 | 1.0+ | 0.5+ | | | | | |
| 2002 03 20 | 704 | 0.4+ | 0.2− | 2007 04 18 | 691 | 0.0 | 0.0 | 2009 11 10 | 691 | 0.2+ | 0.5− | | | | | |
| 2002 03 20 | 704 | 0.2+ | 0.7− | 2007 04 18 | 691 | 0.6+ | 1.4+ | 2009 11 10 | 691 | 0.1− | 0.1+ | | | | | |
| 2002 03 20 | 704 | 1.1+ | 0.6− | 2007 04 22 | 691 | 0.3+ | 0.1+ | 2009 11 10 | 691 | 0.0 | 0.3− | | | | | |
| 2002 03 20 | 704 | 1.1− | 1.1+ | 2007 04 22 | 691 | 0.0 | 0.2− | 2009 11 17 | G96 | 0.0 | 0.2+ | | | | | |
| 2004 10 23 | 691 | 0.1+ | 0.0 | 2007 04 22 | 691 | 0.2− | 0.2+ | 2009 11 17 | G96 | 0.0 | 0.0 | | | | | |
| 2004 10 23 | 691 | 0.0 | 0.4+ | 2007 04 26 | 691 | 0.2− | 0.0 | 2009 11 17 | G96 | 0.4+ | 0.0 | | | | | |
| 2004 10 23 | 691 | 0.3− | 0.3+ | 2007 04 26 | 691 | 0.1− | 0.3− | 2009 11 18 | 691 | 0.0 | 0.1− | | | | | |
| 2004 11 03 | 691 | 0.4− | 0.4+ | 2007 04 26 | 691 | (0.4− | 1.9−) | 2009 11 18 | 691 | 0.3− | 0.3+ | | | | | |
| 2004 11 03 | 691 | 0.4− | 0.4+ | 2007 05 08 | 699 | 0.1+ | 0.5+ | 2009 11 18 | 691 | 0.5+ | 0.7+ | | | | | |
| 2004 11 03 | 691 | 0.8− | 0.0 | 2007 05 08 | 699 | 0.3+ | 0.8+ | 2009 12 18 | G96 | 0.5− | 0.2− | | | | | |
| 2004 11 10 | 691 | 0.2− | 0.5+ | 2007 05 08 | 699 | 0.9+ | 0.5+ | 2009 12 18 | G96 | 0.2+ | 0.0 | | | | | |
| 2004 11 10 | 691 | 0.1+ | 0.6+ | 2007 05 08 | 699 | 0.3+ | 0.8+ | 2009 12 18 | G96 | 0.4− | 0.4− | | | | | |
| 2004 11 10 | 691 | 0.3+ | 0.5+ | 2007 05 13 | 704 | 0.8+ | 0.9+ | | | | | | | | | |
| 2007 04 14 | 691 | 0.2− | 0.2− | 2007 05 13 | 704 | 0.4+ | 0.4+ | | | | | | | | | |

**(229208)∗ 2004 VA$_{35}$**

Discovered 2004 Nov. 3 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| $M$ | 45.86505 | | | (2000.0) | | | **P** | | **Q** | | |
| $n$ | 0.20548647 | | $\omega$ | 266.48342 | | | +0.89539080 | | −0.44285311 | | |
| $a$ | 2.8441155 | | $\Omega$ | 119.79777 | | | +0.42683383 | | +0.82390920 | | |
| $e$ | 0.0727517 | | $i$ | 3.06752 | | | +0.12683929 | | +0.35363081 | | |
| $P$ | 4.80 | | $H$ | 16.4 | $G$ | 0.15 | $U$ | 0 | | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 01 19 | 691 | 0.2+ | 0.2+ | 2006 02 01 | 691 | 0.4− | 0.3+ | 2009 11 20 | A50 | 0.5+ | 0.1+ | | | | | |
| 2001 01 19 | 691 | 0.2+ | 0.1− | 2006 03 02 | G96 | 0.6+ | 0.1− | 2009 11 21 | A50 | 0.6+ | 0.2+ | | | | | |
| 2001 01 19 | 691 | 0.5+ | 0.0 | 2006 03 02 | G96 | 0.6+ | 0.1− | 2009 11 21 | A50 | 0.8+ | 0.5− | | | | | |
| 2004 11 03 | 691 | 0.2+ | 0.0 | 2006 03 02 | G96 | 0.1− | 0.1+ | 2009 11 26 | G96 | 0.4− | 0.4− | | | | | |
| 2004 11 03 | 691 | 0.0 | 0.3+ | 2006 03 02 | G96 | 0.3− | 0.2− | 2009 11 26 | G96 | 0.4+ | 0.2− | | | | | |
| 2004 11 03 | 691 | 0.0 | 0.1+ | 2007 04 22 | 691 | 0.1+ | 0.3+ | 2009 11 26 | G96 | 0.1− | 0.0 | | | | | |
| 2004 11 10 | 691 | 0.2− | 0.0 | 2007 04 22 | 691 | 0.2− | 0.0 | 2009 11 26 | G96 | 0.1+ | 0.1− | | | | | |
| 2004 11 10 | 691 | 0.5− | 0.3+ | 2007 04 22 | 691 | 0.1+ | 0.4− | 2009 11 26 | G96 | 0.4− | 0.2− | | | | | |
| 2004 11 10 | 691 | 0.1− | 0.1− | 2007 05 11 | G96 | 0.2+ | 0.0 | 2009 11 27 | A50 | 0.3+ | 0.1− | | | | | |
| 2004 11 19 | 703 | 0.4− | 0.0 | 2007 05 11 | G96 | 0.2− | 0.3+ | 2009 11 27 | A50 | 0.2+ | 0.0 | | | | | |
| 2004 11 19 | 703 | 0.7− | 0.3+ | 2007 05 11 | G96 | 0.0 | 0.3+ | 2009 11 27 | A50 | 0.0 | 0.2+ | | | | | |
| 2004 11 19 | 703 | 0.5− | 0.2− | 2007 05 11 | G96 | 0.1+ | 0.2+ | 2009 11 27 | A50 | 0.4+ | 0.4− | | | | | |
| 2004 11 19 | 703 | 0.2+ | 0.9+ | 2008 08 10 | J75 | 0.1− | 1.1+ | 2009 11 27 | A50 | 0.9+ | 0.2+ | | | | | |
| 2004 12 16 | 691 | 0.0 | 0.2− | 2008 08 10 | J75 | 0.2− | 0.8+ | 2009 12 11 | G96 | 0.2− | 0.5− | | | | | |
| 2004 12 16 | 691 | 0.1− | 0.3+ | 2008 08 10 | J75 | 0.2+ | 0.7+ | 2009 12 11 | G96 | 0.1− | 0.2− | | | | | |
| 2004 12 16 | 691 | 0.1− | 0.2+ | 2009 11 20 | A50 | 0.7+ | 0.4− | 2009 12 11 | G96 | 0.0 | 0.4− | | | | | |
| 2006 02 01 | 691 | 0.2− | 0.5+ | 2009 11 20 | A50 | 0.2+ | 0.9− | 2009 12 11 | G96 | 0.6− | 0.3− | | | | | |
| 2006 02 01 | 691 | 0.2− | 0.4+ | 2009 11 20 | A50 | 0.0 | 0.8− | | | | | | | | | |

**(229209)∗ 2004 VL$_{48}$**

Discovered 2004 Nov. 4 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| $M$ | 69.86386 | | | (2000.0) | | | **P** | | **Q** | | |
| $n$ | 0.20097998 | | $\omega$ | 268.10836 | | | +0.97011054 | | +0.15597951 | | |
| $a$ | 2.8864731 | | $\Omega$ | 82.88440 | | | −0.06715249 | | +0.90869437 | | |
| $e$ | 0.1546323 | | $i$ | 10.79730 | | | −0.23318679 | | +0.38722723 | | |
| $P$ | 4.90 | | $H$ | 15.8 | $G$ | 0.15 | $U$ | 0 | | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 09 | 291 | 0.1+ | 0.2− | 2007 04 24 | G96 | 0.0 | 0.0 | 2009 11 21 | A50 | 1.0+ | 0.1− | | | | | |
| 2004 10 09 | 291 | 0.1− | 0.1+ | 2007 05 24 | G96 | 0.1− | 0.5+ | 2009 11 23 | 691 | 0.0 | 0.0 | | | | | |
| 2004 10 09 | 291 | 0.3− | 0.0 | 2007 05 24 | G96 | 0.3+ | 0.1− | 2009 11 23 | 691 | 0.3− | 0.0 | | | | | |
| 2004 11 04 | 691 | 0.1− | 0.0 | 2007 05 24 | G96 | 0.6+ | 0.2+ | 2009 11 23 | 691 | 0.3− | 0.3+ | | | | | |
| 2004 11 04 | 691 | 0.2+ | 0.0 | 2007 05 24 | G96 | 0.1− | 0.2+ | 2009 11 23 | J75 | 0.4+ | 0.1− | | | | | |
| 2004 11 04 | 691 | 0.0 | 0.0 | 2008 07 03 | E12 | 0.8− | 0.4− | 2009 11 24 | J75 | 0.8+ | 0.0 | | | | | |
| 2004 11 10 | 691 | 0.0 | 0.0 | 2008 07 03 | E12 | 0.4+ | 0.5+ | 2009 11 24 | J75 | 0.1+ | 0.2− | | | | | |
| 2004 11 10 | 691 | 0.1− | 0.2− | 2008 07 03 | E12 | 0.6+ | 0.1+ | 2009 11 26 | G96 | 0.2− | 0.2− | | | | | |
| 2004 11 10 | 691 | 0.4+ | 0.5− | 2008 07 30 | E12 | 0.3+ | 0.4+ | 2009 11 26 | G96 | 0.2+ | 0.0 | | | | | |
| 2004 12 14 | 703 | 0.2+ | 0.4+ | 2008 07 30 | E12 | 0.5+ | 0.2− | 2009 11 26 | G96 | 0.1+ | 0.2− | | | | | |
| 2004 12 14 | 703 | 0.4− | 0.4+ | 2008 07 30 | E12 | 0.3− | 0.3− | 2009 11 26 | G96 | 0.1+ | 0.0 | | | | | |
| 2004 12 14 | 703 | 0.8+ | 0.1+ | 2008 07 30 | E12 | 0.1− | 0.0 | 2009 11 26 | G96 | 0.1− | 0.1− | | | | | |
| 2004 12 14 | 703 | 0.4− | 0.2− | 2008 08 26 | E12 | 0.4+ | 0.5+ | 2009 11 27 | 691 | 0.3− | 1.1+ | | | | | |
| 2004 12 20 | G96 | 0.1+ | 0.1− | 2008 08 26 | E12 | 0.2+ | 1.0+ | 2009 11 27 | 691 | 0.2− | 0.0 | | | | | |
| 2004 12 20 | G96 | 0.1− | 0.2− | 2008 08 26 | E12 | 1.4− | 0.3+ | 2009 11 27 | 691 | 0.1− | 0.0 | | | | | |
| 2004 12 20 | G96 | 0.3− | 0.3− | 2009 11 19 | 691 | (2.8+ | 1.2−) | 2009 12 11 | G96 | 0.3+ | 0.1− | | | | | |
| 2004 12 20 | G96 | 0.3+ | 0.2− | 2009 11 19 | 691 | 0.2− | 0.2+ | 2009 12 11 | G96 | 0.0 | 0.2− | | | | | |
| 2007 04 24 | G96 | 0.3+ | 0.2+ | 2009 11 19 | 691 | 0.2− | 0.2+ | 2009 12 11 | G96 | 0.4+ | 0.2− | | | | | |
| 2007 04 24 | G96 | 0.4− | 0.3+ | 2009 11 20 | A50 | 1.3+ | 0.2− | 2009 12 11 | G96 | 0.0 | 0.1+ | | | | | |
| 2007 04 24 | G96 | 0.0 | 0.4+ | 2009 11 21 | A50 | 0.7+ | 0.4− | | | | | | | | | |

**(229210)∗ 2004 VJ$_{52}$ = 1997 JR$_{8}$**

Discovered 2004 Nov. 4 by the Catalina Sky Survey.

Id. G. V. Williams (*MPO* 73539)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 303.31933 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.20874148 | $\omega$ | 62.64447 | | −0.88108864 | −0.45078560 | |
| $a$ | 2.8144716 | $\Omega$ | 90.25751 | | +0.36740990 | −0.84290409 | |
| $e$ | 0.0706374 | $i$ | 8.22686 | | +0.29781332 | −0.29377719 | |
| $P$ | 4.72 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 05 02 | 691 | 0.4− | 0.4+ | 2004 11 18 | E12 | (2.5+ | 0.3+) | 2006 03 25 | 703 | 0.1− | 0.9− |
| 1997 05 02 | 691 | 0.4− | 0.2+ | 2004 11 18 | E12 | 1.1+ | 0.9− | 2006 03 25 | 703 | (1.6− | 0.3+) |
| 1997 05 02 | 691 | 0.6− | 0.2− | 2004 11 19 | 703 | 0.4− | 1.0− | 2009 11 21 | 704 | 1.1+ | 1.5+ |
| 1997 05 10 | 691 | 0.2+ | 0.5− | 2004 11 19 | 703 | 0.7− | 0.3+ | 2009 11 21 | 704 | 1.2+ | 1.2+ |
| 1997 05 10 | 691 | 0.5+ | 0.0 | 2004 11 19 | 703 | 0.5+ | 0.3+ | 2009 11 21 | 704 | 0.0 | 0.1− |
| 1997 05 10 | 691 | 0.1+ | 0.2− | 2004 11 19 | 703 | (1.5− | 0.8+) | 2009 12 16 | G96 | 0.2+ | 0.5− |
| 2001 02 03 | 704 | 0.8− | 0.3+ | 2004 12 09 | 703 | 0.9− | 0.6+ | 2009 12 16 | G96 | 0.2+ | 0.4− |
| 2001 02 03 | 704 | 0.3− | 0.3+ | 2004 12 09 | 703 | 0.2+ | 0.1− | 2009 12 16 | G96 | 0.2+ | 0.3− |
| 2001 02 03 | 704 | 0.1+ | 0.3+ | 2004 12 09 | 703 | 0.1− | 1.5+ | 2009 12 16 | G96 | 0.1+ | 0.3− |
| 2001 02 03 | 704 | 0.5+ | 0.8+ | 2004 12 09 | 703 | 0.6+ | 0.0 | 2009 12 17 | 704 | (0.9− | 2.8+) |
| 2001 02 16 | 704 | 0.4+ | 0.3+ | 2006 02 09 | 644 | 0.1− | 0.1+ | 2009 12 17 | 704 | (2.3− | 2.6+) |
| 2001 02 16 | 704 | 1.1+ | 0.3− | 2006 02 09 | 644 | 0.2− | 0.0 | 2009 12 17 | 704 | 0.7− | 1.4+ |
| 2001 02 16 | 704 | 0.4+ | 0.6− | 2006 02 09 | 644 | 0.1− | 0.2+ | 2009 12 17 | 704 | 1.1− | 0.6+ |
| 2001 02 16 | 704 | 0.5+ | 0.3+ | 2006 02 21 | 703 | 0.1+ | 0.1− | 2009 12 22 | 114 | 0.8− | 1.4+ |
| 2001 02 16 | 704 | 0.2+ | 0.6+ | 2006 02 21 | 703 | (1.6− | 0.1+) | 2009 12 22 | 114 | 1.0− | 0.7− |
| 2002 05 21 | 704 | 0.3+ | 0.5+ | 2006 02 21 | 703 | 1.2− | 0.3− | 2009 12 22 | 114 | 0.0 | 0.5− |
| 2002 05 21 | 704 | 1.1+ | 1.2+ | 2006 02 21 | 703 | 0.7− | 0.1+ | 2009 12 24 | G92 | 1.5+ | 0.8− |
| 2002 05 21 | 704 | 1.2+ | 0.7+ | 2006 02 22 | 704 | 0.7+ | 0.0 | 2009 12 24 | G92 | 0.8+ | 0.3− |
| 2004 11 04 | 703 | (1.8+ | 0.8+) | 2006 02 22 | 704 | 1.4+ | 0.7− | 2009 12 24 | G92 | 0.2− | 0.3− |
| 2004 11 04 | 703 | 0.2− | 0.2− | 2006 02 22 | 704 | 0.9+ | 0.5+ | 2009 12 24 | G92 | 0.7+ | 0.5− |
| 2004 11 04 | 703 | 0.3+ | 1.0+ | 2006 02 22 | 704 | (0.9+ | 1.6+) | 2009 12 24 | G92 | 0.7+ | 0.6− |
| 2004 11 04 | 703 | 0.2+ | 0.8+ | 2006 02 26 | 699 | 0.0 | 0.1− | 2009 12 24 | G92 | 0.4+ | 0.3− |
| 2004 11 10 | 691 | 0.1− | 0.1+ | 2006 02 26 | 699 | 0.1− | 0.3− | 2009 12 25 | 691 | 0.5− | 0.4− |
| 2004 11 10 | 691 | 0.0 | 0.1+ | 2006 02 26 | 699 | 0.7+ | 0.7+ | 2009 12 25 | 691 | 0.2− | 0.2− |
| 2004 11 10 | 691 | 0.0 | 0.1+ | 2006 02 26 | 699 | 0.1− | 0.4− | 2009 12 25 | 691 | 0.3− | 0.1− |
| 2004 11 18 | E12 | 0.2− | 0.6− | 2006 03 25 | 703 | 0.5− | 1.1+ | | | | |
| 2004 11 18 | E12 | 0.5− | 0.3− | 2006 03 25 | 703 | 0.8− | 0.1− | | | | |

**(229211)∗ 2004 VS$_{54}$**

Discovered 2004 Nov. 5 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 0.09306 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18753493 | $\omega$ | 263.11890 | | +0.73380793 | −0.62722330 | |
| $a$ | 3.0228361 | $\Omega$ | 135.28558 | | +0.67025892 | +0.73108551 | |
| $e$ | 0.2231231 | $i$ | 21.77434 | | −0.11081019 | +0.26852357 | |
| $P$ | 5.26 | $H$ | 14.8 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 12 16 | 704 | 0.1− | 1.1− | 2004 11 10 | 704 | 0.3− | 0.2− | 2005 02 04 | 703 | (0.6+ | 1.7+) |
| 1999 12 16 | 704 | 0.9− | 0.4− | 2004 11 10 | 704 | 0.3+ | 0.8+ | 2005 02 04 | 703 | 0.3− | 0.7− |
| 1999 12 16 | 704 | 0.8− | 0.3− | 2004 11 10 | 704 | 0.1+ | 0.5+ | 2005 02 04 | 703 | 0.0 | 0.4− |
| 1999 12 16 | 704 | 0.3− | 0.5− | 2004 11 11 | 704 | 0.1− | 0.6+ | 2005 02 04 | 703 | 0.7− | 0.3− |
| 1999 12 16 | 704 | 0.4− | 0.4− | 2004 11 11 | 704 | 0.2+ | 0.3+ | 2006 01 23 | 691 | 0.3+ | 0.0 |
| 2000 01 08 | 704 | 1.3+ | 0.4− | 2004 11 11 | 704 | 0.2− | 0.9+ | 2006 01 23 | 691 | 0.2+ | 0.2+ |
| 2000 01 08 | 704 | 0.2+ | 0.9− | 2004 11 11 | 704 | 0.1+ | 0.1+ | 2006 01 23 | 691 | 0.5+ | 0.3+ |
| 2000 01 08 | 704 | 0.2+ | 0.3− | 2004 11 11 | 704 | 0.5+ | 0.8+ | 2006 02 21 | 703 | 0.1− | 0.8+ |
| 2000 01 08 | 704 | 0.5− | 0.8− | 2004 12 10 | 703 | 0.4+ | 0.0 | 2006 02 21 | 703 | 0.9− | 0.3+ |
| 2000 01 08 | 704 | 0.1+ | 0.5− | 2004 12 10 | 703 | 0.5+ | 0.9+ | 2006 02 21 | 703 | 1.3− | 0.6+ |
| 2004 09 21 | 704 | 1.0+ | 0.3+ | 2004 12 10 | 703 | 0.2− | 0.4+ | 2006 02 21 | 703 | 0.4− | 0.2+ |
| 2004 09 21 | 704 | 0.5+ | 0.1− | 2004 12 10 | 703 | 0.5+ | 0.0 | 2009 09 21 | 703 | 0.5− | 0.3− |
| 2004 09 21 | 704 | 0.2+ | 0.6+ | 2004 12 11 | 704 | 0.4− | 0.7− | 2009 09 21 | 703 | 0.6− | 0.1+ |
| 2004 09 21 | 704 | 0.6+ | 0.8− | 2004 12 11 | 704 | 0.6+ | 1.3+ | 2009 09 21 | 703 | 0.2− | 0.3+ |
| 2004 09 21 | 704 | 0.0 | 0.3+ | 2004 12 11 | 704 | 0.4+ | 0.2+ | 2009 09 21 | 703 | 1.1− | 0.3− |
| 2004 11 05 | 704 | 0.0 | 0.3− | 2004 12 11 | 704 | 0.4+ | 0.8+ | 2009 10 24 | E12 | 0.2− | 0.5+ |
| 2004 11 05 | 704 | 0.2− | 0.3− | 2004 12 11 | 704 | 0.0 | 0.6+ | 2009 10 24 | E12 | 0.3− | 0.7+ |
| 2004 11 05 | 704 | 0.5− | 0.3− | 2004 12 19 | 703 | 0.3− | 0.6− | 2009 12 11 | D25 | 0.7+ | 0.7− |
| 2004 11 05 | 704 | 0.2+ | 0.2+ | 2004 12 19 | 703 | 0.0 | 0.2− | 2009 12 11 | D25 | 0.3− | 0.1+ |
| 2004 11 05 | 704 | 0.9− | 0.3+ | 2004 12 19 | 703 | 0.3+ | 0.2− | 2009 12 11 | D25 | 0.4− | 0.7− |
| 2004 11 10 | 704 | 0.6+ | 0.2+ | 2004 12 19 | 703 | 0.1− | 0.8+ | 2009 12 11 | D25 | 0.3+ | 0.4− |

**(229212)∗ 2004 VJ$_{59}$**

Discovered 2004 Nov. 9 by the Catalina Sky Survey.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 27.92504 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18600868 | $\omega$ | 63.55516 | | +0.99820836 | −0.01378275 | |
| $a$ | 3.0393490 | $\Omega$ | 297.18588 | | −0.01225118 | +0.90540992 | |
| $e$ | 0.1801461 | $i$ | 3.75301 | | +0.05856598 | +0.42431464 | |
| $P$ | 5.30 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 07 26 | 809 | (0.8+ | 2.1−) | 2005 10 07 | 568 | 0.0 | 0.1+ | 2009 10 09 | 703 | 0.6− | 0.2+ |
| 1998 07 26 | 809 | 0.5+ | 0.9− | 2005 10 07 | 568 | 0.0 | 0.1+ | 2009 10 09 | 703 | 0.1− | 0.0 |
| 1998 07 26 | 809 | 0.1+ | 1.1− | 2006 02 01 | 691 | 0.3− | 0.1+ | 2009 10 09 | 703 | 0.2− | 0.3+ |
| 2001 02 20 | 645 | 0.1+ | 0.1− | 2006 02 01 | 691 | 0.1− | 0.3+ | 2009 10 09 | 703 | 0.1− | 0.3− |
| 2001 02 20 | 645 | 0.1+ | 0.1− | 2006 02 01 | 691 | 0.3+ | 0.4+ | 2009 10 14 | 703 | 0.3+ | 0.1+ |
| 2004 11 09 | 703 | 0.1+ | 0.0 | 2006 02 01 | G96 | 0.0 | 0.3− | 2009 10 14 | 703 | 0.2− | 0.3− |
| 2004 11 09 | 703 | 0.8− | 0.8− | 2006 02 01 | G96 | 0.3− | 0.0 | 2009 10 14 | 703 | 0.1+ | 0.2+ |
| 2004 11 09 | 703 | 0.5+ | 0.6− | 2006 02 01 | G96 | 0.2− | 0.1− | 2009 10 14 | 703 | 0.4− | 0.0 |
| 2004 11 09 | 703 | 0.4+ | 0.3+ | 2006 02 01 | G96 | 0.4− | 0.2− | 2009 10 15 | 704 | 0.4+ | 0.7+ |
| 2004 11 11 | 691 | 0.1− | 0.1− | 2007 03 14 | 691 | 0.2− | 0.2+ | 2009 10 15 | 704 | (2.2− | 0.3−) |
| 2004 11 11 | 691 | 0.1+ | 0.1+ | 2007 03 14 | 691 | 0.2+ | 0.1+ | 2009 10 15 | 704 | 0.4+ | 0.8+ |
| 2004 11 11 | 691 | 0.2+ | 0.1+ | 2007 03 14 | 691 | 0.1+ | 0.2− | 2009 10 15 | 704 | 0.6+ | 0.5+ |
| 2004 11 11 | 691 | 0.0 | 0.0 | 2007 03 18 | 691 | 0.2− | 0.4+ | 2009 10 15 | 704 | 0.2− | 0.4+ |
| 2004 11 11 | 691 | 0.0 | 0.2− | 2007 03 18 | 691 | 0.2− | 0.0 | 2009 10 16 | 703 | 0.5+ | 0.2− |
| 2004 11 11 | 691 | 0.1+ | 0.1+ | 2007 03 18 | 691 | 0.1− | 0.4+ | 2009 10 16 | 703 | 0.3+ | 0.2− |
| 2004 11 19 | 704 | 0.6+ | 0.2− | 2009 09 15 | 691 | 0.2− | 0.1+ | 2009 10 16 | 703 | 0.2+ | 0.2+ |
| 2004 11 19 | 704 | 0.8+ | 0.5− | 2009 09 15 | 691 | 0.6− | 0.1− | 2009 10 16 | 703 | 0.0 | 0.8− |
| 2004 11 19 | 704 | 1.3− | 0.6+ | 2009 09 15 | 691 | 0.4− | 0.2+ | 2009 10 23 | 704 | 1.2+ | 0.3+ |
| 2004 11 20 | 691 | 0.0 | 0.1− | 2009 09 21 | J75 | 0.1− | 0.3+ | 2009 10 23 | 704 | 0.9+ | 0.4− |
| 2004 11 20 | 691 | 0.3− | 0.1− | 2009 09 21 | J75 | 0.3− | 0.2+ | 2009 10 23 | 704 | 0.3+ | 0.6+ |
| 2004 11 20 | 691 | 0.1− | 0.2− | 2009 09 21 | J75 | 0.4+ | 0.1− | 2009 10 23 | 704 | 0.1+ | 0.7+ |
| 2004 12 02 | 703 | 0.5− | 0.8− | 2009 09 25 | 704 | 0.3+ | 0.1− | 2009 10 24 | 703 | 0.2− | 1.3+ |
| 2004 12 02 | 703 | 0.8− | 1.2− | 2009 09 25 | 704 | 0.1− | 0.4− | 2009 10 24 | 703 | 0.1− | 0.5+ |
| 2004 12 02 | 703 | 0.2+ | 0.5+ | 2009 09 25 | 704 | 0.3+ | 0.2+ | 2009 10 24 | 703 | 0.7+ | 0.4+ |
| 2004 12 02 | 703 | 1.0− | 0.1− | 2009 09 25 | 704 | 0.5− | 0.1+ | 2009 10 24 | 703 | 0.7− | 0.0 |
| 2004 12 10 | 715 | 0.1− | 0.3− | 2009 09 25 | 704 | 0.1+ | 0.4+ | 2009 12 11 | 703 | 0.5− | 0.0 |
| 2004 12 10 | 715 | 0.2− | 0.3− | 2009 09 26 | 691 | 0.1+ | 0.1− | 2009 12 11 | 703 | 0.3+ | 0.4+ |
| 2004 12 10 | 715 | 0.0 | 0.1+ | 2009 09 26 | 691 | 0.2− | 0.1+ | 2009 12 11 | 703 | 0.6+ | 1.1+ |
| 2004 12 14 | 699 | 0.6− | 0.1+ | 2009 09 26 | 691 | 0.2− | 0.0 | 2009 12 11 | 703 | 1.0+ | 0.2+ |
| 2004 12 14 | 699 | 0.5+ | 0.1− | 2009 09 30 | G96 | 0.4+ | 0.1− | 2009 12 18 | G96 | 0.2− | 0.1+ |
| 2004 12 14 | 699 | 0.4+ | 0.0 | 2009 09 30 | G96 | 0.3+ | 0.2− | 2009 12 18 | G96 | 0.4+ | 0.1− |
| 2004 12 14 | 699 | 0.2+ | 0.9− | 2009 09 30 | G96 | 0.2+ | 0.2− | 2009 12 18 | G96 | 0.3+ | 0.2− |
| 2005 10 07 | 568 | 0.1+ | 0.1+ | 2009 09 30 | G96 | 0.2+ | 0.1− | 2009 12 18 | G96 | 0.4+ | 0.3− |

**(229213)∗ 2004 VF$_{65}$**

Discovered 2004 Nov. 10 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 137.45847 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22280962 | $\omega$ | 236.85541 | | +0.88751568 | +0.45177950 | |
| $a$ | 2.6947186 | $\Omega$ | 96.14128 | | −0.38656301 | +0.83705653 | |
| $e$ | 0.0903397 | $i$ | 5.22912 | | −0.25076873 | +0.30859626 | |
| $P$ | 4.42 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 01 03 | 704 | 0.2+ | 0.7− | 2006 01 23 | 691 | 0.7+ | 0.0 | 2008 09 21 | 703 | 0.1− | 0.1− |
| 2001 01 03 | 704 | 0.4− | 0.4+ | 2006 01 23 | 691 | 0.4+ | 0.5− | 2008 09 23 | 704 | 0.3− | 0.4+ |
| 2001 01 03 | 704 | 0.4− | 0.3− | 2006 01 23 | 691 | 0.0 | 0.0 | 2008 09 23 | 704 | 0.8− | 0.3− |
| 2002 04 16 | 704 | 0.1− | 1.3+ | 2006 01 28 | 699 | (2.1+ | 0.6−) | 2008 09 23 | 704 | 0.1− | 0.0 |
| 2002 04 16 | 704 | 0.1+ | 0.6+ | 2006 01 28 | 699 | (2.2+ | 0.1−) | 2008 09 23 | 704 | 0.3− | 0.8+ |
| 2002 04 16 | 704 | 0.7+ | 0.5+ | 2006 01 28 | 699 | 0.2− | 0.7− | 2008 09 23 | 704 | 0.4− | 0.6+ |
| 2002 04 16 | 704 | 0.3+ | 0.3− | 2006 01 28 | 699 | (0.7− | 2.3+) | 2008 10 07 | G96 | 0.1− | 0.1− |
| 2002 04 16 | 704 | 0.3− | 0.9+ | 2006 02 01 | 691 | 0.4+ | 0.0 | 2008 10 07 | G96 | 0.4− | 0.2− |
| 2004 11 10 | 691 | 0.1+ | 0.0 | 2006 02 01 | 691 | 0.2+ | 0.2+ | 2008 10 07 | G96 | 0.0 | 0.2− |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 11 10 | 691 | 0.2+ | 0.0 | 2006 02 01 | 691 | 0.1+ | 0.3+ | 2008 10 27 | G96 | 0.3+ | 0.4+ | | |
| 2004 11 10 | 691 | 0.1+ | 0.0 | 2006 02 20 | 703 | 0.4− | 0.1+ | 2008 10 27 | G96 | 0.4+ | 0.3+ | | |
| 2004 11 13 | 703 | (1.0− | 1.8−) | 2006 02 20 | 703 | 0.8− | 0.1− | 2008 10 27 | G96 | 0.3− | 0.4+ | | |
| 2004 11 13 | 703 | (0.7+ | 2.2−) | 2006 02 20 | 703 | 1.2− | 0.1+ | 2008 10 27 | G96 | 0.3− | 0.0 | | |
| 2004 11 13 | 703 | 0.9− | 1.0− | 2006 02 20 | 703 | 0.5− | 0.5− | 2009 11 16 | G96 | 0.5− | 0.1− | | |
| 2004 11 13 | 703 | 0.1− | 0.6− | 2007 06 21 | G96 | 0.1− | 0.3+ | 2009 11 16 | G96 | 0.1− | 0.1− | | |
| 2004 12 02 | 644 | 0.1− | 0.4+ | 2007 06 21 | G96 | 0.2− | 0.2+ | 2009 11 16 | G96 | 0.3+ | 0.4− | | |
| 2004 12 02 | 644 | 0.1− | 0.8+ | 2007 06 21 | G96 | 0.3− | 0.4+ | 2009 11 16 | G96 | 0.2+ | 0.4− | | |
| 2004 12 02 | 644 | 0.4+ | 0.7+ | 2007 06 21 | G96 | 0.1+ | 0.4+ | 2009 12 18 | 691 | 0.3− | 0.2+ | | |
| 2004 12 09 | 703 | 1.4− | 0.1− | 2008 09 21 | 703 | 1.2+ | 0.8− | 2009 12 18 | 691 | 0.1+ | 0.0 | | |
| 2004 12 09 | 703 | 0.1+ | 0.9+ | 2008 09 21 | 703 | 1.5+ | 1.5+ | 2009 12 18 | 691 | 0.4− | 0.0 | | |
| 2004 12 09 | 703 | (1.5− | 2.0+) | 2008 09 21 | 703 | 0.8− | 0.6+ | | | | | | |

**(229214)∗ 2004 VG$_{67}$ = 2009 WA$_{31}$**

Discovered 2004 Nov. 9 by M. W. Buie at Kitt Peak.

Id. G. V. Williams (*MPO* 165411)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 163.89237 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.20576415 | $\omega$ | 17.94383 | | +0.05252680 | +0.99848303 | |
| $a$ | 2.8415562 | $\Omega$ | 255.06961 | | −0.91829673 | +0.04179898 | |
| $e$ | 0.0354154 | $i$ | 0.97905 | | −0.39239273 | +0.03583974 | |
| $P$ | 4.79 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 11 15 | 691 | 0.1− | 0.3− | 2006 02 01 | 691 | 0.2+ | 0.3+ | 2009 11 16 | 691 | 0.2− | 0.2+ | | |
| 1999 11 15 | 691 | 0.0 | 0.7− | 2006 02 01 | 691 | 0.3+ | 0.6+ | 2009 11 20 | 691 | 0.1− | 0.1+ | | |
| 1999 11 15 | 691 | 0.1+ | 0.4− | 2007 05 26 | G96 | 0.1− | 0.3− | 2009 11 20 | 691 | 1.5− | 0.3+ | | |
| 2004 10 11 | 691 | 0.4+ | 0.5− | 2007 05 26 | G96 | 0.1+ | 0.2− | 2009 11 20 | 691 | 0.2− | 0.3− | | |
| 2004 10 11 | 691 | 0.1− | 0.2− | 2007 05 26 | G96 | 0.2− | 0.1+ | 2009 11 24 | 691 | 0.1− | 0.0 | | |
| 2004 10 11 | 691 | 0.0 | 0.2− | 2007 05 26 | G96 | 0.1+ | 0.4− | 2009 11 24 | 691 | 0.4− | 0.1− | | |
| 2004 11 09 | 695 | 0.1+ | 0.2+ | 2008 07 29 | 691 | 0.4− | 0.7+ | 2009 11 24 | 691 | 0.2+ | 0.2− | | |
| 2004 11 09 | 695 | 0.1+ | 0.2+ | 2008 07 29 | 691 | 0.9− | 0.8+ | 2009 11 27 | G96 | 0.4+ | 0.4+ | | |
| 2004 11 10 | 691 | 0.4− | 0.0 | 2008 07 29 | 691 | 0.1− | 0.1+ | 2009 11 27 | G96 | 0.3+ | 0.5+ | | |
| 2004 11 10 | 691 | 0.1+ | 0.4+ | 2008 09 07 | G96 | 0.7+ | 0.2+ | 2009 11 27 | G96 | 0.6+ | 0.1− | | |
| 2004 11 10 | 691 | 0.2+ | 0.4+ | 2008 09 07 | G96 | 0.3+ | 0.2+ | 2009 11 27 | G96 | 1.0+ | 0.3+ | | |
| 2004 11 19 | 691 | 0.4+ | 0.1+ | 2008 09 07 | G96 | 0.7+ | 0.0 | 2009 12 10 | G96 | 1.0+ | 0.3− | | |
| 2004 11 19 | 691 | 0.4+ | 0.5+ | 2008 09 07 | G96 | 0.3+ | 0.1+ | 2009 12 10 | G96 | 0.7+ | 0.0 | | |
| 2004 11 19 | 691 | 0.1− | 0.4+ | 2008 09 23 | G96 | 0.5+ | 0.1− | 2009 12 10 | G96 | 1.4+ | 0.9− | | |
| 2006 01 05 | G96 | 0.2− | 0.1+ | 2008 09 23 | G96 | 0.3− | 0.2− | 2009 12 10 | G96 | 0.9+ | 0.4− | | |
| 2006 01 05 | G96 | 0.2+ | 0.8+ | 2008 09 23 | G96 | 0.7+ | 0.4+ | 2009 12 15 | G96 | 1.1+ | 0.1+ | | |
| 2006 01 05 | G96 | 0.5− | 0.3+ | 2008 09 23 | G96 | 0.0 | 0.1− | 2009 12 15 | G96 | 0.8+ | 0.2− | | |
| 2006 01 05 | G96 | 0.0 | 0.1+ | 2009 11 16 | 691 | 0.7− | 0.3− | 2009 12 15 | G96 | 1.0+ | 0.2− | | |
| 2006 02 01 | 691 | 0.2+ | 0.2+ | 2009 11 16 | 691 | 0.1− | 0.2+ | 2009 12 15 | G96 | 0.9+ | 0.7+ | | |

**(229215)∗ 2004 VN$_{69}$ = 2007 MB$_{7}$**

Discovered 2004 Nov. 10 by Spacewatch at Kitt Peak.

Id. A. Doppler (*MPO* 121588)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 295.65419 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18710827 | $\omega$ | 51.15570 | | −0.51829794 | −0.83513086 | |
| $a$ | 3.0274297 | $\Omega$ | 71.01232 | | +0.71184106 | −0.54065314 | |
| $e$ | 0.0224960 | $i$ | 11.23200 | | +0.47397211 | −0.10124541 | |
| $P$ | 5.27 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 03 20 | 699 | 0.6+ | 0.3− | 2007 04 22 | G96 | 0.3+ | 0.3− | 2009 10 18 | 703 | 0.8− | 0.3+ | | |
| 2001 03 20 | 699 | 0.1− | 0.1+ | 2007 04 22 | G96 | 0.8+ | 0.3− | 2009 10 18 | 703 | 0.5+ | 0.5− | | |
| 2001 03 20 | 699 | 0.6− | 0.0 | 2007 04 22 | G96 | 0.2+ | 0.3− | 2009 10 18 | 703 | (1.6− | 0.7+) | | |
| 2001 03 20 | 699 | 0.5− | 0.1+ | 2007 05 10 | G96 | 0.2+ | 0.3+ | 2009 10 18 | 703 | (1.9− | 0.0 ) | | |
| 2004 11 10 | 691 | 0.1+ | 0.0 | 2007 05 10 | G96 | 0.5+ | 0.2+ | 2009 10 20 | 621 | 1.0− | 0.2+ | | |
| 2004 11 10 | 691 | 0.1+ | 0.1+ | 2007 05 10 | G96 | 0.3+ | 0.3+ | 2009 10 20 | 621 | 0.0 | 0.0 | | |
| 2004 11 10 | 691 | 0.0 | 0.1+ | 2007 05 10 | G96 | 0.1− | 0.2− | 2009 10 20 | 621 | 0.5+ | 0.4− | | |
| 2004 11 11 | 695 | 0.0 | 0.1+ | 2007 05 26 | G96 | 0.3− | 0.1− | 2009 10 20 | 621 | 0.4− | 0.1− | | |
| 2004 11 11 | 695 | 0.2− | 0.2+ | 2007 05 26 | G96 | 0.4+ | 0.1− | 2009 11 09 | 703 | 1.2− | 0.2+ | | |
| 2004 11 20 | 691 | 0.2− | 0.0 | 2007 05 26 | G96 | 0.7+ | 0.1+ | 2009 11 09 | 703 | 0.5+ | 0.4+ | | |
| 2004 11 20 | 691 | 0.2− | 0.2+ | 2007 05 26 | G96 | 0.4+ | 0.3− | 2009 11 09 | 703 | 0.5+ | 0.2+ | | |
| 2004 11 20 | 691 | 0.1+ | 0.0 | 2007 06 18 | 691 | 0.5+ | 0.1+ | 2009 11 09 | 703 | 0.1+ | 0.1− | | |
| 2004 12 14 | 599 | 0.1+ | 0.2+ | 2007 06 18 | 691 | 0.1+ | 0.1− | 2009 11 21 | 703 | 1.4+ | 0.2+ | | |
| 2004 12 14 | 599 | 0.4+ | 0.2+ | 2007 06 18 | 691 | 0.7− | 1.3+ | 2009 11 21 | 703 | 0.2+ | 0.0 | | |
| 2004 12 14 | 599 | 0.1+ | 0.4+ | 2007 06 22 | 691 | 0.1+ | 0.0 | 2009 11 21 | 703 | 0.4+ | 1.0− | | |
| 2006 02 20 | 704 | 0.6− | 0.3− | 2007 06 22 | 691 | 0.1− | 0.1+ | 2009 11 21 | 703 | (0.6− | 1.7−) | | |
| 2006 02 20 | 704 | 0.8− | 0.6+ | 2007 06 22 | 691 | 0.4− | 0.4− | 2009 12 10 | 703 | 1.4− | 0.0 | | |
| 2006 02 20 | 704 | 1.1+ | 0.4− | 2007 06 22 | 691 | 0.1+ | 0.1− | 2009 12 10 | 703 | 0.6− | 0.0 | | |
| 2006 02 20 | 704 | 0.6+ | 0.6+ | 2007 06 22 | 691 | 0.1+ | 0.2− | 2009 12 10 | 703 | 1.0− | 1.4+ | | |
| 2007 04 22 | G96 | 0.2+ | 0.0 | 2007 06 22 | 691 | 0.0 | 0.5+ | 2009 12 10 | 703 | 0.6+ | 0.8+ | | |

**(229216)∗ 2004 VK$_{72}$ = 1999 TU$_{235}$**

Discovered 2004 Nov. 4 by the Catalina Sky Survey.

Id. G. V. Williams (*MPO* 73560)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 120.59921 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21248827 | $\omega$ | 245.50465 | | +0.79445046 | +0.59864184 | |
| $a$ | 2.7812887 | $\Omega$ | 77.56297 | | −0.51235883 | +0.75112274 | |
| $e$ | 0.1254694 | $i$ | 6.01645 | | −0.32609340 | +0.27828506 | |
| $P$ | 4.64 | $H$ | 15.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 10 03 | 703 | 0.1+ | 0.2+ | 2004 11 17 | 599 | 0.2− | 0.4+ | 2008 09 01 | J75 | 0.1− | 0.2− | | |
| 1999 10 03 | 703 | 0.2− | 0.8+ | 2004 11 17 | 599 | 0.3+ | 0.1− | 2008 09 01 | J75 | 0.1− | 0.3− | | |
| 1999 10 03 | 703 | 0.5− | 0.4+ | 2004 11 19 | 703 | 0.3+ | 0.5− | 2008 09 01 | J75 | 0.0 | 0.6− | | |
| 1999 10 03 | 703 | 0.0 | 0.7+ | 2004 11 19 | 703 | 0.3− | 0.1+ | 2008 09 01 | J75 | 0.1− | 0.4− | | |
| 1999 10 09 | 704 | 0.0 | 0.2− | 2004 11 19 | 703 | 0.3+ | 0.1− | 2008 09 01 | J75 | 0.2− | 0.5− | | |
| 1999 10 09 | 704 | 0.1− | 0.8+ | 2004 11 19 | 703 | 0.4− | 0.5− | 2008 09 02 | J75 | 0.1− | 0.6− | | |
| 1999 10 09 | 704 | 0.1− | 0.1+ | 2004 12 10 | 704 | 0.5+ | 1.0+ | 2008 09 02 | J75 | 0.3+ | 0.7− | | |
| 1999 10 09 | 704 | 0.1− | 0.0 | 2004 12 10 | 704 | 0.5− | 0.9+ | 2008 09 02 | J75 | 0.3− | 0.8− | | |
| 1999 10 09 | 704 | 0.0 | 0.2− | 2004 12 10 | 704 | 1.5− | 1.4− | 2008 09 06 | 703 | 0.9+ | 0.8+ | | |
| 2002 04 15 | 644 | 0.6+ | 0.7+ | 2004 12 14 | 704 | 0.2+ | 0.4+ | 2008 09 06 | 703 | 0.2− | 0.7+ | | |
| 2002 04 15 | 644 | 0.4+ | 0.8+ | 2004 12 14 | 704 | 0.6− | 0.2+ | 2008 09 06 | 703 | 0.1+ | 0.7+ | | |
| 2002 04 15 | 644 | 0.5+ | 0.8+ | 2004 12 14 | 704 | 0.7− | 0.0 | 2008 09 19 | 704 | 0.7+ | 0.5+ | | |
| 2002 04 16 | 704 | (1.6+ | 2.0+) | 2004 12 18 | G96 | 0.2+ | 0.3− | 2008 09 19 | 704 | 0.2+ | 1.0+ | | |
| 2002 04 16 | 704 | 0.1− | 1.0+ | 2004 12 18 | G96 | 0.1+ | 0.2− | 2008 09 19 | 704 | 0.1+ | 0.5+ | | |
| 2002 04 16 | 704 | (2.1+ | 1.5+) | 2004 12 18 | G96 | 0.4+ | 0.2− | 2008 09 19 | 704 | 0.1+ | 0.3− | | |
| 2002 04 16 | 704 | (0.8+ | 3.0+) | 2004 12 18 | G96 | 0.0 | 0.4− | 2008 09 23 | 704 | 0.2− | 0.7+ | | |
| 2003 07 02 | 704 | 0.1+ | 0.9− | 2007 05 13 | 704 | 1.1+ | 1.0+ | 2008 09 23 | 704 | 0.3− | 0.1+ | | |
| 2003 07 02 | 704 | 0.6− | 0.3− | 2007 05 13 | 704 | (1.7+ | 0.2+) | 2008 09 23 | 704 | 1.1− | 0.3+ | | |
| 2003 07 02 | 704 | 0.3+ | 0.2+ | 2007 05 13 | 704 | 0.4− | 0.5+ | 2008 09 23 | 704 | 0.1− | 0.5+ | | |
| 2004 11 04 | 703 | 0.2− | 0.9− | 2007 05 13 | 704 | 0.7+ | 0.8+ | 2008 10 02 | 703 | (1.8+ | 0.3+) | | |
| 2004 11 04 | 703 | 1.3+ | 0.7− | 2008 08 06 | E12 | 0.1+ | 0.4− | 2008 10 02 | 703 | 0.8+ | 0.0 | | |
| 2004 11 04 | 703 | 0.2− | 0.1− | 2008 08 06 | E12 | 0.1− | 0.3− | 2008 10 02 | 703 | 0.7− | 0.3+ | | |
| 2004 11 04 | 703 | (1.0− | 1.6−) | 2008 08 06 | E12 | 0.4− | 0.2− | 2008 10 02 | 703 | 0.4− | 0.4+ | | |
| 2004 11 07 | 704 | 0.4− | 0.1− | 2008 08 06 | E12 | 0.0 | 0.1− | 2009 11 29 | J47 | 0.3+ | 0.1+ | | |
| 2004 11 07 | 704 | 0.6+ | 0.6+ | 2008 08 23 | 704 | 0.1+ | 0.7+ | 2009 11 29 | J47 | 0.3+ | 0.3+ | | |
| 2004 11 07 | 704 | 0.2+ | 0.7− | 2008 08 23 | 704 | 0.0 | 1.0+ | 2009 11 29 | J47 | 0.5− | 0.7− | | |
| 2004 11 07 | 704 | 0.0 | 0.6+ | 2008 08 23 | 704 | 0.3− | 0.3+ | 2009 12 19 | 691 | 0.1+ | 0.3+ | | |
| 2004 11 17 | 599 | 0.2+ | 0.4+ | 2008 08 23 | 704 | 0.1− | 0.9+ | 2009 12 19 | 691 | 0.0 | 0.1+ | | |
| 2004 11 17 | 599 | 0.3+ | 0.3+ | 2008 09 01 | J75 | 0.2+ | 0.4− | 2009 12 19 | 691 | 0.1− | 0.2+ | | |

**(229217)∗ 2004 VN$_{73}$**

Discovered 2004 Nov. 6 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 142.99951 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24021237 | $\omega$ | 210.85726 | | +0.88238745 | +0.41065931 | |
| $a$ | 2.5629441 | $\Omega$ | 123.15158 | | −0.35597408 | +0.90184133 | |
| $e$ | 0.2969423 | $i$ | 15.92210 | | −0.30769278 | +0.13431736 | |
| $P$ | 4.10 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 06 26 | 691 | 0.4− | 0.0 | 2004 12 12 | 704 | 0.5− | 0.6− | 2008 10 09 | 703 | 0.1− | 0.2− | | |
| 1995 06 26 | 691 | 0.3+ | 0.2+ | 2004 12 12 | 704 | (1.8+ | 1.3+) | 2008 10 09 | 703 | 0.6− | 0.3− | | |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 06 26 | 691 | 0.5+ | 0.0 | 2004 12 12 | 704 | 0.7+ | 0.6+ | 2008 11 02 | 703 | 0.1+ | 0.1+ |
| 2003 04 25 | 645 | 0.0 | 0.1+ | 2004 12 12 | 704 | 0.5+ | 0.5− | 2008 11 02 | 703 | 0.3+ | 0.2− |
| 2003 04 25 | 645 | 0.0 | 0.1+ | 2004 12 12 | 704 | 0.8− | 0.7+ | 2008 11 02 | 703 | 0.5− | 0.1+ |
| 2004 10 18 | 704 | 0.2− | 0.4− | 2004 12 19 | 703 | 0.7− | 0.4+ | 2008 11 02 | 703 | 0.2+ | 0.1− |
| 2004 10 18 | 704 | 0.2− | 0.4− | 2004 12 19 | 703 | 0.7− | 0.0 | 2008 11 20 | 703 | 0.6− | 0.1− |
| 2004 10 18 | 704 | 0.5− | 0.4− | 2004 12 19 | 703 | 1.0− | 0.2− | 2008 11 20 | 703 | 0.2+ | 0.6− |
| 2004 11 06 | 704 | 0.6− | 0.8+ | 2004 12 19 | 703 | 0.7− | 0.2+ | 2008 11 20 | 703 | (1.7+ | 0.4−) |
| 2004 11 06 | 704 | 0.6− | 0.3+ | 2006 01 23 | 691 | 0.0 | 0.4− | 2008 12 02 | 703 | 0.4+ | 0.3+ |
| 2004 11 06 | 704 | 0.0 | 1.2+ | 2006 01 23 | 691 | 0.0 | 0.6+ | 2008 12 02 | 703 | 0.5− | 0.8+ |
| 2004 11 06 | 704 | 0.0 | 0.9+ | 2006 01 23 | 691 | 0.3+ | 0.0 | 2008 12 02 | 703 | 0.9− | 0.2+ |
| 2004 11 11 | 699 | 1.4+ | 0.2− | 2006 02 01 | 691 | 0.2+ | 0.0 | 2009 11 21 | G96 | 0.3+ | 0.7− |
| 2004 11 11 | 699 | 0.2+ | 0.4− | 2006 02 01 | 691 | 0.0 | 0.2+ | 2009 11 21 | G96 | 0.6− | 0.6− |
| 2004 11 11 | 699 | 0.5+ | 0.0 | 2006 02 01 | 691 | 0.2+ | 0.1+ | 2009 11 21 | G96 | 0.2+ | 0.6− |
| 2004 11 11 | 699 | 0.2+ | 0.3+ | 2008 10 01 | 703 | 0.6+ | 0.7+ | 2009 11 21 | G96 | 0.2− | 0.0 |
| 2004 12 07 | 704 | 0.4− | 0.4− | 2008 10 01 | 703 | 0.6+ | 0.4+ | 2009 12 20 | G96 | 0.2+ | 0.1− |
| 2004 12 07 | 704 | 0.5+ | 0.2− | 2008 10 01 | 703 | 0.1− | 0.5+ | 2009 12 20 | G96 | 0.4+ | 0.3− |
| 2004 12 07 | 704 | 0.1+ | 0.4− | 2008 10 01 | 703 | 1.3+ | 0.8+ | 2009 12 20 | G96 | 0.2+ | 0.2− |
| 2004 12 07 | 704 | 0.7+ | 0.9− | 2008 10 09 | 703 | 0.3− | 0.2+ | 2009 12 20 | G96 | 0.0 | 0.1− |
| 2004 12 07 | 704 | 0.6− | 0.1− | 2008 10 09 | 703 | 0.2− | 0.4+ | | | | |

**(229218)∗ 2004 VW$_{77}$**

Discovered 2004 Nov. 12 by the Catalina Sky Survey.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 356.26660 | | (2000.0) | | | |
| $n$ | 0.20587347 | $\omega$ | 346.37083 | | −0.09067449 | −0.99446959 |
| $a$ | 2.8405502 | $\Omega$ | 108.81146 | | +0.91886988 | −0.10406257 |
| $e$ | 0.1421932 | $i$ | 3.20935 | | +0.38400037 | +0.01418474 |
| $P$ | 4.79 | $H$ | 15.7 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 02 15 | 691 | 0.5− | 0.4− | 2004 11 05 | 644 | 0.1− | 0.0 | 2006 03 04 | G96 | 0.3+ | 0.3+ |
| 1996 02 15 | 691 | 0.1− | 0.3− | 2004 11 05 | 644 | 1.1+ | 0.5+ | 2006 03 26 | 699 | 0.4+ | 0.7+ |
| 1996 02 15 | 691 | 0.1+ | 0.1− | 2004 11 12 | 703 | 0.3+ | 0.1+ | 2006 03 26 | 699 | 0.3+ | 1.0+ |
| 1999 10 19 | 704 | 0.2− | 0.8+ | 2004 11 12 | 703 | 0.2+ | 0.2− | 2006 03 26 | 699 | 0.5+ | 0.5+ |
| 1999 10 19 | 704 | 0.1− | 0.4+ | 2004 11 12 | 703 | 1.3− | 0.1− | 2006 03 26 | 699 | 0.4+ | 0.7+ |
| 1999 10 19 | 704 | 0.5− | 0.2− | 2004 11 12 | 703 | 0.7+ | 0.3+ | 2008 09 01 | J75 | 0.2+ | 0.6− |
| 1999 10 19 | 704 | 0.4− | 0.7+ | 2004 11 19 | 703 | 0.3− | 0.3− | 2008 09 02 | J75 | 0.3+ | 0.2− |
| 1999 10 19 | 704 | 0.3+ | 0.9+ | 2004 11 19 | 703 | 0.4− | 0.2+ | 2008 09 02 | J75 | 0.8− | 0.3− |
| 1999 11 03 | 703 | 0.3+ | 1.6+ | 2004 11 19 | 703 | 0.3+ | 0.6− | 2009 11 16 | 691 | 0.4− | 0.0 |
| 1999 11 03 | 703 | 1.0− | 0.5+ | 2004 11 19 | 703 | (1.6− | 0.1−) | 2009 11 16 | 691 | 0.5− | 0.0 |
| 1999 11 03 | 703 | 0.3− | 1.3+ | 2004 12 09 | 703 | 0.1+ | 0.4+ | 2009 11 16 | 691 | 0.3− | 0.2− |
| 1999 11 03 | 703 | 0.7− | 0.2− | 2004 12 09 | 703 | 0.4+ | 0.2+ | 2009 11 21 | 704 | 1.4+ | 0.3− |
| 2001 03 26 | 704 | 0.8+ | 0.1+ | 2004 12 09 | 703 | 0.6− | 0.1+ | 2009 11 21 | 704 | 0.5+ | 0.9+ |
| 2001 03 26 | 704 | 0.2− | 0.5+ | 2004 12 09 | 703 | 0.4− | 0.1+ | 2009 11 21 | 704 | 0.6+ | 0.7+ |
| 2001 03 26 | 704 | 0.9+ | 1.0+ | 2004 12 20 | G96 | 0.1− | 0.6− | 2009 11 21 | 704 | 0.4+ | 0.4+ |
| 2001 03 26 | 704 | (0.8+ | 2.0+) | 2004 12 20 | G96 | 0.0 | 1.0− | 2009 12 17 | 704 | 0.1− | 0.1+ |
| 2004 11 04 | 703 | 0.4+ | 0.7+ | 2004 12 20 | G96 | 0.6+ | 1.1− | 2009 12 17 | 704 | 0.0 | 0.4+ |
| 2004 11 04 | 703 | 0.8+ | 0.6+ | 2004 12 20 | G96 | 0.0 | 0.5− | 2009 12 17 | 704 | 0.0 | 0.4− |
| 2004 11 04 | 703 | 0.9+ | 0.0 | 2006 03 04 | G96 | 0.2+ | 0.2+ | 2009 12 17 | 704 | 0.7+ | 0.7− |
| 2004 11 04 | 703 | (1.6+ | 0.4+) | 2006 03 04 | G96 | 0.3− | 0.7+ | 2009 12 17 | 704 | 0.4− | 0.3− |
| 2004 11 05 | 644 | 0.1+ | 0.0 | 2006 03 04 | G96 | 0.2+ | 0.5+ | | | | |

**(229219)∗ 2004 VW$_{83}$**

Discovered 2004 Nov. 10 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 124.52310 | | (2000.0) | | | |
| $n$ | 0.22316214 | $\omega$ | 270.49560 | | +0.90837718 | +0.41167526 |
| $a$ | 2.6918800 | $\Omega$ | 65.19590 | | −0.34430043 | +0.83585137 |
| $e$ | 0.1144973 | $i$ | 4.63228 | | −0.23729331 | +0.36314731 |
| $P$ | 4.42 | $H$ | 16.9 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 11 | 691 | 0.3− | 0.3+ | 2007 04 26 | 691 | 0.0 | 0.3+ | 2008 09 06 | 703 | 0.3+ | 0.1+ |
| 2004 10 11 | 691 | 0.1+ | 0.1+ | 2007 04 26 | 691 | 0.4+ | 0.2− | 2008 09 06 | 703 | 1.5− | 1.2+ |
| 2004 10 11 | 691 | 0.1− | 0.2+ | 2007 04 26 | 691 | 0.3− | 0.3+ | 2008 09 23 | 704 | 0.3+ | 0.9+ |
| 2004 11 10 | 691 | 0.2− | 0.2− | 2007 05 10 | 691 | 0.0 | 0.0 | 2008 09 23 | 704 | 0.7− | 0.1+ |
| 2004 11 10 | 691 | 0.4− | 0.0 | 2007 05 10 | 691 | 0.2+ | 0.1+ | 2008 09 23 | 704 | 0.1+ | 0.3+ |
| 2004 11 10 | 691 | 0.1+ | 0.2− | 2007 05 10 | 691 | 0.1− | 0.3+ | 2009 11 11 | G96 | 0.0 | 0.1− |
| 2004 11 20 | 691 | 0.2+ | 0.0 | 2007 05 10 | G96 | 0.1+ | 0.0 | 2009 11 11 | G96 | 0.3+ | 0.1+ |
| 2004 11 20 | 691 | 0.1+ | 0.1+ | 2007 05 10 | G96 | 0.3+ | 0.2+ | 2009 11 11 | G96 | 0.2+ | 0.1+ |
| 2004 11 20 | 691 | 0.4+ | 0.0 | 2007 05 10 | G96 | 0.4+ | 0.4+ | 2009 11 11 | G96 | 0.6+ | 0.2− |
| 2007 03 14 | G96 | 0.0 | 0.1− | 2007 05 10 | G96 | 0.5+ | 0.1+ | 2009 12 18 | G96 | 0.2+ | 0.3+ |
| 2007 03 14 | G96 | 0.6− | 0.1+ | 2007 05 10 | G96 | 0.6+ | 0.1− | 2009 12 18 | G96 | 0.3+ | 0.2+ |
| 2007 03 14 | G96 | 0.6− | 0.2− | 2007 05 10 | G96 | 0.3+ | 0.2− | 2009 12 18 | G96 | 0.4+ | 0.3+ |
| 2007 03 14 | G96 | 0.0 | 0.1− | 2007 05 10 | G96 | 0.3+ | 0.1+ | 2009 12 18 | G96 | 0.5− | 0.2− |
| 2007 04 18 | 691 | 0.1+ | 0.1− | 2007 05 10 | G96 | 0.6+ | 0.2+ | 2009 12 27 | 691 | 0.2− | 0.4+ |
| 2007 04 18 | 691 | 0.2− | 0.3+ | 2008 09 06 | 703 | 0.2+ | 0.0 | 2009 12 27 | 691 | 0.2+ | 0.1− |
| 2007 04 18 | 691 | 0.3− | 0.1+ | 2008 09 06 | 703 | 0.1− | 0.0 | 2009 12 27 | 691 | 0.1− | 0.4+ |

**(229220)∗ 2004 VA$_{84}$ = 2006 DH$_{29}$**

Discovered 2004 Nov. 10 by Spacewatch at Kitt Peak.

Id. A. Doppler (*MPO* 100855)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 332.65144 | | (2000.0) | | | |
| $n$ | 0.20330318 | $\omega$ | 32.69376 | | −0.22100725 | −0.97397903 |
| $a$ | 2.8644413 | $\Omega$ | 70.11701 | | +0.88293244 | −0.22168159 |
| $e$ | 0.0227111 | $i$ | 3.06040 | | +0.41422953 | −0.04713945 |
| $P$ | 4.85 | $H$ | 16.4 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 23 | 691 | 0.1− | 0.2+ | 2006 02 20 | 691 | 0.2+ | 0.0 | 2009 09 20 | G96 | 0.6+ | 0.9+ |
| 2004 10 23 | 691 | 0.2− | 0.0 | 2006 02 20 | G96 | 0.8− | 0.1− | 2009 09 20 | G96 | 0.8+ | 0.2+ |
| 2004 10 23 | 691 | 0.0 | 0.0 | 2006 02 20 | G96 | 0.2− | 0.0 | 2009 11 08 | 691 | 0.1− | 0.3+ |
| 2004 11 10 | 691 | 0.5+ | 0.1− | 2006 02 20 | G96 | 0.2+ | 0.3− | 2009 11 08 | 691 | 0.4− | 0.3− |
| 2004 11 10 | 691 | 0.1− | 0.0 | 2006 02 20 | G96 | 0.5− | 0.4+ | 2009 11 08 | 691 | 0.1− | 0.3+ |
| 2004 11 10 | 691 | 0.3+ | 0.1− | 2006 02 24 | 691 | 0.2− | 0.1+ | 2009 11 20 | 691 | 0.1− | 0.2+ |
| 2004 11 20 | 691 | 0.1− | 0.0 | 2006 02 24 | 691 | 0.1+ | 0.1− | 2009 11 20 | 691 | 0.0 | 0.3− |
| 2004 11 20 | 691 | 0.0 | 0.1− | 2006 02 24 | 691 | 0.8+ | 0.7− | 2009 11 20 | 691 | 0.3− | 0.1+ |
| 2004 11 20 | 691 | 0.2− | 0.2− | 2007 05 25 | G96 | 0.0 | 1.0− | 2009 12 16 | G96 | 0.4+ | 0.4− |
| 2006 01 23 | 691 | 0.3− | 0.3+ | 2007 05 25 | G96 | 0.5− | 0.2− | 2009 12 16 | G96 | 0.6+ | 0.0 |
| 2006 01 23 | 691 | 0.3+ | 0.3+ | 2007 05 25 | G96 | 0.1+ | 0.4+ | 2009 12 16 | G96 | 0.4+ | 0.1− |
| 2006 01 23 | 691 | 0.1+ | 0.1+ | 2007 05 25 | G96 | 0.2+ | 0.2+ | 2009 12 16 | G96 | 0.1+ | 0.3− |
| 2006 02 20 | 691 | 0.3− | 0.0 | 2009 09 20 | G96 | 0.4+ | 0.1− | | | | |
| 2006 02 20 | 691 | 0.3− | 0.1− | 2009 09 20 | G96 | 0.9+ | 0.1− | | | | |

**(229221)∗ 2004 WW$_{2}$ = 1995 UL$_{82}$**

Discovered 2004 Nov. 17 by the Siding Spring Survey at Siding Spring.

Id. G. V. Williams (*MPO* 73571)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 41.53468 | | (2000.0) | | | |
| $n$ | 0.21840513 | $\omega$ | 299.73207 | | +0.49136029 | −0.86900807 |
| $a$ | 2.7308268 | $\Omega$ | 120.72507 | | +0.82065806 | +0.43955909 |
| $e$ | 0.1143233 | $i$ | 3.88371 | | +0.29169404 | +0.22718447 |
| $P$ | 4.51 | $H$ | 16.3 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 10 23 | 691 | 0.0 | 0.1− | 2004 11 17 | E12 | 0.8+ | 0.2− | 2006 03 04 | 691 | 0.0 | 0.0 |
| 1995 10 23 | 691 | 0.0 | 0.2+ | 2004 11 17 | E12 | 0.1+ | 0.0 | 2006 03 04 | 691 | 0.0 | 0.2− |
| 1995 10 23 | 691 | 0.1+ | 0.1+ | 2004 11 17 | E12 | 0.1+ | 0.6+ | 2006 03 04 | 691 | 0.2+ | 0.0 |
| 1995 10 28 | 691 | 0.0 | 0.1+ | 2004 11 17 | E12 | 0.3+ | 0.5− | 2006 03 08 | 691 | 0.1+ | 0.2+ |
| 1995 10 28 | 691 | 0.2− | 0.3+ | 2004 11 19 | 703 | 0.6+ | 0.4+ | 2006 03 08 | 691 | 0.1− | 0.0 |
| 1995 10 28 | 691 | 0.1− | 0.1+ | 2004 11 19 | 703 | 0.3− | 0.4− | 2006 03 08 | 691 | 0.1− | 0.1+ |
| 1995 11 16 | 691 | 0.2− | 0.2− | 2004 11 19 | 703 | 0.1− | 0.0 | 2009 11 16 | G96 | 0.5− | 0.1− |
| 1995 11 16 | 691 | 0.1− | 0.0 | 2004 11 19 | 703 | 0.3+ | 1.1− | 2009 11 16 | G96 | 0.2− | 0.2− |
| 1995 11 16 | 691 | 0.0 | 0.0 | 2005 10 24 | 568 | 0.1+ | 0.1+ | 2009 11 16 | G96 | 0.2+ | 0.2− |
| 2001 02 13 | 691 | 0.1+ | 0.1+ | 2005 10 24 | 568 | 0.2+ | 0.0 | 2009 11 16 | G96 | 0.0 | 0.4− |
| 2001 02 13 | 691 | 0.3+ | 0.0 | 2005 10 31 | 568 | 0.1− | 0.1+ | 2009 12 15 | G96 | 0.0 | 0.2− |
| 2001 02 13 | 691 | 0.2+ | 0.3+ | 2005 10 31 | 568 | 0.3− | 0.2− | 2009 12 15 | G96 | 0.1− | 0.4− |
| 2002 04 09 | 691 | 0.3+ | 0.1− | 2005 10 31 | 568 | 0.2− | 0.1+ | 2009 12 15 | G96 | 0.3+ | 0.2− |
| 2002 04 09 | 691 | 0.4+ | 0.1+ | 2005 12 07 | 291 | 0.6− | 0.4+ | 2009 12 15 | G96 | 0.1+ | 0.0 |
| 2002 04 09 | 691 | 0.6− | 0.4+ | 2005 12 07 | 291 | 0.2+ | 0.1+ | 2009 12 17 | 691 | 0.1+ | 0.0 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 11 04 | 703 | 0.3+ | 0.5+ | 2005 12 07 | 291 | 0.5− | 0.6+ | 2009 12 17 | 691 | 0.8− | 0.2+ |
| 2004 11 04 | 703 | 0.4− | 0.1− | 2006 02 25 | 691 | 0.1+ | 0.2− | 2009 12 17 | 691 | 0.3+ | 0.4− |
| 2004 11 04 | 703 | 0.8− | 0.4+ | 2006 02 25 | 691 | 0.3+ | 0.2− | | | | |
| 2004 11 04 | 703 | 0.3+ | 0.4+ | 2006 02 25 | 691 | 0.1+ | 0.3− | | | | |

**(229222)∗ 2004 XX$_3$**

Discovered 2004 Dec. 2 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 59.84248 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21134751 | $\omega$ | 319.74643 | | +0.83114497 | −0.54858065 | |
| $a$ | 2.7912879 | $\Omega$ | 73.74898 | | +0.53140428 | +0.73550180 | |
| $e$ | 0.0733326 | $i$ | 5.43126 | | +0.16373003 | +0.39761334 | |
| $P$ | 4.66 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 10 09 | 704 | 0.1+ | 0.4+ | 2004 12 05 | 201 | 0.2− | 0.3− | 2006 02 22 | 703 | 0.3− | 0.8+ |
| 1999 10 09 | 704 | 0.4− | 0.5+ | 2004 12 06 | 201 | 0.3− | 0.5− | 2006 02 22 | 703 | 0.5− | 1.2− |
| 1999 10 09 | 704 | 0.7− | 0.1+ | 2004 12 14 | 703 | 0.0 | 0.2+ | 2006 02 22 | 703 | 1.3− | 0.1− |
| 2001 02 01 | 704 | 0.5− | 0.3− | 2004 12 14 | 703 | 0.2− | 1.2+ | 2006 02 22 | 703 | 1.1− | 0.0 |
| 2001 02 01 | 704 | 0.5− | 0.5− | 2004 12 14 | 703 | 0.4− | 1.2+ | 2006 02 22 | 703 | 0.5− | 0.2+ |
| 2001 02 01 | 704 | 0.0 | 1.5− | 2004 12 14 | 703 | 0.3− | 0.9+ | 2006 02 22 | 703 | 0.2− | 0.4− |
| 2001 02 01 | 704 | 0.9+ | 0.2+ | 2004 12 18 | G96 | 0.4− | 0.2− | 2008 07 29 | H10 | 0.1+ | 0.4+ |
| 2002 04 13 | 644 | 1.3+ | 0.3+ | 2004 12 18 | G96 | 0.3− | 0.5− | 2008 07 29 | H10 | 0.2+ | 0.3+ |
| 2002 04 13 | 644 | 0.1+ | 0.4+ | 2004 12 18 | G96 | 0.1+ | 0.3− | 2008 09 06 | 703 | 0.4− | 0.5− |
| 2002 04 13 | 644 | 0.8+ | 1.0+ | 2004 12 18 | G96 | 0.2− | 0.6− | 2008 09 06 | 703 | 0.4+ | 0.0 |
| 2004 11 04 | 703 | 0.5+ | 1.1+ | 2004 12 19 | G96 | 0.0 | 0.4− | 2008 09 06 | 703 | 0.2+ | 0.2− |
| 2004 11 04 | 703 | 0.2+ | 0.2+ | 2004 12 19 | G96 | 0.2+ | 0.2− | 2008 09 06 | 703 | 0.1− | 0.1+ |
| 2004 11 04 | 703 | 0.7+ | 0.4+ | 2004 12 19 | G96 | 0.1+ | 0.3− | 2008 09 23 | 704 | 1.0− | 0.7+ |
| 2004 11 04 | 703 | (1.7+ | 0.2+) | 2004 12 19 | G96 | 0.1− | 0.2− | 2008 09 23 | 704 | (0.0 | 2.4+) |
| 2004 11 12 | 703 | 0.1+ | 1.4− | 2006 01 23 | 691 | 0.0 | 0.3+ | 2008 09 23 | 704 | (0.9+ | 2.7+) |
| 2004 11 12 | 703 | 0.5+ | 0.3+ | 2006 01 23 | 691 | 0.0 | 0.0 | 2009 10 15 | G96 | 0.2+ | 0.5− |
| 2004 11 12 | 703 | 0.5− | 0.4− | 2006 01 23 | 691 | 0.2+ | 0.2+ | 2009 10 15 | G96 | 0.5+ | 0.9+ |
| 2004 11 12 | 703 | (1.5− | 1.7+) | 2006 01 28 | 691 | 0.1− | 0.3+ | 2009 10 15 | G96 | 0.2+ | 0.3− |
| 2004 12 02 | 644 | 0.1− | 0.2+ | 2006 01 28 | 691 | 0.4+ | 0.1+ | 2009 10 15 | G96 | 0.0 | 0.2− |
| 2004 12 02 | 644 | 0.1+ | 0.4+ | 2006 01 28 | 691 | 0.2+ | 0.2+ | 2009 12 26 | 691 | 0.1+ | 0.1− |
| 2004 12 02 | 644 | 0.1+ | 0.3+ | 2006 02 22 | 703 | 0.3+ | 0.4− | 2009 12 26 | 691 | 0.1− | 0.4+ |
| 2004 12 05 | 201 | 0.0 | 0.1+ | 2006 02 22 | 703 | 0.5− | 0.2+ | 2009 12 26 | 691 | 0.1+ | 0.3− |

**(229223)∗ 2004 XB$_5$**

Discovered 2004 Dec. 2 by the Catalina Sky Survey.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 306.24166 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.20308007 | $\omega$ | 245.11877 | | −0.81353787 | −0.54228898 | |
| $a$ | 2.8665390 | $\Omega$ | 261.39232 | | +0.58002810 | −0.73095330 | |
| $e$ | 0.0417421 | $i$ | 12.25959 | | +0.04151554 | −0.41428243 | |
| $P$ | 4.85 | $H$ | 14.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 10 14 | 704 | 0.1− | 0.7+ | 2004 12 11 | 599 | 0.1− | 0.2+ | 2008 09 07 | 704 | 0.6+ | 0.6+ |
| 1999 10 14 | 704 | 0.5+ | 0.5+ | 2004 12 11 | 599 | 0.2− | 0.2+ | 2008 09 22 | 703 | 0.2− | 0.3+ |
| 1999 10 14 | 704 | 0.2+ | 0.3− | 2004 12 13 | 599 | 0.2− | 0.2+ | 2008 09 22 | 703 | 1.0− | 0.3+ |
| 1999 10 14 | 704 | 0.4+ | 0.4+ | 2004 12 13 | 599 | 0.1− | 0.1+ | 2008 09 22 | 703 | 0.6+ | 0.5− |
| 1999 10 14 | 704 | 0.4+ | 0.4− | 2004 12 13 | 599 | 0.2− | 0.1− | 2008 09 22 | 703 | 0.8− | 0.1+ |
| 2001 03 02 | 608 | (2.3+ | 0.5+) | 2004 12 13 | 599 | 0.2− | 0.1− | 2008 09 24 | A77 | 0.3− | 0.1− |
| 2001 03 02 | 608 | (2.6+ | 0.4+) | 2004 12 14 | 704 | (2.1+ | 0.0 ) | 2008 09 24 | A77 | 0.9+ | 0.1+ |
| 2001 03 02 | 608 | (2.4+ | 0.8+) | 2004 12 14 | 704 | 0.5+ | 0.5− | 2008 09 24 | A77 | 0.4+ | 0.5− |
| 2001 03 19 | 699 | 0.2+ | 0.3+ | 2004 12 14 | 704 | 0.4+ | 0.2− | 2008 09 28 | A77 | 0.2− | 0.6+ |
| 2001 03 19 | 699 | 1.4+ | 0.4+ | 2004 12 16 | 704 | 0.9− | 1.1+ | 2008 09 28 | A77 | 0.2+ | 0.6+ |
| 2001 03 19 | 699 | 0.0 | 1.0+ | 2004 12 16 | 704 | 0.4− | 0.5− | 2008 09 28 | A77 | 0.2+ | 0.3− |
| 2001 03 19 | 699 | (1.4+ | 1.6+) | 2004 12 16 | 704 | 0.1− | 0.3+ | 2008 09 29 | A77 | 0.5− | 0.1− |
| 2003 09 30 | 699 | 0.7+ | 0.7− | 2004 12 16 | 704 | 0.2− | 0.1+ | 2008 09 29 | A77 | 0.0 | 0.1+ |
| 2003 09 30 | 699 | 0.3− | 1.1+ | 2004 12 16 | 704 | 0.0 | 0.6+ | 2008 09 29 | A77 | 0.2+ | 0.4+ |
| 2003 09 30 | 699 | 0.8+ | 0.1+ | 2004 12 19 | 704 | 0.8+ | 0.4− | 2008 09 30 | A77 | 0.3+ | 0.4− |
| 2003 09 30 | 699 | 0.3− | 0.3− | 2004 12 19 | 704 | 0.2− | 0.9− | 2008 09 30 | A77 | 0.5+ | 0.3+ |
| 2003 10 02 | 691 | 0.2− | 0.1− | 2004 12 19 | 704 | 0.3− | 0.5+ | 2008 09 30 | A77 | 0.4− | 0.4− |
| 2003 10 02 | 691 | 0.3− | 0.1− | 2004 12 19 | 704 | 0.6+ | 0.3+ | 2008 10 01 | 704 | 0.4+ | 0.2+ |
| 2003 10 02 | 691 | 0.1− | 0.2− | 2004 12 19 | 704 | 0.1− | 0.0 | 2008 10 01 | 704 | 0.2− | 0.7+ |
| 2004 11 11 | 691 | 0.3− | 0.2− | 2005 01 06 | 704 | 0.5− | 0.2− | 2008 10 01 | 704 | 0.4− | 1.3+ |
| 2004 11 11 | 691 | 0.1− | 0.1− | 2005 01 06 | 704 | (0.8− | 1.8+) | 2008 10 01 | 704 | 1.3− | 0.2+ |
| 2004 11 11 | 691 | 0.1− | 0.1− | 2005 01 06 | 704 | 0.0 | 0.2+ | 2008 10 01 | 704 | 0.9− | 0.4+ |
| 2004 12 02 | 703 | (1.6− | 0.2+) | 2005 01 06 | 704 | (0.3− | 1.7+) | 2008 10 06 | 703 | 0.5+ | 0.3− |
| 2004 12 02 | 703 | 0.9− | 0.1+ | 2005 01 06 | 704 | (1.8− | 0.0 ) | 2008 10 06 | 703 | 1.0+ | 0.2+ |
| 2004 12 02 | 703 | 0.5− | 0.5+ | 2005 02 01 | 644 | 0.0 | 0.2− | 2008 10 06 | 703 | 0.1− | 0.6− |
| 2004 12 02 | 703 | 0.0 | 0.8− | 2005 02 01 | 644 | 0.0 | 0.5+ | 2008 10 06 | 703 | 0.5− | 0.7+ |
| 2004 12 07 | 704 | 0.3+ | 0.9+ | 2005 02 01 | 644 | 0.1− | 1.2+ | 2009 11 24 | 691 | 0.0 | 0.1− |
| 2004 12 07 | 704 | 0.1+ | 0.5+ | 2006 03 04 | 703 | 0.4+ | 0.1− | 2009 11 24 | 691 | 0.2+ | 0.2− |
| 2004 12 07 | 704 | 0.1− | 0.8+ | 2006 03 04 | 703 | 0.2+ | 0.4+ | 2009 11 24 | 691 | 1.0− | 0.9− |
| 2004 12 07 | 704 | 0.2+ | 0.6+ | 2006 03 04 | 703 | 0.2+ | 0.9+ | 2009 12 10 | G96 | 0.3+ | 0.5− |
| 2004 12 07 | 704 | 1.0+ | 0.1− | 2006 03 04 | 703 | 0.0 | 1.0+ | 2009 12 10 | G96 | 0.3+ | 0.3− |
| 2004 12 10 | 704 | 0.1− | 0.1+ | 2006 03 25 | E12 | 0.9+ | 0.5+ | 2009 12 10 | G96 | 1.0+ | 0.4+ |
| 2004 12 10 | 704 | 0.8+ | 0.4− | 2006 03 25 | E12 | 0.1− | 0.2+ | 2009 12 17 | 704 | 0.1+ | 0.2+ |
| 2004 12 10 | 704 | 0.9+ | 0.1− | 2006 03 25 | E12 | 0.4− | 0.0 | 2009 12 17 | 704 | 0.1− | 0.3+ |
| 2004 12 10 | 704 | 0.3− | 0.4+ | 2008 09 07 | 704 | (1.8− | 0.4+) | 2009 12 17 | 704 | 1.1+ | 0.3− |
| 2004 12 10 | 704 | 0.3+ | 0.2+ | 2008 09 07 | 704 | 0.1+ | 1.1+ | 2009 12 17 | 704 | 0.0 | 0.0 |
| 2004 12 11 | 599 | 0.2− | 0.1+ | 2008 09 07 | 704 | 0.5− | 0.1+ | 2009 12 17 | 704 | 0.2− | 0.5+ |
| 2004 12 11 | 599 | 0.1− | 0.2+ | 2008 09 07 | 704 | 1.0+ | 0.9+ | | | | |

**(229224)∗ 2004 XD$_9$ = 2009 TO$_{15}$**

Discovered 2004 Dec. 2 by the Catalina Sky Survey.

Id. G. V. Williams (*MPO* 165412)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 348.09869 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18229526 | $\omega$ | 356.43735 | | +0.47333995 | −0.82804425 | |
| $a$ | 3.0804853 | $\Omega$ | 65.10412 | | +0.81615901 | +0.28391792 | |
| $e$ | 0.0290852 | $i$ | 19.34586 | | +0.33141176 | +0.48345976 | |
| $P$ | 5.41 | $H$ | 14.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1993 12 15 | 691 | 0.0 | 0.1− | 2004 12 17 | 704 | 0.6+ | 0.0 | 2008 08 26 | E12 | 1.0− | 1.0+ |
| 1993 12 15 | 691 | 0.4− | 0.4+ | 2004 12 17 | 704 | 0.0 | 0.8+ | 2008 08 26 | E12 | 0.9− | 1.0+ |
| 1993 12 15 | 691 | 0.1− | 0.2+ | 2006 03 03 | 699 | 0.8+ | 0.3+ | 2009 10 01 | G96 | 0.0 | 0.0 |
| 2004 12 02 | 703 | 0.2+ | 0.1− | 2006 03 03 | 699 | 1.1− | 0.8+ | 2009 10 01 | G96 | 0.2+ | 0.2− |
| 2004 12 02 | 703 | 1.2− | 0.2+ | 2006 03 03 | 699 | 0.2+ | 2.3+ | 2009 10 01 | G96 | 0.1+ | 0.1− |
| 2004 12 02 | 703 | 0.8− | 0.1− | 2006 03 03 | 699 | 1.0+ | 0.3− | 2009 10 01 | G96 | 0.2+ | 0.1+ |
| 2004 12 02 | 703 | 0.1+ | 0.3− | 2007 02 25 | 691 | 0.3+ | 0.5− | 2009 10 14 | J75 | 0.7− | 0.6− |
| 2004 12 08 | 704 | 0.7+ | 0.1− | 2007 02 25 | 691 | 0.7− | 0.2+ | 2009 10 14 | J75 | 0.4+ | 0.2+ |
| 2004 12 08 | 704 | 0.3+ | 0.6+ | 2007 02 25 | 691 | 0.4+ | 0.3+ | 2009 10 14 | J75 | 0.5+ | 0.9+ |
| 2004 12 08 | 704 | 0.7+ | 0.2+ | 2007 04 11 | 691 | 0.1− | 0.1+ | 2009 10 16 | 703 | 0.7− | 0.5− |
| 2004 12 11 | 704 | 1.0+ | 1.1+ | 2007 04 11 | 691 | 0.1+ | 0.2+ | 2009 10 16 | 703 | 0.2+ | 0.5+ |
| 2004 12 11 | 704 | 0.4− | 0.7+ | 2007 04 11 | 691 | 0.5− | 0.1+ | 2009 10 16 | 703 | 0.1− | 0.4+ |
| 2004 12 11 | 704 | 0.3− | 0.7+ | 2007 04 28 | 691 | 0.1+ | 0.3+ | 2009 10 16 | 703 | 0.5− | 0.6− |
| 2004 12 11 | 704 | 0.3+ | 0.1+ | 2007 04 28 | 691 | 0.3+ | 0.2+ | 2009 10 20 | G92 | 0.1+ | 0.5+ |
| 2004 12 11 | 704 | (1.0− | 1.7+) | 2007 04 28 | 691 | 0.2+ | 0.3+ | 2009 10 20 | G92 | 1.2− | 0.6+ |
| 2004 12 14 | 703 | 0.7− | 0.6− | 2007 05 12 | 691 | 0.1− | 0.3+ | 2009 10 20 | G92 | 0.6+ | 0.6+ |
| 2004 12 14 | 703 | 0.3− | 0.1+ | 2007 05 12 | 691 | 0.1+ | 0.0 | 2009 11 08 | 703 | 0.4+ | 0.7− |
| 2004 12 14 | 703 | 0.4− | 0.7− | 2007 05 12 | 691 | 0.7+ | 0.5+ | 2009 11 08 | 703 | 0.4− | 0.3+ |
| 2004 12 14 | 703 | (6.7− | 3.4−) | 2007 05 12 | G96 | 0.0 | 0.0 | 2009 11 08 | 703 | 1.2− | 0.5− |
| 2004 12 15 | 704 | 0.5− | 0.3+ | 2007 05 12 | G96 | 0.1+ | 0.5− | 2009 11 08 | 703 | 0.7+ | 0.6− |
| 2004 12 15 | 704 | 0.4− | 0.3− | 2007 05 12 | G96 | 0.2+ | 0.1+ | 2009 11 23 | 703 | 1.1− | 0.3+ |
| 2004 12 15 | 704 | (1.5− | 1.7+) | 2008 08 08 | E12 | 0.5+ | 0.7+ | 2009 11 23 | 703 | 1.2− | 0.3+ |
| 2004 12 15 | 704 | 0.3− | 0.2+ | 2008 08 08 | E12 | 0.2+ | 0.1+ | 2009 11 23 | 703 | 0.1− | 0.0 |
| 2004 12 17 | 704 | 1.1+ | 1.0+ | 2008 08 08 | E12 | 0.8+ | 0.1+ | 2009 11 23 | 703 | 0.8+ | 0.3+ |
| 2004 12 17 | 704 | 0.5+ | 0.5+ | 2008 08 08 | E12 | 0.3+ | 0.8+ | 2009 11 23 | 703 | 0.4− | 0.7+ |
| 2004 12 17 | 704 | 0.3+ | 0.3+ | 2008 08 26 | E12 | 0.1+ | 0.5+ | | | | |

**(229225)∗ 2004 XU$_{16}$ = 1996 BH$_{10}$**

Discovered 2004 Dec. 10 by B. L. Stevens at Desert Moon Observatory, Las Cruces.

Id. A. Doppler (*MPO* 73607)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 336.17800 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.20372438 | $\omega$ | 191.04461 | | −0.38014279 | −0.91265266 | |
| $a$ | 2.8604919 | $\Omega$ | 281.43535 | | +0.85985386 | −0.28887772 | |
| $e$ | 0.0790442 | $i$ | 8.81417 | | +0.34079730 | −0.28916222 | |
| $P$ | 4.84 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 01 21 | 691 | 0.1− | 0.0 | | 2004 12 11 | 448 | 0.0 | 0.2+ | | 2006 02 06 | G96 | 0.1− | 0.0 | | | |
| 1996 01 21 | 691 | 0.1− | 0.1+ | | 2004 12 12 | 448 | 0.2+ | 0.5+ | | 2006 02 06 | G96 | 0.2+ | 0.5+ | | | |
| 1996 01 21 | 691 | 0.1− | 0.2+ | | 2004 12 12 | 448 | 0.4+ | 0.0 | | 2006 03 05 | 448 | 0.4− | 0.2+ | | | |
| 1996 01 29 | 691 | 0.1− | 0.5+ | | 2004 12 12 | 448 | 0.1+ | 0.1− | | 2006 03 05 | 448 | 0.6+ | 0.3+ | | | |
| 1996 01 29 | 691 | 0.2− | 0.0 | | 2004 12 13 | 448 | (1.6− | 0.3+) | | 2006 03 05 | 448 | 0.3+ | 0.5+ | | | |
| 1996 01 29 | 691 | 0.1+ | 0.0 | | 2004 12 13 | 448 | 0.8− | 0.2− | | 2009 11 27 | 691 | 0.6− | 0.3+ | | | |
| 1996 02 17 | 691 | 0.2− | 1.1− | | 2004 12 13 | 448 | 0.1− | 0.5− | | 2009 11 27 | 691 | 0.1− | 0.2+ | | | |
| 1996 02 17 | 691 | 0.0 | 0.4− | | 2004 12 16 | 448 | 0.2+ | 0.3+ | | 2009 11 27 | 691 | 0.0 | 0.0 | | | |
| 1996 02 17 | 691 | 0.5+ | 0.2+ | | 2004 12 16 | 448 | 0.5+ | 0.0 | | 2009 11 28 | 448 | 0.5+ | 0.4− | | | |
| 2004 12 10 | 448 | 0.5+ | 0.1+ | | 2004 12 16 | 448 | 0.2+ | 0.2− | | 2009 11 28 | 448 | 0.1+ | 0.4− | | | |
| 2004 12 10 | 448 | 0.1+ | 0.0 | | 2005 01 08 | 448 | 0.6− | 0.6− | | 2009 11 28 | 448 | 0.3+ | 0.2+ | | | |
| 2004 12 10 | 448 | 0.6− | 0.2− | | 2005 01 08 | 448 | 0.7− | 0.9− | | 2009 12 13 | G96 | 0.5+ | 0.0 | | | |
| 2004 12 10 | 448 | 0.3+ | 0.0 | | 2005 01 08 | 448 | 0.5− | 0.4+ | | 2009 12 13 | G96 | 0.7+ | 0.2+ | | | |
| 2004 12 11 | 448 | 0.6+ | 0.1+ | | 2006 02 06 | G96 | 0.2+ | 0.1+ | | 2009 12 13 | G96 | 0.2+ | 0.1+ | | | |
| 2004 12 11 | 448 | 0.1+ | 0.1− | | 2006 02 06 | G96 | 0.1+ | 0.4+ | | 2009 12 13 | G96 | 0.6+ | 0.3+ | | | |

**(229226)∗ 2004 $XT_{17}$ = 2004 $XJ_{192}$ = 2008 $RG_{23}$**

Discovered 2004 Dec. 7 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 146243)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 112.19506 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21739271 | $\omega$ | 82.98115 | | +0.99593458 | +0.00341172 | |
| $a$ | 2.7392988 | $\Omega$ | 276.79475 | | −0.03982102 | +0.91301415 | |
| $e$ | 0.0332634 | $i$ | 5.20109 | | +0.08079972 | +0.40791361 | |
| $P$ | 4.53 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 07 24 | 644 | 0.0 | 0.0 | | 2008 09 09 | 691 | 0.1+ | 0.3+ | | 2008 10 26 | 704 | 1.1− | 0.0 | | | |
| 2003 07 24 | 644 | 0.1− | 0.6+ | | 2008 09 09 | 691 | 0.1− | 0.1+ | | 2008 10 26 | 704 | (1.8− | 1.0+) | | | |
| 2003 07 24 | 644 | 0.4− | 0.7+ | | 2008 09 20 | 691 | 0.2+ | 0.1− | | 2008 10 29 | G96 | 0.6+ | 0.2− | | | |
| 2004 12 02 | 703 | 0.0 | 0.8− | | 2008 09 20 | 691 | 0.2+ | 0.2− | | 2008 10 29 | G96 | 0.2+ | 0.0 | | | |
| 2004 12 02 | 703 | 0.9+ | 0.7− | | 2008 09 20 | 691 | 0.1+ | 0.0 | | 2008 10 29 | G96 | 0.3+ | 0.4− | | | |
| 2004 12 02 | 703 | 0.6− | 0.2− | | 2008 09 22 | 691 | 0.3− | 0.4+ | | 2008 10 29 | G96 | 0.3+ | 0.3− | | | |
| 2004 12 02 | 703 | (5.0− | 2.3+) | | 2008 09 22 | 691 | 0.0 | 0.2− | | 2009 10 18 | G96 | 0.3+ | 0.1− | | | |
| 2004 12 07 | 704 | 0.6− | 1.3− | | 2008 09 22 | 691 | 0.1+ | 0.2+ | | 2009 10 18 | G96 | 0.1− | 0.3− | | | |
| 2004 12 07 | 704 | 0.3− | 0.0 | | 2008 09 25 | 691 | 0.4− | 0.2− | | 2009 10 18 | G96 | 0.1+ | 0.6+ | | | |
| 2004 12 07 | 704 | 0.2+ | 0.1+ | | 2008 09 25 | 691 | 0.2− | 0.1− | | 2009 10 18 | G96 | 0.3+ | 0.0 | | | |
| 2004 12 07 | 704 | 0.0 | 0.1+ | | 2008 09 25 | 691 | 0.0 | 0.1− | | 2009 10 30 | G96 | 0.3− | 0.0 | | | |
| 2004 12 07 | 704 | 1.2− | 0.2− | | 2008 09 25 | 691 | 0.0 | 0.1− | | 2009 10 30 | G96 | 0.4+ | 0.3− | | | |
| 2004 12 10 | 704 | 0.1− | 0.3+ | | 2008 09 25 | 691 | 0.1− | 0.1+ | | 2009 10 30 | G96 | 0.1+ | 0.2− | | | |
| 2004 12 10 | 704 | (0.3− | 1.5+) | | 2008 09 25 | 691 | 0.1− | 0.0 | | 2009 10 30 | G96 | 0.3+ | 0.3+ | | | |
| 2004 12 10 | 704 | 0.9+ | 0.8+ | | 2008 10 01 | 704 | 0.1+ | 0.3+ | | 2009 11 16 | G96 | 0.0 | 0.1+ | | | |
| 2004 12 10 | 704 | 1.0+ | 0.2− | | 2008 10 01 | 704 | 0.7+ | 1.1+ | | 2009 11 16 | G96 | 0.1+ | 0.0 | | | |
| 2004 12 13 | 599 | 0.2− | 0.0 | | 2008 10 01 | 704 | 0.7+ | 0.4− | | 2009 11 16 | G96 | 0.2+ | 0.0 | | | |
| 2004 12 13 | 599 | 0.1− | 0.2+ | | 2008 10 01 | 704 | 0.9+ | 0.2− | | 2009 11 16 | G96 | 0.2− | 0.4+ | | | |
| 2004 12 13 | 599 | 0.1+ | 0.1+ | | 2008 10 01 | 704 | 0.5− | 0.2+ | | 2009 12 15 | G96 | 0.1+ | 0.2+ | | | |
| 2008 09 04 | 704 | 0.2− | 0.4+ | | 2008 10 06 | 691 | 0.0 | 0.1− | | 2009 12 15 | G96 | 0.1+ | 0.1+ | | | |
| 2008 09 04 | 704 | 0.2− | 0.3+ | | 2008 10 06 | 691 | 0.2+ | 0.1− | | 2009 12 15 | G96 | 0.5+ | 0.1− | | | |
| 2008 09 04 | 704 | 0.6+ | 0.7+ | | 2008 10 06 | 691 | 0.1− | 0.1− | | 2009 12 15 | G96 | 0.1− | 0.1− | | | |
| 2008 09 05 | 691 | 0.1+ | 0.1+ | | 2008 10 08 | 691 | 0.0 | 0.0 | | 2009 12 17 | 691 | 0.4− | 0.2+ | | | |
| 2008 09 05 | 691 | 0.1+ | 0.1− | | 2008 10 08 | 691 | 0.0 | 0.0 | | 2009 12 17 | 691 | 0.0 | 0.1− | | | |
| 2008 09 05 | 691 | 0.2+ | 0.0 | | 2008 10 08 | 691 | 0.2− | 0.2− | | 2009 12 17 | 691 | 0.0 | 0.0 | | | |
| 2008 09 07 | 704 | 0.5− | 0.2+ | | 2008 10 24 | 703 | 0.1+ | 0.5− | | 2009 12 25 | 691 | 0.0 | 0.3+ | | | |
| 2008 09 07 | 704 | 0.3− | 0.5+ | | 2008 10 24 | 703 | 0.3+ | 0.7+ | | 2009 12 25 | 691 | 0.1+ | 0.2+ | | | |
| 2008 09 07 | 704 | (1.9− | 0.6−) | | 2008 10 24 | 703 | 0.2− | 0.7− | | 2009 12 25 | 691 | 0.1+ | 0.0 | | | |
| 2008 09 07 | 704 | 0.2− | 1.0+ | | 2008 10 24 | 703 | 0.5− | 1.2− | | | | | | | | |
| 2008 09 09 | 691 | 0.1+ | 0.0 | | 2008 10 26 | 704 | 0.5− | 0.7+ | | | | | | | | |

**(229227)∗ 2004 $XE_{18}$ = 2001 $CZ_{34}$**

Discovered 2004 Dec. 8 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 73609)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 278.54882 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.20576088 | $\omega$ | 98.75346 | | −0.97021875 | −0.03023081 | |
| $a$ | 2.8415863 | $\Omega$ | 79.77410 | | −0.07731075 | −0.90164497 | |
| $e$ | 0.0540637 | $i$ | 14.13550 | | +0.22956181 | −0.43141911 | |
| $P$ | 4.79 | $H$ | 14.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 10 19 | 704 | (1.5− | 2.5+) | | 2004 12 08 | 704 | 0.4+ | 0.1− | | 2006 02 01 | 703 | 0.3+ | 0.2+ | | | |
| 1999 10 19 | 704 | 0.2+ | 0.0 | | 2004 12 08 | 704 | 1.0− | 0.5+ | | 2006 02 01 | 703 | 0.1− | 0.3+ | | | |
| 1999 10 19 | 704 | 0.9− | 0.4− | | 2004 12 08 | 704 | 0.0 | 0.6+ | | 2006 02 01 | 703 | 0.3− | 0.1− | | | |
| 1999 10 19 | 704 | 0.4+ | 0.4+ | | 2004 12 10 | 704 | 0.6+ | 0.1− | | 2006 02 01 | 703 | 0.5− | 0.3+ | | | |
| 2001 01 18 | 704 | 0.2+ | 0.8+ | | 2004 12 10 | 704 | 0.8− | 0.1+ | | 2006 02 26 | 699 | (1.6+ | 0.2−) | | | |
| 2001 01 18 | 704 | 0.0 | 0.2+ | | 2004 12 10 | 704 | 0.5+ | 0.1+ | | 2006 02 26 | 699 | (1.6+ | 0.5+) | | | |
| 2001 01 18 | 704 | (1.3− | 3.0+) | | 2004 12 10 | 704 | 0.5− | 0.1+ | | 2006 02 26 | 699 | (1.7+ | 0.7+) | | | |
| 2001 02 13 | 704 | 0.3+ | 0.4+ | | 2004 12 10 | 704 | 0.3+ | 0.0 | | 2006 02 26 | 699 | 0.5+ | 0.2− | | | |
| 2001 02 13 | 704 | 0.1+ | 0.1− | | 2004 12 14 | 704 | 1.1− | 0.3+ | | 2006 03 06 | 703 | 0.6+ | 0.1− | | | |
| 2001 02 13 | 704 | 0.0 | 0.0 | | 2004 12 14 | 704 | 0.6− | 1.0+ | | 2006 03 06 | 703 | (1.8− | 0.3+) | | | |
| 2001 02 15 | 704 | 0.1+ | 0.3− | | 2004 12 14 | 704 | 0.9− | 1.4+ | | 2006 03 06 | 703 | 0.3− | 0.2− | | | |
| 2001 02 15 | 704 | 0.6+ | 0.2+ | | 2004 12 15 | 599 | 0.4− | 0.1+ | | 2006 03 19 | 699 | 1.2− | 0.3− | | | |
| 2001 02 15 | 704 | 0.5− | 0.0 | | 2004 12 15 | 599 | 0.3− | 0.4+ | | 2006 03 19 | 699 | 0.6− | 0.2+ | | | |
| 2001 02 15 | 704 | 0.0 | 0.7− | | 2004 12 15 | 599 | 0.1− | 0.2+ | | 2006 03 19 | 699 | 0.4+ | 0.4− | | | |
| 2001 02 15 | 704 | 0.0 | 0.5− | | 2004 12 16 | G92 | 0.1− | 0.7− | | 2006 03 19 | 699 | 0.2+ | 0.4+ | | | |
| 2002 06 06 | 704 | 1.0+ | 0.2+ | | 2004 12 16 | G92 | 0.2+ | 0.1− | | 2009 11 16 | 691 | 0.2− | 0.1+ | | | |
| 2002 06 06 | 704 | 0.3− | 0.2− | | 2004 12 16 | 704 | 0.9+ | 0.2+ | | 2009 11 16 | 691 | 0.6− | 0.1+ | | | |
| 2002 06 06 | 704 | 0.6+ | 1.3+ | | 2004 12 16 | G92 | 0.1+ | 0.1+ | | 2009 11 16 | 691 | 0.2− | 0.1− | | | |
| 2002 06 06 | 704 | 0.3+ | 0.5+ | | 2004 12 16 | 704 | (1.0+ | 2.0+) | | 2009 12 16 | 704 | 0.1− | 0.5+ | | | |
| 2002 06 06 | 704 | 0.0 | 1.3+ | | 2004 12 16 | 704 | (0.1+ | 1.8+) | | 2009 12 16 | 704 | 1.6+ | 0.7+ | | | |
| 2004 11 10 | 691 | 0.1+ | 0.1− | | 2004 12 19 | 704 | (0.9+ | 1.7+) | | 2009 12 16 | 704 | 2.0+ | 0.0 | | | |
| 2004 11 10 | 691 | 0.1+ | 0.1− | | 2004 12 19 | 704 | (1.7+ | 0.4+) | | 2009 12 16 | 704 | 0.7+ | 0.1+ | | | |
| 2004 11 10 | 691 | 0.1− | 0.2− | | 2004 12 19 | 704 | 1.1+ | 1.0− | | | | | | | | |

**(229228)∗ 2004 $XC_{27}$**

Discovered 2004 Dec. 10 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 354.89553 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21164416 | $\omega$ | 19.20428 | | −0.44424249 | −0.89333682 | |
| $a$ | 2.7886790 | $\Omega$ | 97.21942 | | +0.81277620 | −0.43370514 | |
| $e$ | 0.0187358 | $i$ | 3.91922 | | +0.37688654 | −0.11768251 | |
| $P$ | 4.66 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 06 26 | 691 | 0.2+ | 0.2+ | | 2004 12 11 | 599 | 0.4− | 0.0 | | 2008 09 28 | G96 | 0.3+ | 0.4− | | | |
| 1998 06 26 | 691 | 0.0 | 0.6+ | | 2004 12 11 | 599 | 0.4− | 1.0− | | 2008 09 28 | G96 | 0.0 | 0.3− | | | |
| 1998 06 26 | 691 | 0.0 | 0.5+ | | 2004 12 12 | 691 | 0.0 | 0.1− | | 2008 09 28 | G96 | 0.1+ | 0.4− | | | |
| 2002 06 11 | 644 | 0.7− | 0.8+ | | 2004 12 12 | 691 | 0.1− | 0.0 | | 2008 09 28 | G96 | 0.3− | 0.1− | | | |
| 2002 06 11 | 644 | 0.8− | 0.6+ | | 2004 12 12 | 691 | 0.1− | 0.0 | | 2008 10 02 | G96 | 0.5+ | 0.2− | | | |
| 2002 06 11 | 644 | 0.5− | 0.7+ | | 2004 12 12 | 599 | 0.0 | 0.4+ | | 2008 10 02 | G96 | 0.3+ | 0.0 | | | |
| 2003 08 23 | 644 | 0.1− | 0.2+ | | 2004 12 12 | 599 | 0.1− | 0.0 | | 2008 10 02 | G96 | 0.5+ | 0.1− | | | |
| 2003 08 23 | 644 | 0.2− | 0.0 | | 2004 12 12 | 599 | 0.1+ | 0.0 | | 2008 10 02 | G96 | 0.2+ | 0.0 | | | |
| 2003 08 23 | 644 | 0.1− | 0.3+ | | 2004 12 12 | 599 | 0.3+ | 0.1− | | 2008 10 08 | 703 | (2.0+ | 1.3+) | | | |
| 2003 08 31 | 704 | 0.7− | 0.7+ | | 2004 12 14 | 704 | 0.6+ | 1.0+ | | 2008 10 08 | 703 | 0.5+ | 0.5− | | | |
| 2003 08 31 | 704 | 0.1+ | 0.6+ | | 2004 12 14 | 704 | 0.5+ | 0.6+ | | 2008 10 08 | 703 | (0.7+ | 1.7+) | | | |
| 2003 08 31 | 704 | (0.3+ | 1.7−) | | 2004 12 14 | 704 | 1.2+ | 0.9+ | | 2008 10 08 | 703 | 0.3+ | 1.0+ | | | |
| 2003 08 31 | 704 | 0.3− | 0.3− | | 2004 12 15 | 599 | 1.1− | 1.3− | | 2009 10 18 | G96 | 0.4− | 0.1+ | | | |
| 2004 11 11 | 691 | 0.1+ | 0.3− | | 2004 12 15 | 599 | 0.1+ | 0.3+ | | 2009 10 18 | G96 | 0.6+ | 0.1− | | | |
| 2004 11 11 | 691 | 0.2+ | 0.2− | | 2004 12 15 | 599 | 0.0 | 0.1+ | | 2009 10 18 | G96 | 0.8+ | 0.5− | | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 11 11 | 691 | 0.2+ | 0.2− | 2004 12 16 | 704 | 0.4− | 0.2− | 2009 10 18 | G96 | 0.2+ | 0.1+ | | |
| 2004 12 02 | 644 | 0.5− | 0.1+ | 2004 12 16 | 704 | 0.2− | 0.5+ | 2009 11 10 | G96 | 0.2− | 0.1+ | | |
| 2004 12 02 | 644 | 0.3− | 0.3+ | 2004 12 16 | 704 | 0.8− | 0.2+ | 2009 11 10 | G96 | 0.1− | 0.0 | | |
| 2004 12 02 | 644 | 0.1− | 0.3+ | 2004 12 16 | 704 | 0.6+ | 0.0 | 2009 11 10 | G96 | 0.3+ | 0.3− | | |
| 2004 12 08 | 704 | (3.3+ | 4.6+) | 2004 12 16 | 704 | 0.1+ | 0.8+ | 2009 11 10 | G96 | 0.1+ | 0.0 | | |
| 2004 12 08 | 704 | 0.4+ | 0.5+ | 2006 02 28 | 704 | 1.3+ | 1.4+ | 2009 12 15 | G96 | 0.2+ | 0.2+ | | |
| 2004 12 08 | 704 | 0.1− | 0.2− | 2006 02 28 | 704 | 1.1+ | 0.2+ | 2009 12 15 | G96 | 0.3+ | 0.5+ | | |
| 2004 12 10 | 704 | 0.2− | 1.2+ | 2006 02 28 | 704 | (1.0+ | 1.7+) | 2009 12 15 | G96 | 0.1− | 0.3− | | |
| 2004 12 10 | 704 | 0.7− | 0.8+ | 2006 02 28 | 704 | (2.9+ | 0.3+) | 2009 12 15 | G96 | 0.4+ | 0.5− | | |
| 2004 12 10 | 704 | 1.3− | 0.1+ | 2008 09 23 | 704 | 0.7− | 0.8− | 2009 12 18 | 691 | 0.1− | 0.1+ | | |
| 2004 12 10 | 704 | 0.0 | 0.8+ | 2008 09 23 | 704 | 0.5− | 0.6+ | 2009 12 18 | 691 | 0.2− | 0.2+ | | |
| 2004 12 10 | 704 | 0.0 | 0.7+ | 2008 09 23 | 704 | 0.5− | 0.3+ | 2009 12 18 | 691 | 0.1+ | 0.3+ | | |
| 2004 12 11 | 599 | 0.3+ | 0.3− | 2008 09 23 | 704 | 0.3+ | 0.1− | | | | | | |
| 2004 12 11 | 599 | 0.4− | 0.2+ | 2008 09 23 | 704 | 0.7− | 0.5+ | | | | | | |

**(229229)∗ 2004 XT$_{32}$ = 2006 HH$_{57}$**

Discovered 2004 Dec. 10 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 100871)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 328.22307 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21345244 | $\omega$ | 81.77812 | | −0.95485332 | | −0.27224124 |
| $a$ | 2.7729069 | $\Omega$ | 82.36324 | | +0.20261126 | | −0.88951230 |
| $e$ | 0.1758181 | $i$ | 6.89067 | | +0.21726438 | | −0.36695037 |
| $P$ | 4.62 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 02 16 | 704 | 0.3+ | 0.5− | 2006 02 07 | 691 | 0.3+ | 0.1+ | 2006 05 19 | 703 | 0.1− | 0.1+ |
| 2001 02 16 | 704 | 0.2+ | 0.8− | 2006 02 07 | 691 | 0.4+ | 0.3+ | 2006 05 19 | 703 | 1.0+ | 1.1− |
| 2001 02 16 | 704 | 0.5− | 0.4+ | 2006 04 24 | 704 | (1.5+ | 1.9+) | 2006 05 19 | 703 | 0.3− | 0.3+ |
| 2001 02 16 | 704 | 0.1− | 0.3+ | 2006 04 24 | 704 | (2.3+ | 1.8+) | 2006 05 19 | 703 | 0.5− | 0.2− |
| 2001 02 16 | 704 | 0.2− | 0.1+ | 2006 04 24 | 699 | 0.5+ | 0.2+ | 2006 05 25 | 699 | 1.2+ | 1.4+ |
| 2001 03 16 | 704 | 0.1− | 0.9− | 2006 04 24 | 704 | 0.0 | 0.2+ | 2006 05 25 | 699 | 0.4− | 0.0 |
| 2001 03 16 | 704 | (1.6− | 1.6−) | 2006 04 24 | 699 | (1.5− | 0.3−) | 2006 05 25 | 699 | 0.2+ | 0.5− |
| 2001 03 16 | 704 | 0.5− | 0.4− | 2006 04 24 | 704 | 1.2+ | 1.2+ | 2006 05 25 | 699 | 1.1− | 0.3− |
| 2001 03 16 | 704 | 0.0 | 0.6− | 2006 04 24 | 699 | 0.6+ | 0.6− | 2006 05 25 | 703 | 1.2− | 0.4+ |
| 2004 11 11 | 691 | 0.1+ | 0.6− | 2006 04 24 | 699 | 0.1+ | 0.5+ | 2006 05 25 | 703 | 0.1+ | 1.1+ |
| 2004 11 11 | 691 | 0.2+ | 0.2− | 2006 04 27 | 704 | (1.7+ | 0.5+) | 2008 09 23 | G96 | 0.2− | 0.4+ |
| 2004 11 11 | 691 | 0.1+ | 0.2− | 2006 04 27 | 704 | 0.7+ | 0.6+ | 2008 09 23 | G96 | 0.0 | 0.4+ |
| 2004 12 10 | 704 | 0.6+ | 0.6− | 2006 04 27 | 704 | 0.3− | 1.0+ | 2008 09 23 | G96 | 0.1− | 0.5+ |
| 2004 12 10 | 704 | 0.3− | 1.1+ | 2006 04 27 | 704 | 1.3+ | 0.7− | 2008 09 23 | G96 | 0.2+ | 0.3+ |
| 2004 12 10 | 704 | 0.5− | 0.5+ | 2006 04 30 | 691 | 0.1+ | 0.1+ | 2008 10 22 | G96 | 0.1+ | 0.5+ |
| 2004 12 10 | 704 | 0.3+ | 0.3+ | 2006 04 30 | 691 | 0.1− | 0.2+ | 2008 10 22 | G96 | 0.3− | 0.3+ |
| 2004 12 10 | 704 | 0.8+ | 0.6+ | 2006 04 30 | 691 | 0.1− | 0.3+ | 2008 10 22 | G96 | 0.1− | 0.1+ |
| 2004 12 12 | 691 | 0.1− | 0.2+ | 2006 04 30 | 704 | 0.3− | 0.1− | 2008 10 22 | G96 | 0.4− | 0.5+ |
| 2004 12 12 | 691 | 0.1+ | 0.5+ | 2006 04 30 | 704 | 0.1− | 0.7− | 2009 11 19 | G96 | 0.6+ | 0.3− |
| 2004 12 12 | 691 | 1.1− | 0.5+ | 2006 04 30 | 704 | 1.4− | 0.5− | 2009 11 19 | G96 | 0.1+ | 0.3− |
| 2004 12 14 | 704 | 0.1− | 1.2+ | 2006 04 30 | 704 | (2.4− | 0.0 ) | 2009 11 19 | G96 | 0.1+ | 0.3− |
| 2004 12 14 | 704 | 0.0 | 0.2+ | 2006 05 05 | 691 | 0.1+ | 0.1+ | 2009 11 19 | G96 | 0.0 | 0.6− |
| 2004 12 14 | 704 | 0.1+ | 1.0+ | 2006 05 05 | 691 | 0.0 | 0.2− | 2009 12 15 | 704 | 1.3− | 0.0 |
| 2006 01 29 | 691 | 0.1− | 0.1− | 2006 05 05 | 691 | 0.1− | 0.3+ | 2009 12 15 | 704 | 0.6− | 0.2+ |
| 2006 01 29 | 691 | 0.2+ | 0.5− | 2006 05 09 | 691 | 0.3− | 0.1+ | 2009 12 15 | 704 | 0.9+ | 0.3+ |
| 2006 01 29 | 691 | 0.1+ | 0.0 | 2006 05 09 | 691 | 0.3+ | 0.0 | | | | |
| 2006 02 07 | 691 | 0.1+ | 0.1− | 2006 05 09 | 691 | 0.4− | 0.3+ | | | | |

**(229230)∗ 2004 XU$_{36}$ = 2007 GJ$_{39}$ = 2009 VH$_{16}$**

Discovered 2004 Dec. 11 by CINEOS at Campo Imperatore.

Id. G. V. Williams (*MPO* 165413)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 84.21314 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.19510541 | $\omega$ | 286.15894 | | +0.93743753 | | +0.34661658 |
| $a$ | 2.9441268 | $\Omega$ | 53.57184 | | −0.30189640 | | +0.85604602 |
| $e$ | 0.1369771 | $i$ | 2.32762 | | −0.17340544 | | +0.38346076 |
| $P$ | 5.05 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 04 09 | 291 | 0.0 | 0.2+ | 2004 12 16 | 568 | 0.1+ | 0.3+ | 2008 07 28 | E12 | 0.6+ | 1.5+ |
| 2002 04 09 | 291 | 0.1+ | 0.1− | 2006 01 23 | 691 | 0.2− | 0.0 | 2008 07 28 | E12 | 0.3− | 1.1+ |
| 2002 04 09 | 291 | 0.2− | 0.1+ | 2006 01 23 | 691 | 0.3+ | 0.2− | 2008 08 23 | E12 | 0.4+ | 0.8+ |
| 2003 07 25 | 644 | 0.7− | 0.6+ | 2006 01 23 | 691 | 0.1− | 0.3+ | 2008 08 23 | E12 | (1.4+ | 1.9+) |
| 2003 07 25 | 644 | 0.6− | 0.2+ | 2006 02 01 | 691 | 0.7+ | 0.5+ | 2008 08 23 | E12 | 0.5+ | 0.3− |
| 2003 07 25 | 644 | 0.5− | 0.4+ | 2006 02 01 | 691 | 0.1+ | 0.0 | 2008 08 23 | E12 | 0.7+ | 0.9+ |
| 2003 09 25 | 644 | 0.6− | 0.2+ | 2006 02 01 | 691 | 0.1+ | 0.6+ | 2009 11 08 | G96 | 0.0 | 0.0 |
| 2003 09 25 | 644 | 0.0 | 0.7+ | 2006 02 24 | 691 | 0.1+ | 0.3+ | 2009 11 08 | G96 | 0.2− | 0.1− |
| 2003 09 25 | 644 | 0.5− | 0.6+ | 2006 02 24 | 691 | 0.1− | 0.1+ | 2009 11 08 | G96 | 0.1+ | 0.1+ |
| 2004 12 11 | 599 | 0.1− | 0.2+ | 2006 02 24 | 691 | 0.0 | 0.2+ | 2009 11 08 | G96 | 0.2+ | 0.2− |
| 2004 12 11 | 599 | 0.4− | 0.2+ | 2007 04 14 | 691 | 0.1+ | 0.2+ | 2009 11 09 | 691 | 0.1− | 0.1+ |
| 2004 12 11 | 599 | 0.4+ | 0.2+ | 2007 04 14 | 691 | 0.0 | 0.2− | 2009 11 09 | 691 | 0.1− | 0.2− |
| 2004 12 11 | 599 | 0.1+ | 0.2− | 2007 04 14 | 691 | 0.1− | 0.6− | 2009 11 09 | 691 | 0.1− | 0.1− |
| 2004 12 12 | 599 | 0.0 | 0.3+ | 2007 04 18 | G96 | 0.1+ | 0.0 | 2009 11 17 | 691 | 0.0 | 0.0 |
| 2004 12 12 | 599 | 0.9− | 0.6+ | 2007 04 18 | G96 | 0.0 | 0.3+ | 2009 11 17 | 691 | 0.1+ | 0.2− |
| 2004 12 12 | 599 | 0.1− | 0.2+ | 2007 04 18 | G96 | 0.2+ | 0.1+ | 2009 11 17 | 691 | 0.1+ | 0.2− |
| 2004 12 12 | 599 | 0.9− | 0.1− | 2007 04 18 | G96 | 0.8− | 0.3+ | 2009 11 25 | 691 | 0.3− | 0.2+ |
| 2004 12 15 | 568 | 0.1+ | 0.3+ | 2007 06 11 | G96 | 0.2+ | 0.1− | 2009 11 25 | 691 | 0.0 | 0.0 |
| 2004 12 15 | 568 | 0.2+ | 0.3+ | 2007 06 11 | G96 | 0.3− | 0.5+ | 2009 11 25 | 691 | 0.1− | 0.0 |
| 2004 12 15 | 568 | 0.1+ | 0.3+ | 2007 06 11 | G96 | 0.2+ | 0.6+ | 2009 12 10 | G96 | 0.1− | 0.1+ |
| 2004 12 16 | 691 | 0.0 | 0.3+ | 2007 06 11 | G96 | 0.3+ | 0.4+ | 2009 12 10 | G96 | 0.0 | 0.1− |
| 2004 12 16 | 691 | 0.4+ | 0.0 | 2008 07 28 | E12 | 0.7− | 0.8+ | 2009 12 10 | G96 | 0.3− | 0.0 |
| 2004 12 16 | 691 | 0.4+ | 0.1− | 2008 07 28 | E12 | 0.5− | 0.2− | 2009 12 10 | G96 | 0.2+ | 0.5− |

**(229231)∗ 2004 XS$_{40}$ = 2007 DZ$_{100}$**

Discovered 2004 Dec. 11 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 115818)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 58.49196 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18849847 | $\omega$ | 280.89472 | | +0.94455855 | | +0.25214587 |
| $a$ | 3.0125261 | $\Omega$ | 64.77795 | | −0.12571542 | | +0.86944376 |
| $e$ | 0.1956472 | $i$ | 13.44293 | | −0.30332289 | | +0.42484115 |
| $P$ | 5.23 | $H$ | 14.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 12 12 | 704 | 0.3+ | 0.9− | 2007 02 27 | 291 | 0.2− | 0.2+ | 2009 11 15 | 703 | 0.4− | 0.0 |
| 1999 12 12 | 704 | 0.7− | 0.3+ | 2007 02 27 | 291 | 0.1− | 0.2+ | 2009 11 15 | 703 | 0.1+ | 0.8+ |
| 1999 12 12 | 704 | 1.4+ | 0.6− | 2007 02 27 | 291 | 0.0 | 0.1+ | 2009 11 16 | G96 | 0.1− | 0.1− |
| 1999 12 12 | 704 | 0.4+ | 0.9− | 2007 04 16 | 703 | 1.2− | 0.1− | 2009 11 16 | G96 | 0.0 | 0.1− |
| 2002 04 13 | 644 | 0.1− | 0.2− | 2007 04 16 | 703 | 0.2+ | 1.0− | 2009 11 16 | G96 | 0.1− | 0.1− |
| 2002 04 13 | 644 | 0.0 | 0.1− | 2007 04 16 | 703 | (0.3− | 2.0−) | 2009 11 16 | G96 | 0.0 | 0.1+ |
| 2002 04 13 | 644 | 0.2+ | 1.0+ | 2007 04 16 | 703 | (0.5+ | 1.7−) | 2009 11 18 | 704 | 0.4+ | 1.1+ |
| 2004 09 16 | 691 | 0.3− | 0.0 | 2009 10 12 | G96 | 0.0 | 0.2− | 2009 11 18 | 704 | 0.3+ | 1.0+ |
| 2004 09 16 | 691 | 0.1− | 0.1+ | 2009 10 12 | G96 | 0.2− | 0.2− | 2009 11 18 | 704 | 0.1+ | 0.6+ |
| 2004 09 16 | 691 | 0.2− | 0.0 | 2009 10 12 | G96 | 0.1− | 0.2− | 2009 11 18 | 704 | 0.2− | 0.8+ |
| 2004 12 11 | 704 | 0.2+ | 0.2+ | 2009 10 12 | G96 | 0.5− | 0.2− | 2009 11 18 | 704 | 0.1+ | 0.9+ |
| 2004 12 11 | 704 | 0.3− | 0.1− | 2009 10 19 | 106 | 0.1+ | 0.4− | 2009 11 20 | 704 | 0.5− | 0.4+ |
| 2004 12 11 | 704 | 0.1+ | 0.9− | 2009 10 19 | 106 | 0.2+ | 0.2+ | 2009 11 20 | 704 | 0.1− | 0.6+ |
| 2004 12 11 | 704 | 0.6− | 0.2+ | 2009 10 20 | 106 | 0.1+ | 0.4+ | 2009 11 20 | 704 | 0.4− | 0.7+ |
| 2004 12 11 | 704 | 1.1− | 0.1+ | 2009 10 20 | 106 | 0.3− | 0.2− | 2009 11 20 | 704 | 0.3− | 0.6+ |
| 2004 12 11 | 704 | 0.2− | 0.3− | 2009 10 21 | 703 | 0.0 | 0.0 | 2009 11 20 | 704 | 0.0 | 0.7+ |
| 2004 12 11 | 704 | 0.2− | 0.9− | 2009 10 21 | 703 | 0.0 | 0.2− | 2009 11 20 | J75 | (1.8− | 0.7−) |
| 2004 12 11 | 704 | 0.5+ | 0.5+ | 2009 10 21 | 703 | 1.5− | 0.4+ | 2009 11 20 | J75 | 0.2− | 0.2− |
| 2004 12 11 | 704 | 0.1− | 0.8+ | 2009 10 21 | 703 | 0.3− | 0.2+ | 2009 11 20 | J75 | (1.2+ | 2.4−) |
| 2004 12 12 | 704 | 0.4− | 0.5− | 2009 10 22 | 704 | 1.0− | 0.4+ | 2009 11 22 | 703 | 0.6− | 0.5− |
| 2004 12 12 | 704 | 0.1+ | 0.1− | 2009 10 22 | 704 | 1.1+ | 0.1− | 2009 11 22 | 703 | 0.4− | 0.4− |
| 2004 12 12 | 704 | 0.1+ | 0.3− | 2009 10 22 | 704 | 0.8+ | 0.2+ | 2009 11 22 | 703 | 0.3− | 0.9+ |
| 2004 12 12 | 704 | 0.1+ | 0.3− | 2009 10 22 | 704 | 0.8+ | 0.7+ | 2009 11 22 | 703 | 0.1− | 0.2− |
| 2004 12 12 | 704 | 0.1− | 0.4− | 2009 10 22 | 704 | 0.1+ | 0.4+ | 2009 11 23 | G96 | 0.3− | 0.2− |
| 2004 12 13 | 704 | 0.8+ | 0.8− | 2009 10 22 | 704 | 0.3− | 0.2+ | 2009 11 23 | G96 | 0.3− | 0.2− |
| 2004 12 13 | 704 | 0.5+ | 0.7− | 2009 10 22 | 704 | 0.3+ | 0.2+ | 2009 11 23 | G96 | 0.0 | 0.1− |
| 2004 12 13 | 704 | (0.3− | 2.0−) | 2009 10 22 | 704 | 0.4+ | 0.5− | 2009 11 23 | G96 | 0.1− | 0.1− |
| 2004 12 13 | 704 | 0.2+ | 0.9− | 2009 10 24 | 703 | 0.7− | 0.2− | 2009 11 23 | D29 | 0.3− | 0.6− |
| 2004 12 13 | 704 | 0.8− | 0.5− | 2009 10 24 | 703 | 0.1+ | 0.7− | 2009 11 23 | D29 | 0.0 | 0.0 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 15 | 704 | 0.1+ | 0.4+ | 2009 10 24 | 703 | 0.0 | 0.3+ | 2009 11 23 | D29 | 0.0 | 0.6− |
| 2004 12 15 | 704 | 0.4− | 0.2+ | 2009 10 24 | 703 | 0.2− | 0.2− | 2009 11 23 | D29 | 1.1− | 0.2+ |
| 2004 12 15 | 704 | 0.3+ | 0.6+ | 2009 10 27 | 704 | 0.7+ | 0.2− | 2009 12 11 | G96 | 0.0 | 0.2− |
| 2004 12 15 | 704 | 0.2+ | 0.3+ | 2009 10 27 | 704 | 0.8+ | 0.0 | 2009 12 11 | G96 | 0.1+ | 0.2− |
| 2004 12 17 | 704 | 1.1+ | 0.5− | 2009 10 27 | 704 | 0.3+ | 0.4+ | 2009 12 11 | G96 | 0.2− | 0.1− |
| 2004 12 17 | 704 | 1.3+ | 0.3− | 2009 10 27 | 704 | 0.6+ | 0.4+ | 2009 12 11 | G96 | 0.1− | 0.2− |
| 2004 12 17 | 704 | 0.5+ | 0.0 | 2009 10 27 | 704 | 0.3+ | 0.2+ | 2009 12 11 | 703 | 0.7+ | 0.1+ |
| 2004 12 17 | 704 | 0.6+ | 0.2− | 2009 11 09 | 703 | 0.7− | 0.2+ | 2009 12 11 | 703 | 0.0 | 0.4− |
| 2004 12 20 | 691 | 0.1− | 0.4− | 2009 11 09 | 703 | 0.7− | 0.1+ | 2009 12 11 | 703 | 0.9+ | 1.3− |
| 2004 12 20 | 691 | 0.1+ | 0.3− | 2009 11 09 | 703 | 1.2− | 0.9− | 2009 12 11 | 703 | 0.3+ | 0.7+ |
| 2004 12 20 | 691 | 0.0 | 0.4− | 2009 11 09 | 703 | 0.1− | 0.3− | 2009 12 12 | 704 | 0.0 | 0.7+ |
| 2006 01 06 | 704 | 0.6+ | 0.9+ | 2009 11 15 | 703 | 0.0 | 0.3+ | 2009 12 12 | 704 | 0.1+ | 0.2+ |
| 2006 01 06 | 704 | 0.8+ | 1.0+ | 2009 11 15 | 703 | 0.2+ | 0.4+ | 2009 12 12 | 704 | 0.8− | 0.9+ |
| 2006 01 06 | 704 | 0.3+ | 0.8+ | 2009 11 15 | 703 | 0.1+ | 0.3− | 2009 12 12 | 704 | 0.9− | 0.9+ |
| 2007 02 25 | 291 | 0.4+ | 0.2+ | 2009 11 15 | 703 | 0.6− | 0.2+ | 2009 12 17 | 704 | 0.3+ | 1.1+ |
| 2007 02 25 | 291 | 0.3+ | 0.3+ | 2009 11 15 | 703 | 0.2+ | 0.8+ | 2009 12 17 | 704 | 1.1+ | 0.8+ |
| 2007 02 25 | 291 | 0.3+ | 0.1+ | 2009 11 15 | 703 | 0.2+ | 0.3+ | 2009 12 17 | 704 | 0.3− | 0.6+ |

**(229232)∗ 2004 XV$_{60}$**

Discovered 2004 Dec. 12 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 59.00244 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22585878 | $\omega$ | 168.62393 | | −0.13608598 | | −0.98947574 |
| $a$ | 2.6704107 | $\Omega$ | 289.18288 | | +0.90481262 | | −0.10391916 |
| $e$ | 0.0724009 | $i$ | 2.98462 | | +0.40347828 | | −0.10069044 |
| $P$ | 4.36 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 02 22 | 704 | (1.7− | 1.6+) | 2005 01 17 | 691 | 0.1− | 0.0 | 2008 11 23 | J75 | 0.3− | 0.5− |
| 2001 02 22 | 704 | 0.2+ | 0.7+ | 2005 01 17 | 691 | 0.1+ | 0.0 | 2008 11 23 | J75 | 0.5− | 0.4− |
| 2001 02 22 | 704 | 0.1+ | 0.4+ | 2006 06 01 | G96 | 0.0 | 0.4+ | 2008 11 23 | J75 | 0.6+ | 1.1+ |
| 2001 02 22 | 704 | 0.2+ | 0.9− | 2006 06 01 | G96 | 0.2− | 0.3+ | 2008 12 02 | 704 | 0.2+ | 1.1+ |
| 2003 09 15 | 644 | 0.3− | 0.3+ | 2006 06 01 | G96 | 0.1+ | 0.1+ | 2008 12 02 | 704 | 1.1+ | 0.2+ |
| 2003 09 15 | 644 | 0.1− | 0.3+ | 2006 06 01 | G96 | 0.2− | 0.4+ | 2008 12 02 | 704 | 0.3− | 0.5+ |
| 2003 09 15 | 644 | 0.2+ | 0.4+ | 2008 10 20 | 691 | 0.1− | 0.0 | 2008 12 02 | 704 | 0.7− | 0.8+ |
| 2003 09 19 | 691 | 0.2− | 0.1+ | 2008 10 20 | 691 | 0.2− | 0.1+ | 2008 12 07 | G96 | 0.5+ | 0.3− |
| 2003 09 19 | 691 | 0.0 | 0.1+ | 2008 10 20 | 691 | 0.5− | 0.1− | 2008 12 07 | G96 | 0.2+ | 0.6− |
| 2003 09 19 | 691 | 0.1+ | 0.1+ | 2008 10 31 | 291 | 0.3− | 0.2+ | 2008 12 07 | G96 | 0.5+ | 0.3− |
| 2004 12 12 | 691 | 0.2+ | 0.3− | 2008 10 31 | 291 | 0.3− | 0.1− | 2008 12 07 | G96 | 0.2− | 0.7− |
| 2004 12 12 | 691 | 0.1− | 0.0 | 2008 10 31 | 291 | 0.3− | 0.2+ | 2008 12 20 | 703 | 0.9+ | 0.1− |
| 2004 12 12 | 691 | 0.1+ | 0.2− | 2008 11 01 | 704 | 0.7+ | 0.7+ | 2008 12 20 | 703 | 0.6− | 0.3− |
| 2004 12 15 | 012 | 0.0 | 0.7− | 2008 11 01 | 704 | 0.6+ | 0.8+ | 2008 12 20 | 703 | 0.3+ | 0.1− |
| 2004 12 15 | 012 | 1.1− | 0.8− | 2008 11 01 | 704 | 0.9+ | 0.5+ | 2008 12 20 | 703 | 1.3− | 0.3− |
| 2004 12 15 | 012 | 0.6− | 0.4+ | 2008 11 01 | 703 | 0.4+ | 1.0− | 2008 12 21 | 704 | (0.1− | 1.5−) |
| 2004 12 15 | 012 | (1.5− | 0.8−) | 2008 11 01 | 703 | 0.7+ | 0.3+ | 2008 12 21 | 704 | 0.1− | 0.9− |
| 2004 12 15 | 012 | 0.0 | 0.6− | 2008 11 01 | 703 | 0.4+ | 0.8− | 2008 12 21 | 704 | 1.0− | 0.8+ |
| 2004 12 16 | 012 | 0.0 | 0.3− | 2008 11 01 | 704 | 0.7+ | 0.5+ | 2008 12 21 | 704 | 1.2+ | 0.1+ |
| 2004 12 16 | 012 | 0.7+ | 0.2− | 2008 11 01 | 703 | 0.1+ | 0.5+ | 2008 12 31 | G96 | 0.7+ | 0.6− |
| 2004 12 16 | 012 | (1.0+ | 2.1−) | 2008 11 03 | F51 | 0.3+ | 0.3− | 2008 12 31 | G96 | 0.1+ | 0.5− |
| 2004 12 16 | 012 | 0.3− | 0.2− | 2008 11 03 | F51 | 0.3+ | 0.3− | 2008 12 31 | G96 | 0.1+ | 0.4− |
| 2004 12 16 | 691 | 0.1− | 0.3+ | 2008 11 08 | D29 | 0.1− | 0.5− | 2009 01 31 | G96 | 0.1− | 0.3− |
| 2004 12 16 | 691 | 0.0 | 0.0 | 2008 11 08 | D29 | 0.5+ | 0.1+ | 2009 01 31 | G96 | 0.3+ | 0.2− |
| 2004 12 16 | 691 | 0.1+ | 0.3− | 2008 11 08 | D29 | 0.3+ | 0.6− | 2009 01 31 | G96 | 0.2+ | 0.0 |
| 2004 12 20 | 012 | 0.8− | 0.6− | 2008 11 08 | D29 | 0.2+ | 0.5− | 2009 12 20 | G96 | 0.3+ | 0.1− |
| 2004 12 20 | 012 | 0.4− | 0.1− | 2008 11 17 | 291 | 1.3− | 0.2+ | 2009 12 20 | G96 | 0.1+ | 0.2+ |
| 2004 12 20 | 012 | 0.1− | 0.4− | 2008 11 17 | 291 | 0.6− | 0.5+ | 2009 12 20 | G96 | 0.3+ | 0.6+ |
| 2004 12 20 | 012 | 0.9− | 0.5+ | 2008 11 17 | 291 | 0.6+ | 0.9+ | 2009 12 20 | G96 | 0.4+ | 0.1− |
| 2005 01 06 | 704 | 0.3+ | 0.4+ | 2008 11 20 | 704 | 0.4+ | 1.0− | 2009 12 26 | 691 | 0.2+ | 0.4+ |
| 2005 01 06 | 704 | 0.3+ | 0.7+ | 2008 11 20 | 704 | (1.6− | 0.7+) | 2009 12 26 | 691 | 0.1+ | 0.0 |
| 2005 01 06 | 704 | 0.5+ | 1.0+ | 2008 11 20 | 704 | 0.3+ | 0.5+ | 2009 12 26 | 691 | 0.0 | 0.0 |
| 2005 01 06 | 704 | 0.2+ | 0.8+ | 2008 11 20 | 704 | 0.2+ | 0.1− | | | | |
| 2005 01 17 | 691 | 0.1+ | 0.1+ | 2008 11 20 | 704 | 0.8+ | 0.6− | | | | |

**(229233)∗ 2004 XV$_{64}$**

Discovered 2004 Dec. 2 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 56.76242 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21320782 | $\omega$ | 108.97844 | | +0.73213972 | | −0.66849023 |
| $a$ | 2.7750275 | $\Omega$ | 293.20680 | | +0.55913319 | | +0.69943064 |
| $e$ | 0.1436314 | $i$ | 8.17787 | | +0.38902635 | | +0.25281929 |
| $P$ | 4.62 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 10 03 | 703 | 0.5− | 0.3+ | 2008 07 29 | G96 | 0.8− | 0.0 | 2008 10 01 | G96 | 0.1+ | 0.1− |
| 1999 10 03 | 703 | 1.2+ | 0.5− | 2008 08 11 | 106 | 0.5− | 0.8− | 2008 10 01 | G96 | 0.3+ | 0.1− |
| 1999 10 03 | 703 | 0.9− | 0.2+ | 2008 08 11 | 106 | 0.3+ | 0.0 | 2008 10 30 | G96 | 0.3+ | 0.2− |
| 1999 10 03 | 703 | 0.2+ | 0.1+ | 2008 08 11 | 106 | 0.2− | 0.6− | 2008 10 30 | G96 | 0.1+ | 0.0 |
| 2004 11 19 | 704 | (1.6+ | 0.3+) | 2008 08 11 | 106 | 0.6− | 0.2+ | 2008 10 30 | G96 | 0.4+ | 0.0 |
| 2004 11 19 | 704 | 0.1+ | 0.3+ | 2008 08 24 | J75 | 0.3+ | 0.2+ | 2008 10 30 | G96 | 0.3+ | 0.1+ |
| 2004 11 19 | 704 | 0.0 | 0.6+ | 2008 08 24 | J75 | 0.1+ | 0.0 | 2009 01 01 | G96 | 0.3− | 0.2− |
| 2004 11 19 | 704 | 0.0 | 0.3− | 2008 08 24 | J75 | 0.1− | 0.4− | 2009 01 01 | G96 | 0.1− | 0.1− |
| 2004 11 19 | 704 | 0.5+ | 0.5+ | 2008 09 03 | G89 | 0.1− | 0.2− | 2009 01 01 | G96 | 0.2− | 0.1+ |
| 2004 12 02 | 704 | 0.5− | 0.0 | 2008 09 03 | G89 | 0.1+ | 0.1− | 2009 01 01 | G96 | 0.3+ | 0.4− |
| 2004 12 02 | 704 | 0.0 | 0.3− | 2008 09 03 | G89 | 0.0 | 0.2− | 2009 11 11 | G96 | 0.5+ | 0.0 |
| 2004 12 02 | 704 | 0.6+ | 0.7− | 2008 09 04 | G89 | 0.0 | 0.1− | 2009 11 11 | G96 | 0.5+ | 0.3− |
| 2004 12 02 | 704 | 0.8+ | 0.2+ | 2008 09 04 | G89 | 0.1+ | 0.2− | 2009 11 11 | G96 | 0.1+ | 0.4− |
| 2004 12 02 | 704 | 0.3− | 0.1− | 2008 09 04 | G89 | 0.1− | 0.1− | 2009 11 11 | G96 | 0.1+ | 0.1− |
| 2004 12 15 | 704 | 0.1+ | 0.6+ | 2008 09 05 | 704 | 0.2− | 0.4+ | 2009 12 15 | G96 | 0.1+ | 0.3− |
| 2004 12 15 | 704 | 0.2+ | 0.1+ | 2008 09 05 | 704 | 0.2− | 0.4+ | 2009 12 15 | G96 | 0.1+ | 0.1− |
| 2004 12 15 | 704 | 0.1+ | 0.3− | 2008 09 05 | 704 | 0.2+ | 0.0 | 2009 12 15 | G96 | 0.2+ | 0.4− |
| 2004 12 15 | 704 | (0.2+ | 1.7−) | 2008 09 05 | 704 | 0.0 | 0.6+ | 2009 12 15 | G96 | 0.3− | 0.1+ |
| 2004 12 15 | 704 | 0.4+ | 1.0+ | 2008 09 05 | 704 | 0.2− | 0.5+ | 2009 12 18 | 691 | 0.0 | 0.0 |
| 2004 12 17 | 704 | 0.4− | 0.7+ | 2008 09 29 | 704 | 0.6+ | 0.9+ | 2009 12 18 | 691 | 0.3− | 0.2+ |
| 2004 12 17 | 704 | 0.9− | 0.6+ | 2008 09 29 | 704 | 0.5+ | 0.0 | 2009 12 18 | 691 | 0.0 | 0.0 |
| 2004 12 17 | 704 | 0.9− | 0.3+ | 2008 09 29 | 704 | 0.9+ | 0.1− | 2009 12 25 | 691 | 0.6+ | 0.5− |
| 2004 12 17 | 704 | 0.0 | 1.1− | 2008 09 29 | 704 | 0.4+ | 0.3+ | 2009 12 25 | 691 | 0.4− | 0.1+ |
| 2008 07 29 | G96 | 0.4− | 0.1− | 2008 09 29 | 704 | 0.3+ | 1.0− | 2009 12 25 | 691 | 0.3− | 0.0 |
| 2008 07 29 | G96 | 0.1− | 0.2− | 2008 10 01 | G96 | 0.1− | 0.0 | | | | |
| 2008 07 29 | G96 | 0.5− | 0.0 | 2008 10 01 | G96 | 0.1− | 0.1− | | | | |

**(229234)∗ 2004 XN$_{65}$ = 2006 BC$_{125}$**

Discovered 2004 Dec. 2 by NEAT at Palomar.

Id. A. Doppler (*MPO* 100877)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 62.59370 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.20356062 | $\omega$ | 0.78998 | | +0.96849427 | | −0.24891559 |
| $a$ | 2.8620257 | $\Omega$ | 13.63089 | | +0.22830546 | | +0.87503323 |
| $e$ | 0.1045200 | $i$ | 1.88175 | | +0.09947598 | | +0.41516006 |
| $P$ | 4.84 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 10 08 | 691 | (2.4+ | 6.4−) | 2004 12 11 | 599 | 0.7+ | 0.2− | 2007 04 22 | G96 | 0.1+ | 0.3− |
| 1994 10 08 | 691 | 2.0− | 0.9− | 2004 12 11 | 599 | 0.7+ | 0.0 | 2007 04 22 | G96 | 0.4+ | 0.0 |
| 1994 10 08 | 691 | 1.0+ | 0.1− | 2004 12 11 | 599 | 0.6+ | 0.0 | 2007 05 07 | 691 | 0.5− | 0.1− |
| 1999 10 06 | 704 | 1.1+ | 0.7+ | 2004 12 11 | 599 | 1.0+ | 0.0 | 2007 05 07 | 691 | 0.5− | 0.4+ |
| 1999 10 06 | 704 | 0.5+ | 0.9+ | 2006 01 26 | 691 | 0.1− | 0.1− | 2007 05 07 | 691 | 0.3− | 0.2− |
| 1999 10 06 | 704 | 0.9+ | 0.1− | 2006 01 26 | 691 | 0.3− | 0.1− | 2008 09 24 | G96 | 0.1− | 0.1+ |
| 1999 10 06 | 704 | 0.2+ | 0.7+ | 2006 01 26 | 691 | 0.1+ | 0.2− | 2008 09 24 | G96 | 0.1+ | 0.1+ |
| 2002 04 08 | 691 | 0.9+ | 0.1− | 2006 01 30 | 691 | 0.5− | 0.1− | 2008 09 24 | G96 | 0.5− | 0.2+ |
| 2002 04 08 | 691 | 0.7+ | 0.5+ | 2006 01 30 | 691 | 0.4− | 0.6+ | 2008 09 24 | G96 | 0.5− | 0.0 |
| 2002 04 08 | 691 | 0.5+ | 0.0 | 2006 01 30 | 691 | 0.0 | 0.3+ | 2009 11 25 | 691 | 0.5− | 0.0 |
| 2004 11 04 | 691 | 0.2+ | 0.1+ | 2006 02 25 | G96 | 0.2− | 0.4− | 2009 11 25 | 691 | 0.1+ | 0.0 |
| 2004 11 04 | 691 | 0.1+ | 0.2+ | 2006 02 25 | G96 | 0.3− | 0.5− | 2009 11 25 | 691 | 0.3− | 0.0 |
| 2004 11 04 | 691 | 0.3+ | 0.3+ | 2006 02 25 | G96 | 0.0 | 0.2− | 2009 12 20 | G96 | 0.0 | 0.0 |
| 2004 12 02 | 644 | 0.6+ | 0.3+ | 2006 02 25 | G96 | 0.1− | 0.4− | 2009 12 20 | G96 | 0.1− | 0.1− |
| 2004 12 02 | 644 | 0.7+ | 0.4+ | 2007 04 22 | G96 | 1.5+ | 0.2− | 2009 12 20 | G96 | 0.3− | 0.1+ |
| 2004 12 02 | 644 | 0.1+ | 0.3+ | 2007 04 22 | G96 | 0.3− | 0.7− | 2009 12 20 | G96 | 0.0 | 0.2+ |

**(229235)∗ 2004 XU$_{68}$**

Discovered 2004 Dec. 8 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 331.11103 | | (2000.0) | | | |
| $n$ | 0.18561427 | $\omega$ | 6.22687 | | +0.06816677 | −0.98502713 |
| $a$ | 3.0436530 | $\Omega$ | 79.94427 | | +0.90826939 | −0.00439999 |
| $e$ | 0.0617736 | $i$ | 9.25455 | | +0.41279535 | +0.17234326 |
| $P$ | 5.31 | $H$ | 15.0 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 09 28 | 910 | 0.2+ | 0.7+ | 2006 01 28 | 699 | 0.1+ | 1.2+ | 2009 10 20 | 704 | 0.4− | 0.4+ |
| 1998 09 28 | 910 | 0.0 | 0.3+ | 2006 01 28 | 699 | 0.7− | 0.2+ | 2009 10 26 | 704 | 0.4− | 0.5− |
| 1998 09 28 | 910 | 0.0 | 0.5+ | 2006 02 09 | 644 | 0.3+ | 0.3+ | 2009 10 26 | 704 | 0.2− | 1.1+ |
| 2004 12 08 | 704 | 0.9− | 0.2− | 2006 02 09 | 644 | 0.4+ | 0.3+ | 2009 10 26 | 704 | 0.8− | 1.3+ |
| 2004 12 08 | 704 | 1.1− | 1.2− | 2006 02 09 | 644 | 0.0 | 0.4+ | 2009 10 27 | G96 | 0.2+ | 0.1− |
| 2004 12 08 | 704 | 0.8− | 1.0+ | 2006 02 21 | 703 | 1.0+ | 0.2+ | 2009 10 27 | G96 | 0.2+ | 0.1− |
| 2004 12 08 | 704 | 0.1− | 0.2− | 2006 02 21 | 703 | 1.0+ | 0.1+ | 2009 10 27 | G96 | 0.0 | 0.2− |
| 2004 12 08 | 704 | 0.2− | 0.8+ | 2006 02 21 | 703 | 0.0 | 0.1+ | 2009 10 27 | G96 | 0.4+ | 0.0 |
| 2004 12 10 | 704 | 0.4− | 0.0 | 2006 02 21 | 703 | 0.4+ | 0.1+ | 2009 11 09 | 703 | 0.3+ | 0.8− |
| 2004 12 10 | 704 | 0.4+ | 0.4+ | 2007 05 10 | G96 | 0.1+ | 0.0 | 2009 11 09 | 703 | 0.4− | 0.2+ |
| 2004 12 10 | 704 | 1.1− | 1.2− | 2007 05 10 | G96 | 0.6+ | 0.2+ | 2009 11 09 | 703 | 0.0 | 0.2+ |
| 2004 12 10 | 704 | 0.0 | 0.3+ | 2007 05 10 | G96 | 0.1+ | 0.1− | 2009 11 09 | 703 | 0.2− | 0.1+ |
| 2004 12 10 | 704 | 0.9+ | 0.0 | 2007 05 10 | G96 | 0.0 | 0.1− | 2009 11 12 | J75 | 0.3+ | 0.2+ |
| 2004 12 15 | 568 | 0.0 | 0.0 | 2007 06 18 | 691 | 0.1+ | 0.2+ | 2009 11 12 | J75 | 0.4+ | 0.7+ |
| 2004 12 15 | 568 | 0.1− | 0.0 | 2007 06 18 | 691 | 0.4− | 1.4+ | 2009 11 12 | J75 | 0.2+ | 0.5+ |
| 2004 12 15 | 568 | 0.1− | 0.0 | 2007 06 18 | 691 | 0.3+ | 0.1+ | 2009 11 14 | 704 | 0.1+ | 0.4− |
| 2004 12 19 | 704 | 0.2+ | 1.1+ | 2009 10 15 | J75 | 0.2+ | 0.1− | 2009 11 14 | 704 | 0.2− | 0.1+ |
| 2004 12 19 | 704 | 0.0 | 0.7− | 2009 10 15 | J75 | 0.9+ | 0.0 | 2009 11 14 | 704 | 0.6− | 0.1− |
| 2004 12 19 | 704 | 0.2+ | 0.6− | 2009 10 15 | J75 | 0.6+ | 0.6− | 2009 11 23 | 703 | 0.2− | 0.4− |
| 2004 12 19 | 704 | 0.5+ | 0.2+ | 2009 10 17 | 703 | 0.5+ | 0.1− | 2009 11 23 | 703 | 0.1+ | 0.6+ |
| 2004 12 19 | 704 | 0.7+ | 0.2− | 2009 10 17 | 703 | 0.7+ | 0.1− | 2009 11 23 | 703 | 1.3− | 0.1+ |
| 2004 12 20 | G96 | 0.2− | 0.2− | 2009 10 17 | 703 | 0.9+ | 0.1+ | 2009 11 23 | 703 | 0.4− | 0.1+ |
| 2004 12 20 | G96 | 0.0 | 0.2− | 2009 10 17 | 703 | 0.6+ | 0.0 | 2009 11 23 | 703 | 1.3− | 0.6− |
| 2004 12 20 | G96 | 0.0 | 0.3− | 2009 10 20 | 704 | 0.0 | 1.4+ | 2009 12 10 | 703 | 1.0+ | 0.3− |
| 2004 12 20 | G96 | 0.1− | 0.2− | 2009 10 20 | 704 | 0.5− | 0.8+ | 2009 12 10 | 703 | 1.3− | 0.2+ |
| 2006 01 28 | 699 | 0.4+ | 0.9+ | 2009 10 20 | 704 | 0.7− | 1.5+ | 2009 12 10 | 703 | (0.1+ | 2.4+) |
| 2006 01 28 | 699 | 0.8+ | 0.7− | 2009 10 20 | 704 | 0.6− | 0.7+ | 2009 12 10 | 703 | 0.2+ | 0.8+ |

**(229236)∗ 2004 XM$_{76}$ = 2007 MQ$_{16}$**

Discovered 2004 Dec. 10 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 141169)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 122.24620 | | (2000.0) | | | |
| $n$ | 0.20446869 | $\omega$ | 237.74508 | | +0.77848969 | +0.56384117 |
| $a$ | 2.8535458 | $\Omega$ | 86.48210 | | −0.44154739 | +0.80420899 |
| $e$ | 0.1563728 | $i$ | 16.03763 | | −0.44608262 | +0.18796551 |
| $P$ | 4.82 | $H$ | 15.5 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 05 13 | 644 | 0.3+ | 0.5+ | 2007 05 16 | G96 | 0.0 | 0.2+ | 2008 09 10 | E12 | 0.2− | 1.1+ |
| 2002 05 13 | 644 | 0.1+ | 0.4+ | 2007 05 16 | G96 | 0.3− | 0.1+ | 2008 09 28 | E12 | 1.2− | 0.2− |
| 2002 05 13 | 644 | 0.4+ | 0.2+ | 2007 05 16 | G96 | 0.0 | 0.1+ | 2008 09 28 | E12 | 0.0 | 0.5+ |
| 2003 08 25 | 644 | 0.4− | 0.2+ | 2007 05 24 | 703 | 0.4+ | 1.1− | 2008 09 28 | E12 | 1.2+ | 0.2+ |
| 2003 08 25 | 644 | 0.4− | 0.0 | 2007 05 24 | 703 | 0.8+ | 0.9+ | 2009 10 15 | G96 | 0.2+ | 0.5+ |
| 2003 08 25 | 644 | 0.3− | 0.4+ | 2007 05 24 | 703 | 0.0 | 0.1− | 2009 10 15 | G96 | 0.9− | 0.4+ |
| 2004 12 10 | 691 | 0.2− | 0.2+ | 2007 05 24 | 703 | 0.6− | 0.5+ | 2009 10 15 | G96 | 0.3+ | 0.4− |
| 2004 12 10 | 691 | 0.0 | 0.2+ | 2007 06 23 | 691 | 0.4+ | 0.3+ | 2009 11 17 | G96 | 0.3− | 0.1− |
| 2004 12 10 | 691 | 0.3+ | 0.0 | 2007 06 23 | 691 | 0.3+ | 0.2+ | 2009 11 17 | G96 | 0.2+ | 0.2− |
| 2004 12 14 | 704 | 0.0 | 0.1− | 2007 06 23 | 691 | 0.2− | 0.2+ | 2009 11 17 | G96 | 0.2+ | 0.2− |
| 2004 12 14 | 704 | 0.1+ | 0.4− | 2007 06 24 | 691 | 0.1+ | 0.1+ | 2009 11 17 | G96 | 0.3− | 0.0 |
| 2004 12 14 | 704 | 0.1+ | 0.2+ | 2007 06 24 | 691 | 0.1− | 0.1+ | 2009 12 19 | 691 | 0.1+ | 0.6+ |
| 2004 12 18 | 691 | 0.0 | 0.1+ | 2007 06 24 | 691 | 0.0 | 0.3+ | 2009 12 19 | 691 | 0.0 | 0.1+ |
| 2004 12 18 | 691 | 0.0 | 0.3+ | 2008 09 10 | E12 | 0.1− | 0.5+ | 2009 12 19 | 691 | 0.4− | 0.2+ |
| 2004 12 18 | 691 | 0.1− | 0.0 | 2008 09 10 | E12 | 0.3− | 0.8+ | | | | |
| 2007 05 16 | G96 | 0.1+ | 0.2+ | 2008 09 10 | E12 | 0.4− | 0.7+ | | | | |

**(229237)∗ 2004 XG$_{79}$**

Discovered 2004 Dec. 10 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 47.18413 | | (2000.0) | | | |
| $n$ | 0.21447350 | $\omega$ | 38.95521 | | +0.43733770 | −0.89916142 |
| $a$ | 2.7640991 | $\Omega$ | 25.12218 | | +0.81560530 | +0.38925308 |
| $e$ | 0.0611523 | $i$ | 2.11060 | | +0.37884526 | +0.19997692 |
| $P$ | 4.60 | $H$ | 16.3 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 10 11 | 691 | 0.2+ | 0.2− | 2006 03 03 | 691 | 0.2+ | 0.2+ | 2008 09 28 | 704 | 1.1+ | 1.4+ |
| 1999 10 11 | 691 | 0.0 | 0.1− | 2006 03 03 | 691 | 0.2− | 0.0 | 2008 09 28 | 704 | 1.2+ | 1.3+ |
| 1999 10 11 | 691 | 0.3− | 0.2− | 2006 03 06 | 691 | 0.0 | 0.5+ | 2008 09 28 | 704 | 0.7+ | 1.5+ |
| 2001 02 01 | 691 | 0.3− | 0.3+ | 2006 03 06 | 691 | 0.1+ | 0.3+ | 2008 09 28 | 704 | (0.3+ | 1.7+) |
| 2001 02 01 | 691 | 0.3− | 0.1+ | 2006 03 06 | 691 | 0.5+ | 0.4+ | 2008 09 28 | 704 | (0.0 | 1.6+) |
| 2001 02 01 | 691 | 0.1− | 0.3− | 2006 03 21 | G96 | 0.2+ | 0.1+ | 2008 09 29 | G96 | 0.1+ | 0.1− |
| 2004 11 20 | 691 | 0.4+ | 0.0 | 2006 03 21 | G96 | 0.1+ | 0.1− | 2008 09 29 | G96 | 0.2+ | 0.2− |
| 2004 11 20 | 691 | 0.2+ | 0.3+ | 2006 03 21 | G96 | 0.1− | 0.0 | 2008 09 29 | G96 | 0.2+ | 0.1+ |
| 2004 11 20 | 691 | 0.4+ | 0.1− | 2006 03 21 | G96 | 0.2− | 0.8+ | 2008 09 29 | G96 | 0.3+ | 0.1− |
| 2004 12 10 | 704 | 0.4− | 0.3− | 2006 04 25 | G96 | 0.0 | 0.6− | 2008 10 01 | G96 | 0.2+ | 0.0 |
| 2004 12 10 | 704 | 0.7+ | 0.1+ | 2006 04 25 | G96 | 0.4+ | 0.3− | 2008 10 01 | G96 | 0.3+ | 0.1+ |
| 2004 12 10 | 704 | 0.4+ | 0.7− | 2006 04 25 | G96 | 0.3− | 0.6− | 2008 10 01 | G96 | 0.3+ | 0.2− |
| 2004 12 14 | 704 | (2.3+ | 1.6+) | 2006 04 25 | G96 | 0.2+ | 0.3− | 2008 10 01 | G96 | 0.4+ | 0.2+ |
| 2004 12 14 | 704 | 0.6+ | 1.2+ | 2008 09 02 | 691 | 0.2− | 0.3+ | 2008 10 18 | 691 | 0.0 | 0.3+ |
| 2004 12 14 | 704 | (0.7+ | 1.7+) | 2008 09 02 | 691 | 0.2− | 0.0 | 2008 10 18 | 691 | 0.1− | 0.3− |
| 2004 12 14 | 704 | 0.8+ | 1.0+ | 2008 09 02 | 691 | 0.4− | 0.2+ | 2008 10 18 | 691 | 0.2− | 0.5− |
| 2004 12 19 | 704 | 0.7− | 0.6− | 2008 09 06 | 691 | 0.3− | 0.3+ | 2009 11 21 | G96 | 0.8− | 0.1+ |
| 2004 12 19 | 704 | 0.1+ | 0.0 | 2008 09 06 | 691 | 0.4− | 0.0 | 2009 11 21 | G96 | 0.2+ | 0.4− |
| 2004 12 19 | 704 | 0.2− | 0.2+ | 2008 09 06 | 691 | 0.4− | 0.1+ | 2009 11 21 | G96 | 0.3− | 0.1− |
| 2006 02 24 | 691 | 0.2− | 0.0 | 2008 09 07 | G96 | 0.5− | 0.0 | 2009 11 21 | G96 | 0.3+ | 0.0 |
| 2006 02 24 | 691 | 0.4+ | 0.1+ | 2008 09 07 | G96 | 0.2− | 0.1+ | 2009 12 18 | 691 | 0.5− | 0.1− |
| 2006 02 24 | 691 | 0.3+ | 0.5+ | 2008 09 07 | G96 | 0.1− | 0.0 | 2009 12 18 | 691 | 0.2− | 0.1+ |
| 2006 03 03 | 691 | 0.3+ | 0.3− | 2008 09 07 | G96 | 0.2+ | 0.1− | 2009 12 18 | 691 | 0.1− | 0.0 |

**(229238)∗ 2004 XY$_{80}$**

Discovered 2004 Dec. 10 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 313.48750 | | (2000.0) | | | |
| $n$ | 0.18079645 | $\omega$ | 209.17714 | | −0.46821419 | −0.84491380 |
| $a$ | 3.0974867 | $\Omega$ | 269.82241 | | +0.85256068 | −0.35505376 |
| $e$ | 0.1501616 | $i$ | 14.98962 | | +0.23219768 | −0.40007186 |
| $P$ | 5.45 | $H$ | 14.7 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 08 25 | 644 | 0.1− | 0.2− | 2005 01 13 | 704 | 0.2+ | 0.4− | 2009 11 10 | 703 | 0.2− | 1.0− |
| 2003 08 25 | 644 | 0.1− | 0.0 | 2005 01 13 | 704 | 0.3+ | 0.2− | 2009 11 10 | 703 | (1.6+ | 0.0 ) |
| 2003 08 25 | 644 | 0.1− | 0.1+ | 2005 01 13 | 704 | 0.0 | 0.3− | 2009 11 18 | J75 | 0.0 | 0.2+ |
| 2003 09 22 | 704 | 1.3− | 1.1+ | 2005 02 02 | 704 | 0.4+ | 0.9+ | 2009 11 18 | J75 | 0.0 | 0.4− |
| 2003 09 22 | 704 | 0.4− | 0.4+ | 2005 02 02 | 704 | 0.7− | 0.0 | 2009 11 18 | J75 | 0.5+ | 0.1− |
| 2003 09 22 | 704 | 0.6+ | 1.3+ | 2005 02 02 | 704 | 0.3+ | 0.5+ | 2009 11 19 | 703 | 0.5− | 0.2+ |
| 2003 09 22 | 704 | 0.0 | 0.2− | 2005 02 02 | 704 | 1.0− | 0.6+ | 2009 11 19 | 703 | 0.3+ | 0.0 |
| 2004 12 10 | 704 | 0.6− | 0.2− | 2008 09 27 | G96 | 0.3+ | 0.1− | 2009 11 19 | 703 | 0.4− | 0.4+ |
| 2004 12 10 | 704 | 0.5+ | 0.7+ | 2008 09 27 | G96 | 0.0 | 0.3− | 2009 11 19 | 703 | 0.3− | 0.7+ |
| 2004 12 10 | 704 | 0.5+ | 0.8+ | 2008 09 27 | G96 | 0.5+ | 0.4− | 2009 11 22 | 704 | 0.9+ | 0.5− |
| 2004 12 14 | 704 | 0.5− | 0.6− | 2008 09 27 | G96 | 0.3+ | 0.5− | 2009 11 22 | 704 | 0.2+ | 0.2− |
| 2004 12 14 | 704 | 0.6− | 0.4− | 2009 10 18 | 704 | 1.3+ | 0.1− | 2009 11 22 | 704 | 0.9− | 0.4+ |
| 2004 12 14 | 704 | 0.2− | 0.7− | 2009 10 18 | 704 | 1.0− | 0.7− | 2009 11 22 | 704 | 0.3− | 0.0 |
| 2004 12 14 | 704 | 0.1− | 0.6− | 2009 10 18 | 704 | 0.3− | 0.3− | 2009 11 26 | 703 | 0.2+ | 0.2+ |
| 2004 12 14 | 704 | 0.4− | 0.4− | 2009 10 18 | 704 | 0.8− | 0.7− | 2009 11 26 | 703 | 0.1+ | 1.3− |
| 2004 12 16 | 704 | (1.6+ | 0.8+) | 2009 10 29 | 703 | 0.8− | 0.2+ | 2009 11 26 | 703 | 0.4+ | 1.3− |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 16 | 704 | 0.3+ | 0.2− | 2009 10 29 | 703 | 0.2+ | 0.2− | 2009 11 26 | 703 | 0.7+ | 0.1− |
| 2004 12 16 | 704 | 0.2+ | 0.4+ | 2009 10 29 | 703 | 1.0− | 0.3− | 2009 11 26 | 703 | 0.7+ | 0.9+ |
| 2004 12 16 | 704 | 0.5+ | 0.6+ | 2009 10 29 | 703 | (1.6− | 0.3−) | 2009 12 10 | 704 | 1.0+ | 0.5+ |
| 2004 12 16 | 704 | 0.9+ | 0.1+ | 2009 11 10 | 703 | 1.0− | 1.1+ | 2009 12 10 | 704 | 1.2+ | 0.7+ |
| 2005 01 13 | 704 | 0.1+ | 0.3− | 2009 11 10 | 703 | 0.6− | 0.7− | 2009 12 10 | 704 | 0.6+ | 1.0+ |

**(229239)∗ 2004 XY$_{84}$ = 2009 UQ$_{71}$**

Discovered 2004 Dec. 12 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 165415)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 1.01009 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18438170 | $\omega$ | 116.62571 | | +0.42281735 | | −0.90454305 |
| $a$ | 3.0572023 | $\Omega$ | 308.25258 | | +0.80453277 | | +0.40262626 |
| $e$ | 0.1478085 | $i$ | 4.01774 | | +0.41707614 | | +0.14033521 |
| $P$ | 5.35 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 01 26 | 691 | 0.3− | 0.1+ | 2008 07 30 | G96 | 0.3− | 0.0 | 2009 11 12 | J75 | 0.1+ | 0.4− |
| 2000 01 26 | 691 | 0.2+ | 0.4+ | 2008 07 30 | G96 | 0.3− | 0.2+ | 2009 11 12 | J75 | 0.2+ | 0.3− |
| 2000 01 26 | 691 | 0.3+ | 0.2+ | 2008 07 30 | G96 | 0.4+ | 0.8+ | 2009 11 16 | 704 | 0.3+ | 0.1− |
| 2000 02 07 | 691 | 0.2− | 0.2− | 2008 07 30 | G96 | 0.0 | 0.5+ | 2009 11 16 | 704 | 0.2+ | 0.4− |
| 2000 02 07 | 691 | 0.2− | 0.1− | 2008 09 06 | G96 | 0.1− | 0.2− | 2009 11 16 | 704 | (0.0 | 1.9−) |
| 2000 02 07 | 691 | 0.2− | 0.1− | 2008 09 06 | G96 | 0.2+ | 0.1− | 2009 11 16 | 704 | 0.6+ | 0.5+ |
| 2003 09 21 | 691 | 0.1− | 0.0 | 2008 09 06 | G96 | 0.4+ | 0.5− | 2009 11 18 | 691 | 0.3− | 0.2− |
| 2003 09 21 | 691 | 0.1+ | 0.1+ | 2008 09 06 | G96 | 0.2− | 0.3− | 2009 11 18 | 691 | 0.3− | 0.1− |
| 2003 09 21 | 691 | 0.2+ | 0.1+ | 2008 09 21 | G96 | 0.1+ | 0.1+ | 2009 11 18 | 691 | 0.5+ | 0.0 |
| 2003 09 30 | 691 | 0.1− | 0.3+ | 2008 09 21 | G96 | 0.0 | 0.2+ | 2009 11 22 | 691 | 0.6− | 0.2− |
| 2003 09 30 | 691 | 0.2− | 0.3+ | 2008 09 21 | G96 | 0.5− | 0.3+ | 2009 11 22 | 691 | 0.4− | 0.1− |
| 2003 09 30 | 691 | 0.3− | 0.3+ | 2008 09 21 | G96 | 0.7− | 0.1− | 2009 11 22 | 691 | 0.0 | 0.3+ |
| 2004 12 12 | 691 | 0.2+ | 0.2+ | 2009 10 22 | 703 | 0.5+ | 0.7− | 2009 11 22 | 703 | 0.5+ | 0.1− |
| 2004 12 12 | 691 | 0.3+ | 0.2+ | 2009 10 22 | 703 | 0.5+ | 0.4− | 2009 11 22 | 703 | 0.8+ | 0.9+ |
| 2004 12 12 | 691 | 0.1+ | 0.3+ | 2009 10 22 | 703 | 0.5− | 0.9− | 2009 11 22 | 703 | 0.8+ | 0.7+ |
| 2004 12 14 | 704 | 0.0 | 0.4+ | 2009 10 24 | 703 | 0.7+ | 0.7− | 2009 11 22 | 703 | 0.1+ | 0.9+ |
| 2004 12 14 | 704 | 0.7+ | 0.3+ | 2009 10 24 | 703 | 1.2− | 0.3− | 2009 11 26 | 691 | 0.3− | 0.3− |
| 2004 12 14 | 704 | 0.1− | 0.8+ | 2009 10 24 | 703 | (1.7+ | 0.5+) | 2009 11 26 | 691 | 0.2− | 0.0 |
| 2004 12 14 | 704 | 0.3+ | 1.3+ | 2009 10 24 | 703 | 0.0 | 0.7− | 2009 11 26 | 691 | 0.3− | 0.2− |
| 2004 12 16 | 704 | 0.8+ | 0.0 | 2009 11 11 | 704 | 0.1− | 0.5− | 2009 12 18 | G96 | 0.3+ | 0.2+ |
| 2004 12 16 | 704 | 0.3+ | 0.6+ | 2009 11 11 | 704 | 0.6+ | 0.1− | 2009 12 18 | G96 | 0.4+ | 0.1− |
| 2004 12 16 | 704 | 0.3− | 0.2− | 2009 11 11 | 704 | 0.3+ | 0.4− | 2009 12 18 | G96 | 0.5+ | 0.0 |
| 2006 03 09 | 691 | 0.4− | 0.5− | 2009 11 11 | 704 | 1.0+ | 0.6− | 2009 12 18 | G96 | 0.1+ | 0.1− |
| 2006 03 09 | 691 | 0.2+ | 0.0 | 2009 11 11 | 704 | 0.3− | 0.3+ | | | | |
| 2006 03 09 | 691 | 0.3+ | 0.5+ | 2009 11 12 | J75 | 0.5+ | 0.6− | | | | |

**(229240)∗ 2004 XB$_{98}$**

Discovered 2004 Dec. 11 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 322.48563 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18529661 | $\omega$ | 65.93645 | | −0.61508987 | | −0.78690440 |
| $a$ | 3.0471306 | $\Omega$ | 62.11393 | | +0.70155205 | | −0.57484339 |
| $e$ | 0.1638292 | $i$ | 3.20758 | | +0.35984603 | | −0.22435807 |
| $P$ | 5.32 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 21 | 691 | 0.1− | 0.0 | 2005 01 16 | 704 | 0.0 | 0.2− | 2006 05 22 | G96 | 0.8− | 0.1+ |
| 2003 09 21 | 691 | 0.3+ | 0.1+ | 2005 01 16 | 704 | 0.1− | 0.0 | 2006 05 22 | G96 | 0.5− | 0.5+ |
| 2003 09 21 | 691 | 0.0 | 0.2+ | 2005 01 18 | 691 | 0.2+ | 0.1− | 2009 11 11 | 114 | 0.7+ | 0.3− |
| 2003 10 19 | 645 | 0.0 | 0.0 | 2005 01 18 | 691 | 0.3+ | 0.0 | 2009 11 11 | 114 | 0.3+ | 0.5− |
| 2003 10 19 | 645 | 0.0 | 0.0 | 2005 01 18 | 691 | 0.3+ | 0.3+ | 2009 11 11 | 114 | 0.1+ | 0.0 |
| 2003 10 22 | 645 | 0.1− | 0.2+ | 2005 01 19 | 704 | 0.8− | 0.2− | 2009 11 11 | 114 | 0.2− | 0.2− |
| 2003 10 22 | 645 | 0.1+ | 0.0 | 2005 01 19 | 704 | 0.7+ | 0.6+ | 2009 11 12 | 114 | 0.8+ | 0.1+ |
| 2003 10 24 | 645 | 0.1− | 0.1+ | 2005 01 19 | 704 | 1.0+ | 0.4+ | 2009 11 12 | 114 | 0.2+ | 0.1− |
| 2003 10 24 | 645 | 0.1− | 0.1+ | 2005 01 19 | 704 | 0.3+ | 0.0 | 2009 11 12 | 114 | 0.8+ | 0.4+ |
| 2003 11 19 | 645 | 0.0 | 0.0 | 2005 01 19 | 704 | 0.6+ | 1.1+ | 2009 11 12 | 114 | 0.2+ | 1.0− |
| 2003 11 19 | 645 | 0.1− | 0.2− | 2006 01 31 | 691 | 0.3+ | 0.3− | 2009 11 16 | 691 | 0.0 | 0.2− |
| 2004 12 11 | 691 | 0.3+ | 0.2+ | 2006 01 31 | 691 | 0.6+ | 0.3− | 2009 11 16 | 691 | 0.2− | 0.0 |
| 2004 12 11 | 691 | 0.2− | 0.3− | 2006 01 31 | 691 | 0.1+ | 0.2− | 2009 11 16 | 691 | 0.1− | 0.1− |
| 2004 12 11 | 691 | 0.0 | 0.1− | 2006 04 08 | 691 | 0.1+ | 0.4+ | 2009 11 20 | 691 | 0.0 | 0.0 |
| 2004 12 14 | 703 | 0.6− | 0.0 | 2006 04 08 | 691 | 0.3+ | 0.0 | 2009 11 20 | 691 | 0.1+ | 0.0 |
| 2004 12 14 | 703 | 0.7− | 0.9+ | 2006 04 08 | 691 | 0.1+ | 0.4+ | 2009 11 20 | 691 | 0.1− | 0.3+ |
| 2004 12 14 | 703 | 1.1− | 0.3+ | 2006 04 20 | D35 | (1.6− | 0.4+) | 2009 11 24 | J75 | 0.3− | 0.4− |
| 2004 12 14 | 703 | 0.2+ | 0.1− | 2006 04 20 | D35 | 0.5+ | 0.4− | 2009 11 24 | J75 | 0.1− | 0.1− |
| 2005 01 06 | 703 | 0.2− | 0.8− | 2006 04 20 | D35 | 0.1+ | 0.0 | 2009 11 24 | J75 | 1.2− | 1.2− |
| 2005 01 06 | 703 | 0.1− | 0.3− | 2006 05 02 | G96 | 0.5− | 0.1+ | 2009 12 11 | 703 | 1.2− | 1.0+ |
| 2005 01 06 | 703 | 0.1+ | 0.5+ | 2006 05 02 | G96 | 0.2− | 0.0 | 2009 12 11 | 703 | 1.5− | 0.7+ |
| 2005 01 06 | 703 | 0.1+ | 0.2+ | 2006 05 02 | G96 | 0.1+ | 0.6+ | 2009 12 11 | 703 | 1.0+ | 0.8+ |
| 2005 01 07 | 704 | 0.6− | 0.6− | 2006 05 02 | G96 | 0.4− | 0.3+ | 2009 12 11 | 703 | 1.1+ | 0.7+ |
| 2005 01 07 | 704 | 0.7− | 0.3+ | 2006 05 22 | G96 | 0.6− | 0.6+ | 2009 12 15 | G96 | 0.3+ | 0.0 |
| 2005 01 07 | 704 | 0.5+ | 0.1− | 2006 05 22 | G96 | 0.1+ | 0.6+ | 2009 12 15 | G96 | 0.2− | 0.2− |
| 2005 01 07 | 704 | 0.5− | 0.1+ | 2006 05 22 | G96 | 0.1+ | 0.4+ | 2009 12 15 | G96 | 0.0 | 0.3− |
| 2005 01 07 | 704 | (0.8+ | 1.7−) | 2006 05 22 | G96 | 0.2− | 0.3+ | 2009 12 15 | G96 | 0.2+ | 0.1+ |
| 2005 01 16 | 704 | 0.7− | 0.4+ | 2006 05 22 | G96 | 0.4− | 0.3+ | | | | |
| 2005 01 16 | 704 | 0.7− | 0.0 | 2006 05 22 | G96 | 0.1− | 0.5+ | | | | |

**(229241)∗ 2004 XF$_{114}$ = 2005 XE$_{111}$**

Discovered 2004 Dec. 10 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 95629)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 68.15609 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21322730 | $\omega$ | 22.92872 | | +0.81744160 | | −0.57599227 |
| $a$ | 2.7748585 | $\Omega$ | 12.24380 | | +0.52498248 | | +0.74163804 |
| $e$ | 0.0976796 | $i$ | 1.27130 | | +0.23702875 | | +0.34381090 |
| $P$ | 4.62 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 10 11 | 691 | 0.4− | 0.0 | 2006 03 02 | 691 | 0.1+ | 0.3+ | 2008 10 02 | G96 | 0.1− | 0.0 |
| 1999 10 11 | 691 | 0.6− | 0.1+ | 2006 03 02 | 691 | 0.1+ | 0.7+ | 2008 10 02 | G96 | 0.3− | 0.0 |
| 1999 10 11 | 691 | 0.4− | 0.0 | 2006 03 06 | 691 | 0.1+ | 0.3+ | 2008 10 02 | G96 | 0.2+ | 0.2+ |
| 2001 02 02 | 691 | 0.1+ | 0.0 | 2006 03 06 | 691 | 0.3+ | 0.2+ | 2008 10 02 | G96 | 0.6+ | 0.4+ |
| 2001 02 02 | 691 | 0.5+ | 0.4− | 2006 03 06 | 691 | 0.1+ | 0.0 | 2008 10 02 | G96 | 0.3+ | 0.1+ |
| 2001 02 02 | 691 | 0.0 | 0.1− | 2006 03 21 | G96 | 0.1− | 0.1− | 2008 10 02 | G96 | 0.1+ | 0.4+ |
| 2001 02 13 | 691 | 0.3+ | 0.5+ | 2006 03 21 | G96 | 0.3− | 0.1+ | 2008 10 20 | G96 | 0.1− | 0.5+ |
| 2001 02 13 | 691 | 0.1+ | 0.4+ | 2006 03 21 | G96 | 0.1+ | 0.7− | 2008 10 20 | G96 | 0.3− | 0.6+ |
| 2001 02 13 | 691 | 0.5+ | 0.3+ | 2006 03 21 | G96 | 0.7− | 0.2− | 2008 10 20 | G96 | 0.3+ | 0.3+ |
| 2004 12 10 | 691 | 0.4+ | 0.2+ | 2008 09 06 | G96 | 0.0 | 0.2+ | 2008 10 20 | G96 | 0.1+ | 0.3+ |
| 2004 12 10 | 691 | 0.1+ | 0.1+ | 2008 09 06 | G96 | 0.3+ | 0.2+ | 2008 11 24 | G96 | 0.3+ | 0.1+ |
| 2004 12 10 | 691 | 0.3+ | 0.0 | 2008 09 06 | G96 | 0.1+ | 0.2+ | 2008 11 24 | G96 | 0.0 | 0.0 |
| 2004 12 16 | 691 | 0.0 | 0.1− | 2008 09 06 | G96 | 0.3+ | 0.2+ | 2008 11 24 | G96 | 0.3+ | 0.4+ |
| 2004 12 16 | 691 | 0.2+ | 0.2− | 2008 09 21 | G96 | 0.0 | 0.2+ | 2008 11 24 | G96 | 0.2+ | 0.1− |
| 2004 12 16 | 691 | 0.3+ | 0.1+ | 2008 09 21 | G96 | 0.1− | 0.4+ | 2009 12 17 | G96 | 0.5+ | 0.1− |
| 2004 12 21 | 691 | 0.8− | 0.3+ | 2008 09 21 | G96 | 0.3+ | 0.1+ | 2009 12 17 | G96 | 0.6− | 0.5− |
| 2004 12 21 | 691 | 0.3+ | 0.1+ | 2008 09 21 | G96 | 0.1− | 0.3+ | 2009 12 17 | G96 | 0.2− | 0.2− |
| 2004 12 21 | 691 | 0.2+ | 0.2− | 2008 09 28 | 704 | (0.4− | 1.5+) | 2009 12 17 | G96 | 0.2− | 1.2+ |
| 2005 12 01 | 695 | 0.2− | 0.6+ | 2008 09 28 | 704 | (0.2− | 1.5+) | 2009 12 18 | 691 | 0.5− | 0.2− |
| 2005 12 01 | 695 | 0.0 | 0.1+ | 2008 09 28 | 704 | 0.1− | 0.5+ | 2009 12 18 | 691 | 0.2− | 0.1+ |
| 2005 12 03 | 568 | 0.4+ | 0.2+ | 2008 09 28 | 704 | 0.2− | 0.2+ | 2009 12 18 | 691 | 0.3− | 0.2− |
| 2005 12 03 | 568 | 0.3+ | 0.2+ | 2008 09 28 | 704 | 0.3− | 0.0 | 2009 12 26 | 691 | 0.0 | 0.3− |
| 2005 12 03 | 568 | 0.1+ | 0.3+ | 2008 10 02 | G96 | 0.7− | 0.1+ | 2009 12 26 | 691 | 0.1− | 0.0 |
| 2006 03 02 | 691 | 0.2− | 0.1− | 2008 10 02 | G96 | 0.3− | 0.1+ | 2009 12 26 | 691 | 0.5− | 0.6− |

**(229242)∗ 2004 XV$_{119}$ = 1996 HC$_5$**

Discovered 2004 Dec. 12 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 73687)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 356.52204 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.20001381 | $\omega$ | 7.74915 | | −0.46563376 | | −0.88425448 |
| $a$ | 2.8957611 | $\Omega$ | 110.00804 | | +0.80989581 | | −0.44207199 |
| $e$ | 0.1175445 | $i$ | 2.18141 | | +0.35672675 | | −0.15055356 |
| $P$ | 4.93 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 04 19 | 691 | 1.0+ | 0.3+ | 2005 01 11 | 704 | 1.1+ | 0.0 | 2008 10 25 | G96 | 0.3− | 0.2+ |
| 1996 04 19 | 691 | 0.6+ | 0.5+ | 2005 01 11 | 704 | 0.2− | 0.0 | 2008 10 25 | G96 | 0.0 | 0.1+ |
| 1996 04 19 | 691 | 0.5+ | 0.2+ | 2005 01 15 | 704 | 0.1− | 0.3− | 2009 11 16 | G96 | 0.5− | 0.4− |
| 1996 04 24 | 691 | 1.1− | 0.1+ | 2005 01 15 | 704 | 0.4+ | 0.3+ | 2009 11 16 | G96 | 0.1+ | 0.4− |
| 1996 04 24 | 691 | 0.8− | 0.2+ | 2005 01 15 | 704 | 0.0 | 1.0+ | 2009 11 16 | G96 | 0.1+ | 0.3− |
| 1996 04 24 | 691 | 1.0− | 0.2− | 2005 01 15 | 704 | (1.6+ | 1.9+) | 2009 11 16 | G96 | 0.4− | 0.3− |
| 2003 09 18 | 691 | 0.3− | 0.6+ | 2005 01 17 | 691 | 0.4+ | 0.2− | 2009 12 15 | G96 | 0.1+ | 0.4− |
| 2003 09 18 | 691 | 0.2− | 0.4+ | 2005 01 17 | 691 | 0.4+ | 0.2+ | 2009 12 15 | G96 | 0.2− | 0.2− |
| 2003 09 18 | 691 | 0.2− | 0.4+ | 2005 01 17 | 691 | 0.2+ | 0.0 | 2009 12 15 | G96 | 0.1− | 0.7− |
| 2004 12 12 | 691 | 0.1+ | 0.3+ | 2006 04 08 | 291 | 0.3+ | 0.1+ | 2009 12 15 | G96 | 0.2+ | 0.9− |
| 2004 12 12 | 691 | 0.1+ | 0.5+ | 2006 04 08 | 291 | 0.3+ | 0.1+ | 2009 12 17 | 691 | 0.3− | 0.2+ |
| 2004 12 12 | 691 | 0.2+ | 0.2+ | 2006 04 08 | 291 | 0.4+ | 0.1+ | 2009 12 17 | 691 | 0.2− | 0.1− |
| 2004 12 16 | 691 | 0.0 | 0.2+ | 2006 04 26 | 691 | 0.4+ | 0.3+ | 2009 12 17 | 691 | 0.5− | 0.1− |
| 2004 12 16 | 691 | 0.1+ | 0.2+ | 2006 04 26 | 691 | 0.1+ | 0.1+ | 2009 12 25 | 691 | 0.2− | 0.1+ |
| 2004 12 16 | 691 | 0.2+ | 0.2+ | 2006 04 26 | 691 | 0.2+ | 0.2+ | 2009 12 25 | 691 | 0.3− | 0.0 |
| 2005 01 11 | 704 | 0.3+ | 0.1+ | 2008 10 25 | G96 | 0.0 | 0.5+ | 2009 12 25 | 691 | 0.2− | 0.1− |
| 2005 01 11 | 704 | 0.1− | 0.1− | 2008 10 25 | G96 | 0.6− | 0.4+ | | | | |

**(229243)∗ 2004 XJ$_{122}$**

Discovered 2004 Dec. 9 by the Catalina Sky Survey.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 39.70884 | | (2000.0) | | **P** | **Q** |
| $n$ | 0.21275109 | $\omega$ | 297.73780 | | +0.51599994 | −0.85216917 |
| $a$ | 2.7789977 | $\Omega$ | 120.93623 | | +0.81725581 | +0.45937740 |
| $e$ | 0.1095302 | $i$ | 5.81483 | | +0.25658723 | +0.25055960 |
| $P$ | 4.63 | $H$ | 15.6 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 09 14 | 704 | 1.3− | 0.3− | 2004 12 02 | 699 | 0.8+ | 0.4+ | 2008 09 06 | 703 | 0.7+ | 0.8+ |
| 1999 09 14 | 704 | 0.3+ | 0.5− | 2004 12 02 | 699 | 1.1+ | 0.8+ | 2008 09 06 | 703 | 0.2− | 0.7+ |
| 1999 09 14 | 704 | 0.0 | 0.5− | 2004 12 02 | 699 | 0.3+ | 1.3+ | 2008 09 06 | 703 | 0.6+ | 1.4+ |
| 2001 01 04 | 608 | 1.5+ | 0.3+ | 2004 12 09 | 703 | 1.3+ | 0.6− | 2008 09 06 | 703 | 0.1− | 0.4+ |
| 2001 01 04 | 608 | 0.9+ | 0.0 | 2004 12 09 | 703 | 0.4+ | 0.3+ | 2008 09 23 | 704 | 0.2− | 0.7+ |
| 2001 01 04 | 608 | 1.4+ | 0.3− | 2004 12 09 | 703 | 0.7− | 0.3− | 2008 09 23 | 704 | 0.6− | 0.1+ |
| 2001 02 20 | 704 | 1.0− | 0.6+ | 2004 12 09 | 703 | 0.1+ | 0.2+ | 2008 09 23 | 704 | (0.3+ | 2.2+) |
| 2001 02 20 | 704 | 0.2+ | 0.9+ | 2004 12 16 | 699 | 1.0− | 0.2+ | 2008 09 23 | 704 | (2.9+ | 1.2+) |
| 2001 02 20 | 704 | 0.1+ | 0.3+ | 2004 12 16 | 699 | (0.4− | 2.0+) | 2009 12 17 | G96 | 0.4+ | 0.1− |
| 2002 05 09 | 644 | 0.0 | 0.5+ | 2004 12 16 | 699 | 0.4+ | 0.1+ | 2009 12 17 | G96 | 0.5+ | 0.0 |
| 2002 05 09 | 644 | 0.2+ | 0.5+ | 2004 12 16 | 699 | 0.6+ | 1.2− | 2009 12 17 | G96 | 0.2− | 0.1− |
| 2002 05 09 | 644 | 0.0 | 0.5+ | 2008 08 12 | A50 | 0.1+ | 0.2+ | 2009 12 17 | G96 | 0.1+ | 0.0 |
| 2003 07 28 | 599 | 0.6− | 0.6+ | 2008 08 12 | A50 | 1.0+ | 0.7− | 2009 12 17 | G96 | 0.2+ | 0.2+ |
| 2003 07 28 | 599 | 0.4− | 1.0+ | 2008 08 12 | A50 | 0.1− | 0.2− | 2009 12 18 | 691 | 0.4+ | 0.1− |
| 2003 07 28 | 599 | 0.5− | 0.0 | 2008 09 03 | J75 | 0.7+ | 0.2− | 2009 12 18 | 691 | 0.2− | 0.1+ |
| 2003 07 28 | 599 | 0.6− | 0.2+ | 2008 09 03 | J75 | 0.1− | 0.5− | 2009 12 18 | 691 | 0.3− | 0.4− |
| 2004 11 10 | 691 | 0.3− | 0.0 | 2008 09 03 | J75 | 0.5+ | 0.1+ | 2009 12 26 | 691 | 0.4− | 0.1− |
| 2004 11 10 | 691 | 0.1− | 0.2+ | 2008 09 06 | J75 | 0.3+ | 0.7− | 2009 12 26 | 691 | 0.0 | 0.1+ |
| 2004 11 10 | 691 | 0.4− | 0.1+ | 2008 09 06 | J75 | 0.3− | 0.2− | 2009 12 26 | 691 | 0.5− | 0.2+ |
| 2004 12 02 | 699 | (1.7+ | 0.4+) | 2008 09 06 | J75 | 0.3+ | 0.1− | | | | |

**(229244)∗ 2004 XA$_{123}$ = 2006 DH$_{199}$**

Discovered 2004 Dec. 10 by Spacewatch at Kitt Peak.

Id. A. Doppler (*MPO* 100887)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 269.75397 | | (2000.0) | | **P** | **Q** |
| $n$ | 0.18825554 | $\omega$ | 78.02064 | | −0.96558178 | −0.17888425 |
| $a$ | 3.0151172 | $\Omega$ | 91.45701 | | +0.09446484 | −0.91756060 |
| $e$ | 0.1009043 | $i$ | 10.88738 | | +0.24233907 | −0.35508164 |
| $P$ | 5.24 | $H$ | 15.2 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 05 20 | 691 | 0.4+ | 0.0 | 2005 01 06 | 704 | 0.8+ | 0.2+ | 2006 04 02 | 703 | 0.0 | 0.6− |
| 1996 05 20 | 691 | 0.5− | 0.2− | 2006 02 23 | 699 | 0.1+ | 1.0+ | 2006 04 02 | 703 | 0.3+ | 0.1+ |
| 2004 12 10 | 691 | 0.1− | 0.1− | 2006 02 23 | 699 | 0.4+ | 0.6− | 2006 04 23 | 699 | 0.8− | 0.5− |
| 2004 12 10 | 691 | 0.2− | 0.3− | 2006 02 23 | 699 | 0.0 | 0.5+ | 2006 04 23 | 699 | (0.1+ | 1.8+) |
| 2004 12 10 | 691 | 0.2− | 0.1− | 2006 02 23 | 699 | 0.5− | 0.5− | 2006 04 23 | 699 | 0.9+ | 0.5+ |
| 2004 12 10 | 704 | 0.3+ | 0.4− | 2006 03 03 | 703 | 0.5+ | 0.5− | 2006 04 23 | 699 | 0.6− | 1.0+ |
| 2004 12 10 | 704 | 0.7+ | 0.3+ | 2006 03 03 | 703 | 0.1+ | 0.2− | 2009 11 15 | 703 | 1.1+ | 1.4+ |
| 2004 12 10 | 704 | 0.4+ | 0.3− | 2006 03 03 | 703 | 1.1+ | 0.2+ | 2009 11 15 | 703 | 0.3− | 0.2+ |
| 2004 12 10 | 704 | 0.1− | 1.0− | 2006 03 03 | 703 | 0.2+ | 0.8+ | 2009 11 15 | 703 | 0.5− | 0.6+ |
| 2004 12 14 | 704 | (3.0+ | 1.3−) | 2006 03 25 | 703 | 1.0− | 1.2− | 2009 11 15 | 703 | 0.2+ | 1.0− |
| 2004 12 14 | 704 | 0.3+ | 0.4− | 2006 03 25 | 703 | 0.8− | 0.1+ | 2009 11 23 | G96 | 1.1+ | 0.0 |
| 2004 12 14 | 704 | 1.1− | 0.2+ | 2006 03 25 | 703 | 0.8− | 0.4− | 2009 11 23 | G96 | 0.6+ | 0.2+ |
| 2004 12 16 | 704 | 0.7− | 0.4− | 2006 03 25 | 703 | 0.9+ | 0.8+ | 2009 11 23 | G96 | 0.7+ | 0.1+ |
| 2004 12 16 | 704 | 0.3+ | 0.1+ | 2006 04 02 | 703 | 0.4− | 0.1+ | 2009 11 23 | G96 | 0.7+ | 0.0 |
| 2004 12 16 | 704 | 0.3+ | 0.1+ | 2006 04 02 | 703 | 0.1− | 0.0 | 2009 12 18 | 691 | 0.3− | 0.1− |
| 2004 12 16 | 704 | 0.1+ | 0.1− | 2006 04 02 | 703 | 0.0 | 0.3+ | 2009 12 18 | 691 | 0.6− | 0.1− |
| 2005 01 06 | 704 | 1.0+ | 0.8+ | 2006 04 02 | 703 | 0.7+ | 0.1− | 2009 12 18 | 691 | 0.1− | 0.3+ |
| 2005 01 06 | 704 | 0.2+ | 0.4+ | 2006 04 02 | 703 | 0.0 | 0.1+ | | | | |
| 2005 01 06 | 704 | 0.0 | 0.6+ | 2006 04 02 | 703 | (0.3− | 1.6−) | | | | |

**(229245)∗ 2004 XK$_{123}$**

Discovered 2004 Dec. 10 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 284.35460 | | (2000.0) | | **P** | **Q** |
| $n$ | 0.18607927 | $\omega$ | 83.30066 | | −0.93243177 | −0.29832199 |
| $a$ | 3.0385803 | $\Omega$ | 79.19260 | | +0.19026608 | −0.88505557 |
| $e$ | 0.1649042 | $i$ | 11.98065 | | +0.30719671 | −0.35732426 |
| $P$ | 5.30 | $H$ | 15.0 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 05 21 | 704 | (0.2+ | 1.8−) | 2006 03 23 | 703 | 0.2− | 0.9− | 2006 05 21 | 703 | 0.4− | 0.4− |
| 2001 05 21 | 704 | 0.6+ | 0.6+ | 2006 04 07 | 699 | 0.1+ | 0.0 | 2006 05 21 | 703 | 0.6− | 0.1− |
| 2001 05 21 | 704 | 0.9+ | 1.4+ | 2006 04 07 | 699 | 0.0 | 0.5− | 2006 05 27 | 703 | (2.3+ | 1.0−) |
| 2001 05 21 | 704 | 0.2+ | 1.1+ | 2006 04 07 | 699 | 1.1+ | 0.2− | 2006 05 27 | 703 | 0.6− | 0.3− |
| 2001 06 16 | 691 | 0.2+ | 0.1+ | 2006 04 07 | 699 | 0.1+ | 0.0 | 2006 05 27 | 703 | (1.6− | 0.3+) |
| 2001 06 16 | 691 | 0.3− | 0.2+ | 2006 04 10 | 644 | 0.2− | 0.2+ | 2006 05 27 | 703 | 1.2− | 0.6− |
| 2001 06 16 | 691 | 0.0 | 0.2− | 2006 04 10 | 644 | 0.0 | 0.3+ | 2009 11 15 | 703 | (0.2+ | 2.0−) |
| 2004 12 03 | 691 | 0.0 | 0.3− | 2006 04 10 | 644 | 0.4+ | 0.7− | 2009 11 15 | 703 | 0.1+ | 0.6− |
| 2004 12 03 | 691 | 0.0 | 0.2− | 2006 04 20 | 699 | (2.1− | 1.7+) | 2009 11 15 | 703 | (1.6− | 0.3−) |
| 2004 12 03 | 691 | (2.8− | 1.4−) | 2006 04 20 | 699 | 0.5+ | 0.2+ | 2009 11 15 | 703 | 0.5− | 0.2− |
| 2004 12 10 | 704 | 0.2− | 0.9+ | 2006 04 20 | 699 | 0.5+ | 0.2+ | 2009 11 16 | G96 | 0.1+ | 0.2+ |
| 2004 12 10 | 704 | 0.3− | 0.1− | 2006 04 20 | 699 | (0.6+ | 1.6+) | 2009 11 16 | G96 | 0.4− | 0.0 |
| 2004 12 10 | 704 | 0.5+ | 0.2+ | 2006 04 23 | 699 | 0.2+ | 0.5+ | 2009 11 16 | G96 | 0.1+ | 0.0 |
| 2004 12 10 | 704 | 0.3+ | 0.4+ | 2006 04 23 | 699 | 0.0 | 0.4+ | 2009 11 16 | G96 | 0.4+ | 0.0 |
| 2004 12 10 | 704 | 0.2+ | 0.6+ | 2006 04 23 | 699 | 0.3+ | 0.4+ | 2009 11 18 | 704 | (2.4+ | 0.2+) |
| 2004 12 16 | 704 | 0.3− | 0.3− | 2006 04 25 | 704 | 0.6+ | 0.1+ | 2009 11 18 | 704 | 1.0+ | 0.4+ |
| 2004 12 16 | 704 | 1.0− | 0.2− | 2006 04 25 | 704 | 0.2− | 1.3+ | 2009 11 18 | 704 | 0.4+ | 0.5+ |
| 2004 12 16 | 704 | 0.8− | 0.3+ | 2006 04 25 | 704 | (1.8+ | 0.8+) | 2009 11 19 | J75 | 0.0 | 0.1+ |
| 2004 12 16 | 704 | 1.5+ | 0.2+ | 2006 04 25 | 704 | 0.8+ | 0.3− | 2009 11 19 | J75 | 0.3+ | 0.7+ |
| 2005 01 07 | 704 | 0.5+ | 0.3+ | 2006 04 26 | 699 | 0.7+ | 0.7+ | 2009 11 20 | J75 | 0.2+ | 0.4+ |
| 2005 01 07 | 704 | 0.3+ | 0.4− | 2006 04 26 | 699 | 0.7− | 0.2+ | 2009 11 20 | 704 | 0.6− | 0.9+ |
| 2005 01 07 | 704 | 0.3+ | 0.4+ | 2006 04 26 | 699 | 0.5+ | 1.0+ | 2009 11 20 | 704 | 0.8− | 1.3+ |
| 2005 01 07 | 704 | 0.1− | 0.1+ | 2006 04 26 | 699 | 0.4+ | 0.3+ | 2009 11 20 | 704 | 0.6− | 0.1+ |
| 2005 01 12 | 704 | 0.4− | 0.2− | 2006 05 01 | 703 | 0.9+ | 0.2+ | 2009 11 20 | 704 | 0.2+ | 0.3− |
| 2005 01 12 | 704 | 0.3+ | 0.6− | 2006 05 01 | 703 | 0.6− | 0.3− | 2009 11 23 | G96 | 0.0 | 0.0 |
| 2005 01 12 | 704 | 0.2− | 0.1− | 2006 05 01 | 703 | 0.5− | 0.0 | 2009 11 23 | G96 | 0.0 | 0.2− |
| 2005 01 12 | 704 | 0.2− | 0.3− | 2006 05 01 | 703 | 0.3− | 0.4+ | 2009 11 23 | G96 | 0.0 | 0.1− |
| 2006 03 23 | 704 | 0.3+ | 0.7+ | 2006 05 20 | 644 | 0.4+ | 0.2+ | 2009 11 23 | G96 | 0.1+ | 0.1+ |
| 2006 03 23 | 704 | 0.2+ | 0.9− | 2006 05 20 | 644 | 0.2+ | 0.0 | 2009 12 11 | 703 | 0.2+ | 0.7+ |
| 2006 03 23 | 703 | (1.8− | 1.6−) | 2006 05 20 | 644 | 0.1+ | 0.3+ | 2009 12 11 | 703 | 1.4− | 0.3− |
| 2006 03 23 | 703 | 1.1− | 0.6− | 2006 05 21 | 703 | 0.8− | 0.1+ | 2009 12 11 | 703 | 0.7− | 0.7+ |
| 2006 03 23 | 703 | 0.9− | 1.2− | 2006 05 21 | 703 | 0.6− | 0.6− | 2009 12 11 | 703 | 0.6− | 0.8+ |

**(229246)∗ 2004 XQ$_{126}$ = 2008 TQ$_{118}$**

Discovered 2004 Dec. 13 by Spacewatch at Kitt Peak.

Id. A. Doppler (*MPO* 146262)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 290.45429 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19405434 | $\omega$ | 290.93499 | | −0.98559929 | −0.16308801 | |
| $a$ | 2.9547481 | $\Omega$ | 239.70283 | | +0.16789730 | −0.91239433 | |
| $e$ | 0.1358051 | $i$ | 2.96628 | | +0.02011326 | −0.37541828 | |
| $P$ | 5.08 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 05 23 | 291 | 0.1+ | 0.6+ | 2004 12 17 | 704 | (0.8+ | 1.5+) | 2008 09 23 | G96 | 0.6+ | 0.1+ | |
| 2001 05 23 | 291 | 1.1+ | 0.8+ | 2004 12 17 | 704 | 0.3+ | 0.8+ | 2008 09 23 | G96 | 0.7+ | 0.0 | |
| 2001 05 23 | 291 | 0.4− | 0.5+ | 2004 12 17 | 704 | 0.6+ | 1.1− | 2008 10 07 | 691 | (0.7+ | 1.7+) | |
| 2003 09 21 | 691 | 0.0 | 0.3+ | 2004 12 17 | 704 | 0.1− | 0.7− | 2008 10 07 | 691 | 0.2− | 0.3+ | |
| 2003 09 21 | 691 | 0.1− | 0.2+ | 2006 03 26 | 691 | 0.3+ | 0.4+ | 2008 10 07 | 691 | 0.1+ | 0.5+ | |
| 2003 09 21 | 691 | 0.1− | 0.1+ | 2006 03 26 | 691 | 0.4+ | 0.6+ | 2008 10 10 | 691 | 0.1− | 0.3+ | |
| 2003 10 20 | 691 | 0.1− | 0.3+ | 2006 03 26 | 691 | 0.3+ | 0.6+ | 2008 10 10 | 691 | 0.0 | 0.4+ | |
| 2003 10 20 | 691 | 0.1+ | 0.0 | 2006 05 07 | G96 | 0.3− | 0.3+ | 2008 10 10 | 691 | 0.0 | 0.4+ | |
| 2003 10 20 | 691 | 0.1− | 0.1− | 2006 05 07 | G96 | 0.6− | 0.1+ | 2009 11 08 | 691 | 0.2− | 0.1+ | |
| 2004 12 13 | 691 | 0.3− | 0.3+ | 2006 05 07 | G96 | 0.1− | 0.5+ | 2009 11 08 | 691 | 0.1+ | 0.1+ | |
| 2004 12 13 | 691 | 0.0 | 0.1+ | 2006 05 07 | G96 | 0.5− | 0.0 | 2009 11 08 | 691 | 0.1+ | 0.2+ | |
| 2004 12 13 | 691 | 0.1− | 0.2+ | 2006 05 07 | G96 | 0.6− | 0.1+ | 2009 12 10 | G96 | (1.9+ | 0.3+) | |
| 2004 12 14 | 704 | 0.3− | 0.4− | 2006 05 07 | G96 | 0.3− | 0.2+ | 2009 12 10 | G96 | 0.2− | 0.0 | |
| 2004 12 14 | 704 | 0.4+ | 0.9+ | 2006 05 07 | G96 | 0.0 | 0.1+ | 2009 12 10 | G96 | 0.4+ | 0.1− | |
| 2004 12 14 | 704 | (0.2+ | 2.0+) | 2006 05 07 | G96 | 0.1− | 0.4+ | 2009 12 10 | G96 | 0.1+ | 0.1− | |
| 2004 12 16 | 704 | 1.0− | 0.6+ | 2008 09 03 | 691 | 0.6− | 0.1+ | 2009 12 25 | 691 | 0.2+ | 0.1+ | |
| 2004 12 16 | 704 | 0.3− | 0.6+ | 2008 09 03 | 691 | 0.2− | 0.2+ | 2009 12 25 | 691 | 0.2+ | 0.2+ | |
| 2004 12 16 | 704 | 0.2− | 0.4− | 2008 09 03 | 691 | 0.5− | 0.4+ | 2009 12 25 | 691 | 0.0 | 0.2+ | |
| 2004 12 16 | 704 | 0.5+ | 0.4+ | 2008 09 23 | G96 | 0.4+ | 0.0 | | | | | |
| 2004 12 16 | 704 | 0.5+ | 0.5+ | 2008 09 23 | G96 | 0.1− | 0.2+ | | | | | |

**(229247)**∗ **2004 XX$_{131}$ = 1999 XA$_{132}$**

Discovered 2004 Dec. 11 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. A. Doppler (*MPO* 76561)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 347.95380 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19719706 | $\omega$ | 84.44002 | | −0.31730260 | −0.94725921 | |
| $a$ | 2.9232711 | $\Omega$ | 24.20841 | | +0.82091418 | −0.29808578 | |
| $e$ | 0.1853091 | $i$ | 6.29108 | | +0.47478307 | −0.11766420 | |
| $P$ | 5.00 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 12 12 | 704 | 0.0 | 0.4− | 2004 12 17 | 704 | 0.9− | 0.0 | 2006 05 23 | G96 | 0.5+ | 0.1+ | |
| 1999 12 12 | 704 | 0.3+ | 0.6− | 2004 12 17 | 704 | 0.2− | 0.0 | 2006 05 23 | G96 | 0.1− | 0.1+ | |
| 1999 12 12 | 704 | 0.5+ | 0.7− | 2004 12 17 | 704 | 0.3+ | 0.5− | 2006 05 23 | G96 | 0.3+ | 0.0 | |
| 1999 12 12 | 704 | 0.1− | 0.8− | 2004 12 17 | 704 | 0.3+ | 0.8+ | 2006 05 23 | G96 | 0.2+ | 0.1− | |
| 1999 12 12 | 704 | 0.6+ | 0.7− | 2005 01 07 | 704 | (1.3+ | 1.6+) | 2009 08 28 | 691 | 0.1+ | 0.2+ | |
| 1999 12 13 | 704 | 0.9− | 0.6− | 2005 01 07 | 704 | 0.4− | 0.4− | 2009 08 28 | 691 | 0.2− | 0.3+ | |
| 1999 12 13 | 704 | 0.5+ | 0.8− | 2005 01 07 | 704 | 1.0− | 0.1− | 2009 08 28 | 691 | 0.3− | 0.1+ | |
| 1999 12 13 | 704 | 0.6+ | 0.5− | 2005 01 07 | 704 | 0.7− | 0.8+ | 2009 10 23 | 704 | 1.3+ | 1.4+ | |
| 1999 12 13 | 704 | 0.1− | 0.7− | 2005 01 07 | 704 | (1.1− | 2.3+) | 2009 10 23 | 704 | 0.1+ | 0.5+ | |
| 1999 12 13 | 704 | 0.2− | 0.3+ | 2006 03 25 | G96 | 0.4+ | 0.2+ | 2009 10 23 | 704 | 0.9− | 0.2+ | |
| 2004 12 11 | 704 | 0.0 | 0.1− | 2006 03 25 | G96 | 0.5− | 0.3+ | 2009 10 23 | 704 | 0.5− | 0.3+ | |
| 2004 12 11 | 704 | 0.1− | 0.1− | 2006 03 25 | G96 | 0.2− | 0.0 | 2009 12 15 | 704 | 0.2+ | 0.6+ | |
| 2004 12 11 | 704 | 0.2+ | 0.9+ | 2006 03 25 | G96 | 0.1− | 0.3+ | 2009 12 15 | 704 | 0.2+ | 0.2− | |
| 2004 12 11 | 704 | 0.2− | 0.1− | 2006 05 06 | G96 | 0.1− | 0.3+ | 2009 12 15 | 704 | 0.2+ | 0.6+ | |
| 2004 12 15 | 704 | (2.6+ | 3.2−) | 2006 05 06 | G96 | 0.1+ | 0.4+ | 2009 12 15 | 704 | 0.2+ | 0.2+ | |
| 2004 12 15 | 704 | (2.9+ | 0.8−) | 2006 05 06 | G96 | 0.3+ | 0.0 | 2009 12 15 | 704 | 0.7+ | 0.8+ | |
| 2004 12 15 | 704 | (3.1+ | 0.4+) | 2006 05 06 | G96 | 0.0 | 0.2+ | | | | | |

**(229248)**∗ **2004 XU$_{135}$ = 2000 AB$_{156}$**

Discovered 2004 Dec. 15 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 73698)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 307.95781 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19837149 | $\omega$ | 240.31606 | | −0.97040635 | −0.18600879 | |
| $a$ | 2.9117218 | $\Omega$ | 288.60010 | | +0.23590692 | −0.86643760 | |
| $e$ | 0.1956773 | $i$ | 9.35054 | | −0.05156984 | −0.46334287 | |
| $P$ | 4.97 | $H$ | 15.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 01 03 | 704 | 0.1+ | 0.6+ | 2005 01 07 | 704 | 0.0 | 0.3+ | 2006 05 22 | E12 | (1.8+ | 0.5+) | |
| 2000 01 03 | 704 | 0.5+ | 0.3+ | 2005 01 07 | 704 | 0.9− | 0.3− | 2006 05 22 | E12 | 0.6+ | 0.2+ | |
| 2000 01 03 | 704 | 0.7+ | 0.9+ | 2005 01 15 | 704 | 0.0 | 0.1+ | 2006 05 22 | E12 | 0.3+ | 0.7+ | |
| 2000 01 03 | 704 | 0.2− | 0.1+ | 2005 01 15 | 704 | 0.5− | 0.6+ | 2006 05 22 | E12 | 0.2− | 0.4+ | |
| 2000 01 03 | 704 | 0.2− | 0.4+ | 2005 01 15 | 704 | 0.6− | 0.3+ | 2008 10 10 | G96 | 0.2+ | 0.1+ | |
| 2000 01 04 | 704 | 1.4+ | 1.1+ | 2005 01 15 | 704 | 0.2− | 0.0 | 2008 10 10 | G96 | 0.0 | 0.0 | |
| 2000 01 04 | 704 | 1.0+ | 1.1− | 2005 01 15 | 704 | 0.3− | 0.2− | 2008 10 10 | G96 | 0.2− | 0.1+ | |
| 2000 01 04 | 704 | 1.1− | 1.0+ | 2005 01 17 | 704 | (1.8+ | 0.3+) | 2008 10 10 | G96 | 0.0 | 0.2− | |
| 2001 05 14 | 644 | 0.7− | 0.2− | 2005 01 17 | 704 | 0.6− | 0.1+ | 2008 10 31 | G96 | 0.1− | 0.0 | |
| 2001 05 14 | 644 | 0.5− | 0.3− | 2005 01 17 | 704 | 0.0 | 0.2− | 2008 10 31 | G96 | 0.1− | 0.0 | |
| 2001 05 14 | 644 | 0.7− | 0.2− | 2005 01 17 | 704 | 0.6− | 1.1+ | 2008 10 31 | G96 | 0.2+ | 0.2+ | |
| 2004 12 15 | 704 | 0.5+ | 0.3+ | 2005 01 17 | 704 | 0.5+ | 0.2− | 2008 10 31 | G96 | 0.1− | 0.1− | |
| 2004 12 15 | 704 | 0.9− | 0.3− | 2005 02 02 | 704 | 1.1+ | 1.2+ | 2009 12 10 | 704 | 1.5+ | 0.0 | |
| 2004 12 15 | 704 | 1.0+ | 0.0 | 2005 02 02 | 704 | 0.8+ | 0.0 | 2009 12 10 | 704 | 0.1+ | 0.0 | |
| 2004 12 17 | 704 | (1.6+ | 2.0+) | 2005 02 02 | 704 | 1.3+ | 0.6− | 2009 12 10 | 704 | 0.5+ | 0.6+ | |
| 2004 12 17 | 704 | 0.2+ | 0.7+ | 2005 02 02 | 704 | 0.4+ | 0.5− | 2009 12 10 | 704 | 0.6+ | 0.5− | |
| 2004 12 17 | 704 | 0.2+ | 0.6+ | 2005 02 02 | 704 | 0.3+ | 0.0 | 2009 12 16 | 704 | 0.2+ | 0.2+ | |
| 2004 12 17 | 704 | 1.3+ | 0.3+ | 2006 05 08 | E12 | 0.8+ | 0.1+ | 2009 12 16 | 704 | 0.8+ | 0.4+ | |
| 2004 12 17 | 704 | (0.7+ | 2.3+) | 2006 05 08 | E12 | 0.0 | 0.2− | 2009 12 16 | 704 | 0.1− | 0.1− | |
| 2004 12 19 | 691 | 0.1− | 0.2− | 2006 05 08 | E12 | 0.1+ | 0.4+ | 2009 12 16 | 704 | 0.2− | 0.0 | |
| 2004 12 19 | 691 | 0.0 | 0.2− | 2006 05 17 | E12 | 1.1− | 0.1+ | 2009 12 19 | 691 | 0.4− | 0.1− | |
| 2004 12 19 | 691 | 1.0− | 0.6− | 2006 05 17 | E12 | 0.1− | 0.2+ | 2009 12 19 | 691 | 0.4− | 0.0 | |
| 2005 01 07 | 704 | 0.1− | 0.1− | 2006 05 17 | E12 | 0.4+ | 0.6− | 2009 12 19 | 691 | 0.2− | 0.2− | |
| 2005 01 07 | 704 | 0.1− | 0.9− | 2006 05 17 | E12 | 1.3+ | 0.3− | | | | | |

**(229249)**∗ **2004 XE$_{157}$**

Discovered 2004 Dec. 14 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 70.37069 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18562869 | $\omega$ | 274.22901 | | +0.96544477 | +0.16135782 | |
| $a$ | 3.0434954 | $\Omega$ | 76.57847 | | −0.05835483 | +0.89917595 | |
| $e$ | 0.1120169 | $i$ | 12.14534 | | −0.25399039 | +0.40675087 | |
| $P$ | 5.31 | $H$ | 15.2 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 09 19 | 645 | 0.0 | 0.1− | 2008 07 30 | E12 | 0.3+ | 0.9+ | 2009 11 20 | 704 | 0.7+ | 1.0+ | |
| 1998 09 19 | 645 | 0.0 | 0.1− | 2008 07 30 | E12 | 0.3− | 0.6+ | 2009 11 20 | 704 | 1.2+ | 0.2+ | |
| 1998 09 25 | 645 | 0.0 | 0.0 | 2008 07 30 | E12 | 0.0 | 0.1+ | 2009 11 20 | 704 | 0.3+ | 0.8+ | |
| 1998 09 25 | 645 | 0.0 | 0.0 | 2008 08 28 | E12 | 0.2+ | 0.3+ | 2009 11 20 | 704 | 0.1+ | 1.1+ | |
| 2004 12 02 | 691 | 0.3+ | 0.5− | 2008 08 28 | E12 | 0.3− | 0.3+ | 2009 11 20 | A50 | 0.6+ | 0.4− | |
| 2004 12 02 | 691 | 0.1+ | 0.2− | 2008 08 28 | E12 | 0.4− | 0.4+ | 2009 11 20 | A50 | 1.0+ | 0.6− | |
| 2004 12 02 | 691 | 0.1− | 0.7− | 2008 08 28 | E12 | 0.9− | 1.2+ | 2009 11 22 | 691 | 0.2− | 0.4+ | |
| 2004 12 14 | 691 | 0.2− | 0.3+ | 2009 11 13 | J75 | 0.1− | 0.0 | 2009 11 22 | 691 | 0.5− | 0.1+ | |
| 2004 12 14 | 691 | 0.1− | 0.2+ | 2009 11 13 | J75 | 0.3+ | 0.2+ | 2009 11 22 | 691 | 0.1− | 0.3+ | |
| 2004 12 14 | 691 | 0.2− | 0.2+ | 2009 11 13 | J75 | 0.4− | 0.2+ | 2009 12 11 | 703 | 0.1− | 0.5+ | |
| 2004 12 19 | 691 | 0.2+ | 0.1− | 2009 11 18 | 691 | 0.8− | 1.0− | 2009 12 11 | 703 | 0.1− | 0.1+ | |
| 2004 12 19 | 691 | 0.1+ | 0.1+ | 2009 11 18 | 691 | 0.4− | 0.1− | 2009 12 11 | 703 | 0.1− | 0.6+ | |
| 2004 12 19 | 691 | 0.1+ | 0.2+ | 2009 11 18 | 691 | 0.1− | 0.1+ | 2009 12 11 | 703 | 0.7− | 0.1+ | |
| 2007 04 14 | G96 | 0.3− | 0.2− | 2009 11 18 | 704 | 0.2+ | 0.4+ | 2009 12 17 | 704 | 0.4− | 1.2+ | |
| 2007 04 14 | G96 | 0.0 | 0.0 | 2009 11 18 | 704 | 0.0 | 0.9+ | 2009 12 17 | 704 | 0.4+ | 0.6+ | |
| 2007 04 14 | G96 | 0.3+ | 0.1− | 2009 11 18 | 704 | 0.1− | 0.9+ | 2009 12 17 | 704 | 0.3− | 0.7+ | |
| 2007 04 14 | G96 | 0.0 | 0.2+ | 2009 11 18 | 704 | 0.0 | 1.0+ | 2009 12 17 | G96 | 0.1+ | 0.0 | |
| 2007 04 20 | 691 | 0.4+ | 1.3+ | 2009 11 20 | J75 | 0.6+ | 0.0 | 2009 12 17 | G96 | 0.1− | 0.1− | |
| 2007 04 20 | 691 | 0.2+ | 0.0 | 2009 11 20 | J75 | 0.3− | 1.1− | 2009 12 17 | G96 | 0.2+ | 0.1+ | |
| 2007 04 20 | 691 | 0.0 | 0.2+ | 2009 11 20 | J75 | 0.2+ | 0.2+ | 2009 12 17 | G96 | 0.1+ | 0.3+ | |
| 2008 07 30 | E12 | 0.4+ | 0.1+ | 2009 11 20 | 704 | 0.6+ | 1.2+ | | | | | |

**(229250)∗ 2004 XP$_{170}$**

Discovered 2004 Dec. 9 by the Catalina Sky Survey.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 79.21620 | | | (2000.0) | | |
| $n$ | 0.19099516 | $\omega$ | 268.17278 | | +0.97059908 | −0.08735577 |
| $a$ | 2.9862154 | $\Omega$ | 96.79166 | | +0.16639653 | +0.91681566 |
| $e$ | 0.1317735 | $i$ | 13.05439 | | −0.17392418 | +0.38963831 |
| $P$ | 5.16 | $H$ | 14.9 | $G$ 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 25 | 644 | 0.0 | 0.2− | 2005 01 07 | 704 | 0.8− | 0.2− | 2006 04 02 | 703 | 1.0+ | 0.6+ |
| 2003 09 25 | 644 | 0.1+ | 0.4− | 2005 01 07 | 704 | 0.3− | 0.7+ | 2008 08 23 | E12 | 0.2− | 0.2− |
| 2003 09 25 | 644 | 0.3− | 0.1− | 2005 01 07 | 704 | (2.8− | 1.7+) | 2008 08 23 | E12 | 0.0 | 0.7+ |
| 2003 10 01 | 699 | 1.4+ | 0.4+ | 2005 01 16 | 704 | 0.4− | 0.3+ | 2008 08 23 | E12 | 0.1+ | 0.2+ |
| 2003 10 01 | 699 | 0.4+ | 0.1− | 2005 01 16 | 704 | 0.1− | 0.7+ | 2008 08 23 | E12 | 0.3− | 0.8+ |
| 2003 10 01 | 699 | 0.6− | 0.6+ | 2005 01 16 | 704 | 0.3+ | 0.4+ | 2008 09 21 | E12 | 0.7+ | 0.1− |
| 2003 10 01 | 699 | 1.3− | 0.2− | 2005 01 18 | 691 | 0.0 | 0.1+ | 2008 09 21 | E12 | 0.2+ | 0.1+ |
| 2003 11 26 | 704 | 0.2+ | 0.4+ | 2005 01 18 | 691 | 0.1− | 0.1+ | 2008 09 21 | E12 | 0.1+ | 0.2+ |
| 2003 11 26 | 704 | 0.7− | 0.0 | 2005 01 18 | 691 | 0.0 | 0.0 | 2008 09 21 | E12 | 0.6− | 0.1+ |
| 2003 11 26 | 704 | 0.7− | 0.7+ | 2005 01 19 | 704 | 0.2+ | 0.4− | 2009 12 17 | 704 | 0.7+ | 0.5+ |
| 2003 11 26 | 704 | 0.2+ | 0.5− | 2005 01 19 | 704 | 0.5+ | 0.1+ | 2009 12 17 | 704 | 1.1+ | 0.2+ |
| 2004 12 09 | 703 | 0.6+ | 0.4+ | 2005 01 19 | 704 | 0.7+ | 0.3− | 2009 12 17 | 704 | 0.9+ | 1.1+ |
| 2004 12 09 | 703 | 1.1− | 0.1− | 2005 01 19 | 704 | 0.4+ | 0.0 | 2009 12 17 | 704 | 0.9+ | 0.7+ |
| 2004 12 09 | 703 | 0.6− | 0.3− | 2005 02 04 | G96 | 0.2+ | 0.2− | 2009 12 20 | 691 | 0.2− | 0.1− |
| 2004 12 09 | 703 | (1.6− | 0.4−) | 2005 02 04 | G96 | 0.1+ | 0.2− | 2009 12 20 | 691 | 0.2− | 0.2− |
| 2004 12 15 | 691 | 0.2+ | 0.0 | 2005 02 04 | G96 | 0.2− | 0.0 | 2009 12 20 | 691 | 0.4− | 0.2− |
| 2004 12 15 | 691 | 0.2+ | 0.0 | 2005 02 04 | G96 | 0.3+ | 0.1− | 2009 12 25 | 691 | 0.2− | 0.2− |
| 2004 12 15 | 691 | 0.1− | 0.0 | 2006 04 02 | 703 | 0.1− | 0.2+ | 2009 12 25 | 691 | 0.2− | 0.1− |
| 2005 01 07 | 704 | 0.5+ | 0.4− | 2006 04 02 | 703 | 0.8− | 0.7+ | 2009 12 25 | 691 | (2.1− | 0.3−) |
| 2005 01 07 | 704 | 0.5+ | 0.3− | 2006 04 02 | 703 | 0.3+ | 1.2+ | | | | |

**(229251)∗ 2004 XQ$_{182}$**

Discovered 2004 Dec. 2 by the Catalina Sky Survey.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 118.89535 | | | (2000.0) | | |
| $n$ | 0.22192151 | $\omega$ | 50.89140 | | +0.85708096 | +0.48003952 |
| $a$ | 2.7019032 | $\Omega$ | 279.68042 | | −0.51151931 | +0.74973167 |
| $e$ | 0.1843727 | $i$ | 10.93618 | | −0.06132068 | +0.45548268 |
| $P$ | 4.44 | $H$ | 15.5 | $G$ 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 13 | 704 | 0.3− | 0.0 | 2006 02 02 | G96 | 0.4+ | 0.3+ | 2008 09 22 | 703 | 0.7+ | 0.7− |
| 2004 09 13 | 704 | 0.4+ | 0.4− | 2006 02 02 | G96 | 0.1− | 0.2+ | 2008 09 27 | 703 | 0.5+ | 1.0+ |
| 2004 09 13 | 704 | 0.8+ | 1.2+ | 2006 02 02 | G96 | 0.0 | 0.1+ | 2008 09 27 | 703 | 0.5+ | 0.6+ |
| 2004 10 06 | 644 | 0.7− | 0.2+ | 2008 07 01 | 703 | 0.3− | 0.5+ | 2008 09 27 | 703 | 0.0 | 0.7+ |
| 2004 10 06 | 644 | 0.2− | 0.3− | 2008 07 01 | 703 | 0.1+ | 0.2− | 2008 09 27 | 703 | (0.7+ | 1.9+) |
| 2004 10 06 | 644 | 0.4+ | 0.4− | 2008 07 01 | 703 | 0.0 | 0.3− | 2008 10 01 | 704 | 0.4+ | 0.1− |
| 2004 10 15 | 704 | 0.2+ | 1.0+ | 2008 07 01 | 703 | 0.7− | 0.5+ | 2008 10 01 | 704 | 0.1+ | 0.1+ |
| 2004 10 15 | 704 | 0.6+ | 0.9+ | 2008 07 30 | 703 | 0.3− | 0.1+ | 2008 10 01 | 704 | 0.6+ | 0.4+ |
| 2004 10 15 | 704 | 0.6+ | 0.2+ | 2008 07 30 | 703 | 0.5− | 0.6+ | 2008 10 01 | 704 | 0.1− | 0.0 |
| 2004 10 15 | 704 | 0.1+ | 0.6+ | 2008 07 30 | 703 | 0.5− | 0.2− | 2008 10 01 | 704 | 0.3+ | 0.1+ |
| 2004 10 24 | 704 | 0.7+ | 0.7− | 2008 07 30 | 703 | 0.3− | 0.0 | 2008 10 25 | 703 | 0.1+ | 0.7− |
| 2004 10 24 | 704 | 0.5+ | 1.0− | 2008 07 31 | G96 | 0.3+ | 0.1− | 2008 10 25 | 703 | 0.6− | 0.6− |
| 2004 10 24 | 704 | 0.4− | 0.8+ | 2008 07 31 | G96 | 0.4+ | 0.1− | 2008 10 25 | 703 | 0.2− | 0.5− |
| 2004 10 24 | 704 | 0.1+ | 0.2+ | 2008 07 31 | G96 | 0.0 | 0.2− | 2008 10 25 | 703 | 0.3− | 1.2− |
| 2004 11 04 | 704 | 0.3+ | 0.3− | 2008 07 31 | G96 | 0.0 | 0.1− | 2008 11 21 | 703 | (1.9− | 2.3+) |
| 2004 11 04 | 704 | 0.4+ | 0.4− | 2008 08 02 | 704 | 0.7− | 0.2− | 2008 11 21 | 703 | 0.3+ | 0.4− |
| 2004 11 04 | 704 | 0.2+ | 0.5+ | 2008 08 02 | 704 | 0.0 | 0.4+ | 2008 11 21 | 703 | 0.1+ | 0.9+ |
| 2004 11 04 | 704 | 0.3+ | 0.4− | 2008 08 02 | 704 | 0.9+ | 0.8+ | 2008 11 21 | 703 | 0.3− | 0.7+ |
| 2004 11 04 | 704 | 0.0 | 0.6− | 2008 08 02 | 704 | 0.4− | 0.2− | 2008 11 22 | 704 | 0.6− | 0.7+ |
| 2004 11 19 | 704 | 1.2− | 0.3− | 2008 08 12 | 704 | 0.9− | 0.0 | 2008 11 22 | 704 | 0.3+ | 0.6+ |
| 2004 11 19 | 704 | 0.5− | 1.3+ | 2008 08 12 | 704 | (0.0 | 1.5+) | 2008 11 22 | 704 | 0.4− | 0.2+ |
| 2004 11 19 | 704 | 0.0 | 0.5− | 2008 08 12 | 704 | 0.9− | 0.7− | 2008 11 22 | 704 | 0.6+ | 1.0+ |
| 2004 12 02 | 703 | 0.6− | 0.2+ | 2008 08 13 | J75 | 0.7− | 0.7+ | 2008 11 22 | 704 | 0.6− | 0.2+ |
| 2004 12 02 | 703 | (2.0− | 1.2−) | 2008 08 13 | J75 | 0.0 | 0.1− | 2009 09 17 | 691 | 0.2− | 0.1+ |
| 2004 12 02 | 703 | 0.6− | 0.7− | 2008 08 13 | J75 | 0.2+ | 0.3− | 2009 09 17 | 691 | 0.0 | 0.1+ |
| 2004 12 02 | 703 | 0.4+ | 0.5+ | 2008 08 13 | J75 | 0.0 | 0.1− | 2009 09 17 | 691 | 0.7− | 0.7− |
| 2004 12 11 | 703 | 1.1− | 0.1− | 2008 08 13 | J75 | 0.4+ | 0.5− | 2009 11 23 | G96 | 0.1+ | 0.1− |
| 2004 12 11 | 703 | (1.6− | 0.2+) | 2008 08 13 | J75 | 0.3+ | 0.4− | 2009 11 23 | G96 | 0.1− | 0.4− |
| 2004 12 11 | 703 | 0.2+ | 0.2+ | 2008 09 04 | J75 | 0.2− | 0.8− | 2009 11 23 | G96 | 0.1+ | 0.3− |
| 2004 12 11 | 703 | 1.0− | 0.3+ | 2008 09 04 | J75 | 0.2+ | 0.0 | 2009 11 23 | G96 | 0.0 | 0.1− |
| 2005 01 07 | 704 | 0.6+ | 0.1+ | 2008 09 04 | J75 | 0.3+ | 0.2+ | 2009 12 17 | 691 | 0.4+ | 0.0 |
| 2005 01 07 | 704 | 0.0 | 0.1− | 2008 09 22 | 703 | 0.3+ | 0.1− | 2009 12 17 | 691 | 0.0 | 0.0 |
| 2005 01 07 | 704 | 0.1+ | 0.4− | 2008 09 22 | 703 | 0.6+ | 0.5− | 2009 12 17 | 691 | 0.1− | 0.2+ |
| 2006 02 02 | G96 | 0.1− | 0.0 | 2008 09 22 | 703 | 0.4+ | 0.4− | | | | |

**(229252)∗ 2004 YW$_3$**

Discovered 2004 Dec. 16 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 274.94322 | | | (2000.0) | | |
| $n$ | 0.17270999 | $\omega$ | 51.44576 | | −0.88532896 | −0.43817221 |
| $a$ | 3.1934325 | $\Omega$ | 102.07121 | | +0.36156305 | −0.85912171 |
| $e$ | 0.0489148 | $i$ | 9.15313 | | +0.29234362 | −0.26441446 |
| $P$ | 5.71 | $H$ | 14.8 | $G$ 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 03 05 | 704 | 0.4+ | 0.1− | 2005 01 08 | 599 | 0.2− | 0.8− | 2006 04 30 | 703 | 0.6+ | 0.9− |
| 2000 03 05 | 704 | 0.5− | 0.7− | 2005 01 08 | 599 | 0.3− | 0.2− | 2006 04 30 | 703 | (0.7+ | 1.8−) |
| 2000 03 05 | 704 | 0.8+ | 1.2+ | 2005 01 08 | 599 | 0.0 | 0.1+ | 2006 04 30 | 703 | 0.2+ | 0.2+ |
| 2000 03 05 | 704 | 0.2+ | 0.8+ | 2005 01 15 | 704 | 0.2+ | 0.8+ | 2006 04 30 | 703 | 0.3+ | 0.8+ |
| 2000 03 05 | 704 | 0.7− | 0.1− | 2005 01 15 | 704 | 0.3− | 0.2− | 2008 09 06 | 703 | (2.0+ | 1.8+) |
| 2003 10 22 | 691 | 0.1− | 0.5+ | 2005 01 15 | 704 | 0.6+ | 0.9− | 2008 09 06 | 703 | 1.1+ | 0.2+ |
| 2003 10 22 | 691 | 0.0 | 0.4+ | 2005 01 16 | 333 | 0.3− | 0.5+ | 2008 09 06 | 703 | 0.9− | 0.2+ |
| 2003 10 22 | 704 | 0.2+ | 0.7− | 2005 01 16 | 333 | 0.5− | 0.1− | 2008 09 06 | 703 | (2.2− | 1.1+) |
| 2003 10 22 | 691 | 0.1− | 0.2+ | 2005 01 16 | 333 | 1.5− | 0.6+ | 2009 10 14 | G96 | 0.5+ | 0.2− |
| 2003 10 22 | 704 | 0.0 | 0.5− | 2005 01 17 | 691 | 0.2+ | 0.0 | 2009 10 14 | G96 | 0.5+ | 0.1+ |
| 2003 10 22 | 704 | 0.2− | 0.2− | 2005 01 17 | 691 | 0.2+ | 0.0 | 2009 10 14 | G96 | 0.5+ | 0.1+ |
| 2003 11 20 | 645 | 0.0 | 0.1− | 2005 01 17 | 691 | 0.1− | 0.1− | 2009 10 14 | G96 | 0.5+ | 0.1+ |
| 2003 11 20 | 645 | 0.0 | 0.1− | 2005 01 17 | 704 | (0.8+ | 1.6−) | 2009 11 19 | 704 | (1.8− | 1.1−) |
| 2004 12 16 | 691 | 0.1− | 0.2− | 2005 01 17 | 704 | 0.6+ | 0.9− | 2009 11 19 | 704 | 0.6+ | 0.7− |
| 2004 12 16 | 691 | 0.1− | 0.0 | 2005 01 17 | 704 | 0.2− | 1.1+ | 2009 11 19 | 704 | 0.4− | 0.1− |
| 2004 12 16 | 691 | 0.3+ | 0.1− | 2005 01 17 | 704 | 1.3+ | 0.3+ | 2009 11 19 | 704 | 0.1− | 0.2− |
| 2004 12 19 | G96 | 0.2+ | 0.3− | 2005 01 17 | 704 | 0.6+ | 1.1+ | 2009 12 13 | 704 | 0.2− | 0.3− |
| 2004 12 19 | G96 | 0.4− | 0.1+ | 2006 04 18 | 703 | 0.0 | 0.3+ | 2009 12 13 | 704 | 1.6− | 0.1− |
| 2004 12 19 | G96 | 0.2+ | 0.3+ | 2006 04 18 | 703 | 0.3− | 0.4− | 2009 12 13 | 704 | 0.8− | 0.5+ |
| 2004 12 19 | G96 | 0.3− | 0.3− | 2006 04 18 | 703 | 1.2− | 0.9− | 2009 12 13 | 704 | 0.2+ | 0.1+ |
| 2005 01 08 | 599 | 0.4− | 0.1+ | 2006 04 18 | 703 | (2.2+ | 0.4−) | | | | |

**(229253)∗ 2004 YK$_4$ = 2000 EH$_{117}$**

Discovered 2004 Dec. 16 by NEAT at Haleakala.

Id. G. V. Williams (*MPO* 73718)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 353.64692 | | | (2000.0) | | |
| $n$ | 0.18848003 | $\omega$ | 329.61978 | | −0.00874380 | −0.95208571 |
| $a$ | 3.0127227 | $\Omega$ | 119.27797 | | +0.97342464 | −0.07806760 |
| $e$ | 0.2528650 | $i$ | 20.51651 | | +0.22884061 | +0.29569960 |
| $P$ | 5.23 | $H$ | 15.1 | $G$ 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 01 04 | 704 | 0.4− | 1.0− | 2005 01 13 | 704 | 0.5+ | 1.1− | 2005 03 10 | 704 | 0.4− | 0.7+ |
| 2000 01 04 | 704 | 1.2− | 1.1− | 2005 01 13 | 704 | 0.6− | 0.1+ | 2009 09 21 | 703 | (0.6+ | 2.9+) |
| 2000 01 04 | 704 | 0.6− | 0.5+ | 2005 01 13 | 704 | 0.2− | 0.2− | 2009 09 21 | 703 | 0.5− | 0.4+ |
| 2000 03 11 | 699 | 0.7− | 0.2+ | 2005 01 13 | 704 | 0.1+ | 0.1− | 2009 09 21 | 703 | 0.8− | 0.8− |
| 2000 03 11 | 699 | 0.5− | 0.4− | 2005 01 14 | 704 | (0.1− | 2.3+) | 2009 09 21 | 703 | 0.4+ | 1.3− |
| 2000 03 11 | 699 | 1.2+ | 1.1− | 2005 01 14 | 704 | 0.0 | 1.1+ | 2009 11 10 | 703 | 0.3− | 0.2− |
| 2000 03 11 | 699 | 0.2+ | 0.0 | 2005 01 14 | 704 | (0.2+ | 1.6+) | 2009 11 10 | 703 | 0.1− | 0.4+ |
| 2000 03 12 | 704 | 0.4− | 1.0− | 2005 01 15 | 704 | 0.3+ | 0.1+ | 2009 11 10 | 703 | 0.6− | 0.1− |
| 2000 03 12 | 704 | 1.3+ | 0.3+ | 2005 01 15 | 704 | 0.3+ | 0.2− | 2009 11 10 | 703 | 0.6+ | 0.7+ |
| 2000 03 12 | 704 | 0.7+ | 0.4+ | 2005 01 15 | 704 | 0.5+ | 0.2+ | 2009 12 15 | G96 | 0.2+ | 0.1− |
| 2001 03 19 | 645 | 0.0 | 0.1+ | 2005 01 15 | 704 | 1.0+ | 0.2− | 2009 12 15 | G96 | 0.7+ | 0.2− |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 03 19 | 645 | 0.0 | 0.1+ | 2005 01 15 | 704 | 0.1+ | 0.0 | 2009 12 15 | G96 | 0.1+ | 0.1− | | |
| 2004 12 16 | 608 | 0.8− | 1.1+ | 2005 01 16 | 704 | 0.3− | 0.4+ | 2009 12 15 | G96 | 0.2+ | 0.0 | | |
| 2004 12 16 | 608 | 0.7− | 0.6+ | 2005 01 16 | 704 | 0.1− | 0.4+ | 2009 12 15 | G96 | 0.2+ | 0.1− | | |
| 2004 12 16 | 608 | (1.0− | 1.7+) | 2005 01 16 | 704 | 0.3− | 0.2+ | 2009 12 16 | 703 | 1.1− | 0.8+ | | |
| 2004 12 18 | 704 | (1.6+ | 0.1−) | 2005 02 02 | 704 | 0.2− | 0.1+ | 2009 12 16 | 703 | 1.0− | 0.2+ | | |
| 2004 12 18 | 704 | 0.5+ | 0.2− | 2005 02 02 | 704 | 0.2− | 0.1− | 2009 12 16 | 703 | 0.3+ | 0.4+ | | |
| 2004 12 18 | 704 | 0.1− | 0.2− | 2005 02 02 | 704 | 0.6− | 0.2+ | 2009 12 16 | 703 | 0.3− | 0.1− | | |
| 2005 01 13 | 691 | 0.4+ | 0.2− | 2005 02 02 | 704 | 0.4− | 0.1+ | 2009 12 20 | 704 | 0.4+ | 0.8+ | | |
| 2005 01 13 | 691 | 0.0 | 0.2− | 2005 02 02 | 704 | 0.4− | 0.1− | 2009 12 20 | 704 | 0.1− | 0.0 | | |
| 2005 01 13 | 691 | 0.0 | 0.0 | 2005 03 10 | 704 | 0.1+ | 1.3+ | 2009 12 20 | 704 | 0.1− | 0.4+ | | |
| 2005 01 13 | 704 | 0.1+ | 0.1+ | 2005 03 10 | 704 | 0.3− | 0.3+ | 2009 12 20 | 704 | 0.8+ | 0.4− | | |

**(229254)∗ 2004 $YL_{14}$ = 2000 $GU_{121}$**

Discovered 2004 Dec. 18 by the Mt. Lemmon Survey at Mount Lemmon.

Id. G. V. Williams (*MPO* 73722)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 312.25036 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17548333 | $\omega$ | 57.74179 | | −0.56309884 | −0.82610508 | |
| $a$ | 3.1596972 | $\Omega$ | 66.54361 | | +0.75002552 | −0.52190421 | |
| $e$ | 0.1919240 | $i$ | 1.35430 | | +0.34696026 | −0.21252387 | |
| $P$ | 5.62 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 04 06 | 691 | 0.1− | 0.6− | 2004 12 19 | G96 | 0.1+ | 0.5− | 2005 02 02 | 704 | 0.1− | 0.6+ | | |
| 2000 04 06 | 691 | 0.4− | 0.1− | 2004 12 19 | G96 | 0.2− | 0.7− | 2005 02 02 | 104 | 1.3− | 0.3− | | |
| 2000 04 06 | 691 | 0.5− | 0.1− | 2004 12 19 | G96 | 0.2− | 0.5− | 2005 02 02 | 104 | 0.2− | 0.9+ | | |
| 2000 04 08 | 691 | 0.1+ | 0.2− | 2004 12 19 | G96 | 0.2− | 0.2− | 2005 02 02 | 104 | 0.1− | 1.1+ | | |
| 2000 04 08 | 691 | 0.1+ | 0.4− | 2005 01 06 | 704 | 0.2+ | 0.7+ | 2005 02 02 | 104 | 0.2− | 0.7+ | | |
| 2000 04 08 | 691 | 0.1+ | 0.3− | 2005 01 06 | 704 | 0.2− | 0.9+ | 2005 02 02 | 104 | 0.3− | 0.5+ | | |
| 2003 09 30 | 691 | 0.3+ | 0.1− | 2005 01 06 | 704 | 0.6+ | 0.6+ | 2009 10 18 | G96 | 0.0 | 0.6− | | |
| 2003 09 30 | 691 | 0.3− | 0.0 | 2005 01 11 | 704 | 0.5− | 0.1− | 2009 10 18 | G96 | 0.2+ | 0.5− | | |
| 2003 09 30 | 691 | 0.1− | 0.2+ | 2005 01 11 | 704 | 1.3+ | 0.1+ | 2009 10 18 | G96 | 0.4+ | 0.4− | | |
| 2003 10 19 | 691 | 0.1− | 0.4− | 2005 01 11 | 704 | 0.8+ | 1.5+ | 2009 10 18 | G96 | 0.4+ | 0.5− | | |
| 2003 10 19 | 691 | 0.5+ | 0.0 | 2005 01 17 | 704 | 0.7+ | 0.9+ | 2009 11 08 | G96 | 0.2+ | 0.6− | | |
| 2003 10 19 | 691 | 0.0 | 0.1− | 2005 01 17 | 704 | 0.4+ | 0.4+ | 2009 11 08 | G96 | 0.3+ | 0.6− | | |
| 2004 12 10 | 621 | 0.5− | 0.3− | 2005 01 17 | 704 | (2.0+ | 1.1+) | 2009 11 08 | G96 | 0.4+ | 0.3− | | |
| 2004 12 10 | 621 | 0.6+ | 0.4− | 2005 01 17 | 704 | (3.1+ | 0.4−) | 2009 11 08 | G96 | 0.2+ | 0.6− | | |
| 2004 12 10 | 621 | (0.1− | 1.7−) | 2005 01 18 | 691 | 0.3+ | 0.2− | 2009 12 17 | G96 | 0.0 | 0.2− | | |
| 2004 12 18 | G96 | 0.2− | 0.4− | 2005 01 18 | 691 | 0.1+ | 0.2− | 2009 12 17 | G96 | 0.8− | 0.5+ | | |
| 2004 12 18 | G96 | 0.2− | 0.5− | 2005 01 18 | 691 | 0.2+ | 0.3− | 2009 12 17 | G96 | 0.1− | 0.1+ | | |
| 2004 12 18 | G96 | 0.3− | 0.3− | 2005 02 02 | 704 | 1.1− | 0.4+ | 2009 12 17 | G96 | 0.0 | 0.4− | | |
| 2004 12 18 | G96 | 0.3− | 0.5− | 2005 02 02 | 704 | 0.5− | 0.1+ | | | | | | |

**(229255)∗ 2005 AJ = 1999 $YB_{25}$**

Discovered 2005 Jan. 4 by P. Birtwhistle at Great Shefford.

Id. A. Doppler (*MPO* 100897)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 55.27437 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.20673793 | $\omega$ | 324.58716 | | +0.42684662 | −0.90235517 | |
| $a$ | 2.8326263 | $\Omega$ | 100.07884 | | +0.84303850 | +0.37318762 | |
| $e$ | 0.0438009 | $i$ | 3.47289 | | +0.32724311 | +0.21560647 | |
| $P$ | 4.77 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 12 27 | 691 | 0.0 | 0.1− | 2005 01 13 | J95 | 0.4− | 0.7+ | 2008 10 08 | 691 | 0.6− | 0.4+ | | |
| 1999 12 27 | 691 | 0.5+ | 0.6− | 2005 01 13 | J95 | 0.0 | 0.1− | 2008 10 22 | G96 | 0.4+ | 0.2+ | | |
| 1999 12 27 | 691 | 0.2− | 0.3− | 2005 01 13 | J95 | 0.4− | 0.4+ | 2008 10 22 | G96 | 0.1− | 0.0 | | |
| 2003 09 22 | 691 | 0.3− | 0.0 | 2006 04 07 | 691 | 0.1+ | 0.0 | 2008 10 22 | G96 | 0.1+ | 0.1+ | | |
| 2003 09 22 | 691 | 0.2− | 0.2+ | 2006 04 07 | 691 | 0.5+ | 0.2+ | 2008 10 22 | G96 | 0.1+ | 0.1+ | | |
| 2003 09 22 | 691 | 0.1+ | 0.2+ | 2006 04 07 | 691 | 0.0 | 0.9+ | 2009 11 21 | G96 | 0.0 | 0.2+ | | |
| 2004 12 16 | 691 | 0.4− | 0.2+ | 2006 05 21 | G96 | 0.2+ | 0.1+ | 2009 11 21 | G96 | 1.1− | 0.5− | | |
| 2004 12 16 | 691 | 0.1+ | 0.3+ | 2006 05 21 | G96 | 0.4+ | 0.3+ | 2009 11 21 | G96 | 0.0 | 0.4− | | |
| 2004 12 16 | 691 | 0.4+ | 0.1+ | 2006 05 21 | G96 | 0.3− | 0.5+ | 2009 11 21 | G96 | 0.3+ | 0.1+ | | |
| 2005 01 04 | J95 | 0.1− | 0.8+ | 2006 05 21 | G96 | 0.0 | 0.2+ | 2009 12 17 | G96 | 0.3+ | 0.4+ | | |
| 2005 01 04 | J95 | 0.1− | 0.4− | 2008 09 22 | 691 | 0.3+ | 0.2+ | 2009 12 17 | G96 | 0.1+ | 0.1+ | | |
| 2005 01 05 | J95 | (2.0− | 0.4−) | 2008 09 22 | 691 | 0.1− | 0.2− | 2009 12 17 | G96 | 0.2− | 0.0 | | |
| 2005 01 05 | J95 | 0.2+ | 0.5− | 2008 09 22 | 691 | 0.1+ | 0.4+ | 2009 12 17 | G96 | 0.0 | 0.2+ | | |
| 2005 01 05 | J95 | 0.7+ | 0.2+ | 2008 10 08 | 691 | 0.1+ | 0.3+ | | | | | | |
| 2005 01 05 | J95 | 0.3+ | 0.8− | 2008 10 08 | 691 | 0.1− | 0.2+ | | | | | | |

**(229256)∗ 2005 $AW_2$**

Discovered 2005 Jan. 6 by the Catalina Sky Survey.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 288.56382 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19876423 | $\omega$ | 92.49990 | | −0.91722227 | +0.36428432 | |
| $a$ | 2.9078850 | $\Omega$ | 108.90079 | | −0.39816491 | −0.85145553 | |
| $e$ | 0.0383543 | $i$ | 9.81315 | | +0.01296217 | −0.37725378 | |
| $P$ | 4.96 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 01 06 | 703 | 0.5− | 1.2− | 2006 05 05 | G96 | 0.2+ | 0.3− | 2008 10 27 | G96 | 0.1− | 0.1− | | |
| 2005 01 06 | 703 | 1.0− | 0.4− | 2006 05 05 | G96 | 0.3+ | 0.1− | 2008 10 27 | G96 | 0.0 | 0.4+ | | |
| 2005 01 06 | 703 | (0.3− | 1.6−) | 2006 05 05 | G96 | 0.2+ | 0.4− | 2008 10 27 | G96 | 0.0 | 0.2+ | | |
| 2005 01 06 | 703 | 0.4− | 0.0 | 2006 05 05 | G96 | 0.2+ | 0.1− | 2008 12 01 | 703 | 0.7− | 0.3− | | |
| 2005 01 07 | 691 | 0.1+ | 0.3+ | 2006 05 20 | 703 | (1.7+ | 0.2−) | 2008 12 01 | 703 | 0.6+ | 0.5+ | | |
| 2005 01 07 | 691 | 0.1− | 0.5+ | 2006 05 20 | 703 | 1.1+ | 0.0 | 2008 12 01 | 703 | (1.7− | 0.2+) | | |
| 2005 01 07 | 691 | 0.1− | 0.4+ | 2006 05 20 | 703 | (0.1+ | 1.6+) | 2008 12 01 | 703 | 0.7− | 0.6+ | | |
| 2005 01 18 | 691 | 0.4+ | 0.1+ | 2006 05 20 | 703 | (0.6+ | 1.8+) | 2009 10 23 | G96 | 0.4− | 0.4− | | |
| 2005 01 18 | 691 | 0.3+ | 0.1− | 2006 05 24 | 699 | 0.3+ | 1.1+ | 2009 10 23 | G96 | 0.0 | 0.3− | | |
| 2005 01 18 | 691 | 0.3+ | 0.1+ | 2006 05 24 | 699 | 1.2+ | 0.5+ | 2009 10 23 | G96 | 0.2− | 0.5+ | | |
| 2005 02 03 | 704 | 0.1+ | 1.0− | 2006 05 24 | 699 | 1.3+ | 0.6+ | 2009 10 23 | G96 | 0.6− | 0.2+ | | |
| 2005 02 03 | 704 | 0.6− | 0.3− | 2006 05 24 | 699 | 0.5+ | 1.2+ | 2009 11 21 | G96 | 0.1− | 0.0 | | |
| 2005 02 03 | 704 | 0.6− | 0.3− | 2006 05 26 | 703 | 0.2− | 0.2+ | 2009 11 21 | G96 | 0.5+ | 0.2− | | |
| 2005 03 01 | 703 | 0.6+ | 0.3+ | 2006 05 26 | 703 | (1.7− | 1.1+) | 2009 11 21 | G96 | 0.2− | 0.3− | | |
| 2005 03 01 | 703 | 0.9− | 0.1− | 2006 05 26 | 703 | 0.5− | 0.1+ | 2009 11 21 | G96 | 0.4+ | 0.3− | | |
| 2005 03 01 | 703 | (1.1− | 1.6−) | 2006 05 26 | 703 | 1.0− | 0.7+ | 2009 12 17 | G96 | 0.1− | 0.5− | | |
| 2005 03 01 | 703 | (0.1− | 2.0−) | 2008 10 24 | 704 | 0.2− | 0.7+ | 2009 12 17 | G96 | 0.2+ | 0.2− | | |
| 2006 04 30 | 703 | 0.6− | 0.0 | 2008 10 24 | 704 | 0.2+ | 0.7+ | 2009 12 17 | G96 | 0.2+ | 0.3− | | |
| 2006 04 30 | 703 | 0.3− | 0.2+ | 2008 10 24 | 704 | 0.3− | 0.4+ | 2009 12 17 | G96 | 0.1− | 0.1− | | |
| 2006 04 30 | 703 | 0.5− | 0.1+ | 2008 10 24 | 704 | 0.4− | 1.1+ | | | | | | |
| 2006 04 30 | 703 | 0.8− | 0.6+ | 2008 10 27 | G96 | 0.1− | 0.0 | | | | | | |

**(229257)∗ 2005 $AF_{13}$ = 2001 $DR_5$**

Discovered 2005 Jan. 7 by Š. Gajdoš and J. Világi at the Astronomical and Geophysical Observatory, Modra.

Id. G. V. Williams (*MPO* 73756)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 337.83126 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21288111 | $\omega$ | 47.20295 | | −0.76060101 | −0.62459746 | |
| $a$ | 2.7778660 | $\Omega$ | 93.35069 | | +0.53177205 | −0.75586316 | |
| $e$ | 0.1260334 | $i$ | 10.21850 | | +0.37243065 | −0.19633874 | |
| $P$ | 4.63 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 02 16 | 704 | 0.8− | 1.3+ | 2005 01 15 | 118 | 0.0 | 0.2− | 2006 04 23 | 699 | (2.2+ | 0.3−) | | |
| 2001 02 16 | 704 | 0.3− | 0.8− | 2005 01 15 | 118 | 0.3− | 0.0 | 2006 04 23 | 699 | 0.4+ | 0.5− | | |
| 2001 02 16 | 704 | 0.9+ | 0.5− | 2005 01 15 | 118 | 0.5− | 0.1− | 2006 05 24 | G96 | 0.3+ | 0.1− | | |
| 2001 02 17 | 704 | 1.1+ | 0.7+ | 2005 01 16 | 118 | 0.7− | 0.3− | 2006 05 24 | G96 | 0.3+ | 0.3− | | |
| 2001 02 17 | 704 | 0.2+ | 0.7+ | 2005 01 16 | 118 | 0.6− | 0.1+ | 2006 05 24 | G96 | 0.1+ | 0.3− | | |
| 2001 02 17 | 704 | 0.4− | 1.0+ | 2005 01 16 | 118 | 0.3+ | 0.6− | 2006 05 24 | G96 | 0.0 | 0.3− | | |
| 2001 02 17 | 704 | 0.5+ | 0.4+ | 2005 02 05 | 118 | 0.6+ | 0.2+ | 2009 10 18 | G96 | (2.2+ | 0.9−) | | |
| 2001 02 17 | 704 | 0.1+ | 1.1+ | 2005 02 05 | 118 | 0.0 | 0.4+ | 2009 10 18 | G96 | 0.0 | 0.0 | | |
| 2005 01 07 | 118 | 0.3+ | 0.2− | 2005 02 07 | 118 | 0.1− | 0.3+ | 2009 10 18 | G96 | 0.1+ | 0.4− | | |
| 2005 01 07 | 118 | 0.4− | 0.6− | 2005 02 07 | 118 | 0.3− | 0.5+ | 2009 10 18 | G96 | 0.2− | 0.2− | | |
| 2005 01 07 | 118 | 0.9− | 0.6+ | 2005 02 07 | 118 | 0.5+ | 0.1+ | 2009 12 19 | G96 | 0.5+ | 0.2− | | |
| 2005 01 07 | 118 | 1.1+ | 0.3+ | 2005 03 11 | G96 | 0.1+ | 0.6− | 2009 12 19 | G96 | 0.2+ | 0.1− | | |
| 2005 01 08 | 118 | 1.4+ | 0.4+ | 2005 03 11 | G96 | 0.1− | 0.6− | 2009 12 19 | G96 | 0.4+ | 0.0 | | |
| 2005 01 08 | 118 | 0.1+ | 0.1− | 2005 03 11 | G96 | 0.3− | 0.2− | 2009 12 19 | G96 | 0.1− | 0.4− | | |
| 2005 01 08 | 118 | 0.2− | 0.2− | 2005 03 11 | G96 | 0.5− | 0.1− | 2009 12 19 | 691 | 0.1− | 0.0 | | |
| 2005 01 09 | 118 | 0.6+ | 0.5− | 2006 04 18 | 703 | 0.6+ | 0.6+ | 2009 12 19 | 691 | 0.1+ | 0.4− | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 01 09 | 118 | 0.6+ | 0.9+ | 2006 04 18 | 703 | 0.8− | 1.0− | 2009 12 19 | 691 | 0.2+ | 0.0 | | |
| 2005 01 13 | 118 | 0.1+ | 0.4− | 2006 04 18 | 703 | 0.5− | 0.8− | 2009 12 27 | 691 | 0.5− | 0.4+ | | |
| 2005 01 13 | 118 | 0.0 | 0.1+ | 2006 04 18 | 703 | 1.2− | 0.8− | 2009 12 27 | 691 | 0.0 | 0.2− | | |
| 2005 01 13 | 118 | 0.5− | 0.8− | 2006 04 23 | 699 | (0.9+ | 1.9−) | 2009 12 27 | 691 | 0.0 | 0.1− | | |
| 2005 01 15 | 118 | 0.3+ | 0.4− | 2006 04 23 | 699 | 0.8− | 0.0 | | | | | | |

**(229258)∗ 2005 AR$_{13}$**

Discovered 2005 Jan. 7 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 214.16152 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17485793 | $\omega$ | 141.74750 | | −0.75795650 | +0.61794322 | |
| $a$ | 3.1672268 | $\Omega$ | 77.72351 | | −0.63868131 | −0.63791619 | |
| $e$ | 0.0877734 | $i$ | 12.34575 | | −0.13262024 | −0.45957493 | |
| $P$ | 5.64 | $H$ | 15.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 24 | 691 | 0.1− | 0.3+ | 2005 02 04 | G96 | 0.1− | 0.3− | 2006 04 18 | 703 | 0.0 | 0.1− | | |
| 2003 10 24 | 691 | 0.2− | 0.1− | 2005 02 04 | G96 | 0.1− | 0.6− | 2009 11 15 | 703 | 1.0− | 0.3+ | | |
| 2003 10 24 | 691 | 0.1+ | 0.1+ | 2005 02 04 | G96 | 0.1− | 0.4− | 2009 11 15 | 703 | 0.1+ | 0.2+ | | |
| 2004 12 10 | 691 | 0.3− | 0.1− | 2006 03 23 | 683 | 0.3+ | 0.9+ | 2009 11 15 | 703 | 1.3+ | 0.9− | | |
| 2004 12 10 | 691 | 0.1− | 0.2− | 2006 03 23 | 683 | 0.3− | 1.3+ | 2009 11 15 | 703 | 0.4+ | 0.3− | | |
| 2004 12 10 | 691 | 0.0 | 0.1− | 2006 03 23 | 683 | 0.1+ | 1.1+ | 2009 11 22 | 691 | 0.1− | 0.2+ | | |
| 2004 12 19 | 691 | 0.1+ | 0.1− | 2006 03 23 | 703 | 0.3+ | 0.2+ | 2009 11 22 | 691 | 0.1+ | 0.0 | | |
| 2004 12 19 | 691 | 0.1+ | 0.3− | 2006 03 23 | 703 | (1.7+ | 0.4−) | 2009 11 22 | 691 | 0.1+ | 0.3+ | | |
| 2004 12 19 | 691 | 0.2+ | 0.4− | 2006 03 23 | 703 | 0.5+ | 0.9− | 2009 11 23 | J75 | 0.6+ | 0.1− | | |
| 2005 01 07 | 704 | (0.3− | 1.6+) | 2006 03 23 | 703 | 0.2+ | 0.4+ | 2009 11 23 | J75 | 0.6+ | 0.3+ | | |
| 2005 01 07 | 704 | 0.3+ | 0.9+ | 2006 04 02 | 703 | 0.2− | 0.0 | 2009 11 23 | J75 | 0.4+ | 0.4− | | |
| 2005 01 07 | 704 | 1.1+ | 1.1+ | 2006 04 02 | 703 | 0.3− | 0.6− | 2009 11 26 | 691 | 0.1− | 0.0 | | |
| 2005 01 07 | 704 | 0.3+ | 0.7+ | 2006 04 02 | 703 | 1.1+ | 1.4+ | 2009 11 26 | 691 | 0.3− | 0.0 | | |
| 2005 01 08 | 704 | 1.2− | 0.7+ | 2006 04 02 | 703 | 0.0 | 0.3− | 2009 11 26 | 691 | 0.3− | 0.0 | | |
| 2005 01 08 | 704 | 0.2− | 0.2− | 2006 04 18 | 703 | 0.7+ | 0.2− | 2009 12 19 | 691 | 0.1− | 0.0 | | |
| 2005 01 08 | 704 | 0.2− | 0.2+ | 2006 04 18 | 703 | 0.3− | 0.2− | 2009 12 19 | 691 | 0.1− | 0.1+ | | |
| 2005 02 04 | G96 | 0.0 | 0.5− | 2006 04 18 | 703 | 0.9− | 0.6− | 2009 12 19 | 691 | 0.1− | 0.3+ | | |

**(229259)∗ 2005 AA$_{14}$**

Discovered 2005 Jan. 7 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 47.93529 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21287991 | $\omega$ | 135.03156 | | −0.05296315 | −0.98726522 | |
| $a$ | 2.7778764 | $\Omega$ | 317.32315 | | +0.84267904 | +0.03641439 | |
| $e$ | 0.1649661 | $i$ | 12.78510 | | +0.53580494 | −0.15485919 | |
| $P$ | 4.63 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 12 13 | 704 | 0.8+ | 0.0 | 2005 01 16 | 704 | 0.1+ | 1.1+ | 2005 03 08 | G96 | 0.3− | 0.2− | | |
| 1999 12 13 | 704 | 0.0 | 0.2− | 2005 01 16 | 704 | (0.6+ | 1.6+) | 2005 03 08 | G96 | 0.2− | 0.4− | | |
| 1999 12 13 | 704 | 0.4− | 0.7− | 2005 01 18 | 691 | 0.1− | 0.1− | 2005 03 08 | G96 | 0.2− | 0.3− | | |
| 1999 12 13 | 704 | 0.0 | 1.2− | 2005 01 18 | 691 | 0.0 | 0.0 | 2005 03 09 | 703 | 0.5− | 1.0− | | |
| 1999 12 13 | 704 | 0.1− | 0.1− | 2005 01 18 | 691 | 0.0 | 0.2− | 2005 03 09 | 703 | 0.8+ | 0.1− | | |
| 1999 12 30 | 704 | 1.3− | 0.2+ | 2005 01 19 | 704 | 0.3+ | 0.1− | 2005 03 09 | 703 | (0.7− | 1.5−) | | |
| 1999 12 30 | 704 | 0.3+ | 0.2+ | 2005 01 19 | 704 | 0.9+ | 0.1+ | 2005 03 09 | 703 | 0.9− | 1.0− | | |
| 1999 12 30 | 704 | 0.5+ | 0.1+ | 2005 01 19 | 704 | 0.6+ | 0.3+ | 2005 03 12 | 699 | 1.2+ | 0.0 | | |
| 1999 12 30 | 704 | 0.4+ | 0.6+ | 2005 01 19 | 704 | 0.6+ | 0.2− | 2005 03 12 | 699 | 0.8− | 0.1− | | |
| 1999 12 30 | 704 | 0.1+ | 0.6− | 2005 01 19 | 704 | 0.4+ | 0.4+ | 2005 03 12 | 699 | 0.1+ | 0.4+ | | |
| 2004 11 09 | 703 | 0.7− | 0.4− | 2005 01 20 | 699 | 0.4+ | 0.2− | 2005 03 12 | 699 | 0.1− | 0.8+ | | |
| 2004 11 09 | 703 | 0.8− | 0.1+ | 2005 01 20 | 699 | 0.1+ | 0.3− | 2008 10 06 | 703 | 1.2− | 0.4+ | | |
| 2004 11 09 | 703 | 0.7− | 1.2− | 2005 01 20 | 699 | 0.4+ | 0.4− | 2008 10 06 | 703 | 0.7+ | 0.2+ | | |
| 2004 11 09 | 703 | 0.8− | 0.7− | 2005 01 20 | 699 | 0.4− | 0.7+ | 2008 10 06 | 703 | 1.1+ | 0.1+ | | |
| 2004 12 21 | 703 | 0.2− | 0.3− | 2005 02 01 | 703 | 0.1+ | 0.3− | 2008 10 06 | 703 | (3.5+ | 0.1−) | | |
| 2004 12 21 | 703 | 1.3− | 0.4+ | 2005 02 01 | 703 | 0.0 | 0.4+ | 2008 10 31 | 703 | 1.0− | 0.9− | | |
| 2004 12 21 | 703 | (1.0− | 1.7−) | 2005 02 01 | 703 | 0.7+ | 0.3+ | 2008 10 31 | 703 | 0.1− | 1.1− | | |
| 2004 12 21 | 703 | 0.7− | 0.1+ | 2005 02 01 | 703 | 0.2+ | 0.1− | 2008 10 31 | 703 | 0.3− | 0.3+ | | |
| 2004 12 21 | 703 | 0.4+ | 0.2+ | 2005 02 03 | 704 | 1.0+ | 1.0+ | 2008 10 31 | 703 | 1.1+ | 0.6+ | | |
| 2004 12 21 | 703 | 0.1− | 0.1− | 2005 02 03 | 704 | 0.1− | 0.2+ | 2008 11 07 | 703 | 0.6+ | 0.2− | | |
| 2004 12 21 | 703 | 0.7− | 0.3+ | 2005 02 03 | 704 | 0.2+ | 0.3+ | 2008 11 07 | 703 | 0.3− | 1.0+ | | |
| 2004 12 21 | 703 | 0.1+ | 0.1− | 2005 02 03 | 704 | 0.5+ | 0.7+ | 2008 11 07 | 703 | 0.0 | 0.2− | | |
| 2005 01 07 | 704 | 0.6+ | 0.7− | 2005 02 03 | 704 | 0.8+ | 0.1+ | 2008 11 07 | 703 | 0.5− | 0.3− | | |
| 2005 01 07 | 704 | 0.5− | 0.1− | 2005 02 14 | 704 | 1.0− | 0.3+ | 2008 12 21 | 704 | 0.5− | 0.0 | | |
| 2005 01 07 | 704 | 0.1+ | 0.3− | 2005 02 14 | 704 | 0.3− | 0.5+ | 2008 12 21 | 704 | 0.8− | 1.1+ | | |
| 2005 01 07 | 704 | 0.1− | 0.4− | 2005 02 14 | 704 | 0.6+ | 0.0 | 2008 12 21 | 704 | 0.4+ | 0.9+ | | |
| 2005 01 07 | 704 | 0.3− | 0.0 | 2005 03 02 | 703 | (1.6− | 0.4−) | 2008 12 21 | 704 | 0.4+ | 0.2− | | |
| 2005 01 08 | 704 | 0.7+ | 0.2− | 2005 03 02 | 703 | 1.1− | 0.1− | 2008 12 21 | 704 | 0.6− | 0.5− | | |
| 2005 01 08 | 704 | 0.7+ | 0.2+ | 2005 03 02 | 703 | 0.9− | 0.8+ | 2009 10 18 | G96 | 0.0 | 0.2− | | |
| 2005 01 08 | 704 | 0.3+ | 0.2− | 2005 03 02 | 703 | 0.8− | 0.4− | 2009 10 18 | G96 | 0.1− | 0.2− | | |
| 2005 01 08 | 704 | 0.5+ | 0.2− | 2005 03 02 | 699 | 0.5+ | 0.4+ | 2009 10 18 | G96 | 0.3+ | 0.2− | | |
| 2005 01 08 | 704 | 0.8+ | 0.1+ | 2005 03 02 | 699 | 0.1− | 1.0+ | 2009 10 18 | G96 | 0.2+ | 0.1− | | |
| 2005 01 12 | 704 | 0.6+ | 0.4− | 2005 03 02 | 699 | 0.2− | 0.6− | 2009 11 08 | G96 | 0.3− | 0.3− | | |
| 2005 01 12 | 704 | 0.3+ | 0.3+ | 2005 03 02 | 699 | 0.7− | 1.0+ | 2009 11 08 | G96 | 0.3− | 0.4− | | |
| 2005 01 12 | 704 | 0.3− | 0.4− | 2005 03 03 | 699 | 0.8− | 0.9+ | 2009 11 08 | G96 | 0.3− | 0.2− | | |
| 2005 01 12 | 704 | 0.3+ | 0.7− | 2005 03 03 | 699 | 1.0+ | 0.7+ | 2009 11 08 | G96 | 0.2+ | 0.4− | | |
| 2005 01 16 | 704 | 0.7− | 1.2+ | 2005 03 03 | 699 | 0.2+ | 0.2+ | 2009 12 17 | 691 | 0.0 | 0.2+ | | |
| 2005 01 16 | 704 | 0.4− | 1.1+ | 2005 03 03 | 699 | 0.3+ | 0.3− | 2009 12 17 | 691 | 0.6− | 0.6− | | |
| 2005 01 16 | 704 | 0.3+ | 0.8+ | 2005 03 08 | G96 | 0.4− | 0.4− | 2009 12 17 | 691 | 0.1+ | 0.4− | | |

**(229260)∗ 2005 AJ$_{17}$**

Discovered 2005 Jan. 6 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 280.58310 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19675018 | $\omega$ | 79.78084 | | −0.90285558 | +0.33651087 | |
| $a$ | 2.9276958 | $\Omega$ | 119.42946 | | −0.40070365 | −0.88420851 | |
| $e$ | 0.0552018 | $i$ | 17.89370 | | +0.15584735 | −0.32393788 | |
| $P$ | 5.01 | $H$ | 15.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 12 02 | 691 | 0.1− | 0.3+ | 2005 01 13 | 691 | 0.1+ | 0.1− | 2005 03 16 | G96 | 0.6+ | 0.3− | | |
| 1994 12 02 | 691 | 0.1− | 0.1− | 2005 01 15 | 704 | 0.8+ | 0.2+ | 2005 03 16 | G96 | 0.5− | 0.2− | | |
| 1994 12 02 | 691 | 0.0 | 0.1+ | 2005 01 15 | 704 | 0.0 | 0.3− | 2005 03 16 | G96 | 0.5− | 0.2− | | |
| 2001 03 19 | 699 | 0.4+ | 0.6+ | 2005 01 15 | 704 | 0.3+ | 0.2+ | 2005 03 16 | G96 | 0.5− | 0.1+ | | |
| 2001 03 19 | 699 | 0.1− | 0.7− | 2005 01 15 | 704 | (0.3+ | 1.7+) | 2006 03 24 | 703 | 0.9− | 0.8− | | |
| 2001 03 19 | 699 | (1.7− | 0.2+) | 2005 01 15 | 704 | 0.2− | 0.2+ | 2006 03 24 | 703 | 0.5− | 0.2− | | |
| 2001 03 19 | 699 | 0.1+ | 0.9− | 2005 01 16 | 691 | 0.2+ | 0.0 | 2006 03 24 | 703 | 0.7− | 0.1− | | |
| 2001 05 23 | 699 | 0.4+ | 0.5+ | 2005 01 16 | 691 | 0.2+ | 0.0 | 2006 03 24 | 703 | 0.3+ | 1.0− | | |
| 2001 05 23 | 699 | 0.8+ | 0.0 | 2005 01 16 | 691 | 0.3+ | 0.0 | 2006 05 25 | 703 | 1.3− | 0.6+ | | |
| 2001 05 23 | 699 | (0.3+ | 2.5+) | 2005 01 16 | 704 | 1.1− | 0.2+ | 2006 05 25 | 703 | 0.1− | 0.6+ | | |
| 2001 05 23 | 699 | 0.0 | 0.3+ | 2005 01 16 | 704 | 0.1− | 0.8+ | 2006 05 25 | 703 | (1.9− | 0.2+) | | |
| 2002 08 13 | 704 | 1.2+ | 0.3− | 2005 01 16 | 704 | 0.9− | 0.4+ | 2006 05 25 | 703 | 0.1− | 0.7+ | | |
| 2002 08 13 | 704 | 0.4+ | 0.3+ | 2005 01 17 | 704 | 0.0 | 0.1− | 2008 10 09 | 703 | (2.4− | 0.0 ) | | |
| 2002 08 13 | 704 | 0.5+ | 0.2− | 2005 01 17 | 704 | 0.2+ | 0.2− | 2008 10 09 | 703 | 0.4− | 0.3+ | | |
| 2005 01 06 | 704 | 1.2+ | 0.0 | 2005 01 17 | 704 | 0.0 | 0.7+ | 2008 10 09 | 703 | 1.1− | 0.6− | | |
| 2005 01 06 | 704 | 0.1+ | 0.2+ | 2005 01 17 | 704 | 0.1+ | 0.1+ | 2008 10 09 | 703 | 0.7− | 1.5− | | |
| 2005 01 06 | 704 | 0.3+ | 0.0 | 2005 01 17 | 704 | 0.3− | 0.0 | 2009 09 30 | G96 | 0.2− | 0.1+ | | |
| 2005 01 06 | 704 | 0.1− | 0.6− | 2005 01 17 | 704 | 0.0 | 1.0+ | 2009 09 30 | G96 | 0.4− | 0.1+ | | |
| 2005 01 11 | 704 | 1.1− | 0.2− | 2005 01 17 | 704 | 0.2− | 0.3+ | 2009 09 30 | G96 | 0.4+ | 0.2− | | |
| 2005 01 11 | 704 | 0.2− | 0.2+ | 2005 01 17 | 704 | 0.2+ | 0.5+ | 2009 09 30 | G96 | 1.2+ | 0.4− | | |
| 2005 01 11 | 704 | 1.4+ | 0.5− | 2005 02 02 | 704 | 0.3+ | 0.6− | 2009 12 11 | 703 | 2.9+ | 1.7+ | | |
| 2005 01 11 | 704 | 1.5− | 0.7− | 2005 02 02 | 704 | 0.5− | 0.5+ | 2009 12 11 | 703 | 0.6+ | 0.4+ | | |
| 2005 01 13 | 691 | 0.0 | 0.2− | 2005 02 02 | 704 | 1.1− | 0.4+ | 2009 12 11 | 703 | 0.4+ | 0.0 | | |
| 2005 01 13 | 691 | 0.1+ | 0.4− | 2005 02 02 | 704 | 1.3− | 0.7− | 2009 12 11 | 703 | 0.8− | 0.6− | | |

**(229261)∗ 2005 AW$_{19}$**

Discovered 2005 Jan. 6 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 330.86936 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17985566 | $\omega$ | 7.97372 | | −0.41158531 | −0.90352144 | |
| $a$ | 3.1082789 | $\Omega$ | 106.39577 | | +0.82915151 | −0.42559031 | |
| $e$ | 0.1325372 | $i$ | 7.14717 | | +0.37829262 | −0.05021856 | |
| $P$ | 5.48 | $H$ | 15.2 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 01 07 | 691 | (1.3− | 2.3−) | 2005 02 03 | 704 | 1.3+ | 1.2+ | 2009 11 18 | G96 | 0.1+ | 0.1− |
| 1994 01 07 | 691 | 0.3− | 0.7− | 2005 02 03 | 704 | (0.6+ | 1.6+) | 2009 11 18 | G96 | 0.2+ | 0.1− |
| 1994 01 07 | 691 | 0.4− | 0.3+ | 2005 02 03 | 704 | 0.8− | 0.9− | 2009 11 20 | J75 | 0.3+ | 0.8− |
| 2003 10 20 | 691 | 0.0 | 0.3+ | 2005 02 03 | 704 | 1.0+ | 0.2− | 2009 11 20 | J75 | 0.6+ | 0.1− |
| 2003 10 20 | 691 | 0.2− | 0.5+ | 2006 02 02 | 691 | 0.0 | 0.4+ | 2009 11 20 | J75 | 0.5+ | 0.2− |
| 2003 10 20 | 691 | 0.1− | 0.5+ | 2006 02 02 | 691 | 0.1+ | 0.1− | 2009 11 20 | 704 | 0.0 | 0.2− |
| 2003 10 23 | 645 | 0.1+ | 0.1+ | 2006 02 02 | 691 | 0.2+ | 0.2+ | 2009 11 20 | 704 | 0.6− | 0.1− |
| 2003 10 23 | 645 | 0.0 | 0.1+ | 2006 02 07 | 691 | 0.1+ | 0.1+ | 2009 11 20 | 704 | 0.9+ | 0.2+ |
| 2005 01 06 | 704 | 0.1+ | 0.3− | 2006 02 07 | 691 | 0.4+ | 0.9+ | 2009 11 20 | 704 | 0.2+ | 0.4+ |
| 2005 01 06 | 704 | 0.1− | 0.1− | 2006 02 07 | 691 | 0.2− | 0.0 | 2009 11 20 | 704 | 0.4− | 0.1+ |
| 2005 01 06 | 704 | 0.8+ | 0.2− | 2006 04 30 | 703 | 0.2+ | 0.0 | 2009 11 24 | J75 | 0.0 | 0.7− |
| 2005 01 12 | 704 | 0.5+ | 0.1+ | 2006 04 30 | 703 | 0.3+ | 1.1+ | 2009 11 25 | J75 | 0.3+ | 0.3− |
| 2005 01 12 | 704 | 0.7+ | 1.2+ | 2006 04 30 | 703 | (2.1+ | 0.1+) | 2009 11 25 | J75 | 0.2− | 0.9− |
| 2005 01 12 | 704 | 1.4+ | 0.8+ | 2006 04 30 | 703 | 0.1− | 0.8− | 2009 11 27 | G96 | 0.0 | 0.2− |
| 2005 01 15 | 704 | 0.1+ | 0.9+ | 2006 06 01 | 691 | 0.5− | 0.5+ | 2009 11 27 | G96 | 0.0 | 0.3− |
| 2005 01 15 | 704 | 0.6− | 0.1+ | 2006 06 01 | 691 | 0.2+ | 0.0 | 2009 11 27 | G96 | 0.2− | 0.2− |
| 2005 01 15 | 704 | 0.8+ | 0.6+ | 2006 06 01 | 691 | 0.1+ | 0.2+ | 2009 11 27 | G96 | 0.1− | 0.1− |
| 2005 01 15 | 704 | 0.3+ | 0.2+ | 2009 11 09 | 703 | 0.4+ | 0.1+ | 2009 11 27 | G96 | 0.1− | 0.2− |
| 2005 01 16 | 704 | 1.0− | 0.5− | 2009 11 09 | 703 | 0.4− | 0.8− | 2009 12 11 | 703 | 0.5− | 0.1− |
| 2005 01 16 | 704 | (1.6+ | 1.1+) | 2009 11 09 | 703 | 0.1+ | 0.1+ | 2009 12 11 | 703 | 1.0+ | 0.3− |
| 2005 01 16 | 704 | 1.0− | 0.4+ | 2009 11 09 | 703 | 0.6− | 0.4− | 2009 12 11 | 703 | 0.1− | 0.9− |
| 2005 01 16 | 704 | 1.4− | 0.6− | 2009 11 13 | J75 | 0.8+ | 0.7+ | 2009 12 11 | 703 | 0.4− | 0.2− |
| 2005 01 16 | 704 | (1.7− | 0.9+) | 2009 11 13 | J75 | 0.7+ | 0.8+ | 2009 12 17 | 704 | 0.7− | 0.2− |
| 2005 01 18 | 691 | 0.2+ | 0.2− | 2009 11 13 | J75 | 0.2− | 0.9+ | 2009 12 17 | 704 | (1.5− | 0.5+) |
| 2005 01 18 | 691 | 0.1+ | 0.1− | 2009 11 17 | 703 | 0.9− | 0.4− | 2009 12 17 | 704 | 0.4+ | 0.2+ |
| 2005 01 18 | 691 | 0.3+ | 0.1− | 2009 11 17 | 703 | 0.6− | 0.2+ | 2009 12 17 | 704 | 0.1+ | 0.1+ |
| 2005 01 19 | 704 | 0.7+ | 1.3+ | 2009 11 17 | 703 | 0.3− | 0.4+ | 2009 12 17 | A77 | 0.3− | 0.3− |
| 2005 01 19 | 704 | 0.3− | 0.1+ | 2009 11 17 | 703 | 1.1− | 0.1− | 2009 12 17 | A77 | 1.7− | 0.4+ |
| 2005 01 19 | 704 | 0.3+ | 0.6+ | 2009 11 18 | G96 | 0.2− | 0.2− | 2009 12 17 | A77 | 0.8− | 0.5+ |
| 2005 01 19 | 704 | 0.1+ | 0.1− | 2009 11 18 | G96 | 0.2− | 0.0 | | | | |

**(229262)∗ 2005 AT$_{20}$**

Discovered 2005 Jan. 6 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 13.32575 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18797418 | $\omega$ | 158.92103 | | +0.19887418 | −0.96970819 | |
| $a$ | 3.0181252 | $\Omega$ | 279.39229 | | +0.87733737 | +0.24065205 | |
| $e$ | 0.1273497 | $i$ | 8.26518 | | +0.43672440 | −0.04186418 | |
| $P$ | 5.24 | $H$ | 15.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 07 06 | 910 | 1.0+ | 0.3− | 2005 01 06 | 704 | 0.6+ | 0.8+ | 2008 10 21 | A50 | 0.3− | 0.6+ |
| 1997 07 07 | 910 | 0.8+ | 0.0 | 2005 01 06 | 704 | 0.2− | 0.0 | 2008 10 21 | A50 | 0.1− | 0.0 |
| 1997 07 07 | 910 | 0.8+ | 1.0− | 2005 01 06 | 704 | 0.1+ | 0.3+ | 2008 10 21 | A50 | 1.1− | 0.0 |
| 2003 09 19 | 644 | 0.4− | 0.1+ | 2005 01 13 | 704 | 0.3+ | 0.3+ | 2009 01 01 | G96 | 0.4+ | 0.6− |
| 2003 09 19 | 644 | 0.4− | 0.4− | 2005 01 13 | 704 | 0.5− | 0.5+ | 2009 01 01 | G96 | 0.2+ | 0.1+ |
| 2003 09 19 | 644 | 0.2− | 0.4+ | 2005 01 13 | 704 | 0.5+ | 0.4+ | 2009 01 01 | G96 | 0.1+ | 0.1+ |
| 2003 09 24 | 608 | 0.1− | 0.5− | 2005 01 13 | 704 | 0.7+ | 0.4+ | 2009 01 01 | G96 | 0.4+ | 0.3− |
| 2003 09 24 | 608 | 0.0 | 0.9− | 2005 01 16 | 691 | 0.1− | 0.0 | 2009 11 17 | 704 | 0.1+ | 0.0 |
| 2003 09 24 | 608 | 0.0 | 0.9− | 2005 01 16 | 691 | 0.1− | 0.1− | 2009 11 17 | 704 | 0.0 | 0.5+ |
| 2003 09 30 | 704 | 0.2+ | 1.0+ | 2005 01 16 | 691 | 0.2− | 0.0 | 2009 11 17 | 704 | 0.0 | 0.2− |
| 2003 09 30 | 704 | 0.4+ | 0.5+ | 2005 01 18 | 703 | 0.3− | 0.0 | 2009 11 17 | 704 | 0.6− | 0.2− |
| 2003 09 30 | 704 | 0.2− | 0.6+ | 2005 01 18 | 703 | 0.9− | 0.1− | 2009 12 10 | 704 | 0.6+ | 0.3+ |
| 2003 09 30 | 704 | 0.2+ | 0.3− | 2005 01 18 | 703 | 0.2− | 0.6+ | 2009 12 10 | 704 | 0.3+ | 0.6− |
| 2003 09 30 | 704 | 0.2+ | 0.7+ | 2005 01 18 | 703 | 1.1+ | 0.1+ | 2009 12 10 | 704 | 0.9+ | 0.6+ |
| 2003 10 20 | 644 | 0.1− | 0.2+ | 2005 02 01 | 703 | 0.4+ | 0.3− | 2009 12 10 | 704 | 0.7+ | 0.0 |
| 2003 10 20 | 644 | 0.3− | 0.2+ | 2005 02 01 | 703 | 0.1− | 0.6+ | 2009 12 10 | 704 | 0.6+ | 0.2− |
| 2003 10 20 | 644 | 0.1+ | 0.0 | 2005 02 01 | 703 | 0.2− | 0.5− | 2009 12 16 | 704 | 0.7+ | 1.8− |
| 2004 12 20 | G96 | 0.4− | 0.2− | 2005 02 01 | 703 | 0.7− | 0.1− | 2009 12 16 | 704 | 0.7− | 0.7− |
| 2004 12 20 | G96 | 0.3− | 0.2− | 2008 08 30 | 704 | 0.2− | 0.5− | 2009 12 16 | 704 | 0.0 | 0.9− |
| 2004 12 20 | G96 | 0.2− | 0.3− | 2008 08 30 | 704 | 0.6− | 0.1− | 2009 12 16 | 704 | 0.4− | 0.1− |
| 2004 12 20 | G96 | 0.3− | 0.0 | 2008 08 30 | 704 | 0.8− | 0.3+ | | | | |
| 2005 01 06 | 704 | 0.2+ | 0.1+ | 2008 10 21 | A50 | 0.3− | 0.1+ | | | | |

**(229263)∗ 2005 AN$_{21}$ = 1992 WF$_6$**

Discovered 2005 Jan. 6 by the Catalina Sky Survey.

Id. G. V. Williams (*MPO* 73769)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 332.80423 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17622404 | $\omega$ | 18.30337 | | −0.26115117 | −0.95888397 | |
| $a$ | 3.1508370 | $\Omega$ | 86.95059 | | +0.87116570 | −0.28368919 | |
| $e$ | 0.1031278 | $i$ | 6.38740 | | +0.41577684 | −0.00787291 | |
| $P$ | 5.59 | $H$ | 15.2 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1992 11 17 | 691 | 0.2− | 0.1− | 2005 02 14 | 704 | 0.4− | 0.6− | 2009 11 18 | 691 | 0.2− | 0.2+ |
| 1992 11 17 | 691 | 0.1− | 0.1+ | 2005 02 14 | 704 | 1.0+ | 0.9− | 2009 11 18 | 691 | 0.3− | 0.2+ |
| 1992 11 17 | 691 | 0.1+ | 0.3+ | 2005 02 14 | 704 | 0.8+ | 0.1− | 2009 11 18 | 691 | 0.1− | 0.2+ |
| 1992 11 18 | 691 | 0.2− | 0.1+ | 2006 03 26 | 691 | 0.2− | 0.0 | 2009 11 18 | 704 | 0.9+ | 0.9+ |
| 1992 11 18 | 691 | 0.4+ | 0.4+ | 2006 03 26 | 691 | 0.0 | 0.3+ | 2009 11 18 | 704 | (1.9+ | 1.4+) |
| 1992 11 18 | 691 | 0.5− | 0.6+ | 2006 03 26 | 691 | 0.1+ | 0.2+ | 2009 11 18 | 704 | 0.4+ | 0.3+ |
| 2005 01 06 | 703 | 0.5− | 0.1− | 2006 04 21 | 691 | 0.4+ | 0.4+ | 2009 11 18 | 704 | 0.2− | 0.6+ |
| 2005 01 06 | 703 | 0.7− | 1.2− | 2006 04 21 | 691 | 0.3+ | 0.2+ | 2009 11 18 | 704 | 0.4+ | 0.6+ |
| 2005 01 06 | 703 | 0.2+ | 1.1− | 2006 04 21 | 691 | 0.3+ | 0.0 | 2009 11 22 | 691 | 0.1− | 0.2+ |
| 2005 01 06 | 703 | 0.0 | 0.4− | 2006 04 25 | 691 | 0.5− | 0.1+ | 2009 11 22 | 691 | 0.4− | 0.2+ |
| 2005 01 13 | 691 | 0.4− | 0.2− | 2006 04 25 | 691 | 0.5+ | 0.1+ | 2009 11 22 | 691 | 0.1+ | 0.2+ |
| 2005 01 13 | 691 | 0.3− | 0.1− | 2006 04 25 | 691 | 0.0 | 0.3+ | 2009 11 23 | J75 | 0.4+ | 0.1+ |
| 2005 01 13 | 691 | 0.5− | 0.2− | 2006 05 05 | 691 | 0.1− | 0.1+ | 2009 11 23 | J75 | 0.3− | 0.6+ |
| 2005 01 16 | 704 | 0.3+ | 0.0 | 2006 05 05 | 691 | 0.3− | 0.3+ | 2009 11 23 | J75 | 0.6+ | 0.2− |
| 2005 01 16 | 704 | 0.1+ | 0.1− | 2006 05 05 | 691 | 0.2+ | 0.1+ | 2009 11 25 | 703 | 0.6− | 0.4+ |
| 2005 01 16 | 704 | 0.6+ | 0.1+ | 2006 05 07 | 691 | 0.1+ | 0.2+ | 2009 11 25 | 703 | 0.4+ | 1.1− |
| 2005 01 16 | 704 | 0.8+ | 0.3+ | 2006 05 07 | 691 | 0.2− | 0.3+ | 2009 11 25 | 703 | 1.1+ | 0.3− |
| 2005 01 16 | 704 | 0.8+ | 0.4− | 2006 05 07 | 691 | 0.4+ | 0.3+ | 2009 11 25 | 703 | 0.0 | 0.2− |
| 2005 02 04 | 699 | 0.3+ | 0.7+ | 2009 11 13 | J75 | 0.1− | 0.0 | 2009 12 11 | 703 | 0.2− | 0.1+ |
| 2005 02 04 | 699 | 0.2+ | 0.4+ | 2009 11 13 | J75 | 0.5+ | 0.0 | 2009 12 11 | 703 | 0.3+ | 0.5+ |
| 2005 02 04 | 699 | 0.2+ | 0.2+ | 2009 11 13 | J75 | 0.2+ | 0.3− | 2009 12 11 | 703 | 0.9− | 0.7− |
| 2005 02 04 | 699 | 0.1+ | 0.4− | 2009 11 16 | J75 | 0.1+ | 0.9+ | 2009 12 11 | 703 | 0.1+ | 1.0− |
| 2005 02 14 | 704 | 0.3+ | 0.4+ | 2009 11 16 | J75 | 1.2− | 0.7+ | | | | |
| 2005 02 14 | 704 | 0.2+ | 0.2− | 2009 11 16 | J75 | 0.0 | 0.0 | | | | |

**(229264)∗ 2005 AR$_{31}$ = 2006 FA$_{24}$**

Discovered 2005 Jan. 11 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 100902)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 35.65789 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19985546 | $\omega$ | 280.15181 | | +0.21610161 | −0.97624544 | |
| $a$ | 2.8972904 | $\Omega$ | 157.34965 | | +0.91096313 | +0.19583067 | |
| $e$ | 0.0480051 | $i$ | 2.32914 | | +0.35134922 | +0.09271030 | |
| $P$ | 4.93 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 01 01 | 703 | 1.0+ | 0.1+ | 2008 09 21 | 291 | 0.0 | 0.1+ | 2008 10 19 | 715 | 0.5+ | 0.3+ |
| 2005 01 01 | 703 | (1.6− | 1.0−) | 2008 09 21 | 291 | 0.3+ | 0.2+ | 2008 10 19 | 715 | 0.5+ | 0.2− |
| 2005 01 01 | 703 | 1.1− | 0.5+ | 2008 09 21 | 291 | 0.0 | 0.2+ | 2008 10 24 | G96 | 0.1+ | 0.1− |
| 2005 01 01 | 703 | (2.0− | 0.5−) | 2008 09 24 | 691 | 0.2− | 0.1+ | 2008 10 24 | G96 | 0.3+ | 0.3− |
| 2005 01 11 | 704 | 1.4+ | 1.5+ | 2008 09 24 | 691 | 0.0 | 0.0 | 2008 10 24 | G96 | 0.7+ | 0.1− |
| 2005 01 11 | 704 | 0.2− | 1.4+ | 2008 09 24 | 691 | 0.0 | 0.0 | 2008 10 24 | G96 | 0.5+ | 0.3− |
| 2005 01 11 | 704 | 0.2− | 0.9+ | 2008 09 30 | 704 | 1.0+ | 0.6+ | 2008 12 04 | G96 | 0.7− | 0.3− |
| 2005 01 11 | 704 | 0.3− | 0.3− | 2008 09 30 | 704 | 0.1− | 0.3+ | 2008 12 04 | G96 | 0.2− | 0.0 |
| 2005 01 16 | 691 | 0.3− | 0.2+ | 2008 09 30 | 704 | (1.7+ | 0.6+) | 2008 12 04 | G96 | 0.7+ | 0.1+ |
| 2005 01 16 | 691 | 0.1− | 0.2+ | 2008 10 01 | J75 | 0.5+ | 0.3− | 2008 12 04 | G96 | 0.1+ | 0.3− |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 01 16 | 691 | 0.1+ | 0.1+ | 2008 10 01 | J75 | 0.3+ | 0.2− | 2008 12 31 | G96 | 0.3+ | 0.4+ | | |
| 2005 01 17 | 704 | 0.5− | 0.6+ | 2008 10 01 | J75 | 0.2+ | 1.0− | 2008 12 31 | G96 | 0.2− | 0.2− | | |
| 2005 01 17 | 704 | 0.9+ | 1.1− | 2008 10 02 | 691 | 0.2− | 0.1+ | 2008 12 31 | G96 | 0.4+ | 0.3− | | |
| 2005 01 17 | 704 | 0.5− | 0.6+ | 2008 10 02 | 691 | 0.3− | 0.3+ | 2008 12 31 | G96 | 0.4+ | 0.3− | | |
| 2005 01 17 | 704 | 1.4+ | 0.4− | 2008 10 02 | 691 | 0.5− | 0.3+ | 2009 10 30 | G96 | 0.2+ | 0.5− | | |
| 2006 03 24 | 691 | 0.4+ | 0.4+ | 2008 10 02 | 703 | 0.2+ | 0.0 | 2009 10 30 | G96 | 0.4− | 0.8− | | |
| 2006 03 24 | 691 | 0.2+ | 0.3+ | 2008 10 02 | 703 | 0.3− | 0.1+ | 2009 10 30 | G96 | 0.5+ | 0.3− | | |
| 2006 03 24 | 691 | 0.1+ | 0.5+ | 2008 10 02 | 703 | 0.4− | 0.2− | 2009 10 30 | G96 | 0.1+ | 0.2+ | | |
| 2006 03 26 | G96 | 0.2+ | 0.6+ | 2008 10 02 | 703 | 0.1+ | 0.2− | 2009 12 15 | G96 | 0.3+ | 0.3− | | |
| 2006 03 26 | G96 | 0.2− | 0.0 | 2008 10 03 | J75 | 0.1+ | 0.0 | 2009 12 15 | G96 | 0.1+ | 0.2− | | |
| 2006 03 26 | G96 | 0.2− | 0.4+ | 2008 10 03 | J75 | 0.3+ | 0.2+ | 2009 12 15 | G96 | 0.0 | 0.5− | | |
| 2006 03 26 | G96 | 0.1− | 0.5+ | 2008 10 03 | J75 | 0.7− | 0.9− | 2009 12 15 | G96 | 0.1− | 0.2− | | |
| 2006 05 19 | G96 | 0.4− | 0.6+ | 2008 10 06 | 691 | 0.3+ | 0.4+ | 2009 12 17 | 691 | 0.1− | 0.1− | | |
| 2006 05 19 | G96 | 0.2+ | 0.1+ | 2008 10 06 | 691 | 0.2− | 0.1+ | 2009 12 17 | 691 | 0.1+ | 0.2+ | | |
| 2006 05 19 | G96 | 0.6+ | 0.6+ | 2008 10 06 | 691 | 0.7− | 0.2+ | 2009 12 17 | 691 | 0.1+ | 0.2− | | |
| 2006 05 19 | G96 | 0.2− | 0.8+ | 2008 10 10 | 691 | 0.1− | 0.3+ | 2009 12 27 | 691 | 0.4− | 0.2− | | |
| 2008 09 20 | 691 | 0.3+ | 0.2− | 2008 10 10 | 691 | 0.3− | 0.3+ | 2009 12 27 | 691 | 0.2− | 0.1− | | |
| 2008 09 20 | 691 | 0.1− | 0.2+ | 2008 10 10 | 691 | 0.2− | 0.1+ | 2009 12 27 | 691 | 0.0 | 0.2− | | |
| 2008 09 20 | 691 | 0.1− | 0.0 | 2008 10 19 | 715 | 0.6+ | 0.1− | | | | | | |

**(229265)∗ 2005 AT$_{34}$**

Discovered 2005 Jan. 13 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 48.10452 | | (2000.0) | | **P** | | **Q** | | |
| $n$ | 0.17836004 | $\omega$ | 100.72288 | | +0.91751597 | | −0.37082299 | | |
| $a$ | 3.1256307 | $\Omega$ | 281.16504 | | +0.28289409 | | +0.86254357 | | |
| $e$ | 0.0858461 | $i$ | 8.42358 | | +0.27952708 | | +0.34425121 | | |
| $P$ | 5.53 | $H$ | 15.3 | $G$ | 0.15 | $U$ | 0 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 20 | 644 | 0.3− | 0.0 | 2005 01 15 | 704 | 1.1− | 1.0+ | 2009 01 01 | G96 | 0.2− | 0.5− | | |
| 2003 10 20 | 644 | 0.2− | 0.0 | 2005 01 19 | 691 | 0.6+ | 0.2+ | 2009 01 01 | G96 | 0.2− | 0.2+ | | |
| 2003 10 20 | 644 | 0.0 | 0.1− | 2005 01 19 | 691 | 0.4+ | 0.4+ | 2009 01 01 | G96 | 0.9+ | 0.0 | | |
| 2003 10 29 | 699 | 0.2− | 0.8+ | 2005 01 19 | 691 | 0.3+ | 0.2+ | 2009 11 22 | 691 | 0.5− | 0.2− | | |
| 2003 10 29 | 699 | (0.0 | 2.4+) | 2008 07 30 | 703 | 0.2+ | 0.7− | 2009 11 22 | 691 | 0.1+ | 0.1+ | | |
| 2003 10 29 | 699 | (0.3+ | 2.0+) | 2008 07 30 | 703 | 0.9− | 0.4+ | 2009 11 22 | 691 | 0.2− | 0.2− | | |
| 2003 10 29 | 699 | 0.8+ | 0.8+ | 2008 07 30 | 703 | 0.4− | 0.2+ | 2009 11 26 | 691 | 0.6+ | 0.7− | | |
| 2003 11 02 | 691 | 0.2− | 0.0 | 2008 07 30 | 703 | (3.0− | 1.1−) | 2009 11 26 | 691 | 0.3− | 0.2− | | |
| 2003 11 02 | 691 | 0.0 | 0.1+ | 2008 08 30 | 704 | 0.5− | 0.2+ | 2009 11 26 | 691 | 0.4− | 0.2− | | |
| 2003 11 02 | 691 | 0.1− | 0.1+ | 2008 08 30 | 704 | 0.1+ | 0.2+ | 2009 12 10 | 704 | (0.2− | 2.4+) | | |
| 2004 12 15 | 599 | 0.3− | 0.5+ | 2008 08 30 | 704 | 0.0 | 0.6+ | 2009 12 10 | 704 | (0.1− | 2.6+) | | |
| 2004 12 15 | 599 | 0.2− | 0.1− | 2008 08 30 | 704 | 0.2+ | 0.6+ | 2009 12 10 | 704 | (0.6+ | 1.8+) | | |
| 2005 01 13 | 691 | 0.0 | 0.1+ | 2008 09 05 | 704 | 1.2+ | 0.5+ | 2009 12 10 | 704 | (0.2+ | 1.8+) | | |
| 2005 01 13 | 691 | 0.1+ | 0.1− | 2008 09 05 | 704 | 0.3− | 0.2+ | 2009 12 10 | 704 | 1.4+ | 1.3+ | | |
| 2005 01 13 | 691 | 0.0 | 0.4+ | 2008 09 05 | 704 | 0.6− | 1.2− | 2009 12 18 | G96 | 0.4+ | 0.1− | | |
| 2005 01 15 | 704 | (2.1− | 0.0 ) | 2008 09 22 | 704 | 0.3− | 0.5+ | 2009 12 18 | G96 | 0.3+ | 0.3− | | |
| 2005 01 15 | 704 | 0.5− | 0.3− | 2008 09 22 | 704 | 0.4+ | 0.3+ | 2009 12 18 | G96 | 0.4+ | 0.2− | | |
| 2005 01 15 | 704 | 0.6− | 0.6− | 2008 09 22 | 704 | 0.7− | 0.4+ | 2009 12 18 | G96 | 0.2+ | 0.3− | | |
| 2005 01 15 | 704 | 0.6− | 0.3+ | 2009 01 01 | G96 | 1.0+ | 0.0 | | | | | | |

**(229266)∗ 2005 AC$_{36}$ = 2000 ET$_{82}$**

Discovered 2005 Jan. 13 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 73785)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 310.75129 | | (2000.0) | | **P** | | **Q** | | |
| $n$ | 0.17837900 | $\omega$ | 2.17195 | | −0.71263549 | | −0.68413715 | | |
| $a$ | 3.1254093 | $\Omega$ | 133.32971 | | +0.64038478 | | −0.72475800 | | |
| $e$ | 0.0487810 | $i$ | 12.32438 | | +0.28645765 | | −0.08174479 | | |
| $P$ | 5.53 | $H$ | 14.8 | $G$ | 0.15 | $U$ | 1 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 03 05 | 704 | 0.4+ | 0.1+ | 2005 01 13 | 704 | 0.6+ | 0.4− | 2005 02 03 | 704 | 1.0+ | 0.6− | | |
| 2000 03 05 | 704 | 0.4+ | 0.8+ | 2005 01 13 | 704 | 0.4− | 0.2− | 2005 02 03 | 704 | 0.2− | 0.4+ | | |
| 2000 03 05 | 704 | 0.8+ | 0.5+ | 2005 01 13 | 704 | 0.5− | 0.3− | 2005 02 03 | 704 | 1.2+ | 0.6+ | | |
| 2000 03 05 | 704 | 0.3− | 0.1+ | 2005 01 15 | 704 | 0.7+ | 0.1− | 2005 02 09 | 699 | 0.8+ | 0.7− | | |
| 2000 03 05 | 704 | (0.6+ | 2.2+) | 2005 01 15 | 704 | 0.8− | 0.7+ | 2005 02 09 | 699 | 1.4+ | 0.5+ | | |
| 2000 03 12 | 704 | 0.1+ | 0.1+ | 2005 01 15 | 704 | 0.4+ | 0.6+ | 2005 02 09 | 699 | 0.3− | 0.4+ | | |
| 2000 03 12 | 704 | 0.0 | 1.1+ | 2005 01 15 | 704 | 0.4− | 0.9+ | 2005 02 09 | 699 | 0.4− | 1.0+ | | |
| 2000 03 12 | 704 | 0.3+ | 0.6+ | 2005 01 15 | 704 | 0.3− | 0.9− | 2005 03 08 | G96 | 0.5− | 0.5− | | |
| 2000 03 12 | 704 | 0.2+ | 0.9+ | 2005 01 16 | 691 | 0.3− | 0.1− | 2005 03 08 | G96 | 0.5− | 0.6− | | |
| 2001 07 19 | 644 | 0.2+ | 0.8+ | 2005 01 16 | 691 | 0.4− | 0.1+ | 2005 03 08 | G96 | 0.4− | 0.2− | | |
| 2001 07 19 | 644 | 0.1+ | 0.7+ | 2005 01 16 | 691 | 0.2− | 0.2− | 2005 03 08 | G96 | 0.9− | 0.2− | | |
| 2001 07 19 | 644 | 0.0 | 0.7+ | 2005 01 17 | 704 | 0.3+ | 0.5− | 2009 11 21 | A50 | 0.0 | 0.0 | | |
| 2002 08 29 | 644 | 0.1+ | 0.3+ | 2005 01 17 | 704 | 0.6− | 0.1+ | 2009 11 21 | A50 | 0.4+ | 0.3+ | | |
| 2002 08 29 | 644 | 0.4− | 0.2+ | 2005 01 17 | 704 | 0.3+ | 0.0 | 2009 11 21 | A50 | 0.4+ | 0.6+ | | |
| 2002 08 29 | 644 | 0.1− | 0.8+ | 2005 01 17 | 704 | 0.1− | 0.1− | 2009 11 21 | A50 | 0.2+ | 0.4− | | |
| 2003 09 26 | 645 | 0.0 | 0.0 | 2005 02 01 | 703 | (1.6− | 1.1−) | 2009 11 21 | A50 | 0.1+ | 0.2+ | | |
| 2003 09 26 | 645 | 0.0 | 0.1+ | 2005 02 01 | 703 | (2.9− | 0.4−) | 2009 11 21 | A50 | 0.5+ | 0.2− | | |
| 2003 11 21 | 644 | 0.2− | 0.1+ | 2005 02 01 | 703 | (2.4− | 0.6+) | 2009 12 10 | J75 | 0.5− | 0.5+ | | |
| 2003 11 21 | 644 | 0.2− | 0.3+ | 2005 02 01 | 703 | (1.6− | 0.9−) | 2009 12 10 | J75 | 0.1+ | 0.3− | | |
| 2003 11 21 | 644 | 0.2+ | 0.4+ | 2005 02 02 | 704 | 0.4+ | 0.2+ | 2009 12 10 | J75 | 0.1− | 0.0 | | |
| 2003 11 23 | 699 | 1.1− | 0.1+ | 2005 02 02 | 704 | 0.3+ | 0.6− | 2009 12 15 | 703 | 0.6− | 0.0 | | |
| 2003 11 23 | 699 | 0.0 | 0.7− | 2005 02 02 | 704 | 0.6+ | 0.6− | 2009 12 15 | 703 | 1.0+ | 0.2− | | |
| 2003 11 23 | 699 | 1.1+ | 1.3+ | 2005 02 02 | 704 | (1.6+ | 0.5+) | 2009 12 15 | 703 | 0.7− | 0.1− | | |
| 2003 11 23 | 699 | (0.1+ | 3.0+) | 2005 02 03 | 704 | 0.7+ | 0.6− | 2009 12 15 | 703 | 0.1− | 0.2− | | |
| 2005 01 13 | 704 | 0.1− | 0.6+ | 2005 02 03 | 704 | 0.2+ | 0.5+ | 2009 12 15 | 703 | 0.2− | 0.1+ | | |

**(229267)∗ 2005 AM$_{38}$ = 2007 MC$_{18}$**

Discovered 2005 Jan. 13 by the Catalina Sky Survey.

Id. G. V. Williams (*MPO* 121162)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 214.13468 | | (2000.0) | | **P** | | **Q** | | |
| $n$ | 0.19413178 | $\omega$ | 337.13892 | | −0.13752219 | | +0.97752529 | | |
| $a$ | 2.9539624 | $\Omega$ | 284.65789 | | −0.88133242 | | −0.19438538 | | |
| $e$ | 0.0482661 | $i$ | 9.50668 | | −0.45204073 | | +0.08160043 | | |
| $P$ | 5.08 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 0 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 05 | 644 | 0.3− | 0.1+ | 2005 01 16 | 691 | 0.2+ | 0.2+ | 2008 11 01 | G96 | 0.2+ | 0.2+ | | |
| 2002 08 05 | 644 | 0.7− | 0.5+ | 2005 01 16 | 691 | 0.1+ | 0.2+ | 2008 11 01 | G96 | 0.4+ | 0.2+ | | |
| 2002 08 05 | 644 | 0.1+ | 0.3+ | 2005 01 19 | 691 | 0.1+ | 0.1+ | 2009 11 16 | G96 | 0.3+ | 0.2− | | |
| 2003 10 23 | 691 | 0.1− | 0.1+ | 2005 01 19 | 691 | 0.2+ | 0.1+ | 2009 11 16 | G96 | 0.2+ | 0.1− | | |
| 2003 10 23 | 691 | 0.4− | 0.3+ | 2005 01 19 | 691 | 0.3+ | 0.2+ | 2009 11 16 | G96 | 0.1− | 0.1+ | | |
| 2003 10 23 | 691 | 0.2+ | 0.2− | 2007 06 21 | G96 | 0.3+ | 0.0 | 2009 11 16 | G96 | 0.4+ | 0.5− | | |
| 2003 11 24 | 691 | 0.0 | 0.1− | 2007 06 21 | G96 | 0.3+ | 0.0 | 2009 12 15 | G96 | 0.5− | 0.4− | | |
| 2003 11 24 | 691 | 0.0 | 0.2+ | 2007 06 21 | G96 | 0.1+ | 0.3+ | 2009 12 15 | G96 | 0.3+ | 0.3− | | |
| 2003 11 24 | 691 | 0.2− | 0.0 | 2007 06 21 | G96 | 0.1+ | 0.5+ | 2009 12 15 | G96 | 0.1− | 0.9− | | |
| 2004 12 20 | G96 | 0.2− | 0.2− | 2007 06 25 | 691 | 0.3− | 0.3+ | 2009 12 15 | G96 | 0.6+ | 0.3− | | |
| 2004 12 20 | G96 | 0.0 | 0.3− | 2007 06 25 | 691 | 0.2− | 0.0 | 2009 12 17 | 691 | 0.3− | 0.1− | | |
| 2004 12 20 | G96 | 0.2− | 0.0 | 2007 06 25 | 691 | 0.0 | 0.3+ | 2009 12 17 | 691 | 0.4+ | 0.1+ | | |
| 2004 12 20 | G96 | 0.4− | 0.2− | 2008 10 30 | 703 | 1.1− | 0.9− | 2009 12 17 | 691 | 0.2+ | 0.0 | | |
| 2005 01 13 | 703 | (1.7+ | 0.4+) | 2008 10 30 | 703 | 0.1+ | 0.2− | 2009 12 25 | 691 | 0.7− | 0.2+ | | |
| 2005 01 13 | 703 | 0.7− | 0.1− | 2008 10 30 | 703 | 0.8+ | 0.1− | 2009 12 25 | 691 | 0.1− | 0.2+ | | |
| 2005 01 13 | 703 | 0.1− | 0.8+ | 2008 10 30 | 703 | 1.1+ | 0.6− | 2009 12 25 | 691 | 0.5− | 0.1+ | | |
| 2005 01 13 | 703 | 0.3− | 0.7+ | 2008 11 01 | G96 | 0.4+ | 0.0 | | | | | | |
| 2005 01 16 | 691 | 0.6+ | 0.1+ | 2008 11 01 | G96 | 0.5+ | 0.3+ | | | | | | |

**(229268)∗ 2005 AF$_{50}$**

Discovered 2005 Jan. 13 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 296.31496 | | (2000.0) | | **P** | | **Q** | | |
| $n$ | 0.18676249 | $\omega$ | 255.53211 | | −0.93533774 | | −0.32273935 | | |
| $a$ | 3.0311653 | $\Omega$ | 265.47913 | | +0.35375601 | | −0.85330622 | | |
| $e$ | 0.0474083 | $i$ | 8.35499 | | +0.00001975 | | −0.40952144 | | |
| $P$ | 5.28 | $H$ | 15.1 | $G$ | 0.15 | $U$ | 1 | | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 05 | 644 | 0.0 | 0.8+ | 2005 01 17 | 704 | 0.7+ | 0.1+ | 2008 10 01 | G96 | 0.2+ | 0.1− |
| 2002 08 05 | 644 | 0.1− | 0.8+ | 2005 01 17 | 704 | 0.2+ | 0.2+ | 2008 10 01 | G96 | 0.0 | 0.0 |
| 2002 08 05 | 644 | 0.3+ | 0.5+ | 2005 01 17 | 704 | 0.5+ | 0.3+ | 2008 10 01 | G96 | 0.2+ | 0.1− |
| 2002 08 11 | 644 | 1.5+ | 0.7− | 2005 01 17 | 704 | 0.6+ | 0.7− | 2008 10 01 | 704 | 0.5+ | 0.1− |
| 2002 08 11 | 644 | 0.3− | 0.8+ | 2005 01 18 | 703 | 0.6+ | 0.3− | 2008 10 01 | G96 | 0.6− | 0.4− |
| 2002 08 11 | 644 | 0.3− | 0.7+ | 2005 01 18 | 703 | 1.0− | 0.3+ | 2008 10 01 | 704 | 0.6− | 0.2− |
| 2002 08 26 | 644 | 0.6− | 0.1− | 2005 01 18 | 703 | 0.3+ | 0.4+ | 2008 10 01 | 704 | 0.2+ | 0.3− |
| 2002 08 26 | 644 | 0.5− | 0.4− | 2005 01 18 | 703 | 0.4+ | 0.3+ | 2008 10 01 | 704 | 0.6− | 0.7− |
| 2002 08 26 | 644 | 0.6− | 0.2− | 2005 02 01 | 644 | 0.3− | 0.3+ | 2008 10 09 | G96 | 0.2+ | 0.2+ |
| 2003 09 30 | 691 | 0.0 | 0.1− | 2005 02 01 | 644 | 0.1− | 0.3+ | 2008 10 09 | G96 | 0.0 | 0.0 |
| 2003 09 30 | 691 | 0.3− | 0.2+ | 2005 02 01 | 644 | 0.5− | 0.4+ | 2008 10 09 | G96 | 0.1− | 0.0 |
| 2003 09 30 | 691 | 0.1− | 0.1+ | 2005 02 02 | 644 | 0.2− | 0.8+ | 2008 10 09 | G96 | 0.2− | 0.1+ |
| 2003 10 17 | 691 | 0.0 | 0.1+ | 2005 02 02 | 644 | 0.2+ | 0.3+ | 2009 11 24 | 691 | 0.2− | 0.2− |
| 2003 10 17 | 691 | 0.0 | 0.1+ | 2005 02 02 | 644 | 0.0 | 0.4+ | 2009 11 24 | 691 | 0.4− | 0.2− |
| 2003 10 17 | 691 | 0.0 | 0.2− | 2008 09 21 | 621 | 0.4− | 0.0 | 2009 11 24 | 691 | 0.2− | 0.0 |
| 2003 10 20 | 644 | 0.3+ | 0.5+ | 2008 09 21 | 621 | 0.2− | 0.3− | 2009 12 17 | 704 | 1.1+ | 0.5− |
| 2003 10 20 | 644 | 0.7+ | 0.0 | 2008 09 21 | 621 | 0.2+ | 0.1+ | 2009 12 17 | 704 | 1.2+ | 0.2− |
| 2003 10 20 | 644 | 0.2+ | 0.1− | 2008 09 28 | 703 | 0.6+ | 0.2− | 2009 12 17 | 704 | 0.1+ | 0.5+ |
| 2005 01 13 | 704 | 0.7− | 0.5+ | 2008 09 28 | 703 | 0.5+ | 0.3+ | 2009 12 17 | 704 | 0.8+ | 0.5+ |
| 2005 01 13 | 704 | 0.1+ | 0.3− | 2008 09 28 | 703 | 0.0 | 0.7− | | | | |
| 2005 01 13 | 704 | 0.5− | 0.6− | 2008 09 28 | 703 | 0.1− | 1.1+ | | | | |

**(229269)**∗ **2005 AJ$_{55}$**

Discovered 2005 Jan. 15 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 312.77017 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18076504 | $\omega$ | 7.28731 | | −0.58220725 | −0.79598294 | |
| $a$ | 3.0978456 | $\Omega$ | 118.45955 | | +0.73611962 | −0.60257988 | |
| $e$ | 0.0349783 | $i$ | 10.86177 | | +0.34519940 | −0.05752085 | |
| $P$ | 5.45 | $H$ | 15.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 03 | 691 | 0.3+ | 0.0 | 2005 01 28 | 941 | (0.7− | 1.8−) | 2008 09 06 | 703 | 0.6+ | 0.8+ |
| 2004 12 03 | 691 | 0.2+ | 0.4+ | 2005 01 29 | 941 | 0.7− | 0.6+ | 2008 09 06 | 703 | 0.5− | 0.4+ |
| 2004 12 03 | 691 | 0.3+ | 0.1+ | 2005 01 29 | 941 | 0.5− | 0.5+ | 2008 09 06 | 703 | 0.5− | 0.3− |
| 2005 01 06 | 704 | (2.4+ | 1.1−) | 2005 01 29 | 941 | 0.1− | 0.2+ | 2009 11 09 | 703 | 0.5− | 0.2− |
| 2005 01 06 | 704 | (2.7+ | 0.1−) | 2005 01 29 | 941 | 0.1− | 0.1− | 2009 11 09 | 703 | 1.2− | 0.4+ |
| 2005 01 06 | 704 | (2.3+ | 1.2−) | 2005 01 29 | 941 | 0.5+ | 0.7− | 2009 11 09 | 703 | 1.5− | 0.0 |
| 2005 01 06 | 704 | (2.1+ | 1.0−) | 2005 03 08 | G96 | 0.3− | 0.3− | 2009 11 09 | 703 | 0.5− | 0.6+ |
| 2005 01 15 | 704 | 0.3+ | 0.0 | 2005 03 08 | G96 | 0.0 | 0.3− | 2009 11 19 | 704 | 0.2+ | 0.5+ |
| 2005 01 15 | 704 | 0.1+ | 0.1+ | 2005 03 08 | G96 | 0.3− | 0.4− | 2009 11 19 | 704 | 0.3+ | 0.9+ |
| 2005 01 15 | 704 | 0.1+ | 0.1− | 2005 03 08 | G96 | 0.1− | 0.3− | 2009 11 19 | 704 | 1.1+ | 0.9+ |
| 2005 01 15 | 704 | 0.3+ | 0.4+ | 2006 03 23 | 703 | 0.6− | 0.6+ | 2009 11 19 | 704 | 0.6+ | 0.6− |
| 2005 01 15 | 704 | 0.9− | 0.3+ | 2006 03 23 | 703 | 0.4+ | 0.8+ | 2009 11 20 | J75 | 0.2− | 0.5− |
| 2005 01 17 | 691 | 0.1+ | 0.2+ | 2006 03 23 | 703 | (2.7− | 0.0 ) | 2009 11 20 | J75 | 0.3+ | 0.6− |
| 2005 01 17 | 691 | 0.3− | 0.1+ | 2006 03 23 | 703 | 0.6− | 0.7+ | 2009 11 20 | J75 | 0.1− | 0.3− |
| 2005 01 17 | 691 | 0.1+ | 0.1− | 2006 04 23 | 699 | 0.3+ | 0.0 | 2009 12 13 | 704 | 1.5+ | 2.4− |
| 2005 01 28 | 941 | 0.0 | 0.0 | 2006 04 23 | 699 | 0.5+ | 0.6− | 2009 12 13 | 704 | 0.1+ | 0.1− |
| 2005 01 28 | 941 | 0.0 | 0.0 | 2006 04 23 | 699 | 0.8− | 0.7+ | 2009 12 13 | 704 | 0.3+ | 0.6+ |
| 2005 01 28 | 941 | 0.4− | 0.6− | 2006 04 23 | 699 | 1.4+ | 0.6− | | | | |
| 2005 01 28 | 941 | 0.5− | 0.9− | 2008 09 06 | 703 | 0.4− | 0.8+ | | | | |

**(229270)**∗ **2005 AZ$_{60}$**

Discovered 2005 Jan. 15 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 1.72794 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18006453 | $\omega$ | 321.12326 | | +0.09930037 | −0.97909284 | |
| $a$ | 3.1058748 | $\Omega$ | 122.49456 | | +0.95741530 | +0.04540348 | |
| $e$ | 0.0709439 | $i$ | 12.15059 | | +0.27110030 | +0.19828195 | |
| $P$ | 5.47 | $H$ | 15.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 12 22 | 704 | 1.1− | 1.0+ | 2005 01 11 | 704 | 0.1− | 1.1+ | 2008 09 02 | J75 | 0.3− | 0.4+ |
| 1998 12 22 | 704 | (2.2+ | 1.5+) | 2005 01 11 | 704 | 0.2+ | 0.7− | 2008 09 02 | J75 | 0.2− | 0.2+ |
| 1998 12 22 | 704 | 1.2+ | 0.1− | 2005 01 15 | 691 | 0.3− | 0.1+ | 2008 09 02 | J75 | 0.2+ | 0.2+ |
| 1998 12 22 | 704 | (4.1− | 1.6−) | 2005 01 15 | 691 | 0.3− | 0.0 | 2008 10 02 | 703 | 0.0 | 0.4+ |
| 2001 06 01 | 691 | 0.4+ | 0.4+ | 2005 01 15 | 691 | 0.2− | 0.0 | 2008 10 02 | 703 | (0.8+ | 2.6+) |
| 2001 06 01 | 691 | 0.3+ | 0.6+ | 2005 01 17 | 704 | 1.3+ | 0.5+ | 2008 10 02 | 703 | (0.6+ | 3.5+) |
| 2001 06 01 | 691 | 0.1− | 0.3+ | 2005 01 17 | 704 | 0.5+ | 0.6+ | 2008 10 02 | 703 | (0.0 | 2.4+) |
| 2002 07 18 | 644 | 0.1− | 0.7+ | 2005 01 17 | 704 | 0.6+ | 0.2− | 2009 11 23 | 703 | 0.2+ | 0.1+ |
| 2002 07 18 | 644 | 0.0 | 0.8+ | 2005 01 17 | 704 | 0.7+ | 0.5− | 2009 11 23 | 703 | 0.5− | 0.7+ |
| 2002 07 18 | 644 | 0.4− | 0.7+ | 2005 01 19 | 691 | 0.4− | 0.2− | 2009 11 23 | 703 | 0.5+ | 0.2+ |
| 2002 08 13 | 704 | 0.6− | 1.0+ | 2005 01 19 | 691 | 0.5− | 0.2− | 2009 11 23 | 703 | 0.7− | 0.4+ |
| 2002 08 13 | 704 | (2.4− | 0.4−) | 2005 01 19 | 691 | 0.2− | 0.1− | 2009 11 23 | 703 | 0.9− | 0.1+ |
| 2002 08 13 | 704 | (1.8− | 0.6+) | 2005 02 02 | 704 | 0.5− | 0.0 | 2009 12 13 | 704 | 0.1+ | 0.0 |
| 2002 08 13 | 704 | (1.7− | 0.6+) | 2005 02 02 | 704 | 0.4− | 0.6+ | 2009 12 13 | 704 | 0.6+ | 0.6+ |
| 2005 01 06 | 704 | 0.4+ | 0.4+ | 2005 02 02 | 704 | 0.4+ | 0.2− | 2009 12 13 | 704 | 0.4+ | 1.0− |
| 2005 01 06 | 704 | 0.9+ | 0.6+ | 2005 02 02 | 704 | 0.2+ | 0.6+ | 2009 12 13 | 704 | 0.0 | 0.0 |
| 2005 01 06 | 704 | 0.3+ | 0.4+ | 2005 02 02 | 704 | 0.2+ | 1.2+ | 2009 12 18 | 704 | 0.6+ | 1.1+ |
| 2005 01 06 | 704 | 0.1− | 0.1− | 2005 02 09 | 699 | 0.4+ | 0.3+ | 2009 12 18 | 704 | 0.4+ | 0.9+ |
| 2005 01 06 | 704 | 0.4+ | 0.6+ | 2005 02 09 | 699 | 0.1+ | 0.1+ | 2009 12 18 | 704 | 0.4− | 0.6+ |
| 2005 01 11 | 704 | 0.3− | 0.7− | 2005 02 09 | 699 | 0.4+ | 0.5− | 2009 12 18 | 704 | 0.9− | 0.9+ |
| 2005 01 11 | 704 | 0.8+ | 0.5+ | 2005 02 09 | 699 | 0.5+ | 0.0 | | | | |

**(229271)**∗ **2005 AH$_{68}$**

Discovered 2005 Jan. 13 by the Catalina Sky Survey.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 348.75991 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18256142 | $\omega$ | 191.98629 | | −0.17345907 | −0.97738084 | |
| $a$ | 3.0774904 | $\Omega$ | 268.09153 | | +0.91328004 | −0.11366195 | |
| $e$ | 0.2393439 | $i$ | 6.95313 | | +0.36855327 | −0.17834702 | |
| $P$ | 5.40 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 11 11 | 704 | 0.4+ | 0.0 | 2005 02 04 | 699 | 0.0 | 0.0 | 2009 11 21 | J75 | 0.3+ | 0.1+ |
| 1998 11 11 | 704 | 1.4− | 0.0 | 2005 02 04 | 699 | 0.1− | 0.5+ | 2009 11 21 | J75 | 0.2− | 0.4− |
| 1998 11 11 | 704 | 1.0+ | 1.8− | 2005 02 04 | 699 | 0.3+ | 0.3+ | 2009 11 21 | J75 | (0.6− | 2.0+) |
| 1998 11 11 | 704 | (0.3+ | 2.1−) | 2005 02 09 | 699 | 0.3− | 0.1+ | 2009 11 21 | 691 | 0.2− | 0.0 |
| 2003 09 20 | 691 | 0.0 | 0.2+ | 2005 02 09 | 699 | 0.4− | 0.2+ | 2009 11 21 | 691 | 0.1− | 0.0 |
| 2003 09 20 | 691 | 0.1− | 0.3+ | 2005 02 09 | 699 | 0.4− | 0.2+ | 2009 11 21 | 691 | 0.0 | 0.0 |
| 2003 09 20 | 691 | 0.0 | 0.4+ | 2005 02 09 | 699 | 0.2+ | 0.3+ | 2009 11 22 | 704 | 0.2− | 0.8+ |
| 2003 10 17 | 699 | 0.4− | 0.4− | 2005 03 03 | 703 | 0.2− | 1.0− | 2009 11 22 | 704 | 0.2− | 0.0 |
| 2003 10 17 | 699 | 0.6− | 0.1+ | 2005 03 03 | 703 | 0.4− | 0.1+ | 2009 11 22 | 704 | 0.6+ | 0.3− |
| 2003 10 17 | 699 | (1.1− | 2.0+) | 2005 03 03 | 703 | 0.6− | 0.4− | 2009 11 22 | 704 | 0.1− | 0.2− |
| 2003 10 17 | 699 | 0.5+ | 0.2+ | 2005 03 03 | 703 | 0.5− | 0.6− | 2009 11 22 | 704 | 0.1+ | 0.3+ |
| 2005 01 13 | 704 | 0.3+ | 0.3− | 2005 03 09 | 704 | 0.4+ | 0.0 | 2009 11 25 | 691 | 0.2− | 0.1− |
| 2005 01 13 | 703 | 0.2+ | 0.1+ | 2005 03 09 | 704 | 0.8+ | 0.2+ | 2009 11 25 | 691 | 0.1− | 0.1− |
| 2005 01 13 | 703 | 0.7− | 0.0 | 2005 03 09 | 704 | 0.1− | 0.3− | 2009 11 25 | 691 | 0.2− | 0.1− |
| 2005 01 13 | 704 | 1.4+ | 0.7+ | 2005 03 09 | 704 | 0.9+ | 0.2+ | 2009 12 10 | 704 | 0.9− | 0.8+ |
| 2005 01 13 | 703 | 0.9− | 1.1− | 2005 03 09 | 704 | 0.4− | 0.5+ | 2009 12 10 | 704 | 1.5− | 0.7+ |
| 2005 01 13 | 704 | 0.1+ | 0.1− | 2005 03 30 | 644 | 0.2− | 0.3+ | 2009 12 10 | 704 | 0.8− | 0.4+ |
| 2005 01 13 | 699 | 0.4+ | 0.1− | 2005 03 30 | 644 | 0.0 | 0.1+ | 2009 12 10 | 704 | 1.2− | 0.5+ |
| 2005 01 13 | 703 | 0.0 | 0.3+ | 2005 03 30 | 644 | 0.1+ | 0.3+ | 2009 12 10 | 704 | 1.1− | 0.6+ |
| 2005 01 13 | 704 | 0.2− | 0.2− | 2008 09 21 | G89 | 0.0 | 0.2+ | 2009 12 15 | G96 | 0.2+ | 0.3− |
| 2005 01 13 | 699 | 1.2+ | 0.8+ | 2008 09 21 | G89 | 0.0 | 0.2+ | 2009 12 15 | G96 | 0.2+ | 0.0 |
| 2005 01 13 | 699 | 0.4+ | 0.1+ | 2008 09 21 | G89 | 0.0 | 0.1+ | 2009 12 15 | G96 | 0.1+ | 0.2− |
| 2005 01 13 | 699 | 0.7+ | 0.4+ | 2008 09 22 | G89 | 0.1− | 0.0 | 2009 12 15 | G96 | 0.1+ | 0.3− |
| 2005 01 20 | 699 | 0.5− | 0.5− | 2008 09 22 | G89 | 0.2− | 0.0 | 2009 12 16 | 704 | 0.6+ | 0.6+ |
| 2005 01 20 | 699 | 0.1− | 0.6+ | 2008 09 22 | G89 | 0.2− | 0.1+ | 2009 12 16 | 704 | 0.7+ | 0.1+ |
| 2005 01 20 | 699 | 0.3+ | 0.1+ | 2009 11 10 | 691 | 0.5+ | 0.3− | 2009 12 16 | 704 | 1.0+ | 0.4+ |
| 2005 01 20 | 699 | 0.1− | 0.5− | 2009 11 10 | 691 | 0.2− | 0.2− | 2009 12 16 | 704 | 1.0+ | 0.0 |
| 2005 02 02 | 703 | 0.7− | 0.2− | 2009 11 10 | 691 | (2.4− | 2.6−) | 2009 12 16 | 704 | 0.6+ | 0.1+ |
| 2005 02 02 | 703 | 0.7− | 0.1− | 2009 11 11 | 704 | 0.5+ | 0.3− | 2009 12 16 | 900 | 0.1− | 0.2− |
| 2005 02 02 | 703 | 0.4− | 0.5− | 2009 11 11 | 704 | 0.8− | 1.0− | 2009 12 16 | 900 | 0.3+ | 0.0 |
| 2005 02 02 | 703 | 0.5− | 0.7− | 2009 11 11 | 704 | 0.1− | 0.3− | 2009 12 17 | H10 | 0.1+ | 0.1+ |
| 2005 02 04 | 704 | 0.0 | 0.5+ | 2009 11 11 | 704 | 0.9− | 0.1− | 2009 12 17 | H10 | 0.1− | 0.1− |
| 2005 02 04 | 704 | 0.4+ | 0.4+ | 2009 11 11 | 704 | 0.4− | 0.4− | 2009 12 17 | H10 | 0.2+ | 0.1− |
| 2005 02 04 | 704 | 0.5+ | 0.7+ | 2009 11 17 | 704 | 1.1+ | 0.4+ | 2009 12 17 | 900 | 0.3+ | 0.4− |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 02 04 | 704 | 0.4+ | 1.0+ | 2009 11 17 | 704 | (2.0+ | 0.0 ) | 2009 12 17 | 900 | 0.1+ | 0.3− |
| 2005 02 04 | 704 | 0.1+ | 0.2− | 2009 11 17 | 704 | 0.8+ | 0.9+ | | | | |
| 2005 02 04 | 699 | 0.7+ | 0.4+ | 2009 11 17 | 704 | 1.2+ | 0.7+ | | | | |

**(229272)∗ 2005 AK$_{68}$ = 2000 EL$_{184}$**

Discovered 2005 Jan. 13 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Id. G. V. Williams (*MPO* 73803)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 336.15461 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18736808 | $\omega$ | 49.47072 | | −0.74392782 | −0.65760353 | |
| $a$ | 3.0246304 | $\Omega$ | 89.06055 | | +0.57154324 | −0.71828409 | |
| $e$ | 0.1815960 | $i$ | 6.82755 | | +0.34627982 | −0.22721261 | |
| $P$ | 5.26 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 04 03 | 691 | (28.4− | 9.9+) | 2005 01 15 | 691 | 0.1+ | 0.3− | 2005 03 01 | 703 | 0.9− | 0.0 |
| 1995 04 03 | 691 | (28.3− | 10.1+) | 2005 01 15 | 691 | 0.1− | 0.3− | 2005 03 12 | 699 | 1.1− | 0.4+ |
| 1995 04 03 | 691 | (28.0− | 10.2+) | 2005 01 15 | 691 | 0.1− | 0.4− | 2005 03 12 | 699 | 0.4+ | 0.5+ |
| 2000 03 05 | 704 | 0.2− | 0.0 | 2005 01 19 | 691 | 0.1+ | 0.1− | 2005 03 12 | 699 | 1.1+ | 0.1− |
| 2000 03 05 | 704 | 0.3− | 0.3− | 2005 01 19 | 691 | 0.2+ | 0.1+ | 2005 03 12 | 699 | 0.0 | 0.2+ |
| 2000 03 05 | 704 | 0.9− | 0.0 | 2005 01 19 | 691 | 0.0 | 0.0 | 2006 05 08 | G96 | 0.5− | 0.1+ |
| 2000 03 05 | 704 | 0.4− | 0.4− | 2005 02 01 | 703 | 0.8− | 1.0+ | 2006 05 08 | G96 | 0.1− | 0.3+ |
| 2000 03 05 | 704 | 0.1− | 1.1− | 2005 02 01 | 703 | 0.4+ | 1.2+ | 2006 05 08 | G96 | 0.3+ | 0.4+ |
| 2000 03 12 | 704 | 1.3− | 0.5− | 2005 02 01 | 703 | 0.7+ | 0.2− | 2006 05 08 | G96 | 0.1+ | 0.1+ |
| 2000 03 12 | 704 | 0.6− | 0.1− | 2005 02 01 | 703 | 1.2+ | 0.5+ | 2006 05 26 | G96 | 0.3+ | 0.2+ |
| 2000 03 12 | 704 | 1.0− | 0.7− | 2005 02 01 | 644 | 0.2+ | 0.1− | 2006 05 26 | G96 | 0.2+ | 0.3+ |
| 2000 03 12 | 704 | 0.1− | 0.7− | 2005 02 01 | 644 | 0.2+ | 0.1+ | 2006 05 26 | G96 | 0.3+ | 0.2+ |
| 2003 10 21 | 691 | 0.2+ | 0.1+ | 2005 02 01 | 644 | 0.2+ | 0.1− | 2006 05 26 | G96 | 0.4+ | 0.3+ |
| 2003 10 21 | 691 | 0.1− | 0.2+ | 2005 02 03 | 704 | 0.3+ | 0.3+ | 2009 10 15 | G96 | 0.4− | 0.4− |
| 2003 10 21 | 691 | 0.1− | 0.1+ | 2005 02 03 | 704 | 0.4+ | 0.0 | 2009 10 15 | G96 | 0.4+ | 0.1− |
| 2005 01 07 | 704 | 0.0 | 1.0+ | 2005 02 03 | 704 | 0.7+ | 0.6+ | 2009 10 15 | G96 | 0.2− | 0.0 |
| 2005 01 07 | 704 | 0.1+ | 1.2+ | 2005 02 03 | 704 | 0.5+ | 0.1+ | 2009 10 15 | G96 | 0.0 | 0.1− |
| 2005 01 07 | 704 | 0.3− | 0.7+ | 2005 02 09 | 699 | 1.1+ | 0.5+ | 2009 11 10 | G96 | 0.4+ | 0.2− |
| 2005 01 07 | 704 | 0.3+ | 0.4+ | 2005 02 09 | 699 | 0.6+ | 0.1+ | 2009 11 10 | G96 | 0.2+ | 0.2− |
| 2005 01 07 | 704 | 0.0 | 0.8+ | 2005 02 09 | 699 | 0.7+ | 0.5+ | 2009 11 10 | G96 | 0.1− | 0.3− |
| 2005 01 13 | 699 | 0.4+ | 1.2+ | 2005 02 09 | 699 | 0.6+ | 0.5+ | 2009 11 10 | G96 | 0.4+ | 0.2− |
| 2005 01 13 | 699 | 0.2− | 0.2− | 2005 03 01 | 703 | 0.4+ | 0.6+ | 2009 12 17 | 691 | 0.4− | 0.8− |
| 2005 01 13 | 699 | 0.3− | 0.2+ | 2005 03 01 | 703 | 0.3− | 0.7− | 2009 12 17 | 691 | 0.3− | 0.1− |
| 2005 01 13 | 699 | 0.7+ | 0.5+ | 2005 03 01 | 703 | 0.5− | 0.2− | 2009 12 17 | 691 | 0.2− | 0.0 |

**(229273)∗ 2005 AQ$_{68}$**

Discovered 2005 Jan. 13 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 307.01230 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17731249 | $\omega$ | 46.18526 | | −0.97516222 | +0.16821237 | |
| $a$ | 3.1379293 | $\Omega$ | 142.79830 | | −0.19647683 | −0.95728134 | |
| $e$ | 0.2304280 | $i$ | 13.78749 | | +0.10225209 | −0.23519573 | |
| $P$ | 5.56 | $H$ | 14.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 01 18 | 704 | 0.0 | 0.2+ | 2005 02 04 | 644 | 0.2+ | 0.0 | 2005 06 02 | 704 | 0.7+ | 0.4+ |
| 1999 01 18 | 704 | (2.5− | 2.1+) | 2005 02 05 | 644 | 0.1+ | 0.1+ | 2005 06 02 | 704 | 0.4− | 0.3+ |
| 1999 01 18 | 704 | (0.4− | 2.5−) | 2005 02 05 | 644 | 0.2− | 0.1+ | 2005 06 02 | 704 | 0.1− | 0.8+ |
| 1999 01 18 | 704 | 0.4− | 0.3− | 2005 02 05 | 644 | 0.1+ | 0.2− | 2005 06 02 | 704 | 1.0+ | 0.7+ |
| 1999 02 11 | 699 | 0.4+ | 0.4− | 2005 03 03 | 703 | 0.1− | 0.4− | 2005 07 02 | 703 | 0.6− | 0.7+ |
| 1999 02 11 | 699 | 0.1− | 0.2− | 2005 03 03 | 703 | 0.0 | 0.5− | 2005 07 02 | 703 | 0.8− | 0.1− |
| 1999 02 11 | 699 | 0.5+ | 0.2+ | 2005 03 03 | 703 | 0.1+ | 0.3− | 2005 07 02 | 703 | 0.2− | 1.1− |
| 2004 01 13 | 644 | 0.5− | 0.2− | 2005 03 03 | 703 | 0.1+ | 0.4− | 2005 07 02 | 703 | (1.8+ | 0.7+) |
| 2004 01 13 | 644 | 0.2− | 0.1− | 2005 03 16 | 703 | 0.4− | 0.4− | 2006 07 26 | 644 | 0.1− | 0.6+ |
| 2004 01 13 | 644 | 0.5− | 0.1+ | 2005 03 16 | 703 | 0.1− | 0.1− | 2006 07 26 | 644 | 0.2+ | 0.3+ |
| 2004 12 14 | 704 | 0.9+ | 0.2+ | 2005 03 16 | 703 | 0.1+ | 0.3− | 2006 07 26 | 644 | 0.0 | 0.4+ |
| 2004 12 14 | 704 | (2.2+ | 0.7−) | 2005 03 16 | 703 | 0.0 | 0.4− | 2008 09 29 | 703 | (1.6− | 0.9+) |
| 2004 12 14 | 704 | 0.1+ | 0.9+ | 2005 03 16 | 704 | 0.5+ | 0.2+ | 2008 09 29 | 703 | 0.8+ | 0.1− |
| 2004 12 16 | 703 | 0.2− | 1.2− | 2005 03 16 | 704 | 0.3+ | 0.2+ | 2008 09 29 | 703 | 1.0− | 1.2+ |
| 2004 12 16 | 703 | 0.5− | 1.1− | 2005 03 16 | 704 | 0.5+ | 0.2+ | 2008 09 29 | 703 | 0.4+ | 0.0 |
| 2004 12 16 | 703 | 1.0− | 1.3+ | 2005 03 16 | 704 | 0.6+ | 0.2+ | 2009 10 24 | G96 | 0.4+ | 0.1+ |
| 2004 12 16 | 703 | (1.7− | 0.0 ) | 2005 03 16 | 704 | 0.4+ | 0.2− | 2009 10 24 | G96 | 0.0 | 0.0 |
| 2005 01 13 | 699 | 0.5+ | 0.5+ | 2005 03 30 | 703 | 0.8− | 0.1+ | 2009 10 24 | G96 | 0.4+ | 0.1+ |
| 2005 01 13 | 699 | 0.5+ | 0.0 | 2005 03 30 | 703 | 0.4− | 0.3− | 2009 12 13 | 704 | 0.0 | 0.8+ |
| 2005 01 13 | 699 | 0.4− | 0.2+ | 2005 03 30 | 703 | 0.8− | 0.7− | 2009 12 13 | 704 | 0.3+ | 1.5+ |
| 2005 01 13 | 699 | 0.1+ | 0.9− | 2005 03 30 | 703 | 0.0 | 0.1− | 2009 12 13 | 704 | 0.9− | 0.1+ |
| 2005 01 18 | 703 | 0.2− | 0.0 | 2005 04 09 | 703 | 0.4− | 0.4− | 2009 12 13 | 704 | 0.8− | 1.0+ |
| 2005 01 18 | 703 | 1.0+ | 0.8− | 2005 04 09 | 703 | 0.2+ | 0.2− | 2009 12 15 | 703 | 0.1− | 0.7− |
| 2005 01 18 | 703 | 1.1− | 0.6− | 2005 04 09 | 703 | 0.3− | 0.7− | 2009 12 15 | 703 | 0.4− | 1.3− |
| 2005 01 18 | 703 | 0.6− | 0.0 | 2005 04 09 | 703 | 0.3− | 0.2− | 2009 12 15 | 703 | 0.1− | 0.2+ |
| 2005 02 03 | 704 | 0.1+ | 0.5+ | 2005 04 16 | 703 | 0.5− | 0.1+ | 2009 12 15 | 703 | 0.4− | 0.5− |
| 2005 02 03 | 704 | 0.2+ | 0.5+ | 2005 04 16 | 703 | 0.2− | 0.4+ | 2009 12 15 | 703 | 0.0 | 0.7− |
| 2005 02 03 | 704 | 0.3+ | 0.2+ | 2005 04 16 | 703 | 0.3− | 0.1+ | 2009 12 18 | 704 | 0.6+ | 0.5− |
| 2005 02 03 | 704 | 0.3+ | 0.5+ | 2005 04 16 | 703 | 0.3− | 0.4− | 2009 12 18 | 704 | 0.3+ | 0.9+ |
| 2005 02 03 | 704 | 0.8+ | 0.4+ | 2005 04 18 | 608 | 0.5+ | 1.2+ | 2009 12 18 | 704 | 0.6+ | 0.3+ |
| 2005 02 04 | 644 | 0.1+ | 0.3+ | 2005 04 18 | 608 | 0.0 | 1.2+ | 2009 12 18 | 704 | 0.0 | 0.2+ |
| 2005 02 04 | 644 | 0.0 | 0.2+ | 2005 04 18 | 608 | 0.4+ | 0.9+ | 2009 12 18 | 704 | 0.6+ | 0.4+ |

**(229274)∗ 2005 AY$_{76}$ = 2002 ND$_{3}$**

Discovered 2005 Jan. 15 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 73807)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 61.97700 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18059722 | $\omega$ | 282.57642 | | +0.90359052 | −0.40793115 | |
| $a$ | 3.0997643 | $\Omega$ | 101.61850 | | +0.42626175 | +0.82567917 | |
| $e$ | 0.1150925 | $i$ | 7.67572 | | +0.04272098 | +0.38967434 | |
| $P$ | 5.46 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 01 11 | 691 | 0.2+ | 0.6− | 2002 07 09 | 644 | 0.0 | 0.3+ | 2005 02 10 | 809 | 0.2+ | 0.0 |
| 1994 01 11 | 691 | 0.5− | 0.5− | 2002 07 09 | 644 | 0.2+ | 0.1+ | 2006 04 09 | G96 | 0.0 | 0.4+ |
| 1994 01 11 | 691 | 0.5− | 1.1− | 2003 10 29 | 691 | 0.2+ | 0.2+ | 2006 04 09 | G96 | 0.0 | 0.1+ |
| 1994 01 17 | 691 | 0.7− | 0.1+ | 2003 10 29 | 691 | 0.1+ | 0.2+ | 2006 04 09 | G96 | 0.0 | 0.3+ |
| 1994 01 17 | 691 | 0.0 | 0.3− | 2003 10 29 | 691 | 0.2+ | 0.2+ | 2006 04 09 | G96 | 0.0 | 0.1+ |
| 1994 01 17 | 691 | 0.5+ | 0.3+ | 2005 01 15 | 691 | 0.1+ | 0.3+ | 2009 12 16 | 691 | 0.7− | 0.7− |
| 2002 06 08 | 291 | 0.1− | 0.1− | 2005 01 15 | 691 | 0.2+ | 0.7+ | 2009 12 16 | 691 | 0.0 | 0.1− |
| 2002 06 08 | 291 | 0.1− | 0.3+ | 2005 01 15 | 691 | 0.0 | 0.2+ | 2009 12 16 | 691 | 0.4− | 0.0 |
| 2002 06 08 | 291 | 0.2− | 0.0 | 2005 01 19 | 691 | 0.8+ | 0.2+ | 2009 12 17 | 704 | 0.2+ | 0.3+ |
| 2002 07 05 | 644 | 0.5+ | 0.1− | 2005 01 19 | 691 | 0.7+ | 0.1+ | 2009 12 17 | 704 | 1.0+ | 0.0 |
| 2002 07 05 | 644 | 0.1+ | 0.9− | 2005 01 19 | 691 | 0.2+ | 0.4+ | 2009 12 17 | 704 | 1.1+ | 0.7+ |
| 2002 07 05 | 644 | 0.1− | 1.1− | 2005 02 09 | 809 | 0.1− | 0.1+ | 2009 12 25 | 691 | 0.5− | 0.0 |
| 2002 07 09 | 644 | 0.0 | 0.3+ | 2005 02 09 | 809 | 0.1− | 0.1+ | 2009 12 25 | 691 | 0.1− | 0.1+ |
| 2002 07 09 | 644 | 0.0 | 0.2− | 2005 02 09 | 809 | 0.0 | 0.1+ | 2009 12 25 | 691 | 0.1− | 0.1+ |
| 2002 07 09 | 644 | 0.0 | 0.1− | 2005 02 10 | 809 | 0.1+ | 0.1+ | | | | |
| 2002 07 09 | 644 | 0.1+ | 0.3+ | 2005 02 10 | 809 | 0.1+ | 0.0 | | | | |

**(229275)∗ 2005 AG$_{81}$**

Discovered 2005 Jan. 15 by the Catalina Sky Survey.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 90.67879 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.38897780 | $\omega$ | 264.99577 | | +0.91498802 | −0.03805509 | |
| $a$ | 1.8586010 | $\Omega$ | 96.76075 | | +0.17921327 | +0.93028087 | |
| $e$ | 0.1217310 | $i$ | 23.85949 | | −0.36149623 | +0.36486890 | |
| $P$ | 2.53 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 01 15 | 703 | 0.6− | 0.0 | 2006 06 22 | E12 | 0.0 | 0.5+ | 2008 04 08 | 703 | (1.9+ | 0.3+) |
| 2005 01 15 | 703 | 0.8− | 0.8− | 2006 06 22 | E12 | 0.1+ | 0.2+ | 2008 04 08 | 703 | 0.4+ | 0.1+ |
| 2005 01 15 | 703 | 0.3− | 0.5− | 2006 06 22 | E12 | 0.1− | 1.0+ | 2008 04 08 | 703 | 0.1− | 0.8+ |
| 2005 01 15 | 703 | 0.9− | 0.4− | 2006 07 18 | E12 | 0.2− | 0.6+ | 2008 04 08 | 703 | 0.4+ | 0.7+ |
| 2005 01 16 | 699 | 0.1+ | 0.7+ | 2006 07 18 | E12 | 0.3+ | 0.7+ | 2008 04 08 | 703 | 0.1− | 0.0 |
| 2005 01 16 | 699 | (2.2+ | 0.8+) | 2006 07 18 | E12 | 0.3+ | 0.5+ | 2008 04 08 | 703 | 0.7− | 0.7+ |
| 2005 01 16 | 699 | 0.4+ | 0.5+ | 2006 07 18 | E12 | 0.6+ | 0.3− | 2008 05 03 | 703 | 0.0 | 0.3+ |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 01 16 | 699 | 0.9+ | 0.1+ | 2006 07 28 | E12 | 0.3+ | 0.5+ | 2008 05 03 | 703 | (1.6− | 0.5+) |
| 2005 01 31 | 704 | 0.8− | 0.2+ | 2006 07 28 | E12 | 0.2− | 0.7+ | 2008 05 03 | 703 | 0.4− | 0.4+ |
| 2005 01 31 | 704 | 0.8− | 0.5+ | 2006 07 28 | E12 | 0.2− | 0.7+ | 2008 05 03 | 703 | 1.0− | 0.8+ |
| 2005 01 31 | 704 | 0.8+ | 0.0 | 2006 08 15 | E12 | 0.6− | 0.0 | 2009 11 18 | 704 | 0.6+ | 0.6+ |
| 2005 01 31 | 704 | 0.3+ | 0.2− | 2006 08 15 | E12 | 0.0 | 0.0 | 2009 11 18 | 704 | 1.1+ | 1.0+ |
| 2005 01 31 | 704 | 0.9− | 1.4+ | 2006 08 15 | E12 | 0.0 | 0.4+ | 2009 11 18 | 704 | (1.5+ | 1.9+) |
| 2005 02 02 | 704 | 0.2− | 0.9+ | 2006 08 21 | E12 | 0.4− | 0.7+ | 2009 11 18 | 704 | 1.5+ | 0.1+ |
| 2005 02 02 | 704 | 0.3+ | 1.1+ | 2006 08 21 | E12 | 0.6− | 0.8+ | 2009 12 11 | 704 | 0.3+ | 0.7+ |
| 2005 02 02 | 704 | 0.1− | 1.3+ | 2006 08 21 | E12 | 0.2− | 0.6+ | 2009 12 11 | 704 | 1.0+ | 0.4+ |
| 2005 02 02 | 704 | 0.7+ | 0.3− | 2006 08 21 | E12 | 0.1− | 0.6+ | 2009 12 11 | 704 | 0.2+ | 0.5+ |
| 2005 02 02 | 704 | (0.2+ | 1.6+) | 2006 09 01 | E12 | 0.2+ | 1.0+ | 2009 12 15 | G96 | 0.0 | 0.4− |
| 2005 02 02 | 704 | 0.3− | 0.5+ | 2006 09 01 | E12 | 0.2− | 0.2− | 2009 12 15 | G96 | 0.0 | 0.3− |
| 2005 02 02 | 704 | 0.3+ | 0.8+ | 2006 09 01 | E12 | 1.0+ | 0.3+ | 2009 12 15 | G96 | 0.3− | 0.0 |
| 2005 02 02 | 704 | 0.9+ | 0.1− | 2006 09 01 | E12 | 0.6− | 0.8+ | 2009 12 15 | G96 | 0.2− | 0.2− |
| 2005 02 03 | 704 | 0.5− | 0.5+ | 2006 09 21 | E12 | 0.1+ | 0.3− | 2009 12 15 | G96 | 0.1− | 0.2− |
| 2005 02 03 | 704 | 0.2− | 0.4+ | 2006 09 21 | E12 | 0.1− | 0.5+ | 2009 12 16 | 704 | 2.0+ | 0.4− |
| 2005 02 03 | 704 | (0.4+ | 1.7+) | 2006 09 21 | E12 | 0.0 | 0.9− | 2009 12 16 | 704 | (2.7+ | 0.1+) |
| 2005 02 03 | 704 | 0.1− | 0.2+ | 2006 09 21 | E12 | 0.1− | 1.3+ | 2009 12 16 | 704 | (1.3+ | 1.8+) |
| 2005 02 03 | 704 | 0.3+ | 0.1− | 2006 10 21 | E12 | (0.6− | 2.7+) | 2009 12 16 | 704 | 0.9+ | 1.5+ |
| 2005 02 14 | 704 | 0.8+ | 1.3+ | 2006 10 21 | E12 | 0.0 | 0.2+ | 2009 12 16 | 704 | 0.7+ | 1.1+ |
| 2005 02 14 | 704 | 0.2− | 1.4+ | 2006 10 21 | E12 | (0.3+ | 1.7+) | 2009 12 19 | 691 | 0.2− | 0.1− |
| 2005 02 14 | 704 | (0.2− | 1.9+) | 2006 10 21 | E12 | 0.1− | 0.2− | 2009 12 19 | 691 | 0.6− | 0.2+ |
| 2006 06 22 | E12 | 0.2− | 0.2− | 2008 04 08 | 703 | 0.9+ | 0.4+ | 2009 12 19 | 691 | 0.6− | 0.8− |

**(229276)∗ 2005 AV$_{81}$ = 1998 WR$_{36}$**

Discovered 2005 Jan. 15 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Id. A. Doppler (*MPO* 76613)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 349.99274 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18009306 | $\omega$ | 24.65258 | | +0.11962504 | −0.96210878 | |
| $a$ | 3.1055467 | $\Omega$ | 59.33406 | | +0.85708332 | −0.02448727 | |
| $e$ | 0.2881313 | $i$ | 16.55046 | | +0.50109684 | +0.27156413 | |
| $P$ | 5.47 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 11 19 | 691 | 0.3− | 0.0 | 2009 10 14 | G96 | 0.2− | 0.1+ | 2009 11 20 | 704 | 0.0 | 0.7+ |
| 1998 11 19 | 691 | 0.2+ | 0.1+ | 2009 10 14 | G96 | 0.1+ | 0.0 | 2009 11 20 | 704 | 0.5+ | 0.6+ |
| 1998 11 19 | 691 | 0.4− | 0.0 | 2009 10 14 | G96 | 0.3− | 0.2− | 2009 11 20 | 704 | 0.1+ | 0.5+ |
| 1998 11 24 | 699 | 0.8− | 0.5+ | 2009 10 14 | G96 | 0.0 | 0.0 | 2009 11 20 | 704 | 0.4+ | 0.7+ |
| 1998 11 24 | 699 | 1.1+ | 0.4− | 2009 10 15 | J75 | 0.1+ | 0.1− | 2009 11 20 | 704 | 0.2− | 0.3+ |
| 1998 11 24 | 699 | 1.1+ | 0.0 | 2009 10 15 | J75 | 0.0 | 0.2− | 2009 11 23 | J75 | 0.4+ | 0.1− |
| 2004 12 11 | 703 | 0.2− | 1.2− | 2009 10 15 | J75 | 0.3− | 0.1− | 2009 11 23 | J75 | 0.1+ | 0.1+ |
| 2004 12 11 | 703 | 0.1− | 0.8+ | 2009 10 20 | 704 | 0.4+ | 0.1+ | 2009 11 23 | J75 | 0.0 | 0.4− |
| 2004 12 11 | 703 | 0.7− | 0.0 | 2009 10 20 | 704 | 0.3+ | 0.2+ | 2009 11 27 | 703 | 0.9− | 0.2+ |
| 2004 12 11 | 703 | 0.4− | 0.3− | 2009 10 20 | 704 | 0.4+ | 0.4+ | 2009 11 27 | 703 | 0.9− | 1.0− |
| 2005 01 15 | 699 | 0.1− | 0.9+ | 2009 10 20 | 704 | 0.2+ | 0.3− | 2009 11 27 | 703 | 0.8− | 0.3− |
| 2005 01 15 | 699 | 0.2− | 1.0+ | 2009 10 24 | 703 | 0.6− | 0.1+ | 2009 11 27 | 703 | 0.5− | 1.1− |
| 2005 01 15 | 699 | 0.9+ | 0.8− | 2009 10 24 | 703 | 0.7− | 0.5+ | 2009 12 10 | 703 | 0.3+ | 0.6+ |
| 2005 01 15 | 699 | 0.2+ | 1.4− | 2009 10 24 | 703 | 0.7+ | 0.2+ | 2009 12 10 | 703 | 0.1− | 0.4− |
| 2005 01 15 | 703 | 0.5− | 0.4− | 2009 10 24 | 703 | 0.7− | 0.8+ | 2009 12 10 | 703 | 0.1+ | 0.3− |
| 2005 01 15 | 703 | 0.3− | 0.1+ | 2009 10 27 | 704 | 0.1+ | 0.0 | 2009 12 10 | 703 | 0.4− | 0.3+ |
| 2005 01 15 | 703 | 0.6− | 0.8− | 2009 10 27 | 704 | 0.3+ | 0.0 | 2009 12 15 | G96 | 0.1+ | 0.4− |
| 2005 01 15 | 703 | 0.8− | 0.5− | 2009 10 27 | 704 | 0.4+ | 0.0 | 2009 12 15 | G96 | 0.4+ | 0.3− |
| 2005 01 19 | 704 | 1.4− | 0.1+ | 2009 10 27 | 704 | 0.9+ | 0.6+ | 2009 12 15 | G96 | 0.1+ | 0.3− |
| 2005 01 19 | 704 | (2.1+ | 0.3+) | 2009 11 12 | J75 | 0.1+ | 0.5− | 2009 12 15 | G96 | 0.0 | 0.2− |
| 2005 01 19 | 704 | (1.4+ | 1.7+) | 2009 11 12 | J75 | 0.1+ | 0.1− | 2009 12 15 | G96 | 0.2+ | 0.3− |
| 2005 01 19 | 704 | 0.9+ | 1.0+ | 2009 11 12 | J75 | 0.0 | 0.2+ | 2009 12 15 | G96 | 0.1− | 0.2− |
| 2005 01 31 | 704 | 0.4+ | 0.3− | 2009 11 14 | 704 | 0.1+ | 0.9− | 2009 12 15 | G96 | 0.0 | 0.3− |
| 2005 01 31 | 704 | 0.3− | 0.7− | 2009 11 14 | 704 | 0.7− | 0.9− | 2009 12 15 | G96 | 0.2+ | 0.3− |
| 2005 01 31 | 704 | 0.2− | 0.2− | 2009 11 14 | 704 | 0.6− | 0.4− | 2009 12 15 | G96 | 0.1− | 0.4− |
| 2005 01 31 | 704 | (1.3+ | 3.7+) | 2009 11 14 | 704 | 0.4− | 0.7− | 2009 12 15 | G96 | 0.5+ | 0.4− |
| 2005 01 31 | 704 | (2.2+ | 0.4+) | 2009 11 18 | 704 | 0.9+ | 0.6+ | 2009 12 15 | G96 | 0.1− | 0.4− |
| 2005 03 01 | 704 | 0.8+ | 0.0 | 2009 11 18 | 704 | 0.5+ | 1.1+ | 2009 12 15 | G96 | 0.1− | 0.2− |
| 2005 03 01 | 704 | 0.2+ | 0.4− | 2009 11 18 | 704 | 0.1− | 0.7+ | 2009 12 16 | 704 | 0.6− | 0.7+ |
| 2005 03 01 | 704 | 0.1+ | 0.3+ | 2009 11 18 | 704 | 0.0 | 0.3+ | 2009 12 16 | 704 | 0.9− | 2.1+ |
| 2005 03 01 | 704 | 1.4+ | 1.4+ | 2009 11 18 | 704 | 0.1+ | 0.9+ | 2009 12 16 | 704 | 0.1− | 0.6+ |
| 2005 03 01 | 704 | 0.2+ | 0.8+ | 2009 11 19 | G96 | 0.2− | 0.2− | 2009 12 16 | 704 | 0.2+ | 0.4+ |
| 2006 04 30 | 691 | 0.3+ | 0.6+ | 2009 11 19 | G96 | 0.2+ | 0.2− | 2009 12 16 | 704 | 0.3− | 0.1+ |
| 2006 04 30 | 691 | 0.0 | 0.2+ | 2009 11 19 | G96 | 0.1+ | 0.1− | 2009 12 16 | 704 | 0.4− | 0.2+ |
| 2006 04 30 | 691 | 0.2+ | 0.0 | 2009 11 19 | G96 | 0.1+ | 0.2− | 2009 12 16 | 704 | 0.4− | 0.0 |

**(229277)∗ 2005 BD$_9$**

Discovered 2005 Jan. 16 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 13.74917 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17680139 | $\omega$ | 338.71390 | | +0.52674410 | −0.84291201 | |
| $a$ | 3.1439739 | $\Omega$ | 79.34989 | | +0.79511722 | +0.44295496 | |
| $e$ | 0.1486140 | $i$ | 6.41045 | | +0.30054825 | +0.30543452 | |
| $P$ | 5.57 | $H$ | 15.1 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 05 | 644 | 0.1+ | 0.6+ | 2005 01 16 | 704 | 0.5− | 0.2− | 2009 11 16 | 691 | 0.3− | 0.5− |
| 2002 08 05 | 644 | 0.0 | 0.7+ | 2005 01 16 | 704 | 0.7− | 0.3+ | 2009 11 16 | J75 | 0.7+ | 0.4+ |
| 2002 08 05 | 644 | 0.0 | 0.7+ | 2005 01 16 | 704 | 0.4+ | 1.4+ | 2009 11 16 | J75 | 0.2− | 0.2− |
| 2003 09 28 | 704 | 0.1+ | 1.5+ | 2005 01 18 | 691 | 0.0 | 0.1+ | 2009 11 16 | J75 | 0.3− | 0.6− |
| 2003 09 28 | 704 | 0.2+ | 0.5+ | 2005 01 18 | 691 | 0.0 | 0.2+ | 2009 11 18 | 704 | 1.0+ | 0.1+ |
| 2003 09 28 | 704 | (4.1− | 1.5+) | 2005 01 18 | 691 | 0.1+ | 0.1+ | 2009 11 18 | 704 | 0.8+ | 1.3+ |
| 2003 09 28 | 704 | (0.2− | 2.3+) | 2005 02 03 | 704 | 0.2− | 0.1+ | 2009 11 18 | 704 | 0.5+ | 0.9+ |
| 2003 09 28 | 699 | 0.3− | 0.5− | 2005 02 03 | 704 | 1.0+ | 0.4− | 2009 11 18 | 704 | 0.0 | 1.4+ |
| 2003 09 28 | 699 | 0.8+ | 0.0 | 2005 02 03 | 704 | 0.7− | 0.9+ | 2009 11 24 | 691 | 0.1− | 0.1− |
| 2003 09 28 | 699 | 0.5+ | 0.0 | 2005 02 03 | 704 | 0.6+ | 0.2+ | 2009 11 24 | 691 | 0.0 | 0.0 |
| 2003 09 28 | 699 | 0.1+ | 0.3+ | 2005 02 03 | 704 | 0.8+ | 0.0 | 2009 11 24 | 691 | 0.1− | 0.0 |
| 2003 10 20 | 704 | 0.3+ | 0.2+ | 2006 03 25 | 691 | 0.1+ | 0.2+ | 2009 12 09 | J75 | 0.3− | 0.4+ |
| 2003 10 20 | 691 | 0.3− | 0.5+ | 2006 03 25 | 691 | 0.0 | 0.3+ | 2009 12 09 | J75 | 0.1− | 0.1+ |
| 2003 10 20 | 704 | 0.0 | 0.5+ | 2006 03 25 | 691 | 0.1+ | 0.2+ | 2009 12 09 | J75 | 0.3− | 0.4− |
| 2003 10 20 | 704 | 0.5− | 1.4+ | 2009 09 27 | 703 | 0.3− | 0.1− | 2009 12 09 | 106 | 0.5− | 0.2+ |
| 2003 10 20 | 691 | 0.4− | 0.4+ | 2009 09 27 | 703 | 1.0+ | 0.7+ | 2009 12 09 | 106 | 0.2+ | 0.7− |
| 2003 10 20 | 704 | 0.7− | 0.7+ | 2009 09 27 | 703 | (0.9+ | 1.5−) | 2009 12 09 | 106 | 0.1− | 0.6− |
| 2003 10 20 | 704 | 0.9− | 1.0+ | 2009 09 27 | 703 | 1.2+ | 0.2− | 2009 12 09 | 106 | 0.5+ | 0.1− |
| 2003 10 20 | 691 | 0.4− | 0.5+ | 2009 10 29 | J75 | 0.4+ | 0.1− | 2009 12 11 | 703 | 0.3+ | 0.2+ |
| 2003 10 23 | 645 | 0.0 | 0.2− | 2009 10 29 | J75 | 0.1− | 0.4− | 2009 12 11 | 703 | 0.6+ | 0.3− |
| 2003 10 23 | 645 | 0.1+ | 0.2− | 2009 10 29 | J75 | 0.2+ | 0.7− | 2009 12 11 | 703 | 0.4+ | 0.8− |
| 2003 10 27 | 704 | 0.9− | 0.1− | 2009 10 30 | G96 | 0.5+ | 0.1− | 2009 12 11 | 703 | 0.2− | 0.1+ |
| 2003 10 27 | 704 | 1.2+ | 0.4+ | 2009 10 30 | G96 | 0.1+ | 0.2− | 2009 12 15 | G96 | 0.2+ | 0.1+ |
| 2003 10 27 | 704 | 0.8+ | 0.4− | 2009 10 30 | G96 | 0.2+ | 0.1− | 2009 12 15 | G96 | 0.1− | 0.1− |
| 2003 10 27 | 704 | 0.7+ | 0.4+ | 2009 10 30 | G96 | 0.3+ | 0.0 | 2009 12 15 | G96 | 0.2+ | 0.4− |
| 2003 10 27 | 704 | 0.7+ | 0.8+ | 2009 11 10 | 691 | 0.2− | 0.1− | 2009 12 15 | G96 | 0.0 | 0.5− |
| 2003 11 19 | 644 | 0.4− | 0.3+ | 2009 11 10 | 691 | 0.1− | 0.2− | 2009 12 17 | 704 | 0.4− | 0.8− |
| 2003 11 19 | 644 | 0.8− | 0.5+ | 2009 11 10 | 691 | 0.2− | 0.1− | 2009 12 17 | 704 | 0.3+ | 0.2+ |
| 2003 11 19 | 644 | 0.1− | 0.1+ | 2009 11 15 | J75 | 0.8+ | 0.1+ | 2009 12 17 | 704 | 0.1+ | 0.7+ |
| 2003 11 20 | 645 | 0.1− | 0.0 | 2009 11 15 | J75 | 0.5+ | 0.1− | 2009 12 17 | 704 | 0.5− | 0.1− |
| 2003 11 20 | 645 | 0.0 | 0.0 | 2009 11 15 | J75 | 0.4+ | 0.3+ | 2009 12 17 | 704 | 0.9− | 0.2+ |
| 2005 01 16 | 704 | 0.3+ | 0.0 | 2009 11 16 | 691 | 0.2− | 0.0 | | | | |
| 2005 01 16 | 704 | 0.4+ | 0.6+ | 2009 11 16 | 691 | 0.1− | 0.1− | | | | |

**(229278)∗ 2005 BN$_{18}$ = 2003 UL$_{76}$**

Discovered 2005 Jan. 16 by Spacewatch at Kitt Peak.

Id. A. Doppler (*MPO* 76621)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 76.15680 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19276399 | $\omega$ | 85.51070 | | +0.90266601 | −0.40749536 | |
| $a$ | 2.9679194 | $\Omega$ | 298.48310 | | +0.30522467 | +0.83287417 | |
| $e$ | 0.1175910 | $i$ | 9.05636 | | +0.30336773 | +0.37452389 | |
| $P$ | 5.11 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 02 | 691 | 0.2+ | 0.4− | 2005 01 16 | 568 | 0.0 | 0.3+ | 2008 10 02 | 704 | 0.0 | 0.6+ |
| 2003 10 02 | 691 | 0.1+ | 0.2− | 2005 01 17 | 568 | 0.2+ | 0.1+ | 2008 10 02 | 704 | 0.1− | 0.5+ |
| 2003 10 02 | 691 | 0.1− | 0.2− | 2005 01 19 | 691 | 0.2− | 0.4+ | 2008 10 02 | 704 | 0.5+ | 0.2+ |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 17 | 699 | 0.1+ | 0.1− | 2005 01 19 | 691 | 0.1+ | 0.4+ | 2009 11 21 | G96 | 0.3+ | 0.1− |
| 2003 10 17 | 699 | 1.2− | 1.0+ | 2005 01 19 | 691 | 0.8+ | 0.2+ | 2009 11 21 | G96 | 0.0 | 0.1− |
| 2003 10 17 | 699 | 0.3− | 0.6− | 2005 03 13 | G96 | 0.2+ | 0.1+ | 2009 11 21 | G96 | 0.3+ | 0.3− |
| 2003 10 17 | 699 | (1.7− | 0.0 ) | 2005 03 13 | G96 | 0.3− | 0.0 | 2009 11 21 | G96 | 0.7+ | 0.4− |
| 2003 10 20 | 644 | 0.3+ | 0.0 | 2005 03 13 | G96 | 0.3− | 0.2+ | 2009 12 15 | G96 | 0.6− | 0.1+ |
| 2003 10 20 | 644 | 0.5+ | 0.2− | 2005 03 13 | G96 | 0.5− | 0.4− | 2009 12 15 | G96 | 0.1+ | 0.2− |
| 2003 10 20 | 644 | 0.4+ | 0.0 | 2008 09 05 | 704 | 0.7− | 1.3+ | 2009 12 15 | G96 | 0.1− | 0.6− |
| 2004 12 19 | G96 | 0.6− | 0.1+ | 2008 09 05 | 704 | 0.7− | 0.3+ | 2009 12 15 | G96 | 0.4− | 0.1− |
| 2004 12 19 | G96 | 0.3− | 0.1+ | 2008 09 05 | 704 | 0.2+ | 0.2+ | 2009 12 18 | 691 | 0.4− | 0.2+ |
| 2004 12 19 | G96 | 0.4− | 0.0 | 2008 10 02 | 704 | 0.4− | 0.3+ | 2009 12 18 | 691 | 0.5− | 0.1− |
| 2004 12 19 | G96 | 0.3− | 0.4− | 2008 10 02 | 704 | 0.9− | 0.2+ | 2009 12 18 | 691 | 0.6− | 0.2− |
| 2005 01 16 | 568 | 0.1+ | 0.1+ | 2008 10 02 | 704 | 0.2− | 0.9+ | 2009 12 26 | 691 | 0.2+ | 0.3− |
| 2005 01 16 | 691 | 0.1+ | 0.0 | 2008 10 02 | 704 | 0.1+ | 0.5− | 2009 12 26 | 691 | 0.3+ | 0.4− |
| 2005 01 16 | 691 | 0.6+ | 0.2+ | 2008 10 02 | 704 | 0.5+ | 0.4− | 2009 12 26 | 691 | 0.1+ | 0.1− |
| 2005 01 16 | 568 | 0.1− | 0.2+ | 2008 10 02 | 704 | 0.3− | 0.3+ | | | | |
| 2005 01 16 | 691 | 0.0 | 0.2+ | 2008 10 02 | 704 | 0.1+ | 1.0+ | | | | |

**(229279)∗ 2005 BL$_{24}$**

Discovered 2005 Jan. 17 by the Catalina Sky Survey.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 328.29089 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17656457 | $\omega$ | 11.16652 | | −0.61150907 | −0.79044874 | |
| $a$ | 3.1467845 | $\Omega$ | 116.54196 | | +0.72287095 | −0.57626589 | |
| $e$ | 0.1768403 | $i$ | 2.26263 | | +0.32173631 | −0.20762563 | |
| $P$ | 5.58 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1992 11 26 | 691 | 1.0+ | 0.0 | 2005 02 02 | 703 | 0.5+ | 0.2+ | 2008 09 22 | G96 | 0.5+ | 0.5+ |
| 1992 11 26 | 691 | 0.4− | 0.5− | 2005 02 02 | 704 | 0.5+ | 0.5+ | 2008 09 22 | G96 | 0.2+ | 0.7+ |
| 1992 11 26 | 691 | 0.9− | 0.2+ | 2005 02 04 | 699 | 0.1+ | 0.0 | 2008 09 22 | G96 | 0.3+ | 0.6+ |
| 2000 04 29 | 691 | 1.1− | 0.5+ | 2005 02 04 | 699 | (0.6+ | 1.6−) | 2008 09 22 | G96 | 0.3+ | 0.3+ |
| 2000 04 29 | 691 | 1.4− | 0.6+ | 2005 02 04 | 699 | 0.7− | 0.6+ | 2009 11 08 | 691 | 0.4− | 0.2− |
| 2000 04 29 | 691 | 0.4+ | 0.0 | 2005 02 04 | 699 | 0.6− | 0.8− | 2009 11 08 | 691 | 0.2+ | 0.5− |
| 2000 04 29 | 704 | (3.1+ | 0.3+) | 2005 02 09 | 691 | 0.6+ | 0.2+ | 2009 11 08 | 691 | 0.8− | 0.7+ |
| 2000 04 29 | 704 | 1.7+ | 0.0 | 2005 02 09 | 699 | (1.6+ | 0.1+) | 2009 11 16 | 691 | 0.0 | 0.3− |
| 2000 04 29 | 704 | 1.7+ | 0.2− | 2005 02 09 | 691 | 0.5+ | 0.0 | 2009 11 16 | 691 | 0.7− | 0.1− |
| 2000 04 29 | 704 | 0.3− | 1.1+ | 2005 02 09 | 699 | 0.6+ | 0.2+ | 2009 11 16 | 691 | 0.7− | 0.0 |
| 2003 11 19 | 691 | 0.4+ | 0.5+ | 2005 02 09 | 691 | 0.6+ | 0.0 | 2009 11 20 | 691 | 0.8− | 0.1+ |
| 2003 11 19 | 691 | 0.0 | 0.5+ | 2005 02 09 | 699 | 0.3+ | 0.2− | 2009 11 20 | 691 | 0.2− | 0.1− |
| 2003 11 19 | 691 | 0.1+ | 0.5+ | 2005 02 09 | 699 | 0.4+ | 0.2− | 2009 11 20 | 691 | 0.2− | 0.0 |
| 2004 12 20 | G96 | 0.2+ | 0.3− | 2005 03 08 | 704 | 0.6− | 0.3+ | 2009 11 24 | J75 | 0.1+ | 0.2− |
| 2004 12 20 | G96 | 0.4− | 0.7− | 2005 03 08 | 704 | 0.6+ | 0.4− | 2009 11 24 | J75 | 0.5+ | 0.1+ |
| 2004 12 20 | G96 | 0.0 | 0.4− | 2005 03 08 | 704 | 0.2− | 0.2− | 2009 11 24 | J75 | 0.2− | 0.3+ |
| 2004 12 20 | G96 | 0.3− | 0.5− | 2005 03 08 | 704 | 0.5+ | 0.1− | 2009 12 11 | G96 | 0.5+ | 0.0 |
| 2005 01 17 | 703 | 1.3− | 0.3+ | 2005 03 12 | 704 | 0.5− | 0.3+ | 2009 12 11 | G96 | 0.6+ | 0.1− |
| 2005 01 17 | 703 | 0.5− | 0.0 | 2005 03 12 | 704 | 1.0+ | 0.7− | 2009 12 11 | G96 | 0.5+ | 0.1− |
| 2005 01 17 | 703 | (1.7+ | 0.3+) | 2005 03 12 | 704 | 0.5+ | 0.2+ | 2009 12 11 | G96 | 0.5+ | 0.0 |
| 2005 01 17 | 703 | 0.4+ | 1.3− | 2005 03 12 | 704 | 1.0+ | 0.0 | 2009 12 11 | G96 | 0.1− | 0.1− |
| 2005 01 20 | 699 | 1.0+ | 1.0− | 2005 03 12 | 704 | 0.1+ | 0.8− | 2009 12 11 | G96 | 0.2− | 0.1− |
| 2005 01 20 | 699 | (1.9+ | 1.2+) | 2005 03 16 | 704 | 0.2+ | 0.4− | 2009 12 11 | G96 | 0.0 | 0.0 |
| 2005 01 20 | 699 | 0.2+ | 0.5− | 2005 03 16 | 704 | 0.2+ | 0.2+ | 2009 12 11 | G96 | 0.0 | 0.2− |
| 2005 01 20 | 699 | 0.1+ | 0.2− | 2005 03 16 | 704 | 0.5+ | 1.0+ | 2009 12 17 | 704 | 0.5+ | 0.4− |
| 2005 02 02 | 703 | 0.7− | 0.2+ | 2005 03 16 | 704 | 0.1+ | 0.8+ | 2009 12 17 | 704 | 0.5+ | 0.1+ |
| 2005 02 02 | 704 | 0.7+ | 0.4+ | 2008 09 07 | G96 | 0.6+ | 0.6+ | 2009 12 17 | 704 | 0.2+ | 0.7+ |
| 2005 02 02 | 703 | 0.6− | 0.0 | 2008 09 07 | G96 | 0.8+ | 0.5+ | 2009 12 17 | 704 | 0.2+ | 0.0 |
| 2005 02 02 | 703 | 0.2− | 1.0+ | 2008 09 07 | G96 | 0.5+ | 0.4+ | 2009 12 17 | 704 | 0.7+ | 0.2− |
| 2005 02 02 | 704 | 0.9+ | 0.1+ | 2008 09 07 | G96 | 0.1+ | 0.3+ | | | | |

**(229280)∗ 2005 BN$_{47}$ = 1993 YG$_1$ = 2003 TL$_{17}$ = 2008 SG$_{153}$**

Discovered 2005 Jan. 16 by P. A. Wiegert at Mauna Kea.

Id. A. Doppler (*MPO* 146276)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 48.71025 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18997073 | $\omega$ | 313.33236 | | +0.69412403 | −0.71960794 | |
| $a$ | 2.9969414 | $\Omega$ | 92.69986 | | +0.66580119 | +0.63181285 | |
| $e$ | 0.0957103 | $i$ | 1.08269 | | +0.27367977 | +0.28805717 | |
| $P$ | 5.19 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1993 12 16 | 691 | 0.5− | 0.9+ | 2003 10 18 | 691 | 0.0 | 0.3+ | 2008 09 21 | G96 | 0.0 | 0.4− |
| 1993 12 16 | 691 | 0.5+ | 0.1+ | 2005 01 16 | 568 | 0.3+ | 0.2− | 2008 09 21 | G96 | 0.1− | 0.2+ |
| 1993 12 16 | 691 | 0.7+ | 0.1− | 2005 01 16 | 568 | 0.4+ | 0.1+ | 2008 09 22 | 704 | 0.0 | 0.4− |
| 1993 12 17 | 691 | 0.6− | 1.1− | 2005 01 16 | 568 | 0.3+ | 0.3+ | 2008 09 22 | 704 | 0.4− | 0.3− |
| 1993 12 17 | 691 | 0.4+ | 0.3− | 2005 01 17 | 568 | 0.2+ | 0.2+ | 2008 09 22 | 704 | 0.2− | 0.8+ |
| 1993 12 17 | 691 | 0.3+ | 0.6− | 2005 01 18 | 691 | 0.3+ | 0.3+ | 2008 09 28 | 704 | 0.1+ | 0.8+ |
| 1998 10 17 | 691 | 0.4− | 0.4+ | 2005 01 18 | 691 | 0.4+ | 0.0 | 2008 09 28 | 704 | 0.1+ | 1.4+ |
| 1998 10 17 | 691 | 0.4− | 0.5− | 2005 01 18 | 691 | 0.2+ | 0.1+ | 2008 09 28 | 704 | 0.2+ | 0.7+ |
| 1998 10 17 | 691 | 0.5− | 0.3− | 2006 03 24 | G96 | 0.3− | 0.9+ | 2008 09 28 | 704 | 0.2+ | 0.4+ |
| 2000 02 10 | 691 | 0.3+ | 0.1+ | 2006 03 24 | G96 | 0.3− | 0.2+ | 2008 11 24 | G96 | 0.1− | 0.5− |
| 2000 02 10 | 691 | 0.0 | 0.2+ | 2006 03 24 | G96 | 0.2− | 0.1+ | 2008 11 24 | G96 | 0.2− | 0.1− |
| 2000 02 10 | 691 | 0.0 | 0.0 | 2006 03 24 | G96 | 0.0 | 0.4+ | 2008 11 24 | G96 | 0.2+ | 0.3− |
| 2001 04 30 | 691 | 0.8− | 0.2− | 2008 09 04 | 691 | 0.1− | 0.1+ | 2008 11 24 | G96 | 0.0 | 0.1− |
| 2001 04 30 | 691 | 0.4+ | 0.7+ | 2008 09 04 | 691 | 0.4− | 0.3+ | 2009 10 15 | G96 | 0.2− | 0.3− |
| 2001 04 30 | 691 | 0.4+ | 0.0 | 2008 09 04 | 691 | 1.1+ | 0.2− | 2009 10 15 | G96 | 0.7− | 0.4+ |
| 2003 10 15 | 644 | 0.2− | 0.8+ | 2008 09 08 | 691 | 0.5− | 0.2+ | 2009 10 15 | G96 | 0.2− | 0.0 |
| 2003 10 15 | 644 | 0.3− | 0.5+ | 2008 09 08 | 691 | 0.0 | 0.1− | 2009 10 15 | G96 | 0.2+ | 0.5+ |
| 2003 10 15 | 644 | 0.6− | 0.3+ | 2008 09 08 | 691 | 0.0 | 0.2+ | 2009 12 20 | 691 | 0.2− | 0.0 |
| 2003 10 18 | 691 | 0.1+ | 0.2+ | 2008 09 21 | G96 | 0.1+ | 0.3− | 2009 12 20 | 691 | 0.1− | 0.2+ |
| 2003 10 18 | 691 | 0.2+ | 0.3+ | 2008 09 21 | G96 | 0.2+ | 0.0 | 2009 12 20 | 691 | 0.3− | 0.3+ |

**(229281)∗ 2005 CE$_1$**

Discovered 2005 Feb. 1 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 7.31436 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17384570 | $\omega$ | 146.77733 | | +0.32735368 | −0.89712731 | |
| $a$ | 3.1795091 | $\Omega$ | 282.57303 | | +0.78712037 | +0.43259545 | |
| $e$ | 0.1162236 | $i$ | 17.69442 | | +0.52276294 | −0.08957552 | |
| $P$ | 5.67 | $H$ | 14.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 07 12 | 644 | 0.1− | 1.3+ | 2005 02 01 | 644 | 0.1+ | 0.3− | 2008 08 27 | J75 | 0.0 | 0.4+ |
| 2002 07 12 | 644 | 0.8− | 0.8+ | 2005 02 01 | 644 | 0.2− | 0.1− | 2008 08 27 | J75 | 1.4− | 0.5+ |
| 2002 07 12 | 644 | 0.4+ | 0.1+ | 2005 02 01 | 644 | 0.1+ | 0.0 | 2008 09 28 | G96 | 0.3− | 0.1− |
| 2003 11 21 | 704 | 0.1− | 0.1− | 2005 02 02 | 683 | 1.1+ | 0.1+ | 2008 09 28 | G96 | 0.0 | 0.2− |
| 2003 11 21 | 704 | 0.3− | 0.1− | 2005 02 02 | 683 | 0.3+ | 0.8+ | 2008 09 28 | G96 | 0.2− | 0.1− |
| 2003 11 21 | 704 | 0.1+ | 0.0 | 2005 02 02 | 683 | (2.3− | 0.6+) | 2008 09 28 | G96 | 0.4− | 0.1− |
| 2003 12 03 | 704 | 0.4+ | 0.6− | 2005 02 02 | 644 | 0.4+ | 0.1+ | 2008 09 30 | 704 | 0.2+ | 0.8+ |
| 2003 12 03 | 704 | 0.2+ | 0.0 | 2005 02 02 | 644 | 0.5+ | 0.0 | 2008 09 30 | 704 | 0.3− | 1.2+ |
| 2003 12 03 | 704 | 0.6+ | 0.6+ | 2005 02 02 | 644 | 0.1− | 0.8− | 2008 09 30 | 704 | 0.6− | 1.0+ |
| 2003 12 03 | 704 | 0.5− | 0.7+ | 2005 02 03 | 683 | 0.1− | 0.4− | 2008 09 30 | 704 | 0.1− | 0.4+ |
| 2003 12 03 | 704 | 0.2+ | 0.0 | 2005 02 03 | 683 | 1.0+ | 0.4+ | 2009 11 21 | 703 | 0.4+ | 0.1− |
| 2003 12 17 | 704 | 0.2− | 1.2− | 2005 02 03 | 683 | 1.0− | 1.3+ | 2009 11 21 | 703 | 0.4− | 0.3− |
| 2003 12 17 | 704 | 0.3+ | 0.5+ | 2005 02 14 | 703 | 0.2+ | 0.4+ | 2009 11 21 | 703 | 0.9+ | 0.3− |
| 2003 12 17 | 704 | 0.4− | 0.8− | 2005 02 14 | 703 | 0.6− | 0.1− | 2009 11 21 | 703 | 0.4− | 0.9− |
| 2003 12 17 | 704 | 0.3+ | 0.6− | 2005 02 14 | 703 | 1.1− | 1.2+ | 2009 11 21 | 703 | 0.8− | 0.6+ |
| 2003 12 29 | 704 | 0.2− | 0.3− | 2005 02 14 | 683 | 0.2− | 1.0− | 2009 11 24 | 704 | 0.2− | 0.4+ |
| 2003 12 29 | 704 | 0.1+ | 0.1+ | 2005 02 14 | 703 | 0.2+ | 0.5+ | 2009 11 24 | 704 | 0.4+ | 0.8− |
| 2003 12 29 | 704 | 0.6− | 1.1− | 2005 02 14 | 703 | 0.2+ | 0.6− | 2009 11 24 | 704 | 0.5− | 0.0 |
| 2005 01 13 | 683 | (2.2+ | 0.9+) | 2005 02 14 | 683 | 0.4+ | 1.2+ | 2009 11 24 | 704 | 1.0− | 0.3− |
| 2005 01 13 | 683 | 0.3+ | 1.3+ | 2005 02 14 | 703 | 0.3+ | 0.2− | 2009 12 09 | 704 | (0.3+ | 3.5+) |
| 2005 01 13 | 683 | (2.5+ | 2.5+) | 2005 02 14 | 683 | 0.7+ | 1.0+ | 2009 12 09 | 704 | 0.2+ | 0.3− |
| 2005 01 31 | 683 | 1.3+ | 1.1+ | 2005 02 14 | 703 | 0.1+ | 0.7− | 2009 12 09 | 704 | 1.3+ | 0.6− |
| 2005 01 31 | 683 | 0.1+ | 0.3+ | 2005 02 14 | 703 | 0.7− | 0.2− | | | | |
| 2005 01 31 | 683 | (1.6+ | 0.8+) | 2008 08 27 | J75 | 0.0 | 0.4+ | | | | |

**(229282)∗ 2005 $CT_7$ = 2006 $PU_8$**

Discovered 2005 Feb. 4 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. A. Doppler (*MPO* 103657)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 357.77390 | | (2000.0) | | | |
| $n$ | 0.37129636 | $\omega$ | 164.83314 | | +0.14930804 | −0.93772834 |
| $a$ | 1.9171478 | $\Omega$ | 275.81009 | | +0.87122611 | +0.27477373 |
| $e$ | 0.0916306 | $i$ | 18.37673 | | +0.46762396 | −0.21252047 |
| $P$ | 2.65 | $H$ | 16.8 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 01 19 | 703 | 0.1+ | 0.0 | 2006 08 13 | 644 | 0.5− | 0.4+ | 2009 11 08 | 704 | 0.7+ | 0.3− |
| 2005 01 19 | 703 | 0.2− | 0.4+ | 2006 08 13 | 644 | 0.3− | 0.3+ | 2009 11 08 | 704 | 0.4+ | 0.4− |
| 2005 01 19 | 703 | 0.6+ | 1.4+ | 2006 08 19 | 691 | 0.1− | 0.4+ | 2009 11 08 | 704 | 0.2− | 0.4+ |
| 2005 01 19 | 703 | 1.0− | 0.1− | 2006 08 19 | 691 | 0.2− | 0.6+ | 2009 11 08 | 704 | 0.7+ | 0.3+ |
| 2005 02 04 | 704 | (0.2+ | 1.7+) | 2006 08 19 | 691 | 0.5− | 0.7+ | 2009 11 08 | 704 | 0.6+ | 0.0 |
| 2005 02 04 | 704 | 0.5+ | 1.1+ | 2006 10 22 | 703 | 0.3+ | 0.1− | 2009 11 24 | 704 | 0.4− | 0.3− |
| 2005 02 04 | 704 | 0.4+ | 1.3+ | 2006 10 22 | 703 | 1.0− | 0.1− | 2009 11 24 | 704 | 1.3− | 0.2+ |
| 2005 02 04 | 704 | 1.0+ | 1.2+ | 2006 10 22 | 703 | (0.4− | 1.8−) | 2009 11 24 | 704 | 0.7− | 0.1+ |
| 2005 02 04 | 704 | 1.1+ | 1.4+ | 2006 10 22 | 703 | (0.6− | 1.5−) | 2009 11 24 | 704 | 0.1− | 0.0 |
| 2005 02 05 | 644 | 0.4+ | 0.2+ | 2008 05 09 | E12 | 0.2+ | 0.4+ | 2009 12 18 | 703 | 0.2+ | 0.0 |
| 2005 02 05 | 644 | 0.6+ | 0.3+ | 2008 05 09 | E12 | 0.6+ | 0.2+ | 2009 12 18 | 703 | 0.2− | 0.1+ |
| 2005 02 05 | 644 | (2.3+ | 0.8+) | 2008 05 09 | E12 | 0.7+ | 0.1+ | 2009 12 18 | 703 | 0.1− | 0.2− |
| 2006 08 13 | 644 | 0.0 | 0.1+ | 2008 05 09 | E12 | 0.3+ | 0.5+ | 2009 12 18 | 703 | 0.0 | 0.0 |

**(229283)∗ 2005 $CX_8$ = 2006 $JV_{29}$**

Discovered 2005 Feb. 1 by the Catalina Sky Survey.

Id. A. Doppler (*MPO* 100917)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 237.80504 | | (2000.0) | | | |
| $n$ | 0.18118228 | $\omega$ | 145.48339 | | −0.63549076 | +0.76447498 |
| $a$ | 3.0930877 | $\Omega$ | 84.81141 | | −0.73064770 | −0.55007393 |
| $e$ | 0.0904175 | $i$ | 6.24317 | | −0.24961056 | −0.33614978 |
| $P$ | 5.44 | $H$ | 15.4 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 06 01 | 691 | 0.7+ | 0.5+ | 2005 02 03 | 704 | 0.9− | 0.8+ | 2006 05 26 | G96 | 0.6− | 0.0 |
| 1995 06 01 | 691 | 1.5+ | 1.3+ | 2005 02 14 | 704 | 0.1− | 0.5+ | 2006 05 26 | G96 | 0.4− | 0.1+ |
| 1995 06 01 | 691 | 1.2− | 0.0 | 2005 02 14 | 704 | 0.6− | 0.6− | 2008 09 21 | 691 | 0.1− | 0.5+ |
| 2002 09 03 | 599 | 0.6− | 0.6+ | 2005 02 14 | 704 | (2.4− | 0.2+) | 2008 09 21 | 691 | 0.4− | 0.0 |
| 2002 09 03 | 599 | 0.3− | 0.8+ | 2006 04 25 | 691 | 0.1+ | 0.0 | 2008 09 21 | 691 | 0.3+ | 0.1+ |
| 2002 09 03 | 599 | 0.2+ | 0.7+ | 2006 04 25 | 691 | 0.1+ | 0.2+ | 2008 09 25 | 691 | 0.3− | 0.5+ |
| 2002 09 03 | 599 | 0.9− | 0.8+ | 2006 04 25 | 691 | 0.0 | 0.1+ | 2008 09 25 | 691 | 0.1− | 0.6+ |
| 2003 12 21 | 691 | 0.1+ | 0.4+ | 2006 05 03 | 691 | 0.4− | 0.1+ | 2008 09 25 | 691 | 0.2− | 0.3+ |
| 2003 12 21 | 691 | 0.7− | 0.4+ | 2006 05 03 | 691 | 0.1+ | 0.0 | 2008 10 22 | G96 | 0.6+ | 0.2+ |
| 2003 12 21 | 691 | 0.3− | 0.3+ | 2006 05 03 | 691 | 0.1− | 0.3+ | 2008 10 22 | G96 | 0.4+ | 0.3+ |
| 2005 01 18 | 691 | 0.8+ | 0.7− | 2006 05 07 | 691 | 0.4+ | 0.1− | 2008 10 22 | G96 | 0.1+ | 0.6+ |
| 2005 01 18 | 691 | 0.3+ | 0.3+ | 2006 05 07 | 691 | 0.2+ | 0.3+ | 2008 10 22 | G96 | 0.1− | 0.5+ |
| 2005 01 18 | 691 | 0.2+ | 0.1+ | 2006 05 07 | 691 | 0.0 | 0.4+ | 2009 11 17 | G96 | 0.0 | 0.2− |
| 2005 02 01 | 703 | 0.1+ | 0.6− | 2006 05 08 | 691 | 0.2+ | 0.3+ | 2009 11 17 | G96 | 0.1+ | 0.1− |
| 2005 02 01 | 703 | 0.4− | 0.1− | 2006 05 08 | 691 | 0.0 | 0.3+ | 2009 11 17 | G96 | 0.4+ | 0.0 |
| 2005 02 01 | 703 | 1.5− | 0.1+ | 2006 05 08 | 691 | 0.2+ | 0.2+ | 2009 11 17 | G96 | 0.1+ | 0.1+ |
| 2005 02 01 | 703 | (1.6− | 0.2+) | 2006 05 19 | 703 | 0.5+ | 0.9− | 2009 12 17 | 691 | 0.2− | 0.0 |
| 2005 02 03 | 704 | 0.2+ | 1.0+ | 2006 05 19 | 703 | 0.3+ | 0.1+ | 2009 12 17 | 691 | 0.1+ | 0.1+ |
| 2005 02 03 | 704 | 0.1− | 0.2+ | 2006 05 19 | 703 | 1.1− | 0.3− | 2009 12 17 | 691 | 0.1+ | 0.1+ |
| 2005 02 03 | 704 | 0.7− | 0.5+ | 2006 05 26 | G96 | 0.5− | 0.1− | | | | |
| 2005 02 03 | 704 | 0.5− | 1.0+ | 2006 05 26 | G96 | 0.4− | 0.0 | | | | |

**(229284)∗ 2005 $CJ_9$**

Discovered 2005 Feb. 1 by the Catalina Sky Survey.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 257.36943 | | (2000.0) | | | |
| $n$ | 0.18993168 | $\omega$ | 127.90108 | | −0.67468507 | +0.72735378 |
| $a$ | 2.9973522 | $\Omega$ | 99.17647 | | −0.71082304 | −0.59447178 |
| $e$ | 0.0451485 | $i$ | 7.30507 | | −0.19882320 | −0.34286993 |
| $P$ | 5.19 | $H$ | 15.5 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 05 07 | 691 | 0.7− | 0.7− | 2002 09 16 | 644 | 0.1− | 0.6− | 2006 05 22 | 691 | 0.0 | 0.5+ |
| 2000 05 07 | 691 | 0.1− | 0.8− | 2003 12 21 | 691 | 0.0 | 0.1+ | 2006 05 22 | 691 | 0.3+ | 0.4+ |
| 2000 05 07 | 691 | 0.5− | 0.6− | 2003 12 21 | 691 | 0.0 | 0.3+ | 2008 11 09 | G96 | 0.0 | 0.2+ |
| 2002 08 19 | 644 | 0.1− | 0.0 | 2003 12 21 | 691 | 0.1+ | 0.1+ | 2008 11 09 | G96 | 0.3− | 0.2+ |
| 2002 08 19 | 644 | 0.1− | 0.3+ | 2005 02 01 | 703 | 0.8+ | 0.5− | 2008 11 09 | G96 | 0.0 | 0.4+ |
| 2002 08 19 | 644 | 0.3− | 0.1+ | 2005 02 01 | 703 | 0.1− | 1.3− | 2008 11 09 | G96 | 0.3− | 0.1− |
| 2002 08 30 | 644 | 0.2− | 0.1+ | 2005 02 01 | 703 | 0.5+ | 0.3− | 2008 12 02 | G96 | 0.2+ | 0.1− |
| 2002 08 30 | 644 | 0.1− | 0.2+ | 2005 02 01 | 703 | 0.1− | 0.9+ | 2008 12 02 | G96 | 0.3+ | 0.2− |
| 2002 08 30 | 644 | 0.3− | 0.1+ | 2005 02 03 | 704 | 0.7+ | 1.2+ | 2008 12 02 | G96 | 0.3− | 0.0 |
| 2002 09 03 | 608 | 0.0 | 0.4+ | 2005 02 03 | 704 | 0.2+ | 1.2+ | 2008 12 02 | G96 | 0.3− | 0.1+ |
| 2002 09 03 | 608 | 0.2− | 0.0 | 2005 02 03 | 704 | 0.7+ | 0.0 | 2009 11 17 | G96 | 0.2− | 0.4+ |
| 2002 09 03 | 608 | 0.4+ | 0.2− | 2005 02 03 | 704 | 1.1+ | 0.9+ | 2009 11 17 | G96 | 0.3− | 0.2− |
| 2002 09 13 | 608 | 0.4+ | 0.1+ | 2005 02 03 | 704 | 0.4− | 0.9+ | 2009 11 17 | G96 | 0.0 | 0.0 |
| 2002 09 13 | 608 | 0.6− | 0.3+ | 2005 02 14 | 704 | 0.0 | 1.4+ | 2009 11 17 | G96 | 0.2− | 0.2− |
| 2002 09 13 | 608 | 0.3+ | 0.6− | 2005 02 14 | 704 | 0.2− | 0.2+ | 2009 12 18 | 691 | 0.0 | 0.1+ |
| 2002 09 16 | 644 | 0.3+ | 0.1+ | 2005 02 14 | 704 | 0.7+ | 0.1− | 2009 12 18 | 691 | 0.1− | 0.1+ |
| 2002 09 16 | 644 | 0.0 | 0.0 | 2005 02 14 | 704 | 1.0+ | 1.4+ | 2009 12 18 | 691 | 0.3− | 0.1+ |
| 2002 09 16 | 644 | 0.0 | 0.4− | 2006 05 22 | 691 | 0.3+ | 0.5+ | | | | |

**(229285)∗ 2005 $CQ_{12}$ = 2003 $TJ_{43}$**

Discovered 2005 Feb. 2 by Spacewatch at Kitt Peak.

Id. A. Doppler (*MPO* 76643)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 346.59739 | | (2000.0) | | | |
| $n$ | 0.17411804 | $\omega$ | 201.32432 | | −0.02875990 | −0.99857639 |
| $a$ | 3.1761929 | $\Omega$ | 250.34607 | | +0.92386452 | −0.00939599 |
| $e$ | 0.1070698 | $i$ | 2.73415 | | +0.38163754 | −0.05250620 |
| $P$ | 5.66 | $H$ | 16.4 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 02 | 691 | 0.1− | 0.3+ | 2005 03 02 | 691 | 0.4+ | 0.1+ | 2008 09 19 | 691 | 0.0 | 0.0 |
| 2003 10 02 | 691 | 0.1+ | 0.3+ | 2005 03 13 | G96 | 0.3− | 0.2− | 2009 11 08 | 691 | 0.0 | 0.3− |
| 2003 10 02 | 691 | 0.1+ | 0.1+ | 2005 03 13 | G96 | 0.4− | 0.0 | 2009 11 08 | 691 | 0.2+ | 0.2− |
| 2003 10 21 | 691 | 0.1− | 0.0 | 2005 03 13 | G96 | 0.3− | 0.1− | 2009 11 08 | 691 | 0.0 | 0.3− |
| 2003 10 21 | 691 | 0.0 | 0.3+ | 2005 03 13 | G96 | 0.1+ | 0.2− | 2009 11 20 | 691 | 0.1− | 0.1+ |
| 2003 10 21 | 691 | 0.4− | 0.2+ | 2008 09 04 | 691 | 0.3− | 0.5+ | 2009 11 20 | 691 | 0.2− | 0.2+ |
| 2005 02 02 | 691 | 0.3+ | 0.1− | 2008 09 04 | 691 | 0.2− | 0.0 | 2009 11 20 | 691 | 0.0 | 0.1− |
| 2005 02 02 | 691 | 0.1+ | 0.2+ | 2008 09 04 | 691 | 0.2− | 0.3+ | 2009 11 24 | 691 | 0.0 | 0.2− |
| 2005 02 02 | 691 | 0.7− | 0.5+ | 2008 09 09 | G96 | 0.0 | 0.2+ | 2009 11 24 | 691 | 0.1− | 0.1− |
| 2005 02 04 | 691 | 0.2+ | 0.0 | 2008 09 09 | G96 | 0.5+ | 0.3+ | 2009 11 24 | 691 | 0.1− | 0.3− |
| 2005 02 04 | 691 | 0.0 | 0.0 | 2008 09 09 | G96 | 0.2+ | 0.2+ | 2009 12 15 | G96 | 0.9+ | 0.5− |
| 2005 02 04 | 691 | 0.0 | 0.1+ | 2008 09 09 | G96 | 0.1+ | 0.4+ | 2009 12 15 | G96 | 0.3− | 0.1− |
| 2005 03 02 | 691 | 0.0 | 0.4+ | 2008 09 19 | 691 | 0.2+ | 0.6− | 2009 12 15 | G96 | 0.2+ | 0.1− |
| 2005 03 02 | 691 | 0.2+ | 0.1+ | 2008 09 19 | 691 | 0.1+ | 0.1+ | 2009 12 15 | G96 | 0.8+ | 0.2− |

**(229286)∗ 2005 $CJ_{35}$ = 2003 $WD_{114}$**

Discovered 2005 Feb. 2 by Spacewatch at Kitt Peak.

Id. A. Doppler (*MPO* 89624)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 105.55172 | | (2000.0) | | | |
| $n$ | 0.18682383 | $\omega$ | 350.68917 | | +0.99986249 | −0.01362267 |
| $a$ | 3.0305017 | $\Omega$ | 10.10579 | | +0.01641020 | +0.89494325 |
| $e$ | 0.1028736 | $i$ | 3.08936 | | −0.00238895 | +0.44597197 |
| $P$ | 5.28 | $H$ | 15.6 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1992 09 30 | 691 | 0.1+ | 0.6+ | 2008 09 22 | 691 | 0.7− | 0.2− | 2008 11 01 | 704 | 0.4+ | 0.5+ |
| 1992 09 30 | 691 | 1.2− | 0.3+ | 2008 09 22 | 691 | 1.1+ | 0.0 | 2008 11 01 | 704 | 0.9+ | 0.2− |
| 1992 09 30 | 691 | 0.2+ | 0.5+ | 2008 09 22 | G96 | 0.1+ | 0.2− | 2008 11 01 | 704 | 0.4+ | 0.1− |
| 2003 11 20 | 704 | 0.3+ | 0.3+ | 2008 09 22 | 691 | 0.4− | 0.0 | 2008 11 06 | G96 | 0.2+ | 0.3+ |
| 2003 11 20 | 704 | 0.4+ | 0.0 | 2008 09 22 | 691 | 0.2− | 0.3− | 2008 11 06 | G96 | 0.2− | 0.2− |
| 2003 11 20 | 704 | 1.0− | 0.9− | 2008 09 22 | 691 | 0.5− | 0.1+ | 2008 11 06 | G96 | 0.3− | 0.0 |
| 2003 11 20 | 704 | 0.7+ | 0.5+ | 2008 09 22 | 691 | 0.6− | 0.1− | 2008 11 06 | G96 | 0.2− | 0.1− |
| 2003 11 24 | 704 | 0.2− | 0.0 | 2008 10 06 | 691 | (1.9− | 1.5+) | 2008 11 07 | 691 | 0.0 | 0.2− |
| 2003 11 24 | 704 | 0.4+ | 0.2− | 2008 10 06 | 691 | 0.5− | 0.1+ | 2008 11 07 | 691 | 0.0 | 0.1+ |
| 2003 11 24 | 704 | 0.3− | 0.2+ | 2008 10 06 | 691 | 0.2− | 0.1− | 2008 11 07 | 691 | 0.2− | 0.1− |
| 2003 11 24 | 704 | 0.4+ | 0.5+ | 2008 10 10 | 691 | 0.1− | 0.1− | 2008 12 04 | G96 | 0.1− | 0.1− |
| 2003 11 24 | 704 | 0.3− | 0.3+ | 2008 10 10 | 691 | 0.2− | 0.0 | 2008 12 04 | G96 | 0.6+ | 0.0 |
| 2005 02 02 | 691 | 0.2+ | 0.2+ | 2008 10 10 | 691 | 0.0 | 0.1− | 2008 12 04 | G96 | 0.1+ | 0.2− |
| 2005 02 02 | 691 | 0.1+ | 0.3+ | 2008 10 19 | 291 | 0.0 | 0.1− | 2008 12 04 | G96 | 0.2+ | 0.6− |
| 2005 02 02 | 691 | 0.3+ | 0.2+ | 2008 10 19 | 291 | 0.6+ | 0.2− | 2009 01 01 | G96 | 0.6+ | 0.3− |
| 2005 02 04 | G96 | 0.1− | 0.1− | 2008 10 19 | 291 | 0.2+ | 0.1− | 2009 01 01 | G96 | 0.5+ | 0.1− |
| 2005 02 04 | G96 | 0.0 | 0.2+ | 2008 10 20 | 691 | 0.2− | 0.3+ | 2009 01 01 | G96 | 0.2− | 0.1+ |
| 2005 02 04 | G96 | 0.1− | 0.2− | 2008 10 20 | 691 | 0.4− | 0.4+ | 2009 01 01 | G96 | 0.8+ | 0.1− |
| 2005 02 04 | G96 | 0.1− | 0.1+ | 2008 10 20 | 691 | 1.3+ | 0.0 | 2009 09 28 | G96 | 0.5+ | 0.6− |
| 2005 02 09 | 699 | 1.2+ | 0.6+ | 2008 10 20 | G96 | 0.2+ | 0.5− | 2009 09 28 | G96 | 0.1− | 0.3+ |
| 2005 02 09 | 699 | 0.9+ | 0.4− | 2008 10 20 | G96 | 0.4+ | 0.2− | 2009 09 28 | G96 | 0.1− | 0.2− |
| 2005 02 09 | 699 | 1.1− | 0.6+ | 2008 10 20 | G96 | 0.6+ | 0.3− | 2009 09 28 | G96 | 0.2− | 0.2− |
| 2005 02 09 | 699 | (1.0+ | 2.3−) | 2008 10 20 | G96 | 0.2+ | 0.4− | 2009 11 21 | G96 | 0.6+ | 0.1− |
| 2006 05 03 | G96 | 0.1− | 0.4+ | 2008 10 26 | 704 | 0.2+ | 0.1− | 2009 11 21 | G96 | 0.2+ | 0.2− |
| 2006 05 03 | G96 | 0.2+ | 0.5+ | 2008 10 26 | 704 | 0.0 | 0.0 | 2009 11 21 | G96 | 0.2− | 0.2+ |
| 2006 05 03 | G96 | 0.6+ | 0.2+ | 2008 10 26 | 704 | 0.5+ | 0.1+ | 2009 11 21 | G96 | 1.0+ | 1.2− |
| 2006 05 03 | G96 | 0.5+ | 0.1+ | 2008 10 26 | 704 | 0.1+ | 0.1− | 2009 12 18 | 691 | 0.2− | 0.0 |
| 2006 05 07 | G96 | 0.2− | 0.1+ | 2008 10 26 | 704 | 0.2+ | 0.3− | 2009 12 18 | 691 | 0.4− | 0.1+ |
| 2006 05 07 | G96 | 0.5− | 0.2+ | 2008 10 30 | 703 | 0.3− | 0.2− | 2009 12 18 | 691 | 0.1+ | 0.0 |
| 2006 05 07 | G96 | 0.0 | 0.3+ | 2008 10 30 | 703 | 0.7− | 1.0+ | 2009 12 26 | 691 | 0.7− | 0.0 |
| 2006 05 07 | G96 | 0.4+ | 0.1+ | 2008 10 30 | 703 | 1.1− | 0.1+ | 2009 12 26 | 691 | 0.3− | 0.2− |
| 2008 09 22 | G96 | 0.0 | 0.1− | 2008 10 30 | 703 | 0.0 | 0.2+ | 2009 12 26 | 691 | 0.6+ | 0.3+ |
| 2008 09 22 | G96 | 0.4+ | 0.0 | 2008 11 01 | 704 | 0.5+ | 0.6+ | | | | |
| 2008 09 22 | G96 | 0.3+ | 0.0 | 2008 11 01 | 704 | 0.3+ | 0.5+ | | | | |

**(229287)∗ 2005 CG$_{36}$ = 2003 WC$_{188}$**

Discovered 2005 Feb. 3 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 76667)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 287.88725 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18555420 | $\omega$ | 149.71898 | | −0.98059163 | +0.19385068 | |
| $a$ | 3.0443099 | $\Omega$ | 41.49144 | | −0.18759920 | −0.88417077 | |
| $e$ | 0.1043535 | $i$ | 2.53991 | | −0.05697886 | −0.42504583 | |
| $P$ | 5.31 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 09 12 | 644 | 0.4− | 0.3− | 2005 02 03 | 704 | 0.3− | 0.3+ | 2008 11 07 | G96 | 0.2+ | 0.3− |
| 2002 09 12 | 644 | 0.2− | 0.2− | 2005 02 03 | 704 | 0.2+ | 0.1+ | 2008 11 07 | G96 | 0.1+ | 0.1+ |
| 2002 09 15 | 644 | 0.2− | 0.1− | 2005 02 03 | 704 | 0.7+ | 0.6− | 2008 11 07 | G96 | 0.1+ | 0.5− |
| 2002 09 15 | 644 | 0.3− | 0.3− | 2005 02 04 | G96 | 0.5− | 0.4− | 2008 11 07 | G96 | 0.6+ | 0.2− |
| 2002 09 15 | 644 | 0.3+ | 0.2+ | 2005 02 04 | G96 | 0.1− | 0.3− | 2009 11 11 | G96 | 0.3+ | 0.2− |
| 2003 11 15 | 691 | 0.1+ | 0.1− | 2005 02 04 | G96 | 0.4− | 0.5− | 2009 11 11 | G96 | 0.5+ | 0.8− |
| 2003 11 15 | 691 | 0.0 | 0.1+ | 2005 02 04 | G96 | 0.3− | 0.2− | 2009 11 11 | G96 | 0.2+ | 0.0 |
| 2003 11 15 | 691 | 0.1− | 0.0 | 2005 03 04 | 691 | 0.5+ | 0.0 | 2009 11 11 | G96 | 0.5+ | 0.4− |
| 2003 11 23 | 695 | 0.2+ | 0.3+ | 2005 03 04 | 691 | 0.1+ | 0.2+ | 2009 12 18 | G96 | 0.3+ | 0.2− |
| 2003 11 23 | 695 | 0.6− | 0.1+ | 2005 03 04 | 691 | 0.1− | 0.4+ | 2009 12 18 | G96 | 0.1+ | 0.0 |
| 2003 11 24 | 695 | 0.3+ | 0.3+ | 2008 09 25 | 691 | 0.2+ | 0.2− | 2009 12 18 | G96 | 0.4+ | 0.1− |
| 2003 11 24 | 695 | 0.6− | 0.1+ | 2008 09 25 | 691 | 0.3− | 0.4+ | 2009 12 18 | G96 | 0.3+ | 0.2− |
| 2005 01 16 | 691 | 0.1− | 0.1+ | 2008 09 25 | 691 | 0.0 | 0.4+ | 2009 12 19 | 691 | 0.8− | 0.1+ |
| 2005 01 16 | 691 | 0.3+ | 0.3− | 2008 10 20 | G96 | 0.2+ | 0.1+ | 2009 12 19 | 691 | 0.3− | 0.2− |
| 2005 01 16 | 691 | 0.0 | 0.3+ | 2008 10 20 | G96 | 0.1− | 0.1− | 2009 12 19 | 691 | 0.0 | 0.2− |
| 2005 02 03 | 704 | 0.3+ | 0.4+ | 2008 10 20 | G96 | 0.4+ | 0.1− | | | | |
| 2005 02 03 | 704 | 0.7− | 0.9+ | 2008 10 20 | G96 | 0.3+ | 0.2+ | | | | |

**(229288)∗ 2005 CM$_{38}$**

Discovered 2005 Feb. 4 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 7.60052 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.37909883 | $\omega$ | 180.45558 | | +0.06612779 | −0.94759300 | |
| $a$ | 1.8907514 | $\Omega$ | 265.77576 | | +0.91646225 | +0.18156414 | |
| $e$ | 0.0895177 | $i$ | 18.26502 | | +0.39461888 | −0.26287251 | |
| $P$ | 2.60 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 26 | 704 | 0.5− | 0.4+ | 2005 03 02 | 704 | 0.1+ | 0.5+ | 2009 10 24 | 704 | 0.3+ | 0.5− |
| 2001 09 26 | 704 | 0.6+ | 0.0 | 2005 03 02 | 704 | 0.2− | 0.1+ | 2009 10 31 | 704 | 0.1− | 0.7+ |
| 2001 09 26 | 704 | 0.9− | 0.7− | 2005 03 02 | 704 | 0.3+ | 0.6+ | 2009 10 31 | 704 | 0.6− | 0.4− |
| 2001 09 26 | 704 | 0.1+ | 0.1+ | 2005 03 02 | 704 | 0.5+ | 1.1+ | 2009 10 31 | 704 | 0.3+ | 1.0+ |
| 2001 09 26 | 704 | 0.2− | 0.2+ | 2005 03 02 | 704 | 0.1− | 0.2− | 2009 10 31 | 704 | 0.5− | 1.3+ |
| 2001 10 25 | 704 | (0.6− | 2.8+) | 2005 03 04 | 704 | 0.6+ | 0.6+ | 2009 11 16 | 704 | 0.3+ | 0.2+ |
| 2001 10 25 | 704 | (0.6− | 2.0+) | 2005 03 04 | 704 | 0.8+ | 0.3− | 2009 11 16 | 704 | 0.6− | 0.4− |
| 2001 10 25 | 704 | (0.9− | 3.1+) | 2005 03 04 | 704 | 0.3+ | 0.1− | 2009 11 16 | 704 | 0.0 | 0.1− |
| 2001 11 11 | 704 | 0.1− | 0.6+ | 2005 03 17 | 704 | (1.6− | 0.4+) | 2009 11 16 | 704 | 0.1− | 0.0 |
| 2001 11 11 | 704 | 0.2+ | 0.3− | 2005 03 17 | 704 | (1.8− | 0.0 ) | 2009 11 16 | 704 | 0.1− | 0.2− |
| 2001 11 11 | 704 | 0.0 | 0.6+ | 2005 03 17 | 704 | 1.5− | 0.0 | 2009 11 22 | 704 | (1.3+ | 2.4−) |
| 2001 11 11 | 704 | 0.1+ | 0.4+ | 2005 03 17 | 704 | (1.0− | 1.7+) | 2009 11 22 | 704 | 0.4+ | 0.3− |
| 2001 11 11 | 704 | 0.1− | 0.6+ | 2006 09 12 | 012 | 0.2+ | 0.1+ | 2009 11 22 | 704 | 1.1+ | 1.3− |
| 2001 12 10 | 704 | 0.2+ | 0.9− | 2006 09 12 | 012 | 0.1+ | 0.3+ | 2009 11 22 | 704 | 0.7+ | 0.2− |
| 2001 12 10 | 704 | (0.6+ | 1.7−) | 2006 09 12 | 012 | (1.8− | 0.2−) | 2009 11 26 | 691 | 0.4− | 0.3− |
| 2001 12 10 | 704 | (0.3+ | 2.4−) | 2006 09 12 | 012 | 0.1+ | 0.1+ | 2009 11 26 | 691 | 0.3− | 0.4− |
| 2002 01 09 | 704 | 0.9− | 1.1+ | 2006 09 12 | 012 | 0.4+ | 0.4+ | 2009 11 26 | 691 | 0.1− | 0.3− |
| 2002 01 09 | 704 | (1.7− | 0.9+) | 2008 06 10 | E12 | 0.0 | 0.7+ | 2009 12 10 | 704 | 0.3+ | 0.4+ |
| 2002 01 09 | 704 | (2.4− | 0.0 ) | 2008 06 10 | E12 | 0.1− | 0.8+ | 2009 12 10 | 704 | 0.2+ | 0.5+ |
| 2002 01 09 | 704 | (1.5− | 1.9+) | 2008 06 10 | E12 | 0.2− | 1.1+ | 2009 12 10 | 704 | 0.3+ | 0.6+ |
| 2005 02 04 | 704 | 0.4+ | 0.6+ | 2008 06 10 | E12 | 0.2+ | 0.2+ | 2009 12 10 | 704 | 0.4+ | 0.5+ |
| 2005 02 04 | 704 | 0.4+ | 0.5− | 2009 10 16 | 704 | 0.5+ | 0.2+ | 2009 12 11 | 704 | 0.2− | 1.1+ |
| 2005 02 04 | 704 | 0.6+ | 0.5− | 2009 10 16 | 704 | 0.7− | 0.9+ | 2009 12 11 | 704 | 0.5− | 0.9+ |
| 2005 02 04 | 644 | 0.1+ | 0.1− | 2009 10 16 | 704 | 0.8+ | 0.1+ | 2009 12 11 | 704 | 0.6− | 1.5+ |
| 2005 02 04 | 704 | 0.1+ | 0.3− | 2009 10 18 | 704 | 0.5− | 0.2+ | 2009 12 17 | 704 | 0.2− | 0.7− |
| 2005 02 04 | 704 | 0.2+ | 0.3+ | 2009 10 18 | 704 | 0.2+ | 0.4+ | 2009 12 17 | 704 | 0.1+ | 0.5− |
| 2005 02 04 | 644 | 0.2+ | 0.2+ | 2009 10 18 | 704 | 0.6− | 0.2− | 2009 12 17 | 704 | 0.1+ | 0.2− |
| 2005 02 04 | 644 | 0.0 | 0.0 | 2009 10 24 | 704 | 0.9+ | 0.3+ | 2009 12 17 | 704 | 0.1− | 0.8− |
| 2005 02 09 | 704 | 0.8− | 0.0 | 2009 10 24 | 704 | 0.8+ | 0.3+ | 2009 12 17 | 704 | 0.3− | 0.5− |
| 2005 02 09 | 704 | 0.1− | 0.2− | 2009 10 24 | 704 | 0.9+ | 0.7+ | | | | |
| 2005 02 09 | 704 | 0.5− | 0.5− | 2009 10 24 | 704 | 0.6+ | 0.2+ | | | | |

**(229289)∗ 2005 CO$_{57}$**

Discovered 2005 Feb. 2 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 274.24300 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17986327 | $\omega$ | 273.33786 | | −0.94524686 | +0.28766101 | |
| $a$ | 3.1081911 | $\Omega$ | 283.42293 | | −0.19896480 | −0.88233160 | |
| $e$ | 0.0982636 | $i$ | 9.11811 | | −0.25869169 | −0.37248100 | |
| $P$ | 5.48 | $H$ | 14.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 03 12 | 699 | 1.1− | 0.8+ | 2005 02 02 | 704 | 0.1− | 0.1− | 2006 05 29 | E12 | 0.2+ | 0.8+ |
| 2000 03 12 | 699 | 1.0+ | 0.8+ | 2005 02 02 | 704 | 0.6+ | 0.6+ | 2006 05 29 | E12 | 0.1− | 0.4+ |
| 2000 03 12 | 699 | 0.1− | 0.4+ | 2005 02 04 | 699 | 0.1+ | 0.0 | 2006 05 29 | E12 | 0.9+ | 0.9+ |
| 2000 03 12 | 699 | 0.0 | 1.0− | 2005 02 04 | 699 | (2.0+ | 0.4+) | 2007 08 13 | 704 | 0.0 | 0.5− |
| 2000 04 07 | 704 | 0.4− | 1.0+ | 2005 02 04 | 699 | 1.0+ | 0.7− | 2007 08 13 | 704 | 0.1− | 0.0 |
| 2000 04 07 | 704 | 0.7− | 1.0− | 2005 02 04 | 699 | 0.4− | 0.4− | 2007 08 13 | 704 | 1.1− | 0.7+ |
| 2000 04 07 | 704 | 0.6+ | 0.2− | 2005 02 09 | 699 | 0.1− | 0.2+ | 2007 08 13 | 704 | 0.5+ | 0.3+ |
| 2000 04 07 | 704 | 0.4+ | 0.3+ | 2005 02 09 | 699 | 0.1− | 0.1+ | 2007 08 13 | 704 | 0.1+ | 0.1+ |
| 2000 04 07 | 704 | 0.2+ | 0.2+ | 2005 02 09 | 699 | 0.3+ | 0.2+ | 2008 11 17 | 703 | 0.8− | 0.0 |
| 2003 11 20 | 691 | 0.1− | 0.0 | 2005 02 09 | 699 | 0.0 | 0.4− | 2008 11 17 | 703 | 0.4+ | 0.7− |
| 2003 11 20 | 691 | 0.1− | 0.1− | 2005 03 03 | 703 | 0.7− | 0.2− | 2008 11 17 | 703 | 0.1+ | 1.0+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 11 20 | 691 | 0.1− | 0.1− | 2005 03 03 | 703 | 0.5− | 0.4+ | 2008 11 17 | 703 | 0.6− | 0.2− |
| 2003 12 16 | 691 | 0.4− | 0.2+ | 2005 03 03 | 703 | 0.5− | 1.3+ | 2009 10 14 | G96 | 0.6+ | 0.4− |
| 2003 12 16 | 691 | 0.7+ | 0.0 | 2005 03 03 | 703 | 0.7− | 0.0 | 2009 10 14 | G96 | 0.1+ | 0.3+ |
| 2003 12 16 | 691 | 0.2+ | 0.7+ | 2005 03 08 | G92 | 0.0 | 0.3− | 2009 10 14 | G96 | 0.2− | 0.2− |
| 2005 01 13 | 704 | 0.9+ | 0.4+ | 2005 03 08 | G92 | 0.0 | 0.3+ | 2009 10 14 | G96 | 0.4+ | 0.1− |
| 2005 01 13 | 703 | 0.1− | 0.0 | 2005 03 08 | G92 | 0.3− | 0.3+ | 2009 12 16 | 704 | 0.3− | 1.4+ |
| 2005 01 13 | 703 | 0.7− | 0.8+ | 2005 03 09 | G92 | 0.4− | 0.2+ | 2009 12 16 | 704 | 0.6+ | 1.1+ |
| 2005 01 13 | 704 | 0.0 | 0.6+ | 2005 03 09 | G92 | 0.1+ | 0.4+ | 2009 12 16 | 704 | 0.9+ | 1.0+ |
| 2005 01 13 | 703 | 0.1+ | 0.4− | 2005 03 09 | G92 | 0.2+ | 0.2− | 2009 12 17 | 691 | 0.0 | 0.1− |
| 2005 01 13 | 704 | 1.4+ | 0.8− | 2005 03 17 | 703 | 0.3− | 0.6− | 2009 12 17 | 691 | 0.2+ | 0.2− |
| 2005 01 13 | 703 | 0.9+ | 0.4− | 2005 03 17 | 703 | 0.7− | 1.3− | 2009 12 17 | 691 | 0.2− | 0.1− |
| 2005 01 13 | 704 | 0.8+ | 0.4− | 2005 03 17 | 703 | 0.8− | 1.1− | 2009 12 26 | 691 | 0.4− | 0.0 |
| 2005 02 02 | 704 | 0.9+ | 0.0 | 2005 03 17 | 703 | 1.0− | 0.0 | 2009 12 26 | 691 | 0.0 | 0.1− |
| 2005 02 02 | 704 | 0.2− | 0.5+ | 2006 05 29 | E12 | (0.2+ | 2.1−) | 2009 12 26 | 691 | 0.0 | 0.2− |

**(229290)∗ 2005 CX$_{60}$ = 2000 DV$_{50}$**

Discovered 2005 Feb. 5 at Astronomical Research Observatory, Charleston.

Id. G. V. Williams (*MPO* 76696)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 294.11054 | | (2000.0) | | | |
| $n$ | 0.18814001 | $\omega$ | 60.17787 | | −0.99527328 | +0.09672210 |
| $a$ | 3.0163515 | $\Omega$ | 125.37125 | | −0.09238134 | −0.91528145 |
| $e$ | 0.0747656 | $i$ | 0.61233 | | −0.02994652 | −0.39103030 |
| $P$ | 5.24 | $H$ | 16.2 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 02 29 | 704 | 0.6+ | 0.0 | 2005 03 03 | 691 | 0.6− | 1.5+ | 2008 10 07 | 691 | 0.6− | 0.2− |
| 2000 02 29 | 704 | 0.3− | 0.7+ | 2005 04 07 | 568 | 0.4− | 0.5− | 2008 10 07 | 691 | 0.0 | 0.1+ |
| 2000 02 29 | 704 | 1.0+ | 0.2+ | 2005 04 07 | 568 | 0.6− | 0.5− | 2008 10 07 | 691 | 0.2− | 0.1− |
| 2000 02 29 | 704 | 0.3− | 0.4− | 2005 04 07 | 568 | 0.5− | 0.6− | 2008 10 20 | G96 | 0.4+ | 0.3+ |
| 2000 03 03 | 704 | 0.4+ | 0.3+ | 2005 04 09 | G96 | 0.2− | 0.2− | 2008 10 20 | G96 | 0.3+ | 0.1+ |
| 2000 03 03 | 704 | 0.1+ | 0.2+ | 2005 04 09 | G96 | 0.1− | 0.0 | 2008 10 20 | G96 | 0.6+ | 0.1+ |
| 2000 03 03 | 704 | 0.0 | 0.8+ | 2005 04 09 | G96 | 0.2− | 0.1− | 2008 10 20 | G96 | 0.5+ | 0.3− |
| 2000 03 03 | 704 | 1.0+ | 0.3+ | 2005 04 09 | G96 | 0.1− | 0.0 | 2008 11 07 | G96 | 0.4+ | 0.2+ |
| 2000 03 03 | 704 | 0.6− | 0.2+ | 2006 05 24 | 691 | 0.4+ | 0.2+ | 2008 11 07 | G96 | 0.2− | 0.2+ |
| 2003 10 20 | 691 | 0.0 | 0.1+ | 2006 05 24 | 691 | 0.0 | 0.5+ | 2008 11 07 | G96 | 0.7− | 0.7+ |
| 2003 10 20 | 691 | 0.3− | 0.2+ | 2006 05 24 | 691 | 0.2− | 0.3+ | 2008 11 07 | G96 | 0.9+ | 1.0+ |
| 2003 10 20 | 691 | 0.4− | 0.3+ | 2007 09 10 | G96 | 0.7+ | 0.0 | 2008 12 04 | G96 | 0.4+ | 0.1+ |
| 2005 01 16 | 691 | 0.2+ | 0.0 | 2007 09 10 | G96 | 0.2− | 0.4+ | 2008 12 04 | G96 | 0.5+ | 0.5+ |
| 2005 01 16 | 691 | 0.3+ | 0.0 | 2007 09 10 | G96 | 0.8− | 0.0 | 2008 12 04 | G96 | 0.1+ | 0.1+ |
| 2005 01 16 | 691 | 0.3+ | 0.1+ | 2007 09 10 | G96 | 0.1− | 0.4− | 2008 12 04 | G96 | 0.2+ | 0.3− |
| 2005 02 05 | H55 | 0.3+ | 0.7− | 2008 09 21 | 691 | 0.2+ | 0.3+ | 2009 12 15 | G96 | 0.2+ | 0.2− |
| 2005 02 05 | H55 | 0.8+ | 0.4− | 2008 09 21 | 691 | 0.0 | 0.4+ | 2009 12 15 | G96 | 0.2+ | 0.1− |
| 2005 02 05 | H55 | 0.0 | 0.1+ | 2008 09 21 | 691 | 0.1− | 0.2+ | 2009 12 15 | G96 | 0.8− | 0.8− |
| 2005 02 09 | 699 | 1.1− | 0.4− | 2008 09 25 | 691 | 0.1− | 0.1+ | 2009 12 15 | G96 | 0.2− | 2.2− |
| 2005 02 09 | 699 | 0.3− | 1.1+ | 2008 09 25 | 691 | 0.2− | 0.1+ | 2009 12 18 | 691 | 0.2− | 0.3− |
| 2005 02 09 | 699 | 0.6+ | 0.8− | 2008 09 25 | 691 | (1.6+ | 0.4+) | 2009 12 18 | 691 | 0.0 | 0.3− |
| 2005 02 09 | 699 | 0.1− | 0.9+ | 2008 09 29 | 691 | 0.5− | 0.3+ | 2009 12 18 | 691 | 0.1− | 0.2− |
| 2005 03 03 | 691 | 0.1+ | 0.2+ | 2008 09 29 | 691 | 0.8+ | 0.1− | | | | |
| 2005 03 03 | 691 | 0.4+ | 0.0 | 2008 09 29 | 691 | 0.1− | 0.0 | | | | |

**(229291)∗ 2005 CY$_{63}$**

Discovered 2005 Feb. 9 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 350.01191 | | (2000.0) | | | |
| $n$ | 0.17963479 | $\omega$ | 356.89751 | | −0.23208342 | −0.97164901 |
| $a$ | 3.1108262 | $\Omega$ | 106.51887 | | +0.89344108 | −0.23128247 |
| $e$ | 0.1768467 | $i$ | 2.69726 | | +0.38457812 | −0.04905731 |
| $P$ | 5.49 | $H$ | 15.8 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 21 | 699 | (0.9− | 3.0+) | 2005 02 14 | 704 | 0.0 | 0.2− | 2008 07 30 | 691 | 0.5− | 0.3+ |
| 2003 10 21 | 699 | 0.6− | 0.8+ | 2005 02 14 | 704 | 0.2− | 0.3+ | 2008 09 23 | G96 | 0.1− | 0.1+ |
| 2003 10 21 | 699 | 0.1− | 0.4+ | 2005 02 14 | 704 | 0.2+ | 0.3+ | 2008 09 23 | G96 | 0.5+ | 0.7+ |
| 2003 10 21 | 699 | (0.4− | 1.9+) | 2005 03 01 | 691 | 0.1+ | 0.4+ | 2008 09 23 | G96 | 0.9+ | 0.4+ |
| 2004 12 20 | G96 | 0.0 | 0.1− | 2005 03 01 | 691 | 0.0 | 0.2+ | 2008 09 23 | G96 | 0.3+ | 0.2+ |
| 2004 12 20 | G96 | 0.0 | 0.2− | 2005 03 01 | 691 | 0.4+ | 0.3+ | 2009 11 08 | 691 | 0.4− | 0.0 |
| 2004 12 20 | G96 | 0.0 | 0.3− | 2005 03 10 | G96 | 0.4− | 0.4− | 2009 11 08 | 691 | 0.1− | 0.0 |
| 2004 12 20 | G96 | 0.6− | 0.8− | 2005 03 10 | G96 | 0.5− | 0.3− | 2009 11 08 | 691 | 0.1+ | 0.0 |
| 2005 02 01 | 691 | 0.1+ | 0.2+ | 2005 03 10 | G96 | 0.6− | 0.2− | 2009 11 20 | 691 | 0.5− | 0.2− |
| 2005 02 01 | 691 | 0.2+ | 0.1+ | 2005 03 10 | G96 | 0.5− | 0.2− | 2009 11 20 | 691 | 0.8+ | 0.1− |
| 2005 02 01 | 691 | 0.1+ | 0.2+ | 2006 04 24 | 691 | 0.2+ | 0.2+ | 2009 11 20 | 691 | 0.3− | 0.1− |
| 2005 02 03 | 704 | (1.0+ | 1.6+) | 2006 04 24 | 691 | 0.2+ | 0.4+ | 2009 12 10 | G96 | 0.1+ | 0.2− |
| 2005 02 03 | 704 | 0.4− | 0.2+ | 2006 04 24 | 691 | 0.9− | 1.5+ | 2009 12 10 | G96 | 0.0 | 0.1− |
| 2005 02 03 | 704 | (0.1− | 2.0−) | 2006 05 06 | 691 | 0.0 | 0.7− | 2009 12 10 | G96 | 0.0 | 0.0 |
| 2005 02 09 | 699 | (2.5+ | 0.1−) | 2006 05 06 | 691 | 0.3+ | 0.5− | 2009 12 10 | G96 | 0.0 | 0.2− |
| 2005 02 09 | 699 | 1.2+ | 1.2+ | 2006 05 06 | 691 | 0.3+ | 0.0 | 2009 12 17 | 704 | 0.9+ | 1.2+ |
| 2005 02 09 | 699 | 0.0 | 0.4− | 2008 07 30 | 691 | 0.4− | 0.6+ | 2009 12 17 | 704 | 0.3− | 1.2+ |
| 2005 02 09 | 699 | (1.9+ | 0.2−) | 2008 07 30 | 691 | 0.1− | 0.5+ | 2009 12 17 | 704 | 0.2− | 0.3+ |

**(229292)∗ 2005 CG$_{69}$ = 2000 CH$_{78}$ = 2003 SQ$_{242}$**

Discovered 2005 Feb. 2 at Nyukasa.

Id. A. Doppler (*MPO* 76704)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 337.15287 | | (2000.0) | | | |
| $n$ | 0.18201601 | $\omega$ | 272.77109 | | −0.32814578 | −0.94462558 |
| $a$ | 3.0836352 | $\Omega$ | 196.38548 | | +0.86903911 | −0.30118684 |
| $e$ | 0.0581098 | $i$ | 0.34294 | | +0.37025852 | −0.13026509 |
| $P$ | 5.41 | $H$ | 16.4 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1992 10 03 | 691 | 0.2− | 0.3− | 2005 01 18 | 691 | 0.6+ | 0.3+ | 2008 10 20 | G96 | 0.0 | 0.2− |
| 1992 10 03 | 691 | 0.0 | 0.4+ | 2005 01 18 | 691 | 0.2+ | 0.2+ | 2008 10 20 | G96 | 0.3+ | 0.2+ |
| 1992 10 03 | 691 | 0.2− | 0.2− | 2005 01 18 | 691 | 0.3+ | 0.1− | 2008 10 20 | G96 | 0.2+ | 0.0 |
| 2000 02 07 | 691 | 0.2+ | 0.0 | 2005 02 02 | 408 | (2.1+ | 0.4+) | 2008 10 20 | G96 | 0.5+ | 0.2− |
| 2000 02 07 | 691 | 0.7− | 0.3+ | 2005 02 02 | 408 | 0.7+ | 0.2− | 2008 11 24 | G96 | 0.4− | 0.8− |
| 2000 02 07 | 691 | 0.8+ | 0.9− | 2005 02 03 | 408 | 1.1− | 1.1+ | 2008 11 24 | G96 | 0.4+ | 0.6− |
| 2000 02 11 | 691 | 0.3+ | 0.1+ | 2005 02 03 | 408 | (2.0− | 1.0+) | 2008 11 24 | G96 | 0.6+ | 0.2+ |
| 2000 02 11 | 691 | 0.6− | 0.2− | 2008 09 06 | G96 | 0.3+ | 0.1+ | 2008 11 24 | G96 | 0.9− | 0.0 |
| 2000 02 11 | 691 | 0.6− | 0.3− | 2008 09 06 | G96 | 0.3+ | 0.2− | 2009 11 16 | 691 | 0.0 | 0.0 |
| 2003 09 27 | 691 | 0.2+ | 0.1+ | 2008 09 06 | G96 | 0.9− | 0.4− | 2009 11 16 | 691 | 0.3− | 0.4− |
| 2003 09 27 | 691 | 0.5+ | 0.0 | 2008 09 06 | G96 | 0.1+ | 0.4− | 2009 11 16 | 691 | 0.2− | 0.0 |
| 2003 09 27 | 691 | 0.5+ | 0.1− | 2008 09 20 | G96 | 0.6+ | 0.3− | 2009 11 20 | 691 | 0.1− | 0.1− |
| 2003 09 29 | 691 | 0.2− | 0.6+ | 2008 09 20 | G96 | 0.2− | 0.2− | 2009 11 20 | 691 | 0.6− | 0.4− |
| 2003 09 29 | 691 | 0.2− | 0.7+ | 2008 09 20 | G96 | 0.9+ | 0.4− | 2009 11 20 | 691 | 0.3− | 0.1− |
| 2003 09 29 | 691 | 0.3− | 0.2+ | 2008 09 20 | G96 | 0.0 | 1.2− | 2009 12 10 | G96 | 0.4+ | 0.0 |
| 2004 12 18 | G96 | 0.2− | 0.2− | 2008 10 02 | G96 | 0.2− | 0.4− | 2009 12 10 | G96 | 0.0 | 0.1− |
| 2004 12 18 | G96 | 0.0 | 0.0 | 2008 10 02 | G96 | 1.1+ | 0.6− | 2009 12 10 | G96 | 0.6+ | 0.1− |
| 2004 12 18 | G96 | 0.0 | 0.3+ | 2008 10 02 | G96 | 0.4− | 0.2+ | 2009 12 10 | G96 | 0.3+ | 0.1− |
| 2004 12 18 | G96 | 0.3+ | 0.1+ | 2008 10 02 | G96 | 0.2− | 0.1− | | | | |

**(229293)∗ 2005 CS$_{79}$**

Discovered 2005 Feb. 1 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 263.87580 | | (2000.0) | | | |
| $n$ | 0.18301261 | $\omega$ | 332.59399 | | −0.66360998 | +0.74801180 |
| $a$ | 3.0724303 | $\Omega$ | 255.82842 | | −0.68444530 | −0.61250607 |
| $e$ | 0.1097127 | $i$ | 0.59135 | | −0.30192122 | −0.25556733 |
| $P$ | 5.39 | $H$ | 15.8 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 04 05 | 691 | 0.1− | 0.0 | 2005 04 02 | G96 | 0.0 | 0.2− | 2008 11 19 | G96 | 0.5+ | 0.2− |
| 2000 04 05 | 691 | 0.1− | 0.0 | 2005 04 02 | G96 | 0.0 | 0.0 | 2008 11 30 | G96 | 0.7+ | 0.2− |
| 2000 04 05 | 691 | 0.2− | 0.1− | 2005 04 02 | G96 | 0.0 | 0.2− | 2008 11 30 | G96 | 0.3+ | 0.2− |
| 2003 12 25 | 691 | 0.1+ | 0.1− | 2005 04 02 | G96 | 0.0 | 0.2− | 2008 11 30 | G96 | 0.3+ | 0.5− |
| 2003 12 25 | 691 | 0.0 | 0.2+ | 2007 09 10 | G96 | 0.0 | 0.5− | 2008 11 30 | G96 | 1.4+ | 1.0+ |
| 2003 12 25 | 691 | 0.0 | 0.2+ | 2007 09 10 | G96 | 0.4+ | 0.5− | 2008 12 21 | G96 | 0.2+ | 0.2+ |
| 2004 12 20 | G96 | 0.4− | 0.2− | 2007 09 10 | G96 | 0.5+ | 0.3− | 2008 12 21 | G96 | 0.2+ | 0.3− |
| 2004 12 20 | G96 | 0.2− | 0.5+ | 2007 09 10 | G96 | 0.1+ | 0.4− | 2008 12 21 | G96 | 0.3+ | 0.0 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 20 | G96 | 0.5− | 0.1+ | 2007 10 04 | G96 | 0.2+ | 0.1+ | 2008 12 21 | G96 | 0.1− | 0.0 |
| 2004 12 20 | G96 | 0.3− | 1.0− | 2007 10 04 | G96 | 0.1− | 0.3− | 2009 11 17 | G96 | 0.3+ | 0.2− |
| 2005 02 01 | 691 | 0.2+ | 0.1+ | 2007 10 04 | G96 | 0.1− | 0.1− | 2009 11 17 | G96 | 0.1+ | 0.5− |
| 2005 02 01 | 691 | 0.5+ | 0.1+ | 2007 10 04 | G96 | 0.4+ | 0.0 | 2009 11 17 | G96 | 1.2− | 0.1− |
| 2005 02 01 | 691 | 0.5+ | 0.0 | 2008 10 28 | 691 | 0.4− | 0.1− | 2009 11 17 | G96 | 0.7+ | 0.1+ |
| 2005 02 09 | G96 | 0.0 | 0.2− | 2008 10 28 | 691 | 0.3− | 0.0 | 2009 12 15 | G96 | 0.3+ | 0.1− |
| 2005 02 09 | G96 | 0.2+ | 0.2− | 2008 10 28 | 691 | 1.0− | 0.5− | 2009 12 15 | G96 | 0.7+ | 0.2− |
| 2005 02 09 | G96 | 0.1− | 0.1− | 2008 11 01 | 691 | 0.4+ | 0.1+ | 2009 12 15 | G96 | 0.3+ | 0.6− |
| 2005 02 09 | G96 | 0.1− | 0.1− | 2008 11 01 | 691 | 0.2+ | 0.2− | 2009 12 15 | G96 | 0.6+ | 0.1− |
| 2005 03 08 | G96 | 0.2− | 0.2+ | 2008 11 01 | 691 | 0.5− | 1.2+ | 2009 12 17 | 691 | 0.2− | 0.1− |
| 2005 03 08 | G96 | 0.2− | 0.2+ | 2008 11 19 | G96 | 0.5+ | 0.2+ | 2009 12 17 | 691 | 0.1− | 0.2− |
| 2005 03 08 | G96 | 0.5− | 0.1+ | 2008 11 19 | G96 | 0.4+ | 0.3− | 2009 12 17 | 691 | 0.7− | 0.0 |
| 2005 03 08 | G96 | 0.1− | 0.5+ | 2008 11 19 | G96 | 0.4+ | 0.3− | | | | |

**(229294)∗ 2005 EH$_2$ = 1998 SB$_{33}$**

Discovered 2005 Mar. 3 by R. A. Tucker at the Goodricke-Pigott Observatory, Tucson.

Id. G. V. Williams (*MPO* 76716)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 35.99291 | | (2000.0) | | | |
| $n$ | 0.37223589 | $\omega$ | 64.56794 | | +0.44738707 | −0.89430831 |
| $a$ | 1.9139205 | $\Omega$ | 358.77547 | | +0.63868632 | +0.32541942 |
| $e$ | 0.1044303 | $i$ | 20.77483 | | +0.62603881 | +0.30710723 |
| $P$ | 2.65 | $H$ | 16.9 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 09 18 | 704 | 0.1− | 0.3+ | 2005 04 04 | 703 | 0.5+ | 1.0+ | 2006 09 25 | 691 | 0.2+ | 0.6+ |
| 1998 09 18 | 704 | 1.4− | 0.2+ | 2005 04 04 | 703 | 0.4+ | 0.3− | 2006 09 25 | 691 | 0.0 | 0.2+ |
| 1998 09 18 | 704 | (2.1+ | 2.1+) | 2005 04 09 | 699 | 0.2− | 0.0 | 2006 09 25 | 704 | 0.2+ | 0.6+ |
| 1998 09 18 | 704 | 0.8− | 1.7+ | 2005 04 09 | 704 | 0.9+ | 0.0 | 2006 09 25 | 704 | 0.2+ | 0.0 |
| 1998 09 18 | 704 | 0.3+ | 1.3+ | 2005 04 09 | 704 | 1.0+ | 0.8+ | 2006 09 25 | 704 | 0.0 | 0.3+ |
| 1998 09 27 | 704 | 1.0− | 0.4− | 2005 04 09 | 699 | 0.3+ | 0.3+ | 2006 09 25 | 704 | 0.1+ | 0.0 |
| 1998 09 27 | 704 | 1.0− | 1.6+ | 2005 04 09 | 704 | (1.8+ | 0.5−) | 2006 09 27 | 691 | 0.1+ | 0.2+ |
| 1998 09 27 | 704 | 1.0− | 1.0+ | 2005 04 09 | 699 | 0.2− | 0.3+ | 2006 09 27 | 691 | 0.1− | 0.3+ |
| 1998 09 27 | 704 | 1.3− | 0.7− | 2005 04 09 | 699 | 0.9− | 0.7+ | 2006 09 27 | 691 | 0.1− | 0.2+ |
| 1998 09 27 | 704 | (3.7− | 0.1−) | 2005 05 13 | 291 | 0.6+ | 0.3+ | 2006 09 29 | 704 | 0.3− | 0.0 |
| 2005 03 03 | 683 | 0.6+ | 0.1+ | 2005 05 13 | 291 | 0.7+ | 0.1+ | 2006 09 29 | 704 | 0.2− | 0.5− |
| 2005 03 03 | 683 | 0.2− | 0.3− | 2005 05 13 | 291 | 0.8+ | 0.2+ | 2006 09 29 | 704 | 0.0 | 0.3+ |
| 2005 03 03 | 683 | 1.4− | 0.6− | 2005 05 14 | 291 | 1.0+ | 0.4+ | 2006 09 29 | 704 | 0.0 | 0.1+ |
| 2005 03 03 | 703 | 0.3− | 0.3+ | 2005 05 14 | 291 | 1.2+ | 0.4+ | 2006 09 29 | 704 | 0.4− | 0.1− |
| 2005 03 03 | 703 | 1.2− | 0.4+ | 2005 05 14 | 291 | 0.9+ | 0.3+ | 2006 10 01 | 691 | 0.3− | 0.4+ |
| 2005 03 03 | 703 | 0.2− | 0.5+ | 2006 08 19 | 699 | 0.8+ | 0.3+ | 2006 10 01 | 691 | 0.1− | 0.0 |
| 2005 03 03 | 703 | 1.2− | 0.1− | 2006 08 19 | 699 | 0.3+ | 1.4+ | 2006 10 01 | 691 | 0.2− | 0.1+ |
| 2005 03 04 | 704 | 0.2+ | 0.7+ | 2006 08 19 | 699 | 0.4− | 0.2− | 2006 10 12 | 644 | 0.1− | 0.3+ |
| 2005 03 04 | 704 | 0.8+ | 0.4− | 2006 08 19 | 699 | (2.8+ | 3.8+) | 2006 10 12 | 644 | 0.1− | 0.2+ |
| 2005 03 04 | 704 | 0.7+ | 0.5+ | 2006 08 22 | 644 | 0.5− | 0.2− | 2006 10 12 | 644 | 0.1+ | 0.4+ |
| 2005 03 07 | 704 | 0.9+ | 0.7+ | 2006 08 22 | 644 | 0.4− | 0.1− | 2006 10 17 | 703 | 0.5+ | 0.6− |
| 2005 03 07 | 704 | 0.0 | 0.6+ | 2006 08 22 | 644 | 0.3− | 0.0 | 2006 10 17 | 703 | 0.8− | 0.1+ |
| 2005 03 07 | 704 | 0.9+ | 0.4+ | 2006 08 28 | 703 | 0.1− | 0.3+ | 2006 10 17 | 703 | 0.4− | 0.3− |
| 2005 03 07 | 704 | 0.2+ | 0.0 | 2006 08 28 | 703 | 0.1+ | 0.1− | 2006 10 17 | 703 | 0.7− | 0.4+ |
| 2005 03 07 | 704 | 1.0+ | 0.7+ | 2006 08 28 | 703 | 0.0 | 0.0 | 2006 10 21 | 691 | 0.4− | 0.5+ |
| 2005 03 08 | 704 | 0.3+ | 0.5+ | 2006 08 28 | 703 | 0.9+ | 0.5− | 2006 10 21 | 691 | 0.5− | 0.6+ |
| 2005 03 08 | 704 | 1.4+ | 1.0+ | 2006 09 12 | 703 | 0.2− | 0.1− | 2006 10 21 | 691 | 0.1− | 0.1− |
| 2005 03 08 | 704 | 1.1+ | 0.3+ | 2006 09 12 | 703 | 0.5− | 0.0 | 2006 10 23 | 703 | 1.0− | 0.7+ |
| 2005 03 08 | 704 | (0.5− | 1.8+) | 2006 09 12 | 703 | 0.3− | 0.7− | 2006 10 23 | 703 | 0.7− | 0.2+ |
| 2005 03 09 | 704 | 0.8+ | 0.4+ | 2006 09 12 | 703 | 0.5− | 0.9− | 2006 10 23 | 703 | 0.5− | 0.9+ |
| 2005 03 09 | 704 | 0.5+ | 1.3+ | 2006 09 15 | 691 | 0.1− | 0.0 | 2006 10 23 | 703 | 0.8− | 0.6+ |
| 2005 03 09 | 704 | 0.7+ | 0.0 | 2006 09 15 | 691 | 0.1+ | 0.0 | 2006 11 25 | 703 | 0.5− | 0.7− |
| 2005 03 09 | 704 | 0.1+ | 0.9+ | 2006 09 15 | 691 | 0.1+ | 0.1+ | 2006 11 25 | 703 | 0.6+ | 0.4+ |
| 2005 03 09 | 704 | 0.1+ | 0.3+ | 2006 09 17 | 704 | 0.1− | 0.5+ | 2006 11 25 | 703 | 0.0 | 0.3+ |
| 2005 03 10 | G96 | 0.3− | 0.2− | 2006 09 17 | 704 | 0.3− | 0.7+ | 2006 11 25 | 703 | 0.4− | 0.8− |
| 2005 03 10 | G96 | 0.1− | 0.1− | 2006 09 17 | 704 | 0.2+ | 0.6+ | 2009 10 29 | 703 | (0.7+ | 2.1+) |
| 2005 03 10 | G96 | 0.1− | 0.2− | 2006 09 17 | 704 | 0.5+ | 0.9+ | 2009 10 29 | 703 | 0.4+ | 0.3+ |
| 2005 03 10 | G96 | 0.0 | 0.2− | 2006 09 17 | 704 | 0.2− | 0.2− | 2009 10 29 | 703 | 0.2− | 0.8+ |
| 2005 03 11 | 691 | 0.1− | 0.6+ | 2006 09 17 | 691 | 0.9− | 1.0+ | 2009 10 29 | 703 | 1.3− | 0.2+ |
| 2005 03 11 | 691 | 0.4+ | 0.3+ | 2006 09 17 | 691 | 0.3− | 0.2+ | 2009 11 24 | 703 | 0.4− | 0.2− |
| 2005 03 11 | 691 | 0.1+ | 0.4+ | 2006 09 17 | 691 | 0.3− | 0.2+ | 2009 11 24 | 703 | 0.2+ | 0.2+ |
| 2005 03 16 | 691 | 0.4+ | 0.3+ | 2006 09 17 | 608 | 0.4+ | 1.5− | 2009 11 24 | 703 | 0.1− | 0.5+ |
| 2005 03 16 | 691 | 0.4+ | 0.2+ | 2006 09 17 | 608 | 0.3+ | 1.2− | 2009 11 24 | 703 | 0.4+ | 1.5+ |
| 2005 03 16 | 691 | 0.3+ | 0.7+ | 2006 09 17 | 608 | 0.1+ | 1.5− | 2009 12 19 | 703 | 0.3+ | 0.9− |
| 2005 03 17 | 704 | 0.6+ | 0.5+ | 2006 09 19 | 699 | 0.4+ | 0.3− | 2009 12 19 | 703 | 0.1− | 1.5− |
| 2005 03 17 | 704 | 0.1+ | 1.0+ | 2006 09 19 | 699 | 0.0 | 0.9+ | 2009 12 19 | 703 | 1.3− | 0.3+ |
| 2005 03 17 | 704 | 0.9+ | 0.4− | 2006 09 19 | 699 | 1.3− | 0.1− | 2009 12 19 | 703 | 0.3− | 0.5+ |
| 2005 04 04 | 703 | 0.3+ | 0.6+ | 2006 09 19 | 699 | 0.3− | 0.2+ | | | | |
| 2005 04 04 | 703 | 0.2− | 0.2+ | 2006 09 25 | 691 | 0.1− | 0.2+ | | | | |

**(229295)∗ 2005 EN$_2$ = 2003 US$_{54}$**

Discovered 2005 Mar. 3 at Jarnac Observatory, Vail.

Id. A. Doppler (*MPO* 76716)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 17.29539 | | (2000.0) | | | |
| $n$ | 0.17720497 | $\omega$ | 129.13840 | | +0.22293211 | −0.96653137 |
| $a$ | 3.1391985 | $\Omega$ | 307.51367 | | +0.83772904 | +0.25654605 |
| $e$ | 0.2069165 | $i$ | 9.21018 | | +0.49850910 | +0.00111293 |
| $P$ | 5.56 | $H$ | 15.5 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 01 22 | 691 | 0.5− | 0.2− | 2005 03 03 | G92 | 0.4+ | 0.3+ | 2008 10 01 | G96 | 0.3+ | 0.2− |
| 1999 01 22 | 691 | 0.2− | 0.3− | 2005 03 03 | G92 | 0.4+ | 0.4+ | 2008 10 01 | G96 | 0.1− | 0.0 |
| 1999 01 22 | 691 | 0.4− | 0.4− | 2005 03 03 | G92 | 0.7+ | 0.6+ | 2008 10 01 | G96 | 0.1+ | 0.0 |
| 1999 02 13 | 691 | 0.4+ | 0.3− | 2005 03 04 | 703 | 1.4+ | 1.3+ | 2008 10 01 | G96 | 0.1+ | 0.0 |
| 1999 02 13 | 691 | 0.2+ | 0.5− | 2005 03 04 | 703 | 0.8+ | 0.4− | 2009 12 09 | J75 | 0.3+ | 0.3+ |
| 1999 02 13 | 691 | 0.1− | 0.1− | 2005 03 04 | 703 | 0.9− | 1.4+ | 2009 12 09 | J75 | 0.7+ | 0.3− |
| 2003 10 18 | 699 | 1.3− | 0.5− | 2005 03 04 | 703 | 0.1− | 0.3− | 2009 12 09 | J75 | 0.3+ | 0.5+ |
| 2003 10 18 | 699 | 1.3− | 1.4+ | 2005 03 04 | G92 | 1.2− | 0.5+ | 2009 12 10 | 704 | 0.3+ | 0.8+ |
| 2003 10 18 | 699 | 0.1− | 0.3− | 2005 03 04 | G92 | 0.7+ | 0.4+ | 2009 12 10 | 704 | 1.0+ | 0.8+ |
| 2003 10 18 | 699 | 0.5+ | 0.2+ | 2005 03 04 | G92 | 1.0+ | 1.0+ | 2009 12 10 | 704 | 0.7+ | 0.6− |
| 2003 10 18 | 644 | 0.1+ | 0.3+ | 2005 03 08 | G92 | 0.0 | 0.1+ | 2009 12 10 | 704 | 0.6+ | 0.6+ |
| 2003 10 18 | 644 | 0.1+ | 0.1+ | 2005 03 08 | G92 | 0.1+ | 0.1+ | 2009 12 15 | 704 | 0.2− | 0.5− |
| 2003 10 18 | 644 | 0.1+ | 0.1+ | 2005 03 08 | G92 | (0.3+ | 2.4−) | 2009 12 15 | 704 | 0.7+ | 0.1− |
| 2003 10 19 | 644 | 0.1+ | 0.1+ | 2005 03 10 | 703 | 0.3− | 0.9+ | 2009 12 15 | 704 | 0.6+ | 0.1− |
| 2003 10 19 | 644 | 0.1+ | 0.3+ | 2005 03 10 | 703 | 0.8+ | 0.1− | 2009 12 15 | 704 | 0.1+ | 0.1+ |
| 2003 10 19 | 644 | 0.0 | 0.3+ | 2005 03 10 | 703 | 0.3+ | 0.1+ | 2009 12 15 | 704 | 0.5+ | 0.5− |
| 2003 11 20 | 704 | 0.8− | 0.3+ | 2005 03 10 | 703 | 0.1− | 1.4+ | 2009 12 18 | 691 | 0.3− | 0.1+ |
| 2003 11 20 | 704 | 0.6+ | 0.0 | 2005 03 11 | G96 | 0.0 | 0.3+ | 2009 12 18 | 691 | 0.0 | 0.0 |
| 2003 11 20 | 704 | 0.5+ | 0.9− | 2005 03 11 | G96 | 0.0 | 0.2+ | 2009 12 18 | 691 | 0.3− | 0.1+ |
| 2003 11 20 | 704 | 0.4− | 0.2+ | 2005 03 11 | G96 | 0.2+ | 0.3+ | 2009 12 27 | 691 | 0.4− | 0.0 |
| 2003 11 20 | 704 | 1.1− | 0.9+ | 2005 03 11 | G96 | 0.0 | 0.2+ | 2009 12 27 | 691 | 0.0 | 0.1+ |
| 2003 12 18 | 704 | 0.2+ | 1.1+ | 2008 09 06 | 691 | 0.1− | 0.0 | 2009 12 27 | 691 | 0.2− | 0.1− |
| 2003 12 18 | 704 | 0.9+ | 0.5+ | 2008 09 06 | 691 | 0.1− | 0.4+ | | | | |
| 2003 12 18 | 704 | (2.1+ | 0.7−) | 2008 09 06 | 691 | 0.0 | 0.2+ | | | | |

**(229296)∗ 2005 EQ$_5$**

Discovered 2005 Mar. 1 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 306.61420 | | (2000.0) | | | |
| $n$ | 0.17154321 | $\omega$ | 71.86400 | | −0.98476153 | −0.16641917 |
| $a$ | 3.2078967 | $\Omega$ | 98.53298 | | +0.13392351 | −0.91089205 |
| $e$ | 0.1239970 | $i$ | 2.92660 | | +0.11094690 | −0.37759811 |
| $P$ | 5.75 | $H$ | 15.0 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 05 14 | 691 | 0.2− | 0.3+ | 2005 03 09 | 704 | 0.1− | 0.6+ | 2005 04 01 | 185 | 0.2+ | 0.0 |
| 1994 05 14 | 691 | 0.1+ | 1.1+ | 2005 03 09 | 704 | 0.2+ | 0.1− | 2007 10 14 | G96 | 0.2− | 0.3+ |
| 1994 05 14 | 691 | 0.1+ | 0.2+ | 2005 03 09 | 704 | 0.3+ | 0.5+ | 2007 10 14 | G96 | 0.2+ | 0.6+ |
| 1999 02 23 | 699 | 1.8+ | 0.2+ | 2005 03 09 | 704 | 0.1+ | 0.1+ | 2007 10 14 | G96 | 0.4+ | 0.5+ |
| 1999 02 23 | 699 | 0.7+ | 0.3− | 2005 03 11 | 704 | 0.0 | 0.4+ | 2007 10 14 | G96 | 0.3− | 0.4+ |
| 1999 02 23 | 699 | 0.6+ | 1.2+ | 2005 03 11 | 704 | 0.1+ | 0.2+ | 2008 09 20 | 691 | 0.2− | 0.3+ |
| 2000 05 28 | 704 | 1.1− | 0.3+ | 2005 03 11 | 704 | 0.7+ | 1.0− | 2008 09 20 | 691 | 0.1+ | 0.4+ |
| 2000 05 28 | 704 | 1.3− | 0.6+ | 2005 03 11 | 704 | 0.5+ | 0.0 | 2008 09 20 | 691 | 0.1− | 0.3+ |
| 2000 05 28 | 704 | 0.4− | 1.5+ | 2005 03 11 | 704 | 0.2− | 0.6− | 2008 09 24 | 691 | 0.3− | 0.3+ |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 05 28 | 704 | 1.5− | 0.8+ | 2005 03 12 | 704 | 0.4+ | 0.2+ | 2008 09 24 | 691 | 0.1− | 0.2+ |
| 2002 10 31 | 704 | 0.6− | 0.8+ | 2005 03 12 | 704 | 0.3− | 0.1− | 2008 09 24 | 691 | 0.2− | 0.4+ |
| 2002 10 31 | 704 | 0.6− | 0.6+ | 2005 03 12 | 704 | 1.1− | 0.5+ | 2008 10 01 | 691 | 0.1− | 0.3+ |
| 2002 10 31 | 704 | 0.2+ | 1.4+ | 2005 03 12 | 704 | 0.0 | 0.6+ | 2008 10 01 | 691 | 0.1+ | 0.2+ |
| 2003 12 19 | 704 | 0.3− | 0.8− | 2005 03 12 | 704 | 0.6− | 1.2+ | 2008 10 01 | 691 | 0.1− | 0.5+ |
| 2003 12 19 | 704 | 0.1+ | 0.5− | 2005 03 12 | 704 | 0.7− | 0.1+ | 2008 10 08 | 691 | 0.2− | 0.1+ |
| 2003 12 19 | 704 | 0.2− | 0.3− | 2005 03 12 | 704 | 0.9+ | 0.2+ | 2008 10 08 | 691 | 0.1+ | 0.2+ |
| 2005 03 01 | 691 | 0.3+ | 0.1+ | 2005 03 12 | 704 | 0.5+ | 0.2+ | 2008 10 08 | 691 | 0.0 | 0.1− |
| 2005 03 01 | 691 | 0.3+ | 0.1+ | 2005 03 12 | 704 | 0.1− | 0.6− | 2008 10 23 | G96 | 0.4+ | 0.0 |
| 2005 03 01 | 691 | 0.4+ | 0.1+ | 2005 03 13 | 704 | 1.2− | 1.0+ | 2008 10 23 | G96 | 0.3+ | 0.1− |
| 2005 03 03 | 703 | 0.1+ | 0.8− | 2005 03 13 | 704 | 0.4− | 0.2+ | 2008 10 23 | G96 | 0.5+ | 0.1+ |
| 2005 03 03 | 703 | 1.0− | 0.2− | 2005 03 13 | 704 | 0.9+ | 0.8+ | 2008 10 23 | G96 | 0.5+ | 0.1+ |
| 2005 03 03 | 703 | (1.6− | 0.4−) | 2005 03 13 | 704 | 0.3+ | 0.2+ | 2008 11 09 | G96 | 0.4+ | 0.4+ |
| 2005 03 03 | 703 | 0.2− | 0.8− | 2005 03 16 | 704 | 0.5− | 1.0+ | 2008 11 09 | G96 | 0.5+ | 0.6+ |
| 2005 03 04 | 704 | (1.8+ | 0.3−) | 2005 03 16 | 704 | 0.5− | 1.1− | 2008 11 09 | G96 | 0.2+ | 0.2+ |
| 2005 03 04 | 704 | 0.8+ | 0.4+ | 2005 03 16 | 704 | 1.2+ | 0.6+ | 2008 11 09 | G96 | 0.5+ | 0.2+ |
| 2005 03 04 | 704 | 0.1+ | 0.7− | 2005 03 16 | 704 | 0.9− | 1.0+ | 2009 01 03 | G96 | 0.1+ | 1.1+ |
| 2005 03 04 | 704 | 1.5+ | 0.5− | 2005 03 18 | 704 | 0.5+ | 0.5+ | 2009 01 03 | G96 | 0.8+ | 0.4+ |
| 2005 03 04 | 704 | 0.4+ | 0.4− | 2005 03 18 | 704 | 0.1+ | 0.2+ | 2009 01 03 | G96 | 0.1− | 0.4+ |
| 2005 03 08 | 699 | 1.5+ | 0.0 | 2005 03 18 | 704 | 0.7+ | 0.5+ | 2009 01 03 | G96 | 0.6+ | 0.3+ |
| 2005 03 08 | 699 | 0.0 | 0.6+ | 2005 03 18 | 704 | 0.6+ | 0.3+ | 2009 12 20 | 691 | 0.1+ | 0.1− |
| 2005 03 08 | 699 | 0.1+ | 0.1+ | 2005 03 30 | 703 | (2.0+ | 1.0+) | 2009 12 20 | 691 | 0.0 | 0.1− |
| 2005 03 09 | 699 | 0.0 | 0.4− | 2005 03 30 | 703 | 0.6− | 0.3− | 2009 12 20 | 691 | 0.0 | 0.1− |
| 2005 03 09 | 699 | 1.1+ | 0.6+ | 2005 03 30 | 703 | 0.1+ | 0.9− | 2009 12 25 | 691 | 1.6− | 0.2+ |
| 2005 03 09 | 699 | 0.1+ | 0.4+ | 2005 03 30 | 703 | (1.6− | 0.4+) | 2009 12 25 | 691 | 0.3− | 0.1+ |
| 2005 03 09 | 699 | 0.2+ | 0.5− | 2005 04 01 | 185 | 0.4+ | 0.0 | 2009 12 25 | 691 | 0.7− | 0.1− |
| 2005 03 09 | 704 | 0.4+ | 0.6− | 2005 04 01 | 185 | 1.0+ | 0.0 | | | | |

**(229297)∗ 2005 EZ$_6$**

Discovered 2005 Mar. 1 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 32.59058 | | (2000.0) | | +0.42407335 | −0.90550007 |
| $n$ | 0.16774057 | $\omega$ | 291.10510 | | +0.83852207 | +0.38624917 |
| $a$ | 3.2561968 | $\Omega$ | 133.79342 | | +0.34211478 | +0.17573047 |
| $e$ | 0.0936377 | $i$ | 1.20756 | | | |
| $P$ | 5.88 | $H$ | 16.0 | $G$ 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1993 02 17 | 691 | 0.5− | 0.2+ | 2005 03 10 | G96 | 0.5+ | 0.2− | 2008 10 10 | G96 | 1.4+ | 0.7− |
| 1993 02 17 | 691 | 0.3+ | 0.3+ | 2005 03 10 | G96 | 0.2+ | 0.2+ | 2008 10 17 | 691 | 0.4− | 0.1− |
| 1993 02 17 | 691 | 0.7− | 0.1− | 2005 04 04 | G96 | 0.3+ | 0.6− | 2008 10 17 | 691 | 0.1− | 0.4+ |
| 2002 09 26 | 644 | 0.5− | 0.4+ | 2005 04 04 | G96 | 0.1+ | 0.6− | 2008 10 17 | 691 | 0.8− | 0.3− |
| 2002 09 26 | 644 | 0.4− | 0.2+ | 2005 04 04 | G96 | 0.0 | 0.0 | 2008 10 24 | 691 | 0.1+ | 0.1+ |
| 2002 09 26 | 644 | 0.4− | 0.2+ | 2005 04 04 | G96 | 0.9+ | 0.4+ | 2008 10 24 | 691 | 0.3− | 0.2+ |
| 2002 10 04 | 644 | 0.1− | 0.0 | 2006 05 19 | G96 | 0.2+ | 0.2− | 2008 10 24 | 691 | 0.3− | 0.3+ |
| 2002 10 04 | 644 | 0.2+ | 0.4+ | 2006 05 19 | G96 | 0.0 | 0.4+ | 2008 10 27 | 691 | 0.2+ | 0.4+ |
| 2002 10 04 | 644 | 0.3+ | 0.6+ | 2006 05 19 | G96 | 0.4+ | 0.1+ | 2008 10 27 | 691 | 0.4− | 0.3+ |
| 2002 10 05 | 645 | 0.2+ | 0.1− | 2006 05 19 | G96 | 0.2− | 0.0 | 2008 10 27 | 691 | 0.1− | 0.3+ |
| 2002 10 05 | 645 | 0.2+ | 0.1− | 2006 05 24 | G96 | 0.3+ | 0.6+ | 2008 11 02 | 691 | 0.1− | 0.0 |
| 2005 03 01 | 691 | 0.6+ | 0.3+ | 2006 05 24 | G96 | 0.1+ | 0.0 | 2008 11 02 | 691 | 0.0 | 0.3+ |
| 2005 03 01 | 691 | 0.6+ | 0.0 | 2006 05 24 | G96 | 0.3− | 0.2− | 2008 11 02 | 691 | 0.0 | 0.1+ |
| 2005 03 01 | 691 | 0.6+ | 0.0 | 2006 05 24 | G96 | 1.5− | 0.3+ | 2009 12 16 | 691 | 0.0 | 0.2+ |
| 2005 03 04 | G96 | 0.8− | 0.3− | 2007 06 21 | 691 | 0.4− | 0.2+ | 2009 12 16 | 691 | 0.3+ | 0.3− |
| 2005 03 04 | G96 | 0.0 | 0.2− | 2007 06 21 | 691 | 0.3+ | 0.1+ | 2009 12 16 | 691 | 0.3+ | 0.3− |
| 2005 03 04 | G96 | 0.1− | 0.0 | 2007 06 21 | 691 | 1.0− | 0.0 | 2009 12 20 | 691 | 1.3− | 1.4+ |
| 2005 03 04 | G96 | 0.0 | 0.0 | 2008 10 10 | G96 | 1.4+ | 0.5− | 2009 12 20 | 691 | 0.2+ | 0.1− |
| 2005 03 10 | G96 | 0.2+ | 0.5− | 2008 10 10 | G96 | 1.3+ | 0.6− | 2009 12 20 | 691 | 0.4− | 0.7− |
| 2005 03 10 | G96 | 0.1+ | 0.5− | 2008 10 10 | G96 | 1.3+ | 0.7− | | | | |

**(229298)∗ 2005 EE$_{20}$ = 2005 GC$_{14}$**

Discovered 2005 Mar. 3 by the Catalina Sky Survey.

Id. G. V. Williams (d, *MPO* 87832)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 325.14238 | | (2000.0) | | | |
| $n$ | 0.18111147 | $\omega$ | 10.97381 | | −0.90440378 | −0.42636040 |
| $a$ | 3.0938938 | $\Omega$ | 143.77515 | | +0.38933106 | −0.84040302 |
| $e$ | 0.1211800 | $i$ | 1.59513 | | +0.17457127 | −0.33457371 |
| $P$ | 5.44 | $H$ | 16.2 | $G$ 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 02 11 | 691 | 0.4− | 1.2+ | 2005 03 03 | 703 | 0.4+ | 0.5− | 2005 05 10 | G96 | 0.2− | 0.1− |
| 1994 02 11 | 691 | 0.0 | 0.0 | 2005 03 03 | 703 | 0.3+ | 0.2− | 2005 05 10 | G96 | 0.3− | 0.3− |
| 1994 02 11 | 691 | 0.1− | 0.9− | 2005 03 03 | 703 | 0.2− | 1.1− | 2005 05 10 | G96 | 1.1− | 0.6− |
| 1994 02 19 | 691 | 0.2+ | 0.5− | 2005 03 03 | 703 | 0.4− | 0.3+ | 2005 05 10 | G96 | 0.3− | 0.0 |
| 1994 02 19 | 691 | 0.2− | 0.1− | 2005 03 04 | G96 | 0.1− | 0.3− | 2008 10 20 | G96 | 0.7+ | 0.6− |
| 1994 02 19 | 691 | 0.1+ | 0.1− | 2005 03 04 | G96 | 0.2− | 0.7− | 2008 10 20 | G96 | 0.1− | 0.3− |
| 2000 04 24 | 691 | 0.1+ | 0.2+ | 2005 03 04 | G96 | 0.5+ | 0.4− | 2008 10 20 | G96 | 0.2+ | 0.1+ |
| 2000 04 24 | 691 | 0.3− | 0.0 | 2005 03 04 | G96 | 0.2+ | 0.2− | 2008 10 20 | G96 | 0.0 | 0.1+ |
| 2000 04 24 | 691 | 0.1− | 0.2+ | 2005 03 08 | 704 | 0.4+ | 0.7+ | 2008 10 28 | G96 | 0.3+ | 0.1− |
| 2003 11 19 | 691 | 0.0 | 0.2+ | 2005 03 08 | 704 | 0.1+ | 0.3+ | 2008 10 28 | G96 | 0.4− | 0.1+ |
| 2003 11 19 | 691 | 0.1+ | 0.1+ | 2005 03 08 | 704 | 0.4− | 0.1+ | 2008 10 28 | G96 | 0.5− | 0.0 |
| 2003 11 19 | 691 | 0.1+ | 0.0 | 2005 04 02 | 691 | 0.2+ | 0.3− | 2008 10 28 | G96 | 0.5− | 0.1− |
| 2003 12 21 | 691 | 0.5+ | 0.1− | 2005 04 02 | 691 | 0.2+ | 0.2− | 2009 12 17 | 691 | 0.1− | 0.1− |
| 2003 12 21 | 691 | 0.0 | 0.0 | 2005 04 02 | 691 | 0.3+ | 0.0 | 2009 12 17 | 691 | 0.2− | 0.1− |
| 2003 12 21 | 691 | 0.1− | 0.0 | 2005 04 04 | G96 | 0.1+ | 0.1+ | 2009 12 17 | 691 | 0.2− | 0.0 |
| 2005 02 01 | 691 | 0.3+ | 0.1+ | 2005 04 04 | G96 | 0.1− | 0.2− | 2009 12 25 | 691 | 0.4− | 0.1+ |
| 2005 02 01 | 691 | 0.4+ | 0.6+ | 2005 04 04 | G96 | 0.2+ | 0.1− | 2009 12 25 | 691 | 0.0 | 0.1+ |
| 2005 02 01 | 691 | 0.3+ | 0.5+ | 2005 04 04 | G96 | 0.3− | 0.1+ | 2009 12 25 | 691 | 0.2− | 0.2+ |

**(229299)∗ 2005 ET$_{30}$ = 1999 CW$_{147}$ = 2003 WA$_{144}$**

Discovered 2005 Mar. 3 by the Catalina Sky Survey.

Id. A. Doppler (*MPO* 76769)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 25.61728 | | (2000.0) | | | |
| $n$ | 0.17613504 | $\omega$ | 285.57027 | | +0.36912663 | −0.92234653 |
| $a$ | 3.1518984 | $\Omega$ | 142.13109 | | +0.90794276 | +0.33166418 |
| $e$ | 0.2207910 | $i$ | 10.71359 | | +0.19845773 | +0.19818111 |
| $P$ | 5.60 | $H$ | 15.6 | $G$ 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 02 10 | 691 | 0.2− | 0.1− | 2003 12 14 | 703 | 0.1+ | 1.5+ | 2008 08 11 | A50 | 0.1− | 0.5− |
| 1999 02 10 | 691 | 0.1− | 0.0 | 2003 12 14 | 703 | 0.5+ | 0.3+ | 2008 08 11 | A50 | 0.1+ | 1.0− |
| 1999 02 10 | 691 | 0.1− | 1.7− | 2003 12 14 | 703 | 0.1− | 0.8+ | 2008 09 03 | J75 | 0.2− | 0.4− |
| 1999 02 14 | 691 | 0.3− | 0.4+ | 2003 12 14 | 703 | (0.8+ | 2.5+) | 2008 09 03 | J75 | 0.4+ | 0.3− |
| 1999 02 14 | 691 | 0.1+ | 0.4+ | 2005 03 03 | 703 | 0.5− | 0.5+ | 2008 09 03 | J75 | (1.0− | 1.7−) |
| 1999 02 14 | 691 | 0.6− | 0.2+ | 2005 03 03 | 703 | 0.4− | 0.7+ | 2008 09 06 | J75 | 0.1+ | 0.1+ |
| 2000 05 04 | 645 | 0.0 | 0.0 | 2005 03 03 | 703 | 0.1− | 0.8− | 2008 09 06 | J75 | 0.5+ | 0.1− |
| 2000 05 04 | 645 | 0.0 | 0.0 | 2005 03 03 | 703 | 0.7+ | 0.7+ | 2008 09 06 | J75 | 0.5− | 0.4− |
| 2003 11 21 | 703 | 0.2+ | 0.4− | 2005 03 04 | 049 | 0.3+ | 0.7+ | 2008 09 06 | 703 | 0.1− | 0.0 |
| 2003 11 21 | 703 | 0.3− | 0.4− | 2005 03 05 | 049 | 0.1+ | 0.3− | 2008 09 06 | 703 | 1.0− | 0.2− |
| 2003 11 21 | 703 | 0.3+ | 0.8− | 2005 03 05 | 049 | 0.8+ | 0.1− | 2008 09 06 | 703 | 0.9− | 0.6+ |
| 2003 11 21 | 703 | 0.3+ | 0.5− | 2005 03 12 | 704 | (0.8+ | 1.6+) | 2008 09 06 | 703 | 0.3+ | 0.3+ |
| 2003 11 23 | 644 | 0.2+ | 0.3+ | 2005 03 12 | 704 | 0.9+ | 0.5+ | 2009 12 11 | J75 | 0.3− | 0.0 |
| 2003 11 23 | 644 | 0.1− | 0.4+ | 2005 03 12 | 704 | (1.4+ | 1.6+) | 2009 12 11 | J75 | 0.6− | 0.2− |
| 2003 11 23 | 699 | (1.5+ | 1.6+) | 2005 04 13 | 691 | 0.4+ | 0.0 | 2009 12 11 | J75 | 0.3+ | 0.2+ |
| 2003 11 23 | 699 | 0.4+ | 1.0+ | 2005 04 13 | 691 | 0.4+ | 0.0 | 2009 12 24 | D25 | 0.9− | 0.3− |
| 2003 11 23 | 644 | 0.5+ | 0.5+ | 2005 04 13 | 691 | 0.1+ | 0.1− | 2009 12 24 | D25 | 0.5− | 0.2− |
| 2003 11 23 | 699 | 0.1− | 0.1+ | 2008 08 11 | A50 | 0.5+ | 0.1− | | | | |
| 2003 11 23 | 699 | 0.8+ | 1.0+ | 2008 08 11 | A50 | 0.6− | 0.1− | | | | |

**(229300)∗ 2005 EL$_{41}$ = 2001 OS$_{29}$**

Discovered 2005 Mar. 1 by the Catalina Sky Survey.

Id. G. V. Williams (*MPO* 76790)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 263.75336 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17682161 | $\omega$ | 111.00014 | | −0.68649954 | +0.67919851 | |
| $a$ | 3.1437342 | $\Omega$ | 112.83414 | | −0.72657697 | −0.62683179 | |
| $e$ | 0.0929591 | $i$ | 16.36210 | | −0.02836019 | −0.38180006 | |
| $P$ | 5.57 | $H$ | 14.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 04 28 | 699 | 1.1− | 1.6+ | 2001 07 24 | 644 | 1.0+ | 0.8+ | 2005 04 02 | 699 | 0.9+ | 0.1− | |
| 2000 04 28 | 699 | 0.7− | 0.5− | 2002 10 06 | 644 | 0.5− | 1.0+ | 2005 04 02 | 699 | 0.9+ | 0.5− | |
| 2000 04 28 | 699 | 0.0 | 1.2+ | 2002 10 06 | 644 | 0.5− | 1.1+ | 2005 04 02 | 699 | 0.7+ | 0.5− | |
| 2000 04 28 | 699 | 0.3+ | 1.1− | 2002 10 06 | 644 | 0.1+ | 0.5+ | 2008 11 19 | 703 | (0.1+ | 2.6+) | |
| 2000 05 03 | 704 | 1.0− | 0.1− | 2005 03 01 | 703 | 0.1− | 0.5− | 2008 11 19 | 703 | (0.3+ | 3.9+) | |
| 2000 05 03 | 704 | 0.3+ | 0.3+ | 2005 03 01 | 703 | 0.6− | 0.8− | 2008 11 19 | 703 | (2.8+ | 1.0+) | |
| 2000 05 03 | 704 | 0.2+ | 1.4+ | 2005 03 01 | 703 | 0.2− | 1.0− | 2008 11 19 | 703 | (1.3+ | 1.9+) | |
| 2000 05 03 | 704 | 0.9+ | 0.0 | 2005 03 01 | 703 | 0.6+ | 1.0− | 2009 11 16 | G96 | 0.2+ | 0.2− | |
| 2000 05 03 | 704 | 0.3− | 1.1+ | 2005 03 08 | 704 | 1.4+ | 0.2− | 2009 11 16 | G96 | 0.5− | 0.0 | |
| 2000 05 30 | 704 | 0.4+ | 0.6− | 2005 03 08 | 704 | 0.9+ | 0.4+ | 2009 11 16 | G96 | 0.1+ | 0.2+ | |
| 2000 05 30 | 704 | 0.2− | 0.3+ | 2005 03 08 | 704 | 0.9+ | 0.1+ | 2009 11 16 | G96 | 0.3+ | 0.1+ | |
| 2000 05 30 | 704 | 0.2− | 0.6+ | 2005 03 08 | 704 | 0.9+ | 0.5+ | 2009 12 15 | G96 | 0.4− | 0.3+ | |
| 2000 05 30 | 704 | 0.4+ | 1.1+ | 2005 03 08 | 704 | 0.7+ | 0.4+ | 2009 12 15 | G96 | 0.1− | 0.0 | |
| 2001 07 18 | 644 | 0.3− | 0.0 | 2005 04 01 | 703 | 1.4− | 0.2− | 2009 12 15 | G96 | 0.3+ | 0.7+ | |
| 2001 07 18 | 644 | 0.6− | 0.0 | 2005 04 01 | 703 | 0.3− | 0.1− | 2009 12 15 | G96 | 0.1+ | 0.0 | |
| 2001 07 18 | 644 | 0.8− | 0.1+ | 2005 04 01 | 703 | 0.5− | 0.4− | 2009 12 17 | 691 | 0.1+ | 0.2+ | |
| 2001 07 24 | 644 | 0.9+ | 0.6+ | 2005 04 01 | 703 | 0.6+ | 0.3+ | 2009 12 17 | 691 | 0.4− | 0.2+ | |
| 2001 07 24 | 644 | 0.5+ | 1.0+ | 2005 04 02 | 699 | 1.0− | 0.9+ | 2009 12 17 | 691 | 0.6− | 0.7+ | |

**(229301)∗ 2005 ED$_{42}$**

Discovered 2005 Mar. 2 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 299.94520 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17555188 | $\omega$ | 350.23733 | | −0.90171486 | −0.43226091 | |
| $a$ | 3.1588747 | $\Omega$ | 164.14457 | | +0.39855676 | −0.83812601 | |
| $e$ | 0.1345210 | $i$ | 1.63580 | | +0.16751964 | −0.33270903 | |
| $P$ | 5.61 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 04 13 | 691 | 0.1+ | 0.2+ | 2005 03 13 | 691 | 0.2+ | 0.2+ | 2008 09 19 | 691 | 0.0 | 0.3+ | |
| 2000 04 13 | 691 | 0.1+ | 0.1+ | 2005 04 09 | G96 | 0.1− | 0.3− | 2008 09 19 | 691 | 0.1− | 0.6+ | |
| 2000 04 13 | 691 | 0.0 | 0.3+ | 2005 04 09 | G96 | 0.0 | 0.4+ | 2008 09 19 | 691 | 0.1+ | 0.8+ | |
| 2003 10 16 | 291 | 0.0 | 0.1+ | 2005 04 09 | G96 | 0.3− | 0.4− | 2008 09 29 | G96 | 0.5− | 0.2− | |
| 2003 10 16 | 291 | 0.3− | 0.6− | 2005 04 09 | G96 | 0.3− | 0.0 | 2008 09 29 | G96 | 0.3− | 0.1− | |
| 2003 10 16 | 291 | 0.8+ | 0.3+ | 2006 05 20 | 691 | 0.2+ | 0.4+ | 2008 09 29 | G96 | 0.1− | 0.4− | |
| 2005 01 17 | 691 | 0.2+ | 0.4+ | 2006 05 20 | 691 | 0.0 | 0.3+ | 2008 09 29 | G96 | 0.1− | 0.0 | |
| 2005 01 17 | 691 | 0.2+ | 0.2+ | 2006 05 20 | 691 | 0.5− | 0.3+ | 2009 11 20 | 691 | 0.1− | 0.1+ | |
| 2005 01 17 | 691 | 0.3− | 0.4+ | 2006 05 25 | G96 | 0.1− | 0.0 | 2009 11 20 | 691 | 0.2− | 0.0 | |
| 2005 03 02 | 691 | 0.2+ | 0.2+ | 2006 05 25 | G96 | 0.2− | 0.1− | 2009 11 20 | 691 | 0.0 | 0.4+ | |
| 2005 03 02 | 691 | 0.1− | 0.0 | 2006 05 25 | G96 | 0.1+ | 0.1+ | 2009 11 24 | 691 | 0.0 | 0.1+ | |
| 2005 03 02 | 691 | 0.0 | 0.1+ | 2006 05 25 | G96 | 0.1− | 0.2− | 2009 11 24 | 691 | 0.1− | 0.2+ | |
| 2005 03 08 | G96 | 0.3− | 0.1+ | 2006 06 01 | 691 | 0.3+ | 0.1+ | 2009 11 24 | 691 | 0.1− | 0.2+ | |
| 2005 03 08 | G96 | 0.7− | 0.0 | 2006 06 01 | 691 | 0.5+ | 0.5+ | 2009 12 11 | G96 | 0.5+ | 0.2+ | |
| 2005 03 08 | G96 | 0.2+ | 0.1− | 2006 06 01 | 691 | 0.2+ | 0.6+ | 2009 12 11 | G96 | 0.3+ | 0.1+ | |
| 2005 03 08 | G96 | 0.3− | 0.2− | 2008 09 06 | 691 | 0.0 | 0.4+ | 2009 12 11 | G96 | 0.7+ | 0.1+ | |
| 2005 03 13 | 691 | 0.3+ | 0.0 | 2008 09 06 | 691 | 0.2− | 0.2+ | 2009 12 11 | G96 | 0.5+ | 0.0 | |
| 2005 03 13 | 691 | 0.0 | 0.1+ | 2008 09 06 | 691 | 0.9− | 0.5+ | | | | | |

**(229302)∗ 2005 EF$_{49}$ = 2003 WZ$_{89}$**

Discovered 2005 Mar. 3 by the Catalina Sky Survey.

Id. G. V. Williams (*MPO* 76804)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 347.29069 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18326333 | $\omega$ | 228.21088 | | −0.67237692 | −0.73929948 | |
| $a$ | 3.0696275 | $\Omega$ | 264.07897 | | +0.68959727 | −0.60762394 | |
| $e$ | 0.1567408 | $i$ | 2.11346 | | +0.26900724 | −0.29022305 | |
| $P$ | 5.38 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 23 | 691 | 0.2− | 0.2− | 2005 03 09 | 699 | 0.0 | 0.2+ | 2008 10 07 | 691 | 0.3− | 0.2+ | |
| 2003 10 23 | 691 | 0.1+ | 0.1− | 2005 03 09 | 699 | (1.9+ | 0.7+) | 2008 10 07 | 691 | 0.1− | 0.3+ | |
| 2003 10 23 | 691 | 0.1− | 0.3− | 2005 03 09 | 699 | (2.1+ | 1.6+) | 2008 11 06 | G96 | 0.1+ | 0.6− | |
| 2003 11 16 | 691 | 0.1+ | 0.1+ | 2005 03 17 | G96 | 0.1− | 0.1− | 2008 11 06 | G96 | 0.5+ | 0.6− | |
| 2003 11 16 | 691 | 0.2+ | 0.3− | 2005 03 17 | G96 | 0.1+ | 0.1+ | 2008 11 06 | G96 | 0.8+ | 0.6− | |
| 2003 11 16 | 691 | 0.1+ | 0.3− | 2005 03 17 | G96 | 0.1− | 0.1+ | 2008 11 06 | G96 | 1.2+ | 0.3− | |
| 2003 11 19 | 699 | 0.2− | 1.3+ | 2005 03 17 | G96 | 0.1− | 0.1+ | 2009 10 18 | G96 | 0.0 | 0.2− | |
| 2003 11 19 | 699 | 0.8− | 0.1− | 2005 03 17 | 703 | 0.1− | 0.6+ | 2009 10 18 | G96 | 0.1+ | 0.0 | |
| 2003 11 19 | 699 | 0.5+ | 0.6+ | 2005 03 17 | 703 | 1.0+ | 0.1+ | 2009 10 18 | G96 | 0.1− | 0.2− | |
| 2003 11 19 | 699 | 0.0 | 0.5+ | 2005 03 17 | 703 | (0.3− | 1.5+) | 2009 10 18 | G96 | 0.1− | 0.4− | |
| 2005 03 03 | 703 | 0.2− | 0.6− | 2005 03 17 | 703 | 0.0 | 0.6+ | 2009 11 16 | G96 | 0.6+ | 0.3− | |
| 2005 03 03 | 703 | 0.0 | 0.7+ | 2005 04 12 | G96 | 0.1− | 0.0 | 2009 11 16 | G96 | 0.0 | 0.0 | |
| 2005 03 03 | 703 | 0.1+ | 0.8+ | 2005 04 12 | G96 | 0.0 | 0.1+ | 2009 11 16 | G96 | 0.1+ | 0.3− | |
| 2005 03 03 | 703 | 0.2+ | 0.2− | 2005 04 12 | G96 | 0.0 | 0.1+ | 2009 11 16 | G96 | 0.1+ | 0.1− | |
| 2005 03 03 | 703 | 0.4− | 0.5− | 2005 04 12 | G96 | 0.1+ | 0.4+ | 2009 12 15 | G96 | 0.1− | 0.0 | |
| 2005 03 03 | 703 | 0.5− | 0.3− | 2005 05 14 | G96 | 0.1− | 0.2+ | 2009 12 15 | G96 | 0.2+ | 0.0 | |
| 2005 03 03 | 703 | 0.1+ | 0.1− | 2005 05 14 | G96 | 0.1− | 0.1+ | 2009 12 15 | G96 | 0.4+ | 0.2− | |
| 2005 03 03 | 703 | 1.3− | 0.1+ | 2005 05 14 | G96 | 0.0 | 0.1− | 2009 12 15 | G96 | 0.2+ | 0.1− | |
| 2005 03 08 | 699 | 1.4+ | 0.4+ | 2005 05 14 | G96 | 0.2+ | 0.2+ | 2009 12 17 | 691 | 0.3− | 0.3+ | |
| 2005 03 08 | 699 | (1.6+ | 1.2+) | 2008 09 25 | 691 | 0.0 | 0.3+ | 2009 12 17 | 691 | 0.0 | 0.1+ | |
| 2005 03 08 | 699 | 0.0 | 0.3− | 2008 09 25 | 691 | 0.0 | 0.5+ | 2009 12 17 | 691 | 0.0 | 0.0 | |
| 2005 03 08 | 699 | 1.0+ | 0.1+ | 2008 09 25 | 691 | 0.1− | 0.4+ | | | | | |
| 2005 03 09 | 699 | (2.7+ | 1.0+) | 2008 10 07 | 691 | 0.4− | 0.1− | | | | | |

**(229303)∗ 2005 EE$_{80}$ = 2003 YH$_{108}$**

Discovered 2005 Mar. 3 by the Catalina Sky Survey.

Id. G. V. Williams (*MPO* 76841)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 353.22427 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18525616 | $\omega$ | 12.88164 | | −0.82665564 | −0.53762129 | |
| $a$ | 3.0475741 | $\Omega$ | 133.31390 | | +0.49390828 | −0.83470784 | |
| $e$ | 0.1562925 | $i$ | 13.19955 | | +0.26962023 | −0.11927354 | |
| $P$ | 5.32 | $H$ | 15.0 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 05 06 | 704 | 0.6+ | 0.7+ | 2004 02 11 | 644 | 0.3+ | 0.1− | 2005 04 12 | 699 | 0.0 | 0.0 | |
| 2000 05 06 | 704 | 0.2+ | 0.4+ | 2005 03 03 | 703 | 0.2− | 0.0 | 2005 04 12 | 699 | 0.2− | 0.4+ | |
| 2000 05 06 | 704 | 0.1− | 0.8+ | 2005 03 03 | 703 | 0.7+ | 0.1− | 2005 04 12 | 699 | 0.4− | 1.4+ | |
| 2002 09 17 | 644 | 0.5− | 0.2+ | 2005 03 03 | 703 | 0.2+ | 0.5+ | 2005 04 12 | 699 | 0.4+ | 0.3+ | |
| 2002 09 17 | 644 | 0.1+ | 0.3+ | 2005 03 03 | 703 | 0.2+ | 0.1− | 2005 04 16 | 703 | 0.6+ | 1.2− | |
| 2002 09 17 | 644 | 0.1− | 0.2− | 2005 03 09 | 704 | 0.3+ | 0.6+ | 2005 04 16 | 703 | 0.3− | 0.3− | |
| 2003 11 19 | 644 | 0.0 | 0.2− | 2005 03 09 | 704 | 0.8+ | 0.5+ | 2005 04 16 | 703 | 0.3+ | 0.2− | |
| 2003 11 19 | 644 | 0.1+ | 0.2− | 2005 03 09 | 704 | 0.1− | 0.1+ | 2005 04 16 | 703 | 0.7− | 0.1− | |
| 2003 11 19 | 644 | 0.1+ | 0.1− | 2005 03 15 | 703 | 0.5− | 0.5− | 2007 10 11 | 291 | 0.2+ | 0.5+ | |
| 2003 11 19 | 644 | 0.2− | 0.1− | 2005 03 15 | 703 | 0.8+ | 0.1− | 2007 10 11 | 291 | 0.1+ | 0.3+ | |
| 2003 11 19 | 644 | 0.2+ | 0.2− | 2005 03 15 | 703 | 0.1+ | 0.1− | 2007 10 11 | 291 | 0.3+ | 0.3+ | |
| 2003 11 19 | 644 | 0.1+ | 0.0 | 2005 03 15 | 703 | 0.3+ | 0.5− | 2007 10 12 | 291 | 0.3− | 0.9+ | |
| 2003 12 14 | 703 | 0.1− | 0.1+ | 2005 03 16 | 704 | (0.7− | 2.2+) | 2007 10 12 | 291 | 0.3− | 0.7+ | |
| 2003 12 14 | 703 | 0.1+ | 1.2+ | 2005 03 16 | 704 | (0.8+ | 2.2+) | 2007 10 12 | 291 | 0.5− | 0.4− | |
| 2003 12 14 | 703 | 0.5+ | 1.0+ | 2005 03 16 | 704 | 1.4− | 0.6+ | 2008 11 03 | 703 | 0.9− | 0.4− | |
| 2003 12 14 | 703 | 0.6+ | 1.2− | 2005 03 30 | 703 | 0.2− | 0.8+ | 2008 11 03 | 703 | 0.6+ | 1.2− | |
| 2003 12 21 | 703 | 0.7− | 0.7+ | 2005 03 30 | 703 | 0.6− | 0.3+ | 2008 11 03 | 703 | 1.1+ | 0.1+ | |
| 2003 12 21 | 703 | 0.6+ | 0.3− | 2005 03 30 | 703 | 0.3− | 0.5+ | 2008 11 03 | 703 | (1.6+ | 0.1−) | |
| 2003 12 21 | 703 | 1.1+ | 1.1+ | 2005 03 30 | 703 | 0.1− | 1.0+ | 2009 11 19 | 691 | 0.4− | 0.4− | |
| 2003 12 21 | 703 | 0.5− | 0.1− | 2005 04 06 | 644 | 0.2+ | 0.4+ | 2009 11 19 | 691 | 0.1− | 0.3+ | |
| 2003 12 25 | 704 | 0.1+ | 0.1+ | 2005 04 06 | 644 | 0.6+ | 0.3+ | 2009 11 19 | 691 | 0.0 | 0.4+ | |
| 2003 12 25 | 704 | 1.0− | 0.2− | 2005 04 06 | 644 | 0.3+ | 0.3+ | 2009 11 20 | 691 | 0.2− | 0.4+ | |
| 2003 12 25 | 704 | 0.5− | 1.3+ | 2005 04 09 | 703 | 0.4− | 0.5− | 2009 11 20 | 691 | 0.1− | 0.2+ | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 12 25 | 704 | 1.1− | 0.8+ | 2005 04 09 | 703 | 0.1− | 0.7+ | 2009 11 20 | 691 | 0.0 | 0.0 |
| 2003 12 25 | 704 | 0.6− | 0.7+ | 2005 04 09 | 703 | 0.4− | 0.5− | 2009 12 19 | G96 | 0.4+ | 0.0 |
| 2003 12 25 | 704 | 0.3− | 1.0+ | 2005 04 09 | 703 | 0.4+ | 0.4− | 2009 12 19 | G96 | 0.4+ | 0.0 |
| 2003 12 25 | 704 | 0.0 | 0.8− | 2005 04 11 | 704 | 0.5+ | 0.5− | 2009 12 19 | G96 | 0.5+ | 0.2− |
| 2004 02 11 | 644 | 0.7+ | 0.1+ | 2005 04 11 | 704 | 0.7+ | 0.9+ | 2009 12 19 | G96 | 1.1+ | 0.9− |
| 2004 02 11 | 644 | 0.5+ | 0.1− | 2005 04 11 | 704 | 0.0 | 1.1+ | | | | |

**(229304)∗ 2005 EX$_{93}$ = 2002 CY$_{6}$**

Discovered 2005 Mar. 8 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 76860)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| *M* | 356.60068 | | (2000.0) | | **P** | **Q** | |
| *n* | 0.36826808 | $\omega$ | 63.70175 | | −0.23070947 | −0.94157019 | |
| *a* | 1.9276432 | $\Omega$ | 42.10620 | | +0.70993310 | −0.33535600 | |
| *e* | 0.1019705 | *i* | 21.46817 | | +0.66540825 | +0.03133590 | |
| *P* | 2.68 | *H* | 16.5 | *G* | 0.15 | *U* | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 02 01 | 704 | 0.0 | 0.4− | 2005 04 11 | 704 | 1.3+ | 0.6+ | 2006 10 23 | 644 | 0.2+ | 0.0 |
| 2002 02 01 | 704 | 0.2− | 0.1+ | 2005 04 11 | 704 | 0.5+ | 0.4− | 2006 10 23 | 644 | 0.0 | 0.2+ |
| 2002 02 01 | 704 | 0.2− | 0.9+ | 2005 04 11 | 704 | 0.3− | 1.4− | 2006 10 28 | 703 | 0.4+ | 0.5+ |
| 2002 02 01 | 704 | 0.5+ | 0.8+ | 2005 04 12 | 699 | 0.2− | 0.1+ | 2006 10 28 | 703 | (0.9+ | 1.9+) |
| 2002 02 06 | 704 | 0.3+ | 0.5− | 2005 04 12 | 699 | 0.4− | 1.1+ | 2006 10 28 | 703 | 0.3+ | 0.1+ |
| 2002 02 06 | 704 | 0.1+ | 0.2− | 2005 04 12 | 699 | 0.3+ | 0.1+ | 2006 10 28 | 703 | 0.3+ | 0.5− |
| 2002 02 06 | 704 | 0.2+ | 0.1− | 2005 04 12 | 699 | 0.1+ | 0.1− | 2006 11 10 | 704 | 0.1− | 0.7+ |
| 2002 02 06 | 704 | 0.0 | 0.5− | 2005 05 06 | 703 | 0.9− | 0.6− | 2006 11 10 | 704 | 0.1− | 0.7+ |
| 2002 04 02 | 704 | 0.1+ | 1.0− | 2005 05 06 | 703 | 1.0− | 0.1− | 2006 11 10 | 704 | 1.2− | 0.6+ |
| 2002 04 02 | 704 | 0.1− | 0.8− | 2005 05 06 | 703 | 0.6+ | 1.1− | 2006 11 10 | 704 | 0.3− | 0.0 |
| 2002 04 02 | 704 | 0.3+ | 0.0 | 2005 05 06 | 703 | 0.0 | 0.1+ | 2006 11 10 | 704 | 1.0− | 0.7− |
| 2005 03 08 | 704 | 0.4+ | 0.2+ | 2005 05 08 | 703 | (0.8− | 1.9+) | 2006 11 17 | 704 | 0.1+ | 0.2+ |
| 2005 03 08 | 704 | 0.4+ | 0.2− | 2005 05 08 | 703 | 0.5− | 0.6+ | 2006 11 17 | 704 | 0.2+ | 0.7+ |
| 2005 03 08 | 704 | 0.8+ | 0.6+ | 2005 05 08 | 703 | 0.2+ | 1.2+ | 2006 11 17 | 704 | 0.2+ | 1.2+ |
| 2005 03 08 | 704 | 0.6+ | 0.0 | 2005 05 08 | 703 | 0.6− | 0.8+ | 2006 11 17 | 704 | 1.1− | 0.4− |
| 2005 03 08 | 704 | 1.0+ | 0.5+ | 2005 05 13 | 704 | 0.5+ | 0.7+ | 2006 11 17 | 704 | 0.3− | 0.2+ |
| 2005 03 08 | 704 | 0.6+ | 0.7+ | 2005 05 13 | 704 | 0.2− | 1.1+ | 2006 12 12 | 644 | 0.1+ | 0.2+ |
| 2005 03 08 | 704 | 1.1+ | 0.3− | 2005 05 13 | 704 | (2.4+ | 0.7+) | 2006 12 12 | 644 | 0.0 | 0.1+ |
| 2005 03 08 | 704 | 0.6+ | 0.3+ | 2005 05 13 | 704 | 0.8− | 0.4− | 2006 12 12 | 644 | 0.0 | 0.2+ |
| 2005 03 08 | 704 | 0.4+ | 0.3+ | 2006 09 24 | 699 | 0.2+ | 0.9+ | 2006 12 16 | G96 | 0.3+ | 0.1− |
| 2005 03 08 | 704 | 0.3− | 0.3− | 2006 09 24 | 699 | 0.8+ | 0.6+ | 2006 12 16 | G96 | 0.3− | 0.1− |
| 2005 03 09 | 704 | 1.0+ | 0.2− | 2006 09 24 | 699 | 0.2+ | 0.4− | 2006 12 16 | G96 | 0.1− | 0.1− |
| 2005 03 09 | 704 | 0.4+ | 0.6+ | 2006 09 24 | 699 | 0.3− | 0.2− | 2006 12 16 | G96 | 0.0 | 0.3− |
| 2005 03 09 | 704 | 0.8+ | 0.7+ | 2006 10 04 | 703 | 0.8− | 0.9+ | 2006 12 25 | G96 | 0.0 | 0.2− |
| 2005 03 13 | 703 | 0.7− | 0.3− | 2006 10 04 | 703 | 0.4− | 0.0 | 2006 12 25 | G96 | 0.2+ | 0.1− |
| 2005 03 13 | 703 | 0.6− | 0.2− | 2006 10 04 | 703 | 1.0− | 0.5+ | 2006 12 25 | G96 | 0.1− | 0.1+ |
| 2005 03 13 | 703 | 0.0 | 0.3− | 2006 10 04 | 703 | 1.1− | 0.3− | 2006 12 25 | G96 | 0.1+ | 0.3− |
| 2005 03 13 | 703 | 0.3+ | 0.2− | 2006 10 09 | 644 | 0.2− | 0.3+ | 2009 11 15 | 703 | 0.2− | 0.5+ |
| 2005 03 30 | 703 | 0.0 | 0.3− | 2006 10 09 | 644 | 0.1+ | 0.0 | 2009 11 15 | 703 | 0.0 | 0.4+ |
| 2005 03 30 | 703 | 0.3+ | 0.3− | 2006 10 09 | 644 | 0.1− | 0.1+ | 2009 11 15 | 703 | 0.8− | 0.6− |
| 2005 03 30 | 703 | (1.6+ | 0.9−) | 2006 10 10 | 644 | 0.1− | 0.2+ | 2009 11 15 | 703 | 0.6+ | 0.2− |
| 2005 03 30 | 703 | 0.4− | 0.2− | 2006 10 10 | 644 | 0.2− | 0.2+ | 2009 11 27 | 703 | 1.4− | 0.4− |
| 2005 04 06 | 703 | 0.5− | 0.4− | 2006 10 10 | 644 | 0.2− | 0.1+ | 2009 11 27 | 703 | 1.7− | 0.6− |
| 2005 04 06 | 703 | 0.7+ | 0.8+ | 2006 10 12 | 644 | 0.2− | 0.2+ | 2009 11 27 | 703 | 0.7+ | 0.2− |
| 2005 04 06 | 703 | 0.6− | 1.2+ | 2006 10 12 | 644 | 0.4− | 0.1− | 2009 11 27 | 703 | 0.7− | 0.6− |
| 2005 04 06 | 703 | 1.2+ | 0.7+ | 2006 10 12 | 644 | 0.3− | 0.1+ | 2009 12 19 | 703 | 1.0+ | 0.1+ |
| 2005 04 06 | 703 | 0.0 | 0.0 | 2006 10 21 | 703 | 0.3+ | 0.3+ | 2009 12 19 | 703 | 0.7+ | 0.6+ |
| 2005 04 06 | 703 | 0.2+ | 0.9+ | 2006 10 21 | 703 | 0.7+ | 0.4+ | 2009 12 19 | 703 | 0.8+ | 0.4+ |
| 2005 04 06 | 703 | 0.1+ | 0.3+ | 2006 10 21 | 703 | 1.2− | 0.1+ | 2009 12 19 | 703 | 0.9+ | 0.1− |
| 2005 04 06 | 703 | 0.2− | 1.0+ | 2006 10 21 | 703 | 0.2− | 0.3− | | | | |
| 2005 04 11 | 704 | 0.4+ | 0.4+ | 2006 10 23 | 644 | 0.0 | 0.0 | | | | |

**(229305)∗ 2005 EN$_{95}$**

Discovered 2005 Mar. 4 at Calvin-Rehoboth Observatory, Rehoboth.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| *M* | 22.21078 | | (2000.0) | | **P** | **Q** | |
| *n* | 0.18379318 | $\omega$ | 311.53619 | | +0.39616896 | −0.90971741 | |
| *a* | 3.0637251 | $\Omega$ | 114.72480 | | +0.87791204 | +0.33563683 | |
| *e* | 0.2298232 | *i* | 7.86888 | | +0.26892489 | +0.24446300 | |
| *P* | 5.36 | *H* | 16.7 | *G* | 0.15 | *U* | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 21 | 644 | 0.1− | 0.3− | 2005 03 04 | G98 | 0.2+ | 0.7+ | 2008 09 02 | G98 | 0.1+ | 0.5+ |
| 2003 09 21 | 644 | 0.1− | 0.2− | 2005 03 04 | G98 | 0.1− | 0.3+ | 2009 11 20 | G98 | 0.6− | 0.3+ |
| 2003 09 21 | 644 | 0.0 | 0.3− | 2005 03 04 | G98 | 0.0 | 1.2+ | 2009 11 20 | G98 | 0.7− | 0.8− |
| 2003 09 28 | 699 | 0.1+ | 0.5+ | 2005 03 09 | G98 | 0.5+ | 0.5+ | 2009 11 20 | G98 | 0.4+ | 0.4+ |
| 2003 09 28 | 699 | 0.6+ | 0.6+ | 2005 03 09 | G98 | 0.5+ | 0.7+ | 2009 11 20 | G98 | (0.6− | 2.0+) |
| 2003 09 28 | 699 | 0.1+ | 0.3+ | 2005 03 09 | G98 | 0.3+ | 0.4+ | 2009 11 21 | G98 | 0.1+ | 0.1+ |
| 2003 09 28 | 699 | 0.9− | 0.0 | 2008 08 10 | G98 | 0.3+ | 0.6+ | 2009 11 21 | G98 | 0.2+ | 1.2+ |
| 2003 10 18 | 699 | 1.0+ | 1.2− | 2008 08 10 | G98 | 0.0 | 0.4+ | 2009 11 21 | G98 | 0.7+ | 0.7− |
| 2003 10 18 | 699 | (2.1+ | 0.3+) | 2008 08 10 | G98 | 0.0 | 1.3+ | 2009 11 21 | G98 | 0.3+ | 0.2+ |
| 2003 10 18 | 699 | 0.9+ | 0.2− | 2008 08 10 | G98 | 0.9+ | 0.9+ | 2009 11 21 | G98 | 0.6− | 0.1− |
| 2003 10 18 | 699 | 0.7− | 0.8− | 2008 08 10 | G98 | 0.3+ | 1.2+ | 2009 12 15 | G98 | 0.6+ | 0.5+ |
| 2005 01 17 | 703 | 0.3+ | 0.2+ | 2008 08 11 | G98 | 1.2− | 0.3+ | 2009 12 15 | G98 | 0.1− | 0.1− |
| 2005 01 17 | 703 | 0.2− | 0.1+ | 2008 08 11 | G98 | 0.6− | 0.3+ | 2009 12 17 | 704 | 0.1− | 0.1+ |
| 2005 01 17 | 703 | (0.4+ | 1.5+) | 2008 08 11 | G98 | 0.2+ | 1.0+ | 2009 12 17 | 704 | 0.3− | 0.6− |
| 2005 01 17 | 703 | 0.1+ | 1.0+ | 2008 08 11 | G98 | 0.4− | 0.2+ | 2009 12 17 | 704 | 0.1− | 0.0 |
| 2005 02 09 | G96 | 0.2− | 0.1+ | 2008 08 11 | G98 | 0.3− | 0.1+ | 2009 12 17 | G98 | 0.1+ | 0.0 |
| 2005 02 09 | G96 | 0.1− | 0.4+ | 2008 08 23 | G98 | 1.4− | 1.1+ | 2009 12 17 | 704 | 0.1+ | 0.7− |
| 2005 02 09 | G96 | 0.1− | 0.5+ | 2008 08 23 | G98 | 0.0 | 0.9+ | 2009 12 17 | 704 | 0.2− | 0.2+ |
| 2005 02 09 | G96 | 0.2+ | 0.2+ | 2008 08 23 | G98 | 0.4+ | 0.5+ | 2009 12 17 | G98 | 0.1+ | 0.1+ |
| 2005 03 04 | G98 | 0.4+ | 0.8+ | 2008 08 23 | G98 | 1.1− | 1.0+ | 2009 12 17 | G98 | 0.1− | 0.5+ |
| 2005 03 04 | G98 | 0.4− | 0.9+ | 2008 09 02 | G98 | 0.1− | 0.2− | 2009 12 17 | G98 | 0.1− | 0.3+ |
| 2005 03 04 | G98 | 0.4+ | 0.4+ | 2008 09 02 | G98 | 0.0 | 0.1+ | 2009 12 17 | G98 | 0.5+ | 0.6+ |

**(229306)∗ 2005 EQ$_{100}$ = 2008 WC$_{103}$**

Discovered 2005 Mar. 3 by the Catalina Sky Survey.

Id. G. V. Williams (*MPO* 149958)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| *M* | 56.25818 | | (2000.0) | | **P** | **Q** | |
| *n* | 0.17519799 | $\omega$ | 336.03655 | | +0.42539152 | −0.89427032 | |
| *a* | 3.1631271 | $\Omega$ | 88.53803 | | +0.85117651 | +0.34315641 | |
| *e* | 0.0464936 | *i* | 7.99295 | | +0.30747456 | +0.28727039 | |
| *P* | 5.63 | *H* | 14.9 | *G* | 0.15 | *U* | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 05 23 | 807 | 0.0 | 0.1+ | 2006 06 22 | 644 | 0.2− | 0.4− | 2008 11 18 | 703 | 1.2− | 1.2+ |
| 2001 05 23 | 807 | 0.1+ | 0.1+ | 2006 06 22 | 644 | 0.4+ | 0.3+ | 2008 11 27 | J75 | 0.3+ | 0.7− |
| 2002 10 15 | 644 | 0.3− | 0.5+ | 2006 06 22 | 644 | 0.5+ | 0.4+ | 2008 11 27 | J75 | 0.2+ | 0.5− |
| 2002 10 15 | 644 | 0.1− | 0.7+ | 2007 07 21 | D35 | 0.3− | 0.2− | 2008 11 27 | J75 | 0.5− | 0.5− |
| 2002 10 15 | 644 | 0.2− | 0.9+ | 2007 07 21 | D35 | 0.2− | 0.2− | 2008 12 01 | G96 | 0.1+ | 0.2− |
| 2002 10 28 | 644 | 0.0 | 0.6+ | 2007 07 21 | D35 | 0.3− | 0.0 | 2008 12 01 | G96 | 0.6+ | 0.3− |
| 2002 10 28 | 644 | 0.6− | 0.3+ | 2008 10 25 | 703 | (2.2− | 1.3−) | 2008 12 01 | G96 | 0.2+ | 0.1− |
| 2002 10 28 | 644 | 0.4− | 0.6+ | 2008 10 25 | 704 | 0.4+ | 0.5+ | 2008 12 01 | G96 | 0.5− | 0.2− |
| 2005 03 03 | 703 | 0.2+ | 1.1+ | 2008 10 25 | 703 | 0.1− | 0.3+ | 2009 01 02 | G96 | 0.1− | 0.7− |
| 2005 03 03 | 703 | 0.4− | 0.4− | 2008 10 25 | 704 | 1.2+ | 0.5+ | 2009 01 02 | G96 | 0.0 | 0.2− |
| 2005 03 03 | 703 | 0.8− | 0.1− | 2008 10 25 | 703 | (1.9+ | 0.3+) | 2009 01 02 | G96 | 0.4− | 0.1− |
| 2005 03 03 | 703 | 0.6− | 0.3− | 2008 10 25 | 703 | (2.4+ | 1.2+) | 2009 11 21 | G96 | 0.1+ | 0.3− |
| 2005 03 10 | 699 | 0.8+ | 1.0+ | 2008 10 25 | 704 | 0.3+ | 0.2− | 2009 11 21 | G96 | 0.2+ | 0.0 |
| 2005 03 10 | 699 | 0.1+ | 0.3− | 2008 11 07 | G96 | 0.4− | 0.2− | 2009 11 21 | G96 | 0.2+ | 0.2− |
| 2005 03 10 | 699 | 0.8+ | 0.0 | 2008 11 07 | G96 | 0.2+ | 0.2− | 2009 11 21 | G96 | 0.2− | 0.2− |
| 2005 03 10 | 699 | 0.1− | 1.0+ | 2008 11 07 | G96 | 0.4+ | 0.1− | 2009 12 20 | G96 | 0.4− | 0.2− |
| 2005 03 16 | 703 | 0.8+ | 0.9+ | 2008 11 07 | G96 | 0.4+ | 0.2− | 2009 12 20 | G96 | 0.0 | 0.1− |
| 2005 03 16 | 703 | 1.3+ | 1.0+ | 2008 11 18 | 703 | 1.0− | 0.1+ | 2009 12 20 | G96 | 0.0 | 0.1− |
| 2005 03 16 | 703 | (0.5+ | 1.9+) | 2008 11 18 | 703 | 0.1+ | 1.0+ | 2009 12 20 | G96 | 0.0 | 0.0 |
| 2005 03 16 | 703 | 0.5− | 0.4+ | 2008 11 18 | 703 | 0.2+ | 0.9+ | | | | |

**(229307)∗ 2005 EH$_{153}$ = 2008 HZ$_{44}$**

Discovered 2005 Mar. 8 by the Catalina Sky Survey.

Id. A. Doppler (*MPO* 141173)
Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 352.09227 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.35462492 | $\omega$ | 27.51374 | | +0.46870571 | −0.85732909 | |
| $a$ | 1.9767719 | $\Omega$ | 35.73293 | | +0.72863453 | +0.23900114 | |
| $e$ | 0.1000425 | $i$ | 21.37379 | | +0.49940633 | +0.45592245 | |
| $P$ | 2.78 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 03 08 | 703 | 0.1+ | 0.1− | 2008 04 10 | 291 | 0.0 | 0.0 | 2009 11 06 | 704 | 0.7+ | 0.8+ |
| 2005 03 08 | 703 | 1.2− | 0.7− | 2008 04 10 | 291 | 0.1+ | 0.2+ | 2009 11 06 | 704 | 0.1− | 0.5+ |
| 2005 03 08 | 703 | (3.7+ | 1.6+) | 2008 04 10 | 291 | 0.1− | 0.4+ | 2009 11 06 | 704 | 0.5+ | 1.1+ |
| 2005 03 08 | 703 | 0.7− | 0.9− | 2008 04 28 | G96 | 0.1− | 0.1− | 2009 11 06 | 704 | 0.4− | 0.5+ |
| 2005 03 12 | 704 | 0.2+ | 0.8+ | 2008 04 28 | G96 | 0.0 | 0.2+ | 2009 11 15 | 704 | 0.1+ | 0.6+ |
| 2005 03 12 | 704 | (1.3+ | 3.0−) | 2008 04 28 | G96 | 0.0 | 0.1+ | 2009 11 15 | 704 | 0.1− | 0.6+ |
| 2005 03 12 | 704 | 1.0+ | 1.2− | 2008 04 28 | G96 | 0.4+ | 0.2+ | 2009 11 15 | 704 | 0.4− | 0.2+ |
| 2005 03 12 | 704 | 0.5+ | 0.3+ | 2008 05 03 | G96 | 0.0 | 0.2+ | 2009 11 15 | 704 | 0.2− | 0.1+ |
| 2005 03 12 | 704 | (1.6+ | 1.7−) | 2008 05 03 | G96 | 0.0 | 0.2+ | 2009 11 24 | G96 | 0.1− | 0.3− |
| 2005 03 14 | 703 | 0.5− | 1.0+ | 2008 05 03 | G96 | 0.0 | 0.1+ | 2009 11 24 | G96 | 0.0 | 0.3− |
| 2005 03 14 | 703 | 0.3− | 0.8+ | 2008 05 03 | G96 | 0.1+ | 0.1+ | 2009 11 24 | G96 | 0.2− | 0.1− |
| 2005 03 14 | 703 | 0.2− | 0.4− | 2009 10 15 | 703 | 0.2+ | 0.3− | 2009 11 24 | G96 | 0.0 | 0.2− |
| 2005 03 14 | 703 | 0.2+ | 0.2− | 2009 10 15 | 703 | 0.6+ | 0.7− | 2009 12 11 | 703 | 0.7+ | 0.6− |
| 2006 08 22 | E12 | 0.0 | 0.1− | 2009 10 15 | 703 | 0.1− | 0.0 | 2009 12 11 | 703 | 0.3− | 0.7+ |
| 2006 08 22 | E12 | 0.2− | 0.4+ | 2009 10 15 | 703 | 0.3− | 0.1+ | 2009 12 11 | 703 | 1.3− | 0.1+ |
| 2006 08 22 | E12 | 0.5+ | 0.3+ | 2009 10 19 | 704 | 0.5− | 0.3− | 2009 12 11 | 703 | 0.6− | 0.7+ |
| 2006 08 22 | E12 | 0.0 | 0.6− | 2009 10 19 | 704 | 0.9− | 0.1− | 2009 12 18 | G96 | 0.1+ | 0.2− |
| 2008 03 29 | 703 | 0.1+ | 0.5− | 2009 10 19 | 704 | 0.1− | 0.2− | 2009 12 18 | G96 | 0.4+ | 0.2− |
| 2008 03 29 | 703 | 1.0+ | 1.0− | 2009 10 26 | J75 | 0.2− | 0.5− | 2009 12 18 | G96 | 0.0 | 0.1− |
| 2008 03 29 | 703 | 0.1− | 0.3+ | 2009 10 26 | J75 | 0.1− | 0.3− | 2009 12 18 | G96 | 0.2+ | 0.5− |
| 2008 03 29 | 703 | 0.3+ | 0.2− | 2009 10 26 | J75 | 0.9+ | 0.3+ | | | | |

**(229308)∗ 2005 EN$_{158}$**

Discovered 2005 Mar. 9 by the Mt. Lemmon Survey at Mount Lemmon.
Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 44.60177 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.16918516 | $\omega$ | 47.97343 | | +0.51136565 | −0.85936050 | |
| $a$ | 3.2376349 | $\Omega$ | 11.27233 | | +0.78513449 | +0.46616780 | |
| $e$ | 0.1179223 | $i$ | 0.63594 | | +0.34938375 | +0.21020731 | |
| $P$ | 5.83 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 10 04 | 644 | 0.3− | 0.7+ | 2006 05 20 | G96 | 0.3+ | 0.1+ | 2008 10 03 | 691 | 0.2− | 0.3+ |
| 2002 10 04 | 644 | 0.2− | 0.8+ | 2007 06 27 | 691 | 0.1+ | 0.1+ | 2008 10 07 | 691 | 0.2− | 0.0 |
| 2002 10 04 | 644 | 0.4− | 0.7+ | 2007 06 27 | 691 | 0.0 | 0.1− | 2008 10 07 | 691 | 0.0 | 0.1+ |
| 2002 10 11 | 291 | 0.4+ | 0.3+ | 2007 06 27 | 691 | 0.2+ | 0.1− | 2008 10 07 | 691 | 0.1− | 0.1− |
| 2002 10 11 | 291 | 0.3+ | 0.4+ | 2008 09 07 | G96 | 0.3− | 0.5+ | 2008 11 07 | G96 | 0.3+ | 0.2− |
| 2002 10 11 | 291 | 0.0 | 0.1+ | 2008 09 07 | G96 | 0.1− | 0.6+ | 2008 11 07 | G96 | 0.3+ | 0.0 |
| 2002 10 30 | 645 | 0.0 | 0.2− | 2008 09 07 | G96 | 0.0 | 0.6+ | 2008 11 07 | G96 | 0.4+ | 0.1+ |
| 2002 10 30 | 645 | 0.0 | 0.2− | 2008 09 07 | G96 | 0.0 | 0.6+ | 2008 11 07 | G96 | 0.2− | 0.0 |
| 2004 01 31 | 691 | 0.2− | 0.2+ | 2008 09 20 | 691 | 0.2+ | 0.3+ | 2008 11 20 | G96 | 0.0 | 0.5− |
| 2004 01 31 | 691 | 0.1+ | 0.1+ | 2008 09 20 | 691 | 0.2+ | 0.1− | 2008 11 20 | G96 | 0.2+ | 0.6− |
| 2004 01 31 | 691 | 0.0 | 0.0 | 2008 09 20 | 691 | 0.0 | 0.0 | 2008 11 20 | G96 | 0.1− | 0.6− |
| 2005 03 09 | G96 | 0.1− | 0.3− | 2008 09 20 | G96 | 0.4+ | 0.1− | 2008 11 20 | G96 | 0.2+ | 0.6− |
| 2005 03 09 | G96 | 0.2− | 0.2− | 2008 09 20 | G96 | 0.5+ | 0.3− | 2009 11 16 | G96 | 0.3+ | 0.3− |
| 2005 03 09 | G96 | 0.1− | 0.1+ | 2008 09 20 | G96 | 0.2+ | 0.1+ | 2009 11 16 | G96 | 0.5+ | 0.0 |
| 2005 03 09 | G96 | 0.1− | 0.0 | 2008 09 20 | G96 | 0.8+ | 0.1+ | 2009 11 16 | G96 | 0.3+ | 0.1+ |
| 2005 03 12 | 691 | 0.3− | 0.5+ | 2008 09 24 | 704 | 0.5− | 0.4+ | 2009 11 16 | G96 | 0.0 | 0.6− |
| 2005 03 12 | 691 | 0.3+ | 0.2+ | 2008 09 24 | 704 | 0.2− | 0.7− | 2009 12 15 | G96 | 0.2+ | 0.5− |
| 2005 03 12 | 691 | 0.3+ | 0.5+ | 2008 09 24 | 704 | 0.7− | 0.6− | 2009 12 15 | G96 | 0.3+ | 0.5− |
| 2005 04 02 | G96 | 0.1+ | 0.1+ | 2008 09 24 | 704 | 0.1+ | 0.6+ | 2009 12 15 | G96 | 0.3+ | 0.0 |
| 2005 04 02 | G96 | 0.2− | 0.4− | 2008 09 24 | 704 | 0.1+ | 0.2+ | 2009 12 15 | G96 | 0.4+ | 0.2− |
| 2005 04 02 | G96 | 0.3+ | 0.2− | 2008 09 25 | 691 | 0.2− | 0.1− | 2009 12 15 | G96 | 0.1− | 0.3− |
| 2005 04 02 | G96 | 0.2− | 0.2− | 2008 09 25 | 691 | 0.0 | 0.3+ | 2009 12 15 | G96 | 0.0 | 0.4− |
| 2006 05 20 | G96 | 0.8− | 0.1− | 2008 09 25 | 691 | 0.2− | 0.2+ | 2009 12 15 | G96 | 0.4− | 0.1+ |
| 2006 05 20 | G96 | 0.2+ | 0.1+ | 2008 10 03 | 691 | 0.2− | 0.1− | 2009 12 15 | G96 | 0.2− | 0.2− |
| 2006 05 20 | G96 | 0.4− | 0.1− | 2008 10 03 | 691 | 0.3− | 0.2+ | | | | |

**(229309)∗ 2005 EF$_{196}$ = 1995 UC$_{16}$**

Discovered 2005 Mar. 11 by the Mt. Lemmon Survey at Mount Lemmon.
Id. G. V. Williams (*MPO* 76951)
Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 307.61433 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.25681380 | $\omega$ | 138.32485 | | +0.89338441 | +0.44856010 | |
| $a$ | 2.4512662 | $\Omega$ | 195.08449 | | −0.43388068 | +0.84650320 | |
| $e$ | 0.1224371 | $i$ | 5.65730 | | −0.11666988 | +0.28675105 | |
| $P$ | 3.84 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 10 17 | 691 | 0.2− | 0.3− | 2005 05 06 | G96 | 0.4− | 0.6− | 2006 09 28 | G96 | 0.5+ | 0.2− |
| 1995 10 17 | 691 | 0.0 | 0.1− | 2005 05 06 | G96 | 0.6− | 0.3− | 2009 03 16 | 691 | 0.1− | 0.9+ |
| 1995 10 17 | 691 | 0.1− | 0.1− | 2005 05 06 | G96 | 0.5− | 0.5− | 2009 03 16 | 691 | 0.2+ | 0.1− |
| 1995 10 23 | 691 | 0.3+ | 0.2+ | 2005 05 08 | G96 | 0.8− | 0.5− | 2009 03 16 | 691 | 0.3− | 0.4+ |
| 1995 10 23 | 691 | 0.0 | 0.3+ | 2005 05 08 | G96 | 0.0 | 0.0 | 2009 04 19 | G96 | 0.1− | 0.8− |
| 1995 10 23 | 691 | 0.2+ | 0.3+ | 2005 05 08 | G96 | 0.4− | 0.6− | 2009 04 19 | G96 | 0.1+ | 0.5− |
| 2005 03 11 | G96 | 0.0 | 0.2+ | 2005 05 08 | G96 | 0.7− | 0.3− | 2009 04 19 | G96 | 0.2+ | 0.6− |
| 2005 03 11 | G96 | 0.1+ | 0.0 | 2006 08 16 | 644 | 0.9− | 0.3+ | 2009 04 19 | G96 | 0.5+ | 0.8− |
| 2005 03 11 | G96 | 0.4− | 0.2+ | 2006 08 16 | 644 | 0.6− | 0.3+ | 2009 04 29 | G96 | 0.5− | 0.2− |
| 2005 03 11 | G96 | 0.1− | 0.3− | 2006 08 16 | 644 | 0.9− | 0.3+ | 2009 04 29 | G96 | 0.3+ | 0.2− |
| 2005 03 13 | 691 | 0.3+ | 0.2+ | 2006 08 30 | 704 | (1.7+ | 1.3+) | 2009 04 29 | G96 | 0.0 | 0.1− |
| 2005 03 13 | 691 | 0.1− | 0.2+ | 2006 08 30 | 704 | 0.3− | 0.8+ | 2009 04 29 | G96 | 0.2− | 0.2− |
| 2005 03 13 | 691 | 0.4+ | 0.6+ | 2006 08 30 | 704 | 0.7+ | 0.6+ | 2009 05 15 | G96 | 0.5+ | 0.3− |
| 2005 04 05 | G96 | 0.1− | 0.2− | 2006 08 30 | 704 | 0.6+ | 0.9− | 2009 05 15 | G96 | 0.2− | 0.1− |
| 2005 04 05 | G96 | 0.3− | 0.1− | 2006 08 30 | 704 | (0.7− | 2.6−) | 2009 05 15 | G96 | 0.0 | 0.2+ |
| 2005 04 05 | G96 | 0.4− | 0.0 | 2006 09 28 | G96 | 0.1− | 0.1+ | 2009 05 15 | G96 | 0.1− | 0.1− |
| 2005 04 05 | G96 | 0.3+ | 0.1− | 2006 09 28 | G96 | 0.3+ | 0.2+ | 2009 08 12 | 568 | 0.1+ | 0.0 |
| 2005 05 06 | G96 | 0.0 | 0.4− | 2006 09 28 | G96 | 0.1+ | 0.2− | | | | |

**(229310)∗ 2005 EL$_{276}$**

Discovered 2005 Mar. 8 by the Catalina Sky Survey.
Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 26.11778 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17525138 | $\omega$ | 333.19381 | | −0.11648130 | −0.96095637 | |
| $a$ | 3.1624846 | $\Omega$ | 122.50208 | | +0.95626441 | −0.17677919 | |
| $e$ | 0.0976840 | $i$ | 17.31355 | | +0.26831043 | +0.21286611 | |
| $P$ | 5.62 | $H$ | 14.5 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 05 10 | 645 | 0.0 | 0.0 | 2005 04 02 | 703 | 0.1+ | 0.2+ | 2008 10 09 | 703 | 0.5− | 0.5+ |
| 2000 05 10 | 645 | 0.1+ | 0.0 | 2005 04 02 | 699 | 0.8− | 0.4+ | 2008 10 09 | 703 | 0.5+ | 1.4+ |
| 2002 10 01 | 608 | 0.1− | 0.3+ | 2005 04 02 | 699 | 0.4+ | 0.0 | 2008 10 09 | 703 | (1.6+ | 1.4+) |
| 2002 10 01 | 608 | 0.5− | 0.8− | 2005 04 02 | 699 | 0.6+ | 0.1+ | 2008 10 09 | 703 | 1.5+ | 0.3− |
| 2002 10 01 | 608 | 0.1− | 1.2− | 2005 04 09 | 703 | 0.3+ | 0.1+ | 2008 10 22 | 704 | 0.4− | 0.9+ |
| 2002 10 08 | 644 | 0.1− | 0.5+ | 2005 04 09 | 703 | 0.3+ | 0.4+ | 2008 10 22 | 704 | 0.8+ | 0.2+ |
| 2002 10 08 | 644 | 0.0 | 0.6+ | 2005 04 09 | 703 | 0.2+ | 0.5− | 2008 10 22 | 704 | 0.8− | 0.3− |
| 2002 10 08 | 644 | 0.2− | 0.6+ | 2005 04 09 | 703 | 0.1+ | 0.6+ | 2008 10 22 | 704 | 1.0− | 0.8+ |
| 2005 03 08 | 703 | 0.6− | 0.6− | 2007 08 08 | 704 | 0.3− | 0.3− | 2008 10 22 | 704 | 0.9− | 0.9+ |
| 2005 03 08 | 703 | 0.6− | 0.4+ | 2007 08 08 | 704 | 0.6+ | 0.5+ | 2008 11 20 | 703 | 0.0 | 0.7− |
| 2005 03 08 | 703 | 0.7− | 0.9+ | 2007 08 08 | 704 | 0.4− | 0.4+ | 2008 11 20 | 703 | (1.0+ | 1.6−) |
| 2005 03 08 | 703 | 0.7− | 0.3− | 2007 08 08 | 704 | 0.4− | 0.4+ | 2008 11 20 | 703 | 0.3+ | 0.7− |
| 2005 03 15 | 703 | 0.6+ | 0.3+ | 2007 08 11 | 699 | 0.4− | 0.3+ | 2008 11 20 | 703 | 0.4− | 0.1+ |
| 2005 03 15 | 703 | 0.2− | 0.1− | 2007 08 11 | 699 | 0.2+ | 0.6+ | 2009 10 23 | 691 | 0.1+ | 0.3+ |
| 2005 03 15 | 703 | 0.2+ | 0.5+ | 2007 08 11 | 699 | 0.5− | 0.4− | 2009 10 23 | 691 | 0.0 | 0.1+ |
| 2005 03 15 | 703 | 0.6+ | 0.4+ | 2007 08 11 | 699 | (1.7− | 0.1−) | 2009 10 23 | 691 | 0.2− | 0.1+ |
| 2005 04 02 | 703 | 0.4− | 0.5+ | 2008 10 01 | 703 | 0.5+ | 0.8+ | 2009 12 17 | G96 | 0.1+ | 0.2− |
| 2005 04 02 | 699 | 0.1+ | 0.1− | 2008 10 01 | 703 | 0.4+ | 1.2+ | 2009 12 17 | G96 | 0.1+ | 0.1− |
| 2005 04 02 | 703 | 0.4− | 0.7+ | 2008 10 01 | 703 | (0.2− | 1.7+) | 2009 12 17 | G96 | 0.5+ | 0.1− |
| 2005 04 02 | 703 | 0.4+ | 0.2− | 2008 10 01 | 703 | 0.2+ | 0.1− | | | | |

**(229311)∗ 2005 EG$_{281}$**

Discovered 2005 Mar. 10 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 324.53529 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17300118 | $\omega$ | 41.84235 | | −0.91209293 | | −0.39687525 |
| $a$ | 3.1898482 | $\Omega$ | 114.50326 | | +0.33974725 | | −0.87207330 |
| $e$ | 0.0837584 | $i$ | 6.48950 | | +0.22947397 | | −0.28631834 |
| $P$ | 5.70 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1993 01 21 | 691 | 0.7+ | 0.3− | 2005 03 10 | 699 | 0.3− | 0.2+ | 2008 10 28 | G96 | 0.3+ | 0.3− |
| 1993 01 21 | 691 | 0.5− | 0.7− | 2005 03 18 | 703 | 0.3− | 0.2+ | 2008 10 28 | G96 | 0.3− | 0.3− |
| 1993 01 21 | 691 | 0.5− | 1.1− | 2005 03 18 | 703 | 0.2− | 0.7− | 2008 10 28 | G96 | 0.2+ | 0.1− |
| 2000 06 23 | 691 | 0.0 | 0.0 | 2005 03 18 | 703 | 0.6+ | 0.9− | 2009 09 18 | 691 | 0.2+ | 0.8+ |
| 2000 06 23 | 691 | 0.4+ | 0.3− | 2005 03 18 | 703 | 0.1− | 1.1+ | 2009 09 18 | 691 | 0.0 | 0.0 |
| 2000 06 23 | 691 | 0.1+ | 0.1− | 2005 04 06 | 703 | (2.1− | 2.3−) | 2009 09 18 | 691 | 0.3+ | 0.2+ |
| 2000 07 03 | 691 | 0.1− | 0.1− | 2005 04 06 | 703 | 0.8− | 0.7− | 2009 12 15 | G96 | 0.3+ | 0.1+ |
| 2000 07 03 | 691 | 0.1+ | 0.1− | 2005 04 06 | 703 | (0.3− | 2.0−) | 2009 12 15 | G96 | 0.1− | 0.2+ |
| 2000 07 03 | 691 | 0.2− | 0.0 | 2005 04 06 | 703 | 1.0− | 1.0+ | 2009 12 15 | G96 | 0.6+ | 0.4+ |
| 2002 10 05 | 645 | 0.0 | 0.1− | 2008 09 27 | G96 | 0.5+ | 0.1− | 2009 12 15 | G96 | 0.3+ | 0.1+ |
| 2002 10 05 | 645 | 0.0 | 0.1− | 2008 09 27 | G96 | 0.1− | 0.1+ | 2009 12 17 | 691 | 0.1+ | 0.4+ |
| 2005 03 10 | 699 | 0.3+ | 0.8+ | 2008 09 27 | G96 | 0.4+ | 0.0 | 2009 12 17 | 691 | 0.0 | 0.4+ |
| 2005 03 10 | 699 | 0.0 | 0.9+ | 2008 09 27 | G96 | 0.1− | 0.1+ | 2009 12 17 | 691 | 0.1− | 0.0 |
| 2005 03 10 | 699 | 0.0 | 0.4− | 2008 10 28 | G96 | 0.4− | 0.3− | | | | |

**(229312)∗ 2005 GQ$_{35}$**

Discovered 2005 Apr. 2 by the Catalina Sky Survey.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 323.52224 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18098560 | $\omega$ | 82.07120 | | −0.96413981 | | −0.18324214 |
| $a$ | 3.0953282 | $\Omega$ | 87.22037 | | +0.09393196 | | −0.91216546 |
| $e$ | 0.0513361 | $i$ | 11.08163 | | +0.24821607 | | −0.36657399 |
| $P$ | 5.45 | $H$ | 14.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 04 27 | 699 | 0.5+ | 1.1+ | 2005 04 02 | 699 | 1.4+ | 0.3+ | 2008 10 26 | A50 | 0.2+ | 0.3− |
| 2000 04 27 | 699 | 0.4+ | 0.7+ | 2005 04 02 | 699 | (1.7− | 1.2−) | 2008 10 26 | A50 | 0.7− | 0.0 |
| 2000 04 27 | 699 | 0.5+ | 0.3+ | 2005 04 06 | 644 | 0.1− | 1.0+ | 2008 10 26 | A50 | 0.0 | 0.8− |
| 2000 04 27 | 699 | 0.1− | 0.8+ | 2005 04 06 | 644 | 0.2+ | 0.9+ | 2008 11 03 | G96 | 0.1− | 0.4+ |
| 2001 07 19 | 644 | 0.2− | 0.4+ | 2005 04 06 | 644 | 0.2− | 1.0+ | 2008 11 03 | G96 | 0.0 | 0.4+ |
| 2001 07 19 | 644 | 0.4+ | 0.6+ | 2005 04 09 | 703 | 0.1− | 0.4+ | 2008 11 03 | G96 | 0.2− | 0.4+ |
| 2001 07 19 | 644 | 0.2− | 0.4+ | 2005 04 09 | 703 | 0.7− | 0.3− | 2008 11 03 | G96 | 0.3− | 0.3+ |
| 2001 07 19 | 644 | 0.2+ | 0.7+ | 2005 04 09 | 703 | 0.6− | 0.9− | 2008 11 08 | G96 | 0.2+ | 0.0 |
| 2001 07 19 | 644 | 0.4− | 0.6+ | 2005 04 09 | 703 | 1.4+ | 1.0+ | 2008 11 08 | G96 | 0.3− | 0.0 |
| 2001 07 19 | 644 | 0.2+ | 0.6+ | 2005 04 12 | 704 | 0.2+ | 0.3+ | 2008 11 08 | G96 | 0.2+ | 0.1+ |
| 2003 12 18 | 704 | 0.2+ | 0.9+ | 2005 04 12 | 704 | 0.6+ | 0.3+ | 2008 11 08 | G96 | 0.0 | 0.0 |
| 2003 12 18 | 704 | 0.4− | 1.1+ | 2005 04 12 | 704 | 0.6+ | 0.2− | 2008 11 28 | J75 | 0.2+ | 1.3+ |
| 2003 12 18 | 704 | 0.4+ | 0.7+ | 2007 09 01 | 413 | 0.4− | 0.3+ | 2008 11 28 | J75 | 1.0− | 0.2+ |
| 2003 12 18 | 704 | (1.2+ | 1.7+) | 2007 09 01 | 413 | 0.3− | 0.1+ | 2008 11 28 | J75 | (1.9− | 2.7−) |
| 2003 12 18 | 704 | 0.5− | 1.1+ | 2007 09 01 | 413 | 0.2− | 0.2+ | 2009 11 24 | 703 | 0.4− | 0.2+ |
| 2005 03 11 | 703 | 0.5− | 0.0 | 2007 09 04 | 413 | 1.1+ | 0.2+ | 2009 11 24 | 703 | 0.4+ | 0.3− |
| 2005 03 11 | 703 | 0.3− | 0.7− | 2007 09 04 | 413 | 0.2− | 0.6+ | 2009 11 24 | 703 | 0.6+ | 1.0+ |
| 2005 03 11 | 703 | 0.2− | 0.5− | 2007 09 06 | 413 | 0.3− | 0.3+ | 2009 11 24 | 703 | 1.4+ | 0.5+ |
| 2005 03 11 | 703 | 0.3− | 0.4− | 2007 09 06 | 413 | 0.3− | 0.3+ | 2009 12 24 | 114 | 0.0 | 0.3− |
| 2005 04 02 | 703 | 0.2− | 0.4− | 2008 10 22 | A50 | 0.2− | 0.2− | 2009 12 24 | 114 | 0.2− | 0.0 |
| 2005 04 02 | 703 | 0.8− | 0.3+ | 2008 10 22 | A50 | 0.7+ | 0.1− | 2009 12 24 | 114 | 0.1− | 0.1− |
| 2005 04 02 | 703 | 0.2+ | 0.6+ | 2008 10 22 | A50 | 0.1− | 0.2− | 2009 12 24 | 114 | 0.4− | 0.5− |
| 2005 04 02 | 703 | 1.0− | 0.2− | 2008 10 22 | A50 | 0.1− | 0.4− | 2009 12 24 | 114 | 0.4− | 0.0 |
| 2005 04 02 | 699 | 0.0 | 0.1− | 2008 10 26 | A50 | 0.2− | 0.1− | | | | |
| 2005 04 02 | 699 | 0.5+ | 0.1+ | 2008 10 26 | A50 | 0.1+ | 0.4+ | | | | |

**(229313)∗ 2005 GK$_{64}$**

Discovered 2005 Apr. 2 by the Catalina Sky Survey.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 358.69615 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18231061 | $\omega$ | 35.35791 | | −0.56249074 | | −0.78364150 |
| $a$ | 3.0803124 | $\Omega$ | 90.30148 | | +0.68486124 | | −0.62025173 |
| $e$ | 0.1814880 | $i$ | 15.28684 | | +0.46321621 | | −0.03455129 |
| $P$ | 5.41 | $H$ | 15.3 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 05 04 | 645 | 0.0 | 0.1− | 2003 12 22 | 704 | 0.0 | 0.0 | 2005 04 09 | 703 | 0.6+ | 0.2− |
| 2000 05 04 | 645 | 0.0 | 0.1− | 2005 03 15 | 703 | (1.5− | 4.6−) | 2005 04 09 | 703 | 0.9+ | 0.8+ |
| 2003 11 23 | 699 | 0.1+ | 0.8− | 2005 03 15 | 703 | (0.4+ | 1.9−) | 2005 04 09 | 703 | 0.1+ | 0.1+ |
| 2003 11 23 | 699 | (1.8− | 1.0+) | 2005 03 15 | 703 | (1.9− | 0.9−) | 2009 11 25 | 703 | 0.0 | 0.1+ |
| 2003 11 23 | 699 | (1.6− | 0.2−) | 2005 03 15 | 703 | 0.8− | 0.8− | 2009 11 25 | 703 | 0.5+ | 0.4− |
| 2003 11 23 | 699 | 0.3+ | 0.7− | 2005 03 20 | 704 | 0.7+ | 0.5+ | 2009 11 25 | 703 | 1.5− | 0.9− |
| 2003 12 01 | 704 | 0.4− | 0.2+ | 2005 03 20 | 704 | 0.4+ | 0.7+ | 2009 11 25 | 703 | (1.0− | 2.0−) |
| 2003 12 01 | 704 | 0.5− | 0.0 | 2005 03 20 | 704 | 0.2− | 0.3− | 2009 12 10 | 703 | 1.3+ | 0.6+ |
| 2003 12 01 | 704 | (0.9− | 2.1−) | 2005 04 02 | 699 | 0.6+ | 0.6+ | 2009 12 10 | 703 | 0.7+ | 0.4− |
| 2003 12 01 | 704 | 0.3+ | 0.1+ | 2005 04 02 | 703 | 0.3− | 0.0 | 2009 12 10 | 703 | 0.5− | 1.5+ |
| 2003 12 20 | 704 | 0.8+ | 0.4+ | 2005 04 02 | 703 | 0.1− | 0.5+ | 2009 12 10 | 703 | 0.7− | 0.5+ |
| 2003 12 20 | 704 | 0.5− | 1.4− | 2005 04 02 | 703 | 0.3− | 0.1− | 2009 12 15 | 704 | 0.5+ | 0.1− |
| 2003 12 20 | 704 | 0.2+ | 0.2+ | 2005 04 02 | 699 | 0.8− | 0.2− | 2009 12 15 | 704 | 0.4− | 0.8− |
| 2003 12 20 | 704 | 0.0 | 0.4+ | 2005 04 02 | 703 | 0.6− | 0.3+ | 2009 12 15 | 704 | 0.1+ | 0.8− |
| 2003 12 22 | 704 | (1.8− | 0.6+) | 2005 04 02 | 699 | 0.1+ | 0.3− | 2009 12 15 | 704 | 0.2− | 0.7− |
| 2003 12 22 | 704 | 0.8+ | 0.5+ | 2005 04 02 | 699 | 0.1+ | 0.1+ | | | | |
| 2003 12 22 | 704 | 0.9− | 0.7+ | 2005 04 09 | 703 | 0.4+ | 0.2+ | | | | |

**(229314)∗ 2005 GW$_{94}$**

Discovered 2005 Apr. 6 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 129.91927 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.31748782 | $\omega$ | 187.30199 | | +0.15921460 | | +0.98673394 |
| $a$ | 2.1280639 | $\Omega$ | 91.86304 | | −0.90416603 | | +0.15864645 |
| $e$ | 0.1372145 | $i$ | 1.81931 | | −0.39640196 | | +0.03445927 |
| $P$ | 3.10 | $H$ | 18.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 05 10 | 704 | (2.4− | 0.6+) | 2005 04 18 | 691 | 0.2+ | 0.2+ | 2008 04 28 | G96 | 0.2− | 0.4− |
| 2002 05 10 | 704 | 0.1+ | 0.3+ | 2005 04 18 | 691 | 0.3+ | 0.0 | 2008 04 28 | G96 | 0.0 | 0.4− |
| 2002 05 10 | 704 | 1.3+ | 0.4− | 2006 11 11 | 691 | 0.1+ | 0.3+ | 2008 06 06 | G96 | 0.6− | 0.5− |
| 2002 05 17 | 644 | 0.1− | 0.6+ | 2006 11 11 | 691 | 0.2− | 0.3+ | 2008 06 06 | G96 | 0.1− | 0.4− |
| 2002 05 17 | 644 | 0.1− | 0.4+ | 2006 11 11 | 691 | 0.3− | 0.0 | 2008 06 06 | G96 | 0.2− | 0.2+ |
| 2002 05 17 | 644 | 0.3− | 0.7+ | 2006 11 11 | G96 | 0.2− | 0.7− | 2008 06 06 | G96 | 0.1− | 0.1+ |
| 2005 03 14 | G96 | 0.8− | 0.4− | 2006 11 11 | G96 | 0.0 | 0.2− | 2009 11 08 | G96 | 0.1− | 0.3+ |
| 2005 03 14 | G96 | 0.5− | 0.2− | 2006 11 11 | G96 | 0.4− | 0.4− | 2009 11 08 | G96 | 0.2− | 0.5+ |
| 2005 03 14 | G96 | 1.3− | 0.1+ | 2006 11 11 | G96 | 0.2− | 0.4− | 2009 11 08 | G96 | 0.0 | 0.3+ |
| 2005 03 14 | G96 | 0.8− | 1.0+ | 2006 11 15 | 691 | 0.2+ | 0.2+ | 2009 11 08 | G96 | 0.0 | 0.0 |
| 2005 04 06 | 691 | 0.2− | 0.2+ | 2006 11 15 | 691 | 0.1+ | 0.5+ | 2009 11 18 | G96 | 0.2− | 0.5+ |
| 2005 04 06 | 691 | 0.3− | 0.1− | 2006 11 15 | 691 | 0.2+ | 0.1+ | 2009 11 18 | G96 | 0.1+ | 0.1+ |
| 2005 04 06 | 691 | 0.1+ | 0.1− | 2008 03 11 | 691 | 0.1+ | 0.1− | 2009 11 18 | G96 | 0.2− | 0.7+ |
| 2005 04 10 | 691 | 0.1+ | 0.4+ | 2008 03 11 | 691 | 0.6+ | 0.1− | 2009 11 18 | G96 | 0.4− | 0.0 |
| 2005 04 10 | 691 | 0.0 | 0.4+ | 2008 03 11 | 691 | 0.1+ | 0.2− | 2009 12 17 | G96 | 0.9− | 0.3+ |
| 2005 04 10 | 691 | 0.1+ | 0.4+ | 2008 03 15 | 691 | 0.8− | 0.0 | 2009 12 17 | G96 | 0.1+ | 0.4− |
| 2005 04 14 | 691 | 0.3+ | 0.3+ | 2008 03 15 | 691 | 0.2− | 0.3− | 2009 12 17 | G96 | 0.1+ | 0.4+ |
| 2005 04 14 | 691 | 0.3+ | 0.0 | 2008 03 15 | 691 | 0.1+ | 0.5− | 2009 12 17 | G96 | 0.2+ | 0.3+ |
| 2005 04 14 | 691 | 0.1+ | 0.2+ | 2008 04 28 | G96 | 0.2+ | 0.1− | | | | |
| 2005 04 18 | 691 | 0.2+ | 0.1+ | 2008 04 28 | G96 | 0.3+ | 0.0 | | | | |

**(229315)∗ 2005 GK$_{123}$**

Discovered 2005 Apr. 7 by the Catalina Sky Survey.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 292.86514 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.37837236 | $\omega$ | 67.86758 | | −0.92063365 | | +0.17138492 |
| $a$ | 1.8931707 | $\Omega$ | 120.37144 | | −0.24417318 | | −0.95384767 |
| $e$ | 0.0853007 | $i$ | 23.99142 | | +0.30465249 | | −0.24658029 |
| $P$ | 2.60 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 05 01 | 704 | 0.0 | 0.4− | 2005 01 16 | 703 | 0.7− | 0.1+ | 2005 05 06 | 704 | 0.6+ | 0.5− |
| 2000 05 01 | 704 | 0.7− | 0.6+ | 2005 01 16 | 703 | 0.1− | 0.4− | 2005 05 06 | 704 | 0.6+ | 0.2− |
| 2000 05 01 | 704 | 0.2− | 0.3+ | 2005 03 22 | 704 | 0.8+ | 0.2+ | 2005 07 06 | 703 | (0.2+ | 2.7+) |
| 2000 05 01 | 704 | 0.0 | 0.1− | 2005 03 22 | 704 | 0.6+ | 0.2+ | 2005 07 06 | 703 | (0.6+ | 3.0+) |
| 2000 05 01 | 704 | 0.4− | 0.4+ | 2005 03 22 | 704 | 0.4+ | 0.3+ | 2005 07 06 | 703 | (0.1+ | 2.3+) |
| 2000 05 30 | 704 | 0.1+ | 0.1+ | 2005 03 22 | 704 | 0.5+ | 0.2− | 2005 07 06 | 703 | (1.1+ | 3.3+) |
| 2000 05 30 | 704 | 0.9− | 1.3+ | 2005 03 22 | 704 | 0.4+ | 0.1+ | 2006 11 18 | E12 | 0.2− | 0.6− |
| 2000 05 30 | 704 | 0.4− | 0.4+ | 2005 03 27 | 699 | 0.4− | 0.0 | 2006 11 18 | E12 | 1.1+ | 0.7+ |
| 2000 05 30 | 704 | 0.7+ | 0.2+ | 2005 03 27 | 699 | 0.2− | 0.1+ | 2006 11 18 | E12 | 0.4− | 0.3+ |
| 2000 05 30 | 704 | 0.7+ | 0.3+ | 2005 03 27 | 699 | 0.5+ | 0.5− | 2006 11 18 | E12 | 0.9+ | 0.5+ |
| 2001 11 18 | 608 | 1.0+ | 0.4+ | 2005 03 27 | 699 | 0.1− | 0.1+ | 2009 11 19 | J75 | 0.3+ | 0.7+ |
| 2001 11 18 | 608 | 0.1+ | 1.0+ | 2005 04 07 | 703 | 0.6− | 0.6− | 2009 11 19 | J75 | 0.3− | 0.2− |
| 2001 11 18 | 608 | 0.6+ | 0.1− | 2005 04 07 | 703 | 1.0− | 0.6− | 2009 11 19 | J75 | 0.8+ | 1.1+ |
| 2001 12 22 | 608 | 0.2− | 0.8− | 2005 04 07 | 703 | 0.8− | 0.3+ | 2009 12 13 | 704 | 0.2− | 0.7+ |
| 2001 12 22 | 608 | 0.8− | 0.8− | 2005 04 07 | 703 | 0.4+ | 0.7− | 2009 12 13 | 704 | 0.2− | 0.8+ |
| 2001 12 22 | 608 | 0.6− | 0.7− | 2005 04 12 | 703 | 0.3− | 0.0 | 2009 12 13 | 704 | 0.6− | 0.3+ |
| 2003 07 08 | 644 | 0.2+ | 1.2+ | 2005 04 12 | 703 | 0.3+ | 0.0 | 2009 12 13 | 704 | 0.5− | 0.8+ |
| 2003 07 08 | 644 | 0.3− | 1.0+ | 2005 04 12 | 703 | 0.2+ | 0.3− | 2009 12 13 | 704 | 0.5+ | 0.2− |
| 2003 07 08 | 644 | 0.3− | 1.1+ | 2005 04 12 | 703 | 0.6− | 0.4+ | 2009 12 15 | 703 | 0.6− | 0.9− |
| 2004 12 15 | 704 | 0.2− | 0.5− | 2005 04 30 | 704 | 0.2+ | 0.2− | 2009 12 15 | 703 | 1.5− | 0.4+ |
| 2004 12 15 | 704 | 1.4+ | 0.8− | 2005 04 30 | 704 | 0.6+ | 0.0 | 2009 12 15 | 703 | 1.0− | 0.0 |
| 2004 12 15 | 704 | 0.5+ | 0.1− | 2005 04 30 | 704 | 0.5+ | 0.3− | 2009 12 15 | 703 | 0.3− | 0.7− |
| 2004 12 15 | 704 | 0.9+ | 0.1+ | 2005 04 30 | 704 | 0.8+ | 0.0 | 2009 12 15 | 703 | 0.2− | 0.6− |
| 2005 01 09 | 703 | 0.2− | 0.4+ | 2005 04 30 | 704 | 0.5+ | 0.2+ | 2009 12 18 | 704 | 0.3+ | 0.6+ |
| 2005 01 09 | 703 | 0.4− | 0.1+ | 2005 05 05 | 704 | 0.1+ | 0.2− | 2009 12 18 | 704 | 0.3− | 1.0+ |
| 2005 01 09 | 703 | 0.3+ | 0.0 | 2005 05 05 | 704 | 0.2+ | 0.4+ | 2009 12 18 | 704 | 0.2+ | 0.8+ |
| 2005 01 09 | 703 | 0.4− | 0.7+ | 2005 05 05 | 704 | 0.5+ | 0.4+ | 2009 12 18 | 704 | 0.8− | 0.8+ |
| 2005 01 16 | 703 | (1.8+ | 0.8+) | 2005 05 05 | 704 | 0.5− | 0.7+ | | | | |
| 2005 01 16 | 703 | 0.2− | 0.1− | 2005 05 06 | 704 | 0.7+ | 0.1− | | | | |

**(229316)∗ 2005 JB$_{69}$ = 2004 BN$_{45}$**

Discovered 2005 May 6 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 77228)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 328.12315 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17458388 | $\omega$ | 86.35404 | | −0.90308721 | | +0.01473219 |
| $a$ | 3.1705404 | $\Omega$ | 94.13638 | | −0.17225222 | | −0.92792399 |
| $e$ | 0.3005622 | $i$ | 25.48821 | | +0.39339885 | | −0.37247824 |
| $P$ | 5.65 | $H$ | 14.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 04 09 | 704 | 0.7+ | 0.5− | 2005 05 06 | 704 | 0.3− | 0.3+ | 2005 06 09 | 704 | 0.1− | 0.9+ |
| 1999 04 09 | 704 | 1.4− | 0.5+ | 2005 05 06 | 704 | 0.3− | 0.4+ | 2005 06 09 | 704 | 0.5+ | 0.9+ |
| 1999 04 09 | 704 | 0.8+ | 0.0 | 2005 05 06 | 704 | 0.4− | 0.5+ | 2005 06 23 | 644 | 0.1+ | 0.4+ |
| 1999 04 09 | 704 | 0.9− | 0.6+ | 2005 05 06 | 691 | (0.4+ | 1.7−) | 2005 06 23 | 644 | 0.2+ | 0.3+ |
| 1999 04 09 | 704 | 0.6+ | 0.6− | 2005 05 06 | 691 | 0.0 | 0.1+ | 2005 06 23 | 644 | 0.1+ | 0.3+ |
| 2003 12 03 | 704 | 0.0 | 0.2+ | 2005 05 06 | 691 | 0.0 | 0.2+ | 2005 06 25 | 644 | 0.5+ | 0.1+ |
| 2003 12 03 | 704 | 1.0+ | 0.9+ | 2005 05 11 | 691 | 0.2+ | 0.0 | 2005 06 25 | 644 | 0.2+ | 0.3+ |
| 2003 12 03 | 704 | 0.2+ | 0.4+ | 2005 05 11 | 691 | 0.1+ | 0.1+ | 2005 06 25 | 644 | 0.1+ | 0.2+ |
| 2003 12 19 | 704 | 0.3+ | 0.7+ | 2005 05 11 | 691 | 0.0 | 0.1+ | 2005 06 29 | 644 | 0.4+ | 0.1+ |
| 2003 12 19 | 704 | 0.2+ | 1.1+ | 2005 05 12 | 608 | 0.3+ | 0.6− | 2005 06 29 | 644 | 0.3+ | 0.2+ |
| 2003 12 19 | 704 | 0.4+ | 0.1− | 2005 05 12 | 608 | 0.2− | 1.1− | 2005 06 29 | 644 | 0.5+ | 0.3+ |
| 2003 12 19 | 704 | 0.4+ | 0.4− | 2005 05 12 | 608 | 0.1+ | 1.1− | 2009 10 24 | 703 | 0.8+ | 0.1+ |
| 2004 01 21 | 704 | 0.9− | 0.9+ | 2005 05 13 | 704 | 0.2− | 0.6− | 2009 10 24 | 703 | 0.3− | 0.8− |
| 2004 01 21 | 704 | 0.1− | 1.2+ | 2005 05 13 | 704 | 0.1+ | 0.1+ | 2009 10 24 | 703 | 0.4+ | 0.4− |
| 2004 01 21 | 704 | 0.5− | 1.1+ | 2005 05 13 | 704 | 0.1+ | 0.2− | 2009 10 24 | 703 | 0.9− | 0.6+ |
| 2004 01 21 | 704 | 0.3− | 0.1+ | 2005 05 13 | 704 | 0.1− | 0.1+ | 2009 11 24 | 703 | 0.5− | 0.9− |
| 2004 01 21 | 704 | 0.2− | 0.0 | 2005 05 31 | 703 | 0.5− | 0.1− | 2009 11 24 | 703 | 1.5+ | 0.5− |
| 2004 01 24 | 704 | 0.7− | 0.4+ | 2005 05 31 | 703 | 0.1− | 0.9− | 2009 11 24 | 703 | 0.5+ | 1.2− |
| 2004 01 24 | 704 | 1.2− | 0.0 | 2005 05 31 | 703 | 0.2− | 0.1+ | 2009 11 24 | 703 | 0.6+ | 1.0− |
| 2004 01 24 | 704 | 1.0− | 1.2+ | 2005 05 31 | 703 | 0.4− | 0.9− | 2009 12 17 | 703 | 1.4− | 2.5− |
| 2004 01 24 | 704 | 0.7− | 0.1+ | 2005 06 09 | 704 | 0.2+ | 0.9+ | 2009 12 17 | 703 | 0.4− | 0.2+ |
| 2004 01 24 | 704 | 0.9− | 0.2+ | 2005 06 09 | 704 | 0.0 | 0.3+ | 2009 12 17 | 703 | 0.3− | 0.1− |
| 2005 05 06 | 704 | 0.5− | 0.5+ | 2005 06 09 | 704 | 0.4+ | 0.2+ | 2009 12 17 | 703 | 0.3+ | 0.5+ |

**(229317)∗ 2005 MJ$_{12}$**

Discovered 2005 June 28 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 151.80125 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.32139836 | $\omega$ | 232.87452 | | +0.75067675 | | +0.65714197 |
| $a$ | 2.1107669 | $\Omega$ | 85.93609 | | −0.58240780 | | +0.70694163 |
| $e$ | 0.1384613 | $i$ | 3.91947 | | −0.31190635 | | +0.26153004 |
| $P$ | 3.07 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 09 08 | 703 | 1.7+ | 0.3− | 2002 08 19 | 644 | 0.5− | 0.0 | 2005 08 12 | E12 | 0.0 | 0.1+ |
| 1999 09 08 | 703 | 1.0+ | 1.9− | 2002 08 19 | 644 | 0.0 | 0.4− | 2005 11 06 | G96 | 0.3− | 0.2− |
| 1999 09 08 | 703 | (2.3− | 1.2−) | 2002 08 19 | 644 | 0.4− | 0.1+ | 2005 11 06 | G96 | 0.1+ | 0.1+ |
| 1999 09 08 | 703 | 1.0+ | 0.4+ | 2002 08 30 | 644 | 0.2− | 0.1+ | 2005 11 06 | G96 | 0.2− | 0.3+ |
| 2002 07 06 | 291 | 0.3− | 0.2− | 2002 08 30 | 644 | 0.2+ | 0.1+ | 2005 11 06 | G96 | 0.0 | 0.0 |
| 2002 07 06 | 291 | 0.3− | 0.2− | 2002 08 30 | 644 | 0.2− | 0.0 | 2007 01 17 | 691 | 0.2+ | 0.1+ |
| 2002 07 06 | 291 | 0.3− | 0.2− | 2005 06 28 | 644 | 0.2− | 0.1− | 2007 01 17 | 691 | 0.2− | 0.0 |
| 2002 07 30 | 608 | (0.1+ | 2.4−) | 2005 06 28 | 644 | 0.0 | 0.0 | 2007 01 17 | 691 | 0.1+ | 0.1− |
| 2002 07 30 | 608 | (0.4+ | 1.6−) | 2005 06 28 | 644 | 0.0 | 0.3− | 2007 01 25 | 691 | 0.2+ | 1.0− |
| 2002 07 30 | 608 | (2.0+ | 1.2−) | 2005 06 30 | 699 | 0.3− | 0.9+ | 2007 01 25 | 691 | 0.0 | 0.2+ |
| 2002 08 11 | 644 | 0.1− | 0.0 | 2005 06 30 | 699 | 0.1− | 0.2− | 2007 01 25 | 691 | 0.5− | 0.2− |
| 2002 08 11 | 644 | 0.0 | 0.1− | 2005 06 30 | 699 | 0.7+ | 0.5− | 2009 11 17 | G96 | 0.7+ | 0.2− |
| 2002 08 11 | 644 | 0.1− | 0.2+ | 2005 06 30 | 699 | 0.9+ | 0.0 | 2009 11 17 | G96 | 0.5+ | 0.1+ |
| 2002 08 16 | 608 | 0.1− | 0.5+ | 2005 07 31 | E12 | 1.0+ | 1.3+ | 2009 11 17 | G96 | 0.0 | 0.3− |
| 2002 08 16 | 608 | 0.1− | 0.7+ | 2005 07 31 | E12 | 0.2− | 0.2+ | 2009 11 17 | G96 | 0.5+ | 0.5+ |
| 2002 08 16 | 608 | 0.1− | 0.7+ | 2005 07 31 | E12 | 0.0 | 0.3+ | 2009 12 18 | 691 | 0.3+ | 0.2+ |
| 2002 08 19 | 644 | 0.6− | 0.1+ | 2005 07 31 | E12 | 1.3+ | 0.6+ | 2009 12 18 | 691 | 0.3− | 0.7+ |
| 2002 08 19 | 644 | 0.3− | 0.4− | 2005 08 12 | E12 | 0.2− | 0.4+ | 2009 12 18 | 691 | 0.1− | 0.4+ |
| 2002 08 19 | 644 | 0.3− | 0.5− | 2005 08 12 | E12 | 0.1+ | 0.1− | | | | |

**(229318)∗ 2005 MH$_{15}$**

Discovered 2005 June 29 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 81.72888 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.28401548 | $\omega$ | 73.82606 | | +0.91552950 | | +0.39715564 |
| $a$ | 2.2921412 | $\Omega$ | 262.73771 | | −0.38925661 | | +0.83473104 |
| $e$ | 0.1418872 | $i$ | 3.68880 | | −0.10141514 | | +0.38143346 |
| $P$ | 3.47 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 07 18 | 910 | 0.6+ | 0.7− | 2005 07 28 | 644 | 0.3− | 0.3+ | 2009 11 09 | 691 | 1.5− | 0.6− |
| 1998 07 18 | 910 | 0.1− | 0.3− | 2005 07 28 | 644 | 0.2− | 0.2− | 2009 11 09 | 691 | 0.3− | 0.5− |
| 1998 07 18 | 910 | 0.0 | 0.5− | 2005 07 28 | 644 | 0.0 | 0.2− | 2009 11 09 | 691 | 0.0 | 0.5+ |
| 2005 06 29 | 644 | 0.1− | 0.0 | 2005 07 29 | 644 | 0.0 | 0.2− | 2009 11 17 | 691 | 0.2+ | 0.0 |
| 2005 06 29 | 644 | 0.1− | 0.2+ | 2005 07 29 | 644 | 0.1− | 0.2− | 2009 11 17 | 691 | 0.2+ | 0.1− |
| 2005 06 29 | 644 | 0.0 | 0.2+ | 2005 07 29 | 644 | 0.1− | 0.2− | 2009 11 17 | 691 | 0.3+ | 0.2− |
| 2005 07 01 | 691 | 0.0 | 0.1+ | 2005 08 08 | 185 | 0.1− | 0.4− | 2009 11 25 | 691 | 0.1− | 0.3+ |
| 2005 07 01 | 691 | 0.0 | 0.2+ | 2005 08 08 | 185 | 0.8− | 0.5− | 2009 11 25 | 691 | 0.4+ | 0.7+ |
| 2005 07 01 | 691 | 0.1− | 0.2+ | 2005 08 08 | 185 | 0.4+ | 0.0 | 2009 11 25 | 691 | 0.3+ | 0.1+ |
| 2005 07 05 | 644 | 0.2+ | 0.1+ | 2005 08 08 | 185 | 0.4− | 0.0 | 2009 12 11 | G96 | 0.1− | 0.1− |
| 2005 07 05 | 644 | 0.6+ | 0.2− | 2007 01 10 | G96 | 0.5− | 0.2− | 2009 12 11 | G96 | 0.3+ | 0.0 |
| 2005 07 05 | 644 | 0.3+ | 0.0 | 2007 01 10 | G96 | 0.0 | 0.3+ | 2009 12 11 | G96 | 0.2+ | 0.0 |
| 2005 07 06 | 691 | 0.0 | 0.1+ | 2007 01 10 | G96 | 0.2− | 0.0 | 2009 12 11 | G96 | 0.6+ | 0.1+ |
| 2005 07 06 | 691 | 0.1+ | 0.0 | 2007 01 10 | G96 | 0.4+ | 0.3+ | 2009 12 18 | G96 | 0.7+ | 0.3− |
| 2005 07 06 | 691 | 0.0 | 0.1+ | 2007 01 27 | G96 | 0.1+ | 0.0 | 2009 12 18 | G96 | 0.0 | 0.1− |
| 2005 07 09 | 691 | 0.1− | 0.0 | 2007 01 27 | G96 | 0.2− | 0.3− | 2009 12 18 | G96 | 0.5+ | 0.1+ |
| 2005 07 09 | 691 | 0.1+ | 0.1+ | 2007 01 27 | G96 | 0.1− | 0.1+ | 2009 12 18 | G96 | 0.5+ | 0.3+ |
| 2005 07 09 | 691 | 0.1− | 0.0 | 2007 01 27 | G96 | 0.2+ | 0.1− | | | | |

**(229319)∗ 2005 ML$_{17}$**

Discovered 2005 June 27 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 38.61793 | | (2000.0) | | | |
| $n$ | 0.28225046 | $\omega$ | 91.17742 | | +0.89230466 | −0.44708849 |
| $a$ | 2.3016871 | $\Omega$ | 295.38246 | | +0.38179026 | +0.82124255 |
| $e$ | 0.1829033 | $i$ | 3.96577 | | +0.24089124 | +0.35450326 |
| $P$ | 3.49 | $H$ | 17.3 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 06 23 | 691 | 0.2+ | 0.2+ | 2007 01 29 | 691 | 0.0 | 0.3+ | 2009 11 25 | 703 | 0.1+ | 0.1− |
| 1998 06 23 | 691 | 0.5− | 0.5+ | 2007 01 29 | 691 | 0.3+ | 0.4+ | 2009 11 25 | 703 | 0.7− | 0.3+ |
| 1998 06 23 | 691 | 0.6− | 1.1+ | 2007 01 29 | 691 | 0.2− | 0.3+ | 2009 11 27 | 691 | 0.2− | 0.0 |
| 2002 11 12 | 704 | 0.3+ | 0.1+ | 2007 02 07 | 691 | 0.2+ | 0.7+ | 2009 11 27 | 691 | 0.2− | 0.1− |
| 2002 11 12 | 704 | (0.5− | 1.7+) | 2007 02 07 | 691 | 0.4+ | 0.5+ | 2009 11 27 | 691 | 0.1− | 0.1− |
| 2002 11 12 | 704 | 0.2− | 0.4+ | 2007 02 07 | 691 | 0.2+ | 0.2+ | 2009 12 10 | 704 | 0.1− | 0.6+ |
| 2002 11 12 | 704 | 0.6− | 0.9+ | 2007 03 16 | G96 | 0.3+ | 0.5+ | 2009 12 10 | 704 | 0.9+ | 0.7− |
| 2002 12 27 | 644 | (0.3+ | 1.8+) | 2007 03 16 | G96 | 0.4+ | 0.5+ | 2009 12 10 | 704 | 0.2− | 0.5+ |
| 2002 12 27 | 644 | 0.5+ | 1.2+ | 2007 03 16 | G96 | 0.6+ | 0.1+ | 2009 12 10 | 704 | 0.7− | 0.2+ |
| 2002 12 27 | 644 | 0.2+ | 0.9+ | 2007 03 16 | G96 | 0.6+ | 0.3+ | 2009 12 10 | J75 | 1.4− | 0.1+ |
| 2005 06 27 | 691 | 0.1− | 0.1+ | 2009 11 08 | 703 | 0.1+ | 0.7− | 2009 12 10 | J75 | 0.1− | 0.1+ |
| 2005 06 27 | 691 | 0.0 | 0.5+ | 2009 11 08 | 703 | 1.1− | 0.9+ | 2009 12 10 | J75 | 0.0 | 0.2− |
| 2005 06 27 | 691 | 0.2+ | 0.3+ | 2009 11 08 | 703 | 1.1+ | 0.5− | 2009 12 16 | 704 | 0.0 | 1.8+ |
| 2005 07 02 | 691 | 0.4− | 0.1+ | 2009 11 08 | 703 | 0.6− | 0.2+ | 2009 12 16 | 704 | 0.3+ | 0.6− |
| 2005 07 02 | 691 | 0.2+ | 0.2+ | 2009 11 11 | 704 | 0.4− | 1.0+ | 2009 12 16 | 704 | 0.5+ | 0.3+ |
| 2005 07 02 | 691 | 0.5− | 0.2+ | 2009 11 11 | 704 | 0.7+ | 0.0 | 2009 12 16 | 704 | 0.8+ | 0.0 |
| 2005 07 07 | 691 | 0.0 | 0.0 | 2009 11 11 | 704 | 0.1− | 0.1− | 2009 12 16 | G96 | 0.1+ | 0.1− |
| 2005 07 07 | 691 | 0.0 | 0.2+ | 2009 11 11 | 704 | 0.2+ | 0.5+ | 2009 12 16 | G96 | 0.2+ | 0.0 |
| 2005 07 07 | 691 | 0.1+ | 0.0 | 2009 11 11 | 704 | 0.5+ | 0.5+ | 2009 12 16 | G96 | 0.1+ | 0.3− |
| 2005 07 18 | 644 | 0.0 | 0.2+ | 2009 11 16 | 704 | 0.7+ | 0.4− | 2009 12 16 | G96 | 0.8− | 1.6− |
| 2005 07 18 | 644 | 0.2− | 0.1+ | 2009 11 16 | 704 | 0.1− | 0.7+ | 2009 12 19 | G96 | 0.1+ | 0.1+ |
| 2005 07 18 | 644 | 0.0 | 0.0 | 2009 11 16 | 704 | 0.0 | 0.7+ | 2009 12 19 | G96 | 0.1+ | 0.1− |
| 2006 12 01 | G96 | 0.2+ | 0.3+ | 2009 11 16 | 704 | 0.1− | 0.1+ | 2009 12 19 | G96 | 0.1+ | 0.0 |
| 2006 12 01 | G96 | 1.0− | 0.1+ | 2009 11 25 | 703 | 1.0+ | 0.3+ | 2009 12 19 | G96 | 0.1+ | 0.1− |
| 2006 12 01 | G96 | 0.6− | 0.5+ | 2009 11 25 | 703 | 0.2+ | 0.7+ | | | | |
| 2006 12 01 | G96 | 0.4+ | 0.3− | 2009 11 25 | 703 | 0.5− | 0.2− | | | | |

**(229320)∗ 2005 MZ$_{31}$**

Discovered 2005 June 28 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 114.67082 | | (2000.0) | | | |
| $n$ | 0.28620473 | $\omega$ | 213.25948 | | +0.36247791 | +0.93018198 |
| $a$ | 2.2804375 | $\Omega$ | 78.05112 | | −0.84161759 | +0.35345511 |
| $e$ | 0.1666300 | $i$ | 3.40241 | | −0.40036183 | +0.09915126 |
| $P$ | 3.44 | $H$ | 17.0 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 10 25 | 691 | 0.1− | 0.1+ | 2005 11 06 | G96 | 0.7+ | 0.1− | 2008 05 06 | 704 | 0.8− | 1.0− |
| 1995 10 25 | 691 | 0.0 | 0.3+ | 2005 11 06 | G96 | 0.1− | 0.0 | 2008 05 06 | 704 | 0.7+ | 0.4+ |
| 1995 10 25 | 691 | 0.1− | 0.1+ | 2006 12 25 | 691 | 0.0 | 0.0 | 2008 05 06 | 704 | 0.8+ | 0.3+ |
| 2005 06 28 | 644 | 0.0 | 0.3+ | 2006 12 25 | 691 | 0.0 | 0.2+ | 2008 05 06 | 704 | 1.2+ | 0.2+ |
| 2005 06 28 | 644 | 0.1+ | 0.1+ | 2006 12 25 | 691 | 0.1+ | 0.1− | 2009 10 26 | 691 | 0.2− | 0.2+ |
| 2005 06 28 | 644 | 0.3+ | 0.2+ | 2008 03 31 | 691 | 0.2+ | 0.0 | 2009 10 26 | 691 | 0.5− | 0.2+ |
| 2005 07 03 | 644 | 0.1− | 0.3+ | 2008 03 31 | 691 | 0.1+ | 0.1+ | 2009 10 26 | 691 | 0.4− | 0.3+ |
| 2005 07 03 | 644 | 0.2− | 0.1+ | 2008 03 31 | 691 | 0.2+ | 0.3+ | 2009 11 24 | G96 | 0.8+ | 0.0 |
| 2005 07 03 | 644 | 0.1+ | 0.1+ | 2008 04 05 | 703 | 0.2+ | 0.4+ | 2009 11 24 | G96 | 0.1+ | 0.2− |
| 2005 07 31 | E12 | 0.2− | 0.3+ | 2008 04 05 | 703 | (1.6+ | 0.7−) | 2009 11 24 | G96 | 0.7+ | 0.2+ |
| 2005 07 31 | E12 | 0.2− | 0.1− | 2008 04 05 | 703 | 0.9− | 0.3+ | 2009 11 24 | G96 | 0.1+ | 0.2+ |
| 2005 07 31 | E12 | 0.3− | 0.6+ | 2008 04 05 | 703 | 0.1− | 0.1+ | 2009 11 24 | G96 | 0.6+ | 0.2+ |
| 2005 07 31 | E12 | 1.3+ | 0.2− | 2008 04 13 | 691 | 0.9− | 0.1+ | 2009 11 24 | G96 | 0.4− | 0.2− |
| 2005 08 06 | 428 | 0.4+ | 0.1+ | 2008 04 13 | 691 | 0.0 | 0.1+ | 2009 11 24 | G96 | 0.1+ | 0.2− |
| 2005 08 06 | 428 | 0.1− | 0.1− | 2008 04 13 | 691 | 0.1− | 0.2+ | 2009 12 15 | G96 | 0.8+ | 0.1+ |
| 2005 08 08 | 428 | 1.3− | 0.8− | 2008 04 15 | 691 | 0.1− | 0.3+ | 2009 12 15 | G96 | 0.3− | 0.7+ |
| 2005 08 08 | 428 | 1.3− | 0.5− | 2008 04 15 | 691 | 0.3+ | 0.1+ | 2009 12 15 | G96 | 0.6+ | 0.1− |
| 2005 08 12 | E12 | 0.4+ | 0.1+ | 2008 04 15 | 691 | 0.3+ | 0.0 | 2009 12 15 | G96 | 0.5− | 0.3− |
| 2005 08 12 | E12 | 0.1− | 0.4+ | 2008 04 27 | G96 | 0.6+ | 0.0 | 2009 12 15 | G96 | 0.4+ | 0.2+ |
| 2005 08 12 | E12 | 0.3+ | 0.4+ | 2008 04 27 | G96 | 0.4+ | 0.0 | 2009 12 15 | G96 | 0.1− | 0.0 |
| 2005 11 06 | G96 | 0.1+ | 0.2+ | 2008 04 27 | G96 | 0.3+ | 0.1− | 2009 12 15 | G96 | 0.1+ | 0.4+ |
| 2005 11 06 | G96 | 0.8+ | 0.4− | 2008 04 27 | G96 | 0.1+ | 0.0 | 2009 12 15 | G96 | 0.2− | 0.2+ |

**(229321)∗ 2005 NL$_2$ = 1995 SC$_{69}$**

Discovered 2005 July 2 by the Catalina Sky Survey.

Id. G. V. Williams (*MPO* 86866)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 135.68658 | | (2000.0) | | | |
| $n$ | 0.29689731 | $\omega$ | 33.33024 | | +0.51821524 | +0.84466700 |
| $a$ | 2.2253511 | $\Omega$ | 268.21575 | | −0.81108514 | +0.43562721 |
| $e$ | 0.1917207 | $i$ | 7.71203 | | −0.27128189 | +0.31107330 |
| $P$ | 3.32 | $H$ | 16.5 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 09 18 | 691 | 0.2− | 0.4− | 2005 08 28 | 699 | 0.3− | 0.0 | 2005 10 27 | 644 | 0.4− | 0.3+ |
| 1995 09 18 | 691 | 0.3− | 0.6− | 2005 08 28 | 699 | 0.6− | 0.4+ | 2005 10 27 | 703 | 0.4− | 0.4− |
| 1995 09 18 | 691 | 0.1− | 0.5− | 2005 08 28 | 699 | 0.3− | 0.6+ | 2005 10 27 | 703 | 0.1+ | 0.5− |
| 1995 09 23 | 691 | 0.9+ | 0.8− | 2005 09 09 | 704 | 0.4− | 0.7+ | 2005 10 27 | 703 | 0.6+ | 0.6− |
| 1995 09 23 | 691 | 0.8+ | 0.9− | 2005 09 09 | 704 | 0.7− | 1.1+ | 2005 10 27 | 703 | (1.5+ | 0.7+) |
| 1995 09 23 | 691 | 0.7+ | 0.8− | 2005 09 09 | 704 | 0.1+ | 0.8+ | 2005 10 30 | 704 | 0.1+ | 0.9+ |
| 2002 11 24 | 644 | 0.0 | 0.8+ | 2005 09 09 | 704 | 0.3− | 1.0+ | 2005 10 30 | 704 | 0.2− | 0.6+ |
| 2002 11 24 | 644 | 0.0 | 0.7+ | 2005 09 09 | 704 | 0.9− | 0.4+ | 2005 10 30 | 704 | 0.2− | 1.2+ |
| 2002 11 24 | 644 | 0.0 | 0.5+ | 2005 09 11 | 699 | 0.6+ | 0.9+ | 2006 11 15 | G96 | 0.4− | 0.8− |
| 2004 02 18 | 691 | 0.2+ | 0.5+ | 2005 09 11 | 699 | 0.1+ | 0.2+ | 2006 11 15 | G96 | 0.5+ | 0.2− |
| 2004 02 18 | 691 | 0.1− | 0.5+ | 2005 09 11 | 699 | 0.1+ | 0.5+ | 2006 11 15 | G96 | 0.3+ | 1.0− |
| 2004 02 18 | 691 | 0.2+ | 0.1+ | 2005 09 11 | 704 | 0.3− | 0.6+ | 2006 11 15 | G96 | 0.6+ | 0.3− |
| 2005 07 02 | 703 | 0.3− | 0.5− | 2005 09 11 | 704 | 0.3− | 0.7+ | 2006 11 18 | G96 | 0.1+ | 0.1− |
| 2005 07 02 | 703 | 0.8− | 0.7− | 2005 09 11 | 704 | 0.5− | 1.1+ | 2006 11 18 | G96 | 0.1+ | 0.5− |
| 2005 07 02 | 703 | 0.7− | 0.2+ | 2005 09 11 | 704 | 1.2− | 0.8+ | 2006 11 18 | G96 | 0.6− | 0.5− |
| 2005 07 02 | 703 | 0.7− | 0.2− | 2005 09 11 | 704 | 0.5− | 0.8+ | 2006 11 18 | G96 | 0.3− | 0.8− |
| 2005 07 04 | 704 | 0.8+ | 0.9+ | 2005 09 26 | 703 | 0.3− | 0.1− | 2006 12 21 | G96 | 0.0 | 0.1− |
| 2005 07 04 | 704 | 1.2+ | 0.5+ | 2005 09 26 | 703 | 0.2− | 0.5− | 2006 12 21 | G96 | 0.2− | 0.2− |
| 2005 07 04 | 704 | 0.6− | 1.3+ | 2005 09 26 | 703 | 0.0 | 0.9− | 2006 12 21 | G96 | 0.2+ | 0.6− |
| 2005 07 04 | 704 | 0.8+ | 0.3− | 2005 09 26 | 703 | 0.4− | 0.5− | 2006 12 21 | G96 | 0.5+ | 0.1− |
| 2005 08 10 | 106 | 0.6− | 0.5+ | 2005 09 29 | 644 | 0.2− | 0.5+ | 2009 11 16 | 691 | 0.3− | 0.4+ |
| 2005 08 10 | 106 | 0.5+ | 1.0+ | 2005 09 29 | 644 | 0.3− | 0.5+ | 2009 11 16 | 691 | 0.0 | 0.0 |
| 2005 08 10 | 106 | 0.2− | 0.7+ | 2005 09 29 | 644 | 0.4− | 0.4+ | 2009 11 16 | 691 | 0.3− | 0.3− |
| 2005 08 10 | 106 | 0.4+ | 0.3− | 2005 10 21 | 644 | 0.1+ | 0.2+ | 2009 12 16 | G96 | 0.1− | 0.2− |
| 2005 08 26 | 608 | 0.3+ | 0.6− | 2005 10 21 | 644 | 0.2− | 0.2+ | 2009 12 16 | G96 | 0.4+ | 0.3− |
| 2005 08 26 | 608 | 0.2+ | 0.1− | 2005 10 21 | 644 | 0.0 | 0.2+ | 2009 12 16 | G96 | 0.2− | 0.1− |
| 2005 08 26 | 608 | 0.6+ | 0.1− | 2005 10 27 | 644 | 0.4− | 0.5+ | 2009 12 16 | G96 | 0.1+ | 0.0 |
| 2005 08 28 | 699 | 0.1+ | 1.0+ | 2005 10 27 | 644 | 0.2− | 0.4+ | 2009 12 16 | G96 | 0.0 | 0.2− |

**(229322)∗ 2005 NV$_{11}$ = 1999 UL$_{39}$ = 2004 FX$_{154}$**

Discovered 2005 July 4 by Spacewatch at Kitt Peak.

Id. A. Doppler (*MPO* 86876)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 30.41796 | | (2000.0) | | | |
| $n$ | 0.30619767 | $\omega$ | 306.69829 | | +0.46251562 | −0.88623017 |
| $a$ | 2.1800584 | $\Omega$ | 115.73273 | | +0.82237396 | +0.41786688 |
| $e$ | 0.1428048 | $i$ | 1.65317 | | +0.33133122 | +0.19995839 |
| $P$ | 3.22 | $H$ | 18.0 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 01 18 | 691 | 0.2− | 0.1− | 2004 03 17 | 691 | 0.6+ | 0.4+ | 2007 01 17 | 691 | 0.2− | 0.1− |
| 1994 01 18 | 691 | 0.3− | 0.2− | 2004 03 17 | 691 | 0.5+ | 0.4+ | 2007 01 17 | 691 | 0.0 | 0.1− |
| 1994 01 18 | 691 | 0.3− | 0.2− | 2004 03 29 | 691 | 0.1+ | 0.1− | 2007 01 28 | G96 | 0.0 | 0.1− |
| 1999 10 09 | 704 | 0.4+ | 0.6+ | 2004 03 29 | 691 | 0.1− | 0.3− | 2007 01 28 | G96 | 0.0 | 0.2− |
| 1999 10 09 | 704 | 0.1− | 0.2− | 2004 03 29 | 691 | 0.3+ | 0.2− | 2007 01 28 | G96 | 0.4+ | 0.1− |
| 1999 10 09 | 704 | 0.2+ | 0.1+ | 2005 07 04 | 691 | 0.1+ | 0.3− | 2007 01 28 | G96 | 0.2− | 0.0 |
| 1999 10 09 | 704 | 0.6− | 0.3+ | 2005 07 04 | 691 | 0.3− | 0.0 | 2007 02 15 | 644 | 0.2+ | 0.4+ |
| 1999 10 09 | 704 | 0.4− | 0.7+ | 2005 07 04 | 691 | 0.6+ | 0.2− | 2007 02 15 | 644 | 0.6+ | 0.6+ |
| 1999 10 31 | 691 | 0.4+ | 0.1− | 2005 07 06 | 291 | 0.6− | 0.2− | 2007 02 15 | 644 | 0.1− | 0.1+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 10 31 | 691 | 0.3+ | 0.2+ | 2005 07 06 | 291 | 0.5− | 0.1+ | 2009 11 18 | G96 | 0.3− | 0.1− |
| 1999 10 31 | 691 | 0.3+ | 0.0 | 2005 07 06 | 291 | 0.2− | 0.0 | 2009 11 18 | G96 | 0.1− | 0.1+ |
| 1999 11 05 | 691 | 0.2− | 0.1+ | 2005 07 15 | G96 | 0.2+ | 0.4− | 2009 11 18 | G96 | 0.3+ | 0.2+ |
| 1999 11 05 | 691 | 0.1+ | 0.4+ | 2005 07 15 | G96 | 0.5− | 0.1− | 2009 11 18 | G96 | 0.1+ | 0.1+ |
| 1999 11 05 | 691 | 0.0 | 0.0 | 2005 07 15 | G96 | 0.3+ | 0.0 | 2009 12 16 | G96 | 0.6− | 0.1− |
| 2002 08 29 | 644 | 0.5− | 0.8+ | 2005 07 15 | G96 | 0.2+ | 0.4− | 2009 12 16 | G96 | 0.3+ | 0.1+ |
| 2002 08 29 | 644 | 0.4− | 0.9+ | 2006 12 21 | 695 | 0.1− | 0.0 | 2009 12 16 | G96 | 0.3− | 0.3− |
| 2002 08 29 | 644 | 0.2+ | 0.3− | 2006 12 21 | 695 | 0.1− | 0.1+ | | | | |
| 2004 03 17 | 691 | 0.4+ | 0.0 | 2007 01 17 | 691 | 0.4− | 0.2+ | | | | |

**(229323)∗ 2005 NL$_{13}$ = 2008 HG$_{27}$**

Discovered 2005 July 5 by the Mt. Lemmon Survey at Mount Lemmon.

Id. G. V. Williams (*MPO* 138879)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 110.84959 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.29249465 | $\omega$ | 119.73894 | | +0.55453529 | | +0.83215693 |
| $a$ | 2.2476262 | $\Omega$ | 183.94215 | | −0.77474824 | | +0.51525041 |
| $e$ | 0.1572847 | $i$ | 1.94728 | | −0.30373635 | | +0.20501675 |
| $P$ | 3.37 | $H$ | 17.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 07 05 | G96 | 0.2− | 0.2− | 2008 04 27 | G96 | 0.3+ | 0.3+ | 2009 09 20 | G96 | 0.2+ | 0.0 |
| 2005 07 05 | G96 | 0.6− | 0.2− | 2008 04 27 | G96 | 0.2+ | 0.4+ | 2009 11 08 | 691 | 0.3− | 0.0 |
| 2005 07 05 | G96 | 0.2− | 0.2− | 2008 04 27 | G96 | 0.4+ | 0.0 | 2009 11 08 | 691 | 0.0 | 0.1− |
| 2005 07 05 | G96 | 0.5− | 0.2− | 2008 04 28 | G96 | 0.5+ | 0.2+ | 2009 11 08 | 691 | 0.9− | 0.3+ |
| 2005 07 06 | 691 | 0.1+ | 0.0 | 2008 04 28 | G96 | 0.3− | 0.1+ | 2009 11 20 | G96 | 0.6+ | 0.2+ |
| 2005 07 06 | 691 | 0.2+ | 0.1+ | 2008 04 28 | G96 | 0.2− | 0.2+ | 2009 11 20 | G96 | 0.1+ | 0.0 |
| 2005 07 06 | 691 | 0.2+ | 0.0 | 2008 04 28 | G96 | 0.1+ | 0.2+ | 2009 11 20 | G96 | 0.2+ | 0.4− |
| 2005 07 10 | 691 | 0.2− | 0.5− | 2008 06 01 | G96 | 0.1− | 0.0 | 2009 11 20 | G96 | 0.3+ | 0.1+ |
| 2005 07 10 | 691 | 0.3− | 0.1− | 2008 06 01 | G96 | 0.3− | 0.1+ | 2009 11 23 | G96 | 0.5+ | 0.3− |
| 2005 07 10 | 691 | 0.3+ | 1.1+ | 2008 06 01 | G96 | 0.1+ | 0.1+ | 2009 11 23 | G96 | 0.7+ | 0.1− |
| 2006 12 13 | G96 | 0.2− | 1.2+ | 2008 06 01 | G96 | 0.1− | 0.1+ | 2009 11 23 | G96 | 0.7+ | 0.1+ |
| 2006 12 13 | G96 | 0.4+ | 0.2+ | 2009 09 19 | G96 | 0.5+ | 0.1+ | 2009 11 23 | G96 | 0.3+ | 0.5− |
| 2006 12 13 | G96 | 0.2− | 0.0 | 2009 09 19 | G96 | 0.5+ | 0.4+ | 2009 12 19 | G96 | 0.6+ | 0.3+ |
| 2006 12 13 | G96 | 0.2+ | 0.3+ | 2009 09 19 | G96 | 0.1− | 0.3+ | 2009 12 19 | G96 | 0.2+ | 0.0 |
| 2008 03 31 | 691 | (0.7− | 2.1−) | 2009 09 19 | G96 | 0.3+ | 0.4+ | 2009 12 19 | G96 | 0.1− | 0.3+ |
| 2008 03 31 | 691 | 0.0 | 0.2+ | 2009 09 20 | G96 | 0.0 | 0.0 | 2009 12 19 | G96 | 0.1+ | 0.1+ |
| 2008 03 31 | 691 | 0.1− | 0.4− | 2009 09 20 | G96 | 0.6− | 1.0− | | | | |
| 2008 04 27 | G96 | 0.2− | 0.2+ | 2009 09 20 | G96 | 0.4− | 0.0 | | | | |

**(229324)∗ 2005 NV$_{45}$**

Discovered 2005 July 5 by the Mt. Lemmon Survey at Mount Lemmon.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 81.42577 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.27970165 | $\omega$ | 55.40159 | | +0.85270937 | | +0.52163119 |
| $a$ | 2.3156488 | $\Omega$ | 273.14163 | | −0.48801218 | | +0.77628382 |
| $e$ | 0.2093171 | $i$ | 1.61061 | | −0.18636212 | | +0.35395527 |
| $P$ | 3.52 | $H$ | 18.0 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1991 09 09 | 691 | 0.0 | 0.0 | 2005 08 06 | 644 | 0.0 | 0.2+ | 2009 11 08 | 691 | 0.6− | 0.1+ |
| 1991 09 09 | 691 | 0.1+ | 0.5− | 2005 08 06 | 644 | 0.0 | 0.2+ | 2009 11 08 | 691 | 0.2− | 0.2+ |
| 1991 09 09 | 691 | 0.1+ | 0.1− | 2005 08 06 | 644 | 0.1− | 0.2+ | 2009 11 08 | 691 | 0.1+ | 0.4+ |
| 2005 06 15 | G96 | 0.0 | 0.0 | 2005 09 01 | 691 | 0.2+ | 0.0 | 2009 11 20 | 691 | 0.2− | 0.1+ |
| 2005 06 15 | G96 | 0.1+ | 0.2− | 2005 09 01 | 691 | 0.1+ | 0.0 | 2009 11 20 | 691 | 0.7+ | 0.3+ |
| 2005 06 15 | G96 | 0.4− | 0.1− | 2005 09 01 | 691 | 0.1+ | 0.1− | 2009 11 20 | 691 | 0.2− | 0.1+ |
| 2005 06 15 | G96 | 0.3− | 0.3− | 2008 04 14 | G96 | 0.0 | 0.3+ | 2009 11 24 | 691 | 0.0 | 0.1− |
| 2005 07 05 | G96 | 0.1+ | 0.2+ | 2008 04 14 | G96 | 0.1− | 0.1− | 2009 11 24 | 691 | 0.0 | 0.1− |
| 2005 07 05 | G96 | 0.5− | 0.1+ | 2008 04 14 | G96 | 0.5− | 0.0 | 2009 11 24 | 691 | 0.2+ | 0.0 |
| 2005 07 05 | G96 | 0.2+ | 0.2− | 2008 04 14 | G96 | 0.1+ | 0.0 | 2009 12 11 | G96 | 0.4− | 0.1− |
| 2005 07 05 | 644 | 0.4− | 0.2+ | 2008 05 05 | G96 | 0.0 | 0.3+ | 2009 12 11 | G96 | 0.0 | 0.5− |
| 2005 07 05 | 644 | 0.3+ | 0.2+ | 2008 05 05 | G96 | 0.2+ | 0.1+ | 2009 12 11 | G96 | 0.4+ | 0.6− |
| 2005 07 05 | 644 | 0.1− | 0.0 | 2008 05 05 | G96 | 0.4+ | 0.0 | 2009 12 11 | G96 | 0.4+ | 0.2+ |
| 2005 07 11 | 691 | 0.1− | 0.2+ | 2008 05 05 | G96 | 0.1+ | 0.1+ | 2009 12 18 | G96 | 0.2− | 0.2+ |
| 2005 07 11 | 691 | 0.2− | 0.2+ | 2009 10 22 | G96 | 0.2− | 0.0 | 2009 12 18 | G96 | 0.1+ | 0.0 |
| 2005 07 11 | 691 | 0.2− | 0.2+ | 2009 10 22 | G96 | 0.2+ | 0.1+ | 2009 12 18 | G96 | 0.3+ | 0.2+ |
| 2005 07 19 | 147 | (3.8+ | 3.6−) | 2009 10 22 | G96 | 0.1+ | 0.2− | 2009 12 18 | G96 | 0.3+ | 0.2− |
| 2005 07 19 | 147 | (1.7− | 0.6−) | 2009 10 22 | G96 | 0.2+ | 0.1− | | | | |

**(229325)∗ 2005 NL$_{60}$ = 1988 RR$_{1}$**

Discovered 2005 July 9 by the Catalina Sky Survey.

Id. G. V. Williams (*MPO* 86909)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 93.46299 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.28894792 | $\omega$ | 321.47277 | | +0.99343475 | | +0.11147395 |
| $a$ | 2.2659814 | $\Omega$ | 32.15497 | | −0.08929573 | | +0.89607203 |
| $e$ | 0.2513370 | $i$ | 2.76882 | | −0.07150993 | | +0.42968415 |
| $P$ | 3.41 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1988 09 10 | 675 | 1.5+ | 1.4− | 2005 08 29 | 704 | 0.2+ | 0.3− | 2005 10 28 | 704 | (0.2+ | 2.1−) |
| 1988 09 12 | 675 | 0.9− | 0.8− | 2005 09 01 | 691 | 0.1− | 0.1− | 2005 10 28 | 704 | (0.6− | 1.9+) |
| 2001 04 24 | 691 | 0.0 | 0.1+ | 2005 09 01 | 691 | 0.0 | 0.1− | 2005 10 28 | G96 | 0.0 | 0.3− |
| 2001 04 24 | 691 | 0.0 | 0.0 | 2005 09 01 | 691 | 0.0 | 0.1− | 2005 10 28 | G96 | 0.1+ | 0.2− |
| 2001 04 24 | 691 | 0.2+ | 0.2+ | 2005 09 02 | 608 | 0.9+ | 0.2− | 2005 10 28 | G96 | 0.3+ | 0.3− |
| 2002 12 06 | 695 | 0.7+ | 0.2− | 2005 09 02 | 608 | 0.9+ | 0.3− | 2005 10 28 | G96 | 0.4+ | 0.1− |
| 2002 12 06 | 695 | 0.3+ | 0.0 | 2005 09 02 | 608 | 0.5+ | 0.5− | 2005 10 31 | 644 | 0.1− | 0.0 |
| 2003 01 05 | 704 | 0.1+ | 0.4+ | 2005 09 06 | 699 | 0.1− | 0.5+ | 2005 10 31 | 704 | 0.2− | 0.2− |
| 2003 01 05 | 704 | 0.2+ | 0.3+ | 2005 09 06 | 699 | 0.1− | 0.2− | 2005 10 31 | 644 | 0.1− | 0.1+ |
| 2003 01 05 | 704 | 0.1+ | 1.0+ | 2005 09 06 | 699 | 0.1+ | 0.3+ | 2005 10 31 | 704 | 0.0 | 0.2+ |
| 2004 03 19 | 291 | 0.4+ | 0.6+ | 2005 09 06 | 699 | 0.2+ | 0.0 | 2005 10 31 | 644 | 0.2+ | 0.6− |
| 2004 03 19 | 291 | 0.3+ | 0.4+ | 2005 09 12 | 691 | 0.1− | 0.0 | 2005 10 31 | 704 | 0.2+ | 0.7+ |
| 2004 03 19 | 291 | 0.6+ | 0.5+ | 2005 09 12 | 691 | 0.0 | 0.1− | 2005 11 01 | 703 | 0.1− | 0.2− |
| 2005 07 03 | 703 | 0.8+ | 0.1+ | 2005 09 12 | 691 | 0.1− | 0.0 | 2005 11 01 | 703 | 0.1+ | 0.8− |
| 2005 07 03 | 703 | (1.9− | 0.5−) | 2005 09 22 | 644 | 0.0 | 0.2− | 2005 11 01 | 703 | 0.3+ | 0.4+ |
| 2005 07 03 | 703 | 0.1− | 0.5− | 2005 09 22 | 644 | 0.0 | 0.2− | 2005 11 01 | 703 | 0.4+ | 0.1+ |
| 2005 07 03 | 703 | 0.7− | 0.3− | 2005 09 22 | 644 | 0.0 | 0.2− | 2005 11 18 | 699 | 0.7− | 0.3+ |
| 2005 07 03 | 703 | 0.5− | 0.2− | 2005 09 23 | 703 | 0.4− | 0.5− | 2005 11 18 | 699 | 1.0+ | 0.4+ |
| 2005 07 03 | 703 | 1.0− | 0.9+ | 2005 09 23 | 703 | 0.1− | 0.2− | 2005 11 18 | 699 | 0.8+ | 0.0 |
| 2005 07 03 | 703 | 0.2− | 0.2− | 2005 09 23 | 703 | 0.2− | 0.1+ | 2005 11 18 | 699 | (1.7+ | 1.0+) |
| 2005 07 03 | 703 | 1.3− | 0.6− | 2005 09 23 | 703 | 0.2+ | 0.2− | 2005 11 25 | G96 | 0.2+ | 0.1− |
| 2005 07 09 | 703 | 1.1− | 0.4+ | 2005 09 24 | 644 | 0.0 | 0.2− | 2005 11 25 | G96 | 0.4+ | 0.1+ |
| 2005 07 09 | 703 | 1.1− | 0.2+ | 2005 09 24 | 644 | 0.0 | 0.0 | 2005 11 25 | G96 | 0.1+ | 0.2− |
| 2005 07 09 | 703 | 0.7+ | 0.1+ | 2005 09 24 | 644 | 0.1+ | 0.1− | 2005 11 25 | G96 | 0.1− | 0.1− |
| 2005 07 09 | 703 | 0.8− | 0.3− | 2005 09 28 | 704 | 0.2+ | 0.7+ | 2005 12 01 | 704 | 0.3+ | 0.1− |
| 2005 07 12 | 699 | 0.5− | 0.0 | 2005 09 28 | 704 | 0.6− | 0.7+ | 2005 12 01 | 704 | 1.1+ | 0.7− |
| 2005 07 12 | 699 | 0.5− | 0.3+ | 2005 09 28 | 704 | 1.0− | 1.2+ | 2005 12 01 | 704 | 0.9+ | 1.0+ |
| 2005 07 12 | 699 | 1.0+ | 0.0 | 2005 09 28 | 704 | 0.2+ | 1.1+ | 2005 12 01 | 704 | (1.7− | 2.1−) |
| 2005 07 12 | 699 | 0.1− | 0.2− | 2005 09 28 | 704 | 0.9− | 0.8+ | 2005 12 01 | 704 | (1.9+ | 0.1+) |
| 2005 07 30 | 644 | 0.2− | 0.0 | 2005 10 01 | 704 | 0.2+ | 0.4+ | 2005 12 04 | 704 | 0.5+ | 0.8+ |
| 2005 07 30 | 644 | 0.3− | 0.1+ | 2005 10 01 | 704 | 0.4+ | 0.8+ | 2005 12 04 | 704 | 0.3+ | 0.4+ |
| 2005 07 30 | 644 | 0.2− | 0.1+ | 2005 10 01 | 704 | 0.1+ | 0.5+ | 2005 12 04 | 704 | 0.5− | 0.2+ |
| 2005 07 31 | 608 | 0.1+ | 1.0+ | 2005 10 01 | 704 | 0.0 | 0.4+ | 2005 12 04 | 704 | 0.4+ | 0.7+ |
| 2005 07 31 | 608 | 0.1− | 0.9+ | 2005 10 01 | 704 | 0.3− | 0.9+ | 2005 12 23 | 185 | 0.3+ | 1.1− |
| 2005 07 31 | 608 | 0.3− | 1.0+ | 2005 10 05 | 704 | 0.2+ | 0.1+ | 2005 12 23 | 185 | (2.0+ | 0.6+) |
| 2005 08 02 | 704 | (1.7− | 0.4+) | 2005 10 05 | 704 | 0.1+ | 0.1− | 2005 12 23 | 185 | (2.1− | 5.2−) |
| 2005 08 02 | 704 | 0.6− | 1.1+ | 2005 10 05 | 704 | 0.1− | 0.3+ | 2007 02 25 | G96 | 0.0 | 0.2+ |
| 2005 08 02 | 704 | 0.3+ | 0.3− | 2005 10 05 | 704 | 0.0 | 0.5+ | 2007 02 25 | G96 | 0.3+ | 0.1− |
| 2005 08 02 | 704 | 1.1+ | 0.6− | 2005 10 05 | 704 | 0.3− | 0.4+ | 2007 02 25 | G96 | 0.0 | 0.1− |
| 2005 08 26 | 644 | 0.0 | 0.2− | 2005 10 06 | G96 | 0.2+ | 0.1− | 2009 11 21 | G96 | 0.2− | 0.1− |
| 2005 08 26 | 644 | 0.3− | 0.2− | 2005 10 06 | G96 | 0.1− | 0.2− | 2009 11 21 | G96 | 0.1− | 0.1+ |
| 2005 08 26 | 644 | 0.1− | 0.1− | 2005 10 06 | G96 | 0.1+ | 0.2− | 2009 11 21 | G96 | 0.1+ | 0.2+ |
| 2005 08 26 | 644 | 0.3− | 0.1− | 2005 10 06 | G96 | 0.0 | 0.2− | 2009 11 21 | G96 | 0.3+ | 0.0 |
| 2005 08 26 | 644 | 0.1+ | 0.1− | 2005 10 07 | 699 | 0.2− | 0.4+ | 2009 12 17 | G96 | 0.0 | 0.3− |
| 2005 08 26 | 644 | 0.0 | 0.2− | 2005 10 07 | 699 | 0.0 | 0.3+ | 2009 12 17 | G96 | 0.3+ | 0.1+ |
| 2005 08 26 | 644 | 0.2− | 0.0 | 2005 10 07 | 699 | 0.0 | 0.6− | 2009 12 17 | G96 | 0.0 | 0.2+ |
| 2005 08 26 | 644 | 0.1− | 0.1− | 2005 10 25 | 699 | 0.4+ | 0.2+ | 2009 12 17 | G96 | 0.3+ | 0.0 |
| 2005 08 26 | 644 | 0.1− | 0.0 | 2005 10 25 | 699 | 0.1− | 0.1+ | 2009 12 18 | 691 | 0.1− | 0.1+ |
| 2005 08 28 | 691 | 0.4− | 0.1+ | 2005 10 25 | 699 | 0.3+ | 0.2+ | 2009 12 18 | 691 | 0.0 | 0.1+ |
| 2005 08 28 | 691 | 0.1+ | 0.2+ | 2005 10 25 | 699 | 0.0 | 0.2+ | 2009 12 18 | 691 | 0.2− | 0.0 |
| 2005 08 28 | 691 | 0.0 | 0.2− | 2005 10 26 | 704 | 0.3− | 0.5+ | 2009 12 26 | 691 | 0.3− | 0.0 |
| 2005 08 29 | 704 | 0.0 | 0.1− | 2005 10 26 | 704 | 0.7− | 0.9+ | 2009 12 26 | 691 | 0.4− | 0.4+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 08 29 | 704 | 0.1+ | 0.2− | 2005 10 26 | 704 | 0.1− | 1.3+ | 2009 12 26 | 691 | 0.1− | 0.3+ | | |
| 2005 08 29 | 704 | 0.1− | 0.7− | 2005 10 28 | 704 | (3.4− | 0.6−) | | | | | | |
| 2005 08 29 | 704 | 0.1− | 0.1+ | 2005 10 28 | 704 | (0.2+ | 1.8+) | | | | | | |

**(229326)∗ 2005 NM$_{60}$**

Discovered 2005 July 9 by the Catalina Sky Survey.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 94.54433 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28416391 | $\omega$ | 237.73597 | | +0.95085668 | +0.29122631 | |
| $a$ | 2.2913430 | $\Omega$ | 105.14886 | | −0.23457050 | +0.89922360 | |
| $e$ | 0.1939388 | $i$ | 6.25460 | | −0.20210950 | +0.32647230 | |
| $P$ | 3.47 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 05 08 | 691 | 0.1− | 0.3+ | 2005 08 01 | E12 | 1.0− | 0.8− | 2005 10 03 | 703 | 0.2− | 0.0 | | |
| 1994 05 08 | 691 | 0.4− | 0.2+ | 2005 08 26 | 644 | 0.2− | 0.1− | 2005 10 03 | 703 | 0.1− | 0.4+ | | |
| 1994 05 08 | 691 | 0.5− | 0.4+ | 2005 08 26 | 644 | 0.3− | 0.0 | 2005 10 04 | 644 | 0.2− | 0.1− | | |
| 1997 03 02 | 691 | 0.1− | 0.1+ | 2005 08 26 | 644 | 0.5− | 0.2− | 2005 10 04 | 644 | 0.1− | 0.1+ | | |
| 1997 03 02 | 691 | 0.7+ | 0.2− | 2005 09 05 | 608 | 0.9+ | 0.8+ | 2005 10 04 | 644 | 0.1− | 0.0 | | |
| 1997 03 02 | 691 | 0.0 | 0.1− | 2005 09 05 | 608 | 1.1+ | 0.6+ | 2005 10 31 | 644 | 0.3+ | 0.5+ | | |
| 1997 04 15 | 691 | 0.6+ | 0.3− | 2005 09 05 | 608 | 0.7+ | 0.5+ | 2005 10 31 | 644 | 0.1− | 0.1+ | | |
| 1997 04 15 | 691 | 0.4+ | 0.4− | 2005 09 12 | 608 | 0.9− | 0.5− | 2005 10 31 | 644 | 0.3+ | 0.2− | | |
| 1997 04 15 | 691 | 0.2− | 0.4− | 2005 09 12 | 608 | 0.9− | 0.1− | 2005 11 30 | 703 | (1.5− | 0.4+) | | |
| 1998 09 22 | 699 | 0.3+ | 0.6+ | 2005 09 12 | 608 | 0.6− | 0.1− | 2005 11 30 | 703 | (1.1− | 1.8+) | | |
| 1998 09 22 | 699 | (1.5− | 2.5+) | 2005 09 13 | 703 | 0.0 | 0.1+ | 2005 11 30 | 703 | (1.6− | 0.8+) | | |
| 1998 09 22 | 699 | 0.4− | 0.5+ | 2005 09 13 | 703 | 0.2+ | 0.4− | 2005 11 30 | 703 | (1.5− | 0.7−) | | |
| 2004 04 10 | 644 | (1.0+ | 1.5+) | 2005 09 13 | 703 | 0.2− | 0.1+ | 2008 05 28 | G96 | 0.3− | 0.3+ | | |
| 2004 04 10 | 644 | 0.1+ | 0.5+ | 2005 09 13 | 703 | 0.6+ | 0.5− | 2008 05 28 | G96 | 0.1+ | 0.3+ | | |
| 2004 04 10 | 644 | 1.0+ | 1.3+ | 2005 09 27 | 704 | 0.6+ | 0.1+ | 2008 05 28 | G96 | 0.0 | 0.3+ | | |
| 2005 07 09 | 703 | 1.0+ | 1.1− | 2005 09 27 | 704 | (1.7+ | 0.1+) | 2008 05 28 | G96 | 0.4− | 0.8+ | | |
| 2005 07 09 | 703 | 0.7+ | 0.6− | 2005 09 27 | 704 | 0.3− | 0.6+ | 2008 06 01 | 704 | 0.3− | 1.2+ | | |
| 2005 07 09 | 703 | 1.3− | 0.3+ | 2005 09 27 | 704 | 0.0 | 0.3+ | 2008 06 01 | 704 | 1.1+ | 0.4+ | | |
| 2005 07 09 | 703 | 0.5− | 0.5− | 2005 09 27 | 704 | 0.6− | 0.4+ | 2008 06 01 | 704 | 0.4+ | 0.1− | | |
| 2005 07 12 | 699 | 0.4− | 1.3+ | 2005 09 27 | 704 | 0.1− | 0.1+ | 2008 06 01 | 704 | 0.2+ | 0.6+ | | |
| 2005 07 12 | 699 | (1.6+ | 0.5+) | 2005 09 27 | 704 | 0.4+ | 0.4+ | 2009 12 16 | 691 | 0.5− | 0.2+ | | |
| 2005 07 12 | 699 | 0.4+ | 0.3+ | 2005 09 27 | 704 | 0.8+ | 0.1− | 2009 12 16 | 691 | 0.1+ | 0.2+ | | |
| 2005 07 12 | 699 | 0.5+ | 0.6− | 2005 09 27 | 704 | 0.6− | 0.0 | 2009 12 16 | 691 | 0.2− | 0.3+ | | |
| 2005 08 01 | E12 | 0.4+ | 0.1− | 2005 09 27 | 704 | 1.1+ | 0.3+ | 2009 12 20 | 691 | 0.4− | 0.0 | | |
| 2005 08 01 | E12 | 1.4+ | 0.6− | 2005 10 03 | 703 | 0.6− | 0.5+ | 2009 12 20 | 691 | 0.5− | 0.1+ | | |
| 2005 08 01 | E12 | 0.8+ | 0.3− | 2005 10 03 | 703 | 0.5− | 0.1− | 2009 12 20 | 691 | 0.6+ | 0.2+ | | |

**(229327)∗ 2005 NR$_{74}$ = 2002 TD$_{128}$**

Discovered 2005 July 9 by Spacewatch at Kitt Peak.

Id. A. Doppler (*MPO* 89695)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 39.61186 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.29268625 | $\omega$ | 96.27979 | | +0.86551883 | −0.48803546 | |
| $a$ | 2.2466453 | $\Omega$ | 292.98147 | | +0.39738422 | +0.80603174 | |
| $e$ | 0.1071287 | $i$ | 7.03079 | | +0.30489824 | +0.33486448 | |
| $P$ | 3.37 | $H$ | 17.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 07 02 | 691 | 0.5− | 0.0 | 2006 11 28 | G96 | 0.0 | 0.3− | 2009 11 16 | J47 | 0.1+ | 0.1− | | |
| 1995 07 02 | 691 | 0.1− | 0.1+ | 2006 11 28 | G96 | 0.2+ | 0.4− | 2009 11 16 | J47 | 0.4+ | 0.4− | | |
| 1995 07 02 | 691 | 0.6− | 0.0 | 2006 11 28 | G96 | 0.4+ | 0.2− | 2009 11 19 | 703 | 1.0− | 0.0 | | |
| 2002 10 04 | 644 | 0.2+ | 0.5+ | 2006 12 27 | G96 | 0.4+ | 0.1+ | 2009 11 19 | 703 | 0.3+ | 0.3+ | | |
| 2002 10 04 | 644 | 0.1− | 0.8+ | 2006 12 27 | G96 | 0.0 | 0.1− | 2009 11 19 | 703 | 0.2− | 1.2− | | |
| 2002 10 04 | 644 | 0.2+ | 0.4+ | 2006 12 27 | G96 | 0.2+ | 0.2− | 2009 11 19 | 703 | 0.9− | 0.3− | | |
| 2002 10 05 | 704 | 0.6+ | 1.0+ | 2006 12 27 | G96 | 0.3+ | 0.1− | 2009 11 23 | 704 | 1.1− | 0.1− | | |
| 2002 10 05 | 704 | 1.4+ | 0.7+ | 2007 01 24 | 703 | (1.8+ | 1.3+) | 2009 11 23 | 704 | 1.0− | 0.7− | | |
| 2002 10 05 | 704 | 0.5+ | 1.3+ | 2007 01 24 | 703 | 0.9− | 0.5+ | 2009 11 23 | 704 | 0.5+ | 0.7+ | | |
| 2005 06 17 | G96 | 0.1+ | 0.0 | 2007 01 24 | 703 | 0.1+ | 0.9− | 2009 11 25 | G96 | 0.3− | 0.3− | | |
| 2005 06 17 | G96 | 0.3+ | 0.1− | 2007 01 24 | 703 | 0.2− | 0.3+ | 2009 11 25 | G96 | 0.6+ | 0.0 | | |
| 2005 06 17 | G96 | 0.2− | 0.3− | 2007 01 27 | G96 | 0.2+ | 0.3+ | 2009 11 25 | G96 | 0.2− | 0.0 | | |
| 2005 06 17 | G96 | 0.1− | 0.3+ | 2007 01 27 | G96 | 0.1− | 0.0 | 2009 11 25 | G96 | 0.1+ | 0.2− | | |
| 2005 07 09 | 691 | 0.0 | 0.3− | 2007 01 27 | G96 | 0.3+ | 0.2+ | 2009 12 10 | 704 | 0.8+ | 0.9− | | |
| 2005 07 09 | 691 | 0.2+ | 0.3− | 2007 01 27 | G96 | 0.2+ | 0.2+ | 2009 12 10 | 704 | 0.5− | 0.7− | | |
| 2005 07 09 | 691 | 0.1+ | 0.5− | 2007 02 13 | A94 | (2.5+ | 1.3+) | 2009 12 10 | 704 | 0.3− | 1.1− | | |
| 2005 07 15 | G96 | 0.2+ | 0.1− | 2007 02 17 | G96 | 0.5+ | 0.0 | 2009 12 10 | 704 | 0.4− | 0.1− | | |
| 2005 07 15 | G96 | 0.2+ | 0.0 | 2007 02 17 | G96 | 0.7+ | 0.1− | 2009 12 15 | 704 | 0.0 | 0.2+ | | |
| 2005 07 15 | G96 | 0.7+ | 0.0 | 2007 02 17 | G96 | 0.4+ | 0.1− | 2009 12 15 | 704 | 0.3− | 0.0 | | |
| 2005 07 15 | G96 | 0.2+ | 0.3+ | 2007 02 17 | G96 | 0.1+ | 0.1+ | 2009 12 15 | 704 | 0.3+ | 0.2+ | | |
| 2006 11 28 | G96 | 0.1− | 0.1− | 2009 11 16 | J47 | 0.4− | 0.2+ | 2009 12 15 | 704 | 0.2− | 0.0 | | |

**(229328)∗ 2005 NT$_{95}$ = 2004 FJ$_{159}$**

Discovered 2005 July 7 by Spacewatch at Kitt Peak.

Id. A. Doppler (*MPO* 95694)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 33.94582 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.29186971 | $\omega$ | 280.99581 | | +0.84141445 | −0.53295002 | |
| $a$ | 2.2508335 | $\Omega$ | 111.26467 | | +0.52566224 | +0.76886753 | |
| $e$ | 0.1194276 | $i$ | 5.50274 | | +0.12530339 | +0.35328033 | |
| $P$ | 3.38 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 10 01 | 699 | 0.1− | 0.0 | 2007 01 24 | 704 | 0.9+ | 1.0+ | 2009 11 15 | 703 | 0.1− | 0.6− | | |
| 2002 10 01 | 699 | 0.9− | 1.1+ | 2007 01 24 | 704 | 0.6− | 1.2+ | 2009 11 15 | 703 | 0.2+ | 0.2+ | | |
| 2002 10 01 | 699 | 0.2− | 0.6+ | 2007 01 24 | 704 | 1.0+ | 0.3− | 2009 11 15 | 703 | 0.6− | 1.2− | | |
| 2002 10 01 | 699 | (1.0+ | 1.9+) | 2007 01 24 | 704 | 0.4− | 0.4+ | 2009 11 15 | 703 | 0.7− | 1.0+ | | |
| 2004 03 18 | 691 | 0.1− | 0.1− | 2007 01 24 | 704 | (1.9+ | 0.7+) | 2009 11 23 | G96 | 0.3+ | 0.1+ | | |
| 2004 03 18 | 691 | 0.1− | 0.0 | 2008 05 27 | G96 | 0.1+ | 0.1− | 2009 11 23 | G96 | 0.0 | 0.2− | | |
| 2004 03 18 | 691 | 0.6− | 0.3+ | 2008 05 27 | G96 | 0.5− | 0.1+ | 2009 11 23 | G96 | 0.3+ | 0.0 | | |
| 2004 03 26 | 691 | 0.2+ | 0.0 | 2008 05 27 | G96 | 0.0 | 0.1+ | 2009 11 23 | G96 | 0.3+ | 0.1− | | |
| 2004 03 26 | 691 | 0.2+ | 0.1+ | 2008 05 27 | G96 | 0.4+ | 0.2+ | 2009 11 25 | G96 | 0.3+ | 0.1+ | | |
| 2004 03 26 | 691 | 0.6+ | 0.1+ | 2008 05 28 | G96 | 0.2− | 0.0 | 2009 11 25 | G96 | 0.2+ | 0.1+ | | |
| 2005 06 13 | G96 | 0.9− | 0.2+ | 2008 05 28 | G96 | 0.1+ | 0.4+ | 2009 11 25 | G96 | 0.3+ | 0.2− | | |
| 2005 06 13 | G96 | 0.1+ | 1.0+ | 2008 05 28 | G96 | 0.1− | 0.9+ | 2009 11 25 | G96 | 0.2+ | 0.3+ | | |
| 2005 06 13 | G96 | 0.1+ | 0.1+ | 2008 05 28 | G96 | 0.4− | 0.3+ | 2009 12 10 | 703 | 2.2+ | 0.8− | | |
| 2005 06 13 | G96 | 0.4− | 1.0− | 2009 09 28 | G96 | 0.1+ | 0.2+ | 2009 12 10 | 703 | 0.2− | 0.7− | | |
| 2005 07 07 | 691 | 0.2− | 0.2+ | 2009 09 28 | G96 | 0.1+ | 0.1+ | 2009 12 10 | 703 | 0.4+ | 1.2+ | | |
| 2005 07 07 | 691 | 0.1+ | 0.1+ | 2009 09 28 | G96 | 0.4− | 0.3+ | 2009 12 10 | 703 | 0.3+ | 0.5− | | |
| 2005 07 07 | 691 | 0.2+ | 0.3+ | 2009 09 28 | G96 | 0.1+ | 0.2+ | 2009 12 18 | 691 | 0.5− | 0.8+ | | |
| 2005 07 15 | G96 | 0.4+ | 0.3+ | 2009 11 14 | 704 | 0.5+ | 0.1− | 2009 12 18 | 691 | 0.8− | 0.0 | | |
| 2005 07 15 | G96 | (1.8+ | 1.5+) | 2009 11 14 | 704 | 0.2− | 1.5− | 2009 12 18 | 691 | 0.3− | 0.6+ | | |
| 2005 07 15 | G96 | 0.1− | 0.3+ | 2009 11 14 | 704 | 0.7+ | 0.9− | | | | | | |
| 2005 07 15 | G96 | 0.5+ | 0.2+ | 2009 11 14 | 704 | 0.8+ | 0.1− | | | | | | |

**(229329)∗ 2005 NZ$_{98}$**

Discovered 2005 July 10 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 117.18692 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.29148204 | $\omega$ | 48.26626 | | +0.44626215 | +0.89433344 | |
| $a$ | 2.2528287 | $\Omega$ | 248.26405 | | −0.83091491 | +0.40085204 | |
| $e$ | 0.1841168 | $i$ | 1.96820 | | −0.33231086 | +0.19870919 | |
| $P$ | 3.38 | $H$ | 17.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 06 19 | 691 | 0.1− | 0.2− | 2005 07 11 | G96 | (1.8− | 0.6+) | 2008 04 30 | G96 | 0.8+ | 0.0 | | |
| 1998 06 19 | 691 | 0.0 | 0.1+ | 2005 07 11 | G96 | 0.8+ | 0.7+ | 2008 05 26 | G96 | 0.1+ | 0.1+ | | |
| 1998 06 19 | 691 | 0.1+ | 0.1+ | 2005 07 30 | E12 | 0.6− | 0.3− | 2008 05 26 | G96 | 0.0 | 0.7+ | | |
| 2005 05 20 | G96 | 0.3+ | 0.5− | 2005 07 30 | E12 | 0.6+ | 0.3− | 2008 05 26 | G96 | 0.2+ | 0.3+ | | |
| 2005 05 20 | G96 | 0.3− | 0.6− | 2005 07 30 | E12 | (0.3+ | 2.0−) | 2008 05 26 | G96 | 0.3− | 0.0 | | |
| 2005 05 20 | G96 | 0.5− | 0.0 | 2005 10 01 | G96 | 0.5+ | 0.6− | 2009 11 20 | 691 | 0.9− | 0.0 | | |
| 2005 05 20 | G96 | 0.7− | 0.3− | 2005 10 01 | G96 | 0.0 | 0.1− | 2009 11 20 | 691 | 0.3− | 0.1+ | | |
| 2005 06 14 | G96 | 0.2− | 0.4+ | 2005 10 01 | G96 | 0.6− | 0.1− | 2009 11 20 | 691 | 0.1− | 0.4+ | | |
| 2005 06 14 | G96 | 0.2− | 0.4+ | 2005 10 01 | G96 | 0.7− | 0.7+ | 2009 11 24 | 691 | 0.7+ | 0.3+ | | |
| 2005 06 14 | G96 | 0.4− | 0.5+ | 2008 04 14 | G96 | 0.3+ | 0.2+ | 2009 11 24 | 691 | 0.0 | 0.3+ | | |
| 2005 06 14 | G96 | 0.2+ | 0.5+ | 2008 04 14 | G96 | 0.2+ | 0.2+ | 2009 11 24 | 691 | 0.1− | 0.2− | | |
| 2005 07 10 | 691 | 0.1+ | 0.2+ | 2008 04 14 | G96 | 0.1+ | 0.2+ | 2009 12 11 | G96 | 0.6+ | 0.1+ | | |
| 2005 07 10 | 691 | 0.0 | 0.1+ | 2008 04 14 | G96 | 0.2+ | 0.3+ | 2009 12 11 | G96 | 0.4+ | 0.2− | | |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 07 10 | 691 | 0.1+ | 0.1+ | 2008 04 30 | G96 | 0.3+ | 0.1+ | 2009 12 11 | G96 | 0.7+ | 0.4− |
| 2005 07 11 | G96 | 0.1− | 0.4− | 2008 04 30 | G96 | 0.2+ | 0.1+ | 2009 12 11 | G96 | 0.6+ | 0.9+ |
| 2005 07 11 | G96 | 0.2− | 0.4− | 2008 04 30 | G96 | 1.2− | 0.7+ | | | | |

**(229330)∗ 2005 OS**

Discovered 2005 July 17 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 127.47299 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.27787380 | $\omega$ | 249.53611 | | −0.13902479 | | +0.98995614 |
| $a$ | 2.3257926 | $\Omega$ | 12.55491 | | −0.85887500 | | −0.10763183 |
| $e$ | 0.1100555 | $i$ | 6.78188 | | −0.49295622 | | −0.09166363 |
| $P$ | 3.55 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 02 11 | 644 | 0.1+ | 1.0+ | 2005 08 24 | E12 | 0.4+ | 0.2− | 2008 04 28 | 691 | 0.0 | 0.2+ |
| 2004 02 11 | 644 | 0.1+ | 0.9+ | 2008 01 10 | 291 | 0.3− | 0.1− | 2008 04 30 | 691 | 0.1+ | 0.8+ |
| 2004 02 11 | 644 | 0.3+ | 0.7+ | 2008 01 10 | 291 | 0.2− | 0.5+ | 2008 04 30 | 691 | 0.4+ | 0.1+ |
| 2004 02 15 | 704 | (0.6+ | 1.7+) | 2008 01 10 | 291 | 0.2− | 0.2+ | 2008 04 30 | 691 | 0.1+ | 0.3+ |
| 2004 02 15 | 704 | 1.3+ | 0.3+ | 2008 02 12 | G96 | 0.9+ | 0.2− | 2008 05 02 | 691 | 0.2− | 0.1+ |
| 2004 02 15 | 704 | 0.2+ | 0.8+ | 2008 02 12 | G96 | 0.1+ | 0.2− | 2008 05 02 | 691 | 0.2+ | 0.2+ |
| 2004 02 15 | 704 | 0.3+ | 0.8+ | 2008 02 12 | G96 | 0.4+ | 0.2− | 2008 05 02 | 691 | 0.2+ | 0.1+ |
| 2005 06 28 | 644 | 0.4− | 0.1− | 2008 02 12 | G96 | 0.3− | 0.0 | 2008 05 04 | 691 | 0.3− | 0.0 |
| 2005 06 28 | 644 | 0.0 | 0.1+ | 2008 03 04 | 691 | 0.2− | 0.3+ | 2008 05 04 | 691 | 0.1− | 0.1− |
| 2005 06 28 | 644 | 0.1− | 0.0 | 2008 03 04 | 691 | 0.0 | 0.1+ | 2008 05 04 | 691 | 0.1− | 0.3+ |
| 2005 07 17 | 644 | 0.7− | 0.1+ | 2008 03 04 | 691 | 0.1+ | 0.2− | 2008 05 08 | 691 | 0.0 | 0.0 |
| 2005 07 17 | 644 | 0.4− | 0.0 | 2008 04 06 | 704 | (1.7+ | 1.1+) | 2008 05 08 | 691 | 0.2− | 0.1− |
| 2005 07 17 | 644 | 0.3− | 0.2+ | 2008 04 06 | 704 | 1.2+ | 0.4+ | 2008 05 08 | 691 | 0.1+ | 0.2− |
| 2005 07 17 | 644 | 0.3− | 0.0 | 2008 04 06 | 704 | 1.2+ | 0.5− | 2009 09 12 | 691 | 0.3− | 0.6+ |
| 2005 07 17 | 644 | 0.1+ | 0.2+ | 2008 04 06 | 704 | 0.4+ | 0.7+ | 2009 09 12 | 691 | 0.0 | 0.3+ |
| 2005 07 17 | 644 | 0.0 | 0.1+ | 2008 04 06 | 704 | (1.9+ | 0.1−) | 2009 09 12 | 691 | 0.8− | 0.6+ |
| 2005 07 18 | 644 | 0.0 | 0.1+ | 2008 04 11 | G96 | 0.5+ | 0.8+ | 2009 09 16 | 691 | 0.0 | 0.6+ |
| 2005 07 18 | 644 | 0.3− | 0.2+ | 2008 04 11 | G96 | (1.7+ | 0.4+) | 2009 09 16 | 691 | 0.2− | 0.6+ |
| 2005 07 18 | 644 | 0.1− | 0.1+ | 2008 04 11 | G96 | 0.4+ | 0.0 | 2009 09 16 | 691 | 0.5− | 0.0 |
| 2005 07 29 | E12 | 0.1− | 0.2+ | 2008 04 11 | G96 | 0.0 | 0.0 | 2009 09 20 | 691 | 0.2− | 0.2+ |
| 2005 07 29 | E12 | 1.2+ | 0.5+ | 2008 04 14 | 704 | 0.7+ | 0.2− | 2009 09 20 | 691 | 0.0 | 0.2+ |
| 2005 07 29 | E12 | 0.5− | 1.1+ | 2008 04 14 | 704 | (2.2+ | 0.4−) | 2009 09 20 | 691 | 0.1+ | 0.4+ |
| 2005 07 29 | E12 | 0.1− | 0.7− | 2008 04 14 | 704 | 0.8+ | 0.3− | 2009 12 18 | G96 | 0.2+ | 0.7+ |
| 2005 08 24 | E12 | (2.1− | 0.3−) | 2008 04 14 | 704 | 0.0 | 0.3+ | 2009 12 18 | G96 | 0.1+ | 0.2− |
| 2005 08 24 | E12 | 0.1+ | 1.0− | 2008 04 28 | 691 | 0.3+ | 0.1+ | 2009 12 18 | G96 | 0.3+ | 0.2− |
| 2005 08 24 | E12 | 0.8+ | 0.7− | 2008 04 28 | 691 | 0.2− | 0.0 | 2009 12 18 | G96 | 0.2− | 0.0 |

**(229331)∗ 2005 $OS_{12}$**

Discovered 2005 July 29 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 22.27273 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.26819196 | $\omega$ | 55.20523 | | +0.65400539 | | −0.75641850 |
| $a$ | 2.3814358 | $\Omega$ | 353.91871 | | +0.65807521 | | +0.57564530 |
| $e$ | 0.2510932 | $i$ | 5.62964 | | +0.37311388 | | +0.31058582 |
| $P$ | 3.68 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 12 14 | 704 | 0.7− | 0.4+ | 2005 09 11 | 691 | 0.0 | 0.1+ | 2007 03 12 | 691 | 0.4+ | 0.3+ |
| 1998 12 14 | 704 | 0.2+ | 1.6− | 2005 09 11 | 691 | 0.1− | 0.4+ | 2007 03 12 | 691 | 0.1+ | 0.4+ |
| 1998 12 14 | 704 | 0.7+ | 1.0+ | 2005 09 22 | 644 | 0.0 | 0.0 | 2007 03 12 | 691 | 0.2+ | 0.2+ |
| 1998 12 14 | 704 | 1.1− | 0.7+ | 2005 09 22 | 644 | 0.3+ | 0.1− | 2007 04 11 | G96 | 0.1− | 0.1+ |
| 1998 12 17 | 704 | 0.7− | 1.7+ | 2005 09 22 | 644 | 0.2+ | 0.4+ | 2007 04 11 | G96 | 0.1− | 0.0 |
| 1998 12 17 | 704 | (3.5− | 1.1+) | 2005 09 23 | 703 | 0.0 | 0.0 | 2007 04 11 | G96 | 0.1− | 0.0 |
| 1998 12 17 | 704 | 0.5+ | 0.7− | 2005 09 23 | 703 | 0.1− | 0.7+ | 2007 04 11 | G96 | 0.1− | 0.2+ |
| 1998 12 17 | 704 | 0.3− | 0.6− | 2005 09 23 | 703 | 0.7− | 0.0 | 2007 04 20 | G96 | 0.4+ | 0.2− |
| 1998 12 17 | 704 | 1.5+ | 0.5− | 2005 09 23 | 703 | 0.2+ | 0.4+ | 2007 04 20 | G96 | 0.2+ | 0.5+ |
| 2005 07 29 | 644 | 0.4+ | 0.3+ | 2005 09 23 | 699 | 0.4− | 0.9+ | 2007 04 20 | G96 | 0.3+ | 0.3+ |
| 2005 07 29 | 644 | 0.2+ | 0.0 | 2005 09 23 | 699 | 0.6− | 0.5− | 2007 04 20 | G96 | 0.7+ | 0.2− |
| 2005 07 29 | 644 | 0.4+ | 0.2+ | 2005 09 23 | 699 | 0.0 | 1.3+ | 2009 10 18 | 704 | (1.9− | 2.9+) |
| 2005 07 30 | 644 | 0.4+ | 0.1+ | 2005 09 23 | 699 | 0.7− | 0.8− | 2009 10 18 | 704 | (2.4− | 1.0+) |
| 2005 07 30 | 644 | 0.2+ | 0.0 | 2005 10 01 | 704 | 0.6− | 0.5− | 2009 10 18 | 704 | 0.6− | 1.5+ |
| 2005 07 30 | 644 | 0.1+ | 0.2+ | 2005 10 01 | 704 | 0.4+ | 0.5+ | 2009 10 18 | 704 | (2.0− | 1.1+) |
| 2005 08 08 | 807 | 0.1+ | 0.1− | 2005 10 01 | 704 | 0.7+ | 0.4− | 2009 10 24 | 704 | 0.5− | 0.0 |
| 2005 08 08 | 807 | 0.2+ | 0.2− | 2005 10 01 | 704 | 0.0 | 0.3− | 2009 10 24 | 704 | 0.6− | 0.0 |
| 2005 08 29 | 704 | 0.2+ | 1.4+ | 2005 10 01 | 699 | 0.9− | 0.1− | 2009 10 24 | 704 | 1.4− | 0.6+ |
| 2005 08 29 | 704 | (2.6− | 1.5+) | 2005 10 01 | 699 | 0.0 | 1.1+ | 2009 12 09 | 704 | 0.4+ | 0.4+ |
| 2005 08 29 | 704 | 0.8− | 0.1− | 2005 10 01 | 699 | 0.5+ | 0.3+ | 2009 12 09 | 704 | 0.3+ | 0.3− |
| 2005 08 29 | 704 | 1.2− | 0.8+ | 2005 10 01 | 699 | 1.4− | 1.0− | 2009 12 09 | 704 | 0.5+ | 1.0+ |
| 2005 08 30 | 691 | 0.0 | 0.1+ | 2005 10 27 | G96 | 0.4+ | 1.3− | 2009 12 09 | 704 | 1.1+ | 0.4+ |
| 2005 08 30 | 691 | 0.0 | 0.1+ | 2005 10 27 | G96 | 0.4− | 0.4− | 2009 12 09 | 704 | 0.9+ | 0.7+ |
| 2005 08 30 | 691 | 0.0 | 0.1+ | 2005 10 27 | G96 | 0.2− | 0.2− | 2009 12 15 | 704 | 1.0− | 0.7− |
| 2005 09 08 | 704 | 0.2− | 0.3+ | 2005 10 27 | G96 | 0.2− | 0.4− | 2009 12 15 | 704 | 0.1− | 0.1+ |
| 2005 09 08 | 704 | 0.3+ | 0.2+ | 2007 02 27 | 691 | 0.3+ | 0.9+ | 2009 12 15 | 704 | 0.1+ | 0.4− |
| 2005 09 08 | 704 | 0.3+ | 0.1+ | 2007 02 27 | 691 | 0.2+ | 0.3+ | 2009 12 15 | 704 | 0.2− | 0.8− |
| 2005 09 11 | 691 | 0.0 | 0.1− | 2007 02 27 | 691 | 0.3− | 0.3+ | 2009 12 15 | 704 | 0.5+ | 0.1+ |

**(229332)∗ 2005 $OH_{27}$ = 2004 $CD_{126}$**

Discovered 2005 July 30 by NEAT at Palomar.

Id. G. V. Williams (*MPO* 109324)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 151.10118 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.29232146 | $\omega$ | 82.37585 | | +0.14970541 | | +0.98861287 |
| $a$ | 2.2485139 | $\Omega$ | 196.25792 | | −0.92727839 | | +0.13502754 |
| $e$ | 0.1316273 | $i$ | 3.12474 | | −0.34313710 | | +0.06642411 |
| $P$ | 3.37 | $H$ | 17.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 03 23 | 691 | 0.1+ | 0.5+ | 2005 07 30 | 644 | 0.2+ | 0.4+ | 2005 10 27 | G96 | 0.3+ | 0.3− |
| 2001 03 23 | 691 | 0.1+ | 0.5+ | 2005 08 27 | 699 | 0.1− | 0.3− | 2008 06 25 | E12 | 0.2+ | 0.3− |
| 2001 03 23 | 691 | 0.1− | 0.4+ | 2005 08 27 | 699 | 0.8+ | 1.2+ | 2008 06 25 | E12 | 0.2+ | 1.6+ |
| 2001 04 29 | 691 | 0.2− | 0.5+ | 2005 08 27 | 699 | 0.5+ | 0.5− | 2008 06 25 | E12 | 0.3+ | 0.2+ |
| 2001 04 29 | 691 | 0.4− | 0.6+ | 2005 08 27 | 699 | (0.2+ | 1.7+) | 2008 06 25 | E12 | 0.2− | 0.5+ |
| 2001 04 29 | 691 | 0.1− | 0.4+ | 2005 09 25 | 691 | 0.3− | 1.0+ | 2009 11 10 | 691 | 0.5− | 0.4+ |
| 2004 02 12 | 691 | 0.2+ | 0.4+ | 2005 09 25 | 691 | 0.3− | 0.8+ | 2009 11 10 | 691 | 0.4− | 0.2− |
| 2004 02 12 | 691 | 0.5+ | 0.4+ | 2005 09 25 | 691 | 0.2− | 1.0+ | 2009 11 10 | 691 | 0.9− | 0.8+ |
| 2004 02 12 | 691 | 0.4+ | 0.5+ | 2005 10 06 | 691 | 0.1− | 0.5+ | 2009 12 17 | G96 | 0.4+ | 0.4+ |
| 2004 02 29 | 691 | 0.8+ | 0.1+ | 2005 10 06 | 691 | 0.0 | 0.5+ | 2009 12 17 | G96 | 0.5+ | 0.6+ |
| 2004 02 29 | 691 | 0.4+ | 0.3+ | 2005 10 06 | 691 | 0.1− | 0.4+ | 2009 12 17 | G96 | 0.1− | 0.5+ |
| 2004 02 29 | 691 | 0.3+ | 0.2+ | 2005 10 27 | G96 | 0.4+ | 1.1− | 2009 12 17 | G96 | 0.1+ | 0.3+ |
| 2005 07 30 | 644 | 0.0 | 0.2+ | 2005 10 27 | G96 | 0.1+ | 0.0 | | | | |
| 2005 07 30 | 644 | 0.2− | 0.3+ | 2005 10 27 | G96 | 0.0 | 1.1− | | | | |

**(229333)∗ 2005 $QC_2$**

Discovered 2005 Aug. 22 by NEAT at Haleakala.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 68.09290 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.28837842 | $\omega$ | 52.58288 | | +0.97384973 | | −0.21954399 |
| $a$ | 2.2689637 | $\Omega$ | 320.00433 | | +0.16889535 | | +0.87167861 |
| $e$ | 0.1754035 | $i$ | 5.21826 | | +0.15195742 | | +0.43815162 |
| $P$ | 3.42 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 12 05 | 704 | 0.1+ | 0.0 | 2005 08 26 | 699 | 0.3− | 0.5− | 2007 01 28 | 691 | 0.0 | 0.5+ |
| 2002 12 05 | 704 | 0.1+ | 0.1− | 2005 08 27 | 644 | 0.2− | 0.1− | 2007 01 28 | 691 | 0.1+ | 0.4+ |
| 2002 12 05 | 704 | 0.7+ | 0.2+ | 2005 08 27 | 644 | 0.0 | 0.1− | 2007 03 10 | 691 | 0.0 | 0.1− |
| 2002 12 05 | 704 | 0.2+ | 0.3− | 2005 08 27 | 644 | 0.2+ | 0.2− | 2007 03 10 | 691 | 0.4− | 0.2+ |
| 2002 12 05 | 704 | 0.7+ | 0.2+ | 2005 08 29 | 699 | 0.5− | 0.6− | 2007 03 10 | 691 | 0.0 | 0.8− |
| 2002 12 14 | 704 | 0.4− | 1.0− | 2005 08 29 | 699 | 0.4+ | 1.0+ | 2007 03 15 | G96 | 0.0 | 0.0 |
| 2002 12 14 | 704 | 0.5− | 1.5− | 2005 08 29 | 699 | 0.2+ | 0.7+ | 2007 03 15 | G96 | 1.0− | 1.0− |
| 2002 12 14 | 704 | 0.3− | 1.0− | 2005 08 29 | 699 | 1.3− | 0.5+ | 2007 03 15 | G96 | 0.6+ | 0.0 |
| 2005 07 12 | G96 | 0.0 | 0.1+ | 2005 09 07 | 699 | 0.3+ | 0.2+ | 2007 03 15 | G96 | 0.4+ | 0.1+ |
| 2005 07 12 | G96 | 0.2− | 0.1+ | 2005 09 07 | 699 | 0.2− | 0.7− | 2009 11 24 | 682 | 0.0 | 0.7+ |
| 2005 07 12 | G96 | 0.0 | 0.3+ | 2005 09 07 | 699 | 0.1− | 0.4+ | 2009 11 24 | 682 | 0.6+ | 0.8+ |
| 2005 07 12 | G96 | 0.2+ | 0.2+ | 2005 09 07 | 699 | 0.1− | 0.2+ | 2009 11 26 | 682 | 0.7− | 0.3− |
| 2005 08 22 | 644 | 0.3− | 0.0 | 2005 10 30 | G96 | 0.3− | 0.2− | 2009 11 26 | 682 | 1.1+ | 0.9+ |
| 2005 08 22 | 644 | 0.0 | 0.1− | 2005 10 30 | G96 | 0.0 | 0.2− | 2009 12 15 | 704 | 0.1− | 1.0+ |
| 2005 08 22 | 644 | 0.1+ | 0.1− | 2005 10 30 | G96 | 0.1+ | 0.0 | 2009 12 15 | 704 | 1.3+ | 0.2+ |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 08 22 | 608 | 0.0 | 0.2− | 2005 10 30 | G96 | 0.3+ | 0.4− | 2009 12 15 | 704 | 1.3+ | 0.0 |
| 2005 08 22 | 608 | 0.4+ | 0.4− | 2007 01 28 | G96 | 0.1+ | 0.6− | 2009 12 19 | 691 | 0.4− | 0.1− |
| 2005 08 22 | 608 | 1.1+ | 0.4− | 2007 01 28 | G96 | 0.4+ | 0.2− | 2009 12 19 | 691 | 0.1− | 0.1+ |
| 2005 08 26 | 699 | 0.4− | 0.1− | 2007 01 28 | G96 | 0.9− | 0.8− | 2009 12 19 | 691 | 0.1− | 0.2+ |
| 2005 08 26 | 699 | 0.1+ | 0.2+ | 2007 01 28 | G96 | 0.2+ | 0.5− | | | | |
| 2005 08 26 | 699 | 0.4+ | 0.5+ | 2007 01 28 | 691 | 0.2+ | 0.3+ | | | | |

**(229334)∗ 2005 QV$_4$**

Discovered 2005 Aug. 24 by NEAT at Haleakala.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 54.23217 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27510834 | $\omega$ | 91.05124 | | +0.94202965 | −0.33027591 | |
| $a$ | 2.3413529 | $\Omega$ | 288.23633 | | +0.27773023 | +0.86645085 | |
| $e$ | 0.2410976 | $i$ | 3.57019 | | +0.18827123 | +0.37440720 | |
| $P$ | 3.58 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 11 11 | 704 | 0.4+ | 0.1− | 2005 08 29 | 608 | (0.5− | 1.5−) | 2005 10 27 | 644 | 0.0 | 0.1+ |
| 1998 11 11 | 704 | 0.1− | 0.5+ | 2005 08 29 | 608 | 0.2− | 0.9− | 2005 10 27 | 644 | 0.2+ | 0.0 |
| 1998 11 11 | 704 | 0.2− | 0.3− | 2005 09 06 | 699 | 0.4+ | 0.2+ | 2005 10 27 | 644 | 0.3+ | 0.0 |
| 1998 11 11 | 704 | 0.0 | 0.3− | 2005 09 06 | 699 | 1.1+ | 0.1+ | 2005 10 30 | 699 | 0.2+ | 0.0 |
| 1998 11 11 | 704 | 0.8− | 0.6− | 2005 09 06 | 704 | 0.1+ | 0.8+ | 2005 10 30 | 699 | 0.1− | 0.3− |
| 1998 11 15 | 699 | 0.1+ | 0.3+ | 2005 09 06 | 699 | 0.8+ | 0.2+ | 2005 10 30 | 699 | 0.4+ | 1.2− |
| 1998 11 15 | 699 | 0.2+ | 0.3− | 2005 09 06 | 704 | 0.5+ | 0.4+ | 2005 10 30 | 699 | (3.7+ | 0.5−) |
| 1998 11 15 | 699 | 0.7+ | 0.2+ | 2005 09 06 | 699 | 0.3+ | 0.2− | 2005 11 01 | 703 | (0.7+ | 1.6−) |
| 2002 12 28 | 291 | 0.2+ | 0.7+ | 2005 09 06 | 704 | 0.2+ | 0.5+ | 2005 11 01 | 703 | 0.3− | 0.4− |
| 2002 12 28 | 291 | 0.2− | 0.5+ | 2005 09 14 | 703 | 0.6− | 0.4− | 2005 11 01 | 703 | 0.4− | 0.6+ |
| 2002 12 28 | 291 | 0.1− | 0.7+ | 2005 09 14 | 703 | 0.1− | 0.5+ | 2005 11 01 | 703 | 0.2+ | 0.8+ |
| 2003 01 26 | 608 | 0.5+ | 0.4− | 2005 09 14 | 703 | 0.4− | 0.2+ | 2005 11 02 | 704 | 0.5− | 0.4− |
| 2003 01 26 | 608 | 0.4+ | 0.7− | 2005 09 14 | 703 | 0.6− | 0.3− | 2005 11 02 | 704 | 0.4+ | 0.2− |
| 2003 01 26 | 608 | 0.8+ | 0.7− | 2005 09 24 | 703 | 0.1+ | 0.2+ | 2005 11 02 | 704 | 0.2+ | 0.1+ |
| 2003 01 31 | 704 | 0.3− | 0.8− | 2005 09 24 | 703 | 0.7− | 0.2+ | 2005 11 02 | 704 | 1.0− | 0.4− |
| 2003 01 31 | 704 | (1.7+ | 0.2+) | 2005 09 24 | 699 | 0.6+ | 0.3+ | 2005 11 02 | 704 | 0.6− | 0.6+ |
| 2003 01 31 | 704 | (1.9+ | 0.6−) | 2005 09 24 | 703 | 0.3− | 0.3+ | 2005 11 28 | 703 | (1.5− | 0.2+) |
| 2005 07 06 | 291 | 0.7− | 0.4+ | 2005 09 24 | 703 | 0.1+ | 0.0 | 2005 11 28 | 703 | 0.1+ | 0.2− |
| 2005 07 06 | 291 | 0.8− | 0.4+ | 2005 09 24 | 699 | 0.4+ | 0.1+ | 2005 11 28 | 703 | 0.6− | 1.3− |
| 2005 07 06 | 291 | 0.7− | 0.3+ | 2005 09 24 | 699 | 0.3− | 0.8+ | 2005 11 28 | 703 | (0.4+ | 2.0−) |
| 2005 07 31 | 644 | 0.2+ | 0.4+ | 2005 09 24 | 699 | 0.4+ | 0.1− | 2007 02 17 | G96 | 0.2+ | 0.4+ |
| 2005 07 31 | 644 | 0.1+ | 0.3+ | 2005 09 26 | 691 | 0.1+ | 0.1+ | 2007 02 17 | G96 | 0.4+ | 0.2− |
| 2005 07 31 | 644 | 0.2+ | 0.4+ | 2005 09 26 | 691 | 0.2+ | 0.1+ | 2007 02 17 | G96 | 0.4− | 0.8+ |
| 2005 08 24 | 608 | 0.2− | 0.2− | 2005 09 26 | 691 | 0.2+ | 0.1+ | 2007 02 17 | G96 | 0.4+ | 1.4+ |
| 2005 08 24 | 608 | 0.1− | 0.4+ | 2005 09 30 | 703 | 0.4− | 1.0− | 2009 08 28 | 691 | 0.2− | 0.3− |
| 2005 08 24 | 608 | 0.2− | 0.6+ | 2005 09 30 | 703 | 0.6− | 0.4− | 2009 08 28 | 691 | 0.7− | 0.2− |
| 2005 08 26 | 699 | 0.1+ | 0.3− | 2005 09 30 | 703 | 0.5+ | 0.3− | 2009 08 28 | 691 | 0.2− | 0.2− |
| 2005 08 26 | 699 | 0.0 | 0.1− | 2005 09 30 | 703 | 0.3− | 0.3− | 2009 12 10 | 704 | 0.7+ | 1.4+ |
| 2005 08 26 | 699 | 0.1+ | 0.5+ | 2005 10 01 | 699 | 0.7+ | 0.2+ | 2009 12 10 | 704 | 1.0+ | 0.1+ |
| 2005 08 26 | 699 | 0.3− | 0.7+ | 2005 10 01 | 699 | 0.1− | 0.5− | 2009 12 10 | 704 | 0.6+ | 0.8+ |
| 2005 08 29 | 699 | 0.3− | 0.2+ | 2005 10 01 | 699 | 0.1+ | 0.3− | 2009 12 16 | 704 | 0.3− | 0.1− |
| 2005 08 29 | 699 | 0.2+ | 0.4+ | 2005 10 01 | 699 | 0.1− | 0.1+ | 2009 12 16 | 704 | 0.4− | 0.2+ |
| 2005 08 29 | 699 | 0.3+ | 0.5+ | 2005 10 20 | 644 | 0.3+ | 0.1− | 2009 12 16 | 704 | 0.7+ | 0.2− |
| 2005 08 29 | 699 | 0.1+ | 0.1− | 2005 10 20 | 644 | 0.3+ | 0.0 | 2009 12 16 | 704 | 0.1+ | 0.9+ |
| 2005 08 29 | 608 | 0.0 | 1.0− | 2005 10 20 | 644 | 0.1+ | 0.1− | 2009 12 16 | 704 | 0.4+ | 0.8− |

**(229335)∗ 2005 QY$_9$ = 1991 TT$_{10}$**

Discovered 2005 Aug. 25 by CINEOS at Campo Imperatore.

Id. G. V. Williams (*MPO* 87008)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 59.65759 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27737401 | $\omega$ | 162.25663 | | +0.99857868 | −0.03936555 | |
| $a$ | 2.3285856 | $\Omega$ | 200.10228 | | +0.02652876 | +0.95181379 | |
| $e$ | 0.1245778 | $i$ | 6.00067 | | +0.04622602 | +0.30413955 | |
| $P$ | 3.55 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1991 10 10 | 691 | 0.2+ | 0.5− | 2005 08 26 | 599 | 0.1+ | 0.1− | 2008 06 22 | 691 | 0.1+ | 0.2− |
| 1991 10 10 | 691 | 0.5+ | 0.7− | 2005 08 31 | 704 | 0.0 | 0.6− | 2008 06 22 | 691 | 0.1− | 0.0 |
| 1991 10 10 | 691 | 0.1+ | 0.7− | 2005 08 31 | 704 | 0.1− | 0.0 | 2009 11 16 | G96 | 0.3− | 0.0 |
| 1991 10 15 | 691 | 0.7− | 0.8+ | 2005 08 31 | 704 | 0.0 | 0.3+ | 2009 11 16 | G96 | 0.1+ | 0.1+ |
| 1991 10 15 | 691 | 0.4− | 1.0+ | 2005 10 30 | G96 | 0.2− | 0.4− | 2009 11 16 | G96 | 0.1− | 0.2+ |
| 1991 10 15 | 691 | 0.2+ | 0.6+ | 2005 10 30 | G96 | 0.4+ | 0.7− | 2009 11 23 | G96 | 0.3+ | 0.1+ |
| 2005 07 31 | 644 | 0.1+ | 0.1− | 2005 10 30 | G96 | 0.1− | 0.3− | 2009 11 23 | G96 | 0.1+ | 0.2+ |
| 2005 07 31 | 644 | 0.1− | 0.0 | 2005 10 30 | G96 | 0.5+ | 0.1− | 2009 11 23 | G96 | 0.2+ | 0.0 |
| 2005 07 31 | 644 | 0.2+ | 0.2− | 2005 10 31 | G96 | 0.1+ | 0.4− | 2009 11 23 | G96 | 0.3+ | 0.2+ |
| 2005 08 25 | 599 | 0.2+ | 0.1+ | 2005 10 31 | G96 | 0.2− | 0.5− | 2009 12 10 | 703 | 0.2+ | 0.2− |
| 2005 08 25 | 599 | 0.1+ | 0.1+ | 2005 10 31 | G96 | 0.0 | 0.1− | 2009 12 10 | 703 | 1.5− | 0.1+ |
| 2005 08 25 | 599 | 0.1+ | 0.4+ | 2005 10 31 | G96 | 0.3− | 0.6− | 2009 12 10 | 703 | 0.7− | 0.3− |
| 2005 08 25 | 599 | 0.3+ | 0.3+ | 2008 05 28 | G96 | 1.1− | 1.2+ | 2009 12 10 | 703 | 0.4− | 0.0 |
| 2005 08 26 | 644 | 0.4− | 0.2− | 2008 05 28 | G96 | 0.9+ | 0.0 | 2009 12 13 | 704 | 0.1− | 0.1− |
| 2005 08 26 | 644 | 0.3− | 0.2− | 2008 05 28 | G96 | 0.3+ | 0.1− | 2009 12 13 | 704 | 1.0+ | 1.1+ |
| 2005 08 26 | 644 | 0.3− | 0.2− | 2008 06 09 | 691 | 0.2− | 1.0+ | 2009 12 13 | 704 | 0.4+ | 0.2+ |
| 2005 08 26 | 599 | 0.0 | 0.5+ | 2008 06 09 | 691 | 0.2+ | 0.1− | 2009 12 13 | 704 | 0.4+ | 0.8+ |
| 2005 08 26 | 599 | 0.3+ | 0.5+ | 2008 06 09 | 691 | 0.1+ | 0.2− | | | | |
| 2005 08 26 | 599 | 0.2− | 0.0 | 2008 06 22 | 691 | 0.1+ | 0.1+ | | | | |

**(229336)∗ 2005 QW$_{10}$**

Discovered 2005 Aug. 24 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 76.57353 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.25762746 | $\omega$ | 333.29921 | | +0.40383031 | +0.91479985 | |
| $a$ | 2.4461023 | $\Omega$ | 320.51726 | | −0.83710904 | +0.36602616 | |
| $e$ | 0.1860028 | $i$ | 0.71137 | | −0.36901156 | +0.17078082 | |
| $P$ | 3.83 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 03 09 | 691 | 0.5− | 0.2− | 2005 09 22 | 644 | 0.6− | 0.1+ | 2009 08 19 | 691 | 0.2+ | 0.4− |
| 2000 03 09 | 691 | 0.0 | 0.1+ | 2005 09 22 | 644 | 0.5− | 0.2+ | 2009 08 19 | 691 | 0.0 | 0.1+ |
| 2000 03 09 | 691 | 0.1+ | 0.2− | 2005 09 22 | 644 | 0.2− | 0.1+ | 2009 08 22 | J75 | 0.1− | 0.1+ |
| 2004 02 13 | 291 | (2.1− | 0.1+) | 2006 12 21 | 691 | 0.2+ | 0.5+ | 2009 08 22 | J75 | 0.3− | 0.0 |
| 2004 02 13 | 291 | 0.5+ | 0.4+ | 2006 12 21 | 691 | 0.5− | 0.2+ | 2009 08 22 | J75 | 0.3+ | 0.8+ |
| 2004 02 13 | 291 | 1.1+ | 0.5+ | 2006 12 21 | 691 | 0.1− | 0.3− | 2009 08 27 | 691 | 0.1− | 0.1− |
| 2005 08 24 | 644 | 0.0 | 0.1+ | 2008 02 10 | G96 | 0.1+ | 0.0 | 2009 08 27 | 691 | 0.1+ | 0.1− |
| 2005 08 24 | 644 | 0.3− | 0.2+ | 2008 02 10 | G96 | 0.6+ | 0.3− | 2009 08 27 | 691 | 0.0 | 0.1− |
| 2005 08 24 | 644 | 0.1− | 0.3+ | 2008 02 10 | G96 | 0.4+ | 0.2− | 2009 08 28 | 291 | 0.5− | 0.4+ |
| 2005 08 28 | 701 | 0.4− | 0.3− | 2008 02 10 | G96 | 0.0 | 0.0 | 2009 08 28 | 291 | 0.3− | 0.5+ |
| 2005 08 28 | 701 | 0.1− | 0.3− | 2008 02 27 | 691 | 0.0 | 0.5+ | 2009 08 28 | 291 | 0.2− | 0.2+ |
| 2005 08 28 | 701 | 0.2+ | 0.2− | 2008 02 27 | 691 | 0.8− | 0.3+ | 2009 09 17 | G96 | 0.8+ | 0.5− |
| 2005 08 29 | 704 | (1.0+ | 1.6+) | 2008 02 27 | 691 | 0.2− | 0.2+ | 2009 09 17 | G96 | 1.3+ | 0.6− |
| 2005 08 29 | 704 | 0.7+ | 0.4+ | 2008 02 27 | G96 | 0.4+ | 0.0 | 2009 09 17 | G96 | 0.7+ | 0.4− |
| 2005 08 29 | 704 | 0.3− | 0.1+ | 2008 02 27 | G96 | 0.5+ | 0.3− | 2009 09 17 | G96 | 0.6+ | 0.5− |
| 2005 08 29 | 704 | 0.2+ | 1.1+ | 2008 02 27 | G96 | 0.5+ | 0.1+ | 2009 09 19 | 691 | 0.0 | 0.2+ |
| 2005 08 29 | 699 | 0.1+ | 1.0+ | 2008 02 27 | G96 | 0.2+ | 0.1− | 2009 09 19 | 691 | 0.2− | 0.4+ |
| 2005 08 29 | 701 | 0.3− | 1.1− | 2008 03 28 | G96 | 0.3+ | 0.2+ | 2009 09 19 | 691 | 0.2+ | 0.2+ |
| 2005 08 29 | 699 | 0.9+ | 0.5+ | 2008 03 28 | G96 | 0.2+ | 0.2+ | 2009 09 25 | 703 | (1.0− | 2.1+) |
| 2005 08 29 | 699 | 1.0− | 0.3+ | 2008 03 28 | G96 | 0.2+ | 0.3+ | 2009 09 25 | 703 | (1.1− | 2.4+) |
| 2005 08 29 | 699 | (1.9+ | 1.2+) | 2008 03 28 | G96 | 0.2+ | 0.2+ | 2009 09 25 | 703 | (2.1− | 0.8+) |
| 2005 08 29 | 701 | 0.5− | 1.2− | 2008 03 29 | G96 | 0.2− | 0.3+ | 2009 09 25 | 703 | (0.4− | 2.1+) |
| 2005 08 29 | 701 | 0.1− | 0.3− | 2008 03 29 | G96 | 0.4+ | 0.2+ | 2009 09 28 | G96 | 0.8+ | 0.1− |
| 2005 08 30 | 701 | 0.1− | 0.0 | 2008 03 29 | G96 | 0.1+ | 0.0 | 2009 09 28 | G96 | 0.2+ | 0.1− |
| 2005 08 30 | 701 | 0.1− | 0.1+ | 2008 03 29 | G96 | 0.3+ | 0.0 | 2009 09 28 | G96 | 0.5+ | 0.1− |
| 2005 08 30 | 701 | 0.3− | 0.1+ | 2008 04 24 | G96 | 0.1+ | 0.3+ | 2009 09 28 | G96 | 0.1+ | 0.1− |
| 2005 09 05 | 703 | 0.9+ | 0.5+ | 2008 04 24 | G96 | 0.2− | 0.1+ | 2009 12 11 | G96 | 0.1+ | 0.3− |
| 2005 09 05 | 703 | 0.3− | 0.9+ | 2008 04 24 | G96 | 0.0 | 0.0 | 2009 12 11 | G96 | 0.3+ | 0.3− |
| 2005 09 05 | 703 | 0.1− | 1.0+ | 2008 04 24 | G96 | 0.2− | 0.1+ | 2009 12 11 | G96 | 0.1− | 0.2− |
| 2005 09 05 | 703 | (1.6− | 1.6+) | 2009 08 19 | 691 | 0.5− | 0.1+ | 2009 12 11 | G96 | 0.1+ | 0.4− |

**(229337)∗ 2005 QP$_{12}$**

Discovered 2005 Aug. 24 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 46.36693 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28076450 | $\omega$ | 207.46841 | | +0.86368491 | −0.50400583 | |
| $a$ | 2.3098011 | $\Omega$ | 182.81291 | | +0.47955361 | +0.82484152 | |
| $e$ | 0.1860761 | $i$ | 6.02223 | | +0.15516675 | +0.25615347 | |
| $P$ | 3.51 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 04 23 | 691 | 0.2+ | 0.5+ | 2005 08 30 | 704 | 0.2− | 1.0+ | 2007 05 10 | G96 | 0.5+ | 0.6− |
| 2004 04 23 | 691 | 0.1+ | 0.4+ | 2005 08 30 | 704 | 0.2+ | 0.6+ | 2007 05 10 | G96 | 0.3− | 0.2− |
| 2004 04 23 | 691 | 0.5− | 0.1+ | 2005 10 31 | 701 | 0.2+ | 0.0 | 2007 05 10 | G96 | 0.2+ | 0.7− |
| 2005 07 30 | 644 | 0.3− | 0.2+ | 2005 10 31 | 701 | 1.1− | 0.4+ | 2009 10 18 | 291 | 0.2− | 0.0 |
| 2005 07 30 | 644 | 0.1− | 0.3+ | 2005 10 31 | 701 | 0.2− | 0.1+ | 2009 10 18 | 291 | 0.1− | 0.0 |
| 2005 07 30 | 644 | 0.2− | 0.3+ | 2006 12 15 | 291 | 0.3− | 0.2+ | 2009 10 18 | 291 | 0.3− | 0.1− |
| 2005 08 06 | 644 | 0.4− | 0.6+ | 2006 12 15 | 291 | 0.6− | 0.6+ | 2009 12 13 | 704 | 0.8− | 0.7− |
| 2005 08 06 | 644 | 0.1− | 0.7+ | 2006 12 15 | 291 | 0.3− | 1.2+ | 2009 12 13 | 704 | 0.4+ | 0.2− |
| 2005 08 06 | 644 | 0.1− | 0.6+ | 2007 02 22 | 691 | 0.1+ | 0.3+ | 2009 12 13 | 704 | 0.4+ | 0.3− |
| 2005 08 24 | 644 | 0.3− | 0.4+ | 2007 02 22 | 691 | 0.7+ | 0.0 | 2009 12 13 | 704 | 0.3+ | 0.4− |
| 2005 08 24 | 644 | 0.2− | 0.3+ | 2007 02 22 | 691 | 0.5+ | 0.1+ | 2009 12 18 | 704 | 0.7+ | 0.6− |
| 2005 08 24 | 644 | 0.2− | 0.3+ | 2007 03 12 | G96 | 0.3− | 0.9+ | 2009 12 18 | 704 | 0.1+ | 0.9+ |
| 2005 08 27 | 699 | 0.3+ | 1.2+ | 2007 03 12 | G96 | 0.6+ | 0.0 | 2009 12 18 | 704 | 0.4− | 1.7+ |
| 2005 08 27 | 699 | 0.1+ | 0.5+ | 2007 03 12 | G96 | 0.5+ | 0.6− | 2009 12 18 | 704 | 0.2+ | 1.8+ |
| 2005 08 27 | 699 | 0.3− | 0.6+ | 2007 03 12 | G96 | 0.3+ | 0.2+ | | | | |
| 2005 08 30 | 704 | 0.5+ | 0.6+ | 2007 05 10 | G96 | 0.2+ | 0.1− | | | | |

**(229338)∗ 2005 QS$_{14}$**

Discovered 2005 Aug. 25 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 36.85288 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27146436 | $\omega$ | 70.81929 | | +0.86476382 | −0.50197275 | |
| $a$ | 2.3622589 | $\Omega$ | 319.30785 | | +0.45205508 | +0.79060405 | |
| $e$ | 0.2148700 | $i$ | 1.26410 | | +0.21870010 | +0.35066877 | |
| $P$ | 3.63 | $H$ | 17.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 01 11 | 291 | 0.1− | 0.0 | 2005 08 28 | 691 | 0.2+ | 0.3+ | 2007 02 21 | G96 | 0.4− | 0.4+ |
| 2003 01 11 | 291 | 0.1+ | 0.2− | 2005 09 11 | 691 | 0.3− | 0.1− | 2007 02 21 | G96 | 0.2− | 0.1+ |
| 2003 01 11 | 291 | 0.0 | 0.1+ | 2005 09 11 | 691 | 0.3− | 0.1− | 2007 02 21 | G96 | 0.4+ | 0.3+ |
| 2005 07 30 | 644 | 0.1+ | 0.0 | 2005 09 11 | 691 | 0.1− | 0.1− | 2007 02 21 | G96 | 0.9+ | 0.0 |
| 2005 07 30 | 644 | 0.2− | 0.2+ | 2005 09 25 | 691 | 0.1− | 0.6+ | 2007 03 10 | G96 | 0.4− | 0.5+ |
| 2005 07 30 | 644 | 0.2+ | 0.1+ | 2005 09 25 | 691 | 0.1+ | 0.2− | 2007 03 10 | G96 | 0.0 | 0.0 |
| 2005 08 06 | 644 | 0.3+ | 0.0 | 2005 09 25 | 691 | 0.4+ | 0.3− | 2007 03 10 | G96 | 0.2+ | 0.1− |
| 2005 08 06 | 644 | 0.1+ | 0.0 | 2005 09 29 | G96 | 0.0 | 0.0 | 2007 03 10 | G96 | 0.1+ | 0.5+ |
| 2005 08 06 | 644 | 0.1+ | 0.1+ | 2005 09 29 | G96 | 0.2+ | 0.1− | 2009 11 22 | 704 | 0.9− | 0.4− |
| 2005 08 25 | 644 | 0.0 | 0.1− | 2005 09 29 | G96 | 0.4+ | 0.4− | 2009 11 22 | 704 | 0.4+ | 0.6− |
| 2005 08 25 | 644 | 0.0 | 0.0 | 2005 09 29 | G96 | 0.1+ | 0.5− | 2009 11 22 | 704 | 1.2+ | 1.0− |
| 2005 08 25 | 644 | 0.1+ | 0.0 | 2005 10 27 | G96 | 1.0+ | 0.2− | 2009 11 25 | 691 | 0.4− | 0.1+ |
| 2005 08 27 | 699 | (0.6− | 2.0+) | 2005 10 27 | G96 | 0.1+ | 0.5− | 2009 11 25 | 691 | 0.0 | 0.3+ |
| 2005 08 27 | 699 | 0.1− | 0.8− | 2005 10 27 | G96 | 0.3+ | 0.3− | 2009 11 25 | 691 | 0.0 | 0.3+ |
| 2005 08 27 | 699 | 0.9− | 0.1− | 2005 10 27 | G96 | 0.4+ | 0.5− | 2009 12 10 | G96 | 0.1− | 0.0 |
| 2005 08 27 | 699 | 0.3− | 0.2+ | 2005 11 02 | 695 | 0.6− | 0.2+ | 2009 12 10 | G96 | 0.3+ | 0.2+ |
| 2005 08 28 | 691 | 0.1− | 0.4+ | 2005 11 03 | 695 | 0.1+ | 0.0 | 2009 12 10 | G96 | 0.1+ | 0.0 |
| 2005 08 28 | 691 | 0.0 | 0.4+ | 2005 11 03 | 695 | 0.5− | 0.3+ | 2009 12 10 | G96 | 0.2+ | 0.0 |

**(229339)∗ 2005 QM$_{15}$**

Discovered 2005 Aug. 25 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 53.75165 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27592295 | $\omega$ | 61.63731 | | +0.98663680 | −0.15903852 | |
| $a$ | 2.3367424 | $\Omega$ | 307.49197 | | +0.12945472 | +0.89716010 | |
| $e$ | 0.0756020 | $i$ | 2.55860 | | +0.09894092 | +0.41208070 | |
| $P$ | 3.57 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1991 10 14 | 691 | 0.2+ | 0.0 | 2005 08 29 | 691 | 0.1− | 0.2+ | 2007 02 13 | G96 | 0.2+ | 0.2− |
| 1991 10 14 | 691 | 0.2− | 0.2− | 2005 09 13 | 691 | 0.2− | 0.1+ | 2007 02 13 | G96 | 0.1+ | 0.9− |
| 1991 10 14 | 691 | 0.1− | 0.2+ | 2005 09 13 | 691 | 0.1+ | 0.2+ | 2007 02 13 | G96 | 0.1+ | 0.2− |
| 2004 04 19 | 691 | 0.1+ | 0.5+ | 2005 09 13 | 691 | 0.1− | 0.1+ | 2007 02 13 | G96 | 0.6+ | 0.0 |
| 2004 04 19 | 691 | 0.1+ | 0.5+ | 2005 09 26 | 691 | 0.1− | 0.3+ | 2007 03 09 | G96 | 0.1+ | 0.1+ |
| 2004 04 19 | 691 | 0.3+ | 0.8+ | 2005 09 26 | 691 | 0.1+ | 0.2+ | 2007 03 09 | G96 | 0.3+ | 0.0 |
| 2005 06 17 | G96 | 0.0 | 0.3− | 2005 09 26 | 691 | 0.1− | 0.4+ | 2007 03 09 | G96 | 0.4+ | 0.1+ |
| 2005 06 17 | G96 | 0.4+ | 1.3− | 2007 01 10 | 691 | 0.1− | 0.1+ | 2007 03 09 | G96 | 0.0 | 0.2+ |
| 2005 06 17 | G96 | 1.3− | 0.2− | 2007 01 10 | 691 | 0.2+ | 0.0 | 2009 11 11 | 691 | 0.0 | 0.1+ |
| 2005 06 17 | G96 | 0.2+ | 0.4− | 2007 01 10 | 691 | 0.7− | 0.1+ | 2009 11 11 | 691 | 0.1− | 0.2− |
| 2005 07 30 | 644 | 0.1− | 0.1+ | 2007 01 27 | G96 | 0.1+ | 0.0 | 2009 11 11 | 691 | 0.0 | 0.1+ |
| 2005 07 30 | 644 | 0.1− | 0.2− | 2007 01 27 | G96 | 0.1− | 0.4− | 2009 11 22 | G96 | 0.4+ | 0.2− |
| 2005 07 30 | 644 | 0.0 | 0.1+ | 2007 01 27 | G96 | 0.3+ | 0.1+ | 2009 11 22 | G96 | 0.3+ | 0.3− |
| 2005 08 25 | 644 | 0.1+ | 0.0 | 2007 01 27 | G96 | 0.0 | 0.3− | 2009 11 22 | G96 | 0.5+ | 0.2− |
| 2005 08 25 | 644 | 0.1+ | 0.1− | 2007 01 27 | 691 | 0.2+ | 0.2+ | 2009 11 26 | 691 | 0.7− | 0.1+ |
| 2005 08 25 | 644 | 0.2+ | 0.1+ | 2007 01 27 | 691 | 0.2+ | 0.3+ | 2009 11 26 | 691 | 0.3− | 0.5+ |
| 2005 08 28 | 691 | 0.0 | 0.2+ | 2007 01 27 | 691 | 0.3+ | 0.2+ | 2009 11 26 | 691 | 0.1+ | 0.2+ |
| 2005 08 28 | 691 | 0.2+ | 0.2+ | 2007 02 06 | G96 | 0.4+ | 0.2+ | 2009 12 18 | G96 | 0.5+ | 0.2+ |
| 2005 08 28 | 691 | 0.2+ | 0.2+ | 2007 02 06 | G96 | 0.3+ | 0.0 | 2009 12 18 | G96 | 0.0 | 0.0 |
| 2005 08 29 | 691 | 0.1− | 0.0 | 2007 02 06 | G96 | 0.5− | 0.1+ | 2009 12 18 | G96 | 0.2+ | 0.1− |
| 2005 08 29 | 691 | 0.4− | 0.1+ | 2007 02 06 | G96 | 0.1− | 0.1+ | 2009 12 18 | G96 | 0.3+ | 0.7− |

**(229340)∗ 2005 QQ$_{21}$ = 2004 FQ$_{55}$**

Discovered 2005 Aug. 26 by NEAT at Haleakala.

Id. G. V. Williams (*MPO* 87020)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 90.54950 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28545306 | $\omega$ | 236.90525 | | +0.97208249 | +0.21730456 | |
| $a$ | 2.2844391 | $\Omega$ | 110.40969 | | −0.17119770 | +0.91481934 | |
| $e$ | 0.1597686 | $i$ | 5.41913 | | −0.16045866 | +0.34041784 | |
| $P$ | 3.45 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 12 27 | 691 | 0.1− | 0.3− | 2005 08 28 | 699 | 0.4+ | 0.4+ | 2005 10 03 | 703 | 0.7− | 0.6− |
| 1995 12 27 | 691 | 0.2+ | 0.1− | 2005 08 31 | 608 | 0.5− | 0.5− | 2005 10 03 | 703 | 0.0 | 0.5+ |
| 1995 12 27 | 691 | 0.1− | 0.3− | 2005 08 31 | 608 | 0.4− | 0.8− | 2005 10 07 | 699 | 0.0 | 0.6− |
| 1998 08 17 | 704 | 0.5+ | 1.4− | 2005 08 31 | 608 | 0.4− | 0.4− | 2005 10 07 | 699 | 1.0− | 0.1+ |
| 1998 08 17 | 704 | 0.7− | 0.4+ | 2005 09 01 | 608 | 0.2+ | 0.3− | 2005 10 07 | 699 | 0.5+ | 0.6+ |
| 1998 08 17 | 704 | (3.2+ | 0.5−) | 2005 09 01 | 608 | 0.2+ | 0.3− | 2005 10 07 | 699 | 0.4− | 0.4+ |
| 1998 08 17 | 704 | 1.2+ | 0.2− | 2005 09 01 | 608 | 0.2+ | 0.1− | 2007 01 27 | 691 | 0.0 | 0.1− |
| 1998 08 17 | 704 | (4.5− | 2.8−) | 2005 09 13 | 703 | 0.4− | 0.5− | 2007 01 27 | 691 | 0.1+ | 0.1− |
| 2002 12 11 | 704 | 0.1+ | 1.4+ | 2005 09 13 | 703 | 0.5− | 0.3+ | 2007 01 27 | 691 | 0.2− | 0.2+ |
| 2002 12 11 | 704 | (0.0 | 1.8+) | 2005 09 13 | 703 | 0.4+ | 0.6− | 2007 02 08 | G96 | 0.0 | 0.2− |
| 2002 12 11 | 704 | 0.0 | 1.3+ | 2005 09 24 | 644 | 0.1+ | 0.2+ | 2007 02 08 | G96 | 0.2− | 0.1− |
| 2004 03 20 | 704 | (0.5+ | 1.8+) | 2005 09 24 | 644 | 0.0 | 0.3+ | 2007 02 08 | G96 | 0.2− | 0.1− |
| 2004 03 20 | 704 | 0.5+ | 0.9+ | 2005 09 24 | 644 | 0.1+ | 0.2+ | 2007 02 08 | G96 | 0.3− | 0.0 |
| 2004 03 20 | 704 | (0.4− | 2.3+) | 2005 09 25 | 703 | 0.3− | 0.7+ | 2007 02 09 | 691 | 0.0 | 0.0 |
| 2004 03 20 | 704 | (0.6− | 2.1+) | 2005 09 25 | 703 | 0.9− | 0.4+ | 2007 02 09 | 691 | 0.1− | 0.3+ |
| 2004 03 21 | 691 | 0.0 | 0.2+ | 2005 09 25 | 703 | 0.8− | 0.3+ | 2007 02 09 | 691 | 0.0 | 0.3+ |
| 2004 03 21 | 691 | 0.3+ | 0.3+ | 2005 09 25 | 703 | 0.6− | 0.2− | 2007 02 16 | G96 | 0.6− | 0.4− |
| 2004 03 21 | 691 | 0.1+ | 0.4+ | 2005 09 27 | 644 | 0.2− | 0.2+ | 2007 02 16 | G96 | 0.1− | 0.8− |
| 2005 07 09 | 703 | 1.3− | 0.3− | 2005 09 27 | 644 | 0.1+ | 0.2+ | 2007 02 16 | G96 | 0.5+ | 0.6− |
| 2005 07 09 | 703 | 1.0+ | 0.4− | 2005 09 27 | 704 | 0.0 | 0.5+ | 2007 02 16 | G96 | 0.1− | 0.3− |
| 2005 07 09 | 703 | 1.0+ | 0.3+ | 2005 09 27 | 704 | 0.3+ | 0.5+ | 2009 12 17 | 691 | 0.0 | 0.1− |
| 2005 07 09 | 703 | 0.1− | 0.4− | 2005 09 27 | 644 | 0.2+ | 0.0 | 2009 12 17 | 691 | 1.0+ | 0.1− |
| 2005 08 26 | 608 | 0.2− | 0.9+ | 2005 09 27 | 704 | 0.2− | 0.6+ | 2009 12 17 | 691 | 0.1− | 0.1− |
| 2005 08 26 | 608 | 0.3− | 0.9+ | 2005 09 27 | 704 | 0.7+ | 0.8+ | 2009 12 17 | 704 | 0.4+ | 0.2+ |
| 2005 08 26 | 608 | 0.0 | 0.6+ | 2005 09 27 | 704 | 0.2− | 0.3+ | 2009 12 17 | 704 | 0.7+ | 0.3− |
| 2005 08 27 | 644 | 0.2+ | 0.1− | 2005 10 03 | 703 | 0.2− | 0.4− | 2009 12 17 | 704 | 0.7+ | 0.8+ |
| 2005 08 27 | 644 | 0.2+ | 0.0 | 2005 10 03 | 703 | 0.1− | 0.7+ | 2009 12 25 | 691 | 0.2− | 0.0 |
| 2005 08 27 | 644 | 0.2+ | 0.0 | 2005 10 03 | 703 | 0.5− | 0.2+ | 2009 12 25 | 691 | 0.4− | 0.1− |
| 2005 08 28 | 699 | 0.6+ | 0.3− | 2005 10 03 | 703 | 0.1+ | 0.6− | 2009 12 25 | 691 | 0.3− | 0.1+ |
| 2005 08 28 | 699 | 0.1+ | 0.1+ | 2005 10 03 | 703 | 0.7+ | 0.4+ | | | | |
| 2005 08 28 | 699 | 0.3+ | 0.4+ | 2005 10 03 | 703 | 0.2− | 0.5− | | | | |

**(229341)∗ 2005 QK$_{29}$**

Discovered 2005 Aug. 25 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 28.06704 | | (2000.0) | | | |
| $n$ | 0.26456256 | $\omega$ | 230.80875 | | +0.82250222 | −0.56815730 |
| $a$ | 2.4031661 | $\Omega$ | 163.75891 | | +0.54645395 | +0.77661870 |
| $e$ | 0.2190124 | $i$ | 5.37894 | | +0.15772817 | +0.27214090 |
| $P$ | 3.73 | $H$ | 17.4 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 01 28 | 645 | 0.0 | 0.1+ | 2007 03 10 | G96 | 0.4+ | 0.2+ | 2009 11 19 | 704 | 0.3− | 0.3+ |
| 2003 01 28 | 645 | 0.0 | 0.1+ | 2007 03 25 | G96 | 0.5− | 0.4− | 2009 11 19 | J75 | 0.7+ | 0.2− |
| 2005 08 25 | 644 | 0.4− | 0.0 | 2007 03 25 | G96 | 0.8+ | 0.1− | 2009 11 20 | J75 | 0.1+ | 0.1− |
| 2005 08 25 | 644 | 0.1− | 0.1+ | 2007 03 25 | G96 | 0.0 | 0.3+ | 2009 11 20 | J75 | 1.2+ | 0.7− |
| 2005 08 25 | 644 | 0.1+ | 0.2+ | 2007 03 25 | G96 | 0.6+ | 0.1+ | 2009 11 20 | 683 | (1.6− | 0.5+) |
| 2005 08 30 | 599 | 0.3+ | 0.0 | 2009 10 24 | 703 | 1.0+ | 0.5+ | 2009 11 20 | 683 | (2.2− | 3.3−) |
| 2005 08 30 | 599 | 0.1+ | 0.1+ | 2009 10 24 | 703 | 0.2− | 0.8− | 2009 11 22 | G96 | 0.0 | 0.1− |
| 2005 08 30 | 599 | 0.0 | 0.4+ | 2009 10 24 | 703 | 0.9− | 0.7− | 2009 11 22 | G96 | 0.3+ | 0.1− |
| 2005 09 06 | 699 | 0.7+ | 1.1+ | 2009 10 24 | 703 | 1.0− | 0.8+ | 2009 11 22 | G96 | 0.5− | 0.5− |
| 2005 09 06 | 699 | 0.4+ | 0.0 | 2009 10 28 | J75 | 1.5+ | 1.1− | 2009 11 22 | G96 | 0.3+ | 0.3− |
| 2005 09 06 | 699 | 1.1− | 0.6+ | 2009 10 28 | J75 | 0.4− | 0.3− | 2009 12 10 | 703 | (0.2+ | 1.9−) |
| 2005 09 06 | 699 | 0.2+ | 0.7+ | 2009 10 28 | J75 | 0.7+ | 0.2+ | 2009 12 10 | 703 | 0.3− | 0.4− |
| 2005 09 12 | 691 | 0.2− | 0.1+ | 2009 11 14 | 704 | 0.2− | 0.9+ | 2009 12 10 | 703 | 0.4+ | 1.1− |
| 2005 09 12 | 691 | 0.2− | 0.1+ | 2009 11 14 | 704 | 0.2− | 0.8− | 2009 12 10 | 703 | 0.6− | 0.3+ |
| 2005 09 12 | 691 | 0.1− | 0.2+ | 2009 11 14 | 704 | 0.8− | 0.3− | 2009 12 13 | 704 | 0.8+ | 0.3− |
| 2005 09 22 | 644 | 0.1+ | 0.2− | 2009 11 18 | J75 | 1.0+ | 0.2+ | 2009 12 13 | 704 | 0.1+ | 0.3+ |
| 2005 09 22 | 644 | 0.1− | 0.2− | 2009 11 18 | J75 | 0.5+ | 0.2− | 2009 12 13 | 704 | 0.4+ | 0.1+ |
| 2005 09 22 | 644 | 0.3+ | 0.1+ | 2009 11 18 | J75 | 0.7+ | 0.6− | 2009 12 19 | 691 | 0.5− | 0.2+ |
| 2007 03 10 | G96 | 0.3− | 0.1+ | 2009 11 19 | 704 | 0.2+ | 1.3+ | 2009 12 19 | 691 | 0.2− | 0.1− |
| 2007 03 10 | G96 | 0.3− | 0.4− | 2009 11 19 | 704 | 0.2+ | 0.2+ | 2009 12 19 | 691 | 0.4− | 0.0 |
| 2007 03 10 | G96 | 0.5− | 0.0 | 2009 11 19 | 704 | 0.4− | 0.4+ | | | | |

**(229342)∗ 2005 QM$_{32}$**

Discovered 2005 Aug. 24 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 90.54049 | | (2000.0) | | | |
| $n$ | 0.27064020 | $\omega$ | 196.98660 | | +0.64788093 | +0.76124996 |
| $a$ | 2.3670522 | $\Omega$ | 113.40439 | | −0.69537350 | +0.60571677 |
| $e$ | 0.2310340 | $i$ | 1.70866 | | −0.31097587 | +0.23152904 |
| $P$ | 3.64 | $H$ | 17.8 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 02 05 | 695 | 0.2+ | 0.6+ | 2005 10 06 | G96 | 0.1− | 0.1− | 2008 05 08 | 691 | 0.4− | 0.1+ |
| 2000 02 05 | 695 | 0.2+ | 0.6+ | 2005 10 06 | G96 | 0.3− | 0.1− | 2008 05 08 | 691 | 0.1+ | 0.4+ |
| 2005 08 24 | 644 | 0.1− | 0.1+ | 2005 10 29 | G96 | 0.3+ | 0.4− | 2008 05 08 | 691 | 0.1− | 0.0 |
| 2005 08 24 | 644 | 0.0 | 0.0 | 2005 10 29 | G96 | 0.4+ | 0.2+ | 2009 10 23 | G96 | 0.2− | 0.3+ |
| 2005 08 24 | 644 | 0.4+ | 0.1+ | 2005 10 29 | G96 | 0.1− | 0.1− | 2009 10 23 | G96 | 0.0 | 0.0 |
| 2005 08 29 | 691 | 0.1+ | 0.2+ | 2005 10 29 | G96 | 0.1+ | 0.1− | 2009 10 23 | G96 | 0.2+ | 0.0 |
| 2005 08 29 | 691 | 0.1− | 0.1+ | 2008 04 06 | G96 | 0.0 | 0.0 | 2009 10 23 | G96 | 0.1− | 0.2− |
| 2005 08 29 | 691 | 0.2− | 0.0 | 2008 04 06 | G96 | 0.2+ | 0.2+ | 2009 11 23 | G96 | 0.2+ | 0.2+ |
| 2005 09 06 | 699 | 0.5+ | 0.9+ | 2008 04 06 | G96 | 0.3− | 0.2− | 2009 11 23 | G96 | 0.1+ | 0.3− |
| 2005 09 06 | 699 | (0.6+ | 1.8+) | 2008 04 06 | G96 | 0.5+ | 0.1+ | 2009 11 23 | G96 | 0.3− | 0.1+ |
| 2005 09 06 | 699 | 0.2− | 0.8+ | 2008 04 12 | 691 | 0.3+ | 0.2+ | 2009 11 23 | G96 | 0.1+ | 0.1+ |
| 2005 09 06 | 699 | 0.3− | 0.3+ | 2008 04 12 | 691 | 0.2+ | 0.4− | 2009 12 11 | G96 | 0.2+ | 0.2+ |
| 2005 09 12 | 691 | 0.0 | 0.2− | 2008 04 12 | 691 | 0.1− | 0.2− | 2009 12 11 | G96 | 0.3+ | 0.3− |
| 2005 09 12 | 691 | 0.2+ | 0.1− | 2008 04 28 | 691 | 0.1+ | 0.2+ | 2009 12 11 | G96 | 0.3− | 0.2+ |
| 2005 09 12 | 691 | 0.1− | 0.2− | 2008 04 28 | 691 | 0.1+ | 0.0 | 2009 12 11 | G96 | 0.4− | 0.0 |
| 2005 10 06 | G96 | 0.1+ | 0.0 | 2008 04 28 | 691 | 0.3− | 0.2− | | | | |

**(229343)∗ 2005 QG$_{33}$**

Discovered 2005 Aug. 25 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 45.78459 | | (2000.0) | | | |
| $n$ | 0.27138618 | $\omega$ | 60.79947 | | +0.96399987 | −0.26555887 |
| $a$ | 2.3627126 | $\Omega$ | 314.59697 | | +0.23689498 | +0.88081464 |
| $e$ | 0.2164758 | $i$ | 1.08777 | | +0.12076843 | +0.39197455 |
| $P$ | 3.63 | $H$ | 17.1 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 08 06 | 644 | 0.1− | 0.2− | 2005 09 30 | G96 | 0.1− | 0.5− | 2008 05 08 | G96 | 0.2− | 0.1+ |
| 2005 08 06 | 644 | 0.3− | 0.1+ | 2005 09 30 | 699 | 0.1− | 1.1+ | 2008 05 08 | G96 | (0.0 | 2.2−) |
| 2005 08 06 | 644 | 0.0 | 0.0 | 2005 09 30 | 699 | 0.6+ | 0.3+ | 2009 11 08 | G96 | 0.4+ | 0.1− |
| 2005 08 25 | 644 | 0.3− | 0.1− | 2005 09 30 | 699 | 0.4− | 1.2+ | 2009 11 08 | G96 | 0.4+ | 0.3− |
| 2005 08 25 | 644 | 0.2− | 0.1+ | 2005 10 27 | G96 | 0.3− | 0.4− | 2009 11 08 | G96 | 0.3+ | 0.2+ |
| 2005 08 25 | 644 | 0.3− | 0.1+ | 2005 10 27 | G96 | 0.1+ | 0.1− | 2009 11 08 | G96 | 0.4+ | 0.0 |
| 2005 08 29 | 704 | 0.1− | 0.5+ | 2005 10 27 | G96 | 0.0 | 0.5− | 2009 11 09 | 691 | 0.0 | 0.1+ |
| 2005 08 29 | 704 | 0.3+ | 1.0+ | 2005 10 27 | G96 | 0.3+ | 0.2− | 2009 11 09 | 691 | 0.3− | 0.1+ |
| 2005 08 29 | 704 | 0.1− | 0.2+ | 2007 02 21 | G96 | 0.1− | 0.2− | 2009 11 09 | 691 | 0.2+ | 0.1− |
| 2005 08 29 | 704 | 0.3− | 1.0+ | 2007 02 21 | G96 | 0.3+ | 0.1− | 2009 11 11 | 704 | 0.9+ | 0.3+ |
| 2005 08 29 | 704 | 0.1+ | 1.2+ | 2007 02 21 | G96 | 0.1+ | 0.0 | 2009 11 11 | 704 | 0.1+ | 0.2− |
| 2005 08 29 | 699 | 0.4− | 0.3+ | 2007 02 21 | G96 | 0.6+ | 0.0 | 2009 11 11 | 704 | 0.3+ | 1.1− |
| 2005 08 29 | 699 | 0.1− | 0.6+ | 2007 02 21 | 695 | 0.4+ | 0.4+ | 2009 11 11 | 704 | 0.5+ | 0.1+ |
| 2005 08 29 | 699 | 0.1− | 0.2− | 2007 02 21 | 695 | 0.2+ | 0.8+ | 2009 11 17 | 691 | 0.2+ | 0.0 |
| 2005 08 29 | 699 | 0.2− | 0.4− | 2007 03 09 | G96 | 0.5+ | 0.1− | 2009 11 17 | 691 | 0.4− | 0.1− |
| 2005 09 23 | 691 | 0.0 | 0.0 | 2007 03 09 | G96 | 0.2+ | 0.2− | 2009 11 17 | 691 | 0.1− | 0.2− |
| 2005 09 23 | 691 | 0.0 | 0.1+ | 2007 03 09 | G96 | 0.0 | 0.1+ | 2009 11 21 | 691 | 0.0 | 0.1+ |
| 2005 09 23 | 691 | 0.1+ | 0.3+ | 2007 03 09 | G96 | 0.3+ | 0.8+ | 2009 11 21 | 691 | 0.6− | 0.7+ |
| 2005 09 23 | 703 | 0.1+ | 0.7+ | 2007 03 17 | 691 | 0.2− | 0.5+ | 2009 11 21 | 691 | 0.1− | 0.2− |
| 2005 09 23 | 703 | (1.7− | 0.3−) | 2007 03 17 | 691 | 0.3+ | 0.4+ | 2009 11 25 | 691 | 0.6− | 0.0 |
| 2005 09 23 | 703 | 0.9− | 1.3− | 2007 03 17 | 691 | 0.1+ | 0.1− | 2009 11 25 | 691 | 0.1− | 0.0 |
| 2005 09 23 | 703 | 1.2− | 0.1− | 2007 03 20 | 691 | 0.2− | 0.0 | 2009 11 25 | 691 | 0.5+ | 0.1+ |
| 2005 09 30 | G96 | 0.2− | 0.3− | 2007 03 20 | 691 | 0.1+ | 0.3+ | 2009 12 16 | G96 | 0.8+ | 0.1− |
| 2005 09 30 | G96 | 0.2+ | 0.2− | 2007 03 20 | 691 | 0.1− | 0.4+ | 2009 12 16 | G96 | 0.5+ | 0.2− |
| 2005 09 30 | 699 | 1.2+ | 0.3+ | 2008 05 08 | G96 | 0.1− | 0.6+ | 2009 12 16 | G96 | 0.4+ | 0.1+ |
| 2005 09 30 | G96 | 0.1+ | 0.4− | 2008 05 08 | G96 | 0.6+ | 0.4+ | 2009 12 16 | G96 | 0.2+ | 0.1− |

**(229344)∗ 2005 QH$_{38}$ = 1995 UE$_{54}$**

Discovered 2005 Aug. 25 by NEAT at Palomar.

Id. G. V. Williams (*MPO* 87039)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 120.00750 | | (2000.0) | | | |
| $n$ | 0.29065365 | $\omega$ | 82.94423 | | +0.85156105 | +0.52322729 |
| $a$ | 2.2571073 | $\Omega$ | 245.50189 | | −0.49410961 | +0.78009925 |
| $e$ | 0.1365788 | $i$ | 2.06677 | | −0.17521267 | +0.34304280 |
| $P$ | 3.39 | $H$ | 17.4 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 10 15 | 691 | 0.2− | 0.3+ | 2005 09 09 | 704 | 0.2− | 0.2+ | 2005 10 07 | 703 | 0.1− | 0.1− |
| 1995 10 15 | 691 | 0.2− | 0.4− | 2005 09 09 | 704 | 0.2+ | 0.6+ | 2005 11 01 | G96 | 0.4+ | 0.2− |
| 1995 10 15 | 691 | 0.0 | 0.3− | 2005 09 09 | 704 | 0.3− | 1.2+ | 2005 11 01 | G96 | 0.4+ | 0.1− |
| 1995 10 22 | 691 | 0.5+ | 0.2+ | 2005 09 09 | 704 | 0.5− | 0.5− | 2005 11 01 | G96 | 0.3− | 0.2− |
| 1995 10 22 | 691 | 0.1+ | 0.1+ | 2005 09 09 | 704 | 1.2+ | 0.8+ | 2005 11 01 | G96 | 0.3− | 0.3− |
| 1995 10 22 | 691 | 0.4− | 0.2− | 2005 09 09 | 704 | 0.6+ | 0.1− | 2007 02 10 | G96 | 0.3+ | 0.0 |
| 2002 11 26 | 291 | 0.3− | 0.0 | 2005 09 23 | 703 | 0.1+ | 0.1− | 2007 02 10 | G96 | 0.4+ | 0.3+ |
| 2002 11 26 | 291 | 0.4− | 0.0 | 2005 09 23 | 703 | 0.6− | 0.4− | 2007 02 10 | G96 | 0.3− | 0.2+ |
| 2002 11 26 | 291 | 0.1− | 0.1+ | 2005 09 23 | 703 | 0.2+ | 0.8− | 2007 02 10 | G96 | 0.3+ | 0.0 |
| 2002 12 05 | 704 | 0.2− | 0.0 | 2005 09 23 | 703 | 1.1+ | 0.7− | 2007 03 15 | G96 | 0.3+ | 0.1− |
| 2002 12 05 | 704 | 0.1− | 1.1− | 2005 09 23 | 703 | 0.5− | 1.2+ | 2007 03 15 | G96 | 0.1+ | 0.0 |
| 2002 12 05 | 704 | 0.3+ | 0.7− | 2005 09 23 | 703 | 0.7+ | 0.3+ | 2007 03 15 | G96 | 0.1+ | 0.1− |
| 2002 12 05 | 704 | 0.7+ | 0.2+ | 2005 09 23 | 703 | 0.4− | 1.2+ | 2007 03 15 | G96 | 0.5− | 0.0 |
| 2002 12 10 | 291 | 0.2− | 0.0 | 2005 09 23 | 703 | 0.3− | 0.6+ | 2009 10 15 | G96 | 0.1+ | 0.3+ |
| 2002 12 10 | 291 | 0.1+ | 0.4− | 2005 09 24 | A50 | 0.0 | 0.0 | 2009 10 15 | G96 | 0.3+ | 0.6+ |
| 2002 12 10 | 291 | 1.3+ | 0.2+ | 2005 09 24 | A50 | 0.1+ | 0.2+ | 2009 10 15 | G96 | 0.5+ | 0.3− |
| 2005 08 25 | 644 | 0.1− | 0.1− | 2005 09 29 | 699 | 0.8− | 0.4− | 2009 10 15 | G96 | 0.3− | 0.7− |
| 2005 08 25 | 644 | 0.1− | 0.0 | 2005 09 29 | 699 | 0.4+ | 1.3− | 2009 12 16 | G96 | 0.4+ | 0.1+ |
| 2005 08 25 | 644 | 0.0 | 0.1− | 2005 09 29 | 699 | 0.6− | 0.5+ | 2009 12 16 | G96 | 0.1+ | 0.2− |
| 2005 08 29 | 691 | 0.0 | 0.2− | 2005 09 29 | 699 | 0.6− | 0.3+ | 2009 12 16 | G96 | 0.3+ | 0.5− |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 08 29 | 691 | 0.1− | 0.1+ | 2005 10 07 | 703 | 0.3− | 0.8− | 2009 12 20 | 691 | 0.1− | 0.3+ | | |
| 2005 08 29 | 691 | 0.1+ | 0.2+ | 2005 10 07 | 703 | (0.8+ | 2.0−) | 2009 12 20 | 691 | 0.6− | 0.2+ | | |
| 2005 09 09 | 704 | 0.8− | 0.9+ | 2005 10 07 | 703 | 0.3+ | 0.5− | 2009 12 20 | 691 | 0.1− | 0.5+ | | |

**(229345)∗ 2005 QJ$_{45}$**

Discovered 2005 Aug. 26 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 278.39174 | | (2000.0) | | | |
| $n$ | 0.18517030 | $\omega$ | 256.77070 | | +0.99644333 | −0.06792422 |
| $a$ | 3.0485161 | $\Omega$ | 107.10696 | | +0.08189251 | +0.92004738 |
| $e$ | 0.0978219 | $i$ | 2.99095 | | −0.01985711 | +0.38587448 |
| $P$ | 5.32 | $H$ | 15.7 | $G$ 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 10 07 | 699 | 1.6− | 0.7+ | 2005 08 29 | 704 | 0.8− | 0.2+ | 2008 02 28 | G96 | 0.8+ | 0.1− | | |
| 2000 10 07 | 699 | 2.9+ | 0.4− | 2005 08 29 | 704 | 1.0− | 0.3− | 2008 02 28 | G96 | 0.4+ | 0.1− | | |
| 2000 10 07 | 699 | 0.4+ | 0.1+ | 2005 08 30 | 691 | 0.4− | 0.6+ | 2008 02 28 | G96 | 0.0 | 0.0 | | |
| 2000 10 07 | 699 | 0.6+ | 0.3+ | 2005 08 30 | 691 | 0.3− | 0.4+ | 2008 04 06 | G96 | 0.3+ | 0.1+ | | |
| 2001 12 14 | 291 | 0.9− | 0.7+ | 2005 08 30 | 691 | 0.3− | 0.3+ | 2008 04 06 | G96 | 0.5+ | 0.2+ | | |
| 2001 12 14 | 291 | 1.0− | 0.9+ | 2005 09 01 | 691 | 0.1− | 0.5+ | 2008 04 06 | G96 | 0.0 | 0.0 | | |
| 2001 12 14 | 291 | 0.4− | 0.6+ | 2005 09 01 | 691 | 0.4− | 0.5+ | 2008 04 06 | G96 | 0.2− | 0.1+ | | |
| 2002 01 13 | 291 | 0.2− | 0.1+ | 2005 09 01 | 691 | 0.3− | 0.5+ | 2009 04 26 | 691 | 0.3− | 0.8+ | | |
| 2002 01 13 | 291 | 0.2− | 0.4+ | 2005 09 22 | 644 | 0.1− | 0.0 | 2009 04 26 | 691 | 0.0 | 0.0 | | |
| 2002 01 13 | 291 | 0.1+ | 0.3+ | 2005 09 22 | 644 | 0.0 | 0.3+ | 2009 04 26 | 691 | 0.3+ | 0.2− | | |
| 2002 01 14 | 645 | 0.2+ | 0.1− | 2005 09 22 | 644 | 0.2− | 0.3+ | 2009 05 17 | G96 | 0.4+ | 0.3+ | | |
| 2002 01 14 | 645 | 0.2+ | 0.1− | 2007 01 24 | G96 | 0.1+ | 0.3+ | 2009 05 17 | G96 | 0.0 | 0.1+ | | |
| 2005 08 26 | 644 | 0.6− | 0.0 | 2007 01 24 | G96 | 0.5+ | 0.1− | 2009 05 17 | G96 | 0.7+ | 0.2+ | | |
| 2005 08 26 | 644 | 0.1− | 0.0 | 2007 01 24 | G96 | 0.3+ | 0.2− | 2009 05 17 | G96 | 0.4+ | 0.1− | | |
| 2005 08 26 | 644 | 0.2− | 0.1− | 2007 01 24 | G96 | 0.2+ | 0.0 | 2009 05 30 | G96 | 0.1− | 0.4+ | | |
| 2005 08 28 | 691 | 0.1+ | 0.3+ | 2008 02 12 | 691 | 0.2+ | 0.2+ | 2009 05 30 | G96 | 0.3− | 0.4+ | | |
| 2005 08 28 | 691 | 0.1+ | 0.2+ | 2008 02 12 | 691 | 0.1− | 0.4+ | 2009 05 30 | G96 | 0.1+ | 0.5+ | | |
| 2005 08 28 | 691 | 0.0 | 0.3+ | 2008 02 12 | 691 | 0.2+ | 0.8+ | 2009 05 30 | G96 | 0.1− | 0.6+ | | |
| 2005 08 29 | 704 | 0.4+ | 1.4+ | 2008 02 28 | G96 | 0.2+ | 0.1+ | | | | | | |

**(229346)∗ 2005 QF$_{49}$**

Discovered 2005 Aug. 26 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 64.24627 | | (2000.0) | | | |
| $n$ | 0.26087279 | $\omega$ | 40.18925 | | +0.84330568 | +0.53694522 |
| $a$ | 2.4257732 | $\Omega$ | 287.32054 | | −0.49904434 | +0.76652487 |
| $e$ | 0.1985612 | $i$ | 1.37578 | | −0.19947500 | +0.35232011 |
| $P$ | 3.78 | $H$ | 17.2 | $G$ 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 06 17 | G96 | 0.1− | 0.6− | 2005 09 08 | 704 | 0.3+ | 0.5+ | 2008 05 05 | G96 | 0.2+ | 0.3+ | | |
| 2005 06 17 | G96 | 0.3− | 0.5− | 2005 09 13 | 691 | 0.1+ | 0.1+ | 2008 05 05 | G96 | 0.1− | 0.4+ | | |
| 2005 08 26 | 699 | 0.2+ | 0.9− | 2005 09 13 | 691 | 0.0 | 0.1− | 2008 05 05 | G96 | 0.0 | 0.2− | | |
| 2005 08 26 | 699 | 0.7− | 0.0 | 2005 09 13 | 691 | 0.0 | 0.0 | 2008 05 05 | G96 | 0.2+ | 0.2+ | | |
| 2005 08 26 | 699 | 0.3+ | 1.1+ | 2005 09 14 | 703 | 0.5+ | 0.1− | 2009 10 17 | J75 | 0.3− | 0.2− | | |
| 2005 08 26 | 699 | (1.6− | 0.2−) | 2005 09 14 | 703 | 1.3− | 0.3+ | 2009 10 17 | J75 | (1.8+ | 0.7−) | | |
| 2005 08 29 | 699 | 0.2+ | 0.5+ | 2005 09 14 | 703 | 0.0 | 0.8+ | 2009 10 17 | J75 | 0.9+ | 0.3− | | |
| 2005 08 29 | 699 | 0.6− | 0.4− | 2005 09 14 | 703 | 0.9+ | 0.8− | 2009 10 21 | G96 | 0.4+ | 0.0 | | |
| 2005 08 29 | 699 | 0.3+ | 1.0+ | 2005 09 28 | 644 | 0.1+ | 0.0 | 2009 10 21 | G96 | 0.2+ | 0.1− | | |
| 2005 08 29 | 699 | 0.4− | 0.2− | 2005 09 28 | 644 | 0.3+ | 0.2+ | 2009 10 21 | G96 | 0.3+ | 0.2+ | | |
| 2005 08 31 | 691 | 0.1+ | 0.2− | 2005 09 28 | 644 | 0.0 | 0.2+ | 2009 10 21 | G96 | 0.1+ | 0.0 | | |
| 2005 08 31 | 691 | 0.2+ | 0.2− | 2005 10 01 | 703 | 0.3+ | 0.1+ | 2009 10 25 | 691 | 0.3− | 0.1+ | | |
| 2005 08 31 | 691 | 0.2+ | 0.2− | 2005 10 01 | 703 | 0.7− | 0.4− | 2009 10 25 | 691 | 0.5− | 0.1+ | | |
| 2005 09 06 | 699 | 0.0 | 0.0 | 2005 10 01 | 703 | 0.1− | 1.4− | 2009 10 25 | 691 | 0.0 | 0.0 | | |
| 2005 09 06 | 699 | 0.3+ | 0.2+ | 2005 10 01 | 703 | 1.1− | 0.7− | 2009 10 27 | J75 | 1.1+ | 0.7− | | |
| 2005 09 06 | 699 | 0.5− | 0.0 | 2007 01 24 | G96 | 0.3+ | 0.2− | 2009 10 27 | J75 | 0.4− | 0.9+ | | |
| 2005 09 06 | 704 | 0.1+ | 0.1+ | 2007 01 24 | G96 | 0.3− | 0.0 | 2009 10 27 | J75 | 0.5+ | 0.9+ | | |
| 2005 09 06 | 704 | 0.3− | 0.3+ | 2007 01 24 | G96 | 0.4+ | 0.5− | 2009 12 18 | G96 | 0.3− | 0.0 | | |
| 2005 09 06 | 699 | (1.9+ | 0.1+) | 2007 01 24 | G96 | 0.4+ | 0.1+ | 2009 12 18 | G96 | 0.6+ | 0.2+ | | |
| 2005 09 06 | 704 | 0.2− | 0.1− | 2007 02 13 | G96 | 0.0 | 0.6− | 2009 12 18 | G96 | 0.2− | 0.6− | | |
| 2005 09 08 | 704 | 0.6− | 0.9+ | 2007 02 13 | G96 | 0.0 | 0.6+ | 2009 12 18 | G96 | 0.1+ | 0.3− | | |
| 2005 09 08 | 704 | 0.1+ | 0.4+ | 2007 02 13 | G96 | 0.9− | 0.4− | | | | | | |
| 2005 09 08 | 704 | 0.9+ | 0.1+ | 2007 02 13 | G96 | 0.3− | 0.1− | | | | | | |

**(229347)∗ 2005 QC$_{50}$**

Discovered 2005 Aug. 26 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 75.07137 | | (2000.0) | | | |
| $n$ | 0.27084005 | $\omega$ | 244.63691 | | +0.95644872 | +0.27300850 |
| $a$ | 2.3658877 | $\Omega$ | 99.38131 | | −0.21571926 | +0.89950950 |
| $e$ | 0.1510427 | $i$ | 6.01027 | | −0.19664954 | +0.34109971 |
| $P$ | 3.64 | $H$ | 16.2 | $G$ 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 12 27 | 691 | 0.3+ | 0.1− | 2005 09 23 | 703 | 1.1− | 0.8− | 2008 05 03 | G96 | 0.0 | 0.0 | | |
| 1995 12 27 | 691 | 0.2− | 0.0 | 2005 09 27 | 704 | 0.2+ | 0.8+ | 2008 05 28 | G96 | 0.1+ | 0.3− | | |
| 1995 12 27 | 691 | 0.3− | 0.2− | 2005 09 27 | 704 | 0.2+ | 0.3+ | 2008 05 28 | G96 | 0.0 | 0.1− | | |
| 2001 06 25 | 644 | 0.9+ | 1.0+ | 2005 09 27 | 704 | 1.1+ | 0.5+ | 2008 05 28 | G96 | 0.4+ | 0.1− | | |
| 2001 06 25 | 644 | 0.8+ | 1.2+ | 2005 09 27 | 704 | 1.0+ | 0.2+ | 2008 05 28 | G96 | 0.1+ | 0.1− | | |
| 2001 06 25 | 644 | 1.1+ | 0.8+ | 2005 09 27 | 704 | 0.2− | 0.9+ | 2008 06 13 | 691 | 0.5− | 0.2+ | | |
| 2005 08 01 | E12 | 0.4− | 0.4− | 2005 10 05 | 703 | 0.3− | 0.2− | 2008 06 13 | 691 | 0.1+ | 0.4+ | | |
| 2005 08 01 | E12 | 0.6− | 0.3− | 2005 10 05 | 703 | 0.7− | 0.3+ | 2008 06 13 | 691 | 0.1+ | 0.5+ | | |
| 2005 08 01 | E12 | (1.9+ | 1.3−) | 2005 10 05 | 703 | 0.4− | 0.6+ | 2009 11 19 | 704 | 0.2− | 0.2+ | | |
| 2005 08 01 | E12 | 0.7+ | 0.3+ | 2005 10 05 | 703 | 0.1− | 0.3− | 2009 11 19 | 704 | 0.1− | 0.5− | | |
| 2005 08 26 | 644 | 0.1− | 0.1− | 2005 10 08 | 699 | 0.1− | 0.4+ | 2009 11 19 | 704 | 0.4+ | 0.4+ | | |
| 2005 08 26 | 644 | 0.0 | 0.2− | 2005 10 08 | 699 | 0.3+ | 0.5+ | 2009 11 19 | 704 | 0.5+ | 0.4+ | | |
| 2005 08 26 | 644 | 0.2− | 0.0 | 2005 10 08 | 699 | 0.1− | 0.4+ | 2009 11 19 | 704 | 0.2− | 0.0 | | |
| 2005 08 27 | 699 | 0.1+ | 0.5+ | 2005 10 08 | 699 | 0.2− | 0.5+ | 2009 11 20 | 704 | 0.8+ | 0.1+ | | |
| 2005 08 27 | 699 | 0.6+ | 0.1+ | 2005 10 10 | 703 | 0.3− | 0.0 | 2009 11 20 | 704 | 0.4+ | 0.8− | | |
| 2005 08 27 | 699 | 0.4− | 0.3+ | 2005 10 10 | 703 | 0.0 | 0.5− | 2009 11 20 | 704 | 0.4− | 0.1+ | | |
| 2005 08 27 | 699 | 1.0+ | 0.1− | 2005 10 10 | 703 | 0.9− | 0.8+ | 2009 11 20 | 704 | 0.1− | 1.3− | | |
| 2005 09 03 | 703 | 0.9− | 0.5+ | 2005 10 10 | 703 | 0.1− | 0.3− | 2009 11 25 | G96 | 0.3− | 0.0 | | |
| 2005 09 03 | 703 | 0.8− | 0.6+ | 2005 10 31 | 699 | 1.1+ | 0.1+ | 2009 11 25 | G96 | 0.2+ | 0.1− | | |
| 2005 09 03 | 703 | 0.2− | 0.1− | 2005 10 31 | 699 | 0.5− | 0.3− | 2009 11 25 | G96 | 0.1− | 0.2− | | |
| 2005 09 03 | 703 | 1.0+ | 0.3+ | 2005 10 31 | 699 | 0.2+ | 0.6+ | 2009 11 25 | G96 | 0.1+ | 0.1− | | |
| 2005 09 05 | 608 | 0.9− | 0.6− | 2005 10 31 | 644 | 0.1− | 0.0 | 2009 12 11 | 703 | 0.3+ | 0.1+ | | |
| 2005 09 05 | 608 | 1.2− | 0.5− | 2005 10 31 | 699 | 0.7− | 0.5+ | 2009 12 11 | 703 | 1.2− | 0.8+ | | |
| 2005 09 05 | 608 | 0.8− | 1.1− | 2005 10 31 | 644 | 0.2− | 0.3− | 2009 12 11 | 703 | 0.6− | 0.8+ | | |
| 2005 09 13 | 703 | 0.6− | 0.4+ | 2005 10 31 | 644 | 0.2− | 0.3− | 2009 12 11 | 703 | 0.2− | 0.2+ | | |
| 2005 09 13 | 703 | 0.4− | 0.5− | 2007 01 26 | 691 | 0.1− | 0.9+ | 2009 12 12 | 704 | 0.8+ | 0.1+ | | |
| 2005 09 13 | 703 | 0.1− | 0.1− | 2007 01 26 | 691 | 0.1− | 0.3+ | 2009 12 12 | 704 | 2.1+ | 1.6+ | | |
| 2005 09 13 | 703 | (3.7− | 1.0−) | 2007 01 26 | 691 | 0.3+ | 0.5+ | 2009 12 12 | 704 | 0.0 | 0.1+ | | |
| 2005 09 23 | 703 | 0.3+ | 0.4− | 2008 05 03 | G96 | 0.4+ | 0.0 | 2009 12 12 | 704 | 0.6+ | 2.1+ | | |
| 2005 09 23 | 703 | 0.2+ | 0.5− | 2008 05 03 | G96 | 0.1+ | 0.2+ | | | | | | |
| 2005 09 23 | 703 | 1.1+ | 0.3− | 2008 05 03 | G96 | 0.4+ | 0.3+ | | | | | | |

**(229348)∗ 2005 QH$_{51}$**

Discovered 2005 Aug. 26 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 100.93839 | | (2000.0) | | | |
| $n$ | 0.27864177 | $\omega$ | 216.07919 | | +0.82868899 | +0.54764385 |
| $a$ | 2.3215172 | $\Omega$ | 110.31863 | | −0.48031301 | +0.80183329 |
| $e$ | 0.1514562 | $i$ | 7.08019 | | −0.28735685 | +0.23905980 |
| $P$ | 3.54 | $H$ | 16.4 | $G$ 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 09 21 | 699 | 0.2+ | 0.6+ | 2005 09 27 | 704 | 0.1− | 0.5− | 2008 05 07 | G96 | 0.0 | 0.0 | | |
| 1998 09 21 | 699 | 0.5+ | 1.4+ | 2005 09 27 | 704 | 0.1− | 0.5+ | 2008 05 07 | G96 | 0.1+ | 0.1+ | | |
| 1998 09 21 | 699 | 0.7− | 0.5+ | 2005 09 27 | 704 | 0.1− | 0.2+ | 2008 05 07 | G96 | 0.2+ | 0.0 | | |
| 2004 03 14 | 691 | 0.1+ | 0.2+ | 2005 09 27 | 704 | 0.3− | 0.3− | 2008 05 07 | G96 | 0.2+ | 0.1− | | |
| 2004 03 14 | 691 | 0.1+ | 0.2+ | 2005 09 27 | 704 | 0.2+ | 0.0 | 2008 05 27 | G96 | 0.0 | 0.2− | | |
| 2004 03 14 | 691 | 0.1− | 0.4+ | 2005 10 05 | 703 | 0.3− | 0.1+ | 2008 05 27 | G96 | 0.2+ | 0.1+ | | |
| 2005 08 05 | E12 | 0.0 | 0.3− | 2005 10 05 | 703 | 0.0 | 0.2− | 2008 05 27 | G96 | 0.0 | 0.1− | | |
| 2005 08 05 | E12 | 0.1+ | 0.0 | 2005 10 05 | 703 | 0.2− | 0.6+ | 2008 06 01 | 704 | 0.4+ | 0.9+ | | |
| 2005 08 05 | E12 | 0.3− | 0.2− | 2005 10 05 | 703 | 0.8+ | 0.3+ | 2008 06 01 | 704 | 0.6− | 0.2− | | |
| 2005 08 05 | E12 | 0.3− | 0.7− | 2005 10 05 | 703 | 0.3− | 0.6− | 2008 06 01 | 704 | (1.0+ | 1.9+) | | |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 08 26 | 644 | 0.1+ | 0.0 | 2005 10 05 | 703 | 0.6− | 0.3+ | 2008 06 01 | 704 | 0.1+ | 0.0 |
| 2005 08 26 | 644 | 0.1+ | 0.1+ | 2005 10 05 | 703 | 0.3− | 0.1− | 2008 06 01 | 704 | 0.4+ | 0.6+ |
| 2005 08 26 | 644 | 0.0 | 0.1+ | 2005 10 05 | 703 | 0.5− | 0.9+ | 2008 06 24 | 691 | 0.1+ | 0.1− |
| 2005 08 27 | 699 | 0.4− | 0.1+ | 2005 10 08 | 699 | 0.3− | 0.8+ | 2008 06 24 | 691 | 0.2− | 0.7+ |
| 2005 08 27 | 699 | 0.0 | 0.6+ | 2005 10 08 | 699 | 1.5− | 0.2+ | 2008 06 24 | 691 | 0.1+ | 0.1+ |
| 2005 08 27 | 699 | 0.2+ | 0.1+ | 2005 10 08 | 699 | (1.5+ | 1.1+) | 2009 11 27 | G96 | 0.5+ | 0.0 |
| 2005 09 03 | 703 | 0.3+ | 0.4+ | 2005 10 08 | 699 | 0.1+ | 0.2+ | 2009 11 27 | G96 | 0.3+ | 0.1− |
| 2005 09 03 | 703 | 0.3− | 0.4+ | 2007 01 28 | 691 | 0.1− | 0.3+ | 2009 11 27 | G96 | 0.0 | 0.1− |
| 2005 09 03 | 703 | 0.4− | 0.1+ | 2007 01 28 | 691 | 0.1+ | 0.4+ | 2009 11 27 | G96 | 0.0 | 0.5− |
| 2005 09 03 | 703 | 0.1+ | 1.2+ | 2007 01 28 | 691 | 0.1+ | 0.5+ | 2009 12 12 | 704 | 0.9+ | 1.1+ |
| 2005 09 13 | 703 | 0.3+ | 0.5− | 2008 05 06 | G96 | 0.4+ | 0.1− | 2009 12 12 | 704 | 0.6+ | 0.5+ |
| 2005 09 13 | 703 | 0.1− | 0.2− | 2008 05 06 | G96 | 0.1− | 0.1+ | 2009 12 12 | 704 | 0.8− | 0.3+ |
| 2005 09 13 | 703 | 0.1+ | 0.3− | 2008 05 06 | G96 | 0.0 | 0.0 | | | | |
| 2005 09 13 | 703 | 0.8+ | 0.1+ | 2008 05 06 | G96 | 0.2+ | 0.0 | | | | |

**(229349)∗ 2005 QR$_{52}$**

Discovered 2005 Aug. 27 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 11.61371 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26404208 | $\omega$ | 0.19422 | | +0.56320888 | −0.82582397 | |
| $a$ | 2.4063232 | $\Omega$ | 55.52789 | | +0.75808222 | +0.50268609 | |
| $e$ | 0.1598450 | $i$ | 1.97903 | | +0.32879646 | +0.25558063 | |
| $P$ | 3.73 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 04 27 | 691 | 0.3− | 0.1− | 2005 10 06 | G96 | 0.1+ | 0.4− | 2009 11 08 | 703 | 0.8+ | 0.9− |
| 2000 04 27 | 691 | 0.0 | 0.3− | 2005 10 06 | G96 | 0.1+ | 0.4− | 2009 11 08 | 703 | 0.6− | 0.8− |
| 2000 04 27 | 691 | 1.3+ | 0.6+ | 2005 10 06 | G96 | 0.2+ | 0.2− | 2009 11 08 | 703 | 0.5+ | 0.3+ |
| 2001 08 14 | 608 | 0.1− | 1.4− | 2005 10 13 | 691 | 0.2− | 0.1+ | 2009 11 08 | 703 | 0.4− | 0.4− |
| 2001 08 14 | 608 | 0.6− | 1.2− | 2005 10 13 | 691 | 0.3− | 0.3+ | 2009 11 09 | J75 | 0.6+ | 0.2− |
| 2001 08 14 | 608 | 0.1+ | 0.3− | 2005 10 13 | 691 | 0.3− | 0.1+ | 2009 11 09 | J75 | 0.1− | 0.6− |
| 2003 01 27 | 704 | (0.8− | 3.7+) | 2005 10 29 | G96 | 0.2+ | 0.2− | 2009 11 09 | J75 | 0.6+ | 0.8− |
| 2003 01 27 | 704 | (1.9− | 2.4+) | 2005 10 29 | G96 | 0.3− | 0.2− | 2009 11 11 | 691 | 0.2− | 0.1− |
| 2003 01 27 | 704 | (1.9− | 3.9+) | 2005 10 29 | G96 | 0.1+ | 0.1− | 2009 11 11 | 691 | 0.2− | 0.0 |
| 2003 01 27 | 704 | (1.1− | 2.5+) | 2005 10 29 | G96 | 0.4− | 0.4− | 2009 11 11 | 691 | 0.2− | 0.0 |
| 2003 01 27 | 704 | (1.9− | 3.4+) | 2005 12 01 | G96 | 0.2+ | 0.3− | 2009 11 11 | G96 | 0.1+ | 0.0 |
| 2005 08 27 | 691 | 0.1+ | 0.0 | 2005 12 01 | G96 | 0.2− | 0.3− | 2009 11 11 | G96 | 0.3+ | 0.0 |
| 2005 08 27 | 691 | 0.2+ | 0.0 | 2005 12 01 | G96 | 0.6− | 0.2− | 2009 11 11 | G96 | 0.4+ | 0.0 |
| 2005 08 27 | 691 | 0.1+ | 0.1+ | 2005 12 01 | G96 | 0.5− | 0.7− | 2009 11 11 | G96 | 0.1+ | 0.1+ |
| 2005 08 29 | 699 | (0.8− | 1.6+) | 2007 02 09 | 691 | 0.1+ | 0.4+ | 2009 11 11 | J75 | 0.6+ | 0.8− |
| 2005 08 29 | 699 | 0.3− | 0.4+ | 2007 02 09 | 691 | 0.0 | 0.6+ | 2009 11 11 | J75 | 0.5+ | 0.4− |
| 2005 08 29 | 699 | 0.2− | 0.2− | 2007 02 09 | 691 | 0.2− | 0.7+ | 2009 11 11 | J75 | 0.3+ | 0.3− |
| 2005 08 29 | 699 | 0.7− | 1.1+ | 2007 04 23 | G96 | 0.1+ | 0.3+ | 2009 11 13 | J75 | 0.5+ | 0.3+ |
| 2005 09 11 | 691 | 0.4− | 0.4+ | 2007 04 23 | G96 | 0.5+ | 0.6+ | 2009 11 13 | J75 | 0.3+ | 0.1− |
| 2005 09 11 | 691 | 0.3− | 0.3+ | 2007 04 23 | G96 | 0.4+ | 0.3+ | 2009 11 13 | J75 | 0.6+ | 0.2− |
| 2005 09 11 | 691 | 0.4− | 0.4+ | 2007 04 23 | G96 | 0.4− | 0.0 | 2009 11 14 | J75 | 0.1+ | 0.0 |
| 2005 09 23 | 703 | (0.9+ | 2.3+) | 2009 09 22 | G96 | 0.1+ | 0.5− | 2009 11 14 | J75 | 0.3+ | 0.1+ |
| 2005 09 23 | 703 | (0.2+ | 2.9+) | 2009 09 22 | G96 | 0.4+ | 0.3− | 2009 11 14 | J75 | 0.5+ | 0.3− |
| 2005 09 23 | 703 | (0.1− | 1.8+) | 2009 09 22 | G96 | 0.2+ | 0.4− | 2009 11 15 | 703 | 0.1− | 0.1+ |
| 2005 09 23 | 703 | (1.5+ | 2.4+) | 2009 09 22 | G96 | 0.5+ | 0.3− | 2009 11 15 | 703 | 0.0 | 0.7+ |
| 2005 09 23 | 699 | (1.8− | 0.1+) | 2009 09 22 | G96 | 0.4+ | 0.5− | 2009 11 15 | 703 | 0.0 | 0.2+ |
| 2005 09 23 | 699 | 0.3+ | 0.4+ | 2009 09 22 | G96 | 0.5+ | 0.3− | 2009 11 15 | 703 | 0.5+ | 0.0 |
| 2005 09 23 | 699 | 0.2− | 0.9− | 2009 09 22 | G96 | 0.4+ | 0.3− | 2009 11 17 | 704 | 0.9+ | 0.2+ |
| 2005 09 23 | 699 | 0.7+ | 0.3+ | 2009 09 22 | G96 | 0.5+ | 0.5− | 2009 11 17 | 704 | 0.7+ | 0.5+ |
| 2005 09 24 | 644 | 0.0 | 0.1− | 2009 10 17 | J75 | 0.2+ | 0.0 | 2009 11 17 | 704 | 0.8+ | 0.6+ |
| 2005 09 24 | 644 | 0.2+ | 0.1− | 2009 10 17 | J75 | 0.1+ | 0.3− | 2009 11 17 | 704 | 0.4+ | 0.5+ |
| 2005 09 24 | 644 | 0.1− | 0.2− | 2009 10 17 | J75 | 0.7+ | 0.1+ | 2009 11 17 | 704 | 0.5+ | 0.6+ |
| 2005 09 30 | 699 | 0.6− | 0.0 | 2009 10 18 | G96 | 0.2+ | 0.2− | 2009 11 21 | 704 | 0.3− | 0.2− |
| 2005 09 30 | 699 | 0.1− | 0.7− | 2009 10 18 | G96 | 0.0 | 0.3− | 2009 11 21 | 704 | 0.8+ | 0.2+ |
| 2005 09 30 | 699 | 0.2− | 0.6− | 2009 10 18 | G96 | 0.3+ | 0.3− | 2009 11 21 | 704 | 0.5− | 0.4+ |
| 2005 09 30 | 699 | 0.4+ | 0.8− | 2009 10 18 | G96 | 0.0 | 0.9− | 2009 11 22 | 703 | 0.8+ | 0.3− |
| 2005 10 01 | 704 | 0.4− | 1.1+ | 2009 10 23 | 691 | 0.4− | 0.1+ | 2009 11 22 | 703 | 0.2− | 0.4− |
| 2005 10 01 | 704 | 0.7− | 0.3+ | 2009 10 23 | 691 | 0.6− | 0.1+ | 2009 11 22 | 703 | 0.4− | 0.4− |
| 2005 10 01 | 704 | 0.3− | 0.0 | 2009 10 23 | 691 | 0.7− | 0.2+ | 2009 11 22 | 703 | 0.6− | 0.0 |
| 2005 10 01 | 704 | 0.4− | 0.3+ | 2009 10 24 | 703 | 1.0− | 0.1− | 2009 12 11 | G96 | 0.2+ | 0.0 |
| 2005 10 01 | 704 | 0.4+ | 0.0 | 2009 10 24 | 703 | 0.9− | 1.1− | 2009 12 11 | G96 | 0.2+ | 0.0 |
| 2005 10 01 | 703 | 0.4+ | 0.6+ | 2009 10 24 | 703 | 0.4− | 0.4− | 2009 12 11 | G96 | 0.2+ | 0.1− |
| 2005 10 01 | 703 | 0.5− | 0.9+ | 2009 10 24 | 703 | 0.3− | 0.4+ | 2009 12 11 | G96 | 0.1+ | 0.1− |
| 2005 10 01 | 703 | 1.2+ | 1.2+ | 2009 10 26 | 703 | 0.7− | 0.8+ | 2009 12 12 | 704 | 0.6+ | 0.8+ |
| 2005 10 01 | 703 | 0.2+ | 0.1+ | 2009 10 26 | 703 | 0.1+ | 1.0+ | 2009 12 12 | 704 | 0.1+ | 0.2+ |
| 2005 10 05 | 704 | 0.6+ | 0.8+ | 2009 10 26 | 703 | 1.0− | 0.5+ | 2009 12 12 | 704 | 0.4+ | 0.3+ |
| 2005 10 05 | 704 | 0.8+ | 0.3+ | 2009 10 26 | 703 | (0.5+ | 1.6−) | 2009 12 12 | 704 | 0.4− | 0.6+ |
| 2005 10 05 | 704 | 0.6+ | 1.5+ | 2009 10 27 | 691 | 0.5+ | 0.2+ | 2009 12 12 | 704 | 0.2− | 0.1− |
| 2005 10 05 | 704 | 0.6+ | 0.3+ | 2009 10 27 | 691 | 0.0 | 0.1+ | | | | |
| 2005 10 06 | G96 | 0.0 | 0.3− | 2009 10 27 | 691 | 0.2− | 0.0 | | | | |

**(229350)∗ 2005 QV$_{52}$ = 1998 SM$_{149}$**

Discovered 2005 Aug. 27 by the Siding Spring Survey at Siding Spring.

Id. G. V. Williams (*MPO* 87059)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 83.64443 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27515229 | $\omega$ | 354.35235 | | +0.73766669 | +0.67458191 | |
| $a$ | 2.3411036 | $\Omega$ | 323.17519 | | −0.61760510 | +0.65740693 | |
| $e$ | 0.2375226 | $i$ | 2.68286 | | −0.27278524 | +0.33579066 | |
| $P$ | 3.58 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 09 26 | 704 | 1.4− | 0.4+ | 2005 08 27 | E12 | 0.2+ | 0.2− | 2008 04 15 | G96 | 0.2− | 0.3+ |
| 1998 09 26 | 704 | 0.4+ | 0.0 | 2005 08 29 | 699 | 0.1− | 0.0 | 2009 11 08 | 703 | 1.1+ | 0.8+ |
| 1998 09 26 | 704 | 0.8− | 0.7− | 2005 08 29 | 699 | 0.5− | 0.1− | 2009 11 08 | 703 | 0.3+ | 0.3+ |
| 1998 09 26 | 704 | 1.8− | 1.0− | 2005 08 29 | 704 | 0.2+ | 0.4+ | 2009 11 08 | 703 | 0.0 | 0.6+ |
| 1998 09 27 | 704 | 0.6− | 0.1− | 2005 08 29 | 704 | 0.2+ | 0.6+ | 2009 11 08 | 703 | (0.3− | 1.7+) |
| 1998 09 27 | 704 | 1.4+ | 0.8+ | 2005 08 29 | 699 | 0.2− | 0.1+ | 2009 11 10 | G96 | 0.1− | 0.3− |
| 1998 09 27 | 704 | 0.4− | 0.8+ | 2005 08 29 | 704 | 0.1− | 0.4− | 2009 11 10 | G96 | 0.0 | 0.0 |
| 1998 09 27 | 704 | 1.2+ | 0.0 | 2005 08 29 | 699 | 0.7+ | 0.8− | 2009 11 10 | G96 | 0.1− | 0.2− |
| 2000 02 08 | 691 | 0.3+ | 0.3− | 2005 08 29 | 704 | 0.8+ | 1.0− | 2009 11 10 | G96 | 0.0 | 0.0 |
| 2000 02 08 | 691 | 0.2+ | 0.3− | 2005 08 29 | 704 | 0.0 | 0.7+ | 2009 11 11 | 691 | 0.1− | 0.2− |
| 2000 02 08 | 691 | 0.3+ | 0.1− | 2005 10 01 | G96 | 0.0 | 0.0 | 2009 11 11 | 691 | 0.1− | 0.0 |
| 2005 07 04 | 644 | 0.1+ | 0.0 | 2005 10 01 | G96 | 0.2− | 0.1− | 2009 11 11 | 691 | 0.6− | 0.2+ |
| 2005 07 04 | 644 | 0.0 | 0.2+ | 2005 10 01 | G96 | 0.2+ | 0.1+ | 2009 11 11 | J75 | 0.3− | 0.1+ |
| 2005 07 04 | 644 | 0.0 | 0.1+ | 2005 10 01 | G96 | 0.0 | 0.0 | 2009 11 11 | J75 | 0.0 | 0.5+ |
| 2005 08 02 | 704 | (1.5+ | 2.5−) | 2005 10 25 | G96 | 0.1+ | 0.1+ | 2009 11 11 | J75 | 0.3− | 0.1+ |
| 2005 08 02 | 704 | 1.1+ | 0.2− | 2005 10 25 | G96 | 0.2+ | 0.4+ | 2009 11 17 | 704 | 0.4+ | 0.0 |
| 2005 08 02 | 704 | 0.8+ | 0.2+ | 2005 10 25 | G96 | 0.2− | 0.4+ | 2009 11 17 | 704 | 0.2+ | 0.5− |
| 2005 08 06 | 704 | 0.2− | 0.0 | 2005 10 25 | G96 | 0.0 | 0.3+ | 2009 11 17 | 704 | 0.3− | 0.7+ |
| 2005 08 06 | 704 | 0.2+ | 0.3+ | 2007 01 17 | 691 | 0.4− | 0.2− | 2009 11 17 | 704 | 1.0+ | 0.3+ |
| 2005 08 06 | 704 | 0.0 | 0.5− | 2007 01 17 | 691 | 0.2+ | 0.3− | 2009 11 22 | G96 | 0.3+ | 0.2− |
| 2005 08 06 | 704 | 0.3− | 0.2− | 2007 01 17 | 691 | 0.1− | 0.5+ | 2009 11 22 | G96 | 0.4+ | 0.2− |
| 2005 08 15 | E12 | 0.7− | 0.0 | 2008 04 11 | G96 | 0.2− | 0.3+ | 2009 11 22 | G96 | 0.3+ | 0.2− |
| 2005 08 15 | E12 | 0.2+ | 0.0 | 2008 04 11 | G96 | 0.3− | 0.3+ | 2009 11 22 | G96 | (0.6− | 1.7+) |
| 2005 08 15 | E12 | 0.5− | 0.2− | 2008 04 11 | G96 | 0.3− | 0.3+ | 2009 12 18 | G96 | 0.1+ | 0.2− |
| 2005 08 15 | E12 | 0.3+ | 0.4− | 2008 04 11 | G96 | 0.2+ | 0.5+ | 2009 12 18 | G96 | 0.7− | 0.8− |
| 2005 08 27 | E12 | (1.4+ | 1.7−) | 2008 04 15 | G96 | 0.2− | 0.2+ | 2009 12 18 | G96 | 0.4+ | 0.3− |
| 2005 08 27 | E12 | 0.1+ | 0.2+ | 2008 04 15 | G96 | 0.3− | 0.1+ | 2009 12 18 | G96 | 0.1− | 0.0 |
| 2005 08 27 | E12 | 0.1− | 0.7− | 2008 04 15 | G96 | 0.1+ | 0.4+ | | | | |

**(229351)∗ 2005 QE$_{55}$**

Discovered 2005 Aug. 28 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 60.70048 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28197680 | $\omega$ | 264.52166 | | +0.90277144 | −0.42670838 | |
| $a$ | 2.3031760 | $\Omega$ | 120.72689 | | +0.41533067 | +0.83213137 | |
| $e$ | 0.2459906 | $i$ | 3.60638 | | +0.11182199 | +0.35422780 | |
| $P$ | 3.50 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 10 31 | 291 | 0.4− | 0.8+ | 2005 09 05 | 608 | 0.7+ | 0.6+ | 2007 03 16 | 691 | 0.4+ | 0.4+ |
| 2002 10 31 | 291 | 0.3− | 0.5+ | 2005 09 05 | 608 | 1.1+ | 0.3+ | 2007 03 16 | 691 | 0.3+ | 0.3+ |
| 2002 10 31 | 291 | 0.2− | 0.3+ | 2005 09 05 | 608 | 0.8+ | 0.0 | 2007 03 16 | 691 | 0.3+ | 0.3+ |
| 2003 01 05 | 699 | (1.9+ | 1.2−) | 2005 09 13 | 703 | 0.4− | 0.7− | 2007 03 20 | 691 | 0.5− | 1.0+ |
| 2003 01 05 | 699 | 1.0+ | 0.7+ | 2005 09 13 | 703 | 0.3+ | 0.0 | 2007 03 20 | 691 | 0.0 | 0.4+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 01 05 | 699 | 0.9− | 0.3− | 2005 09 13 | 703 | 0.4+ | 0.4− | 2007 03 20 | 691 | 0.1− | 0.1+ | | |
| 2003 01 05 | 699 | (2.2+ | 0.0 ) | 2005 09 13 | 703 | 0.4+ | 0.2+ | 2009 09 29 | 691 | 0.1− | 0.2− | | |
| 2003 01 10 | 291 | 0.1+ | 0.4+ | 2005 09 22 | 644 | 0.3− | 0.0 | 2009 09 29 | 691 | 0.1+ | 0.3− | | |
| 2003 01 10 | 291 | 0.5+ | 0.5+ | 2005 09 22 | 644 | 0.1− | 0.0 | 2009 09 29 | 691 | 0.0 | 0.4+ | | |
| 2003 01 10 | 291 | 0.4+ | 0.4+ | 2005 09 22 | 644 | 0.3− | 0.0 | 2009 12 15 | G96 | 0.3+ | 0.4− | | |
| 2005 07 30 | 644 | 0.0 | 0.2+ | 2005 09 24 | 644 | 0.1− | 0.1+ | 2009 12 15 | G96 | 0.1+ | 0.6− | | |
| 2005 07 30 | 644 | 0.0 | 0.0 | 2005 09 24 | 644 | 0.0 | 0.2− | 2009 12 15 | G96 | 0.2+ | 0.6− | | |
| 2005 07 30 | 644 | 0.4− | 0.0 | 2005 09 24 | 644 | 0.1+ | 0.1+ | 2009 12 15 | G96 | 0.5− | 0.4− | | |
| 2005 08 08 | 807 | 0.2− | 0.5+ | 2005 09 25 | 644 | 0.1− | 0.0 | 2009 12 15 | G96 | 0.8− | 0.3− | | |
| 2005 08 08 | 807 | 0.1− | 0.4+ | 2005 09 25 | 644 | 0.0 | 0.2− | 2009 12 15 | G96 | 0.6− | 0.7− | | |
| 2005 08 28 | 699 | 0.3− | 0.7+ | 2005 09 25 | 644 | 0.3− | 0.0 | 2009 12 15 | G96 | 0.2+ | 0.8− | | |
| 2005 08 28 | 699 | 0.2− | 0.1− | 2005 09 27 | 704 | 0.1− | 0.3+ | 2009 12 15 | G96 | 0.0 | 0.6− | | |
| 2005 08 28 | 699 | 0.5− | 0.2− | 2005 09 27 | 704 | 0.9− | 1.1+ | 2009 12 17 | 691 | 0.3− | 0.6− | | |
| 2005 08 28 | 699 | 0.4− | 0.1+ | 2005 09 27 | 704 | 0.4− | 0.7+ | 2009 12 17 | 691 | 0.2+ | 0.3− | | |
| 2005 08 29 | 704 | 0.0 | 1.4+ | 2005 09 27 | 704 | 0.7− | 1.0− | 2009 12 17 | 691 | 0.0 | 0.1− | | |
| 2005 08 29 | 704 | 0.0 | 0.0 | 2005 10 01 | 699 | 0.1+ | 0.8− | 2009 12 25 | 691 | 0.0 | 0.1− | | |
| 2005 08 29 | 704 | 0.2+ | 0.8+ | 2005 10 01 | 699 | 0.4− | 0.9+ | 2009 12 25 | 691 | 0.2+ | 0.1− | | |
| 2005 08 29 | 704 | 0.6− | 0.2+ | 2005 10 01 | 699 | 0.6− | 0.7+ | 2009 12 25 | 691 | 0.1− | 0.0 | | |
| 2005 08 29 | 704 | 0.0 | 1.2+ | 2005 10 01 | 699 | 0.2+ | 0.0 | | | | | | |

**(229352)∗ 2005 QB$_{57}$ = 1994 RM$_{17}$**

Discovered 2005 Aug. 29 by M. Ory at the Observatoire Astronomique Jurassien-Vicques.

Id. G. V. Williams (*MPO* 87064)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 27.13619 | | (2000.0) | | | |
| $n$ | 0.26805681 | $\omega$ | 78.42634 | | +0.81966271 | −0.57079292 |
| $a$ | 2.3822362 | $\Omega$ | 316.35535 | | +0.49441137 | +0.74762468 |
| $e$ | 0.2329214 | $i$ | 4.02633 | | +0.28932756 | +0.33948900 |
| $P$ | 3.68 | $H$ | 17.3 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 09 03 | 809 | 0.1− | 0.2+ | 2005 10 30 | G96 | 0.2+ | 0.1+ | 2009 11 23 | 691 | 0.1− | 0.2+ | | |
| 1994 09 03 | 809 | 0.1+ | 1.3− | 2005 10 31 | G96 | 0.2+ | 0.0 | 2009 11 23 | 691 | 1.3+ | 1.1− | | |
| 1994 09 03 | 809 | 0.6+ | 0.9− | 2005 10 31 | G96 | 0.0 | 0.1+ | 2009 11 23 | 691 | 0.1+ | 0.0 | | |
| 1994 09 04 | 809 | 0.8+ | 0.3− | 2005 10 31 | G96 | 0.4− | 0.2+ | 2009 11 24 | D29 | 0.3+ | 0.0 | | |
| 1994 09 04 | 809 | 0.6+ | 0.4+ | 2005 10 31 | G96 | 0.0 | 0.1+ | 2009 11 24 | D29 | 0.1+ | 0.2+ | | |
| 1994 09 04 | 809 | 1.1− | 0.3+ | 2007 03 12 | G96 | 0.1− | 0.4− | 2009 11 24 | D29 | 0.2+ | 0.0 | | |
| 2005 08 06 | 644 | 0.1− | 0.3+ | 2007 03 12 | G96 | 0.2− | 0.0 | 2009 11 24 | D29 | 0.0 | 0.1+ | | |
| 2005 08 06 | 644 | 0.2+ | 0.3+ | 2007 03 12 | G96 | 0.1− | 0.1+ | 2009 11 24 | J75 | 0.3− | 0.4+ | | |
| 2005 08 06 | 644 | 0.2+ | 0.3+ | 2007 03 12 | G96 | 0.4+ | 0.4+ | 2009 11 24 | J75 | 1.2− | 1.2− | | |
| 2005 08 24 | 644 | 0.1− | 0.3+ | 2009 10 24 | 703 | 0.8− | 0.5+ | 2009 11 24 | J75 | 0.4− | 0.2− | | |
| 2005 08 24 | 644 | 0.4− | 0.2+ | 2009 10 24 | 703 | 0.0 | 0.1+ | 2009 11 25 | 703 | 1.0− | 0.7− | | |
| 2005 08 24 | 644 | 0.3− | 0.3+ | 2009 10 24 | 703 | 0.8− | 0.1+ | 2009 11 25 | 703 | 0.1− | 0.1+ | | |
| 2005 08 29 | 699 | (1.8− | 2.7+) | 2009 10 24 | 703 | 1.4− | 1.2− | 2009 11 25 | 703 | 0.3− | 0.2+ | | |
| 2005 08 29 | 699 | 0.6+ | 0.1− | 2009 11 11 | 704 | 0.2+ | 0.1+ | 2009 11 25 | 703 | 0.4− | 0.2+ | | |
| 2005 08 29 | 699 | 0.2− | 0.2− | 2009 11 11 | 704 | 0.6+ | 0.6− | 2009 11 25 | 703 | 0.4+ | 0.5− | | |
| 2005 08 29 | 699 | (1.8− | 1.1+) | 2009 11 11 | 704 | 0.2+ | 0.1+ | 2009 11 27 | 691 | 0.0 | 0.0 | | |
| 2005 08 29 | 185 | 0.0 | 0.7+ | 2009 11 11 | 704 | 0.4+ | 0.2+ | 2009 11 27 | 691 | 0.1− | 0.2− | | |
| 2005 08 29 | 185 | 0.6+ | 0.4− | 2009 11 11 | 704 | 0.4+ | 0.4+ | 2009 11 27 | 691 | 0.1− | 0.0 | | |
| 2005 08 29 | 185 | 0.3+ | 0.2− | 2009 11 12 | J75 | 0.3+ | 0.1− | 2009 12 09 | J75 | 0.2− | 0.1+ | | |
| 2005 08 30 | 185 | 0.8− | 0.4− | 2009 11 12 | J75 | 0.4+ | 0.0 | 2009 12 09 | J75 | 0.2+ | 0.9+ | | |
| 2005 08 30 | 185 | 0.0 | 0.4+ | 2009 11 12 | J75 | 0.6− | 0.2+ | 2009 12 09 | J75 | 0.3+ | 0.9+ | | |
| 2005 08 30 | 185 | 0.4+ | 0.0 | 2009 11 16 | 704 | (0.2+ | 1.5+) | 2009 12 10 | 704 | 0.2− | 0.0 | | |
| 2005 08 31 | 185 | 0.8− | 0.9− | 2009 11 16 | 704 | 0.0 | 0.0 | 2009 12 10 | 704 | 0.0 | 1.4+ | | |
| 2005 08 31 | 185 | 0.1− | 0.5− | 2009 11 16 | 704 | 0.0 | 0.8+ | 2009 12 10 | 704 | 0.5+ | 0.1+ | | |
| 2005 09 03 | 185 | 0.4− | 0.6− | 2009 11 16 | 704 | 0.2− | 0.0 | 2009 12 10 | 704 | 0.5+ | 1.4+ | | |
| 2005 09 03 | 185 | 0.1− | 0.0 | 2009 11 16 | 704 | 0.6+ | 0.4+ | 2009 12 10 | J75 | 0.6+ | 0.3− | | |
| 2005 09 07 | 699 | (2.3+ | 0.3−) | 2009 11 19 | 691 | 0.7− | 0.3+ | 2009 12 10 | J75 | 0.3− | 0.7− | | |
| 2005 09 07 | 699 | 0.4− | 1.2+ | 2009 11 19 | 691 | 0.1− | 0.0 | 2009 12 10 | J75 | 0.0 | 0.3− | | |
| 2005 09 07 | 699 | 0.5− | 0.3+ | 2009 11 19 | 691 | 0.4− | 0.2− | 2009 12 15 | 704 | 0.9− | 0.8+ | | |
| 2005 09 07 | 699 | 0.2+ | 0.9+ | 2009 11 22 | 704 | 1.0+ | 0.6− | 2009 12 15 | 704 | 0.0 | 0.6+ | | |
| 2005 10 30 | G96 | 0.4+ | 0.3+ | 2009 11 22 | 704 | 0.9+ | 0.2+ | 2009 12 15 | 704 | 0.1− | 1.1+ | | |
| 2005 10 30 | G96 | 0.0 | 0.2− | 2009 11 22 | 704 | 0.4+ | 0.2+ | | | | | | |
| 2005 10 30 | G96 | 0.6+ | 0.1+ | 2009 11 22 | 704 | 0.3+ | 0.5− | | | | | | |

**(229353)∗ 2005 QN$_{65}$ = 1976 UU$_{8}$**

Discovered 2005 Aug. 26 by NEAT at Haleakala.

Id. G. V. Williams (*MPO* 87070)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 67.99114 | | (2000.0) | | | |
| $n$ | 0.27108396 | $\omega$ | 148.52598 | | +0.98851114 | +0.14684189 |
| $a$ | 2.3644683 | $\Omega$ | 203.11097 | | −0.15055812 | +0.93568354 |
| $e$ | 0.2596679 | $i$ | 5.23620 | | −0.01334057 | +0.32083295 |
| $P$ | 3.64 | $H$ | 16.5 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1976 10 22 | 381 | 0.4− | 0.2− | 2005 09 29 | 644 | 0.2+ | 0.0 | 2005 11 01 | 704 | 0.1− | 0.8+ | | |
| 1976 10 22 | 381 | 0.4+ | 0.7+ | 2005 09 29 | 699 | 0.1+ | 0.4− | 2005 11 18 | 644 | 0.0 | 0.2+ | | |
| 1976 10 24 | 381 | 0.2− | 0.0 | 2005 09 29 | 644 | 0.1+ | 0.2+ | 2005 11 18 | 644 | 0.3− | 0.1+ | | |
| 2004 04 20 | 691 | 0.4+ | 0.5+ | 2005 09 29 | 699 | 0.1+ | 0.1+ | 2005 11 18 | 644 | 0.2− | 0.2+ | | |
| 2004 04 20 | 691 | 0.2+ | 0.5+ | 2005 09 29 | 644 | 0.1− | 0.1+ | 2005 12 01 | 704 | 0.2− | 0.3+ | | |
| 2004 04 20 | 691 | 0.0 | 0.6+ | 2005 09 29 | 699 | 0.1+ | 0.1− | 2005 12 01 | 704 | 0.2+ | 0.6− | | |
| 2005 07 02 | 703 | 0.5− | 0.8− | 2005 10 01 | 703 | 0.5+ | 0.0 | 2005 12 01 | 704 | 0.2− | 0.3+ | | |
| 2005 07 02 | 703 | 0.2− | 0.6+ | 2005 10 01 | 703 | 0.1+ | 0.3− | 2005 12 04 | 704 | 0.9+ | 1.0− | | |
| 2005 07 02 | 703 | 1.1− | 0.9− | 2005 10 01 | 703 | 0.3+ | 0.0 | 2005 12 04 | 704 | 1.2+ | 0.4− | | |
| 2005 07 02 | 703 | 0.9− | 0.0 | 2005 10 02 | 704 | (2.5− | 0.4+) | 2005 12 04 | 704 | 0.1+ | 0.8+ | | |
| 2005 08 26 | 608 | 0.4− | 0.0 | 2005 10 02 | 704 | (1.6+ | 0.6+) | 2008 04 14 | 691 | 0.1− | 0.4+ | | |
| 2005 08 26 | 608 | 0.3− | 0.1− | 2005 10 02 | 704 | (2.9− | 0.4+) | 2008 04 14 | 691 | 0.3+ | 0.1− | | |
| 2005 08 26 | 608 | 0.1+ | 0.3− | 2005 10 07 | 704 | 0.5+ | 0.9− | 2008 04 14 | 691 | 0.2− | 0.0 | | |
| 2005 08 30 | 704 | 0.3− | 0.2− | 2005 10 07 | 704 | 0.6+ | 0.7− | 2008 06 03 | G96 | 0.2+ | 0.2+ | | |
| 2005 08 30 | 704 | 0.5+ | 0.1+ | 2005 10 07 | 704 | 0.3+ | 0.7− | 2008 06 03 | G96 | 0.1− | 0.3+ | | |
| 2005 08 30 | 704 | 0.0 | 0.3+ | 2005 10 07 | 704 | 0.1− | 0.3+ | 2008 06 03 | G96 | 0.0 | 0.3+ | | |
| 2005 09 09 | 704 | 0.0 | 0.4− | 2005 10 12 | 691 | 0.3− | 0.5+ | 2008 06 03 | G96 | 0.7+ | 0.1+ | | |
| 2005 09 09 | 704 | 0.1+ | 0.2+ | 2005 10 12 | 691 | 0.1− | 0.4+ | 2009 11 20 | 704 | 0.0 | 1.2+ | | |
| 2005 09 09 | 704 | 0.2+ | 0.1− | 2005 10 12 | 691 | 0.1− | 0.2+ | 2009 11 20 | 704 | 1.4+ | 1.0+ | | |
| 2005 09 09 | 704 | 0.2+ | 0.4− | 2005 10 20 | 644 | 0.1+ | 0.2+ | 2009 11 20 | 704 | 0.9+ | 0.4− | | |
| 2005 09 09 | 704 | 0.0 | 0.3− | 2005 10 20 | 644 | 0.2+ | 0.1+ | 2009 11 20 | 704 | 0.7+ | 0.1− | | |
| 2005 09 11 | 608 | 0.2− | 0.2+ | 2005 10 20 | 644 | 0.1− | 0.2+ | 2009 12 12 | 704 | 0.5− | 1.3+ | | |
| 2005 09 11 | 608 | 0.0 | 0.3+ | 2005 10 27 | 644 | 0.1+ | 0.0 | 2009 12 12 | 704 | 0.5− | 0.2− | | |
| 2005 09 11 | 608 | 0.4− | 0.1+ | 2005 10 27 | 644 | 0.0 | 0.1+ | 2009 12 12 | 704 | 0.0 | 0.9− | | |
| 2005 09 23 | 699 | 0.4− | 0.0 | 2005 10 27 | 704 | 0.0 | 1.0+ | 2009 12 12 | 704 | 0.3− | 0.3− | | |
| 2005 09 23 | 699 | 0.2+ | 0.0 | 2005 10 27 | 644 | 0.2+ | 0.2+ | 2009 12 17 | G96 | 0.5− | 0.0 | | |
| 2005 09 23 | 699 | 0.4+ | 0.3+ | 2005 10 27 | 704 | 0.3− | 0.9+ | 2009 12 17 | G96 | 0.2− | 0.0 | | |
| 2005 09 24 | 703 | 0.4− | 0.2− | 2005 10 27 | 704 | 0.1− | 0.5+ | 2009 12 17 | G96 | 0.5− | 0.1− | | |
| 2005 09 24 | 703 | 0.2− | 0.3− | 2005 10 27 | 704 | (0.6+ | 1.5+) | 2009 12 17 | G96 | 0.8− | 0.1− | | |
| 2005 09 24 | 703 | 0.4+ | 0.1− | 2005 11 01 | 704 | 0.1− | 0.9+ | 2009 12 17 | G96 | 0.4− | 0.0 | | |
| 2005 09 24 | 703 | 0.1− | 0.3− | 2005 11 01 | 704 | 0.2+ | 0.8+ | | | | | | |
| 2005 09 29 | 699 | 0.3− | 0.7+ | 2005 11 01 | 704 | 0.5− | 0.4− | | | | | | |

**(229354)∗ 2005 QX$_{67}$**

Discovered 2005 Aug. 28 by the Siding Spring Survey at Siding Spring.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 50.65179 | | (2000.0) | | | |
| $n$ | 0.28134220 | $\omega$ | 325.71670 | | +0.92224332 | −0.37650626 |
| $a$ | 2.3066381 | $\Omega$ | 56.63747 | | +0.37407809 | +0.81166936 |
| $e$ | 0.2046598 | $i$ | 6.03486 | | +0.09763632 | +0.44658245 |
| $P$ | 3.50 | $H$ | 16.7 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 12 06 | 704 | 0.5− | 0.5+ | 2005 08 28 | E12 | 0.2+ | 0.2− | 2009 11 18 | 691 | 0.8+ | 0.2+ | | |
| 2002 12 06 | 704 | 0.2+ | 0.4+ | 2005 08 28 | E12 | 0.8+ | 0.8+ | 2009 11 18 | 691 | 0.3− | 0.0 | | |
| 2002 12 06 | 704 | 0.2− | 1.3+ | 2005 08 28 | E12 | 1.1− | 0.4+ | 2009 11 22 | 691 | 0.1+ | 0.1+ | | |
| 2003 01 05 | 704 | 0.6− | 0.1+ | 2005 08 30 | 699 | 0.3+ | 0.2− | 2009 11 22 | 691 | 0.3− | 0.1+ | | |
| 2003 01 05 | 704 | 0.4+ | 0.8+ | 2005 08 30 | 699 | 1.5− | 0.3− | 2009 11 22 | 691 | 0.2+ | 0.6+ | | |
| 2003 01 05 | 704 | 0.4+ | 0.5+ | 2005 08 30 | 699 | (1.7− | 0.5−) | 2009 12 10 | 704 | 0.1+ | 0.3− | | |
| 2003 01 05 | 704 | 0.1+ | 0.6+ | 2005 08 30 | 699 | 0.0 | 0.3+ | 2009 12 10 | 704 | 0.7− | 0.0 | | |
| 2004 04 14 | 691 | 0.0 | 0.6+ | 2005 09 01 | 644 | 0.0 | 0.6+ | 2009 12 10 | 704 | 0.1+ | 0.3+ | | |
| 2004 04 14 | 691 | 0.2+ | 0.4+ | 2005 09 01 | 644 | 0.0 | 0.4+ | 2009 12 10 | 704 | 0.4+ | 0.0 | | |
| 2004 04 14 | 691 | 0.4+ | 0.2+ | 2005 09 01 | 644 | 0.4+ | 0.5+ | 2009 12 15 | 704 | 0.5− | 0.6+ | | |
| 2005 07 05 | 644 | 0.2− | 0.5+ | 2005 10 02 | 644 | 0.1− | 0.5+ | 2009 12 15 | 704 | 0.4− | 0.2− | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 07 05 | 644 | 0.2− | 0.4+ | 2005 10 02 | 644 | 0.1− | 0.6+ | 2009 12 15 | 704 | 0.1+ | 0.1− | | |
| 2005 07 05 | 644 | 0.4− | 0.0 | 2005 10 02 | 644 | 0.0 | 0.6+ | 2009 12 15 | 704 | 0.4+ | 0.3− | | |
| 2005 08 28 | E12 | 0.2+ | 0.0 | 2009 11 18 | 691 | 0.4− | 1.0− | | | | | | |

**(229355)∗ 2005 QU$_{74}$ = 2002 YK$_{11}$**

Discovered 2005 Aug. 29 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Id. G. V. Williams (*MPO* 87080)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 90.14218 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.27790106 | $\omega$ | 83.60964 | | +0.91227603 | | +0.40924296 |
| $a$ | 2.3256405 | $\Omega$ | 252.23207 | | −0.38230014 | | +0.83636445 |
| $e$ | 0.1781651 | $i$ | 0.99351 | | −0.14696615 | | +0.36471182 |
| $P$ | 3.55 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 03 12 | 691 | 0.6+ | 0.8− | 2005 09 06 | 699 | 0.2+ | 0.3− | 2005 12 04 | G96 | (2.3− | 0.3+) | | |
| 2000 03 12 | 691 | 0.2+ | 0.4− | 2005 09 06 | 699 | 0.6− | 0.4+ | 2005 12 04 | G96 | 0.2+ | 0.3− | | |
| 2000 03 12 | 691 | 0.2− | 0.4− | 2005 09 08 | 704 | 0.1− | 0.5+ | 2005 12 04 | G96 | 0.1+ | 0.7− | | |
| 2002 12 31 | 344 | 0.7− | 0.3+ | 2005 09 08 | 704 | 0.0 | 0.9+ | 2005 12 04 | G96 | 0.1− | 0.4− | | |
| 2002 12 31 | 344 | 0.6− | 0.8+ | 2005 09 08 | 704 | 0.0 | 0.0 | 2007 02 06 | G96 | 0.3+ | 0.2− | | |
| 2003 01 01 | 344 | 1.3− | 0.4+ | 2005 09 08 | 704 | 0.4− | 0.9+ | 2007 02 06 | G96 | 0.0 | 0.3− | | |
| 2003 01 01 | 344 | 0.0 | 0.6+ | 2005 09 09 | 704 | 0.1− | 1.5+ | 2007 02 06 | G96 | 0.1+ | 0.4+ | | |
| 2003 01 01 | 344 | 0.8− | 0.4+ | 2005 09 09 | 704 | 0.8+ | 0.5− | 2007 02 06 | G96 | 0.1+ | 0.2− | | |
| 2003 01 01 | 344 | 0.3+ | 1.0+ | 2005 09 09 | 704 | 0.5− | 0.7+ | 2007 02 13 | G96 | 0.3+ | 0.3− | | |
| 2003 01 11 | 344 | 0.2+ | 0.3− | 2005 09 09 | 704 | 0.2+ | 0.2+ | 2007 02 13 | G96 | 0.0 | 0.0 | | |
| 2003 01 11 | 344 | 0.3+ | 0.2− | 2005 09 09 | 704 | 0.1+ | 0.1− | 2007 02 13 | G96 | 0.4+ | 0.0 | | |
| 2005 08 25 | 644 | 0.2− | 0.2− | 2005 09 23 | 703 | 0.4+ | 0.7− | 2007 02 13 | G96 | 0.1+ | 0.1+ | | |
| 2005 08 25 | 644 | 0.1+ | 0.3− | 2005 09 23 | 703 | 0.2+ | 0.4− | 2007 03 09 | 291 | 0.7− | 0.4+ | | |
| 2005 08 25 | 644 | 0.3− | 0.2− | 2005 09 23 | 703 | 0.5− | 0.8− | 2007 03 09 | 291 | 0.3− | 0.6+ | | |
| 2005 08 26 | 599 | 0.1+ | 0.3+ | 2005 09 23 | 703 | 0.3− | 1.4− | 2007 03 09 | 291 | 0.3− | 0.3+ | | |
| 2005 08 26 | 599 | 0.3+ | 0.1− | 2005 10 01 | 703 | 0.8− | 0.5− | 2008 05 30 | G96 | 0.1− | 0.1+ | | |
| 2005 08 26 | 599 | 0.1+ | 0.2− | 2005 10 01 | 703 | 0.2+ | 0.2+ | 2008 05 30 | G96 | 0.1− | 0.1+ | | |
| 2005 08 26 | 599 | 0.3− | 0.0 | 2005 10 01 | 703 | 0.3+ | 0.2+ | 2008 05 30 | G96 | 0.3+ | 0.3+ | | |
| 2005 08 29 | 699 | 0.4− | 0.6− | 2005 10 01 | 703 | 0.4− | 0.1− | 2009 12 09 | J75 | 0.6− | 0.2− | | |
| 2005 08 29 | 699 | 0.4− | 0.1− | 2005 10 07 | 704 | 0.9+ | 0.2+ | 2009 12 09 | J75 | 0.2− | 0.1− | | |
| 2005 08 29 | 699 | 0.1− | 0.3+ | 2005 10 07 | 704 | 1.2+ | 0.8+ | 2009 12 09 | J75 | 0.7+ | 0.0 | | |
| 2005 08 29 | 699 | 0.9− | 1.2− | 2005 10 07 | 704 | 1.3+ | 0.1+ | 2009 12 10 | G96 | 0.4+ | 0.2− | | |
| 2005 08 30 | 704 | 0.2− | 0.3+ | 2005 10 12 | 691 | 0.2+ | 0.1− | 2009 12 10 | G96 | 0.6+ | 0.0 | | |
| 2005 08 30 | 704 | 1.0− | 0.1− | 2005 10 12 | 691 | 0.0 | 0.2+ | 2009 12 10 | G96 | 0.3+ | 0.3− | | |
| 2005 08 30 | 704 | 0.7− | 0.5+ | 2005 10 12 | 691 | 0.2+ | 0.1+ | 2009 12 10 | G96 | 0.5+ | 0.1− | | |
| 2005 08 30 | 704 | 1.0− | 0.3+ | 2005 11 29 | G96 | 0.8− | 0.0 | 2009 12 19 | G96 | 0.2+ | 0.2+ | | |
| 2005 08 30 | 704 | (1.8− | 0.0 ) | 2005 11 29 | G96 | 0.3− | 0.1+ | 2009 12 19 | G96 | 0.4+ | 0.2+ | | |
| 2005 09 06 | 699 | 0.3+ | 0.7− | 2005 11 29 | G96 | 0.2− | 0.1− | 2009 12 19 | G96 | 0.5+ | 0.0 | | |
| 2005 09 06 | 699 | 1.0+ | 0.3− | 2005 11 29 | G96 | 0.4+ | 0.6− | 2009 12 19 | G96 | 0.1+ | 0.2− | | |

**(229356)∗ 2005 QA$_{84}$**

Discovered 2005 Aug. 29 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 49.08263 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.26443788 | $\omega$ | 126.40443 | | +0.98611008 | | −0.16592844 |
| $a$ | 2.4039214 | $\Omega$ | 243.14780 | | +0.14961144 | | +0.90670881 |
| $e$ | 0.1871722 | $i$ | 0.47481 | | +0.07213411 | | +0.38774589 |
| $P$ | 3.73 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 01 30 | 291 | 0.1+ | 0.4+ | 2005 09 29 | 644 | 0.3− | 0.7+ | 2009 11 08 | 703 | 0.7− | 0.4− | | |
| 2003 01 30 | 644 | 0.5− | 0.6+ | 2005 09 29 | 644 | 0.3− | 0.1− | 2009 11 08 | 703 | 0.7+ | 0.6+ | | |
| 2003 01 30 | 291 | 0.2+ | 0.3+ | 2005 09 29 | 699 | 1.1− | 1.2+ | 2009 11 08 | 703 | 0.3− | 0.8+ | | |
| 2003 01 30 | 291 | 0.3+ | 0.2+ | 2005 09 29 | 644 | 0.3− | 0.0 | 2009 11 08 | 691 | 0.2− | 0.0 | | |
| 2003 01 30 | 644 | 0.1+ | 0.5+ | 2005 09 29 | 699 | 0.5− | 0.8+ | 2009 11 08 | 691 | 0.2− | 0.2+ | | |
| 2003 01 30 | 644 | 0.1− | 0.5+ | 2005 09 29 | 699 | 0.0 | 0.2+ | 2009 11 08 | 691 | 0.2+ | 0.7+ | | |
| 2004 04 25 | 291 | 0.4+ | 0.8+ | 2005 09 29 | 699 | 0.8− | 0.3+ | 2009 11 11 | J75 | 0.6+ | 0.2+ | | |
| 2004 04 25 | 291 | 0.3+ | 0.4+ | 2005 10 04 | 644 | 0.0 | 0.2+ | 2009 11 11 | J75 | 1.0+ | 0.1− | | |
| 2004 04 25 | 291 | 0.2+ | 0.5+ | 2005 10 04 | 644 | 0.0 | 0.0 | 2009 11 11 | J75 | 0.6− | 0.5− | | |
| 2005 08 29 | 699 | 0.7− | 0.1− | 2005 10 04 | 644 | 0.1− | 0.0 | 2009 11 15 | J75 | (0.0 | 1.6−) | | |
| 2005 08 29 | 699 | 0.1− | 0.3− | 2005 10 06 | 699 | 0.8+ | 0.3− | 2009 11 15 | J75 | 0.8+ | 0.8− | | |
| 2005 08 29 | 699 | 0.3+ | 0.2− | 2005 10 06 | 699 | 0.7+ | 0.9+ | 2009 11 15 | J75 | 0.1− | 0.5− | | |
| 2005 08 29 | 699 | 0.4+ | 1.2+ | 2005 10 06 | 699 | 0.0 | 0.6+ | 2009 11 17 | 704 | 0.0 | 0.5+ | | |
| 2005 08 31 | 691 | 0.0 | 0.0 | 2005 10 06 | 699 | 0.3+ | 0.1+ | 2009 11 17 | 704 | 0.4+ | 1.2+ | | |
| 2005 08 31 | 691 | 0.0 | 0.0 | 2005 10 07 | 704 | 0.0 | 0.1− | 2009 11 17 | 704 | 0.5− | 0.0 | | |
| 2005 08 31 | 691 | 0.2− | 0.2+ | 2005 10 07 | 704 | 0.0 | 0.9+ | 2009 11 17 | 704 | 0.5− | 0.3+ | | |
| 2005 09 08 | 704 | 0.5− | 0.3− | 2005 10 07 | 704 | 0.4+ | 0.3+ | 2009 11 17 | 704 | 0.9− | 0.2+ | | |
| 2005 09 08 | 704 | 0.3+ | 0.8− | 2005 10 07 | 704 | 0.2− | 0.4+ | 2009 11 20 | 691 | 0.4− | 0.1− | | |
| 2005 09 08 | 704 | 0.3− | 0.0 | 2005 11 26 | 705 | 0.1− | 0.3− | 2009 11 20 | 691 | 0.2− | 0.1− | | |
| 2005 09 08 | 704 | 0.6+ | 0.2− | 2005 11 26 | 705 | 0.3− | 0.3− | 2009 11 20 | 691 | 0.4− | 0.0 | | |
| 2005 09 09 | 704 | 0.1− | 0.6− | 2005 12 02 | G96 | 0.5+ | 0.4− | 2009 11 23 | J75 | 0.6+ | 0.2− | | |
| 2005 09 09 | 704 | 0.2+ | 0.3− | 2005 12 02 | G96 | 0.1− | 0.2− | 2009 11 23 | J75 | 0.7+ | 0.2− | | |
| 2005 09 09 | 704 | 0.6+ | 0.6− | 2005 12 02 | G96 | 0.0 | 0.2− | 2009 11 23 | J75 | 0.5+ | 0.6− | | |
| 2005 09 09 | 704 | 0.4− | 0.1− | 2005 12 02 | G96 | 0.8+ | 0.1− | 2009 11 24 | 691 | 0.5− | 0.0 | | |
| 2005 09 09 | 704 | 0.2+ | 0.0 | 2007 01 28 | G96 | 0.1− | 0.3− | 2009 11 24 | 691 | 0.3+ | 0.1− | | |
| 2005 09 14 | 691 | 0.2− | 0.1+ | 2007 01 28 | G96 | 0.6+ | 0.2+ | 2009 11 24 | 691 | 0.0 | 0.0 | | |
| 2005 09 14 | 691 | 0.0 | 0.2+ | 2007 01 28 | G96 | 0.3− | 0.4− | 2009 12 09 | J75 | 0.4+ | 0.1+ | | |
| 2005 09 14 | 691 | 0.0 | 0.0 | 2007 01 28 | G96 | 0.8− | 0.0 | 2009 12 09 | J75 | 0.0 | 0.4− | | |
| 2005 09 22 | 644 | 0.2− | 0.1+ | 2007 02 21 | G96 | 0.3− | 0.0 | 2009 12 09 | J75 | 0.5+ | 0.0 | | |
| 2005 09 22 | 644 | 0.4− | 0.2+ | 2007 02 21 | G96 | 0.2− | 0.1+ | 2009 12 09 | A13 | 0.4+ | 0.5− | | |
| 2005 09 22 | 644 | 0.4− | 0.1+ | 2007 02 21 | G96 | 0.1+ | 0.1− | 2009 12 09 | A13 | 0.6+ | 0.0 | | |
| 2005 09 24 | A50 | 0.3− | 0.1− | 2007 02 21 | G96 | 0.2+ | 0.0 | 2009 12 11 | G96 | 0.7+ | 0.3− | | |
| 2005 09 24 | A50 | 0.1+ | 0.1+ | 2007 03 10 | G96 | 0.2+ | 0.4+ | 2009 12 11 | G96 | 0.5+ | 0.2− | | |
| 2005 09 25 | 644 | 0.0 | 0.2+ | 2007 03 10 | G96 | 0.2− | 0.5+ | 2009 12 11 | G96 | 0.3+ | 0.0 | | |
| 2005 09 25 | 644 | 0.0 | 0.1+ | 2007 03 10 | G96 | 0.5− | 0.1+ | 2009 12 11 | G96 | 0.7+ | 0.2− | | |
| 2005 09 25 | 644 | 0.1+ | 0.1+ | 2007 03 10 | G96 | 0.4− | 0.4+ | 2009 12 11 | 703 | 0.5+ | 0.1+ | | |
| 2005 09 25 | A50 | 0.1+ | 0.1+ | 2007 04 07 | G96 | 0.3− | 0.1− | 2009 12 11 | 703 | 0.3+ | 0.2− | | |
| 2005 09 25 | A50 | 0.1− | 0.1− | 2007 04 07 | G96 | 0.1− | 0.4− | 2009 12 11 | 703 | 0.6− | 1.7− | | |
| 2005 09 26 | 644 | 0.3− | 0.1+ | 2007 04 07 | G96 | 0.4− | 0.3+ | 2009 12 11 | 703 | 0.3+ | 0.3− | | |
| 2005 09 26 | 644 | 0.1+ | 0.0 | 2007 04 07 | G96 | 0.3+ | 0.1− | | | | | | |
| 2005 09 26 | 644 | 0.1− | 0.1+ | 2009 11 08 | 703 | 0.2+ | 0.8+ | | | | | | |

**(229357)∗ 2005 QW$_{87}$**

Discovered 2005 Aug. 28 by W. Bickel at Bergisch Gladbach.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 45.62455 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.26440222 | $\omega$ | 183.15554 | | +0.96136743 | | −0.27488579 |
| $a$ | 2.4041376 | $\Omega$ | 192.82790 | | +0.25396293 | | +0.90605635 |
| $e$ | 0.1879101 | $i$ | 3.74644 | | +0.10618610 | | +0.32171369 |
| $P$ | 3.73 | $H$ | 17.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 24 | 557 | 0.4+ | 0.4+ | 2005 10 01 | 703 | 0.3− | 0.4− | 2005 12 04 | G96 | 0.1+ | 0.4− | | |
| 2001 08 24 | 557 | 1.0− | 0.5+ | 2005 10 01 | 703 | 0.5− | 0.3+ | 2005 12 04 | G96 | 0.0 | 0.3− | | |
| 2005 08 27 | 644 | 0.2− | 0.1− | 2005 10 01 | 703 | 1.1− | 0.3+ | 2007 02 21 | 621 | 0.5+ | 0.8+ | | |
| 2005 08 27 | 644 | 0.2− | 0.0 | 2005 10 02 | 644 | 0.0 | 0.0 | 2007 02 21 | 621 | 0.2− | 0.5+ | | |
| 2005 08 27 | 644 | 0.3− | 0.1+ | 2005 10 02 | 644 | 0.0 | 0.0 | 2007 02 21 | 621 | 0.2+ | 0.2+ | | |
| 2005 08 28 | 621 | 0.1+ | 0.0 | 2005 10 02 | 644 | 0.1− | 0.0 | 2007 03 12 | G96 | 0.2+ | 0.1− | | |
| 2005 08 28 | 621 | 0.4+ | 0.0 | 2005 10 06 | 691 | 0.0 | 0.1− | 2007 03 12 | G96 | 0.3+ | 0.4+ | | |
| 2005 08 28 | 621 | 0.3+ | 0.1+ | 2005 10 06 | 691 | 0.0 | 0.0 | 2007 03 12 | G96 | 0.1− | 0.2− | | |
| 2005 08 29 | 621 | 1.2+ | 0.1− | 2005 10 06 | 691 | 0.1− | 0.1− | 2007 03 12 | G96 | 0.1+ | 0.4− | | |
| 2005 08 29 | 621 | 0.0 | 0.1+ | 2005 10 07 | 703 | (0.4+ | 2.2+) | 2008 05 28 | G96 | 0.2+ | 0.4+ | | |
| 2005 08 29 | 621 | 0.3− | 0.1− | 2005 10 07 | 703 | 0.3+ | 1.0+ | 2008 05 28 | G96 | 0.4− | 0.1+ | | |
| 2005 08 31 | 691 | 0.0 | 0.0 | 2005 10 07 | 703 | 0.1+ | 1.3+ | 2008 05 28 | G96 | 0.4+ | 0.5+ | | |
| 2005 08 31 | 691 | 0.0 | 0.0 | 2005 10 07 | 703 | (0.6+ | 1.6+) | 2008 05 28 | G96 | 0.3− | 0.3+ | | |
| 2005 08 31 | 691 | 0.6+ | 0.1− | 2005 10 12 | 691 | 0.1+ | 0.2+ | 2009 10 12 | G96 | 0.5+ | 0.5− | | |
| 2005 09 14 | 691 | 0.1− | 0.1− | 2005 10 12 | 691 | 0.4− | 0.5+ | 2009 10 12 | G96 | 0.4+ | 0.1− | | |
| 2005 09 14 | 691 | 0.0 | 0.1− | 2005 10 12 | 691 | 0.0 | 0.1+ | 2009 10 12 | G96 | 0.8+ | 0.2− | | |
| 2005 09 14 | 691 | 0.1− | 0.1+ | 2005 10 20 | 644 | 0.2− | 0.2+ | 2009 10 12 | G96 | 0.6+ | 0.5− | | |
| 2005 09 24 | 691 | 0.2+ | 0.0 | 2005 10 20 | 644 | 0.0 | 0.5+ | 2009 11 09 | 703 | 0.3+ | 0.8− | | |
| 2005 09 24 | 691 | 0.2+ | 0.0 | 2005 10 20 | 644 | 0.3+ | 0.0 | 2009 11 09 | 703 | 1.1− | 1.1− | | |
| 2005 09 24 | 691 | 0.0 | 0.2+ | 2005 10 23 | 705 | 0.1+ | 0.1− | 2009 11 09 | 703 | 1.2+ | 0.0 | | |
| 2005 09 25 | 644 | 0.1− | 0.1+ | 2005 10 23 | 705 | 0.1+ | 0.1− | 2009 11 09 | 703 | 0.2+ | 0.9− | | |
| 2005 09 25 | 644 | 0.1− | 0.1+ | 2005 10 25 | 705 | 0.1+ | 0.2− | 2009 11 13 | J75 | 0.5+ | 0.3+ | | |
| 2005 09 25 | 644 | 0.2+ | 0.2+ | 2005 10 25 | 705 | 0.1− | 0.2− | 2009 11 13 | J75 | 0.5− | 0.2+ | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 26 | 644 | 0.0 | 0.0 | 2005 10 27 | 705 | 0.0 | 0.2− | 2009 11 13 | J75 | 0.7+ | 0.4− |
| 2005 09 26 | 644 | 0.0 | 0.1+ | 2005 10 27 | 705 | 0.0 | 0.2− | 2009 11 17 | 703 | 0.6+ | 1.3− |
| 2005 09 26 | 644 | 0.2+ | 0.2− | 2005 10 28 | 705 | 0.1− | 0.1− | 2009 11 17 | 703 | 0.1+ | 0.8− |
| 2005 09 29 | 644 | 0.1− | 0.4− | 2005 10 28 | 705 | 0.1− | 0.2− | 2009 11 17 | 703 | 0.6− | 0.3− |
| 2005 09 29 | 699 | 0.4+ | 0.1− | 2005 11 01 | 705 | 0.1+ | 0.1− | 2009 11 17 | 703 | (1.7− | 0.6−) |
| 2005 09 29 | 644 | 0.0 | 0.1+ | 2005 11 01 | 705 | 0.0 | 0.1− | 2009 11 18 | 691 | 0.2− | 0.1+ |
| 2005 09 29 | 699 | 0.3+ | 0.0 | 2005 11 03 | 705 | 0.1− | 0.1− | 2009 11 18 | 691 | 0.0 | 0.3+ |
| 2005 09 29 | 644 | 0.1− | 0.0 | 2005 11 03 | 705 | 0.1− | 0.1− | 2009 11 18 | 691 | 0.3− | 0.3+ |
| 2005 09 29 | 699 | 0.3− | 1.1+ | 2005 11 05 | 705 | 0.1+ | 0.0 | 2009 11 22 | 691 | 0.5− | 0.2+ |
| 2005 09 29 | 699 | 0.9− | 0.1− | 2005 11 05 | 705 | 0.1+ | 0.2− | 2009 11 22 | 691 | 0.6+ | 0.2+ |
| 2005 09 30 | 691 | 0.1+ | 0.0 | 2005 11 07 | 705 | 0.0 | 0.1− | 2009 11 22 | 691 | 0.7− | 0.2+ |
| 2005 09 30 | 691 | 0.1+ | 0.2− | 2005 11 07 | 705 | 0.1− | 0.1− | 2009 11 26 | 691 | 0.1+ | 0.1+ |
| 2005 09 30 | 691 | 0.0 | 0.1− | 2005 11 19 | 705 | 0.2− | 0.1− | 2009 11 26 | 691 | 0.4− | 0.5+ |
| 2005 10 01 | G96 | 0.1− | 0.2− | 2005 11 19 | 705 | 0.2− | 0.1− | 2009 11 26 | 691 | 0.1+ | 0.1− |
| 2005 10 01 | G96 | 0.3− | 0.2− | 2005 11 23 | 705 | 0.3− | 0.3− | 2009 12 13 | H10 | 1.2+ | 0.0 |
| 2005 10 01 | G96 | 0.1+ | 0.2− | 2005 11 23 | 705 | 0.3− | 0.3− | 2009 12 13 | H10 | 0.2+ | 0.1+ |
| 2005 10 01 | G96 | 0.1− | 0.3− | 2005 12 04 | G96 | 0.8− | 0.7− | | | | |
| 2005 10 01 | 703 | 0.3+ | 0.8− | 2005 12 04 | G96 | 0.7+ | 0.1− | | | | |

**(229358)∗ 2005 QS$_{99}$**

Discovered 2005 Aug. 27 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 90.15698 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.30144714 | $\omega$ | 89.79110 | | +0.97717191 | | −0.20261222 |
| $a$ | 2.2029025 | $\Omega$ | 281.89821 | | +0.15950597 | | +0.89835788 |
| $e$ | 0.0233747 | $i$ | 3.74432 | | +0.14033143 | | +0.38974532 |
| $P$ | 3.27 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 10 18 | 644 | 0.2− | 0.6+ | 2005 10 01 | 699 | (0.1+ | 1.8+) | 2007 02 08 | 691 | 0.3− | 0.6+ |
| 2002 10 18 | 644 | 0.1− | 0.4+ | 2005 10 09 | 691 | 0.3− | 0.0 | 2007 02 08 | 691 | 0.2− | 0.1+ |
| 2002 10 18 | 644 | 0.4− | 0.6+ | 2005 10 09 | 691 | 0.1− | 0.2+ | 2007 02 08 | 703 | 0.5+ | 0.7+ |
| 2004 03 14 | 644 | 0.3+ | 0.8+ | 2005 10 09 | 691 | 0.2+ | 0.2+ | 2007 02 08 | 703 | 0.9+ | 0.4− |
| 2004 03 14 | 644 | 0.5+ | 0.7+ | 2006 11 21 | G96 | 0.3+ | 0.2+ | 2007 02 08 | 703 | 0.4− | 0.0 |
| 2004 03 14 | 644 | 0.5+ | 0.5+ | 2006 11 21 | G96 | 0.2− | 0.2+ | 2007 02 08 | 703 | 0.6+ | 0.2− |
| 2005 07 31 | 644 | 0.3− | 0.5+ | 2006 11 21 | G96 | 0.3− | 0.2+ | 2007 02 15 | 703 | 0.7+ | 1.5+ |
| 2005 07 31 | 644 | 0.2− | 0.3+ | 2006 11 21 | G96 | 0.2+ | 0.1− | 2007 02 15 | 703 | 0.4+ | 0.2+ |
| 2005 07 31 | 644 | 0.2− | 0.3+ | 2006 12 24 | G96 | 0.3+ | 0.4− | 2007 02 15 | 703 | 1.2+ | 1.3+ |
| 2005 08 27 | 644 | 0.2− | 0.0 | 2006 12 24 | G96 | 0.1+ | 0.3− | 2007 02 15 | 703 | (2.2+ | 1.5+) |
| 2005 08 27 | 644 | 0.1+ | 0.1+ | 2006 12 24 | G96 | 0.1− | 0.1− | 2008 06 02 | G96 | 0.2+ | 0.5+ |
| 2005 08 27 | 644 | 0.1− | 0.1− | 2006 12 24 | G96 | 0.2− | 0.4− | 2008 06 02 | G96 | 0.5+ | 0.3+ |
| 2005 08 30 | 691 | 0.2+ | 0.4− | 2006 12 24 | G96 | 0.1− | 1.4− | 2008 06 02 | G96 | 0.7+ | 0.4+ |
| 2005 08 30 | 691 | 0.1+ | 0.1− | 2006 12 24 | G96 | 0.3+ | 0.1+ | 2008 06 02 | G96 | 0.4+ | 0.4+ |
| 2005 08 30 | 691 | 0.2+ | 0.1− | 2006 12 24 | G96 | 0.2+ | 0.2+ | 2008 06 13 | 691 | 0.1− | 0.5+ |
| 2005 09 12 | 691 | 0.0 | 0.1+ | 2006 12 24 | G96 | 0.0 | 0.3+ | 2008 06 13 | 691 | 0.1− | 0.1− |
| 2005 09 12 | 691 | 0.1+ | 0.1+ | 2007 01 24 | 703 | 0.4− | 0.1+ | 2008 06 13 | 691 | 0.6− | 0.3+ |
| 2005 09 12 | 691 | 0.0 | 0.3+ | 2007 01 24 | 703 | 0.4+ | 0.2+ | 2009 11 11 | G96 | 0.0 | 0.0 |
| 2005 09 26 | 691 | 0.3− | 0.3+ | 2007 01 24 | 703 | 1.0+ | 0.4− | 2009 11 11 | G96 | 0.5− | 0.2− |
| 2005 09 26 | 691 | 0.1− | 0.3+ | 2007 01 24 | 703 | 0.5− | 0.3+ | 2009 11 11 | G96 | 0.0 | 0.0 |
| 2005 09 26 | 691 | 0.3− | 0.3+ | 2007 01 29 | 691 | 0.1+ | 0.2+ | 2009 11 11 | G96 | 0.1− | 0.0 |
| 2005 10 01 | 699 | 0.3− | 0.4− | 2007 01 29 | 691 | 0.1− | 0.0 | 2009 12 20 | 691 | 0.0 | 0.1+ |
| 2005 10 01 | 699 | (1.8− | 0.1+) | 2007 01 29 | 691 | 0.0 | 0.2+ | 2009 12 20 | 691 | 0.0 | 0.0 |
| 2005 10 01 | 699 | 0.5+ | 0.1− | 2007 02 08 | 691 | 0.2− | 0.3+ | 2009 12 20 | 691 | 0.1+ | 0.1− |

**(229359)∗ 2005 QX$_{104}$**

Discovered 2005 Aug. 27 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 19.45387 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.27446651 | $\omega$ | 167.16987 | | +0.51070434 | | −0.85918287 |
| $a$ | 2.3450016 | $\Omega$ | 252.11170 | | +0.78586808 | | +0.48131449 |
| $e$ | 0.1711934 | $i$ | 1.89074 | | +0.34870108 | | +0.17361210 |
| $P$ | 3.59 | $H$ | 17.7 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 01 11 | 291 | 0.5− | 0.5+ | 2005 09 29 | 691 | 0.3+ | 0.1− | 2009 09 20 | G96 | 0.4+ | 0.1+ |
| 2003 01 11 | 291 | 0.2− | 0.6+ | 2005 09 29 | 691 | 0.0 | 0.1− | 2009 09 20 | G96 | 0.0 | 0.1− |
| 2003 01 11 | 291 | 0.0 | 0.6+ | 2005 09 29 | 691 | 0.3+ | 0.1+ | 2009 09 20 | G96 | 0.2+ | 0.2− |
| 2003 01 25 | 645 | 0.1+ | 0.1− | 2007 02 23 | 691 | 0.0 | 0.5+ | 2009 11 21 | 691 | 0.4− | 0.1− |
| 2003 01 25 | 645 | 0.1+ | 0.1− | 2007 02 23 | 691 | 0.4+ | 0.4+ | 2009 11 21 | 691 | 0.2− | 0.1+ |
| 2005 08 27 | 644 | 0.1− | 0.2+ | 2007 02 23 | 691 | 0.3− | 0.2− | 2009 11 21 | 691 | 0.1− | 0.1+ |
| 2005 08 27 | 644 | 0.1− | 0.3+ | 2007 03 11 | G96 | 0.4+ | 0.2− | 2009 12 10 | G96 | 0.2+ | 0.1− |
| 2005 08 27 | 644 | 0.2+ | 0.6+ | 2007 03 11 | G96 | 0.3+ | 0.4+ | 2009 12 10 | G96 | 0.3+ | 0.2− |
| 2005 08 31 | 691 | 0.2− | 0.1+ | 2007 03 11 | G96 | 0.5+ | 0.1+ | 2009 12 10 | G96 | 0.2+ | 0.3− |
| 2005 08 31 | 691 | 0.1− | 0.0 | 2007 03 11 | G96 | 0.0 | 0.1− | 2009 12 10 | G96 | 0.0 | 0.5− |
| 2005 08 31 | 691 | 0.5− | 0.2+ | 2007 04 20 | G96 | 0.3− | 0.6− | 2009 12 19 | G96 | 0.5+ | 0.2− |
| 2005 09 13 | 691 | 0.1− | 0.1+ | 2007 04 20 | G96 | 0.7− | 0.4− | 2009 12 19 | G96 | 0.3+ | 0.2− |
| 2005 09 13 | 691 | 0.1+ | 0.0 | 2007 04 20 | G96 | 0.3+ | 0.1− | 2009 12 19 | G96 | 0.5+ | 0.1− |
| 2005 09 13 | 691 | 0.0 | 0.1+ | 2007 04 20 | G96 | 0.1− | 0.1+ | 2009 12 19 | G96 | 0.4+ | 0.0 |

**(229360)∗ 2005 QE$_{106}$ = 2001 KA$_{79}$**

Discovered 2005 Aug. 27 by NEAT at Palomar.

Id. G. V. Williams (*MPO* 141188)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 98.51778 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.27976811 | $\omega$ | 232.91003 | | +0.74482792 | | +0.66324988 |
| $a$ | 2.3152821 | $\Omega$ | 85.41802 | | −0.58660270 | | +0.70301579 |
| $e$ | 0.2072862 | $i$ | 4.20054 | | −0.31800730 | | +0.25664841 |
| $P$ | 3.52 | $H$ | 17.5 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1991 10 14 | 691 | 0.2+ | 0.4− | 2005 08 28 | 699 | 0.6+ | 0.8+ | 2008 04 14 | 691 | 0.0 | 0.2+ |
| 1991 10 14 | 691 | 0.1+ | 0.3− | 2005 09 25 | 644 | 0.2+ | 0.1+ | 2008 04 29 | G96 | 0.1− | 0.1+ |
| 1991 10 14 | 691 | 0.3− | 0.6− | 2005 09 25 | 644 | 0.1+ | 0.6+ | 2008 04 29 | G96 | 0.6− | 0.7− |
| 2001 05 17 | 691 | 0.6+ | 0.3− | 2005 09 25 | 644 | 0.1− | 0.0 | 2008 04 29 | G96 | 0.2− | 0.1+ |
| 2001 05 17 | 691 | 0.2+ | 0.0 | 2005 09 25 | 703 | 0.1− | 0.3+ | 2008 04 29 | G96 | 0.3− | 0.1+ |
| 2001 05 17 | 691 | 0.4+ | 0.6− | 2005 09 25 | 703 | 0.1− | 1.2+ | 2008 06 01 | G96 | 0.1− | 0.2+ |
| 2005 07 29 | 644 | 0.2+ | 0.2+ | 2005 09 25 | 703 | (2.4− | 0.3−) | 2008 06 01 | G96 | 0.3− | 0.6+ |
| 2005 07 29 | 644 | 0.3+ | 0.1+ | 2005 09 25 | 703 | 1.4− | 0.2+ | 2008 06 01 | G96 | 0.3− | 0.1+ |
| 2005 07 29 | 644 | 0.0 | 0.1+ | 2008 03 29 | 691 | 0.1− | 0.2+ | 2008 06 01 | G96 | 0.1− | 0.6+ |
| 2005 08 06 | E12 | 0.5− | 0.1− | 2008 03 29 | 691 | 0.0 | 0.1+ | 2009 11 20 | 691 | 0.2− | 0.1+ |
| 2005 08 06 | E12 | 0.2− | 0.4+ | 2008 03 29 | 691 | 0.4− | 0.0 | 2009 11 20 | 691 | 0.3+ | 0.3+ |
| 2005 08 06 | E12 | 0.1+ | 0.1+ | 2008 03 29 | 691 | 0.3+ | 0.2+ | 2009 11 20 | 691 | 0.7− | 0.2+ |
| 2005 08 06 | E12 | 0.6− | 0.1− | 2008 03 29 | 691 | 0.0 | 0.4− | 2009 11 24 | 691 | 0.1− | 0.2+ |
| 2005 08 27 | 644 | 0.4− | 0.4+ | 2008 03 29 | 691 | 0.3− | 0.5+ | 2009 11 24 | 691 | 0.4+ | 0.3+ |
| 2005 08 27 | 644 | 0.1− | 0.1+ | 2008 04 06 | 691 | 0.4+ | 0.2+ | 2009 11 24 | 691 | 0.4− | 0.3+ |
| 2005 08 27 | 644 | 0.1− | 0.0 | 2008 04 06 | 691 | 0.0 | 0.2+ | 2009 12 15 | G96 | 0.6+ | 0.1− |
| 2005 08 28 | 699 | 0.3+ | 1.2+ | 2008 04 06 | 691 | 0.3− | 0.3+ | 2009 12 15 | G96 | 0.7+ | 0.0 |
| 2005 08 28 | 699 | 1.2+ | 0.8+ | 2008 04 14 | 691 | 0.1− | 0.1+ | 2009 12 15 | G96 | 1.0+ | 0.3+ |
| 2005 08 28 | 699 | 1.0− | 0.8− | 2008 04 14 | 691 | 0.1− | 0.3+ | 2009 12 15 | G96 | 0.9+ | 0.5+ |

**(229361)∗ 2005 QU$_{106}$**

Discovered 2005 Aug. 27 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 90.02057 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.27749996 | $\omega$ | 231.44064 | | +0.83655052 | | +0.54344887 |
| $a$ | 2.3278809 | $\Omega$ | 95.53686 | | −0.47841244 | | +0.78647592 |
| $e$ | 0.2138230 | $i$ | 4.01075 | | −0.26702954 | | +0.29346031 |
| $P$ | 3.55 | $H$ | 17.7 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 09 19 | 645 | 0.0 | 0.0 | 2005 08 28 | 699 | 0.1+ | 0.6+ | 2008 04 14 | 691 | 0.1− | 0.1− |
| 1998 09 19 | 645 | 0.0 | 0.0 | 2005 08 28 | 699 | 0.1+ | 1.1+ | 2008 04 29 | G96 | 0.1+ | 0.1− |
| 1998 09 25 | 645 | 0.0 | 0.1− | 2005 08 28 | 699 | 0.3− | 1.2+ | 2008 04 29 | G96 | 0.1− | 0.0 |
| 1998 09 25 | 645 | 0.1− | 0.1− | 2005 08 28 | 699 | 0.9+ | 0.6+ | 2008 04 29 | G96 | 0.2+ | 0.0 |
| 2001 05 21 | 691 | 0.4− | 0.1+ | 2005 09 24 | 644 | 0.3+ | 0.6+ | 2008 04 29 | G96 | 0.5+ | 0.3− |
| 2001 05 21 | 691 | 0.1− | 0.1− | 2005 09 24 | 644 | 0.5+ | 0.4+ | 2008 06 01 | G96 | 0.0 | 0.2+ |
| 2001 05 21 | 691 | 0.4− | 0.1− | 2005 09 24 | 644 | 0.1− | 0.5+ | 2008 06 01 | G96 | 0.2+ | 0.1+ |
| 2004 04 13 | 291 | 0.5+ | 0.7+ | 2005 09 25 | 703 | 1.2− | 0.4− | 2008 06 01 | G96 | 0.4+ | 0.4+ |
| 2004 04 13 | 291 | 1.2+ | 0.2− | 2005 09 25 | 703 | 0.1− | 0.1− | 2008 06 01 | G96 | 0.1− | 0.1+ |
| 2004 04 13 | 291 | 0.9+ | 0.4+ | 2005 09 25 | 703 | 0.5+ | 0.4− | 2009 11 19 | 691 | 0.2− | 0.1+ |
| 2005 07 29 | 644 | 0.1+ | 0.2+ | 2005 09 25 | 703 | 0.5− | 1.1+ | 2009 11 19 | 691 | 0.0 | 0.1+ |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 07 29 | 644 | 0.5+ | 0.3+ | 2008 03 29 | 691 | 0.2− | 0.1+ | 2009 11 19 | 691 | 1.4− | 0.1− |
| 2005 07 29 | 644 | 0.1+ | 0.1+ | 2008 03 29 | 691 | 0.1+ | 0.1− | 2009 12 11 | G96 | 1.2+ | 0.6+ |
| 2005 08 27 | 644 | 0.1+ | 0.4+ | 2008 03 29 | 691 | 0.2− | 0.0 | 2009 12 11 | G96 | 0.6+ | 0.1+ |
| 2005 08 27 | 644 | 0.1+ | 0.5+ | 2008 04 14 | 691 | 0.0 | 0.0 | 2009 12 11 | G96 | 0.6+ | 0.1+ |
| 2005 08 27 | 644 | 0.1− | 0.5+ | 2008 04 14 | 691 | 0.5− | 0.3+ | | | | |

**(229362)∗ 2005 QW$_{112}$**

Discovered 2005 Aug. 27 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 39.40350 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.26395921 | | $\omega$ | 307.31436 | | +0.94117959 | | −0.32722588 | |
| $a$ | 2.4068268 | | $\Omega$ | 71.92379 | | +0.33124708 | | +0.84418870 | |
| $e$ | 0.2673848 | | $i$ | 5.08666 | | +0.06675595 | | +0.42458057 | |
| $P$ | 3.73 | | $H$ | 16.5 | $G$ | 0.15 | $U$ | 2 | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 07 10 | 644 | 0.0 | 0.1+ | 2005 10 22 | 703 | 0.4− | 0.6− | 2009 11 27 | G96 | 0.3+ | 0.2− |
| 2001 07 10 | 644 | 0.3− | 0.4+ | 2005 10 31 | 699 | 0.4+ | 1.1+ | 2009 12 08 | J75 | 0.4+ | 0.1− |
| 2001 07 10 | 644 | 0.2+ | 0.1+ | 2005 10 31 | 699 | 0.2− | 0.2+ | 2009 12 08 | J75 | 0.5+ | 0.1+ |
| 2001 07 23 | 644 | 0.3+ | 1.1+ | 2005 10 31 | 699 | 0.7+ | 1.3+ | 2009 12 08 | J75 | 0.9+ | 0.0 |
| 2001 07 23 | 644 | 0.2− | 0.9+ | 2005 10 31 | 699 | (1.9− | 1.0+) | 2009 12 10 | G96 | 0.2+ | 0.2− |
| 2001 07 23 | 644 | 0.2− | 1.1+ | 2008 05 27 | G96 | 0.6+ | 0.0 | 2009 12 10 | G96 | 0.3+ | 0.1− |
| 2005 08 27 | 644 | 0.0 | 0.1− | 2008 05 27 | G96 | 0.1+ | 0.3+ | 2009 12 10 | G96 | 0.2+ | 0.1− |
| 2005 08 27 | 644 | 0.2− | 0.1− | 2008 05 27 | G96 | 0.1− | 0.6+ | 2009 12 10 | G96 | 0.3+ | 0.1− |
| 2005 08 27 | 644 | 0.1− | 0.0 | 2008 05 27 | G96 | 0.0 | 0.5+ | 2009 12 11 | 704 | 0.7+ | 0.8+ |
| 2005 08 28 | 699 | 0.0 | 0.1+ | 2009 10 14 | 704 | 0.1+ | 0.2− | 2009 12 11 | 704 | 0.2+ | 0.3+ |
| 2005 08 28 | 699 | 1.0− | 0.6+ | 2009 10 14 | 704 | 0.5+ | 0.5+ | 2009 12 11 | 704 | 0.1+ | 0.2+ |
| 2005 08 28 | 699 | 0.3− | 0.2+ | 2009 10 14 | 704 | 0.5+ | 0.0 | 2009 12 11 | 703 | 0.6+ | 0.0 |
| 2005 09 01 | 644 | 0.2− | 0.3+ | 2009 10 14 | 704 | 0.9+ | 0.0 | 2009 12 11 | 704 | 0.3+ | 0.7+ |
| 2005 09 01 | 644 | 0.1+ | 0.1− | 2009 11 08 | 691 | 0.3− | 0.1+ | 2009 12 11 | 703 | 0.3− | 0.3− |
| 2005 09 01 | 644 | 0.1− | 0.1− | 2009 11 08 | 691 | 0.3− | 0.0 | 2009 12 11 | 703 | 0.1− | 0.0 |
| 2005 09 25 | 703 | 0.1− | 0.2+ | 2009 11 08 | 691 | 0.3+ | 0.0 | 2009 12 11 | 703 | 0.6− | 0.4− |
| 2005 09 25 | 703 | (0.1− | 1.7+) | 2009 11 11 | J75 | 0.6+ | 0.1− | 2009 12 15 | G96 | 0.3+ | 0.1+ |
| 2005 09 25 | 703 | 0.3+ | 0.3+ | 2009 11 11 | J75 | 0.1− | 0.1− | 2009 12 15 | G96 | 0.0 | 0.1+ |
| 2005 09 25 | 703 | 0.3+ | 0.3− | 2009 11 11 | J75 | 0.6+ | 0.6− | 2009 12 15 | G96 | 0.4+ | 0.0 |
| 2005 09 27 | I10 | 0.7+ | 0.3+ | 2009 11 12 | J75 | 0.4+ | 0.2− | 2009 12 15 | G96 | 0.4+ | 0.0 |
| 2005 09 27 | I10 | 0.6+ | 0.3+ | 2009 11 12 | J75 | 0.2+ | 0.4− | 2009 12 15 | G96 | 0.5+ | 0.0 |
| 2005 09 27 | I10 | 0.3+ | 0.6+ | 2009 11 12 | J75 | 0.4+ | 0.4− | 2009 12 15 | G96 | 0.1− | 0.0 |
| 2005 09 27 | 704 | 0.2− | 0.0 | 2009 11 16 | 691 | 0.3− | 0.1− | 2009 12 15 | G96 | 0.1+ | 0.1+ |
| 2005 09 27 | 704 | 0.1+ | 0.5− | 2009 11 16 | 691 | 0.4− | 0.0 | 2009 12 15 | G96 | 1.9− | 0.6− |
| 2005 09 27 | 704 | 0.2+ | 0.3− | 2009 11 16 | 691 | 0.4− | 0.1− | 2009 12 15 | G96 | 0.4+ | 0.1− |
| 2005 09 27 | 704 | 0.3+ | 0.1− | 2009 11 18 | 704 | 0.5+ | 0.6+ | 2009 12 15 | G96 | 0.6+ | 0.2− |
| 2005 09 27 | 704 | 0.3− | 0.2− | 2009 11 18 | 704 | 0.0 | 0.3+ | 2009 12 15 | G96 | 0.7+ | 0.1− |
| 2005 10 03 | 703 | 0.4− | 0.5− | 2009 11 18 | 704 | 0.1+ | 0.2+ | 2009 12 15 | G96 | 0.3+ | 0.1− |
| 2005 10 03 | 703 | 0.4+ | 0.1− | 2009 11 18 | 704 | 0.8+ | 0.0 | 2009 12 16 | H26 | 1.2+ | 0.4− |
| 2005 10 03 | 703 | 0.6− | 0.1+ | 2009 11 18 | 704 | 0.5+ | 0.4+ | 2009 12 16 | H26 | 0.0 | 0.2+ |
| 2005 10 03 | 703 | 0.2+ | 0.2+ | 2009 11 21 | J75 | 0.3+ | 0.5− | 2009 12 16 | H26 | 0.2+ | 0.2+ |
| 2005 10 07 | 699 | 0.2− | 0.3+ | 2009 11 21 | J75 | 0.0 | 0.2− | 2009 12 16 | H26 | 0.5− | 0.6+ |
| 2005 10 07 | 699 | 0.1+ | 0.2+ | 2009 11 21 | J75 | 0.7+ | 0.3+ | 2009 12 16 | 291 | 0.5− | 0.3+ |
| 2005 10 07 | 699 | 0.7− | 0.2+ | 2009 11 21 | 704 | 0.4− | 0.0 | 2009 12 16 | 291 | 0.4− | 0.3+ |
| 2005 10 07 | 699 | 0.3− | 0.2+ | 2009 11 21 | 704 | 0.1+ | 0.3− | 2009 12 16 | 291 | 0.4− | 0.3+ |
| 2005 10 09 | 160 | 0.5+ | 0.4− | 2009 11 21 | 704 | 0.1− | 0.3− | 2009 12 16 | 704 | 0.3− | 0.7+ |
| 2005 10 09 | 160 | 1.0+ | 1.4− | 2009 11 24 | J75 | 1.2+ | 0.1− | 2009 12 16 | G96 | 0.0 | 0.2− |
| 2005 10 09 | 160 | 0.2− | 0.2+ | 2009 11 24 | J75 | 0.6+ | 0.3+ | 2009 12 16 | 704 | 0.7− | 1.2+ |
| 2005 10 09 | 160 | 0.3+ | 0.6− | 2009 11 24 | J75 | 0.3+ | 0.0 | 2009 12 16 | G96 | 0.1+ | 0.1− |
| 2005 10 10 | 703 | 0.3− | 0.8− | 2009 11 24 | 691 | 0.3− | 0.1− | 2009 12 16 | 704 | 1.0− | 1.6+ |
| 2005 10 10 | 703 | 0.7− | 0.1+ | 2009 11 24 | 691 | 0.1− | 0.0 | 2009 12 16 | G96 | 0.2+ | 0.0 |
| 2005 10 10 | 703 | 1.0− | 0.4− | 2009 11 24 | 691 | 0.3− | 0.2− | 2009 12 16 | G96 | 0.2+ | 0.1− |
| 2005 10 10 | 703 | 0.3− | 0.3+ | 2009 11 27 | G96 | 0.3+ | 0.1− | 2009 12 16 | 704 | 0.8− | 0.5+ |
| 2005 10 22 | 703 | 0.8+ | 0.4− | 2009 11 27 | G96 | 0.3+ | 0.1− | 2009 12 16 | 704 | 1.7− | 0.6− |
| 2005 10 22 | 703 | 0.7+ | 0.6− | 2009 11 27 | G96 | 0.6+ | 0.1− | | | | |
| 2005 10 22 | 703 | 0.1+ | 0.5− | 2009 11 27 | G96 | 0.3+ | 0.1− | | | | |

**(229363)∗ 2005 QY$_{156}$**

Discovered 2005 Aug. 30 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 161.97120 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.29152613 | | $\omega$ | 351.38157 | | +0.07950314 | | +0.98454945 | |
| $a$ | 2.2526016 | | $\Omega$ | 283.07013 | | −0.90476543 | | +0.00557384 | |
| $e$ | 0.1387317 | | $i$ | 9.21661 | | −0.41842414 | | +0.17501801 | |
| $P$ | 3.38 | | $H$ | 16.4 | $G$ | 0.15 | $U$ | 1 | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 11 12 | 691 | 0.1− | 0.1+ | 2005 09 01 | 704 | 0.9− | 0.6+ | 2006 12 13 | G96 | 0.1− | 0.0 |
| 1996 11 12 | 691 | 0.2− | 0.0 | 2005 09 01 | 704 | 0.5+ | 0.6+ | 2006 12 13 | G96 | 0.4− | 0.2− |
| 1996 11 12 | 691 | 0.2+ | 0.1− | 2005 09 01 | 704 | 0.8− | 0.2− | 2006 12 13 | G96 | 0.0 | 0.3− |
| 2001 06 16 | 644 | (3.4− | 1.5−) | 2005 09 01 | 704 | 0.5− | 0.6+ | 2006 12 13 | G96 | 0.2− | 0.1− |
| 2001 06 16 | 644 | (3.3− | 2.0−) | 2005 09 11 | 704 | 0.0 | 0.6+ | 2007 01 09 | G96 | 0.8− | 0.2− |
| 2001 06 16 | 644 | (2.9− | 2.2−) | 2005 09 11 | 704 | 0.5− | 0.2+ | 2007 01 09 | G96 | 0.2− | 0.2− |
| 2002 10 05 | 704 | 0.2+ | 0.7+ | 2005 09 11 | 704 | 0.1− | 0.2+ | 2007 01 09 | G96 | 0.1− | 0.0 |
| 2002 10 05 | 704 | 0.1− | 0.9+ | 2005 09 11 | 704 | 0.1+ | 0.5+ | 2007 01 09 | G96 | 0.2− | 0.7− |
| 2002 10 05 | 704 | 0.3− | 1.5− | 2005 09 11 | 704 | 1.3+ | 0.1+ | 2007 01 17 | G96 | 0.0 | 0.1− |
| 2004 02 14 | 644 | 0.2+ | 0.4+ | 2005 09 12 | 683 | 1.1− | 0.6+ | 2007 01 17 | G96 | 0.1+ | 0.1− |
| 2004 02 14 | 644 | 0.3+ | 0.3+ | 2005 09 12 | 683 | 1.3+ | 1.5− | 2007 01 17 | G96 | 0.2+ | 0.0 |
| 2004 02 14 | 644 | 0.8+ | 0.4+ | 2005 09 12 | 683 | (1.5+ | 0.3+) | 2007 01 17 | G96 | 0.3− | 0.1+ |
| 2004 03 13 | 644 | 0.6+ | 0.5+ | 2005 09 13 | 683 | (2.1− | 2.3−) | 2007 02 10 | G96 | 0.3− | 0.4− |
| 2004 03 13 | 644 | 0.5+ | 0.2+ | 2005 09 13 | 683 | (1.1− | 1.7−) | 2007 02 10 | G96 | 0.4− | 0.1− |
| 2004 03 13 | 644 | 0.4+ | 0.3+ | 2005 09 13 | 683 | 0.7+ | 0.6− | 2007 02 10 | G96 | 0.5− | 0.1− |
| 2004 03 16 | 704 | 0.0 | 0.2+ | 2005 10 01 | 703 | 0.1+ | 0.3+ | 2007 02 10 | G96 | 0.2− | 0.1− |
| 2004 03 16 | 704 | 0.1− | 0.8+ | 2005 10 01 | 703 | 0.3+ | 0.2+ | 2009 11 27 | G96 | 0.5− | 0.2+ |
| 2004 03 16 | 704 | 0.7+ | 0.9+ | 2005 10 01 | 703 | 0.3+ | 0.1− | 2009 11 27 | G96 | 0.1+ | 0.2+ |
| 2004 03 16 | 704 | (3.0− | 3.3+) | 2005 10 01 | 703 | 0.7− | 0.7+ | 2009 11 27 | G96 | 0.1− | 0.1+ |
| 2005 07 03 | 703 | (1.3− | 1.7−) | 2005 10 22 | 644 | 0.3− | 0.1− | 2009 11 27 | G96 | 0.1+ | 0.2− |
| 2005 07 03 | 703 | 0.2+ | 0.6− | 2005 10 22 | 644 | 0.2− | 0.1+ | 2009 11 27 | G96 | 0.3+ | 0.1− |
| 2005 07 03 | 703 | 1.0− | 0.9− | 2005 10 22 | 644 | 0.1+ | 0.1− | 2009 12 15 | 704 | 0.2+ | 0.4+ |
| 2005 07 03 | 703 | 0.0 | 0.6+ | 2006 10 31 | G96 | 0.5− | 0.8− | 2009 12 15 | 704 | 0.1+ | 1.2+ |
| 2005 08 30 | 644 | 0.2− | 0.2− | 2006 10 31 | G96 | 0.6− | 0.1+ | 2009 12 15 | 704 | 0.3− | 0.6+ |
| 2005 08 30 | 644 | 0.0 | 0.1− | 2006 10 31 | G96 | 0.4+ | 0.7− | 2009 12 15 | 704 | 1.2+ | 1.2+ |
| 2005 08 30 | 644 | 0.0 | 0.1− | 2006 10 31 | G96 | 0.2− | 0.6− | | | | |

**(229364)∗ 2005 QY$_{170}$**

Discovered 2005 Aug. 29 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 75.27274 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.26635192 | | $\omega$ | 82.04655 | | +0.84124844 | | +0.53509847 | |
| $a$ | 2.3923910 | | $\Omega$ | 245.57203 | | −0.52343814 | | +0.77033342 | |
| $e$ | 0.2447895 | | $i$ | 4.86840 | | −0.13532765 | | +0.34677955 | |
| $P$ | 3.70 | | $H$ | 16.4 | $G$ | 0.15 | $U$ | 2 | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 03 28 | 691 | 0.3+ | 0.4+ | 2005 09 29 | 699 | 0.0 | 0.2− | 2009 10 26 | 703 | (1.9+ | 0.1+) |
| 2004 03 28 | 691 | 0.2+ | 0.7+ | 2005 10 01 | 703 | 0.6− | 0.5− | 2009 11 08 | 691 | 0.2− | 0.1+ |
| 2004 03 28 | 691 | 0.2+ | 0.4+ | 2005 10 01 | 703 | 0.2+ | 0.3− | 2009 11 08 | 691 | 0.3− | 0.1+ |
| 2005 07 03 | 703 | (1.3− | 1.8−) | 2005 10 01 | 703 | 0.6− | 0.2− | 2009 11 08 | 691 | 0.5− | 0.0 |
| 2005 07 03 | 703 | 0.3− | 0.3+ | 2005 10 01 | 703 | 0.2+ | 0.1+ | 2009 11 09 | J75 | 0.2− | 0.1− |
| 2005 07 03 | 703 | 0.5− | 0.2+ | 2005 10 07 | 703 | 0.8− | 0.8− | 2009 11 09 | J75 | 0.2− | 0.2− |
| 2005 07 03 | 703 | 0.9+ | 1.3+ | 2005 10 07 | 703 | 0.5− | 0.1− | 2009 11 09 | J75 | 0.3+ | 0.9− |
| 2005 08 04 | 704 | 0.0 | 0.2− | 2005 10 07 | 703 | 0.1− | 1.4− | 2009 11 10 | H10 | 0.3− | 0.3+ |
| 2005 08 04 | 704 | 0.4− | 0.0 | 2005 10 07 | 703 | 0.4− | 0.5− | 2009 11 10 | H10 | 0.0 | 1.0+ |
| 2005 08 04 | 704 | 0.5+ | 0.2− | 2005 10 08 | 704 | 0.4− | 1.0+ | 2009 11 10 | H10 | 0.0 | 0.6+ |
| 2005 08 04 | 704 | 0.1+ | 0.5+ | 2005 10 08 | 704 | 0.1− | 0.8+ | 2009 11 10 | H10 | 0.8+ | 0.0 |
| 2005 08 29 | 644 | 0.2− | 0.2− | 2005 10 08 | 704 | 0.1− | 0.2+ | 2009 11 11 | J75 | 0.4+ | 0.2− |
| 2005 08 29 | 644 | 0.4− | 0.0 | 2005 10 08 | 704 | 0.5+ | 0.7+ | 2009 11 11 | J75 | 1.3+ | 1.1+ |
| 2005 08 29 | 644 | 0.2− | 0.0 | 2005 10 08 | 704 | 0.2+ | 0.1+ | 2009 11 12 | J75 | 0.1+ | 0.4− |
| 2005 08 31 | 704 | 0.3+ | 0.2+ | 2005 10 10 | 704 | 0.1− | 0.5+ | 2009 11 15 | J75 | 0.2− | 0.2+ |
| 2005 08 31 | 704 | 0.7− | 0.2+ | 2005 10 10 | 704 | 0.8− | 0.5+ | 2009 11 15 | J75 | 0.5− | 0.4− |
| 2005 08 31 | 704 | 0.3− | 0.3+ | 2005 10 10 | 704 | 0.4− | 0.8+ | 2009 11 15 | J75 | 0.2− | 0.1− |
| 2005 08 31 | 704 | 0.4− | 0.8+ | 2005 10 21 | 644 | 0.1+ | 0.0 | 2009 11 17 | 704 | 0.1+ | 0.4+ |
| 2005 08 31 | 704 | 0.6− | 0.9+ | 2005 10 21 | 644 | 0.0 | 0.0 | 2009 11 17 | 704 | (1.6+ | 0.8−) |
| 2005 09 11 | 704 | 0.7+ | 0.2+ | 2005 10 21 | 644 | 0.0 | 0.1+ | 2009 11 17 | 704 | 0.7+ | 0.6− |
| 2005 09 11 | 704 | 0.1+ | 0.5+ | 2005 10 25 | 699 | 0.2+ | 0.1− | 2009 11 17 | 704 | 0.9+ | 0.5− |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 11 | 704 | 0.1+ | 0.3− | 2005 10 25 | 699 | 1.3− | 0.7+ | 2009 11 20 | J75 | 0.2+ | 1.3+ | | |
| 2005 09 11 | 704 | 0.3+ | 0.2− | 2005 10 25 | 699 | 0.8− | 0.3+ | 2009 11 20 | J75 | 0.6+ | 0.2+ | | |
| 2005 09 11 | 704 | 0.9+ | 0.3− | 2005 10 25 | 699 | 1.1+ | 0.6+ | 2009 11 20 | J75 | 0.1+ | 0.1− | | |
| 2005 09 11 | 608 | 0.1+ | 0.3− | 2005 11 02 | 704 | 0.3− | 0.4+ | 2009 11 23 | J75 | 0.5+ | 0.1− | | |
| 2005 09 11 | 608 | 0.3+ | 0.5− | 2005 11 02 | 704 | 0.3− | 0.3+ | 2009 11 23 | J75 | 0.0 | 0.0 | | |
| 2005 09 11 | 608 | 0.2+ | 0.2− | 2005 11 02 | 704 | 1.0+ | 0.5− | 2009 11 23 | J75 | 0.7− | 0.1− | | |
| 2005 09 23 | 644 | 0.1− | 0.2− | 2005 11 02 | 704 | 0.5+ | 0.5+ | 2009 11 24 | 691 | 0.2− | 0.0 | | |
| 2005 09 23 | 644 | 0.0 | 0.1+ | 2007 02 10 | G96 | 0.3− | 0.2+ | 2009 11 24 | 691 | 0.2− | 0.2+ | | |
| 2005 09 23 | 699 | 0.3+ | 0.3− | 2007 02 10 | G96 | 0.2− | 0.3+ | 2009 11 24 | 691 | 0.2− | 0.2+ | | |
| 2005 09 23 | 644 | 0.1− | 0.0 | 2007 02 10 | G96 | 0.0 | 0.1+ | 2009 12 09 | J75 | 0.5+ | 0.8− | | |
| 2005 09 23 | 699 | 0.3+ | 0.0 | 2007 02 10 | G96 | 0.2+ | 0.0 | 2009 12 09 | J75 | 0.1− | 0.5− | | |
| 2005 09 23 | 699 | 0.8+ | 0.1− | 2009 10 24 | 703 | 0.5+ | 0.2− | 2009 12 09 | J75 | 0.6+ | 0.3− | | |
| 2005 09 29 | 699 | 0.4+ | 0.2− | 2009 10 24 | 703 | 0.9− | 0.2− | 2009 12 11 | 703 | 1.3+ | 0.7+ | | |
| 2005 09 29 | 644 | 0.0 | 0.0 | 2009 10 24 | 703 | 0.2+ | 0.2− | 2009 12 11 | 703 | 0.3+ | 0.2− | | |
| 2005 09 29 | 699 | 0.3− | 0.1− | 2009 10 24 | 703 | 0.7− | 0.3− | 2009 12 11 | 703 | 0.6− | 0.2− | | |
| 2005 09 29 | 644 | 0.2+ | 0.0 | 2009 10 26 | 703 | 0.8+ | 0.2+ | 2009 12 11 | 703 | 0.6+ | 0.6− | | |
| 2005 09 29 | 699 | 0.7− | 0.9+ | 2009 10 26 | 703 | 0.2+ | 0.8− | | | | | | |
| 2005 09 29 | 644 | 0.2+ | 0.0 | 2009 10 26 | 703 | 0.6+ | 0.3+ | | | | | | |

**(229365)∗ 2005 QK$_{171}$ = 2002 XF$_{89}$**

Discovered 2005 Aug. 29 by NEAT at Palomar.

Id. A. Doppler (*MPO* 109348)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 87.56134 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27632092 | $\omega$ | 64.77802 | | +0.94648564 | +0.31084344 | |
| $a$ | 2.3344982 | $\Omega$ | 277.01411 | | −0.31855576 | +0.85652908 | |
| $e$ | 0.1325966 | $i$ | 5.01954 | | −0.05183785 | +0.41198821 | |
| $P$ | 3.57 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 12 11 | 735 | 0.8− | 0.5+ | 2005 10 08 | 704 | 0.1− | 1.0− | 2007 02 10 | G96 | 0.3− | 0.3− | | |
| 2002 12 11 | 735 | 0.1+ | 1.1+ | 2005 10 08 | 704 | 0.3+ | 0.0 | 2007 02 10 | G96 | 0.2+ | 0.1− | | |
| 2002 12 15 | 735 | 1.5+ | 0.7− | 2005 10 08 | 704 | 0.1− | 0.0 | 2007 02 10 | G96 | 0.2+ | 0.4− | | |
| 2002 12 15 | 735 | 0.5− | 0.3+ | 2005 10 08 | 704 | 0.2− | 0.3+ | 2007 02 15 | 703 | 0.4− | 0.1+ | | |
| 2002 12 15 | 735 | 0.0 | 0.7+ | 2005 10 08 | 704 | 0.1+ | 0.7+ | 2007 02 15 | 703 | 0.4+ | 0.6+ | | |
| 2005 08 29 | 644 | 0.0 | 0.3+ | 2005 10 21 | 644 | 0.0 | 0.3+ | 2007 02 15 | 703 | 0.3− | 0.3− | | |
| 2005 08 29 | 644 | 0.1− | 0.3+ | 2005 10 21 | 644 | 0.0 | 0.1+ | 2007 02 15 | 703 | (2.0− | 2.6−) | | |
| 2005 08 29 | 644 | 0.1− | 0.3+ | 2005 10 21 | 644 | 0.0 | 0.2+ | 2009 11 11 | 704 | 0.1− | 0.2+ | | |
| 2005 08 31 | 704 | 0.6− | 0.2− | 2005 10 30 | 704 | 0.7+ | 0.7+ | 2009 11 11 | 704 | 0.3− | 0.6− | | |
| 2005 08 31 | 704 | 0.4− | 0.2− | 2005 10 30 | 699 | 0.8+ | 0.8+ | 2009 11 11 | 704 | 0.9+ | 1.0+ | | |
| 2005 08 31 | 704 | 0.1− | 0.5− | 2005 10 30 | 704 | 1.1+ | 0.2+ | 2009 11 11 | 704 | 0.2− | 0.5− | | |
| 2005 08 31 | 704 | 1.4+ | 0.9− | 2005 10 30 | 699 | 0.7− | 0.7+ | 2009 11 11 | 704 | 0.4− | 0.7+ | | |
| 2005 09 10 | 699 | 0.6− | 0.1− | 2005 10 30 | 704 | 0.3+ | 0.1+ | 2009 11 22 | 704 | 0.3+ | 0.4− | | |
| 2005 09 10 | 699 | 0.1+ | 0.4− | 2005 10 30 | 704 | 0.9+ | 0.5− | 2009 11 22 | 704 | 0.7+ | 0.1− | | |
| 2005 09 10 | 699 | 0.1+ | 0.5+ | 2005 10 30 | 699 | 0.2+ | 0.3− | 2009 11 22 | 704 | 0.9+ | 0.2+ | | |
| 2005 09 10 | 699 | 0.1+ | 0.5− | 2005 10 30 | 699 | 0.7+ | 1.3+ | 2009 11 25 | 691 | 0.2− | 0.0 | | |
| 2005 09 11 | 704 | 0.2− | 0.2− | 2005 12 02 | 703 | 0.5+ | 0.2− | 2009 11 25 | 691 | 0.7− | 0.2− | | |
| 2005 09 11 | 704 | 0.0 | 0.2+ | 2005 12 02 | 703 | 1.0− | 0.8+ | 2009 11 25 | 691 | 0.5− | 0.0 | | |
| 2005 09 11 | 704 | 0.0 | 0.0 | 2005 12 02 | 703 | 1.0− | 0.8− | 2009 12 10 | 704 | 2.3+ | 0.1+ | | |
| 2005 09 11 | 704 | 0.1+ | 0.4+ | 2005 12 02 | 703 | (1.8− | 1.5−) | 2009 12 10 | 704 | 0.1+ | 0.5− | | |
| 2005 09 11 | 704 | 0.5− | 0.4− | 2006 11 23 | G96 | 0.2+ | 0.4+ | 2009 12 10 | 704 | 0.0 | 0.1+ | | |
| 2005 10 01 | 703 | 0.3+ | 0.0 | 2006 11 23 | G96 | 0.2+ | 0.2− | 2009 12 10 | 704 | 1.1+ | 1.0− | | |
| 2005 10 01 | 703 | 0.3− | 0.3− | 2006 11 23 | G96 | 0.1+ | 0.2− | 2009 12 10 | 704 | 0.8+ | 0.4+ | | |
| 2005 10 01 | 703 | 0.6− | 0.1− | 2006 11 23 | G96 | 0.5+ | 0.1− | 2009 12 11 | G96 | 0.2− | 0.1− | | |
| 2005 10 01 | 703 | 0.7− | 0.1− | 2006 12 24 | G96 | 0.1− | 0.8+ | 2009 12 11 | G96 | 0.1− | 0.3− | | |
| 2005 10 07 | 703 | 0.7+ | 0.4+ | 2006 12 24 | G96 | 0.1− | 0.0 | 2009 12 11 | G96 | 0.1+ | 0.2− | | |
| 2005 10 07 | 703 | 0.0 | 0.8− | 2006 12 24 | G96 | 0.1+ | 0.1+ | 2009 12 11 | G96 | 0.2− | 0.2− | | |
| 2005 10 07 | 703 | 0.7− | 0.1+ | 2006 12 24 | G96 | 0.5− | 0.0 | | | | | | |
| 2005 10 07 | 703 | 0.4− | 0.6− | 2007 02 10 | G96 | 0.1− | 0.3− | | | | | | |

**(229366)∗ 2005 QE$_{180}$**

Discovered 2005 Aug. 27 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 58.26755 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26550562 | $\omega$ | 122.49668 | | +0.95758868 | +0.28595933 | |
| $a$ | 2.3974721 | $\Omega$ | 220.91783 | | −0.27916642 | +0.89030770 | |
| $e$ | 0.1685355 | $i$ | 3.09576 | | −0.07138351 | +0.35437193 | |
| $P$ | 3.71 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 12 23 | 691 | 0.9− | 0.7+ | 2005 10 07 | 691 | 0.1− | 0.1+ | 2009 10 23 | 691 | 0.2+ | 0.0 | | |
| 1998 12 23 | 691 | 0.4+ | 0.1+ | 2005 10 07 | 691 | 0.1− | 0.4+ | 2009 10 23 | 691 | 0.1+ | 0.4+ | | |
| 1998 12 23 | 691 | 0.1+ | 0.3− | 2005 10 07 | 691 | 0.1+ | 0.1− | 2009 10 23 | 691 | 0.0 | 0.3+ | | |
| 2004 03 29 | 691 | 0.7+ | 0.7+ | 2005 11 01 | G96 | 0.0 | 0.4− | 2009 10 24 | 691 | 0.3− | 0.1+ | | |
| 2004 03 29 | 691 | 0.5+ | 0.7+ | 2005 11 01 | G96 | 0.3+ | 0.1− | 2009 10 24 | 691 | 0.2− | 0.2+ | | |
| 2004 03 29 | 691 | 0.4+ | 0.5+ | 2005 11 01 | G96 | 0.1− | 0.5− | 2009 10 24 | 691 | 0.4− | 0.4+ | | |
| 2005 08 27 | 699 | 0.5− | 0.1+ | 2005 11 01 | G96 | 0.2+ | 0.1+ | 2009 11 06 | 703 | 0.1+ | 1.3− | | |
| 2005 08 27 | 699 | 0.4− | 0.5+ | 2008 04 05 | 691 | 0.2− | 0.4+ | 2009 11 06 | 703 | 0.5− | 0.7− | | |
| 2005 08 27 | 699 | 0.7− | 0.2− | 2008 04 05 | 691 | 0.1− | 0.1+ | 2009 11 06 | 703 | 0.4− | 0.1+ | | |
| 2005 08 27 | 699 | 0.1+ | 0.5− | 2008 04 05 | 691 | 0.2− | 0.2− | 2009 11 06 | 703 | 0.1− | 0.8− | | |
| 2005 09 13 | 691 | 0.1− | 0.2+ | 2008 05 13 | 926 | 0.6− | 0.7+ | 2009 11 11 | G96 | 0.2− | 0.2+ | | |
| 2005 09 13 | 691 | 0.1− | 0.1+ | 2008 05 13 | 926 | 0.6− | 0.1+ | 2009 11 11 | G96 | 0.5+ | 0.1+ | | |
| 2005 09 13 | 691 | 0.1− | 0.1+ | 2008 05 30 | G96 | 0.4+ | 1.0− | 2009 11 11 | G96 | 0.3+ | 0.3+ | | |
| 2005 09 22 | 644 | 0.2− | 0.2+ | 2008 05 30 | G96 | 0.3− | 0.2+ | 2009 11 11 | G96 | 0.3+ | 0.0 | | |
| 2005 09 22 | 644 | 0.4− | 0.1+ | 2008 05 30 | G96 | 0.3− | 0.2− | 2009 11 20 | 704 | 1.0+ | 0.8− | | |
| 2005 09 22 | 644 | 0.4− | 0.1− | 2008 05 30 | G96 | 0.2+ | 0.2+ | 2009 11 20 | 704 | 0.6+ | 0.2+ | | |
| 2005 09 23 | 703 | 0.6+ | 0.6+ | 2009 10 14 | 703 | 1.1− | 0.3+ | 2009 11 20 | 704 | 0.6+ | 0.1− | | |
| 2005 09 23 | 703 | 0.0 | 0.5− | 2009 10 14 | 703 | 0.7− | 1.2− | 2009 12 19 | G96 | 0.2+ | 0.3+ | | |
| 2005 09 23 | 703 | 0.3− | 0.6+ | 2009 10 14 | 703 | 0.3− | 0.0 | 2009 12 19 | G96 | 0.2+ | 0.5− | | |
| 2005 09 23 | 703 | (0.5− | 2.1−) | 2009 10 14 | 703 | 0.1− | 0.1− | 2009 12 19 | G96 | 0.2+ | 0.2+ | | |
| 2005 09 25 | 691 | 0.3+ | 0.2+ | 2009 10 18 | J75 | 0.1+ | 0.2− | 2009 12 19 | G96 | 0.2+ | 0.0 | | |
| 2005 09 25 | 691 | 0.1+ | 0.3+ | 2009 10 18 | J75 | 0.0 | 0.1+ | | | | | | |
| 2005 09 25 | 691 | 0.2+ | 0.1+ | 2009 10 18 | J75 | 1.3+ | 0.8+ | | | | | | |

**(229367)∗ 2005 QM$_{188}$ = 1998 RU$_7$ = 2000 DL$_{49}$**

Discovered 2005 Aug. 31 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 141190)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 351.35980 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28907328 | $\omega$ | 121.41487 | | −0.44391199 | −0.89605494 | |
| $a$ | 2.2653262 | $\Omega$ | 354.93032 | | +0.80059126 | −0.39396730 | |
| $e$ | 0.1140167 | $i$ | 3.41377 | | +0.40248699 | −0.20463457 | |
| $P$ | 3.41 | $H$ | 17.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 09 12 | 691 | 0.5− | 0.7− | 2005 09 14 | 691 | 0.1+ | 0.3+ | 2007 03 26 | G96 | 0.1+ | 0.0 | | |
| 1998 09 12 | 691 | 0.4− | 0.6+ | 2005 09 14 | 691 | 0.2+ | 0.3+ | 2007 03 26 | G96 | 0.1− | 0.0 | | |
| 1998 09 12 | 691 | 0.2− | 0.1+ | 2005 09 14 | 691 | 0.3− | 0.4+ | 2007 03 26 | G96 | 0.3+ | 0.0 | | |
| 1998 09 18 | 691 | 0.1+ | 0.3+ | 2005 10 05 | G96 | 0.3+ | 0.0 | 2007 03 26 | G96 | 0.2+ | 0.0 | | |
| 1998 09 18 | 691 | 1.2+ | 0.2− | 2005 10 05 | G96 | 0.0 | 0.0 | 2007 04 19 | G96 | 0.1+ | 0.0 | | |
| 1998 09 18 | 691 | 0.4− | 0.9− | 2005 10 05 | G96 | 0.3+ | 0.1+ | 2007 04 19 | G96 | 0.3+ | 0.3− | | |
| 2000 02 29 | 704 | 0.5− | 1.4+ | 2005 10 05 | G96 | 0.5+ | 0.4− | 2007 04 19 | G96 | 0.4+ | 0.0 | | |
| 2000 02 29 | 704 | (1.0+ | 2.4+) | 2005 10 27 | G96 | 0.0 | 0.1− | 2007 04 19 | G96 | 0.1+ | 0.1+ | | |
| 2000 02 29 | 704 | 1.2+ | 0.4+ | 2005 10 27 | G96 | 0.3+ | 0.1− | 2009 11 21 | G96 | 0.1− | 0.1− | | |
| 2000 02 29 | 704 | 0.1− | 1.6+ | 2005 10 27 | G96 | 0.2− | 0.2+ | 2009 11 21 | G96 | 0.4− | 0.5− | | |
| 2000 03 03 | 704 | 0.6+ | 0.2+ | 2005 10 27 | G96 | 0.1+ | 0.2− | 2009 11 21 | G96 | 0.3− | 0.1− | | |
| 2000 03 03 | 704 | 1.3+ | 0.3+ | 2007 01 28 | G96 | 0.2− | 0.7− | 2009 11 21 | G96 | 0.1− | 0.2− | | |
| 2000 03 03 | 704 | 0.5+ | 0.1− | 2007 01 28 | G96 | 0.3− | 0.7− | 2009 12 19 | G96 | 0.2− | 0.2− | | |
| 2000 03 03 | 704 | 0.3+ | 0.0 | 2007 01 28 | G96 | 0.1+ | 0.1+ | 2009 12 19 | G96 | 0.0 | 0.1− | | |
| 2000 03 03 | 704 | 0.6− | 0.0 | 2007 01 28 | G96 | 0.5− | 0.2− | 2009 12 19 | G96 | 0.1+ | 0.3− | | |
| 2005 08 31 | 691 | 0.0 | 0.8+ | 2007 03 13 | 691 | 0.2− | 0.2+ | 2009 12 19 | G96 | 0.4− | 0.0 | | |
| 2005 08 31 | 691 | 0.6− | 0.1+ | 2007 03 13 | 691 | 0.2+ | 0.3+ | | | | | | |
| 2005 08 31 | 691 | 0.2− | 0.4+ | 2007 03 13 | 691 | 0.1− | 0.2+ | | | | | | |

**(229368)∗ 2005 RC$_3$**

Discovered 2005 Sept. 5 by J. W. Young at Table Mountain Observatory, Wrightwood.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 152.03491 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27897435 | $\omega$ | 180.59490 | | −0.05227570 | +0.99394989 | |
| $a$ | 2.3196717 | $\Omega$ | 86.41135 | | −0.91582739 | −0.00915050 | |
| $e$ | 0.1786774 | $i$ | 5.55414 | | −0.39815506 | −0.10945270 | |
| $P$ | 3.53 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 03 | 644 | 0.1+ | 0.0 | 2005 09 30 | 699 | 1.0+ | 0.1+ | 2008 07 01 | 704 | 0.0 | 0.5− |
| 2005 09 03 | 644 | 0.5+ | 0.2− | 2005 09 30 | 699 | (0.1− | 1.9+) | 2009 11 09 | G96 | 0.1− | 0.3− |
| 2005 09 03 | 644 | 0.1− | 0.2− | 2005 09 30 | 699 | 1.0− | 0.0 | 2009 11 09 | G96 | 0.2− | 0.2− |
| 2005 09 05 | 673 | 0.0 | 0.1− | 2005 09 30 | 699 | (1.5+ | 1.6+) | 2009 11 09 | G96 | 0.3− | 0.2− |
| 2005 09 05 | 673 | 0.2− | 0.1− | 2006 12 01 | G96 | 0.1− | 0.3+ | 2009 11 09 | G96 | 0.3− | 0.2− |
| 2005 09 05 | 673 | 0.0 | 0.1− | 2006 12 01 | G96 | 0.6+ | 0.1− | 2009 11 12 | J75 | 0.3− | 0.5− |
| 2005 09 06 | 673 | 0.1+ | 0.1− | 2006 12 01 | G96 | 0.0 | 0.2− | 2009 11 12 | J75 | 0.0 | 0.4− |
| 2005 09 06 | 673 | 0.2+ | 0.0 | 2006 12 01 | G96 | 0.2+ | 0.1− | 2009 11 13 | J75 | 0.8+ | 0.0 |
| 2005 09 06 | 673 | 0.1+ | 0.1− | 2006 12 01 | G96 | 0.5− | 0.2+ | 2009 11 16 | G96 | 0.2+ | 0.0 |
| 2005 09 09 | 673 | 0.3− | 0.0 | 2006 12 01 | G96 | 0.3− | 0.4+ | 2009 11 16 | G96 | 0.2− | 0.0 |
| 2005 09 09 | 673 | 1.0− | 0.4+ | 2006 12 01 | G96 | 0.0 | 0.1+ | 2009 11 16 | G96 | 0.5+ | 0.2− |
| 2005 09 09 | 673 | 0.5− | 0.0 | 2006 12 01 | G96 | 0.2+ | 0.2− | 2009 11 16 | G96 | 0.1+ | 0.2− |
| 2005 09 09 | 673 | 0.3− | 0.9+ | 2007 01 25 | 691 | 0.1+ | 0.3+ | 2009 11 22 | 703 | 0.5− | 0.2− |
| 2005 09 21 | 673 | 0.2+ | 0.2+ | 2007 01 25 | 691 | 0.1− | 0.2+ | 2009 11 22 | 703 | 1.4+ | 0.2− |
| 2005 09 21 | 673 | 0.2+ | 0.4+ | 2007 01 25 | 691 | 0.0 | 0.2+ | 2009 11 22 | 703 | 0.8− | 0.6+ |
| 2005 09 21 | 673 | 0.1+ | 0.5+ | 2008 06 09 | 673 | 0.0 | 0.0 | 2009 11 22 | 703 | 0.0 | 0.1+ |
| 2005 09 21 | 673 | 0.8− | 0.4+ | 2008 06 09 | 673 | 0.2− | 0.0 | 2009 11 23 | G96 | 0.1+ | 0.2− |
| 2005 09 21 | 673 | 0.0 | 0.3+ | 2008 06 09 | 673 | 0.2− | 0.0 | 2009 11 23 | G96 | 0.3− | 0.1+ |
| 2005 09 24 | 703 | (1.2− | 1.5−) | 2008 06 25 | E12 | 0.1+ | 0.2+ | 2009 11 23 | G96 | 0.1+ | 0.0 |
| 2005 09 24 | 703 | 0.7+ | 0.1− | 2008 06 25 | E12 | 0.5+ | 0.3+ | 2009 11 23 | G96 | 0.0 | 0.0 |
| 2005 09 24 | 703 | (2.6− | 2.5+) | 2008 06 25 | E12 | 0.3− | 0.3+ | 2009 12 19 | G96 | 0.1+ | 0.1+ |
| 2005 09 24 | 703 | 0.1− | 0.1− | 2008 06 25 | E12 | 0.6+ | 0.1+ | 2009 12 19 | G96 | 0.2+ | 0.2− |
| 2005 09 28 | 644 | 0.0 | 0.0 | 2008 07 01 | 704 | 0.5+ | 0.8+ | 2009 12 19 | G96 | 0.3+ | 0.1− |
| 2005 09 28 | 644 | 0.2+ | 0.1+ | 2008 07 01 | 704 | 0.3− | 0.4− | 2009 12 19 | G96 | 0.0 | 0.1− |
| 2005 09 28 | 644 | 0.0 | 0.0 | 2008 07 01 | 704 | 0.4− | 0.0 | | | | |

**(229369)∗ 2005 RF$_5$ = 2004 BV$_{146}$**

Discovered 2005 Sept. 3 by NEAT at Palomar.

Id. A. Doppler (*MPO* 87156)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 168.43526 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.31915885 | $\omega$ | 213.30360 | | +0.51236237 | +0.85645272 | |
| $a$ | 2.1206294 | $\Omega$ | 87.59066 | | −0.77348430 | +0.49212522 | |
| $e$ | 0.0865612 | $i$ | 3.61730 | | −0.37310434 | +0.15588941 | |
| $P$ | 3.09 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 19 | 644 | 0.7− | 0.7+ | 2005 08 28 | 699 | 1.3− | 0.8− | 2007 01 28 | 691 | 0.3+ | 0.0 |
| 2002 08 19 | 644 | 0.2− | 0.5+ | 2005 08 28 | 699 | 0.4− | 0.9+ | 2007 01 28 | 691 | 0.1− | 0.0 |
| 2002 08 19 | 644 | 0.2− | 0.5+ | 2005 09 03 | 644 | 0.1− | 0.1+ | 2007 01 28 | 691 | 0.0 | 0.3+ |
| 2002 08 30 | 644 | 0.1+ | 0.3+ | 2005 09 03 | 644 | 0.1+ | 0.0 | 2008 06 02 | G96 | 0.3− | 0.3+ |
| 2002 08 30 | 644 | 0.1+ | 0.7+ | 2005 09 03 | 644 | 0.1− | 0.0 | 2008 06 02 | G96 | 0.4+ | 0.4+ |
| 2002 08 30 | 644 | 0.0 | 0.4+ | 2005 09 08 | E12 | 0.7+ | 0.4+ | 2008 06 02 | G96 | 0.2+ | 0.4+ |
| 2004 01 22 | 704 | 0.6+ | 1.1+ | 2005 09 08 | E12 | 0.2+ | 0.3+ | 2008 06 02 | G96 | 0.2− | 0.3+ |
| 2004 01 22 | 704 | 0.9+ | 0.7+ | 2005 09 08 | E12 | 0.1+ | 0.5+ | 2009 10 18 | G96 | 0.9− | 0.1+ |
| 2004 01 22 | 704 | 1.4+ | 0.7+ | 2005 09 08 | E12 | 0.5+ | 0.1− | 2009 10 18 | G96 | 0.8+ | 0.1− |
| 2004 01 31 | 691 | 0.0 | 0.4+ | 2005 11 06 | G96 | 0.1+ | 0.2− | 2009 10 18 | G96 | 0.6+ | 0.5− |
| 2004 01 31 | 691 | 0.1− | 0.1+ | 2005 11 06 | G96 | 0.1− | 0.2+ | 2009 10 18 | G96 | 0.0 | 0.6− |
| 2004 01 31 | 691 | 0.1− | 0.3+ | 2005 11 06 | G96 | 0.2+ | 0.2− | 2009 12 15 | G96 | 0.3− | 0.6− |
| 2005 07 18 | 644 | 0.1− | 0.1+ | 2005 11 06 | G96 | 0.1− | 0.3+ | 2009 12 15 | G96 | 0.1+ | 0.8− |
| 2005 07 18 | 644 | 0.0 | 0.1+ | 2006 11 21 | G96 | 0.3+ | 0.0 | 2009 12 15 | G96 | 0.4− | 0.9− |
| 2005 07 18 | 644 | 0.1− | 0.2+ | 2006 11 21 | G96 | 0.2+ | 0.0 | 2009 12 18 | 691 | 0.3+ | 0.3+ |
| 2005 07 27 | 644 | 0.1+ | 0.2+ | 2006 11 21 | G96 | 0.3+ | 0.1+ | 2009 12 18 | 691 | 0.1+ | 0.1− |
| 2005 07 27 | 644 | 0.0 | 0.2+ | 2006 11 21 | G96 | 0.3+ | 0.1+ | 2009 12 18 | 691 | 0.4+ | 0.2− |
| 2005 07 27 | 644 | 0.8+ | 0.2− | 2007 01 17 | 691 | 0.0 | 0.1− | 2009 12 19 | 291 | 0.1− | 0.2+ |
| 2005 08 28 | 699 | 0.2− | 0.7− | 2007 01 17 | 691 | 0.3− | 0.1− | 2009 12 19 | 291 | 0.4− | 0.1+ |
| 2005 08 28 | 699 | 1.0− | 0.6− | 2007 01 17 | 691 | 0.1− | 0.0 | 2009 12 19 | 291 | 0.3− | 0.1− |

**(229370)∗ 2005 RZ$_7$ = 1998 SG$_{111}$**

Discovered 2005 Sept. 8 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 87159)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 80.77677 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28111102 | $\omega$ | 18.30677 | | +0.99719316 | −0.07463696 | |
| $a$ | 2.3079025 | $\Omega$ | 345.96965 | | +0.06527739 | +0.90544428 | |
| $e$ | 0.2446252 | $i$ | 1.40065 | | +0.03666954 | +0.41785162 | |
| $P$ | 3.51 | $H$ | 17.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1991 10 13 | 691 | 0.1+ | 0.4+ | 2005 09 29 | 699 | 0.3+ | 0.0 | 2005 10 10 | 691 | 0.1− | 0.1− |
| 1991 10 13 | 691 | 0.1− | 0.9− | 2005 09 29 | 644 | 0.2+ | 0.1− | 2005 10 22 | 699 | 0.1− | 0.6− |
| 1991 10 13 | 691 | 0.4− | 0.5+ | 2005 09 29 | 644 | 0.2+ | 0.2+ | 2005 10 22 | 699 | 0.1− | 0.4+ |
| 1998 09 15 | 699 | 0.0 | 0.7+ | 2005 09 29 | 699 | 0.6+ | 0.3+ | 2005 10 22 | 699 | 0.7− | 0.4+ |
| 1998 09 15 | 699 | 0.6+ | 0.0 | 2005 09 29 | 644 | 0.0 | 0.0 | 2005 10 22 | 699 | 0.6+ | 0.5+ |
| 1998 09 15 | 699 | 0.0 | 0.4+ | 2005 09 29 | 644 | 0.3+ | 0.2+ | 2005 10 27 | 691 | 0.1+ | 0.3+ |
| 1998 09 26 | 704 | 1.9+ | 0.8− | 2005 09 29 | 699 | 0.1+ | 0.4+ | 2005 10 27 | 691 | 0.2+ | 0.0 |
| 1998 09 26 | 704 | (0.7− | 2.7−) | 2005 09 29 | 644 | 0.0 | 0.1+ | 2005 10 27 | 691 | 0.2+ | 0.1+ |
| 1998 09 26 | 704 | 1.3+ | 0.3+ | 2005 09 29 | 644 | 0.0 | 0.0 | 2005 10 27 | 699 | 0.3+ | 0.3+ |
| 1998 09 26 | 704 | (1.3− | 2.4−) | 2005 09 30 | 691 | 0.0 | 0.0 | 2005 10 27 | 699 | 0.2+ | 0.3+ |
| 1998 09 26 | 704 | 0.8+ | 1.2− | 2005 09 30 | 691 | 0.1− | 0.0 | 2005 10 27 | 699 | 0.8+ | 0.2− |
| 1998 09 27 | 704 | 0.4− | 0.8− | 2005 09 30 | 691 | 0.1− | 0.1+ | 2005 10 27 | 699 | 0.2− | 0.6+ |
| 1998 09 27 | 704 | (2.0− | 0.6+) | 2005 10 01 | 691 | 0.2− | 0.3+ | 2005 11 28 | G96 | 0.3− | 0.2− |
| 1998 09 27 | 704 | 0.6− | 1.1− | 2005 10 01 | 691 | 0.0 | 0.1+ | 2005 11 28 | G96 | 0.8+ | 0.1− |
| 1998 09 27 | 704 | (1.2− | 2.6−) | 2005 10 01 | 691 | 0.1− | 0.2+ | 2005 11 28 | G96 | 0.3+ | 0.0 |
| 1998 09 27 | 704 | 0.4+ | 0.2+ | 2005 10 01 | 703 | 0.1− | 0.3− | 2005 11 28 | G96 | 0.5+ | 0.3− |
| 1998 10 20 | 327 | 1.1+ | 0.1− | 2005 10 01 | 703 | 0.1+ | 0.3− | 2007 02 21 | G96 | 0.7− | 0.3− |
| 1998 10 20 | 327 | 0.3− | 1.0− | 2005 10 01 | 703 | 0.1− | 0.0 | 2007 02 21 | G96 | 0.4+ | 0.1+ |
| 1998 10 20 | 327 | 0.7+ | 0.3− | 2005 10 01 | 703 | 0.2+ | 0.2− | 2007 02 21 | G96 | 0.4+ | 0.4+ |
| 2005 09 08 | 704 | 0.4+ | 0.7+ | 2005 10 02 | G96 | 0.1− | 0.5− | 2007 02 21 | G96 | 0.1− | 0.6− |
| 2005 09 08 | 704 | 0.6+ | 0.1− | 2005 10 02 | G96 | 0.2+ | 0.4− | 2007 02 23 | G96 | 0.0 | 0.1+ |
| 2005 09 08 | 704 | (0.7− | 2.4+) | 2005 10 02 | G96 | 0.2− | 0.4− | 2007 02 23 | G96 | 0.0 | 0.2+ |
| 2005 09 08 | 704 | 0.2− | 1.1+ | 2005 10 02 | G96 | 0.0 | 0.5− | 2007 02 23 | G96 | 0.0 | 0.4+ |
| 2005 09 08 | 704 | 0.4− | 0.1+ | 2005 10 05 | 691 | 0.1+ | 0.1+ | 2007 02 23 | G96 | 0.0 | 0.4+ |
| 2005 09 09 | 704 | 0.5+ | 0.1+ | 2005 10 05 | 691 | 0.2+ | 0.2+ | 2007 02 23 | G96 | 0.1− | 0.4− |
| 2005 09 09 | 704 | 1.1+ | 0.1− | 2005 10 05 | 691 | 0.0 | 0.2+ | 2007 02 23 | G96 | 0.5+ | 0.2− |
| 2005 09 09 | 704 | 0.3+ | 0.2+ | 2005 10 06 | 699 | 0.1− | 0.3− | 2007 02 23 | G96 | 0.0 | 0.2+ |
| 2005 09 09 | 704 | 0.8− | 0.2+ | 2005 10 06 | 699 | 0.5+ | 0.4+ | 2007 02 23 | G96 | 1.1+ | 0.0 |
| 2005 09 09 | 704 | 0.5− | 0.7+ | 2005 10 06 | 699 | 0.1+ | 0.2+ | 2007 03 09 | G96 | 0.5− | 0.2+ |
| 2005 09 15 | 703 | (2.2+ | 1.1−) | 2005 10 06 | 699 | 0.0 | 0.3+ | 2007 03 09 | G96 | 0.3+ | 0.8+ |
| 2005 09 15 | 703 | (4.0+ | 0.5+) | 2005 10 07 | 704 | 0.7+ | 0.5+ | 2007 03 09 | G96 | 0.0 | 0.5+ |
| 2005 09 15 | 703 | 0.9− | 0.0 | 2005 10 07 | 704 | 0.5+ | 0.3+ | 2007 03 09 | G96 | 0.1− | 0.4+ |
| 2005 09 15 | 703 | 0.5− | 0.7− | 2005 10 07 | 704 | 0.2− | 0.0 | 2007 03 20 | G96 | 0.3+ | 0.1+ |
| 2005 09 24 | 691 | 0.1− | 0.0 | 2005 10 07 | 704 | 0.3+ | 0.6+ | 2007 03 20 | G96 | 0.1+ | 0.1− |
| 2005 09 24 | 691 | 0.1− | 0.1− | 2005 10 07 | 703 | 0.0 | 0.3− | 2007 03 20 | G96 | 0.4+ | 0.1− |
| 2005 09 24 | 691 | 0.1− | 0.1− | 2005 10 07 | 703 | 0.0 | 0.4− | 2007 03 20 | G96 | 0.4− | 0.3− |
| 2005 09 26 | 691 | 0.1− | 0.3− | 2005 10 07 | 703 | 0.0 | 0.6− | 2009 11 21 | G96 | 0.1− | 0.1+ |
| 2005 09 26 | 691 | 0.1+ | 0.1− | 2005 10 07 | 703 | 0.0 | 0.5− | 2009 11 21 | G96 | 0.2+ | 0.1+ |
| 2005 09 26 | 691 | 0.1− | 0.1− | 2005 10 10 | 691 | 0.1− | 0.0 | 2009 11 21 | G96 | 0.1− | 0.2+ |
| 2005 09 27 | 691 | 0.4− | 0.1+ | 2005 10 10 | 691 | 0.2+ | 0.0 | 2009 11 21 | G96 | 0.3− | 0.1+ |
| 2005 09 27 | 691 | 0.4− | 0.0 | 2005 10 10 | 691 | 0.3− | 0.2− | 2009 12 17 | G96 | 0.0 | 0.0 |
| 2005 09 27 | 691 | 0.5− | 0.1+ | 2005 10 10 | 691 | 0.1− | 0.0 | 2009 12 17 | G96 | 0.1− | 0.1+ |
| 2005 09 29 | 699 | 0.0 | 0.2+ | 2005 10 10 | 691 | 0.0 | 0.0 | 2009 12 17 | G96 | 0.1− | 0.1− |

**(229371)∗ 2005 RS$_8$**

Discovered 2005 Sept. 8 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 40.67419 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27299062 | $\omega$ | 228.32373 | | +0.71287431 | −0.70128710 | |
| $a$ | 2.3534459 | $\Omega$ | 176.20396 | | +0.65442083 | +0.66390556 | |
| $e$ | 0.1992129 | $i$ | 2.22792 | | +0.25207856 | +0.25966481 | |
| $P$ | 3.61 | $H$ | 17.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 09 09 | 691 | 0.1+ | 0.3+ | 2005 10 01 | G96 | 0.1− | 0.3− | 2005 11 03 | 691 | 0.2− | 0.2+ |
| 1994 09 09 | 691 | 0.3+ | 0.1+ | 2005 10 01 | G96 | 0.2− | 0.2− | 2005 11 03 | 691 | 0.0 | 0.3+ |
| 1994 09 09 | 691 | 0.0 | 0.5+ | 2005 10 01 | 704 | 0.1− | 0.2− | 2005 11 03 | 691 | 0.1+ | 0.2+ |
| 1998 11 24 | 704 | 1.1+ | 0.9− | 2005 10 01 | G96 | 0.9− | 0.4− | 2005 11 06 | 705 | 0.0 | 0.2− |
| 1998 11 24 | 704 | 1.5− | 0.3− | 2005 10 05 | 704 | (1.5+ | 1.2−) | 2005 11 06 | 705 | 0.2− | 0.2− |
| 1998 11 24 | 704 | 0.8+ | 0.4+ | 2005 10 05 | 704 | 0.2+ | 0.1+ | 2005 11 09 | 705 | 0.1− | 0.2− |
| 1998 11 24 | 704 | 1.7− | 1.1− | 2005 10 05 | 704 | 0.4+ | 0.8+ | 2005 11 09 | 705 | 0.2− | 0.3− |
| 2005 08 31 | 691 | 0.4+ | 0.5− | 2005 10 05 | 704 | 0.2+ | 1.1+ | 2005 11 19 | 705 | 0.1− | 0.0 |
| 2005 08 31 | 691 | 0.2− | 0.3− | 2005 10 05 | 704 | 0.1− | 0.4+ | 2005 11 19 | 705 | 0.4− | 0.2− |
| 2005 08 31 | 691 | 0.2− | 0.1+ | 2005 10 06 | 691 | 0.1− | 0.1+ | 2005 11 23 | 705 | 0.2− | 0.1− |
| 2005 09 08 | 704 | 1.3− | 0.8+ | 2005 10 06 | 691 | 0.1+ | 0.1+ | 2005 11 23 | 705 | 0.1− | 0.2− |
| 2005 09 08 | 704 | 0.3+ | 0.7+ | 2005 10 06 | 691 | 0.0 | 0.2+ | 2005 11 25 | 705 | 0.2− | 0.2− |
| 2005 09 08 | 704 | 0.1− | 0.4+ | 2005 10 06 | 699 | 0.7− | 0.0 | 2005 11 25 | 705 | 0.2− | 0.2− |
| 2005 09 08 | 704 | 0.8− | 0.5− | 2005 10 06 | 699 | 0.3+ | 0.9− | 2005 11 29 | G96 | 0.2+ | 0.4− |
| 2005 09 09 | 704 | 0.3− | 1.5+ | 2005 10 06 | 699 | (2.3− | 0.3−) | 2005 11 29 | G96 | 0.3+ | 0.6− |
| 2005 09 09 | 704 | 0.5− | 0.3+ | 2005 10 06 | 699 | 0.7+ | 0.4− | 2005 11 29 | G96 | 0.8+ | 0.1− |
| 2005 09 09 | 704 | (1.8− | 1.2+) | 2005 10 12 | 691 | 0.1+ | 0.4− | 2005 11 29 | G96 | 0.2+ | 0.9− |
| 2005 09 09 | 704 | 1.5− | 0.1+ | 2005 10 12 | 691 | 0.1+ | 0.1+ | 2005 12 01 | 705 | 0.3− | 0.2− |
| 2005 09 09 | 704 | 0.3+ | 0.7− | 2005 10 12 | 691 | 0.0 | 0.1− | 2005 12 01 | 705 | 0.3− | 0.4− |
| 2005 09 15 | 703 | (0.3+ | 1.7−) | 2005 10 20 | 644 | 0.1+ | 0.3+ | 2005 12 04 | G96 | 0.2− | 0.1− |
| 2005 09 15 | 703 | (1.5+ | 0.6−) | 2005 10 20 | 644 | 0.2+ | 0.1+ | 2005 12 04 | G96 | 0.5+ | 0.3− |
| 2005 09 15 | 703 | 0.3− | 0.2+ | 2005 10 20 | 644 | 0.2+ | 0.1− | 2005 12 04 | G96 | 0.0 | 0.3− |
| 2005 09 15 | 703 | 0.1− | 0.1+ | 2005 10 21 | 705 | 0.3+ | 0.3− | 2005 12 04 | G96 | 0.3+ | 0.4− |
| 2005 09 22 | 644 | 0.3− | 0.1− | 2005 10 21 | 705 | 0.3+ | 0.2− | 2007 03 13 | 691 | 0.1+ | 0.0 |
| 2005 09 22 | 644 | 0.2− | 0.1− | 2005 10 23 | 705 | 0.3+ | 0.2− | 2007 03 13 | 691 | 0.3− | 0.6+ |
| 2005 09 22 | 644 | 0.2+ | 0.2− | 2005 10 23 | 705 | 0.3+ | 0.1− | 2007 03 13 | 691 | 0.3− | 0.6+ |
| 2005 09 23 | 703 | 0.3− | 0.1− | 2005 10 24 | 691 | 0.1− | 0.5+ | 2007 03 26 | G96 | 0.3+ | 0.3+ |
| 2005 09 23 | 703 | 0.3− | 0.0 | 2005 10 24 | 691 | 0.1− | 0.1+ | 2007 03 26 | G96 | 0.2+ | 0.0 |
| 2005 09 23 | 703 | 0.2+ | 0.8− | 2005 10 24 | 691 | 0.1− | 0.3+ | 2007 03 26 | G96 | 0.5+ | 0.2+ |
| 2005 09 23 | 703 | 0.3− | 0.0 | 2005 10 26 | 705 | 0.2+ | 0.1− | 2007 03 26 | G96 | 0.2+ | 0.2− |
| 2005 09 24 | 691 | 0.2+ | 0.1− | 2005 10 26 | 705 | 0.2+ | 0.1− | 2007 04 07 | G96 | 0.0 | 0.4+ |
| 2005 09 24 | 691 | 0.2+ | 0.2− | 2005 10 27 | 644 | 0.0 | 0.5+ | 2007 04 07 | G96 | 0.1+ | 0.0 |
| 2005 09 24 | 691 | 0.1+ | 0.1− | 2005 10 27 | 644 | 0.1− | 0.1+ | 2007 04 07 | G96 | 0.1+ | 0.3+ |
| 2005 09 29 | 644 | 0.4− | 0.1− | 2005 10 27 | 644 | 0.1+ | 0.2+ | 2007 04 07 | G96 | 0.3+ | 0.3+ |
| 2005 09 29 | 644 | 0.3+ | 0.4− | 2005 10 27 | 705 | 0.1+ | 0.0 | 2007 04 15 | G96 | 0.2+ | 0.7− |
| 2005 09 29 | 644 | 0.2− | 0.3− | 2005 10 27 | 705 | 0.3+ | 0.1− | 2007 04 15 | G96 | 0.0 | 0.3+ |
| 2005 09 29 | 644 | 0.1+ | 0.2+ | 2005 10 28 | 704 | 0.1− | 0.3+ | 2007 04 15 | G96 | 0.0 | 0.1− |
| 2005 09 29 | 644 | 0.3− | 0.1− | 2005 10 28 | G96 | 0.1+ | 0.2− | 2007 04 15 | G96 | 0.4+ | 0.1+ |
| 2005 09 29 | 644 | 0.2− | 0.3− | 2005 10 28 | 704 | 0.4+ | 0.4+ | 2009 11 18 | G96 | 0.3− | 0.0 |
| 2005 09 30 | 691 | 0.3− | 0.1+ | 2005 10 28 | G96 | 0.3− | 0.3− | 2009 11 18 | G96 | 0.0 | 0.1+ |
| 2005 09 30 | 691 | 0.4− | 0.1+ | 2005 10 28 | G96 | 0.1− | 0.6− | 2009 11 18 | G96 | 0.4− | 0.1+ |
| 2005 09 30 | 691 | 0.1+ | 0.4+ | 2005 10 28 | 704 | 0.4+ | 0.7+ | 2009 11 18 | G96 | 0.2− | 0.1− |
| 2005 10 01 | 704 | 0.5+ | 0.7+ | 2005 10 28 | G96 | 0.1− | 0.2− | 2009 12 17 | 704 | 0.6+ | 0.9+ |
| 2005 10 01 | 704 | 0.5+ | 0.4+ | 2005 10 31 | 705 | 0.2+ | 0.1− | 2009 12 17 | 704 | 0.5+ | 0.2+ |
| 2005 10 01 | 704 | 0.3+ | 0.2+ | 2005 10 31 | 705 | 0.1+ | 0.1− | 2009 12 17 | 704 | 0.7+ | 0.6+ |
| 2005 10 01 | G96 | 0.0 | 0.2− | 2005 11 02 | 705 | 0.1+ | 0.2− | 2009 12 17 | 704 | 0.9+ | 0.9+ |
| 2005 10 01 | 704 | 0.0 | 0.0 | 2005 11 02 | 705 | 0.0 | 0.2− | 2009 12 17 | 704 | 1.2+ | 0.5+ |

**(229372)∗ 2005 RM$_9$**

Discovered 2005 Sept. 3 by J. V. McClusky at Kingsnake Observatory, Seguin.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 156.70836 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.29818432 | $\omega$ | 239.77836 | | +0.47101582 | +0.87900556 | |
| $a$ | 2.2189432 | $\Omega$ | 58.50318 | | −0.77651782 | +0.45302416 | |
| $e$ | 0.1933941 | $i$ | 4.98664 | | −0.41852620 | +0.14872232 | |
| $P$ | 3.31 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 11 13 | 644 | 0.1+ | 0.4+ | 2005 10 21 | 699 | (0.6− | 2.5+) | 2005 11 30 | G96 | 0.0 | 0.3− |
| 2002 11 13 | 644 | 0.1+ | 0.5+ | 2005 10 21 | 699 | 0.4+ | 1.2+ | 2005 11 30 | G96 | 0.0 | 0.2− |
| 2002 11 13 | 644 | 0.6+ | 0.7+ | 2005 10 22 | 699 | 1.2− | 0.1+ | 2005 11 30 | G96 | 0.4+ | 0.2+ |
| 2005 09 03 | 446 | 0.7− | 0.1− | 2005 10 22 | 699 | (1.8+ | 0.2−) | 2005 12 01 | 705 | 0.0 | 0.3− |
| 2005 09 03 | 446 | 1.0− | 0.9− | 2005 10 22 | 699 | (0.7+ | 1.7+) | 2005 12 01 | 705 | 0.0 | 0.3− |
| 2005 09 03 | 446 | 0.2− | 0.4− | 2005 10 22 | 699 | (1.8− | 1.0+) | 2007 01 10 | 691 | 0.2+ | 0.1− |
| 2005 09 05 | 446 | 0.1− | 0.6− | 2005 10 28 | 704 | 0.5− | 0.2+ | 2007 01 10 | 691 | 0.0 | 0.2− |
| 2005 09 05 | 446 | 0.5+ | 0.9− | 2005 10 28 | 704 | 0.6− | 0.7+ | 2007 01 10 | 691 | 0.4+ | 0.1− |
| 2005 09 05 | 446 | 0.7+ | 0.1+ | 2005 10 28 | 704 | 0.7− | 0.5+ | 2007 01 27 | 691 | 0.1− | 0.2+ |
| 2005 09 13 | 705 | 0.4+ | 0.0 | 2005 10 28 | 704 | 1.0− | 0.8+ | 2007 01 27 | 691 | 0.5− | 0.0 |
| 2005 09 13 | 705 | 0.4+ | 0.0 | 2005 10 28 | 704 | 0.2− | 0.7+ | 2007 01 27 | 691 | 0.1− | 0.2+ |
| 2005 09 14 | 703 | 0.7+ | 0.7− | 2005 11 02 | G96 | 0.1− | 0.0 | 2008 06 30 | 704 | 0.1+ | 1.2+ |
| 2005 09 14 | 703 | (0.4+ | 2.2−) | 2005 11 02 | G96 | 0.1+ | 0.3− | 2008 06 30 | 704 | 0.6+ | 0.1− |
| 2005 09 14 | 703 | 0.6+ | 0.4+ | 2005 11 02 | G96 | 0.0 | 0.1+ | 2008 06 30 | 704 | 0.7− | 0.8+ |
| 2005 09 14 | 703 | 0.2− | 0.1− | 2005 11 02 | G96 | 0.2+ | 0.4− | 2008 06 30 | 704 | 0.0 | 0.0 |
| 2005 09 14 | 446 | 0.1+ | 0.2− | 2005 11 02 | G96 | 0.3+ | 0.2− | 2008 07 05 | E12 | 0.4− | 0.4− |
| 2005 09 14 | 446 | 0.1+ | 1.4− | 2005 11 02 | G96 | 0.5+ | 0.0 | 2008 07 05 | E12 | 0.0 | 0.5+ |
| 2005 09 14 | 446 | 0.1+ | 0.9− | 2005 11 02 | G96 | 0.4+ | 0.2+ | 2008 07 05 | E12 | 0.4+ | 0.5+ |
| 2005 09 30 | 699 | 0.2+ | 0.3+ | 2005 11 02 | G96 | 0.0 | 0.0 | 2009 09 28 | 691 | 0.0 | 0.1+ |
| 2005 09 30 | 699 | 0.5− | 0.3+ | 2005 11 19 | 705 | 0.1+ | 0.2− | 2009 09 28 | 691 | 0.1− | 0.3+ |
| 2005 09 30 | 699 | 0.5− | 0.1− | 2005 11 19 | 705 | 0.0 | 0.4− | 2009 09 28 | 691 | 0.1+ | 0.4− |
| 2005 09 30 | 644 | 0.2− | 0.2− | 2005 11 23 | 705 | 0.1+ | 0.1− | 2009 11 20 | G96 | 0.4+ | 0.1− |
| 2005 09 30 | 699 | 0.4+ | 0.1− | 2005 11 23 | 705 | 0.1+ | 0.1− | 2009 11 20 | G96 | 1.0+ | 0.2− |
| 2005 09 30 | 644 | 0.1− | 0.1+ | 2005 11 24 | 705 | 0.0 | 0.1− | 2009 11 20 | G96 | 0.3+ | 0.1+ |
| 2005 09 30 | 644 | 0.1− | 0.2− | 2005 11 24 | 705 | 0.2+ | 0.1− | 2009 12 18 | 691 | 0.0 | 0.3+ |
| 2005 10 03 | 703 | 0.2+ | 0.1+ | 2005 11 25 | 705 | 0.1− | 0.1− | 2009 12 18 | 691 | 0.2− | 0.1− |
| 2005 10 03 | 703 | 0.2− | 0.0 | 2005 11 25 | 705 | 0.1+ | 0.1− | 2009 12 18 | 691 | 0.1− | 0.1+ |
| 2005 10 03 | 703 | 0.6+ | 1.4+ | 2005 11 26 | 705 | 0.1+ | 0.1− | 2009 12 27 | 691 | 0.1+ | 0.1+ |
| 2005 10 21 | 699 | (0.6+ | 1.8+) | 2005 11 26 | 705 | 0.1+ | 0.1− | 2009 12 27 | 691 | 0.2+ | 0.1+ |
| 2005 10 21 | 699 | 0.1+ | 0.9+ | 2005 11 30 | G96 | 0.5− | 0.2− | 2009 12 27 | 691 | 0.2− | 0.0 |

**(229373)∗ 2005 RG$_{11}$**

Discovered 2005 Sept. 10 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 69.09830 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26613653 | $\omega$ | 73.51409 | | +0.96831245 | +0.23989084 | |
| $a$ | 2.3936816 | $\Omega$ | 272.56533 | | −0.24733684 | +0.88266001 | |
| $e$ | 0.2063447 | $i$ | 3.98643 | | −0.03457580 | +0.40418275 | |
| $P$ | 3.70 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 12 28 | 291 | 0.2− | 0.1+ | 2005 09 25 | 683 | 0.1+ | 1.5+ | 2005 11 02 | 704 | (0.2+ | 2.0+) |
| 2002 12 28 | 291 | 0.1+ | 0.1+ | 2005 09 29 | 699 | 1.0− | 0.1+ | 2005 11 02 | 704 | 0.6− | 0.0 |
| 2002 12 28 | 291 | 0.3+ | 0.4+ | 2005 09 29 | 699 | 0.5− | 0.5− | 2007 02 10 | G96 | 0.0 | 0.2+ |
| 2005 09 10 | 699 | 0.6− | 0.9− | 2005 09 29 | 699 | 0.5− | 0.1− | 2007 02 10 | G96 | 0.1+ | 0.1− |
| 2005 09 10 | 699 | 0.6− | 0.2− | 2005 09 29 | 699 | 0.3+ | 0.2− | 2007 02 10 | G96 | 0.2+ | 0.1− |
| 2005 09 10 | 699 | 0.2+ | 0.3− | 2005 09 30 | 644 | 0.0 | 0.1+ | 2007 02 10 | G96 | 0.2+ | 0.2− |
| 2005 09 10 | 699 | 0.3+ | 0.3− | 2005 09 30 | 644 | 0.1− | 0.1+ | 2007 03 16 | G96 | 0.1− | 0.2− |
| 2005 09 11 | 704 | 0.3− | 0.7+ | 2005 09 30 | 644 | 0.2+ | 0.1+ | 2007 03 16 | G96 | 0.1+ | 0.2− |
| 2005 09 11 | 704 | 0.3+ | 0.7+ | 2005 10 06 | 703 | 0.2− | 0.8+ | 2007 03 16 | G96 | 0.4− | 0.4− |
| 2005 09 11 | 704 | 0.4− | 0.5− | 2005 10 06 | 703 | 0.9− | 0.2+ | 2007 03 16 | G96 | 0.7− | 0.0 |
| 2005 09 11 | 704 | 0.9+ | 0.0 | 2005 10 06 | 703 | 0.2+ | 0.5+ | 2009 11 09 | 691 | 0.1+ | 0.2− |
| 2005 09 11 | 704 | 0.2− | 0.0 | 2005 10 06 | 703 | (1.5− | 0.4+) | 2009 11 09 | 691 | 0.1− | 0.1− |
| 2005 09 23 | 644 | 0.1− | 0.0 | 2005 10 08 | 704 | 0.1− | 0.7+ | 2009 11 09 | 691 | 0.1+ | 0.0 |
| 2005 09 23 | 683 | 0.1− | 0.2+ | 2005 10 08 | 704 | 0.0 | 0.3− | 2009 11 21 | 691 | 0.2+ | 0.2− |
| 2005 09 23 | 683 | 1.4+ | 0.3− | 2005 10 08 | 704 | 0.0 | 0.2+ | 2009 11 21 | 691 | 0.1− | 0.1− |
| 2005 09 23 | 683 | (1.8− | 0.1+) | 2005 10 08 | 704 | 0.3− | 0.0 | 2009 11 21 | 691 | 0.2− | 0.2− |
| 2005 09 23 | 644 | 0.5− | 0.2− | 2005 10 08 | 704 | 0.3− | 0.7+ | 2009 11 25 | 691 | 0.1− | 0.1+ |
| 2005 09 23 | 644 | 0.3− | 0.0 | 2005 10 30 | 704 | 0.1− | 0.1+ | 2009 11 25 | 691 | 0.0 | 0.1+ |
| 2005 09 24 | 683 | 0.5+ | 0.8− | 2005 10 30 | 704 | 0.4+ | 0.5− | 2009 11 25 | 691 | 0.1− | 0.0 |
| 2005 09 24 | 683 | 0.6+ | 0.4− | 2005 10 30 | 704 | 0.1+ | 0.4− | 2009 12 16 | G96 | 0.2+ | 0.1− |
| 2005 09 24 | 683 | 0.9+ | 0.5− | 2005 10 30 | 704 | 1.0− | 0.1− | 2009 12 16 | G96 | 0.2+ | 0.1+ |
| 2005 09 25 | 683 | 1.1+ | 0.7− | 2005 11 02 | 704 | 0.8− | 0.2+ | 2009 12 16 | G96 | 0.3+ | 0.2− |
| 2005 09 25 | 683 | 1.1+ | 1.2+ | 2005 11 02 | 704 | 0.4+ | 0.1− | 2009 12 16 | G96 | 0.0 | 0.2− |

**(229374)∗ 2005 RM$_{11}$ = 1993 FK$_{66}$**

Discovered 2005 Sept. 10 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Id. G. V. Williams (*MPO* 87164)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $M$ | 90.45624 | | | (2000.0) | | | **P** | | | **Q** | | | |
| $n$ | 0.27004888 | | $\omega$ | 345.98455 | | | +0.82625262 | | | +0.56234533 | | | |
| $a$ | 2.3705064 | | $\Omega$ | 339.69294 | | | −0.50729284 | | | +0.71754602 | | | |
| $e$ | 0.1962952 | | $i$ | 5.41936 | | | −0.24486851 | | | +0.41096889 | | | |
| $P$ | 3.65 | | $H$ | 16.0 | $G$ | 0.15 | $U$ | 1 | | | | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1993 03 21 | 809 | (4.1− | 1.5+) | 2005 10 01 | 703 | 0.1− | 0.3− | 2005 10 27 | 699 | 0.3+ | 0.2+ | 2005 10 29 | 701 | 0.1+ | 0.4− |
| 1993 03 22 | 809 | (2.3+ | 1.8−) | 2005 10 01 | 703 | 0.3− | 0.1+ | 2005 10 27 | 699 | 0.2− | 0.1+ | 2005 10 29 | 701 | 1.2+ | 0.4− |
| 1994 09 12 | 691 | 0.3+ | 0.2− | 2005 10 01 | 703 | 0.5− | 0.5− | 2005 10 29 | 701 | 0.1+ | 0.4− | 2005 10 29 | 701 | 0.7− | 0.4+ |
| 1994 09 12 | 691 | 0.3− | 1.4− | 2005 10 03 | 691 | 0.1− | 0.0 | 2005 10 29 | 701 | 1.2+ | 0.4− | 2005 10 30 | 704 | 0.3− | 0.1+ |
| 1994 09 12 | 691 | 0.3+ | 0.1+ | 2005 10 03 | 691 | 0.0 | 0.0 | 2005 10 29 | 701 | 0.7− | 0.4+ | 2005 10 30 | 704 | 0.2− | 0.6+ |
| 2000 02 14 | 691 | 0.5+ | 0.1+ | 2005 10 03 | 691 | 0.0 | 0.0 | 2005 10 30 | 704 | 0.3− | 0.1+ | 2005 10 30 | 704 | 0.3− | 0.2− |
| 2000 02 14 | 691 | 0.3+ | 0.2+ | 2005 10 03 | 704 | 0.6− | 0.9+ | 2005 10 30 | 704 | 0.2− | 0.6+ | 2005 10 30 | 704 | 0.2− | 0.6+ |
| 2000 02 14 | 691 | 0.4+ | 0.2+ | 2005 10 03 | 704 | 0.6− | 0.9+ | 2005 10 30 | 704 | 0.3− | 0.2− | 2005 10 30 | 704 | 0.3− | 0.2− |
| 2004 03 27 | 704 | 0.7+ | 0.1− | 2005 10 03 | 704 | 0.5− | 1.0+ | 2005 10 30 | 704 | 0.2− | 0.6+ | 2005 10 30 | 704 | 0.2− | 0.6+ |
| 2004 03 27 | 704 | (1.8+ | 0.1+) | 2005 10 03 | 704 | 0.7− | 0.8+ | 2005 10 30 | 704 | 0.6− | 1.0+ | 2005 10 30 | 704 | 0.6− | 1.0+ |
| 2004 03 27 | 704 | 0.7+ | 0.3+ | 2005 10 06 | 699 | 0.0 | 0.1− | 2005 11 02 | 704 | 0.7+ | 0.5+ | 2005 11 02 | 704 | 0.7+ | 0.5+ |
| 2004 03 27 | 704 | (2.5+ | 0.6+) | 2005 10 06 | 703 | 0.4+ | 0.1− | 2005 11 02 | 704 | 0.9+ | 0.1+ | 2005 11 02 | 704 | 0.9+ | 0.1+ |
| 2005 07 12 | 703 | 0.3+ | 0.0 | 2005 10 06 | 703 | 0.3− | 0.1− | 2005 11 02 | 704 | 0.1− | 1.3− | 2005 11 02 | 704 | 0.1− | 1.3− |
| 2005 07 12 | 703 | 1.2− | 0.7+ | 2005 10 06 | 703 | 0.1− | 0.1− | 2005 11 02 | 704 | 0.5+ | 0.5+ | 2005 11 02 | 704 | 0.5+ | 0.5+ |
| 2005 07 12 | 703 | 0.2− | 0.3+ | 2005 10 06 | 699 | 0.6+ | 0.2+ | 2005 11 02 | 704 | 0.0 | 0.3+ | 2005 11 02 | 704 | 0.0 | 0.3+ |
| 2005 07 12 | 703 | 0.6+ | 0.2+ | 2005 10 06 | 699 | 0.3+ | 0.1+ | 2005 11 28 | 703 | 1.1− | 0.6+ | 2005 11 28 | 703 | 1.1− | 0.6+ |
| 2005 08 02 | 704 | 0.2− | 0.3− | 2005 10 07 | 691 | 0.1+ | 0.1+ | 2005 11 28 | 703 | (0.6+ | 1.6+) | 2005 11 28 | 703 | (0.6+ | 1.6+) |
| 2005 08 02 | 704 | 0.3− | 0.8+ | 2005 10 07 | 691 | 0.0 | 0.3+ | 2005 11 28 | 703 | 0.3− | 0.3− | 2005 11 28 | 703 | 0.3− | 0.3− |
| 2005 08 02 | 704 | 0.2+ | 0.8+ | 2005 10 07 | 691 | 0.0 | 0.2+ | 2005 11 28 | 703 | (1.7− | 0.7+) | 2005 11 28 | 703 | (1.7− | 0.7+) |
| 2005 08 30 | 704 | 0.6+ | 0.5+ | 2005 10 08 | 704 | 0.1− | 0.0 | 2007 03 11 | G96 | 0.7− | 0.0 | 2007 03 11 | G96 | 0.7− | 0.0 |
| 2005 08 30 | 704 | 0.5− | 0.4+ | 2005 10 08 | 704 | 0.3− | 0.3− | 2007 03 11 | G96 | 0.0 | 0.1+ | 2007 03 11 | G96 | 0.0 | 0.1+ |
| 2005 08 30 | 704 | 0.5+ | 1.3+ | 2005 10 08 | 704 | 0.0 | 0.0 | 2007 03 11 | G96 | 0.8− | 0.1− | 2007 03 11 | G96 | 0.8− | 0.1− |
| 2005 08 30 | 704 | 0.1− | 0.0 | 2005 10 08 | 704 | 0.1− | 0.1+ | 2007 03 11 | G96 | 0.3− | 0.1+ | 2007 03 11 | G96 | 0.3− | 0.1+ |
| 2005 08 30 | 704 | 0.2− | 0.9+ | 2005 10 08 | 704 | 0.3− | 0.1+ | 2008 04 30 | 703 | 0.1+ | 0.8+ | 2008 04 30 | 703 | 0.1+ | 0.8+ |
| 2005 09 10 | 699 | 0.5+ | 0.4− | 2005 10 11 | 704 | 0.3+ | 0.2+ | 2008 04 30 | 703 | 0.3− | 1.0+ | 2008 04 30 | 703 | 0.3− | 1.0+ |
| 2005 09 10 | 699 | (0.7+ | 2.2−) | 2005 10 11 | 704 | 0.3+ | 0.1+ | 2008 04 30 | 703 | 1.2− | 0.3+ | 2008 04 30 | 703 | 1.2− | 0.3+ |
| 2005 09 10 | 699 | 0.2− | 0.3− | 2005 10 11 | 704 | 0.2− | 0.7+ | 2008 04 30 | 703 | 0.0 | 0.3+ | 2008 04 30 | 703 | 0.0 | 0.3+ |
| 2005 09 10 | 699 | 0.2+ | 0.1− | 2005 10 11 | 704 | 0.2− | 0.4+ | 2008 05 29 | E12 | 0.7+ | 0.7+ | 2008 05 29 | E12 | 0.7+ | 0.7+ |
| 2005 09 11 | 704 | 0.7+ | 0.1+ | 2005 10 11 | 704 | 1.1− | 0.3− | 2008 05 29 | E12 | 0.3+ | 0.2+ | 2008 05 29 | E12 | 0.3+ | 0.2+ |
| 2005 09 11 | 704 | 0.4+ | 0.7+ | 2005 10 21 | 699 | 0.7− | 0.9+ | 2008 05 29 | E12 | 0.0 | 1.1+ | 2008 05 29 | E12 | 0.0 | 1.1+ |
| 2005 09 11 | 704 | 0.4+ | 0.1+ | 2005 10 21 | 644 | 0.1+ | 0.1+ | 2008 05 29 | E12 | 0.0 | 0.9+ | 2008 05 29 | E12 | 0.0 | 0.9+ |
| 2005 09 11 | 704 | 0.4+ | 0.2− | 2005 10 21 | 644 | 0.1+ | 0.0 | 2009 11 16 | 704 | 0.2− | 0.8+ | 2009 11 16 | 704 | 0.2− | 0.8+ |
| 2005 09 11 | 704 | 0.2+ | 0.7+ | 2005 10 21 | 699 | 0.4− | 0.1+ | 2009 11 16 | 704 | 0.0 | 0.0 | 2009 11 16 | 704 | 0.0 | 0.0 |
| 2005 09 23 | 703 | 0.3− | 0.2− | 2005 10 21 | 644 | 0.1+ | 0.0 | 2009 11 16 | 704 | 0.5− | 0.5− | 2009 11 16 | 704 | 0.5− | 0.5− |
| 2005 09 23 | 703 | 0.2+ | 0.2− | 2005 10 21 | 644 | 0.0 | 0.1+ | 2009 11 16 | 704 | 0.1− | 0.3+ | 2009 11 16 | 704 | 0.1− | 0.3+ |
| 2005 09 23 | 703 | 0.1+ | 0.4− | 2005 10 21 | 699 | 0.8+ | 0.7+ | 2009 11 16 | 704 | 0.4− | 0.6+ | 2009 11 16 | 704 | 0.4− | 0.6+ |
| 2005 09 23 | 703 | 0.2+ | 0.4− | 2005 10 21 | 644 | 0.1+ | 0.1− | 2009 11 21 | 703 | 0.4− | 1.2− | 2009 11 21 | 703 | 0.4− | 1.2− |
| 2005 09 29 | 691 | 0.1+ | 0.0 | 2005 10 21 | 644 | 0.0 | 0.0 | 2009 11 21 | 703 | (0.5− | 1.6−) | 2009 11 21 | 703 | (0.5− | 1.6−) |
| 2005 09 29 | 691 | 0.1− | 0.0 | 2005 10 21 | 699 | 0.1− | 0.4− | 2009 11 21 | 703 | 1.2− | 0.9− | 2009 11 21 | 703 | 1.2− | 0.9− |
| 2005 09 29 | 691 | 0.1− | 0.0 | 2005 10 22 | 699 | 0.2+ | 0.1− | 2009 11 23 | 704 | 0.2+ | 0.6+ | 2009 11 23 | 704 | 0.2+ | 0.6+ |
| 2005 09 29 | 699 | 0.3− | 0.0 | 2005 10 22 | 699 | 0.1+ | 0.1− | 2009 11 23 | 704 | 0.7− | 0.6+ | 2009 11 23 | 704 | 0.7− | 0.6+ |
| 2005 09 29 | 699 | 0.1− | 0.0 | 2005 10 22 | 699 | 0.8+ | 0.6− | 2009 11 23 | 704 | 0.4+ | 0.4+ | 2009 11 23 | 704 | 0.4+ | 0.4+ |
| 2005 09 29 | 699 | 0.2− | 0.1− | 2005 10 22 | 699 | 0.4+ | 0.4− | 2009 11 23 | 704 | 1.4− | 0.4+ | 2009 11 23 | 704 | 1.4− | 0.4+ |
| 2005 09 29 | 699 | 0.2− | 0.1+ | 2005 10 27 | 701 | 0.0 | 0.2+ | 2009 11 23 | 704 | 0.2+ | 0.2+ | 2009 11 23 | 704 | 0.2+ | 0.2+ |
| 2005 09 30 | 644 | 0.2− | 0.0 | 2005 10 27 | 699 | 0.3+ | 0.2− | 2009 12 15 | 704 | 0.3+ | 0.0 | 2009 12 15 | 704 | 0.3+ | 0.0 |
| 2005 09 30 | 644 | 0.1− | 0.4− | 2005 10 27 | 701 | 0.3− | 0.3− | 2009 12 15 | 704 | 0.3− | 0.7− | 2009 12 15 | 704 | 0.3− | 0.7− |
| 2005 09 30 | 644 | 0.2− | 0.0 | 2005 10 27 | 699 | 0.1+ | 0.3+ | 2009 12 15 | 704 | 0.0 | 0.3+ | 2009 12 15 | 704 | 0.0 | 0.3+ |
| 2005 10 01 | 703 | 0.3+ | 0.0 | 2005 10 27 | 701 | 0.2− | 0.1+ | 2009 12 15 | 704 | 1.4+ | 0.6− | 2009 12 15 | 704 | 1.4+ | 0.6− |

**(229375)∗ 2005 RG$_{25}$**

Discovered 2005 Sept. 10 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $M$ | 102.67200 | | | (2000.0) | | | **P** | | | **Q** | | | |
| $n$ | 0.27765985 | | $\omega$ | 65.12175 | | | +0.76470159 | | | +0.63677880 | | | |
| $a$ | 2.3269872 | | $\Omega$ | 255.16805 | | | −0.62191960 | | | +0.68923441 | | | |
| $e$ | 0.2190147 | | $i$ | 5.86099 | | | −0.16866382 | | | +0.34564243 | | | |
| $P$ | 3.55 | | $H$ | 16.7 | $G$ | 0.15 | $U$ | 1 | | | | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 12 04 | 695 | 0.3− | 0.6+ | 2005 09 26 | 644 | 0.2+ | 0.0 | 2006 12 27 | G96 | 0.4− | 0.3+ | 2007 03 15 | 704 | 1.2+ | 0.8− |
| 2002 12 04 | 695 | 0.2− | 0.5+ | 2005 09 30 | 699 | 0.3+ | 0.6− | 2006 12 27 | G96 | 0.4− | 0.2+ | 2007 03 15 | 704 | 0.8+ | 0.0 |
| 2004 02 18 | I03 | 0.6+ | 0.6+ | 2005 09 30 | 699 | 0.3+ | 1.1− | 2006 12 27 | G96 | 0.3− | 0.2+ | 2007 03 15 | 703 | 0.1− | 0.3+ |
| 2004 02 18 | I03 | 0.2− | 0.8+ | 2005 09 30 | 699 | 0.7+ | 0.1+ | 2006 12 27 | G96 | 0.4− | 0.3+ | 2007 03 15 | 703 | 0.9− | 0.0 |
| 2004 02 18 | I03 | 1.4+ | 0.5+ | 2005 10 05 | 683 | 0.2+ | 0.7− | 2007 02 10 | G96 | 0.0 | 0.3+ | 2007 03 15 | 703 | 0.7− | 0.4− |
| 2005 08 04 | 704 | 0.8− | 0.1− | 2005 10 05 | 683 | 1.1− | 1.2− | 2007 02 10 | G96 | 0.0 | 0.0 | 2007 03 15 | 704 | 0.4− | 0.0 |
| 2005 08 04 | 704 | 0.0 | 0.6− | 2005 10 06 | 703 | 0.3− | 0.1− | 2007 02 10 | G96 | 0.6+ | 0.0 | 2007 03 19 | 699 | 0.3+ | 1.0+ |
| 2005 08 04 | 704 | 0.2− | 0.2− | 2005 10 06 | 703 | 0.7− | 0.5− | 2007 02 10 | G96 | 0.6+ | 0.2− | 2007 03 19 | 699 | (2.0− | 0.0 ) |
| 2005 08 04 | 704 | 0.3− | 0.1+ | 2005 10 06 | 703 | 0.2+ | 0.3− | 2008 05 10 | E12 | 0.2− | 0.9+ | 2007 03 19 | 699 | 0.3− | 0.8+ |
| 2005 08 31 | 704 | 1.0+ | 0.4+ | 2005 10 07 | 683 | 0.7− | 0.4− | 2008 05 10 | E12 | 0.3− | 0.9+ | 2007 03 19 | 699 | 1.0+ | 0.0 |
| 2005 08 31 | 704 | 1.5+ | 0.9+ | 2005 10 07 | 683 | 0.6+ | 0.5+ | 2008 05 10 | E12 | 0.1+ | 0.7+ | 2007 03 21 | 703 | 1.2− | 0.3− |
| 2005 08 31 | 704 | 0.2+ | 0.4+ | 2005 10 07 | 683 | (2.0− | 0.6+) | 2008 05 10 | E12 | 0.5+ | 0.4+ | 2007 03 21 | 703 | 0.1− | 0.0 |
| 2005 08 31 | 704 | 0.1− | 0.5+ | 2005 10 08 | 704 | 0.6+ | 0.7+ | 2009 11 09 | 691 | 0.2− | 0.1+ | 2007 03 21 | 703 | 0.4+ | 0.3− |
| 2005 08 31 | 704 | 0.7+ | 1.2+ | 2005 10 08 | 704 | 0.1− | 0.2+ | 2009 11 09 | 691 | 0.1+ | 0.0 | 2007 03 21 | 703 | (0.2+ | 1.6−) |
| 2005 09 10 | 699 | 0.4− | 0.1− | 2005 10 08 | 704 | 0.4− | 0.5+ | 2009 11 09 | 691 | 0.2− | 0.2+ | 2007 03 21 | 704 | 0.2+ | 1.2+ |
| 2005 09 10 | 699 | 0.3− | 0.7+ | 2005 10 08 | 704 | 0.1+ | 0.2+ | 2009 11 21 | 691 | 0.2− | 0.0 | 2007 03 21 | 704 | 0.2− | 0.7− |
| 2005 09 10 | 699 | 0.1− | 0.5+ | 2005 10 08 | 683 | 0.7− | 0.2+ | 2009 11 21 | 691 | 0.3+ | 0.0 | 2007 03 21 | 704 | 0.6+ | 1.2+ |
| 2005 09 10 | 699 | 0.7− | 0.3− | 2005 10 08 | 704 | 0.0 | 1.2+ | 2009 11 21 | 691 | 0.6− | 0.1+ | 2007 03 21 | 704 | 0.7+ | 0.3+ |
| 2005 09 12 | 704 | 0.3+ | 0.7− | 2005 10 08 | 704 | 0.1+ | 0.1+ | 2009 11 24 | 691 | 0.0 | 0.1− | 2007 03 21 | 704 | 0.6+ | 0.6+ |
| 2005 09 12 | 704 | 0.3− | 0.3+ | 2005 10 08 | 683 | 0.3+ | 0.8+ | 2009 11 24 | 691 | 0.0 | 0.0 | | | | |
| 2005 09 12 | 704 | 0.2+ | 0.5+ | 2005 10 08 | 704 | 0.9− | 0.1− | 2009 11 24 | 691 | 0.0 | 0.1+ | | | | |
| 2005 09 12 | 704 | 0.2+ | 0.2− | 2005 10 08 | 704 | 0.5− | 0.1+ | 2009 12 10 | G96 | 0.0 | 0.4− | | | | |
| 2005 09 12 | 704 | 0.2− | 0.3− | 2005 10 08 | 704 | 0.6+ | 0.6+ | 2009 12 10 | G96 | 0.6+ | 0.1− | | | | |
| 2005 09 26 | 644 | 0.0 | 0.1+ | 2005 10 08 | 704 | 0.1+ | 0.3+ | 2009 12 10 | G96 | 0.3+ | 0.1− | | | | |
| 2005 09 26 | 644 | 0.1− | 0.1+ | 2005 10 30 | 704 | 0.6− | 0.1− | 2009 12 10 | G96 | 0.3+ | 0.1− | | | | |
| 2005 09 26 | 644 | 0.2+ | 0.2− | 2005 10 30 | 704 | 0.0 | 0.2+ | 2009 12 19 | G96 | 0.6+ | 0.1+ | | | | |
| 2005 09 26 | 644 | 0.1+ | 0.0 | 2005 10 30 | 704 | 0.5− | 0.3+ | 2009 12 19 | G96 | 0.7+ | 0.0 | | | | |
| 2005 09 26 | 644 | 0.2+ | 0.1+ | 2005 10 30 | 704 | 0.1− | 0.8− | 2009 12 19 | G96 | 0.3+ | 0.1− | | | | |

**(229376)∗ 2005 SP**

Discovered 2005 Sept. 22 by T. Pauwels at Uccle.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $M$ | 313.11154 | | | (2000.0) | | | **P** | | | **Q** | | | |
| $n$ | 0.30054514 | | $\omega$ | 243.20789 | | | −0.96126706 | | | −0.26852556 | | | |
| $a$ | 2.2073079 | | $\Omega$ | 281.16276 | | | +0.26998473 | | | −0.87204319 | | | |
| $e$ | 0.0456851 | | $i$ | 3.63064 | | | +0.05544259 | | | −0.40918785 | | | |
| $P$ | 3.28 | | $H$ | 17.0 | $G$ | 0.15 | $U$ | 1 | | | | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 06 25 | 691 | 0.3+ | 0.4+ | 2005 09 23 | 012 | 0.6+ | 0.7− | 2007 03 15 | 704 | 1.2+ | 0.8− | 2007 03 21 | 703 | 1.2− | 0.3− |
| 1998 06 25 | 691 | 0.3− | 0.3+ | 2005 10 01 | 703 | 1.4− | 0.2− | 2007 03 15 | 704 | 0.8+ | 0.0 | 2007 03 21 | 703 | 0.4+ | 0.3− |
| 1998 06 25 | 691 | 0.4− | 0.7+ | 2005 10 01 | 703 | 0.4+ | 0.1− | 2007 03 15 | 703 | 0.1− | 0.3+ | 2007 03 21 | 703 | (0.2+ | 1.6−) |
| 2002 11 04 | 644 | 0.6− | 0.3+ | 2005 10 01 | 703 | 0.5+ | 0.7− | 2007 03 15 | 703 | 0.9− | 0.0 | 2007 03 21 | 704 | 0.2+ | 1.2+ |
| 2002 11 04 | 644 | 0.7− | 0.1+ | 2005 10 01 | 703 | (2.6− | 1.6+) | 2007 03 15 | 703 | 0.7− | 0.4− | 2007 03 21 | 704 | 0.2− | 0.7− |
| 2002 11 04 | 644 | 0.1− | 0.4+ | 2005 10 04 | 644 | 0.1− | 0.2+ | 2007 03 15 | 703 | 0.4− | 0.0 | 2007 03 21 | 704 | 0.6+ | 1.2+ |
| 2002 11 14 | 704 | 0.2− | 0.8+ | 2005 10 04 | 644 | 0.1− | 0.3+ | 2007 03 19 | 699 | 0.3+ | 1.0+ | 2007 03 21 | 704 | 0.7+ | 0.3+ |
| 2002 11 14 | 704 | 0.3+ | 0.2+ | 2005 10 04 | 644 | 0.0 | 0.1+ | 2007 03 19 | 699 | (2.0− | 0.0 ) | 2007 03 21 | 704 | 0.6+ | 0.6+ |
| 2002 11 14 | 704 | 0.9+ | 0.8+ | 2005 11 03 | G96 | 0.1− | 0.3+ | 2007 03 19 | 699 | 0.3− | 0.8+ | | | | |
| 2002 11 14 | 704 | 1.1+ | 1.0+ | 2005 11 03 | G96 | 0.0 | 0.2+ | 2007 03 19 | 699 | 1.0+ | 0.0 | | | | |
| 2002 11 14 | 704 | (1.8+ | 1.3+) | 2005 11 03 | G96 | 0.0 | 0.5+ | 2007 03 21 | 703 | 1.2− | 0.3− | | | | |
| 2002 11 24 | 644 | 0.8− | 0.9+ | 2005 11 03 | G96 | 0.1+ | 0.3+ | 2007 03 21 | 703 | 0.1− | 0.0 | | | | |
| 2002 11 24 | 644 | 0.6− | 0.3+ | 2007 02 22 | 699 | (0.8− | 2.1+) | 2007 03 21 | 703 | 0.4+ | 0.3− | | | | |
| 2002 11 24 | 644 | 0.4− | 0.3+ | 2007 02 22 | 699 | 0.2+ | 0.3+ | 2007 03 21 | 703 | (0.2+ | 1.6−) | | | | |
| 2004 04 25 | 704 | 0.2− | 0.1+ | 2007 02 22 | 699 | (1.8+ | 1.4+) | 2007 03 21 | 704 | 0.2+ | 1.2+ | | | | |
| 2004 04 25 | 704 | 0.0 | 0.2− | 2007 02 22 | 699 | 1.1+ | 0.7− | 2007 03 21 | 704 | 0.2− | 0.7− | | | | |
| 2004 04 25 | 704 | 0.9+ | 0.1+ | 2007 03 08 | 735 | 0.6− | 0.0 | 2007 03 21 | 704 | 0.6+ | 1.2+ | | | | |
| 2004 04 25 | 704 | 0.8− | 0.4+ | 2007 03 08 | 735 | 0.1+ | 0.5+ | 2007 03 21 | 704 | 0.7+ | 0.3+ | | | | |
| 2005 09 01 | 691 | 0.2+ | 0.0 | 2007 03 08 | 735 | 0.1− | 0.3− | 2007 03 21 | 704 | 0.6+ | 0.6+ | | | | |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 01 | 691 | 0.3+ | 0.3+ | 2007 03 11 | 106 | 0.2+ | 0.5+ | 2008 08 06 | 185 | (1.9+ | 0.6−) |
| 2005 09 01 | 691 | 0.1− | 0.4+ | 2007 03 11 | 106 | 0.2+ | 0.4+ | 2008 08 06 | 185 | 0.9+ | 0.1+ |
| 2005 09 22 | 012 | 1.4− | 0.7− | 2007 03 11 | 106 | 1.1+ | 0.2− | 2009 11 16 | G96 | 0.0 | 0.2− |
| 2005 09 22 | 012 | 0.2− | 0.1− | 2007 03 12 | 106 | 0.3− | 0.5+ | 2009 11 16 | G96 | 0.4+ | 0.1− |
| 2005 09 22 | 012 | 0.1− | 0.1+ | 2007 03 12 | 703 | 0.4− | 0.2+ | 2009 11 16 | G96 | 0.2+ | 0.3− |
| 2005 09 22 | 012 | 0.8+ | 0.1+ | 2007 03 12 | 703 | 0.2− | 0.8+ | 2009 11 16 | G96 | 0.1+ | 0.3− |
| 2005 09 22 | 012 | 0.4− | 0.5+ | 2007 03 12 | 703 | 0.5+ | 1.2+ | 2009 12 15 | G96 | 0.1− | 0.0 |
| 2005 09 22 | 012 | 0.8− | 0.4+ | 2007 03 12 | 703 | 0.9− | 0.4+ | 2009 12 15 | G96 | 0.2− | 0.0 |
| 2005 09 23 | 012 | 1.3− | 0.3+ | 2007 03 15 | 704 | 0.6+ | 0.9+ | 2009 12 15 | G96 | 0.1− | 0.2− |
| 2005 09 23 | 012 | 0.2− | 0.6− | 2007 03 15 | 704 | 0.0 | 0.1− | 2009 12 15 | G96 | 0.1− | 0.4+ |

**(229377)∗ 2005 SJ$_6$ = 2003 AM$_{44}$**

Discovered 2005 Sept. 23 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 95747)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 331.76651 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28386052 | $\omega$ | 166.95713 | | −0.76094810 | −0.64821709 | |
| $a$ | 2.2929753 | $\Omega$ | 332.57399 | | +0.58972565 | −0.67315166 | |
| $e$ | 0.0573200 | $i$ | 3.45966 | | +0.27052107 | −0.35592336 | |
| $P$ | 3.47 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 03 11 | 704 | 0.5+ | 0.6+ | 2005 10 22 | 703 | (2.2− | 0.2+) | 2007 03 18 | 691 | 0.2+ | 0.4+ |
| 2000 03 11 | 704 | 0.1+ | 0.3+ | 2005 10 22 | 703 | 0.4+ | 0.6− | 2007 03 18 | 691 | 0.1+ | 0.3+ |
| 2000 03 11 | 704 | 0.1− | 0.3− | 2005 10 29 | 703 | (1.9− | 0.4+) | 2007 03 21 | 704 | (1.7+ | 0.6+) |
| 2000 03 11 | 704 | 1.1− | 0.9+ | 2005 10 29 | 703 | 1.2− | 1.3− | 2007 03 21 | 704 | 0.5+ | 0.4+ |
| 2001 08 27 | 691 | 0.1− | 0.3+ | 2005 10 29 | 703 | 0.4+ | 0.0 | 2007 03 21 | 704 | 0.0 | 0.3+ |
| 2001 08 27 | 691 | 0.1− | 0.3+ | 2005 10 29 | 703 | 1.2− | 0.5− | 2007 03 21 | 704 | 0.5+ | 0.4+ |
| 2001 08 27 | 691 | 0.3− | 0.3+ | 2005 10 30 | 691 | 0.1+ | 0.1+ | 2008 09 06 | G96 | 0.1+ | 0.0 |
| 2003 01 05 | 704 | 0.0 | 0.9− | 2005 10 30 | 691 | 0.1+ | 0.0 | 2008 09 06 | G96 | 0.1+ | 0.3+ |
| 2003 01 05 | 704 | 1.0+ | 0.9− | 2005 10 30 | 691 | 0.2+ | 0.2− | 2008 09 06 | G96 | 0.2+ | 0.1+ |
| 2003 01 05 | 704 | 1.4+ | 0.1− | 2005 11 04 | 703 | (3.3+ | 0.7+) | 2008 09 06 | G96 | 0.0 | 0.1+ |
| 2003 01 05 | 704 | 0.5− | 0.1+ | 2005 11 04 | 703 | 0.3+ | 0.3+ | 2008 09 20 | G96 | (1.1+ | 2.7+) |
| 2003 01 09 | 704 | 0.7+ | 1.0+ | 2005 11 04 | 703 | 0.6− | 0.2+ | 2008 09 20 | G96 | 0.6+ | 0.4+ |
| 2003 01 09 | 704 | 0.4+ | 0.6+ | 2005 11 04 | 703 | 1.2+ | 0.2+ | 2008 09 20 | G96 | 0.7+ | 0.3+ |
| 2003 01 09 | 704 | 0.1− | 0.7+ | 2005 11 10 | G96 | 0.3+ | 0.1− | 2008 09 20 | G96 | 0.1+ | 0.3− |
| 2005 09 23 | 291 | 0.1+ | 0.2+ | 2005 11 10 | G96 | 0.2− | 0.1+ | 2009 11 21 | G96 | 0.1− | 0.4− |
| 2005 09 23 | 291 | 0.4+ | 0.1+ | 2005 11 10 | G96 | 0.3− | 0.1− | 2009 11 21 | G96 | 0.1+ | 0.1− |
| 2005 09 23 | 291 | 0.0 | 0.2+ | 2005 11 10 | G96 | (3.0− | 1.5−) | 2009 11 21 | G96 | 0.2+ | 0.1− |
| 2005 09 26 | 691 | 0.1− | 0.1− | 2005 11 10 | G96 | 0.2− | 0.2+ | 2009 11 21 | G96 | 0.1− | 0.2− |
| 2005 09 26 | 691 | 0.1− | 0.2+ | 2005 11 10 | G96 | 0.3+ | 0.5+ | 2009 12 19 | G96 | 0.2− | 0.1− |
| 2005 09 26 | 691 | 0.1− | 0.1+ | 2005 11 10 | G96 | 0.4− | 0.0 | 2009 12 19 | 691 | 0.1− | 0.3+ |
| 2005 10 13 | 691 | 0.5− | 0.2+ | 2005 11 10 | G96 | 0.0 | 0.2+ | 2009 12 19 | G96 | 0.1+ | 0.2− |
| 2005 10 13 | 691 | 0.5− | 0.3+ | 2007 03 14 | 691 | 0.1+ | 0.1+ | 2009 12 19 | G96 | 0.1− | 0.5− |
| 2005 10 13 | 691 | 0.4− | 0.3+ | 2007 03 14 | 691 | 0.1− | 0.1+ | 2009 12 19 | G96 | 0.2− | 0.3− |
| 2005 10 22 | 703 | 0.8− | 1.0+ | 2007 03 14 | 691 | 0.2+ | 0.2+ | 2009 12 19 | 691 | 0.1− | 0.1− |
| 2005 10 22 | 703 | 0.2− | 0.9− | 2007 03 18 | 691 | 0.1+ | 0.3+ | 2009 12 19 | 691 | 0.0 | 0.2+ |

**(229378)∗ 2005 SN$_8$ = 2001 FO$_{139}$**

Discovered 2005 Sept. 25 by the Catalina Sky Survey.

Id. G. V. Williams (*MPO* 89801)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 174.43039 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.30404767 | $\omega$ | 289.54832 | | +0.39508587 | +0.91863558 | |
| $a$ | 2.1903235 | $\Omega$ | 3.73017 | | −0.81826139 | +0.35387859 | |
| $e$ | 0.2392828 | $i$ | 3.50533 | | −0.41755891 | +0.17572312 | |
| $P$ | 3.24 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 05 24 | 704 | 1.2+ | 0.1− | 2005 10 23 | 703 | 0.7− | 0.3+ | 2008 09 06 | 703 | 0.1− | 0.4− |
| 1998 05 24 | 704 | 1.3− | 0.2− | 2005 10 23 | 703 | 0.4− | 0.5+ | 2008 09 06 | 703 | 0.7− | 0.0 |
| 1998 05 24 | 704 | 0.2− | 0.4− | 2005 10 23 | 703 | 0.5− | 0.9+ | 2008 09 06 | 703 | 0.2+ | 0.2+ |
| 1998 05 24 | 704 | 1.4− | 1.7+ | 2005 10 24 | 699 | 1.0+ | 0.8+ | 2008 09 19 | 704 | 0.5− | 0.2− |
| 2001 03 21 | 608 | 0.1+ | 0.7− | 2005 10 24 | 699 | 0.2− | 0.2+ | 2008 09 19 | 704 | 0.4− | 0.1+ |
| 2001 03 21 | 608 | 0.6+ | 1.0− | 2005 10 24 | 699 | 0.7+ | 0.8+ | 2008 09 19 | 704 | 0.0 | 0.8+ |
| 2001 03 21 | 608 | 0.8+ | 0.4− | 2005 10 24 | 699 | 0.4− | 0.3+ | 2008 09 19 | 704 | 0.1− | 0.7+ |
| 2001 03 26 | 691 | 0.4+ | 0.7+ | 2005 11 01 | 691 | 0.2+ | 0.1− | 2008 09 23 | G96 | 0.1+ | 0.1− |
| 2001 03 26 | 691 | 0.6+ | 0.6+ | 2005 11 01 | 691 | 0.2+ | 0.3+ | 2008 09 23 | G96 | 0.3− | 0.0 |
| 2001 03 26 | 691 | 0.6+ | 0.7+ | 2005 11 01 | 691 | 0.2+ | 0.2+ | 2008 09 23 | G96 | 0.3− | 0.1− |
| 2005 09 25 | 703 | (1.9− | 0.3+) | 2007 01 28 | 691 | 0.2− | 0.0 | 2008 09 23 | G96 | 0.2− | 0.2− |
| 2005 09 25 | 703 | 0.2− | 0.9− | 2007 01 28 | 691 | 0.3− | 0.2+ | 2008 09 28 | 704 | 0.2− | 0.2+ |
| 2005 09 25 | 703 | (0.1− | 1.7−) | 2007 01 28 | 691 | 0.2− | 0.4+ | 2008 09 28 | 704 | 0.1− | 0.2− |
| 2005 09 25 | 703 | 0.0 | 0.1+ | 2008 06 29 | E12 | 0.0 | 0.0 | 2008 09 28 | 704 | 0.8+ | 0.8+ |
| 2005 09 26 | 691 | 0.3− | 0.1+ | 2008 06 29 | E12 | 0.7− | 0.1− | 2008 09 28 | 704 | 0.5+ | 1.0+ |
| 2005 09 26 | 691 | 0.4− | 0.4+ | 2008 06 29 | E12 | 0.3+ | 0.7+ | 2008 09 29 | 703 | (1.4+ | 1.9+) |
| 2005 09 26 | 691 | 0.3− | 0.1+ | 2008 06 29 | E12 | 1.2− | 0.1− | 2008 09 29 | 703 | 0.5+ | 0.9+ |
| 2005 10 03 | G96 | 0.1− | 0.2− | 2008 06 30 | 704 | 0.7− | 0.5+ | 2008 09 29 | 703 | 0.5+ | 0.2− |
| 2005 10 03 | G96 | 0.0 | 0.3− | 2008 06 30 | 704 | 0.4+ | 0.2− | 2008 09 29 | 703 | 0.0 | 0.4+ |
| 2005 10 03 | G96 | 0.1+ | 0.2− | 2008 06 30 | 704 | 0.1+ | 0.7+ | 2008 11 04 | G96 | 0.3− | 0.3− |
| 2005 10 03 | G96 | 0.2+ | 0.1− | 2008 06 30 | 704 | 0.3− | 1.3+ | 2008 11 04 | G96 | 0.1− | 0.6− |
| 2005 10 09 | 691 | 0.5+ | 0.2− | 2008 08 03 | 704 | 0.2+ | 0.2− | 2008 11 04 | G96 | 0.4− | 0.4− |
| 2005 10 09 | 691 | 0.1− | 0.1+ | 2008 08 03 | 704 | 0.1− | 0.1+ | 2008 11 04 | G96 | 0.1− | 0.2− |
| 2005 10 09 | 691 | 0.1+ | 0.1+ | 2008 08 03 | 704 | 0.7+ | 0.2− | 2008 11 21 | G96 | 0.6− | 0.3− |
| 2005 10 13 | 691 | 0.1− | 0.1+ | 2008 08 03 | 704 | 0.1− | 0.1+ | 2008 11 21 | G96 | 0.7− | 0.3− |
| 2005 10 13 | 691 | 0.2+ | 0.4− | 2008 08 03 | 704 | 0.0 | 0.2+ | 2008 11 21 | G96 | 0.2− | 0.6− |
| 2005 10 13 | 691 | 0.2− | 0.1− | 2008 08 19 | E12 | 0.5− | 0.3− | 2008 11 21 | G96 | 0.3− | 0.5+ |
| 2005 10 22 | 644 | 0.2+ | 0.1− | 2008 08 19 | E12 | 0.3+ | 0.3+ | 2009 12 18 | G96 | 0.9+ | 0.2+ |
| 2005 10 22 | 644 | 0.2− | 0.0 | 2008 08 19 | E12 | 0.5+ | 0.4− | 2009 12 18 | G96 | 0.1− | 0.1− |
| 2005 10 22 | 703 | 0.6− | 0.4+ | 2008 08 23 | 704 | 0.0 | 0.1+ | 2009 12 18 | G96 | 0.1− | 0.1+ |
| 2005 10 22 | 703 | (1.8− | 0.3−) | 2008 08 23 | 704 | 0.2+ | 0.3+ | 2009 12 18 | G96 | 0.1− | 0.1+ |
| 2005 10 22 | 703 | 1.1+ | 0.0 | 2008 08 23 | 704 | 0.2− | 0.0 | 2009 12 27 | 691 | 0.0 | 0.0 |
| 2005 10 22 | 644 | 0.4− | 0.2− | 2008 08 23 | 704 | 0.0 | 0.3+ | 2009 12 27 | 691 | 0.1− | 0.3+ |
| 2005 10 22 | 703 | 0.4+ | 0.3+ | 2008 08 23 | 704 | 0.0 | 0.0 | 2009 12 27 | 691 | 0.1− | 0.2+ |
| 2005 10 23 | 703 | 0.5− | 0.5+ | 2008 09 06 | 703 | 0.4− | 0.3+ | | | | |

**(229379)∗ 2005 SZ$_9$**

Discovered 2005 Sept. 24 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 18.98456 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26380238 | $\omega$ | 228.59385 | | +0.37516574 | −0.92691494 | |
| $a$ | 2.4077806 | $\Omega$ | 199.37714 | | +0.85827743 | +0.35098336 | |
| $e$ | 0.2037498 | $i$ | 1.53866 | | +0.35015785 | +0.13281335 | |
| $P$ | 3.74 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 24 | 691 | 0.2− | 0.1− | 2005 10 06 | G96 | 0.1+ | 0.2+ | 2005 10 30 | G96 | 0.1+ | 0.2− |
| 2001 08 24 | 691 | 0.1− | 0.1+ | 2005 10 06 | G96 | 0.0 | 0.1+ | 2005 11 05 | 704 | 0.4− | 0.7+ |
| 2001 08 24 | 691 | 0.4− | 0.0 | 2005 10 06 | G96 | 0.1+ | 0.2+ | 2005 11 05 | 704 | 0.4− | 1.2+ |
| 2001 09 12 | 704 | 0.2+ | 0.1+ | 2005 10 06 | G96 | 0.1+ | 0.4− | 2005 11 05 | 704 | 0.7− | 0.7+ |
| 2001 09 12 | 704 | 0.5+ | 0.2− | 2005 10 06 | G96 | 0.2− | 0.2+ | 2006 01 04 | G96 | 0.1− | 0.3− |
| 2001 09 12 | 704 | 0.2+ | 0.7+ | 2005 10 06 | G96 | 0.4+ | 0.1− | 2006 01 04 | G96 | 0.4− | 0.1+ |
| 2001 09 12 | 704 | 0.1− | 1.1− | 2005 10 06 | G96 | 0.0 | 0.4+ | 2006 01 04 | G96 | 0.2− | 0.3− |
| 2001 09 12 | 704 | 0.5− | 0.3− | 2005 10 06 | G96 | 0.1+ | 0.0 | 2006 01 04 | G96 | 0.6+ | 0.2− |
| 2005 09 24 | 691 | 0.1+ | 0.2+ | 2005 10 06 | G96 | 0.3+ | 0.2+ | 2006 01 28 | G96 | 0.4− | 0.5+ |
| 2005 09 24 | 691 | 0.0 | 0.1− | 2005 10 06 | G96 | 0.4+ | 0.2− | 2006 01 28 | G96 | 0.0 | 0.1+ |
| 2005 09 24 | 691 | 0.2+ | 0.0 | 2005 10 07 | G96 | 0.5+ | 0.2− | 2006 01 28 | G96 | 0.6− | 0.1+ |
| 2005 09 27 | 701 | 0.2+ | 0.3− | 2005 10 07 | G96 | 0.3+ | 0.0 | 2006 01 28 | G96 | 0.3− | 0.1− |
| 2005 09 27 | 701 | 0.2+ | 0.6− | 2005 10 07 | G96 | 0.2+ | 0.0 | 2007 04 18 | G96 | 0.5+ | 0.1− |
| 2005 09 27 | 701 | 0.1+ | 0.4− | 2005 10 07 | G96 | 0.1+ | 0.0 | 2007 04 18 | G96 | 0.4− | 0.2− |
| 2005 09 29 | 699 | (1.2− | 2.7+) | 2005 10 08 | 291 | 0.9− | 0.2− | 2007 04 18 | G96 | 0.3+ | 0.2− |
| 2005 09 29 | 699 | 0.9+ | 0.0 | 2005 10 08 | 291 | 0.5+ | 0.2+ | 2007 04 18 | G96 | 0.5+ | 0.0 |
| 2005 09 29 | G96 | 0.1+ | 0.4− | 2005 10 08 | 291 | 0.7+ | 0.3+ | 2007 04 18 | G96 | 0.6+ | 0.4+ |
| 2005 09 29 | G96 | 0.4+ | 0.2− | 2005 10 22 | 703 | 0.3+ | 0.0 | 2007 04 18 | G96 | 0.7− | 0.1+ |
| 2005 09 29 | 699 | (2.4+ | 0.1−) | 2005 10 22 | 703 | 0.2+ | 0.8+ | 2007 04 18 | G96 | 0.2− | 0.1− |
| 2005 09 29 | G96 | 0.3+ | 0.3− | 2005 10 22 | 703 | 0.6+ | 0.3+ | 2007 04 18 | G96 | 0.5+ | 0.4+ |
| 2005 09 29 | G96 | 0.2+ | 0.2− | 2005 10 22 | 703 | 0.9+ | 0.3− | 2007 05 09 | G96 | 0.4+ | 0.2− |
| 2005 09 29 | 699 | 0.5− | 0.8+ | 2005 10 24 | 699 | 0.7− | 0.8+ | 2007 05 09 | G96 | 0.1− | 0.1− |
| 2005 09 30 | 701 | 0.0 | 0.0 | 2005 10 24 | 699 | 0.3− | 0.0 | 2007 05 09 | G96 | 0.1− | 0.0 |
| 2005 09 30 | 701 | 0.3+ | 0.4− | 2005 10 24 | 699 | 1.1− | 0.5+ | 2007 05 09 | G96 | 0.5− | 0.3− |
| 2005 09 30 | 701 | 0.3+ | 0.1− | 2005 10 24 | 699 | 0.4+ | 0.7− | 2009 08 27 | 691 | 0.2− | 0.5+ |
| 2005 10 01 | 704 | 0.1+ | 0.6− | 2005 10 25 | G96 | 0.0 | 0.7− | 2009 08 27 | 691 | 0.4− | 0.1+ |
| 2005 10 01 | 704 | 0.1+ | 0.3− | 2005 10 25 | G96 | 0.3+ | 0.5− | 2009 08 27 | 691 | 0.1+ | 0.2+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 01 | 704 | 0.5− | 0.1− | 2005 10 25 | G96 | 0.5+ | 0.5− | 2009 12 17 | 704 | 0.4− | 0.2− | | |
| 2005 10 01 | 704 | 0.0 | 0.2+ | 2005 10 25 | G96 | 0.1+ | 0.5− | 2009 12 17 | 704 | 0.2+ | 0.1+ | | |
| 2005 10 01 | 704 | 0.3+ | 0.3+ | 2005 10 28 | 703 | 0.2+ | 0.9+ | 2009 12 17 | 704 | 1.1− | 0.1+ | | |
| 2005 10 06 | 703 | 0.4+ | 0.1− | 2005 10 28 | 703 | 0.7− | 0.2− | 2009 12 17 | 704 | 0.6+ | 0.0 | | |
| 2005 10 06 | 703 | 0.2− | 0.5− | 2005 10 28 | 703 | 0.6− | 0.1− | 2009 12 25 | 691 | 0.4+ | 1.6− | | |
| 2005 10 06 | 703 | 0.9− | 0.1− | 2005 10 28 | 703 | 0.4− | 0.2− | 2009 12 25 | 691 | 0.3− | 0.6+ | | |
| 2005 10 06 | 703 | 0.7− | 0.3− | 2005 10 30 | G96 | 0.0 | 0.2− | 2009 12 25 | 691 | 0.2− | 0.6+ | | |
| 2005 10 06 | G96 | 0.1+ | 0.1+ | 2005 10 30 | G96 | 0.1+ | 0.3− | | | | | | |
| 2005 10 06 | G96 | 0.2+ | 0.1+ | 2005 10 30 | G96 | 0.1+ | 0.2− | | | | | | |

**(229380)∗ 2005 SX$_{10}$**

Discovered 2005 Sept. 23 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 38.50017 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.22151820 | $\omega$ | 70.45154 | | +0.60210215 | | +0.79655294 | | |
| $a$ | 2.7051817 | $\Omega$ | 236.68971 | | −0.75482823 | | +0.54563000 | | |
| $e$ | 0.1225445 | $i$ | 3.74303 | | −0.26020634 | | +0.26036766 | | |
| $P$ | 4.45 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 0 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 11 20 | 704 | 0.2− | 0.2− | 2005 10 07 | 704 | 0.7+ | 0.7− | 2008 03 10 | 691 | 0.0 | 0.2+ | | |
| 2001 11 20 | 704 | 0.1+ | 1.0+ | 2005 10 07 | 691 | 0.1− | 0.2− | 2008 03 10 | 691 | 0.1− | 0.4+ | | |
| 2001 11 20 | 704 | 0.5− | 1.1+ | 2005 10 07 | 704 | 0.8+ | 0.3− | 2008 05 05 | G96 | 0.1− | 0.0 | | |
| 2004 05 16 | E12 | 1.2− | 0.2+ | 2005 10 07 | 691 | 0.2− | 0.3− | 2008 05 05 | G96 | 0.3− | 0.2− | | |
| 2004 05 16 | E12 | 0.5− | 0.5+ | 2005 10 11 | 691 | 0.0 | 0.2+ | 2008 05 05 | G96 | 0.2+ | 0.1+ | | |
| 2004 05 16 | E12 | 0.6+ | 0.1− | 2005 10 11 | 691 | 0.1+ | 0.2+ | 2008 05 05 | G96 | 0.2+ | 0.1− | | |
| 2004 05 16 | E12 | 0.5− | 0.7+ | 2005 10 11 | 691 | 0.2+ | 0.2+ | 2009 07 25 | J75 | 0.7− | 0.2− | | |
| 2004 06 17 | 691 | 0.2+ | 0.1+ | 2005 10 14 | 291 | 0.1− | 0.1+ | 2009 07 25 | J75 | 0.3− | 1.1+ | | |
| 2004 06 17 | 691 | 0.2+ | 0.3− | 2005 10 14 | 291 | 0.0 | 0.3+ | 2009 07 25 | J75 | (0.2− | 1.8+) | | |
| 2004 06 17 | 691 | 0.3+ | 0.3+ | 2005 10 14 | 291 | 0.2− | 0.2+ | 2009 07 27 | 703 | 1.2− | 0.3− | | |
| 2005 09 23 | 691 | 0.4− | 0.1+ | 2005 10 31 | G96 | 0.1+ | 0.1− | 2009 07 27 | 703 | 0.4+ | 0.1+ | | |
| 2005 09 23 | 691 | 0.2− | 0.0 | 2005 10 31 | G96 | 0.5+ | 0.2− | 2009 07 27 | 703 | 0.8+ | 0.4+ | | |
| 2005 09 23 | 691 | 0.1+ | 0.0 | 2005 10 31 | G96 | 0.1+ | 0.1− | 2009 07 27 | 703 | 0.3+ | 0.8+ | | |
| 2005 09 27 | 691 | 0.1− | 0.1+ | 2005 10 31 | G96 | 0.4+ | 0.1− | 2009 12 19 | G96 | 0.1− | 0.2+ | | |
| 2005 09 27 | 691 | 0.0 | 0.1− | 2006 12 13 | 691 | 0.1+ | 0.1− | 2009 12 19 | G96 | 0.2+ | 0.2− | | |
| 2005 09 27 | 691 | 0.1− | 0.1+ | 2006 12 13 | 691 | 0.0 | 0.3+ | 2009 12 19 | G96 | 0.2+ | 0.0 | | |
| 2005 10 07 | 691 | 0.2+ | 0.3− | 2006 12 13 | 691 | 0.2+ | 0.3+ | 2009 12 19 | G96 | 0.3+ | 0.2+ | | |
| 2005 10 07 | 704 | 0.9− | 0.3− | 2008 03 10 | 691 | 0.0 | 0.0 | | | | | | |

**(229381)∗ 2005 SR$_{14}$ = 4318 T-3**

Discovered 2005 Sept. 25 by the Catalina Sky Survey.

Id. G. V. Williams (*MPO* 89802)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 100.63752 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.28030360 | $\omega$ | 272.13309 | | +0.82738637 | | +0.55333795 | | |
| $a$ | 2.3123324 | $\Omega$ | 54.28523 | | −0.45663179 | | +0.76245858 | | |
| $e$ | 0.1488368 | $i$ | 6.80250 | | −0.32698502 | | +0.33537148 | | |
| $P$ | 3.52 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 1 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1977 10 12 | 675 | (2.7+ | 3.0−) | 2005 09 24 | 644 | 0.1+ | 0.1+ | 2005 10 10 | 703 | 0.5− | 0.1− | | |
| 1977 10 12 | 675 | (2.6+ | 3.1−) | 2005 09 24 | 644 | 0.2− | 0.3+ | 2005 10 10 | 703 | 0.6− | 0.4− | | |
| 1977 10 16 | 675 | 0.4+ | 0.1− | 2005 09 24 | 644 | 0.2+ | 0.3+ | 2005 10 10 | 703 | 0.7− | 0.6+ | | |
| 1977 10 16 | 675 | 1.6+ | 0.6− | 2005 09 24 | 644 | 0.1− | 0.1+ | 2005 10 10 | 703 | 0.1− | 0.6+ | | |
| 1977 10 17 | 675 | 0.4+ | 1.5− | 2005 09 24 | 644 | 0.1− | 0.1+ | 2005 10 22 | 703 | 0.4+ | 1.2− | | |
| 1977 10 21 | 675 | 0.9+ | 0.4+ | 2005 09 25 | 703 | 0.2+ | 0.5− | 2005 10 22 | 703 | 0.2+ | 1.0+ | | |
| 1977 10 21 | 675 | 1.3− | 0.7− | 2005 09 25 | 703 | 1.4− | 0.4− | 2005 10 22 | 703 | 0.2+ | 0.7− | | |
| 1998 09 24 | 699 | 0.8+ | 0.0 | 2005 09 25 | 703 | 0.5− | 0.9− | 2005 10 22 | 703 | 1.1− | 0.0 | | |
| 1998 09 24 | 699 | 1.1− | 0.8− | 2005 09 25 | 703 | 0.5− | 0.9− | 2005 10 31 | 699 | 0.7+ | 1.0+ | | |
| 1998 09 24 | 699 | 1.9− | 0.9− | 2005 09 26 | 703 | 0.3− | 0.3+ | 2005 10 31 | 699 | 0.7+ | 0.4+ | | |
| 2004 04 16 | 691 | 0.4+ | 0.3+ | 2005 09 26 | 703 | 1.3+ | 0.1+ | 2005 10 31 | 699 | (0.4− | 1.6+) | | |
| 2004 04 16 | 691 | 0.3+ | 0.4+ | 2005 09 26 | 703 | 0.1− | 0.0 | 2005 10 31 | 699 | (2.4+ | 1.6+) | | |
| 2004 04 16 | 691 | 0.4+ | 0.5+ | 2005 09 26 | 703 | 1.1+ | 0.4+ | 2008 05 28 | 704 | 0.3+ | 0.4+ | | |
| 2005 08 27 | 699 | 0.5− | 0.6+ | 2005 09 27 | 704 | 0.7− | 0.3+ | 2008 05 28 | 704 | 0.4− | 0.0 | | |
| 2005 08 27 | 699 | 0.4+ | 0.5+ | 2005 09 27 | 704 | 0.2− | 0.5+ | 2008 05 28 | 704 | 1.0− | 1.1+ | | |
| 2005 08 27 | 699 | 0.1+ | 0.7+ | 2005 09 27 | 704 | 0.6− | 1.1+ | 2009 11 09 | 691 | 0.3− | 0.2+ | | |
| 2005 08 27 | 644 | 0.0 | 0.2+ | 2005 09 27 | 704 | 0.4+ | 0.1+ | 2009 11 09 | 691 | 0.1+ | 0.2+ | | |
| 2005 08 27 | 644 | 0.1+ | 0.3+ | 2005 09 27 | 704 | 0.5+ | 0.2− | 2009 11 09 | 691 | 0.3− | 0.2+ | | |
| 2005 08 27 | 699 | 0.1− | 0.2+ | 2005 10 03 | 703 | 0.8− | 1.0+ | 2009 11 21 | 691 | 0.1− | 0.1+ | | |
| 2005 08 27 | 644 | 0.2+ | 0.0 | 2005 10 03 | 703 | 1.0− | 0.0 | 2009 11 21 | 691 | 0.1+ | 0.2+ | | |
| 2005 09 03 | 703 | 0.1− | 1.3+ | 2005 10 03 | 703 | 0.4+ | 0.1+ | 2009 11 21 | 691 | 0.3− | 0.2+ | | |
| 2005 09 03 | 703 | 0.3+ | 0.6+ | 2005 10 03 | 703 | 0.2− | 1.2+ | 2009 12 11 | G96 | 0.4+ | 0.1+ | | |
| 2005 09 03 | 703 | 0.3+ | 0.7− | 2005 10 04 | 644 | 0.3+ | 0.2+ | 2009 12 11 | G96 | 0.4+ | 0.1− | | |
| 2005 09 03 | 703 | 1.4+ | 0.3+ | 2005 10 04 | 644 | 0.4+ | 0.2− | 2009 12 11 | G96 | 0.2+ | 0.0 | | |
| 2005 09 24 | 644 | 0.1− | 0.2+ | 2005 10 04 | 644 | 0.1+ | 0.1− | 2009 12 11 | G96 | 0.2+ | 0.0 | | |

**(229382)∗ 2005 SE$_{50}$**

Discovered 2005 Sept. 24 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 48.07779 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.26866839 | $\omega$ | 12.72857 | | +0.84749163 | | −0.53062841 | | |
| $a$ | 2.3786197 | $\Omega$ | 19.33842 | | +0.48327236 | | +0.76055102 | | |
| $e$ | 0.0908104 | $i$ | 2.39463 | | +0.21955813 | | +0.37415992 | | |
| $P$ | 3.67 | $H$ | 17.9 | $G$ | 0.15 | $U$ | 1 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 10 10 | 691 | 0.2− | 0.4+ | 2005 10 25 | 691 | 0.1− | 0.1+ | 2007 03 10 | 691 | 0.0 | 0.2+ | | |
| 1994 10 10 | 691 | 0.2− | 0.5+ | 2005 10 25 | 691 | 0.4− | 0.1+ | 2007 03 10 | 691 | 0.0 | 0.2− | | |
| 1994 10 10 | 691 | 0.2− | 0.5+ | 2005 10 27 | G96 | 0.1+ | 0.4− | 2007 03 25 | G96 | 0.1+ | 0.0 | | |
| 2005 09 24 | 691 | 0.3+ | 0.2+ | 2005 10 27 | G96 | 0.3+ | 0.5− | 2007 03 25 | G96 | 0.2+ | 0.1− | | |
| 2005 09 24 | 691 | 0.4− | 0.2+ | 2005 10 27 | G96 | 0.0 | 0.4− | 2007 03 25 | G96 | 0.3+ | 0.4− | | |
| 2005 09 24 | 691 | 0.2− | 0.2+ | 2005 10 27 | G96 | 0.3− | 0.2− | 2007 03 25 | G96 | 0.2− | 0.0 | | |
| 2005 09 29 | G96 | 0.0 | 0.3− | 2005 10 27 | G96 | 0.1+ | 0.2+ | 2009 11 09 | 691 | 0.3− | 0.5− | | |
| 2005 09 29 | G96 | 0.5+ | 0.2− | 2005 10 27 | G96 | 0.2− | 0.1− | 2009 11 09 | 691 | 0.1+ | 0.4− | | |
| 2005 09 29 | G96 | 0.0 | 0.4− | 2005 10 27 | G96 | 0.2+ | 0.6− | 2009 11 09 | 691 | 0.5− | 0.1+ | | |
| 2005 09 29 | G96 | 0.0 | 0.1− | 2005 10 27 | G96 | 0.4− | 0.0 | 2009 11 26 | 691 | 0.1− | 0.1+ | | |
| 2005 10 07 | 691 | 0.2+ | 0.2− | 2007 02 21 | 691 | 0.0 | 0.3+ | 2009 11 26 | 691 | 0.3+ | 0.1+ | | |
| 2005 10 07 | 691 | 0.0 | 0.1+ | 2007 02 21 | 691 | 0.4− | 0.2+ | 2009 11 26 | 691 | 0.2+ | 0.2− | | |
| 2005 10 07 | 691 | 0.1+ | 0.1− | 2007 02 21 | 691 | 0.4+ | 0.3+ | 2009 12 11 | G96 | 0.4+ | 0.2− | | |
| 2005 10 11 | 691 | 0.0 | 0.3− | 2007 02 25 | 691 | 0.5+ | 0.1− | 2009 12 11 | G96 | 0.0 | 0.0 | | |
| 2005 10 11 | 691 | 0.0 | 0.1+ | 2007 02 25 | 691 | 0.1+ | 0.1− | 2009 12 11 | G96 | 0.2+ | 0.0 | | |
| 2005 10 11 | 691 | 0.2+ | 0.1− | 2007 02 25 | 691 | 0.0 | 0.5+ | 2009 12 11 | G96 | 0.9+ | 0.0 | | |
| 2005 10 25 | 691 | 0.1+ | 0.5+ | 2007 03 10 | 691 | 0.1− | 0.1+ | | | | | | |

**(229383)∗ 2005 SV$_{52}$**

Discovered 2005 Sept. 25 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 23.00137 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.26751386 | $\omega$ | 318.09447 | | +0.55151609 | | −0.83207866 | | |
| $a$ | 2.3854585 | $\Omega$ | 98.35377 | | +0.78028896 | | +0.48962051 | | |
| $e$ | 0.1745746 | $i$ | 3.41583 | | +0.29492225 | | +0.26060865 | | |
| $P$ | 3.68 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 0 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1992 02 27 | 691 | 0.3− | 0.4− | 2005 10 06 | 703 | 0.6− | 0.6+ | 2007 03 13 | 621 | 0.1− | 0.5− | | |
| 1992 02 27 | 691 | 0.1− | 0.3− | 2005 10 06 | 703 | 0.8+ | 0.2− | 2007 03 15 | 691 | 0.3− | 0.4− | | |
| 1992 02 27 | 691 | 0.1+ | 0.2− | 2005 10 06 | 703 | 0.0 | 0.5− | 2007 03 15 | 691 | 0.5− | 0.1− | | |
| 2003 02 21 | 644 | 0.2+ | 0.2+ | 2005 10 21 | 699 | 0.3+ | 0.7+ | 2007 03 15 | 691 | 0.0 | 0.3− | | |
| 2003 02 21 | 644 | 0.3+ | 0.7+ | 2005 10 21 | 699 | (0.7+ | 1.7+) | 2007 04 14 | 691 | 0.2− | 0.0 | | |
| 2003 02 21 | 644 | 0.7+ | 0.9+ | 2005 10 21 | 699 | 0.2+ | 1.1+ | 2007 04 14 | 691 | 0.2+ | 0.1+ | | |
| 2005 08 31 | 644 | 0.5− | 0.1+ | 2005 10 21 | 699 | 1.5− | 0.7− | 2007 04 14 | 691 | 0.3+ | 0.1+ | | |
| 2005 08 31 | 644 | 0.6− | 0.3+ | 2005 10 27 | 699 | 0.0 | 0.4− | 2009 11 16 | 691 | 0.6− | 0.1− | | |
| 2005 08 31 | 644 | 0.2− | 0.1+ | 2005 10 27 | 704 | 0.8+ | 0.9− | 2009 11 16 | 691 | 0.0 | 0.0 | | |
| 2005 09 03 | 705 | 0.0 | 0.0 | 2005 10 27 | 704 | 0.3+ | 0.5+ | 2009 11 16 | 691 | 0.7− | 0.0 | | |
| 2005 09 03 | 705 | 0.0 | 0.1+ | 2005 10 27 | 699 | 0.6− | 0.5+ | 2009 11 18 | 704 | (0.3+ | 1.7+) | | |
| 2005 09 13 | 705 | 0.2+ | 0.1+ | 2005 10 27 | 704 | 0.7+ | 0.1− | 2009 11 18 | 704 | 0.8+ | 0.1+ | | |
| 2005 09 13 | 705 | 0.2+ | 0.1+ | 2005 10 27 | 704 | 0.2+ | 0.2− | 2009 11 18 | 704 | 0.6+ | 0.3+ | | |
| 2005 09 24 | 644 | 0.1− | 0.2+ | 2005 10 27 | 699 | 1.3− | 1.3+ | 2009 11 18 | 704 | (0.7+ | 1.6+) | | |
| 2005 09 24 | 644 | 0.1− | 0.4+ | 2005 10 27 | 704 | 0.1+ | 0.3− | 2009 11 18 | 704 | 0.9+ | 0.5+ | | |
| 2005 09 24 | 644 | 0.1− | 0.1+ | 2005 10 27 | 699 | 0.5+ | 0.5− | 2009 11 24 | 691 | 0.2− | 0.1+ | | |
| 2005 09 25 | 691 | 0.2+ | 0.1+ | 2005 12 01 | G96 | 0.2− | 0.3+ | 2009 11 24 | 691 | 0.1− | 0.1− | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 25 | 691 | 0.0 | 0.0 | 2005 12 01 | G96 | 0.3− | 0.1+ | 2009 11 24 | 691 | 0.0 | 0.1− | | |
| 2005 09 25 | 691 | 0.1+ | 0.1+ | 2005 12 01 | G96 | 0.3− | 0.0 | 2009 12 09 | J75 | 0.3+ | 0.4− | | |
| 2005 09 26 | 705 | 0.2+ | 0.2+ | 2005 12 01 | G96 | 0.2− | 0.1− | 2009 12 09 | J75 | 0.1− | 0.2− | | |
| 2005 09 26 | 705 | 0.2+ | 0.1+ | 2007 03 09 | 291 | 0.1− | 0.4+ | 2009 12 09 | J75 | 0.5+ | 0.1− | | |
| 2005 09 27 | A50 | 0.1− | 0.1+ | 2007 03 09 | 291 | 0.0 | 0.4+ | 2009 12 10 | G96 | 0.3+ | 0.5− | | |
| 2005 09 27 | A50 | 0.1− | 0.1+ | 2007 03 09 | 291 | 0.1+ | 0.5+ | 2009 12 10 | G96 | 0.5+ | 0.4− | | |
| 2005 09 29 | 699 | 0.7+ | 0.3+ | 2007 03 11 | 691 | 0.2+ | 0.2+ | 2009 12 10 | G96 | 0.1+ | 0.3− | | |
| 2005 09 29 | 699 | 0.0 | 0.5+ | 2007 03 11 | 691 | 0.0 | 0.2+ | 2009 12 10 | G96 | 0.2+ | 0.3− | | |
| 2005 09 29 | 644 | 0.2− | 0.2− | 2007 03 11 | 691 | 0.5+ | 0.1+ | 2009 12 17 | 704 | 0.4+ | 2.1+ | | |
| 2005 09 29 | 699 | 0.2+ | 0.1+ | 2007 03 12 | 621 | 0.5+ | 0.7− | 2009 12 17 | 704 | 1.1− | 0.3+ | | |
| 2005 09 29 | 644 | 0.3+ | 0.3− | 2007 03 12 | 621 | 1.0+ | 0.3+ | 2009 12 17 | 704 | 0.5+ | 0.1− | | |
| 2005 09 29 | 699 | 0.3− | 0.2− | 2007 03 12 | 621 | 0.2+ | 0.6− | 2009 12 17 | 704 | 0.4+ | 0.2− | | |
| 2005 09 29 | 644 | 0.3− | 0.4− | 2007 03 13 | 621 | 0.9− | 0.1− | 2009 12 17 | 704 | 1.0+ | 0.1− | | |
| 2005 10 06 | 703 | 0.5− | 1.3− | 2007 03 13 | 621 | 0.2− | 0.7+ | | | | | | |

**(229384)∗ 2005 SB$_{60}$**

Discovered 2005 Sept. 26 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 6.58865 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.27028920 | $\omega$ | 271.00033 | | | +0.06274442 | | −0.99802554 | |
| $a$ | 2.3691010 | $\Omega$ | 175.39940 | | | +0.92925371 | | +0.05737639 | |
| $e$ | 0.1471505 | $i$ | 2.04067 | | | +0.36407510 | | +0.02555329 | |
| $P$ | 3.65 | $H$ | 17.2 | $G$ | 0.15 | | $U$ | 0 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 12 | 695 | 0.2− | 0.2+ | 2005 09 29 | G96 | 0.3+ | 0.5− | 2005 10 24 | 699 | (0.1− | 2.4+) | | |
| 2001 09 12 | 695 | 0.2− | 0.3+ | 2005 09 29 | G96 | 0.3+ | 0.4− | 2005 10 27 | 691 | 0.1+ | 0.1+ | | |
| 2002 12 07 | 645 | 0.1− | 0.0 | 2005 10 01 | G96 | 0.1− | 0.1+ | 2005 10 27 | 691 | 0.1− | 0.1+ | | |
| 2002 12 07 | 645 | 0.1− | 0.1− | 2005 10 01 | G96 | 0.2+ | 0.0 | 2005 10 27 | 691 | 0.2− | 0.1+ | | |
| 2003 01 26 | 699 | 1.0− | 0.3+ | 2005 10 01 | G96 | 0.0 | 0.1− | 2007 03 20 | G96 | 0.0 | 0.1− | | |
| 2003 01 26 | 699 | 0.2+ | 0.6+ | 2005 10 01 | G96 | 0.3− | 0.2− | 2007 03 20 | G96 | 0.0 | 0.2+ | | |
| 2003 01 26 | 699 | (1.7+ | 1.7+) | 2005 10 07 | 691 | 0.2− | 0.2+ | 2007 03 20 | G96 | 0.0 | 0.4+ | | |
| 2003 01 26 | 699 | (0.1+ | 2.1+) | 2005 10 07 | 691 | 0.2− | 0.1+ | 2007 03 20 | G96 | 0.0 | 0.1− | | |
| 2003 02 12 | 608 | 0.4+ | 0.2− | 2005 10 07 | 691 | 0.0 | 0.2+ | 2007 03 29 | 691 | 0.3− | 0.1− | | |
| 2003 02 12 | 608 | 0.9+ | 1.1− | 2005 10 07 | 703 | 0.5− | 0.1− | 2007 03 29 | 691 | 0.1+ | 0.3+ | | |
| 2003 02 12 | 608 | 0.6+ | 0.7− | 2005 10 07 | 703 | 0.2+ | 0.4− | 2007 03 29 | 691 | 0.0 | 0.4− | | |
| 2003 02 22 | 699 | 0.5+ | 0.6− | 2005 10 07 | 703 | 1.0+ | 0.7− | 2009 11 23 | 691 | 0.2+ | 0.2− | | |
| 2003 02 22 | 699 | 0.1+ | 0.3+ | 2005 10 07 | 703 | 0.3+ | 0.1− | 2009 11 23 | 691 | 0.6− | 0.1− | | |
| 2003 02 22 | 699 | 0.4− | 0.8+ | 2005 10 11 | 691 | 0.1+ | 0.1+ | 2009 11 23 | 691 | (1.2− | 3.2−) | | |
| 2003 02 22 | 699 | 0.7− | 0.4− | 2005 10 11 | 691 | 0.0 | 0.0 | 2009 11 27 | 691 | 0.1− | 0.0 | | |
| 2003 03 06 | 644 | 0.8+ | 0.5+ | 2005 10 11 | 691 | 0.0 | 0.0 | 2009 11 27 | 691 | 0.0 | 0.2+ | | |
| 2003 03 06 | 644 | 0.5+ | 0.3+ | 2005 10 22 | 703 | 0.0 | 0.4− | 2009 11 27 | 691 | 0.1− | 0.1− | | |
| 2003 03 06 | 644 | 0.5+ | 0.3+ | 2005 10 22 | 703 | 0.2+ | 1.0− | 2009 12 17 | 704 | 0.4+ | 0.3+ | | |
| 2005 09 26 | 691 | 0.1+ | 0.1+ | 2005 10 22 | 703 | 0.1− | 0.7− | 2009 12 17 | 704 | 1.3+ | 0.6+ | | |
| 2005 09 26 | 691 | 0.1+ | 0.2+ | 2005 10 22 | 703 | 0.5− | 0.8− | 2009 12 17 | 704 | 0.5+ | 0.7+ | | |
| 2005 09 26 | 691 | 0.1+ | 0.1− | 2005 10 24 | 699 | (1.9+ | 1.0−) | 2009 12 17 | 704 | 0.1+ | 1.2+ | | |
| 2005 09 29 | G96 | 0.2+ | 0.3− | 2005 10 24 | 699 | 0.6+ | 1.1+ | | | | | | |
| 2005 09 29 | G96 | 0.3+ | 0.4− | 2005 10 24 | 699 | 0.3− | 0.2− | | | | | | |

**(229385)∗ 2005 SV$_{61}$**

Discovered 2005 Sept. 26 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 329.83367 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.26528654 | $\omega$ | 101.24437 | | | −0.48799006 | | −0.87247729 | |
| $a$ | 2.3987919 | $\Omega$ | 18.03182 | | | +0.76528067 | | −0.44170611 | |
| $e$ | 0.1824244 | $i$ | 4.72106 | | | +0.41977518 | | −0.20899544 | |
| $P$ | 3.72 | $H$ | 17.1 | $G$ | 0.15 | | $U$ | 1 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 02 28 | 704 | 0.1− | 0.9+ | 2005 10 11 | 691 | 0.1− | 0.4+ | 2009 11 12 | J75 | 0.1− | 0.3+ | | |
| 2003 02 28 | 704 | 0.3+ | 1.4+ | 2005 10 11 | 691 | 0.1− | 0.2+ | 2009 11 12 | J75 | 0.8+ | 0.6− | | |
| 2003 02 28 | 704 | 0.1− | 1.3+ | 2005 10 11 | 691 | 0.3− | 0.2+ | 2009 11 12 | J75 | 0.2− | 0.4+ | | |
| 2003 02 28 | 704 | 0.1+ | 0.8+ | 2005 10 25 | G96 | 0.1+ | 0.1− | 2009 11 17 | 704 | (0.5+ | 1.9+) | | |
| 2003 02 28 | 704 | 0.2− | 0.1− | 2005 10 25 | G96 | 0.5+ | 0.2− | 2009 11 17 | 704 | 0.4+ | 0.6+ | | |
| 2003 03 07 | 699 | (0.7− | 2.0−) | 2005 10 25 | G96 | 0.2+ | 0.0 | 2009 11 17 | 704 | 0.4+ | 0.9+ | | |
| 2003 03 07 | 699 | 0.6+ | 0.0 | 2005 10 25 | G96 | 0.1+ | 0.0 | 2009 11 17 | 704 | 0.8+ | 0.2+ | | |
| 2003 03 07 | 699 | 0.4+ | 0.5+ | 2007 03 11 | G96 | 0.3− | 0.3− | 2009 11 17 | 704 | (0.3+ | 2.2+) | | |
| 2003 03 07 | 699 | 0.3+ | 0.1− | 2007 03 11 | G96 | 0.5+ | 0.4− | 2009 11 23 | 691 | 0.6− | 0.4− | | |
| 2003 03 07 | 644 | 0.3− | 0.2− | 2007 03 11 | G96 | 0.2− | 0.1+ | 2009 11 23 | 691 | 0.2− | 0.1− | | |
| 2003 03 07 | 644 | 0.9+ | 0.2+ | 2007 03 11 | G96 | 0.8− | 0.2+ | 2009 11 23 | 691 | 0.4− | 0.4− | | |
| 2003 03 07 | 644 | 1.0+ | 0.9+ | 2007 03 13 | 691 | 0.1− | 0.0 | 2009 11 25 | 703 | 0.8+ | 0.6− | | |
| 2005 09 26 | 691 | 0.0 | 0.2+ | 2007 03 13 | 691 | 0.2+ | 0.4+ | 2009 11 25 | 703 | 0.2− | 0.1− | | |
| 2005 09 26 | 691 | 0.1+ | 0.2+ | 2007 03 13 | 691 | 0.2+ | 0.1− | 2009 11 25 | 703 | 0.7+ | 0.1+ | | |
| 2005 09 26 | 691 | 0.3− | 0.0 | 2007 04 22 | G96 | 0.2+ | 0.2+ | 2009 11 25 | 703 | 1.1+ | 0.1+ | | |
| 2005 09 26 | 691 | 0.0 | 0.0 | 2007 04 22 | G96 | 0.2− | 0.1− | 2009 11 25 | 703 | 0.0 | 1.0− | | |
| 2005 09 26 | 691 | 0.1+ | 0.2+ | 2007 04 22 | G96 | 0.1+ | 0.0 | 2009 12 10 | 704 | 0.3+ | 0.1− | | |
| 2005 09 26 | 691 | 0.1+ | 0.3+ | 2009 11 09 | 691 | 0.1− | 0.3− | 2009 12 10 | 704 | 0.6+ | 0.4+ | | |
| 2005 09 29 | G96 | 0.1− | 0.1+ | 2009 11 09 | 691 | 0.6− | 1.0− | 2009 12 10 | 704 | 0.6+ | 0.3− | | |
| 2005 09 29 | G96 | 0.5− | 0.2+ | 2009 11 09 | 691 | 0.2− | 0.3− | 2009 12 10 | 704 | 0.8+ | 0.3+ | | |
| 2005 09 29 | G96 | 0.7− | 0.2+ | 2009 11 11 | 704 | 0.8+ | 0.3− | 2009 12 10 | 704 | 0.6+ | 0.6− | | |
| 2005 09 29 | G96 | 0.4− | 0.0 | 2009 11 11 | 704 | 0.5+ | 0.9+ | 2009 12 15 | 704 | 0.7+ | 0.8+ | | |
| 2005 10 07 | 691 | 0.4− | 0.4+ | 2009 11 11 | 704 | 1.0− | 0.0 | 2009 12 15 | 704 | 0.1+ | 0.7+ | | |
| 2005 10 07 | 691 | 0.2− | 0.2+ | 2009 11 11 | 704 | 0.1+ | 0.8− | 2009 12 15 | 704 | 0.0 | 1.6+ | | |
| 2005 10 07 | 691 | 0.1+ | 0.4+ | 2009 11 11 | 704 | 0.5+ | 0.6+ | 2009 12 15 | 704 | 0.9+ | 0.6+ | | |

**(229386)∗ 2005 SL$_{68}$**

Discovered 2005 Sept. 27 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 350.55110 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.28614668 | $\omega$ | 264.26566 | | | −0.53947335 | | −0.84065550 | |
| $a$ | 2.2807459 | $\Omega$ | 218.50566 | | | +0.79962838 | | −0.49379217 | |
| $e$ | 0.1319455 | $i$ | 4.38584 | | | +0.26374791 | | −0.22241317 | |
| $P$ | 3.44 | $H$ | 16.7 | $G$ | 0.15 | | $U$ | 0 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1991 09 14 | 691 | 0.2+ | 0.0 | 2005 10 07 | 703 | 0.3+ | 0.2− | 2007 04 16 | 703 | 0.1− | 0.9− | | |
| 1991 09 14 | 691 | 0.1− | 0.8− | 2005 10 07 | 703 | 0.5+ | 0.8− | 2007 04 16 | 703 | 1.2− | 0.3− | | |
| 1991 09 14 | 691 | 0.5− | 1.1− | 2005 10 07 | 703 | 0.2+ | 0.1− | 2007 04 16 | 704 | (1.9+ | 1.2+) | | |
| 2000 03 09 | 704 | 0.5+ | 0.1− | 2005 10 11 | 691 | 0.1+ | 0.1+ | 2007 04 16 | 703 | 0.4− | 0.6− | | |
| 2000 03 09 | 704 | 0.1− | 0.3+ | 2005 10 11 | 691 | 0.0 | 0.2+ | 2007 04 16 | 704 | (1.8+ | 0.4−) | | |
| 2000 03 09 | 704 | 0.9+ | 0.8+ | 2005 10 11 | 691 | 0.1− | 0.4+ | 2007 04 16 | 704 | (2.1+ | 1.2+) | | |
| 2000 03 09 | 704 | 0.4+ | 1.4− | 2005 10 21 | 644 | 0.1− | 0.1− | 2007 04 16 | 704 | (2.2+ | 2.1+) | | |
| 2000 03 09 | 704 | 0.0 | 0.2− | 2005 10 21 | 644 | 0.3− | 0.3+ | 2007 04 16 | 704 | (2.0+ | 0.4+) | | |
| 2000 03 26 | 699 | 0.9+ | 0.4+ | 2005 10 21 | 644 | 0.7− | 0.3+ | 2007 04 21 | 807 | 0.0 | 0.3+ | | |
| 2000 03 26 | 699 | 0.4+ | 1.0− | 2005 11 04 | 691 | 0.0 | 0.2+ | 2007 04 21 | 807 | 0.1+ | 0.1− | | |
| 2000 03 26 | 699 | (3.0+ | 0.7+) | 2005 11 04 | 691 | 0.0 | 0.0 | 2007 04 23 | G92 | 0.1− | 0.0 | | |
| 2000 03 26 | 699 | 1.6+ | 0.7− | 2005 11 04 | 691 | 0.1− | 0.1+ | 2007 04 23 | G92 | 0.1− | 0.4− | | |
| 2003 01 07 | 704 | 0.3+ | 0.2− | 2006 01 05 | G96 | 0.0 | 0.1− | 2007 04 23 | G92 | 0.9+ | 0.1− | | |
| 2003 01 07 | 704 | 0.1− | 0.1+ | 2006 01 05 | G96 | 0.6− | 0.3− | 2007 04 23 | G92 | 1.3+ | 0.5− | | |
| 2003 01 07 | 704 | 0.3+ | 0.0 | 2006 01 05 | G96 | 0.0 | 0.1− | 2007 04 23 | G92 | 0.3+ | 0.0 | | |
| 2003 01 07 | 704 | 0.2− | 0.1+ | 2006 01 05 | G96 | 0.4+ | 0.1+ | 2007 04 26 | 691 | 0.1− | 0.1+ | | |
| 2005 09 27 | 691 | 0.1− | 0.3+ | 2007 03 14 | 691 | 0.1− | 0.2+ | 2007 04 26 | 691 | 0.4− | 0.2+ | | |
| 2005 09 27 | 691 | 0.0 | 0.4+ | 2007 03 14 | G96 | 0.2− | 0.0 | 2007 04 26 | 691 | 0.1+ | 0.0 | | |
| 2005 09 27 | 691 | 0.0 | 0.4+ | 2007 03 14 | G96 | 0.2− | 0.3+ | 2007 05 16 | G96 | 0.4+ | 0.2+ | | |
| 2005 09 29 | 699 | 0.1− | 1.2− | 2007 03 14 | 691 | 0.0 | 0.2+ | 2007 05 16 | G96 | 0.1− | 0.0 | | |
| 2005 09 29 | 699 | (1.6− | 1.3+) | 2007 03 14 | G96 | 0.2+ | 0.2+ | 2007 05 16 | G96 | 0.1+ | 0.2+ | | |
| 2005 09 29 | 699 | (0.3− | 1.8+) | 2007 03 14 | G96 | 0.2+ | 0.1+ | 2007 05 16 | G96 | 0.2+ | 0.2+ | | |
| 2005 09 29 | 699 | 0.6+ | 1.0− | 2007 03 14 | 691 | 0.1− | 0.1+ | 2008 09 21 | 291 | 0.0 | 0.9+ | | |
| 2005 10 07 | 691 | 0.2− | 0.2+ | 2007 03 18 | 691 | 0.1− | 0.1+ | 2008 09 21 | 291 | 0.1+ | 0.6+ | | |
| 2005 10 07 | 704 | 0.2+ | 0.4− | 2007 03 18 | 691 | 0.1+ | 0.2+ | 2008 09 21 | 291 | 0.2+ | 0.5+ | | |
| 2005 10 07 | G96 | 0.5+ | 0.1+ | 2007 03 18 | 691 | 0.3− | 0.3+ | 2009 12 10 | J75 | 0.0 | 0.8+ | | |
| 2005 10 07 | G96 | 0.4+ | 0.0 | 2007 03 30 | 644 | 0.5− | 0.4+ | 2009 12 10 | J75 | 0.2+ | 0.4+ | | |
| 2005 10 07 | 704 | 0.3− | 0.2+ | 2007 03 30 | 644 | 0.3+ | 0.1+ | 2009 12 10 | J75 | 0.1− | 0.5+ | | |
| 2005 10 07 | G96 | 0.3+ | 0.2+ | 2007 03 30 | 644 | 0.6+ | 0.3+ | 2009 12 18 | 704 | 0.2− | 0.8− | | |
| 2005 10 07 | 691 | 0.1+ | 0.2+ | 2007 04 08 | 691 | 0.6− | 0.3+ | 2009 12 18 | 704 | 0.6− | 1.0+ | | |
| 2005 10 07 | 704 | 0.4− | 0.8+ | 2007 04 08 | 691 | 0.3+ | 0.1+ | 2009 12 18 | 704 | 0.2− | 0.2+ | | |
| 2005 10 07 | 691 | 0.1+ | 0.2+ | 2007 04 08 | 691 | 0.1+ | 0.2+ | 2009 12 18 | 704 | 0.8− | 0.9− | | |
| 2005 10 07 | 703 | 0.1− | 0.9− | 2007 04 16 | 703 | 0.7− | 0.2+ | 2009 12 18 | 704 | 0.4+ | 0.7+ | | |

**(229387)∗ 2005 SG$_{70}$**

Discovered 2005 Sept. 28 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 37.62863 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26842443 | $\omega$ | 84.66960 | | +0.87509543 | −0.48385948 | |
| $a$ | 2.3800606 | $\Omega$ | 304.26785 | | +0.43939917 | +0.80251046 | |
| $e$ | 0.1944283 | $i$ | 0.65036 | | +0.20282099 | +0.34908018 | |
| $P$ | 3.67 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 10 08 | 691 | 0.2− | 0.1+ | 2005 09 29 | 699 | 0.9− | 0.4+ | 2009 09 30 | G96 | 0.4+ | 0.4− |
| 1994 10 08 | 691 | 0.1+ | 0.0 | 2005 10 01 | 703 | 0.7+ | 1.0+ | 2009 09 30 | G96 | 0.4+ | 0.1− |
| 2003 01 31 | 644 | 0.5+ | 0.7+ | 2005 10 01 | 703 | 0.1+ | 0.7+ | 2009 11 17 | 704 | 0.2− | 0.2+ |
| 2003 01 31 | 644 | 0.6+ | 0.6+ | 2005 10 01 | 703 | 0.6+ | 0.7+ | 2009 11 17 | 704 | 0.8+ | 0.7− |
| 2003 01 31 | 644 | 0.1+ | 0.2+ | 2005 10 01 | 703 | 0.0 | 0.3+ | 2009 11 17 | 704 | 0.1+ | 0.2− |
| 2005 08 26 | 699 | 0.2+ | 0.8+ | 2005 10 02 | 704 | (1.6+ | 0.4−) | 2009 11 21 | 691 | 0.1− | 0.5− |
| 2005 08 26 | 699 | 0.6+ | 0.5− | 2005 10 02 | 704 | 0.8− | 0.1− | 2009 11 21 | 691 | 0.1+ | 0.0 |
| 2005 08 26 | 699 | 1.1+ | 0.2− | 2005 10 02 | 704 | 0.5− | 0.5− | 2009 11 21 | 691 | 0.0 | 0.0 |
| 2005 08 26 | 699 | 0.8+ | 0.6+ | 2005 12 04 | G96 | 0.0 | 0.0 | 2009 11 25 | 691 | 0.9− | 0.2− |
| 2005 08 30 | 691 | 0.0 | 0.0 | 2005 12 04 | G96 | 0.3+ | 0.2+ | 2009 11 25 | 691 | 0.1+ | 0.0 |
| 2005 08 30 | 691 | 0.1− | 0.1+ | 2005 12 04 | G96 | 0.4− | 0.1− | 2009 11 25 | 691 | 0.0 | 0.1− |
| 2005 08 30 | 691 | 0.1− | 0.0 | 2005 12 04 | G96 | 0.6+ | 0.1+ | 2009 12 09 | J75 | 0.3+ | 0.1− |
| 2005 09 06 | 699 | 0.3− | 0.1+ | 2007 02 21 | G96 | 0.5− | 0.1+ | 2009 12 09 | J75 | 0.6+ | 0.3− |
| 2005 09 06 | 699 | 0.1+ | 1.1− | 2007 02 21 | G96 | 0.1+ | 0.3+ | 2009 12 09 | J75 | 0.6+ | 0.0 |
| 2005 09 06 | 699 | 0.2− | 0.9− | 2007 02 21 | G96 | 0.0 | 0.0 | 2009 12 15 | G96 | 0.3+ | 0.1+ |
| 2005 09 06 | 699 | 0.3− | 0.3+ | 2007 02 21 | G96 | 0.3+ | 0.1+ | 2009 12 15 | G96 | 0.3+ | 0.1+ |
| 2005 09 23 | 703 | 0.9− | 0.2− | 2007 03 10 | G96 | 0.0 | 0.1+ | 2009 12 15 | G96 | 0.7+ | 0.2− |
| 2005 09 23 | 703 | 0.4+ | 1.0− | 2007 03 10 | G96 | 0.2− | 0.4+ | 2009 12 15 | G96 | 0.3+ | 0.1+ |
| 2005 09 23 | 703 | (1.9− | 0.9−) | 2007 03 10 | G96 | 0.2− | 0.2+ | 2009 12 16 | 291 | 0.4− | 0.3+ |
| 2005 09 23 | 703 | 0.7− | 0.8− | 2007 03 10 | G96 | 0.7+ | 0.0 | 2009 12 16 | 291 | 0.6− | 0.4+ |
| 2005 09 28 | 644 | 0.3− | 0.1+ | 2009 09 21 | G96 | 0.3+ | 0.0 | 2009 12 16 | 291 | 0.1− | 0.4+ |
| 2005 09 28 | 644 | 0.2− | 0.1+ | 2009 09 21 | G96 | 0.4+ | 0.3− | 2009 12 16 | G96 | 0.4+ | 0.0 |
| 2005 09 28 | 644 | 0.1− | 0.1− | 2009 09 21 | G96 | 0.6+ | 0.3− | 2009 12 16 | G96 | 0.7+ | 0.3− |
| 2005 09 29 | 699 | 0.1− | 1.4+ | 2009 09 21 | G96 | 0.0 | 0.2− | 2009 12 16 | G96 | 0.5+ | 0.3− |
| 2005 09 29 | 699 | 0.4+ | 0.7+ | 2009 09 30 | G96 | 0.4+ | 0.3− | 2009 12 16 | G96 | 0.5+ | 0.1− |
| 2005 09 29 | 699 | 0.7− | 1.1+ | 2009 09 30 | G96 | 0.5+ | 0.6− | | | | |

**(229388)∗ 2005 SU$_{70}$**

Discovered 2005 Sept. 27 by D. Healy at Junk Bond Observatory, Sierra Vista.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 40.59857 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27895988 | $\omega$ | 302.54398 | | +0.77361506 | −0.62966156 | |
| $a$ | 2.3197520 | $\Omega$ | 96.58214 | | +0.60270888 | +0.69658834 | |
| $e$ | 0.0242455 | $i$ | 4.10054 | | +0.19560607 | +0.34393459 | |
| $P$ | 3.53 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 05 02 | 691 | 0.5− | 0.2− | 2005 09 27 | 701 | 0.2− | 0.2+ | 2007 02 16 | 703 | 0.0 | 0.5+ |
| 1997 05 02 | 691 | 0.2+ | 0.3+ | 2005 09 27 | 701 | 0.1+ | 0.3+ | 2007 02 25 | 691 | 0.1+ | 0.2+ |
| 1997 05 02 | 691 | 0.4+ | 0.1+ | 2005 09 27 | 701 | 0.0 | 0.0 | 2007 02 25 | 691 | 0.2+ | 0.1− |
| 2005 09 23 | A50 | 0.3− | 0.2− | 2005 09 27 | 701 | 0.6+ | 0.8− | 2007 02 25 | 691 | 0.1+ | 0.3− |
| 2005 09 23 | A50 | 0.1+ | 0.2− | 2005 09 30 | 701 | 0.2+ | 0.4− | 2009 09 30 | G96 | 0.8+ | 0.0 |
| 2005 09 24 | 701 | 0.8− | 0.3+ | 2005 09 30 | 701 | 0.2+ | 0.2+ | 2009 09 30 | G96 | 0.4+ | 0.2− |
| 2005 09 24 | 701 | 0.4+ | 0.2+ | 2005 09 30 | 701 | 0.4+ | 0.4+ | 2009 09 30 | G96 | 0.9+ | 0.2− |
| 2005 09 24 | 701 | 0.1+ | 0.2− | 2005 10 01 | 701 | 1.1− | 0.4− | 2009 09 30 | G96 | 0.4+ | 0.3− |
| 2005 09 25 | 701 | 0.4− | 0.3− | 2005 10 25 | G96 | 0.1+ | 0.3+ | 2009 11 16 | G96 | 0.8+ | 1.1− |
| 2005 09 25 | 701 | 0.2− | 0.0 | 2005 10 25 | G96 | 0.2− | 0.2+ | 2009 11 16 | G96 | 0.1+ | 0.0 |
| 2005 09 25 | 701 | 0.2+ | 0.3+ | 2005 10 25 | G96 | 0.4+ | 0.2− | 2009 11 16 | G96 | 0.0 | 0.2+ |
| 2005 09 25 | 701 | 0.2+ | 0.0 | 2005 10 25 | G96 | 0.1− | 0.6+ | 2009 11 16 | G96 | 0.5+ | 0.2− |
| 2005 09 25 | 701 | 0.1+ | 0.2− | 2007 01 17 | 691 | 0.4− | 0.1− | 2009 11 19 | 691 | 0.4− | 0.0 |
| 2005 09 25 | 701 | 0.2+ | 0.3− | 2007 01 17 | 691 | 0.1− | 0.2− | 2009 11 19 | 691 | 0.4− | 0.2+ |
| 2005 09 25 | 701 | 0.2− | 0.2− | 2007 01 17 | 691 | 0.3− | 0.3+ | 2009 11 19 | 691 | 0.7− | 0.0 |
| 2005 09 25 | 701 | 0.5− | 0.3− | 2007 01 26 | 691 | 0.3+ | 0.1− | 2009 11 27 | 691 | 0.3− | 0.1+ |
| 2005 09 25 | 701 | 0.4− | 0.2− | 2007 01 26 | 691 | 0.1− | 0.2+ | 2009 11 27 | 691 | 0.1+ | 0.1+ |
| 2005 09 25 | 701 | 0.5+ | 0.4+ | 2007 01 26 | 691 | 0.0 | 0.2− | 2009 11 27 | 691 | 0.2− | 0.1+ |
| 2005 09 25 | 701 | 0.2+ | 0.1+ | 2007 01 27 | 691 | 0.1− | 0.0 | 2009 12 11 | G96 | 0.1+ | 0.2+ |
| 2005 09 25 | 701 | 0.0 | 0.2− | 2007 01 27 | 691 | 0.1− | 0.1− | 2009 12 11 | G96 | 0.6+ | 0.1− |
| 2005 09 25 | 701 | 0.2+ | 0.0 | 2007 01 27 | 691 | 0.0 | 0.3− | 2009 12 11 | G96 | 0.5+ | 0.2− |
| 2005 09 25 | 701 | 0.3− | 0.2− | 2007 02 08 | 691 | 0.0 | 0.0 | 2009 12 11 | G96 | 0.4+ | 0.0 |
| 2005 09 25 | 701 | 0.0 | 0.2− | 2007 02 08 | 691 | 0.0 | 0.1− | 2009 12 11 | 703 | 1.8+ | 1.3+ |
| 2005 09 25 | 701 | 0.2− | 0.5− | 2007 02 08 | 691 | 0.1+ | 0.0 | 2009 12 11 | 703 | 0.6+ | 0.0 |
| 2005 09 25 | 701 | 0.0 | 0.2+ | 2007 02 16 | 703 | 1.0+ | 0.7+ | 2009 12 11 | 703 | 0.9+ | 0.4+ |
| 2005 09 27 | 701 | 0.6+ | 0.8+ | 2007 02 16 | 703 | 0.2− | 0.7+ | 2009 12 11 | 703 | 1.1− | 0.6− |
| 2005 09 27 | 701 | 0.4+ | 0.3− | 2007 02 16 | 703 | 0.4− | 0.3− | | | | |

**(229389)∗ 2005 SY$_{79}$**

Discovered 2005 Sept. 24 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 297.97248 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.30257400 | $\omega$ | 105.23237 | | −0.99968581 | +0.01980333 | |
| $a$ | 2.1974297 | $\Omega$ | 75.90418 | | −0.02430624 | −0.91563843 | |
| $e$ | 0.0546474 | $i$ | 0.90778 | | +0.00612335 | −0.40151475 | |
| $P$ | 3.26 | $H$ | 18.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 03 10 | 691 | 0.3− | 0.0 | 2005 10 27 | 705 | 0.1+ | 0.2+ | 2007 02 21 | 691 | 0.1+ | 0.1+ |
| 1994 03 10 | 691 | 0.1− | 0.1+ | 2005 10 28 | G96 | 0.1− | 0.2+ | 2007 02 21 | 691 | 0.3+ | 0.0 |
| 2000 01 13 | 691 | 0.1− | 0.3− | 2005 10 28 | G96 | 0.3+ | 0.3+ | 2007 02 25 | 691 | 0.1+ | 0.0 |
| 2000 01 13 | 691 | 0.7+ | 1.2− | 2005 10 28 | G96 | 0.9− | 0.2+ | 2007 02 25 | 691 | 0.2+ | 0.1+ |
| 2000 01 13 | 691 | 0.4+ | 0.5− | 2005 10 28 | G96 | 0.9− | 1.0+ | 2007 02 25 | 691 | 0.1+ | 0.1+ |
| 2002 11 04 | 291 | 0.1+ | 0.3+ | 2005 10 28 | 705 | 0.1+ | 0.1+ | 2007 03 09 | 703 | 0.7− | 1.1+ |
| 2002 11 04 | 291 | 0.3+ | 0.5+ | 2005 10 28 | 705 | 0.1+ | 0.2+ | 2007 03 09 | 703 | (2.2− | 2.4+) |
| 2002 11 04 | 291 | 0.2+ | 0.3+ | 2005 10 31 | 705 | 0.1+ | 0.2+ | 2007 03 09 | 703 | 0.1− | 1.3+ |
| 2002 11 11 | 291 | 0.3− | 0.1+ | 2005 10 31 | 705 | 0.2+ | 0.2+ | 2007 03 09 | 703 | (0.0 | 1.9+) |
| 2002 11 11 | 291 | 0.2− | 0.3− | 2005 11 01 | 705 | 0.3+ | 0.0 | 2007 03 11 | G96 | 0.8− | 1.0− |
| 2002 11 11 | 291 | 0.4− | 0.1− | 2005 11 01 | 705 | 0.4+ | 0.1+ | 2007 03 11 | G96 | 0.1− | 0.2− |
| 2004 05 23 | 691 | 0.1+ | 0.4+ | 2005 11 03 | 705 | 0.1+ | 0.1+ | 2007 03 11 | G96 | 0.3+ | 0.0 |
| 2004 05 23 | 691 | 0.0 | 0.2+ | 2005 11 03 | 705 | 0.3+ | 0.1+ | 2007 03 11 | G96 | 0.0 | 0.0 |
| 2004 05 23 | 691 | 0.1+ | 0.4+ | 2005 11 06 | 705 | 0.1+ | 0.0 | 2007 03 12 | G96 | 0.3+ | 0.2− |
| 2005 09 24 | 691 | 0.1− | 0.5+ | 2005 11 06 | 705 | 0.2+ | 0.1+ | 2007 03 12 | G96 | 0.4+ | 0.2− |
| 2005 09 24 | 691 | 0.0 | 0.1+ | 2005 11 09 | 705 | 0.1+ | 0.0 | 2007 03 12 | G96 | 0.0 | 0.0 |
| 2005 09 24 | 691 | 0.2+ | 0.6+ | 2005 11 09 | 705 | 0.0 | 0.0 | 2007 03 12 | G96 | 0.1+ | 0.4− |
| 2005 09 30 | 691 | 0.6− | 0.4+ | 2005 11 19 | 705 | 0.1+ | 0.0 | 2009 12 17 | G96 | 0.1− | 0.5+ |
| 2005 09 30 | 691 | 0.0 | 0.3+ | 2005 11 19 | 705 | 0.1− | 0.2− | 2009 12 17 | G96 | 0.2− | 0.1+ |
| 2005 09 30 | 691 | 0.3− | 0.2− | 2005 11 23 | 705 | 0.1− | 0.1− | 2009 12 17 | G96 | 0.3+ | 0.2− |
| 2005 10 01 | G96 | 0.1+ | 0.0 | 2005 11 23 | 705 | 0.1− | 0.3− | 2009 12 17 | G96 | 0.3+ | 0.1− |
| 2005 10 01 | G96 | 0.0 | 0.0 | 2005 11 26 | 705 | 0.0 | 0.0 | 2009 12 18 | 291 | 0.0 | 0.1+ |
| 2005 10 01 | G96 | 0.1− | 0.1− | 2005 11 26 | 705 | 0.0 | 0.1− | 2009 12 18 | 291 | 0.1+ | 0.3+ |
| 2005 10 06 | 691 | 0.2− | 0.5− | 2005 11 30 | 705 | 0.2− | 0.0 | 2009 12 18 | 291 | 0.2− | 0.1+ |
| 2005 10 06 | 691 | 0.3+ | 0.2+ | 2005 11 30 | 705 | 0.3− | 0.1+ | 2009 12 20 | 291 | 0.3− | 0.3+ |
| 2005 10 06 | 691 | 0.2− | 0.0 | 2007 02 17 | 691 | 0.1+ | 0.1+ | 2009 12 20 | 291 | 0.2− | 0.0 |
| 2005 10 23 | 705 | 0.2+ | 0.2+ | 2007 02 17 | 691 | 0.6+ | 0.3+ | 2009 12 20 | 291 | 0.2− | 0.5+ |
| 2005 10 23 | 705 | 0.1+ | 0.1+ | 2007 02 17 | 691 | 0.2+ | 0.2+ | | | | |
| 2005 10 27 | 705 | 0.2+ | 0.2+ | 2007 02 21 | 691 | 0.2+ | 0.2+ | | | | |

**(229390)∗ 2005 SH$_{88}$ = 2002 VH$_{72}$**

Discovered 2005 Sept. 24 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Id. G. V. Williams (*MPO* 87211)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 155.31519 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.30441204 | $\omega$ | 232.66667 | | +0.56313693 | +0.82195219 | |
| $a$ | 2.1885753 | $\Omega$ | 71.81801 | | −0.72695378 | +0.54181760 | |
| $e$ | 0.2113167 | $i$ | 5.14945 | | −0.39295674 | +0.17557984 | |
| $P$ | 3.24 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 05 01 | 704 | (3.0− | 1.3+) | 2005 08 27 | 699 | 0.6− | 0.5− | 2005 10 26 | 704 | 0.7+ | 0.7+ |
| 1998 05 01 | 704 | (0.3− | 2.7+) | 2005 08 27 | 699 | 0.4+ | 0.3+ | 2005 10 31 | 699 | 0.8− | 0.1+ |
| 1998 05 01 | 704 | 1.3− | 0.4− | 2005 08 27 | 699 | 1.1− | 0.0 | 2005 10 31 | 699 | 0.7+ | 0.4− |
| 1998 05 01 | 704 | 0.6+ | 1.0+ | 2005 08 27 | 699 | 0.5+ | 0.5+ | 2005 10 31 | 699 | (2.1+ | 0.0 ) |
| 2001 03 26 | 704 | 0.7+ | 1.3+ | 2005 09 03 | 644 | 0.5− | 0.0 | 2005 10 31 | 699 | (0.6+ | 1.8+) |
| 2001 03 26 | 704 | 1.0+ | 0.3+ | 2005 09 03 | 644 | 0.4− | 0.1+ | 2005 12 02 | 703 | 1.0− | 0.3+ |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 03 26 | 704 | 0.9+ | 0.5+ | 2005 09 03 | 644 | 0.4− | 0.1+ | 2005 12 02 | 703 | (1.8− | 1.4+) |
| 2002 11 07 | 704 | (1.0+ | 1.6+) | 2005 09 13 | 703 | 0.1− | 0.5+ | 2005 12 02 | 703 | (3.0− | 3.3+) |
| 2002 11 07 | 704 | 0.2− | 0.0 | 2005 09 13 | 703 | 0.7− | 0.0 | 2005 12 02 | 703 | (3.4− | 0.5−) |
| 2002 11 07 | 704 | 0.3− | 0.4+ | 2005 09 13 | 703 | 0.4+ | 0.2− | 2007 01 10 | 691 | 0.1− | 0.5+ |
| 2002 11 07 | 704 | 0.1+ | 1.0+ | 2005 09 13 | 703 | 0.4+ | 0.2+ | 2007 01 10 | 691 | 0.1− | 0.1− |
| 2002 11 07 | 704 | 0.0 | 1.0+ | 2005 09 24 | 699 | 0.5− | 0.2+ | 2007 01 10 | 691 | 0.1− | 0.1− |
| 2002 11 11 | 704 | 1.1− | 1.0+ | 2005 09 24 | 699 | 0.6− | 0.5+ | 2007 01 27 | 691 | 0.0 | 0.1− |
| 2002 11 11 | 704 | 0.2− | 0.2+ | 2005 09 24 | 699 | (0.7− | 1.8+) | 2007 01 27 | 691 | 0.2− | 0.2+ |
| 2002 11 11 | 704 | 0.5+ | 0.4+ | 2005 09 24 | 699 | 0.4+ | 0.8+ | 2007 01 27 | 691 | 0.1− | 0.0 |
| 2002 11 11 | 704 | 0.3+ | 0.2+ | 2005 09 30 | 699 | 0.5+ | 0.3+ | 2009 11 11 | G96 | 0.2+ | 0.3− |
| 2002 12 01 | 608 | 0.4+ | 0.9− | 2005 09 30 | 699 | 0.2− | 0.6+ | 2009 11 11 | G96 | 0.3− | 0.1+ |
| 2002 12 01 | 608 | 0.6+ | 0.7− | 2005 09 30 | 699 | 0.5+ | 0.6+ | 2009 11 11 | G96 | 0.2− | 0.4+ |
| 2002 12 01 | 608 | 0.2+ | 0.8− | 2005 09 30 | 699 | 0.1+ | 0.2− | 2009 11 11 | G96 | 0.2− | 0.6− |
| 2004 02 17 | 691 | 0.5+ | 0.2+ | 2005 10 05 | 703 | 0.2+ | 0.2+ | 2009 12 19 | G96 | 0.3+ | 0.4− |
| 2004 02 17 | 691 | 0.3+ | 0.5+ | 2005 10 05 | 703 | 0.7− | 0.8− | 2009 12 19 | G96 | 0.2− | 0.3− |
| 2004 02 17 | 691 | 0.1+ | 0.8+ | 2005 10 05 | 703 | 0.7− | 0.0 | 2009 12 19 | G96 | 0.4+ | 0.5− |
| 2005 07 10 | 703 | 0.8+ | 1.5+ | 2005 10 05 | 703 | 0.6− | 0.5− | 2009 12 19 | G96 | 0.3+ | 0.4− |
| 2005 07 10 | 703 | (2.1− | 2.1−) | 2005 10 26 | 704 | 0.3+ | 0.1+ | 2009 12 27 | 691 | 0.3− | 0.3− |
| 2005 07 10 | 703 | 1.0− | 0.9− | 2005 10 26 | 704 | 0.7+ | 0.8+ | 2009 12 27 | 691 | 0.2− | 0.5− |
| 2005 07 10 | 703 | 0.3+ | 0.8− | 2005 10 26 | 704 | 0.3+ | 1.3+ | 2009 12 27 | 691 | 0.5+ | 0.2− |

**(229391)∗ 2005 SA$_{91}$**

Discovered 2005 Sept. 24 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 353.93451 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.28019037 | $\omega$ | 104.88332 | | −0.39960668 | | −0.91667140 |
| $a$ | 2.3129554 | $\Omega$ | 8.67588 | | +0.82697117 | | −0.36298397 |
| $e$ | 0.0913994 | $i$ | 2.01188 | | +0.39551634 | | −0.16720103 |
| $P$ | 3.52 | $H$ | 17.9 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 01 12 | 691 | 0.3− | 0.1− | 2005 10 11 | 691 | 0.1+ | 0.2+ | 2007 03 26 | 691 | 0.2+ | 0.1+ |
| 1996 01 12 | 691 | 0.3− | 0.0 | 2005 10 11 | 691 | 0.3− | 0.3+ | 2007 04 07 | G96 | 0.4− | 0.2− |
| 1996 01 12 | 691 | 0.4− | 0.3− | 2005 10 25 | 691 | 0.1− | 0.4+ | 2007 04 07 | G96 | 0.0 | 0.1+ |
| 1998 09 27 | 691 | 0.8+ | 0.2− | 2005 10 25 | 691 | 0.3− | 0.2− | 2007 04 07 | G96 | 0.1+ | 0.3+ |
| 1998 09 27 | 691 | 0.5+ | 0.4− | 2005 10 25 | 691 | 0.2+ | 0.1− | 2007 04 07 | G96 | 0.1+ | 0.1− |
| 1998 09 27 | 691 | 0.6+ | 0.3− | 2005 10 27 | G96 | 0.0 | 0.1+ | 2009 11 21 | G96 | 0.1− | 0.5− |
| 1998 10 13 | 691 | 0.1− | 0.5− | 2005 10 27 | G96 | 0.0 | 0.1+ | 2009 11 21 | G96 | 0.2+ | 0.3+ |
| 1998 10 13 | 691 | 0.1+ | 0.4− | 2005 10 27 | G96 | 0.0 | 0.1+ | 2009 11 21 | G96 | 0.9+ | 0.1− |
| 1998 10 13 | 691 | 0.1+ | 0.6− | 2005 10 27 | G96 | 0.1+ | 0.2+ | 2009 11 21 | G96 | 0.2+ | 0.3− |
| 2002 12 31 | 645 | 0.1+ | 0.0 | 2005 11 06 | G96 | 0.4− | 0.3+ | 2009 12 18 | G96 | 0.0 | 0.2− |
| 2002 12 31 | 645 | 0.1+ | 0.1− | 2005 11 06 | G96 | 0.0 | 0.4+ | 2009 12 18 | G96 | 0.3+ | 0.2+ |
| 2005 09 24 | 691 | 0.5− | 0.0 | 2005 11 06 | G96 | 0.3− | 0.4+ | 2009 12 18 | G96 | 0.1+ | 0.0 |
| 2005 09 24 | 691 | 0.4− | 0.4+ | 2005 11 06 | G96 | 0.3+ | 0.3+ | 2009 12 18 | G96 | 0.4+ | 0.3− |
| 2005 09 24 | 691 | 0.1− | 0.4+ | 2007 03 20 | G96 | 0.1− | 0.0 | 2009 12 19 | 691 | 0.4− | 0.6+ |
| 2005 09 30 | G96 | 0.1− | 0.1+ | 2007 03 20 | G96 | 0.4+ | 0.1− | 2009 12 19 | 691 | 0.0 | 0.3− |
| 2005 09 30 | G96 | 0.1− | 0.2+ | 2007 03 20 | G96 | 0.7− | 0.3− | 2009 12 19 | 691 | 0.1+ | 0.1+ |
| 2005 09 30 | G96 | 0.2− | 0.0 | 2007 03 20 | G96 | 0.2− | 0.3+ | 2009 12 19 | 691 | 0.1+ | 0.1− |
| 2005 09 30 | G96 | 0.3+ | 0.3+ | 2007 03 26 | 691 | 0.1+ | 0.3− | 2009 12 19 | 691 | 0.4− | 0.0 |
| 2005 10 11 | 691 | 0.3− | 0.4+ | 2007 03 26 | 691 | 0.1+ | 0.4+ | 2009 12 19 | 691 | 0.0 | 1.1+ |

**(229392)∗ 2005 SA$_{103}$**

Discovered 2005 Sept. 25 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 69.01170 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.28031072 | $\omega$ | 85.10632 | | +0.90079193 | | −0.43146024 |
| $a$ | 2.3122932 | $\Omega$ | 300.44635 | | +0.37239739 | | +0.82574317 |
| $e$ | 0.1234756 | $i$ | 3.26846 | | +0.22336983 | | +0.36330466 |
| $P$ | 3.52 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1991 11 08 | 691 | 0.6− | 0.5− | 2005 10 12 | 704 | 0.1− | 0.3+ | 2005 11 06 | 683 | (0.5− | 2.3+) |
| 1991 11 08 | 691 | 0.6+ | 0.1+ | 2005 10 12 | 704 | 0.4− | 0.6+ | 2005 11 06 | 683 | 0.0 | 1.0+ |
| 1991 11 08 | 691 | 0.4+ | 0.5− | 2005 10 22 | 703 | 0.8− | 0.4+ | 2005 12 06 | 699 | 0.5− | 0.4+ |
| 1998 10 11 | 699 | 0.5− | 0.4− | 2005 10 22 | 703 | 0.8− | 0.5+ | 2005 12 06 | 699 | 0.5− | 1.3− |
| 1998 10 11 | 699 | 0.2− | 0.7− | 2005 10 22 | 703 | 0.6− | 0.0 | 2005 12 06 | 699 | 0.2− | 1.3− |
| 1998 10 11 | 699 | 0.5+ | 0.1+ | 2005 10 22 | 644 | 0.0 | 0.1+ | 2005 12 06 | 699 | 0.4− | 1.1+ |
| 2002 12 31 | 704 | 0.3+ | 0.9+ | 2005 10 22 | 703 | 1.2− | 0.4− | 2006 02 03 | G96 | 0.1+ | 0.2− |
| 2002 12 31 | 704 | 0.4+ | 0.4+ | 2005 10 22 | 644 | 0.1+ | 0.0 | 2006 02 03 | G96 | 0.3+ | 0.0 |
| 2002 12 31 | 704 | 0.6− | 1.2+ | 2005 10 22 | 644 | 0.1+ | 0.0 | 2006 02 03 | G96 | 1.1+ | 0.6− |
| 2005 09 25 | 691 | 0.1+ | 0.1− | 2005 10 24 | 699 | 0.5− | 0.3− | 2006 02 03 | G96 | 0.0 | 0.9− |
| 2005 09 25 | 691 | 0.0 | 0.1− | 2005 10 24 | 699 | (1.8− | 1.3+) | 2007 02 19 | G96 | 0.0 | 0.0 |
| 2005 09 25 | 691 | 0.1− | 0.1− | 2005 10 24 | 699 | 0.4− | 0.2+ | 2007 02 19 | G96 | 0.3+ | 0.4− |
| 2005 09 30 | 691 | 0.2+ | 0.1+ | 2005 10 24 | 699 | 0.1− | 0.0 | 2007 02 19 | G96 | 0.5+ | 0.2− |
| 2005 09 30 | 691 | 0.6+ | 0.0 | 2005 10 28 | 703 | 0.2− | 0.0 | 2007 02 19 | G96 | 0.3+ | 0.1+ |
| 2005 09 30 | 691 | 0.1+ | 0.2+ | 2005 10 28 | 703 | 0.5− | 0.0 | 2007 02 23 | 691 | 0.4+ | 0.3+ |
| 2005 10 01 | 703 | 0.1− | 0.3− | 2005 10 28 | 703 | 0.3+ | 0.1+ | 2007 02 23 | 691 | 0.1+ | 0.4+ |
| 2005 10 01 | 703 | 0.2− | 0.1− | 2005 10 28 | 703 | 0.1− | 0.7− | 2007 02 23 | 691 | 0.1− | 0.4+ |
| 2005 10 01 | 703 | 0.4+ | 0.3− | 2005 10 30 | 683 | (2.3+ | 1.7−) | 2007 03 11 | 703 | 1.2− | 0.6− |
| 2005 10 01 | 703 | 0.2+ | 0.5− | 2005 10 30 | 704 | 0.3+ | 0.9+ | 2007 03 11 | 703 | 0.6+ | 0.5− |
| 2005 10 03 | 704 | 0.5+ | 1.0+ | 2005 10 30 | 683 | 1.0+ | 1.4− | 2007 03 11 | 703 | (1.2− | 1.8−) |
| 2005 10 03 | 704 | 0.9+ | 0.1+ | 2005 10 30 | 704 | 0.9− | 1.2+ | 2007 03 11 | 703 | (1.7− | 0.2+) |
| 2005 10 03 | 704 | 0.4+ | 0.3− | 2005 10 30 | 683 | 0.9+ | 0.5+ | 2007 03 13 | G96 | 0.0 | 0.2+ |
| 2005 10 06 | 699 | 0.6− | 0.7+ | 2005 10 30 | 704 | 0.2− | 0.2+ | 2007 03 13 | G96 | 0.2+ | 0.3+ |
| 2005 10 06 | 691 | 0.2− | 0.2+ | 2005 10 30 | 704 | 0.0 | 0.1− | 2007 03 13 | G96 | 0.2− | 0.1+ |
| 2005 10 06 | 699 | 0.0 | 0.4− | 2005 10 30 | 704 | 0.2+ | 0.0 | 2007 03 13 | G96 | 0.1− | 0.1+ |
| 2005 10 06 | 691 | 0.1− | 0.3+ | 2005 10 31 | 683 | 1.4+ | 1.1+ | 2009 11 11 | G96 | 0.2+ | 0.3− |
| 2005 10 06 | 691 | 0.1+ | 0.3+ | 2005 10 31 | 683 | 1.2+ | 0.2− | 2009 11 11 | G96 | 0.3+ | 0.6− |
| 2005 10 06 | 699 | 0.4+ | 0.5+ | 2005 10 31 | 683 | 0.0 | 0.3− | 2009 11 11 | G96 | 0.2− | 0.6− |
| 2005 10 06 | 699 | 0.0 | 0.1+ | 2005 11 01 | 683 | 0.4− | 0.0 | 2009 11 11 | G96 | 0.3+ | 0.6− |
| 2005 10 08 | 704 | (1.6− | 0.1+) | 2005 11 01 | 683 | 0.9− | 0.5− | 2009 12 15 | G96 | 0.7+ | 0.3− |
| 2005 10 08 | 704 | (2.5− | 0.6+) | 2005 11 02 | 704 | 0.1+ | 0.2− | 2009 12 15 | G96 | 0.5+ | 0.4− |
| 2005 10 08 | 704 | (1.5− | 1.6+) | 2005 11 02 | 704 | 0.2− | 0.6+ | 2009 12 15 | G96 | 0.1− | 0.4− |
| 2005 10 08 | 703 | 0.4− | 0.6− | 2005 11 02 | 704 | 0.1− | 0.4+ | 2009 12 15 | G96 | 0.1+ | 0.4− |
| 2005 10 08 | 703 | 0.6− | 0.7− | 2005 11 02 | 704 | 0.1− | 0.1− | 2009 12 16 | 704 | 0.8+ | 0.9+ |
| 2005 10 08 | 704 | 1.3− | 0.1− | 2005 11 02 | 704 | 0.1+ | 0.3+ | 2009 12 16 | 704 | 1.2+ | 0.6+ |
| 2005 10 08 | 703 | 0.3+ | 1.3− | 2005 11 05 | 683 | 0.0 | 1.0+ | 2009 12 16 | 704 | 0.3− | 0.0 |
| 2005 10 08 | 704 | (1.1− | 1.8+) | 2005 11 05 | 683 | (0.8− | 1.8+) | 2009 12 17 | 691 | 0.6− | 0.0 |
| 2005 10 08 | 703 | 0.1+ | 0.8− | 2005 11 05 | 704 | 0.6− | 0.0 | 2009 12 17 | 691 | 0.5+ | 0.1− |
| 2005 10 10 | 691 | 0.2− | 0.2+ | 2005 11 05 | 683 | 1.3− | 1.3+ | 2009 12 17 | 691 | 0.0 | 0.0 |
| 2005 10 10 | 691 | 0.1− | 0.1− | 2005 11 05 | 704 | (2.6− | 1.5+) | 2009 12 25 | 691 | 0.0 | 0.2− |
| 2005 10 10 | 691 | 0.1− | 0.1+ | 2005 11 05 | 704 | (2.0− | 1.0+) | 2009 12 25 | 691 | 0.4− | 0.3− |
| 2005 10 12 | 704 | 1.1+ | 0.2− | 2005 11 05 | 704 | (1.0+ | 2.4+) | 2009 12 25 | 691 | 0.5− | 0.1+ |
| 2005 10 12 | 704 | 0.5+ | 0.3+ | 2005 11 05 | 704 | (1.7− | 0.5+) | | | | |
| 2005 10 12 | 704 | 0.7+ | 0.6+ | 2005 11 06 | 683 | 0.5− | 0.3+ | | | | |

**(229393)∗ 2005 SW$_{117}$ = 2004 GT$_{71}$**

Discovered 2005 Sept. 28 by NEAT at Palomar.

Id. G. V. Williams (*MPO* 89830)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 78.83714 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.26570248 | $\omega$ | 260.18781 | | +0.88293025 | | +0.45420833 |
| $a$ | 2.3962878 | $\Omega$ | 72.71675 | | −0.36700666 | | +0.82558763 |
| $e$ | 0.1425567 | $i$ | 7.15108 | | −0.29281441 | | +0.33481317 |
| $P$ | 3.71 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 07 22 | 644 | 0.3− | 0.2+ | 2005 10 26 | 704 | 0.9+ | 0.6+ | 2009 11 15 | 703 | 0.3+ | 0.7− |
| 2001 07 22 | 644 | 0.1+ | 0.5+ | 2008 04 29 | 691 | 0.1− | 0.6+ | 2009 11 15 | 703 | 0.6− | 0.6+ |
| 2001 07 22 | 644 | 0.2+ | 0.0 | 2008 04 29 | 691 | 0.2− | 0.2+ | 2009 11 15 | 703 | 0.5+ | 1.4+ |
| 2004 04 14 | 691 | 0.1+ | 0.3+ | 2008 04 29 | 691 | 0.0 | 0.1+ | 2009 11 15 | 703 | 0.1+ | 0.7+ |
| 2004 04 14 | 691 | 0.2+ | 0.5+ | 2008 05 07 | 691 | 0.1+ | 0.1− | 2009 11 16 | G96 | 0.3− | 0.1+ |
| 2004 04 14 | 691 | 0.0 | 0.4+ | 2008 05 07 | 691 | 0.0 | 0.1− | 2009 11 16 | G96 | 0.1+ | 0.0 |
| 2004 04 20 | 704 | 1.0+ | 1.3+ | 2008 05 07 | 691 | 0.2+ | 0.1+ | 2009 11 16 | G96 | 0.0 | 0.1+ |
| 2004 04 20 | 704 | 1.4+ | 1.4+ | 2008 05 31 | 691 | 0.9− | 0.7+ | 2009 11 16 | G96 | 0.2+ | 0.1− |
| 2004 04 20 | 704 | 0.7+ | 1.0+ | 2008 05 31 | 691 | 0.1+ | 0.0 | 2009 11 18 | 704 | 0.1− | 0.3− |
| 2005 09 28 | 644 | 0.2− | 0.2+ | 2008 05 31 | 691 | 1.1+ | 0.4− | 2009 11 18 | 704 | 0.5− | 0.1+ |
| 2005 09 28 | 644 | 0.4− | 0.2+ | 2009 10 12 | G96 | 0.0 | 0.1− | 2009 11 18 | 704 | 1.1+ | 0.1− |
| 2005 09 28 | 644 | 0.2− | 0.2+ | 2009 10 12 | G96 | 0.1+ | 0.1+ | 2009 11 20 | 704 | 0.7− | 0.9+ |
| 2005 09 28 | 644 | 0.6− | 0.0 | 2009 10 12 | G96 | 0.1+ | 0.3− | 2009 11 20 | 704 | 0.4− | 0.8+ |
| 2005 09 28 | 644 | 0.2− | 0.2+ | 2009 10 12 | G96 | 0.4− | 0.2− | 2009 11 20 | 704 | 0.8− | 0.5+ |
| 2005 09 28 | 644 | 0.1− | 0.1− | 2009 10 23 | G96 | 0.2− | 0.0 | 2009 11 22 | 703 | 0.0 | 0.3+ |
| 2005 09 30 | 699 | 0.8+ | 0.6+ | 2009 10 23 | G96 | 0.4− | 0.0 | 2009 11 22 | 703 | 0.3− | 0.8+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 30 | 699 | 1.0− | 0.7+ | 2009 10 23 | G96 | 0.2− | 0.0 | 2009 11 22 | 703 | 0.5− | 0.4− |
| 2005 09 30 | 699 | 1.0+ | 0.6− | 2009 10 23 | G96 | 0.4− | 0.0 | 2009 11 22 | 703 | 0.1− | 0.3− |
| 2005 09 30 | 699 | 0.0 | 0.8+ | 2009 11 09 | 703 | 0.2+ | 0.1+ | 2009 11 23 | G96 | 0.1+ | 0.1+ |
| 2005 10 03 | 703 | 0.2− | 0.6+ | 2009 11 09 | 703 | 0.3− | 0.2− | 2009 11 23 | G96 | 0.0 | 0.2+ |
| 2005 10 03 | 703 | 0.5− | 0.5+ | 2009 11 09 | 703 | 0.0 | 0.5+ | 2009 11 23 | G96 | 0.0 | 0.2+ |
| 2005 10 03 | 703 | 0.8− | 0.6+ | 2009 11 09 | 703 | 0.8+ | 0.6+ | 2009 11 23 | G96 | 0.1− | 0.0 |
| 2005 10 03 | 703 | 0.9− | 0.9− | 2009 11 15 | 703 | 0.0 | 0.0 | 2009 12 11 | G96 | 0.3− | 0.1+ |
| 2005 10 26 | 704 | 0.3+ | 0.1+ | 2009 11 15 | 703 | 0.4− | 0.4+ | 2009 12 11 | G96 | 0.0 | 0.1+ |
| 2005 10 26 | 704 | 1.0− | 0.7+ | 2009 11 15 | 703 | 0.8+ | 1.4+ | 2009 12 11 | G96 | 0.1+ | 0.3+ |
| 2005 10 26 | 704 | 0.4+ | 0.1+ | 2009 11 15 | 703 | (0.1+ | 2.0+) | 2009 12 11 | G96 | 0.2− | 0.6+ |

**(229394)∗ 2005 SF$_{123}$ = 1996 EW$_3$**

Discovered 2005 Sept. 29 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Id. G. V. Williams (*MPO* 89832)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 43.65356 | | (2000.0) | | **P** | **Q** |
| $n$ | 0.27177770 | $\omega$ | 37.09431 | | +0.76282345 | −0.64659194 |
| $a$ | 2.3604429 | $\Omega$ | 3.20117 | | +0.57280190 | +0.67258918 |
| $e$ | 0.1960636 | $i$ | 4.50702 | | +0.29999729 | +0.35992035 |
| $P$ | 3.63 | $H$ | 16.8 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 03 11 | 691 | 0.0 | 0.1− | 2005 10 07 | 704 | 0.2− | 0.0 | 2007 03 09 | 691 | 0.2+ | 0.3+ |
| 1996 03 11 | 691 | 0.0 | 0.1− | 2005 10 07 | 703 | 0.8− | 0.1+ | 2007 03 09 | 691 | 0.9+ | 0.2+ |
| 1996 03 11 | 691 | 0.2− | 0.3+ | 2005 10 07 | 703 | 0.2− | 0.5− | 2007 03 09 | 691 | 0.1− | 0.0 |
| 1996 03 18 | 691 | 0.4− | 0.3− | 2005 10 07 | 703 | 0.7− | 0.3− | 2007 03 09 | G96 | 0.4+ | 0.4− |
| 1996 03 18 | 691 | 0.5− | 0.1− | 2005 10 07 | 703 | 0.2− | 0.1+ | 2007 03 09 | G96 | 0.6+ | 0.5− |
| 1996 03 18 | 691 | 0.4− | 0.1− | 2005 10 10 | 704 | 1.3− | 0.4+ | 2007 03 09 | G96 | 0.3+ | 0.0 |
| 1998 12 17 | 704 | 1.9+ | 0.8− | 2005 10 10 | 704 | 0.4+ | 0.5+ | 2007 03 09 | G96 | 0.6+ | 0.0 |
| 1998 12 17 | 704 | (0.7+ | 3.0−) | 2005 10 10 | 704 | 0.1+ | 0.5− | 2007 03 16 | G96 | 0.4+ | 0.2+ |
| 1998 12 17 | 704 | (0.5− | 2.6−) | 2005 10 10 | 704 | 0.2− | 0.2− | 2007 03 16 | G96 | 0.6+ | 0.1+ |
| 1998 12 17 | 704 | (2.0+ | 2.9−) | 2005 10 11 | 691 | 0.2− | 0.1+ | 2007 03 16 | G96 | 0.3+ | 0.1+ |
| 1998 12 17 | 704 | 1.1+ | 1.4− | 2005 10 11 | 691 | 0.1+ | 0.0 | 2007 03 16 | G96 | 0.1+ | 0.0 |
| 2003 01 30 | 608 | 0.5+ | 1.2+ | 2005 10 11 | 691 | 0.1− | 0.2+ | 2007 03 26 | G96 | 0.5+ | 0.0 |
| 2003 01 30 | 608 | 0.5+ | 0.6+ | 2005 10 21 | 699 | 0.0 | 0.5− | 2007 03 26 | G96 | 0.8+ | 0.1+ |
| 2003 01 30 | 608 | 0.1+ | 0.3+ | 2005 10 21 | 699 | 0.3+ | 1.0− | 2007 03 26 | G96 | 0.2+ | 0.1+ |
| 2005 09 15 | 703 | 0.1− | 0.3+ | 2005 10 21 | 699 | 0.8− | 0.1− | 2007 03 26 | G96 | 0.3+ | 0.3+ |
| 2005 09 15 | 703 | 0.1− | 0.7− | 2005 10 21 | 699 | 0.1− | 1.1+ | 2007 04 07 | G96 | 0.1+ | 0.4+ |
| 2005 09 15 | 703 | 0.4− | 0.5+ | 2005 10 22 | 699 | 0.7+ | 1.0+ | 2007 04 07 | G96 | 0.3+ | 0.3+ |
| 2005 09 15 | 703 | 0.6+ | 0.5− | 2005 10 22 | 699 | 0.7+ | 0.2+ | 2007 04 07 | G96 | 0.0 | 0.1− |
| 2005 09 24 | 691 | 0.0 | 0.0 | 2005 10 22 | 699 | 0.8+ | 0.6+ | 2007 04 07 | G96 | 0.3+ | 0.3+ |
| 2005 09 24 | 691 | 0.0 | 0.0 | 2005 10 22 | 699 | 1.2+ | 0.4+ | 2007 04 19 | G96 | 0.3+ | 0.2− |
| 2005 09 24 | 691 | 0.1− | 0.0 | 2005 10 27 | 691 | 0.1+ | 0.1+ | 2007 04 19 | G96 | 0.3+ | 0.1− |
| 2005 09 29 | 699 | 0.4− | 0.2+ | 2005 10 27 | 691 | 0.0 | 0.0 | 2007 04 19 | G96 | 0.3+ | 0.2− |
| 2005 09 29 | 699 | 0.2+ | 0.0 | 2005 10 27 | 691 | 0.2− | 1.0+ | 2007 04 19 | G96 | 0.3+ | 0.1− |
| 2005 09 29 | 699 | 0.4− | 0.4− | 2005 10 27 | 699 | 0.6+ | 0.1+ | 2009 12 15 | 704 | 0.5+ | 0.2+ |
| 2005 09 29 | 644 | 0.3+ | 0.3− | 2005 10 27 | 699 | 0.0 | 0.8− | 2009 12 15 | 704 | 0.5− | 0.4+ |
| 2005 09 29 | 699 | 0.2+ | 0.2− | 2005 10 27 | 699 | 0.3+ | 0.4+ | 2009 12 15 | 704 | 0.5− | 0.6+ |
| 2005 09 29 | 644 | 0.2+ | 0.1+ | 2005 10 27 | 703 | 0.3+ | 0.4− | 2009 12 15 | 704 | 0.5− | 0.1+ |
| 2005 09 29 | 644 | 0.2+ | 0.1+ | 2005 10 27 | 703 | 0.0 | 0.1− | 2009 12 15 | 704 | 0.3− | 0.4− |
| 2005 09 30 | 691 | 0.2− | 0.1+ | 2005 10 27 | 703 | 0.4+ | 0.7− | 2009 12 20 | G96 | 0.1+ | 0.3− |
| 2005 09 30 | 691 | 0.1− | 0.0 | 2005 10 27 | 699 | 0.4− | 0.3+ | 2009 12 20 | G96 | 0.4− | 0.3− |
| 2005 09 30 | 691 | 0.1− | 0.0 | 2005 10 27 | 703 | 0.2+ | 0.5− | 2009 12 20 | G96 | 0.1− | 0.3− |
| 2005 10 06 | 699 | 0.4+ | 0.1− | 2005 11 03 | 691 | 0.4− | 0.2+ | 2009 12 20 | G96 | 0.1− | 0.3− |
| 2005 10 06 | 699 | 0.3− | 0.1− | 2005 11 03 | 691 | 0.2− | 0.2+ | 2009 12 20 | G96 | 0.2− | 0.3− |
| 2005 10 06 | 699 | 0.2− | 0.2+ | 2005 11 03 | 691 | 0.2− | 0.3+ | 2009 12 20 | G96 | 0.2+ | 0.3− |
| 2005 10 07 | 704 | 0.2− | 0.0 | 2007 02 27 | 691 | 0.1+ | 0.4+ | 2009 12 20 | G96 | 0.3− | 0.4− |
| 2005 10 07 | 704 | 0.1+ | 0.0 | 2007 02 27 | 691 | 0.0 | 0.4+ | | | | |
| 2005 10 07 | 704 | 0.2− | 0.1+ | 2007 02 27 | 691 | 0.3− | 1.0+ | | | | |

**(229395)∗ 2005 SK$_{124}$**

Discovered 2005 Sept. 29 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 316.96620 | | (2000.0) | | **P** | **Q** |
| $n$ | 0.29543368 | $\omega$ | 211.35949 | | −0.89977435 | −0.43040856 |
| $a$ | 2.2326949 | $\Omega$ | 302.98007 | | +0.41597429 | −0.79636032 |
| $e$ | 0.0789884 | $i$ | 4.90978 | | +0.13180103 | −0.42492201 |
| $P$ | 3.34 | $H$ | 16.5 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 01 07 | 704 | 0.5− | 0.2− | 2007 02 16 | 147 | 0.1− | 0.5− | 2007 03 14 | A24 | 0.9− | 1.0+ |
| 2000 01 07 | 704 | 0.2− | 0.4+ | 2007 02 16 | 147 | 0.1+ | 0.3− | 2007 03 15 | A24 | 1.3+ | 0.6− |
| 2000 01 07 | 704 | 0.3− | 0.3− | 2007 02 22 | 704 | 0.1− | 1.3+ | 2007 03 15 | 704 | (0.6+ | 1.5−) |
| 2000 01 07 | 704 | 1.3− | 0.3+ | 2007 02 22 | 704 | 0.3− | 0.7− | 2007 03 15 | 704 | 0.3− | 0.4+ |
| 2000 01 07 | 704 | 1.0− | 0.9− | 2007 02 22 | 704 | 0.1− | 0.3+ | 2007 03 15 | 704 | 1.3+ | 0.0 |
| 2000 02 03 | 691 | 0.3+ | 0.3− | 2007 02 22 | 699 | 0.6+ | 0.4+ | 2007 03 15 | 704 | 0.3+ | 0.4− |
| 2000 02 03 | 691 | 0.0 | 0.3− | 2007 02 22 | 704 | 0.6+ | 0.5+ | 2007 03 15 | 703 | 0.3− | 0.2+ |
| 2000 02 03 | 691 | 0.3+ | 0.2− | 2007 02 22 | 704 | (0.6+ | 1.9+) | 2007 03 15 | 703 | 0.0 | 0.4− |
| 2002 11 14 | 644 | 0.5+ | 0.0 | 2007 02 22 | 699 | (0.7+ | 2.2−) | 2007 03 15 | 703 | 0.3− | 0.3+ |
| 2002 11 14 | 644 | 0.1+ | 0.4+ | 2007 02 22 | 699 | 0.5+ | 0.0 | 2007 03 15 | 703 | 0.1+ | 0.3− |
| 2002 11 14 | 644 | 0.2− | 0.3+ | 2007 02 22 | 699 | 0.4− | 0.9+ | 2007 03 16 | 704 | 0.6− | 0.4+ |
| 2005 09 29 | 699 | 0.5+ | 1.4+ | 2007 03 11 | 703 | 0.2− | 0.0 | 2007 03 16 | 704 | 0.4+ | 0.2+ |
| 2005 09 29 | 699 | 0.9+ | 0.3+ | 2007 03 11 | 703 | 1.0− | 0.5+ | 2007 03 16 | 704 | 0.7+ | 0.2− |
| 2005 09 29 | 699 | 1.0− | 1.4+ | 2007 03 11 | 703 | 1.3− | 0.7+ | 2007 03 16 | 704 | 0.3+ | 0.0 |
| 2005 09 29 | 699 | 1.0+ | 0.4− | 2007 03 11 | 703 | 0.4− | 0.2+ | 2007 03 19 | 699 | 0.4+ | 0.0 |
| 2005 09 30 | 644 | 0.1− | 0.1+ | 2007 03 12 | A24 | 1.3− | 0.8+ | 2007 03 19 | 699 | 0.7− | 0.4+ |
| 2005 09 30 | 644 | 0.3− | 0.0 | 2007 03 13 | A24 | 1.3− | 0.7− | 2007 03 19 | 699 | 0.3+ | 1.2+ |
| 2005 09 30 | 644 | 0.2− | 0.2+ | 2007 03 13 | A24 | 1.0− | 0.9+ | 2007 03 19 | 699 | 0.7− | 0.3+ |
| 2005 10 01 | 703 | 0.0 | 0.4− | 2007 03 13 | A24 | 0.7− | 0.9+ | 2007 03 21 | 704 | 0.1+ | 0.6+ |
| 2005 10 01 | 703 | (1.9− | 0.0 ) | 2007 03 13 | A24 | 1.3+ | 0.2− | 2007 03 21 | 704 | 0.9+ | 0.5− |
| 2005 10 01 | 703 | 0.2− | 0.4− | 2007 03 13 | A24 | 0.6− | 0.1+ | 2007 03 21 | 704 | 1.3+ | 1.3+ |
| 2005 10 01 | 703 | 0.5− | 0.3+ | 2007 03 13 | A24 | (1.7+ | 1.2−) | 2007 03 21 | 704 | (0.1+ | 1.9+) |
| 2005 10 06 | 699 | 0.5+ | 0.8− | 2007 03 13 | A24 | (1.6+ | 0.2−) | 2008 09 21 | G96 | 0.1− | 0.3+ |
| 2005 10 06 | 699 | 1.0− | 0.7+ | 2007 03 13 | A24 | (1.6+ | 0.5−) | 2008 09 21 | G96 | 0.4− | 0.0 |
| 2005 10 06 | 699 | 0.9− | 1.4+ | 2007 03 13 | A24 | 1.2+ | 0.3+ | 2008 09 21 | G96 | 0.2+ | 0.0 |
| 2005 10 06 | 699 | 1.1− | 0.8+ | 2007 03 13 | A24 | 0.9+ | 0.1+ | 2008 09 21 | G96 | 0.0 | 0.1− |
| 2005 10 21 | 644 | 0.1− | 0.3+ | 2007 03 13 | A24 | 0.7+ | 0.5+ | 2009 12 18 | G96 | 0.1+ | 0.1− |
| 2005 10 21 | 644 | 0.0 | 0.7+ | 2007 03 13 | A24 | 0.7+ | 0.6− | 2009 12 18 | G96 | 0.1+ | 0.2+ |
| 2005 10 21 | 644 | 0.2− | 0.0 | 2007 03 14 | A24 | 0.2+ | 0.6− | 2009 12 18 | G96 | 0.2+ | 0.0 |
| 2006 11 25 | 691 | 0.7+ | 0.2− | 2007 03 14 | A24 | 0.2+ | 0.7− | 2009 12 18 | G96 | 0.2+ | 0.0 |
| 2006 11 25 | 691 | 0.2+ | 0.3+ | 2007 03 14 | A24 | 0.2+ | 0.6− | 2009 12 19 | 691 | 0.3− | 0.1+ |
| 2006 11 25 | 691 | 0.3+ | 0.1+ | 2007 03 14 | A24 | 0.5+ | 0.5− | 2009 12 19 | 691 | 0.6− | 0.2− |
| 2007 01 26 | 147 | 0.0 | 0.3− | 2007 03 14 | A24 | 0.4+ | 0.5− | 2009 12 19 | 691 | 0.8+ | 0.3− |
| 2007 01 26 | 147 | 0.2+ | 0.2− | 2007 03 14 | A24 | (1.6− | 0.9−) | 2009 12 20 | H10 | 0.7+ | 1.3+ |
| 2007 01 27 | 147 | 0.1− | 0.1+ | 2007 03 14 | A24 | 0.5− | 0.8− | 2009 12 20 | H10 | 0.3+ | 0.2+ |
| 2007 01 28 | 147 | 0.0 | 0.2− | 2007 03 14 | A24 | 0.8− | 0.7− | 2009 12 20 | H10 | 0.9+ | 0.4+ |
| 2007 01 28 | 147 | 0.1− | 0.1− | 2007 03 14 | A24 | 0.4+ | 0.6− | 2009 12 27 | 691 | 0.0 | 0.4− |
| 2007 02 15 | 204 | 0.0 | 0.0 | 2007 03 14 | A24 | 0.5+ | 1.1+ | 2009 12 27 | 691 | 0.5− | 0.4+ |
| 2007 02 16 | 204 | 0.2+ | 0.1+ | 2007 03 14 | A24 | 0.2+ | 1.2+ | 2009 12 27 | 691 | 0.3− | 0.1+ |

**(229396)∗ 2005 SA$_{129}$**

Discovered 2005 Sept. 29 by the Mt. Lemmon Survey at Mount Lemmon.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 346.19107 | | (2000.0) | | **P** | **Q** |
| $n$ | 0.26234543 | $\omega$ | 63.66144 | | −0.15083906 | −0.98816762 |
| $a$ | 2.4166868 | $\Omega$ | 35.04906 | | +0.88886000 | −0.14787638 |
| $e$ | 0.1533262 | $i$ | 2.77380 | | +0.43263782 | −0.04071044 |
| $P$ | 3.76 | $H$ | 16.8 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 12 | 704 | 0.3− | 1.4+ | 2005 10 10 | 691 | 0.3+ | 0.1+ | 2009 11 11 | 704 | 0.4− | 0.1+ |
| 2001 09 12 | 704 | 0.3− | 0.3+ | 2005 10 10 | 691 | 0.1+ | 0.2− | 2009 11 11 | 704 | 0.8− | 0.8+ |
| 2001 09 12 | 704 | 0.6+ | 0.1+ | 2005 10 22 | 703 | (2.0− | 1.0−) | 2009 11 11 | 704 | 0.2+ | 0.3− |
| 2001 09 12 | 704 | 0.8+ | 1.2+ | 2005 10 22 | 703 | 0.8− | 0.9− | 2009 11 12 | J75 | 0.6− | 0.3+ |
| 2001 09 12 | 704 | 1.4+ | 0.5+ | 2005 10 22 | 703 | 0.7− | 1.2− | 2009 11 12 | J75 | 0.3+ | 0.9− |
| 2001 09 19 | 704 | 0.7+ | 0.6+ | 2005 10 22 | 703 | 1.1− | 0.4− | 2009 11 12 | J75 | 0.2− | 0.3+ |
| 2001 09 19 | 704 | 0.3− | 0.8+ | 2005 10 22 | 703 | 0.0 | 0.3+ | 2009 11 17 | 691 | 0.2− | 0.1− |
| 2001 09 19 | 704 | 0.5− | 0.3+ | 2005 10 22 | 703 | (0.8− | 2.2+) | 2009 11 17 | 691 | 0.1− | 0.0 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 19 | 704 | 0.3− | 0.8+ | 2005 10 22 | 703 | 1.1− | 0.9− | 2009 11 17 | 691 | 0.2− | 0.0 | | |
| 2001 09 19 | 704 | 0.3− | 1.2+ | 2005 10 22 | 703 | 1.3− | 0.6+ | 2009 11 24 | J75 | 0.0 | 0.3− | | |
| 2003 04 09 | 691 | 0.0 | 0.5+ | 2005 10 25 | 691 | 0.0 | 0.3− | 2009 11 24 | J75 | 0.2+ | 0.6+ | | |
| 2003 04 09 | 691 | 0.0 | 0.5+ | 2005 10 25 | 691 | 0.1− | 0.1− | 2009 11 25 | J75 | 0.3+ | 0.4+ | | |
| 2003 04 09 | 691 | 0.6+ | 0.3+ | 2005 10 25 | 691 | 0.3− | 0.1− | 2009 11 25 | 691 | 0.0 | 0.1+ | | |
| 2005 09 29 | G96 | 0.1+ | 0.1+ | 2005 11 25 | G96 | 0.2+ | 0.2− | 2009 11 25 | 691 | 0.0 | 0.1− | | |
| 2005 09 29 | G96 | 0.1+ | 0.1+ | 2005 11 25 | G96 | 0.1− | 0.1− | 2009 11 25 | 691 | 0.2− | 0.1+ | | |
| 2005 09 29 | G96 | 0.0 | 0.0 | 2005 11 25 | G96 | 0.0 | 0.3− | 2009 12 11 | 704 | 1.0+ | 0.1+ | | |
| 2005 09 29 | G96 | 0.0 | 0.2+ | 2005 11 25 | G96 | 0.1+ | 0.1− | 2009 12 11 | 704 | 0.8+ | 0.5+ | | |
| 2005 09 30 | 644 | 0.1+ | 0.2+ | 2007 03 09 | 691 | 0.1+ | 0.1+ | 2009 12 11 | 704 | 1.2+ | 0.4− | | |
| 2005 09 30 | 644 | 0.2+ | 0.3+ | 2007 03 09 | 691 | 0.5− | 0.3+ | 2009 12 16 | 704 | 1.1+ | 0.2− | | |
| 2005 09 30 | 644 | 0.6+ | 0.2+ | 2007 03 09 | 691 | 0.2+ | 0.1− | 2009 12 16 | 704 | 0.7+ | 0.6+ | | |
| 2005 10 01 | 691 | 0.2− | 0.1+ | 2007 05 09 | G96 | 0.3+ | 0.3+ | 2009 12 16 | 704 | 0.1− | 0.0 | | |
| 2005 10 01 | 691 | 0.4− | 0.0 | 2007 05 09 | G96 | 0.1+ | 0.3+ | 2009 12 16 | 704 | 0.1+ | 0.4+ | | |
| 2005 10 01 | 691 | 0.2− | 0.0 | 2007 05 09 | G96 | 0.6+ | 0.1+ | 2009 12 16 | G96 | 0.2− | 0.1+ | | |
| 2005 10 06 | 691 | 0.1+ | 0.1+ | 2007 05 09 | G96 | 0.6− | 0.1− | 2009 12 16 | G96 | 0.1+ | 0.2− | | |
| 2005 10 06 | 691 | 0.3− | 0.0 | 2009 09 20 | G96 | 0.3+ | 0.1+ | 2009 12 16 | 704 | 0.5+ | 0.1− | | |
| 2005 10 06 | 691 | 0.1+ | 0.1− | 2009 09 20 | G96 | 0.4+ | 0.1− | 2009 12 16 | G96 | 0.4+ | 0.2− | | |
| 2005 10 10 | 691 | 0.1+ | 0.3+ | 2009 09 20 | G96 | 0.3+ | 0.0 | 2009 12 16 | G96 | 0.1+ | 0.1− | | |

**(229397)∗ 2005 SM$_{134}$**

Discovered 2005 Sept. 29 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 15.04264 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28122835 | $\omega$ | 143.18361 | | +0.14500353 | −0.98742971 | |
| $a$ | 2.3072606 | $\Omega$ | 298.40075 | | +0.88988837 | +0.15794174 | |
| $e$ | 0.1752596 | $i$ | 4.10058 | | +0.43251897 | +0.00608129 | |
| $P$ | 3.50 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 12 11 | 704 | 0.2+ | 0.6+ | 2005 09 29 | 699 | 0.6− | 1.4+ | 2009 10 14 | G96 | 0.0 | 0.0 | | |
| 2002 12 11 | 704 | 0.0 | 0.1+ | 2005 09 29 | 699 | 0.2+ | 0.1+ | 2009 10 14 | G96 | 0.1+ | 0.1+ | | |
| 2002 12 11 | 704 | 0.1+ | 0.6+ | 2005 09 30 | 941 | 0.1− | 0.2+ | 2009 10 14 | G96 | 0.3− | 0.2+ | | |
| 2002 12 11 | 704 | 0.1+ | 0.1+ | 2005 09 30 | 941 | 0.0 | 0.0 | 2009 10 14 | G96 | 0.1+ | 0.2+ | | |
| 2002 12 11 | 704 | 0.5− | 0.1+ | 2005 09 30 | 941 | 0.1− | 0.1− | 2009 11 20 | G96 | 0.0 | 0.1− | | |
| 2002 12 31 | 704 | 0.0 | 0.4+ | 2005 09 30 | 941 | 0.0 | 0.1− | 2009 11 20 | G96 | 0.1+ | 0.1− | | |
| 2002 12 31 | 704 | 0.5− | 0.4− | 2005 09 30 | 941 | 0.0 | 0.3− | 2009 11 20 | G96 | 0.1+ | 0.4− | | |
| 2002 12 31 | 704 | 0.6+ | 0.6+ | 2005 10 01 | 703 | 0.2+ | 0.3− | 2009 11 20 | G96 | 0.2+ | 0.3− | | |
| 2002 12 31 | 704 | 0.4− | 0.1− | 2005 10 01 | 703 | 0.3+ | 0.7− | 2009 12 09 | J75 | 0.3− | 0.4+ | | |
| 2002 12 31 | 704 | 0.5+ | 0.6+ | 2005 10 01 | 703 | 0.6− | 0.5− | 2009 12 09 | J75 | 0.3+ | 0.1− | | |
| 2003 01 08 | 704 | 0.3+ | 0.5+ | 2005 10 01 | 703 | (0.8+ | 1.7−) | 2009 12 09 | J75 | 0.4− | 0.2+ | | |
| 2003 01 08 | 704 | 1.2+ | 0.2+ | 2005 10 01 | 941 | 0.4+ | 0.5− | 2009 12 10 | 704 | 0.6+ | 0.5+ | | |
| 2003 01 08 | 704 | 0.3+ | 0.2+ | 2005 10 01 | 941 | 0.4+ | 0.4− | 2009 12 10 | 704 | 0.1− | 0.1− | | |
| 2003 01 08 | 704 | 0.8− | 0.1+ | 2005 10 01 | 941 | 0.4+ | 0.1+ | 2009 12 10 | 704 | 0.6+ | 0.4− | | |
| 2003 01 08 | 704 | 0.5+ | 0.5+ | 2005 10 01 | 941 | 0.2− | 0.3+ | 2009 12 10 | J75 | 0.4+ | 0.2+ | | |
| 2003 01 31 | 704 | 0.0 | 0.5− | 2005 10 01 | 941 | 0.1− | 0.3+ | 2009 12 10 | J75 | 0.2− | 0.3− | | |
| 2003 01 31 | 704 | 0.0 | 0.8− | 2005 10 08 | 704 | (2.9− | 0.2−) | 2009 12 10 | J75 | 0.8− | 0.2− | | |
| 2003 01 31 | 704 | 1.2− | 0.4− | 2005 10 08 | 704 | (3.9− | 0.6+) | 2009 12 16 | 704 | 0.2− | 0.6− | | |
| 2003 01 31 | 704 | 0.0 | 0.2− | 2005 10 08 | 704 | (2.3− | 0.6+) | 2009 12 16 | 704 | 0.0 | 0.6− | | |
| 2005 09 24 | 941 | (2.0− | 0.7+) | 2006 02 02 | G96 | 0.8− | 0.2+ | 2009 12 16 | 704 | 0.2+ | 0.6− | | |
| 2005 09 24 | 941 | (2.6− | 0.1+) | 2006 02 02 | G96 | 0.3− | 0.2+ | 2009 12 16 | 704 | 0.0 | 0.5− | | |
| 2005 09 24 | 941 | 0.9− | 0.2− | 2006 02 02 | G96 | 0.9− | 0.1− | 2009 12 17 | 691 | 0.2− | 0.0 | | |
| 2005 09 25 | 941 | (0.2− | 1.8−) | 2006 02 02 | G96 | 0.3− | 0.5+ | 2009 12 17 | 691 | 0.3− | 0.0 | | |
| 2005 09 25 | 941 | (0.2− | 2.7−) | 2007 03 16 | 691 | 0.1− | 0.0 | 2009 12 17 | 691 | 0.3+ | 0.0 | | |
| 2005 09 29 | 699 | 1.3+ | 0.1− | 2007 03 16 | 691 | 0.0 | 0.2+ | | | | | | |
| 2005 09 29 | 699 | 0.3+ | 0.3+ | 2007 03 16 | 691 | 0.0 | 0.2− | | | | | | |

**(229398)∗ 2005 SL$_{140}$ = 2004 HN$_{14}$**

Discovered 2005 Sept. 25 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 89840)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 128.01628 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26983631 | $\omega$ | 204.61336 | | +0.26039952 | +0.96459199 | |
| $a$ | 2.3717511 | $\Omega$ | 80.50241 | | −0.87864550 | +0.25473380 | |
| $e$ | 0.1624245 | $i$ | 2.43394 | | −0.40021766 | +0.06835927 | |
| $P$ | 3.65 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 09 09 | 691 | 0.1− | 0.2− | 2005 10 01 | 691 | 0.2− | 0.6+ | 2005 11 03 | 705 | 0.1+ | 0.2+ | | |
| 1994 09 09 | 691 | 0.0 | 0.1− | 2005 10 07 | 703 | 0.3− | 1.5+ | 2005 11 04 | 691 | 0.2− | 0.6+ | | |
| 1994 09 09 | 691 | 0.1− | 0.0 | 2005 10 07 | 703 | 1.0+ | 0.2− | 2005 11 04 | 691 | 0.0 | 0.2− | | |
| 1998 11 14 | 691 | 0.2+ | 0.3− | 2005 10 07 | 703 | 0.1− | 0.1− | 2005 11 04 | 691 | 0.1+ | 0.5− | | |
| 1998 11 14 | 691 | 0.6+ | 0.1− | 2005 10 07 | 703 | 0.3+ | 0.8+ | 2005 11 06 | 705 | 0.1+ | 0.1+ | | |
| 1998 11 14 | 691 | 0.2− | 0.1− | 2005 10 11 | 705 | 0.2+ | 0.0 | 2005 11 06 | 705 | 0.1+ | 0.2+ | | |
| 2001 07 27 | 699 | 0.5− | 0.5− | 2005 10 11 | 705 | 0.4+ | 0.1+ | 2005 11 19 | 705 | 0.1− | 0.1+ | | |
| 2001 07 27 | 699 | 0.0 | 0.7+ | 2005 10 25 | 705 | 0.1+ | 0.1+ | 2005 11 19 | 705 | 0.2− | 0.2− | | |
| 2001 07 27 | 699 | 0.0 | 1.0− | 2005 10 25 | 705 | 0.2+ | 0.0 | 2005 11 23 | 705 | 0.0 | 0.0 | | |
| 2001 07 27 | 699 | 0.3+ | 0.6+ | 2005 10 26 | 705 | 0.3+ | 0.2+ | 2005 11 23 | 705 | 0.0 | 0.0 | | |
| 2004 03 19 | 704 | 0.3− | 0.7+ | 2005 10 26 | 705 | 0.2+ | 0.1+ | 2005 11 26 | 705 | 0.2− | 0.1+ | | |
| 2004 03 19 | 704 | 0.3+ | 0.0 | 2005 10 28 | 705 | 0.1+ | 0.1+ | 2005 11 26 | 705 | 0.1− | 0.0 | | |
| 2004 03 19 | 704 | 0.4+ | 1.0+ | 2005 10 28 | 705 | 0.2+ | 0.1+ | 2005 11 30 | 705 | 0.2− | 0.0 | | |
| 2004 03 19 | 704 | 0.7+ | 0.5+ | 2005 10 31 | 705 | 0.2+ | 0.1+ | 2005 11 30 | 705 | 0.4− | 0.0 | | |
| 2004 03 28 | 704 | 0.3− | 0.1+ | 2005 10 31 | 705 | 0.2+ | 0.1+ | 2005 12 01 | 705 | 0.2− | 0.1+ | | |
| 2004 03 28 | 704 | 0.5− | 0.9+ | 2005 11 01 | 705 | 0.2+ | 0.2+ | 2005 12 01 | 705 | 0.1− | 0.1− | | |
| 2004 03 28 | 704 | 0.7+ | 0.1+ | 2005 11 01 | 705 | 0.2+ | 0.3+ | 2008 05 05 | G96 | 0.1+ | 0.3+ | | |
| 2004 04 16 | 691 | 0.2+ | 0.1+ | 2005 11 01 | G96 | 0.0 | 0.3+ | 2008 05 05 | G96 | 0.2− | 0.1+ | | |
| 2004 04 16 | 691 | 0.4+ | 0.2+ | 2005 11 01 | G96 | 0.3− | 0.1− | 2008 05 05 | G96 | 0.3+ | 0.7− | | |
| 2004 04 16 | 691 | 0.1− | 0.4+ | 2005 11 01 | G96 | 0.5+ | 0.1+ | 2008 05 05 | G96 | 0.1− | 0.2+ | | |
| 2004 04 21 | 691 | 0.2+ | 0.1+ | 2005 11 01 | G96 | 0.4− | 0.1− | 2009 11 23 | G96 | 0.5− | 0.0 | | |
| 2004 04 21 | 691 | 0.1+ | 0.1+ | 2005 11 01 | G96 | 0.4+ | 0.3+ | 2009 11 23 | G96 | 0.4− | 0.1− | | |
| 2004 04 21 | 691 | 0.0 | 0.1+ | 2005 11 01 | G96 | 0.4− | 0.3+ | 2009 11 23 | G96 | 0.2− | 0.0 | | |
| 2004 07 16 | 807 | 0.6− | 0.4+ | 2005 11 01 | G96 | 0.1− | 0.6+ | 2009 11 23 | G96 | 0.4− | 0.1− | | |
| 2004 07 16 | 807 | 0.8− | 0.4+ | 2005 11 01 | G96 | 0.1+ | 0.4+ | 2009 12 11 | G96 | 0.5− | 0.2+ | | |
| 2005 09 25 | 691 | 0.3− | 0.0 | 2005 11 01 | G96 | 0.4+ | 0.3+ | 2009 12 11 | G96 | 0.2− | 0.1− | | |
| 2005 09 25 | 691 | 0.3− | 0.1+ | 2005 11 01 | G96 | 0.3− | 0.3+ | 2009 12 11 | G96 | 0.3− | 0.2− | | |
| 2005 09 25 | 691 | 0.1− | 0.1+ | 2005 11 01 | G96 | 0.5− | 0.1+ | 2009 12 11 | G96 | 0.1+ | 0.2− | | |
| 2005 10 01 | 691 | 0.0 | 0.1+ | 2005 11 01 | G96 | 0.1− | 0.2+ | | | | | | |
| 2005 10 01 | 691 | 0.1− | 0.3+ | 2005 11 03 | 705 | 0.2+ | 0.2+ | | | | | | |

**(229399)∗ 2005 SP$_{149}$**

Discovered 2005 Sept. 25 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 83.61882 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27909013 | $\omega$ | 313.88670 | | +0.99205944 | −0.11581897 | |
| $a$ | 2.3190302 | $\Omega$ | 52.82455 | | +0.12562064 | +0.89349827 | |
| $e$ | 0.2247229 | $i$ | 3.52796 | | +0.00612501 | +0.43387418 | |
| $P$ | 3.53 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 11 11 | 699 | 0.8+ | 1.1+ | 2005 10 11 | 691 | 0.0 | 0.3+ | 2005 11 05 | 699 | 0.0 | 0.2+ | | |
| 1998 11 11 | 699 | 0.1+ | 0.1+ | 2005 10 11 | 691 | 0.1− | 0.2+ | 2005 11 05 | 704 | 0.4+ | 0.0 | | |
| 1998 11 11 | 699 | 0.4+ | 0.7+ | 2005 10 22 | 703 | 0.1− | 0.3+ | 2005 11 05 | 704 | 0.0 | 0.3+ | | |
| 1998 11 18 | 691 | 0.0 | 0.2− | 2005 10 22 | 703 | 0.1− | 0.0 | 2005 11 05 | 704 | (1.1+ | 1.6−) | | |
| 1998 11 18 | 691 | 0.1+ | 0.0 | 2005 10 22 | 703 | 0.1+ | 0.1− | 2005 11 05 | 704 | 0.0 | 0.2− | | |
| 1998 11 18 | 691 | 0.1− | 0.2+ | 2005 10 22 | 703 | 0.4− | 0.3+ | 2005 11 05 | 699 | 1.1− | 0.4+ | | |
| 1998 11 26 | 691 | 0.2− | 0.1+ | 2005 10 22 | 644 | 0.1+ | 0.0 | 2005 11 05 | 704 | 0.6+ | 0.5− | | |
| 1998 11 26 | 691 | 0.3− | 0.2+ | 2005 10 22 | 644 | 0.1+ | 0.1− | 2005 11 05 | 704 | 0.6+ | 0.6+ | | |
| 1998 11 26 | 691 | 0.1− | 0.1− | 2005 10 22 | 644 | 0.0 | 0.1+ | 2005 11 05 | 704 | 0.4+ | 1.1+ | | |
| 2005 08 30 | 644 | 0.1− | 0.1− | 2005 10 24 | A50 | 0.4+ | 0.8− | 2005 11 05 | 704 | 0.2+ | 0.7+ | | |
| 2005 08 30 | 644 | 0.3− | 0.1+ | 2005 10 24 | A50 | 0.1− | 0.1− | 2005 11 05 | 699 | 0.2+ | 0.1− | | |
| 2005 08 30 | 644 | 0.6− | 0.1+ | 2005 10 25 | 699 | 0.6+ | 1.5+ | 2005 11 25 | G96 | 0.3+ | 0.1− | | |
| 2005 09 25 | 291 | 0.5− | 0.0 | 2005 10 25 | 699 | 0.2− | 0.4− | 2005 11 25 | G96 | 0.1− | 0.2− | | |
| 2005 09 25 | 291 | 0.2− | 0.0 | 2005 10 25 | 699 | 0.7+ | 0.2+ | 2005 11 25 | G96 | 0.1+ | 0.1− | | |
| 2005 09 25 | 291 | 0.1− | 0.0 | 2005 10 25 | 699 | 0.9− | 0.7+ | 2005 11 25 | G96 | 0.2+ | 0.1− | | |
| 2005 10 01 | 704 | 0.2+ | 0.0 | 2005 10 25 | 699 | 0.2+ | 0.4+ | 2005 12 02 | G96 | 0.4+ | 0.0 | | |
| 2005 10 01 | 704 | 0.3− | 0.2+ | 2005 10 25 | 699 | 0.3+ | 0.0 | 2005 12 02 | G96 | 0.0 | 0.0 | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 01 | 704 | 0.1+ | 0.2+ | 2005 10 28 | 704 | 0.3+ | 0.1+ | 2005 12 02 | G96 | 0.3+ | 0.2− |
| 2005 10 01 | 704 | 0.1− | 0.4− | 2005 10 28 | 704 | 0.1+ | 0.1− | 2005 12 02 | G96 | 0.0 | 0.2− |
| 2005 10 01 | 704 | 0.8− | 0.1− | 2005 10 28 | 703 | 0.8+ | 0.2− | 2005 12 28 | G96 | 0.4+ | 0.2− |
| 2005 10 01 | 703 | 0.1− | 0.9− | 2005 10 28 | 704 | 0.4− | 0.0 | 2005 12 28 | G96 | 0.2− | 0.2− |
| 2005 10 01 | 703 | 0.2+ | 0.2− | 2005 10 28 | 703 | 0.3− | 0.0 | 2005 12 28 | G96 | 0.3+ | 0.1− |
| 2005 10 01 | 703 | 0.4+ | 0.4+ | 2005 10 28 | 703 | 0.2+ | 0.6− | 2005 12 28 | G96 | 0.0 | 0.0 |
| 2005 10 01 | 691 | 0.0 | 0.1− | 2005 10 28 | G96 | 0.1− | 0.0 | 2006 01 23 | G96 | 0.7+ | 0.4+ |
| 2005 10 01 | 703 | 0.2+ | 0.5− | 2005 10 28 | 704 | 0.1− | 0.2− | 2006 01 23 | G96 | 0.4− | 0.2− |
| 2005 10 01 | 691 | 0.2+ | 0.1− | 2005 10 28 | 703 | 0.4+ | 0.7− | 2006 01 23 | G96 | 0.0 | 0.2+ |
| 2005 10 01 | 699 | 0.2− | 0.3− | 2005 10 28 | G96 | 0.3+ | 0.3− | 2006 01 23 | G96 | 0.0 | 0.0 |
| 2005 10 01 | 691 | 0.1+ | 0.1− | 2005 10 28 | G96 | 0.0 | 0.4− | 2007 03 14 | G96 | 0.1+ | 0.1+ |
| 2005 10 01 | 699 | 0.6+ | 0.2+ | 2005 10 28 | 704 | 0.9− | 0.1− | 2007 03 14 | G96 | 0.1+ | 0.3+ |
| 2005 10 01 | 699 | 0.3− | 0.0 | 2005 10 31 | 704 | 0.3+ | 0.8− | 2007 03 14 | G96 | 0.1+ | 0.1+ |
| 2005 10 05 | 704 | 0.2− | 0.2− | 2005 10 31 | 704 | 0.3− | 0.1− | 2007 03 14 | G96 | 0.3+ | 0.3+ |
| 2005 10 05 | 704 | 0.1+ | 0.1− | 2005 10 31 | 704 | 0.2+ | 0.3+ | 2009 11 21 | G96 | 0.0 | 0.1− |
| 2005 10 05 | 704 | 0.5+ | 0.1− | 2005 10 31 | 704 | 0.1− | 0.5+ | 2009 11 21 | G96 | 0.3+ | 0.0 |
| 2005 10 05 | 704 | 0.3+ | 0.1+ | 2005 10 31 | 704 | 0.2+ | 0.2− | 2009 11 21 | G96 | 0.4+ | 0.1− |
| 2005 10 05 | 704 | 0.6+ | 0.1+ | 2005 11 03 | 704 | 0.5− | 1.3− | 2009 11 21 | G96 | 0.2+ | 0.3− |
| 2005 10 07 | 703 | 0.1− | 0.0 | 2005 11 03 | 704 | 0.7− | 1.3− | 2009 12 18 | 691 | 0.1+ | 0.1+ |
| 2005 10 07 | 703 | 0.5+ | 0.3− | 2005 11 03 | 704 | 1.3− | 0.9− | 2009 12 18 | 691 | 0.1+ | 0.2+ |
| 2005 10 07 | 703 | 0.3+ | 0.6+ | 2005 11 03 | 704 | 0.7− | 0.8− | 2009 12 18 | 691 | 0.0 | 0.1+ |
| 2005 10 11 | 704 | 0.4+ | 0.4+ | 2005 11 03 | 704 | 0.9− | 0.9− | 2009 12 26 | 691 | 0.4− | 0.9− |
| 2005 10 11 | 704 | 0.5+ | 0.7+ | 2005 11 05 | 699 | 0.5− | 0.3+ | 2009 12 26 | 691 | 0.1+ | 0.1− |
| 2005 10 11 | 704 | 0.7+ | 0.2+ | 2005 11 05 | 704 | 0.3+ | 0.4+ | 2009 12 26 | 691 | 0.2− | 0.6+ |
| 2005 10 11 | 691 | 0.1+ | 0.3+ | 2005 11 05 | 704 | 0.1− | 0.2+ | | | | |

**(229400)∗ 2005 SW$_{149}$ = 1998 VQ$_{47}$**

Discovered 2005 Sept. 25 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 89842)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 355.22888 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.27603314 | | $\omega$ | 61.16717 | | −0.38429897 | | −0.92208933 | |
| $a$ | 2.3361205 | | $\Omega$ | 51.50488 | | +0.82550549 | | −0.36525308 | |
| $e$ | 0.1633984 | | $i$ | 3.32899 | | +0.41334608 | | −0.12783371 | |
| $P$ | 3.57 | | $H$ | 17.8 | $G$ | 0.15 | $U$ | 0 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 11 15 | 691 | 0.1− | 0.1+ | 2005 10 10 | 691 | 0.3+ | 0.9− | 2007 04 25 | 691 | 0.2+ | 0.1+ |
| 1998 11 15 | 691 | 0.3+ | 0.1− | 2005 10 10 | 691 | 0.5− | 0.7+ | 2007 04 25 | 691 | 0.3+ | 0.2− |
| 1998 11 15 | 691 | 0.1− | 0.2− | 2005 10 25 | 691 | 0.2− | 0.0 | 2007 04 25 | 691 | 0.4− | 0.2− |
| 1998 11 21 | 691 | 0.4− | 0.0 | 2005 10 25 | 691 | 0.3+ | 0.0 | 2007 05 09 | G96 | 0.5+ | 0.1− |
| 1998 11 21 | 691 | 0.1− | 0.0 | 2005 10 25 | 691 | 0.3+ | 0.1− | 2007 05 09 | G96 | 0.1+ | 0.2+ |
| 1998 11 21 | 691 | 0.2+ | 0.4+ | 2005 10 28 | G96 | 0.5+ | 0.1− | 2007 05 09 | G96 | 0.3+ | 0.2+ |
| 2003 02 04 | 699 | 0.3+ | 1.1− | 2005 10 28 | G96 | 0.4+ | 0.1− | 2007 05 09 | G96 | 0.1+ | 0.0 |
| 2003 02 04 | 699 | 0.0 | 1.1+ | 2005 10 28 | G96 | 0.2+ | 0.4− | 2007 05 10 | 691 | 0.5− | 0.0 |
| 2003 02 04 | 699 | 0.2− | 0.5+ | 2005 10 28 | G96 | 0.5+ | 0.4− | 2007 05 10 | 691 | 0.0 | 0.4+ |
| 2003 02 04 | 699 | 0.6+ | 1.3+ | 2007 03 26 | G96 | 0.5+ | 0.1+ | 2007 05 10 | 691 | 0.3+ | 0.1+ |
| 2005 09 25 | 691 | 0.3− | 0.7+ | 2007 03 26 | G96 | 0.0 | 0.1− | 2009 11 20 | G96 | 0.3− | 0.2− |
| 2005 09 25 | 691 | 0.1− | 0.2+ | 2007 03 26 | G96 | 0.1+ | 0.1− | 2009 11 20 | G96 | 0.3+ | 0.3− |
| 2005 09 25 | 691 | 0.2− | 0.2+ | 2007 03 26 | G96 | 0.4− | 0.5+ | 2009 11 20 | G96 | 0.3− | 0.1− |
| 2005 10 01 | 691 | 0.5− | 0.1+ | 2007 04 16 | G96 | 0.0 | 0.2+ | 2009 11 20 | G96 | 0.2+ | 0.1− |
| 2005 10 01 | 691 | 0.3− | 0.2− | 2007 04 16 | G96 | 0.2+ | 0.0 | 2009 12 18 | G96 | 0.1+ | 0.0 |
| 2005 10 01 | 691 | 0.1+ | 0.2+ | 2007 04 16 | G96 | 0.3− | 0.1− | 2009 12 18 | G96 | 0.1− | 0.1− |
| 2005 10 02 | G96 | 0.0 | 0.1− | 2007 04 16 | G96 | 0.2− | 0.1− | 2009 12 18 | G96 | 0.2+ | 0.1− |
| 2005 10 02 | G96 | 0.0 | 0.2− | 2007 04 22 | G96 | 0.1+ | 0.1+ | 2009 12 18 | G96 | 0.2+ | 0.2+ |
| 2005 10 02 | G96 | 0.4+ | 0.4− | 2007 04 22 | G96 | 0.1+ | 0.3+ | 2009 12 19 | 691 | 0.1− | 0.1− |
| 2005 10 02 | G96 | 0.3+ | 0.2+ | 2007 04 22 | G96 | 0.3+ | 0.1+ | 2009 12 19 | 691 | 0.0 | 0.0 |
| 2005 10 10 | 691 | 0.1+ | 0.0 | 2007 04 22 | G96 | 0.3− | 0.2+ | 2009 12 19 | 691 | 0.0 | 0.1− |

**(229401)∗ 2005 SU$_{152}$**

Discovered 2005 Sept. 25 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 19.46890 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.22964708 | | $\omega$ | 296.82420 | | +0.97127547 | | +0.16023187 | |
| $a$ | 2.6409617 | | $\Omega$ | 54.45919 | | −0.05103859 | | +0.86238481 | |
| $e$ | 0.3183367 | | $i$ | 12.48615 | | −0.23241992 | | +0.48022722 | |
| $P$ | 4.29 | | $H$ | 16.5 | $G$ | 0.15 | $U$ | 1 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 25 | 644 | 0.2− | 0.3− | 2005 11 05 | 704 | 0.3− | 0.9+ | 2006 01 02 | 049 | 0.1+ | 0.6− |
| 2005 09 25 | 644 | 0.2− | 0.2− | 2005 11 06 | 704 | 0.1+ | 0.5+ | 2006 01 02 | 049 | 0.3− | 1.1+ |
| 2005 09 25 | 644 | 0.2+ | 0.0 | 2005 11 06 | 704 | 0.1− | 0.5+ | 2006 01 02 | 049 | 0.5− | 0.1− |
| 2005 10 02 | 699 | 0.4+ | 0.0 | 2005 11 06 | 704 | 0.5− | 0.7+ | 2006 01 02 | 049 | 0.9+ | 0.1− |
| 2005 10 02 | 699 | 0.8+ | 0.8− | 2005 11 06 | 704 | 0.9− | 0.5+ | 2006 01 02 | 049 | 0.1− | 0.2+ |
| 2005 10 02 | 699 | 0.0 | 1.2+ | 2005 11 06 | 704 | 0.7− | 1.3+ | 2007 02 16 | G96 | 0.0 | 0.0 |
| 2005 10 02 | 699 | 1.3+ | 0.2+ | 2005 11 10 | 691 | 0.1+ | 0.1− | 2007 02 16 | G96 | 0.9+ | 0.1+ |
| 2005 10 12 | 704 | 1.2+ | 0.2− | 2005 11 10 | 691 | 0.1+ | 0.1− | 2007 02 16 | G96 | 0.6+ | 0.4+ |
| 2005 10 12 | 704 | 0.2+ | 0.5+ | 2005 11 10 | 691 | 0.0 | 0.0 | 2007 02 16 | G96 | 0.4− | 0.9+ |
| 2005 10 12 | 704 | 1.2+ | 0.7+ | 2005 11 20 | 699 | 0.2+ | 0.3+ | 2008 05 03 | 291 | 0.1+ | 0.0 |
| 2005 10 12 | 704 | 0.4− | 0.1+ | 2005 11 20 | 699 | 0.1− | 0.6+ | 2008 05 03 | 291 | 0.1+ | 0.1+ |
| 2005 10 25 | 703 | (2.1+ | 1.3−) | 2005 11 20 | 699 | 0.9− | 0.0 | 2008 05 03 | 291 | 0.0 | 0.3+ |
| 2005 10 25 | 703 | 0.0 | 0.3− | 2005 11 20 | 699 | 0.5+ | 0.2− | 2009 08 15 | E12 | 1.2− | 0.2+ |
| 2005 10 25 | 703 | 0.4+ | 0.1− | 2005 11 26 | G96 | 0.0 | 0.2− | 2009 08 15 | E12 | 0.3− | 0.4+ |
| 2005 10 25 | 703 | 0.3− | 0.2− | 2005 11 26 | G96 | 0.1− | 0.4− | 2009 08 15 | E12 | 0.1+ | 0.6+ |
| 2005 10 26 | 699 | 0.4+ | 0.3− | 2005 11 26 | G96 | 0.0 | 0.3− | 2009 08 15 | E12 | 0.1+ | 0.2+ |
| 2005 10 26 | 699 | 0.2+ | 0.3− | 2005 11 29 | 699 | 0.8+ | 0.1+ | 2009 09 12 | E12 | 0.7− | 0.6+ |
| 2005 10 26 | 699 | 0.0 | 0.3− | 2005 11 29 | 699 | 0.5+ | 0.9− | 2009 09 12 | E12 | 0.0 | 0.3− |
| 2005 10 26 | 699 | 0.2+ | 0.2− | 2005 11 29 | 699 | 0.4− | 0.3− | 2009 09 12 | E12 | 0.3+ | 0.3+ |
| 2005 10 27 | 691 | 0.1− | 0.2− | 2005 11 29 | 699 | 0.3+ | 0.9− | 2009 09 23 | E12 | 0.6+ | 0.6+ |
| 2005 10 27 | 691 | 0.0 | 0.1− | 2005 12 01 | 704 | 1.2+ | 0.5+ | 2009 09 23 | E12 | 0.1+ | 0.4− |
| 2005 10 27 | 691 | 0.5− | 0.0 | 2005 12 01 | 704 | 0.3− | 0.3+ | 2009 09 23 | E12 | 0.9− | 0.3− |
| 2005 10 28 | 704 | 0.8+ | 0.3+ | 2005 12 01 | 704 | 0.5+ | 0.6+ | 2009 09 23 | E12 | 0.1+ | 0.4− |
| 2005 10 28 | 704 | 0.0 | 0.1+ | 2005 12 01 | 704 | 0.3+ | 0.2+ | 2009 10 20 | E12 | 0.6+ | 0.1+ |
| 2005 10 28 | 704 | 0.3+ | 0.4+ | 2005 12 04 | 691 | 0.2− | 0.0 | 2009 10 20 | E12 | 0.2+ | 0.3+ |
| 2005 10 28 | 704 | 0.1+ | 0.5− | 2005 12 04 | 691 | 0.1+ | 0.1− | 2009 10 20 | E12 | 0.0 | 0.3+ |
| 2005 10 28 | 704 | 0.5− | 0.6+ | 2005 12 04 | 691 | 0.1+ | 0.1− | 2009 10 20 | E12 | 0.7− | 0.4+ |
| 2005 10 29 | G96 | 0.1− | 0.3− | 2005 12 04 | 704 | 0.0 | 0.0 | 2009 11 17 | 809 | 0.2+ | 0.2− |
| 2005 10 29 | G96 | 0.2+ | 0.3− | 2005 12 04 | 704 | 1.0+ | 0.5+ | 2009 11 17 | 809 | 0.1+ | 0.2− |
| 2005 10 29 | G96 | 0.2+ | 0.3− | 2005 12 04 | 704 | 0.6+ | 0.1+ | 2009 11 17 | 809 | 0.1+ | 0.2− |
| 2005 10 31 | 704 | 0.2− | 0.1− | 2005 12 04 | 704 | 0.2+ | 1.0+ | 2009 11 17 | 809 | 0.1+ | 0.1− |
| 2005 10 31 | 704 | 0.4− | 1.0+ | 2005 12 04 | 704 | 0.9− | 0.4+ | 2009 11 17 | 809 | 0.1+ | 0.3− |
| 2005 10 31 | 704 | 0.2− | 0.7− | 2005 12 05 | 704 | 0.6+ | 0.5+ | 2009 11 18 | 809 | 0.2+ | 0.1− |
| 2005 10 31 | 704 | 1.1− | 0.1+ | 2005 12 05 | 704 | 0.1+ | 1.0− | 2009 11 18 | 809 | 0.1+ | 0.2− |
| 2005 10 31 | 691 | 0.0 | 0.2− | 2005 12 05 | 704 | 0.7− | 0.3− | 2009 11 18 | 809 | 0.2+ | 0.2− |
| 2005 10 31 | 691 | 0.3+ | 0.4− | 2005 12 05 | 704 | 0.2− | 0.9+ | 2009 11 18 | 809 | 0.1+ | 0.2− |
| 2005 10 31 | 691 | 0.0 | 0.2− | 2005 12 06 | 691 | 0.3− | 0.1− | 2009 11 18 | 809 | 0.2+ | 0.1− |
| 2005 11 03 | 704 | 0.6− | 0.6+ | 2005 12 06 | 691 | 0.0 | 0.0 | 2009 11 19 | 809 | 0.1+ | 0.1− |
| 2005 11 03 | 704 | 0.2− | 0.2+ | 2005 12 06 | 691 | 0.4− | 0.2− | 2009 11 19 | 809 | 0.1+ | 0.0 |
| 2005 11 03 | 704 | 0.5− | 0.1+ | 2005 12 09 | 704 | 0.5− | 0.2+ | 2009 11 19 | 809 | 0.1+ | 0.0 |
| 2005 11 03 | 704 | 0.2+ | 0.2+ | 2005 12 09 | 704 | 0.5+ | 0.2− | 2009 11 19 | 809 | 0.0 | 0.1− |
| 2005 11 03 | 704 | 0.1+ | 0.2+ | 2005 12 09 | 704 | 0.4− | 0.2+ | 2009 11 20 | 809 | 0.1+ | 0.0 |
| 2005 11 04 | 704 | 0.1− | 0.5+ | 2005 12 09 | 704 | 0.1− | 0.5− | 2009 11 20 | 809 | 0.1+ | 0.1+ |
| 2005 11 04 | 704 | 0.1− | 0.2+ | 2005 12 09 | 704 | 0.6− | 0.7− | 2009 11 20 | 809 | 0.0 | 0.1+ |
| 2005 11 04 | 704 | 0.2− | 0.1− | 2005 12 30 | G96 | 0.1− | 0.4− | 2009 11 20 | 809 | 0.1− | 0.0 |
| 2005 11 04 | 704 | 0.3− | 0.2+ | 2005 12 30 | G96 | 0.1− | 0.3− | 2009 11 21 | 809 | 0.1+ | 0.2+ |
| 2005 11 04 | 704 | 0.0 | 0.2+ | 2005 12 30 | G96 | 0.2+ | 0.1− | 2009 11 21 | 809 | 0.1+ | 0.1+ |
| 2005 11 05 | 704 | 0.1− | 0.3+ | 2005 12 30 | G96 | 0.2+ | 0.4− | 2009 11 21 | 809 | 0.0 | 0.0 |
| 2005 11 05 | 704 | 0.3+ | 0.6+ | 2006 01 02 | 049 | 0.1+ | 0.4+ | 2009 11 21 | 809 | 0.1+ | 0.1+ |
| 2005 11 05 | 704 | 0.5+ | 0.2+ | 2006 01 02 | 049 | 0.4+ | 0.1− | | | | |

**(229402)∗ 2005 SJ$_{195}$**

Discovered 2005 Sept. 30 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 114.07905 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27240089 | $\omega$ | 27.88767 | | +0.45578618 | +0.89003086 | |
| $a$ | 2.3568415 | $\Omega$ | 269.22943 | | −0.81852705 | +0.41461232 | |
| $e$ | 0.1914566 | $i$ | 0.58444 | | −0.34967475 | +0.18958293 | |
| $P$ | 3.62 | $H$ | 17.7 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 11 23 | 691 | 0.3+ | 0.0 | 2005 10 01 | 703 | 0.4− | 0.2− | 2008 04 01 | 691 | 0.1− | 0.3− | |
| 1998 11 23 | 691 | 0.7+ | 0.6− | 2005 10 05 | G96 | 0.0 | 0.2− | 2008 04 01 | 691 | 0.1+ | 0.6− | |
| 1998 11 23 | 691 | 0.1− | 0.3− | 2005 10 05 | G96 | 0.3+ | 0.1− | 2008 04 05 | 691 | 0.3+ | 0.2− | |
| 2000 02 07 | 691 | 0.2− | 0.0 | 2005 10 05 | G96 | 0.1+ | 0.2− | 2008 04 05 | 691 | 0.1− | 0.3− | |
| 2000 02 07 | 691 | 0.1− | 0.2+ | 2005 10 05 | G96 | 0.4+ | 0.2− | 2008 04 05 | 691 | 0.2+ | 0.0 | |
| 2000 02 07 | 691 | 0.1− | 0.0 | 2005 10 06 | 691 | 0.2− | 0.3− | 2008 05 02 | 703 | 0.1+ | 1.3+ | |
| 2005 08 27 | 644 | 0.2− | 0.2− | 2005 10 06 | 691 | 0.1+ | 0.3+ | 2008 05 02 | 703 | (0.3− | 2.2+) | |
| 2005 08 27 | 644 | 0.3+ | 0.1− | 2005 10 06 | 691 | 0.2− | 0.2− | 2008 05 02 | 703 | 0.5− | 0.4+ | |
| 2005 08 27 | 644 | 0.1− | 0.1+ | 2005 10 27 | G96 | 0.5− | 0.1− | 2008 05 02 | 703 | 0.2+ | 0.4+ | |
| 2005 09 30 | 691 | 0.1− | 0.4+ | 2005 10 27 | G96 | 0.3− | 0.0 | 2008 05 13 | 691 | 0.1+ | 0.0 | |
| 2005 09 30 | 691 | 0.0 | 0.2+ | 2005 10 27 | G96 | 0.2+ | 0.3− | 2008 05 13 | 691 | 0.3− | 0.1+ | |
| 2005 09 30 | 691 | 0.2− | 0.1+ | 2005 10 27 | G96 | 0.0 | 0.1− | 2008 05 13 | 691 | 0.3− | 0.1− | |
| 2005 10 01 | G96 | 0.1− | 0.0 | 2005 10 30 | 705 | 0.0 | 0.1− | 2009 11 11 | G89 | 0.5+ | 0.1+ | |
| 2005 10 01 | G96 | 0.1− | 0.0 | 2005 10 30 | 705 | 0.1+ | 0.0 | 2009 11 11 | G89 | 0.6+ | 0.1+ | |
| 2005 10 01 | G96 | 0.0 | 0.0 | 2005 11 01 | 705 | 0.1− | 0.0 | 2009 11 11 | G89 | 0.5+ | 0.1+ | |
| 2005 10 01 | G96 | 0.1− | 0.0 | 2005 11 01 | 705 | 0.0 | 0.0 | 2009 11 20 | 691 | 0.2− | 0.7+ | |
| 2005 10 01 | 703 | 0.1− | 0.0 | 2005 11 02 | 705 | 0.0 | 0.1− | 2009 11 20 | 691 | 0.4− | 0.1+ | |
| 2005 10 01 | 703 | 0.8+ | 0.7+ | 2005 11 02 | 705 | 0.1+ | 0.1− | 2009 11 20 | 691 | 0.1− | 0.2− | |
| 2005 10 01 | 703 | 0.5+ | 0.3− | 2005 11 05 | 705 | 0.1− | 0.1− | 2009 12 11 | G96 | 0.6+ | 0.0 | |
| 2005 10 01 | 703 | 0.1+ | 0.7− | 2005 11 05 | 705 | 0.1− | 0.1− | 2009 12 11 | G96 | 0.4+ | 0.2− | |
| 2005 10 01 | 703 | 0.5+ | 0.4− | 2005 11 25 | 705 | 0.2− | 0.2− | 2009 12 11 | G96 | 0.4+ | 0.5− | |
| 2005 10 01 | 703 | 0.2− | 0.6− | 2005 11 25 | 705 | 0.2− | 0.2− | 2009 12 11 | G96 | 0.2+ | 0.2− | |
| 2005 10 01 | 703 | 0.3+ | 0.4− | 2008 04 01 | 691 | 0.4+ | 0.1− | | | | | |

**(229403)∗ 2005 SB$_{209}$**

Discovered 2005 Sept. 30 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 104.17143 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27502435 | $\omega$ | 267.78228 | | +0.83998328 | +0.52722049 | |
| $a$ | 2.3418296 | $\Omega$ | 60.37502 | | −0.42041285 | +0.78186531 | |
| $e$ | 0.1615045 | $i$ | 8.48898 | | −0.34304682 | +0.33275394 | |
| $P$ | 3.58 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 11 11 | 699 | 0.8+ | 0.9+ | 2005 09 15 | 705 | 0.1+ | 0.2− | 2005 11 01 | 703 | 0.4− | 0.7+ | |
| 1998 11 11 | 699 | 0.8+ | 0.2+ | 2005 09 21 | 705 | 0.3+ | 0.0 | 2005 11 01 | 703 | 0.9− | 0.1− | |
| 1998 11 11 | 699 | 1.5+ | 0.2+ | 2005 09 21 | 705 | 0.2+ | 0.0 | 2005 11 06 | 705 | 0.4+ | 0.2− | |
| 1998 11 27 | 691 | 0.3− | 0.2+ | 2005 09 22 | 705 | 0.3+ | 0.1− | 2005 11 06 | 705 | 0.5+ | 0.1− | |
| 1998 11 27 | 691 | 0.6− | 0.4+ | 2005 09 22 | 705 | 0.2+ | 0.0 | 2005 11 07 | 705 | 0.3+ | 0.2− | |
| 1998 11 27 | 691 | 0.8− | 0.2+ | 2005 09 24 | 644 | 0.3− | 0.1− | 2005 11 07 | 705 | 0.4+ | 0.1− | |
| 2001 05 25 | 644 | 0.2− | 1.4+ | 2005 09 24 | 644 | 0.1− | 0.2− | 2005 11 17 | 644 | 0.1− | 0.2− | |
| 2001 05 25 | 644 | 0.8− | 0.8+ | 2005 09 24 | 644 | 0.1− | 0.2− | 2005 11 17 | 644 | 0.2+ | 0.4+ | |
| 2001 05 25 | 644 | 0.2+ | 1.0+ | 2005 09 27 | 705 | 0.3+ | 0.1− | 2005 11 17 | 644 | 0.2+ | 0.1+ | |
| 2001 07 10 | 644 | 0.2− | 0.4+ | 2005 09 27 | 705 | 0.3+ | 0.1− | 2005 11 19 | 705 | 0.2+ | 0.3− | |
| 2001 07 10 | 644 | 0.4− | 0.3+ | 2005 09 30 | 704 | 0.3+ | 0.4+ | 2005 11 19 | 705 | 0.2+ | 0.3− | |
| 2001 07 10 | 644 | 0.0 | 0.1+ | 2005 09 30 | 704 | 0.2− | 0.9− | 2005 11 24 | 705 | 0.2+ | 0.3− | |
| 2003 01 09 | 704 | 1.0+ | 0.1− | 2005 09 30 | 704 | 1.0+ | 0.3+ | 2005 11 24 | 705 | 0.2+ | 0.3− | |
| 2003 01 09 | 704 | 0.5+ | 0.8+ | 2005 10 01 | 699 | 0.2− | 0.9+ | 2005 12 05 | 699 | 0.1+ | 0.4− | |
| 2003 01 09 | 704 | 0.4+ | 1.1+ | 2005 10 01 | 699 | 0.0 | 0.3+ | 2005 12 05 | 699 | 0.7+ | 0.1+ | |
| 2004 03 20 | 704 | 0.1− | 0.8− | 2005 10 01 | 699 | 0.2− | 1.1+ | 2005 12 05 | 699 | 0.9− | 1.0+ | |
| 2004 03 20 | 704 | 0.2− | 1.2− | 2005 10 01 | 699 | 0.2+ | 0.9+ | 2005 12 05 | 699 | (2.0+ | 1.0−) | |
| 2004 03 20 | 704 | 0.3+ | 0.2− | 2005 10 05 | 703 | 0.1− | 0.4+ | 2006 02 07 | G96 | (0.2− | 1.5−) | |
| 2004 03 23 | 704 | 1.4+ | 0.6+ | 2005 10 05 | 703 | 0.7+ | 1.2− | 2006 02 07 | G96 | 1.0− | 0.4+ | |
| 2004 03 23 | 704 | 0.3− | 0.4+ | 2005 10 05 | 703 | (1.8+ | 0.2−) | 2006 02 07 | G96 | 0.2− | 0.0 | |
| 2004 03 23 | 704 | 0.3+ | 0.9+ | 2005 10 05 | 703 | 0.1− | 0.6− | 2006 02 07 | G96 | 0.1+ | 1.1+ | |
| 2004 03 23 | 704 | (0.7− | 2.1+) | 2005 10 27 | 644 | 0.3− | 0.2− | 2007 02 16 | 703 | 0.5+ | 0.3− | |
| 2004 04 20 | 704 | 0.3+ | 0.2+ | 2005 10 27 | 644 | 0.0 | 0.0 | 2007 02 16 | 703 | 0.7− | 0.1+ | |
| 2004 04 20 | 704 | 0.2− | 0.4+ | 2005 10 27 | 704 | 0.1− | 0.7+ | 2007 02 16 | 703 | 1.4− | 0.4+ | |
| 2004 04 20 | 704 | 0.6− | 0.5+ | 2005 10 27 | 644 | 0.1− | 0.0 | 2007 02 16 | 703 | 1.5+ | 0.1− | |
| 2004 04 20 | 704 | 0.8+ | 0.7+ | 2005 10 27 | 704 | 0.5− | 0.1− | 2007 02 16 | 703 | 0.8− | 0.6− | |
| 2004 04 20 | E12 | 0.0 | 0.4− | 2005 10 27 | 704 | 0.7+ | 0.6+ | 2007 02 16 | 703 | 0.3− | 1.5− | |
| 2004 04 20 | E12 | 0.0 | 0.0 | 2005 10 27 | 704 | 0.4− | 0.8+ | 2007 02 16 | 703 | 0.4− | 0.7− | |
| 2004 04 20 | E12 | 0.3− | 1.1+ | 2005 10 27 | 704 | 0.1+ | 0.2+ | 2007 02 16 | 703 | 0.4− | 0.2− | |
| 2004 04 20 | E12 | 1.0+ | 0.4− | 2005 10 31 | 699 | 0.3− | 0.2− | 2009 08 27 | 691 | 0.3− | 0.0 | |
| 2005 09 13 | 705 | 0.0 | 0.2− | 2005 10 31 | 699 | 0.3− | 0.7− | 2009 08 27 | 691 | 0.2− | 0.3+ | |
| 2005 09 13 | 705 | 0.2+ | 0.1− | 2005 10 31 | 705 | 0.4+ | 0.0 | 2009 08 27 | 691 | 0.2− | 0.3− | |
| 2005 09 14 | 703 | 0.1− | 0.0 | 2005 10 31 | 705 | 0.5+ | 0.1− | 2009 12 10 | 704 | 0.4− | 0.3+ | |
| 2005 09 14 | 703 | 0.1+ | 1.4− | 2005 10 31 | 699 | 0.6− | 0.1− | 2009 12 10 | 704 | 0.1− | 0.1− | |
| 2005 09 14 | 703 | 0.5− | 1.2− | 2005 10 31 | 699 | 0.5+ | 0.6− | 2009 12 10 | 704 | 0.0 | 0.1− | |
| 2005 09 14 | 703 | 0.7+ | 0.1+ | 2005 11 01 | 703 | 0.1+ | 0.7− | 2009 12 10 | 704 | 0.6− | 0.1+ | |
| 2005 09 15 | 705 | 0.2+ | 0.1− | 2005 11 01 | 703 | (1.8+ | 1.9−) | | | | | |

**(229404)∗ 2005 SU$_{213}$ = 2004 HH$_{71}$**

Discovered 2005 Sept. 30 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Id. G. V. Williams (*MPO* 89861)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 109.53675 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27521950 | $\omega$ | 33.49164 | | +0.83104068 | +0.53708953 | |
| $a$ | 2.3407224 | $\Omega$ | 293.37115 | | −0.53861887 | +0.71222519 | |
| $e$ | 0.0819293 | $i$ | 9.06258 | | −0.13878435 | +0.45196252 | |
| $P$ | 3.58 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 07 18 | 608 | 0.1− | 0.7+ | 2005 09 30 | 699 | 0.2+ | 0.3+ | 2007 02 08 | 644 | 0.4+ | 0.2− | |
| 2001 07 18 | 608 | 0.3− | 0.3+ | 2005 09 30 | 699 | (0.0 | 2.1+) | 2007 02 08 | 644 | 0.1− | 0.2+ | |
| 2001 07 18 | 608 | 1.0+ | 0.0 | 2005 09 30 | 699 | 0.4+ | 0.2+ | 2007 02 08 | 644 | 0.3+ | 0.2− | |
| 2001 07 28 | 608 | 0.5+ | 0.1− | 2005 10 02 | 644 | 0.0 | 0.3+ | 2007 02 10 | 703 | (2.2+ | 1.8−) | |
| 2001 07 28 | 608 | 0.7− | 0.8− | 2005 10 02 | 644 | 0.2+ | 0.7+ | 2007 02 10 | 703 | 0.2− | 1.3+ | |
| 2001 07 28 | 608 | 0.2+ | 0.4− | 2005 10 02 | 644 | 0.1+ | 0.6+ | 2007 02 10 | 703 | 0.2+ | 0.4+ | |
| 2004 04 25 | 704 | 0.8− | 0.1− | 2005 10 08 | 703 | 0.3+ | 1.0+ | 2007 02 10 | 703 | (0.0 | 1.5+) | |
| 2004 04 25 | 704 | 0.5− | 0.5+ | 2005 10 08 | 703 | 0.5+ | 0.8+ | 2007 02 23 | 703 | 0.2+ | 1.0− | |
| 2004 04 25 | 704 | 0.7+ | 0.6+ | 2005 10 08 | 703 | 0.2− | 0.3+ | 2007 02 23 | 703 | 0.3+ | 0.2+ | |
| 2004 04 25 | 704 | 0.2− | 0.2+ | 2005 10 08 | 703 | 0.4− | 0.0 | 2007 02 23 | 703 | 1.1− | 0.4+ | |
| 2004 05 13 | 644 | 0.4+ | 0.2+ | 2005 10 23 | 703 | 0.3+ | 0.4− | 2007 02 23 | 703 | (0.9− | 2.1−) | |
| 2004 05 13 | 644 | 0.7+ | 0.1− | 2005 10 23 | 703 | 0.2+ | 0.5− | 2009 12 15 | 704 | 0.5− | 0.4+ | |
| 2004 05 13 | 644 | 0.4+ | 0.4+ | 2005 10 23 | 703 | 0.2+ | 0.2− | 2009 12 15 | 704 | 0.5+ | 0.4− | |
| 2005 09 23 | 703 | (1.7+ | 0.7−) | 2005 10 23 | 703 | 1.3− | 0.0 | 2009 12 15 | 704 | 0.4− | 0.3+ | |
| 2005 09 23 | 703 | 1.0− | 0.8+ | 2005 10 29 | 703 | 0.8− | 0.9− | 2009 12 18 | G96 | 0.3+ | 0.0 | |
| 2005 09 23 | 703 | 0.4+ | 0.2+ | 2005 10 29 | 703 | 0.2− | 0.2− | 2009 12 18 | G96 | 0.6+ | 0.3− | |
| 2005 09 23 | 703 | 1.2− | 0.5− | 2005 10 29 | 703 | 0.4− | 0.9− | 2009 12 18 | G96 | 0.3+ | 0.3− | |
| 2005 09 30 | 699 | 1.0+ | 0.5+ | 2005 10 29 | 703 | 0.2+ | 0.2− | | | | | |

**(229405)∗ 2005 SL$_{215}$ = 2001 RQ$_{35}$**

Discovered 2005 Sept. 30 by the Catalina Sky Survey.

Id. G. V. Williams (*MPO* 89865)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 38.88786 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26194246 | $\omega$ | 137.91092 | | +0.84137889 | −0.53621853 | |
| $a$ | 2.4191647 | $\Omega$ | 254.63477 | | +0.47532499 | +0.79361377 | |
| $e$ | 0.1739113 | $i$ | 4.01190 | | +0.25719198 | +0.28748370 | |
| $P$ | 3.76 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 25 | 704 | 0.2+ | 0.5+ | 2005 10 26 | 224 | 0.4+ | 0.0 | 2005 12 28 | G96 | 0.1− | 0.1− | |
| 2001 08 25 | 704 | 1.4− | 0.2− | 2005 10 27 | 224 | 0.0 | 0.1− | 2006 02 24 | G96 | 0.5− | 0.5+ | |
| 2001 08 25 | 704 | 0.1+ | 0.2+ | 2005 10 27 | 224 | 0.1+ | 0.2+ | 2006 02 24 | G96 | 0.7− | 0.4+ | |
| 2001 08 25 | 704 | 0.2+ | 0.2− | 2005 10 27 | 224 | 0.0 | 0.4− | 2006 02 24 | G96 | 1.0− | 0.7+ | |
| 2001 08 25 | 704 | 0.3+ | 0.1− | 2005 10 29 | 703 | 0.2+ | 0.8− | 2006 02 24 | G96 | 0.2+ | 0.8+ | |
| 2001 09 08 | 704 | 1.1+ | 0.0 | 2005 10 29 | 703 | 0.4+ | 0.3− | 2007 03 10 | 185 | 0.3+ | 0.4+ | |
| 2001 09 08 | 704 | 0.4− | 0.2+ | 2005 10 29 | 703 | 0.2− | 0.1+ | 2007 03 11 | 185 | 1.1+ | 0.5+ | |
| 2001 09 08 | 704 | 0.5− | 0.2+ | 2005 10 29 | 703 | 0.2− | 0.6− | 2009 11 09 | 691 | 0.0 | 0.2− | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 08 | 704 | 0.1+ | 0.0 | 2005 10 30 | 704 | 0.2+ | 0.4+ | 2009 11 09 | 691 | 0.1− | 0.1− |
| 2001 09 08 | 704 | 0.2+ | 0.4+ | 2005 10 30 | 704 | 0.1− | 0.4+ | 2009 11 09 | 691 | 0.2− | 0.0 |
| 2001 09 12 | 704 | 0.6− | 0.1+ | 2005 10 30 | 704 | 0.3− | 0.5+ | 2009 11 17 | 704 | 0.1− | 0.7− |
| 2001 09 12 | 704 | 0.4− | 0.3− | 2005 10 30 | 704 | 0.4− | 0.7+ | 2009 11 17 | 691 | 0.3− | 0.1+ |
| 2001 09 12 | 704 | 0.5− | 0.1− | 2005 10 30 | 704 | 0.3− | 0.6+ | 2009 11 17 | 704 | 0.9− | 0.3+ |
| 2001 09 12 | 704 | 0.4− | 0.0 | 2005 11 04 | 704 | 0.1+ | 0.7+ | 2009 11 17 | 691 | 0.2+ | 0.1+ |
| 2001 09 12 | 704 | 0.3− | 0.3− | 2005 11 04 | 704 | 0.9+ | 0.4+ | 2009 11 17 | 704 | 0.1+ | 0.1+ |
| 2005 09 30 | 703 | 0.3− | 0.3− | 2005 11 04 | 704 | 0.7+ | 1.0+ | 2009 11 17 | 691 | 0.0 | 0.1+ |
| 2005 09 30 | 703 | 0.9− | 0.4− | 2005 11 04 | 704 | 0.2+ | 0.0 | 2009 11 20 | 704 | 0.6+ | 0.1+ |
| 2005 09 30 | 703 | 0.3− | 0.6− | 2005 11 04 | 704 | 0.5+ | 0.4+ | 2009 11 20 | 704 | 0.3+ | 0.6− |
| 2005 09 30 | 703 | 0.2− | 0.7− | 2005 11 04 | 703 | 0.4− | 0.2− | 2009 11 20 | 704 | 0.3+ | 0.5+ |
| 2005 10 03 | 704 | 0.7+ | 0.2+ | 2005 11 04 | 703 | 0.2− | 0.6− | 2009 11 20 | 704 | (1.6+ | 1.1−) |
| 2005 10 03 | 704 | 0.4+ | 0.4+ | 2005 11 04 | 703 | 0.8− | 0.3+ | 2009 11 21 | 704 | 0.4− | 0.0 |
| 2005 10 03 | 704 | 0.8+ | 0.5− | 2005 11 04 | 703 | 0.2− | 0.0 | 2009 11 21 | 704 | 0.1+ | 0.5− |
| 2005 10 03 | 704 | 0.6+ | 0.3− | 2005 11 06 | 704 | 0.3+ | 0.4+ | 2009 11 21 | 704 | 0.0 | 0.1− |
| 2005 10 08 | 704 | 0.2+ | 0.0 | 2005 11 06 | 704 | 0.3− | 0.1+ | 2009 11 21 | 691 | 0.1+ | 0.2− |
| 2005 10 08 | 704 | 0.1− | 0.2− | 2005 11 06 | 704 | 0.1− | 0.5+ | 2009 11 21 | 704 | 0.2− | 0.2− |
| 2005 10 08 | 704 | 0.1− | 0.0 | 2005 11 06 | 704 | 0.2− | 0.1+ | 2009 11 21 | 691 | 0.1+ | 0.1− |
| 2005 10 08 | 704 | 0.3− | 0.2− | 2005 11 09 | 703 | 0.7− | 0.5− | 2009 11 21 | 691 | 0.3− | 0.1− |
| 2005 10 08 | 704 | 0.2− | 0.3+ | 2005 11 09 | 703 | 0.7− | 0.0 | 2009 11 25 | 691 | 0.0 | 0.0 |
| 2005 10 12 | 704 | 0.3− | 0.3+ | 2005 11 09 | 703 | 0.6− | 0.2− | 2009 11 25 | 691 | 0.1− | 0.0 |
| 2005 10 12 | 704 | (1.8− | 0.7+) | 2005 11 09 | 703 | 0.6− | 0.7− | 2009 11 25 | 691 | 0.0 | 0.2− |
| 2005 10 12 | 704 | 1.2− | 0.9+ | 2005 11 12 | 691 | 0.2+ | 0.4− | 2009 12 09 | J75 | 1.5+ | 0.2+ |
| 2005 10 12 | 704 | 0.2− | 0.8+ | 2005 11 12 | 691 | 0.2+ | 0.3+ | 2009 12 09 | J75 | 0.7+ | 0.3+ |
| 2005 10 12 | 704 | (1.8− | 0.9+) | 2005 11 12 | 691 | 0.3+ | 0.0 | 2009 12 09 | J75 | 0.8+ | 1.0− |
| 2005 10 14 | 699 | 0.4+ | 0.8+ | 2005 11 19 | 699 | 0.9+ | 0.2− | 2009 12 10 | G96 | 0.1+ | 0.0 |
| 2005 10 14 | 699 | 0.2+ | 0.0 | 2005 11 19 | 699 | 0.1− | 0.7− | 2009 12 10 | G96 | 0.2+ | 0.1− |
| 2005 10 14 | 699 | 0.3− | 0.5+ | 2005 11 19 | 699 | 0.4− | 1.2+ | 2009 12 10 | G96 | 0.6+ | 0.1− |
| 2005 10 14 | 699 | 0.7− | 1.2− | 2005 11 19 | 699 | 0.1+ | 0.8+ | 2009 12 16 | 291 | 0.1− | 0.1+ |
| 2005 10 22 | 703 | 0.9+ | 0.0 | 2005 11 23 | 701 | 0.3+ | 1.0− | 2009 12 16 | 291 | 0.1+ | 0.0 |
| 2005 10 22 | 703 | 0.8+ | 0.6− | 2005 11 23 | 701 | 1.4+ | 0.3− | 2009 12 16 | 291 | 0.2− | 0.1+ |
| 2005 10 22 | 703 | 0.4− | 0.4+ | 2005 11 23 | 701 | 0.1+ | 0.7− | 2009 12 17 | 704 | 0.3− | 1.7+ |
| 2005 10 22 | 703 | 1.0+ | 0.4− | 2005 12 06 | G96 | 0.2− | 0.2− | 2009 12 17 | 704 | 0.1+ | 1.1+ |
| 2005 10 24 | 699 | 0.7+ | 0.3− | 2005 12 06 | G96 | 0.2− | 0.1− | 2009 12 17 | 704 | 0.5+ | 0.4− |
| 2005 10 24 | 699 | 0.1− | 0.4+ | 2005 12 06 | G96 | 0.2+ | 0.1− | 2009 12 17 | 704 | 0.3+ | 0.6+ |
| 2005 10 24 | 699 | 0.4+ | 0.4+ | 2005 12 06 | G96 | 0.2+ | 0.1− | 2009 12 17 | 704 | 0.1+ | 0.5+ |
| 2005 10 24 | 699 | 0.2− | 0.7+ | 2005 12 28 | G96 | 0.2− | 0.3+ | 2009 12 19 | 291 | 0.3− | 0.2− |
| 2005 10 26 | 224 | 0.1+ | 0.2+ | 2005 12 28 | G96 | 0.0 | 0.2− | 2009 12 19 | 291 | 0.4− | 0.0 |
| 2005 10 26 | 224 | 0.4− | 0.2+ | 2005 12 28 | G96 | 0.3− | 0.1+ | 2009 12 19 | 291 | 0.4− | 0.1− |

**(229406)∗ 2005 SX$_{221}$**

Discovered 2005 Sept. 27 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 38.58296 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26147637 | $\omega$ | 266.66772 | | +0.94381369 | −0.28102101 | |
| $a$ | 2.4220388 | $\Omega$ | 109.59726 | | +0.32499336 | +0.88472215 | |
| $e$ | 0.1773397 | $i$ | 10.63770 | | −0.05995863 | +0.37187889 | |
| $P$ | 3.77 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 09 | 644 | 0.6+ | 0.3+ | 2005 11 06 | 699 | 0.5− | 0.7+ | 2009 10 16 | 703 | 0.4+ | 0.3+ |
| 2001 08 09 | 644 | 0.8+ | 0.3+ | 2005 11 06 | 699 | (2.8+ | 1.2−) | 2009 10 16 | 703 | 0.0 | 0.4− |
| 2001 08 09 | 644 | 0.5+ | 0.4+ | 2005 11 17 | 644 | 0.6+ | 0.1+ | 2009 10 16 | 703 | 0.7+ | 0.8+ |
| 2004 04 23 | 691 | 0.2+ | 0.3+ | 2005 11 17 | 644 | 0.1− | 0.2+ | 2009 10 25 | 704 | 0.5− | 0.8+ |
| 2004 04 23 | 691 | 0.1+ | 0.4+ | 2005 11 17 | 644 | 0.2− | 0.1− | 2009 10 25 | 704 | 0.4− | 1.0+ |
| 2004 04 23 | 691 | 0.0 | 0.7+ | 2005 12 29 | 291 | 0.1+ | 0.5+ | 2009 10 25 | 704 | (1.8+ | 1.2+) |
| 2005 09 27 | 704 | 1.0− | 0.0 | 2005 12 29 | 291 | 0.2+ | 0.2+ | 2009 10 25 | 704 | 0.0 | 0.5+ |
| 2005 09 27 | 704 | 0.8− | 1.0− | 2005 12 29 | 291 | 0.0 | 0.5+ | 2009 11 08 | 703 | 0.2− | 0.1− |
| 2005 09 27 | 704 | 0.6− | 0.4− | 2008 05 27 | 691 | 0.2+ | 0.4+ | 2009 11 08 | 703 | 0.3− | 0.7+ |
| 2005 09 27 | 704 | 0.8− | 0.0 | 2008 05 27 | 691 | 0.5+ | 0.1+ | 2009 11 08 | 703 | 0.8− | 0.4− |
| 2005 09 27 | 704 | 1.0− | 0.4− | 2008 05 27 | 691 | 0.3− | 0.0 | 2009 11 08 | 703 | 0.3+ | 0.2− |
| 2005 10 04 | 644 | 0.1+ | 0.4− | 2008 05 29 | 691 | 0.1+ | 0.1+ | 2009 11 15 | 704 | 0.6− | 0.3+ |
| 2005 10 04 | 644 | 0.5+ | 0.1− | 2008 05 29 | 691 | 0.4+ | 0.1− | 2009 11 15 | 704 | 0.4+ | 0.8+ |
| 2005 10 04 | 644 | 0.5+ | 0.3− | 2008 05 29 | 691 | 0.0 | 0.1+ | 2009 11 15 | 704 | 0.2+ | 0.5+ |
| 2005 10 05 | 703 | 0.2+ | 0.0 | 2008 06 22 | 691 | 0.1+ | 0.2+ | 2009 11 15 | 704 | 0.0 | 0.7+ |
| 2005 10 05 | 703 | 0.5+ | 1.1− | 2008 06 22 | 691 | 0.1− | 0.2+ | 2009 11 15 | 704 | 0.1− | 0.7+ |
| 2005 10 05 | 703 | 0.7+ | 0.3− | 2008 06 22 | 691 | 0.1− | 0.1− | 2009 11 21 | 703 | (1.8+ | 0.5+) |
| 2005 10 05 | 703 | 0.6− | 0.8− | 2008 07 01 | 691 | 0.0 | 0.1− | 2009 11 21 | 703 | 0.3− | 0.2+ |
| 2005 11 06 | 703 | 0.2− | 0.3+ | 2008 07 01 | 691 | 0.3− | 0.3+ | 2009 11 21 | 703 | 0.9− | 0.1− |
| 2005 11 06 | 703 | 0.7− | 0.0 | 2008 07 01 | 691 | 0.0 | 0.1− | 2009 11 21 | 703 | 0.0 | 0.2− |
| 2005 11 06 | 703 | (2.2− | 0.4−) | 2009 10 15 | J75 | 0.0 | 0.1− | 2009 12 13 | 703 | 0.4− | 0.1− |
| 2005 11 06 | 699 | 0.4− | 0.1+ | 2009 10 15 | J75 | 0.1+ | 0.1− | 2009 12 13 | 703 | 0.1+ | 0.6− |
| 2005 11 06 | 703 | 0.1− | 0.3− | 2009 10 15 | J75 | 0.1+ | 0.0 | 2009 12 13 | 703 | 1.4+ | 0.8+ |
| 2005 11 06 | 699 | 0.2− | 1.2+ | 2009 10 16 | 703 | 1.2+ | 0.1− | 2009 12 13 | 703 | 0.8− | 0.7+ |

**(229407)∗ 2005 SU$_{224}$**

Discovered 2005 Sept. 29 by the Mt. Lemmon Survey at Mount Lemmon.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 350.17407 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26658424 | $\omega$ | 267.54317 | | −0.18016694 | −0.98344686 | |
| $a$ | 2.3910009 | $\Omega$ | 192.88496 | | +0.93335737 | −0.16473487 | |
| $e$ | 0.1976773 | $i$ | 4.96278 | | +0.31045757 | −0.07546316 | |
| $P$ | 3.70 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 03 09 | 644 | 0.0 | 0.5+ | 2005 10 25 | J95 | 0.3+ | 0.0 | 2009 11 17 | 703 | 0.4− | 0.8− |
| 2003 03 09 | 644 | 0.2− | 0.6+ | 2005 10 25 | J95 | 0.0 | 0.4− | 2009 11 17 | 703 | 0.2+ | 0.0 |
| 2003 03 09 | 644 | 0.1− | 0.6+ | 2005 10 26 | G96 | 0.2+ | 0.0 | 2009 11 17 | 703 | 0.3+ | 0.1+ |
| 2003 03 27 | 691 | 0.4+ | 0.1− | 2005 10 26 | G96 | 0.3+ | 0.5+ | 2009 11 17 | 703 | 0.7− | 0.0 |
| 2003 03 27 | 691 | 0.5+ | 0.2+ | 2005 10 26 | G96 | 0.3+ | 0.2+ | 2009 11 19 | 704 | 0.3− | 0.0 |
| 2003 03 27 | 691 | 0.6+ | 0.0 | 2005 10 26 | G96 | 0.3+ | 0.7+ | 2009 11 19 | 704 | 0.5+ | 0.5+ |
| 2003 04 05 | 691 | 0.4− | 0.2+ | 2005 11 30 | G96 | 0.1− | 0.0 | 2009 11 19 | 704 | 0.3− | 0.1− |
| 2003 04 05 | 691 | 0.4− | 0.1− | 2005 11 30 | G96 | 0.2− | 0.1+ | 2009 11 19 | 704 | 0.0 | 0.6+ |
| 2003 04 05 | 691 | 0.6− | 0.6− | 2005 11 30 | G96 | 0.4− | 0.1− | 2009 11 20 | 704 | 1.4+ | 0.5+ |
| 2005 09 29 | G96 | 0.4− | 0.8− | 2005 11 30 | G96 | 0.5− | 0.2+ | 2009 11 20 | 704 | 0.5+ | 0.5+ |
| 2005 09 29 | G96 | 0.5− | 0.8− | 2007 03 11 | G96 | 0.2− | 0.2− | 2009 11 20 | 704 | 0.4+ | 0.4+ |
| 2005 09 29 | G96 | 0.5− | 0.4− | 2007 03 11 | G96 | 0.2− | 0.7− | 2009 11 20 | 704 | 0.2+ | 0.5+ |
| 2005 09 29 | G96 | 0.3− | 0.5− | 2007 03 11 | G96 | 0.0 | 0.4+ | 2009 11 27 | G96 | 0.1− | 0.0 |
| 2005 10 05 | 691 | 0.2− | 0.2+ | 2007 03 11 | G96 | 0.5+ | 0.4+ | 2009 11 27 | G96 | 0.1− | 0.1− |
| 2005 10 05 | 691 | 0.2− | 0.1+ | 2007 04 18 | 691 | 0.1− | 0.2+ | 2009 11 27 | G96 | 0.0 | 0.1+ |
| 2005 10 05 | 691 | 0.6− | 0.4+ | 2007 04 18 | 691 | 0.4+ | 0.2+ | 2009 11 27 | G96 | 0.2− | 0.2+ |
| 2005 10 10 | 691 | 0.1− | 0.0 | 2007 04 18 | 691 | 0.2− | 0.4+ | 2009 11 27 | G96 | 0.2− | 0.0 |
| 2005 10 10 | 691 | 0.1− | 0.1− | 2007 04 18 | G96 | 0.0 | 0.2− | 2009 12 12 | 704 | 0.1− | 0.2− |
| 2005 10 10 | 691 | 0.3− | 0.0 | 2007 04 18 | G96 | 0.2− | 0.1− | 2009 12 12 | 704 | 0.6− | 0.0 |
| 2005 10 25 | J95 | 0.5+ | 0.4+ | 2007 04 18 | G96 | 0.2+ | 0.0 | 2009 12 12 | 704 | 0.1− | 0.6− |
| 2005 10 25 | J95 | 0.6+ | 0.2+ | 2007 04 18 | G96 | 0.4+ | 0.2− | 2009 12 12 | 704 | 0.4− | 1.2− |

**(229408)∗ 2005 SS$_{229}$**

Discovered 2005 Sept. 30 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 12.76209 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26045458 | $\omega$ | 247.84084 | | +0.48141809 | −0.87640452 | |
| $a$ | 2.4283692 | $\Omega$ | 173.34137 | | +0.83821920 | +0.45624388 | |
| $e$ | 0.1994423 | $i$ | 6.09838 | | +0.25617414 | +0.15413191 | |
| $P$ | 3.78 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 19 | 645 | 0.1− | 0.1+ | 2005 10 22 | 703 | 1.0− | 1.4− | 2009 11 14 | 704 | 0.7+ | 0.5− |
| 2001 09 19 | 645 | 0.1− | 0.0 | 2005 10 22 | 703 | 0.7− | 1.4− | 2009 11 14 | 704 | 0.3+ | 0.2− |
| 2003 03 31 | 691 | (0.2− | 1.6+) | 2005 10 22 | 703 | 0.5− | 0.9− | 2009 11 14 | 704 | 0.0 | 0.1− |
| 2003 03 31 | 691 | (0.4+ | 1.6+) | 2005 10 22 | 703 | 1.2− | 0.0 | 2009 11 14 | 704 | 0.7− | 0.7+ |
| 2003 03 31 | 691 | 0.4+ | 1.5+ | 2005 10 25 | 705 | 0.3+ | 0.1+ | 2009 11 18 | J75 | 0.2+ | 0.5− |
| 2003 04 09 | 691 | 0.5+ | 0.9+ | 2005 10 25 | 705 | 0.3+ | 0.2+ | 2009 11 18 | J75 | 0.8− | 0.6+ |
| 2003 04 09 | 691 | 0.1+ | 0.1+ | 2005 10 26 | 705 | 0.3+ | 0.1+ | 2009 11 18 | J75 | 0.2+ | 0.2− |
| 2003 04 09 | 691 | 0.1+ | 0.7+ | 2005 10 26 | 705 | 0.2+ | 0.1+ | 2009 11 19 | 704 | 0.0 | 0.6+ |
| 2005 09 23 | 691 | 0.1− | 0.2+ | 2005 10 27 | 699 | 0.7+ | 1.3+ | 2009 11 19 | 704 | 0.2− | 0.8+ |
| 2005 09 23 | 691 | 0.3+ | 0.2+ | 2005 10 27 | 699 | 1.0− | 0.6+ | 2009 11 19 | 704 | 0.9+ | 0.3− |
| 2005 09 23 | 691 | 0.2+ | 0.1+ | 2005 10 27 | 644 | 0.0 | 0.1+ | 2009 11 19 | 704 | 0.5+ | 0.7− |
| 2005 09 30 | 699 | (0.1+ | 1.8+) | 2005 10 27 | 704 | 0.4+ | 1.3+ | 2009 11 20 | J75 | 0.4+ | 0.5− |
| 2005 09 30 | 699 | 0.1− | 0.0 | 2005 10 27 | 704 | (0.4+ | 2.1+) | 2009 11 20 | J75 | 0.8− | 0.5− |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 30 | 699 | 1.1+ | 0.4+ | 2005 10 27 | 644 | 0.3− | 0.4+ | 2009 11 20 | J75 | 0.2+ | 0.9− | | |
| 2005 09 30 | 699 | 0.6+ | 0.9+ | 2005 10 27 | 699 | 0.7− | 0.2− | 2009 11 22 | 703 | 0.3− | 0.3− | | |
| 2005 10 01 | 704 | (2.1+ | 1.2+) | 2005 10 27 | 704 | 0.6− | 1.2+ | 2009 11 22 | 703 | 0.3− | 0.5− | | |
| 2005 10 01 | 704 | 0.6+ | 0.4+ | 2005 10 27 | 704 | 0.3+ | 0.4+ | 2009 11 22 | 703 | 1.1− | 0.4+ | | |
| 2005 10 01 | 704 | 0.2+ | 0.2− | 2005 10 27 | 644 | 0.2− | 0.0 | 2009 11 22 | 703 | (1.6− | 0.8−) | | |
| 2005 10 01 | 704 | 0.3+ | 1.3+ | 2005 10 27 | 699 | 1.1− | 0.6+ | 2009 11 22 | 703 | 0.1− | 0.2+ | | |
| 2005 10 05 | 704 | 0.2− | 0.0 | 2005 10 31 | 705 | 0.3+ | 0.0 | 2009 11 24 | 291 | 0.1+ | 0.2− | | |
| 2005 10 05 | 704 | 0.1− | 0.8+ | 2005 10 31 | 705 | 0.3+ | 0.0 | 2009 11 24 | 291 | 0.0 | 0.3− | | |
| 2005 10 05 | 704 | 0.8− | 0.6+ | 2005 11 05 | 705 | 0.1+ | 0.0 | 2009 11 24 | 291 | 0.0 | 0.1− | | |
| 2005 10 05 | 704 | 0.2− | 0.2+ | 2005 11 05 | 705 | 0.3+ | 0.1+ | 2009 11 25 | G96 | 0.3+ | 0.4− | | |
| 2005 10 06 | 703 | 0.7− | 0.9+ | 2009 10 15 | J75 | 0.8− | 0.3− | 2009 11 25 | G96 | 0.1− | 0.4− | | |
| 2005 10 06 | 703 | (1.8+ | 2.0+) | 2009 10 15 | J75 | 0.3+ | 0.4− | 2009 11 25 | G96 | 0.0 | 0.4− | | |
| 2005 10 06 | 703 | 0.4+ | 1.4+ | 2009 10 15 | J75 | 0.3+ | 0.7+ | 2009 11 25 | G96 | 0.1+ | 0.3− | | |
| 2005 10 06 | 703 | 0.1+ | 0.6+ | 2009 10 30 | J75 | 0.1− | 0.0 | 2009 12 13 | 704 | 0.4− | 1.0+ | | |
| 2005 10 20 | 644 | 0.3− | 0.2+ | 2009 10 30 | J75 | 0.1− | 0.0 | 2009 12 13 | 704 | 0.0 | 0.5− | | |
| 2005 10 20 | 644 | 0.2+ | 0.3+ | 2009 10 30 | J75 | 0.0 | 0.6− | 2009 12 13 | 704 | 0.7+ | 1.0+ | | |
| 2005 10 20 | 644 | 0.2+ | 0.6+ | 2009 11 14 | 704 | 0.4− | 0.0 | 2009 12 13 | 704 | 0.1− | 0.4+ | | |

**(229409)∗ 2005 SB$_{237}$**

Discovered 2005 Sept. 29 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 111.99052 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.28068578 | $\omega$ | 67.45240 | | +0.82397922 | | +0.56580545 |
| $a$ | 2.3102330 | $\Omega$ | 258.07679 | | −0.53060161 | | +0.75168602 |
| $e$ | 0.2577233 | $i$ | 1.77883 | | −0.19879683 | | +0.33886918 |
| $P$ | 3.51 | $H$ | 17.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 10 16 | 691 | 0.8+ | 0.2− | 2005 10 13 | 691 | 0.1− | 0.1+ | 2005 10 28 | G96 | 0.0 | 0.2+ | | |
| 1998 10 16 | 691 | 0.6+ | 0.7− | 2005 10 13 | 691 | 0.0 | 0.1+ | 2005 10 28 | G96 | 0.3− | 0.2+ | | |
| 1998 10 16 | 691 | 0.6+ | 0.4− | 2005 10 22 | 644 | 0.1+ | 0.2+ | 2005 10 28 | G96 | 0.2+ | 0.3+ | | |
| 1998 10 29 | 691 | 0.5+ | 0.0 | 2005 10 22 | 644 | 0.3− | 0.4+ | 2005 11 01 | 704 | 0.0 | 0.1+ | | |
| 1998 10 29 | 691 | 0.0 | 0.1− | 2005 10 22 | 703 | 1.3− | 0.4+ | 2005 11 01 | 704 | 0.4− | 0.1+ | | |
| 1998 10 29 | 691 | 0.1− | 0.2− | 2005 10 22 | 703 | 0.4− | 0.5− | 2005 11 01 | 704 | 0.1+ | 0.9+ | | |
| 1998 11 18 | 691 | 0.4− | 0.7− | 2005 10 22 | 703 | 0.1+ | 0.7− | 2005 11 01 | 704 | 0.2+ | 0.8+ | | |
| 1998 11 18 | 691 | 0.5− | 0.6− | 2005 10 22 | 644 | 0.1+ | 0.1− | 2005 11 01 | 704 | 0.3+ | 0.7+ | | |
| 1998 11 18 | 691 | 0.7− | 0.6− | 2005 10 22 | 703 | 0.0 | 0.1− | 2005 11 06 | 704 | 0.8+ | 0.9+ | | |
| 2004 03 29 | 691 | 0.5− | 0.9+ | 2005 10 24 | 699 | 0.1− | 0.9+ | 2005 11 06 | 704 | 0.1− | 1.3+ | | |
| 2004 03 29 | 691 | 0.6+ | 0.3+ | 2005 10 24 | 699 | 0.2− | 0.8+ | 2005 11 06 | 704 | 0.0 | 1.2+ | | |
| 2004 03 29 | 691 | 0.4+ | 0.4− | 2005 10 24 | 699 | 0.6− | 0.3+ | 2005 11 06 | 704 | 0.0 | 1.2+ | | |
| 2005 09 06 | 621 | 0.6+ | 0.3+ | 2005 10 24 | 699 | 0.3− | 0.7− | 2008 05 08 | G96 | 0.2− | 0.0 | | |
| 2005 09 06 | 621 | 0.6− | 0.2− | 2005 10 25 | 699 | 0.3+ | 0.5− | 2008 05 08 | G96 | 0.1− | 0.1+ | | |
| 2005 09 06 | 621 | 0.6− | 0.4− | 2005 10 25 | 699 | 1.0+ | 0.1+ | 2008 05 08 | G96 | 0.0 | 0.1+ | | |
| 2005 09 29 | 691 | 0.3− | 0.3+ | 2005 10 25 | 699 | 0.1+ | 0.0 | 2008 05 08 | G96 | 0.1+ | 0.0 | | |
| 2005 09 29 | 691 | 0.3− | 0.5+ | 2005 10 25 | 699 | (1.7+ | 0.4+) | 2008 05 30 | G96 | 0.1− | 0.0 | | |
| 2005 09 29 | 691 | 0.3− | 0.4+ | 2005 10 27 | G96 | 0.2− | 0.2− | 2008 05 30 | G96 | 0.2− | 0.2+ | | |
| 2005 10 06 | 703 | 0.6+ | 0.3+ | 2005 10 27 | G96 | 0.0 | 0.1− | 2008 05 30 | G96 | 0.1+ | 0.3+ | | |
| 2005 10 06 | 703 | 0.7+ | 0.8+ | 2005 10 27 | G96 | 0.1+ | 0.1− | 2008 05 30 | G96 | 0.4+ | 0.2+ | | |
| 2005 10 06 | 703 | 0.1+ | 1.1+ | 2005 10 27 | G96 | 0.3+ | 0.3− | 2009 12 16 | G96 | 0.4+ | 0.2+ | | |
| 2005 10 06 | 703 | 0.7+ | 0.6+ | 2005 10 27 | G96 | 0.1+ | 0.3− | 2009 12 16 | G96 | 0.3+ | 0.3+ | | |
| 2005 10 06 | G96 | 0.1− | 0.2− | 2005 10 27 | G96 | 0.2+ | 0.3− | 2009 12 16 | G96 | 0.5− | 0.1− | | |
| 2005 10 06 | G96 | 0.1+ | 0.1+ | 2005 10 27 | G96 | 0.1− | 0.3− | 2009 12 16 | G96 | 0.4+ | 0.4+ | | |
| 2005 10 06 | G96 | 0.3+ | 0.2− | 2005 10 27 | G96 | 0.1− | 0.2− | 2009 12 16 | G96 | 0.2+ | 0.0 | | |
| 2005 10 06 | G96 | 0.2− | 0.0 | 2005 10 28 | 703 | 0.4− | 1.1− | 2009 12 25 | 691 | 0.2− | 0.1+ | | |
| 2005 10 09 | 691 | 0.0 | 0.1+ | 2005 10 28 | 703 | 0.1+ | 0.1− | 2009 12 25 | 691 | 0.1− | 0.0 | | |
| 2005 10 09 | 691 | 0.1− | 0.2+ | 2005 10 28 | 703 | 0.3− | 0.1− | 2009 12 25 | 691 | 0.1+ | 0.2+ | | |
| 2005 10 09 | 691 | 0.1− | 0.3+ | 2005 10 28 | 703 | 1.3− | 0.4− | | | | | | |
| 2005 10 13 | 691 | 0.1+ | 0.2+ | 2005 10 28 | G96 | 0.2+ | 0.1+ | | | | | | |

**(229410)∗ 2005 SD$_{238}$ = 1994 UM$_{12}$**

Discovered 2005 Sept. 29 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 89879)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 219.13068 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.26882574 | $\omega$ | 274.42225 | | −0.70515703 | | +0.70862521 |
| $a$ | 2.3776914 | $\Omega$ | 310.70341 | | −0.63700998 | | −0.64835181 |
| $e$ | 0.0822631 | $i$ | 1.85758 | | −0.31140303 | | −0.27837070 |
| $P$ | 3.67 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 10 28 | 691 | 0.6− | 0.4− | 2007 01 28 | G96 | 0.3+ | 0.0 | 2007 03 09 | 691 | 0.1− | 0.3− | | |
| 1994 10 28 | 691 | 0.1+ | 0.1+ | 2007 01 28 | G96 | 0.1− | 0.1+ | 2007 03 09 | 691 | 0.0 | 0.2− | | |
| 1994 11 05 | 691 | 0.1+ | 0.4− | 2007 01 28 | G96 | 0.0 | 0.0 | 2007 03 11 | 691 | 0.1+ | 0.4+ | | |
| 1994 11 05 | 691 | 0.0 | 0.0 | 2007 01 28 | 691 | 0.0 | 0.3+ | 2007 03 11 | 691 | 0.5+ | 0.2− | | |
| 1994 11 05 | 691 | 0.8+ | 0.3− | 2007 01 28 | 691 | 0.1− | 0.1+ | 2007 03 11 | 691 | 0.2− | 0.4− | | |
| 2005 09 29 | 691 | 0.2+ | 0.1+ | 2007 01 28 | 691 | 0.0 | 0.2+ | 2008 09 06 | G96 | 0.3− | 0.4+ | | |
| 2005 09 29 | 691 | 0.0 | 0.2+ | 2007 02 17 | 703 | 0.7− | 0.8+ | 2008 09 06 | G96 | 0.5+ | 0.7+ | | |
| 2005 09 29 | 691 | 0.1− | 0.3+ | 2007 02 17 | 703 | 1.2− | 0.2+ | 2008 09 06 | G96 | 0.2+ | 0.3+ | | |
| 2005 10 06 | G96 | 0.2− | 0.0 | 2007 02 17 | 703 | 0.7− | 0.6+ | 2008 09 06 | G96 | 0.7− | 0.2+ | | |
| 2005 10 06 | G96 | 0.3+ | 0.7− | 2007 02 17 | 703 | 1.4− | 1.0+ | 2009 11 17 | 691 | 0.2− | 0.0 | | |
| 2005 10 06 | G96 | 0.0 | 0.3− | 2007 02 21 | G96 | 0.1− | 0.3− | 2009 11 17 | 691 | 0.3− | 0.2− | | |
| 2005 10 06 | G96 | 0.1− | 0.3+ | 2007 02 21 | G96 | 0.4+ | 0.3− | 2009 11 17 | 691 | 0.4− | 0.2− | | |
| 2005 10 09 | 691 | 0.1− | 0.2+ | 2007 02 21 | G96 | 0.2+ | 0.1− | 2009 11 21 | 691 | 0.2− | 0.2+ | | |
| 2005 10 09 | 691 | 0.3− | 0.4+ | 2007 02 21 | G96 | 0.1+ | 0.3− | 2009 11 21 | 691 | 0.5− | 0.2− | | |
| 2005 10 09 | 691 | 0.1+ | 0.1− | 2007 02 22 | 699 | 0.3+ | 1.3+ | 2009 11 21 | 691 | 0.4− | 0.3+ | | |
| 2005 10 12 | 621 | 0.6− | 0.4− | 2007 02 22 | 699 | 0.0 | 0.5+ | 2009 11 21 | 291 | 0.2+ | 0.3+ | | |
| 2005 10 12 | 621 | 0.6− | 0.3− | 2007 02 22 | 699 | 1.4+ | 1.2+ | 2009 11 21 | 291 | 0.5+ | 0.2+ | | |
| 2005 10 12 | 621 | 0.7− | 1.2− | 2007 02 22 | 699 | 0.3− | 0.6− | 2009 11 21 | 291 | 0.9+ | 0.0 | | |
| 2005 10 13 | 691 | 0.3+ | 0.6+ | 2007 02 23 | 704 | 1.3+ | 0.3− | 2009 12 15 | G96 | 0.4+ | 0.3− | | |
| 2005 10 13 | 691 | (1.1+ | 2.1+) | 2007 02 23 | 704 | 0.8+ | 0.6+ | 2009 12 15 | G96 | 0.2+ | 0.7− | | |
| 2005 10 13 | 691 | 0.3− | 0.2+ | 2007 02 23 | 704 | 0.4+ | 0.4+ | 2009 12 15 | G96 | 0.3+ | 0.1+ | | |
| 2005 11 03 | G96 | 0.9+ | 0.2− | 2007 02 23 | 704 | 0.4+ | 0.1+ | 2009 12 15 | G96 | 0.2− | 0.2+ | | |
| 2005 11 03 | G96 | 0.1− | 0.0 | 2007 02 23 | 704 | 0.9+ | 0.5− | 2009 12 16 | G96 | 1.1+ | 0.3− | | |
| 2005 11 03 | G96 | 0.1+ | 0.2− | 2007 02 23 | 704 | 0.2− | 0.3+ | 2009 12 16 | G96 | 0.2+ | 0.2− | | |
| 2005 11 03 | G96 | 0.2− | 0.0 | 2007 02 23 | 704 | 0.7− | 0.3− | 2009 12 16 | G96 | 0.6+ | 0.5− | | |
| 2007 01 28 | G96 | 0.3− | 0.0 | 2007 03 09 | 691 | 0.2− | 0.5− | | | | | | |

**(229411)∗ 2005 SD$_{243}$**

Discovered 2005 Sept. 30 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 27.87924 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.27189970 | $\omega$ | 79.17628 | | +0.34725098 | | −0.93775669 |
| $a$ | 2.3597368 | $\Omega$ | 350.49916 | | +0.84710753 | | +0.31614242 |
| $e$ | 0.1759127 | $i$ | 1.87404 | | +0.40227551 | | +0.14375795 |
| $P$ | 3.62 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 09 12 | 691 | 0.4− | 0.1− | 2005 10 23 | 703 | 0.5− | 0.5+ | 2005 11 05 | 704 | 0.4+ | 0.5+ | | |
| 1994 09 12 | 691 | 0.2− | 0.1+ | 2005 10 23 | 703 | 0.9− | 0.6+ | 2005 11 05 | 704 | 0.4+ | 0.3+ | | |
| 1994 09 12 | 691 | 0.1− | 0.2− | 2005 10 23 | 703 | 0.7− | 0.6+ | 2005 11 05 | 704 | 0.3− | 1.0+ | | |
| 2003 01 31 | 704 | 1.1+ | 1.1+ | 2005 10 23 | 703 | 0.7− | 0.0 | 2005 11 09 | 703 | 0.4− | 0.2+ | | |
| 2003 01 31 | 704 | 1.2+ | 1.4+ | 2005 10 26 | 683 | 0.3− | 0.2− | 2005 11 09 | 703 | 0.6− | 0.4+ | | |
| 2003 01 31 | 704 | 0.0 | 0.7+ | 2005 10 26 | 683 | 0.4− | 0.9− | 2005 11 09 | 703 | 0.5− | 0.6− | | |
| 2003 03 06 | 644 | 0.3+ | 0.1+ | 2005 10 26 | 683 | (2.0− | 0.9+) | 2005 11 09 | 703 | 0.3− | 0.0 | | |
| 2003 03 06 | 644 | 0.4+ | 0.4+ | 2005 10 27 | 683 | (0.1− | 2.1−) | 2005 11 09 | 703 | 0.1+ | 0.3− | | |
| 2003 03 06 | 644 | 0.3+ | 0.2− | 2005 10 27 | 683 | (0.6+ | 2.3−) | 2005 11 09 | 703 | 0.1− | 0.2+ | | |
| 2003 03 07 | 699 | (1.2+ | 1.7+) | 2005 10 27 | 683 | 0.2+ | 0.9− | 2005 11 09 | 703 | 0.6− | 0.1+ | | |
| 2003 03 07 | 699 | 1.1+ | 0.2+ | 2005 10 28 | 683 | 0.2+ | 0.0 | 2005 11 09 | 703 | 0.3− | 0.1+ | | |
| 2003 03 07 | 699 | 1.1+ | 0.5− | 2005 10 28 | 683 | 0.5+ | 0.6− | 2005 11 12 | 691 | 0.2+ | 0.2− | | |
| 2003 03 07 | 699 | 0.5+ | 0.8+ | 2005 10 28 | 683 | 0.9+ | 0.3− | 2005 11 12 | 691 | 0.4+ | 0.2− | | |
| 2005 08 30 | 644 | 0.4− | 0.0 | 2005 10 29 | 683 | 0.2+ | 0.2− | 2005 11 12 | 691 | 0.3+ | 0.2− | | |
| 2005 08 30 | 644 | 0.0 | 0.0 | 2005 10 29 | 683 | 1.1+ | 0.1− | 2007 03 15 | 691 | 0.0 | 0.3+ | | |
| 2005 08 30 | 644 | 0.1− | 0.1− | 2005 10 29 | 683 | 0.1− | 0.0 | 2007 03 15 | 691 | 0.0 | 0.2+ | | |
| 2005 09 30 | 691 | 0.2− | 0.0 | 2005 10 29 | 703 | 0.4− | 0.6− | 2007 03 15 | 691 | 0.2− | 0.2+ | | |
| 2005 09 30 | 691 | 0.2− | 0.2+ | 2005 10 29 | 703 | 0.0 | 0.0 | 2007 04 21 | 807 | 0.1+ | 0.3+ | | |
| 2005 09 30 | 691 | 0.3− | 0.3+ | 2005 10 29 | 703 | (1.2− | 1.9+) | 2007 04 21 | 807 | 0.4+ | 0.3+ | | |
| 2005 10 06 | 703 | 0.3− | 0.3− | 2005 10 29 | 703 | 0.2− | 1.4+ | 2009 11 11 | G96 | 0.2− | 0.1− | | |
| 2005 10 06 | 703 | 0.4− | 0.5+ | 2005 10 30 | 683 | 0.5− | 1.1− | 2009 11 11 | G96 | 0.0 | 1.5− | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 06 | 703 | 0.5− | 0.3+ | 2005 10 30 | 683 | 0.1− | 0.1+ | 2009 11 11 | G96 | 0.2− | 0.1− |
| 2005 10 06 | 703 | 0.0 | 0.4− | 2005 10 30 | 683 | 0.5+ | 0.3+ | 2009 11 11 | G96 | 0.5− | 0.5− |
| 2005 10 07 | 704 | 0.1+ | 0.4+ | 2005 10 31 | 691 | 0.1+ | 0.1+ | 2009 12 16 | 704 | 0.1+ | 0.2+ |
| 2005 10 07 | 704 | 0.1− | 1.2+ | 2005 10 31 | 691 | 0.2+ | 0.1+ | 2009 12 16 | 704 | 0.5+ | 0.6+ |
| 2005 10 07 | 704 | 0.7+ | 0.1− | 2005 10 31 | 691 | 0.1+ | 0.1− | 2009 12 16 | 704 | 0.5+ | 0.4+ |
| 2005 10 07 | 704 | 0.6+ | 0.2− | 2005 11 01 | 691 | 0.2− | 0.0 | 2009 12 16 | 704 | 1.1+ | 0.2− |
| 2005 10 07 | 704 | 0.1+ | 0.1+ | 2005 11 01 | 691 | 0.1− | 0.3+ | 2009 12 18 | G96 | 0.4− | 0.2− |
| 2005 10 22 | 644 | 0.1− | 0.1− | 2005 11 01 | 691 | 0.1− | 0.1+ | 2009 12 18 | G96 | 0.2+ | 0.1− |
| 2005 10 22 | 644 | 0.1+ | 0.0 | 2005 11 01 | 291 | 0.2+ | 0.1+ | 2009 12 18 | G96 | 0.1− | 0.2− |
| 2005 10 22 | 703 | 0.2− | 0.6− | 2005 11 01 | 291 | 0.3+ | 0.0 | 2009 12 18 | G96 | 0.1+ | 0.2− |
| 2005 10 22 | 703 | 0.2− | 0.3+ | 2005 11 01 | 291 | 0.3+ | 0.1+ | 2009 12 19 | 691 | 0.0 | 0.0 |
| 2005 10 22 | 703 | 0.4+ | 0.0 | 2005 11 04 | 704 | 0.3+ | 0.2+ | 2009 12 19 | 691 | 0.2− | 0.0 |
| 2005 10 22 | 644 | 0.1− | 0.1+ | 2005 11 04 | 704 | 0.3+ | 1.1+ | 2009 12 19 | 691 | 0.4− | 0.3− |
| 2005 10 22 | 703 | 0.1− | 0.3− | 2005 11 04 | 704 | (0.0 | 1.5+) | 2009 12 27 | 691 | 0.2− | 0.1− |
| 2005 10 23 | 703 | 0.2− | 0.1+ | 2005 11 04 | 704 | 0.0 | 1.1+ | 2009 12 27 | 691 | 0.3− | 0.1− |
| 2005 10 23 | 703 | 0.1+ | 0.1+ | 2005 11 04 | 704 | 0.1− | 0.2+ | 2009 12 27 | 691 | 0.4− | 0.1− |
| 2005 10 23 | 703 | 0.5− | 0.7+ | 2005 11 05 | 704 | (0.2+ | 2.2+) | | | | |
| 2005 10 23 | 703 | 0.1− | 0.1+ | 2005 11 05 | 704 | 0.0 | 0.5+ | | | | |

**(229412)∗ 2005 SM$_{249}$**

Discovered 2005 Sept. 30 by the Mt. Lemmon Survey at Mount Lemmon.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 235.50330 | | (2000.0) | | | |
| $n$ | 0.26228550 | $\omega$ | 343.80198 | | −0.88113793 | +0.47270526 |
| $a$ | 2.4170550 | $\Omega$ | 224.41456 | | −0.43190370 | −0.81494946 |
| $e$ | 0.1686104 | $i$ | 0.98824 | | −0.19249713 | −0.33527170 |
| $P$ | 3.76 | $H$ | 17.0 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1992 03 01 | 809 | 0.6− | 0.6+ | 2007 02 13 | 704 | 0.8+ | 0.7+ | 2007 03 11 | 691 | 0.4− | 0.3− |
| 2005 09 30 | G96 | 0.1− | 0.2− | 2007 02 13 | 704 | 0.2+ | 0.3+ | 2007 03 11 | 691 | 0.3− | 0.0 |
| 2005 09 30 | G96 | 0.2+ | 0.3+ | 2007 02 16 | 644 | 0.2+ | 0.2− | 2007 03 11 | 691 | 0.4+ | 0.1+ |
| 2005 09 30 | G96 | 0.5+ | 0.2− | 2007 02 16 | 644 | 0.3+ | 0.1+ | 2007 03 13 | 699 | 0.1− | 0.6− |
| 2005 09 30 | G96 | 0.2+ | 0.1− | 2007 02 16 | 644 | 0.1+ | 0.2+ | 2007 03 13 | 699 | 0.5+ | 0.4− |
| 2005 10 07 | G96 | 0.0 | 0.2− | 2007 02 17 | 703 | 0.7− | 0.9+ | 2007 03 13 | 699 | 0.7+ | 0.6− |
| 2005 10 07 | G96 | 0.3− | 0.1+ | 2007 02 17 | 703 | (1.1− | 2.0+) | 2007 03 13 | 699 | 0.7+ | 0.3+ |
| 2005 10 07 | G96 | 0.5− | 0.3− | 2007 02 17 | 703 | 1.3− | 1.1+ | 2007 03 14 | 704 | (1.5+ | 0.2+) |
| 2005 10 07 | G96 | 0.7+ | 0.6− | 2007 02 17 | 703 | 0.4+ | 0.7+ | 2007 03 14 | 704 | 1.0+ | 0.8+ |
| 2005 10 25 | 568 | 0.9+ | 0.5− | 2007 02 21 | 704 | (1.8+ | 0.1+) | 2007 03 14 | 704 | 0.8+ | 1.1+ |
| 2005 10 25 | 568 | 0.9+ | 0.5− | 2007 02 21 | 704 | 1.2+ | 0.0 | 2007 03 14 | 704 | (2.0+ | 0.1−) |
| 2005 10 25 | 568 | 1.1+ | 0.7− | 2007 02 21 | 704 | (2.8+ | 1.1+) | 2007 05 10 | G96 | 0.1− | 0.3− |
| 2005 10 26 | 568 | 1.0+ | 0.1− | 2007 02 21 | 704 | 1.2+ | 0.1+ | 2007 05 10 | G96 | 0.2− | 0.2− |
| 2005 10 28 | 691 | 0.1− | 0.2− | 2007 02 23 | 704 | 0.2+ | 0.3− | 2007 05 10 | G96 | 0.3− | 0.1− |
| 2005 10 28 | 691 | 0.1− | 0.1− | 2007 02 23 | 704 | 0.5+ | 0.2− | 2007 05 10 | G96 | 0.0 | 0.1+ |
| 2005 10 28 | 691 | 0.1− | 0.0 | 2007 02 23 | 704 | 0.7− | 0.5+ | 2008 09 06 | G96 | 0.0 | 0.2+ |
| 2005 11 01 | 691 | 0.4+ | 0.5+ | 2007 02 23 | 704 | 1.3+ | 0.5+ | 2008 09 06 | G96 | 0.3+ | 0.2+ |
| 2005 11 01 | 691 | 0.2+ | 0.1− | 2007 02 23 | 704 | 0.3− | 0.1+ | 2008 09 06 | G96 | 0.3− | 0.1+ |
| 2005 11 01 | 691 | 0.3+ | 0.0 | 2007 03 08 | 644 | 0.1+ | 0.1− | 2008 09 06 | G96 | 0.1+ | 0.3+ |
| 2005 11 05 | 691 | 0.5− | 0.5+ | 2007 03 08 | 644 | 0.1+ | 0.1+ | 2008 09 19 | 691 | 0.3− | 0.4+ |
| 2005 11 05 | 691 | 0.1+ | 0.0 | 2007 03 08 | 644 | 0.0 | 0.2+ | 2008 09 19 | 691 | 0.2− | 0.3+ |
| 2005 11 05 | 691 | 0.1− | 0.3+ | 2007 03 09 | 691 | 0.3− | 0.2− | 2008 09 19 | 691 | 0.2− | 0.3+ |
| 2005 12 02 | G96 | 0.1− | 0.2− | 2007 03 09 | 691 | 0.2− | 0.1− | 2009 11 08 | 691 | 0.6− | 0.1+ |
| 2005 12 02 | G96 | 0.2+ | 0.1+ | 2007 03 09 | 691 | 0.1− | 0.0 | 2009 11 08 | 691 | 1.1− | 0.3+ |
| 2005 12 02 | G96 | 0.1+ | 0.4− | 2007 03 09 | 703 | 0.1+ | 0.3+ | 2009 11 08 | 691 | (1.8− | 0.4+) |
| 2005 12 02 | G96 | 0.4+ | 0.1− | 2007 03 09 | 703 | 0.4− | 1.0− | 2009 12 11 | G96 | 0.2+ | 0.1− |
| 2006 12 20 | G96 | 0.0 | 0.2+ | 2007 03 09 | 703 | 0.2− | 1.1− | 2009 12 11 | G96 | 0.3+ | 0.5− |
| 2006 12 20 | G96 | 0.0 | 0.1− | 2007 03 09 | 644 | 0.2+ | 0.1+ | 2009 12 11 | G96 | 0.2+ | 0.3− |
| 2006 12 20 | G96 | 0.5− | 0.4− | 2007 03 09 | 703 | (0.3+ | 1.5−) | 2009 12 11 | G96 | 0.2+ | 0.2− |
| 2006 12 20 | G96 | 0.1− | 0.1− | 2007 03 09 | 644 | 0.1+ | 0.1+ | | | | |
| 2007 02 13 | 704 | 0.6+ | 1.0+ | 2007 03 09 | 644 | 0.1− | 0.5+ | | | | |

**(229413)∗ 2005 SE$_{257}$ = 2005 TE$_{184}$ = 2009 OW$_8$**

Discovered 2005 Sept. 22 by NEAT at Palomar.

Id. A. Doppler (d, *MPO* 102379), T. B. Spahr (*MPO* 159474)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 62.38645 | | (2000.0) | | | |
| $n$ | 0.23272296 | $\omega$ | 159.60893 | | +0.12785290 | +0.99065219 |
| $a$ | 2.6176398 | $\Omega$ | 117.71088 | | −0.91723581 | +0.13634641 |
| $e$ | 0.2654592 | $i$ | 3.07945 | | −0.37726927 | +0.00423026 |
| $P$ | 4.24 | $H$ | 16.9 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 03 15 | 691 | 0.2+ | 0.6+ | 2005 10 05 | G96 | 0.2− | 0.2− | 2009 07 28 | J75 | 0.4+ | 0.4− |
| 2004 03 15 | 691 | 0.3+ | 0.4+ | 2005 10 05 | G96 | 0.3− | 0.0 | 2009 07 28 | J75 | 0.2− | 0.5− |
| 2004 03 15 | 691 | 0.1− | 0.3+ | 2005 10 05 | G96 | 0.1+ | 0.1− | 2009 08 16 | J75 | 0.1− | 0.2+ |
| 2005 09 13 | 705 | 0.2+ | 0.1− | 2008 02 24 | G96 | 0.2− | 0.5− | 2009 08 16 | J75 | 0.7− | 0.9+ |
| 2005 09 13 | 705 | 0.2+ | 0.0 | 2008 02 24 | G96 | 0.0 | 0.0 | 2009 08 16 | J75 | 0.9+ | 0.3+ |
| 2005 09 22 | 644 | 0.0 | 0.1+ | 2008 02 24 | G96 | 0.1+ | 0.1+ | 2009 08 17 | J75 | 0.2− | 0.0 |
| 2005 09 22 | 644 | 0.3+ | 0.0 | 2008 02 24 | G96 | 0.2− | 0.3+ | 2009 08 17 | J75 | 0.1+ | 0.2− |
| 2005 09 22 | 644 | 0.2+ | 0.2+ | 2008 04 05 | G96 | 0.0 | 0.1+ | 2009 08 17 | J75 | 0.3+ | 0.2− |
| 2005 09 23 | 691 | 0.2− | 0.5+ | 2008 04 05 | G96 | 0.2+ | 0.0 | 2009 08 19 | J75 | 0.3+ | 0.1+ |
| 2005 09 23 | 691 | 0.2− | 0.2+ | 2008 04 05 | G96 | 0.3+ | 0.1+ | 2009 08 19 | J75 | 0.4+ | 0.0 |
| 2005 09 23 | 691 | 0.2− | 0.4+ | 2008 04 05 | G96 | 0.0 | 0.0 | 2009 08 19 | J75 | 0.1+ | 0.4− |
| 2005 09 26 | 705 | 0.3+ | 0.0 | 2009 07 27 | J75 | 0.2+ | 0.1+ | 2009 08 20 | J75 | 0.1+ | 0.6− |
| 2005 09 26 | 705 | 0.3+ | 0.0 | 2009 07 27 | J75 | 1.1− | 0.3+ | 2009 08 20 | J75 | 0.4+ | 0.2− |
| 2005 09 27 | 705 | 0.4+ | 0.2+ | 2009 07 27 | J75 | 0.6− | 0.7+ | 2009 08 20 | J75 | 0.1+ | 0.3− |
| 2005 09 27 | 705 | 0.3+ | 0.2+ | 2009 07 27 | 703 | 0.7− | 0.4+ | 2009 08 25 | J75 | 0.8+ | 0.5− |
| 2005 10 05 | G96 | 0.1− | 0.1− | 2009 07 27 | 703 | 0.3− | 0.4+ | 2009 08 25 | J75 | 1.1+ | 0.3+ |
| 2005 10 05 | G96 | 0.1− | 0.1− | 2009 07 27 | 703 | 1.1− | 0.6+ | 2009 08 25 | J75 | (0.9+ | 1.5−) |
| 2005 10 05 | G96 | 0.3− | 0.2− | 2009 07 27 | 703 | 0.9− | 0.1+ | 2009 10 10 | F84 | 0.3− | 0.0 |
| 2005 10 05 | G96 | 0.4− | 0.1− | 2009 07 28 | J75 | 0.4+ | 0.2− | 2009 10 10 | F84 | 0.2− | 0.2+ |
| 2005 10 05 | G96 | 0.1− | 0.2− | 2009 07 28 | J75 | 0.3+ | 0.2− | 2009 10 10 | F84 | 0.3− | 0.4+ |

**(229414)∗ 2005 SS$_{264}$**

Discovered 2005 Sept. 25 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 342.53262 | | (2000.0) | | | |
| $n$ | 0.26737825 | $\omega$ | 306.02339 | | −0.25200197 | −0.96741310 |
| $a$ | 2.3862649 | $\Omega$ | 158.53288 | | +0.90812212 | −0.24520010 |
| $e$ | 0.1804870 | $i$ | 3.85984 | | +0.33437887 | −0.06315702 |
| $P$ | 3.69 | $H$ | 17.4 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 02 22 | 644 | 0.4+ | 0.5+ | 2005 10 01 | 691 | 1.0+ | 0.3+ | 2007 03 17 | 691 | 0.1− | 0.2+ |
| 2003 02 22 | 644 | 0.5+ | 0.3+ | 2005 10 06 | 691 | 0.1− | 0.3+ | 2007 03 17 | 691 | 0.2+ | 0.2− |
| 2003 02 22 | 699 | 0.0 | 0.1+ | 2005 10 06 | 691 | 0.0 | 0.3+ | 2007 05 16 | G96 | 0.9+ | 0.3− |
| 2003 02 22 | 699 | 0.3+ | 0.6+ | 2005 10 06 | 691 | 0.1− | 0.0 | 2007 05 16 | G96 | 0.3− | 0.4+ |
| 2003 02 22 | 699 | 1.0+ | 0.1+ | 2005 10 20 | 705 | 0.1− | 0.1+ | 2007 05 16 | G96 | 0.3+ | 0.0 |
| 2003 02 22 | 699 | 0.7− | 0.2− | 2005 10 20 | 705 | 0.1+ | 0.1+ | 2007 05 16 | G96 | 0.7+ | 0.2− |
| 2003 02 22 | 644 | 0.3+ | 0.3+ | 2005 10 25 | 705 | 0.2− | 0.1+ | 2009 11 20 | G96 | 0.1+ | 0.1− |
| 2003 03 06 | 644 | 0.8+ | 0.1− | 2005 10 25 | 705 | 0.2+ | 0.1+ | 2009 11 20 | G96 | 0.2+ | 0.0 |
| 2003 03 06 | 644 | 0.7+ | 0.1+ | 2005 10 26 | 705 | 0.0 | 0.0 | 2009 11 20 | G96 | 0.2+ | 0.2− |
| 2003 03 06 | 644 | 1.0+ | 0.2− | 2005 10 26 | 705 | 0.1− | 0.2+ | 2009 11 20 | G96 | 0.3+ | 0.0 |
| 2003 03 09 | 291 | 0.1− | 0.0 | 2005 12 01 | G96 | 0.1+ | 0.5− | 2009 11 25 | G96 | 0.4+ | 0.4− |
| 2003 03 09 | 291 | 0.4− | 0.6+ | 2005 12 01 | G96 | 0.1+ | 0.0 | 2009 11 25 | G96 | 0.5+ | 0.5− |
| 2003 03 09 | 291 | 0.1− | 0.9+ | 2005 12 01 | G96 | 0.2+ | 0.1+ | 2009 11 25 | G96 | 0.1+ | 0.4− |
| 2005 09 25 | 691 | 0.3− | 0.0 | 2005 12 01 | G96 | 0.4− | 0.0 | 2009 11 25 | G96 | 0.2+ | 0.4− |
| 2005 09 25 | 691 | 0.5− | 0.3+ | 2007 03 13 | 691 | 0.1− | 0.6− | 2009 12 10 | 703 | 0.2− | 0.7− |
| 2005 09 25 | 691 | 0.4− | 0.1− | 2007 03 13 | 691 | 0.5+ | 0.1− | 2009 12 10 | 703 | 0.3− | 0.2− |
| 2005 10 01 | 691 | 0.2− | 0.5+ | 2007 03 13 | 691 | 0.1− | 0.2− | 2009 12 10 | 703 | 0.5+ | 1.3− |
| 2005 10 01 | 691 | 0.2− | 0.4+ | 2007 03 17 | 691 | 0.8− | 0.8+ | 2009 12 10 | 703 | 1.2− | 0.9− |

**(229415)∗ 2005 SP$_{278}$ = 2000 HK$_{61}$**

Discovered 2005 Sept. 29 by Spacewatch at Kitt Peak.

Id. A. Doppler (*MPO* 109383)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 302.15304 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27391931 | $\omega$ | 87.87334 | | −0.89265526 | −0.44638732 | |
| $a$ | 2.3481236 | $\Omega$ | 65.60942 | | +0.38145921 | −0.82200898 | |
| $e$ | 0.1208255 | $i$ | 3.93434 | | +0.24011552 | −0.35360937 | |
| $P$ | 3.60 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 12 14 | 691 | 0.1− | 0.2− | 2005 11 30 | G96 | 0.6+ | 0.0 | 2007 04 07 | 703 | 0.1− | 0.8+ | |
| 1998 12 14 | 691 | 0.1− | 0.3− | 2005 11 30 | G96 | 0.0 | 0.6+ | 2007 04 07 | 703 | 0.3− | 1.5+ | |
| 1998 12 14 | 691 | 0.4− | 0.3− | 2005 11 30 | G96 | 0.0 | 0.1− | 2007 04 07 | 703 | 0.1+ | 0.0 | |
| 2000 04 25 | 699 | 0.4+ | 1.5+ | 2007 03 10 | 644 | 0.0 | 0.3− | 2007 04 10 | 106 | 0.1− | 0.5+ | |
| 2000 04 25 | 699 | 0.5+ | 0.2+ | 2007 03 10 | 644 | 0.1+ | 0.1− | 2007 04 10 | 106 | 0.2+ | 0.0 | |
| 2000 04 25 | 699 | 0.4+ | 1.1+ | 2007 03 10 | 644 | 0.1− | 0.2− | 2007 04 10 | 106 | 0.6+ | 0.1− | |
| 2000 04 25 | 699 | 0.3+ | 0.7+ | 2007 03 11 | 691 | 0.0 | 0.1− | 2007 04 10 | 106 | 0.5− | 0.4− | |
| 2000 04 29 | 704 | 0.3+ | 0.3+ | 2007 03 11 | 691 | 0.3+ | 0.2− | 2007 04 11 | 691 | 0.0 | 0.1− | |
| 2000 04 29 | 704 | 0.4+ | 0.6+ | 2007 03 11 | 691 | 0.3− | 0.2− | 2007 04 11 | 691 | 0.2− | 0.2− | |
| 2000 04 29 | 704 | 1.9+ | 1.7+ | 2007 03 11 | 703 | (0.2+ | 1.9−) | 2007 04 11 | 691 | 0.0 | 0.0 | |
| 2000 04 29 | 704 | 1.3+ | 0.3+ | 2007 03 11 | 703 | 0.5− | 0.3− | 2007 04 14 | 691 | 0.1+ | 0.0 | |
| 2003 01 05 | 704 | 0.7+ | 0.7+ | 2007 03 11 | 703 | 1.1− | 0.1− | 2007 04 14 | 691 | 0.1+ | 0.0 | |
| 2003 01 05 | 704 | 0.9+ | 0.0 | 2007 03 11 | 703 | (2.2− | 0.3−) | 2007 04 14 | 691 | 0.0 | 0.0 | |
| 2003 01 05 | 704 | 0.1+ | 0.3+ | 2007 03 15 | 691 | 0.5− | 0.1− | 2007 04 16 | 699 | 0.0 | 0.5+ | |
| 2003 01 05 | 704 | 0.1− | 0.3+ | 2007 03 15 | 691 | 0.1− | 0.0 | 2007 04 16 | 699 | (1.9+ | 0.1−) | |
| 2003 01 13 | 644 | 0.3− | 0.3+ | 2007 03 15 | 691 | 0.4− | 0.0 | 2007 04 16 | 699 | 1.0− | 1.1+ | |
| 2003 01 13 | 644 | 0.4+ | 0.1+ | 2007 03 17 | 699 | 0.1− | 0.6+ | 2007 04 16 | 699 | (1.9+ | 0.4+) | |
| 2003 01 13 | 644 | 0.0 | 0.3+ | 2007 03 17 | 699 | 0.7+ | 0.1+ | 2009 09 20 | G96 | 0.3+ | 0.1+ | |
| 2005 09 29 | 691 | 0.3− | 0.5+ | 2007 03 17 | 699 | 0.3+ | 0.8− | 2009 09 20 | G96 | 0.3+ | 0.2− | |
| 2005 09 29 | 691 | 0.0 | 0.6+ | 2007 03 17 | 699 | 0.7+ | 1.4+ | 2009 09 20 | G96 | 0.4+ | 0.3+ | |
| 2005 09 29 | 691 | 0.1− | 0.4+ | 2007 03 21 | 704 | 1.0+ | 0.3+ | 2009 12 06 | J75 | 0.2+ | 0.5+ | |
| 2005 10 12 | 691 | 0.4− | 0.3+ | 2007 03 21 | 704 | 1.1− | 0.9+ | 2009 12 06 | J75 | 0.5− | 1.0+ | |
| 2005 10 12 | 691 | 0.0 | 0.3+ | 2007 03 21 | 704 | (2.3+ | 0.4+) | 2009 12 06 | J75 | 0.1+ | 0.4+ | |
| 2005 10 12 | 691 | 0.6− | 0.3+ | 2007 03 21 | 704 | 1.2+ | 0.7+ | 2009 12 10 | G96 | 0.6+ | 0.1+ | |
| 2005 10 26 | 691 | 0.6+ | 0.2+ | 2007 03 29 | 644 | 0.7+ | 0.5+ | 2009 12 10 | G96 | 0.7+ | 0.1− | |
| 2005 10 26 | 691 | 0.4− | 0.1+ | 2007 03 29 | 644 | 0.3+ | 0.2+ | 2009 12 10 | G96 | 0.2+ | 0.0 | |
| 2005 10 26 | 691 | 0.0 | 0.2− | 2007 03 29 | 644 | 0.4+ | 0.1+ | 2009 12 10 | G96 | 0.4+ | 0.0 | |
| 2005 11 30 | G96 | 0.0 | 0.2− | 2007 04 07 | 703 | 0.0 | 0.3− | | | | | |

**(229416)∗ 2005 TT$_3$ = 2001 QN$_{167}$**

Discovered 2005 Oct. 1 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Id. G. V. Williams (*MPO* 89884)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 32.08030 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26374119 | $\omega$ | 316.96526 | | +0.76922829 | −0.62969915 | |
| $a$ | 2.4081530 | $\Omega$ | 82.38437 | | +0.61193740 | +0.67712714 | |
| $e$ | 0.1447860 | $i$ | 6.28306 | | +0.18390339 | +0.38075953 | |
| $P$ | 3.74 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 24 | 608 | 0.0 | 0.8− | 2005 10 03 | 703 | 0.2− | 0.5− | 2009 11 18 | 704 | 0.4− | 0.7+ | |
| 2001 08 24 | 608 | 0.3− | 0.3− | 2005 10 20 | 644 | 0.1− | 0.2− | 2009 11 18 | 704 | 1.1+ | 1.2+ | |
| 2001 08 24 | 608 | 0.2+ | 0.3− | 2005 10 20 | 644 | 0.3+ | 0.2− | 2009 11 18 | 704 | 0.9+ | 1.2+ | |
| 2001 08 27 | 644 | 0.1− | 0.6+ | 2005 10 20 | 644 | 0.0 | 0.2− | 2009 11 18 | 704 | 0.5+ | 0.8+ | |
| 2001 08 27 | 644 | 0.1+ | 0.3+ | 2005 10 20 | 644 | 0.1− | 0.1− | 2009 11 21 | 704 | 1.0− | 0.3+ | |
| 2001 08 27 | 644 | 0.2+ | 0.2+ | 2005 10 20 | 644 | 0.1+ | 0.3− | 2009 11 21 | 704 | 0.1− | 0.3− | |
| 2003 02 09 | 644 | 0.4− | 0.4− | 2005 10 20 | 644 | 0.2+ | 0.2− | 2009 11 21 | 704 | 0.4+ | 0.5− | |
| 2003 02 09 | 644 | 0.0 | 0.2− | 2005 10 27 | 704 | 0.7+ | 0.6+ | 2009 11 27 | A50 | 0.1+ | 0.1+ | |
| 2003 02 09 | 644 | 0.3+ | 0.1+ | 2005 10 27 | 704 | 0.4+ | 0.2+ | 2009 11 27 | A50 | 0.2− | 0.1+ | |
| 2005 09 09 | 705 | 0.2+ | 0.1− | 2005 10 27 | 704 | 0.1+ | 0.2+ | 2009 11 27 | A50 | 0.1+ | 0.1+ | |
| 2005 09 09 | 705 | 0.2+ | 0.0 | 2005 10 27 | 704 | 0.0 | 0.0 | 2009 12 11 | 703 | 0.1− | 0.1+ | |
| 2005 09 13 | 705 | 0.2+ | 0.0 | 2005 10 27 | 704 | 0.4+ | 0.0 | 2009 12 11 | 703 | (2.1− | 0.5+) | |
| 2005 09 13 | 705 | 0.2+ | 0.0 | 2005 11 01 | 703 | 0.4+ | 0.7− | 2009 12 11 | 703 | 0.5+ | 0.1+ | |
| 2005 09 14 | 703 | 1.1+ | 0.8+ | 2005 11 01 | 703 | 0.9− | 0.2+ | 2009 12 11 | 703 | 0.4− | 0.9− | |
| 2005 09 14 | 703 | 0.0 | 0.2− | 2005 11 01 | 703 | 0.5− | 0.9+ | 2009 12 15 | G96 | 0.0 | 0.6− | |
| 2005 09 14 | 703 | 0.4− | 0.1+ | 2005 11 01 | 703 | 1.4− | 0.3+ | 2009 12 15 | G96 | 0.4+ | 0.7− | |
| 2005 09 14 | 703 | 0.2− | 0.2+ | 2005 11 17 | 644 | 0.1+ | 0.2− | 2009 12 15 | G96 | 0.3+ | 0.3− | |
| 2005 09 21 | 705 | 0.4+ | 0.0 | 2005 11 17 | 644 | 0.0 | 0.1+ | 2009 12 15 | G96 | 0.1− | 0.5− | |
| 2005 09 21 | 705 | 0.4+ | 0.1+ | 2005 11 17 | 644 | 0.1+ | 0.4− | 2009 12 17 | 704 | 0.5+ | 1.3+ | |
| 2005 10 01 | 699 | 0.1− | 0.3+ | 2005 12 01 | 705 | 0.1+ | 0.4− | 2009 12 17 | 704 | 0.0 | 0.3− | |
| 2005 10 01 | 699 | 0.4− | 0.2+ | 2005 12 01 | 705 | 0.0 | 0.3− | 2009 12 17 | 704 | 0.3− | 1.0+ | |
| 2005 10 01 | 699 | 0.0 | 0.4+ | 2009 10 12 | G96 | 0.2+ | 0.5− | 2009 12 17 | 704 | 0.5− | 0.1− | |
| 2005 10 01 | 699 | 0.3− | 0.3+ | 2009 10 12 | G96 | 0.1+ | 0.6− | 2009 12 21 | 704 | 0.0 | 0.5− | |
| 2005 10 03 | 703 | 0.8− | 0.1− | 2009 10 12 | G96 | 0.2+ | 0.8− | 2009 12 21 | 704 | 0.1− | 0.2− | |
| 2005 10 03 | 703 | 0.1+ | 0.8− | 2009 10 12 | G96 | 0.2+ | 0.4− | 2009 12 21 | 704 | 0.9− | 0.1− | |
| 2005 10 03 | 703 | (1.7− | 0.3+) | 2009 11 18 | 704 | 1.3− | 0.3+ | | | | | |

**(229417)∗ 2005 TN$_{10}$**

Discovered 2005 Oct. 2 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 83.54465 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27388974 | $\omega$ | 95.53080 | | +0.97892284 | +0.18836228 | |
| $a$ | 2.3482926 | $\Omega$ | 253.63026 | | −0.20422926 | +0.90418323 | |
| $e$ | 0.2491699 | $i$ | 4.71868 | | +0.00070046 | +0.38336970 | |
| $P$ | 3.60 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 12 17 | 704 | 0.1− | 1.0− | 2005 10 23 | 644 | 0.0 | 0.1+ | 2005 12 02 | 704 | 0.1− | 1.4+ | |
| 1998 12 17 | 704 | 0.1+ | 1.0− | 2005 10 23 | 644 | 0.3− | 0.0 | 2005 12 05 | 704 | (1.0− | 1.9+) | |
| 1998 12 17 | 704 | (0.4+ | 3.0−) | 2005 10 23 | 644 | 0.0 | 0.0 | 2005 12 05 | 704 | 0.5− | 0.8+ | |
| 1998 12 17 | 704 | 0.1+ | 0.6− | 2005 10 23 | 644 | 0.0 | 0.2− | 2005 12 05 | 704 | 0.2+ | 0.2− | |
| 2003 01 08 | 704 | 0.5+ | 0.8+ | 2005 10 26 | 699 | 0.4− | 0.0 | 2005 12 05 | 704 | 0.2− | 0.7+ | |
| 2003 01 08 | 704 | 0.1+ | 0.0 | 2005 10 26 | 699 | 0.2+ | 1.4+ | 2005 12 05 | 704 | (0.2+ | 2.1−) | |
| 2003 01 08 | 704 | 0.2+ | 0.1− | 2005 10 26 | 699 | 0.0 | 0.2− | 2005 12 22 | 644 | 0.2− | 0.2− | |
| 2003 01 08 | 704 | 0.6+ | 1.0+ | 2005 10 29 | 703 | 0.1+ | 0.0 | 2005 12 22 | 644 | 0.1+ | 0.3+ | |
| 2005 07 16 | 699 | (1.8+ | 0.8+) | 2005 10 29 | 703 | 0.4− | 0.2− | 2005 12 22 | 644 | 0.2− | 0.2+ | |
| 2005 07 16 | 699 | 0.9+ | 0.1+ | 2005 10 29 | 703 | 0.3− | 0.1− | 2005 12 28 | G96 | 0.4− | 0.0 | |
| 2005 07 16 | 699 | 0.7+ | 0.9+ | 2005 10 29 | 703 | 0.8− | 0.1− | 2005 12 28 | G96 | 0.0 | 0.0 | |
| 2005 07 16 | 699 | (2.0+ | 1.3−) | 2005 10 30 | 704 | 0.3+ | 0.4− | 2005 12 28 | 703 | 1.1− | 0.3− | |
| 2005 08 03 | 704 | 0.0 | 0.3+ | 2005 10 30 | 704 | 0.2+ | 0.6− | 2005 12 28 | G96 | 0.1+ | 0.1+ | |
| 2005 08 03 | 704 | 0.7+ | 0.3+ | 2005 10 30 | 704 | 0.4+ | 0.4− | 2005 12 28 | 703 | 0.2− | 1.1+ | |
| 2005 08 03 | 704 | 0.4+ | 0.1+ | 2005 10 30 | 704 | 0.2+ | 0.0 | 2005 12 28 | 703 | 0.3+ | 1.1− | |
| 2005 08 03 | 704 | 0.6+ | 0.5− | 2005 10 30 | 704 | 0.3+ | 0.2− | 2005 12 28 | G96 | 0.0 | 0.0 | |
| 2005 08 03 | 704 | 0.6+ | 0.4− | 2005 11 02 | 704 | (2.0− | 0.7+) | 2005 12 28 | 703 | 0.8− | 0.3− | |
| 2005 08 31 | 704 | 0.7− | 0.4− | 2005 11 02 | 704 | 0.2− | 0.7+ | 2005 12 29 | 704 | (2.0− | 1.1+) | |
| 2005 08 31 | 704 | 0.0 | 0.1+ | 2005 11 02 | 704 | 0.0 | 1.2+ | 2005 12 29 | 704 | (0.5− | 1.8+) | |
| 2005 08 31 | 704 | 0.7− | 1.4+ | 2005 11 02 | 704 | 0.7+ | 0.6+ | 2005 12 29 | 704 | 0.0 | 1.2+ | |
| 2005 08 31 | 704 | 0.1− | 0.2+ | 2005 11 02 | 704 | 0.1+ | 0.5+ | 2005 12 31 | 704 | 0.3− | 0.2− | |
| 2005 08 31 | 704 | 0.3+ | 0.4+ | 2005 11 02 | A30 | 0.4+ | 0.3− | 2005 12 31 | 704 | 0.6+ | 0.1− | |
| 2005 10 02 | 644 | 0.2− | 0.1+ | 2005 11 02 | A30 | 0.3+ | 0.5− | 2005 12 31 | 704 | 0.2− | 0.6+ | |
| 2005 10 02 | 644 | 0.1− | 0.0 | 2005 11 02 | A30 | 0.4+ | 0.3− | 2005 12 31 | 704 | 0.4+ | 0.4+ | |
| 2005 10 02 | 644 | 0.2− | 0.1− | 2005 11 02 | A30 | 0.6+ | 0.4− | 2007 02 17 | G96 | 0.2+ | 0.1− | |
| 2005 10 03 | 704 | 0.2+ | 0.4+ | 2005 11 02 | A30 | 0.4+ | 0.4− | 2007 02 17 | G96 | 0.3+ | 0.1− | |
| 2005 10 03 | 704 | 0.1− | 0.1+ | 2005 11 06 | 704 | 0.0 | 0.2− | 2007 02 17 | G96 | 0.1+ | 0.2+ | |
| 2005 10 03 | 704 | 0.1+ | 0.3+ | 2005 11 06 | 704 | 0.3+ | 0.4− | 2007 02 17 | G96 | 0.9− | 0.3+ | |
| 2005 10 03 | 704 | 0.2− | 0.4+ | 2005 11 06 | 704 | 0.5+ | 0.4− | 2008 05 13 | E12 | 0.4+ | 0.5+ | |
| 2005 10 05 | G96 | 0.1+ | 0.2− | 2005 11 06 | 704 | 0.2+ | 0.4− | 2008 05 13 | E12 | 0.1+ | 0.2+ | |
| 2005 10 05 | G96 | 0.1− | 0.3− | 2005 11 06 | 704 | 0.1+ | 0.4− | 2008 05 13 | E12 | 0.7+ | 0.2+ | |
| 2005 10 05 | G96 | 0.2− | 0.1− | 2005 11 06 | A35 | 0.2+ | 0.4− | 2008 05 13 | E12 | 0.3+ | 0.4+ | |
| 2005 10 05 | G96 | 0.2+ | 0.3− | 2005 11 06 | A35 | 0.1− | 0.2− | 2008 05 28 | 704 | 0.7+ | 0.1+ | |
| 2005 10 08 | 704 | 0.3− | 0.1+ | 2005 11 06 | A35 | 0.0 | 0.4− | 2008 05 28 | 704 | 0.2+ | 0.8+ | |
| 2005 10 08 | 704 | 0.6− | 0.2+ | 2005 11 19 | 699 | (1.7− | 1.4+) | 2008 05 28 | 704 | 0.2− | 1.1+ | |
| 2005 10 08 | 704 | 0.4− | 0.1+ | 2005 11 19 | 699 | 0.3+ | 0.1+ | 2008 05 28 | 704 | 0.4+ | 0.9+ | |
| 2005 10 08 | 704 | 0.3− | 0.0 | 2005 11 19 | 699 | 0.4− | 0.1+ | 2008 06 23 | 691 | 0.6− | 0.4− | |
| 2005 10 08 | 704 | 0.3− | 0.1+ | 2005 11 19 | 699 | 0.0 | 0.1− | 2008 06 23 | 691 | 0.0 | 0.1+ | |
| 2005 10 10 | 699 | 0.4− | 0.1+ | 2005 11 22 | A30 | 0.1+ | 0.6− | 2008 06 23 | 691 | 0.1− | 0.1− | |
| 2005 10 10 | 699 | 0.0 | 0.0 | 2005 11 22 | A30 | 0.2+ | 0.6− | 2008 06 25 | E12 | 0.1− | 0.3+ | |
| 2005 10 10 | 699 | 0.1+ | 0.2+ | 2005 11 22 | A30 | 0.3+ | 0.6− | 2008 06 25 | E12 | 0.2− | 0.1− | |
| 2005 10 10 | 699 | 0.1+ | 0.1− | 2005 11 30 | 644 | 0.1+ | 0.2+ | 2008 06 25 | E12 | 0.2+ | 0.5− | |
| 2005 10 12 | 704 | 0.2− | 0.7+ | 2005 11 30 | 644 | 0.1+ | 0.2+ | 2008 06 25 | E12 | 0.2+ | 0.6+ | |
| 2005 10 12 | 704 | 0.5− | 0.4− | 2005 11 30 | 644 | 0.3− | 0.0 | 2009 10 15 | G96 | 0.4− | 0.1− | |
| 2005 10 12 | 704 | 0.8− | 0.6− | 2005 12 01 | 699 | 0.5− | 1.2+ | 2009 10 15 | G96 | 0.4− | 0.1− | |
| 2005 10 12 | 704 | 0.1− | 0.4+ | 2005 12 01 | 699 | 0.0 | 0.6− | 2009 10 15 | G96 | 0.3− | 0.1+ | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 12 | 704 | (2.0− | 1.9−) | 2005 12 01 | 699 | 0.1− | 0.0 | 2009 10 15 | G96 | 0.1+ | 0.1+ | | |
| 2005 10 14 | 699 | 0.7+ | 0.0 | 2005 12 01 | 699 | 0.6+ | 0.5− | 2009 12 17 | 704 | 0.2+ | 0.6+ | | |
| 2005 10 14 | 699 | 0.2+ | 0.4+ | 2005 12 02 | 704 | (0.6+ | 2.0+) | 2009 12 17 | 704 | 0.5+ | 1.0+ | | |
| 2005 10 14 | 699 | 0.7− | 0.1+ | 2005 12 02 | 704 | (0.1+ | 1.9+) | 2009 12 17 | 704 | 0.4+ | 0.2− | | |
| 2005 10 23 | 644 | 0.2+ | 0.0 | 2005 12 02 | 704 | (0.3+ | 2.9+) | 2009 12 17 | 704 | 0.2+ | 0.1+ | | |
| 2005 10 23 | 644 | 0.2− | 0.0 | 2005 12 02 | 704 | (0.7− | 2.6+) | | | | | | |

**(229418)∗ 2005 TY$_{10}$ = 1995 CW$_7$ = 2001 SX$_{92}$**

Discovered 2005 Oct. 2 by the Mt. Lemmon Survey at Mount Lemmon.

Id. G. V. Williams (*MPO* 89887)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 17.44363 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.25884920 | $\omega$ | 104.36937 | | +0.51117221 | −0.85931095 | |
| $a$ | 2.4383993 | $\Omega$ | 314.87557 | | +0.77904632 | +0.47158049 | |
| $e$ | 0.1845143 | $i$ | 1.37146 | | +0.36302865 | +0.19798114 | |
| $P$ | 3.81 | $H$ | 17.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 02 02 | 691 | 0.2− | 0.5+ | 2005 10 06 | 703 | (1.8− | 0.5+) | 2005 10 30 | 703 | 1.1− | 0.0 | | |
| 1995 02 02 | 691 | 0.7+ | 0.1+ | 2005 10 08 | 152 | 1.0− | 0.5+ | 2005 10 30 | 703 | 0.1+ | 0.3+ | | |
| 1995 02 02 | 691 | 0.3− | 0.3− | 2005 10 08 | 152 | (1.9+ | 0.9+) | 2005 10 30 | 703 | 0.4− | 0.1+ | | |
| 1995 02 06 | 691 | 1.1+ | 0.4+ | 2005 10 09 | 152 | (1.5+ | 0.5−) | 2005 10 30 | 703 | 0.6− | 0.4+ | | |
| 1995 02 06 | 691 | 0.5− | 0.7+ | 2005 10 09 | 152 | (1.8− | 2.1+) | 2005 11 06 | 704 | 0.4+ | 0.2+ | | |
| 1995 02 06 | 691 | 0.4− | 0.4+ | 2005 10 09 | 152 | 1.0+ | 0.2− | 2005 11 06 | 704 | 0.5− | 0.4+ | | |
| 2001 09 20 | 704 | 0.5− | 0.2+ | 2005 10 09 | 152 | 0.0 | 0.4+ | 2005 11 06 | 704 | 0.6+ | 0.6+ | | |
| 2001 09 20 | 704 | 0.3− | 0.6+ | 2005 10 09 | 152 | 0.5+ | 0.8− | 2005 11 06 | 704 | 0.3− | 0.1+ | | |
| 2001 09 20 | 704 | 0.8− | 0.5+ | 2005 10 09 | 152 | (2.5− | 0.8+) | 2005 12 22 | 291 | 0.6+ | 0.2− | | |
| 2001 09 20 | 704 | 0.3− | 1.0+ | 2005 10 13 | 691 | 0.2− | 0.1+ | 2005 12 22 | 291 | 0.3+ | 0.2− | | |
| 2001 09 22 | 704 | 0.0 | 0.5+ | 2005 10 13 | 691 | 0.0 | 0.1+ | 2005 12 22 | 291 | 0.5+ | 0.1− | | |
| 2001 09 22 | 704 | 0.7+ | 0.9+ | 2005 10 13 | 691 | 0.0 | 0.1+ | 2005 12 28 | G96 | 0.2+ | 0.4− | | |
| 2001 09 22 | 704 | 0.5+ | 0.1+ | 2005 10 22 | 644 | 0.0 | 0.2− | 2005 12 28 | G96 | 0.3+ | 0.6− | | |
| 2001 09 22 | 704 | 0.2+ | 0.2+ | 2005 10 22 | 644 | 0.0 | 0.2− | 2005 12 28 | G96 | 0.3+ | 0.3− | | |
| 2001 09 22 | 704 | 0.4− | 0.9+ | 2005 10 22 | 703 | (3.5− | 0.9−) | 2005 12 28 | G96 | 0.2− | 0.2− | | |
| 2005 10 02 | G96 | 0.4+ | 0.0 | 2005 10 22 | 703 | 0.8− | 1.0− | 2009 11 17 | 691 | 0.0 | 0.1− | | |
| 2005 10 02 | G96 | 0.2− | 0.2− | 2005 10 22 | 644 | 0.2− | 0.4+ | 2009 11 17 | 691 | 0.2− | 0.3− | | |
| 2005 10 02 | G96 | 0.3+ | 0.1− | 2005 10 22 | 703 | (1.1− | 2.2−) | 2009 11 17 | 691 | 0.2− | 0.3− | | |
| 2005 10 02 | G96 | 0.3− | 0.2− | 2005 10 24 | 699 | 0.7+ | 0.4− | 2009 11 25 | J75 | 0.1+ | 0.1+ | | |
| 2005 10 03 | 703 | 1.1− | 0.2+ | 2005 10 24 | 699 | 0.2+ | 0.0 | 2009 11 25 | J75 | 0.1+ | 0.5+ | | |
| 2005 10 03 | 703 | 0.3− | 0.4+ | 2005 10 24 | 699 | 1.0+ | 0.5+ | 2009 11 25 | J75 | 0.7+ | 0.3+ | | |
| 2005 10 03 | 703 | 0.5− | 0.3− | 2005 10 24 | 699 | 0.7− | 0.2+ | 2009 12 10 | G96 | 0.4+ | 0.4− | | |
| 2005 10 03 | 703 | 1.1− | 0.5+ | 2005 10 28 | 703 | 0.0 | 0.0 | 2009 12 10 | G96 | 0.2+ | 0.3− | | |
| 2005 10 06 | 703 | 0.3+ | 0.3− | 2005 10 28 | 703 | 0.3− | 0.8− | 2009 12 10 | G96 | 0.4+ | 0.4− | | |
| 2005 10 06 | 703 | 1.4− | 0.5− | 2005 10 28 | 703 | 0.5+ | 0.1− | 2009 12 10 | G96 | 0.4+ | 0.4− | | |
| 2005 10 06 | 703 | (2.1− | 1.2−) | 2005 10 28 | 703 | 0.4+ | 0.2+ | | | | | | |

**(229419)∗ 2005 TZ$_{17}$**

Discovered 2005 Oct. 1 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 11.60094 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26161608 | $\omega$ | 348.49338 | | +0.45145930 | −0.89047800 | |
| $a$ | 2.4211764 | $\Omega$ | 74.64777 | | +0.82326951 | +0.39111425 | |
| $e$ | 0.1734535 | $i$ | 3.38055 | | +0.34411017 | +0.23254800 | |
| $P$ | 3.77 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 02 28 | 704 | 0.6+ | 1.1+ | 2005 10 31 | 704 | 0.4+ | 0.8+ | 2009 11 15 | J75 | 0.0 | 1.1+ | | |
| 2003 02 28 | 704 | 1.3+ | 0.6− | 2005 10 31 | 705 | 0.1− | 0.2− | 2009 11 16 | 691 | 0.3− | 0.1+ | | |
| 2003 02 28 | 704 | 1.3+ | 0.1+ | 2005 10 31 | 705 | 0.2− | 0.2− | 2009 11 16 | 691 | 0.1− | 0.1− | | |
| 2003 02 28 | 704 | 1.0+ | 0.8+ | 2005 10 31 | 704 | 0.4+ | 0.8+ | 2009 11 16 | 691 | 0.2− | 0.3+ | | |
| 2003 03 30 | 645 | 0.0 | 0.0 | 2005 10 31 | 704 | 0.4− | 0.7+ | 2009 11 16 | J75 | 0.4− | 0.9+ | | |
| 2003 03 30 | 645 | 0.2− | 0.1+ | 2005 11 02 | 705 | 0.0 | 0.2− | 2009 11 16 | J75 | 0.5+ | 0.2− | | |
| 2005 09 24 | 644 | 0.3− | 0.2+ | 2005 11 02 | 705 | 0.0 | 0.3− | 2009 11 16 | J75 | 0.5− | 0.4+ | | |
| 2005 09 24 | 644 | 0.4− | 0.2+ | 2005 11 05 | 705 | 0.2− | 0.2− | 2009 11 18 | 704 | 0.1− | 0.1− | | |
| 2005 09 24 | 644 | 0.6− | 0.3+ | 2005 11 05 | 705 | 0.2− | 0.2− | 2009 11 18 | 704 | 0.7+ | 0.2− | | |
| 2005 10 01 | 704 | 0.3+ | 0.8+ | 2005 11 19 | 705 | 0.2− | 0.3− | 2009 11 18 | 704 | 0.1+ | 0.2− | | |
| 2005 10 01 | 704 | 0.3− | 0.5+ | 2005 11 19 | 705 | 0.4− | 0.3− | 2009 11 18 | 704 | 0.1+ | 0.4+ | | |
| 2005 10 01 | 704 | 0.1− | 0.3+ | 2005 11 23 | 705 | 0.3− | 0.3− | 2009 11 18 | 704 | 0.7+ | 0.2+ | | |
| 2005 10 01 | 704 | 0.6− | 0.1+ | 2005 11 23 | 705 | 0.5− | 0.4− | 2009 11 20 | 691 | 0.1− | 0.2− | | |
| 2005 10 01 | 704 | 1.1− | 0.7+ | 2005 11 25 | 705 | 0.4− | 0.3− | 2009 11 20 | 691 | 0.2− | 0.0 | | |
| 2005 10 05 | 704 | 0.1+ | 0.1− | 2005 11 25 | 705 | 0.3− | 0.3− | 2009 11 20 | 691 | 0.1− | 0.0 | | |
| 2005 10 05 | 704 | 0.9+ | 1.0+ | 2005 11 30 | G96 | 0.6− | 0.8− | 2009 11 23 | J75 | 0.0 | 0.4− | | |
| 2005 10 05 | 704 | 1.1+ | 0.3+ | 2005 11 30 | G96 | 0.2− | 0.5− | 2009 11 23 | J75 | 0.4+ | 0.4+ | | |
| 2005 10 05 | 704 | 0.7+ | 1.2+ | 2005 11 30 | G96 | 0.0 | 0.4− | 2009 11 24 | J75 | 0.3+ | 0.2− | | |
| 2005 10 05 | 704 | 0.5+ | 0.9+ | 2005 11 30 | G96 | 0.1− | 0.6− | 2009 11 24 | 691 | 0.3− | 0.1+ | | |
| 2005 10 10 | 704 | 0.0 | 0.2− | 2007 03 10 | G96 | 0.0 | 0.1+ | 2009 11 24 | 691 | 0.3− | 0.1+ | | |
| 2005 10 10 | 704 | 0.7+ | 0.7+ | 2007 03 10 | G96 | 0.2− | 0.1+ | 2009 11 24 | 691 | 0.0 | 0.0 | | |
| 2005 10 10 | 704 | 0.4− | 0.4− | 2007 03 10 | G96 | 0.0 | 0.3+ | 2009 12 09 | J75 | 0.2+ | 0.0 | | |
| 2005 10 10 | 704 | 0.6+ | 0.2+ | 2007 03 10 | G96 | 0.3+ | 0.2+ | 2009 12 09 | J75 | 0.3+ | 0.3+ | | |
| 2005 10 22 | 703 | (0.4− | 1.7−) | 2007 03 11 | 691 | 0.1− | 0.1+ | 2009 12 09 | J75 | 0.2+ | 0.1+ | | |
| 2005 10 22 | 703 | (1.7− | 0.6+) | 2007 03 11 | 691 | 0.2+ | 0.1+ | 2009 12 11 | 704 | 0.7+ | 0.1+ | | |
| 2005 10 22 | 703 | 0.4+ | 0.2− | 2007 03 11 | 691 | 0.0 | 0.0 | 2009 12 11 | 704 | 0.5+ | 0.1− | | |
| 2005 10 22 | 703 | (1.9− | 0.6−) | 2007 03 15 | 691 | 0.1− | 0.2+ | 2009 12 11 | 704 | 1.2+ | 2.0− | | |
| 2005 10 28 | 704 | 0.4+ | 0.9+ | 2007 03 15 | 691 | 0.1− | 0.2+ | 2009 12 11 | 703 | 0.0 | 0.9− | | |
| 2005 10 28 | 704 | 0.7+ | 0.4− | 2007 03 15 | 691 | 0.3+ | 0.2+ | 2009 12 11 | 703 | 1.1+ | 0.6+ | | |
| 2005 10 28 | 704 | 0.8− | 0.4+ | 2009 11 08 | 691 | 0.1− | 0.2− | 2009 12 11 | 703 | 0.3+ | 0.0 | | |
| 2005 10 28 | 703 | (2.5− | 0.1−) | 2009 11 08 | 691 | 0.1+ | 0.2+ | 2009 12 11 | 703 | 0.5− | 0.6− | | |
| 2005 10 28 | 703 | 0.5− | 0.3− | 2009 11 08 | 691 | 0.1− | 0.1− | 2009 12 16 | G96 | 0.4+ | 0.1− | | |
| 2005 10 28 | 703 | (1.9− | 1.3−) | 2009 11 12 | J75 | 0.5+ | 0.1− | 2009 12 16 | G96 | 0.5+ | 0.1− | | |
| 2005 10 28 | 704 | 0.1− | 1.4+ | 2009 11 12 | J75 | 0.0 | 0.1+ | 2009 12 16 | G96 | 0.2+ | 0.3− | | |
| 2005 10 28 | 703 | 0.6− | 0.8− | 2009 11 12 | J75 | 0.1− | 0.3− | 2009 12 16 | G96 | 0.5+ | 0.1− | | |
| 2005 10 28 | 704 | 0.7− | 1.1+ | 2009 11 15 | J75 | 0.7− | 1.0− | | | | | | |
| 2005 10 31 | 704 | 0.6− | 0.6+ | 2009 11 15 | J75 | 0.7+ | 0.9− | | | | | | |

**(229420)∗ 2005 TH$_{23}$ = 1998 SX$_{74}$ = 2004 JZ$_{44}$**

Discovered 2005 Oct. 1 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Id. G. V. Williams (*MPO* 89893)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 87.79484 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28065482 | $\omega$ | 301.33981 | | +0.99744422 | −0.01964950 | |
| $a$ | 2.3104029 | $\Omega$ | 59.86754 | | +0.04755964 | +0.90008881 | |
| $e$ | 0.1284547 | $i$ | 4.55568 | | −0.05332087 | +0.43526318 | |
| $P$ | 3.51 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 09 21 | 809 | 1.4+ | 1.2− | 2005 10 05 | 704 | 0.2+ | 0.1+ | 2005 10 28 | 704 | (1.6− | 0.7+) | | |
| 1998 09 21 | 809 | 0.5+ | 0.8− | 2005 10 05 | 704 | 0.2− | 0.1− | 2005 10 28 | 704 | 0.1− | 1.4− | | |
| 1998 09 21 | 809 | 0.3+ | 1.2− | 2005 10 05 | 704 | 0.1− | 0.1+ | 2005 10 31 | 704 | 0.4+ | 1.0+ | | |
| 1998 09 23 | 809 | 1.5+ | 1.5− | 2005 10 05 | 661 | (1.6+ | 0.4−) | 2005 10 31 | 704 | 1.2− | 0.1− | | |
| 1998 09 23 | 809 | 1.2+ | 1.6− | 2005 10 05 | 661 | 0.5− | 0.8+ | 2005 10 31 | 704 | 1.0− | 0.2− | | |
| 1998 09 23 | 809 | (1.1+ | 2.4−) | 2005 10 05 | 661 | (0.6+ | 3.3+) | 2005 10 31 | 704 | 0.8− | 0.3− | | |
| 2001 06 25 | 644 | 0.1− | 0.1+ | 2005 10 05 | 661 | 1.4+ | 0.9+ | 2005 11 03 | 704 | 0.6+ | 0.0 | | |
| 2001 06 25 | 644 | 0.4− | 0.5+ | 2005 10 07 | 703 | 1.0+ | 0.2− | 2005 11 03 | 704 | (0.3+ | 1.6+) | | |
| 2001 06 25 | 644 | 0.7− | 0.1− | 2005 10 07 | 703 | 0.5+ | 0.4+ | 2005 11 03 | 704 | 0.2+ | 0.5+ | | |
| 2003 01 05 | 704 | 0.7− | 0.2+ | 2005 10 07 | 703 | 0.2+ | 0.7− | 2005 11 30 | G96 | 0.2− | 0.4− | | |
| 2003 01 05 | 704 | 0.7− | 0.2+ | 2005 10 07 | 703 | 0.1+ | 0.4− | 2005 11 30 | G96 | 0.0 | 0.2− | | |
| 2003 01 05 | 704 | 0.7− | 0.9+ | 2005 10 10 | 704 | 0.1− | 0.0 | 2005 11 30 | G96 | 0.4− | 0.1− | | |
| 2003 01 05 | 704 | 0.2− | 0.5+ | 2005 10 10 | 704 | 0.3− | 0.8+ | 2005 11 30 | G96 | 0.1− | 0.4− | | |
| 2004 05 14 | 621 | 0.5+ | 0.1+ | 2005 10 10 | 704 | (1.0− | 1.5+) | 2005 12 04 | 699 | 0.8− | 0.1+ | | |
| 2004 05 14 | 621 | 0.1− | 0.3+ | 2005 10 13 | 704 | 0.3− | 0.1+ | 2005 12 04 | 699 | 0.4+ | 0.9+ | | |
| 2004 05 14 | 621 | 0.0 | 0.3− | 2005 10 13 | 704 | 0.2+ | 0.9+ | 2005 12 04 | 704 | (1.6− | 0.4−) | | |
| 2004 05 16 | 621 | 0.6+ | 0.5+ | 2005 10 13 | 704 | 0.2− | 0.8+ | 2005 12 04 | 704 | (2.1− | 0.4−) | | |
| 2004 05 16 | 621 | 1.0+ | 0.1+ | 2005 10 13 | 704 | 0.4+ | 1.4+ | 2005 12 04 | 699 | (1.5+ | 0.9−) | | |
| 2004 05 16 | 621 | 0.6− | 0.7+ | 2005 10 22 | 703 | 1.0+ | 1.1+ | 2005 12 04 | 704 | 0.7− | 1.1− | | |
| 2005 09 24 | 644 | 0.2− | 0.0 | 2005 10 22 | 703 | 1.1− | 0.8− | 2005 12 04 | 704 | 0.8− | 0.2+ | | |
| 2005 09 24 | 644 | 0.3+ | 0.1+ | 2005 10 22 | 703 | 0.1− | 0.2+ | 2005 12 04 | 699 | 1.4− | 0.4− | | |
| 2005 09 24 | 644 | 0.3− | 0.3+ | 2005 10 22 | 703 | 0.1− | 0.2+ | 2007 04 12 | 621 | 0.7+ | 0.1+ | | |
| 2005 10 01 | 704 | 0.8+ | 0.0 | 2005 10 28 | 704 | 1.3− | 0.7+ | 2007 04 12 | 621 | 0.5+ | 0.4− | | |
| 2005 10 01 | 704 | 0.0 | 0.1+ | 2005 10 28 | 704 | 0.4− | 0.7+ | 2007 04 12 | 621 | 0.1− | 0.4− | | |
| 2005 10 01 | 704 | (3.1+ | 2.3−) | 2005 10 28 | 704 | 0.9+ | 0.1+ | 2009 11 20 | G96 | 0.1+ | 0.0 | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 01 | 704 | 0.2+ | 0.9− | 2005 10 28 | 704 | 1.1− | 0.4+ | 2009 11 20 | G96 | 0.4+ | 0.2− |
| 2005 10 01 | 704 | 0.6− | 0.5+ | 2005 10 28 | 703 | 0.7− | 0.5+ | 2009 11 20 | G96 | 0.2+ | 0.1− |
| 2005 10 01 | 699 | 0.4+ | 0.0 | 2005 10 28 | 704 | 0.8+ | 0.6− | 2009 11 20 | G96 | 0.0 | 0.1− |
| 2005 10 01 | 699 | 0.8+ | 0.1+ | 2005 10 28 | 703 | 0.5− | 0.1− | 2009 12 18 | 691 | 0.1− | 0.0 |
| 2005 10 01 | 699 | 0.3− | 0.0 | 2005 10 28 | 704 | 0.1− | 0.5+ | 2009 12 18 | 691 | 0.1+ | 0.2− |
| 2005 10 01 | 699 | 0.7− | 0.1+ | 2005 10 28 | 703 | 0.5− | 0.5+ | 2009 12 18 | 691 | 0.1+ | 0.2− |
| 2005 10 05 | 704 | 0.5+ | 0.0 | 2005 10 28 | 704 | 0.7− | 0.1+ | | | | |
| 2005 10 05 | 704 | 0.1+ | 0.3− | 2005 10 28 | 703 | 0.6+ | 0.5+ | | | | |

**(229421)∗ 2005 TT$_{26}$**

Discovered 2005 Oct. 1 by the Mt. Lemmon Survey at Mount Lemmon.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 328.53360 | | (2000.0) | | | |
| $n$ | 0.26875213 | $\omega$ | 315.55423 | | −0.73184112 | −0.68147445 |
| $a$ | 2.3781255 | $\Omega$ | 181.48804 | | +0.63616350 | −0.68261633 |
| $e$ | 0.1385507 | $i$ | 2.36284 | | +0.24434519 | −0.26387026 |
| $P$ | 3.67 | $H$ | 17.3 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 02 23 | 699 | (2.1+ | 0.1−) | 2005 10 22 | 691 | 0.3+ | 0.0 | 2007 03 26 | G96 | 0.0 | 0.2+ |
| 2003 02 23 | 699 | (0.5− | 1.8−) | 2005 10 27 | 691 | 0.1− | 0.0 | 2007 03 26 | G96 | 0.2− | 0.1− |
| 2003 02 23 | 699 | 0.9+ | 0.1+ | 2005 10 27 | 691 | 0.7− | 0.1+ | 2007 04 18 | G96 | 0.3− | 0.1+ |
| 2003 02 23 | 699 | 0.2− | 0.4+ | 2005 10 27 | 691 | 0.3− | 0.0 | 2007 04 18 | G96 | 0.0 | 0.2+ |
| 2003 03 31 | 291 | 0.5− | 0.7+ | 2005 10 31 | 691 | 0.1− | 0.0 | 2007 04 18 | G96 | 0.2+ | 0.1+ |
| 2003 03 31 | 291 | 0.6+ | 0.2+ | 2005 10 31 | 691 | 0.2− | 0.2+ | 2007 04 18 | G96 | 0.1+ | 0.0 |
| 2003 03 31 | 291 | 0.1+ | 0.2+ | 2005 10 31 | 691 | 0.2+ | 0.4+ | 2009 11 23 | 691 | 0.1+ | 0.6− |
| 2005 10 01 | G96 | 0.4− | 0.3− | 2005 11 04 | 691 | 0.1+ | 0.0 | 2009 11 23 | 691 | 0.1− | 0.4− |
| 2005 10 01 | G96 | 0.0 | 0.2− | 2005 11 04 | 691 | 0.1− | 0.2+ | 2009 11 23 | 691 | 0.2+ | 0.2− |
| 2005 10 01 | G96 | 0.3+ | 0.2− | 2005 11 04 | 691 | 0.4+ | 0.1− | 2009 11 27 | 691 | 0.4+ | 0.3− |
| 2005 10 01 | G96 | 0.1+ | 0.3− | 2005 11 30 | G96 | 0.4− | 0.4− | 2009 11 27 | 691 | 0.1− | 0.1− |
| 2005 10 05 | 691 | 0.3+ | 0.8+ | 2005 11 30 | G96 | 0.3− | 0.2− | 2009 11 27 | 691 | 0.1+ | 0.0 |
| 2005 10 05 | 691 | 0.2− | 0.3+ | 2005 11 30 | G96 | 0.3− | 0.1− | 2009 12 20 | 691 | 0.0 | 0.2+ |
| 2005 10 05 | 691 | 0.3+ | 0.5+ | 2005 11 30 | G96 | 0.3− | 0.2− | 2009 12 20 | 691 | 1.1− | 0.3+ |
| 2005 10 22 | 691 | 0.1+ | 0.2− | 2007 03 26 | G96 | 0.3+ | 0.1− | 2009 12 20 | 691 | 0.3+ | 0.2− |
| 2005 10 22 | 691 | 0.1− | 0.1+ | 2007 03 26 | G96 | 0.1+ | 0.3+ | | | | |

**(229422)∗ 2005 TJ$_{39}$**

Discovered 2005 Oct. 1 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 134.13986 | | (2000.0) | | | |
| $n$ | 0.27624896 | $\omega$ | 240.26163 | | +0.44678555 | +0.89340974 |
| $a$ | 2.3349036 | $\Omega$ | 56.34963 | | −0.80011908 | +0.42249515 |
| $e$ | 0.1860399 | $i$ | 3.23134 | | −0.40024008 | +0.15269868 |
| $P$ | 3.57 | $H$ | 17.4 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 10 28 | 691 | 0.4+ | 0.0 | 2005 09 23 | 691 | 0.0 | 0.4+ | 2005 10 28 | G96 | 0.1− | 0.2− |
| 1998 10 28 | 691 | 0.6+ | 0.0 | 2005 09 23 | 691 | 0.0 | 0.2+ | 2005 10 28 | G96 | 0.2+ | 0.8− |
| 1998 10 28 | 691 | 0.3+ | 0.0 | 2005 09 23 | 691 | 0.2− | 0.2+ | 2005 10 30 | 691 | 0.0 | 0.4+ |
| 1998 12 17 | 691 | 0.1− | 0.7− | 2005 10 01 | 691 | 0.2− | 0.4+ | 2005 10 30 | 691 | 0.7+ | 0.5+ |
| 1998 12 17 | 691 | 0.6− | 1.2− | 2005 10 01 | 691 | 0.2− | 0.2+ | 2005 10 30 | 691 | 0.1+ | 0.0 |
| 1998 12 17 | 691 | 0.5+ | 0.3− | 2005 10 01 | 691 | 0.4− | 0.0 | 2005 11 28 | G96 | 0.8+ | 0.0 |
| 2001 05 23 | 807 | 0.3− | 0.3− | 2005 10 01 | 691 | 0.2− | 0.3+ | 2005 11 28 | G96 | 0.1+ | 0.3− |
| 2001 05 23 | 807 | 0.3− | 0.1− | 2005 10 01 | 691 | 0.5− | 0.3+ | 2005 11 28 | G96 | 0.5+ | 0.1+ |
| 2001 06 26 | 644 | 0.3− | 0.5− | 2005 10 01 | 691 | 0.4− | 0.3+ | 2005 11 28 | G96 | 0.9+ | 0.3− |
| 2001 06 26 | 644 | 0.9− | 0.5− | 2005 10 06 | 691 | 0.1− | 0.3− | 2007 01 25 | 691 | 0.1− | 0.4+ |
| 2001 06 26 | 644 | 1.0− | 0.8− | 2005 10 06 | 691 | 0.4− | 0.0 | 2007 01 25 | 691 | 0.7− | 0.4+ |
| 2001 07 19 | 644 | 0.5+ | 0.2+ | 2005 10 06 | 691 | 0.6− | 0.5− | 2007 01 25 | 691 | 0.2− | 0.2+ |
| 2001 07 19 | 644 | 0.5+ | 0.9+ | 2005 10 10 | 691 | 0.0 | 0.1− | 2009 12 10 | G96 | 0.5+ | 0.1+ |
| 2001 07 19 | 644 | 1.3+ | 1.0+ | 2005 10 10 | 691 | 0.0 | 0.2+ | 2009 12 10 | G96 | 0.2+ | 0.2+ |
| 2001 08 11 | 644 | 0.1− | 0.8− | 2005 10 10 | 691 | 0.1+ | 0.2+ | 2009 12 10 | G96 | 0.6+ | 0.2− |
| 2001 08 11 | 644 | 0.4− | 0.2− | 2005 10 22 | 691 | 0.0 | 0.2+ | 2009 12 10 | G96 | 0.4+ | 0.1+ |
| 2001 08 11 | 644 | 0.3− | 0.5− | 2005 10 22 | 691 | 0.1+ | 0.3+ | 2009 12 19 | G96 | 0.3− | 0.2− |
| 2004 04 21 | 691 | 0.3+ | 0.5+ | 2005 10 22 | 691 | 0.1+ | 0.4+ | 2009 12 19 | G96 | 0.4+ | 0.1+ |
| 2004 04 21 | 691 | 0.6+ | 0.4+ | 2005 10 28 | G96 | 0.1− | 0.4− | 2009 12 19 | G96 | 0.5+ | 0.1+ |
| 2004 04 21 | 691 | 0.6+ | 0.3+ | 2005 10 28 | G96 | 0.1+ | 0.1− | 2009 12 19 | G96 | 0.1+ | 0.2− |

**(229423)∗ 2005 TG$_{41}$**

Discovered 2005 Oct. 2 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 20.33831 | | (2000.0) | | | |
| $n$ | 0.24127187 | $\omega$ | 355.90862 | | +0.20359465 | −0.93196329 |
| $a$ | 2.5554355 | $\Omega$ | 82.14985 | | +0.90664124 | +0.06381950 |
| $e$ | 0.1431779 | $i$ | 17.62750 | | +0.36952792 | +0.35689143 |
| $P$ | 4.09 | $H$ | 16.2 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 01 11 | 699 | 0.6+ | 0.4− | 2006 01 02 | 703 | 0.3− | 0.0 | 2006 02 04 | 703 | 0.0 | 0.1+ |
| 2002 01 11 | 699 | 0.2− | 0.9+ | 2006 01 02 | 703 | 0.0 | 0.6− | 2006 02 04 | 703 | 0.1− | 0.7− |
| 2002 01 11 | 699 | 0.4+ | 0.8+ | 2006 01 02 | 703 | 0.2− | 0.2+ | 2006 02 04 | 703 | 0.6+ | 0.5− |
| 2002 01 11 | 699 | 0.3+ | 0.5+ | 2006 01 06 | 703 | 0.6− | 0.8− | 2007 05 10 | 691 | 0.3− | 0.3− |
| 2003 04 28 | 691 | (0.5− | 2.6+) | 2006 01 06 | 703 | 0.6− | 0.8+ | 2007 05 10 | 691 | 0.1+ | 0.4− |
| 2003 04 28 | 691 | (0.5− | 2.9+) | 2006 01 06 | 703 | 0.3− | 0.1− | 2007 05 10 | 691 | 0.0 | 0.2− |
| 2003 04 28 | 691 | (0.6+ | 2.2+) | 2006 01 06 | 703 | 0.1+ | 0.6− | 2009 11 17 | 704 | 0.6− | 0.2+ |
| 2003 06 03 | 691 | 0.4− | 0.7+ | 2006 01 08 | 699 | 0.0 | 0.0 | 2009 11 17 | 704 | 0.9+ | 0.7+ |
| 2003 06 03 | 691 | 1.0+ | 0.1− | 2006 01 08 | 699 | 0.9+ | 0.4+ | 2009 11 17 | 704 | 1.0+ | 1.3+ |
| 2003 06 03 | 691 | 0.1− | 0.5+ | 2006 01 08 | 699 | 0.2− | 0.2− | 2009 11 17 | 704 | (1.7+ | 0.9+) |
| 2003 07 04 | 691 | 0.2− | 0.4+ | 2006 01 08 | 699 | 0.5+ | 0.0 | 2009 11 17 | 704 | 0.8+ | 0.6+ |
| 2003 07 04 | 691 | 0.1− | 0.2+ | 2006 01 09 | 699 | 0.6− | 1.3− | 2009 11 20 | G96 | 0.6− | 0.3− |
| 2003 07 04 | 691 | 0.4+ | 0.2− | 2006 01 09 | 699 | 1.1+ | 0.1− | 2009 11 20 | G96 | 0.4− | 0.4− |
| 2005 10 02 | 691 | 0.4+ | 0.0 | 2006 01 09 | 699 | 0.4+ | 0.9− | 2009 11 20 | G96 | 0.7− | 0.3− |
| 2005 10 02 | 691 | 0.1− | 0.1+ | 2006 01 09 | 699 | 1.0− | 0.3− | 2009 11 20 | G96 | 0.5− | 0.2− |
| 2005 10 02 | 691 | 0.0 | 0.2− | 2006 01 22 | 704 | 0.6+ | 0.1+ | 2009 11 22 | 704 | 0.7+ | 0.5− |
| 2005 10 06 | 691 | 0.5− | 0.1+ | 2006 01 22 | 704 | 0.5+ | 0.2+ | 2009 11 22 | 704 | 0.3+ | 0.4+ |
| 2005 10 06 | 691 | 0.4+ | 0.6+ | 2006 01 22 | 704 | 0.5+ | 0.1− | 2009 11 22 | 704 | 0.1+ | 0.3+ |
| 2005 10 06 | 691 | 0.4− | 0.1+ | 2006 01 22 | 704 | 0.9+ | 0.4+ | 2009 11 22 | 704 | 0.5+ | 0.2+ |
| 2005 10 29 | 291 | 0.5− | 0.4+ | 2006 01 22 | 703 | 0.2− | 0.5+ | 2009 11 22 | 704 | 0.3+ | 0.5− |
| 2005 10 29 | 291 | 0.0 | 0.2+ | 2006 01 22 | 703 | (0.5+ | 1.6+) | 2009 12 10 | 704 | 0.8− | 1.1− |
| 2005 10 29 | 291 | 0.1+ | 0.2+ | 2006 01 22 | 703 | 0.3+ | 0.2− | 2009 12 10 | 704 | 0.4− | 0.2− |
| 2005 12 05 | 703 | (1.7− | 1.0−) | 2006 01 22 | 703 | 0.2+ | 0.2+ | 2009 12 10 | 704 | 1.1− | 0.1+ |
| 2005 12 05 | 703 | 1.5− | 0.4+ | 2006 01 25 | 699 | 0.5+ | 0.8+ | 2009 12 10 | 704 | 0.7− | 0.8+ |
| 2005 12 05 | 703 | 0.4− | 0.7+ | 2006 01 25 | 699 | 0.1+ | 0.4+ | 2009 12 10 | 704 | 0.2+ | 0.2− |
| 2005 12 05 | 703 | 0.7+ | 0.8− | 2006 01 25 | 699 | 1.2+ | 0.3− | 2009 12 15 | 704 | 0.1+ | 0.2+ |
| 2005 12 22 | 703 | 0.8− | 0.8− | 2006 01 25 | 699 | 0.7+ | 0.3+ | 2009 12 15 | 704 | 0.3− | 0.3+ |
| 2005 12 22 | 703 | 0.8− | 0.4− | 2006 01 27 | 703 | 0.9− | 0.1− | 2009 12 15 | 704 | 0.5− | 0.3− |
| 2005 12 22 | 703 | 0.0 | 0.6− | 2006 01 27 | 703 | 0.6− | 1.0+ | 2009 12 15 | 704 | 1.9+ | 0.6+ |
| 2005 12 22 | 703 | 0.0 | 0.3− | 2006 01 27 | 703 | 0.8− | 1.3− | | | | |
| 2006 01 02 | 703 | 0.2− | 0.4+ | 2006 02 04 | 703 | 0.2− | 0.2− | | | | |

**(229424)∗ 2005 TT$_{48}$**

Discovered 2005 Oct. 8 by R. A. Tucker at the Goodricke-Pigott Observatory, Tucson.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 74.85255 | | (2000.0) | | | |
| $n$ | 0.27249756 | $\omega$ | 300.13262 | | +0.98952459 | −0.13489233 |
| $a$ | 2.3562840 | $\Omega$ | 67.66131 | | +0.14401606 | +0.89763242 |
| $e$ | 0.2398242 | $i$ | 3.18752 | | +0.01002346 | +0.41959516 |
| $P$ | 3.62 | $H$ | 17.1 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 09 06 | 691 | 0.4− | 0.1+ | 2005 10 25 | 683 | 0.3+ | 0.6+ | 2005 11 28 | G96 | 0.8− | 0.3− |
| 1994 09 06 | 691 | 0.0 | 0.3− | 2005 10 25 | 691 | 0.0 | 0.1+ | 2005 11 28 | G96 | 0.0 | 0.6− |
| 1994 09 06 | 691 | (3.7+ | 1.0−) | 2005 10 25 | 683 | 0.7+ | 1.1+ | 2005 11 29 | G96 | 0.1+ | 0.3− |
| 2000 03 03 | 645 | 0.3+ | 0.0 | 2005 10 25 | 691 | 0.1+ | 0.0 | 2005 11 29 | G96 | 0.0 | 0.4− |
| 2000 03 03 | 645 | 0.1+ | 0.1− | 2005 10 25 | 683 | 0.5+ | 1.3+ | 2005 11 29 | G96 | 0.1− | 0.3− |
| 2001 06 19 | 644 | 0.1+ | 0.3− | 2005 10 26 | 683 | (1.6+ | 0.1+) | 2005 11 29 | G96 | 0.2− | 0.3− |
| 2001 06 19 | 644 | 0.6− | 0.2+ | 2005 10 26 | 683 | 0.4+ | 0.7− | 2005 11 30 | 644 | 0.1− | 0.2+ |
| 2001 06 19 | 644 | 0.7− | 0.3+ | 2005 10 26 | 683 | (1.9+ | 0.5+) | 2005 11 30 | 644 | 0.0 | 0.0 |
| 2003 02 07 | 644 | 0.2+ | 0.6+ | 2005 10 27 | 683 | (2.0− | 0.5+) | 2005 11 30 | 644 | 0.2− | 0.0 |
| 2003 02 07 | 644 | 0.5+ | 0.4+ | 2005 10 27 | 683 | 0.8− | 1.4+ | 2005 12 04 | G96 | 0.1+ | 0.3− |
| 2003 02 07 | 644 | 0.4+ | 0.3+ | 2005 10 27 | 683 | (2.4− | 1.0+) | 2005 12 04 | G96 | 0.0 | 0.2− |
| 2004 05 14 | 691 | 0.1− | 0.5+ | 2005 10 28 | 704 | 0.3− | 0.3+ | 2005 12 04 | G96 | 0.2− | 0.1− |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 05 14 | 691 | 0.0 | 0.5+ | 2005 10 28 | 704 | 0.0 | 0.6+ | 2005 12 04 | G96 | 0.3+ | 0.2− |
| 2004 05 14 | 691 | 0.5+ | 0.6+ | 2005 10 28 | 704 | 0.1− | 0.1+ | 2005 12 26 | G96 | 0.2+ | 0.1− |
| 2005 09 13 | 683 | (0.9+ | 2.1−) | 2005 10 28 | 704 | 0.5− | 0.4+ | 2005 12 26 | G96 | 0.3− | 0.0 |
| 2005 09 13 | 683 | 0.3− | 0.1+ | 2005 10 28 | 704 | 0.2− | 0.4+ | 2005 12 26 | G96 | 0.3+ | 0.2− |
| 2005 09 13 | 683 | 0.4− | 0.3+ | 2005 10 31 | 704 | 0.8+ | 0.4+ | 2005 12 26 | G96 | 0.2− | 0.2− |
| 2005 09 18 | 644 | 0.0 | 0.1− | 2005 10 31 | 704 | 0.6+ | 0.5+ | 2006 01 21 | G96 | 0.1− | 0.4− |
| 2005 09 18 | 644 | 0.6− | 0.2− | 2005 10 31 | 704 | 0.1+ | 0.0 | 2006 01 21 | G96 | 0.2+ | 0.2− |
| 2005 09 18 | 644 | 0.2− | 0.2+ | 2005 10 31 | 704 | 0.2+ | 0.2+ | 2006 01 21 | G96 | 0.1− | 0.1− |
| 2005 10 08 | 683 | 0.2+ | 0.3− | 2005 10 31 | 704 | 0.1+ | 0.3+ | 2006 01 21 | G96 | 0.2+ | 0.2− |
| 2005 10 08 | 683 | 0.0 | 1.2− | 2005 11 01 | 691 | 0.2+ | 0.1+ | 2006 01 23 | G96 | 0.8+ | 0.2− |
| 2005 10 08 | 683 | 0.9− | 0.5− | 2005 11 01 | 691 | 0.2+ | 0.1+ | 2006 01 23 | G96 | 0.5+ | 0.0 |
| 2005 10 09 | 683 | 1.0− | 1.3− | 2005 11 01 | 691 | 0.2+ | 0.1+ | 2006 01 23 | G96 | 0.1+ | 0.1− |
| 2005 10 09 | 683 | 0.9− | 0.7− | 2005 11 01 | G96 | 0.0 | 0.3− | 2006 01 23 | G96 | 0.6+ | 0.1− |
| 2005 10 10 | 683 | 0.1+ | 0.6− | 2005 11 01 | G96 | 0.3+ | 0.3− | 2007 02 26 | G96 | 0.5+ | 0.4+ |
| 2005 10 10 | 683 | 1.1+ | 0.1− | 2005 11 01 | G96 | 0.1+ | 0.3− | 2007 02 26 | G96 | 1.2− | 1.0+ |
| 2005 10 10 | 683 | 1.5− | 0.4+ | 2005 11 01 | G96 | 0.0 | 0.2− | 2007 02 26 | G96 | 0.4+ | 0.2− |
| 2005 10 11 | 683 | 0.1− | 0.6− | 2005 11 03 | 704 | (0.1− | 2.7+) | 2007 02 26 | G96 | 0.0 | 0.1− |
| 2005 10 11 | 683 | 0.9+ | 0.2− | 2005 11 03 | 704 | 0.3− | 0.6+ | 2007 03 10 | 691 | 0.5− | 0.1+ |
| 2005 10 11 | 683 | 0.8− | 0.9+ | 2005 11 03 | 704 | 0.2− | 0.3+ | 2007 03 10 | 691 | 0.3− | 0.3+ |
| 2005 10 12 | 683 | 0.3+ | 0.3− | 2005 11 03 | 704 | 0.4− | 0.7+ | 2007 03 10 | 691 | 0.2− | 0.4− |
| 2005 10 12 | 683 | 0.5+ | 0.0 | 2005 11 03 | 704 | 0.0 | 0.6+ | 2007 03 14 | G96 | 0.2− | 0.2+ |
| 2005 10 12 | 683 | 0.9+ | 1.3+ | 2005 11 05 | 699 | 0.3+ | 0.3− | 2007 03 14 | G96 | 0.2+ | 0.1+ |
| 2005 10 13 | 683 | 0.5+ | 0.5− | 2005 11 05 | 704 | 0.2+ | 0.1+ | 2007 03 14 | G96 | 0.1+ | 0.2+ |
| 2005 10 13 | 683 | 0.5− | 0.3+ | 2005 11 05 | 704 | 0.0 | 0.4+ | 2007 03 14 | G96 | 0.1+ | 0.3+ |
| 2005 10 13 | 683 | 0.2+ | 0.8+ | 2005 11 05 | 699 | 0.3+ | 0.5− | 2009 11 11 | G96 | 0.2− | 0.1− |
| 2005 10 23 | 683 | 1.0− | 0.6+ | 2005 11 05 | 704 | 0.1+ | 0.1− | 2009 11 11 | G96 | 0.2+ | 0.2+ |
| 2005 10 23 | 683 | (1.6− | 0.4+) | 2005 11 05 | 704 | 0.6+ | 0.5+ | 2009 11 11 | G96 | 0.2+ | 0.1− |
| 2005 10 23 | 683 | 0.6− | 0.3+ | 2005 11 05 | 699 | 0.0 | 0.2− | 2009 11 11 | G96 | 0.3− | 0.6− |
| 2005 10 23 | 703 | 0.7− | 0.4− | 2005 11 05 | 704 | 0.3+ | 0.4+ | 2009 12 18 | G96 | 0.1+ | 0.2+ |
| 2005 10 23 | 703 | 0.1+ | 0.4− | 2005 11 05 | 699 | 0.1− | 0.0 | 2009 12 18 | G96 | 0.3+ | 0.3+ |
| 2005 10 23 | 703 | 0.4− | 0.1− | 2005 11 20 | 699 | 0.3− | 0.9+ | 2009 12 18 | G96 | 0.2− | 0.0 |
| 2005 10 23 | 703 | 0.8− | 0.1− | 2005 11 20 | 699 | 0.2− | 0.2− | 2009 12 18 | G96 | 0.5+ | 0.1+ |
| 2005 10 24 | 683 | 0.2+ | 0.5+ | 2005 11 20 | 699 | 0.6− | 0.9+ | 2009 12 18 | G96 | 0.3+ | 0.1+ |
| 2005 10 24 | 683 | 1.2+ | 1.2+ | 2005 11 20 | 699 | 0.8− | 0.2+ | 2009 12 18 | G96 | 0.1+ | 0.0 |
| 2005 10 24 | 683 | (1.8− | 1.1+) | 2005 11 25 | 703 | (0.4− | 1.6−) | 2009 12 18 | G96 | 0.2+ | 0.1− |
| 2005 10 25 | 699 | 0.2− | 0.3+ | 2005 11 25 | 703 | (0.1+ | 1.5−) | 2009 12 19 | 691 | 0.5− | 0.2+ |
| 2005 10 25 | 699 | 0.1+ | 0.1+ | 2005 11 25 | 703 | 0.5+ | 0.9− | 2009 12 19 | 691 | 0.5− | 0.1+ |
| 2005 10 25 | 699 | 0.3+ | 0.3− | 2005 11 25 | 703 | (1.0+ | 1.8−) | 2009 12 19 | 691 | 0.4− | 0.0 |
| 2005 10 25 | 691 | 0.2+ | 0.0 | 2005 11 28 | G96 | 0.3− | 0.3− | | | | |
| 2005 10 25 | 699 | 1.0− | 0.0 | 2005 11 28 | G96 | 0.1+ | 0.1− | | | | |

**(229425)∗ 2005 TW$_{50}$**

Discovered 2005 Oct. 11 at Altschwendt.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 312.85894 | | (2000.0) | | **P** | **Q** |
| $n$ | 0.23001050 | $\omega$ | 157.19813 | | −0.13057717 | −0.99061241 |
| $a$ | 2.6381791 | $\Omega$ | 300.28359 | | +0.90225216 | −0.10181784 |
| $e$ | 0.1582799 | $i$ | 2.68521 | | +0.41096307 | −0.09121501 |
| $P$ | 4.29 | $H$ | 16.8 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 08 31 | 691 | 0.3− | 0.2− | 2005 11 07 | 704 | 0.1+ | 0.3+ | 2007 03 12 | A44 | 0.7+ | 0.3+ |
| 2000 08 31 | 691 | 0.1+ | 0.3+ | 2005 11 07 | 704 | 0.8− | 0.3− | 2007 03 13 | A44 | 0.0 | 0.2+ |
| 2000 08 31 | 691 | 0.3+ | 0.1− | 2005 11 07 | 704 | 0.5− | 0.2+ | 2007 03 13 | A44 | 0.4+ | 0.1+ |
| 2001 12 19 | 704 | 0.2+ | 0.5+ | 2005 11 07 | 704 | 0.0 | 0.3+ | 2007 03 14 | A44 | 0.5+ | 0.3− |
| 2001 12 19 | 704 | 0.1+ | 0.1− | 2005 11 20 | 699 | (1.2− | 1.7+) | 2007 03 14 | A44 | 0.0 | 0.6+ |
| 2001 12 19 | 704 | 0.1+ | 0.3− | 2005 11 20 | 699 | 0.1+ | 1.1+ | 2007 03 14 | 691 | 0.0 | 0.5+ |
| 2001 12 19 | 704 | 0.2− | 0.1+ | 2005 11 20 | 699 | 0.5+ | 0.7− | 2007 03 14 | 691 | 0.2− | 1.0+ |
| 2002 01 05 | 644 | 0.1− | 0.6− | 2005 11 20 | 699 | 0.0 | 0.4+ | 2007 03 14 | 691 | 0.4+ | 0.0 |
| 2002 01 05 | 644 | 0.1− | 0.8− | 2005 11 29 | 704 | 0.4+ | 1.1+ | 2007 03 15 | A44 | (2.1+ | 0.5−) |
| 2002 01 05 | 644 | 0.4− | 0.9− | 2005 11 29 | 704 | 0.5− | 0.0 | 2007 03 18 | 691 | 0.2+ | 0.1− |
| 2002 01 05 | 644 | 0.2− | 0.5− | 2005 11 29 | 704 | 0.7− | 0.3− | 2007 03 18 | 691 | 0.0 | 0.2− |
| 2005 10 11 | A44 | 0.5+ | 0.5− | 2005 12 02 | 704 | (2.0− | 0.8+) | 2007 03 18 | 691 | 0.0 | 0.5+ |
| 2005 10 12 | A44 | 0.1− | 0.2+ | 2005 12 02 | 704 | (1.0+ | 2.7+) | 2007 04 19 | A44 | 0.3+ | 0.4+ |
| 2005 10 12 | A44 | 0.3+ | 0.1− | 2005 12 02 | 704 | 0.5− | 0.9+ | 2007 04 19 | A44 | (0.8− | 1.7+) |
| 2005 10 13 | A44 | 0.6+ | 0.1− | 2005 12 02 | 704 | 0.8− | 0.3+ | 2009 09 29 | 691 | 0.1− | 0.2+ |
| 2005 10 13 | A44 | 0.4+ | 0.1− | 2005 12 04 | 691 | 0.1− | 0.2+ | 2009 09 29 | 691 | 0.7− | 0.3+ |
| 2005 10 13 | A44 | 0.3+ | 0.3− | 2005 12 04 | 691 | 0.2+ | 0.0 | 2009 09 29 | 691 | 0.0 | 0.6+ |
| 2005 10 14 | A44 | 0.1+ | 0.4− | 2005 12 04 | 691 | 0.0 | 0.1+ | 2009 12 17 | G96 | 0.5+ | 0.3+ |
| 2005 10 14 | A44 | 0.5+ | 0.1− | 2005 12 06 | 691 | 0.1+ | 0.1− | 2009 12 17 | G96 | 0.3+ | 0.2+ |
| 2005 10 14 | A44 | 0.3+ | 0.2− | 2005 12 06 | 691 | 0.1+ | 0.0 | 2009 12 17 | G96 | 0.4− | 0.5+ |
| 2005 10 26 | 691 | 0.0 | 0.0 | 2005 12 06 | 691 | 0.0 | 0.1+ | 2009 12 17 | G96 | 0.0 | 0.2+ |
| 2005 10 26 | 691 | 0.2− | 0.0 | 2007 03 12 | A44 | 0.1− | 0.8+ | | | | |
| 2005 10 26 | 691 | 0.2− | 0.1+ | 2007 03 12 | A44 | 0.0 | 0.1− | | | | |

**(229426)∗ 2005 TB$_{52}$ = 2001 UX$_{26}$**

Discovered 2005 Oct. 1 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 89909)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 309.22310 | | (2000.0) | | **P** | **Q** |
| $n$ | 0.24149160 | $\omega$ | 222.27685 | | −0.19768204 | −0.97221057 |
| $a$ | 2.5538852 | $\Omega$ | 239.48568 | | +0.93383172 | −0.14786084 |
| $e$ | 0.0857538 | $i$ | 8.37056 | | +0.29812770 | −0.18150420 |
| $P$ | 4.08 | $H$ | 16.4 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 01 26 | 691 | 0.5− | 0.3− | 2005 10 10 | 152 | 0.9+ | 0.5− | 2009 09 21 | 703 | 0.4+ | 0.3+ |
| 1998 01 26 | 691 | 0.4− | 0.7− | 2005 10 11 | 152 | (2.0+ | 0.1+) | 2009 09 21 | 703 | 1.2− | 0.1+ |
| 1998 01 26 | 691 | 0.7− | 0.4− | 2005 10 11 | 152 | 0.1+ | 0.2+ | 2009 09 21 | 703 | 0.3+ | 0.3+ |
| 2001 10 18 | 691 | 0.6− | 0.3+ | 2005 10 11 | 152 | 0.2− | 0.5− | 2009 09 21 | 703 | 0.3+ | 0.8+ |
| 2001 10 18 | 691 | 0.6− | 0.0 | 2005 10 11 | 152 | 0.9− | 0.6+ | 2009 09 25 | 691 | 0.1− | 0.0 |
| 2001 10 18 | 691 | 0.5− | 0.2+ | 2005 10 23 | 703 | 0.2− | 1.2+ | 2009 09 25 | 691 | 0.1− | 0.1+ |
| 2001 10 19 | 691 | 0.4+ | 0.3+ | 2005 10 23 | 703 | 0.7− | 0.0 | 2009 09 25 | 691 | 0.2− | 0.1− |
| 2001 10 19 | 691 | 0.4+ | 0.1+ | 2005 10 23 | 703 | 0.1− | 0.4− | 2009 09 29 | 691 | 0.0 | 0.0 |
| 2001 10 19 | 691 | 0.5+ | 0.3+ | 2005 10 23 | 703 | 0.6− | 0.6− | 2009 09 29 | 691 | 0.3− | 0.4+ |
| 2001 10 19 | 644 | (0.6+ | 3.0+) | 2005 10 29 | 703 | 1.5− | 0.3+ | 2009 09 29 | 691 | 0.0 | 0.1− |
| 2001 10 19 | 644 | (0.4+ | 2.5+) | 2005 10 29 | 703 | 1.5− | 1.3− | 2009 09 30 | G96 | 0.2+ | 0.3− |
| 2001 10 19 | 644 | (0.4+ | 2.0+) | 2005 10 29 | 703 | 0.7− | 0.4− | 2009 09 30 | G96 | 0.4+ | 0.5− |
| 2001 10 21 | 704 | 0.0 | 0.5− | 2005 10 29 | 703 | 1.2− | 0.3− | 2009 09 30 | G96 | 0.4+ | 0.3− |
| 2001 10 21 | 704 | 0.0 | 0.3− | 2005 10 30 | 704 | 0.6+ | 0.5+ | 2009 09 30 | G96 | 0.6+ | 0.1+ |
| 2001 10 21 | 704 | 0.6+ | 0.4− | 2005 10 30 | 704 | 0.6+ | 1.2+ | 2009 10 16 | 704 | 0.7− | 0.3+ |
| 2001 10 21 | 704 | 0.0 | 0.4− | 2005 10 30 | 704 | 0.3+ | 0.3+ | 2009 10 16 | 704 | 0.2+ | 0.8+ |
| 2001 10 21 | 704 | 0.7+ | 0.3+ | 2005 11 02 | 704 | 1.1+ | 0.5+ | 2009 10 16 | 704 | 1.0+ | 0.2+ |
| 2001 11 19 | 704 | 0.8+ | 0.1+ | 2005 11 02 | 704 | 1.1+ | 0.9+ | 2009 10 16 | 704 | 0.1− | 0.4− |
| 2001 11 19 | 704 | 1.4+ | 0.1+ | 2005 11 02 | 704 | 0.5+ | 0.1− | 2009 10 16 | 704 | 0.6+ | 0.1− |
| 2001 11 19 | 704 | 1.0+ | 0.6+ | 2005 11 02 | 704 | 0.7+ | 0.2− | 2009 10 17 | G96 | 0.5− | 0.5− |
| 2001 11 19 | 704 | 1.1+ | 0.2+ | 2005 12 22 | 291 | 0.4+ | 0.4+ | 2009 10 17 | G96 | 0.5− | 0.7− |
| 2001 11 19 | 704 | 1.4+ | 0.3− | 2005 12 22 | 291 | 0.6+ | 0.3+ | 2009 10 17 | G96 | 0.4− | 0.5− |
| 2005 10 01 | 291 | 0.0 | 0.2− | 2005 12 22 | 291 | 0.5+ | 0.5+ | 2009 10 17 | G96 | 0.1+ | 0.7− |
| 2005 10 01 | 291 | 0.2+ | 0.2− | 2005 12 28 | G96 | 0.8− | 0.5− | 2009 10 24 | 703 | (0.6+ | 2.0+) |
| 2005 10 01 | 291 | 0.1+ | 0.2− | 2005 12 28 | G96 | 0.4+ | 0.1− | 2009 10 24 | 703 | 0.7− | 0.2− |
| 2005 10 10 | 152 | 0.4− | 0.1+ | 2005 12 28 | G96 | 0.1− | 0.4+ | 2009 10 24 | 703 | 0.1− | 1.1− |
| 2005 10 10 | 152 | 0.3− | 0.0 | 2005 12 28 | G96 | 0.2− | 0.6+ | 2009 10 24 | 703 | 0.2+ | 0.7− |
| 2005 10 10 | 152 | 0.8− | 1.2+ | 2007 03 13 | 703 | 0.1− | 0.4+ | 2009 12 17 | G96 | 0.6− | 0.2− |
| 2005 10 10 | 152 | 1.2− | 1.0− | 2007 03 13 | 703 | 0.0 | 0.3+ | 2009 12 17 | G96 | 0.4− | 0.1− |
| 2005 10 10 | 152 | 0.3+ | 0.6+ | 2007 03 13 | 703 | 0.8+ | 0.0 | 2009 12 17 | G96 | 0.6− | 0.1+ |
| 2005 10 10 | 152 | 0.1+ | 0.7− | 2007 03 13 | 703 | 0.1+ | 0.8+ | 2009 12 17 | G96 | 0.3− | 0.1− |

**(229427)∗ 2005 TT$_{52}$**

Discovered 2005 Oct. 10 by K. Černis and J. Zdanavicius at Moletai Astronomical Observatory.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 174.46385 | | (2000.0) | | **P** | **Q** |
| $n$ | 0.29037778 | $\omega$ | 35.39578 | | +0.29568482 | +0.95082961 |
| $a$ | 2.2585366 | $\Omega$ | 251.95842 | | −0.89727433 | +0.24332640 |
| $e$ | 0.1334261 | $i$ | 5.56219 | | −0.32782505 | +0.19161241 |
| $P$ | 3.39 | $H$ | 16.3 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 08 27 | 704 | 0.4− | 0.4+ | 2005 10 23 | 703 | 0.1− | 0.9− | 2008 07 25 | E12 | 0.2− | 0.1+ |
| 1998 08 27 | 704 | 0.4+ | 1.4+ | 2005 10 23 | 703 | 0.8+ | 0.4+ | 2008 07 25 | E12 | 0.4− | 0.4+ |
| 1998 08 27 | 704 | 1.0+ | 1.8− | 2005 10 23 | 703 | 0.6− | 0.3− | 2008 07 26 | E12 | 0.1+ | 0.2+ |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 08 27 | 704 | 0.4+ | 1.4+ | 2005 10 26 | 699 | 0.9− | 0.5− | 2008 07 26 | E12 | 0.4− | 0.1+ |
| 1998 08 27 | 704 | 1.8− | 0.3+ | 2005 10 26 | 699 | 0.5− | 0.0 | 2008 07 26 | E12 | 0.1+ | 0.1− |
| 1998 08 27 | 704 | 1.2− | 1.4+ | 2005 10 26 | 699 | 0.8− | 0.6+ | 2008 07 26 | E12 | 0.0 | 0.7+ |
| 1998 08 27 | 704 | 0.3− | 0.3+ | 2005 10 26 | 699 | 0.0 | 0.4− | 2008 08 01 | 704 | 0.1− | 0.5+ |
| 1998 08 27 | 704 | 0.3+ | 0.5− | 2005 10 29 | 703 | 1.0+ | 0.8+ | 2008 08 01 | 704 | 0.1+ | 0.3+ |
| 1998 08 27 | 704 | (5.3− | 0.5−) | 2005 10 29 | 703 | 0.5− | 0.1− | 2008 08 01 | 704 | 0.2− | 0.8− |
| 1998 08 27 | 704 | 1.4+ | 1.3+ | 2005 10 29 | 703 | 0.7− | 0.6− | 2008 08 01 | 704 | 0.3+ | 0.7+ |
| 2004 03 20 | 699 | 0.0 | 1.3+ | 2005 10 29 | 703 | 0.5− | 1.0− | 2008 08 01 | 704 | 0.1− | 0.1− |
| 2004 03 20 | 699 | 0.0 | 1.3+ | 2005 10 30 | 704 | (1.9+ | 0.7+) | 2008 08 04 | J75 | 0.3− | 0.1− |
| 2004 03 20 | 699 | 0.6− | 0.9+ | 2005 10 30 | 704 | 1.0+ | 0.8+ | 2008 08 04 | J75 | 0.1− | 0.2− |
| 2004 03 20 | 699 | 0.1+ | 1.0+ | 2005 10 30 | 704 | 0.1+ | 0.2+ | 2008 08 04 | J75 | 0.3+ | 0.0 |
| 2004 04 21 | 704 | 1.2+ | 0.2+ | 2005 10 30 | 704 | 0.9+ | 0.2− | 2008 08 07 | J75 | 0.1− | 0.5− |
| 2004 04 21 | 704 | 1.1+ | 1.3+ | 2005 10 30 | 704 | 0.9+ | 1.3+ | 2008 08 08 | J75 | 0.1+ | 0.8− |
| 2004 04 21 | 704 | 0.7+ | 0.9+ | 2005 11 02 | 704 | 0.3+ | 0.3+ | 2008 08 08 | J75 | 0.2− | 0.2− |
| 2004 04 21 | 704 | 0.4+ | 0.9+ | 2005 11 02 | 704 | 0.4− | 0.1− | 2008 08 26 | 704 | 0.1− | 0.6+ |
| 2005 09 25 | 644 | 0.5− | 0.1+ | 2005 11 02 | 704 | 0.1+ | 0.6+ | 2008 08 26 | 704 | 0.6+ | 0.1− |
| 2005 09 25 | 644 | 0.3− | 0.2+ | 2005 11 02 | 704 | 0.2− | 0.3+ | 2008 08 26 | 704 | 0.5− | 0.3− |
| 2005 09 25 | 644 | 0.2− | 0.3+ | 2005 11 05 | 703 | 0.9− | 0.7− | 2008 08 30 | 704 | 0.5− | 0.6+ |
| 2005 09 30 | 703 | (0.9+ | 2.8−) | 2005 11 05 | 703 | 0.7− | 0.0 | 2008 08 30 | 704 | 0.1+ | 0.6+ |
| 2005 09 30 | 703 | 0.3− | 1.3− | 2005 11 05 | 703 | 1.3+ | 0.7+ | 2008 08 30 | 704 | 0.3− | 0.6+ |
| 2005 09 30 | 703 | 1.4− | 0.1+ | 2005 11 05 | 703 | (2.0+ | 1.5+) | 2008 08 30 | 704 | 0.3+ | 0.5+ |
| 2005 09 30 | 703 | 0.2− | 0.7− | 2005 11 05 | 703 | (3.6+ | 1.9+) | 2008 08 30 | 704 | 0.4+ | 0.4+ |
| 2005 10 08 | 704 | 0.0 | 0.4− | 2005 11 05 | 703 | 0.5+ | 0.4+ | 2008 09 05 | 704 | 0.0 | 0.4+ |
| 2005 10 08 | 704 | 0.5+ | 0.7+ | 2005 11 05 | 703 | 0.1+ | 0.6+ | 2008 09 05 | 704 | (6.0− | 5.9+) |
| 2005 10 08 | 704 | 0.6− | 0.2− | 2005 11 06 | 704 | 0.5− | 0.2+ | 2008 09 05 | 704 | (2.4− | 2.9+) |
| 2005 10 10 | 152 | 0.5− | 0.0 | 2005 11 06 | 704 | 0.3− | 0.0 | 2008 09 05 | 704 | (4.1+ | 2.3+) |
| 2005 10 10 | 152 | 0.2− | 0.8− | 2005 11 06 | 704 | 0.3− | 1.0+ | 2008 09 05 | 704 | 0.2+ | 0.3− |
| 2005 10 10 | 152 | 0.1+ | 0.8+ | 2005 11 06 | 704 | 0.7− | 0.3+ | 2008 09 07 | 703 | 0.4− | 0.0 |
| 2005 10 10 | 152 | (1.6− | 0.4−) | 2005 11 06 | 704 | 1.1− | 0.2− | 2008 09 07 | 703 | 0.4+ | 0.0 |
| 2005 10 10 | 691 | 0.1− | 0.1+ | 2005 12 28 | G96 | 0.5− | 0.3− | 2008 09 07 | 703 | 0.4+ | 0.8− |
| 2005 10 10 | 691 | 0.2− | 0.1+ | 2005 12 28 | G96 | 0.3− | 0.1− | 2008 09 07 | 703 | 0.4+ | 1.0− |
| 2005 10 10 | 691 | 0.0 | 0.1+ | 2005 12 28 | G96 | 0.2+ | 0.3− | 2009 11 18 | G96 | 0.1+ | 0.1+ |
| 2005 10 11 | 152 | 0.9+ | 0.3+ | 2005 12 28 | G96 | 0.2+ | 0.2− | 2009 11 18 | G96 | 0.5+ | 0.3− |
| 2005 10 11 | 152 | (1.5+ | 0.7+) | 2007 02 17 | 703 | 1.2− | 0.3+ | 2009 11 18 | G96 | 0.4+ | 0.4− |
| 2005 10 11 | 152 | 1.2+ | 0.1− | 2007 02 17 | 703 | 0.1− | 0.1+ | 2009 11 18 | G96 | 0.4+ | 0.6− |
| 2005 10 23 | 644 | 0.1+ | 0.1+ | 2007 02 17 | 703 | (2.0− | 1.6−) | 2009 12 19 | 691 | 0.2− | 0.4+ |
| 2005 10 23 | 644 | 0.1+ | 0.3+ | 2007 02 17 | 703 | 0.3− | 1.4+ | 2009 12 19 | 691 | 0.3+ | 0.0 |
| 2005 10 23 | 644 | 0.3− | 0.3+ | 2008 07 25 | E12 | 0.1− | 0.1− | 2009 12 19 | 691 | 0.5+ | 0.1− |
| 2005 10 23 | 703 | 0.9+ | 0.3− | 2008 07 25 | E12 | 0.2+ | 0.4+ | | | | |

**(229428)∗ 2005 TP$_{71}$**

Discovered 2005 Oct. 1 by the Catalina Sky Survey.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 50.10294 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27407421 | $\omega$ | 318.57703 | | +0.89922693 | −0.43457770 | |
| $a$ | 2.3472388 | $\Omega$ | 67.24699 | | +0.41437618 | +0.80918339 | |
| $e$ | 0.2169872 | $i$ | 3.12862 | | +0.14029720 | +0.39542946 | |
| $P$ | 3.60 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 10 18 | 699 | 0.2+ | 0.6+ | 2005 08 26 | 644 | 0.3− | 0.1+ | 2005 10 31 | 644 | 0.2+ | 0.5+ |
| 1998 10 18 | 699 | 0.2− | 1.4+ | 2005 08 26 | 644 | 0.3− | 0.2+ | 2005 10 31 | 704 | 0.7− | 0.3+ |
| 1998 10 18 | 699 | 0.3+ | 0.5+ | 2005 08 26 | 644 | 0.2− | 0.1+ | 2005 10 31 | 644 | 0.4− | 0.5+ |
| 1998 11 10 | 704 | 0.6+ | 0.3− | 2005 09 02 | 608 | 0.8+ | 0.6− | 2005 10 31 | 704 | 0.4− | 0.7− |
| 1998 11 10 | 704 | (0.5+ | 3.0−) | 2005 09 02 | 608 | 0.0 | 1.0− | 2007 03 14 | G96 | 0.3− | 0.4+ |
| 1998 11 10 | 704 | (0.9− | 2.2−) | 2005 09 02 | 608 | 0.2+ | 0.7− | 2007 03 14 | G96 | 0.3− | 0.2+ |
| 1998 11 10 | 704 | (6.2− | 0.5−) | 2005 09 23 | 703 | 0.4− | 0.3+ | 2007 03 14 | G96 | 0.4− | 0.2+ |
| 1998 11 11 | 704 | 0.0 | 0.6− | 2005 09 23 | 703 | 0.1− | 0.3+ | 2007 03 14 | G96 | 0.1− | 0.3+ |
| 1998 11 11 | 704 | (0.6+ | 2.3−) | 2005 09 23 | 703 | 0.3− | 0.3+ | 2009 08 27 | 691 | 0.1− | 0.2+ |
| 1998 11 11 | 704 | 0.9− | 0.8− | 2005 09 23 | 703 | 0.2+ | 1.0− | 2009 08 27 | 691 | 0.5− | 0.7+ |
| 1998 11 11 | 704 | (0.5+ | 2.1−) | 2005 09 24 | 644 | 0.2+ | 0.1− | 2009 08 27 | 691 | 0.3− | 0.6+ |
| 1998 11 11 | 699 | 0.1− | 0.1− | 2005 09 24 | 644 | 0.0 | 0.2− | 2009 11 21 | 704 | 0.3+ | 0.6+ |
| 1998 11 11 | 704 | (0.7− | 2.1−) | 2005 09 24 | 644 | 0.1− | 0.1− | 2009 11 21 | 704 | (4.4+ | 2.1+) |
| 1998 11 11 | 699 | 0.2+ | 0.5− | 2005 10 01 | 703 | 0.2− | 0.9+ | 2009 11 21 | 704 | (0.1− | 2.9+) |
| 1998 11 11 | 699 | 0.0 | 0.5+ | 2005 10 01 | 703 | 0.3− | 0.4+ | 2009 11 21 | 704 | (3.5+ | 3.8+) |
| 2000 05 04 | 645 | 0.1+ | 0.1+ | 2005 10 01 | 703 | 0.4− | 0.4+ | 2009 12 26 | 691 | 0.2− | 0.6+ |
| 2000 05 04 | 645 | 0.0 | 0.1+ | 2005 10 01 | 703 | 0.1− | 0.4+ | 2009 12 26 | 691 | 0.7− | 0.3+ |
| 2003 01 27 | 608 | 0.5− | 0.9− | 2005 10 07 | 699 | 0.0 | 0.4+ | 2009 12 26 | 691 | 0.5− | 0.5+ |
| 2003 01 27 | 608 | 0.1− | 0.1− | 2005 10 07 | 699 | 0.1+ | 0.4+ | 2009 12 26 | 691 | 0.4− | 0.2+ |
| 2003 01 27 | 608 | 0.3+ | 0.1+ | 2005 10 07 | 699 | 0.6+ | 0.6+ | 2009 12 26 | 691 | 0.7+ | 0.6− |
| 2004 05 23 | 691 | 0.2+ | 0.5+ | 2005 10 07 | 699 | 0.0 | 0.3+ | 2009 12 26 | 691 | 1.5+ | 0.8− |
| 2004 05 23 | 691 | 0.5+ | 0.5+ | 2005 10 31 | 644 | 0.6+ | 0.7+ | | | | |
| 2004 05 23 | 691 | 0.1+ | 0.3+ | 2005 10 31 | 704 | (2.5− | 1.4−) | | | | |

**(229429)∗ 2005 TA$_{72}$ = 2004 BW$_{98}$**

Discovered 2005 Oct. 3 by the Catalina Sky Survey.

Id. A. Doppler (*MPO* 96005)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 140.34519 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.30056669 | $\omega$ | 194.99380 | | +0.75020637 | +0.65540627 | |
| $a$ | 2.2072024 | $\Omega$ | 123.71771 | | −0.59532070 | +0.72703019 | |
| $e$ | 0.1464317 | $i$ | 6.02924 | | −0.28772151 | +0.20462092 | |
| $P$ | 3.28 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 02 02 | 691 | 0.1− | 0.7− | 2005 08 01 | E12 | 0.3− | 0.0 | 2007 01 27 | 691 | 0.1− | 0.3− |
| 1997 02 02 | 691 | 0.1+ | 0.4− | 2005 08 01 | E12 | 1.0− | 0.7− | 2007 01 27 | 691 | 0.1+ | 0.2+ |
| 1997 02 02 | 691 | 0.0 | 0.0 | 2005 08 27 | 699 | 0.0 | 0.7− | 2007 01 27 | 691 | 0.0 | 0.3− |
| 2002 11 23 | 644 | 0.2+ | 0.3+ | 2005 08 27 | 699 | 0.3− | 0.2− | 2007 03 20 | G96 | 0.2+ | 0.2+ |
| 2002 11 23 | 644 | 0.0 | 0.5+ | 2005 08 27 | 699 | 1.2− | 0.5+ | 2007 03 20 | G96 | 0.3+ | 0.0 |
| 2002 11 23 | 644 | 0.6+ | 0.4+ | 2005 08 27 | 699 | 0.4− | 0.8+ | 2007 03 20 | G96 | 0.2+ | 0.0 |
| 2002 12 01 | 704 | 0.3+ | 0.0 | 2005 09 03 | 703 | 0.5+ | 0.8− | 2007 03 20 | G96 | 0.2+ | 0.2+ |
| 2002 12 01 | 704 | 0.5+ | 0.3− | 2005 09 03 | 703 | 0.3+ | 0.6− | 2008 07 01 | 704 | 0.3+ | 0.5+ |
| 2002 12 01 | 704 | 0.0 | 0.8+ | 2005 09 03 | 703 | 0.2− | 0.2+ | 2008 07 01 | 704 | 0.1+ | 1.1+ |
| 2002 12 01 | 704 | 1.4− | 0.8+ | 2005 09 03 | 703 | 0.4− | 0.0 | 2008 07 01 | 704 | 0.4+ | 0.2+ |
| 2002 12 01 | 704 | 0.3− | 0.7+ | 2005 09 13 | 703 | 0.1− | 0.4+ | 2008 07 01 | 704 | 0.2+ | 0.1+ |
| 2004 01 27 | 691 | 0.1− | 0.2+ | 2005 09 13 | 703 | 0.5+ | 0.5+ | 2009 12 13 | F84 | 0.0 | 0.4+ |
| 2004 01 27 | 691 | 0.0 | 0.5+ | 2005 09 13 | 703 | 0.0 | 0.2+ | 2009 12 13 | F84 | 0.4+ | 0.8+ |
| 2004 01 27 | 691 | 0.2− | 0.5+ | 2005 09 13 | 703 | 0.0 | 0.2+ | 2009 12 13 | F84 | 0.5+ | 0.8+ |
| 2004 01 27 | 691 | 0.9+ | 0.2+ | 2005 10 03 | 703 | 0.3− | 0.1+ | 2009 12 18 | 691 | 0.2+ | 0.0 |
| 2004 01 27 | 691 | 0.3− | 0.4+ | 2005 10 03 | 703 | (1.9− | 2.9+) | 2009 12 18 | G96 | 0.2+ | 0.2− |
| 2004 01 27 | 691 | 0.1− | 0.3+ | 2005 10 03 | 703 | 1.3+ | 0.6+ | 2009 12 18 | 691 | 0.3− | 0.2− |
| 2004 01 30 | 691 | 0.1− | 0.0 | 2005 10 03 | 703 | 0.3+ | 0.1+ | 2009 12 18 | G96 | 0.3+ | 0.3− |
| 2004 01 30 | 691 | 0.0 | 0.3+ | 2005 10 07 | 699 | 0.7− | 0.0 | 2009 12 18 | G96 | 0.6+ | 0.1− |
| 2004 01 30 | 691 | 0.2+ | 0.3+ | 2005 10 07 | 699 | 0.8− | 0.2+ | 2009 12 18 | 691 | 0.4− | 0.1+ |
| 2005 08 01 | E12 | 0.0 | 0.1− | 2005 10 07 | 699 | 0.1− | 0.7+ | 2009 12 18 | G96 | 0.2+ | 0.2− |
| 2005 08 01 | E12 | 0.9+ | 0.1− | 2005 10 07 | 699 | 0.1− | 0.2+ | | | | |

**(229430)∗ 2005 TP$_{99}$**

Discovered 2005 Oct. 7 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 48.59458 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26635101 | $\omega$ | 53.09479 | | +0.97109207 | −0.23809042 | |
| $a$ | 2.3923964 | $\Omega$ | 320.67088 | | +0.20951615 | +0.88452071 | |
| $e$ | 0.1942336 | $i$ | 1.54807 | | +0.11438174 | +0.40116838 | |
| $P$ | 3.70 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 12 03 | 568 | 0.0 | 0.1+ | 2005 10 02 | 704 | (1.8− | 0.1−) | 2009 11 12 | J75 | 0.1+ | 0.1− |
| 2002 12 03 | 568 | 0.1+ | 0.1+ | 2005 10 02 | 704 | 0.2− | 0.7− | 2009 11 12 | J75 | 0.3+ | 0.1− |
| 2005 09 08 | 704 | (0.1− | 1.8+) | 2005 10 02 | 704 | 0.6− | 0.5+ | 2009 11 17 | 691 | 0.2− | 0.1− |
| 2005 09 08 | 704 | 0.9− | 0.1+ | 2005 10 07 | 704 | 0.3− | 0.2− | 2009 11 17 | 691 | 0.3− | 0.5− |
| 2005 09 08 | 704 | 0.3− | 0.9+ | 2005 10 07 | 704 | 0.4− | 0.7− | 2009 11 17 | 691 | 0.3− | 0.2− |
| 2005 09 08 | 704 | 0.5+ | 0.2+ | 2005 10 07 | 704 | 0.4+ | 0.1− | 2009 11 20 | B74 | (0.0 | 1.9+) |
| 2005 09 09 | 704 | 0.3− | 0.2− | 2005 10 10 | 704 | 0.1+ | 0.2+ | 2009 11 20 | B74 | 0.2− | 0.9+ |
| 2005 09 09 | 704 | 0.2+ | 0.2+ | 2005 10 10 | 704 | 0.1+ | 1.2+ | 2009 11 20 | B74 | 0.2− | 0.7+ |
| 2005 09 09 | 704 | 0.2− | 0.9+ | 2005 10 10 | 704 | 0.5+ | 0.0 | 2009 11 21 | 291 | 0.1+ | 0.2+ |
| 2005 09 14 | 691 | 0.2+ | 0.1+ | 2007 02 25 | 691 | 0.5+ | 0.9+ | 2009 11 21 | 291 | 0.0 | 0.1+ |
| 2005 09 14 | 691 | 0.2+ | 0.0 | 2007 02 25 | 691 | 0.2− | 0.2− | 2009 11 21 | 291 | 0.1− | 0.1+ |
| 2005 09 14 | 691 | 0.1+ | 0.0 | 2007 02 25 | 691 | 0.2+ | 0.3+ | 2009 11 23 | 900 | 0.4+ | 0.2− |
| 2005 09 22 | 644 | 0.1− | 0.2+ | 2007 03 09 | G96 | 0.6− | 0.7− | 2009 11 23 | 900 | 0.4+ | 1.0− |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 22 | 644 | 0.1− | 0.0 | 2007 03 09 | G96 | 0.2+ | 0.6+ | 2009 11 25 | J75 | 1.1+ | 0.3+ |
| 2005 09 22 | 644 | 0.2− | 0.3+ | 2007 03 09 | G96 | 0.4− | 0.2+ | 2009 11 25 | J75 | 0.1+ | 0.3− |
| 2005 09 23 | 703 | 0.1− | 0.5− | 2007 03 09 | G96 | 0.1+ | 0.5− | 2009 11 25 | J75 | 0.5+ | 0.1+ |
| 2005 09 23 | 703 | 0.4+ | 0.3+ | 2007 03 20 | G96 | 0.0 | 0.2− | 2009 12 15 | G96 | 0.3+ | 0.4− |
| 2005 09 23 | 703 | 0.7− | 0.8− | 2007 03 20 | G96 | 0.0 | 0.3+ | 2009 12 15 | G96 | 0.3− | 0.3− |
| 2005 09 23 | 703 | 0.8− | 0.4− | 2007 03 20 | G96 | 0.1− | 0.2+ | 2009 12 15 | G96 | 0.2− | 0.4− |
| 2005 09 23 | 699 | 0.1− | 0.7+ | 2007 03 20 | G96 | 0.0 | 0.1− | 2009 12 15 | G96 | 0.1− | 0.2− |
| 2005 09 23 | 699 | 0.2− | 0.1+ | 2007 03 26 | G96 | 0.1− | 0.0 | 2009 12 16 | G96 | 0.4+ | 0.4− |
| 2005 09 23 | 699 | (1.7+ | 1.0+) | 2007 03 26 | G96 | 0.8+ | 0.1− | 2009 12 16 | G96 | 0.3+ | 0.3− |
| 2005 09 23 | 699 | 0.2− | 1.2+ | 2007 03 26 | G96 | 0.4− | 0.0 | 2009 12 16 | G96 | 0.2+ | 0.3− |
| 2005 09 24 | A50 | 0.3− | 0.3+ | 2007 03 26 | G96 | 0.1+ | 0.3+ | 2009 12 16 | G96 | 0.2+ | 0.3− |
| 2005 09 24 | A50 | 0.2− | 0.2+ | 2009 11 12 | J75 | 0.4+ | 0.0 | | | | |

**(229431)∗ 2005 TY$_{105}$**

Discovered 2005 Oct. 9 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 329.29928 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.27806626 | $\omega$ | 349.72076 | | −0.47076010 | | −0.88049742 |
| $a$ | 2.3247193 | $\Omega$ | 128.33989 | | +0.81442140 | | −0.45799687 |
| $e$ | 0.0610892 | $i$ | 4.07669 | | +0.33926791 | | −0.12232398 |
| $P$ | 3.54 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 09 | 705 | 0.3+ | 0.1+ | 2007 01 27 | G96 | 0.1− | 0.5− | 2008 06 13 | 691 | 0.2− | 0.0 |
| 2005 09 09 | 705 | 0.3+ | 0.0 | 2007 02 07 | 691 | 0.3− | 0.2+ | 2008 06 13 | 691 | 0.1+ | 0.6+ |
| 2005 09 23 | 691 | 0.2+ | 0.3+ | 2007 02 07 | 691 | 0.2− | 0.2+ | 2008 06 13 | 691 | 0.4− | 1.5+ |
| 2005 09 23 | 691 | 0.0 | 0.5+ | 2007 02 07 | 691 | 0.1− | 0.1+ | 2009 11 16 | G96 | 0.8+ | 0.3− |
| 2005 09 23 | 691 | 0.0 | 0.1+ | 2007 02 17 | 691 | 0.0 | 0.0 | 2009 11 16 | G96 | 0.1+ | 0.2− |
| 2005 10 01 | 704 | 0.5− | 0.6− | 2007 02 17 | 691 | 0.0 | 0.1+ | 2009 11 16 | G96 | 0.4+ | 0.3− |
| 2005 10 01 | 704 | (1.6− | 0.7−) | 2007 02 17 | 691 | 0.4− | 0.0 | 2009 11 16 | G96 | 0.3+ | 0.3− |
| 2005 10 01 | 704 | 1.1− | 0.4+ | 2007 02 21 | 704 | 0.8+ | 1.4+ | 2009 11 18 | 691 | 0.3− | 0.1− |
| 2005 10 01 | 704 | 0.9− | 0.2− | 2007 02 21 | 691 | 0.2+ | 0.1+ | 2009 11 18 | 691 | 0.1− | 0.0 |
| 2005 10 09 | 691 | 0.2− | 0.2+ | 2007 02 21 | 704 | 0.8+ | 0.6+ | 2009 11 18 | 691 | 0.0 | 0.1− |
| 2005 10 09 | 691 | 0.0 | 0.4+ | 2007 02 21 | 691 | 0.1+ | 0.3+ | 2009 11 22 | 691 | 0.5+ | 0.2+ |
| 2005 10 09 | 691 | 0.1+ | 0.4+ | 2007 02 21 | 704 | 0.8+ | 0.3− | 2009 11 22 | 691 | 0.0 | 0.2+ |
| 2005 10 09 | 703 | 0.5− | 1.3+ | 2007 02 21 | 704 | (1.7+ | 1.1+) | 2009 11 22 | 691 | 0.2− | 0.0 |
| 2005 10 09 | 703 | (3.5+ | 0.7+) | 2007 02 21 | 691 | 0.1− | 0.1+ | 2009 11 26 | 691 | 0.1+ | 0.0 |
| 2005 10 09 | 703 | (3.7− | 0.3−) | 2007 02 25 | 691 | 0.1+ | 0.2+ | 2009 11 26 | 691 | 0.1+ | 0.0 |
| 2005 10 09 | 703 | (0.1− | 1.8+) | 2007 02 25 | 691 | 0.8+ | 0.1+ | 2009 11 26 | 691 | 0.1+ | 0.2− |
| 2005 10 10 | 703 | 0.1+ | 0.2− | 2007 02 25 | 691 | 0.1+ | 0.3+ | 2009 12 11 | 703 | 0.7− | 0.1+ |
| 2005 10 10 | 703 | 0.8− | 0.7+ | 2007 03 08 | 644 | 0.5+ | 0.2+ | 2009 12 11 | 703 | 0.8+ | 1.2− |
| 2005 10 10 | 703 | 0.6− | 0.4+ | 2007 03 08 | 644 | 0.0 | 0.5+ | 2009 12 11 | 703 | 0.7− | 1.1− |
| 2005 10 10 | 703 | 0.1+ | 0.4− | 2007 03 08 | 644 | 0.4+ | 0.2+ | 2009 12 11 | 703 | 1.7− | 0.7+ |
| 2006 11 24 | G96 | 0.2+ | 0.4− | 2007 03 09 | 703 | (2.6+ | 3.8−) | 2009 12 12 | 704 | 0.7− | 0.1+ |
| 2006 11 24 | G96 | 0.2− | 0.3− | 2007 03 09 | 703 | 0.5+ | 0.6+ | 2009 12 12 | 704 | 0.7− | 0.6+ |
| 2006 11 24 | G96 | 0.6− | 0.1− | 2007 03 09 | 703 | 1.0+ | 1.1+ | 2009 12 12 | 704 | 0.0 | 1.9+ |
| 2006 11 24 | G96 | 0.2− | 0.4− | 2007 03 09 | 703 | (1.5+ | 0.8+) | 2009 12 17 | 704 | 0.2+ | 1.0+ |
| 2007 01 27 | G96 | 0.1+ | 0.2− | 2007 03 16 | 704 | 0.2− | 0.2+ | 2009 12 17 | 704 | 0.4− | 0.6+ |
| 2007 01 27 | G96 | 0.5+ | 0.1− | 2007 03 16 | 704 | 0.6− | 0.0 | 2009 12 17 | 704 | 0.7+ | 0.5+ |
| 2007 01 27 | G96 | 0.1− | 0.2− | 2007 03 16 | 704 | 0.3− | 1.5+ | | | | |

**(229432)∗ 2005 TQ$_{106}$ = 2007 EP$_{111}$**

Discovered 2005 Oct. 4 by the Mt. Lemmon Survey at Mount Lemmon.

Id. A. Doppler (*MPO* 119203)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 302.95525 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.27156608 | $\omega$ | 83.76913 | | −0.92208322 | | −0.38486281 |
| $a$ | 2.3616690 | $\Omega$ | 73.58987 | | +0.33625027 | | −0.84862580 |
| $e$ | 0.1208925 | $i$ | 2.42188 | | +0.19156797 | | −0.36292544 |
| $P$ | 3.63 | $H$ | 17.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 01 30 | 644 | 0.0 | 0.0 | 2005 10 28 | G96 | 0.1+ | 0.3− | 2007 05 12 | G96 | 0.1− | 0.2− |
| 2003 01 30 | 644 | 0.2+ | 0.3+ | 2007 03 11 | 691 | 0.0 | 0.1− | 2007 05 12 | G96 | 0.5− | 0.2+ |
| 2003 01 30 | 644 | 0.1− | 0.1+ | 2007 03 11 | 691 | 0.4+ | 0.1+ | 2009 11 17 | 691 | 0.2− | 0.2− |
| 2005 10 04 | G96 | 0.1− | 0.0 | 2007 03 11 | 691 | 0.1+ | 0.0 | 2009 11 17 | 691 | 0.6− | 0.1− |
| 2005 10 04 | G96 | 0.1+ | 0.0 | 2007 03 15 | 691 | 0.1− | 0.1− | 2009 11 17 | 691 | 0.4+ | 0.8+ |
| 2005 10 04 | G96 | 0.4+ | 0.1− | 2007 03 15 | 691 | 0.1− | 0.4+ | 2009 12 10 | G96 | 0.2+ | 0.7− |
| 2005 10 04 | G96 | 0.0 | 0.2− | 2007 03 15 | 691 | 0.0 | 0.2+ | 2009 12 10 | G96 | 0.2+ | 0.3− |
| 2005 10 11 | 691 | 0.5− | 0.7+ | 2007 04 25 | G96 | 0.1− | 0.0 | 2009 12 10 | G96 | 0.2+ | 0.4− |
| 2005 10 11 | 691 | 0.1+ | 0.2+ | 2007 04 25 | G96 | 0.1− | 0.6− | 2009 12 10 | G96 | 0.3− | 0.5− |
| 2005 10 11 | 691 | 0.0 | 0.2+ | 2007 04 25 | G96 | 0.1+ | 0.4+ | 2009 12 19 | G96 | 0.2+ | 0.1− |
| 2005 10 28 | G96 | 0.2− | 0.2− | 2007 04 25 | G96 | 0.1+ | 0.3+ | 2009 12 19 | G96 | 0.6+ | 0.5− |
| 2005 10 28 | G96 | 0.2− | 0.1− | 2007 05 12 | G96 | 0.1− | 0.3+ | 2009 12 19 | G96 | 0.3+ | 0.5− |
| 2005 10 28 | G96 | 0.2+ | 0.1− | 2007 05 12 | G96 | 0.0 | 0.0 | 2009 12 19 | G96 | 0.4+ | 0.4− |

**(229433)∗ 2005 TJ$_{138}$**

Discovered 2005 Oct. 7 by the Catalina Sky Survey.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 124.86643 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.28566206 | $\omega$ | 244.01759 | | +0.86074308 | | +0.50634057 |
| $a$ | 2.2833247 | $\Omega$ | 85.52198 | | −0.44624594 | | +0.80004478 |
| $e$ | 0.1398792 | $i$ | 3.01003 | | −0.24492021 | | +0.32178809 |
| $P$ | 3.45 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1960 09 24 | 675 | 0.2+ | 0.1− | 2005 10 07 | 699 | 0.1+ | 0.6− | 2005 10 28 | 703 | 1.1− | 0.7− |
| 1960 09 24 | 675 | 0.8− | 0.0 | 2005 10 07 | 703 | 0.3− | 0.5+ | 2005 10 28 | 703 | 0.7+ | 1.1+ |
| 1960 09 26 | 675 | 0.1+ | 0.3− | 2005 10 07 | 703 | 0.6− | 0.3+ | 2005 10 28 | 703 | 0.2+ | 0.8− |
| 1960 09 26 | 675 | 0.0 | 0.8+ | 2005 10 07 | 703 | 0.2− | 0.2+ | 2005 12 01 | G96 | 0.3+ | 0.0 |
| 1960 09 28 | 675 | 0.1+ | 0.2+ | 2005 10 07 | 699 | 0.4+ | 0.6+ | 2005 12 01 | G96 | 0.1+ | 0.0 |
| 1960 09 28 | 675 | 0.4− | 0.2− | 2005 10 07 | 699 | 0.0 | 1.0+ | 2005 12 01 | G96 | 0.0 | 0.0 |
| 1960 10 24 | 675 | 0.5+ | 0.0 | 2005 10 07 | 699 | 0.8− | 0.5+ | 2005 12 01 | G96 | 0.1− | 0.3− |
| 1960 10 24 | 675 | 0.4+ | 1.0− | 2005 10 12 | 691 | 0.1− | 0.2+ | 2007 02 08 | 691 | 0.1+ | 0.0 |
| 1998 09 25 | 645 | 0.1+ | 0.1− | 2005 10 12 | 691 | 0.0 | 0.2+ | 2007 02 08 | 691 | 0.2− | 0.3+ |
| 1998 09 25 | 645 | 0.1+ | 0.1− | 2005 10 12 | 691 | 0.0 | 0.3+ | 2007 02 08 | 691 | 0.7− | 0.1− |
| 2004 04 14 | 691 | 0.1+ | 0.3+ | 2005 10 21 | 644 | 0.1+ | 0.4+ | 2007 03 12 | G96 | 0.3+ | 0.3− |
| 2004 04 14 | 691 | 0.2+ | 0.1− | 2005 10 21 | 644 | 0.1− | 0.0 | 2007 03 12 | G96 | 0.1− | 0.1− |
| 2004 04 14 | 691 | 0.1+ | 0.2+ | 2005 10 21 | 644 | 0.2+ | 0.2+ | 2007 03 12 | G96 | 0.1− | 0.2− |
| 2005 08 30 | 644 | 0.6− | 0.3+ | 2005 10 22 | 703 | (0.5− | 2.2+) | 2007 03 12 | G96 | 0.1− | 0.2− |
| 2005 08 30 | 644 | 0.1− | 0.2+ | 2005 10 22 | 703 | 0.5+ | 0.9− | 2009 12 10 | G96 | 0.3− | 0.6− |
| 2005 08 30 | 644 | 0.2− | 0.2+ | 2005 10 22 | 703 | 0.8− | 0.9− | 2009 12 10 | G96 | 0.2+ | 0.0 |
| 2005 09 23 | 691 | 0.0 | 0.0 | 2005 10 22 | 703 | 1.0− | 0.7− | 2009 12 10 | G96 | 0.1− | 0.2− |
| 2005 09 23 | 691 | 0.0 | 0.0 | 2005 10 24 | 699 | (2.2+ | 0.6−) | 2009 12 10 | G96 | 0.3+ | 0.2− |
| 2005 09 23 | 691 | 0.0 | 0.1+ | 2005 10 24 | 699 | (1.7− | 0.1+) | 2009 12 17 | 691 | 0.1− | 0.2− |
| 2005 10 01 | 704 | (2.3+ | 0.4+) | 2005 10 24 | 699 | (1.9− | 0.5−) | 2009 12 17 | 691 | 0.0 | 0.3− |
| 2005 10 01 | 704 | (1.9+ | 0.2−) | 2005 10 24 | 699 | 1.2− | 1.0+ | 2009 12 17 | 691 | 0.0 | 0.1+ |
| 2005 10 01 | 704 | 1.4+ | 0.5+ | 2005 10 24 | A50 | 1.0− | 0.6+ | 2009 12 18 | G96 | 0.0 | 0.1− |
| 2005 10 01 | 704 | (2.3− | 2.1+) | 2005 10 24 | A50 | 0.6− | 1.2− | 2009 12 18 | G96 | 0.1− | 0.4− |
| 2005 10 01 | 703 | (0.3+ | 1.5+) | 2005 10 25 | 699 | 1.2+ | 0.1+ | 2009 12 18 | G96 | 0.0 | 0.0 |
| 2005 10 01 | 703 | 0.3− | 0.1+ | 2005 10 25 | 699 | 0.3+ | 1.4+ | 2009 12 18 | G96 | 0.2− | 0.0 |
| 2005 10 01 | 703 | (1.8+ | 1.4+) | 2005 10 25 | 699 | 0.9− | 0.3+ | 2009 12 25 | 691 | 0.3− | 0.2+ |
| 2005 10 01 | 703 | 0.7+ | 0.2− | 2005 10 25 | 699 | 0.2− | 0.1+ | 2009 12 25 | 691 | 0.8+ | 0.3+ |
| 2005 10 07 | 703 | (1.6− | 0.1+) | 2005 10 28 | 703 | 0.4+ | 0.7− | 2009 12 25 | 691 | 0.3+ | 0.1− |

**(229434)∗ 2005 TH$_{143}$**

Discovered 2005 Oct. 8 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 359.86872 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.26205593 | $\omega$ | 329.10625 | | +0.05361118 | | −0.99742762 |
| $a$ | 2.4184664 | $\Omega$ | 117.78286 | | +0.92679638 | | +0.03196389 |
| $e$ | 0.1975671 | $i$ | 3.08292 | | +0.37171805 | | +0.06415951 |
| $P$ | 3.76 | $H$ | 17.5 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 01 17 | 691 | 0.2+ | 0.6− | 2005 10 31 | 699 | 0.2− | 0.3+ | 2009 11 18 | 691 | 0.2+ | 0.1+ |
| 1999 01 17 | 691 | 0.4− | 0.3− | 2005 11 01 | 644 | 0.5+ | 0.2+ | 2009 11 19 | 691 | 0.3− | 0.1+ |
| 1999 01 17 | 691 | 0.2− | 0.4− | 2005 11 01 | 644 | 0.1+ | 0.2− | 2009 11 19 | 691 | 0.0 | 0.0 |
| 2005 09 23 | 691 | 0.0 | 0.1− | 2005 11 01 | 644 | 0.7+ | 0.1+ | 2009 11 19 | 691 | 0.1− | 0.0 |
| 2005 09 23 | 691 | 0.1+ | 0.1− | 2007 03 26 | G96 | 0.8+ | 0.8+ | 2009 11 23 | 691 | 0.3− | 0.0 |
| 2005 09 23 | 691 | 0.2+ | 0.3− | 2007 03 26 | G96 | 0.9− | 0.5+ | 2009 11 23 | 691 | 0.5− | 0.0 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 29 | 691 | 0.0 | 0.1− | 2007 03 26 | G96 | 0.4− | 0.4+ | 2009 11 23 | 691 | 0.3− | 0.0 | | |
| 2005 09 29 | 691 | 0.0 | 0.2− | 2007 03 26 | G96 | 0.1+ | 0.6+ | 2009 11 24 | J75 | 0.6+ | 0.1+ | | |
| 2005 09 29 | 691 | 0.1− | 0.2− | 2007 04 20 | G96 | 0.2+ | 0.1− | 2009 11 24 | J75 | 0.3+ | 0.0 | | |
| 2005 10 08 | 691 | 0.1− | 0.2+ | 2007 04 20 | G96 | 0.3+ | 0.3+ | 2009 11 24 | J75 | 0.6+ | 0.2− | | |
| 2005 10 08 | 691 | 0.1− | 0.3+ | 2007 04 20 | G96 | 0.4+ | 0.0 | 2009 11 27 | 691 | 0.0 | 0.1+ | | |
| 2005 10 08 | 691 | 0.0 | 0.2+ | 2007 04 20 | G96 | 0.6+ | 0.0 | 2009 11 27 | 691 | 0.2− | 0.0 | | |
| 2005 10 12 | 691 | 0.1− | 0.0 | 2009 09 30 | G96 | 0.8+ | 0.3− | 2009 11 27 | 691 | 0.1+ | 0.2+ | | |
| 2005 10 12 | 691 | 0.1+ | 0.2− | 2009 09 30 | G96 | 0.3+ | 0.1− | 2009 12 11 | G96 | 0.6+ | 0.2+ | | |
| 2005 10 12 | 691 | 0.1− | 0.1− | 2009 09 30 | G96 | 0.5+ | 0.3+ | 2009 12 11 | G96 | 0.7+ | 0.1+ | | |
| 2005 10 31 | 699 | (2.3+ | 0.4−) | 2009 09 30 | G96 | 0.5+ | 0.2− | 2009 12 11 | G96 | 0.8+ | 0.0 | | |
| 2005 10 31 | 699 | 0.3− | 0.1+ | 2009 11 18 | 691 | 0.1+ | 0.2+ | 2009 12 11 | G96 | 0.3+ | 0.1+ | | |
| 2005 10 31 | 699 | 0.3+ | 1.5− | 2009 11 18 | 691 | 0.1− | 0.8+ | | | | | | |

**(229435)∗ 2005 TO$_{161}$ = 2003 BD$_{24}$**

Discovered 2005 Oct. 9 by Spacewatch at Kitt Peak.

Id. A. Doppler (*MPO* 96048)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 272.65861 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.25984520 | $\omega$ | 301.50218 | | −0.96656811 | −0.22906003 | |
| $a$ | 2.4321643 | $\Omega$ | 225.54386 | | +0.25323444 | −0.92328257 | |
| $e$ | 0.1402211 | $i$ | 9.29006 | | −0.04022946 | −0.30835175 | |
| $P$ | 3.79 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 01 25 | 644 | (0.4− | 2.0−) | 2006 01 05 | G96 | (1.6− | 0.1−) | 2009 11 12 | 114 | 0.0 | 0.1− | | |
| 2003 01 25 | 644 | 0.6− | 0.0 | 2007 02 18 | 704 | 1.1+ | 0.5+ | 2009 11 12 | 114 | 0.1− | 0.4− | | |
| 2003 01 25 | 644 | 0.5− | 0.0 | 2007 02 18 | 704 | 0.3+ | 0.2− | 2009 11 12 | 114 | 0.4+ | 0.0 | | |
| 2003 01 28 | 704 | 1.0+ | 0.2− | 2007 02 18 | 704 | 0.7+ | 0.1− | 2009 11 12 | 114 | 0.1+ | 0.2− | | |
| 2003 01 28 | 704 | 0.2− | 0.6− | 2007 02 18 | 704 | 0.0 | 0.7+ | 2009 11 17 | G96 | 0.4+ | 0.1− | | |
| 2003 01 28 | 704 | 0.6− | 0.3− | 2007 03 14 | 703 | 0.7− | 0.3+ | 2009 11 17 | G96 | 0.3+ | 0.1+ | | |
| 2003 01 28 | 704 | 0.1+ | 0.2− | 2007 03 14 | 703 | 0.3− | 0.1− | 2009 11 17 | G96 | 0.2+ | 0.1− | | |
| 2005 10 09 | 691 | 0.2− | 0.4+ | 2007 03 14 | 703 | 1.0− | 0.1+ | 2009 11 17 | G96 | 0.1+ | 0.0 | | |
| 2005 10 09 | 691 | 0.3+ | 0.1+ | 2007 03 20 | 703 | 0.5− | 0.3+ | 2009 11 17 | G96 | 0.3− | 0.2− | | |
| 2005 10 09 | 691 | 0.7− | 0.1+ | 2007 03 20 | 703 | 0.4− | 0.9+ | 2009 11 17 | G96 | 0.3+ | 0.3− | | |
| 2005 10 13 | 691 | 0.1− | 0.2+ | 2007 03 20 | 703 | 0.3− | 0.6+ | 2009 11 17 | G96 | 0.1− | 0.0 | | |
| 2005 10 13 | 691 | 0.2+ | 0.2+ | 2007 03 20 | 703 | 0.3+ | 0.3− | 2009 11 17 | G96 | 0.1+ | 0.0 | | |
| 2005 10 13 | 691 | 0.0 | 0.6+ | 2007 03 27 | 704 | 1.4+ | 1.0+ | 2009 11 18 | 114 | 0.2− | 0.2+ | | |
| 2005 10 22 | 691 | 0.1+ | 0.1+ | 2007 03 27 | 704 | 1.3+ | 0.0 | 2009 11 18 | 114 | 0.1− | 0.1+ | | |
| 2005 10 22 | 691 | 0.2+ | 0.2+ | 2007 03 27 | 704 | 0.6+ | 0.3− | 2009 11 18 | 114 | 0.2− | 1.2− | | |
| 2005 10 22 | 691 | 0.2− | 0.0 | 2007 04 16 | 703 | 0.1+ | 0.5+ | 2009 11 18 | 114 | 0.1+ | 0.4− | | |
| 2005 10 22 | 703 | 0.1+ | 0.5+ | 2007 04 16 | 703 | 0.4− | 0.7+ | 2009 11 18 | 114 | 0.3+ | 0.3− | | |
| 2005 10 22 | 703 | (1.5− | 0.7+) | 2007 04 16 | 703 | 0.6− | 0.3+ | 2009 11 23 | J75 | 0.3+ | 0.1− | | |
| 2005 10 22 | 703 | 0.6− | 1.4− | 2007 04 16 | 703 | 0.4+ | 0.3+ | 2009 11 23 | J75 | 0.5− | 0.2+ | | |
| 2005 10 22 | 703 | (1.7− | 1.1−) | 2009 11 11 | 691 | 0.4− | 0.0 | 2009 11 23 | J75 | 0.5+ | 0.2− | | |
| 2005 10 30 | 691 | 0.0 | 0.1+ | 2009 11 11 | 691 | 0.8− | 0.0 | 2009 12 10 | 703 | 0.7+ | 0.3+ | | |
| 2005 10 30 | 691 | 0.1+ | 0.1− | 2009 11 11 | 691 | 0.1− | 0.1− | 2009 12 10 | 703 | 0.1+ | 0.5+ | | |
| 2005 10 30 | 691 | 0.5+ | 0.5+ | 2009 11 11 | 114 | 0.0 | 0.4− | 2009 12 10 | 703 | 1.5+ | 0.2− | | |
| 2006 01 05 | G96 | 1.2− | 0.2+ | 2009 11 11 | 114 | 0.1+ | 0.2− | 2009 12 10 | 703 | 0.9+ | 0.2− | | |
| 2006 01 05 | G96 | 0.3− | 0.0 | 2009 11 11 | 114 | 0.8+ | 0.3+ | | | | | | |
| 2006 01 05 | G96 | 0.4− | 0.8− | 2009 11 12 | 114 | 0.1− | 0.1+ | | | | | | |

**(229436)∗ 2005 TL$_{166}$**

Discovered 2005 Oct. 9 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 165.13497 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28179551 | $\omega$ | 327.88042 | | +0.41445219 | +0.91003047 | |
| $a$ | 2.3041637 | $\Omega$ | 326.60215 | | −0.83163583 | +0.37487864 | |
| $e$ | 0.0594056 | $i$ | 0.89494 | | −0.36960957 | +0.17694785 | |
| $P$ | 3.50 | $H$ | 17.6 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 29 | 691 | 0.1+ | 0.3+ | 2007 02 25 | 691 | 0.1+ | 0.1+ | 2008 08 10 | J75 | 0.3+ | 0.4− | | |
| 2005 09 29 | 691 | 0.0 | 0.2− | 2007 03 09 | G96 | 0.4− | 0.3− | 2008 08 10 | J75 | 0.1− | 0.1− | | |
| 2005 09 29 | 691 | 0.0 | 0.0 | 2007 03 09 | G96 | 0.1− | 0.2+ | 2008 09 06 | G96 | 0.2+ | 0.2− | | |
| 2005 10 09 | 691 | 0.1+ | 0.0 | 2007 03 09 | G96 | 0.3+ | 0.2+ | 2008 09 06 | G96 | 0.1+ | 0.6− | | |
| 2005 10 09 | 691 | 0.3− | 0.3− | 2007 03 09 | G96 | 0.0 | 0.1− | 2008 09 06 | G96 | 0.1+ | 0.3− | | |
| 2005 10 09 | 691 | 0.0 | 0.1+ | 2007 03 20 | G96 | 0.4+ | 0.0 | 2008 09 06 | G96 | 0.0 | 0.2− | | |
| 2005 10 13 | 691 | 0.2+ | 0.3+ | 2007 03 20 | G96 | 0.3+ | 0.1− | 2009 10 15 | G96 | 0.0 | 0.1+ | | |
| 2005 10 13 | 691 | 0.1− | 0.4+ | 2007 03 20 | G96 | 0.2− | 0.1+ | 2009 10 15 | G96 | 0.5− | 0.7− | | |
| 2005 10 13 | 691 | 0.4− | 0.3+ | 2007 03 20 | G96 | 0.1+ | 0.0 | 2009 10 15 | G96 | 0.3− | 0.2+ | | |
| 2005 10 27 | G96 | 0.4+ | 0.2− | 2007 04 07 | G96 | 0.2− | 0.2+ | 2009 10 15 | G96 | 0.3− | 0.3+ | | |
| 2005 10 27 | G96 | 0.5+ | 0.2− | 2007 04 07 | G96 | 0.4+ | 0.1+ | 2009 12 16 | G96 | 0.2+ | 0.4− | | |
| 2005 10 27 | G96 | 0.2+ | 0.4− | 2007 04 07 | G96 | 0.3− | 0.1+ | 2009 12 16 | G96 | 0.2+ | 0.2− | | |
| 2005 10 27 | G96 | 0.2+ | 0.2− | 2007 04 07 | G96 | 0.3+ | 0.1+ | 2009 12 16 | G96 | 0.1+ | 0.3− | | |
| 2007 02 21 | 691 | 0.2− | 0.1− | 2008 07 30 | G96 | 0.2− | 0.1+ | 2009 12 16 | G96 | 0.5+ | 0.7− | | |
| 2007 02 21 | 691 | 0.0 | 0.2+ | 2008 07 30 | G96 | 0.1− | 0.0 | 2009 12 16 | G96 | 1.0+ | 0.0 | | |
| 2007 02 21 | 691 | 0.2+ | 0.0 | 2008 07 30 | G96 | 0.1− | 0.1+ | 2009 12 26 | 691 | 0.3− | 0.0 | | |
| 2007 02 25 | 691 | 0.1− | 0.1+ | 2008 07 30 | G96 | 0.2− | 0.3+ | 2009 12 26 | 691 | 0.3+ | 0.2− | | |
| 2007 02 25 | 691 | 0.1− | 0.2− | 2008 08 10 | J75 | 0.4+ | 0.1− | 2009 12 26 | 691 | 0.5− | 0.1− | | |

**(229437)∗ 2005 TZ$_{170}$**

Discovered 2005 Oct. 8 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 54.90834 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26549909 | $\omega$ | 99.33066 | | +0.91598971 | −0.39640947 | |
| $a$ | 2.3975115 | $\Omega$ | 284.04320 | | +0.33853038 | +0.84637301 | |
| $e$ | 0.2348129 | $i$ | 3.65394 | | +0.21531381 | +0.35568561 | |
| $P$ | 3.71 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 12 22 | 691 | 0.2+ | 0.0 | 2005 10 23 | 703 | 0.2+ | 0.6− | 2005 11 12 | 691 | 0.1− | 0.4− | | |
| 1998 12 22 | 691 | 0.2+ | 0.2− | 2005 10 23 | 703 | 0.5+ | 0.2+ | 2005 11 12 | 691 | 0.0 | 0.2− | | |
| 1998 12 22 | 691 | 0.2+ | 0.2− | 2005 10 24 | 699 | 0.3+ | 0.3− | 2005 11 25 | 703 | 0.4+ | 0.4− | | |
| 1999 01 08 | 691 | 0.6− | 0.1− | 2005 10 24 | 699 | 0.1− | 0.1− | 2005 11 25 | 703 | 0.7− | 0.2+ | | |
| 1999 01 08 | 691 | 0.9− | 0.1− | 2005 10 24 | 699 | 0.4− | 0.0 | 2005 11 25 | 703 | 0.8+ | 0.1+ | | |
| 1999 01 08 | 691 | 0.7− | 0.3− | 2005 10 24 | 699 | 0.4+ | 0.1+ | 2005 11 25 | 703 | 0.1− | 0.8+ | | |
| 1999 01 18 | 691 | 0.3+ | 0.1+ | 2005 10 25 | 699 | 0.9+ | 0.2+ | 2005 12 02 | 704 | 0.7+ | 0.3− | | |
| 1999 01 18 | 691 | 0.5+ | 0.2+ | 2005 10 25 | 699 | 0.0 | 0.2− | 2005 12 02 | 704 | 1.2+ | 0.1+ | | |
| 1999 01 18 | 691 | 0.5+ | 0.2+ | 2005 10 25 | 699 | 0.1+ | 0.2− | 2005 12 02 | 704 | 0.1− | 1.2+ | | |
| 2001 08 14 | 608 | 0.1+ | 0.7− | 2005 10 25 | 699 | 0.3− | 0.3+ | 2005 12 02 | 704 | 0.2+ | 1.2+ | | |
| 2001 08 14 | 608 | 0.5+ | 0.9− | 2005 10 29 | 703 | 0.4+ | 0.4+ | 2005 12 02 | 703 | 0.3+ | 0.0 | | |
| 2001 08 14 | 608 | 0.1+ | 0.5− | 2005 10 29 | 703 | 0.3− | 0.0 | 2005 12 02 | 703 | 0.4+ | 0.6+ | | |
| 2001 08 24 | 699 | 0.4− | 1.3+ | 2005 10 29 | 703 | 0.0 | 0.7+ | 2005 12 02 | 703 | 0.6− | 0.7+ | | |
| 2001 08 24 | 699 | 0.6− | 0.5+ | 2005 10 29 | 703 | 0.2− | 0.2+ | 2005 12 02 | 703 | 0.0 | 0.6+ | | |
| 2001 08 24 | 699 | 0.2− | 0.5+ | 2005 10 30 | 644 | 0.0 | 0.1− | 2005 12 29 | 703 | 0.5− | 1.0− | | |
| 2001 08 24 | 699 | 1.0− | 0.4+ | 2005 10 30 | 644 | 0.0 | 0.1+ | 2005 12 29 | 703 | 0.4+ | 0.1− | | |
| 2001 09 08 | 704 | 0.4− | 0.5+ | 2005 10 30 | 704 | 0.5− | 0.4+ | 2005 12 29 | 704 | (1.5+ | 0.8+) | | |
| 2001 09 08 | 704 | 0.1− | 0.2− | 2005 10 30 | 644 | 0.1− | 0.2+ | 2005 12 29 | 703 | 0.9− | 0.1− | | |
| 2001 09 08 | 704 | 0.1+ | 0.6− | 2005 10 30 | 704 | 0.5− | 0.5+ | 2005 12 29 | 703 | (3.1+ | 0.3−) | | |
| 2001 09 08 | 704 | 0.5+ | 0.5+ | 2005 10 30 | 704 | 0.5− | 0.7+ | 2005 12 29 | 704 | 0.1− | 0.6+ | | |
| 2005 09 13 | 704 | 0.2+ | 0.9− | 2005 10 30 | 704 | 0.6− | 0.3+ | 2005 12 29 | 704 | 0.6− | 0.0 | | |
| 2005 09 13 | 704 | 0.7+ | 0.3+ | 2005 10 30 | 704 | 0.4− | 0.4+ | 2007 03 12 | 691 | 0.1− | 0.1+ | | |
| 2005 09 13 | 704 | 0.3+ | 0.6− | 2005 11 02 | 704 | 0.8+ | 0.2− | 2007 03 12 | 691 | 0.3+ | 0.1− | | |
| 2005 10 08 | 704 | 0.4− | 0.2− | 2005 11 02 | 704 | 1.1+ | 0.4− | 2007 03 12 | 691 | 0.3+ | 0.0 | | |
| 2005 10 08 | 704 | 0.1+ | 0.3− | 2005 11 02 | 704 | 0.9+ | 0.0 | 2009 11 11 | G96 | 0.1+ | 0.2− | | |
| 2005 10 08 | 704 | 0.3− | 0.5− | 2005 11 02 | 704 | 0.6+ | 0.2− | 2009 11 11 | G96 | 0.3+ | 0.5− | | |
| 2005 10 08 | 704 | 0.1− | 0.5− | 2005 11 02 | 704 | 0.5+ | 0.4− | 2009 11 11 | G96 | 0.2− | 0.0 | | |
| 2005 10 08 | 704 | 0.2− | 0.3− | 2005 11 06 | 704 | 0.5+ | 0.2− | 2009 11 11 | G96 | 0.3+ | 0.3− | | |
| 2005 10 13 | 704 | 0.5+ | 1.1+ | 2005 11 06 | 704 | 0.3+ | 0.2− | 2009 12 16 | 691 | 0.3+ | 0.1+ | | |
| 2005 10 13 | 704 | (0.6+ | 1.8+) | 2005 11 06 | 704 | 0.2+ | 0.1− | 2009 12 16 | 691 | 0.3+ | 0.2− | | |
| 2005 10 13 | 704 | 0.7− | 0.9+ | 2005 11 06 | 704 | 0.1− | 0.7− | 2009 12 16 | 691 | 0.6+ | 0.1− | | |
| 2005 10 13 | 704 | (0.7+ | 2.0+) | 2005 11 06 | 704 | 0.3+ | 0.1− | 2009 12 20 | 691 | 0.3+ | 0.2+ | | |
| 2005 10 13 | 704 | 0.9− | 0.5− | 2005 11 07 | 704 | 0.2+ | 0.0 | 2009 12 20 | 691 | 0.1+ | 0.2+ | | |
| 2005 10 14 | 699 | 1.0− | 1.0+ | 2005 11 07 | 704 | 0.2+ | 0.3+ | 2009 12 20 | 691 | 0.2+ | 0.2+ | | |
| 2005 10 14 | 699 | 1.3− | 0.3+ | 2005 11 07 | 704 | 0.3+ | 0.1− | 2009 12 25 | 691 | 1.0− | 0.0 | | |
| 2005 10 14 | 699 | 0.1− | 0.0 | 2005 11 07 | 704 | 0.3+ | 0.1− | 2009 12 25 | 691 | 0.1− | 0.1+ | | |
| 2005 10 23 | 703 | 0.3− | 0.9− | 2005 11 07 | 704 | 0.3+ | 0.1+ | 2009 12 25 | 691 | 1.2− | 0.0 | | |
| 2005 10 23 | 703 | 0.0 | 0.4+ | 2005 11 12 | 691 | 0.2− | 0.5− | | | | | | |

**(229438)∗ 2005 TQ$_{171}$ = 1996 BW$_7$**

Discovered 2005 Oct. 10 by the Catalina Sky Survey.

Id. G. V. Williams (*MPO* 89927)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 85.08618 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27914217 | $\omega$ | 72.78659 | | +0.98637621 | −0.13823565 | |
| $a$ | 2.3187419 | $\Omega$ | 295.08384 | | +0.08641535 | +0.89668946 | |
| $e$ | 0.1437384 | $i$ | 5.65080 | | +0.13997983 | +0.42052220 | |
| $P$ | 3.53 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1991 12 13 | 691 | 0.3+ | 0.0 | 2005 10 10 | 703 | 0.4− | 0.5− | 2005 11 07 | 704 | 0.4+ | 0.4+ |
| 1991 12 13 | 691 | 0.1+ | 0.0 | 2005 10 10 | 703 | 0.7− | 0.3− | 2005 11 07 | 704 | 0.4+ | 0.4+ |
| 1991 12 13 | 691 | 0.4− | 0.0 | 2005 10 10 | 703 | 0.1+ | 0.3− | 2005 11 19 | 699 | 0.5− | 0.1− |
| 1996 01 19 | 691 | 0.3− | 0.1− | 2005 10 10 | 699 | 0.4− | 0.2+ | 2005 11 19 | 699 | 0.7+ | 1.0+ |
| 1996 01 19 | 691 | 0.3− | 0.0 | 2005 10 10 | 699 | 0.3− | 0.0 | 2005 11 19 | 699 | 0.5− | 0.6+ |
| 1996 01 19 | 691 | 0.1− | 0.1+ | 2005 10 13 | 704 | 0.8− | 0.5+ | 2005 11 19 | 699 | 0.1− | 1.0+ |
| 1996 01 26 | 691 | 0.4+ | 0.1− | 2005 10 13 | 704 | 1.0− | 0.2− | 2005 11 25 | 703 | 0.0 | 0.1+ |
| 1996 01 26 | 691 | 0.1+ | 0.1− | 2005 10 13 | 704 | 0.3− | 0.3− | 2005 11 25 | 703 | 0.4+ | 0.6+ |
| 1996 01 26 | 691 | 0.2+ | 0.0 | 2005 10 13 | 704 | 0.6+ | 0.5+ | 2005 11 25 | 703 | 0.4+ | 0.1+ |
| 2003 01 11 | 291 | 0.1+ | 0.2+ | 2005 10 13 | 704 | 0.0 | 0.0 | 2005 11 25 | 703 | 0.2− | 0.2− |
| 2003 01 11 | 291 | 0.2+ | 0.1+ | 2005 10 26 | 699 | 0.2− | 0.9+ | 2005 12 02 | 703 | 0.4− | 0.6− |
| 2003 01 11 | 291 | 0.1+ | 0.1+ | 2005 10 26 | 699 | 0.1− | 0.4+ | 2005 12 02 | 703 | 0.6− | 0.7− |
| 2003 02 01 | 645 | 0.0 | 0.0 | 2005 10 26 | 699 | 1.2+ | 0.1− | 2005 12 02 | 703 | 0.2+ | 0.0 |
| 2003 02 01 | 645 | 0.0 | 0.0 | 2005 10 26 | 699 | 0.3− | 0.4+ | 2005 12 02 | 703 | 0.3+ | 1.1− |
| 2005 09 13 | 704 | 0.9+ | 0.5− | 2005 10 29 | 703 | 1.1+ | 0.4− | 2007 02 23 | A50 | 0.4+ | 0.0 |
| 2005 09 13 | 704 | 0.0 | 0.2+ | 2005 10 29 | 703 | 0.2− | 0.5− | 2007 02 23 | A50 | 0.5− | 0.3+ |
| 2005 09 13 | 704 | 1.0+ | 0.2− | 2005 10 29 | 703 | 0.9− | 0.5− | 2009 11 11 | G96 | 0.3− | 0.2− |
| 2005 09 13 | 704 | 0.1+ | 0.7+ | 2005 11 03 | 704 | 0.7− | 0.4+ | 2009 11 11 | G96 | 0.0 | 0.0 |
| 2005 09 30 | 703 | 0.1− | 0.1− | 2005 11 03 | 704 | 1.0− | 0.6− | 2009 11 11 | G96 | 0.3− | 0.0 |
| 2005 09 30 | 703 | 0.5+ | 0.2− | 2005 11 03 | 704 | 0.7− | 0.3− | 2009 12 15 | G96 | 0.0 | 0.3− |
| 2005 09 30 | 703 | 0.1+ | 0.5− | 2005 11 03 | 704 | 1.0− | 0.0 | 2009 12 15 | G96 | 0.4− | 0.2− |
| 2005 09 30 | 703 | 0.0 | 0.1+ | 2005 11 03 | 704 | 0.3− | 0.5− | 2009 12 15 | G96 | 0.3+ | 0.6− |
| 2005 10 10 | 699 | 1.1+ | 0.0 | 2005 11 07 | 704 | 1.2+ | 0.5+ | 2009 12 15 | G96 | 0.0 | 0.1− |
| 2005 10 10 | 703 | 0.7− | 0.6− | 2005 11 07 | 704 | 0.9+ | 0.5+ | | | | |
| 2005 10 10 | 699 | 0.3+ | 0.7− | 2005 11 07 | 704 | 0.7+ | 1.0+ | | | | |

**(229439)∗ 2005 TA$_{180}$**

Discovered 2005 Oct. 6 by the Mt. Lemmon Survey at Mount Lemmon.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 334.18168 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22953163 | $\omega$ | 14.15933 | | −0.27919736 | −0.92578358 | |
| $a$ | 2.6418471 | $\Omega$ | 92.53620 | | +0.85430719 | −0.36068579 | |
| $e$ | 0.0810180 | $i$ | 14.78242 | | +0.43841541 | +0.11327187 | |
| $P$ | 4.29 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 01 23 | 704 | 0.3− | 0.3+ | 2005 12 28 | 691 | 0.0 | 0.2+ | 2009 11 14 | 704 | 0.5+ | 0.7+ |
| 2002 01 23 | 704 | 0.5+ | 0.6+ | 2005 12 28 | 691 | 0.2− | 0.0 | 2009 11 14 | 704 | 0.4+ | 0.3+ |
| 2002 01 23 | 704 | 0.4+ | 0.2+ | 2005 12 29 | 704 | 0.1+ | 0.1+ | 2009 11 16 | J75 | 0.7− | 0.3+ |
| 2002 01 23 | 704 | 0.5− | 0.8+ | 2005 12 29 | 704 | 0.6+ | 0.8+ | 2009 11 16 | J75 | 0.1+ | 0.0 |
| 2002 01 23 | 704 | 0.3+ | 0.1− | 2005 12 29 | 704 | 0.1+ | 0.8+ | 2009 11 17 | J75 | 0.5− | 0.1+ |
| 2002 02 12 | 644 | 0.1− | 0.1+ | 2005 12 30 | 691 | 0.1+ | 0.2+ | 2009 11 19 | 704 | 0.1− | 0.5+ |
| 2002 02 12 | 644 | 0.2+ | 0.2+ | 2005 12 30 | 691 | 0.1+ | 0.1+ | 2009 11 19 | 704 | 0.1+ | 0.2− |
| 2002 02 12 | 644 | 0.1+ | 0.3+ | 2005 12 30 | 691 | 0.4− | 0.1− | 2009 11 19 | 704 | 0.3− | 0.1− |
| 2002 02 21 | 704 | 0.2− | 0.2+ | 2006 01 02 | G96 | 0.1− | 0.3− | 2009 11 19 | 704 | 0.2+ | 0.8+ |
| 2002 02 21 | 704 | 0.0 | 0.4+ | 2006 01 02 | G96 | 0.3− | 0.4− | 2009 11 19 | 704 | 0.1− | 0.3− |
| 2002 02 21 | 704 | 0.1+ | 0.1− | 2006 01 02 | G96 | 0.2− | 0.4− | 2009 11 23 | 703 | 0.8− | 0.3+ |
| 2002 02 21 | 704 | 0.4+ | 0.1+ | 2006 01 06 | 704 | 1.2+ | 0.2− | 2009 11 23 | 703 | 0.9+ | 0.0 |
| 2002 02 21 | 704 | 0.1− | 0.3+ | 2006 01 06 | 704 | 0.4+ | 0.7− | 2009 11 23 | 703 | 0.3+ | 0.6+ |
| 2005 10 06 | G96 | 0.2− | 0.2− | 2006 01 06 | 704 | 0.4+ | 0.4+ | 2009 11 23 | 703 | 1.0− | 0.6+ |
| 2005 10 06 | G96 | 0.4+ | 0.1− | 2006 01 06 | 704 | 0.8+ | 0.1− | 2009 11 23 | 703 | 0.7− | 0.2+ |
| 2005 10 06 | G96 | 0.1+ | 0.1− | 2006 01 06 | 704 | 0.9+ | 0.0 | 2009 11 26 | G96 | 0.4− | 0.1+ |
| 2005 10 06 | G96 | 0.2− | 0.3− | 2006 01 07 | 691 | 0.1+ | 0.3− | 2009 11 26 | G96 | 0.3− | 0.1− |
| 2005 10 07 | G96 | 0.4− | 0.3− | 2006 01 07 | 691 | 0.0 | 0.2− | 2009 11 26 | G96 | 0.0 | 0.0 |
| 2005 10 07 | G96 | 0.0 | 0.0 | 2006 01 07 | 691 | 0.2+ | 0.3− | 2009 11 26 | G96 | 0.1+ | 0.1− |
| 2005 10 07 | G96 | 0.0 | 0.0 | 2007 04 25 | G96 | 0.2− | 0.1+ | 2009 11 26 | G96 | 0.4− | 0.0 |
| 2005 10 07 | G96 | 0.0 | 0.1+ | 2007 04 25 | G96 | 0.1+ | 0.1− | 2009 12 10 | 703 | 0.2− | 0.6− |
| 2005 11 26 | G96 | 0.4+ | 0.1− | 2007 04 25 | G96 | 0.2− | 0.2− | 2009 12 10 | 703 | 0.3− | 1.2− |
| 2005 11 26 | G96 | 0.0 | 0.2− | 2007 04 25 | G96 | 0.2+ | 0.3− | 2009 12 10 | 703 | 0.4− | 0.1+ |
| 2005 11 26 | G96 | 0.5− | 0.3− | 2007 05 24 | G96 | 0.2− | 0.1− | 2009 12 10 | 703 | 0.2− | 0.3+ |
| 2005 11 26 | G96 | 0.5− | 0.0 | 2007 05 24 | G96 | 0.2− | 0.4− | 2009 12 12 | 704 | 0.0 | 0.3− |
| 2005 12 24 | 691 | 0.2− | 0.1− | 2007 05 24 | G96 | 0.3+ | 0.0 | 2009 12 12 | 704 | 1.0+ | 0.3− |
| 2005 12 24 | 691 | 0.2− | 0.1− | 2007 05 24 | G96 | 0.3− | 0.0 | 2009 12 12 | 704 | 0.5+ | 0.2+ |
| 2005 12 24 | 691 | 0.1− | 0.2− | 2009 11 14 | 704 | 0.4+ | 0.2+ | 2009 12 12 | 704 | 1.0+ | 2.1− |
| 2005 12 28 | 691 | 0.0 | 0.1+ | 2009 11 14 | 704 | 0.5+ | 1.1+ | | | | |

**(229440)∗ 2005 UE$_6$**

Discovered 2005 Oct. 27 at Altschwendt.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 3.24674 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22731440 | $\omega$ | 144.02695 | | +0.71519508 | −0.60415684 | |
| $a$ | 2.6589984 | $\Omega$ | 257.06074 | | +0.52685005 | +0.79639999 | |
| $e$ | 0.0369654 | $i$ | 21.13507 | | +0.45926574 | +0.02723178 | |
| $P$ | 4.34 | $H$ | 15.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 28 | 704 | 0.4+ | 0.6− | 2005 11 02 | 704 | 0.3− | 1.1− | 2006 01 05 | 704 | 0.1+ | 0.1+ |
| 2000 09 28 | 704 | 0.6− | 0.0 | 2005 11 02 | 704 | 1.0+ | 0.5− | 2006 01 05 | 704 | 0.2+ | 0.6+ |
| 2000 09 28 | 704 | 0.3+ | 0.2− | 2005 11 02 | 704 | 0.4+ | 0.2− | 2006 01 05 | 704 | 0.0 | 0.3− |
| 2000 09 28 | 704 | 0.1+ | 0.3− | 2005 11 25 | A44 | 0.6+ | 0.0 | 2006 01 05 | 704 | 0.5− | 0.3+ |
| 2001 11 17 | 704 | 0.2+ | 0.9+ | 2005 11 25 | A44 | 1.0+ | 0.4+ | 2006 01 05 | 704 | 0.7+ | 0.6− |
| 2001 11 17 | 704 | 0.8− | 0.7+ | 2005 11 25 | A44 | 1.5+ | 0.6+ | 2006 01 07 | G96 | 0.2− | 0.2− |
| 2001 11 17 | 704 | 1.2− | 1.2+ | 2005 11 28 | 704 | 0.5− | 1.2+ | 2006 01 07 | G96 | 0.5− | 0.2− |
| 2001 11 17 | 704 | 0.4− | 1.1+ | 2005 11 28 | 704 | (0.0 | 1.6+) | 2006 01 07 | G96 | 0.0 | 0.0 |
| 2001 11 17 | 704 | 0.8− | 0.5+ | 2005 11 28 | 704 | 0.1+ | 1.3+ | 2006 01 07 | G96 | 0.1− | 0.3− |
| 2001 12 11 | 704 | 0.4+ | 0.3− | 2005 11 28 | 704 | 0.2+ | 0.9+ | 2006 01 20 | 699 | 0.6− | 0.1+ |
| 2001 12 11 | 704 | 0.3+ | 0.4− | 2005 11 28 | 703 | (2.6+ | 1.1+) | 2006 01 20 | 699 | 0.1+ | 0.2− |
| 2001 12 11 | 704 | 0.6+ | 0.6− | 2005 11 28 | 703 | 0.3− | 0.2+ | 2006 01 20 | 699 | 0.0 | 0.3− |
| 2001 12 11 | 704 | 0.6+ | 0.5− | 2005 11 28 | 703 | 0.8− | 0.3+ | 2006 01 20 | 699 | 0.1− | 1.3+ |
| 2004 06 20 | 704 | 0.5+ | 0.6+ | 2005 11 28 | 703 | 0.1− | 0.3+ | 2006 01 22 | G96 | 0.1− | 0.6− |
| 2004 06 20 | 704 | 0.2+ | 0.1− | 2005 12 02 | 704 | 0.4+ | 0.3− | 2006 01 22 | G96 | 0.2− | 0.4− |
| 2004 06 20 | 704 | 1.1+ | 0.1− | 2005 12 02 | 704 | 0.2− | 0.0 | 2006 01 22 | G96 | 0.1+ | 0.3− |
| 2004 07 11 | 644 | 0.6− | 0.6+ | 2005 12 02 | 704 | 0.4+ | 0.1− | 2006 01 22 | G96 | 0.4− | 0.3− |
| 2004 07 11 | 644 | 0.6− | 0.3+ | 2005 12 02 | 704 | 0.2+ | 0.2− | 2006 01 22 | G96 | 0.1− | 0.4− |
| 2004 07 11 | 644 | 0.6− | 0.4+ | 2005 12 02 | 704 | 0.1− | 1.0− | 2006 01 22 | G96 | 0.2− | 0.3− |
| 2005 10 27 | A44 | 0.4+ | 0.2− | 2005 12 05 | 704 | 0.6+ | 0.4− | 2006 01 22 | G96 | 0.1+ | 0.4− |
| 2005 10 28 | A44 | 0.4+ | 1.2− | 2005 12 05 | 704 | 0.8+ | 0.2− | 2006 01 22 | G96 | 0.5− | 0.1− |
| 2005 10 28 | A44 | 0.3+ | 0.7− | 2005 12 05 | 704 | 0.4+ | 0.1+ | 2009 10 18 | 704 | 0.1+ | 0.6− |
| 2005 10 28 | A44 | 0.0 | 0.6− | 2005 12 05 | 704 | 0.0 | 0.6− | 2009 10 18 | 704 | 0.8+ | 0.4− |
| 2005 10 28 | A44 | 0.2+ | 0.8− | 2005 12 05 | 704 | 0.4+ | 0.4− | 2009 10 18 | 704 | 0.2− | 0.2+ |
| 2005 10 29 | A44 | 0.3− | 0.6− | 2005 12 28 | G96 | 0.0 | 0.2− | 2009 10 18 | 704 | 0.2+ | 0.1+ |
| 2005 10 29 | A44 | 0.0 | 0.4− | 2005 12 28 | G96 | 0.2− | 0.1− | 2009 10 18 | 704 | 0.8− | 0.5+ |
| 2005 10 30 | A44 | 0.1− | 0.8− | 2005 12 28 | G96 | 0.3− | 0.2− | 2009 10 18 | 703 | 0.5− | 0.4+ |
| 2005 10 30 | A44 | 0.2+ | 0.5− | 2005 12 28 | G96 | 0.1+ | 0.2− | 2009 10 18 | 703 | 0.0 | 0.1+ |
| 2005 10 30 | 704 | 0.1− | 0.8+ | 2005 12 31 | 704 | 0.0 | 0.9+ | 2009 10 18 | 703 | 0.3− | 0.2− |
| 2005 10 30 | 704 | 0.4− | 0.6+ | 2005 12 31 | 704 | 0.1− | 0.5− | 2009 10 18 | 703 | 0.6− | 0.0 |
| 2005 10 30 | 704 | 0.2+ | 0.6+ | 2005 12 31 | 704 | 1.4+ | 0.2− | 2009 12 11 | 703 | 0.2+ | 0.7+ |
| 2005 10 30 | 704 | 0.9− | 1.4+ | 2006 01 04 | 699 | (0.5+ | 1.6+) | 2009 12 11 | 703 | 1.0− | 0.8− |
| 2005 10 30 | 704 | 0.3− | 0.2+ | 2006 01 04 | 699 | 1.0− | 0.9+ | 2009 12 11 | 703 | 0.6− | 0.5+ |
| 2005 11 02 | 704 | 1.0− | 0.1+ | 2006 01 04 | 699 | 0.2− | 1.1+ | 2009 12 11 | 703 | 0.8+ | 0.3+ |
| 2005 11 02 | 704 | 0.1− | 0.2− | 2006 01 04 | 699 | 0.2+ | 0.5+ | | | | |

**(229441)∗ 2005 UJ$_8$ = 2004 KW$_{15}$**

Discovered 2005 Oct. 27 by C. Rinner at Ottmarsheim.

Id. G. V. Williams (*MPO* 89931)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 79.89268 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27004392 | $\omega$ | 284.33276 | | +0.99817290 | −0.01224549 | |
| $a$ | 2.3705354 | $\Omega$ | 76.39444 | | +0.03549394 | +0.91131448 | |
| $e$ | 0.2320985 | $i$ | 3.49014 | | −0.04889822 | +0.41152882 | |
| $P$ | 3.65 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 26 | 608 | 0.2− | 0.7− | 2005 10 30 | G96 | 0.2− | 0.3− | 2005 12 06 | 704 | 1.1+ | 0.1− |
| 2001 08 26 | 608 | 0.4− | 0.9− | 2005 10 31 | 704 | (0.5+ | 1.7+) | 2005 12 06 | 704 | 0.7+ | 0.2− |
| 2001 08 26 | 608 | 0.6− | 0.5− | 2005 10 31 | 704 | 0.3+ | 0.9+ | 2006 01 05 | G96 | 0.0 | 0.3− |
| 2004 03 26 | 291 | 0.3+ | 0.6+ | 2005 10 31 | 704 | 0.3+ | 0.3+ | 2006 01 05 | G96 | 0.0 | 0.2− |
| 2004 03 26 | 291 | 0.3+ | 0.3+ | 2005 10 31 | 704 | 0.7− | 0.1− | 2006 01 05 | G96 | 0.1− | 0.3− |
| 2004 03 26 | 291 | 0.2− | 0.5+ | 2005 10 31 | 704 | 0.0 | 0.6+ | 2006 01 05 | G96 | 0.0 | 0.4− |
| 2004 05 23 | 691 | 0.3+ | 0.3+ | 2005 11 03 | 704 | 0.5− | 0.5+ | 2006 01 21 | G96 | 0.3− | 0.5− |
| 2004 05 23 | 691 | 0.2+ | 0.1− | 2005 11 03 | 704 | 0.3− | 1.2+ | 2006 01 21 | G96 | 0.2− | 0.3− |
| 2004 05 23 | 691 | 0.2− | 0.3+ | 2005 11 03 | 704 | 0.5− | 1.0+ | 2006 01 21 | G96 | 0.3− | 0.4− |
| 2004 05 28 | 291 | 0.4+ | 0.7+ | 2005 11 03 | 704 | 0.6− | 0.3+ | 2006 01 21 | G96 | 0.0 | 0.7− |
| 2004 05 28 | 291 | 0.2+ | 0.6+ | 2005 11 03 | 704 | 0.3− | 0.3+ | 2006 01 23 | G96 | 0.8− | 0.2− |
| 2004 05 28 | 291 | 0.5+ | 0.7+ | 2005 11 06 | 704 | 1.4+ | 0.8+ | 2006 01 23 | G96 | 0.1− | 0.3− |
| 2005 10 25 | 691 | 0.1− | 0.2+ | 2005 11 06 | 704 | 1.2+ | 0.1+ | 2006 01 23 | G96 | 0.2+ | 0.6− |
| 2005 10 25 | 691 | 0.1− | 0.2+ | 2005 11 06 | 704 | 1.1+ | 0.2+ | 2006 01 23 | G96 | 0.5− | 1.0− |
| 2005 10 25 | 703 | (1.6− | 0.6−) | 2005 11 06 | 704 | 1.1+ | 0.1+ | 2007 03 12 | G96 | 0.2− | 0.3+ |
| 2005 10 25 | 703 | 0.3+ | 0.2+ | 2005 11 06 | 704 | 0.7+ | 0.0 | 2007 03 12 | G96 | 0.3+ | 0.2+ |
| 2005 10 25 | 691 | 0.2− | 0.1+ | 2005 11 29 | 699 | 0.0 | 0.3+ | 2007 03 12 | G96 | 1.3+ | 0.2− |
| 2005 10 25 | 703 | 0.4− | 0.3− | 2005 11 29 | 699 | 0.0 | 0.8+ | 2007 03 12 | G96 | 0.5− | 0.4− |
| 2005 10 25 | 703 | 0.5− | 0.6− | 2005 11 29 | 699 | 0.2+ | 0.2+ | 2007 03 15 | G96 | 0.2− | 0.3+ |
| 2005 10 27 | 224 | 0.1+ | 0.0 | 2005 11 29 | 699 | 0.7+ | 1.2+ | 2007 03 15 | G96 | 0.1+ | 0.1− |
| 2005 10 27 | 224 | 0.2− | 0.3− | 2005 11 30 | 644 | 0.3+ | 0.3+ | 2007 03 15 | G96 | 0.2− | 0.0 |
| 2005 10 27 | 224 | 0.3+ | 0.1+ | 2005 11 30 | 644 | 0.2− | 0.2+ | 2007 03 15 | G96 | 0.1+ | 0.0 |
| 2005 10 28 | 224 | (0.8+ | 1.8+) | 2005 11 30 | 644 | 0.3− | 0.4+ | 2007 03 19 | G96 | 0.1− | 0.2− |
| 2005 10 28 | 224 | 0.1− | 0.1+ | 2005 12 01 | 704 | 0.1− | 1.4+ | 2007 03 19 | G96 | 0.0 | 0.5− |
| 2005 10 28 | 224 | 0.2− | 0.2+ | 2005 12 01 | 704 | 0.4− | 0.9+ | 2007 03 19 | G96 | 0.3+ | 0.1− |
| 2005 10 28 | 704 | 0.8− | 0.2+ | 2005 12 01 | 704 | 0.6+ | 1.5+ | 2007 03 19 | G96 | 0.5− | 0.5− |
| 2005 10 28 | 704 | 1.0− | 0.2+ | 2005 12 01 | G96 | 0.2+ | 0.3− | 2009 09 27 | 691 | 0.4− | 0.2+ |
| 2005 10 28 | 704 | 0.5− | 0.3+ | 2005 12 01 | G96 | 0.0 | 0.3− | 2009 09 27 | 691 | 0.2− | 0.0 |
| 2005 10 28 | 704 | 0.2− | 0.5+ | 2005 12 01 | G96 | 0.0 | 0.3− | 2009 09 27 | 691 | 0.4− | 0.1− |
| 2005 10 28 | 704 | 0.0 | 1.1− | 2005 12 01 | G96 | 0.1+ | 0.3− | 2009 12 15 | G96 | 0.1+ | 0.6− |
| 2005 10 29 | 691 | 0.1+ | 0.4+ | 2005 12 04 | 704 | 0.1+ | 0.5− | 2009 12 15 | G96 | 0.1+ | 0.5− |
| 2005 10 29 | 691 | 0.1− | 0.3+ | 2005 12 04 | 704 | 0.1+ | 0.6+ | 2009 12 15 | G96 | 0.2− | 0.0 |
| 2005 10 29 | 691 | 0.1− | 0.4+ | 2005 12 04 | 704 | 0.2− | 0.2− | 2009 12 15 | G96 | 0.2− | 0.1+ |
| 2005 10 30 | G96 | 0.1− | 0.4− | 2005 12 04 | 704 | 0.1+ | 0.6+ | 2009 12 15 | G96 | 0.6− | 0.2− |
| 2005 10 30 | G96 | 0.1− | 0.3− | 2005 12 04 | 704 | 0.4− | 0.1+ | | | | |
| 2005 10 30 | G96 | 0.0 | 0.3− | 2005 12 06 | 704 | 0.7− | 1.3− | | | | |

**(229442)∗ 2005 UC$_{14}$**

Discovered 2005 Oct. 22 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 271.51661 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26362390 | $\omega$ | 77.92384 | | −0.98020123 | −0.19331895 | |
| $a$ | 2.4088672 | $\Omega$ | 90.91841 | | +0.16089888 | −0.90370083 | |
| $e$ | 0.1228722 | $i$ | 2.45432 | | +0.11539974 | −0.38203743 | |
| $P$ | 3.74 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1992 03 03 | 809 | 0.9− | 1.0+ | 2005 10 24 | 691 | 0.0 | 0.2+ | 2007 03 14 | 699 | 0.4+ | 0.9+ |
| 2001 09 21 | 704 | (0.9+ | 2.9−) | 2005 10 24 | 691 | 0.0 | 0.3− | 2007 03 15 | 703 | 1.1+ | 0.0 |
| 2001 09 21 | 704 | 0.8+ | 0.1+ | 2005 10 31 | 691 | 0.5− | 0.3+ | 2007 03 15 | 703 | 0.3− | 0.0 |
| 2001 09 21 | 704 | 0.9− | 1.2+ | 2005 10 31 | 691 | 0.4− | 0.3+ | 2007 03 15 | 703 | (1.8− | 0.7−) |
| 2003 01 29 | 645 | 0.0 | 0.1− | 2005 10 31 | 691 | 0.3− | 0.2+ | 2007 03 15 | 703 | (0.9+ | 2.7−) |
| 2003 01 29 | 645 | 0.0 | 0.1− | 2007 02 07 | 691 | 0.1− | 0.2+ | 2007 03 16 | 704 | 0.7+ | 0.8− |
| 2003 01 31 | 704 | 0.5− | 0.1+ | 2007 02 07 | 691 | 0.1+ | 0.4+ | 2007 03 16 | 704 | 1.0+ | 0.3+ |
| 2003 01 31 | 704 | 0.9− | 1.2+ | 2007 02 07 | 691 | 0.1+ | 0.5+ | 2007 03 16 | 704 | 0.0 | 0.5+ |
| 2003 01 31 | 704 | 0.3+ | 0.8+ | 2007 03 08 | 644 | 0.5+ | 0.3+ | 2007 03 16 | 704 | 0.6− | 0.4+ |
| 2003 01 31 | 704 | 1.1+ | 1.2+ | 2007 03 08 | 644 | 0.2+ | 0.3+ | 2007 03 16 | 704 | 1.0+ | 1.4+ |
| 2003 02 01 | 645 | 0.0 | 0.1− | 2007 03 08 | 644 | 0.0 | 0.5+ | 2009 10 22 | G96 | 0.1− | 0.1− |
| 2003 02 01 | 645 | 0.0 | 0.1− | 2007 03 09 | 644 | 0.3+ | 0.7+ | 2009 10 22 | G96 | 0.1− | 0.0 |
| 2003 02 01 | 704 | (1.8− | 0.2+) | 2007 03 09 | 703 | (1.1+ | 4.7−) | 2009 10 22 | G96 | 0.0 | 0.3− |
| 2003 02 01 | 704 | (2.7+ | 1.2−) | 2007 03 09 | 703 | (2.0− | 0.6−) | 2009 10 22 | G96 | 0.0 | 0.5− |
| 2003 02 01 | 704 | 0.5− | 0.8− | 2007 03 09 | 703 | (1.0− | 1.6−) | 2009 11 08 | 691 | 0.0 | 0.1+ |
| 2005 10 01 | 691 | 0.3+ | 0.0 | 2007 03 09 | 703 | 0.8− | 0.5+ | 2009 11 08 | 691 | 0.1+ | 0.3− |
| 2005 10 01 | 691 | 0.1+ | 0.2+ | 2007 03 09 | 644 | 0.1− | 0.1+ | 2009 11 08 | 691 | 0.7− | 0.1− |
| 2005 10 01 | 691 | 0.1+ | 0.1+ | 2007 03 09 | 644 | 0.2+ | 0.1+ | 2009 11 23 | G96 | 0.5+ | 0.4− |
| 2005 10 10 | 691 | 0.0 | 0.2+ | 2007 03 12 | G96 | 0.1− | 0.1− | 2009 11 23 | G96 | 0.2+ | 0.4− |
| 2005 10 10 | 691 | 0.0 | 0.2+ | 2007 03 12 | G96 | 0.2+ | 0.0 | 2009 11 23 | G96 | 0.1− | 0.4− |
| 2005 10 10 | 691 | 0.8− | 0.4− | 2007 03 12 | G96 | 0.2− | 0.1− | 2009 11 23 | G96 | 0.2+ | 0.0 |
| 2005 10 22 | 691 | 0.3+ | 0.1+ | 2007 03 12 | G96 | 0.3− | 0.2− | 2009 12 11 | G96 | 0.2− | 0.6− |
| 2005 10 22 | 691 | 0.2+ | 0.2+ | 2007 03 14 | 699 | (1.4+ | 1.9+) | 2009 12 11 | G96 | 0.2+ | 0.0 |
| 2005 10 22 | 691 | 0.2+ | 0.3+ | 2007 03 14 | 699 | 0.3+ | 0.8− | 2009 12 11 | G96 | 0.1− | 0.2− |
| 2005 10 24 | 691 | 0.2+ | 0.6+ | 2007 03 14 | 699 | 0.4− | 0.2+ | 2009 12 11 | G96 | 0.3− | 0.0 |

**(229443)∗ 2005 UA$_{51}$ = 1994 PL$_{36}$**

Discovered 2005 Oct. 23 by the Catalina Sky Survey.

Id. G. V. Williams (*MPO* 89948)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 66.95359 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27484804 | $\omega$ | 89.15153 | | +0.88837245 | −0.45785737 | |
| $a$ | 2.3428309 | $\Omega$ | 298.09677 | | +0.40438192 | +0.81543741 | |
| $e$ | 0.2416230 | $i$ | 2.21363 | | +0.21741585 | +0.35415880 | |
| $P$ | 3.59 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 08 10 | 809 | (3.5+ | 0.3+) | 2005 10 25 | 699 | 0.3− | 0.3− | 2005 11 07 | 704 | 0.5+ | 0.1− |
| 1994 08 10 | 809 | 0.6+ | 1.6− | 2005 10 29 | 691 | 0.0 | 0.3+ | 2005 11 25 | 703 | 0.3+ | 1.0− |
| 1994 08 10 | 809 | 1.5+ | 0.5− | 2005 10 29 | 691 | 0.0 | 0.2+ | 2005 11 25 | 703 | 0.6+ | 0.4+ |
| 1994 08 11 | 809 | 1.6+ | 0.9− | 2005 10 29 | 691 | 0.0 | 0.3+ | 2005 11 25 | 703 | 0.2− | 0.8− |
| 1994 08 11 | 809 | 1.0− | 0.7− | 2005 10 29 | 703 | 0.2− | 0.8− | 2005 11 25 | 703 | 0.5+ | 0.4− |
| 1994 08 11 | 809 | 0.2− | 1.5− | 2005 10 29 | 703 | 0.8− | 0.5− | 2005 12 29 | 704 | 0.3− | 0.5− |
| 1994 09 09 | 691 | 0.0 | 0.4+ | 2005 10 29 | 703 | 0.3− | 0.6− | 2005 12 29 | 704 | 0.5− | 0.6+ |
| 1994 09 09 | 691 | 0.1− | 0.5+ | 2005 10 29 | 703 | 0.7− | 0.4− | 2005 12 29 | 704 | 0.0 | 0.0 |
| 1994 09 09 | 691 | 0.3− | 0.0 | 2005 11 01 | 704 | 0.5− | 0.1− | 2005 12 29 | 704 | 0.6− | 1.2− |
| 1998 12 17 | 704 | 0.9+ | 0.5− | 2005 11 01 | 704 | 0.2+ | 0.1− | 2005 12 29 | 703 | (1.5− | 1.7−) |
| 1998 12 17 | 704 | 0.8− | 1.2− | 2005 11 01 | 704 | (0.5+ | 1.6−) | 2005 12 29 | 703 | 0.5− | 0.2+ |
| 1998 12 17 | 704 | 0.8+ | 0.5− | 2005 11 01 | 704 | 0.5+ | 0.3− | 2005 12 29 | 703 | 1.2− | 0.2− |
| 1998 12 17 | 704 | 1.8− | 1.1− | 2005 11 01 | 704 | 0.6+ | 0.7+ | 2005 12 29 | 703 | (2.2− | 0.4−) |
| 2003 01 25 | 291 | 0.2− | 0.1+ | 2005 11 04 | 704 | 0.0 | 0.1− | 2007 03 16 | 691 | 0.1− | 0.2+ |
| 2003 01 25 | 291 | 0.3+ | 0.0 | 2005 11 04 | 704 | 0.1− | 1.1+ | 2007 03 16 | 691 | 0.0 | 0.2− |
| 2003 01 25 | 291 | 0.6+ | 0.3+ | 2005 11 04 | 704 | 0.2− | 0.2+ | 2007 03 16 | 691 | 0.3− | 0.1+ |
| 2005 10 23 | 703 | 0.6− | 0.8− | 2005 11 04 | 704 | 0.5+ | 0.4− | 2007 04 20 | G96 | 0.0 | 0.1+ |
| 2005 10 23 | 703 | 0.5+ | 0.3− | 2005 11 04 | 704 | 0.0 | 0.1+ | 2007 04 20 | G96 | 0.2− | 0.0 |
| 2005 10 23 | 703 | 0.6+ | 0.6− | 2005 11 05 | 699 | 0.2− | 0.2+ | 2007 04 20 | G96 | 0.0 | 0.4+ |
| 2005 10 23 | 703 | 0.1+ | 0.8− | 2005 11 05 | 699 | 0.1− | 0.2+ | 2007 04 20 | G96 | 0.2− | 0.2+ |
| 2005 10 24 | 699 | 0.6+ | 0.1− | 2005 11 05 | 699 | 0.1− | 0.3+ | 2009 11 21 | G96 | 0.2− | 1.0− |
| 2005 10 24 | 699 | 0.5+ | 0.1− | 2005 11 05 | 699 | 0.1− | 0.3+ | 2009 11 21 | G96 | 0.3− | 0.5− |
| 2005 10 24 | 699 | 0.3+ | 0.1+ | 2005 11 06 | 691 | 0.1− | 0.3+ | 2009 11 21 | G96 | 0.1+ | 0.1+ |
| 2005 10 24 | 699 | 0.9− | 0.2− | 2005 11 06 | 691 | 0.2+ | 0.2+ | 2009 11 21 | G96 | 0.0 | 0.2+ |
| 2005 10 25 | 699 | 0.4− | 0.2+ | 2005 11 06 | 691 | 0.2+ | 0.3+ | 2009 12 17 | G96 | 0.0 | 0.3− |
| 2005 10 25 | 691 | 0.0 | 0.2+ | 2005 11 07 | 704 | 0.1+ | 0.7+ | 2009 12 17 | G96 | 0.1− | 0.3− |
| 2005 10 25 | 691 | 0.3− | 0.2+ | 2005 11 07 | 704 | 0.4+ | 0.5− | 2009 12 17 | G96 | 0.1+ | 0.2− |
| 2005 10 25 | 699 | 0.2− | 0.3+ | 2005 11 07 | 704 | 0.3+ | 0.4− | 2009 12 17 | G96 | 0.4+ | 0.4− |
| 2005 10 25 | 691 | 0.1− | 0.1+ | 2005 11 07 | 704 | 0.2+ | 0.0 | | | | |

**(229444)∗ 2005 UF$_{54}$**

Discovered 2005 Oct. 23 by the Catalina Sky Survey.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 39.30786 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23381950 | $\omega$ | 146.64381 | | +0.97828223 | +0.19784193 | |
| $a$ | 2.6094495 | $\Omega$ | 202.19399 | | −0.20711128 | +0.94493754 | |
| $e$ | 0.0962345 | $i$ | 9.42007 | | +0.00829376 | +0.26067531 | |
| $P$ | 4.22 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 11 17 | 704 | (3.7+ | 1.7−) | 2005 11 05 | 699 | 0.2+ | 0.8+ | 2009 09 23 | 691 | 0.4− | 0.1− |
| 2001 11 17 | 704 | (2.6+ | 0.6−) | 2005 11 05 | 699 | (0.2+ | 2.3+) | 2009 09 26 | 691 | 0.1− | 0.2− |
| 2001 11 17 | 704 | (3.3+ | 1.0−) | 2005 11 10 | 703 | 0.7+ | 1.0− | 2009 09 26 | 691 | 0.3− | 0.2− |
| 2001 11 17 | 704 | (2.9+ | 0.6−) | 2005 11 10 | 703 | 0.4− | 0.0 | 2009 09 26 | 691 | 0.1− | 0.1− |
| 2001 12 11 | 704 | 0.0 | 0.4− | 2005 11 10 | 703 | 0.1+ | 0.7− | 2009 10 09 | 703 | 0.3− | 0.4− |
| 2001 12 11 | 704 | 0.6− | 0.1− | 2005 11 10 | 703 | 0.4− | 0.4+ | 2009 10 09 | 703 | 1.0+ | 0.6− |
| 2001 12 11 | 704 | 0.5− | 0.6+ | 2005 11 25 | 703 | 0.0 | 0.3+ | 2009 10 09 | 703 | 0.7− | 0.4− |
| 2001 12 11 | 704 | 0.3− | 0.3+ | 2005 11 25 | 703 | 0.1+ | 0.3+ | 2009 10 09 | 703 | 0.6− | 0.0 |
| 2001 12 11 | 704 | 0.1+ | 0.0 | 2005 11 25 | 703 | 0.3+ | 0.3− | 2009 10 15 | 704 | 0.3− | 0.1+ |
| 2005 10 23 | 703 | 0.1− | 1.3− | 2005 11 25 | 703 | 0.1− | 1.3+ | 2009 10 15 | 704 | 1.1+ | 1.1+ |
| 2005 10 23 | 703 | 0.5+ | 0.5− | 2008 04 26 | 691 | 0.0 | 0.3+ | 2009 10 15 | 704 | 0.8+ | 0.4+ |
| 2005 10 23 | 703 | 0.9− | 0.4− | 2008 04 26 | 691 | 0.9− | 0.1− | 2009 10 15 | 704 | 1.1+ | 0.1+ |
| 2005 10 23 | 703 | 1.2− | 0.3− | 2008 04 26 | 691 | 0.4+ | 0.1+ | 2009 10 15 | 704 | 0.5+ | 1.2+ |
| 2005 10 25 | 691 | 0.0 | 0.3+ | 2008 04 30 | 691 | 0.4− | 0.3− | 2009 10 22 | 703 | (1.8+ | 0.5+) |
| 2005 10 25 | 691 | 0.0 | 0.3+ | 2008 04 30 | 691 | 0.2− | 0.2+ | 2009 10 22 | 703 | (1.8+ | 1.1−) |
| 2005 10 25 | 691 | 0.1− | 0.3+ | 2008 04 30 | 691 | 0.0 | 0.2+ | 2009 10 22 | 703 | 0.7+ | 0.5+ |
| 2005 10 28 | 704 | 0.7− | 0.9+ | 2008 05 14 | 691 | 0.1− | 0.3+ | 2009 10 22 | 703 | 0.6− | 0.7− |
| 2005 10 28 | 704 | 0.6+ | 0.9+ | 2008 05 14 | 691 | 0.1+ | 0.4+ | 2009 11 23 | G96 | 0.5+ | 0.1− |
| 2005 10 28 | 704 | 0.1+ | 0.4+ | 2008 05 14 | 691 | 0.1+ | 0.1− | 2009 11 23 | G96 | 0.6+ | 0.2− |
| 2005 10 28 | 704 | 0.7+ | 0.7+ | 2008 05 28 | 691 | 1.0+ | 0.1− | 2009 11 23 | G96 | 0.1+ | 0.2− |
| 2005 11 01 | G96 | 0.2+ | 0.2− | 2008 05 28 | 691 | 0.2+ | 0.0 | 2009 11 23 | G96 | 0.2+ | 0.3− |
| 2005 11 01 | G96 | 0.4+ | 0.1− | 2008 05 28 | 691 | 0.1+ | 0.0 | 2009 12 11 | G96 | 0.1− | 0.2− |
| 2005 11 01 | G96 | 0.2+ | 0.2− | 2009 09 18 | 691 | 0.1− | 0.1− | 2009 12 11 | G96 | 0.6+ | 0.1− |
| 2005 11 01 | G96 | 0.5+ | 0.1− | 2009 09 18 | 691 | 0.0 | 0.1− | 2009 12 11 | G96 | 0.3+ | 0.1− |
| 2005 11 03 | 704 | 0.4+ | 0.3+ | 2009 09 18 | 691 | 0.1− | 0.1+ | 2009 12 11 | G96 | 0.0 | 0.4− |
| 2005 11 03 | 704 | 0.1+ | 1.2+ | 2009 09 20 | 691 | 0.1− | 0.4− | 2009 12 13 | G96 | 0.2+ | 0.3− |
| 2005 11 03 | 704 | 0.1− | 0.2+ | 2009 09 20 | 691 | 0.1− | 0.3+ | 2009 12 13 | G96 | 0.7+ | 0.3− |
| 2005 11 03 | 704 | 0.1+ | 0.3+ | 2009 09 20 | 691 | 0.1+ | 0.4+ | 2009 12 13 | G96 | 0.1+ | 0.4− |
| 2005 11 05 | 699 | 0.2+ | 0.1− | 2009 09 23 | 691 | 0.2− | 0.1− | 2009 12 13 | G96 | 0.0 | 0.3− |
| 2005 11 05 | 699 | 0.2− | 0.1+ | 2009 09 23 | 691 | 0.0 | 0.1− | | | | |

**(229445)∗ 2005 UH$_{59}$**

Discovered 2005 Oct. 24 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 14.84860 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23681243 | $\omega$ | 196.12384 | | +0.87133361 | | −0.48913972 |
| $a$ | 2.5874168 | $\Omega$ | 193.36936 | | +0.46677214 | | +0.85074423 |
| $e$ | 0.2034624 | $i$ | 9.70724 | | +0.15133244 | | +0.19229298 |
| $P$ | 4.16 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 12 19 | 704 | 1.4+ | 0.0 | 2005 11 26 | 703 | 0.6− | 0.8− | 2009 09 27 | 683 | 0.9− | 0.5+ |
| 2001 12 19 | 704 | 0.0 | 0.1+ | 2005 11 26 | 703 | 0.6+ | 0.4− | 2009 09 27 | 683 | 0.6− | 0.1+ |
| 2001 12 19 | 704 | 0.2+ | 0.3+ | 2005 11 30 | 699 | 1.0+ | 0.1+ | 2009 09 27 | 683 | (2.8− | 1.0+) |
| 2005 10 24 | 644 | 0.0 | 0.1+ | 2005 11 30 | 699 | 0.5− | 0.4+ | 2009 09 27 | 691 | 0.1− | 0.1+ |
| 2005 10 24 | 644 | 0.1− | 0.1− | 2005 11 30 | 699 | 0.4+ | 0.2− | 2009 09 27 | 691 | 0.1− | 0.2+ |
| 2005 10 24 | 644 | 0.2+ | 0.1− | 2005 12 05 | 703 | 0.6− | 0.4− | 2009 09 27 | 691 | 0.2− | 0.1− |
| 2005 10 26 | 699 | 0.7− | 0.3+ | 2005 12 05 | 703 | 0.1+ | 0.8− | 2009 10 09 | J75 | 0.5+ | 0.6+ |
| 2005 10 26 | 691 | 0.0 | 0.1− | 2005 12 05 | 703 | 0.9− | 1.2− | 2009 10 09 | J75 | (0.2+ | 1.8−) |
| 2005 10 26 | 699 | 0.5− | 1.2− | 2005 12 05 | 703 | 1.2+ | 0.1− | 2009 10 09 | J75 | 0.3+ | 0.6− |
| 2005 10 26 | 691 | 0.0 | 0.1− | 2005 12 06 | 704 | 0.3− | 0.5− | 2009 10 09 | J75 | 0.2+ | 0.3+ |
| 2005 10 26 | 691 | 0.0 | 0.1− | 2005 12 06 | 704 | 0.7+ | 0.0 | 2009 10 09 | J75 | 0.1− | 0.3+ |
| 2005 10 26 | 699 | 1.2− | 0.9+ | 2005 12 06 | 704 | 0.7+ | 0.2− | 2009 10 09 | J75 | 0.1+ | 0.5+ |
| 2005 10 26 | 699 | 0.6− | 0.0 | 2005 12 06 | 704 | 0.9+ | 0.9− | 2009 10 11 | J75 | 0.1+ | 0.4+ |
| 2005 10 27 | 703 | 0.7− | 0.3− | 2007 02 23 | 691 | 0.1+ | 0.2+ | 2009 10 11 | J75 | 0.2+ | 0.5− |
| 2005 10 27 | 703 | 0.2+ | 0.1+ | 2007 02 23 | 691 | 0.3− | 0.3+ | 2009 10 11 | J75 | 0.2− | 0.4− |
| 2005 10 27 | 703 | 0.5+ | 0.1+ | 2007 02 23 | 691 | 0.2+ | 1.1+ | 2009 10 15 | G96 | 0.0 | 0.5− |
| 2005 10 27 | 703 | 0.4+ | 0.5− | 2007 03 13 | G96 | 0.5+ | 0.8+ | 2009 10 15 | G96 | 0.3+ | 0.2− |
| 2005 10 30 | 691 | 0.2+ | 0.7+ | 2007 03 13 | G96 | 0.3+ | 0.4+ | 2009 10 15 | G96 | 0.5+ | 0.3− |
| 2005 10 30 | 691 | 0.2− | 0.0 | 2007 03 13 | G96 | 0.7+ | 0.6+ | 2009 10 21 | 703 | 0.2− | 0.4− |
| 2005 10 30 | 691 | 0.0 | 0.0 | 2007 03 13 | G96 | 0.1− | 0.2+ | 2009 10 21 | 703 | 0.5+ | 0.1+ |
| 2005 11 03 | 703 | 0.5+ | 1.2− | 2007 04 20 | G96 | 0.1− | 0.9− | 2009 10 21 | 703 | 0.3+ | 0.3+ |
| 2005 11 03 | 703 | 0.5− | 0.8− | 2007 04 20 | G96 | 0.2+ | 0.1− | 2009 10 21 | 703 | 0.1− | 0.4+ |
| 2005 11 03 | 703 | 1.2− | 0.4+ | 2007 04 20 | G96 | 0.2+ | 0.5− | 2009 10 22 | 704 | 0.6− | 0.5+ |
| 2005 11 03 | 703 | 0.5− | 0.3− | 2007 04 20 | G96 | 0.6− | 0.1+ | 2009 10 22 | 704 | 0.6− | 0.4+ |
| 2005 11 05 | 704 | (1.1− | 2.1+) | 2008 05 30 | G96 | 0.0 | 0.4+ | 2009 10 22 | 704 | 0.9+ | 0.6− |
| 2005 11 05 | 704 | 0.2− | 0.6+ | 2008 05 30 | G96 | 0.3+ | 0.6+ | 2009 10 22 | 704 | 1.2− | 0.2+ |
| 2005 11 05 | 704 | (0.7− | 2.5−) | 2008 05 30 | G96 | 0.1+ | 0.6+ | 2009 10 22 | 704 | 0.1+ | 0.6+ |
| 2005 11 05 | 704 | 0.3− | 0.1+ | 2008 05 30 | G96 | 0.0 | 0.6+ | 2009 10 23 | G96 | 0.0 | 0.1− |
| 2005 11 09 | 703 | 0.2− | 0.7+ | 2009 09 14 | 704 | 0.7+ | 0.7+ | 2009 10 23 | G96 | 0.1− | 0.1− |
| 2005 11 09 | 703 | 0.5− | 0.7+ | 2009 09 14 | 704 | 0.4+ | 0.3+ | 2009 10 23 | G96 | 0.2− | 0.2− |
| 2005 11 09 | 703 | 0.5+ | 0.8+ | 2009 09 14 | 704 | 0.4+ | 1.0+ | 2009 10 23 | G96 | 0.2+ | 0.1− |
| 2005 11 09 | 703 | 0.3− | 1.0+ | 2009 09 14 | 704 | 0.6− | 0.5− | 2009 11 09 | 703 | 0.6+ | 0.5+ |
| 2005 11 20 | 644 | 0.2+ | 0.1+ | 2009 09 14 | 704 | 0.4− | 0.6+ | 2009 11 09 | 703 | 0.3− | 0.4+ |
| 2005 11 20 | 644 | 0.4+ | 0.2− | 2009 09 15 | 691 | 0.1− | 0.0 | 2009 11 09 | 703 | 0.9+ | 0.4+ |
| 2005 11 20 | 644 | 0.2− | 0.1+ | 2009 09 15 | 691 | 0.0 | 0.1− | 2009 11 09 | 703 | 0.5− | 0.1− |
| 2005 11 20 | 644 | 0.4+ | 0.0 | 2009 09 15 | 691 | 0.1− | 0.1+ | 2009 12 10 | 703 | 0.7− | 0.1+ |
| 2005 11 20 | 644 | 0.1− | 0.2+ | 2009 09 23 | 691 | 0.1− | 0.0 | 2009 12 10 | 703 | 0.0 | 0.3− |
| 2005 11 20 | 644 | 0.5+ | 0.5+ | 2009 09 23 | 691 | 0.1+ | 0.2+ | 2009 12 10 | 703 | 1.2+ | 0.2− |
| 2005 11 21 | 699 | 0.1+ | 0.1+ | 2009 09 23 | 691 | 0.2− | 0.2+ | 2009 12 10 | 703 | 1.3+ | 0.4− |
| 2005 11 21 | 699 | 0.3+ | 1.0+ | 2009 09 25 | 704 | 0.6− | 0.2− | 2009 12 13 | G96 | 0.1− | 0.1− |
| 2005 11 21 | 699 | 0.2− | 0.3+ | 2009 09 25 | 704 | 0.9+ | 0.4+ | 2009 12 13 | G96 | 0.1− | 0.2− |
| 2005 11 21 | 699 | 0.5− | 0.4− | 2009 09 25 | 704 | 0.7+ | 0.3+ | 2009 12 13 | G96 | 0.6− | 0.3− |
| 2005 11 26 | 703 | 0.2− | 0.3− | 2009 09 25 | 704 | 0.5+ | 0.5+ | 2009 12 13 | G96 | 0.0 | 0.2− |
| 2005 11 26 | 703 | 0.2− | 1.0− | 2009 09 25 | 704 | 0.3+ | 0.5− | | | | |

**(229446)∗ 2005 UZ$_{70}$ = 2003 BF$_{57}$**

Discovered 2005 Oct. 23 by the Catalina Sky Survey.

Id. G. V. Williams (*MPO* 89959)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 304.11876 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.27068282 | $\omega$ | 222.22312 | | −0.84688118 | | −0.52174956 |
| $a$ | 2.3668038 | $\Omega$ | 286.05250 | | +0.51201869 | | −0.74780764 |
| $e$ | 0.0476216 | $i$ | 6.14127 | | +0.14362847 | | −0.41056197 |
| $P$ | 3.64 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 16 | 704 | (0.3+ | 2.3+) | 2005 10 26 | 699 | (2.4+ | 0.5+) | 2005 12 02 | 703 | 0.8− | 0.7− |
| 2001 09 16 | 704 | 0.5− | 1.0+ | 2005 10 26 | 699 | 0.0 | 0.2+ | 2007 02 17 | 704 | 0.3− | 0.5− |
| 2001 09 16 | 704 | (0.1+ | 1.6+) | 2005 10 26 | 699 | 0.4+ | 0.3− | 2007 02 17 | 704 | 0.5− | 0.7− |
| 2001 09 16 | 704 | (1.0+ | 2.1+) | 2005 10 29 | 703 | 0.8− | 1.2+ | 2007 03 19 | 699 | 0.7+ | 0.2+ |
| 2001 10 15 | 645 | 0.0 | 0.0 | 2005 10 29 | 703 | 1.2− | 0.1+ | 2007 03 19 | 699 | 1.2+ | 0.3+ |
| 2001 10 15 | 645 | 0.0 | 0.0 | 2005 10 29 | 703 | 0.2+ | 1.0− | 2007 03 19 | 699 | 0.6− | 0.6+ |
| 2001 12 10 | 645 | 0.1− | 0.1+ | 2005 10 29 | 703 | 1.1− | 0.8− | 2007 03 19 | 699 | 0.4+ | 0.3+ |
| 2001 12 10 | 645 | 0.1− | 0.0 | 2005 10 30 | 704 | 0.9+ | 0.1+ | 2007 03 19 | D29 | 0.1− | 0.6+ |
| 2003 01 27 | 704 | 0.4+ | 1.0− | 2005 10 30 | 704 | 0.8+ | 0.0 | 2007 03 19 | D29 | 0.3− | 0.1+ |
| 2003 01 27 | 704 | 0.5+ | 0.3+ | 2005 10 30 | 704 | (1.5+ | 0.1+) | 2007 03 19 | D29 | 0.5+ | 0.1+ |
| 2003 01 27 | 704 | (2.3+ | 0.2−) | 2005 10 30 | 704 | 0.3+ | 0.2− | 2007 03 19 | D29 | 1.0+ | 0.3− |
| 2003 01 31 | 704 | 0.1− | 0.4− | 2005 10 30 | 704 | 0.2− | 0.8+ | 2007 03 20 | 703 | 0.4− | 0.7+ |
| 2003 01 31 | 704 | 0.1+ | 0.5+ | 2005 11 02 | 704 | 0.4+ | 0.1− | 2007 03 20 | 703 | 0.7− | 0.8+ |
| 2003 01 31 | 704 | 0.3− | 0.0 | 2005 11 02 | 704 | 0.6+ | 0.8+ | 2007 03 20 | 703 | (4.6− | 1.4−) |
| 2003 01 31 | 704 | 0.5+ | 0.3+ | 2005 11 02 | 704 | 0.1− | 0.3+ | 2007 03 20 | 703 | (0.6− | 2.7−) |
| 2003 01 31 | 704 | 0.7− | 0.0 | 2005 11 02 | 704 | 0.4+ | 0.3+ | 2008 07 28 | G96 | 0.0 | 0.5− |
| 2005 09 30 | 703 | 0.7− | 1.2− | 2005 11 02 | 704 | 0.2− | 0.6− | 2008 07 28 | G96 | 1.2+ | 0.6− |
| 2005 09 30 | 703 | 0.3− | 0.4− | 2005 11 07 | 704 | 0.3+ | 0.2− | 2008 07 28 | G96 | 0.3+ | 0.5− |
| 2005 09 30 | 703 | 0.3− | 0.7+ | 2005 11 07 | 704 | 0.2+ | 0.2− | 2008 07 28 | G96 | 0.2− | 0.0 |
| 2005 09 30 | 703 | 1.1+ | 0.5− | 2005 11 07 | 704 | 0.0 | 0.7− | 2009 11 10 | 691 | 0.5− | 0.2− |
| 2005 10 03 | 704 | 0.6+ | 0.9+ | 2005 11 07 | 704 | 0.7− | 0.5+ | 2009 11 10 | 691 | 0.8− | 0.3− |
| 2005 10 03 | 704 | 0.4− | 1.3+ | 2005 11 07 | 704 | 0.7+ | 0.0 | 2009 11 10 | 691 | 0.0 | 0.4− |
| 2005 10 03 | 704 | 0.4+ | 0.9+ | 2005 11 25 | 703 | 0.3− | 0.5+ | 2009 12 10 | 704 | 1.4+ | 0.6+ |
| 2005 10 03 | 704 | 0.2− | 1.1+ | 2005 11 25 | 703 | 0.0 | 0.8− | 2009 12 10 | 704 | 0.1+ | 0.3+ |
| 2005 10 23 | 703 | 0.7+ | 0.2+ | 2005 11 25 | 703 | 0.3− | 0.7+ | 2009 12 10 | 704 | 0.4+ | 0.5− |
| 2005 10 23 | 703 | 0.1− | 0.5+ | 2005 11 25 | 703 | 1.0+ | 0.3− | 2009 12 11 | G96 | 0.2+ | 0.0 |
| 2005 10 23 | 703 | 0.5− | 0.6+ | 2005 12 02 | 703 | 0.2+ | 0.4− | 2009 12 11 | G96 | 0.9+ | 0.0 |
| 2005 10 23 | 703 | 0.9− | 0.3+ | 2005 12 02 | 703 | (1.6− | 0.4−) | 2009 12 11 | G96 | 0.1+ | 0.3− |
| 2005 10 26 | 699 | 0.6+ | 0.3+ | 2005 12 02 | 703 | 0.4− | 0.2+ | | | | |

**(229447)∗ 2005 UH$_{72}$ = 2001 PG$_{67}$ = 2001 PB$_{67}$ = 2004 LH$_{22}$**

Discovered 2005 Oct. 23 by the Catalina Sky Survey.

Id. G. V. Williams (*MPO* 96126), T. B. Spahr (*MPO* 109406), A. Doppler (d, *MPO* 126073)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 183.87387 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27504321 | $\omega$ | 11.03648 | | −0.12632166 | +0.96931540 | |
| $a$ | 2.3417225 | $\Omega$ | 251.96817 | | −0.92618609 | −0.19138231 | |
| $e$ | 0.0819201 | $i$ | 12.81318 | | −0.35527760 | +0.15427402 | |
| $P$ | 3.58 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 01 | 644 | 0.4− | 0.4+ | 2004 06 14 | 704 | 0.6− | 0.1− | 2005 10 29 | 703 | (0.2+ | 1.7+) |
| 2001 08 01 | 644 | 0.2− | 0.3+ | 2004 06 14 | 704 | 0.5+ | 1.0− | 2005 10 29 | 703 | 0.2+ | 0.7+ |
| 2001 08 01 | 644 | 0.2+ | 0.5+ | 2004 06 17 | 691 | 0.1− | 0.0 | 2005 10 30 | 644 | 0.4− | 0.1− |
| 2001 08 11 | 644 | 0.7− | 0.1+ | 2004 06 17 | 691 | 0.1+ | 0.2− | 2005 10 30 | 644 | 0.4− | 0.3+ |
| 2001 08 11 | 644 | 0.2− | 0.3+ | 2004 06 17 | 691 | 0.1− | 0.1+ | 2005 10 30 | 644 | 0.2+ | 0.1− |
| 2001 08 11 | 644 | 0.2− | 0.0 | 2005 09 29 | 703 | 0.8− | 0.3− | 2008 07 07 | 941 | 0.0 | 0.1− |
| 2001 08 17 | 644 | 0.3+ | 0.4− | 2005 09 29 | 703 | 1.1+ | 0.8+ | 2008 07 07 | 941 | 0.0 | 0.0 |
| 2001 08 17 | 644 | 0.4− | 0.2+ | 2005 09 29 | 703 | 0.1+ | 0.9− | 2008 07 07 | 941 | 0.1+ | 0.1− |
| 2001 08 17 | 644 | 0.6+ | 0.2− | 2005 09 29 | 703 | (0.5+ | 1.6−) | 2008 07 07 | 941 | 0.1+ | 0.3− |
| 2001 08 17 | 644 | 0.1− | 0.0 | 2005 10 23 | 703 | 0.9− | 0.8− | 2009 11 24 | 691 | 0.5− | 0.1− |
| 2001 08 17 | 644 | 0.7+ | 0.4− | 2005 10 23 | 703 | (1.0− | 3.8−) | 2009 11 24 | 691 | 0.3− | 0.1+ |
| 2001 08 17 | 644 | 0.4− | 0.1+ | 2005 10 23 | 703 | (2.7+ | 1.8−) | 2009 11 24 | 691 | 0.1+ | 0.0 |
| 2004 05 22 | 704 | 0.5+ | 0.5+ | 2005 10 23 | 703 | 0.3− | 1.0− | 2009 12 11 | G96 | 0.3+ | 0.2− |
| 2004 05 22 | 704 | 0.1− | 0.7+ | 2005 10 26 | 699 | 0.1− | 1.5+ | 2009 12 11 | G96 | 0.6+ | 0.1− |
| 2004 05 22 | 704 | 0.2− | 0.1+ | 2005 10 26 | 699 | 0.1+ | 0.2− | 2009 12 11 | G96 | 0.2+ | 0.3− |
| 2004 05 22 | 704 | 0.4− | 0.5+ | 2005 10 26 | 699 | 0.7+ | 1.4− | 2009 12 11 | G96 | 0.3+ | 0.0 |
| 2004 05 22 | 704 | 1.2− | 0.2+ | 2005 10 26 | 699 | 0.6+ | 0.3+ | 2009 12 17 | 704 | (0.5− | 4.1+) |
| 2004 06 14 | 704 | 1.3+ | 0.6+ | 2005 10 29 | 703 | 0.2+ | 0.6+ | 2009 12 17 | 704 | (0.6+ | 1.6+) |
| 2004 06 14 | 704 | 0.8+ | 1.0− | 2005 10 29 | 703 | 0.2+ | 0.2+ | 2009 12 17 | 704 | 1.2+ | 1.1+ |

**(229448)∗ 2005 UW$_{97}$**

Discovered 2005 Oct. 22 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 261.06785 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26121070 | $\omega$ | 130.75554 | | −0.95998272 | +0.23305318 | |
| $a$ | 2.4236807 | $\Omega$ | 63.24539 | | −0.27914817 | −0.84095086 | |
| $e$ | 0.1585713 | $i$ | 10.01605 | | +0.02257155 | −0.48835220 | |
| $P$ | 3.77 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 02 01 | 644 | 0.0 | 0.4+ | 2004 08 16 | E12 | 1.3− | 0.7+ | 2007 03 20 | 703 | 0.6− | 0.7+ |
| 2003 02 01 | 644 | 0.0 | 0.5+ | 2005 10 22 | 691 | 0.3+ | 0.1+ | 2007 04 09 | E12 | 0.2+ | 0.5+ |
| 2003 02 01 | 644 | 0.0 | 0.4+ | 2005 10 22 | 691 | 0.2+ | 0.2+ | 2007 04 09 | E12 | 0.0 | 0.3+ |
| 2003 02 26 | 704 | 0.5+ | 0.9− | 2005 10 22 | 691 | 0.2− | 0.3+ | 2007 04 09 | E12 | 0.2+ | 0.7− |
| 2003 02 26 | 704 | 0.2+ | 0.2+ | 2005 10 27 | 691 | 0.3+ | 0.2− | 2007 04 09 | E12 | 0.1− | 0.5− |
| 2003 02 26 | 704 | 0.1+ | 0.3− | 2005 10 27 | 691 | 0.0 | 0.2+ | 2007 04 11 | 704 | (3.1+ | 0.7−) |
| 2003 02 26 | 704 | 0.2+ | 0.7− | 2005 10 27 | 691 | 0.4+ | 0.1+ | 2007 04 11 | 704 | (2.6+ | 0.2−) |
| 2003 02 26 | 704 | 0.4+ | 0.2− | 2005 10 31 | 691 | 0.1− | 0.1− | 2007 04 11 | 704 | 0.3+ | 0.7+ |
| 2003 03 03 | 644 | 0.1− | 0.8+ | 2005 10 31 | 691 | 0.6+ | 0.2− | 2007 04 22 | 703 | 0.2+ | 0.5+ |
| 2003 03 03 | 644 | 0.4− | 0.7+ | 2005 10 31 | 691 | 0.2− | 0.0 | 2007 04 22 | 703 | 0.3+ | 0.3− |
| 2003 03 03 | 644 | 0.1− | 0.6+ | 2005 11 04 | 691 | 0.0 | 0.2+ | 2007 04 22 | 703 | 0.2− | 0.3+ |
| 2003 03 08 | 699 | 0.2− | 0.2+ | 2005 11 04 | 691 | 0.2− | 0.3+ | 2007 04 22 | 703 | 0.2− | 0.2− |
| 2003 03 08 | 699 | 0.9− | 0.1− | 2005 11 04 | 691 | 0.0 | 0.3+ | 2009 11 08 | 691 | 0.5− | 0.5− |
| 2003 03 08 | 699 | 0.4− | 0.3− | 2007 03 11 | 703 | 0.4− | 0.5− | 2009 11 08 | 691 | 0.4− | 0.1− |
| 2003 03 08 | 699 | 0.5− | 0.7+ | 2007 03 11 | 703 | 0.3+ | 0.4− | 2009 11 08 | 691 | 0.5− | 0.0 |
| 2003 03 08 | 644 | 0.4− | 0.6− | 2007 03 11 | 703 | 0.4+ | 0.3+ | 2009 11 25 | 691 | 0.1− | 0.0 |
| 2003 03 08 | 644 | 0.4+ | 0.3+ | 2007 03 11 | 703 | 0.5+ | 0.3− | 2009 11 25 | 691 | 0.1+ | 0.2− |
| 2003 03 08 | 644 | 0.2− | 0.5− | 2007 03 17 | 699 | 0.7+ | 0.2+ | 2009 11 25 | 691 | 0.2+ | 0.0 |
| 2003 03 08 | 644 | 0.2+ | 0.3+ | 2007 03 17 | 699 | 0.6+ | 0.4+ | 2009 12 16 | G96 | 0.1+ | 0.9+ |
| 2003 03 08 | 644 | 0.3− | 0.5− | 2007 03 17 | 699 | (1.3+ | 1.9+) | 2009 12 16 | G96 | 0.4+ | 0.2+ |
| 2003 03 08 | 644 | 0.3+ | 0.3+ | 2007 03 17 | 699 | 0.3+ | 0.6+ | 2009 12 16 | G96 | 0.4+ | 0.2− |
| 2004 08 16 | E12 | (1.9+ | 0.0 ) | 2007 03 20 | 703 | 0.4+ | 0.5− | 2009 12 16 | G96 | 0.4+ | 0.2− |
| 2004 08 16 | E12 | 0.2+ | 0.3+ | 2007 03 20 | 703 | 0.6− | 0.2− | | | | |
| 2004 08 16 | E12 | 1.1− | 0.1+ | 2007 03 20 | 703 | 0.1− | 0.4− | | | | |

**(229449)∗ 2005 UY$_{110}$**

Discovered 2005 Oct. 22 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 307.03203 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.25645080 | $\omega$ | 185.30715 | | −0.91030414 | −0.41369670 | |
| $a$ | 2.4535788 | $\Omega$ | 330.24287 | | +0.38082689 | −0.82355516 | |
| $e$ | 0.1517537 | $i$ | 1.63857 | | +0.16222594 | −0.38808755 | |
| $P$ | 3.84 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 03 10 | 691 | 0.4− | 0.5− | 2005 10 22 | 691 | 0.2+ | 0.3+ | 2007 05 07 | 691 | 0.1− | 0.4− |
| 1999 03 10 | 691 | 0.3− | 0.5− | 2005 10 22 | 691 | 0.5+ | 0.2− | 2007 05 11 | 691 | 0.1− | 0.3− |
| 1999 03 10 | 691 | 0.4− | 0.5− | 2005 10 22 | 691 | 0.1+ | 0.5+ | 2007 05 11 | 691 | 0.2− | 0.2− |
| 1999 03 21 | 645 | 0.1− | 0.0 | 2005 10 27 | 691 | 0.1+ | 0.0 | 2007 05 11 | 691 | 0.5− | 0.1− |
| 1999 03 21 | 645 | 0.1− | 0.0 | 2005 10 27 | 691 | 0.2− | 0.1− | 2007 05 14 | 704 | 1.3+ | 0.2+ |
| 1999 03 23 | 699 | 0.0 | 1.7− | 2005 10 27 | 691 | 0.4+ | 0.0 | 2007 05 14 | 704 | 0.2+ | 0.2− |
| 1999 03 23 | 699 | 0.7+ | 0.2+ | 2005 10 27 | 691 | 0.0 | 0.2+ | 2007 05 14 | 704 | 0.7− | 0.7− |
| 1999 03 23 | 699 | (1.3+ | 2.4+) | 2005 10 27 | 691 | 0.1+ | 0.1− | 2007 05 14 | 704 | 0.3+ | 0.6− |
| 2001 10 26 | 644 | 0.6− | 0.4+ | 2005 10 27 | 691 | 0.2+ | 0.2− | 2008 09 20 | G96 | 0.6− | 0.2+ |
| 2001 10 26 | 644 | 0.7− | 0.3+ | 2005 10 30 | G96 | 0.1− | 0.4− | 2008 09 20 | G96 | 0.3+ | 0.2− |
| 2001 10 26 | 644 | 0.5− | 1.2+ | 2005 10 30 | G96 | 0.2− | 0.1− | 2008 09 20 | G96 | 0.2− | 0.1+ |
| 2001 11 19 | 704 | 0.2− | 0.7+ | 2005 10 30 | G96 | (2.9− | 2.5+) | 2008 09 20 | G96 | 0.1+ | 0.3− |
| 2001 11 19 | 704 | 0.6− | 0.3+ | 2005 10 30 | G96 | (0.5− | 2.8+) | 2009 11 09 | 691 | 0.3− | 0.1+ |
| 2001 11 19 | 704 | (0.7− | 1.6+) | 2005 10 31 | 691 | 0.0 | 0.4− | 2009 11 09 | 691 | 0.4− | 0.0 |
| 2003 04 07 | 704 | 1.3− | 0.9+ | 2005 10 31 | 691 | 0.4+ | 0.4+ | 2009 11 09 | 691 | 0.2− | 0.1+ |
| 2003 04 07 | 704 | 0.0 | 1.0− | 2005 10 31 | 691 | 0.1+ | 1.0− | 2009 12 10 | 704 | 0.5− | 0.3+ |
| 2003 04 07 | 704 | 0.2− | 1.0+ | 2005 11 21 | 691 | 0.3− | 0.2+ | 2009 12 10 | 704 | 0.8+ | 1.3+ |
| 2003 04 07 | 704 | 1.1+ | 1.1+ | 2005 11 21 | 691 | 0.2− | 0.1+ | 2009 12 10 | 704 | 1.3+ | 1.1+ |
| 2003 04 29 | 699 | 1.0+ | 0.4+ | 2005 11 21 | 691 | 0.2− | 0.4+ | 2009 12 10 | 704 | 0.4+ | 2.1+ |
| 2003 04 29 | 699 | (2.7+ | 0.7+) | 2006 01 25 | G96 | 0.2+ | 0.1− | 2009 12 11 | G96 | 0.2− | 0.1+ |
| 2003 04 29 | 699 | 0.4− | 0.7+ | 2006 01 25 | G96 | 0.3+ | 0.0 | 2009 12 11 | G96 | 0.1− | 0.4+ |
| 2003 04 29 | 699 | 1.0+ | 0.3− | 2006 01 25 | G96 | 0.3+ | 0.2− | 2009 12 11 | G96 | 0.5− | 0.3+ |
| 2003 05 10 | 691 | 1.2+ | 1.4+ | 2006 01 25 | G96 | 0.1− | 0.0 | 2009 12 11 | G96 | 0.4− | 0.3+ |
| 2003 05 10 | 691 | 1.0+ | 1.5+ | 2007 05 07 | 691 | 0.1− | 0.2− | | | | |
| 2003 05 10 | 691 | 1.2+ | 1.3+ | 2007 05 07 | 691 | 0.3− | 0.2− | | | | |

**(229450)∗ 2005 UK$_{115}$**

Discovered 2005 Oct. 23 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 1.35375 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.25736751 | $\omega$ | 213.82363 | | +0.18879790 | −0.97932416 | |
| $a$ | 2.4477491 | $\Omega$ | 225.41440 | | +0.92206378 | +0.20224280 | |
| $e$ | 0.1419376 | $i$ | 5.85563 | | +0.33786645 | −0.00469540 | |
| $P$ | 3.83 | $H$ | 17.7 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 28 | 644 | 0.2+ | 0.4+ | 2005 11 01 | 691 | 0.1− | 0.1+ | 2005 12 02 | G96 | 0.2+ | 0.2− |
| 2001 09 28 | 644 | 0.2− | 0.7+ | 2005 11 01 | 691 | 0.1− | 0.1+ | 2005 12 04 | 691 | 0.1− | 0.2+ |
| 2001 09 28 | 644 | 0.8+ | 0.6+ | 2005 11 01 | 691 | 0.1− | 0.2+ | 2005 12 04 | 691 | 0.1− | 0.0 |
| 2001 10 11 | 691 | 0.4+ | 0.6− | 2005 11 05 | 691 | 0.3+ | 0.5− | 2005 12 04 | 691 | 0.2+ | 0.1− |
| 2001 10 11 | 691 | 0.3+ | 0.3− | 2005 11 05 | 691 | 0.2− | 0.2− | 2007 03 14 | 691 | 0.2− | 0.2− |
| 2001 10 11 | 691 | 0.3+ | 0.3− | 2005 11 05 | 691 | 0.2− | 0.2− | 2007 03 14 | 691 | 0.2+ | 0.5+ |
| 2001 10 20 | 691 | 0.3− | 0.1+ | 2005 11 12 | 691 | 0.1− | 0.1− | 2007 03 14 | 691 | 0.0 | 0.3− |
| 2001 10 20 | 691 | 0.5− | 0.1+ | 2005 11 12 | 691 | 0.1− | 0.3+ | 2007 03 18 | 691 | 0.1+ | 0.0 |
| 2001 10 20 | 691 | 0.5− | 0.1− | 2005 11 12 | 691 | 0.0 | 0.3− | 2007 03 18 | 691 | 0.0 | 0.2− |
| 2005 10 23 | 691 | 0.1+ | 0.0 | 2005 11 21 | 691 | 0.1+ | 0.1+ | 2007 03 18 | 691 | 0.2− | 0.2− |
| 2005 10 23 | 691 | 0.0 | 0.1+ | 2005 11 21 | 691 | 0.0 | 0.1− | 2009 11 10 | 691 | 0.2− | 0.3− |
| 2005 10 23 | 691 | 0.3− | 0.2− | 2005 11 21 | 691 | 0.3+ | 0.0 | 2009 11 10 | 691 | 0.3+ | 0.2− |
| 2005 10 27 | G96 | 0.6+ | 0.2− | 2005 11 25 | G96 | 0.1+ | 0.2− | 2009 11 10 | 691 | 0.3− | 0.4+ |
| 2005 10 27 | G96 | 0.6+ | 0.2− | 2005 11 25 | G96 | 0.1+ | 0.2− | 2009 11 20 | A50 | 0.5+ | 0.3− |
| 2005 10 27 | G96 | 0.3+ | 0.4− | 2005 11 25 | G96 | 0.2+ | 0.2− | 2009 11 21 | A50 | 0.3+ | 0.9− |
| 2005 10 27 | G96 | 0.0 | 0.3− | 2005 11 25 | G96 | 0.4+ | 0.4− | 2009 11 26 | 691 | 0.1− | 0.1− |
| 2005 10 28 | 691 | 0.1+ | 0.4+ | 2005 11 28 | 691 | 0.3− | 0.6+ | 2009 11 26 | 691 | (0.1− | 1.9−) |
| 2005 10 28 | 691 | 0.0 | 0.2+ | 2005 11 28 | 691 | 0.3+ | 0.4+ | 2009 11 26 | 691 | 0.0 | 0.2− |
| 2005 10 28 | 691 | 0.1+ | 0.3+ | 2005 11 28 | 691 | 0.2+ | 0.2− | 2009 12 11 | 703 | 0.5+ | 1.2+ |
| 2005 10 29 | A50 | 1.1− | 0.8+ | 2005 12 02 | G96 | 0.2− | 0.4− | 2009 12 11 | 703 | 0.9− | 0.5− |
| 2005 10 31 | A50 | 0.7− | 0.8+ | 2005 12 02 | G96 | 0.0 | 0.1− | 2009 12 11 | 703 | 0.0 | 0.5− |
| 2005 10 31 | A50 | (1.0+ | 3.1−) | 2005 12 02 | G96 | 0.1+ | 0.2− | 2009 12 11 | 703 | 0.3− | 0.8+ |

**(229451)∗ 2005 UH$_{148}$**

Discovered 2005 Oct. 26 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 170.38375 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26728014 | $\omega$ | 34.36685 | | +0.01098054 | +0.99636206 | |
| $a$ | 2.3868489 | $\Omega$ | 236.40134 | | −0.93870288 | −0.01885069 | |
| $e$ | 0.1315052 | $i$ | 5.82334 | | −0.34455236 | +0.08311012 | |
| $P$ | 3.69 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 20 | 704 | 1.1− | 1.5+ | 2005 10 30 | G96 | 0.1− | 0.1+ | 2008 06 30 | 691 | 0.3− | 0.3− |
| 2001 09 20 | 704 | 1.1− | 0.7+ | 2005 10 30 | G96 | 0.2− | 0.3+ | 2008 08 01 | 704 | 0.0 | 0.9+ |
| 2001 09 20 | 704 | (1.9− | 0.3−) | 2005 11 10 | 691 | 0.2+ | 0.1+ | 2008 08 01 | 704 | 1.2+ | 0.6+ |
| 2001 09 20 | 704 | 0.5− | 1.2− | 2005 11 10 | 691 | 0.2+ | 0.2− | 2008 08 01 | 704 | 0.2+ | 1.2+ |
| 2001 11 09 | 691 | 0.2+ | 0.2− | 2005 11 10 | 691 | 0.0 | 0.1− | 2008 08 01 | 704 | 0.2− | 0.9+ |
| 2001 11 09 | 691 | 0.3+ | 0.0 | 2005 11 26 | G96 | 0.2+ | 0.1+ | 2008 08 01 | 704 | 0.5+ | 0.2+ |
| 2001 11 09 | 691 | 0.2+ | 0.3− | 2005 11 26 | G96 | 0.2− | 0.3+ | 2008 08 05 | J75 | 0.6+ | 0.3− |
| 2004 05 21 | 704 | 0.2+ | 0.5+ | 2005 11 26 | G96 | 0.2+ | 0.2− | 2008 08 05 | J75 | 0.0 | 0.4− |
| 2004 05 21 | 704 | 0.4+ | 0.4− | 2005 11 26 | G96 | 0.6+ | 0.4− | 2008 08 05 | J75 | 0.4− | 0.8− |
| 2004 05 21 | 704 | 0.8− | 1.0+ | 2005 12 02 | G96 | 0.1+ | 0.2− | 2009 11 24 | 691 | (0.1− | 2.2+) |
| 2005 10 26 | 691 | 0.1+ | 0.3− | 2005 12 02 | G96 | 0.2− | 0.0 | 2009 11 24 | 691 | 0.3− | 0.1− |
| 2005 10 26 | 691 | 0.2− | 0.2+ | 2005 12 02 | G96 | 0.1+ | 0.1− | 2009 11 24 | 691 | 0.2− | 0.0 |
| 2005 10 26 | 691 | 0.0 | 0.3+ | 2005 12 02 | G96 | 0.2− | 0.3− | 2009 12 11 | G96 | 0.1+ | 0.2− |
| 2005 10 27 | 691 | 0.0 | 0.2+ | 2007 01 26 | 568 | 0.3+ | 0.4+ | 2009 12 11 | G96 | 0.0 | 0.1− |
| 2005 10 27 | 691 | 0.1+ | 0.4+ | 2007 01 26 | 568 | 0.4+ | 0.3+ | 2009 12 11 | G96 | 0.1− | 0.2− |
| 2005 10 27 | 691 | 0.2− | 0.1+ | 2007 01 26 | 568 | 0.3+ | 0.3+ | 2009 12 11 | G96 | 0.3+ | 0.2− |
| 2005 10 30 | G96 | 0.6− | 0.4+ | 2008 06 30 | 691 | 0.1+ | 0.1− | | | | |
| 2005 10 30 | G96 | 0.3− | 0.4+ | 2008 06 30 | 691 | 0.3− | 0.3− | | | | |

**(229452)∗ 2005 UT$_{161}$ = 2001 PM$_{24}$**

Discovered 2005 Oct. 25 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 96181)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 49.56351 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26548009 | $\omega$ | 326.50983 | | +0.80696215 | −0.58910893 | |
| $a$ | 2.3976258 | $\Omega$ | 69.63961 | | +0.55122281 | +0.72572607 | |
| $e$ | 0.1898809 | $i$ | 2.56675 | | +0.21205072 | +0.35534819 | |
| $P$ | 3.71 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 11 | 608 | 0.0 | 0.2+ | 2005 11 06 | G96 | 0.1+ | 0.2− | 2006 01 05 | G96 | 0.3− | 0.3− |
| 2001 08 11 | 608 | 0.3+ | 0.1+ | 2005 11 06 | G96 | 0.1+ | 0.1− | 2006 01 05 | G96 | 0.2+ | 0.6− |
| 2001 08 11 | 608 | 0.7+ | 0.0 | 2005 11 06 | G96 | 0.1+ | 0.2− | 2006 01 05 | G96 | 0.3+ | 0.2− |
| 2001 08 14 | 608 | 0.5− | 0.7− | 2005 11 06 | G96 | 0.2+ | 0.2− | 2006 01 05 | G96 | 0.2+ | 0.4− |
| 2001 08 14 | 608 | 0.1+ | 0.4− | 2005 11 20 | 699 | 0.3− | 0.4− | 2006 01 23 | G96 | 0.1− | 0.7− |
| 2001 08 14 | 608 | 0.4− | 0.0 | 2005 11 20 | 699 | 0.8+ | 0.2− | 2006 01 23 | G96 | 0.2+ | 0.5− |
| 2001 09 19 | 704 | 1.0− | 1.3+ | 2005 11 20 | 699 | 0.5+ | 0.3− | 2006 01 23 | G96 | 0.1− | 0.7− |
| 2001 09 19 | 704 | 0.6− | 0.6+ | 2005 11 20 | 699 | 0.3+ | 0.7+ | 2006 01 23 | G96 | 0.1+ | 0.6− |
| 2001 09 19 | 704 | 0.0 | 0.1− | 2005 11 25 | 703 | 1.2− | 0.8− | 2007 03 10 | G96 | 0.3+ | 0.1+ |
| 2001 09 19 | 704 | 0.7− | 0.3+ | 2005 11 25 | 703 | 0.1+ | 0.8− | 2007 03 10 | G96 | 0.3− | 0.6− |
| 2005 10 25 | 691 | 0.1+ | 0.5+ | 2005 11 25 | 703 | 1.0− | 0.7− | 2007 03 10 | G96 | 0.1− | 0.6+ |
| 2005 10 25 | 691 | 0.0 | 0.2+ | 2005 11 25 | 703 | 0.7− | 0.1+ | 2007 03 10 | G96 | 0.0 | 0.1− |
| 2005 10 25 | 691 | 0.1+ | 0.4+ | 2005 11 25 | 703 | 0.2+ | 0.3+ | 2007 03 14 | 691 | 0.3+ | 0.7+ |
| 2005 10 28 | 703 | 0.3− | 0.0 | 2005 11 25 | 703 | 0.1+ | 0.1+ | 2007 03 14 | 691 | 0.1+ | 0.1− |
| 2005 10 28 | 703 | 0.3+ | 0.5− | 2005 11 25 | 703 | (1.4− | 1.5+) | 2007 03 14 | 691 | 0.4+ | 0.4+ |
| 2005 10 28 | 703 | 0.3+ | 0.1+ | 2005 11 30 | 644 | 0.2+ | 0.0 | 2009 10 15 | G96 | 0.0 | 0.2− |
| 2005 10 28 | 703 | 0.0 | 0.1+ | 2005 11 30 | 644 | 0.2− | 0.1+ | 2009 10 15 | G96 | 0.7+ | 0.7− |
| 2005 10 31 | 704 | 0.5− | 0.3+ | 2005 11 30 | 644 | 0.0 | 0.3− | 2009 10 15 | G96 | 0.4+ | 0.4− |
| 2005 10 31 | 704 | 0.1+ | 0.4+ | 2005 12 01 | 704 | 0.2+ | 0.1− | 2009 10 15 | G96 | 0.5+ | 0.5− |
| 2005 10 31 | 704 | 0.4+ | 0.5+ | 2005 12 01 | 704 | 0.7+ | 0.2− | 2009 11 11 | G96 | 0.2− | 0.4− |
| 2005 10 31 | 704 | 0.4+ | 0.6+ | 2005 12 01 | 704 | 0.5+ | 0.4− | 2009 11 11 | G96 | 0.2+ | 0.2− |
| 2005 10 31 | 704 | 0.3− | 0.3+ | 2005 12 01 | 704 | 0.4− | 0.1+ | 2009 11 11 | G96 | 0.5+ | 0.2− |
| 2005 11 01 | 704 | 0.2+ | 0.7+ | 2005 12 01 | G96 | 0.3+ | 0.2− | 2009 11 11 | G96 | 0.3− | 0.1− |
| 2005 11 01 | 704 | 0.3+ | 0.3+ | 2005 12 01 | G96 | 0.3+ | 0.1− | 2009 12 21 | D29 | 0.8+ | 1.3+ |
| 2005 11 01 | 704 | 0.2− | 1.0− | 2005 12 01 | G96 | 0.2+ | 0.3− | 2009 12 21 | D29 | 0.4+ | 0.0 |
| 2005 11 01 | 704 | 1.2− | 1.2+ | 2005 12 01 | 704 | 0.5+ | 0.7− | 2009 12 21 | D29 | 0.8+ | 0.8+ |
| 2005 11 06 | 704 | 0.3− | 0.0 | 2005 12 01 | G96 | 0.1+ | 0.2− | 2009 12 21 | D29 | 0.1+ | 0.5− |
| 2005 11 06 | 704 | 0.2+ | 0.5+ | 2005 12 04 | 704 | 0.9+ | 0.5− | 2009 12 26 | 691 | 0.1− | 0.1− |
| 2005 11 06 | 704 | 0.2− | 0.7+ | 2005 12 04 | 704 | 0.3− | 0.7− | 2009 12 26 | 691 | 1.0− | 0.7+ |
| 2005 11 06 | 704 | 0.1+ | 0.4+ | 2005 12 04 | 704 | (0.1+ | 1.6−) | 2009 12 26 | 691 | 0.2− | 0.1− |
| 2005 11 06 | 704 | 0.3− | 0.8+ | 2005 12 04 | 704 | (0.7+ | 1.9+) | | | | |

**(229453)∗ 2005 UJ$_{162}$**

Discovered 2005 Oct. 27 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 64.25113 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26741748 | $\omega$ | 266.11290 | | +0.93944262 | −0.32524835 | |
| $a$ | 2.3860316 | $\Omega$ | 112.84164 | | +0.34206925 | +0.87072639 | |
| $e$ | 0.1555346 | $i$ | 6.72910 | | +0.02088511 | +0.36884829 | |
| $P$ | 3.69 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1992 02 25 | 691 | 0.1− | 0.8− | 2005 10 10 | 704 | 0.4+ | 0.4+ | 2005 11 22 | 703 | 0.5− | 0.3− |
| 1992 02 25 | 691 | 0.3− | 0.3+ | 2005 10 10 | 704 | 0.1+ | 0.1+ | 2005 11 29 | 703 | 0.3− | 0.5− |
| 1992 02 25 | 691 | 0.0 | 0.5− | 2005 10 10 | 704 | 0.2− | 0.5− | 2005 11 29 | 703 | 0.7− | 0.3+ |
| 2000 05 29 | 691 | 0.0 | 0.2− | 2005 10 27 | 699 | 0.4+ | 0.2− | 2005 11 29 | 703 | 0.1− | 0.1− |
| 2000 05 29 | 691 | 0.1− | 0.4− | 2005 10 27 | 699 | 0.8+ | 1.4+ | 2005 11 29 | 703 | (2.3− | 0.9+) |
| 2000 05 29 | 691 | 0.1+ | 0.3− | 2005 10 27 | 699 | 0.3+ | 0.3+ | 2005 11 29 | 644 | 0.1− | 0.1+ |
| 2001 07 19 | 699 | 0.2− | 1.1+ | 2005 10 28 | 703 | 0.2− | 0.3− | 2005 11 29 | 644 | 0.1+ | 0.2− |
| 2001 07 19 | 699 | 1.0− | 0.8+ | 2005 10 28 | 703 | 0.1+ | 0.3+ | 2005 11 29 | 644 | 0.1+ | 0.0 |
| 2001 07 19 | 699 | 0.0 | 0.3+ | 2005 10 28 | 703 | 0.7− | 0.3− | 2005 12 05 | 699 | 0.2− | 0.1− |
| 2001 07 19 | 699 | (1.6+ | 1.2−) | 2005 10 28 | 703 | 0.1− | 0.2− | 2005 12 05 | 699 | 1.0+ | 0.3− |
| 2001 08 13 | 608 | 0.1+ | 1.0− | 2005 10 31 | G96 | 0.4+ | 0.2− | 2005 12 05 | 699 | 0.2− | 0.3− |
| 2001 08 13 | 608 | 0.2+ | 1.0− | 2005 10 31 | G96 | 0.0 | 0.2− | 2005 12 05 | 699 | 0.4+ | 0.2− |
| 2001 08 13 | 608 | 0.0 | 1.0− | 2005 10 31 | G96 | 0.2+ | 0.3− | 2005 12 06 | 704 | 0.6− | 0.4+ |
| 2001 08 25 | 699 | 0.9+ | 0.2+ | 2005 10 31 | G96 | 0.4+ | 0.3− | 2005 12 06 | 704 | 0.8− | 0.1− |
| 2001 08 25 | 699 | 0.3− | 0.1− | 2005 11 03 | 703 | 0.1− | 0.1− | 2005 12 06 | 704 | 0.7− | 1.3+ |
| 2001 08 25 | 699 | 0.1− | 0.3+ | 2005 11 03 | 703 | 0.0 | 0.0 | 2005 12 06 | 704 | 0.3− | 0.6+ |
| 2001 08 25 | 699 | 0.1+ | 0.2+ | 2005 11 03 | 703 | 1.2+ | 0.7− | 2005 12 06 | 703 | 0.6− | 0.2+ |
| 2001 08 25 | 608 | 0.6− | 0.4+ | 2005 11 03 | 703 | 0.3− | 0.3− | 2005 12 06 | 704 | 0.1− | 0.4+ |
| 2001 08 25 | 608 | 0.0 | 0.1− | 2005 11 04 | 704 | 0.1− | 0.5− | 2005 12 06 | 703 | 0.5+ | 0.3− |
| 2001 08 25 | 608 | 0.0 | 0.3+ | 2005 11 04 | 704 | 0.7− | 0.6+ | 2005 12 06 | 703 | 1.0+ | 0.3+ |
| 2003 02 19 | 644 | 0.3+ | 0.5+ | 2005 11 04 | 704 | 0.5+ | 0.2− | 2005 12 06 | 703 | 0.2− | 0.2+ |
| 2003 02 19 | 644 | 0.1+ | 1.1+ | 2005 11 04 | 704 | 0.5+ | 0.0 | 2009 12 17 | 704 | 0.7+ | 0.0 |
| 2003 02 19 | 644 | 0.1− | 1.3+ | 2005 11 04 | 704 | 0.4− | 0.7− | 2009 12 17 | 704 | 0.8− | 0.5+ |
| 2003 03 07 | 644 | 0.5+ | 0.0 | 2005 11 09 | 703 | 0.3+ | 0.8− | 2009 12 17 | 704 | 0.6+ | 0.4+ |
| 2003 03 07 | 644 | 0.1+ | 0.4+ | 2005 11 09 | 703 | 0.4+ | 0.1+ | 2009 12 17 | 704 | 1.2+ | 1.0+ |
| 2003 03 07 | 644 | 0.3− | 0.6− | 2005 11 09 | 703 | 0.2+ | 0.1+ | 2009 12 18 | 691 | 0.2− | 0.1− |
| 2003 03 25 | D35 | 0.1+ | 0.7+ | 2005 11 09 | 703 | 0.1+ | 0.0 | 2009 12 18 | 691 | 0.3− | 0.1− |
| 2003 03 25 | D35 | 0.3+ | 0.4+ | 2005 11 22 | 703 | 0.1− | 0.1− | 2009 12 18 | 691 | 0.2− | 0.2− |
| 2005 10 10 | 704 | 0.4+ | 0.1− | 2005 11 22 | 703 | 0.2+ | 0.9− | | | | |
| 2005 10 10 | 704 | 0.2− | 0.2+ | 2005 11 22 | 703 | 0.3+ | 0.3− | | | | |

**(229454)∗ 2005 UQ$_{162}$**

Discovered 2005 Oct. 27 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 17.99148 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27581877 | $\omega$ | 11.51940 | | −0.17499641 | −0.97737004 | |
| $a$ | 2.3373308 | $\Omega$ | 88.64144 | | +0.89361863 | −0.20834059 | |
| $e$ | 0.1820325 | $i$ | 6.82736 | | +0.41330618 | +0.03663334 | |
| $P$ | 3.57 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 12 15 | 704 | (0.7− | 3.0−) | 2005 10 30 | A50 | (1.0+ | 2.0+) | 2006 01 20 | 703 | 1.5− | 0.6− |
| 1998 12 15 | 704 | (0.1+ | 2.2−) | 2005 10 31 | G96 | 0.0 | 0.0 | 2006 01 20 | 703 | 0.2+ | 0.7− |
| 1998 12 15 | 704 | 0.7+ | 1.0− | 2005 10 31 | G96 | 0.3+ | 0.1+ | 2006 01 20 | 703 | (1.9+ | 0.5+) |
| 1998 12 15 | 704 | (3.0− | 0.1+) | 2005 10 31 | G96 | 0.4+ | 0.1+ | 2006 01 20 | 703 | (3.5+ | 2.0+) |
| 1998 12 15 | 704 | 1.4+ | 1.4+ | 2005 10 31 | G96 | 0.5+ | 0.2+ | 2006 01 22 | G96 | 0.6− | 0.6− |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 12 22 | 704 | 1.1− | 0.3+ | 2005 11 03 | 703 | 0.3+ | 0.0 | 2006 01 22 | G96 | 0.8+ | 0.4− |
| 1998 12 22 | 704 | 1.3− | 1.0− | 2005 11 03 | 703 | 0.3+ | 0.3+ | 2006 01 22 | G96 | 0.1+ | 0.3− |
| 1998 12 22 | 704 | (0.3− | 4.1−) | 2005 11 03 | 703 | 0.1+ | 0.5+ | 2006 01 22 | G96 | 0.0 | 0.5− |
| 1998 12 22 | 704 | (0.1− | 3.3−) | 2005 11 03 | 703 | 0.0 | 0.1+ | 2006 01 26 | G96 | 0.2− | 0.2− |
| 2003 02 27 | 608 | 0.1+ | 1.0− | 2005 11 04 | 704 | 1.0− | 0.7+ | 2006 01 26 | G96 | 0.0 | 0.3− |
| 2003 02 27 | 608 | 0.6+ | 0.7− | 2005 11 04 | 704 | 0.3+ | 1.3+ | 2006 01 26 | G96 | 0.5+ | 0.6− |
| 2003 02 27 | 608 | 0.4+ | 0.9− | 2005 11 04 | 704 | 0.8− | 0.3+ | 2006 01 26 | G96 | 0.4+ | 0.2+ |
| 2003 02 28 | 704 | 0.4+ | 0.7+ | 2005 11 04 | 704 | 0.2− | 0.6+ | 2006 02 24 | G96 | 0.1− | 0.4− |
| 2003 02 28 | 704 | 0.4+ | 0.5+ | 2005 11 04 | 704 | 0.8− | 0.3+ | 2006 02 24 | G96 | 0.0 | 0.3− |
| 2003 02 28 | 704 | 0.7+ | 1.4+ | 2005 11 25 | 703 | 0.1− | 0.0 | 2006 02 24 | G96 | 0.1+ | 0.4− |
| 2003 02 28 | 704 | 0.3+ | 0.2− | 2005 11 25 | 703 | 0.5+ | 0.2+ | 2006 02 24 | G96 | 0.2+ | 0.4− |
| 2003 02 28 | 704 | 0.8− | 0.5+ | 2005 11 25 | 703 | 0.1− | 0.5+ | 2006 03 25 | G96 | 0.2− | 0.2+ |
| 2003 03 20 | 644 | (0.8− | 2.6+) | 2005 11 25 | 703 | 0.5− | 0.9+ | 2006 03 25 | G96 | 0.3+ | 0.4− |
| 2003 03 20 | 644 | 0.4− | 0.3+ | 2005 11 29 | 644 | 0.1+ | 0.1+ | 2006 03 25 | G96 | 0.3− | 0.0 |
| 2003 03 20 | 644 | 0.2− | 0.4+ | 2005 11 29 | 644 | 0.1+ | 0.4+ | 2006 03 25 | G96 | 1.4− | 0.9− |
| 2003 03 25 | 644 | 0.0 | 0.7+ | 2005 11 29 | 644 | 0.7+ | 0.9+ | 2007 04 14 | 291 | 0.0 | 0.2+ |
| 2003 03 25 | 644 | 0.4+ | 0.4+ | 2005 11 30 | 704 | (1.7+ | 0.6−) | 2007 04 14 | 291 | 0.3+ | 0.1+ |
| 2003 03 25 | 644 | 0.2+ | 0.4+ | 2005 11 30 | 704 | 0.1+ | 0.8− | 2007 04 14 | 291 | 0.3+ | 0.1+ |
| 2003 04 03 | 704 | 0.4+ | 0.6+ | 2005 11 30 | 704 | 0.5+ | 1.2− | 2007 04 15 | 291 | 0.2− | 0.3+ |
| 2003 04 03 | 704 | 0.3+ | 1.0+ | 2005 11 30 | 704 | 0.7+ | 0.5− | 2007 04 15 | 291 | 0.1− | 0.2+ |
| 2003 04 03 | 704 | 0.4+ | 0.6+ | 2005 11 30 | 704 | 0.6+ | 0.7− | 2007 04 15 | 291 | 0.1− | 0.7+ |
| 2003 04 03 | 704 | 0.9− | 0.4+ | 2005 12 03 | 704 | 0.1+ | 0.4+ | 2007 04 20 | 691 | 0.5− | 1.0− |
| 2003 04 04 | 691 | 0.2+ | 0.1− | 2005 12 03 | 704 | 0.1+ | 0.2+ | 2007 04 20 | 691 | 0.3+ | 0.1+ |
| 2003 04 04 | 691 | 0.1+ | 0.1− | 2005 12 03 | 704 | 0.0 | 0.9− | 2007 04 20 | 691 | 0.0 | 0.1− |
| 2003 04 04 | 691 | 0.1− | 0.1− | 2005 12 05 | 699 | 0.3+ | 0.4+ | 2007 04 24 | 691 | 0.4− | 0.1+ |
| 2005 10 22 | 703 | 0.9+ | 0.2+ | 2005 12 05 | 699 | 0.2+ | 0.2+ | 2007 04 24 | 691 | 0.2− | 0.3+ |
| 2005 10 22 | 703 | 0.5− | 0.5− | 2005 12 05 | 699 | 0.3+ | 0.5− | 2007 04 24 | 691 | 0.1− | 0.1+ |
| 2005 10 22 | 703 | 0.3− | 0.5+ | 2005 12 05 | 699 | 0.9+ | 1.0− | 2007 04 28 | 691 | 0.1+ | 0.2+ |
| 2005 10 22 | 703 | 0.6− | 0.6+ | 2005 12 07 | 704 | 0.3− | 0.0 | 2007 04 28 | 691 | 0.5+ | 0.1+ |
| 2005 10 22 | 644 | 0.0 | 0.4+ | 2005 12 07 | 704 | 1.0− | 0.3− | 2007 04 28 | 691 | 0.0 | 0.2− |
| 2005 10 22 | 644 | 0.1+ | 0.4+ | 2005 12 07 | 704 | 0.4− | 0.3+ | 2009 11 21 | G96 | 0.4− | 0.3− |
| 2005 10 22 | 644 | 0.2+ | 0.3+ | 2005 12 07 | 704 | 1.3− | 0.3− | 2009 11 21 | G96 | 0.2− | 0.4− |
| 2005 10 27 | 699 | 0.2− | 0.8+ | 2005 12 07 | 704 | (0.0 | 1.7−) | 2009 11 21 | G96 | 0.2− | 0.4− |
| 2005 10 27 | 699 | 0.4− | 0.3− | 2005 12 07 | 704 | 0.1+ | 0.6+ | 2009 11 21 | G96 | 0.4− | 0.4− |
| 2005 10 27 | 699 | 0.3− | 0.9+ | 2005 12 07 | 704 | 0.0 | 0.3− | 2009 12 15 | 704 | 1.0− | 1.1− |
| 2005 10 28 | 703 | 1.1− | 0.3− | 2005 12 07 | 704 | 0.1+ | 0.8+ | 2009 12 15 | 704 | 0.8+ | 0.8+ |
| 2005 10 28 | 703 | 0.1− | 1.2+ | 2005 12 27 | 704 | 0.4− | 0.4+ | 2009 12 15 | 704 | 0.4+ | 0.2+ |
| 2005 10 28 | 703 | 0.3− | 0.8+ | 2005 12 27 | 704 | (0.3+ | 2.7+) | 2009 12 15 | 704 | 1.3+ | 0.5+ |
| 2005 10 28 | 703 | 0.9− | 0.2− | 2005 12 27 | 704 | 1.3+ | 0.2+ | | | | |
| 2005 10 30 | A50 | 0.0 | 0.5+ | 2005 12 27 | 704 | (0.1+ | 2.2+) | | | | |

**(229455)∗ 2005 UM$_{180}$**

Discovered 2005 Oct. 24 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 245.41976 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22517339 | $\omega$ | 296.46101 | | −0.91609052 | | −0.36991554 |
| $a$ | 2.6758268 | $\Omega$ | 222.32291 | | +0.39760532 | | −0.88793906 |
| $e$ | 0.0534926 | $i$ | 13.28543 | | −0.05184765 | | −0.27336189 |
| $P$ | 4.38 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1992 11 20 | 691 | 0.0 | 0.2+ | 2005 10 28 | 691 | 0.2− | 0.1+ | 2009 09 25 | 691 | 0.2− | 0.3+ |
| 1992 11 20 | 691 | 0.1+ | 0.4+ | 2005 11 01 | G96 | 0.0 | 0.1− | 2009 09 29 | 691 | 0.1− | 0.0 |
| 1992 11 20 | 691 | 0.3− | 0.2+ | 2005 11 01 | G96 | 0.1+ | 0.2− | 2009 09 29 | 691 | 0.1− | 0.2+ |
| 1992 11 20 | 691 | 0.4+ | 0.2+ | 2005 11 01 | G96 | 0.0 | 0.2− | 2009 09 29 | 691 | 0.2− | 0.2+ |
| 1992 11 20 | 691 | 0.2− | 0.2+ | 2005 11 01 | G96 | 0.3+ | 0.2− | 2009 09 30 | G96 | 0.0 | 0.1− |
| 1992 11 20 | 691 | 0.1+ | 0.6− | 2005 11 06 | 704 | 0.3− | 0.4+ | 2009 09 30 | G96 | 0.4+ | 0.4+ |
| 2003 05 06 | 291 | 0.1+ | 0.4+ | 2005 11 06 | 704 | 0.1+ | 0.3+ | 2009 09 30 | G96 | 0.2+ | 0.0 |
| 2003 05 06 | 291 | 0.2+ | 0.4+ | 2005 11 06 | 704 | 0.9+ | 0.2+ | 2009 09 30 | G96 | 0.1+ | 0.0 |
| 2003 05 06 | 291 | 0.2+ | 0.4+ | 2005 11 12 | 703 | 0.1− | 0.5+ | 2009 10 17 | G96 | 0.3+ | 0.7− |
| 2003 05 20 | 699 | (1.8+ | 0.2+) | 2005 11 12 | 703 | (1.5− | 0.8+) | 2009 10 17 | G96 | 0.0 | 0.8− |
| 2003 05 20 | 699 | (0.0 | 1.6−) | 2005 11 12 | 703 | 1.4− | 0.3− | 2009 10 17 | G96 | 0.0 | 0.8− |
| 2003 05 20 | 699 | 0.6− | 0.3− | 2005 11 12 | 703 | 0.8− | 1.1+ | 2009 10 17 | G96 | 0.1+ | 0.7− |
| 2003 05 20 | 699 | 1.2− | 0.4− | 2005 11 26 | 703 | 0.2− | 0.1+ | 2009 10 27 | G96 | 0.3+ | 0.2− |
| 2005 10 01 | G96 | 0.4+ | 0.2− | 2005 11 26 | 703 | 0.2− | 0.3+ | 2009 10 27 | G96 | 0.0 | 0.2− |
| 2005 10 01 | G96 | 0.1− | 0.2− | 2005 11 26 | 703 | 0.8+ | 0.2+ | 2009 10 27 | G96 | 0.0 | 0.1− |
| 2005 10 01 | G96 | 0.4+ | 0.1− | 2005 11 26 | 703 | 0.4+ | 0.0 | 2009 10 27 | G96 | 0.6+ | 0.0 |
| 2005 10 01 | G96 | 0.1− | 0.2− | 2005 12 30 | 699 | (0.7+ | 1.8+) | 2009 12 17 | G96 | 0.1− | 0.1− |
| 2005 10 24 | 691 | 0.2+ | 0.0 | 2005 12 30 | 699 | 0.4− | 0.9− | 2009 12 17 | G96 | 0.4+ | 0.2+ |
| 2005 10 24 | 691 | 0.1+ | 0.2+ | 2005 12 30 | 699 | 0.2+ | 1.3− | 2009 12 17 | G96 | 0.4+ | 0.0 |
| 2005 10 24 | 691 | 0.0 | 0.1+ | 2005 12 30 | 699 | (0.5+ | 1.6+) | 2009 12 17 | G96 | 0.4+ | 0.1− |
| 2005 10 28 | 691 | 0.1− | 0.0 | 2009 09 25 | 691 | 0.0 | 0.6+ | | | | |
| 2005 10 28 | 691 | 0.2− | 0.2+ | 2009 09 25 | 691 | 0.0 | 0.1− | | | | |

**(229456)∗ 2005 UN$_{190}$ = 2003 DD$_{19}$**

Discovered 2005 Oct. 27 by the Mt. Lemmon Survey at Mount Lemmon.

Id. G. V. Williams (*MPO* 96197)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 268.37540 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.25875062 | $\omega$ | 310.68004 | | −0.99285034 | | +0.11689282 |
| $a$ | 2.4390187 | $\Omega$ | 236.04602 | | −0.09883223 | | −0.91858135 |
| $e$ | 0.1569997 | $i$ | 1.66987 | | −0.06693576 | | −0.37755049 |
| $P$ | 3.81 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 02 21 | 644 | 0.3− | 1.4+ | 2005 12 02 | G96 | 0.2+ | 0.3− | 2007 04 18 | G96 | 0.4− | 0.0 |
| 2003 02 21 | 644 | 0.1− | 1.3+ | 2007 03 11 | 691 | 0.3− | 0.4+ | 2007 04 18 | G96 | 0.3− | 0.2+ |
| 2003 02 21 | 644 | 0.0 | 1.2+ | 2007 03 11 | 691 | 0.0 | 0.3− | 2007 04 18 | 699 | 0.2+ | 0.4− |
| 2003 02 23 | 699 | 0.8+ | 0.1− | 2007 03 11 | 691 | 0.1− | 0.2− | 2007 04 18 | G96 | 0.3− | 0.0 |
| 2003 02 23 | 699 | 0.7+ | 0.9− | 2007 03 15 | 691 | 0.1+ | 0.0 | 2007 04 18 | G96 | 0.3− | 0.0 |
| 2003 02 23 | 699 | 0.2+ | 0.2+ | 2007 03 15 | 691 | 0.3− | 0.4− | 2007 04 18 | G96 | 0.0 | 0.2+ |
| 2003 02 23 | 699 | 0.4+ | 0.9+ | 2007 03 15 | 691 | 0.1− | 0.0 | 2007 04 18 | G96 | 0.1+ | 0.1− |
| 2005 10 24 | 691 | 0.3+ | 0.1+ | 2007 03 20 | 691 | 0.1− | 0.3− | 2007 04 19 | G96 | 0.0 | 0.0 |
| 2005 10 24 | 691 | 0.3+ | 0.3+ | 2007 03 20 | 691 | 0.2+ | 0.2− | 2007 04 19 | G96 | 0.0 | 0.1+ |
| 2005 10 24 | 691 | (0.2− | 3.5+) | 2007 03 20 | 691 | 0.1− | 0.3− | 2007 04 19 | G96 | 0.1− | 0.0 |
| 2005 10 27 | G96 | 0.4− | 0.3− | 2007 04 16 | 704 | 0.8+ | 0.3+ | 2007 04 19 | G96 | 0.4− | 0.0 |
| 2005 10 27 | G96 | 0.8− | 0.2− | 2007 04 16 | 703 | 0.6− | 0.4− | 2007 04 19 | G96 | 0.1+ | 0.0 |
| 2005 10 27 | G96 | 0.2− | 0.6− | 2007 04 16 | 704 | 1.0+ | 1.4+ | 2007 04 19 | G96 | 0.1− | 0.1− |
| 2005 10 27 | G96 | 0.5− | 0.4− | 2007 04 16 | 703 | 0.4+ | 0.7+ | 2007 04 19 | G96 | 0.2+ | 0.0 |
| 2005 10 28 | 691 | 0.1− | 0.5+ | 2007 04 16 | 704 | 1.0+ | 0.3− | 2007 04 19 | G96 | 0.0 | 0.1− |
| 2005 10 28 | 691 | 0.1+ | 0.2− | 2007 04 16 | 703 | 0.4− | 0.0 | 2009 11 16 | 691 | 0.7− | 0.0 |
| 2005 10 28 | 691 | 0.1+ | 0.0 | 2007 04 16 | 704 | (1.9+ | 0.9−) | 2009 11 16 | 691 | 0.5− | 0.2− |
| 2005 11 05 | 691 | 0.1− | 0.1+ | 2007 04 16 | 703 | 0.0 | 0.4+ | 2009 11 16 | 691 | 1.1+ | 0.1+ |
| 2005 11 05 | 691 | 0.0 | 0.1− | 2007 04 18 | 699 | (2.3+ | 1.6+) | 2009 11 24 | 691 | 0.3− | 0.1− |
| 2005 11 05 | 691 | 0.2− | 0.1− | 2007 04 18 | G96 | 0.0 | 0.0 | 2009 11 24 | 691 | 0.1− | 0.3− |
| 2005 11 25 | G96 | 0.3+ | 0.1− | 2007 04 18 | 699 | 0.8− | 0.5− | 2009 11 24 | 691 | 0.1− | 0.1+ |
| 2005 11 25 | G96 | 0.8− | 0.5− | 2007 04 18 | G96 | 0.1+ | 0.2− | 2009 12 15 | G96 | 0.4+ | 0.6− |
| 2005 11 25 | G96 | 0.0 | 0.2+ | 2007 04 18 | G96 | 0.2− | 0.0 | 2009 12 15 | G96 | 1.1+ | 0.5− |
| 2005 11 25 | G96 | 0.4+ | 0.3− | 2007 04 18 | G96 | 0.0 | 0.0 | 2009 12 15 | G96 | 0.5+ | 0.3− |
| 2005 12 02 | G96 | 0.4+ | 0.4− | 2007 04 18 | G96 | 0.3− | 0.0 | 2009 12 15 | G96 | 0.7+ | 0.1− |
| 2005 12 02 | G96 | 0.0 | 0.2− | 2007 04 18 | 699 | 0.4+ | 1.4− | | | | |
| 2005 12 02 | G96 | 0.2+ | 0.1− | 2007 04 18 | G96 | 0.2+ | 0.0 | | | | |

**(229457)∗ 2005 UZ$_{191}$**

Discovered 2005 Oct. 27 by the Mt. Lemmon Survey at Mount Lemmon.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 322.48360 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.26968008 | $\omega$ | 247.84799 | | −0.90471758 | | −0.42530454 |
| $a$ | 2.3726670 | $\Omega$ | 266.97487 | | +0.39935310 | | −0.82663827 |
| $e$ | 0.1203219 | $i$ | 1.40806 | | +0.14833475 | | −0.36849047 |
| $P$ | 3.65 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 03 06 | 644 | 0.2+ | 0.1+ | 2005 11 11 | 691 | 0.3− | 0.2− | 2007 04 22 | G96 | 0.4+ | 0.3− |
| 2003 03 06 | 644 | 0.2+ | 0.7+ | 2005 11 12 | 691 | 0.1− | 0.3+ | 2007 04 22 | G96 | 0.1− | 0.5− |
| 2003 03 06 | 644 | 0.3+ | 0.6+ | 2005 11 12 | 691 | 0.2+ | 0.0 | 2007 04 22 | G96 | 0.0 | 0.0 |
| 2003 03 26 | 644 | 0.1+ | 0.6+ | 2005 11 12 | 691 | 0.4− | 0.2+ | 2007 04 22 | G96 | 0.4+ | 0.1− |
| 2003 03 26 | 644 | 0.0 | 0.3+ | 2005 11 21 | 691 | 0.1+ | 0.1+ | 2007 05 07 | 691 | 0.2+ | 0.2− |
| 2003 03 26 | 644 | 0.1− | 0.2+ | 2005 11 21 | 691 | 0.0 | 0.2+ | 2007 05 07 | 691 | 0.4+ | 0.0 |
| 2003 04 09 | 691 | 0.2+ | 0.3+ | 2005 11 21 | 691 | 0.1+ | 0.1+ | 2007 05 07 | 691 | 0.4− | 0.9+ |
| 2003 04 09 | 691 | 0.1− | 0.3+ | 2005 11 26 | G96 | 0.4− | 0.3− | 2008 08 21 | 691 | 0.1− | 0.1+ |
| 2003 04 09 | 691 | 0.2+ | 0.3+ | 2005 11 26 | G96 | 0.2+ | 0.3− | 2008 08 21 | 691 | 0.1+ | 0.1+ |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 05 29 | 807 | 0.0 | 0.1− | 2005 11 26 | G96 | 0.1+ | 0.0 | 2008 08 21 | 691 | 0.2+ | 0.2+ |
| 2003 05 30 | 807 | 0.1− | 0.1− | 2005 11 26 | G96 | 0.2+ | 0.0 | 2008 09 04 | 691 | 0.6− | 0.9+ |
| 2005 10 27 | G96 | 0.2+ | 0.1− | 2005 12 05 | G96 | 0.1− | 0.1− | 2008 09 04 | 691 | 0.4− | 0.0 |
| 2005 10 27 | G96 | 0.0 | 0.0 | 2005 12 05 | G96 | 0.3− | 0.1+ | 2008 09 04 | 691 | 0.1− | 0.4+ |
| 2005 10 27 | G96 | 0.0 | 0.0 | 2005 12 05 | G96 | 0.2− | 0.4+ | 2009 12 15 | G96 | 1.0+ | 0.2− |
| 2005 10 27 | G96 | 0.3− | 0.4− | 2005 12 05 | G96 | 0.4− | 0.2− | 2009 12 15 | G96 | 0.3+ | 0.4− |
| 2005 10 28 | 691 | 0.3+ | 0.1− | 2006 01 21 | G96 | 0.4+ | 0.2− | 2009 12 15 | G96 | 0.7+ | 0.3+ |
| 2005 10 28 | 691 | 0.0 | 0.1− | 2006 01 21 | G96 | 0.4+ | 0.1− | 2009 12 15 | G96 | 0.1+ | 0.2− |
| 2005 10 28 | 691 | 0.1+ | 0.2− | 2006 01 21 | G96 | 0.9+ | 0.7+ | 2009 12 15 | G96 | 0.6+ | 0.2− |
| 2005 11 01 | 691 | 0.1+ | 0.2+ | 2006 01 21 | G96 | 0.0 | 0.3− | 2009 12 25 | 691 | 0.0 | 0.1+ |
| 2005 11 01 | 691 | 0.0 | 0.0 | 2006 01 23 | G96 | 0.2+ | 0.7− | 2009 12 25 | 691 | 0.5− | 0.1− |
| 2005 11 01 | 691 | 0.4+ | 0.2− | 2006 01 23 | G96 | 0.0 | 0.3+ | 2009 12 25 | 691 | 0.2− | 0.3+ |
| 2005 11 11 | 691 | 0.0 | 0.2+ | 2006 01 23 | G96 | 0.1− | 0.3+ | | | | |
| 2005 11 11 | 691 | 0.3− | 0.3+ | 2006 01 23 | G96 | 0.1− | 0.5+ | | | | |

**(229458)∗ 2005 UC$_{196}$ = 2005 WN$_{170}$**

Discovered 2005 Oct. 24 by Spacewatch at Kitt Peak.

Id. A. Doppler (d, *MPO* 98189)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 251.88700 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.25877356 | $\omega$ | 341.35817 | | −0.98128092 | +0.18933685 | |
| $a$ | 2.4388745 | $\Omega$ | 209.62532 | | −0.16639651 | −0.92559879 | |
| $e$ | 0.0990549 | $i$ | 4.08383 | | −0.09695338 | −0.32774751 | |
| $P$ | 3.81 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 12 07 | 645 | 0.0 | 0.0 | 2005 11 30 | G96 | 0.0 | 0.5− | 2009 11 10 | 691 | 0.4+ | 0.1− |
| 2002 12 07 | 645 | 0.0 | 0.0 | 2005 12 04 | G96 | 0.5− | 0.3− | 2009 11 18 | 691 | 0.7− | 0.0 |
| 2005 10 01 | G96 | 0.0 | 0.3− | 2005 12 04 | G96 | 0.3− | 0.4− | 2009 11 18 | 691 | 0.1+ | 0.1+ |
| 2005 10 01 | G96 | 0.3+ | 0.1− | 2005 12 04 | G96 | 0.3+ | 0.4− | 2009 11 18 | 691 | 0.1+ | 0.0 |
| 2005 10 01 | G96 | 0.0 | 0.1− | 2005 12 04 | G96 | 0.5− | 0.2− | 2009 11 22 | 691 | 0.9+ | 0.0 |
| 2005 10 01 | G96 | 0.2+ | 0.2− | 2007 03 13 | G96 | 0.3+ | 0.3+ | 2009 11 22 | 691 | 0.8− | 0.1− |
| 2005 10 24 | 691 | 0.1+ | 0.0 | 2007 03 13 | G96 | 0.1− | 0.4+ | 2009 11 22 | 691 | 0.2+ | 0.0 |
| 2005 10 24 | 691 | 0.1+ | 0.2− | 2007 03 13 | G96 | 0.2− | 0.4+ | 2009 11 23 | J75 | 0.1+ | 0.0 |
| 2005 10 24 | 691 | 0.2+ | 0.1+ | 2007 03 13 | G96 | 0.1− | 0.4+ | 2009 11 23 | J75 | 0.5+ | 0.2− |
| 2005 10 28 | G96 | 0.1− | 0.3− | 2007 03 17 | 699 | 1.1− | 0.1− | 2009 11 23 | J75 | 0.8+ | 0.3+ |
| 2005 10 28 | G96 | 0.3+ | 0.0 | 2007 03 17 | 699 | (0.7+ | 1.7+) | 2009 11 25 | 703 | (1.6+ | 1.1−) |
| 2005 10 28 | G96 | 0.2+ | 0.3− | 2007 03 17 | 699 | 0.3+ | 0.5+ | 2009 11 25 | 703 | 0.4+ | 0.8− |
| 2005 10 28 | G96 | 0.2+ | 0.5− | 2007 03 17 | 699 | 0.3+ | 0.4− | 2009 11 25 | 703 | 0.7− | 1.0− |
| 2005 10 30 | 691 | 0.3− | 0.7+ | 2007 04 20 | G96 | 0.5+ | 0.3− | 2009 11 25 | 703 | 0.0 | 0.8− |
| 2005 10 30 | 691 | 0.4− | 0.3+ | 2007 04 20 | G96 | 0.0 | 0.1− | 2009 12 19 | 691 | 0.2− | 0.3+ |
| 2005 10 30 | 691 | 0.1+ | 0.1+ | 2007 04 20 | G96 | 0.2+ | 0.0 | 2009 12 19 | 691 | 0.0 | 0.0 |
| 2005 11 30 | G96 | 0.3+ | 0.1+ | 2007 04 20 | G96 | 0.3+ | 0.2− | 2009 12 19 | 691 | 0.1− | 0.3+ |
| 2005 11 30 | G96 | 0.1+ | 0.1− | 2009 11 10 | 691 | 0.1− | 0.0 | | | | |
| 2005 11 30 | G96 | 0.3+ | 0.4− | 2009 11 10 | 691 | 0.1− | 0.2+ | | | | |

**(229459)∗ 2005 UM$_{196}$**

Discovered 2005 Oct. 24 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 210.60942 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27420978 | $\omega$ | 179.71044 | | −0.48698316 | +0.87232764 | |
| $a$ | 2.3464650 | $\Omega$ | 61.14672 | | −0.80143905 | −0.42650337 | |
| $e$ | 0.1832421 | $i$ | 2.84652 | | −0.34719280 | −0.23903841 | |
| $P$ | 3.59 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 24 | 691 | 0.1+ | 0.3+ | 2007 01 24 | 704 | 0.5− | 0.6− | 2008 08 30 | J75 | 1.1− | 0.0 |
| 2005 10 24 | 691 | 0.0 | 0.4+ | 2007 01 24 | 704 | 0.9+ | 0.4+ | 2008 08 30 | J75 | 0.5+ | 0.3+ |
| 2005 10 24 | 691 | 0.2+ | 0.0 | 2007 01 24 | 704 | (1.8+ | 0.7−) | 2008 10 27 | G96 | 0.1− | 0.1− |
| 2005 10 28 | G96 | 0.7+ | 0.5− | 2007 01 24 | 704 | 0.2+ | 0.6+ | 2008 10 27 | G96 | 0.2+ | 0.0 |
| 2005 10 28 | G96 | 0.7+ | 0.1+ | 2007 01 24 | 704 | 0.6+ | 1.1− | 2008 10 27 | G96 | 0.2+ | 0.1+ |
| 2005 10 28 | G96 | 0.3− | 0.1− | 2007 01 26 | 691 | 0.4+ | 0.1+ | 2008 10 27 | G96 | 0.1+ | 0.2+ |
| 2005 10 28 | G96 | 0.1+ | 0.4− | 2007 01 26 | 691 | 0.2+ | 0.1− | 2009 11 09 | 691 | 0.1+ | 0.2+ |
| 2005 11 04 | 691 | 0.0 | 0.0 | 2007 01 26 | 691 | 0.3+ | 0.2+ | 2009 11 09 | 691 | 0.2+ | 0.2+ |
| 2005 11 04 | 691 | 0.3− | 0.1+ | 2007 02 16 | 703 | 0.2− | 1.0− | 2009 11 09 | 691 | 0.2− | 0.2− |
| 2005 11 04 | 691 | 0.3− | 0.3− | 2007 02 16 | 703 | 0.3+ | 0.2− | 2009 11 25 | 691 | 0.5− | 0.2− |
| 2005 12 04 | G96 | 0.1+ | 0.4− | 2007 02 16 | 703 | 0.3+ | 0.8+ | 2009 11 25 | 691 | 0.2+ | 0.3− |
| 2005 12 04 | G96 | 0.1− | 0.4− | 2007 02 16 | 703 | 0.6− | 1.0+ | 2009 11 25 | 691 | 0.2− | 0.1+ |
| 2005 12 04 | G96 | 0.4− | 0.3+ | 2007 03 20 | G96 | 0.3+ | 0.5− | 2009 12 10 | G96 | 0.1+ | 0.3− |
| 2005 12 04 | G96 | 0.6+ | 0.2− | 2007 03 20 | G96 | 0.4+ | 0.3− | 2009 12 10 | G96 | 1.0+ | 0.6+ |
| 2007 01 17 | 691 | 0.5− | 0.1− | 2007 03 20 | G96 | 0.4+ | 0.4− | 2009 12 10 | G96 | 0.3+ | 0.0 |
| 2007 01 17 | 691 | 0.6− | 0.3+ | 2007 03 20 | G96 | 0.3+ | 0.4− | 2009 12 10 | G96 | 0.0 | 0.2− |
| 2007 01 17 | 691 | 0.4− | 0.2+ | 2008 08 29 | J75 | 0.3+ | 0.3− | | | | |

**(229460)∗ 2005 UO$_{196}$**

Discovered 2005 Oct. 24 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 18.25702 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26975226 | $\omega$ | 277.74046 | | +0.07952851 | −0.99682529 | |
| $a$ | 2.3722438 | $\Omega$ | 167.69613 | | +0.92148799 | +0.07205719 | |
| $e$ | 0.1569326 | $i$ | 1.02587 | | +0.38017772 | +0.03386888 | |
| $P$ | 3.65 | $H$ | 17.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 24 | 691 | 0.1+ | 0.4+ | 2005 11 25 | 703 | (1.7+ | 0.4+) | 2007 04 18 | G96 | 0.1− | 0.0 |
| 2005 10 24 | 691 | 0.2+ | 0.3+ | 2005 11 25 | 703 | 1.4− | 0.5− | 2007 04 18 | G96 | 0.2+ | 0.1− |
| 2005 10 24 | 691 | 0.2+ | 0.2+ | 2005 11 25 | 703 | 0.8− | 0.0 | 2007 05 07 | 691 | 0.4+ | 0.5+ |
| 2005 10 24 | A50 | 0.0 | 0.1+ | 2005 11 25 | 703 | 0.7− | 1.1+ | 2007 05 07 | 691 | 0.2+ | 0.4+ |
| 2005 10 24 | A50 | 0.1+ | 0.0 | 2005 11 30 | G96 | 0.0 | 0.1− | 2007 05 07 | 691 | 0.1+ | 0.2+ |
| 2005 10 28 | G96 | 0.3+ | 0.4− | 2005 11 30 | G96 | 0.3− | 0.1− | 2008 07 29 | G96 | 0.0 | 0.2− |
| 2005 10 28 | G96 | 0.2+ | 0.1− | 2005 11 30 | G96 | 0.0 | 0.0 | 2008 07 29 | G96 | 0.3− | 0.3− |
| 2005 10 28 | G96 | 0.3− | 0.3− | 2005 11 30 | G96 | 0.3+ | 0.2+ | 2008 07 29 | G96 | 0.0 | 0.4− |
| 2005 10 28 | G96 | 0.2+ | 0.3− | 2005 12 31 | G96 | 0.1+ | 0.2− | 2008 07 29 | G96 | 0.3+ | 0.3+ |
| 2005 11 04 | 691 | 0.2+ | 0.2− | 2005 12 31 | G96 | 0.2− | 0.2− | 2009 11 17 | G96 | 0.1+ | 0.0 |
| 2005 11 04 | 691 | 0.0 | 0.2− | 2005 12 31 | G96 | 0.6+ | 0.2− | 2009 11 17 | G96 | 0.4+ | 0.2+ |
| 2005 11 04 | 691 | 0.0 | 0.1− | 2005 12 31 | G96 | 1.2− | 0.3+ | 2009 11 17 | G96 | 0.7+ | 0.1− |
| 2005 11 06 | 704 | 0.1+ | 0.5− | 2007 03 26 | 691 | 0.6+ | 0.5+ | 2009 11 17 | G96 | 0.4+ | 0.2+ |
| 2005 11 06 | 704 | 0.5− | 0.2+ | 2007 03 26 | 691 | 1.0− | 0.1− | 2009 11 25 | G96 | 0.3+ | 0.2+ |
| 2005 11 06 | 704 | 0.6− | 0.8+ | 2007 03 26 | 691 | 0.3− | 0.0 | 2009 11 25 | G96 | 0.1− | 0.3− |
| 2005 11 06 | 704 | 0.4− | 0.1− | 2007 04 18 | G96 | 0.1+ | 0.1− | 2009 11 25 | G96 | 0.1+ | 0.1− |
| 2005 11 06 | 704 | 0.0 | 0.4− | 2007 04 18 | G96 | 0.2+ | 0.1− | 2009 11 25 | G96 | 0.3− | 0.5− |
| 2005 11 10 | 703 | 0.8+ | 0.9+ | 2007 04 18 | G96 | 0.5+ | 0.2− | 2009 12 15 | G96 | 0.4+ | 0.4− |
| 2005 11 10 | 703 | 0.8− | 1.1+ | 2007 04 18 | G96 | 0.2+ | 0.2− | 2009 12 15 | G96 | 0.4+ | 0.3− |
| 2005 11 10 | 703 | 1.1+ | 0.6+ | 2007 04 18 | G96 | (2.0+ | 0.6−) | 2009 12 15 | G96 | 0.1− | 0.3− |
| 2005 11 10 | 703 | 0.0 | 0.7+ | 2007 04 18 | G96 | 0.0 | 0.8+ | 2009 12 15 | G96 | 0.2− | 0.0 |
| 2005 11 10 | 703 | 0.4− | 0.4+ | 2007 04 18 | G96 | 0.3− | 0.6− | 2009 12 25 | 691 | 1.4− | 0.5− |
| 2005 11 10 | 703 | 0.1− | 0.0 | 2007 04 18 | G96 | 0.4+ | 0.2− | 2009 12 25 | 691 | 0.5− | 0.5+ |
| 2005 11 10 | 703 | 0.5− | 0.2+ | 2007 04 18 | G96 | 0.5+ | 0.1+ | 2009 12 25 | 691 | 1.5+ | 0.1− |
| 2005 11 10 | 703 | 0.2− | 0.1+ | 2007 04 18 | G96 | 0.2+ | 0.3+ | | | | |

**(229461)∗ 2005 UG$_{217}$**

Discovered 2005 Oct. 27 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 338.36225 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26616631 | $\omega$ | 66.85227 | | −0.49479135 | −0.86817035 | |
| $a$ | 2.3935031 | $\Omega$ | 52.85935 | | +0.77873320 | −0.46248639 | |
| $e$ | 0.1392206 | $i$ | 2.74906 | | +0.38568916 | −0.17996273 | |
| $P$ | 3.70 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 12 11 | 645 | 0.1− | 0.1+ | 2005 10 31 | 691 | 0.0 | 0.1− | 2007 03 20 | 691 | 0.4− | 0.2+ |
| 2002 12 11 | 645 | 0.2+ | 0.0 | 2005 10 31 | 691 | 0.1+ | 0.1+ | 2007 03 29 | 691 | 0.1+ | 0.2+ |
| 2003 03 23 | 645 | 0.1− | 0.0 | 2005 11 01 | 704 | 0.2+ | 1.4+ | 2007 03 29 | 691 | 0.2+ | 0.1+ |
| 2003 03 23 | 645 | 0.1− | 0.0 | 2005 11 01 | 704 | 0.4− | 0.1− | 2007 03 29 | 691 | 0.2+ | 0.0 |
| 2003 03 31 | 645 | 0.0 | 0.0 | 2005 11 01 | 704 | 0.3+ | 1.1− | 2007 04 16 | G96 | 0.2− | 0.2− |
| 2003 03 31 | 645 | 0.1+ | 0.0 | 2005 11 25 | G96 | 0.1− | 0.0 | 2007 04 16 | G96 | 0.2− | 0.0 |
| 2005 10 01 | G96 | 0.2− | 0.2+ | 2005 11 25 | G96 | 0.3+ | 0.1+ | 2007 04 16 | G96 | 0.2− | 0.2+ |
| 2005 10 01 | G96 | 0.2− | 0.1− | 2005 11 25 | G96 | 0.5− | 0.3− | 2007 04 16 | G96 | 0.1− | 0.3− |
| 2005 10 01 | G96 | 0.0 | 0.1+ | 2005 11 25 | G96 | 0.1− | 0.1− | 2009 08 27 | 691 | 0.5− | 0.3− |
| 2005 10 01 | G96 | 0.1+ | 0.2+ | 2005 12 01 | 691 | 0.1− | 0.1+ | 2009 08 27 | 691 | 0.3− | 0.2+ |
| 2005 10 27 | 691 | 0.4− | 0.7+ | 2005 12 01 | 691 | 0.1+ | 0.1+ | 2009 08 27 | 691 | 1.0− | 0.6− |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 27 | 691 | 0.2+ | 0.2+ | 2005 12 01 | 691 | 0.2+ | 0.1− | 2009 11 21 | 691 | 0.0 | 0.3− |
| 2005 10 27 | 691 | 0.1− | 0.2+ | 2007 03 11 | G96 | 0.3− | 0.3+ | 2009 11 21 | 691 | 0.1− | 0.0 |
| 2005 10 28 | 704 | 0.9− | 0.6+ | 2007 03 11 | G96 | 0.4+ | 0.1+ | 2009 11 21 | 691 | 0.0 | 0.3− |
| 2005 10 28 | 704 | 0.8− | 0.5− | 2007 03 11 | G96 | 0.5+ | 0.1− | 2009 12 16 | 704 | 1.0+ | 0.4+ |
| 2005 10 28 | 704 | 0.4+ | 0.0 | 2007 03 11 | G96 | 0.0 | 0.4+ | 2009 12 16 | 704 | 0.8+ | 0.3+ |
| 2005 10 28 | 704 | 0.7+ | 0.1+ | 2007 03 20 | 691 | 0.2+ | 0.0 | 2009 12 16 | 704 | 1.4+ | 1.0+ |
| 2005 10 31 | 691 | 0.3+ | 0.2− | 2007 03 20 | 691 | 0.1+ | 0.1+ | | | | |

**(229462)∗ 2005 UU$_{217}$ = 2000 FV$_{61}$**

Discovered 2005 Oct. 22 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 96216)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 291.71935 | | (2000.0) | | | |
| $n$ | 0.28505479 | $\omega$ | 119.67256 | | −0.94248897 | +0.32718514 |
| $a$ | 2.2865664 | $\Omega$ | 79.49676 | | −0.32562277 | −0.85273197 |
| $e$ | 0.1462299 | $i$ | 3.98300 | | −0.07539467 | −0.40718310 |
| $P$ | 3.46 | $H$ | 17.5 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 03 30 | 704 | 0.6+ | 1.2+ | 2005 10 29 | G96 | 0.5− | 0.1− | 2007 05 06 | 691 | 0.1− | 0.0 |
| 2000 03 30 | 704 | 0.5− | 0.1− | 2005 10 29 | G96 | 0.3− | 0.5− | 2009 11 11 | G96 | 0.9+ | 0.3− |
| 2000 03 30 | 704 | 0.4− | 0.5+ | 2005 10 29 | G96 | 0.4− | 0.4− | 2009 11 11 | G96 | 0.4+ | 0.0 |
| 2000 03 30 | 704 | 0.5+ | 1.7+ | 2005 10 29 | G96 | 0.2− | 0.1− | 2009 11 11 | G96 | 0.2− | 0.7− |
| 2000 04 08 | 704 | 0.3− | 1.8+ | 2005 10 31 | 691 | 0.0 | 0.0 | 2009 11 11 | G96 | 0.2+ | 0.2− |
| 2000 04 08 | 704 | 0.1+ | 0.0 | 2005 10 31 | 691 | 0.2− | 0.0 | 2009 11 21 | G96 | 0.2+ | 0.7− |
| 2000 04 08 | 704 | 0.4− | 0.7+ | 2005 10 31 | 691 | 0.0 | 0.3+ | 2009 11 21 | G96 | 0.0 | 0.1− |
| 2000 04 08 | 704 | 0.9− | 1.7+ | 2005 11 06 | 691 | 0.1− | 0.4+ | 2009 11 21 | G96 | 0.2− | 0.1− |
| 2000 05 05 | 645 | 0.1+ | 0.0 | 2005 11 06 | 691 | 0.0 | 0.2+ | 2009 11 21 | G96 | 0.3+ | 0.2− |
| 2000 05 05 | 645 | 0.1+ | 0.0 | 2005 11 06 | 691 | 0.1+ | 0.7+ | 2009 12 17 | G96 | 0.2− | 0.1− |
| 2005 10 22 | 691 | 0.2+ | 0.3+ | 2005 11 10 | 691 | 0.3− | 0.6+ | 2009 12 17 | G96 | 0.3− | 0.5− |
| 2005 10 22 | 691 | 0.3+ | 0.2+ | 2005 11 10 | 691 | 0.2− | 0.1+ | 2009 12 17 | G96 | 0.0 | 0.7− |
| 2005 10 22 | 691 | 0.1− | 0.3+ | 2005 11 10 | 691 | 0.4− | 0.1+ | 2009 12 17 | G96 | 0.1− | 0.6− |
| 2005 10 27 | 691 | 0.3− | 0.0 | 2007 04 16 | 699 | 0.4− | 0.9+ | 2009 12 18 | 691 | 0.2+ | 0.0 |
| 2005 10 27 | 691 | 0.2− | 0.1+ | 2007 04 16 | 699 | 0.7− | 0.1+ | 2009 12 18 | 691 | 0.5− | 0.3− |
| 2005 10 27 | 691 | (2.2+ | 3.3−) | 2007 04 16 | 699 | 0.9+ | 0.6+ | 2009 12 18 | 691 | 0.0 | 0.1− |
| 2005 10 29 | 691 | 0.2+ | 0.3+ | 2007 04 16 | 699 | 1.2+ | 0.3+ | 2009 12 18 | 691 | 0.1+ | 0.1− |
| 2005 10 29 | 691 | 0.1+ | 0.1+ | 2007 05 06 | 691 | 0.1+ | 0.1+ | 2009 12 18 | 691 | 0.0 | 0.2− |
| 2005 10 29 | 691 | 0.2− | 0.0 | 2007 05 06 | 691 | 0.1− | 0.3+ | 2009 12 18 | 691 | 0.1− | 0.2− |

**(229463)∗ 2005 UZ$_{221}$**

Discovered 2005 Oct. 25 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 286.48479 | | (2000.0) | | | |
| $n$ | 0.25657802 | $\omega$ | 225.91530 | | −0.92395111 | −0.38070855 |
| $a$ | 2.4527677 | $\Omega$ | 291.67520 | | +0.36136237 | −0.83696460 |
| $e$ | 0.1282104 | $i$ | 2.28713 | | +0.12542560 | −0.39313008 |
| $P$ | 3.84 | $H$ | 17.7 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 12 31 | 691 | 0.2− | 0.2+ | 2003 03 27 | 691 | 0.1+ | 0.5+ | 2007 03 14 | 691 | 0.3− | 0.0 |
| 1994 12 31 | 691 | 0.0 | 1.2− | 2003 03 27 | 691 | 0.7+ | 0.2+ | 2007 03 14 | 691 | 0.3− | 0.1− |
| 1995 01 07 | 691 | 1.7+ | 1.2+ | 2003 04 09 | 691 | 0.4+ | 0.1− | 2007 03 14 | 691 | 0.4− | 0.6+ |
| 1995 01 07 | 691 | 0.6− | 0.5− | 2003 04 09 | 691 | 0.5+ | 0.2− | 2007 03 18 | 691 | 0.6− | 0.1− |
| 1995 01 07 | 691 | (4.7+ | 0.7−) | 2003 04 09 | 691 | 0.1+ | 0.6− | 2007 03 18 | 691 | 0.2− | 0.0 |
| 1995 01 08 | 691 | 0.9− | 0.5− | 2005 10 25 | 691 | 0.2− | 0.4+ | 2007 03 18 | 691 | 0.3− | 0.2+ |
| 1995 01 08 | 691 | 0.8− | 0.5− | 2005 10 25 | 691 | 0.1− | 0.4+ | 2009 11 20 | G96 | 0.2− | 0.2− |
| 1995 01 08 | 691 | 0.7− | 0.1+ | 2005 10 25 | 691 | 0.6− | 0.2+ | 2009 11 20 | G96 | 0.2+ | 0.1− |
| 2003 02 23 | 599 | 0.6+ | 0.1− | 2005 10 29 | 691 | 0.2+ | 0.2− | 2009 11 20 | G96 | 0.1− | 0.4− |
| 2003 02 23 | 599 | 0.3+ | 0.4+ | 2005 10 29 | 691 | 0.2+ | 0.2+ | 2009 11 20 | G96 | 0.2+ | 0.1− |
| 2003 02 24 | 599 | 0.6+ | 0.0 | 2005 10 29 | 691 | 0.4+ | 0.3− | 2009 11 27 | 691 | 0.4− | 0.5− |
| 2003 02 24 | 599 | 0.2+ | 0.4− | 2005 11 06 | 691 | 0.1+ | 0.7+ | 2009 11 27 | 691 | 0.1− | 0.0 |
| 2003 03 07 | 699 | 0.4+ | 0.5+ | 2005 11 06 | 691 | 0.4+ | 0.9+ | 2009 11 27 | 691 | 0.3− | 0.0 |
| 2003 03 07 | 699 | 0.2+ | 0.9+ | 2005 11 06 | 691 | 0.3+ | 0.1+ | 2009 12 17 | G96 | 0.1+ | 0.8− |
| 2003 03 07 | 699 | 0.3+ | 0.1− | 2005 11 21 | 691 | 0.2− | 0.7+ | 2009 12 17 | G96 | 0.2+ | 0.5− |
| 2003 03 07 | 699 | 0.6− | 1.0+ | 2005 11 21 | 691 | 0.1+ | 0.3− | 2009 12 17 | G96 | 0.2+ | 0.5− |
| 2003 03 27 | 691 | 1.4+ | 0.6+ | 2005 11 21 | 691 | 0.2− | 0.2+ | 2009 12 17 | G96 | 0.2+ | 0.2− |

**(229464)∗ 2005 UK$_{226}$**

Discovered 2005 Oct. 25 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 245.55838 | | (2000.0) | | | |
| $n$ | 0.26453790 | $\omega$ | 352.98773 | | −0.89540473 | +0.44307510 |
| $a$ | 2.4033155 | $\Omega$ | 213.42415 | | −0.40453599 | −0.85081451 |
| $e$ | 0.0915191 | $i$ | 4.58022 | | −0.18601344 | −0.28248739 |
| $P$ | 3.73 | $H$ | 17.0 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 10 18 | 291 | 0.2+ | 0.4+ | 2007 02 23 | 691 | 0.2+ | 0.0 | 2007 03 16 | 704 | (1.6+ | 0.3+) |
| 2001 10 18 | 291 | 0.8+ | 0.1+ | 2007 03 10 | 185 | 0.2− | 0.4− | 2007 03 16 | 704 | 0.8+ | 1.0+ |
| 2001 10 18 | 291 | 0.2+ | 0.1+ | 2007 03 11 | 185 | 0.3+ | 0.9− | 2007 03 16 | 704 | (0.1− | 2.1+) |
| 2003 01 28 | 645 | 0.1− | 0.0 | 2007 03 11 | 703 | 0.7+ | 0.8+ | 2007 03 17 | 699 | 0.6+ | 0.0 |
| 2003 01 28 | 645 | 0.0 | 0.0 | 2007 03 11 | 703 | 0.1+ | 0.3+ | 2007 03 17 | 699 | 1.4+ | 0.3+ |
| 2003 01 28 | 645 | 0.1− | 0.0 | 2007 03 11 | 703 | 0.4− | 0.2+ | 2007 03 17 | 699 | 0.5+ | 0.0 |
| 2003 01 28 | 645 | 0.2− | 0.1− | 2007 03 11 | 703 | 1.1− | 0.7+ | 2007 03 17 | 699 | 0.8+ | 0.9+ |
| 2005 10 25 | 691 | 0.1+ | 0.0 | 2007 03 11 | 185 | 0.7− | 0.7+ | 2007 03 21 | 704 | 0.7+ | 0.5+ |
| 2005 10 25 | 691 | 0.4+ | 0.4+ | 2007 03 11 | 185 | (1.5− | 1.1+) | 2007 03 21 | 704 | 1.0+ | 0.8+ |
| 2005 10 25 | 691 | 0.2+ | 0.2+ | 2007 03 11 | 185 | 0.8− | 0.2− | 2007 03 21 | 704 | 0.5+ | 0.2− |
| 2005 10 29 | 691 | 0.2+ | 0.3+ | 2007 03 11 | 185 | 1.0− | 0.1− | 2007 03 21 | 704 | 1.1+ | 1.0+ |
| 2005 10 29 | 691 | 0.0 | 0.3+ | 2007 03 13 | G96 | 0.1+ | 0.0 | 2007 04 22 | G96 | 0.2− | 0.2− |
| 2005 10 29 | 691 | 0.3− | 0.0 | 2007 03 13 | G96 | 0.6− | 0.0 | 2007 04 22 | G96 | 0.1− | 0.1− |
| 2005 11 06 | 691 | 0.2+ | 0.3− | 2007 03 13 | G96 | 0.3− | 0.1+ | 2007 04 22 | G96 | 0.1− | 0.2− |
| 2005 11 06 | 691 | 0.0 | 0.1− | 2007 03 13 | G96 | 0.1− | 0.0 | 2007 04 22 | G96 | 0.1+ | 0.2− |
| 2005 11 06 | 691 | 0.0 | 0.0 | 2007 03 13 | G96 | 0.0 | 0.1+ | 2008 07 29 | 691 | 0.3− | 0.0 |
| 2005 11 06 | G96 | 0.2− | 0.2− | 2007 03 13 | G96 | 0.2− | 0.1+ | 2008 07 29 | 691 | 0.6− | 0.3+ |
| 2005 11 06 | G96 | 0.1+ | 0.4− | 2007 03 13 | G96 | 0.5− | 0.3+ | 2008 07 29 | 691 | 0.7− | 0.3+ |
| 2005 11 06 | G96 | 0.6− | 0.2− | 2007 03 13 | G96 | 0.3− | 0.0 | 2008 11 19 | G96 | 0.7− | 0.4+ |
| 2005 11 06 | G96 | 0.1− | 0.3− | 2007 03 13 | 246 | 0.6+ | 0.9+ | 2008 11 19 | G96 | 0.0 | 0.3+ |
| 2005 11 12 | 691 | 0.4+ | 0.1+ | 2007 03 13 | 246 | 0.7+ | 0.5+ | 2008 11 19 | G96 | 0.4− | 0.1− |
| 2005 11 12 | 691 | 0.5− | 0.2+ | 2007 03 13 | 246 | 0.6+ | 0.5+ | 2008 11 19 | G96 | 0.1− | 0.3+ |
| 2005 11 12 | 691 | 0.1+ | 0.1+ | 2007 03 13 | 246 | (1.5+ | 0.0 ) | 2009 11 22 | 691 | 0.3+ | 0.8+ |
| 2005 12 04 | G96 | 0.4− | 0.3− | 2007 03 13 | 246 | 0.8+ | 0.2+ | 2009 11 22 | 691 | 1.0− | 0.3+ |
| 2005 12 04 | G96 | 0.1− | 0.0 | 2007 03 13 | 246 | 1.0+ | 0.2− | 2009 11 22 | 691 | 0.1+ | 0.1− |
| 2005 12 04 | G96 | 0.3+ | 0.4− | 2007 03 13 | 246 | 0.4+ | 0.3+ | 2009 12 11 | G96 | 0.2+ | 0.1− |
| 2005 12 04 | G96 | 0.0 | 0.5− | 2007 03 13 | 246 | 0.1− | 0.4− | 2009 12 11 | G96 | 0.5+ | 0.1− |
| 2007 02 23 | 691 | 0.2+ | 0.1+ | 2007 03 13 | 246 | 1.0+ | 0.1− | 2009 12 11 | G96 | 0.3+ | 0.1− |
| 2007 02 23 | 691 | 0.0 | 0.2+ | 2007 03 16 | 704 | 0.9+ | 0.4− | 2009 12 11 | G96 | 0.6+ | 0.1− |

**(229465)∗ 2005 UB$_{250}$**

Discovered 2005 Oct. 23 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 53.60541 | | (2000.0) | | | |
| $n$ | 0.26115322 | $\omega$ | 71.38205 | | +0.97281894 | −0.22109372 |
| $a$ | 2.4240363 | $\Omega$ | 301.33910 | | +0.17017457 | +0.88422752 |
| $e$ | 0.1523898 | $i$ | 4.62394 | | +0.15704751 | +0.41141130 |
| $P$ | 3.77 | $H$ | 17.2 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 12 26 | 691 | 0.4+ | 0.3− | 2005 10 08 | 704 | 0.3+ | 0.5+ | 2005 11 02 | 704 | 0.4+ | 0.6+ |
| 1998 12 26 | 691 | 0.0 | 1.2− | 2005 10 08 | 704 | 0.8+ | 0.3+ | 2005 11 02 | 704 | 0.8+ | 1.0+ |
| 1998 12 26 | 691 | 0.5− | 0.7− | 2005 10 08 | 704 | 0.3+ | 0.6− | 2005 11 07 | 704 | 0.2− | 1.4− |
| 1999 01 15 | 691 | 0.0 | 0.2+ | 2005 10 08 | 704 | 1.2− | 0.0 | 2005 11 07 | 704 | 0.9− | 1.0− |
| 1999 01 15 | 691 | 0.6− | 0.1− | 2005 10 23 | 644 | 0.0 | 0.1+ | 2005 11 07 | 704 | 0.2− | 0.7− |
| 1999 01 15 | 691 | 0.1+ | 0.2+ | 2005 10 23 | 644 | 0.0 | 0.1+ | 2005 11 07 | 704 | 0.0 | 0.0 |
| 2001 08 17 | 704 | 1.0− | 0.2− | 2005 10 23 | 644 | 0.1+ | 0.3+ | 2005 11 07 | 704 | 0.8+ | 0.3− |
| 2001 08 17 | 704 | (0.4− | 1.7+) | 2005 10 23 | 644 | 0.1+ | 0.2+ | 2005 12 22 | 291 | 0.2+ | 0.2+ |
| 2001 08 17 | 704 | 1.1+ | 0.7+ | 2005 10 23 | 644 | 0.0 | 0.1+ | 2005 12 22 | 291 | 0.0 | 0.3+ |
| 2001 08 17 | 704 | 0.3− | 0.4+ | 2005 10 23 | 644 | 0.0 | 0.3+ | 2005 12 22 | 291 | 0.2+ | 0.2+ |
| 2001 09 08 | 704 | 0.4+ | 1.0− | 2005 10 29 | 703 | 0.3− | 0.5+ | 2009 11 22 | 691 | 0.5− | 0.1− |
| 2001 09 08 | 704 | 0.7+ | 0.0 | 2005 10 29 | 703 | 0.5− | 0.3− | 2009 11 22 | 691 | 0.2− | 0.0 |
| 2001 09 08 | 704 | 0.4+ | 0.7− | 2005 10 29 | 703 | 1.3− | 0.2+ | 2009 11 22 | 691 | 0.1− | 0.0 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 08 | 704 | (0.3− | 1.8+) | 2005 10 29 | 703 | 1.0− | 0.2+ | 2009 11 26 | 691 | 0.3− | 0.0 | | |
| 2001 09 16 | 704 | 0.0 | 0.7+ | 2005 10 30 | 704 | 0.2− | 1.3+ | 2009 11 26 | 691 | 0.2− | 0.2+ | | |
| 2001 09 16 | 704 | 0.1− | 1.2+ | 2005 10 30 | 704 | 1.0+ | 1.2+ | 2009 11 26 | 691 | 0.0 | 0.2− | | |
| 2001 09 16 | 704 | (0.7− | 1.5+) | 2005 10 30 | 704 | 0.5+ | 0.3+ | 2009 12 18 | G96 | 0.3+ | 0.1+ | | |
| 2001 09 16 | 704 | 0.2− | 1.3+ | 2005 10 30 | 704 | 0.4+ | 0.1− | 2009 12 18 | G96 | 0.6+ | 0.1+ | | |
| 2001 12 10 | 645 | 0.1− | 0.1− | 2005 10 30 | 704 | 0.5+ | 0.9+ | 2009 12 18 | G96 | 0.7+ | 0.0 | | |
| 2001 12 10 | 645 | 0.2− | 0.3− | 2005 11 02 | 704 | 0.5+ | 1.0+ | 2009 12 18 | G96 | 0.3+ | 0.1+ | | |
| 2003 01 28 | 645 | 0.1+ | 0.2+ | 2005 11 02 | 704 | 0.7+ | 0.2+ | | | | | | |
| 2003 01 28 | 645 | 0.1+ | 0.2+ | 2005 11 02 | 704 | 0.6+ | 0.8+ | | | | | | |

**(229466)∗ 2005 UO$_{252}$**

Discovered 2005 Oct. 26 by Spacewatch at Kitt Peak.

| Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 | | | | | MPC | | |
|---|---|---|---|---|---|---|---|
| $M$ | 11.48761 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22514095 | $\omega$ | 1.75476 | | +0.95542224 | −0.29381887 | |
| $a$ | 2.6760839 | $\Omega$ | 15.42674 | | +0.26953656 | +0.82799368 | |
| $e$ | 0.0419316 | $i$ | 6.25069 | | +0.12049230 | +0.47759496 | |
| $P$ | 4.38 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 10 06 | 691 | 0.0 | 0.0 | 2005 10 30 | 691 | 0.5− | 1.1+ | 2009 09 21 | G96 | 0.2+ | 0.3+ | | |
| 1996 10 06 | 691 | 0.3− | 0.0 | 2005 11 13 | 703 | 1.2− | 0.1+ | 2009 09 21 | G96 | 0.4− | 1.1− | | |
| 1996 10 06 | 691 | 0.1− | 0.0 | 2005 11 13 | 703 | (0.2+ | 3.2+) | 2009 09 21 | G96 | 0.0 | 0.3+ | | |
| 2003 03 27 | 691 | 0.4+ | 0.2+ | 2005 11 13 | 703 | 1.0+ | 0.8+ | 2009 09 21 | G96 | 0.2− | 0.0 | | |
| 2003 03 27 | 691 | 0.5+ | 0.0 | 2005 11 13 | 703 | 0.1− | 0.3+ | 2009 10 18 | G96 | 0.2+ | 0.1+ | | |
| 2003 03 27 | 691 | 0.3+ | 0.1+ | 2007 02 08 | 691 | 0.4− | 0.2− | 2009 10 18 | G96 | 0.6+ | 0.5+ | | |
| 2003 04 07 | 291 | 0.6+ | 0.3+ | 2007 02 08 | 691 | 0.6− | 0.2− | 2009 10 18 | G96 | 0.4+ | 0.3+ | | |
| 2003 04 07 | 291 | 0.6+ | 0.4+ | 2007 02 08 | 691 | 0.4− | 0.4− | 2009 10 18 | G96 | 0.2− | 0.1+ | | |
| 2003 04 07 | 291 | 0.6+ | 0.4+ | 2007 02 25 | G96 | 0.2− | 0.1+ | 2009 10 18 | G96 | 0.3+ | 0.6+ | | |
| 2003 05 05 | 691 | 0.2+ | 0.6+ | 2007 02 25 | G96 | 0.3+ | 0.1+ | 2009 10 18 | G96 | 0.2+ | 0.0 | | |
| 2003 05 05 | 691 | 0.5− | 0.7+ | 2007 02 25 | G96 | 0.3− | 0.1+ | 2009 10 18 | G96 | 0.1+ | 0.5+ | | |
| 2003 05 05 | 691 | 0.2− | 0.7+ | 2007 02 25 | G96 | 0.3+ | 0.0 | 2009 12 11 | G96 | 0.4+ | 0.3− | | |
| 2005 10 26 | 691 | 0.6+ | 0.0 | 2007 02 26 | G96 | 0.4− | 0.4+ | 2009 12 11 | G96 | 0.1+ | 0.1+ | | |
| 2005 10 26 | 691 | 0.2− | 0.3+ | 2007 02 26 | G96 | 0.0 | 0.1− | 2009 12 11 | G96 | 0.5− | 0.1− | | |
| 2005 10 26 | 691 | 0.3− | 0.3+ | 2007 02 26 | G96 | 0.1− | 0.3− | 2009 12 11 | G96 | 0.1− | 0.3+ | | |
| 2005 10 29 | 703 | 0.3+ | 0.4− | 2007 02 26 | G96 | 0.1− | 0.5− | 2009 12 16 | G96 | 1.7− | 0.5+ | | |
| 2005 10 29 | 703 | 0.4+ | 0.6+ | 2009 09 14 | 704 | (2.0− | 0.6+) | 2009 12 16 | G96 | 0.1− | 0.1− | | |
| 2005 10 29 | 703 | 0.3− | 0.7+ | 2009 09 14 | 704 | 1.4− | 1.0+ | 2009 12 16 | G96 | 0.7+ | 0.8− | | |
| 2005 10 29 | 703 | 0.4+ | 0.9− | 2009 09 14 | 704 | (1.6− | 0.8+) | 2009 12 16 | G96 | 0.6+ | 0.0 | | |
| 2005 10 30 | 691 | 0.0 | 0.1+ | 2009 09 14 | 704 | 1.3− | 0.3+ | | | | | | |
| 2005 10 30 | 691 | 0.3+ | 0.1+ | 2009 09 14 | 704 | 1.1− | 0.3+ | | | | | | |

**(229467)∗ 2005 UT$_{252}$ = 2001 QP$_{226}$**

Discovered 2005 Oct. 26 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Id. G. V. Williams (*MPO* 96236)

| Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 | | | | | MPC | | |
|---|---|---|---|---|---|---|---|
| $M$ | 25.31792 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26969771 | $\omega$ | 175.04619 | | +0.23753337 | −0.96501827 | |
| $a$ | 2.3725637 | $\Omega$ | 261.18096 | | +0.88732089 | +0.26204983 | |
| $e$ | 0.0928507 | $i$ | 6.44865 | | +0.39527147 | −0.00834426 | |
| $P$ | 3.65 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 17 | 644 | 0.5+ | 0.0 | 2005 10 30 | 644 | 0.0 | 0.2− | 2005 12 02 | 704 | 0.9− | 0.7− | | |
| 2001 08 17 | 644 | 0.3+ | 0.1− | 2005 10 30 | 644 | 0.1+ | 0.0 | 2005 12 02 | 704 | 1.1− | 0.7+ | | |
| 2001 08 17 | 644 | 0.7+ | 0.4+ | 2005 10 30 | 704 | 0.7+ | 0.9+ | 2005 12 02 | 704 | 0.2− | 0.5− | | |
| 2001 08 24 | 699 | 0.4− | 0.8+ | 2005 10 30 | 704 | (0.5+ | 1.6+) | 2005 12 02 | 704 | 1.1− | 0.4+ | | |
| 2001 08 24 | 699 | 0.6+ | 0.3+ | 2005 10 30 | 644 | 0.2+ | 0.0 | 2005 12 05 | 704 | 0.2− | 0.4+ | | |
| 2001 08 24 | 699 | 0.2+ | 0.1+ | 2005 10 30 | 644 | 0.1+ | 0.1+ | 2005 12 05 | 704 | 0.1− | 0.9+ | | |
| 2001 08 24 | 699 | 0.3− | 0.4+ | 2005 11 02 | 704 | 0.0 | 0.0 | 2005 12 05 | 704 | 0.3− | 1.4+ | | |
| 2001 08 25 | 704 | 0.2− | 0.1+ | 2005 11 02 | 704 | 0.4+ | 0.1+ | 2005 12 05 | 704 | 0.1+ | 0.6+ | | |
| 2001 08 25 | 704 | 0.2+ | 0.2− | 2005 11 02 | 704 | 0.4+ | 0.2+ | 2005 12 05 | 704 | 1.0− | 0.2− | | |
| 2001 08 25 | 704 | 0.7− | 0.5− | 2005 11 02 | 704 | 0.0 | 0.2− | 2006 01 27 | G96 | 0.5− | 0.3− | | |
| 2001 08 25 | 704 | 0.1+ | 0.3− | 2005 11 02 | 704 | 0.7+ | 0.3+ | 2006 01 27 | G96 | 0.2+ | 0.5− | | |
| 2001 09 16 | 704 | 0.3− | 0.2− | 2005 11 04 | 691 | 0.1+ | 0.1− | 2006 01 27 | G96 | 0.1+ | 0.1− | | |
| 2001 09 16 | 704 | 0.7− | 0.3+ | 2005 11 04 | 691 | 0.0 | 0.1− | 2006 01 27 | G96 | 0.1+ | 0.2− | | |
| 2001 09 16 | 704 | 0.6− | 0.4+ | 2005 11 04 | 691 | 0.1+ | 0.1− | 2006 02 24 | G96 | 0.4− | 0.3+ | | |
| 2001 09 16 | 704 | 0.5− | 0.0 | 2005 11 08 | 704 | 0.8+ | 0.1− | 2006 02 24 | G96 | 0.4− | 0.0 | | |
| 2001 09 16 | 704 | 1.0− | 0.6+ | 2005 11 08 | 704 | (0.7+ | 1.7−) | 2006 02 24 | G96 | 0.5− | 0.0 | | |
| 2001 09 25 | 704 | 0.8+ | 0.1+ | 2005 11 08 | 704 | 0.2− | 0.3− | 2006 02 24 | G96 | 0.6− | 0.4+ | | |
| 2001 09 25 | 704 | 0.1+ | 0.2− | 2005 11 08 | 704 | 1.0+ | 0.6+ | 2009 11 18 | G96 | 0.3− | 0.0 | | |
| 2001 09 25 | 704 | 0.3+ | 1.0− | 2005 11 13 | 703 | (0.8− | 2.0−) | 2009 11 18 | G96 | 0.1+ | 0.4− | | |
| 2003 03 10 | 699 | 0.1+ | 0.9+ | 2005 11 13 | 703 | 0.1− | 0.3+ | 2009 11 18 | G96 | 0.1− | 0.0 | | |
| 2003 03 10 | 699 | 0.1+ | 0.5+ | 2005 11 13 | 703 | 1.1− | 0.9− | 2009 11 18 | G96 | 0.3− | 0.1+ | | |
| 2003 03 10 | 699 | 0.5+ | 0.1− | 2005 11 13 | 703 | 0.6+ | 1.1+ | 2009 11 19 | G96 | 0.4+ | 0.0 | | |
| 2003 03 10 | 699 | 0.7+ | 1.3+ | 2005 11 20 | 699 | 0.2+ | 0.4− | 2009 11 19 | G96 | 0.6+ | 0.2− | | |
| 2005 10 26 | 699 | 0.1− | 0.2+ | 2005 11 20 | 699 | 0.5+ | 0.6+ | 2009 11 19 | G96 | 0.4+ | 0.2− | | |
| 2005 10 26 | 699 | 0.2+ | 0.5+ | 2005 11 20 | 699 | 0.4+ | 0.4+ | 2009 11 19 | G96 | 0.6+ | 0.1+ | | |
| 2005 10 26 | 699 | 0.1− | 0.2− | 2005 11 20 | 699 | 0.6+ | 0.4+ | 2009 12 17 | 704 | 0.6− | 0.3+ | | |
| 2005 10 26 | 699 | 0.6+ | 0.4− | 2005 11 25 | 703 | 0.3− | 0.6+ | 2009 12 17 | 704 | 0.6− | 0.1+ | | |
| 2005 10 29 | 703 | 0.1+ | 0.6− | 2005 11 25 | 703 | 0.5+ | 0.3− | 2009 12 17 | 704 | 0.7+ | 0.1− | | |
| 2005 10 29 | 703 | 0.3− | 0.9− | 2005 11 25 | 703 | 0.9− | 0.3− | 2009 12 17 | 704 | 0.3− | 1.3− | | |
| 2005 10 29 | 703 | 0.0 | 0.5− | 2005 11 25 | 703 | 0.0 | 0.2− | 2009 12 17 | 704 | 0.0 | 0.6− | | |
| 2005 10 29 | 703 | 0.4− | 0.0 | 2005 11 29 | 704 | 0.3+ | 0.3+ | 2009 12 17 | G96 | 0.1− | 0.1− | | |
| 2005 10 30 | 704 | (1.9− | 0.9+) | 2005 11 29 | 704 | 0.3− | 0.4+ | 2009 12 17 | G96 | 0.2− | 0.0 | | |
| 2005 10 30 | 644 | 0.2+ | 0.0 | 2005 11 29 | 704 | 0.2+ | 0.5− | 2009 12 17 | G96 | 0.8− | 0.1− | | |
| 2005 10 30 | 644 | 0.4+ | 0.2+ | 2005 11 29 | 704 | 0.1+ | 1.0− | 2009 12 17 | G96 | 0.0 | 0.2− | | |
| 2005 10 30 | 704 | (0.9+ | 1.6+) | 2005 12 02 | 704 | 0.8− | 0.5+ | 2009 12 17 | G96 | 0.1− | 0.2− | | |

**(229468)∗ 2005 UE$_{253}$ = 2001 UH$_{223}$**

Discovered 2005 Oct. 27 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 96237)

| Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 | | | | | MPC | | |
|---|---|---|---|---|---|---|---|
| $M$ | 6.40630 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.25931960 | $\omega$ | 82.82581 | | +0.13018602 | −0.99148958 | |
| $a$ | 2.4354496 | $\Omega$ | 359.69380 | | +0.90211820 | +0.11849316 | |
| $e$ | 0.1559535 | $i$ | 1.07375 | | +0.41138102 | +0.05392385 | |
| $P$ | 3.80 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 10 14 | 691 | 0.2+ | 0.7+ | 2005 10 29 | 703 | 0.6− | 0.3+ | 2005 12 01 | 695 | 0.5+ | 0.0 | | |
| 2001 10 14 | 691 | 0.4− | 0.4+ | 2005 10 29 | 703 | 0.9− | 0.2+ | 2005 12 01 | 704 | 0.8− | 0.5− | | |
| 2001 10 14 | 691 | 0.3− | 0.5+ | 2005 10 30 | G96 | 0.1− | 0.1− | 2005 12 01 | 704 | 0.1+ | 0.5− | | |
| 2001 10 20 | 704 | 0.0 | 0.8+ | 2005 10 30 | G96 | 0.1− | 0.4− | 2005 12 01 | 695 | 0.1+ | 0.1− | | |
| 2001 10 20 | 704 | 0.7+ | 0.2− | 2005 10 30 | G96 | 0.0 | 0.1− | 2005 12 01 | 695 | 0.1+ | 0.1− | | |
| 2001 10 20 | 704 | 1.1− | 0.8+ | 2005 10 30 | G96 | 0.1+ | 0.1− | 2007 04 14 | G96 | 0.2+ | 1.2+ | | |
| 2001 10 20 | 704 | 1.1− | 0.1+ | 2005 11 01 | 704 | (2.4+ | 1.6+) | 2007 04 14 | G96 | 0.2+ | 0.3− | | |
| 2003 03 10 | 291 | 0.3+ | 0.5+ | 2005 11 01 | 704 | 0.4− | 1.3+ | 2007 04 14 | G96 | 0.2− | 0.2+ | | |
| 2003 03 10 | 291 | 0.0 | 0.3+ | 2005 11 01 | 704 | 0.1− | 0.0 | 2007 04 14 | G96 | 0.1− | 0.3− | | |
| 2003 03 10 | 291 | 0.3+ | 0.3+ | 2005 11 01 | 704 | 0.3− | 0.8+ | 2007 04 22 | G96 | 0.0 | 0.0 | | |
| 2003 03 24 | 691 | 0.3+ | 0.4+ | 2005 11 04 | 691 | 0.0 | 0.5+ | 2007 04 22 | G96 | 0.2− | 0.1+ | | |
| 2003 03 24 | 691 | 0.4+ | 0.3+ | 2005 11 04 | 691 | 0.0 | 0.0 | 2007 04 22 | G96 | 0.2+ | 0.0 | | |
| 2003 03 24 | 691 | 0.7+ | 0.3+ | 2005 11 04 | 691 | 0.2+ | 0.1+ | 2007 04 22 | G96 | 0.5+ | 0.1+ | | |
| 2003 04 07 | 691 | 0.3− | 0.1+ | 2005 11 06 | 704 | 0.1+ | 0.0 | 2009 11 22 | 703 | 0.2− | 0.6− | | |
| 2003 04 07 | 691 | 0.4− | 0.1− | 2005 11 06 | 704 | 0.5− | 0.2− | 2009 11 22 | 703 | 2.2− | 0.7− | | |
| 2003 04 07 | 691 | 0.2− | 0.3+ | 2005 11 06 | 704 | 0.3− | 0.3− | 2009 11 22 | 703 | (2.3− | 0.4+) | | |
| 2005 10 27 | 691 | 0.0 | 0.0 | 2005 11 25 | 703 | (0.9− | 1.6−) | 2009 11 22 | 703 | (3.8− | 0.3+) | | |
| 2005 10 27 | 691 | 0.1+ | 0.3+ | 2005 11 25 | 703 | 0.8+ | 0.7− | 2009 12 20 | G96 | 0.4+ | 0.7− | | |
| 2005 10 27 | 691 | 0.2+ | 0.3+ | 2005 11 25 | 703 | 0.7− | 0.3− | 2009 12 20 | G96 | 0.6+ | 0.5− | | |
| 2005 10 29 | 703 | 0.1+ | 0.1− | 2005 11 25 | 703 | 0.6+ | 0.6− | 2009 12 20 | G96 | 0.9+ | 0.5− | | |
| 2005 10 29 | 703 | 0.2− | 0.1+ | 2005 12 01 | 704 | 0.3+ | 0.5+ | | | | | | |

**(229469)∗ 2005 UV$_{253}$ = 2001 WL$_{97}$**

Discovered 2005 Oct. 28 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 96238)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 34.90051 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24001453 | $\omega$ | 125.39302 | | +0.99243531 | +0.08562196 | |
| $a$ | 2.5643523 | $\Omega$ | 229.86435 | | −0.10997177 | +0.93857831 | |
| $e$ | 0.2170118 | $i$ | 6.60840 | | +0.05457443 | +0.33427480 | |
| $P$ | 4.11 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 11 18 | 291 | 0.1+ | 0.1+ | 2005 11 04 | 703 | 0.9+ | 0.6− | 2009 09 19 | 152 | 0.5− | 0.4− | |
| 2001 11 18 | 291 | 0.0 | 0.1+ | 2005 11 04 | 704 | 0.3+ | 0.4− | 2009 09 21 | J75 | 0.5+ | 0.5− | |
| 2001 11 18 | 291 | 0.1+ | 0.3+ | 2005 11 05 | 691 | 0.0 | 0.0 | 2009 09 21 | J75 | 0.5+ | 0.2− | |
| 2001 11 21 | 704 | 0.8− | 0.0 | 2005 11 05 | 691 | 0.0 | 0.2+ | 2009 09 21 | J75 | 0.5+ | 0.6− | |
| 2001 11 21 | 704 | 0.8− | 0.3+ | 2005 11 05 | 691 | 0.2+ | 0.4+ | 2009 09 26 | 704 | 0.3+ | 0.5+ | |
| 2001 11 21 | 704 | 1.1− | 0.7+ | 2005 11 06 | 704 | 0.8− | 0.6+ | 2009 09 26 | 691 | 0.3− | 0.0 | |
| 2001 11 21 | 704 | 0.4− | 0.6+ | 2005 11 06 | 704 | 0.5− | 0.4+ | 2009 09 26 | 704 | 0.1+ | 0.2− | |
| 2001 12 14 | 691 | 0.2+ | 0.0 | 2005 11 06 | 704 | 0.5− | 0.8+ | 2009 09 26 | 704 | 0.3+ | 0.6+ | |
| 2001 12 14 | 691 | 0.2+ | 0.2+ | 2005 11 06 | 704 | 0.1− | 1.1+ | 2009 09 26 | 691 | 0.2− | 0.1− | |
| 2001 12 14 | 691 | 0.0 | 0.1+ | 2005 11 07 | 704 | 0.2− | 0.4+ | 2009 09 26 | 704 | 0.2− | 0.3+ | |
| 2004 05 21 | 691 | 0.0 | 0.1+ | 2005 11 07 | 704 | 0.1+ | 0.5+ | 2009 09 26 | 691 | 0.2− | 0.0 | |
| 2004 05 21 | 691 | 0.1− | 0.5+ | 2005 11 07 | 704 | 0.1+ | 0.5+ | 2009 09 26 | 704 | 0.8+ | 0.2+ | |
| 2004 05 21 | 691 | 0.4+ | 0.8+ | 2005 11 07 | 704 | 0.9− | 0.1+ | 2009 10 09 | 703 | (1.8− | 2.2−) | |
| 2005 10 28 | 691 | 0.1+ | 0.1− | 2005 11 07 | 704 | 0.1− | 1.3+ | 2009 10 09 | 703 | 1.0− | 0.6− | |
| 2005 10 28 | 691 | 0.0 | 0.0 | 2005 11 10 | 291 | 0.0 | 0.2+ | 2009 10 09 | 703 | 0.2− | 0.1− | |
| 2005 10 28 | 691 | 0.0 | 0.1− | 2005 11 10 | 291 | 0.1− | 0.3+ | 2009 10 09 | 703 | 0.5− | 0.0 | |
| 2005 10 29 | 703 | (0.7− | 1.9−) | 2005 11 10 | 291 | 0.1+ | 0.3+ | 2009 10 15 | 704 | 0.1+ | 0.7+ | |
| 2005 10 29 | 703 | 0.0 | 1.0− | 2005 11 12 | 691 | 0.1+ | 0.1+ | 2009 10 15 | 704 | 0.1− | 0.1− | |
| 2005 10 29 | 703 | (1.8+ | 1.3−) | 2005 11 12 | 691 | 0.1+ | 0.2− | 2009 10 15 | 704 | 0.3− | 0.5+ | |
| 2005 10 29 | 703 | 0.2− | 0.4− | 2005 11 12 | 691 | 0.2+ | 0.3− | 2009 10 15 | 704 | 1.0+ | 1.1+ | |
| 2005 10 29 | 703 | 0.5− | 0.2− | 2005 11 28 | G96 | 0.0 | 0.5− | 2009 10 15 | 704 | 0.1+ | 0.2+ | |
| 2005 10 29 | 703 | 1.0+ | 0.7− | 2005 11 28 | G96 | 0.1− | 0.5− | 2009 10 16 | 703 | 0.6− | 0.5+ | |
| 2005 10 29 | 703 | 0.4+ | 0.4− | 2005 11 28 | G96 | 0.1− | 0.1− | 2009 10 16 | 703 | 0.0 | 0.1− | |
| 2005 10 29 | 703 | 0.1− | 0.7− | 2005 11 28 | G96 | 0.9+ | 0.2− | 2009 10 16 | 703 | 0.0 | 0.0 | |
| 2005 11 01 | 691 | 0.3− | 0.1+ | 2005 11 29 | G96 | 0.1− | 0.1− | 2009 10 16 | 703 | 0.6+ | 0.6− | |
| 2005 11 01 | 691 | 0.1− | 0.1− | 2005 11 29 | G96 | 0.1+ | 0.2− | 2009 10 24 | 703 | 0.1− | 0.5− | |
| 2005 11 01 | 691 | 0.1+ | 0.0 | 2005 11 29 | G96 | 0.2+ | 0.2− | 2009 10 24 | 703 | 0.1− | 0.7− | |
| 2005 11 01 | 704 | 0.2+ | 0.8+ | 2005 11 29 | G96 | 0.2− | 0.2− | 2009 10 24 | 703 | 1.1+ | 0.5− | |
| 2005 11 01 | 704 | 0.4+ | 0.2+ | 2005 12 31 | G96 | 0.8+ | 0.1− | 2009 10 24 | 703 | 0.1− | 0.7− | |
| 2005 11 01 | 704 | 0.5+ | 0.0 | 2005 12 31 | G96 | 0.3− | 0.3− | 2009 11 20 | G96 | 0.1+ | 0.2− | |
| 2005 11 01 | 704 | 0.0 | 0.6+ | 2005 12 31 | G96 | 0.2+ | 0.0 | 2009 11 20 | G96 | 0.9+ | 0.1− | |
| 2005 11 04 | 704 | 1.1− | 0.5− | 2005 12 31 | G96 | 0.9− | 0.0 | 2009 11 20 | G96 | 0.2+ | 0.3+ | |
| 2005 11 04 | 704 | 1.1− | 0.6− | 2009 09 15 | 704 | 0.6+ | 0.3− | 2009 11 20 | G96 | 0.7+ | 0.8+ | |
| 2005 11 04 | 703 | 0.1+ | 0.4− | 2009 09 15 | 704 | 0.1+ | 0.6+ | 2009 12 17 | G96 | 0.2− | 0.4− | |
| 2005 11 04 | 703 | 0.3+ | 0.1− | 2009 09 15 | 704 | 0.2− | 1.5+ | 2009 12 17 | G96 | 0.2− | 0.3− | |
| 2005 11 04 | 703 | 0.2+ | 0.3− | 2009 09 19 | 152 | 0.2+ | 0.4− | 2009 12 17 | G96 | 0.0 | 0.4+ | |
| 2005 11 04 | 704 | 0.3− | 0.8− | 2009 09 19 | 152 | 0.7− | 0.3− | 2009 12 17 | G96 | 0.4− | 0.3− | |

**(229470)∗ 2005 UT$_{267}$**

Discovered 2005 Oct. 27 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 292.53717 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.25596911 | $\omega$ | 96.83853 | | −0.91321551 | −0.38926428 | |
| $a$ | 2.4566560 | $\Omega$ | 60.31488 | | +0.29710578 | −0.83841352 | |
| $e$ | 0.1081435 | $i$ | 7.97020 | | +0.27886481 | −0.38149193 | |
| $P$ | 3.85 | $H$ | 17.6 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 03 31 | 645 | 0.0 | 0.1− | 2005 11 29 | G96 | 0.2− | 0.6− | 2007 05 07 | 691 | 0.2− | 0.2+ | |
| 2003 03 31 | 645 | 0.0 | 0.0 | 2005 11 29 | G96 | 0.8+ | 0.6− | 2007 05 07 | 691 | 0.0 | 0.1+ | |
| 2005 10 27 | 691 | 0.2− | 0.4− | 2005 11 29 | G96 | 0.1− | 0.8− | 2009 11 08 | 691 | 0.0 | 0.1− | |
| 2005 10 27 | 691 | 0.1+ | 0.3+ | 2005 12 06 | 691 | 0.1+ | 0.1+ | 2009 11 08 | 691 | 0.5− | 0.6+ | |
| 2005 10 27 | 691 | 0.1− | 0.2+ | 2005 12 06 | 691 | 0.2− | 0.1+ | 2009 11 08 | 691 | 0.3+ | 0.3− | |
| 2005 10 29 | G96 | 0.1− | 0.3+ | 2005 12 06 | 691 | 0.3− | 0.2+ | 2009 11 25 | 691 | 0.2− | 0.3+ | |
| 2005 10 29 | G96 | 0.2− | 0.0 | 2007 04 20 | 691 | 0.2+ | 0.1+ | 2009 11 25 | 691 | 0.0 | 0.1− | |
| 2005 10 29 | G96 | 0.3− | 0.4− | 2007 04 20 | 691 | 0.2+ | 0.3− | 2009 11 25 | 691 | 0.0 | 0.2+ | |
| 2005 10 29 | G96 | 0.3− | 0.2− | 2007 04 20 | 691 | 0.1+ | 0.1+ | 2009 12 16 | G96 | 0.3+ | 0.6− | |
| 2005 11 10 | 691 | 0.3+ | 0.1− | 2007 04 22 | 691 | 0.4− | 0.1+ | 2009 12 16 | G96 | 0.2+ | 0.1− | |
| 2005 11 10 | 691 | 0.3+ | 0.0 | 2007 04 22 | 691 | 0.3+ | 0.4+ | 2009 12 16 | G96 | 0.2+ | 0.0 | |
| 2005 11 10 | 691 | 0.3+ | 0.1+ | 2007 04 22 | 691 | 0.2+ | 0.1+ | 2009 12 16 | G96 | 0.7+ | 0.2− | |
| 2005 11 29 | G96 | 0.2− | 0.4− | 2007 05 07 | 691 | 0.0 | 0.1− | | | | | |

**(229471)∗ 2005 UX$_{272}$ = 2007 GM$_{57}$ = 2007 HV**

Discovered 2005 Oct. 28 by Spacewatch at Kitt Peak.

Id. A. Doppler (*MPO* 120423)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 346.37221 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26404951 | $\omega$ | 38.80857 | | −0.43709657 | −0.89363169 | |
| $a$ | 2.4062780 | $\Omega$ | 77.32314 | | +0.79699194 | −0.43730103 | |
| $e$ | 0.0800872 | $i$ | 5.99101 | | +0.41683382 | −0.10094659 | |
| $P$ | 3.73 | $H$ | 18.1 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 10 15 | 645 | 0.0 | 0.2− | 2005 10 29 | G96 | 0.3+ | 0.2− | 2007 04 17 | H07 | 0.9+ | 0.3+ | |
| 2001 10 15 | 645 | 0.2+ | 0.1− | 2005 10 29 | G96 | 0.1+ | 0.2− | 2007 04 19 | 691 | 0.2+ | 0.0 | |
| 2001 10 25 | 645 | 0.0 | 0.0 | 2005 10 29 | G96 | 0.0 | 0.4− | 2007 04 19 | 691 | 0.0 | 0.2+ | |
| 2001 10 25 | 645 | 0.0 | 0.0 | 2005 10 29 | G96 | 0.1− | 0.3− | 2007 04 19 | 691 | 0.2+ | 0.1+ | |
| 2001 11 12 | 645 | 0.1− | 0.0 | 2005 11 04 | 691 | 0.0 | 0.7+ | 2007 05 10 | 691 | 0.0 | 0.3− | |
| 2001 11 12 | 645 | 0.2− | 0.1− | 2005 11 04 | 691 | 0.0 | 0.4+ | 2007 05 10 | 691 | 0.4− | 0.1− | |
| 2001 11 18 | 645 | 0.0 | 0.1− | 2005 11 04 | 691 | 0.3+ | 0.4+ | 2007 05 10 | 691 | 0.7+ | 0.1+ | |
| 2001 11 18 | 645 | 0.0 | 0.1+ | 2005 12 01 | G96 | 0.1+ | 0.3− | 2009 12 17 | 691 | 0.2− | 0.2− | |
| 2003 03 23 | 645 | 0.0 | 0.1− | 2005 12 01 | G96 | 0.6+ | 0.2− | 2009 12 17 | 691 | 0.5− | 0.8+ | |
| 2003 03 23 | 645 | 0.1− | 0.0 | 2005 12 01 | G96 | 0.2+ | 0.1− | 2009 12 17 | 691 | 0.0 | 0.0 | |
| 2003 03 31 | 645 | 0.1− | 0.1− | 2005 12 01 | G96 | 0.3+ | 0.2− | 2009 12 26 | 691 | 0.6− | 0.3− | |
| 2003 03 31 | 645 | 0.1+ | 0.1− | 2007 04 15 | 691 | 0.2+ | 0.2+ | 2009 12 26 | 691 | 0.0 | 0.2+ | |
| 2005 10 28 | 691 | 0.6+ | 0.4+ | 2007 04 15 | 691 | 0.1− | 0.5+ | 2009 12 26 | 691 | 0.3+ | 0.2− | |
| 2005 10 28 | 691 | 0.1+ | 0.0 | 2007 04 15 | 691 | 0.2− | 0.2− | | | | | |
| 2005 10 28 | 691 | 0.1+ | 0.3+ | 2007 04 17 | H07 | (1.7− | 0.7+) | | | | | |

**(229472)∗ 2005 UA$_{275}$**

Discovered 2005 Oct. 28 by the Mt. Lemmon Survey at Mount Lemmon.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 25.60180 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23464788 | $\omega$ | 324.44129 | | +0.85614247 | −0.24722302 | |
| $a$ | 2.6033044 | $\Omega$ | 56.44620 | | +0.50061564 | +0.61447278 | |
| $e$ | 0.1697406 | $i$ | 32.99006 | | −0.12807831 | +0.74920223 | |
| $P$ | 4.20 | $H$ | 15.3 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 04 24 | 691 | 0.1+ | 0.2− | 2005 11 08 | 704 | 0.4+ | 0.6− | 2009 10 15 | 703 | 0.3+ | 0.0 | |
| 1995 04 24 | 691 | 0.5− | 0.0 | 2005 11 08 | 704 | 0.5+ | 0.5− | 2009 10 15 | 703 | 0.6+ | 0.5− | |
| 1995 04 24 | 691 | 0.4+ | 0.1+ | 2005 11 08 | 704 | 0.1+ | 0.6− | 2009 10 15 | 703 | 0.2− | 0.4− | |
| 2001 10 25 | 704 | 0.1+ | 0.2+ | 2005 11 08 | 703 | 0.4− | 0.1− | 2009 10 19 | 704 | 0.8+ | 0.2+ | |
| 2001 10 25 | 704 | 0.0 | 0.1− | 2005 11 08 | 704 | 0.2+ | 0.1− | 2009 10 19 | 704 | 0.1− | 0.3+ | |
| 2001 10 25 | 704 | 0.1+ | 0.7+ | 2005 11 08 | 703 | 0.7− | 0.1− | 2009 10 19 | 704 | 0.2− | 0.1+ | |
| 2001 12 08 | 704 | 0.1− | 0.7− | 2005 11 08 | 703 | 0.1− | 0.4− | 2009 10 19 | 704 | 0.0 | 0.4+ | |
| 2001 12 08 | 704 | 0.3− | 0.2− | 2005 11 08 | 703 | 0.4− | 0.6− | 2009 10 19 | 704 | 0.3+ | 0.2+ | |
| 2001 12 08 | 704 | 0.2− | 0.2+ | 2005 11 10 | 691 | 0.1+ | 0.1− | 2009 11 06 | 704 | 0.3− | 0.4− | |
| 2005 10 05 | 704 | 0.5+ | 0.4− | 2005 11 10 | 691 | 0.0 | 0.0 | 2009 11 06 | 704 | 0.2+ | 0.7− | |
| 2005 10 05 | 704 | 0.5− | 0.1+ | 2005 11 10 | 691 | 0.0 | 0.1− | 2009 11 06 | 704 | 0.2+ | 0.1+ | |
| 2005 10 05 | 704 | 0.5+ | 0.6+ | 2005 11 21 | 703 | 0.2+ | 0.3+ | 2009 11 06 | 704 | 0.6− | 0.3+ | |
| 2005 10 13 | 704 | 0.8+ | 0.7+ | 2005 11 21 | 703 | 0.6− | 0.1+ | 2009 11 06 | 704 | 0.2− | 0.6− | |
| 2005 10 13 | 704 | 0.4+ | 0.2+ | 2005 11 21 | 703 | 0.9− | 0.2+ | 2009 11 17 | 703 | 0.3− | 0.2− | |
| 2005 10 13 | 704 | 0.1+ | 0.7+ | 2005 11 21 | 703 | (0.8− | 1.6−) | 2009 11 17 | 703 | 0.6− | 0.4+ | |
| 2005 10 13 | 704 | 0.9+ | 0.9+ | 2005 12 01 | 644 | 0.0 | 0.0 | 2009 11 17 | 703 | 0.7− | 0.0 | |
| 2005 10 13 | 704 | 0.1+ | 0.5+ | 2005 12 01 | 644 | 0.1+ | 0.1+ | 2009 11 17 | 703 | 0.3− | 0.0 | |
| 2005 10 28 | G96 | 0.1+ | 0.5− | 2005 12 01 | 644 | 0.0 | 0.0 | 2009 11 23 | 703 | 0.3− | 0.7− | |
| 2005 10 28 | G96 | 0.1+ | 0.3− | 2005 12 23 | 644 | 0.6− | 0.4+ | 2009 11 23 | 703 | 0.3+ | 0.9− | |
| 2005 10 28 | G96 | 0.1− | 0.4− | 2005 12 23 | 644 | 0.3− | 0.2− | 2009 11 23 | 703 | 0.3+ | 0.1+ | |
| 2005 10 28 | G96 | 0.0 | 0.5− | 2005 12 23 | 644 | 0.5− | 0.4+ | 2009 11 23 | 703 | 0.3+ | 0.1+ | |
| 2005 10 29 | 704 | 0.1+ | 0.1− | 2005 12 24 | 704 | 0.5+ | 0.6− | 2009 11 23 | 703 | 0.3+ | 0.0 | |
| 2005 10 29 | 704 | 0.5+ | 0.5− | 2005 12 24 | 704 | 0.2+ | 0.6+ | 2009 12 10 | 703 | 0.5− | 0.4+ | |
| 2005 10 29 | 704 | 0.1− | 0.5− | 2005 12 24 | 704 | 0.1+ | 0.4− | 2009 12 10 | 703 | 1.0− | 0.3+ | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 29 | 704 | 0.9+ | 0.0 | 2005 12 24 | 704 | 0.2− | 0.1− | 2009 12 10 | 703 | 0.7+ | 0.3+ | | |
| 2005 11 01 | 704 | 0.1− | 0.5+ | 2005 12 24 | 704 | 0.4− | 0.0 | 2009 12 10 | 703 | 0.1+ | 0.2+ | | |
| 2005 11 01 | 704 | 0.1− | 0.9+ | 2005 12 30 | 703 | 0.4− | 0.2− | 2009 12 13 | 704 | 0.4− | 0.8+ | | |
| 2005 11 01 | 704 | 0.2− | 0.4+ | 2005 12 30 | 703 | 0.3+ | 0.6− | 2009 12 13 | 704 | 0.0 | 0.6+ | | |
| 2005 11 01 | 704 | 0.0 | 0.0 | 2005 12 30 | 703 | 0.1− | 0.0 | 2009 12 13 | 704 | 0.7+ | 0.1+ | | |
| 2005 11 01 | 704 | 0.6+ | 0.5+ | 2005 12 30 | 703 | 0.0 | 0.0 | 2009 12 13 | 704 | 0.8− | 0.4+ | | |
| 2005 11 08 | 704 | 0.3+ | 0.0 | 2009 10 15 | 703 | 0.1+ | 0.3+ | 2009 12 13 | 704 | 0.0 | 0.1+ | | |

**(229473)∗ 2005 UV$_{278}$ = 2005 WM$_{203}$**

Discovered 2005 Oct. 24 by Spacewatch at Kitt Peak.

Id. A. Doppler (d, *MPO* 96249)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 69.58201 | | (2000.0) | | | |
| $n$ | 0.27347199 | $\omega$ | 175.20804 | | +0.90095934 | −0.43258491 |
| $a$ | 2.3506835 | $\Omega$ | 210.49506 | | +0.39585257 | +0.85135381 |
| $e$ | 0.1487394 | $i$ | 3.81925 | | +0.17768795 | +0.29676082 |
| $P$ | 3.60 | $H$ | 16.8 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 09 27 | 691 | 0.0 | 0.3− | 2005 10 24 | 691 | 0.1− | 0.4+ | 2005 12 04 | 704 | 0.2− | 0.1+ | | |
| 1994 09 27 | 691 | 0.2+ | 0.3− | 2005 10 30 | 691 | 0.1− | 0.2+ | 2005 12 04 | 704 | 0.2− | 0.8+ | | |
| 1994 09 27 | 691 | 0.4− | 0.4− | 2005 10 30 | 691 | 0.1− | 0.3+ | 2005 12 04 | 704 | 0.8+ | 0.0 | | |
| 2000 05 07 | 691 | 0.1+ | 0.1+ | 2005 10 30 | 691 | 0.0 | 0.3+ | 2005 12 04 | 704 | 0.1+ | 0.6− | | |
| 2000 05 07 | 691 | 0.1+ | 0.3+ | 2005 11 06 | G96 | 0.1+ | 0.4− | 2005 12 29 | G96 | 0.3− | 0.1− | | |
| 2000 05 07 | 691 | 0.3− | 0.1− | 2005 11 06 | G96 | 0.2+ | 0.5− | 2005 12 29 | G96 | 0.0 | 0.0 | | |
| 2001 09 20 | 704 | 0.4+ | 0.4+ | 2005 11 06 | G96 | 0.2+ | 0.4− | 2005 12 29 | G96 | 0.1− | 0.3− | | |
| 2001 09 20 | 704 | 0.3− | 0.9+ | 2005 11 06 | G96 | 0.2− | 0.4− | 2005 12 29 | G96 | 0.4− | 0.2− | | |
| 2001 09 20 | 704 | 0.7+ | 0.5− | 2005 11 25 | 703 | 0.4− | 0.1− | 2006 01 28 | G96 | 0.1− | 0.1+ | | |
| 2001 09 20 | 704 | 1.0− | 0.5+ | 2005 11 25 | 703 | 0.1− | 0.2− | 2006 01 28 | G96 | 0.4− | 0.2− | | |
| 2001 09 20 | 704 | 1.3− | 1.3+ | 2005 11 25 | 703 | 0.4− | 0.6− | 2006 01 28 | G96 | 0.1− | 0.3− | | |
| 2001 10 18 | 644 | 0.1+ | 0.2+ | 2005 11 25 | 703 | 0.5− | 0.0 | 2006 01 28 | G96 | 0.4− | 0.0 | | |
| 2001 10 18 | 644 | 0.8+ | 0.1+ | 2005 11 27 | 683 | (1.7+ | 0.7+) | 2007 03 26 | G96 | 0.2+ | 0.4+ | | |
| 2001 10 18 | 644 | 0.0 | 0.5+ | 2005 11 27 | 683 | 1.2− | 0.3− | 2007 03 26 | G96 | 0.2+ | 0.4+ | | |
| 2002 12 07 | 645 | 0.1+ | 0.0 | 2005 11 27 | 683 | 1.5+ | 0.9+ | 2007 03 26 | G96 | 0.2+ | 0.3+ | | |
| 2002 12 07 | 645 | 0.2+ | 0.0 | 2005 12 01 | 704 | 0.1+ | 0.3+ | 2007 03 26 | G96 | 0.2+ | 0.3+ | | |
| 2005 09 30 | G96 | 0.1+ | 0.2− | 2005 12 01 | 704 | 0.5+ | 0.7+ | 2007 04 20 | G96 | 0.5+ | 0.6+ | | |
| 2005 09 30 | G96 | 0.1+ | 0.4− | 2005 12 01 | 704 | 0.6+ | 0.3+ | 2007 04 20 | G96 | 0.3+ | 0.2+ | | |
| 2005 09 30 | G96 | 0.1− | 0.3− | 2005 12 01 | 704 | (0.1+ | 1.7−) | 2007 04 20 | G96 | 0.2+ | 0.2+ | | |
| 2005 09 30 | G96 | 0.1− | 0.3− | 2005 12 01 | 704 | 0.7+ | 1.0− | 2007 04 20 | G96 | 0.1− | 0.2+ | | |
| 2005 10 07 | 704 | 0.9+ | 0.1+ | 2005 12 02 | 683 | 0.7+ | 1.3− | 2009 12 20 | 691 | 0.4+ | 0.0 | | |
| 2005 10 07 | 704 | 0.6+ | 0.4− | 2005 12 02 | 683 | 0.9+ | 0.8+ | 2009 12 20 | 691 | 0.5− | 0.2− | | |
| 2005 10 07 | 704 | 0.2− | 0.1− | 2005 12 02 | 683 | 0.3− | 0.3+ | 2009 12 20 | 691 | 0.5− | 0.1+ | | |
| 2005 10 07 | 704 | 0.5− | 1.0+ | 2005 12 04 | 683 | 0.4− | 0.4+ | 2009 12 27 | 691 | 0.3− | 0.1+ | | |
| 2005 10 07 | 704 | 0.3+ | 0.1+ | 2005 12 04 | 683 | (1.8− | 1.0+) | 2009 12 27 | 691 | 0.4− | 0.1− | | |
| 2005 10 24 | 691 | 0.0 | 0.3+ | 2005 12 04 | 683 | (2.7− | 1.4+) | 2009 12 27 | 691 | 0.4− | 0.1+ | | |
| 2005 10 24 | 691 | 0.1+ | 0.6+ | 2005 12 04 | 704 | 0.5+ | 0.5− | | | | | | |

**(229474)∗ 2005 UB$_{288}$ = 2007 EA$_{106}$**

Discovered 2005 Oct. 26 by Spacewatch at Kitt Peak.

Id. A. Doppler (*MPO* 119224)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 284.12357 | | (2000.0) | | | |
| $n$ | 0.25908723 | $\omega$ | 53.51940 | | −0.93587743 | −0.34763517 |
| $a$ | 2.4369056 | $\Omega$ | 106.07573 | | +0.30117309 | −0.87374610 |
| $e$ | 0.1308427 | $i$ | 3.41865 | | +0.18283383 | −0.34017281 |
| $P$ | 3.80 | $H$ | 17.6 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 12 24 | 691 | (4.6+ | 3.3−) | 2005 10 26 | 691 | 0.3− | 0.2− | 2009 10 23 | G96 | 0.6+ | 0.1− | | |
| 1998 12 24 | 691 | 0.2− | 0.4− | 2005 10 26 | 691 | 0.3− | 0.2+ | 2009 10 23 | G96 | 0.1− | 0.1+ | | |
| 1998 12 24 | 691 | 1.0+ | 1.5− | 2005 10 30 | 691 | 0.1+ | 0.4+ | 2009 11 16 | G96 | 0.3− | 0.1+ | | |
| 1999 01 10 | 691 | 0.6− | 0.2− | 2005 10 30 | 691 | 0.0 | 0.3+ | 2009 11 16 | G96 | 0.1− | 0.2+ | | |
| 1999 01 10 | 691 | (2.7− | 6.2−) | 2005 10 30 | 691 | 0.0 | 0.2+ | 2009 11 16 | G96 | 0.1− | 0.3+ | | |
| 1999 01 10 | 691 | 0.6− | 0.1+ | 2005 11 03 | 691 | 0.0 | 0.3+ | 2009 11 16 | G96 | 0.3− | 0.2+ | | |
| 2001 10 14 | 645 | 0.1+ | 0.0 | 2005 11 03 | 691 | 0.1− | 0.6+ | 2009 11 24 | G96 | 0.1− | 0.0 | | |
| 2001 10 14 | 645 | 0.0 | 0.1− | 2005 11 03 | 691 | 0.0 | 0.5+ | 2009 11 24 | G96 | 0.1− | 0.0 | | |
| 2001 10 15 | 645 | 0.1+ | 0.0 | 2007 03 11 | 691 | 0.1− | 0.2+ | 2009 11 24 | G96 | 0.3− | 0.2+ | | |
| 2001 10 15 | 645 | 0.1− | 0.0 | 2007 03 11 | 691 | 0.1+ | 0.4+ | 2009 11 24 | G96 | 0.3− | 0.1+ | | |
| 2001 10 25 | 645 | 0.0 | 0.0 | 2007 03 11 | 691 | 0.1− | 0.2+ | 2009 12 19 | G96 | 0.1+ | 0.2− | | |
| 2001 10 25 | 645 | 0.0 | 0.1− | 2007 03 15 | 691 | 0.1− | 0.2+ | 2009 12 19 | G96 | 0.5+ | 0.3+ | | |
| 2003 02 21 | 644 | 0.5+ | 0.7+ | 2007 03 15 | 691 | 0.3+ | 0.2+ | 2009 12 19 | G96 | 0.4− | 0.2− | | |
| 2003 02 21 | 644 | 0.7+ | 0.9+ | 2007 03 15 | 691 | 0.1+ | 0.1+ | 2009 12 19 | G96 | 0.4− | 0.7+ | | |
| 2003 02 21 | 644 | 0.7+ | 0.7+ | 2009 10 23 | G96 | 0.1− | 0.5+ | | | | | | |
| 2005 10 26 | 691 | 0.0 | 0.2+ | 2009 10 23 | G96 | 0.3+ | 0.4+ | | | | | | |

**(229475)∗ 2005 UY$_{293}$**

Discovered 2005 Oct. 26 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 255.66450 | | (2000.0) | | | |
| $n$ | 0.28549775 | $\omega$ | 318.54175 | | −0.67475806 | +0.73520505 |
| $a$ | 2.2842007 | $\Omega$ | 268.91537 | | −0.65897871 | −0.63958661 |
| $e$ | 0.1188050 | $i$ | 3.70541 | | −0.33233812 | −0.22450501 |
| $P$ | 3.45 | $H$ | 17.1 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 04 04 | 699 | 1.3+ | 0.3− | 2005 12 06 | G96 | 0.5+ | 0.1− | 2007 04 15 | 704 | 0.0 | 0.5+ | | |
| 2000 04 04 | 699 | 0.1+ | 0.5− | 2005 12 06 | G96 | 0.0 | 0.0 | 2007 04 15 | 704 | 0.2− | 0.9+ | | |
| 2000 04 04 | 699 | 0.4− | 1.2+ | 2007 03 13 | 703 | 1.2− | 0.5+ | 2008 08 24 | 691 | 0.1− | 0.4+ | | |
| 2000 04 04 | 699 | (3.0− | 2.1+) | 2007 03 13 | 703 | 0.4+ | 0.0 | 2008 08 24 | 691 | 0.2− | 0.1+ | | |
| 2000 05 05 | 645 | 0.0 | 0.1+ | 2007 03 13 | 703 | 0.2− | 1.5+ | 2008 08 24 | 691 | 0.3− | 0.1+ | | |
| 2000 05 05 | 645 | 0.0 | 0.0 | 2007 03 13 | 703 | 0.2− | 0.9+ | 2008 09 04 | 691 | 0.1+ | 0.3+ | | |
| 2005 10 26 | 691 | 0.0 | 0.2+ | 2007 03 18 | 704 | 1.2+ | 0.1+ | 2008 09 04 | 691 | 0.1− | 0.3+ | | |
| 2005 10 26 | 691 | 0.2− | 0.0 | 2007 03 18 | 704 | 0.2+ | 0.6− | 2008 09 04 | 691 | 0.2− | 0.1+ | | |
| 2005 10 26 | 691 | 0.4− | 0.2+ | 2007 03 18 | 704 | 0.1+ | 0.6+ | 2008 09 05 | 691 | 0.1+ | 0.5+ | | |
| 2005 10 30 | 691 | 0.2+ | 0.1+ | 2007 03 20 | 703 | 0.4− | 0.5+ | 2008 09 05 | 691 | 0.1− | 0.3+ | | |
| 2005 10 30 | 691 | 0.1+ | 0.1+ | 2007 03 20 | 703 | 0.2− | 0.9+ | 2008 09 05 | 691 | 0.1− | 0.3+ | | |
| 2005 10 30 | 691 | 0.0 | 0.1− | 2007 03 20 | 703 | 0.0 | 0.4+ | 2009 11 10 | G96 | 0.2− | 0.4− | | |
| 2005 11 03 | 691 | 0.0 | 0.0 | 2007 03 20 | 703 | 0.3− | 0.7+ | 2009 11 10 | G96 | 0.5− | 0.2− | | |
| 2005 11 03 | 691 | 0.2− | 0.1+ | 2007 03 21 | 704 | 1.0+ | 0.8+ | 2009 11 10 | G96 | 0.1+ | 0.3− | | |
| 2005 11 03 | 691 | 0.0 | 0.0 | 2007 03 21 | 704 | 0.6+ | 0.3+ | 2009 11 10 | G96 | 0.2+ | 0.1− | | |
| 2005 12 04 | 691 | 0.4+ | 0.0 | 2007 03 21 | 704 | 1.2+ | 0.2+ | 2009 12 15 | G96 | 0.8− | 0.4+ | | |
| 2005 12 04 | 691 | 0.1+ | 0.4+ | 2007 03 21 | 704 | 1.0+ | 0.4+ | 2009 12 15 | G96 | 0.2+ | 0.7− | | |
| 2005 12 04 | 691 | 0.4− | 0.2+ | 2007 03 21 | 704 | 1.4+ | 0.5+ | 2009 12 15 | G96 | 0.3− | 0.7− | | |
| 2005 12 06 | G96 | 0.2+ | 0.0 | 2007 04 15 | 704 | 0.3− | 0.5− | 2009 12 15 | G96 | 0.4− | 0.3+ | | |
| 2005 12 06 | G96 | 0.6+ | 0.1− | 2007 04 15 | 704 | 0.5+ | 0.3+ | | | | | | |

**(229476)∗ 2005 UU$_{296}$**

Discovered 2005 Oct. 26 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 311.71728 | | (2000.0) | | | |
| $n$ | 0.24154340 | $\omega$ | 68.32876 | | −0.42545235 | −0.89480856 |
| $a$ | 2.5535200 | $\Omega$ | 47.58851 | | +0.74772278 | −0.43179626 |
| $e$ | 0.0868472 | $i$ | 10.55989 | | +0.50980480 | −0.11344441 |
| $P$ | 4.08 | $H$ | 16.6 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 12 19 | 704 | 0.2+ | 0.2− | 2005 12 06 | 691 | 0.3− | 0.1+ | 2009 09 22 | G96 | 0.3+ | 0.2− | | |
| 2001 12 19 | 704 | 0.2+ | 1.3− | 2005 12 08 | 691 | 0.3+ | 0.0 | 2009 09 22 | G96 | 0.2− | 0.1+ | | |
| 2001 12 19 | 704 | (0.4+ | 2.2−) | 2005 12 08 | 691 | 0.1+ | 0.0 | 2009 09 22 | G96 | 0.3+ | 0.4+ | | |
| 2003 04 04 | 691 | 0.2+ | 0.1+ | 2005 12 08 | 691 | 0.0 | 0.2− | 2009 11 08 | G96 | 0.1− | 0.4+ | | |
| 2003 04 04 | 691 | 0.0 | 0.1− | 2007 03 19 | G96 | 0.4− | 0.3− | 2009 11 08 | G96 | 0.3− | 0.2+ | | |
| 2003 04 04 | 691 | 0.4+ | 0.1− | 2007 03 19 | G96 | 0.5− | 0.3− | 2009 11 08 | G96 | 0.0 | 0.2+ | | |
| 2003 04 10 | 691 | 0.0 | 0.6+ | 2007 03 19 | G96 | 0.4− | 0.5− | 2009 11 08 | G96 | 0.1− | 0.4+ | | |
| 2003 04 10 | 691 | 0.1+ | 0.6+ | 2007 03 19 | G96 | 0.5− | 0.3− | 2009 11 23 | 703 | 0.1+ | 0.5− | | |
| 2003 04 10 | 691 | 0.1+ | 0.6+ | 2007 04 26 | G96 | 0.3+ | 0.5− | 2009 11 23 | 703 | 1.1− | 1.4− | | |
| 2005 10 26 | 691 | 0.2− | 0.1+ | 2007 04 26 | G96 | 0.0 | 0.4− | 2009 11 23 | 703 | 0.9− | 0.0 | | |
| 2005 10 26 | 691 | 0.1− | 0.3+ | 2007 04 26 | G96 | 0.2+ | 0.1− | 2009 11 23 | 703 | 1.0− | 1.0+ | | |
| 2005 10 26 | 691 | 0.0 | 0.0 | 2007 04 26 | G96 | 0.0 | 0.4− | 2009 12 18 | G96 | 0.0 | 0.5+ | | |
| 2005 10 30 | 691 | 0.4+ | 0.1− | 2007 05 22 | G96 | 0.3− | 0.5− | 2009 12 18 | G96 | 1.0+ | 1.1+ | | |
| 2005 10 30 | 691 | 0.1− | 0.2+ | 2007 05 22 | G96 | 0.3− | 0.5− | 2009 12 18 | G96 | 0.1− | 0.2+ | | |
| 2005 10 30 | 691 | 0.1− | 0.3+ | 2007 05 22 | G96 | 0.2+ | 0.4− | 2009 12 18 | G96 | 0.4+ | 0.1+ | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 2005 12 06 | 691 | 0.0 | 0.2− | 2007 05 22 | G96 | 0.4− | 0.1− | |
| 2005 12 06 | 691 | 0.1+ | 0.0 | 2009 09 22 | G96 | 0.3− | 0.2+ | |

**(229477)∗ 2005 UX$_{297}$**

Discovered 2005 Oct. 26 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 233.92642 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22142454 | $\omega$ | 309.19325 | | −0.98759336 | −0.01114502 | |
| $a$ | 2.7059445 | $\Omega$ | 230.74777 | | +0.05400279 | −0.96074459 | |
| $e$ | 0.2216830 | $i$ | 11.67015 | | −0.14745526 | −0.27721044 | |
| $P$ | 4.45 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 11 17 | 691 | 0.4+ | 0.1+ | 2007 03 20 | 699 | 0.8+ | 0.0 | 2007 04 18 | E12 | 0.0 | 0.5− | |
| 1996 11 17 | 691 | 0.3+ | 0.2− | 2007 03 20 | 699 | 0.5− | 0.2− | 2007 04 18 | E12 | 0.6+ | 0.5− | |
| 1996 11 17 | 691 | 0.1+ | 0.2− | 2007 03 20 | 699 | 0.2− | 0.4− | 2007 04 18 | E12 | 0.9+ | 0.4+ | |
| 1998 03 31 | 704 | 1.4− | 0.6− | 2007 03 20 | D35 | 0.2− | 0.2+ | 2009 09 17 | 691 | 0.2− | 0.1+ | |
| 1998 03 31 | 704 | 0.1+ | 0.8+ | 2007 03 20 | D35 | 0.1+ | 0.4+ | 2009 09 17 | 691 | 0.1+ | 0.4− | |
| 1998 03 31 | 704 | (1.5− | 3.3+) | 2007 03 20 | D35 | 0.3− | 0.1+ | 2009 09 17 | 691 | 0.1− | 0.0 | |
| 1998 03 31 | 704 | (3.0− | 0.1−) | 2007 03 28 | E12 | 0.4+ | 0.3− | 2009 09 21 | 691 | 0.0 | 0.1+ | |
| 2005 10 26 | 691 | 0.0 | 0.1+ | 2007 03 28 | E12 | 0.6− | 0.1+ | 2009 09 21 | 691 | 0.1− | 0.1+ | |
| 2005 10 26 | 691 | 0.3− | 0.2− | 2007 03 28 | E12 | 0.3− | 0.4+ | 2009 09 21 | 691 | 0.4− | 0.0 | |
| 2005 10 26 | 691 | 0.4− | 0.0 | 2007 03 28 | E12 | 0.5− | 0.5+ | 2009 09 25 | 691 | 0.1− | 0.1+ | |
| 2005 10 30 | 691 | 0.2+ | 0.1+ | 2007 03 30 | 644 | 0.5+ | 0.4− | 2009 09 25 | 691 | 0.1− | 0.7+ | |
| 2005 10 30 | 691 | 0.2− | 0.3+ | 2007 03 30 | 644 | 0.1− | 0.2− | 2009 09 25 | 691 | 0.2+ | 0.1− | |
| 2005 10 30 | 691 | 0.1− | 0.1+ | 2007 03 30 | 644 | 0.3+ | 0.6− | 2009 09 29 | 691 | 0.1+ | 0.3+ | |
| 2005 11 22 | 691 | 0.0 | 0.0 | 2007 03 30 | 644 | 0.2+ | 0.2+ | 2009 09 29 | 691 | 0.2− | 0.0 | |
| 2005 11 22 | 691 | 0.0 | 0.1+ | 2007 03 30 | 644 | 0.6+ | 0.0 | 2009 09 29 | 691 | 0.3− | 0.2− | |
| 2005 11 22 | 691 | 0.1+ | 0.1− | 2007 03 30 | 644 | 0.1+ | 0.2+ | 2009 10 15 | G96 | 1.1+ | 0.5− | |
| 2005 11 25 | G96 | 0.0 | 0.1+ | 2007 04 08 | E12 | (2.2− | 0.6+) | 2009 10 15 | G96 | 0.7+ | 0.2− | |
| 2005 11 25 | G96 | 0.0 | 0.1− | 2007 04 08 | E12 | (0.6+ | 2.1−) | 2009 10 15 | G96 | 0.8+ | 0.0 | |
| 2005 11 25 | G96 | 0.2+ | 0.2+ | 2007 04 08 | E12 | 0.9+ | 0.2− | 2009 10 15 | G96 | 0.2+ | 0.1+ | |
| 2005 11 25 | G96 | 0.0 | 0.2− | 2007 04 08 | E12 | 0.2+ | 0.6+ | 2009 12 17 | G96 | 1.2− | 0.1+ | |
| 2005 12 01 | G96 | 0.0 | 0.1− | 2007 04 13 | E12 | 0.7− | 0.6+ | 2009 12 17 | G96 | 0.6+ | 0.2+ | |
| 2005 12 01 | G96 | 0.1+ | 0.3− | 2007 04 13 | E12 | 0.3+ | 0.2+ | 2009 12 17 | G96 | 0.2+ | 0.3+ | |
| 2005 12 01 | G96 | 0.2+ | 0.2− | 2007 04 13 | E12 | 0.3− | 0.3− | 2009 12 17 | G96 | 0.2− | 0.0 | |
| 2005 12 01 | G96 | 0.3+ | 0.0 | 2007 04 13 | E12 | 0.3− | 0.1+ | | | | | |
| 2007 03 20 | 699 | 0.3+ | 0.4+ | 2007 04 18 | E12 | 0.3− | 0.6+ | | | | | |

**(229478)∗ 2005 UN$_{299}$**

Discovered 2005 Oct. 26 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 44.90361 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26711480 | $\omega$ | 357.64624 | | +0.62179008 | −0.78170712 | |
| $a$ | 2.3878337 | $\Omega$ | 53.90249 | | +0.71952568 | +0.54593227 | |
| $e$ | 0.1103360 | $i$ | 3.41088 | | +0.30928934 | +0.30148289 | |
| $P$ | 3.69 | $H$ | 17.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 05 24 | 807 | 0.4+ | 0.7+ | 2005 11 19 | 143 | 0.0 | 0.0 | 2007 04 22 | G96 | 0.1− | 0.0 | |
| 2001 05 24 | 807 | 0.8+ | 0.7+ | 2005 11 19 | 143 | 0.1− | 0.6+ | 2007 04 22 | G96 | 0.5+ | 0.0 | |
| 2001 09 12 | 704 | 0.1− | 0.2+ | 2005 11 19 | 143 | 0.5+ | 0.9+ | 2007 04 22 | G96 | 0.1− | 0.1+ | |
| 2001 09 12 | 704 | 0.4− | 0.6+ | 2005 11 20 | 143 | 0.4+ | 0.5− | 2007 04 22 | G96 | 0.1− | 0.0 | |
| 2001 09 12 | 704 | 0.8− | 0.4+ | 2005 11 20 | 143 | 0.5+ | 0.1− | 2007 04 25 | G96 | 0.4+ | 0.1− | |
| 2003 03 30 | 645 | 0.1+ | 0.0 | 2005 11 20 | 143 | 0.0 | 0.4− | 2007 04 25 | G96 | (0.7− | 1.5+) | |
| 2003 03 30 | 645 | 0.1− | 0.0 | 2005 11 26 | G96 | 0.2+ | 0.1− | 2007 04 25 | G96 | 0.2+ | 0.8+ | |
| 2005 10 26 | 691 | 0.1− | 0.1− | 2005 11 26 | G96 | 0.5+ | 0.2− | 2007 04 25 | G96 | 0.6+ | 0.4− | |
| 2005 10 26 | 691 | 0.1− | 0.0 | 2005 11 26 | G96 | 0.3+ | 0.3− | 2009 11 21 | G96 | 0.6+ | 0.3− | |
| 2005 10 26 | 691 | 0.1− | 0.0 | 2005 12 02 | G96 | 0.1− | 0.1+ | 2009 11 21 | G96 | 0.2+ | 0.0 | |
| 2005 10 30 | 691 | 0.3+ | 0.2+ | 2005 12 02 | G96 | 0.1− | 0.1− | 2009 11 21 | G96 | 0.1− | 0.2− | |
| 2005 10 30 | 691 | 0.1+ | 0.1+ | 2005 12 02 | G96 | 0.1+ | 0.2− | 2009 11 21 | G96 | 0.7+ | 0.3− | |
| 2005 10 30 | 691 | 0.2+ | 0.2+ | 2005 12 02 | G96 | 0.0 | 0.1− | 2009 12 18 | G96 | 0.4− | 0.1− | |
| 2005 11 05 | 691 | 0.3− | 0.2+ | 2007 03 15 | 691 | 0.0 | 0.4+ | 2009 12 18 | G96 | 0.0 | 0.1− | |
| 2005 11 05 | 691 | 0.4− | 0.0 | 2007 03 15 | 691 | 0.2− | 0.1+ | 2009 12 18 | G96 | 0.0 | 0.2− | |
| 2005 11 05 | 691 | 0.5− | 0.2+ | 2007 03 15 | 691 | 0.1+ | 0.5+ | 2009 12 18 | G96 | 0.4− | 0.1+ | |

**(229479)∗ 2005 UJ$_{302}$**

Discovered 2005 Oct. 26 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 40.32308 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24747775 | $\omega$ | 244.35388 | | +0.91143336 | −0.40816282 | |
| $a$ | 2.5125340 | $\Omega$ | 139.67900 | | +0.40037882 | +0.85077779 | |
| $e$ | 0.1139714 | $i$ | 4.59943 | | +0.09479470 | +0.33102910 | |
| $P$ | 3.98 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 11 17 | 704 | 0.8+ | 0.6− | 2005 11 04 | G96 | 0.0 | 0.1+ | 2007 06 15 | 568 | 0.1+ | 0.1+ | |
| 2001 11 17 | 704 | 0.6+ | 1.2− | 2005 11 04 | G96 | 0.1+ | 0.1+ | 2007 06 15 | 568 | 0.0 | 0.2+ | |
| 2001 11 17 | 704 | 0.8+ | 0.1− | 2005 11 04 | G96 | 0.2− | 0.0 | 2009 11 19 | J75 | 0.7+ | 0.3+ | |
| 2001 12 18 | 704 | 0.4+ | 0.5+ | 2005 11 10 | 703 | 0.1− | 0.5− | 2009 11 20 | J75 | 0.6+ | 0.0 | |
| 2001 12 18 | 704 | 0.2− | 0.4+ | 2005 11 10 | 703 | 1.1+ | 0.5− | 2009 11 20 | J75 | 0.1+ | 0.0 | |
| 2001 12 18 | 704 | 0.0 | 0.8+ | 2005 11 10 | 703 | 0.1+ | 0.3− | 2009 11 23 | G96 | 0.6+ | 0.2− | |
| 2001 12 18 | 704 | 0.3+ | 0.5+ | 2005 11 10 | 703 | 1.0− | 0.0 | 2009 11 23 | G96 | 0.5+ | 0.1− | |
| 2001 12 18 | 704 | 0.2+ | 1.0+ | 2005 11 26 | 703 | 1.0− | 0.3− | 2009 11 23 | G96 | 0.7+ | 0.1− | |
| 2003 04 01 | 645 | 0.0 | 0.1− | 2005 11 26 | 703 | 0.0 | 0.2+ | 2009 11 23 | G96 | 0.6+ | 0.3− | |
| 2003 04 01 | 645 | 0.0 | 0.1− | 2005 11 26 | 703 | 1.2− | 1.2− | 2009 12 10 | 703 | 0.4+ | 0.1+ | |
| 2005 10 26 | 691 | 0.4− | 0.2+ | 2005 11 26 | 703 | 0.8− | 0.2− | 2009 12 10 | 703 | 0.6+ | 0.2+ | |
| 2005 10 26 | 691 | 0.4− | 0.1+ | 2005 12 03 | 704 | 0.5− | 0.5+ | 2009 12 10 | 703 | 0.2+ | 0.4− | |
| 2005 10 26 | 691 | 0.2− | 0.1− | 2005 12 03 | 704 | 0.5+ | 0.2+ | 2009 12 10 | 703 | 0.7− | 0.1+ | |
| 2005 10 30 | 691 | 0.2− | 0.3+ | 2005 12 03 | 704 | 1.1+ | 0.3− | 2009 12 19 | 691 | 0.2− | 0.1− | |
| 2005 10 30 | 691 | 0.0 | 0.5+ | 2007 03 15 | 691 | 0.2− | 0.2+ | 2009 12 19 | 691 | 0.0 | 0.0 | |
| 2005 10 30 | 691 | 0.2− | 0.0 | 2007 03 15 | 691 | 0.0 | 0.2− | 2009 12 19 | 691 | 0.0 | 0.2+ | |
| 2005 11 04 | G96 | 0.2+ | 0.2− | 2007 03 15 | 691 | 0.0 | 0.2− | | | | | |

**(229480)∗ 2005 UU$_{318}$ = 2003 BJ$_{32}$**

Discovered 2005 Oct. 27 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 96264)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 232.56637 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.25744644 | $\omega$ | 255.58825 | | −0.87392013 | +0.48574367 | |
| $a$ | 2.4472488 | $\Omega$ | 313.46939 | | −0.43598046 | −0.79952508 | |
| $e$ | 0.1618986 | $i$ | 1.40509 | | −0.21490612 | −0.35328846 | |
| $P$ | 3.83 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 01 27 | 704 | 0.7+ | 0.4+ | 2007 02 10 | 703 | 1.2− | 0.7− | 2007 03 17 | 704 | 0.2+ | 0.8+ | |
| 2003 01 27 | 704 | 0.1− | 1.1+ | 2007 02 23 | 704 | 0.0 | 1.1+ | 2007 03 17 | 704 | 0.3+ | 0.7+ | |
| 2003 01 27 | 704 | (0.2− | 1.6+) | 2007 02 23 | 704 | 0.1− | 0.9+ | 2007 03 17 | 704 | 0.2− | 0.2+ | |
| 2003 01 27 | 704 | 0.0 | 0.5+ | 2007 02 23 | 704 | (1.0+ | 1.6+) | 2007 03 17 | 704 | 0.7+ | 0.0 | |
| 2003 01 28 | 608 | 0.2+ | 0.7− | 2007 02 23 | 704 | 0.1− | 1.2+ | 2007 04 22 | G96 | 0.1− | 0.2− | |
| 2003 01 28 | 608 | 0.3+ | 1.1− | 2007 03 09 | 703 | 0.3− | 0.6− | 2007 04 22 | G96 | 0.2− | 0.0 | |
| 2003 01 28 | 608 | 0.0 | 0.8− | 2007 03 09 | 703 | 0.2+ | 0.2+ | 2007 04 22 | G96 | 0.4− | 0.1− | |
| 2003 01 29 | 291 | 0.3− | 0.2+ | 2007 03 09 | 703 | 0.2− | 0.4− | 2007 04 22 | G96 | 0.0 | 0.1+ | |
| 2003 01 29 | 291 | 0.2− | 0.0 | 2007 03 09 | 703 | 1.3− | 1.2− | 2007 05 11 | G96 | 0.1+ | 0.1+ | |
| 2003 01 29 | 291 | 0.5− | 0.0 | 2007 03 09 | 703 | (0.9− | 1.9−) | 2007 05 11 | G96 | 0.3+ | 0.0 | |
| 2003 03 07 | 291 | 0.4+ | 0.1+ | 2007 03 09 | 703 | (2.8+ | 1.0−) | 2007 05 11 | G96 | 0.7− | 0.2− | |
| 2003 03 07 | 291 | 0.1− | 0.2− | 2007 03 09 | 703 | 1.3+ | 0.2+ | 2007 05 11 | G96 | 0.1− | 0.1+ | |
| 2003 03 07 | 291 | 0.3− | 0.2− | 2007 03 09 | 703 | 1.2+ | 0.7+ | 2008 07 30 | G96 | 0.2− | 0.5+ | |
| 2005 10 27 | 691 | 0.1+ | 0.1+ | 2007 03 10 | 644 | 0.5+ | 0.3+ | 2008 07 30 | G96 | 0.1+ | 0.4+ | |
| 2005 10 27 | 691 | 0.2− | 0.2− | 2007 03 10 | 644 | 0.3− | 0.0 | 2008 07 30 | G96 | 0.1− | 0.7+ | |
| 2005 10 27 | 691 | 0.0 | 0.1+ | 2007 03 10 | 644 | 0.3+ | 0.1+ | 2008 07 30 | G96 | 0.2− | 0.3+ | |
| 2005 10 30 | G96 | 0.2+ | 0.3− | 2007 03 10 | G96 | 0.2− | 0.0 | 2008 09 06 | G96 | 0.2− | 0.4+ | |
| 2005 10 30 | G96 | 0.4+ | 0.4− | 2007 03 10 | G96 | 0.1− | 0.1− | 2008 09 06 | G96 | 0.4− | 0.0 | |
| 2005 10 30 | G96 | 0.3+ | 0.4− | 2007 03 10 | G96 | 0.3− | 0.1− | 2008 09 06 | G96 | 1.1− | 0.0 | |
| 2005 10 30 | G96 | 0.0 | 0.3− | 2007 03 10 | G96 | 0.3− | 0.1− | 2008 09 06 | G96 | 0.1− | 0.1− | |
| 2005 11 04 | 691 | 0.1+ | 0.3+ | 2007 03 13 | 699 | 0.3+ | 1.4− | 2009 11 24 | 691 | 0.0 | 0.4− | |
| 2005 11 04 | 691 | 0.1+ | 0.2+ | 2007 03 13 | 699 | 0.5+ | 0.5− | 2009 11 24 | 691 | 0.1− | 0.1− | |
| 2005 11 04 | 691 | 0.3+ | 0.5+ | 2007 03 13 | 699 | 0.5+ | 0.6+ | 2009 11 24 | 691 | 0.7− | 0.2− | |
| 2005 11 10 | 691 | 0.1− | 0.3+ | 2007 03 13 | 699 | 0.6+ | 0.8− | 2009 12 17 | G96 | 0.2− | 0.4− | |
| 2005 11 10 | 691 | 0.0 | 0.1+ | 2007 03 14 | 704 | (1.8+ | 1.1+) | 2009 12 17 | G96 | 0.2+ | 0.1− | |
| 2005 11 10 | 691 | 0.1+ | 0.5+ | 2007 03 14 | 704 | 1.4+ | 0.2+ | 2009 12 17 | G96 | 0.3+ | 0.5− | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 02 10 | 703 | 0.0 | 0.2+ | 2007 03 14 | 704 | 1.5+ | 1.1+ | 2009 12 17 | G96 | 0.4+ | 0.1+ | | |
| 2007 02 10 | 703 | 0.4+ | 0.5+ | 2007 03 14 | 704 | (2.1+ | 0.5+) | | | | | | |
| 2007 02 10 | 703 | 0.2− | 0.8+ | 2007 03 17 | 704 | (0.7+ | 2.3+) | | | | | | |

**(229481)∗ 2005 UM$_{323}$**

Discovered 2005 Oct. 28 by the Catalina Sky Survey.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 35.26250 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27058090 | $\omega$ | 321.51194 | | +0.54004182 | −0.84057284 | |
| $a$ | 2.3673981 | $\Omega$ | 95.76339 | | +0.78233888 | +0.48281072 | |
| $e$ | 0.1586271 | $i$ | 2.43860 | | +0.31032355 | +0.24562393 | |
| $P$ | 3.64 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 04 10 | 695 | 0.8+ | 0.2+ | 2005 10 28 | 703 | 0.4− | 0.2+ | 2006 01 28 | G96 | 0.1+ | 0.8− | | |
| 2000 04 10 | 695 | 0.4+ | 0.4+ | 2005 10 28 | 703 | 0.6− | 0.4+ | 2007 03 15 | 691 | 0.2− | 0.0 | | |
| 2005 10 01 | 704 | 0.8− | 1.0+ | 2005 10 28 | 703 | 1.2− | 0.1+ | 2007 03 15 | 691 | 0.2− | 0.1+ | | |
| 2005 10 01 | 704 | 1.2+ | 0.2+ | 2005 10 30 | G96 | 0.4+ | 0.1− | 2007 03 15 | 691 | 0.0 | 0.4+ | | |
| 2005 10 01 | 704 | 0.1+ | 0.7+ | 2005 10 30 | G96 | 0.4− | 0.1− | 2007 04 25 | G96 | 0.3+ | 0.0 | | |
| 2005 10 01 | 704 | 0.3+ | 0.8+ | 2005 10 30 | G96 | 0.1− | 0.1+ | 2007 04 25 | G96 | 0.6− | 0.1+ | | |
| 2005 10 01 | 691 | 0.3− | 0.2+ | 2005 10 30 | G96 | 0.2+ | 0.1+ | 2007 04 25 | G96 | 0.7+ | 0.4− | | |
| 2005 10 01 | 691 | 0.0 | 0.1+ | 2005 10 31 | 704 | (0.0 | 1.7+) | 2007 04 25 | G96 | 0.4+ | 0.3− | | |
| 2005 10 01 | 691 | 0.0 | 0.2+ | 2005 10 31 | 704 | (1.1− | 1.8+) | 2009 10 15 | G96 | 0.4+ | 0.1− | | |
| 2005 10 07 | 703 | 0.3− | 1.1− | 2005 10 31 | 704 | 0.4+ | 0.4+ | 2009 10 15 | G96 | 0.2− | 0.2+ | | |
| 2005 10 07 | 703 | 0.9+ | 0.1− | 2005 10 31 | 704 | 0.4− | 0.7+ | 2009 10 15 | G96 | 0.4+ | 0.1− | | |
| 2005 10 07 | 703 | 1.0+ | 0.3− | 2005 11 03 | 704 | 1.3− | 0.4− | 2009 10 15 | G96 | 0.3+ | 0.1+ | | |
| 2005 10 07 | 703 | (2.4− | 0.6−) | 2005 11 03 | 704 | 0.4− | 0.5− | 2009 11 10 | G96 | 0.9+ | 0.2− | | |
| 2005 10 12 | 691 | 0.1+ | 0.1+ | 2005 11 03 | 704 | 0.6+ | 0.1− | 2009 11 10 | G96 | 0.1+ | 0.3− | | |
| 2005 10 12 | 691 | 0.2− | 0.3+ | 2005 11 03 | 704 | 0.4− | 0.2+ | 2009 11 10 | G96 | 0.0 | 0.2− | | |
| 2005 10 12 | 691 | 0.1+ | 0.1+ | 2005 11 05 | 699 | (1.1+ | 2.8−) | 2009 11 10 | G96 | 0.2− | 0.0 | | |
| 2005 10 21 | 644 | 0.3+ | 0.2+ | 2005 11 05 | 699 | 0.3+ | 0.1− | 2009 12 10 | G96 | 0.1+ | 0.4− | | |
| 2005 10 21 | 644 | 0.0 | 0.4+ | 2005 11 05 | 699 | 0.4+ | 0.3− | 2009 12 10 | G96 | 0.5+ | 0.5− | | |
| 2005 10 21 | 644 | 0.2+ | 0.4+ | 2005 11 05 | 699 | 0.2− | 0.1− | 2009 12 10 | G96 | 0.6+ | 0.1+ | | |
| 2005 10 22 | 703 | 0.5+ | 0.8+ | 2005 11 09 | 703 | 0.1+ | 0.9− | 2009 12 10 | G96 | 0.2+ | 0.2− | | |
| 2005 10 22 | 703 | 0.3− | 0.6+ | 2005 11 09 | 703 | 0.5− | 0.6− | 2009 12 16 | 691 | 0.3− | 0.3+ | | |
| 2005 10 22 | 703 | 0.6− | 0.9− | 2005 11 09 | 703 | 1.0+ | 1.3− | 2009 12 16 | 691 | 0.0 | 0.1− | | |
| 2005 10 22 | 703 | (1.9+ | 0.5−) | 2005 11 09 | 703 | 0.8− | 0.2− | 2009 12 16 | 691 | 0.5+ | 0.0 | | |
| 2005 10 24 | 699 | (1.1− | 2.1+) | 2005 12 01 | G96 | 0.0 | 0.1− | 2009 12 20 | 691 | 0.3+ | 0.1+ | | |
| 2005 10 24 | 699 | (2.5− | 0.5+) | 2005 12 01 | G96 | 0.4+ | 0.2− | 2009 12 20 | 691 | 0.1− | 0.2− | | |
| 2005 10 24 | 699 | 0.6+ | 0.9− | 2005 12 01 | G96 | 0.3+ | 0.2− | 2009 12 20 | 691 | 0.1+ | 0.0 | | |
| 2005 10 24 | 699 | 0.5− | 0.5− | 2005 12 01 | G96 | 0.3+ | 0.1− | 2009 12 25 | 691 | 0.1+ | 0.0 | | |
| 2005 10 24 | A50 | 0.0 | 1.0− | 2006 01 28 | G96 | 0.1+ | 0.6− | 2009 12 25 | 691 | 0.5− | 0.3+ | | |
| 2005 10 24 | A50 | 1.3+ | 0.1− | 2006 01 28 | G96 | 0.5− | 0.4− | 2009 12 25 | 691 | 0.2− | 0.2+ | | |
| 2005 10 28 | 703 | 0.3− | 0.3+ | 2006 01 28 | G96 | 0.5− | 0.2+ | | | | | | |

**(229482)∗ 2005 UD$_{337}$ = 2007 DN$_{38}$**

Discovered 2005 Oct. 31 by Spacewatch at Kitt Peak.

Id. A. Doppler (*MPO* 119226)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 268.73491 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.25625552 | $\omega$ | 121.40422 | | −0.98475840 | −0.17211805 | |
| $a$ | 2.4548252 | $\Omega$ | 48.69743 | | +0.14611918 | −0.89674484 | |
| $e$ | 0.1268948 | $i$ | 1.90902 | | +0.09434025 | −0.40770587 | |
| $P$ | 3.85 | $H$ | 17.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 12 14 | 645 | 0.0 | 0.0 | 2007 02 17 | 691 | 0.1+ | 0.1+ | 2007 04 23 | G96 | 0.5+ | 0.2+ | | |
| 2002 12 14 | 645 | 0.0 | 0.1− | 2007 02 21 | 691 | 0.0 | 0.4+ | 2007 04 23 | G96 | 0.1− | 0.2− | | |
| 2005 10 25 | 568 | 0.8− | 0.1− | 2007 02 21 | 691 | 0.0 | 0.1+ | 2009 11 11 | 691 | 0.1− | 0.2+ | | |
| 2005 10 25 | 568 | 0.5− | 0.2− | 2007 02 21 | 691 | 0.1− | 0.3+ | 2009 11 11 | 691 | 0.1− | 0.2+ | | |
| 2005 10 25 | 568 | 0.4− | 0.2− | 2007 03 26 | G96 | 0.5+ | 0.3− | 2009 11 11 | 691 | 0.3− | 0.2+ | | |
| 2005 10 31 | 691 | 0.2− | 0.1+ | 2007 03 26 | G96 | 0.3− | 0.1− | 2009 11 11 | G96 | 0.1+ | 0.1+ | | |
| 2005 10 31 | 691 | 0.0 | 0.2− | 2007 03 26 | G96 | 1.1+ | 0.5− | 2009 11 11 | G96 | 0.2− | 0.2+ | | |
| 2005 10 31 | 691 | 0.3+ | 0.4− | 2007 03 26 | G96 | 0.3+ | 0.0 | 2009 11 11 | G96 | 0.2+ | 0.3− | | |
| 2005 11 04 | 691 | 0.3+ | 0.2− | 2007 04 07 | 703 | (1.6− | 0.0 ) | 2009 11 11 | G96 | 0.0 | 0.0 | | |
| 2005 11 04 | 691 | 0.1+ | 0.2+ | 2007 04 07 | 703 | 0.1+ | 0.8− | 2009 11 23 | G96 | (1.1+ | 2.1−) | | |
| 2005 11 04 | 691 | 0.2+ | 0.2+ | 2007 04 07 | 703 | 0.7+ | 0.7− | 2009 11 23 | G96 | 0.7+ | 0.2+ | | |
| 2005 11 25 | G96 | 0.0 | 0.0 | 2007 04 07 | 703 | 1.3− | 0.6− | 2009 11 23 | G96 | 0.2+ | 0.1− | | |
| 2005 11 25 | G96 | 0.2− | 0.3− | 2007 04 15 | 691 | 0.5− | 0.4− | 2009 11 23 | G96 | 0.2+ | 0.7+ | | |
| 2005 11 25 | G96 | 0.3− | 0.2− | 2007 04 15 | 691 | 0.1+ | 0.3+ | 2009 12 10 | G96 | 0.0 | 0.7− | | |
| 2005 11 25 | G96 | 0.1+ | 0.2+ | 2007 04 15 | 691 | 0.2− | 0.4+ | 2009 12 10 | G96 | 0.2+ | 0.1− | | |
| 2007 02 17 | 691 | 0.1− | 0.4− | 2007 04 23 | G96 | 0.3+ | 0.0 | 2009 12 10 | G96 | 0.3− | 0.2+ | | |
| 2007 02 17 | 691 | 0.0 | 0.1+ | 2007 04 23 | G96 | 0.5+ | 0.1+ | 2009 12 10 | G96 | 0.2− | 0.2− | | |

**(229483)∗ 2005 UY$_{349}$ = 1999 AL$_{16}$**

Discovered 2005 Oct. 27 by the Catalina Sky Survey.

Id. G. V. Williams (*MPO* 96279)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 41.57206 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26792447 | $\omega$ | 304.24322 | | +0.59211493 | −0.80365877 | |
| $a$ | 2.3830206 | $\Omega$ | 109.33934 | | +0.75852346 | +0.53091649 | |
| $e$ | 0.1834398 | $i$ | 3.61140 | | +0.27210671 | +0.26881269 | |
| $P$ | 3.68 | $H$ | 17.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 01 09 | 691 | 0.1+ | 0.6− | 2005 11 01 | 704 | 0.1+ | 0.7+ | 2005 11 25 | 703 | 1.3− | 0.9− | | |
| 1999 01 09 | 691 | 0.2+ | 0.6− | 2005 11 02 | 704 | 0.5+ | 0.8+ | 2005 11 25 | 703 | 0.2− | 1.0− | | |
| 1999 01 09 | 691 | 0.3− | 0.2+ | 2005 11 02 | 704 | 0.0 | 0.2+ | 2005 11 25 | 703 | 1.4+ | 0.5+ | | |
| 1999 01 15 | 691 | 0.0 | 0.5− | 2005 11 02 | 704 | 0.1− | 0.7+ | 2005 11 25 | 703 | 0.1− | 1.3− | | |
| 1999 01 15 | 691 | 0.3− | 0.2− | 2005 11 02 | 704 | 0.8+ | 1.0+ | 2006 02 25 | G96 | 0.1− | 0.2− | | |
| 1999 01 15 | 691 | 0.1+ | 0.2− | 2005 11 02 | 704 | 0.3+ | 1.1+ | 2006 02 25 | G96 | 0.2+ | 0.4− | | |
| 2003 03 23 | 645 | 0.1+ | 0.2+ | 2005 11 03 | 704 | 0.4− | 0.1− | 2006 02 25 | G96 | 0.5− | 0.1− | | |
| 2003 03 23 | 645 | 0.0 | 0.2+ | 2005 11 03 | 704 | 0.5+ | 0.3− | 2006 02 25 | G96 | 0.5+ | 1.2+ | | |
| 2003 03 31 | 645 | 0.1+ | 0.2+ | 2005 11 03 | 704 | 1.2− | 0.7− | 2009 11 16 | G96 | 0.5+ | 0.2− | | |
| 2003 03 31 | 645 | 0.0 | 0.0 | 2005 11 05 | 704 | (0.6− | 1.8+) | 2009 11 16 | G96 | 0.2+ | 0.2− | | |
| 2005 10 22 | 291 | 0.4− | 0.0 | 2005 11 05 | 704 | 0.3− | 0.4+ | 2009 11 16 | G96 | 0.2− | 0.2− | | |
| 2005 10 22 | 291 | 0.2− | 0.3− | 2005 11 05 | 704 | 0.9− | 0.8+ | 2009 11 16 | G96 | 0.1+ | 0.3+ | | |
| 2005 10 22 | 291 | 0.4− | 0.2− | 2005 11 05 | 704 | 0.4+ | 0.1− | 2009 12 15 | G96 | 0.1− | 0.1+ | | |
| 2005 10 27 | 703 | 0.4− | 0.7− | 2005 11 05 | 704 | 0.8− | 1.1+ | 2009 12 15 | G96 | 0.4+ | 0.1− | | |
| 2005 10 27 | 703 | 0.4− | 0.0 | 2005 11 05 | 704 | 0.2− | 1.3+ | 2009 12 15 | G96 | 0.4+ | 0.1− | | |
| 2005 10 27 | 703 | 0.7− | 0.2− | 2005 11 05 | 703 | 1.0+ | 1.1+ | 2009 12 15 | G96 | 0.4+ | 0.2− | | |
| 2005 10 27 | 703 | 0.4+ | 0.2− | 2005 11 05 | 704 | 1.3− | 0.5+ | 2009 12 17 | 691 | 0.0 | 0.3+ | | |
| 2005 10 30 | 704 | 0.4+ | 0.0 | 2005 11 05 | 703 | 0.1− | 0.3+ | 2009 12 17 | 691 | 0.5− | 0.1− | | |
| 2005 10 30 | 704 | 0.3+ | 1.0+ | 2005 11 05 | 703 | 0.4+ | 0.1− | 2009 12 17 | 691 | 0.1+ | 0.1− | | |
| 2005 10 30 | 704 | 0.8+ | 0.6+ | 2005 11 05 | 703 | 0.5+ | 0.5+ | 2009 12 25 | 691 | 0.0 | 0.2− | | |
| 2005 11 01 | 704 | 0.7+ | 0.2− | 2005 11 10 | 703 | 0.5+ | 0.3+ | 2009 12 25 | 691 | 0.2+ | 0.1− | | |
| 2005 11 01 | 704 | 0.0 | 0.2− | 2005 11 10 | 703 | 0.7− | 0.1+ | 2009 12 25 | 691 | 0.2− | 0.0 | | |
| 2005 11 01 | 704 | 0.0 | 0.4− | 2005 11 10 | 703 | 0.3− | 0.4+ | | | | | | |
| 2005 11 01 | 704 | 1.0+ | 0.5+ | 2005 11 10 | 703 | 0.2+ | 1.3+ | | | | | | |

**(229484)∗ 2005 UU$_{369}$ = 2001 SO$_{191}$**

Discovered 2005 Oct. 27 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 96290)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 39.85514 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26711969 | $\omega$ | 307.56990 | | +0.52358044 | −0.85113962 | |
| $a$ | 2.3878046 | $\Omega$ | 110.81672 | | +0.79385330 | +0.47129785 | |
| $e$ | 0.1684475 | $i$ | 2.31444 | | +0.30929026 | +0.23117025 | |
| $P$ | 3.69 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 01 17 | 691 | 0.4− | 0.6+ | 2005 11 26 | 703 | 0.8− | 0.3− | 2007 03 13 | G96 | 0.1+ | 0.1+ | | |
| 1999 01 17 | 691 | 0.2+ | 0.2− | 2005 11 26 | 703 | 0.7− | 1.2− | 2007 03 13 | G96 | 0.1− | 0.1− | | |
| 1999 01 17 | 691 | 0.2+ | 0.4− | 2005 11 26 | 703 | 0.6− | 0.4− | 2007 03 13 | G96 | 0.0 | 0.1+ | | |
| 2001 09 19 | 704 | 0.6− | 0.7+ | 2005 11 29 | 699 | 1.4+ | 0.9+ | 2007 03 15 | 691 | 0.5+ | 0.3+ | | |
| 2001 09 19 | 704 | 0.5− | 0.7+ | 2005 11 29 | 699 | 0.8− | 0.3+ | 2007 03 15 | 691 | 0.2+ | 0.7+ | | |
| 2001 09 19 | 704 | 0.6− | 1.0+ | 2005 11 29 | 699 | 0.2+ | 0.5+ | 2007 03 15 | 691 | 0.2+ | 0.4+ | | |
| 2001 09 19 | 704 | 0.2− | 0.6+ | 2005 11 29 | 699 | 0.7− | 0.6+ | 2007 04 11 | 691 | 0.0 | 0.2+ | | |
| 2001 09 21 | 704 | 0.4− | 0.3+ | 2005 11 30 | 704 | 0.3+ | 0.5+ | 2007 04 11 | 691 | 0.3− | 0.2+ | | |
| 2001 09 21 | 704 | 0.8− | 0.1+ | 2005 11 30 | 644 | 0.1− | 0.1+ | 2007 04 11 | 691 | 0.4+ | 0.0 | | |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 21 | 704 | 0.7− | 0.6+ | 2005 11 30 | 644 | 0.4− | 0.1− | 2007 04 20 | G96 | 0.2+ | 0.1+ | | | |
| 2001 09 21 | 704 | 0.7− | 1.0+ | 2005 11 30 | 704 | 1.0+ | 0.0 | 2007 04 20 | G96 | 0.3− | 0.2+ | | | |
| 2005 10 22 | 691 | 0.0 | 0.4− | 2005 11 30 | 704 | (1.6+ | 1.4+) | 2007 04 20 | G96 | 0.1+ | 0.2− | | | |
| 2005 10 22 | 691 | 0.0 | 0.2+ | 2005 11 30 | 644 | 0.2+ | 0.1+ | 2007 04 20 | G96 | 0.2+ | 0.2− | | | |
| 2005 10 22 | 691 | 0.2− | 0.2+ | 2005 11 30 | 644 | 0.4− | 0.5+ | 2007 04 23 | 691 | 0.2− | 0.2+ | | | |
| 2005 10 27 | 691 | 0.2+ | 0.0 | 2005 11 30 | 704 | 0.7+ | 0.2+ | 2007 04 23 | 691 | 0.4+ | 0.1− | | | |
| 2005 10 27 | 691 | 0.1+ | 0.0 | 2005 11 30 | 644 | 0.3+ | 0.6+ | 2007 04 23 | 691 | 0.4− | 0.7+ | | | |
| 2005 10 27 | 691 | 0.1+ | 0.2+ | 2005 11 30 | 644 | 0.7− | 0.3+ | 2007 04 25 | 691 | 0.2+ | 0.4+ | | | |
| 2005 10 31 | 704 | 0.7− | 0.5− | 2005 12 01 | G96 | 0.1+ | 0.5− | 2007 04 25 | 691 | 0.0 | 0.5+ | | | |
| 2005 10 31 | 704 | 0.6− | 0.2− | 2005 12 01 | G96 | 0.1+ | 0.4− | 2007 04 25 | 691 | 0.5+ | 0.1+ | | | |
| 2005 10 31 | 704 | 0.1+ | 0.3+ | 2005 12 01 | G96 | 0.1− | 0.2− | 2007 05 13 | G96 | 0.3− | 0.2− | | | |
| 2005 10 31 | 691 | 0.1+ | 0.2+ | 2005 12 01 | G96 | 0.0 | 0.3− | 2007 05 13 | G96 | 0.5+ | 0.7− | | | |
| 2005 10 31 | 691 | 0.1+ | 0.3+ | 2005 12 07 | 704 | 0.1+ | 0.8− | 2007 05 13 | G96 | 0.2+ | 0.4− | | | |
| 2005 10 31 | 691 | 0.2+ | 0.2+ | 2005 12 07 | 704 | 0.5− | 1.2+ | 2007 05 13 | G96 | 0.1− | 0.4− | | | |
| 2005 11 03 | 704 | 0.0 | 0.8+ | 2005 12 07 | 704 | (0.2− | 2.2+) | 2009 11 16 | G96 | 0.3+ | 0.1+ | | | |
| 2005 11 03 | 704 | 0.0 | 0.0 | 2005 12 07 | 704 | (1.0− | 1.9+) | 2009 11 16 | G96 | 0.5+ | 0.2− | | | |
| 2005 11 03 | 704 | 0.5− | 0.0 | 2005 12 08 | 691 | 0.0 | 0.2+ | 2009 11 16 | G96 | 0.4+ | 0.2− | | | |
| 2005 11 03 | 704 | 0.2+ | 1.3+ | 2005 12 08 | 691 | 0.2+ | 0.0 | 2009 11 16 | G96 | 0.1− | 0.0 | | | |
| 2005 11 06 | 704 | 0.1− | 0.2+ | 2005 12 08 | 691 | 0.2+ | 0.1+ | 2009 12 15 | G96 | 0.0 | 0.2+ | | | |
| 2005 11 06 | 704 | 0.3+ | 0.4+ | 2005 12 29 | G96 | 0.3+ | 0.2− | 2009 12 15 | G96 | 0.6+ | 0.3− | | | |
| 2005 11 06 | 704 | 0.1+ | 0.0 | 2005 12 29 | G96 | 0.0 | 0.3− | 2009 12 15 | G96 | 0.1− | 0.1+ | | | |
| 2005 11 06 | 704 | 0.2− | 0.4+ | 2005 12 29 | G96 | 0.1− | 0.4− | 2009 12 15 | G96 | 0.5+ | 0.1− | | | |
| 2005 11 06 | 704 | 0.3+ | 0.3+ | 2005 12 29 | G96 | 0.1+ | 0.3− | 2009 12 17 | 691 | 0.4− | 0.5+ | | | |
| 2005 11 20 | 699 | 0.2+ | 1.1− | 2006 01 22 | G96 | 0.2− | 0.2+ | 2009 12 17 | 691 | 0.0 | 0.0 | | | |
| 2005 11 20 | 699 | 0.3− | 0.8− | 2006 01 22 | G96 | 0.6− | 0.1+ | 2009 12 17 | 691 | 0.3+ | 0.1+ | | | |
| 2005 11 20 | 699 | 0.5+ | 1.2+ | 2006 01 22 | G96 | 0.0 | 0.4− | 2009 12 25 | 691 | 0.1− | 0.1− | | | |
| 2005 11 20 | 699 | 0.2+ | 0.5− | 2006 01 22 | G96 | 0.0 | 0.0 | 2009 12 25 | 691 | 0.5− | 0.0 | | | |
| 2005 11 26 | 703 | 1.0− | 0.3− | 2007 03 13 | G96 | 0.0 | 0.0 | 2009 12 25 | 691 | 0.4− | 0.2− | | | |

**(229485)∗ 2005 UN$_{386}$**

Discovered 2005 Oct. 30 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 23.01059 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27127317 | $\omega$ | 1.65028 | | +0.22655257 | −0.94884821 | |
| $a$ | 2.3633688 | $\Omega$ | 75.29844 | | +0.89100189 | +0.11069445 | |
| $e$ | 0.2013003 | $i$ | 13.14139 | | +0.39343304 | +0.29569208 | |
| $P$ | 3.63 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 01 16 | 704 | (1.7+ | 2.5−) | 2005 10 07 | 699 | 0.2− | 0.3− | 2005 12 27 | 704 | 1.1− | 0.4+ | | | |
| 1999 01 16 | 704 | (0.8− | 2.4−) | 2005 10 07 | 699 | 0.1+ | 0.8+ | 2005 12 27 | 704 | (2.0− | 0.7+) | | | |
| 1999 01 16 | 704 | 0.0 | 0.9− | 2005 10 07 | 699 | 0.1+ | 0.3+ | 2005 12 27 | 704 | 0.5− | 1.2+ | | | |
| 1999 01 16 | 704 | (3.1− | 1.3−) | 2005 10 07 | 699 | 0.5+ | 0.3+ | 2007 03 25 | G96 | 0.5− | 0.1− | | | |
| 2000 05 04 | 691 | 0.2+ | 0.5+ | 2005 10 26 | 704 | 0.6− | 0.4+ | 2007 03 25 | G96 | 0.2+ | 0.1− | | | |
| 2000 05 04 | 691 | 0.0 | 0.4+ | 2005 10 26 | 704 | 0.4− | 1.3+ | 2007 03 25 | G96 | 0.2− | 0.1− | | | |
| 2000 05 04 | 691 | 0.1− | 0.5+ | 2005 10 26 | 704 | 0.2+ | 0.2+ | 2007 03 25 | G96 | 0.2− | 0.1− | | | |
| 2003 02 04 | 699 | 0.1+ | 1.0+ | 2005 10 30 | 699 | 0.3− | 0.1+ | 2007 04 23 | G96 | 0.1− | 0.0 | | | |
| 2003 02 04 | 699 | 0.8+ | 0.6− | 2005 10 30 | 699 | 0.2− | 0.3+ | 2007 04 23 | G96 | 0.4+ | 0.1+ | | | |
| 2003 02 04 | 699 | 1.1+ | 1.4+ | 2005 10 30 | 699 | 0.7− | 0.1+ | 2007 04 23 | G96 | 0.2+ | 0.2− | | | |
| 2003 02 04 | 699 | 0.2− | 0.1+ | 2005 10 30 | 699 | 0.4+ | 0.3+ | 2007 04 23 | G96 | 0.0 | 0.1+ | | | |
| 2003 03 09 | 644 | 0.4+ | 0.1+ | 2005 10 31 | 644 | 0.3− | 0.2+ | 2009 11 24 | 703 | 0.0 | 0.5− | | | |
| 2003 03 09 | 644 | 0.1+ | 0.2+ | 2005 10 31 | 644 | 0.1− | 0.0 | 2009 11 24 | 703 | 0.3− | 0.0 | | | |
| 2003 03 09 | 644 | 0.1+ | 0.2+ | 2005 10 31 | 644 | 0.1− | 0.4+ | 2009 11 24 | 703 | 0.2+ | 0.2− | | | |
| 2003 03 22 | 644 | 0.1+ | 0.5+ | 2005 11 03 | 703 | 0.0 | 0.0 | 2009 11 24 | 703 | 0.1− | 0.6− | | | |
| 2003 03 22 | 644 | 0.5+ | 0.4+ | 2005 11 03 | 703 | 0.1+ | 0.4+ | 2009 12 09 | J75 | 0.3− | 0.7− | | | |
| 2003 03 22 | 644 | 0.2+ | 0.2+ | 2005 11 03 | 703 | 0.4− | 0.4+ | 2009 12 09 | J75 | 0.6− | 0.1− | | | |
| 2003 04 07 | 644 | 0.4+ | 0.4+ | 2005 11 03 | 703 | 0.1+ | 0.3+ | 2009 12 09 | J75 | 0.1+ | 0.5− | | | |
| 2003 04 07 | 644 | 0.2+ | 0.4+ | 2005 12 27 | 704 | 0.3− | 0.5+ | | | | | | | |
| 2003 04 07 | 644 | 0.8+ | 0.2+ | 2005 12 27 | 704 | 0.6− | 0.7+ | | | | | | | |

**(229486)∗ 2005 UC$_{387}$ = 2001 RY$_{115}$ = 2007 EH$_{72}$**

Discovered 2005 Oct. 30 by the Mt. Lemmon Survey at Mount Lemmon.

Id. G. V. Williams (*MPO* 117626)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 176.29314 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27990612 | $\omega$ | 265.33190 | | +0.48650240 | +0.87328344 | |
| $a$ | 2.3145210 | $\Omega$ | 33.81968 | | −0.78168947 | +0.44852425 | |
| $e$ | 0.0565337 | $i$ | 2.70793 | | −0.39022684 | +0.19026831 | |
| $P$ | 3.52 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1993 04 18 | 691 | 0.3− | 0.2− | 2001 09 19 | 704 | 0.8− | 0.4− | 2007 03 10 | G96 | 0.2+ | 0.1− | | | |
| 1993 04 18 | 691 | 0.3− | 0.2− | 2001 09 19 | 704 | 0.7− | 1.1− | 2007 03 14 | 691 | 0.3− | 0.1+ | | | |
| 1993 04 18 | 691 | 0.0 | 0.3− | 2001 09 19 | 704 | 0.6− | 0.8− | 2007 03 14 | 691 | 0.2+ | 0.0 | | | |
| 1996 02 16 | 691 | 0.5− | 0.3+ | 2001 09 19 | 704 | 0.4− | 0.5− | 2007 03 14 | 691 | 0.1− | 0.1+ | | | |
| 1996 02 16 | 691 | 0.1− | 0.3− | 2005 10 30 | G96 | 0.6+ | 0.1+ | 2008 09 23 | G96 | 0.2+ | 0.4+ | | | |
| 1996 02 16 | 691 | 0.2+ | 0.2− | 2005 10 30 | G96 | 0.2+ | 0.1− | 2008 09 23 | G96 | 0.3+ | 0.4+ | | | |
| 2000 04 05 | 699 | 0.3+ | 0.0 | 2005 10 30 | G96 | 0.3− | 0.3− | 2008 09 23 | G96 | 0.0 | 0.2+ | | | |
| 2000 04 05 | 699 | 0.4+ | 1.1+ | 2005 10 30 | G96 | 0.2− | 0.2− | 2008 09 23 | G96 | 0.5+ | 0.4+ | | | |
| 2000 04 05 | 704 | (2.6+ | 0.2+) | 2005 10 31 | 691 | 0.2+ | 0.0 | 2008 09 28 | 704 | 0.6− | 0.9− | | | |
| 2000 04 05 | 699 | (2.2+ | 0.1−) | 2005 10 31 | 691 | 0.2+ | 0.0 | 2008 09 28 | 704 | 0.2− | 0.3+ | | | |
| 2000 04 05 | 704 | 0.9+ | 0.5+ | 2005 10 31 | 691 | 0.2+ | 0.2+ | 2008 09 28 | 704 | 1.2− | 0.3− | | | |
| 2000 04 05 | 699 | 0.7+ | 1.0− | 2005 11 21 | 691 | 0.3+ | 0.2+ | 2009 11 21 | G96 | 0.1+ | 0.1+ | | | |
| 2000 04 05 | 704 | 0.7+ | 1.1+ | 2005 11 21 | 691 | 0.2+ | 0.0 | 2009 11 21 | G96 | 0.1− | 0.1+ | | | |
| 2000 04 05 | 704 | 0.6+ | 1.5+ | 2005 11 21 | 691 | 0.0 | 0.0 | 2009 11 21 | G96 | 0.8− | 0.6− | | | |
| 2001 09 12 | 704 | 0.9+ | 0.7+ | 2007 03 10 | 691 | 0.1+ | 0.0 | 2009 11 21 | G96 | 0.5− | 0.3− | | | |
| 2001 09 12 | 704 | 0.1+ | 0.8+ | 2007 03 10 | 691 | 0.1+ | 0.2− | 2009 12 18 | 691 | 0.3− | 0.2+ | | | |
| 2001 09 12 | 704 | 0.7+ | 0.5+ | 2007 03 10 | 691 | 0.1+ | 0.1+ | 2009 12 18 | 691 | 0.3− | 0.3+ | | | |
| 2001 09 12 | 704 | 0.5+ | 0.2+ | 2007 03 10 | G96 | 0.3+ | 0.0 | 2009 12 18 | 691 | 0.2− | 0.1+ | | | |
| 2001 09 12 | 704 | 0.0 | 0.7+ | 2007 03 10 | G96 | 0.2+ | 0.1− | | | | | | | |
| 2001 09 19 | 704 | 0.8− | 0.9− | 2007 03 10 | G96 | 0.2+ | 0.0 | | | | | | | |

**(229487)∗ 2005 UQ$_{403}$**

Discovered 2005 Oct. 29 by the Mt. Lemmon Survey at Mount Lemmon.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 321.53200 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26996006 | $\omega$ | 44.68954 | | −0.70839833 | −0.70475488 | |
| $a$ | 2.3710263 | $\Omega$ | 90.45784 | | +0.63628359 | −0.66134541 | |
| $e$ | 0.1200024 | $i$ | 2.21402 | | +0.30547505 | −0.25679331 | |
| $P$ | 3.65 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 01 30 | 699 | 0.8− | 0.1+ | 2005 11 01 | G96 | 0.1+ | 0.0 | 2007 04 22 | G96 | 0.3+ | 0.1− | | | |
| 2003 01 30 | 699 | 0.6− | 0.8+ | 2005 12 01 | G96 | 0.0 | 0.0 | 2007 04 22 | G96 | 0.3+ | 0.0 | | | |
| 2003 01 30 | 699 | 0.5+ | 0.1− | 2005 12 01 | G96 | 0.1+ | 0.1− | 2007 05 13 | G96 | 0.4+ | 0.2+ | | | |
| 2003 01 30 | 699 | 0.0 | 0.3− | 2005 12 01 | G96 | 0.2+ | 0.4− | 2007 05 13 | G96 | 0.0 | 0.5+ | | | |
| 2003 02 09 | 608 | 0.2+ | 0.5− | 2005 12 01 | G96 | 0.2− | 0.4− | 2007 05 13 | G96 | 0.3− | 0.1− | | | |
| 2003 02 09 | 608 | 0.3+ | 0.2− | 2007 03 11 | 691 | 0.2+ | 0.0 | 2007 05 13 | G96 | 0.0 | 0.3+ | | | |
| 2003 02 09 | 608 | 0.2+ | 0.7− | 2007 03 11 | 691 | 0.2+ | 0.2− | 2009 11 16 | 691 | 0.1− | 0.1− | | | |
| 2005 10 01 | 691 | 0.2− | 0.4+ | 2007 03 11 | 691 | 0.3− | 0.4− | 2009 11 16 | 691 | 0.1+ | 0.0 | | | |
| 2005 10 01 | 691 | 0.2− | 0.2+ | 2007 03 13 | 691 | 0.0 | 0.3+ | 2009 11 16 | 691 | 0.2− | 0.1+ | | | |
| 2005 10 01 | 691 | 0.0 | 0.2+ | 2007 03 13 | 691 | 0.0 | 0.1+ | 2009 11 20 | 691 | 0.1+ | 0.2− | | | |
| 2005 10 12 | 691 | 0.1− | 0.3+ | 2007 03 13 | 691 | 0.8+ | 0.9+ | 2009 11 20 | 691 | 0.1+ | 0.2− | | | |
| 2005 10 12 | 691 | 0.1− | 0.2+ | 2007 03 15 | 691 | 0.3+ | 0.0 | 2009 11 20 | 691 | 0.2− | 0.0 | | | |
| 2005 10 12 | 691 | 0.1− | 0.3+ | 2007 03 15 | 691 | 0.0 | 0.1+ | 2009 11 25 | 291 | 0.2− | 0.0 | | | |
| 2005 10 29 | G96 | 0.3− | 0.1+ | 2007 03 15 | 691 | 0.2− | 0.3+ | 2009 11 25 | 291 | 0.1− | 0.0 | | | |
| 2005 10 29 | G96 | 0.3− | 0.4− | 2007 04 07 | 703 | 0.3− | 0.9− | 2009 11 25 | 291 | 0.0 | 0.1− | | | |
| 2005 10 29 | G96 | 0.3+ | 0.1+ | 2007 04 07 | 703 | 0.6− | 0.7+ | 2009 12 17 | 704 | 0.6+ | 1.9+ | | | |
| 2005 10 29 | G96 | 0.1− | 0.3− | 2007 04 07 | 703 | 0.2− | 0.2− | 2009 12 17 | 704 | 0.7+ | 0.0 | | | |
| 2005 11 01 | G96 | 0.1− | 0.1− | 2007 04 07 | 703 | 1.0− | 1.3+ | 2009 12 17 | 704 | 0.3+ | 0.1− | | | |
| 2005 11 01 | G96 | 0.3+ | 0.1− | 2007 04 22 | G96 | 0.1− | 0.1− | | | | | | | |
| 2005 11 01 | G96 | 0.5+ | 0.0 | 2007 04 22 | G96 | 0.2− | 0.2− | | | | | | | |

**(229488)∗ 2005 UX$_{438}$**

Discovered 2005 Oct. 28 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 32.25323 | | (2000.0) | | | |
| $n$ | 0.23794609 | $\omega$ | 309.16123 | | +0.97420081 | −0.20035753 |
| $a$ | 2.5791920 | $\Omega$ | 62.62187 | | +0.22568067 | +0.86693535 |
| $e$ | 0.2739186 | $i$ | 6.71759 | | −0.00101251 | +0.45637700 |
| $P$ | 4.14 | $H$ | 16.3 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 12 18 | 644 | 0.2− | 0.3+ | 2005 12 06 | 704 | 0.2− | 0.4+ | 2009 10 25 | 703 | 0.0 | 0.6− | | | | | |
| 2001 12 18 | 644 | 0.4+ | 0.4+ | 2005 12 06 | 704 | 0.3+ | 0.6+ | 2009 10 25 | 703 | 0.3+ | 0.4− | | | | | |
| 2001 12 18 | 644 | 0.1+ | 0.1+ | 2005 12 06 | 704 | 0.1− | 0.3− | 2009 10 25 | 703 | 0.2+ | 0.4+ | | | | | |
| 2001 12 18 | 704 | 0.1− | 0.2+ | 2005 12 06 | 704 | 0.1− | 0.1− | 2009 10 26 | 691 | 0.4− | 0.1+ | | | | | |
| 2001 12 18 | 704 | 0.2− | 0.6+ | 2005 12 06 | 704 | 0.4+ | 0.3− | 2009 10 26 | 691 | 0.2− | 0.1+ | | | | | |
| 2001 12 18 | 704 | 0.7+ | 0.8+ | 2005 12 06 | 704 | 0.8+ | 0.1+ | 2009 10 26 | 691 | 0.2− | 0.1− | | | | | |
| 2001 12 22 | 704 | 1.4− | 0.1+ | 2005 12 06 | 704 | 0.2− | 0.3− | 2009 10 26 | D29 | 0.5+ | 0.7− | | | | | |
| 2001 12 22 | 704 | 0.0 | 1.2− | 2005 12 06 | 704 | 0.0 | 0.2− | 2009 10 26 | D29 | 0.4+ | 0.0 | | | | | |
| 2001 12 22 | 704 | 0.2+ | 0.7− | 2005 12 06 | 704 | 0.6+ | 0.1+ | 2009 10 26 | D29 | 0.8+ | 0.2+ | | | | | |
| 2003 04 01 | 645 | 0.1+ | 0.0 | 2005 12 06 | 704 | 0.1+ | 0.5− | 2009 10 26 | D29 | 0.1+ | 0.2− | | | | | |
| 2003 04 01 | 645 | 0.0 | 0.0 | 2005 12 10 | 704 | 0.6− | 0.3− | 2009 10 27 | 704 | 0.3− | 0.2− | | | | | |
| 2005 10 28 | 704 | 1.0+ | 0.5− | 2005 12 10 | 704 | 0.2− | 1.0+ | 2009 10 27 | 704 | 0.1− | 0.2− | | | | | |
| 2005 10 28 | 704 | 1.2+ | 0.7+ | 2005 12 10 | 704 | 0.5+ | 0.1+ | 2009 10 27 | 704 | 0.1− | 0.6− | | | | | |
| 2005 10 28 | 704 | 1.4+ | 0.5+ | 2005 12 10 | 704 | 0.3− | 0.8+ | 2009 10 27 | 704 | 0.2+ | 0.2+ | | | | | |
| 2005 11 01 | 704 | 0.3+ | 0.3− | 2005 12 10 | 704 | 0.6− | 0.5+ | 2009 11 08 | G96 | 0.3+ | 0.1− | | | | | |
| 2005 11 01 | 704 | 0.0 | 0.4− | 2005 12 28 | 703 | (1.9− | 0.3−) | 2009 11 08 | G96 | 0.3+ | 0.2− | | | | | |
| 2005 11 01 | 704 | 0.3+ | 0.1+ | 2005 12 28 | 703 | 0.1+ | 1.2− | 2009 11 08 | G96 | 0.2+ | 0.1− | | | | | |
| 2005 11 01 | G96 | 0.1− | 0.1− | 2005 12 28 | 703 | 0.9− | 0.1− | 2009 11 08 | G96 | 0.2+ | 0.0 | | | | | |
| 2005 11 01 | G96 | 0.3− | 0.3− | 2005 12 28 | 703 | 1.4− | 0.6+ | 2009 11 09 | 703 | 0.3− | 0.2− | | | | | |
| 2005 11 01 | G96 | 0.1+ | 0.2− | 2005 12 29 | 704 | 0.5+ | 0.8− | 2009 11 09 | 703 | 0.7− | 0.4− | | | | | |
| 2005 11 01 | G96 | 0.1+ | 0.4− | 2005 12 29 | 704 | 0.3− | 0.2+ | 2009 11 09 | 703 | 0.7− | 0.1+ | | | | | |
| 2005 11 08 | 704 | 0.7− | 0.1+ | 2005 12 29 | 704 | 0.2+ | 1.0− | 2009 11 09 | 703 | 0.3+ | 0.2− | | | | | |
| 2005 11 08 | 704 | 0.2− | 0.7+ | 2005 12 30 | G96 | 0.4− | 0.4− | 2009 11 15 | 703 | 0.1− | 0.7− | | | | | |
| 2005 11 08 | 704 | 0.0 | 0.5+ | 2005 12 30 | G96 | 0.3− | 0.4− | 2009 11 15 | 703 | 0.4+ | 0.4+ | | | | | |
| 2005 11 08 | 704 | 0.3− | 0.3− | 2005 12 30 | G96 | 0.3− | 0.4− | 2009 11 15 | 703 | 0.3+ | 0.2− | | | | | |
| 2005 11 21 | 691 | 0.7+ | 0.3− | 2005 12 30 | G96 | 0.2− | 0.5− | 2009 11 15 | 703 | 0.4+ | 0.6+ | | | | | |
| 2005 11 21 | 691 | 0.1− | 0.2− | 2006 01 05 | 703 | (0.7− | 1.9+) | 2009 11 18 | 704 | 0.2− | 0.2+ | | | | | |
| 2005 11 21 | 691 | 0.2− | 0.1− | 2006 01 05 | 703 | 0.5+ | 0.2− | 2009 11 18 | 704 | 0.7− | 1.2+ | | | | | |
| 2005 11 26 | G96 | 0.0 | 0.4− | 2006 01 05 | 703 | 0.1+ | 0.7+ | 2009 11 18 | 704 | 0.8− | 0.5+ | | | | | |
| 2005 11 26 | G96 | 0.3+ | 0.4− | 2006 01 05 | 703 | 0.3+ | 0.0 | 2009 11 18 | 704 | 0.2− | 0.9+ | | | | | |
| 2005 11 26 | G96 | 0.0 | 0.4− | 2007 03 15 | G96 | 0.3+ | 0.1+ | 2009 11 18 | 704 | 0.5− | 0.9+ | | | | | |
| 2005 11 26 | G96 | 0.2− | 0.5− | 2007 03 15 | G96 | 0.3− | 0.2+ | 2009 11 20 | 704 | 0.3+ | 0.1− | | | | | |
| 2005 11 28 | 704 | 0.1− | 0.2+ | 2007 03 15 | G96 | 0.1+ | 0.3+ | 2009 11 20 | 704 | 0.4+ | 0.6+ | | | | | |
| 2005 11 28 | 704 | 0.1+ | 0.3+ | 2007 03 15 | G96 | 0.1+ | 0.1+ | 2009 11 20 | 704 | 0.1− | 0.1+ | | | | | |
| 2005 11 28 | 704 | 0.6+ | 0.2− | 2008 05 02 | 691 | 0.1+ | 0.6+ | 2009 11 20 | 704 | 0.7+ | 0.4+ | | | | | |
| 2005 11 28 | 704 | 0.7+ | 0.4+ | 2008 05 02 | 691 | 0.1+ | 0.3+ | 2009 11 23 | J75 | 0.0 | 0.0 | | | | | |
| 2005 11 28 | 704 | 0.1− | 0.4+ | 2008 05 02 | 691 | 0.1+ | 0.2+ | 2009 11 23 | J75 | 0.1− | 0.3− | | | | | |
| 2005 12 01 | 704 | 0.7− | 0.0 | 2009 09 19 | 703 | 1.1− | 0.6+ | 2009 11 23 | J75 | 0.1− | 0.2− | | | | | |
| 2005 12 01 | 704 | 0.6− | 0.0 | 2009 09 19 | 703 | 0.2+ | 0.3+ | 2009 11 25 | 703 | 0.1+ | 0.1− | | | | | |
| 2005 12 01 | 704 | 0.4− | 0.3− | 2009 09 19 | 703 | 0.4− | 0.9+ | 2009 11 25 | 703 | 0.5− | 0.2− | | | | | |
| 2005 12 04 | 704 | 0.5− | 0.1− | 2009 09 19 | 703 | 0.9+ | 0.4+ | 2009 11 25 | 703 | 0.4+ | 0.3− | | | | | |
| 2005 12 04 | 704 | 0.2− | 0.3+ | 2009 10 18 | J75 | 0.1+ | 0.1+ | 2009 11 25 | 703 | 1.2− | 0.6− | | | | | |
| 2005 12 04 | 704 | 0.7+ | 0.6+ | 2009 10 18 | J75 | 0.1− | 0.3+ | 2009 12 10 | 703 | 0.9− | 0.1− | | | | | |
| 2005 12 04 | 704 | 0.2− | 0.1+ | 2009 10 19 | J75 | 0.6+ | 0.6− | 2009 12 10 | 703 | 0.0 | 0.9+ | | | | | |
| 2005 12 04 | 704 | 0.2− | 0.5− | 2009 10 20 | 704 | 0.7− | 0.4+ | 2009 12 10 | 703 | 0.8− | 1.5− | | | | | |
| 2005 12 05 | 704 | 0.7+ | 0.5+ | 2009 10 20 | 704 | 0.0 | 0.1+ | 2009 12 10 | 703 | 0.5+ | 0.0 | | | | | |
| 2005 12 05 | 704 | 0.2− | 0.7+ | 2009 10 20 | 704 | 0.2+ | 0.3+ | 2009 12 12 | 704 | 0.3+ | 1.7+ | | | | | |
| 2005 12 05 | 704 | 0.3− | 0.4− | 2009 10 20 | 704 | 0.1− | 0.3+ | 2009 12 12 | 704 | 0.0 | 1.5+ | | | | | |
| 2005 12 05 | 704 | 0.1+ | 0.1− | 2009 10 20 | 704 | 0.3− | 0.3+ | 2009 12 12 | 704 | 0.1− | 1.6+ | | | | | |
| 2005 12 05 | 704 | 0.2− | 0.6− | 2009 10 25 | 703 | 0.4+ | 0.5− | 2009 12 12 | 704 | 0.9+ | 1.2+ | | | | | |

**(229489)∗ 2005 UR$_{445}$ = 1999 CE$_{56}$**

Discovered 2005 Oct. 31 by the Mt. Lemmon Survey at Mount Lemmon. Id. G. V. Williams (*MPO* 96323)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 342.98935 | | (2000.0) | | | |
| $n$ | 0.26626145 | $\omega$ | 68.52118 | | −0.81496705 | −0.57141358 |
| $a$ | 2.3929329 | $\Omega$ | 76.50712 | | +0.48815162 | −0.76666060 |
| $e$ | 0.2419404 | $i$ | 5.69627 | | +0.31230867 | −0.29277645 |
| $P$ | 3.70 | $H$ | 16.8 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 02 10 | 704 | 0.4− | 0.9− | 2005 11 01 | G96 | 0.3+ | 0.0 | 2006 01 05 | G96 | 0.1+ | 0.2+ | | | | | |
| 1999 02 10 | 704 | 0.6+ | 1.1− | 2005 11 02 | G96 | 0.3− | 0.4+ | 2006 01 05 | G96 | 0.2− | 0.0 | | | | | |
| 1999 02 10 | 704 | 0.4− | 0.3− | 2005 11 02 | G96 | 0.1− | 0.4+ | 2006 01 23 | G96 | 0.2+ | 0.4− | | | | | |
| 1999 02 10 | 704 | 0.1+ | 1.6− | 2005 11 02 | G96 | 0.5+ | 0.5+ | 2006 01 23 | G96 | 0.0 | 0.2− | | | | | |
| 1999 02 10 | 704 | 0.3− | 1.6− | 2005 11 02 | G96 | 0.1+ | 0.1+ | 2006 01 23 | G96 | 0.3+ | 0.4− | | | | | |
| 1999 02 13 | 704 | 0.4+ | 0.2− | 2005 11 21 | 703 | 0.3− | 0.0 | 2006 01 23 | G96 | 0.4− | 0.4− | | | | | |
| 1999 02 13 | 704 | 0.6− | 0.4+ | 2005 11 21 | 703 | 1.1+ | 0.0 | 2006 03 04 | G96 | 0.8− | 0.1− | | | | | |
| 1999 02 13 | 704 | 0.5− | 0.9+ | 2005 11 21 | 703 | 0.7− | 0.7+ | 2006 03 04 | G96 | 0.1− | 0.5+ | | | | | |
| 1999 02 13 | 704 | 0.6+ | 0.0 | 2005 11 21 | 703 | 0.1+ | 0.1+ | 2006 03 04 | G96 | 0.3+ | 0.5+ | | | | | |
| 1999 02 13 | 704 | 0.8− | 1.6+ | 2005 11 30 | G96 | 0.2+ | 0.2+ | 2006 03 04 | G96 | 0.0 | 0.2+ | | | | | |
| 2003 05 05 | 704 | 0.8+ | 1.1+ | 2005 11 30 | G96 | 0.1− | 0.2− | 2009 09 27 | 691 | 0.2− | 0.1+ | | | | | |
| 2003 05 05 | 704 | 1.0+ | 1.2+ | 2005 11 30 | G96 | 0.3− | 0.1+ | 2009 09 27 | 691 | 0.2− | 0.2− | | | | | |
| 2003 05 05 | 704 | 0.6+ | 1.4+ | 2005 11 30 | G96 | 0.1− | 0.1− | 2009 09 27 | 691 | 0.3− | 0.0 | | | | | |
| 2003 05 05 | 704 | 0.6+ | 0.9+ | 2005 12 04 | 704 | 0.1+ | 1.3+ | 2009 11 21 | G96 | 0.6+ | 0.1+ | | | | | |
| 2003 06 04 | 691 | 0.3− | 0.1+ | 2005 12 04 | 704 | 0.7+ | 0.7+ | 2009 11 21 | G96 | 0.3+ | 0.2− | | | | | |
| 2003 06 04 | 691 | 0.0 | 0.1+ | 2005 12 04 | 704 | 0.2+ | 0.7+ | 2009 11 21 | G96 | 0.4− | 0.0 | | | | | |
| 2003 06 04 | 691 | 0.2+ | 0.4+ | 2005 12 04 | 704 | 0.3+ | 0.7+ | 2009 11 21 | G96 | 0.1+ | 0.2− | | | | | |
| 2005 10 31 | G96 | 1.2− | 0.2− | 2005 12 04 | 704 | 0.4− | 0.1+ | 2009 12 10 | 703 | 0.2− | 0.8+ | | | | | |
| 2005 10 31 | G96 | 0.9− | 0.2− | 2005 12 05 | 704 | 0.1− | 0.4+ | 2009 12 10 | 703 | 0.2− | 1.2+ | | | | | |
| 2005 10 31 | G96 | 0.5+ | 0.3− | 2005 12 05 | 704 | 0.1− | 0.1− | 2009 12 10 | 703 | 0.1− | 0.1+ | | | | | |
| 2005 10 31 | G96 | 0.3+ | 0.0 | 2005 12 05 | 704 | 1.1− | 1.0+ | 2009 12 10 | 703 | 0.5+ | 0.1+ | | | | | |
| 2005 11 01 | G96 | 0.3+ | 0.2− | 2005 12 05 | 704 | 0.2+ | 0.5+ | 2009 12 15 | 704 | 1.1− | 0.2− | | | | | |
| 2005 11 01 | G96 | 0.1+ | 0.0 | 2006 01 05 | G96 | 0.5− | 0.1− | 2009 12 15 | 704 | 0.4+ | 0.0 | | | | | |
| 2005 11 01 | G96 | 0.1− | 0.0 | 2006 01 05 | G96 | 0.2− | 0.2− | 2009 12 15 | 704 | 1.9+ | 0.6+ | | | | | |

**(229490)∗ 2005 UD$_{452}$ = 1991 XA$_7$**

Discovered 2005 Oct. 28 by the Mt. Lemmon Survey at Mount Lemmon. Id. G. V. Williams (*MPO* 96328)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 286.03657 | | (2000.0) | | | |
| $n$ | 0.21984616 | $\omega$ | 252.08270 | | −0.93201099 | −0.30766420 |
| $a$ | 2.7188806 | $\Omega$ | 269.65533 | | +0.35991380 | −0.84786006 |
| $e$ | 0.1543907 | $i$ | 11.04450 | | −0.04263292 | −0.43182873 |
| $P$ | 4.48 | $H$ | 15.6 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1991 12 13 | 691 | 0.4− | 0.3+ | 2005 11 30 | 699 | 0.2− | 1.4+ | 2009 11 11 | 691 | 0.0 | 0.0 | | | | | |
| 1991 12 13 | 691 | 0.5− | 0.2− | 2005 11 30 | 699 | 0.4+ | 0.1+ | 2009 11 11 | 704 | 0.6+ | 0.2+ | | | | | |
| 1991 12 13 | 691 | 1.3+ | 0.3− | 2005 12 22 | 703 | 0.4+ | 0.2+ | 2009 11 11 | 704 | 0.6− | 0.3+ | | | | | |
| 2000 11 19 | 704 | 0.9− | 0.7+ | 2005 12 22 | 703 | 0.4+ | 0.0 | 2009 11 11 | 704 | 0.6+ | 0.2− | | | | | |
| 2000 11 19 | 704 | 0.5− | 0.5+ | 2005 12 22 | 703 | 0.5− | 0.2+ | 2009 11 11 | 704 | 0.7+ | 1.1+ | | | | | |
| 2000 11 19 | 704 | 0.0 | 1.3− | 2005 12 22 | 703 | 1.0+ | 0.7− | 2009 11 12 | J75 | 0.2+ | 0.2− | | | | | |
| 2000 11 19 | 704 | 0.1− | 0.1− | 2006 01 05 | 699 | 0.4+ | 0.1+ | 2009 11 12 | J75 | 0.2− | 1.1− | | | | | |
| 2000 11 19 | 704 | 0.6− | 1.6− | 2006 01 05 | 699 | 0.7− | 0.6− | 2009 11 12 | J75 | 0.3+ | 1.0− | | | | | |
| 2002 05 16 | 644 | 0.0 | 0.2+ | 2006 01 05 | 699 | 1.2− | 0.3+ | 2009 11 16 | 704 | 0.2+ | 0.5+ | | | | | |
| 2002 05 16 | 644 | 0.6+ | 0.5+ | 2006 01 05 | 699 | 0.0 | 0.8+ | 2009 11 16 | 704 | 0.2− | 0.0 | | | | | |
| 2002 05 16 | 644 | 0.2+ | 0.2+ | 2006 01 18 | 703 | 0.5+ | 0.6− | 2009 11 16 | 704 | 0.5+ | 1.1− | | | | | |
| 2005 10 01 | G96 | 0.1− | 0.2− | 2006 01 18 | 703 | 0.5− | 1.1− | 2009 11 22 | 704 | 0.3− | 0.0 | | | | | |
| 2005 10 01 | G96 | 0.3− | 0.2− | 2006 01 18 | 703 | 1.0− | 0.3− | 2009 11 22 | 704 | 0.2+ | 0.4+ | | | | | |
| 2005 10 01 | 691 | 0.3− | 0.4+ | 2006 01 18 | 703 | 1.4− | 0.8− | 2009 11 22 | 704 | 0.3+ | 0.7+ | | | | | |
| 2005 10 01 | G96 | 0.1+ | 0.9+ | 2006 02 03 | 704 | (1.9− | 0.1+) | 2009 11 27 | 691 | 0.1− | 0.0 | | | | | |
| 2005 10 01 | G96 | 0.0 | 0.2+ | 2006 02 03 | 704 | (2.4− | 1.0−) | 2009 11 27 | 691 | 0.2+ | 0.0 | | | | | |
| 2005 10 01 | 691 | 0.1+ | 0.0 | 2006 02 03 | 704 | 0.7− | 1.0− | 2009 11 27 | 691 | 0.1+ | 0.4− | | | | | |
| 2005 10 01 | 691 | 0.1− | 0.3+ | 2008 07 28 | G96 | 0.8− | 0.1− | 2009 12 10 | 704 | 0.1+ | 0.6− | | | | | |
| 2005 10 13 | 691 | 0.5+ | 0.3+ | 2008 07 28 | G96 | 0.1+ | 0.6− | 2009 12 10 | 704 | 0.8+ | 0.3+ | | | | | |
| 2005 10 13 | 691 | 0.1+ | 0.2+ | 2008 07 28 | G96 | 0.1− | 0.3+ | 2009 12 10 | 704 | 0.5+ | 0.2+ | | | | | |
| 2005 10 13 | 691 | 0.4+ | 0.1+ | 2008 07 28 | G96 | 0.3+ | 0.3+ | 2009 12 10 | 704 | 0.1+ | 0.1+ | | | | | |
| 2005 10 28 | G96 | 0.2+ | 0.2− | 2008 10 31 | G96 | 0.0 | 0.1− | 2009 12 10 | 704 | 0.7+ | 0.1− | | | | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 28 | G96 | 0.2+ | 0.3− | 2008 10 31 | G96 | 0.4+ | 0.0 | 2009 12 15 | 704 | 0.4− | 0.9+ | | |
| 2005 10 28 | G96 | 0.4− | 0.1− | 2008 10 31 | G96 | 0.3− | 0.0 | 2009 12 15 | 704 | 0.3− | 1.4+ | | |
| 2005 10 28 | G96 | 0.2+ | 0.3− | 2008 10 31 | G96 | 0.1+ | 0.2− | 2009 12 15 | 704 | 0.1+ | 0.5+ | | |
| 2005 11 03 | G96 | 0.1+ | 0.4− | 2009 11 08 | 703 | 0.3− | 0.3+ | 2009 12 15 | 704 | 0.5− | 0.8+ | | |
| 2005 11 03 | G96 | 0.3− | 0.2+ | 2009 11 08 | 703 | 0.9− | 0.0 | 2009 12 15 | 704 | 0.1− | 0.2+ | | |
| 2005 11 03 | G96 | 0.2− | 0.1− | 2009 11 08 | 703 | 0.8+ | 0.3− | 2009 12 19 | G96 | 0.5+ | 0.2− | | |
| 2005 11 03 | G96 | 0.3− | 0.2− | 2009 11 08 | 703 | 0.2+ | 0.1+ | 2009 12 19 | G96 | 0.2+ | 0.0 | | |
| 2005 11 30 | 699 | 1.4+ | 0.1+ | 2009 11 11 | 691 | 0.2− | 0.1+ | 2009 12 19 | G96 | 0.3− | 0.0 | | |
| 2005 11 30 | 699 | (1.6+ | 1.0+) | 2009 11 11 | 691 | 0.2− | 0.1− | 2009 12 19 | G96 | 0.7− | 0.4+ | | |

**(229491)∗ 2005 UR$_{456}$**

Discovered 2005 Oct. 30 by the Catalina Sky Survey.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 343.94099 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.27180235 | $\omega$ | 224.25492 | | −0.56820068 | | −0.82180974 |
| $a$ | 2.3603002 | $\Omega$ | 260.41373 | | +0.76635704 | | −0.50981188 |
| $e$ | 0.1170905 | $i$ | 2.45004 | | +0.29974136 | | −0.25440243 |
| $P$ | 3.63 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 12 07 | 645 | 0.0 | 0.1− | 2005 11 03 | G96 | 0.3+ | 0.0 | 2008 09 24 | G96 | 0.1− | 0.1+ | | |
| 2002 12 07 | 645 | 0.1− | 0.0 | 2005 11 03 | G96 | 0.1+ | 0.1+ | 2008 09 24 | G96 | 0.1− | 0.3− | | |
| 2003 02 12 | 608 | 0.3+ | 0.9+ | 2005 11 03 | G96 | 0.3+ | 0.1+ | 2008 09 24 | G96 | 0.1+ | 0.4+ | | |
| 2003 02 12 | 608 | 0.5− | 0.6+ | 2005 11 03 | G96 | 0.4+ | 0.2− | 2009 10 15 | G96 | 0.8+ | 0.2− | | |
| 2003 02 12 | 608 | 0.4+ | 0.6+ | 2005 11 03 | G96 | 0.2+ | 0.1+ | 2009 10 15 | G96 | 0.2− | 0.3− | | |
| 2003 02 22 | 644 | 0.6+ | 0.5+ | 2005 11 03 | G96 | 0.3+ | 0.1− | 2009 10 15 | G96 | 0.1+ | 0.0 | | |
| 2003 02 22 | 644 | 0.6+ | 0.9+ | 2005 11 03 | G96 | 0.2+ | 0.1− | 2009 10 15 | G96 | 0.1− | 0.2+ | | |
| 2003 02 22 | 644 | 0.7+ | 0.3+ | 2005 11 12 | 691 | 0.1− | 0.2+ | 2009 11 18 | G96 | 0.6+ | 0.3− | | |
| 2003 02 26 | 608 | 0.4+ | 0.5− | 2005 11 12 | 691 | 0.3− | 0.0 | 2009 11 18 | G96 | 0.4+ | 0.1− | | |
| 2003 02 26 | 608 | 0.1+ | 0.3− | 2005 11 12 | 691 | 0.3− | 0.4− | 2009 11 18 | G96 | 0.2+ | 0.3− | | |
| 2003 02 26 | 608 | 0.1+ | 0.4− | 2007 05 16 | G96 | 0.1+ | 0.0 | 2009 11 18 | G96 | 0.5+ | 0.1− | | |
| 2005 10 27 | 691 | 0.0 | 0.4+ | 2007 05 16 | G96 | 0.2− | 0.1+ | 2009 12 16 | 691 | 0.3− | 0.3− | | |
| 2005 10 27 | 691 | 0.1− | 0.3+ | 2007 05 16 | G96 | 0.2− | 0.4− | 2009 12 16 | 691 | 0.0 | 0.1− | | |
| 2005 10 27 | 691 | 0.2− | 0.2+ | 2007 05 16 | G96 | 0.2− | 0.1− | 2009 12 16 | 691 | 0.3− | 0.1+ | | |
| 2005 10 30 | 703 | 0.4+ | 0.4− | 2008 09 07 | G96 | 0.5+ | 0.1+ | 2009 12 20 | 691 | 0.2+ | 0.2+ | | |
| 2005 10 30 | 703 | 0.3+ | 0.4− | 2008 09 07 | G96 | 0.2− | 0.1+ | 2009 12 20 | 691 | 0.1− | 0.1+ | | |
| 2005 10 30 | 703 | 1.2+ | 0.7− | 2008 09 07 | G96 | 0.2− | 0.1+ | 2009 12 20 | 691 | 0.1+ | 0.0 | | |
| 2005 10 30 | 703 | 0.4− | 0.5− | 2008 09 07 | G96 | 0.1+ | 0.1− | | | | | | |
| 2005 11 03 | G96 | 0.1+ | 0.0 | 2008 09 24 | G96 | 0.3− | 0.5+ | | | | | | |

**(229492)∗ 2005 UU$_{461}$ = 1993 KW**

Discovered 2005 Oct. 29 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 96333)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 315.30169 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21845246 | $\omega$ | 40.81452 | | −0.81324708 | | −0.56672211 |
| $a$ | 2.7304324 | $\Omega$ | 104.18613 | | +0.49217839 | | −0.79100100 |
| $e$ | 0.2035465 | $i$ | 7.83230 | | +0.31046679 | | −0.23052870 |
| $P$ | 4.51 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1993 05 19 | 691 | 0.5+ | 0.2+ | 2005 11 03 | 691 | 0.3+ | 0.2+ | 2006 03 19 | 699 | 0.8+ | 0.2− | | |
| 1993 05 19 | 691 | 0.0 | 0.1− | 2005 11 10 | 691 | 0.7+ | 0.7+ | 2006 03 19 | 699 | 0.5+ | 0.8− | | |
| 1993 05 19 | 691 | 0.0 | 0.1− | 2005 11 10 | 691 | 0.1− | 0.1+ | 2006 03 19 | 699 | 0.2+ | 0.8− | | |
| 1993 05 23 | 691 | 0.1− | 0.6+ | 2005 11 10 | 691 | 0.8+ | 1.0− | 2006 03 19 | 699 | 0.8− | 0.1− | | |
| 1993 05 23 | 691 | 0.3+ | 0.6+ | 2006 01 06 | 699 | 0.4+ | 1.4+ | 2009 11 20 | 704 | 0.8− | 0.8+ | | |
| 1993 05 23 | 691 | 0.2− | 0.6+ | 2006 01 06 | 699 | 1.5− | 0.8+ | 2009 11 20 | 704 | 0.4− | 0.7+ | | |
| 2000 11 27 | 704 | 0.6+ | 0.0 | 2006 01 06 | 699 | 0.3− | 0.1+ | 2009 11 20 | 704 | 0.7− | 0.5+ | | |
| 2000 11 27 | 704 | 0.6+ | 0.5+ | 2006 01 06 | 699 | 0.2+ | 0.8+ | 2009 11 20 | 704 | 0.8− | 0.6+ | | |
| 2000 11 27 | 704 | 0.0 | 0.4− | 2006 01 26 | 703 | 0.0 | 0.2− | 2009 11 20 | 704 | 0.5− | 0.4+ | | |
| 2000 11 27 | 704 | 0.2− | 0.7+ | 2006 01 26 | 703 | 0.0 | 0.2− | 2009 11 27 | G96 | 0.6− | 0.3+ | | |
| 2000 11 27 | 704 | 0.6− | 0.1+ | 2006 01 26 | 703 | 0.0 | 0.4− | 2009 11 27 | G96 | 0.1− | 0.4+ | | |
| 2001 01 03 | 704 | 0.6− | 0.2− | 2006 01 26 | 703 | 0.5− | 0.3+ | 2009 11 27 | G96 | 0.3+ | 0.1+ | | |
| 2001 01 03 | 704 | 0.5− | 0.2+ | 2006 02 12 | 644 | 0.2− | 0.0 | 2009 11 27 | G96 | 0.2− | 0.1− | | |
| 2001 01 03 | 704 | 0.2− | 1.0+ | 2006 02 12 | 644 | 0.0 | 0.1− | 2009 11 27 | G96 | 0.0 | 0.2+ | | |
| 2001 01 03 | 704 | (0.2− | 1.7+) | 2006 02 12 | 644 | 0.3− | 0.4+ | 2009 12 11 | 703 | 0.0 | 1.7− | | |
| 2003 08 24 | 807 | 0.4+ | 0.7+ | 2006 02 22 | 699 | 0.2− | 0.9+ | 2009 12 11 | 703 | 0.6− | 0.1− | | |
| 2003 08 24 | 807 | 0.4− | 1.0+ | 2006 02 22 | 699 | 0.5+ | 0.0 | 2009 12 11 | 703 | 0.6− | 0.0 | | |
| 2005 10 29 | 691 | 0.7− | 0.2+ | 2006 02 22 | 699 | 0.3− | 0.4+ | 2009 12 11 | 703 | 0.4+ | 0.4− | | |
| 2005 10 29 | 691 | 0.2− | 0.2− | 2006 03 09 | 703 | 0.0 | 1.1− | 2009 12 12 | 704 | 0.6+ | 1.7+ | | |
| 2005 10 29 | 691 | 0.6+ | 0.7− | 2006 03 09 | 703 | 0.4− | 0.2− | 2009 12 12 | 704 | 1.2+ | 1.4+ | | |
| 2005 11 03 | 691 | 0.1− | 0.3+ | 2006 03 09 | 703 | 0.3− | 0.6− | 2009 12 12 | 704 | 0.6+ | 0.1+ | | |
| 2005 11 03 | 691 | 0.1+ | 0.7+ | 2006 03 09 | 703 | 0.2− | 0.6− | 2009 12 12 | 704 | 0.8+ | 0.9− | | |

**(229493)∗ 2005 UX$_{483}$ = 1998 SL$_{67}$**

Discovered 2005 Oct. 22 by the Catalina Sky Survey.

Id. G. V. Williams (*MPO* 96339)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 133.73746 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.28096538 | $\omega$ | 250.82766 | | +0.63693083 | | +0.76296535 |
| $a$ | 2.3087000 | $\Omega$ | 59.23803 | | −0.65017766 | | +0.60862397 |
| $e$ | 0.1344337 | $i$ | 7.38609 | | −0.41423198 | | +0.21785484 |
| $P$ | 3.51 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 09 20 | 809 | 0.6+ | 1.0− | 2004 04 20 | 704 | 0.0 | 0.1+ | 2005 10 22 | 703 | 0.4− | 0.3+ | | |
| 1998 09 20 | 809 | (0.2+ | 2.5−) | 2004 04 20 | 704 | 0.4+ | 0.5+ | 2005 10 22 | 703 | 0.7− | 0.8+ | | |
| 1998 09 20 | 809 | (0.4− | 2.1−) | 2004 04 20 | 704 | 0.1− | 0.5+ | 2005 11 01 | 644 | 0.3− | 0.4+ | | |
| 1998 09 21 | 809 | 1.3+ | 0.1+ | 2004 04 20 | 704 | (2.0+ | 0.7−) | 2005 11 01 | 644 | 0.0 | 0.3+ | | |
| 1998 09 21 | 809 | 0.8+ | 0.3− | 2004 07 16 | 807 | 0.4+ | 0.0 | 2005 11 01 | 644 | 0.0 | 0.5+ | | |
| 1998 09 21 | 809 | 1.6− | 0.4− | 2004 07 17 | 807 | 0.5+ | 0.4− | 2009 11 18 | 691 | 0.3− | 0.1+ | | |
| 2004 03 20 | 704 | 0.2+ | 0.4− | 2005 10 01 | 703 | 0.2− | 0.5+ | 2009 11 18 | 691 | 0.0 | 0.1− | | |
| 2004 03 20 | 704 | 0.4− | 0.0 | 2005 10 01 | 703 | 0.2− | 0.2− | 2009 11 18 | 691 | 0.1− | 0.2+ | | |
| 2004 03 20 | 704 | 0.5+ | 0.6+ | 2005 10 01 | 703 | 0.2+ | 0.7+ | 2009 12 15 | 704 | 0.1− | 0.7− | | |
| 2004 03 20 | 704 | 0.7− | 1.4+ | 2005 10 10 | 704 | (2.8− | 1.2−) | 2009 12 15 | 704 | 0.2+ | 0.5− | | |
| 2004 04 11 | 644 | 0.3+ | 0.0 | 2005 10 10 | 704 | 0.7− | 0.1+ | 2009 12 15 | 704 | 1.5+ | 0.6+ | | |
| 2004 04 11 | 644 | 0.1+ | 0.1+ | 2005 10 10 | 704 | 0.3− | 0.0 | 2009 12 18 | 691 | 0.1+ | 0.0 | | |
| 2004 04 11 | 644 | 0.4+ | 0.1+ | 2005 10 22 | 703 | 1.0− | 0.3+ | 2009 12 18 | 691 | 0.2− | 0.1− | | |
| 2004 04 20 | 704 | 0.3+ | 0.5+ | 2005 10 22 | 703 | 0.7+ | 0.9+ | 2009 12 18 | 691 | 0.2+ | 0.1− | | |

**(229494)∗ 2005 US$_{499}$ = 2004 FC$_{97}$**

Discovered 2005 Oct. 27 by the Catalina Sky Survey.

Id. G. V. Williams (*MPO* 96345)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 167.33205 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.29887253 | $\omega$ | 198.18045 | | +0.54700454 | | +0.82656525 |
| $a$ | 2.2155355 | $\Omega$ | 105.17689 | | −0.74999563 | | +0.55423558 |
| $e$ | 0.1600089 | $i$ | 7.89541 | | −0.37187710 | | +0.09804496 |
| $P$ | 3.30 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 01 08 | 691 | 0.0 | 0.3− | 2005 10 27 | 703 | 0.5+ | 0.8+ | 2008 08 04 | E12 | 0.8+ | 0.0 | | |
| 2000 01 08 | 691 | 0.3− | 0.3− | 2005 10 27 | 703 | 0.2− | 0.3− | 2008 08 04 | E12 | 0.3− | 0.9+ | | |
| 2000 01 08 | 691 | 0.1− | 0.1− | 2005 10 27 | 703 | 0.3− | 0.1+ | 2008 08 04 | E12 | 0.5+ | 0.3+ | | |
| 2004 03 23 | 704 | 0.4− | 0.2+ | 2005 11 01 | 703 | 0.7− | 1.0− | 2008 08 23 | 704 | 0.5− | 0.2+ | | |
| 2004 03 23 | 704 | 0.3+ | 0.7+ | 2005 11 01 | 703 | 0.1+ | 0.2− | 2008 08 23 | 704 | 0.3− | 0.7− | | |
| 2004 03 23 | 704 | 1.5+ | 1.2+ | 2005 11 01 | 703 | 0.2− | 0.3− | 2008 08 23 | 704 | 0.6− | 0.5− | | |
| 2004 03 25 | 704 | 0.1− | 0.7− | 2005 11 01 | 703 | 1.0+ | 0.4+ | 2008 08 23 | 704 | 0.2+ | 0.5+ | | |
| 2004 03 25 | 704 | 0.3+ | 0.1+ | 2005 11 06 | 699 | 1.0− | 0.1+ | 2008 08 23 | E12 | 0.2− | 0.1− | | |
| 2004 03 25 | 704 | 0.4+ | 0.4+ | 2005 11 06 | 699 | 1.1+ | 1.2+ | 2008 08 23 | E12 | 0.2− | 0.1+ | | |
| 2005 09 25 | 705 | 0.0 | 0.0 | 2005 11 06 | 699 | 0.4+ | 0.2+ | 2008 08 23 | E12 | 0.0 | 0.1− | | |
| 2005 09 25 | 705 | 0.1+ | 0.0 | 2005 11 06 | 699 | 1.2+ | 1.0+ | 2008 08 23 | E12 | 0.0 | 0.1+ | | |
| 2005 09 27 | 705 | 0.0 | 0.0 | 2007 01 29 | G96 | 0.2− | 0.0 | 2009 11 16 | G96 | 0.1− | 0.2− | | |
| 2005 09 27 | 705 | 0.0 | 0.0 | 2007 01 29 | G96 | 0.2− | 0.1− | 2009 11 16 | G96 | 0.1− | 0.1+ | | |
| 2005 10 05 | 703 | 0.8+ | 0.2− | 2007 01 29 | G96 | 0.7− | 0.2− | 2009 11 16 | G96 | 0.4+ | 0.3+ | | |
| 2005 10 05 | 703 | 0.3− | 0.1− | 2007 01 29 | G96 | 0.5+ | 0.1− | 2009 11 16 | G96 | 0.3+ | 0.5− | | |
| 2005 10 05 | 703 | (1.0− | 1.7+) | 2008 06 29 | E12 | 1.2− | 0.7+ | 2009 12 18 | 691 | 0.0 | 0.3+ | | |
| 2005 10 22 | 644 | 0.6− | 0.1+ | 2008 06 29 | E12 | 0.5+ | 0.7− | 2009 12 18 | 691 | 0.1− | 0.2+ | | |
| 2005 10 22 | 644 | 0.1− | 0.4+ | 2008 06 29 | E12 | 0.6+ | 0.2+ | 2009 12 18 | 691 | 0.2+ | 0.4+ | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 2005 10 22 | 644 | 0.0 | 0.2+ | 2008 06 29 | E12 | 0.7− | 0.2+ | |
| 2005 10 27 | 703 | 0.8− | 0.2− | 2008 08 04 | E12 | 0.2+ | 0.2− | |

**(229495)∗ 2005 UG$_{508}$ = 1999 VJ$_{209}$**

Discovered 2005 Oct. 24 by D. J. Tholen at Mauna Kea.

Id. A. Doppler (*MPO* 109431)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 30.98070 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21055635 | $\omega$ | 63.05494 | | +0.36491162 | −0.93103308 | |
| $a$ | 2.7982756 | $\Omega$ | 5.54772 | | +0.83841738 | +0.32668403 | |
| $e$ | 0.0275888 | $i$ | 2.43866 | | +0.40484047 | +0.16264978 | |
| $P$ | 4.68 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 11 14 | 704 | 0.6+ | 0.4− | 2006 02 21 | G96 | 0.1− | 0.1+ | 2008 09 20 | G96 | 0.2+ | 0.0 |
| 1999 11 14 | 704 | 0.8− | 0.5− | 2006 02 21 | G96 | 0.4+ | 0.3+ | 2008 09 20 | G96 | 0.1+ | 0.2− |
| 1999 11 14 | 704 | 1.4+ | 0.4− | 2006 03 05 | G96 | 0.2− | 0.2+ | 2008 09 22 | 704 | 0.3− | 0.3+ |
| 1999 11 15 | 691 | 0.0 | 0.1− | 2006 03 05 | G96 | 0.1− | 0.0 | 2008 09 22 | 704 | 1.0+ | 0.4+ |
| 1999 11 15 | 691 | 0.1+ | 0.1− | 2006 03 05 | G96 | 0.1− | 0.1+ | 2008 09 22 | 704 | 0.4− | 0.6+ |
| 1999 11 15 | 691 | 0.0 | 0.3− | 2006 03 05 | G96 | 0.2− | 0.2+ | 2008 09 22 | 704 | 0.3− | 0.1+ |
| 2001 02 20 | 704 | 0.3− | 0.8+ | 2006 03 23 | G96 | 0.3+ | 0.2+ | 2008 09 28 | 704 | 0.4+ | 0.5+ |
| 2001 02 20 | 704 | 0.1+ | 0.4− | 2006 03 23 | G96 | 0.1+ | 0.1+ | 2008 09 28 | 704 | 0.7− | 0.4+ |
| 2001 02 20 | 704 | 0.4+ | 0.2− | 2006 03 23 | G96 | 0.2+ | 0.1− | 2008 09 28 | 704 | 0.3− | 1.1+ |
| 2003 08 26 | 807 | 0.2− | 0.2+ | 2006 03 23 | G96 | 0.2+ | 0.1+ | 2008 09 28 | 704 | 0.5− | 1.0+ |
| 2003 08 26 | 807 | 0.1− | 0.3+ | 2006 04 07 | G96 | 0.2− | 0.1+ | 2008 09 29 | 703 | 0.1+ | 1.3+ |
| 2004 12 02 | 703 | 0.0 | 0.1+ | 2006 04 07 | G96 | 0.2+ | 0.7+ | 2008 09 29 | 703 | 0.5+ | 0.1− |
| 2004 12 02 | 703 | 0.0 | 0.4− | 2006 04 07 | G96 | 0.0 | 0.7+ | 2008 09 29 | 703 | 1.2− | 0.8+ |
| 2004 12 02 | 703 | 0.4− | 0.2+ | 2006 04 07 | G96 | 0.0 | 0.2+ | 2008 09 29 | 703 | 0.3+ | 0.9+ |
| 2004 12 02 | 703 | 0.2− | 0.1+ | 2006 04 21 | G96 | 0.1+ | 0.4+ | 2008 10 02 | G96 | 0.3− | 0.1+ |
| 2005 10 24 | 568 | 0.2+ | 0.1+ | 2006 04 21 | G96 | 0.0 | 0.4+ | 2008 10 02 | G96 | 0.1+ | 0.1− |
| 2005 10 24 | 568 | 0.1+ | 0.2+ | 2006 04 21 | G96 | 0.0 | 0.3+ | 2008 10 02 | G96 | 0.1+ | 0.1− |
| 2005 11 30 | 691 | 1.3+ | 0.8+ | 2006 04 21 | G96 | 0.2− | 0.0 | 2008 10 02 | G96 | 0.0 | 0.1− |
| 2005 11 30 | 691 | 1.1+ | 0.6+ | 2008 09 02 | 691 | 0.2− | 0.1+ | 2008 11 24 | G96 | 0.1+ | 0.0 |
| 2005 11 30 | 691 | 0.2− | 0.1+ | 2008 09 02 | 691 | 0.3− | 0.2+ | 2008 11 24 | G96 | 0.7+ | 0.1− |
| 2005 12 07 | 291 | 0.0 | 0.6+ | 2008 09 02 | 691 | 0.4− | 0.3+ | 2008 11 24 | G96 | 0.7+ | 0.1− |
| 2005 12 07 | 291 | 0.3− | 0.3+ | 2008 09 03 | A50 | 0.4+ | 0.6+ | 2008 11 24 | G96 | 0.0 | 0.2− |
| 2005 12 07 | 291 | 0.0 | 0.6+ | 2008 09 03 | A50 | 0.7+ | 0.8+ | 2009 12 17 | 691 | 0.0 | 0.0 |
| 2006 01 26 | G96 | 0.7+ | 0.8+ | 2008 09 03 | A50 | 0.4+ | 0.0 | 2009 12 17 | 691 | 0.1− | 0.2− |
| 2006 01 26 | G96 | 0.4+ | 0.8+ | 2008 09 06 | 691 | 0.6− | 0.7+ | 2009 12 17 | 691 | 0.0 | 0.1− |
| 2006 01 26 | G96 | 0.7+ | 1.0+ | 2008 09 06 | 691 | 0.3− | 0.1+ | 2009 12 26 | 691 | 0.1+ | 0.0 |
| 2006 01 26 | G96 | 0.3+ | 1.1+ | 2008 09 06 | 691 | 0.4− | 0.5+ | 2009 12 26 | 691 | 0.0 | 0.2− |
| 2006 02 21 | G96 | 0.3− | 0.1+ | 2008 09 20 | G96 | 0.1+ | 0.2− | 2009 12 26 | 691 | 0.0 | 0.2− |
| 2006 02 21 | G96 | 0.2+ | 0.0 | 2008 09 20 | G96 | 0.1− | 0.2− | | | | |

**(229496)∗ 2005 UH$_{509}$**

Discovered 2005 Oct. 27 by the Mt. Lemmon Survey at Mount Lemmon.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 243.01119 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27508875 | $\omega$ | 333.96090 | | −0.56866655 | +0.82193811 | |
| $a$ | 2.3414641 | $\Omega$ | 261.36578 | | −0.74889248 | −0.53352289 | |
| $e$ | 0.0955117 | $i$ | 1.86573 | | −0.34026226 | −0.19942686 | |
| $P$ | 3.58 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 11 05 | 691 | 0.4− | 0.1+ | 2005 11 26 | G96 | (0.3+ | 2.0+) | 2008 09 02 | 691 | 0.4− | 0.2+ |
| 1994 11 05 | 691 | 0.1+ | 0.3+ | 2005 11 26 | G96 | 0.4+ | 0.0 | 2008 09 06 | 691 | 0.2− | 0.4+ |
| 1994 11 05 | 691 | 0.3− | 0.1− | 2005 11 26 | G96 | 0.3− | 0.1+ | 2008 09 06 | 691 | 0.3− | 0.1+ |
| 2000 05 10 | 704 | 1.3+ | 0.9+ | 2005 11 26 | G96 | 0.2+ | 0.0 | 2008 09 06 | 691 | 0.4+ | 0.2− |
| 2000 05 10 | 704 | 0.4+ | 1.1+ | 2005 11 26 | 291 | 0.1+ | 0.0 | 2008 09 21 | G96 | 0.2+ | 0.3− |
| 2000 05 10 | 704 | 1.5+ | 0.6+ | 2005 11 26 | 291 | 0.0 | 0.2− | 2008 09 21 | G96 | 0.4+ | 0.0 |
| 2000 05 10 | 704 | 0.1− | 1.0+ | 2005 11 26 | 291 | 0.1− | 0.1− | 2008 09 21 | G96 | 0.3+ | 0.1+ |
| 2003 01 10 | 291 | 0.0 | 0.6+ | 2005 11 26 | G96 | 0.1− | 0.2− | 2008 09 21 | G96 | 0.5+ | 0.2+ |
| 2003 01 10 | 291 | 0.0 | 0.5+ | 2005 11 26 | G96 | 0.4+ | 0.1− | 2008 10 24 | G96 | 0.3+ | 0.2+ |
| 2003 01 10 | 291 | 0.3+ | 0.4+ | 2005 11 26 | G96 | 0.4+ | 0.1+ | 2008 10 24 | G96 | 0.1− | 0.2− |
| 2004 07 21 | E12 | 0.1− | 0.3− | 2005 11 26 | G96 | 0.1+ | 0.1+ | 2008 10 24 | G96 | 0.2− | 0.2− |
| 2004 07 21 | E12 | 0.8− | 0.0 | 2005 12 02 | G96 | 0.3+ | 0.1− | 2008 10 24 | G96 | 0.2+ | 0.2+ |
| 2004 07 21 | E12 | 0.5+ | 0.3− | 2005 12 02 | G96 | 0.3+ | 0.4− | 2009 12 10 | B11 | 0.0 | 0.4+ |
| 2004 07 21 | E12 | 0.2− | 0.6+ | 2005 12 02 | G96 | 0.0 | 0.1− | 2009 12 10 | B11 | 0.4− | 0.3+ |
| 2005 10 27 | G96 | 0.2+ | 0.2− | 2005 12 02 | G96 | 0.2+ | 0.2− | 2009 12 15 | G96 | 0.1+ | 0.6− |
| 2005 10 27 | G96 | 0.3− | 0.2− | 2005 12 25 | G96 | 0.1− | 0.3− | 2009 12 15 | G96 | 0.2− | 0.1− |
| 2005 10 27 | G96 | 0.3+ | 0.5− | 2005 12 25 | G96 | 0.4− | 1.2− | 2009 12 15 | G96 | 0.5+ | 0.1+ |
| 2005 10 27 | G96 | 0.1+ | 0.0 | 2005 12 25 | G96 | 0.5+ | 0.7− | 2009 12 15 | G96 | 0.2− | 0.5− |
| 2005 11 22 | 691 | 0.1− | 0.1+ | 2005 12 25 | G96 | 0.4− | 0.2− | 2009 12 15 | G96 | 0.6− | 0.0 |
| 2005 11 22 | 691 | 0.3+ | 0.4+ | 2007 04 16 | 703 | 1.1− | 0.3− | 2009 12 18 | 691 | 0.3+ | 0.1+ |
| 2005 11 22 | 691 | 0.1+ | 0.2− | 2007 04 16 | 703 | 0.6− | 1.2− | 2009 12 18 | 691 | 0.1+ | 0.1− |
| 2005 11 26 | G96 | 0.5+ | 0.3− | 2007 04 16 | 703 | (1.2− | 1.7−) | 2009 12 18 | 691 | 0.4− | 0.3+ |
| 2005 11 26 | G96 | 0.1− | 0.2− | 2007 04 16 | 703 | 0.6− | 0.0 | 2009 12 26 | 691 | 0.1+ | 0.5− |
| 2005 11 26 | G96 | 0.1− | 0.2+ | 2008 09 02 | 691 | 0.1− | 0.3+ | 2009 12 26 | 691 | 0.2− | 0.4+ |
| 2005 11 26 | G96 | 0.3+ | 0.4+ | 2008 09 02 | 691 | 0.3− | 0.4+ | 2009 12 26 | 691 | 0.4+ | 0.3+ |

**(229497)∗ 2005 VW$_4$**

Discovered 2005 Nov. 6 by M. Ory at the Tenagra II Observatory.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 7.58007 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27085852 | $\omega$ | 214.51121 | | −0.20572166 | −0.97857670 | |
| $a$ | 2.3657801 | $\Omega$ | 247.36173 | | +0.89983328 | −0.18588548 | |
| $e$ | 0.1450143 | $i$ | 0.50526 | | +0.38467996 | −0.08851118 | |
| $P$ | 3.64 | $H$ | 17.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 10 11 | 691 | 0.2− | 0.4+ | 2005 11 09 | 926 | 0.1− | 0.2+ | 2007 04 23 | 691 | 0.0 | 0.1− |
| 1994 10 11 | 691 | 0.4− | 0.2+ | 2005 11 22 | 185 | 0.2+ | 0.5+ | 2007 04 23 | 691 | 0.2− | 0.5− |
| 1994 10 11 | 691 | 0.3− | 0.3+ | 2005 11 22 | 185 | 0.1+ | 0.5+ | 2007 04 23 | 691 | 0.0 | 0.2+ |
| 2003 03 07 | 699 | (1.7+ | 0.1−) | 2005 12 03 | 926 | 0.2+ | 0.0 | 2008 07 30 | G96 | 0.8+ | 1.3+ |
| 2003 03 07 | 699 | (0.4− | 1.6+) | 2005 12 03 | 926 | 0.5+ | 0.0 | 2008 07 30 | G96 | 0.0 | 0.9+ |
| 2003 03 07 | 699 | 1.4+ | 0.9+ | 2005 12 03 | 926 | 0.2− | 0.2− | 2008 07 30 | G96 | 0.2+ | 0.9+ |
| 2003 03 07 | 699 | (1.6+ | 0.2+) | 2005 12 03 | 926 | 0.3+ | 0.1+ | 2008 07 30 | G96 | 0.1+ | 0.7+ |
| 2003 03 31 | 691 | 0.9+ | 1.0+ | 2005 12 03 | 926 | 0.4− | 0.0 | 2009 11 11 | G96 | 0.4− | 0.5− |
| 2003 03 31 | 691 | 0.7+ | 0.7+ | 2005 12 31 | G96 | 0.4+ | 0.2− | 2009 11 11 | G96 | 0.1− | 0.3+ |
| 2003 03 31 | 691 | 0.6+ | 1.0+ | 2005 12 31 | G96 | 0.2+ | 0.2− | 2009 11 11 | G96 | 0.1+ | 0.5− |
| 2005 10 29 | 703 | 0.7+ | 1.0− | 2005 12 31 | G96 | 0.2− | 0.0 | 2009 11 16 | G96 | 0.1− | 0.3− |
| 2005 10 29 | 703 | 0.5+ | 0.3+ | 2005 12 31 | G96 | 0.6+ | 0.2− | 2009 11 16 | G96 | 0.2+ | 0.6− |
| 2005 10 29 | 703 | 0.2+ | 0.2− | 2006 01 21 | G96 | 0.5− | 0.1− | 2009 11 16 | G96 | 0.0 | 0.1+ |
| 2005 10 29 | 703 | 1.0− | 0.8− | 2006 01 21 | G96 | 0.3+ | 0.4− | 2009 11 16 | G96 | 0.3− | 0.3− |
| 2005 11 06 | 926 | 0.4+ | 0.3+ | 2006 01 21 | G96 | 0.0 | 0.9+ | 2009 12 15 | G96 | 0.2+ | 0.5− |
| 2005 11 06 | 926 | 0.2− | 0.2+ | 2006 01 21 | G96 | 0.2+ | 0.0 | 2009 12 15 | G96 | 0.1+ | 0.0 |
| 2005 11 06 | 926 | 0.2+ | 0.1+ | 2007 04 15 | 691 | 0.6− | 0.0 | 2009 12 15 | G96 | 0.6− | 0.5− |
| 2005 11 06 | 926 | 0.5+ | 0.2+ | 2007 04 15 | 691 | 0.0 | 0.1+ | 2009 12 15 | G96 | 0.1+ | 0.5− |
| 2005 11 09 | 926 | 0.0 | 0.2+ | 2007 04 15 | 691 | 0.5− | 0.1− | 2009 12 17 | 691 | 0.2− | 0.3− |
| 2005 11 09 | 926 | 0.1+ | 0.2+ | 2007 04 19 | 691 | 0.1+ | 0.3− | 2009 12 17 | 691 | 0.2− | 0.3− |
| 2005 11 09 | 926 | 0.5− | 0.1− | 2007 04 19 | 691 | 0.3− | 0.8− | 2009 12 17 | 691 | 0.4− | 0.1− |
| 2005 11 09 | 926 | 0.4− | 0.3+ | 2007 04 19 | 691 | 0.2− | 0.3− | | | | |

**(229498)∗ 2005 VX$_{13}$ = 2007 GB$_{15}$**

Discovered 2005 Nov. 3 by the Catalina Sky Survey.

Id. A. Doppler (*MPO* 120438)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 326.62470 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.25963790 | $\omega$ | 319.25739 | | −0.48235376 | −0.87487280 | |
| $a$ | 2.4334588 | $\Omega$ | 159.46388 | | +0.83271499 | −0.47352998 | |
| $e$ | 0.0555827 | $i$ | 7.19881 | | +0.27188342 | −0.10181818 | |
| $P$ | 3.80 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 10 14 | 645 | 0.1− | 0.1+ | 2005 11 03 | 703 | 0.2+ | 0.9+ | 2007 03 10 | G96 | 0.1− | 0.1− |
| 2001 10 14 | 645 | 0.0 | 0.1+ | 2005 11 04 | 703 | 0.1− | 1.1− | 2007 03 10 | G96 | 0.0 | 0.2− |
| 2003 03 06 | 699 | (1.4− | 1.9+) | 2005 11 04 | 703 | 0.5− | 0.5− | 2007 04 11 | 291 | 0.2− | 0.1+ |
| 2003 03 06 | 699 | 0.7+ | 1.1+ | 2005 11 04 | 703 | 0.8+ | 0.7− | 2007 04 11 | 291 | 0.0 | 0.0 |
| 2003 03 06 | 699 | 0.4+ | 0.3− | 2005 11 04 | 703 | 0.2− | 0.7− | 2007 04 11 | 291 | 0.3− | 0.2+ |
| 2003 03 06 | 699 | 0.0 | 0.0 | 2005 11 05 | G96 | 0.2+ | 0.1+ | 2007 04 14 | 291 | 0.1− | 0.3− |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 03 24 | 691 | 0.2− | 0.2− | 2005 11 05 | G96 | 0.1+ | 0.3+ | 2007 04 14 | 291 | 0.3+ | 0.6− |
| 2003 03 24 | 691 | 0.2− | 0.4− | 2005 11 05 | G96 | 0.6+ | 0.1− | 2007 04 14 | 291 | 0.0 | 0.0 |
| 2003 03 24 | 691 | 0.0 | 0.3− | 2005 11 05 | G96 | 0.0 | 0.2+ | 2008 07 29 | G96 | 0.2+ | 0.3+ |
| 2003 04 05 | 691 | 0.3+ | 0.9+ | 2005 11 05 | G96 | 0.6+ | 0.1− | 2008 07 29 | G96 | 0.2− | 0.1+ |
| 2003 04 05 | 691 | 0.0 | 1.0+ | 2005 11 05 | G96 | 0.1− | 0.1+ | 2008 07 29 | G96 | 0.3− | 0.2+ |
| 2003 04 05 | 691 | 0.0 | 0.7+ | 2005 11 05 | G96 | 0.3+ | 0.1− | 2008 07 29 | G96 | 0.3− | 0.1+ |
| 2005 10 27 | 703 | 0.9− | 0.4− | 2005 11 05 | G96 | 0.2+ | 0.3+ | 2009 11 19 | 704 | 0.5− | 0.5− |
| 2005 10 27 | 703 | 0.2+ | 0.9+ | 2005 11 06 | 703 | 0.3+ | 0.8+ | 2009 11 19 | 704 | 0.3− | 0.1+ |
| 2005 10 27 | 703 | 1.4− | 0.3− | 2005 11 06 | 703 | 0.3+ | 0.2+ | 2009 11 19 | 704 | 1.2+ | 0.6+ |
| 2005 10 27 | 703 | 0.8− | 0.5+ | 2005 11 06 | 703 | 0.7− | 0.4+ | 2009 12 11 | 703 | 0.3− | 0.9− |
| 2005 11 03 | 703 | 0.6− | 0.8− | 2005 11 06 | 703 | 0.5− | 0.1+ | 2009 12 11 | 703 | 0.1+ | 1.3− |
| 2005 11 03 | 703 | 0.4+ | 0.9+ | 2007 03 10 | G96 | 1.3+ | 0.0 | 2009 12 11 | 703 | 0.1− | 0.1− |
| 2005 11 03 | 703 | 0.9+ | 1.2− | 2007 03 10 | G96 | 0.4+ | 0.1+ | 2009 12 11 | 703 | 0.4+ | 0.4− |

**(229499)∗ 2005 VW$_{47}$ = 2009 RJ$_{27}$**

Discovered 2005 Nov. 5 by Spacewatch at Kitt Peak.

Id. K. E. Smalley (*MPO* 161983)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 46.41796 | | (2000.0) | | | |
| $n$ | 0.23469194 | $\omega$ | 150.73465 | | +0.90388992 | +0.42775268 |
| $a$ | 2.6029786 | $\Omega$ | 183.94461 | | −0.40111454 | +0.84490043 |
| $e$ | 0.2114593 | $i$ | 2.71912 | | −0.14862749 | +0.32120228 |
| $P$ | 4.20 | $H$ | 17.0 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 05 21 | 691 | 0.1+ | 0.2+ | 2005 11 06 | 704 | 0.3− | 0.4− | 2009 09 20 | 691 | 0.4− | 0.1− |
| 2004 05 21 | 691 | 0.1− | 0.2− | 2005 11 06 | G96 | 0.1− | 0.2− | 2009 09 28 | 691 | 0.0 | 0.1+ |
| 2004 05 21 | 691 | 0.6− | 0.2+ | 2005 11 06 | G96 | 0.1+ | 0.2− | 2009 09 28 | 691 | 0.1− | 0.1+ |
| 2004 06 13 | 691 | 0.3+ | 0.4+ | 2005 11 06 | G96 | 0.2− | 0.1− | 2009 09 28 | 691 | 0.0 | 0.1− |
| 2004 06 13 | 691 | 0.4+ | 0.2+ | 2005 11 06 | G96 | 0.0 | 0.1− | 2009 10 09 | 703 | 1.3− | 0.9− |
| 2004 06 13 | 691 | 0.2+ | 0.1+ | 2005 11 10 | 703 | (0.7− | 1.6+) | 2009 10 09 | 703 | 0.5+ | 0.2+ |
| 2005 10 25 | 691 | 0.1+ | 0.8+ | 2005 11 10 | 703 | 0.6+ | 0.3+ | 2009 10 09 | 703 | 0.3+ | 0.6+ |
| 2005 10 25 | 691 | 0.1+ | 0.2+ | 2005 11 10 | 703 | 1.0+ | 0.2− | 2009 10 09 | 703 | 0.5− | 0.7− |
| 2005 10 25 | 691 | 0.1+ | 0.0 | 2005 11 10 | 703 | 0.3− | 0.8− | 2009 10 15 | G96 | 0.1+ | 0.1− |
| 2005 10 28 | 703 | 0.5− | 0.3− | 2007 02 10 | G96 | 0.7+ | 0.2+ | 2009 10 15 | G96 | 0.1+ | 0.2− |
| 2005 10 28 | 703 | (2.1− | 0.2−) | 2007 02 10 | G96 | 0.4− | 0.2+ | 2009 10 15 | G96 | 0.2+ | 0.2− |
| 2005 10 28 | 703 | 1.4− | 0.7+ | 2007 02 10 | G96 | 0.4− | 0.4− | 2009 10 15 | G96 | 0.1+ | 0.3− |
| 2005 10 28 | 703 | 0.7− | 0.6+ | 2007 02 10 | G96 | 0.3− | 0.1+ | 2009 12 13 | G96 | 1.0+ | 0.5− |
| 2005 11 05 | 691 | 0.0 | 0.1+ | 2009 09 12 | 691 | 0.4− | 0.2− | 2009 12 13 | G96 | 0.2+ | 0.5− |
| 2005 11 05 | 691 | 0.0 | 0.0 | 2009 09 12 | 691 | 0.0 | 0.0 | 2009 12 13 | G96 | 0.5+ | 0.7− |
| 2005 11 05 | 691 | 0.1− | 0.1− | 2009 09 12 | 691 | 0.1+ | 0.0 | 2009 12 13 | G96 | 0.2+ | 0.6− |
| 2005 11 06 | 691 | 0.1+ | 0.0 | 2009 09 18 | D29 | 0.2+ | 0.4− | 2009 12 20 | 291 | 0.1+ | 0.7+ |
| 2005 11 06 | 691 | 0.0 | 0.0 | 2009 09 18 | D29 | 0.4+ | 0.4− | 2009 12 20 | 291 | 0.2− | 0.5+ |
| 2005 11 06 | 691 | 0.1− | 0.1− | 2009 09 18 | D29 | 0.3+ | 0.8− | 2009 12 20 | 291 | 0.3+ | 0.5+ |
| 2005 11 06 | 704 | 0.1+ | 0.8+ | 2009 09 18 | D29 | 0.8+ | 0.3− | 2009 12 20 | 291 | 0.3− | 0.1+ |
| 2005 11 06 | 704 | 0.3− | 0.2− | 2009 09 20 | 691 | 0.1− | 0.2+ | 2009 12 20 | 291 | 0.2+ | 0.3+ |
| 2005 11 06 | 704 | 0.0 | 0.3− | 2009 09 20 | 691 | 0.1− | 0.1+ | 2009 12 20 | 291 | 0.4+ | 0.2+ |

**(229500)∗ 2005 VZ$_{50}$ = 2007 GZ$_{56}$**

Discovered 2005 Nov. 3 by the Catalina Sky Survey.

Id. A. Doppler (*MPO* 120440)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 340.83002 | | (2000.0) | | | |
| $n$ | 0.26774156 | $\omega$ | 40.50626 | | −0.47907400 | −0.86961031 |
| $a$ | 2.3841058 | $\Omega$ | 78.42900 | | +0.77055851 | −0.48181425 |
| $e$ | 0.1432862 | $i$ | 7.00282 | | +0.42038992 | −0.10785611 |
| $P$ | 3.68 | $H$ | 16.7 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 01 16 | 704 | 0.5+ | 0.8+ | 2005 10 28 | 703 | 0.1+ | 0.2+ | 2007 05 07 | 691 | 0.0 | 0.3+ |
| 1999 01 16 | 704 | 1.1− | 0.9+ | 2005 10 28 | 703 | 0.0 | 1.0+ | 2007 05 07 | 691 | 0.0 | 0.0 |
| 1999 01 16 | 704 | 1.8− | 0.4+ | 2005 10 28 | 703 | 1.0+ | 0.0 | 2007 05 10 | 691 | 0.1− | 0.1+ |
| 1999 01 16 | 704 | 0.7+ | 0.7+ | 2005 11 03 | 703 | 0.3− | 0.0 | 2007 05 10 | 691 | 0.1− | 0.2+ |
| 2003 02 09 | 608 | 0.6+ | 1.0− | 2005 11 03 | 703 | 0.1+ | 1.1+ | 2007 05 10 | 691 | 0.1+ | 0.2+ |
| 2003 02 09 | 608 | 1.0+ | 0.1+ | 2005 11 03 | 703 | 0.6− | 0.6+ | 2009 11 17 | 691 | 0.5+ | 0.2− |
| 2003 02 09 | 608 | 0.4+ | 0.7− | 2005 11 03 | 703 | 0.8− | 0.3− | 2009 11 17 | 691 | 0.1+ | 0.2− |
| 2003 03 08 | 644 | 0.0 | 0.3+ | 2005 11 06 | 699 | 0.6− | 0.2+ | 2009 11 17 | 691 | 0.1− | 0.2− |
| 2003 03 08 | 644 | 0.0 | 0.6+ | 2005 11 06 | 699 | 0.1− | 0.7− | 2009 11 21 | 691 | 0.0 | 0.2− |
| 2003 03 08 | 644 | 0.2− | 0.6+ | 2005 11 06 | 699 | 0.4− | 0.7+ | 2009 11 21 | 691 | 0.2− | 0.3− |
| 2003 03 23 | 644 | 0.2+ | 0.1+ | 2005 11 06 | 699 | 0.1+ | 0.4+ | 2009 11 21 | 691 | 0.2− | 0.3− |
| 2003 03 23 | 644 | 0.3+ | 0.1+ | 2007 04 15 | 691 | 0.1− | 0.0 | 2009 12 10 | 704 | 0.9− | 0.4+ |
| 2003 03 23 | 644 | 0.2+ | 0.1− | 2007 04 15 | 691 | 0.1+ | 0.0 | 2009 12 10 | 704 | 0.1− | 0.1+ |
| 2005 10 01 | 703 | 0.4− | 0.4+ | 2007 04 15 | 691 | 0.2− | 0.3+ | 2009 12 10 | 704 | (1.2− | 1.9+) |
| 2005 10 01 | 703 | 0.5+ | 1.0+ | 2007 04 19 | 691 | 0.0 | 0.1− | 2009 12 10 | 704 | 0.4+ | 1.0+ |
| 2005 10 01 | 703 | 0.7+ | 0.1+ | 2007 04 19 | 691 | 0.2+ | 0.1− | 2009 12 16 | 704 | 0.4− | 0.8− |
| 2005 10 01 | 703 | 0.1− | 1.2+ | 2007 04 19 | 691 | 0.1+ | 0.2+ | 2009 12 16 | 704 | 0.5+ | 0.5− |
| 2005 10 28 | 703 | 0.9− | 1.1+ | 2007 05 07 | 691 | 0.0 | 0.1+ | 2009 12 16 | 704 | 0.0 | 0.3+ |

**(229501)∗ 2005 VY$_{55}$ = 2001 YU$_{38}$**

Discovered 2005 Nov. 4 by the Catalina Sky Survey.

Id. A. Doppler (*MPO* 96387), G. V. Williams (*ibid.*)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 317.90113 | | (2000.0) | | | |
| $n$ | 0.22828464 | $\omega$ | 152.75039 | | +0.28610190 | −0.95667191 |
| $a$ | 2.6514591 | $\Omega$ | 280.58412 | | +0.86880687 | +0.28280075 |
| $e$ | 0.0620325 | $i$ | 3.15373 | | +0.40412908 | +0.06930067 |
| $P$ | 4.32 | $H$ | 16.3 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 12 18 | 704 | 0.2+ | 0.4− | 2005 10 29 | 703 | 0.2− | 0.1− | 2007 02 17 | G96 | 0.3− | 0.2− |
| 2001 12 18 | 704 | 0.7− | 0.8+ | 2005 11 01 | 704 | 0.1− | 0.9+ | 2007 02 17 | G96 | 0.6− | 0.2− |
| 2001 12 18 | 704 | 0.4− | 0.4+ | 2005 11 01 | 704 | 0.6+ | 0.4− | 2007 02 17 | G96 | 0.3− | 0.0 |
| 2001 12 18 | 704 | 0.2+ | 0.2+ | 2005 11 01 | 704 | 0.5+ | 0.0 | 2007 02 22 | 691 | 0.1+ | 0.0 |
| 2001 12 19 | 704 | 0.1− | 0.5+ | 2005 11 01 | 704 | 0.3+ | 0.5− | 2007 02 22 | 691 | 0.2+ | 0.1− |
| 2001 12 19 | 704 | 0.4− | 0.4+ | 2005 11 04 | 703 | 0.3+ | 0.3− | 2007 02 22 | 691 | 0.2− | 0.0 |
| 2001 12 19 | 704 | 0.0 | 0.4+ | 2005 11 04 | 703 | 0.2− | 0.1+ | 2007 03 12 | 291 | 0.2+ | 0.2+ |
| 2001 12 19 | 704 | 0.3+ | 0.1+ | 2005 11 04 | 703 | 1.1− | 0.7− | 2007 03 12 | 291 | 0.1+ | 0.2+ |
| 2001 12 19 | 704 | 0.1− | 0.9+ | 2005 11 04 | 703 | 0.4− | 0.3+ | 2007 03 12 | 291 | 0.1+ | 0.2+ |
| 2002 01 14 | 704 | 0.3− | 0.0 | 2005 11 06 | 691 | 0.1− | 0.0 | 2007 03 12 | A13 | 0.2+ | 0.5+ |
| 2002 01 14 | 704 | 1.1+ | 0.5− | 2005 11 06 | 691 | 0.3− | 0.0 | 2007 03 12 | A13 | 0.4− | 0.2− |
| 2002 01 14 | 704 | 0.2+ | 0.5− | 2005 11 06 | 691 | 0.1+ | 0.1− | 2007 03 12 | A13 | 0.0 | 0.1− |
| 2002 01 14 | 704 | 0.0 | 0.3− | 2005 11 06 | 704 | (2.2− | 1.1−) | 2009 08 17 | 691 | 0.1− | 0.5+ |
| 2005 10 25 | 691 | 0.0 | 0.1+ | 2005 11 06 | 704 | 0.3+ | 1.0− | 2009 08 17 | 691 | 0.2+ | 0.0 |
| 2005 10 25 | 691 | 0.0 | 0.2+ | 2005 11 06 | 704 | 0.6+ | 0.1− | 2009 08 17 | 691 | 0.2− | 0.0 |
| 2005 10 25 | 691 | 0.2+ | 0.2+ | 2005 11 06 | 704 | 1.4+ | 1.3− | 2009 09 27 | 703 | 1.0− | 0.1− |
| 2005 10 29 | 703 | 0.0 | 1.1+ | 2005 11 30 | 691 | 0.2+ | 0.0 | 2009 09 27 | 703 | 0.4+ | 0.6+ |
| 2005 10 29 | 703 | 0.0 | 0.0 | 2005 11 30 | 691 | 0.2+ | 0.3− | 2009 09 27 | 703 | 1.3− | 0.2+ |
| 2005 10 29 | 703 | 0.1− | 0.8+ | 2005 11 30 | 691 | 0.2− | 0.8− | 2009 09 27 | 703 | 1.2+ | 0.4+ |
| 2005 10 29 | 703 | 0.6− | 0.6+ | 2005 12 05 | 691 | 0.1− | 0.0 | 2009 12 18 | G96 | 0.2+ | 0.1− |
| 2005 10 29 | 703 | 0.8− | 0.5+ | 2005 12 05 | 691 | 0.3+ | 0.0 | 2009 12 18 | G96 | 0.5− | 0.4− |
| 2005 10 29 | 703 | (1.5+ | 2.4+) | 2005 12 05 | 691 | 0.1− | 0.2+ | 2009 12 18 | G96 | 0.1− | 0.4− |
| 2005 10 29 | 703 | 0.9− | 0.0 | 2007 02 17 | G96 | 0.2− | 0.2− | 2009 12 18 | G96 | 0.1− | 0.2− |

**(229502)∗ 2005 VS$_{80}$**

Discovered 2005 Nov. 5 by the Catalina Sky Survey.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 53.08872 | | (2000.0) | | | |
| $n$ | 0.25530341 | $\omega$ | 288.58942 | | +0.96130373 | −0.24470583 |
| $a$ | 2.4609246 | $\Omega$ | 85.72695 | | +0.27523934 | +0.87272202 |
| $e$ | 0.1537708 | $i$ | 7.29049 | | −0.01176625 | +0.42246341 |
| $P$ | 3.86 | $H$ | 16.9 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 27 | 644 | 0.3+ | 0.3+ | 2005 10 31 | 703 | 0.2+ | 1.0+ | 2005 11 29 | 699 | 0.6− | 0.5+ |
| 2001 08 27 | 644 | 0.1− | 0.6+ | 2005 11 05 | 703 | 0.6+ | 0.7+ | 2005 11 29 | 699 | 0.0 | 0.7+ |
| 2001 08 27 | 644 | 0.3− | 0.6+ | 2005 11 05 | 703 | 0.3+ | 0.4+ | 2005 11 29 | 699 | 0.3− | 0.5+ |
| 2001 09 18 | 645 | 0.0 | 0.1− | 2005 11 05 | 703 | 0.5+ | 0.9+ | 2005 11 30 | 704 | 1.4− | 0.6+ |
| 2001 09 18 | 645 | 0.1+ | 0.1− | 2005 11 05 | 703 | 0.3− | 0.3+ | 2005 11 30 | 704 | 0.4− | 1.4+ |
| 2001 09 25 | 704 | 0.7− | 0.2+ | 2005 11 10 | 703 | 0.1+ | 0.0 | 2005 11 30 | 704 | (4.1− | 0.6+) |
| 2001 09 25 | 704 | 0.8− | 0.1+ | 2005 11 10 | 703 | 0.9+ | 0.2+ | 2005 11 30 | 704 | 0.9+ | 1.1− |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 25 | 704 | 0.7− | 0.0 | 2005 11 10 | 703 | 0.0 | 0.4− | 2006 01 22 | G96 | 0.4+ | 0.0 |
| 2003 01 28 | 645 | 0.1+ | 0.0 | 2005 11 10 | 703 | 0.2+ | 1.0+ | 2006 01 22 | G96 | 0.9− | 0.4− |
| 2003 01 28 | 645 | 0.1− | 0.0 | 2005 11 20 | 699 | (1.5− | 0.5−) | 2006 01 22 | G96 | 0.5+ | 0.2− |
| 2005 10 25 | 703 | 1.0− | 0.2+ | 2005 11 20 | 699 | 0.1+ | 0.3− | 2006 01 22 | G96 | 0.2− | 0.7− |
| 2005 10 25 | 703 | 0.1− | 0.2+ | 2005 11 20 | 644 | 0.3+ | 0.0 | 2009 11 19 | 691 | 0.1− | 0.2− |
| 2005 10 25 | 703 | 0.3− | 0.7+ | 2005 11 20 | 699 | (1.7− | 0.5+) | 2009 11 19 | 691 | 0.0 | 0.1− |
| 2005 10 25 | 703 | 0.6+ | 0.1+ | 2005 11 20 | 644 | 0.3+ | 0.1− | 2009 11 19 | 691 | 0.5− | 0.2− |
| 2005 10 25 | 703 | 0.4− | 0.0 | 2005 11 20 | 699 | (1.8+ | 0.3−) | 2009 12 11 | G96 | 0.2+ | 0.0 |
| 2005 10 25 | 703 | 0.3− | 0.7− | 2005 11 20 | 644 | 0.2+ | 0.1+ | 2009 12 11 | G96 | 0.7+ | 0.3− |
| 2005 10 25 | 703 | 0.6− | 0.2+ | 2005 11 26 | 703 | 0.1+ | 0.2+ | 2009 12 11 | G96 | 0.7+ | 0.2− |
| 2005 10 25 | 703 | 0.1+ | 0.3+ | 2005 11 26 | 703 | 0.1− | 0.0 | 2009 12 19 | G96 | 0.2+ | 0.6− |
| 2005 10 31 | 703 | 0.4+ | 1.2+ | 2005 11 26 | 703 | 0.5− | 0.2− | 2009 12 19 | G96 | 0.2+ | 0.6− |
| 2005 10 31 | 703 | 0.2− | 0.8+ | 2005 11 26 | 703 | 0.7+ | 0.4− | 2009 12 19 | G96 | 0.1+ | 0.6− |
| 2005 10 31 | 703 | 0.3− | 0.3− | 2005 11 29 | 699 | 0.6+ | 0.8− | 2009 12 19 | G96 | 0.1+ | 0.5− |

**(229503)∗ 2005 WX$_1$ = 2005 UU$_{349}$**

Discovered 2005 Nov. 19 by NEAT at Palomar.

Id. G. V. Williams (d, *MPO* 98190)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 54.75298 | | (2000.0) | | +0.73301603 | −0.67343282 |
| $n$ | 0.27102150 | $\omega$ | 286.99276 | | +0.65745801 | +0.66531745 |
| $a$ | 2.3648316 | $\Omega$ | 115.45534 | | +0.17446046 | +0.32224358 |
| $e$ | 0.1905184 | $i$ | 6.08992 | | | |
| $P$ | 3.64 | $H$ | 16.6 | $G$ 0.15 | $U$ 2 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 23 | 608 | 0.2+ | 0.6− | 2005 11 04 | 704 | 0.4− | 0.7+ | 2005 11 30 | 699 | 0.5+ | 0.0 |
| 2001 08 23 | 608 | 0.2+ | 0.3− | 2005 11 04 | 704 | 0.5+ | 1.2+ | 2005 12 07 | 704 | 0.9− | 0.1+ |
| 2001 08 23 | 608 | 0.0 | 0.2− | 2005 11 04 | 704 | 0.2+ | 0.1+ | 2005 12 07 | 704 | 0.1− | 0.3+ |
| 2001 08 23 | 608 | 0.0 | 0.4− | 2005 11 10 | 703 | 0.6− | 0.1+ | 2005 12 07 | 704 | 0.5+ | 0.4+ |
| 2001 08 23 | 608 | 0.0 | 0.1− | 2005 11 10 | 703 | 0.9− | 0.1− | 2005 12 07 | 704 | 1.3− | 0.1+ |
| 2001 08 23 | 608 | 0.4− | 0.3− | 2005 11 10 | 703 | 0.5− | 0.1− | 2006 02 27 | G96 | 0.3+ | 0.0 |
| 2005 09 30 | 644 | 0.2+ | 0.2+ | 2005 11 10 | 703 | 0.3+ | 0.3+ | 2006 02 27 | G96 | 0.4− | 0.5+ |
| 2005 09 30 | 644 | 0.4+ | 0.5+ | 2005 11 19 | 644 | 0.2+ | 0.3+ | 2006 02 27 | G96 | 0.2− | 0.2− |
| 2005 09 30 | 644 | 0.3+ | 0.2+ | 2005 11 19 | 644 | 0.3+ | 0.2+ | 2006 02 27 | G96 | 0.2− | 0.4+ |
| 2005 10 25 | 703 | 0.3+ | 0.4+ | 2005 11 19 | 644 | 0.1+ | 0.0 | 2007 03 19 | G96 | 0.3+ | 0.3− |
| 2005 10 25 | 703 | 0.5+ | 0.3+ | 2005 11 20 | 699 | 0.5− | 0.5+ | 2007 03 19 | G96 | 0.0 | 0.2− |
| 2005 10 25 | 703 | 0.5− | 0.4− | 2005 11 20 | 699 | 0.3− | 0.4− | 2007 03 19 | G96 | 0.2− | 0.2− |
| 2005 10 25 | 703 | 0.4− | 0.2− | 2005 11 20 | 699 | 0.0 | 0.3− | 2007 03 19 | G96 | 0.1+ | 0.1− |
| 2005 10 25 | 703 | 0.2+ | 0.1− | 2005 11 20 | 699 | 0.2− | 0.7− | 2007 04 20 | H55 | 0.4+ | 1.2+ |
| 2005 10 25 | 703 | 0.1− | 0.2+ | 2005 11 26 | 703 | 0.3+ | 0.5− | 2007 04 20 | H55 | 0.2− | 0.5− |
| 2005 10 25 | 703 | 0.4− | 0.1+ | 2005 11 26 | 703 | 0.1− | 0.7− | 2009 09 18 | 691 | 0.1− | 0.2− |
| 2005 10 25 | 703 | 0.6− | 0.3− | 2005 11 26 | 703 | 0.0 | 0.3− | 2009 09 18 | 691 | 0.2− | 0.2− |
| 2005 10 27 | 699 | 0.1+ | 0.7− | 2005 11 26 | 703 | 0.5− | 0.7− | 2009 09 18 | 691 | 0.1+ | 0.2− |
| 2005 10 27 | 699 | 0.1+ | 0.4− | 2005 11 29 | 644 | 0.5+ | 0.5+ | 2009 11 26 | G96 | (0.3+ | 1.9+) |
| 2005 10 27 | 699 | 0.0 | 0.1+ | 2005 11 29 | 644 | 0.3+ | 0.1+ | 2009 11 26 | G96 | 0.1− | 0.2+ |
| 2005 10 27 | 699 | 0.7+ | 0.7+ | 2005 11 29 | 644 | 0.0 | 0.1− | 2009 11 26 | G96 | 0.3+ | 0.4− |
| 2005 10 31 | 703 | 0.3− | 0.3+ | 2005 11 29 | 644 | 0.1+ | 0.2+ | 2009 11 26 | G96 | 0.2+ | 0.3− |
| 2005 10 31 | 703 | 0.3− | 0.4− | 2005 11 29 | 644 | 0.2+ | 0.0 | 2009 12 15 | G96 | 0.0 | 0.5− |
| 2005 10 31 | 703 | 0.1+ | 0.4+ | 2005 11 29 | 644 | 0.1+ | 0.1+ | 2009 12 15 | G96 | 0.4− | 0.1− |
| 2005 10 31 | 703 | 0.6+ | 0.6− | 2005 11 30 | 699 | (1.6− | 0.7+) | 2009 12 15 | G96 | 0.3− | 0.4− |
| 2005 11 04 | 704 | 0.5+ | 0.8+ | 2005 11 30 | 699 | 1.4+ | 0.1− | 2009 12 15 | G96 | 0.2− | 0.3− |
| 2005 11 04 | 704 | 0.1− | 0.3− | 2005 11 30 | 699 | 0.2+ | 0.2− | | | | |

**(229504)∗ 2005 WA$_4$ = 2001 YK$_8$**

Discovered 2005 Nov. 23 by C. Rinner at Ottmarsheim.

Id. G. V. Williams (*MPO* 96432)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 352.29052 | | (2000.0) | | +0.11874090 | −0.98908530 |
| $n$ | 0.24190846 | $\omega$ | 314.62532 | | +0.93958554 | +0.08351770 |
| $a$ | 2.5509504 | $\Omega$ | 128.35527 | | +0.32106014 | +0.12138803 |
| $e$ | 0.2286820 | $i$ | 6.38741 | | | |
| $P$ | 4.07 | $H$ | 16.4 | $G$ 0.15 | $U$ 2 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 12 17 | 704 | 0.3− | 0.3− | 2005 11 28 | 699 | (0.4− | 2.0−) | 2007 04 22 | 691 | 0.1− | 0.0 |
| 2001 12 17 | 704 | 0.2− | 0.6− | 2005 11 28 | 699 | (2.4+ | 2.1−) | 2007 04 22 | 691 | 0.0 | 0.2− |
| 2001 12 17 | 704 | 0.8− | 0.3− | 2005 11 28 | 699 | 0.7+ | 0.7− | 2009 10 18 | 703 | 0.9+ | 0.7− |
| 2001 12 17 | 704 | 0.7− | 0.8− | 2005 11 28 | 699 | (0.9+ | 1.6+) | 2009 10 18 | 703 | 1.4+ | 0.9+ |
| 2001 12 17 | 704 | 0.8− | 0.3− | 2005 11 29 | 703 | 0.5+ | 0.3− | 2009 10 18 | 703 | 0.3− | 0.1− |
| 2001 12 18 | 704 | 0.4+ | 0.4− | 2005 11 29 | 703 | 0.2− | 0.0 | 2009 10 18 | 703 | (1.5− | 0.2−) |
| 2001 12 18 | 704 | 0.0 | 0.3− | 2005 11 29 | 703 | 0.3+ | 0.5− | 2009 11 09 | 703 | 0.5− | 0.4− |
| 2001 12 18 | 704 | 0.3+ | 0.3− | 2005 11 29 | 703 | 0.8− | 0.9− | 2009 11 09 | 703 | 0.4− | 0.3+ |
| 2001 12 18 | 704 | 0.6+ | 0.4− | 2005 11 29 | 644 | 0.2− | 0.0 | 2009 11 09 | 703 | 0.4− | 0.5− |
| 2001 12 18 | 704 | 0.0 | 0.2+ | 2005 11 29 | 644 | 0.0 | 0.1+ | 2009 11 09 | 703 | 0.3− | 0.2− |
| 2002 01 09 | 704 | 0.6+ | 0.8+ | 2005 11 29 | 644 | 0.1− | 0.0 | 2009 11 14 | 704 | 0.6+ | 0.4− |
| 2002 01 09 | 704 | 0.5+ | 0.4+ | 2005 11 30 | 511 | 0.4+ | 0.2− | 2009 11 14 | 704 | 0.2− | 0.4+ |
| 2002 01 09 | 704 | 0.5+ | 0.4+ | 2005 12 01 | 511 | 0.1− | 0.5− | 2009 11 14 | 704 | 1.5− | 0.4− |
| 2002 01 09 | 704 | 0.4+ | 0.9+ | 2005 12 01 | 703 | 0.2+ | 0.4− | 2009 11 14 | 704 | 0.1+ | 0.4+ |
| 2002 01 14 | 704 | (2.0− | 0.8−) | 2005 12 01 | 703 | 0.4− | 0.4+ | 2009 11 15 | 704 | 0.2+ | 0.6+ |
| 2002 01 14 | 704 | 0.8− | 0.4− | 2005 12 01 | 703 | 0.5− | 0.4+ | 2009 11 15 | 704 | 0.4+ | 0.3+ |
| 2002 01 14 | 704 | 0.6+ | 0.4− | 2005 12 01 | 703 | (1.0− | 1.6+) | 2009 11 15 | 704 | 0.3− | 0.8+ |
| 2002 01 14 | 704 | 0.3− | 0.1− | 2005 12 07 | 703 | 0.3+ | 0.2+ | 2009 11 15 | 704 | 0.2+ | 0.2+ |
| 2002 01 14 | 704 | 0.6− | 1.1− | 2005 12 07 | 703 | 0.3+ | 0.0 | 2009 11 15 | 704 | 0.3− | 0.5+ |
| 2003 05 02 | 691 | 0.5+ | 0.2+ | 2005 12 07 | 703 | 0.4+ | 0.1+ | 2009 11 19 | 704 | 0.3− | 0.1+ |
| 2003 05 02 | 691 | 0.6− | 0.2+ | 2005 12 07 | 703 | 0.6− | 0.4+ | 2009 11 19 | 704 | 0.5− | 0.2+ |
| 2003 05 02 | 691 | 0.2+ | 0.2+ | 2005 12 08 | 704 | 0.7− | 0.4+ | 2009 11 19 | 704 | 0.0 | 0.6− |
| 2005 11 05 | 704 | 1.1+ | 0.5+ | 2005 12 08 | 704 | 0.1− | 0.1+ | 2009 11 19 | 704 | 0.0 | 0.1− |
| 2005 11 05 | 704 | 0.3+ | 0.1− | 2005 12 08 | 704 | 0.1+ | 0.7+ | 2009 11 19 | J75 | 0.3+ | 0.9− |
| 2005 11 05 | 704 | 1.0+ | 0.5+ | 2005 12 08 | 704 | 0.4+ | 0.8+ | 2009 11 19 | J75 | 0.4− | 0.0 |
| 2005 11 05 | 704 | 0.6+ | 0.3− | 2005 12 08 | 704 | 0.4− | 0.3+ | 2009 11 19 | J75 | 0.2− | 0.4− |
| 2005 11 05 | 704 | 0.1− | 0.0 | 2005 12 27 | 704 | 0.3− | 0.6+ | 2009 11 21 | 703 | 0.5+ | 0.0 |
| 2005 11 20 | 644 | 0.2− | 0.1− | 2005 12 27 | 704 | 0.2− | 0.4− | 2009 11 21 | 703 | 0.2+ | 0.1− |
| 2005 11 20 | 644 | 0.1+ | 0.0 | 2005 12 27 | 704 | 0.3− | 0.1+ | 2009 11 21 | 703 | 0.6+ | 0.4− |
| 2005 11 20 | 644 | 0.0 | 0.2+ | 2005 12 27 | 704 | 1.2− | 1.1+ | 2009 11 21 | 703 | 0.4+ | 0.4+ |
| 2005 11 23 | 224 | 0.0 | 0.4− | 2005 12 27 | 704 | 0.7− | 0.3− | 2009 12 10 | 703 | 0.8+ | 0.4− |
| 2005 11 24 | 224 | 0.4+ | 0.0 | 2006 01 04 | 699 | 0.3− | 1.1− | 2009 12 10 | 703 | 0.8− | 0.6− |
| 2005 11 24 | 224 | 0.4+ | 0.1− | 2006 01 04 | 699 | 1.0+ | 0.5+ | 2009 12 10 | 703 | 0.2− | 0.5− |
| 2005 11 25 | 703 | 0.1− | 1.0+ | 2006 01 04 | 699 | 0.2+ | 0.9+ | 2009 12 10 | 703 | 0.3− | 0.9− |
| 2005 11 25 | 703 | 0.1− | 0.6+ | 2006 01 04 | 699 | 0.1− | 0.1− | 2009 12 13 | 704 | 0.4+ | 2.0+ |
| 2005 11 25 | 703 | (3.1+ | 1.5+) | 2006 01 31 | G96 | 0.2+ | 0.1− | 2009 12 13 | 704 | 0.5+ | 1.4+ |
| 2005 11 25 | 224 | 0.0 | 0.2− | 2006 01 31 | G96 | 0.9+ | 0.1+ | 2009 12 13 | 704 | 0.6− | 1.0+ |
| 2005 11 26 | 224 | 0.1− | 0.2− | 2006 01 31 | G96 | 0.4+ | 0.2− | 2009 12 13 | 704 | 1.5− | 0.0 |
| 2005 11 26 | 224 | 0.0 | 0.0 | 2007 04 22 | 691 | 0.1+ | 0.1+ | | | | |

**(229505)∗ 2005 WQ$_{38}$ = 2004 NY$_{16}$**

Discovered 2005 Nov. 22 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 96468)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 85.20388 | | (2000.0) | | +0.89524386 | +0.44517320 |
| $n$ | 0.23616582 | $\omega$ | 129.14334 | | −0.42163989 | +0.83262918 |
| $a$ | 2.5921374 | $\Omega$ | 204.43979 | | −0.14407722 | +0.32946846 |
| $e$ | 0.1482668 | $i$ | 2.62576 | | | |
| $P$ | 4.17 | $H$ | 16.8 | $G$ 0.15 | $U$ 0 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 03 | 645 | 0.1− | 0.0 | 2005 11 22 | 691 | 0.1− | 0.4+ | 2007 04 19 | G96 | 0.3− | 0.2+ |
| 2000 09 03 | 645 | 0.1− | 0.0 | 2005 11 22 | 691 | 0.2+ | 0.4+ | 2007 04 19 | G96 | 0.1− | 0.1+ |
| 2003 03 24 | 691 | 0.5+ | 0.3+ | 2005 11 26 | 691 | 0.3+ | 0.3+ | 2007 04 19 | G96 | 0.7− | 0.4− |
| 2003 03 24 | 691 | 0.9+ | 0.6+ | 2005 11 26 | 691 | 0.0 | 0.3+ | 2009 09 20 | G96 | 0.7+ | 0.3+ |
| 2003 03 24 | 691 | 0.9+ | 0.6+ | 2005 11 26 | 691 | 0.2+ | 0.1+ | 2009 09 20 | G96 | 0.0 | 0.3+ |
| 2004 07 11 | 704 | 0.2− | 1.3+ | 2005 11 30 | 691 | 0.2+ | 0.3+ | 2009 09 20 | G96 | 0.5+ | 0.1− |
| 2004 07 11 | 704 | 0.1− | 0.2− | 2005 11 30 | 691 | 0.3− | 0.0 | 2009 09 20 | G96 | 0.4+ | 0.2+ |
| 2004 07 11 | 704 | 1.1− | 0.6+ | 2005 11 30 | 691 | 0.2+ | 0.2+ | 2009 11 18 | 691 | 0.1+ | 0.2+ |
| 2004 07 11 | 704 | 0.2+ | 1.1+ | 2007 02 23 | 691 | 0.3− | 0.1− | 2009 11 18 | 691 | 0.6− | 0.5− |
| 2004 07 16 | 704 | 0.1+ | 1.0+ | 2007 02 23 | 691 | 0.5− | 0.9+ | 2009 11 18 | 691 | 0.1+ | 0.2+ |
| 2004 07 16 | 704 | 0.5+ | 0.9+ | 2007 02 23 | 691 | 0.4− | 0.1− | 2009 11 26 | 691 | 0.3+ | 0.2+ |
| 2004 07 16 | 704 | 0.0 | 1.3+ | 2007 03 20 | G96 | 0.2+ | 0.2+ | 2009 11 26 | 691 | 0.4− | 0.2− |
| 2004 07 16 | 704 | 0.5+ | 0.7+ | 2007 03 20 | G96 | 0.3− | 0.1− | 2009 11 26 | 691 | 0.4− | 0.1− |
| 2004 07 16 | 704 | 0.5− | 0.5+ | 2007 03 20 | G96 | 0.2− | 0.1+ | 2009 11 27 | A50 | 0.7+ | 0.0 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 07 18 | 704 | 0.0 | 1.5− | 2007 03 20 | G96 | 0.1− | 0.2− | 2009 11 27 | A50 | 0.3+ | 0.5+ | | |
| 2004 07 18 | 704 | 0.3− | 1.2+ | 2007 03 26 | G96 | 0.0 | 0.6− | 2009 11 27 | A50 | 0.0 | 0.6+ | | |
| 2004 07 18 | 704 | 0.9+ | 0.9+ | 2007 03 26 | G96 | 0.4− | 0.5− | 2009 12 17 | G96 | 0.4+ | 0.1+ | | |
| 2004 07 18 | 704 | 0.4+ | 0.9+ | 2007 03 26 | G96 | 0.1− | 0.5+ | 2009 12 17 | G96 | 0.3+ | 0.1+ | | |
| 2004 07 18 | 704 | 0.0 | 0.8+ | 2007 03 26 | G96 | 0.5− | 0.2+ | 2009 12 17 | G96 | 0.6+ | 0.2− | | |
| 2005 11 22 | 691 | 0.0 | 0.7+ | 2007 04 19 | G96 | 0.8− | 0.3− | 2009 12 17 | G96 | 0.5+ | 0.4− | | |

**(229506)∗ 2005 WO$_{64}$**

Discovered 2005 Nov. 25 by the Mt. Lemmon Survey at Mount Lemmon.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 332.05069 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23438844 | $\omega$ | 25.72266 | | −0.58944153 | −0.80240940 | |
| $a$ | 2.6052251 | $\Omega$ | 100.53132 | | +0.72381215 | −0.57588021 | |
| $e$ | 0.1827366 | $i$ | 5.44327 | | +0.35868461 | −0.15652841 | |
| $P$ | 4.21 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1992 11 18 | 691 | 0.2+ | 0.2+ | 2005 12 31 | 704 | 0.6+ | 0.4+ | 2006 01 26 | G96 | 0.3+ | 0.3− |
| 1992 11 18 | 691 | 0.2+ | 0.1+ | 2005 12 31 | 704 | 0.9+ | 1.3+ | 2006 01 27 | 699 | 0.1− | 0.3− |
| 1992 11 18 | 691 | 0.5− | 0.0 | 2005 12 31 | 704 | 0.4+ | 0.7− | 2006 01 27 | 699 | 0.4− | 0.7+ |
| 2002 02 14 | 644 | 0.1− | 0.8+ | 2006 01 05 | 699 | 0.2+ | 0.1+ | 2006 01 27 | 699 | 0.0 | 0.6+ |
| 2002 02 14 | 644 | 0.2+ | 1.0+ | 2006 01 05 | 699 | 0.0 | 0.4− | 2006 01 27 | 699 | 0.1+ | 0.5+ |
| 2002 02 14 | 644 | 0.0 | 1.0+ | 2006 01 05 | 699 | 0.6− | 0.3− | 2006 02 07 | G96 | 0.1− | 0.0 |
| 2002 03 11 | 644 | 0.2+ | 0.4+ | 2006 01 05 | 704 | 0.2+ | 0.1− | 2006 02 07 | G96 | 0.2− | 0.2− |
| 2002 03 11 | 644 | 0.2+ | 0.3+ | 2006 01 05 | 704 | 0.4− | 0.2+ | 2006 02 07 | G96 | 0.1+ | 0.2− |
| 2002 03 11 | 644 | 0.4+ | 0.3+ | 2006 01 05 | 699 | 0.2+ | 0.1+ | 2006 02 07 | G96 | 0.0 | 0.2+ |
| 2002 03 11 | 644 | 0.3+ | 0.2+ | 2006 01 05 | 704 | 1.2+ | 0.1+ | 2009 11 10 | 691 | 0.1− | 0.0 |
| 2002 03 11 | 644 | 0.0 | 0.7+ | 2006 01 05 | 704 | 0.3+ | 0.5− | 2009 11 10 | 691 | 0.1+ | 0.2+ |
| 2002 03 11 | 644 | 0.2+ | 0.6+ | 2006 01 05 | 704 | 0.9+ | 0.3+ | 2009 11 10 | 691 | 0.0 | 0.1+ |
| 2005 11 25 | G96 | 0.1+ | 0.2− | 2006 01 07 | G96 | 0.3− | 0.4− | 2009 11 18 | 691 | 0.3− | 0.1+ |
| 2005 11 25 | G96 | 0.2− | 0.2− | 2006 01 07 | G96 | 0.0 | 0.3− | 2009 11 18 | 691 | 0.2− | 0.0 |
| 2005 11 25 | G96 | 0.0 | 0.1− | 2006 01 07 | G96 | 0.2− | 0.4− | 2009 11 18 | 691 | 0.2− | 0.4+ |
| 2005 11 25 | G96 | 0.4− | 0.0 | 2006 01 07 | G96 | 0.1+ | 0.5− | 2009 11 24 | J75 | 0.1− | 0.4− |
| 2005 12 02 | 701 | 0.1− | 0.0 | 2006 01 08 | G96 | 0.4− | 0.4− | 2009 11 24 | J75 | 0.1+ | 0.2− |
| 2005 12 02 | G96 | 0.1+ | 0.2− | 2006 01 08 | G96 | 0.1+ | 0.5− | 2009 11 24 | J75 | 0.9+ | 0.4+ |
| 2005 12 02 | G96 | 0.0 | 0.4− | 2006 01 08 | G96 | 0.1− | 0.4− | 2009 11 26 | 691 | 0.3− | 0.1+ |
| 2005 12 02 | G96 | 0.1− | 0.2− | 2006 01 08 | G96 | 0.5− | 0.5− | 2009 11 26 | 691 | 0.2− | 0.1− |
| 2005 12 02 | 701 | 0.3+ | 0.1+ | 2006 01 10 | G96 | 0.6− | 0.4− | 2009 11 26 | 691 | 0.3− | 0.1+ |
| 2005 12 02 | G96 | 0.2− | 0.3− | 2006 01 10 | G96 | 0.1+ | 0.5− | 2009 12 11 | G96 | 0.2+ | 0.1− |
| 2005 12 02 | 701 | 0.1+ | 0.2− | 2006 01 10 | G96 | 0.3− | 0.5− | 2009 12 11 | G96 | 0.4+ | 0.2− |
| 2005 12 27 | G96 | 0.0 | 0.7− | 2006 01 10 | G96 | 0.1− | 0.4− | 2009 12 11 | G96 | 0.3+ | 0.1− |
| 2005 12 27 | G96 | 0.6− | 0.3− | 2006 01 18 | 703 | 1.2− | 0.3− | 2009 12 11 | G96 | 0.6+ | 0.2− |
| 2005 12 27 | G96 | 0.4+ | 0.2− | 2006 01 18 | 703 | 0.3− | 0.4+ | 2009 12 17 | 704 | 0.7+ | 1.3+ |
| 2005 12 27 | G96 | 0.2+ | 0.3− | 2006 01 18 | 703 | 0.8− | 0.3− | 2009 12 17 | 704 | 0.8+ | 0.5− |
| 2005 12 30 | 691 | 0.1+ | 0.1+ | 2006 01 18 | 703 | 0.5− | 0.7− | 2009 12 17 | 704 | 0.8+ | 0.2+ |
| 2005 12 30 | 691 | 0.2+ | 0.1+ | 2006 01 26 | G96 | 0.0 | 0.4− | 2009 12 17 | 704 | 0.2− | 0.6+ |
| 2005 12 30 | 691 | 0.0 | 0.0 | 2006 01 26 | G96 | 0.0 | 0.3− | | | | |
| 2005 12 31 | 704 | 0.1+ | 0.1+ | 2006 01 26 | G96 | 0.4+ | 0.6− | | | | |

**(229507)∗ 2005 WF$_{72}$**

Discovered 2005 Nov. 22 by the Catalina Sky Survey.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 37.31559 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27837756 | $\omega$ | 329.27762 | | +0.02563460 | −0.98027845 | |
| $a$ | 2.3229859 | $\Omega$ | 118.60488 | | +0.95655124 | −0.03289563 | |
| $e$ | 0.1059039 | $i$ | 12.89671 | | +0.29043517 | +0.19486417 | |
| $P$ | 3.54 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 12 22 | 704 | 1.3− | 0.8+ | 2005 11 12 | 703 | 0.7− | 0.1− | 2006 01 23 | 703 | 1.0+ | 0.2− |
| 1998 12 22 | 704 | 1.6+ | 0.3− | 2005 11 12 | 703 | 1.0− | 0.7− | 2007 03 25 | G96 | 0.2− | 0.1+ |
| 1998 12 22 | 704 | 0.8− | 1.3− | 2005 11 22 | 703 | 0.6+ | 0.4− | 2007 03 25 | G96 | 0.2− | 0.1+ |
| 1998 12 22 | 704 | (0.5− | 2.5−) | 2005 11 22 | 703 | 0.4+ | 0.9− | 2007 03 25 | G96 | 0.3− | 0.2+ |
| 2000 05 07 | 691 | 0.2− | 0.5− | 2005 11 22 | 703 | 0.1+ | 0.3+ | 2007 03 25 | G96 | 0.3− | 0.1+ |
| 2000 05 07 | 691 | 0.1+ | 0.5− | 2005 11 22 | 703 | 0.5+ | 0.3− | 2008 08 23 | E12 | 0.2+ | 1.4+ |
| 2000 05 07 | 691 | 0.1− | 0.4− | 2005 11 29 | 703 | 0.1− | 0.3− | 2008 08 23 | E12 | 0.1+ | 0.0 |
| 2002 12 14 | 645 | 0.1+ | 0.1− | 2005 11 29 | 703 | 0.2+ | 0.7+ | 2008 08 23 | E12 | 0.4− | 1.3+ |
| 2002 12 14 | 645 | 0.0 | 0.0 | 2005 11 29 | 703 | 0.5+ | 0.6+ | 2008 08 23 | E12 | 0.6− | 0.8− |
| 2003 01 27 | 704 | 0.5+ | 0.4+ | 2005 11 29 | 703 | 0.3− | 0.3− | 2008 09 08 | E12 | 0.3+ | 0.0 |
| 2003 01 27 | 704 | 0.2+ | 0.9+ | 2005 12 05 | 703 | (0.2− | 1.9−) | 2008 09 08 | E12 | 0.2− | 0.1− |
| 2003 01 27 | 704 | (1.1+ | 1.7+) | 2005 12 05 | 703 | 0.6+ | 0.5− | 2009 11 15 | G96 | 0.1+ | 0.6− |
| 2003 01 27 | 704 | 0.1− | 0.1− | 2005 12 05 | 703 | 0.1+ | 0.3+ | 2009 11 15 | G96 | 0.5− | 0.1+ |
| 2003 01 28 | 645 | 0.1− | 0.0 | 2005 12 05 | 703 | 0.3+ | 0.4− | 2009 11 15 | G96 | 0.0 | 0.1− |
| 2003 01 28 | 645 | 0.1− | 0.1+ | 2005 12 06 | 704 | 0.5+ | 0.2− | 2009 11 15 | G96 | 0.3− | 1.0− |
| 2003 03 08 | 644 | 0.4+ | 0.5+ | 2005 12 06 | 704 | 0.1+ | 0.3+ | 2009 12 20 | G96 | 0.2+ | 0.2− |
| 2003 03 08 | 644 | 0.4+ | 0.5+ | 2005 12 06 | 704 | 0.6+ | 0.0 | 2009 12 20 | G96 | 0.6+ | 0.4+ |
| 2003 03 08 | 644 | 0.2+ | 0.4+ | 2005 12 06 | 704 | 0.3− | 0.6+ | 2009 12 20 | G96 | 0.1− | 0.1− |
| 2003 03 22 | 644 | 0.0 | 0.5+ | 2006 01 23 | 703 | 0.1+ | 0.9− | 2009 12 20 | G96 | 0.2− | 0.4+ |
| 2003 03 22 | 644 | 0.4+ | 0.2+ | 2006 01 23 | 703 | 1.1− | 0.2+ | | | | |
| 2003 03 22 | 644 | 0.5+ | 0.8+ | 2006 01 23 | 703 | 0.6− | 0.6− | | | | |

**(229508)∗ 2005 WC$_{80}$ = 2001 XR$_{263}$**

Discovered 2005 Nov. 25 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 96498)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 269.31112 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.25956378 | $\omega$ | 299.01562 | | −0.86479032 | +0.49463114 | |
| $a$ | 2.4339220 | $\Omega$ | 270.74967 | | −0.42536040 | −0.81314289 | |
| $e$ | 0.0832464 | $i$ | 4.96121 | | −0.26684497 | −0.30682025 | |
| $P$ | 3.80 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 11 23 | 691 | 0.2− | 0.0 | 2005 11 25 | 691 | 0.4+ | 0.0 | 2008 10 30 | G96 | 0.3− | 0.1+ |
| 1997 11 23 | 691 | 0.4− | 0.2− | 2005 11 29 | 691 | 0.0 | 0.3+ | 2008 10 30 | G96 | 0.2− | 0.2+ |
| 1997 11 23 | 691 | 0.2− | 0.1− | 2005 11 29 | 691 | 0.3+ | 0.2+ | 2008 10 30 | G96 | 0.4− | 0.5+ |
| 1999 03 20 | 645 | 0.2− | 0.3− | 2005 11 29 | 691 | 0.3+ | 0.3+ | 2008 10 30 | G96 | 0.4− | 0.3+ |
| 1999 03 20 | 645 | 0.2− | 0.3− | 2005 12 21 | 691 | 0.4+ | 0.1+ | 2009 10 18 | G96 | 0.6− | 0.1− |
| 2001 12 14 | 644 | 0.1− | 0.1− | 2005 12 21 | 691 | 0.3+ | 0.1+ | 2009 10 18 | G96 | 0.5− | 0.0 |
| 2001 12 14 | 644 | 0.6+ | 0.1+ | 2005 12 21 | 691 | 0.3+ | 0.2+ | 2009 10 18 | G96 | 0.1− | 0.3− |
| 2001 12 14 | 644 | 0.6+ | 0.1+ | 2005 12 29 | 691 | 0.1− | 0.4+ | 2009 10 18 | G96 | 0.5+ | 0.1− |
| 2001 12 18 | 704 | 0.6− | 1.3+ | 2005 12 29 | 691 | 0.3+ | 0.3+ | 2009 12 15 | G96 | 0.7+ | 0.2− |
| 2001 12 18 | 704 | (0.0 | 3.1+) | 2005 12 29 | 691 | 0.1+ | 0.5+ | 2009 12 15 | G96 | 0.3+ | 0.3− |
| 2001 12 18 | 704 | (0.3− | 2.2+) | 2005 12 31 | 691 | 0.2+ | 0.2+ | 2009 12 15 | G96 | 0.3+ | 0.2+ |
| 2001 12 18 | 704 | (0.0 | 2.2+) | 2005 12 31 | 691 | 0.1− | 0.3+ | 2009 12 15 | G96 | 0.4+ | 0.4− |
| 2003 04 07 | 704 | (0.0 | 1.8−) | 2005 12 31 | 691 | 0.1+ | 0.0 | 2009 12 15 | G96 | 0.1+ | 0.0 |
| 2003 04 07 | 704 | 0.9− | 0.4+ | 2006 01 05 | G96 | 0.2− | 0.4+ | 2009 12 18 | 691 | 0.4− | 0.1− |
| 2003 04 07 | 704 | 0.8− | 0.5− | 2006 01 05 | G96 | 0.3+ | 0.1− | 2009 12 18 | 691 | 0.2− | 0.1+ |
| 2003 04 07 | 704 | 1.3+ | 0.6+ | 2006 01 05 | G96 | 0.2+ | 0.3+ | 2009 12 18 | 691 | 0.4− | 0.1+ |
| 2003 05 03 | 691 | 1.0+ | 1.4+ | 2006 01 05 | G96 | 0.0 | 0.1− | 2009 12 26 | 691 | 0.6− | 0.1+ |
| 2003 05 03 | 691 | 0.7+ | 1.3+ | 2006 01 22 | G96 | 0.1− | 0.2− | 2009 12 26 | 691 | 0.5− | 0.3− |
| 2003 05 03 | 691 | 0.9+ | 1.1+ | 2006 01 22 | G96 | 0.0 | 0.3− | 2009 12 26 | 691 | 0.4− | 0.1+ |
| 2005 11 25 | 691 | 0.1+ | 0.3− | 2006 01 22 | G96 | 0.2+ | 0.2− | | | | |
| 2005 11 25 | 691 | 0.1+ | 0.4+ | 2006 01 22 | G96 | 0.3+ | 0.1− | | | | |

**(229509)∗ 2005 WM$_{86}$**

Discovered 2005 Nov. 28 by the Mt. Lemmon Survey at Mount Lemmon.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 283.46397 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23791072 | $\omega$ | 84.12427 | | −0.86533437 | −0.45790380 | |
| $a$ | 2.5794476 | $\Omega$ | 68.47466 | | +0.32743567 | −0.82430328 | |
| $e$ | 0.1267180 | $i$ | 12.65283 | | +0.37945000 | −0.33293874 | |
| $P$ | 4.14 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 12 18 | 704 | 0.8− | 0.6+ | 2005 12 02 | 704 | (1.7+ | 1.0−) | 2009 10 14 | G96 | 0.6− | 0.4+ |
| 2001 12 18 | 704 | 0.2− | 0.5+ | 2005 12 02 | 704 | 1.2+ | 0.2+ | 2009 10 14 | G96 | 0.3+ | 0.4+ |
| 2001 12 18 | 704 | 0.2+ | 0.6+ | 2005 12 02 | 704 | 0.6+ | 0.7− | 2009 10 14 | G96 | 0.4− | 0.1+ |
| 2005 10 29 | G96 | 0.6+ | 0.4+ | 2006 01 07 | G96 | 0.1− | 0.3− | 2009 11 19 | G96 | 0.2+ | 0.2+ |
| 2005 10 29 | G96 | 0.5− | 0.1− | 2006 01 07 | G96 | 0.2+ | 0.0 | 2009 11 19 | G96 | 0.4− | 0.0 |
| 2005 10 29 | G96 | 0.1− | 0.1+ | 2006 01 07 | G96 | 0.2− | 0.1− | 2009 11 19 | G96 | 0.1+ | 0.2+ |
| 2005 10 29 | G96 | 0.2+ | 0.0 | 2006 01 07 | G96 | 0.5− | 0.3− | 2009 11 19 | G96 | 0.1− | 0.3+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 11 28 | G96 | 0.0 | 0.0 | 2007 03 24 | 941 | 0.4+ | 0.1− | 2009 11 19 | J75 | 0.1+ | 0.7+ | | |
| 2005 11 28 | G96 | 0.4− | 0.1− | 2007 03 24 | 941 | 0.4+ | 0.1− | 2009 11 19 | J75 | 0.4+ | 1.0− | | |
| 2005 11 28 | G96 | 0.1− | 0.1+ | 2007 03 24 | 941 | 0.7+ | 0.1− | 2009 11 19 | J75 | 0.7− | 0.4− | | |
| 2005 11 28 | G96 | 0.2− | 0.0 | 2007 03 24 | 941 | 0.6+ | 0.3− | 2009 12 19 | G96 | 0.2− | 0.1+ | | |
| 2005 11 28 | 703 | 0.4− | 0.2+ | 2007 04 15 | 703 | 1.2− | 0.6+ | 2009 12 19 | G96 | 0.0 | 0.0 | | |
| 2005 11 28 | 703 | 1.1− | 1.0− | 2007 04 15 | 703 | 0.8+ | 0.8− | 2009 12 19 | G96 | 0.1− | 0.2+ | | |
| 2005 11 28 | 703 | 1.2+ | 0.0 | 2007 04 15 | 703 | 0.1+ | 0.5+ | 2009 12 19 | G96 | 0.1+ | 0.1− | | |
| 2005 11 28 | 703 | 0.1+ | 0.9− | 2007 04 15 | 703 | 0.6− | 0.6+ | 2009 12 19 | G96 | 0.4+ | 0.2+ | | |
| 2005 11 29 | G96 | 0.2+ | 0.2− | 2007 04 22 | 703 | 0.8− | 0.3+ | 2009 12 19 | G96 | 0.1+ | 0.0 | | |
| 2005 11 29 | G96 | 0.3+ | 0.1− | 2007 04 22 | 703 | 0.6− | 0.2+ | 2009 12 19 | G96 | 0.1− | 0.4+ | | |
| 2005 11 29 | G96 | 0.1− | 0.1− | 2007 04 22 | 703 | 0.2+ | 0.4+ | 2009 12 19 | G96 | 0.1+ | 0.1− | | |
| 2005 11 29 | G96 | 0.0 | 0.2− | 2007 04 22 | 703 | 0.3+ | 1.1− | | | | | | |
| 2005 12 02 | 704 | 1.1+ | 0.0 | 2009 10 14 | G96 | 0.5− | 0.2+ | | | | | | |

**(229510)∗ 2005 $WO_{88}$**

Discovered 2005 Nov. 28 by the Mt. Lemmon Survey at Mount Lemmon.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 26.99767 | | (2000.0) | | | |
| $n$ | 0.23099125 | $\omega$ | 298.23307 | | +0.65771369 | −0.71576674 |
| $a$ | 2.6307063 | $\Omega$ | 108.63116 | | +0.74827757 | +0.58502115 |
| $e$ | 0.1772314 | $i$ | 14.34113 | | +0.08656439 | +0.38135054 |
| $P$ | 4.27 | $H$ | 16.1 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 02 10 | 704 | 0.0 | 1.3+ | 2005 12 22 | 703 | 0.6+ | 0.4− | 2006 02 03 | 699 | 0.1− | 0.2+ | | |
| 2002 02 10 | 704 | 0.3+ | 1.3+ | 2005 12 22 | 703 | 1.3− | 0.1+ | 2006 02 03 | 699 | 0.2+ | 0.4− | | |
| 2002 02 10 | 704 | 0.3+ | 1.0+ | 2005 12 22 | 703 | 1.5+ | 1.0− | 2006 02 03 | 699 | 0.2− | 0.0 | | |
| 2002 02 10 | 704 | 0.3− | 1.4+ | 2005 12 22 | 703 | (1.6+ | 1.0−) | 2006 02 03 | 699 | 0.5− | 0.2− | | |
| 2002 02 10 | 704 | 0.1+ | 0.7+ | 2005 12 29 | 691 | 0.3+ | 0.1− | 2007 04 15 | G96 | 0.8− | 0.5− | | |
| 2002 04 01 | 644 | 0.2+ | 0.0 | 2005 12 29 | 691 | 0.2+ | 0.2− | 2007 04 15 | G96 | 0.4− | 0.4− | | |
| 2002 04 01 | 644 | 0.0 | 0.2− | 2005 12 29 | 691 | 0.3+ | 0.1− | 2007 04 15 | G96 | 0.6− | 0.8− | | |
| 2002 04 01 | 644 | 0.9− | 0.6− | 2006 01 02 | 704 | 0.9+ | 0.3+ | 2007 04 15 | G96 | 1.2− | 0.7− | | |
| 2003 05 28 | 691 | 0.4+ | 0.9+ | 2006 01 02 | 704 | 0.9+ | 0.2− | 2009 11 21 | A50 | 0.5+ | 0.3+ | | |
| 2003 05 28 | 691 | 0.3+ | 0.0 | 2006 01 02 | 704 | 0.9+ | 0.2+ | 2009 11 21 | A50 | 0.6+ | 0.1− | | |
| 2003 05 28 | 691 | 0.3+ | 0.2+ | 2006 01 02 | 704 | 0.8− | 0.4+ | 2009 11 21 | A50 | 0.5+ | 0.5− | | |
| 2004 07 11 | 704 | 1.1+ | 1.1+ | 2006 01 05 | 699 | 0.3+ | 0.6+ | 2009 12 10 | J75 | 1.3− | 0.4+ | | |
| 2004 07 11 | 704 | 0.2− | 0.0 | 2006 01 05 | 699 | 0.5− | 0.8+ | 2009 12 10 | J75 | 0.4+ | 0.9− | | |
| 2004 07 11 | 704 | 1.2− | 0.8+ | 2006 01 05 | 699 | 0.0 | 0.2+ | 2009 12 10 | J75 | 0.0 | 0.0 | | |
| 2004 07 11 | 704 | 0.5− | 0.4+ | 2006 01 05 | 704 | 0.1+ | 0.8+ | 2009 12 13 | 704 | 0.1+ | 0.5+ | | |
| 2004 08 16 | E12 | 0.3− | 0.8+ | 2006 01 05 | 704 | 0.8+ | 0.3+ | 2009 12 13 | 704 | 0.8− | 0.6+ | | |
| 2004 08 16 | E12 | 0.3− | 0.6+ | 2006 01 05 | 699 | 0.4− | 0.8+ | 2009 12 13 | 704 | 0.5− | 0.5+ | | |
| 2004 08 16 | E12 | 0.1+ | 0.4+ | 2006 01 05 | 704 | 0.4− | 0.0 | 2009 12 13 | 704 | 0.9− | 0.2+ | | |
| 2004 08 16 | E12 | 0.3+ | 0.6+ | 2006 01 05 | 704 | 0.1+ | 0.4− | 2009 12 13 | 704 | 0.3− | 1.4+ | | |
| 2005 11 28 | G96 | 0.6− | 1.0− | 2006 01 05 | 704 | 0.4+ | 0.3+ | 2009 12 15 | 703 | 0.5− | 0.6− | | |
| 2005 11 28 | G96 | 0.8− | 0.6− | 2006 01 07 | 691 | 0.0 | 0.1− | 2009 12 15 | 703 | 0.4− | 0.2+ | | |
| 2005 11 28 | G96 | 0.4− | 0.6− | 2006 01 07 | 691 | 0.1+ | 0.0 | 2009 12 15 | 703 | 0.4− | 0.9+ | | |
| 2005 11 28 | G96 | 0.1− | 0.4− | 2006 01 07 | 691 | 0.0 | 0.1− | 2009 12 15 | 703 | 0.8− | 0.3+ | | |
| 2005 11 29 | G96 | 0.2− | 0.3− | 2006 01 18 | 703 | 0.3− | 0.4+ | 2009 12 18 | 704 | 1.1+ | 0.1− | | |
| 2005 11 29 | G96 | 0.1− | 0.5− | 2006 01 18 | 703 | 1.3− | 1.2− | 2009 12 18 | 704 | 0.7+ | 0.9+ | | |
| 2005 11 29 | G96 | 0.1+ | 0.3− | 2006 01 18 | 703 | 1.2− | 0.8+ | 2009 12 18 | 704 | 0.2+ | 0.9+ | | |
| 2005 11 29 | G96 | 0.3− | 0.2− | 2006 01 18 | 703 | 0.5+ | 0.2+ | | | | | | |

**(229511)∗ 2005 $WX_{97}$ = 2007 $EW_{71}$**

Discovered 2005 Nov. 26 by Spacewatch at Kitt Peak.

Id. A. Doppler (*MPO* 119248)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 136.37443 | | (2000.0) | | | |
| $n$ | 0.21571901 | $\omega$ | 212.93487 | | +0.08880661 | +0.99500710 |
| $a$ | 2.7534494 | $\Omega$ | 62.19678 | | −0.90236093 | +0.09972940 |
| $e$ | 0.0500662 | $i$ | 2.95135 | | −0.42173231 | −0.00386193 |
| $P$ | 4.57 | $H$ | 16.4 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 02 10 | 704 | 0.3+ | 0.2− | 2007 02 26 | G96 | 0.5+ | 0.2+ | 2007 04 23 | G96 | 0.3+ | 0.2− | | |
| 2002 02 10 | 704 | 0.3− | 0.2− | 2007 02 26 | G96 | 0.1+ | 0.2− | 2009 10 23 | 691 | 0.5− | 0.1+ | | |
| 2002 02 10 | 704 | 0.0 | 0.3− | 2007 02 26 | G96 | 0.3+ | 0.0 | 2009 10 23 | 691 | 0.3− | 0.1+ | | |
| 2002 02 10 | 704 | 0.2+ | 0.7− | 2007 02 26 | G96 | 0.3+ | 0.6− | 2009 10 23 | 691 | 0.3+ | 0.0 | | |
| 2002 02 10 | 704 | 0.6− | 0.3+ | 2007 03 10 | 691 | 0.3− | 0.1− | 2009 11 08 | G96 | 0.1− | 0.3− | | |
| 2005 11 26 | 691 | 0.1+ | 0.0 | 2007 03 10 | 691 | 0.2− | 0.3+ | 2009 11 08 | G96 | 0.1+ | 0.2− | | |
| 2005 11 26 | 691 | 0.0 | 0.1+ | 2007 03 10 | 691 | 0.2+ | 0.4+ | 2009 11 08 | G96 | 0.1− | 0.1+ | | |
| 2005 11 26 | 691 | 0.2+ | 0.1+ | 2007 03 10 | G96 | 0.2+ | 0.2+ | 2009 11 08 | G96 | 0.3+ | 0.0 | | |
| 2005 11 30 | 691 | 0.1− | 0.2+ | 2007 03 10 | G96 | 0.7+ | 0.2− | 2009 11 18 | G96 | 0.4+ | 0.1− | | |
| 2005 11 30 | 691 | 0.5+ | 0.1− | 2007 03 10 | G96 | 0.0 | 0.1+ | 2009 11 18 | G96 | 0.5+ | 0.1+ | | |
| 2005 11 30 | 691 | 0.2+ | 0.0 | 2007 03 10 | G96 | 0.1− | 0.0 | 2009 11 18 | G96 | 0.1+ | 0.0 | | |
| 2005 12 08 | 691 | 0.0 | 0.1− | 2007 03 14 | 691 | 0.1− | 0.2− | 2009 11 18 | G96 | 0.0 | 0.0 | | |
| 2005 12 08 | 691 | 0.2+ | 0.1+ | 2007 03 14 | 691 | 0.3− | 0.0 | 2009 12 17 | G96 | 0.3+ | 0.0 | | |
| 2005 12 08 | 691 | 0.0 | 0.2+ | 2007 03 14 | 691 | 0.1− | 0.2+ | 2009 12 17 | G96 | 0.6+ | 0.1− | | |
| 2006 01 25 | 691 | 0.5− | 0.0 | 2007 04 23 | G96 | 0.6+ | 0.0 | 2009 12 17 | G96 | 0.4+ | 0.3− | | |
| 2006 01 25 | 691 | 0.1− | 0.3− | 2007 04 23 | G96 | 0.5+ | 0.2− | 2009 12 17 | G96 | 0.0 | 0.1− | | |
| 2006 01 25 | 691 | 0.4− | 0.3− | 2007 04 23 | G96 | 0.4+ | 0.3− | | | | | | |

**(229512)∗ 2005 $WU_{113}$**

Discovered 2005 Nov. 28 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 78.14767 | | (2000.0) | | | |
| $n$ | 0.22635230 | $\omega$ | 39.16827 | | +0.56596313 | +0.79753008 |
| $a$ | 2.6665277 | $\Omega$ | 266.27705 | | −0.79920049 | +0.46854055 |
| $e$ | 0.2337549 | $i$ | 12.08270 | | −0.20239642 | +0.38002042 |
| $P$ | 4.35 | $H$ | 16.2 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 22 | 704 | 0.2− | 0.3+ | 2005 12 01 | 691 | 0.0 | 0.3+ | 2009 10 10 | J21 | 0.4− | 0.8− | | |
| 2000 09 22 | 704 | 0.6− | 0.8+ | 2005 12 10 | 691 | 0.3− | 0.0 | 2009 10 10 | J21 | (1.4+ | 2.3−) | | |
| 2000 09 22 | 704 | 1.1− | 0.7+ | 2005 12 10 | 691 | 0.0 | 0.2− | 2009 10 10 | J21 | (2.0+ | 0.3−) | | |
| 2000 09 22 | 704 | 0.2− | 0.0 | 2005 12 10 | 691 | 0.2− | 0.4+ | 2009 10 11 | 941 | 0.8+ | 0.0 | | |
| 2000 09 22 | 704 | 0.7− | 0.8+ | 2005 12 25 | 691 | 0.2+ | 0.3+ | 2009 10 11 | 941 | 0.7+ | 0.2− | | |
| 2000 10 04 | 704 | 0.3+ | 0.7+ | 2005 12 25 | 691 | 0.3+ | 0.0 | 2009 10 11 | 941 | 0.5+ | 0.4− | | |
| 2000 10 04 | 704 | 0.3+ | 0.4− | 2005 12 25 | 691 | 0.8+ | 0.2+ | 2009 10 17 | 703 | 1.1+ | 0.9+ | | |
| 2000 10 04 | 704 | 0.3+ | 0.1+ | 2006 01 02 | G96 | 0.9− | 0.8− | 2009 10 17 | 703 | 0.8− | 0.5− | | |
| 2000 10 04 | 704 | 0.2+ | 0.8− | 2006 01 02 | G96 | 0.2+ | 0.1− | 2009 10 17 | 703 | 0.1− | 0.8− | | |
| 2000 10 04 | 704 | 0.5+ | 0.5+ | 2006 01 02 | G96 | 0.4− | 0.3− | 2009 10 17 | 703 | 0.3− | 0.3− | | |
| 2005 11 06 | 691 | 0.0 | 0.2− | 2006 01 02 | G96 | 0.4− | 0.6− | 2009 11 19 | 703 | 0.4− | 0.8− | | |
| 2005 11 06 | 691 | 0.0 | 0.3− | 2008 05 07 | E12 | 0.5− | 0.9+ | 2009 11 19 | 703 | 0.7+ | 0.2− | | |
| 2005 11 06 | 691 | 0.1+ | 0.3− | 2008 05 07 | E12 | 1.4+ | 0.3+ | 2009 11 19 | 703 | 0.1− | 1.6+ | | |
| 2005 11 28 | 691 | 0.1+ | 0.1− | 2008 05 07 | E12 | 0.6− | 1.1+ | 2009 11 19 | 703 | 1.0− | 0.9+ | | |
| 2005 11 28 | 691 | 0.1+ | 0.2+ | 2008 06 06 | E12 | 0.4+ | 0.1− | 2009 11 19 | 703 | 0.8− | 0.2− | | |
| 2005 11 28 | 691 | 0.6− | 0.2+ | 2008 06 06 | E12 | 0.1+ | 0.2+ | 2009 11 19 | 703 | 1.3+ | 0.3+ | | |
| 2005 12 01 | 691 | 0.0 | 0.6+ | 2008 06 06 | E12 | 0.4+ | 0.6+ | 2009 11 19 | 703 | 0.1− | 0.1+ | | |
| 2005 12 01 | 691 | 0.0 | 0.3+ | 2008 06 06 | E12 | 0.2+ | 1.4+ | 2009 11 19 | 703 | 1.0− | 0.9− | | |

**(229513)∗ 2005 $WZ_{123}$ = 2007 $EQ_{71}$**

Discovered 2005 Nov. 25 by the Mt. Lemmon Survey at Mount Lemmon.

Id. T. B. Spahr (*MPO* 119250)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 279.86361 | | (2000.0) | | | |
| $n$ | 0.27003675 | $\omega$ | 134.33697 | | −0.99954399 | −0.01566317 |
| $a$ | 2.3705774 | $\Omega$ | 44.78451 | | +0.00332782 | −0.90688051 |
| $e$ | 0.1291053 | $i$ | 2.10023 | | +0.03001232 | −0.42109667 |
| $P$ | 3.65 | $H$ | 17.4 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 01 29 | 645 | 0.0 | 0.0 | 2005 10 31 | 691 | 0.1− | 0.0 | 2007 04 25 | G96 | 0.1+ | 0.2− | | |
| 2003 01 29 | 645 | 0.0 | 0.0 | 2005 11 25 | G96 | 0.1− | 0.7− | 2007 04 25 | G96 | 0.1+ | 0.1− | | |
| 2003 02 01 | 645 | 0.0 | 0.0 | 2005 11 25 | G96 | 0.0 | 0.1− | 2009 11 17 | 691 | 0.3− | 0.7− | | |
| 2003 02 01 | 645 | 0.0 | 0.0 | 2005 11 25 | G96 | 0.1+ | 0.3+ | 2009 11 17 | 691 | 0.5− | 0.0 | | |
| 2005 10 01 | G96 | 0.2− | 0.0 | 2005 11 25 | G96 | 0.1+ | 0.4− | 2009 11 17 | 691 | 0.3+ | 0.1− | | |
| 2005 10 01 | G96 | 0.4− | 0.2+ | 2005 12 02 | G96 | 0.6− | 0.4− | 2009 12 10 | G96 | 0.3− | 0.1− | | |
| 2005 10 01 | G96 | 0.5− | 0.3+ | 2005 12 02 | G96 | 0.1− | 0.8− | 2009 12 10 | G96 | 0.2+ | 0.1+ | | |
| 2005 10 01 | G96 | 0.5− | 0.1+ | 2005 12 02 | G96 | 0.1− | 0.0 | 2009 12 10 | G96 | 0.1+ | 0.1− | | |
| 2005 10 22 | 691 | 0.1+ | 0.8+ | 2005 12 02 | G96 | 0.1− | 0.0 | 2009 12 10 | G96 | 0.0 | 0.0 | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 22 | 691 | 0.0 | 0.6+ | 2007 03 10 | 691 | 0.1− | 0.2+ | 2009 12 19 | G96 | 0.4+ | 0.1− | | |
| 2005 10 22 | 691 | 0.2− | 0.4+ | 2007 03 10 | 691 | 0.0 | 0.2+ | 2009 12 19 | G96 | 0.2− | 0.1− | | |
| 2005 10 25 | 568 | 0.2+ | 0.7− | 2007 03 10 | 691 | 0.1+ | 0.2+ | 2009 12 19 | G96 | 0.3+ | 0.0 | | |
| 2005 10 25 | 568 | 0.2+ | 0.6− | 2007 03 14 | 691 | 0.2+ | 0.2+ | 2009 12 19 | G96 | 0.4+ | 0.1− | | |
| 2005 10 25 | 568 | 0.4+ | 0.6− | 2007 03 14 | 691 | 0.1+ | 0.2+ | 2009 12 19 | G96 | 0.1+ | 0.4− | | |
| 2005 10 26 | 568 | 0.1+ | 0.4− | 2007 03 14 | 691 | 0.0 | 0.2+ | 2009 12 19 | G96 | 0.7+ | 0.3+ | | |
| 2005 10 31 | 691 | 0.1+ | 0.5+ | 2007 04 25 | G96 | 0.3+ | 0.3− | 2009 12 19 | G96 | 0.1+ | 0.1− | | |
| 2005 10 31 | 691 | 0.3− | 0.3+ | 2007 04 25 | G96 | 0.1− | 0.2− | 2009 12 19 | G96 | 0.3+ | 0.1− | | |

**(229514)∗ 2005 WB$_{148}$**

Discovered 2005 Nov. 26 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 79.41277 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24006475 | $\omega$ | 114.21008 | | +0.94046104 | +0.33670145 | |
| $a$ | 2.5639947 | $\Omega$ | 226.15138 | | −0.33055225 | +0.87409540 | |
| $e$ | 0.1044578 | $i$ | 3.69940 | | −0.07917225 | +0.35012765 | |
| $P$ | 4.11 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 03 11 | 644 | 0.0 | 0.5+ | 2007 02 23 | 691 | 0.3− | 0.4+ | 2009 11 18 | 704 | (2.7+ | 1.7+) | | |
| 2003 03 11 | 644 | 0.3+ | 0.8+ | 2007 02 23 | 691 | 0.1− | 0.1− | 2009 11 18 | 704 | 0.9− | 0.2+ | | |
| 2003 03 11 | 644 | 0.3+ | 0.4+ | 2007 03 13 | G96 | 0.5+ | 0.0 | 2009 11 18 | 704 | (0.1+ | 1.7+) | | |
| 2005 11 26 | 691 | 0.0 | 0.2− | 2007 03 13 | G96 | 0.1+ | 0.1− | 2009 11 18 | 704 | 0.5+ | 0.7+ | | |
| 2005 11 26 | 691 | 0.1+ | 0.1− | 2007 03 13 | G96 | 0.4+ | 0.1− | 2009 11 18 | 704 | 1.1+ | 0.3+ | | |
| 2005 11 26 | 691 | 0.1− | 0.1+ | 2007 03 13 | G96 | 0.4+ | 0.2− | 2009 11 21 | 704 | 1.0+ | 1.3+ | | |
| 2005 11 30 | G96 | 0.2+ | 0.5− | 2009 09 21 | G96 | 0.1+ | 0.0 | 2009 11 21 | 704 | 0.1− | 0.4+ | | |
| 2005 11 30 | G96 | 0.2+ | 0.4− | 2009 09 21 | G96 | 0.2− | 0.0 | 2009 11 21 | 704 | 0.4+ | 1.4+ | | |
| 2005 11 30 | G96 | 0.2+ | 0.5− | 2009 09 21 | G96 | 0.0 | 0.1− | 2009 11 22 | 691 | 0.2− | 0.3− | | |
| 2005 11 30 | G96 | 0.2− | 0.6− | 2009 09 21 | G96 | 0.1+ | 0.0 | 2009 11 22 | 691 | 0.1+ | 0.1− | | |
| 2005 12 02 | 703 | 0.2− | 0.2− | 2009 10 21 | G96 | 0.2+ | 0.3− | 2009 11 22 | 691 | 0.1− | 0.0 | | |
| 2005 12 02 | 703 | 1.2− | 0.8− | 2009 10 21 | G96 | 0.4+ | 0.5− | 2009 11 23 | J75 | 0.5+ | 0.0 | | |
| 2005 12 02 | 703 | 0.2− | 0.3+ | 2009 10 21 | G96 | 0.1+ | 0.2− | 2009 11 23 | J75 | 0.2+ | 0.8− | | |
| 2005 12 02 | 703 | 1.0− | 0.6− | 2009 10 21 | G96 | 0.2+ | 0.2− | 2009 11 23 | J75 | 1.4+ | 0.6− | | |
| 2005 12 04 | 704 | 0.5− | 0.5+ | 2009 10 23 | 691 | 0.1− | 0.0 | 2009 11 25 | 703 | 0.5− | 0.4− | | |
| 2005 12 04 | 704 | 0.5+ | 0.4+ | 2009 10 23 | 691 | 0.4− | 0.2+ | 2009 11 25 | 703 | 0.4− | 0.7− | | |
| 2005 12 04 | 704 | 1.2+ | 0.0 | 2009 10 23 | 691 | 0.1− | 0.1+ | 2009 11 25 | 703 | 1.2− | 0.7− | | |
| 2005 12 04 | 704 | 0.0 | 0.1+ | 2009 10 27 | 691 | 0.2− | 0.1− | 2009 11 25 | 703 | 0.2+ | 0.2− | | |
| 2005 12 06 | 704 | 0.9+ | 0.7+ | 2009 10 27 | 691 | 0.3− | 0.2− | 2009 11 25 | 703 | 0.6− | 0.3− | | |
| 2005 12 06 | 704 | 0.1− | 0.5+ | 2009 10 27 | 691 | 0.2− | 0.0 | 2009 11 26 | 691 | 0.1+ | 0.1− | | |
| 2005 12 06 | 704 | (1.6− | 0.4−) | 2009 11 08 | 691 | 0.0 | 0.7+ | 2009 11 26 | 691 | 0.1− | 0.2+ | | |
| 2005 12 07 | 691 | 0.2− | 0.1+ | 2009 11 08 | 691 | 0.1− | 0.1− | 2009 11 26 | 691 | 0.1− | 0.1− | | |
| 2005 12 07 | 691 | 0.0 | 0.3− | 2009 11 08 | 691 | 0.1− | 0.1+ | 2009 12 08 | 104 | 0.8+ | 0.8+ | | |
| 2005 12 07 | 691 | 0.2+ | 0.1+ | 2009 11 12 | J75 | 0.5+ | 0.3+ | 2009 12 08 | 104 | 1.2+ | 1.2+ | | |
| 2005 12 29 | G96 | 0.1− | 0.3− | 2009 11 12 | J75 | 0.2+ | 0.1+ | 2009 12 08 | 104 | 0.6+ | 0.9+ | | |
| 2005 12 29 | G96 | 0.2+ | 0.4− | 2009 11 12 | J75 | 0.4+ | 0.3− | 2009 12 19 | 691 | 0.1+ | 0.1+ | | |
| 2005 12 29 | G96 | 0.2+ | 0.0 | 2009 11 18 | 691 | 0.1− | 0.2+ | 2009 12 19 | 691 | 0.4− | 0.2+ | | |
| 2005 12 29 | G96 | 0.1+ | 0.2− | 2009 11 18 | 691 | 0.5+ | 0.1− | 2009 12 19 | 691 | 0.1− | 0.3− | | |
| 2007 02 23 | 691 | 0.1− | 0.4− | 2009 11 18 | 691 | 0.2− | 0.1− | | | | | | |

**(229515)∗ 2005 WO$_{159}$**

Discovered 2005 Nov. 29 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 359.40187 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22661615 | $\omega$ | 348.44155 | | +0.07026736 | −0.96317991 | |
| $a$ | 2.6644576 | $\Omega$ | 97.13153 | | +0.93479534 | −0.02722116 | |
| $e$ | 0.2109519 | $i$ | 15.16124 | | +0.34816687 | +0.26747611 | |
| $P$ | 4.35 | $H$ | 15.3 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 10 27 | 704 | 0.4− | 0.5+ | 2005 12 24 | 703 | 0.9− | 1.3− | 2009 10 01 | G96 | 0.1− | 0.3− | | |
| 2000 10 27 | 704 | 0.5− | 0.2− | 2005 12 24 | 703 | 1.0− | 0.5− | 2009 10 01 | G96 | 0.1− | 0.2− | | |
| 2000 10 27 | 704 | 0.2+ | 0.2+ | 2005 12 24 | 703 | (0.4+ | 1.8−) | 2009 10 01 | G96 | 0.3+ | 0.1− | | |
| 2000 10 27 | 704 | 0.5− | 0.9+ | 2006 01 04 | 703 | 0.3− | 0.5+ | 2009 10 01 | G96 | 0.2− | 0.1− | | |
| 2000 10 27 | 704 | 0.1− | 0.9+ | 2006 01 04 | 703 | 0.2− | 0.4− | 2009 11 17 | 683 | 0.1− | 0.7− | | |
| 2002 04 15 | 644 | 0.3− | 0.6+ | 2006 01 04 | 703 | 1.0− | 0.1+ | 2009 11 17 | 683 | 0.0 | 0.5+ | | |
| 2002 04 15 | 644 | 0.1− | 0.5+ | 2006 01 04 | 703 | 0.1+ | 0.9+ | 2009 11 17 | 683 | 0.2− | 0.5+ | | |
| 2002 04 15 | 644 | 0.5+ | 0.6+ | 2006 01 05 | 704 | 0.2− | 0.7+ | 2009 11 17 | 703 | 0.3+ | 0.4− | | |
| 2004 08 21 | E12 | 0.4− | 0.4+ | 2006 01 05 | 704 | 0.3+ | 0.9+ | 2009 11 17 | 703 | 0.9− | 0.1+ | | |
| 2004 08 21 | E12 | 0.2− | 0.1+ | 2006 01 05 | 704 | 0.3− | 1.0+ | 2009 11 17 | 703 | 0.5− | 0.3− | | |
| 2004 08 21 | E12 | 0.5− | 0.6+ | 2006 01 05 | 704 | 0.1+ | 1.0+ | 2009 11 17 | 703 | 0.2− | 0.3− | | |
| 2004 08 21 | E12 | 0.5+ | 0.7+ | 2006 01 05 | 704 | 0.4− | 1.1+ | 2009 11 19 | 704 | 0.2+ | 0.2+ | | |
| 2004 09 15 | E12 | 0.3− | 0.8+ | 2006 01 06 | 699 | 0.8− | 0.5+ | 2009 11 19 | 704 | 0.4+ | 0.8+ | | |
| 2004 09 15 | E12 | 0.6− | 0.3+ | 2006 01 06 | 699 | 0.3− | 0.8− | 2009 11 19 | 704 | 0.1+ | 0.5+ | | |
| 2004 09 15 | E12 | 1.0+ | 0.2+ | 2006 01 06 | 699 | 0.0 | 0.4+ | 2009 11 19 | 704 | 0.8+ | 0.9− | | |
| 2004 09 15 | E12 | 0.2+ | 0.1− | 2006 01 06 | 699 | 0.7+ | 0.3− | 2009 11 19 | 704 | 0.1+ | 0.4+ | | |
| 2005 11 29 | 704 | 0.3+ | 0.0 | 2006 01 27 | 703 | 0.5− | 0.7+ | 2009 11 27 | G96 | 0.1− | 0.5− | | |
| 2005 11 29 | 704 | 1.2+ | 1.2+ | 2006 01 27 | 703 | 0.6+ | 0.5− | 2009 11 27 | G96 | 0.3− | 0.4− | | |
| 2005 11 29 | 704 | 1.4+ | 0.4+ | 2006 01 27 | 703 | 0.0 | 0.7− | 2009 11 27 | G96 | 0.2− | 0.6− | | |
| 2005 11 29 | 704 | 1.2+ | 0.3+ | 2006 02 06 | 699 | 0.2− | 0.0 | 2009 11 27 | G96 | 0.4− | 0.6− | | |
| 2005 11 29 | 704 | 0.7+ | 0.6+ | 2006 02 06 | 699 | 0.1− | 0.2− | 2009 11 27 | G96 | 0.0 | 0.5− | | |
| 2005 12 05 | 704 | 1.2+ | 0.6+ | 2006 02 06 | 699 | 0.1+ | 0.2− | 2009 12 08 | J75 | 0.3+ | 0.2− | | |
| 2005 12 05 | 704 | 1.0+ | 1.1+ | 2006 02 06 | 704 | 0.4+ | 0.3− | 2009 12 08 | J75 | 0.4+ | 0.1− | | |
| 2005 12 05 | 704 | 0.3+ | 0.0 | 2006 02 06 | 699 | 0.1− | 0.3+ | 2009 12 08 | J75 | 0.3− | 0.1− | | |
| 2005 12 05 | 704 | 0.9+ | 0.1+ | 2006 02 06 | 704 | 0.8+ | 0.5− | 2009 12 12 | 704 | 0.3+ | 0.0 | | |
| 2005 12 05 | 703 | 0.1+ | 0.4− | 2006 02 06 | 704 | (1.6+ | 0.1−) | 2009 12 12 | 704 | 0.1+ | 0.3− | | |
| 2005 12 05 | 704 | 0.3+ | 0.0 | 2006 02 06 | 704 | (1.7+ | 1.5−) | 2009 12 12 | 704 | 0.2+ | 0.3− | | |
| 2005 12 05 | 703 | 0.8− | 0.4− | 2006 02 18 | 699 | 0.0 | 0.7+ | 2009 12 12 | 704 | 0.4+ | 0.7− | | |
| 2005 12 05 | 703 | 0.4− | 0.1+ | 2006 02 18 | 699 | 1.2− | 0.7− | 2009 12 12 | 704 | 0.0 | 0.4− | | |
| 2005 12 05 | 703 | 0.9− | 0.0 | 2006 02 18 | 699 | 0.0 | 0.2− | 2009 12 18 | 704 | 1.0+ | 0.3+ | | |
| 2005 12 10 | 704 | 0.2+ | 0.3− | 2006 02 18 | 699 | 0.0 | 0.2− | 2009 12 18 | 704 | 0.1− | 0.3+ | | |
| 2005 12 10 | 704 | 0.5− | 0.2− | 2006 02 24 | 699 | 0.3− | 0.0 | 2009 12 18 | 704 | 0.3+ | 0.1− | | |
| 2005 12 10 | 704 | 0.4+ | 0.3− | 2006 02 24 | 699 | 0.2+ | 0.2+ | 2009 12 18 | 704 | 0.7− | 0.3+ | | |
| 2005 12 10 | 704 | 0.3+ | 0.1− | 2006 02 24 | 699 | 0.3+ | 0.3+ | 2009 12 18 | 704 | 0.1− | 0.2+ | | |
| 2005 12 24 | 703 | (0.1+ | 1.6−) | 2006 02 24 | 699 | 0.4+ | 0.5− | | | | | | |

**(229516)∗ 2005 WE$_{170}$ = 2007 HC$_{11}$**

Discovered 2005 Nov. 30 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 119253)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 266.83190 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27034249 | $\omega$ | 124.69076 | | −0.75907904 | +0.64884510 | |
| $a$ | 2.3687897 | $\Omega$ | 95.82418 | | −0.61332409 | −0.68553868 | |
| $e$ | 0.1400104 | $i$ | 3.04845 | | −0.21824887 | −0.33020713 | |
| $P$ | 3.65 | $H$ | 17.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 03 24 | 691 | 0.2− | 0.2− | 2007 04 20 | 691 | 0.0 | 0.0 | 2007 05 21 | 703 | 1.1− | 0.3− | | |
| 1996 03 24 | 691 | 0.3− | 0.1+ | 2007 04 20 | 691 | 0.0 | 0.1− | 2007 05 21 | 703 | 0.5+ | 1.3+ | | |
| 1996 03 24 | 691 | 0.2− | 0.0 | 2007 04 20 | 691 | 0.1+ | 0.1− | 2008 09 03 | 691 | 0.6− | 0.1+ | | |
| 2003 02 21 | 644 | 0.9+ | 0.7+ | 2007 04 24 | 691 | 0.0 | 0.1+ | 2008 09 03 | 691 | 0.1− | 0.4+ | | |
| 2003 02 21 | 644 | 1.0+ | 0.4+ | 2007 04 24 | 691 | 0.1+ | 0.2− | 2008 09 03 | 691 | 0.3− | 0.4+ | | |
| 2003 02 21 | 644 | 0.7+ | 0.6+ | 2007 04 24 | 691 | 0.5− | 0.7+ | 2008 09 28 | G96 | 0.5+ | 0.2− | | |
| 2005 11 01 | G96 | 0.0 | 0.3− | 2007 04 28 | 691 | 0.2+ | 0.0 | 2008 09 28 | G96 | 0.0 | 0.1− | | |
| 2005 11 01 | G96 | 0.1− | 0.0 | 2007 04 28 | 691 | 0.0 | 0.0 | 2008 09 28 | G96 | 0.1− | 0.3− | | |
| 2005 11 01 | G96 | 0.9− | 0.8+ | 2007 04 28 | 691 | 0.1+ | 0.1− | 2008 09 28 | G96 | 0.1− | 0.0 | | |
| 2005 11 01 | G96 | 0.4− | 0.0 | 2007 05 09 | 699 | 1.5+ | 0.7+ | 2008 10 09 | G96 | 0.4+ | 0.0 | | |
| 2005 11 22 | 691 | 0.8+ | 0.5− | 2007 05 09 | 699 | 0.3+ | 0.1+ | 2008 10 09 | G96 | 0.2+ | 0.2− | | |
| 2005 11 22 | 691 | 0.6+ | 0.4− | 2007 05 09 | 699 | 0.5+ | 1.1+ | 2008 10 09 | G96 | 0.0 | 0.3− | | |
| 2005 11 22 | 691 | 0.7+ | 0.1+ | 2007 05 09 | 699 | 1.3+ | 0.0 | 2008 10 09 | G96 | 0.2− | 0.3− | | |
| 2005 11 30 | 691 | 0.1− | 0.1+ | 2007 05 09 | A50 | 0.2+ | 0.0 | 2008 11 02 | 691 | 0.3− | 0.7+ | | |
| 2005 11 30 | 691 | 0.2− | 0.5+ | 2007 05 09 | A50 | 0.1+ | 0.4− | 2008 11 02 | 691 | 0.3− | 0.7+ | | |
| 2005 11 30 | 691 | 0.1− | 0.4+ | 2007 05 12 | G96 | 0.1− | 0.3− | 2008 11 02 | 691 | 0.2− | 0.3+ | | |
| 2005 12 04 | G96 | 0.4− | 0.1+ | 2007 05 12 | G96 | 0.1− | 0.2− | 2009 12 15 | G96 | (2.8+ | 0.4+) | | |
| 2005 12 04 | G96 | 0.1+ | 0.1− | 2007 05 12 | G96 | 0.0 | 0.1− | 2009 12 15 | G96 | 0.2+ | 0.9+ | | |
| 2005 12 04 | G96 | 0.2+ | 0.3− | 2007 05 12 | G96 | 0.5+ | 0.1− | 2009 12 15 | G96 | 0.1+ | 0.4+ | | |
| 2005 12 04 | G96 | 0.1+ | 0.1− | 2007 05 13 | 704 | 0.7+ | 0.7+ | 2009 12 15 | G96 | 0.4+ | 0.1− | | |
| 2007 04 18 | 691 | 0.4− | 0.1− | 2007 05 13 | 704 | 0.8+ | 0.6+ | 2009 12 18 | 691 | 0.1− | 0.1+ | | |
| 2007 04 18 | 691 | 0.0 | 0.0 | 2007 05 13 | 704 | 1.2+ | 1.2+ | 2009 12 18 | 691 | 0.0 | 0.2+ | | |
| 2007 04 18 | 691 | 0.0 | 0.1+ | 2007 05 13 | 704 | 0.0 | 0.4+ | 2009 12 18 | 691 | 0.4+ | 0.7+ | | |
| 2007 04 18 | D35 | 0.7− | 0.1+ | 2007 05 13 | 704 | 0.1+ | 0.1+ | 2009 12 26 | 691 | 0.4− | 0.0 | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 04 18 | D35 | 0.8− | 0.6+ | 2007 05 21 | 703 | 0.3− | 0.3+ | 2009 12 26 | 691 | 0.9− | 0.2− |
| 2007 04 18 | D35 | 0.5+ | 0.6+ | 2007 05 21 | 703 | 0.4+ | 0.3− | 2009 12 26 | 691 | 0.5− | 0.1+ |

**(229517)∗ 2005 WS$_{170}$**

Discovered 2005 Nov. 30 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 149.57619 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.24286293 | $\omega$ | 201.68165 | | +0.29215015 | | +0.95402282 |
| $a$ | 2.5442624 | $\Omega$ | 85.35498 | | −0.86728032 | | +0.29380926 |
| $e$ | 0.0989494 | $i$ | 3.85427 | | −0.40307958 | | +0.05930073 |
| $P$ | 4.06 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 03 22 | 645 | 0.1− | 0.0 | 2005 12 25 | G96 | 0.2− | 0.4− | 2007 03 12 | G96 | 0.2+ | 0.2− |
| 1999 03 22 | 645 | 0.1− | 0.0 | 2005 12 25 | G96 | 0.1− | 0.4− | 2007 03 12 | G96 | 0.3− | 0.2− |
| 2003 03 26 | 644 | 0.2+ | 0.6+ | 2006 01 05 | 691 | 0.2+ | 0.1+ | 2007 03 12 | G96 | 0.2− | 0.1− |
| 2003 03 26 | 644 | 0.2+ | 0.6+ | 2006 01 05 | 691 | 0.1+ | 0.1+ | 2007 03 16 | 691 | 0.1− | 0.2− |
| 2003 03 26 | 644 | 0.2+ | 0.5+ | 2006 01 05 | 691 | 0.1+ | 0.2− | 2007 03 16 | 691 | 0.0 | 0.1− |
| 2003 03 27 | 644 | 0.3+ | 0.4+ | 2006 01 21 | 291 | 0.5+ | 0.1− | 2007 03 16 | 691 | 0.2− | 0.0 |
| 2003 03 27 | 644 | 0.3+ | 0.7+ | 2006 01 21 | 291 | 0.3+ | 0.0 | 2007 03 20 | 691 | 0.1− | 0.2− |
| 2003 03 27 | 644 | 1.3+ | 0.3+ | 2006 01 21 | 291 | 0.2+ | 0.2+ | 2007 03 20 | 691 | 0.0 | 0.4− |
| 2003 04 10 | 691 | 0.6+ | 0.8+ | 2006 01 23 | G96 | 0.1+ | 0.1+ | 2007 03 20 | 691 | 0.2− | 0.0 |
| 2003 04 10 | 691 | 0.5+ | 0.9+ | 2006 01 23 | G96 | 0.5+ | 0.2− | 2008 07 28 | E12 | 0.2− | 0.2+ |
| 2003 04 10 | 691 | 0.3+ | 0.5+ | 2006 01 23 | G96 | 0.5+ | 0.2+ | 2008 07 28 | E12 | 0.2+ | 0.3+ |
| 2004 08 11 | 704 | 0.2+ | 1.2− | 2006 01 23 | G96 | 0.6− | 0.1+ | 2008 07 28 | E12 | 0.6+ | 1.1+ |
| 2004 08 11 | 704 | (1.9− | 0.1+) | 2007 02 14 | D35 | 0.0 | 0.3+ | 2008 07 28 | E12 | 0.1+ | 0.7+ |
| 2004 08 11 | 704 | 0.8− | 0.7+ | 2007 02 14 | D35 | 0.3+ | 0.1+ | 2009 11 24 | 691 | 0.4− | 0.2+ |
| 2004 08 11 | 704 | (3.8+ | 1.6+) | 2007 02 14 | D35 | 0.6+ | 0.3+ | 2009 11 24 | 691 | 0.5− | 0.1+ |
| 2004 08 22 | E12 | 0.1− | 0.3+ | 2007 02 26 | G96 | 0.7− | 0.1− | 2009 11 24 | 691 | 0.7− | 0.0 |
| 2004 08 22 | E12 | 0.1+ | 0.0 | 2007 02 26 | G96 | 0.0 | 0.2− | 2009 12 10 | G96 | 0.1+ | 0.2− |
| 2004 08 22 | E12 | 0.2− | 0.6+ | 2007 02 26 | G96 | 0.3+ | 0.3− | 2009 12 10 | G96 | 0.1− | 0.3− |
| 2004 08 22 | E12 | 0.6− | 0.3+ | 2007 02 26 | G96 | 0.6− | 0.1+ | 2009 12 10 | G96 | 0.2+ | 0.2− |
| 2005 11 30 | 691 | 0.2− | 0.3+ | 2007 03 12 | 691 | 0.2+ | 0.3− | 2009 12 10 | G96 | 0.4+ | 0.2− |
| 2005 11 30 | 691 | 0.2− | 0.1+ | 2007 03 12 | 691 | 0.0 | 0.4− | 2009 12 10 | G96 | 0.2+ | 0.2− |
| 2005 11 30 | 691 | 0.1+ | 0.3+ | 2007 03 12 | 691 | 0.3− | 0.1− | 2009 12 10 | G96 | 0.5+ | 0.0 |
| 2005 12 04 | 691 | 0.2− | 0.1+ | 2007 03 12 | G96 | 0.2− | 0.1− | 2009 12 10 | G96 | 0.1− | 0.1− |
| 2005 12 04 | 691 | 0.1+ | 0.2+ | 2007 03 12 | G96 | 0.5− | 0.1− | 2009 12 19 | G96 | 0.0 | 0.3− |
| 2005 12 04 | 691 | 0.1+ | 0.4+ | 2007 03 12 | G96 | 0.4+ | 0.3− | 2009 12 19 | G96 | 0.5+ | 0.2− |
| 2005 12 25 | G96 | 0.0 | 0.0 | 2007 03 12 | G96 | 0.3− | 0.2− | 2009 12 19 | G96 | 0.3+ | 0.2− |
| 2005 12 25 | G96 | 0.1+ | 0.2− | 2007 03 12 | G96 | 0.1+ | 0.6− | 2009 12 19 | G96 | 0.2+ | 0.1+ |

**(229518)∗ 2005 WZ$_{173}$**

Discovered 2005 Nov. 30 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 329.77460 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22816170 | $\omega$ | 206.13102 | | −0.06637871 | | −0.97697139 |
| $a$ | 2.6524114 | $\Omega$ | 248.24189 | | +0.94944808 | | +0.00065002 |
| $e$ | 0.1264826 | $i$ | 12.61141 | | +0.30682602 | | −0.21336934 |
| $P$ | 4.32 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 27 | 645 | 0.0 | 0.0 | 2002 02 15 | 704 | 0.1− | 0.3+ | 2009 10 14 | 703 | 1.2− | 0.5− |
| 2000 09 27 | 645 | 0.0 | 0.1− | 2005 11 30 | 704 | 0.5+ | 0.2− | 2009 10 14 | 703 | 0.4− | 0.4− |
| 2000 10 04 | 704 | 0.4+ | 1.4+ | 2005 11 30 | 704 | 0.6− | 0.2− | 2009 10 14 | 703 | 1.2+ | 0.0 |
| 2000 10 04 | 704 | 0.4+ | 0.7+ | 2005 11 30 | 704 | 0.4+ | 0.2− | 2009 10 14 | 703 | 0.5+ | 1.3+ |
| 2000 10 04 | 704 | 0.4− | 0.0 | 2005 12 05 | 691 | 0.1− | 0.1− | 2009 10 26 | G96 | 0.1+ | 0.1− |
| 2000 10 04 | 704 | 0.5− | 1.6+ | 2005 12 05 | 691 | 0.0 | 0.1− | 2009 10 26 | G96 | 0.1+ | 0.1− |
| 2002 01 12 | 704 | (0.2+ | 1.8−) | 2005 12 05 | 691 | 0.2+ | 0.1+ | 2009 10 26 | G96 | 0.1+ | 0.1− |
| 2002 01 12 | 704 | 0.1+ | 0.8− | 2005 12 07 | 704 | (2.9− | 0.1+) | 2009 10 26 | G96 | 0.4+ | 0.0 |
| 2002 01 12 | 704 | (1.1+ | 2.3−) | 2005 12 07 | 704 | (3.8+ | 2.0+) | 2009 11 16 | 704 | 1.0+ | 0.0 |
| 2002 01 12 | 704 | (0.6+ | 1.9−) | 2005 12 07 | 704 | (4.2+ | 0.8−) | 2009 11 16 | 704 | 0.1+ | 0.0 |
| 2002 02 08 | 644 | 0.5+ | 0.1+ | 2005 12 07 | 704 | 0.1− | 1.5− | 2009 11 16 | 704 | 1.3− | 0.9− |
| 2002 02 08 | 644 | 0.4+ | 0.0 | 2005 12 07 | 704 | (3.3− | 1.2−) | 2009 11 16 | 704 | 0.5+ | 1.4+ |
| 2002 02 08 | 644 | 0.4+ | 0.2+ | 2005 12 30 | 704 | 0.8− | 0.3− | 2009 12 13 | 703 | 0.1− | 0.7− |
| 2002 02 15 | 704 | 0.6+ | 1.0+ | 2005 12 30 | 704 | 0.1− | 0.2+ | 2009 12 13 | 703 | 1.2+ | 0.8+ |
| 2002 02 15 | 704 | 0.4− | 1.3+ | 2005 12 30 | 704 | 0.8− | 0.8+ | 2009 12 13 | 703 | 1.6− | 1.1+ |
| 2002 02 15 | 704 | 0.0 | 0.2− | 2005 12 30 | 704 | 0.4− | 0.9+ | 2009 12 13 | 703 | 0.4− | 0.7− |
| 2002 02 15 | 704 | 0.1− | 0.2+ | 2005 12 30 | 704 | 0.1+ | 1.0− | | | | |

**(229519)∗ 2005 WM$_{178}$ = 2002 AR$_{193}$**

Discovered 2005 Nov. 30 by the Mt. Lemmon Survey at Mount Lemmon.

Id. G. V. Williams (*MPO* 96571)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 346.54949 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23711047 | $\omega$ | 197.10818 | | −0.44509020 | | −0.86229032 |
| $a$ | 2.5852481 | $\Omega$ | 279.88839 | | +0.84761490 | | −0.31866300 |
| $e$ | 0.1393354 | $i$ | 14.19367 | | +0.28886622 | | −0.39358519 |
| $P$ | 4.16 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 30 | 645 | 0.1+ | 0.1− | 2005 12 30 | 691 | 0.0 | 0.1+ | 2006 02 24 | 704 | (0.8+ | 1.6+) |
| 2000 11 30 | 645 | 0.0 | 0.0 | 2005 12 30 | 704 | 0.0 | 0.6+ | 2006 02 24 | 704 | 0.2− | 0.0 |
| 2002 01 12 | 704 | 0.5+ | 0.7− | 2005 12 30 | 691 | 0.1− | 0.1+ | 2006 02 24 | 704 | 1.3− | 0.7− |
| 2002 01 12 | 704 | 0.4+ | 1.1− | 2005 12 30 | 704 | 0.0 | 0.6+ | 2008 07 30 | 703 | 0.4+ | 0.3+ |
| 2002 01 12 | 704 | 0.0 | 0.8− | 2005 12 30 | 704 | 0.2+ | 0.7+ | 2008 07 30 | 703 | 0.5− | 0.4+ |
| 2002 01 12 | 704 | 0.5+ | 0.1− | 2005 12 30 | 691 | 0.0 | 0.0 | 2008 07 30 | 703 | 0.7− | 1.3− |
| 2002 01 12 | 704 | 0.3+ | 0.3− | 2005 12 30 | 704 | 0.7+ | 0.6+ | 2008 07 30 | 703 | 0.0 | 0.7− |
| 2002 01 13 | 644 | 0.2+ | 0.5+ | 2005 12 30 | 704 | 0.1− | 0.6+ | 2008 09 27 | G96 | 0.1− | 0.1− |
| 2002 01 13 | 644 | 0.3+ | 0.3+ | 2006 01 03 | 704 | 0.1− | 0.1− | 2008 09 27 | G96 | 0.1− | 0.1+ |
| 2002 01 13 | 644 | 0.5+ | 0.3+ | 2006 01 03 | 704 | 0.4− | 0.2+ | 2008 09 27 | G96 | 0.4+ | 0.0 |
| 2004 08 20 | 703 | 0.9− | 0.1− | 2006 01 03 | 704 | 0.8− | 0.8+ | 2008 09 27 | G96 | 0.5+ | 0.1+ |
| 2004 08 20 | 703 | 0.1+ | 0.5+ | 2006 01 03 | 704 | 0.0 | 0.3+ | 2009 10 15 | 704 | (1.4+ | 2.8−) |
| 2004 08 20 | 703 | 0.3− | 0.8+ | 2006 01 03 | 704 | 0.2− | 1.0+ | 2009 10 15 | 704 | (1.5+ | 4.4−) |
| 2004 08 20 | 703 | 0.3+ | 0.3− | 2006 01 05 | 699 | 0.3− | 0.2− | 2009 10 15 | 704 | (1.8+ | 3.7−) |
| 2005 10 03 | 691 | 0.1− | 0.3+ | 2006 01 05 | 699 | 0.9− | 0.2+ | 2009 11 11 | 704 | 1.3+ | 0.3+ |
| 2005 10 03 | 691 | 0.0 | 0.0 | 2006 01 05 | 699 | 0.4− | 0.2+ | 2009 11 11 | 704 | 0.7+ | 0.9− |
| 2005 10 03 | 691 | 0.1− | 0.3+ | 2006 01 05 | 699 | 0.1− | 0.1− | 2009 11 11 | 704 | 0.8+ | 0.9− |
| 2005 10 13 | 691 | 0.1− | 0.2+ | 2006 01 18 | 703 | 0.2+ | 0.1+ | 2009 11 16 | 704 | 1.1+ | 0.7+ |
| 2005 10 13 | 691 | 0.1− | 0.2− | 2006 01 18 | 703 | 0.1− | 0.1− | 2009 11 16 | 704 | 0.9+ | 0.2+ |
| 2005 10 13 | 691 | 0.2+ | 0.1+ | 2006 01 18 | 703 | 1.1− | 0.6− | 2009 11 16 | 704 | 0.1+ | 0.3+ |
| 2005 10 29 | G96 | 0.4− | 0.6− | 2006 01 21 | 699 | 0.8+ | 0.2− | 2009 11 16 | 704 | 0.5+ | 1.2− |
| 2005 10 29 | G96 | 0.1− | 0.4− | 2006 01 21 | 699 | 0.3− | 0.3+ | 2009 11 22 | 704 | (1.5+ | 2.0−) |
| 2005 10 29 | G96 | 0.1− | 0.4− | 2006 01 21 | 699 | 0.3+ | 0.0 | 2009 11 22 | 704 | 0.4+ | 1.3+ |
| 2005 10 29 | G96 | 0.1− | 0.6− | 2006 01 21 | 699 | 0.5+ | 0.2− | 2009 11 22 | 704 | 0.1− | 1.4− |
| 2005 11 30 | G96 | 0.4− | 0.3− | 2006 01 22 | 699 | 0.3+ | 0.1− | 2009 11 22 | 704 | 0.0 | 1.1+ |
| 2005 11 30 | G96 | 0.1− | 0.2− | 2006 01 22 | 699 | 0.1+ | 0.2+ | 2009 11 22 | 704 | 0.5− | 0.2+ |
| 2005 11 30 | G96 | 0.1− | 0.1− | 2006 01 22 | 699 | 0.5+ | 0.2+ | 2009 12 10 | 704 | 0.2+ | 0.4+ |
| 2005 12 04 | 704 | 0.0 | 0.5− | 2006 01 22 | 699 | 0.2− | 0.1− | 2009 12 10 | 704 | 0.3− | 0.2− |
| 2005 12 04 | 704 | 0.4+ | 0.0 | 2006 01 28 | 699 | 0.6+ | 0.4− | 2009 12 10 | 704 | 0.3+ | 1.0+ |
| 2005 12 04 | 704 | 0.5− | 0.1− | 2006 01 28 | 699 | 0.1+ | 0.5− | 2009 12 10 | 704 | 0.4+ | 0.4+ |
| 2005 12 04 | 704 | 0.1− | 0.3− | 2006 01 28 | 699 | 0.4+ | 0.4− | 2009 12 10 | 704 | 0.3+ | 1.0+ |
| 2005 12 04 | 704 | 0.2− | 0.2+ | 2006 01 28 | 699 | 0.6− | 0.3+ | 2009 12 16 | 704 | 0.1− | 0.4+ |
| 2005 12 08 | 704 | (0.3+ | 2.1+) | 2006 01 31 | 703 | 0.3− | 0.2− | 2009 12 16 | 704 | 0.3− | 0.2+ |
| 2005 12 08 | 704 | 1.5− | 0.1− | 2006 01 31 | 703 | 0.5− | 0.6− | 2009 12 16 | 704 | 0.9+ | 0.0 |
| 2005 12 08 | 704 | 0.0 | 0.9− | 2006 01 31 | 703 | 0.1− | 0.2− | 2009 12 16 | 704 | 0.2+ | 0.4+ |
| 2005 12 27 | 704 | 0.3+ | 1.0+ | 2006 02 07 | 703 | 0.0 | 0.7− | 2009 12 16 | 704 | (1.8+ | 0.5−) |
| 2005 12 27 | 704 | 0.5+ | 0.6+ | 2006 02 07 | 703 | 0.5− | 0.1− | 2009 12 17 | 691 | 0.2− | 0.3− |
| 2005 12 27 | 704 | (2.7+ | 0.6+) | 2006 02 07 | 703 | 0.4− | 0.4− | 2009 12 17 | 691 | 0.1− | 0.2− |
| 2005 12 27 | 704 | 0.3+ | 0.7− | 2006 02 07 | 703 | 0.9− | 0.4− | 2009 12 17 | 691 | 0.1− | 0.2− |
| 2005 12 27 | 704 | 1.5+ | 0.2− | 2006 02 24 | 704 | 1.2− | 1.0+ | | | | |

**(229520)∗ 2005 WY$_{185}$ = 2003 LA$_{9}$**

Discovered 2005 Nov. 30 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 96580)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 324.76429 | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.21856233 | $\omega$ | 199.73735 | | +0.10377993 | | −0.98452105 | |
| $a$ | 2.7295172 | $\Omega$ | 244.52201 | | +0.93225615 | | +0.14577416 | |
| $e$ | 0.1925948 | $i$ | 9.00104 | | +0.34659515 | | −0.09730469 | |
| $P$ | 4.51 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 1 | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 03 | 704 | 0.5− | 0.5+ | 2005 11 30 | 704 | 0.5+ | 0.1+ | 2006 01 03 | 704 | 0.8+ | 0.1+ |
| 2000 09 03 | 704 | 0.4+ | 0.2− | 2005 11 30 | 704 | 0.3+ | 0.6+ | 2006 01 03 | 704 | 0.1− | 0.3− |
| 2000 09 03 | 704 | 1.0− | 0.6− | 2005 12 07 | 704 | 0.7+ | 0.6+ | 2006 01 03 | 704 | 0.3+ | 0.3+ |
| 2000 09 03 | 704 | 0.4+ | 0.3− | 2005 12 07 | 704 | 0.5+ | 0.4− | 2006 01 03 | 704 | 0.5+ | 0.1− |
| 2000 09 05 | 699 | (1.5− | 2.5+) | 2005 12 07 | 704 | 1.0− | 0.1+ | 2009 09 25 | 703 | 0.5− | 0.5− |
| 2000 09 05 | 699 | 0.0 | 0.4− | 2005 12 07 | 704 | 0.6+ | 0.4+ | 2009 09 25 | 703 | 0.8− | 0.3− |
| 2000 09 05 | 699 | 0.4− | 0.5+ | 2005 12 07 | 704 | 0.4+ | 0.2+ | 2009 09 25 | 703 | 1.1− | 0.4− |
| 2000 09 05 | 699 | 0.1+ | 0.6− | 2005 12 09 | 704 | 0.0 | 0.6− | 2009 09 25 | 703 | 0.1+ | 0.8− |
| 2000 10 03 | 704 | 0.6+ | 0.7+ | 2005 12 09 | 704 | 0.3− | 0.1+ | 2009 10 15 | 703 | 0.5+ | 0.6+ |
| 2000 10 03 | 704 | 0.8− | 0.6+ | 2005 12 09 | 704 | 0.2+ | 0.2− | 2009 10 15 | 703 | 0.6+ | 1.3+ |
| 2000 10 03 | 704 | 0.5+ | 0.1+ | 2005 12 09 | 704 | 0.1+ | 0.7− | 2009 10 15 | 703 | 0.5− | 0.4+ |
| 2000 10 03 | 704 | 0.2+ | 0.3+ | 2005 12 09 | 704 | 0.4− | 0.2+ | 2009 10 15 | 703 | 0.1+ | 0.7+ |
| 2002 02 08 | 644 | 0.6+ | 0.9+ | 2005 12 27 | 704 | 0.1+ | 0.2+ | 2009 10 24 | 704 | 1.0+ | 1.0+ |
| 2002 02 08 | 644 | 0.6+ | 0.8+ | 2005 12 27 | 704 | 0.4− | 0.1+ | 2009 10 24 | 704 | 0.3− | 0.3− |
| 2002 02 08 | 644 | 0.3+ | 1.2+ | 2005 12 27 | 704 | 0.3− | 0.0 | 2009 10 24 | 704 | 0.1− | 0.6+ |
| 2003 06 01 | 807 | 0.0 | 0.5+ | 2005 12 30 | 704 | 1.5− | 0.8− | 2009 10 24 | 704 | 0.5+ | 0.8+ |
| 2003 06 01 | 807 | 0.2+ | 0.5+ | 2005 12 30 | 704 | 1.4− | 0.4+ | 2009 12 16 | G96 | 0.0 | 0.0 |
| 2003 06 02 | 807 | 0.1+ | 0.3+ | 2005 12 30 | 704 | (2.0− | 1.4−) | 2009 12 16 | G96 | 0.4− | 0.3− |
| 2003 06 02 | 807 | 0.4− | 0.4+ | 2005 12 30 | 704 | 1.4− | 1.1− | 2009 12 16 | G96 | 0.2− | 0.0 |
| 2005 11 30 | 704 | 0.6+ | 0.1− | 2005 12 30 | 704 | (1.2− | 1.7−) | 2009 12 16 | G96 | 0.5+ | 0.3− |
| 2005 11 30 | 704 | 0.3+ | 0.2+ | 2006 01 03 | 704 | 0.4+ | 0.3+ | | | | |

**(229521)∗ 2005 WG$_{195}$**

Discovered 2005 Nov. 30 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 42.23989 | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.24552825 | $\omega$ | 151.67094 | | +0.95239790 | | −0.29287122 | |
| $a$ | 2.5258161 | $\Omega$ | 225.62447 | | +0.25255534 | | +0.91348741 | |
| $e$ | 0.2907630 | $i$ | 6.80102 | | +0.17074553 | | +0.28243088 | |
| $P$ | 4.01 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 1 | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 06 22 | 691 | 0.1− | 0.6+ | 2006 01 03 | 704 | 0.2− | 0.2+ | 2009 11 20 | 704 | 0.4+ | 0.3− |
| 2004 06 22 | 691 | 0.8+ | 0.5+ | 2006 01 03 | 704 | 0.1+ | 0.7+ | 2009 11 20 | 704 | 0.4− | 0.2+ |
| 2004 06 22 | 691 | 0.0 | 0.5+ | 2006 01 03 | 704 | 0.1− | 1.2+ | 2009 11 20 | 704 | 0.1+ | 0.6− |
| 2005 11 30 | 704 | 0.6+ | 0.1− | 2006 01 03 | 704 | 0.4+ | 1.0+ | 2009 12 12 | 704 | 1.1− | 0.3− |
| 2005 11 30 | 704 | 0.4+ | 0.4− | 2006 01 03 | 704 | 0.3+ | 1.0+ | 2009 12 12 | 704 | 0.1+ | 0.4+ |
| 2005 11 30 | 704 | 0.4+ | 0.4− | 2008 05 14 | G96 | 0.0 | 0.1− | 2009 12 12 | 704 | 0.5− | 0.5+ |
| 2005 11 30 | 704 | 0.3+ | 0.2+ | 2008 05 14 | G96 | 0.4− | 0.3+ | 2009 12 12 | 704 | 0.6+ | 0.4− |
| 2005 12 07 | 704 | 0.5+ | 1.3+ | 2008 05 14 | G96 | 0.3− | 0.1+ | 2009 12 12 | 704 | 0.4+ | 0.1− |
| 2005 12 07 | 704 | 0.2+ | 0.3+ | 2008 05 14 | G96 | 0.3− | 0.3+ | 2009 12 12 | 106 | 0.1+ | 0.6− |
| 2005 12 07 | 704 | 0.2− | 0.8+ | 2008 05 27 | G96 | 0.3− | 0.5+ | 2009 12 12 | 106 | 0.4− | 0.5− |
| 2005 12 07 | 704 | 0.3+ | 0.4+ | 2008 05 27 | G96 | 0.7− | 1.0+ | 2009 12 12 | 106 | 0.1+ | 0.9+ |
| 2005 12 21 | 703 | 0.6− | 0.7− | 2008 05 27 | G96 | (0.6− | 1.6+) | 2009 12 12 | 106 | 0.2+ | 0.0 |
| 2005 12 21 | 703 | 0.0 | 0.7− | 2008 05 27 | G96 | 0.0 | 0.4+ | 2009 12 12 | 106 | 0.3− | 0.4− |
| 2005 12 21 | 703 | 0.1+ | 1.0− | 2009 08 10 | 291 | 0.3− | 0.3+ | 2009 12 12 | 106 | 0.4+ | 0.2− |
| 2005 12 21 | 703 | 0.5+ | 0.7− | 2009 08 10 | 291 | 0.1− | 0.4+ | 2009 12 12 | 106 | 0.5+ | 0.2+ |
| 2005 12 30 | 704 | 1.3− | 0.7+ | 2009 08 10 | 291 | 0.1− | 0.4+ | 2009 12 12 | 106 | 0.1+ | 0.2+ |
| 2005 12 30 | 704 | 1.0− | 1.4+ | 2009 11 18 | 704 | 0.6+ | 0.1+ | 2009 12 17 | G96 | 0.3+ | 0.4− |
| 2005 12 30 | 704 | 1.2− | 1.1+ | 2009 11 18 | 704 | 0.0 | 0.5+ | 2009 12 17 | G96 | 0.2+ | 0.4− |
| 2005 12 30 | 704 | 0.0 | 0.4+ | 2009 11 18 | 704 | 0.4+ | 0.8+ | 2009 12 17 | G96 | 0.2+ | 0.4− |
| 2005 12 30 | 704 | 0.4− | 0.4+ | 2009 11 18 | 704 | 0.2− | 0.0 | 2009 12 17 | G96 | 0.1− | 0.4− |

**(229522)∗ 2005 XQ$_2$ = 2009 VY$_3$**

Discovered 2005 Dec. 1 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 165487)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 68.75741 | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.23521759 | $\omega$ | 311.08734 | | +0.93328449 | | +0.35576816 | |
| $a$ | 2.5990992 | $\Omega$ | 28.17516 | | −0.29040072 | | +0.82798594 | |
| $e$ | 0.1442423 | $i$ | 5.96673 | | −0.21129952 | | +0.43343777 | |
| $P$ | 4.19 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 2 | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 03 26 | 644 | 0.5+ | 0.3− | 2009 09 21 | G96 | 0.6+ | 0.2+ | 2009 11 14 | J75 | 0.1− | 0.8+ |
| 2003 03 26 | 644 | 0.6+ | 0.2− | 2009 09 21 | G96 | 0.0 | 0.5+ | 2009 11 14 | J75 | 0.9+ | 0.1− |
| 2003 03 26 | 644 | 0.5+ | 0.2− | 2009 10 24 | 691 | 0.4− | 0.4+ | 2009 11 14 | J75 | 0.2+ | 0.6+ |
| 2003 04 05 | 691 | 0.0 | 1.2+ | 2009 10 24 | 691 | 0.4− | 0.4+ | 2009 11 15 | 703 | 0.9+ | 0.2− |
| 2003 04 05 | 691 | 0.3+ | 0.8+ | 2009 10 24 | 691 | 0.4− | 0.2+ | 2009 11 15 | 703 | 0.4+ | 0.0 |
| 2003 04 05 | 691 | 0.7+ | 0.9+ | 2009 11 08 | 691 | 0.0 | 1.0− | 2009 11 15 | 703 | 0.0 | 0.7− |
| 2005 12 01 | 691 | 0.1− | 0.2− | 2009 11 08 | 691 | 0.1− | 0.2+ | 2009 11 15 | 703 | (1.9− | 0.7+) |
| 2005 12 01 | 691 | 0.1− | 0.5− | 2009 11 08 | 691 | 0.1− | 0.2+ | 2009 11 17 | 704 | 0.2− | 0.5+ |
| 2005 12 01 | 691 | 0.2+ | 0.4− | 2009 11 08 | 703 | 0.4− | 0.2− | 2009 11 17 | 704 | 0.2− | 0.8+ |
| 2005 12 02 | 704 | 0.2− | 0.3+ | 2009 11 08 | 703 | 0.3− | 0.9+ | 2009 11 17 | 704 | 0.3− | 1.4+ |
| 2005 12 02 | 704 | 0.9+ | 1.0+ | 2009 11 08 | 703 | 0.2− | 1.0+ | 2009 11 17 | 704 | 0.6− | 1.4+ |
| 2005 12 02 | 704 | 0.5+ | 0.2+ | 2009 11 08 | 703 | 0.1− | 0.3+ | 2009 11 21 | 691 | 0.2− | 0.3+ |
| 2005 12 02 | 704 | 0.4− | 0.3+ | 2009 11 10 | G96 | 0.1+ | 0.1− | 2009 11 21 | 691 | 0.1+ | 0.2+ |
| 2005 12 02 | 704 | 0.1+ | 0.1− | 2009 11 10 | G96 | 0.2+ | 0.1+ | 2009 11 21 | 691 | 0.1+ | 0.3+ |
| 2005 12 05 | 691 | 0.0 | 0.5− | 2009 11 10 | G96 | 0.3+ | 0.2+ | 2009 12 11 | J75 | 0.1− | 0.2+ |
| 2005 12 05 | 691 | 0.1+ | 0.2− | 2009 11 10 | G96 | 0.5+ | 0.0 | 2009 12 11 | J75 | 0.3+ | 0.4+ |
| 2005 12 05 | 691 | 0.1+ | 0.4− | 2009 11 10 | J75 | 0.1− | 0.0 | 2009 12 11 | J75 | 0.3+ | 0.6− |
| 2007 02 25 | G96 | 0.4− | 1.1− | 2009 11 10 | J75 | 0.2− | 0.0 | 2009 12 11 | J75 | 0.1+ | 0.3− |
| 2007 02 25 | G96 | 0.1− | 0.7− | 2009 11 10 | J75 | 0.0 | 0.4− | 2009 12 11 | J75 | 0.1+ | 0.0 |
| 2007 02 25 | G96 | 0.3− | 0.9− | 2009 11 11 | G96 | 0.0 | 0.2− | 2009 12 11 | J75 | 0.0 | 0.2+ |
| 2007 02 25 | G96 | 0.4− | 0.8− | 2009 11 11 | G96 | 0.1+ | 0.2− | 2009 12 13 | 703 | 0.2+ | 0.4+ |
| 2007 03 14 | 621 | 0.2− | 0.9− | 2009 11 11 | G96 | 0.1− | 0.2− | 2009 12 13 | 703 | 0.1− | 1.0− |
| 2007 03 14 | 621 | 0.5− | 0.5− | 2009 11 11 | G96 | 0.1+ | 0.2− | 2009 12 13 | 703 | 1.4− | 0.7− |
| 2007 03 14 | 621 | 0.4− | 0.7− | 2009 11 11 | J75 | 0.3+ | 0.2+ | 2009 12 13 | 703 | 0.1− | 0.9− |
| 2009 09 21 | G96 | 0.1− | 0.3+ | 2009 11 11 | J75 | 0.1+ | 0.4+ | | | | |
| 2009 09 21 | G96 | 0.3+ | 0.4+ | 2009 11 11 | J75 | 0.3+ | 0.1+ | | | | |

**(229523)∗ 2005 XF$_7$**

Discovered 2005 Dec. 4 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 44.54842 | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.22223732 | $\omega$ | 276.86121 | | +0.93774616 | | +0.27394611 | |
| $a$ | 2.6993429 | $\Omega$ | 67.41760 | | −0.14779504 | | +0.87103128 | |
| $e$ | 0.0801957 | $i$ | 13.36993 | | −0.31430679 | | +0.40774752 | |
| $P$ | 4.43 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 0 | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 10 02 | 699 | 0.3+ | 1.4− | 2005 11 04 | 691 | 0.5+ | 0.0 | 2005 12 28 | G96 | 0.3+ | 0.2− |
| 2000 10 02 | 699 | 0.6− | 0.3+ | 2005 11 22 | 691 | 0.0 | 0.1+ | 2005 12 28 | G96 | 0.5+ | 0.1− |
| 2000 10 02 | 699 | 0.1− | 0.0 | 2005 11 22 | 691 | 0.0 | 0.3+ | 2005 12 28 | G96 | 0.1− | 0.2− |
| 2000 10 02 | 699 | 0.6− | 1.7+ | 2005 11 22 | 691 | 0.1− | 0.1+ | 2005 12 28 | G96 | 0.1+ | 0.1+ |
| 2001 11 21 | 645 | 0.0 | 0.1− | 2005 11 29 | 704 | (0.0 | 1.8+) | 2006 01 07 | G96 | 0.2− | 0.2− |
| 2001 11 21 | 645 | 0.1− | 0.1− | 2005 11 29 | 704 | (6.7− | 3.4−) | 2006 01 07 | G96 | 0.1+ | 0.3− |
| 2001 12 19 | 644 | 0.1− | 0.4+ | 2005 11 29 | 704 | (2.9+ | 3.4−) | 2006 01 07 | G96 | 0.1− | 0.1− |
| 2001 12 19 | 644 | 0.3− | 0.7+ | 2005 11 29 | G96 | 0.2+ | 0.1− | 2006 01 07 | G96 | 0.3− | 0.3− |
| 2001 12 19 | 644 | 0.6+ | 0.3+ | 2005 11 29 | G96 | 0.0 | 0.1− | 2007 02 23 | 703 | 0.5+ | 0.4+ |
| 2002 01 14 | 644 | 0.0 | 0.4+ | 2005 11 29 | 704 | 0.1+ | 0.6− | 2007 02 23 | 703 | 1.0− | 0.2+ |
| 2002 01 14 | 644 | 0.1− | 0.1+ | 2005 11 29 | G96 | 0.2− | 0.2− | 2007 02 23 | 703 | 0.1− | 0.6− |
| 2002 01 14 | 644 | 0.2+ | 0.5+ | 2005 12 04 | 704 | 1.0− | 0.2+ | 2007 02 23 | 703 | 0.6− | 0.3+ |
| 2002 01 14 | 644 | 0.4+ | 0.5+ | 2005 12 04 | G96 | 0.1− | 0.2− | 2009 09 16 | 703 | 0.1− | 1.3+ |
| 2002 01 14 | 644 | 0.1+ | 0.4+ | 2005 12 04 | G96 | 0.5+ | 0.1− | 2009 09 16 | 703 | 0.5+ | 0.3+ |
| 2002 01 14 | 644 | 0.7+ | 0.5+ | 2005 12 04 | 704 | 0.7− | 0.4− | 2009 09 16 | 703 | 1.1+ | 0.7+ |
| 2003 04 01 | 645 | 0.1+ | 0.2+ | 2005 12 04 | G96 | 0.1− | 0.1− | 2009 09 16 | 703 | 0.4− | 1.1+ |
| 2003 04 01 | 645 | 0.2+ | 0.2+ | 2005 12 04 | G96 | 0.4+ | 0.3− | 2009 09 25 | 703 | 0.2− | 0.3− |
| 2005 10 29 | G96 | 0.2+ | 0.1− | 2005 12 04 | 704 | 0.1− | 0.6− | 2009 09 25 | 703 | 0.0 | 0.1+ |
| 2005 10 29 | G96 | 0.5+ | 0.0 | 2005 12 04 | 704 | 0.5+ | 0.3− | 2009 09 25 | 703 | 1.2− | 0.8+ |
| 2005 10 29 | G96 | 0.3+ | 0.2− | 2005 12 05 | 699 | 0.1− | 0.2− | 2009 09 25 | 703 | 0.1+ | 0.9− |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 29 | G96 | 1.5− | 0.3− | 2005 12 05 | 699 | (0.5+ | 2.1+) | 2009 12 16 | 291 | 0.5− | 0.5+ | | |
| 2005 11 04 | 691 | 0.4+ | 0.1+ | 2005 12 05 | 699 | 1.3− | 0.3− | 2009 12 16 | 291 | 0.5− | 0.4+ | | |
| 2005 11 04 | 691 | 0.3+ | 0.1+ | 2005 12 05 | 699 | 0.4+ | 1.0+ | 2009 12 16 | 291 | 0.6− | 0.6+ | | |

**(229524)∗ 2005 XG$_{11}$ = 1984 BV$_1$**

Discovered 2005 Dec. 1 by Spacewatch at Kitt Peak.

Id. T. B. Spahr (*MPO* 158038)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 343.70350 | | (2000.0) | | −0.81065918 | −0.58277670 |
| $n$ | 0.26597571 | $\omega$ | 30.60286 | | +0.52391599 | −0.76513004 |
| $a$ | 2.3946464 | $\Omega$ | 113.64480 | | +0.26142635 | −0.27376512 |
| $e$ | 0.1444269 | $i$ | 3.54210 | | | |
| $P$ | 3.71 | $H$ | 16.6 | $G$ 0.15 | $U$ 1 | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1984 01 25 | 675 | 0.5− | 0.4+ | 2005 12 05 | 691 | 0.3+ | 0.1+ | 2006 02 20 | G96 | 0.0 | 0.1+ | |
| 1984 01 26 | 675 | 0.1− | 0.5− | 2005 12 05 | 691 | 0.1− | 0.1+ | 2006 02 20 | G96 | 0.6+ | 0.3− | |
| 1999 02 18 | 699 | 0.0 | 0.0 | 2005 12 05 | 691 | 0.2+ | 0.0 | 2006 02 20 | G96 | 0.1+ | 0.0 | |
| 1999 02 18 | 699 | 1.1+ | 0.4+ | 2005 12 07 | 704 | 0.4+ | 1.3+ | 2008 09 23 | G96 | 0.3− | 0.3+ | |
| 1999 02 18 | 699 | 0.9+ | 0.8− | 2005 12 07 | 704 | 1.4+ | 0.5+ | 2008 09 23 | G96 | 0.0 | 0.3+ | |
| 2003 03 23 | 291 | 0.2− | 0.4+ | 2005 12 07 | 704 | 0.6− | 0.4− | 2008 09 23 | G96 | 0.0 | 0.7+ | |
| 2003 03 23 | 291 | 0.1− | 0.4+ | 2005 12 27 | 703 | (2.1− | 1.1+) | 2008 09 23 | G96 | 0.2+ | 0.5+ | |
| 2003 03 23 | 291 | 0.4− | 0.4+ | 2005 12 27 | G96 | 0.3− | 0.0 | 2009 11 21 | G96 | 0.3− | 0.7− | |
| 2003 04 27 | 699 | 0.6+ | 0.4− | 2005 12 27 | 703 | 0.6− | 0.6+ | 2009 11 21 | G96 | 0.5+ | 0.5− | |
| 2003 04 27 | 699 | 0.7+ | 0.6− | 2005 12 27 | G96 | 0.7+ | 1.1− | 2009 11 21 | G96 | 0.3− | 0.1− | |
| 2003 04 27 | 699 | 0.1− | 0.0 | 2005 12 27 | 703 | 0.5+ | 0.9− | 2009 11 21 | G96 | 0.3− | 0.1− | |
| 2003 04 27 | 699 | 1.3+ | 0.6− | 2005 12 27 | G96 | 0.1+ | 0.1− | 2009 12 17 | G96 | 0.6− | 0.2+ | |
| 2005 12 01 | 691 | 0.6− | 0.7+ | 2005 12 27 | G96 | 0.5− | 0.7− | 2009 12 17 | G96 | 0.1+ | 0.0 | |
| 2005 12 01 | 691 | 0.0 | 0.1+ | 2005 12 27 | 703 | 0.4− | 0.3− | 2009 12 17 | G96 | 0.2+ | 0.1− | |
| 2005 12 01 | 691 | 0.3− | 0.1− | 2006 02 20 | G96 | 0.1+ | 0.0 | 2009 12 17 | G96 | 0.2− | 0.1− | |

**(229525)∗ 2005 XY$_{14}$**

Discovered 2005 Dec. 1 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 288.34769 | | (2000.0) | | −0.89100393 | −0.42385536 |
| $n$ | 0.23021819 | $\omega$ | 274.14563 | | +0.45396028 | −0.83625511 |
| $a$ | 2.6365922 | $\Omega$ | 240.84600 | | −0.00566224 | −0.34788506 |
| $e$ | 0.1462035 | $i$ | 10.73445 | | | |
| $P$ | 4.28 | $H$ | 16.0 | $G$ 0.15 | $U$ 0 | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 01 10 | 644 | 0.4+ | 0.9+ | 2007 05 14 | 704 | 0.6+ | 0.2+ | 2009 11 22 | 703 | 0.1− | 0.7+ | |
| 2002 01 10 | 644 | 0.2+ | 0.8+ | 2007 05 14 | 704 | 0.6+ | 0.4− | 2009 11 23 | D29 | 0.1− | 0.3+ | |
| 2002 01 10 | 644 | 0.7+ | 0.8+ | 2007 06 14 | 691 | 0.2+ | 0.1− | 2009 11 23 | D29 | 0.1− | 0.8− | |
| 2002 02 15 | 704 | 0.5− | 0.4− | 2007 06 14 | 691 | 0.2− | 0.0 | 2009 11 23 | D29 | 0.4− | 0.7+ | |
| 2002 02 15 | 704 | 0.4− | 0.9+ | 2007 06 14 | 691 | 0.3− | 0.3+ | 2009 11 23 | D29 | 0.4+ | 0.2− | |
| 2002 02 15 | 704 | 0.4− | 0.6+ | 2008 07 29 | G96 | 0.2+ | 0.4+ | 2009 11 24 | G96 | 0.3+ | 0.0 | |
| 2002 02 15 | 704 | 1.0− | 0.1+ | 2008 07 29 | G96 | 0.3− | 0.4+ | 2009 11 24 | G96 | 0.0 | 0.1− | |
| 2002 02 15 | 704 | 1.3− | 0.9+ | 2008 07 29 | G96 | 0.2+ | 0.5+ | 2009 11 24 | G96 | 0.2+ | 0.0 | |
| 2005 12 01 | 691 | 0.1− | 0.2− | 2008 07 29 | G96 | 0.1+ | 0.7+ | 2009 11 24 | G96 | 0.1− | 0.2− | |
| 2005 12 01 | 691 | 0.1− | 0.3− | 2009 11 09 | 691 | 0.2+ | 0.2+ | 2009 11 25 | 691 | 0.0 | 0.2+ | |
| 2005 12 01 | 691 | 0.1+ | 0.1− | 2009 11 09 | 691 | 0.3− | 0.0 | 2009 11 25 | 691 | 0.2− | 0.0 | |
| 2005 12 05 | 691 | 0.3+ | 0.0 | 2009 11 09 | 691 | 0.2− | 0.1− | 2009 11 25 | 691 | 0.3− | 0.1+ | |
| 2005 12 05 | 691 | 0.2+ | 0.2− | 2009 11 10 | J75 | 0.9− | 0.4− | 2009 11 26 | G96 | 0.2+ | 0.2− | |
| 2005 12 05 | 691 | 0.2+ | 0.2− | 2009 11 10 | J75 | 0.6+ | 0.2− | 2009 11 26 | G96 | 0.1− | 0.1− | |
| 2005 12 08 | 691 | 0.3+ | 0.3− | 2009 11 10 | J75 | 0.5− | 0.6− | 2009 11 26 | G96 | 0.0 | 0.0 | |
| 2005 12 08 | 691 | 0.4+ | 0.1− | 2009 11 11 | J75 | 0.2+ | 0.7− | 2009 11 26 | G96 | 0.2+ | 0.1− | |
| 2005 12 08 | 691 | 0.2+ | 0.2− | 2009 11 11 | J75 | 0.1− | 0.1+ | 2009 11 26 | G96 | 0.2− | 0.1− | |
| 2006 01 03 | 704 | 0.1− | 0.2+ | 2009 11 11 | J75 | 0.8+ | 0.1− | 2009 11 27 | 691 | 0.1− | 0.4+ | |
| 2006 01 03 | 704 | 0.1+ | 0.7− | 2009 11 14 | J75 | 0.1− | 0.0 | 2009 11 27 | 691 | 0.6− | 0.4+ | |
| 2006 01 03 | 704 | 0.3+ | 0.2+ | 2009 11 14 | J75 | 0.5− | 0.4− | 2009 11 27 | 691 | 0.5− | 0.2+ | |
| 2006 01 03 | 704 | 1.3+ | 0.6+ | 2009 11 14 | J75 | (1.9+ | 0.7−) | 2009 12 12 | 704 | 0.4+ | 0.8+ | |
| 2007 04 21 | 807 | 0.4+ | 0.3+ | 2009 11 22 | 703 | 0.3+ | 0.1+ | 2009 12 12 | 704 | 0.0 | 1.0+ | |
| 2007 04 21 | 807 | 0.3+ | 0.2+ | 2009 11 22 | 703 | 0.0 | 0.8− | 2009 12 12 | 704 | 0.1+ | 0.8+ | |
| 2007 05 14 | 704 | 0.2+ | 0.6+ | 2009 11 22 | 703 | 0.5+ | 0.4− | | | | | |

**(229526)∗ 2005 XK$_{21}$ = 2003 GL$_{30}$**

Discovered 2005 Dec. 2 by Spacewatch at Kitt Peak.

Id. A. Doppler (*MPO* 101159)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 36.83319 | | (2000.0) | | +0.79944379 | −0.58783531 |
| $n$ | 0.24385104 | $\omega$ | 342.92009 | | +0.56755851 | +0.67148951 |
| $a$ | 2.5373847 | $\Omega$ | 53.73399 | | +0.19689327 | +0.45116680 |
| $e$ | 0.1354677 | $i$ | 8.83613 | | | |
| $P$ | 4.04 | $H$ | 16.4 | $G$ 0.15 | $U$ 2 | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 04 23 | 691 | 0.3− | 0.3− | 2005 12 24 | 704 | 0.6− | 0.5− | 2009 11 09 | 691 | 0.4− | 0.2− | |
| 1995 04 23 | 691 | 0.1− | 0.4− | 2005 12 24 | 704 | 0.6+ | 1.0+ | 2009 11 09 | 691 | 0.4− | 0.0 | |
| 1995 04 23 | 691 | 0.2+ | 0.3− | 2005 12 24 | 704 | 0.4− | 0.3− | 2009 11 09 | G96 | 0.2− | 0.1+ | |
| 2001 12 17 | 704 | 0.1− | 0.3+ | 2005 12 24 | 704 | 1.0− | 0.1− | 2009 11 09 | G96 | 0.3− | 0.3− | |
| 2001 12 17 | 704 | 0.2− | 0.8− | 2005 12 24 | 704 | 0.1+ | 0.5− | 2009 11 09 | G96 | 0.4− | 0.0 | |
| 2001 12 17 | 704 | 0.7− | 0.6− | 2007 03 19 | G96 | 0.1− | 0.1− | 2009 11 09 | G96 | 0.5− | 0.1+ | |
| 2003 04 08 | 291 | 0.2− | 0.4+ | 2007 03 19 | G96 | 0.1− | 0.4− | 2009 11 22 | 704 | 0.7+ | 0.7− | |
| 2003 04 08 | 291 | 0.2+ | 0.3+ | 2007 03 19 | G96 | 0.3− | 0.2− | 2009 11 22 | 704 | 0.0 | 0.2+ | |
| 2003 04 08 | 291 | 0.3− | 0.4+ | 2007 03 19 | G96 | 0.3− | 0.4− | 2009 11 22 | 704 | 0.1+ | 0.2+ | |
| 2003 04 09 | 291 | 0.1− | 0.1+ | 2007 05 22 | G96 | 0.2+ | 0.0 | 2009 11 22 | 704 | 0.5+ | 0.4+ | |
| 2003 04 09 | 291 | 0.1+ | 0.2+ | 2007 05 22 | G96 | 0.1+ | 0.5− | 2009 12 08 | J75 | 1.0+ | 0.9− | |
| 2003 04 09 | 291 | 0.4+ | 0.0 | 2007 05 22 | G96 | 0.5+ | 0.4− | 2009 12 08 | J75 | 0.3+ | 0.2− | |
| 2005 12 02 | 691 | 0.1+ | 0.2− | 2007 05 22 | G96 | 0.3+ | 0.1− | 2009 12 08 | J75 | 0.3− | 0.5+ | |
| 2005 12 02 | 691 | 0.0 | 0.0 | 2009 09 22 | G96 | 0.1+ | 0.0 | 2009 12 10 | 704 | (1.5+ | 1.5+) | |
| 2005 12 02 | 691 | 0.3+ | 0.2− | 2009 09 22 | G96 | 0.3− | 0.1+ | 2009 12 10 | 704 | 0.2+ | 0.1+ | |
| 2005 12 02 | 704 | 0.1+ | 0.2− | 2009 09 22 | G96 | 0.2+ | 0.0 | 2009 12 10 | 704 | 1.0+ | 0.4+ | |
| 2005 12 02 | 704 | 0.0 | 1.4+ | 2009 09 22 | G96 | 0.1+ | 0.0 | 2009 12 10 | 704 | 0.6+ | 0.4+ | |
| 2005 12 02 | 704 | (2.4+ | 0.3−) | 2009 09 30 | G96 | 0.0 | 0.1− | 2009 12 10 | 704 | 1.4+ | 1.0− | |
| 2005 12 02 | 704 | 0.6+ | 0.4+ | 2009 09 30 | G96 | 0.2− | 0.0 | 2009 12 15 | 704 | (0.4+ | 1.8+) | |
| 2005 12 05 | 704 | 0.4+ | 0.2+ | 2009 09 30 | G96 | 0.3− | 0.1− | 2009 12 15 | 704 | (1.1+ | 1.9+) | |
| 2005 12 05 | 704 | 0.5− | 0.8+ | 2009 09 30 | G96 | 0.6− | 0.3− | 2009 12 15 | 704 | 0.1− | 1.4+ | |
| 2005 12 05 | 704 | 0.6+ | 0.2+ | 2009 11 09 | 691 | 0.4− | 0.2− | 2009 12 15 | 704 | 0.4+ | 0.7+ | |

**(229527)∗ 2005 XN$_{24}$**

Discovered 2005 Dec. 2 by the Mt. Lemmon Survey at Mount Lemmon.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 220.85142 | | (2000.0) | | −0.12631335 | +0.97828545 |
| $n$ | 0.25647666 | $\omega$ | 165.01258 | | −0.92633390 | −0.05706004 |
| $a$ | 2.4534139 | $\Omega$ | 97.52593 | | −0.35489498 | −0.19925293 |
| $e$ | 0.1342066 | $i$ | 9.54094 | | | |
| $P$ | 3.84 | $H$ | 16.6 | $G$ 0.15 | $U$ 1 | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 04 01 | 645 | 0.0 | 0.0 | 2005 12 05 | 691 | 0.1− | 0.1+ | 2007 06 08 | 703 | 1.3− | 0.9+ | |
| 2003 04 01 | 645 | 0.0 | 0.0 | 2005 12 30 | 691 | 0.3− | 0.1+ | 2007 06 08 | 703 | 0.8− | 0.9+ | |
| 2003 04 04 | 699 | (0.8− | 1.6+) | 2005 12 30 | 691 | 0.2+ | 0.3+ | 2007 06 08 | 703 | 0.3− | 0.9+ | |
| 2003 04 04 | 699 | (1.9− | 0.6+) | 2005 12 30 | 691 | 0.2+ | 0.1+ | 2007 06 08 | 703 | 1.2+ | 0.7+ | |
| 2003 04 04 | 699 | (0.7+ | 2.5+) | 2006 01 05 | 691 | 0.2− | 0.0 | 2008 09 04 | 291 | 0.0 | 0.5+ | |
| 2003 04 04 | 699 | (1.3+ | 2.0+) | 2006 01 05 | 691 | 0.2+ | 0.6− | 2008 09 04 | 291 | 0.7− | 0.7+ | |
| 2003 04 09 | 704 | 1.2+ | 0.6+ | 2006 01 05 | 691 | 0.3− | 0.1+ | 2008 09 04 | 291 | 0.1− | 0.4+ | |
| 2003 04 09 | 704 | 0.5+ | 1.4+ | 2007 04 22 | 703 | 0.5+ | 0.4+ | 2008 10 27 | G96 | 0.3+ | 0.3+ | |
| 2003 04 09 | 704 | 0.5+ | 0.0 | 2007 04 22 | 703 | 0.4+ | 0.2+ | 2008 10 27 | G96 | 0.5+ | 0.1+ | |
| 2003 04 09 | 704 | 1.2+ | 0.1− | 2007 04 22 | 703 | 0.3+ | 0.6+ | 2008 10 27 | G96 | 0.0 | 0.0 | |
| 2003 04 09 | 704 | 0.3− | 0.3+ | 2007 04 22 | 703 | 0.9− | 0.1− | 2008 10 27 | G96 | 0.3− | 0.1+ | |
| 2003 04 28 | 645 | 0.0 | 0.0 | 2007 05 09 | 703 | 0.6− | 0.5+ | 2009 11 16 | G96 | 0.5+ | 0.1− | |
| 2003 04 28 | 645 | 0.0 | 0.0 | 2007 05 09 | 703 | 0.4− | 0.2− | 2009 11 16 | G96 | 0.4+ | 0.7− | |
| 2003 04 28 | 699 | 0.2− | 1.3− | 2007 05 09 | 703 | 0.2− | 0.0 | 2009 11 16 | G96 | 0.4+ | 0.0 | |
| 2003 04 28 | 699 | 1.2+ | 0.6+ | 2007 05 09 | 703 | 0.5− | 0.3− | 2009 11 16 | G96 | 0.3+ | 0.4− | |
| 2003 04 28 | 699 | 0.1− | 0.6− | 2007 05 15 | G96 | 0.6+ | 0.3− | 2009 12 17 | G96 | 0.1+ | 0.3− | |
| 2003 04 28 | 699 | (1.5− | 0.2−) | 2007 05 15 | G96 | 0.7+ | 0.3− | 2009 12 17 | G96 | 0.1− | 0.2+ | |
| 2005 12 02 | G96 | 0.5− | 0.4− | 2007 05 15 | G96 | 0.7+ | 0.3− | 2009 12 17 | G96 | 0.3+ | 0.4− | |
| 2005 12 02 | G96 | 0.1− | 0.6− | 2007 05 15 | G96 | 0.9+ | 0.2− | 2009 12 17 | G96 | 0.2− | 0.5+ | |
| 2005 12 02 | G96 | 0.2− | 0.8− | 2007 05 24 | 703 | 0.5− | 0.1+ | 2009 12 26 | 691 | 0.0 | 0.0 | |
| 2005 12 02 | G96 | 0.5− | 0.5− | 2007 05 24 | 703 | 0.5− | 0.3+ | 2009 12 26 | 691 | 0.1+ | 0.1− | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 05 | 691 | 0.1+ | 0.3+ | 2007 05 24 | 703 | 0.6+ | 0.6+ | 2009 12 26 | 691 | 0.2+ | 0.7+ | | |
| 2005 12 05 | 691 | 0.0 | 0.4+ | 2007 05 24 | 703 | 0.0 | 0.2− | | | | | | |

**(229528)∗ 2005 XK$_{38}$**

Discovered 2005 Dec. 4 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 352.78837 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22286642 | $\omega$ | 326.52145 | | −0.46879568 | −0.88302462 | |
| $a$ | 2.6942608 | $\Omega$ | 151.41607 | | +0.82030991 | −0.44459377 | |
| $e$ | 0.1519446 | $i$ | 2.67376 | | +0.32760076 | −0.15034595 | |
| $P$ | 4.42 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 10 20 | 691 | 0.1+ | 0.1− | 2006 03 02 | 691 | 0.2+ | 0.0 | 2008 09 07 | A50 | 0.6− | 0.9− | | |
| 1995 10 20 | 691 | 0.5− | 0.2+ | 2006 03 02 | 691 | 0.0 | 0.3+ | 2008 09 07 | A50 | 0.1− | 0.2+ | | |
| 1995 10 20 | 691 | 0.2− | 0.1+ | 2006 03 02 | 691 | 0.1+ | 0.2+ | 2008 09 07 | A50 | 0.4+ | 0.2− | | |
| 1997 02 14 | 327 | 0.6− | 0.2− | 2006 03 23 | 703 | 0.5+ | 0.5+ | 2008 09 22 | G96 | 0.4− | 0.7+ | | |
| 1997 02 14 | 327 | 0.9+ | 0.2+ | 2006 03 23 | 703 | 0.1− | 0.6+ | 2008 09 22 | G96 | 0.3− | 0.3+ | | |
| 1997 02 14 | 327 | 0.6+ | 0.0 | 2006 03 23 | 703 | (0.0 | 2.3+) | 2008 09 22 | G96 | 0.1+ | 0.4+ | | |
| 2002 04 03 | 291 | 0.2+ | 0.6+ | 2006 03 23 | 703 | 0.5− | 0.8+ | 2008 09 22 | G96 | 0.2− | 0.4+ | | |
| 2002 04 03 | 291 | 0.2− | 0.3+ | 2006 03 24 | 699 | 0.6+ | 0.5+ | 2008 09 23 | G96 | 0.0 | 0.1+ | | |
| 2002 04 03 | 291 | 0.1− | 0.7+ | 2006 03 24 | 699 | 0.5− | 0.5− | 2008 09 23 | G96 | 0.2− | 0.1+ | | |
| 2004 10 07 | 691 | 0.2− | 0.6+ | 2006 03 24 | 699 | 0.3+ | 1.0+ | 2008 09 23 | G96 | 0.1− | 0.2+ | | |
| 2004 10 07 | 691 | 0.1− | 0.8+ | 2006 03 24 | 699 | (0.4− | 1.5+) | 2008 09 23 | G96 | 0.2− | 0.4+ | | |
| 2004 10 07 | 691 | 0.2− | 0.5+ | 2006 03 26 | G96 | 0.1+ | 0.1+ | 2009 11 19 | G96 | 0.7+ | 0.8− | | |
| 2005 12 04 | 691 | 0.3+ | 0.0 | 2006 03 26 | G96 | 0.2− | 0.0 | 2009 11 19 | G96 | 0.4+ | 0.1− | | |
| 2005 12 04 | 691 | 0.3+ | 0.1− | 2006 03 26 | G96 | 0.2+ | 0.0 | 2009 11 19 | G96 | 0.1+ | 0.5− | | |
| 2005 12 04 | 691 | 0.7+ | 0.5− | 2006 03 26 | G96 | 0.2− | 0.1+ | 2009 11 19 | G96 | 0.4+ | 0.5− | | |
| 2005 12 08 | 691 | 0.4− | 0.2− | 2006 03 26 | G96 | 0.1− | 0.2− | 2009 12 17 | 704 | 1.1+ | 0.6+ | | |
| 2005 12 08 | 691 | 0.0 | 0.1− | 2006 03 26 | G96 | 0.4− | 0.1− | 2009 12 17 | 704 | (1.8+ | 1.4+) | | |
| 2005 12 08 | 691 | 0.4+ | 0.3− | 2006 03 26 | G96 | 0.1− | 0.3− | 2009 12 17 | 704 | 0.7+ | 1.0+ | | |
| 2006 02 20 | 691 | 0.1− | 0.1+ | 2008 09 03 | A50 | 0.2− | 0.1+ | 2009 12 17 | G96 | 0.2+ | 0.0 | | |
| 2006 02 20 | 691 | 0.1+ | 0.1+ | 2008 09 03 | A50 | 0.4− | 0.3+ | 2009 12 17 | 704 | 0.5+ | 1.0+ | | |
| 2006 02 20 | 691 | 0.2+ | 0.1+ | 2008 09 03 | A50 | 0.2+ | 0.8+ | 2009 12 17 | G96 | 0.3+ | 0.0 | | |
| 2006 02 24 | 691 | 0.6+ | 0.8+ | 2008 09 06 | G96 | 0.3+ | 0.5+ | 2009 12 17 | G96 | 0.0 | 0.1− | | |
| 2006 02 24 | 691 | 0.3− | 0.0 | 2008 09 06 | G96 | 0.3+ | 0.5+ | 2009 12 17 | F85 | 0.2− | 0.0 | | |
| 2006 02 24 | 691 | 0.0 | 0.3+ | 2008 09 06 | G96 | 0.0 | 0.4+ | 2009 12 17 | F85 | 0.2+ | 0.2− | | |
| 2006 02 25 | G96 | 0.4− | 0.1− | 2008 09 06 | G96 | 0.0 | 0.5+ | 2009 12 17 | F85 | 0.3− | 0.2+ | | |
| 2006 02 25 | G96 | 0.6− | 0.0 | 2008 09 06 | G96 | 0.5+ | 0.5+ | 2009 12 18 | 691 | 0.1− | 0.1+ | | |
| 2006 02 25 | G96 | 0.1− | 0.2− | 2008 09 06 | G96 | 0.5+ | 0.4+ | 2009 12 18 | 691 | 0.3− | 0.2− | | |
| 2006 02 25 | G96 | 0.4− | 0.0 | 2008 09 06 | G96 | 0.0 | 0.4+ | 2009 12 18 | 691 | 0.1− | 0.1− | | |
| 2006 02 27 | 704 | 0.9+ | 1.4+ | 2008 09 06 | G96 | 0.4+ | 0.2+ | 2009 12 26 | 691 | 0.0 | 0.0 | | |
| 2006 02 27 | 704 | (0.7+ | 2.3+) | 2008 09 07 | A50 | 0.6− | 0.1− | 2009 12 26 | 691 | 0.3− | 0.1+ | | |
| 2006 02 27 | 704 | (0.5+ | 1.6+) | 2008 09 07 | A50 | 0.1− | 0.7+ | 2009 12 26 | 691 | 0.8− | 0.2− | | |

**(229529)∗ 2005 XO$_{43}$**

Discovered 2005 Dec. 2 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 93.36037 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21676357 | $\omega$ | 285.79054 | | +0.52074438 | +0.85360553 | |
| $a$ | 2.7445966 | $\Omega$ | 15.61361 | | −0.76277678 | +0.47233134 | |
| $e$ | 0.0326465 | $i$ | 2.88005 | | −0.38340170 | +0.21968319 | |
| $P$ | 4.55 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 10 01 | 691 | 0.1+ | 0.2+ | 2005 12 30 | G96 | 0.5− | 0.7− | 2009 09 27 | 691 | 0.2− | 0.2+ | | |
| 1995 10 01 | 691 | 0.0 | 0.2+ | 2005 12 30 | G96 | 0.2− | 0.7− | 2009 09 27 | 691 | 0.1− | 0.2+ | | |
| 1995 10 01 | 691 | 0.5− | 0.4+ | 2005 12 30 | G96 | 0.6+ | 1.0− | 2009 09 27 | 691 | 0.0 | 0.2+ | | |
| 2005 11 06 | G96 | 0.0 | 0.0 | 2005 12 30 | G96 | 0.0 | 0.2− | 2009 10 21 | G96 | 0.2+ | 0.0 | | |
| 2005 11 06 | G96 | 0.5− | 0.1− | 2007 02 21 | 691 | 0.3− | 0.0 | 2009 10 21 | G96 | 0.0 | 0.7− | | |
| 2005 11 06 | G96 | 0.1+ | 0.5− | 2007 02 21 | 691 | 0.0 | 0.1+ | 2009 10 21 | G96 | 0.1+ | 0.8− | | |
| 2005 11 06 | G96 | 0.2+ | 0.2− | 2007 02 21 | 691 | 0.1+ | 0.1+ | 2009 10 21 | G96 | 0.7− | 0.3+ | | |
| 2005 12 02 | 691 | 0.5+ | 0.4+ | 2007 03 10 | 691 | 0.0 | 0.7+ | 2009 10 27 | G96 | 0.6+ | 0.1− | | |
| 2005 12 02 | 691 | 0.5− | 0.2+ | 2007 03 10 | 691 | 0.0 | 0.2+ | 2009 10 27 | G96 | 0.7+ | 0.2− | | |
| 2005 12 02 | 691 | 0.3+ | 0.2+ | 2007 03 10 | 691 | 0.1+ | 0.1+ | 2009 10 27 | G96 | 0.3+ | 0.3− | | |
| 2005 12 06 | 691 | 0.1− | 0.0 | 2007 03 10 | G96 | 1.0+ | 0.3+ | 2009 10 27 | G96 | 0.4+ | 0.0 | | |
| 2005 12 06 | 691 | 0.1− | 0.1+ | 2007 03 10 | G96 | 1.1+ | 0.2− | 2009 12 10 | G96 | 0.1− | 0.3− | | |
| 2005 12 06 | 691 | 0.0 | 0.0 | 2007 03 10 | G96 | 0.5+ | 0.2− | 2009 12 10 | G96 | 0.1+ | 0.4− | | |
| 2005 12 10 | 691 | 0.1− | 0.3− | 2009 09 15 | 691 | 0.1+ | 0.0 | 2009 12 10 | G96 | 0.3+ | 0.5− | | |
| 2005 12 10 | 691 | 0.0 | 0.4− | 2009 09 15 | 691 | 0.4− | 0.2+ | 2009 12 10 | G96 | 0.4+ | 0.1− | | |
| 2005 12 10 | 691 | 0.0 | 0.5+ | 2009 09 15 | 691 | 0.1− | 0.2+ | | | | | | |

**(229530)∗ 2005 XT$_{65}$**

Discovered 2005 Dec. 5 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 50.72032 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23620755 | $\omega$ | 112.76472 | | +0.86781828 | −0.25590245 | |
| $a$ | 2.5918321 | $\Omega$ | 264.27048 | | +0.11990690 | +0.93970215 | |
| $e$ | 0.1252770 | $i$ | 25.34422 | | +0.48219682 | +0.22687841 | |
| $P$ | 4.17 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 11 17 | 704 | 0.2− | 0.6+ | 2005 12 09 | 704 | 0.7+ | 0.6+ | 2009 11 16 | 704 | 1.0− | 0.4+ | | |
| 2001 11 17 | 704 | 0.2+ | 0.2− | 2005 12 09 | 704 | 0.3− | 1.2+ | 2009 11 16 | 704 | 0.3− | 0.0 | | |
| 2001 11 17 | 704 | 0.6− | 0.0 | 2005 12 09 | 704 | 0.8− | 1.0+ | 2009 11 16 | 704 | 0.7− | 0.1− | | |
| 2001 11 20 | 291 | 0.1+ | 0.3+ | 2005 12 09 | 704 | 0.2− | 0.9+ | 2009 11 23 | 704 | 0.2+ | 0.3− | | |
| 2001 11 20 | 291 | 0.0 | 0.1+ | 2005 12 22 | 691 | 0.0 | 0.0 | 2009 11 23 | 704 | 0.1+ | 0.1+ | | |
| 2001 11 20 | 291 | 0.1+ | 0.3+ | 2005 12 22 | 691 | 0.2− | 0.3− | 2009 11 23 | 704 | 0.4− | 0.1− | | |
| 2004 06 12 | 691 | 0.0 | 0.3+ | 2005 12 22 | 691 | 0.1+ | 0.0 | 2009 11 23 | 704 | 0.2− | 0.3+ | | |
| 2004 06 12 | 691 | 0.1− | 0.2+ | 2005 12 30 | 704 | 0.2− | 0.1+ | 2009 12 10 | 704 | (1.9+ | 0.7−) | | |
| 2004 06 12 | 691 | 0.2− | 0.3+ | 2005 12 30 | 704 | 0.3− | 0.2− | 2009 12 10 | 704 | 0.0 | 0.4+ | | |
| 2004 07 14 | 704 | (2.4− | 0.5+) | 2005 12 30 | 704 | 0.1− | 0.1− | 2009 12 10 | 704 | 0.6− | 0.5− | | |
| 2004 07 14 | 704 | 0.2− | 0.0 | 2005 12 30 | 704 | 0.1+ | 0.0 | 2009 12 10 | 704 | 0.1+ | 0.0 | | |
| 2004 07 14 | 704 | 0.4− | 1.0+ | 2005 12 30 | 704 | 0.8+ | 0.0 | 2009 12 10 | 704 | 0.3− | 0.0 | | |
| 2004 07 14 | 704 | 1.1− | 0.4+ | 2006 01 03 | 704 | 0.6+ | 0.3+ | 2009 12 15 | 704 | 0.3+ | 0.0 | | |
| 2005 11 29 | 704 | 0.4+ | 0.1− | 2006 01 03 | 704 | 0.0 | 0.3+ | 2009 12 15 | 704 | 0.6+ | 0.2+ | | |
| 2005 11 29 | 704 | 0.8+ | 0.6− | 2006 01 03 | 704 | 0.1− | 0.0 | 2009 12 15 | 704 | 0.7+ | 0.4+ | | |
| 2005 11 29 | 704 | 0.3− | 0.3− | 2009 11 12 | 114 | 0.0 | 0.4− | 2009 12 15 | 704 | 0.5+ | 0.3+ | | |
| 2005 12 05 | 691 | 0.1− | 0.0 | 2009 11 12 | 114 | 0.0 | 0.5− | 2009 12 17 | D25 | 0.8− | 0.0 | | |
| 2005 12 05 | 691 | 0.1+ | 0.0 | 2009 11 12 | 114 | 0.1+ | 0.5− | 2009 12 17 | D25 | 0.0 | 0.3+ | | |
| 2005 12 05 | 691 | 0.2− | 0.0 | 2009 11 12 | 114 | 0.5− | 0.5− | 2009 12 17 | D25 | 0.3− | 0.0 | | |
| 2005 12 05 | 691 | 0.1+ | 0.0 | 2009 11 12 | 114 | 0.1+ | 0.9− | 2009 12 18 | G96 | 0.2− | 0.5− | | |
| 2005 12 05 | 691 | 0.4+ | 0.2+ | 2009 11 13 | 114 | 0.1− | 0.7− | 2009 12 18 | G96 | 0.2− | 0.5− | | |
| 2005 12 05 | 691 | 0.5+ | 0.1+ | 2009 11 13 | 114 | 0.2− | 0.4− | 2009 12 18 | G96 | 0.2+ | 0.5− | | |
| 2005 12 08 | 691 | 0.8− | 0.6+ | 2009 11 13 | 114 | 0.8+ | 0.0 | 2009 12 18 | G96 | 0.0 | 0.5− | | |
| 2005 12 08 | 691 | 0.3+ | 0.1− | 2009 11 16 | 704 | 0.8− | 0.3+ | | | | | | |
| 2005 12 08 | 691 | 0.7+ | 0.3− | 2009 11 16 | 704 | 0.1− | 0.1+ | | | | | | |

**(229531)∗ 2005 XE$_{79}$**

Discovered 2005 Dec. 5 by the Catalina Sky Survey.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 334.44144 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23085789 | $\omega$ | 47.84135 | | −0.61597866 | −0.75209390 | |
| $a$ | 2.6317193 | $\Omega$ | 81.71582 | | +0.63474698 | −0.65005070 | |
| $e$ | 0.1195384 | $i$ | 13.69965 | | +0.46654749 | −0.10857647 | |
| $P$ | 4.27 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 27 | 645 | 0.0 | 0.0 | 2005 12 10 | 704 | 0.5+ | 0.0 | 2006 01 27 | 703 | 0.9− | 0.5+ | | |
| 2000 11 27 | 645 | 0.0 | 0.0 | 2005 12 10 | 704 | 0.1+ | 1.1− | 2006 01 27 | 703 | 1.0− | 0.7+ | | |
| 2002 01 23 | 704 | 1.2+ | 1.0− | 2005 12 10 | 704 | 0.6+ | 0.9− | 2006 01 27 | 703 | 0.4− | 0.2− | | |
| 2002 01 23 | 704 | 1.3+ | 0.2+ | 2005 12 24 | 703 | 1.0− | 0.5− | 2006 01 27 | 703 | 0.2− | 0.1+ | | |
| 2002 01 23 | 704 | 0.3+ | 1.0+ | 2005 12 24 | 703 | 0.6+ | 0.3+ | 2006 02 06 | 704 | 0.2− | 0.7+ | | |
| 2002 01 23 | 704 | 1.0+ | 0.6+ | 2005 12 24 | 703 | 0.9+ | 0.3− | 2006 02 06 | 704 | 0.4− | 0.0 | | |
| 2002 02 09 | 699 | 0.8+ | 0.5− | 2005 12 24 | 703 | 0.6+ | 0.4− | 2006 02 06 | 704 | 0.0 | 0.9+ | | |
| 2002 02 09 | 699 | 0.7+ | 1.2+ | 2005 12 24 | 703 | 0.4− | 0.0 | 2006 02 06 | 704 | 0.4+ | 0.1− | | |
| 2002 02 09 | 699 | 0.0 | 0.1− | 2005 12 24 | 703 | 1.1− | 0.2− | 2006 02 06 | 704 | 0.2+ | 0.2+ | | |
| 2002 02 09 | 699 | 0.4+ | 0.4+ | 2005 12 24 | 703 | 1.2− | 0.9+ | 2006 02 18 | 699 | 0.2− | 0.4− | | |
| 2002 02 21 | 704 | 0.2+ | 0.8+ | 2005 12 24 | 703 | (0.4− | 1.6+) | 2006 02 18 | 699 | 0.3− | 0.0 | | |
| 2002 02 21 | 704 | 0.3+ | 0.5− | 2005 12 25 | 703 | 0.9− | 0.1− | 2006 02 18 | 699 | 0.1+ | 0.2+ | | |
| 2002 02 21 | 704 | 1.4− | 0.0 | 2005 12 25 | 703 | 0.8− | 0.4+ | 2006 02 18 | 699 | 0.8− | 0.5− | | |
| 2002 02 21 | 704 | 1.0− | 1.0− | 2005 12 25 | 703 | 0.3+ | 0.8+ | 2006 02 24 | 699 | 0.5+ | 0.2− | | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 03 06 | 704 | 0.1+ | 0.6+ | 2005 12 25 | 703 | 0.5− | 0.4+ | 2006 02 24 | 699 | 1.1+ | 1.2− |
| 2002 03 06 | 704 | 0.2+ | 0.1− | 2006 01 02 | 703 | 0.2− | 0.4− | 2006 02 24 | 699 | 0.7− | 0.4+ |
| 2002 03 06 | 704 | 0.3− | 0.1+ | 2006 01 02 | 703 | 0.4− | 0.3+ | 2008 09 21 | E12 | 0.8− | 0.4+ |
| 2002 03 06 | 704 | 0.3− | 0.4− | 2006 01 02 | 703 | 0.0 | 0.1− | 2008 09 21 | E12 | 0.5− | 1.1+ |
| 2002 03 06 | 704 | 0.7+ | 1.1− | 2006 01 02 | 703 | 0.6− | 1.0− | 2008 09 21 | E12 | 1.0− | 0.8+ |
| 2002 03 16 | 699 | 0.6+ | 0.5+ | 2006 01 05 | 703 | 0.2− | 0.3+ | 2008 09 21 | E12 | (2.5− | 0.2+) |
| 2002 03 16 | 699 | 0.3+ | 0.7+ | 2006 01 05 | 703 | 0.4− | 0.4− | 2009 11 17 | 704 | 1.4+ | 0.3− |
| 2002 03 16 | 699 | 0.4− | 0.3+ | 2006 01 05 | 703 | 0.2− | 0.4+ | 2009 11 17 | 704 | 0.3+ | 0.0 |
| 2002 03 16 | 699 | (0.2− | 1.6+) | 2006 01 05 | 703 | 0.1− | 0.5− | 2009 11 17 | 704 | 0.0 | 0.4+ |
| 2002 03 21 | 704 | 0.4+ | 0.8− | 2006 01 06 | 704 | 0.4+ | 0.5+ | 2009 11 17 | 704 | 0.5+ | 0.2+ |
| 2002 03 21 | 704 | 0.3− | 0.1+ | 2006 01 06 | 704 | 0.1+ | 0.5+ | 2009 11 17 | 704 | 1.0+ | 0.3+ |
| 2002 03 21 | 704 | 0.5+ | 0.9− | 2006 01 06 | 704 | 0.0 | 0.2+ | 2009 12 10 | 704 | 0.1+ | 0.7+ |
| 2002 03 21 | 704 | 0.5− | 1.1− | 2006 01 06 | 704 | 0.0 | 0.7+ | 2009 12 10 | 704 | 0.2− | 0.1+ |
| 2002 03 21 | 704 | 0.6+ | 0.8− | 2006 01 06 | 704 | 0.3− | 0.3+ | 2009 12 10 | 704 | 0.5+ | 1.0+ |
| 2002 04 22 | 644 | 0.1− | 0.8+ | 2006 01 22 | 703 | 0.4− | 0.0 | 2009 12 10 | 704 | 0.7+ | 0.3+ |
| 2002 04 22 | 644 | 0.1+ | 0.2+ | 2006 01 22 | 703 | 0.6− | 0.4− | 2009 12 16 | 704 | 0.2− | 0.3− |
| 2002 04 22 | 644 | 0.4− | 0.4+ | 2006 01 22 | 703 | 0.4− | 0.5− | 2009 12 16 | 704 | 0.6− | 0.1− |
| 2005 12 05 | 703 | 0.6+ | 0.8− | 2006 01 22 | 703 | 0.5− | 0.3− | 2009 12 16 | 704 | 0.1− | 0.1− |
| 2005 12 05 | 703 | 0.2+ | 1.3+ | 2006 01 24 | 699 | 0.3+ | 0.1+ | 2009 12 16 | 704 | 0.6− | 0.1− |
| 2005 12 05 | 703 | 0.4+ | 0.5+ | 2006 01 24 | 699 | 0.5− | 0.5+ | 2009 12 16 | 704 | 1.7+ | 0.1+ |
| 2005 12 05 | 703 | 0.5+ | 0.2− | 2006 01 24 | 699 | 0.4+ | 0.1+ | | | | |

**(229532)∗ 2005 YN$_{26}$ = 2000 TO$_{27}$**

Discovered 2005 Dec. 24 by NEAT at Palomar.

Id. G. V. Williams (*MPO* 96683)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 358.02233 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22913151 | $\omega$ | 208.22155 | | +0.04456799 | −0.97999714 | |
| $a$ | 2.6449218 | $\Omega$ | 239.82166 | | +0.95359030 | +0.09960589 | |
| $e$ | 0.2353537 | $i$ | 12.96563 | | +0.29779057 | −0.17229125 | |
| $P$ | 4.30 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 10 03 | 704 | 0.7− | 1.0+ | 2006 03 04 | 703 | 0.1− | 0.2+ | 2009 11 19 | 691 | 0.4− | 0.0 |
| 2000 10 03 | 704 | 0.7− | 0.6+ | 2006 03 04 | 703 | 0.8+ | 0.4− | 2009 11 19 | 691 | 0.7− | 0.2− |
| 2000 10 03 | 704 | 0.0 | 0.8+ | 2006 03 04 | 703 | 0.0 | 0.7− | 2009 11 20 | A50 | 0.7+ | 0.6+ |
| 2000 10 04 | 704 | 0.5+ | 0.2+ | 2006 03 04 | 703 | 0.8− | 0.5+ | 2009 11 20 | A50 | 0.8+ | 0.4+ |
| 2000 10 04 | 704 | 0.1− | 1.5+ | 2007 05 25 | G96 | 0.0 | 0.2+ | 2009 11 21 | A50 | 0.8+ | 0.5+ |
| 2000 10 04 | 704 | 0.5− | 0.6− | 2007 05 25 | G96 | 0.3+ | 0.0 | 2009 11 21 | 704 | 0.2+ | 0.7+ |
| 2000 10 04 | 704 | 0.2+ | 0.2+ | 2007 05 25 | G96 | 0.4− | 0.1+ | 2009 11 21 | 704 | 0.1+ | 0.8+ |
| 2005 12 10 | 699 | 0.2− | 0.0 | 2007 05 25 | G96 | 0.3+ | 0.5− | 2009 11 21 | 704 | 0.3+ | 0.1+ |
| 2005 12 10 | 699 | 0.0 | 0.3+ | 2009 10 22 | 704 | 0.5+ | 0.1+ | 2009 11 23 | J75 | 0.0 | 0.1− |
| 2005 12 10 | 699 | 1.1+ | 0.0 | 2009 10 22 | 704 | 0.2+ | 0.1− | 2009 11 24 | J75 | 0.0 | 0.8− |
| 2005 12 10 | 699 | 1.0+ | 1.1+ | 2009 10 22 | 704 | 0.5− | 0.0 | 2009 11 24 | J75 | 0.5+ | 0.3− |
| 2005 12 24 | 644 | 0.1+ | 0.1− | 2009 10 22 | 704 | 0.9− | 0.8− | 2009 11 24 | D29 | 0.5+ | 0.2− |
| 2005 12 24 | 644 | 0.4+ | 0.0 | 2009 10 22 | 704 | 0.1+ | 0.4− | 2009 11 24 | D29 | 0.3+ | 0.1− |
| 2005 12 24 | 644 | 0.2+ | 0.1+ | 2009 10 26 | G96 | 0.3+ | 0.4− | 2009 11 24 | D29 | 0.2+ | 0.2− |
| 2005 12 25 | 703 | 0.0 | 0.4− | 2009 10 26 | G96 | 0.0 | 0.2− | 2009 11 24 | D29 | 0.1+ | 0.3− |
| 2005 12 25 | 703 | 0.6+ | 0.7+ | 2009 10 26 | G96 | 0.3+ | 0.3− | 2009 12 08 | J75 | 0.5+ | 0.3− |
| 2005 12 25 | 703 | 0.9− | 0.4+ | 2009 10 29 | J75 | 0.8+ | 0.9− | 2009 12 08 | J75 | 0.5+ | 0.2− |
| 2005 12 25 | 703 | 0.1− | 0.3+ | 2009 10 29 | J75 | 0.5+ | 0.3− | 2009 12 08 | J75 | 0.3+ | 0.3+ |
| 2006 01 01 | 703 | 0.3− | 0.4− | 2009 10 29 | J75 | 0.2+ | 1.4− | 2009 12 11 | 703 | 0.4− | 0.7− |
| 2006 01 01 | 703 | 1.1+ | 0.5− | 2009 11 08 | 691 | 0.1− | 0.2− | 2009 12 11 | 703 | 0.2− | 1.2− |
| 2006 01 01 | 703 | 0.2− | 0.2+ | 2009 11 08 | 691 | 0.4− | 0.1− | 2009 12 11 | 703 | 1.0+ | 0.3− |
| 2006 01 01 | 703 | 0.4− | 0.1− | 2009 11 08 | 691 | 0.1− | 0.1− | 2009 12 11 | 703 | 0.1+ | 0.4− |
| 2006 01 07 | 703 | 0.3− | 0.2+ | 2009 11 10 | J75 | 0.5+ | 0.7− | 2009 12 12 | 704 | 0.2+ | 0.2+ |
| 2006 01 07 | 703 | 0.2− | 0.0 | 2009 11 10 | J75 | 0.4+ | 0.3− | 2009 12 12 | 704 | 0.7− | 0.6+ |
| 2006 01 07 | 703 | 0.4+ | 0.9+ | 2009 11 10 | J75 | 0.7+ | 0.2− | 2009 12 12 | 704 | 0.3+ | 0.7− |
| 2006 01 07 | 703 | 0.1− | 0.4+ | 2009 11 16 | 691 | 0.6− | 0.0 | 2009 12 12 | 704 | 0.2− | 0.5− |
| 2006 01 28 | 703 | 0.4+ | 0.8+ | 2009 11 16 | 691 | 0.3− | 0.1+ | 2009 12 12 | 704 | 0.1+ | 0.6− |
| 2006 01 28 | 703 | 0.1+ | 0.0 | 2009 11 16 | 691 | 0.6− | 0.1− | 2009 12 18 | 704 | 0.5− | 1.1+ |
| 2006 01 28 | 703 | 0.8− | 0.8− | 2009 11 18 | 704 | 0.7+ | 0.5+ | 2009 12 18 | 704 | 0.9+ | 0.9+ |
| 2006 01 28 | 703 | 1.0− | 0.3+ | 2009 11 18 | 704 | 0.7+ | 0.7+ | 2009 12 18 | 704 | 0.2+ | 1.0+ |
| 2006 02 25 | 699 | 0.6+ | 0.4+ | 2009 11 18 | 704 | 0.8+ | 0.6+ | 2009 12 18 | 704 | 0.2+ | 1.3+ |
| 2006 02 25 | 699 | (1.6+ | 0.2+) | 2009 11 18 | 704 | 0.7+ | 0.2+ | 2009 12 18 | 704 | 0.3+ | 0.9+ |
| 2006 02 25 | 699 | 0.5+ | 0.5− | 2009 11 18 | 704 | 0.8+ | 0.5+ | | | | |
| 2006 02 25 | 699 | 0.5− | 0.1− | 2009 11 19 | 691 | 0.5− | 0.1− | | | | |

**(229533)∗ 2005 YZ$_{33}$**

Discovered 2005 Dec. 24 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 324.25570 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22440986 | $\omega$ | 0.30229 | | −0.42921037 | −0.89964095 | |
| $a$ | 2.6818929 | $\Omega$ | 115.11635 | | +0.82848808 | −0.42749342 | |
| $e$ | 0.0934565 | $i$ | 5.07869 | | +0.35970260 | −0.08885680 | |
| $P$ | 4.39 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 02 07 | 704 | 0.6+ | 1.3+ | 2006 01 09 | 691 | 0.1− | 0.1− | 2007 04 24 | 691 | 0.0 | 0.1− |
| 2002 02 07 | 704 | 0.8− | 0.8+ | 2006 01 09 | 691 | 0.0 | 0.3− | 2007 04 28 | 691 | 0.0 | 0.1− |
| 2002 02 07 | 704 | 0.0 | 0.3+ | 2006 01 10 | G96 | 0.1− | 0.0 | 2007 04 28 | 691 | 0.2+ | 0.3− |
| 2002 03 11 | 644 | 0.2− | 0.5+ | 2006 01 10 | G96 | 0.3− | 0.0 | 2007 04 28 | 691 | 0.2− | 0.4+ |
| 2002 03 11 | 644 | 0.6+ | 0.2+ | 2006 01 10 | G96 | 0.0 | 0.1+ | 2009 11 16 | G96 | 0.2+ | 0.1− |
| 2002 03 11 | 644 | 0.4− | 0.4+ | 2006 01 10 | G96 | 0.1− | 0.1− | 2009 11 16 | G96 | 0.3+ | 0.1+ |
| 2002 03 11 | 644 | 0.9+ | 0.4+ | 2006 01 21 | G96 | 1.3− | 0.6− | 2009 11 16 | G96 | 0.2+ | 0.1+ |
| 2002 03 11 | 644 | 0.2− | 0.3+ | 2006 01 21 | G96 | 1.2+ | 1.3− | 2009 11 19 | 704 | 0.8+ | 0.6+ |
| 2002 03 11 | 644 | 0.5+ | 0.1+ | 2006 01 21 | G96 | 0.2− | 0.7− | 2009 11 19 | 704 | 0.1− | 0.3+ |
| 2005 12 24 | 691 | 0.3+ | 0.1+ | 2006 01 21 | G96 | 0.3− | 0.6− | 2009 11 19 | 704 | 0.4+ | 1.2+ |
| 2005 12 24 | 691 | 0.1+ | 0.1+ | 2006 01 24 | 704 | 0.6− | 0.2+ | 2009 11 23 | G96 | 0.1− | 0.2− |
| 2005 12 24 | 691 | 0.2+ | 0.0 | 2006 01 24 | 704 | (1.6− | 0.5+) | 2009 11 23 | G96 | 0.1+ | 0.1+ |
| 2005 12 26 | G96 | 0.1+ | 0.4− | 2006 01 24 | 704 | 0.7− | 0.0 | 2009 11 23 | G96 | 0.0 | 0.1− |
| 2005 12 26 | G96 | 0.2+ | 0.4− | 2007 04 20 | 691 | 0.2− | 0.0 | 2009 11 23 | G96 | 0.2+ | 0.3+ |
| 2005 12 26 | G96 | 0.2+ | 0.5− | 2007 04 20 | 691 | 0.1+ | 0.1+ | 2009 11 24 | J75 | 0.0 | 1.5+ |
| 2005 12 26 | G96 | 0.2+ | 0.5− | 2007 04 20 | 691 | 0.3+ | 0.1− | 2009 11 24 | J75 | (0.4+ | 1.9+) |
| 2006 01 04 | G96 | 0.0 | 0.4− | 2007 04 24 | 691 | 0.0 | 0.0 | 2009 11 24 | J75 | 0.2+ | 0.1− |
| 2006 01 04 | G96 | 0.2+ | 0.5− | 2007 04 24 | 691 | 0.1− | 0.1− | 2009 12 19 | 691 | 0.4− | 0.0 |
| 2006 01 04 | G96 | 0.3+ | 0.6− | 2007 04 24 | 691 | 0.3− | 0.3+ | 2009 12 19 | 691 | 0.3− | 0.3+ |
| 2006 01 04 | G96 | 0.1− | 0.2− | 2007 04 24 | 691 | 0.5+ | 0.4+ | 2009 12 19 | 691 | 0.5− | 0.6+ |
| 2006 01 09 | 691 | 0.1− | 0.1+ | 2007 04 24 | 691 | 0.0 | 0.0 | | | | |

**(229534)∗ 2005 YO$_{36}$**

Discovered 2005 Dec. 25 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 234.25990 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21585715 | $\omega$ | 107.53089 | | −0.88939407 | +0.45187228 | |
| $a$ | 2.7522746 | $\Omega$ | 99.38001 | | −0.44151132 | −0.80983554 | |
| $e$ | 0.0729344 | $i$ | 4.02232 | | −0.11851560 | −0.37413612 | |
| $P$ | 4.57 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 12 18 | 691 | 0.1− | 0.4− | 2006 01 20 | 699 | (1.4+ | 1.6+) | 2008 09 03 | J75 | 0.1− | 0.3+ |
| 2000 12 18 | 691 | 0.2− | 0.6− | 2006 01 20 | 699 | 0.6− | 0.8+ | 2009 11 10 | 691 | 0.1− | 0.4+ |
| 2000 12 18 | 691 | 0.2+ | 0.5− | 2006 01 22 | 691 | 0.1− | 0.0 | 2009 11 10 | 691 | 0.4+ | 0.2+ |
| 2002 04 16 | 704 | 0.2− | 0.3+ | 2006 01 22 | 691 | 0.4− | 0.4+ | 2009 11 10 | 691 | 0.1− | 0.3+ |
| 2002 04 16 | 704 | 0.3+ | 0.2+ | 2006 01 22 | 691 | 0.0 | 0.0 | 2009 11 18 | 691 | 0.1+ | 0.2+ |
| 2002 04 16 | 704 | 0.1+ | 0.4− | 2006 01 24 | G96 | 0.1+ | 0.6− | 2009 11 18 | 691 | 0.5− | 0.7− |
| 2002 04 16 | 704 | 0.1+ | 0.4+ | 2006 01 24 | G96 | 0.4− | 0.0 | 2009 11 18 | 691 | 0.1− | 0.0 |
| 2002 04 16 | 704 | 0.6+ | 0.3+ | 2006 01 24 | G96 | 0.5− | 1.2− | 2009 11 18 | A13 | 0.7+ | 0.3− |
| 2005 12 25 | 691 | 0.1− | 0.0 | 2006 01 24 | G96 | 0.3+ | 0.4− | 2009 11 18 | A13 | 0.6+ | 0.2− |
| 2005 12 25 | 691 | 0.1− | 0.1+ | 2006 02 02 | 703 | 0.0 | 0.5− | 2009 11 19 | A13 | (1.7+ | 0.3+) |
| 2005 12 25 | 691 | 0.1− | 0.1− | 2006 02 02 | 703 | (2.5+ | 1.0−) | 2009 11 19 | A13 | 0.9+ | 0.3+ |
| 2005 12 26 | G96 | 0.3− | 0.5− | 2006 02 02 | 703 | 1.1+ | 0.0 | 2009 11 22 | 691 | 0.3− | 0.0 |
| 2005 12 26 | G96 | 0.3+ | 0.5− | 2006 02 02 | 703 | 0.3− | 0.0 | 2009 11 22 | 691 | 0.3− | 0.1+ |
| 2005 12 26 | G96 | 0.1− | 0.5− | 2006 03 26 | G96 | 0.1− | 0.0 | 2009 11 22 | 691 | 0.3− | 0.1+ |
| 2005 12 26 | G96 | 0.5− | 0.2− | 2006 03 26 | G96 | 0.4− | 0.5+ | 2009 11 26 | 691 | 0.1− | 0.2+ |
| 2005 12 29 | 691 | 0.2+ | 0.4+ | 2006 03 26 | G96 | 0.6− | 0.0 | 2009 11 26 | 691 | 0.1+ | 0.2+ |
| 2005 12 29 | 691 | 0.1+ | 0.2+ | 2006 03 26 | G96 | 0.5+ | 0.2− | 2009 11 26 | 691 | 0.0 | 0.1+ |
| 2005 12 29 | 691 | 0.2+ | 0.2+ | 2007 05 13 | 704 | 0.7+ | 0.3+ | 2009 12 11 | 703 | 0.5+ | 0.7+ |
| 2006 01 05 | 704 | 0.8+ | 1.1+ | 2007 05 13 | 704 | 0.9+ | 1.1− | 2009 12 11 | 703 | 0.6+ | 1.2− |
| 2006 01 05 | 704 | 1.4+ | 0.6− | 2007 05 13 | 704 | 0.2+ | 1.4+ | 2009 12 11 | 703 | 0.3+ | 0.9− |
| 2006 01 05 | 704 | 0.7+ | 1.3− | 2007 05 13 | 704 | 0.5+ | 0.6− | 2009 12 11 | 703 | 2.7− | 0.5+ |
| 2006 01 07 | 691 | 0.1+ | 0.2+ | 2007 06 13 | 691 | 0.2− | 0.2− | 2009 12 17 | G96 | 0.6+ | 0.1+ |
| 2006 01 07 | 691 | 0.0 | 0.2+ | 2007 06 13 | 691 | 0.6− | 0.1− | 2009 12 17 | G96 | 0.7+ | 0.1+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 01 07 | 691 | 0.2+ | 0.0 | 2007 06 13 | 691 | 0.2− | 0.0 | 2009 12 17 | G96 | 0.6+ | 0.0 | | |
| 2006 01 20 | 699 | (1.9+ | 0.1+) | 2008 09 03 | J75 | 0.5+ | 0.2+ | 2009 12 17 | G96 | 0.1+ | 0.1− | | |
| 2006 01 20 | 699 | 0.4+ | 0.7− | 2008 09 03 | J75 | 0.4+ | 0.8+ | | | | | | |

**(229535)∗ 2005 YQ$_{36}$ = 2002 FZ$_{10}$**

Discovered 2005 Dec. 25 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 96699)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 313.08636 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22540754 | $\omega$ | 143.26402 | | −0.68334858 | | −0.73008529 |
| $a$ | 2.6739735 | $\Omega$ | 349.84050 | | +0.66546667 | | −0.62105596 |
| $e$ | 0.0601223 | $i$ | 1.03707 | | +0.30031454 | | −0.28507012 |
| $P$ | 4.37 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 03 16 | 704 | (0.4− | 1.6+) | 2005 12 25 | 691 | 0.2− | 0.1+ | 2009 11 17 | 691 | 0.2+ | 0.2− | | |
| 2002 03 16 | 704 | 0.0 | 0.7+ | 2005 12 25 | 691 | 0.2− | 0.1+ | 2009 11 17 | 691 | 0.1+ | 0.1− | | |
| 2002 03 16 | 704 | 0.0 | 0.6+ | 2005 12 25 | 691 | 0.2− | 0.4+ | 2009 11 21 | 691 | 0.0 | 0.0 | | |
| 2002 03 17 | 691 | 0.1+ | 0.2+ | 2005 12 26 | G96 | 0.2− | 0.2− | 2009 11 21 | 691 | 0.1− | 0.4− | | |
| 2002 03 17 | 691 | 0.3+ | 0.1+ | 2005 12 26 | G96 | 0.2− | 0.6− | 2009 11 21 | 691 | 0.1− | 0.1− | | |
| 2002 03 17 | 691 | 0.1− | 0.2+ | 2005 12 26 | G96 | 0.1− | 0.4− | 2009 12 10 | G96 | 0.1− | 0.0 | | |
| 2002 04 06 | 807 | 0.3+ | 0.4+ | 2005 12 26 | G96 | 0.4+ | 0.1− | 2009 12 10 | G96 | 0.0 | 0.4− | | |
| 2002 04 06 | 807 | 0.6+ | 0.3+ | 2005 12 29 | 691 | 0.1+ | 0.1+ | 2009 12 10 | G96 | 0.0 | 0.0 | | |
| 2004 10 07 | 691 | 0.4− | 0.6+ | 2005 12 29 | 691 | 0.1+ | 0.2− | 2009 12 10 | G96 | 0.4+ | 0.1− | | |
| 2004 10 07 | 691 | 0.1− | 0.3+ | 2005 12 29 | 691 | 0.3− | 0.2+ | 2009 12 15 | G96 | 0.1− | 0.2− | | |
| 2004 10 07 | 691 | 0.1+ | 0.0 | 2006 01 07 | 691 | 0.0 | 0.0 | 2009 12 15 | G96 | 0.1+ | 0.1+ | | |
| 2004 10 15 | 691 | 0.0 | 0.6+ | 2006 01 07 | 691 | 0.8+ | 0.1+ | 2009 12 15 | G96 | 0.4− | 0.2− | | |
| 2004 10 15 | 691 | 0.0 | 0.0 | 2006 01 07 | 691 | 0.1+ | 0.2+ | 2009 12 15 | G96 | 0.7− | 0.2+ | | |
| 2004 10 15 | 691 | 0.4− | 0.2+ | 2009 11 17 | 691 | 0.2+ | 0.2− | | | | | | |

**(229536)∗ 2005 YC$_{37}$**

Discovered 2005 Dec. 26 by W. K. Y. Yeung at 7300 Observatory, Cloudcroft.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 308.89990 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.24388203 | $\omega$ | 53.15741 | | −0.84162228 | | −0.53307568 |
| $a$ | 2.5371697 | $\Omega$ | 94.47589 | | +0.46372076 | | −0.79550121 |
| $e$ | 0.0400807 | $i$ | 4.98417 | | +0.27683027 | | −0.28811135 |
| $P$ | 4.04 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 01 02 | 704 | 0.2+ | 0.3+ | 2005 12 26 | H07 | 0.2+ | 0.6+ | 2007 04 24 | 691 | 0.1+ | 0.1− | | |
| 1998 01 02 | 704 | 1.0− | 0.5− | 2005 12 27 | H07 | 0.1− | 0.1− | 2007 04 24 | 691 | 0.2− | 0.2+ | | |
| 1998 01 02 | 704 | 0.8+ | 1.4− | 2005 12 27 | H07 | 0.5− | 0.3− | 2007 04 24 | 691 | 0.1− | 0.1+ | | |
| 1998 01 02 | 704 | 0.3+ | 1.1− | 2005 12 29 | H07 | 0.6+ | 0.3+ | 2007 04 28 | 691 | 0.1− | 0.2+ | | |
| 2001 11 21 | 691 | 0.2− | 0.0 | 2005 12 29 | H07 | 0.4+ | 0.0 | 2007 04 28 | 691 | 0.3− | 0.3+ | | |
| 2001 11 21 | 691 | 0.8− | 0.2+ | 2005 12 29 | H07 | 0.3− | 1.0+ | 2007 04 28 | 691 | 0.2− | 0.7+ | | |
| 2001 11 21 | 691 | 1.0− | 0.2+ | 2006 01 05 | 691 | 0.1+ | 0.1− | 2007 05 07 | 703 | 1.4+ | 0.7+ | | |
| 2001 12 14 | 704 | 0.4+ | 0.6+ | 2006 01 05 | 691 | 0.4+ | 0.1+ | 2007 05 07 | 703 | 0.2+ | 0.7+ | | |
| 2001 12 14 | 704 | 0.2+ | 0.9+ | 2006 01 05 | 691 | 0.2+ | 0.0 | 2007 05 07 | 703 | 0.1+ | 0.5+ | | |
| 2001 12 14 | 704 | 0.3+ | 0.5+ | 2006 01 07 | 691 | 0.0 | 0.3+ | 2007 05 07 | 703 | 1.2− | 0.0 | | |
| 2001 12 14 | 704 | 0.3+ | 0.9+ | 2006 01 07 | 691 | 0.3+ | 0.0 | 2007 05 09 | A50 | 0.6− | 0.6− | | |
| 2001 12 14 | 704 | 0.2− | 1.1+ | 2006 01 07 | 691 | 0.2+ | 0.0 | 2007 05 09 | A50 | 0.2+ | 0.4− | | |
| 2002 01 14 | 704 | 0.3+ | 0.1− | 2007 04 18 | D35 | 0.2+ | 0.2− | 2007 05 13 | 704 | 0.3+ | 0.2+ | | |
| 2002 01 14 | 704 | 0.4+ | 0.5− | 2007 04 18 | D35 | 0.1+ | 0.1+ | 2007 05 13 | 704 | 0.6+ | 0.6− | | |
| 2002 01 14 | 704 | 0.2+ | 0.6− | 2007 04 18 | D35 | 0.3+ | 0.2+ | 2007 05 13 | 704 | 0.3+ | 0.3− | | |
| 2002 01 14 | 704 | 0.1− | 0.4− | 2007 04 19 | J95 | 0.2− | 0.3− | 2007 05 13 | 704 | 0.0 | 0.2− | | |
| 2004 08 21 | 703 | 0.0 | 1.3+ | 2007 04 19 | J95 | 0.7− | 0.8− | 2007 05 13 | 704 | 1.0+ | 0.0 | | |
| 2004 08 21 | 703 | 0.3− | 1.0+ | 2007 04 19 | D35 | 0.4+ | 0.1+ | 2009 11 17 | 691 | 0.7− | 0.0 | | |
| 2004 08 21 | 703 | 1.4− | 0.2+ | 2007 04 19 | D35 | 0.4+ | 0.2− | 2009 11 17 | 691 | 0.1− | 0.1+ | | |
| 2004 08 21 | 703 | 0.9+ | 0.1− | 2007 04 19 | D35 | 0.5+ | 0.2− | 2009 11 17 | 691 | 0.0 | 0.1− | | |
| 2005 12 05 | 691 | 0.6+ | 0.0 | 2007 04 20 | 691 | 0.1− | 0.1+ | 2009 12 17 | 704 | 1.0+ | 0.7− | | |
| 2005 12 05 | 691 | 0.3+ | 0.0 | 2007 04 20 | 691 | 0.2− | 0.0 | 2009 12 17 | 704 | 0.2− | 0.5+ | | |
| 2005 12 05 | 691 | 0.1+ | 0.2− | 2007 04 20 | 691 | 0.0 | 0.0 | 2009 12 17 | 704 | 0.2+ | 0.5− | | |
| 2005 12 26 | H07 | 0.1+ | 0.0 | 2007 04 21 | J95 | 1.2+ | 0.6+ | 2009 12 17 | 704 | 1.5− | 0.6+ | | |
| 2005 12 26 | H07 | 0.4− | 0.2− | 2007 04 21 | J95 | 0.2+ | 0.1− | 2009 12 17 | 704 | 0.8− | 0.6+ | | |
| 2005 12 26 | H07 | 0.4+ | 0.3+ | 2007 04 22 | J95 | 0.1− | 0.0 | | | | | | |

**(229537)∗ 2005 YU$_{42}$**

Discovered 2005 Dec. 24 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 17.66091 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22258847 | $\omega$ | 288.20006 | | +0.58695477 | | −0.80804393 |
| $a$ | 2.6965032 | $\Omega$ | 125.75298 | | +0.76433874 | | +0.53248562 |
| $e$ | 0.0572975 | $i$ | 3.56686 | | +0.26696515 | | +0.25203983 |
| $P$ | 4.43 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 11 03 | G96 | 0.4+ | 0.2− | 2006 01 21 | G96 | 1.4+ | 1.0+ | 2008 05 30 | G96 | 0.2− | 0.1− | | |
| 2005 11 03 | G96 | 0.1− | 0.2+ | 2006 02 01 | 691 | 0.2+ | 0.0 | 2008 05 30 | G96 | 0.5+ | 0.1+ | | |
| 2005 11 03 | G96 | 0.2− | 0.4− | 2006 02 01 | 691 | 0.1+ | 0.2− | 2008 05 30 | G96 | 0.0 | 0.5+ | | |
| 2005 11 03 | G96 | 0.1+ | 0.1− | 2006 02 01 | 691 | 0.0 | 0.1+ | 2008 07 02 | 691 | 0.2+ | 0.2+ | | |
| 2005 12 24 | 691 | 0.3− | 0.1+ | 2006 02 04 | 691 | 0.1+ | 0.1− | 2008 07 02 | 691 | 0.3− | 0.3+ | | |
| 2005 12 24 | 691 | 0.1− | 0.3+ | 2006 02 04 | 691 | 0.2− | 0.2− | 2008 07 02 | 691 | 0.0 | 0.1− | | |
| 2005 12 24 | 691 | 0.0 | 0.1+ | 2006 02 04 | 691 | 0.1− | 0.0 | 2009 11 23 | G96 | 0.5+ | 0.1+ | | |
| 2005 12 27 | G96 | 0.4− | 0.3− | 2006 02 05 | G96 | 0.3+ | 0.5− | 2009 11 23 | G96 | 0.6+ | 0.1− | | |
| 2005 12 27 | G96 | 0.2+ | 0.0 | 2006 02 05 | G96 | 0.0 | 0.6− | 2009 11 23 | G96 | 0.3+ | 0.1− | | |
| 2005 12 27 | G96 | 0.3− | 0.3− | 2006 02 05 | G96 | 0.2− | 0.8− | 2009 11 23 | G96 | 0.1+ | 0.4+ | | |
| 2005 12 27 | G96 | 0.3− | 0.1− | 2006 02 05 | G96 | 0.2+ | 0.3− | 2009 11 23 | J75 | 0.4+ | 0.0 | | |
| 2006 01 05 | 691 | 0.3+ | 0.2− | 2006 02 07 | 691 | 0.2+ | 0.1+ | 2009 11 23 | J75 | 0.4+ | 0.0 | | |
| 2006 01 05 | 691 | 0.1− | 0.1− | 2006 02 07 | 691 | 0.3+ | 0.0 | 2009 11 23 | J75 | 0.4− | 1.2+ | | |
| 2006 01 05 | 691 | 0.1− | 0.1− | 2006 02 07 | 691 | 0.1+ | 0.5+ | 2009 12 11 | 703 | 1.0− | 0.7− | | |
| 2006 01 06 | G96 | 0.4+ | 0.2− | 2006 02 20 | G96 | 0.9− | 0.0 | 2009 12 11 | 703 | 0.2+ | 0.1+ | | |
| 2006 01 06 | G96 | 0.1− | 0.2− | 2006 02 20 | G96 | 0.0 | 0.2− | 2009 12 11 | 703 | 0.5+ | 0.2− | | |
| 2006 01 06 | G96 | 0.1− | 0.6+ | 2006 02 20 | G96 | 0.6− | 0.0 | 2009 12 11 | 703 | 0.1+ | 0.5− | | |
| 2006 01 06 | G96 | 0.1+ | 0.1+ | 2006 02 20 | G96 | 0.0 | 0.2− | 2009 12 11 | 703 | 0.8− | 0.3− | | |
| 2006 01 09 | 691 | 0.0 | 0.4+ | 2007 03 11 | G96 | 0.8+ | 0.0 | 2009 12 11 | 703 | 1.2− | 0.1+ | | |
| 2006 01 09 | 691 | 0.3− | 0.4+ | 2007 03 11 | G96 | 0.2+ | 0.9+ | 2009 12 11 | 703 | 1.1+ | 0.1+ | | |
| 2006 01 09 | 691 | 0.0 | 0.2+ | 2007 03 11 | G96 | 0.4− | 0.2− | 2009 12 11 | 703 | 0.8− | 0.3− | | |
| 2006 01 21 | G96 | 0.1+ | 0.6− | 2007 03 11 | G96 | 0.5− | 0.3− | | | | | | |
| 2006 01 21 | G96 | 0.2− | 0.3− | 2008 05 30 | G96 | 0.3− | 0.0 | | | | | | |

**(229538)∗ 2005 YM$_{75}$**

Discovered 2005 Dec. 24 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 278.16546 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22303676 | $\omega$ | 170.58791 | | −0.91211420 | | −0.40974961 |
| $a$ | 2.6928888 | $\Omega$ | 345.20442 | | +0.37288864 | | −0.81677225 |
| $e$ | 0.0567568 | $i$ | 2.77583 | | +0.17029901 | | −0.40618758 |
| $P$ | 4.42 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 02 10 | 704 | 1.1+ | 0.3− | 2005 11 10 | G96 | 0.6+ | 0.5− | 2007 05 13 | G96 | 0.2− | 0.2− | | |
| 2002 02 10 | 704 | 0.6− | 0.1+ | 2005 11 10 | G96 | 0.1+ | 0.6− | 2007 05 13 | G96 | 0.2− | 0.0 | | |
| 2002 02 10 | 704 | 1.2+ | 0.7+ | 2005 11 10 | G96 | 0.5− | 0.9− | 2007 05 13 | G96 | 0.0 | 0.4+ | | |
| 2002 02 10 | 704 | (0.6+ | 1.9+) | 2005 12 24 | 691 | 0.0 | 0.1+ | 2009 11 11 | 691 | 0.0 | 0.0 | | |
| 2002 02 16 | 644 | 0.2− | 0.7+ | 2005 12 24 | 691 | 0.2− | 0.2− | 2009 11 11 | 691 | 0.2− | 0.2+ | | |
| 2002 02 16 | 644 | 0.1− | 0.8+ | 2005 12 24 | 691 | 0.1+ | 0.0 | 2009 11 11 | 691 | 0.1− | 0.2+ | | |
| 2002 02 16 | 644 | 0.1− | 0.5+ | 2005 12 28 | 691 | 0.1− | 0.1− | 2009 11 26 | 691 | 0.5− | 0.1− | | |
| 2002 03 17 | 691 | 0.2+ | 0.4+ | 2005 12 28 | 691 | 0.1+ | 0.3− | 2009 11 26 | 691 | 0.3+ | 0.0 | | |
| 2002 03 17 | 691 | 0.1− | 0.1+ | 2005 12 28 | 691 | 0.1+ | 0.2− | 2009 11 26 | 691 | 0.2− | 0.5+ | | |
| 2002 03 17 | 691 | 0.1+ | 0.1+ | 2007 04 20 | G96 | 0.3+ | 0.1+ | 2009 12 17 | G96 | 0.7+ | 0.3− | | |
| 2004 09 17 | 691 | 0.3− | 0.2+ | 2007 04 20 | G96 | 0.4+ | 0.2+ | 2009 12 17 | G96 | 0.0 | 0.2+ | | |
| 2004 09 17 | 691 | 0.2− | 0.3+ | 2007 04 20 | G96 | 0.1+ | 0.3− | 2009 12 17 | G96 | 0.2+ | 0.2− | | |
| 2004 09 17 | 691 | 0.1+ | 0.2+ | 2007 04 20 | G96 | 0.3+ | 0.1+ | 2009 12 17 | G96 | 0.4+ | 0.0 | | |
| 2005 11 10 | G96 | 0.1+ | 0.5− | 2007 05 13 | G96 | 0.3− | 0.0 | | | | | | |

**(229539)∗ 2005 YA$_{79}$**

Discovered 2005 Dec. 24 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 263.46610 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22870211 | $\omega$ | 86.59354 | | −0.99247455 | +0.11542340 | |
| $a$ | 2.6482315 | $\Omega$ | 100.03159 | | −0.12220204 | −0.91232853 | |
| $e$ | 0.0822113 | $i$ | 2.37968 | | −0.00780539 | −0.39285379 | |
| $P$ | 4.31 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 05 01 | 691 | 0.0 | 0.1− | 2004 10 04 | 691 | 0.3+ | 0.1− | 2007 04 19 | G96 | 0.8+ | 0.4+ | |
| 1994 05 01 | 691 | 0.8− | 0.2+ | 2005 12 24 | 691 | 0.5+ | 0.3+ | 2007 05 12 | 691 | 0.2+ | 0.1+ | |
| 1994 05 01 | 691 | (1.0+ | 7.0−) | 2005 12 24 | 691 | 0.0 | 0.0 | 2007 05 12 | 691 | 0.1− | 0.5+ | |
| 1998 03 25 | 691 | 0.6− | 0.2− | 2005 12 24 | 691 | 0.4+ | 0.0 | 2007 05 12 | 691 | 0.2− | 0.3+ | |
| 1998 03 25 | 691 | 0.9− | 0.0 | 2005 12 28 | 691 | 0.1+ | 0.1+ | 2009 11 20 | 691 | 0.5− | 0.2− | |
| 1998 03 25 | 691 | 0.5− | 0.7− | 2005 12 28 | 691 | 0.3+ | 0.0 | 2009 11 20 | 691 | 0.1− | 0.2− | |
| 1998 03 25 | 691 | 0.7+ | 0.1− | 2005 12 28 | 691 | 0.2+ | 0.3+ | 2009 11 20 | 691 | 0.1− | 0.2− | |
| 1998 03 25 | 691 | 1.4+ | 0.1+ | 2006 01 09 | 691 | 0.1− | 0.1+ | 2009 12 10 | G96 | 0.0 | 0.2− | |
| 1998 03 25 | 691 | 1.0+ | 0.6− | 2006 01 09 | 691 | 0.2− | 0.3+ | 2009 12 10 | G96 | 0.1+ | 0.6+ | |
| 1998 04 04 | 691 | 0.0 | 0.5− | 2006 01 09 | 691 | 0.1− | 0.0 | 2009 12 10 | G96 | 0.0 | 0.2− | |
| 1998 04 04 | 691 | 0.1− | 0.2− | 2006 01 22 | G96 | 0.2− | 0.0 | 2009 12 10 | G96 | 0.0 | 0.1− | |
| 1998 04 04 | 691 | 0.4− | 0.5− | 2006 01 22 | G96 | 0.0 | 0.2− | 2009 12 19 | G96 | 0.0 | 0.2− | |
| 2002 02 08 | 691 | 0.2− | 0.5+ | 2006 01 22 | G96 | 0.4− | 0.1− | 2009 12 19 | G96 | 0.2+ | 0.2− | |
| 2002 02 08 | 691 | 0.6− | 0.2+ | 2006 01 22 | G96 | 0.3− | 1.1− | 2009 12 19 | G96 | 0.3+ | 0.0 | |
| 2002 02 08 | 691 | 0.1− | 0.5+ | 2007 04 19 | G96 | 0.4+ | 0.0 | 2009 12 19 | G96 | 0.2+ | 0.2− | |
| 2004 10 04 | 691 | 0.4+ | 0.3− | 2007 04 19 | G96 | 0.1− | 0.3+ | | | | | |
| 2004 10 04 | 691 | 0.1− | 0.2− | 2007 04 19 | G96 | 0.7+ | 0.3+ | | | | | |

**(229540)∗ 2005 YP$_{86}$**

Discovered 2005 Dec. 25 by the Mt. Lemmon Survey at Mount Lemmon.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 342.59865 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23143420 | $\omega$ | 355.36213 | | −0.12054278 | −0.96559315 | |
| $a$ | 2.6273486 | $\Omega$ | 101.43311 | | +0.91818644 | −0.19668747 | |
| $e$ | 0.1428693 | $i$ | 13.59740 | | +0.37736336 | +0.17012910 | |
| $P$ | 4.26 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 01 08 | 704 | 0.1− | 0.9− | 2005 12 28 | 704 | 0.4+ | 0.4+ | 2009 11 15 | 704 | 0.4+ | 0.3+ | |
| 2002 01 08 | 704 | 0.1+ | 1.0− | 2005 12 28 | 704 | 0.0 | 0.8− | 2009 11 15 | 704 | 0.5+ | 0.1+ | |
| 2002 01 08 | 704 | 0.7+ | 0.4− | 2005 12 28 | 704 | 0.5+ | 0.3+ | 2009 11 15 | 704 | 0.4+ | 0.1+ | |
| 2002 01 08 | 704 | 0.4+ | 0.5− | 2005 12 28 | 704 | 0.6+ | 0.0 | 2009 11 18 | J75 | 0.3+ | 0.3− | |
| 2002 01 23 | 704 | 0.1− | 0.1+ | 2005 12 29 | 691 | 0.1− | 0.0 | 2009 11 18 | J75 | 0.2− | 0.6− | |
| 2002 01 23 | 704 | 0.3− | 0.0 | 2005 12 29 | 691 | 0.1+ | 0.0 | 2009 11 18 | J75 | 0.5− | 0.2− | |
| 2002 01 23 | 704 | 0.6+ | 1.0+ | 2005 12 29 | 691 | 0.1+ | 0.0 | 2009 11 22 | 703 | 0.1+ | 0.8+ | |
| 2002 01 23 | 704 | 0.5+ | 0.1− | 2005 12 31 | 704 | 1.3+ | 0.1+ | 2009 11 22 | 703 | 0.3+ | 0.1+ | |
| 2002 01 23 | 704 | 0.3− | 1.2− | 2005 12 31 | 704 | 0.6+ | 0.5− | 2009 11 22 | 703 | 0.4− | 0.3+ | |
| 2002 02 06 | 704 | 0.2− | 0.6+ | 2005 12 31 | 704 | 0.4+ | 1.1+ | 2009 11 22 | 703 | 0.4+ | 0.4+ | |
| 2002 02 06 | 704 | 0.3− | 0.3+ | 2006 01 05 | 691 | 0.5− | 0.1− | 2009 11 22 | 703 | 0.8− | 1.2− | |
| 2002 02 06 | 704 | 0.2− | 0.9+ | 2006 01 05 | 691 | 0.5+ | 0.0 | 2009 11 23 | 703 | 0.2− | 0.2+ | |
| 2002 02 06 | 704 | 0.2+ | 0.5+ | 2006 01 05 | 691 | 0.5− | 0.1− | 2009 11 23 | 703 | 0.4− | 0.3+ | |
| 2002 02 06 | 704 | 0.1− | 0.8+ | 2006 01 05 | 704 | 0.4+ | 0.4− | 2009 11 23 | 703 | 0.4− | 0.1− | |
| 2005 12 01 | 704 | (1.0+ | 3.5−) | 2006 01 05 | 704 | 0.2− | 0.1− | 2009 11 23 | 703 | (1.7− | 0.4−) | |
| 2005 12 01 | 704 | 0.9− | 1.2− | 2006 01 05 | 704 | 0.0 | 0.6+ | 2009 11 23 | 703 | 0.2− | 0.7− | |
| 2005 12 01 | 704 | 0.5− | 0.1+ | 2006 01 05 | 704 | 0.2+ | 0.5+ | 2009 12 10 | 703 | 0.8− | 0.4− | |
| 2005 12 01 | 704 | 1.1− | 0.1− | 2006 01 05 | 704 | 0.2+ | 0.4− | 2009 12 10 | 703 | 0.0 | 0.2+ | |
| 2005 12 04 | 704 | 0.4+ | 0.1− | 2007 04 22 | A50 | (3.3+ | 1.2−) | 2009 12 10 | 703 | 0.1− | 0.1− | |
| 2005 12 04 | 704 | 0.4− | 0.0 | 2007 04 22 | A50 | (2.3+ | 1.2−) | 2009 12 10 | 703 | 0.4− | 0.4− | |
| 2005 12 04 | 704 | 1.4+ | 0.1+ | 2007 04 26 | G96 | 0.3+ | 0.0 | 2009 12 13 | 704 | 0.4+ | 0.2+ | |
| 2005 12 04 | 704 | 0.6+ | 0.0 | 2007 04 26 | G96 | 0.5− | 0.1− | 2009 12 13 | 704 | 0.5+ | 0.2− | |
| 2005 12 04 | 704 | 0.5− | 1.0− | 2007 04 26 | G96 | 0.1+ | 0.0 | 2009 12 13 | 704 | 0.9+ | 0.8+ | |
| 2005 12 25 | 691 | 0.4− | 0.6+ | 2007 04 26 | G96 | 0.3− | 0.1− | 2009 12 13 | 704 | 0.3− | 0.3+ | |
| 2005 12 25 | 691 | 0.1− | 0.0 | 2007 05 15 | G96 | 0.2− | 0.0 | 2009 12 13 | 704 | 0.1− | 0.4+ | |
| 2005 12 25 | 691 | 0.0 | 0.0 | 2007 05 15 | G96 | 0.0 | 0.0 | 2009 12 18 | 704 | 1.0+ | 1.0+ | |
| 2005 12 25 | G96 | 0.3− | 0.4− | 2007 05 15 | G96 | 0.2+ | 0.1− | 2009 12 18 | 704 | 0.7− | 0.2− | |
| 2005 12 25 | G96 | 0.4− | 0.4− | 2007 05 15 | G96 | 0.0 | 0.1+ | 2009 12 18 | 704 | 0.1− | 0.4− | |
| 2005 12 25 | G96 | 0.1− | 0.4− | 2009 11 15 | 704 | 0.0 | 0.2+ | 2009 12 18 | 704 | 0.0 | 0.2+ | |
| 2005 12 25 | G96 | 0.3− | 0.4− | 2009 11 15 | 704 | 0.5+ | 0.2− | | | | | |

**(229541)∗ 2005 YA$_{110}$**

Discovered 2005 Dec. 25 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 22.62157 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23349576 | $\omega$ | 266.87128 | | +0.58457244 | −0.81098442 | |
| $a$ | 2.6118610 | $\Omega$ | 147.31807 | | +0.76097490 | +0.53775227 | |
| $e$ | 0.1678785 | $i$ | 2.55481 | | +0.28141121 | +0.23049245 | |
| $P$ | 4.22 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1992 11 21 | 691 | 0.0 | 0.1− | 2006 01 18 | 703 | 1.3− | 0.2− | 2007 05 10 | 691 | 0.1− | 0.4− | |
| 1992 11 21 | 691 | 0.2− | 0.1− | 2006 01 18 | 703 | 0.7− | 0.4+ | 2007 05 10 | 691 | 0.2+ | 0.3− | |
| 1992 11 21 | 691 | 0.5+ | 0.9− | 2006 01 18 | 703 | 0.7− | 0.2− | 2007 05 10 | 691 | 0.3− | 0.4− | |
| 2002 02 12 | 704 | 0.1+ | 0.1− | 2006 01 18 | 703 | 0.3+ | 1.3+ | 2009 11 10 | 691 | 0.1− | 0.1− | |
| 2002 02 12 | 704 | 1.2+ | 1.0+ | 2006 01 22 | G96 | 0.5− | 0.5− | 2009 11 10 | 691 | 0.0 | 0.0 | |
| 2002 02 12 | 704 | 0.8+ | 0.2+ | 2006 01 22 | G96 | 0.1− | 0.6− | 2009 11 10 | 691 | 0.1− | 0.1− | |
| 2002 02 12 | 704 | 1.0+ | 0.0 | 2006 01 22 | G96 | 0.3− | 0.5− | 2009 11 18 | 704 | 0.4+ | 1.0+ | |
| 2002 02 12 | 704 | 0.0 | 0.6− | 2006 01 22 | G96 | 0.4− | 0.1− | 2009 11 18 | 704 | 0.3− | 0.9+ | |
| 2002 02 14 | I03 | 0.2− | 0.4− | 2006 02 06 | G96 | 0.3− | 0.4− | 2009 11 18 | 704 | 0.2+ | 0.9+ | |
| 2002 02 14 | I03 | 0.3− | 0.2− | 2006 02 06 | G96 | 0.4− | 0.3− | 2009 12 11 | 704 | 0.1+ | 0.4+ | |
| 2002 02 14 | I03 | 0.3− | 0.6− | 2006 02 06 | G96 | 0.1− | 0.4− | 2009 12 11 | G96 | 0.2+ | 0.2− | |
| 2002 03 05 | 291 | 0.1+ | 0.2+ | 2006 02 06 | G96 | 0.1+ | 0.5− | 2009 12 11 | 704 | 0.5− | 0.5+ | |
| 2002 03 05 | 291 | 0.2− | 0.1+ | 2006 02 07 | 691 | 0.1+ | 0.1+ | 2009 12 11 | G96 | 0.1+ | 0.0 | |
| 2002 03 05 | 291 | 0.3− | 0.2+ | 2006 02 07 | 691 | 0.1+ | 0.2+ | 2009 12 11 | G96 | 0.2+ | 0.3− | |
| 2005 12 25 | 691 | 0.0 | 0.0 | 2006 02 07 | 691 | 0.0 | 0.1+ | 2009 12 11 | 704 | 0.3− | 0.2− | |
| 2005 12 25 | 691 | 0.1+ | 0.1− | 2007 03 26 | G96 | 0.0 | 0.2+ | 2009 12 11 | G96 | 0.2+ | 0.1− | |
| 2005 12 25 | 691 | 0.9− | 0.0 | 2007 03 26 | G96 | 0.1− | 0.2− | 2009 12 17 | 704 | 0.9+ | 0.2− | |
| 2005 12 29 | 691 | 0.1+ | 0.1− | 2007 03 26 | G96 | 0.6− | 0.0 | 2009 12 17 | 704 | 0.7− | 0.7− | |
| 2005 12 29 | 691 | 0.1− | 0.0 | 2007 03 26 | G96 | 0.8− | 0.2− | 2009 12 17 | 704 | 0.7+ | 0.3− | |
| 2005 12 29 | 691 | 0.2− | 0.0 | 2007 04 22 | G96 | 0.3− | 0.1+ | 2009 12 17 | 704 | 0.1− | 0.2+ | |
| 2006 01 06 | 691 | 0.7+ | 0.3+ | 2007 04 22 | G96 | 0.1+ | 0.2− | 2009 12 17 | 704 | 0.5+ | 0.2+ | |
| 2006 01 06 | 691 | 0.2+ | 0.1+ | 2007 04 22 | G96 | 0.2− | 0.0 | | | | | |
| 2006 01 06 | 691 | 0.6+ | 0.0 | 2007 04 22 | G96 | 0.7+ | 0.2− | | | | | |

**(229542)∗ 2005 YP$_{113}$**

Discovered 2005 Dec. 25 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 84.60651 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21764123 | $\omega$ | 271.82745 | | +0.92873214 | +0.35901020 | |
| $a$ | 2.7372130 | $\Omega$ | 67.14226 | | −0.28750948 | +0.85503758 | |
| $e$ | 0.0602467 | $i$ | 5.76528 | | −0.23408313 | +0.37419569 | |
| $P$ | 4.53 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 03 11 | 644 | 0.3+ | 0.6+ | 2007 03 16 | 691 | 0.0 | 0.0 | 2009 11 16 | 691 | 0.1− | 0.1+ | |
| 2002 03 11 | 644 | 0.2− | 0.4+ | 2007 03 16 | 691 | 0.1− | 0.1− | 2009 11 16 | 691 | 0.3− | 0.1− | |
| 2002 03 11 | 644 | 0.3+ | 0.1+ | 2007 03 16 | 691 | 0.2− | 0.2+ | 2009 11 23 | J75 | 0.0 | 0.8− | |
| 2003 05 30 | 807 | 0.3− | 0.8+ | 2007 04 15 | 703 | 1.2+ | 1.3− | 2009 11 23 | J75 | 0.8+ | 0.1− | |
| 2003 05 30 | 807 | 0.1− | 0.8+ | 2007 04 15 | 703 | 1.3+ | 1.2− | 2009 11 23 | J75 | 0.8+ | 0.4− | |
| 2004 10 05 | 699 | (2.5+ | 0.6−) | 2007 04 15 | 703 | 0.1+ | 0.2− | 2009 11 24 | 691 | 0.1+ | 0.2− | |
| 2004 10 05 | 699 | 0.4− | 0.6+ | 2007 04 15 | 703 | 0.1+ | 0.9− | 2009 11 24 | 691 | 0.1+ | 0.2− | |
| 2004 10 05 | 699 | 0.3+ | 1.1+ | 2007 04 22 | 691 | 0.0 | 0.3+ | 2009 11 24 | 691 | 0.0 | 0.2− | |
| 2004 10 05 | 699 | 0.2+ | 0.3− | 2007 04 22 | 691 | 0.0 | 0.0 | 2009 11 25 | 703 | 0.1− | 0.1− | |
| 2005 12 25 | 691 | 0.1− | 0.1+ | 2007 04 22 | 691 | 0.3− | 0.1+ | 2009 11 25 | 703 | 0.0 | 0.7+ | |
| 2005 12 25 | 691 | 0.3− | 0.1− | 2007 05 16 | G96 | 0.0 | 0.1− | 2009 11 25 | 703 | 0.2− | 0.1+ | |
| 2005 12 25 | 691 | 0.2− | 0.1+ | 2007 05 16 | G96 | 0.2− | 0.1− | 2009 11 25 | 703 | 0.9− | 0.7− | |
| 2005 12 29 | 691 | 0.3+ | 0.2+ | 2007 05 16 | G96 | 0.1+ | 0.2+ | 2009 11 25 | 703 | 0.3− | 0.2− | |
| 2005 12 29 | 691 | 0.1− | 0.2+ | 2007 05 16 | G96 | 0.3− | 0.2+ | 2009 12 11 | G96 | 0.6+ | 0.0 | |
| 2005 12 29 | 691 | 0.1+ | 0.0 | 2009 10 21 | G96 | 0.4+ | 0.1+ | 2009 12 11 | G96 | 0.8+ | 0.3− | |
| 2006 01 06 | 691 | 0.1+ | 0.0 | 2009 10 21 | G96 | 0.3− | 0.1+ | 2009 12 11 | G96 | 0.4+ | 0.2− | |
| 2006 01 06 | 691 | 0.3+ | 0.3− | 2009 10 21 | G96 | 0.2+ | 0.1+ | 2009 12 11 | G96 | 0.6+ | 0.1− | |
| 2006 01 06 | 691 | 0.2+ | 0.1− | 2009 10 21 | G96 | 0.6+ | 0.1− | 2009 12 11 | 703 | (0.3+ | 1.7+) | |
| 2006 01 09 | G96 | 0.2+ | 0.2− | 2009 10 25 | 691 | 1.1− | 0.8− | 2009 12 11 | 703 | 1.3+ | 0.6+ | |
| 2006 01 09 | G96 | 0.2− | 0.2− | 2009 10 25 | 691 | 0.1− | 0.2− | 2009 12 11 | 703 | 0.9+ | 0.6− | |
| 2006 01 09 | G96 | 0.1− | 0.3− | 2009 10 25 | 691 | 0.1− | 0.4− | 2009 12 11 | 703 | 0.6+ | 0.7+ | |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 01 09 | G96 | 0.3+ | 0.4− | 2009 10 27 | 691 | 0.2− | 0.1+ | 2009 12 19 | 691 | 0.2+ | 0.7+ |
| 2006 01 10 | 691 | 0.7− | 0.4+ | 2009 10 27 | 691 | 0.1− | 0.2+ | 2009 12 19 | 691 | 0.1− | 0.6+ |
| 2006 01 10 | 691 | 0.1+ | 0.0 | 2009 10 27 | 691 | 0.1+ | 0.3+ | 2009 12 19 | 691 | 0.1+ | 0.4+ |
| 2006 01 10 | 691 | 0.2+ | 0.1− | 2009 11 16 | 691 | 0.1− | 0.2− | | | | |

**(229543)∗ 2005 YJ$_{115}$ = 1998 HD$_9$**

Discovered 2005 Dec. 25 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 96772)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 323.26961 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22971257 | $\omega$ | 41.76902 | | −0.66355916 | | −0.74211302 |
| $a$ | 2.6404597 | $\Omega$ | 90.03227 | | +0.65887065 | | −0.63962400 |
| $e$ | 0.1424584 | $i$ | 5.43084 | | +0.35437087 | | −0.20037317 |
| $P$ | 4.29 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 04 17 | 691 | 0.1− | 0.4+ | 2005 12 25 | 691 | 0.1+ | 0.1− | 2006 01 24 | 703 | 0.7− | 0.1− |
| 1998 04 17 | 691 | 0.2− | 0.2+ | 2005 12 25 | 691 | 0.2+ | 0.2− | 2006 01 24 | 703 | 0.2− | 0.1+ |
| 1998 04 17 | 691 | 0.0 | 0.2+ | 2005 12 29 | 691 | 0.1− | 0.2− | 2006 01 24 | 703 | 0.0 | 1.2+ |
| 1998 04 25 | 691 | 0.3+ | 0.5− | 2005 12 29 | 691 | 0.1− | 0.1− | 2006 01 27 | 699 | 0.1− | 0.2− |
| 1998 04 25 | 691 | 0.1− | 0.2− | 2005 12 29 | 691 | 0.1− | 0.1− | 2006 01 27 | 699 | 0.5− | 0.5+ |
| 1998 04 25 | 691 | 0.1+ | 0.4− | 2005 12 30 | G96 | 0.1+ | 0.5− | 2006 01 27 | 699 | 0.0 | 0.1+ |
| 2002 03 22 | 735 | 0.6− | 0.5+ | 2005 12 30 | G96 | 0.1+ | 0.5− | 2006 01 27 | 699 | 0.0 | 0.7− |
| 2002 03 22 | 735 | 0.1− | 0.4− | 2005 12 30 | G96 | 0.1+ | 0.3− | 2006 02 02 | 703 | 0.5+ | 0.0 |
| 2002 03 22 | 735 | 0.5− | 0.1+ | 2005 12 30 | G96 | 0.1− | 0.5− | 2006 02 02 | 703 | 0.2− | 0.5+ |
| 2002 04 02 | 644 | 0.4+ | 0.4+ | 2006 01 05 | 699 | 1.1+ | 0.5− | 2006 02 02 | 703 | 0.8− | 0.6+ |
| 2002 04 02 | 644 | 0.4+ | 0.6+ | 2006 01 05 | 699 | 0.2+ | 1.5+ | 2006 02 02 | 703 | 0.4+ | 0.7+ |
| 2002 04 02 | 644 | 0.3+ | 0.6+ | 2006 01 05 | 699 | (1.8+ | 0.9−) | 2009 11 16 | 691 | 0.5− | 0.1+ |
| 2005 10 01 | G96 | 0.3− | 0.2+ | 2006 01 05 | 703 | (0.2+ | 1.8−) | 2009 11 16 | 691 | 1.0+ | 0.0 |
| 2005 10 01 | G96 | 0.7+ | 0.3+ | 2006 01 05 | 703 | (0.2− | 1.9−) | 2009 11 16 | 691 | 0.7− | 0.2+ |
| 2005 10 01 | G96 | 0.1+ | 0.2− | 2006 01 05 | 704 | 0.6+ | 0.5− | 2009 11 24 | 691 | 0.5− | 0.2+ |
| 2005 10 01 | G96 | 0.4+ | 0.1+ | 2006 01 05 | 703 | 0.6− | 0.6− | 2009 11 24 | 691 | 0.5− | 0.1− |
| 2005 10 27 | G96 | 0.2− | 0.6− | 2006 01 05 | 699 | 0.5− | 0.8+ | 2009 11 24 | 691 | 0.2+ | 0.5+ |
| 2005 10 27 | G96 | 0.5− | 0.2+ | 2006 01 05 | 704 | 0.4+ | 0.5+ | 2009 12 10 | G96 | 0.9+ | 0.8− |
| 2005 10 27 | G96 | 0.3− | 0.1− | 2006 01 05 | 703 | 0.3+ | 1.1− | 2009 12 10 | G96 | 0.7+ | 0.5− |
| 2005 10 27 | G96 | 0.2− | 0.7− | 2006 01 05 | 704 | 0.1− | 0.7+ | 2009 12 10 | G96 | 0.4+ | 0.4− |
| 2005 11 28 | G96 | (0.8− | 1.6+) | 2006 01 05 | 704 | 0.8+ | 1.0+ | 2009 12 10 | G96 | 0.7+ | 0.3− |
| 2005 11 28 | G96 | 0.7− | 0.4− | 2006 01 22 | 691 | 0.2+ | 0.1+ | 2009 12 19 | G96 | 0.4+ | 0.4− |
| 2005 11 28 | G96 | 0.1− | 0.2− | 2006 01 22 | 691 | 0.0 | 0.2+ | 2009 12 19 | G96 | 0.1− | 0.2− |
| 2005 11 28 | G96 | 0.0 | 0.3+ | 2006 01 22 | 691 | 0.2+ | 0.2+ | 2009 12 19 | G96 | 0.3+ | 0.1− |
| 2005 12 25 | 691 | 0.3− | 0.6− | 2006 01 24 | 703 | 0.2+ | 0.3− | | | | |

**(229544)∗ 2005 YP$_{118}$**

Discovered 2005 Dec. 25 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 162.49612 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21853060 | $\omega$ | 177.88121 | | +0.15147737 | | +0.98301884 |
| $a$ | 2.7297814 | $\Omega$ | 100.81961 | | −0.90843877 | | +0.17975063 |
| $e$ | 0.1115270 | $i$ | 6.05329 | | −0.38960699 | | −0.03692781 |
| $P$ | 4.51 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 01 05 | 691 | 0.3− | 0.0 | 2006 01 27 | G96 | 0.1+ | 0.5− | 2008 09 03 | J75 | 0.1− | 0.5+ |
| 2001 01 05 | 691 | 0.5− | 0.0 | 2006 01 27 | G96 | 0.1+ | 0.7− | 2008 09 03 | J75 | 0.0 | 0.2− |
| 2001 01 05 | 691 | 0.1+ | 0.0 | 2006 01 27 | G96 | 0.1+ | 0.1− | 2008 09 03 | J75 | 0.1+ | 0.1− |
| 2002 03 11 | 644 | 0.3+ | 0.8+ | 2007 04 15 | 703 | 0.7+ | 0.2− | 2008 09 06 | 703 | 1.1+ | 1.2+ |
| 2002 03 11 | 644 | 0.7+ | 0.5+ | 2007 04 15 | 703 | 0.8− | 0.1− | 2008 09 06 | 703 | 0.3+ | 1.1+ |
| 2002 03 11 | 644 | 0.3+ | 0.3+ | 2007 04 15 | 703 | 0.1− | 0.2+ | 2008 09 06 | 703 | 0.7− | 0.1− |
| 2005 12 25 | 691 | 0.1+ | 0.0 | 2007 04 15 | 703 | 0.6− | 0.6+ | 2008 09 06 | 703 | 0.1+ | 0.0 |
| 2005 12 25 | 691 | 0.1+ | 0.1+ | 2007 04 20 | 704 | (1.0+ | 1.7+) | 2008 09 23 | 704 | 0.0 | 0.4− |
| 2005 12 25 | 691 | 0.1+ | 0.3+ | 2007 04 20 | 704 | 0.7+ | 0.2+ | 2008 09 23 | 704 | 0.2− | 0.1+ |
| 2005 12 29 | 691 | 0.1− | 0.1− | 2007 04 20 | 704 | (1.5+ | 1.4+) | 2008 09 23 | 704 | 0.2+ | 1.0− |
| 2005 12 29 | 691 | 0.0 | 0.3+ | 2007 04 20 | 704 | (1.8+ | 1.1+) | 2008 09 23 | 704 | 0.5+ | 1.1+ |
| 2005 12 29 | 691 | 0.0 | 0.1+ | 2007 04 22 | 703 | 1.0+ | 1.5+ | 2009 11 24 | 691 | 0.8− | 0.0 |
| 2006 01 07 | 691 | 0.4+ | 0.1− | 2007 04 22 | 703 | (2.0− | 1.3−) | 2009 11 24 | 691 | 0.5− | 0.2− |
| 2006 01 07 | 691 | 0.4+ | 0.2− | 2007 04 22 | 703 | 0.5− | 0.0 | 2009 11 24 | 691 | 0.1+ | 0.2+ |
| 2006 01 07 | 691 | 0.3+ | 0.1− | 2007 04 22 | 703 | 0.9− | 0.1+ | 2009 12 11 | G96 | 0.4+ | 0.1+ |
| 2006 01 22 | 691 | 0.1+ | 0.1− | 2007 05 11 | 941 | 0.6− | 0.2− | 2009 12 11 | G96 | 0.3+ | 0.0 |
| 2006 01 22 | 691 | 0.0 | 0.1− | 2007 05 11 | 941 | 0.1+ | 0.0 | 2009 12 11 | G96 | 0.3+ | 0.1− |
| 2006 01 22 | 691 | 0.0 | 0.0 | 2007 05 11 | 941 | 0.4− | 0.5− | 2009 12 11 | G96 | 0.1+ | 0.2− |
| 2006 01 27 | G96 | 0.1+ | 0.5− | 2007 05 12 | 941 | 0.5− | 0.2− | | | | |

**(229545)∗ 2005 YU$_{121}$**

Discovered 2005 Dec. 28 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 341.60574 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23066521 | $\omega$ | 172.78315 | | −0.10732093 | | −0.97587778 |
| $a$ | 2.6331847 | $\Omega$ | 283.24205 | | +0.90214544 | | −0.01521419 |
| $e$ | 0.1546467 | $i$ | 11.26289 | | +0.41787059 | | −0.21778680 |
| $P$ | 4.27 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 27 | 645 | 0.1− | 0.1+ | 2006 01 04 | 691 | 0.2− | 0.1− | 2009 11 10 | 703 | 0.9+ | 0.2+ |
| 2000 09 27 | 645 | 0.0 | 0.1+ | 2006 01 04 | 691 | 0.2− | 0.1+ | 2009 11 10 | 703 | 0.7− | 0.8− |
| 2002 01 13 | 644 | 0.1− | 0.2− | 2006 01 04 | 691 | 0.1+ | 0.1+ | 2009 11 10 | 703 | 1.1+ | 0.1+ |
| 2002 01 13 | 644 | 0.8− | 0.4+ | 2006 01 04 | 691 | 0.4− | 0.0 | 2009 11 19 | 703 | 0.4+ | 0.0 |
| 2002 01 13 | 644 | 0.6− | 0.4− | 2006 01 04 | 691 | 0.1− | 0.4− | 2009 11 19 | 703 | 0.0 | 0.6+ |
| 2002 02 07 | 644 | 0.4+ | 0.3+ | 2006 01 04 | 691 | 0.1+ | 0.2+ | 2009 11 19 | 703 | 0.5− | 0.1+ |
| 2002 02 07 | 644 | 0.2+ | 0.3+ | 2006 01 05 | 704 | 0.6− | 0.5− | 2009 11 19 | 703 | 0.1− | 0.2− |
| 2002 02 07 | 644 | 0.3+ | 0.1+ | 2006 01 05 | 704 | 0.3+ | 0.4− | 2009 11 23 | 704 | 0.3+ | 1.4+ |
| 2002 02 15 | 704 | 1.2+ | 0.7+ | 2006 01 05 | 704 | 0.5− | 0.8− | 2009 11 23 | 704 | 0.3− | 0.2− |
| 2002 02 15 | 704 | 0.7+ | 0.6+ | 2006 01 05 | 704 | 0.7+ | 0.2− | 2009 11 23 | 704 | 0.5− | 0.0 |
| 2002 02 15 | 704 | 0.9+ | 0.6+ | 2006 01 05 | 704 | 1.3+ | 0.0 | 2009 11 23 | 704 | 0.3− | 0.5+ |
| 2002 02 15 | 704 | 1.3+ | 0.6+ | 2006 01 10 | 691 | 0.4− | 0.0 | 2009 11 26 | 703 | 0.0 | 1.1− |
| 2002 02 15 | 704 | 0.8+ | 0.8+ | 2006 01 10 | 691 | 0.5− | 0.2− | 2009 11 26 | 703 | 0.6− | 0.1− |
| 2005 12 08 | 691 | 0.0 | 0.2+ | 2006 01 10 | 691 | 0.2− | 0.0 | 2009 11 26 | 703 | 0.4− | 0.7+ |
| 2005 12 08 | 691 | 0.0 | 0.1+ | 2006 01 24 | 704 | 0.4+ | 0.2− | 2009 11 26 | 703 | 0.2− | 0.1+ |
| 2005 12 08 | 691 | 0.2− | 0.1− | 2006 01 24 | 704 | 0.5− | 0.8+ | 2009 11 26 | 703 | 1.3− | 0.1+ |
| 2005 12 28 | 704 | 0.3− | 0.2− | 2006 01 24 | 704 | 0.3− | 0.1+ | 2009 12 09 | 704 | 1.5+ | 0.3− |
| 2005 12 28 | 704 | 0.0 | 0.0 | 2006 01 24 | 704 | 0.1+ | 0.1− | 2009 12 09 | 704 | 0.7+ | 0.5+ |
| 2005 12 28 | 704 | 0.3− | 0.6− | 2006 01 24 | 704 | 0.1− | 0.1− | 2009 12 09 | 704 | 0.7+ | 1.1+ |
| 2005 12 28 | 704 | 0.6− | 0.0 | 2008 07 29 | J75 | 0.0 | 0.3− | 2009 12 10 | 704 | 1.0+ | 0.6− |
| 2005 12 28 | 704 | 1.4− | 0.4− | 2008 07 29 | J75 | 0.6− | 0.1+ | 2009 12 10 | 704 | 1.1− | 0.4− |
| 2005 12 29 | 691 | 0.1+ | 0.1− | 2008 07 29 | J75 | 0.0 | 0.0 | 2009 12 10 | 704 | 0.4− | 0.1− |
| 2005 12 29 | 691 | 0.2+ | 0.1+ | 2009 10 27 | 703 | (1.6− | 0.3−) | 2009 12 10 | 704 | 1.0− | 0.1+ |
| 2005 12 29 | 691 | 0.3+ | 0.0 | 2009 10 27 | 703 | 1.2+ | 0.1− | 2009 12 10 | 704 | 0.3− | 0.2− |
| 2005 12 31 | 704 | 0.4+ | 0.7+ | 2009 10 27 | 703 | 1.1+ | 0.8− | 2009 12 18 | 703 | 0.4− | 0.7− |
| 2005 12 31 | 704 | 0.9+ | 0.0 | 2009 10 28 | J75 | 0.9+ | 0.1+ | 2009 12 18 | 703 | 0.6+ | 0.2− |
| 2005 12 31 | 704 | 0.8+ | 0.4+ | 2009 10 28 | J75 | 0.4+ | 0.0 | 2009 12 18 | 703 | 0.4+ | 0.1− |
| 2005 12 31 | 704 | 0.0 | 0.1+ | 2009 10 28 | J75 | 0.1+ | 0.1− | 2009 12 18 | 703 | 0.0 | 0.2− |
| 2005 12 31 | 704 | 0.9+ | 0.7+ | 2009 11 10 | 703 | 1.0− | 0.4+ | | | | |

**(229546)∗ 2005 YQ$_{124}$**

Discovered 2005 Dec. 26 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 31.62116 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23091350 | $\omega$ | 333.38921 | | +0.79380429 | | −0.59839842 |
| $a$ | 2.6312968 | $\Omega$ | 63.78904 | | +0.57733380 | | +0.68529892 |
| $e$ | 0.1576148 | $i$ | 6.95255 | | +0.19120783 | | +0.41507195 |
| $P$ | 4.27 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 27 | 645 | 0.0 | 0.1+ | 2007 03 16 | 691 | 0.2− | 0.2− | 2009 11 17 | 114 | 0.0 | 0.0 |
| 2000 11 27 | 645 | 0.1− | 0.0 | 2007 03 16 | 691 | 0.3+ | 0.1+ | 2009 11 17 | 114 | 0.1+ | 0.1− |
| 2003 05 24 | 691 | 0.0 | 0.4+ | 2007 03 16 | 691 | 0.1+ | 0.1+ | 2009 11 17 | 114 | 0.0 | 0.1+ |
| 2003 05 24 | 691 | 0.0 | 0.3+ | 2007 05 07 | 691 | 0.4− | 0.4+ | 2009 11 17 | 114 | 0.1− | 0.2− |
| 2003 05 24 | 691 | 0.2+ | 0.4+ | 2007 05 07 | 691 | 0.3+ | 0.3− | 2009 11 18 | 114 | 0.1+ | 0.4− |
| 2004 08 16 | E12 | 0.7+ | 0.6+ | 2007 05 07 | 691 | 0.0 | 0.0 | 2009 11 18 | 114 | 0.3− | 0.0 |
| 2004 08 16 | E12 | 0.4+ | 0.7+ | 2009 09 22 | G96 | 0.2+ | 0.1+ | 2009 11 18 | 114 | 0.5+ | 0.4− |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 08 16 | E12 | 0.4− | 0.3+ | 2009 09 22 | G96 | 0.4− | 0.1− | 2009 11 18 | 114 | 0.0 | 0.2− |
| 2004 08 16 | E12 | 0.5− | 0.2+ | 2009 09 22 | G96 | 0.1− | 0.1− | 2009 11 18 | 114 | 0.3+ | 0.1− |
| 2005 11 29 | G96 | 0.0 | 0.3− | 2009 09 22 | G96 | 0.1+ | 0.1+ | 2009 11 21 | 704 | 1.0+ | 0.0 |
| 2005 11 29 | G96 | 0.0 | 0.4− | 2009 10 16 | G96 | 0.0 | 0.1+ | 2009 11 21 | 704 | 0.4− | 0.4− |
| 2005 11 29 | G96 | 0.2+ | 0.3− | 2009 10 16 | G96 | 0.0 | 0.0 | 2009 11 21 | 704 | 0.1− | 0.6+ |
| 2005 11 29 | G96 | 0.2− | 0.0 | 2009 10 16 | G96 | 0.3− | 0.2+ | 2009 11 25 | 703 | 0.4− | 1.3− |
| 2005 12 26 | 691 | 0.1+ | 0.1− | 2009 10 16 | G96 | 0.1− | 0.1− | 2009 11 25 | 703 | 0.2+ | 0.2− |
| 2005 12 26 | 691 | 0.1+ | 0.0 | 2009 10 30 | G96 | 0.4+ | 0.2+ | 2009 11 25 | 703 | 0.1− | 0.2− |
| 2005 12 26 | 691 | 0.1+ | 0.1− | 2009 10 30 | G96 | 0.3− | 0.2− | 2009 11 25 | 703 | 0.4− | 0.3− |
| 2005 12 29 | 704 | 0.3+ | 0.1+ | 2009 10 30 | G96 | 0.3− | 0.1+ | 2009 11 25 | 703 | (0.1− | 2.0−) |
| 2005 12 29 | 704 | 0.0 | 0.1+ | 2009 10 30 | G96 | 0.1+ | 0.1− | 2009 12 06 | J75 | 0.7+ | 0.1+ |
| 2005 12 29 | 704 | 0.5− | 0.2+ | 2009 11 12 | J75 | 0.3− | 0.5+ | 2009 12 06 | J75 | 0.3+ | 0.3+ |
| 2006 01 05 | 703 | 0.2− | 0.2+ | 2009 11 12 | J75 | 0.3− | 0.2+ | 2009 12 07 | J75 | 0.1− | 0.2+ |
| 2006 01 05 | 703 | 0.1+ | 0.0 | 2009 11 12 | J75 | 0.3+ | 0.4+ | 2009 12 09 | J75 | 0.4+ | 0.2+ |
| 2006 01 05 | 703 | 1.1− | 0.1− | 2009 11 16 | 691 | 0.8+ | 0.2+ | 2009 12 09 | J75 | 0.3+ | 0.0 |
| 2006 01 05 | 703 | 0.2− | 0.4+ | 2009 11 16 | 691 | 0.5− | 0.2+ | 2009 12 09 | J75 | 0.3+ | 1.3− |
| 2006 01 06 | 704 | 1.5+ | 1.1+ | 2009 11 16 | 691 | 0.5− | 0.0 | 2009 12 16 | G96 | 0.3+ | 0.1− |
| 2006 01 06 | 704 | 0.0 | 0.7+ | 2009 11 17 | 704 | 0.2− | 0.5+ | 2009 12 16 | G96 | 0.1+ | 1.8+ |
| 2006 01 06 | 704 | 0.4+ | 0.1− | 2009 11 17 | 704 | 0.2+ | 0.5− | 2009 12 16 | G96 | 0.1− | 0.1− |
| 2006 01 07 | 691 | 0.1− | 0.2+ | 2009 11 17 | 704 | 0.1− | 0.7− | 2009 12 16 | G96 | 0.2− | 0.1− |
| 2006 01 07 | 691 | 0.0 | 0.2+ | 2009 11 17 | 704 | 1.4− | 0.0 | | | | |
| 2006 01 07 | 691 | 0.1+ | 0.2+ | 2009 11 17 | 114 | 0.3+ | 0.0 | | | | |

**(229547)∗ 2005 YM$_{138}$**

Discovered 2005 Dec. 26 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 80.33379 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.23645454 | $\omega$ | 245.00619 | | | +0.95817653 | | +0.25512199 | |
| $a$ | 2.5900269 | $\Omega$ | 99.99827 | | | −0.19118452 | | +0.90777933 | |
| $e$ | 0.3221279 | $i$ | 7.56523 | | | −0.21294652 | | +0.33294061 | |
| $P$ | 4.17 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 1 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 07 06 | 699 | 0.8+ | 0.7− | 2005 10 01 | G96 | 0.4+ | 0.3− | 2008 05 28 | G96 | 0.0 | 0.1− |
| 2000 07 06 | 699 | 0.4+ | 0.7− | 2005 10 01 | G96 | 0.5− | 0.0 | 2008 05 28 | G96 | 0.0 | 0.2+ |
| 2000 07 06 | 699 | (2.2+ | 0.2+) | 2005 10 01 | G96 | 0.0 | 0.1+ | 2008 05 28 | G96 | 0.2− | 0.1+ |
| 2000 07 06 | 699 | 0.2+ | 0.6− | 2005 10 01 | G96 | 0.1+ | 0.2+ | 2008 06 01 | 704 | 0.3+ | 0.8+ |
| 2000 08 02 | 704 | 0.5− | 0.5+ | 2005 10 01 | G96 | 0.1+ | 0.1− | 2008 06 01 | 704 | 0.6+ | 0.0 |
| 2000 08 02 | 704 | 0.6− | 0.1− | 2005 10 29 | G96 | 0.1+ | 0.2− | 2008 06 01 | 704 | 0.8− | 0.1+ |
| 2000 08 02 | 704 | 0.8− | 0.2− | 2005 10 29 | G96 | 0.3+ | 0.2− | 2009 11 18 | G96 | 0.6+ | 0.3− |
| 2000 08 02 | 704 | 0.8− | 0.0 | 2005 10 29 | G96 | 0.5+ | 0.7− | 2009 11 18 | G96 | 0.0 | 0.2− |
| 2000 08 02 | 704 | 0.6− | 0.8+ | 2005 10 29 | G96 | 0.7+ | 0.4− | 2009 11 18 | G96 | 0.1+ | 0.3− |
| 2000 08 20 | 699 | 1.1+ | 0.0 | 2005 12 26 | 691 | 0.1+ | 0.3+ | 2009 11 18 | G96 | 0.1+ | 0.1+ |
| 2000 08 20 | 699 | 0.4+ | 0.2+ | 2005 12 26 | 691 | 0.2− | 0.1+ | 2009 12 16 | G96 | 0.2+ | 0.5+ |
| 2000 08 20 | 699 | 0.3+ | 0.7+ | 2005 12 26 | 691 | 0.0 | 0.6+ | 2009 12 16 | G96 | 0.2+ | 0.2− |
| 2000 08 20 | 699 | 0.0 | 0.2+ | 2005 12 30 | 691 | 0.2+ | 0.0 | 2009 12 16 | G96 | 0.2+ | 0.1− |
| 2002 01 07 | 691 | 0.2− | 0.2+ | 2005 12 30 | 691 | 0.2− | 0.1− | 2009 12 16 | G96 | 0.0 | 0.4− |
| 2002 01 07 | 691 | 0.1− | 0.3− | 2005 12 30 | 691 | 0.5+ | 0.1− | 2009 12 16 | G96 | 0.0 | 0.2− |
| 2002 01 07 | 691 | 0.0 | 0.2+ | 2006 02 07 | G96 | 0.0 | 0.1− | 2009 12 25 | 691 | 0.3− | 0.7+ |
| 2005 10 01 | G96 | 0.2− | 0.3+ | 2006 02 07 | G96 | 0.4− | 0.8− | 2009 12 25 | 691 | 0.0 | 0.3− |
| 2005 10 01 | G96 | 0.2+ | 0.5+ | 2006 02 07 | G96 | 0.1+ | 0.3− | 2009 12 25 | 691 | 0.2− | 0.0 |
| 2005 10 01 | G96 | 0.3+ | 0.1+ | 2008 05 28 | G96 | 0.5+ | 0.4+ | | | | |

**(229548)∗ 2005 YD$_{141}$**

Discovered 2005 Dec. 28 by the Mt. Lemmon Survey at Mount Lemmon.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 138.20441 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.21915359 | $\omega$ | 198.29035 | | | +0.31934071 | | +0.94203429 | |
| $a$ | 2.7246057 | $\Omega$ | 90.43351 | | | −0.85608879 | | +0.33335623 | |
| $e$ | 0.0859200 | $i$ | 5.90762 | | | −0.40636621 | | +0.03801342 | |
| $P$ | 4.50 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 1 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 09 | 704 | 0.1+ | 0.1− | 2005 12 30 | 691 | 0.8− | 0.1− | 2007 04 26 | G96 | 0.2− | 0.3− |
| 2004 10 09 | 704 | 0.1+ | 0.7+ | 2006 01 07 | G96 | 0.3+ | 0.1− | 2009 11 10 | 691 | 0.2− | 0.1+ |
| 2004 10 09 | 704 | 0.3+ | 0.4− | 2006 01 07 | G96 | 0.6+ | 0.1+ | 2009 11 10 | 691 | 0.0 | 0.1+ |
| 2004 12 11 | 291 | 0.1+ | 0.1+ | 2006 01 07 | G96 | 0.3+ | 0.2− | 2009 11 10 | 691 | 0.0 | 0.2+ |
| 2004 12 11 | 291 | 0.1− | 0.1+ | 2006 01 07 | G96 | 0.4− | 0.2− | 2009 11 18 | 691 | 0.6− | 0.8− |
| 2004 12 11 | 291 | 0.4− | 0.2+ | 2006 01 25 | G96 | 0.2+ | 0.3− | 2009 11 18 | 691 | 0.2− | 0.3+ |
| 2005 12 02 | G96 | 0.5+ | 0.4− | 2006 01 25 | G96 | 0.2− | 0.2− | 2009 11 18 | 691 | 0.1− | 0.1− |
| 2005 12 02 | G96 | 0.3+ | 0.2− | 2006 01 25 | G96 | 1.1+ | 0.2− | 2009 11 20 | A50 | 1.4+ | 0.6− |
| 2005 12 02 | G96 | 0.1+ | 0.1+ | 2006 01 25 | G96 | 0.4+ | 0.7+ | 2009 11 20 | A50 | 0.9+ | 0.2+ |
| 2005 12 02 | G96 | 0.3+ | 0.0 | 2007 04 16 | 703 | 0.8− | 0.9+ | 2009 11 20 | A50 | (1.7+ | 0.0 ) |
| 2005 12 28 | G96 | 0.1+ | 0.3− | 2007 04 16 | 703 | 0.1+ | 0.4+ | 2009 12 17 | G96 | 0.6+ | 0.3+ |
| 2005 12 28 | G96 | 0.2− | 0.2− | 2007 04 16 | 703 | (3.3− | 0.6+) | 2009 12 17 | G96 | 0.4+ | 0.6+ |
| 2005 12 28 | G96 | 0.0 | 0.2+ | 2007 04 16 | 703 | 0.2− | 0.9+ | 2009 12 17 | G96 | 0.6+ | 0.0 |
| 2005 12 28 | G96 | 0.0 | 0.1− | 2007 04 26 | G96 | 0.1+ | 0.4− | 2009 12 17 | G96 | 0.4+ | 0.1+ |
| 2005 12 30 | 691 | 0.3+ | 0.2+ | 2007 04 26 | G96 | 0.8+ | 0.1− | | | | |
| 2005 12 30 | 691 | 0.2− | 0.2+ | 2007 04 26 | G96 | 0.8+ | 0.2− | | | | |

**(229549)∗ 2005 YG$_{150}$ = 1998 HN$_{16}$**

Discovered 2005 Dec. 25 by Spacewatch at Kitt Peak.

Id. K. E. Smalley (*MPO* 96799)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 304.87215 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.22821715 | $\omega$ | 74.40011 | | | −0.80933106 | | −0.58367315 | |
| $a$ | 2.6519818 | $\Omega$ | 69.84697 | | | +0.50854211 | | −0.75226493 | |
| $e$ | 0.0517057 | $i$ | 4.00957 | | | +0.29388460 | | −0.30565197 | |
| $P$ | 4.32 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 1 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 04 24 | 691 | 0.2− | 0.3+ | 2005 12 25 | 691 | 0.2+ | 0.2+ | 2007 06 14 | 691 | 0.2+ | 0.0 |
| 1998 04 24 | 691 | 1.0− | 0.3− | 2005 12 25 | 691 | 0.1− | 0.1+ | 2007 06 14 | 691 | 0.1+ | 0.5+ |
| 1998 04 24 | 691 | 0.9− | 0.7− | 2005 12 30 | G96 | 0.2+ | 0.2− | 2009 11 21 | 691 | 0.1+ | 0.1− |
| 1998 04 27 | 691 | 0.4+ | 0.2+ | 2005 12 30 | G96 | 0.3− | 0.2− | 2009 11 21 | 691 | 0.2− | 0.1− |
| 1998 04 27 | 691 | 0.6+ | 0.3− | 2005 12 30 | G96 | 0.1− | 0.6− | 2009 11 21 | 691 | 0.0 | 0.1+ |
| 1998 04 27 | 691 | 0.5+ | 0.5− | 2005 12 30 | G96 | 0.1− | 0.2− | 2009 11 25 | 691 | 0.1+ | 0.0 |
| 2002 02 08 | 704 | 0.5− | 0.6− | 2006 01 10 | 691 | 0.2− | 0.3+ | 2009 11 25 | 691 | 0.1− | 0.2− |
| 2002 02 08 | 704 | 0.8+ | 0.2− | 2006 01 10 | 691 | 0.1− | 0.3+ | 2009 11 25 | 691 | 0.1+ | 0.2− |
| 2002 02 08 | 704 | 0.1− | 0.2+ | 2006 01 10 | 691 | 0.1+ | 0.2+ | 2009 12 10 | G96 | 0.5+ | 0.1− |
| 2002 02 08 | 704 | 0.4− | 0.5− | 2007 05 26 | G96 | 0.1+ | 0.3+ | 2009 12 10 | G96 | 0.0 | 0.4− |
| 2002 04 02 | 291 | 0.3+ | 0.1− | 2007 05 26 | G96 | 0.1+ | 0.5+ | 2009 12 10 | G96 | 0.2+ | 0.5− |
| 2002 04 02 | 291 | 0.2+ | 0.2+ | 2007 05 26 | G96 | 0.1+ | 0.0 | 2009 12 10 | G96 | 0.8+ | 0.3− |
| 2002 04 02 | 291 | 0.0 | 0.4+ | 2007 05 26 | G96 | 0.3− | 0.3+ | | | | |
| 2005 12 25 | 691 | 0.1− | 0.1+ | 2007 06 14 | 691 | 0.1− | 0.1− | | | | |

**(229550)∗ 2005 YP$_{162}$**

Discovered 2005 Dec. 27 by the Mt. Lemmon Survey at Mount Lemmon.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 46.03458 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.22812645 | $\omega$ | 225.84556 | | | +0.93518132 | | −0.35378713 | |
| $a$ | 2.6526846 | $\Omega$ | 154.85997 | | | +0.33499296 | | +0.86851656 | |
| $e$ | 0.1079275 | $i$ | 2.21899 | | | +0.11495923 | | +0.34715076 | |
| $P$ | 4.32 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 0 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 02 13 | 291 | 0.2+ | 0.8+ | 2005 12 27 | 691 | 0.1+ | 0.3+ | 2009 11 10 | 691 | 0.0 | 0.1− |
| 2002 02 13 | 291 | 0.3+ | 1.0+ | 2005 12 27 | G96 | 0.3− | 0.6− | 2009 11 10 | 691 | 0.2− | 0.1− |
| 2002 02 13 | 291 | 0.0 | 1.1+ | 2005 12 27 | G96 | 0.1+ | 0.6− | 2009 11 10 | 691 | 0.3+ | 0.2− |
| 2004 08 12 | 807 | 0.1− | 0.0 | 2005 12 27 | G96 | 0.1+ | 0.9− | 2009 11 10 | 691 | 0.1+ | 0.1− |
| 2004 08 12 | 807 | 0.0 | 0.7+ | 2005 12 27 | G96 | 0.6+ | 0.0 | 2009 11 10 | 691 | 0.3+ | 0.2− |
| 2004 08 22 | 691 | 0.2+ | 0.4+ | 2005 12 31 | 691 | 0.3− | 0.4+ | 2009 11 10 | 691 | 0.1+ | 0.1+ |
| 2004 08 22 | 691 | 0.1− | 0.4+ | 2005 12 31 | 691 | 0.2+ | 0.3+ | 2009 11 18 | 691 | 0.1+ | 0.2− |
| 2004 08 22 | 691 | 0.0 | 0.3+ | 2005 12 31 | 691 | 0.2+ | 0.2+ | 2009 11 18 | 691 | 0.7− | 0.2− |
| 2004 09 10 | 691 | 0.3+ | 0.3− | 2007 04 19 | G96 | 0.6− | 0.3− | 2009 11 18 | 691 | 0.3− | 0.1− |
| 2004 09 10 | 691 | 0.0 | 0.5+ | 2007 04 19 | G96 | 1.0+ | 0.2+ | 2009 11 20 | A50 | 0.3+ | 0.6+ |
| 2004 09 10 | 691 | 0.1+ | 0.6+ | 2007 04 19 | G96 | 0.2+ | 0.1− | 2009 11 20 | A50 | 0.5+ | 0.9+ |
| 2004 09 15 | 691 | 0.6− | 0.6+ | 2007 04 19 | G96 | 0.4+ | 0.0 | 2009 11 22 | 691 | 0.0 | 0.2+ |
| 2004 09 15 | 691 | 1.2− | 0.3+ | 2007 04 22 | G96 | 0.5− | 0.9+ | 2009 11 22 | 691 | 0.6− | 0.0 |
| 2004 09 15 | 691 | 0.2+ | 0.4+ | 2007 04 22 | G96 | 0.3+ | 0.2− | 2009 11 22 | 691 | 0.2− | 0.1+ |
| 2005 11 01 | G96 | 0.3− | 0.6− | 2007 04 22 | G96 | 0.7− | 0.1+ | 2009 12 17 | G96 | 0.4+ | 0.1− |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 11 01 | G96 | 0.1− | 0.3− | | 2007 04 22 | G96 | 0.5+ | 1.0+ | | 2009 12 17 | G96 | 0.6+ | 0.3− | |
| 2005 11 01 | G96 | 0.6− | 0.4− | | 2009 09 22 | G96 | 0.6+ | 0.2+ | | 2009 12 17 | G96 | 0.8+ | 0.1− | |
| 2005 11 01 | G96 | 0.9− | 0.2− | | 2009 09 22 | G96 | 0.7+ | 0.3− | | 2009 12 17 | G96 | 0.5+ | 0.3− | |
| 2005 12 27 | 691 | 0.3+ | 0.0 | | 2009 09 22 | G96 | 0.3+ | 0.6− | | | | | | |
| 2005 12 27 | 691 | 0.2+ | 0.1+ | | 2009 09 22 | G96 | 0.1− | 0.3− | | | | | | |

**(229551)∗ 2005 YP$_{173}$ = 2004 RP$_{315}$**

Discovered 2005 Dec. 24 by the Catalina Sky Survey.

Id. G. V. Williams (*MPO* 96817)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 33.00628 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.23326125 | $\omega$ | 320.84889 | | +0.47886127 | | −0.84115044 | | |
| $a$ | 2.6136112 | $\Omega$ | 99.19101 | | +0.85576984 | | +0.38340159 | | |
| $e$ | 0.1529177 | $i$ | 14.74874 | | +0.19583122 | | +0.38140419 | | |
| $P$ | 4.23 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 1 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 10 18 | 704 | 1.1− | 0.7+ | | 2004 09 17 | 699 | 0.7− | 0.9+ | | 2006 01 27 | 703 | 0.3+ | 0.0 | |
| 2000 10 18 | 704 | 0.9+ | 0.9+ | | 2004 09 17 | 699 | 0.6− | 0.2+ | | 2006 01 27 | 703 | 0.3− | 0.2+ | |
| 2000 10 18 | 704 | 0.2+ | 1.0+ | | 2004 09 17 | 699 | 0.3− | 0.4− | | 2006 02 18 | 699 | 0.4− | 0.3+ | |
| 2000 10 18 | 704 | 0.3− | 0.2− | | 2005 12 24 | 703 | 0.1− | 0.1− | | 2006 02 18 | 699 | 0.0 | 0.1+ | |
| 2002 01 23 | 704 | (1.5+ | 1.6+) | | 2005 12 24 | 703 | 0.5+ | 1.1+ | | 2006 02 18 | 699 | 0.5+ | 0.0 | |
| 2002 01 23 | 704 | 0.4− | 1.1+ | | 2005 12 24 | 703 | 0.9− | 1.0+ | | 2006 02 18 | 699 | 0.7+ | 0.1− | |
| 2002 01 23 | 704 | 0.1− | 0.5+ | | 2005 12 24 | 703 | 0.3− | 0.0 | | 2006 02 24 | 699 | 0.3− | 1.3+ | |
| 2002 02 21 | 704 | 0.6+ | 0.3+ | | 2005 12 29 | 703 | 0.7+ | 0.6− | | 2006 02 24 | 699 | 0.1− | 0.6− | |
| 2002 02 21 | 704 | 0.5+ | 0.6+ | | 2005 12 29 | 703 | (2.1− | 0.5−) | | 2006 02 24 | 699 | 0.3− | 0.7− | |
| 2002 02 21 | 704 | 1.0+ | 1.2+ | | 2005 12 29 | 703 | 0.2+ | 0.7− | | 2006 02 24 | 699 | 0.0 | 0.2− | |
| 2002 03 21 | 704 | (2.4− | 0.8+) | | 2005 12 29 | 703 | 0.3+ | 0.8− | | 2008 08 04 | E12 | 0.7− | 0.9+ | |
| 2002 03 21 | 704 | 0.1− | 1.2+ | | 2006 01 05 | 704 | 0.1+ | 0.1− | | 2008 08 04 | E12 | 0.2+ | 0.7+ | |
| 2002 03 21 | 704 | 0.8+ | 0.3+ | | 2006 01 05 | 704 | 0.4+ | 0.3+ | | 2008 08 04 | E12 | 0.0 | 0.8+ | |
| 2002 04 14 | 699 | 0.2+ | 0.2− | | 2006 01 05 | 704 | 0.4+ | 0.5+ | | 2009 12 11 | 704 | 0.4+ | 0.1+ | |
| 2002 04 14 | 699 | 0.4− | 1.0+ | | 2006 01 05 | 704 | 1.4+ | 0.0 | | 2009 12 11 | 704 | 0.1− | 0.1+ | |
| 2002 04 14 | 699 | 0.5+ | 0.5+ | | 2006 01 05 | 704 | 0.3+ | 0.1− | | 2009 12 11 | 704 | 1.0− | 0.7− | |
| 2002 04 14 | 699 | 0.1− | 0.7+ | | 2006 01 06 | 699 | 0.1− | 0.2− | | 2009 12 16 | 691 | 0.2− | 0.1+ | |
| 2004 08 21 | E12 | 0.5− | 0.1− | | 2006 01 06 | 699 | 1.2− | 0.1+ | | 2009 12 16 | 691 | 0.1+ | 0.2+ | |
| 2004 08 21 | E12 | 0.3+ | 0.2− | | 2006 01 06 | 699 | 0.9− | 0.3− | | 2009 12 16 | 691 | 0.3+ | 0.0 | |
| 2004 08 21 | E12 | 0.3− | 0.2+ | | 2006 01 06 | 699 | 0.1− | 1.0+ | | 2009 12 20 | 691 | 0.3+ | 0.1+ | |
| 2004 08 21 | E12 | 0.4− | 0.5+ | | 2006 01 24 | 699 | 0.2+ | 0.2− | | 2009 12 20 | 691 | 0.2+ | 0.2− | |
| 2004 09 15 | E12 | 0.7− | 0.0 | | 2006 01 24 | 699 | 0.1− | 0.6+ | | 2009 12 20 | 691 | 0.2+ | 0.0 | |
| 2004 09 15 | E12 | 0.1− | 0.3− | | 2006 01 24 | 699 | 0.1+ | 0.1− | | 2009 12 25 | 691 | 0.3− | 0.0 | |
| 2004 09 15 | E12 | 0.6+ | 0.2+ | | 2006 01 24 | 699 | 0.8− | 0.1+ | | 2009 12 25 | 691 | 0.1+ | 0.2− | |
| 2004 09 15 | E12 | 0.1+ | 0.7+ | | 2006 01 27 | 703 | 0.3− | 0.3− | | 2009 12 25 | 691 | 0.3− | 0.1− | |
| 2004 09 17 | 699 | 1.0+ | 0.4+ | | 2006 01 27 | 703 | 0.9− | 0.8− | | | | | | |

**(229552)∗ 2005 YP$_{189}$ = 1992 SA$_{7}$**

Discovered 2005 Dec. 29 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 96833)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 26.12044 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.23940562 | $\omega$ | 285.03878 | | +0.58505076 | | −0.81041717 | | |
| $a$ | 2.5686986 | $\Omega$ | 129.11330 | | +0.75842765 | | +0.53334997 | | |
| $e$ | 0.2046370 | $i$ | 2.26415 | | +0.28723354 | | +0.24240838 | | |
| $P$ | 4.12 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 2 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1992 09 26 | 691 | 0.3+ | 0.5+ | | 2005 12 04 | G96 | 0.3− | 0.3− | | 2006 01 21 | G96 | 0.0 | 0.4− | |
| 1992 09 26 | 691 | 0.4+ | 0.0 | | 2005 12 04 | G96 | 0.1+ | 0.6− | | 2006 01 21 | G96 | 0.1− | 0.5− | |
| 1992 09 26 | 691 | 0.2− | 0.4+ | | 2005 12 04 | G96 | 0.1− | 0.2− | | 2006 01 21 | G96 | 0.1− | 0.8− | |
| 1992 09 27 | 691 | 0.0 | 0.6+ | | 2005 12 25 | 691 | 0.3+ | 0.2+ | | 2006 01 24 | 704 | 0.9+ | 0.1− | |
| 1992 09 27 | 691 | 0.3+ | 0.0 | | 2005 12 25 | 691 | 0.4+ | 0.1+ | | 2006 01 24 | 704 | 1.0− | 0.1− | |
| 1992 09 27 | 691 | 0.2+ | 0.0 | | 2005 12 25 | 691 | 0.2+ | 0.1+ | | 2006 01 24 | 704 | 0.3+ | 0.6− | |
| 1992 09 28 | 691 | 0.5− | 0.4− | | 2005 12 29 | 691 | 1.2+ | 1.4+ | | 2006 01 24 | 704 | 1.0− | 0.7− | |
| 1992 09 28 | 691 | 0.5− | 0.2+ | | 2005 12 29 | 691 | 0.2+ | 0.2+ | | 2006 01 24 | 704 | 0.3− | 1.1− | |
| 1992 09 28 | 691 | 0.2− | 0.5− | | 2005 12 29 | 691 | 0.0 | 0.3+ | | 2009 11 17 | 691 | 0.1+ | 0.4− | |
| 2002 01 22 | 291 | 0.4− | 0.1+ | | 2006 01 04 | 691 | 0.1− | 0.3+ | | 2009 11 17 | 691 | 0.3− | 0.4− | |
| 2002 01 22 | 291 | 0.4− | 0.2+ | | 2006 01 04 | 691 | 0.9+ | 1.0− | | 2009 11 17 | 691 | 0.4− | 0.2− | |
| 2002 01 22 | 291 | 0.5− | 0.2+ | | 2006 01 04 | 691 | 0.1+ | 0.1+ | | 2009 11 21 | 691 | (2.5+ | 0.7−) | |
| 2002 02 11 | 704 | 0.4+ | 0.6+ | | 2006 01 06 | 691 | 0.0 | 0.2+ | | 2009 11 21 | 691 | 0.2− | 0.2− | |
| 2002 02 11 | 704 | 0.8+ | 0.5+ | | 2006 01 06 | 691 | 0.3− | 0.2+ | | 2009 11 21 | 691 | 0.6− | 0.3− | |
| 2002 02 11 | 704 | 0.3− | 1.3+ | | 2006 01 06 | 691 | 0.1+ | 0.2+ | | 2009 12 17 | 704 | 0.2+ | 0.3− | |
| 2005 11 01 | G96 | 0.3− | 0.5− | | 2006 01 06 | G96 | 0.2+ | 0.3− | | 2009 12 17 | 704 | 0.4+ | 0.5+ | |
| 2005 11 01 | G96 | 0.3− | 0.6− | | 2006 01 06 | G96 | 0.1− | 0.4− | | 2009 12 17 | 704 | 0.6+ | 0.3+ | |
| 2005 11 01 | G96 | 0.6− | 0.7− | | 2006 01 06 | G96 | 0.0 | 0.4− | | 2009 12 17 | 704 | 0.5+ | 1.1+ | |
| 2005 11 01 | G96 | 0.6− | 0.2− | | 2006 01 06 | G96 | 0.4− | 0.3− | | | | | | |
| 2005 12 04 | G96 | 0.1− | 0.4− | | 2006 01 21 | G96 | 0.5− | 0.0 | | | | | | |

**(229553)∗ 2005 YT$_{191}$ = 2004 TK$_{283}$**

Discovered 2005 Dec. 30 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 96835)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 340.45367 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.22202977 | $\omega$ | 134.24496 | | −0.23455730 | | −0.97178118 | | |
| $a$ | 2.7010248 | $\Omega$ | 329.29475 | | +0.87736390 | | −0.20056105 | | |
| $e$ | 0.0587658 | $i$ | 2.80456 | | +0.41858747 | | −0.12416366 | | |
| $P$ | 4.44 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 0 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 08 08 | 691 | 0.2− | 0.1+ | | 2006 01 22 | G96 | 0.0 | 0.3− | | 2008 09 06 | G96 | 0.1+ | 0.0 | |
| 1999 08 08 | 691 | 0.4− | 0.3+ | | 2006 01 22 | G96 | 0.0 | 0.3− | | 2008 09 20 | G96 | 0.1− | 0.3+ | |
| 1999 08 08 | 691 | 0.4− | 0.2+ | | 2006 01 24 | 704 | (1.9+ | 0.0 ) | | 2008 09 20 | G96 | 0.2− | 0.2− | |
| 2004 10 08 | 691 | 0.1+ | 0.2+ | | 2006 01 24 | 704 | 0.5+ | 0.1− | | 2008 09 20 | G96 | 0.3+ | 0.0 | |
| 2004 10 08 | 691 | 0.1+ | 0.3+ | | 2006 01 24 | 704 | 0.5+ | 0.4− | | 2008 09 20 | G96 | 0.1+ | 0.1+ | |
| 2004 10 08 | 691 | 0.1− | 0.2+ | | 2006 01 25 | 691 | 0.3+ | 0.0 | | 2008 10 02 | G96 | 0.2+ | 0.1+ | |
| 2004 10 14 | 691 | 0.2+ | 0.1− | | 2006 01 25 | 691 | 0.1+ | 0.2+ | | 2008 10 02 | G96 | 0.4+ | 0.3+ | |
| 2004 10 14 | 691 | 0.6+ | 0.0 | | 2006 01 25 | 691 | 0.1+ | 0.0 | | 2008 10 02 | G96 | 0.1+ | 0.1− | |
| 2004 10 14 | 691 | 0.2− | 0.0 | | 2006 01 26 | 703 | 1.2+ | 0.1− | | 2008 10 02 | G96 | 0.2− | 0.3+ | |
| 2005 12 30 | 691 | 0.1− | 0.2+ | | 2006 01 26 | 703 | 0.6− | 0.2+ | | 2009 11 10 | 691 | 0.1− | 0.0 | |
| 2005 12 30 | 691 | 0.1+ | 0.1+ | | 2006 01 26 | 703 | 0.2+ | 0.5− | | 2009 11 10 | 691 | 0.1− | 0.0 | |
| 2005 12 30 | 691 | 0.4− | 0.1− | | 2006 01 26 | 703 | 0.0 | 0.4− | | 2009 11 10 | 691 | 0.0 | 0.1− | |
| 2006 01 04 | 691 | 0.1+ | 0.1+ | | 2006 02 25 | G96 | 0.1− | 0.2+ | | 2009 11 22 | 691 | 0.3− | 0.1− | |
| 2006 01 04 | 691 | 0.1+ | 0.1− | | 2006 02 25 | G96 | 0.2− | 0.1+ | | 2009 11 22 | 691 | 0.5− | 0.0 | |
| 2006 01 04 | 691 | 0.2+ | 0.2+ | | 2006 02 25 | G96 | 0.4− | 0.2+ | | 2009 11 22 | 691 | 0.5− | 0.2− | |
| 2006 01 08 | 691 | 0.0 | 0.2+ | | 2006 02 25 | G96 | 0.0 | 0.2+ | | 2009 12 11 | G96 | 0.4+ | 0.3− | |
| 2006 01 08 | 691 | 0.1+ | 0.2+ | | 2008 07 30 | G96 | 0.2+ | 0.4+ | | 2009 12 11 | G96 | 0.1− | 0.6− | |
| 2006 01 08 | 691 | 0.1+ | 0.6+ | | 2008 07 30 | G96 | 0.3+ | 0.2+ | | 2009 12 11 | G96 | 0.9+ | 0.0 | |
| 2006 01 10 | G96 | 0.6+ | 0.9+ | | 2008 07 30 | G96 | 0.2− | 0.1− | | 2009 12 11 | G96 | 0.0 | 0.0 | |
| 2006 01 10 | G96 | 0.2+ | 0.5+ | | 2008 07 30 | G96 | 0.2− | 0.3+ | | 2009 12 18 | G96 | 0.8+ | 0.1− | |
| 2006 01 10 | G96 | 0.1− | 0.5+ | | 2008 09 06 | G96 | 0.3+ | 0.2+ | | 2009 12 18 | G96 | 0.5+ | 0.3− | |
| 2006 01 22 | G96 | 0.3− | 0.2− | | 2008 09 06 | G96 | 0.3− | 0.4+ | | 2009 12 18 | G96 | 0.3+ | 0.3− | |
| 2006 01 22 | G96 | 0.2+ | 0.0 | | 2008 09 06 | G96 | 0.4− | 0.2+ | | | | | | |

**(229554)∗ 2005 YR$_{195}$ = 1995 SJ$_{38}$ = 2004 RP$_{281}$**

Discovered 2005 Dec. 31 by Spacewatch at Kitt Peak.

Id. A. Doppler (*MPO* 101190)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 338.64972 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.21934228 | $\omega$ | 270.85651 | | +0.02599281 | | −0.99965813 | | |
| $a$ | 2.7230429 | $\Omega$ | 177.64845 | | +0.94239917 | | +0.02356024 | | |
| $e$ | 0.0601530 | $i$ | 3.95148 | | +0.33347892 | | +0.01133738 | | |
| $P$ | 4.49 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 0 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 09 24 | 691 | 0.3− | 0.7+ | | 2006 01 31 | G96 | 0.5− | 0.1− | | 2009 11 09 | 703 | 1.1− | 0.1+ | |
| 1995 09 24 | 691 | 0.4− | 0.4+ | | 2006 01 31 | G96 | 0.4− | 0.3− | | 2009 11 09 | 703 | (1.4− | 1.6+) | |
| 1995 09 24 | 691 | 0.6− | 0.2+ | | 2006 01 31 | G96 | 0.3− | 0.3− | | 2009 11 09 | 703 | (2.6− | 0.3+) | |
| 1995 09 29 | 691 | 0.2+ | 0.3+ | | 2006 01 31 | G96 | 0.3− | 0.1− | | 2009 11 16 | G96 | 0.6− | 0.4− | |
| 1995 09 29 | 691 | 0.2− | 0.2+ | | 2007 04 22 | G96 | 0.2− | 0.2+ | | 2009 11 16 | G96 | 0.1− | 0.5− | |
| 1995 09 29 | 691 | 0.6− | 0.4+ | | 2007 04 22 | G96 | 0.2− | 0.3+ | | 2009 11 16 | G96 | 0.2− | 0.5− | |
| 2002 02 20 | 291 | 0.2+ | 0.5+ | | 2007 04 22 | G96 | 0.1− | 0.5+ | | 2009 11 16 | G96 | 0.2− | 0.4− | |
| 2002 02 20 | 291 | 0.4+ | 0.4+ | | 2007 04 22 | G96 | 0.1− | 0.2+ | | 2009 11 19 | G96 | 0.3− | 0.6− | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 02 20 | 291 | 0.3+ | 0.7+ | 2007 04 22 | G96 | 0.3+ | 0.3+ | 2009 11 19 | G96 | 0.9− | 0.6− |
| 2004 09 15 | 691 | 0.4+ | 0.0 | 2007 04 22 | G96 | 0.1− | 0.4+ | 2009 11 19 | G96 | 0.8− | 0.5− |
| 2004 09 15 | 691 | 0.4+ | 0.3+ | 2007 04 22 | G96 | 0.5− | 0.1+ | 2009 11 19 | G96 | 0.2− | 0.6− |
| 2004 09 15 | 691 | 0.3+ | 0.0 | 2007 04 22 | G96 | 0.9− | 0.2+ | 2009 11 20 | 704 | 0.7+ | 0.7+ |
| 2004 09 16 | 691 | 0.2+ | 0.0 | 2008 07 30 | G96 | 0.1− | 0.2+ | 2009 11 20 | 704 | 0.9+ | 0.9+ |
| 2004 09 16 | 691 | 0.4+ | 0.0 | 2008 07 30 | G96 | 0.3− | 0.4+ | 2009 11 20 | 704 | 0.7− | 0.4+ |
| 2004 09 16 | 691 | 0.3+ | 0.2+ | 2008 07 30 | G96 | 0.1− | 0.3+ | 2009 11 20 | 704 | 0.8− | 0.2− |
| 2005 12 31 | 691 | 0.1+ | 0.1− | 2008 07 30 | G96 | 0.3− | 0.1+ | 2009 12 10 | 703 | 0.2− | 1.2− |
| 2005 12 31 | 691 | 0.1+ | 0.0 | 2009 10 23 | G96 | 0.1+ | 0.3− | 2009 12 10 | 703 | 0.2+ | 0.7− |
| 2005 12 31 | 691 | 0.2+ | 0.2+ | 2009 10 23 | G96 | 0.4− | 0.8− | 2009 12 10 | 703 | 0.1+ | 1.3+ |
| 2006 01 04 | 691 | 0.1+ | 0.2+ | 2009 10 23 | G96 | 0.3− | 0.5− | 2009 12 10 | 703 | 0.0 | 0.6+ |
| 2006 01 04 | 691 | 0.0 | 0.2+ | 2009 10 23 | G96 | 0.2− | 0.1− | | | | |
| 2006 01 04 | 691 | 0.4+ | 0.2+ | 2009 11 09 | 703 | 0.5+ | 0.1− | | | | |

**(229555)∗ 2005 YD$_{202}$**

Discovered 2005 Dec. 24 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 241.84453 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22815844 | $\omega$ | 300.87005 | | −0.68407573 | +0.70305920 | |
| $a$ | 2.6524367 | $\Omega$ | 284.62341 | | −0.58171605 | −0.68654803 | |
| $e$ | 0.1115276 | $i$ | 11.58335 | | −0.44005321 | −0.18536333 | |
| $P$ | 4.32 | $H$ | 15.3 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1992 12 25 | 691 | 0.4− | 0.4− | 2006 01 18 | 703 | 0.9+ | 0.0 | 2008 09 25 | G96 | 0.4− | 0.2− |
| 1992 12 25 | 691 | 0.1+ | 0.3+ | 2006 01 18 | 703 | 0.7+ | 0.5− | 2008 09 25 | G96 | 0.2− | 0.1− |
| 1992 12 25 | 691 | 0.1− | 0.5− | 2006 01 23 | 704 | 1.0− | 1.2− | 2008 09 25 | G96 | 0.4− | 0.1− |
| 2002 02 08 | 644 | 0.5+ | 0.9+ | 2006 01 23 | 704 | 0.9− | 1.0+ | 2008 09 28 | 703 | 0.3+ | 0.2+ |
| 2002 02 08 | 644 | 0.4+ | 0.3+ | 2006 01 23 | 704 | 1.0− | 0.2+ | 2008 09 28 | 703 | 0.3− | 0.3+ |
| 2002 02 08 | 644 | 0.7+ | 0.9+ | 2006 01 29 | 703 | (1.7+ | 1.0−) | 2008 09 28 | 703 | 0.6− | 1.3+ |
| 2003 07 25 | 704 | 0.6− | 0.7+ | 2006 01 29 | 703 | 0.3+ | 0.3− | 2008 09 28 | 703 | 0.8− | 0.3+ |
| 2003 07 25 | 704 | 1.0− | 0.2− | 2006 01 29 | 703 | 0.4− | 1.0− | 2008 10 03 | 704 | 1.1+ | 1.1− |
| 2003 07 25 | 704 | (5.7− | 1.7+) | 2006 01 29 | 703 | 0.6− | 0.6− | 2008 10 03 | 704 | 0.4− | 0.4+ |
| 2003 07 25 | 704 | 0.1− | 0.7+ | 2006 02 03 | 699 | 1.2+ | 0.4+ | 2008 10 03 | 704 | 0.1− | 0.2+ |
| 2003 07 25 | 704 | 0.6+ | 1.1+ | 2006 02 03 | 699 | 1.3+ | 0.6+ | 2008 10 03 | 704 | 1.0− | 0.2− |
| 2003 08 05 | 704 | (0.1− | 1.8+) | 2006 02 03 | 699 | 0.7+ | 1.2+ | 2008 10 27 | 704 | 0.2+ | 0.1− |
| 2003 08 05 | 704 | (0.4+ | 1.6+) | 2006 02 03 | 699 | 1.1+ | 0.0 | 2008 10 27 | 704 | 0.3− | 0.3+ |
| 2003 08 05 | 704 | 0.7− | 1.3+ | 2006 02 03 | 704 | 1.1+ | 0.8+ | 2008 10 27 | 704 | 0.4− | 0.3+ |
| 2005 11 30 | G96 | 0.2− | 0.2− | 2006 02 03 | 704 | 0.9+ | 1.2+ | 2008 10 27 | 704 | 0.8+ | 1.5+ |
| 2005 11 30 | G96 | 0.0 | 0.2− | 2006 02 03 | 704 | 1.0+ | 1.2+ | 2009 12 16 | 704 | 1.2+ | 0.7− |
| 2005 11 30 | G96 | 0.1− | 0.0 | 2006 02 03 | 704 | 1.1+ | 0.8+ | 2009 12 16 | 704 | (2.0+ | 0.3−) |
| 2005 12 24 | 691 | 0.1− | 0.2+ | 2006 02 22 | 703 | 0.5− | 0.4− | 2009 12 16 | 704 | (1.6+ | 1.0−) |
| 2005 12 24 | 691 | 0.0 | 0.2+ | 2006 02 22 | 703 | 1.0− | 0.7− | 2009 12 16 | 704 | 0.7+ | 1.1+ |
| 2005 12 24 | 691 | 0.1− | 0.4+ | 2006 02 22 | 703 | 0.5− | 0.1+ | 2009 12 16 | 704 | (1.1+ | 1.8+) |
| 2006 01 03 | 704 | 1.3+ | 1.4+ | 2006 02 22 | 703 | 1.0− | 0.1+ | 2009 12 17 | 691 | 0.2− | 0.0 |
| 2006 01 03 | 704 | 0.6+ | 0.3+ | 2008 09 09 | 703 | (2.0+ | 1.1−) | 2009 12 17 | 691 | 0.2− | 0.1+ |
| 2006 01 03 | 704 | 1.0+ | 0.5+ | 2008 09 09 | 703 | 0.8+ | 0.3+ | 2009 12 17 | 691 | 0.2− | 0.1+ |
| 2006 01 03 | 704 | 0.2− | 0.8+ | 2008 09 09 | 703 | 0.2+ | 0.8+ | 2009 12 26 | 691 | 0.1− | 0.2+ |
| 2006 01 18 | 703 | 0.9− | 0.4− | 2008 09 09 | 703 | 0.9+ | 0.3+ | 2009 12 26 | 691 | 0.1− | 0.4+ |
| 2006 01 18 | 703 | 0.0 | 0.0 | 2008 09 25 | G96 | 0.6− | 0.2− | 2009 12 26 | 691 | 0.2− | 1.7− |

**(229556)∗ 2005 YO$_{217}$**

Discovered 2005 Dec. 30 by the Mt. Lemmon Survey at Mount Lemmon.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 14.04025 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21850723 | $\omega$ | 309.06215 | | +0.59527924 | −0.78750903 | |
| $a$ | 2.7299761 | $\Omega$ | 103.67113 | | +0.77859987 | +0.51624288 | |
| $e$ | 0.1025300 | $i$ | 9.45388 | | +0.19855696 | +0.33663453 | |
| $P$ | 4.51 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 10 31 | 704 | 0.8+ | 0.6− | 2005 12 30 | G96 | 0.3− | 0.4− | 2006 02 22 | 699 | (1.8+ | 1.3+) |
| 2000 10 31 | 704 | 1.4+ | 0.8− | 2006 01 05 | 704 | 0.1+ | 0.4+ | 2006 02 22 | 699 | 1.5− | 0.2+ |
| 2000 10 31 | 704 | 0.6+ | 0.2+ | 2006 01 05 | 704 | 0.4− | 1.0+ | 2006 02 22 | 699 | 0.3− | 0.4+ |
| 2000 11 20 | 704 | 1.5− | 0.2− | 2006 01 05 | 704 | 0.2+ | 0.3+ | 2009 11 09 | 703 | 1.0− | 1.3+ |
| 2000 11 20 | 704 | 1.0− | 0.2+ | 2006 01 05 | 704 | 0.5− | 0.4+ | 2009 11 09 | 703 | 0.1− | 0.4− |
| 2000 11 20 | 704 | 0.1− | 0.6+ | 2006 01 18 | 703 | (1.7+ | 0.4−) | 2009 11 09 | 703 | 0.2− | 1.2− |
| 2004 09 21 | 704 | 0.3+ | 0.1+ | 2006 01 18 | 703 | 0.6+ | 0.4+ | 2009 11 09 | 703 | 0.5− | 0.4− |
| 2004 09 21 | 704 | (2.0+ | 0.6+) | 2006 01 18 | 703 | (1.6− | 1.2−) | 2009 11 14 | 704 | 0.2− | 0.6+ |
| 2004 09 21 | 704 | 0.1− | 0.2+ | 2006 01 18 | 703 | 1.1− | 0.5− | 2009 11 14 | 704 | 0.6+ | 0.8− |
| 2004 09 21 | 704 | 0.4+ | 0.2+ | 2006 01 25 | 703 | 1.2− | 0.3− | 2009 11 14 | 704 | 0.5+ | 0.5+ |
| 2004 09 21 | 704 | 0.9− | 0.5+ | 2006 01 25 | 703 | 0.1+ | 0.5+ | 2009 11 14 | 704 | 1.2+ | 0.0 |
| 2005 10 01 | G96 | 0.2+ | 0.0 | 2006 01 25 | 703 | 0.7− | 0.2− | 2009 11 14 | 704 | 0.0 | 0.6− |
| 2005 10 01 | G96 | 0.8− | 0.5− | 2006 01 25 | 703 | 0.8− | 0.0 | 2009 11 22 | 703 | 0.3− | 0.2− |
| 2005 10 01 | G96 | 0.2+ | 0.3− | 2006 02 03 | 699 | 0.6+ | 0.4+ | 2009 11 22 | 703 | 0.7+ | 0.6− |
| 2005 10 01 | G96 | 0.2+ | 0.2− | 2006 02 03 | 699 | (0.7+ | 2.0−) | 2009 11 22 | 703 | 0.1+ | 0.7− |
| 2005 10 11 | 691 | 0.0 | 0.4+ | 2006 02 03 | 699 | 1.4− | 0.3+ | 2009 12 13 | 704 | 0.3+ | 0.7+ |
| 2005 10 11 | 691 | 0.4+ | 0.3+ | 2006 02 03 | 699 | 0.8+ | 0.2+ | 2009 12 13 | 704 | 0.2− | 0.7+ |
| 2005 10 11 | 691 | 0.1+ | 0.1− | 2006 02 06 | 691 | 0.4+ | 0.2− | 2009 12 13 | 704 | 0.3− | 0.3− |
| 2005 12 30 | G96 | 0.1+ | 0.4− | 2006 02 06 | 691 | 0.5+ | 0.2+ | 2009 12 13 | 704 | 0.6− | 1.0+ |
| 2005 12 30 | G96 | 0.0 | 0.5− | 2006 02 06 | 691 | 0.2+ | 0.1− | | | | |
| 2005 12 30 | G96 | 0.1+ | 0.6− | 2006 02 22 | 699 | 0.1+ | 1.2− | | | | |

**(229557)∗ 2005 YE$_{227}$ = 1996 TE$_{43}$**

Discovered 2005 Dec. 25 by the Mt. Lemmon Survey at Mount Lemmon.

Id. A. Doppler (*MPO* 96860)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 55.87302 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23235614 | $\omega$ | 90.64129 | | +0.96356543 | +0.25992835 | |
| $a$ | 2.6203941 | $\Omega$ | 254.29427 | | −0.26398735 | +0.88623775 | |
| $e$ | 0.2154296 | $i$ | 3.75700 | | −0.04303875 | +0.38343175 | |
| $P$ | 4.24 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 10 04 | 691 | 0.2− | 0.1− | 2006 01 05 | 691 | 0.1+ | 0.1− | 2009 10 24 | 691 | 0.3− | 0.1− |
| 1996 10 04 | 691 | 0.4− | 0.2− | 2006 01 05 | 691 | 0.3− | 0.6+ | 2009 11 08 | G96 | 0.0 | 0.2− |
| 1996 10 04 | 691 | 0.6− | 0.1+ | 2006 01 05 | 691 | 0.3+ | 0.4+ | 2009 11 08 | G96 | 0.3+ | 0.0 |
| 1996 10 05 | 691 | 0.4+ | 0.2+ | 2006 01 22 | G96 | 0.0 | 0.3− | 2009 11 08 | G96 | 0.5+ | 0.3− |
| 1996 10 05 | 691 | 0.3+ | 0.1+ | 2006 01 22 | G96 | 0.8− | 0.2− | 2009 11 08 | G96 | 0.3+ | 0.1− |
| 1996 10 05 | 691 | 0.5+ | 0.1+ | 2006 01 22 | G96 | 0.1+ | 0.5− | 2009 11 10 | G96 | 0.5+ | 0.1− |
| 2005 11 25 | G96 | 0.1− | 0.2− | 2006 01 22 | G96 | 0.2+ | 0.1− | 2009 11 10 | G96 | 0.4+ | 0.2− |
| 2005 11 25 | G96 | 0.0 | 0.0 | 2008 05 05 | G96 | 0.1− | 0.1+ | 2009 11 10 | G96 | 0.0 | 0.1+ |
| 2005 11 25 | G96 | 0.1+ | 0.1+ | 2008 05 05 | G96 | 0.0 | 0.2+ | 2009 11 10 | G96 | 0.3+ | 0.2− |
| 2005 11 25 | G96 | 0.1− | 0.0 | 2008 05 05 | G96 | 0.1− | 0.4+ | 2009 11 15 | 703 | 0.5+ | 1.3− |
| 2005 12 08 | 691 | 0.4− | 0.3+ | 2008 05 05 | G96 | 0.5+ | 0.6+ | 2009 11 15 | 703 | 0.7+ | 1.1− |
| 2005 12 08 | 691 | 0.2+ | 0.2− | 2009 10 24 | 703 | (1.8+ | 0.4+) | 2009 11 15 | 703 | (0.2− | 1.6−) |
| 2005 12 08 | 691 | 0.0 | 0.0 | 2009 10 24 | 703 | 0.7+ | 0.2+ | 2009 11 15 | 703 | 0.4− | 0.2− |
| 2005 12 25 | G96 | 0.4+ | 0.2− | 2009 10 24 | 703 | 0.3+ | 1.2+ | 2009 12 11 | J75 | 0.4+ | 0.1+ |
| 2005 12 25 | G96 | 0.4+ | 0.1− | 2009 10 24 | 703 | 1.3+ | 1.4+ | 2009 12 11 | J75 | 0.2+ | 0.2+ |
| 2005 12 25 | G96 | 0.4+ | 0.1− | 2009 10 24 | 691 | 0.5− | 0.2+ | 2009 12 11 | J75 | 0.5+ | 0.1− |
| 2005 12 25 | G96 | 0.1− | 0.0 | 2009 10 24 | 691 | 0.6− | 0.3− | | | | |

**(229558)∗ 2005 YV$_{230}$**

Discovered 2005 Dec. 26 by the Mt. Lemmon Survey at Mount Lemmon.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 59.03242 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21217235 | $\omega$ | 67.97734 | | +0.98480928 | −0.16315935 | |
| $a$ | 2.7840489 | $\Omega$ | 301.36792 | | +0.12225246 | +0.89449254 | |
| $e$ | 0.0752168 | $i$ | 3.98993 | | +0.12330863 | +0.41624767 | |
| $P$ | 4.65 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 21 | 704 | 0.5+ | 0.7+ | 2006 01 22 | G96 | 0.1+ | 0.3− | 2008 08 04 | 704 | 0.3+ | 1.1+ |
| 2004 10 21 | 704 | (0.1+ | 2.0+) | 2006 01 26 | 291 | 0.4+ | 0.3+ | 2008 09 06 | G96 | 0.4+ | 0.1+ |
| 2004 10 21 | 704 | (1.2+ | 1.6+) | 2006 01 26 | 291 | 0.3+ | 0.1+ | 2008 09 06 | G96 | 0.3+ | 0.0 |
| 2004 10 21 | 704 | 0.7+ | 0.2+ | 2006 01 26 | 291 | 0.6+ | 0.2+ | 2008 09 06 | G96 | 0.5− | 0.2− |
| 2004 10 21 | 704 | 0.1+ | 0.1+ | 2006 01 27 | 691 | 0.2+ | 0.0 | 2008 09 06 | G96 | 0.2− | 0.1+ |
| 2004 11 03 | 644 | 0.0 | 0.3+ | 2006 01 27 | 691 | 0.2+ | 0.2+ | 2009 11 09 | G96 | 0.1+ | 0.0 |
| 2004 11 03 | 644 | 0.1+ | 0.1+ | 2006 01 27 | 691 | 0.1+ | 0.3+ | 2009 11 09 | G96 | 0.1+ | 0.1− |
| 2004 11 03 | 644 | 0.0 | 0.3+ | 2006 01 31 | G96 | 0.3− | 0.0 | 2009 11 09 | G96 | 0.4+ | 0.2− |
| 2004 11 13 | 703 | 0.3− | 1.0− | 2006 01 31 | G96 | 0.5− | 0.1− | 2009 11 09 | G96 | 0.3− | 0.1− |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 11 13 | 703 | 0.5− | 0.7+ | 2006 01 31 | G96 | 0.7− | 0.1− | 2009 11 19 | 691 | (2.6+ | 0.8+) | | |
| 2004 11 13 | 703 | 0.1− | 0.5− | 2006 01 31 | G96 | 0.3− | 0.0 | 2009 11 19 | 691 | 0.3− | 0.2+ | | |
| 2004 11 13 | 703 | 1.3− | 0.7+ | 2006 03 05 | G96 | 0.1+ | 0.2+ | 2009 11 19 | 691 | 0.1− | 0.0 | | |
| 2005 12 26 | G96 | 0.0 | 0.0 | 2006 03 05 | G96 | 0.6− | 0.4+ | 2009 11 24 | J75 | 0.1+ | 0.8− | | |
| 2005 12 26 | G96 | 0.8− | 0.6− | 2006 03 05 | G96 | 0.2− | 0.0 | 2009 11 24 | J75 | 0.6+ | 0.1− | | |
| 2005 12 26 | G96 | 0.5− | 0.4− | 2006 03 05 | G96 | 0.3− | 0.2+ | 2009 11 25 | J75 | 0.0 | 0.4− | | |
| 2005 12 26 | G96 | 0.3− | 0.4− | 2008 06 30 | 691 | 0.6+ | 0.0 | 2009 11 27 | 691 | 0.4− | 0.0 | | |
| 2006 01 05 | G96 | 0.2− | 0.0 | 2008 06 30 | 691 | 0.6− | 0.3+ | 2009 11 27 | 691 | 0.4− | 0.1− | | |
| 2006 01 05 | G96 | 0.2− | 0.3− | 2008 06 30 | 691 | 0.2− | 0.5+ | 2009 11 27 | 691 | 0.4− | 0.1+ | | |
| 2006 01 05 | G96 | 0.2− | 0.0 | 2008 07 02 | 691 | 0.1+ | 0.5+ | 2009 12 16 | 704 | 1.1+ | 0.8+ | | |
| 2006 01 05 | G96 | 0.3− | 0.2+ | 2008 07 02 | 691 | 0.1− | 0.4+ | 2009 12 16 | 704 | 0.5+ | 0.7+ | | |
| 2006 01 20 | 691 | 0.4+ | 0.1+ | 2008 07 02 | 691 | 0.8− | 0.5+ | 2009 12 16 | 704 | 0.6+ | 0.8+ | | |
| 2006 01 20 | 691 | 0.4+ | 0.9+ | 2008 07 27 | J75 | 0.4+ | 0.7− | 2009 12 16 | 704 | 0.7+ | 0.2− | | |
| 2006 01 20 | 691 | 0.4− | 1.0+ | 2008 07 27 | J75 | 0.1+ | 0.1+ | 2009 12 16 | G96 | 0.0 | 0.4− | | |
| 2006 01 22 | G96 | 0.2− | 0.2− | 2008 07 27 | J75 | 0.9+ | 0.2+ | 2009 12 16 | G96 | 1.1+ | 0.3− | | |
| 2006 01 22 | G96 | 0.4+ | 0.1+ | 2008 07 30 | 703 | 1.2− | 0.1− | 2009 12 16 | G96 | 0.2+ | 0.4− | | |
| 2006 01 22 | G96 | 0.1− | 0.0 | 2008 07 30 | 703 | 0.0 | 0.2+ | 2009 12 16 | G96 | 0.6+ | 0.2− | | |
| 2006 01 22 | G96 | 0.1− | 0.1+ | 2008 07 30 | 703 | 0.4+ | 0.3− | 2009 12 16 | G96 | 0.4+ | 0.4− | | |
| 2006 01 22 | G96 | 0.3− | 0.3+ | 2008 07 30 | 703 | 0.4− | 0.1+ | 2009 12 16 | G96 | 0.1+ | 0.1− | | |
| 2006 01 22 | G96 | 0.1− | 0.2− | 2008 08 04 | 704 | 0.2+ | 1.3+ | | | | | | |
| 2006 01 22 | G96 | 0.3+ | 0.3− | 2008 08 04 | 704 | 0.7− | 0.5− | | | | | | |

**(229559)∗ 2005 YX$_{240}$**

Discovered 2005 Dec. 29 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 42.75399 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22425418 | $\omega$ | 260.65071 | | +0.98166417 | −0.10039600 | |
| $a$ | 2.6831339 | $\Omega$ | 104.98323 | | +0.15259220 | +0.92334347 | |
| $e$ | 0.3265115 | $i$ | 9.65646 | | −0.11424134 | +0.37061769 | |
| $P$ | 4.40 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 10 | 699 | 1.0− | 0.0 | 2005 12 29 | 691 | 0.2+ | 0.2+ | 2009 11 09 | 703 | 0.4− | 0.0 | | |
| 2000 09 10 | 699 | 0.1− | 0.0 | 2005 12 29 | 691 | 0.3+ | 0.1− | 2009 11 09 | 703 | 0.1− | 0.2− | | |
| 2000 09 10 | 699 | 0.2− | 0.4− | 2006 01 07 | 691 | 0.1− | 0.5+ | 2009 11 17 | 703 | 1.0− | 0.9+ | | |
| 2000 09 10 | 699 | 0.6+ | 0.2+ | 2006 01 07 | 691 | 0.1+ | 0.2+ | 2009 11 17 | 703 | 0.4− | 0.5− | | |
| 2000 09 28 | 699 | 0.4− | 0.2+ | 2006 01 07 | 691 | 0.1− | 0.3+ | 2009 11 17 | 703 | 0.1− | 1.0+ | | |
| 2000 09 28 | 699 | 0.3− | 0.5+ | 2006 01 28 | G96 | 0.1− | 0.5− | 2009 11 19 | 704 | 0.0 | 0.0 | | |
| 2000 09 28 | 699 | 0.7− | 0.1+ | 2006 01 28 | G96 | 0.4+ | 0.4− | 2009 11 19 | 704 | 0.0 | 0.2+ | | |
| 2000 09 28 | 699 | 0.0 | 0.1+ | 2006 01 28 | G96 | 0.0 | 0.4− | 2009 11 19 | 704 | 0.1− | 0.5− | | |
| 2000 10 05 | 704 | 0.6− | 0.4+ | 2006 01 28 | G96 | 0.1+ | 0.2− | 2009 11 19 | 704 | 0.0 | 0.1+ | | |
| 2000 10 05 | 704 | 0.2+ | 0.3− | 2006 02 06 | 691 | 0.2− | 0.5+ | 2009 11 19 | 704 | 0.3− | 0.0 | | |
| 2000 10 05 | 704 | 0.1+ | 0.4− | 2006 02 06 | 691 | 0.0 | 0.3− | 2009 11 24 | J75 | 0.2− | 0.1+ | | |
| 2000 10 05 | 704 | 0.3− | 0.6− | 2006 02 06 | 691 | 0.0 | 0.1− | 2009 11 24 | J75 | 0.2+ | 1.3+ | | |
| 2000 10 05 | 704 | 0.1− | 0.5− | 2008 05 28 | 691 | 0.1− | 0.2+ | 2009 11 24 | J75 | 0.1+ | 1.2+ | | |
| 2000 10 27 | 704 | 0.3+ | 0.3+ | 2008 05 28 | 691 | 0.2+ | 0.0 | 2009 11 27 | G96 | 0.1+ | 0.2− | | |
| 2000 10 27 | 704 | 0.2− | 0.9+ | 2008 05 28 | 691 | 0.4+ | 0.3+ | 2009 11 27 | G96 | 0.3+ | 0.2− | | |
| 2000 10 27 | 704 | 0.4− | 1.3+ | 2008 06 01 | 691 | 0.0 | 0.3+ | 2009 11 27 | G96 | 0.0 | 0.2− | | |
| 2000 10 27 | 704 | 1.0+ | 0.8+ | 2008 06 01 | 691 | 0.3+ | 0.4+ | 2009 11 27 | G96 | 0.2+ | 0.1− | | |
| 2000 10 27 | 704 | 0.6+ | 0.9+ | 2008 06 01 | 691 | 0.3− | 0.5+ | 2009 11 27 | G96 | 0.1+ | 0.2− | | |
| 2005 10 29 | G96 | 0.6− | 0.4− | 2008 06 04 | 691 | 0.6+ | 0.1+ | 2009 12 11 | 703 | 0.0 | 0.4+ | | |
| 2005 10 29 | G96 | 1.0− | 0.4− | 2008 06 04 | 691 | 0.0 | 0.2+ | 2009 12 11 | 703 | 0.0 | 0.1+ | | |
| 2005 10 29 | G96 | 0.2+ | 0.2− | 2008 06 04 | 691 | 0.4− | 0.4+ | 2009 12 11 | 703 | 0.1+ | 0.2+ | | |
| 2005 10 29 | G96 | 0.1+ | 0.3− | 2009 11 09 | 703 | 0.2+ | 0.3− | 2009 12 11 | 703 | 0.1+ | 0.3+ | | |
| 2005 12 29 | 691 | 0.2+ | 0.1+ | 2009 11 09 | 703 | 0.1+ | 0.0 | | | | | | |

**(229560)∗ 2005 YV$_{272}$ = 2007 HP$_{76}$**

Discovered 2005 Dec. 30 by the Mt. Lemmon Survey at Mount Lemmon.

Id. A. Doppler (*MPO* 120478)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 43.94305 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21919316 | $\omega$ | 309.01797 | | +0.86351673 | −0.49038848 | |
| $a$ | 2.7242778 | $\Omega$ | 80.64027 | | +0.49169406 | +0.76673601 | |
| $e$ | 0.0254095 | $i$ | 6.85219 | | +0.11214192 | +0.41428859 | |
| $P$ | 4.50 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 01 16 | 599 | 0.2+ | 0.1+ | 2006 01 25 | 291 | 0.1− | 0.1+ | 2009 11 18 | 691 | 0.3− | 0.0 | | |
| 1997 01 16 | 599 | 0.8− | 1.1+ | 2006 01 25 | 291 | 0.4− | 0.0 | 2009 11 18 | 704 | (1.9+ | 1.8−) | | |
| 2002 03 11 | 644 | (0.9+ | 1.5+) | 2007 04 23 | 691 | 0.1− | 0.1− | 2009 11 18 | 704 | 0.3+ | 0.7− | | |
| 2002 03 11 | 644 | 1.0+ | 1.3+ | 2007 04 23 | 691 | 0.0 | 0.1+ | 2009 11 18 | 704 | 1.3+ | 1.1+ | | |
| 2002 03 11 | 644 | 0.8+ | 1.4+ | 2007 04 23 | 691 | 0.1− | 0.1− | 2009 11 18 | 704 | (0.0 | 2.3+) | | |
| 2005 10 01 | G96 | 0.0 | 0.0 | 2007 04 26 | 691 | 0.4+ | 0.3+ | 2009 11 26 | 691 | 0.2− | 0.3+ | | |
| 2005 10 01 | G96 | 0.9+ | 0.3− | 2007 04 26 | 691 | 0.1− | 0.2+ | 2009 11 26 | 691 | 0.4− | 0.1− | | |
| 2005 10 01 | G96 | 0.5+ | 0.3− | 2007 04 26 | 691 | 0.1+ | 0.1+ | 2009 11 26 | 691 | 0.4− | 0.2+ | | |
| 2005 10 01 | G96 | 0.8+ | 0.0 | 2007 05 22 | G96 | 0.4− | 0.0 | 2009 12 11 | 703 | 1.2+ | 0.1+ | | |
| 2005 12 30 | G96 | 0.5+ | 0.3− | 2007 05 22 | G96 | 0.1− | 0.1+ | 2009 12 11 | 703 | 1.1+ | 0.3+ | | |
| 2005 12 30 | G96 | 0.6+ | 0.2− | 2007 05 22 | G96 | 0.3− | 0.1+ | 2009 12 11 | 703 | 1.0+ | 1.5+ | | |
| 2005 12 30 | G96 | 0.3+ | 0.1− | 2007 05 22 | G96 | 0.1− | 0.1− | 2009 12 11 | 703 | 0.9− | 0.3+ | | |
| 2005 12 30 | G96 | 0.1+ | 0.1+ | 2008 08 04 | E12 | 0.6− | 0.0 | 2009 12 17 | G96 | 0.2+ | 0.1+ | | |
| 2006 01 06 | G96 | 0.5+ | 0.2− | 2008 08 04 | E12 | 0.1+ | 1.2+ | 2009 12 17 | G96 | 0.4+ | 0.1− | | |
| 2006 01 06 | G96 | 0.2− | 0.4− | 2008 08 04 | E12 | 0.1+ | 1.4+ | 2009 12 17 | G96 | 0.1− | 0.1− | | |
| 2006 01 06 | G96 | 0.2+ | 0.3− | 2008 08 04 | E12 | 0.1− | 1.3+ | 2009 12 17 | G96 | 0.0 | 0.1− | | |
| 2006 01 06 | G96 | 0.5+ | 0.3− | 2009 11 18 | 691 | 0.2− | 0.0 | | | | | | |
| 2006 01 25 | 291 | 0.1− | 0.1− | 2009 11 18 | 691 | 0.2− | 0.1+ | | | | | | |

**(229561)∗ 2005 YA$_{287}$**

Discovered 2005 Dec. 26 by the Mt. Lemmon Survey at Mount Lemmon.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 55.14905 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22720598 | $\omega$ | 267.46587 | | +0.93741194 | −0.30148292 | |
| $a$ | 2.6598443 | $\Omega$ | 110.03751 | | +0.34420494 | +0.87802300 | |
| $e$ | 0.1224407 | $i$ | 10.68964 | | −0.05274294 | +0.37173064 | |
| $P$ | 4.34 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 03 11 | 644 | 0.4+ | 0.3+ | 2005 10 12 | 691 | 0.0 | 0.2+ | 2007 03 13 | 291 | 0.4− | 0.3+ | | |
| 2002 03 11 | 644 | 0.2+ | 0.3+ | 2005 10 12 | 691 | 0.3− | 0.5+ | 2007 03 13 | 291 | 0.2− | 0.5+ | | |
| 2002 03 11 | 644 | 0.3+ | 0.4+ | 2005 10 12 | 691 | 0.3− | 0.2+ | 2007 04 26 | 461 | 0.7+ | 0.3+ | | |
| 2004 08 08 | 644 | 0.4− | 0.6+ | 2005 12 26 | G96 | 0.0 | 0.0 | 2007 04 26 | 461 | 0.8+ | 0.5− | | |
| 2004 08 08 | 644 | 0.1− | 0.2+ | 2005 12 26 | G96 | 0.4+ | 0.1− | 2007 04 26 | 461 | 0.6+ | 0.2− | | |
| 2004 08 08 | 644 | 0.3− | 0.5+ | 2005 12 26 | G96 | 0.0 | 0.3− | 2008 06 06 | 691 | 0.1+ | 0.1+ | | |
| 2004 08 21 | E12 | 0.2− | 0.7+ | 2005 12 26 | G96 | 0.3+ | 0.0 | 2008 06 06 | 691 | 0.1+ | 0.1+ | | |
| 2004 08 21 | E12 | 0.3− | 0.5+ | 2006 01 06 | 704 | 0.4− | 0.3+ | 2008 06 06 | 691 | 0.0 | 0.1+ | | |
| 2004 08 21 | E12 | 0.2− | 0.2− | 2006 01 06 | 704 | 1.3+ | 0.7− | 2009 11 23 | 703 | 0.2+ | 0.0 | | |
| 2004 08 21 | E12 | 0.8− | 0.7+ | 2006 01 06 | 704 | 0.7+ | 0.4+ | 2009 11 23 | 703 | (0.1− | 1.7+) | | |
| 2004 09 07 | 704 | 0.1− | 0.1− | 2006 01 20 | 699 | 0.3− | 0.1− | 2009 11 23 | 703 | 0.9+ | 0.5+ | | |
| 2004 09 07 | 704 | 0.4+ | 0.3+ | 2006 01 20 | 699 | 0.4+ | 0.3− | 2009 11 23 | 703 | 1.0− | 0.2+ | | |
| 2004 09 07 | 704 | 0.6+ | 0.7− | 2006 01 20 | 699 | 0.3+ | 0.0 | 2009 11 23 | 703 | 0.9− | 0.6+ | | |
| 2004 09 07 | 704 | 0.1− | 0.2+ | 2006 01 20 | 699 | (1.6− | 0.8+) | 2009 12 12 | 704 | 0.6+ | 0.4− | | |
| 2004 09 07 | 704 | 0.1+ | 0.4− | 2006 01 27 | G96 | 0.1− | 0.2+ | 2009 12 12 | 704 | 0.7− | 0.5+ | | |
| 2004 09 21 | 704 | 0.1+ | 0.5+ | 2006 01 27 | G96 | 0.0 | 0.2+ | 2009 12 12 | 704 | (2.5− | 0.3+) | | |
| 2004 09 21 | 704 | 0.4− | 0.1− | 2006 01 27 | G96 | 0.4+ | 0.1+ | 2009 12 17 | G96 | 0.4− | 0.2+ | | |
| 2004 09 21 | 704 | 0.2− | 0.1+ | 2006 01 27 | G96 | 0.1− | 0.1+ | 2009 12 17 | G96 | 0.0 | 0.1+ | | |
| 2004 09 21 | 704 | 0.2+ | 0.5+ | 2006 01 28 | G96 | 0.2− | 0.1+ | 2009 12 17 | G96 | 0.3+ | 0.1+ | | |
| 2005 10 06 | G96 | 0.6− | 0.1+ | 2006 01 28 | G96 | 0.0 | 0.1+ | 2009 12 17 | G96 | 0.1− | 0.2+ | | |
| 2005 10 06 | G96 | 0.5− | 0.2− | 2006 01 28 | G96 | 0.3+ | 0.1− | 2009 12 20 | H10 | 0.5+ | 0.1− | | |
| 2005 10 06 | G96 | 0.0 | 0.3+ | 2006 01 28 | G96 | 0.4− | 0.0 | 2009 12 20 | H10 | 0.2+ | 0.6− | | |
| 2005 10 06 | G96 | 0.1− | 1.3− | 2007 03 13 | 291 | 0.1+ | 0.4+ | 2009 12 20 | H10 | 0.1+ | 0.5+ | | |

**(229562)∗ 2006 AX$_{8}$**

Discovered 2006 Jan. 2 by the Catalina Sky Survey.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 19.30828 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24026002 | $\omega$ | 21.65653 | | +0.07303183 | −0.97115766 | |
| $a$ | 2.5626052 | $\Omega$ | 64.76864 | | +0.87424569 | −0.04718576 | |
| $e$ | 0.1323194 | $i$ | 14.53180 | | +0.47995918 | +0.23372271 | |
| $P$ | 4.10 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 02 21 | 704 | 0.7+ | 0.2+ | 2006 01 08 | 699 | 0.6+ | 0.2− | 2006 02 24 | 699 | 0.8+ | 0.3− | | |
| 2002 02 21 | 704 | 0.7+ | 1.0+ | 2006 01 08 | 699 | 0.3− | 0.6+ | 2006 02 24 | 699 | 0.4+ | 0.5− | | |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 02 21 | 704 | 0.4− | 0.3+ | 2006 01 22 | 703 | 0.4− | 0.2− | 2006 02 24 | 699 | 0.8+ | 0.1+ | | | |
| 2002 02 21 | 704 | 0.2+ | 0.3− | 2006 01 22 | 703 | 0.4− | 0.2− | 2006 03 04 | 703 | 0.7+ | 0.0 | | | |
| 2002 02 21 | 704 | 0.3− | 0.0 | 2006 01 22 | 704 | 0.3+ | 0.1+ | 2006 03 04 | 703 | 0.0 | 0.1− | | | |
| 2002 03 05 | 704 | 0.2− | 0.1+ | 2006 01 22 | 703 | 1.0− | 0.3− | 2006 03 04 | 703 | 0.6− | 0.1− | | | |
| 2002 03 05 | 704 | 0.3− | 0.1− | 2006 01 22 | 704 | 0.4+ | 0.2+ | 2006 03 04 | 703 | 0.6− | 0.1+ | | | |
| 2002 03 05 | 704 | 0.5+ | 0.6+ | 2006 01 22 | 703 | 0.4− | 0.1− | 2007 04 19 | G96 | 0.2− | 0.1+ | | | |
| 2002 03 05 | 704 | 0.4+ | 0.7+ | 2006 01 22 | 704 | 0.7+ | 0.1− | 2007 04 19 | G96 | 0.2+ | 0.4− | | | |
| 2004 09 11 | 644 | 0.0 | 0.2+ | 2006 01 22 | 704 | 0.4+ | 0.2+ | 2007 04 19 | G96 | 0.1+ | 0.1− | | | |
| 2004 09 11 | 644 | 0.1+ | 0.1+ | 2006 01 22 | 704 | (2.2+ | 0.5+) | 2007 04 19 | G96 | 0.4− | 0.0 | | | |
| 2004 09 11 | 644 | 0.3− | 0.0 | 2006 01 27 | 703 | 0.7+ | 0.2+ | 2007 05 11 | G96 | 0.4+ | 0.4− | | | |
| 2005 12 04 | 703 | 0.4+ | 0.6− | 2006 01 27 | 703 | 0.5+ | 0.5− | 2007 05 11 | G96 | 0.5− | 0.2− | | | |
| 2005 12 04 | 703 | 0.4− | 0.4+ | 2006 01 27 | 703 | 0.1− | 0.1+ | 2007 05 11 | G96 | 0.4− | 0.1− | | | |
| 2005 12 04 | 703 | 1.3− | 0.8+ | 2006 01 27 | 703 | 0.2+ | 0.1+ | 2007 05 11 | G96 | 0.4− | 0.1+ | | | |
| 2005 12 04 | 703 | 0.6− | 0.5+ | 2006 02 07 | 704 | (1.5+ | 0.9+) | 2007 05 25 | G96 | 0.1+ | 0.2− | | | |
| 2006 01 02 | 703 | 1.3− | 0.4+ | 2006 02 07 | 704 | (1.6− | 0.1+) | 2007 05 25 | G96 | 0.0 | 0.1− | | | |
| 2006 01 02 | 703 | 0.5− | 0.7− | 2006 02 07 | 704 | 1.1+ | 0.2+ | 2007 05 25 | G96 | 0.0 | 0.4− | | | |
| 2006 01 02 | 703 | 0.2+ | 0.6+ | 2006 02 07 | 704 | 0.7+ | 0.3+ | 2007 05 25 | G96 | 0.1+ | 0.2− | | | |
| 2006 01 02 | 703 | 0.7− | 0.9− | 2006 02 07 | 704 | 1.3+ | 0.3+ | 2009 10 27 | G96 | 0.2+ | 0.3+ | | | |
| 2006 01 05 | 703 | 1.3− | 0.3+ | 2006 02 22 | 703 | 0.6− | 0.5− | 2009 10 27 | G96 | 0.5+ | 0.2+ | | | |
| 2006 01 05 | 703 | 0.4− | 0.5+ | 2006 02 22 | 703 | 1.1− | 0.3− | 2009 10 27 | G96 | 0.3+ | 0.1− | | | |
| 2006 01 05 | 703 | 1.0− | 0.7+ | 2006 02 22 | 703 | 0.5− | 0.4− | 2009 10 27 | G96 | 0.7+ | 0.4− | | | |
| 2006 01 06 | 703 | 0.3− | 0.1+ | 2006 02 22 | 703 | 0.5− | 0.8− | 2009 12 16 | 703 | 0.5− | 0.8− | | | |
| 2006 01 06 | 703 | 0.1− | 0.1+ | 2006 02 22 | 703 | 0.8+ | 0.3− | 2009 12 16 | 703 | 0.3− | 0.9− | | | |
| 2006 01 06 | 703 | 0.8− | 0.4− | 2006 02 22 | 703 | 0.5+ | 0.2− | 2009 12 16 | 703 | 0.1+ | 0.8− | | | |
| 2006 01 06 | 703 | 0.1− | 0.2+ | 2006 02 22 | 703 | 0.3+ | 0.5+ | 2009 12 16 | 703 | 0.4− | 0.3− | | | |
| 2006 01 08 | 699 | 0.4− | 0.3+ | 2006 02 22 | 703 | 0.9+ | 0.3− | | | | | | | |
| 2006 01 08 | 699 | 0.3+ | 0.1+ | 2006 02 24 | 699 | 1.2+ | 0.7+ | | | | | | | |

**(229563)∗ 2006 AA$_9$**

Discovered 2006 Jan. 2 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 3.52729 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22851452 | $\omega$ | 309.95334 | | +0.18740432 | −0.98106891 | |
| $a$ | 2.6496805 | $\Omega$ | 129.17650 | | +0.91934103 | +0.15767440 | |
| $e$ | 0.0549344 | $i$ | 3.61072 | | +0.34596487 | +0.11243920 | |
| $P$ | 4.31 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 03 21 | 691 | 0.3− | 0.3− | 2006 01 06 | G96 | 0.1− | 0.5− | 2007 04 20 | 691 | 0.1− | 0.3+ | | | |
| 1998 03 21 | 691 | 0.6− | 0.0 | 2006 01 06 | G96 | 0.1+ | 0.7− | 2007 04 20 | 691 | 0.1+ | 0.2+ | | | |
| 1998 03 21 | 691 | 0.3− | 0.6− | 2006 01 06 | G96 | 0.4− | 0.5− | 2007 04 20 | 691 | 0.1+ | 0.6+ | | | |
| 2002 02 10 | 704 | 1.1+ | 1.4+ | 2006 01 06 | G96 | 0.8− | 0.1− | 2007 05 09 | A50 | 0.8+ | 0.4− | | | |
| 2002 02 10 | 704 | (2.2+ | 0.1+) | 2006 01 09 | 691 | 0.2+ | 0.6− | 2007 05 09 | A50 | 0.3+ | 0.0 | | | |
| 2002 02 10 | 704 | 0.1+ | 0.8− | 2006 01 09 | 691 | 0.3− | 0.2− | 2007 05 16 | G96 | 0.1+ | 0.2+ | | | |
| 2002 02 10 | 704 | 0.7+ | 0.9− | 2006 01 09 | 691 | 0.4− | 0.1− | 2007 05 16 | G96 | 0.4+ | 0.2+ | | | |
| 2002 02 20 | 704 | 0.1+ | 1.0+ | 2006 01 21 | G96 | 0.1+ | 0.4− | 2007 05 16 | G96 | 0.3+ | 0.1+ | | | |
| 2002 02 20 | 704 | 0.8+ | 0.3+ | 2006 01 21 | G96 | 0.2+ | 0.1− | 2007 05 16 | G96 | 0.0 | 0.6+ | | | |
| 2002 02 20 | 704 | 1.0− | 1.2+ | 2006 01 21 | G96 | 0.1− | 0.1− | 2009 11 23 | 691 | 0.5− | 0.2− | | | |
| 2002 02 20 | 704 | 0.3+ | 0.4+ | 2006 01 21 | G96 | 0.1+ | 0.0 | 2009 11 23 | 691 | 0.9− | 0.1− | | | |
| 2004 09 16 | 691 | 0.2− | 0.5+ | 2006 01 24 | 704 | 0.1+ | 0.9− | 2009 11 23 | 691 | 0.5− | 0.1+ | | | |
| 2004 09 16 | 691 | 0.1+ | 0.5+ | 2006 01 24 | 704 | 0.4+ | 1.2+ | 2009 11 27 | 691 | 0.5+ | 0.2− | | | |
| 2004 09 16 | 691 | 0.0 | 0.3+ | 2006 01 24 | 704 | 0.1− | 0.6+ | 2009 11 27 | 691 | 0.2+ | 0.0 | | | |
| 2005 12 27 | G96 | 0.0 | 0.3− | 2006 01 24 | 704 | 0.6+ | 0.7+ | 2009 11 27 | 691 | 0.0 | 0.3− | | | |
| 2005 12 27 | G96 | 0.1− | 0.4− | 2006 02 01 | 691 | 0.2+ | 0.4+ | 2009 12 11 | G96 | 0.6+ | 0.2− | | | |
| 2005 12 27 | G96 | 0.9+ | 0.2− | 2006 02 01 | 691 | 0.2+ | 0.5+ | 2009 12 11 | G96 | 0.5+ | 0.2− | | | |
| 2005 12 27 | G96 | 0.4+ | 0.1+ | 2006 02 01 | 691 | 0.2− | 0.6+ | 2009 12 11 | G96 | 0.6+ | 0.2− | | | |
| 2006 01 02 | 704 | 0.3+ | 0.6+ | 2006 02 07 | 691 | 0.2+ | 0.2− | 2009 12 11 | G96 | 0.5+ | 0.1− | | | |
| 2006 01 02 | 704 | 0.8− | 0.2+ | 2006 02 07 | 691 | 0.3+ | 0.0 | 2009 12 11 | 703 | 0.4− | 0.4− | | | |
| 2006 01 02 | 704 | 0.3+ | 1.4+ | 2006 02 07 | 691 | 0.3+ | 0.1− | 2009 12 11 | 703 | 0.1− | 0.1− | | | |
| 2006 01 02 | 704 | (0.8+ | 1.7+) | 2006 02 20 | G96 | 0.1− | 0.1+ | 2009 12 11 | 703 | 0.2− | 1.1+ | | | |
| 2006 01 05 | 691 | 0.3+ | 0.1+ | 2006 02 20 | G96 | 0.1− | 0.2+ | 2009 12 11 | 703 | 0.4− | 0.3+ | | | |
| 2006 01 05 | 691 | 0.1+ | 0.2+ | 2006 02 20 | G96 | 0.4− | 0.1+ | | | | | | | |
| 2006 01 05 | 691 | 0.2+ | 0.2+ | 2006 02 20 | G96 | 0.1− | 0.0 | | | | | | | |

**(229564)∗ 2006 AK$_{28}$**

Discovered 2006 Jan. 6 by the Mt. Lemmon Survey at Mount Lemmon.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 26.05805 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26902454 | $\omega$ | 327.30017 | | −0.16050801 | −0.98467197 | |
| $a$ | 2.3765199 | $\Omega$ | 131.83799 | | +0.92413361 | −0.17420951 | |
| $e$ | 0.1235549 | $i$ | 5.25616 | | +0.34671928 | +0.00849427 | |
| $P$ | 3.66 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 01 10 | 691 | 0.1− | 0.1− | 2004 06 22 | 691 | 0.2− | 0.2+ | 2007 04 25 | 691 | 0.1+ | 0.1+ | | | |
| 1999 01 10 | 691 | 0.1− | 0.1− | 2005 12 07 | 704 | 0.6+ | 0.4+ | 2007 05 12 | 691 | 0.6+ | 0.1+ | | | |
| 1999 01 10 | 691 | 0.2− | 0.0 | 2005 12 07 | 704 | 0.1− | 0.3+ | 2007 05 12 | 691 | 0.1− | 0.3− | | | |
| 2001 10 24 | 644 | 0.4− | 0.6+ | 2005 12 07 | 704 | (2.0+ | 0.5−) | 2007 05 12 | 691 | 0.0 | 1.1− | | | |
| 2001 10 24 | 644 | 0.0 | 0.7+ | 2006 01 06 | G96 | 0.4+ | 0.7− | 2008 09 03 | J75 | 0.1− | 0.7− | | | |
| 2001 10 24 | 644 | 0.2− | 0.5+ | 2006 01 06 | G96 | 0.0 | 0.4− | 2008 09 03 | J75 | 0.0 | 0.4− | | | |
| 2001 10 25 | 645 | 0.0 | 0.1− | 2006 01 06 | G96 | 0.2− | 0.2− | 2008 09 03 | J75 | 0.1− | 0.4− | | | |
| 2001 10 25 | 645 | 0.1+ | 0.0 | 2006 01 06 | G96 | 0.0 | 0.6− | 2009 11 15 | G96 | 0.4− | 0.6+ | | | |
| 2001 11 12 | 645 | 0.1− | 0.0 | 2006 01 07 | G96 | 0.2+ | 0.1− | 2009 11 15 | G96 | 0.2+ | 0.4− | | | |
| 2001 11 12 | 645 | 0.0 | 0.1+ | 2006 01 07 | G96 | 0.0 | 0.3− | 2009 11 15 | G96 | 0.8+ | 0.6− | | | |
| 2001 11 18 | 645 | 0.0 | 0.0 | 2006 01 07 | G96 | 0.1− | 0.3− | 2009 11 15 | G96 | 0.2− | 0.4+ | | | |
| 2001 11 18 | 645 | 0.0 | 0.1− | 2006 01 07 | G96 | 0.3+ | 0.2− | 2009 12 19 | G96 | 0.2+ | 0.4+ | | | |
| 2003 03 22 | 644 | 0.9+ | 0.3+ | 2007 04 24 | 691 | 0.5− | 0.2− | 2009 12 19 | G96 | 0.2− | 0.0 | | | |
| 2003 03 22 | 644 | 0.9+ | 0.3+ | 2007 04 24 | 691 | 0.0 | 0.2− | 2009 12 19 | G96 | 0.3− | 0.1+ | | | |
| 2003 03 22 | 644 | 0.4+ | 0.3+ | 2007 04 24 | 691 | 0.8− | 0.2+ | 2009 12 19 | G96 | 0.1− | 0.4+ | | | |
| 2004 06 22 | 691 | 0.4+ | 0.2− | 2007 04 25 | 691 | 0.3+ | 0.3+ | | | | | | | |
| 2004 06 22 | 691 | 0.2+ | 0.1+ | 2007 04 25 | 691 | 0.3− | 0.7+ | | | | | | | |

**(229565)∗ 2006 AF$_{30}$**

Discovered 2006 Jan. 2 by the Mt. Lemmon Survey at Mount Lemmon.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 241.60269 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26728124 | $\omega$ | 145.31289 | | +0.10011394 | +0.98266230 | |
| $a$ | 2.3868424 | $\Omega$ | 129.90740 | | −0.95272388 | +0.13989584 | |
| $e$ | 0.2226746 | $i$ | 11.73789 | | −0.28687003 | −0.12167153 | |
| $P$ | 3.69 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 22 | 704 | 0.6− | 0.4+ | 2006 01 07 | 691 | 0.1− | 0.0 | 2006 03 23 | G96 | 0.3+ | 0.4− | | | |
| 2000 09 22 | 704 | 1.2− | 0.5+ | 2006 01 07 | 691 | 0.7+ | 0.7+ | 2006 03 23 | G96 | 0.3− | 0.2− | | | |
| 2000 09 22 | 704 | 0.5+ | 1.4+ | 2006 01 23 | G96 | 0.1+ | 0.3− | 2006 03 23 | G96 | 0.6− | 0.2+ | | | |
| 2003 03 03 | 704 | (3.0+ | 0.3+) | 2006 01 23 | G96 | 0.5+ | 0.6− | 2006 03 23 | G96 | 0.4+ | 0.6+ | | | |
| 2003 03 03 | 704 | 1.3+ | 0.4− | 2006 01 23 | G96 | 0.4+ | 0.4− | 2007 06 16 | 151 | 0.5+ | 0.2+ | | | |
| 2003 03 03 | 704 | (2.2+ | 0.2−) | 2006 01 23 | G96 | 0.2+ | 0.3− | 2007 06 17 | 151 | 0.4+ | 0.3+ | | | |
| 2003 03 03 | 704 | (2.5+ | 0.2+) | 2006 02 04 | G96 | 0.1− | 0.1+ | 2007 06 17 | 151 | 0.5+ | 0.3+ | | | |
| 2003 03 23 | 645 | 0.0 | 0.0 | 2006 02 04 | G96 | 0.2+ | 0.1+ | 2007 06 20 | 704 | 1.1− | 0.5− | | | |
| 2003 03 23 | 645 | 0.0 | 0.0 | 2006 02 04 | G96 | 0.2+ | 0.3− | 2007 06 20 | 704 | (1.9− | 0.1+) | | | |
| 2003 03 27 | 704 | (0.6+ | 1.8+) | 2006 02 04 | G96 | 0.1− | 0.0 | 2007 06 20 | 704 | 0.3+ | 0.2+ | | | |
| 2003 03 27 | 704 | 0.6+ | 0.7+ | 2006 02 20 | G96 | 0.5− | 0.1+ | 2007 06 20 | 704 | (2.3− | 0.6−) | | | |
| 2003 03 27 | 704 | 0.7+ | 0.4+ | 2006 02 20 | G96 | 0.4− | 0.1+ | 2009 11 16 | G96 | 0.6− | 0.0 | | | |
| 2003 03 27 | 704 | 0.7+ | 0.2− | 2006 02 20 | G96 | 0.1− | 0.2+ | 2009 11 16 | G96 | 0.2− | 0.0 | | | |
| 2003 03 31 | 645 | 0.1− | 0.0 | 2006 02 20 | G96 | 0.1+ | 0.2− | 2009 11 16 | G96 | 0.2− | 0.2+ | | | |
| 2003 03 31 | 645 | 0.0 | 0.0 | 2006 02 24 | G96 | 0.1+ | 0.3+ | 2009 11 16 | G96 | 0.9− | 0.1+ | | | |
| 2006 01 02 | G96 | 0.1− | 0.2+ | 2006 02 24 | G96 | 0.0 | 0.7+ | 2009 12 19 | G96 | 0.0 | 0.1− | | | |
| 2006 01 02 | G96 | 0.4− | 0.2+ | 2006 03 23 | G96 | 0.5− | 0.0 | 2009 12 19 | G96 | 0.6− | 0.2− | | | |
| 2006 01 02 | G96 | 0.4+ | 0.1+ | 2006 03 23 | G96 | 0.2− | 0.3− | 2009 12 19 | G96 | 0.1− | 0.1+ | | | |
| 2006 01 02 | G96 | 0.3+ | 0.1− | 2006 03 23 | G96 | 0.1+ | 0.0 | 2009 12 19 | G96 | 1.0− | 0.5− | | | |
| 2006 01 07 | 691 | 0.1+ | 0.1− | 2006 03 23 | G96 | 0.0 | 0.0 | | | | | | | |

**(229566)∗ 2006 AP$_{32}$ = 1999 RA$_{75}$**

Discovered 2006 Jan. 5 by Spacewatch at Kitt Peak.

Id. A. Doppler (*MPO* 109489)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 104.01551 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21235376 | $\omega$ | 175.55597 | | +0.72345254 | +0.68708901 | |
| $a$ | 2.7824631 | $\Omega$ | 140.76124 | | −0.63663851 | +0.70165667 | |
| $e$ | 0.1558795 | $i$ | 6.10467 | | −0.26703527 | +0.18864412 | |
| $P$ | 4.64 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 09 07 | 704 | 0.3− | 0.2− | 2006 02 04 | G96 | 0.1+ | 0.3+ | 2008 07 30 | 703 | 0.5+ | 0.3+ |
| 1999 09 07 | 704 | 0.3− | 0.8− | 2006 02 24 | G96 | 0.5− | 0.2− | 2008 07 30 | 703 | 1.3− | 0.5− |
| 1999 09 07 | 704 | 0.8− | 0.4+ | 2006 02 24 | G96 | 0.4− | 0.4− | 2008 08 02 | J75 | 0.6+ | 0.5+ |
| 1999 09 07 | 704 | 0.1+ | 0.8− | 2006 02 24 | G96 | 0.2− | 0.4+ | 2008 08 02 | J75 | 0.0 | 0.2− |
| 1999 09 07 | 704 | 0.2− | 1.6− | 2006 02 24 | G96 | 0.1+ | 0.1− | 2008 08 02 | J75 | 0.2+ | 0.3+ |
| 1999 09 13 | 704 | 0.5+ | 0.8+ | 2007 03 11 | 691 | 0.7− | 0.3+ | 2008 08 02 | J75 | 0.4+ | 0.0 |
| 1999 09 13 | 704 | 0.2− | 0.4+ | 2007 03 11 | 691 | 0.6− | 0.2+ | 2008 08 02 | J75 | 0.5+ | 0.1+ |
| 1999 09 13 | 704 | 0.6+ | 0.0 | 2007 03 11 | 691 | 0.4− | 0.2+ | 2008 08 02 | J75 | 0.7+ | 0.8+ |
| 1999 09 13 | 704 | 0.6− | 1.1+ | 2007 03 15 | 691 | 0.1− | 0.4+ | 2008 08 04 | 704 | 1.0+ | 1.0+ |
| 2002 03 13 | 691 | 0.2− | 0.3+ | 2007 03 15 | 691 | 0.6+ | 0.3+ | 2008 08 04 | 704 | 0.5− | 1.3+ |
| 2002 03 13 | 691 | 0.1− | 0.1− | 2007 03 15 | 691 | 0.1+ | 0.3+ | 2008 08 04 | 704 | 0.7+ | 0.8− |
| 2002 03 13 | 691 | 0.1− | 0.0 | 2008 07 01 | 704 | 0.7− | 1.0− | 2008 09 23 | G96 | 0.2+ | 0.2− |
| 2006 01 05 | 691 | 0.4+ | 0.3− | 2008 07 01 | 704 | 0.5− | 0.3+ | 2008 09 23 | G96 | 0.0 | 0.1+ |
| 2006 01 05 | 691 | 0.6+ | 0.7+ | 2008 07 01 | 704 | 0.9+ | 0.1+ | 2008 09 23 | G96 | 0.1+ | 0.4+ |
| 2006 01 05 | 691 | 0.5+ | 0.2− | 2008 07 01 | 704 | 0.4+ | 0.3− | 2008 09 23 | G96 | 0.1− | 0.1+ |
| 2006 01 07 | 691 | 0.2+ | 0.2− | 2008 07 25 | E12 | (0.5+ | 1.9+) | 2009 11 26 | G96 | 0.2+ | 0.3− |
| 2006 01 07 | 691 | 0.2+ | 0.2− | 2008 07 25 | E12 | 0.1+ | 0.5+ | 2009 11 26 | G96 | 0.1+ | 0.1+ |
| 2006 01 07 | 691 | 0.2+ | 0.2+ | 2008 07 25 | E12 | 0.1− | 0.6+ | 2009 11 26 | G96 | 0.7+ | 0.2+ |
| 2006 01 09 | 691 | 0.3+ | 0.2+ | 2008 07 25 | E12 | 0.6+ | 0.6+ | 2009 11 26 | G96 | 0.3+ | 0.2+ |
| 2006 01 09 | 691 | 0.7+ | 0.4− | 2008 07 27 | J75 | 0.1+ | 0.5+ | 2009 11 26 | G96 | 0.4+ | 0.1+ |
| 2006 01 09 | 691 | 0.3+ | 0.2− | 2008 07 27 | J75 | 0.8+ | 0.1− | 2009 12 18 | 291 | 1.0− | 0.3+ |
| 2006 02 04 | G96 | 0.2+ | 0.6− | 2008 07 27 | J75 | 0.2+ | 0.1− | 2009 12 18 | 291 | 0.8− | 0.3+ |
| 2006 02 04 | G96 | 0.0 | 0.1+ | 2008 07 30 | 703 | 0.1− | 0.3+ | 2009 12 18 | 291 | 0.9− | 0.1+ |
| 2006 02 04 | G96 | 0.1− | 0.1− | 2008 07 30 | 703 | 1.3− | 0.1+ | | | | |

**(229567)∗ 2006 AR$_{33}$**

Discovered 2006 Jan. 6 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 79.59807 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22805767 | $\omega$ | 255.99877 | | +0.92866057 | +0.30029404 | |
| $a$ | 2.6532179 | $\Omega$ | 86.17612 | | −0.19519347 | +0.89479785 | |
| $e$ | 0.2227795 | $i$ | 12.60516 | | −0.31541885 | +0.33039414 | |
| $P$ | 4.32 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 10 29 | 704 | 0.3− | 0.4− | 2004 09 03 | E12 | 0.0 | 1.1+ | 2006 01 07 | 291 | 0.0 | 0.1+ |
| 2000 10 29 | 704 | 0.2+ | 0.8− | 2004 09 03 | E12 | 0.3+ | 0.9− | 2006 01 07 | 291 | 0.0 | 0.1− |
| 2000 10 29 | 704 | 0.2− | 0.0 | 2004 09 03 | E12 | 0.2+ | 0.2+ | 2009 10 14 | G96 | 0.1− | 0.2− |
| 2000 11 27 | 645 | 0.1+ | 0.0 | 2004 09 03 | E12 | 0.1+ | 0.8+ | 2009 10 14 | G96 | 0.0 | 0.3− |
| 2000 11 27 | 645 | 0.0 | 0.1− | 2004 09 18 | E12 | 0.5− | 0.1− | 2009 10 14 | G96 | 0.6+ | 0.2− |
| 2003 04 01 | 645 | 0.0 | 0.0 | 2004 09 18 | E12 | 0.0 | 0.2− | 2009 10 14 | G96 | 0.3+ | 0.1− |
| 2003 04 01 | 645 | 0.0 | 0.0 | 2004 09 18 | E12 | 0.2+ | 0.1− | 2009 12 17 | 704 | 0.1− | 1.4+ |
| 2003 04 27 | 645 | 0.0 | 0.0 | 2004 09 18 | E12 | 0.1− | 0.8+ | 2009 12 17 | 704 | 0.8− | 0.4+ |
| 2003 04 27 | 645 | 0.0 | 0.0 | 2006 01 06 | 704 | 0.3− | 1.2+ | 2009 12 17 | 704 | 0.0 | 0.6+ |
| 2004 07 12 | 644 | 0.2− | 0.2− | 2006 01 06 | 704 | 0.5− | 0.1+ | 2009 12 17 | 704 | 0.1− | 0.7+ |
| 2004 07 12 | 644 | 0.4− | 0.5+ | 2006 01 06 | 704 | 1.3+ | 0.3− | | | | |
| 2004 07 12 | 644 | 0.3− | 0.1+ | 2006 01 07 | 291 | 0.2− | 0.1− | | | | |

**(229568)∗ 2006 AA$_{41}$ = 2004 TR$_{239}$**

Discovered 2006 Jan. 7 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 96926)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 232.45786 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21989308 | $\omega$ | 161.68779 | | −0.77613294 | +0.62933774 | |
| $a$ | 2.7184938 | $\Omega$ | 57.37803 | | −0.58422412 | −0.69417827 | |
| $e$ | 0.0633948 | $i$ | 2.68066 | | −0.23727586 | −0.34935732 | |
| $P$ | 4.48 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1993 03 20 | 691 | 0.0 | 0.1+ | 2006 01 08 | 691 | 0.5+ | 0.1+ | 2007 05 25 | G96 | 0.0 | 0.2+ |
| 1993 03 20 | 691 | 0.1+ | 0.1− | 2006 01 08 | 691 | 0.1− | 0.4+ | 2007 06 22 | G96 | 0.2+ | 0.2− |
| 1993 03 20 | 691 | 0.3− | 0.2− | 2006 01 26 | 703 | 0.5+ | 0.9+ | 2007 06 22 | G96 | 0.1+ | 0.6+ |
| 2002 03 16 | 704 | 1.1+ | 1.4+ | 2006 01 26 | 703 | 0.1+ | 0.4+ | 2007 06 22 | G96 | 0.2+ | 0.2+ |
| 2002 03 16 | 704 | 0.1− | 1.0+ | 2006 01 26 | 703 | 0.2− | 0.0 | 2007 06 22 | G96 | 0.4− | 0.2+ |
| 2002 03 16 | 704 | 0.0 | 0.8+ | 2006 01 26 | 703 | (1.9+ | 0.5−) | 2008 09 23 | G96 | 0.2+ | 0.2+ |
| 2002 03 16 | 704 | 0.1− | 0.6+ | 2006 01 28 | G96 | 0.3− | 0.3− | 2008 09 23 | G96 | 0.2− | 0.2+ |
| 2002 03 16 | 704 | (0.6+ | 1.8+) | 2006 01 28 | G96 | 0.7− | 0.5− | 2008 09 23 | G96 | 0.2− | 0.3+ |
| 2002 04 15 | 704 | 0.8+ | 0.6− | 2006 01 28 | G96 | 0.3+ | 0.7− | 2008 09 23 | G96 | 0.1− | 0.3+ |
| 2002 04 15 | 704 | 1.0− | 0.7+ | 2006 01 28 | G96 | 0.2− | 0.5− | 2009 11 17 | 691 | 0.2− | 0.2+ |
| 2002 04 15 | 704 | 0.7− | 1.0+ | 2006 02 07 | G96 | 0.0 | 0.9− | 2009 11 17 | 691 | 0.2− | 0.1− |
| 2004 10 09 | 691 | 0.1+ | 0.1+ | 2006 02 07 | G96 | 0.3+ | 1.1− | 2009 11 17 | 691 | 0.6− | 0.2− |
| 2004 10 09 | 691 | 0.1+ | 0.3+ | 2006 02 07 | G96 | 0.4+ | 0.3− | 2009 12 10 | G96 | 0.4− | 1.1− |
| 2004 10 09 | 691 | 0.0 | 0.1+ | 2006 02 07 | G96 | (0.2− | 1.8−) | 2009 12 10 | G96 | 0.9− | 0.6+ |
| 2004 10 12 | 691 | 0.1− | 0.1+ | 2006 03 04 | G96 | 0.1+ | 0.0 | 2009 12 10 | G96 | 0.9+ | 0.7+ |
| 2004 10 12 | 691 | 0.0 | 0.3+ | 2006 03 04 | G96 | 0.2+ | 0.2− | 2009 12 10 | G96 | 0.1+ | 0.0 |
| 2004 10 12 | 691 | 0.1− | 0.3+ | 2006 03 04 | G96 | 0.2− | 0.1+ | 2009 12 19 | G96 | 0.2− | 0.1+ |
| 2006 01 07 | 691 | 0.2+ | 0.2+ | 2006 03 04 | G96 | 0.1+ | 0.1+ | 2009 12 19 | G96 | 0.4+ | 0.1+ |
| 2006 01 07 | 691 | 0.3+ | 0.2+ | 2007 05 25 | G96 | 0.0 | 0.8+ | 2009 12 19 | G96 | 0.1− | 0.4− |
| 2006 01 07 | 691 | 0.0 | 0.1+ | 2007 05 25 | G96 | 0.3− | 0.3+ | 2009 12 19 | G96 | 0.0 | 0.6− |
| 2006 01 08 | 691 | 0.4+ | 0.4− | 2007 05 25 | G96 | 1.2+ | 0.4+ | | | | |

**(229569)∗ 2006 AL$_{43}$ = 1996 TX$_{67}$ = 2004 TJ$_{189}$**

Discovered 2006 Jan. 6 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 96929)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 296.20871 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23921630 | $\omega$ | 334.87878 | | −0.99991086 | +0.00057124 | |
| $a$ | 2.5700537 | $\Omega$ | 205.16481 | | +0.00442624 | −0.92841027 | |
| $e$ | 0.0424425 | $i$ | 1.79775 | | −0.01259717 | −0.37155625 | |
| $P$ | 4.12 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 10 12 | 691 | 0.1+ | 0.0 | 2006 01 06 | 691 | 0.2− | 0.1+ | 2008 09 20 | G96 | 0.0 | 0.0 |
| 1996 10 12 | 691 | 0.9− | 0.3+ | 2006 01 06 | 691 | 0.0 | 0.2+ | 2008 09 20 | G96 | 0.1− | 0.0 |
| 1996 10 12 | 691 | 0.3− | 0.2+ | 2006 01 06 | 691 | 0.0 | 0.1+ | 2008 09 20 | G96 | 0.3+ | 0.3− |
| 1996 10 15 | 691 | 0.3− | 1.0− | 2006 01 08 | G96 | 0.1+ | 0.2− | 2008 09 24 | 691 | 0.1+ | 0.2− |
| 1996 10 15 | 691 | 0.4+ | 0.0 | 2006 01 08 | G96 | 0.3+ | 0.5− | 2008 09 24 | 691 | 0.3− | 0.0 |
| 1996 10 15 | 691 | 0.5+ | 0.1+ | 2006 01 08 | G96 | 0.2+ | 0.6− | 2008 09 24 | 691 | 0.5− | 0.2+ |
| 2000 10 01 | 704 | 0.3− | 0.6− | 2006 01 08 | G96 | 0.4+ | 0.4− | 2008 09 24 | 704 | 0.9+ | 1.2− |
| 2000 10 01 | 704 | 0.2+ | 1.1+ | 2006 01 10 | 691 | 0.2− | 0.2+ | 2008 09 24 | 704 | 0.2− | 0.2− |
| 2000 10 01 | 704 | 1.2+ | 0.1+ | 2006 01 10 | 691 | 0.1+ | 0.1− | 2008 09 24 | 704 | 0.3+ | 0.0 |
| 2000 10 01 | 704 | 0.7+ | 2.0+ | 2006 01 10 | 691 | 0.2− | 0.0 | 2008 10 01 | G96 | 0.0 | 0.0 |
| 2002 02 11 | 704 | 0.1− | 0.2− | 2006 01 27 | 691 | 0.1+ | 0.2+ | 2008 10 01 | G96 | 0.1+ | 0.1+ |
| 2002 02 11 | 704 | 0.2− | 0.5− | 2006 01 27 | 691 | 0.2+ | 0.2+ | 2008 10 01 | G96 | 0.2+ | 0.4+ |
| 2002 02 11 | 704 | 0.3+ | 0.0 | 2006 01 27 | 691 | 0.2+ | 0.3+ | 2008 10 01 | G96 | 0.3− | 0.1+ |
| 2002 02 11 | 704 | 0.7+ | 0.3+ | 2006 01 28 | 699 | 0.2+ | 0.5− | 2009 11 16 | G96 | 0.8− | 0.4− |
| 2002 02 11 | 704 | 0.1+ | 0.0 | 2006 01 28 | 699 | 0.8− | 0.6− | 2009 11 16 | G96 | 0.1− | 0.2− |
| 2004 09 10 | 691 | 0.2− | 0.1+ | 2006 01 28 | 699 | 1.1− | 0.8+ | 2009 11 16 | G96 | 0.2− | 0.2− |
| 2004 09 10 | 691 | 0.0 | 0.0 | 2006 01 28 | 699 | 0.1− | 0.6− | 2009 11 16 | G96 | 0.4+ | 0.0 |
| 2004 09 10 | 691 | 0.7− | 0.1+ | 2006 02 01 | 691 | 0.1− | 0.5+ | 2009 12 15 | G96 | 0.4+ | 0.1− |
| 2004 10 07 | 691 | 0.2+ | 0.0 | 2006 02 01 | 691 | 0.1− | 0.3+ | 2009 12 15 | G96 | 0.4+ | 0.7− |
| 2004 10 07 | 691 | 0.1+ | 0.3+ | 2006 02 01 | 691 | 0.3− | 0.2+ | 2009 12 15 | G96 | 1.5+ | 0.6− |
| 2004 10 07 | 691 | 0.2+ | 0.2+ | 2006 02 03 | 704 | 1.4+ | 0.6+ | 2009 12 15 | G96 | 1.0+ | 0.9− |
| 2004 11 05 | 691 | 0.2+ | 0.0 | 2006 02 03 | 704 | 1.4+ | 1.4− | 2009 12 17 | 691 | 0.1+ | 0.2− |
| 2004 11 05 | 691 | 0.5+ | 0.2− | 2006 02 03 | 704 | 0.2+ | 0.1− | 2009 12 17 | 691 | 0.2+ | 0.1+ |
| 2004 11 05 | 691 | 0.1− | 0.3+ | 2006 03 03 | G96 | 0.1+ | 0.8+ | 2009 12 17 | 691 | 0.1− | 0.0 |
| 2005 12 01 | G96 | 0.1− | 0.5− | 2006 03 03 | G96 | 0.2+ | 0.7+ | 2009 12 25 | 691 | 0.5− | 0.0 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 01 | G96 | 0.4− | 0.2− | 2006 03 03 | G96 | 0.2− | 0.2+ | 2009 12 25 | 691 | 0.1− | 0.3− |
| 2005 12 01 | G96 | 0.1+ | 0.4+ | 2006 03 03 | G96 | 0.1− | 0.2+ | 2009 12 25 | 691 | 0.4− | 0.1− |
| 2005 12 01 | G96 | 0.4+ | 0.4− | 2008 09 20 | G96 | 0.3− | 0.3− | | | | |

**(229570)∗ 2006 AA$_{45}$ = 2000 WG$_{176}$**

Discovered 2006 Jan. 2 by the Catalina Sky Survey.

Id. T. B. Spahr (*MPO* 96930)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 24.65025 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22111245 | $\omega$ | 347.89462 | | +0.44597061 | −0.85510950 | |
| $a$ | 2.7084901 | $\Omega$ | 75.12397 | | +0.84232074 | +0.30108582 | |
| $e$ | 0.0447719 | $i$ | 15.87566 | | +0.30266482 | +0.42206051 | |
| $P$ | 4.46 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 26 | 691 | 0.1+ | 0.8− | 2006 01 05 | 703 | (1.9− | 1.0+) | 2006 02 22 | 703 | 0.4− | 0.3− |
| 2000 11 26 | 691 | 0.4+ | 0.1− | 2006 01 07 | 704 | 0.2− | 0.6+ | 2006 03 04 | 703 | 0.6+ | 0.3− |
| 2000 11 26 | 691 | 0.4+ | 0.2− | 2006 01 07 | 704 | 0.0 | 1.2+ | 2006 03 04 | 703 | 0.6− | 0.4+ |
| 2000 11 29 | 704 | 1.0− | 0.0 | 2006 01 07 | 704 | 0.8+ | 0.3− | 2006 03 04 | 703 | 0.1+ | 0.8− |
| 2000 11 29 | 704 | 0.5+ | 0.3+ | 2006 01 22 | 703 | 0.2− | 0.0 | 2006 03 04 | 703 | 0.2− | 0.5− |
| 2000 11 29 | 704 | 1.0− | 0.7+ | 2006 01 22 | 703 | 0.8− | 0.0 | 2007 04 25 | 691 | 0.1+ | 0.2+ |
| 2002 04 10 | 644 | 0.0 | 0.2+ | 2006 01 22 | 703 | (2.2− | 0.0 ) | 2007 04 25 | 691 | 0.1+ | 0.2+ |
| 2002 04 10 | 644 | 0.2− | 0.2+ | 2006 01 22 | 703 | 1.2+ | 0.3− | 2007 04 25 | 691 | 0.2+ | 0.2− |
| 2002 04 10 | 644 | 0.0 | 0.3+ | 2006 01 22 | 703 | 0.9− | 0.5+ | 2007 05 13 | 691 | 0.1+ | 0.1− |
| 2004 10 14 | 699 | 0.5+ | 1.0+ | 2006 01 22 | 703 | 1.2− | 0.0 | 2007 05 13 | 691 | 0.1+ | 0.0 |
| 2004 10 14 | 699 | 0.5− | 0.7− | 2006 01 22 | 703 | 0.5− | 0.9− | 2007 05 13 | 691 | 0.1− | 0.1+ |
| 2004 10 14 | 699 | 0.5+ | 0.7+ | 2006 01 22 | 703 | 0.6− | 0.9− | 2008 08 28 | E12 | 0.1− | 0.5+ |
| 2004 10 14 | 699 | 0.1− | 0.6+ | 2006 01 24 | 699 | 0.3+ | 1.0+ | 2008 08 28 | E12 | 1.1− | 0.8− |
| 2005 01 19 | 809 | 0.6− | 0.4+ | 2006 01 24 | 699 | 1.0+ | 0.0 | 2008 08 28 | E12 | 0.8− | 1.2+ |
| 2005 01 19 | 809 | 0.4− | 0.0 | 2006 01 24 | 699 | 1.0+ | 1.4+ | 2009 12 10 | 704 | (2.3+ | 1.0+) |
| 2005 01 19 | 809 | 0.5− | 0.1+ | 2006 01 24 | 699 | 0.0 | 0.8− | 2009 12 10 | 704 | (0.2− | 1.8+) |
| 2006 01 02 | 703 | 0.7− | 1.3+ | 2006 02 06 | 704 | 0.9+ | 0.4− | 2009 12 10 | 704 | 0.3+ | 0.7+ |
| 2006 01 02 | 703 | 0.4+ | 0.1− | 2006 02 06 | 704 | 0.6+ | 0.3+ | 2009 12 10 | 704 | 0.3+ | 0.8+ |
| 2006 01 02 | 703 | 0.2+ | 0.5+ | 2006 02 06 | 704 | 1.4+ | 0.9+ | 2009 12 16 | 704 | 0.8− | 0.6+ |
| 2006 01 02 | 703 | 0.6− | 0.4+ | 2006 02 06 | 704 | 1.3+ | 0.4+ | 2009 12 16 | 704 | 0.4+ | 0.3+ |
| 2006 01 05 | 703 | 0.3− | 0.5− | 2006 02 22 | 703 | 1.4− | 0.2− | 2009 12 16 | 704 | 0.1− | 0.6+ |
| 2006 01 05 | 703 | 0.1− | 0.6+ | 2006 02 22 | 703 | 1.2− | 0.8− | | | | |
| 2006 01 05 | 703 | 0.4− | 0.6− | 2006 02 22 | 703 | 0.7− | 0.4+ | | | | |

**(229571)∗ 2006 AH$_{49}$**

Discovered 2006 Jan. 5 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 352.09243 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23069524 | $\omega$ | 77.47506 | | +0.08111850 | −0.99668873 | |
| $a$ | 2.6329562 | $\Omega$ | 7.87850 | | +0.89786001 | +0.07063303 | |
| $e$ | 0.0594635 | $i$ | 2.34169 | | +0.43274378 | +0.04028094 | |
| $P$ | 4.27 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 01 11 | 291 | 0.2− | 0.3+ | 2006 01 09 | 691 | 0.3− | 0.5− | 2009 11 09 | G96 | 0.5+ | 0.0 |
| 2002 01 11 | 291 | 0.3− | 0.4+ | 2007 04 19 | G96 | 0.6+ | 0.3− | 2009 11 09 | G96 | 0.7+ | 0.4− |
| 2002 01 11 | 291 | 0.1+ | 0.3+ | 2007 04 19 | G96 | 0.2+ | 0.0 | 2009 11 09 | G96 | 0.7+ | 0.0 |
| 2002 02 10 | 704 | 0.6+ | 1.0− | 2007 04 19 | G96 | 0.4+ | 0.1+ | 2009 11 17 | 691 | 0.2− | 0.0 |
| 2002 02 10 | 704 | 1.1+ | 1.4− | 2007 04 19 | G96 | 0.5+ | 0.1+ | 2009 11 17 | 691 | 0.2− | 0.1− |
| 2002 02 10 | 704 | 0.3+ | 1.2− | 2007 05 12 | G96 | 0.2− | 0.1+ | 2009 11 17 | 691 | 0.1− | 0.4+ |
| 2005 12 24 | 691 | 0.3+ | 0.1− | 2007 05 12 | G96 | 0.4− | 0.1− | 2009 11 25 | 691 | 0.2− | 0.1+ |
| 2005 12 24 | 691 | 0.6+ | 0.4+ | 2007 05 12 | G96 | 0.9− | 0.6− | 2009 11 25 | 691 | 0.0 | 0.1+ |
| 2005 12 24 | 691 | 0.2+ | 0.1− | 2007 05 12 | G96 | 0.0 | 0.7+ | 2009 11 25 | 691 | 0.0 | 0.0 |
| 2006 01 05 | 691 | 0.1− | 0.0 | 2007 05 13 | G96 | 0.1− | 0.5− | 2009 12 16 | G96 | 0.0 | 0.1− |
| 2006 01 05 | 691 | 0.1− | 0.0 | 2007 05 13 | G96 | 0.3+ | 1.2+ | 2009 12 16 | G96 | 0.1+ | 0.4− |
| 2006 01 05 | 691 | 0.2− | 0.2+ | 2007 05 13 | G96 | 0.1+ | 0.1+ | 2009 12 16 | G96 | 0.2+ | 0.4− |
| 2006 01 09 | 691 | 0.4− | 0.1− | 2007 05 13 | G96 | 0.1− | 0.1+ | 2009 12 16 | G96 | 0.2+ | 0.1+ |
| 2006 01 09 | 691 | 0.0 | 0.2− | 2009 11 09 | G96 | 0.8+ | 0.3− | | | | |

**(229572)∗ 2006 AG$_{73}$**

Discovered 2006 Jan. 8 by the Mt. Lemmon Survey at Mount Lemmon.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 76.46573 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21640804 | $\omega$ | 71.97418 | | +0.99641512 | +0.01541417 | |
| $a$ | 2.7476017 | $\Omega$ | 287.07832 | | −0.04905912 | +0.90632904 | |
| $e$ | 0.0590700 | $i$ | 4.99217 | | +0.06892111 | +0.42229145 | |
| $P$ | 4.55 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 10 | 704 | 0.7+ | 0.0 | 2006 01 31 | G96 | 0.2− | 0.1+ | 2009 11 23 | 691 | 0.3− | 0.0 |
| 2004 10 10 | 704 | 0.5− | 0.7+ | 2006 02 03 | G96 | 0.5− | 0.5− | 2009 11 23 | 691 | 0.2− | 0.1− |
| 2004 10 10 | 704 | 1.2− | 0.8+ | 2006 02 03 | G96 | 0.2+ | 0.1− | 2009 11 27 | 691 | 0.2− | 0.0 |
| 2004 10 10 | 704 | 1.2− | 1.3− | 2006 02 03 | G96 | 0.4− | 0.2− | 2009 11 27 | 691 | 0.3− | 0.2− |
| 2004 10 21 | 704 | 0.9+ | 1.2+ | 2006 02 03 | G96 | 0.4− | 0.0 | 2009 11 27 | 691 | 0.2− | 0.0 |
| 2004 10 21 | 704 | 0.2+ | 0.2+ | 2008 08 01 | J75 | 0.5− | 1.0+ | 2009 12 08 | J75 | 0.9+ | 0.7− |
| 2004 10 21 | 704 | 0.3+ | 0.3+ | 2008 08 01 | J75 | 0.9− | 0.1+ | 2009 12 08 | J75 | 0.2− | 0.6− |
| 2006 01 08 | G96 | 0.5+ | 0.5− | 2008 08 01 | J75 | 0.3+ | 0.3− | 2009 12 09 | J75 | 0.3− | 1.1− |
| 2006 01 08 | G96 | 0.2+ | 0.3− | 2008 08 01 | J75 | 0.3+ | 0.2+ | 2009 12 10 | 704 | 1.5+ | 0.2+ |
| 2006 01 08 | G96 | 0.1+ | 0.8− | 2008 08 01 | J75 | 0.0 | 0.5+ | 2009 12 10 | 704 | 2.2+ | 1.2+ |
| 2006 01 08 | G96 | 0.2− | 0.3− | 2008 08 01 | J75 | 0.6− | 0.3− | 2009 12 10 | 704 | 1.0+ | 0.4+ |
| 2006 01 10 | 691 | 0.1+ | 0.6+ | 2008 11 20 | G96 | 0.7+ | 0.3− | 2009 12 11 | G96 | 0.2− | 0.2− |
| 2006 01 10 | 691 | 0.5+ | 0.6+ | 2008 11 20 | G96 | 0.8+ | 0.2− | 2009 12 11 | G96 | 0.2+ | 0.3− |
| 2006 01 10 | 691 | 0.1− | 0.3+ | 2008 11 20 | G96 | 0.4+ | 0.2+ | 2009 12 11 | G96 | 0.3+ | 0.1− |
| 2006 01 31 | G96 | (0.2+ | 1.6+) | 2008 11 20 | G96 | 0.1− | 0.4+ | 2009 12 11 | G96 | 0.3+ | 0.2− |
| 2006 01 31 | G96 | 0.0 | 0.2+ | 2009 11 23 | 691 | 0.3− | 0.0 | | | | |

**(229573)∗ 2006 AX$_{77}$**

Discovered 2006 Jan. 7 by the Mt. Lemmon Survey at Mount Lemmon.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 292.71386 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21836342 | $\omega$ | 32.65894 | | −0.90497315 | −0.39942451 | |
| $a$ | 2.7311745 | $\Omega$ | 123.11700 | | +0.34305783 | −0.88878904 | |
| $e$ | 0.0441663 | $i$ | 10.07870 | | +0.25166429 | −0.22475345 | |
| $P$ | 4.51 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 03 20 | 704 | 0.7− | 0.8+ | 2006 01 24 | 704 | 0.7+ | 0.5+ | 2006 02 07 | 691 | 0.1+ | 0.2− |
| 2002 03 20 | 704 | 1.1+ | 0.4− | 2006 01 27 | 699 | 0.9− | 1.1+ | 2006 02 07 | 691 | 0.5+ | 0.1− |
| 2002 03 20 | 704 | 0.4+ | 0.0 | 2006 01 27 | 699 | 1.3+ | 0.3+ | 2006 02 28 | 703 | 0.6− | 1.0− |
| 2002 03 20 | 704 | 0.1+ | 0.7+ | 2006 01 27 | 699 | (0.7+ | 1.5+) | 2006 02 28 | 703 | (1.7− | 0.5−) |
| 2005 11 29 | G96 | 0.6− | 0.1+ | 2006 01 27 | 699 | 0.2+ | 0.9− | 2006 02 28 | 703 | (0.3+ | 1.7+) |
| 2005 11 29 | G96 | 0.3− | 0.7− | 2006 01 28 | G96 | (2.0− | 0.5+) | 2006 02 28 | 703 | 0.3− | 1.1+ |
| 2005 11 29 | G96 | 0.6− | 0.2− | 2006 01 28 | G96 | 0.1− | 0.8− | 2007 05 13 | G96 | 0.0 | 0.3− |
| 2005 11 29 | G96 | 0.7− | 0.1− | 2006 01 28 | G96 | 0.1− | 0.5− | 2007 05 13 | G96 | 0.0 | 0.3− |
| 2005 12 26 | G96 | 0.1− | 0.4− | 2006 01 31 | 691 | 0.1− | 0.0 | 2007 05 13 | G96 | 0.1− | 0.3− |
| 2005 12 26 | G96 | 0.3− | 0.3− | 2006 01 31 | 691 | 0.8+ | 0.4+ | 2007 05 13 | G96 | 0.1− | 0.2− |
| 2005 12 26 | G96 | 0.5− | 0.4− | 2006 01 31 | 691 | 0.7− | 0.6+ | 2007 06 19 | 691 | 0.1+ | 0.0 |
| 2005 12 26 | G96 | 0.2+ | 0.3− | 2006 02 03 | 691 | 0.1− | 0.1+ | 2007 06 19 | 691 | 0.1− | 0.2− |
| 2006 01 07 | G96 | 0.2− | 0.4− | 2006 02 03 | 691 | 0.7+ | 0.1+ | 2007 06 19 | 691 | 0.1+ | 0.2+ |
| 2006 01 07 | G96 | 0.5− | 0.5− | 2006 02 03 | 691 | 0.1+ | 0.1− | 2007 06 23 | 691 | 0.1− | 0.3− |
| 2006 01 07 | G96 | 0.2− | 0.2− | 2006 02 03 | 703 | (1.6− | 0.1−) | 2007 06 23 | 691 | 0.1− | 0.0 |
| 2006 01 10 | G96 | 0.3− | 0.1− | 2006 02 03 | 703 | 1.3− | 0.0 | 2007 06 23 | 691 | 0.2− | 0.2− |
| 2006 01 10 | G96 | 0.3+ | 0.0 | 2006 02 03 | 703 | 0.4− | 0.1+ | 2009 11 19 | 704 | 1.1+ | 0.2− |
| 2006 01 10 | G96 | 0.2− | 0.4− | 2006 02 03 | 703 | 0.2− | 0.1− | 2009 11 19 | 704 | 0.9+ | 0.7+ |
| 2006 01 10 | G96 | 0.0 | 0.2− | 2006 02 04 | 704 | 1.0+ | 0.8+ | 2009 11 19 | 704 | 0.6− | 0.4+ |
| 2006 01 20 | 691 | 0.1− | 0.1+ | 2006 02 04 | 703 | 0.7− | 0.4− | 2009 12 11 | D25 | 1.6− | 0.2− |
| 2006 01 20 | 691 | 0.1− | 0.0 | 2006 02 04 | 704 | 0.0 | 0.1+ | 2009 12 11 | D25 | 0.0 | 1.9− |
| 2006 01 20 | 691 | 0.2+ | 0.1+ | 2006 02 04 | 703 | 1.4− | 0.5− | 2009 12 11 | D25 | 0.8+ | 0.9− |
| 2006 01 23 | G96 | 0.0 | 0.2− | 2006 02 04 | 703 | 0.5− | 0.1+ | 2009 12 12 | D25 | 0.4− | 0.5− |
| 2006 01 23 | G96 | 0.2+ | 0.3− | 2006 02 04 | 704 | 0.3+ | 0.2+ | 2009 12 12 | D25 | 0.3− | 0.1− |
| 2006 01 23 | G96 | 0.2− | 0.4− | 2006 02 04 | 703 | 0.2− | 0.4− | 2009 12 12 | D25 | 0.0 | 0.6− |
| 2006 01 23 | G96 | 0.0 | 0.4− | 2006 02 04 | 704 | 0.5+ | 0.2− | 2009 12 13 | 704 | 0.5+ | 0.9+ |
| 2006 01 24 | 704 | 0.5+ | 0.7+ | 2006 02 04 | 704 | 0.1− | 0.6− | 2009 12 13 | 704 | 0.4+ | 0.1− |
| 2006 01 24 | 704 | 0.3+ | 0.5+ | 2006 02 07 | 691 | 0.1− | 0.1− | 2009 12 13 | 704 | 0.1+ | 1.1+ |

**(229574)∗ 2006 AX$_{95}$**

Discovered 2006 Jan. 10 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 67.79282 | | (2000.0) | | | |
| $n$ | 0.23950643 | $\omega$ | 123.52911 | | +0.89658387 | −0.44267553 |
| $a$ | 2.5679778 | $\Omega$ | 262.74873 | | +0.40176907 | +0.82559791 |
| $e$ | 0.1541878 | $i$ | 0.76571 | | +0.18633031 | +0.34989494 |
| $P$ | 4.12 | $H$ | 17.2 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1992 10 25 | 691 | 0.1+ | 0.2+ | 2006 01 10 | 691 | 0.4− | 0.5+ | 2006 03 04 | G96 | 0.3− | 0.4+ |
| 1992 10 25 | 691 | 0.2− | 0.1− | 2006 01 10 | 691 | 0.5+ | 0.1+ | 2006 03 04 | G96 | 0.5− | 0.4+ |
| 1992 10 25 | 691 | 0.1− | 0.0 | 2006 01 10 | 691 | 0.0 | 0.5+ | 2006 03 04 | G96 | 0.0 | 0.2+ |
| 2002 02 13 | 291 | 0.4+ | 0.7+ | 2006 01 22 | G96 | 0.5− | 0.3− | 2007 03 15 | G96 | 0.4+ | 0.8+ |
| 2002 02 13 | 291 | 0.0 | 0.4+ | 2006 01 22 | G96 | 0.0 | 0.3− | 2007 03 15 | G96 | 0.8− | 0.6+ |
| 2002 02 13 | 291 | 0.0 | 0.8+ | 2006 01 22 | G96 | 0.2− | 0.4− | 2007 03 15 | G96 | 0.2− | 0.1+ |
| 2003 05 01 | 691 | (0.0 | 2.0+) | 2006 01 22 | G96 | 0.3− | 0.4− | 2007 03 15 | G96 | 0.4− | 0.1+ |
| 2003 05 01 | 691 | 0.5+ | 0.9+ | 2006 02 05 | G96 | 0.8+ | 0.0 | 2008 08 09 | J75 | 0.1− | 0.7− |
| 2003 05 01 | 691 | (0.0 | 2.2+) | 2006 02 05 | G96 | 0.6+ | 0.1+ | 2008 08 09 | J75 | 0.7− | 0.5− |
| 2004 08 22 | 691 | 0.0 | 0.3+ | 2006 02 05 | G96 | 0.2− | 0.2+ | 2008 08 09 | J75 | 0.6− | 1.0+ |
| 2004 08 22 | 691 | 0.1− | 0.7+ | 2006 02 05 | G96 | 0.1+ | 0.2+ | 2009 11 11 | G96 | 0.1− | 0.0 |
| 2004 08 22 | 691 | 0.0 | 0.4+ | 2006 02 20 | 691 | 0.2+ | 0.1− | 2009 11 11 | G96 | 0.5− | 0.5− |
| 2004 09 10 | 691 | 0.2− | 0.3+ | 2006 02 20 | 691 | 0.0 | 0.2+ | 2009 11 11 | G96 | 0.2+ | 0.6− |
| 2004 09 10 | 691 | 0.1− | 0.4+ | 2006 02 20 | 691 | 0.9+ | 0.4+ | 2009 11 11 | G96 | 0.2− | 0.4− |
| 2004 09 10 | 691 | 0.0 | 0.3+ | 2006 02 25 | 691 | 0.2− | 0.1+ | 2009 12 17 | 691 | 0.9− | 0.1+ |
| 2004 09 23 | 691 | 0.4− | 0.6+ | 2006 02 25 | 691 | 0.2− | 0.1− | 2009 12 17 | 691 | 0.1+ | 0.2− |
| 2004 09 23 | 691 | 0.1− | 0.2+ | 2006 02 25 | 691 | 0.3+ | 0.1− | 2009 12 17 | 691 | 0.5+ | 0.2+ |
| 2004 09 23 | 691 | 0.2+ | 0.3+ | 2006 03 04 | G96 | 0.3− | 0.0 | | | | |

**(229575)∗ 2006 BA$_1$**

Discovered 2006 Jan. 18 by the Catalina Sky Survey.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 354.03950 | | (2000.0) | | | |
| $n$ | 0.23329565 | $\omega$ | 203.88336 | | −0.11526795 | −0.99061498 |
| $a$ | 2.6133542 | $\Omega$ | 252.80177 | | +0.92330208 | −0.07957488 |
| $e$ | 0.1247901 | $i$ | 4.40985 | | +0.36636944 | −0.11112965 |
| $P$ | 4.22 | $H$ | 16.4 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1992 11 28 | 691 | 0.1+ | 0.2− | 2006 01 18 | 703 | 0.5− | 0.1+ | 2008 07 29 | 069 | 0.1− | 0.1+ |
| 1992 11 28 | 691 | 0.6− | 0.5− | 2006 01 18 | 703 | 0.1− | 0.1+ | 2008 07 29 | 069 | 0.1+ | 0.9+ |
| 1992 11 28 | 691 | 0.4+ | 0.1− | 2006 01 18 | 703 | 0.2+ | 0.3− | 2008 08 20 | 691 | 0.4− | 0.4+ |
| 2002 02 16 | 644 | 0.2− | 0.5+ | 2006 01 18 | 703 | 0.4− | 0.5+ | 2008 08 20 | 691 | 0.4− | 0.1− |
| 2002 02 16 | 644 | 0.3+ | 0.6+ | 2006 01 22 | 699 | 0.7− | 0.9+ | 2008 08 20 | 691 | 0.1− | 0.2+ |
| 2002 02 16 | 644 | 0.7+ | 0.4+ | 2006 01 22 | 699 | 1.3+ | 0.7− | 2009 12 10 | G96 | 0.0 | 0.2+ |
| 2002 03 06 | 644 | 0.0 | 0.2+ | 2006 01 22 | 699 | 0.2+ | 0.7+ | 2009 12 10 | G96 | 0.0 | 0.2− |
| 2002 03 06 | 644 | 0.4+ | 0.9+ | 2006 01 22 | 699 | (2.0+ | 0.4+) | 2009 12 10 | G96 | 0.2+ | 0.2− |
| 2002 03 06 | 644 | 0.1+ | 0.9+ | 2006 01 23 | 704 | (1.9+ | 0.6+) | 2009 12 10 | G96 | 0.4+ | 0.3− |
| 2004 09 13 | 691 | 0.1− | 0.5+ | 2006 01 23 | 704 | 0.3+ | 0.6+ | 2009 12 17 | 704 | 0.5+ | 0.3− |
| 2004 09 13 | 691 | 0.0 | 0.2+ | 2006 01 23 | 704 | 0.4− | 0.9+ | 2009 12 17 | 704 | 0.9+ | 0.5− |
| 2004 09 13 | 691 | 0.0 | 0.3+ | 2006 01 23 | 704 | 1.2+ | 0.9+ | 2009 12 17 | 704 | 0.8+ | 0.7+ |
| 2004 09 15 | 291 | 0.4+ | 0.1+ | 2006 02 01 | G96 | 0.3− | 0.3+ | 2009 12 17 | 704 | 0.4+ | 0.0 |
| 2004 09 15 | 291 | 0.0 | 0.2+ | 2006 02 01 | G96 | 0.3− | 0.1+ | 2009 12 17 | 704 | 0.1− | 0.1+ |
| 2004 09 15 | 291 | 0.1− | 0.2+ | 2006 02 01 | G96 | 0.4− | 0.2+ | 2009 12 25 | 691 | 0.4− | 0.1− |
| 2005 10 01 | G96 | 0.3+ | 0.0 | 2006 02 03 | 704 | 0.8+ | 0.3+ | 2009 12 25 | 691 | 0.5− | 0.1− |
| 2005 10 01 | G96 | 0.4+ | 0.5− | 2006 02 03 | 704 | 0.8+ | 0.0 | 2009 12 25 | 691 | 0.2− | 0.1+ |
| 2005 10 01 | G96 | 0.2− | 0.2+ | 2006 02 03 | 704 | 0.4+ | 0.7+ | | | | |
| 2005 10 01 | G96 | 0.1− | 0.0 | 2006 02 03 | 704 | 0.6+ | 0.2+ | | | | |

**(229576)∗ 2006 BV$_{17}$ = 2008 LJ$_{17}$**

Discovered 2006 Jan. 22 by the Mt. Lemmon Survey at Mount Lemmon.

Id. A. Doppler (*MPO* 141234)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 55.09423 | | (2000.0) | | | |
| $n$ | 0.21257568 | $\omega$ | 229.89382 | | +0.99569701 | −0.08051286 |
| $a$ | 2.7805262 | $\Omega$ | 134.66936 | | +0.09159387 | +0.93024029 |
| $e$ | 0.1113898 | $i$ | 3.69903 | | −0.01407194 | +0.35800933 |
| $P$ | 4.64 | $H$ | 16.1 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 10 17 | 691 | 0.2− | 0.0 | 2006 01 24 | 704 | 0.4+ | 0.7+ | 2009 11 09 | G96 | 0.2+ | 0.1− |
| 1995 10 17 | 691 | 0.2− | 0.2− | 2006 01 24 | 704 | 0.5+ | 0.1+ | 2009 11 09 | J75 | 0.1+ | 0.3− |
| 1995 10 17 | 691 | (4.4− | 3.3+) | 2006 02 23 | 691 | 0.3+ | 0.3− | 2009 11 09 | J75 | 0.1− | 0.2− |
| 2002 03 12 | 691 | 0.1− | 0.0 | 2006 02 23 | 691 | 0.5+ | 0.8+ | 2009 11 09 | J75 | 0.4− | 0.0 |
| 2002 03 12 | 691 | 0.1− | 0.1− | 2006 02 23 | 691 | 0.4+ | 0.5− | 2009 11 16 | G96 | 0.1+ | 0.1− |
| 2002 03 12 | 691 | 0.2− | 0.1+ | 2007 03 13 | 691 | 0.3+ | 0.1+ | 2009 11 16 | G96 | 0.2+ | 0.2− |
| 2004 10 18 | 704 | 0.4+ | 0.9+ | 2007 03 13 | 691 | 0.2− | 0.4+ | 2009 11 16 | G96 | 0.2− | 0.0 |
| 2004 10 18 | 704 | 1.3+ | 1.5+ | 2007 03 13 | 691 | 0.5− | 0.3+ | 2009 11 16 | G96 | 0.2− | 0.1− |
| 2004 10 18 | 704 | 0.1− | 0.0 | 2007 04 25 | 691 | 0.5+ | 0.1− | 2009 11 19 | J75 | 0.7− | 0.6− |
| 2004 10 18 | 704 | 0.7− | 0.5+ | 2007 04 25 | 691 | 0.4− | 0.1+ | 2009 11 19 | J75 | 0.4+ | 0.9+ |
| 2004 10 18 | 704 | 0.6+ | 1.2+ | 2007 04 25 | 691 | 0.0 | 0.1− | 2009 11 20 | J75 | 0.2+ | 0.1+ |
| 2006 01 04 | G96 | 0.8+ | 0.3+ | 2007 05 16 | G96 | 0.3− | 0.1− | 2009 11 20 | 704 | 0.9+ | 0.9+ |
| 2006 01 04 | G96 | 0.2+ | 0.2− | 2007 05 16 | G96 | 0.4+ | 0.2+ | 2009 11 20 | 704 | 0.1+ | 0.4+ |
| 2006 01 04 | G96 | 0.6+ | 0.7− | 2007 05 16 | G96 | 0.3− | 0.2+ | 2009 11 20 | 704 | 0.5+ | 0.6− |
| 2006 01 04 | G96 | 0.7+ | 0.8− | 2007 05 16 | G96 | 0.1− | 0.1− | 2009 11 20 | 704 | 0.4− | 0.6− |
| 2006 01 22 | G96 | 0.6− | 0.7+ | 2008 06 10 | 691 | 0.0 | 0.2+ | 2009 11 23 | G96 | 0.1− | 0.1− |
| 2006 01 22 | G96 | 0.4− | 0.0 | 2008 06 10 | 691 | 0.0 | 0.2+ | 2009 11 23 | G96 | 0.1− | 0.3− |
| 2006 01 22 | G96 | 0.2− | 0.1− | 2008 06 10 | 691 | 0.0 | 0.2+ | 2009 11 23 | G96 | 0.1+ | 0.1− |
| 2006 01 22 | G96 | 0.1− | 0.1− | 2008 06 14 | 691 | 0.1+ | 0.0 | 2009 11 23 | G96 | 0.4− | 0.3− |
| 2006 01 24 | 691 | 0.2+ | 0.3+ | 2008 06 14 | 691 | 0.2+ | 0.1+ | 2009 12 18 | 691 | 0.3− | 0.4+ |
| 2006 01 24 | 691 | 0.0 | 0.0 | 2008 06 14 | 691 | 0.2− | 0.3+ | 2009 12 18 | 691 | 0.6− | 0.1− |
| 2006 01 24 | 691 | 0.1− | 0.3+ | 2009 11 09 | G96 | 0.3+ | 0.1+ | 2009 12 18 | 691 | 0.5− | 0.2− |
| 2006 01 24 | 704 | 0.4− | 0.7+ | 2009 11 09 | G96 | 0.4+ | 0.2− | | | | |
| 2006 01 24 | 704 | (1.7+ | 0.0 ) | 2009 11 09 | G96 | 0.0 | 0.1+ | | | | |

**(229577)∗ 2006 BZ$_{19}$ = 2002 JW$_{106}$**

Discovered 2006 Jan. 22 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Id. G. V. Williams (*MPO* 96990)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 289.21218 | | (2000.0) | | | |
| $n$ | 0.21683711 | $\omega$ | 257.43407 | | −0.95528395 | −0.26466172 |
| $a$ | 2.7439760 | $\Omega$ | 267.10604 | | +0.29543115 | −0.87294744 |
| $e$ | 0.1169767 | $i$ | 7.58675 | | −0.01236959 | −0.40977670 |
| $P$ | 4.55 | $H$ | 15.8 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 12 27 | 691 | 0.8+ | 1.4− | 2006 01 22 | 699 | 0.4+ | 0.3− | 2009 11 09 | 691 | 0.1+ | 0.2− |
| 2000 12 27 | 691 | 0.0 | 0.3− | 2006 01 22 | 699 | 0.8+ | 0.1+ | 2009 11 09 | 691 | 0.1− | 0.0 |
| 2000 12 27 | 691 | 0.9− | 0.1− | 2006 01 22 | 699 | 0.2+ | 0.5+ | 2009 11 11 | 704 | 1.2− | 0.2+ |
| 2002 05 11 | 704 | (1.4+ | 1.7−) | 2006 01 23 | 703 | 1.1− | 0.7+ | 2009 11 11 | 704 | 1.2− | 0.2+ |
| 2002 05 11 | 704 | 0.7+ | 0.7− | 2006 01 23 | 703 | 0.6− | 0.0 | 2009 11 11 | 704 | 0.5+ | 0.6+ |
| 2002 05 11 | 704 | 0.9− | 0.8− | 2006 01 23 | 703 | 0.0 | 0.5− | 2009 11 17 | 691 | 0.2+ | 0.2+ |
| 2002 05 11 | 704 | 1.0+ | 0.1+ | 2006 01 23 | 703 | 0.1− | 0.2+ | 2009 11 17 | 691 | 0.0 | 0.1+ |
| 2002 05 11 | 644 | 0.1+ | 0.1− | 2006 01 23 | 704 | 0.3+ | 0.3− | 2009 11 17 | 691 | 0.1+ | 0.1− |
| 2002 05 11 | 644 | 0.1+ | 0.1− | 2006 01 23 | 704 | 0.2+ | 0.7+ | 2009 11 21 | 691 | 0.0 | 0.0 |
| 2002 05 11 | 644 | 0.0 | 0.1+ | 2006 01 23 | 704 | 0.2+ | 0.3+ | 2009 11 21 | 691 | 0.6− | 0.2+ |
| 2002 05 15 | 644 | 0.1+ | 1.0+ | 2006 01 23 | 704 | 0.3+ | 0.1− | 2009 11 21 | 691 | 0.4− | 0.3+ |
| 2002 05 15 | 644 | 0.0 | 0.9+ | 2006 01 23 | 704 | 0.5+ | 0.7+ | 2009 11 25 | 691 | 0.1+ | 0.2+ |
| 2002 05 15 | 644 | 0.5+ | 0.7+ | 2006 02 07 | 703 | 0.1− | 0.3+ | 2009 11 25 | 691 | 0.0 | 0.3+ |
| 2003 07 09 | 691 | 0.1− | 0.0 | 2006 02 07 | 703 | 0.5− | 0.0 | 2009 11 25 | 691 | 0.2− | 0.2+ |
| 2003 07 09 | 691 | 0.3− | 0.2+ | 2006 02 07 | 703 | 0.4− | 0.0 | 2009 12 10 | G96 | 0.6+ | 0.1− |
| 2003 07 09 | 691 | 0.2− | 0.3+ | 2006 02 07 | 703 | 1.2− | 0.3+ | 2009 12 10 | G96 | 0.6+ | 0.0 |
| 2003 07 24 | 644 | 0.2+ | 0.2+ | 2006 02 23 | 699 | 0.7− | 0.5+ | 2009 12 10 | G96 | 0.9+ | 0.0 |
| 2003 07 24 | 644 | 0.0 | 0.0 | 2006 02 23 | 699 | 0.6− | 0.5+ | 2009 12 10 | G96 | 0.7+ | 0.3− |
| 2003 07 24 | 644 | 0.1− | 0.4+ | 2006 02 23 | 699 | 0.1+ | 0.6− | 2009 12 10 | 704 | 0.3+ | 2.1+ |
| 2005 10 06 | G96 | 0.4− | 0.0 | 2006 02 23 | 699 | 1.3+ | 0.3+ | 2009 12 10 | 704 | 0.4− | 0.3+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 06 | G96 | 0.1− | 0.0 | 2006 02 24 | 704 | 0.2+ | 0.4+ | 2009 12 10 | 704 | 0.6+ | 0.0 | | |
| 2005 10 06 | G96 | 0.3+ | 0.0 | 2006 02 24 | 704 | 0.1+ | 0.2− | 2009 12 10 | 704 | 0.5+ | 0.6+ | | |
| 2005 10 06 | G96 | 0.1+ | 0.1− | 2006 02 24 | 704 | 0.4+ | 0.2+ | | | | | | |
| 2006 01 22 | 699 | 0.3+ | 0.2+ | 2009 11 09 | 691 | 0.6+ | 0.0 | | | | | | |

**(229578)∗ 2006 BD$_{38}$ = 2008 RS$_{102}$**

Discovered 2006 Jan. 23 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 146368)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 63.53964 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22500592 | $\omega$ | 317.08644 | | +0.67812179 | −0.73249015 | |
| $a$ | 2.6771544 | $\Omega$ | 90.12057 | | +0.68952885 | +0.60579405 | |
| $e$ | 0.0134086 | $i$ | 3.44413 | | +0.25436351 | +0.31059901 | |
| $P$ | 4.38 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 11 03 | 691 | 0.2− | 0.0 | 2008 09 04 | 691 | 0.6− | 0.8+ | 2008 12 03 | G96 | 0.2+ | 0.1+ | | |
| 2004 11 03 | 691 | 0.1− | 0.0 | 2008 09 23 | 704 | 0.7+ | 0.2− | 2008 12 03 | G96 | 0.2− | 0.3− | | |
| 2004 11 03 | 691 | 0.1− | 0.0 | 2008 09 23 | 704 | 0.6− | 0.8− | 2008 12 03 | G96 | 0.3+ | 0.7+ | | |
| 2004 12 15 | 691 | 0.4+ | 0.2− | 2008 09 23 | 704 | 0.5− | 0.1+ | 2008 12 03 | G96 | 0.3− | 0.1+ | | |
| 2004 12 15 | 691 | 0.1+ | 0.3− | 2008 09 23 | 704 | (1.5+ | 0.1+) | 2009 10 18 | G96 | 0.3− | 0.4− | | |
| 2004 12 15 | 691 | 0.2+ | 0.0 | 2008 09 24 | G96 | 0.4+ | 0.1+ | 2009 10 18 | G96 | 0.8+ | 0.1− | | |
| 2006 01 23 | 691 | 0.1− | 0.2+ | 2008 09 24 | G96 | 0.4+ | 0.1+ | 2009 10 18 | G96 | 0.1+ | 0.6− | | |
| 2006 01 23 | 691 | 0.0 | 0.3+ | 2008 09 24 | G96 | 0.2+ | 0.0 | 2009 10 18 | G96 | 0.0 | 0.3− | | |
| 2006 01 23 | 691 | 0.1+ | 0.1+ | 2008 09 24 | G96 | 0.6+ | 0.1+ | 2009 11 11 | G96 | 0.2− | 0.6− | | |
| 2006 01 25 | 691 | 0.2+ | 0.1+ | 2008 10 01 | 703 | (0.5− | 1.8+) | 2009 11 11 | G96 | 0.1+ | 0.2− | | |
| 2006 01 25 | 691 | 0.0 | 0.2− | 2008 10 01 | 703 | (0.1+ | 1.8+) | 2009 11 11 | G96 | 0.2− | 0.1+ | | |
| 2006 01 25 | 691 | 0.1− | 0.2+ | 2008 10 01 | 703 | 0.2+ | 0.6+ | 2009 11 11 | G96 | 0.6+ | 0.0 | | |
| 2006 01 31 | 691 | 0.0 | 0.3+ | 2008 10 01 | 703 | (1.4+ | 2.4+) | 2009 12 15 | G96 | 0.5+ | 1.1+ | | |
| 2006 01 31 | 691 | 0.0 | 0.2+ | 2008 10 17 | 691 | 0.2+ | 0.6+ | 2009 12 15 | G96 | 0.6− | 0.4− | | |
| 2006 01 31 | 691 | 0.1− | 0.4+ | 2008 10 17 | 691 | 0.3− | 0.2− | 2009 12 15 | G96 | 0.3+ | 0.8− | | |
| 2006 02 04 | 691 | 0.5+ | 0.2+ | 2008 10 17 | 691 | 0.3+ | 0.1+ | 2009 12 15 | G96 | 0.2+ | 0.4+ | | |
| 2006 02 04 | 691 | 0.0 | 0.2+ | 2008 11 02 | G96 | (0.1+ | 4.2+) | 2009 12 18 | 691 | 0.1− | 0.1− | | |
| 2006 02 04 | 691 | 0.1+ | 0.0 | 2008 11 02 | G96 | (0.6+ | 2.6+) | 2009 12 18 | 691 | 0.3− | 0.4− | | |
| 2008 09 04 | 691 | 0.4− | 0.2+ | 2008 11 02 | G96 | (0.4+ | 3.0+) | 2009 12 18 | 691 | 0.0 | 0.0 | | |
| 2008 09 04 | 691 | 0.3− | 0.1+ | 2008 11 02 | G96 | (0.4+ | 3.9+) | | | | | | |

**(229579)∗ 2006 BU$_{79}$ = 2001 DJ$_{31}$**

Discovered 2006 Jan. 23 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 97039)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 50.41759 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19743056 | $\omega$ | 24.48838 | | +0.92153857 | −0.38824100 | |
| $a$ | 2.9209658 | $\Omega$ | 358.32197 | | +0.31412882 | +0.75447886 | |
| $e$ | 0.0679338 | $i$ | 11.75480 | | +0.22823178 | +0.52917916 | |
| $P$ | 4.99 | $H$ | 14.9 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 12 13 | 704 | 0.5+ | 0.1+ | 2006 02 21 | 703 | 0.3− | 0.4+ | 2006 03 08 | 691 | 0.1+ | 0.1− | | |
| 1999 12 13 | 704 | 0.3+ | 0.5+ | 2006 02 21 | 703 | 0.4− | 0.3+ | 2006 03 08 | 691 | 0.0 | 0.1− | | |
| 1999 12 13 | 704 | 0.7− | 0.3+ | 2006 02 22 | 704 | 0.1− | 0.3+ | 2006 03 08 | 691 | 0.0 | 0.0 | | |
| 1999 12 13 | 704 | 0.4− | 0.0 | 2006 02 22 | 704 | 0.7− | 1.2+ | 2006 03 23 | 703 | 0.8− | 1.1+ | | |
| 2001 02 17 | 704 | 0.2− | 0.7− | 2006 02 22 | 704 | 0.0 | 0.2− | 2006 03 23 | 703 | 1.2− | 0.6+ | | |
| 2001 02 17 | 704 | 0.2− | 0.3+ | 2006 02 22 | 704 | 0.1− | 0.5− | 2006 03 23 | 703 | (1.6− | 1.7−) | | |
| 2001 02 17 | 704 | 0.2− | 0.0 | 2006 02 25 | 691 | 0.0 | 0.1− | 2006 04 07 | 691 | (1.5− | 3.4−) | | |
| 2001 02 17 | 704 | 0.0 | 0.2− | 2006 02 25 | 691 | 0.0 | 0.1− | 2006 04 07 | 691 | 0.0 | 0.3+ | | |
| 2001 02 20 | 704 | 0.3+ | 1.1+ | 2006 02 25 | 691 | 0.2− | 0.3− | 2006 04 07 | 691 | 0.0 | 0.3+ | | |
| 2001 02 20 | 704 | 0.4+ | 0.6+ | 2006 02 25 | 704 | 1.2+ | 1.2+ | 2006 05 25 | G96 | 0.2+ | 0.4+ | | |
| 2001 02 20 | 704 | 0.3+ | 0.1+ | 2006 02 25 | 704 | 0.8+ | 0.1+ | 2006 05 25 | G96 | 0.2− | 0.3+ | | |
| 2001 02 20 | 704 | 1.1− | 0.6+ | 2006 02 25 | 704 | 0.7+ | 0.3+ | 2006 05 25 | G96 | 0.6− | 0.4− | | |
| 2003 09 25 | 644 | 0.0 | 0.6− | 2006 02 28 | 704 | 0.1− | 0.1+ | 2006 05 25 | G96 | 0.1+ | 0.2− | | |
| 2003 09 25 | 644 | 0.0 | 0.2− | 2006 02 28 | 704 | 0.1+ | 0.6− | 2008 08 05 | E12 | 0.2− | 0.4+ | | |
| 2003 09 25 | 644 | 0.1− | 0.2+ | 2006 02 28 | 704 | 0.7+ | 0.3+ | 2008 08 05 | E12 | 0.5− | 0.0 | | |
| 2004 12 15 | 703 | (1.2− | 2.3+) | 2006 02 28 | 704 | (1.5+ | 0.5−) | 2008 08 05 | E12 | 0.4− | 0.1− | | |
| 2004 12 15 | 703 | (0.6+ | 1.8+) | 2006 02 28 | 704 | 0.3+ | 0.5+ | 2008 08 05 | E12 | 0.1− | 0.5+ | | |
| 2004 12 15 | 703 | 1.4+ | 1.2+ | 2006 03 03 | 699 | 0.0 | 0.5− | 2008 08 23 | 704 | 0.3+ | 0.2+ | | |
| 2004 12 15 | 703 | 0.1+ | 0.1− | 2006 03 03 | 699 | 0.0 | 0.8+ | 2008 08 23 | 704 | 0.0 | 1.0+ | | |
| 2006 01 23 | 691 | 0.0 | 0.1+ | 2006 03 03 | 699 | 0.1− | 0.9− | 2008 08 23 | 704 | 0.4+ | 0.4− | | |
| 2006 01 23 | 691 | 0.1+ | 0.1− | 2006 03 03 | 699 | 0.8+ | 1.0− | 2008 08 23 | 704 | 0.3+ | 0.3− | | |
| 2006 01 23 | 691 | 0.0 | 0.0 | 2006 03 04 | 691 | 0.1+ | 0.0 | 2008 08 23 | E12 | 0.0 | 0.6+ | | |
| 2006 01 28 | 691 | 0.1− | 0.2− | 2006 03 04 | 691 | 0.3− | 0.1+ | 2008 08 23 | E12 | 0.3− | 0.5− | | |
| 2006 01 28 | 691 | 0.1+ | 0.1− | 2006 03 04 | 691 | 0.2+ | 0.1− | 2008 08 23 | E12 | 0.7− | 0.6+ | | |
| 2006 01 28 | 691 | 0.2− | 0.1− | 2006 03 04 | 691 | 0.0 | 0.1− | 2008 08 23 | E12 | 0.1− | 0.8+ | | |
| 2006 02 01 | 691 | 0.1− | 0.1− | 2006 03 04 | 691 | 0.1+ | 0.0 | 2009 11 24 | 704 | 0.0 | 0.0 | | |
| 2006 02 01 | 691 | 0.0 | 0.2+ | 2006 03 04 | 691 | 0.1+ | 0.1− | 2009 11 24 | 704 | 0.3− | 0.2+ | | |
| 2006 02 01 | 691 | 0.2+ | 0.2+ | 2006 03 04 | G96 | 0.1− | 0.1+ | 2009 11 24 | 704 | 0.7− | 0.7+ | | |
| 2006 02 06 | 703 | (1.8− | 0.4−) | 2006 03 04 | G96 | 0.2− | 0.0 | 2009 11 24 | 704 | 0.2− | 0.4− | | |
| 2006 02 06 | 703 | 1.0− | 0.8− | 2006 03 04 | G96 | 0.0 | 0.0 | 2009 12 17 | 703 | 0.4− | 0.7− | | |
| 2006 02 06 | 703 | 0.1− | 0.7− | 2006 03 04 | G96 | 0.0 | 0.1− | 2009 12 17 | 703 | 0.3+ | 0.6− | | |
| 2006 02 06 | 703 | 0.3− | 1.0− | 2006 03 08 | 691 | 0.1+ | 0.0 | 2009 12 17 | 703 | (1.8− | 1.4+) | | |
| 2006 02 21 | 703 | 0.6− | 0.4− | 2006 03 08 | 691 | 0.4+ | 0.1+ | 2009 12 17 | 703 | (1.6− | 2.8+) | | |
| 2006 02 21 | 703 | (1.7− | 0.3+) | 2006 03 08 | 691 | 0.3+ | 0.0 | | | | | | |

**(229580)∗ 2006 BT$_{81}$ = 1999 TH$_{57}$**

Discovered 2006 Jan. 23 by Spacewatch at Kitt Peak.

Id. A. Doppler (*MPO* 97042)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 184.69020 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21655863 | $\omega$ | 244.73744 | | +0.27334304 | +0.96136379 | |
| $a$ | 2.7463279 | $\Omega$ | 41.16939 | | −0.86376464 | +0.26022844 | |
| $e$ | 0.0625049 | $i$ | 2.83925 | | −0.42331340 | +0.08978211 | |
| $P$ | 4.55 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 02 02 | 691 | 0.1− | 0.0 | 2006 01 28 | 691 | 0.1− | 0.2+ | 2008 10 25 | G96 | 0.3+ | 0.3− | | |
| 1997 02 02 | 691 | 0.3− | 0.1− | 2006 01 28 | 691 | 0.5+ | 0.1− | 2008 10 25 | G96 | 0.2+ | 0.0 | | |
| 1997 02 02 | 691 | 0.2− | 0.1− | 2006 01 28 | 691 | 0.4+ | 0.1− | 2008 10 25 | G96 | 0.1+ | 0.3− | | |
| 1999 10 06 | 691 | 0.0 | 0.2− | 2006 02 01 | 691 | 0.2+ | 0.1+ | 2008 10 25 | G96 | 0.6+ | 0.1− | | |
| 1999 10 06 | 691 | 0.1+ | 0.2− | 2006 02 01 | 691 | 0.3+ | 0.1− | 2008 10 25 | G96 | 0.6+ | 0.0 | | |
| 1999 10 06 | 691 | 0.0 | 0.1− | 2006 02 01 | 691 | 0.1+ | 0.5+ | 2008 10 25 | G96 | 0.2+ | 0.0 | | |
| 1999 10 11 | 691 | 0.3+ | 0.1− | 2006 03 04 | G96 | 0.1− | 0.1+ | 2008 10 25 | G96 | 0.3+ | 0.2− | | |
| 1999 10 11 | 691 | 0.3+ | 0.0 | 2006 03 04 | G96 | 0.1+ | 0.5+ | 2008 11 07 | G96 | 0.5+ | 0.1+ | | |
| 1999 10 11 | 691 | 0.1+ | 0.4− | 2006 03 04 | G96 | 0.2− | 1.0+ | 2008 11 07 | G96 | 0.1− | 0.1− | | |
| 2002 04 06 | 807 | 0.1+ | 0.0 | 2006 03 04 | G96 | 0.3− | 0.2+ | 2008 11 07 | G96 | 0.6− | 0.7− | | |
| 2002 04 06 | 807 | 0.4+ | 0.3+ | 2008 09 24 | 691 | 0.1+ | 0.4+ | 2008 11 07 | G96 | 0.1− | 0.3+ | | |
| 2002 04 08 | 691 | 0.1+ | 0.7+ | 2008 09 24 | 691 | 0.3− | 0.3+ | 2009 12 18 | G96 | 0.2+ | 0.0 | | |
| 2002 04 08 | 691 | 0.2− | 0.5+ | 2008 09 24 | 691 | 0.1− | 0.5+ | 2009 12 18 | G96 | 0.3− | 0.1+ | | |
| 2002 04 08 | 691 | 0.2+ | 0.7+ | 2008 10 02 | 691 | 0.5− | 0.1+ | 2009 12 18 | G96 | 0.1+ | 0.0 | | |
| 2002 04 13 | 691 | 0.1+ | 0.6+ | 2008 10 02 | 691 | 0.1− | 0.6+ | 2009 12 18 | G96 | 0.4− | 0.1+ | | |
| 2002 04 13 | 691 | 0.0 | 0.2+ | 2008 10 02 | 691 | 0.4− | 0.4+ | 2009 12 19 | 691 | 0.9− | 0.1+ | | |
| 2002 04 13 | 691 | 0.0 | 0.2+ | 2008 10 06 | 691 | 0.2− | 0.4+ | 2009 12 19 | 691 | 0.3+ | 0.0 | | |
| 2003 08 25 | 644 | 0.2+ | 0.3+ | 2008 10 06 | 691 | 0.2− | 0.4+ | 2009 12 19 | 691 | 0.1− | 0.1+ | | |
| 2003 08 25 | 644 | 0.1− | 0.4+ | 2008 10 06 | 691 | 0.7− | 0.1+ | 2009 12 27 | 691 | 0.2− | 0.2+ | | |
| 2003 08 25 | 644 | 0.2+ | 0.5+ | 2008 10 10 | 691 | 0.0 | 0.5+ | 2009 12 27 | 691 | 0.2− | 0.0 | | |
| 2006 01 23 | 691 | 0.5+ | 0.4− | 2008 10 10 | 691 | 0.2− | 0.3+ | 2009 12 27 | 691 | 0.0 | 0.2+ | | |
| 2006 01 23 | 691 | 0.5+ | 0.1− | 2008 10 10 | 691 | 0.1+ | 0.5+ | | | | | | |
| 2006 01 23 | 691 | 0.2+ | 0.3− | 2008 10 25 | G96 | 0.5+ | 0.2− | | | | | | |

**(229581)∗ 2006 BW$_{89}$**

Discovered 2006 Jan. 25 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 76.03842 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.20930231 | $\omega$ | 231.73917 | | +0.99658106 | +0.03870061 | |
| $a$ | 2.8094417 | $\Omega$ | 125.92583 | | −0.01094607 | +0.93756734 | |
| $e$ | 0.1147522 | $i$ | 5.17187 | | −0.08189243 | +0.34564397 | |
| $P$ | 4.71 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 01 16 | 344 | (1.1− | 2.1−) | 2006 01 31 | 691 | 0.2− | 0.0 | 2007 04 23 | 691 | 0.1+ | 0.0 | | |
| 2001 01 21 | 691 | 0.3− | 0.3− | 2006 01 31 | 691 | 0.2− | 0.4+ | 2007 04 26 | 691 | 0.0 | 0.4+ | | |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 01 21 | 691 | 0.6− | 0.1+ | 2006 02 02 | G96 | 0.2− | 0.5− | 2007 04 26 | 691 | 0.1− | 0.4+ | 2003 09 16 | 691 | 0.0 | 0.5+ | 2006 03 06 | G96 | 0.4+ | 0.1− | 2008 08 07 | 691 | 0.2− | 0.2+ |
| 2001 01 21 | 691 | 0.0 | 0.2+ | 2006 02 02 | G96 | 0.1+ | 0.6− | 2007 04 26 | 691 | 0.2+ | 0.3− | 2003 09 16 | 691 | 0.1+ | 0.3+ | 2006 03 06 | G96 | 0.1+ | 0.3+ | 2008 09 22 | G96 | 0.7+ | 0.5+ |
| 2001 02 20 | 691 | 0.1+ | 0.2− | 2006 02 02 | G96 | 0.3− | 0.5− | 2008 08 24 | 704 | 0.3− | 0.9− | 2003 09 16 | 691 | 0.0 | 0.1+ | 2006 03 06 | G96 | 0.0 | 0.1+ | 2008 09 22 | G96 | 0.4+ | 0.2+ |
| 2001 02 20 | 691 | 0.4+ | 0.5− | 2006 02 02 | G96 | 0.1− | 0.4− | 2008 08 24 | 704 | 0.3− | 0.7− | 2006 01 26 | 691 | 0.1− | 0.9+ | 2006 03 06 | G96 | 0.2− | 0.6+ | 2008 09 22 | G96 | 0.5+ | 0.8+ |
| 2001 02 20 | 691 | 0.3+ | 0.4− | 2006 02 20 | 703 | 0.0 | 0.1− | 2008 08 24 | 704 | 0.1− | 0.6− | 2006 01 26 | 691 | 0.2+ | 0.2+ | 2006 03 06 | G96 | 0.0 | 0.4+ | 2008 09 22 | G96 | 0.2+ | 0.5+ |
| 2006 01 07 | G96 | 0.0 | 1.1− | 2006 02 20 | 703 | 1.0+ | 1.0+ | 2008 08 24 | 704 | 0.3+ | 0.2− | 2006 01 26 | G96 | 0.1− | 0.0 | 2006 03 06 | G96 | 0.3+ | 0.3+ | 2008 09 23 | G96 | 1.0− | 0.0 |
| 2006 01 07 | G96 | 1.0+ | 1.0− | 2006 02 20 | 703 | 0.1− | 1.3+ | 2008 08 24 | 704 | 0.2− | 0.2+ | 2006 01 26 | 691 | 0.0 | 0.2− | 2006 03 24 | G96 | 0.2+ | 0.4− | 2008 09 23 | G96 | 0.0 | 0.2− |
| 2006 01 07 | G96 | 0.4+ | 0.9− | 2006 02 20 | 703 | 0.6− | 0.2+ | 2008 10 27 | G96 | 0.5+ | 0.3+ | 2006 01 26 | G96 | 0.6− | 0.2− | 2006 03 24 | G96 | 0.0 | 0.3+ | 2008 09 23 | G96 | 0.3+ | 0.3+ |
| 2006 01 07 | G96 | 0.8+ | 0.7− | 2006 02 25 | G96 | 0.1+ | 0.2+ | 2008 10 27 | G96 | 0.3+ | 0.4+ | 2006 01 26 | G96 | 0.1− | 0.1− | 2006 03 24 | G96 | 0.3− | 0.0 | 2008 09 23 | G96 | 0.5+ | 0.1− |
| 2006 01 25 | 691 | 0.1+ | 0.4+ | 2006 02 25 | G96 | 0.4− | 0.0 | 2008 10 27 | G96 | 0.6+ | 0.7+ | 2006 01 26 | G96 | 0.2− | 0.2− | 2006 03 24 | G96 | 0.2+ | 0.2+ | 2009 11 20 | A50 | 1.0+ | 0.4− |
| 2006 01 25 | 691 | 0.0 | 0.3+ | 2006 02 25 | G96 | 0.2+ | 0.2+ | 2008 10 27 | G96 | 0.0 | 0.6+ | 2006 01 28 | G96 | 0.3− | 0.1− | 2006 03 29 | 691 | 0.5+ | 0.1− | 2009 11 21 | A50 | 1.0+ | 0.4− |
| 2006 01 25 | 691 | 0.1+ | 0.2+ | 2006 02 25 | G96 | 0.5− | 0.2+ | 2009 11 27 | 691 | 0.5− | 1.1+ | 2006 01 28 | G96 | 0.1− | 0.1− | 2006 03 29 | 691 | 0.2+ | 0.2+ | 2009 11 26 | G96 | 0.8− | 0.6+ |
| 2006 01 27 | G96 | 0.1+ | 0.3− | 2006 03 04 | 691 | 0.1+ | 0.1− | 2009 11 27 | 691 | 0.2+ | 0.0 | 2006 01 28 | G96 | 0.0 | 0.3− | 2006 03 29 | 691 | 0.4+ | 0.5+ | 2009 11 26 | G96 | 0.4− | 0.6− |
| 2006 01 27 | G96 | 0.0 | 0.2− | 2006 03 04 | 691 | 0.0 | 0.0 | 2009 11 27 | 691 | 0.1+ | 0.2− | 2006 01 28 | G96 | 0.1− | 0.1+ | 2006 04 07 | G96 | 0.1+ | 0.0 | 2009 11 26 | G96 | 0.0 | 0.5+ |
| 2006 01 27 | G96 | 0.2− | 0.4− | 2006 03 04 | 691 | 0.1+ | 0.2− | 2009 12 13 | G96 | 0.3+ | 0.1− | 2006 01 30 | 691 | 0.3+ | 0.2+ | 2006 04 07 | G96 | 0.9− | 0.2+ | 2009 11 26 | G96 | 0.3+ | 0.5+ |
| 2006 01 27 | G96 | 0.1+ | 0.2− | 2007 04 23 | 691 | 0.0 | 0.1− | 2009 12 13 | G96 | 0.2+ | 0.1− | 2006 01 30 | 691 | 0.1− | 0.5+ | 2006 04 07 | G96 | 1.0− | 0.2+ | 2009 11 27 | A50 | 0.2− | 0.4− |
| 2006 01 31 | 691 | 0.0 | 0.2+ | 2007 04 23 | 691 | 0.2− | 0.1+ | 2009 12 13 | G96 | 0.1− | 0.7− | 2006 01 30 | 691 | 0.1+ | 0.2+ | 2006 04 07 | G96 | 0.9− | 0.0 | 2009 11 27 | A50 | 0.4− | 0.0 |
| | | | | | | | | | | | | 2006 02 06 | G96 | 0.1− | 0.1− | 2008 07 30 | 691 | 0.2+ | 0.4+ | 2009 11 27 | A50 | 0.1− | 0.3− |
| | | | | | | | | | | | | 2006 02 06 | G96 | 0.3+ | 0.5− | 2008 07 30 | 691 | 1.1− | 0.0 | 2009 12 11 | G96 | 0.4− | 0.6+ |
| | | | | | | | | | | | | 2006 02 06 | G96 | 0.2+ | 0.5− | 2008 07 30 | 691 | 0.2+ | 0.3+ | 2009 12 11 | G96 | 0.4− | 0.3+ |
| | | | | | | | | | | | | 2006 02 06 | G96 | 1.0+ | 0.2+ | 2008 07 30 | 691 | 0.7+ | 0.7+ | 2009 12 11 | G96 | 0.1− | 0.5+ |
| | | | | | | | | | | | | 2006 02 25 | G96 | 0.5− | 0.1+ | 2008 07 30 | 691 | 0.8− | 0.6+ | 2009 12 11 | G96 | 0.1− | 0.3+ |
| | | | | | | | | | | | | 2006 02 25 | G96 | 0.2+ | 0.0 | 2008 07 30 | 691 | 0.1− | 0.0 | | | | |

**(229582)∗ 2006 BD$_{92}$**

Discovered 2006 Jan. 26 by the Catalina Sky Survey.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 227.18797 | | (2000.0) | | **P** | **Q** |
| $n$ | 0.23686574 | $\omega$ | 155.14550 | | −0.19221424 | +0.97806558 |
| $a$ | 2.5870285 | $\Omega$ | 103.69097 | | −0.91362103 | −0.14849190 |
| $e$ | 0.1159272 | $i$ | 4.73835 | | −0.35826009 | −0.14607493 |
| $P$ | 4.16 | $H$ | 15.9 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 06 25 | 704 | 1.0− | 0.9+ | 2006 02 02 | 703 | 0.6− | 0.2+ | 2008 10 30 | 704 | 0.0 | 1.1+ | 2006 01 26 | 691 | 0.1− | 0.5+ | 2006 03 06 | G96 | 0.1+ | 0.2+ | 2007 05 11 | 691 | 0.4− | 0.3+ |
| 2003 06 25 | 704 | 0.1− | 0.0 | 2006 02 04 | 704 | 1.1+ | 0.5+ | 2008 10 30 | 704 | 0.7− | 1.4+ | 2006 01 26 | 691 | 0.2+ | 0.2+ | 2006 03 06 | G96 | 0.1+ | 0.3+ | 2008 07 30 | G96 | 0.1− | 0.2+ |
| 2003 06 25 | 704 | 0.4− | 0.6− | 2006 02 04 | 704 | 1.0+ | 0.2+ | 2008 10 30 | 704 | 0.2− | 0.7+ | 2006 01 26 | G96 | 0.1− | 0.0 | 2006 03 06 | G96 | 0.0 | 0.1+ | 2008 07 30 | G96 | 0.6+ | 0.1+ |
| 2003 07 02 | 704 | 1.0+ | 0.9+ | 2006 02 04 | 691 | 0.2+ | 0.1+ | 2008 10 30 | 704 | 0.3− | 0.3− | 2006 01 28 | G96 | 0.3− | 0.1− | 2006 03 24 | G96 | 0.2+ | 0.4− | 2008 07 30 | G96 | 0.2− | 0.4+ |
| 2003 07 02 | 704 | (0.3+ | 1.5+) | 2006 02 04 | 704 | 0.4− | 0.3+ | 2008 10 30 | 704 | 0.7+ | 0.8+ | 2006 01 28 | G96 | 0.1− | 0.1− | 2006 03 24 | G96 | 0.0 | 0.3+ | 2008 07 30 | G96 | 0.2− | 0.4+ |
| 2003 07 02 | 704 | 0.0 | 0.2+ | 2006 02 04 | 691 | 0.1− | 0.2+ | 2009 01 03 | G96 | 0.0 | 0.0 | 2006 01 28 | G96 | 0.0 | 0.3− | 2006 03 29 | 691 | 0.4+ | 0.5+ | 2009 09 15 | 691 | 0.5− | 0.1+ |
| 2003 07 02 | 704 | 0.2+ | 0.8+ | 2006 02 04 | 704 | 0.3− | 0.4− | 2009 01 03 | G96 | 0.1− | 0.1+ | 2006 01 28 | G96 | 0.1− | 0.1+ | 2006 04 07 | G96 | 0.1+ | 0.0 | 2009 09 15 | 691 | 0.3− | 0.5+ |
| 2006 01 26 | 703 | (1.9− | 1.6−) | 2006 02 04 | 704 | 1.1+ | 0.4+ | 2009 01 03 | G96 | 0.7+ | 0.6− | 2006 01 30 | 691 | 0.3+ | 0.2+ | 2006 04 07 | G96 | 0.9− | 0.2+ | 2009 09 15 | 691 | 0.2− | 0.3+ |
| 2006 01 26 | 703 | 0.6− | 0.3− | 2006 02 04 | 691 | 0.2+ | 0.3+ | 2009 01 03 | G96 | 0.4− | 0.0 | 2006 01 30 | 691 | 0.1− | 0.5+ | 2006 04 07 | G96 | 1.0− | 0.2+ | 2009 09 15 | 691 | 0.2− | 0.3+ |
| 2006 01 26 | 703 | 0.3− | 0.4− | 2006 02 22 | 703 | 0.7− | 0.3− | 2009 11 16 | G96 | 0.1+ | 0.4+ | 2006 01 30 | 691 | 0.1+ | 0.2+ | 2006 04 07 | G96 | 0.9− | 0.0 | 2009 09 26 | 691 | 0.4− | 0.1+ |
| 2006 01 26 | 703 | 0.6− | 0.1− | 2006 02 22 | 703 | 0.2+ | 0.1− | 2009 11 16 | G96 | 0.3+ | 0.2+ | 2006 02 06 | G96 | 0.1− | 0.1− | 2008 07 30 | 691 | 0.2+ | 0.4+ | 2009 11 27 | A50 | 0.4− | 0.0 |
| 2006 01 28 | G96 | 0.0 | 0.4− | 2006 02 22 | 703 | 0.2+ | 0.1+ | 2009 11 16 | G96 | 0.1+ | 0.2− | 2006 02 06 | G96 | 0.3+ | 0.5− | 2008 07 30 | 691 | 1.1− | 0.0 | 2009 12 11 | G96 | 0.4− | 0.6+ |
| 2006 01 28 | G96 | 0.3− | 0.4− | 2006 02 22 | 703 | 0.4− | 0.6+ | 2009 11 16 | G96 | 0.1− | 0.1− | 2006 02 06 | G96 | 0.2+ | 0.5− | 2008 07 30 | 691 | 0.2+ | 0.3+ | 2009 12 11 | G96 | 0.4− | 0.3+ |
| 2006 01 28 | G96 | 0.0 | 0.1− | 2008 10 08 | 703 | 0.5+ | 0.0 | 2009 12 17 | 691 | 0.1+ | 0.1− | 2006 02 06 | G96 | 1.0+ | 0.2+ | 2008 07 30 | 691 | 0.7+ | 0.7+ | 2009 12 11 | G96 | 0.1− | 0.5+ |
| 2006 01 28 | G96 | 0.3− | 0.3− | 2008 10 08 | 703 | 0.7− | 0.2− | 2009 12 17 | 691 | 0.3− | 0.0 | 2006 02 25 | G96 | 0.5− | 0.1+ | 2008 07 30 | 691 | 0.8− | 0.6+ | 2009 12 11 | G96 | 0.1− | 0.3+ |
| 2006 01 31 | 691 | 0.2+ | 0.3+ | 2008 10 08 | 703 | (1.9− | 1.0+) | 2009 12 17 | 691 | 0.4+ | 0.2− | 2006 02 25 | G96 | 0.2+ | 0.0 | 2008 07 30 | 691 | 0.1− | 0.0 | | | | |
| 2006 01 31 | 691 | 0.1+ | 0.3+ | 2008 10 08 | 703 | 0.2+ | 0.1+ | 2009 12 25 | 691 | 0.5− | 0.4− | | | | | | | | | | | | |
| 2006 01 31 | 691 | 0.2+ | 0.3+ | 2008 10 22 | G96 | 0.1− | 0.1− | 2009 12 25 | 691 | 0.2+ | 0.5− | | | | | | | | | | | | |
| 2006 02 02 | 703 | 0.3− | 0.3+ | 2008 10 22 | G96 | 0.1− | 0.1+ | 2009 12 25 | 691 | 0.3− | 0.2− | | | | | | | | | | | | |
| 2006 02 02 | 703 | 0.2− | 0.5+ | 2008 10 22 | G96 | 0.3− | 0.1− | | | | | | | | | | | | | | | | |
| 2006 02 02 | 703 | 0.1− | 1.0+ | 2008 10 22 | G96 | 0.3− | 0.1− | | | | | | | | | | | | | | | | |

**(229583)∗ 2006 BF$_{96}$**

Discovered 2006 Jan. 26 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 281.95122 | | (2000.0) | | **P** | **Q** |
| $n$ | 0.19557342 | $\omega$ | 9.57280 | | −0.92193798 | −0.38650678 |
| $a$ | 2.9394280 | $\Omega$ | 147.65306 | | +0.35216692 | −0.86368199 |
| $e$ | 0.0136332 | $i$ | 2.71615 | | +0.16127249 | −0.32352113 |
| $P$ | 5.04 | $H$ | 16.3 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 03 27 | 691 | 0.1− | 0.0 | 2006 02 25 | G96 | 0.2− | 0.2− | 2008 07 30 | G96 | 0.1+ | 0.4+ | 2006 01 26 | 691 | 0.2− | 0.1+ | 2006 03 04 | 691 | 0.3+ | 0.3+ | 2009 10 27 | G96 | 0.2+ | 0.2+ |
| 1996 03 27 | 691 | 0.1− | 0.2+ | 2006 02 25 | G96 | 0.0 | 0.2+ | 2008 07 30 | G96 | 0.5− | 0.0 | 2006 01 26 | 691 | 0.1+ | 0.0 | 2006 03 04 | 691 | 0.2+ | 0.2+ | 2009 10 27 | G96 | 0.5+ | 0.3+ |
| 1996 03 27 | 691 | 0.2− | 0.4− | 2006 03 03 | 691 | 0.4+ | 0.4+ | 2008 07 30 | G96 | 0.1+ | 0.2− | 2006 01 26 | 691 | 0.2+ | 0.2+ | 2006 03 04 | 691 | 0.3+ | 0.4+ | 2009 12 17 | G96 | 0.1+ | 0.2− |
| 2001 03 27 | 691 | 0.2+ | 0.2+ | 2006 03 03 | 691 | 0.2+ | 0.6+ | 2008 07 30 | G96 | 0.9− | 0.2− | 2006 01 30 | 691 | 0.1+ | 0.0 | 2007 05 07 | 691 | 0.2− | 0.5+ | 2009 12 17 | G96 | 0.4+ | 0.1− |
| 2001 03 27 | 691 | 0.2+ | 0.6+ | 2006 03 03 | 691 | 0.1+ | 0.3+ | 2008 08 07 | 691 | 1.1− | 0.7+ | 2006 01 30 | 691 | 0.1− | 0.0 | 2007 05 07 | 691 | 0.1+ | 0.1+ | 2009 12 17 | G96 | 0.4+ | 0.2+ |
| 2001 03 27 | 691 | 0.1+ | 0.0 | 2006 03 06 | G96 | 0.1− | 0.0 | 2008 08 07 | 691 | 0.2+ | 0.2+ | 2006 01 30 | 691 | 0.3+ | 0.3+ | 2007 05 07 | 691 | 0.3+ | 0.5+ | 2009 12 17 | G96 | 0.7+ | 0.6+ |
| | | | | | | | | | | | | 2006 02 03 | 691 | 0.3+ | 0.2+ | 2007 05 11 | 691 | 0.1+ | 0.4+ | | | | |
| | | | | | | | | | | | | 2006 02 03 | 691 | 0.2+ | 0.3+ | 2007 05 11 | 691 | 0.1− | 0.2+ | | | | |

**(229584)∗ 2006 BR$_{114}$ = 2004 TJ$_{322}$**

Discovered 2006 Jan. 26 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 97066)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 283.63248 | | (2000.0) | | **P** | **Q** |
| $n$ | 0.18295720 | $\omega$ | 184.99584 | | −0.46444813 | −0.88518040 |
| $a$ | 3.0730506 | $\Omega$ | 292.68094 | | +0.81354275 | −0.41428959 |
| $e$ | 0.0363274 | $i$ | 1.69360 | | +0.34990875 | −0.21170687 |
| $P$ | 5.39 | $H$ | 16.0 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 01 | 291 | 0.1− | 0.5+ | 2006 02 03 | 691 | 0.3+ | 0.2+ | 2007 05 11 | 691 | 0.4− | 0.3+ | 2006 01 26 | 691 | 0.1− | 0.5+ | 2006 03 06 | G96 | 0.4+ | 0.1− | 2008 08 07 | 691 | 0.2− | 0.2+ |
| 2003 10 01 | 291 | 0.3− | 0.5+ | 2006 02 04 | G96 | 0.5− | 0.0 | 2008 07 30 | G96 | 0.1− | 0.2+ | 2006 01 26 | 691 | 0.2+ | 0.2+ | 2006 03 06 | G96 | 0.1+ | 0.3+ | 2008 09 22 | G96 | 0.7+ | 0.5+ |
| 2003 10 01 | 291 | 0.3+ | 0.8+ | 2006 02 04 | G96 | 0.0 | 0.0 | 2008 07 30 | G96 | 0.6+ | 0.1+ | 2006 01 26 | G96 | 0.1− | 0.0 | 2006 03 06 | G96 | 0.0 | 0.1+ | 2008 09 22 | G96 | 0.4+ | 0.2+ |
| 2004 10 11 | 691 | 0.0 | 0.4− | 2006 02 04 | G96 | 0.1− | 0.1− | 2008 07 30 | G96 | 0.2+ | 0.1+ | 2006 01 28 | G96 | 0.3− | 0.1− | 2006 03 24 | G96 | 0.2+ | 0.4− | 2008 09 22 | G96 | 0.5+ | 0.2+ |
| 2004 10 11 | 691 | 0.2− | 0.1+ | 2006 02 04 | G96 | 0.1− | 0.1− | 2008 07 30 | G96 | 0.4+ | 0.2+ | 2006 01 28 | G96 | 0.1− | 0.1− | 2006 03 24 | G96 | 0.0 | 0.3+ | 2008 09 22 | G96 | 0.2+ | 0.5+ |
| 2004 10 11 | 691 | 0.3− | 0.6− | 2006 02 07 | 691 | 0.2+ | 0.2+ | 2009 09 15 | 691 | 0.5− | 0.1+ | 2006 01 28 | G96 | 0.0 | 0.3− | 2006 03 29 | 691 | 0.4+ | 0.5+ | 2008 09 23 | G96 | 1.0− | 0.0 |
| 2004 10 15 | 691 | 0.2− | 0.3− | 2006 02 07 | 691 | 0.4+ | 0.1+ | 2009 09 15 | 691 | 0.3− | 0.5+ | 2006 01 28 | G96 | 0.1− | 0.1+ | 2006 04 07 | G96 | 0.1+ | 0.0 | 2008 09 23 | G96 | 0.0 | 0.2− |
| 2004 10 15 | 691 | 0.1− | 0.2− | 2006 02 07 | 691 | 0.1− | 0.2+ | 2009 09 15 | 691 | 0.2− | 0.3+ | 2006 01 30 | 691 | 0.3+ | 0.2+ | 2006 04 07 | G96 | 0.9− | 0.2+ | 2008 09 23 | G96 | 0.3+ | 0.3+ |
| 2004 10 15 | 691 | 0.1− | 0.1− | 2006 02 20 | 703 | 0.6− | 1.0+ | 2009 09 26 | 691 | 0.4− | 0.1+ | 2006 01 30 | 691 | 0.1− | 0.5+ | 2006 04 07 | G96 | 1.0− | 0.2+ | 2008 09 23 | G96 | 0.5+ | 0.1− |
| 2005 10 07 | 568 | 0.1− | 0.1+ | 2006 02 20 | 703 | (2.3+ | 2.5−) | 2009 09 26 | 691 | 0.6− | 0.6+ | 2006 01 30 | 691 | 0.1+ | 0.2+ | 2006 04 07 | G96 | 0.9− | 0.0 | 2008 09 23 | G96 | 0.2+ | 0.4− |
| 2005 10 07 | 568 | 0.1− | 0.1+ | 2006 02 20 | 703 | 0.3+ | 0.1− | 2009 09 26 | 691 | 0.5− | 1.3+ | 2006 02 06 | G96 | 0.1− | 0.1− | 2008 07 30 | 691 | 0.2+ | 0.4+ | 2008 09 23 | G96 | 0.2+ | 0.4+ |
| 2005 10 07 | 568 | 0.2− | 0.1+ | 2006 02 20 | 703 | 1.1+ | 0.6− | 2009 09 28 | 691 | 0.2+ | 0.1− | 2006 02 06 | G96 | 0.3+ | 0.5− | 2008 07 30 | 691 | 1.1− | 0.0 | 2009 09 22 | G96 | 0.4+ | 0.2+ |
| 2006 01 05 | G96 | 0.8− | 0.4− | 2006 02 24 | G96 | 0.2− | 0.1+ | 2009 09 28 | 691 | 0.2+ | 0.0 | 2006 02 06 | G96 | 0.2+ | 0.5− | 2008 07 30 | 691 | 0.2+ | 0.3+ | 2009 09 22 | G96 | 0.5+ | 0.2+ |
| 2006 01 05 | G96 | 0.5− | 0.1− | 2006 02 24 | G96 | 0.2− | 0.1+ | 2009 09 28 | 691 | 0.2+ | 0.0 | 2006 02 06 | G96 | 1.0+ | 0.2+ | 2008 07 30 | 691 | 0.7+ | 0.7+ | 2009 09 22 | G96 | 0.2+ | 0.5+ |
| 2006 01 05 | G96 | 0.2+ | 0.1+ | 2006 02 24 | G96 | 0.1− | 0.1+ | 2009 10 27 | G96 | 0.8+ | 0.2+ | 2006 02 25 | G96 | 0.5− | 0.1+ | 2008 07 30 | 691 | 0.8− | 0.6+ | 2009 09 23 | G96 | 0.0 | 0.2− |
| 2006 01 05 | G96 | 0.6− | 0.2− | 2006 02 24 | G96 | 0.0 | 0.2+ | 2009 10 27 | G96 | 0.5+ | 0.2+ | 2006 02 25 | G96 | 0.2+ | 0.0 | 2008 07 30 | 691 | 0.1− | 0.0 | 2009 09 23 | G96 | 0.3+ | 0.3+ |
| 2006 01 26 | 691 | 0.2− | 0.1+ | 2006 03 04 | 691 | 0.3+ | 0.3+ | 2009 10 27 | G96 | 0.2+ | 0.2+ | | | | | | | | | 2009 09 23 | G96 | 0.5+ | 0.1− |
| 2006 01 26 | 691 | 0.1+ | 0.0 | 2006 03 04 | 691 | 0.2+ | 0.2+ | 2009 10 27 | G96 | 0.5+ | 0.3+ | | | | | | | | | 2009 11 20 | A50 | 1.0+ | 0.4− |
| 2006 01 26 | 691 | 0.2+ | 0.2+ | 2006 03 04 | 691 | 0.3+ | 0.4+ | 2009 12 17 | G96 | 0.1+ | 0.2− | | | | | | | | | 2009 11 21 | A50 | 1.0+ | 0.4− |
| 2006 01 30 | 691 | 0.1+ | 0.0 | 2007 05 07 | 691 | 0.2− | 0.5+ | 2009 12 17 | G96 | 0.4+ | 0.1− | | | | | | | | | 2009 11 26 | G96 | 0.8− | 0.6+ |
| 2006 01 30 | 691 | 0.1− | 0.0 | 2007 05 07 | 691 | 0.1+ | 0.1+ | 2009 12 17 | G96 | 0.4+ | 0.2+ | | | | | | | | | 2009 11 26 | G96 | 0.4− | 0.6− |
| 2006 01 30 | 691 | 0.3+ | 0.3+ | 2007 05 07 | 691 | 0.3+ | 0.5+ | 2009 12 17 | G96 | 0.7+ | 0.6+ | | | | | | | | | 2009 11 26 | G96 | 0.0 | 0.5+ |
| 2006 02 03 | 691 | 0.3+ | 0.2+ | 2007 05 11 | 691 | 0.1+ | 0.4+ | | | | | | | | | | | | | 2009 11 26 | G96 | 0.3+ | 0.5+ |
| 2006 02 03 | 691 | 0.2+ | 0.3+ | 2007 05 11 | 691 | 0.1− | 0.2+ | | | | | | | | | | | | | 2009 11 27 | A50 | 0.2− | 0.4− |
| | | | | | | | | | | | | | | | | | | | | 2009 11 27 | A50 | 0.4− | 0.0 |
| | | | | | | | | | | | | | | | | | | | | 2009 11 27 | A50 | 0.1− | 0.3− |
| | | | | | | | | | | | | | | | | | | | | 2009 12 11 | G96 | 0.4− | 0.6+ |
| | | | | | | | | | | | | | | | | | | | | 2009 12 11 | G96 | 0.4− | 0.3+ |
| | | | | | | | | | | | | | | | | | | | | 2009 12 11 | G96 | 0.1− | 0.5+ |
| | | | | | | | | | | | | | | | | | | | | 2009 12 11 | G96 | 0.1− | 0.3+ |

**(229585)∗ 2006 BP$_{127}$ = 2004 RD$_{300}$**

Discovered 2006 Jan. 26 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 97074)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 21.19400 | | (2000.0) | | | |
| $n$ | 0.22836543 | $\omega$ | 275.75157 | | +0.22814994 | −0.97352867 |
| $a$ | 2.6508337 | $\Omega$ | 161.04316 | | +0.90921881 | +0.20797865 |
| $e$ | 0.1844194 | $i$ | 2.42886 | | +0.34823664 | +0.09479878 |
| $P$ | 4.32 | $H$ | 16.6 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1991 09 10 | 691 | 0.6− | 0.7+ | 2006 02 21 | G96 | 0.2− | 0.0 | 2007 05 25 | G96 | 0.5+ | 0.1+ |
| 1991 09 10 | 691 | 0.8− | 0.1+ | 2006 02 21 | G96 | 0.2− | 0.2− | 2007 05 25 | G96 | 0.1− | 0.1+ |
| 1991 09 10 | 691 | 0.3− | 0.2+ | 2006 02 24 | 704 | 0.2− | 1.0− | 2008 09 06 | G96 | 0.0 | 0.2+ |
| 2000 11 02 | 704 | 2.0+ | 1.5+ | 2006 02 24 | 704 | (1.7− | 0.8+) | 2008 09 06 | G96 | 0.0 | 0.4+ |
| 2000 11 02 | 704 | 0.1+ | 0.0 | 2006 02 24 | 704 | 0.6− | 0.4+ | 2008 09 06 | G96 | 0.0 | 0.3+ |
| 2000 11 02 | 704 | 0.5+ | 0.2+ | 2006 02 24 | 704 | 0.6+ | 1.4+ | 2008 09 06 | G96 | 0.5− | 0.1− |
| 2000 11 02 | 704 | 0.3+ | 0.1− | 2006 03 03 | 691 | 0.6+ | 0.1+ | 2008 09 20 | G96 | 1.2− | 0.1+ |
| 2000 11 02 | 704 | 0.6+ | 0.0 | 2006 03 03 | 691 | 0.3+ | 0.4+ | 2008 09 20 | G96 | 0.0 | 0.2− |
| 2004 09 11 | 691 | 0.3+ | 0.5+ | 2006 03 03 | 691 | 0.3+ | 0.1+ | 2008 09 20 | G96 | 0.4− | 0.1− |
| 2004 09 11 | 691 | 0.4+ | 0.5+ | 2006 03 03 | 699 | 0.4+ | 0.1+ | 2008 09 20 | G96 | 0.2− | 0.7+ |
| 2004 09 11 | 691 | 0.4+ | 0.5+ | 2006 03 03 | 699 | 0.5+ | 0.7+ | 2009 11 19 | G96 | 0.3− | 0.3− |
| 2004 09 17 | 704 | 0.8− | 0.6− | 2006 03 03 | 699 | 0.3+ | 0.2− | 2009 11 19 | G96 | 0.1− | 0.2− |
| 2004 09 17 | 704 | 0.0 | 0.6+ | 2006 03 03 | 699 | 0.2− | 0.8+ | 2009 11 19 | G96 | 0.1+ | 0.0 |
| 2004 09 17 | 704 | 1.2− | 1.1+ | 2006 03 09 | 691 | 0.8− | 0.8+ | 2009 11 19 | G96 | 0.2+ | 0.2− |
| 2006 01 26 | 691 | 0.3+ | 0.2+ | 2006 03 09 | 691 | 0.1+ | 0.1+ | 2009 12 17 | 704 | (2.1+ | 0.1−) |
| 2006 01 26 | 691 | 0.4+ | 0.2+ | 2006 03 09 | 691 | 0.3+ | 0.6+ | 2009 12 17 | 704 | 0.1− | 0.4+ |
| 2006 01 26 | 691 | 0.2+ | 0.2+ | 2006 03 23 | G96 | 0.3− | 0.2+ | 2009 12 17 | 704 | (2.6+ | 0.2−) |
| 2006 01 30 | 691 | 0.2+ | 0.2+ | 2006 03 23 | G96 | 0.2− | 0.2+ | 2009 12 17 | G96 | 0.3+ | 0.3− |
| 2006 01 30 | 691 | 0.3+ | 0.1+ | 2006 03 23 | G96 | 0.1− | 0.3+ | 2009 12 17 | 704 | 0.1− | 0.4+ |
| 2006 01 30 | 691 | 0.4+ | 0.1− | 2006 03 23 | G96 | 0.6− | 0.6+ | 2009 12 17 | G96 | 0.1+ | 0.2− |
| 2006 02 04 | G96 | 0.5− | 0.2− | 2006 03 24 | G96 | 0.0 | 0.3− | 2009 12 17 | G96 | 0.1+ | 0.2− |
| 2006 02 04 | G96 | 0.1− | 0.0 | 2006 03 24 | G96 | 0.2− | 0.3− | 2009 12 17 | G96 | 0.0 | 0.1− |
| 2006 02 04 | G96 | 0.3− | 0.2+ | 2006 03 24 | G96 | 0.5− | 0.0 | 2009 12 17 | G96 | 0.2− | 0.1− |
| 2006 02 04 | G96 | 0.4− | 0.0 | 2006 03 24 | G96 | 0.4− | 0.4− | 2009 12 18 | 691 | 0.0 | 0.1− |
| 2006 02 07 | 703 | (3.0− | 1.2+) | 2006 03 26 | 691 | 0.5+ | 0.2− | 2009 12 18 | 691 | 0.2− | 0.1+ |
| 2006 02 07 | 703 | 1.2− | 0.8− | 2006 03 26 | 691 | 0.5+ | 0.0 | 2009 12 18 | 691 | 0.2− | 0.1− |
| 2006 02 07 | 703 | 0.5− | 1.0− | 2006 03 26 | 691 | 0.0 | 0.6+ | 2009 12 26 | 691 | 0.0 | 0.1− |
| 2006 02 07 | 703 | (1.9− | 1.8−) | 2007 05 25 | G96 | 0.1− | 0.2+ | 2009 12 26 | 691 | 0.1− | 0.1− |
| 2006 02 21 | G96 | 0.2− | 0.0 | 2007 05 25 | G96 | 0.2− | 0.4+ | 2009 12 26 | 691 | 1.1− | 0.1− |

**(229586)∗ 2006 BN$_{145}$**

Discovered 2006 Jan. 23 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 357.05832 | | (2000.0) | | | |
| $n$ | 0.21893770 | $\omega$ | 265.77286 | | +0.20375423 | −0.97895570 |
| $a$ | 2.7263965 | $\Omega$ | 172.44167 | | +0.92910818 | +0.18968254 |
| $e$ | 0.1451530 | $i$ | 4.97187 | | +0.30861334 | +0.07527465 |
| $P$ | 4.50 | $H$ | 16.2 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 09 29 | 691 | 0.1− | 0.3+ | 2006 02 09 | 644 | 0.2+ | 0.0 | 2009 11 15 | 703 | 0.7+ | 0.2+ |
| 1995 09 29 | 691 | 0.4− | 0.5+ | 2006 02 25 | G92 | 0.5+ | 0.0 | 2009 11 19 | 704 | (0.0 | 1.9+) |
| 1995 09 29 | 691 | 0.2− | 0.3+ | 2006 02 25 | G92 | 0.4+ | 1.0+ | 2009 11 19 | 704 | 0.4− | 0.8− |
| 2000 11 20 | 704 | 0.1− | 0.8− | 2006 02 25 | G92 | 1.4+ | 1.0+ | 2009 11 19 | 704 | 0.9− | 1.1− |
| 2000 11 20 | 704 | 1.0+ | 0.6− | 2006 02 27 | G92 | 0.6+ | 0.1− | 2009 11 19 | J75 | 0.3+ | 0.1− |
| 2000 11 20 | 704 | 0.9+ | 1.5− | 2006 02 27 | G92 | 0.5+ | 0.3− | 2009 11 20 | J75 | 0.6+ | 0.7− |
| 2004 09 17 | 704 | 0.2+ | 0.4+ | 2006 02 27 | G92 | 0.5+ | 0.2− | 2009 11 20 | J75 | 0.5+ | 0.3− |
| 2004 09 17 | 704 | (1.3− | 2.5+) | 2006 04 20 | G96 | 1.2− | 0.4+ | 2009 11 20 | 704 | 0.2+ | 1.1+ |
| 2004 09 17 | 704 | 0.1− | 1.4+ | 2006 04 20 | G96 | 0.3+ | 0.7+ | 2009 11 20 | 704 | 0.2+ | 0.9+ |
| 2004 09 17 | 704 | 0.1− | 0.0 | 2006 04 20 | G96 | 0.1+ | 0.7+ | 2009 11 20 | 704 | 0.1+ | 0.9+ |
| 2006 01 23 | 704 | 0.5+ | 0.3− | 2006 04 20 | G96 | 0.2+ | 1.0+ | 2009 11 20 | 704 | 0.4+ | 0.8+ |
| 2006 01 23 | 704 | 0.4− | 0.4+ | 2007 04 24 | 691 | 0.3+ | 0.5+ | 2009 11 23 | G96 | 0.1− | 0.2− |
| 2006 01 23 | 704 | 0.1− | 0.2− | 2007 04 24 | 691 | 0.2− | 0.4+ | 2009 11 23 | G96 | 0.0 | 0.2− |
| 2006 01 23 | 704 | 0.1− | 0.3+ | 2007 04 24 | 691 | 0.0 | 0.3+ | 2009 11 23 | G96 | 0.2+ | 0.2− |
| 2006 01 30 | 703 | 1.3− | 0.6+ | 2007 05 12 | G96 | 0.4+ | 0.1+ | 2009 11 23 | G96 | 0.2− | 0.4− |
| 2006 01 30 | 703 | 0.1− | 0.1− | 2007 05 12 | G96 | 0.2+ | 0.1+ | 2009 12 10 | 703 | 0.5+ | 0.8+ |
| 2006 01 30 | 703 | 1.0− | 0.4+ | 2007 05 12 | G96 | 0.0 | 0.2+ | 2009 12 10 | 703 | 0.2− | 0.2+ |
| 2006 01 30 | 703 | 0.7− | 1.5+ | 2007 05 12 | G96 | 0.4+ | 0.0 | 2009 12 10 | 703 | 0.2− | 0.6− |
| 2006 02 02 | 699 | 0.4− | 1.0− | 2009 10 24 | 703 | (2.3− | 0.6−) | 2009 12 10 | 703 | (3.4− | 0.6+) |
| 2006 02 02 | 699 | 0.3+ | 0.2+ | 2009 10 24 | 703 | 1.2− | 0.3+ | 2009 12 13 | 704 | 0.2+ | 0.5+ |
| 2006 02 02 | 699 | 0.4+ | 1.4+ | 2009 10 24 | 703 | 1.0− | 1.0+ | 2009 12 13 | 704 | 0.1+ | 0.0 |
| 2006 02 02 | 699 | 0.0 | 0.2− | 2009 10 24 | 703 | 0.9− | 1.0− | 2009 12 13 | 704 | 0.6+ | 0.8+ |
| 2006 02 03 | G96 | 0.2− | 0.4− | 2009 11 13 | J75 | 1.0+ | 0.4+ | 2009 12 13 | 704 | 0.0 | 1.2+ |
| 2006 02 03 | G96 | 0.0 | 0.3− | 2009 11 13 | J75 | 0.7+ | 0.9+ | 2009 12 19 | 691 | 0.3− | 0.1− |
| 2006 02 03 | G96 | 0.1− | 0.3− | 2009 11 13 | J75 | 0.3− | 0.2+ | 2009 12 19 | 691 | 0.3− | 0.1+ |
| 2006 02 03 | G96 | 0.0 | 0.0 | 2009 11 15 | 703 | 0.2− | 0.6+ | 2009 12 19 | 691 | 0.1+ | 0.2− |
| 2006 02 09 | 644 | 0.0 | 0.4− | 2009 11 15 | 703 | 0.4− | 0.2− | | | | |
| 2006 02 09 | 644 | 0.2+ | 0.2+ | 2009 11 15 | 703 | 0.2− | 0.2+ | | | | |

**(229587)∗ 2006 BA$_{147}$**

Discovered 2006 Jan. 31 by W. K. Y. Yeung at 7300 Observatory, Cloudcroft.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 30.84507 | | (2000.0) | | | |
| $n$ | 0.22911802 | $\omega$ | 315.10277 | | +0.36687586 | −0.92918184 |
| $a$ | 2.6450257 | $\Omega$ | 113.32623 | | +0.86666922 | +0.32382241 |
| $e$ | 0.1179885 | $i$ | 2.80768 | | +0.33806295 | +0.17821377 |
| $P$ | 4.30 | $H$ | 16.4 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1993 01 29 | 691 | 0.2+ | 0.7+ | 2006 01 31 | H07 | 0.6− | 0.2+ | 2007 05 24 | G96 | 0.3− | 0.5+ |
| 1993 01 29 | 691 | 0.2− | 0.2+ | 2006 02 01 | H07 | 0.2+ | 0.1− | 2007 05 24 | G96 | 0.3+ | 0.1+ |
| 1993 01 29 | 691 | 0.3− | 0.1− | 2006 02 01 | H07 | 0.4− | 0.0 | 2007 05 24 | G96 | 0.0 | 0.7− |
| 2001 01 25 | 691 | 0.0 | 0.3+ | 2006 02 02 | G96 | 0.6+ | 0.3− | 2007 05 24 | G96 | 0.7+ | 1.1− |
| 2001 01 25 | 691 | 0.7+ | 0.4+ | 2006 02 02 | G96 | 0.9+ | 0.3− | 2008 09 24 | G96 | 0.7+ | 0.2+ |
| 2001 01 25 | 691 | 0.4+ | 0.1+ | 2006 02 02 | G96 | 1.0+ | 0.2− | 2008 09 24 | G96 | 0.0 | 0.0 |
| 2004 10 07 | 704 | 0.3− | 0.2− | 2006 02 02 | G96 | 0.8+ | 0.1− | 2008 09 24 | G96 | 0.2− | 0.0 |
| 2004 10 07 | 704 | 0.1+ | 0.1+ | 2006 02 09 | 644 | 0.4+ | 0.1− | 2008 09 24 | G96 | 0.2+ | 0.1− |
| 2004 10 07 | 704 | 1.3− | 0.2− | 2006 02 09 | 644 | 0.2− | 0.5+ | 2009 11 18 | G96 | 0.8− | 0.4+ |
| 2004 10 07 | 704 | 0.8− | 0.1+ | 2006 02 09 | 644 | 0.2+ | 0.7+ | 2009 11 18 | G96 | 0.6+ | 0.3− |
| 2004 10 09 | 704 | 0.3− | 0.3+ | 2006 02 20 | 703 | 0.4− | 0.5− | 2009 11 18 | G96 | 0.4+ | 0.2− |
| 2004 10 09 | 704 | 0.3+ | 0.1− | 2006 02 20 | 703 | 0.6+ | 0.5− | 2009 11 18 | G96 | 0.2+ | 0.4− |
| 2004 10 09 | 704 | (1.7+ | 0.3+) | 2006 02 20 | 703 | 1.0+ | 0.2+ | 2009 12 10 | G96 | 0.2+ | 0.3− |
| 2005 10 07 | 568 | 0.1+ | 0.1+ | 2006 02 20 | 703 | 0.6− | 0.6+ | 2009 12 10 | G96 | 0.2+ | 0.2− |
| 2005 10 07 | 568 | 0.1+ | 0.1+ | 2006 03 02 | G96 | 0.4− | 0.2− | 2009 12 10 | G96 | 0.7+ | 0.4− |
| 2005 10 07 | 568 | 0.1+ | 0.1+ | 2006 03 02 | G96 | 0.2+ | 0.1+ | 2009 12 10 | G96 | 0.1+ | 0.8− |
| 2006 01 27 | G96 | 0.3− | 0.1− | 2006 03 02 | G96 | 0.3+ | 0.0 | 2009 12 17 | 691 | 0.2− | 0.1+ |
| 2006 01 27 | G96 | 0.4+ | 0.5− | 2006 03 02 | G96 | 0.2+ | 0.0 | 2009 12 17 | 691 | 0.0 | 0.2− |
| 2006 01 27 | G96 | 0.7+ | 0.5− | 2007 05 10 | G96 | 0.2− | 0.1− | 2009 12 17 | 691 | 0.3+ | 0.0 |
| 2006 01 27 | G96 | 0.2+ | 0.4− | 2007 05 10 | G96 | 0.3− | 0.3+ | 2009 12 25 | 691 | 0.2− | 0.1+ |
| 2006 01 31 | H07 | 1.2− | 1.0+ | 2007 05 10 | G96 | 0.3− | 0.0 | 2009 12 25 | 691 | 0.6− | 0.3− |
| 2006 01 31 | H07 | 1.2− | 0.7+ | 2007 05 10 | G96 | 0.0 | 0.1+ | 2009 12 25 | 691 | 0.3− | 0.3− |

**(229588)∗ 2006 BL$_{148}$ = 2003 ON$_{24}$**

Discovered 2006 Jan. 21 by NEAT at Palomar.

Id. A. Doppler (*MPO* 158040)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 300.31840 | | (2000.0) | | | |
| $n$ | 0.22798109 | $\omega$ | 256.14259 | | −0.97955159 | +0.00400812 |
| $a$ | 2.6538121 | $\Omega$ | 283.79805 | | +0.08555170 | −0.89661164 |
| $e$ | 0.0622535 | $i$ | 11.95424 | | −0.18209773 | −0.44279962 |
| $P$ | 4.32 | $H$ | 15.7 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 07 24 | 644 | 0.2− | 0.1+ | 2006 02 24 | 703 | 0.6− | 0.2+ | 2009 09 17 | 691 | 0.1+ | 0.1+ |
| 2003 07 24 | 644 | 0.5− | 0.2+ | 2006 02 24 | 703 | 0.5− | 0.2− | 2009 09 21 | 691 | 0.5− | 0.0 |
| 2003 07 24 | 644 | 0.0 | 0.2+ | 2008 06 10 | 291 | 0.1− | 0.2− | 2009 09 21 | 691 | 0.3− | 0.2+ |
| 2003 07 26 | 644 | 0.1− | 0.3+ | 2008 06 10 | 291 | 0.1− | 0.1− | 2009 09 21 | 691 | 0.2− | 0.3+ |
| 2003 07 26 | 644 | 0.1− | 0.3+ | 2008 06 10 | 291 | 0.6− | 0.0 | 2009 11 16 | G96 | 0.0 | 0.0 |
| 2003 07 26 | 644 | 0.0 | 0.3+ | 2008 10 06 | 703 | 1.4+ | 0.0 | 2009 11 16 | G96 | 0.1+ | 0.1− |
| 2006 01 21 | 644 | 0.6+ | 0.3+ | 2008 10 06 | 703 | 0.9+ | 0.6+ | 2009 11 16 | G96 | 0.2+ | 0.2+ |
| 2006 01 21 | 644 | 0.6+ | 0.3+ | 2008 10 06 | 703 | 0.3+ | 0.9+ | 2009 11 16 | G96 | 0.4+ | 0.2− |
| 2006 01 21 | 644 | 0.4+ | 0.5+ | 2008 10 06 | 703 | 0.8+ | 0.1+ | 2009 12 15 | G96 | 0.4+ | 0.0 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 01 26 | 699 | 1.2+ | 0.9+ | 2008 10 10 | G96 | 0.5− | 0.1− | 2009 12 15 | G96 | 0.0 | 0.3− |
| 2006 01 26 | 699 | (1.7+ | 0.6+) | 2008 10 10 | G96 | 0.3− | 0.0 | 2009 12 15 | G96 | 0.0 | 0.1− |
| 2006 01 26 | 699 | (2.0+ | 1.0+) | 2008 10 10 | G96 | 0.2+ | 0.1− | 2009 12 15 | G96 | 0.1+ | 0.1+ |
| 2006 01 26 | 699 | (1.9+ | 0.2+) | 2008 10 10 | G96 | 0.3− | 0.1− | 2009 12 17 | 691 | 0.1− | 0.0 |
| 2006 02 24 | 703 | 0.4− | 0.0 | 2009 09 17 | 691 | 0.0 | 0.4− | 2009 12 17 | 691 | 0.1+ | 0.0 |
| 2006 02 24 | 703 | 0.1− | 0.7− | 2009 09 17 | 691 | 0.2− | 0.2+ | 2009 12 17 | 691 | 0.2+ | 0.1− |

**(229589)∗ 2006 BW$_{148}$ = 2009 WY$_{30}$**

Discovered 2006 Jan. 23 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 165514)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 339.70208 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21754298 | $\omega$ | 34.60842 | | −0.19146037 | | −0.98045508 |
| $a$ | 2.7380371 | $\Omega$ | 66.46671 | | +0.88898188 | | −0.19278368 |
| $e$ | 0.0456063 | $i$ | 2.83120 | | +0.41599777 | | −0.03927205 |
| $P$ | 4.53 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 12 18 | 691 | 0.1+ | 0.6− | 2007 04 14 | G96 | 0.3+ | 0.4− | 2009 11 16 | 691 | 0.6− | 0.1+ |
| 2000 12 18 | 691 | 0.1+ | 0.6− | 2007 04 14 | G96 | 0.3+ | 0.3+ | 2009 11 20 | 691 | 0.2− | 0.0 |
| 2000 12 18 | 691 | 0.1+ | 0.7− | 2007 05 10 | 691 | 0.2− | 0.1− | 2009 11 20 | 691 | 0.5− | 0.2+ |
| 2006 01 23 | 691 | 0.1+ | 0.2+ | 2007 05 10 | 691 | 0.2− | 0.1− | 2009 11 20 | 691 | 0.1+ | 0.1+ |
| 2006 01 23 | 691 | 0.2+ | 0.1− | 2007 05 10 | 691 | 0.0 | 0.2− | 2009 11 23 | 114 | 0.9+ | 0.1− |
| 2006 01 23 | 691 | 0.3+ | 0.1− | 2008 09 06 | 703 | 0.5+ | 0.5− | 2009 11 23 | 114 | 0.8+ | 0.2− |
| 2006 01 27 | 699 | 0.1+ | 0.7+ | 2008 09 06 | 703 | (0.3− | 1.8+) | 2009 11 23 | 114 | 0.3− | 0.0 |
| 2006 01 27 | 699 | 0.5− | 0.8+ | 2008 09 06 | 703 | 0.7− | 0.4+ | 2009 11 23 | 114 | 1.1+ | 0.1− |
| 2006 01 27 | 699 | 0.2+ | 0.2+ | 2008 09 06 | 703 | 0.9+ | 1.1+ | 2009 11 23 | 114 | 0.0 | 0.5− |
| 2006 01 27 | 699 | 0.0 | 0.0 | 2008 10 28 | G96 | 0.1− | 0.4− | 2009 11 24 | 691 | 0.0 | 0.0 |
| 2006 02 02 | 703 | 0.6+ | 0.0 | 2008 10 28 | G96 | 0.1− | 0.3− | 2009 11 24 | 691 | 0.0 | 0.1+ |
| 2006 02 02 | 703 | 0.3− | 0.3+ | 2008 10 28 | G96 | 0.4+ | 0.2− | 2009 11 24 | 691 | 0.4− | 0.0 |
| 2006 02 02 | 703 | 0.8− | 0.8− | 2008 10 28 | G96 | 0.9− | 0.0 | 2009 11 27 | G96 | 0.4+ | 0.1− |
| 2006 02 02 | 703 | (0.3+ | 1.6−) | 2009 09 20 | G96 | 0.5+ | 0.3− | 2009 11 27 | G96 | 0.6+ | 0.2+ |
| 2006 02 03 | 691 | 0.1− | 0.0 | 2009 09 20 | G96 | 0.2+ | 0.1+ | 2009 11 27 | G96 | 0.7+ | 0.1+ |
| 2006 02 03 | 691 | 0.0 | 0.1+ | 2009 09 20 | G96 | 0.4+ | 0.2+ | 2009 11 27 | G96 | 0.8+ | 0.0 |
| 2006 02 03 | 691 | 0.2+ | 0.3− | 2009 09 20 | G96 | 1.3+ | 0.7− | 2009 11 27 | G96 | 0.5+ | 0.1− |
| 2006 02 07 | 691 | 0.0 | 0.2+ | 2009 10 30 | G96 | 0.0 | 0.4+ | 2009 12 15 | G96 | 0.3+ | 0.9+ |
| 2006 02 07 | 691 | 0.0 | 0.1+ | 2009 10 30 | G96 | 0.3+ | 0.1+ | 2009 12 15 | G96 | 0.6+ | 0.0 |
| 2006 02 07 | 691 | 0.2− | 0.4+ | 2009 10 30 | G96 | 1.3+ | 0.4+ | 2009 12 15 | G96 | 0.8+ | 0.1− |
| 2006 02 07 | G96 | 0.4+ | 0.1− | 2009 10 30 | G96 | 0.6+ | 0.0 | 2009 12 15 | G96 | 0.8+ | 0.1− |
| 2006 02 07 | G96 | 0.1− | 0.3− | 2009 11 08 | 691 | 0.2− | 0.2+ | 2009 12 16 | G96 | 0.6+ | 0.2− |
| 2006 02 07 | G96 | 0.6− | 0.1− | 2009 11 08 | 691 | 0.4+ | 0.0 | 2009 12 16 | G96 | 0.3+ | 0.5− |
| 2006 02 07 | G96 | 0.2+ | 0.6− | 2009 11 08 | 691 | 0.5− | 0.2+ | 2009 12 16 | G96 | 0.6+ | 0.2− |
| 2007 04 14 | G96 | 0.4+ | 0.2− | 2009 11 16 | 691 | 1.1− | 0.2+ | 2009 12 16 | G96 | 0.3+ | 0.0 |
| 2007 04 14 | G96 | 0.2− | 0.1− | 2009 11 16 | 691 | 0.9− | 0.4+ | | | | |

**(229590)∗ 2006 BU$_{162}$**

Discovered 2006 Jan. 26 by the Mt. Lemmon Survey at Mount Lemmon.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 247.32748 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.20843773 | $\omega$ | 63.02345 | | −0.96377355 | | +0.26234810 |
| $a$ | 2.8172053 | $\Omega$ | 132.14391 | | −0.26189255 | | −0.89664050 |
| $e$ | 0.0397458 | $i$ | 3.71983 | | −0.05052567 | | −0.35666411 |
| $P$ | 4.73 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 10 11 | 704 | 0.0 | 0.6− | 2006 01 31 | 691 | 0.0 | 0.1+ | 2008 07 30 | 691 | 0.4− | 0.6+ |
| 1999 10 11 | 704 | 0.9+ | 0.4− | 2006 01 31 | 691 | 0.3+ | 0.2+ | 2008 07 30 | 691 | 0.5− | 0.3+ |
| 1999 10 11 | 704 | 0.3− | 0.8− | 2006 01 31 | 691 | 0.1+ | 0.2− | 2008 08 07 | 691 | 0.2− | 0.6+ |
| 2001 01 21 | 704 | 0.5+ | 0.4+ | 2006 02 04 | 691 | 0.1+ | 0.3+ | 2008 08 07 | 691 | 0.2− | 0.4+ |
| 2001 01 21 | 704 | 0.4+ | 0.5− | 2006 02 04 | 691 | 0.3+ | 0.2+ | 2008 08 07 | 691 | 0.4− | 0.2+ |
| 2001 01 21 | 704 | 0.8− | 0.1− | 2006 02 04 | 691 | 0.2+ | 0.1+ | 2008 09 07 | 703 | 0.6− | 0.5+ |
| 2001 01 21 | 704 | 0.2+ | 1.1− | 2006 02 20 | 703 | (1.8− | 0.5−) | 2008 09 07 | 703 | (1.0+ | 1.7+) |
| 2003 07 25 | 644 | 0.2− | 0.1+ | 2006 02 20 | 703 | 0.7− | 0.7+ | 2008 09 07 | 703 | 0.0 | 0.6+ |
| 2003 07 25 | 644 | 0.5+ | 0.6+ | 2006 02 20 | 703 | 0.1− | 0.3+ | 2008 09 07 | 703 | 0.5+ | 1.1+ |
| 2003 07 25 | 644 | 1.0− | 0.4+ | 2006 02 20 | 703 | 0.2− | 0.1+ | 2008 09 23 | G96 | 0.2+ | 0.4+ |
| 2003 09 04 | 691 | 0.3− | 0.2+ | 2006 02 23 | G96 | 0.3− | 0.1− | 2008 09 23 | G96 | 0.0 | 1.2+ |
| 2003 09 04 | 691 | 0.1+ | 0.3+ | 2006 02 23 | G96 | 0.3− | 0.1− | 2008 09 23 | G96 | 0.2+ | 0.5+ |
| 2003 09 04 | 691 | 0.1+ | 0.1+ | 2006 02 23 | G96 | 0.1− | 0.1− | 2008 09 23 | G96 | 0.4+ | 0.3+ |
| 2006 01 07 | G96 | 0.3− | 0.3− | 2006 02 23 | G96 | 0.4− | 0.2+ | 2008 11 02 | G96 | 0.0 | 0.3− |
| 2006 01 07 | G96 | 0.0 | 0.2− | 2006 03 03 | 691 | 0.2− | 0.1+ | 2008 11 02 | G96 | 0.1+ | 0.5− |
| 2006 01 07 | G96 | 0.2+ | 0.4− | 2006 03 03 | 691 | 0.0 | 0.6+ | 2008 11 02 | G96 | 0.1+ | 0.2− |
| 2006 01 07 | G96 | 0.5+ | 0.4− | 2006 03 03 | 691 | 0.2+ | 0.5+ | 2008 11 02 | G96 | 0.2− | 0.1− |
| 2006 01 26 | G96 | 0.0 | 0.0 | 2006 03 05 | 691 | 0.0 | 0.0 | 2009 11 26 | G96 | 0.4+ | 0.0 |
| 2006 01 26 | G96 | 0.1− | 0.1− | 2006 03 05 | 691 | 0.3+ | 0.2+ | 2009 11 26 | G96 | 0.1+ | 0.2− |
| 2006 01 26 | G96 | 0.2− | 0.1− | 2006 03 05 | 691 | 0.4+ | 0.1− | 2009 11 26 | G96 | 0.5+ | 0.1+ |
| 2006 01 27 | 699 | 0.9− | 0.3− | 2006 03 09 | 691 | 0.1+ | 0.4+ | 2009 12 11 | 703 | 0.2+ | 1.0+ |
| 2006 01 27 | 699 | 0.2− | 0.3+ | 2006 03 09 | 691 | 0.4+ | 0.8+ | 2009 12 11 | 703 | 1.7− | 1.5− |
| 2006 01 27 | 699 | 0.2− | 1.0+ | 2006 03 09 | 691 | 0.4− | 0.7+ | 2009 12 11 | 703 | 0.6+ | 0.1+ |
| 2006 01 27 | 699 | 0.2+ | 1.1+ | 2008 07 30 | 691 | 0.3+ | 0.5+ | 2009 12 11 | 703 | 0.2− | 0.1− |

**(229591)∗ 2006 BX$_{176}$ = 2002 GV$_{156}$**

Discovered 2006 Jan. 27 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 97104)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 122.74649 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21057276 | $\omega$ | 208.02524 | | +0.72910150 | | +0.67247045 |
| $a$ | 2.7981302 | $\Omega$ | 109.12561 | | −0.60006554 | | +0.71752601 |
| $e$ | 0.0651013 | $i$ | 7.74083 | | −0.32913881 | | +0.18149357 |
| $P$ | 4.68 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 12 21 | 691 | 0.4− | 0.1− | 2006 01 31 | 691 | 0.2+ | 0.1− | 2007 05 13 | 941 | 0.5+ | 0.2− |
| 2000 12 21 | 691 | 0.3− | 0.3− | 2006 02 04 | 691 | 0.0 | 0.0 | 2007 05 13 | 941 | 0.2+ | 0.1− |
| 2000 12 21 | 691 | 0.4− | 0.0 | 2006 02 04 | 691 | 0.2+ | 0.1− | 2007 05 24 | 703 | 0.3− | 1.1+ |
| 2002 04 13 | 644 | 0.6+ | 0.1+ | 2006 02 04 | 691 | 0.0 | 0.3+ | 2007 05 24 | 703 | 0.8− | 0.8+ |
| 2002 04 13 | 644 | 1.0+ | 0.2+ | 2006 02 04 | 691 | 0.1+ | 0.1+ | 2007 05 24 | 703 | 0.9+ | 0.4− |
| 2002 04 13 | 644 | 0.5+ | 0.2+ | 2006 02 04 | 691 | 0.1− | 0.5+ | 2007 05 24 | 703 | 0.1− | 0.8+ |
| 2002 04 16 | 704 | 0.3+ | 0.5+ | 2006 02 04 | 691 | 0.1− | 0.1− | 2008 08 23 | 704 | 0.1+ | 1.2+ |
| 2002 04 16 | 704 | 1.0− | 0.4+ | 2007 04 23 | A50 | 1.4+ | 1.2− | 2008 08 23 | 704 | (0.0 | 1.8+) |
| 2002 04 16 | 704 | 0.8+ | 0.7+ | 2007 04 23 | A50 | 0.8+ | 0.2− | 2008 08 23 | 704 | (0.7− | 2.0+) |
| 2002 04 16 | 704 | (1.8+ | 0.2+) | 2007 04 25 | 691 | 0.4− | 0.0 | 2008 08 23 | 704 | (1.0− | 1.7+) |
| 2004 11 03 | 644 | 0.4+ | 0.7+ | 2007 04 25 | 691 | 0.3− | 0.0 | 2009 11 27 | 691 | 0.1− | 0.2− |
| 2004 11 03 | 644 | 0.7+ | 1.1+ | 2007 04 25 | 691 | 0.3− | 0.1+ | 2009 11 27 | 691 | 0.5− | 0.4− |
| 2004 11 03 | 644 | 0.3+ | 1.1+ | 2007 05 06 | D29 | 0.0 | 0.3− | 2009 11 27 | 691 | 0.3− | 0.1+ |
| 2005 11 12 | 691 | 0.3− | 0.2− | 2007 05 06 | D29 | 0.5+ | 0.2− | 2009 12 13 | G96 | 0.1+ | 0.1+ |
| 2005 11 12 | 691 | 0.0 | 0.1+ | 2007 05 06 | D29 | 0.4+ | 0.1− | 2009 12 13 | G96 | 0.0 | 0.0 |
| 2005 11 12 | 691 | 0.8+ | 0.4− | 2007 05 06 | D29 | 0.5− | 0.2− | 2009 12 13 | G96 | 0.1− | 0.0 |
| 2006 01 27 | 691 | 0.0 | 0.0 | 2007 05 09 | 703 | 0.8− | 0.6− | 2009 12 17 | 704 | 0.3− | 0.6− |
| 2006 01 27 | 691 | 0.1− | 0.1+ | 2007 05 09 | 703 | 1.5− | 0.1+ | 2009 12 17 | 704 | 0.2+ | 0.1+ |
| 2006 01 27 | 691 | 0.0 | 0.1+ | 2007 05 09 | 703 | (2.1− | 0.2+) | 2009 12 17 | 704 | 1.1+ | 0.6+ |
| 2006 01 31 | 691 | 0.3+ | 0.2− | 2007 05 13 | 941 | 0.0 | 0.3− | 2009 12 17 | 704 | 0.2+ | 0.2+ |
| 2006 01 31 | 691 | 0.3+ | 0.0 | 2007 05 13 | 941 | 0.2+ | 0.3− | | | | |

**(229592)∗ 2006 BE$_{183}$**

Discovered 2006 Jan. 27 by the Mt. Lemmon Survey at Mount Lemmon.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 212.49989 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.19129997 | $\omega$ | 175.41120 | | −0.72190737 | | +0.69167516 |
| $a$ | 2.9830426 | $\Omega$ | 48.37469 | | −0.63577300 | | −0.65105587 |
| $e$ | 0.0931643 | $i$ | 1.59927 | | −0.27320769 | | −0.31258875 |
| $P$ | 5.15 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 10 12 | 691 | 0.1+ | 0.0 | 2006 01 27 | G96 | 0.4− | 0.4− | 2008 09 07 | G96 | 0.0 | 0.2+ |
| 1998 10 12 | 691 | 0.2− | 1.0+ | 2006 01 27 | G96 | 0.7+ | 0.4+ | 2008 09 07 | G96 | 0.6− | 0.2+ |
| 1998 10 12 | 691 | (4.3+ | 4.0−) | 2006 01 27 | G96 | 0.2+ | 0.5+ | 2008 09 19 | 291 | 0.1− | 0.2+ |
| 2001 03 23 | 209 | 0.0 | 0.0 | 2006 01 31 | 691 | 0.3− | 0.5− | 2008 09 19 | 291 | 0.2− | 0.3+ |
| 2001 03 23 | 209 | 0.6− | 0.7+ | 2006 01 31 | 691 | 0.0 | 0.2− | 2008 09 19 | 291 | 0.2+ | 0.3+ |
| 2001 03 23 | 209 | 0.0 | 0.8+ | 2006 01 31 | 691 | 0.2+ | 0.1− | 2008 09 22 | G96 | 0.0 | 0.3+ |
| 2003 09 28 | 645 | 0.0 | 0.0 | 2006 02 27 | G96 | 0.0 | 0.3− | 2008 09 22 | G96 | 0.0 | 0.2+ |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 28 | 645 | 0.0 | 0.1− | 2006 02 27 | G96 | 0.2− | 0.1− | 2008 09 22 | G96 | 0.0 | 0.2− |
| 2003 09 29 | 691 | 0.5− | 0.0 | 2006 02 27 | G96 | 0.3− | 0.0 | 2008 09 22 | G96 | 0.2− | 0.1− |
| 2003 09 29 | 691 | 0.0 | 0.6+ | 2006 02 27 | G96 | 0.3+ | 0.0 | 2009 11 24 | 691 | 0.8− | 0.0 |
| 2003 09 29 | 691 | 0.2− | 0.5+ | 2006 03 03 | 699 | 1.3+ | 0.7+ | 2009 11 24 | 691 | 0.5− | 0.2+ |
| 2003 10 18 | 645 | 0.1+ | 0.2− | 2006 03 03 | 699 | (1.9+ | 0.8+) | 2009 11 24 | 691 | 0.0 | 0.3+ |
| 2003 10 18 | 645 | 0.0 | 0.2− | 2006 03 03 | 699 | (1.5+ | 0.6+) | 2009 12 11 | G96 | 1.0+ | 0.0 |
| 2003 10 23 | 645 | 0.0 | 0.0 | 2006 03 03 | 699 | (1.7+ | 0.7−) | 2009 12 11 | G96 | 1.1+ | 0.2+ |
| 2003 10 23 | 645 | 0.0 | 0.1− | 2008 09 07 | G96 | 0.1+ | 0.2+ | 2009 12 11 | G96 | 1.2+ | 0.1+ |
| 2006 01 27 | G96 | 0.6− | 0.4− | 2008 09 07 | G96 | 0.1+ | 0.2− | 2009 12 11 | G96 | 1.1+ | 0.0 |

**(229593)∗ 2006 BX$_{189}$**

Discovered 2006 Jan. 28 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 322.16139 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.20373897 | $\omega$ | 50.21493 | | −0.56115701 | −0.82607571 | |
| $a$ | 2.8603553 | $\Omega$ | 73.99577 | | +0.74192202 | −0.52984394 | |
| $e$ | 0.0221804 | $i$ | 3.09973 | | +0.36695304 | −0.19200084 | |
| $P$ | 4.84 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 11 30 | 691 | 0.1+ | 0.2+ | 2006 02 25 | 691 | 0.1+ | 0.0 | 2008 09 23 | G96 | 0.1+ | 0.3+ |
| 1999 11 30 | 691 | 0.2− | 0.0 | 2006 02 25 | 691 | 0.1+ | 0.4+ | 2008 09 23 | G96 | 0.1+ | 0.1+ |
| 1999 11 30 | 691 | 1.5+ | 0.5− | 2006 02 25 | 691 | 0.2− | 0.2+ | 2008 09 25 | G96 | 0.2− | 0.3− |
| 1999 12 13 | 691 | 0.2− | 0.2+ | 2006 03 04 | 691 | 0.1+ | 0.0 | 2008 09 25 | G96 | 0.2+ | 0.3+ |
| 1999 12 13 | 691 | 0.2− | 0.4− | 2006 03 04 | 691 | 0.1− | 0.1+ | 2008 09 25 | G96 | 0.7+ | 0.1+ |
| 1999 12 13 | 691 | 0.1− | 0.1+ | 2006 03 04 | 691 | 0.3+ | 0.0 | 2008 09 25 | G96 | 0.0 | 0.3+ |
| 2002 06 05 | 291 | 0.0 | 0.2+ | 2006 03 04 | G96 | 0.5− | 0.0 | 2009 11 21 | 691 | 1.3+ | 0.7+ |
| 2002 06 05 | 291 | 0.1− | 0.6+ | 2006 03 04 | G96 | 0.2− | 0.0 | 2009 11 21 | 691 | 0.5− | 0.0 |
| 2002 06 05 | 291 | 0.1− | 0.3+ | 2006 03 04 | G96 | 0.0 | 0.0 | 2009 11 21 | 691 | 0.4− | 0.2+ |
| 2004 11 10 | 691 | 0.4− | 0.1+ | 2006 03 04 | G96 | 0.1− | 0.1+ | 2009 12 10 | G96 | 0.2− | 0.2− |
| 2004 11 10 | 691 | 0.5− | 0.2+ | 2006 03 08 | 691 | 0.1− | 0.1− | 2009 12 10 | G96 | 0.2− | 0.3− |
| 2004 11 10 | 691 | 0.5− | 0.0 | 2006 03 08 | 691 | 0.0 | 0.0 | 2009 12 10 | G96 | 0.5− | 0.3+ |
| 2006 01 28 | 691 | 0.2+ | 0.2− | 2006 03 08 | 691 | 0.3+ | 0.1− | 2009 12 10 | G96 | 0.1− | 0.1+ |
| 2006 01 28 | 691 | 0.2− | 0.2− | 2006 03 08 | 691 | 0.2− | 0.0 | 2009 12 19 | G96 | 0.0 | 0.2+ |
| 2006 01 28 | 691 | 0.1− | 0.3− | 2006 03 08 | 691 | 0.1− | 0.1+ | 2009 12 19 | G96 | 0.6+ | 1.2+ |
| 2006 02 01 | 691 | 0.2+ | 0.1+ | 2006 03 08 | 691 | 0.1− | 0.0 | 2009 12 19 | G96 | 0.1− | 0.3+ |
| 2006 02 01 | 691 | 0.3+ | 0.1+ | 2008 09 23 | G96 | 0.4+ | 0.1+ | 2009 12 19 | G96 | 0.4− | 0.2− |
| 2006 02 01 | 691 | 0.1+ | 0.6− | 2008 09 23 | G96 | 0.1− | 0.2+ | | | | |

**(229594)∗ 2006 BL$_{204}$ = 2007 JR$_8$**

Discovered 2006 Jan. 31 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 120489)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 161.44174 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19193037 | $\omega$ | 172.09710 | | −0.21879094 | +0.97542678 | |
| $a$ | 2.9765070 | $\Omega$ | 85.26215 | | −0.89667089 | −0.19049676 | |
| $e$ | 0.0200354 | $i$ | 1.49178 | | −0.38485301 | −0.11069588 | |
| $P$ | 5.14 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 12 05 | 691 | 0.1− | 1.2+ | 2006 02 02 | G96 | 0.2+ | 0.6− | 2007 05 26 | G96 | 0.8+ | 0.3+ |
| 1999 12 05 | 691 | 0.0 | 0.8+ | 2006 02 02 | G96 | 0.2− | 0.3− | 2007 05 26 | G96 | 0.0 | 0.5+ |
| 1999 12 05 | 691 | 0.2− | 0.8+ | 2006 02 02 | G96 | 0.1− | 0.0 | 2007 05 26 | G96 | 0.7+ | 0.3+ |
| 2001 03 31 | 691 | 0.2− | 0.0 | 2006 02 04 | 691 | 0.4− | 0.1− | 2007 05 26 | G96 | 0.1− | 0.0 |
| 2001 03 31 | 691 | 0.5+ | 0.3+ | 2006 02 04 | 691 | 0.2− | 0.2− | 2008 09 24 | G96 | 0.5+ | 0.3+ |
| 2001 03 31 | 691 | 0.1− | 0.3− | 2006 02 04 | 691 | 0.4− | 0.1− | 2008 09 24 | G96 | 0.3+ | 0.2+ |
| 2002 04 07 | 807 | 0.6− | 0.3+ | 2006 02 25 | G96 | 0.2− | 0.1+ | 2008 09 24 | G96 | 0.2+ | 0.0 |
| 2002 04 07 | 807 | 0.7− | 0.4+ | 2006 02 25 | G96 | 0.3− | 0.0 | 2008 09 24 | G96 | 0.0 | 0.2− |
| 2004 12 18 | G96 | 0.0 | 0.1− | 2006 02 25 | G96 | 0.2− | 0.2− | 2009 10 18 | G96 | 0.3+ | 0.0 |
| 2004 12 18 | G96 | 0.0 | 0.5− | 2006 02 25 | G96 | 0.1+ | 0.2− | 2009 10 18 | G96 | 0.3+ | 0.2+ |
| 2004 12 18 | G96 | 0.1− | 0.1− | 2007 04 18 | 691 | 0.0 | 0.2+ | 2009 10 18 | G96 | 0.2+ | 0.2− |
| 2004 12 18 | G96 | 0.6− | 0.5− | 2007 04 18 | 691 | 0.0 | 0.2+ | 2009 10 18 | G96 | 0.2+ | 0.3+ |
| 2006 01 07 | G96 | 1.1+ | 0.3− | 2007 04 18 | 691 | 0.0 | 0.1+ | 2009 10 23 | 691 | 0.4− | 0.0 |
| 2006 01 07 | G96 | 0.3+ | 0.5− | 2007 05 09 | G96 | 0.3+ | 0.2+ | 2009 10 23 | 691 | (0.9+ | 1.6−) |
| 2006 01 07 | G96 | 0.6+ | 0.5− | 2007 05 09 | G96 | 0.0 | 0.2+ | 2009 10 23 | 691 | 0.4− | 0.0 |
| 2006 01 07 | G96 | 0.2− | 0.2− | 2007 05 09 | G96 | 0.2+ | 0.3+ | 2009 12 10 | G96 | 1.1+ | 0.8− |
| 2006 01 31 | 691 | 0.1+ | 0.1− | 2007 05 09 | G96 | 0.1− | 0.3+ | 2009 12 10 | G96 | 0.5+ | 0.5− |
| 2006 01 31 | 691 | 0.2+ | 0.0 | 2007 05 10 | 691 | 0.1+ | 0.2+ | 2009 12 10 | G96 | 0.5+ | 0.1− |
| 2006 01 31 | 691 | 0.1+ | 0.2+ | 2007 05 10 | 691 | 0.1− | 0.3+ | 2009 12 10 | G96 | 0.6+ | 0.5− |
| 2006 02 02 | G96 | 0.1+ | 0.5− | 2007 05 10 | 691 | 0.1+ | 0.2+ | | | | |

**(229595)∗ 2006 BE$_{214}$**

Discovered 2006 Jan. 23 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 103.69544 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21780339 | $\omega$ | 67.03992 | | +0.89197365 | +0.44470475 | |
| $a$ | 2.7358542 | $\Omega$ | 266.47270 | | −0.43888322 | +0.80859999 | |
| $e$ | 0.0378217 | $i$ | 4.67606 | | −0.10846437 | +0.38523206 | |
| $P$ | 4.53 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 12 18 | 691 | 0.3+ | 0.5− | 2005 12 28 | 691 | 0.0 | 0.5+ | 2008 08 06 | J75 | 0.9− | 0.4− |
| 2000 12 18 | 691 | 0.2− | 0.3− | 2005 12 28 | 691 | 0.1+ | 0.2+ | 2008 09 07 | 703 | 1.0− | 0.0 |
| 2000 12 18 | 691 | 0.0 | 0.2− | 2005 12 28 | 691 | 0.1+ | 0.5+ | 2008 09 07 | 703 | 0.3+ | 0.8+ |
| 2004 10 08 | 699 | 0.6− | 0.7+ | 2006 01 23 | 704 | 0.7+ | 0.6+ | 2008 09 07 | 703 | 0.0 | 0.7+ |
| 2004 10 08 | 699 | 0.7− | 0.7− | 2006 01 23 | 704 | 0.3− | 1.4+ | 2008 09 07 | 703 | 0.8+ | 0.9+ |
| 2004 10 08 | 699 | 1.0+ | 0.2− | 2006 01 23 | 704 | 0.3+ | 1.0+ | 2009 11 09 | 691 | 0.1+ | 0.0 |
| 2004 10 08 | 699 | 0.7+ | 0.6+ | 2006 01 28 | 699 | 0.8− | 0.9− | 2009 11 09 | 691 | 0.1+ | 0.1− |
| 2004 10 21 | 704 | 0.2− | 0.3+ | 2006 01 28 | 699 | 1.0+ | 0.4− | 2009 11 09 | 691 | 0.1+ | 0.1+ |
| 2004 10 21 | 704 | 0.0 | 0.6+ | 2006 01 28 | 699 | (0.7− | 2.7+) | 2009 11 09 | G96 | 0.3+ | 0.1+ |
| 2004 10 21 | 704 | 0.8+ | 1.3+ | 2006 01 28 | 699 | 0.8− | 0.0 | 2009 11 09 | G96 | 0.3+ | 0.1+ |
| 2004 10 21 | 704 | 0.3+ | 1.2+ | 2006 02 03 | G96 | 0.1+ | 0.3− | 2009 11 09 | G96 | 0.7+ | 0.0 |
| 2004 11 04 | 703 | 0.6+ | 0.2+ | 2006 02 03 | G96 | 0.2− | 0.1− | 2009 11 17 | 691 | 0.1− | 0.2− |
| 2004 11 04 | 703 | 0.8− | 0.1+ | 2006 02 03 | G96 | 0.1+ | 0.2− | 2009 11 17 | 691 | 0.2+ | 0.2− |
| 2004 11 04 | 703 | 0.7− | 0.3− | 2006 02 03 | G96 | 0.1− | 0.2− | 2009 11 17 | 691 | 0.2− | 0.4− |
| 2004 11 04 | 703 | 0.3− | 0.6+ | 2006 02 03 | 704 | (0.4− | 1.8−) | 2009 11 21 | 691 | 0.1− | 0.1+ |
| 2004 11 19 | 703 | 0.3− | 0.4− | 2006 02 03 | 704 | 0.4+ | 0.2+ | 2009 11 21 | 691 | 0.3− | 0.1+ |
| 2004 11 19 | 703 | 0.3− | 0.3− | 2006 02 03 | 704 | 1.4− | 0.7+ | 2009 11 21 | 691 | 0.4− | 0.0 |
| 2004 11 19 | 703 | 1.2− | 0.6− | 2006 02 03 | 704 | (1.7− | 0.2+) | 2009 12 10 | G96 | 0.3+ | 0.2− |
| 2004 11 19 | 703 | 0.1− | 0.6− | 2006 02 20 | 691 | 0.2+ | 0.0 | 2009 12 10 | G96 | 0.3+ | 0.0 |
| 2005 11 30 | G96 | 0.5+ | 0.4− | 2006 02 20 | 691 | 0.3+ | 0.3+ | 2009 12 10 | G96 | 0.6+ | 0.0 |
| 2005 11 30 | G96 | 0.1+ | 0.0 | 2006 02 20 | 691 | 0.1− | 0.0 | 2009 12 10 | G96 | 0.0 | 0.1− |
| 2005 11 30 | G96 | 0.2− | 0.1− | 2008 08 06 | J75 | 0.3+ | 0.0 | | | | |
| 2005 11 30 | G96 | 0.6+ | 0.1− | 2008 08 06 | J75 | 0.1− | 0.3+ | | | | |

**(229596)∗ 2006 BX$_{219}$ = 1999 FB$_{93}$**

Discovered 2006 Jan. 30 by Spacewatch at Kitt Peak.

Id. A. Doppler (*MPO* 101290)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 70.46479 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23602726 | $\omega$ | 253.74658 | | +0.96043467 | +0.26199193 | |
| $a$ | 2.5931518 | $\Omega$ | 90.99078 | | −0.20550645 | +0.89562162 | |
| $e$ | 0.2487717 | $i$ | 5.42190 | | −0.18796898 | +0.35947482 | |
| $P$ | 4.18 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 10 07 | 809 | 1.6− | 1.2+ | 2006 02 03 | 691 | 0.1+ | 0.1+ | 2009 11 21 | 704 | 0.3− | 0.5+ |
| 1996 10 07 | 809 | 0.9+ | 0.2+ | 2006 02 03 | 691 | 0.0 | 0.2− | 2009 11 21 | 704 | 0.3− | 0.3− |
| 1999 03 21 | 645 | 0.1− | 0.0 | 2007 03 15 | G96 | (0.8+ | 1.7+) | 2009 11 24 | 691 | 0.6− | 0.2− |
| 1999 03 21 | 645 | 0.1− | 0.0 | 2007 03 15 | G96 | 0.0 | 0.6+ | 2009 11 24 | 691 | 0.3− | 0.1+ |
| 1999 03 22 | 645 | 0.0 | 0.1+ | 2007 03 15 | G96 | 0.3− | 0.0 | 2009 11 24 | 691 | 0.5− | 0.1− |
| 1999 03 22 | 645 | 0.1− | 0.1+ | 2007 03 15 | G96 | 0.1− | 0.3+ | 2009 12 10 | G96 | 0.2− | 0.3− |
| 2003 04 01 | 645 | 0.0 | 0.0 | 2008 04 29 | G96 | 0.3+ | 0.1+ | 2009 12 10 | G96 | 0.1+ | 0.2− |
| 2003 04 01 | 645 | 0.0 | 0.0 | 2008 04 29 | G96 | 0.6+ | 0.1+ | 2009 12 10 | G96 | 0.3− | 0.2− |
| 2006 01 08 | 291 | 0.2+ | 0.0 | 2008 04 29 | G96 | 0.5+ | 0.1+ | 2009 12 10 | G96 | 0.1+ | 0.1− |
| 2006 01 08 | 291 | 0.3+ | 0.2+ | 2008 04 29 | G96 | 0.3+ | 0.1+ | 2009 12 17 | 704 | 0.7+ | 0.3+ |
| 2006 01 08 | 291 | 0.3+ | 0.1+ | 2008 05 29 | G96 | 0.6+ | 0.1− | 2009 12 17 | 704 | 0.2+ | 0.7+ |
| 2006 01 30 | 691 | 0.3+ | 0.0 | 2008 05 29 | G96 | 0.3+ | 0.5+ | 2009 12 17 | 704 | 0.3− | 0.5+ |
| 2006 01 30 | 691 | 0.9+ | 0.3− | 2008 05 29 | G96 | (2.0+ | 0.4+) | 2009 12 17 | 704 | 0.5+ | 0.3+ |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 2006 01 30 | 691 | 0.2+ | 0.1+ | 2009 11 21 | 704 | 0.3− | 0.7+ | |
| 2006 02 03 | 691 | 0.1+ | 0.2+ | 2009 11 21 | 704 | 0.8− | 0.7− | |

**(229597)∗ 2006 BV$_{220}$**

Discovered 2006 Jan. 30 by the Catalina Sky Survey.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 65.22181 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22455741 | $\omega$ | 122.15523 | | +0.92205274 | | −0.37712305 |
| $a$ | 2.6807180 | $\Omega$ | 260.12761 | | +0.31861871 | | +0.86736873 |
| $e$ | 0.0535769 | $i$ | 5.07563 | | +0.21977458 | | +0.32473017 |
| $P$ | 4.39 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 25 | 704 | 0.6− | 0.6− | 2004 10 21 | 704 | 0.1− | 0.3+ | 2006 02 03 | 704 | 0.8− | 0.0 | |
| 2000 11 25 | 704 | 0.0 | 0.9− | 2004 10 21 | 704 | 0.5− | 1.3− | 2008 07 29 | 691 | 0.1− | 0.3+ | |
| 2000 11 25 | 704 | 0.7+ | 0.1− | 2004 10 21 | 704 | 0.4− | 0.5− | 2008 07 29 | 691 | 0.4− | 0.2+ | |
| 2000 11 25 | 704 | 0.0 | 0.0 | 2005 10 06 | G96 | 0.1− | 0.5− | 2008 07 29 | 691 | 0.2− | 0.2+ | |
| 2004 09 13 | 704 | 0.7+ | 0.0 | 2005 10 06 | G96 | 0.4− | 0.2− | 2008 08 05 | J75 | 0.1+ | 0.6+ | |
| 2004 09 13 | 704 | 0.5− | 0.4− | 2005 10 06 | G96 | 0.6+ | 0.3− | 2008 08 05 | J75 | 0.6+ | 0.0 | |
| 2004 09 13 | 704 | 0.1+ | 0.5+ | 2005 10 06 | G96 | 0.3+ | 0.0 | 2008 08 05 | J75 | 1.0+ | 0.2− | |
| 2004 10 09 | 699 | 0.4+ | 0.6+ | 2006 01 23 | 704 | (2.2− | 1.6+) | 2008 09 07 | 703 | 0.3− | 0.3+ | |
| 2004 10 09 | 699 | 0.3− | 0.7+ | 2006 01 23 | 704 | (0.3+ | 1.8+) | 2008 09 07 | 703 | 0.2− | 0.8− | |
| 2004 10 09 | 699 | 0.7+ | 0.1+ | 2006 01 23 | 704 | (3.2+ | 5.8+) | 2008 09 07 | 703 | 0.7− | 0.2+ | |
| 2004 10 09 | 699 | (2.6+ | 0.2+) | 2006 01 30 | 703 | 1.4+ | 0.7+ | 2008 09 07 | 703 | 1.0+ | 0.4+ | |
| 2004 10 10 | 704 | 0.4− | 1.4+ | 2006 01 30 | 703 | 0.4+ | 0.6+ | 2009 11 25 | 691 | 0.2+ | 0.1− | |
| 2004 10 10 | 704 | 0.1− | 0.1− | 2006 01 30 | 703 | 0.6+ | 1.3+ | 2009 11 25 | 691 | 0.1− | 0.1− | |
| 2004 10 10 | 704 | 0.5− | 0.2− | 2006 01 30 | 703 | 0.8+ | 1.5+ | 2009 11 25 | 691 | 0.2− | 0.3− | |
| 2004 10 10 | 704 | 0.3+ | 0.8+ | 2006 02 03 | 704 | 0.0 | 0.7+ | 2009 12 17 | 691 | 0.2− | 0.1+ | |
| 2004 10 10 | 704 | 0.3− | 0.3+ | 2006 02 03 | 704 | 1.1− | 0.5+ | 2009 12 17 | 691 | 0.2+ | 0.1− | |
| 2004 10 21 | 704 | (1.1+ | 1.7−) | 2006 02 03 | 704 | 0.4+ | 0.5+ | 2009 12 17 | 691 | 0.0 | 0.0 | |
| 2004 10 21 | 704 | 0.1− | 0.1− | 2006 02 03 | 704 | 0.4+ | 0.5+ | | | | | |

**(229598)∗ 2006 BQ$_{251}$ = 2008 SS$_{73}$**

Discovered 2006 Jan. 31 by Spacewatch at Kitt Peak.

Id. A. Doppler (*MPO* 146395)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 93.15209 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.20190537 | $\omega$ | 193.07193 | | +0.94651957 | | +0.32166850 |
| $a$ | 2.8776466 | $\Omega$ | 148.12901 | | −0.29158087 | | +0.88610065 |
| $e$ | 0.0805007 | $i$ | 2.72485 | | −0.13813508 | | +0.33369898 |
| $P$ | 4.88 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 06 25 | 691 | 0.1+ | 0.6+ | 2006 02 20 | G96 | 0.3− | 0.3+ | 2008 09 06 | G96 | 0.2+ | 0.3− | |
| 1998 06 25 | 691 | 0.1− | 0.6+ | 2006 02 20 | G96 | 0.8− | 0.4+ | 2008 09 06 | G96 | 1.2+ | 0.1− | |
| 1998 06 25 | 691 | 0.8− | 0.3+ | 2006 02 20 | G96 | 0.2− | 0.3+ | 2008 09 23 | G96 | 0.7+ | 0.4− | |
| 2003 09 04 | 691 | 0.3− | 0.2+ | 2006 02 20 | G96 | 0.6− | 0.1+ | 2008 09 23 | G96 | 0.3+ | 0.6− | |
| 2003 09 04 | 691 | 0.3+ | 0.4+ | 2006 03 02 | 695 | 0.2+ | 0.2+ | 2008 09 23 | G96 | 0.5+ | 0.5− | |
| 2003 09 04 | 691 | 0.0 | 0.2+ | 2006 03 02 | 695 | 0.3+ | 0.2+ | 2008 09 23 | G96 | 0.1+ | 0.5− | |
| 2004 11 10 | 691 | 0.7− | 0.9+ | 2006 03 02 | 695 | 0.2+ | 0.3+ | 2008 09 24 | G96 | 0.2− | 0.1− | |
| 2004 11 10 | 691 | 0.1+ | 0.4+ | 2007 04 18 | 691 | 0.6− | 0.1− | 2008 09 24 | G96 | 0.1− | 0.0 | |
| 2004 11 10 | 691 | 0.3+ | 0.1+ | 2007 04 18 | 691 | 0.2+ | 0.2+ | 2008 09 24 | G96 | 0.0 | 0.0 | |
| 2006 01 31 | 691 | 0.1+ | 0.2+ | 2007 04 18 | 691 | 0.4− | 0.2+ | 2008 09 24 | G96 | 0.5− | 0.3− | |
| 2006 01 31 | 691 | 0.4+ | 0.4+ | 2007 05 11 | G96 | 0.5− | 0.0 | 2009 11 26 | 691 | 0.3− | 0.4− | |
| 2006 01 31 | 691 | 0.3+ | 0.4− | 2007 05 11 | G96 | 0.1+ | 0.4+ | 2009 11 26 | 691 | 0.4− | 0.3+ | |
| 2006 02 04 | 691 | 0.6+ | 0.2+ | 2007 05 11 | G96 | 0.2+ | 0.1+ | 2009 11 26 | 691 | 0.9− | 0.1+ | |
| 2006 02 04 | 691 | 0.3+ | 0.4+ | 2007 05 11 | G96 | 0.2− | 0.0 | 2009 12 11 | G96 | 0.4+ | 0.1− | |
| 2006 02 04 | 691 | 0.7+ | 0.3+ | 2008 07 29 | 691 | 0.2+ | 0.3+ | 2009 12 11 | G96 | 0.5+ | 0.1− | |
| 2006 02 20 | G96 | 0.3+ | 0.1+ | 2008 07 29 | 691 | 0.1− | 0.3+ | 2009 12 11 | G96 | 0.2+ | 0.0 | |
| 2006 02 20 | G96 | 0.1+ | 0.5+ | 2008 07 29 | 691 | 0.3− | 0.8+ | 2009 12 11 | G96 | 0.4+ | 0.2+ | |
| 2006 02 20 | G96 | 0.1− | 0.2+ | 2008 09 06 | G96 | 0.8+ | 0.4− | | | | | |
| 2006 02 20 | G96 | 0.2+ | 0.4+ | 2008 09 06 | G96 | 0.4+ | 0.4− | | | | | |

**(229599)∗ 2006 BM$_{252}$ = 1995 SP$_{10}$**

Discovered 2006 Jan. 31 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 101296)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 13.71950 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21578851 | $\omega$ | 70.53414 | | +0.51305314 | | −0.85834646 |
| $a$ | 2.7528582 | $\Omega$ | 348.59561 | | +0.77930017 | | +0.46785655 |
| $e$ | 0.1974586 | $i$ | 1.22381 | | +0.35981623 | | +0.21059821 |
| $P$ | 4.57 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 09 17 | 691 | 0.1+ | 0.5+ | 2006 01 31 | 691 | 0.1+ | 0.0 | 2009 11 09 | 691 | 0.1− | 0.1− | |
| 1995 09 17 | 691 | 0.0 | 0.2− | 2006 02 04 | 691 | 0.0 | 0.0 | 2009 11 21 | 691 | 0.2+ | 0.0 | |
| 1995 09 17 | 691 | 0.4+ | 0.3− | 2006 02 04 | 691 | 0.2+ | 0.2− | 2009 11 21 | 691 | 0.3+ | 0.2+ | |
| 1995 09 22 | 691 | 0.4− | 0.4+ | 2006 02 04 | 691 | 0.5+ | 0.0 | 2009 11 21 | 691 | 0.2+ | 0.1− | |
| 1995 09 22 | 691 | 0.2− | 0.0 | 2006 02 20 | G96 | 0.2+ | 0.2+ | 2009 11 25 | 703 | 0.7− | 0.7− | |
| 1995 09 22 | 691 | 0.1− | 0.1+ | 2006 02 20 | G96 | 0.2− | 0.1− | 2009 11 25 | 703 | 0.2− | 0.1− | |
| 2004 09 11 | 691 | 0.1− | 0.4+ | 2006 02 20 | G96 | 0.0 | 0.5+ | 2009 11 25 | 703 | 0.6− | 0.4+ | |
| 2004 09 11 | 691 | 0.0 | 0.4+ | 2006 02 20 | G96 | 0.4− | 0.2+ | 2009 11 25 | 703 | 0.1− | 1.2− | |
| 2004 09 11 | 691 | 0.2+ | 0.3+ | 2006 03 02 | 695 | 0.6− | 0.3+ | 2009 11 25 | 703 | (1.5+ | 0.6−) | |
| 2004 09 12 | 568 | 0.2− | 0.4− | 2006 03 02 | 695 | 0.2− | 0.3+ | 2009 12 09 | J75 | 0.1+ | 0.0 | |
| 2004 09 12 | 568 | 0.3− | 0.4− | 2006 03 02 | 695 | 0.1− | 0.2+ | 2009 12 09 | J75 | 1.1+ | 0.6+ | |
| 2004 09 12 | 568 | 0.1+ | 0.5− | 2009 09 21 | G96 | 0.3− | 0.2− | 2009 12 09 | J75 | 0.1+ | 0.4− | |
| 2004 09 12 | 568 | 0.2− | 0.5− | 2009 09 21 | G96 | 0.3− | 0.1+ | 2009 12 16 | G96 | 0.6+ | 0.1− | |
| 2004 09 12 | 568 | 0.3− | 0.4− | 2009 09 21 | G96 | 0.4+ | 0.2+ | 2009 12 16 | G96 | 0.4+ | 0.1− | |
| 2004 09 12 | 568 | 0.1+ | 0.4− | 2009 09 21 | G96 | 0.2− | 0.3− | 2009 12 16 | G96 | 0.3+ | 0.1− | |
| 2006 01 31 | 691 | 0.1+ | 0.3+ | 2009 11 09 | 691 | 0.4− | 0.1+ | 2009 12 16 | G96 | 0.4+ | 0.1− | |
| 2006 01 31 | 691 | 0.2− | 0.3+ | 2009 11 09 | 691 | 0.4− | 0.0 | | | | | |

**(229600)∗ 2006 BW$_{270}$**

Discovered 2006 Jan. 31 by the Catalina Sky Survey.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 339.49218 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22550010 | $\omega$ | 248.25143 | | −0.63771733 | | −0.76383658 |
| $a$ | 2.6732417 | $\Omega$ | 241.75975 | | +0.74180991 | | −0.57428791 |
| $e$ | 0.1177447 | $i$ | 6.47516 | | +0.20744801 | | −0.29452856 |
| $P$ | 4.37 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 29 | 691 | 0.1+ | 0.5− | 2006 01 31 | 703 | 0.1− | 0.3+ | 2006 02 22 | 699 | 0.5+ | 0.3+ | |
| 2000 11 29 | 691 | 0.1− | 0.4− | 2006 01 31 | 703 | 1.1− | 0.4− | 2006 03 09 | 703 | 0.8+ | 0.4− | |
| 2000 11 29 | 691 | 0.1− | 0.5− | 2006 01 31 | 703 | 1.4− | 0.3− | 2006 03 09 | 703 | 0.2+ | 1.0+ | |
| 2002 04 04 | 644 | 0.2+ | 0.3+ | 2006 02 03 | G96 | 0.6− | 0.3− | 2006 03 09 | 703 | 0.2+ | 0.4+ | |
| 2002 04 04 | 644 | 0.1+ | 0.6+ | 2006 02 03 | G96 | 0.3− | 0.2+ | 2006 03 09 | 703 | 0.3− | 0.3+ | |
| 2002 04 04 | 644 | 0.4+ | 0.7+ | 2006 02 03 | G96 | 0.1+ | 0.6− | 2008 10 29 | G96 | 0.6− | 0.1− | |
| 2002 04 18 | 644 | 0.3+ | 0.6− | 2006 02 03 | G96 | 0.1− | 0.4− | 2008 10 29 | G96 | 0.3− | 0.2+ | |
| 2002 04 18 | 644 | 0.4+ | 0.7− | 2006 02 03 | G96 | 0.3− | 0.3− | 2008 10 29 | G96 | 0.2− | 0.0 | |
| 2002 04 18 | 644 | 0.1− | 0.9− | 2006 02 03 | G96 | 0.0 | 0.1+ | 2008 10 29 | G96 | 0.5− | 0.1+ | |
| 2002 05 17 | 644 | 0.3+ | 1.3+ | 2006 02 03 | G96 | 0.5− | 0.1− | 2009 11 18 | G96 | 0.2+ | 0.0 | |
| 2002 05 17 | 644 | 0.4+ | 1.5+ | 2006 02 03 | G96 | 0.2− | 0.4− | 2009 11 18 | G96 | 0.1− | 0.3− | |
| 2002 05 17 | 644 | (0.2+ | 1.8+) | 2006 02 07 | 703 | 0.4+ | 1.0+ | 2009 11 18 | G96 | 0.1+ | 0.2− | |
| 2004 10 21 | 704 | 0.6+ | 0.3− | 2006 02 07 | 703 | 0.8− | 0.0 | 2009 11 18 | G96 | 0.1− | 0.0 | |
| 2004 10 21 | 704 | 0.8+ | 1.0+ | 2006 02 07 | 703 | 0.3− | 0.2+ | 2009 12 17 | 704 | 0.1− | 0.6+ | |
| 2004 10 21 | 704 | 0.1+ | 1.1+ | 2006 02 07 | 703 | 1.2+ | 0.4− | 2009 12 17 | 704 | 0.8− | 0.3+ | |
| 2004 10 21 | 704 | 0.3− | 0.6+ | 2006 02 22 | 703 | 0.7− | 0.2+ | 2009 12 17 | 704 | 0.4+ | 0.1+ | |
| 2004 10 21 | 704 | 0.1− | 0.9+ | 2006 02 22 | 703 | 0.1+ | 0.0 | 2009 12 17 | 704 | 0.6− | 1.1+ | |
| 2004 11 19 | 703 | 0.8+ | 0.1− | 2006 02 22 | 703 | 0.3− | 0.4− | 2009 12 18 | 704 | 1.2+ | 0.5+ | |
| 2004 11 19 | 703 | 0.6+ | 0.6+ | 2006 02 22 | 703 | (2.1− | 0.1−) | 2009 12 18 | 704 | 0.4+ | 2.1+ | |
| 2004 11 19 | 703 | 1.3− | 0.2− | 2006 02 22 | 699 | 0.7+ | 0.2+ | 2009 12 18 | 704 | 0.6+ | 0.3− | |
| 2004 11 19 | 703 | 1.1− | 1.0+ | 2006 02 22 | 699 | 0.7+ | 0.0 | 2009 12 18 | 704 | 0.9+ | 1.0+ | |
| 2006 01 31 | 703 | 0.4− | 0.6− | 2006 02 22 | 699 | 0.5+ | 0.1− | | | | | |

**(229601)∗ 2006 BE$_{276}$**

Discovered 2006 Jan. 30 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 36.06500 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18718925 | $\omega$ | 219.04678 | | +0.90747531 | −0.41999163 | |
| $a$ | 3.0265564 | $\Omega$ | 165.77774 | | +0.39472426 | +0.84445146 | |
| $e$ | 0.0628033 | $i$ | 2.28070 | | +0.14381002 | +0.33242859 | |
| $P$ | 5.27 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 09 25 | 691 | 0.6+ | 0.6− | 2006 02 21 | G96 | 0.3− | 0.2− | 2008 09 21 | G96 | 0.4+ | 0.5+ | |
| 1998 09 25 | 691 | 0.6− | 0.5− | 2006 02 21 | G96 | 0.2− | 0.0 | 2008 09 21 | G96 | 0.0 | 0.2+ | |
| 1998 09 25 | 691 | (5.6+ | 4.0−) | 2006 03 03 | 691 | 0.2− | 0.2+ | 2009 11 08 | 691 | 0.6− | 0.4+ | |
| 1998 09 30 | 691 | 0.1− | 0.4− | 2006 03 03 | 691 | 0.2− | 0.3+ | 2009 11 08 | 691 | 0.3− | 0.2+ | |
| 1998 09 30 | 691 | 0.4+ | 0.2− | 2006 03 03 | 691 | 0.1− | 0.0 | 2009 11 08 | 691 | 0.1− | 0.3+ | |
| 1998 09 30 | 691 | 0.1− | 0.2− | 2006 03 24 | G96 | 0.5− | 0.3− | 2009 11 16 | G96 | 0.3− | 0.2− | |
| 2001 03 21 | 691 | 0.2+ | 0.2+ | 2006 03 24 | G96 | 0.2− | 0.2− | 2009 11 16 | G96 | 0.1+ | 0.1− | |
| 2001 03 21 | 691 | 0.5+ | 0.2− | 2006 03 24 | G96 | 0.6− | 0.4− | 2009 11 16 | G96 | 0.0 | 0.1+ | |
| 2001 03 21 | 691 | 0.3+ | 0.1− | 2006 03 24 | G96 | 0.6− | 0.2+ | 2009 11 16 | G96 | 0.5+ | 0.1+ | |
| 2003 10 24 | 695 | 0.3− | 0.6+ | 2008 09 06 | G96 | 0.9− | 0.9+ | 2009 11 23 | G96 | 0.8+ | 0.0 | |
| 2003 10 24 | 695 | 0.3− | 0.6+ | 2008 09 06 | G96 | 0.5+ | 0.1+ | 2009 11 23 | G96 | 0.5+ | 0.2+ | |
| 2004 12 13 | 691 | 0.4+ | 0.1− | 2008 09 06 | G96 | 1.2+ | 0.8+ | 2009 11 23 | G96 | 0.2+ | 0.2+ | |
| 2004 12 13 | 691 | 0.1+ | 0.1+ | 2008 09 06 | G96 | 0.1− | 0.2− | 2009 11 23 | G96 | 0.5+ | 0.3+ | |
| 2004 12 13 | 691 | 0.2+ | 0.1+ | 2008 09 06 | G96 | 0.1+ | 0.3+ | 2009 12 19 | G96 | 0.2+ | 0.3+ | |
| 2006 01 30 | 691 | 0.1− | 0.1− | 2008 09 06 | G96 | 0.7− | 0.4+ | 2009 12 19 | G96 | 0.5+ | 0.4− | |
| 2006 01 30 | 691 | 0.0 | 0.1− | 2008 09 06 | G96 | 0.6+ | 0.1− | 2009 12 19 | G96 | 0.2− | 0.2+ | |
| 2006 01 30 | 691 | 0.0 | 0.1− | 2008 09 06 | G96 | 1.2− | 0.3+ | 2009 12 19 | G96 | 0.2+ | 0.1− | |
| 2006 02 21 | G96 | 0.3− | 0.1+ | 2008 09 21 | G96 | 0.4+ | 0.3+ | | | | | |
| 2006 02 21 | G96 | 0.3− | 0.2− | 2008 09 21 | G96 | 0.2− | 0.3+ | | | | | |

**(229602)∗ 2006 CO = 2004 SU$_{29}$**

Discovered 2006 Feb. 1 by W. K. Y. Yeung at 7300 Observatory, Cloudcroft. Id. G. V. Williams (*MPO* 97148)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 350.98442 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21392859 | $\omega$ | 260.31991 | | +0.09944428 | −0.99498370 | |
| $a$ | 2.7687910 | $\Omega$ | 184.02108 | | +0.96290803 | +0.09898223 | |
| $e$ | 0.1491694 | $i$ | 8.92219 | | +0.25083653 | +0.01449016 | |
| $P$ | 4.61 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 17 | 704 | 0.7− | 1.0− | 2006 01 31 | 703 | 0.5+ | 0.3+ | 2007 04 25 | 691 | 0.3+ | 0.2+ | |
| 2004 09 17 | 704 | 0.0 | 0.0 | 2006 01 31 | 703 | 0.4− | 0.3+ | 2007 04 25 | 691 | 0.1− | 0.4+ | |
| 2004 09 17 | 704 | 0.3+ | 0.2+ | 2006 01 31 | 703 | 0.2− | 0.1+ | 2007 05 23 | A50 | 0.2− | 0.3+ | |
| 2004 09 17 | 704 | 0.2− | 0.0 | 2006 01 31 | 703 | 0.5+ | 0.1+ | 2007 05 23 | A50 | 0.5+ | 0.4+ | |
| 2004 09 22 | 704 | 1.2+ | 1.0+ | 2006 02 01 | H07 | 0.5+ | 0.5+ | 2009 11 09 | 703 | (0.2− | 2.0−) | |
| 2004 09 22 | 704 | 1.0+ | 0.4+ | 2006 02 01 | H07 | 0.0 | 0.1+ | 2009 11 09 | 703 | 0.6− | 0.9− | |
| 2004 09 22 | 704 | 0.4− | 1.0+ | 2006 02 01 | H07 | 0.4+ | 0.2− | 2009 11 09 | 703 | 0.2+ | 0.7+ | |
| 2004 09 22 | 704 | 0.7+ | 0.1− | 2006 02 03 | H07 | 0.5− | 0.6− | 2009 11 09 | 703 | 0.6− | 0.8− | |
| 2004 10 07 | 683 | (0.1− | 2.8+) | 2006 02 03 | H07 | 0.5+ | 0.2+ | 2009 11 19 | 704 | 0.4+ | 0.6+ | |
| 2004 10 07 | 683 | (0.5+ | 2.0+) | 2006 02 22 | 703 | 0.6+ | 0.1− | 2009 11 19 | 704 | 0.2+ | 0.8+ | |
| 2004 10 07 | 683 | 0.0 | 0.1− | 2006 02 22 | 703 | 0.7− | 0.5+ | 2009 11 19 | 704 | 0.5+ | 0.9+ | |
| 2004 10 09 | 704 | 0.3− | 0.1+ | 2006 02 22 | 703 | 0.2+ | 0.5+ | 2009 11 19 | 704 | 0.4+ | 0.5+ | |
| 2004 10 09 | 704 | 0.6− | 0.7+ | 2006 02 22 | 703 | 0.5− | 0.5+ | 2009 12 10 | 703 | 0.9− | 0.5− | |
| 2004 10 09 | 704 | (1.6− | 0.2+) | 2006 03 23 | 703 | (2.9− | 1.9−) | 2009 12 10 | 703 | 0.1+ | 0.5− | |
| 2004 10 09 | 704 | 0.7− | 0.2+ | 2006 03 23 | 703 | 0.1+ | 0.5− | 2009 12 10 | 703 | 0.5+ | 0.2− | |
| 2004 10 10 | 691 | 0.2− | 0.2+ | 2006 03 23 | 703 | 1.5− | 0.6+ | 2009 12 10 | 703 | 0.5− | 0.8+ | |
| 2004 10 10 | 691 | 0.1− | 0.1+ | 2006 03 23 | 703 | 1.3+ | 0.8+ | | | | | |
| 2004 10 10 | 691 | 0.0 | 0.2+ | 2007 04 25 | 691 | 0.1− | 0.5+ | | | | | |

**(229603)∗ 2006 CG$_{10}$ = 2001 AE$_{52}$**

Discovered 2006 Feb. 6 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. T. B. Spahr (*MPO* 97151)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 310.12747 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.20479487 | $\omega$ | 45.03169 | | −0.71389076 | −0.39793587 | |
| $a$ | 2.8505150 | $\Omega$ | 102.88406 | | +0.34897978 | −0.91555541 | |
| $e$ | 0.1694135 | $i$ | 36.23383 | | +0.60710221 | +0.05835522 | |
| $P$ | 4.81 | $H$ | 14.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 01 02 | 699 | 0.0 | 0.6+ | 2006 01 07 | 704 | (1.8+ | 0.6+) | 2006 02 08 | 704 | 1.2− | 0.3− | |
| 2001 01 02 | 699 | 0.6− | 0.8+ | 2006 01 07 | 704 | 1.0+ | 0.8+ | 2006 02 08 | 704 | 0.7− | 0.4+ | |
| 2001 01 02 | 699 | 0.2− | 0.7− | 2006 01 07 | 704 | 0.1− | 1.5− | 2006 02 08 | 704 | 0.3+ | 0.6+ | |
| 2001 01 02 | 699 | 0.2+ | 0.1− | 2006 02 06 | 704 | 0.3+ | 0.2+ | 2006 02 08 | 704 | 0.6+ | 0.5+ | |
| 2001 01 06 | 704 | 0.4+ | 0.5+ | 2006 02 06 | 704 | 0.2+ | 1.0− | 2006 03 05 | 703 | 0.1− | 0.1+ | |
| 2001 01 06 | 704 | 0.8+ | 0.4− | 2006 02 06 | 704 | 1.2+ | 0.5+ | 2006 03 05 | 703 | 0.4− | 0.8− | |
| 2001 01 06 | 704 | 0.2+ | 0.4+ | 2006 02 06 | 704 | 0.7+ | 0.4+ | 2006 03 05 | 703 | 0.7− | 0.2− | |
| 2001 01 06 | 704 | 0.2+ | 0.3− | 2006 02 07 | H55 | 0.1+ | 0.1+ | 2006 03 05 | 703 | 0.2− | 0.1− | |
| 2001 01 06 | 704 | 0.5− | 1.1+ | 2006 02 07 | 704 | 0.1− | 0.0 | 2006 04 03 | 704 | (1.6+ | 0.6−) | |
| 2001 02 05 | 704 | 0.3+ | 0.1− | 2006 02 07 | 704 | 1.0+ | 0.1+ | 2006 04 03 | 704 | 0.8− | 0.2+ | |
| 2001 02 05 | 704 | 0.3− | 0.6+ | 2006 02 07 | 701 | 0.2+ | 0.0 | 2006 04 03 | 704 | 0.2+ | 0.1− | |
| 2001 02 05 | 704 | 0.2− | 0.1− | 2006 02 07 | H55 | 0.4− | 0.4− | 2006 04 03 | 704 | 0.3− | 0.3+ | |
| 2001 02 05 | 704 | 0.6− | 0.5+ | 2006 02 07 | 704 | 0.1− | 0.1+ | 2006 04 08 | 704 | (2.1+ | 0.3−) | |
| 2001 02 05 | 704 | 0.1− | 0.8+ | 2006 02 07 | 704 | 1.3+ | 0.7− | 2006 04 08 | 704 | (1.3+ | 1.6−) | |
| 2001 03 30 | 699 | 0.1+ | 0.4+ | 2006 02 07 | 704 | 0.3+ | 1.1+ | 2006 04 08 | 704 | (1.6+ | 0.4+) | |
| 2001 03 30 | 699 | 0.3+ | 0.2+ | 2006 02 07 | 701 | 0.6+ | 0.4− | 2006 04 08 | 704 | 1.0+ | 1.2− | |
| 2001 03 30 | 699 | 0.2+ | 0.0 | 2006 02 07 | 704 | 0.3+ | 0.4− | 2008 09 29 | 807 | 0.1+ | 0.4+ | |
| 2001 03 30 | 699 | 0.1+ | 0.8− | 2006 02 07 | H55 | 0.4+ | 0.1+ | 2008 09 29 | 807 | 0.2− | 0.5+ | |
| 2004 11 11 | 703 | 0.3+ | 1.1+ | 2006 02 07 | 704 | 0.5− | 0.3− | 2009 12 16 | 703 | 0.3− | 0.4+ | |
| 2004 11 11 | 703 | 0.6+ | 0.1− | 2006 02 07 | 704 | 0.3− | 1.0− | 2009 12 16 | 703 | 0.4− | 0.5− | |
| 2004 11 11 | 703 | 0.3− | 0.8− | 2006 02 07 | 701 | 0.0 | 0.1+ | 2009 12 16 | 703 | 0.3− | 0.2− | |
| 2004 11 11 | 703 | 0.3+ | 1.1− | 2006 02 08 | 595 | 0.2− | 1.1− | 2009 12 16 | 703 | 0.7− | 0.8− | |
| 2004 12 18 | 703 | 0.3+ | 0.3+ | 2006 02 08 | 595 | (0.6+ | 2.2−) | 2009 12 20 | 704 | 0.5+ | 0.3+ | |
| 2004 12 18 | 703 | 0.4− | 1.2+ | 2006 02 08 | J95 | 0.3− | 0.2− | 2009 12 20 | 704 | 0.8− | 0.2+ | |
| 2004 12 18 | 703 | 0.7+ | 0.9− | 2006 02 08 | J95 | 0.8− | 0.2+ | 2009 12 20 | 704 | 0.7+ | 0.0 | |
| 2004 12 18 | 703 | 0.1− | 0.6− | 2006 02 08 | J95 | 0.0 | 0.0 | 2009 12 20 | 704 | 1.0+ | 0.1− | |
| 2006 01 07 | 704 | 0.3+ | 0.9+ | 2006 02 08 | 704 | 0.1− | 0.1+ | 2009 12 20 | 704 | 0.1+ | 0.1− | |

**(229604)∗ 2006 CF$_{22}$ = 2002 CU$_{214}$**

Discovered 2006 Feb. 1 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 97157)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 43.25315 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24405535 | $\omega$ | 346.82604 | | +0.18301902 | −0.98129448 | |
| $a$ | 2.5359683 | $\Omega$ | 92.60458 | | +0.90731725 | +0.14521294 | |
| $e$ | 0.1351603 | $i$ | 3.42666 | | +0.37852271 | +0.12638964 | |
| $P$ | 4.04 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 02 10 | 704 | 0.1− | 0.1− | 2006 01 23 | 691 | 0.3+ | 0.2− | 2008 09 06 | 703 | 1.1− | 0.5+ | |
| 2002 02 10 | 704 | (0.5+ | 1.5+) | 2006 02 01 | 691 | 0.2+ | 0.1+ | 2008 09 06 | 703 | 0.1− | 0.2+ | |
| 2002 02 10 | 704 | 0.0 | 0.7+ | 2006 02 01 | 691 | 0.3+ | 0.1− | 2008 09 06 | 703 | (0.4− | 2.3−) | |
| 2002 02 10 | 704 | 0.1+ | 0.8+ | 2006 02 01 | 691 | 0.1+ | 0.1− | 2008 09 23 | 704 | 0.3+ | 0.4+ | |
| 2002 02 10 | 704 | 0.4+ | 0.2− | 2006 02 03 | 704 | 0.1− | 0.6+ | 2008 09 23 | 704 | 0.2+ | 0.0 | |
| 2002 02 12 | 704 | 0.6+ | 0.5− | 2006 02 03 | 704 | 0.2+ | 1.0+ | 2008 09 23 | 704 | 0.6− | 0.5+ | |
| 2002 02 12 | 704 | 0.4+ | 0.0 | 2006 02 03 | 704 | 0.5+ | 0.3+ | 2008 10 01 | G96 | 0.6− | 0.3+ | |
| 2002 02 12 | 704 | 0.5+ | 0.0 | 2006 02 03 | 704 | 0.2+ | 0.7+ | 2008 10 01 | G96 | 0.6+ | 0.5+ | |
| 2002 02 12 | 704 | 0.7+ | 0.3+ | 2006 02 20 | 691 | 0.1− | 0.1+ | 2008 10 01 | G96 | 0.1+ | 0.4+ | |
| 2002 02 20 | 704 | 0.8− | 0.5+ | 2006 02 20 | 691 | 1.0− | 0.0 | 2008 10 01 | G96 | 0.2+ | 0.2+ | |
| 2002 02 20 | 704 | 0.6− | 0.2+ | 2006 02 20 | 691 | 0.3− | 0.1− | 2009 11 20 | 691 | 0.0 | 0.2− | |
| 2002 02 20 | 704 | 0.5+ | 0.4− | 2006 02 21 | 699 | 0.1+ | 1.5+ | 2009 11 20 | 691 | 0.1+ | 0.1+ | |
| 2004 08 13 | 807 | 0.2− | 0.3+ | 2006 02 21 | 699 | 0.5+ | 1.1+ | 2009 11 20 | 691 | 0.4− | 0.3− | |
| 2004 08 13 | 807 | 0.1− | 0.5+ | 2006 02 21 | 699 | 0.8− | 1.3+ | 2009 12 20 | G96 | 0.2+ | 0.3− | |
| 2005 10 07 | 568 | 0.1+ | 0.0 | 2006 02 21 | 699 | (0.3− | 4.0+) | 2009 12 20 | G96 | 1.2+ | 1.3− | |
| 2005 10 07 | 568 | 0.3+ | 0.0 | 2006 04 27 | 807 | 0.0 | 0.1+ | 2009 12 20 | G96 | 0.0 | 1.1− | |
| 2006 01 23 | 691 | 0.1+ | 0.1+ | 2006 04 27 | 807 | 0.0 | 0.0 | 2009 12 20 | G96 | 0.6− | 1.1− | |
| 2006 01 23 | 691 | 0.2+ | 0.1+ | 2008 09 06 | 703 | 0.2− | 0.0 | | | | | |

**(229605)∗ 2006 $CR_{37}$**

Discovered 2006 Feb. 2 by the Mt. Lemmon Survey at Mount Lemmon.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 256.26590 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22369298 | $\omega$ | 296.91459 | | −0.50165386 | | +0.85982994 |
| $a$ | 2.6876197 | $\Omega$ | 302.65748 | | −0.74824460 | | −0.48642547 |
| $e$ | 0.2552607 | $i$ | 6.48289 | | −0.43413526 | | −0.15518614 |
| $P$ | 4.41 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 04 21 | 704 | 0.6− | 0.6− | 2006 02 02 | 699 | 1.5+ | 0.9− | 2006 03 05 | 703 | (0.2+ | 1.7−) |
| 2002 04 21 | 704 | 0.1+ | 0.6− | 2006 02 02 | 691 | 0.0 | 0.1+ | 2006 03 05 | 703 | (0.1+ | 1.8−) |
| 2002 04 21 | 704 | 0.1+ | 1.4− | 2006 02 02 | 699 | 0.9+ | 0.5− | 2007 08 13 | 704 | 0.2− | 0.4− |
| 2002 04 21 | 704 | 0.4− | 0.3− | 2006 02 02 | 691 | 0.1+ | 0.2+ | 2007 08 13 | 704 | 0.1− | 0.4+ |
| 2002 04 21 | 704 | 1.0− | 0.8− | 2006 02 02 | 691 | 0.2+ | 0.2+ | 2007 08 13 | 704 | 1.1+ | 0.2− |
| 2002 05 11 | 644 | 0.1+ | 0.1− | 2006 02 02 | G96 | 0.3− | 0.1− | 2007 08 21 | 699 | 0.2− | 0.9+ |
| 2002 05 11 | 644 | 0.5+ | 0.4− | 2006 02 02 | G96 | 0.1− | 0.4− | 2007 08 21 | 699 | 0.2− | 0.8+ |
| 2002 05 11 | 644 | 0.2+ | 0.0 | 2006 02 02 | G96 | 0.2+ | 0.1− | 2007 08 21 | 699 | 0.5− | 0.6+ |
| 2002 05 17 | 704 | 1.1− | 0.2+ | 2006 02 02 | G96 | 0.2− | 0.3− | 2007 08 21 | 699 | (0.4− | 2.4+) |
| 2002 05 17 | 704 | 0.6− | 0.0 | 2006 02 06 | 691 | 0.3+ | 0.2+ | 2008 11 02 | G96 | 0.2+ | 0.2+ |
| 2002 05 17 | 704 | 0.6+ | 0.2− | 2006 02 06 | 691 | 0.4+ | 0.3+ | 2008 11 02 | G96 | 0.2+ | 0.1− |
| 2002 05 17 | 704 | 1.1− | 0.5+ | 2006 02 06 | 691 | 0.3+ | 0.5+ | 2008 11 02 | G96 | 0.1+ | 0.1+ |
| 2002 05 17 | 704 | 0.3− | 0.2+ | 2006 02 23 | 699 | 0.6+ | 1.0+ | 2008 11 02 | G96 | 0.0 | 0.0 |
| 2002 06 05 | 644 | 0.2+ | 0.3+ | 2006 02 23 | 699 | 0.2+ | 1.4+ | 2009 12 18 | 691 | 0.4− | 0.2− |
| 2002 06 05 | 644 | 0.4+ | 0.3+ | 2006 02 23 | 699 | 0.3+ | 0.0 | 2009 12 18 | 691 | 0.8− | 0.4− |
| 2002 06 05 | 644 | 0.1+ | 0.4+ | 2006 02 23 | 699 | 1.0+ | 0.1+ | 2009 12 18 | 691 | 0.4− | 0.5− |
| 2003 10 18 | 691 | 0.1+ | 0.4+ | 2006 02 26 | 704 | 0.4+ | 1.2+ | 2009 12 26 | 691 | 0.5− | 0.1+ |
| 2003 10 18 | 691 | 0.0 | 0.0 | 2006 02 26 | 704 | 1.0+ | 0.9+ | 2009 12 26 | 691 | 0.0 | 0.2− |
| 2003 10 18 | 691 | 0.2− | 0.1− | 2006 02 26 | 704 | (2.2+ | 1.2+) | 2009 12 26 | 691 | 0.1+ | 0.3− |
| 2006 02 02 | 699 | 0.2+ | 0.6− | 2006 03 05 | 703 | 0.1+ | 0.3− | | | | |
| 2006 02 02 | 699 | (2.4+ | 0.3−) | 2006 03 05 | 703 | 0.7− | 1.4− | | | | |

**(229606)∗ 2006 $DM_1$ = 1996 $VV_{25}$**

Discovered 2006 Feb. 20 by Spacewatch at Kitt Peak.

Id. A. Doppler (*MPO* 101322)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 341.78006 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23583291 | $\omega$ | 75.16384 | | −0.76612775 | | −0.64027090 |
| $a$ | 2.5945762 | $\Omega$ | 64.99142 | | +0.56350148 | | −0.71087432 |
| $e$ | 0.1704123 | $i$ | 3.52317 | | +0.30905398 | | −0.29105133 |
| $P$ | 4.18 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 11 10 | 691 | 0.2− | 0.0 | 2006 02 20 | 691 | 0.2+ | 0.1− | 2009 11 11 | G96 | 0.2+ | 0.0 |
| 1996 11 10 | 691 | 0.4− | 0.1+ | 2006 02 20 | 691 | 0.1− | 0.4+ | 2009 11 11 | G96 | 0.2+ | 0.2− |
| 1996 11 10 | 691 | 0.3− | 0.5+ | 2006 02 20 | 691 | 0.3+ | 0.1− | 2009 11 11 | G96 | 0.1− | 0.1+ |
| 1996 11 18 | 691 | 0.3+ | 0.2− | 2006 02 20 | 703 | 0.1+ | 0.8− | 2009 11 11 | G96 | 0.7− | 0.1+ |
| 1996 11 18 | 691 | 0.2+ | 0.0 | 2006 02 20 | 703 | 1.0− | 0.5+ | 2009 11 21 | G96 | 0.0 | 0.2− |
| 1996 11 18 | 691 | 0.2+ | 0.0 | 2006 02 20 | 703 | 0.1+ | 0.5− | 2009 11 21 | G96 | 0.1+ | 0.3− |
| 2002 04 02 | 644 | 0.6− | 0.3+ | 2006 02 20 | 703 | (2.2+ | 1.0+) | 2009 11 21 | G96 | 0.4+ | 0.2− |
| 2002 04 02 | 644 | 0.1− | 0.1+ | 2006 02 21 | 699 | 0.2+ | 0.9+ | 2009 11 21 | G96 | 0.2+ | 0.5− |
| 2002 04 02 | 644 | 0.0 | 0.4+ | 2006 02 21 | 699 | 0.5+ | 0.2+ | 2009 12 17 | G96 | 0.2+ | 0.0 |
| 2002 04 12 | 644 | 0.3− | 0.5+ | 2006 02 21 | 699 | 0.6+ | 0.2+ | 2009 12 17 | G96 | 0.6+ | 0.1+ |
| 2002 04 12 | 644 | 0.0 | 0.2− | 2006 02 21 | 699 | 0.7+ | 0.3+ | 2009 12 17 | G96 | 0.4+ | 0.3− |
| 2002 04 12 | 644 | 0.3− | 0.3+ | 2006 02 28 | 703 | 0.8− | 0.4− | 2009 12 17 | G96 | 0.2+ | 0.2− |
| 2006 01 23 | 691 | 0.1+ | 0.1− | 2006 02 28 | 703 | 0.5− | 0.5− | 2009 12 18 | 691 | 0.3+ | 0.4− |
| 2006 01 23 | 691 | 0.3+ | 0.1− | 2006 02 28 | 703 | (1.3− | 1.7−) | 2009 12 18 | 691 | 0.0 | 0.1− |
| 2006 01 23 | 691 | 0.3+ | 0.3− | 2006 02 28 | 703 | 0.4− | 0.8− | 2009 12 18 | 691 | 0.1− | 0.0 |
| 2006 02 03 | 704 | 0.1+ | 0.6+ | 2008 09 25 | G96 | 1.0+ | 0.8+ | 2009 12 26 | 691 | 0.2− | 0.1− |
| 2006 02 03 | 704 | 0.9+ | 0.8+ | 2008 09 25 | G96 | 0.3− | 0.1− | 2009 12 26 | 691 | 0.1− | 0.2− |
| 2006 02 03 | 704 | (1.7+ | 0.1−) | 2008 09 25 | G96 | 0.5− | 0.3+ | 2009 12 26 | 691 | 0.9− | 0.6+ |
| 2006 02 03 | 704 | 0.5− | 1.3+ | 2008 09 25 | G96 | 0.3− | 0.5+ | | | | |

**(229607)∗ 2006 $DD_{10}$ = 2004 $XQ_{61}$**

Discovered 2006 Feb. 21 by the Catalina Sky Survey.

Id. G. V. Williams (*MPO* 97177)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 306.15275 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.20014335 | $\omega$ | 21.71979 | | −0.73888363 | | −0.66478417 |
| $a$ | 2.8945115 | $\Omega$ | 116.13012 | | +0.59878153 | | −0.72268112 |
| $e$ | 0.0411167 | $i$ | 7.04149 | | +0.30904961 | | −0.18919302 |
| $P$ | 4.92 | $H$ | 15.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 02 20 | 704 | 0.8+ | 0.1− | 2006 02 21 | 703 | 1.2− | 0.1− | 2008 09 03 | J75 | 0.3+ | 0.0 |
| 2001 02 20 | 704 | 0.9+ | 0.8− | 2006 02 22 | 703 | 0.1+ | 0.5− | 2008 09 03 | J75 | 0.5+ | 0.4− |
| 2001 02 20 | 704 | 0.5+ | 1.0− | 2006 02 22 | 703 | 0.4− | 0.1− | 2008 09 03 | J75 | 0.3− | 0.5+ |
| 2002 06 04 | 644 | 0.2− | 0.5+ | 2006 02 22 | 703 | 0.2− | 0.6− | 2008 09 06 | 703 | 0.8+ | 1.1+ |
| 2002 06 04 | 644 | 0.4− | 0.6+ | 2006 02 22 | 704 | 1.0+ | 0.3+ | 2008 09 06 | 703 | (0.5− | 1.5+) |
| 2002 06 04 | 644 | 0.0 | 0.4+ | 2006 02 22 | 704 | 0.0 | 0.0 | 2008 09 06 | 703 | 0.5+ | 0.2+ |
| 2003 08 25 | 644 | (1.2− | 1.5+) | 2006 02 22 | 704 | (1.5+ | 0.7−) | 2008 09 06 | 703 | 0.3− | 0.2− |
| 2003 08 25 | 644 | 0.6− | 0.7+ | 2006 02 25 | 691 | 0.3+ | 0.1+ | 2008 09 23 | 704 | 0.9− | 0.1+ |
| 2003 08 25 | 644 | 0.5− | 0.5+ | 2006 02 25 | 691 | 0.2+ | 0.1+ | 2008 09 23 | 704 | (0.2− | 1.7+) |
| 2003 08 31 | 704 | 0.2− | 1.4+ | 2006 02 25 | 691 | 0.1+ | 0.2+ | 2008 09 23 | 704 | (0.5+ | 1.6+) |
| 2003 08 31 | 704 | (0.8+ | 2.1+) | 2006 02 27 | 683 | 0.0 | 0.4+ | 2008 09 23 | 704 | 0.9+ | 1.0+ |
| 2003 08 31 | 704 | 0.8− | 0.7+ | 2006 02 27 | 683 | (2.4− | 0.8+) | 2009 11 24 | H10 | 0.0 | 0.0 |
| 2003 08 31 | 704 | (0.4− | 1.6+) | 2006 02 27 | 683 | 1.2− | 0.3+ | 2009 11 24 | H10 | 0.1+ | 0.8+ |
| 2004 12 02 | 644 | 0.6− | 0.0 | 2006 03 04 | 691 | 0.0 | 0.2+ | 2009 12 11 | 703 | 0.1− | 0.1+ |
| 2004 12 02 | 644 | 0.4− | 0.3+ | 2006 03 04 | 691 | 0.1− | 0.2+ | 2009 12 11 | 703 | 0.8− | 0.1− |
| 2004 12 02 | 644 | 0.3− | 0.1+ | 2006 03 04 | 691 | 0.1+ | 0.2+ | 2009 12 11 | 703 | 0.5− | 0.4+ |
| 2004 12 15 | 599 | 0.1− | 0.1+ | 2006 03 08 | 691 | 0.0 | 0.4+ | 2009 12 11 | 703 | 0.8− | 0.3− |
| 2004 12 15 | 599 | 0.1− | 0.1− | 2006 03 08 | 691 | 0.2+ | 0.7+ | 2009 12 12 | 704 | 0.9+ | 0.3− |
| 2004 12 15 | 599 | 0.2− | 0.4+ | 2006 03 08 | 691 | 0.0 | 0.3+ | 2009 12 12 | 704 | 1.5+ | 0.1− |
| 2006 02 21 | 703 | 0.6+ | 0.9− | 2006 04 25 | 644 | 0.1− | 0.4+ | 2009 12 12 | 704 | 0.7+ | 0.2− |
| 2006 02 21 | 703 | 0.5− | 0.7− | 2006 04 25 | 644 | 0.0 | 0.0 | 2009 12 12 | 704 | 0.7− | 0.7+ |
| 2006 02 21 | 703 | 1.1− | 0.7− | 2006 04 25 | 644 | 0.1− | 0.5− | | | | |

**(229608)∗ 2006 $DQ_{20}$**

Discovered 2006 Feb. 20 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 255.26994 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.20392117 | $\omega$ | 92.83919 | | −0.92123134 | | +0.38847654 |
| $a$ | 2.8586512 | $\Omega$ | 110.02123 | | −0.36500921 | | −0.84499202 |
| $e$ | 0.1636727 | $i$ | 1.24804 | | −0.13454031 | | −0.36752478 |
| $P$ | 4.83 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 02 02 | 691 | 0.1− | 0.0 | 2006 02 27 | 704 | 0.5+ | 0.1+ | 2008 09 02 | 691 | 0.3− | 0.5+ |
| 2001 02 02 | 691 | 0.2+ | 0.3+ | 2006 03 03 | 691 | 0.2+ | 0.1+ | 2008 09 02 | 691 | 0.0 | 0.6+ |
| 2001 02 02 | 691 | 0.1+ | 0.2+ | 2006 03 03 | 691 | 0.1+ | 0.1+ | 2008 09 02 | 691 | 0.1+ | 0.2+ |
| 2001 02 19 | 704 | 0.9− | 0.4+ | 2006 03 03 | 691 | 0.2+ | 0.1+ | 2008 09 06 | 691 | 0.1− | 0.2+ |
| 2001 02 19 | 704 | 0.0 | 0.6+ | 2006 03 03 | 699 | 0.3− | 0.9+ | 2008 09 06 | 691 | 0.6− | 0.7+ |
| 2001 02 19 | 704 | 1.1+ | 0.1− | 2006 03 03 | 699 | (0.4+ | 1.6+) | 2008 09 06 | 691 | 0.5− | 0.1+ |
| 2006 01 26 | 691 | 0.1− | 0.0 | 2006 03 03 | 699 | 1.0+ | 0.9+ | 2008 09 10 | 691 | 0.4− | 0.4+ |
| 2006 01 26 | 691 | 0.1− | 0.0 | 2006 03 04 | 691 | 0.1+ | 0.1− | 2008 09 10 | 691 | 0.5− | 0.3+ |
| 2006 01 26 | 691 | 0.0 | 0.1− | 2006 03 04 | 691 | 0.0 | 0.0 | 2008 09 10 | 691 | 0.3− | 0.3+ |
| 2006 01 26 | G96 | 0.4− | 0.1− | 2006 03 04 | 691 | 0.1+ | 0.2+ | 2008 09 19 | 691 | 0.2− | 0.3+ |
| 2006 01 26 | G96 | 0.5− | 0.3− | 2006 03 05 | 691 | 0.1+ | 0.0 | 2008 09 19 | 691 | 0.4+ | 0.2+ |
| 2006 01 26 | G96 | 0.0 | 0.4− | 2006 03 05 | 691 | 0.2+ | 0.3+ | 2008 09 19 | 691 | 0.1− | 0.2+ |
| 2006 01 26 | G96 | 0.1− | 0.6− | 2006 03 05 | 691 | 0.1+ | 0.0 | 2008 10 01 | G96 | 0.6+ | 0.0 |
| 2006 01 26 | G96 | 0.3− | 0.5− | 2006 03 05 | 704 | 0.3− | 0.1+ | 2008 10 01 | G96 | 0.4+ | 0.1− |
| 2006 01 26 | G96 | 0.6− | 0.3− | 2006 03 05 | 704 | (0.9− | 1.5+) | 2008 10 01 | G96 | 0.4+ | 0.1− |
| 2006 01 26 | G96 | 0.2− | 0.0 | 2006 03 05 | 704 | 0.0 | 0.0 | 2008 10 01 | G96 | 0.2+ | 0.0 |
| 2006 02 07 | 703 | 0.4− | 0.8− | 2006 03 05 | 704 | 0.2+ | 0.4− | 2008 10 25 | G96 | 0.3+ | 0.5− |
| 2006 02 07 | 703 | (2.8− | 1.5+) | 2006 03 05 | 704 | 0.2+ | 0.6+ | 2008 10 25 | G96 | 0.1+ | 0.4+ |
| 2006 02 07 | 703 | (2.2− | 0.2+) | 2006 03 05 | 704 | 0.7− | 0.4− | 2008 10 25 | G96 | 0.3+ | 0.4+ |
| 2006 02 07 | 703 | (1.0− | 1.6−) | 2006 03 05 | 704 | 0.9+ | 0.6− | 2008 10 25 | G96 | 0.0 | 0.2+ |
| 2006 02 20 | 691 | 0.1− | 0.1+ | 2006 03 05 | 704 | 0.2+ | 0.1+ | 2009 11 20 | 691 | 0.5− | 0.5− |
| 2006 02 20 | 691 | 0.0 | 0.1− | 2006 03 08 | 691 | 0.2− | 0.2+ | 2009 11 20 | 691 | 0.2+ | 0.0 |
| 2006 02 20 | 691 | 0.1− | 0.0 | 2006 03 08 | 691 | 0.1+ | 0.1− | 2009 11 20 | 691 | 0.3+ | 0.1− |
| 2006 02 24 | 704 | 0.5+ | 1.0+ | 2006 03 08 | 691 | 0.0 | 0.0 | 2009 11 24 | 691 | 0.1− | 0.1+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 02 24 | 704 | 0.6+ | 1.4+ | 2006 03 09 | 691 | 0.1− | 0.6+ | 2009 11 24 | 691 | 0.3+ | 0.2− |
| 2006 02 24 | 704 | 0.3+ | 1.0+ | 2006 03 09 | 691 | 0.1+ | 0.0 | 2009 11 24 | 691 | 0.6− | 0.4− |
| 2006 02 24 | 704 | 0.8+ | 1.1+ | 2006 03 09 | 691 | 0.2+ | 0.1+ | 2009 12 10 | G96 | 0.2+ | 0.4− |
| 2006 02 24 | 704 | 0.0 | 0.2+ | 2006 03 23 | 703 | 0.1+ | 0.2+ | 2009 12 10 | G96 | 0.4+ | 0.5− |
| 2006 02 25 | G96 | 0.4− | 0.3− | 2006 03 23 | 703 | 1.0− | 0.1+ | 2009 12 10 | G96 | 0.3+ | 0.4− |
| 2006 02 25 | G96 | 0.0 | 0.2− | 2006 03 23 | 703 | 0.1+ | 0.6+ | 2009 12 10 | G96 | 0.3+ | 0.2− |
| 2006 02 25 | G96 | 0.3− | 0.1− | 2006 03 23 | 703 | 0.4− | 1.2+ | 2009 12 19 | G96 | 0.2+ | 0.5− |
| 2006 02 25 | G96 | 0.5− | 0.0 | 2006 05 28 | G96 | 0.0 | 0.2− | 2009 12 19 | G96 | 0.7+ | 0.4− |
| 2006 02 27 | 704 | 0.0 | 0.2+ | 2006 05 28 | G96 | 0.2− | 0.3+ | 2009 12 19 | G96 | 0.7+ | 0.3− |
| 2006 02 27 | 704 | 0.4+ | 0.3+ | 2006 05 28 | G96 | 0.1+ | 0.1+ | 2009 12 19 | G96 | 0.2+ | 0.2− |
| 2006 02 27 | 704 | 0.2+ | 0.2+ | 2006 05 28 | G96 | 0.4+ | 0.0 | | | | |

**(229609)∗ 2006 DQ$_{27}$**

Discovered 2006 Feb. 20 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 34.94904 | | (2000.0) | | +0.89746146 | −0.43587762 |
| $n$ | 0.18978714 | $\omega$ | 220.02345 | | +0.44107849 | +0.88558300 |
| $a$ | 2.9988739 | $\Omega$ | 165.36898 | | +0.00356275 | +0.16047880 |
| $e$ | 0.2570589 | $i$ | 15.52967 | | | |
| $P$ | 5.19 | $H$ | 15.3 | $G$ 0.15 | $U$ 1 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 05 09 | 691 | 0.4− | 0.3− | 2006 01 26 | G96 | 0.0 | 0.2+ | 2007 05 26 | G96 | 0.6− | 0.1− |
| 1997 05 09 | 691 | 0.6− | 0.4− | 2006 01 26 | G96 | 0.3− | 0.3+ | 2007 05 26 | G96 | 0.5+ | 0.6− |
| 1997 05 09 | 691 | 0.8− | 0.3− | 2006 01 26 | G96 | 0.1+ | 0.1− | 2007 05 26 | G96 | 0.6− | 0.2− |
| 1998 08 17 | 704 | 0.3+ | 1.7+ | 2006 01 26 | G96 | 0.4+ | 0.2− | 2009 11 18 | 703 | 0.6− | 0.3− |
| 1998 08 17 | 704 | (4.5− | 6.1+) | 2006 02 20 | 691 | 0.1− | 0.3+ | 2009 11 18 | 703 | 1.1− | 0.4+ |
| 1998 08 17 | 704 | (2.8+ | 0.3+) | 2006 02 20 | 691 | 0.7+ | 1.0− | 2009 11 18 | 703 | 0.7− | 0.4+ |
| 1998 08 17 | 704 | 0.7+ | 0.2+ | 2006 02 20 | 691 | 0.2− | 0.1− | 2009 11 18 | 703 | 0.2− | 0.1− |
| 1998 08 17 | 704 | 0.8− | 0.2+ | 2006 02 24 | 691 | 0.5+ | 0.3+ | 2009 11 23 | J75 | 0.2+ | 0.6− |
| 1998 08 30 | 699 | 0.1+ | 0.6+ | 2006 02 24 | 691 | 0.0 | 0.3+ | 2009 11 23 | J75 | 0.3+ | 0.1+ |
| 1998 08 30 | 699 | 0.1+ | 0.1− | 2006 02 24 | 691 | 0.2+ | 0.3+ | 2009 11 23 | J75 | 0.3− | 0.4− |
| 1998 08 30 | 699 | 0.4+ | 0.6+ | 2006 02 27 | 691 | 0.1+ | 0.3+ | 2009 12 11 | J75 | 0.2+ | 0.1− |
| 2003 07 09 | 691 | 0.1+ | 0.2+ | 2006 02 27 | 691 | 0.2+ | 0.3+ | 2009 12 11 | J75 | 0.1− | 0.5− |
| 2003 07 09 | 691 | 0.0 | 0.1+ | 2006 02 27 | 691 | 0.1− | 0.3+ | 2009 12 11 | J75 | 0.3− | 0.4− |
| 2003 07 09 | 691 | 0.3+ | 0.4+ | 2006 03 03 | 691 | 0.2+ | 0.5+ | 2009 12 20 | 704 | 0.3+ | 0.1+ |
| 2003 07 30 | 644 | 0.3+ | 0.7+ | 2006 03 03 | 691 | 0.1+ | 0.4+ | 2009 12 20 | 704 | 0.2− | 0.8+ |
| 2003 07 30 | 644 | 0.1+ | 0.4+ | 2006 03 03 | 691 | 0.2− | 0.2+ | 2009 12 20 | 704 | 0.0 | 0.3− |
| 2003 07 30 | 644 | 0.2+ | 0.6+ | 2007 05 26 | G96 | 0.6+ | 0.6− | 2009 12 20 | 704 | 0.1+ | 0.7+ |

**(229610)∗ 2006 DR$_{32}$**

Discovered 2006 Feb. 20 by the Mt. Lemmon Survey at Mount Lemmon.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 298.01281 | | (2000.0) | | −0.31146594 | −0.95024658 |
| $n$ | 0.17793738 | $\omega$ | 115.06290 | | +0.85778023 | −0.27910639 |
| $a$ | 3.1305784 | $\Omega$ | 353.08007 | | +0.40890346 | −0.13831506 |
| $e$ | 0.1415951 | $i$ | 2.14828 | | | |
| $P$ | 5.54 | $H$ | 15.7 | $G$ 0.15 | $U$ 0 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 04 | 291 | 0.3− | 0.6+ | 2006 02 24 | 691 | 0.1+ | 0.2+ | 2009 09 18 | D29 | 0.7+ | 0.1+ |
| 2003 09 04 | 291 | 0.3− | 0.6+ | 2006 03 02 | 691 | 0.1− | 0.4+ | 2009 09 18 | D29 | 0.0 | 0.1− |
| 2003 09 04 | 291 | 0.3− | 0.5+ | 2006 03 02 | 691 | 1.2+ | 0.6+ | 2009 09 18 | D29 | 0.4+ | 1.2+ |
| 2004 12 02 | 703 | 0.2− | 0.3+ | 2006 03 02 | 691 | 0.3+ | 0.4+ | 2009 09 18 | D29 | (1.5+ | 0.3+) |
| 2004 12 02 | 703 | 1.1− | 0.3+ | 2006 03 02 | 691 | 0.2+ | 0.4+ | 2009 09 20 | 691 | 0.6− | 0.1+ |
| 2004 12 02 | 703 | (1.6− | 0.8−) | 2006 03 02 | 691 | 0.0 | 0.5+ | 2009 09 20 | 691 | 0.2− | 0.4+ |
| 2004 12 02 | 703 | 0.3− | 0.2− | 2006 03 02 | 691 | 0.3+ | 0.2+ | 2009 09 20 | 691 | 0.1− | 0.0 |
| 2004 12 11 | 599 | 1.3+ | 0.8− | 2006 03 06 | 691 | 0.4+ | 0.4+ | 2009 09 20 | 691 | 0.0 | 0.0 |
| 2004 12 11 | 599 | 0.4+ | 0.5− | 2006 03 06 | 691 | 0.3+ | 0.4+ | 2009 09 20 | 691 | 0.5− | 0.0 |
| 2004 12 11 | 599 | 0.6+ | 0.4− | 2006 03 06 | 691 | 0.2+ | 0.3+ | 2009 09 20 | 691 | 0.2− | 0.1+ |
| 2004 12 11 | 599 | (1.7+ | 1.3−) | 2006 03 21 | G96 | 0.1− | 0.3− | 2009 09 24 | 691 | 0.2+ | 0.2+ |
| 2005 12 04 | 691 | 0.0 | 0.1+ | 2006 03 21 | G96 | (0.2+ | 2.4+) | 2009 09 24 | 691 | 0.0 | 0.9+ |
| 2005 12 04 | 691 | 0.2− | 0.2− | 2006 03 21 | G96 | (2.9+ | 1.1+) | 2009 09 24 | 691 | 0.5− | 0.1− |
| 2005 12 04 | 691 | 0.9− | 0.5− | 2006 04 21 | G96 | 0.3+ | 0.0 | 2009 09 24 | 300 | 0.8− | 1.3− |
| 2006 01 05 | G96 | 0.9− | 0.3+ | 2006 04 21 | G96 | 0.3+ | 0.3+ | 2009 09 24 | 300 | 0.1− | 0.4− |
| 2006 01 05 | G96 | 0.5− | 0.3− | 2006 04 21 | G96 | 0.1+ | 0.4+ | 2009 09 24 | 300 | 0.9+ | 0.2− |
| 2006 01 05 | G96 | 0.3+ | 0.1− | 2006 04 21 | G96 | 0.1+ | 0.6+ | 2009 09 24 | 300 | 0.2+ | 0.2+ |
| 2006 01 05 | G96 | 0.5− | 0.0 | 2006 04 24 | G96 | 0.3− | 0.6− | 2009 09 28 | 691 | 0.1− | 0.1+ |
| 2006 02 07 | G96 | 0.2− | 0.5− | 2006 04 24 | G96 | 0.4+ | 0.1− | 2009 09 28 | 691 | 0.4− | 0.0 |
| 2006 02 07 | G96 | 0.3+ | 0.3+ | 2006 04 24 | G96 | 0.1+ | 0.1+ | 2009 09 28 | 691 | 0.2− | 0.6+ |
| 2006 02 07 | G96 | 0.3− | 0.0 | 2006 04 24 | G96 | 0.2− | 0.1− | 2009 10 15 | G96 | 0.8+ | 0.1+ |
| 2006 02 07 | G96 | 0.2− | 0.1− | 2006 05 24 | G96 | 0.1+ | 0.2+ | 2009 10 15 | G96 | 0.3+ | 0.1− |
| 2006 02 20 | G96 | 0.6− | 0.2+ | 2006 05 24 | G96 | 0.3+ | 0.0 | 2009 10 15 | G96 | 0.2+ | 0.1+ |
| 2006 02 20 | G96 | 0.6− | 0.1+ | 2006 05 24 | G96 | 0.0 | 0.1+ | 2009 10 15 | G96 | 0.2+ | 0.0 |
| 2006 02 20 | G96 | 0.6− | 0.2− | 2006 05 24 | G96 | 0.2+ | 0.4− | 2009 12 17 | G96 | 0.3+ | 0.4− |
| 2006 02 20 | G96 | 0.4+ | 0.1− | 2009 09 12 | 691 | (2.0− | 0.9−) | 2009 12 17 | G96 | 0.3− | 0.4+ |
| 2006 02 24 | 691 | 0.4− | 0.0 | 2009 09 12 | 691 | 0.5+ | 0.5+ | 2009 12 17 | G96 | 0.2+ | 0.3− |
| 2006 02 24 | 691 | 0.2+ | 0.5+ | 2009 09 12 | 691 | 0.3+ | 0.1+ | 2009 12 17 | G96 | 0.2+ | 0.3− |

**(229611)∗ 2006 DZ$_{32}$**

Discovered 2006 Feb. 20 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 273.70074 | | (2000.0) | | −0.98926866 | −0.14610215 |
| $n$ | 0.19213700 | $\omega$ | 348.33804 | | +0.13581298 | −0.91626353 |
| $a$ | 2.9743726 | $\Omega$ | 183.26169 | | +0.05387343 | −0.37298163 |
| $e$ | 0.0376139 | $i$ | 1.30268 | | | |
| $P$ | 5.13 | $H$ | 16.2 | $G$ 0.15 | $U$ 0 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 10 12 | 691 | 0.1− | 0.3+ | 2006 02 25 | 691 | 0.1+ | 0.1+ | 2008 09 20 | G96 | 0.4− | 0.4− |
| 1998 10 12 | 691 | 0.0 | 0.3+ | 2006 03 02 | 691 | 0.1+ | 0.2+ | 2008 09 20 | G96 | 0.1+ | 0.3+ |
| 1998 10 12 | 691 | 0.2− | 0.2+ | 2006 03 02 | 691 | 0.2+ | 0.1+ | 2008 10 02 | G96 | 0.0 | 0.3+ |
| 2003 10 18 | 645 | 0.0 | 0.1+ | 2006 03 02 | 691 | 0.3+ | 0.3+ | 2008 10 02 | G96 | 0.1+ | 0.4+ |
| 2003 10 18 | 645 | 0.1− | 0.1+ | 2006 03 06 | 691 | 0.0 | 0.2+ | 2008 10 02 | G96 | 0.1− | 0.3+ |
| 2003 10 24 | 645 | 0.1− | 0.2+ | 2006 03 06 | 691 | 0.1− | 0.3+ | 2008 10 02 | G96 | 0.5+ | 0.2+ |
| 2003 10 24 | 645 | 0.0 | 0.1+ | 2006 03 06 | 691 | 0.1+ | 0.1+ | 2009 11 16 | 691 | 0.4− | 0.2− |
| 2006 01 08 | G96 | 0.0 | 0.5+ | 2006 03 18 | D35 | 0.8+ | 0.7+ | 2009 11 16 | 691 | 0.3− | 0.2+ |
| 2006 01 08 | G96 | 0.4− | 0.5+ | 2006 03 18 | D35 | (1.8− | 1.4+) | 2009 11 16 | 691 | 0.2− | 0.1+ |
| 2006 01 08 | G96 | 0.1+ | 0.6+ | 2006 03 18 | D35 | 0.4− | 0.3+ | 2009 11 20 | 691 | 0.4− | 0.0 |
| 2006 01 08 | G96 | 1.2+ | 0.8+ | 2006 03 21 | G96 | 0.0 | 0.8− | 2009 11 20 | 691 | 0.3− | 0.0 |
| 2006 02 07 | G96 | 0.3+ | 0.2− | 2006 03 21 | G96 | 0.5− | 0.4− | 2009 11 20 | 691 | 0.3+ | 0.1+ |
| 2006 02 07 | G96 | 0.3− | 0.2+ | 2006 03 21 | G96 | 1.0− | 0.3− | 2009 11 24 | 691 | 0.2+ | 0.0 |
| 2006 02 07 | G96 | 0.8− | 0.4− | 2006 03 21 | G96 | 0.4− | 1.2− | 2009 11 24 | 691 | 0.1− | 0.3− |
| 2006 02 07 | G96 | 0.1− | 0.1+ | 2006 03 24 | 691 | 0.4+ | 0.5+ | 2009 11 24 | 691 | 0.1+ | 0.3− |
| 2006 02 20 | 691 | 0.1+ | 0.1+ | 2006 03 24 | 691 | 0.3+ | 0.3+ | 2009 12 10 | G96 | 0.4+ | 0.0 |
| 2006 02 20 | 691 | 0.0 | 0.2+ | 2006 03 24 | 691 | 0.1+ | 0.1+ | 2009 12 10 | G96 | 0.9+ | 1.2− |
| 2006 02 20 | 691 | 0.1+ | 0.0 | 2008 09 06 | G96 | 0.1− | 0.1− | 2009 12 10 | G96 | 0.3+ | 0.2− |
| 2006 02 24 | 691 | 0.1− | 0.1+ | 2008 09 06 | G96 | 0.0 | 0.1+ | 2009 12 10 | G96 | 0.7+ | 0.1− |
| 2006 02 24 | 691 | 0.0 | 0.4+ | 2008 09 06 | G96 | 0.1− | 0.3+ | 2009 12 11 | G96 | 0.5+ | 0.2− |
| 2006 02 24 | 691 | 0.0 | 0.0 | 2008 09 06 | G96 | 0.1− | 0.1+ | 2009 12 11 | G96 | 0.6+ | 0.3− |
| 2006 02 25 | 691 | 0.0 | 0.1+ | 2008 09 20 | G96 | 0.1− | 0.1− | 2009 12 11 | G96 | 0.6+ | 0.2− |
| 2006 02 25 | 691 | 0.1+ | 0.4+ | 2008 09 20 | G96 | 0.2− | 0.1+ | 2009 12 11 | G96 | 0.5+ | 0.3− |

**(229612)∗ 2006 DS$_{36}$**

Discovered 2006 Feb. 20 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 50.80667 | | (2000.0) | | +0.70060339 | −0.71346235 |
| $n$ | 0.20269629 | $\omega$ | 79.18453 | | +0.64649283 | +0.64135083 |
| $a$ | 2.8701561 | $\Omega$ | 326.33105 | | +0.30199654 | +0.28220664 |
| $e$ | 0.0665784 | $i$ | 1.16184 | | | |
| $P$ | 4.86 | $H$ | 16.3 | $G$ 0.15 | $U$ 0 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 12 23 | 645 | 0.1− | 0.0 | 2006 02 25 | 691 | 0.1− | 0.4+ | 2008 10 08 | G96 | 0.1− | 0.5− |
| 2000 12 23 | 645 | 0.1− | 0.0 | 2006 03 02 | 691 | 0.1+ | 0.1+ | 2008 10 08 | G96 | 0.8− | 0.6− |
| 2001 02 03 | 691 | 0.3+ | 0.3+ | 2006 03 02 | 691 | 0.4+ | 0.1+ | 2008 10 08 | G96 | 0.4− | 1.3− |
| 2001 02 03 | 691 | 0.1+ | 0.4+ | 2006 03 02 | 691 | 0.3+ | 0.3+ | 2008 10 20 | G96 | 0.0 | 0.3+ |
| 2001 02 03 | 691 | 0.5− | 0.1− | 2006 03 06 | 691 | 0.1+ | 0.3+ | 2008 10 20 | G96 | 0.2+ | 0.1+ |
| 2001 04 16 | 645 | 0.1+ | 0.0 | 2006 03 06 | 691 | 0.2+ | 0.6+ | 2008 10 20 | G96 | 0.0 | 0.4+ |
| 2001 04 16 | 645 | 0.0 | 0.0 | 2006 03 06 | 691 | 0.0 | 0.5+ | 2008 10 20 | G96 | 0.2+ | 0.1+ |
| 2003 09 04 | 291 | 0.5+ | 0.8+ | 2006 03 25 | G96 | 0.0 | 0.1+ | 2008 11 24 | G96 | 0.6− | 0.3+ |
| 2003 09 04 | 291 | 0.3− | 0.4+ | 2006 03 25 | G96 | 0.2− | 0.3+ | 2008 11 24 | G96 | 0.5− | 0.0 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 04 | 291 | 0.9− | 0.6+ | 2006 03 25 | G96 | 0.1− | 0.2+ | 2008 11 24 | G96 | 0.1+ | 0.1− |
| 2004 12 03 | 691 | 0.3+ | 0.3+ | 2006 03 25 | G96 | 0.3− | 0.0 | 2008 11 24 | G96 | 0.5− | 0.3− |
| 2004 12 03 | 691 | 0.4+ | 0.3+ | 2008 09 07 | G96 | 1.0− | 0.2+ | 2009 10 15 | G96 | 0.1− | 0.7− |
| 2004 12 03 | 691 | 0.4− | 0.4− | 2008 09 07 | G96 | 0.2− | 0.1+ | 2009 10 15 | G96 | 0.2− | 0.1+ |
| 2006 02 20 | 691 | 0.3+ | 0.1− | 2008 09 07 | G96 | 0.1− | 0.1+ | 2009 10 15 | G96 | 0.3+ | 0.3− |
| 2006 02 20 | 691 | 0.0 | 0.1+ | 2008 09 07 | G96 | 0.3− | 0.3+ | 2009 10 15 | G96 | 0.1+ | 0.8+ |
| 2006 02 20 | 691 | 0.4+ | 0.1+ | 2008 09 22 | 704 | 0.2+ | 0.7+ | 2009 12 16 | G96 | 0.3+ | 0.2+ |
| 2006 02 24 | 691 | 0.1− | 0.4+ | 2008 09 22 | 704 | 0.4− | 1.2+ | 2009 12 16 | G96 | 0.2+ | 0.1+ |
| 2006 02 24 | 691 | 0.1+ | 0.5− | 2008 09 22 | 704 | 0.8− | 0.5+ | 2009 12 16 | G96 | 0.4+ | 0.2+ |
| 2006 02 24 | 691 | 0.3+ | 0.3+ | 2008 09 22 | 704 | (2.1− | 0.8−) | 2009 12 16 | G96 | 0.8+ | 0.1− |
| 2006 02 24 | G96 | 0.3− | 0.2+ | 2008 09 24 | 704 | 0.6− | 0.9+ | 2009 12 16 | G96 | 0.2+ | 0.1− |
| 2006 02 24 | G96 | 0.7− | 0.5+ | 2008 09 24 | 704 | 0.4+ | 1.3+ | 2009 12 26 | 691 | 0.1− | 0.6+ |
| 2006 02 24 | G96 | 0.6− | 0.1− | 2008 09 24 | 704 | 0.5− | 0.1+ | 2009 12 26 | 691 | 0.5− | 0.1− |
| 2006 02 24 | G96 | 0.1− | 0.2+ | 2008 09 24 | 704 | 0.8+ | 1.1+ | 2009 12 26 | 691 | 0.1+ | 0.0 |
| 2006 02 25 | 691 | 0.2+ | 0.1+ | 2008 09 24 | 704 | 0.7+ | 1.3+ | | | | |
| 2006 02 25 | 691 | 0.2+ | 0.2+ | 2008 10 08 | G96 | 0.1+ | 0.2− | | | | |

**(229613)∗ 2006 DP$_{53}$ = 2004 XH$_{188}$**

Discovered 2006 Feb. 24 by the Mt. Lemmon Survey at Mount Lemmon.
Id. A. Doppler (*MPO* 157043)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 80.78481 | | (2000.0) | | | |
| $n$ | 0.19491671 | $\omega$ | 120.83901 | | +0.96194802 | +0.27297145 |
| $a$ | 2.9460266 | $\Omega$ | 223.32300 | | −0.25625487 | +0.88614900 |
| $e$ | 0.1141911 | $i$ | 0.99724 | | −0.09481268 | +0.37446833 |
| $P$ | 5.06 | $H$ | 16.4 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 08 22 | 599 | 0.2− | 0.3+ | 2006 02 24 | G96 | 0.4− | 0.5+ | 2008 09 06 | G96 | 0.2+ | 0.3− |
| 2003 08 22 | 599 | 0.4− | 0.0 | 2006 02 25 | 691 | 0.2+ | 0.6+ | 2008 09 06 | G96 | 0.3+ | 0.2− |
| 2003 08 22 | 599 | 0.1+ | 0.0 | 2006 02 25 | 691 | 0.5+ | 0.1+ | 2008 09 06 | G96 | 0.3+ | 0.0 |
| 2003 09 29 | 291 | 0.1− | 0.9+ | 2006 02 25 | 691 | 0.5+ | 0.6+ | 2008 09 06 | G96 | 0.4+ | 0.4− |
| 2003 09 29 | 291 | 0.3− | 0.9+ | 2007 04 15 | 691 | 0.0 | 0.1− | 2008 10 21 | G96 | 0.4+ | 0.8− |
| 2003 09 29 | 291 | 0.3− | 0.9+ | 2007 04 15 | 691 | 0.2− | 0.7+ | 2008 10 21 | G96 | 0.2+ | 0.2− |
| 2004 12 15 | 568 | 0.4− | 0.7+ | 2007 04 15 | 691 | 0.2+ | 0.2+ | 2008 10 21 | G96 | 1.1− | 0.5+ |
| 2004 12 15 | 568 | 0.5− | 0.6+ | 2007 04 23 | 691 | 0.2− | 0.0 | 2008 10 21 | G96 | 0.4+ | 0.3− |
| 2004 12 15 | 568 | 0.5− | 0.6+ | 2007 04 23 | 691 | 0.1− | 0.1− | 2009 11 27 | G96 | 0.2+ | 0.1− |
| 2004 12 16 | 568 | 0.3− | 0.4+ | 2007 04 23 | 691 | 0.1+ | 0.1+ | 2009 11 27 | G96 | 0.5− | 1.2− |
| 2006 01 28 | G96 | 0.5+ | 0.2− | 2007 05 11 | G96 | 0.4− | 0.6− | 2009 11 27 | G96 | 0.4+ | 0.8− |
| 2006 01 28 | G96 | 0.4+ | 0.4− | 2007 05 11 | G96 | 0.3+ | 0.3− | 2009 11 27 | G96 | 0.3+ | 0.2− |
| 2006 01 28 | G96 | 0.1− | 0.2− | 2007 05 11 | G96 | 0.1− | 0.4+ | 2009 11 27 | G96 | 0.0 | 0.1− |
| 2006 01 28 | G96 | 0.1− | 0.9− | 2007 05 11 | G96 | 0.0 | 0.1+ | 2009 12 10 | G96 | 0.1+ | 0.4+ |
| 2006 02 24 | G96 | 0.1+ | 0.1+ | 2008 08 10 | J75 | 0.7+ | 0.2− | 2009 12 10 | G96 | 0.5− | 0.0 |
| 2006 02 24 | G96 | 0.4− | 0.3+ | 2008 08 10 | J75 | 0.6+ | 0.5− | 2009 12 10 | G96 | 0.0 | 0.2− |
| 2006 02 24 | G96 | 0.1+ | 0.7+ | 2008 08 10 | J75 | 0.6− | 0.6− | 2009 12 10 | G96 | 0.1− | 0.0 |

**(229614)∗ 2006 DF$_{59}$ = 2004 XP$_{43}$**

Discovered 2006 Feb. 24 by the Mt. Lemmon Survey at Mount Lemmon.
Id. G. V. Williams (*MPO* 101362)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 25.61574 | | (2000.0) | | | |
| $n$ | 0.20342052 | $\omega$ | 225.23222 | | +0.35480395 | −0.93489825 |
| $a$ | 2.8633397 | $\Omega$ | 203.99060 | | +0.86386231 | +0.33146065 |
| $e$ | 0.0591153 | $i$ | 1.25590 | | +0.35756967 | +0.12688223 |
| $P$ | 4.85 | $H$ | 16.6 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 11 10 | 691 | 0.1− | 0.4− | 2006 02 07 | G96 | 0.4− | 0.1− | 2006 03 24 | 691 | 0.7+ | 0.3+ |
| 1999 11 10 | 691 | 0.3+ | 0.4− | 2006 02 07 | G96 | 0.0 | 0.0 | 2008 09 07 | G96 | 0.3− | 0.1− |
| 1999 11 10 | 691 | 0.2− | 1.2− | 2006 02 07 | G96 | 0.3+ | 0.3+ | 2008 09 07 | G96 | 0.1− | 0.1+ |
| 2000 01 05 | 691 | 0.0 | 0.3− | 2006 02 24 | G96 | 0.8+ | 0.4− | 2008 09 07 | G96 | 0.3− | 0.1− |
| 2000 01 05 | 691 | 0.1+ | 0.3− | 2006 02 24 | G96 | 0.1− | 0.4+ | 2008 09 07 | G96 | 0.5− | 0.2− |
| 2000 01 05 | 691 | 0.3+ | 0.0 | 2006 02 24 | G96 | 0.4− | 0.9+ | 2008 09 21 | G96 | 0.0 | 0.3− |
| 2001 03 18 | 691 | 0.3− | 0.1+ | 2006 02 24 | G96 | 0.6− | 0.0 | 2008 09 21 | G96 | 0.2− | 0.4+ |
| 2001 03 18 | 691 | 0.2− | 0.3− | 2006 02 25 | 691 | 0.1+ | 0.2+ | 2008 09 21 | G96 | 0.1− | 0.5− |
| 2001 03 18 | 691 | 0.4− | 0.1− | 2006 02 25 | 691 | 0.1+ | 0.3+ | 2008 09 21 | G96 | 0.3− | 0.7− |
| 2003 10 01 | 291 | 0.1+ | 0.4+ | 2006 02 25 | 691 | 1.1− | 0.4− | 2008 10 02 | G96 | 0.0 | 0.7+ |
| 2003 10 01 | 291 | 0.3− | 0.5+ | 2006 03 04 | 691 | 0.2+ | 0.0 | 2008 10 02 | G96 | 0.4− | 0.4+ |
| 2003 10 01 | 291 | 0.0 | 0.6+ | 2006 03 04 | 691 | 0.1+ | 0.3+ | 2008 10 02 | G96 | 0.3+ | 0.6+ |
| 2004 12 11 | 599 | 0.3+ | 1.2+ | 2006 03 04 | 691 | 0.1− | 0.0 | 2008 10 02 | G96 | 0.2− | 0.5+ |
| 2004 12 11 | 599 | 0.2+ | 0.5+ | 2006 03 21 | G96 | 0.0 | 0.1+ | 2009 12 16 | 691 | 0.2+ | 0.3+ |
| 2004 12 11 | 599 | 0.1+ | 0.4+ | 2006 03 21 | G96 | 0.2+ | 0.0 | 2009 12 16 | 691 | 0.4− | 0.4+ |
| 2004 12 13 | 599 | 0.4+ | 0.6+ | 2006 03 21 | G96 | 0.2− | 0.1− | 2009 12 16 | 691 | 0.2+ | 0.4+ |
| 2004 12 13 | 599 | 0.1+ | 0.6+ | 2006 03 21 | G96 | 0.0 | 0.6− | 2009 12 20 | 691 | 0.2+ | 0.1+ |
| 2004 12 14 | 599 | 0.3+ | 0.3+ | 2006 03 24 | 691 | 0.5+ | 0.0 | 2009 12 20 | 691 | 0.5− | 0.7+ |
| 2006 02 07 | G96 | 0.1− | 0.2− | 2006 03 24 | 691 | 0.6+ | 0.2+ | 2009 12 20 | 691 | 0.2+ | 0.1+ |

**(229615)∗ 2006 DZ$_{66}$**

Discovered 2006 Feb. 22 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 346.96801 | | (2000.0) | | | |
| $n$ | 0.22801482 | $\omega$ | 206.39697 | | −0.41391133 | −0.90462345 |
| $a$ | 2.6535503 | $\Omega$ | 268.19892 | | +0.85215506 | −0.34576623 |
| $e$ | 0.2997890 | $i$ | 5.83740 | | +0.32017052 | −0.24920299 |
| $P$ | 4.32 | $H$ | 16.7 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 06 01 | 807 | 0.4+ | 0.0 | 2006 02 24 | 703 | 0.8− | 0.5+ | 2009 11 22 | 704 | 0.6+ | 0.1+ |
| 2003 06 01 | 807 | 0.5+ | 0.5+ | 2006 02 24 | 703 | 0.7− | 0.4− | 2009 11 25 | 691 | 0.4− | 0.0 |
| 2004 08 25 | 691 | 0.4− | 0.2+ | 2006 02 24 | 703 | 1.3− | 0.7+ | 2009 11 25 | 691 | 0.5− | 0.0 |
| 2004 08 25 | 691 | 0.1− | 0.3+ | 2006 02 24 | 703 | (0.8− | 2.4+) | 2009 11 25 | 691 | 0.4− | 0.2+ |
| 2004 08 25 | 691 | 0.3− | 0.1− | 2006 03 03 | 704 | 0.3+ | 0.3+ | 2009 12 10 | 704 | 0.9+ | 0.4+ |
| 2004 09 09 | 691 | 0.1+ | 0.3+ | 2006 03 03 | 704 | 0.4+ | 1.0+ | 2009 12 10 | 704 | 0.1− | 0.3+ |
| 2004 09 09 | 691 | 0.1− | 0.1+ | 2006 03 03 | 704 | 0.8+ | 1.1+ | 2009 12 10 | 704 | 0.1− | 0.6+ |
| 2004 09 09 | 691 | 0.4+ | 0.2− | 2006 03 25 | 644 | 0.1− | 0.6+ | 2009 12 10 | 704 | 0.5+ | 0.3+ |
| 2004 09 17 | 691 | 0.3− | 0.2+ | 2006 03 25 | 644 | 0.2− | 0.4+ | 2009 12 10 | 704 | 0.3+ | 0.5+ |
| 2004 09 17 | 691 | 0.0 | 0.2+ | 2006 03 25 | 644 | 0.1+ | 0.4+ | 2009 12 16 | 704 | 0.2− | 0.1− |
| 2004 09 17 | 691 | 0.0 | 0.1+ | 2009 11 17 | 704 | 1.3+ | 1.0+ | 2009 12 16 | 704 | 0.2+ | 0.3− |
| 2006 01 31 | 699 | 0.2+ | 0.3+ | 2009 11 17 | 704 | 0.1− | 0.3− | 2009 12 16 | 704 | 1.1+ | 0.3+ |
| 2006 01 31 | 699 | 1.2+ | 0.8− | 2009 11 17 | 704 | (0.2+ | 1.7−) | 2009 12 16 | 704 | 0.5− | 0.8− |
| 2006 01 31 | 699 | (1.9+ | 0.5+) | 2009 11 21 | 691 | 1.0+ | 0.7− | 2009 12 19 | G96 | 0.0 | 0.1+ |
| 2006 01 31 | 699 | 0.7+ | 0.2− | 2009 11 21 | 691 | 0.5− | 0.0 | 2009 12 19 | G96 | 0.2− | 0.1− |
| 2006 02 22 | 699 | 0.4+ | 0.4− | 2009 11 21 | 691 | 0.5− | 0.0 | 2009 12 19 | G96 | 0.1− | 0.2− |
| 2006 02 22 | 699 | 0.5+ | 0.2+ | 2009 11 22 | 704 | 0.8+ | 0.3+ | 2009 12 19 | G96 | 0.3+ | 0.3− |
| 2006 02 22 | 699 | 0.2+ | 0.1+ | 2009 11 22 | 704 | 0.7+ | 0.2+ | | | | |

**(229616)∗ 2006 DK$_{68}$ = 2007 LK$_{37}$**

Discovered 2006 Feb. 23 by J. W. Young at Table Mountain Observatory, Wrightwood.
Id. T. B. Spahr (*MPO* 122541)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 62.92887 | | (2000.0) | | | |
| $n$ | 0.19283681 | $\omega$ | 267.16593 | | +0.94160409 | −0.19887080 |
| $a$ | 2.9671723 | $\Omega$ | 104.19270 | | +0.28304345 | +0.90457846 |
| $e$ | 0.0708846 | $i$ | 16.27666 | | −0.18239556 | +0.37707854 |
| $P$ | 5.11 | $H$ | 14.9 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 08 28 | 644 | 0.5− | 0.2− | 2007 06 15 | 691 | 0.1− | 0.0 | 2009 11 27 | G96 | 0.2+ | 0.3− |
| 2003 08 28 | 644 | 0.5− | 0.8+ | 2007 06 15 | 691 | 0.1− | 0.0 | 2009 11 27 | G96 | 0.0 | 0.1− |
| 2003 08 28 | 644 | 0.3− | 0.5+ | 2007 06 15 | 691 | 0.1− | 0.0 | 2009 11 27 | G96 | 0.1− | 0.3− |
| 2006 02 23 | 673 | 0.2− | 0.8+ | 2007 06 19 | 691 | 0.2+ | 0.1+ | 2009 12 12 | D25 | 0.2− | 0.5+ |
| 2006 02 23 | 673 | 0.7+ | 0.7+ | 2007 06 19 | 691 | 0.5− | 0.5− | 2009 12 12 | D25 | 0.3− | 0.5+ |
| 2006 02 23 | 673 | 0.5+ | 0.4+ | 2007 06 19 | 691 | 0.0 | 0.2+ | 2009 12 13 | 704 | 0.6+ | 0.4+ |
| 2006 02 23 | 673 | 0.1− | 0.7+ | 2008 08 02 | E12 | 0.1+ | 0.6+ | 2009 12 13 | 704 | 0.2+ | 0.5+ |
| 2006 03 02 | 673 | 0.1− | 1.0+ | 2008 08 02 | E12 | 0.4+ | 0.2+ | 2009 12 13 | 704 | 0.2− | 0.3+ |
| 2006 03 02 | 673 | 1.1+ | 0.6− | 2008 08 02 | E12 | 0.2+ | 0.5+ | 2009 12 13 | 704 | 0.2− | 0.8+ |
| 2006 03 02 | 673 | 0.2− | 0.1− | 2008 08 02 | E12 | 0.0 | 1.2+ | 2009 12 13 | 704 | 0.3+ | 0.1− |
| 2006 03 02 | 673 | 0.0 | 0.6+ | 2008 08 23 | E12 | 0.8+ | 0.1− | 2009 12 13 | D25 | 0.3− | 0.7− |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 03 05 | 673 | 0.6+ | 0.0 | 2008 08 23 | E12 | 0.1− | 0.5+ | 2009 12 13 | D25 | 1.4− | 0.2+ |
| 2006 03 05 | 673 | 1.0+ | 0.5− | 2008 08 23 | E12 | 0.2+ | 0.6+ | 2009 12 13 | D25 | 0.2− | 1.5+ |
| 2006 03 05 | 673 | 0.6+ | 0.2+ | 2008 08 23 | E12 | 0.8+ | 0.1+ | 2009 12 15 | 703 | 0.3+ | 0.4− |
| 2006 03 05 | 673 | 0.8+ | 0.4+ | 2009 11 19 | 704 | 0.2− | 0.1− | 2009 12 15 | 703 | 0.2+ | 1.2− |
| 2007 05 07 | 691 | 0.2− | 0.1+ | 2009 11 19 | 704 | 0.6− | 1.0+ | 2009 12 15 | 703 | 0.3+ | 1.3− |
| 2007 05 07 | 691 | 0.3− | 0.0 | 2009 11 19 | 704 | 0.9− | 0.3− | 2009 12 15 | 703 | 0.3− | 0.3+ |
| 2007 05 07 | 691 | 0.2− | 0.4+ | 2009 11 27 | G96 | 0.4+ | 0.3− | 2009 12 15 | 703 | 0.2+ | 0.9− |
| 2007 05 16 | D29 | 1.2+ | 0.1− | 2009 11 27 | G96 | 0.2+ | 0.2− | | | | |

**(229617)∗ 2006 DY$_{74}$**

Discovered 2006 Feb. 24 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 93.82661 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19361375 | $\omega$ | 215.34145 | | +0.86447255 | +0.49918100 | |
| $a$ | 2.9592291 | $\Omega$ | 114.60857 | | −0.44491886 | +0.81463133 | |
| $e$ | 0.0921184 | $i$ | 3.73388 | | −0.23395390 | +0.29528652 | |
| $P$ | 5.09 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 08 21 | 599 | 0.6+ | 0.8+ | 2006 02 24 | 691 | 0.6+ | 0.8− | 2007 05 12 | G96 | 0.2+ | 0.4+ |
| 2003 08 21 | 599 | (3.1− | 1.3−) | 2006 02 27 | G96 | 0.1+ | 0.1+ | 2007 05 12 | G96 | 0.1− | 0.5+ |
| 2003 08 21 | 599 | (2.9+ | 0.9+) | 2006 02 27 | G96 | 0.1− | 0.4+ | 2008 09 25 | G96 | 0.2+ | 0.2+ |
| 2003 08 25 | 644 | 0.5− | 0.4+ | 2006 02 27 | G96 | 0.1+ | 0.0 | 2008 09 25 | G96 | 0.9+ | 0.4+ |
| 2003 08 25 | 644 | 0.4− | 0.6+ | 2006 02 27 | G96 | 0.2− | 0.3+ | 2008 09 25 | G96 | 0.4+ | 0.4+ |
| 2003 08 25 | 644 | 0.4− | 0.7+ | 2006 02 27 | G96 | 0.3− | 0.3+ | 2008 09 25 | G96 | 1.0+ | 0.4+ |
| 2004 12 11 | 691 | 0.4− | 0.0 | 2006 02 27 | G96 | 0.2+ | 0.1+ | 2008 10 28 | G96 | 0.6− | 1.0+ |
| 2004 12 11 | 691 | 0.1− | 0.1+ | 2006 02 27 | G96 | 0.6+ | 0.3+ | 2008 10 28 | G96 | 0.3+ | 0.2− |
| 2004 12 11 | 691 | 0.2− | 0.0 | 2006 02 27 | G96 | 0.5+ | 0.0 | 2008 10 28 | G96 | 1.0+ | 0.2+ |
| 2006 01 23 | 691 | 0.3+ | 0.2+ | 2007 04 20 | 691 | 0.2+ | 0.4− | 2008 10 28 | G96 | 0.7− | 0.0 |
| 2006 01 23 | 691 | 0.2+ | 0.5+ | 2007 04 20 | 691 | 0.1+ | 0.0 | 2009 11 18 | 691 | 0.1− | 0.0 |
| 2006 01 23 | 691 | 0.4+ | 0.5+ | 2007 04 20 | 691 | 0.2− | 0.0 | 2009 11 18 | 691 | 0.6− | 0.3+ |
| 2006 02 01 | 691 | 0.2+ | 0.1+ | 2007 04 28 | 691 | 0.2− | 0.3+ | 2009 11 18 | 691 | 0.1− | 0.1+ |
| 2006 02 01 | 691 | 0.2− | 0.1+ | 2007 04 28 | 691 | 0.3− | 1.0+ | 2009 12 17 | G96 | 0.9− | 0.6+ |
| 2006 02 01 | 691 | 0.7− | 0.0 | 2007 04 28 | 691 | 0.1− | 0.4+ | 2009 12 17 | G96 | 1.3+ | 0.3+ |
| 2006 02 24 | 691 | 0.1+ | 0.7− | 2007 05 12 | G96 | 0.1− | 0.2+ | 2009 12 17 | G96 | 0.4+ | 0.4+ |
| 2006 02 24 | 691 | 0.3+ | 0.2− | 2007 05 12 | G96 | 0.2− | 0.3+ | 2009 12 17 | G96 | 0.1+ | 0.4+ |

**(229618)∗ 2006 DT$_{75}$ = 2004 YS$_{6}$**

Discovered 2006 Feb. 24 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 101379)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 330.77172 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19553212 | $\omega$ | 342.84353 | | −0.15802916 | −0.98654317 | |
| $a$ | 2.9398419 | $\Omega$ | 116.23220 | | +0.91135176 | −0.16207216 | |
| $e$ | 0.0683088 | $i$ | 2.68017 | | +0.38008519 | −0.02156842 | |
| $P$ | 5.04 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 12 17 | 691 | 0.3− | 0.1− | 2006 02 24 | 691 | 0.3− | 0.3+ | 2009 10 22 | G96 | 0.4+ | 0.2+ |
| 1999 12 17 | 691 | 0.1+ | 0.3− | 2006 03 02 | 691 | 0.5− | 0.3+ | 2009 10 22 | G96 | 0.0 | 0.0 |
| 1999 12 17 | 691 | 0.3− | 0.3+ | 2006 03 02 | 691 | 0.4− | 0.2+ | 2009 10 22 | G96 | 0.9− | 0.1+ |
| 2001 03 19 | 691 | 0.3+ | 0.3+ | 2006 03 02 | 691 | 0.2− | 0.2+ | 2009 10 23 | 691 | 0.7− | 0.1+ |
| 2001 03 19 | 691 | 0.4+ | 0.1− | 2006 03 03 | G96 | 0.5− | 0.2− | 2009 10 23 | 691 | 0.6− | 0.1+ |
| 2001 03 19 | 691 | 0.5+ | 0.2+ | 2006 03 03 | G96 | 0.1− | 0.1− | 2009 10 23 | 691 | 0.7− | 0.2+ |
| 2004 12 18 | G96 | 0.1− | 0.2− | 2006 03 03 | G96 | 0.2− | 0.0 | 2009 11 16 | G96 | 0.2− | 0.1− |
| 2004 12 18 | G96 | 0.2+ | 0.3− | 2006 03 03 | G96 | 0.4− | 0.1+ | 2009 11 16 | G96 | 0.3+ | 0.1− |
| 2004 12 18 | G96 | 0.2+ | 0.0 | 2006 03 26 | 691 | 0.5+ | 0.1− | 2009 11 16 | G96 | 0.0 | 0.2+ |
| 2004 12 18 | G96 | 0.1+ | 0.1− | 2006 03 26 | 691 | 0.2+ | 0.3− | 2009 11 16 | G96 | 0.4+ | 0.0 |
| 2004 12 19 | G96 | 0.2+ | 0.4− | 2006 03 26 | 691 | 0.1− | 0.0 | 2009 11 23 | G96 | 0.1+ | 0.2− |
| 2004 12 19 | G96 | 0.3+ | 0.1− | 2006 03 29 | 691 | 0.1+ | 0.1− | 2009 11 23 | G96 | 0.5+ | 0.2− |
| 2004 12 19 | G96 | 0.1+ | 0.1− | 2006 03 29 | 691 | 0.3+ | 0.4− | 2009 11 23 | G96 | 0.4+ | 0.1+ |
| 2004 12 19 | G96 | 0.3− | 0.3− | 2006 03 29 | 691 | 0.1+ | 0.4− | 2009 11 23 | G96 | 0.2+ | 0.1− |
| 2005 12 10 | 691 | 0.7+ | 0.3− | 2007 06 21 | G96 | 0.6− | 1.3+ | 2009 12 11 | 703 | 0.3+ | 1.2+ |
| 2005 12 10 | 691 | 0.1+ | 0.2+ | 2007 06 21 | G96 | 0.3+ | 0.5+ | 2009 12 11 | 703 | 0.8+ | 1.8+ |
| 2005 12 10 | 691 | 0.3+ | 0.2− | 2007 06 21 | G96 | 0.3+ | 1.0+ | 2009 12 11 | 703 | 0.8+ | 0.3− |
| 2006 01 31 | 691 | 0.2− | 0.4+ | 2007 06 21 | G96 | 0.3− | 0.5+ | 2009 12 11 | 703 | (3.3+ | 1.6+) |
| 2006 01 31 | 691 | 0.0 | 0.2+ | 2008 09 24 | G96 | 0.1+ | 0.4+ | 2009 12 19 | G96 | 0.3+ | 0.0 |
| 2006 01 31 | 691 | 0.2+ | 0.4+ | 2008 09 24 | G96 | 0.3+ | 0.2+ | 2009 12 19 | G96 | 0.2+ | 0.1− |
| 2006 02 24 | 691 | 0.1− | 0.3− | 2008 09 24 | G96 | 0.1− | 0.8+ | 2009 12 19 | G96 | 0.1+ | 0.1+ |
| 2006 02 24 | 691 | 0.4− | 0.0 | 2008 09 24 | G96 | 0.0 | 0.5+ | 2009 12 19 | G96 | 0.2+ | 0.0 |

**(229619)∗ 2006 DH$_{82}$**

Discovered 2006 Feb. 24 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 260.25531 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19324083 | $\omega$ | 120.42419 | | −0.99875807 | +0.04859449 | |
| $a$ | 2.9630350 | $\Omega$ | 62.36315 | | −0.04890165 | −0.91387995 | |
| $e$ | 0.0448400 | $i$ | 0.71113 | | −0.00953665 | −0.40306577 | |
| $P$ | 5.10 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 09 30 | 691 | 0.6− | 0.0 | 2006 03 06 | 691 | 0.1+ | 0.1+ | 2009 11 24 | 691 | 0.5− | 0.1− |
| 1998 09 30 | 691 | 0.1+ | 0.3− | 2006 03 06 | 691 | 0.2+ | 0.1+ | 2009 11 24 | 691 | 0.6− | 0.0 |
| 1998 09 30 | 691 | 0.2+ | 0.8− | 2006 03 06 | 691 | 0.4+ | 0.0 | 2009 11 24 | 691 | 0.9− | 0.0 |
| 2001 03 21 | 691 | 0.2+ | 0.5+ | 2006 03 24 | G96 | 0.2+ | 0.7− | 2009 12 10 | G96 | 0.3+ | 0.1+ |
| 2001 03 21 | 691 | 0.7+ | 0.4+ | 2006 03 24 | G96 | 0.1− | 0.7− | 2009 12 10 | G96 | 0.9+ | 0.1− |
| 2001 03 21 | 691 | 0.2+ | 0.3+ | 2006 03 24 | G96 | 0.2+ | 0.2− | 2009 12 10 | G96 | 0.0 | 0.0 |
| 2003 09 18 | 691 | 0.2− | 0.2+ | 2006 03 24 | G96 | 0.4+ | 0.3− | 2009 12 10 | G96 | 0.7+ | 0.1+ |
| 2003 09 18 | 691 | 0.0 | 0.2+ | 2006 04 24 | G96 | 0.2+ | 0.0 | 2009 12 15 | G96 | 0.7+ | 0.8− |
| 2003 09 18 | 691 | 0.1+ | 0.3+ | 2006 04 24 | G96 | 0.4+ | 0.3+ | 2009 12 15 | G96 | 0.7+ | 0.0 |
| 2003 09 26 | 645 | 0.1− | 0.2+ | 2006 04 24 | G96 | 0.4− | 0.8− | 2009 12 15 | G96 | 0.4+ | 0.3− |
| 2003 09 26 | 645 | 0.1+ | 0.2+ | 2006 04 24 | G96 | 0.3− | 0.1− | 2009 12 15 | G96 | 0.2+ | 0.0 |
| 2005 10 31 | 568 | 0.1− | 0.0 | 2006 05 25 | G96 | 0.1− | 0.5+ | 2009 12 15 | G96 | 1.0+ | 0.0 |
| 2005 10 31 | 568 | 0.5+ | 0.2− | 2006 05 25 | G96 | 0.1− | 0.2− | 2009 12 15 | G96 | 0.6+ | 0.3+ |
| 2005 10 31 | 568 | 0.1+ | 0.1− | 2006 05 25 | G96 | 0.3− | 0.1− | 2009 12 15 | G96 | 0.1− | 0.3− |
| 2006 02 24 | 691 | 0.3− | 0.6+ | 2006 05 25 | G96 | 0.2+ | 0.1− | 2009 12 15 | G96 | 0.1− | 0.6+ |
| 2006 02 24 | 691 | 0.1− | 0.1+ | 2008 09 06 | G96 | 0.4− | 0.4+ | 2009 12 15 | G96 | 0.3+ | 0.3− |
| 2006 02 24 | 691 | 0.4− | 0.4+ | 2008 09 06 | G96 | 0.6− | 0.8+ | 2009 12 15 | G96 | 0.7− | 0.4+ |
| 2006 02 24 | 691 | 0.0 | 0.2+ | 2008 09 06 | G96 | 0.4− | 0.8+ | 2009 12 15 | G96 | 0.9+ | 0.7− |
| 2006 02 24 | 691 | 0.2+ | 0.1+ | 2008 09 06 | G96 | 0.6− | 0.5+ | 2009 12 15 | G96 | 1.0+ | 0.2+ |
| 2006 02 24 | 691 | 0.2− | 0.1− | 2008 09 22 | G96 | 0.3− | 0.3+ | 2009 12 20 | 291 | 0.3+ | 0.0 |
| 2006 03 02 | 691 | 0.1− | 0.3+ | 2008 09 22 | G96 | 0.1+ | 0.2+ | 2009 12 20 | 291 | 0.2+ | 0.3+ |
| 2006 03 02 | 691 | 0.1+ | 0.2+ | 2008 09 22 | G96 | 0.6− | 0.2+ | 2009 12 20 | 291 | 0.0 | 0.1+ |
| 2006 03 02 | 691 | 0.1− | 0.0 | 2008 09 22 | G96 | 0.2+ | 0.5+ | | | | |

**(229620)∗ 2006 DZ$_{83}$ = 2003 UZ$_{104}$**

Discovered 2006 Feb. 24 by Spacewatch at Kitt Peak.

Id. A. Doppler (*MPO* 101386)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 128.67957 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18359436 | $\omega$ | 353.42283 | | +0.58520844 | +0.81053135 | |
| $a$ | 3.0659365 | $\Omega$ | 312.39176 | | −0.74248990 | +0.52378237 | |
| $e$ | 0.0715833 | $i$ | 1.85250 | | −0.32594452 | +0.26208961 | |
| $P$ | 5.37 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1992 09 29 | 691 | 0.3− | 0.3+ | 2006 02 24 | G96 | 0.1+ | 0.1− | 2008 09 07 | A50 | 0.3− | 0.0 |
| 1992 09 29 | 691 | 0.1+ | 0.2− | 2006 02 24 | G96 | 0.2+ | 0.1+ | 2008 09 21 | G96 | 0.3− | 0.1+ |
| 1992 09 29 | 691 | 0.3− | 0.0 | 2006 03 02 | 691 | 0.1+ | 0.5+ | 2008 09 21 | G96 | 0.3− | 0.0 |
| 2003 10 18 | 691 | 0.3+ | 0.1+ | 2006 03 02 | 691 | 0.2− | 0.1+ | 2008 09 21 | G96 | 0.0 | 0.2+ |
| 2003 10 18 | 691 | 0.1+ | 0.1+ | 2006 03 02 | 691 | 0.0 | 0.4+ | 2008 09 21 | G96 | 0.0 | 0.0 |
| 2003 10 18 | 691 | 0.2+ | 0.2+ | 2006 03 25 | G96 | 0.3+ | 0.4+ | 2008 09 24 | 704 | 0.0 | 0.8+ |
| 2003 10 21 | 644 | 0.3− | 0.8+ | 2006 03 25 | G96 | 0.5− | 0.5+ | 2008 09 24 | 704 | 0.2+ | 0.6+ |
| 2003 10 21 | 644 | 0.2− | 0.7+ | 2006 03 25 | G96 | 0.3− | 0.1+ | 2008 09 24 | 704 | 0.3+ | 1.1+ |
| 2003 10 21 | 644 | 0.0 | 0.8+ | 2006 03 25 | G96 | 0.4− | 0.1− | 2008 09 24 | 704 | 0.3+ | 1.3+ |
| 2004 12 16 | 691 | 0.3+ | 0.1− | 2006 04 02 | G96 | 0.4+ | 0.1+ | 2008 09 24 | 704 | 0.3+ | 0.1+ |
| 2004 12 16 | 691 | 0.2+ | 0.0 | 2006 04 02 | G96 | 0.5− | 0.2+ | 2008 10 08 | G96 | 0.3+ | 0.1− |
| 2004 12 16 | 691 | 0.1+ | 0.0 | 2006 04 02 | G96 | 0.3− | 0.2− | 2008 10 08 | G96 | 0.6− | 0.1− |
| 2006 01 26 | G96 | 0.9+ | 0.0 | 2006 04 02 | G96 | 0.0 | 0.3+ | 2008 10 08 | G96 | 0.2− | 0.2− |
| 2006 01 26 | G96 | 0.2+ | 0.1− | 2008 09 07 | G96 | 0.9− | 0.1− | 2008 10 08 | G96 | 0.5− | 0.4+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 01 26 | G96 | 0.4− | 0.0 | 2008 09 07 | G96 | 0.6− | 0.2− | 2009 11 17 | 691 | 0.5− | 0.1− |
| 2006 01 26 | G96 | 0.2+ | 0.6− | 2008 09 07 | G96 | 0.1− | 0.3− | 2009 11 17 | 691 | 0.6− | 0.2− |
| 2006 02 24 | 691 | 0.3+ | 0.3+ | 2008 09 07 | G96 | 0.2+ | 0.4+ | 2009 11 17 | 691 | 0.2− | 0.5− |
| 2006 02 24 | 691 | 0.3+ | 0.6+ | 2008 09 07 | A50 | 0.2+ | 0.3+ | 2009 12 10 | G96 | 0.1− | 0.1− |
| 2006 02 24 | 691 | 0.4+ | 0.3+ | 2008 09 07 | A50 | 0.3+ | 0.1− | 2009 12 10 | G96 | 0.2− | 0.2+ |
| 2006 02 24 | G96 | 0.2+ | 0.1− | 2008 09 07 | A50 | 0.4+ | 0.5+ | 2009 12 10 | G96 | 0.6+ | 0.6+ |
| 2006 02 24 | G96 | 0.2+ | 0.3− | 2008 09 07 | A50 | 1.0− | 0.5+ | 2009 12 10 | G96 | 0.5+ | 0.2− |

**(229621)∗ 2006 DQ$_{96}$ = 1993 PG$_2$**

Discovered 2006 Feb. 24 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 101397)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 33.66677 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.20295855 | $\omega$ | 247.76829 | | +0.33757254 | −0.94129844 | |
| $a$ | 2.8676830 | $\Omega$ | 182.50397 | | +0.87519118 | +0.31442148 | |
| $e$ | 0.0473474 | $i$ | 1.86920 | | +0.34653310 | +0.12286735 | |
| $P$ | 4.86 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1993 08 15 | 691 | 0.6+ | 0.0 | 2006 04 08 | G96 | 0.0 | 0.5+ | 2008 09 29 | 704 | (0.3− | 1.7+) |
| 1993 08 15 | 691 | 0.3− | 0.2+ | 2006 04 08 | G96 | 0.3− | 0.1+ | 2008 09 29 | 704 | 0.7+ | 0.6+ |
| 1993 08 15 | 691 | 0.2+ | 0.7+ | 2006 04 08 | G96 | 0.1+ | 0.2+ | 2008 09 29 | 704 | 0.4+ | 0.8+ |
| 1993 08 16 | 691 | 0.6− | 0.2+ | 2006 04 08 | G96 | 0.1+ | 0.3+ | 2008 09 29 | 704 | 0.1+ | 0.7+ |
| 1993 08 16 | 691 | 0.8− | 0.3− | 2006 04 08 | G96 | 0.2− | 1.1+ | 2008 09 29 | G96 | 0.5+ | 0.1+ |
| 1993 08 16 | 691 | 0.6− | 0.4− | 2006 04 08 | G96 | 0.1− | 1.4+ | 2008 09 29 | G96 | 0.2+ | 0.3+ |
| 1998 09 13 | 691 | 0.7+ | 0.0 | 2006 04 08 | G96 | (0.2− | 1.5+) | 2008 09 29 | G96 | 0.5+ | 0.1− |
| 1998 09 13 | 691 | 0.3+ | 0.4− | 2006 04 08 | G96 | 0.2+ | 1.3+ | 2008 09 29 | G96 | 0.2+ | 0.0 |
| 1998 09 13 | 691 | 0.6+ | 0.1− | 2006 04 19 | G96 | 0.1+ | 0.2+ | 2008 10 01 | G96 | 0.3+ | 0.4+ |
| 2001 03 24 | 691 | 0.4+ | 0.3+ | 2006 04 19 | G96 | 0.0 | 0.4+ | 2008 10 01 | G96 | 0.1+ | 0.1+ |
| 2001 03 24 | 691 | 0.2+ | 0.3+ | 2006 04 19 | G96 | 0.1+ | 0.2+ | 2008 10 01 | G96 | 0.5+ | 0.3+ |
| 2001 03 24 | 691 | 0.4+ | 0.2+ | 2006 04 19 | G96 | 0.9− | 0.3+ | 2008 10 01 | G96 | 0.1+ | 0.3+ |
| 2003 09 28 | 691 | 0.1+ | 0.6+ | 2008 08 22 | 691 | 0.6− | 0.0 | 2008 10 18 | 691 | 0.0 | 0.4+ |
| 2003 09 28 | 691 | 0.1+ | 0.4+ | 2008 08 22 | 691 | 0.3− | 0.4+ | 2008 10 18 | 691 | 0.2+ | 0.3+ |
| 2003 09 28 | 691 | (0.2− | 1.6+) | 2008 08 22 | 691 | 0.6− | 0.3+ | 2008 10 18 | 691 | 0.3− | 0.6+ |
| 2006 02 24 | 691 | 0.4+ | 0.2+ | 2008 08 23 | 691 | 0.6− | 0.1− | 2009 12 17 | 704 | 1.0+ | 0.4+ |
| 2006 02 24 | 691 | 0.4+ | 0.4+ | 2008 08 23 | 691 | 0.3− | 0.1+ | 2009 12 17 | 704 | 0.8+ | 0.1− |
| 2006 02 24 | G96 | 0.0 | 0.1+ | 2008 08 23 | 691 | 0.2− | 0.3+ | 2009 12 17 | 704 | 0.8+ | 0.1+ |
| 2006 02 24 | 691 | 0.5+ | 0.4+ | 2008 09 02 | 691 | 0.2− | 0.0 | 2009 12 17 | G96 | 0.3+ | 0.0 |
| 2006 02 24 | G96 | 0.2− | 0.0 | 2008 09 02 | 691 | 0.0 | 0.0 | 2009 12 17 | G96 | 0.5+ | 0.4+ |
| 2006 02 24 | G96 | 0.4− | 0.2+ | 2008 09 02 | 691 | 0.3− | 0.3+ | 2009 12 17 | G96 | 0.5+ | 0.0 |
| 2006 02 24 | G96 | 0.1− | 0.2− | 2008 09 05 | 701 | 0.5+ | 0.8+ | 2009 12 17 | G96 | 0.3+ | 0.0 |
| 2006 03 02 | 691 | 0.5+ | 0.7+ | 2008 09 05 | 701 | 0.1+ | 0.7+ | 2009 12 17 | G96 | 0.1− | 0.1+ |
| 2006 03 02 | 691 | 0.2+ | 0.7+ | 2008 09 05 | 701 | 0.2− | 0.4+ | 2009 12 18 | 691 | 0.1+ | 0.1+ |
| 2006 03 02 | 691 | 0.0 | 0.6+ | 2008 09 05 | 701 | 0.1+ | 0.7+ | 2009 12 18 | 691 | 0.1− | 0.0 |
| 2006 04 07 | G96 | 0.2+ | 0.1− | 2008 09 10 | 691 | 0.1− | 0.3+ | 2009 12 18 | 691 | 0.2− | 0.3+ |
| 2006 04 07 | G96 | 0.1+ | 0.1− | 2008 09 10 | 691 | 0.2− | 0.1+ | 2009 12 26 | 691 | 0.2− | 0.1+ |
| 2006 04 07 | G96 | 0.3− | 0.2+ | 2008 09 10 | 691 | 0.1− | 0.0 | 2009 12 26 | 691 | 0.4− | 0.0 |
| 2006 04 07 | G96 | 0.1+ | 0.7+ | 2008 09 29 | 704 | 0.1+ | 0.9+ | 2009 12 26 | 691 | 0.3− | 0.1− |

**(229622)∗ 2006 DQ$_{121}$ = 2004 XU$_{84}$**

Discovered 2006 Feb. 22 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Id. A. Doppler (*MPO* 101414)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 156.63933 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19520615 | $\omega$ | 166.04061 | | +0.16427824 | +0.98537018 | |
| $a$ | 2.9431137 | $\Omega$ | 113.39898 | | −0.90969457 | +0.16912451 | |
| $e$ | 0.0247223 | $i$ | 2.83349 | | −0.38140327 | +0.02103608 | |
| $P$ | 5.05 | $H$ | 15.3 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 12 | 704 | 0.0 | 1.4+ | 2006 03 04 | G96 | 0.6− | 0.1− | 2009 09 30 | G96 | 0.5+ | 0.7− |
| 2004 12 12 | 704 | 0.2− | 0.4− | 2006 03 04 | G96 | 0.7− | 0.2− | 2009 09 30 | G96 | 0.1− | 0.9− |
| 2004 12 12 | 704 | 0.5− | 0.7+ | 2006 03 08 | 691 | 0.5− | 0.1− | 2009 09 30 | G96 | 0.8− | 0.7− |
| 2004 12 14 | 704 | 0.9+ | 0.1+ | 2006 03 08 | 691 | 0.1+ | 0.0 | 2009 09 30 | G96 | 0.0 | 0.2+ |
| 2004 12 14 | 704 | 0.9− | 0.1+ | 2006 03 08 | 691 | 0.8+ | 0.0 | 2009 11 26 | G96 | 0.0 | 0.2− |
| 2004 12 14 | 704 | 0.3+ | 0.9+ | 2008 08 24 | 704 | 0.2+ | 0.5− | 2009 11 26 | G96 | 0.6− | 0.1− |
| 2004 12 14 | 704 | 0.0 | 0.7+ | 2008 08 24 | 704 | 0.3+ | 0.9+ | 2009 11 26 | G96 | 0.2− | 0.0 |
| 2006 02 22 | 699 | 1.5− | 1.0+ | 2008 08 24 | 704 | (1.1− | 2.0+) | 2009 11 26 | G96 | 0.1− | 0.0 |
| 2006 02 22 | 699 | 0.1− | 0.9− | 2008 09 23 | G96 | 0.2+ | 0.2+ | 2009 11 26 | G96 | 0.3− | 0.1− |
| 2006 02 22 | 699 | 0.0 | 0.4− | 2008 09 23 | G96 | 0.2− | 0.2+ | 2009 11 27 | A50 | 0.3+ | 0.3− |
| 2006 02 22 | 699 | 0.0 | 0.5− | 2008 09 23 | G96 | 0.1+ | 0.2+ | 2009 11 27 | A50 | 0.2+ | 0.5− |
| 2006 02 28 | 704 | 1.1+ | 0.8+ | 2008 09 23 | G96 | 0.3− | 0.0 | 2009 11 27 | A50 | 0.0 | 0.1+ |
| 2006 02 28 | 704 | 0.5+ | 0.1+ | 2008 09 25 | G96 | 0.1+ | 0.1+ | 2009 11 27 | A50 | 0.2− | 0.0 |
| 2006 02 28 | 704 | 0.0 | 0.4+ | 2008 09 25 | G96 | 0.1+ | 0.3+ | 2009 11 27 | A50 | 0.5− | 0.7+ |
| 2006 03 03 | 699 | 1.4− | 0.8− | 2008 09 25 | G96 | 0.4− | 0.1+ | 2009 11 27 | A50 | 0.4+ | 0.9+ |
| 2006 03 03 | 699 | 0.9+ | 0.8+ | 2008 09 25 | G96 | 0.4− | 0.3+ | 2009 12 11 | G96 | 0.2+ | 0.5− |
| 2006 03 03 | 699 | 0.5− | 0.6+ | 2008 09 28 | 704 | (0.1− | 1.6+) | 2009 12 11 | G96 | 0.1+ | 0.4− |
| 2006 03 03 | 699 | 0.4+ | 1.2+ | 2008 09 28 | 704 | 0.9− | 1.0+ | 2009 12 11 | G96 | 0.5+ | 0.4− |
| 2006 03 04 | 691 | 0.2+ | 0.1+ | 2008 09 28 | 704 | (0.4− | 1.7+) | 2009 12 11 | G96 | 0.3+ | 0.4− |
| 2006 03 04 | 691 | 0.1+ | 0.1+ | 2009 09 22 | G96 | 0.9+ | 0.5− | 2009 12 11 | 703 | 0.3− | 0.6− |
| 2006 03 04 | 691 | 0.1− | 0.1− | 2009 09 22 | G96 | 0.2+ | 0.2− | 2009 12 11 | 703 | 0.6+ | 0.4+ |
| 2006 03 04 | G96 | 0.2− | 0.1− | 2009 09 22 | G96 | 0.4− | 0.1+ | 2009 12 11 | 703 | 0.1+ | 0.2− |
| 2006 03 04 | G96 | 0.1− | 0.1− | 2009 09 22 | G96 | 0.1− | 0.5− | 2009 12 11 | 703 | 0.1+ | 0.3+ |

**(229623)∗ 2006 DD$_{128}$ = 2007 HF$_{14}$**

Discovered 2006 Feb. 25 by the Mt. Lemmon Survey at Mount Lemmon.

Id. A. Doppler (*MPO* 120494)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 16.90630 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18288204 | $\omega$ | 274.63782 | | +0.96632889 | −0.25193097 | |
| $a$ | 3.0738925 | $\Omega$ | 99.96065 | | +0.25209015 | +0.88617101 | |
| $e$ | 0.1238877 | $i$ | 3.04607 | | +0.05156583 | +0.38888524 | |
| $P$ | 5.39 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 03 20 | 691 | 0.3− | 0.7− | 2006 02 25 | G96 | 0.4− | 0.6+ | 2009 09 29 | 691 | 0.0 | 0.2+ |
| 2001 03 20 | 691 | 0.2+ | 0.6− | 2006 02 25 | G96 | 0.1− | 0.3+ | 2009 09 29 | 691 | 0.1− | 0.3+ |
| 2001 03 20 | 691 | 0.2+ | 0.2− | 2006 03 04 | 691 | 0.0 | 0.1− | 2009 09 29 | 691 | 0.2+ | 0.8− |
| 2003 08 05 | 691 | 0.3− | 0.2+ | 2006 03 04 | 691 | 0.0 | 0.0 | 2009 10 16 | G96 | 0.4+ | 0.1− |
| 2003 08 05 | 691 | 0.0 | 0.2− | 2006 03 04 | 691 | 0.5− | 0.1+ | 2009 10 16 | G96 | 0.4+ | 0.2− |
| 2003 08 05 | 691 | 0.1+ | 0.2+ | 2007 04 19 | G96 | 0.2− | 0.5+ | 2009 10 16 | G96 | 0.4+ | 0.2− |
| 2004 11 19 | 703 | (2.3+ | 1.7+) | 2007 04 19 | G96 | 0.0 | 0.8+ | 2009 10 16 | G96 | 0.5+ | 0.2− |
| 2004 11 19 | 703 | 0.2− | 0.0 | 2007 04 19 | G96 | 0.1+ | 0.6+ | 2009 10 20 | 704 | 0.2+ | 1.0+ |
| 2004 11 19 | 703 | 1.2− | 0.9− | 2007 04 19 | G96 | 0.0 | 0.1+ | 2009 10 20 | 704 | 0.7− | 1.0+ |
| 2004 11 19 | 703 | 0.6+ | 0.2− | 2007 04 20 | G96 | 0.0 | 0.7+ | 2009 10 20 | 704 | 0.0 | 0.9+ |
| 2004 12 11 | 599 | 0.3+ | 0.2− | 2007 04 20 | G96 | 0.2− | 0.6+ | 2009 10 20 | 704 | 0.1− | 0.2− |
| 2004 12 11 | 599 | 0.3− | 0.3− | 2007 04 20 | G96 | 0.9+ | 0.0 | 2009 10 24 | G96 | 0.1+ | 0.2− |
| 2004 12 11 | 599 | 0.0 | 0.4− | 2007 04 20 | G96 | 0.1− | 0.7+ | 2009 10 24 | G96 | 0.2+ | 0.1+ |
| 2004 12 11 | 599 | 0.1+ | 0.2+ | 2009 09 17 | 691 | 0.2− | 0.1+ | 2009 10 24 | G96 | 0.0 | 0.3− |
| 2006 01 31 | 691 | 0.6+ | 0.3+ | 2009 09 17 | 691 | 0.2− | 0.2+ | 2009 10 24 | G96 | 0.4+ | 0.0 |
| 2006 01 31 | 691 | 0.2+ | 0.7+ | 2009 09 17 | 691 | 0.1− | 0.2+ | 2009 12 13 | G96 | 0.9+ | 0.3− |
| 2006 01 31 | 691 | 0.1+ | 0.5+ | 2009 09 25 | 691 | 0.2− | 0.2− | 2009 12 13 | G96 | 0.4+ | 0.1− |
| 2006 02 25 | G96 | 0.1+ | 0.4+ | 2009 09 25 | 691 | 0.1+ | 0.2+ | 2009 12 13 | G96 | 0.5+ | 0.1− |
| 2006 02 25 | G96 | 0.1− | 0.1+ | 2009 09 25 | 691 | 0.1− | 0.1+ | 2009 12 13 | G96 | 0.7− | 1.1+ |

**(229624)∗ 2006 DN$_{133}$ = 2004 TB$_{208}$ = 2004 VR$_{41}$**

Discovered 2006 Feb. 25 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 97209)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 319.98518 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21057912 | $\omega$ | 62.23019 | | −0.71050540 | −0.70166377 | |
| $a$ | 2.7980739 | $\Omega$ | 73.15332 | | +0.62440218 | −0.66361628 | |
| $e$ | 0.0747734 | $i$ | 3.19760 | | +0.32450577 | −0.25938657 | |
| $P$ | 4.68 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 12 26 | 691 | 0.3+ | 0.2− | 2004 11 10 | 691 | 0.4+ | 0.1− | 2006 03 08 | 691 | 0.2+ | 0.3+ |
| 2000 12 26 | 691 | 0.2+ | 0.1+ | 2004 11 10 | 691 | 0.2+ | 0.2+ | 2006 03 08 | 691 | 0.3+ | 0.1+ |
| 2000 12 26 | 691 | 0.4− | 0.2+ | 2004 11 10 | 691 | 0.0 | 0.1+ | 2008 09 07 | G96 | 0.4− | 0.1− |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 02 15 | 621 | 0.4+ | 0.5+ | 2004 11 10 | 691 | 0.1+ | 0.0 | 2008 09 07 | G96 | 0.3+ | 0.0 |
| 2001 02 15 | 621 | 0.3+ | 0.0 | 2004 11 10 | 691 | 0.1− | 0.1+ | 2008 09 07 | G96 | 0.1− | 0.3+ |
| 2002 05 18 | 644 | 0.0 | 0.3+ | 2004 11 10 | 691 | 0.1+ | 0.1+ | 2008 09 07 | G96 | 0.1+ | 0.3+ |
| 2002 05 18 | 644 | 0.1+ | 0.2+ | 2006 01 25 | 691 | 0.1− | 0.7+ | 2008 09 07 | G96 | 0.2− | 0.2+ |
| 2002 05 18 | 644 | 0.1− | 0.3+ | 2006 01 25 | 691 | 0.2− | 0.5+ | 2008 09 07 | G96 | 0.0 | 0.2+ |
| 2004 10 07 | 691 | 0.1+ | 0.2− | 2006 01 25 | 691 | 0.2− | 0.1+ | 2008 09 07 | G96 | 0.2+ | 0.3+ |
| 2004 10 07 | 691 | 0.2− | 0.2− | 2006 02 25 | 691 | 0.6+ | 0.3− | 2008 09 07 | G96 | 0.1− | 0.4+ |
| 2004 10 07 | 691 | 0.2+ | 0.1+ | 2006 02 25 | 691 | 0.5+ | 0.2− | 2009 11 24 | 691 | 0.0 | 0.1− |
| 2004 10 23 | 691 | 0.0 | 0.0 | 2006 02 25 | 691 | 0.8− | 1.0− | 2009 11 24 | 691 | 0.2− | 0.1− |
| 2004 10 23 | 691 | 0.1+ | 0.0 | 2006 03 03 | G96 | 0.5− | 0.1− | 2009 11 24 | 691 | 0.2+ | 0.0 |
| 2004 10 23 | 691 | 0.1− | 0.1+ | 2006 03 03 | G96 | 0.0 | 0.2+ | 2009 12 10 | G96 | 0.1− | 0.2− |
| 2004 11 04 | 691 | 0.2− | 0.0 | 2006 03 03 | G96 | 0.5− | 0.1− | 2009 12 10 | G96 | 0.3+ | 0.3− |
| 2004 11 04 | 691 | 0.4− | 0.1− | 2006 03 03 | G96 | 0.1− | 0.2+ | 2009 12 10 | G96 | 0.2+ | 0.2− |
| 2004 11 04 | 691 | 0.4− | 0.0 | 2006 03 08 | 691 | 0.3− | 0.1+ | | | | |

**(229625)∗ 2006 DR$_{143}$ = 2004 XG$_{67}$**

Discovered 2006 Feb. 25 by the Mt. Lemmon Survey at Mount Lemmon.

Id. A. Doppler (*MPO* 109527)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 43.16887 | | (2000.0) | | | |
| $n$ | 0.18747671 | $\omega$ | 347.41298 | | +0.98036329 | −0.19686542 |
| $a$ | 3.0234619 | $\Omega$ | 23.95000 | | +0.18329077 | +0.88819063 |
| $e$ | 0.2256116 | $i$ | 1.62075 | | +0.07274829 | +0.41516431 |
| $P$ | 5.26 | $H$ | 15.8 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 01 11 | 691 | 0.2− | 0.1− | 2004 12 03 | 691 | 0.1+ | 0.0 | 2009 11 17 | 691 | 0.1− | 0.1+ |
| 2000 01 11 | 691 | 0.3− | 0.3− | 2004 12 03 | 691 | 0.2+ | 0.0 | 2009 11 17 | 691 | 0.3− | 0.3+ |
| 2000 01 11 | 691 | 0.2− | 0.4− | 2004 12 15 | 691 | 0.1+ | 0.1+ | 2009 11 17 | 704 | (0.0 | 1.8+) |
| 2003 07 08 | 644 | 0.4− | 0.7+ | 2004 12 15 | 691 | 0.3+ | 0.2+ | 2009 11 17 | 704 | 0.6+ | 0.9+ |
| 2003 07 08 | 644 | 0.4− | 0.7+ | 2004 12 15 | 691 | 0.0 | 0.1+ | 2009 11 17 | 704 | 0.9− | 0.8+ |
| 2003 07 08 | 644 | 0.1− | 0.4+ | 2006 01 30 | 691 | 0.0 | 1.0+ | 2009 11 17 | 704 | 0.1− | 0.5+ |
| 2003 07 25 | 644 | 0.2− | 0.3+ | 2006 01 30 | 691 | 0.0 | 0.6+ | 2009 11 17 | 704 | 0.5− | 0.8+ |
| 2003 07 25 | 644 | 0.3− | 0.2+ | 2006 01 30 | 691 | 0.2+ | 0.1+ | 2009 11 25 | 691 | 0.3− | 0.1+ |
| 2003 07 25 | 644 | 0.7− | 0.2+ | 2006 02 25 | G96 | 0.1− | 0.2− | 2009 11 25 | 691 | 0.1− | 0.0 |
| 2003 08 04 | 704 | 0.5− | 0.1+ | 2006 02 25 | G96 | 0.0 | 0.1+ | 2009 11 25 | 691 | 0.0 | 0.1+ |
| 2003 08 04 | 704 | 0.4+ | 0.9+ | 2006 02 25 | G96 | 0.0 | 0.2+ | 2009 11 25 | 703 | 0.2+ | 0.5− |
| 2003 08 04 | 704 | 0.2− | 0.0 | 2006 02 25 | G96 | 0.3+ | 0.0 | 2009 11 25 | 703 | 0.2− | 0.1− |
| 2003 08 04 | 704 | 0.3− | 0.6+ | 2006 03 03 | 691 | 0.3+ | 0.7+ | 2009 11 25 | 703 | 0.2− | 0.2+ |
| 2003 08 04 | 704 | 0.9− | 0.0 | 2006 03 03 | 691 | 0.6+ | 0.3+ | 2009 11 25 | 703 | 0.7+ | 1.0+ |
| 2003 08 25 | 704 | 0.6+ | 0.7+ | 2006 03 03 | 691 | 0.1+ | 0.0 | 2009 11 25 | 703 | 0.3+ | 0.9− |
| 2003 08 25 | 704 | 0.0 | 1.1+ | 2009 11 09 | 691 | 0.3+ | 0.2− | 2009 12 16 | G96 | 0.5+ | 0.2+ |
| 2003 08 25 | 704 | 0.2+ | 0.7+ | 2009 11 09 | 691 | 0.2− | 0.4+ | 2009 12 16 | G96 | 0.6+ | 0.1− |
| 2003 08 25 | 704 | 0.2+ | 0.8+ | 2009 11 09 | 691 | 0.1− | 0.0 | 2009 12 16 | G96 | 0.2+ | 0.2− |
| 2004 12 03 | 691 | 0.0 | 0.1− | 2009 11 17 | 691 | 0.1− | 0.0 | 2009 12 16 | G96 | 0.4+ | 0.1− |

**(229626)∗ 2006 DQ$_{148}$**

Discovered 2006 Feb. 25 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 276.27552 | | (2000.0) | | | |
| $n$ | 0.20658751 | $\omega$ | 270.93027 | | −0.98175807 | +0.18940141 |
| $a$ | 2.8340011 | $\Omega$ | 279.98772 | | −0.16701583 | −0.90098474 |
| $e$ | 0.0340664 | $i$ | 0.97041 | | −0.09086696 | −0.39032500 |
| $P$ | 4.77 | $H$ | 16.1 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 16 | 691 | 0.1− | 0.4+ | 2008 09 24 | 691 | 0.0 | 0.0 | 2008 10 24 | 691 | 0.0 | 0.3+ |
| 2003 09 16 | 691 | 0.3− | 0.5+ | 2008 09 29 | A77 | 0.9− | 0.8+ | 2008 10 24 | 691 | 0.1− | 0.2+ |
| 2003 09 16 | 691 | 0.3− | 0.4+ | 2008 09 29 | A77 | (2.2− | 0.4+) | 2008 11 07 | G96 | 0.5+ | 0.1+ |
| 2006 02 25 | 691 | 0.1+ | 0.6+ | 2008 09 29 | A77 | 0.9− | 0.5− | 2008 11 07 | G96 | 0.5+ | 0.5+ |
| 2006 02 25 | 691 | 0.1− | 0.6+ | 2008 09 30 | A77 | 0.5+ | 0.2+ | 2008 11 07 | G96 | 0.1+ | 0.1− |
| 2006 02 25 | 691 | 0.0 | 0.4+ | 2008 09 30 | A77 | 0.2− | 0.2+ | 2008 11 07 | G96 | 0.2+ | 0.2− |
| 2006 03 04 | 691 | 0.3+ | 0.3+ | 2008 09 30 | A77 | 0.7− | 0.6− | 2008 12 03 | G96 | 0.2+ | 0.9− |
| 2006 03 04 | 691 | 0.2+ | 0.1+ | 2008 10 01 | J75 | 0.7+ | 0.0 | 2008 12 03 | G96 | 0.1+ | 1.0− |
| 2006 03 04 | 691 | 0.5+ | 0.2+ | 2008 10 01 | J75 | 0.1− | 0.2+ | 2008 12 03 | G96 | 0.3+ | 0.4− |
| 2006 03 08 | 691 | 0.7+ | 0.4+ | 2008 10 01 | J75 | 0.5+ | 0.1+ | 2008 12 03 | G96 | 0.3− | 0.2− |
| 2006 03 08 | 691 | 0.1+ | 0.2+ | 2008 10 03 | G96 | 0.1− | 0.0 | 2009 10 15 | G96 | 0.6+ | 0.3− |
| 2006 03 08 | 691 | 0.0 | 0.4+ | 2008 10 03 | G96 | 0.2− | 0.3− | 2009 10 15 | G96 | 0.7+ | 1.1− |
| 2006 04 02 | G96 | 0.4− | 0.6+ | 2008 10 03 | G96 | 0.3+ | 0.5− | 2009 10 15 | G96 | 0.4+ | 0.1− |
| 2006 04 02 | G96 | 0.2+ | 0.2+ | 2008 10 03 | G96 | 0.2+ | 0.1− | 2009 10 15 | G96 | 0.5+ | 0.0 |
| 2006 04 02 | G96 | 0.1− | 0.5+ | 2008 10 17 | 691 | 0.5− | 0.2+ | 2009 12 20 | 691 | 0.2+ | 0.1− |
| 2006 04 02 | G96 | 0.1+ | 0.2+ | 2008 10 17 | 691 | 0.6− | 0.4+ | 2009 12 20 | 691 | 0.3+ | 0.1− |
| 2008 09 10 | 691 | 0.2+ | 0.6+ | 2008 10 17 | 691 | 0.7− | 0.5+ | 2009 12 20 | 691 | 0.5+ | 0.0 |
| 2008 09 10 | 691 | 0.0 | 0.2+ | 2008 10 22 | 691 | 0.3− | 0.0 | 2009 12 25 | 691 | 1.7− | 0.1+ |
| 2008 09 10 | 691 | 0.4+ | 0.0 | 2008 10 22 | 691 | 0.1+ | 0.1− | 2009 12 25 | 691 | 0.5+ | 0.3− |
| 2008 09 24 | 691 | 0.1+ | 0.1+ | 2008 10 22 | 691 | 0.1+ | 0.5+ | 2009 12 25 | 691 | 0.3− | 0.1+ |
| 2008 09 24 | 691 | 0.1+ | 0.2+ | 2008 10 24 | 691 | 0.1− | 0.2+ | | | | |

**(229627)∗ 2006 DF$_{160}$**

Discovered 2006 Feb. 27 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 276.92763 | | (2000.0) | | | |
| $n$ | 0.21731163 | $\omega$ | 212.65700 | | −0.93340823 | +0.35815395 |
| $a$ | 2.7399801 | $\Omega$ | 348.26937 | | −0.30189764 | −0.81671486 |
| $e$ | 0.0800609 | $i$ | 6.15272 | | −0.19392498 | −0.45244070 |
| $P$ | 4.54 | $H$ | 16.2 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 03 10 | 691 | 0.0 | 0.8− | 2006 04 02 | 691 | 0.1+ | 0.3+ | 2008 10 09 | 691 | 0.8− | 1.2+ |
| 1997 03 10 | 691 | 0.5− | 0.3− | 2006 04 02 | 691 | 0.1+ | 0.1+ | 2008 10 09 | 691 | 0.3− | 0.5+ |
| 1997 03 10 | 691 | 0.2− | 0.5− | 2006 04 06 | 691 | 0.2+ | 0.5+ | 2008 10 09 | 691 | 0.0 | 0.2+ |
| 2001 02 21 | 645 | 0.0 | 0.1− | 2006 04 06 | 691 | 0.6+ | 0.0 | 2008 10 09 | 691 | 0.5− | 0.2+ |
| 2001 02 21 | 645 | 0.0 | 0.1− | 2006 04 06 | 691 | 0.0 | 0.1+ | 2008 10 09 | 691 | 0.1− | 0.3− |
| 2002 06 05 | 644 | 0.1+ | 0.0 | 2006 04 08 | 691 | 0.3+ | 0.2+ | 2008 10 25 | G96 | 1.0+ | 0.1+ |
| 2002 06 05 | 644 | 0.2+ | 0.7+ | 2006 04 08 | 691 | 0.0 | 0.4+ | 2008 10 25 | G96 | 0.3+ | 0.2− |
| 2002 06 05 | 644 | 1.0+ | 0.3+ | 2006 04 08 | 691 | 0.3+ | 0.1+ | 2008 10 25 | G96 | 0.2+ | 0.1− |
| 2006 02 27 | 691 | 0.2+ | 0.1+ | 2008 09 09 | G96 | 0.2− | 0.5+ | 2008 10 25 | G96 | 0.1+ | 0.0 |
| 2006 02 27 | 691 | 0.0 | 0.3+ | 2008 09 09 | G96 | 0.2+ | 0.2+ | 2008 11 06 | G96 | 0.1+ | 0.1+ |
| 2006 02 27 | 691 | 0.1+ | 0.3+ | 2008 09 09 | G96 | 0.4+ | 0.0 | 2008 11 06 | G96 | 1.1+ | 0.3+ |
| 2006 03 05 | G96 | 0.1− | 0.6+ | 2008 09 09 | G96 | 0.1+ | 0.4− | 2008 11 06 | G96 | 0.9+ | 0.1+ |
| 2006 03 05 | G96 | 0.3− | 0.1+ | 2008 09 23 | 691 | 0.4− | 0.4+ | 2008 11 06 | G96 | 0.8+ | 0.5+ |
| 2006 03 05 | G96 | 0.1+ | 0.1− | 2008 09 23 | 691 | 0.4− | 0.9− | 2009 10 27 | G96 | 0.4− | 0.3− |
| 2006 03 05 | G96 | 0.1− | 0.0 | 2008 09 23 | 691 | 0.1− | 0.0 | 2009 10 27 | G96 | 0.4− | 0.1+ |
| 2006 03 23 | 703 | 0.3− | 0.8+ | 2008 10 08 | G96 | 0.5+ | 0.0 | 2009 10 27 | G96 | 0.0 | 0.1+ |
| 2006 03 23 | 703 | 0.6+ | 1.0+ | 2008 10 08 | G96 | 0.4+ | 0.4− | 2009 10 27 | G96 | 0.6− | 0.2− |
| 2006 03 23 | 703 | 1.1− | 0.4+ | 2008 10 08 | G96 | 0.1− | 0.2− | 2009 12 15 | 704 | 1.1+ | 0.7+ |
| 2006 03 23 | 703 | 0.1− | 0.3+ | 2008 10 08 | G96 | 0.6− | 0.2− | 2009 12 15 | 704 | 1.0+ | 0.5+ |
| 2006 04 02 | 691 | 0.0 | 0.3+ | 2008 10 09 | 691 | 0.3+ | 0.3+ | 2009 12 15 | 704 | 0.8+ | 0.4− |

**(229628)∗ 2006 DA$_{164}$**

Discovered 2006 Feb. 27 by the Mt. Lemmon Survey at Mount Lemmon.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 103.88312 | | (2000.0) | | | |
| $n$ | 0.21222373 | $\omega$ | 170.38556 | | +0.99938964 | +0.03350805 |
| $a$ | 2.7835995 | $\Omega$ | 187.71478 | | −0.03489053 | +0.94340495 |
| $e$ | 0.1143833 | $i$ | 4.21958 | | −0.00173268 | +0.32994591 |
| $P$ | 4.64 | $H$ | 15.9 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 10 11 | 704 | 0.4+ | 0.1− | 2006 04 25 | G96 | 0.1+ | 0.2− | 2008 09 24 | 703 | (2.0+ | 1.2−) |
| 1999 10 11 | 704 | 0.1− | 1.0− | 2006 04 25 | G96 | 0.2+ | 0.6− | 2008 09 24 | 703 | 1.2+ | 0.3− |
| 1999 10 11 | 704 | 0.8− | 0.5+ | 2006 04 25 | G96 | 0.5+ | 0.4− | 2008 09 24 | 704 | 0.3+ | 0.2+ |
| 1999 10 11 | 704 | 0.1− | 0.8− | 2006 04 25 | G96 | 0.4− | 0.9+ | 2008 09 24 | 704 | 0.4+ | 0.1+ |
| 1999 10 11 | 704 | 0.7− | 0.1− | 2008 08 07 | B44 | 0.9− | 1.1+ | 2008 09 24 | 704 | 0.4+ | 0.2+ |
| 2002 04 13 | 644 | 0.1− | 0.3+ | 2008 08 07 | B44 | (1.8− | 0.4+) | 2008 09 29 | 704 | 0.4− | 1.0+ |
| 2002 04 13 | 644 | 0.1+ | 0.3+ | 2008 08 07 | B44 | 0.8− | 0.4+ | 2008 09 29 | 704 | 0.1+ | 0.1+ |
| 2002 04 13 | 644 | 0.2+ | 1.0+ | 2008 08 22 | 691 | 0.1− | 0.1+ | 2008 09 29 | 704 | 0.6+ | 0.8− |
| 2002 04 18 | 691 | 0.5+ | 0.7+ | 2008 08 22 | 691 | 0.2− | 0.3+ | 2008 09 29 | 704 | 0.3+ | 0.1− |
| 2002 04 18 | 691 | 0.5+ | 0.6+ | 2008 08 22 | 691 | 0.3− | 0.2+ | 2008 09 29 | 704 | 0.1+ | 0.7+ |
| 2002 04 18 | 691 | 0.2+ | 0.7+ | 2008 08 26 | A77 | 0.1+ | 0.8+ | 2008 10 01 | G96 | 0.3+ | 0.1+ |
| 2003 08 05 | 704 | 0.2+ | 1.0+ | 2008 08 26 | A77 | 0.8+ | 0.5+ | 2008 10 01 | G96 | 0.1+ | 1.0− |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 08 05 | 704 | 0.7− | 1.0+ | 2008 08 26 | A77 | 0.2+ | 0.1+ | 2008 10 01 | G96 | 0.9+ | 0.2− |
| 2003 08 05 | 704 | 0.7− | 0.6+ | 2008 08 30 | A77 | 0.2− | 0.7+ | 2008 10 01 | G96 | 0.0 | 0.2+ |
| 2004 12 13 | 691 | 0.4+ | 0.1+ | 2008 08 30 | A77 | 0.4+ | 0.2+ | 2008 10 17 | 691 | 0.1+ | 0.5+ |
| 2004 12 13 | 691 | 0.2+ | 0.3+ | 2008 08 30 | A77 | 0.1+ | 0.9+ | 2008 10 17 | 691 | 0.0 | 0.1+ |
| 2004 12 13 | 691 | 0.1+ | 0.4+ | 2008 09 02 | 691 | 0.2− | 0.1+ | 2008 10 17 | 691 | 0.6− | 0.6− |
| 2006 02 27 | G96 | 0.2+ | 0.0 | 2008 09 02 | 683 | 0.0 | 0.3+ | 2008 10 18 | 691 | 0.3− | 0.2+ |
| 2006 02 27 | G96 | 0.0 | 0.1+ | 2008 09 02 | 691 | 0.6− | 0.2+ | 2008 10 18 | 691 | 0.1− | 0.3+ |
| 2006 02 27 | G96 | 0.2− | 0.0 | 2008 09 02 | 683 | (1.7+ | 1.0+) | 2008 10 18 | 691 | 0.2− | 0.3+ |
| 2006 02 27 | G96 | 0.1+ | 0.2+ | 2008 09 02 | 691 | 0.2− | 0.0 | 2008 10 31 | 704 | 0.8+ | 1.1+ |
| 2006 03 05 | 691 | 0.2+ | 0.4+ | 2008 09 02 | 683 | (0.6+ | 3.2+) | 2008 10 31 | 704 | 0.9+ | 0.3+ |
| 2006 03 05 | 691 | 0.2− | 0.3+ | 2008 09 05 | 683 | 1.0+ | 1.2− | 2008 10 31 | 704 | 0.2+ | 0.9+ |
| 2006 03 05 | 691 | 0.3− | 0.5+ | 2008 09 05 | 683 | 0.0 | 0.2+ | 2008 10 31 | 704 | 0.4− | 0.1+ |
| 2006 03 09 | 691 | 0.4+ | 0.0 | 2008 09 05 | 683 | 1.3− | 1.1+ | 2008 12 03 | G96 | 0.0 | 0.0 |
| 2006 03 09 | 691 | 0.1+ | 0.5+ | 2008 09 06 | 691 | 0.1− | 0.1− | 2008 12 03 | G96 | 0.5+ | 0.3+ |
| 2006 03 09 | 691 | 0.3− | 0.5+ | 2008 09 06 | 691 | 0.3− | 0.0 | 2008 12 03 | G96 | 0.1+ | 0.4− |
| 2006 03 25 | G96 | 0.1− | 0.4+ | 2008 09 06 | 691 | (2.7+ | 0.6+) | 2008 12 03 | G96 | 0.3− | 0.0 |
| 2006 03 25 | G96 | 0.2− | 0.6+ | 2008 09 10 | 691 | 0.2+ | 0.6+ | 2008 12 31 | G96 | 0.0 | 0.2+ |
| 2006 03 25 | G96 | 0.2+ | 0.2− | 2008 09 10 | 691 | 0.2− | 0.2+ | 2008 12 31 | G96 | 0.2+ | 0.4− |
| 2006 03 25 | G96 | 0.2+ | 0.4+ | 2008 09 10 | 691 | 0.3− | 0.2− | 2008 12 31 | G96 | 0.0 | 0.4+ |
| 2006 04 02 | G96 | 0.0 | 0.3+ | 2008 09 20 | G96 | 0.3+ | 0.2+ | 2008 12 31 | G96 | 0.2− | 0.2+ |
| 2006 04 02 | G96 | 0.3+ | 0.5+ | 2008 09 20 | G96 | 0.1+ | 0.3+ | 2009 12 19 | 691 | 0.1+ | 0.1+ |
| 2006 04 02 | G96 | 0.3+ | 0.0 | 2008 09 20 | G96 | 0.0 | 0.1+ | 2009 12 19 | 691 | 0.0 | 0.6+ |
| 2006 04 02 | G96 | 0.0 | 0.3+ | 2008 09 20 | G96 | 0.0 | 0.1+ | 2009 12 19 | 691 | 0.1+ | 0.0 |
| 2006 04 07 | G96 | 0.1− | 0.3+ | 2008 09 24 | 704 | 0.4+ | 0.4+ | 2009 12 27 | 691 | 0.0 | 0.0 |
| 2006 04 07 | G96 | 0.1+ | 0.3+ | 2008 09 24 | 703 | 0.6+ | 0.3− | 2009 12 27 | 691 | 0.1− | 0.1+ |
| 2006 04 07 | G96 | 0.3+ | 0.2− | 2008 09 24 | 703 | (1.7+ | 0.5+) | 2009 12 27 | 691 | 0.2− | 0.0 |
| 2006 04 07 | G96 | 0.0 | 0.2+ | 2008 09 24 | 704 | 0.4+ | 0.2+ | | | | |

**(229629)∗ 2006 DF$_{191}$ = 2003 SM$_{136}$**

Discovered 2006 Feb. 27 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 101438)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 285.47972 | | (2000.0) | | **P** | **Q** |
| $n$ | 0.20201134 | $\omega$ | 79.60669 | | −0.99822055 | +0.03046457 |
| $a$ | 2.8766402 | $\Omega$ | 102.12517 | | −0.04798077 | −0.92077758 |
| $e$ | 0.0227968 | $i$ | 3.00541 | | +0.03540594 | −0.38889659 |
| $P$ | 4.88 | $H$ | 15.9 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 19 | 599 | 0.2+ | 0.1+ | 2006 04 04 | 461 | 0.1+ | 0.4+ | 2008 10 23 | 691 | 0.3+ | 0.4+ |
| 2003 09 19 | 599 | 0.2− | 0.7+ | 2006 04 04 | 461 | 0.1− | 0.4+ | 2008 10 23 | 691 | 0.1− | 0.5+ |
| 2003 09 19 | 599 | 0.1+ | 0.1+ | 2006 04 04 | 461 | 0.1+ | 0.5+ | 2008 10 24 | 704 | 0.0 | 0.3+ |
| 2003 09 19 | 599 | 0.5− | 0.3+ | 2006 04 04 | 461 | 0.1− | 0.4+ | 2008 10 24 | G96 | 0.6+ | 0.1+ |
| 2003 09 22 | 691 | 0.0 | 0.1− | 2006 04 04 | 461 | 0.2+ | 0.3+ | 2008 10 24 | G96 | 0.2+ | 0.1− |
| 2003 09 22 | 691 | 0.0 | 0.1+ | 2006 04 04 | 461 | 0.0 | 0.6+ | 2008 10 24 | G96 | 0.3+ | 0.1− |
| 2003 09 22 | 691 | 0.7− | 0.2+ | 2006 04 20 | 699 | (3.4+ | 0.5−) | 2008 10 24 | G96 | 0.5+ | 0.2− |
| 2004 12 18 | 691 | 0.1− | 0.2+ | 2006 04 20 | 699 | 1.4+ | 0.3− | 2008 10 24 | 704 | (0.3− | 1.7+) |
| 2004 12 18 | 691 | 0.3+ | 0.0 | 2006 04 20 | 699 | 0.4+ | 1.1+ | 2008 10 24 | 704 | (0.4− | 1.9+) |
| 2004 12 18 | 691 | 0.4+ | 0.1+ | 2006 04 20 | 699 | 1.3+ | 1.4− | 2008 10 29 | 691 | 0.4− | 0.3+ |
| 2006 02 27 | 691 | 0.1+ | 0.3+ | 2008 09 23 | G96 | 0.1− | 0.1+ | 2008 10 29 | 691 | 0.9− | 0.5+ |
| 2006 02 27 | 691 | 0.2+ | 0.4+ | 2008 09 23 | G96 | 0.5+ | 0.1+ | 2008 10 29 | 691 | 0.5− | 0.1+ |
| 2006 02 27 | 691 | 0.3+ | 0.4+ | 2008 09 23 | G96 | 0.0 | 0.2+ | 2009 09 27 | 691 | 0.4− | 0.1− |
| 2006 03 03 | 691 | 0.1− | 0.5+ | 2008 09 23 | G96 | 0.0 | 0.5− | 2009 09 27 | 691 | 0.2− | 0.3− |
| 2006 03 03 | 691 | 0.2+ | 0.4+ | 2008 10 10 | G96 | 1.2+ | 0.8+ | 2009 09 27 | 691 | 0.0 | 0.2+ |
| 2006 03 03 | 691 | 0.1− | 0.3+ | 2008 10 10 | G96 | 1.0+ | 0.8+ | 2009 12 20 | 691 | 0.3− | 0.1− |
| 2006 04 02 | 461 | 0.3− | 0.5+ | 2008 10 10 | G96 | 0.3+ | 0.1+ | 2009 12 20 | 691 | 0.2+ | 0.5− |
| 2006 04 02 | 461 | 0.2− | 0.1− | 2008 10 10 | G96 | 0.1+ | 0.2− | 2009 12 20 | 691 | 0.0 | 0.0 |
| 2006 04 02 | 461 | 0.1+ | 0.3+ | 2008 10 23 | 691 | 0.1− | 0.4+ | | | | |

**(229630)∗ 2006 DR$_{201}$ = 1997 NZ$_6$**

Discovered 2006 Feb. 25 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Id. G. V. Williams (*MPO* 101449)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 243.03353 | | (2000.0) | | **P** | **Q** |
| $n$ | 0.20929323 | $\omega$ | 144.13261 | | −0.47091224 | +0.86526492 |
| $a$ | 2.8095231 | $\Omega$ | 97.20113 | | −0.84439350 | −0.38567204 |
| $e$ | 0.1072008 | $i$ | 9.97928 | | −0.25542371 | −0.32027127 |
| $P$ | 4.71 | $H$ | 15.5 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 07 06 | 691 | 0.3+ | 0.3+ | 2006 03 05 | 704 | 1.5+ | 0.1− | 2006 05 03 | 703 | 0.4− | 1.1+ |
| 1997 07 06 | 691 | 0.1+ | 0.1+ | 2006 03 05 | 704 | 1.2+ | 0.6+ | 2006 05 03 | 703 | (1.7+ | 2.0−) |
| 1997 07 06 | 691 | 0.2− | 0.1+ | 2006 03 05 | 704 | (1.6+ | 0.7+) | 2006 05 03 | 703 | 0.6+ | 0.4− |
| 1997 07 12 | 691 | 0.1+ | 0.4+ | 2006 03 23 | 703 | 0.3+ | 0.4− | 2007 07 20 | D35 | 0.1− | 0.2+ |
| 1997 07 12 | 691 | 0.0 | 0.4+ | 2006 03 23 | 703 | 0.3+ | 0.2− | 2007 07 20 | D35 | 0.0 | 0.5+ |
| 1997 07 12 | 691 | 0.1− | 0.1− | 2006 03 23 | 703 | 0.5− | 0.1− | 2007 07 20 | D35 | 0.5− | 0.1+ |
| 2003 09 28 | 699 | 0.8− | 0.8+ | 2006 03 23 | 703 | 0.2− | 0.6− | 2008 10 24 | 704 | (2.0− | 0.8+) |
| 2003 09 28 | 699 | 1.4+ | 0.8+ | 2006 03 30 | 704 | 0.2− | 1.0− | 2008 10 24 | 704 | 0.9− | 0.1+ |
| 2003 09 28 | 699 | (1.6+ | 0.3+) | 2006 03 30 | 704 | (2.5+ | 0.2+) | 2008 10 24 | 704 | 0.7− | 0.8+ |
| 2003 09 28 | 699 | 0.2+ | 0.2+ | 2006 03 30 | 704 | 0.0 | 1.0− | 2008 10 24 | 704 | 0.6+ | 0.0 |
| 2004 12 18 | 691 | 0.1+ | 0.3+ | 2006 04 08 | 703 | 0.2− | 0.5+ | 2008 10 28 | G96 | 0.1− | 0.0 |
| 2004 12 18 | 691 | 0.5− | 0.9+ | 2006 04 08 | 703 | 0.1+ | 0.7+ | 2008 10 28 | G96 | 0.1− | 0.3+ |
| 2004 12 18 | 691 | 0.2+ | 0.2+ | 2006 04 08 | 703 | 0.8− | 0.8− | 2008 10 28 | G96 | 0.1− | 0.2+ |
| 2006 02 25 | 699 | 0.4+ | 0.9+ | 2006 04 08 | 703 | 0.7+ | 0.9− | 2008 10 28 | G96 | 0.4+ | 0.2− |
| 2006 02 25 | 699 | 0.2− | 0.4+ | 2006 04 18 | 703 | (2.3− | 0.9−) | 2009 11 11 | G96 | 0.1+ | 0.1− |
| 2006 02 25 | 699 | (1.6+ | 0.6−) | 2006 04 18 | 703 | 0.8+ | 0.6+ | 2009 11 11 | G96 | 0.1+ | 0.1− |
| 2006 02 25 | 699 | 0.5+ | 0.0 | 2006 04 18 | 703 | 0.0 | 0.4+ | 2009 11 11 | G96 | 0.1+ | 0.1− |
| 2006 03 03 | 703 | 0.4+ | 0.4+ | 2006 04 18 | 703 | 0.7− | 0.6− | 2009 11 11 | G96 | 0.1+ | 0.1− |
| 2006 03 03 | 703 | 0.7− | 0.4− | 2006 04 23 | 699 | 0.1− | 0.3+ | 2009 12 18 | 691 | 0.1+ | 0.5− |
| 2006 03 03 | 703 | 0.3+ | 0.1− | 2006 04 23 | 699 | 0.5− | 0.7+ | 2009 12 18 | 691 | 0.4− | 0.1− |
| 2006 03 03 | 703 | 0.4− | 0.1− | 2006 04 23 | 699 | 0.2+ | 1.5+ | 2009 12 18 | 691 | 0.2− | 0.1+ |
| 2006 03 05 | 704 | 0.1+ | 0.2+ | 2006 04 23 | 699 | 0.7− | 0.5− | | | | |
| 2006 03 05 | 704 | (2.2+ | 0.3−) | 2006 05 03 | 703 | 0.2+ | 0.7+ | | | | |

**(229631)∗ 2006 ER**

Discovered 2006 Mar. 4 by J.-C. Merlin at the Tenagra II Observatory.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 24.46647 | | (2000.0) | | **P** | **Q** |
| $n$ | 0.23203303 | $\omega$ | 290.89505 | | +0.14685237 | −0.98243079 |
| $a$ | 2.6228262 | $\Omega$ | 149.93362 | | +0.97131381 | +0.12120620 |
| $e$ | 0.1209871 | $i$ | 13.28993 | | +0.18703975 | +0.14191122 |
| $P$ | 4.25 | $H$ | 16.6 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 10 01 | 645 | 0.1+ | 0.1+ | 2006 03 04 | 926 | 0.2+ | 0.2+ | 2007 06 12 | 691 | 0.1− | 0.1+ |
| 2000 10 01 | 645 | 0.0 | 0.0 | 2006 03 04 | 926 | 0.3− | 0.1− | 2007 06 12 | 691 | 0.1− | 0.2− |
| 2002 03 05 | 645 | 0.1+ | 0.0 | 2006 03 05 | 926 | 0.1− | 0.6+ | 2007 06 12 | 691 | 0.4− | 0.3+ |
| 2002 03 05 | 645 | 0.1− | 0.0 | 2006 03 05 | 926 | 0.1+ | 0.1+ | 2007 06 20 | 691 | 0.1− | 0.5+ |
| 2004 09 21 | 704 | 0.8− | 0.2− | 2006 03 05 | 926 | 0.2− | 0.4+ | 2007 06 20 | 691 | 0.2− | 0.1− |
| 2004 09 21 | 704 | (1.7− | 1.4+) | 2006 03 05 | 926 | 0.1+ | 0.2+ | 2007 06 20 | 691 | 0.1+ | 0.1− |
| 2004 09 21 | 704 | (1.1− | 1.9+) | 2006 03 18 | 926 | 0.1+ | 0.2+ | 2008 07 30 | 691 | 0.1+ | 0.2+ |
| 2004 09 21 | 704 | (1.6− | 1.2+) | 2006 03 18 | 926 | 0.4− | 0.2+ | 2008 07 30 | 691 | 0.3− | 0.0 |
| 2006 01 28 | G96 | 0.3+ | 0.1− | 2006 03 18 | 926 | 0.1+ | 0.5+ | 2008 07 30 | 691 | 0.0 | 0.3+ |
| 2006 01 28 | G96 | 0.1− | 0.1+ | 2006 03 18 | 926 | 0.1− | 0.4+ | 2008 09 06 | 703 | 0.9+ | 0.4− |
| 2006 01 28 | G96 | 0.1− | 0.1− | 2007 05 20 | 926 | 0.9+ | 0.1+ | 2008 09 06 | 703 | 1.2+ | 0.8+ |
| 2006 01 28 | G96 | 0.1+ | 0.3+ | 2007 05 20 | 926 | 0.2+ | 0.1+ | 2008 09 06 | 703 | (1.2+ | 1.9+) |
| 2006 02 04 | G96 | 0.2+ | 0.4+ | 2007 05 20 | 926 | 0.7+ | 0.4+ | 2008 09 06 | 703 | (1.1− | 1.6+) |
| 2006 02 04 | G96 | 0.3− | 0.1+ | 2007 05 20 | 926 | 0.5+ | 0.0 | 2008 09 22 | 691 | 0.2+ | 0.0 |
| 2006 02 04 | G96 | 0.4− | 0.3+ | 2007 06 08 | A44 | 1.1+ | 0.3− | 2008 09 22 | 691 | 0.1+ | 0.2− |
| 2006 02 04 | G96 | 0.2+ | 0.0 | 2007 06 08 | A44 | 0.7+ | 0.9− | 2008 09 22 | 691 | 1.0− | 0.6+ |
| 2006 02 20 | 703 | 1.1+ | 1.3− | 2007 06 08 | A44 | 0.8+ | 0.1+ | 2009 10 24 | G96 | 0.9− | 0.1− |
| 2006 02 20 | 703 | (2.1+ | 1.6−) | 2007 06 09 | 291 | 0.0 | 0.0 | 2009 10 24 | G96 | 0.2− | 0.2+ |
| 2006 02 20 | 703 | 0.0 | 0.6+ | 2007 06 09 | 291 | 0.1− | 0.0 | 2009 10 24 | G96 | 0.1+ | 0.3+ |
| 2006 02 20 | 703 | 0.5+ | 0.4+ | 2007 06 09 | 291 | 0.1− | 0.1− | 2009 10 24 | G96 | 0.3− | 0.3+ |
| 2006 02 20 | G96 | 0.1− | 0.3+ | 2007 06 10 | 926 | 0.3+ | 0.1+ | 2009 12 12 | 926 | 0.8+ | 0.2− |
| 2006 02 20 | G96 | 0.5− | 0.1+ | 2007 06 10 | 926 | 0.4+ | 0.0 | 2009 12 12 | 926 | 0.1+ | 0.1− |
| 2006 02 20 | G96 | 0.5− | 0.1+ | 2007 06 10 | 926 | 0.1+ | 0.1− | 2009 12 12 | 926 | 0.3+ | 0.1+ |
| 2006 03 04 | 926 | 0.3+ | 0.8− | 2007 06 10 | 926 | 0.5+ | 0.1+ | 2009 12 12 | 926 | 0.1+ | 0.5+ |

**(229632)∗ 2006 ED$_{32}$**

Discovered 2006 Mar. 3 by the Mt. Lemmon Survey at Mount Lemmon.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 5.38329 | | (2000.0) | | | |
| $n$ | 0.22361226 | $\omega$ | 136.93135 | | −0.17064784 | −0.98387836 |
| $a$ | 2.6882664 | $\Omega$ | 322.79996 | | +0.87828461 | −0.12726972 |
| $e$ | 0.1592998 | $i$ | 5.07704 | | +0.44664914 | −0.12564151 |
| $P$ | 4.41 | $H$ | 16.2 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 30 | 704 | 0.8− | 0.2+ | 2006 03 25 | 691 | 0.3+ | 0.4+ | 2008 09 21 | 691 | 0.3− | 0.3+ | |
| 2000 11 30 | 704 | 0.7+ | 1.6+ | 2006 03 25 | 691 | 0.3+ | 0.3+ | 2008 09 23 | 691 | 0.2− | 0.4+ | |
| 2000 11 30 | 704 | 0.2− | 0.2+ | 2008 07 29 | 691 | 0.1+ | 0.3+ | 2008 09 23 | 691 | 0.5− | 0.1+ | |
| 2000 11 30 | 704 | 1.8+ | 0.1+ | 2008 07 29 | 691 | 0.2− | 0.1+ | 2008 09 23 | 691 | 0.4− | 0.9+ | |
| 2000 12 20 | 704 | 0.3− | 0.6+ | 2008 07 29 | 691 | 0.0 | 0.4+ | 2009 11 21 | G96 | 0.5+ | 0.4− | |
| 2000 12 20 | 704 | 0.2− | 0.1+ | 2008 08 07 | 691 | 0.2+ | 0.1− | 2009 11 21 | G96 | 0.2+ | 0.3− | |
| 2000 12 20 | 704 | 0.1− | 0.4+ | 2008 08 07 | 691 | 0.8− | 0.7+ | 2009 11 21 | G96 | 0.0 | 0.2− | |
| 2000 12 20 | 704 | 0.7− | 0.3− | 2008 08 07 | 691 | 0.3− | 0.3+ | 2009 11 21 | G96 | 0.2+ | 0.4− | |
| 2000 12 20 | 704 | 0.4− | 0.1+ | 2008 08 21 | 691 | 0.4+ | 0.4+ | 2009 12 10 | 704 | 0.8+ | 0.5+ | |
| 2006 03 03 | G96 | 0.0 | 0.4+ | 2008 08 21 | 691 | 0.3− | 0.1+ | 2009 12 10 | 704 | 0.1+ | 1.3+ | |
| 2006 03 03 | G96 | 0.4− | 1.3+ | 2008 08 21 | 691 | 0.3+ | 0.1+ | 2009 12 10 | 704 | (0.4+ | 2.6+) | |
| 2006 03 03 | G96 | 0.1+ | 0.4+ | 2008 09 07 | G96 | 0.1+ | 0.9+ | 2009 12 15 | 704 | 0.7+ | 0.8+ | |
| 2006 03 03 | G96 | 0.1− | 0.1+ | 2008 09 07 | G96 | 0.8− | 0.1+ | 2009 12 15 | 704 | 1.0+ | 0.4− | |
| 2006 03 05 | 691 | 0.5+ | 0.6+ | 2008 09 07 | G96 | 0.2+ | 1.0+ | 2009 12 15 | 704 | 0.7− | 0.6+ | |
| 2006 03 05 | 691 | 0.3+ | 0.5+ | 2008 09 07 | G96 | 0.5− | 0.3+ | 2009 12 19 | 691 | 0.1+ | 0.1− | |
| 2006 03 05 | 691 | 0.5+ | 0.6+ | 2008 09 07 | G96 | 0.4+ | 0.7+ | 2009 12 19 | 691 | 0.1+ | 0.1− | |
| 2006 03 09 | 691 | 0.3+ | 0.4+ | 2008 09 07 | G96 | 0.3− | 0.3+ | 2009 12 19 | 691 | 0.1− | 0.0 | |
| 2006 03 09 | 691 | 0.1+ | 0.5+ | 2008 09 07 | G96 | 0.5− | 1.0+ | 2009 12 27 | 691 | 0.7− | 0.1+ | |
| 2006 03 09 | 691 | 0.2+ | 0.5+ | 2008 09 21 | 691 | 0.3+ | 0.5+ | 2009 12 27 | 691 | 0.2− | 0.0 | |
| 2006 03 25 | 691 | 0.2+ | 0.5+ | 2008 09 21 | 691 | 0.7− | 0.1+ | 2009 12 27 | 691 | 0.2+ | 0.0 | |

**(229633)∗ 2006 ED$_{39}$ = 2003 UR$_{373}$**

Discovered 2006 Mar. 4 by the Catalina Sky Survey.

Id. G. V. Williams (*MPO* 122544)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 294.26748 | | (2000.0) | | | |
| $n$ | 0.20947525 | $\omega$ | 270.28107 | | −0.98621947 | −0.12074888 |
| $a$ | 2.8078953 | $\Omega$ | 262.78544 | | +0.15535043 | −0.91099123 |
| $e$ | 0.1604029 | $i$ | 6.54591 | | −0.05689814 | −0.39435351 |
| $P$ | 4.71 | $H$ | 15.9 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 02 17 | 608 | (1.7+ | 2.2+) | 2006 03 04 | 703 | 0.1− | 0.5− | 2008 12 03 | G96 | 0.3− | 0.6− | |
| 2001 02 17 | 608 | (1.4+ | 2.8+) | 2006 03 04 | 703 | 0.2− | 0.0 | 2008 12 03 | G96 | 0.7+ | 0.4− | |
| 2001 02 17 | 608 | (1.7+ | 2.3+) | 2006 03 04 | 703 | 0.6− | 0.6− | 2008 12 03 | G96 | 0.7+ | 0.1+ | |
| 2003 10 17 | 645 | 0.0 | 0.1+ | 2006 03 05 | 699 | 0.6+ | 1.1+ | 2008 12 03 | G96 | 0.5+ | 0.5− | |
| 2003 10 17 | 645 | 0.0 | 0.0 | 2006 03 05 | 699 | 0.3+ | 1.4+ | 2009 11 24 | 691 | 0.2− | 0.3+ | |
| 2003 10 19 | 645 | 0.1− | 0.0 | 2006 03 05 | 699 | (1.6+ | 1.6+) | 2009 11 24 | 691 | 0.4− | 0.5− | |
| 2003 10 19 | 645 | 0.0 | 0.1+ | 2006 03 05 | 699 | 0.9+ | 1.3+ | 2009 11 24 | 691 | 0.0 | 0.4− | |
| 2003 10 22 | 645 | 0.1− | 0.1+ | 2006 03 25 | 644 | 0.0 | 0.5+ | 2009 12 10 | G96 | 0.1+ | 0.0 | |
| 2003 10 22 | 645 | 0.0 | 0.1+ | 2006 03 25 | 644 | 0.2− | 0.4+ | 2009 12 10 | G96 | 0.2+ | 0.1− | |
| 2003 10 24 | 645 | 0.0 | 0.1+ | 2006 03 25 | 644 | 0.1+ | 0.2+ | 2009 12 10 | G96 | 0.0 | 0.3− | |
| 2003 10 24 | 645 | 0.0 | 0.0 | 2006 04 21 | 699 | 0.7+ | 0.4− | 2009 12 10 | 114 | 0.0 | 0.2+ | |
| 2006 02 24 | 703 | 0.2+ | 0.3− | 2006 04 21 | 699 | 1.3+ | 0.3+ | 2009 12 10 | 114 | 0.3− | 0.2− | |
| 2006 02 24 | 703 | 0.9− | 0.0 | 2006 04 21 | 699 | (1.6+ | 0.1+) | 2009 12 10 | 114 | 0.1+ | 0.5− | |
| 2006 02 24 | 703 | 0.6− | 0.6− | 2006 04 21 | 699 | 0.3− | 0.9+ | 2009 12 17 | 704 | 1.1+ | 2.0+ | |
| 2006 02 24 | 703 | (1.8− | 0.1+) | 2008 10 30 | G96 | 0.3− | 0.1− | 2009 12 17 | 704 | 0.4− | 0.3+ | |
| 2006 02 24 | 644 | 0.4+ | 0.1+ | 2008 10 30 | G96 | 0.1+ | 0.2+ | 2009 12 17 | 704 | 0.4+ | 0.4+ | |
| 2006 02 24 | 644 | 0.3+ | 0.3− | 2008 10 30 | G96 | 0.1+ | 0.0 | 2009 12 17 | 704 | 0.4− | 0.7+ | |
| 2006 02 24 | 644 | 0.0 | 0.3+ | 2008 10 30 | G96 | 0.0 | 0.1− | 2009 12 17 | 704 | 1.0+ | 0.9+ | |

**(229634)∗ 2006 EE$_{43}$**

Discovered 2006 Mar. 4 by the Catalina Sky Survey.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 184.94973 | | (2000.0) | | | |
| $n$ | 0.17278115 | $\omega$ | 193.04526 | | −0.15620239 | +0.96532067 |
| $a$ | 3.1925556 | $\Omega$ | 68.28044 | | −0.88480257 | −0.04262370 |
| $e$ | 0.1804849 | $i$ | 13.01268 | | −0.43900481 | −0.25756401 |
| $P$ | 5.70 | $H$ | 14.9 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 03 04 | 703 | 0.8+ | 0.6− | 2006 05 03 | 703 | 0.7+ | 0.2+ | 2008 10 30 | 704 | 1.0+ | 0.5+ | |
| 2006 03 04 | 703 | 0.1+ | 0.3− | 2007 06 23 | E12 | 0.1− | 0.0 | 2008 10 30 | 704 | (0.1− | 2.2+) | |
| 2006 03 04 | 703 | (1.7− | 0.8+) | 2007 06 23 | E12 | 0.2+ | 0.3− | 2008 10 30 | 704 | 0.7+ | 1.4+ | |
| 2006 03 04 | 703 | 0.7− | 0.7− | 2007 06 23 | E12 | 0.1+ | 0.1− | 2008 10 30 | 704 | (0.4+ | 2.6+) | |
| 2006 03 05 | 704 | 0.7+ | 1.1+ | 2007 06 23 | E12 | 0.1− | 0.4− | 2008 11 03 | 703 | (1.6− | 0.7−) | |
| 2006 03 05 | 704 | 0.4+ | 0.4+ | 2007 07 10 | E12 | 0.8− | 0.3+ | 2008 11 03 | 703 | 0.6− | 0.8+ | |
| 2006 03 05 | 704 | 1.4+ | 0.4+ | 2007 07 10 | E12 | 0.1− | 0.0 | 2008 11 03 | 703 | 0.6− | 0.5+ | |
| 2006 03 23 | 703 | 0.1− | 1.3+ | 2007 07 10 | E12 | 0.2− | 0.1+ | 2008 11 03 | 703 | 0.3+ | 1.0+ | |
| 2006 03 23 | 703 | 0.3− | 0.1+ | 2007 07 10 | E12 | 0.2− | 0.1+ | 2008 11 19 | 291 | 0.3− | 0.2+ | |
| 2006 03 23 | 703 | 1.1+ | 1.0+ | 2007 08 07 | E12 | 0.4+ | 0.3+ | 2008 11 19 | 291 | 0.2− | 0.2+ | |
| 2006 03 23 | 703 | 0.4+ | 0.3− | 2007 08 07 | E12 | 0.2+ | 0.5+ | 2008 11 19 | 291 | 0.3− | 0.3+ | |
| 2006 04 23 | 699 | 0.8− | 1.0+ | 2007 08 07 | E12 | 0.1− | 0.7+ | 2009 11 09 | 691 | 0.2+ | 0.0 | |
| 2006 04 23 | 699 | 0.6− | 0.3+ | 2007 08 07 | E12 | 0.1+ | 1.1+ | 2009 11 09 | 691 | 0.2− | 0.1+ | |
| 2006 04 23 | 699 | 0.7− | 0.9+ | 2008 10 07 | G96 | 0.3+ | 0.1− | 2009 11 09 | 691 | 0.4− | 0.1− | |
| 2006 04 23 | 699 | 0.2+ | 1.0+ | 2008 10 07 | G96 | 0.3− | 0.4− | 2009 11 17 | 691 | 0.0 | 0.0 | |
| 2006 04 27 | 703 | 1.2+ | 0.5− | 2008 10 07 | G96 | 0.2+ | 0.3− | 2009 11 17 | 691 | 0.2− | 0.0 | |
| 2006 04 27 | 703 | 0.6+ | 0.4− | 2008 10 07 | G96 | 0.3− | 0.4− | 2009 11 17 | 691 | 0.1− | 0.1+ | |
| 2006 04 27 | 703 | 1.2− | 0.6+ | 2008 10 22 | G96 | 0.4− | 0.2− | 2009 12 11 | G96 | 0.4+ | 0.2− | |
| 2006 04 27 | 703 | 0.5+ | 0.5+ | 2008 10 22 | G96 | 0.2+ | 0.1− | 2009 12 11 | G96 | 0.4+ | 0.1− | |
| 2006 05 03 | 703 | 1.1− | 0.2− | 2008 10 22 | G96 | 0.4+ | 0.3− | 2009 12 11 | G96 | 0.5+ | 0.2+ | |
| 2006 05 03 | 703 | 0.2− | 0.0 | 2008 10 22 | G96 | 0.6+ | 0.3− | 2009 12 11 | G96 | 1.0+ | 0.2+ | |
| 2006 05 03 | 703 | 0.8+ | 1.0− | 2008 10 30 | 704 | 0.4− | 0.2+ | | | | | |

**(229635)∗ 2006 EC$_{59}$ = 2001 BA$_{38}$**

Discovered 2006 Mar. 5 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 97216)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 336.28512 | | (2000.0) | | | |
| $n$ | 0.21921111 | $\omega$ | 197.25718 | | −0.79619782 | −0.60270990 |
| $a$ | 2.7241290 | $\Omega$ | 305.55995 | | +0.56251578 | −0.70513282 |
| $e$ | 0.0550492 | $i$ | 3.73600 | | +0.22281163 | −0.37353511 |
| $P$ | 4.50 | $H$ | 15.9 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 12 29 | 691 | 0.2− | 0.3+ | 2006 03 03 | G96 | 0.1− | 0.3+ | 2008 10 08 | G96 | 0.3+ | 0.1− | |
| 2000 12 29 | 691 | 0.5− | 0.5+ | 2006 03 03 | G96 | 0.0 | 0.3+ | 2008 10 27 | G96 | 0.3+ | 0.1+ | |
| 2000 12 29 | 691 | 0.4− | 0.8+ | 2006 03 03 | G96 | (2.1− | 0.8+) | 2008 10 27 | G96 | 0.2+ | 0.1+ | |
| 2001 01 21 | 704 | 0.6+ | 0.9+ | 2006 03 05 | 691 | 0.2+ | 0.6+ | 2008 10 27 | G96 | 0.2+ | 0.0 | |
| 2001 01 21 | 704 | 0.4+ | 0.4+ | 2006 03 05 | 691 | 0.4+ | 0.2+ | 2008 10 27 | G96 | 0.1+ | 0.1− | |
| 2001 01 21 | 704 | 0.9+ | 0.4+ | 2006 03 05 | 691 | 0.3+ | 0.3+ | 2009 11 16 | G96 | 0.3+ | 0.3− | |
| 2001 01 24 | 704 | 0.2+ | 0.6+ | 2006 03 09 | 691 | 0.3+ | 0.4+ | 2009 11 16 | G96 | 0.1+ | 0.5− | |
| 2001 01 24 | 704 | 0.0 | 0.3+ | 2006 03 09 | 691 | 0.3+ | 0.3+ | 2009 11 16 | G96 | 0.1+ | 0.3− | |
| 2001 01 24 | 704 | 0.3+ | 0.4+ | 2006 03 09 | 691 | 0.2+ | 0.4+ | 2009 11 16 | G96 | 0.5+ | 0.3− | |
| 2001 01 24 | 704 | 0.3− | 0.3+ | 2008 09 04 | 691 | 0.1− | 0.2+ | 2009 12 17 | G96 | 0.1+ | 0.3− | |
| 2003 08 19 | 599 | 0.2+ | 0.4+ | 2008 09 04 | 691 | 1.3− | 0.5+ | 2009 12 17 | G96 | 0.7− | 0.2− | |
| 2003 08 19 | 599 | 0.1+ | 0.8+ | 2008 09 04 | 691 | 0.3− | 0.4+ | 2009 12 17 | G96 | 0.2+ | 0.7− | |
| 2003 08 19 | 599 | 0.3+ | 0.6+ | 2008 09 19 | 691 | 0.0 | 0.2+ | 2009 12 17 | G96 | 0.0 | 0.4− | |
| 2003 08 19 | 599 | 0.3+ | 0.5+ | 2008 09 19 | 691 | 0.4− | 0.1+ | 2009 12 17 | 691 | 0.0 | 0.4− | |
| 2004 11 11 | 691 | 0.8+ | 0.2− | 2008 09 19 | 691 | 0.1+ | 0.5+ | 2009 12 17 | 691 | 0.3+ | 0.2− | |
| 2004 11 11 | 691 | 0.6+ | 0.4− | 2008 09 23 | 691 | 0.6− | 0.3+ | 2009 12 17 | 691 | 0.2− | 0.2− | |
| 2004 11 11 | 691 | 0.5+ | 0.4− | 2008 09 23 | 691 | 0.4− | 0.1+ | 2009 12 25 | 691 | 0.1− | 0.2− | |
| 2004 12 15 | 704 | 1.1− | 1.3+ | 2008 09 23 | 691 | 0.4− | 0.4+ | 2009 12 25 | 691 | 0.3− | 0.1− | |
| 2004 12 15 | 704 | 0.3+ | 0.1− | 2008 10 08 | G96 | 0.1+ | 0.0 | 2009 12 25 | 691 | 0.4− | 0.2− | |
| 2004 12 15 | 704 | 0.1+ | 0.4+ | 2008 10 08 | G96 | 0.0 | 0.2− | | | | | |
| 2004 12 15 | 704 | 0.8+ | 0.0 | 2008 10 08 | G96 | 0.4+ | 0.1− | | | | | |

**(229636)∗ 2006 FS$_{2}$**

Discovered 2006 Mar. 23 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| $M$ | 217.86113 | | | (2000.0) | | **P** | | **Q** | | | |
| $n$ | 0.19855387 | | $\omega$ | 199.37824 | | −0.27932246 | | +0.95934664 | | | |
| $a$ | 2.9099385 | | $\Omega$ | 54.42188 | | −0.87427633 | | −0.23670150 | | | |
| $e$ | 0.0080431 | | $i$ | 2.84794 | | −0.39701368 | | −0.15370891 | | | |
| $P$ | 4.96 | | $H$ | 16.1 | $G$ | 0.15 | $U$ | 0 | | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 03 26 | 695 | 0.2− | 0.2+ | 2006 03 24 | G96 | 0.0 | 0.5+ | 2006 05 19 | G96 | 0.1− | 0.0 | | | |
| 2001 03 26 | 695 | 0.2− | 0.2+ | 2006 03 26 | G96 | 0.2+ | 0.0 | 2008 09 22 | 691 | 0.3− | 0.2+ | | | |
| 2003 09 28 | 691 | 0.2− | 0.2+ | 2006 03 26 | G96 | 0.1+ | 0.0 | 2008 09 22 | 691 | 0.1− | 0.3− | | | |
| 2003 09 28 | 691 | 0.3− | 0.0 | 2006 03 26 | G96 | 0.2+ | 0.2+ | 2008 09 22 | 691 | 0.1− | 0.5+ | | | |
| 2003 09 28 | 691 | 0.1− | 0.3+ | 2006 03 26 | G96 | 0.5− | 0.2+ | 2008 10 20 | G96 | 0.1+ | 0.1+ | | | |
| 2003 10 16 | 691 | 0.2+ | 0.4+ | 2006 03 26 | G96 | 0.2− | 0.0 | 2008 10 20 | G96 | 0.3+ | 0.2+ | | | |
| 2003 10 16 | 691 | 0.1− | 0.2+ | 2006 03 26 | G96 | 0.1− | 0.1+ | 2008 10 20 | G96 | 0.1− | 0.2+ | | | |
| 2003 10 16 | 691 | 0.2− | 0.3+ | 2006 03 26 | G96 | 0.3− | 0.1+ | 2008 10 20 | G96 | 0.1+ | 0.2− | | | |
| 2003 10 23 | 695 | 0.7− | 0.3+ | 2006 04 09 | 691 | 0.0 | 0.5+ | 2008 11 19 | 703 | 0.4− | 1.0+ | | | |
| 2003 10 23 | 695 | 0.5− | 0.2+ | 2006 04 09 | 691 | 0.9− | 0.2+ | 2008 11 19 | 703 | 0.5− | 0.2+ | | | |
| 2005 01 18 | 691 | 0.3+ | 0.1+ | 2006 04 09 | 691 | 0.2+ | 0.1− | 2008 11 19 | 703 | 0.0 | 1.3+ | | | |
| 2005 01 18 | 691 | 0.1+ | 0.1+ | 2006 04 24 | 691 | 0.1+ | 0.1+ | 2008 11 19 | 703 | 0.5+ | 0.3+ | | | |
| 2005 01 18 | 691 | 0.0 | 0.1− | 2006 04 24 | 691 | 0.5+ | 0.3+ | 2008 11 24 | G96 | 0.1+ | 0.2+ | | | |
| 2006 03 03 | G96 | 0.1− | 0.0 | 2006 04 24 | 691 | 0.1+ | 0.4+ | 2008 11 24 | G96 | 0.3+ | 0.2+ | | | |
| 2006 03 03 | G96 | 0.0 | 0.0 | 2006 04 30 | 691 | 0.3+ | 0.1+ | 2008 11 24 | G96 | 0.1− | 0.1+ | | | |
| 2006 03 03 | G96 | 0.1− | 0.2+ | 2006 04 30 | 691 | 0.2+ | 0.0 | 2008 11 24 | G96 | 0.1+ | 0.1+ | | | |
| 2006 03 03 | G96 | 0.1− | 0.4+ | 2006 04 30 | 691 | 0.5+ | 0.3+ | 2009 12 18 | G96 | 0.4+ | 0.5+ | | | |
| 2006 03 23 | 691 | 0.5+ | 0.5− | 2006 05 03 | 691 | 0.2+ | 0.0 | 2009 12 18 | G96 | 0.5+ | 0.3+ | | | |
| 2006 03 23 | 691 | 0.3+ | 0.2− | 2006 05 03 | 691 | 0.3− | 0.7+ | 2009 12 18 | G96 | 0.6+ | 0.2+ | | | |
| 2006 03 23 | 691 | 0.2+ | 0.1− | 2006 05 03 | 691 | 0.1− | 0.3+ | 2009 12 18 | G96 | 0.2+ | 0.3+ | | | |
| 2006 03 24 | G96 | 0.3+ | 0.6+ | 2006 05 19 | G96 | 0.7− | 0.0 | 2009 12 27 | 691 | 0.2+ | 0.6− | | | |
| 2006 03 24 | G96 | 0.1− | 0.3+ | 2006 05 19 | G96 | 0.3− | 0.1+ | 2009 12 27 | 691 | 0.1− | 0.4+ | | | |
| 2006 03 24 | G96 | 0.2+ | 0.5+ | 2006 05 19 | G96 | 0.5− | 0.0 | 2009 12 27 | 691 | 0.9− | 0.2− | | | |

**(229637)∗ 2006 FU$_4$ = 2001 FK$_{192}$**

Discovered 2006 Mar. 23 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 101504)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| $M$ | 294.07584 | | | (2000.0) | | **P** | | **Q** | | | |
| $n$ | 0.21002083 | | $\omega$ | 137.39990 | | −0.98705255 | | +0.11493001 | | | |
| $a$ | 2.8030304 | | $\Omega$ | 49.55093 | | −0.15499665 | | −0.86292728 | | | |
| $e$ | 0.1490067 | | $i$ | 8.45471 | | +0.04127107 | | −0.49208495 | | | |
| $P$ | 4.69 | | $H$ | 15.7 | $G$ | 0.15 | $U$ | 1 | | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 02 19 | 699 | 0.3+ | 0.4+ | 2006 03 23 | 704 | 0.2+ | 0.0 | 2006 04 27 | 704 | 0.9+ | 0.7+ | | | |
| 2001 02 19 | 699 | 0.4− | 0.4+ | 2006 03 23 | 704 | 1.0+ | 0.1+ | 2006 05 25 | G96 | 0.5− | 0.0 | | | |
| 2001 02 19 | 699 | 0.0 | 0.8− | 2006 03 24 | 704 | 0.2− | 0.6+ | 2006 05 25 | G96 | 0.4− | 0.1+ | | | |
| 2001 02 19 | 699 | 0.4− | 0.2+ | 2006 03 24 | 704 | 0.3+ | 0.7+ | 2006 05 25 | G96 | 0.3− | 0.1− | | | |
| 2001 03 23 | 699 | 1.3+ | 0.3+ | 2006 03 24 | 704 | 1.1+ | 1.3− | 2006 05 25 | G96 | 0.3− | 0.1− | | | |
| 2001 03 23 | 699 | 0.8+ | 0.3− | 2006 03 24 | 704 | (0.9+ | 2.1+) | 2008 10 08 | 691 | 0.3− | 0.2+ | | | |
| 2001 03 23 | 699 | 0.0 | 0.3+ | 2006 03 24 | 704 | 0.3− | 0.1+ | 2008 10 08 | 691 | 0.5− | 0.2+ | | | |
| 2001 03 23 | 699 | 0.1+ | 0.5− | 2006 03 29 | 704 | 0.3+ | 0.1− | 2008 10 08 | 691 | 0.6− | 0.5+ | | | |
| 2001 03 30 | 608 | 0.3− | 0.3+ | 2006 03 29 | 704 | 0.2+ | 0.4+ | 2008 10 24 | G96 | 0.1− | 0.1+ | | | |
| 2001 03 30 | 608 | 0.8− | 0.8+ | 2006 03 29 | 704 | 0.3+ | 0.8+ | 2008 10 24 | G96 | 0.5+ | 0.0 | | | |
| 2001 03 30 | 608 | 0.3− | 0.1+ | 2006 03 29 | 704 | 0.4+ | 0.8+ | 2008 10 24 | G96 | 0.1− | 0.1+ | | | |
| 2003 09 22 | 691 | 0.4− | 0.7+ | 2006 03 29 | 704 | 0.0 | 0.2+ | 2008 10 24 | G96 | 0.6+ | 0.4+ | | | |
| 2003 09 22 | 691 | 0.1− | 0.7+ | 2006 04 02 | 691 | 0.0 | 0.5+ | 2009 12 15 | 704 | 0.3+ | 1.5+ | | | |
| 2003 09 22 | 691 | 0.4− | 0.8+ | 2006 04 02 | 691 | 0.1+ | 0.3+ | 2009 12 15 | 704 | 1.0+ | 0.4+ | | | |
| 2004 12 02 | 644 | 0.0 | 0.1− | 2006 04 02 | 691 | 0.2− | 0.2+ | 2009 12 15 | 704 | (0.8− | 2.3+) | | | |
| 2004 12 02 | 644 | 0.1− | 0.1+ | 2006 04 23 | 704 | 0.5+ | 0.9+ | 2009 12 15 | 704 | 0.6+ | 0.0 | | | |
| 2004 12 02 | 644 | 0.0 | 0.2+ | 2006 04 23 | 704 | (1.0+ | 1.7+) | 2009 12 20 | G96 | 0.5− | 0.4− | | | |
| 2006 03 23 | 704 | 0.2+ | 0.5+ | 2006 04 23 | 704 | (1.9+ | 2.2+) | 2009 12 20 | G96 | 0.1+ | 0.5− | | | |
| 2006 03 23 | 704 | 0.7+ | 0.8+ | 2006 04 27 | 704 | 0.6+ | 0.4+ | 2009 12 20 | G96 | 0.2− | 0.3− | | | |
| 2006 03 23 | 704 | 0.8+ | 0.5+ | 2006 04 27 | 704 | 0.2+ | 0.4+ | 2009 12 20 | G96 | 0.1+ | 0.4− | | | |

**(229638)∗ 2006 FN$_8$**

Discovered 2006 Mar. 23 by the Mt. Lemmon Survey at Mount Lemmon.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| $M$ | 349.10203 | | | (2000.0) | | **P** | | **Q** | | | |
| $n$ | 0.17997869 | | $\omega$ | 255.55535 | | −0.02970537 | | −0.99849057 | | | |
| $a$ | 3.1068622 | | $\Omega$ | 196.35865 | | +0.96860644 | | −0.01734243 | | | |
| $e$ | 0.0769371 | | $i$ | 9.44050 | | +0.24681805 | | −0.05211346 | | | |
| $P$ | 5.48 | | $H$ | 15.8 | $G$ | 0.15 | $U$ | 0 | | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 05 24 | 691 | 0.2+ | 0.0 | 2003 11 24 | 691 | 0.0 | 0.3+ | 2006 05 24 | G96 | 0.5− | 0.5+ | | | |
| 2001 05 24 | 691 | 0.1+ | 0.1+ | 2006 03 23 | G96 | 0.1− | 0.2+ | 2008 09 26 | G96 | 0.1+ | 0.2+ | | | |
| 2001 05 24 | 691 | 0.4+ | 0.4+ | 2006 03 23 | G96 | 0.5− | 0.3+ | 2008 09 26 | G96 | 0.2− | 0.2+ | | | |
| 2003 09 29 | 704 | 1.5− | 1.5− | 2006 03 23 | G96 | 0.3− | 0.3− | 2008 09 26 | G96 | 0.0 | 0.6+ | | | |
| 2003 09 29 | 704 | 1.1− | 0.1− | 2006 03 23 | G96 | 0.5+ | 0.2+ | 2008 09 26 | G96 | 0.3+ | 0.3+ | | | |
| 2003 09 29 | 704 | 0.9− | 0.1+ | 2006 03 24 | 691 | 0.1+ | 0.4+ | 2008 10 08 | G96 | 0.5− | 0.2− | | | |
| 2003 09 29 | 691 | 0.1− | 0.3+ | 2006 03 24 | 691 | 0.3+ | 0.4+ | 2008 10 08 | G96 | 0.0 | 0.0 | | | |
| 2003 09 29 | 691 | 0.3− | 0.1− | 2006 03 24 | 691 | 0.1+ | 0.8+ | 2008 10 08 | G96 | 0.2− | 0.1+ | | | |
| 2003 09 29 | 691 | 0.0 | 0.2+ | 2006 05 06 | G96 | 0.1− | 0.0 | 2008 10 08 | G96 | 0.2− | 0.2+ | | | |
| 2003 10 18 | 691 | 0.3+ | 0.4+ | 2006 05 06 | G96 | 0.1− | 0.2+ | 2009 11 27 | G96 | 0.1− | 0.2+ | | | |
| 2003 10 18 | 691 | 0.2+ | 0.3+ | 2006 05 06 | G96 | 0.4+ | 0.2+ | 2009 11 27 | G96 | 0.0 | 0.0 | | | |
| 2003 10 18 | 691 | 0.3+ | 0.3+ | 2006 05 06 | G96 | 0.2+ | 0.2+ | 2009 11 27 | G96 | 0.1+ | 0.1+ | | | |
| 2003 10 24 | 704 | 0.8− | 0.7+ | 2006 05 19 | G96 | 0.5− | 0.1− | 2009 11 27 | G96 | 0.1+ | 0.0 | | | |
| 2003 10 24 | 704 | 0.3− | 0.3− | 2006 05 19 | G96 | 0.6− | 0.1+ | 2009 11 27 | G96 | 0.2+ | 0.2+ | | | |
| 2003 10 24 | 704 | 0.1+ | 0.2+ | 2006 05 19 | G96 | 0.6− | 0.2+ | 2009 12 13 | 704 | 1.0+ | 0.5+ | | | |
| 2003 10 24 | 704 | 0.4− | 0.1− | 2006 05 19 | G96 | 0.2− | 0.2+ | 2009 12 13 | 704 | 1.0+ | 0.2+ | | | |
| 2003 11 24 | 691 | 0.2+ | 0.1− | 2006 05 24 | G96 | 0.6− | 0.1− | 2009 12 13 | 704 | 0.5− | 0.8+ | | | |
| 2003 11 24 | 691 | 0.2− | 0.4+ | 2006 05 24 | G96 | 0.4− | 0.4+ | | | | | | | |

**(229639)∗ 2006 FZ$_8$**

Discovered 2006 Mar. 23 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| $M$ | 208.36960 | | | (2000.0) | | **P** | | **Q** | | | |
| $n$ | 0.17158343 | | $\omega$ | 160.41547 | | −0.58008395 | | +0.81324139 | | | |
| $a$ | 3.2073952 | | $\Omega$ | 74.10182 | | −0.75360958 | | −0.51425436 | | | |
| $e$ | 0.0523924 | | $i$ | 2.75766 | | −0.30915239 | | −0.27236170 | | | |
| $P$ | 5.74 | | $H$ | 15.7 | $G$ | 0.15 | $U$ | 0 | | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 03 05 | 691 | 0.2− | 0.5− | 2006 04 27 | 807 | 0.0 | 0.1− | 2008 09 29 | G96 | 0.7+ | 0.1+ | | | |
| 1994 03 05 | 691 | 0.1− | 0.3− | 2006 04 27 | 807 | 0.0 | 0.0 | 2008 09 29 | G96 | 0.2+ | 0.2+ | | | |
| 1994 03 05 | 691 | 0.3+ | 0.3− | 2006 04 28 | 807 | 0.0 | 0.0 | 2008 10 02 | G96 | 0.5+ | 0.1+ | | | |
| 2000 05 05 | 645 | 0.0 | 0.0 | 2006 05 06 | G96 | 0.2− | 0.1+ | 2008 10 02 | G96 | 0.1+ | 0.7+ | | | |
| 2000 05 05 | 645 | 0.1− | 0.0 | 2006 05 06 | G96 | 0.4− | 0.2− | 2008 10 02 | G96 | 0.2+ | 0.4+ | | | |
| 2005 01 15 | 691 | 0.1+ | 0.5+ | 2006 05 06 | G96 | 0.4− | 0.0 | 2008 10 02 | G96 | 0.4+ | 0.4+ | | | |
| 2005 01 15 | 691 | 0.3− | 0.5+ | 2006 05 06 | G96 | 0.3− | 0.2− | 2008 10 25 | G96 | 0.7− | 0.3+ | | | |
| 2005 01 15 | 691 | 0.1+ | 0.8+ | 2006 05 26 | G96 | 0.1− | 0.0 | 2008 10 25 | G96 | 0.1− | 0.0 | | | |
| 2006 03 23 | 291 | 0.0 | 0.6+ | 2006 05 26 | G96 | 0.4− | 0.1− | 2008 10 25 | G96 | 0.1+ | 0.4+ | | | |
| 2006 03 23 | 291 | 0.3+ | 0.3+ | 2006 05 26 | G96 | 0.7− | 0.1− | 2008 10 25 | G96 | 0.4− | 1.0+ | | | |
| 2006 03 23 | 291 | 0.2+ | 0.7+ | 2006 05 26 | G96 | 0.2+ | 0.1+ | 2009 11 19 | B21 | 0.5+ | 0.4+ | | | |
| 2006 03 23 | 291 | 0.1+ | 0.5+ | 2008 09 04 | 691 | 0.6− | 0.3+ | 2009 11 19 | B21 | 0.4− | 0.3+ | | | |
| 2006 03 23 | 291 | 0.1+ | 0.0 | 2008 09 04 | 691 | 0.3− | 0.6+ | 2009 11 19 | B21 | 0.2− | 0.3− | | | |
| 2006 03 23 | 291 | 0.3+ | 0.3+ | 2008 09 04 | 691 | 0.4− | 0.2+ | 2009 12 10 | G96 | 0.8+ | 0.1+ | | | |
| 2006 03 24 | 691 | 0.7+ | 0.7+ | 2008 09 19 | 691 | 0.3− | 0.3+ | 2009 12 10 | G96 | 0.4+ | 0.1+ | | | |
| 2006 03 24 | 691 | 0.4+ | 0.2+ | 2008 09 19 | 691 | 0.6− | 0.6+ | 2009 12 10 | G96 | 0.1+ | 0.1− | | | |
| 2006 03 24 | 691 | 0.6+ | 0.4+ | 2008 09 19 | 691 | 0.5− | 0.3+ | 2009 12 10 | G96 | 0.2+ | 0.3− | | | |
| 2006 03 26 | G96 | 0.3− | 0.5+ | 2008 09 28 | G96 | 0.7+ | 0.1− | 2009 12 19 | G96 | 0.2+ | 0.2+ | | | |
| 2006 03 26 | G96 | 0.2− | 0.4+ | 2008 09 28 | G96 | 1.1+ | 0.3− | 2009 12 19 | G96 | 0.2+ | 0.1+ | | | |
| 2006 03 26 | G96 | 0.1+ | 0.5+ | 2008 09 28 | G96 | 0.8+ | 0.2− | 2009 12 19 | G96 | 0.1+ | 0.1+ | | | |
| 2006 03 26 | G96 | 0.3− | 0.1− | 2008 09 29 | G96 | 0.3+ | 0.2+ | 2009 12 19 | G96 | 0.2+ | 0.1− | | | |

**(229640)∗ 2006 FD$_{11}$ = 2000 CF$_{124}$ = 2004 XO$_{88}$**

Discovered 2006 Mar. 23 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 101511)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 278.81947 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17851972 | $\omega$ | 86.82760 | | −0.81305057 | −0.57978398 | |
| $a$ | 3.1237666 | $\Omega$ | 57.73060 | | +0.50621516 | −0.74890775 | |
| $e$ | 0.1272732 | $i$ | 3.58751 | | +0.28756734 | −0.32091698 | |
| $P$ | 5.52 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 02 03 | 704 | 0.0 | 0.3+ | 2004 12 10 | 704 | 0.9+ | 0.5− | 2006 04 20 | 699 | (1.9+ | 1.1+) |
| 2000 02 03 | 704 | 1.0+ | 0.1+ | 2004 12 10 | 704 | 0.3− | 0.3+ | 2006 04 20 | 699 | 0.2− | 1.2+ |
| 2000 02 03 | 704 | 0.5− | 1.2+ | 2004 12 15 | 691 | 0.1− | 0.0 | 2009 09 22 | G96 | 0.2− | 0.1− |
| 2000 02 03 | 704 | 1.0+ | 1.3+ | 2004 12 15 | 691 | 0.0 | 0.1− | 2009 09 22 | G96 | 0.3+ | 0.1− |
| 2000 02 03 | 704 | 0.0 | 1.0+ | 2004 12 15 | 691 | 0.1− | 0.2− | 2009 09 22 | G96 | 0.2− | 0.1− |
| 2000 02 11 | 704 | 0.0 | 0.5+ | 2006 03 23 | 691 | 0.0 | 0.1+ | 2009 09 22 | G96 | 0.3+ | 0.1− |
| 2000 02 11 | 704 | 0.4+ | 0.6+ | 2006 03 23 | 691 | 0.2+ | 0.1+ | 2009 11 19 | G96 | 0.0 | 0.2+ |
| 2000 02 11 | 704 | 0.2− | 0.4− | 2006 03 23 | 691 | 0.2− | 0.2+ | 2009 11 19 | G96 | 0.0 | 0.0 |
| 2001 06 01 | 691 | 0.2+ | 0.1+ | 2006 03 25 | 691 | 0.6+ | 0.2+ | 2009 11 19 | G96 | 0.1+ | 0.0 |
| 2001 06 01 | 691 | 0.4+ | 0.1+ | 2006 03 25 | 691 | 0.1+ | 0.3+ | 2009 11 19 | G96 | 0.1+ | 0.1+ |
| 2001 06 01 | 691 | 0.4− | 0.3+ | 2006 03 25 | 691 | 0.3+ | 0.1+ | 2009 12 10 | G96 | 0.0 | 0.7− |
| 2003 09 26 | 645 | 0.1− | 0.2+ | 2006 03 29 | 691 | 0.4+ | 0.1+ | 2009 12 10 | G96 | 0.5+ | 0.1− |
| 2003 09 26 | 645 | 0.1− | 0.1+ | 2006 03 29 | 691 | 0.5− | 0.5+ | 2009 12 10 | G96 | 0.6+ | 0.6− |
| 2003 09 28 | 645 | 0.1− | 0.2+ | 2006 03 29 | 691 | 0.1+ | 0.2+ | 2009 12 10 | G96 | 0.0 | 0.2− |
| 2003 09 28 | 645 | 0.1− | 0.2+ | 2006 04 20 | 699 | (1.2+ | 3.0+) | | | | |
| 2004 12 10 | 704 | 0.6+ | 0.5+ | 2006 04 20 | 699 | (1.9+ | 0.9+) | | | | |

**(229641)∗ 2006 FJ$_{16}$ = 2003 UL$_{234}$**

Discovered 2006 Mar. 23 by the Mt. Lemmon Survey at Mount Lemmon.

Id. G. V. Williams (*MPO* 101517)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 172.62065 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19213833 | $\omega$ | 276.11345 | | +0.29053795 | +0.95664305 | |
| $a$ | 2.9743589 | $\Omega$ | 10.84367 | | −0.82906214 | +0.26239106 | |
| $e$ | 0.0691252 | $i$ | 6.26716 | | −0.47774854 | +0.12643181 | |
| $P$ | 5.13 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 04 30 | 691 | 0.2+ | 0.2+ | 2006 02 27 | 691 | 0.2+ | 0.1− | 2008 09 07 | G96 | 0.4+ | 0.2+ |
| 2001 04 30 | 691 | 0.1+ | 0.4+ | 2006 02 27 | 691 | 0.1+ | 0.1− | 2008 09 07 | G96 | 0.0 | 0.1+ |
| 2001 04 30 | 691 | 0.3+ | 0.4+ | 2006 02 27 | 691 | 0.1+ | 0.5+ | 2008 09 07 | G96 | 0.2+ | 0.2+ |
| 2003 10 19 | 691 | 0.2− | 0.3+ | 2006 03 23 | G96 | 0.1+ | 0.6+ | 2008 09 07 | G96 | 0.4+ | 0.1+ |
| 2003 10 19 | 691 | 0.3+ | 0.2− | 2006 03 23 | G96 | 0.1− | 0.0 | 2008 09 09 | G96 | 0.3+ | 0.1− |
| 2003 10 19 | 691 | 0.1+ | 0.2− | 2006 03 23 | G96 | 0.3+ | 0.1+ | 2008 09 09 | G96 | 0.3+ | 0.4− |
| 2003 10 24 | 291 | 0.1+ | 0.2+ | 2006 03 23 | G96 | 0.1+ | 0.1− | 2008 09 09 | G96 | 0.7− | 0.6+ |
| 2003 10 24 | 291 | 0.2− | 0.2+ | 2006 03 26 | G96 | 0.1− | 0.1+ | 2008 09 09 | G96 | 0.2− | 0.3+ |
| 2003 10 24 | 291 | 0.0 | 0.2+ | 2006 03 26 | G96 | 0.3+ | 0.5+ | 2008 09 21 | 691 | 0.1− | 0.1+ |
| 2003 10 25 | 291 | 0.1+ | 0.1− | 2006 03 26 | G96 | 0.1+ | 0.6+ | 2008 09 21 | 691 | 0.1− | 0.5+ |
| 2003 10 25 | 291 | 0.2− | 0.3+ | 2006 03 26 | G96 | 0.4+ | 0.2+ | 2008 09 21 | 691 | 0.1− | 0.2+ |
| 2003 10 25 | 291 | 0.5− | 0.1+ | 2006 04 07 | G96 | 0.1+ | 0.4+ | 2008 09 25 | 691 | 0.0 | 0.3+ |
| 2003 10 25 | 691 | 0.5− | 0.1+ | 2006 04 07 | G96 | 0.2+ | 0.3+ | 2008 09 25 | 691 | 0.1− | 0.1+ |
| 2003 10 25 | 691 | 0.0 | 0.2+ | 2006 04 07 | G96 | 0.1+ | 0.3+ | 2008 09 25 | 691 | 0.5− | 0.3+ |
| 2003 10 25 | 691 | 0.3− | 0.3+ | 2006 04 07 | G96 | 0.1+ | 0.3+ | 2009 10 14 | G96 | 0.1− | 0.0 |
| 2003 10 25 | 704 | 1.2+ | 0.1+ | 2006 04 25 | 691 | 0.3+ | 0.3+ | 2009 10 14 | G96 | 0.2− | 0.6− |
| 2003 10 25 | 704 | 0.9+ | 0.4− | 2006 04 25 | 691 | 0.1+ | 0.3+ | 2009 10 14 | G96 | 0.4− | 0.2+ |
| 2003 10 25 | 704 | 0.8+ | 0.3+ | 2006 04 25 | 691 | 0.1− | 0.1+ | 2009 10 14 | G96 | 0.5+ | 0.2− |
| 2005 02 04 | G96 | 0.2− | 0.7− | 2008 09 07 | G96 | 0.9− | 0.1− | 2009 12 20 | G96 | 1.1− | 0.2− |
| 2005 02 04 | G96 | 0.3− | 0.2− | 2008 09 07 | G96 | 0.0 | 0.0 | 2009 12 20 | G96 | 0.6+ | 0.4− |
| 2005 02 04 | G96 | 0.2+ | 0.0 | 2008 09 07 | G96 | 0.1+ | 0.1+ | 2009 12 20 | G96 | 0.2+ | 0.1− |
| 2005 02 04 | G96 | 0.0 | 0.3− | 2008 09 07 | G96 | 0.1+ | 0.3+ | 2009 12 20 | G96 | 0.4+ | 0.3− |

**(229642)∗ 2006 FU$_{20}$ = 2003 VG$_{3}$**

Discovered 2006 Mar. 24 by W. Bickel at Bergisch Gladbach.

Id. G. V. Williams (*MPO* 101523)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 115.10886 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.16872122 | $\omega$ | 271.07236 | | +0.59679401 | +0.80183252 | |
| $a$ | 3.2435672 | $\Omega$ | 35.62358 | | −0.71416061 | +0.54785587 | |
| $e$ | 0.0738436 | $i$ | 2.95488 | | −0.36580260 | +0.23857611 | |
| $P$ | 5.84 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 11 23 | 691 | 0.7− | 0.2− | 2003 11 16 | 291 | 0.4+ | 0.4+ | 2008 09 23 | G96 | 0.2− | 0.4+ |
| 1997 11 23 | 691 | 0.1− | 0.1− | 2006 02 27 | 691 | 0.0 | 0.4+ | 2008 09 23 | G96 | 0.1− | 0.4+ |
| 1997 11 23 | 691 | 0.6− | 0.7− | 2006 02 27 | 691 | 0.3+ | 0.0 | 2009 10 22 | G96 | 0.4+ | 0.1− |
| 2001 08 21 | 807 | 0.1− | 0.1− | 2006 02 27 | 691 | 0.1+ | 0.2+ | 2009 10 22 | G96 | 0.2− | 0.3+ |
| 2001 08 21 | 807 | 0.2− | 0.1− | 2006 03 24 | 621 | 0.0 | 0.0 | 2009 10 22 | G96 | 0.2− | 0.2+ |
| 2002 08 30 | 644 | 0.1− | 0.7+ | 2006 03 24 | 621 | 0.1+ | 0.5+ | 2009 10 22 | G96 | 0.3+ | 0.1+ |
| 2002 08 30 | 644 | 0.1+ | 0.7+ | 2006 03 24 | 621 | 0.3− | 0.0 | 2009 10 27 | 691 | 0.2− | 0.1− |
| 2002 08 30 | 644 | 0.2− | 0.8+ | 2006 03 26 | G96 | 0.2− | 0.3+ | 2009 10 27 | 691 | 0.2− | 0.1− |
| 2003 10 20 | 691 | 0.3+ | 0.4+ | 2006 03 26 | G96 | 0.0 | 0.4+ | 2009 10 27 | 691 | 0.6− | 0.2+ |
| 2003 10 20 | 691 | 0.1− | 0.3+ | 2006 03 26 | G96 | 0.2+ | 0.3+ | 2009 11 23 | 291 | 0.2− | 0.1+ |
| 2003 10 20 | 691 | 0.1+ | 0.1+ | 2006 03 26 | G96 | 0.2− | 0.3− | 2009 11 23 | 291 | 0.4− | 0.0 |
| 2003 11 15 | 691 | 0.4+ | 0.2− | 2006 04 21 | 691 | 0.3+ | 0.1− | 2009 11 23 | 291 | 0.4− | 0.1+ |
| 2003 11 15 | 691 | 0.4+ | 0.1− | 2006 04 21 | 691 | 0.1− | 0.2+ | 2009 12 18 | G96 | 0.2− | 0.2− |
| 2003 11 15 | 691 | 0.6+ | 0.3− | 2006 04 21 | 691 | 0.1+ | 0.1− | 2009 12 18 | G96 | 0.4+ | 0.3− |
| 2003 11 16 | 291 | 1.0+ | 0.4+ | 2008 09 23 | G96 | 0.1− | 0.3+ | 2009 12 18 | G96 | 0.2+ | 0.1+ |
| 2003 11 16 | 291 | 0.1− | 0.1+ | 2008 09 23 | G96 | 0.4− | 0.1+ | | | | |

**(229643)∗ 2006 FC$_{38}$**

Discovered 2006 Mar. 23 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 161.92239 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.20404187 | $\omega$ | 181.54596 | | +0.65008348 | +0.75880886 | |
| $a$ | 2.8575238 | $\Omega$ | 129.00403 | | −0.69660683 | +0.61617119 | |
| $e$ | 0.0609099 | $i$ | 2.95105 | | −0.30352989 | +0.21105018 | |
| $P$ | 4.83 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 02 20 | 645 | 0.1− | 0.1− | 2006 02 20 | 691 | 0.0 | 0.1+ | 2008 09 24 | 691 | 0.6− | 0.2+ |
| 2001 02 20 | 645 | 0.1− | 0.1− | 2006 02 20 | 691 | 0.3− | 0.1+ | 2008 09 24 | 691 | 0.2− | 0.1+ |
| 2001 03 03 | 950 | 0.5+ | 0.0 | 2006 02 20 | 691 | 0.2+ | 0.5+ | 2008 09 24 | 691 | 0.4− | 0.6+ |
| 2001 03 03 | 950 | 0.3+ | 0.2+ | 2006 03 23 | 691 | 0.5+ | 0.0 | 2008 10 01 | 691 | 0.2− | 0.2+ |
| 2001 03 03 | 950 | 0.5+ | 0.0 | 2006 03 23 | 691 | 0.3+ | 0.2+ | 2008 10 01 | 691 | 1.5− | 0.9− |
| 2001 03 03 | 691 | 0.8− | 0.2+ | 2006 03 23 | 691 | 0.1− | 0.7+ | 2008 10 01 | 691 | 0.2− | 0.2+ |
| 2001 03 03 | 691 | 0.5− | 0.4+ | 2006 03 29 | 691 | 0.1+ | 0.6+ | 2008 10 08 | 691 | 0.1− | 0.3+ |
| 2001 03 03 | 691 | 0.2− | 0.2+ | 2006 03 29 | 691 | 0.3+ | 0.2+ | 2008 10 08 | 691 | 0.2− | 0.2+ |
| 2003 09 28 | 699 | 0.2+ | 0.1+ | 2006 03 29 | 691 | 0.3+ | 0.4+ | 2008 10 08 | 691 | 0.1− | 0.1+ |
| 2003 09 28 | 699 | 0.2− | 0.3+ | 2006 04 26 | 691 | 0.3+ | 0.2− | 2009 12 15 | G96 | 0.9+ | 0.0 |
| 2003 09 28 | 699 | 0.5− | 0.2− | 2006 04 26 | 691 | 0.3+ | 0.2+ | 2009 12 15 | G96 | 0.7+ | 0.1− |
| 2003 09 28 | 699 | 1.2+ | 1.5+ | 2006 04 26 | 691 | 0.5+ | 0.0 | 2009 12 15 | G96 | 0.6− | 0.0 |
| 2003 10 23 | 645 | 0.1+ | 0.0 | 2006 05 06 | G96 | 0.1− | 0.3+ | 2009 12 15 | G96 | 0.4− | 0.8− |
| 2003 10 23 | 645 | 0.1+ | 0.0 | 2006 05 06 | G96 | 0.0 | 0.0 | 2009 12 25 | 691 | 0.4+ | 0.0 |
| 2003 10 24 | 645 | 0.1+ | 0.0 | 2006 05 06 | G96 | 0.2− | 0.1− | 2009 12 25 | 691 | 0.6+ | 0.2− |
| 2003 10 24 | 645 | 0.1+ | 0.0 | 2006 05 06 | G96 | 0.6− | 0.1− | 2009 12 25 | 691 | 0.3+ | 0.2− |

**(229644)∗ 2006 FO$_{42}$ = 2004 XB$_{121}$**

Discovered 2006 Mar. 26 by the Mt. Lemmon Survey at Mount Lemmon.

Id. G. V. Williams (*MPO* 101547)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 309.52405 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18943526 | $\omega$ | 77.45010 | | −0.80227656 | −0.59471758 | |
| $a$ | 3.0025863 | $\Omega$ | 66.03481 | | +0.52342477 | −0.74239112 | |
| $e$ | 0.0874459 | $i$ | 3.23756 | | +0.28701713 | −0.30849056 | |
| $P$ | 5.20 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 05 14 | 691 | 0.4+ | 0.3+ | 2006 03 26 | G96 | 0.0 | 0.3+ | 2008 09 08 | 691 | 0.4− | 0.0 |
| 2001 05 14 | 691 | 0.2− | 0.6+ | 2006 03 26 | G96 | 0.3− | 0.5+ | 2008 09 22 | G96 | 0.5+ | 0.4+ |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 05 14 | 691 | 0.1+ | 0.4+ | 2006 03 26 | G96 | 0.1+ | 0.2+ | 2008 09 22 | G96 | 0.0 | 0.2+ | 2000 12 19 | 704 | 0.7+ | 0.2+ |
| 2003 10 23 | 645 | 0.1− | 0.0 | 2006 03 26 | G96 | 0.0 | 0.1− | 2008 09 22 | G96 | 0.0 | 0.6+ | 2003 07 22 | 644 | 0.4− | 0.6+ |
| 2003 10 23 | 645 | 0.1− | 0.0 | 2006 04 02 | 691 | 0.2+ | 0.1+ | 2008 09 22 | G96 | 0.0 | 0.4+ | 2003 07 22 | 644 | 0.5− | 0.5+ |
| 2003 11 16 | 645 | 0.0 | 0.1+ | 2006 04 02 | 691 | 0.3+ | 0.3+ | 2009 11 09 | 691 | 0.1− | 0.1+ | 2003 07 22 | 644 | 0.5− | 0.5+ |
| 2003 11 16 | 645 | 0.0 | 0.1+ | 2006 04 02 | 691 | 0.1+ | 0.3+ | 2009 11 09 | 691 | 0.0 | 0.2+ | 2006 01 29 | E12 | 0.2− | 0.0 |
| 2003 11 20 | 645 | 0.0 | 0.1+ | 2006 04 07 | 691 | 0.3+ | 0.1+ | 2009 11 09 | 691 | 0.2− | 0.3+ | 2006 01 29 | E12 | 0.4− | 0.0 |
| 2003 11 20 | 645 | 0.0 | 0.1+ | 2006 04 07 | 691 | 0.1+ | 0.1+ | 2009 12 09 | J75 | 0.1− | 0.2− | 2006 01 29 | E12 | 0.7− | 0.0 |
| 2004 12 14 | 704 | 0.5− | 0.7+ | 2006 04 07 | 691 | 0.2+ | 0.3+ | 2009 12 09 | J75 | 0.0 | 0.1− | 2006 03 18 | E12 | 0.2− | 0.2+ |
| 2004 12 14 | 704 | 0.3+ | 0.9+ | 2006 04 08 | G96 | 0.0 | 0.2+ | 2009 12 09 | J75 | 0.3− | 0.1− | 2006 03 18 | E12 | 0.1+ | 0.2− |
| 2004 12 14 | 704 | 0.0 | 0.2+ | 2006 04 08 | G96 | 0.1+ | 0.1+ | 2009 12 10 | G96 | 0.0 | 0.0 | 2006 03 18 | E12 | 1.2− | 0.1− |
| 2004 12 14 | 704 | 0.7− | 0.2+ | 2006 04 08 | G96 | 0.4− | 0.2+ | 2009 12 10 | G96 | 0.4+ | 0.1+ | 2006 03 31 | E12 | 0.2− | 0.1+ |
| 2004 12 16 | 691 | 0.0 | 0.3+ | 2006 04 08 | G96 | 0.1− | 0.0 | 2009 12 10 | G96 | 0.4+ | 0.1− | 2006 03 31 | E12 | 0.1− | 0.1− |
| 2004 12 16 | 691 | 0.1− | 0.1+ | 2006 05 19 | G96 | 0.1+ | 0.3+ | 2009 12 10 | G96 | 0.6+ | 0.2− | 2006 03 31 | E12 | 0.3− | 0.0 |
| 2004 12 16 | 691 | 0.1+ | 0.2+ | 2006 05 19 | G96 | 0.1+ | 0.1+ | 2009 12 19 | G96 | 0.1+ | 0.0 | 2006 04 25 | E12 | 0.8− | 0.8+ |
| 2006 03 03 | G96 | 0.0 | 0.3+ | 2006 05 19 | G96 | 0.4− | 0.0 | 2009 12 19 | G96 | 0.2+ | 0.0 | 2006 04 25 | E12 | 0.3+ | 0.2− |
| 2006 03 03 | G96 | 0.1+ | 0.0 | 2006 05 19 | G96 | 0.2+ | 0.4+ | 2009 12 19 | G96 | 0.3+ | 0.0 | 2006 04 25 | E12 | 1.4+ | 0.4− |
| 2006 03 03 | G96 | 0.1+ | 0.2+ | 2008 09 08 | 691 | 0.6− | 0.3+ | 2009 12 19 | G96 | 0.5+ | 0.1− | 2006 04 25 | E12 | 0.6+ | 0.9− |
| 2006 03 03 | G96 | 0.5− | 0.4+ | 2008 09 08 | 691 | 0.2− | 0.6+ | | | | | 2006 05 04 | E12 | (0.4− | 1.6+) |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 05 21 | E12 | 0.2− | 0.0 | 2009 12 10 | J75 | 0.1+ | 0.0 | | | | | | | | |
| 2006 05 31 | E12 | 0.1+ | 1.0+ | 2009 12 10 | J75 | 0.7+ | 0.9+ | | | | | | | | |
| 2006 05 31 | E12 | 1.3+ | 0.2+ | 2009 12 10 | 703 | 0.6+ | 0.9+ | | | | | | | | |
| 2006 05 31 | E12 | 1.1+ | 0.4− | 2009 12 10 | 703 | 0.2+ | 0.0 | | | | | | | | |
| 2006 05 31 | E12 | 0.5+ | 0.1+ | 2009 12 10 | 703 | 0.7− | 0.2+ | | | | | | | | |
| 2009 11 17 | 704 | 0.3− | 0.9+ | 2009 12 13 | J75 | 0.1+ | 0.6− | | | | | | | | |
| 2009 11 17 | 704 | 0.3+ | 0.8+ | 2009 12 13 | J75 | 0.1+ | 0.1+ | | | | | | | | |
| 2009 11 17 | 704 | 1.3+ | 1.0− | 2009 12 13 | J75 | 0.2− | 0.0 | | | | | | | | |
| 2009 11 17 | 704 | 0.5+ | 0.8+ | 2009 12 17 | 704 | 0.7+ | 0.1+ | | | | | | | | |
| 2009 11 20 | J75 | 0.1− | 0.3+ | 2009 12 17 | 704 | 0.0 | 0.3− | | | | | | | | |
| 2009 11 20 | J75 | 0.3− | 0.2− | 2009 12 17 | 704 | 0.6+ | 0.1+ | | | | | | | | |
| 2009 11 20 | J75 | 0.5− | 0.6− | 2009 12 17 | 704 | 0.1− | 0.1− | | | | | | | | |
| 2009 11 21 | G96 | 0.1− | 0.3− | 2009 12 17 | 704 | 0.6+ | 0.0 | | | | | | | | |
| 2009 11 21 | G96 | 0.0 | 0.3− | 2009 12 18 | G96 | 0.5− | 0.2− | | | | | | | | |
| 2009 11 21 | G96 | 0.1− | 0.3− | 2009 12 18 | G96 | 0.4− | 0.3− | | | | | | | | |
| 2009 11 21 | G96 | 0.1− | 0.2− | 2009 12 18 | G96 | 0.3− | 0.4− | | | | | | | | |
| 2009 11 26 | 703 | 1.1− | 0.7+ | 2009 12 18 | G96 | 0.1− | 0.3− | | | | | | | | |
| 2009 11 26 | 703 | 0.7+ | 0.3+ | | | | | | | | | | | | |

**(229645)∗ 2006 FH$_{49}$**

Discovered 2006 Mar. 25 by the Catalina Sky Survey.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 345.60526 | | (2000.0) | | **P** | | **Q** | | |
| $n$ | 0.22670401 | $\omega$ | 25.71570 | | −0.86911311 | | −0.43914993 | | |
| $a$ | 2.6637691 | $\Omega$ | 126.33354 | | +0.39088457 | | −0.89175099 | | |
| $e$ | 0.0699499 | $i$ | 16.40923 | | +0.30307038 | | −0.10921313 | | |
| $P$ | 4.35 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 1 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 02 02 | 691 | 0.1− | 0.0 | 2004 12 07 | 704 | 0.4− | 0.9+ | 2006 04 02 | 703 | 0.6+ | 0.2+ | 2006 04 19 | G96 | 0.0 | 0.4+ |
| 1997 02 02 | 691 | 0.2+ | 0.3− | 2004 12 07 | 704 | 0.1+ | 0.2− | 2006 04 02 | 703 | 0.2+ | 0.1− | 2006 04 19 | G96 | 0.3− | 0.1+ |
| 1997 02 02 | 691 | 0.1− | 0.1− | 2004 12 12 | 704 | 0.1− | 0.2− | 2006 04 02 | 703 | 0.7+ | 0.2+ | 2006 05 06 | G96 | 0.5− | 0.4+ |
| 2000 12 19 | 608 | 0.0 | 1.1+ | 2004 12 12 | 704 | 0.0 | 0.3− | 2007 06 15 | 691 | 0.1+ | 0.6+ | 2006 05 06 | G96 | 0.8− | 0.2+ |
| 2000 12 19 | 608 | 0.1+ | 1.1+ | 2004 12 12 | 704 | 0.3+ | 0.6− | 2007 06 15 | 691 | 0.2− | 0.2+ | 2006 05 06 | G96 | 0.6− | 0.4+ |
| 2000 12 19 | 608 | 0.2+ | 1.1+ | 2004 12 12 | 704 | 0.3+ | 1.3− | 2007 06 15 | 691 | 0.1− | 0.2+ | 2006 05 06 | G96 | 0.2− | 0.3+ |
| 2001 01 04 | 704 | 0.3− | 0.1− | 2004 12 19 | 703 | 0.3− | 0.3+ | 2008 10 27 | 703 | 0.5+ | 0.2+ | 2006 05 26 | 291 | 0.5+ | 0.3+ |
| 2001 01 04 | 704 | 0.5− | 0.5+ | 2004 12 19 | 703 | 0.2− | 0.1− | 2008 10 27 | 703 | 0.3+ | 0.4+ | 2006 05 26 | 291 | 0.7+ | 0.5+ |
| 2001 01 04 | 704 | (1.9− | 1.2−) | 2004 12 19 | 703 | (1.7− | 1.3−) | 2008 10 27 | 703 | 0.1+ | 0.6− | 2006 05 26 | 291 | 0.7+ | 0.3+ |
| 2001 01 04 | 704 | (0.5− | 2.0+) | 2004 12 19 | 703 | 0.6− | 0.4− | 2008 10 27 | 703 | 0.5+ | 0.4+ | 2007 06 21 | G96 | 0.3+ | 0.1− |
| 2001 01 04 | 704 | 0.5− | 0.2+ | 2006 02 24 | 683 | (0.1− | 1.7+) | 2009 11 20 | 691 | 0.1+ | 0.1− | 2007 06 21 | G96 | 0.5+ | 0.3− |
| 2002 05 15 | 704 | 0.0 | 1.1− | 2006 02 24 | 683 | 0.2+ | 1.1+ | 2009 11 20 | 691 | 0.1− | 0.2+ | 2007 06 21 | G96 | 0.3+ | 0.2− |
| 2002 05 15 | 704 | 0.8+ | 1.2− | 2006 02 24 | 683 | (0.8+ | 2.6+) | 2009 11 20 | 691 | 0.0 | 0.5+ | 2007 06 21 | G96 | 0.1− | 0.1− |
| 2002 05 15 | 704 | (2.8+ | 0.4−) | 2006 03 25 | 703 | 0.4− | 0.5− | 2009 12 20 | G96 | 0.1+ | 0.2+ | 2008 09 24 | 691 | 0.4− | 0.2− |
| 2002 05 15 | 704 | (2.3+ | 0.9−) | 2006 03 25 | 703 | 0.7− | 0.3+ | 2009 12 20 | G96 | 0.0 | 0.2+ | 2008 09 24 | 691 | 0.0 | 0.5+ |
| 2004 12 07 | 704 | (0.6+ | 2.4−) | 2006 03 25 | 703 | (0.6− | 1.9−) | 2009 12 20 | G96 | 0.4+ | 0.0 | 2008 09 24 | 691 | 0.9− | 1.3+ |
| 2004 12 07 | 704 | 0.3− | 0.3− | 2006 03 25 | 703 | 0.9− | 0.1+ | 2009 12 20 | G96 | 0.1+ | 0.0 | 2008 10 10 | G96 | 0.1+ | 0.0 |
| 2004 12 07 | 704 | 0.5+ | 0.7− | 2006 04 02 | 703 | 0.2− | 0.0 | | | | | 2008 10 10 | G96 | 0.8+ | 0.7+ |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 04 19 | G96 | 0.4+ | 0.0 | 2008 10 10 | G96 | 0.8+ | 0.7+ | | | | | | | | |
| 2006 04 19 | G96 | 0.3− | 0.1+ | 2008 10 10 | G96 | 0.5+ | 0.0 | | | | | | | | |
| 2006 05 06 | G96 | 0.5− | 0.4+ | 2008 10 10 | G96 | 1.3+ | 0.5+ | | | | | | | | |
| 2006 05 06 | G96 | 0.8− | 0.2+ | 2008 10 10 | G96 | 0.6+ | 0.2− | | | | | | | | |
| 2006 05 06 | G96 | 0.6− | 0.4+ | 2008 10 10 | G96 | 0.9+ | 0.2+ | | | | | | | | |
| 2006 05 06 | G96 | 0.2− | 0.3+ | 2008 10 21 | 691 | 0.6− | 0.4+ | | | | | | | | |
| 2006 05 26 | 291 | 0.5+ | 0.3+ | 2008 10 21 | 691 | 0.8− | 0.6+ | | | | | | | | |
| 2006 05 26 | 291 | 0.7+ | 0.5+ | 2008 10 21 | 691 | 0.3− | 0.2+ | | | | | | | | |
| 2006 05 26 | 291 | 0.7+ | 0.3+ | 2008 10 23 | 691 | 0.5+ | 0.2+ | | | | | | | | |
| 2007 06 21 | G96 | 0.3+ | 0.1− | 2008 10 23 | 691 | 0.1− | 0.4+ | | | | | | | | |
| 2007 06 21 | G96 | 0.5+ | 0.3− | 2008 10 23 | 691 | 0.0 | 0.4+ | | | | | | | | |
| 2007 06 21 | G96 | 0.3+ | 0.2− | 2009 11 24 | 691 | 0.3− | 0.1+ | | | | | | | | |
| 2007 06 21 | G96 | 0.1− | 0.1− | 2009 11 24 | 691 | 1.1− | 0.1+ | | | | | | | | |
| 2008 09 24 | 691 | 0.4− | 0.2− | 2009 11 24 | 691 | 0.1− | 0.3+ | | | | | | | | |
| 2008 09 24 | 691 | 0.0 | 0.5+ | 2009 12 11 | G96 | 0.3+ | 0.2− | | | | | | | | |
| 2008 09 24 | 691 | 0.9− | 1.3+ | 2009 12 11 | G96 | 1.0+ | 0.3− | | | | | | | | |
| 2008 10 10 | G96 | 1.0+ | 0.0 | 2009 12 11 | G96 | 0.8+ | 0.1− | | | | | | | | |
| 2008 10 10 | G96 | 0.8+ | 0.8+ | 2009 12 11 | G96 | 0.4+ | 0.1− | | | | | | | | |
| 2008 10 10 | G96 | 0.1− | 0.0 | | | | | | | | | | | | |

**(229646)∗ 2006 FD$_{50}$ = 2000 YM$_1$**

Discovered 2006 Mar. 18 by the Siding Spring Survey at Siding Spring.

Id. G. V. Williams (*MPO* 101556)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 322.34882 | | (2000.0) | | **P** | | **Q** | | |
| $n$ | 0.23304682 | $\omega$ | 243.64218 | | −0.90371351 | | +0.05070126 | | |
| $a$ | 2.6152142 | $\Omega$ | 296.52941 | | +0.21070928 | | −0.81171280 | | |
| $e$ | 0.2001454 | $i$ | 28.36954 | | −0.37269759 | | −0.58185197 | | |
| $P$ | 4.23 | $H$ | 14.9 | $G$ | 0.15 | $U$ | 1 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 12 17 | 704 | 0.8+ | 0.5− | 2006 05 04 | E12 | 0.0 | 0.1+ | 2009 11 26 | 703 | 0.3+ | 0.0 | 1995 04 04 | 691 | 0.2− | 0.8− |
| 2000 12 17 | 704 | 0.3− | 0.9− | 2006 05 04 | E12 | 0.9+ | 0.2+ | 2009 11 27 | 703 | 0.4+ | 0.1− | 1995 04 04 | 691 | 0.1+ | 1.0− |
| 2000 12 17 | 704 | 1.4− | 0.7+ | 2006 05 04 | E12 | 0.2− | 0.3+ | 2009 11 27 | 703 | 0.5+ | 1.5+ | 1995 04 04 | 691 | 0.3− | 0.9− |
| 2000 12 19 | 704 | 0.0 | 0.6− | 2006 05 21 | E12 | 0.4− | 0.9− | 2009 11 27 | 703 | 0.0 | 0.8+ | 1995 04 07 | 691 | 0.4− | 0.1− |
| 2000 12 19 | 704 | 0.4+ | 0.1+ | 2006 05 21 | E12 | 0.2− | 0.2+ | 2009 11 27 | 703 | 0.6+ | 0.0 | 1995 04 07 | 691 | 0.7− | 0.4− |
| 2000 12 19 | 704 | 0.3+ | 0.6+ | 2006 05 21 | E12 | 0.0 | 0.5+ | 2009 12 10 | J75 | 0.6− | 1.0− | | | | |

**(229647)∗ 2006 FF$_{53}$**

Discovered 2006 Mar. 25 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 226.68497 | | (2000.0) | | **P** | | **Q** | | |
| $n$ | 0.17388775 | $\omega$ | 10.28320 | | −0.73151595 | | +0.68134523 | | |
| $a$ | 3.1789965 | $\Omega$ | 212.71223 | | −0.62887154 | | −0.68871214 | | |
| $e$ | 0.1048032 | $i$ | 2.71044 | | −0.26344829 | | −0.24787954 | | |
| $P$ | 5.67 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 0 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 11 02 | 691 | 0.2+ | 0.1− | 2006 04 19 | G96 | 0.0 | 0.4+ | 2008 10 10 | G96 | 0.8+ | 0.7+ | 2002 10 05 | 645 | 0.1− | 0.1+ |
| 1997 11 02 | 691 | 0.2− | 0.4− | 2006 04 19 | G96 | 0.3− | 0.1+ | 2008 10 10 | G96 | 0.5+ | 0.0 | 2002 10 05 | 645 | 0.0 | 0.1+ |
| 1997 11 02 | 691 | 0.0 | 0.1+ | 2006 05 06 | G96 | 0.5− | 0.4+ | 2008 10 10 | G96 | 1.3+ | 0.5+ | 2005 01 16 | 691 | 0.5+ | 0.2+ |
| 2000 03 11 | 704 | 0.6− | 0.2+ | 2006 05 06 | G96 | 0.8− | 0.2+ | 2008 10 10 | G96 | 0.6+ | 0.2− | 2005 01 16 | 691 | 0.6+ | 0.3+ |
| 2000 03 11 | 704 | 1.0− | 0.7+ | 2006 05 06 | G96 | 0.6− | 0.4+ | 2008 10 10 | G96 | 0.9+ | 0.2+ | 2005 01 16 | 691 | 0.2+ | 0.4+ |
| 2000 03 11 | 704 | 1.1+ | 0.6+ | 2006 05 06 | G96 | 0.2− | 0.3+ | 2008 10 21 | 691 | 0.6− | 0.4+ | 2006 03 25 | 691 | 0.4− | 0.1+ |
| 2002 10 05 | 645 | 0.0 | 0.1+ | 2006 05 26 | 291 | 0.5+ | 0.3+ | 2008 10 21 | 691 | 0.8− | 0.6+ | 2006 03 25 | 691 | 0.0 | 0.3+ |
| 2002 10 05 | 645 | 0.1− | 0.1+ | 2006 05 26 | 291 | 0.7+ | 0.5+ | 2008 10 21 | 691 | 0.3− | 0.2+ | 2006 03 25 | 691 | 0.2− | 0.4+ |
| 2005 01 16 | 691 | 0.5+ | 0.2+ | 2006 05 26 | 291 | 0.7+ | 0.3+ | 2008 10 23 | 691 | 0.5+ | 0.2+ | 2006 04 09 | 691 | 0.4+ | 0.5+ |
| 2005 01 16 | 691 | 0.6+ | 0.3+ | 2007 06 21 | G96 | 0.3+ | 0.1− | 2008 10 23 | 691 | 0.1− | 0.4+ | 2006 04 09 | 691 | 0.3+ | 0.3+ |
| 2005 01 16 | 691 | 0.2+ | 0.4+ | 2007 06 21 | G96 | 0.5+ | 0.3− | 2008 10 23 | 691 | 0.0 | 0.4+ | 2006 04 09 | 691 | 0.0 | 0.7+ |
| 2006 03 25 | 691 | 0.4− | 0.1+ | 2007 06 21 | G96 | 0.3+ | 0.2− | 2009 11 24 | 691 | 0.3− | 0.1+ | 2006 04 19 | G96 | 0.2− | 0.5+ |
| 2006 03 25 | 691 | 0.0 | 0.3+ | 2007 06 21 | G96 | 0.1− | 0.1− | 2009 11 24 | 691 | 1.1− | 0.1+ | 2006 04 19 | G96 | 0.6− | 0.3+ |
| 2006 03 25 | 691 | 0.2− | 0.4+ | 2008 09 24 | 691 | 0.4− | 0.2− | 2009 11 24 | 691 | 0.1− | 0.3+ | | | | |

**(229648)∗ 2006 GG$_2$ = 1995 GE$_4$ = 2004 YB$_{24}$**

Discovered 2006 Apr. 4 by P. Birtwhistle at Great Shefford.

Id. A. Doppler (*MPO* 101562)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 234.66020 | | (2000.0) | | **P** | | **Q** | | |
| $n$ | 0.17889134 | $\omega$ | 109.05796 | | −0.91772134 | | +0.38847712 | | |
| $a$ | 3.1194391 | $\Omega$ | 93.87189 | | −0.38849304 | | −0.83426243 | | |
| $e$ | 0.0293569 | $i$ | 4.76641 | | −0.08282936 | | −0.39126939 | | |
| $P$ | 5.51 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 0 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 04 04 | 691 | 0.2− | 0.8− | 2004 12 20 | G96 | 0.1+ | 0.5− | 2006 04 06 | J95 | 0.3+ | 0.2+ | 2006 04 09 | 691 | 0.4+ | 0.5+ |
| 1995 04 04 | 691 | 0.1+ | 1.0− | 2005 01 18 | 691 | 0.0 | 0.3+ | 2006 04 06 | J95 | (1.0− | 1.8+) | 2006 04 09 | 691 | 0.3+ | 0.3+ |
| 1995 04 04 | 691 | 0.3− | 0.9− | 2005 01 18 | 691 | 0.0 | 0.2+ | 2006 04 07 | 691 | 0.0 | 0.1+ | 2006 04 09 | 691 | 0.0 | 0.7+ |
| 1995 04 07 | 691 | 0.4− | 0.1− | 2005 01 18 | 691 | (0.3− | 2.3−) | 2006 04 07 | 691 | 0.6+ | 0.7+ | 2006 04 19 | G96 | 0.2− | 0.5+ |
| 1995 04 07 | 691 | 0.7− | 0.4− | 2006 04 02 | 691 | 0.0 | 0.5+ | 2006 04 07 | 691 | 0.3+ | 0.4+ | 2006 04 19 | G96 | 0.6− | 0.3+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 04 07 | 691 | 0.0 | 0.1− | 2006 04 02 | 691 | 0.5+ | 0.5+ | 2006 04 17 | J95 | 0.1+ | 0.1− |
| 2001 05 25 | 691 | 0.1+ | 0.7+ | 2006 04 02 | 691 | 0.4+ | 0.5+ | 2006 04 17 | J95 | 0.5− | 1.1− |
| 2001 05 25 | 691 | 0.2+ | 0.4+ | 2006 04 04 | J95 | 0.8+ | 0.3+ | 2006 04 17 | J95 | 0.1− | 0.4− |
| 2001 05 25 | 691 | 0.2− | 0.1− | 2006 04 04 | J95 | 1.1− | 1.2+ | 2008 10 01 | G96 | 0.0 | 0.1− |
| 2002 08 15 | 644 | 0.2− | 0.5− | 2006 04 04 | J95 | 0.2+ | 0.5− | 2008 10 01 | G96 | 0.3+ | 0.3+ |
| 2002 08 15 | 644 | 0.2+ | 0.2− | 2006 04 04 | 734 | 0.5+ | 0.5− | 2008 10 01 | G96 | 0.1+ | 0.2+ |
| 2002 08 15 | 644 | 0.5− | 0.2− | 2006 04 04 | 734 | 0.5− | 0.1+ | 2008 10 01 | G96 | 0.4+ | 0.2+ |
| 2003 10 22 | 691 | 0.1+ | 0.0 | 2006 04 04 | 734 | 1.2− | 0.2+ | 2009 11 22 | 691 | 0.4− | 0.2− |
| 2003 10 22 | 691 | 0.2+ | 0.0 | 2006 04 04 | 734 | 0.1− | 0.8+ | 2009 11 22 | 691 | 0.2+ | 0.5− |
| 2003 10 22 | 691 | 0.2+ | 0.1− | 2006 04 04 | 734 | 1.1− | 0.2+ | 2009 11 22 | 691 | 0.5− | 0.1− |
| 2004 12 16 | 691 | 0.1− | 0.2+ | 2006 04 04 | 734 | 0.4− | 0.4+ | 2009 12 17 | G96 | 0.2+ | 0.1+ |
| 2004 12 16 | 691 | 1.0+ | 0.6+ | 2006 04 05 | J95 | 0.1− | 0.8− | 2009 12 17 | G96 | 0.4+ | 0.3− |
| 2004 12 16 | 691 | 0.3− | 0.1+ | 2006 04 05 | J95 | 0.2+ | 0.1+ | 2009 12 17 | G96 | 0.0 | 0.0 |
| 2004 12 20 | G96 | 0.7− | 0.4− | 2006 04 05 | J95 | 0.5+ | 1.1+ | 2009 12 17 | G96 | 0.8+ | 0.2− |
| 2004 12 20 | G96 | 0.1+ | 0.2− | 2006 04 06 | J95 | 0.0 | 1.2− | | | | |
| 2004 12 20 | G96 | 0.7− | 0.0 | 2006 04 06 | J95 | 0.3− | 0.1+ | | | | |

**(229649)∗ 2006 $GC_5$ = 2003 $SH_{302}$ = 2004 $XZ_{116}$**

Discovered 2006 Apr. 2 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 101565)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 276.19654 | | (2000.0) | | | |
| $n$ | 0.21036387 | $\omega$ | 84.15002 | | −0.89941412 | +0.43068889 |
| $a$ | 2.7999823 | $\Omega$ | 121.34017 | | −0.42758185 | −0.83152770 |
| $e$ | 0.0407013 | $i$ | 5.00909 | | −0.09070829 | −0.35081159 |
| $P$ | 4.69 | $H$ | 15.8 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 02 17 | 704 | 0.4− | 0.0 | 2006 04 02 | 691 | 0.2+ | 0.3+ | 2008 09 28 | 291 | 0.0 | 0.3+ |
| 2001 02 17 | 704 | 0.5− | 0.0 | 2006 04 07 | 691 | 0.5+ | 0.3+ | 2008 09 28 | 291 | 0.1− | 0.2+ |
| 2001 02 17 | 704 | 0.3+ | 0.5+ | 2006 04 07 | 691 | 0.4+ | 0.2+ | 2008 09 29 | 691 | 0.1− | 0.3+ |
| 2001 02 17 | 704 | 1.3− | 0.1+ | 2006 04 07 | 691 | 0.4+ | 0.4+ | 2008 09 29 | 691 | 0.2− | 0.1+ |
| 2001 03 19 | 704 | 0.2− | 0.8+ | 2006 04 07 | 703 | 0.2− | 0.7+ | 2008 09 29 | 691 | 0.6− | 0.3+ |
| 2001 03 19 | 704 | 0.6− | 1.0+ | 2006 04 07 | 703 | 0.2− | 0.1− | 2008 10 24 | 704 | 0.3− | 0.8+ |
| 2001 03 19 | 704 | 0.5+ | 0.2+ | 2006 04 07 | 703 | (2.0+ | 0.8+) | 2008 10 24 | 704 | 0.4− | 1.3+ |
| 2001 03 19 | 704 | 0.8− | 1.3+ | 2006 04 07 | 703 | 0.1− | 0.5+ | 2008 10 24 | 704 | (1.2− | 1.8+) |
| 2003 09 17 | 644 | 0.4− | 0.6+ | 2006 04 20 | 699 | (3.2+ | 1.6+) | 2009 10 30 | G96 | 0.1− | 0.4− |
| 2003 09 17 | 644 | 0.2− | 0.5+ | 2006 04 20 | 699 | (1.2+ | 2.1+) | 2009 10 30 | G96 | 0.4+ | 0.0 |
| 2003 09 17 | 644 | 0.1− | 0.4+ | 2006 04 20 | 699 | 0.7+ | 0.2+ | 2009 10 30 | G96 | 0.2− | 0.1− |
| 2003 09 19 | 599 | 0.2+ | 0.2+ | 2006 04 20 | 699 | (1.7+ | 1.3+) | 2009 10 30 | G96 | 0.1+ | 0.0 |
| 2003 09 19 | 599 | 0.3+ | 0.4+ | 2006 04 20 | 703 | (0.0 | 2.1+) | 2009 12 15 | G96 | 0.3+ | 0.1− |
| 2003 09 19 | 599 | 0.1− | 0.6+ | 2006 04 20 | 703 | 0.6− | 0.7− | 2009 12 15 | G96 | 0.0 | 0.0 |
| 2003 09 19 | 599 | 0.2+ | 0.4+ | 2006 04 20 | 703 | 0.4− | 0.5+ | 2009 12 15 | G96 | 0.2+ | 0.2− |
| 2004 12 12 | 691 | 0.1+ | 0.2− | 2006 04 20 | 703 | 0.1+ | 0.5− | 2009 12 15 | G96 | 0.0 | 0.0 |
| 2004 12 12 | 691 | 0.5+ | 0.3− | 2007 06 16 | 691 | 0.1+ | 0.1+ | 2009 12 17 | 691 | 0.0 | 0.1+ |
| 2004 12 12 | 691 | 0.1+ | 0.1+ | 2007 06 16 | 691 | 0.4− | 0.0 | 2009 12 17 | 691 | 0.3− | 0.5− |
| 2004 12 16 | 691 | 0.2+ | 0.1+ | 2007 06 16 | 691 | 0.1− | 0.3+ | 2009 12 17 | 691 | 0.0 | 0.4− |
| 2004 12 16 | 691 | 0.3+ | 0.5+ | 2008 09 25 | 691 | 0.0 | 0.1+ | 2009 12 25 | 691 | 0.1− | 0.4+ |
| 2004 12 16 | 691 | 0.0 | 0.0 | 2008 09 25 | 691 | 0.3− | 0.0 | 2009 12 25 | 691 | 0.1− | 0.2+ |
| 2006 04 02 | 691 | 0.2+ | 0.4+ | 2008 09 25 | 691 | 0.3+ | 0.3+ | 2009 12 25 | 691 | 0.3− | 0.2− |
| 2006 04 02 | 691 | 0.3+ | 0.4+ | 2008 09 28 | 291 | 0.1− | 0.2+ | | | | |

**(229650)∗ 2006 $GY_{22}$**

Discovered 2006 Apr. 2 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 264.14963 | | (2000.0) | | | |
| $n$ | 0.20314393 | $\omega$ | 145.97243 | | −0.70204759 | +0.71002518 |
| $a$ | 2.8659382 | $\Omega$ | 79.36740 | | −0.66513242 | −0.62632917 |
| $e$ | 0.1292060 | $i$ | 3.19119 | | −0.25441708 | −0.32183228 |
| $P$ | 4.85 | $H$ | 16.1 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 03 26 | 704 | 1.1+ | 0.7+ | 2006 04 24 | 704 | (1.8+ | 0.0 ) | 2008 11 01 | 691 | 0.1− | 0.0 |
| 2001 03 26 | 704 | 0.3+ | 0.5+ | 2006 04 30 | 699 | 1.1+ | 1.1− | 2008 11 01 | 691 | 0.5− | 1.3+ |
| 2001 03 26 | 704 | 0.4+ | 1.4+ | 2006 04 30 | 699 | 0.2− | 0.4+ | 2008 11 01 | 691 | 0.0 | 0.2+ |
| 2003 10 19 | 691 | 0.4− | 0.4+ | 2006 04 30 | 699 | (1.8+ | 0.3−) | 2008 11 19 | 691 | 0.1− | 0.3+ |
| 2003 10 19 | 691 | 0.1− | 0.4+ | 2006 04 30 | 699 | 0.7+ | 1.1+ | 2008 11 19 | 691 | 0.2+ | 0.1− |
| 2003 10 19 | 691 | 0.0 | 0.2+ | 2006 05 01 | 703 | 0.6− | 0.4+ | 2008 11 19 | 691 | 0.1− | 0.1+ |
| 2004 12 15 | 691 | 0.3− | 0.2− | 2006 05 01 | 703 | (2.4− | 0.7−) | 2008 11 21 | 691 | 0.1+ | 0.0 |
| 2004 12 15 | 691 | 0.1+ | 0.3− | 2006 05 01 | 703 | 1.1− | 1.1− | 2008 11 21 | 691 | 0.0 | 0.4+ |
| 2004 12 15 | 691 | 0.0 | 0.0 | 2006 05 01 | 704 | (2.0+ | 0.8+) | 2008 11 21 | 691 | 0.1− | 0.0 |
| 2006 04 02 | 691 | 0.1+ | 0.5+ | 2006 05 01 | 703 | (0.9+ | 1.8−) | 2008 11 30 | 691 | 0.6+ | 0.0 |
| 2006 04 02 | 691 | 0.1− | 0.2+ | 2006 05 01 | 704 | (1.7+ | 1.5+) | 2008 11 30 | 691 | 0.3− | 0.6+ |
| 2006 04 02 | 691 | 0.0 | 0.1+ | 2006 05 01 | 704 | 0.1− | 1.3+ | 2008 11 30 | 691 | 0.4− | 0.2+ |
| 2006 04 07 | 691 | 0.3+ | 0.3+ | 2006 05 06 | 691 | 0.4+ | 0.4+ | 2009 11 11 | G96 | 0.5+ | 0.2+ |
| 2006 04 07 | 691 | 0.4+ | 0.2+ | 2006 05 06 | 691 | 0.1+ | 0.3+ | 2009 11 11 | G96 | 0.2+ | 0.3− |
| 2006 04 07 | 691 | 0.4+ | 0.1+ | 2006 05 06 | 691 | 0.0 | 0.2+ | 2009 11 11 | G96 | 0.1+ | 0.5− |
| 2006 04 09 | G96 | 0.1− | 0.0 | 2006 05 06 | G96 | 0.0 | 0.0 | 2009 11 11 | G96 | 0.6− | 0.3− |
| 2006 04 09 | G96 | 0.3+ | 0.0 | 2006 05 06 | G96 | 0.0 | 0.0 | 2009 11 21 | G96 | 0.1− | 0.8− |
| 2006 04 09 | G96 | 0.1− | 0.1+ | 2006 05 06 | G96 | 0.0 | 0.1+ | 2009 11 21 | G96 | 0.0 | 0.3− |
| 2006 04 09 | G96 | 0.2+ | 0.2+ | 2006 05 06 | G96 | 0.2+ | 0.1− | 2009 11 21 | G96 | 0.1+ | 0.4− |
| 2006 04 19 | 703 | 1.4− | 0.7+ | 2008 09 24 | G96 | 1.1− | 0.4+ | 2009 11 21 | G96 | 0.2− | 0.0 |
| 2006 04 19 | 703 | 1.1− | 0.4+ | 2008 09 24 | G96 | 0.0 | 0.1+ | 2009 12 17 | G96 | 0.2+ | 0.1− |
| 2006 04 19 | 703 | 0.8− | 0.4− | 2008 09 24 | G96 | 0.0 | 0.1+ | 2009 12 17 | G96 | 0.3+ | 0.1− |
| 2006 04 19 | 703 | 0.6+ | 0.4− | 2008 09 24 | G96 | 0.5+ | 0.1− | 2009 12 17 | G96 | 0.1− | 0.7− |
| 2006 04 24 | 704 | (1.1+ | 1.7−) | 2008 10 28 | 691 | 0.3− | 0.5+ | 2009 12 17 | G96 | 0.4− | 0.2− |
| 2006 04 24 | 704 | (1.6+ | 0.8+) | 2008 10 28 | 691 | 0.0 | 0.3− | | | | |
| 2006 04 24 | 704 | 0.1− | 0.2+ | 2008 10 28 | 691 | (1.8− | 1.1+) | | | | |

**(229651)∗ 2006 $GR_{36}$**

Discovered 2006 Apr. 8 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 146.01085 | | (2000.0) | | | |
| $n$ | 0.19283588 | $\omega$ | 266.19563 | | +0.71446633 | +0.69816723 |
| $a$ | 2.9671818 | $\Omega$ | 49.51688 | | −0.61564485 | +0.65843730 |
| $e$ | 0.0125729 | $i$ | 3.45445 | | −0.33244440 | +0.28111001 |
| $P$ | 5.11 | $H$ | 15.8 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 03 20 | 691 | 0.3− | 0.4+ | 2006 04 08 | 691 | 0.3+ | 0.6+ | 2008 09 28 | 704 | 0.8+ | 0.2+ |
| 2001 03 20 | 691 | 0.2− | 0.7+ | 2006 04 08 | 691 | 0.2+ | 0.4+ | 2008 10 05 | J75 | 0.1− | 0.5+ |
| 2001 03 20 | 691 | 0.5− | 0.5+ | 2006 04 08 | 691 | 0.5+ | 0.4+ | 2008 10 05 | J75 | 1.0− | 0.7+ |
| 2003 09 19 | 691 | 0.3+ | 0.3+ | 2006 04 09 | 691 | 0.4+ | 0.1+ | 2008 10 05 | J75 | 0.4+ | 0.6+ |
| 2003 09 19 | 691 | 0.1− | 0.4+ | 2006 04 09 | 691 | 0.4+ | 0.1+ | 2008 10 09 | G96 | 0.0 | 0.2+ |
| 2003 09 19 | 691 | 0.1+ | 0.4+ | 2006 04 09 | 691 | 0.3+ | 0.2+ | 2008 10 09 | G96 | 0.1− | 0.0 |
| 2003 10 21 | 699 | (2.7− | 1.2+) | 2006 04 26 | 691 | 0.1+ | 0.2+ | 2008 10 09 | G96 | 0.3− | 0.4+ |
| 2003 10 21 | 699 | 1.0− | 0.1− | 2006 04 26 | 691 | 0.0 | 0.1− | 2008 10 09 | G96 | 0.6+ | 0.7+ |
| 2003 10 21 | 699 | 0.0 | 0.5+ | 2006 04 26 | 691 | 0.2+ | 0.2− | 2008 10 10 | G96 | 0.1+ | 0.2+ |
| 2003 10 21 | 704 | 0.3+ | 0.4+ | 2006 04 27 | 691 | 0.3+ | 0.5+ | 2008 10 10 | G96 | 0.0 | 0.0 |
| 2003 10 21 | 699 | 0.1− | 0.4+ | 2006 04 27 | 691 | 0.2− | 0.1+ | 2008 10 10 | G96 | 0.5+ | 0.3+ |
| 2003 10 21 | 704 | 0.4+ | 0.3− | 2006 04 27 | 691 | 0.1− | 0.2− | 2008 10 10 | G96 | 0.2− | 0.1− |
| 2003 10 21 | 704 | (0.9+ | 1.7+) | 2006 04 30 | 691 | 0.3+ | 0.1− | 2008 10 23 | 691 | 0.9− | 0.8+ |
| 2003 10 28 | 704 | 0.3− | 0.4+ | 2006 04 30 | 691 | 0.1+ | 0.2+ | 2008 10 23 | 691 | 0.0 | 0.5+ |
| 2003 10 28 | 704 | 0.5− | 0.4+ | 2006 04 30 | 691 | 0.2+ | 0.0 | 2008 10 23 | 691 | 0.5− | 0.4− |
| 2003 10 28 | 704 | 0.1− | 0.8− | 2006 05 01 | 691 | 0.2+ | 0.0 | 2008 12 31 | G96 | 0.7+ | 0.2− |
| 2003 11 24 | 691 | 0.2− | 0.2+ | 2006 05 01 | 691 | 0.2+ | 0.0 | 2008 12 31 | G96 | 0.3+ | 0.1− |
| 2003 11 24 | 691 | 0.4+ | 0.4+ | 2006 05 01 | 691 | 0.4+ | 0.3+ | 2008 12 31 | G96 | 0.1− | 0.5− |
| 2003 11 24 | 691 | 0.0 | 0.2+ | 2008 09 03 | 691 | 0.4− | 0.3+ | 2008 12 31 | G96 | 0.3+ | 0.6− |
| 2005 01 18 | 691 | 0.0 | 0.2− | 2008 09 03 | 691 | 0.4− | 0.6+ | 2009 12 17 | 691 | 0.2− | 0.1+ |
| 2005 01 18 | 691 | 0.1− | 0.3− | 2008 09 03 | 691 | 0.5− | 0.1+ | 2009 12 17 | 691 | 0.2− | 0.0 |
| 2005 01 18 | 691 | 0.5+ | 1.5+ | 2008 09 28 | 704 | (0.3+ | 2.0+) | 2009 12 17 | 691 | 0.2+ | 0.0 |
| 2006 03 23 | 691 | 0.4+ | 0.2− | 2008 09 28 | 704 | 0.6− | 0.9+ | 2009 12 26 | 691 | 0.4− | 0.0 |
| 2006 03 23 | 691 | 0.1− | 0.1− | 2008 09 28 | 704 | 0.4+ | 0.3+ | 2009 12 26 | 691 | 0.7− | 0.4− |
| 2006 03 23 | 691 | 1.0− | 0.2+ | 2008 09 28 | 704 | 1.1+ | 0.9− | 2009 12 26 | 691 | 0.4+ | 0.5− |

**(229652)∗ 2006 $HX_1$**

Discovered 2006 Apr. 18 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 344.80550 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24163580 | $\omega$ | 100.79434 | | −0.99430682 | +0.03945468 | |
| $a$ | 2.5528690 | $\Omega$ | 81.52016 | | −0.07682259 | −0.90915104 | |
| $e$ | 0.2195955 | $i$ | 5.74350 | | +0.07383928 | −0.41459343 | |
| $P$ | 4.08 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 20 | 691 | 0.1− | 0.2+ | 2006 04 19 | 703 | 0.6+ | 0.1− | 2008 10 06 | G96 | 0.2+ | 0.3− | |
| 2000 11 20 | 691 | 0.2− | 0.2+ | 2006 04 19 | 703 | 0.4+ | 0.5+ | 2008 10 06 | G96 | 0.3+ | 0.1− | |
| 2000 11 20 | 691 | 0.1− | 0.3+ | 2006 04 23 | 704 | 0.0 | 0.4+ | 2008 10 06 | G96 | 0.1+ | 0.4− | |
| 2002 04 09 | 704 | 0.2− | 0.7+ | 2006 04 23 | 704 | 0.2+ | 0.1− | 2008 11 09 | G96 | 0.3− | 0.1+ | |
| 2002 04 09 | 704 | 0.9− | 1.5+ | 2006 04 23 | 704 | 0.5+ | 0.5− | 2008 11 09 | G96 | 0.3+ | 0.3− | |
| 2002 04 09 | 704 | 0.9− | 0.8+ | 2006 04 23 | 704 | 0.2+ | 0.2− | 2008 11 09 | G96 | 0.4+ | 0.1− | |
| 2002 05 02 | 699 | 0.1+ | 0.1+ | 2006 04 23 | 704 | (1.5+ | 1.8+) | 2008 11 09 | G96 | 0.5− | 0.1+ | |
| 2002 05 02 | 699 | 0.6− | 0.2+ | 2006 04 24 | 704 | 0.2+ | 0.3− | 2008 11 09 | G96 | 0.5+ | 0.4+ | |
| 2002 05 02 | 699 | 0.4− | 0.6+ | 2006 04 24 | 704 | 0.3− | 0.3− | 2008 11 09 | G96 | 0.1+ | 0.2+ | |
| 2002 05 02 | 699 | 0.6− | 1.2+ | 2006 04 24 | 704 | 0.0 | 0.2− | 2008 11 09 | G96 | 0.3− | 0.5+ | |
| 2002 05 09 | 644 | 0.5+ | 0.1+ | 2006 04 24 | 704 | 0.1− | 0.5− | 2008 11 09 | G96 | 0.2− | 0.4+ | |
| 2002 05 09 | 644 | 0.3+ | 0.2+ | 2006 04 24 | 704 | 0.6+ | 0.3+ | 2008 11 09 | 291 | 0.4− | 0.3+ | |
| 2002 05 09 | 644 | 0.4+ | 0.2+ | 2006 04 27 | 704 | 0.6− | 0.3+ | 2008 11 09 | G96 | 0.3− | 0.2+ | |
| 2002 05 09 | 644 | 0.4+ | 0.5+ | 2006 04 27 | 704 | 0.4+ | 1.1− | 2008 11 09 | 291 | 0.9− | 0.4+ | |
| 2002 05 09 | 644 | 0.4+ | 0.1+ | 2006 04 27 | 704 | 1.3+ | 1.1− | 2008 11 09 | G96 | 0.6+ | 0.0 | |
| 2002 05 09 | 644 | 0.5+ | 0.3+ | 2006 04 27 | 704 | 1.3+ | 0.6− | 2008 11 09 | 291 | 0.9− | 0.4+ | |
| 2002 05 19 | 644 | 0.1+ | 1.3+ | 2006 04 27 | 704 | 0.4+ | 0.2− | 2008 11 09 | G96 | 0.3+ | 0.4+ | |
| 2002 05 19 | 644 | 0.8+ | 1.1+ | 2006 04 30 | 699 | 0.4+ | 0.1− | 2008 11 09 | G96 | 0.2+ | 0.4+ | |
| 2002 05 19 | 644 | (0.5+ | 1.6+) | 2006 04 30 | 699 | 0.7− | 1.2+ | 2008 11 09 | G96 | 0.1+ | 0.2+ | |
| 2004 11 10 | 691 | 0.4+ | 0.4+ | 2006 04 30 | 699 | 1.0− | 0.8+ | 2008 11 09 | G96 | 0.4− | 0.1+ | |
| 2004 11 10 | 691 | 0.5+ | 0.2+ | 2006 04 30 | 699 | 0.8− | 0.6+ | 2008 11 09 | G96 | 0.1+ | 0.1− | |
| 2004 11 10 | 691 | 0.1+ | 0.5+ | 2006 05 05 | 691 | 0.1− | 0.0 | 2008 11 09 | G96 | 0.1+ | 0.0 | |
| 2006 03 29 | 704 | 1.3+ | 0.8+ | 2006 05 05 | 691 | 0.1− | 0.2+ | 2009 01 18 | G96 | 0.1− | 0.2+ | |
| 2006 03 29 | 704 | 0.1+ | 1.4+ | 2006 05 05 | 691 | 0.1− | 0.3+ | 2009 01 18 | G96 | (1.8+ | 0.2−) | |
| 2006 03 29 | 704 | 1.0+ | 0.3+ | 2006 05 07 | 691 | 0.0 | 0.0 | 2009 01 18 | G96 | 0.1− | 0.5+ | |
| 2006 03 29 | 704 | 0.9+ | 0.8+ | 2006 05 07 | 691 | 0.3+ | 0.3− | 2009 01 18 | G96 | 0.2− | 0.1+ | |
| 2006 04 06 | 703 | 0.2+ | 0.6− | 2006 05 07 | 691 | 0.0 | 0.2+ | 2009 12 19 | G96 | 0.5+ | 0.2+ | |
| 2006 04 06 | 703 | (1.6+ | 0.3−) | 2006 05 16 | 644 | 0.3+ | 0.1− | 2009 12 19 | G96 | 0.3− | 0.1− | |
| 2006 04 06 | 703 | 0.4− | 0.9− | 2006 05 16 | 644 | 0.0 | 0.2− | 2009 12 19 | G96 | 0.6− | 0.4− | |
| 2006 04 06 | 703 | 1.2− | 0.5+ | 2006 05 16 | 644 | 0.0 | 0.3− | 2009 12 19 | G96 | 0.3− | 0.2− | |
| 2006 04 18 | 644 | 0.1− | 0.1+ | 2006 05 30 | G96 | 0.2− | 0.0 | 2009 12 26 | 691 | 0.5− | 0.4− | |
| 2006 04 18 | 644 | 0.3− | 0.1− | 2006 05 30 | G96 | 0.2− | 0.1+ | 2009 12 26 | 691 | 0.0 | 0.3+ | |
| 2006 04 18 | 644 | 0.2− | 0.2+ | 2006 05 30 | G96 | 0.1− | 0.0 | 2009 12 26 | 691 | 0.3− | 0.5− | |
| 2006 04 19 | 703 | 0.0 | 0.5+ | 2006 05 30 | G96 | 0.2− | 0.0 | | | | | |
| 2006 04 19 | 703 | 1.3+ | 1.0− | 2008 10 06 | G96 | 0.4+ | 0.4− | | | | | |

**(229653)∗ 2006 HQ$_6$**

Discovered 2006 Apr. 18 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 297.97218 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18104778 | $\omega$ | 293.82003 | | −0.81845292 | −0.56904220 | |
| $a$ | 3.0946194 | $\Omega$ | 211.66685 | | +0.56672506 | −0.77670011 | |
| $e$ | 0.1046930 | $i$ | 8.71392 | | +0.09464422 | −0.27005170 | |
| $P$ | 5.44 | $H$ | 15.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 05 | 644 | 0.0 | 0.1+ | 2006 04 18 | 699 | (1.4+ | 2.2+) | 2009 11 18 | 704 | 1.1− | 0.9+ | |
| 2002 08 05 | 644 | 0.1+ | 1.0− | 2006 04 20 | 703 | 0.9+ | 0.9+ | 2009 11 18 | 704 | 0.0 | 0.9+ | |
| 2002 08 05 | 644 | 0.3− | 0.2− | 2006 04 20 | 703 | (0.2+ | 1.6+) | 2009 11 20 | 704 | 0.7− | 1.1+ | |
| 2002 08 11 | 644 | 0.0 | 0.9+ | 2006 04 20 | 703 | (0.7+ | 1.8+) | 2009 11 20 | 704 | 0.9+ | 1.3+ | |
| 2002 08 11 | 644 | 0.1+ | 0.8+ | 2006 04 20 | 703 | (0.4+ | 1.8+) | 2009 11 20 | 704 | 0.7+ | 0.2+ | |
| 2002 08 11 | 644 | 0.1− | 0.7+ | 2006 04 24 | 699 | 0.3− | 1.0+ | 2009 11 20 | 704 | 0.5+ | 1.1+ | |
| 2003 09 16 | 691 | 0.1− | 0.1+ | 2006 04 24 | 699 | 0.5− | 0.5− | 2009 11 20 | G96 | 0.2+ | 0.2− | |
| 2003 09 16 | 691 | 0.3− | 0.3+ | 2006 04 24 | 699 | 1.3+ | 0.3+ | 2009 11 20 | G96 | 0.1− | 0.3− | |
| 2003 09 16 | 691 | 0.1− | 0.2+ | 2006 04 24 | 699 | 0.8+ | 0.0 | 2009 11 20 | G96 | 0.2+ | 0.1− | |
| 2003 10 16 | 691 | 0.1+ | 0.2+ | 2006 04 25 | 644 | 0.1− | 1.0+ | 2009 11 20 | G96 | 0.1− | 0.3− | |
| 2003 10 16 | 691 | 0.2+ | 0.1+ | 2006 04 25 | 644 | 0.0 | 0.6+ | 2009 11 23 | G96 | 0.0 | 0.2− | |
| 2003 10 16 | 691 | 0.0 | 0.1+ | 2006 04 25 | 644 | 0.2− | 0.2+ | 2009 11 23 | G96 | 0.3+ | 0.1− | |
| 2003 10 24 | 704 | (0.3+ | 1.9−) | 2006 05 22 | G96 | 0.1− | 0.1+ | 2009 11 23 | G96 | 0.1+ | 0.3− | |
| 2003 10 24 | 704 | 0.8− | 0.9− | 2006 05 22 | G96 | 0.2+ | 0.2+ | 2009 11 23 | G96 | 0.2− | 0.3− | |
| 2003 10 24 | 704 | 0.2+ | 0.9− | 2006 05 22 | G96 | 0.5− | 0.4+ | 2009 12 10 | 703 | 0.4− | 0.5− | |
| 2003 10 24 | 704 | 0.0 | 0.0 | 2006 05 22 | G96 | 0.3+ | 0.2+ | 2009 12 10 | 703 | 0.5+ | 0.6+ | |
| 2003 10 24 | 704 | 0.4+ | 0.1+ | 2008 10 01 | G96 | 0.2− | 0.0 | 2009 12 10 | 703 | 0.1− | 0.8+ | |
| 2006 03 24 | 703 | 0.3+ | 0.3+ | 2008 10 01 | G96 | 0.2+ | 0.0 | 2009 12 10 | 703 | 0.3− | 0.4+ | |
| 2006 03 24 | 703 | 0.6− | 0.7− | 2008 10 01 | G96 | 0.0 | 0.1− | 2009 12 11 | 703 | 0.6+ | 0.5+ | |
| 2006 03 24 | 703 | 0.1+ | 0.1− | 2008 10 01 | G96 | 0.1− | 0.1+ | 2009 12 11 | 703 | 1.3+ | 0.3+ | |
| 2006 03 24 | 703 | 1.0− | 0.3+ | 2009 11 16 | J75 | 0.3− | 0.6− | 2009 12 11 | 703 | 0.2− | 0.7− | |
| 2006 04 18 | 699 | (0.1+ | 2.2+) | 2009 11 16 | J75 | 0.6− | 0.0 | 2009 12 11 | 703 | 0.0 | 1.2− | |
| 2006 04 18 | 699 | (2.9+ | 0.3+) | 2009 11 16 | J75 | 1.0− | 0.1− | | | | | |
| 2006 04 18 | 699 | 0.2+ | 0.5+ | 2009 11 18 | 704 | 0.3− | 0.1+ | | | | | |

**(229654)∗ 2006 HE$_{18}$**

Discovered 2006 Apr. 19 by the Mt. Lemmon Survey at Mount Lemmon.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 311.65929 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17347330 | $\omega$ | 283.29489 | | −0.59631793 | −0.79911839 | |
| $a$ | 3.1840579 | $\Omega$ | 203.81804 | | +0.79004712 | −0.56739807 | |
| $e$ | 0.0554650 | $i$ | 10.88430 | | +0.14223387 | −0.19866866 | |
| $P$ | 5.68 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 03 16 | 691 | 0.2− | 0.6− | 2006 04 19 | G96 | 0.5− | 0.0 | 2008 10 30 | G96 | 0.9− | 0.2− | |
| 1994 03 16 | 691 | 0.4− | 0.6− | 2006 04 24 | 460 | 1.2+ | 0.7− | 2008 10 30 | G96 | 0.1+ | 0.6− | |
| 1994 03 16 | 691 | 0.1− | 0.4− | 2006 04 24 | 460 | 0.3− | 0.7− | 2009 11 22 | 703 | (1.1+ | 2.6+) | |
| 2003 10 24 | 691 | 0.2+ | 0.6+ | 2006 04 24 | 460 | 0.2− | 0.1+ | 2009 11 22 | 703 | 0.4+ | 1.0+ | |
| 2003 10 24 | 691 | 0.2+ | 0.4+ | 2006 05 24 | G96 | 0.5− | 0.4+ | 2009 11 22 | 703 | (1.1+ | 2.3+) | |
| 2003 10 24 | 691 | 0.3+ | 0.3+ | 2006 05 24 | G96 | 0.1− | 0.0 | 2009 11 22 | 703 | 0.9+ | 0.4+ | |
| 2003 11 18 | 644 | 0.2− | 0.7+ | 2006 05 24 | G96 | 0.1− | 0.3+ | 2009 11 22 | 703 | 1.0+ | 0.7+ | |
| 2003 11 18 | 644 | 0.1− | 0.6+ | 2006 05 24 | G96 | 0.2− | 0.3+ | 2009 11 25 | G96 | 0.2− | 0.1− | |
| 2003 11 18 | 644 | 0.8− | 0.3+ | 2006 05 26 | G96 | 0.3− | 0.3+ | 2009 11 25 | G96 | 0.3− | 0.0 | |
| 2006 03 23 | G96 | 1.0− | 0.0 | 2006 05 26 | G96 | 0.6− | 0.2− | 2009 11 25 | G96 | 0.1− | 0.3+ | |
| 2006 03 23 | G96 | 0.2+ | 0.4− | 2006 05 26 | G96 | 0.4− | 0.4− | 2009 11 25 | G96 | 0.3− | 0.1+ | |
| 2006 03 23 | G96 | 0.5− | 0.0 | 2006 05 26 | G96 | 0.3− | 0.2− | 2009 11 26 | G96 | 0.3− | 0.1+ | |
| 2006 03 23 | G96 | 0.2+ | 0.3+ | 2006 05 26 | G96 | 0.3− | 0.4+ | 2009 11 26 | G96 | 0.2− | 0.3+ | |
| 2006 03 25 | 691 | 0.9+ | 0.7+ | 2006 05 26 | G96 | 0.6− | 0.2− | 2009 11 26 | G96 | 0.2− | 0.0 | |
| 2006 03 25 | 691 | 0.2+ | 0.4+ | 2006 05 26 | G96 | 0.0 | 0.5+ | 2009 11 26 | G96 | 0.3− | 0.1+ | |
| 2006 03 25 | 691 | 0.2+ | 0.3+ | 2006 05 26 | G96 | 0.3− | 0.3− | 2009 11 26 | G96 | 0.1− | 0.3+ | |
| 2006 04 09 | 691 | 0.1+ | 0.3+ | 2008 10 01 | G96 | 0.5− | 0.0 | 2009 12 10 | 703 | 0.2− | 0.2− | |
| 2006 04 09 | 691 | 0.3+ | 0.7+ | 2008 10 01 | G96 | 0.2− | 0.4− | 2009 12 10 | 703 | 0.8− | 0.3+ | |
| 2006 04 09 | 691 | 0.3+ | 0.7+ | 2008 10 01 | G96 | 0.1+ | 0.1− | 2009 12 10 | 703 | 0.4+ | 0.7+ | |
| 2006 04 19 | G96 | 0.2− | 0.3+ | 2008 10 01 | G96 | 0.3− | 0.3− | 2009 12 10 | 703 | 0.8− | 0.2− | |
| 2006 04 19 | G96 | 0.2+ | 0.4+ | 2008 10 30 | G96 | 0.0 | 0.2− | | | | | |
| 2006 04 19 | G96 | 0.3− | 0.2+ | 2008 10 30 | G96 | 0.4+ | 0.3+ | | | | | |

**(229655)∗ 2006 HO$_{32}$**

Discovered 2006 Apr. 19 by the Mt. Lemmon Survey at Mount Lemmon.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 70.80846 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.20293284 | $\omega$ | 195.72229 | | +0.84684557 | −0.53177668 | |
| $a$ | 2.8679252 | $\Omega$ | 196.41091 | | +0.49100284 | +0.78760724 | |
| $e$ | 0.0732343 | $i$ | 1.64951 | | +0.20437413 | +0.31126902 | |
| $P$ | 4.86 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 09 01 | 691 | 0.0 | 1.4− | 2006 04 25 | 691 | 0.4+ | 0.5+ | 2008 09 24 | 704 | 0.7+ | 0.2+ | |
| 1998 09 01 | 691 | 0.0 | 0.6− | 2006 04 25 | 691 | 0.1+ | 0.7+ | 2008 09 24 | 704 | 0.2+ | 0.1− | |
| 1998 09 01 | 691 | 0.4+ | 0.2− | 2006 04 25 | 691 | 0.6+ | 0.3+ | 2008 09 24 | 704 | 0.7+ | 0.6+ | |
| 2001 03 24 | 691 | 0.2+ | 0.2+ | 2008 08 23 | 691 | 0.1− | 0.1− | 2008 09 29 | 704 | 0.6+ | 0.7+ | |
| 2001 03 24 | 691 | 0.2+ | 0.4+ | 2008 08 23 | 691 | 0.2+ | 0.0 | 2008 09 29 | 704 | 0.3+ | 0.7+ | |
| 2001 03 24 | 691 | 0.1+ | 0.2+ | 2008 08 23 | 691 | 0.5− | 0.2+ | 2008 09 29 | 704 | 0.6− | 0.3+ | |
| 2003 09 16 | 691 | 0.1− | 0.4+ | 2008 08 26 | A77 | 0.2+ | 0.5− | 2008 09 29 | 704 | 0.3+ | 0.7+ | |
| 2003 09 16 | 691 | 0.1− | 0.2+ | 2008 08 26 | A77 | (1.6+ | 0.2−) | 2008 09 29 | 704 | 0.5+ | 0.1+ | |
| 2003 09 16 | 691 | 0.1+ | 0.4+ | 2008 08 26 | A77 | 0.4+ | 0.4+ | 2008 10 08 | 703 | (0.6− | 1.6+) | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 22 | 699 | 0.8− | 1.1− | 2008 09 02 | 691 | 0.3− | 0.1+ | 2008 10 08 | 703 | 1.3− | 0.3− |
| 2003 09 22 | 699 | (0.4+ | 1.7+) | 2008 09 02 | 691 | 0.4− | 0.3+ | 2008 10 08 | 703 | 0.6+ | 0.9+ |
| 2003 09 22 | 699 | 0.9+ | 1.0+ | 2008 09 02 | 691 | 0.0 | 0.0 | 2008 10 08 | 703 | 0.4− | 0.7− |
| 2003 09 22 | 699 | 1.1+ | 0.9+ | 2008 09 06 | 691 | 0.4− | 0.0 | 2008 10 17 | 691 | 0.0 | 0.0 |
| 2004 12 19 | 691 | 0.1− | 0.0 | 2008 09 06 | 691 | 0.2− | 0.1+ | 2008 10 17 | 691 | 0.0 | 0.5+ |
| 2004 12 19 | 691 | 0.1+ | 0.0 | 2008 09 06 | 691 | 0.2− | 0.2+ | 2008 10 17 | 691 | 0.9− | 0.0 |
| 2004 12 19 | 691 | 0.1− | 0.0 | 2008 09 20 | G96 | 0.7+ | 0.1− | 2009 12 15 | G96 | 0.0 | 0.7+ |
| 2006 03 25 | G96 | 0.3− | 0.5+ | 2008 09 20 | G96 | 0.2+ | 0.1+ | 2009 12 15 | G96 | (1.9+ | 0.5+) |
| 2006 03 25 | G96 | 0.1− | 0.5+ | 2008 09 20 | G96 | 0.1+ | 0.0 | 2009 12 15 | G96 | 0.4− | 0.7− |
| 2006 03 25 | G96 | 0.1− | 0.5+ | 2008 09 20 | G96 | 0.1+ | 0.0 | 2009 12 15 | G96 | 0.2− | 0.8− |
| 2006 03 25 | G96 | 0.2+ | 0.5+ | 2008 09 24 | 691 | 0.0 | 0.3+ | 2009 12 18 | G96 | 0.4− | 0.4− |
| 2006 04 07 | G96 | 0.1+ | 0.5+ | 2008 09 24 | 691 | 0.0 | 0.3+ | 2009 12 18 | G96 | 0.4+ | 0.2− |
| 2006 04 07 | G96 | 0.1+ | 0.6+ | 2008 09 24 | 691 | 0.1+ | 0.7+ | 2009 12 18 | G96 | 0.6+ | 0.4− |
| 2006 04 07 | G96 | 0.5− | 0.2+ | 2008 09 24 | 704 | 0.1+ | 1.4+ | 2009 12 18 | G96 | 0.4+ | 0.0 |
| 2006 04 07 | G96 | 0.1− | 0.6+ | 2008 09 24 | 703 | 0.4− | 0.5− | 2009 12 25 | 691 | 0.0 | 0.1− |
| 2006 04 19 | G96 | 0.5− | 0.3+ | 2008 09 24 | 703 | 0.4− | 0.5− | 2009 12 25 | 691 | 0.1− | 0.2− |
| 2006 04 19 | G96 | 0.6+ | 0.6+ | 2008 09 24 | 704 | 1.1+ | 0.6+ | 2009 12 25 | 691 | 0.1− | 0.1− |
| 2006 04 19 | G96 | 0.2− | 0.3+ | 2008 09 24 | 703 | 0.0 | 0.2− | | | | |
| 2006 04 19 | G96 | 0.1+ | 0.6− | 2008 09 24 | 703 | 0.0 | 1.0+ | | | | |

**(229656)∗ 2006 HH$_{34}$**

Discovered 2006 Apr. 19 by the Mt. Lemmon Survey at Mount Lemmon.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 303.33621 | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.19101588 | $\omega$ | 103.30558 | | −0.92293020 | | −0.38195490 | |
| $a$ | 2.9859995 | $\Omega$ | 54.25992 | | +0.32629765 | | −0.84240610 | |
| $e$ | 0.1511195 | $i$ | 3.39491 | | +0.20427843 | | −0.38008211 | |
| $P$ | 5.16 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 0 | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 30 | 691 | 0.4− | 0.0 | 2006 04 26 | 691 | 0.4+ | 0.4+ | 2008 09 24 | G96 | 0.0 | 0.5+ |
| 2003 09 30 | 691 | 0.1− | 0.3− | 2006 04 26 | 691 | 0.3+ | 0.4+ | 2008 09 24 | G96 | 0.0 | 0.3+ |
| 2003 09 30 | 691 | 0.2− | 0.3− | 2006 05 08 | G96 | 0.2− | 0.1+ | 2008 09 24 | G96 | 0.1+ | 0.3+ |
| 2003 10 19 | 691 | 0.0 | 0.3+ | 2006 05 08 | G96 | 0.3+ | 0.2− | 2008 09 24 | G96 | 0.4+ | 0.3+ |
| 2003 10 19 | 691 | 0.1− | 0.5+ | 2006 05 08 | G96 | 0.0 | 0.0 | 2009 11 17 | G96 | 0.3+ | 0.3+ |
| 2003 10 19 | 691 | 0.2+ | 0.6+ | 2006 05 08 | G96 | 0.1+ | 0.3+ | 2009 11 17 | G96 | 0.1+ | 0.3+ |
| 2003 11 20 | 645 | 0.0 | 0.0 | 2006 05 22 | G96 | 0.3− | 0.1− | 2009 11 17 | G96 | 0.1+ | 0.1+ |
| 2003 11 20 | 645 | 0.0 | 0.1+ | 2006 05 22 | G96 | 0.5− | 1.1− | 2009 11 17 | G96 | 0.1+ | 0.0 |
| 2006 03 02 | G96 | 0.2− | 0.1+ | 2006 05 22 | G96 | 0.1− | 0.2− | 2009 11 21 | 691 | 0.0 | 0.2+ |
| 2006 03 02 | G96 | 0.0 | 0.1+ | 2006 05 22 | G96 | 0.3+ | 0.1− | 2009 11 21 | 691 | 0.2− | 0.2+ |
| 2006 03 02 | G96 | 0.3− | 0.3− | 2006 05 31 | G96 | 0.3− | 0.1+ | 2009 11 21 | 691 | 0.2− | 0.0 |
| 2006 03 02 | G96 | 0.6− | 0.4+ | 2006 05 31 | G96 | 0.3− | 0.2+ | 2009 12 11 | G96 | 0.2+ | 0.3+ |
| 2006 04 19 | G96 | 0.0 | 0.4+ | 2006 05 31 | G96 | 0.3− | 1.2+ | 2009 12 11 | G96 | 0.2+ | 0.3+ |
| 2006 04 19 | G96 | 0.0 | 0.2+ | 2006 05 31 | G96 | 0.7+ | 0.7+ | 2009 12 11 | G96 | 0.5+ | 0.2+ |
| 2006 04 19 | G96 | 0.1+ | 0.2+ | 2008 09 03 | 691 | 0.3− | 0.2+ | 2009 12 11 | G96 | 0.1− | 0.3+ |
| 2006 04 19 | G96 | 0.1+ | 0.2+ | 2008 09 03 | 691 | 0.1− | 0.0 | | | | |
| 2006 04 26 | 691 | 0.3+ | 0.4+ | 2008 09 03 | 691 | 0.1+ | 0.3− | | | | |

**(229657)∗ 2006 HT$_{39}$ = 2005 BE$_{14}$**

Discovered 2006 Apr. 21 by the Catalina Sky Survey.

Id. G. V. Williams (*MPO* 101655)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 296.92467 | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.17628559 | $\omega$ | 86.04395 | | −0.75725481 | | −0.50860148 | |
| $a$ | 3.1501036 | $\Omega$ | 62.92570 | | +0.24361678 | | −0.80204526 | |
| $e$ | 0.1219453 | $i$ | 27.39810 | | +0.60598351 | | −0.31312606 | |
| $P$ | 5.59 | $H$ | 14.5 | $G$ | 0.15 | $U$ | 0 | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 04 30 | 699 | 1.0− | 0.8+ | 2006 04 24 | 699 | 0.4+ | 0.3+ | 2009 11 16 | 691 | 0.6− | 0.0 |
| 2000 04 30 | 699 | 1.3+ | 0.5− | 2006 04 24 | 699 | 0.3+ | 0.7+ | 2009 11 16 | 691 | (2.1+ | 0.4+) |
| 2000 04 30 | 699 | 0.3+ | 0.2+ | 2006 05 07 | 703 | 0.5− | 0.5− | 2009 11 17 | 704 | 1.4+ | 0.3+ |
| 2000 04 30 | 699 | 0.7+ | 0.0 | 2006 05 07 | 703 | 0.3+ | 0.4+ | 2009 11 17 | 704 | 0.2+ | 1.4+ |
| 2003 11 28 | 645 | 0.0 | 0.0 | 2006 05 07 | 703 | 1.2+ | 1.4+ | 2009 11 17 | 704 | 0.2+ | 0.1− |
| 2003 11 28 | 645 | 0.0 | 0.0 | 2006 05 07 | 703 | 0.1+ | 0.5− | 2009 11 17 | 704 | (0.7+ | 1.6+) |
| 2004 12 10 | 704 | 0.2− | 0.1− | 2006 05 20 | 703 | 0.3− | 0.4+ | 2009 11 17 | 704 | (1.5+ | 0.8+) |
| 2004 12 10 | 704 | 0.3− | 0.4+ | 2006 05 20 | 703 | 0.3+ | 0.1− | 2009 11 20 | 691 | 0.0 | 0.0 |
| 2004 12 10 | 704 | 0.1− | 0.3− | 2006 05 20 | 703 | 0.3− | 0.4+ | 2009 11 20 | 691 | 0.2+ | 0.4+ |
| 2004 12 10 | 704 | (1.0+ | 1.9+) | 2006 05 20 | 703 | 0.9− | 0.4+ | 2009 11 20 | 691 | 0.1− | 0.2+ |
| 2005 01 18 | 699 | 0.1+ | 0.7+ | 2006 05 24 | 699 | 0.8+ | 0.3+ | 2009 11 21 | J75 | 1.1+ | 0.2− |
| 2005 01 18 | 699 | 0.8+ | 0.6+ | 2006 05 24 | 699 | 0.8+ | 0.6− | 2009 11 21 | J75 | (1.5+ | 0.3+) |
| 2005 01 18 | 699 | 0.1− | 0.4+ | 2006 05 24 | 699 | 1.3+ | 0.2+ | 2009 11 21 | J75 | 0.1+ | 1.0− |
| 2005 01 18 | 699 | 0.1+ | 0.5+ | 2006 05 24 | 699 | (1.1+ | 1.6+) | 2009 11 25 | 691 | 0.2− | 0.0 |
| 2005 01 20 | 704 | 0.2− | 0.5− | 2009 10 21 | G96 | 0.1− | 0.1+ | 2009 11 25 | 691 | 0.2− | 0.1+ |
| 2005 01 20 | 704 | 0.2− | 0.7− | 2009 10 21 | G96 | 0.3+ | 0.0 | 2009 11 25 | 691 | 0.1− | 0.1+ |
| 2005 01 20 | 704 | 0.2+ | 0.8− | 2009 10 21 | G96 | 0.1+ | 0.3− | 2009 11 25 | 703 | 0.4− | 0.6− |
| 2005 01 20 | 704 | 0.2+ | 0.5− | 2009 10 21 | G96 | 0.4+ | 0.2− | 2009 11 25 | 703 | 0.4− | 0.0 |
| 2005 03 12 | 704 | 0.1+ | 0.5− | 2009 11 08 | 691 | 0.1+ | 0.1− | 2009 11 25 | 703 | 0.6+ | 0.5+ |
| 2005 03 12 | 704 | 1.3− | 0.5− | 2009 11 08 | 691 | 0.1− | 0.3+ | 2009 11 25 | 703 | 1.1+ | 0.1− |
| 2005 03 12 | 704 | 0.6+ | 0.3− | 2009 11 08 | 691 | 0.1− | 0.0 | 2009 11 25 | 703 | 0.6+ | 0.5− |
| 2005 03 12 | 704 | 0.3− | 1.0− | 2009 11 10 | J75 | 0.6− | 0.3+ | 2009 12 11 | 704 | 0.3+ | 0.5+ |
| 2006 04 21 | 703 | 0.6+ | 0.4+ | 2009 11 10 | J75 | 0.6− | 0.4− | 2009 12 11 | 704 | 0.1+ | 1.1+ |
| 2006 04 21 | 703 | 0.4− | 0.1− | 2009 11 10 | J75 | 0.0 | 0.1+ | 2009 12 11 | 704 | 1.3− | 0.1+ |
| 2006 04 21 | 703 | 0.3− | 0.3− | 2009 11 12 | J75 | 0.2+ | 0.1+ | 2009 12 16 | G96 | 0.3+ | 0.3− |
| 2006 04 21 | 703 | 0.3− | 0.1− | 2009 11 12 | J75 | 0.4+ | 0.2+ | 2009 12 16 | G96 | 0.1+ | 0.1− |
| 2006 04 24 | 699 | 0.4− | 0.1+ | 2009 11 12 | J75 | 0.1+ | 0.1+ | 2009 12 16 | G96 | 0.4+ | 0.1− |
| 2006 04 24 | 699 | 0.1− | 0.3+ | 2009 11 16 | 691 | 0.7− | 0.1+ | 2009 12 16 | G96 | 0.2+ | 0.2− |

**(229658)∗ 2006 HV$_{41}$**

Discovered 2006 Apr. 21 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 195.54025 | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.17985792 | $\omega$ | 179.09745 | | +0.25120016 | | +0.94552938 | |
| $a$ | 3.1082528 | $\Omega$ | 105.43011 | | −0.88940359 | | +0.30988097 | |
| $e$ | 0.0924877 | $i$ | 12.40376 | | −0.38191587 | | −0.09973956 | |
| $P$ | 5.48 | $H$ | 15.0 | $G$ | 0.15 | $U$ | 1 | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 04 23 | 691 | 0.4− | 0.6− | 2006 05 03 | 691 | 0.0 | 0.3+ | 2006 06 21 | 699 | (0.3− | 1.9−) |
| 1995 04 23 | 691 | 0.2+ | 0.4− | 2006 05 11 | 644 | 0.3− | 0.0 | 2008 10 11 | F84 | 0.3+ | 0.2− |
| 1995 04 23 | 691 | 0.3+ | 0.6− | 2006 05 11 | 644 | 0.6− | 0.3+ | 2008 10 11 | F84 | 0.9− | 0.4− |
| 1998 10 24 | 691 | 0.5− | 0.2− | 2006 05 11 | 644 | 0.1− | 0.2+ | 2008 12 01 | 703 | 0.3− | 0.0 |
| 1998 10 24 | 691 | 1.0− | 1.2− | 2006 05 19 | 699 | 0.2+ | 0.6+ | 2008 12 01 | 703 | 0.0 | 0.3+ |
| 1998 10 24 | 691 | 1.0− | 0.3− | 2006 05 19 | 699 | 1.2+ | 0.2+ | 2008 12 01 | 703 | 1.0− | 0.8+ |
| 2000 03 29 | 704 | (3.3+ | 1.0−) | 2006 05 19 | 699 | 1.0+ | 0.2+ | 2008 12 01 | 703 | 0.6− | 0.8+ |
| 2000 03 29 | 704 | 0.2+ | 0.1+ | 2006 05 19 | 699 | 0.5− | 0.2− | 2009 11 16 | G96 | 0.3− | 0.1− |
| 2000 03 29 | 704 | 0.2+ | 0.1+ | 2006 05 21 | 185 | 0.5− | 0.8− | 2009 11 16 | G96 | 0.1+ | 0.2− |
| 2004 01 13 | 691 | 0.5+ | 0.2+ | 2006 05 21 | 185 | 0.2+ | 0.4− | 2009 11 16 | G96 | 0.6+ | 0.1+ |
| 2004 01 13 | 691 | 0.4+ | 0.4+ | 2006 05 26 | 703 | 0.9− | 0.1− | 2009 11 16 | G96 | 0.4+ | 0.1− |
| 2004 01 13 | 691 | 0.4+ | 0.3+ | 2006 05 26 | 703 | (1.6− | 0.3+) | 2009 12 17 | G96 | 0.2+ | 0.1+ |
| 2006 04 21 | 691 | 0.3+ | 0.4+ | 2006 05 26 | 703 | (1.7− | 0.3−) | 2009 12 17 | G96 | 0.1+ | 0.0 |
| 2006 04 21 | 691 | 0.3+ | 0.2+ | 2006 05 26 | 703 | 1.4− | 0.5+ | 2009 12 17 | G96 | 0.0 | 0.3+ |
| 2006 04 21 | 691 | 0.1+ | 0.3+ | 2006 06 12 | 644 | 0.3− | 0.2+ | 2009 12 17 | G96 | 0.4+ | 0.1− |
| 2006 04 25 | 691 | 0.2+ | 0.1− | 2006 06 12 | 644 | 0.1+ | 0.1+ | 2009 12 18 | 691 | 0.2+ | 0.2+ |
| 2006 04 25 | 691 | 0.0 | 0.1− | 2006 06 12 | 644 | 0.0 | 0.2+ | 2009 12 18 | 691 | 0.0 | 0.1+ |
| 2006 04 25 | 691 | 0.0 | 0.1− | 2006 06 21 | 699 | 0.5+ | 0.4+ | 2009 12 18 | 691 | 0.2+ | 0.5+ |
| 2006 05 03 | 691 | 0.2− | 0.2+ | 2006 06 21 | 699 | 0.4− | 0.6+ | | | | |
| 2006 05 03 | 691 | 0.0 | 0.3+ | 2006 06 21 | 699 | 0.6− | 0.3+ | | | | |

**(229659)∗ 2006 HK$_{49}$ = 1995 FK$_{3}$**

Discovered 2006 Apr. 25 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 101669)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 357.17016 | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.18518818 | $\omega$ | 336.63968 | | +0.21253442 | | −0.97526330 | |
| $a$ | 3.0483199 | $\Omega$ | 101.04564 | | +0.90600069 | | +0.17338753 | |
| $e$ | 0.1324756 | $i$ | 3.54871 | | +0.36604901 | | +0.13710678 | |
| $P$ | 5.32 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 1 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 02 04 | 691 | 0.2+ | 0.1− | 2005 03 12 | G96 | 0.2− | 0.0 | 2009 11 18 | 704 | 0.3+ | 0.4+ |
| 1995 02 04 | 691 | 0.3+ | 0.2− | 2005 03 12 | G96 | 0.4− | 0.2− | 2009 11 20 | J75 | 0.4+ | 0.3− |
| 1995 02 04 | 691 | 0.1− | 0.7+ | 2006 04 25 | 691 | 0.1− | 0.3+ | 2009 11 20 | J75 | 0.1+ | 0.1+ |
| 1995 03 23 | 691 | 0.4− | 0.5− | 2006 04 25 | 691 | 0.2− | 0.3+ | 2009 11 20 | J75 | 0.0 | 0.1− |
| 1995 03 23 | 691 | 0.2− | 0.9− | 2006 04 25 | 691 | 0.2+ | 0.7+ | 2009 11 20 | A50 | 0.5+ | 0.5+ |
| 1995 03 23 | 691 | 0.1− | 0.5− | 2006 04 27 | 691 | 0.0 | 0.5+ | 2009 11 20 | A50 | 0.7− | 0.6+ |
| 1995 03 29 | 691 | 0.2− | 0.2− | 2006 04 27 | 691 | 0.6+ | 0.4+ | 2009 11 23 | J75 | 0.2− | 0.3− |
| 1995 03 29 | 691 | 0.6− | 0.5− | 2006 04 27 | 691 | 0.6+ | 0.1+ | 2009 11 23 | J75 | 0.4+ | 0.4− |
| 1995 03 29 | 691 | 0.2+ | 0.4− | 2006 04 30 | 691 | 0.3+ | 0.3+ | 2009 11 23 | J75 | 0.1+ | 0.1− |
| 2003 09 24 | 644 | 0.3− | 0.5+ | 2006 04 30 | 691 | 0.2− | 0.3+ | 2009 11 25 | 703 | 0.0 | 0.2+ |
| 2003 09 24 | 644 | 0.0 | 0.3+ | 2006 04 30 | 691 | 0.2+ | 0.4+ | 2009 11 25 | 703 | 0.0 | 0.4+ |
| 2003 09 24 | 644 | 0.4− | 0.5+ | 2008 10 28 | G96 | 0.1− | 0.3− | 2009 11 25 | 703 | 0.4− | 0.2− |
| 2004 12 14 | 703 | (1.8+ | 1.3−) | 2008 10 28 | G96 | 0.1+ | 0.1+ | 2009 11 25 | 703 | 0.4+ | 0.2− |
| 2004 12 14 | 703 | 1.2− | 1.1+ | 2008 10 28 | G96 | 0.3− | 0.0 | 2009 11 25 | 703 | 0.1− | 0.5− |
| 2004 12 14 | 703 | 0.7− | 1.0+ | 2008 10 28 | G96 | 0.1− | 0.4− | 2009 11 26 | 691 | 0.3− | 0.3+ |
| 2004 12 14 | 703 | 1.1− | 0.7− | 2009 11 18 | 691 | 0.1+ | 0.3+ | 2009 11 26 | 691 | 0.3− | 0.3+ |
| 2004 12 19 | 691 | 0.0 | 0.2+ | 2009 11 18 | 691 | 0.3− | 0.3+ | 2009 11 26 | 691 | 0.3− | 0.4+ |
| 2004 12 19 | 691 | 0.2+ | 0.3+ | 2009 11 18 | 691 | 1.2+ | 0.4− | 2009 12 11 | 703 | 1.0+ | 0.7− |
| 2004 12 19 | 691 | 0.3+ | 0.2+ | 2009 11 18 | 704 | 0.3− | 0.6+ | 2009 12 11 | 703 | 0.1− | 0.1− |
| 2005 03 12 | G96 | 0.1+ | 0.1− | 2009 11 18 | 704 | (0.1+ | 2.3+) | 2009 12 11 | 703 | 0.6− | 1.4− |
| 2005 03 12 | G96 | 0.2− | 0.2− | 2009 11 18 | 704 | (0.2− | 1.6+) | 2009 12 11 | 703 | 0.2− | 0.4− |

**(229660)∗ 2006 HB$_{110}$ = 1997 HU$_7$**

Discovered 2006 Apr. 21 by the Catalina Sky Survey.

Id. A. Doppler (*MPO* 101723)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 342.72285 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21967962 | $\omega$ | 112.64420 | | −0.80894846 | | −0.51585529 |
| $a$ | 2.7202545 | $\Omega$ | 38.04370 | | +0.20732148 | | −0.69912287 |
| $e$ | 0.2433490 | $i$ | 27.22693 | | +0.55010925 | | −0.49509649 |
| $P$ | 4.49 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 04 07 | 704 | 0.2− | 0.6+ | 2001 03 13 | 704 | 0.3+ | 0.7+ | 2006 04 21 | 703 | 0.3− | 0.3+ |
| 1997 04 07 | 704 | 0.1+ | 0.6+ | 2001 03 13 | 704 | (1.7− | 0.3+) | 2006 05 05 | 699 | (0.5− | 1.8−) |
| 1997 04 30 | 704 | 0.5+ | 0.2+ | 2001 03 13 | 704 | 0.3− | 0.3+ | 2006 05 05 | 699 | 0.9− | 0.2+ |
| 1997 04 30 | 704 | 0.2+ | 0.6+ | 2001 03 13 | 704 | (2.0− | 0.8+) | 2006 05 05 | 699 | 0.5− | 0.7− |
| 1997 04 30 | 704 | 0.8+ | 0.4+ | 2004 11 04 | 703 | 0.7− | 0.1− | 2006 05 05 | 699 | 0.7− | 0.2+ |
| 1997 04 30 | 704 | 0.7+ | 1.1+ | 2004 11 04 | 703 | (1.7− | 0.1+) | 2006 05 06 | G96 | 0.1− | 0.5− |
| 1997 04 30 | 704 | 0.4+ | 0.5+ | 2004 11 04 | 703 | 0.1+ | 1.1+ | 2006 05 06 | G96 | 0.4− | 0.5− |
| 1997 05 01 | 704 | 0.9+ | 0.2+ | 2004 11 04 | 703 | 0.3− | 0.1− | 2006 05 06 | G96 | 0.2− | 0.8− |
| 1997 05 01 | 704 | 1.4− | 0.0 | 2004 12 01 | 644 | 0.5− | 0.4− | 2006 05 06 | G96 | 0.4− | 0.6− |
| 1997 05 01 | 704 | 0.4+ | 0.6− | 2004 12 01 | 644 | 0.2+ | 0.5+ | 2009 11 20 | 703 | 0.7− | 0.2− |
| 1997 05 01 | 704 | 0.9+ | 0.0 | 2004 12 01 | 644 | 0.1+ | 0.1− | 2009 11 20 | 703 | 0.6+ | 0.5+ |
| 1997 05 01 | 704 | 1.2+ | 0.2− | 2006 04 02 | 691 | 0.1− | 0.3− | 2009 11 20 | 703 | 0.8− | 1.2− |
| 2000 12 31 | 699 | 0.3+ | 1.0+ | 2006 04 02 | 691 | 0.1− | 0.2− | 2009 11 20 | 703 | 0.0 | 0.7+ |
| 2000 12 31 | 699 | 0.8+ | 0.7− | 2006 04 02 | 691 | 0.5+ | 0.5+ | 2009 12 19 | 703 | 0.4− | 1.2− |
| 2000 12 31 | 699 | 0.3+ | 0.7+ | 2006 04 21 | 703 | 0.8− | 0.1− | 2009 12 19 | 703 | 0.4− | 1.4− |
| 2000 12 31 | 699 | 0.4+ | 0.3+ | 2006 04 21 | 703 | 0.5− | 0.1− | 2009 12 19 | 703 | 0.3− | 0.4− |
| 2001 03 13 | 704 | 1.2− | 0.1− | 2006 04 21 | 703 | 0.3− | 0.3− | 2009 12 19 | 703 | 0.4+ | 0.0 |

**(229661)∗ 2006 JV$_{46}$**

Discovered 2006 May 1 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 262.85405 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17408901 | $\omega$ | 319.79461 | | −0.93082579 | | +0.14156631 |
| $a$ | 3.1765460 | $\Omega$ | 231.71896 | | −0.10843322 | | −0.98739421 |
| $e$ | 0.1682616 | $i$ | 25.41815 | | −0.34900658 | | −0.07079306 |
| $P$ | 5.66 | $H$ | 14.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 24 | 704 | (0.9+ | 2.4+) | 2006 05 19 | 703 | 0.5− | 0.2− | 2006 06 03 | 699 | 1.3− | 0.3+ |
| 2003 10 24 | 704 | 1.3+ | 0.2− | 2006 05 19 | 703 | 0.5− | 0.1− | 2006 06 03 | 699 | 0.3− | 1.2+ |
| 2003 10 24 | 704 | 0.4+ | 1.1+ | 2006 05 19 | 703 | (2.1− | 0.5+) | 2006 06 16 | 644 | 0.0 | 0.2− |
| 2003 10 24 | 704 | 0.9− | 0.9+ | 2006 05 19 | 703 | 1.1− | 0.9− | 2006 06 16 | 644 | 0.1− | 0.1− |
| 2003 10 29 | 704 | 0.2− | 0.0 | 2006 05 21 | 691 | 0.2+ | 0.3+ | 2006 06 16 | 644 | 0.5+ | 0.3− |
| 2003 10 29 | 704 | 0.2− | 0.4− | 2006 05 21 | 691 | 1.3− | 0.5− | 2006 06 16 | 644 | 0.2− | 0.1− |
| 2003 10 29 | 704 | 0.7− | 0.1− | 2006 05 21 | 691 | 0.1+ | 0.3+ | 2006 06 16 | 644 | 0.0 | 0.4+ |
| 2003 10 29 | 704 | 0.6+ | 0.3+ | 2006 05 25 | 691 | 0.2+ | 0.0 | 2006 06 16 | 644 | 0.4+ | 0.4+ |
| 2003 11 16 | 691 | 0.1− | 0.1+ | 2006 05 25 | 704 | 0.6− | 0.1+ | 2008 11 23 | G96 | 0.1+ | 0.8− |
| 2003 11 16 | 691 | 0.0 | 0.1+ | 2006 05 25 | 691 | 0.3+ | 0.0 | 2008 11 23 | G96 | 0.1− | 0.4− |
| 2003 11 16 | 691 | 0.3+ | 0.1+ | 2006 05 25 | 704 | 0.1− | 1.0− | 2008 11 23 | G96 | 0.1+ | 0.5− |
| 2003 11 30 | 691 | 0.3+ | 0.1+ | 2006 05 25 | 691 | 0.3+ | 0.1+ | 2008 11 23 | G96 | 0.3− | 0.2− |
| 2003 11 30 | 691 | 0.2− | 0.0 | 2006 05 25 | 704 | 0.0 | 1.3− | 2009 11 17 | 703 | 0.1+ | 0.2− |
| 2003 11 30 | 691 | 0.1− | 0.2+ | 2006 05 28 | 704 | 0.5− | 1.1+ | 2009 11 17 | 703 | (0.7+ | 1.8+) |
| 2006 05 01 | 704 | 0.5+ | 0.5− | 2006 05 28 | 704 | 0.6+ | 1.4+ | 2009 11 17 | 703 | 0.7− | 0.4− |
| 2006 05 01 | 704 | 0.5+ | 0.8− | 2006 05 28 | 704 | (1.9+ | 1.8+) | 2009 11 17 | 703 | 0.6− | 0.5+ |
| 2006 05 01 | 704 | 0.3− | 0.2+ | 2006 05 28 | 704 | 0.5+ | 0.4− | 2009 11 26 | G96 | 0.1− | 0.2+ |
| 2006 05 08 | E12 | 0.0 | 0.3+ | 2006 05 29 | 691 | 0.2+ | 0.1+ | 2009 11 26 | G96 | 0.2+ | 0.0 |
| 2006 05 08 | E12 | 0.0 | 0.5− | 2006 05 29 | 691 | 0.2+ | 0.2− | 2009 11 26 | G96 | 0.3+ | 0.3+ |
| 2006 05 08 | E12 | 0.1+ | 0.4− | 2006 05 29 | 691 | 0.2+ | 0.1+ | 2009 11 26 | G96 | 0.1+ | 0.3+ |
| 2006 05 08 | E12 | 0.6+ | 0.0 | 2006 06 02 | 691 | 0.2+ | 0.1+ | 2009 11 26 | G96 | 0.0 | 0.2+ |
| 2006 05 16 | E12 | 0.3− | 0.4+ | 2006 06 02 | 691 | 0.1+ | 0.2+ | 2009 12 11 | 703 | 0.2− | 1.5− |
| 2006 05 16 | E12 | 0.2− | 0.2+ | 2006 06 02 | 691 | 0.3+ | 0.0 | 2009 12 11 | 703 | 0.8+ | 0.9+ |
| 2006 05 16 | E12 | 1.5− | 1.0+ | 2006 06 03 | 699 | 0.0 | 0.4− | 2009 12 11 | 703 | 0.3− | 0.2− |
| 2006 05 16 | E12 | 0.2− | 0.5− | 2006 06 03 | 699 | 0.3− | 0.8+ | 2009 12 11 | 703 | 0.3+ | 0.8− |

**(229662)∗ 2006 KV$_{12}$ = 2002 SJ$_{34}$ = 2007 OT**

Discovered 2006 May 20 by NEAT at Palomar.

Id. G. V. Williams (*MPO* 122551, *MPO* 148604)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 180.84059 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17995088 | $\omega$ | 144.50429 | | +0.31004742 | | +0.94470821 |
| $a$ | 3.1071823 | $\Omega$ | 143.22237 | | −0.90826557 | | +0.32750992 |
| $e$ | 0.1008020 | $i$ | 10.27139 | | −0.28093460 | | −0.01623739 |
| $P$ | 5.48 | $H$ | 14.9 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 03 11 | 699 | 0.9+ | 0.9+ | 2006 05 25 | 699 | 0.1+ | 0.7+ | 2007 09 03 | 703 | 1.2+ | 1.2− |
| 2000 03 11 | 699 | 1.6− | 0.7− | 2007 06 21 | 291 | 0.6− | 0.1− | 2007 09 04 | 703 | (1.3− | 1.5+) |
| 2000 03 11 | 699 | 1.0+ | 0.6− | 2007 06 21 | 291 | 0.8− | 0.1− | 2007 09 04 | 703 | 0.0 | 1.2+ |
| 2000 03 11 | 699 | 0.9+ | 0.7+ | 2007 06 21 | 291 | 0.6− | 0.1− | 2007 09 04 | 703 | 1.3− | 0.8+ |
| 2002 09 29 | 608 | 1.4− | 0.6+ | 2007 07 07 | D35 | 0.3+ | 0.5+ | 2007 09 04 | 703 | (1.5+ | 1.1+) |
| 2002 09 29 | 608 | 1.2− | 1.0+ | 2007 07 07 | D35 | 0.5+ | 0.0 | 2007 09 10 | G96 | 0.2+ | 0.2− |
| 2002 09 29 | 608 | 1.1− | 0.2+ | 2007 07 07 | D35 | 0.2− | 0.2+ | 2007 09 10 | G96 | 0.0 | 0.1− |
| 2002 10 01 | 699 | 0.6+ | 0.8+ | 2007 07 17 | A77 | 0.1− | 0.5+ | 2007 09 10 | G96 | 0.0 | 0.0 |
| 2002 10 01 | 699 | 0.5− | 0.1+ | 2007 07 17 | A77 | 0.5+ | 0.4− | 2007 09 10 | G96 | 0.3− | 0.1+ |
| 2002 10 01 | 699 | 1.0+ | 0.2− | 2007 07 17 | A77 | 0.6+ | 0.7+ | 2007 09 27 | G96 | 0.0 | 0.3− |
| 2002 10 01 | 699 | 0.4− | 0.8+ | 2007 07 18 | A77 | 0.4+ | 0.1− | 2007 09 27 | G96 | 0.4− | 0.6− |
| 2003 11 18 | 691 | 0.3+ | 0.1+ | 2007 07 18 | A77 | 0.4+ | 0.3+ | 2007 09 27 | G96 | 0.2− | 0.4− |
| 2003 11 18 | 691 | 0.1+ | 0.3+ | 2007 07 18 | A77 | 0.4+ | 0.3+ | 2007 09 27 | G96 | 0.1− | 0.6− |
| 2003 11 18 | 691 | 0.1+ | 0.2− | 2007 08 05 | 704 | 0.2+ | 0.5+ | 2007 10 14 | G96 | 0.0 | 0.1− |
| 2005 02 09 | 699 | 0.1− | 0.1+ | 2007 08 05 | 704 | 0.2+ | 0.9+ | 2007 10 14 | G96 | 0.2− | 0.1− |
| 2005 02 09 | 699 | 0.6− | 0.7+ | 2007 08 05 | 704 | 0.1+ | 0.8+ | 2007 10 14 | G96 | 0.1+ | 0.0 |
| 2005 02 09 | 699 | 0.5− | 0.4+ | 2007 08 09 | 704 | 0.2+ | 0.3+ | 2007 10 14 | G96 | 0.1− | 0.3− |
| 2005 02 09 | 699 | 0.2+ | 1.2+ | 2007 08 09 | 704 | 0.5+ | 0.4+ | 2008 11 03 | 703 | 1.2− | 0.9+ |
| 2005 03 04 | G96 | (1.4+ | 8.2+) | 2007 08 09 | 704 | 0.2− | 0.5+ | 2008 11 03 | 703 | 0.3+ | 1.1+ |
| 2005 03 04 | G96 | (1.9+ | 8.5+) | 2007 08 09 | 704 | 0.1+ | 0.3+ | 2008 11 03 | 703 | 0.1+ | 0.1− |
| 2005 03 04 | G96 | (1.0+ | 8.3+) | 2007 08 09 | 704 | 0.0 | 0.7+ | 2008 11 03 | 703 | 0.5− | 0.5− |
| 2005 03 04 | G96 | (0.8+ | 9.1+) | 2007 08 15 | 704 | 1.1+ | 0.0 | 2008 11 27 | J75 | 0.6+ | 0.1− |
| 2006 05 20 | 644 | 0.1− | 0.2+ | 2007 08 15 | 704 | 0.2+ | 1.4− | 2008 11 27 | J75 | 0.7− | 0.0 |
| 2006 05 20 | 644 | 0.5+ | 0.2+ | 2007 08 15 | 704 | 0.5− | 0.4+ | 2008 11 27 | J75 | 0.3+ | 0.4− |
| 2006 05 20 | 644 | 0.8+ | 0.0 | 2007 08 15 | 704 | 0.5+ | 0.5+ | 2009 10 26 | G96 | 0.5+ | 0.3− |
| 2006 05 21 | 703 | 0.6− | 0.8+ | 2007 08 18 | 699 | 0.6+ | 0.2+ | 2009 10 26 | G96 | 0.2− | 0.4+ |
| 2006 05 21 | 703 | 0.1+ | 0.0 | 2007 08 18 | 699 | 0.1+ | 0.1+ | 2009 10 26 | G96 | 0.4+ | 0.3+ |
| 2006 05 21 | 703 | 0.4− | 0.6+ | 2007 08 18 | 699 | 0.7+ | 0.1− | 2009 10 26 | G96 | 0.7+ | 0.2− |
| 2006 05 21 | 703 | 0.3+ | 1.0+ | 2007 08 18 | 699 | 1.1+ | 1.3− | 2009 12 20 | 691 | 0.3− | 0.2+ |
| 2006 05 25 | 699 | 0.1− | 0.4− | 2007 09 03 | 703 | 0.0 | 0.3− | 2009 12 20 | 691 | 0.0 | 0.1+ |
| 2006 05 25 | 699 | (1.1+ | 3.0+) | 2007 09 03 | 703 | 0.6+ | 0.6+ | 2009 12 20 | 691 | 0.0 | 0.1+ |
| 2006 05 25 | 699 | 0.4− | 1.1+ | 2007 09 03 | 703 | 1.1+ | 0.9− | | | | |

**(229663)∗ 2006 KX$_{20}$**

Discovered 2006 May 20 by the Catalina Sky Survey.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 246.20134 | | (2000.0) | | | |
| $n$ | 0.17618606 | $\omega$ | 123.11928 | | −0.74513599 | +0.63629419 |
| $a$ | 3.1512898 | $\Omega$ | 97.22628 | | −0.65907622 | −0.65679174 |
| $e$ | 0.0505085 | $i$ | 11.61617 | | −0.10193573 | −0.40466568 |
| $P$ | 5.59 | $H$ | 14.7 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 04 04 | 699 | 0.2+ | 0.7+ | 2006 05 20 | 703 | 0.0 | 0.1− | 2008 10 08 | 703 | 0.0 | 0.7− |
| 2000 04 04 | 699 | 0.5+ | 0.6+ | 2006 05 20 | 703 | 1.4− | 0.7+ | 2008 10 26 | G96 | 0.5− | 0.1− |
| 2000 04 04 | 699 | 0.3+ | 0.8+ | 2006 05 20 | 703 | (1.9− | 1.2+) | 2008 10 26 | G96 | 0.1− | 0.0 |
| 2000 04 04 | 699 | 0.1− | 0.1− | 2006 05 23 | 691 | 0.0 | 0.3+ | 2008 10 26 | G96 | 0.1− | 0.2+ |
| 2000 04 28 | 699 | 0.0 | 0.3− | 2006 05 23 | 691 | 0.3+ | 0.2+ | 2008 10 26 | G96 | 0.1− | 0.0 |
| 2000 04 28 | 699 | 0.7+ | 0.1+ | 2006 05 23 | 691 | 0.3+ | 0.3+ | 2009 12 16 | 691 | 0.1+ | 0.7+ |
| 2000 04 28 | 699 | 0.7− | 0.2− | 2006 05 26 | 703 | 0.6− | 0.1+ | 2009 12 16 | 691 | 0.0 | 0.1− |
| 2000 04 28 | 699 | 0.5− | 0.4− | 2006 05 26 | 703 | 0.8− | 0.5+ | 2009 12 16 | 691 | 0.1− | 0.1− |
| 2003 01 24 | 809 | 0.0 | 0.3+ | 2006 05 26 | 703 | 0.1+ | 1.2− | 2009 12 16 | 704 | 0.5− | 0.9+ |
| 2003 01 24 | 809 | 0.4− | 0.5+ | 2006 05 26 | 703 | 0.3− | 0.2+ | 2009 12 16 | 704 | 0.9+ | 1.1+ |
| 2003 01 24 | 809 | (2.3− | 2.5+) | 2006 06 04 | 703 | 0.7+ | 0.1+ | 2009 12 16 | 704 | 0.7+ | 0.0 |
| 2003 12 01 | 704 | 0.2+ | 0.2+ | 2006 06 04 | 703 | 0.6− | 0.2− | 2009 12 16 | G96 | 0.1− | 0.3− |
| 2003 12 01 | 704 | 0.1− | 0.5+ | 2006 06 04 | 703 | 0.4− | 0.1+ | 2009 12 16 | 704 | 1.3+ | 1.5+ |
| 2003 12 01 | 704 | 0.8+ | 0.1− | 2006 06 04 | 703 | 0.5− | 0.7+ | 2009 12 16 | G96 | 0.0 | 0.3− |
| 2003 12 01 | 704 | 0.0 | 0.0 | 2006 06 20 | 703 | 0.7+ | 0.6− | 2009 12 16 | G96 | 0.0 | 0.2− |
| 2003 12 01 | 704 | 0.9+ | 0.4+ | 2006 06 20 | 703 | 0.4+ | 1.1− | 2009 12 16 | G96 | 0.2+ | 0.1+ |
| 2005 03 01 | 703 | 0.2− | 0.7− | 2006 06 20 | 703 | 0.2+ | 0.0 | 2009 12 20 | 691 | 0.1− | 0.2− |
| 2005 03 01 | 703 | 1.1− | 0.3− | 2006 06 20 | 703 | 0.5+ | 1.1− | 2009 12 20 | 691 | 0.1+ | 0.1+ |
| 2005 03 01 | 703 | 1.0− | 0.0 | 2007 07 20 | D35 | 0.7− | 0.9+ | 2009 12 20 | 691 | 0.1+ | 0.1+ |
| 2005 03 01 | 703 | 0.5− | 0.4− | 2007 07 20 | D35 | 0.4− | 0.1− | 2009 12 25 | 691 | 0.1− | 0.1− |
| 2006 04 24 | 691 | 0.2+ | 0.0 | 2007 07 20 | D35 | 0.3+ | 0.3+ | 2009 12 25 | 691 | 0.1− | 0.1+ |
| 2006 04 24 | 691 | 0.3+ | 0.1+ | 2008 10 08 | 703 | (1.6+ | 0.8−) | 2009 12 25 | 691 | 0.2− | 0.2− |
| 2006 04 24 | 691 | 0.2+ | 0.1+ | 2008 10 08 | 703 | 1.0− | 0.5+ | | | | |
| 2006 05 20 | 703 | 1.1− | 1.0+ | 2008 10 08 | 703 | 0.3− | 0.7+ | | | | |

**(229664)∗ 2006 KV$_{40}$**

Discovered 2006 May 19 by the Mt. Lemmon Survey at Mount Lemmon.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 57.09929 | | (2000.0) | | | |
| $n$ | 0.18488532 | $\omega$ | 269.62782 | | +0.67484561 | −0.73753188 |
| $a$ | 3.0516479 | $\Omega$ | 137.89351 | | +0.69108398 | +0.61968364 |
| $e$ | 0.0897257 | $i$ | 2.14554 | | +0.25881720 | +0.26840068 |
| $P$ | 5.33 | $H$ | 16.2 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1960 09 26 | 675 | 0.7+ | 0.3+ | 2006 05 19 | G96 | 0.3− | 0.1+ | 2008 10 09 | G96 | 0.2− | 0.2− |
| 1960 09 26 | 675 | 0.5− | 0.9+ | 2006 05 19 | G96 | 0.3− | 0.1+ | 2008 10 09 | G96 | 0.1− | 0.0 |
| 1992 10 01 | 691 | 0.4− | 0.0 | 2006 05 19 | G96 | 0.3− | 0.0 | 2008 10 10 | G96 | 0.3− | 0.3− |
| 1992 10 01 | 691 | 0.1− | 0.2− | 2006 05 19 | G96 | 0.3− | 0.0 | 2008 10 10 | G96 | 0.0 | 0.3− |
| 1992 10 01 | 691 | 0.7− | 0.3+ | 2006 05 24 | G96 | 0.1− | 0.0 | 2008 10 10 | G96 | 0.1+ | 0.0 |
| 2003 10 20 | 691 | 0.1+ | 0.3+ | 2006 05 24 | G96 | 0.1− | 0.5+ | 2008 10 10 | G96 | 0.1− | 0.2− |
| 2003 10 20 | 691 | 0.0 | 0.4+ | 2006 05 24 | G96 | 0.3− | 0.4+ | 2009 11 16 | G96 | 0.5+ | 0.5− |
| 2003 10 20 | 691 | 0.0 | 0.2+ | 2006 05 24 | G96 | 0.3+ | 0.4+ | 2009 11 16 | G96 | 0.3+ | 0.3− |
| 2003 11 15 | 691 | 0.3+ | 0.3+ | 2008 09 02 | 691 | 0.0 | 0.2− | 2009 11 16 | G96 | 0.6+ | 0.3− |
| 2003 11 15 | 691 | 0.5+ | 0.1+ | 2008 09 02 | 691 | 0.1− | 0.1+ | 2009 11 16 | G96 | 0.2− | 0.2− |
| 2003 11 15 | 691 | 0.5+ | 0.5+ | 2008 09 02 | 691 | 0.0 | 0.1− | 2009 11 16 | G96 | 0.0 | 0.1− |
| 2005 03 04 | G96 | 0.0 | 0.3− | 2008 09 23 | G96 | 0.3− | 0.8− | 2009 11 16 | G96 | 0.1+ | 0.3+ |
| 2005 03 04 | G96 | 0.0 | 0.4− | 2008 09 23 | G96 | 0.0 | 0.7− | 2009 11 16 | G96 | 0.3+ | 0.1+ |
| 2005 03 04 | G96 | 0.1− | 0.1− | 2008 09 23 | G96 | 0.2− | 0.8− | 2009 11 16 | G96 | 0.1+ | 0.1+ |
| 2005 03 04 | G96 | 0.1+ | 0.2− | 2008 09 23 | G96 | 0.1+ | 0.6− | 2009 12 17 | 691 | 0.3− | 0.2+ |
| 2006 03 25 | 691 | 0.1+ | 0.3+ | 2008 09 29 | 703 | 0.8+ | 0.7− | 2009 12 17 | 691 | 0.1− | 0.3+ |
| 2006 03 25 | 691 | 0.0 | 0.4− | 2008 09 29 | 703 | 0.4+ | 1.3+ | 2009 12 17 | 691 | 0.0 | 0.2− |
| 2006 03 25 | 691 | 0.0 | 0.1+ | 2008 09 29 | 703 | (0.6− | 1.6+) | 2009 12 25 | 691 | 0.7− | 0.1− |
| 2006 04 26 | 691 | 0.4+ | 0.4+ | 2008 09 29 | 703 | 1.1+ | 1.3+ | 2009 12 25 | 691 | 0.2− | 0.3+ |
| 2006 04 26 | 691 | 0.8+ | 0.7+ | 2008 10 09 | G96 | 0.1− | 0.2− | 2009 12 25 | 691 | 0.2− | 0.1− |
| 2006 04 26 | 691 | 0.1+ | 0.1+ | 2008 10 09 | G96 | 0.5− | 0.2− | | | | |

**(229665)∗ 2006 MC$_2$ = 1998 YV$_{17}$**

Discovered 2006 June 16 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 101852)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 247.48241 | | (2000.0) | | | |
| $n$ | 0.17562132 | $\omega$ | 104.95802 | | −0.70043068 | +0.69589806 |
| $a$ | 3.1580419 | $\Omega$ | 119.44111 | | −0.70458594 | −0.63878320 |
| $e$ | 0.0418274 | $i$ | 10.48660 | | −0.11382228 | −0.32814922 |
| $P$ | 5.61 | $H$ | 15.5 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 12 23 | 691 | 0.3+ | 0.4− | 2006 05 02 | G96 | 0.3− | 0.2+ | 2008 10 26 | G96 | 0.5+ | 0.4+ |
| 1998 12 23 | 691 | 1.4+ | 0.3− | 2006 05 02 | G96 | 0.1+ | 0.2+ | 2008 10 26 | G96 | 0.6+ | 0.3+ |
| 1998 12 23 | 691 | 0.2+ | 0.1+ | 2006 05 20 | 703 | 0.8+ | 1.5− | 2008 10 26 | G96 | 0.4+ | 0.3+ |
| 1998 12 28 | 691 | 0.6− | 0.7− | 2006 05 20 | 703 | 0.1+ | 0.2+ | 2008 11 02 | 703 | (1.6+ | 1.8+) |
| 1998 12 28 | 691 | 0.3− | 0.0 | 2006 05 20 | 703 | (1.7+ | 0.2+) | 2008 11 02 | 703 | 0.0 | 0.8+ |
| 1998 12 28 | 691 | 0.3− | 0.4− | 2006 05 20 | 703 | 0.4− | 0.5− | 2008 11 02 | 703 | (0.4+ | 1.7+) |
| 2001 06 15 | 691 | 0.4− | 0.7− | 2006 05 23 | 691 | 0.2+ | 0.4+ | 2008 11 02 | 703 | (0.4+ | 1.6+) |
| 2001 06 15 | 691 | 0.5− | 0.7− | 2006 05 23 | 691 | 0.1+ | 0.4+ | 2009 12 17 | G96 | 0.2+ | 0.1+ |
| 2001 06 15 | 691 | 0.4− | 0.7− | 2006 05 23 | 691 | (2.9+ | 3.0+) | 2009 12 17 | G96 | 0.6+ | 0.2− |
| 2005 03 02 | 703 | 1.4− | 0.9+ | 2006 06 16 | 691 | 0.3+ | 1.1− | 2009 12 17 | G96 | 0.5+ | 0.2+ |
| 2005 03 02 | 703 | 0.1− | 0.7+ | 2006 06 16 | 691 | 0.2+ | 0.4+ | 2009 12 17 | G96 | 0.9+ | 0.3+ |
| 2005 03 02 | 703 | 0.5− | 0.2+ | 2006 06 16 | 691 | 0.2+ | 0.0 | 2009 12 17 | G96 | 0.1+ | 0.5− |
| 2005 03 02 | 703 | 0.4+ | 0.4− | 2006 06 20 | 691 | 0.2+ | 0.0 | 2009 12 18 | 691 | 0.0 | 0.1− |
| 2005 03 16 | 703 | 0.6+ | 0.2+ | 2006 06 20 | 691 | 0.1+ | 0.3+ | 2009 12 18 | 691 | 0.2− | 0.3+ |
| 2005 03 16 | 703 | (0.8− | 1.7−) | 2006 06 20 | 691 | 0.3+ | 0.4+ | 2009 12 18 | 691 | 0.1+ | 0.0 |
| 2005 03 16 | 703 | 0.2+ | 0.8− | 2008 10 23 | B72 | 1.0+ | 0.4+ | 2009 12 26 | 691 | 0.8− | 0.9− |
| 2005 03 16 | 703 | (1.9− | 0.1+) | 2008 10 24 | B72 | 1.0+ | 0.5+ | 2009 12 26 | 691 | 0.7− | 0.6+ |
| 2006 05 02 | G96 | 0.4− | 0.4+ | 2008 10 24 | B72 | 0.4− | 0.1− | 2009 12 26 | 691 | 0.4− | 0.0 |
| 2006 05 02 | G96 | 0.1− | 0.2+ | 2008 10 26 | G96 | 0.4+ | 0.3+ | | | | |

**(229666)∗ 2006 QF$_{33}$**

Discovered 2006 Aug. 23 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 96.86288 | | (2000.0) | | | |
| $n$ | 0.36754084 | $\omega$ | 50.81631 | | +0.85991034 | +0.40076038 |
| $a$ | 1.9301852 | $\Omega$ | 283.45371 | | −0.50751776 | +0.73749530 |
| $e$ | 0.0635950 | $i$ | 18.96930 | | +0.05458871 | +0.54359157 |
| $P$ | 2.68 | $H$ | 16.2 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 12 22 | 704 | 1.5− | 0.2+ | 2006 08 13 | 644 | 0.1− | 0.2− | 2006 10 22 | 703 | 0.3+ | 0.3− |
| 2001 12 22 | 704 | 0.4+ | 0.2− | 2006 08 23 | 704 | 0.4+ | 0.2+ | 2006 11 15 | 703 | 0.0 | 0.0 |
| 2001 12 22 | 704 | 0.7+ | 0.4− | 2006 08 23 | 704 | 0.5+ | 0.5+ | 2006 11 15 | 703 | 0.3+ | 0.0 |
| 2001 12 22 | 704 | 0.7+ | 0.3+ | 2006 08 23 | 704 | 0.7− | 0.4+ | 2006 11 15 | 703 | 0.0 | 0.7− |
| 2001 12 22 | 704 | 0.2+ | 0.0 | 2006 08 24 | 704 | 0.6+ | 1.0+ | 2006 11 15 | 703 | 0.7− | 0.2+ |
| 2002 01 08 | 704 | 0.0 | 0.1+ | 2006 08 24 | 704 | 0.1− | 0.4+ | 2006 11 23 | 703 | 0.9− | 0.9− |
| 2002 01 08 | 704 | 0.7− | 0.1+ | 2006 08 24 | 704 | 0.0 | 0.1− | 2006 11 23 | 703 | 0.4+ | 0.3− |
| 2002 01 08 | 704 | 0.2+ | 0.2− | 2006 08 24 | 704 | 0.3− | 0.0 | 2006 11 23 | 703 | 0.2+ | 0.7− |
| 2002 01 08 | 704 | 0.3+ | 0.6+ | 2006 08 24 | 704 | 0.2− | 0.8+ | 2006 11 23 | 703 | 0.3− | 0.1− |
| 2002 01 08 | 704 | 0.5− | 0.1− | 2006 08 24 | 704 | 0.0 | 0.6+ | 2009 11 08 | 704 | (0.5+ | 2.4−) |
| 2004 12 18 | 704 | 0.2+ | 0.2− | 2006 08 24 | 704 | 0.3− | 0.4− | 2009 11 08 | 704 | 1.1+ | 0.2− |
| 2004 12 18 | 704 | 0.4+ | 0.3+ | 2006 08 24 | 704 | 0.9− | 0.3− | 2009 11 08 | 704 | 0.5+ | 0.4− |
| 2004 12 18 | 704 | 0.0 | 0.8− | 2006 08 26 | 704 | 0.1+ | 0.0 | 2009 11 08 | 704 | 0.9+ | 0.5− |
| 2004 12 18 | 704 | 0.2+ | 0.1− | 2006 08 26 | 704 | 0.1+ | 0.0 | 2009 11 22 | 703 | 0.2− | 0.4− |
| 2005 01 18 | 703 | 0.9+ | 0.8+ | 2006 08 26 | 704 | 0.2− | 0.2+ | 2009 11 22 | 703 | (2.4− | 0.0 ) |
| 2005 01 18 | 703 | 0.4− | 0.7+ | 2006 09 20 | 704 | 0.1+ | 0.3+ | 2009 11 22 | 703 | 1.0− | 1.1+ |
| 2005 01 18 | 703 | 0.1+ | 0.2− | 2006 09 20 | 704 | 0.1− | 0.2+ | 2009 11 25 | 704 | 0.1− | 0.2− |
| 2005 01 18 | 703 | 0.2− | 0.5+ | 2006 09 20 | 704 | 0.3− | 0.3− | 2009 11 25 | 704 | 0.6− | 0.2+ |
| 2006 07 24 | 704 | 1.2+ | 0.2− | 2006 09 20 | 704 | 0.2+ | 0.2+ | 2009 11 25 | 704 | 0.4+ | 0.4− |
| 2006 07 24 | 704 | (1.9+ | 0.4+) | 2006 09 20 | 704 | 0.0 | 0.4+ | 2009 11 25 | 704 | 0.1− | 0.2+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 07 24 | 704 | 0.6+ | 0.2− | 2006 09 28 | 703 | 1.0− | 0.0 | 2009 11 25 | 704 | 0.6+ | 0.0 | | |
| 2006 07 24 | 704 | 0.4+ | 0.9+ | 2006 09 28 | 703 | 0.3− | 0.3+ | 2009 12 19 | 703 | 0.5− | 0.0 | | |
| 2006 08 13 | 644 | 0.0 | 0.0 | 2006 09 28 | 703 | 0.6− | 0.4− | 2009 12 19 | 703 | 0.2+ | 0.4+ | | |
| 2006 08 13 | 644 | 0.3− | 0.2− | 2006 09 28 | 703 | 0.4− | 0.0 | 2009 12 19 | 703 | 0.9− | 0.3− | | |
| 2006 08 13 | 644 | 0.1+ | 0.1− | 2006 10 22 | 703 | 0.3+ | 0.0 | 2009 12 19 | 703 | 0.5− | 0.1− | | |
| 2006 08 13 | 644 | 0.1− | 0.1− | 2006 10 22 | 703 | 0.1+ | 0.7− | | | | | | |
| 2006 08 13 | 644 | 0.0 | 0.1− | 2006 10 22 | 703 | 1.4+ | 0.2− | | | | | | |

**(229667)∗ 2006 SQ$_{182}$ = 2008 AS$_{51}$**

Discovered 2006 Sept. 25 by the Mt. Lemmon Survey at Mount Lemmon.
Id. G. V. Williams (*MPO* 133086)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 130.17017 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19208914 | $\omega$ | 181.39803 | | −0.57932096 | −0.81506528 | |
| $a$ | 2.9748666 | $\Omega$ | 304.00482 | | +0.74792661 | −0.52791312 | |
| $e$ | 0.1214292 | $i$ | 0.51631 | | +0.32402624 | −0.23869713 | |
| $P$ | 5.13 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 08 28 | 807 | 0.0 | 0.1+ | 2006 09 20 | 568 | 0.1− | 0.0 | 2006 10 14 | 568 | 0.5− | 0.9− | | |
| 2000 08 28 | 807 | 0.2+ | 0.0 | 2006 09 20 | 568 | 0.1− | 0.1+ | 2007 11 04 | G96 | 0.2+ | 0.7− | | |
| 2003 01 30 | 291 | 0.3− | 0.3+ | 2006 09 20 | 568 | 0.0 | 0.1+ | 2007 11 04 | G96 | 0.3+ | 0.7− | | |
| 2003 01 30 | 291 | 0.1+ | 0.2+ | 2006 09 21 | 568 | 0.1− | 0.1+ | 2007 11 04 | G96 | 0.4+ | 0.5− | | |
| 2003 01 30 | 291 | 0.4+ | 0.2+ | 2006 09 21 | 568 | 0.1− | 0.1+ | 2007 11 04 | G96 | 0.6− | 1.0− | | |
| 2003 03 09 | 291 | 0.1+ | 0.1− | 2006 09 21 | 568 | 0.1− | 0.0 | 2007 11 11 | G96 | 0.3+ | 0.1+ | | |
| 2003 03 09 | 291 | 0.2− | 0.3+ | 2006 09 21 | 568 | 0.1− | 0.1+ | 2007 11 11 | G96 | 0.6+ | 0.3− | | |
| 2003 03 09 | 291 | 0.4+ | 0.6+ | 2006 09 21 | 568 | 0.1− | 0.1+ | 2007 11 11 | G96 | 1.1+ | 0.5− | | |
| 2006 09 14 | 568 | 0.2+ | 0.1+ | 2006 09 21 | 568 | 0.1− | 0.1+ | 2007 11 11 | G96 | 0.5+ | 0.2− | | |
| 2006 09 14 | 568 | 0.2+ | 0.1+ | 2006 09 22 | 568 | 0.2− | 0.1+ | 2007 11 21 | G96 | 0.1+ | 0.7− | | |
| 2006 09 14 | 568 | 0.2+ | 0.1+ | 2006 09 22 | 568 | 0.2− | 0.0 | 2007 11 21 | G96 | 0.0 | 0.5− | | |
| 2006 09 14 | 568 | 0.2+ | 0.1+ | 2006 09 22 | 568 | 0.2− | 0.0 | 2007 11 21 | G96 | 0.5− | 0.9− | | |
| 2006 09 14 | 568 | 0.2+ | 0.1+ | 2006 09 22 | 568 | 0.2− | 0.0 | 2007 11 21 | G96 | 0.3+ | 0.4− | | |
| 2006 09 14 | 568 | 0.2+ | 0.2+ | 2006 09 22 | 568 | 0.2− | 0.0 | 2008 01 11 | 691 | 0.2− | 0.1− | | |
| 2006 09 14 | 568 | 0.1+ | 0.1+ | 2006 09 22 | 568 | 0.2− | 0.0 | 2008 01 11 | 691 | 0.1− | 0.1− | | |
| 2006 09 14 | 568 | 0.1+ | 0.2+ | 2006 09 22 | 568 | 0.1− | 0.1+ | 2008 01 11 | 691 | 0.1− | 0.0 | | |
| 2006 09 14 | 568 | 0.2+ | 0.1+ | 2006 09 22 | 568 | 0.1− | 0.1+ | 2008 01 15 | 691 | 0.1− | 0.1− | | |
| 2006 09 14 | 568 | 0.2+ | 0.1+ | 2006 09 22 | 568 | 0.1− | 0.1+ | 2008 01 15 | 691 | 0.1− | 0.0 | | |
| 2006 09 14 | 568 | 0.1+ | 0.1+ | 2006 09 22 | 568 | 0.2− | 0.0 | 2008 01 15 | 691 | 0.1+ | 0.3+ | | |
| 2006 09 14 | 568 | 0.1+ | 0.1+ | 2006 09 22 | 568 | 0.2− | 0.1+ | 2008 01 19 | 691 | 0.0 | 0.3− | | |
| 2006 09 14 | 568 | 0.2+ | 0.1+ | 2006 09 22 | 568 | 0.2− | 0.0 | 2008 01 19 | 691 | 0.0 | 0.1+ | | |
| 2006 09 14 | 568 | 0.2+ | 0.1+ | 2006 09 22 | 568 | 0.2− | 0.0 | 2008 01 19 | 691 | 0.6− | 0.0 | | |
| 2006 09 14 | 568 | 0.1+ | 0.1+ | 2006 09 22 | 568 | 0.2− | 0.0 | 2008 01 30 | G96 | 0.3+ | 0.1− | | |
| 2006 09 14 | 568 | 0.2+ | 0.1+ | 2006 09 22 | 568 | 0.2− | 0.0 | 2008 01 30 | G96 | 0.3+ | 0.3− | | |
| 2006 09 17 | 568 | 0.1+ | 0.1+ | 2006 09 22 | 568 | 0.1− | 0.1+ | 2008 01 30 | G96 | 0.5+ | 0.2− | | |
| 2006 09 17 | 568 | 0.1+ | 0.1+ | 2006 09 25 | G96 | 0.1− | 0.2− | 2008 01 30 | G96 | 0.0 | 0.2− | | |
| 2006 09 17 | 568 | 0.0 | 0.1+ | 2006 09 25 | G96 | 0.1− | 0.3− | 2008 03 27 | G96 | 0.8+ | 0.1− | | |
| 2006 09 17 | 568 | 0.0 | 0.1+ | 2006 09 25 | G96 | 0.4+ | 0.2+ | 2008 03 27 | G96 | 0.1+ | 1.5+ | | |
| 2006 09 17 | 568 | 0.0 | 0.1+ | 2006 09 25 | G96 | 0.2− | 0.0 | 2008 03 27 | G96 | 0.3+ | 0.0 | | |
| 2006 09 17 | 568 | 0.0 | 0.1+ | 2006 09 26 | 691 | 0.1− | 0.0 | 2008 03 27 | G96 | 0.1− | 0.2− | | |
| 2006 09 20 | 568 | 0.1− | 0.0 | 2006 09 26 | 691 | 0.0 | 0.1− | 2009 04 02 | 691 | 0.1+ | 0.2− | | |
| 2006 09 20 | 568 | 0.0 | 0.1+ | 2006 09 26 | 691 | 0.1− | 0.0 | 2009 04 02 | 691 | 0.4− | 0.5− | | |
| 2006 09 20 | 568 | 0.1− | 0.1+ | 2006 09 28 | 568 | 0.1+ | 0.1+ | 2009 04 02 | 691 | 0.2− | 0.2+ | | |
| 2006 09 20 | 568 | 0.0 | 0.0 | 2006 09 28 | 568 | 0.1+ | 0.1+ | 2009 04 24 | G96 | 0.5+ | 0.1+ | | |
| 2006 09 20 | 568 | 0.1− | 0.1+ | 2006 09 28 | 568 | 0.0 | 0.1+ | 2009 04 24 | G96 | 0.3+ | 0.5+ | | |
| 2006 09 20 | 568 | 0.0 | 0.0 | 2006 10 13 | 568 | 0.3+ | 0.0 | 2009 04 24 | G96 | 0.0 | 0.4+ | | |
| 2006 09 20 | 568 | 0.1− | 0.1+ | 2006 10 13 | 568 | 0.3+ | 0.1− | 2009 04 24 | G96 | 1.0+ | 0.2+ | | |
| 2006 09 20 | 568 | 0.1− | 0.1+ | 2006 10 13 | 568 | 0.4+ | 0.1− | | | | | | |

**(229668)∗ 2006 SQ$_{408}$**

Discovered 2006 Sept. 30 by the Mt. Lemmon Survey at Mount Lemmon.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 22.39107 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26190378 | $\omega$ | 239.38939 | | +0.51379309 | +0.85540410 | |
| $a$ | 2.4194029 | $\Omega$ | 61.66814 | | −0.75941370 | +0.48903411 | |
| $e$ | 0.2303680 | $i$ | 4.27263 | | −0.39913342 | +0.17067354 | |
| $P$ | 3.76 | $H$ | 18.0 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 10 10 | 645 | 0.0 | 0.1+ | 2006 09 30 | G96 | 0.4+ | 0.1− | 2009 05 01 | I08 | 0.3+ | 0.3− | | |
| 2002 10 10 | 645 | 0.0 | 0.1+ | 2006 09 30 | G96 | 0.0 | 0.2+ | 2009 05 01 | I08 | 0.1− | 0.3− | | |
| 2002 10 30 | 645 | 0.0 | 0.0 | 2006 10 12 | 691 | 0.1− | 0.1+ | 2009 05 01 | I08 | 0.5− | 0.4+ | | |
| 2002 10 30 | 645 | 0.0 | 0.0 | 2006 10 12 | 691 | 0.3+ | 0.1− | 2009 05 01 | I08 | 0.1+ | 0.2− | | |
| 2002 11 08 | 645 | 0.1− | 0.0 | 2006 10 12 | 691 | 0.3+ | 0.6+ | 2009 05 02 | I08 | 0.4+ | 0.3+ | | |
| 2002 11 08 | 645 | 0.1− | 0.0 | 2006 10 20 | 691 | 0.5− | 0.2+ | 2009 05 02 | I08 | 0.0 | 1.1+ | | |
| 2005 04 02 | 691 | 0.0 | 0.5+ | 2006 10 20 | 691 | 0.3− | 0.7+ | 2009 05 02 | I08 | 0.6+ | 0.0 | | |
| 2005 04 02 | 691 | 0.1+ | 0.4+ | 2006 10 20 | 691 | 0.0 | 0.1− | 2009 05 02 | I08 | 0.6− | 0.8+ | | |
| 2005 04 02 | 691 | 0.3+ | 0.1− | 2006 10 28 | G96 | 0.0 | 0.2+ | 2009 05 02 | I08 | 1.1− | 1.4+ | | |
| 2005 04 14 | 691 | 0.0 | 0.5+ | 2006 10 28 | G96 | 0.4− | 0.5+ | 2009 05 02 | I08 | 0.6− | 1.4+ | | |
| 2005 04 14 | 691 | 0.4+ | 0.3+ | 2006 10 28 | G96 | 0.7+ | 0.4− | 2009 06 21 | G96 | 0.0 | 0.8− | | |
| 2005 04 14 | 691 | 0.2+ | 0.4+ | 2006 10 28 | G96 | 0.7− | 0.0 | 2009 06 21 | G96 | 0.3+ | 0.5− | | |
| 2006 09 30 | G96 | 0.3+ | 0.3− | 2009 05 01 | I08 | 0.2+ | 0.4− | 2009 06 21 | G96 | 0.1+ | 0.6− | | |
| 2006 09 30 | G96 | 0.2− | 0.2− | 2009 05 01 | I08 | 0.8+ | 0.0 | 2009 06 21 | G96 | 0.1− | 0.1+ | | |

**(229669)∗ 2006 TF$_{41}$**

Discovered 2006 Oct. 12 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 88.37729 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.31825772 | $\omega$ | 88.69690 | | +0.59564458 | +0.80175109 | |
| $a$ | 2.1246305 | $\Omega$ | 218.00119 | | −0.76499968 | +0.54761785 | |
| $e$ | 0.1202719 | $i$ | 4.56647 | | −0.24491430 | +0.23939480 | |
| $P$ | 3.10 | $H$ | 17.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 04 14 | 704 | 0.8+ | 1.2+ | 2006 10 27 | G96 | 0.2+ | 0.3− | 2009 09 16 | 691 | 0.3− | 0.1− | | |
| 2002 04 14 | 704 | 0.4− | 1.4+ | 2006 10 27 | G96 | 0.3+ | 0.1− | 2009 09 16 | 691 | 0.3− | 0.0 | | |
| 2002 04 14 | 704 | 0.1+ | 1.5+ | 2006 10 27 | G96 | 0.5+ | 0.3+ | 2009 09 16 | 691 | 0.1− | 0.0 | | |
| 2002 04 14 | 704 | 1.1+ | 0.6+ | 2006 10 28 | 691 | 0.0 | 0.2+ | 2009 09 20 | 691 | 1.3+ | 0.5− | | |
| 2003 11 18 | 691 | 0.2+ | 0.1+ | 2006 10 28 | 691 | 0.1− | 0.1− | 2009 09 20 | 691 | 0.3− | 0.2+ | | |
| 2003 11 18 | 691 | 0.0 | 0.1− | 2006 10 28 | 691 | 0.5− | 0.1− | 2009 09 20 | 691 | 0.1− | 0.1+ | | |
| 2003 11 18 | 691 | 0.4− | 0.1− | 2006 11 11 | G96 | 0.4+ | 0.2− | 2009 09 28 | 691 | 0.3− | 0.1− | | |
| 2005 05 14 | G96 | 0.0 | 0.1− | 2006 11 11 | G96 | 0.2+ | 0.3− | 2009 09 28 | 691 | 0.3− | 0.3+ | | |
| 2005 05 14 | G96 | 0.3− | 0.3− | 2006 11 11 | G96 | 0.2− | 0.6− | 2009 09 28 | 691 | 0.5− | 0.1+ | | |
| 2005 05 14 | G96 | 0.1− | 0.3+ | 2006 11 11 | G96 | 0.2− | 0.3− | 2009 10 15 | 704 | 0.7+ | 1.0− | | |
| 2005 05 14 | G96 | 0.0 | 0.1− | 2006 11 22 | G96 | 0.9+ | 0.1− | 2009 10 15 | 704 | 0.4+ | 0.3+ | | |
| 2006 09 28 | G96 | 0.7+ | 0.0 | 2006 11 22 | G96 | 0.6+ | 0.2− | 2009 10 15 | 704 | 0.1+ | 0.2+ | | |
| 2006 09 28 | G96 | 0.5− | 0.7− | 2006 11 22 | G96 | 0.4+ | 0.4− | 2009 10 15 | 704 | 0.3− | 0.1− | | |
| 2006 09 28 | G96 | 0.3+ | 0.4− | 2006 11 22 | G96 | 0.2+ | 0.2− | 2009 10 27 | G96 | 0.2+ | 0.1+ | | |
| 2006 09 28 | G96 | 0.1− | 0.1− | 2008 03 06 | G96 | 0.1+ | 0.1+ | 2009 10 27 | G96 | 0.5+ | 0.1+ | | |
| 2006 10 12 | 691 | 0.0 | 0.3+ | 2008 03 06 | G96 | 0.0 | 0.1− | 2009 10 27 | G96 | 0.0 | 0.0 | | |
| 2006 10 12 | 691 | 0.1− | 0.0 | 2008 03 06 | G96 | 0.3− | 0.2− | 2009 10 27 | G96 | 0.6+ | 0.1− | | |
| 2006 10 12 | 691 | 0.4− | 0.1+ | 2008 03 06 | G96 | 0.4− | 0.2+ | 2009 12 15 | G96 | 0.0 | 0.1− | | |
| 2006 10 16 | 691 | 0.0 | 0.3+ | 2008 04 09 | G96 | 0.2+ | 0.1− | 2009 12 15 | G96 | 0.2+ | 0.4+ | | |
| 2006 10 16 | 691 | 0.3+ | 0.1+ | 2008 04 09 | G96 | 0.1+ | 0.1− | 2009 12 15 | G96 | 0.7− | 0.4− | | |
| 2006 10 16 | 691 | 0.0 | 0.4+ | 2008 04 09 | G96 | 0.2+ | 0.2+ | 2009 12 15 | G96 | 0.1− | 0.1+ | | |
| 2006 10 20 | 691 | 0.0 | 0.2+ | 2008 04 09 | G96 | 0.1+ | 0.1− | 2009 12 15 | G96 | 0.0 | 0.5+ | | |
| 2006 10 20 | 691 | 0.2+ | 0.0 | 2009 09 13 | J04 | 0.3+ | 0.6+ | 2009 12 15 | G96 | 0.3− | 0.8+ | | |
| 2006 10 20 | 691 | 0.1+ | 0.2+ | 2009 09 13 | J04 | 0.4+ | 0.1+ | 2009 12 15 | G96 | 0.2− | 0.2+ | | |
| 2006 10 27 | G96 | 0.1− | 0.2− | 2009 09 13 | J04 | 0.5+ | 1.0+ | 2009 12 15 | G96 | 0.1− | 0.5− | | |

**(229670)∗ 2006 TP$_{58}$ = 2008 JY$_{7}$**

Discovered 2006 Oct. 12 by NEAT at Palomar.
Id. G. V. Williams (*MPO* 138948)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 301.30465 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.35761033 | $\omega$ | 274.39051 | | −0.76746669 | −0.59294366 | |
| $a$ | 1.9657548 | $\Omega$ | 229.46171 | | +0.63698937 | −0.74822007 | |
| $e$ | 0.0700418 | $i$ | 18.70719 | | −0.07238388 | −0.29763155 | |
| $P$ | 2.76 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 06 13 | 691 | 0.3+ | 0.1+ | 2008 05 05 | G96 | 0.2+ | 0.2+ | 2009 11 15 | 703 | 1.2− | 0.2− |
| 1997 06 13 | 691 | 0.4+ | 0.5− | 2008 05 05 | G96 | 0.5− | 0.2+ | 2009 11 15 | 703 | 0.6− | 1.2+ |
| 1997 06 13 | 691 | 0.6− | 0.1− | 2008 05 06 | G96 | 0.3+ | 0.2+ | 2009 11 15 | 703 | 0.0 | 0.6− |
| 2006 09 17 | 703 | 0.7− | 0.3+ | 2008 05 06 | G96 | 0.1+ | 0.2− | 2009 11 16 | G96 | 0.3+ | 0.0 |
| 2006 09 17 | 703 | 0.0 | 0.2− | 2008 05 06 | G96 | 0.4+ | 0.2+ | 2009 11 16 | G96 | 0.1+ | 0.1+ |
| 2006 09 17 | 703 | (1.7+ | 0.9−) | 2008 05 14 | G96 | 0.1+ | 0.2+ | 2009 11 16 | G96 | 0.1− | 0.1+ |
| 2006 09 17 | 703 | 0.9− | 0.8+ | 2008 05 14 | G96 | 0.1− | 0.0 | 2009 11 16 | G96 | 0.4+ | 0.0 |
| 2006 10 12 | 644 | 0.1+ | 0.0 | 2008 05 14 | G96 | 0.1− | 0.0 | 2009 11 20 | 704 | 0.4+ | 0.1+ |
| 2006 10 12 | 644 | 0.4+ | 0.1+ | 2008 05 14 | G96 | 1.3+ | 1.2+ | 2009 11 20 | 704 | 0.0 | 0.3+ |
| 2006 10 12 | 644 | 0.6+ | 0.2+ | 2008 05 28 | 691 | 0.5− | 0.8+ | 2009 11 20 | 704 | 0.1+ | 1.3+ |
| 2006 10 19 | 703 | 0.7− | 1.1− | 2008 05 28 | 691 | 0.1+ | 0.2+ | 2009 11 20 | 704 | 0.2− | 0.1+ |
| 2006 10 19 | 703 | 1.0− | 0.0 | 2008 05 28 | 691 | 0.1+ | 0.0 | 2009 11 23 | G96 | 0.1+ | 0.1+ |
| 2006 10 19 | 703 | 0.5− | 0.2− | 2008 06 06 | 691 | 0.5− | 0.3+ | 2009 11 23 | G96 | 0.5+ | 0.2+ |
| 2006 10 19 | 703 | 0.0 | 0.8− | 2008 06 06 | 691 | 0.2+ | 0.2− | 2009 11 23 | G96 | 0.2+ | 0.1+ |
| 2006 10 19 | 703 | 0.6+ | 0.4+ | 2008 06 06 | 691 | 0.1− | 0.2+ | 2009 11 23 | G96 | 0.3+ | 0.0 |
| 2006 10 22 | 644 | 0.3+ | 0.4+ | 2009 10 21 | G96 | 0.2+ | 0.1+ | 2009 12 13 | 704 | 0.6+ | 1.4+ |
| 2006 10 22 | 644 | 0.6+ | 0.6+ | 2009 10 21 | G96 | 1.4+ | 0.3− | 2009 12 13 | 704 | 0.6− | 0.4+ |
| 2006 10 22 | 644 | 0.3+ | 0.5+ | 2009 10 21 | G96 | 0.0 | 0.1− | 2009 12 13 | 704 | 0.3+ | 0.9+ |
| 2008 05 05 | G96 | 0.2+ | 0.1− | 2009 10 21 | G96 | 0.1+ | 0.1− | 2009 12 13 | 704 | 0.3− | 0.9+ |
| 2008 05 05 | G96 | 0.3+ | 0.1+ | 2009 11 15 | 703 | 0.6− | 1.0− | | | | |

**(229671)∗ 2006 VT$_{87}$ = 2005 ED$_{267}$**

Discovered 2006 Nov. 14 by the Catalina Sky Survey.

Id. G. V. Williams (*MPO* 110529)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 56.82508 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.30459684 | $\omega$ | 355.10917 | | +0.83942586 | +0.54292684 | |
| $a$ | 2.1876900 | $\Omega$ | 331.96469 | | −0.49685179 | +0.74845923 | |
| $e$ | 0.1914036 | $i$ | 2.97401 | | −0.22023287 | +0.38084017 | |
| $P$ | 3.24 | $H$ | 17.4 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 09 05 | 691 | 0.1+ | 0.1− | 2006 11 24 | 703 | (1.8− | 0.9+) | 2009 09 17 | 152 | 0.3+ | 0.1− |
| 1996 09 05 | 691 | 0.1− | 0.0 | 2006 11 24 | 703 | 0.4− | 0.4+ | 2009 09 17 | 152 | 0.2+ | 0.0 |
| 1996 09 05 | 691 | 0.3− | 0.4+ | 2006 11 24 | 703 | 0.5− | 0.1− | 2009 09 20 | 691 | 0.2− | 0.2+ |
| 2005 03 13 | 691 | 0.5+ | 0.7+ | 2006 11 24 | 703 | 1.1− | 0.2− | 2009 09 20 | 691 | 0.3− | 0.2+ |
| 2005 03 13 | 691 | 0.1+ | 0.2+ | 2006 12 01 | G96 | 0.5− | 0.1− | 2009 09 20 | 691 | 0.3− | 0.2+ |
| 2005 03 13 | 691 | 0.8+ | 0.5+ | 2006 12 01 | G96 | 0.5+ | 0.5− | 2009 09 23 | 691 | 0.2− | 0.2+ |
| 2005 03 17 | G96 | 0.3− | 0.3+ | 2006 12 01 | G96 | 0.5+ | 0.1+ | 2009 09 23 | 691 | 0.0 | 0.1− |
| 2005 03 17 | G96 | 0.2+ | 0.0 | 2006 12 01 | G96 | 0.1+ | 0.7− | 2009 09 23 | 691 | 0.3− | 0.2+ |
| 2005 03 17 | G96 | 0.1− | 0.3+ | 2008 03 08 | G96 | 0.1+ | 0.0 | 2009 10 08 | J75 | 0.1+ | 0.2− |
| 2005 03 17 | G96 | 0.1− | 0.0 | 2008 03 08 | G96 | 0.3− | 0.1+ | 2009 10 08 | J75 | 0.2+ | 0.4− |
| 2006 10 23 | 691 | 0.2+ | 0.3+ | 2008 03 08 | G96 | 0.2− | 0.1− | 2009 10 08 | J75 | 0.1+ | 0.2− |
| 2006 10 23 | 691 | 0.2+ | 0.2− | 2008 03 08 | G96 | 0.5+ | 0.3+ | 2009 10 10 | 703 | 0.1− | 0.5− |
| 2006 10 23 | 691 | 0.0 | 0.2+ | 2008 03 25 | 691 | 0.2− | 0.2+ | 2009 10 10 | 703 | 0.3+ | 0.1+ |
| 2006 11 14 | 703 | 0.1+ | 1.1− | 2008 03 25 | 691 | 0.3− | 0.0 | 2009 10 10 | 703 | 0.9− | 0.2− |
| 2006 11 14 | 703 | 0.3+ | 0.5+ | 2008 03 25 | 691 | 0.1− | 0.2+ | 2009 10 10 | 703 | 1.0− | 0.1+ |
| 2006 11 14 | 703 | 0.4− | 0.4− | 2008 03 27 | 691 | 0.1+ | 0.1+ | 2009 10 15 | 704 | 0.6+ | 1.3+ |
| 2006 11 14 | 703 | 0.2+ | 1.1− | 2008 03 27 | 691 | 0.0 | 0.1− | 2009 10 15 | 704 | 0.5+ | 0.5+ |
| 2006 11 15 | 691 | 0.1+ | 0.0 | 2008 03 27 | 691 | 0.0 | 0.2+ | 2009 10 15 | 704 | 0.6+ | 0.0 |
| 2006 11 15 | 691 | 0.0 | 0.0 | 2008 04 03 | 691 | 0.0 | 0.1− | 2009 10 15 | 704 | 0.4+ | 0.4+ |
| 2006 11 15 | 691 | 0.0 | 0.0 | 2008 04 03 | 691 | 0.1− | 0.1+ | 2009 10 15 | 704 | 0.7+ | 0.3+ |
| 2006 11 17 | 691 | 0.1+ | 0.1+ | 2008 04 03 | 691 | 0.2+ | 0.2+ | 2009 10 22 | 703 | 0.9− | 1.0+ |
| 2006 11 17 | 691 | 0.1+ | 0.0 | 2008 04 07 | 691 | 0.3+ | 0.1− | 2009 10 22 | 703 | 0.6+ | 0.4− |
| 2006 11 17 | 691 | 0.0 | 0.2+ | 2008 04 07 | 691 | 0.4+ | 0.2+ | 2009 10 22 | 703 | 0.9− | 0.7− |
| 2006 11 19 | 704 | 0.3− | 0.1− | 2008 04 07 | 691 | 0.5− | 0.0 | 2009 10 22 | 703 | 0.0 | 0.2− |
| 2006 11 19 | 704 | 0.1+ | 0.2+ | 2009 09 10 | 703 | 0.8+ | 0.2+ | 2009 12 17 | G96 | 0.3− | 0.0 |
| 2006 11 19 | 704 | 0.4− | 0.1+ | 2009 09 10 | 703 | 0.0 | 0.9− | 2009 12 17 | G96 | 0.2+ | 0.2− |
| 2006 11 19 | 704 | 0.4− | 0.2+ | 2009 09 10 | 703 | 0.3− | 0.5+ | 2009 12 17 | G96 | 0.0 | 0.1− |
| 2006 11 22 | 691 | 0.0 | 0.1+ | 2009 09 10 | 703 | 0.9+ | 1.3+ | 2009 12 17 | G96 | 0.5+ | 0.1+ |
| 2006 11 22 | 691 | 0.2− | 0.2+ | 2009 09 17 | 152 | 0.3+ | 0.3− | | | | |
| 2006 11 22 | 691 | 0.1+ | 0.2+ | 2009 09 17 | 152 | 0.1− | 0.0 | | | | |

**(229672)∗ 2006 WR$_1$**

Discovered 2006 Nov. 18 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 323.21627 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.64027654 | $\omega$ | 132.03652 | | −0.37582397 | +0.71151353 | |
| $a$ | 1.3331868 | $\Omega$ | 106.06935 | | −0.92119426 | −0.35652565 | |
| $e$ | 0.6139927 | $i$ | 38.16023 | | +0.10078432 | −0.60550636 | |
| $P$ | 1.54 | $H$ | 17.7 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 10 22 | G96 | 0.3+ | 0.6− | 2006 12 01 | 291 | 0.5− | 0.5+ | 2008 10 19 | 304 | 0.0 | 0.1− |
| 2006 10 22 | G96 | 0.4− | 0.8− | 2006 12 01 | 291 | 0.9− | 0.7+ | 2008 10 19 | 304 | 0.2+ | 0.0 |
| 2006 10 22 | G96 | 0.1− | 0.4− | 2006 12 01 | 291 | 0.1− | 0.4+ | 2008 10 19 | 304 | 0.1+ | 0.0 |
| 2006 10 22 | G96 | 0.0 | 0.4− | 2006 12 11 | 291 | 0.6+ | 0.2+ | 2008 10 19 | 304 | 0.2+ | 0.1+ |
| 2006 11 18 | 691 | 0.2− | 0.5+ | 2006 12 11 | 291 | 0.0 | 0.9+ | 2008 10 19 | 304 | 0.1− | 0.3+ |
| 2006 11 18 | 691 | 0.3+ | 0.1+ | 2006 12 11 | 291 | 0.8+ | 0.2− | 2008 10 19 | 304 | 0.1+ | 0.0 |
| 2006 11 18 | 691 | 0.2− | 0.0 | 2007 11 02 | 291 | 0.2+ | 0.8− | 2008 10 19 | 304 | 0.1− | 0.1+ |
| 2006 11 19 | J95 | 0.8− | 0.4− | 2007 11 02 | 291 | 0.2− | 0.2+ | 2009 10 15 | 291 | 0.1+ | 0.0 |
| 2006 11 19 | J95 | 0.4+ | 0.1+ | 2007 11 02 | 291 | 0.5− | 0.3− | 2009 10 15 | 291 | 0.2− | 0.2+ |
| 2006 11 19 | J95 | 0.1− | 0.8− | 2007 12 20 | 291 | 0.4+ | 0.0 | 2009 10 15 | 291 | 0.2− | 0.2+ |
| 2006 11 19 | G96 | 0.5− | 0.3− | 2007 12 20 | 291 | 0.6− | 0.1+ | 2009 11 20 | 448 | 1.0+ | 0.2+ |
| 2006 11 19 | G96 | 0.1− | 0.6− | 2007 12 20 | 291 | 0.4+ | 0.3+ | 2009 11 20 | 448 | 1.2+ | 0.3− |
| 2006 11 19 | G96 | 0.1− | 0.4− | 2008 02 06 | 291 | 1.3+ | 1.0+ | 2009 11 20 | 448 | 1.5+ | 1.1+ |
| 2006 11 19 | G96 | 0.2− | 0.6− | 2008 02 06 | 291 | 0.1− | 0.2+ | 2009 12 18 | 703 | 0.1+ | 1.0− |
| 2006 11 20 | H36 | 0.2− | 0.9− | 2008 02 06 | 291 | 0.9− | 0.2+ | 2009 12 18 | 703 | 0.5+ | 1.2− |
| 2006 11 20 | H36 | 0.6+ | 0.6− | 2008 10 19 | 304 | 0.2+ | 0.1− | 2009 12 18 | 703 | 0.4+ | 0.9− |
| 2006 11 20 | G96 | 0.0 | 0.4− | 2008 10 19 | 304 | 0.0 | 0.0 | 2009 12 18 | 703 | 0.3+ | 0.3− |
| 2006 11 20 | G96 | 0.0 | 0.3− | 2008 10 19 | 304 | 0.1− | 0.1+ | 2009 12 19 | 703 | 1.3− | 1.0+ |
| 2006 11 20 | G96 | 0.1+ | 0.4− | 2008 10 19 | 304 | 0.0 | 0.0 | 2009 12 19 | 703 | 0.4− | 0.4− |
| 2006 11 20 | G96 | 0.4− | 0.5− | 2008 10 19 | 304 | 0.1+ | 0.0 | 2009 12 19 | 703 | 0.9− | 1.3− |
| 2006 11 28 | 291 | 0.0 | 0.5+ | 2008 10 19 | 304 | 0.1− | 0.0 | 2009 12 19 | 703 | 0.5− | 1.6− |
| 2006 11 28 | 291 | 0.0 | 0.6+ | 2008 10 19 | 304 | 0.2+ | 0.1− | | | | |
| 2006 11 28 | 291 | 1.2+ | 0.3+ | 2008 10 19 | 304 | 0.0 | 0.2− | | | | |

**(229673)∗ 2006 WQ$_{123}$ = 2005 TW$_{177}$**

Discovered 2006 Nov. 21 by the Mt. Lemmon Survey at Mount Lemmon.

Id. G. V. Williams (*MPO* 115961)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 45.03393 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.30551028 | $\omega$ | 139.24771 | | +0.62120040 | −0.78062903 | |
| $a$ | 2.1833272 | $\Omega$ | 272.23529 | | +0.69993513 | +0.59215954 | |
| $e$ | 0.0663828 | $i$ | 3.94596 | | +0.35242144 | +0.19991348 | |
| $P$ | 3.23 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 09 13 | 644 | 0.3− | 0.1+ | 2005 10 07 | G96 | 0.1+ | 0.0 | 2007 02 15 | 703 | 0.2+ | 1.2− |
| 2002 09 13 | 644 | 0.1+ | 0.2+ | 2005 10 07 | G96 | 0.3− | 0.1+ | 2007 02 15 | 703 | (0.8− | 1.8+) |
| 2002 09 13 | 644 | 0.1− | 0.3+ | 2005 10 07 | G96 | 0.3− | 0.1+ | 2007 02 15 | 703 | 0.5+ | 0.4− |
| 2002 09 13 | 644 | 0.0 | 0.3+ | 2006 11 21 | G96 | 0.1+ | 0.4− | 2007 02 15 | 703 | 0.4− | 0.4+ |
| 2002 09 13 | 644 | 0.4− | 0.3+ | 2006 11 21 | G96 | 0.0 | 0.0 | 2009 10 14 | G96 | 0.1− | 0.2− |
| 2002 09 13 | 644 | 0.1+ | 0.2+ | 2006 11 21 | G96 | 0.2+ | 0.0 | 2009 10 14 | G96 | 0.4− | 0.2− |
| 2005 07 28 | 644 | 0.0 | 0.2+ | 2006 11 21 | G96 | 0.0 | 0.1− | 2009 10 14 | G96 | 0.1+ | 0.2+ |
| 2005 07 28 | 644 | 0.1+ | 0.4+ | 2006 11 23 | G96 | 0.4+ | 0.1+ | 2009 12 16 | G96 | 0.2+ | 0.4− |
| 2005 07 28 | 644 | 0.2+ | 0.1+ | 2006 11 23 | G96 | 0.2− | 0.1+ | 2009 12 16 | G96 | 0.1+ | 0.6− |
| 2005 08 25 | 644 | 0.1− | 0.0 | 2006 11 23 | G96 | 0.4− | 0.3− | 2009 12 16 | G96 | 0.1+ | 0.1− |
| 2005 08 25 | 644 | 0.3− | 0.2+ | 2006 11 23 | G96 | 0.4− | 0.3+ | 2009 12 16 | G96 | 0.1− | 0.2− |
| 2005 08 25 | 644 | 0.5+ | 0.1+ | 2007 02 08 | 644 | 0.0 | 0.4+ | 2009 12 16 | G96 | 0.1− | 0.1− |
| 2005 10 01 | G96 | 0.2− | 0.1− | 2007 02 08 | 644 | 0.3+ | 1.0+ | 2009 12 25 | 691 | 0.1+ | 0.2+ |
| 2005 10 01 | G96 | 0.1− | 0.2− | 2007 02 08 | 644 | 0.1− | 0.6+ | 2009 12 25 | 691 | 0.1+ | 0.1+ |
| 2005 10 01 | G96 | 0.1− | 0.1− | 2007 02 10 | 644 | 0.5+ | 0.8+ | 2009 12 25 | 691 | 0.2− | 0.1− |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 2005 10 01 | G96 | 0.0 | 0.1− | 2007 02 10 | 644 | 0.2− | 0.4+ | |
| 2005 10 07 | G96 | 0.1+ | 0.2− | 2007 02 10 | 644 | 0.2+ | 0.6+ | |

**(229674)∗ 2006 YK$_{23}$**

Discovered 2006 Dec. 21 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 165.64019 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.30350467 | $\omega$ | 239.25545 | | +0.02160860 | | +0.99958030 |
| $a$ | 2.1929352 | $\Omega$ | 32.00004 | | −0.90437049 | | +0.02777046 |
| $e$ | 0.0953675 | $i$ | 2.08666 | | −0.42620077 | | −0.00824787 |
| $P$ | 3.25 | $H$ | 17.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 02 20 | 645 | 0.0 | 0.0 | 2005 08 01 | E12 | 0.0 | 0.4+ | 2009 10 26 | G96 | 0.4+ | 0.2− |
| 2001 02 20 | 645 | 0.0 | 0.0 | 2005 08 01 | E12 | 0.5− | 0.4+ | 2009 10 26 | G96 | 0.4+ | 0.2− |
| 2001 03 20 | 691 | 0.5+ | 0.3+ | 2006 12 01 | G96 | 0.2+ | 0.3− | 2009 10 26 | G96 | 0.3+ | 0.4− |
| 2001 03 20 | 691 | 0.3+ | 0.3+ | 2006 12 01 | G96 | 0.3+ | 0.5− | 2009 11 08 | G96 | 0.4+ | 0.3− |
| 2001 03 20 | 691 | 0.5+ | 0.4+ | 2006 12 01 | G96 | 0.4+ | 0.1− | 2009 11 08 | G96 | 0.1− | 0.3+ |
| 2002 10 08 | 291 | 0.3− | 0.6+ | 2006 12 01 | G96 | 0.4− | 0.1− | 2009 11 08 | G96 | 0.5+ | 0.1+ |
| 2002 10 08 | 291 | 0.2− | 0.9+ | 2006 12 13 | 691 | 0.1+ | 0.4+ | 2009 11 08 | G96 | 0.7+ | 0.3− |
| 2002 10 08 | 291 | 0.4− | 0.5+ | 2006 12 13 | 691 | 0.3+ | 0.1+ | 2009 12 16 | G96 | 0.3+ | 0.1− |
| 2004 02 11 | 691 | 0.1+ | 0.4+ | 2006 12 13 | 691 | 0.1+ | 0.1+ | 2009 12 16 | G96 | 0.7+ | 0.4− |
| 2004 02 11 | 691 | 0.1− | 0.4+ | 2006 12 21 | 691 | 0.2− | 0.1+ | 2009 12 16 | G96 | 0.1+ | 0.4− |
| 2004 02 11 | 691 | 0.2− | 0.5+ | 2006 12 21 | 691 | 0.5+ | 0.1+ | 2009 12 16 | G96 | 0.6+ | 0.1− |
| 2005 07 18 | 644 | 0.4− | 0.3+ | 2006 12 21 | 691 | 0.2+ | 0.0 | 2009 12 26 | 291 | 0.1− | 0.0 |
| 2005 07 18 | 644 | 0.2− | 0.5+ | 2006 12 25 | 691 | 0.3− | 0.2− | 2009 12 26 | 291 | 0.0 | 0.0 |
| 2005 07 18 | 644 | 0.1+ | 0.6+ | 2006 12 25 | 691 | 0.5− | 0.0 | 2009 12 26 | 291 | 0.5− | 0.5− |
| 2005 08 01 | E12 | 0.4− | 0.0 | 2006 12 25 | 691 | 0.2− | 0.3− | | | | |
| 2005 08 01 | E12 | 0.3+ | 0.1+ | 2009 10 26 | G96 | 0.6− | 0.2− | | | | |

**(229675)∗ 2007 BH$_2$ = 2000 AH$_{251}$ = 2004 KL$_8$**

Discovered 2007 Jan. 16 by the Catalina Sky Survey.

Id. G. V. Williams (*MPO* 115995)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 279.88038 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.28688801 | $\omega$ | 67.19867 | | −0.97896656 | | −0.18095846 |
| $a$ | 2.2768152 | $\Omega$ | 102.27292 | | +0.13312306 | | −0.91654844 |
| $e$ | 0.0905677 | $i$ | 5.53361 | | +0.15460507 | | −0.35664127 |
| $P$ | 3.44 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 01 04 | 704 | 0.2− | 0.6− | 2006 11 16 | G96 | 0.2+ | 0.3− | 2007 02 16 | 703 | 0.2+ | 0.8− |
| 2000 01 04 | 704 | 0.9+ | 0.3+ | 2006 11 16 | G96 | 0.1− | 0.3− | 2007 02 16 | 703 | 0.3+ | 0.5+ |
| 2000 01 04 | 704 | 1.1+ | 0.4− | 2006 11 16 | G96 | 0.3− | 0.0 | 2007 02 16 | 703 | 0.1− | 0.2− |
| 2000 01 04 | 704 | 1.0+ | 1.0+ | 2007 01 16 | 703 | 0.1− | 0.5− | 2007 02 16 | 703 | 0.5− | 0.4+ |
| 2000 01 13 | 691 | 0.1− | 0.1− | 2007 01 16 | 703 | 0.9− | 0.6− | 2007 02 16 | 703 | 0.5− | 1.4+ |
| 2000 01 13 | 691 | 0.1− | 0.3− | 2007 01 16 | 703 | 0.8− | 0.3− | 2007 02 16 | 703 | 0.0 | 0.1− |
| 2000 01 13 | 691 | 0.3− | 0.3− | 2007 01 16 | 703 | 1.1− | 0.4− | 2007 02 16 | 703 | 0.1+ | 0.8+ |
| 2002 11 07 | 704 | 0.5− | 1.3+ | 2007 01 17 | 691 | 0.2− | 0.0 | 2007 02 18 | D29 | 0.0 | 0.4+ |
| 2002 11 07 | 704 | (2.0+ | 1.7−) | 2007 01 17 | 691 | 0.2− | 0.0 | 2007 02 18 | D29 | 0.3+ | 0.5+ |
| 2002 11 07 | 704 | 0.2− | 0.9+ | 2007 01 17 | 691 | 0.1− | 0.1+ | 2007 02 18 | D29 | 0.1+ | 0.3+ |
| 2002 11 07 | 704 | 0.6− | 0.6+ | 2007 01 24 | 704 | (0.3+ | 1.6+) | 2007 02 25 | 703 | 0.2+ | 0.4+ |
| 2004 05 18 | 704 | 0.0 | 0.1− | 2007 01 24 | 704 | 0.4+ | 0.9+ | 2007 02 25 | 703 | 0.4− | 0.4+ |
| 2004 05 18 | 704 | 0.2+ | 0.9+ | 2007 01 24 | 704 | 0.7+ | 0.8+ | 2007 02 25 | 703 | 1.4+ | 0.3+ |
| 2004 05 18 | 704 | 0.1+ | 0.9+ | 2007 01 24 | 704 | 0.8+ | 0.2− | 2007 02 25 | 703 | 0.8+ | 0.7+ |
| 2004 05 18 | 704 | 0.2− | 0.3+ | 2007 01 26 | 691 | 0.1+ | 0.2+ | 2009 11 18 | 704 | 0.1+ | 1.3− |
| 2004 05 18 | 704 | 0.4− | 0.1− | 2007 01 26 | 691 | 0.0 | 0.4+ | 2009 11 18 | 704 | 0.2+ | 0.0 |
| 2004 05 22 | 704 | 1.1+ | 0.2− | 2007 01 26 | 691 | 0.0 | 0.1+ | 2009 11 18 | 704 | 0.3+ | 0.9− |
| 2004 05 22 | 704 | 0.3+ | 0.0 | 2007 02 07 | 703 | 0.7− | 0.9− | 2009 11 20 | 704 | 0.4− | 0.7− |
| 2004 05 22 | 704 | 0.6+ | 0.8+ | 2007 02 07 | 703 | 0.5− | 0.0 | 2009 11 20 | 704 | 1.2+ | 0.3+ |
| 2004 05 22 | 704 | 0.5+ | 0.2− | 2007 02 07 | 703 | 0.0 | 1.3− | 2009 11 20 | 704 | 0.6+ | 0.2+ |
| 2005 10 12 | 291 | 0.6− | 0.8+ | 2007 02 07 | 703 | 0.0 | 0.4+ | 2009 12 11 | 703 | 1.4+ | 0.6+ |
| 2005 10 12 | 291 | 0.4− | 0.2+ | 2007 02 08 | 644 | 0.1− | 0.5+ | 2009 12 11 | 703 | 0.3+ | 0.2+ |
| 2005 10 12 | 291 | 0.1− | 0.5+ | 2007 02 08 | 644 | 0.0 | 0.7+ | 2009 12 11 | 703 | 0.3− | 0.3+ |
| 2006 10 23 | G96 | 0.2+ | 0.9− | 2007 02 08 | 644 | 0.0 | 0.8+ | 2009 12 11 | 703 | 0.1− | 0.5+ |
| 2006 10 23 | G96 | 0.5− | 0.2+ | 2007 02 11 | D29 | 0.0 | 0.1− | 2009 12 17 | G96 | 0.3+ | 0.4− |
| 2006 10 23 | G96 | 0.2+ | 0.6− | 2007 02 11 | D29 | 0.6+ | 0.4− | 2009 12 17 | G96 | 0.1+ | 0.3− |
| 2006 10 23 | G96 | 0.0 | 0.5− | 2007 02 11 | D29 | 0.6+ | 0.0 | 2009 12 17 | G96 | 0.1+ | 0.3− |
| 2006 11 16 | G96 | 0.5+ | 0.8+ | 2007 02 16 | 703 | 0.4− | 1.0+ | 2009 12 17 | G96 | 0.2− | 0.5− |

**(229676)∗ 2007 BR$_4$ = 1994 GH$_3$ = 2004 GV$_{38}$**

Discovered 2007 Jan. 16 by the Catalina Sky Survey.

Id. G. V. Williams (*MPO* 115998)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 316.01989 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.29763786 | $\omega$ | 123.73067 | | −0.78689253 | | −0.61626720 |
| $a$ | 2.2216583 | $\Omega$ | 18.29073 | | +0.52726581 | | −0.69827687 |
| $e$ | 0.1317862 | $i$ | 5.82601 | | +0.32061022 | | −0.36417599 |
| $P$ | 3.31 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 04 06 | 691 | 0.3+ | 0.4+ | 2007 01 17 | 644 | 0.1+ | 0.3+ | 2007 02 22 | D29 | 0.3+ | 0.5− |
| 1994 04 06 | 691 | 0.2+ | 0.1+ | 2007 01 17 | 644 | 0.3+ | 0.1+ | 2007 02 22 | D29 | 0.4+ | 0.2− |
| 1994 04 06 | 691 | 1.4+ | 0.7− | 2007 01 21 | 704 | (1.4+ | 1.7+) | 2007 03 06 | 644 | 0.0 | 0.1+ |
| 1994 04 19 | 691 | 0.9− | 0.4− | 2007 01 21 | 704 | 0.4− | 0.1+ | 2007 03 06 | 644 | 0.1+ | 0.3+ |
| 1994 04 19 | 691 | 0.6− | 0.2+ | 2007 01 21 | 704 | 0.5+ | 0.1− | 2007 03 06 | 644 | 0.0 | 0.3+ |
| 1994 04 19 | 691 | 0.5− | 0.3− | 2007 01 21 | 704 | 0.1− | 0.6+ | 2007 03 15 | 703 | 0.4− | 0.4+ |
| 2002 10 03 | 704 | 1.5− | 0.5− | 2007 01 21 | 704 | 1.2+ | 0.6− | 2007 03 15 | 703 | 1.0− | 1.4+ |
| 2002 10 03 | 704 | 0.1− | 1.0+ | 2007 01 27 | 703 | 0.7+ | 0.1+ | 2007 03 15 | 703 | 0.6− | 1.2+ |
| 2002 10 03 | 704 | (0.3+ | 2.3+) | 2007 01 27 | 703 | 0.4− | 0.3+ | 2007 03 15 | 703 | 1.0− | 0.3+ |
| 2002 10 08 | 291 | 0.4− | 0.1+ | 2007 01 27 | 703 | 0.1− | 0.2− | 2007 03 16 | 704 | 1.4+ | 0.6+ |
| 2002 10 08 | 291 | 0.0 | 0.1− | 2007 01 27 | 703 | 0.9− | 0.9+ | 2007 03 16 | 704 | 0.0 | 0.1− |
| 2002 10 08 | 291 | 0.0 | 0.1+ | 2007 01 27 | 699 | 0.4− | 1.0+ | 2007 03 16 | 704 | 0.9+ | 1.2+ |
| 2004 04 15 | 699 | 0.6+ | 1.1+ | 2007 01 27 | 699 | 0.6+ | 0.8− | 2007 03 16 | 704 | 1.1+ | 0.2+ |
| 2004 04 15 | 699 | 0.6− | 0.2− | 2007 01 27 | 699 | (1.2− | 2.0+) | 2007 03 16 | 704 | 0.5− | 0.7+ |
| 2004 04 15 | 699 | 0.5+ | 0.6+ | 2007 01 27 | 699 | 0.8+ | 0.6+ | 2007 04 01 | 644 | 0.3+ | 0.2+ |
| 2004 04 15 | 699 | 0.8+ | 0.8+ | 2007 01 28 | 691 | 0.1− | 0.2+ | 2007 04 01 | 644 | 0.1+ | 0.5+ |
| 2004 04 17 | 704 | (0.7+ | 1.7+) | 2007 01 28 | 691 | 0.2− | 0.1− | 2007 04 01 | 644 | 0.2− | 0.1− |
| 2004 04 17 | 704 | 0.3+ | 0.4+ | 2007 01 28 | 691 | 0.1− | 0.0 | 2009 11 23 | 704 | 0.1+ | 0.8− |
| 2004 04 17 | 704 | 0.2− | 1.0+ | 2007 02 16 | 703 | 0.2− | 0.1− | 2009 11 23 | 704 | 0.7− | 0.1− |
| 2005 09 14 | 691 | 0.2− | 0.4+ | 2007 02 16 | 703 | 0.4+ | 1.1− | 2009 11 23 | 704 | (0.3− | 1.6+) |
| 2005 09 14 | 691 | 0.3− | 0.5+ | 2007 02 16 | 703 | 0.0 | 0.2+ | 2009 12 09 | 704 | 0.5− | 0.0 |
| 2005 09 14 | 691 | 0.1+ | 0.4+ | 2007 02 16 | 703 | 1.0− | 0.1− | 2009 12 09 | 704 | (0.3− | 1.8−) |
| 2007 01 16 | 703 | 0.4+ | 0.4− | 2007 02 18 | 699 | 0.1− | 0.2+ | 2009 12 09 | 704 | 0.6− | 0.8− |
| 2007 01 16 | 703 | 1.0− | 0.5− | 2007 02 18 | 699 | 0.4− | 0.5+ | 2009 12 15 | 704 | 0.7+ | 0.2+ |
| 2007 01 16 | 703 | 0.0 | 0.0 | 2007 02 18 | 699 | 0.4+ | 0.2+ | 2009 12 15 | 704 | 0.8+ | 0.1+ |
| 2007 01 16 | 703 | 0.0 | 0.9− | 2007 02 18 | 699 | 0.2+ | 0.1+ | 2009 12 15 | 704 | 0.9+ | 0.7+ |
| 2007 01 17 | 644 | 0.2− | 0.2+ | 2007 02 22 | D29 | 0.6+ | 1.0− | 2009 12 15 | 704 | 1.8+ | 0.1+ |

**(229677)∗ 2007 BY$_{19}$**

Discovered 2007 Jan. 23 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 248.75803 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.29605679 | $\omega$ | 119.00769 | | −0.92353912 | | +0.36675938 |
| $a$ | 2.2295610 | $\Omega$ | 82.69807 | | −0.37928568 | | −0.83026897 |
| $e$ | 0.1059815 | $i$ | 6.48836 | | −0.05672620 | | −0.41969155 |
| $P$ | 3.33 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 12 03 | 691 | 0.1− | 1.2− | 2007 01 10 | 691 | 0.0 | 0.1− | 2007 02 05 | 644 | 0.2+ | 0.1+ |
| 1996 12 03 | 691 | 0.3+ | 0.3− | 2007 01 10 | 691 | 0.3− | 0.2+ | 2007 02 07 | 644 | 0.1− | 0.3+ |
| 1996 12 08 | 691 | 0.1+ | 0.7− | 2007 01 17 | 644 | 0.2− | 0.1+ | 2007 02 07 | 644 | 0.1− | 0.1+ |
| 1996 12 08 | 691 | 0.7− | 0.2− | 2007 01 17 | 644 | 0.3+ | 0.2+ | 2007 02 07 | 644 | 0.0 | 0.4+ |
| 2004 02 27 | 704 | 0.6+ | 0.8− | 2007 01 17 | 644 | 0.3+ | 0.2+ | 2007 02 08 | 703 | 1.2− | 0.4+ |
| 2004 02 27 | 704 | 0.1+ | 0.1− | 2007 01 23 | 704 | 0.6+ | 1.2+ | 2007 02 08 | 703 | 0.4− | 0.1+ |
| 2004 02 27 | 704 | 0.4− | 0.9+ | 2007 01 23 | 704 | (1.5+ | 0.8−) | 2007 02 08 | 703 | 1.4+ | 1.3+ |
| 2004 02 27 | 704 | 0.6+ | 0.9− | 2007 01 23 | 704 | 0.8+ | 0.3+ | 2007 02 08 | 703 | 0.8+ | 0.2+ |
| 2004 03 15 | 704 | 0.0 | 0.4+ | 2007 01 23 | 704 | 0.4+ | 0.3+ | 2009 11 20 | 691 | 0.1− | 0.2+ |
| 2004 03 15 | 704 | 1.1− | 0.9+ | 2007 01 24 | 704 | 0.8+ | 0.5− | 2009 11 20 | 691 | 0.5− | 0.0 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 03 15 | 704 | 0.4+ | 0.3+ | 2007 01 24 | 704 | 0.2+ | 0.1− | 2009 11 20 | 691 | 0.1+ | 0.2+ |
| 2004 03 15 | 106 | 0.1− | 0.4− | 2007 01 24 | 704 | 0.6+ | 0.1− | 2009 11 24 | 691 | 0.3− | 0.3+ |
| 2004 03 15 | 106 | 0.2+ | 0.1− | 2007 01 24 | 704 | 0.3+ | 0.1− | 2009 11 24 | 691 | 0.0 | 0.1+ |
| 2004 03 16 | 106 | 0.2− | 0.2+ | 2007 01 24 | 704 | 0.2+ | 0.7− | 2009 11 24 | 691 | 0.2+ | 0.3+ |
| 2006 11 21 | G96 | 0.0 | 0.1− | 2007 01 28 | 691 | 0.2− | 0.0 | 2009 12 15 | G96 | 0.8+ | 0.4− |
| 2006 11 21 | G96 | 0.5+ | 0.2− | 2007 01 28 | 691 | 0.3− | 0.1− | 2009 12 15 | G96 | 0.5+ | 0.0 |
| 2006 11 21 | G96 | 0.0 | 0.2− | 2007 01 28 | 691 | 0.4− | 0.3+ | 2009 12 15 | G96 | 0.4+ | 0.0 |
| 2006 11 21 | G96 | 0.1− | 0.3− | 2007 02 05 | 644 | 1.0+ | 0.1− | 2009 12 15 | G96 | 0.3+ | 0.3− |
| 2007 01 10 | 691 | 0.2− | 0.2+ | 2007 02 05 | 644 | 0.3+ | 0.2+ | | | | |

**(229678)∗ 2007 BY$_{21}$**

Discovered 2007 Jan. 24 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 258.43770 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28522993 | $\omega$ | 98.91315 | | −0.99601269 | +0.07685241 | |
| $a$ | 2.2856303 | $\Omega$ | 85.50368 | | −0.08858869 | −0.91194507 | |
| $e$ | 0.1050207 | $i$ | 2.60463 | | +0.01052485 | −0.40305075 | |
| $P$ | 3.46 | $H$ | 17.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 12 17 | 691 | 0.5− | 0.1+ | 2006 11 28 | G96 | 0.3+ | 0.1+ | 2007 01 25 | 704 | (2.0+ | 1.0−) |
| 1999 12 17 | 691 | 0.6− | 0.2+ | 2006 11 28 | G96 | 0.6+ | 0.3− | 2007 01 25 | 704 | (1.9+ | 0.8−) |
| 1999 12 17 | 691 | 0.7− | 0.2+ | 2006 11 28 | G96 | 0.2+ | 0.5+ | 2007 02 07 | 703 | 0.4+ | 0.3+ |
| 2000 01 05 | 691 | 0.5+ | 0.5− | 2006 11 28 | G96 | 0.5+ | 0.0 | 2007 02 07 | 703 | 0.7− | 0.2+ |
| 2000 01 05 | 691 | 0.4+ | 0.6− | 2006 11 28 | G96 | 0.0 | 0.8+ | 2007 02 07 | 703 | (1.6+ | 1.1+) |
| 2000 01 05 | 691 | 0.4+ | 0.9− | 2006 11 28 | G96 | 0.3+ | 0.2+ | 2007 02 07 | 703 | 1.1+ | 0.1+ |
| 2004 04 22 | 704 | 1.0+ | 0.9+ | 2007 01 17 | 691 | 0.0 | 0.3+ | 2009 11 18 | 691 | 0.2− | 0.5+ |
| 2004 04 22 | 704 | 0.8+ | 1.1+ | 2007 01 17 | 691 | 0.0 | 0.3+ | 2009 11 18 | 691 | 0.2− | 0.2+ |
| 2004 04 22 | 704 | 1.0− | 1.2− | 2007 01 17 | 691 | 0.0 | 0.3+ | 2009 11 18 | 691 | 0.0 | 0.1+ |
| 2004 04 22 | 704 | (3.0− | 0.9−) | 2007 01 24 | 704 | 1.0+ | 1.2− | 2009 11 22 | 691 | 0.2+ | 0.1+ |
| 2004 04 22 | 704 | (1.4+ | 2.3−) | 2007 01 24 | 704 | (1.8+ | 0.3+) | 2009 11 22 | 691 | 0.0 | 0.1+ |
| 2004 05 27 | 691 | 0.2− | 0.3+ | 2007 01 24 | 704 | (2.2+ | 0.8−) | 2009 11 22 | 691 | 0.9− | 0.6+ |
| 2004 05 27 | 691 | 0.5+ | 0.5+ | 2007 01 24 | 704 | (1.8+ | 0.6+) | 2009 11 26 | 691 | 0.2− | 0.1+ |
| 2004 05 27 | 691 | 0.0 | 0.7+ | 2007 01 24 | 704 | (1.4+ | 2.4−) | 2009 11 26 | 691 | 0.0 | 0.1− |
| 2005 09 13 | 691 | 0.3+ | 0.3+ | 2007 01 25 | 691 | 0.0 | 0.2+ | 2009 11 26 | 691 | 0.1+ | 0.1+ |
| 2005 09 13 | 691 | 0.3− | 0.3+ | 2007 01 25 | 691 | 0.1− | 0.1+ | 2009 12 11 | G96 | 0.3+ | 0.1− |
| 2005 09 13 | 691 | 0.1− | 0.2+ | 2007 01 25 | 691 | 0.1+ | 0.4+ | 2009 12 11 | G96 | 0.9+ | 0.1+ |
| 2006 11 28 | G96 | 0.5− | 0.4+ | 2007 01 25 | 704 | (1.6+ | 1.5−) | 2009 12 11 | G96 | 0.0 | 0.1− |
| 2006 11 28 | G96 | 0.2+ | 0.0 | 2007 01 25 | 704 | (1.6+ | 0.1−) | 2009 12 11 | G96 | 0.2+ | 0.2+ |

**(229679)∗ 2007 BO$_{69}$ = 2002 UL$_{45}$**

Discovered 2007 Jan. 27 by the Mt. Lemmon Survey at Mount Lemmon. Id. G. V. Williams (*MPO* 117689)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 22.07962 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28714134 | $\omega$ | 274.86270 | | +0.59186317 | −0.80282284 | |
| $a$ | 2.2754759 | $\Omega$ | 138.56977 | | +0.77590150 | +0.54328846 | |
| $e$ | 0.1537694 | $i$ | 6.24032 | | +0.21834572 | +0.24558731 | |
| $P$ | 3.43 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 01 26 | 691 | 0.2+ | 0.1+ | 2005 09 01 | 691 | 0.4− | 0.0 | 2007 03 15 | 691 | 0.3− | 0.0 |
| 2000 01 26 | 691 | 0.2+ | 0.4− | 2005 09 01 | 691 | 0.1+ | 0.1− | 2007 03 15 | 691 | 0.4− | 0.4+ |
| 2000 01 26 | 691 | 0.1+ | 0.2− | 2007 01 27 | G96 | 0.0 | 0.1− | 2007 03 17 | 691 | 0.3− | 0.0 |
| 2002 10 31 | 704 | 0.1+ | 0.0 | 2007 01 27 | G96 | 0.5− | 0.3− | 2007 03 17 | 691 | 0.0 | 0.0 |
| 2002 10 31 | 704 | 0.2+ | 0.1+ | 2007 01 27 | G96 | 0.4+ | 0.5− | 2007 03 17 | 691 | 0.0 | 0.4+ |
| 2002 10 31 | 704 | 0.4+ | 0.7− | 2007 01 27 | G96 | 0.5+ | 0.3− | 2007 03 20 | 691 | 0.2− | 0.1+ |
| 2002 10 31 | 704 | 0.3− | 0.4− | 2007 01 28 | 691 | 0.1+ | 0.1+ | 2007 03 20 | 691 | 0.1+ | 0.1− |
| 2002 10 31 | 704 | 0.9+ | 0.4− | 2007 01 28 | 691 | 0.1+ | 0.1+ | 2007 03 20 | 691 | 0.2− | 0.1− |
| 2002 11 05 | 704 | 0.1+ | 1.1+ | 2007 01 28 | 691 | 0.2− | 0.2+ | 2009 11 19 | 704 | 0.5− | 0.3+ |
| 2002 11 05 | 704 | 1.2− | 0.6+ | 2007 02 16 | 644 | 0.2− | 0.3+ | 2009 11 19 | 704 | 0.2− | 0.2− |
| 2002 11 05 | 704 | 0.9− | 0.1+ | 2007 02 16 | 644 | 0.1+ | 0.1+ | 2009 11 19 | 704 | 0.2− | 0.3+ |
| 2002 11 05 | 704 | 1.0− | 0.7− | 2007 02 16 | 644 | 0.1− | 0.4+ | 2009 11 19 | 704 | 0.7+ | 1.0+ |
| 2004 04 14 | 691 | 0.4+ | 0.3+ | 2007 03 10 | 691 | 0.0 | 0.5+ | 2009 11 20 | J75 | 0.4+ | 0.0 |
| 2004 04 14 | 691 | 0.2+ | 0.1+ | 2007 03 10 | 691 | 0.2− | 0.2+ | 2009 11 20 | J75 | 0.1+ | 0.2+ |
| 2004 04 14 | 691 | 0.5+ | 0.1+ | 2007 03 10 | 691 | 0.1+ | 0.1− | 2009 11 20 | J75 | 0.7+ | 0.2+ |
| 2005 07 01 | 691 | 0.2+ | 0.2+ | 2007 03 12 | 691 | 0.2− | 0.3− | 2009 12 13 | 704 | 0.3− | 1.0+ |
| 2005 07 01 | 691 | 0.0 | 0.3+ | 2007 03 12 | 691 | 0.3− | 0.1− | 2009 12 13 | 704 | 0.9+ | 0.2− |
| 2005 07 01 | 691 | 0.1+ | 0.6+ | 2007 03 12 | 691 | 0.1+ | 0.2+ | 2009 12 13 | 704 | 0.0 | 0.8+ |
| 2005 07 28 | 644 | 0.1− | 0.4+ | 2007 03 15 | 691 | 0.1+ | 0.2+ | 2009 12 13 | 704 | 0.2+ | 1.0+ |
| 2005 07 28 | 644 | 0.3− | 0.3+ | 2007 03 15 | 691 | 0.2+ | 0.1− | 2009 12 13 | 704 | 0.2+ | 0.8+ |
| 2005 07 28 | 644 | 0.2− | 0.3+ | 2007 03 15 | 691 | 0.1− | 0.0 | | | | |
| 2005 09 01 | 691 | 0.2− | 0.0 | 2007 03 15 | 691 | 0.2+ | 0.1− | | | | |

**(229680)∗ 2007 CX$_{11}$**

Discovered 2007 Feb. 6 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 203.26451 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26000799 | $\omega$ | 304.87265 | | −0.68282119 | +0.72708009 | |
| $a$ | 2.4311490 | $\Omega$ | 281.89441 | | −0.64419995 | −0.64534708 | |
| $e$ | 0.1396806 | $i$ | 4.18925 | | −0.34461812 | −0.23426841 | |
| $P$ | 3.79 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 01 04 | 291 | 0.0 | 0.6+ | 2007 02 10 | G96 | 0.0 | 0.1− | 2008 07 30 | G96 | 0.5+ | 0.5+ |
| 2003 01 04 | 291 | 0.3+ | 0.3+ | 2007 02 10 | G96 | 0.1− | 0.0 | 2008 07 30 | G96 | 0.3+ | 0.5+ |
| 2003 01 04 | 291 | 0.1− | 0.2+ | 2007 02 10 | G96 | 0.1− | 0.1+ | 2008 07 30 | G96 | 0.3+ | 0.6+ |
| 2007 01 10 | 691 | 0.0 | 0.1+ | 2007 02 10 | G96 | 0.4− | 0.0 | 2008 07 30 | G96 | 0.1+ | 0.5+ |
| 2007 01 10 | 691 | 0.3− | 0.2+ | 2007 02 10 | G96 | 0.2+ | 0.1+ | 2008 08 02 | J75 | 0.1− | 0.4− |
| 2007 01 10 | 691 | 0.1+ | 0.1+ | 2007 02 10 | G96 | 0.0 | 0.1− | 2008 08 02 | J75 | 0.2− | 0.2+ |
| 2007 02 06 | 644 | 0.0 | 0.5+ | 2008 07 01 | 691 | 0.2− | 0.2+ | 2008 08 03 | J75 | 0.3+ | 0.1− |
| 2007 02 06 | 644 | 0.1+ | 0.4+ | 2008 07 01 | 691 | 0.3− | 0.3+ | 2009 11 11 | 691 | 0.5− | 0.9+ |
| 2007 02 06 | 644 | 0.2+ | 0.1+ | 2008 07 01 | 691 | 0.5− | 0.2+ | 2009 11 11 | 691 | 0.3+ | 0.3− |
| 2007 02 08 | 291 | 0.2+ | 0.4+ | 2008 07 02 | 691 | 0.2− | 0.1+ | 2009 11 11 | 691 | 0.0 | 0.1− |
| 2007 02 08 | 291 | 0.2+ | 0.4+ | 2008 07 02 | 691 | 0.0 | 0.4+ | 2009 11 22 | G96 | 0.0 | 0.4− |
| 2007 02 08 | 291 | 0.5+ | 0.4+ | 2008 07 02 | 691 | 0.4− | 0.5+ | 2009 11 22 | G96 | 0.0 | 0.2− |
| 2007 02 10 | G96 | 0.2− | 0.3− | 2008 07 29 | J75 | 0.0 | 0.5+ | 2009 11 22 | G96 | 0.0 | 0.0 |
| 2007 02 10 | G96 | 0.1− | 0.1− | 2008 07 29 | J75 | 0.4− | 0.3− | 2009 11 22 | G96 | 0.2+ | 0.1− |
| 2007 02 10 | G96 | 0.0 | 0.0 | 2008 07 29 | J75 | 0.7+ | 0.3+ | 2009 12 18 | G96 | 0.2− | 0.6− |
| 2007 02 10 | G96 | 0.1− | 0.2− | 2008 07 30 | J75 | 0.0 | 0.0 | 2009 12 18 | G96 | 0.5+ | 0.2− |
| 2007 02 10 | G96 | 0.2+ | 0.1+ | 2008 07 30 | J75 | 0.4− | 0.5+ | 2009 12 18 | G96 | 0.2+ | 0.4− |
| 2007 02 10 | G96 | 0.0 | 0.3− | 2008 07 30 | J75 | 0.8+ | 0.4+ | 2009 12 18 | G96 | 0.0 | 0.3+ |

**(229681)∗ 2007 CL$_{52}$ = 2000 AG$_{122}$**

Discovered 2007 Feb. 10 by the Catalina Sky Survey. Id. G. V. Williams (*MPO* 116074)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 335.87957 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28858441 | $\omega$ | 234.00232 | | −0.26705189 | −0.96087668 | |
| $a$ | 2.2678838 | $\Omega$ | 231.65260 | | +0.91157371 | −0.22714291 | |
| $e$ | 0.1058666 | $i$ | 5.37609 | | +0.31259664 | −0.15849955 | |
| $P$ | 3.42 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 01 05 | 704 | 0.9− | 0.0 | 2007 02 18 | D29 | 0.4− | 0.2− | 2009 11 18 | 704 | 1.4+ | 1.4+ |
| 2000 01 05 | 704 | 0.5+ | 0.2− | 2007 02 18 | D29 | 0.2+ | 0.0 | 2009 11 18 | 704 | 0.9+ | 1.1+ |
| 2000 01 05 | 704 | 0.1− | 1.0− | 2007 02 23 | 703 | 1.3− | 0.3− | 2009 11 18 | 704 | 0.7+ | 0.2+ |
| 2000 01 07 | 704 | 0.7+ | 0.7+ | 2007 02 23 | 703 | 0.0 | 0.4− | 2009 11 18 | 704 | 0.0 | 0.5+ |
| 2000 01 07 | 704 | 0.3+ | 0.0 | 2007 02 23 | 703 | 0.5− | 0.3+ | 2009 11 22 | 691 | 0.1+ | 0.1+ |
| 2000 01 07 | 704 | 0.3− | 0.3− | 2007 02 25 | 703 | 0.3+ | 0.7+ | 2009 11 22 | 691 | 0.1+ | 0.0 |
| 2000 01 07 | 704 | 0.1− | 0.5+ | 2007 02 25 | 703 | 0.2+ | 0.7+ | 2009 11 22 | 691 | 0.1+ | 0.0 |
| 2004 05 13 | 691 | 0.1+ | 0.0 | 2007 02 25 | 703 | 0.8− | 0.6+ | 2009 11 23 | J75 | 0.4+ | 0.2− |
| 2004 05 13 | 691 | 0.0 | 0.5+ | 2009 10 21 | G96 | 0.4+ | 0.3− | 2009 11 23 | J75 | 0.5+ | 0.3− |
| 2004 05 13 | 691 | 0.2+ | 0.2+ | 2009 10 21 | G96 | 0.5+ | 0.1− | 2009 11 23 | J75 | 0.5+ | 0.3− |
| 2004 05 21 | 691 | 0.2− | 0.4+ | 2009 10 21 | G96 | 0.2+ | 0.2+ | 2009 11 25 | 703 | 0.8− | 0.0 |
| 2004 05 21 | 691 | 0.0 | 0.1+ | 2009 10 21 | G96 | 0.4+ | 0.0 | 2009 11 25 | 703 | 0.4+ | 0.3− |
| 2004 05 21 | 691 | 0.2+ | 0.3− | 2009 11 08 | 691 | 0.1− | 0.0 | 2009 11 25 | 703 | 0.4− | 0.5+ |
| 2007 02 10 | 703 | 0.0 | 0.2+ | 2009 11 08 | 703 | (0.4+ | 1.7−) | 2009 11 25 | 703 | 0.1− | 0.7− |
| 2007 02 10 | 703 | 0.1+ | 0.2+ | 2009 11 08 | 691 | 0.2− | 0.1+ | 2009 11 25 | 703 | 0.2+ | 0.3+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 02 10 | 703 | 0.4− | 0.4− | 2009 11 08 | 703 | 0.9+ | 0.0 | 2009 11 26 | 691 | 0.2+ | 0.1− |
| 2007 02 10 | 703 | 0.4− | 0.4− | 2009 11 08 | 703 | 0.2− | 0.2− | 2009 11 26 | 691 | 0.1+ | 0.2− |
| 2007 02 11 | D29 | 0.6+ | 0.2+ | 2009 11 08 | 691 | 0.2− | 0.1+ | 2009 11 26 | 691 | 0.0 | 0.0 |
| 2007 02 11 | D29 | 0.8+ | 0.1− | 2009 11 08 | 703 | (1.3+ | 1.7+) | 2009 12 08 | 104 | 0.4− | 0.9+ |
| 2007 02 11 | D29 | 0.5+ | 0.4− | 2009 11 11 | J75 | 1.2− | 0.2+ | 2009 12 08 | 104 | 0.5+ | 0.7+ |
| 2007 02 15 | 644 | 0.4+ | 0.1+ | 2009 11 11 | J75 | 1.2+ | 1.2− | 2009 12 08 | 104 | 1.2+ | 0.7+ |
| 2007 02 15 | 703 | 0.2− | 0.4− | 2009 11 11 | J75 | 0.6+ | 0.6− | 2009 12 11 | 703 | 1.2− | 0.2− |
| 2007 02 15 | 703 | 0.4− | 0.9+ | 2009 11 12 | J75 | 0.4+ | 0.5+ | 2009 12 11 | 703 | 1.0− | 1.7− |
| 2007 02 15 | 703 | 0.6+ | 0.6− | 2009 11 12 | J75 | 0.4+ | 0.3+ | 2009 12 11 | 703 | 1.8− | 0.9− |
| 2007 02 15 | 644 | 0.6+ | 0.2+ | 2009 11 12 | J75 | 0.4+ | 0.7+ | 2009 12 11 | 703 | 1.5− | 1.3− |
| 2007 02 15 | 703 | 0.6− | 1.2− | 2009 11 18 | 691 | 0.2− | 0.0 | 2009 12 18 | 691 | 0.2− | 0.5+ |
| 2007 02 15 | 644 | 0.5+ | 0.0 | 2009 11 18 | 691 | 0.1− | 0.0 | 2009 12 18 | 691 | 0.3− | 0.1+ |
| 2007 02 18 | D29 | 0.3− | 1.0− | 2009 11 18 | 691 | 0.2− | 0.1+ | 2009 12 18 | 691 | 0.2− | 0.0 |

**(229682)∗ 2007 CN$_{52}$**

Discovered 2007 Feb. 10 by the Catalina Sky Survey.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 255.08422 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27403948 | $\omega$ | 245.40683 | | −0.97078300 | +0.22915451 | |
| $a$ | 2.3474371 | $\Omega$ | 307.76180 | | −0.17437070 | −0.87749771 | |
| $e$ | 0.0722302 | $i$ | 5.16675 | | −0.16484909 | −0.42129086 | |
| $P$ | 3.60 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 20 | 704 | 0.7− | 0.8+ | 2007 02 17 | 644 | 0.1+ | 1.3+ | 2007 03 21 | 704 | 1.5+ | 0.2+ |
| 2001 09 20 | 704 | 0.2+ | 0.8+ | 2007 02 22 | 691 | 0.1− | 0.0 | 2007 03 21 | 704 | (1.7+ | 0.5−) |
| 2001 09 20 | 704 | 1.0− | 0.3+ | 2007 02 22 | 691 | 0.1− | 0.1+ | 2008 07 12 | J75 | 0.3+ | 0.2− |
| 2001 09 20 | 704 | 0.9− | 0.2+ | 2007 02 22 | 691 | 0.5− | 0.0 | 2008 07 12 | J75 | 0.9− | 0.3− |
| 2005 09 30 | 703 | 0.2− | 0.4+ | 2007 02 22 | 704 | 0.4+ | 0.5+ | 2008 07 12 | J75 | 0.8− | 0.3− |
| 2005 09 30 | 703 | 0.9+ | 0.5+ | 2007 02 22 | 704 | (1.7+ | 0.6+) | 2008 08 03 | J75 | 0.0 | 1.0+ |
| 2005 09 30 | 703 | (2.0+ | 0.7+) | 2007 02 22 | 704 | 0.8+ | 0.4− | 2008 08 03 | J75 | 0.9− | 0.2+ |
| 2005 09 30 | 703 | 0.9+ | 0.2+ | 2007 02 26 | 703 | 0.1+ | 0.1− | 2008 08 03 | J75 | 0.3+ | 1.2+ |
| 2006 11 16 | G96 | 0.2+ | 0.0 | 2007 02 26 | 703 | 0.1+ | 0.0 | 2008 08 09 | J75 | 0.2+ | 0.5− |
| 2006 11 16 | G96 | 0.1+ | 0.3− | 2007 02 26 | 703 | 0.4− | 0.0 | 2008 08 09 | J75 | 0.6+ | 0.2− |
| 2006 11 16 | G96 | 0.0 | 0.1− | 2007 02 26 | 703 | 0.3− | 0.6+ | 2008 08 09 | J75 | 1.1+ | 0.1− |
| 2006 11 16 | G96 | 0.0 | 0.4− | 2007 03 08 | 644 | 0.4+ | 0.1+ | 2008 09 06 | G96 | 0.3− | 0.4+ |
| 2006 12 20 | G96 | 0.2+ | 0.1− | 2007 03 08 | 644 | 0.2+ | 0.2+ | 2008 09 06 | G96 | 0.5+ | 0.4+ |
| 2006 12 20 | G96 | 0.2− | 0.0 | 2007 03 08 | 644 | 0.5+ | 0.0 | 2008 09 06 | G96 | 0.3− | 0.0 |
| 2006 12 20 | G96 | 0.5+ | 0.3− | 2007 03 09 | 644 | 0.4+ | 0.1− | 2008 09 06 | G96 | 0.5− | 0.4+ |
| 2006 12 20 | G96 | 0.3+ | 0.1+ | 2007 03 09 | 644 | 0.4+ | 0.1+ | 2008 10 29 | G96 | 0.2− | 0.1− |
| 2007 02 10 | 703 | 0.5+ | 0.6− | 2007 03 09 | 644 | 0.1+ | 0.0 | 2008 10 29 | G96 | 0.5+ | 0.4− |
| 2007 02 10 | 703 | 0.1+ | 0.6− | 2007 03 09 | 703 | (2.1− | 0.1+) | 2008 10 29 | G96 | 0.2+ | 0.2+ |
| 2007 02 10 | 703 | 0.3− | 0.0 | 2007 03 09 | 703 | (2.3+ | 0.2−) | 2008 10 29 | G96 | 0.2+ | 0.7− |
| 2007 02 10 | 703 | 0.7− | 1.1+ | 2007 03 09 | 703 | (2.2− | 1.6+) | 2009 11 22 | 691 | 0.6+ | 0.9+ |
| 2007 02 15 | 644 | 0.2+ | 0.2+ | 2007 03 09 | 703 | 0.9− | 0.2+ | 2009 11 22 | 691 | 0.2− | 0.1− |
| 2007 02 15 | 644 | 0.4− | 0.2+ | 2007 03 15 | 703 | 0.4− | 1.2+ | 2009 11 22 | 691 | 0.3− | 0.0 |
| 2007 02 15 | 644 | 0.3− | 0.4+ | 2007 03 15 | 703 | 0.0 | 0.8+ | 2009 11 26 | 691 | 0.4− | 0.1− |
| 2007 02 16 | G96 | 0.3+ | 0.2− | 2007 03 15 | 703 | 1.0+ | 0.1+ | 2009 11 26 | 691 | 0.2− | 0.1− |
| 2007 02 16 | G96 | 0.1− | 0.3− | 2007 03 15 | 703 | (2.0+ | 0.3−) | 2009 11 26 | 691 | 0.0 | 0.1− |
| 2007 02 16 | G96 | 0.2− | 0.1− | 2007 03 21 | 703 | 1.0− | 0.1+ | 2009 12 09 | J75 | 0.6+ | 0.3+ |
| 2007 02 17 | 703 | 0.2− | 0.9− | 2007 03 21 | 703 | 0.0 | 0.2− | 2009 12 09 | J75 | 0.5− | 0.3− |
| 2007 02 17 | 703 | 0.1− | 0.3− | 2007 03 21 | 703 | 0.1− | 0.7+ | 2009 12 09 | J75 | 0.5+ | 1.1+ |
| 2007 02 17 | 703 | 0.1− | 0.6− | 2007 03 21 | 703 | 0.8+ | 0.1+ | 2009 12 17 | D25 | 0.3+ | 0.6− |
| 2007 02 17 | 703 | 0.2− | 1.1− | 2007 03 21 | 704 | (1.7+ | 0.2−) | 2009 12 17 | D25 | 0.6+ | 0.4− |
| 2007 02 17 | 644 | 0.1+ | 0.0 | 2007 03 21 | 704 | 0.9+ | 0.5+ | 2009 12 17 | D25 | 0.7− | 0.5− |
| 2007 02 17 | 644 | 0.3+ | 0.0 | 2007 03 21 | 704 | 0.9+ | 0.4+ | | | | |

**(229683)∗ 2007 CR$_{62}$ = 2005 TB$_{11}$**

Discovered 2007 Feb. 15 by NEAT at Palomar.

Id. G. V. Williams (*MPO* 116083)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 230.19695 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27508416 | $\omega$ | 333.09798 | | −0.76292977 | +0.64550596 | |
| $a$ | 2.3414901 | $\Omega$ | 247.15142 | | −0.58598620 | −0.71368749 | |
| $e$ | 0.1417981 | $i$ | 2.20770 | | −0.27305372 | −0.27197833 | |
| $P$ | 3.58 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 02 12 | 645 | 0.0 | 0.1+ | 2007 02 15 | 644 | 0.2+ | 0.0 | 2008 08 02 | B44 | 0.3+ | 0.9+ |
| 2000 02 12 | 645 | 0.1+ | 0.1+ | 2007 02 15 | 644 | 0.4− | 0.1+ | 2008 08 03 | B44 | 0.4− | 0.6+ |
| 2001 09 20 | 704 | 0.1− | 0.3− | 2007 02 16 | 644 | 0.5+ | 0.3+ | 2008 09 07 | G96 | 0.1− | 0.4+ |
| 2001 09 20 | 704 | 0.9+ | 0.5− | 2007 02 16 | 644 | 0.4+ | 0.3+ | 2008 09 07 | G96 | 0.4− | 0.3+ |
| 2001 09 20 | 704 | 0.7+ | 0.6− | 2007 02 16 | 644 | 0.4+ | 0.0 | 2008 09 07 | G96 | 0.5− | 0.2+ |
| 2005 10 02 | G96 | 0.2+ | 0.3+ | 2007 02 26 | G96 | 0.3+ | 0.7− | 2008 09 07 | G96 | 0.2− | 0.1+ |
| 2005 10 02 | G96 | 0.2+ | 0.1− | 2007 02 26 | G96 | 0.0 | 0.4− | 2008 09 24 | G96 | 0.6+ | 0.1− |
| 2005 10 02 | G96 | 0.4− | 0.3− | 2007 02 26 | G96 | 0.1+ | 0.4− | 2008 09 24 | G96 | 0.1− | 0.4+ |
| 2005 10 02 | G96 | 0.3− | 0.1− | 2007 02 26 | G96 | 0.1+ | 0.5− | 2008 09 24 | G96 | 0.1− | 0.3+ |
| 2005 10 03 | 703 | 0.5− | 0.7+ | 2007 03 12 | 691 | 0.2− | 0.6+ | 2008 09 24 | G96 | 0.3+ | 0.2+ |
| 2005 10 03 | 703 | 1.3− | 1.2+ | 2007 03 12 | 691 | 0.2− | 0.2+ | 2009 11 27 | G96 | 0.1+ | 0.1− |
| 2005 10 03 | 703 | 0.6+ | 0.7+ | 2007 03 12 | 691 | 0.0 | 0.2+ | 2009 11 27 | G96 | 0.3+ | 0.4− |
| 2005 10 03 | 703 | 0.2− | 1.3+ | 2007 03 16 | G96 | 0.2− | 0.2− | 2009 11 27 | G96 | 0.4+ | 0.6+ |
| 2005 10 27 | G96 | 0.2− | 0.2− | 2007 03 16 | G96 | 0.4− | 0.1− | 2009 11 27 | G96 | 0.2− | 0.2− |
| 2005 10 27 | G96 | 0.2− | 0.5− | 2007 03 16 | G96 | 0.3− | 0.3− | 2009 11 27 | G96 | 0.1− | 0.0 |
| 2005 10 27 | G96 | 0.3− | 0.4− | 2007 03 16 | G96 | 0.1+ | 0.0 | 2009 12 10 | G96 | 0.1− | 0.0 |
| 2005 10 27 | G96 | 0.2+ | 0.1+ | 2007 04 22 | G96 | 0.0 | 0.4− | 2009 12 10 | G96 | 0.1+ | 0.3− |
| 2007 01 29 | 691 | 0.0 | 0.0 | 2007 04 22 | G96 | 0.2+ | 0.5− | 2009 12 10 | G96 | 0.2+ | 0.1− |
| 2007 01 29 | 691 | 0.1+ | 0.1− | 2007 04 22 | G96 | 0.4− | 0.3− | 2009 12 10 | G96 | 0.0 | 0.4− |
| 2007 01 29 | 691 | 0.1− | 0.1− | 2007 04 22 | G96 | 0.9+ | 0.1+ | | | | |
| 2007 02 15 | 644 | 0.4+ | 0.0 | 2008 08 02 | B44 | 0.9− | 0.4+ | | | | |

**(229684)∗ 2007 DQ$_{11}$**

Discovered 2007 Feb. 20 by M. Ory at the Observatoire Astronomique Jurassien-Vicques.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 327.75694 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28979148 | $\omega$ | 331.08032 | | −0.48628789 | −0.87050481 | |
| $a$ | 2.2615819 | $\Omega$ | 147.84468 | | +0.82659633 | −0.48640995 | |
| $e$ | 0.1724252 | $i$ | 8.18797 | | +0.28330655 | −0.07501156 | |
| $P$ | 3.40 | $H$ | 17.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 10 05 | 645 | 0.0 | 0.1+ | 2007 02 23 | 704 | 0.8+ | 0.3+ | 2007 03 09 | 644 | 0.1− | 0.2+ |
| 2002 10 05 | 645 | 0.0 | 0.0 | 2007 02 23 | 704 | 0.6+ | 0.4+ | 2007 03 09 | 644 | 0.0 | 0.1− |
| 2002 10 15 | 644 | 0.2− | 0.8+ | 2007 02 23 | 704 | 1.0+ | 0.2− | 2007 03 10 | 644 | 0.0 | 0.0 |
| 2002 10 15 | 644 | 0.5− | 0.7+ | 2007 02 23 | 185 | 1.1− | 0.5− | 2007 03 10 | 644 | 0.0 | 0.1+ |
| 2002 10 15 | 644 | 0.1− | 0.8+ | 2007 02 23 | 185 | 0.4+ | 0.2+ | 2007 03 10 | 644 | 0.2− | 0.1+ |
| 2005 08 30 | 568 | 0.2+ | 0.0 | 2007 02 23 | 185 | 0.3− | 0.7− | 2007 03 11 | 691 | 0.3− | 0.1− |
| 2005 08 30 | 568 | 0.0 | 0.2− | 2007 02 25 | 926 | 0.2+ | 0.2− | 2007 03 11 | 691 | 0.6− | 0.4+ |
| 2005 08 30 | 568 | 0.0 | 0.3− | 2007 02 25 | 704 | 0.0 | 0.0 | 2007 03 11 | 691 | 0.1− | 0.1− |
| 2007 01 28 | G96 | 0.2− | 0.3− | 2007 02 25 | 704 | 0.3+ | 0.3+ | 2007 03 15 | 691 | 0.1− | 0.2− |
| 2007 01 28 | G96 | 0.1− | 0.3− | 2007 02 25 | 926 | 0.1+ | 0.2− | 2007 03 15 | 691 | 0.2− | 0.1− |
| 2007 01 28 | G96 | 0.1− | 0.1− | 2007 02 25 | 704 | 1.3+ | 0.6+ | 2007 03 15 | 691 | 0.4− | 0.1− |
| 2007 01 28 | G96 | 0.1− | 0.4− | 2007 02 25 | 704 | 1.4+ | 1.4+ | 2007 03 16 | 704 | (1.9+ | 0.5+) |
| 2007 01 28 | 691 | 0.1+ | 0.1− | 2007 02 25 | 704 | 0.9+ | 0.8+ | 2007 03 16 | 704 | (2.0+ | 0.4−) |
| 2007 01 28 | 691 | 0.1− | 0.1+ | 2007 02 25 | 926 | 0.1+ | 0.3− | 2007 03 16 | 704 | 0.4+ | 0.6− |
| 2007 01 28 | 691 | 0.1− | 0.0 | 2007 02 26 | G96 | 0.3+ | 0.4− | 2007 03 16 | 704 | (0.7+ | 1.5+) |
| 2007 02 06 | 691 | 0.1− | 0.0 | 2007 02 26 | G96 | 0.3− | 0.5− | 2007 03 16 | 704 | 0.3+ | 1.1+ |
| 2007 02 06 | 691 | 0.5− | 0.0 | 2007 02 26 | G96 | 0.2+ | 0.4− | 2009 10 25 | G96 | (0.7+ | 1.7+) |
| 2007 02 06 | 691 | 0.3− | 0.3+ | 2007 02 26 | G96 | 0.3− | 0.4− | 2009 10 25 | G96 | 0.6− | 0.0 |
| 2007 02 13 | 704 | 0.6+ | 0.4− | 2007 02 27 | 691 | 0.1− | 0.2− | 2009 10 25 | G96 | 0.2− | 0.1+ |
| 2007 02 13 | 704 | 1.2+ | 0.4+ | 2007 02 27 | 691 | 0.2− | 0.1− | 2009 10 25 | G96 | 0.5− | 0.0 |
| 2007 02 13 | 704 | 0.6+ | 0.7+ | 2007 02 27 | 691 | 0.1+ | 0.1+ | 2009 11 15 | 704 | (1.9− | 0.0 ) |
| 2007 02 13 | 704 | 1.0+ | 1.5+ | 2007 03 08 | 644 | 0.2+ | 0.2− | 2009 11 15 | 704 | 0.4+ | 0.4− |
| 2007 02 13 | 704 | 0.0 | 0.5+ | 2007 03 08 | 644 | 0.0 | 0.0 | 2009 11 15 | 704 | 1.0+ | 0.8+ |
| 2007 02 20 | 185 | 1.0+ | 0.5+ | 2007 03 08 | 644 | 0.0 | 0.0 | 2009 11 21 | 703 | 0.2+ | 0.3− |
| 2007 02 21 | 185 | 0.4− | 0.6+ | 2007 03 08 | 644 | 0.1+ | 0.1+ | 2009 11 21 | 703 | 0.7− | 0.2− |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 02 21 | 185 | 1.3+ | 0.2+ | 2007 03 08 | 644 | 0.4+ | 0.2− | 2009 11 21 | 703 | 0.1− | 0.3− | | |
| 2007 02 22 | 926 | 0.3+ | 0.8− | 2007 03 08 | 644 | 0.2+ | 0.1− | 2009 11 21 | 703 | 0.2− | 0.2− | | |
| 2007 02 22 | 926 | 0.0 | 0.1− | 2007 03 09 | 691 | 0.2− | 0.1− | 2009 12 13 | 703 | 0.9+ | 0.3− | | |
| 2007 02 22 | 926 | 0.2+ | 0.1+ | 2007 03 09 | 691 | 0.1− | 0.0 | 2009 12 13 | 703 | 1.3+ | 0.0 | | |
| 2007 02 23 | 704 | (1.7+ | 1.8+) | 2007 03 09 | 691 | 0.0 | 0.1− | 2009 12 13 | 703 | 0.4− | 0.9− | | |
| 2007 02 23 | 704 | 1.2+ | 0.1+ | 2007 03 09 | 644 | 0.1− | 0.1+ | 2009 12 13 | 703 | 0.5− | 1.7− | | |

**(229685)∗ 2007 DK$_{25}$**

Discovered 2007 Feb. 17 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 222.20153 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26383302 | $\omega$ | 264.70841 | | −0.68868703 | +0.72466385 | |
| $a$ | 2.4075942 | $\Omega$ | 321.72893 | | −0.64899102 | −0.63081364 | |
| $e$ | 0.1452876 | $i$ | 2.21388 | | −0.32329682 | −0.27737422 | |
| $P$ | 3.74 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1993 08 15 | 691 | 0.2− | 0.3+ | 2007 03 08 | 644 | 0.3+ | 0.3+ | 2008 08 03 | H55 | 0.1+ | 0.3+ | | |
| 1993 08 15 | 691 | 0.4− | 0.0 | 2007 03 09 | 644 | 0.3+ | 0.4+ | 2008 08 04 | H55 | 1.1+ | 0.1+ | | |
| 1993 08 15 | 691 | 0.3+ | 0.1− | 2007 03 09 | 644 | 0.5+ | 0.1+ | 2008 08 04 | H55 | (2.0+ | 0.8+) | | |
| 2003 02 10 | 291 | 0.3+ | 0.3+ | 2007 03 09 | 644 | 0.2+ | 0.4+ | 2008 08 04 | H55 | (0.1− | 1.8+) | | |
| 2003 02 10 | 291 | 0.1+ | 0.2+ | 2007 03 10 | 644 | 0.2+ | 0.4+ | 2008 08 07 | 691 | 0.1− | 0.4+ | | |
| 2003 02 10 | 291 | 0.2+ | 0.1+ | 2007 03 10 | 644 | 0.2+ | 0.1+ | 2008 08 07 | 691 | 0.1+ | 0.5+ | | |
| 2007 01 28 | G96 | 0.2+ | 0.5− | 2007 03 10 | 644 | 0.2+ | 0.7+ | 2008 08 07 | 691 | 0.0 | 0.3+ | | |
| 2007 01 28 | G96 | 0.1− | 0.0 | 2007 03 11 | G96 | 0.0 | 0.2+ | 2008 08 20 | 691 | 0.2− | 0.6+ | | |
| 2007 01 28 | G96 | 0.1+ | 0.1− | 2007 03 11 | G96 | 0.2− | 0.1+ | 2008 08 20 | 691 | 0.0 | 0.2+ | | |
| 2007 01 28 | G96 | 0.2− | 0.1+ | 2007 03 11 | G96 | 0.4+ | 0.3+ | 2008 08 20 | 691 | 0.2− | 0.2− | | |
| 2007 02 17 | 691 | 0.3− | 0.2+ | 2007 03 11 | G96 | 0.0 | 0.1+ | 2008 09 06 | G96 | 0.1− | 0.5+ | | |
| 2007 02 17 | 691 | 0.0 | 0.3+ | 2007 03 13 | 699 | 0.1− | 0.2− | 2008 09 06 | G96 | 0.4− | 0.2+ | | |
| 2007 02 17 | 691 | 0.2− | 0.2+ | 2007 03 13 | 699 | 0.4+ | 0.2+ | 2008 09 06 | G96 | 0.2− | 0.0 | | |
| 2007 02 21 | 691 | 0.1− | 0.3+ | 2007 03 13 | 699 | (2.5− | 1.6−) | 2008 09 06 | G96 | 0.4− | 0.4+ | | |
| 2007 02 21 | 691 | 0.2− | 0.3+ | 2007 03 13 | 699 | 0.5+ | 1.2+ | 2008 09 19 | 691 | 0.1− | 0.0 | | |
| 2007 02 21 | 691 | 1.4+ | 0.4− | 2007 04 22 | G96 | 0.0 | 0.3− | 2008 09 19 | 691 | 0.1− | 0.2+ | | |
| 2007 02 22 | 699 | (0.6+ | 2.0−) | 2007 04 22 | G96 | 0.2− | 0.1− | 2008 09 19 | 691 | 0.3− | 0.0 | | |
| 2007 02 22 | 699 | 0.5− | 0.9− | 2007 04 22 | G96 | 0.2+ | 0.1− | 2008 09 21 | 691 | 0.1− | 0.2+ | | |
| 2007 02 22 | 699 | (0.4+ | 2.2+) | 2007 04 22 | G96 | 0.0 | 0.1− | 2008 09 21 | 691 | 0.4− | 0.7+ | | |
| 2007 02 22 | 699 | (0.0 | 2.4+) | 2007 05 11 | G96 | 0.2− | 0.3− | 2008 09 21 | 691 | 0.3+ | 0.1− | | |
| 2007 02 23 | 704 | (1.7+ | 0.7+) | 2007 05 11 | G96 | 0.6− | 0.0 | 2008 09 25 | 691 | 0.2− | 0.7+ | | |
| 2007 02 23 | 704 | 1.2+ | 0.5+ | 2007 05 11 | G96 | 0.1+ | 0.2+ | 2008 09 25 | 691 | 0.3− | 0.0 | | |
| 2007 02 23 | 704 | (1.7+ | 0.6+) | 2007 05 11 | G96 | 0.3− | 0.1+ | 2008 09 25 | 691 | 0.0 | 0.2+ | | |
| 2007 02 25 | 691 | 0.1+ | 0.5+ | 2008 07 29 | 691 | 0.2− | 0.2+ | 2009 11 17 | 691 | 0.2− | 0.0 | | |
| 2007 02 25 | 691 | 0.2− | 0.4+ | 2008 07 29 | 691 | 0.2− | 0.2+ | 2009 11 17 | 691 | 0.1− | 0.2+ | | |
| 2007 02 25 | 691 | 0.3− | 0.3+ | 2008 07 29 | 691 | 0.6− | 0.5− | 2009 11 17 | 691 | 0.2− | 0.1− | | |
| 2007 03 08 | 644 | 0.2+ | 0.7+ | 2008 08 02 | J95 | 0.3+ | 0.7+ | 2009 12 18 | G96 | 0.6+ | 0.1− | | |
| 2007 03 08 | 644 | 0.1+ | 0.4+ | 2008 08 03 | J95 | 0.2− | 0.9− | 2009 12 18 | G96 | 0.1− | 0.2− | | |
| 2007 03 08 | 644 | 0.4+ | 0.5+ | 2008 08 03 | J95 | 0.4+ | 0.1+ | 2009 12 18 | G96 | 0.3+ | 0.1− | | |
| 2007 03 08 | 644 | 0.6+ | 0.4+ | 2008 08 03 | H55 | 0.3+ | 0.5+ | 2009 12 18 | G96 | 0.0 | 0.4− | | |
| 2007 03 08 | 644 | 0.0 | 0.4+ | 2008 08 03 | H55 | 0.7+ | 0.1+ | | | | | | |

**(229686)∗ 2007 DP$_{36}$ = 2004 TO$_{88}$**

Discovered 2007 Feb. 17 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 117743)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 155.58244 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22924601 | $\omega$ | 130.92907 | | +0.13148016 | +0.99096988 | |
| $a$ | 2.6440411 | $\Omega$ | 146.59861 | | −0.92327163 | +0.13207162 | |
| $e$ | 0.1776400 | $i$ | 2.73829 | | −0.36094662 | +0.02314718 | |
| $P$ | 4.30 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 05 | 691 | 0.2− | 0.2− | 2007 03 14 | 691 | 0.2+ | 0.4+ | 2008 09 06 | 703 | 0.5+ | 0.1− | | |
| 2004 10 05 | 691 | 0.1− | 0.1− | 2007 03 14 | 691 | 0.0 | 0.4− | 2008 09 06 | 703 | 0.4+ | 0.3+ | | |
| 2004 10 05 | 691 | 0.3− | 0.1+ | 2007 03 14 | 691 | 0.2+ | 0.1+ | 2008 09 06 | 703 | 1.4+ | 0.1− | | |
| 2004 10 09 | 691 | 0.2+ | 0.1+ | 2007 04 15 | 691 | 0.3+ | 0.3+ | 2008 09 06 | 703 | 0.2+ | 0.6− | | |
| 2004 10 09 | 691 | 0.0 | 0.1− | 2007 04 15 | 691 | 0.2− | 0.2− | 2008 09 19 | 691 | 0.4− | 1.1+ | | |
| 2004 10 09 | 691 | 0.1− | 0.0 | 2007 04 15 | 691 | 0.1+ | 0.3+ | 2008 09 19 | 691 | 0.2− | 0.2− | | |
| 2004 11 04 | 691 | 0.0 | 0.4+ | 2007 04 23 | G96 | 0.1+ | 0.2+ | 2008 09 19 | 691 | 0.3− | 0.0 | | |
| 2004 11 04 | 691 | 0.1+ | 0.1+ | 2007 04 23 | G96 | 0.0 | 0.0 | 2009 11 16 | G96 | 0.2+ | 0.1− | | |
| 2004 11 04 | 691 | 0.3+ | 0.1+ | 2007 04 23 | G96 | 0.0 | 0.2+ | 2009 11 16 | G96 | 0.1+ | 0.3− | | |
| 2007 02 17 | 691 | 0.2+ | 0.7+ | 2007 04 23 | G96 | 0.0 | 0.1− | 2009 11 16 | G96 | 0.9+ | 0.1− | | |
| 2007 02 17 | 691 | 0.1− | 0.1+ | 2008 08 20 | 691 | 0.2− | 0.2+ | 2009 11 27 | 691 | 0.0 | 0.4+ | | |
| 2007 02 17 | 691 | 0.0 | 0.4+ | 2008 08 20 | 691 | 0.0 | 0.4+ | 2009 11 27 | 691 | 1.0− | 0.2+ | | |
| 2007 02 21 | 691 | 0.1− | 0.0 | 2008 08 20 | 691 | 0.1− | 1.1+ | 2009 11 27 | 691 | 0.0 | 0.2+ | | |
| 2007 02 21 | 691 | 0.1+ | 0.5+ | 2008 08 24 | 704 | 0.0 | 0.3+ | 2009 12 11 | G96 | 0.9+ | 0.2+ | | |
| 2007 02 21 | 691 | 0.3− | 0.1+ | 2008 08 24 | 704 | 0.4+ | 0.6+ | 2009 12 11 | G96 | 0.7+ | 0.1+ | | |
| 2007 03 10 | 691 | 0.4+ | 0.4+ | 2008 08 24 | 704 | 0.8− | 0.0 | 2009 12 11 | G96 | 0.4+ | 0.1+ | | |
| 2007 03 10 | 691 | 0.1+ | 0.2+ | 2008 08 24 | 704 | 0.2− | 0.7− | 2009 12 11 | G96 | 0.8+ | 0.2+ | | |
| 2007 03 10 | 691 | 0.1+ | 0.2+ | 2008 08 24 | 704 | 0.6− | 0.1+ | | | | | | |

**(229687)∗ 2007 DO$_{48}$**

Discovered 2007 Feb. 21 by the Mt. Lemmon Survey at Mount Lemmon.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 261.59772 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27761551 | $\omega$ | 240.21546 | | −0.94168085 | +0.33585429 | |
| $a$ | 2.3272349 | $\Omega$ | 319.39884 | | −0.29655740 | −0.85770256 | |
| $e$ | 0.1628705 | $i$ | 1.84511 | | −0.15903106 | −0.38929194 | |
| $P$ | 3.55 | $H$ | 17.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 03 10 | 704 | 1.8+ | 1.0+ | 2007 03 08 | 644 | 0.4+ | 0.0 | 2007 04 22 | G96 | 0.1+ | 0.0 | | |
| 2000 03 10 | 704 | 0.6+ | 0.8+ | 2007 03 08 | 644 | 0.2− | 0.2+ | 2007 04 22 | G96 | 0.2− | 0.3− | | |
| 2000 03 10 | 704 | 0.0 | 0.5− | 2007 03 08 | 644 | 0.0 | 0.1+ | 2007 04 22 | G96 | 0.6− | 0.2− | | |
| 2000 03 10 | 704 | 0.9− | 0.3+ | 2007 03 08 | 644 | 0.2+ | 0.1+ | 2007 05 11 | G96 | 0.2− | 0.1− | | |
| 2000 03 10 | 704 | 0.3− | 0.2− | 2007 03 08 | 644 | 0.5+ | 0.2+ | 2007 05 11 | G96 | 0.2+ | 0.5− | | |
| 2000 03 11 | 704 | 0.2− | 1.1+ | 2007 03 09 | 703 | 0.5+ | 0.2− | 2007 05 11 | G96 | 0.4+ | 0.0 | | |
| 2000 03 11 | 704 | 0.5+ | 1.1+ | 2007 03 09 | 703 | 1.3− | 0.2− | 2007 05 11 | G96 | 0.2+ | 0.4− | | |
| 2000 03 11 | 704 | 0.3− | 0.7+ | 2007 03 09 | 703 | 0.4− | 0.1− | 2008 07 29 | 691 | 0.2− | 0.3+ | | |
| 2000 03 11 | 704 | 0.9+ | 0.1+ | 2007 03 09 | 703 | 0.6− | 0.2− | 2008 07 29 | 691 | 0.0 | 0.1− | | |
| 2001 09 18 | 691 | 0.0 | 0.4+ | 2007 03 10 | 644 | 0.2+ | 0.3− | 2008 07 29 | 691 | 0.1− | 0.7+ | | |
| 2001 09 18 | 691 | 0.2− | 0.5+ | 2007 03 10 | 644 | 0.2+ | 0.4+ | 2008 09 06 | G96 | 0.0 | 0.2− | | |
| 2001 09 18 | 691 | 0.5− | 0.6+ | 2007 03 10 | 644 | 0.0 | 0.2+ | 2008 09 06 | G96 | 0.4+ | 0.1+ | | |
| 2007 02 10 | G96 | 0.1− | 0.3− | 2007 03 10 | 644 | 0.2+ | 0.1− | 2008 09 06 | G96 | 0.4− | 0.3+ | | |
| 2007 02 10 | G96 | 0.3− | 0.5− | 2007 03 10 | 644 | 0.0 | 0.4+ | 2008 09 06 | G96 | 0.4− | 0.1− | | |
| 2007 02 10 | G96 | 0.1− | 0.0 | 2007 03 10 | 644 | 0.2+ | 0.3+ | 2008 09 23 | G96 | 0.5+ | 0.3+ | | |
| 2007 02 10 | G96 | 0.3+ | 0.1− | 2007 03 10 | G96 | 0.1+ | 0.1− | 2008 09 23 | G96 | 0.3− | 0.1+ | | |
| 2007 02 21 | G96 | 0.2+ | 0.1+ | 2007 03 10 | G96 | 0.5− | 0.6− | 2008 09 23 | G96 | 0.0 | 0.2− | | |
| 2007 02 21 | G96 | 0.1+ | 0.2− | 2007 03 10 | G96 | 0.2+ | 0.0 | 2008 09 23 | G96 | 0.2+ | 0.5− | | |
| 2007 02 21 | G96 | 0.1− | 0.2− | 2007 03 10 | G96 | 0.1+ | 0.0 | 2009 11 25 | 691 | 0.4+ | 0.3+ | | |
| 2007 02 21 | G96 | 0.3− | 0.1− | 2007 03 14 | 704 | 0.4− | 1.2+ | 2009 11 25 | 691 | 0.4− | 0.0 | | |
| 2007 02 22 | 691 | 0.1− | 0.2+ | 2007 03 14 | 704 | 0.7+ | 1.1+ | 2009 11 25 | 691 | 0.2− | 0.0 | | |
| 2007 02 22 | 691 | 0.1− | 0.1+ | 2007 03 14 | 704 | 0.6+ | 0.5+ | 2009 12 11 | G96 | 0.1+ | 0.1+ | | |
| 2007 02 22 | 691 | 0.0 | 0.0 | 2007 03 14 | 704 | 0.5+ | 0.0 | 2009 12 11 | G96 | 0.1− | 0.1+ | | |
| 2007 02 23 | 704 | 0.2− | 0.0 | 2007 03 17 | 704 | 0.5+ | 0.9+ | 2009 12 11 | G96 | 0.2+ | 0.1+ | | |
| 2007 02 23 | 704 | 0.4+ | 0.7− | 2007 03 17 | 704 | 0.1+ | 0.3+ | 2009 12 11 | G96 | 0.4+ | 0.3+ | | |
| 2007 02 23 | 704 | 0.4+ | 0.3+ | 2007 03 17 | 704 | 0.7− | 0.2− | | | | | | |
| 2007 03 08 | 644 | 0.1+ | 0.0 | 2007 04 22 | G96 | 0.3+ | 0.3+ | | | | | | |

**(229688)∗ 2007 DL$_{51}$**

Discovered 2007 Feb. 17 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 273.91148 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26727781 | $\omega$ | 171.96119 | | −0.99478793 | −0.10195084 | |
| $a$ | 2.3868628 | $\Omega$ | 2.18954 | | +0.09084568 | −0.89389470 | |
| $e$ | 0.1322073 | $i$ | 2.60117 | | +0.04630382 | −0.43652982 | |
| $P$ | 3.69 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1992 01 31 | 691 | 0.4− | 0.1− | 2007 02 23 | G96 | 0.0 | 0.1− | 2007 03 20 | 704 | 0.8+ | 0.0 | | |
| 1992 01 31 | 691 | 0.0 | 0.5− | 2007 02 23 | G96 | 0.2− | 0.0 | 2007 03 25 | G96 | 0.3+ | 0.3− | | |
| 1992 01 31 | 691 | 0.3+ | 0.3− | 2007 03 08 | 644 | 0.8+ | 0.7+ | 2007 03 25 | G96 | 0.3− | 0.0 | | |
| 1994 11 05 | 691 | 0.0 | 0.3− | 2007 03 08 | 644 | 0.1+ | 0.5+ | 2007 03 25 | G96 | 0.1− | 0.1+ | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 11 05 | 691 | 0.0 | 0.1+ | 2007 03 08 | 644 | 0.1+ | 0.3+ | 2007 03 25 | G96 | 0.1− | 0.2+ |
| 1994 11 05 | 691 | 0.2− | 0.2− | 2007 03 09 | 644 | 0.5+ | 0.4+ | 2007 04 07 | 703 | 0.4− | 0.5− |
| 2001 09 22 | 691 | 0.2+ | 0.1− | 2007 03 09 | 644 | 0.2+ | 0.1+ | 2007 04 07 | 703 | 0.0 | 1.2− |
| 2001 09 22 | 691 | 0.1− | 0.1− | 2007 03 09 | 644 | 0.4+ | 0.9+ | 2007 04 07 | G96 | 0.4− | 0.0 |
| 2001 09 22 | 691 | 0.2− | 0.4+ | 2007 03 09 | 644 | 0.5+ | 0.5+ | 2007 04 07 | 703 | 0.0 | 0.2− |
| 2002 12 31 | 645 | 0.0 | 0.1− | 2007 03 09 | 644 | 0.3+ | 0.4+ | 2007 04 07 | G96 | 0.4− | 0.1+ |
| 2002 12 31 | 645 | 0.0 | 0.0 | 2007 03 09 | 644 | 0.9+ | 0.7+ | 2007 04 07 | 703 | 0.4+ | 0.2− |
| 2003 02 03 | 644 | 0.1+ | 1.0+ | 2007 03 10 | G96 | 0.1− | 0.0 | 2007 04 07 | G96 | 0.3− | 0.3+ |
| 2003 02 03 | 644 | 0.3+ | 0.9+ | 2007 03 10 | G96 | 0.1+ | 0.1+ | 2007 04 07 | G96 | 0.2− | 0.0 |
| 2003 02 03 | 644 | 0.9− | 0.5+ | 2007 03 10 | G96 | 0.2− | 0.1+ | 2007 04 11 | 185 | 0.6+ | 0.5− |
| 2005 10 07 | 691 | 0.1− | 0.7+ | 2007 03 10 | G96 | 0.1− | 0.1+ | 2007 04 11 | 185 | 0.0 | 0.0 |
| 2005 10 07 | 691 | 0.0 | 0.2+ | 2007 03 11 | 691 | 0.0 | 0.0 | 2007 04 15 | G96 | 0.1+ | 0.2− |
| 2005 10 07 | 691 | 0.2+ | 0.2+ | 2007 03 11 | 691 | 0.0 | 0.3+ | 2007 04 15 | G96 | 0.1− | 0.0 |
| 2005 10 23 | 703 | 0.0 | 0.0 | 2007 03 11 | 691 | 0.1− | 0.2+ | 2007 04 15 | G96 | 0.4− | 0.0 |
| 2005 10 23 | 703 | 0.1− | 0.6+ | 2007 03 14 | 704 | 0.3+ | 0.5+ | 2007 04 15 | G96 | 0.2− | 0.0 |
| 2005 10 23 | 703 | (0.7− | 2.2+) | 2007 03 14 | 704 | 1.5+ | 0.7+ | 2007 05 10 | G96 | 0.3+ | 0.4+ |
| 2005 10 23 | 703 | 1.3− | 0.4+ | 2007 03 14 | 704 | 0.4+ | 0.2+ | 2007 05 10 | G96 | 0.1+ | 0.1− |
| 2006 12 27 | G96 | 0.3+ | 0.0 | 2007 03 17 | 699 | 0.3+ | 0.1− | 2007 05 10 | G96 | 0.5+ | 0.0 |
| 2006 12 27 | G96 | 0.0 | 0.2− | 2007 03 17 | 699 | 0.1− | 0.1− | 2007 05 10 | G96 | 0.1+ | 0.2− |
| 2006 12 27 | G96 | 0.3+ | 0.4− | 2007 03 17 | 699 | 1.4− | 0.6+ | 2009 10 22 | G96 | 0.1− | 0.3+ |
| 2006 12 27 | G96 | 0.5− | 0.3− | 2007 03 17 | 699 | 1.2+ | 0.1− | 2009 10 22 | G96 | 0.4+ | 0.1+ |
| 2007 01 27 | G96 | 0.1+ | 0.3− | 2007 03 17 | 704 | 0.2+ | 0.1− | 2009 10 22 | G96 | 0.3+ | 0.1+ |
| 2007 01 27 | G96 | 0.0 | 0.2− | 2007 03 17 | 704 | 0.6+ | 0.5− | 2009 10 22 | G96 | 0.1− | 0.7+ |
| 2007 01 27 | G96 | 0.1+ | 0.3− | 2007 03 17 | 704 | 0.7+ | 0.3− | 2009 12 18 | G96 | 0.3+ | 0.0 |
| 2007 01 27 | G96 | 0.5+ | 0.0 | 2007 03 17 | 704 | 0.2+ | 0.5− | 2009 12 18 | G96 | 0.4+ | 0.0 |
| 2007 02 17 | 691 | 0.3− | 0.1+ | 2007 03 17 | 704 | 0.2+ | 0.2+ | 2009 12 18 | G96 | 0.1+ | 0.2− |
| 2007 02 17 | 691 | 0.1− | 0.0 | 2007 03 20 | 704 | (0.1+ | 2.3+) | 2009 12 19 | 691 | 0.3+ | 0.0 |
| 2007 02 17 | 691 | 1.1− | 0.3+ | 2007 03 20 | 704 | (1.1+ | 2.3+) | 2009 12 19 | 691 | 0.6− | 0.4− |
| 2007 02 23 | G96 | 0.2+ | 0.1− | 2007 03 20 | 704 | (0.5+ | 1.7+) | 2009 12 19 | 691 | 0.0 | 0.3+ |
| 2007 02 23 | G96 | 0.4− | 0.1+ | 2007 03 20 | 704 | (0.5+ | 2.2+) | | | | |

**(229689)∗ 2007 DQ$_{57}$ = 2005 VU$_{21}$**

Discovered 2007 Feb. 21 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPO* 117759)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 242.79270 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26413287 | $\omega$ | 117.02808 | | −0.89311218 | +0.44591485 | |
| $a$ | 2.4057718 | $\Omega$ | 89.50493 | | −0.43085890 | −0.81013344 | |
| $e$ | 0.1279196 | $i$ | 3.39690 | | −0.12927201 | −0.38058343 | |
| $P$ | 3.73 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 04 16 | 120 | 0.5+ | 0.7− | 2007 02 21 | 704 | 0.2− | 0.8+ | 2007 03 17 | G98 | 0.4+ | 0.2− |
| 1996 04 16 | 120 | 0.1+ | 0.4+ | 2007 02 23 | 691 | 0.4− | 0.2− | 2007 03 17 | G98 | 0.4+ | 0.1+ |
| 2001 10 25 | 645 | 0.0 | 0.1− | 2007 02 23 | 691 | 0.3− | 0.1− | 2007 03 17 | G98 | 0.3+ | 0.4− |
| 2001 10 25 | 645 | 0.1− | 0.0 | 2007 02 23 | 691 | 0.5− | 0.1+ | 2007 03 19 | G96 | 0.3+ | 0.3− |
| 2001 11 18 | 645 | 0.1+ | 0.1− | 2007 03 08 | 644 | 0.3− | 0.0 | 2007 03 19 | G96 | 0.1− | 0.1− |
| 2001 11 18 | 645 | 0.0 | 0.2− | 2007 03 08 | 644 | 0.1− | 0.1− | 2007 03 19 | G96 | 0.1+ | 0.2− |
| 2003 01 31 | 704 | 0.0 | 0.2+ | 2007 03 08 | 644 | 0.0 | 0.2− | 2007 03 19 | G96 | 0.1− | 0.2− |
| 2003 01 31 | 704 | 0.4− | 0.2+ | 2007 03 11 | G98 | 0.1+ | 0.1− | 2007 03 26 | 703 | 0.8+ | 0.1+ |
| 2003 01 31 | 704 | 0.6− | 0.4− | 2007 03 11 | G98 | 0.3+ | 0.3+ | 2007 03 26 | 703 | 0.5+ | 0.8− |
| 2003 01 31 | 704 | 0.0 | 0.7− | 2007 03 11 | G98 | 0.3+ | 0.7− | 2007 03 26 | 703 | (1.8− | 0.3+) |
| 2005 11 01 | 691 | 0.3− | 0.2+ | 2007 03 11 | G98 | 0.6+ | 0.1− | 2007 03 26 | 703 | 0.5− | 0.8+ |
| 2005 11 01 | 691 | 0.2+ | 0.5+ | 2007 03 11 | G98 | 0.1+ | 0.2− | 2007 04 04 | 644 | 0.0 | 0.1+ |
| 2005 11 01 | 691 | 0.6+ | 0.1+ | 2007 03 11 | G98 | 0.0 | 0.0 | 2007 04 04 | 644 | 0.0 | 0.5+ |
| 2005 11 05 | 691 | 0.1− | 0.0 | 2007 03 15 | G96 | 0.0 | 0.2+ | 2007 04 04 | 644 | 0.2− | 0.4+ |
| 2005 11 05 | 691 | 0.4− | 0.5+ | 2007 03 15 | G96 | 0.5− | 0.1− | 2009 11 16 | 691 | 0.6− | 0.2− |
| 2005 11 05 | 691 | 0.3+ | 0.3+ | 2007 03 15 | G96 | 0.2− | 0.3− | 2009 11 16 | 691 | 0.2− | 0.2+ |
| 2005 12 04 | G96 | 0.3+ | 0.1− | 2007 03 16 | 704 | (2.6+ | 1.9+) | 2009 11 16 | 691 | 0.1− | 0.4+ |
| 2005 12 04 | G96 | 0.6+ | 0.1− | 2007 03 16 | 704 | (0.5+ | 2.4+) | 2009 12 15 | G96 | 1.0+ | 0.6− |
| 2005 12 04 | G96 | 0.0 | 0.2− | 2007 03 16 | 704 | (0.6− | 3.0+) | 2009 12 15 | G96 | 0.9+ | 0.2− |
| 2005 12 04 | G96 | 0.7+ | 0.1+ | 2007 03 16 | 704 | 0.0 | 1.2+ | 2009 12 15 | G96 | 0.1− | 0.1+ |
| 2007 02 21 | 704 | 1.0+ | 0.4− | 2007 03 16 | 704 | (1.5+ | 2.7+) | 2009 12 15 | G96 | 0.4+ | 0.0 |
| 2007 02 21 | 704 | 0.1− | 0.3− | 2007 03 17 | G98 | 0.9+ | 0.1− | | | | |

**(229690)∗ 2007 DS$_{70}$ = 1998 SJ$_{101}$ = 2003 AD$_{91}$ = 2009 UA$_{103}$**

Discovered 2007 Feb. 21 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 165547)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 25.06101 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27332362 | $\omega$ | 43.27604 | | +0.74560823 | −0.66638099 | |
| $a$ | 2.3515341 | $\Omega$ | 358.50722 | | +0.58633015 | +0.65758634 | |
| $e$ | 0.2339169 | $i$ | 4.79630 | | +0.31667858 | +0.35144926 | |
| $P$ | 3.61 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 09 26 | 704 | 1.0+ | 0.4− | 2007 02 21 | 691 | 0.2− | 0.1+ | 2009 11 16 | 704 | 0.1+ | 0.7+ |
| 1998 09 26 | 704 | 1.1+ | 0.0 | 2007 02 21 | 691 | 0.4+ | 0.3− | 2009 11 23 | 704 | 0.3− | 0.3+ |
| 1998 09 26 | 704 | 0.7− | 0.4+ | 2007 02 21 | 691 | 0.1+ | 0.5+ | 2009 11 23 | 704 | 0.3− | 0.5+ |
| 1998 09 26 | 704 | 1.0− | 0.7+ | 2007 02 25 | 691 | 0.0 | 0.1+ | 2009 11 23 | 704 | 0.8− | 0.6+ |
| 1998 09 27 | 704 | 0.6− | 1.5− | 2007 02 25 | 691 | 0.4− | 0.1− | 2009 11 23 | 704 | 0.3− | 0.4+ |
| 1998 09 27 | 704 | 0.2− | 1.1− | 2007 02 25 | 691 | 0.1− | 0.0 | 2009 11 25 | 703 | 0.9+ | 1.3+ |
| 1998 09 27 | 704 | 0.5+ | 0.7− | 2007 03 10 | G96 | 0.1− | 0.1− | 2009 11 25 | 703 | 0.3− | 0.1+ |
| 1998 09 27 | 704 | 0.5− | 0.2− | 2007 03 10 | G96 | 0.1− | 0.2− | 2009 11 25 | 703 | 0.5+ | 0.3+ |
| 1998 09 27 | 704 | 0.3+ | 0.0 | 2007 03 10 | G96 | 0.2− | 0.2− | 2009 11 25 | 703 | 0.2+ | 0.5− |
| 1998 10 14 | 699 | 0.3− | 0.7+ | 2007 03 10 | G96 | 0.2+ | 0.2− | 2009 11 25 | 703 | 0.3− | 1.2+ |
| 1998 10 14 | 699 | 0.1+ | 0.8+ | 2009 10 24 | 703 | 0.2+ | 0.4+ | 2009 11 25 | 703 | 0.1− | 0.2− |
| 1998 10 14 | 699 | 0.3+ | 0.3− | 2009 10 24 | 703 | 1.2− | 0.1− | 2009 11 25 | 703 | 0.3+ | 1.0+ |
| 2002 11 07 | 645 | 0.0 | 0.2− | 2009 10 24 | 703 | 0.2+ | 0.5− | 2009 11 25 | 703 | 0.1− | 0.0 |
| 2002 11 07 | 645 | 0.0 | 0.2− | 2009 10 24 | 703 | 0.2+ | 0.4− | 2009 12 06 | J75 | 0.0 | 0.3− |
| 2003 01 05 | 704 | 0.3− | 0.7+ | 2009 10 26 | 703 | 0.1+ | 0.5− | 2009 12 06 | J75 | 0.2+ | 0.7− |
| 2003 01 05 | 704 | 0.5− | 0.1− | 2009 10 26 | 703 | 0.2− | 0.6− | 2009 12 06 | J75 | 0.3− | 0.3− |
| 2003 01 05 | 704 | 0.3+ | 1.0+ | 2009 10 26 | 703 | 0.4− | 0.1− | 2009 12 09 | 704 | 0.4− | 0.5− |
| 2003 01 05 | 704 | 0.2+ | 0.3+ | 2009 10 26 | 703 | 0.7+ | 0.6+ | 2009 12 09 | 704 | 1.5+ | 0.2+ |
| 2003 01 09 | 704 | 1.2+ | 0.9+ | 2009 10 28 | J75 | 0.1+ | 0.0 | 2009 12 09 | 704 | (1.7+ | 0.6+) |
| 2003 01 09 | 704 | (1.9+ | 0.4+) | 2009 10 28 | J75 | 0.0 | 0.0 | 2009 12 09 | 704 | 0.4+ | 0.2+ |
| 2003 01 09 | 704 | (1.7+ | 1.5−) | 2009 10 28 | J75 | 0.0 | 0.2+ | 2009 12 10 | 704 | 0.5− | 0.4− |
| 2005 07 27 | 644 | 0.2− | 0.9+ | 2009 11 12 | J75 | 0.6− | 0.2− | 2009 12 10 | 704 | 0.1− | 0.0 |
| 2005 07 27 | 644 | 0.3+ | 0.7+ | 2009 11 13 | J75 | 0.6− | 0.2− | 2009 12 10 | 704 | 0.4− | 0.9− |
| 2005 07 27 | 644 | 0.1− | 0.6+ | 2009 11 13 | J75 | 0.0 | 0.6− | 2009 12 10 | 704 | 0.4+ | 0.5− |
| 2005 10 25 | G96 | 0.3+ | 0.1− | 2009 11 16 | 704 | 0.4+ | 1.1+ | 2009 12 10 | 704 | 0.2− | 1.5− |
| 2005 10 25 | G96 | 0.3− | 0.6− | 2009 11 16 | 704 | 0.4+ | 0.7+ | 2009 12 15 | 704 | 0.6− | 0.6+ |
| 2005 10 25 | G96 | 0.2+ | 0.1+ | 2009 11 16 | 704 | 0.6+ | 0.5+ | 2009 12 15 | 704 | 0.2− | 0.4− |
| 2005 10 25 | G96 | 0.2+ | 0.1− | 2009 11 16 | 704 | 0.5+ | 0.7+ | 2009 12 15 | 704 | 0.7− | 0.8+ |

**(229691)∗ 2007 DX$_{78}$ = 1997 CF$_{25}$ = 2004 HR$_{29}$**

Discovered 2007 Feb. 23 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 117773), A. Doppler (*MPO* 126251)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 333.21124 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.29902354 | $\omega$ | 136.76325 | | −0.68171262 | −0.73160019 | |
| $a$ | 2.2147896 | $\Omega$ | 356.20258 | | +0.64711280 | −0.59951541 | |
| $e$ | 0.0684783 | $i$ | 4.66958 | | +0.34133989 | −0.32456501 | |
| $P$ | 3.30 | $H$ | 17.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 02 03 | 691 | 0.1+ | 0.2+ | 2007 02 09 | 691 | 0.4− | 0.2− | 2007 03 11 | G96 | 0.3+ | 0.3+ |
| 1997 02 03 | 691 | 0.1− | 0.1+ | 2007 02 09 | 691 | 0.2− | 0.2+ | 2007 03 11 | G96 | 0.0 | 0.1+ |
| 1997 02 03 | 691 | 0.1+ | 0.1− | 2007 02 09 | 691 | 0.1+ | 0.1+ | 2007 03 15 | 703 | 1.0− | 0.8− |
| 1997 02 15 | 691 | 0.2− | 0.1− | 2007 02 23 | 691 | 0.2+ | 0.2+ | 2007 03 15 | 703 | 0.7+ | 0.4+ |
| 1997 02 15 | 691 | 0.1+ | 0.4− | 2007 02 23 | 691 | 0.3+ | 0.1− | 2007 03 15 | 703 | 0.4+ | 0.6− |
| 1997 02 15 | 691 | 0.1− | 0.1− | 2007 02 23 | 691 | 0.0 | 0.3+ | 2007 03 15 | 703 | 0.0 | 1.2− |
| 2002 10 11 | 704 | 0.6+ | 0.4− | 2007 02 25 | G96 | 0.0 | 0.0 | 2007 04 19 | G96 | 0.1+ | 0.1− |
| 2002 10 11 | 704 | 0.3+ | 0.2− | 2007 02 25 | G96 | 0.2+ | 0.1+ | 2007 04 19 | G96 | 0.0 | 0.1+ |
| 2002 10 11 | 704 | 0.1− | 0.8+ | 2007 02 25 | G96 | 0.4− | 0.2+ | 2007 04 19 | G96 | 0.2+ | 0.1− |
| 2002 10 31 | 644 | 0.5− | 0.1− | 2007 02 25 | G96 | 0.3− | 0.0 | 2007 04 19 | G96 | 0.2+ | 0.1− |
| 2002 10 31 | 644 | 0.4− | 0.5+ | 2007 03 09 | 703 | (0.9− | 2.8−) | 2007 05 10 | G96 | 0.9− | 0.5− |
| 2002 10 31 | 644 | 0.5− | 0.3+ | 2007 03 09 | 703 | (1.7− | 0.3−) | 2007 05 10 | G96 | 0.4− | 0.2+ |
| 2004 04 21 | 704 | (1.7+ | 0.6+) | 2007 03 09 | 703 | 0.3− | 0.9− | 2007 05 10 | G96 | 0.0 | 0.1− |
| 2004 04 21 | 704 | 0.1+ | 0.4− | 2007 03 09 | 703 | 0.2− | 0.5− | 2007 05 10 | G96 | 0.0 | 0.4− |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 04 21 | 704 | 0.7+ | 0.3+ | 2007 03 09 | 644 | 0.1+ | 0.3+ | 2009 12 15 | 704 | 1.1+ | 0.8+ | | |
| 2004 04 21 | 704 | 1.3+ | 0.1− | 2007 03 09 | 644 | 0.1+ | 0.6+ | 2009 12 15 | 704 | 0.4+ | 0.8+ | | |
| 2004 04 22 | 691 | 0.0 | 0.6+ | 2007 03 09 | 644 | 0.0 | 0.6+ | 2009 12 15 | 704 | 0.5− | 0.5+ | | |
| 2004 04 22 | 691 | 0.2+ | 0.5+ | 2007 03 10 | 644 | 0.1+ | 0.1+ | 2009 12 15 | 704 | 0.4+ | 1.1+ | | |
| 2004 04 22 | 691 | 0.2+ | 0.4+ | 2007 03 10 | 644 | 0.0 | 0.2+ | 2009 12 20 | G96 | 0.2+ | 0.0 | | |
| 2005 09 12 | 691 | 0.1− | 0.4+ | 2007 03 10 | 644 | 0.1+ | 0.2+ | 2009 12 20 | G96 | 0.1+ | 0.2+ | | |
| 2005 09 12 | 691 | 0.3− | 0.1+ | 2007 03 11 | G96 | 0.3− | 0.2+ | 2009 12 20 | G96 | 0.2+ | 0.5+ | | |
| 2005 09 12 | 691 | 0.2− | 0.5+ | 2007 03 11 | G96 | 0.1− | 0.4+ | 2009 12 20 | G96 | 0.3− | 0.0 | | |

**(229692)∗ 2007 DP$_{82}$ = 2009 UA$_{30}$**

Discovered 2007 Feb. 23 by the Mt. Lemmon Survey at Mount Lemmon.

Id. G. V. Williams (*MPO* 165547)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 6.33336 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26343282 | $\omega$ | 211.10828 | | +0.51350784 | −0.85806403 | |
| $a$ | 2.4100319 | $\Omega$ | 207.99527 | | +0.78987473 | +0.47540227 | |
| $e$ | 0.1579726 | $i$ | 0.73057 | | +0.33527244 | +0.19421329 | |
| $P$ | 3.74 | $H$ | 17.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 10 13 | 691 | 0.5+ | 0.6+ | 2007 02 25 | 291 | 0.2− | 0.6+ | 2009 11 08 | G68 | (2.3+ | 0.7+) | | |
| 1994 10 13 | 691 | 0.4− | 0.2+ | 2007 03 09 | 691 | 0.1+ | 0.0 | 2009 11 08 | G68 | (2.5+ | 0.5+) | | |
| 1994 10 13 | 691 | 0.3+ | 0.1+ | 2007 03 09 | 691 | 0.2+ | 0.3+ | 2009 11 08 | G68 | (2.9+ | 1.4+) | | |
| 1994 11 28 | 691 | 0.6− | 0.0 | 2007 03 09 | 691 | 0.2− | 0.1+ | 2009 11 08 | G96 | 0.4+ | 0.0 | | |
| 1994 11 28 | 691 | 0.3− | 0.1+ | 2007 03 25 | G96 | 0.2+ | 0.1+ | 2009 11 08 | G96 | 0.7+ | 0.2− | | |
| 1994 11 28 | 691 | 0.3+ | 0.5− | 2007 03 25 | G96 | 0.2+ | 0.4− | 2009 11 08 | G96 | 0.6+ | 0.1+ | | |
| 2005 08 31 | 691 | 0.0 | 0.4+ | 2007 03 25 | G96 | 0.7+ | 0.0 | 2009 11 17 | 704 | 0.1− | 0.8− | | |
| 2005 08 31 | 691 | 0.1− | 0.3+ | 2007 03 25 | G96 | 0.1+ | 0.2− | 2009 11 17 | 704 | 0.9+ | 0.1+ | | |
| 2005 08 31 | 691 | 0.1− | 0.2+ | 2007 04 07 | G96 | 0.3+ | 0.1− | 2009 11 17 | 704 | 0.8− | 0.2+ | | |
| 2005 09 30 | G96 | 0.0 | 0.4+ | 2007 04 07 | G96 | 0.9+ | 0.4+ | 2009 11 25 | G96 | 0.5+ | 0.1− | | |
| 2005 09 30 | G96 | 0.0 | 0.4+ | 2007 04 07 | G96 | 0.7+ | 0.6− | 2009 11 25 | G96 | 0.3+ | 0.1− | | |
| 2005 09 30 | G96 | 0.8− | 0.3+ | 2007 04 07 | G96 | 0.4− | 0.7+ | 2009 11 25 | G96 | 0.6+ | 0.1− | | |
| 2005 09 30 | G96 | 0.2− | 0.3− | 2009 10 18 | G96 | 0.5+ | 0.2− | 2009 11 25 | G96 | 0.4+ | 0.1− | | |
| 2007 02 23 | G96 | 0.4− | 0.2− | 2009 10 18 | G96 | 0.3+ | 0.1− | 2009 12 15 | G96 | 0.6+ | 0.2− | | |
| 2007 02 23 | G96 | 0.2+ | 0.2+ | 2009 10 18 | G96 | 0.1+ | 0.1− | 2009 12 15 | G96 | 0.2− | 0.6− | | |
| 2007 02 23 | G96 | 0.1+ | 0.6− | 2009 10 18 | G96 | 0.5+ | 0.0 | 2009 12 15 | G96 | 0.6+ | 0.3− | | |
| 2007 02 23 | G96 | 0.2+ | 0.1− | 2009 10 23 | 691 | 0.5− | 0.0 | 2009 12 15 | G96 | 0.2+ | 0.3+ | | |
| 2007 02 25 | 291 | 0.2− | 0.2+ | 2009 10 23 | 691 | 0.4− | 0.0 | | | | | | |
| 2007 02 25 | 291 | 0.2+ | 0.4+ | 2009 10 23 | 691 | 0.5− | 0.2+ | | | | | | |

**(229693)∗ 2007 DC$_{88}$ = 2002 XT$_{104}$**

Discovered 2007 Feb. 23 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 119368)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 349.96983 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28020883 | $\omega$ | 25.17705 | | −0.04051090 | −0.99862247 | |
| $a$ | 2.3128538 | $\Omega$ | 67.15941 | | +0.91049696 | −0.05064053 | |
| $e$ | 0.0997462 | $i$ | 2.07366 | | +0.41152662 | +0.01373656 | |
| $P$ | 3.52 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1991 10 01 | 691 | 0.0 | 0.6− | 2007 02 23 | 691 | 0.1− | 0.5+ | 2009 11 20 | 691 | 0.2− | 0.1+ | | |
| 1991 10 01 | 691 | 0.2+ | 0.5− | 2007 02 23 | 691 | 0.1+ | 0.2+ | 2009 11 20 | 691 | 0.1+ | 0.1− | | |
| 1991 10 01 | 691 | 0.3− | 0.0 | 2007 02 27 | 691 | 0.2− | 0.0 | 2009 11 20 | 691 | 0.1+ | 0.1− | | |
| 2002 12 05 | 704 | 0.0 | 0.1− | 2007 02 27 | 691 | 0.4− | 0.1− | 2009 11 24 | J75 | 0.3− | 0.1− | | |
| 2002 12 05 | 704 | 0.3− | 0.2− | 2007 02 27 | 691 | 0.0 | 0.1− | 2009 11 24 | J75 | 0.2− | 0.2− | | |
| 2002 12 05 | 704 | 0.4+ | 1.5− | 2007 03 08 | 644 | 0.0 | 0.1− | 2009 11 24 | J75 | 0.2+ | 0.3− | | |
| 2002 12 10 | 704 | 0.7+ | 0.0 | 2007 03 08 | 644 | 0.0 | 0.6− | 2009 11 24 | 691 | 0.1− | 0.0 | | |
| 2002 12 10 | 704 | (0.3+ | 1.6+) | 2007 03 08 | 644 | 0.2+ | 0.1+ | 2009 11 24 | 691 | 0.1− | 0.0 | | |
| 2002 12 10 | 704 | 0.9+ | 0.5+ | 2007 03 08 | 644 | 0.1− | 0.1+ | 2009 11 24 | 691 | 0.1+ | 0.0 | | |
| 2002 12 10 | 704 | (1.6− | 0.7+) | 2007 03 08 | 644 | 0.2+ | 0.0 | 2009 12 09 | J75 | 0.3+ | 0.1+ | | |
| 2003 01 05 | 291 | 0.2− | 0.3+ | 2007 03 08 | 644 | 0.2− | 0.1+ | 2009 12 09 | J75 | 0.2+ | 0.2+ | | |
| 2003 01 05 | 291 | 0.1+ | 0.1− | 2007 03 09 | 644 | 0.2− | 0.1− | 2009 12 09 | J75 | 0.3+ | 0.4+ | | |
| 2003 01 05 | 291 | 0.6+ | 0.4+ | 2007 03 09 | 644 | 0.4− | 0.2+ | 2009 12 11 | 703 | 1.1− | 0.7+ | | |
| 2004 05 21 | 691 | 0.3+ | 0.4+ | 2007 03 09 | 644 | 0.2+ | 0.0 | 2009 12 11 | 703 | 1.2− | 0.8− | | |
| 2004 05 21 | 691 | 0.5+ | 1.3+ | 2009 10 30 | G96 | 0.1− | 0.1− | 2009 12 11 | 703 | 0.6− | 0.0 | | |
| 2004 05 21 | 691 | 0.4+ | 0.1+ | 2009 10 30 | G96 | 0.2− | 0.1− | 2009 12 11 | 703 | 0.7− | 1.4+ | | |
| 2005 09 12 | 691 | 0.3− | 0.7+ | 2009 10 30 | G96 | 0.2− | 0.0 | 2009 12 15 | G96 | 0.6+ | 0.4− | | |
| 2005 09 12 | 691 | 0.1− | 0.5+ | 2009 10 30 | G96 | 0.2+ | 0.2− | 2009 12 15 | G96 | 0.4+ | 0.2− | | |
| 2005 09 12 | 691 | 0.4− | 0.7+ | 2009 11 08 | 691 | 0.1− | 0.1+ | 2009 12 15 | G96 | 0.2− | 0.4− | | |
| 2005 12 01 | G96 | 0.3− | 0.3− | 2009 11 08 | 691 | 0.3+ | 0.1+ | 2009 12 15 | G96 | 0.1+ | 0.1− | | |
| 2005 12 01 | G96 | 0.3+ | 0.2+ | 2009 11 08 | 691 | 0.3− | 0.3+ | 2009 12 16 | 704 | 0.3− | 0.1+ | | |
| 2005 12 01 | G96 | 0.2+ | 0.7+ | 2009 11 16 | 691 | 0.2+ | 0.3+ | 2009 12 16 | 704 | 0.3+ | 1.7+ | | |
| 2005 12 01 | G96 | 0.3+ | 0.4− | 2009 11 16 | 691 | 0.2− | 0.1− | 2009 12 16 | 704 | 0.3− | 0.4+ | | |
| 2007 02 23 | 691 | 0.1+ | 0.4+ | 2009 11 16 | 691 | 0.1+ | 0.1+ | 2009 12 16 | 704 | 0.2+ | 1.8+ | | |

**(229694)∗ 2007 DE$_{97}$ = 2002 AA$_{196}$**

Discovered 2007 Feb. 23 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 117782)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 19.34869 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22066966 | $\omega$ | 40.20790 | | +0.95160439 | −0.30519274 | |
| $a$ | 2.7121121 | $\Omega$ | 337.48333 | | +0.25213103 | +0.84252994 | |
| $e$ | 0.0715089 | $i$ | 5.41597 | | +0.17572430 | +0.44384760 | |
| $P$ | 4.47 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 10 25 | 704 | 1.1− | 1.2+ | 2007 02 27 | 691 | 0.0 | 0.1− | 2009 09 30 | G96 | 0.3+ | 0.2− | | |
| 2000 10 25 | 704 | 1.0− | 0.6+ | 2007 02 27 | 691 | 0.3− | 0.2+ | 2009 09 30 | G96 | 0.4+ | 0.2− | | |
| 2000 10 25 | 704 | 0.5+ | 0.6+ | 2007 03 13 | G96 | 0.2+ | 0.2+ | 2009 10 15 | 704 | 1.0+ | 1.0+ | | |
| 2002 01 13 | 691 | 0.2− | 0.1+ | 2007 03 13 | G96 | 0.6+ | 0.1+ | 2009 10 15 | 704 | 0.1+ | 0.5+ | | |
| 2002 01 13 | 691 | 0.1+ | 0.1+ | 2007 03 13 | G96 | 0.3+ | 0.1+ | 2009 10 15 | 704 | 0.2− | 0.7+ | | |
| 2002 01 13 | 691 | 0.2− | 0.2+ | 2007 03 13 | G96 | 0.0 | 0.2+ | 2009 10 15 | 704 | 1.3+ | 0.3+ | | |
| 2002 01 14 | 704 | 0.4+ | 0.3+ | 2007 04 20 | G96 | 0.2− | 0.3− | 2009 10 15 | 704 | 0.6+ | 0.3+ | | |
| 2002 01 14 | 704 | 1.0+ | 0.0 | 2007 04 20 | G96 | 0.1+ | 0.3+ | 2009 10 16 | 703 | 0.0 | 0.7− | | |
| 2002 01 14 | 704 | 0.7+ | 0.1− | 2007 04 20 | G96 | 0.3− | 0.6− | 2009 10 16 | 703 | 0.4− | 0.3+ | | |
| 2002 01 14 | 704 | 0.9+ | 0.4+ | 2007 04 20 | G96 | 0.0 | 0.1− | 2009 10 16 | 703 | 0.8+ | 0.1+ | | |
| 2005 11 28 | 691 | 0.1+ | 0.3− | 2009 09 18 | 691 | 0.0 | 0.1− | 2009 10 16 | 703 | 0.4+ | 0.3− | | |
| 2005 11 28 | 691 | 0.0 | 0.0 | 2009 09 18 | 691 | 0.2− | 0.1− | 2009 10 24 | 703 | 0.1− | 0.2+ | | |
| 2005 11 28 | 691 | 0.0 | 0.0 | 2009 09 18 | 691 | 0.2+ | 0.0 | 2009 10 24 | 703 | 0.1+ | 0.0 | | |
| 2006 02 03 | G96 | 0.3− | 0.4− | 2009 09 22 | 691 | 0.1− | 0.1− | 2009 10 24 | 703 | 0.2+ | 0.2− | | |
| 2006 02 03 | G96 | 0.4− | 0.7− | 2009 09 22 | 691 | 0.0 | 0.1+ | 2009 10 24 | 703 | 0.3− | 0.5− | | |
| 2006 02 03 | G96 | 0.3− | 0.4− | 2009 09 22 | 691 | 0.4− | 0.4− | 2009 12 18 | G96 | 0.4+ | 0.2+ | | |
| 2006 02 03 | G96 | 0.7− | 0.0 | 2009 09 26 | 691 | 0.3− | 0.0 | 2009 12 18 | G96 | 0.2+ | 0.5− | | |
| 2007 02 23 | 691 | 0.2− | 0.1+ | 2009 09 26 | 691 | 0.2− | 0.1+ | 2009 12 18 | G96 | 0.1− | 0.5− | | |
| 2007 02 23 | 691 | 0.2− | 0.2− | 2009 09 26 | 691 | 0.0 | 0.1+ | 2009 12 18 | G96 | 0.1+ | 0.1− | | |
| 2007 02 23 | 691 | 0.3+ | 0.2− | 2009 09 30 | G96 | 0.3+ | 0.1− | | | | | | |
| 2007 02 27 | 691 | 0.0 | 0.0 | 2009 09 30 | G96 | 0.3− | 0.2− | | | | | | |

**(229695)∗ 2007 DH$_{105}$**

Discovered 2007 Feb. 26 by the Mt. Lemmon Survey at Mount Lemmon.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 178.19179 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21868584 | $\omega$ | 207.26515 | | −0.26603053 | +0.96133220 | |
| $a$ | 2.7284894 | $\Omega$ | 47.40059 | | −0.86586201 | −0.20584413 | |
| $e$ | 0.0659063 | $i$ | 5.54993 | | −0.42368708 | −0.18294422 | |
| $P$ | 4.51 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 05 01 | 704 | 0.5− | 0.9− | 2007 03 11 | G96 | 0.1− | 0.1+ | 2008 08 23 | E12 | 0.1− | 1.3+ | | |
| 1998 05 01 | 704 | 1.4+ | 0.6+ | 2007 03 26 | G96 | 0.1− | 0.2− | 2008 08 23 | E12 | 1.0− | 0.0 | | |
| 1998 05 01 | 704 | 1.0+ | 0.4+ | 2007 03 26 | G96 | 0.3+ | 0.0 | 2008 08 23 | E12 | 1.0− | 1.0+ | | |
| 1998 05 01 | 704 | (4.9− | 1.9−) | 2007 03 26 | G96 | 0.1+ | 0.1+ | 2008 08 23 | E12 | 0.2− | 0.1+ | | |
| 1998 05 20 | 691 | 0.3− | 0.3+ | 2007 03 26 | G96 | 0.0 | 0.0 | 2008 08 23 | E12 | 0.2+ | 1.2+ | | |
| 1998 05 20 | 691 | 0.0 | 0.3+ | 2007 04 16 | 703 | 0.4− | 0.0 | 2008 08 23 | E12 | 0.5+ | 1.2+ | | |
| 1998 05 20 | 691 | 0.2+ | 0.5+ | 2007 04 16 | 703 | 1.2− | 0.5− | 2009 11 09 | G96 | 0.8+ | 0.3+ | | |
| 2002 02 22 | 644 | 0.3+ | 1.0+ | 2007 04 16 | 703 | 0.9− | 0.4− | 2009 11 09 | G96 | 0.5+ | 0.1+ | | |
| 2002 02 22 | 644 | 0.7+ | 0.8+ | 2007 04 16 | 703 | 0.5− | 0.3− | 2009 11 09 | G96 | 0.6+ | 0.3+ | | |
| 2002 02 22 | 644 | 0.7+ | 0.9+ | 2007 04 16 | 704 | 1.1+ | 0.6− | 2009 11 09 | G96 | 0.7+ | 0.1+ | | |
| 2004 10 23 | 291 | 0.1− | 0.5+ | 2007 04 16 | 704 | 0.8+ | 0.3− | 2009 11 17 | 691 | 0.4− | 0.1+ | | |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 23 | 291 | 0.6− | 0.3− | 2007 04 16 | 704 | 0.1+ | 1.1+ | 2009 11 17 | 691 | 0.4− | 0.2+ |
| 2004 10 23 | 291 | 0.7+ | 0.2− | 2007 04 16 | 704 | 0.7+ | 1.3+ | 2009 11 17 | 691 | 0.4− | 0.2+ |
| 2007 02 26 | G96 | 0.4+ | 0.0 | 2007 04 23 | 703 | 0.1+ | 0.3− | 2009 11 25 | 691 | 0.1− | 0.2+ |
| 2007 02 26 | G96 | 0.1− | 0.1+ | 2007 04 23 | 703 | (1.6− | 0.4−) | 2009 11 25 | 691 | 0.1− | 0.2+ |
| 2007 02 26 | G96 | 0.1− | 0.3− | 2007 05 07 | 691 | 0.1+ | 0.0 | 2009 11 25 | 691 | 0.1− | 0.3+ |
| 2007 02 26 | G96 | 0.1− | 0.1+ | 2007 05 07 | 691 | 0.1− | 0.2+ | 2009 12 16 | G96 | 0.3+ | 0.2+ |
| 2007 03 11 | G96 | 0.1+ | 0.4− | 2007 05 07 | 691 | 0.0 | 0.1+ | 2009 12 16 | G96 | 0.3+ | 0.1− |
| 2007 03 11 | G96 | 0.4+ | 0.1− | 2008 08 23 | E12 | 0.2− | 0.3− | 2009 12 16 | G96 | 0.6+ | 0.1+ |
| 2007 03 11 | G96 | 0.4− | 0.0 | 2008 08 23 | E12 | 0.1− | 0.4+ | 2009 12 16 | G96 | 0.5+ | 0.1− |

**(229696)∗ 2007 DT$_{106}$ = 2002 YF$_{17}$**

Discovered 2007 Feb. 22 by the Catalina Sky Survey.

Id. A. Doppler (*MPO* 124149)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 287.05255 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28491547 | $\omega$ | 100.01859 | | −0.98289264 | −0.14810461 | |
| $a$ | 2.2873118 | $\Omega$ | 71.52821 | | +0.08774146 | −0.89918874 | |
| $e$ | 0.0318125 | $i$ | 6.62858 | | +0.16193671 | −0.41173370 | |
| $P$ | 3.46 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 03 04 | 704 | 0.0 | 0.9+ | 2005 09 09 | 705 | 0.1− | 0.1+ | 2007 02 22 | 703 | 0.1− | 0.6− |
| 2000 03 04 | 704 | 0.5+ | 0.3+ | 2005 09 09 | 705 | 0.2− | 0.1+ | 2007 02 22 | 703 | 0.2− | 1.3+ |
| 2000 03 04 | 704 | 0.7+ | 0.7+ | 2005 09 13 | 705 | 0.1− | 0.2+ | 2007 03 08 | 644 | 0.4+ | 0.4+ |
| 2000 03 04 | 704 | 0.3− | 0.5− | 2005 09 13 | 705 | 0.1− | 0.2+ | 2007 03 08 | 644 | 0.1− | 0.3− |
| 2001 07 20 | 644 | 0.6− | 0.1− | 2005 09 14 | 705 | 0.1+ | 0.2+ | 2007 03 08 | 644 | 0.1− | 0.1− |
| 2001 07 20 | 644 | 0.6− | 0.3+ | 2005 09 14 | 705 | 0.0 | 0.2+ | 2007 03 16 | 703 | 1.3− | 0.6− |
| 2001 07 20 | 644 | 0.8− | 0.2+ | 2005 09 22 | 705 | 0.1+ | 0.3+ | 2007 03 16 | 703 | 0.6+ | 0.0 |
| 2002 12 31 | 704 | 0.5+ | 0.7+ | 2005 09 22 | 705 | 0.1− | 0.2+ | 2007 03 16 | 703 | 0.5− | 0.5+ |
| 2002 12 31 | 704 | 0.6− | 0.4− | 2005 09 24 | 705 | 0.1− | 0.3+ | 2007 03 16 | 703 | 1.1− | 0.4+ |
| 2002 12 31 | 704 | 0.5+ | 0.5+ | 2005 09 24 | 705 | 0.0 | 0.3+ | 2009 12 10 | 704 | 0.2+ | 0.5+ |
| 2003 01 04 | 704 | 0.3− | 0.9+ | 2005 10 03 | 703 | 0.0 | 1.4+ | 2009 12 10 | 704 | 1.2+ | 0.6− |
| 2003 01 04 | 704 | 0.5− | 0.1+ | 2005 10 03 | 703 | 1.0− | 0.2− | 2009 12 10 | 704 | 1.0+ | 0.2+ |
| 2003 01 04 | 704 | 0.7+ | 0.3+ | 2005 10 03 | 703 | 0.4− | 0.9− | 2009 12 10 | 704 | 0.7+ | 0.6+ |
| 2004 06 17 | 691 | 0.4+ | 0.7+ | 2005 10 03 | 703 | 0.1+ | 1.4+ | 2009 12 18 | 691 | 0.2− | 0.1+ |
| 2004 06 17 | 691 | 0.2+ | 0.4+ | 2007 02 22 | 703 | 0.8− | 0.0 | 2009 12 18 | 691 | 0.2− | 0.2+ |
| 2004 06 17 | 691 | 0.6+ | 0.1− | 2007 02 22 | 703 | 1.1+ | 0.6+ | 2009 12 18 | 691 | 0.2− | 0.1− |

**(229697)∗ 2007 EZ$_{12}$ = 2005 QO$_{136}$**

Discovered 2007 Mar. 9 by NEAT at Palomar.

Id. A. Doppler (*MPO* 119377)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 313.73612 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27910632 | $\omega$ | 78.36846 | | −0.64293315 | −0.76506432 | |
| $a$ | 2.3189405 | $\Omega$ | 51.70381 | | +0.68350133 | −0.59445796 | |
| $e$ | 0.0951506 | $i$ | 2.64687 | | +0.34563405 | −0.24758095 | |
| $P$ | 3.53 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 09 25 | 645 | 0.1+ | 0.2− | 2007 03 08 | 644 | 0.0 | 0.1+ | 2009 09 19 | G96 | 0.1+ | 0.1− |
| 1998 09 25 | 645 | 0.1+ | 0.2− | 2007 03 09 | 703 | 1.4− | 1.0+ | 2009 09 19 | G96 | 0.4+ | 0.0 |
| 2002 12 05 | 608 | 0.6+ | 1.1+ | 2007 03 09 | 703 | 1.2− | 0.9+ | 2009 10 21 | G96 | 0.3+ | 0.2+ |
| 2002 12 05 | 608 | (0.9+ | 1.7+) | 2007 03 09 | 703 | 0.1− | 0.4+ | 2009 10 21 | G96 | 0.3+ | 0.0 |
| 2002 12 05 | 608 | (1.2+ | 1.7+) | 2007 03 09 | 703 | 0.5+ | 1.0+ | 2009 10 21 | G96 | 0.3+ | 0.1− |
| 2005 08 28 | 691 | 0.2− | 0.3+ | 2007 03 09 | 644 | 0.2+ | 0.5+ | 2009 10 21 | G96 | 0.3+ | 0.2+ |
| 2005 08 28 | 691 | 0.2− | 0.4+ | 2007 03 09 | 644 | 0.1− | 0.1+ | 2009 11 08 | 691 | 0.0 | 0.0 |
| 2005 08 28 | 691 | 0.3− | 0.5+ | 2007 03 09 | 644 | 0.0 | 0.2+ | 2009 11 08 | 691 | 0.1− | 0.0 |
| 2005 09 01 | 691 | 0.2− | 0.7+ | 2007 03 10 | 644 | 0.2+ | 0.3+ | 2009 11 08 | 691 | 0.3− | 0.1− |
| 2005 09 01 | 691 | 0.1− | 0.2− | 2007 03 10 | 644 | 0.0 | 0.2+ | 2009 11 16 | 691 | 0.2− | 0.0 |
| 2005 09 01 | 691 | 0.1− | 0.8+ | 2007 03 10 | 644 | 0.1− | 0.3+ | 2009 11 16 | 691 | 0.0 | 0.5+ |
| 2005 10 06 | G96 | 0.4+ | 0.2+ | 2007 03 13 | 699 | 0.2+ | 0.5+ | 2009 11 16 | 691 | 0.1+ | 0.1− |
| 2005 10 06 | G96 | 0.1+ | 0.2+ | 2007 03 13 | 699 | 1.2+ | 0.2+ | 2009 11 20 | 691 | 0.0 | 0.1+ |
| 2005 10 06 | G96 | 0.2+ | 0.3+ | 2007 03 13 | 699 | 0.5− | 1.0+ | 2009 11 20 | 691 | 0.0 | 0.0 |
| 2005 10 06 | G96 | 0.1− | 0.0 | 2007 03 13 | 699 | 1.0+ | 0.4− | 2009 11 20 | 691 | 0.1− | 0.0 |
| 2005 10 29 | G96 | 0.5+ | 0.2− | 2007 03 16 | 703 | (2.0− | 0.0 ) | 2009 11 24 | 691 | 0.1+ | 0.3− |
| 2005 10 29 | G96 | 0.0 | 0.1− | 2007 03 16 | 703 | 1.4− | 1.1− | 2009 11 24 | 691 | 0.2− | 0.0 |
| 2005 10 29 | G96 | 0.5− | 0.6− | 2007 03 16 | 703 | (1.6− | 1.6−) | 2009 11 24 | 691 | 0.1− | 0.1+ |
| 2005 10 29 | G96 | 0.0 | 0.0 | 2007 03 16 | 703 | 1.3+ | 0.9− | 2009 12 11 | G96 | 0.3+ | 0.2− |
| 2006 11 25 | G96 | 0.2+ | 0.0 | 2007 03 16 | 704 | 0.0 | 0.5+ | 2009 12 11 | G96 | 0.2− | 0.2− |
| 2006 11 25 | G96 | 0.3+ | 0.6− | 2007 03 16 | 704 | 0.7+ | 0.0 | 2009 12 11 | G96 | 0.6+ | 0.3− |
| 2006 11 25 | G96 | 1.2− | 0.4− | 2007 03 16 | 704 | 0.3+ | 0.0 | 2009 12 11 | 703 | 1.3+ | 0.0 |
| 2006 11 25 | G96 | 0.0 | 0.5− | 2007 03 16 | 704 | 0.8− | 0.8+ | 2009 12 11 | 703 | 0.2+ | 0.6+ |
| 2007 02 22 | 699 | 0.3+ | 0.1− | 2007 04 23 | G96 | 0.0 | 0.2− | 2009 12 11 | 703 | 0.8− | 0.6+ |
| 2007 02 22 | 699 | 0.1+ | 1.1− | 2007 04 23 | G96 | 0.1− | 0.2− | 2009 12 11 | 703 | 1.7− | 1.2− |
| 2007 02 22 | 699 | 0.7+ | 0.1+ | 2007 04 23 | G96 | 0.2− | 0.4+ | 2009 12 18 | G96 | 0.0 | 0.1+ |
| 2007 02 22 | 699 | 0.1+ | 1.2− | 2007 04 23 | G96 | 0.2− | 0.5− | 2009 12 18 | G96 | 0.0 | 0.1− |
| 2007 03 08 | 644 | 0.3+ | 0.3+ | 2009 09 19 | G96 | 0.1+ | 0.1− | 2009 12 18 | G96 | 0.6+ | 0.0 |
| 2007 03 08 | 644 | 0.0 | 0.0 | 2009 09 19 | G96 | 0.3+ | 0.2+ | 2009 12 18 | G96 | 0.1+ | 0.0 |

**(229698)∗ 2007 EL$_{16}$**

Discovered 2007 Mar. 9 by the Catalina Sky Survey.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 297.86888 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28234734 | $\omega$ | 26.06295 | | −0.95044728 | −0.30064170 | |
| $a$ | 2.3011605 | $\Omega$ | 136.19572 | | +0.26149969 | −0.91080554 | |
| $e$ | 0.1079078 | $i$ | 6.56581 | | +0.16813057 | −0.28292727 | |
| $P$ | 3.49 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 03 06 | 608 | 0.4− | 1.0− | 2007 03 08 | 644 | 0.2+ | 0.0 | 2007 04 04 | 644 | 0.1+ | 0.2− |
| 2000 03 06 | 608 | 0.1− | 1.2− | 2007 03 08 | 644 | 0.1+ | 0.1+ | 2007 04 04 | 644 | 0.2− | 0.1+ |
| 2000 03 06 | 608 | 0.1− | 0.8− | 2007 03 08 | 644 | 0.1+ | 0.3− | 2007 04 04 | 644 | 0.4+ | 0.2+ |
| 2003 01 02 | 704 | 0.8− | 0.7+ | 2007 03 08 | 644 | 0.0 | 0.1+ | 2008 08 11 | J75 | 0.1− | 0.8− |
| 2003 01 02 | 704 | (1.6+ | 0.4−) | 2007 03 08 | 644 | 0.2+ | 0.1+ | 2008 08 11 | J75 | 0.4+ | 0.5+ |
| 2003 01 02 | 704 | 0.8− | 0.4− | 2007 03 08 | 644 | 0.1− | 0.3− | 2008 08 11 | J75 | 0.3+ | 0.6+ |
| 2003 01 02 | 704 | 1.1+ | 0.3− | 2007 03 09 | 703 | 0.8− | 0.3− | 2008 09 23 | G96 | 0.3+ | 0.0 |
| 2004 06 17 | 644 | 0.0 | 0.8+ | 2007 03 09 | 703 | 0.5− | 0.7+ | 2008 09 23 | G96 | 0.1− | 0.3+ |
| 2004 06 17 | 644 | 0.1+ | 0.9+ | 2007 03 09 | 703 | 0.1− | 1.0− | 2008 09 23 | G96 | 0.3− | 0.7+ |
| 2004 06 17 | 644 | 0.2− | 0.9+ | 2007 03 09 | 703 | 0.8− | 0.1− | 2008 09 23 | G96 | 0.7− | 0.3+ |
| 2005 09 21 | 705 | 0.0 | 0.2+ | 2007 03 09 | 644 | 0.1− | 0.3+ | 2009 10 21 | 291 | 0.5− | 0.1+ |
| 2005 09 21 | 705 | 0.1+ | 0.2+ | 2007 03 09 | 644 | 0.2− | 0.2+ | 2009 10 21 | 291 | 0.3− | 0.1+ |
| 2005 09 26 | 705 | 0.1− | 0.3+ | 2007 03 09 | 644 | 0.1− | 0.1− | 2009 10 21 | 291 | 0.6− | 0.4+ |
| 2005 09 26 | 705 | 0.1− | 0.3+ | 2007 03 10 | 644 | 0.0 | 0.4+ | 2009 12 12 | 704 | 0.2+ | 0.3+ |
| 2006 11 20 | G96 | 0.2− | 0.3− | 2007 03 10 | 644 | 0.6+ | 0.5+ | 2009 12 12 | 704 | 0.5+ | 0.6+ |
| 2006 11 20 | G96 | 0.1− | 1.1− | 2007 03 10 | 644 | 0.1+ | 0.0 | 2009 12 12 | 704 | 0.7+ | 0.8+ |
| 2006 11 20 | G96 | 0.1− | 0.3− | 2007 03 11 | 699 | 1.0+ | 0.4+ | 2009 12 12 | 704 | 1.0+ | 0.3+ |
| 2006 11 20 | G96 | 0.1+ | 0.9− | 2007 03 11 | 699 | 0.3+ | 0.6− | 2009 12 12 | 704 | 2.5+ | 0.7+ |
| 2006 12 27 | G96 | 0.1− | 0.4− | 2007 03 11 | 699 | 0.2+ | 0.7+ | 2009 12 15 | 703 | 0.3+ | 1.2+ |
| 2006 12 27 | G96 | 0.0 | 0.7− | 2007 03 15 | 703 | 0.1+ | 0.2− | 2009 12 15 | 703 | 0.0 | 0.3+ |
| 2006 12 27 | G96 | 0.1+ | 0.7− | 2007 03 15 | G96 | 0.1− | 1.2+ | 2009 12 15 | 703 | 0.1+ | 0.1+ |
| 2006 12 27 | G96 | 0.4− | 0.4− | 2007 03 15 | 703 | 0.5+ | 0.4+ | 2009 12 15 | 703 | 0.3− | 0.2− |
| 2007 02 21 | 704 | 0.3+ | 0.3+ | 2007 03 15 | 703 | 0.3− | 0.3+ | 2009 12 17 | G96 | 0.3+ | 0.4− |
| 2007 02 21 | 704 | 0.4+ | 0.2− | 2007 03 15 | G96 | 0.3− | 1.3+ | 2009 12 17 | G96 | 0.1− | 0.3− |
| 2007 02 21 | 704 | (1.8+ | 0.2+) | 2007 03 15 | 703 | 0.9− | 0.8− | 2009 12 17 | G96 | 0.1+ | 0.3− |
| 2007 02 21 | 704 | 0.1+ | 0.1− | 2007 03 15 | G96 | 0.6− | 1.3+ | 2009 12 17 | G96 | 0.2+ | 0.4− |
| 2007 02 21 | 704 | 0.3+ | 0.1+ | 2007 03 16 | 704 | 0.4+ | 0.7+ | 2009 12 17 | G96 | 0.2− | 0.3− |
| 2007 02 26 | G96 | 0.2− | 0.3− | 2007 03 16 | 704 | 0.6+ | 0.9+ | 2009 12 18 | 704 | 1.0− | 0.7− |
| 2007 02 26 | G96 | 0.3− | 0.3− | 2007 03 16 | 704 | 0.4+ | 1.1+ | 2009 12 18 | 704 | 0.6− | 0.4+ |
| 2007 02 26 | G96 | 0.0 | 0.3− | 2007 03 16 | 704 | 0.4+ | 0.6+ | 2009 12 18 | 704 | 0.3− | 0.4+ |
| 2007 02 26 | G96 | 0.1+ | 0.3− | 2007 03 16 | 704 | 0.5+ | 0.7+ | 2009 12 18 | 704 | 0.3+ | 0.6+ |

**(229699)∗ 2007 EW$_{25}$**

Discovered 2007 Mar. 10 by NEAT at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 201.14089 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22531431 | $\omega$ | 187.47380 | | −0.67264537 | +0.73546979 | |
| $a$ | 2.6747110 | $\Omega$ | 40.30645 | | −0.67222445 | −0.56135273 | |
| $e$ | 0.2125390 | $i$ | 7.23254 | | −0.30929353 | −0.37943023 | |
| $P$ | 4.37 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 01 | 691 | 0.2+ | 0.1− | 2007 03 21 | 704 | 0.6+ | 0.3− | 2007 05 08 | 699 | 0.7− | 0.6+ |
| 2000 11 01 | 691 | 0.1− | 0.5− | 2007 03 21 | 704 | 0.6+ | 0.0 | 2007 05 09 | 703 | 1.3− | 0.7+ |
| 2000 11 01 | 691 | 0.3+ | 0.4− | 2007 03 21 | 704 | 0.1+ | 0.0 | 2007 05 09 | 703 | 0.0 | 0.1− |
| 2001 12 18 | 645 | 0.0 | 0.1− | 2007 03 21 | 704 | 0.3+ | 0.4+ | 2007 05 09 | 703 | (1.8− | 0.1−) |
| 2001 12 19 | 645 | 0.0 | 0.2− | 2007 04 08 | B00 | 1.1+ | 0.4+ | 2007 05 09 | 703 | 1.4− | 0.7− |
| 2001 12 19 | 645 | 0.1− | 0.2− | 2007 04 08 | B00 | 1.3+ | 0.0 | 2007 05 22 | G96 | 0.6− | 0.3− |
| 2007 02 24 | 704 | 1.2+ | 0.4+ | 2007 04 08 | B00 | 0.7+ | 0.2+ | 2007 05 22 | G96 | 0.5− | 0.3− |
| 2007 02 24 | 704 | 0.4+ | 0.1− | 2007 04 08 | B00 | 0.6− | 0.4− | 2007 05 22 | G96 | 0.3− | 0.1− |
| 2007 02 24 | 704 | 1.1+ | 0.5+ | 2007 04 11 | D29 | 0.2− | 0.2− | 2007 05 22 | G96 | 0.1− | 0.4− |
| 2007 02 24 | 704 | 0.7+ | 1.2− | 2007 04 11 | D29 | 0.2− | 0.4+ | 2009 10 14 | 291 | 0.4− | 0.2+ |
| 2007 02 24 | 704 | 1.4+ | 0.1+ | 2007 04 11 | D29 | 0.2+ | 0.0 | 2009 10 14 | 291 | 1.0− | 0.3+ |
| 2007 03 10 | 644 | 0.0 | 0.1− | 2007 04 11 | D29 | 0.3+ | 0.0 | 2009 10 14 | 291 | 0.9− | 0.5+ |
| 2007 03 10 | 644 | 0.1+ | 0.1− | 2007 04 16 | 703 | 1.5− | 0.0 | 2009 11 09 | 691 | 0.1− | 0.6+ |
| 2007 03 10 | 644 | 0.1− | 0.1− | 2007 04 16 | 703 | 0.7− | 0.1− | 2009 11 09 | 691 | 0.1− | 0.9+ |
| 2007 03 11 | 691 | 0.5− | 0.0 | 2007 04 16 | 703 | 0.5− | 0.1− | 2009 11 09 | 691 | 0.0 | 0.4+ |
| 2007 03 11 | 691 | 0.4− | 0.1− | 2007 04 16 | 703 | 0.9− | 0.1+ | 2009 11 23 | 703 | 0.7+ | 0.0 |
| 2007 03 11 | 691 | 0.6− | 0.5+ | 2007 04 17 | 699 | (1.0+ | 2.0+) | 2009 11 23 | 703 | 1.0− | 0.3− |
| 2007 03 15 | 691 | 0.1− | 0.1− | 2007 04 17 | 699 | 0.8+ | 0.4+ | 2009 11 23 | 703 | (1.6+ | 0.7−) |
| 2007 03 15 | 691 | 0.4− | 0.1− | 2007 04 17 | 699 | (0.2− | 1.8+) | 2009 11 23 | 703 | (0.6+ | 1.9+) |
| 2007 03 15 | 691 | 0.9+ | 0.4+ | 2007 04 17 | 704 | 0.4+ | 1.0+ | 2009 11 23 | 703 | 0.5+ | 0.7+ |
| 2007 03 15 | 704 | (2.3+ | 0.3+) | 2007 04 17 | 704 | 0.5+ | 0.4+ | 2009 11 24 | G96 | 0.9+ | 0.4+ |
| 2007 03 15 | 704 | (2.6+ | 0.2+) | 2007 04 17 | 704 | 0.2+ | 0.6+ | 2009 11 24 | G96 | 0.4+ | 0.1+ |
| 2007 03 15 | 704 | (2.4+ | 0.9+) | 2007 04 20 | 704 | 1.4+ | 1.5+ | 2009 11 24 | G96 | 1.0+ | 0.1+ |
| 2007 03 15 | 704 | (2.4+ | 0.2+) | 2007 04 20 | 704 | 0.0 | 0.2+ | 2009 11 24 | G96 | 0.5+ | 0.2+ |
| 2007 03 16 | 704 | 0.0 | 0.3− | 2007 04 20 | 704 | 0.9+ | 0.1+ | 2009 11 25 | 691 | 0.1− | 0.6+ |
| 2007 03 16 | 704 | 0.3+ | 0.0 | 2007 04 20 | 704 | 1.0+ | 0.9+ | 2009 11 25 | 691 | 0.1+ | 0.4+ |
| 2007 03 16 | 704 | 0.2+ | 0.5− | 2007 04 22 | 699 | 0.2− | 0.5− | 2009 11 25 | 691 | 0.3− | 0.3+ |
| 2007 03 16 | 704 | 0.8+ | 0.0 | 2007 04 22 | 699 | 0.9− | 0.0 | 2009 12 18 | G96 | 0.3− | 0.3+ |
| 2007 03 16 | 704 | 0.6+ | 0.3− | 2007 04 22 | 699 | 0.6+ | 0.4+ | 2009 12 18 | G96 | 0.7+ | 0.2− |
| 2007 03 17 | 699 | 0.4− | 0.2+ | 2007 04 22 | 699 | 0.5− | 1.1+ | 2009 12 18 | G96 | 0.5+ | 0.0 |
| 2007 03 17 | 699 | 0.2+ | 0.4+ | 2007 05 08 | 699 | 0.1+ | 0.0 | 2009 12 18 | G96 | 0.4+ | 0.5− |
| 2007 03 17 | 699 | 0.2− | 0.0 | 2007 05 08 | 699 | 1.0+ | 0.2− | | | | |
| 2007 03 17 | 699 | 0.1+ | 0.2− | 2007 05 08 | 699 | 0.1+ | 1.1+ | | | | |

**(229700)∗ 2007 EQ$_{29}$ = 2005 XR$_{115}$**

Discovered 2007 Mar. 9 by NEAT at Palomar.

Id. G. V. Williams (*MPO* 117799)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 237.81310 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28193363 | $\omega$ | 135.98400 | | −0.49583356 | +0.86733923 | |
| $a$ | 2.3034111 | $\Omega$ | 104.24697 | | −0.80858665 | −0.44292746 | |
| $e$ | 0.1791916 | $i$ | 2.55832 | | −0.31675969 | −0.22701965 | |
| $P$ | 3.50 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 11 16 | 691 | 0.2− | 0.1+ | 2007 03 09 | 644 | 0.3+ | 0.1+ | 2008 09 19 | 691 | 0.3− | 0.8− |
| 1998 11 16 | 691 | 0.9− | 0.1+ | 2007 03 09 | 703 | (2.5− | 0.1−) | 2008 09 22 | 704 | 0.2− | 0.7+ |
| 1998 11 16 | 691 | 0.8− | 0.1+ | 2007 03 09 | 703 | 0.3− | 0.8− | 2008 09 22 | 704 | 1.3− | 0.8+ |
| 2000 03 11 | 699 | 0.6+ | 0.3+ | 2007 03 09 | 703 | 1.0− | 0.7− | 2008 09 22 | 704 | 0.4− | 1.1+ |
| 2000 03 11 | 699 | 0.2+ | 0.5− | 2007 03 09 | 703 | 0.9+ | 0.1+ | 2008 09 22 | 704 | (0.6+ | 1.7+) |
| 2000 03 11 | 699 | 1.1+ | 0.4+ | 2007 03 09 | 644 | 0.3+ | 0.5+ | 2008 09 24 | G96 | 0.5+ | 0.1+ |
| 2000 03 11 | 699 | 0.7− | 1.6+ | 2007 03 09 | 644 | 0.1+ | 0.3+ | 2008 09 24 | G96 | 0.4+ | 0.2+ |
| 2005 10 22 | 691 | 0.4+ | 0.4+ | 2007 03 12 | G96 | 0.1− | 0.2− | 2008 09 24 | G96 | 0.3+ | 0.1+ |
| 2005 10 22 | 691 | 0.0 | 0.2+ | 2007 03 12 | G96 | 0.2+ | 0.1− | 2008 09 24 | G96 | 0.6+ | 0.3+ |
| 2005 10 22 | 691 | 0.7+ | 0.1+ | 2007 03 12 | G96 | 0.2+ | 0.1− | 2008 10 02 | G96 | 0.5+ | 0.1+ |
| 2005 11 04 | 691 | 0.3+ | 0.3+ | 2007 03 12 | G96 | 0.2− | 0.1− | 2008 10 02 | G96 | 0.5+ | 0.0 |
| 2005 11 04 | 691 | 0.2+ | 0.1+ | 2007 03 14 | 699 | 0.6− | 1.2− | 2008 10 02 | G96 | 0.3+ | 0.1+ |
| 2005 11 04 | 691 | 0.4+ | 0.2+ | 2007 03 14 | 699 | 0.7+ | 0.7+ | 2008 10 02 | G96 | 0.3+ | 0.3+ |
| 2005 12 01 | G96 | 0.1+ | 0.3− | 2007 03 14 | 699 | (1.0+ | 1.7+) | 2008 11 02 | G96 | 0.4+ | 0.4+ |
| 2005 12 01 | G96 | 0.1+ | 0.1+ | 2007 03 14 | 699 | 0.9+ | 0.7+ | 2008 11 02 | G96 | 0.4+ | 0.4+ |
| 2005 12 01 | G96 | 0.2+ | 0.4− | 2007 03 15 | 703 | 0.1− | 0.3+ | 2008 11 02 | G96 | 0.0 | 0.0 |
| 2005 12 01 | G96 | 0.2+ | 0.1− | 2007 03 15 | 703 | 0.4+ | 0.6− | 2008 11 02 | G96 | 0.5+ | 0.4+ |
| 2005 12 08 | 691 | 0.6+ | 0.3+ | 2007 03 15 | 703 | 0.2− | 0.0 | 2009 12 16 | G96 | 0.4+ | 0.4− |
| 2005 12 08 | 691 | 0.2+ | 0.2+ | 2007 03 15 | 703 | 0.7− | 0.9− | 2009 12 16 | G96 | 0.3+ | 0.7− |
| 2005 12 08 | 691 | 0.8+ | 0.5+ | 2007 03 16 | 704 | 0.6+ | 0.0 | 2009 12 16 | G96 | 0.2+ | 0.5− |
| 2007 02 07 | 691 | 0.0 | 0.3+ | 2007 03 16 | 704 | (0.1+ | 2.2+) | 2009 12 16 | G96 | 0.7+ | 0.9− |
| 2007 02 07 | 691 | 0.3− | 0.4+ | 2007 03 16 | 704 | 1.5+ | 0.1− | 2009 12 16 | G96 | 0.2+ | 0.8− |
| 2007 02 07 | 691 | 0.1+ | 0.3+ | 2007 03 16 | 704 | 1.3+ | 1.0+ | 2009 12 20 | 691 | 0.1− | 0.1− |
| 2007 02 22 | 699 | 1.3− | 0.4− | 2007 03 16 | 704 | 1.1+ | 1.1+ | 2009 12 20 | 691 | 0.3+ | 0.0 |
| 2007 02 22 | 699 | 1.2+ | 0.1− | 2007 04 07 | 703 | 1.0− | 0.5− | 2009 12 20 | 691 | 0.2− | 0.1+ |
| 2007 02 22 | 699 | (2.1+ | 1.2+) | 2007 04 07 | 703 | 0.9− | 0.3+ | 2009 12 25 | 691 | 2.2− | 0.3− |
| 2007 02 22 | 699 | (0.1− | 2.9+) | 2007 04 07 | 703 | (2.3− | 0.2+) | 2009 12 25 | 691 | 0.2+ | 0.3− |
| 2007 03 08 | 644 | 0.2+ | 0.1+ | 2007 04 07 | 703 | 1.2− | 0.4− | 2009 12 25 | 691 | 0.5− | 0.5− |
| 2007 03 08 | 644 | 0.3+ | 0.2+ | 2008 09 19 | 691 | 0.3− | 0.0 | | | | |
| 2007 03 08 | 644 | 0.3+ | 0.0 | 2008 09 19 | 691 | 0.9− | 0.7− | | | | |

**(229701)∗ 2007 EP$_{41}$ = 1999 TY$_{62}$**

Discovered 2007 Mar. 9 by the Mt. Lemmon Survey at Mount Lemmon.

Id. A. Doppler (*MPO* 119389)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 14.56018 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.29849570 | $\omega$ | 224.54989 | | +0.47680371 | −0.87898917 | |
| $a$ | 2.2173998 | $\Omega$ | 196.97610 | | +0.81212107 | +0.44313163 | |
| $e$ | 0.1618677 | $i$ | 1.18163 | | +0.33632958 | +0.17610336 | |
| $P$ | 3.30 | $H$ | 18.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 10 07 | 691 | 0.1+ | 0.2+ | 2007 01 10 | G96 | 0.0 | 0.2+ | 2007 03 09 | G96 | 0.6− | 0.3+ |
| 1999 10 07 | 691 | 0.2− | 0.2− | 2007 01 10 | G96 | 0.4− | 0.1− | 2007 03 09 | G96 | 0.3− | 0.3+ |
| 1999 10 07 | 691 | 0.3+ | 1.7+ | 2007 01 27 | G96 | 0.6+ | 0.0 | 2007 03 13 | G96 | 0.0 | 0.1+ |
| 1999 10 12 | 691 | 0.1− | 0.2− | 2007 01 27 | G96 | 0.3+ | 0.2− | 2007 03 13 | G96 | 0.1− | 0.3+ |
| 1999 10 12 | 691 | 0.2− | 0.2− | 2007 01 27 | G96 | 0.1− | 0.0 | 2007 03 13 | G96 | 0.3+ | 0.3+ |
| 1999 10 12 | 691 | 0.0 | 0.2− | 2007 01 27 | G96 | 0.3+ | 0.6+ | 2007 03 13 | G96 | 0.2+ | 0.6+ |
| 2002 08 15 | 291 | 0.4+ | 0.1+ | 2007 02 06 | G96 | 0.2+ | 0.1− | 2009 11 20 | 691 | 0.2− | 0.0 |
| 2002 08 15 | 291 | 0.1+ | 0.2− | 2007 02 06 | G96 | 0.3+ | 0.0 | 2009 11 20 | 691 | 1.0− | 0.1+ |
| 2002 08 15 | 291 | 0.2− | 0.7+ | 2007 02 06 | G96 | 0.2+ | 0.1+ | 2009 11 20 | 691 | 1.0+ | 0.7− |
| 2002 09 01 | 644 | 0.4− | 0.2− | 2007 02 06 | G96 | 0.1+ | 0.1+ | 2009 11 24 | J75 | 0.2+ | 0.7− |
| 2002 09 01 | 644 | 0.1− | 0.3+ | 2007 02 17 | G96 | 0.3− | 0.2+ | 2009 11 24 | J75 | 0.5+ | 0.5− |
| 2002 09 04 | 644 | 0.8− | 0.6− | 2007 02 17 | G96 | 0.1− | 0.4+ | 2009 11 24 | J75 | 0.6+ | 0.0 |
| 2002 09 04 | 644 | 0.3− | 0.0 | 2007 02 17 | G96 | 0.1+ | 0.5+ | 2009 12 11 | 703 | 1.2+ | 0.2+ |
| 2002 09 04 | 644 | 0.2− | 0.4− | 2007 02 17 | G96 | 0.2− | 0.3+ | 2009 12 11 | 703 | 0.6− | 0.1+ |
| 2007 01 10 | G96 | 0.1+ | 0.0 | 2007 03 09 | G96 | 0.0 | 0.2+ | 2009 12 11 | 703 | 0.8− | 0.7− |
| 2007 01 10 | G96 | 0.3+ | 0.0 | 2007 03 09 | G96 | 0.2+ | 0.7+ | 2009 12 11 | 703 | 0.4+ | 0.5− |

**(229702)∗ 2007 EO$_{48}$ = 2005 YW$_{202}$**

Discovered 2007 Mar. 9 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 117810)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 322.52952 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.20392681 | $\omega$ | 334.80852 | | +0.19494505 | −0.97928238 | |
| $a$ | 2.8585985 | $\Omega$ | 103.91148 | | +0.90916705 | +0.15946231 | |
| $e$ | 0.0338095 | $i$ | 3.23609 | | +0.36798329 | +0.12481102 | |
| $P$ | 4.83 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 03 10 | 691 | 0.5+ | 0.4+ | 2005 12 25 | G96 | 0.3− | 0.0 | 2007 04 23 | 691 | 0.1+ | 0.2− |
| 2002 03 10 | 691 | 0.3+ | 0.4+ | 2005 12 25 | G96 | 0.4− | 0.0 | 2007 04 25 | 691 | 0.1− | 0.1− |
| 2002 03 10 | 691 | 0.3+ | 0.6+ | 2005 12 25 | G96 | 0.0 | 0.1− | 2007 04 25 | 691 | 0.1+ | 0.1− |
| 2002 03 16 | 704 | (0.4− | 1.9+) | 2006 01 04 | G96 | 0.3− | 0.0 | 2007 04 25 | 691 | 0.0 | 0.0 |
| 2002 03 16 | 704 | (0.7− | 2.3+) | 2006 01 04 | G96 | 0.2− | 0.0 | 2007 05 16 | G96 | 0.0 | 0.4+ |
| 2002 03 16 | 704 | (0.6− | 1.6+) | 2006 01 04 | G96 | 0.2− | 0.1+ | 2007 05 16 | G96 | 0.2− | 0.2+ |
| 2002 04 12 | 644 | 0.4+ | 0.7+ | 2006 01 04 | G96 | 0.0 | 0.0 | 2007 05 16 | G96 | 0.7+ | 0.5+ |
| 2002 04 12 | 644 | 0.0 | 0.5+ | 2007 03 09 | 691 | 0.0 | 0.2− | 2007 05 16 | G96 | 0.1+ | 0.3+ |
| 2002 04 12 | 644 | 0.3+ | 0.6+ | 2007 03 09 | 691 | 0.4+ | 0.5− | 2009 10 14 | 703 | 0.2+ | 0.6+ |
| 2004 09 13 | 699 | 0.6− | 0.4+ | 2007 03 09 | 691 | 0.0 | 0.0 | 2009 10 14 | 703 | 0.2+ | 0.1+ |
| 2004 09 13 | 699 | 0.6− | 0.4− | 2007 03 13 | 691 | 0.1+ | 0.1− | 2009 10 14 | 703 | 0.7− | 0.2+ |
| 2004 09 13 | 699 | 0.3+ | 0.2+ | 2007 03 13 | 691 | 0.2− | 0.1− | 2009 10 14 | 703 | 0.6− | 0.1− |
| 2004 09 13 | 699 | 0.8− | 0.6+ | 2007 03 13 | 691 | 0.2− | 0.0 | 2009 10 17 | J75 | 0.5+ | 0.9+ |
| 2005 12 02 | G96 | 0.0 | 0.0 | 2007 03 17 | 691 | 0.1+ | 0.0 | 2009 10 17 | J75 | 0.3+ | 0.9+ |
| 2005 12 02 | G96 | 0.7+ | 0.1− | 2007 03 17 | 691 | 0.1− | 0.0 | 2009 10 17 | J75 | 0.8+ | 0.8+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 02 | G96 | 0.0 | 0.1+ | 2007 03 17 | 691 | 0.2+ | 0.1− | 2009 12 15 | G96 | 0.8+ | 0.2+ | | |
| 2005 12 02 | G96 | 0.3− | 0.0 | 2007 03 29 | 691 | 0.1+ | 0.2− | 2009 12 15 | G96 | 0.5− | 0.2+ | | |
| 2005 12 25 | 691 | 0.4− | 0.3− | 2007 03 29 | 691 | 0.7− | 0.0 | 2009 12 15 | G96 | 0.2− | 0.2− | | |
| 2005 12 25 | 691 | 0.6+ | 0.2− | 2007 03 29 | 691 | 0.3− | 0.0 | 2009 12 15 | G96 | 0.4− | 0.3− | | |
| 2005 12 25 | 691 | 0.1− | 0.2+ | 2007 04 23 | 691 | 0.0 | 0.1+ | | | | | | |
| 2005 12 25 | G96 | 0.1− | 0.1+ | 2007 04 23 | 691 | 0.2− | 0.1+ | | | | | | |

**(229703)∗ 2007 EP$_{69}$**

Discovered 2007 Mar. 10 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 266.93300 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26499998 | $\omega$ | 45.95612 | | −0.98992583 | +0.13724484 | |
| $a$ | 2.4005209 | $\Omega$ | 141.89285 | | −0.14058901 | −0.92367995 | |
| $e$ | 0.1175161 | $i$ | 3.23215 | | −0.01678015 | −0.35774182 | |
| $P$ | 3.72 | $H$ | 17.7 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 12 02 | 691 | 0.4− | 0.5+ | 2007 03 10 | G96 | 0.2+ | 0.0 | 2007 04 16 | 621 | 0.2− | 0.5− | | |
| 1994 12 02 | 691 | 0.4+ | 0.1− | 2007 03 10 | G96 | 0.2+ | 0.0 | 2007 04 16 | 621 | 0.0 | 0.3− | | |
| 1994 12 02 | 691 | 0.8− | 0.1− | 2007 03 10 | G96 | 0.1+ | 0.0 | 2008 07 29 | 691 | 0.5− | 0.2+ | | |
| 2001 10 25 | 645 | 0.1+ | 0.1+ | 2007 03 10 | G96 | 0.5+ | 0.3− | 2008 07 29 | 691 | 0.3− | 1.1+ | | |
| 2001 10 25 | 645 | 0.0 | 0.0 | 2007 03 14 | 691 | 0.1+ | 0.2− | 2008 07 29 | 691 | 0.3+ | 0.1+ | | |
| 2003 03 07 | 291 | 0.5+ | 0.2− | 2007 03 14 | 691 | 0.4− | 0.2+ | 2008 09 23 | G96 | 0.1− | 0.0 | | |
| 2003 03 07 | 291 | 0.1− | 0.8+ | 2007 03 14 | 691 | 0.1+ | 0.1+ | 2008 09 23 | G96 | 0.8− | 0.0 | | |
| 2003 03 07 | 291 | 0.5+ | 0.2+ | 2007 04 07 | 621 | 0.1− | 0.1− | 2008 09 23 | G96 | 0.2+ | 0.3− | | |
| 2005 10 25 | 691 | 0.5+ | 0.3+ | 2007 04 07 | 621 | 0.0 | 0.1− | 2008 09 23 | G96 | 0.4− | 0.1− | | |
| 2005 10 25 | 691 | 0.2− | 0.1+ | 2007 04 08 | 621 | 0.3+ | 0.1− | 2009 11 16 | G96 | 0.0 | 0.0 | | |
| 2005 10 25 | 691 | 0.2+ | 0.1− | 2007 04 11 | 691 | 0.1+ | 0.4+ | 2009 11 16 | G96 | 0.1− | 0.5− | | |
| 2005 11 05 | 691 | 0.0 | 0.1+ | 2007 04 11 | 691 | 0.2− | 0.2− | 2009 11 16 | G96 | 0.0 | 0.1− | | |
| 2005 11 05 | 691 | 0.1+ | 0.2− | 2007 04 11 | 691 | 0.1+ | 0.2+ | 2009 11 16 | G96 | 0.1− | 0.2− | | |
| 2005 11 05 | 691 | 0.4− | 0.0 | 2007 04 14 | 691 | 0.1− | 0.1+ | 2009 12 11 | G96 | 0.4− | 0.0 | | |
| 2007 03 10 | 691 | 0.1− | 0.2+ | 2007 04 14 | 691 | 0.3+ | 0.1− | 2009 12 11 | G96 | 0.0 | 0.3− | | |
| 2007 03 10 | 691 | 0.1+ | 0.0 | 2007 04 14 | 691 | 0.1+ | 0.0 | 2009 12 11 | G96 | 0.1− | 0.2− | | |
| 2007 03 10 | 691 | 0.2− | 0.3+ | 2007 04 16 | 621 | 0.2− | 0.3− | 2009 12 11 | G96 | 0.4− | 0.1− | | |

**(229704)∗ 2007 EJ$_{76}$ = 2009 WY$_{121}$**

Discovered 2007 Mar. 10 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 165551)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 290.08183 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26873536 | $\omega$ | 279.99328 | | −0.96365055 | −0.26644671 | |
| $a$ | 2.3782244 | $\Omega$ | 244.55597 | | +0.25283340 | −0.88580551 | |
| $e$ | 0.1620882 | $i$ | 1.24308 | | +0.08633011 | −0.37994045 | |
| $P$ | 3.67 | $H$ | 17.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 12 28 | 291 | 0.0 | 0.0 | 2005 11 26 | G96 | 0.6− | 0.6− | 2007 03 29 | D35 | 0.6+ | 0.4− | | |
| 2002 12 28 | 291 | 0.2− | 0.1− | 2005 11 26 | G96 | 0.1+ | 0.0 | 2007 03 29 | D35 | 0.9+ | 0.8+ | | |
| 2002 12 28 | 291 | 0.1− | 0.1+ | 2005 11 26 | G96 | 0.1− | 0.7− | 2009 11 20 | 691 | 0.1− | 0.1− | | |
| 2003 01 29 | 644 | 0.6+ | 0.0 | 2007 03 10 | 691 | 0.2+ | 0.2+ | 2009 11 20 | 691 | 0.2− | 0.1+ | | |
| 2003 01 29 | 644 | 0.2+ | 0.3+ | 2007 03 10 | 691 | 0.3+ | 0.1+ | 2009 11 20 | 691 | 0.0 | 0.0 | | |
| 2003 01 29 | 644 | 0.2+ | 0.2+ | 2007 03 10 | 691 | 0.2+ | 0.1+ | 2009 11 24 | 691 | 0.2− | 0.1− | | |
| 2005 10 11 | 691 | 0.1+ | 0.4+ | 2007 03 14 | 691 | 0.0 | 0.0 | 2009 11 24 | 691 | 0.4− | 0.2+ | | |
| 2005 10 11 | 691 | 0.2− | 0.1+ | 2007 03 14 | 691 | 0.2+ | 0.1+ | 2009 11 24 | 691 | 0.3+ | 0.2− | | |
| 2005 10 11 | 691 | 0.5+ | 0.1− | 2007 03 14 | 691 | 1.1− | 0.1− | 2009 12 16 | G96 | 1.0+ | 0.0 | | |
| 2005 10 22 | 691 | 0.2+ | 0.1+ | 2007 03 18 | 691 | 0.0 | 0.1+ | 2009 12 16 | G96 | 0.9+ | 0.1− | | |
| 2005 10 22 | 691 | 0.3− | 0.0 | 2007 03 18 | 691 | 0.2− | 0.0 | 2009 12 16 | G96 | 0.5+ | 0.3− | | |
| 2005 10 22 | 691 | 0.2− | 0.2+ | 2007 03 18 | 691 | 0.2− | 0.1− | 2009 12 16 | G96 | 0.4+ | 0.2− | | |
| 2005 11 26 | G96 | 0.3− | 0.0 | 2007 03 29 | D35 | 1.1+ | 0.4− | | | | | | |

**(229705)∗ 2007 EX$_{78}$ = 2005 TL$_{33}$**

Discovered 2007 Mar. 10 by NEAT at Palomar.

Id. A. Doppler (*MPO* 120559)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 309.44364 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27405601 | $\omega$ | 16.07374 | | −0.77406752 | −0.63172278 | |
| $a$ | 2.3473427 | $\Omega$ | 124.67345 | | +0.57512188 | −0.72923435 | |
| $e$ | 0.1239794 | $i$ | 2.91219 | | +0.26467773 | −0.26295169 | |
| $P$ | 3.60 | $H$ | 17.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 05 07 | 691 | 0.0 | 0.1+ | 2005 11 05 | 705 | 0.3+ | 0.1+ | 2007 03 14 | 691 | 0.3+ | 0.0 | | |
| 2000 05 07 | 691 | 0.0 | 0.0 | 2005 11 05 | 705 | 0.1+ | 0.2+ | 2007 04 15 | 691 | 0.2− | 0.2+ | | |
| 2000 05 07 | 691 | 0.2+ | 0.4+ | 2005 11 07 | 705 | 0.2+ | 0.1+ | 2007 04 15 | 691 | 0.1− | 0.2+ | | |
| 2005 10 01 | 691 | 0.1− | 0.4+ | 2005 11 07 | 705 | 0.3+ | 0.2+ | 2007 04 15 | 691 | 0.7− | 0.5+ | | |
| 2005 10 01 | 691 | 0.3− | 0.5+ | 2005 12 01 | G96 | 0.4+ | 0.2− | 2009 11 18 | 691 | 0.1+ | 0.0 | | |
| 2005 10 01 | 691 | 0.2+ | 0.4+ | 2005 12 01 | G96 | 0.0 | 0.3+ | 2009 11 18 | 691 | 0.1− | 0.1− | | |
| 2005 10 06 | 691 | 0.3− | 0.2+ | 2005 12 01 | G96 | 0.0 | 0.3− | 2009 11 18 | 691 | 0.5+ | 0.3+ | | |
| 2005 10 06 | 691 | 0.4− | 0.0 | 2005 12 01 | G96 | 0.4− | 0.1− | 2009 11 26 | 691 | 0.1+ | 0.0 | | |
| 2005 10 06 | 691 | 0.7− | 0.1+ | 2005 12 01 | 705 | 0.1+ | 0.1− | 2009 11 26 | 691 | 0.1+ | 0.3+ | | |
| 2005 10 11 | 705 | 0.6+ | 0.1+ | 2005 12 01 | 705 | 0.2+ | 0.1+ | 2009 11 26 | 691 | 0.8− | 0.4− | | |
| 2005 10 11 | 705 | 0.5+ | 0.1+ | 2007 03 10 | 644 | 0.1+ | 0.7− | 2009 12 17 | G96 | 0.2+ | 0.2− | | |
| 2005 11 01 | 705 | 0.3+ | 0.1+ | 2007 03 10 | 644 | 0.0 | 0.3+ | 2009 12 17 | G96 | 0.3+ | 0.3− | | |
| 2005 11 01 | 705 | 0.4+ | 0.1+ | 2007 03 10 | 644 | 0.3+ | 0.3+ | 2009 12 17 | G96 | 0.2+ | 0.0 | | |
| 2005 11 03 | 705 | 0.3+ | 0.1+ | 2007 03 14 | 691 | 0.4+ | 0.1+ | 2009 12 17 | G96 | 0.4+ | 0.1− | | |
| 2005 11 03 | 705 | 0.4+ | 0.0 | 2007 03 14 | 691 | 0.5+ | 0.1+ | | | | | | |

**(229706)∗ 2007 EV$_{85}$**

Discovered 2007 Mar. 12 by the Catalina Sky Survey.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 232.31971 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23863012 | $\omega$ | 158.17727 | | −0.89116915 | +0.43613192 | |
| $a$ | 2.5742608 | $\Omega$ | 48.30382 | | −0.43704477 | −0.75145337 | |
| $e$ | 0.1013568 | $i$ | 9.63134 | | −0.12169392 | −0.49508260 | |
| $P$ | 4.13 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 04 24 | 699 | 0.8− | 0.7− | 2007 03 14 | G96 | 0.4+ | 0.1− | 2007 04 25 | G96 | 0.1− | 0.4− | | |
| 2003 04 24 | 699 | 1.3+ | 0.3− | 2007 03 14 | G96 | 0.1− | 0.1− | 2007 05 16 | G96 | 0.5+ | 0.1− | | |
| 2003 04 24 | 699 | (1.8+ | 0.2+) | 2007 03 14 | G96 | 0.1+ | 0.4− | 2007 05 16 | G96 | 0.3+ | 0.3− | | |
| 2003 04 24 | 699 | 0.7− | 0.3+ | 2007 04 08 | D29 | 0.5− | 0.1− | 2007 05 16 | G96 | 0.0 | 0.1+ | | |
| 2003 05 03 | 691 | 0.0 | 0.2+ | 2007 04 08 | D29 | 0.1+ | 0.9− | 2007 05 16 | G96 | 0.3+ | 0.0 | | |
| 2003 05 03 | 691 | 0.5+ | 0.2+ | 2007 04 08 | D29 | 0.7+ | 0.3− | 2009 10 22 | G96 | 0.4+ | 0.3+ | | |
| 2003 05 03 | 691 | 0.1+ | 0.4+ | 2007 04 08 | D29 | 1.0+ | 0.4− | 2009 10 22 | G96 | 0.1+ | 0.1+ | | |
| 2003 06 05 | 691 | 0.5+ | 0.6+ | 2007 04 16 | 703 | 0.2+ | 0.4+ | 2009 10 22 | G96 | 0.6+ | 0.2− | | |
| 2003 06 05 | 691 | 0.3+ | 0.3+ | 2007 04 16 | 703 | 0.8− | 0.4− | 2009 10 22 | G96 | 0.4+ | 0.2+ | | |
| 2003 06 05 | 691 | 0.1+ | 0.9+ | 2007 04 16 | 703 | 1.2− | 1.2− | 2009 11 17 | 691 | 0.1− | 0.3+ | | |
| 2005 12 01 | 691 | 0.2− | 0.0 | 2007 04 16 | 703 | 0.0 | 0.4− | 2009 11 17 | 691 | 0.6− | 0.5+ | | |
| 2005 12 01 | 691 | 0.1− | 0.1+ | 2007 04 18 | 699 | 0.7− | 0.9+ | 2009 11 17 | 691 | 0.3− | 0.3+ | | |
| 2005 12 01 | 691 | 0.0 | 0.1+ | 2007 04 18 | 699 | (2.0+ | 0.1+) | 2009 12 18 | G96 | 0.6+ | 0.5+ | | |
| 2007 03 12 | 703 | 0.3− | 0.5+ | 2007 04 18 | 699 | (1.8+ | 0.9−) | 2009 12 18 | G96 | 0.0 | 0.4+ | | |
| 2007 03 12 | 703 | 0.2− | 0.9+ | 2007 04 18 | 699 | (2.4+ | 0.1−) | 2009 12 18 | G96 | 0.1+ | 0.4+ | | |
| 2007 03 12 | 703 | 1.0− | 0.6+ | 2007 04 25 | G96 | 0.2+ | 0.4− | 2009 12 18 | G96 | 0.1+ | 0.3+ | | |
| 2007 03 12 | 703 | 1.3− | 0.5− | 2007 04 25 | G96 | 0.1− | 0.1− | | | | | | |
| 2007 03 14 | G96 | 0.3+ | 0.2− | 2007 04 25 | G96 | 0.4− | 0.5− | | | | | | |

**(229707)∗ 2007 EE$_{117}$**

Discovered 2007 Mar. 13 by the Mt. Lemmon Survey at Mount Lemmon.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 42.73687 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21052682 | $\omega$ | 313.76029 | | +0.95553422 | −0.28015998 | |
| $a$ | 2.7985373 | $\Omega$ | 62.70670 | | +0.29144806 | +0.84980314 | |
| $e$ | 0.0665386 | $i$ | 5.94248 | | +0.04485966 | +0.44648069 | |
| $P$ | 4.68 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 11 27 | 691 | 0.3+ | 0.1+ | 2007 04 18 | 691 | 0.1+ | 0.3+ | 2009 11 11 | J75 | 0.4+ | 0.0 | | |
| 1995 11 27 | 691 | 0.2+ | 0.5− | 2007 05 10 | 691 | 0.1+ | 0.1− | 2009 11 11 | J75 | 0.4+ | 0.3− | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 11 27 | 691 | 0.3− | 0.3− | 2007 05 10 | 691 | 0.3− | 0.1− | 2009 11 14 | J75 | 0.3− | 0.1− | | |
| 1997 03 07 | 691 | 0.6− | 0.3+ | 2007 05 10 | 691 | 0.4+ | 0.0 | 2009 11 14 | J75 | 0.7+ | 0.2− | | |
| 1997 03 07 | 691 | 0.5+ | 0.9− | 2009 10 22 | G96 | 0.2− | 0.1+ | 2009 11 14 | J75 | 0.2+ | 0.6− | | |
| 1997 03 07 | 691 | 0.1− | 0.0 | 2009 10 22 | G96 | 0.4+ | 0.1− | 2009 11 23 | G96 | 0.1+ | 0.1+ | | |
| 2007 03 13 | G96 | 0.4+ | 0.6+ | 2009 10 22 | G96 | 0.1− | 0.2− | 2009 11 23 | G96 | 0.1+ | 0.1− | | |
| 2007 03 13 | G96 | 0.5+ | 0.1+ | 2009 10 22 | G96 | 0.5+ | 0.5+ | 2009 11 23 | G96 | 0.3+ | 0.1− | | |
| 2007 03 13 | G96 | 0.0 | 0.1+ | 2009 10 23 | 691 | 0.4− | 0.3+ | 2009 11 23 | G96 | 0.5+ | 0.1+ | | |
| 2007 03 13 | G96 | 0.0 | 0.1+ | 2009 10 23 | 691 | 0.5− | 0.3+ | 2009 12 11 | G96 | 0.5+ | 0.5+ | | |
| 2007 03 15 | 691 | 0.1+ | 0.4+ | 2009 10 23 | 691 | 0.0 | 0.3+ | 2009 12 11 | G96 | 0.2+ | 0.0 | | |
| 2007 03 15 | 691 | 0.1+ | 0.1+ | 2009 10 27 | 691 | 0.3− | 0.2+ | 2009 12 11 | G96 | 0.5+ | 0.0 | | |
| 2007 03 15 | 691 | 0.0 | 0.0 | 2009 10 27 | 691 | 0.5− | 0.2+ | 2009 12 11 | G96 | 0.3− | 0.3+ | | |
| 2007 04 14 | 691 | 0.1+ | 0.3+ | 2009 10 27 | 691 | 0.3− | 0.1+ | 2009 12 17 | A77 | 0.3+ | 0.2+ | | |
| 2007 04 14 | 691 | 0.4− | 0.4+ | 2009 11 11 | 691 | 0.1− | 0.0 | 2009 12 17 | A77 | 0.6+ | 0.2− | | |
| 2007 04 14 | 691 | 0.2+ | 0.4+ | 2009 11 11 | 691 | 0.2− | 0.3+ | 2009 12 17 | A77 | 1.4+ | 0.9+ | | |
| 2007 04 18 | 691 | 0.1+ | 0.1+ | 2009 11 11 | 691 | 0.3− | 0.3+ | | | | | | |
| 2007 04 18 | 691 | 0.0 | 0.2− | 2009 11 11 | J75 | 0.8+ | 0.2− | | | | | | |

**(229708)∗ 2007 ED$_{119}$ = 2005 YJ$_{171}$**

Discovered 2007 Mar. 13 by the Mt. Lemmon Survey at Mount Lemmon.

Id. G. V. Williams (*MPO* 117830)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 257.59683 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.23577529 | | $\omega$ | 152.53666 | | −0.99368026 | | −0.04648642 | |
| $a$ | 2.5949990 | | $\Omega$ | 25.42644 | | −0.02202046 | | −0.81179393 | |
| $e$ | 0.0884561 | | $i$ | 13.76626 | | +0.11006655 | | −0.58209074 | |
| $P$ | 4.18 | | $H$ | 15.9 | $G$ | 0.15 | $U$ | 1 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 05 | 645 | 0.1− | 0.1+ | 2007 03 17 | 704 | 0.7− | 0.9+ | 2007 04 16 | 704 | 0.1+ | 1.1+ | | |
| 2000 09 05 | 645 | 0.0 | 0.1+ | 2007 03 17 | 704 | 1.0− | 1.1− | 2007 04 16 | 704 | (0.4− | 1.6+) | | |
| 2000 09 27 | 645 | 0.1− | 0.0 | 2007 03 17 | 704 | (1.7+ | 0.1+) | 2007 04 16 | 704 | 0.9+ | 0.6+ | | |
| 2000 09 27 | 645 | 0.1− | 0.0 | 2007 03 26 | 691 | 0.2+ | 0.3+ | 2007 05 09 | 699 | 0.7+ | 0.3+ | | |
| 2001 12 23 | 704 | 0.4+ | 0.3− | 2007 03 26 | 691 | 0.1+ | 0.0 | 2007 05 09 | 699 | 0.6+ | 0.3+ | | |
| 2001 12 23 | 704 | 0.0 | 0.2+ | 2007 03 26 | 691 | 0.1− | 0.1+ | 2007 05 09 | 699 | 0.6+ | 1.2+ | | |
| 2001 12 23 | 704 | 0.2+ | 0.1− | 2007 03 30 | 644 | 0.3+ | 0.2+ | 2007 05 09 | 699 | 0.1+ | 0.7− | | |
| 2001 12 23 | 704 | 0.5+ | 0.1− | 2007 03 30 | 644 | 0.4+ | 0.2+ | 2009 11 10 | 703 | 0.1− | 0.6+ | | |
| 2001 12 23 | 704 | 0.2+ | 1.1+ | 2007 03 30 | 644 | 0.3+ | 0.5+ | 2009 11 10 | 703 | (1.9− | 0.8−) | | |
| 2005 12 21 | 703 | 0.2+ | 0.4+ | 2007 04 07 | 703 | 0.1− | 1.2− | 2009 11 10 | 703 | 0.5− | 0.2− | | |
| 2005 12 21 | 703 | 0.2− | 0.0 | 2007 04 07 | 703 | 0.7− | 0.5− | 2009 11 10 | 703 | 0.2+ | 0.0 | | |
| 2005 12 21 | 703 | 0.1− | 0.1− | 2007 04 07 | 703 | 0.1+ | 0.1− | 2009 11 11 | 704 | 0.8+ | 0.2+ | | |
| 2005 12 21 | 703 | 1.3− | 0.5+ | 2007 04 07 | 703 | 1.1− | 0.1− | 2009 11 11 | 704 | (0.2+ | 1.6+) | | |
| 2005 12 30 | 703 | 0.5− | 0.2+ | 2007 04 07 | G96 | 0.1− | 0.1+ | 2009 11 11 | 704 | 0.7+ | 1.0+ | | |
| 2005 12 30 | 703 | 0.7− | 0.3+ | 2007 04 07 | G96 | 0.0 | 0.1+ | 2009 11 20 | G96 | 0.1− | 0.3− | | |
| 2005 12 30 | 703 | (1.9− | 2.2+) | 2007 04 07 | G96 | 0.1+ | 0.0 | 2009 11 20 | G96 | 0.3− | 0.1− | | |
| 2005 12 30 | 703 | 1.0− | 0.6+ | 2007 04 07 | G96 | 0.1− | 0.0 | 2009 11 20 | G96 | 0.0 | 0.1− | | |
| 2007 03 13 | G96 | 0.2+ | 0.2− | 2007 04 08 | 691 | 0.1+ | 0.1− | 2009 11 20 | G96 | 0.4− | 0.2− | | |
| 2007 03 13 | G96 | 0.4+ | 0.0 | 2007 04 08 | 691 | 0.2+ | 0.1+ | 2009 11 26 | 703 | 0.2− | 0.7+ | | |
| 2007 03 13 | G96 | 0.1+ | 0.0 | 2007 04 08 | 691 | 0.1+ | 0.0 | 2009 11 26 | 703 | (1.8+ | 0.1+) | | |
| 2007 03 13 | G96 | 0.3− | 0.0 | 2007 04 14 | G96 | 0.4+ | 0.2− | 2009 11 26 | 703 | 1.1− | 0.6− | | |
| 2007 03 15 | 691 | 0.0 | 0.2+ | 2007 04 14 | G96 | 0.2+ | 0.1− | 2009 11 26 | 703 | 0.9+ | 0.1+ | | |
| 2007 03 15 | 691 | 0.1+ | 0.0 | 2007 04 14 | G96 | 0.2− | 0.3− | 2009 12 11 | F85 | 0.5+ | 0.5+ | | |
| 2007 03 15 | 691 | 0.0 | 0.1+ | 2007 04 14 | G96 | 0.0 | 0.0 | 2009 12 11 | F85 | 0.3+ | 0.4− | | |
| 2007 03 17 | 704 | (0.5− | 1.7+) | 2007 04 16 | 704 | 0.0 | 1.0+ | 2009 12 11 | F85 | 0.7+ | 0.0 | | |
| 2007 03 17 | 704 | 1.1+ | 0.6+ | 2007 04 16 | 704 | 0.6− | 1.0+ | | | | | | |

**(229709)∗ 2007 EZ$_{119}$ = 2005 XN$_{72}$**

Discovered 2007 Mar. 13 by the Mt. Lemmon Survey at Mount Lemmon.

Id. G. V. Williams (*MPO* 119423)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 303.20861 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.22490006 | | $\omega$ | 70.74599 | | −0.56595080 | | −0.81892350 | |
| $a$ | 2.6779944 | | $\Omega$ | 54.09156 | | +0.70538391 | | −0.54076128 | |
| $e$ | 0.0373006 | | $i$ | 6.75035 | | +0.42677070 | | −0.19220181 | |
| $P$ | 4.38 | | $H$ | 16.9 | $G$ | 0.15 | $U$ | 0 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 05 04 | 691 | 0.5− | 0.4+ | 2007 03 15 | 691 | 0.0 | 0.2− | 2009 10 27 | 691 | 0.7− | 0.0 | | |
| 1994 05 04 | 691 | 0.6− | 0.4+ | 2007 04 14 | 691 | 0.5− | 0.0 | 2009 10 27 | 691 | 0.0 | 0.1+ | | |
| 1994 05 04 | 691 | 1.1+ | 0.7− | 2007 04 14 | 691 | 0.1− | 0.1− | 2009 11 11 | G96 | 0.3− | 0.0 | | |
| 2005 12 06 | 691 | 0.1+ | 0.2+ | 2007 04 14 | 691 | 0.1+ | 0.4+ | 2009 11 11 | G96 | 0.3+ | 0.1− | | |
| 2005 12 06 | 691 | 0.0 | 0.0 | 2007 04 18 | 691 | 0.1+ | 0.2− | 2009 11 11 | G96 | 0.4+ | 0.2− | | |
| 2005 12 06 | 691 | 0.1+ | 0.0 | 2007 04 18 | 691 | 0.3− | 0.1− | 2009 11 11 | G96 | 0.4+ | 0.3− | | |
| 2005 12 10 | 691 | 0.1+ | 0.1+ | 2007 04 18 | 691 | 0.3+ | 0.2+ | 2009 11 23 | G96 | 0.4+ | 0.1+ | | |
| 2005 12 10 | 691 | 0.2− | 0.0 | 2007 05 10 | 691 | 0.0 | 0.0 | 2009 11 23 | G96 | 0.2+ | 0.2+ | | |
| 2005 12 10 | 691 | 0.1− | 0.1− | 2007 05 10 | 691 | 0.2+ | 0.1+ | 2009 11 23 | G96 | 0.5+ | 0.0 | | |
| 2007 03 13 | G96 | 0.1− | 0.3− | 2007 05 10 | 691 | 0.1+ | 0.0 | 2009 11 23 | G96 | 0.1− | 0.2− | | |
| 2007 03 13 | G96 | 0.2+ | 0.1− | 2009 10 18 | G96 | 0.0 | 0.5− | 2009 12 10 | G96 | 0.4+ | 0.1− | | |
| 2007 03 13 | G96 | 0.2− | 0.2− | 2009 10 18 | G96 | 0.0 | 0.1− | 2009 12 10 | G96 | 0.1+ | 0.2− | | |
| 2007 03 13 | G96 | 0.5− | 0.4+ | 2009 10 18 | G96 | 0.1+ | 0.1+ | 2009 12 10 | G96 | 0.4+ | 0.4− | | |
| 2007 03 15 | 691 | 0.2+ | 0.2− | 2009 10 18 | G96 | 0.2+ | 0.1+ | 2009 12 10 | G96 | 0.3+ | 0.4+ | | |
| 2007 03 15 | 691 | 0.0 | 0.0 | 2009 10 27 | 691 | 0.0 | 0.0 | | | | | | |

**(229710)∗ 2007 ET$_{120}$**

Discovered 2007 Mar. 14 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 311.32083 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.25780080 | | $\omega$ | 87.46449 | | −0.23348990 | | −0.97103725 | |
| $a$ | 2.4450057 | | $\Omega$ | 16.30979 | | +0.80492574 | | −0.22226590 | |
| $e$ | 0.2048290 | | $i$ | 10.39817 | | +0.54550621 | | −0.08766141 | |
| $P$ | 3.82 | | $H$ | 16.4 | $G$ | 0.15 | $U$ | 1 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 01 24 | 644 | 0.3− | 0.4− | 2007 02 22 | 703 | 0.7− | 1.2− | 2007 03 16 | 704 | 1.0+ | 0.0 | | |
| 2003 01 24 | 644 | 0.3− | 0.6− | 2007 02 22 | 703 | 0.7− | 0.9+ | 2007 03 16 | 704 | 0.4+ | 0.9+ | | |
| 2003 01 24 | 644 | 0.1− | 0.4− | 2007 02 22 | 703 | 1.2+ | 0.5+ | 2009 09 22 | A50 | 0.1− | 0.1+ | | |
| 2003 02 01 | 644 | 0.3− | 0.5+ | 2007 03 10 | D29 | 0.1+ | 0.3− | 2009 09 22 | A50 | 0.2+ | 0.0 | | |
| 2003 02 01 | 644 | 0.3− | 0.4+ | 2007 03 10 | D29 | 0.1− | 0.1− | 2009 09 22 | A50 | 0.3− | 0.3+ | | |
| 2003 02 01 | 644 | 0.3− | 0.6+ | 2007 03 10 | D29 | 0.3− | 0.5− | 2009 09 23 | G96 | 0.2+ | 0.0 | | |
| 2003 02 08 | 699 | (1.8+ | 1.4+) | 2007 03 10 | D29 | 0.3− | 0.6− | 2009 09 23 | G96 | 0.5+ | 0.1− | | |
| 2003 02 08 | 699 | 0.3+ | 0.6+ | 2007 03 14 | 699 | (1.8+ | 0.4−) | 2009 09 23 | G96 | 0.0 | 0.2+ | | |
| 2003 02 08 | 699 | (1.2+ | 1.7+) | 2007 03 14 | 699 | 0.4+ | 0.3− | 2009 09 23 | G96 | 0.2− | 0.3+ | | |
| 2003 02 08 | 699 | 1.4+ | 0.4+ | 2007 03 14 | 699 | 0.2+ | 0.6+ | 2009 10 18 | G96 | 0.1+ | 0.1+ | | |
| 2003 03 03 | 644 | 0.3+ | 0.2− | 2007 03 15 | 703 | 0.5− | 0.3− | 2009 10 18 | G96 | 0.1+ | 0.1+ | | |
| 2003 03 03 | 644 | 0.1+ | 0.1− | 2007 03 15 | G96 | 0.2− | 0.2− | 2009 10 18 | G96 | 0.2+ | 0.0 | | |
| 2003 03 03 | 644 | 0.0 | 0.3− | 2007 03 15 | 703 | (0.6+ | 1.7+) | 2009 10 18 | G96 | 0.2− | 0.1− | | |
| 2005 08 27 | 644 | 0.1− | 0.3+ | 2007 03 15 | G96 | 0.2+ | 0.1− | 2009 12 16 | G96 | 0.5+ | 0.8− | | |
| 2005 08 27 | 644 | 0.3− | 0.1+ | 2007 03 15 | 703 | 0.0 | 0.1− | 2009 12 16 | G96 | 0.3− | 0.2− | | |
| 2005 08 27 | 644 | 0.1− | 0.0 | 2007 03 15 | G96 | 0.3+ | 0.2− | 2009 12 16 | G96 | 0.1− | 0.4− | | |
| 2005 12 01 | 695 | 0.2− | 0.0 | 2007 03 15 | 703 | 1.0− | 0.3+ | 2009 12 16 | G96 | 0.0 | 0.0 | | |
| 2005 12 01 | 695 | 0.0 | 0.3+ | 2007 03 15 | G96 | 0.0 | 0.1− | | | | | | |
| 2007 02 22 | 703 | 0.6− | 0.1+ | 2007 03 16 | 704 | 0.3+ | 0.6+ | | | | | | |

**(229711)∗ 2007 EH$_{133}$**

Discovered 2007 Mar. 9 by the Mt. Lemmon Survey at Mount Lemmon.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 359.11352 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.27842784 | | $\omega$ | 285.71986 | | −0.00607371 | | −0.99987880 | |
| $a$ | 2.3227062 | | $\Omega$ | 164.60678 | | +0.93690254 | | −0.01070074 | |
| $e$ | 0.1263479 | | $i$ | 3.09568 | | +0.34953790 | | +0.01130800 | |
| $P$ | 3.54 | | $H$ | 17.2 | $G$ | 0.15 | $U$ | 1 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 09 19 | 691 | 0.4+ | 0.2− | 2007 03 09 | G96 | 0.7− | 0.1− | 2007 04 23 | G96 | 0.1− | 0.2+ | | |
| 1998 09 19 | 691 | 0.4− | 0.4− | 2007 03 09 | G96 | 0.0 | 0.2− | 2007 04 23 | G96 | 0.6− | 0.1− | | |
| 1998 09 30 | 691 | 0.4+ | 0.2− | 2007 03 09 | G96 | 0.2+ | 0.4− | 2009 11 21 | 703 | 0.8− | 0.1+ | | |
| 1998 09 30 | 691 | 0.5− | 0.5− | 2007 03 16 | G96 | 0.1− | 0.2− | 2009 11 21 | 703 | 0.6− | 0.5+ | | |
| 1998 09 30 | 691 | 0.4+ | 0.3+ | 2007 03 16 | G96 | 0.1− | 0.1− | 2009 11 21 | 703 | 0.2+ | 0.0 | | |
| 2005 09 03 | 705 | 0.1+ | 0.2+ | 2007 03 16 | G96 | 0.1− | 0.1− | 2009 11 21 | 703 | 0.3+ | 1.3+ | | |
| 2005 09 03 | 705 | 0.2+ | 0.2+ | 2007 03 17 | 704 | 0.5+ | 1.5+ | 2009 12 09 | J75 | 0.4+ | 0.2+ | | |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 09 | 705 | 0.2+ | 0.2+ | 2007 03 17 | 704 | 0.7+ | 0.1− | 2009 12 09 | J75 | 0.4− | 0.3+ |
| 2005 09 09 | 705 | 0.2+ | 0.2+ | 2007 03 17 | 704 | 0.4+ | 0.4+ | 2009 12 09 | J75 | 0.4+ | 0.1− |
| 2005 09 23 | 703 | 1.1− | 0.8+ | 2007 03 20 | 704 | (3.3+ | 0.5+) | 2009 12 12 | 704 | 0.8− | 0.2+ |
| 2005 09 23 | 703 | (2.4− | 0.2−) | 2007 03 20 | 704 | 0.8+ | 0.1− | 2009 12 12 | 704 | 0.4− | 0.5+ |
| 2005 09 23 | 703 | 0.5− | 0.1+ | 2007 03 20 | 704 | 0.5+ | 0.6− | 2009 12 12 | 704 | 1.2− | 0.5− |
| 2005 09 23 | 703 | 0.2+ | 0.8− | 2007 03 20 | 704 | 0.2+ | 0.4− | 2009 12 12 | 704 | 0.8+ | 0.3+ |
| 2005 09 29 | G96 | 0.0 | 0.1+ | 2007 03 26 | 691 | 0.1+ | 0.2+ | 2009 12 17 | 704 | 0.2+ | 0.1+ |
| 2005 09 29 | G96 | 0.0 | 0.2+ | 2007 03 26 | 691 | 0.2− | 0.2+ | 2009 12 17 | 704 | 0.9+ | 0.2+ |
| 2005 09 29 | G96 | 0.2+ | 0.1+ | 2007 03 26 | 691 | 0.4− | 0.2− | 2009 12 17 | 704 | 0.4+ | 0.3− |
| 2005 09 29 | G96 | 0.2− | 0.2+ | 2007 03 26 | G96 | 0.1+ | 0.3− | 2009 12 17 | 704 | 0.8+ | 0.0 |
| 2005 10 28 | G96 | 0.2− | 0.1+ | 2007 03 26 | G96 | 0.3− | 0.5− | 2009 12 17 | G96 | 0.0 | 0.2− |
| 2005 10 28 | G96 | 0.4+ | 0.2+ | 2007 03 26 | G96 | 0.4− | 0.4− | 2009 12 17 | 704 | 0.3+ | 1.1− |
| 2005 10 28 | G96 | 0.1− | 0.3+ | 2007 03 26 | G96 | 0.2− | 0.5− | 2009 12 17 | G96 | 0.3− | 0.2− |
| 2005 10 28 | G96 | 0.1− | 0.1+ | 2007 04 23 | G96 | 0.0 | 0.0 | 2009 12 17 | G96 | 0.1− | 0.3− |
| 2007 03 09 | G96 | 0.1− | 0.3− | 2007 04 23 | G96 | 0.2+ | 0.3− | 2009 12 17 | G96 | 0.3− | 0.2− |

**(229712)∗ 2007 EZ$_{133}$**

Discovered 2007 Mar. 9 by the Mt. Lemmon Survey at Mount Lemmon.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 320.20453 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.27557408 | $\omega$ | 121.90035 | | −0.64734097 | | −0.76217383 |
| $a$ | 2.3387141 | $\Omega$ | 8.44992 | | +0.68382084 | | −0.58445043 |
| $e$ | 0.1466555 | $i$ | 2.48906 | | +0.33665818 | | −0.27840392 |
| $P$ | 3.58 | $H$ | 17.9 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 12 06 | 695 | 0.1+ | 0.3− | 2007 03 09 | G96 | 0.1+ | 0.2+ | 2007 04 23 | G96 | 0.2− | 0.1+ |
| 2002 12 06 | 695 | 0.1− | 0.2− | 2007 03 09 | G96 | 0.4+ | 0.1− | 2007 04 23 | G96 | 0.2− | 0.4+ |
| 2005 09 30 | 691 | 0.1− | 0.0 | 2007 03 09 | G96 | 0.6+ | 0.0 | 2007 04 23 | G96 | 0.8− | 0.3− |
| 2005 09 30 | 691 | 0.3− | 0.5+ | 2007 03 09 | G96 | 0.2− | 0.1+ | 2007 04 23 | G96 | 0.3− | 0.1+ |
| 2005 09 30 | 691 | 0.0 | 0.8+ | 2007 03 16 | G96 | 0.2+ | 0.1+ | 2009 11 09 | G96 | 0.7+ | 0.1− |
| 2005 09 30 | G96 | 0.4− | 0.2− | 2007 03 16 | G96 | 0.1− | 0.1+ | 2009 11 09 | G96 | 0.7+ | 0.4− |
| 2005 09 30 | G96 | 0.1− | 0.0 | 2007 03 16 | G96 | 0.1+ | 0.1+ | 2009 11 09 | G96 | 0.3+ | 0.3+ |
| 2005 09 30 | G96 | 0.6− | 0.1− | 2007 03 16 | G96 | 0.2− | 0.3+ | 2009 11 09 | G96 | 1.0+ | 0.0 |
| 2005 09 30 | G96 | 0.2+ | 0.3− | 2007 03 26 | 691 | 0.1+ | 0.3+ | 2009 11 17 | 691 | 0.4− | 0.2+ |
| 2005 10 23 | 705 | 0.3+ | 0.2− | 2007 03 26 | 691 | 0.1+ | 0.4+ | 2009 11 17 | 691 | 0.6− | 0.2− |
| 2005 10 23 | 705 | 0.2+ | 0.2− | 2007 03 26 | 691 | 0.1+ | 0.3+ | 2009 11 17 | 691 | 0.4− | 0.2+ |
| 2005 10 27 | 705 | 0.1+ | 0.1− | 2007 03 26 | G96 | 0.3+ | 0.1− | 2009 11 25 | 691 | 0.1+ | 0.1− |
| 2005 10 27 | 705 | 0.1+ | 0.3− | 2007 03 26 | G96 | 0.4+ | 0.2− | 2009 11 25 | 691 | 0.0 | 0.1+ |
| 2005 10 28 | 705 | 0.1+ | 0.1− | 2007 03 26 | G96 | 0.0 | 0.0 | 2009 11 25 | 691 | 0.1+ | 0.0 |
| 2005 10 28 | 705 | 0.1+ | 0.0 | 2007 03 26 | G96 | 0.5+ | 0.1− | 2009 12 16 | G96 | 0.5+ | 0.1+ |
| 2005 10 31 | 705 | 0.1+ | 0.0 | 2007 04 07 | G96 | 0.1+ | 0.0 | 2009 12 16 | G96 | 0.1+ | 0.7− |
| 2005 10 31 | 705 | 0.1+ | 0.1− | 2007 04 07 | G96 | 0.2+ | 0.5+ | 2009 12 16 | G96 | 0.5+ | 0.5− |
| 2007 02 27 | 691 | 0.0 | 0.0 | 2007 04 07 | G96 | 0.1+ | 0.1− | 2009 12 16 | G96 | 0.4+ | 0.4− |
| 2007 02 27 | 691 | 0.1+ | 0.2+ | 2007 04 07 | G96 | 0.2+ | 0.2+ | 2009 12 19 | 291 | 0.1− | 0.1− |
| 2007 02 27 | 691 | 0.3− | 0.0 | 2007 04 15 | G96 | 0.4+ | 0.4− | 2009 12 19 | 291 | 0.0 | 0.0 |
| 2007 03 09 | 691 | 0.2− | 0.0 | 2007 04 15 | G96 | 0.2− | 0.0 | 2009 12 19 | 291 | 0.1+ | 0.3+ |
| 2007 03 09 | 691 | 0.0 | 0.3− | 2007 04 15 | G96 | 0.1+ | 0.2− | | | | |
| 2007 03 09 | 691 | 0.2+ | 0.0 | 2007 04 15 | G96 | 0.1− | 0.1− | | | | |

**(229713)∗ 2007 EJ$_{141}$ = 2005 SB$_{244}$**

Discovered 2007 Mar. 12 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 117839)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 4.06052 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.28015257 | $\omega$ | 108.83531 | | +0.12141262 | | −0.99220577 |
| $a$ | 2.3131634 | $\Omega$ | 334.14173 | | +0.88477024 | | +0.12098825 |
| $e$ | 0.1957948 | $i$ | 3.68716 | | +0.44993399 | | +0.02982550 |
| $P$ | 3.52 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1991 09 13 | 691 | 0.1− | 0.8+ | 2005 10 07 | 691 | 0.1+ | 0.0 | 2009 11 11 | 704 | 0.3+ | 0.2− |
| 1991 09 13 | 691 | 0.4− | 0.6+ | 2007 03 12 | 691 | 0.0 | 0.2+ | 2009 11 11 | 704 | 0.3+ | 0.0 |
| 1991 09 13 | 691 | 0.5− | 0.5+ | 2007 03 12 | 691 | 0.1+ | 0.3+ | 2009 11 11 | 704 | 0.3− | 0.7− |
| 2005 08 28 | 691 | 0.0 | 0.2+ | 2007 03 12 | 691 | 0.2+ | 0.3+ | 2009 11 23 | 704 | 0.2+ | 0.3+ |
| 2005 08 28 | 691 | 0.1− | 0.1− | 2007 03 16 | 691 | 0.2+ | 0.7+ | 2009 11 23 | 704 | 0.3− | 0.3+ |
| 2005 08 28 | 691 | 0.0 | 0.3+ | 2007 03 16 | 691 | 0.3+ | 0.5+ | 2009 11 23 | 704 | 0.1+ | 0.3+ |
| 2005 09 11 | 691 | 0.1− | 0.3+ | 2007 03 16 | 691 | 0.3+ | 0.4+ | 2009 11 23 | 704 | 0.0 | 0.9+ |
| 2005 09 11 | 691 | 0.4− | 0.0 | 2007 03 26 | G96 | 0.2+ | 0.3+ | 2009 12 15 | 704 | 0.6+ | 0.7+ |
| 2005 09 11 | 691 | 0.3− | 0.3+ | 2007 03 26 | G96 | 0.6+ | 0.5+ | 2009 12 15 | 704 | 0.3+ | 0.2+ |
| 2005 09 30 | G96 | 0.2+ | 0.1− | 2007 03 26 | G96 | 0.5+ | 0.5+ | 2009 12 15 | 704 | 0.4+ | 1.0+ |
| 2005 09 30 | G96 | 0.7+ | 0.1− | 2007 03 26 | G96 | 0.3+ | 0.6+ | 2009 12 15 | 704 | 0.7− | 0.6+ |
| 2005 09 30 | G96 | 0.6+ | 0.3− | 2007 04 22 | G96 | 0.3+ | 0.1+ | 2009 12 15 | 704 | 0.3− | 0.1+ |
| 2005 09 30 | G96 | 0.1− | 0.3− | 2007 04 22 | G96 | 0.1+ | 0.4+ | 2009 12 18 | G96 | 0.3− | 0.2− |
| 2005 10 07 | 691 | 0.2+ | 0.0 | 2007 04 22 | G96 | 0.7+ | 0.2+ | 2009 12 18 | G96 | 0.3− | 0.1− |
| 2005 10 07 | 691 | 0.2− | 0.4+ | 2007 04 22 | G96 | 0.1− | 0.5+ | 2009 12 18 | G96 | 0.2− | 0.1− |

**(229714)∗ 2007 EH$_{147}$ = 2004 RK$_{16}$**

Discovered 2007 Mar. 12 by the Mt. Lemmon Survey at Mount Lemmon.

Id. G. V. Williams (*MPO* 117842)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 167.15019 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.24164921 | $\omega$ | 237.75727 | | +0.03812142 | | +0.99805397 |
| $a$ | 2.5527745 | $\Omega$ | 34.53182 | | −0.88503592 | | +0.05665002 |
| $e$ | 0.1328303 | $i$ | 4.99397 | | −0.46395923 | | −0.02605846 |
| $P$ | 4.08 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 03 23 | 691 | 0.0 | 0.1− | 2004 10 04 | 644 | 0.3+ | 0.6+ | 2007 03 20 | 691 | 0.0 | 0.1+ |
| 2003 03 23 | 691 | 0.2− | 0.1− | 2007 02 26 | G96 | 0.5+ | 0.3− | 2007 03 20 | 691 | 0.1+ | 0.1+ |
| 2003 03 23 | 691 | 0.1+ | 0.4+ | 2007 02 26 | G96 | 0.1− | 0.6− | 2007 03 20 | 691 | 0.1− | 0.1+ |
| 2003 04 07 | 691 | 0.0 | 0.1− | 2007 02 26 | G96 | 0.0 | 0.6− | 2008 08 05 | E12 | 0.7− | 0.2− |
| 2003 04 07 | 691 | 0.1+ | 0.0 | 2007 02 26 | G96 | 0.1− | 0.1− | 2008 08 05 | E12 | 0.6− | 0.5+ |
| 2003 04 07 | 691 | 0.7+ | 0.7+ | 2007 03 12 | 691 | 0.1− | 0.0 | 2008 08 05 | E12 | 0.1+ | 0.4+ |
| 2003 04 26 | 691 | 0.2− | 0.4+ | 2007 03 12 | 691 | 0.1+ | 0.1− | 2008 08 05 | E12 | 0.1− | 0.8+ |
| 2003 04 26 | 691 | 0.0 | 0.3+ | 2007 03 12 | 691 | 0.1− | 0.1+ | 2008 08 23 | 704 | 0.7− | 0.2− |
| 2003 04 26 | 691 | 0.0 | 0.6+ | 2007 03 12 | G96 | 0.1− | 0.2+ | 2008 08 23 | 704 | 0.0 | 0.5+ |
| 2004 09 07 | 704 | 0.6− | 0.1+ | 2007 03 12 | G96 | 0.2+ | 0.2− | 2008 08 23 | 704 | 0.2− | 0.3+ |
| 2004 09 07 | 704 | 0.0 | 0.1+ | 2007 03 12 | G96 | 0.1− | 0.1+ | 2008 08 23 | 704 | (3.1+ | 2.5−) |
| 2004 09 07 | 704 | 0.1− | 0.3− | 2007 03 12 | G96 | 0.2+ | 0.2+ | 2009 11 27 | 691 | 0.2− | 0.3+ |
| 2004 09 07 | 704 | 0.5− | 0.5+ | 2007 03 16 | 691 | 0.1− | 0.1− | 2009 11 27 | 691 | 0.3− | 0.2+ |
| 2004 09 07 | 704 | 0.7− | 0.1+ | 2007 03 16 | 691 | 0.0 | 0.1− | 2009 11 27 | 691 | 0.1− | 0.6+ |
| 2004 09 08 | 704 | 0.5+ | 0.7+ | 2007 03 16 | 691 | 0.1+ | 0.1− | 2009 12 13 | G96 | 0.4+ | 0.3+ |
| 2004 09 08 | 704 | 0.2− | 1.5+ | 2007 03 17 | 699 | 1.2+ | 0.6+ | 2009 12 13 | G96 | 0.2+ | 0.0 |
| 2004 09 08 | 704 | 0.0 | 0.8+ | 2007 03 17 | 699 | 0.5− | 0.1+ | 2009 12 13 | G96 | 0.5+ | 0.2+ |
| 2004 10 04 | 644 | 0.1− | 0.5+ | 2007 03 17 | 699 | 0.0 | 0.4+ | 2009 12 13 | G96 | 0.2+ | 0.3+ |
| 2004 10 04 | 644 | 0.3+ | 0.8+ | 2007 03 17 | 699 | 1.0+ | 0.1+ | | | | |

**(229715)∗ 2007 EY$_{167}$**

Discovered 2007 Mar. 13 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 350.09867 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.28004535 | $\omega$ | 62.91106 | | −0.31748738 | | −0.94748955 |
| $a$ | 2.3137538 | $\Omega$ | 45.65514 | | +0.84995848 | | −0.30224073 |
| $e$ | 0.1672137 | $i$ | 3.06832 | | +0.42044304 | | −0.10447052 |
| $P$ | 3.52 | $H$ | 17.8 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1991 10 06 | 691 | 0.3− | 0.1− | 2005 10 29 | G96 | 0.1− | 0.1− | 2007 05 10 | G96 | 0.0 | 0.5− |
| 1991 10 06 | 691 | 0.2− | 0.0 | 2005 12 01 | G96 | 0.4− | 0.0 | 2009 11 16 | 691 | 0.1+ | 0.0 |
| 1991 10 06 | 691 | 0.2+ | 0.2+ | 2005 12 01 | G96 | 0.3− | 0.2+ | 2009 11 16 | 691 | 0.1− | 0.0 |
| 1998 09 25 | 645 | 0.1+ | 0.1− | 2005 12 01 | G96 | 0.3+ | 0.4+ | 2009 11 16 | 691 | 0.2+ | 0.1+ |
| 1998 09 25 | 645 | 0.1+ | 0.1− | 2005 12 01 | G96 | 0.2− | 0.5+ | 2009 11 16 | 691 | 0.4− | 0.1+ |
| 2000 04 29 | 691 | 0.1− | 0.3− | 2007 03 13 | 691 | 0.2+ | 0.2+ | 2009 11 16 | 691 | 0.0 | 0.1+ |
| 2000 04 29 | 691 | 0.0 | 0.2+ | 2007 03 13 | 691 | 0.1+ | 0.2+ | 2009 11 16 | 691 | 0.3− | 0.2− |
| 2000 04 29 | 691 | 0.3− | 0.0 | 2007 03 13 | 691 | 0.1− | 0.1+ | 2009 11 20 | 691 | 0.4− | 0.2+ |
| 2005 08 27 | 691 | 0.2− | 0.1+ | 2007 03 17 | 691 | 0.1− | 0.2− | 2009 11 20 | 691 | 0.1− | 0.1− |
| 2005 08 27 | 691 | 0.0 | 0.0 | 2007 03 17 | 691 | 0.2− | 0.1− | 2009 11 20 | 691 | 0.2+ | 0.6+ |
| 2005 08 27 | 691 | 0.3− | 0.1+ | 2007 03 17 | 691 | 0.2− | 0.0 | 2009 11 24 | 691 | 0.0 | 0.0 |
| 2005 10 06 | G96 | 0.2+ | 0.1− | 2007 04 19 | G96 | 0.1− | 0.0 | 2009 11 24 | 691 | 0.1+ | 0.0 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 06 | G96 | 0.3− | 0.2− | 2007 04 19 | G96 | 0.1− | 0.0 | 2009 11 24 | 691 | 0.1− | 0.1− | | |
| 2005 10 06 | G96 | 0.1− | 0.1+ | 2007 04 19 | G96 | 0.4+ | 0.1− | 2009 12 26 | 691 | 0.7+ | 0.4− | | |
| 2005 10 06 | G96 | 0.5− | 0.2− | 2007 04 19 | G96 | 1.0+ | 0.1− | 2009 12 26 | 691 | 0.1− | 0.0 | | |
| 2005 10 29 | G96 | 0.3− | 0.2− | 2007 05 10 | G96 | 0.2+ | 0.2− | 2009 12 26 | 691 | 0.2− | 0.2− | | |
| 2005 10 29 | G96 | 0.6+ | 0.3− | 2007 05 10 | G96 | 0.2+ | 0.0 | | | | | | |
| 2005 10 29 | G96 | 0.0 | 0.3− | 2007 05 10 | G96 | 0.4+ | 0.3− | | | | | | |

**(229716)∗ 2007 ER$_{169}$**

Discovered 2007 Mar. 13 by the Mt. Lemmon Survey at Mount Lemmon.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 293.66546 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26340679 | $\omega$ | 60.55774 | | −0.97607486 | −0.21415685 | |
| $a$ | 2.4101907 | $\Omega$ | 107.05485 | | +0.18337174 | −0.90371272 | |
| $e$ | 0.1342634 | $i$ | 2.25476 | | +0.11684468 | −0.37072925 | |
| $P$ | 3.74 | $H$ | 18.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 12 26 | 691 | 0.3− | 0.6− | 2005 10 29 | 691 | 0.2− | 0.3+ | 2007 04 14 | 691 | 0.4+ | 0.2+ | | |
| 1998 12 26 | 691 | 0.6− | 0.6− | 2005 11 06 | 691 | 0.1+ | 0.2+ | 2007 04 18 | 691 | 0.1− | 0.3− | | |
| 1998 12 26 | 691 | 0.4− | 0.2− | 2005 11 06 | 691 | 0.2+ | 0.2+ | 2007 04 18 | 691 | 0.2− | 0.3+ | | |
| 2003 03 07 | 699 | (1.0− | 1.7+) | 2005 11 06 | 691 | 0.1− | 0.1+ | 2007 04 18 | 691 | 0.1− | 0.1+ | | |
| 2003 03 07 | 699 | 0.2+ | 0.2− | 2007 02 26 | G96 | 0.1+ | 0.2+ | 2007 05 10 | 691 | 0.1+ | 0.0 | | |
| 2003 03 07 | 699 | 0.6+ | 0.1+ | 2007 02 26 | G96 | 0.2− | 0.5− | 2007 05 10 | 691 | 0.2− | 0.2+ | | |
| 2003 03 07 | 699 | 0.8+ | 0.2− | 2007 02 26 | G96 | 0.6− | 0.2− | 2007 05 10 | 691 | 0.2− | 0.3− | | |
| 2003 03 24 | 691 | 0.9+ | 0.5− | 2007 02 26 | G96 | 0.1+ | 0.1− | 2007 05 11 | 691 | 0.1− | 0.2+ | | |
| 2003 03 24 | 691 | 0.8+ | 0.4− | 2007 03 13 | G96 | 0.3+ | 0.0 | 2007 05 11 | 691 | 0.2− | 0.3+ | | |
| 2003 03 24 | 691 | 0.7+ | 0.1− | 2007 03 13 | G96 | 0.1+ | 0.1+ | 2007 05 11 | 691 | 0.0 | 0.2+ | | |
| 2003 03 31 | 645 | 0.1− | 0.1− | 2007 03 13 | G96 | 0.6+ | 0.0 | 2009 11 16 | 691 | 0.3− | 0.8+ | | |
| 2003 03 31 | 645 | 0.1− | 0.1− | 2007 03 13 | G96 | 0.1− | 0.1+ | 2009 11 16 | 691 | 1.2− | 0.4+ | | |
| 2003 04 05 | 691 | 0.1+ | 1.0+ | 2007 03 17 | 691 | 0.3+ | 0.4− | 2009 11 16 | 691 | 0.4+ | 0.0 | | |
| 2003 04 05 | 691 | 0.1− | 1.4+ | 2007 03 17 | 691 | 0.1− | 0.2+ | 2009 12 10 | G96 | 0.9+ | 0.2− | | |
| 2003 04 05 | 691 | 0.2+ | 0.4+ | 2007 03 17 | 691 | 0.4− | 0.3− | 2009 12 10 | G96 | 0.3+ | 0.3− | | |
| 2005 10 29 | 691 | 0.0 | 0.3+ | 2007 04 14 | 691 | 0.1+ | 0.0 | 2009 12 10 | G96 | 0.6+ | 0.1− | | |
| 2005 10 29 | 691 | 0.5+ | 0.2+ | 2007 04 14 | 691 | 0.1− | 0.0 | 2009 12 10 | G96 | 0.3+ | 0.3− | | |

**(229717)∗ 2007 EC$_{172}$ = 1999 TK$_{260}$**

Discovered 2007 Mar. 14 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 119440)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 88.97087 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.20198343 | $\omega$ | 128.73529 | | +0.79304221 | +0.60833482 | |
| $a$ | 2.8769052 | $\Omega$ | 193.89116 | | −0.59191984 | +0.75719385 | |
| $e$ | 0.2110086 | $i$ | 7.61748 | | −0.14392692 | +0.23787858 | |
| $P$ | 4.88 | $H$ | 15.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 10 10 | 704 | 1.1+ | 1.7− | 2007 03 14 | 691 | 0.2+ | 0.1+ | 2009 11 19 | 704 | 0.4− | 1.0+ | | |
| 1999 10 10 | 704 | 0.5− | 0.7− | 2007 03 14 | 691 | 0.1− | 0.2− | 2009 11 19 | 704 | 0.6+ | 0.3+ | | |
| 1999 10 10 | 704 | 0.4+ | 1.1+ | 2007 03 18 | 691 | 0.3− | 0.1− | 2009 11 19 | 704 | 0.2+ | 1.1+ | | |
| 1999 10 10 | 704 | 0.3− | 0.7+ | 2007 03 18 | 691 | 0.3+ | 0.3+ | 2009 11 20 | 704 | 0.4− | 1.1− | | |
| 1999 10 15 | 704 | 0.2+ | 0.3− | 2007 03 18 | 691 | 0.3− | 0.0 | 2009 11 20 | 704 | 1.1+ | 1.1− | | |
| 1999 10 15 | 691 | 0.1+ | 0.0 | 2007 03 26 | G96 | 0.0 | 0.1− | 2009 11 20 | 704 | 0.7+ | 0.2+ | | |
| 1999 10 15 | 691 | 0.2+ | 0.1+ | 2007 03 26 | G96 | 0.3− | 0.0 | 2009 11 20 | 704 | 0.6+ | 0.1+ | | |
| 1999 10 15 | 691 | 0.1+ | 0.0 | 2007 03 26 | G96 | 0.6+ | 0.3− | 2009 11 26 | G96 | 0.1+ | 0.1− | | |
| 1999 10 15 | 704 | 0.8− | 1.0+ | 2007 03 26 | G96 | 0.0 | 0.2− | 2009 11 26 | G96 | 0.1− | 0.1− | | |
| 1999 10 15 | 704 | 1.1− | 0.2− | 2007 04 07 | G96 | 0.1+ | 0.2− | 2009 11 26 | G96 | 0.1− | 0.2− | | |
| 1999 10 15 | 704 | 1.0− | 0.2+ | 2007 04 07 | G96 | 0.0 | 0.2− | 2009 11 26 | G96 | 0.2− | 0.1− | | |
| 2002 04 04 | 644 | 0.8+ | 0.1+ | 2007 04 07 | G96 | 0.0 | 0.2+ | 2009 11 26 | G96 | 0.0 | 0.1− | | |
| 2002 04 04 | 644 | 0.7+ | 0.1− | 2007 04 07 | G96 | 0.0 | 0.1− | 2009 12 10 | 703 | 0.4+ | 1.2− | | |
| 2002 04 04 | 644 | 0.3− | 0.0 | 2007 04 16 | G96 | 0.3+ | 0.0 | 2009 12 10 | 703 | 0.8− | 0.3− | | |
| 2004 11 04 | 703 | 1.2+ | 0.6− | 2007 04 16 | G96 | 0.2+ | 0.1+ | 2009 12 10 | 703 | 1.1− | 0.0 | | |
| 2004 11 04 | 703 | 0.7− | 0.9− | 2007 04 16 | G96 | 0.0 | 0.3+ | 2009 12 10 | 703 | 0.0 | 0.7− | | |
| 2004 11 04 | 703 | 0.6− | 0.3+ | 2007 04 16 | G96 | 0.4+ | 0.3+ | 2009 12 11 | 703 | 1.3+ | 0.9− | | |
| 2004 11 04 | 703 | 0.8+ | 0.6+ | 2007 05 10 | G96 | 0.4+ | 0.2− | 2009 12 11 | 703 | 1.1− | 0.8+ | | |
| 2004 11 19 | 703 | 0.2− | 0.4− | 2007 05 10 | G96 | 0.6− | 0.3+ | 2009 12 11 | 703 | 0.4− | 0.3− | | |
| 2004 11 19 | 703 | 0.3− | 0.4+ | 2007 05 10 | G96 | 0.2− | 0.4− | 2009 12 11 | 703 | 0.6− | 0.1− | | |
| 2004 11 19 | 703 | 0.5− | 0.9− | 2007 05 16 | G96 | 0.1− | 0.6− | 2009 12 13 | 704 | 0.6− | 1.5+ | | |
| 2004 11 19 | 703 | 0.2− | 0.1+ | 2007 05 16 | G96 | 0.4− | 0.6− | 2009 12 13 | 704 | 0.6+ | 0.3+ | | |
| 2006 01 07 | 291 | 0.1− | 0.2+ | 2007 05 16 | G96 | 0.2− | 0.4− | 2009 12 13 | 704 | 0.8+ | 0.1− | | |
| 2006 01 07 | 291 | 0.0 | 0.2+ | 2007 05 16 | G96 | 0.6− | 0.3− | 2009 12 13 | 704 | 1.3+ | 0.1+ | | |
| 2006 01 07 | 291 | 0.0 | 0.1+ | 2009 11 19 | 704 | 0.3− | 0.0 | | | | | | |
| 2007 03 14 | 691 | 0.1− | 0.1− | 2009 11 19 | 704 | 0.8− | 0.3− | | | | | | |

**(229718)∗ 2007 EA$_{179}$**

Discovered 2007 Mar. 14 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 302.78745 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27429468 | $\omega$ | 183.43506 | | −0.95290928 | −0.30287774 | |
| $a$ | 2.3459808 | $\Omega$ | 338.91531 | | +0.27922437 | −0.85683704 | |
| $e$ | 0.1610558 | $i$ | 2.41071 | | +0.11831166 | −0.41724736 | |
| $P$ | 3.59 | $H$ | 17.4 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 03 12 | 691 | 0.4+ | 0.2− | 2007 03 14 | 691 | 0.0 | 0.0 | 2007 04 18 | 699 | 0.3− | 0.2− | | |
| 1996 03 12 | 691 | 0.2− | 0.5+ | 2007 03 14 | 703 | 0.1+ | 0.4+ | 2007 04 18 | 699 | 0.2− | 1.2+ | | |
| 1996 03 12 | 691 | 0.4− | 0.1+ | 2007 03 14 | G96 | 0.0 | 0.2+ | 2007 04 18 | 699 | 0.2+ | 0.2+ | | |
| 2001 05 23 | 807 | 0.6− | 0.0 | 2007 03 14 | 703 | 0.4+ | 0.0 | 2007 04 18 | 699 | 0.0 | 1.1+ | | |
| 2001 05 23 | 807 | 0.4− | 0.3+ | 2007 03 14 | G96 | 0.3− | 0.2+ | 2008 09 06 | G96 | 0.2− | 0.3− | | |
| 2001 09 19 | 691 | 0.3− | 0.4+ | 2007 03 14 | 691 | 0.0 | 0.2+ | 2008 09 06 | G96 | 0.3− | 0.1+ | | |
| 2001 09 19 | 691 | 0.1− | 0.6+ | 2007 03 14 | 703 | 0.2+ | 0.5− | 2008 09 06 | G96 | 0.1− | 0.4+ | | |
| 2001 09 19 | 691 | 0.3+ | 0.5+ | 2007 03 14 | 703 | 1.1− | 0.4+ | 2008 09 06 | G96 | 0.2+ | 0.2+ | | |
| 2002 11 07 | 645 | 0.1+ | 0.0 | 2007 03 18 | 691 | 0.1− | 0.2+ | 2009 11 22 | 691 | 0.2− | 0.1− | | |
| 2002 11 07 | 645 | 0.2+ | 0.0 | 2007 03 18 | 691 | 0.0 | 0.1+ | 2009 11 22 | 691 | 0.2− | 0.0 | | |
| 2005 10 13 | 691 | 0.1+ | 0.0 | 2007 03 18 | 691 | 0.0 | 0.2+ | 2009 11 22 | 691 | 0.3− | 0.0 | | |
| 2005 10 13 | 691 | 0.2− | 0.2− | 2007 03 30 | 644 | 0.6+ | 0.2+ | 2009 11 26 | 691 | 0.1− | 0.0 | | |
| 2005 10 13 | 691 | 0.2− | 0.1+ | 2007 03 30 | 644 | 0.6+ | 0.2+ | 2009 11 26 | 691 | 0.0 | 0.2+ | | |
| 2005 10 30 | 691 | 0.3− | 0.9+ | 2007 03 30 | 644 | 0.1+ | 0.3+ | 2009 11 26 | 691 | 0.1+ | 0.2+ | | |
| 2005 10 30 | 691 | 0.2− | 0.0 | 2007 04 15 | 704 | 0.1− | 0.6− | 2009 12 11 | G96 | 0.2+ | 0.1+ | | |
| 2005 10 30 | 691 | 0.0 | 0.2− | 2007 04 15 | 704 | 1.2+ | 0.3− | 2009 12 11 | G96 | 0.3+ | 0.0 | | |
| 2007 03 14 | 691 | 0.0 | 0.1+ | 2007 04 15 | 704 | 0.2+ | 0.1+ | 2009 12 11 | G96 | 0.6+ | 0.2+ | | |
| 2007 03 14 | G96 | 0.2− | 0.1+ | 2007 04 15 | 704 | 1.5+ | 0.4+ | 2009 12 11 | G96 | 0.1− | 0.4− | | |
| 2007 03 14 | G96 | 0.4− | 0.2+ | 2007 04 15 | 704 | 1.3+ | 0.2− | | | | | | |

**(229719)∗ 2007 EN$_{210}$ = 2000 GJ$_{18}$**

Discovered 2007 Mar. 8 by NEAT at Palomar.

Id. T. B. Spahr (*MPO* 120577)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 284.44151 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27484986 | $\omega$ | 136.01992 | | −0.93795317 | −0.34554973 | |
| $a$ | 2.3428206 | $\Omega$ | 23.81044 | | +0.29502505 | −0.83912173 | |
| $e$ | 0.1230020 | $i$ | 4.11496 | | +0.18221984 | −0.42008345 | |
| $P$ | 3.59 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 04 05 | 704 | 0.5+ | 0.2+ | 2005 10 27 | 705 | 0.2+ | 0.2− | 2007 02 25 | G96 | 0.3+ | 0.2− | | |
| 2000 04 05 | 704 | 0.4+ | 0.1+ | 2005 10 27 | 705 | 0.3+ | 0.2− | 2007 02 25 | G96 | 0.3− | 0.1− | | |
| 2000 04 05 | 704 | 0.2+ | 0.9+ | 2005 10 30 | 705 | 0.4+ | 0.2− | 2007 02 25 | G96 | 0.1+ | 0.1− | | |
| 2000 04 05 | 704 | 0.8+ | 0.1+ | 2005 10 30 | 705 | 0.2+ | 0.2− | 2007 02 25 | G96 | 0.0 | 0.3− | | |
| 2000 04 06 | 704 | 1.1+ | 0.2+ | 2005 11 01 | 705 | 0.2+ | 0.2− | 2007 02 25 | G96 | 0.2− | 0.1− | | |
| 2000 04 06 | 704 | 1.6+ | 0.5+ | 2005 11 01 | 705 | 0.3+ | 0.1− | 2007 03 08 | 644 | 0.1+ | 0.1+ | | |
| 2000 04 06 | 704 | (2.7+ | 0.4−) | 2005 11 02 | 705 | 0.2+ | 0.3− | 2007 03 08 | 644 | 0.3+ | 0.2+ | | |
| 2000 04 06 | 704 | 0.7+ | 0.7+ | 2005 11 02 | 705 | 0.2+ | 0.2− | 2007 03 08 | 644 | 0.2− | 0.5+ | | |
| 2000 04 08 | 691 | 0.3− | 0.2− | 2005 11 07 | 705 | 0.1+ | 0.1− | 2007 03 09 | 644 | 0.2+ | 0.5+ | | |
| 2000 04 08 | 691 | 0.9− | 0.1− | 2005 11 07 | 705 | 0.2+ | 0.2− | 2007 03 09 | 644 | 0.4− | 0.3+ | | |
| 2000 04 08 | 691 | 0.2− | 0.3− | 2005 11 23 | 705 | 0.1− | 0.3− | 2007 03 09 | 644 | 0.1+ | 0.2+ | | |
| 2005 10 01 | G96 | 0.2− | 0.0 | 2005 11 23 | 705 | 0.1− | 0.2− | 2007 04 23 | G96 | 0.1− | 0.0 | | |
| 2005 10 01 | G96 | 0.0 | 0.4− | 2005 11 25 | 705 | 0.0 | 0.1− | 2007 04 23 | G96 | 0.2+ | 0.2+ | | |
| 2005 10 01 | G96 | 0.3− | 0.3− | 2005 11 25 | 705 | 0.0 | 0.1− | 2007 04 23 | G96 | 0.0 | 0.0 | | |
| 2005 10 01 | G96 | (1.1+ | 3.3−) | 2005 12 01 | 705 | 0.0 | 0.2− | 2007 04 23 | G96 | 0.5− | 0.3− | | |
| 2005 10 06 | 691 | 0.5− | 0.2+ | 2005 12 01 | 705 | 0.2− | 0.3− | 2009 09 17 | 291 | 0.9− | 0.4+ | | |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 06 | 691 | 0.4+ | 0.1− | 2007 02 08 | 691 | 0.1+ | 0.2+ | 2009 09 17 | 291 | 0.0 | 0.2+ |
| 2005 10 06 | 691 | 0.3+ | 0.4+ | 2007 02 08 | 691 | 0.0 | 0.2− | 2009 09 17 | 291 | 0.6− | 0.3+ |
| 2005 10 20 | 705 | 0.3+ | 0.2− | 2007 02 08 | 691 | 0.0 | 0.1− | 2009 09 21 | G96 | 0.1− | 0.1− |
| 2005 10 20 | 705 | 0.3+ | 0.3− | 2007 02 25 | G96 | 0.0 | 0.0 | 2009 09 21 | G96 | 0.4+ | 0.2− |
| 2005 10 26 | G96 | 0.4− | 0.2− | 2007 02 25 | G96 | 0.1− | 0.1− | 2009 09 21 | G96 | 0.4+ | 0.0 |
| 2005 10 26 | G96 | 0.1+ | 0.2− | 2007 02 25 | G96 | 0.2− | 0.2− | 2009 09 21 | G96 | 0.4+ | 0.2− |
| 2005 10 26 | G96 | 0.2− | 0.2− | 2007 02 25 | G96 | 0.1+ | 0.1− | 2009 12 17 | G96 | 0.8+ | 0.4+ |
| 2005 10 26 | 705 | 0.1+ | 0.2− | 2007 02 25 | G96 | 0.4+ | 0.3− | 2009 12 17 | G96 | 0.8+ | 0.1+ |
| 2005 10 26 | G96 | 0.8− | 0.3− | 2007 02 25 | G96 | 0.7− | 0.5− | 2009 12 17 | G96 | 0.6+ | 0.1− |
| 2005 10 26 | 705 | 0.2+ | 0.1− | 2007 02 25 | G96 | 0.2− | 0.4− | 2009 12 17 | G96 | 0.5+ | 0.0 |

**(229720)∗ 2007 EK$_{219}$**

Discovered 2007 Mar. 15 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 44.62582 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18901242 | $\omega$ | 190.39445 | | +0.92943937 | +0.36878801 | |
| $a$ | 3.0070627 | $\Omega$ | 147.95678 | | −0.33691971 | +0.86123680 | |
| $e$ | 0.2637089 | $i$ | 1.26811 | | −0.15042464 | +0.34966639 | |
| $P$ | 5.21 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1993 08 15 | 691 | 0.1− | 0.1+ | 2008 05 27 | G96 | 0.7+ | 0.2+ | 2009 10 14 | J75 | 0.5+ | 0.2+ |
| 1993 08 15 | 691 | 0.1+ | 0.1− | 2008 05 27 | G96 | 0.1− | 0.0 | 2009 10 14 | 703 | 0.9+ | 0.6+ |
| 1993 08 15 | 691 | 0.0 | 0.1− | 2008 05 27 | G96 | 0.6+ | 0.2− | 2009 10 14 | 703 | (2.0+ | 1.2+) |
| 2004 10 15 | G96 | 0.1− | 0.1− | 2008 06 12 | 691 | 0.3− | 0.2+ | 2009 10 14 | 703 | 0.4− | 0.5+ |
| 2004 10 15 | G96 | 0.0 | 0.2− | 2008 06 12 | 691 | 0.1+ | 0.1− | 2009 10 14 | 703 | 0.7+ | 0.9+ |
| 2004 10 15 | G96 | 0.0 | 0.1+ | 2008 06 12 | 691 | 0.1+ | 0.3+ | 2009 10 20 | 683 | 1.4− | 0.3+ |
| 2004 10 15 | G96 | 0.2− | 0.1+ | 2008 06 23 | 691 | 0.2+ | 0.1+ | 2009 10 20 | 683 | (1.6+ | 1.8+) |
| 2007 03 15 | 691 | 0.3+ | 0.2+ | 2008 06 23 | 691 | 0.1+ | 0.1− | 2009 10 24 | 691 | 0.5+ | 0.6− |
| 2007 03 15 | 691 | 0.3− | 0.4+ | 2008 06 23 | 691 | 0.6− | 0.4+ | 2009 10 24 | 691 | 0.0 | 0.3+ |
| 2007 03 15 | 691 | 0.0 | 0.7+ | 2009 09 15 | 691 | 0.0 | 0.3+ | 2009 10 24 | 691 | 0.3+ | 0.3− |
| 2007 03 26 | G96 | 1.4+ | 0.3− | 2009 09 15 | 691 | 0.2− | 0.2+ | 2009 11 09 | 691 | 0.3− | 0.2+ |
| 2007 03 26 | G96 | 0.0 | 0.3+ | 2009 09 15 | 691 | 0.1− | 0.0 | 2009 11 09 | 691 | 0.0 | 0.3+ |
| 2007 03 26 | G96 | 0.1− | 0.0 | 2009 09 23 | 691 | (2.7+ | 2.5−) | 2009 11 09 | 691 | 0.1+ | 0.1− |
| 2007 03 26 | G96 | 0.2− | 0.2+ | 2009 09 23 | 691 | 0.1+ | 0.2− | 2009 11 09 | 703 | 0.9− | 0.3+ |
| 2007 04 07 | G96 | 0.0 | 0.3− | 2009 09 23 | 691 | 0.1− | 0.5+ | 2009 11 09 | 703 | 0.5− | 0.8+ |
| 2007 04 07 | G96 | 0.4− | 0.0 | 2009 09 27 | 691 | 0.1− | 0.2− | 2009 11 09 | 703 | 1.2− | 0.6− |
| 2007 04 07 | G96 | 1.4+ | 0.7− | 2009 09 27 | 691 | 0.5− | 0.1− | 2009 11 09 | 703 | 0.8− | 0.4− |
| 2007 04 07 | G96 | 0.6+ | 0.2+ | 2009 09 27 | 691 | 0.1− | 0.1+ | 2009 12 15 | G96 | 0.4+ | 0.1− |
| 2007 04 16 | G96 | 0.1− | 0.1+ | 2009 10 11 | J75 | 0.1− | 0.3+ | 2009 12 15 | G96 | 0.3+ | 0.4+ |
| 2007 04 16 | G96 | 0.0 | 0.2− | 2009 10 11 | J75 | 0.3+ | 0.1+ | 2009 12 15 | G96 | 0.3+ | 0.0 |
| 2007 04 16 | G96 | 0.8− | 0.1− | 2009 10 11 | J75 | 0.0 | 0.5+ | 2009 12 15 | G96 | 0.1+ | 0.5− |
| 2007 04 16 | G96 | 0.3− | 0.8− | 2009 10 13 | J75 | 0.5+ | 0.3+ | | | | |
| 2008 05 27 | G96 | 0.6+ | 0.1+ | 2009 10 13 | J75 | 0.3+ | 0.5− | | | | |

**(229721)∗ 2007 FC$_{38}$ = 1996 BA$_{17}$**

Discovered 2007 Mar. 26 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 119470)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 296.13762 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27532517 | $\omega$ | 78.19137 | | −0.98676018 | −0.14501489 | |
| $a$ | 2.3401235 | $\Omega$ | 93.43913 | | +0.10535819 | −0.91360387 | |
| $e$ | 0.1370867 | $i$ | 4.17255 | | +0.12330452 | −0.37986661 | |
| $P$ | 3.58 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 01 24 | 691 | 0.1+ | 0.3+ | 2007 03 12 | 703 | 0.3+ | 0.8− | 2007 04 25 | G96 | 0.3− | 0.1− |
| 1996 01 24 | 691 | 0.1− | 0.4− | 2007 03 12 | 703 | 0.9+ | 0.6− | 2007 05 08 | 699 | 1.3+ | 0.3− |
| 1996 01 24 | 691 | 0.0 | 0.3− | 2007 03 26 | 291 | 0.3− | 0.3+ | 2007 05 08 | 699 | (1.6+ | 0.2−) |
| 1996 01 29 | 691 | 0.2+ | 0.3+ | 2007 03 26 | 291 | 0.2− | 0.3+ | 2007 05 08 | 699 | 0.1+ | 0.8+ |
| 1996 01 29 | 691 | 0.1− | 0.0 | 2007 03 26 | 291 | 0.3− | 0.4+ | 2007 05 08 | 699 | 0.3− | 1.2+ |
| 1996 01 29 | 691 | 0.0 | 0.1+ | 2007 03 30 | 644 | 0.4+ | 0.3− | 2007 05 09 | 703 | 0.9+ | 1.0− |
| 2000 05 11 | 699 | 1.0− | 0.9+ | 2007 03 30 | 644 | 0.6+ | 0.3+ | 2007 05 09 | 703 | 0.4− | 0.5+ |
| 2000 05 11 | 699 | 0.1− | 0.8− | 2007 03 30 | 644 | 0.7+ | 0.3+ | 2007 05 09 | 703 | 0.9+ | 0.2+ |
| 2000 05 11 | 699 | 0.1+ | 1.1+ | 2007 04 16 | 703 | 0.2+ | 0.0 | 2008 09 19 | 691 | 0.6− | 0.0 |
| 2000 05 11 | 699 | 0.3− | 1.2+ | 2007 04 16 | 703 | 0.2− | 0.1− | 2008 09 19 | 691 | 0.3− | 0.4+ |
| 2004 07 15 | E12 | 0.1− | 0.6+ | 2007 04 16 | 703 | 0.6+ | 0.0 | 2008 09 19 | 691 | 0.3+ | 0.5+ |
| 2004 07 15 | E12 | 0.5− | 0.4− | 2007 04 16 | 703 | 0.7− | 0.2− | 2009 12 16 | G96 | 0.4+ | 0.3+ |
| 2004 07 15 | E12 | 0.1− | 0.1− | 2007 04 18 | 699 | 0.7+ | 0.4+ | 2009 12 16 | G96 | 0.2+ | 0.0 |
| 2004 07 15 | E12 | 0.1+ | 0.4− | 2007 04 18 | 699 | 0.9+ | 0.5+ | 2009 12 16 | G96 | 0.3+ | 0.0 |
| 2005 09 25 | 691 | 0.2+ | 0.6+ | 2007 04 18 | 699 | 0.6+ | 0.2− | 2009 12 16 | G96 | 0.0 | 0.1+ |
| 2005 09 25 | 691 | 0.2+ | 0.2+ | 2007 04 18 | 699 | 0.2+ | 0.8+ | 2009 12 16 | G96 | 0.1− | 0.4− |
| 2005 09 25 | 691 | 0.1− | 0.2+ | 2007 04 20 | 704 | (0.3+ | 1.7+) | 2009 12 17 | 704 | 1.7− | 0.9+ |
| 2005 10 26 | 691 | 0.3− | 0.1+ | 2007 04 20 | 704 | 0.1+ | 0.2+ | 2009 12 17 | 704 | 0.6− | 0.4− |
| 2005 10 26 | 691 | 0.0 | 0.4+ | 2007 04 20 | 704 | 0.9+ | 0.3+ | 2009 12 17 | 704 | 0.1+ | 0.1+ |
| 2005 10 26 | 691 | 0.2+ | 0.4+ | 2007 04 25 | G96 | 0.2+ | 0.1− | 2009 12 17 | 704 | 1.8− | 0.6+ |
| 2007 03 12 | 703 | 0.1+ | 0.0 | 2007 04 25 | G96 | 0.0 | 0.2− | 2009 12 17 | 704 | 0.4+ | 0.6+ |
| 2007 03 12 | 703 | 0.2+ | 0.6+ | 2007 04 25 | G96 | 0.1− | 0.2− | | | | |

**(229722)∗ 2007 GE = 2000 SE$_{214}$**

Discovered 2007 Apr. 6 by M. Ory at the Observatoire Astronomique Jurassien-Vicques.

Id. T. B. Spahr (*MPO* 119474)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 198.94583 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23441177 | $\omega$ | 50.49632 | | −0.61615627 | +0.78761887 | |
| $a$ | 2.6050523 | $\Omega$ | 181.47641 | | −0.75209195 | −0.58942064 | |
| $e$ | 0.0463849 | $i$ | 6.29230 | | −0.23389986 | −0.17955452 | |
| $P$ | 4.20 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 06 10 | 691 | 0.2+ | 0.7+ | 2007 03 20 | 691 | 0.3+ | 0.2+ | 2007 04 25 | G96 | 0.2+ | 0.3+ |
| 1999 06 10 | 691 | 0.2− | 0.3− | 2007 03 20 | 691 | 0.2− | 0.3+ | 2007 04 25 | G96 | 0.1+ | 0.2− |
| 1999 06 10 | 691 | 0.2− | 0.1− | 2007 03 20 | 691 | 0.0 | 0.4+ | 2007 05 08 | 699 | 0.9+ | 0.2+ |
| 2000 09 26 | 704 | 0.8− | 0.2− | 2007 04 06 | 185 | 0.8+ | 1.3− | 2007 05 08 | 699 | 0.0 | 0.1+ |
| 2000 09 26 | 704 | 1.0− | 0.1− | 2007 04 06 | 185 | 0.1+ | 0.7− | 2007 05 08 | 699 | (0.1− | 1.6−) |
| 2000 09 26 | 704 | 0.3− | 0.8+ | 2007 04 08 | J95 | 0.8+ | 0.8− | 2007 05 08 | 699 | (1.6+ | 0.2+) |
| 2000 09 26 | 704 | 0.7− | 0.0 | 2007 04 10 | J95 | 0.2− | 0.8− | 2008 07 11 | A50 | 0.5− | 0.1+ |
| 2000 10 01 | 704 | 0.7+ | 0.7+ | 2007 04 10 | J95 | 0.3− | 0.1− | 2008 07 11 | A50 | 0.6− | 0.5+ |
| 2000 10 01 | 704 | 0.5+ | 0.5+ | 2007 04 10 | J95 | 0.3− | 0.7− | 2008 07 11 | A50 | 0.1+ | 0.3+ |
| 2000 10 01 | 704 | 1.3+ | 0.6− | 2007 04 11 | 926 | 0.3+ | 0.1+ | 2008 07 11 | A50 | 1.0+ | 0.1− |
| 2000 10 01 | 704 | 0.6+ | 0.3− | 2007 04 11 | 926 | 0.2+ | 0.0 | 2008 08 03 | J75 | 0.8− | 1.1− |
| 2003 03 25 | 291 | 0.3− | 0.6+ | 2007 04 11 | 926 | 0.3+ | 0.2+ | 2008 08 03 | J75 | 0.5− | 0.2− |
| 2003 03 25 | 291 | 0.1− | 0.6+ | 2007 04 11 | 926 | 0.2+ | 0.1− | 2008 08 03 | J75 | 0.4− | 0.6− |
| 2003 03 25 | 291 | 0.0 | 0.5+ | 2007 04 11 | 926 | 0.2+ | 0.1+ | 2009 11 23 | G96 | 0.3+ | 0.1+ |
| 2003 04 11 | 691 | 0.3+ | 0.2+ | 2007 04 11 | 926 | 0.3+ | 0.1− | 2009 11 23 | G96 | 0.6+ | 0.3+ |
| 2003 04 11 | 691 | 0.1− | 0.2+ | 2007 04 11 | J95 | 0.3− | 0.2− | 2009 11 23 | G96 | 0.3+ | 0.3+ |
| 2003 04 11 | 691 | 0.1− | 0.3+ | 2007 04 11 | J95 | 0.2+ | 1.0+ | 2009 11 23 | G96 | 0.5+ | 0.2+ |
| 2004 09 22 | 691 | 0.1+ | 0.3+ | 2007 04 18 | 699 | 0.5+ | 0.6− | 2009 12 18 | 691 | 0.4− | 0.1+ |
| 2004 09 22 | 691 | 0.4+ | 0.6+ | 2007 04 18 | 699 | (0.8− | 2.0+) | 2009 12 18 | 691 | 0.2− | 0.3+ |
| 2004 09 22 | 691 | 0.1+ | 0.5+ | 2007 04 18 | 699 | 0.0 | 0.4+ | 2009 12 18 | 691 | 0.4− | 0.4+ |
| 2007 03 09 | 691 | 0.2− | 0.5+ | 2007 04 18 | 699 | 1.4− | 0.3− | 2009 12 18 | 291 | 0.1− | 0.2+ |
| 2007 03 09 | 691 | 0.1+ | 0.2+ | 2007 04 25 | G96 | 0.5+ | 0.6+ | 2009 12 18 | 291 | 0.0 | 0.2+ |
| 2007 03 09 | 691 | 0.2+ | 0.1+ | 2007 04 25 | G96 | 0.4+ | 0.4+ | 2009 12 18 | 291 | 0.2− | 0.1+ |

**(229723)∗ 2007 GG$_{2}$**

Discovered 2007 Apr. 11 by W. Ries at Altschwendt.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 105.47422 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.20909841 | $\omega$ | 260.89798 | | +0.88325546 | +0.46447408 | |
| $a$ | 2.8112679 | $\Omega$ | 71.40354 | | −0.39918764 | +0.81671381 | |
| $e$ | 0.0596566 | $i$ | 3.88494 | | −0.24598582 | +0.34240675 | |
| $P$ | 4.71 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 04 08 | 644 | 0.2+ | 0.3− | 2007 04 12 | A44 | 0.3+ | 0.9+ | 2007 05 10 | G96 | 0.4+ | 0.0 |
| 2002 04 08 | 644 | 0.4+ | 0.3− | 2007 04 13 | A44 | 0.1+ | 0.1+ | 2007 05 19 | A44 | 0.5+ | 0.0 |
| 2002 04 08 | 644 | 0.1+ | 0.4− | 2007 04 13 | A44 | 0.5+ | 0.3− | 2007 05 19 | A44 | 0.6+ | 0.5+ |
| 2004 10 10 | 695 | 0.1− | 0.1+ | 2007 04 13 | A44 | 0.6+ | 0.2− | 2007 05 19 | A44 | 1.0+ | 0.9+ |
| 2004 10 10 | 695 | 0.1− | 0.2+ | 2007 04 14 | 691 | 0.3− | 0.1− | 2008 08 30 | A44 | 0.4+ | 0.2+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 11 04 | 691 | 0.3− | 0.1+ | 2007 04 14 | 691 | 0.1− | 0.0 | 2008 08 30 | A44 | 0.7+ | 0.4+ | | |
| 2004 11 04 | 691 | 0.1− | 0.2+ | 2007 04 14 | 691 | 0.1+ | 0.1+ | 2008 08 30 | A44 | 0.2+ | 0.7+ | | |
| 2004 11 04 | 691 | 0.2− | 0.1+ | 2007 04 18 | 691 | 0.1− | 0.2− | 2009 11 21 | 691 | 0.2− | 0.0 | | |
| 2006 01 23 | 691 | 0.1+ | 0.4+ | 2007 04 18 | 691 | 0.4− | 0.2− | 2009 11 21 | 691 | 0.1− | 0.0 | | |
| 2006 01 23 | 691 | 0.4+ | 0.0 | 2007 04 18 | 691 | 0.1− | 0.2− | 2009 11 21 | 691 | 0.1− | 0.0 | | |
| 2006 01 23 | 691 | 0.2− | 0.3− | 2007 04 22 | 691 | 0.1+ | 0.1+ | 2009 12 10 | G96 | 0.3+ | 0.2− | | |
| 2006 02 01 | 691 | 0.2+ | 0.1− | 2007 04 22 | 691 | 0.1− | 0.2+ | 2009 12 10 | G96 | 0.3+ | 0.2− | | |
| 2006 02 01 | 691 | 0.2+ | 0.0 | 2007 04 22 | 691 | 0.1− | 0.0 | 2009 12 10 | G96 | 0.3+ | 0.0 | | |
| 2006 02 01 | 691 | 0.1− | 0.2+ | 2007 04 26 | 691 | 0.3− | 0.1+ | 2009 12 10 | G96 | 0.0 | 0.1− | | |
| 2007 04 11 | A44 | 0.2− | 0.1+ | 2007 04 26 | 691 | 0.2− | 0.3+ | 2009 12 19 | G96 | 0.3+ | 0.3− | | |
| 2007 04 11 | A44 | 0.2+ | 0.2+ | 2007 04 26 | 691 | 0.1− | 0.1+ | 2009 12 19 | G96 | 0.2+ | 0.0 | | |
| 2007 04 11 | A44 | 0.4+ | 0.4+ | 2007 05 10 | G96 | 0.1− | 0.0 | 2009 12 19 | G96 | 0.2+ | 0.1− | | |
| 2007 04 11 | A44 | 0.3− | 0.3+ | 2007 05 10 | G96 | 0.4+ | 0.2+ | | | | | | |
| 2007 04 12 | A44 | 0.0 | 0.2+ | 2007 05 10 | G96 | 0.1− | 0.3− | | | | | | |

**(229724)∗ 2007 GQ$_7$ = 2005 VV$_{27}$**

Discovered 2007 Apr. 7 by the Mt. Lemmon Survey at Mount Lemmon.

Id. G. V. Williams (*MPO* 119477)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 271.17111 | | (2000.0) | | | |
| $n$ | 0.26391208 | $\omega$ | 169.93346 | | −0.99547952 | +0.09393373 |
| $a$ | 2.4071133 | $\Omega$ | 15.47742 | | −0.09038671 | −0.89159085 |
| $e$ | 0.1713192 | $i$ | 3.01473 | | −0.02916787 | −0.44299234 |
| $P$ | 3.73 | $H$ | 17.6 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 02 07 | 644 | 0.1+ | 0.1+ | 2007 03 13 | 691 | 0.1− | 0.2+ | 2007 04 16 | G96 | 0.3+ | 0.0 | | |
| 2003 02 07 | 644 | 0.0 | 0.3+ | 2007 03 13 | 691 | 0.2− | 0.1+ | 2007 05 10 | G96 | 0.4+ | 0.0 | | |
| 2003 02 07 | 644 | 0.3+ | 0.5+ | 2007 03 13 | 691 | 0.1− | 0.2− | 2007 05 10 | G96 | 0.5+ | 0.1− | | |
| 2005 11 03 | G96 | 0.3+ | 0.5− | 2007 03 26 | 691 | 0.1+ | 0.0 | 2007 05 10 | G96 | 0.3− | 0.1− | | |
| 2005 11 03 | G96 | 0.0 | 0.3− | 2007 03 26 | 691 | 0.2− | 0.2+ | 2007 05 10 | G96 | 0.0 | 0.3− | | |
| 2005 11 03 | G96 | 0.1− | 0.3− | 2007 03 26 | 691 | 0.0 | 0.1− | 2009 11 09 | 691 | 0.3+ | 0.3− | | |
| 2005 11 03 | G96 | 0.2+ | 0.3− | 2007 04 07 | G96 | 0.1− | 0.0 | 2009 11 09 | 691 | 0.1− | 0.2− | | |
| 2005 11 03 | G96 | 0.9+ | 0.4+ | 2007 04 07 | 703 | 0.1− | 0.7+ | 2009 11 09 | 691 | 0.2+ | 0.3− | | |
| 2005 11 03 | G96 | 0.2− | 0.2− | 2007 04 07 | G96 | 0.0 | 0.1+ | 2009 11 09 | G96 | 0.7+ | 0.5+ | | |
| 2005 11 03 | G96 | 0.1− | 0.4− | 2007 04 07 | 703 | (1.6− | 1.2−) | 2009 11 09 | G96 | 0.3+ | 0.1+ | | |
| 2005 11 03 | G96 | 0.4+ | 0.0 | 2007 04 07 | G96 | 0.2+ | 0.1+ | 2009 11 09 | G96 | 1.3+ | 0.2+ | | |
| 2005 11 05 | 691 | 0.1− | 0.3+ | 2007 04 07 | 703 | 1.0− | 0.5− | 2009 11 09 | G96 | 0.3+ | 0.2− | | |
| 2005 11 05 | 691 | 0.3− | 0.8+ | 2007 04 07 | G96 | 0.1− | 0.1− | 2009 11 25 | 691 | 0.2− | 0.0 | | |
| 2005 11 05 | 691 | 0.5− | 0.2− | 2007 04 07 | 703 | 0.3− | 0.0 | 2009 11 25 | 691 | 0.2− | 0.3+ | | |
| 2005 12 05 | G96 | 0.2− | 0.0 | 2007 04 14 | G96 | 0.5+ | 0.2− | 2009 11 25 | 691 | 0.7− | 0.0 | | |
| 2005 12 05 | G96 | 0.8+ | 0.9+ | 2007 04 14 | G96 | 0.2+ | 0.1+ | 2009 12 16 | G96 | 0.4+ | 0.5− | | |
| 2005 12 05 | G96 | 0.9+ | 0.1− | 2007 04 14 | G96 | 0.2− | 0.2+ | 2009 12 16 | G96 | 0.3+ | 0.1− | | |
| 2005 12 05 | G96 | 0.1− | 0.5− | 2007 04 14 | G96 | 0.5+ | 0.1+ | 2009 12 16 | G96 | 0.3+ | 0.1+ | | |
| 2007 02 25 | G96 | 0.3− | 0.5− | 2007 04 16 | G96 | 0.2+ | 0.2− | 2009 12 16 | G96 | 0.1− | 0.3− | | |
| 2007 02 25 | G96 | 0.0 | 0.2− | 2007 04 16 | G96 | 0.4+ | 0.2− | | | | | | |
| 2007 02 25 | G96 | (6.4− | 1.5−) | 2007 04 16 | G96 | 0.5+ | 0.0 | | | | | | |

**(229725)∗ 2007 GX$_{16}$**

Discovered 2007 Apr. 11 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 249.43374 | | (2000.0) | | | |
| $n$ | 0.23319103 | $\omega$ | 195.06368 | | −0.97723139 | +0.21216827 |
| $a$ | 2.6141359 | $\Omega$ | 357.18379 | | −0.19056339 | −0.88149231 |
| $e$ | 0.1225682 | $i$ | 2.16033 | | −0.09329738 | −0.42184824 |
| $P$ | 4.23 | $H$ | 16.6 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 12 19 | 644 | 0.1− | 0.7+ | 2007 04 11 | 691 | 0.3− | 0.7+ | 2008 09 23 | G96 | 0.3+ | 0.5+ | | |
| 2001 12 19 | 644 | 0.5− | 0.5+ | 2007 04 15 | 691 | 0.0 | 0.1+ | 2008 09 23 | G96 | 0.7+ | 0.6− | | |
| 2001 12 19 | 644 | 0.3+ | 0.5+ | 2007 04 15 | 691 | 0.0 | 0.0 | 2009 11 09 | 691 | 0.5− | 0.5+ | | |
| 2001 12 20 | 645 | 0.0 | 0.1− | 2007 04 15 | 691 | 0.3− | 0.2+ | 2009 11 09 | 691 | 0.1− | 0.3+ | | |
| 2001 12 20 | 645 | 0.0 | 0.1− | 2007 04 19 | 691 | 0.1+ | 0.0 | 2009 11 09 | 691 | 0.1+ | 0.1− | | |
| 2004 09 10 | 691 | 0.2− | 0.3+ | 2007 04 19 | 691 | 0.1− | 0.0 | 2009 11 25 | 691 | 0.5− | 0.4− | | |
| 2004 09 10 | 691 | 0.5− | 0.2+ | 2007 04 19 | 691 | 1.1+ | 0.5+ | 2009 11 25 | 691 | 0.0 | 0.0 | | |
| 2004 09 10 | 691 | 0.0 | 0.4+ | 2007 05 09 | 699 | 0.5+ | 0.8− | 2009 11 25 | 691 | 0.0 | 0.0 | | |
| 2005 12 07 | 691 | 0.2+ | 0.0 | 2007 05 09 | 699 | 1.2+ | 1.3+ | 2009 12 17 | G96 | 0.9+ | 0.1− | | |
| 2005 12 07 | 691 | 0.1− | 0.1− | 2007 05 09 | 699 | (1.7+ | 1.6+) | 2009 12 17 | G96 | 0.1+ | 0.1+ | | |
| 2005 12 07 | 691 | 0.2− | 0.5+ | 2007 05 09 | 699 | 0.6+ | 0.4+ | 2009 12 17 | G96 | 0.8+ | 0.0 | | |
| 2006 01 27 | G96 | 0.2+ | 0.1− | 2007 05 13 | G96 | 0.3− | 0.1+ | 2009 12 17 | G96 | 0.3+ | 0.1+ | | |
| 2006 01 27 | G96 | 0.7+ | 0.4− | 2007 05 13 | G96 | 0.2+ | 0.4+ | 2009 12 19 | 691 | 0.0 | 0.3+ | | |
| 2006 01 27 | G96 | 0.2− | 0.3− | 2007 05 13 | G96 | 0.2− | 0.1+ | 2009 12 19 | 691 | 0.1+ | 0.5+ | | |
| 2006 01 27 | G96 | 0.4+ | 0.1+ | 2007 05 13 | G96 | 0.3+ | 0.2+ | 2009 12 19 | 691 | 0.2− | 0.3+ | | |
| 2007 04 11 | 691 | 0.1− | 0.0 | 2008 09 23 | G96 | 0.5+ | 0.1+ | | | | | | |
| 2007 04 11 | 691 | 0.4− | 0.0 | 2008 09 23 | G96 | 0.1− | 0.0 | | | | | | |

**(229726)∗ 2007 GH$_{17}$ = 2002 EP$_{16}$ = 2005 YM$_{266}$**

Discovered 2007 Apr. 11 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 119479)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 178.49256 | | (2000.0) | | | |
| $n$ | 0.21841003 | $\omega$ | 15.81711 | | −0.25225162 | +0.96444002 |
| $a$ | 2.7307860 | $\Omega$ | 239.63043 | | −0.89743210 | −0.26365944 |
| $e$ | 0.0172719 | $i$ | 5.24666 | | −0.36191815 | −0.01841609 |
| $P$ | 4.51 | $H$ | 16.0 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 29 | 691 | 0.0 | 0.5− | 2007 04 11 | 691 | 0.1− | 0.2− | 2009 09 21 | G96 | 0.6+ | 0.1− | | |
| 2000 11 29 | 691 | 0.1+ | 0.6− | 2007 04 15 | 691 | 0.1− | 0.1− | 2009 09 21 | G96 | 0.4+ | 0.2+ | | |
| 2000 11 29 | 691 | 0.4− | 0.6+ | 2007 04 15 | 691 | 0.0 | 0.0 | 2009 09 21 | G96 | 0.5+ | 0.0 | | |
| 2002 03 06 | 644 | 0.2+ | 0.3+ | 2007 04 15 | 691 | 0.0 | 0.1− | 2009 09 21 | G96 | 0.7+ | 0.1− | | |
| 2002 03 06 | 644 | 0.2+ | 0.1+ | 2007 04 19 | 691 | 0.1− | 0.0 | 2009 11 08 | 691 | 0.1+ | 0.2+ | | |
| 2002 03 06 | 644 | 0.7+ | 0.1+ | 2007 04 19 | 691 | 0.2+ | 0.5+ | 2009 11 08 | 691 | 0.1+ | 0.0 | | |
| 2002 03 09 | 644 | 0.2+ | 0.9+ | 2007 04 19 | 691 | 0.0 | 0.1+ | 2009 11 08 | 691 | 0.3− | 0.2+ | | |
| 2002 03 09 | 644 | 0.9+ | 0.6+ | 2007 04 23 | 691 | 0.2+ | 0.1− | 2009 11 20 | 691 | 0.2− | 0.0 | | |
| 2002 03 09 | 644 | 0.7+ | 1.0+ | 2007 04 23 | 691 | 0.1+ | 0.3− | 2009 11 20 | 691 | 0.1− | 0.2+ | | |
| 2005 10 07 | G96 | 0.2− | 0.1+ | 2007 04 23 | 691 | 0.0 | 0.1+ | 2009 11 20 | 691 | 0.2− | 0.2+ | | |
| 2005 10 07 | G96 | 0.3− | 0.4− | 2007 04 27 | 691 | 0.2+ | 0.2− | 2009 11 23 | J75 | 0.9+ | 0.0 | | |
| 2005 10 07 | G96 | 0.3− | 0.0 | 2007 04 27 | 691 | 0.2− | 0.2− | 2009 11 23 | J75 | 0.3+ | 0.3− | | |
| 2005 10 07 | G96 | 0.3− | 0.5− | 2007 04 27 | 691 | 0.1− | 0.1− | 2009 11 24 | J75 | 0.7+ | 0.2+ | | |
| 2005 12 27 | 691 | 0.1+ | 0.1+ | 2007 05 13 | G96 | 0.2− | 0.2− | 2009 11 24 | 691 | 0.4− | 0.0 | | |
| 2005 12 27 | 691 | 0.2+ | 0.1− | 2007 05 13 | G96 | 0.0 | 0.1+ | 2009 11 24 | 691 | 0.2− | 0.1+ | | |
| 2005 12 27 | 691 | 0.2+ | 0.1+ | 2007 05 13 | G96 | 0.3− | 0.2− | 2009 11 24 | 691 | 0.2− | 0.2+ | | |
| 2006 01 07 | 691 | 0.0 | 0.2− | 2007 05 13 | G96 | 0.0 | 0.3+ | 2009 12 17 | G96 | 0.3+ | 0.2− | | |
| 2006 01 07 | 691 | 0.0 | 0.2− | 2008 10 07 | G96 | 0.7+ | 0.4+ | 2009 12 17 | G96 | 0.2+ | 0.0 | | |
| 2006 01 07 | 691 | 0.2− | 0.4− | 2008 10 07 | G96 | 0.1+ | 0.4+ | 2009 12 17 | G96 | 0.3+ | 0.2− | | |
| 2007 04 11 | 691 | 0.3− | 0.1− | 2008 10 07 | G96 | 0.0 | 0.2+ | 2009 12 17 | G96 | 0.4+ | 0.1+ | | |
| 2007 04 11 | 691 | 0.2− | 0.7+ | 2008 10 07 | G96 | 0.4+ | 0.4+ | | | | | | |

**(229727)∗ 2007 GZ$_{19}$**

Discovered 2007 Apr. 11 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 296.13837 | | (2000.0) | | | |
| $n$ | 0.27031143 | $\omega$ | 265.03097 | | −0.99941793 | −0.01149982 |
| $a$ | 2.3689712 | $\Omega$ | 274.30756 | | +0.02339144 | −0.91630808 |
| $e$ | 0.1517959 | $i$ | 1.84576 | | −0.02483242 | −0.40030894 |
| $P$ | 3.65 | $H$ | 17.3 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 02 09 | 644 | 0.2+ | 0.1+ | 2005 11 11 | 691 | (0.1− | 1.7+) | 2007 04 23 | 691 | 0.0 | 0.0 | | |
| 2003 02 09 | 644 | 0.2+ | 0.3+ | 2005 11 11 | 691 | 0.3+ | 0.2+ | 2007 04 23 | 691 | 0.1− | 0.0 | | |
| 2003 02 09 | 644 | 0.0 | 0.4+ | 2005 12 06 | 691 | 0.2− | 0.0 | 2007 04 23 | 691 | 0.0 | 0.0 | | |
| 2003 02 22 | 644 | 0.4+ | 0.5+ | 2005 12 06 | 691 | 0.4+ | 0.0 | 2008 09 07 | G96 | 0.4− | 0.5+ | | |
| 2003 02 22 | 644 | 0.1− | 0.5+ | 2005 12 06 | 691 | 0.3− | 0.1+ | 2008 09 07 | G96 | 0.1− | 0.1+ | | |
| 2003 02 22 | 644 | 0.6− | 0.4+ | 2005 12 06 | G96 | 0.0 | 0.4+ | 2008 09 07 | G96 | 0.3− | 0.3+ | | |
| 2003 03 06 | 644 | 0.1+ | 0.3+ | 2005 12 06 | G96 | 0.0 | 0.0 | 2008 09 07 | G96 | 0.5+ | 0.2+ | | |
| 2003 03 06 | 644 | 0.2+ | 0.4+ | 2005 12 06 | G96 | 0.0 | 0.1+ | 2008 09 22 | G96 | 0.2+ | 0.1+ | | |
| 2003 03 06 | 644 | 0.1− | 0.4+ | 2005 12 06 | G96 | 0.3+ | 0.4+ | 2008 09 22 | G96 | 0.8− | 0.2− | | |
| 2003 03 12 | 644 | 0.3+ | 0.4+ | 2007 04 11 | 691 | 0.2+ | 0.0 | 2008 09 22 | G96 | 0.2+ | 0.1− | | |
| 2003 03 12 | 644 | 0.6+ | 0.4+ | 2007 04 11 | 691 | 0.1+ | 0.1+ | 2008 09 22 | G96 | 0.3+ | 0.1+ | | |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 03 12 | 644 | 0.4+ | 0.2+ | 2007 04 11 | 691 | 0.1+ | 0.0 | 2009 12 16 | 691 | 0.3− | 0.1+ |
| 2004 08 12 | 807 | 0.4− | 0.3+ | 2007 04 15 | 691 | 0.2− | 0.0 | 2009 12 16 | 691 | 0.9+ | 0.9− |
| 2004 08 12 | 807 | 0.1− | 0.5+ | 2007 04 15 | 691 | 0.1+ | 0.1+ | 2009 12 16 | 691 | 0.0 | 0.1− |
| 2005 11 05 | 691 | 0.2+ | 0.3+ | 2007 04 15 | 691 | 0.2+ | 0.1− | 2009 12 20 | 691 | 1.1− | 0.1− |
| 2005 11 05 | 691 | 0.5− | 0.4+ | 2007 04 19 | 691 | 0.1− | 0.1+ | 2009 12 20 | 691 | 0.1+ | 0.1− |
| 2005 11 05 | 691 | 0.4− | 0.2+ | 2007 04 19 | 691 | 0.0 | 0.1+ | 2009 12 20 | 691 | 0.2+ | 0.3− |
| 2005 11 11 | 691 | 0.1+ | 0.2+ | 2007 04 19 | 691 | (1.2+ | 1.8+) | | | | |

**(229728)∗ 2007 GX$_{30}$ = 2004 RT$_{268}$**

Discovered 2007 Apr. 14 by the Mt. Lemmon Survey at Mount Lemmon.

Id. A. Doppler (*MPO* 120606)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 271.51838 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22294678 | $\omega$ | 314.69529 | | −0.90114380 | | −0.43340342 |
| $a$ | 2.6936133 | $\Omega$ | 199.62771 | | +0.40574001 | | −0.83499242 |
| $e$ | 0.0663765 | $i$ | 1.71720 | | +0.15269215 | | −0.33904149 |
| $P$ | 4.42 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 11 | 691 | 0.1+ | 0.3+ | 2007 04 14 | G96 | 0.8+ | 0.4− | 2009 10 18 | G96 | 0.1+ | 0.0 |
| 2004 09 11 | 691 | 0.3− | 0.6+ | 2007 04 14 | G96 | 0.4− | 0.2− | 2009 10 23 | 691 | 0.1− | 0.2− |
| 2004 09 11 | 691 | 0.6+ | 0.1+ | 2007 04 14 | G96 | 0.1+ | 0.1− | 2009 10 23 | 691 | 0.3+ | 0.2− |
| 2004 09 16 | 691 | 0.5− | 0.2+ | 2007 04 16 | G96 | 0.3+ | 0.1− | 2009 10 23 | 691 | 0.2− | 0.1− |
| 2004 09 16 | 691 | 0.3− | 0.0 | 2007 04 16 | G96 | 0.2− | 0.1− | 2009 11 08 | G96 | 0.4+ | 0.1− |
| 2004 09 16 | 691 | 0.2− | 0.3+ | 2007 04 16 | G96 | 0.1− | 0.2− | 2009 11 08 | G96 | 0.3+ | 0.1+ |
| 2005 11 30 | 691 | 0.1− | 0.8+ | 2007 04 16 | G96 | 0.0 | 0.0 | 2009 11 08 | G96 | 0.1− | 0.4− |
| 2005 11 30 | 691 | 0.2+ | 0.4+ | 2007 05 07 | 691 | 0.2+ | 0.2+ | 2009 11 08 | G96 | 0.2− | 0.2− |
| 2005 11 30 | 691 | 0.0 | 0.0 | 2007 05 07 | 691 | 0.1+ | 0.0 | 2009 11 08 | G96 | 0.4+ | 0.2− |
| 2007 03 18 | 691 | 0.1− | 0.2+ | 2007 05 07 | 691 | 0.0 | 0.2− | 2009 11 08 | G96 | 0.2+ | 0.0 |
| 2007 03 18 | 691 | 0.3− | 0.3+ | 2007 05 09 | G96 | 0.1− | 0.1− | 2009 11 08 | G96 | 0.4+ | 0.0 |
| 2007 03 18 | 691 | 0.5+ | 0.7+ | 2007 05 09 | G96 | 0.6+ | 0.1+ | 2009 11 08 | G96 | 0.3+ | 0.1+ |
| 2007 03 26 | 691 | 0.1− | 0.2− | 2007 05 09 | G96 | 0.3− | 0.2− | 2009 12 17 | G96 | 0.3− | 0.1− |
| 2007 03 26 | 691 | 0.2+ | 0.4+ | 2007 05 09 | G96 | 0.4+ | 0.2+ | 2009 12 17 | G96 | 0.3− | 0.7+ |
| 2007 03 26 | 691 | 0.3− | 0.4+ | 2009 10 18 | G96 | 0.1+ | 0.0 | 2009 12 17 | G96 | 0.7− | 0.1+ |
| 2007 04 14 | G96 | 0.1− | 0.0 | 2009 10 18 | G96 | 0.5− | 0.2− | 2009 12 17 | G96 | 0.1− | 0.1+ |

**(229729)∗ 2007 GB$_{35}$**

Discovered 2007 Apr. 14 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 312.88922 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.26152835 | $\omega$ | 64.36933 | | −0.61846226 | | −0.77753240 |
| $a$ | 2.4217178 | $\Omega$ | 64.31032 | | +0.66807964 | | −0.59649825 |
| $e$ | 0.0769770 | $i$ | 7.25407 | | +0.41373183 | | −0.19908092 |
| $P$ | 3.77 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 04 14 | 691 | 0.4− | 0.3− | 2007 03 12 | 703 | 0.7− | 1.1+ | 2009 11 10 | J75 | 0.3− | 0.0 |
| 1996 04 14 | 691 | 0.0 | 0.5− | 2007 03 12 | 703 | 0.5+ | 0.9+ | 2009 11 11 | J75 | 0.1+ | 0.7− |
| 1996 04 14 | 691 | 0.2− | 0.1− | 2007 03 12 | 703 | 0.4− | 1.0+ | 2009 11 12 | J75 | 1.1+ | 0.2− |
| 2003 01 26 | 608 | 0.6− | 1.2− | 2007 03 14 | 699 | 0.3+ | 0.3− | 2009 11 12 | J75 | 0.2− | 0.5− |
| 2003 01 26 | 608 | 0.5− | 0.6− | 2007 03 14 | 699 | 0.3+ | 0.2+ | 2009 11 15 | J75 | 0.0 | 0.1+ |
| 2003 01 26 | 608 | 0.2− | 0.7− | 2007 03 14 | 699 | 0.7+ | 0.4+ | 2009 11 15 | J75 | 0.3− | 0.1− |
| 2003 03 03 | 644 | 0.4+ | 0.5+ | 2007 03 14 | 699 | 0.0 | 0.4+ | 2009 11 15 | J75 | 0.4+ | 0.0 |
| 2003 03 03 | 644 | 0.4+ | 0.9+ | 2007 03 20 | 703 | 0.9− | 0.9− | 2009 11 16 | 691 | 0.0 | 0.1+ |
| 2003 03 03 | 644 | 0.5+ | 0.5+ | 2007 03 20 | 703 | (0.0 | 1.6−) | 2009 11 16 | 691 | 0.4− | 0.4− |
| 2005 10 22 | 703 | 0.8− | 0.0 | 2007 03 20 | 703 | 0.4+ | 0.5+ | 2009 11 16 | 691 | 0.0 | 0.1− |
| 2005 10 22 | 703 | 0.6− | 0.3+ | 2007 03 20 | 703 | 0.8− | 0.4+ | 2009 11 18 | 704 | 0.8+ | 0.2+ |
| 2005 10 22 | 703 | 1.4+ | 0.8− | 2007 04 14 | 691 | 0.0 | 0.3− | 2009 11 18 | 704 | 0.7+ | 0.0 |
| 2005 10 22 | 703 | (0.5+ | 1.5−) | 2007 04 14 | 691 | 0.2+ | 0.2− | 2009 11 18 | 704 | 0.9+ | 0.0 |
| 2005 10 28 | 703 | (2.3+ | 0.5+) | 2007 04 14 | 691 | 0.2+ | 0.0 | 2009 11 18 | 704 | 0.0 | 0.5− |
| 2005 10 28 | 703 | 0.5+ | 1.1− | 2007 04 18 | 691 | 0.1− | 0.2+ | 2009 11 20 | 691 | 0.2− | 0.0 |
| 2005 10 28 | 703 | 0.6− | 0.2+ | 2007 04 18 | 691 | 0.1+ | 0.3− | 2009 11 20 | 691 | 0.4− | 0.1+ |
| 2005 10 28 | 703 | 0.2− | 1.0+ | 2007 04 18 | 691 | 0.1+ | 0.0 | 2009 11 20 | 691 | 0.1− | 0.0 |
| 2005 11 09 | 703 | 0.6+ | 0.0 | 2009 10 21 | G96 | 0.2− | 0.2− | 2009 11 23 | J75 | 0.5+ | 0.3+ |
| 2005 11 09 | 703 | 0.1+ | 1.0+ | 2009 10 21 | G96 | 0.0 | 0.1− | 2009 11 23 | J75 | 1.5+ | 1.0+ |
| 2005 11 09 | 703 | 0.6+ | 0.5+ | 2009 10 21 | G96 | 0.3+ | 0.2− | 2009 11 23 | J75 | 0.3+ | 0.4− |
| 2005 11 09 | 703 | 0.5− | 0.1+ | 2009 10 21 | G96 | 0.2+ | 0.0 | 2009 12 11 | G96 | 0.1+ | 0.1− |
| 2007 03 11 | 699 | 1.3+ | 0.4+ | 2009 11 08 | 691 | 0.1− | 0.2+ | 2009 12 11 | G96 | 0.0 | 0.1− |
| 2007 03 11 | 699 | (2.3+ | 0.0 ) | 2009 11 08 | 691 | 0.3− | 0.2− | 2009 12 11 | G96 | 0.3+ | 0.3− |
| 2007 03 11 | 699 | (0.6− | 1.6−) | 2009 11 08 | 691 | 0.2− | 0.0 | 2009 12 11 | G96 | 0.0 | 0.2− |
| 2007 03 11 | 699 | 0.6− | 0.2− | 2009 11 09 | J75 | 0.1+ | 0.8+ | | | | |
| 2007 03 12 | 703 | (2.4+ | 1.3−) | 2009 11 10 | J75 | 0.3− | 0.9− | | | | |

**(229730)∗ 2007 GP$_{37}$**

Discovered 2007 Apr. 14 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 325.40592 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.26197339 | $\omega$ | 1.44035 | | −0.63125644 | | −0.77474897 |
| $a$ | 2.4189743 | $\Omega$ | 127.70404 | | +0.71112261 | | −0.59658870 |
| $e$ | 0.1407788 | $i$ | 2.59112 | | +0.30954795 | | −0.20939425 |
| $P$ | 3.76 | $H$ | 17.8 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 01 07 | 691 | 0.6− | 0.1+ | 2003 03 24 | 691 | 0.2− | 0.4+ | 2007 04 18 | 691 | 0.3− | 0.2+ |
| 1999 01 07 | 691 | 0.6− | 0.4− | 2003 03 24 | 691 | 0.3+ | 0.5+ | 2007 04 18 | 691 | 0.0 | 0.2− |
| 1999 01 07 | 691 | 0.7− | 0.2− | 2005 11 30 | G96 | 0.1− | 0.3+ | 2009 11 16 | G96 | 0.5+ | 0.1− |
| 1999 01 17 | 691 | 0.7+ | 0.4− | 2005 11 30 | G96 | 0.0 | 0.0 | 2009 11 16 | G96 | 0.3− | 0.3+ |
| 1999 01 17 | 691 | 0.4+ | 0.6− | 2005 11 30 | G96 | 0.3+ | 0.4+ | 2009 11 16 | G96 | 0.2− | 0.0 |
| 2001 10 15 | 645 | 0.1− | 0.1+ | 2005 11 30 | G96 | 0.7− | 0.9+ | 2009 11 16 | G96 | 0.4+ | 0.3+ |
| 2001 10 15 | 645 | 0.0 | 0.1+ | 2007 03 13 | G96 | 0.1− | 0.2− | 2009 11 23 | 691 | 0.1+ | 0.3+ |
| 2003 03 09 | 291 | 0.1+ | 0.0 | 2007 03 13 | G96 | 0.3− | 0.4− | 2009 11 23 | 691 | 0.4− | 0.1+ |
| 2003 03 09 | 291 | 0.2+ | 0.1+ | 2007 03 13 | G96 | 0.1+ | 0.2− | 2009 11 23 | 691 | 0.3− | 0.1+ |
| 2003 03 09 | 291 | 0.4+ | 0.2+ | 2007 03 13 | G96 | 0.1− | 0.2− | 2009 12 11 | G96 | 0.7+ | 0.0 |
| 2003 03 13 | 291 | 0.2+ | 0.2+ | 2007 04 14 | 691 | 0.2+ | 0.1+ | 2009 12 11 | G96 | 0.6+ | 0.2+ |
| 2003 03 13 | 291 | 0.1− | 0.2+ | 2007 04 14 | 691 | 0.6− | 0.2− | 2009 12 11 | G96 | 0.4+ | 0.2− |
| 2003 03 13 | 291 | 0.6+ | 0.0 | 2007 04 14 | 691 | 0.0 | 0.1− | 2009 12 11 | G96 | 0.2+ | 0.0 |
| 2003 03 24 | 691 | 0.1+ | 0.5+ | 2007 04 18 | 691 | 0.0 | 0.0 | | | | |

**(229731)∗ 2007 GN$_{42}$ = 2003 UR$_{114}$**

Discovered 2007 Apr. 14 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 120611)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 96.37763 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17521037 | $\omega$ | 284.65311 | | +0.73372993 | | +0.67928569 |
| $a$ | 3.1629780 | $\Omega$ | 32.56292 | | −0.61251919 | | +0.67056907 |
| $e$ | 0.2088371 | $i$ | 1.54778 | | −0.29404189 | | +0.29817456 |
| $P$ | 5.63 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 20 | 291 | 0.4− | 0.1+ | 2007 05 10 | G96 | 0.2− | 0.4− | 2008 09 23 | G96 | 0.0 | 0.3− |
| 2003 10 20 | 291 | 0.1− | 0.2+ | 2007 05 10 | G96 | 0.0 | 0.1+ | 2008 09 23 | G96 | 0.3− | 0.1− |
| 2003 10 20 | 291 | 0.2+ | 0.2+ | 2008 08 24 | 704 | 0.4+ | 1.1+ | 2008 09 23 | G96 | 0.1+ | 0.0 |
| 2003 10 22 | 691 | 0.1− | 0.3+ | 2008 08 24 | 704 | 0.2+ | 0.0 | 2009 11 21 | 691 | 1.8− | 0.4− |
| 2003 10 22 | 691 | 0.0 | 0.2+ | 2008 08 24 | 704 | 0.1+ | 1.0+ | 2009 11 21 | 691 | 0.0 | 0.2+ |
| 2003 10 22 | 691 | 0.1+ | 0.0 | 2008 08 24 | 704 | 0.5− | 1.0+ | 2009 11 21 | 691 | 0.2− | 0.0 |
| 2007 04 14 | 691 | 0.2− | 0.1+ | 2008 08 24 | 704 | 0.3− | 1.0+ | 2009 12 15 | G96 | 0.2+ | 1.1+ |
| 2007 04 14 | 691 | 0.4+ | 0.2+ | 2008 08 31 | J75 | 0.3+ | 0.8− | 2009 12 15 | G96 | 0.5+ | 0.5+ |
| 2007 04 14 | 691 | 0.0 | 0.0 | 2008 08 31 | J75 | 0.6− | 0.2− | 2009 12 15 | G96 | 0.7+ | 0.6+ |
| 2007 04 18 | G96 | 0.8+ | 0.0 | 2008 08 31 | J75 | 0.7+ | 0.1− | 2009 12 15 | G96 | 1.0+ | 0.1− |
| 2007 04 18 | G96 | 0.0 | 0.0 | 2008 09 01 | J75 | 0.4+ | 0.3− | 2009 12 16 | G96 | 1.1+ | 0.2+ |
| 2007 04 18 | G96 | 0.0 | 0.0 | 2008 09 01 | J75 | 0.2+ | 0.3− | 2009 12 16 | G96 | 1.0+ | 0.3− |
| 2007 04 18 | G96 | 0.1− | 0.2+ | 2008 09 01 | J75 | 0.8+ | 0.2+ | 2009 12 16 | G96 | 0.6+ | 0.1+ |
| 2007 04 26 | 691 | 0.1+ | 0.7+ | 2008 09 06 | 703 | 0.8− | 0.2− | 2009 12 16 | G96 | 0.5+ | 0.1− |
| 2007 04 26 | 691 | 0.2+ | 0.2+ | 2008 09 06 | 703 | 0.5− | 0.8− | 2009 12 16 | G96 | 0.7+ | 0.3+ |
| 2007 04 26 | 691 | 0.1− | 0.2+ | 2008 09 06 | 703 | 0.1− | 0.4− | 2009 12 16 | G96 | 0.5+ | 0.5+ |
| 2007 05 10 | G96 | 0.2+ | 0.2− | 2008 09 06 | 703 | 0.3− | 0.1− | 2009 12 16 | G96 | 0.1+ | 0.1+ |
| 2007 05 10 | G96 | 0.3− | 0.1+ | 2008 09 23 | G96 | 0.3− | 0.1− | 2009 12 16 | G96 | 1.1+ | 0.2− |

**(229732)∗ 2007 GY$_{47}$**

Discovered 2007 Apr. 14 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 61.42820 | | (2000.0) | | | |
| $n$ | 0.18855477 | $\omega$ | 152.29932 | | +0.99574104 | −0.03267779 |
| $a$ | 3.0119265 | $\Omega$ | 209.95396 | | +0.00969644 | +0.96701042 |
| $e$ | 0.1160821 | $i$ | 9.94239 | | +0.09168294 | +0.25263216 |
| $P$ | 5.23 | $H$ | 16.1 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 07 07 | 291 | 0.1+ | 0.2+ | 2007 03 14 | G96 | 0.1− | 0.1− | 2009 10 12 | G96 | 0.5+ | 0.1+ |
| 2002 07 07 | 291 | 0.2+ | 0.5+ | 2007 04 14 | 691 | 0.3+ | 0.2+ | 2009 10 12 | G96 | 0.4+ | 0.0 |
| 2002 07 07 | 291 | 0.2+ | 0.7+ | 2007 04 14 | 691 | 0.3− | 0.2− | 2009 10 12 | G96 | 0.4+ | 0.1+ |
| 2003 08 28 | 644 | 0.3+ | 0.5+ | 2007 04 14 | 691 | 0.5+ | 0.4+ | 2009 11 19 | 704 | 0.3− | 0.2+ |
| 2003 08 28 | 644 | 0.1+ | 0.2+ | 2007 04 14 | 691 | 0.6+ | 0.0 | 2009 11 19 | 704 | 0.9+ | 0.5+ |
| 2003 08 28 | 644 | 0.2+ | 0.4+ | 2007 04 14 | 691 | 0.4− | 0.2+ | 2009 11 19 | 704 | 0.2+ | 0.7+ |
| 2003 09 18 | 691 | 0.4− | 0.3+ | 2007 04 14 | 691 | 0.1− | 0.1+ | 2009 11 20 | 704 | 1.0+ | 0.9+ |
| 2003 09 18 | 691 | 0.2− | 0.3+ | 2007 04 18 | 691 | 0.1+ | 0.1+ | 2009 11 20 | 704 | 0.2+ | 0.9+ |
| 2003 09 18 | 691 | 0.2− | 0.0 | 2007 04 18 | 691 | 0.1+ | 0.5− | 2009 11 20 | 704 | 0.3+ | 0.3+ |
| 2003 09 30 | 691 | 0.1+ | 0.5+ | 2007 04 18 | 691 | 0.2− | 0.3− | 2009 11 20 | 704 | 0.4+ | 0.0 |
| 2003 09 30 | 691 | 0.0 | 0.4+ | 2007 04 22 | 691 | 0.3− | 0.1− | 2009 11 26 | G96 | 0.2+ | 0.2+ |
| 2003 09 30 | 691 | 0.2+ | 0.3+ | 2007 04 22 | 691 | 0.2− | 0.0 | 2009 11 26 | G96 | 0.1+ | 0.3+ |
| 2003 10 17 | 645 | 0.0 | 0.1− | 2007 04 22 | 691 | 0.3− | 0.2− | 2009 11 26 | G96 | 0.4+ | 0.1+ |
| 2003 10 17 | 645 | 0.0 | 0.1− | 2007 05 12 | G96 | 0.0 | 0.2− | 2009 11 26 | G96 | 0.0 | 0.1− |
| 2003 10 19 | 645 | 0.0 | 0.1− | 2007 05 12 | G96 | 0.1− | 0.0 | 2009 11 26 | G96 | 0.0 | 0.0 |
| 2003 10 19 | 645 | 0.0 | 0.1− | 2007 05 12 | G96 | 0.3− | 0.2− | 2009 12 11 | 703 | 0.7− | 0.2− |
| 2003 10 22 | 645 | 0.0 | 0.1− | 2007 05 12 | G96 | 0.1+ | 0.1+ | 2009 12 11 | 703 | 1.2− | 0.7+ |
| 2003 10 22 | 645 | 0.0 | 0.1− | 2008 08 21 | 691 | 0.3+ | 0.1− | 2009 12 11 | 703 | 0.8− | 0.6− |
| 2007 03 14 | G96 | 0.3− | 0.2− | 2008 08 21 | 691 | 0.1− | 0.2+ | 2009 12 11 | 703 | 1.3− | 0.2− |
| 2007 03 14 | G96 | 0.2+ | 0.3− | 2008 08 21 | 691 | 0.1− | 0.2− | | | | |
| 2007 03 14 | G96 | 0.2− | 0.2− | 2009 10 12 | G96 | 0.1− | 0.1+ | | | | |

**(229733)∗ 2007 GK$_{53}$ = 2006 AB$_{69}$ = 2009 UY$_{34}$**

Discovered 2007 Apr. 14 by the Mt. Lemmon Survey at Mount Lemmon.

Id. G. V. Williams (*MPO* 165560)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 341.74489 | | (2000.0) | | | |
| $n$ | 0.22630535 | $\omega$ | 233.61354 | | −0.02108940 | −0.99961017 |
| $a$ | 2.6668966 | $\Omega$ | 217.60754 | | +0.92661147 | −0.01267079 |
| $e$ | 0.0344220 | $i$ | 1.71807 | | +0.37542833 | −0.02487900 |
| $P$ | 4.36 | $H$ | 16.9 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 05 02 | 691 | 0.3− | 0.5+ | 2006 01 10 | 691 | 0.0 | 0.4+ | 2009 10 21 | G96 | 0.3+ | 0.3− |
| 1994 05 02 | 691 | (1.0+ | 6.2−) | 2007 03 14 | G96 | 0.1+ | 0.3+ | 2009 10 21 | G96 | 0.3− | 0.6+ |
| 1994 05 02 | 691 | 0.0 | 0.3+ | 2007 03 14 | G96 | 0.2+ | 0.1+ | 2009 10 21 | G96 | 0.2+ | 0.4− |
| 2000 10 30 | 691 | 0.2+ | 0.2− | 2007 03 14 | G96 | 0.3+ | 0.2+ | 2009 10 23 | 691 | 0.1− | 0.0 |
| 2000 10 30 | 691 | 0.1− | 0.0 | 2007 03 14 | G96 | 0.1− | 0.3+ | 2009 10 23 | 691 | 0.1− | 0.4− |
| 2000 10 30 | 691 | 0.1+ | 0.4+ | 2007 04 14 | G96 | 0.2− | 0.3+ | 2009 10 23 | 691 | 0.1+ | 0.2− |
| 2004 09 11 | 691 | 0.1+ | 0.2+ | 2007 04 14 | G96 | 0.6+ | 0.4+ | 2009 10 27 | 691 | 0.0 | 0.6+ |
| 2004 09 11 | 691 | 0.0 | 0.3+ | 2007 04 14 | G96 | 0.5− | 0.4− | 2009 10 27 | 691 | 0.2− | 0.3+ |
| 2004 09 11 | 691 | 0.1+ | 0.3+ | 2007 04 14 | G96 | 0.1− | 1.2− | 2009 10 27 | 691 | 0.2− | 0.1− |
| 2005 10 30 | G96 | 0.1− | 0.0 | 2007 04 19 | G96 | 0.3− | 0.1− | 2009 11 08 | 691 | 0.6− | 0.1+ |
| 2005 10 30 | G96 | 0.0 | 0.6− | 2007 04 19 | G96 | 0.6+ | 0.1+ | 2009 11 08 | 691 | 0.0 | 0.0 |
| 2005 10 30 | G96 | 0.2+ | 0.2− | 2007 04 19 | G96 | 0.4− | 0.2− | 2009 11 08 | 691 | 0.0 | 0.1− |
| 2005 10 30 | G96 | 0.2+ | 0.3− | 2007 04 19 | G96 | 0.6+ | 0.0 | 2009 11 24 | 691 | 0.7− | 0.1− |
| 2005 12 01 | G96 | 0.3+ | 0.0 | 2007 04 26 | G96 | 0.0 | 0.1+ | 2009 11 24 | 691 | 0.1− | 0.0 |
| 2005 12 01 | G96 | 0.1+ | 0.1− | 2007 04 26 | G96 | 0.1+ | 0.1+ | 2009 11 24 | 691 | 0.7+ | 0.4− |
| 2005 12 01 | G96 | 0.5+ | 0.1− | 2007 04 26 | G96 | 0.5+ | 0.4+ | 2009 12 11 | G96 | 0.1+ | 0.4− |
| 2005 12 01 | G96 | 0.4+ | 0.0 | 2007 04 26 | G96 | 0.4+ | 0.4+ | 2009 12 11 | G96 | 0.0 | 0.2− |
| 2006 01 06 | 691 | 0.2+ | 0.4− | 2008 07 29 | G96 | 0.1+ | 0.0 | 2009 12 11 | G96 | 0.1+ | 0.2− |
| 2006 01 06 | 691 | 0.0 | 0.1− | 2008 07 29 | G96 | 0.2− | 0.0 | 2009 12 11 | G96 | 0.1+ | 0.1− |
| 2006 01 06 | 691 | 0.3− | 0.2+ | 2008 07 29 | G96 | 0.1+ | 0.6− | 2009 12 19 | 691 | 0.2+ | 0.1− |
| 2006 01 10 | 691 | 0.0 | 0.3+ | 2008 07 29 | G96 | 0.2− | 0.0 | 2009 12 19 | 691 | 0.2− | 0.3+ |
| 2006 01 10 | 691 | 0.1+ | 0.1+ | 2009 10 21 | G96 | 0.7− | 0.7+ | 2009 12 19 | 691 | 0.1+ | 0.1+ |

**(229734)∗ 2007 GT$_{53}$ = 2003 TX$_{32}$**

Discovered 2007 Apr. 14 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 120617)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 123.02050 | | (2000.0) | | | |
| $n$ | 0.18882623 | $\omega$ | 141.94374 | | +0.61530143 | +0.78804453 |
| $a$ | 3.0090391 | $\Omega$ | 165.99394 | | −0.74177693 | +0.58729037 |
| $e$ | 0.1698402 | $i$ | 4.68014 | | −0.26677920 | +0.18459640 |
| $P$ | 5.22 | $H$ | 16.1 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 01 | 691 | 0.3− | 0.1+ | 2007 05 12 | G96 | 0.3+ | 0.1+ | 2008 09 21 | G96 | 1.1+ | 0.2+ |
| 2003 10 01 | 691 | 0.0 | 0.0 | 2007 05 12 | G96 | 0.4+ | 0.0 | 2008 09 23 | E12 | 0.4− | 0.3− |
| 2003 10 01 | 691 | 0.1+ | 0.2− | 2007 05 12 | G96 | 0.1+ | 0.1− | 2008 09 23 | E12 | 0.1− | 0.4− |
| 2003 10 18 | 691 | 0.1+ | 0.0 | 2007 05 12 | G96 | 0.3+ | 0.1− | 2008 09 23 | E12 | 0.3− | 0.3− |
| 2003 10 18 | 691 | 0.1− | 0.1+ | 2008 08 24 | 704 | 0.5+ | 0.6+ | 2008 09 23 | E12 | 0.1+ | 0.0 |
| 2003 10 18 | 691 | 0.2+ | 0.1+ | 2008 08 24 | 704 | 0.1− | 0.1− | 2008 09 28 | 704 | 0.7− | 0.3+ |
| 2006 02 28 | G96 | 0.1+ | 0.4− | 2008 08 24 | 704 | 1.1− | 0.4− | 2008 09 28 | 704 | 0.3− | 0.6+ |
| 2006 02 28 | G96 | 0.2− | 0.1+ | 2008 08 24 | 704 | 0.7− | 1.0+ | 2008 09 28 | 704 | 0.8− | 0.2− |
| 2006 02 28 | G96 | 0.3− | 0.1− | 2008 09 06 | 703 | 1.1+ | 0.1+ | 2008 09 28 | 704 | 0.2+ | 0.3+ |
| 2006 02 28 | G96 | 0.1− | 0.1− | 2008 09 06 | 703 | 0.5+ | 0.2− | 2009 11 23 | 691 | 0.2− | 0.1− |
| 2007 04 14 | 691 | 0.0 | 0.2− | 2008 09 06 | 703 | 0.2− | 0.3+ | 2009 11 23 | 691 | 0.2− | 0.1− |
| 2007 04 14 | 691 | 0.2− | 0.2− | 2008 09 06 | 703 | 1.2+ | 0.1− | 2009 11 23 | 691 | 0.2+ | 0.7+ |
| 2007 04 14 | 691 | 0.1− | 0.0 | 2008 09 06 | G96 | 0.2+ | 0.1− | 2009 12 13 | G96 | 0.3− | 0.2− |
| 2007 04 20 | 691 | 0.0 | 0.1+ | 2008 09 06 | G96 | 0.2+ | 0.1− | 2009 12 13 | G96 | 0.2+ | 0.1− |
| 2007 04 20 | 691 | 0.3+ | 0.1+ | 2008 09 06 | G96 | 0.1+ | 0.1− | 2009 12 13 | G96 | 0.3+ | 0.5− |
| 2007 04 20 | 691 | 0.1− | 0.1+ | 2008 09 06 | G96 | 0.0 | 0.0 | 2009 12 13 | G96 | 0.3+ | 0.3+ |
| 2007 04 22 | 691 | 0.0 | 0.0 | 2008 09 21 | G96 | 0.1− | 0.1− | 2009 12 13 | G96 | 0.4+ | 0.2+ |
| 2007 04 22 | 691 | 0.1+ | 0.2+ | 2008 09 21 | G96 | 0.0 | 0.2− | | | | |
| 2007 04 22 | 691 | 0.2− | 0.1+ | 2008 09 21 | G96 | 0.6− | 1.0− | | | | |

**(229735)∗ 2007 HK$_{1}$ = 2004 TO$_{233}$**

Discovered 2007 Apr. 16 by the Catalina Sky Survey.

Id. G. V. Williams (*MPO* 119501)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 189.85505 | | (2000.0) | | | |
| $n$ | 0.22896148 | $\omega$ | 304.02079 | | −0.18016506 | +0.98355889 |
| $a$ | 2.6462311 | $\Omega$ | 315.59457 | | −0.89655139 | −0.16936525 |
| $e$ | 0.2117179 | $i$ | 1.01107 | | −0.40464325 | −0.06266830 |
| $P$ | 4.30 | $H$ | 16.4 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 09 05 | 691 | 0.4− | 0.7+ | 2007 04 18 | 704 | 0.3− | 0.2+ | 2008 09 03 | 691 | 0.3+ | 0.9− |
| 1999 09 05 | 691 | 0.3− | 0.6+ | 2007 04 18 | 699 | 0.1− | 1.2+ | 2008 09 03 | 691 | 0.1− | 0.0 |
| 1999 09 05 | 691 | 0.3− | 0.7+ | 2007 04 18 | 704 | 0.7+ | 1.3+ | 2008 09 03 | 691 | 0.0 | 0.2− |
| 2002 01 22 | 291 | 0.8+ | 0.5+ | 2007 04 18 | 704 | 0.4+ | 0.2+ | 2008 09 19 | 691 | 0.4− | 0.3+ |
| 2002 01 22 | 291 | 0.1− | 0.9+ | 2007 04 18 | 704 | 0.4+ | 0.5+ | 2008 09 19 | 691 | 0.2+ | 0.1+ |
| 2002 01 22 | 291 | 0.4− | 0.7+ | 2007 04 22 | G92 | 0.2− | 0.1+ | 2008 09 19 | 691 | 0.2− | 0.3+ |
| 2004 10 08 | 691 | 0.1− | 0.0 | 2007 04 22 | G92 | 0.3− | 0.0 | 2008 09 29 | 704 | 0.3+ | 0.3− |
| 2004 10 08 | 691 | 0.4+ | 0.2+ | 2007 04 22 | G92 | 0.4+ | 0.3+ | 2008 09 29 | 704 | 0.7+ | 0.9+ |
| 2004 10 08 | 691 | 0.1+ | 0.4+ | 2007 04 22 | G92 | 0.0 | 0.3+ | 2008 09 29 | 704 | 0.1− | 0.5+ |
| 2004 10 12 | 691 | 0.3+ | 0.5+ | 2007 04 22 | G92 | 0.1+ | 0.4− | 2008 10 03 | J75 | 0.2− | 0.1− |
| 2004 10 12 | 691 | 0.1+ | 0.0 | 2007 04 22 | G92 | 0.3+ | 0.2− | 2008 10 03 | J75 | 0.0 | 0.2− |
| 2004 10 12 | 691 | 0.3− | 0.6+ | 2007 04 23 | G92 | 0.7+ | 0.1+ | 2008 10 03 | J75 | 0.2+ | 0.1+ |
| 2006 01 06 | 691 | 0.2+ | 0.2+ | 2007 04 23 | G92 | 0.0 | 0.2+ | 2008 10 04 | J75 | 0.5+ | 0.1− |
| 2006 01 06 | 691 | 0.5+ | 0.1− | 2007 04 23 | G92 | 0.0 | 0.3− | 2008 10 04 | J75 | 0.5+ | 0.2− |
| 2006 01 06 | 691 | 0.2+ | 0.1+ | 2007 04 23 | G92 | 0.6+ | 0.4− | 2008 10 04 | J75 | 0.1+ | 0.4− |
| 2007 03 11 | 691 | 0.0 | 0.1+ | 2007 04 23 | G92 | 0.4+ | 0.2+ | 2008 10 17 | 691 | 0.2− | 0.9+ |
| 2007 03 11 | 691 | 0.2− | 0.2− | 2007 04 24 | G92 | 1.1− | 0.4+ | 2008 10 17 | 691 | 0.2− | 0.5+ |
| 2007 03 11 | 691 | 0.2+ | 0.5+ | 2007 04 24 | G92 | 0.3+ | 0.3+ | 2008 10 17 | 691 | 0.2− | 0.1− |
| 2007 03 26 | 691 | 0.1+ | 0.1+ | 2007 04 24 | G92 | 0.8+ | 0.7+ | 2008 10 18 | 691 | 0.2− | 0.2+ |
| 2007 03 26 | 691 | 0.1+ | 0.1+ | 2007 04 24 | G92 | 0.5+ | 0.3+ | 2008 10 18 | 691 | 0.4− | 0.3+ |
| 2007 03 26 | 691 | 0.0 | 0.1+ | 2007 04 24 | G92 | 0.1− | 0.4+ | 2008 10 18 | 691 | 0.2− | 0.2+ |
| 2007 04 16 | 703 | 0.7− | 0.0 | 2007 04 24 | G92 | 0.2+ | 0.4− | 2008 10 24 | G96 | 0.2+ | 0.1+ |
| 2007 04 16 | 703 | 0.2− | 0.2− | 2007 04 24 | G92 | (1.9− | 0.1−) | 2008 10 24 | G96 | 0.1+ | 0.0 |
| 2007 04 16 | 703 | 0.6− | 0.5+ | 2007 04 24 | G92 | 0.2+ | 0.1− | 2008 10 24 | G96 | 0.3+ | 0.0 |
| 2007 04 16 | 704 | 0.2+ | 1.4+ | 2007 04 24 | G92 | 0.0 | 0.2+ | 2008 10 24 | G96 | 0.2+ | 0.1− |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 04 16 | 703 | 1.0− | 0.6− | 2007 04 24 | G92 | 0.5+ | 0.3+ | 2009 11 21 | 691 | 0.3− | 0.0 |
| 2007 04 16 | 704 | 0.8+ | 0.8+ | 2007 04 24 | G92 | 0.5+ | 0.2+ | 2009 11 21 | 691 | 0.8− | 0.2− |
| 2007 04 16 | 704 | 0.8+ | 1.5+ | 2007 04 26 | 691 | 0.2− | 0.2+ | 2009 11 21 | 691 | 0.4− | 0.1+ |
| 2007 04 16 | 704 | 0.1− | 1.0+ | 2007 04 26 | 691 | 1.0+ | 0.2+ | 2009 12 20 | G96 | 0.4+ | 0.3+ |
| 2007 04 16 | 704 | 0.6+ | 1.3+ | 2007 04 26 | 691 | (0.6+ | 1.7−) | 2009 12 20 | G96 | 0.3− | 0.0 |
| 2007 04 18 | 699 | 1.0− | 0.7− | 2008 08 24 | 691 | 0.0 | 0.0 | 2009 12 20 | G96 | 0.3− | 0.2+ |
| 2007 04 18 | 699 | 0.2+ | 0.2+ | 2008 08 24 | 691 | 0.2− | 0.4+ | | | | |
| 2007 04 18 | 699 | 1.1− | 0.9− | 2008 08 24 | 691 | 0.0 | 0.3+ | | | | |

**(229736)∗ 2007 HK$_3$ = 2005 WV$_{74}$**

Discovered 2007 Apr. 16 by the Catalina Sky Survey.

Id. A. Doppler (*MPO* 120626)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 290.68459 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24211208 | $\omega$ | 357.00842 | | −0.92027661 | −0.38253475 | |
| $a$ | 2.5495199 | $\Omega$ | 159.88207 | | +0.36376099 | −0.91386798 | |
| $e$ | 0.0852498 | $i$ | 13.82802 | | +0.14411417 | −0.13606056 | |
| $P$ | 4.07 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 08 15 | 599 | 0.3− | 0.4+ | 2006 01 05 | 699 | (0.1− | 2.4+) | 2007 04 23 | 703 | (0.0 | 2.5+) |
| 2004 08 15 | 599 | 0.1+ | 0.6+ | 2006 01 05 | 699 | 0.8+ | 0.1− | 2007 04 23 | 703 | 0.1− | 0.7+ |
| 2004 08 15 | 599 | 0.4− | 0.0 | 2007 03 25 | 703 | 1.1− | 0.0 | 2007 05 11 | 703 | 0.3− | 0.4− |
| 2004 08 15 | 599 | 0.2− | 0.8+ | 2007 03 25 | 703 | 0.4+ | 0.7+ | 2007 05 11 | 703 | 0.8+ | 1.0+ |
| 2004 09 13 | 691 | 0.0 | 0.3+ | 2007 03 25 | G96 | 0.0 | 0.2+ | 2007 05 11 | 703 | 0.9− | 0.4+ |
| 2004 09 13 | 691 | 0.1− | 0.2+ | 2007 03 25 | 703 | 0.2− | 0.4+ | 2007 05 11 | 703 | 0.4− | 0.1+ |
| 2004 09 13 | 691 | 0.2+ | 0.1+ | 2007 03 25 | G96 | 0.2+ | 0.2+ | 2008 09 07 | G96 | 0.1− | 0.2+ |
| 2005 11 28 | 644 | 0.2− | 0.2− | 2007 03 25 | 703 | 0.2+ | 0.6+ | 2008 09 07 | G96 | 0.3− | 0.3+ |
| 2005 11 28 | 644 | 0.1− | 0.2+ | 2007 03 25 | G96 | 0.1+ | 0.2+ | 2008 09 07 | G96 | 0.1+ | 0.1− |
| 2005 11 28 | 644 | 0.4− | 0.2− | 2007 03 25 | G96 | 0.3+ | 0.3+ | 2008 09 07 | G96 | 0.6− | 0.1− |
| 2005 11 29 | 703 | 0.0 | 0.9+ | 2007 04 16 | 703 | (2.2− | 0.2+) | 2008 10 02 | G96 | 0.0 | 0.1− |
| 2005 11 29 | 703 | 0.0 | 0.1+ | 2007 04 16 | 703 | 0.2+ | 0.7− | 2008 10 02 | G96 | 0.3+ | 0.0 |
| 2005 11 29 | 703 | 0.5+ | 0.9+ | 2007 04 16 | 703 | 0.2− | 0.1+ | 2008 10 02 | G96 | 0.0 | 0.0 |
| 2005 11 29 | 703 | 0.1− | 0.8+ | 2007 04 16 | 703 | 0.5− | 0.6+ | 2009 11 15 | 704 | 0.2+ | 1.0+ |
| 2005 12 06 | 704 | (1.1+ | 2.2+) | 2007 04 18 | 699 | 0.4+ | 0.7+ | 2009 11 15 | 704 | 0.5+ | 0.9+ |
| 2005 12 06 | 704 | 1.0− | 0.1+ | 2007 04 18 | 699 | 1.1+ | 0.5+ | 2009 11 15 | 704 | 0.3− | 1.4+ |
| 2005 12 06 | 704 | 0.6− | 0.9+ | 2007 04 18 | 699 | 0.5+ | 0.6+ | 2009 12 20 | 704 | 0.5− | 0.9+ |
| 2005 12 06 | 704 | 0.2− | 1.0− | 2007 04 18 | 699 | 0.9+ | 0.5+ | 2009 12 20 | 704 | 0.3− | 0.1+ |
| 2006 01 05 | 699 | 0.1− | 0.4+ | 2007 04 23 | 703 | 0.3+ | 0.0 | 2009 12 20 | 704 | 0.1+ | 0.0 |
| 2006 01 05 | 699 | 1.5+ | 1.2− | 2007 04 23 | 703 | 0.2+ | 0.7+ | 2009 12 20 | 704 | 0.2− | 1.1+ |

**(229737)∗ 2007 HO$_4$ = 2008 PY$_7$**

Discovered 2007 Apr. 19 by B. Christophe at Saint-Sulpice.

Id. T. B. Spahr (*MPO* 141318)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 74.14697 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21643362 | $\omega$ | 188.32231 | | +0.99982149 | −0.00606168 | |
| $a$ | 2.7473853 | $\Omega$ | 171.95983 | | +0.01080365 | +0.96044094 | |
| $e$ | 0.0785164 | $i$ | 7.35089 | | −0.01550067 | +0.27841778 | |
| $P$ | 4.55 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 04 18 | 691 | 0.3+ | 0.8+ | 2007 04 26 | 691 | 0.2− | 0.8− | 2008 10 23 | G96 | 0.2− | 0.1+ |
| 2002 04 18 | 691 | 0.1+ | 0.8+ | 2007 04 26 | 691 | 0.0 | 0.3− | 2008 11 21 | G96 | 0.5+ | 0.3− |
| 2002 04 18 | 691 | 0.3+ | 0.8+ | 2007 04 26 | 691 | 0.6− | 0.5+ | 2008 11 21 | G96 | 0.0 | 0.5− |
| 2007 03 16 | G96 | 0.5+ | 0.2− | 2008 07 30 | 703 | 0.9− | 0.6+ | 2008 11 21 | G96 | 0.1− | 0.0 |
| 2007 03 16 | G96 | 0.2+ | 0.1− | 2008 07 30 | 703 | 0.8− | 0.9+ | 2008 11 21 | G96 | 0.0 | 0.1+ |
| 2007 03 16 | G96 | 0.4− | 0.2− | 2008 07 30 | 703 | 1.2− | 0.0 | 2009 11 20 | 947 | 0.5− | 1.0− |
| 2007 03 16 | G96 | 0.1− | 0.3− | 2008 07 30 | 703 | 0.1− | 1.3+ | 2009 11 20 | 947 | 0.0 | 0.1− |
| 2007 04 19 | 947 | 0.1+ | 0.6− | 2008 08 05 | J75 | 0.8+ | 0.4+ | 2009 11 27 | G96 | 0.3− | 0.3+ |
| 2007 04 19 | 947 | 0.0 | 0.0 | 2008 08 05 | J75 | 0.0 | 0.4+ | 2009 11 27 | G96 | 0.3− | 0.4+ |
| 2007 04 19 | 947 | 0.3− | 0.3− | 2008 08 05 | J75 | 1.1+ | 0.7+ | 2009 11 27 | G96 | 0.0 | 0.4+ |
| 2007 04 19 | 947 | 0.5+ | 0.3− | 2008 08 06 | 620 | 0.1+ | 0.2− | 2009 11 27 | G96 | 0.5+ | 0.0 |
| 2007 04 19 | 947 | 0.5+ | 1.0− | 2008 08 06 | 620 | 0.4+ | 0.1− | 2009 11 27 | G96 | 0.3+ | 0.1+ |
| 2007 04 20 | 947 | 0.3+ | 0.2− | 2008 08 06 | 620 | 0.2− | 0.6+ | 2009 12 12 | D25 | 0.1− | 0.5− |
| 2007 04 23 | 691 | 0.3+ | 0.3− | 2008 10 23 | G96 | 0.2+ | 0.1+ | 2009 12 12 | D25 | 0.5− | 0.7− |
| 2007 04 23 | 691 | 0.0 | 0.2+ | 2008 10 23 | G96 | 0.1+ | 0.1+ | 2009 12 12 | D25 | 0.8+ | 1.0+ |
| 2007 04 23 | 691 | 0.2− | 0.4− | 2008 10 23 | G96 | 0.4− | 0.0 | | | | |

**(229738)∗ 2007 HW$_{21}$ = 2004 TR$_{261}$**

Discovered 2007 Apr. 18 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 120636)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 146.66742 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23291684 | $\omega$ | 149.00470 | | +0.69116914 | +0.72261447 | |
| $a$ | 2.6161870 | $\Omega$ | 164.70923 | | −0.67106012 | +0.64719196 | |
| $e$ | 0.0899154 | $i$ | 2.31580 | | −0.26826021 | +0.24283925 | |
| $P$ | 4.23 | $H$ | 17.6 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 18 | 691 | 0.8+ | 0.9− | 2006 01 23 | G96 | 0.1− | 0.3+ | 2008 09 06 | 691 | 0.6− | 0.7+ |
| 2000 11 18 | 691 | 0.3+ | 1.2− | 2006 01 23 | G96 | 0.3+ | 0.1− | 2008 09 06 | 691 | 0.1− | 0.5+ |
| 2000 11 18 | 691 | 0.0 | 0.6− | 2006 01 23 | G96 | 0.5+ | 0.1+ | 2008 09 20 | G96 | 0.1+ | 0.1+ |
| 2002 02 08 | 291 | 0.0 | 1.0+ | 2006 01 23 | G96 | 0.2+ | 0.4+ | 2008 09 20 | G96 | 0.4+ | 0.0 |
| 2002 02 08 | 291 | 0.1+ | 0.3+ | 2006 01 23 | G96 | 0.4+ | 0.2− | 2008 09 20 | G96 | 0.3+ | 0.2− |
| 2002 02 08 | 291 | 0.4− | 0.1+ | 2006 01 23 | G96 | 0.0 | 0.1+ | 2008 09 20 | G96 | 0.0 | 0.0 |
| 2004 09 23 | 291 | 0.3+ | 0.2+ | 2007 04 18 | 691 | 0.1− | 0.1+ | 2008 10 02 | G96 | 0.3+ | 0.3− |
| 2004 09 23 | 291 | 0.1+ | 0.0 | 2007 04 18 | 691 | 0.2+ | 0.2− | 2008 10 02 | G96 | 0.1+ | 0.1+ |
| 2004 09 23 | 291 | 0.2− | 0.3+ | 2007 04 18 | 691 | 0.2+ | 0.1+ | 2008 10 02 | G96 | 0.1− | 0.4− |
| 2004 10 09 | 691 | 0.4− | 0.1+ | 2007 04 22 | 691 | 0.1− | 0.1− | 2008 10 02 | G96 | 0.4− | 0.1− |
| 2004 10 09 | 691 | 0.1− | 0.1− | 2007 04 22 | 691 | 0.3+ | 0.2− | 2009 12 18 | 691 | 0.1+ | 0.1− |
| 2004 10 09 | 691 | 0.3− | 0.1+ | 2007 04 22 | 691 | 0.0 | 0.1+ | 2009 12 18 | 691 | 0.1− | 0.0 |
| 2004 10 13 | 691 | 0.1+ | 0.0 | 2007 05 12 | G96 | 0.0 | 0.8− | 2009 12 18 | 691 | 0.1+ | 0.3+ |
| 2004 10 13 | 691 | 0.0 | 0.1+ | 2007 05 12 | G96 | 0.4− | 0.4− | 2009 12 26 | 691 | 0.0 | 0.0 |
| 2004 10 13 | 691 | 0.0 | 0.2+ | 2007 05 12 | G96 | 0.2− | 0.0 | 2009 12 26 | 691 | 0.1+ | 0.5+ |
| 2006 01 23 | G96 | 0.1+ | 0.4+ | 2007 05 12 | G96 | 0.1− | 0.3− | 2009 12 26 | 691 | 0.2− | 0.1+ |
| 2006 01 23 | G96 | 0.5+ | 0.1+ | 2008 09 06 | 691 | 0.3− | 0.5+ | | | | |

**(229739)∗ 2007 HB$_{22}$ = 2004 TC$_{132}$**

Discovered 2007 Apr. 18 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 120636)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 54.29425 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21227423 | $\omega$ | 324.85933 | | +0.92995697 | −0.35212076 | |
| $a$ | 2.7831580 | $\Omega$ | 56.09700 | | +0.35972769 | +0.81192126 | |
| $e$ | 0.1111092 | $i$ | 7.32269 | | +0.07600013 | +0.46561232 | |
| $P$ | 4.64 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 01 26 | 645 | 0.0 | 0.0 | 2004 11 07 | 704 | 0.6− | 0.2+ | 2007 05 16 | G96 | 0.2+ | 0.5+ |
| 2001 01 26 | 645 | 0.0 | 0.1− | 2007 04 18 | 691 | 0.9+ | 0.7+ | 2007 05 16 | G96 | 0.1+ | 0.3− |
| 2004 10 07 | 699 | 0.4+ | 0.0 | 2007 04 18 | 691 | 0.2− | 0.3+ | 2007 05 16 | G96 | 0.1− | 0.0 |
| 2004 10 07 | 699 | 0.3+ | 0.6+ | 2007 04 18 | 691 | 0.1+ | 0.2+ | 2009 11 09 | 691 | 0.1− | 0.1+ |
| 2004 10 07 | 699 | 0.6− | 0.4+ | 2007 04 22 | 691 | 0.1− | 0.1+ | 2009 11 09 | 691 | 0.1− | 0.1+ |
| 2004 10 07 | 699 | 0.5+ | 0.1− | 2007 04 22 | 691 | 0.1− | 0.2+ | 2009 11 09 | 691 | 0.0 | 0.0 |
| 2004 10 09 | 704 | 0.6− | 0.5+ | 2007 04 22 | 691 | 0.1+ | 0.3+ | 2009 11 22 | 691 | 0.1− | 0.3− |
| 2004 10 09 | 704 | 0.5− | 0.5+ | 2007 05 09 | G96 | 0.3+ | 0.1+ | 2009 11 22 | 691 | 0.2− | 0.2+ |
| 2004 10 09 | 704 | 0.6− | 0.7+ | 2007 05 09 | G96 | 0.1− | 0.1− | 2009 11 22 | 691 | 0.6+ | 0.2+ |
| 2004 10 09 | 704 | 0.7− | 0.9+ | 2007 05 09 | G96 | 0.3− | 0.3− | 2009 12 20 | 691 | 0.2− | 0.1+ |
| 2004 11 07 | 704 | 0.2+ | 0.3+ | 2007 05 09 | G96 | 0.1− | 0.2+ | 2009 12 20 | 691 | 0.3− | 0.6+ |
| 2004 11 07 | 704 | 0.1+ | 0.3+ | 2007 05 16 | G96 | 0.2+ | 0.2+ | 2009 12 20 | 691 | 0.0 | 0.1+ |

**(229740)∗ 2007 HO$_{53}$ = 2006 BJ$_{267}$**

Discovered 2007 Apr. 20 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 120650)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 100.72148 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21489392 | $\omega$ | 260.93316 | | +0.92794393 | | +0.33346540 |
| $a$ | 2.7604929 | $\Omega$ | 79.45153 | | −0.23908084 | | +0.87523697 |
| $e$ | 0.0195988 | $i$ | 9.75049 | | −0.28593777 | | +0.35037276 |
| $P$ | 4.59 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 11 16 | 691 | 0.1+ | 0.3− | 2006 02 28 | 703 | 0.6+ | 0.6+ | 2009 11 18 | 704 | 0.3+ | 0.1+ |
| 1995 11 16 | 691 | 0.1+ | 0.0 | 2006 02 28 | 703 | 0.3− | 0.9+ | 2009 11 18 | 704 | (2.3− | 0.1−) |
| 1995 11 16 | 691 | 0.8− | 0.5+ | 2007 04 20 | 691 | 0.3+ | 0.3+ | 2009 11 18 | 704 | (1.5− | 0.3+) |
| 2000 12 17 | 691 | 0.2+ | 0.5− | 2007 04 20 | 691 | 0.0 | 0.1+ | 2009 11 21 | 704 | 0.9+ | 1.0+ |
| 2000 12 17 | 691 | 0.2+ | 0.4− | 2007 04 20 | 691 | 0.0 | 0.0 | 2009 11 21 | 704 | 0.9+ | 0.7+ |
| 2000 12 17 | 691 | 0.1+ | 0.3− | 2007 04 24 | 691 | 0.1+ | 0.0 | 2009 11 21 | 704 | 0.6+ | 0.0 |
| 2002 04 12 | 644 | 0.9+ | 0.3+ | 2007 04 24 | 691 | 0.0 | 0.2+ | 2009 11 21 | 704 | 0.6+ | 0.7− |
| 2002 04 12 | 644 | 0.8+ | 0.1+ | 2007 04 24 | 691 | 0.1− | 0.1+ | 2009 11 22 | 703 | 0.6− | 0.1− |
| 2002 04 12 | 644 | 0.8+ | 0.2+ | 2007 04 28 | 691 | 0.0 | 0.1− | 2009 11 22 | 703 | 0.6− | 0.4− |
| 2004 10 07 | 699 | 0.6+ | 1.3− | 2007 04 28 | 691 | 0.0 | 0.1+ | 2009 11 22 | 703 | 0.4+ | 0.1+ |
| 2004 10 07 | 699 | (1.7− | 2.2+) | 2007 04 28 | 691 | 0.2− | 0.0 | 2009 11 22 | 703 | 0.0 | 0.2+ |
| 2004 10 07 | 699 | 1.5+ | 0.6+ | 2007 05 07 | 703 | 0.2− | 0.1+ | 2009 11 24 | 691 | 0.2− | 0.4+ |
| 2004 10 07 | 699 | 0.0 | 0.8+ | 2007 05 07 | 703 | (1.6+ | 1.8−) | 2009 11 24 | 691 | 0.5− | 0.2+ |
| 2006 01 26 | 703 | 0.6− | 1.1+ | 2007 05 07 | 703 | (1.2− | 1.6+) | 2009 11 24 | 691 | 0.4− | 0.2+ |
| 2006 01 26 | 703 | 0.0 | 0.4+ | 2007 05 07 | 703 | (2.7+ | 1.7+) | 2009 12 10 | G96 | 0.1+ | 0.2+ |
| 2006 01 26 | 703 | 0.5− | 0.3− | 2007 05 12 | G96 | 0.1− | 0.0 | 2009 12 10 | G96 | 0.0 | 0.2+ |
| 2006 01 26 | 703 | 0.3− | 0.8− | 2007 05 12 | G96 | 0.1+ | 0.0 | 2009 12 10 | G96 | 0.1+ | 0.2+ |
| 2006 02 04 | 703 | 0.5− | 0.2+ | 2007 05 12 | G96 | 0.1+ | 0.0 | 2009 12 10 | G96 | 0.0 | 0.0 |
| 2006 02 04 | 703 | 0.2+ | 1.1− | 2007 05 12 | G96 | 0.4− | 0.1− | 2009 12 17 | 704 | 1.0− | 0.5+ |
| 2006 02 04 | 703 | 1.3+ | 0.6− | 2008 08 23 | E12 | 0.1− | 0.9+ | 2009 12 17 | 704 | 0.0 | 0.2− |
| 2006 02 04 | 703 | 1.2− | 0.7− | 2008 08 23 | E12 | 0.0 | 0.5− | 2009 12 17 | 704 | 0.3+ | 0.4− |
| 2006 02 28 | 703 | 0.2+ | 0.8+ | 2008 08 23 | E12 | (0.7− | 2.3+) | 2009 12 17 | 704 | 0.1− | 1.1+ |
| 2006 02 28 | 703 | 0.1− | 0.2− | 2008 08 23 | E12 | 0.0 | 0.2+ | | | | |

**(229741)∗ 2007 HM$_{58}$ = 2002 GR$_{153}$**

Discovered 2007 Apr. 23 by the Catalina Sky Survey.

Id. A. Doppler (*MPO* 121690)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 99.79208 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.19589032 | $\omega$ | 235.97097 | | +0.71905329 | | +0.66706482 |
| $a$ | 2.9362570 | $\Omega$ | 81.34750 | | −0.55474586 | | +0.71987238 |
| $e$ | 0.1178956 | $i$ | 11.37011 | | −0.41859215 | | +0.19185484 |
| $P$ | 5.03 | $H$ | 15.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 04 12 | 644 | 0.5+ | 0.6+ | 2007 04 24 | G96 | 0.4− | 0.2− | 2009 11 18 | 704 | 0.3+ | 0.4+ |
| 2002 04 12 | 644 | (0.5+ | 1.7+) | 2007 04 24 | G96 | 0.7+ | 0.3− | 2009 11 18 | 704 | 1.7+ | 0.7+ |
| 2002 04 12 | 644 | 0.4+ | 0.9+ | 2007 04 24 | G96 | 0.2+ | 0.2− | 2009 11 20 | 704 | 0.9+ | 0.7+ |
| 2002 04 16 | 704 | 1.2+ | 1.1+ | 2007 04 24 | G96 | 0.3+ | 1.0+ | 2009 11 20 | 704 | 0.8− | 0.1− |
| 2002 04 16 | 704 | 0.1+ | 0.6+ | 2007 04 24 | G96 | 0.4+ | 0.0 | 2009 11 20 | 704 | 0.0 | 0.7+ |
| 2002 04 16 | 704 | 1.2− | 0.4+ | 2007 04 24 | G96 | 0.0 | 0.0 | 2009 11 20 | 704 | 0.7− | 0.4+ |
| 2002 04 16 | 704 | 0.0 | 1.0− | 2007 04 24 | G96 | 0.1+ | 0.2+ | 2009 11 20 | 704 | 0.2− | 1.1+ |
| 2004 12 02 | 699 | 0.4− | 0.0 | 2007 05 24 | G96 | 0.3+ | 0.1− | 2009 11 23 | G96 | 0.6+ | 0.4+ |
| 2004 12 02 | 699 | 0.9+ | 0.2+ | 2007 05 24 | G96 | 0.1+ | 0.1+ | 2009 11 23 | G96 | 0.1+ | 0.4− |
| 2004 12 02 | 699 | 0.0 | 0.5− | 2007 05 24 | G96 | 0.1− | 0.2− | 2009 11 23 | G96 | 0.4+ | 0.3− |
| 2004 12 02 | 699 | (0.3+ | 1.9+) | 2008 08 04 | E12 | 0.1+ | 0.1− | 2009 11 23 | G96 | 0.0 | 0.1− |
| 2007 03 25 | G96 | 0.4+ | 0.0 | 2008 08 04 | E12 | 0.5− | 0.6+ | 2009 12 11 | 703 | 0.1+ | 1.0+ |
| 2007 03 25 | G96 | 0.0 | 0.0 | 2008 08 04 | E12 | 0.2− | 0.3+ | 2009 12 11 | 703 | 1.3− | 1.3+ |
| 2007 03 25 | G96 | 0.1+ | 0.4+ | 2008 08 04 | E12 | 0.6− | 0.7+ | 2009 12 11 | 703 | 0.2− | 0.9− |
| 2007 03 25 | G96 | 0.3+ | 0.2− | 2008 08 28 | E12 | 0.2+ | 0.8+ | 2009 12 11 | 703 | 0.1− | 0.2− |
| 2007 04 23 | 703 | 0.5− | 0.9+ | 2008 08 28 | E12 | 0.4+ | 0.4+ | 2009 12 19 | 691 | 0.4− | 0.0 |
| 2007 04 23 | 703 | 0.6− | 0.5+ | 2008 08 28 | E12 | 0.1+ | 0.1− | 2009 12 19 | 691 | 0.2− | 0.1− |
| 2007 04 23 | 703 | 0.9− | 0.1+ | 2009 11 18 | 704 | 0.6+ | 0.1− | 2009 12 19 | 691 | 0.3− | 0.1− |
| 2007 04 23 | 703 | 0.7+ | 0.1− | 2009 11 18 | 704 | 0.1− | 1.3+ | | | | |
| 2007 04 24 | G96 | 0.2+ | 0.1+ | 2009 11 18 | 704 | 0.0 | 0.1− | | | | |

**(229742)∗ 2007 HV$_{82}$**

Discovered 2007 Apr. 22 by the Catalina Sky Survey.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 264.21707 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.28566284 | $\omega$ | 118.81590 | | −0.50017337 | | +0.85986283 |
| $a$ | 2.2833205 | $\Omega$ | 120.81759 | | −0.83019075 | | −0.44259150 |
| $e$ | 0.0819024 | $i$ | 6.84037 | | −0.24619081 | | −0.25445762 |
| $P$ | 3.45 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 04 04 | 699 | 0.4− | 0.1− | 2006 01 31 | G96 | 0.1− | 0.1+ | 2008 09 29 | 703 | 0.8+ | 0.9+ |
| 2000 04 04 | 699 | 0.1+ | 0.4− | 2006 01 31 | G96 | 0.2+ | 0.0 | 2008 10 07 | G96 | 0.2+ | 0.2− |
| 2000 04 04 | 699 | 0.1+ | 0.5− | 2007 04 22 | 703 | 0.3+ | 0.7− | 2008 10 07 | G96 | 0.4+ | 0.1− |
| 2000 04 04 | 699 | 0.1− | 0.1+ | 2007 04 22 | 703 | 0.9− | 0.3+ | 2008 10 07 | G96 | 0.1+ | 0.2− |
| 2000 04 27 | 704 | 0.1+ | 1.0− | 2007 04 22 | 703 | 0.6+ | 0.7− | 2008 10 07 | G96 | 0.1+ | 0.1− |
| 2000 04 27 | 704 | 0.1− | 0.2+ | 2007 04 22 | 703 | 0.5+ | 0.3+ | 2008 10 21 | G96 | 0.1− | 0.1− |
| 2000 04 27 | 704 | 0.1+ | 0.0 | 2007 04 26 | D35 | 0.2+ | 0.1+ | 2008 10 21 | G96 | 0.0 | 0.3+ |
| 2000 04 27 | 704 | 0.3− | 1.5+ | 2007 04 26 | D35 | 0.4+ | 0.3+ | 2008 10 21 | G96 | 0.1+ | 0.0 |
| 2003 02 23 | 699 | 0.2+ | 0.0 | 2007 04 26 | D35 | 0.4+ | 0.1+ | 2009 11 19 | 691 | 0.2− | 0.0 |
| 2003 02 23 | 699 | 0.2+ | 0.5+ | 2007 05 09 | 703 | (0.7− | 2.2+) | 2009 11 19 | 691 | 0.3− | 0.4− |
| 2003 02 23 | 699 | 0.0 | 0.0 | 2007 05 09 | 703 | (0.4+ | 1.6+) | 2009 11 19 | 691 | 0.1+ | 0.3+ |
| 2003 02 23 | 699 | 0.1+ | 0.7+ | 2007 05 09 | 703 | 1.2− | 0.4+ | 2009 12 19 | G96 | 0.2− | 0.5− |
| 2004 08 15 | 807 | 0.2− | 0.1− | 2007 05 09 | 703 | 0.4+ | 0.8+ | 2009 12 19 | G96 | 0.4+ | 0.0 |
| 2004 08 15 | 807 | 0.1− | 0.0 | 2008 09 29 | 703 | 1.1− | 0.4− | 2009 12 19 | G96 | 0.3+ | 0.0 |
| 2006 01 31 | G96 | 0.0 | 0.2+ | 2008 09 29 | 703 | 0.0 | 1.3+ | 2009 12 19 | G96 | 0.2− | 0.1− |
| 2006 01 31 | G96 | 0.2+ | 0.1− | 2008 09 29 | 703 | 0.7− | 0.4− | | | | |

**(229743)∗ 2007 JA$_5$**

Discovered 2007 May 7 by the PMO Neo Survey Program at the XuYi Station of the Purple Mountain Observatory.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 159.82429 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17387767 | $\omega$ | 21.26071 | | −0.47050988 | | +0.86271396 |
| $a$ | 3.1791195 | $\Omega$ | 221.29535 | | −0.84467767 | | −0.50110062 |
| $e$ | 0.0972471 | $i$ | 16.30912 | | −0.25522555 | | +0.06799110 |
| $P$ | 5.67 | $H$ | 14.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 04 16 | 699 | 0.5+ | 0.7+ | 2007 04 16 | 704 | 1.0+ | 0.4+ | 2007 06 09 | 703 | 0.2− | 0.2− |
| 2001 04 16 | 699 | 1.0+ | 0.3+ | 2007 04 26 | 691 | 1.1− | 0.4+ | 2007 06 09 | 703 | 0.1+ | 0.5+ |
| 2001 04 16 | 699 | 1.0+ | 0.9+ | 2007 04 26 | 691 | 0.1− | 0.2− | 2008 09 29 | 704 | (2.3+ | 0.1−) |
| 2001 04 16 | 699 | 0.5− | 0.5+ | 2007 04 26 | 691 | 0.0 | 0.2− | 2008 09 29 | 704 | (1.9+ | 0.2+) |
| 2003 09 25 | 644 | 0.2+ | 0.2+ | 2007 05 07 | D29 | 0.7+ | 0.5− | 2008 09 29 | 704 | 0.3− | 1.0+ |
| 2003 09 25 | 644 | 0.1− | 0.2+ | 2007 05 07 | D29 | 0.8− | 0.4− | 2008 09 29 | 704 | 0.8+ | 0.2− |
| 2003 09 25 | 644 | 0.3+ | 0.0 | 2007 05 07 | D29 | 0.2+ | 0.1− | 2009 09 23 | G96 | 0.2− | 0.1+ |
| 2003 09 29 | 699 | (0.2− | 2.6+) | 2007 05 07 | D29 | 0.1+ | 0.2+ | 2009 09 23 | G96 | 0.5+ | 0.1+ |
| 2003 09 29 | 699 | (1.9− | 0.0 ) | 2007 05 10 | G96 | 0.5+ | 0.3− | 2009 09 23 | G96 | 0.3+ | 0.3− |
| 2003 09 29 | 699 | 0.6+ | 1.4− | 2007 05 10 | G96 | 0.1+ | 0.2− | 2009 09 23 | G96 | 0.1+ | 0.4− |
| 2003 09 29 | 699 | 0.1− | 0.3− | 2007 05 10 | G96 | 0.3+ | 0.3− | 2009 11 19 | G96 | 0.2+ | 0.1+ |
| 2003 10 01 | 691 | 0.2− | 0.1+ | 2007 05 10 | G96 | 0.4+ | 0.4− | 2009 11 19 | G96 | 0.2+ | 0.1+ |
| 2003 10 01 | 691 | 0.1+ | 0.1+ | 2007 05 12 | G96 | 0.0 | 0.0 | 2009 11 19 | G96 | 0.1+ | 0.1+ |
| 2003 10 01 | 691 | 0.1+ | 0.2+ | 2007 05 12 | G96 | 0.1+ | 0.0 | 2009 11 19 | G96 | 0.2+ | 0.1+ |
| 2003 10 22 | 691 | 0.3− | 0.0 | 2007 05 12 | G96 | 0.7− | 0.4− | 2009 11 25 | G96 | 0.1− | 0.0 |
| 2003 10 22 | 691 | 0.2− | 0.1+ | 2007 05 12 | G96 | 0.5+ | 0.9− | 2009 11 25 | G96 | 0.2− | 0.1− |
| 2003 10 22 | 691 | 0.2− | 0.2+ | 2007 05 13 | 704 | 0.5+ | 0.7+ | 2009 11 25 | G96 | 0.2+ | 0.0 |
| 2004 12 19 | G96 | 0.3− | 0.2+ | 2007 05 13 | 704 | 0.3+ | 0.1− | 2009 11 25 | G96 | 0.5+ | 0.1− |
| 2004 12 19 | G96 | 0.2− | 0.4+ | 2007 05 13 | 704 | 0.4+ | 0.5+ | 2009 12 10 | G96 | 0.1− | 0.1+ |
| 2004 12 19 | G96 | 0.3− | 0.3+ | 2007 05 13 | 704 | 0.0 | 0.6+ | 2009 12 10 | G96 | 0.2+ | 0.2+ |
| 2004 12 19 | G96 | 0.4− | 0.2− | 2007 05 13 | 704 | 0.7+ | 0.5+ | 2009 12 10 | G96 | 0.3+ | 0.2− |
| 2007 04 16 | 704 | 0.1− | 0.6− | 2007 06 09 | 703 | 0.5+ | 0.4+ | 2009 12 10 | G96 | 0.1+ | 0.1+ |
| 2007 04 16 | 704 | 0.3− | 0.8− | 2007 06 09 | 703 | 1.3− | 0.2+ | | | | |

**(229744)∗ 2007 JQ$_8$ = 1999 XA$_{138}$ = 2006 DT$_{215}$**

Discovered 2007 May 9 by the Mt. Lemmon Survey at Mount Lemmon.

Id. A. Doppler (*MPO* 121695)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 89.84072 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.20064327 | $\omega$ | 285.61542 | | +0.95335847 | | +0.29809565 |
| $a$ | 2.8897015 | $\Omega$ | 57.06296 | | −0.25076421 | | +0.86961154 |
| $e$ | 0.0566533 | $i$ | 3.23755 | | −0.16800277 | | +0.39359210 |
| $P$ | 4.91 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 12 02 | 691 | 0.5− | 0.8− | 2007 04 18 | G96 | 0.3− | 0.3− | 2009 11 08 | G96 | 0.6− | 0.8+ |
| 1999 12 02 | 691 | 0.0 | 0.3− | 2007 04 18 | 691 | 0.1− | 0.0 | 2009 11 08 | G96 | 1.2+ | 0.4+ |
| 1999 12 02 | 691 | 0.8+ | 0.6− | 2007 04 18 | G96 | 0.2− | 0.1− | 2009 11 08 | G96 | 0.2+ | 0.2+ |
| 1999 12 07 | 691 | 0.1+ | 1.0− | 2007 04 18 | 691 | 0.1− | 0.3− | 2009 11 09 | 691 | 0.1+ | 0.3+ |
| 1999 12 07 | 691 | 0.1+ | 0.3− | 2007 04 26 | 691 | 0.4− | 0.1− | 2009 11 09 | 691 | 0.3− | 0.1+ |
| 1999 12 07 | 691 | 0.3+ | 0.1− | 2007 04 26 | 691 | 0.4− | 0.1− | 2009 11 09 | 691 | 0.1− | 0.3+ |
| 2006 02 01 | 691 | 0.4− | 0.1+ | 2007 04 26 | 691 | 0.1− | 0.3− | 2009 11 21 | 691 | 0.3− | 0.1+ |
| 2006 02 01 | 691 | 0.1+ | 0.2+ | 2007 05 09 | G96 | 0.4− | 0.1+ | 2009 11 21 | 691 | 0.1+ | 0.2+ |
| 2006 02 01 | 691 | 0.2− | 0.1+ | 2007 05 09 | G96 | 0.6− | 0.2− | 2009 11 21 | 691 | 0.0 | 0.1− |
| 2006 02 20 | 691 | 0.3+ | 0.1− | 2007 05 09 | G96 | 0.1− | 0.2+ | 2009 11 21 | 691 | 0.2+ | 0.2− |
| 2006 02 20 | 691 | 0.1− | 0.3− | 2007 05 09 | G96 | 0.2− | 0.2− | 2009 11 21 | 691 | 0.1− | 0.1− |
| 2006 02 20 | 691 | 0.3+ | 0.3− | 2007 05 10 | 691 | 0.5− | 0.2− | 2009 11 21 | 691 | 0.2+ | 0.1− |
| 2006 02 20 | G96 | 0.0 | 0.1+ | 2007 05 10 | 691 | 0.3− | 0.1− | 2009 11 25 | 291 | 0.1− | 0.0 |
| 2006 02 20 | G96 | 0.6− | 0.6+ | 2007 05 10 | 691 | 0.1− | 0.1− | 2009 11 25 | 291 | 0.1− | 0.1+ |
| 2006 02 20 | G96 | 0.2− | 0.1− | 2007 05 11 | 691 | 0.0 | 0.1− | 2009 11 25 | 291 | 0.0 | 0.1+ |
| 2006 02 20 | G96 | 0.7+ | 0.4− | 2007 05 11 | 691 | 0.8+ | 0.2+ | 2009 11 25 | 291 | 0.3− | 0.1+ |
| 2006 02 24 | 691 | 0.3+ | 0.1+ | 2007 05 11 | 691 | 0.1+ | 0.2− | 2009 11 25 | 291 | 0.0 | 0.1+ |
| 2006 02 24 | 691 | 0.2+ | 0.1− | 2008 09 25 | G96 | 0.3+ | 0.6+ | 2009 11 25 | 291 | 0.5− | 0.1+ |
| 2006 02 24 | 691 | 0.1+ | 0.1+ | 2008 09 25 | G96 | 0.7+ | 0.1− | 2009 12 15 | G96 | 0.3+ | 0.5+ |
| 2007 04 18 | 691 | 0.4+ | 0.0 | 2008 09 25 | G96 | 0.5+ | 0.1+ | 2009 12 15 | G96 | 0.1+ | 0.5+ |
| 2007 04 18 | G96 | 0.1+ | 0.4− | 2008 09 25 | G96 | 0.5+ | 0.2+ | 2009 12 15 | G96 | 0.4+ | 0.4+ |
| 2007 04 18 | G96 | 0.1+ | 0.0 | 2009 11 08 | G96 | 0.5+ | 0.1− | 2009 12 15 | G96 | 0.2+ | 0.5+ |

**(229745)∗ 2007 JA$_{15}$ = 2009 WR$_{185}$**

Discovered 2007 May 10 by the Mt. Lemmon Survey at Mount Lemmon.

Id. G. V. Williams (*MPO* 165566)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 152.63256 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.19918214 | $\omega$ | 15.92360 | | −0.04961670 | | +0.99861347 |
| $a$ | 2.9038162 | $\Omega$ | 251.23498 | | −0.91836724 | | −0.05253755 |
| $e$ | 0.0116279 | $i$ | 1.06433 | | −0.39260642 | | −0.00330900 |
| $P$ | 4.95 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 10 03 | 691 | 0.3+ | 0.1+ | 2006 02 04 | 691 | 0.1− | 0.3+ | 2009 11 11 | G96 | 0.2+ | 0.4+ |
| 1999 10 03 | 691 | 0.4+ | 0.5+ | 2007 04 15 | 691 | 0.2− | 0.2+ | 2009 11 11 | G96 | 0.4− | 0.2− |
| 1999 10 03 | 691 | 0.1+ | 0.3− | 2007 04 15 | 691 | 0.3+ | 0.2+ | 2009 11 11 | G96 | 0.7+ | 0.0 |
| 1999 10 29 | 691 | 0.7− | 0.2+ | 2007 04 15 | 691 | 0.0 | 0.2+ | 2009 11 11 | G96 | 0.2+ | 0.4+ |
| 1999 10 29 | 691 | 0.1− | 0.4+ | 2007 04 23 | 691 | 0.2− | 0.2− | 2009 11 24 | G96 | 0.2+ | 0.2− |
| 1999 10 29 | 691 | 0.1− | 0.6+ | 2007 04 23 | 691 | 0.1+ | 0.2+ | 2009 11 24 | G96 | 0.0 | 0.0 |
| 2004 10 08 | 691 | 0.1− | 0.1− | 2007 04 23 | 691 | 0.0 | 0.2+ | 2009 11 24 | G96 | 0.0 | 0.1+ |
| 2004 10 08 | 691 | 0.0 | 0.0 | 2007 05 10 | G96 | 0.4+ | 0.1+ | 2009 11 24 | G96 | 0.1− | 0.1− |
| 2004 10 08 | 691 | 0.4− | 0.0 | 2007 05 10 | G96 | 0.0 | 0.3+ | 2009 11 25 | G96 | 0.4+ | 0.0 |
| 2004 11 04 | 691 | 0.2− | 0.2− | 2007 05 10 | G96 | 0.0 | 0.1− | 2009 11 25 | G96 | 0.1+ | 0.2− |
| 2004 11 04 | 691 | 0.2+ | 0.4− | 2007 05 10 | G96 | 0.3− | 0.2+ | 2009 11 25 | G96 | 0.1− | 0.1+ |
| 2004 11 04 | 691 | 0.1+ | 0.0 | 2007 05 11 | G96 | 0.3+ | 0.1+ | 2009 11 25 | G96 | 0.2+ | 0.3− |
| 2005 11 29 | G96 | 0.0 | 0.1+ | 2007 05 11 | G96 | 0.1+ | 0.0 | 2009 12 10 | G96 | 0.4+ | 0.3− |
| 2005 11 29 | G96 | 0.4− | 0.7− | 2007 05 11 | G96 | 0.4+ | 0.2+ | 2009 12 10 | G96 | 0.4+ | 0.3− |
| 2005 11 29 | G96 | 0.5− | 0.6− | 2007 05 11 | G96 | 0.0 | 0.0 | 2009 12 10 | G96 | 0.2− | 0.1+ |
| 2005 11 29 | G96 | 0.1+ | 0.1+ | 2009 11 11 | 691 | 0.0 | 0.0 | 2009 12 10 | G96 | 0.6+ | 0.0 |
| 2006 02 04 | 691 | 0.1− | 0.1+ | 2009 11 11 | 691 | 0.4− | 0.3+ | | | | |
| 2006 02 04 | 691 | 0.4+ | 0.1− | 2009 11 11 | 691 | 0.1− | 0.0 | | | | |

**(229746)∗ 2007 JF$_{17}$ = 2006 BL$_{271}$**

Discovered 2007 May 7 by Spacewatch at Kitt Peak.

Id. A. Doppler (*MPO* 126288)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 121.64301 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.19471146 | $\omega$ | 205.45454 | | +0.68348880 | | +0.72772216 |
| $a$ | 2.9480966 | $\Omega$ | 107.72020 | | −0.65905537 | | +0.64885096 |
| $e$ | 0.0828903 | $i$ | 3.43824 | | −0.31382969 | | +0.22229011 |
| $P$ | 5.06 | $H$ | 15.3 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 01 31 | 691 | 0.3+ | 0.5+ | 2007 05 12 | 691 | 0.0 | 0.1− | 2008 09 25 | G96 | 0.2− | 0.2+ |
| 2006 01 31 | 691 | 0.1− | 0.1+ | 2007 05 12 | 691 | 0.0 | 0.3+ | 2008 09 25 | G96 | 0.0 | 0.1+ |
| 2006 01 31 | 691 | 0.1+ | 0.1− | 2007 05 12 | 691 | 0.3+ | 0.0 | 2008 09 25 | G96 | 0.4− | 0.2+ |
| 2006 02 04 | 691 | 0.1+ | 0.2+ | 2008 08 11 | A50 | 0.3+ | 0.2− | 2008 09 25 | G96 | 0.3− | 0.1+ |
| 2006 02 04 | 691 | 0.0 | 0.2+ | 2008 08 11 | A50 | 0.4+ | 0.0 | 2009 11 08 | 691 | 0.1− | 0.1− |
| 2006 02 04 | 691 | 0.0 | 0.2+ | 2008 08 11 | A50 | 0.3− | 0.3+ | 2009 11 08 | 691 | 0.2− | 0.3+ |
| 2006 03 26 | 691 | 0.1+ | 0.0 | 2008 08 11 | A50 | 0.1+ | 0.1− | 2009 11 08 | 691 | 0.1− | 0.3− |
| 2006 03 26 | 691 | 0.0 | 0.5+ | 2008 08 23 | 704 | 1.0+ | 0.0 | 2009 11 24 | 691 | 0.1− | 0.1+ |
| 2006 03 26 | 691 | 0.0 | 0.4− | 2008 08 23 | 704 | 0.4− | 1.2− | 2009 11 24 | 691 | 0.3+ | 0.1− |
| 2007 04 22 | G96 | 0.4+ | 0.3− | 2008 08 23 | 704 | 0.1− | 0.4+ | 2009 11 24 | 691 | 0.2− | 0.1+ |
| 2007 04 22 | G96 | 0.4+ | 0.0 | 2008 08 23 | 704 | 0.8− | 0.8+ | 2009 12 11 | G96 | 0.6+ | 0.3− |
| 2007 04 22 | G96 | 0.2+ | 0.1+ | 2008 09 23 | 704 | 0.5− | 0.9+ | 2009 12 11 | G96 | 0.6+ | 0.3− |
| 2007 04 22 | G96 | 0.2+ | 0.0 | 2008 09 23 | 704 | 0.2+ | 0.9+ | 2009 12 11 | G96 | 0.2+ | 0.1− |
| 2007 05 07 | 691 | 0.2− | 0.1+ | 2008 09 23 | 704 | (1.8− | 1.2+) | 2009 12 11 | G96 | 0.4+ | 0.2− |
| 2007 05 07 | 691 | 0.2− | 0.1− | 2008 09 23 | 704 | 0.8− | 1.0+ | | | | |
| 2007 05 07 | 691 | 0.3− | 0.0 | 2008 09 23 | 704 | 0.3+ | 1.1+ | | | | |

**(229747)∗ 2007 JV$_{18}$**

Discovered 2007 May 9 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 126.78791 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21063984 | $\omega$ | 239.01320 | | +0.88626526 | | +0.44704738 |
| $a$ | 2.7975361 | $\Omega$ | 94.18849 | | −0.37264226 | | +0.84356949 |
| $e$ | 0.1708716 | $i$ | 6.97845 | | −0.27508477 | | +0.29755529 |
| $P$ | 4.68 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 07 08 | 644 | 0.2+ | 0.4+ | 2007 06 13 | 691 | 0.2+ | 0.1+ | 2008 11 06 | 703 | 0.7− | 0.2+ |
| 2003 07 08 | 644 | 0.1− | 0.5+ | 2007 06 13 | 691 | 0.1+ | 0.0 | 2008 11 06 | 703 | 1.3− | 0.4− |
| 2003 07 08 | 644 | 0.0 | 0.3+ | 2007 06 13 | 691 | 0.2+ | 0.1+ | 2008 11 06 | 703 | (1.9− | 1.1+) |
| 2003 09 25 | 644 | 0.2− | 0.2+ | 2008 09 29 | 703 | 0.5+ | 0.6− | 2009 11 11 | G96 | 0.5+ | 0.2+ |
| 2003 09 25 | 644 | 0.4− | 0.1+ | 2008 09 29 | 703 | 0.5− | 0.0 | 2009 11 11 | G96 | 0.3+ | 0.3− |
| 2003 09 25 | 644 | 0.0 | 0.2+ | 2008 09 29 | 703 | 0.8− | 0.2− | 2009 11 11 | G96 | 0.6+ | 0.2+ |
| 2007 05 09 | 691 | 0.2+ | 0.0 | 2008 09 29 | 703 | 1.0+ | 0.1+ | 2009 11 11 | G96 | 0.4+ | 0.2− |
| 2007 05 09 | 691 | 0.2− | 0.4+ | 2008 10 08 | 703 | (0.3− | 1.9+) | 2009 12 15 | G96 | 0.7+ | 0.0 |
| 2007 05 09 | 691 | 0.0 | 0.2+ | 2008 10 08 | 703 | 0.1+ | 0.8+ | 2009 12 15 | G96 | 0.8+ | 0.3− |
| 2007 05 12 | G96 | 0.2+ | 0.0 | 2008 10 08 | 703 | 1.0+ | 0.8+ | 2009 12 15 | G96 | 0.1− | 0.5+ |
| 2007 05 12 | G96 | 0.0 | 0.0 | 2008 10 08 | 703 | (0.2+ | 1.7+) | 2009 12 15 | G96 | 1.1+ | 0.7− |
| 2007 05 12 | G96 | 0.2− | 0.1+ | 2008 10 27 | G96 | 0.2+ | 0.1+ | 2009 12 18 | 691 | 0.0 | 0.1+ |
| 2007 05 12 | G96 | 0.1+ | 0.1+ | 2008 10 27 | G96 | 0.1+ | 0.0 | 2009 12 18 | 691 | 0.2+ | 0.2+ |
| 2007 05 13 | 691 | (1.7+ | 0.1−) | 2008 10 27 | G96 | 0.1− | 0.1+ | 2009 12 18 | 691 | 0.2− | 0.0 |
| 2007 05 13 | 691 | 0.0 | 0.0 | 2008 10 27 | G96 | 0.4+ | 0.2+ | 2009 12 26 | 691 | 0.1+ | 0.3+ |
| 2007 05 13 | 691 | 0.1+ | 0.2+ | 2008 10 29 | 704 | 0.3− | 0.0 | 2009 12 26 | 691 | 0.1− | 0.0 |
| 2007 06 09 | 691 | 0.3− | 0.7− | 2008 10 29 | 704 | 0.3− | 0.1+ | 2009 12 26 | 691 | 0.8− | 0.4+ |
| 2007 06 09 | 691 | 0.1+ | 0.1+ | 2008 10 29 | 704 | 0.3− | 0.7+ | | | | |
| 2007 06 09 | 691 | 0.1− | 0.3+ | 2008 11 06 | 703 | (1.6+ | 0.0 ) | | | | |

**(229748)∗ 2007 JZ$_{19}$ = 2003 UF$_{344}$ = 2006 EJ$_{72}$**

Discovered 2007 May 10 by the Mt. Lemmon Survey at Mount Lemmon.

Id. G. V. Williams (*MPO* 122590)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 145.73122 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.19022965 | $\omega$ | 173.29148 | | +0.24748927 | | +0.96764151 |
| $a$ | 2.9942214 | $\Omega$ | 111.02856 | | −0.89137033 | | +0.24729002 |
| $e$ | 0.1721434 | $i$ | 3.02044 | | −0.37974729 | | +0.05017522 |
| $P$ | 5.18 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 30 | 691 | 0.3− | 0.2+ | 2006 03 04 | 691 | 0.3+ | 0.1+ | 2007 05 12 | G96 | 0.0 | 0.1− | | |
| 2003 09 30 | 691 | 0.2+ | 0.4+ | 2006 03 04 | 691 | 0.1− | 0.2− | 2007 05 12 | G96 | 0.2+ | 0.0 | | |
| 2003 09 30 | 691 | 0.3− | 0.4+ | 2006 03 04 | 691 | 0.3− | 1.1+ | 2007 05 12 | G96 | 0.1− | 0.3− | | |
| 2003 10 19 | 691 | 0.1− | 0.1− | 2007 04 14 | 691 | 0.1+ | 0.2+ | 2007 05 12 | G96 | 0.1+ | 0.7+ | | |
| 2003 10 19 | 691 | 0.3+ | 0.2+ | 2007 04 14 | 691 | 0.1+ | 0.3+ | 2008 09 08 | 691 | 0.1− | 0.1+ | | |
| 2003 10 19 | 691 | 0.1− | 0.2+ | 2007 04 14 | 691 | 0.0 | 0.1+ | 2008 09 08 | 691 | 0.2− | 0.2+ | | |
| 2003 10 24 | 645 | 0.0 | 0.0 | 2007 04 18 | 691 | 0.1− | 0.1+ | 2008 09 08 | 691 | 0.1+ | 0.4+ | | |
| 2003 10 24 | 645 | 0.0 | 0.0 | 2007 04 18 | 691 | 0.2+ | 0.4+ | 2008 09 22 | 704 | (0.8− | 1.8+) | | |
| 2006 01 27 | G96 | 0.1− | 0.2− | 2007 04 18 | 691 | 0.3− | 0.1+ | 2008 09 22 | 704 | (0.2− | 1.7+) | | |
| 2006 01 27 | G96 | 0.1− | 0.3− | 2007 04 26 | 691 | 0.0 | 0.2+ | 2008 09 22 | 704 | 1.0− | 0.2+ | | |
| 2006 01 27 | G96 | 0.5− | 0.4− | 2007 04 26 | 691 | 0.0 | 0.1+ | 2009 11 20 | 691 | 0.0 | 0.1+ | | |
| 2006 01 27 | G96 | 0.1+ | 0.2+ | 2007 04 26 | 691 | 0.1+ | 0.2+ | 2009 11 20 | 691 | 0.4+ | 0.3+ | | |
| 2006 02 25 | G96 | 0.4+ | 0.4+ | 2007 05 10 | G96 | 0.4+ | 0.1+ | 2009 11 20 | 691 | 0.4− | 0.2+ | | |
| 2006 02 25 | G96 | 0.1− | 0.2− | 2007 05 10 | G96 | 0.6+ | 0.2+ | 2009 12 11 | G96 | 0.2+ | 0.2+ | | |
| 2006 02 25 | G96 | 0.8+ | 0.7+ | 2007 05 10 | G96 | 0.3+ | 0.4+ | 2009 12 11 | G96 | 0.1+ | 0.5+ | | |
| 2006 02 25 | G96 | 0.5+ | 0.4+ | 2007 05 10 | G96 | 0.4+ | 0.3+ | 2009 12 11 | G96 | 0.4+ | 0.0 | | |

**(229749)∗ 2007 JH$_{21}$ = 2005 XA$_{33}$**

Discovered 2007 May 11 by the Siding Spring Survey at Siding Spring.

Id. G. V. Williams (*MPO* 120673)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 244.46136 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23954774 | $\omega$ | 322.10198 | | −0.83830530 | +0.50995439 | |
| $a$ | 2.5676826 | $\Omega$ | 249.61861 | | −0.43632246 | −0.83961285 | |
| $e$ | 0.2323616 | $i$ | 11.87215 | | −0.32690507 | −0.18707425 | |
| $P$ | 4.11 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 11 26 | 691 | 0.0 | 0.2+ | 2007 05 11 | E12 | 0.2+ | 0.7− | 2008 09 28 | 703 | 0.6− | 0.1+ | | |
| 2005 11 26 | 691 | 0.7− | 0.1− | 2007 05 13 | E12 | 0.1− | 0.4+ | 2008 09 28 | 703 | 0.7+ | 0.5+ | | |
| 2005 11 26 | 691 | 0.1− | 0.0 | 2007 05 13 | E12 | 0.2− | 0.1− | 2008 09 28 | 703 | 0.3− | 1.2+ | | |
| 2005 12 04 | 691 | 0.1+ | 0.3+ | 2007 05 13 | E12 | 0.2+ | 0.1+ | 2009 11 09 | 691 | 0.1− | 0.1− | | |
| 2005 12 04 | 691 | 0.1− | 0.1+ | 2007 05 13 | E12 | 0.5− | 0.5+ | 2009 11 09 | 691 | 0.1− | 0.1+ | | |
| 2005 12 04 | 691 | 0.0 | 0.2+ | 2007 05 16 | E12 | 0.2+ | 0.2+ | 2009 11 09 | 691 | 0.4− | 0.1+ | | |
| 2005 12 08 | 691 | 0.0 | 0.1− | 2007 05 16 | E12 | 0.2− | 0.4+ | 2009 11 20 | 691 | 0.1− | 0.0 | | |
| 2005 12 08 | 691 | 0.3+ | 0.4− | 2007 05 16 | E12 | 0.0 | 0.4+ | 2009 11 20 | 691 | 0.0 | 0.1− | | |
| 2005 12 08 | 691 | 0.5+ | 0.1+ | 2007 05 16 | E12 | 0.3− | 0.1+ | 2009 11 20 | 691 | 0.1− | 0.1− | | |
| 2005 12 27 | G96 | 0.1+ | 0.1− | 2007 05 25 | E12 | 0.0 | 0.2+ | 2009 11 20 | 291 | 0.0 | 0.1+ | | |
| 2005 12 27 | G96 | 0.1− | 0.1+ | 2007 05 25 | E12 | 0.3− | 0.6+ | 2009 11 20 | 291 | 0.1+ | 0.1+ | | |
| 2005 12 27 | G96 | 0.0 | 0.0 | 2007 05 25 | E12 | 0.4+ | 0.4+ | 2009 11 20 | 291 | 0.0 | 0.1− | | |
| 2005 12 27 | G96 | 0.4− | 0.4− | 2007 05 25 | E12 | 0.1+ | 0.0 | 2009 12 11 | 703 | 0.4+ | 0.4+ | | |
| 2007 03 14 | E12 | 0.3+ | 0.6+ | 2007 06 14 | E12 | 0.0 | 0.1− | 2009 12 11 | 703 | 0.5+ | 0.3+ | | |
| 2007 03 14 | E12 | 0.3+ | 0.1+ | 2007 06 14 | E12 | 0.1− | 0.2+ | 2009 12 11 | 703 | 0.0 | 0.0 | | |
| 2007 03 14 | E12 | 0.4+ | 0.1+ | 2007 06 14 | E12 | 0.4− | 0.1+ | 2009 12 11 | 703 | 0.7+ | 0.1+ | | |
| 2007 04 22 | E12 | 0.1+ | 0.2− | 2007 06 14 | E12 | 0.0 | 0.4+ | 2009 12 15 | G96 | 0.1+ | 0.1− | | |
| 2007 04 22 | E12 | 0.0 | 0.0 | 2007 06 20 | 704 | 0.1+ | 1.5− | 2009 12 15 | G96 | 0.4+ | 0.1+ | | |
| 2007 04 22 | E12 | 0.3− | 0.2+ | 2007 06 20 | 704 | 1.1− | 1.3− | 2009 12 15 | G96 | 0.2+ | 0.1+ | | |
| 2007 04 22 | E12 | 0.0 | 0.1+ | 2007 06 20 | 704 | 1.4+ | 0.0 | 2009 12 15 | G96 | 0.3+ | 0.3− | | |
| 2007 05 11 | E12 | 0.0 | 0.0 | 2007 06 20 | 704 | 1.4+ | 0.2− | | | | | | |
| 2007 05 11 | E12 | 0.9− | 0.1− | 2008 09 28 | 703 | 0.0 | 0.3− | | | | | | |

**(229750)∗ 2007 JC$_{23}$**

Discovered 2007 May 13 by S. F. Hönig and N. Teamo at Tiki Observatory, Punaauia.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 150.51648 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22001711 | $\omega$ | 45.22206 | | +0.50415076 | +0.85906500 | |
| $a$ | 2.7174720 | $\Omega$ | 255.24441 | | −0.81595758 | +0.44023297 | |
| $e$ | 0.0534860 | $i$ | 5.25333 | | −0.28292267 | +0.26115562 | |
| $P$ | 4.48 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 11 30 | 691 | 0.9− | 0.0 | 2007 05 14 | 704 | 0.6− | 0.3+ | 2008 08 27 | A50 | 0.4− | 0.2+ | | |
| 1995 11 30 | 691 | 0.5− | 0.4+ | 2007 05 14 | 704 | 0.6+ | 0.5− | 2008 08 27 | A50 | 1.0− | 0.3+ | | |
| 1995 11 30 | 691 | 0.2− | 0.2+ | 2007 05 14 | F85 | 0.2+ | 0.1+ | 2008 08 27 | A50 | 0.3+ | 0.4− | | |
| 1999 09 05 | 703 | 0.9+ | 0.3+ | 2007 05 14 | 704 | 0.5− | 0.4− | 2008 09 02 | 683 | 0.3+ | 0.4− | | |
| 1999 09 05 | 703 | 1.7+ | 1.1+ | 2007 05 14 | 704 | 0.1− | 0.3+ | 2008 09 02 | 683 | 1.4− | 0.5− | | |
| 1999 09 05 | 703 | 0.7+ | 1.6+ | 2007 05 14 | F85 | 0.1+ | 0.1+ | 2008 09 29 | 704 | 0.5+ | 0.2+ | | |
| 1999 09 05 | 703 | 0.6+ | 0.1− | 2007 05 19 | F85 | 0.1− | 0.2+ | 2008 09 29 | 704 | 0.3+ | 0.6+ | | |
| 2002 04 05 | 644 | 1.0+ | 0.4− | 2007 05 19 | F85 | 0.4+ | 1.3+ | 2008 09 29 | 704 | 0.5+ | 1.3+ | | |
| 2002 04 05 | 644 | 0.9+ | 0.5− | 2007 05 20 | F85 | 0.1+ | 0.1− | 2008 09 29 | 704 | 1.4+ | 0.1− | | |
| 2002 04 05 | 644 | 1.3+ | 0.6− | 2007 05 20 | F85 | 0.3− | 0.8+ | 2008 09 29 | 704 | (1.8+ | 0.5+) | | |
| 2004 11 19 | 703 | 0.4+ | 1.0+ | 2007 05 22 | F85 | 0.5− | 0.7+ | 2008 10 08 | 703 | 0.7− | 0.5− | | |
| 2004 11 19 | 703 | 0.3− | 0.0 | 2007 05 22 | F85 | 0.3− | 1.3+ | 2008 10 08 | 703 | 0.3+ | 0.1− | | |
| 2004 11 19 | 703 | 0.2− | 0.7+ | 2007 06 06 | F85 | 0.1+ | 0.2− | 2008 10 08 | 703 | 0.6− | 0.0 | | |
| 2004 11 19 | 703 | 0.3+ | 0.7− | 2007 06 06 | F85 | 1.0− | 0.0 | 2008 10 08 | 703 | 0.4+ | 0.7− | | |
| 2005 10 06 | G96 | 0.3+ | 0.4− | 2007 06 09 | F85 | 0.1− | 1.2+ | 2009 11 21 | 691 | 0.3− | 0.3− | | |
| 2005 10 06 | G96 | 0.6− | 0.0 | 2007 06 09 | F85 | 0.2− | 0.1+ | 2009 11 21 | 691 | 0.3− | 0.4− | | |
| 2005 10 06 | G96 | 0.7+ | 0.0 | 2007 07 10 | F85 | 0.5+ | 0.1+ | 2009 11 21 | 691 | 0.1− | 0.1− | | |
| 2005 10 06 | G96 | 0.3+ | 0.1+ | 2007 07 10 | F85 | 0.1+ | 0.6+ | 2009 12 17 | 691 | 0.1+ | 0.0 | | |
| 2007 05 13 | F85 | 0.3+ | 0.0 | 2008 08 05 | F85 | 0.2− | 1.2− | 2009 12 17 | 691 | 0.1+ | 0.0 | | |
| 2007 05 13 | F85 | 0.2− | 0.2+ | 2008 08 05 | F85 | 0.5+ | 1.0− | 2009 12 17 | 691 | 0.5+ | 1.2+ | | |
| 2007 05 14 | 704 | 1.4− | 0.3+ | 2008 08 27 | A50 | 0.3+ | 0.8+ | | | | | | |

**(229751)∗ 2007 JK$_{27}$ = 2003 WF$_{168}$**

Discovered 2007 May 9 by Spacewatch at Kitt Peak.

Id. A. Doppler (*MPO* 121699)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 67.09350 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17087771 | $\omega$ | 275.81979 | | +0.93799808 | +0.15655032 | |
| $a$ | 3.2162202 | $\Omega$ | 75.47180 | | −0.00048000 | +0.89279531 | |
| $e$ | 0.1319775 | $i$ | 18.63220 | | −0.34664012 | +0.42238434 | |
| $P$ | 5.77 | $H$ | 15.0 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 20 | 704 | (2.3+ | 0.9−) | 2007 05 12 | D29 | (0.3+ | 1.6+) | 2009 11 18 | 691 | 0.2− | 0.2+ | | |
| 2003 10 20 | 704 | 0.8− | 0.1− | 2007 05 12 | D29 | 0.1− | 0.6+ | 2009 11 22 | 691 | 0.2− | 0.4+ | | |
| 2003 10 20 | 704 | 0.8− | 0.8− | 2007 05 13 | 691 | 0.3+ | 0.3+ | 2009 11 22 | 691 | 0.1+ | 0.3+ | | |
| 2003 10 20 | 704 | 0.1+ | 0.8+ | 2007 05 13 | 691 | 0.0 | 0.4+ | 2009 11 22 | 691 | 0.2− | 0.1+ | | |
| 2003 11 19 | 644 | 0.6+ | 0.3+ | 2007 05 13 | 691 | 0.2+ | 0.3+ | 2009 11 26 | 691 | 0.6− | 0.2− | | |
| 2003 11 19 | 644 | 0.7+ | 0.2+ | 2007 06 09 | 691 | 0.0 | 0.2+ | 2009 11 26 | 691 | 0.1− | 0.2+ | | |
| 2003 11 19 | 644 | 0.5+ | 0.4+ | 2007 06 09 | 691 | 0.1− | 0.6+ | 2009 11 26 | 691 | 0.4− | 0.3− | | |
| 2003 11 21 | 699 | 0.7− | 1.0+ | 2007 06 09 | 691 | 0.1+ | 0.2+ | 2009 11 26 | 691 | 0.0 | 0.2+ | | |
| 2003 11 21 | 699 | 0.5− | 0.5+ | 2007 06 13 | 691 | 0.7+ | 0.7− | 2009 11 26 | 691 | 0.1− | 0.1+ | | |
| 2003 11 21 | 699 | (0.2− | 1.8+) | 2007 06 13 | 691 | 0.0 | 0.3+ | 2009 11 26 | 691 | 0.2− | 0.1+ | | |
| 2003 11 21 | 699 | 0.9− | 0.1− | 2007 06 13 | 691 | 0.1− | 0.3+ | 2009 12 11 | 703 | 0.0 | 0.0 | | |
| 2003 12 13 | 703 | 0.1+ | 1.3+ | 2008 09 01 | E12 | 0.0 | 0.0 | 2009 12 11 | 703 | 0.6+ | 0.1+ | | |
| 2003 12 13 | 703 | (1.7− | 0.1+) | 2008 09 01 | E12 | 0.7− | 0.1+ | 2009 12 11 | 703 | 0.4− | 0.4+ | | |
| 2003 12 13 | 703 | (2.2− | 0.5+) | 2008 09 01 | E12 | 0.2+ | 0.1+ | 2009 12 11 | 703 | 0.7+ | 0.5+ | | |
| 2003 12 13 | 703 | 0.6− | 0.1+ | 2009 11 09 | 703 | 0.3− | 0.3− | 2009 12 17 | G96 | 0.6+ | 0.2− | | |
| 2007 05 09 | 691 | 0.2− | 0.3+ | 2009 11 09 | 703 | 0.5+ | 0.4+ | 2009 12 17 | G96 | 0.1+ | 0.1− | | |
| 2007 05 09 | 691 | 0.0 | 0.2+ | 2009 11 09 | 703 | 0.4+ | 0.2− | 2009 12 17 | G96 | 0.4+ | 0.0 | | |
| 2007 05 09 | 691 | 0.9+ | 0.9+ | 2009 11 09 | 703 | 0.1+ | 0.3+ | 2009 12 17 | G96 | 0.4+ | 1.4+ | | |
| 2007 05 12 | D29 | 0.3+ | 0.8+ | 2009 11 18 | 691 | 0.1+ | 0.3+ | | | | | | |
| 2007 05 12 | D29 | 1.1+ | 1.2− | 2009 11 18 | 691 | 0.0 | 0.5+ | | | | | | |

**(229752)∗ 2007 JL$_{36}$**

Discovered 2007 May 14 by S. F. Hönig and N. Teamo at Tiki Observatory, Punaauia.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 151.79648 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22118663 | $\omega$ | 40.50414 | | +0.58061023 | +0.81116935 | |
| $a$ | 2.7078845 | $\Omega$ | 265.10185 | | −0.76396786 | +0.51307170 | |
| $e$ | 0.0998111 | $i$ | 4.02710 | | −0.28150465 | +0.28064519 | |
| $P$ | 4.46 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 10 | 691 | 0.0 | 0.1− | 2007 06 09 | F85 | 0.2− | 0.9− | 2008 12 03 | G96 | 0.6+ | 0.1− | | |
| 2004 10 10 | 691 | 0.1+ | 0.0 | 2007 07 10 | F85 | 0.2− | 0.4− | 2008 12 03 | G96 | 0.1− | 0.0 | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 10 | 691 | 0.2− | 0.3+ | 2007 07 10 | F85 | 0.2+ | 0.2− | 2009 11 18 | G96 | 0.4+ | 0.5− | | |
| 2007 05 14 | F85 | 0.6+ | 0.3− | 2007 07 12 | F85 | 0.1− | 0.7+ | 2009 11 18 | G96 | 1.0+ | 1.0− | | |
| 2007 05 14 | F85 | 0.3+ | 0.6− | 2007 07 12 | F85 | 0.3− | 0.0 | 2009 11 18 | G96 | 0.3+ | 0.1− | | |
| 2007 05 15 | F85 | 0.5− | 0.0 | 2008 09 24 | 703 | 0.4− | 0.1− | 2009 11 18 | G96 | 0.0 | 0.4− | | |
| 2007 05 16 | F85 | 1.0+ | 0.2− | 2008 09 24 | 703 | (1.5+ | 2.4+) | 2009 12 16 | 691 | 0.3− | 0.5− | | |
| 2007 05 16 | F85 | 1.4− | 0.3− | 2008 09 24 | 703 | (0.4− | 2.0+) | 2009 12 16 | 691 | 0.0 | 0.1− | | |
| 2007 05 16 | F85 | (2.7− | 0.5−) | 2008 09 24 | 703 | (0.5+ | 2.8+) | 2009 12 16 | 691 | 0.4− | 1.3+ | | |
| 2007 05 19 | F85 | 0.1+ | 0.1+ | 2008 09 30 | J75 | 0.0 | 0.3− | 2009 12 16 | G96 | 0.1+ | 0.4− | | |
| 2007 05 19 | F85 | 0.3+ | 0.7+ | 2008 09 30 | J75 | 0.2− | 0.2− | 2009 12 16 | G96 | 0.2+ | 0.2− | | |
| 2007 05 22 | F85 | 0.2+ | 0.5+ | 2008 09 30 | J75 | 0.4+ | 0.1+ | 2009 12 16 | G96 | 0.3+ | 0.2− | | |
| 2007 05 22 | F85 | 0.1− | 0.8+ | 2008 10 30 | G96 | 0.2− | 0.1− | 2009 12 16 | G96 | 0.4+ | 0.4− | | |
| 2007 06 06 | F85 | 0.1− | 0.4− | 2008 10 30 | G96 | 0.4+ | 0.2− | 2009 12 16 | G96 | 0.1+ | 0.5− | | |
| 2007 06 06 | F85 | 0.4+ | 0.1+ | 2008 10 30 | G96 | 0.0 | 0.2+ | 2009 12 20 | 691 | 0.7+ | 0.1− | | |
| 2007 06 09 | F85 | 0.6− | 0.1+ | 2008 12 03 | G96 | 0.0 | 0.0 | 2009 12 20 | 691 | 0.2− | 0.2+ | | |
| 2007 06 09 | F85 | 0.2+ | 0.2+ | 2008 12 03 | G96 | 0.0 | 0.0 | 2009 12 20 | 691 | 0.4− | 0.1− | | |

**(229753)∗ 2007 KA$_4$ = 2004 XS$_{46}$**

Discovered 2007 May 23 by W. K. Y. Yeung at 7300 Observatory, Cloudcroft.

Id. A. Doppler (*MPO* 121703)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 47.46370 | | (2000.0) | | | |
| $n$ | 0.18366365 | $\omega$ | 272.98584 | | +0.95044437 | −0.25650397 |
| $a$ | 3.0651654 | $\Omega$ | 101.92598 | | +0.30434432 | +0.88302428 |
| $e$ | 0.0706117 | $i$ | 10.34350 | | −0.06348261 | +0.39303161 |
| $P$ | 5.37 | $H$ | 15.4 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 03 19 | 645 | 0.0 | 0.1+ | 2007 05 23 | H07 | 0.1+ | 0.9+ | 2009 11 18 | J75 | 0.2− | 0.2− | | |
| 2001 03 19 | 645 | 0.0 | 0.1+ | 2007 05 24 | H07 | (1.6+ | 1.8+) | 2009 11 18 | J75 | 0.0 | 0.1+ | | |
| 2003 09 19 | 699 | 0.8+ | 0.1− | 2007 05 24 | H07 | 0.4+ | 1.1+ | 2009 11 18 | J75 | 0.2− | 0.3+ | | |
| 2003 09 19 | 699 | 0.4− | 1.0− | 2007 05 24 | H07 | 1.1+ | 1.0+ | 2009 11 19 | 704 | (0.5− | 1.7+) | | |
| 2003 09 19 | 699 | 1.4− | 0.9+ | 2007 06 08 | 691 | 0.0 | 0.0 | 2009 11 19 | 704 | (0.6+ | 2.6+) | | |
| 2003 09 19 | 699 | 0.1− | 0.3+ | 2007 06 08 | 691 | 0.3− | 0.2+ | 2009 11 19 | 704 | (2.1+ | 0.7+) | | |
| 2004 12 09 | 691 | 0.3+ | 0.0 | 2007 06 08 | 691 | 0.1− | 0.4+ | 2009 11 19 | J75 | 0.0 | 0.5+ | | |
| 2004 12 09 | 691 | 0.2+ | 0.1+ | 2008 08 04 | E12 | 0.1− | 0.4+ | 2009 11 20 | J75 | 0.2+ | 0.6+ | | |
| 2004 12 09 | 691 | 0.1+ | 0.1− | 2008 08 04 | E12 | 0.7− | 0.9+ | 2009 11 20 | J75 | 0.4+ | 0.1− | | |
| 2004 12 13 | 691 | 0.0 | 0.3+ | 2008 08 04 | E12 | 0.6+ | 0.4+ | 2009 11 22 | 703 | 0.3+ | 0.3+ | | |
| 2004 12 13 | 691 | 0.1+ | 0.3+ | 2008 08 04 | E12 | 0.2+ | 0.2+ | 2009 11 22 | 703 | 1.1− | 0.5+ | | |
| 2004 12 13 | 691 | 0.1+ | 0.3+ | 2008 08 23 | E12 | 0.5− | 0.4+ | 2009 11 22 | 703 | 0.1− | 1.0+ | | |
| 2007 04 25 | 691 | 0.0 | 0.2+ | 2008 08 23 | E12 | 0.4+ | 0.7+ | 2009 11 22 | G96 | 0.0 | 0.0 | | |
| 2007 04 25 | 691 | 0.1− | 0.2+ | 2008 08 23 | E12 | 0.8+ | 0.2+ | 2009 11 22 | 703 | 0.7− | 1.3− | | |
| 2007 04 25 | 691 | 0.5+ | 0.1+ | 2008 08 23 | E12 | 0.5− | 0.3+ | 2009 11 22 | G96 | 0.1− | 0.1+ | | |
| 2007 05 10 | G96 | 0.5+ | 0.3+ | 2009 10 26 | 130 | 0.1+ | 0.9+ | 2009 11 22 | 703 | 0.1− | 0.4+ | | |
| 2007 05 10 | G96 | 0.2+ | 0.0 | 2009 10 26 | 130 | 0.8+ | 0.9+ | 2009 11 22 | G96 | 0.1− | 0.0 | | |
| 2007 05 10 | G96 | 0.5+ | 0.1− | 2009 11 09 | 703 | 0.2+ | 0.1− | 2009 11 22 | G96 | 0.3+ | 0.0 | | |
| 2007 05 10 | G96 | 0.3+ | 0.2− | 2009 11 09 | 703 | 0.7+ | 0.5+ | 2009 12 19 | 691 | 0.5− | 0.3+ | | |
| 2007 05 23 | H07 | 0.3− | 0.2+ | 2009 11 09 | 703 | 0.4− | 0.2− | 2009 12 19 | 691 | 0.7− | 0.5+ | | |
| 2007 05 23 | H07 | 0.6+ | 0.6+ | 2009 11 09 | 703 | 0.4+ | 0.4− | 2009 12 19 | 691 | 0.1− | 0.2− | | |

**(229754)∗ 2007 KO$_6$ = 1996 TK$_{69}$ = 2004 SP$_{35}$**

Discovered 2007 May 25 by the Mt. Lemmon Survey at Mount Lemmon.

Id. A. Doppler (*MPO* 121703, *MPO* 126292)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 285.83085 | | (2000.0) | | | |
| $n$ | 0.24312998 | $\omega$ | 293.60374 | | −0.99120850 | −0.10263345 |
| $a$ | 2.5423990 | $\Omega$ | 240.59791 | | +0.12572580 | −0.92722302 |
| $e$ | 0.1135049 | $i$ | 5.49990 | | −0.04121561 | −0.36017196 |
| $P$ | 4.05 | $H$ | 16.3 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 10 12 | 691 | 0.4− | 0.3− | 2007 05 13 | E12 | 0.2+ | 0.2− | 2008 10 01 | G96 | 0.2+ | 0.0 | | |
| 1996 10 12 | 691 | 0.1− | 0.2+ | 2007 05 13 | E12 | 0.2− | 0.3− | 2008 10 01 | G96 | 0.4+ | 0.0 | | |
| 1996 10 12 | 691 | 0.2− | 0.2− | 2007 05 13 | E12 | 0.1− | 1.3+ | 2008 10 01 | G96 | 0.3− | 0.6+ | | |
| 2003 05 26 | 608 | 0.4+ | 0.7− | 2007 05 25 | G96 | 0.1− | 0.1− | 2008 10 01 | G96 | 0.1− | 0.1− | | |
| 2003 05 26 | 608 | 0.2− | 1.5− | 2007 05 25 | G96 | 0.4− | 0.2− | 2009 11 16 | 691 | 0.6− | 0.3− | | |
| 2003 05 26 | 608 | 0.5− | 1.3− | 2007 05 25 | G96 | 0.2− | 0.4− | 2009 11 16 | 691 | 0.0 | 0.1+ | | |
| 2003 05 29 | 704 | 0.1+ | 0.2− | 2007 05 25 | G96 | 0.1+ | 0.2− | 2009 11 16 | 691 | 0.1− | 0.1+ | | |
| 2003 05 29 | 704 | 0.1− | 0.6− | 2007 05 26 | G96 | 0.1+ | 0.1− | 2009 11 20 | 691 | 0.1− | 0.0 | | |
| 2003 05 29 | 704 | 0.4+ | 0.7+ | 2007 05 26 | G96 | 0.2+ | 0.2+ | 2009 11 20 | 691 | 0.5+ | 0.7− | | |
| 2003 05 29 | 704 | 0.1− | 0.7+ | 2007 05 26 | G96 | 0.2+ | 0.3− | 2009 11 20 | 691 | 0.1− | 0.0 | | |
| 2003 05 29 | 704 | 1.0+ | 0.3− | 2007 05 26 | G96 | 0.2− | 0.0 | 2009 11 24 | 691 | 0.1+ | 0.0 | | |
| 2004 09 17 | 691 | 0.4+ | 0.1− | 2007 06 14 | 691 | 0.1− | 0.3− | 2009 11 24 | 691 | 0.0 | 0.1+ | | |
| 2004 09 17 | 691 | 0.1+ | 0.1+ | 2007 06 14 | 691 | 0.0 | 0.1+ | 2009 11 24 | 691 | 1.0− | 1.3− | | |
| 2004 09 17 | 691 | 0.1+ | 0.2+ | 2007 06 14 | 691 | 0.2− | 0.2− | 2009 12 11 | G96 | 0.5+ | 0.0 | | |
| 2004 09 23 | 691 | 0.0 | 0.5− | 2008 09 06 | 691 | 0.2− | 0.0 | 2009 12 11 | G96 | 0.3+ | 0.8+ | | |
| 2004 09 23 | 691 | 0.2+ | 0.0 | 2008 09 06 | 691 | 0.2− | 0.1+ | 2009 12 11 | G96 | 0.8+ | 0.1+ | | |
| 2004 09 23 | 691 | 0.3+ | 0.1+ | 2008 09 06 | 691 | 0.1− | 0.1+ | 2009 12 11 | G96 | 0.6+ | 0.1+ | | |
| 2005 11 26 | 691 | 0.0 | 0.0 | 2008 10 01 | G96 | 0.5+ | 0.3− | 2009 12 13 | D39 | 0.2− | 0.2− | | |
| 2005 11 26 | 691 | 0.1+ | 0.1+ | 2008 10 01 | G96 | 0.3− | 0.1+ | 2009 12 13 | D39 | 0.0 | 0.0 | | |
| 2005 11 26 | 691 | 0.5+ | 0.5+ | 2008 10 01 | G96 | 0.6+ | 0.1− | 2009 12 13 | D39 | 0.1− | 0.1− | | |
| 2007 05 13 | E12 | 0.3− | 0.2+ | 2008 10 01 | G96 | 0.3− | 0.1− | | | | | | |

**(229755)∗ 2007 LW$_3$**

Discovered 2007 June 8 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 81.79803 | | (2000.0) | | | |
| $n$ | 0.18022096 | $\omega$ | 262.54437 | | +0.98513460 | +0.04426538 |
| $a$ | 3.1040772 | $\Omega$ | 94.81498 | | +0.02236111 | +0.92496576 |
| $e$ | 0.2030022 | $i$ | 9.58851 | | −0.17032261 | +0.37746380 |
| $P$ | 5.47 | $H$ | 15.7 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1992 10 23 | 691 | 0.3+ | 1.4− | 2007 06 21 | 691 | 0.5− | 0.5+ | 2009 10 15 | G96 | 0.2+ | 0.3− | | |
| 1992 10 23 | 691 | 0.1+ | 0.6− | 2008 09 01 | F84 | (0.0 | 1.7+) | 2009 10 15 | G96 | 0.4+ | 0.1− | | |
| 1992 10 23 | 691 | 0.8+ | 0.8− | 2008 09 01 | F84 | 0.0 | 0.2+ | 2009 10 15 | G96 | 1.1+ | 1.3− | | |
| 2007 05 12 | G96 | 0.2+ | 0.0 | 2008 09 05 | F85 | 0.4+ | 0.4+ | 2009 10 15 | G96 | 0.7+ | 0.4− | | |
| 2007 05 12 | G96 | 0.5+ | 0.1− | 2008 09 05 | F85 | 0.2− | 0.2+ | 2009 12 16 | G96 | 0.5+ | 0.2− | | |
| 2007 05 12 | G96 | 0.1+ | 0.1− | 2008 09 19 | 704 | 0.1+ | 0.9+ | 2009 12 16 | G96 | 0.8+ | 0.2− | | |
| 2007 05 12 | G96 | 0.3+ | 0.0 | 2008 09 19 | 704 | 1.2− | 1.5+ | 2009 12 16 | G96 | 0.6+ | 0.1− | | |
| 2007 06 08 | 691 | 0.0 | 0.6− | 2008 09 19 | 704 | 0.0 | 1.3+ | 2009 12 16 | G96 | 0.4+ | 0.2− | | |
| 2007 06 08 | 691 | 0.3− | 0.1− | 2008 09 19 | 704 | 0.4− | 1.4+ | 2009 12 16 | G96 | 0.7+ | 0.2− | | |
| 2007 06 08 | 691 | 0.1+ | 0.1+ | 2008 09 21 | F84 | 0.5− | 0.7+ | 2009 12 17 | 691 | 0.1+ | 0.3+ | | |
| 2007 06 10 | 691 | 0.4+ | 0.2− | 2008 09 21 | F84 | 0.4− | 0.3+ | 2009 12 17 | 691 | 0.0 | 0.1− | | |
| 2007 06 10 | 691 | 0.2+ | 0.1− | 2008 10 02 | 703 | 0.6− | 0.6+ | 2009 12 17 | 691 | 0.1− | 0.6+ | | |
| 2007 06 10 | 691 | 0.3+ | 0.1+ | 2008 10 02 | 703 | (0.2− | 1.9+) | 2009 12 26 | 691 | 1.2− | 0.5+ | | |
| 2007 06 21 | 691 | 0.4− | 0.8− | 2008 10 02 | 703 | 0.1− | 0.2+ | 2009 12 26 | 691 | 0.4− | 0.2+ | | |
| 2007 06 21 | 691 | 0.7− | 0.3− | 2008 10 02 | 703 | 0.3+ | 0.3− | 2009 12 26 | 691 | 0.3+ | 0.0 | | |

**(229756)∗ 2007 LC$_8$ = 2005 BZ$_{11}$**

Discovered 2007 June 9 by Spacewatch at Kitt Peak.

Id. A. Doppler (*MPO* 121706)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 102.93235 | | (2000.0) | | | |
| $n$ | 0.18153524 | $\omega$ | 221.85625 | | +0.83919843 | +0.51155345 |
| $a$ | 3.0890771 | $\Omega$ | 106.48186 | | −0.43375575 | +0.83432026 |
| $e$ | 0.1283438 | $i$ | 11.09633 | | −0.32802734 | +0.20548178 |
| $P$ | 5.43 | $H$ | 14.9 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 07 05 | 704 | (1.3+ | 2.4+) | 2005 01 17 | 704 | 0.5− | 0.2+ | 2008 08 06 | E12 | 0.3+ | 0.1+ | | |
| 2002 07 05 | 704 | 0.7− | 1.3+ | 2005 01 18 | 291 | 0.1+ | 0.3+ | 2008 10 02 | 703 | 0.8− | 1.3+ | | |
| 2002 07 05 | 704 | (0.3+ | 1.6+) | 2005 01 18 | 291 | 0.0 | 0.3+ | 2008 10 02 | 703 | 1.3− | 1.0+ | | |
| 2002 07 05 | 704 | 0.2+ | 1.5+ | 2005 01 18 | 291 | 0.2− | 0.1+ | 2008 10 02 | 703 | (0.9+ | 1.7+) | | |
| 2003 11 24 | 644 | 0.1− | 0.3+ | 2007 05 10 | G96 | 0.1+ | 0.2+ | 2008 10 02 | 703 | 0.4− | 0.7+ | | |
| 2003 11 24 | 644 | 0.0 | 0.1− | 2007 05 10 | G96 | 0.4− | 0.2− | 2008 10 02 | 703 | 0.5− | 0.6+ | | |
| 2003 11 24 | 644 | 0.3+ | 0.4+ | 2007 05 10 | G96 | 0.1+ | 0.3+ | 2008 10 02 | 703 | 1.3+ | 0.1− | | |
| 2003 12 22 | 644 | 0.4− | 0.2− | 2007 05 10 | G96 | 0.4− | 0.1+ | 2008 10 02 | 703 | 0.6+ | 0.3+ | | |
| 2003 12 22 | 644 | 0.3− | 0.4+ | 2007 06 09 | 691 | 0.1+ | 0.2+ | 2008 10 02 | 703 | 0.3+ | 0.6− | | |
| 2003 12 22 | 644 | 0.3+ | 0.4+ | 2007 06 09 | 691 | 0.1+ | 0.2+ | 2009 12 09 | J75 | 0.3+ | 0.6− | | |
| 2005 01 17 | 691 | 0.2+ | 0.3+ | 2007 06 09 | 691 | 0.1− | 0.0 | 2009 12 09 | J75 | 0.5− | 0.1+ | | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 01 17 | 691 | 0.2+ | 0.4+ | 2007 06 12 | 691 | 0.1+ | 0.2+ | 2009 12 09 | J75 | 0.3+ | 0.3− |
| 2005 01 17 | 691 | 0.2+ | 0.2+ | 2007 06 12 | 691 | 0.2+ | 0.1+ | 2009 12 17 | G96 | 0.5− | 0.1− |
| 2005 01 17 | 704 | 0.6− | 0.8+ | 2007 06 12 | 691 | 0.1+ | 0.2+ | 2009 12 17 | G96 | 0.0 | 0.2− |
| 2005 01 17 | 704 | 0.2− | 0.1+ | 2008 08 06 | E12 | 0.2+ | 0.5+ | 2009 12 17 | G96 | 0.4− | 0.2− |
| 2005 01 17 | 704 | 0.1+ | 1.0+ | 2008 08 06 | E12 | 0.1− | 0.4− | | | | |

**(229757)∗ 2007 MU$_9$**

Discovered 2007 June 19 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 140.73070 | | (2000.0) | | | |
| $n$ | 0.24185140 | $\omega$ | 168.23373 | | +0.69530421 | −0.71710276 |
| $a$ | 2.5513516 | $\Omega$ | 237.69251 | | +0.65470427 | +0.65957875 |
| $e$ | 0.2593012 | $i$ | 3.26394 | | +0.29650357 | +0.22520992 |
| $P$ | 4.08 | $H$ | 16.9 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1991 09 14 | 691 | 0.4− | 0.2− | 2005 03 17 | G96 | 0.9− | 0.1− | 2009 01 17 | 703 | 0.6− | 0.1− |
| 1991 09 14 | 691 | 0.0 | 0.0 | 2005 03 17 | G96 | 0.6− | 0.2− | 2009 02 03 | G96 | 0.0 | 0.1+ |
| 1991 09 14 | 691 | 0.4+ | 0.1− | 2005 03 17 | G96 | 0.4− | 0.4− | 2009 02 03 | G96 | 0.2+ | 0.1+ |
| 2000 12 23 | 645 | 0.0 | 0.0 | 2007 06 19 | 691 | 0.1− | 0.0 | 2009 02 03 | G96 | 0.0 | 0.0 |
| 2000 12 23 | 645 | 0.1− | 0.0 | 2007 06 19 | 691 | 0.1− | 0.3+ | 2009 02 03 | G96 | 0.0 | 0.1+ |
| 2001 02 20 | 645 | 0.0 | 0.1− | 2007 06 19 | 691 | 0.2+ | 0.0 | 2009 02 16 | A77 | 1.0+ | 0.8− |
| 2001 02 20 | 645 | 0.0 | 0.1− | 2007 06 23 | 691 | 0.1+ | 0.0 | 2009 02 16 | A77 | 0.4− | 0.4− |
| 2003 07 21 | 599 | 0.2+ | 0.5+ | 2007 06 23 | 691 | 0.2− | 0.0 | 2009 02 19 | A77 | 0.6+ | 0.2+ |
| 2003 07 21 | 599 | 0.1− | 0.3+ | 2007 06 23 | 691 | 1.0− | 0.2− | 2009 02 19 | A77 | 0.3+ | 0.2− |
| 2003 07 22 | 599 | 0.9+ | 0.3+ | 2007 06 27 | 691 | 0.4+ | 0.4− | 2009 02 19 | A77 | 0.5+ | 0.6+ |
| 2003 07 22 | 599 | 0.8+ | 0.6+ | 2007 06 27 | 691 | (1.7+ | 1.0+) | 2009 04 01 | G96 | 0.9+ | 0.7− |
| 2005 02 14 | 691 | 0.4+ | 0.4+ | 2007 06 27 | 691 | 0.2+ | 0.2+ | 2009 04 01 | G96 | 0.3− | 0.4− |
| 2005 02 14 | 691 | 0.2+ | 0.3+ | 2009 01 17 | 703 | 1.0− | 0.0 | 2009 04 01 | G96 | 0.0 | 0.4− |
| 2005 02 14 | 691 | 0.3+ | 0.2+ | 2009 01 17 | 703 | 0.5− | 1.2+ | 2009 04 01 | G96 | 0.2− | 0.3+ |
| 2005 03 17 | G96 | 0.7− | 0.2− | 2009 01 17 | 703 | 0.6− | 0.3+ | | | | |

**(229758)∗ 2007 NG**

Discovered 2007 July 7 by G. Hug at Sandlot Observatory, Scranton.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 203.05820 | | (2000.0) | | | |
| $n$ | 0.22194546 | $\omega$ | 164.21168 | | −0.10800068 | +0.96279324 |
| $a$ | 2.7017088 | $\Omega$ | 99.09284 | | −0.93711468 | −0.01540703 |
| $e$ | 0.0699575 | $i$ | 14.52913 | | −0.33189144 | −0.26979957 |
| $P$ | 4.44 | $H$ | 16.0 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 03 21 | 704 | (0.1+ | 1.7+) | 2007 07 07 | H36 | 1.2+ | 0.8+ | 2007 08 03 | 734 | 1.3− | 1.0+ |
| 2002 03 21 | 704 | 1.5+ | 0.5+ | 2007 07 07 | H36 | 0.2+ | 0.1− | 2007 08 03 | 734 | 1.0− | 0.9+ |
| 2002 03 21 | 704 | 1.3+ | 0.6− | 2007 07 07 | H36 | 0.5− | 0.4− | 2007 08 03 | 734 | 0.5− | 0.1− |
| 2002 03 21 | 704 | 1.1+ | 0.1+ | 2007 07 07 | H36 | 0.2+ | 0.1− | 2008 08 26 | H36 | 0.6− | 0.3+ |
| 2002 04 22 | 644 | 0.2− | 0.1+ | 2007 07 08 | H36 | 0.8+ | 1.1− | 2008 08 26 | H36 | 0.6− | 1.2+ |
| 2002 04 22 | 644 | 0.2− | 0.0 | 2007 07 08 | H36 | 0.2− | 0.7− | 2009 11 18 | G96 | 0.0 | 0.4− |
| 2002 04 22 | 644 | 0.5− | 0.1+ | 2007 07 08 | H36 | 1.0− | 0.9+ | 2009 11 18 | G96 | 0.2+ | 0.3− |
| 2002 05 05 | 644 | 0.4− | 0.4+ | 2007 07 09 | 734 | 0.2− | 0.3+ | 2009 11 18 | G96 | 0.4+ | 0.2− |
| 2002 05 05 | 644 | 0.6− | 0.1+ | 2007 07 09 | 734 | 0.2− | 0.3+ | 2009 11 18 | G96 | 0.1+ | 0.3− |
| 2002 05 05 | 644 | 0.6− | 0.1+ | 2007 07 09 | 734 | 0.2− | 0.2− | 2009 12 16 | 691 | 0.4− | 0.0 |
| 2002 05 13 | 644 | 0.2+ | 0.2+ | 2007 07 09 | 734 | 0.1− | 0.0 | 2009 12 16 | 691 | 0.1− | 0.0 |
| 2002 05 13 | 644 | 0.0 | 0.4+ | 2007 07 09 | 734 | 0.2− | 0.3+ | 2009 12 16 | 691 | 0.0 | 0.2+ |
| 2002 05 13 | 644 | 0.1+ | 0.3+ | 2007 07 11 | 734 | 0.4+ | 0.5− | 2009 12 16 | 704 | 0.2+ | 0.6+ |
| 2006 01 27 | 703 | 0.3− | 0.4− | 2007 07 11 | 734 | 0.2+ | 0.4− | 2009 12 16 | 704 | 0.5− | 1.2+ |
| 2006 01 27 | 703 | 1.0− | 0.3+ | 2007 07 11 | 734 | 0.4+ | 0.8− | 2009 12 16 | 704 | 0.6+ | 1.0+ |
| 2006 01 27 | 703 | 0.3− | 1.3− | 2007 07 17 | 734 | 0.4+ | 0.2+ | 2009 12 16 | 704 | 0.7+ | 0.2+ |
| 2006 01 27 | 703 | 0.1+ | 0.4+ | 2007 07 17 | 734 | 0.3+ | 0.1− | 2009 12 20 | 691 | 0.2− | 0.1+ |
| 2006 03 06 | 703 | 0.4− | 0.3− | 2007 07 17 | 734 | 0.4+ | 0.2+ | 2009 12 20 | 691 | 0.4+ | 0.0 |
| 2006 03 06 | 703 | 0.2+ | 0.9+ | 2007 07 21 | 734 | 0.1− | 0.7+ | 2009 12 20 | 691 | 0.3+ | 0.3− |
| 2006 03 06 | 703 | 0.8− | 0.2− | 2007 07 21 | 734 | 0.2+ | 0.4− | | | | |
| 2006 03 06 | 703 | (1.7+ | 0.1−) | 2007 07 21 | 734 | 0.6+ | 0.2− | | | | |

**(229759)∗ 2007 NZ$_2$**

Discovered 2007 July 14 by S. F. Hönig and N. Teamo at Tiki Observatory, Punaauia.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 141.53486 | | (2000.0) | | | |
| $n$ | 0.18229728 | $\omega$ | 235.06289 | | +0.76934430 | +0.62690220 |
| $a$ | 3.0804625 | $\Omega$ | 85.79433 | | −0.53856198 | +0.73994074 |
| $e$ | 0.1498912 | $i$ | 7.07832 | | −0.34359909 | +0.24388797 |
| $P$ | 5.41 | $H$ | 16.1 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 04 17 | 691 | 0.1− | 0.3+ | 2007 07 15 | F85 | 1.2+ | 0.1− | 2008 11 09 | G96 | 0.4+ | 0.1+ |
| 2001 04 17 | 691 | 0.1+ | 0.6+ | 2007 07 15 | F85 | 0.4− | 0.4+ | 2008 11 09 | G96 | 0.7+ | 0.2+ |
| 2001 04 17 | 691 | 0.2+ | 0.8+ | 2007 07 19 | F85 | 0.3+ | 0.5− | 2008 11 09 | G96 | 0.5+ | 0.1− |
| 2002 08 19 | 644 | 0.1− | 0.3+ | 2007 07 19 | F85 | 0.0 | 0.1− | 2008 11 09 | G96 | 0.3+ | 0.2− |
| 2002 08 19 | 644 | 0.2+ | 0.6+ | 2007 07 19 | F85 | 0.3+ | 0.0 | 2009 01 02 | G96 | 0.4+ | 0.3− |
| 2002 08 19 | 644 | 0.0 | 0.3+ | 2007 08 12 | F85 | 0.1+ | 0.7− | 2009 01 02 | G96 | 0.1+ | 0.3− |
| 2002 08 30 | 644 | 0.1− | 0.0 | 2007 08 12 | F85 | 0.1+ | 0.3− | 2009 01 02 | G96 | 0.5+ | 0.0 |
| 2002 08 30 | 644 | 0.0 | 0.2+ | 2008 10 01 | 691 | 0.1− | 0.3+ | 2009 01 02 | G96 | 0.1+ | 0.1+ |
| 2002 08 30 | 644 | 0.1− | 0.0 | 2008 10 01 | 691 | 0.2− | 0.2+ | 2009 12 18 | G96 | 0.3+ | 0.0 |
| 2002 09 09 | 644 | 0.2− | 0.1− | 2008 10 01 | 691 | 0.4− | 0.2+ | 2009 12 18 | G96 | 0.1+ | 0.2− |
| 2002 09 09 | 644 | 0.1+ | 0.1− | 2008 10 08 | 691 | 0.5− | 0.1+ | 2009 12 18 | G96 | 0.6+ | 0.0 |
| 2002 09 09 | 644 | 0.1− | 0.4+ | 2008 10 08 | 691 | 0.6− | 0.3+ | 2009 12 18 | G96 | 0.2+ | 0.1− |
| 2003 12 29 | 691 | 0.3+ | 0.1+ | 2008 10 08 | 691 | 0.2− | 0.2+ | 2009 12 27 | 691 | 0.2+ | 0.2+ |
| 2003 12 29 | 691 | 0.1+ | 0.1− | 2008 10 25 | G96 | 0.1− | 0.1− | 2009 12 27 | 691 | 0.3+ | 0.1+ |
| 2003 12 29 | 691 | 0.1− | 0.0 | 2008 10 25 | G96 | 0.2+ | 0.1− | 2009 12 27 | 691 | 0.5− | 0.3+ |
| 2007 07 14 | F85 | 0.5− | 0.4− | 2008 10 25 | G96 | 0.0 | 0.4− | | | | |
| 2007 07 14 | F85 | 0.0 | 0.4+ | 2008 10 25 | G96 | 0.3+ | 0.3− | | | | |

**(229760)∗ 2007 RM$_{225}$**

Discovered 2007 Sept. 10 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 21.87723 | | (2000.0) | | | |
| $n$ | 0.08490931 | $\omega$ | 86.52607 | | +0.65737749 | −0.75272190 |
| $a$ | 5.1266362 | $\Omega$ | 322.29518 | | +0.66623941 | +0.60260376 |
| $e$ | 0.0716964 | $i$ | 3.33332 | | +0.35210777 | +0.26510081 |
| $P$ | 11.61 | $H$ | 13.4 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 02 20 | 645 | 0.1+ | 0.2+ | 2008 01 11 | G96 | 0.0 | 0.1− | 2008 12 02 | G96 | 0.7+ | 0.2− |
| 2001 02 20 | 645 | 0.1+ | 0.3+ | 2008 01 11 | G96 | 0.7+ | 0.2− | 2008 12 02 | G96 | 0.5+ | 0.1− |
| 2007 09 05 | 705 | 0.3+ | 0.1− | 2008 09 23 | 691 | 0.4− | 0.4+ | 2009 01 01 | G96 | 0.2+ | 0.3− |
| 2007 09 05 | 705 | 0.2+ | 0.0 | 2008 09 23 | 691 | 0.4− | 0.4+ | 2009 01 01 | G96 | 1.1+ | 0.4− |
| 2007 09 10 | 691 | 0.2− | 0.4+ | 2008 09 23 | 691 | 0.4− | 0.3+ | 2009 01 01 | G96 | 0.6+ | 0.4− |
| 2007 09 10 | 691 | 0.3− | 0.4+ | 2008 10 08 | G96 | 0.1− | 0.0 | 2009 01 01 | G96 | 0.0 | 0.3− |
| 2007 09 10 | 691 | 0.1− | 0.1+ | 2008 10 08 | G96 | 0.2+ | 0.1− | 2009 11 09 | G96 | 0.4+ | 0.5− |
| 2007 09 15 | 705 | 0.2+ | 0.1+ | 2008 10 08 | G96 | 0.1+ | 0.1− | 2009 11 09 | G96 | 0.7+ | 0.0 |
| 2007 09 15 | 705 | 0.3+ | 0.1+ | 2008 10 08 | G96 | 0.1− | 0.2+ | 2009 11 09 | G96 | 0.3+ | 0.4− |
| 2007 09 15 | G96 | 0.2+ | 0.1− | 2008 10 09 | 691 | 0.0 | 0.3+ | 2009 11 09 | G96 | 0.7+ | 0.1− |
| 2007 09 15 | G96 | 0.3− | 0.1− | 2008 10 09 | 691 | 0.3− | 0.2+ | 2009 11 17 | 691 | 0.0 | 0.0 |
| 2007 09 15 | G96 | 0.0 | 0.1− | 2008 10 09 | 691 | 0.2− | 0.2− | 2009 11 17 | 691 | 0.0 | 0.1− |
| 2007 09 15 | G96 | 0.1− | 0.1− | 2008 10 20 | 691 | 0.1+ | 0.2+ | 2009 11 17 | 691 | 0.1− | 0.2− |
| 2007 09 16 | 705 | 0.1+ | 0.3+ | 2008 10 20 | 691 | 0.2+ | 0.2+ | 2009 11 21 | 691 | 0.1− | 0.4− |
| 2007 09 16 | 705 | 0.2+ | 0.2+ | 2008 10 20 | 691 | 0.1− | 0.2+ | 2009 11 21 | 691 | 0.2− | 0.1− |
| 2007 09 19 | 691 | 0.0 | 0.1+ | 2008 11 04 | 703 | 0.1+ | 1.5+ | 2009 11 21 | 691 | 0.1− | 0.1− |
| 2007 09 19 | 691 | 0.3− | 0.2+ | 2008 11 04 | 703 | 0.1+ | 0.5− | 2009 11 24 | J75 | 0.1+ | 0.7− |
| 2007 09 19 | 691 | 0.3− | 0.1− | 2008 11 04 | 703 | 0.0 | 1.0+ | 2009 11 24 | J75 | 0.1+ | 0.3+ |
| 2007 10 10 | G96 | 0.4+ | 0.0 | 2008 11 04 | 703 | 0.6− | 0.4+ | 2009 11 25 | J75 | 0.1− | 0.2+ |
| 2007 10 10 | G96 | 0.3+ | 0.0 | 2008 11 07 | 691 | 0.0 | 0.3− | 2009 12 18 | G96 | 0.3+ | 0.4− |
| 2007 10 10 | G96 | 0.1− | 0.1− | 2008 11 07 | 691 | 0.2− | 0.0 | 2009 12 18 | G96 | 0.3+ | 0.4− |
| 2007 10 10 | G96 | 0.3+ | 0.2+ | 2008 11 07 | 691 | 0.1+ | 0.2− | 2009 12 18 | G96 | 0.2+ | 0.2− |
| 2008 01 11 | G96 | 0.3+ | 0.1− | 2008 12 02 | G96 | 0.4+ | 0.1− | 2009 12 18 | G96 | 0.0 | 0.4− |
| 2008 01 11 | G96 | 0.5+ | 0.0 | 2008 12 02 | G96 | 0.3+ | 0.3− | | | | |

**(229761)∗ 2007 RC$_{288}$**

Discovered 2007 Sept. 11 by the Mt. Lemmon Survey at Mount Lemmon.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 48.14261 | | (2000.0) | | | |
| $n$ | 0.08548663 | $\omega$ | 9.04367 | | +0.97549531 | −0.21993365 |
| $a$ | 5.1035292 | $\Omega$ | 3.67873 | | +0.19537223 | +0.85297145 |
| $e$ | 0.0507862 | $i$ | 5.52050 | | +0.10118598 | +0.47335917 |
| $P$ | 11.53 | $H$ | 13.6 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 04 25 | 691 | 0.1+ | 0.7+ | 2007 10 13 | 691 | 0.2+ | 0.1− | 2008 11 08 | G96 | 0.2+ | 0.1− |
| 2003 04 25 | 691 | 0.1+ | 0.6+ | 2007 10 13 | 691 | 0.7+ | 0.1+ | 2009 10 26 | 691 | 0.1− | 0.1+ |
| 2003 04 25 | 691 | 0.5+ | 0.2+ | 2007 10 13 | 691 | 0.2+ | 0.0 | 2009 10 26 | 691 | 0.1− | 0.2+ |
| 2007 09 11 | G96 | 0.5+ | 0.4− | 2008 09 21 | 691 | 0.4− | 0.1− | 2009 10 26 | 691 | 0.2+ | 0.2− |
| 2007 09 11 | G96 | 1.2− | 0.3− | 2008 09 21 | 691 | 0.1− | 0.1+ | 2009 11 17 | 691 | 0.2+ | 0.2+ |
| 2007 09 11 | G96 | 0.0 | 0.4+ | 2008 09 21 | 691 | 0.1− | 0.1+ | 2009 11 17 | 691 | 0.1− | 0.3+ |
| 2007 09 11 | G96 | 0.0 | 0.2− | 2008 09 25 | 691 | 0.1− | 0.1+ | 2009 11 17 | 691 | 0.2− | 0.2+ |
| 2007 09 20 | 691 | 0.0 | 0.2+ | 2008 09 25 | 691 | 0.2− | 0.0 | 2009 11 27 | 691 | 0.1− | 0.2+ |
| 2007 09 20 | 691 | 0.5− | 0.3+ | 2008 09 25 | 691 | 0.1− | 0.0 | 2009 11 27 | 691 | 0.1+ | 0.0 |
| 2007 09 20 | 691 | 0.7− | 0.4− | 2008 10 23 | G96 | 0.7+ | 0.3− | 2009 11 27 | 691 | 0.3− | 0.1− |
| 2007 10 05 | 691 | 0.5+ | 0.3− | 2008 10 23 | G96 | 0.2+ | 0.0 | 2009 12 19 | G96 | 0.4+ | 0.4+ |
| 2007 10 05 | 691 | 0.3+ | 0.3− | 2008 10 23 | G96 | 0.7+ | 0.2− | 2009 12 19 | G96 | 0.1+ | 0.1+ |
| 2007 10 05 | 691 | 0.4− | 0.1− | 2008 10 23 | G96 | 0.6+ | 0.3− | 2009 12 19 | G96 | 0.1+ | 0.0 |
| 2007 10 13 | 691 | 0.0 | 0.4+ | 2008 11 08 | G96 | 0.2+ | 0.2− | 2009 12 19 | G96 | 0.2+ | 0.1+ |
| 2007 10 13 | 691 | 0.0 | 0.6+ | 2008 11 08 | G96 | 0.2+ | 0.3+ | | | | |
| 2007 10 13 | 691 | 0.4− | 0.5+ | 2008 11 08 | G96 | 0.1+ | 0.1+ | | | | |

**(229762)∗ 2007 UK$_{126}$**

Discovered 2007 Oct. 19 at Palomar.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 339.35061 | | (2000.0) | | | |
| $n$ | 0.00156329 | $\omega$ | 346.20614 | | −0.47296975 | −0.82877282 |
| $a$ | 73.5264263 | $\Omega$ | 131.06638 | | +0.84132288 | −0.52562468 |
| $e$ | 0.4883031 | $i$ | 23.36920 | | +0.26167810 | +0.19197477 |
| $P$ | 630 | $H$ | 3.4 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1982 08 16 | 260 | 0.1+ | 0.1− | 2002 11 06 | 644 | 0.1+ | 0.2+ | 2007 12 03 | 675 | 0.1− | 0.5− |
| 1982 11 07 | 260 | 0.3− | 0.3+ | 2002 11 06 | 644 | 0.1+ | 0.1+ | 2008 01 14 | 675 | 0.2− | 0.8− |
| 1993 09 23 | 260 | 0.3+ | 0.1− | 2002 11 06 | 644 | 0.4− | 0.1− | 2008 01 15 | 675 | 0.1− | 0.3− |
| 1993 11 07 | 260 | 0.2+ | 0.3− | 2006 12 05 | 675 | 0.0 | 0.3+ | 2008 11 13 | 250 | 0.0 | 0.2− |
| 1997 09 30 | 260 | 0.0 | 0.6+ | 2006 12 05 | 675 | 0.1− | 0.9+ | 2008 11 13 | 250 | 0.2+ | 0.2− |
| 2001 12 14 | 644 | 0.2− | 0.2− | 2006 12 12 | 675 | 0.1+ | 0.3+ | 2008 11 13 | 250 | 0.2+ | 0.2− |
| 2001 12 14 | 644 | 0.0 | 0.2− | 2006 12 12 | 675 | 0.0 | 0.1+ | 2008 11 13 | 250 | 0.3+ | 0.1− |
| 2002 10 05 | 644 | 0.2+ | 0.1− | 2006 12 12 | 675 | 0.1+ | 0.3+ | 2009 01 29 | 130 | 0.8+ | 0.1+ |
| 2002 10 05 | 644 | 0.1− | 0.2− | 2007 10 19 | 675 | 0.2− | 0.2+ | 2009 11 20 | 688 | 0.1− | 0.1− |
| 2002 10 05 | 644 | 0.5− | 0.1+ | 2007 10 19 | 675 | 0.2− | 0.3+ | 2009 11 20 | 688 | 0.1− | 0.1− |
| 2002 10 06 | 644 | 0.6+ | 0.3+ | 2007 10 20 | 675 | 0.0 | 0.4+ | 2009 11 20 | 688 | 0.2− | 0.0 |
| 2002 10 06 | 644 | 0.2+ | 0.1+ | 2007 10 20 | 675 | 0.3− | 0.4+ | 2009 12 19 | 809 | 0.0 | 0.1+ |
| 2002 10 06 | 644 | 0.3− | 0.2− | 2007 11 13 | 675 | 0.3+ | 0.0 | 2009 12 19 | 809 | 0.1+ | 0.1+ |
| 2002 10 10 | 644 | 0.1+ | 0.1+ | 2007 11 13 | 675 | 0.4− | 0.2+ | 2009 12 19 | 809 | 0.0 | 0.2+ |
| 2002 10 10 | 644 | 0.0 | 0.1− | 2007 11 13 | 675 | 0.0 | 0.0 | 2009 12 20 | 809 | 0.0 | 0.2+ |
| 2002 10 10 | 644 | 0.1+ | 0.3− | 2007 11 14 | 675 | 0.0 | 0.0 | 2009 12 20 | 809 | 0.1+ | 0.0 |
| 2002 10 28 | 644 | 0.1+ | 0.0 | 2007 12 03 | 675 | 0.1− | 0.5− | 2009 12 20 | 809 | 0.1+ | 0.2+ |
| 2002 10 28 | 644 | 0.2− | 0.5− | 2007 12 03 | 675 | 0.3− | 0.2− | | | | |
| 2002 10 28 | 644 | 0.0 | 0.2− | 2007 12 03 | 675 | 0.1− | 0.3− | | | | |

**(229763)∗ 2008 FZ$_{52}$**

Discovered 2008 Mar. 28 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 96.50655 | | (2000.0) | | | |
| $n$ | 0.28874932 | $\omega$ | 154.71464 | | +0.73311746 | +0.67967399 |
| $a$ | 2.2670203 | $\Omega$ | 162.39907 | | −0.63675308 | +0.69841939 |
| $e$ | 0.1840281 | $i$ | 4.57617 | | −0.23892321 | +0.22417318 |
| $P$ | 3.41 | $H$ | 17.3 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 03 22 | 691 | 0.3+ | 0.0 | 2005 07 11 | G96 | 0.8+ | 0.9+ | 2008 03 29 | 291 | 0.3− | 0.2+ |
| 2001 03 22 | 691 | 0.2− | 0.6+ | 2005 07 11 | G96 | 0.1+ | 0.1− | 2008 03 29 | 291 | 0.1− | 0.3+ |
| 2001 03 22 | 691 | 0.3+ | 0.4+ | 2005 07 11 | G96 | 0.2− | 0.0 | 2008 04 12 | 691 | 0.0 | 0.1+ |
| 2002 10 11 | 704 | 0.4− | 0.7+ | 2005 07 11 | G96 | 0.1+ | 0.2− | 2008 04 12 | 691 | 0.1− | 0.1+ |
| 2002 10 11 | 704 | 0.2+ | 0.6+ | 2005 09 30 | G96 | 0.1+ | 0.1− | 2008 04 12 | 691 | 0.2− | 0.1+ |
| 2002 10 11 | 704 | 0.9− | 0.1+ | 2005 09 30 | G96 | 0.2+ | 0.2− | 2008 04 28 | G96 | 0.3− | 0.1− |
| 2002 11 06 | 699 | 0.1− | 0.2+ | 2005 09 30 | G96 | 0.2− | 0.1+ | 2008 04 28 | G96 | 0.4− | 0.2+ |
| 2002 11 06 | 699 | 0.4− | 0.3− | 2005 09 30 | G96 | 0.3− | 0.1− | 2008 04 28 | G96 | 0.0 | 0.2+ |
| 2002 11 06 | 699 | 1.2− | 0.1− | 2008 03 05 | G96 | 0.1− | 0.9− | 2008 04 28 | G96 | 0.1− | 0.1− |
| 2002 11 06 | 699 | 1.2− | 0.1− | 2008 03 05 | G96 | 0.1+ | 0.0 | 2009 11 23 | G96 | 0.6+ | 0.1+ |
| 2004 02 12 | 691 | 0.3+ | 0.4− | 2008 03 05 | G96 | 0.3+ | 0.3− | 2009 11 23 | G96 | 0.7+ | 0.1+ |
| 2004 02 12 | 691 | 0.2+ | 0.0 | 2008 03 05 | G96 | 0.0 | 0.1− | 2009 11 23 | G96 | 0.1+ | 0.0 |
| 2004 02 12 | 691 | 0.3+ | 0.3− | 2008 03 28 | 691 | 0.3− | 0.0 | 2009 11 23 | G96 | 0.7+ | 0.2+ |
| 2005 06 17 | 691 | 0.2+ | 0.2+ | 2008 03 28 | 691 | 0.1+ | 0.0 | 2009 12 19 | 691 | 0.3− | 0.3+ |
| 2005 06 17 | 691 | 0.7− | 0.3+ | 2008 03 28 | 691 | 0.0 | 0.2+ | 2009 12 19 | 691 | 0.1− | 0.5+ |
| 2005 06 17 | 691 | 0.9+ | 0.3+ | 2008 03 29 | 291 | 0.0 | 0.0 | 2009 12 19 | 691 | 0.0 | 0.5+ |

**(229764)∗ 2008 FE$_{88}$**

Discovered 2008 Mar. 28 by the Mt. Lemmon Survey at Mount Lemmon.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 119.93006 | | (2000.0) | | | |
| $n$ | 0.27804476 | $\omega$ | 239.61359 | | −0.07034785 | +0.99611218 |
| $a$ | 2.3248391 | $\Omega$ | 26.50905 | | −0.86960141 | −0.03519643 |
| $e$ | 0.0911614 | $i$ | 6.82291 | | −0.48871727 | −0.08075729 |
| $P$ | 3.54 | $H$ | 17.0 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 10 28 | 291 | 0.6− | 0.2+ | 2008 04 07 | 704 | 0.4− | 0.4+ | 2009 09 27 | 691 | 0.5− | 0.5+ |
| 2002 10 28 | 291 | 0.6− | 0.6+ | 2008 04 07 | 704 | 1.3− | 0.9+ | 2009 09 27 | 691 | 0.1+ | 0.3+ |
| 2002 10 28 | 291 | 0.3− | 0.5+ | 2008 04 07 | 704 | 0.1+ | 1.4+ | 2009 09 27 | 691 | 0.4− | 0.3+ |
| 2004 03 18 | 645 | 0.1+ | 0.1+ | 2008 04 07 | 704 | 0.4+ | 0.5+ | 2009 09 28 | 691 | 0.2− | 0.6+ |
| 2004 03 18 | 645 | 0.0 | 0.0 | 2008 04 13 | 704 | 0.2+ | 0.6− | 2009 09 28 | 691 | 0.1− | 0.3+ |
| 2004 04 15 | 645 | 0.0 | 0.0 | 2008 04 13 | 704 | 0.8+ | 0.7+ | 2009 09 28 | 691 | 0.1+ | 0.2+ |
| 2004 04 15 | 645 | 0.1+ | 0.0 | 2008 04 13 | 704 | 0.6+ | 0.8− | 2009 10 18 | G96 | 0.4+ | 0.2− |
| 2005 07 06 | E12 | 0.2+ | 0.3+ | 2008 04 13 | 704 | 0.3+ | 1.0− | 2009 10 18 | G96 | 0.1+ | 0.2− |
| 2005 07 06 | E12 | 0.1+ | 0.2+ | 2008 04 24 | G96 | 0.3+ | 0.3+ | 2009 10 18 | G96 | 0.6+ | 0.3− |
| 2005 07 06 | E12 | 0.9+ | 0.7+ | 2008 04 24 | G96 | 0.0 | 0.2+ | 2009 10 18 | G96 | 0.4+ | 0.1+ |
| 2005 07 06 | E12 | 0.1− | 0.3− | 2008 04 24 | G96 | 0.2+ | 0.1+ | 2009 10 26 | G96 | 0.1− | 0.3− |
| 2008 03 09 | 691 | 0.6− | 0.2+ | 2008 04 24 | G96 | 0.3+ | 0.3+ | 2009 10 26 | G96 | 0.3+ | 0.3− |
| 2008 03 09 | 691 | 0.4+ | 0.1+ | 2008 04 25 | 691 | 0.3+ | 0.2+ | 2009 10 26 | G96 | 0.1+ | 0.2− |
| 2008 03 09 | 691 | 0.2+ | 0.2+ | 2008 04 25 | 691 | 0.1+ | 0.5+ | 2009 10 26 | G96 | 0.3+ | 0.2− |
| 2008 03 28 | G96 | 0.3+ | 0.1+ | 2008 04 25 | 691 | 0.0 | 0.5+ | 2009 11 17 | G96 | 0.5+ | 0.4− |
| 2008 03 28 | G96 | 0.0 | 0.4+ | 2009 09 21 | G96 | 0.3+ | 0.4− | 2009 11 17 | G96 | 0.1+ | 0.2+ |
| 2008 03 28 | G96 | 0.3− | 0.1+ | 2009 09 21 | G96 | 0.1+ | 0.2− | 2009 11 17 | G96 | 0.0 | 0.0 |
| 2008 03 28 | G96 | 0.0 | 0.1+ | 2009 09 21 | G96 | 0.1− | 0.2− | 2009 11 17 | G96 | 0.2− | 0.3− |
| 2008 04 03 | G96 | 0.1− | 0.2+ | 2009 09 21 | G96 | 0.4+ | 0.3− | 2009 12 11 | G96 | 0.1+ | 0.1− |
| 2008 04 03 | G96 | 0.1+ | 0.2+ | 2009 09 23 | A77 | 0.4− | 0.2− | 2009 12 11 | G96 | 0.1+ | 0.1− |
| 2008 04 03 | G96 | 0.3+ | 0.5+ | 2009 09 24 | A77 | 0.8− | 0.2− | 2009 12 11 | G96 | 0.2− | 0.1− |
| 2008 04 03 | G96 | 0.1+ | 0.1+ | 2009 09 24 | A77 | 0.2− | 0.8+ | 2009 12 11 | G96 | 0.5+ | 0.2+ |

**(229765)∗ 2008 FT$_{95}$**

Discovered 2008 Mar. 29 by the Mt. Lemmon Survey at Mount Lemmon.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 46.83017 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27035855 | $\omega$ | 229.14075 | | +0.93231252 | +0.35951741 | |
| $a$ | 2.3686959 | $\Omega$ | 109.75579 | | −0.31799946 | +0.86662451 | |
| $e$ | 0.2025087 | $i$ | 2.39022 | | −0.17224898 | +0.34599016 | |
| $P$ | 3.65 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 02 05 | 695 | 0.6+ | 0.2+ | 2008 03 29 | G96 | 0.1− | 0.4+ | 2009 10 12 | G92 | (2.0+ | 1.7+) |
| 2000 02 05 | 695 | 0.4+ | 0.2+ | 2008 04 05 | G96 | 0.5+ | 0.2− | 2009 10 12 | G92 | (2.5+ | 0.8+) |
| 2001 05 18 | 691 | 0.1+ | 0.4+ | 2008 04 05 | G96 | 0.2− | 0.0 | 2009 10 12 | G92 | 1.5+ | 0.5+ |
| 2001 05 18 | 691 | 0.4+ | 0.3+ | 2008 04 05 | G96 | 0.3+ | 0.1− | 2009 10 13 | 704 | (0.3− | 2.8+) |
| 2001 05 18 | 691 | 0.1+ | 0.2+ | 2008 04 05 | G96 | 0.3+ | 0.2− | 2009 10 13 | 704 | (0.9− | 2.9+) |
| 2002 12 05 | 704 | (2.0− | 1.7+) | 2008 04 09 | 691 | 0.3− | 0.2− | 2009 10 13 | 704 | (0.7− | 2.7+) |
| 2002 12 05 | 704 | 0.7− | 0.2+ | 2008 04 09 | 691 | 0.2− | 0.3+ | 2009 10 14 | G92 | 0.1+ | 0.1+ |
| 2002 12 05 | 704 | 0.7− | 0.2− | 2008 04 09 | 691 | 0.1+ | 0.4+ | 2009 10 14 | G92 | 0.0 | 0.3+ |
| 2002 12 05 | 704 | 0.4− | 0.3− | 2008 04 11 | 691 | 0.2− | 0.1+ | 2009 10 14 | G92 | 0.1+ | 0.3+ |
| 2002 12 05 | 704 | 0.2− | 0.6− | 2008 04 11 | 691 | 0.3− | 0.0 | 2009 10 17 | G96 | 0.1+ | 0.2+ |
| 2004 03 18 | 691 | 0.1+ | 0.6+ | 2008 04 11 | 691 | 0.1− | 0.0 | 2009 10 17 | G96 | 0.1+ | 0.1+ |
| 2004 03 18 | 691 | 0.2+ | 0.3+ | 2008 04 27 | G96 | 0.4+ | 0.2− | 2009 10 17 | G96 | 0.2− | 0.1+ |
| 2004 03 18 | 691 | 0.1+ | 0.7+ | 2008 04 27 | G96 | 0.3+ | 0.0 | 2009 10 17 | G96 | 0.0 | 0.1+ |
| 2006 12 11 | 691 | 0.0 | 0.6− | 2008 04 27 | G96 | 0.2+ | 0.1+ | 2009 10 17 | G96 | 0.1+ | 0.5+ |
| 2006 12 11 | 691 | 0.2+ | 0.1− | 2008 04 27 | G96 | 0.2+ | 0.3− | 2009 10 17 | G96 | 0.3+ | 0.5+ |
| 2006 12 11 | 691 | 0.2+ | 0.0 | 2009 09 23 | G96 | 0.2+ | 0.1+ | 2009 10 17 | G96 | 0.1+ | 0.4+ |
| 2006 12 24 | 691 | 0.1− | 0.3+ | 2009 09 23 | G96 | 0.1− | 0.1+ | 2009 10 17 | G96 | 0.1− | 0.4+ |
| 2006 12 24 | 691 | 0.1+ | 0.2+ | 2009 09 23 | G96 | 0.1+ | 0.2− | 2009 10 22 | 704 | 0.4− | 0.9+ |
| 2006 12 24 | 691 | 0.1+ | 0.1+ | 2009 09 23 | G96 | 0.3+ | 0.0 | 2009 10 22 | 704 | 0.3− | 1.2+ |
| 2007 01 17 | G96 | 0.1+ | 0.2− | 2009 09 28 | 691 | 0.4− | 0.0 | 2009 10 22 | 704 | 1.3− | 0.8+ |
| 2007 01 17 | G96 | 0.7+ | 0.1− | 2009 09 28 | 691 | 0.2− | 0.1+ | 2009 10 22 | 704 | 0.5− | 1.2+ |
| 2007 01 17 | G96 | 0.2+ | 0.1− | 2009 09 28 | 691 | 0.5− | 0.1+ | 2009 12 13 | G96 | 0.1+ | 0.1+ |
| 2007 01 17 | G96 | 0.0 | 0.2− | 2009 10 09 | 703 | 0.1− | 0.7− | 2009 12 13 | G96 | 0.0 | 0.8+ |
| 2008 03 29 | G96 | 0.1− | 0.4+ | 2009 10 09 | 703 | 0.6+ | 1.0− | 2009 12 13 | G96 | 0.7− | 0.1+ |
| 2008 03 29 | G96 | 0.4+ | 0.1+ | 2009 10 09 | 703 | 0.3− | 0.2− | 2009 12 13 | G96 | 0.1+ | 0.0 |
| 2008 03 29 | G96 | 0.1− | 0.0 | 2009 10 09 | 703 | 0.9+ | 1.5+ | | | | |

**(229766)∗ 2008 GX$_{76}$ = 2002 TY$_{172}$**

Discovered 2008 Apr. 7 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 141507)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 107.08417 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.29836888 | $\omega$ | 195.58547 | | +0.70521005 | +0.70487710 | |
| $a$ | 2.2180281 | $\Omega$ | 119.33379 | | −0.64077708 | +0.67972972 | |
| $e$ | 0.1877378 | $i$ | 5.02339 | | −0.30345267 | +0.20277030 | |
| $P$ | 3.30 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 09 07 | 704 | 0.5− | 0.6+ | 2002 10 07 | 608 | 0.5− | 1.1+ | 2008 04 07 | 691 | 0.3+ | 0.1− |
| 2002 09 07 | 704 | 0.9+ | 0.6+ | 2002 10 07 | 608 | 0.7− | 0.5+ | 2008 04 11 | 691 | 0.2+ | 0.2+ |
| 2002 09 07 | 704 | 0.1− | 0.0 | 2004 01 31 | 691 | 0.2+ | 0.2+ | 2008 04 11 | 691 | 0.3+ | 0.1− |
| 2002 09 07 | 704 | 1.1− | 0.8+ | 2004 01 31 | 691 | 0.4+ | 0.2− | 2008 04 11 | 691 | 0.8+ | 0.1− |
| 2002 09 07 | 704 | 1.0− | 0.2− | 2004 01 31 | 691 | 0.8− | 0.4+ | 2008 04 28 | G96 | 0.3− | 0.2− |
| 2002 09 08 | 599 | 0.1+ | 0.4+ | 2004 02 26 | 695 | 0.4− | 0.2+ | 2008 04 28 | G96 | 0.1− | 0.1+ |
| 2002 09 08 | 599 | 0.1− | 0.3+ | 2004 02 26 | 695 | 0.4− | 0.2+ | 2008 04 28 | G96 | 0.1+ | 0.0 |
| 2002 09 08 | 599 | 0.0 | 0.8+ | 2006 12 13 | 691 | 0.2+ | 0.2+ | 2008 04 28 | G96 | 1.0+ | 0.2+ |
| 2002 10 04 | 704 | (1.6− | 0.7−) | 2006 12 13 | 691 | 0.3+ | 0.2+ | 2009 11 16 | G96 | 0.2− | 0.1+ |
| 2002 10 04 | 704 | 0.9+ | 0.6+ | 2006 12 13 | 691 | 0.5+ | 0.2+ | 2009 11 16 | G96 | 0.2+ | 0.0 |
| 2002 10 04 | 704 | 0.2− | 0.0 | 2008 03 30 | 691 | 0.3− | 0.2+ | 2009 11 16 | G96 | 0.3− | 0.1− |
| 2002 10 04 | 704 | 0.2− | 1.0+ | 2008 03 30 | 691 | 0.4+ | 0.0 | 2009 11 16 | G96 | 0.1+ | 0.3− |
| 2002 10 06 | 704 | (3.5+ | 1.2+) | 2008 03 30 | 691 | 0.1− | 0.1+ | 2009 12 11 | 703 | 0.2− | 0.9+ |
| 2002 10 06 | 704 | (2.7+ | 1.9+) | 2008 04 03 | 691 | 0.6− | 1.3+ | 2009 12 11 | 703 | 0.2+ | 0.1− |
| 2002 10 06 | 704 | (3.1+ | 1.3+) | 2008 04 03 | 691 | 0.1+ | 0.3+ | 2009 12 11 | 703 | 0.5− | 0.3+ |
| 2002 10 06 | 704 | (3.5+ | 2.8+) | 2008 04 03 | 691 | 0.1− | 0.1− | 2009 12 11 | 703 | 0.8− | 0.1− |
| 2002 10 06 | 704 | (2.9+ | 2.5+) | 2008 04 07 | 691 | 0.6− | 0.3+ | | | | |
| 2002 10 07 | 608 | 0.5− | 1.0+ | 2008 04 07 | 691 | 0.0 | 0.3+ | | | | |

**(229767)∗ 2008 HA$_{33}$**

Discovered 2008 Apr. 29 by the Mt. Lemmon Survey at Mount Lemmon.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 83.99146 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28302217 | $\omega$ | 261.74290 | | +0.86104590 | +0.48887463 | |
| $a$ | 2.2975012 | $\Omega$ | 68.89075 | | −0.38714426 | +0.80869826 | |
| $e$ | 0.1803802 | $i$ | 8.63135 | | −0.32972608 | +0.32712187 | |
| $P$ | 3.48 | $H$ | 17.5 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 11 13 | 644 | 0.2− | 0.2+ | 2008 03 29 | 691 | 0.1+ | 0.5+ | 2008 06 03 | G96 | 0.2− | 0.6+ |
| 2002 11 13 | 644 | 0.2+ | 0.4+ | 2008 03 29 | 691 | 0.2− | 0.3− | 2008 06 03 | G96 | 0.3− | 0.1+ |
| 2002 11 23 | 644 | 0.1+ | 0.0 | 2008 03 29 | 691 | 0.2+ | 0.2− | 2008 06 03 | G96 | 0.7+ | 0.8+ |
| 2002 11 23 | 644 | 0.7+ | 0.4+ | 2008 04 14 | 691 | 0.1+ | 0.4+ | 2009 11 09 | G96 | 0.1− | 0.0 |
| 2002 11 23 | 644 | 0.0 | 0.4− | 2008 04 14 | 691 | 0.2+ | 0.2+ | 2009 11 09 | G96 | 0.2− | 0.3− |
| 2002 12 10 | 644 | 0.4− | 0.5+ | 2008 04 14 | 691 | 0.0 | 0.3+ | 2009 11 09 | G96 | 0.3− | 0.1− |
| 2002 12 10 | 644 | 1.3− | 1.0+ | 2008 04 29 | G96 | 0.2− | 0.2− | 2009 11 09 | G96 | 0.2+ | 0.0 |
| 2005 07 10 | E12 | 0.5− | 0.9+ | 2008 04 29 | G96 | 0.0 | 0.2− | 2009 11 24 | 691 | 0.0 | 0.1+ |
| 2005 07 10 | E12 | 0.2− | 0.9+ | 2008 04 29 | G96 | 0.2+ | 0.3− | 2009 11 24 | 691 | 0.2− | 0.2+ |
| 2005 07 10 | E12 | 0.1+ | 0.3+ | 2008 04 29 | G96 | 0.2− | 0.1− | 2009 11 24 | 691 | 0.0 | 0.3+ |
| 2005 07 10 | E12 | 0.1− | 1.1+ | 2008 04 30 | G96 | 0.4− | 0.1− | 2009 12 10 | 114 | 0.8− | 0.1+ |
| 2005 08 10 | E12 | 0.1− | 0.2+ | 2008 04 30 | G96 | 0.3+ | 0.1+ | 2009 12 10 | 114 | 0.6− | 0.2+ |
| 2005 08 10 | E12 | 0.3+ | 0.6− | 2008 04 30 | G96 | 0.5+ | 0.0 | 2009 12 10 | 114 | 0.8+ | 0.9+ |
| 2005 08 10 | E12 | 0.6− | 0.7− | 2008 04 30 | G96 | 0.0 | 0.1+ | 2009 12 10 | 114 | 0.7+ | 0.4+ |
| 2005 08 10 | E12 | 0.3+ | 0.2+ | 2008 06 03 | G96 | 0.1− | 0.5+ | | | | |

**(229768)∗ 2008 HT$_{68}$**

Discovered 2008 Apr. 26 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 89.38486 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.29702797 | $\omega$ | 247.06402 | | +0.93934881 | +0.32166660 | |
| $a$ | 2.2246985 | $\Omega$ | 94.00425 | | −0.25440046 | +0.88616103 | |
| $e$ | 0.1386227 | $i$ | 6.84960 | | −0.23000919 | +0.33354043 | |
| $P$ | 3.32 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 06 03 | 691 | 0.1− | 0.1− | 2008 04 26 | 691 | 0.3+ | 0.1+ | 2008 06 07 | 691 | 0.2+ | 0.1+ |
| 2005 06 03 | 691 | 0.6− | 0.8− | 2008 05 14 | 691 | 0.1− | 0.3+ | 2008 06 07 | 691 | 0.1+ | 0.0 |
| 2005 06 03 | 691 | 0.3+ | 0.1+ | 2008 05 14 | 691 | 0.6− | 0.0 | 2008 06 07 | 691 | 0.2− | 0.2+ |
| 2005 06 08 | 691 | 0.1+ | 0.4− | 2008 05 14 | 691 | 0.0 | 0.0 | 2009 10 15 | G96 | 0.3+ | 1.2+ |
| 2005 06 08 | 691 | 0.3+ | 0.1− | 2008 05 28 | 291 | 0.0 | 0.0 | 2009 10 15 | G96 | 0.1− | 0.2+ |
| 2005 06 08 | 691 | (2.0− | 3.8−) | 2008 05 28 | 291 | 0.8+ | 0.6+ | 2009 10 15 | G96 | 0.2− | 0.2+ |
| 2007 01 17 | 691 | 0.1+ | 0.2− | 2008 05 28 | G96 | 0.2+ | 0.0 | 2009 10 15 | G96 | 0.4+ | 0.4+ |
| 2007 01 17 | 691 | 0.5− | 0.2− | 2008 05 28 | 291 | 0.1− | 0.1− | 2009 11 26 | 691 | 0.0 | 0.1− |
| 2007 01 17 | 691 | 0.0 | 0.1− | 2008 05 28 | G96 | 0.2+ | 0.2− | 2009 11 26 | 691 | 0.1− | 0.2+ |
| 2007 01 25 | 691 | 0.3+ | 0.2− | 2008 05 28 | G96 | 0.1+ | 0.1+ | 2009 11 26 | 691 | 0.2− | 0.0 |
| 2007 01 25 | 691 | 0.2+ | 0.1− | 2008 05 28 | 291 | 0.0 | 0.0 | 2009 12 11 | G96 | 0.3− | 0.1+ |
| 2007 01 25 | 691 | 0.1− | 0.2− | 2008 05 28 | G96 | 0.2+ | 0.2+ | 2009 12 11 | G96 | 0.4+ | 0.0 |
| 2008 04 26 | 691 | 0.1+ | 0.1− | 2008 05 28 | 291 | 0.2+ | 0.0 | 2009 12 11 | G96 | 0.0 | 0.1+ |
| 2008 04 26 | 691 | 0.1− | 0.2− | 2008 05 28 | 291 | 0.4− | 0.0 | 2009 12 11 | G96 | 0.2+ | 0.2+ |

**(229769)∗ 2008 JX$_{19}$**

Discovered 2008 May 6 by J. Broughton at Reedy Creek.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 89.06757 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23748353 | $\omega$ | 67.36865 | | +0.70982113 | +0.66953814 | |
| $a$ | 2.5825399 | $\Omega$ | 249.82772 | | −0.70095450 | +0.64081932 | |
| $e$ | 0.2459914 | $i$ | 13.47943 | | −0.06940282 | +0.37559191 | |
| $P$ | 4.15 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 05 30 | 691 | 0.1− | 0.2+ | 2008 05 28 | 704 | 0.0 | 0.1+ | 2009 11 21 | 704 | 0.6+ | 0.5+ |
| 2000 05 30 | 691 | 0.2− | 0.1+ | 2008 07 01 | 704 | 0.2− | 0.4− | 2009 11 21 | 704 | 0.0 | 0.1− |
| 2000 05 30 | 691 | 0.0 | 0.5+ | 2008 07 01 | 704 | 0.5+ | 0.0 | 2009 11 25 | 691 | 0.2− | 0.3+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 04 | 691 | 0.0 | 0.2+ | 2008 07 01 | 704 | 0.5+ | 0.7+ | 2009 11 25 | 691 | 0.2− | 0.2+ | | |
| 2005 12 04 | 691 | 0.1+ | 0.0 | 2008 07 01 | 704 | (2.4+ | 1.5−) | 2009 11 25 | 691 | 0.1− | 0.2+ | | |
| 2005 12 04 | 691 | 0.0 | 0.0 | 2009 11 09 | G96 | 0.4+ | 0.0 | 2009 11 25 | 703 | 0.8+ | 0.5− | | |
| 2005 12 21 | 691 | 0.5+ | 0.0 | 2009 11 09 | G96 | 0.1+ | 0.2+ | 2009 11 25 | 703 | 0.1− | 1.0− | | |
| 2005 12 21 | 691 | 0.3+ | 0.0 | 2009 11 09 | G96 | 0.2+ | 0.0 | 2009 11 25 | 703 | 0.7+ | 1.3− | | |
| 2005 12 21 | 691 | 0.7− | 1.4+ | 2009 11 09 | J75 | 0.1+ | 0.4− | 2009 11 25 | 703 | 1.0+ | 0.5− | | |
| 2008 05 06 | 428 | 0.1− | 0.3+ | 2009 11 10 | J75 | 0.1+ | 0.2− | 2009 11 25 | 703 | 0.2− | 0.2− | | |
| 2008 05 06 | 428 | 0.1+ | 0.3+ | 2009 11 10 | J75 | 0.2− | 0.1+ | 2009 12 09 | J75 | 0.9− | 0.4+ | | |
| 2008 05 06 | 428 | 0.2− | 0.4+ | 2009 11 11 | 704 | 0.2− | 0.0 | 2009 12 09 | J75 | 0.4+ | 0.3− | | |
| 2008 05 07 | 428 | 0.2+ | 0.6+ | 2009 11 11 | 704 | 0.1− | 0.2+ | 2009 12 09 | J75 | 0.0 | 0.1+ | | |
| 2008 05 07 | 428 | 0.5+ | 0.3− | 2009 11 11 | 704 | 0.3− | 0.2− | 2009 12 11 | 703 | 0.6− | 0.4− | | |
| 2008 05 07 | 428 | 0.7− | 0.3+ | 2009 11 11 | 704 | 0.8− | 1.1+ | 2009 12 11 | 703 | 0.9+ | 0.3+ | | |
| 2008 05 07 | 428 | 0.2− | 0.1+ | 2009 11 12 | J75 | 0.3− | 0.1+ | 2009 12 11 | 703 | 0.6− | 0.9+ | | |
| 2008 05 12 | E12 | 0.4+ | 0.4+ | 2009 11 12 | J75 | 0.2+ | 0.4− | 2009 12 11 | 703 | 1.1− | 0.3+ | | |
| 2008 05 12 | E12 | 0.3− | 0.3+ | 2009 11 12 | J75 | 0.0 | 0.8+ | 2009 12 16 | 704 | 1.3+ | 0.5− | | |
| 2008 05 12 | E12 | 0.0 | 0.2+ | 2009 11 17 | 704 | 0.0 | 0.1− | 2009 12 16 | 704 | 0.2+ | 0.6− | | |
| 2008 05 12 | E12 | 0.2+ | 0.1+ | 2009 11 17 | 704 | 0.0 | 0.0 | 2009 12 16 | 704 | 0.4+ | 0.8− | | |
| 2008 05 28 | 704 | 0.1− | 0.4− | 2009 11 17 | 704 | 0.4+ | 0.4+ | 2009 12 16 | 704 | 0.2+ | 0.1− | | |
| 2008 05 28 | 704 | 0.6− | 0.5+ | 2009 11 17 | 704 | 0.6− | 0.5+ | 2009 12 16 | 704 | 0.5+ | 0.7− | | |
| 2008 05 28 | 704 | 0.2+ | 0.5+ | 2009 11 17 | 704 | 0.2− | 0.2+ | | | | | | |
| 2008 05 28 | 704 | 0.3− | 0.3− | 2009 11 21 | 704 | 0.0 | 0.2+ | | | | | | |

**(229770)∗ 2008 JX$_{30}$**

Discovered 2008 May 3 by the Mt. Lemmon Survey at Mount Lemmon.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 48.25427 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23880829 | $\omega$ | 195.08500 | | +0.99603391 | +0.08271207 | |
| $a$ | 2.5729802 | $\Omega$ | 160.08272 | | −0.06836609 | +0.94732159 | |
| $e$ | 0.2811385 | $i$ | 5.52342 | | −0.05694323 | +0.30941966 | |
| $P$ | 4.13 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 01 | 703 | 0.7+ | 0.9+ | 2008 05 14 | G96 | 0.2+ | 0.2− | 2009 11 22 | 703 | 0.4+ | 0.5+ | | |
| 2005 12 01 | 703 | (0.8− | 1.7+) | 2008 05 14 | G96 | 0.1+ | 0.1+ | 2009 11 22 | 703 | 1.1+ | 0.3− | | |
| 2005 12 01 | 703 | 0.0 | 0.1+ | 2008 05 14 | G96 | 0.6+ | 0.4− | 2009 11 22 | 703 | 0.2+ | 0.3+ | | |
| 2005 12 01 | 703 | (1.4− | 2.2+) | 2008 05 14 | G96 | 0.5+ | 0.4− | 2009 11 22 | 703 | 1.3− | 0.3+ | | |
| 2006 02 04 | G96 | 0.4− | 0.1− | 2008 05 29 | G96 | 0.2− | 0.9+ | 2009 11 22 | G96 | 0.1− | 0.0 | | |
| 2006 02 04 | G96 | 0.7− | 0.1− | 2008 05 29 | G96 | 0.1− | 0.6+ | 2009 11 22 | 703 | 0.6− | 0.5− | | |
| 2006 02 04 | G96 | 0.0 | 0.3− | 2008 05 29 | G96 | 0.5− | 0.5+ | 2009 11 22 | G96 | 0.5+ | 0.2+ | | |
| 2006 02 04 | G96 | 0.1− | 0.3− | 2008 05 29 | G96 | 0.3− | 0.4+ | 2009 11 22 | G96 | 0.1− | 0.1+ | | |
| 2007 02 26 | G96 | 0.1+ | 0.0 | 2009 09 28 | G96 | 0.1+ | 0.0 | 2009 11 22 | G96 | 0.4+ | 0.1+ | | |
| 2007 02 26 | G96 | 0.4− | 0.5− | 2009 09 28 | G96 | 0.2− | 0.1− | 2009 11 23 | 291 | 0.0 | 0.1+ | | |
| 2007 02 26 | G96 | 0.6+ | 0.1+ | 2009 09 28 | G96 | 0.0 | 0.1− | 2009 11 23 | 291 | 0.1− | 0.0 | | |
| 2007 02 26 | G96 | 0.1+ | 0.2− | 2009 09 28 | G96 | 0.3+ | 0.1− | 2009 11 23 | 291 | 0.1− | 0.1+ | | |
| 2008 05 03 | G96 | 0.1+ | 0.2+ | 2009 10 19 | J75 | 0.5+ | 0.6+ | 2009 12 13 | 704 | 0.4− | 0.0 | | |
| 2008 05 03 | G96 | 0.1+ | 0.1− | 2009 10 19 | J75 | 0.1− | 0.0 | 2009 12 13 | 704 | 1.4− | 1.3− | | |
| 2008 05 03 | G96 | 0.2+ | 0.2− | 2009 10 19 | J75 | 0.5+ | 0.3+ | 2009 12 13 | 704 | 0.7− | 1.4− | | |
| 2008 05 03 | G96 | 0.3+ | 0.2+ | 2009 11 19 | J75 | 0.3+ | 0.0 | 2009 12 18 | 691 | 0.3− | 0.6+ | | |
| 2008 05 09 | 069 | 0.4− | 1.2+ | 2009 11 20 | J75 | 0.4+ | 0.8+ | 2009 12 18 | 691 | 0.2+ | 0.1− | | |
| 2008 05 09 | 069 | 0.0 | 0.3+ | 2009 11 20 | J75 | 0.4+ | 0.1− | 2009 12 18 | 691 | 0.1+ | 0.0 | | |

**(229771)∗ 2008 JQ$_{32}$**

Discovered 2008 May 7 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 165.13833 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.30458705 | $\omega$ | 188.71813 | | −0.16130048 | +0.98591731 | |
| $a$ | 2.1877369 | $\Omega$ | 72.00851 | | −0.90264618 | −0.12929441 | |
| $e$ | 0.2259100 | $i$ | 2.66061 | | −0.39901383 | −0.10606609 | |
| $P$ | 3.24 | $H$ | 17.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 04 28 | 691 | 0.1+ | 0.1+ | 2005 07 10 | 703 | 1.1− | 0.8− | 2008 05 07 | 691 | 0.0 | 0.1− | | |
| 1995 04 28 | 691 | 0.2+ | 0.6+ | 2008 03 30 | 691 | 0.1− | 0.0 | 2008 05 14 | G96 | 0.1+ | 0.1− | | |
| 1995 04 28 | 691 | 0.1+ | 0.5+ | 2008 03 30 | 691 | 0.2− | 0.2− | 2008 05 14 | G96 | 0.3+ | 0.1− | | |
| 2002 10 04 | 644 | 0.5− | 0.7+ | 2008 03 30 | 691 | 0.2− | 0.0 | 2008 05 14 | G96 | 0.3+ | 0.1− | | |
| 2002 10 04 | 644 | 0.2− | 0.5+ | 2008 04 14 | 691 | 0.0 | 0.0 | 2008 05 14 | G96 | 0.0 | 0.3− | | |
| 2002 10 04 | 644 | 0.4− | 0.7+ | 2008 04 14 | 691 | 0.1− | 0.0 | 2008 05 27 | 691 | 0.6+ | 0.3+ | | |
| 2005 05 20 | 644 | 0.2− | 0.5+ | 2008 04 14 | 691 | 0.1− | 0.1+ | 2008 05 27 | 691 | 0.1+ | 0.0 | | |
| 2005 05 20 | 644 | 0.3+ | 0.3+ | 2008 04 26 | 703 | 0.9− | 0.4+ | 2008 05 27 | 691 | 0.0 | 0.0 | | |
| 2005 05 20 | 644 | 0.2+ | 0.3+ | 2008 04 26 | 703 | 0.5− | 0.4− | 2008 06 09 | 691 | 0.1− | 0.1+ | | |
| 2005 06 09 | 703 | 0.4− | 0.8− | 2008 04 26 | 703 | (1.6− | 0.8+) | 2008 06 09 | 691 | 0.0 | 0.3+ | | |
| 2005 06 09 | 703 | 0.8+ | 0.6+ | 2008 04 26 | 703 | (1.7− | 0.3−) | 2008 06 09 | 691 | 0.1+ | 0.1+ | | |
| 2005 06 09 | 703 | 0.4+ | 0.3− | 2008 04 29 | 691 | 0.0 | 0.1− | 2009 11 24 | 691 | 0.0 | 0.3+ | | |
| 2005 06 09 | 703 | 0.4− | 0.8+ | 2008 04 29 | 691 | 0.2− | 0.0 | 2009 11 24 | 691 | 0.0 | 0.5+ | | |
| 2005 06 29 | 644 | 0.4+ | 0.0 | 2008 04 29 | 691 | 0.1− | 0.0 | 2009 11 24 | 691 | 0.4− | 0.4+ | | |
| 2005 06 29 | 644 | 0.1+ | 0.1+ | 2008 05 03 | 691 | (1.6+ | 0.4+) | 2009 12 11 | G96 | 0.1+ | 0.2+ | | |
| 2005 06 29 | 644 | 0.2+ | 0.1+ | 2008 05 03 | 691 | 0.1+ | 0.1− | 2009 12 11 | G96 | 0.5+ | 0.4+ | | |
| 2005 07 10 | 703 | 0.2+ | 0.4− | 2008 05 03 | 691 | 0.0 | 0.0 | 2009 12 11 | G96 | 0.1− | 0.3− | | |
| 2005 07 10 | 703 | 0.2− | 0.4− | 2008 05 07 | 691 | 0.0 | 0.3− | 2009 12 11 | G96 | 0.2+ | 0.6+ | | |
| 2005 07 10 | 703 | 0.1− | 0.3+ | 2008 05 07 | 691 | 0.1+ | 0.0 | | | | | | |

**(229772)∗ 2008 KX$_{10}$ = 2004 KR$_{11}$**

Discovered 2008 May 29 by the Mt. Lemmon Survey at Mount Lemmon.

Id. K. E. Smalley (*MPO* 140054)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 59.78540 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23788025 | $\omega$ | 185.29220 | | +0.97980235 | +0.19780099 | |
| $a$ | 2.5796679 | $\Omega$ | 163.21230 | | −0.17953581 | +0.93481178 | |
| $e$ | 0.3371412 | $i$ | 5.83472 | | −0.08805817 | +0.29496050 | |
| $P$ | 4.14 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1992 11 17 | 691 | 0.3+ | 0.7+ | 2007 02 25 | 291 | 0.6+ | 0.3− | 2008 06 10 | 691 | 0.0 | 0.5− | | |
| 1992 11 17 | 691 | 0.7− | 0.8+ | 2007 03 09 | G96 | 0.8+ | 0.2− | 2009 11 19 | 704 | 0.8+ | 0.7+ | | |
| 1992 11 17 | 691 | 0.1− | 0.2+ | 2007 03 09 | G96 | 0.2+ | 0.1+ | 2009 11 19 | 704 | 0.5+ | 0.7+ | | |
| 2004 04 30 | 691 | 0.0 | 0.1+ | 2007 03 09 | G96 | 0.2+ | 0.1− | 2009 11 19 | 704 | 0.8+ | 0.5− | | |
| 2004 04 30 | 691 | 0.4+ | 0.4+ | 2007 03 09 | G96 | 0.1+ | 0.0 | 2009 12 08 | J75 | 0.3+ | 0.1− | | |
| 2004 04 30 | 691 | 0.3+ | 0.3+ | 2008 05 14 | G96 | 0.1+ | 0.2− | 2009 12 09 | J75 | 0.1+ | 1.4+ | | |
| 2004 05 20 | 691 | 0.0 | 0.5+ | 2008 05 14 | G96 | 0.7+ | 0.4+ | 2009 12 09 | J75 | 0.0 | 1.1+ | | |
| 2004 05 20 | 691 | 0.3+ | 0.4+ | 2008 05 14 | G96 | 0.2− | 0.3− | 2009 12 12 | 704 | 1.0− | 1.1+ | | |
| 2004 05 20 | 691 | 0.3+ | 0.4+ | 2008 05 14 | G96 | 0.2− | 0.1− | 2009 12 12 | 704 | 0.4+ | 1.5+ | | |
| 2004 05 23 | 704 | 0.2− | 0.0 | 2008 05 29 | G96 | 0.0 | 0.3+ | 2009 12 12 | 704 | 0.3+ | 1.6+ | | |
| 2004 05 23 | 704 | 0.2+ | 0.7− | 2008 05 29 | G96 | 0.0 | 0.5+ | 2009 12 15 | 703 | 0.3− | 0.3+ | | |
| 2004 05 23 | 704 | 1.1− | 1.1− | 2008 05 29 | G96 | 0.1+ | 0.5+ | 2009 12 15 | 703 | 0.8− | 0.0 | | |
| 2004 06 10 | 599 | 1.3− | 0.7+ | 2008 05 29 | G96 | 0.1+ | 0.3+ | 2009 12 15 | 703 | 0.3− | 0.0 | | |
| 2004 06 10 | 599 | 1.1− | 0.8+ | 2008 05 30 | 691 | 0.2+ | 0.1− | 2009 12 15 | 703 | 1.0− | 1.2− | | |
| 2004 06 10 | 599 | (0.1− | 1.5+) | 2008 05 30 | 691 | 0.0 | 0.1− | 2009 12 15 | 703 | 0.5− | 0.2− | | |
| 2007 02 21 | G96 | 0.5+ | 0.5− | 2008 05 30 | 691 | 0.2+ | 0.1+ | 2009 12 17 | G96 | 0.1− | 0.1− | | |
| 2007 02 21 | G96 | 0.3+ | 0.3− | 2008 06 01 | 691 | 0.2− | 0.1+ | 2009 12 17 | G96 | 0.2− | 0.0 | | |
| 2007 02 21 | G96 | 0.1− | 0.3− | 2008 06 01 | 691 | 0.8− | 0.4+ | 2009 12 17 | G96 | 0.2+ | 0.0 | | |
| 2007 02 21 | G96 | 0.3− | 0.3− | 2008 06 01 | 691 | 0.2+ | 0.0 | 2009 12 17 | G96 | 0.2+ | 0.0 | | |
| 2007 02 25 | 291 | 0.1− | 0.4+ | 2008 06 10 | 691 | 0.1+ | 0.3+ | 2009 12 17 | G96 | 0.1+ | 0.0 | | |
| 2007 02 25 | 291 | 0.5− | 0.6+ | 2008 06 10 | 691 | 0.1+ | 0.0 | | | | | | |

**(229773)∗ 2008 LW$_{10}$ = 2005 UZ$_{382}$**

Discovered 2008 June 6 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 140632)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 90.32715 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23060170 | $\omega$ | 121.64414 | | +0.45462992 | +0.89066758 | |
| $a$ | 2.6336681 | $\Omega$ | 175.38918 | | −0.83601727 | +0.42857518 | |
| $e$ | 0.0836880 | $i$ | 3.41260 | | −0.30722427 | +0.15177147 | |
| $P$ | 4.27 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 09 15 | 691 | 0.1− | 0.1− | 2007 02 10 | G96 | 0.0 | 0.1+ | 2008 06 09 | 691 | 0.1+ | 0.2+ | | |
| 1996 09 15 | 691 | 0.1− | 0.2+ | 2007 02 10 | G96 | 0.1− | 0.1+ | 2008 06 09 | 691 | 0.2− | 0.8+ | | |
| 1996 09 15 | 691 | 0.3− | 0.3− | 2007 02 10 | G96 | 0.0 | 0.1− | 2009 09 12 | 691 | 0.2+ | 0.1− | | |
| 2005 10 22 | 691 | 0.1− | 0.3+ | 2007 03 15 | G96 | 0.5− | 0.1+ | 2009 09 12 | 691 | 0.3− | 0.4− | | |
| 2005 10 22 | 691 | 0.3+ | 0.5+ | 2007 03 15 | G96 | 0.4− | 0.1+ | 2009 09 12 | 691 | 0.4− | 0.2+ | | |
| 2005 10 22 | 691 | 0.4+ | 0.0 | 2007 03 15 | G96 | 0.3− | 0.3+ | 2009 09 16 | 691 | 0.7− | 0.2+ | | |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 27 | 691 | 0.2+ | 0.0 | 2007 03 15 | G96 | 0.2− | 0.0 | 2009 09 16 | 691 | 0.0 | 0.6− |
| 2005 10 27 | 691 | 0.4+ | 0.1+ | 2008 05 06 | G96 | (0.5− | 1.9−) | 2009 09 16 | 691 | 0.2+ | 0.4− |
| 2005 10 27 | 691 | 0.5+ | 0.2− | 2008 05 06 | G96 | 0.3+ | 0.2+ | 2009 09 20 | 691 | 0.2− | 0.0 |
| 2005 10 31 | 691 | 0.4− | 0.6+ | 2008 05 06 | G96 | 0.4+ | 0.5+ | 2009 09 20 | 691 | 0.0 | 0.0 |
| 2005 10 31 | 691 | 0.5+ | 0.2+ | 2008 05 06 | G96 | 0.8+ | 0.3+ | 2009 09 20 | 691 | 1.0− | 0.5− |
| 2005 10 31 | 691 | 0.3+ | 0.5+ | 2008 05 28 | G96 | 0.4+ | 0.1+ | 2009 09 28 | 691 | 0.3+ | 0.2+ |
| 2005 11 05 | 691 | 0.2− | 0.3+ | 2008 05 28 | G96 | 0.3+ | 0.3+ | 2009 09 28 | 691 | 0.2+ | 0.2+ |
| 2005 11 05 | 691 | 0.1+ | 0.3+ | 2008 05 28 | G96 | 0.1+ | 0.2+ | 2009 09 28 | 691 | 0.4+ | 0.3+ |
| 2005 11 05 | 691 | 0.0 | 0.2+ | 2008 05 28 | G96 | 0.3+ | 0.0 | 2009 12 13 | G96 | 1.8− | 0.4− |
| 2007 01 10 | 691 | 0.5− | 0.2+ | 2008 06 06 | 691 | 0.0 | 0.0 | 2009 12 13 | G96 | 0.4+ | 0.0 |
| 2007 01 10 | 691 | 0.0 | 0.3+ | 2008 06 06 | 691 | 0.2+ | 0.0 | 2009 12 13 | G96 | 0.8+ | 0.7− |
| 2007 01 10 | 691 | 0.1− | 0.1− | 2008 06 06 | 691 | 0.1− | 0.0 | 2009 12 13 | G96 | 0.2+ | 0.2+ |
| 2007 02 10 | G96 | 0.1− | 0.2− | 2008 06 09 | 691 | 0.2+ | 0.3+ | | | | |

**(229774)∗ 2008 LY$_{14}$**

Discovered 2008 June 8 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 71.73686 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.20559473 | $\omega$ | 87.89535 | | +0.96142372 | +0.19188367 | |
| $a$ | 2.8431170 | $\Omega$ | 260.99933 | | −0.25315664 | +0.89749294 | |
| $e$ | 0.1555468 | $i$ | 11.51057 | | +0.10759246 | +0.39709832 | |
| $P$ | 4.79 | $H$ | 15.3 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 04 08 | 644 | 0.6+ | 0.9+ | 2008 05 15 | G96 | 0.3+ | 0.4+ | 2009 11 11 | 704 | 0.0 | 0.0 |
| 2002 04 08 | 644 | 0.3− | 1.1+ | 2008 05 15 | G96 | 0.1+ | 0.0 | 2009 11 11 | 704 | 0.8− | 0.2+ |
| 2002 04 08 | 644 | 0.6+ | 0.9+ | 2008 05 15 | G96 | 0.2+ | 0.2+ | 2009 11 21 | 691 | 0.2− | 0.3+ |
| 2004 11 03 | 699 | 1.4+ | 0.7+ | 2008 05 15 | G96 | 1.1+ | 0.4+ | 2009 11 21 | 691 | 0.3− | 0.0 |
| 2004 11 03 | 699 | 0.2+ | 0.4+ | 2008 06 08 | 691 | 0.1− | 0.1+ | 2009 11 21 | 691 | 0.4− | 0.4− |
| 2004 11 03 | 699 | 0.4− | 0.2− | 2008 06 08 | 691 | 0.4− | 0.3+ | 2009 12 04 | 926 | 1.1+ | 0.2− |
| 2004 11 03 | 699 | 0.5− | 0.4+ | 2008 06 08 | 691 | 0.2+ | 0.3+ | 2009 12 05 | 926 | 0.1+ | 0.0 |
| 2004 11 09 | 703 | 0.2+ | 0.4− | 2008 06 12 | 691 | 0.1− | 0.0 | 2009 12 05 | 926 | 0.4− | 0.2+ |
| 2004 11 09 | 703 | 0.5− | 0.2− | 2008 06 12 | 691 | 0.1+ | 0.0 | 2009 12 05 | 926 | 0.1+ | 0.2− |
| 2004 11 09 | 703 | 0.5− | 0.2− | 2008 06 12 | 691 | 0.2− | 0.0 | 2009 12 10 | 704 | 0.5+ | 0.0 |
| 2004 11 09 | 703 | 0.2− | 0.5− | 2009 11 10 | 691 | (1.9− | 0.6−) | 2009 12 10 | 704 | 0.8+ | 0.6+ |
| 2004 12 01 | 644 | 0.1− | 0.2− | 2009 11 10 | 691 | 0.3+ | 0.4+ | 2009 12 10 | 704 | 1.0+ | 0.5+ |
| 2004 12 01 | 644 | 0.3+ | 0.1− | 2009 11 10 | 691 | 0.4− | 0.0 | 2009 12 10 | 704 | 1.2+ | 1.1+ |
| 2004 12 01 | 644 | 0.2+ | 0.5+ | 2009 11 11 | 704 | 1.2− | 1.3+ | 2009 12 10 | 704 | 1.4+ | 0.3− |

**(229775)∗ 2008 LM$_{15}$ = 2005 YW$_{222}$**

Discovered 2008 June 9 by Spacewatch at Kitt Peak.

Id. A. Doppler (*MPO* 141585)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 58.60803 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23849030 | $\omega$ | 204.01118 | | +0.99577599 | +0.08371082 | |
| $a$ | 2.5752668 | $\Omega$ | 151.10947 | | −0.06640015 | +0.94028470 | |
| $e$ | 0.2562156 | $i$ | 4.47763 | | −0.06341299 | +0.32993512 | |
| $P$ | 4.13 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 03 20 | 645 | 0.1− | 0.1− | 2007 03 10 | G96 | 0.4+ | 0.4− | 2009 11 19 | 704 | 0.0 | 0.0 |
| 1999 03 20 | 645 | 0.0 | 0.1− | 2007 03 10 | G96 | 0.0 | 0.2− | 2009 11 19 | 704 | 0.2− | 0.4+ |
| 1999 03 21 | 645 | 0.1− | 0.1− | 2007 03 10 | G96 | 0.2− | 0.2− | 2009 11 19 | 704 | 0.1+ | 0.4+ |
| 1999 03 21 | 645 | 0.1− | 0.2− | 2008 05 03 | G96 | 0.2+ | 0.1+ | 2009 11 19 | 704 | 0.6− | 0.7+ |
| 2002 01 15 | 704 | 0.1− | 0.9+ | 2008 05 03 | G96 | 0.4+ | 0.5+ | 2009 11 19 | 704 | 0.3− | 1.0+ |
| 2002 01 15 | 704 | 0.3+ | 1.4+ | 2008 05 03 | G96 | 0.4+ | 0.1+ | 2009 11 20 | 704 | 0.7+ | 1.0+ |
| 2002 01 15 | 704 | (0.0 | 2.0+) | 2008 05 03 | G96 | 0.1+ | 0.2+ | 2009 11 20 | 704 | 0.1+ | 0.5+ |
| 2003 04 05 | 691 | 0.4− | 0.6+ | 2008 05 28 | G96 | 0.1− | 0.1+ | 2009 11 20 | 704 | 0.6− | 0.1+ |
| 2003 04 05 | 691 | 0.2+ | 0.4+ | 2008 05 28 | G96 | 0.2+ | 0.2+ | 2009 11 20 | 704 | 0.2− | 0.0 |
| 2003 04 05 | 691 | 0.4+ | 0.3+ | 2008 05 28 | G96 | 0.4+ | 0.0 | 2009 11 27 | G96 | 0.3+ | 0.2− |
| 2005 12 22 | 691 | 0.1− | 0.1+ | 2008 05 28 | G96 | 0.0 | 0.3+ | 2009 11 27 | G96 | 0.1− | 0.0 |
| 2005 12 22 | 691 | 0.3+ | 0.4+ | 2008 06 09 | 691 | 0.3+ | 0.3+ | 2009 11 27 | G96 | 0.0 | 0.0 |
| 2005 12 22 | 691 | 0.1− | 0.4+ | 2008 06 09 | 691 | 0.0 | 0.1− | 2009 11 27 | G96 | 0.0 | 0.0 |
| 2005 12 30 | 704 | 0.6+ | 0.8− | 2008 06 09 | 691 | 0.5− | 0.7+ | 2009 11 27 | G96 | 0.2+ | 0.2− |
| 2005 12 30 | 704 | 0.1− | 0.2+ | 2008 06 13 | 691 | 0.9+ | 0.6+ | 2009 12 09 | J75 | 0.3+ | 0.1+ |
| 2005 12 30 | 704 | 0.8+ | 0.3− | 2008 06 13 | 691 | 0.3− | 0.1+ | 2009 12 09 | J75 | 0.2+ | 0.2− |
| 2007 03 10 | 691 | 0.1+ | 0.2+ | 2008 06 13 | 691 | 0.2− | 0.1+ | 2009 12 09 | J75 | 0.1+ | 0.5− |
| 2007 03 10 | 691 | 0.4+ | 0.5+ | 2009 11 17 | 703 | 1.0− | 0.2− | 2009 12 11 | 703 | 0.3− | 0.7− |
| 2007 03 10 | 691 | 0.0 | 0.0 | 2009 11 17 | 703 | 0.0 | 0.6+ | 2009 12 11 | 703 | 0.1− | 0.1− |
| 2007 03 10 | G96 | 0.1+ | 0.2− | 2009 11 17 | 703 | 0.7− | 0.2+ | 2009 12 11 | 703 | 0.3+ | 1.0− |

**(229776)∗ 2008 ME$_2$ = 2002 WC$_3$**

Discovered 2008 June 24 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 141587)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 52.54111 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28251377 | $\omega$ | 255.60442 | | +0.96971438 | −0.21367672 | |
| $a$ | 2.3002567 | $\Omega$ | 116.61887 | | +0.24173535 | +0.90887065 | |
| $e$ | 0.1359350 | $i$ | 7.60438 | | −0.03490034 | +0.35818488 | |
| $P$ | 3.49 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 05 24 | 691 | 0.3+ | 0.6+ | 2005 07 04 | 644 | 0.3− | 0.5+ | 2008 05 14 | G96 | 0.3+ | 0.0 |
| 2001 05 24 | 691 | 0.2+ | 0.5+ | 2005 07 27 | 644 | 0.0 | 0.4+ | 2008 05 14 | G96 | 0.2+ | 0.2− |
| 2001 05 24 | 691 | 0.2− | 0.6+ | 2005 07 27 | 644 | 0.1− | 0.5+ | 2008 05 14 | G96 | 0.1+ | 0.0 |
| 2002 11 23 | 644 | 0.1− | 0.4− | 2005 07 27 | 644 | 0.1− | 0.7+ | 2008 06 24 | 691 | 0.3+ | 0.1+ |
| 2002 11 23 | 644 | 0.7− | 0.2+ | 2005 09 03 | 644 | 0.0 | 0.7+ | 2008 06 24 | 691 | 0.1− | 0.4+ |
| 2002 11 23 | 644 | 0.3− | 0.7+ | 2005 09 03 | 644 | 0.1+ | 0.7+ | 2008 06 24 | 691 | 0.4+ | 0.1+ |
| 2002 11 25 | 644 | 0.0 | 1.0+ | 2005 09 03 | 644 | 0.2− | 0.7+ | 2008 07 01 | 691 | 0.4− | 0.1+ |
| 2002 11 25 | 644 | 0.0 | 1.1+ | 2007 01 17 | 691 | 0.2− | 0.3+ | 2008 07 01 | 691 | 0.3− | 0.0 |
| 2002 11 25 | 644 | 0.0 | 1.2+ | 2007 01 17 | 691 | 0.1+ | 0.2+ | 2008 07 01 | 691 | 0.3− | 0.2+ |
| 2004 03 21 | 691 | 0.5+ | 0.0 | 2007 01 17 | 691 | 0.1+ | 0.3+ | 2009 11 25 | G96 | 0.1+ | 0.2− |
| 2004 03 21 | 691 | 0.1+ | 0.1+ | 2007 01 26 | 691 | 0.2− | 0.1+ | 2009 11 25 | G96 | 0.2− | 0.2− |
| 2004 03 21 | 691 | 0.3+ | 0.2− | 2007 01 26 | 691 | 0.2− | 0.3+ | 2009 11 25 | G96 | 0.0 | 0.2− |
| 2005 06 13 | G96 | 0.0 | 0.0 | 2007 01 26 | 691 | 0.1+ | 0.0 | 2009 11 25 | G96 | 0.1+ | 0.1− |
| 2005 06 13 | G96 | 0.1− | 0.2+ | 2008 05 03 | G96 | 0.2+ | 0.3+ | 2009 12 13 | 704 | 0.3− | 1.7+ |
| 2005 06 13 | G96 | 0.5− | 0.0 | 2008 05 03 | G96 | 0.1− | 0.1+ | 2009 12 13 | 704 | 0.0 | 1.0+ |
| 2005 06 13 | G96 | 0.0 | 0.2− | 2008 05 03 | G96 | 0.0 | 0.1+ | 2009 12 13 | 704 | 0.1+ | 1.0+ |
| 2005 07 04 | 644 | 0.1− | 0.3+ | 2008 05 03 | G96 | 0.7+ | 0.2− | 2009 12 13 | 704 | 0.2− | 1.4+ |
| 2005 07 04 | 644 | 0.4− | 0.2+ | 2008 05 14 | G96 | 0.4+ | 0.2+ | 2009 12 13 | 704 | 0.0 | 2.0+ |

**(229777)∗ 2008 MX$_4$**

Discovered 2008 June 28 at La Cañada.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 146.66396 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.20438268 | $\omega$ | 0.07046 | | −0.12670458 | +0.97931861 | |
| $a$ | 2.8543463 | $\Omega$ | 262.65123 | | −0.91016539 | −0.17800504 | |
| $e$ | 0.0819343 | $i$ | 9.15138 | | −0.39439182 | +0.09617309 | |
| $P$ | 4.82 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 04 08 | 644 | 0.1+ | 0.7− | 2008 07 11 | J87 | 0.2+ | 0.4+ | 2008 09 23 | J87 | 0.1+ | 0.1+ |
| 2002 04 08 | 644 | 0.0 | 0.7− | 2008 07 11 | J87 | 0.0 | 0.6+ | 2008 09 23 | J87 | 0.2+ | 0.4+ |
| 2002 04 08 | 644 | 0.0 | 0.5− | 2008 07 11 | J87 | 0.1− | 0.3+ | 2008 09 23 | J87 | 0.1+ | 0.0 |
| 2002 04 19 | 644 | 0.2+ | 0.7+ | 2008 07 24 | J87 | 0.1+ | 0.2− | 2009 10 30 | G96 | 0.2+ | 0.3+ |
| 2002 04 19 | 644 | 0.5− | 0.0 | 2008 07 24 | J87 | 0.1− | 0.0 | 2009 10 30 | G96 | 0.1− | 0.5− |
| 2002 04 19 | 644 | 0.3− | 0.0 | 2008 07 24 | J87 | 0.5− | 0.2+ | 2009 10 30 | G96 | 0.5− | 0.1+ |
| 2005 12 31 | 691 | 0.1+ | 0.1+ | 2008 08 09 | J87 | 0.5− | 0.4− | 2009 10 30 | G96 | 0.3− | 0.2+ |
| 2005 12 31 | 691 | 0.1+ | 0.2+ | 2008 08 09 | J87 | 0.3− | 0.2− | 2009 11 21 | G96 | 0.1+ | 0.1+ |
| 2005 12 31 | 691 | 0.1− | 0.1+ | 2008 08 09 | J87 | 0.3− | 0.4+ | 2009 11 21 | G96 | 0.3+ | 0.2− |
| 2008 06 28 | J87 | 0.7+ | 1.1+ | 2008 08 22 | J87 | 0.5− | 1.4− | 2009 11 21 | G96 | 0.1+ | 0.2− |
| 2008 06 29 | J87 | 0.1− | 0.6+ | 2008 08 22 | J87 | (1.9− | 0.5+) | 2009 11 21 | G96 | 0.1− | 0.8− |
| 2008 06 29 | J87 | 0.0 | 0.7+ | 2008 08 23 | J87 | (1.8+ | 1.5+) | 2009 12 11 | J87 | 0.2− | 0.2− |
| 2008 06 29 | J87 | 0.5+ | 0.3+ | 2008 08 23 | J87 | (2.8− | 1.3−) | 2009 12 11 | J87 | 0.7+ | 0.0 |
| 2008 07 05 | J87 | 0.1+ | 0.4− | 2008 08 29 | J87 | 0.4+ | 0.1− | 2009 12 11 | J87 | 0.2+ | 0.1− |
| 2008 07 05 | J87 | 0.2− | 0.1− | 2008 08 29 | J87 | 0.1+ | 0.2− | | | | |
| 2008 07 05 | J87 | 0.2+ | 0.4− | 2008 08 29 | J87 | 0.4− | 0.6− | | | | |

**(229778)∗ 2008 NX$_4$ = 2004 XW$_{147}$**

Discovered 2008 July 10 by the Siding Spring Survey at Siding Spring.

Id. G. V. Williams (*MPO* 146588)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 84.11266 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21484726 | $\omega$ | 280.62594 | | +0.97248375 | −0.13226237 | |
| $a$ | 2.7608925 | $\Omega$ | 87.17256 | | +0.20039199 | +0.89475692 | |
| $e$ | 0.1900457 | $i$ | 11.07070 | | −0.11882087 | +0.42651696 | |
| $P$ | 4.59 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 13 | 704 | (0.3− | 1.6−) | 2007 05 09 | 703 | 0.8− | 1.1− | 2008 09 20 | E12 | 0.7− | 1.4+ |
| 2004 12 13 | 704 | 1.3− | 0.4− | 2008 07 10 | E12 | 0.9+ | 0.3+ | 2008 09 20 | E12 | 0.3− | 0.2+ |
| 2004 12 13 | 704 | 1.0+ | 0.7+ | 2008 07 10 | E12 | 0.3+ | 0.3+ | 2008 11 02 | 703 | 0.6− | 0.9− |
| 2004 12 13 | 704 | 0.8− | 0.3+ | 2008 07 10 | E12 | 0.2+ | 0.0 | 2008 11 02 | 703 | 0.2− | 0.2+ |
| 2004 12 14 | 699 | 0.4+ | 0.7+ | 2008 08 03 | E12 | 0.0 | 0.1+ | 2008 11 02 | 703 | 0.5+ | 0.1+ |
| 2004 12 14 | 699 | 0.4+ | 0.2+ | 2008 08 03 | E12 | 0.0 | 0.1− | 2008 11 02 | 703 | 0.2+ | 0.0 |
| 2004 12 14 | 699 | 0.3− | 1.2− | 2008 08 03 | E12 | 0.5+ | 0.1+ | 2009 11 21 | G96 | 1.5+ | 0.3− |
| 2004 12 14 | 699 | 0.6+ | 0.6− | 2008 08 03 | E12 | 0.2− | 0.2+ | 2009 11 21 | G96 | 0.3+ | 0.2− |
| 2004 12 19 | 704 | 0.3− | 0.5+ | 2008 08 23 | E12 | 0.2− | 0.1+ | 2009 11 21 | G96 | 0.5+ | 0.2− |
| 2004 12 19 | 704 | 0.2− | 1.4+ | 2008 08 23 | E12 | 0.5+ | 0.5+ | 2009 11 21 | G96 | 0.2+ | 0.2− |
| 2004 12 19 | 704 | (1.1− | 1.5+) | 2008 08 23 | E12 | 0.1+ | 0.2+ | 2009 12 19 | G96 | 0.3− | 0.3+ |
| 2004 12 19 | 704 | (0.5− | 1.9+) | 2008 08 23 | E12 | 0.2− | 0.4+ | 2009 12 19 | G96 | 0.1− | 0.1+ |
| 2007 04 25 | 691 | 0.0 | 0.2+ | 2008 09 08 | E12 | 0.5− | 0.1− | 2009 12 19 | G96 | 0.3− | 0.1− |
| 2007 04 25 | 691 | 0.3+ | 0.3+ | 2008 09 08 | E12 | 0.0 | 0.3+ | 2009 12 19 | G96 | 0.0 | 0.4+ |
| 2007 04 25 | 691 | 0.4+ | 0.3+ | 2008 09 08 | E12 | 0.4− | 0.3+ | 2009 12 20 | 691 | 0.4− | 0.5+ |
| 2007 05 09 | 703 | (0.6+ | 1.9−) | 2008 09 08 | E12 | 0.4− | 0.3− | 2009 12 20 | 691 | 0.0 | 0.0 |
| 2007 05 09 | 703 | 0.3− | 0.5+ | 2008 09 20 | E12 | 0.3− | 0.3+ | 2009 12 20 | 691 | 0.2+ | 0.1− |
| 2007 05 09 | 703 | 0.7− | 0.5+ | 2008 09 20 | E12 | 0.2+ | 1.1− | | | | |

**(229779)∗ 2008 ON$_{20}$**

Discovered 2008 July 29 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 317.62249 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21165540 | $\omega$ | 185.52037 | | −0.51079759 | −0.85811818 | |
| $a$ | 2.7885802 | $\Omega$ | 295.20624 | | +0.79094919 | −0.44531562 | |
| $e$ | 0.0163628 | $i$ | 3.30389 | | +0.33687564 | −0.25559186 | |
| $P$ | 4.66 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 12 | 691 | 0.0 | 0.0 | 2008 07 29 | 691 | 0.1+ | 0.1− | 2009 11 09 | 691 | 0.1− | 0.1− |
| 2004 10 12 | 691 | 0.2+ | 0.1+ | 2008 07 29 | 691 | 0.0 | 0.2− | 2009 11 21 | 691 | 0.2+ | 0.1+ |
| 2004 10 12 | 691 | 0.1+ | 0.4− | 2008 08 07 | 691 | 0.1− | 0.0 | 2009 11 21 | 691 | 0.3− | 0.1− |
| 2004 11 05 | 291 | 0.4− | 0.4+ | 2008 08 07 | 691 | 0.3− | 0.0 | 2009 11 21 | 691 | 0.2− | 0.1− |
| 2004 11 05 | 291 | 0.0 | 0.9+ | 2008 08 07 | 691 | (2.5− | 2.6−) | 2009 11 24 | J75 | 0.1+ | 0.6+ |
| 2004 11 05 | 291 | 0.3− | 0.2+ | 2008 09 07 | G96 | 0.7+ | 0.1− | 2009 11 24 | J75 | (1.7+ | 1.6+) |
| 2006 01 06 | G96 | 0.3+ | 0.3− | 2008 09 07 | G96 | 0.5+ | 0.1− | 2009 11 25 | J75 | 0.7+ | 0.3+ |
| 2006 01 06 | G96 | 0.4− | 0.2− | 2008 09 07 | G96 | 0.9+ | 0.0 | 2009 11 25 | 691 | 0.0 | 0.1− |
| 2006 01 06 | G96 | 0.4− | 0.1− | 2008 09 07 | G96 | 1.2+ | 0.1− | 2009 11 25 | 691 | 0.1+ | 0.1− |
| 2006 01 06 | G96 | 0.6− | 0.1+ | 2008 09 23 | G96 | 0.2− | 0.1− | 2009 11 25 | 691 | 0.1− | 0.2− |
| 2006 01 22 | G96 | 0.4+ | 0.3− | 2008 09 23 | G96 | 0.3+ | 0.0 | 2009 12 16 | G96 | 0.5+ | 0.1− |
| 2006 01 22 | G96 | 0.2− | 0.0 | 2008 09 23 | G96 | 0.5− | 0.3− | 2009 12 16 | G96 | 0.4+ | 0.2− |
| 2006 01 22 | G96 | 0.4+ | 0.5− | 2008 09 23 | G96 | 0.5+ | 0.3− | 2009 12 16 | G96 | 0.3+ | 0.4− |
| 2006 01 22 | G96 | 0.1− | 0.1+ | 2009 11 09 | 691 | 0.1− | 0.1− | 2009 12 16 | G96 | 0.3+ | 0.4− |
| 2008 07 29 | 691 | 0.1− | 0.4− | 2009 11 09 | 691 | 0.0 | 0.4− | | | | |

**(229780)∗ 2008 OJ$_{21}$ = 2006 EL$_{29}$**

Discovered 2008 July 30 by the Mt. Lemmon Survey at Mount Lemmon.

Id. G. V. Williams (*MPO* 146595)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 349.83105 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.20178785 | $\omega$ | 89.05248 | | −0.09963059 | −0.99501993 | |
| $a$ | 2.8787639 | $\Omega$ | 6.66767 | | +0.90228080 | −0.09162104 | |
| $e$ | 0.0374459 | $i$ | 1.48767 | | +0.41947956 | −0.03925465 | |
| $P$ | 4.88 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 11 04 | 691 | 0.1+ | 0.3+ | 2008 07 30 | 691 | 0.3− | 0.1− | 2009 11 17 | G96 | 0.0 | 0.0 |
| 2004 11 04 | 691 | 0.1− | 0.2+ | 2008 07 30 | 691 | 0.4− | 0.5+ | 2009 11 17 | G96 | 0.2+ | 0.1+ |
| 2004 11 04 | 691 | 0.0 | 0.1+ | 2008 07 30 | 691 | 0.0 | 0.0 | 2009 11 17 | G96 | 0.3+ | 0.1+ |
| 2006 03 03 | 691 | 0.3+ | 0.3+ | 2008 08 07 | 691 | 0.1− | 0.2+ | 2009 11 21 | 691 | 0.0 | 0.2+ |
| 2006 03 03 | 691 | (0.4− | 1.7+) | 2008 08 07 | 691 | 0.3− | 0.1− | 2009 11 21 | 691 | 0.1− | 0.1+ |
| 2006 03 03 | 691 | 0.4+ | 0.5+ | 2008 08 07 | 691 | 0.2− | 0.2+ | 2009 11 21 | 691 | 0.1− | 0.1+ |
| 2006 03 05 | G96 | 0.4− | 0.2+ | 2008 08 21 | 691 | 0.0 | 0.2+ | 2009 12 10 | 704 | 0.8+ | 0.9− |
| 2006 03 05 | G96 | 0.0 | 0.3+ | 2008 08 21 | 691 | 0.1− | 0.2+ | 2009 12 10 | 704 | 0.3− | 1.1− |
| 2006 03 05 | G96 | 0.1− | 0.3+ | 2008 08 21 | 691 | 0.1+ | 0.0 | 2009 12 10 | 704 | 0.8+ | 0.5− |
| 2006 03 05 | G96 | 0.3+ | 0.1+ | 2008 09 07 | 703 | 0.9− | 0.9+ | 2009 12 11 | G96 | 0.2− | 0.1+ |
| 2006 04 07 | G96 | 0.2+ | 0.6+ | 2008 09 07 | 703 | (0.3+ | 1.9+) | 2009 12 11 | G96 | 0.2− | 0.1− |
| 2006 04 07 | G96 | 0.4+ | 0.4+ | 2008 09 07 | 703 | (0.4+ | 1.6+) | 2009 12 11 | G96 | 0.2− | 0.1− |
| 2006 04 07 | G96 | 0.0 | 0.4+ | 2008 09 07 | 703 | 1.2+ | 0.5+ | 2009 12 11 | G96 | 0.3+ | 0.0 |
| 2006 04 07 | G96 | 0.2− | 0.6+ | 2008 09 20 | G96 | 0.1+ | 0.1+ | 2009 12 11 | G96 | 0.3− | 0.0 |
| 2008 07 30 | G96 | 0.3+ | 0.2+ | 2008 09 20 | G96 | 0.2+ | 0.3− | 2009 12 11 | G96 | 0.3− | 0.0 |
| 2008 07 30 | G96 | 0.1− | 0.1+ | 2008 09 20 | G96 | 0.3+ | 0.0 | 2009 12 11 | G96 | 0.1+ | 0.3+ |
| 2008 07 30 | G96 | 0.4− | 0.1+ | 2008 09 20 | G96 | 0.2+ | 0.1− | 2009 12 11 | G96 | 0.1+ | 0.1− |
| 2008 07 30 | G96 | 0.4+ | 0.1− | 2009 11 17 | G96 | 0.5− | 0.2+ | | | | |

**(229781)∗ 2008 PS$_1$**

Discovered 2008 Aug. 3 by V. S. Casulli at Osservatorio Astronomico Vallemare di Borbona.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 123.55251 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17569992 | $\omega$ | 342.25634 | | +0.36425376 | +0.91180099 | |
| $a$ | 3.1571000 | $\Omega$ | 308.66792 | | −0.82231575 | +0.21933983 | |
| $e$ | 0.0855644 | $i$ | 14.05187 | | −0.43716817 | +0.34714406 | |
| $P$ | 5.61 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 07 12 | 644 | 0.1+ | 0.2+ | 2003 11 18 | 691 | 0.0 | 0.1+ | 2008 08 25 | A55 | 0.4− | 0.6− |
| 2002 07 12 | 644 | 0.2+ | 0.1+ | 2008 08 03 | A55 | 0.4− | 0.8− | 2008 08 25 | A55 | 0.8− | 0.5− |
| 2002 07 12 | 644 | 0.6+ | 0.4− | 2008 08 03 | A55 | 0.1+ | 0.2− | 2008 09 27 | A55 | 0.4+ | 0.8+ |
| 2002 07 14 | 644 | 0.0 | 0.1+ | 2008 08 03 | A55 | 0.6− | 0.4− | 2008 09 27 | A55 | 0.6+ | 1.1+ |
| 2002 07 14 | 644 | 0.1− | 0.3− | 2008 08 03 | A55 | 0.5− | 0.2− | 2008 09 27 | A55 | 0.2+ | 0.3+ |
| 2002 07 15 | 644 | 0.3+ | 0.8− | 2008 08 03 | A55 | 0.0 | 0.1− | 2009 11 16 | A55 | 1.2− | 0.9+ |
| 2002 07 15 | 644 | 0.4− | 0.1− | 2008 08 03 | A55 | 0.2+ | 0.1+ | 2009 11 16 | A55 | 0.4− | 0.2+ |
| 2003 09 22 | 644 | 0.2− | 0.1+ | 2008 08 04 | A55 | 0.5+ | 0.4− | 2009 11 16 | A55 | 0.8− | 1.0− |
| 2003 09 22 | 644 | 0.1+ | 0.4+ | 2008 08 05 | A55 | 0.4+ | 0.5+ | 2009 11 19 | A55 | 0.0 | 0.1+ |
| 2003 09 22 | 644 | 0.2+ | 0.2+ | 2008 08 05 | A55 | 0.6+ | 0.7+ | 2009 11 19 | A55 | 0.1− | 0.0 |
| 2003 10 18 | 644 | 0.2+ | 0.5+ | 2008 08 05 | A55 | 0.8+ | 0.1− | 2009 11 19 | A55 | 0.2− | 0.0 |
| 2003 10 18 | 644 | 0.1− | 0.1+ | 2008 08 12 | A55 | 0.4− | 0.1+ | 2009 12 20 | A55 | 1.6+ | 2.3− |
| 2003 10 18 | 644 | 0.3+ | 0.0 | 2008 08 13 | A55 | 0.5− | 0.1− | 2009 12 20 | A55 | 1.6+ | 0.6− |
| 2003 11 18 | 691 | 0.1− | 0.2− | 2008 08 13 | A55 | 0.1+ | 0.1+ | 2009 12 20 | A55 | 0.7+ | 0.1+ |
| 2003 11 18 | 691 | 0.3− | 0.2+ | 2008 08 25 | A55 | 0.2− | 0.2− | | | | |

**(229782)∗ 2008 PZ$_3$**

Discovered 2008 Aug. 4 by F. Kugel at Observatoire Chante-Perdrix, Dauban.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 99.15467 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22711755 | $\omega$ | 36.42789 | | +0.99648117 | +0.07715248 | |
| $a$ | 2.6605346 | $\Omega$ | 319.10929 | | −0.08372542 | +0.89798771 | |
| $e$ | 0.1951435 | $i$ | 2.86795 | | −0.00391640 | +0.43320384 | |
| $P$ | 4.34 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 01 30 | 691 | 0.3+ | 0.4+ | 2008 08 24 | 704 | 1.5− | 0.9− | 2008 09 29 | 703 | 0.1− | 0.6+ |
| 2006 01 30 | 691 | 0.5− | 0.1+ | 2008 08 24 | 704 | 0.5+ | 0.2+ | 2008 09 29 | 703 | 0.3− | 0.6+ |
| 2006 01 30 | 691 | 0.1+ | 0.5+ | 2008 08 24 | 704 | 0.4+ | 0.6+ | 2008 09 29 | 703 | 0.0 | 0.3+ |
| 2006 03 04 | 691 | 0.3+ | 0.4+ | 2008 09 04 | A50 | 0.3+ | 0.1+ | 2008 09 29 | 703 | 0.1− | 1.4+ |
| 2006 03 04 | 691 | 0.2+ | 0.3+ | 2008 09 04 | A50 | 0.7− | 0.1− | 2008 10 23 | G96 | 0.2− | 0.3− |
| 2006 03 04 | 691 | 0.2+ | 0.2+ | 2008 09 04 | A50 | 0.4− | 0.6− | 2008 10 23 | G96 | 0.1+ | 0.2− |
| 2007 04 23 | 691 | 0.1+ | 0.1+ | 2008 09 04 | A50 | (1.7+ | 0.3−) | 2008 10 23 | G96 | 0.1− | 0.3− |
| 2007 04 23 | 691 | 0.0 | 0.3+ | 2008 09 07 | G96 | 0.1+ | 0.3− | 2008 10 23 | G96 | 0.2+ | 0.1− |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 04 23 | 691 | 0.1− | 0.3− | 2008 09 07 | G96 | 0.1− | 0.1− | 2009 11 21 | G96 | 0.2+ | 0.3− |
| 2008 07 29 | 691 | 0.3− | 0.0 | 2008 09 07 | G96 | 0.2− | 0.0 | 2009 11 21 | G96 | 0.6+ | 0.1+ |
| 2008 07 29 | 691 | 0.3− | 0.2+ | 2008 09 07 | G96 | 0.3+ | 0.3− | 2009 11 21 | G96 | 0.4+ | 0.2+ |
| 2008 07 29 | 691 | 0.2− | 0.3+ | 2008 09 23 | G96 | 0.0 | 0.0 | 2009 11 21 | G96 | 0.2+ | 0.5− |
| 2008 08 04 | A77 | 1.2+ | 0.3+ | 2008 09 23 | G96 | 0.2− | 0.2− | 2009 12 17 | G96 | 0.1+ | 0.2− |
| 2008 08 05 | A77 | 0.0 | 0.6+ | 2008 09 23 | G96 | 0.3− | 0.2− | 2009 12 17 | G96 | 0.1− | 0.4− |
| 2008 08 05 | A77 | 0.5− | 0.2− | 2008 09 23 | G96 | 0.2+ | 0.2− | 2009 12 17 | G96 | 0.1+ | 0.1+ |
| 2008 08 06 | A77 | (0.3− | 2.0+) | 2008 09 24 | 704 | 0.0 | 0.0 | 2009 12 17 | G96 | 0.5− | 0.1− |
| 2008 08 06 | A77 | 0.3+ | 0.3+ | 2008 09 24 | 704 | 1.1+ | 0.4+ | 2009 12 26 | 691 | 0.1+ | 0.2− |
| 2008 08 24 | 704 | 0.1− | 0.6+ | 2008 09 24 | 704 | 0.5− | 0.1+ | 2009 12 26 | 691 | 0.5− | 0.1+ |
| 2008 08 24 | 704 | 1.4+ | 0.4+ | 2008 09 24 | 704 | 0.5− | 0.2+ | 2009 12 26 | 691 | 0.1+ | 0.0 |

**(229783)∗ 2008 PG$_{17}$ = 2003 SF$_{396}$**

Discovered 2008 Aug. 11 at OAM Observatory, La Sagra.

Id. G. V. Williams (*MPO* 146601)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 62.90839 | | (2000.0) | | | |
| $n$ | 0.17456372 | $\omega$ | 212.77817 | | +0.98816749 | +0.10735171 |
| $a$ | 3.1707845 | $\Omega$ | 140.59747 | | −0.07443383 | +0.96013077 |
| $e$ | 0.0824688 | $i$ | 9.93783 | | −0.13410671 | +0.25811727 |
| $P$ | 5.65 | $H$ | 15.2 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 02 13 | 691 | 0.2+ | 0.7+ | 2007 06 16 | 691 | 0.0 | 0.3+ | 2008 09 25 | G96 | 0.1− | 0.4+ |
| 1994 02 13 | 691 | 0.4+ | 0.8+ | 2008 07 30 | G96 | 0.3− | 0.1+ | 2008 09 25 | G96 | 0.1+ | 0.7+ |
| 1994 02 13 | 691 | 0.2+ | 0.6+ | 2008 07 30 | G96 | 0.6− | 0.2+ | 2008 09 25 | G96 | 0.1− | 0.2+ |
| 2003 09 26 | 645 | 0.0 | 0.0 | 2008 07 30 | G96 | 0.2− | 0.2+ | 2009 10 25 | G96 | 0.2− | 0.8− |
| 2003 09 26 | 645 | 0.0 | 0.1+ | 2008 07 30 | G96 | 0.1− | 0.2+ | 2009 10 25 | G96 | 1.1+ | 0.2− |
| 2003 09 28 | 645 | 0.1− | 0.0 | 2008 08 11 | J75 | 0.3+ | 0.3+ | 2009 10 25 | G96 | 0.6+ | 0.1− |
| 2003 09 28 | 645 | 0.1− | 0.1− | 2008 08 11 | J75 | 0.1− | 0.0 | 2009 11 15 | 704 | 0.1+ | 0.2− |
| 2003 10 18 | 699 | 1.2+ | 0.3− | 2008 08 11 | J75 | 0.6+ | 0.8+ | 2009 11 15 | 704 | 0.2− | 0.1− |
| 2003 10 18 | 699 | 0.1+ | 0.7+ | 2008 08 13 | 620 | 0.3+ | 0.5+ | 2009 11 15 | 704 | 0.2− | 0.7+ |
| 2003 10 18 | 699 | 0.3+ | 0.1+ | 2008 08 13 | 620 | 0.9+ | 0.4+ | 2009 11 15 | 704 | (1.1− | 3.2−) |
| 2003 10 18 | 699 | 0.2− | 0.7+ | 2008 08 13 | 620 | 0.8+ | 0.3− | 2009 11 21 | 703 | (2.1+ | 1.8+) |
| 2007 05 07 | 691 | 0.4− | 0.1+ | 2008 08 24 | 704 | 0.7+ | 0.7+ | 2009 11 21 | 703 | 0.6+ | 0.0 |
| 2007 05 07 | 691 | 0.1− | 0.2− | 2008 08 24 | 704 | 0.4+ | 1.3+ | 2009 11 21 | 703 | 1.1+ | 0.2− |
| 2007 05 07 | 691 | 0.4− | 0.1+ | 2008 08 24 | 704 | (0.1+ | 2.1+) | 2009 11 21 | 703 | 0.1− | 0.6+ |
| 2007 06 16 | 691 | 0.4+ | 0.1− | 2008 08 24 | 704 | 0.5+ | 1.4+ | | | | |
| 2007 06 16 | 691 | 0.2− | 0.1− | 2008 09 25 | G96 | 0.0 | 0.5+ | | | | |

**(229784)∗ 2008 PM$_{18}$**

Discovered 2008 Aug. 13 by the Siding Spring Survey at Siding Spring.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 129.00738 | | (2000.0) | | | |
| $n$ | 0.23282322 | $\omega$ | 216.98047 | | +0.66657646 | +0.65298488 |
| $a$ | 2.6168883 | $\Omega$ | 98.02991 | | −0.56701429 | +0.75727348 |
| $e$ | 0.3515721 | $i$ | 21.29222 | | −0.48391179 | +0.01214988 |
| $P$ | 4.23 | $H$ | 15.7 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 03 11 | 644 | 0.0 | 0.6+ | 2008 08 13 | E12 | 0.1− | 0.8+ | 2008 10 06 | E12 | 0.3+ | 0.2+ |
| 2003 03 11 | 644 | 0.1+ | 0.5+ | 2008 08 13 | E12 | 0.1+ | 0.3− | 2008 10 06 | E12 | 0.4− | 0.3− |
| 2003 03 24 | 644 | 0.1+ | 0.5+ | 2008 08 13 | E12 | 0.2+ | 1.0+ | 2008 10 06 | E12 | 0.2− | 0.1+ |
| 2003 03 24 | 644 | 0.1− | 0.6+ | 2008 08 27 | E12 | 0.2− | 0.1− | 2008 10 06 | E12 | 0.1− | 0.2− |
| 2003 03 24 | 644 | 0.9+ | 0.5+ | 2008 08 27 | E12 | 0.1− | 0.0 | 2008 10 06 | E12 | 0.3+ | 0.2+ |
| 2004 09 21 | 704 | 0.3+ | 0.1+ | 2008 08 27 | E12 | 0.3− | 0.3+ | 2008 10 19 | E12 | 0.6+ | 0.1− |
| 2004 09 21 | 704 | 0.7− | 0.6+ | 2008 09 17 | E12 | 0.2+ | 0.1+ | 2008 10 19 | E12 | 0.0 | 0.3+ |
| 2004 09 21 | 704 | 1.3+ | 0.1+ | 2008 09 17 | E12 | 0.2− | 0.8− | 2008 10 19 | E12 | 0.2+ | 0.8+ |
| 2004 09 21 | 704 | 0.5+ | 0.4− | 2008 09 17 | E12 | 0.4− | 0.1+ | 2008 10 19 | E12 | 0.0 | 0.1+ |
| 2004 12 10 | 699 | (2.1− | 0.4+) | 2008 09 17 | E12 | 0.3− | 0.1− | 2009 10 18 | G96 | 0.4− | 0.4+ |
| 2004 12 10 | 699 | 0.7− | 0.7+ | 2008 09 18 | 844 | 0.4− | 0.1− | 2009 10 18 | G96 | 0.2+ | 0.3+ |
| 2004 12 10 | 699 | 0.3− | 0.5+ | 2008 09 18 | 844 | 0.7− | 0.0 | 2009 10 18 | G96 | 0.1− | 0.0 |
| 2004 12 10 | 699 | 0.9− | 0.0 | 2008 09 18 | 844 | (1.6− | 0.2−) | 2009 10 18 | G96 | 0.4− | 0.0 |
| 2008 06 14 | E12 | 0.5− | 0.7+ | 2008 09 18 | E12 | 0.4− | 0.3− | 2009 11 23 | G96 | 0.4+ | 0.4+ |
| 2008 06 14 | E12 | (0.2− | 2.3+) | 2008 09 18 | E12 | 0.3− | 0.2− | 2009 11 23 | G96 | 0.3+ | 0.1+ |
| 2008 06 14 | E12 | 1.4+ | 0.1− | 2008 09 18 | E12 | 0.3+ | 0.7− | 2009 11 23 | G96 | 0.8+ | 0.0 |
| 2008 06 14 | E12 | 0.1+ | 1.1+ | 2008 09 19 | E17 | 1.0+ | 0.2− | 2009 11 23 | G96 | 0.1− | 0.4+ |
| 2008 06 29 | E12 | 0.3− | 0.3+ | 2008 09 19 | E17 | 0.4+ | 0.1− | 2009 12 18 | G96 | 0.0 | 0.2+ |
| 2008 06 29 | E12 | 0.2− | 0.1+ | 2008 09 19 | E17 | 0.4+ | 0.3− | 2009 12 18 | G96 | 0.2+ | 0.1+ |
| 2008 06 29 | E12 | 0.3− | 0.0 | 2008 10 06 | E12 | 0.2− | 0.1+ | 2009 12 18 | G96 | 0.2− | 0.1+ |
| 2008 06 29 | E12 | 0.3+ | 0.5+ | 2008 10 06 | E12 | 0.1− | 0.2− | 2009 12 18 | G96 | 0.4− | 0.0 |
| 2008 08 13 | E12 | 0.3− | 0.3+ | 2008 10 06 | E12 | 0.1− | 0.2− | | | | |

**(229785)∗ 2008 QR$_2$**

Discovered 2008 Aug. 23 by P. Kocher at Observatoire Naef, Marly.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 60.38247 | | (2000.0) | | | |
| $n$ | 0.18714884 | $\omega$ | 84.47948 | | +0.86106717 | −0.49060717 |
| $a$ | 3.0269922 | $\Omega$ | 304.83173 | | +0.37771657 | +0.79311537 |
| $e$ | 0.2102062 | $i$ | 9.37224 | | +0.34043138 | +0.36093297 |
| $P$ | 5.27 | $H$ | 16.1 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 22 | 704 | 1.1− | 1.4− | 2008 08 23 | A13 | 0.2+ | 0.2− | 2008 10 01 | 704 | 0.1− | 0.6− |
| 2003 09 22 | 704 | (3.3+ | 2.7−) | 2008 08 24 | J75 | 0.3+ | 0.1− | 2008 10 01 | G96 | 1.1+ | 0.3+ |
| 2003 09 22 | 704 | 0.4+ | 0.2− | 2008 08 24 | J75 | 0.1− | 0.1+ | 2008 10 01 | G96 | 0.2− | 0.1− |
| 2003 09 22 | 704 | 1.5− | 1.1− | 2008 08 24 | J75 | 0.0 | 0.3+ | 2008 10 01 | G96 | 0.2+ | 0.1− |
| 2003 10 02 | 691 | 0.1+ | 0.2+ | 2008 08 25 | A13 | 0.1− | 0.3+ | 2008 10 01 | 704 | 0.4+ | 0.1+ |
| 2003 10 02 | 691 | 0.3+ | 0.2+ | 2008 08 25 | A13 | 0.0 | 0.2+ | 2008 10 01 | 704 | 0.7+ | 0.2+ |
| 2003 10 02 | 691 | 0.2+ | 0.0 | 2008 08 25 | A13 | 0.7+ | 0.0 | 2008 10 01 | 704 | 0.5− | 0.1− |
| 2003 10 22 | 704 | 1.0− | 0.1+ | 2008 08 26 | 185 | 0.2+ | 0.2+ | 2008 10 01 | 704 | 0.1+ | 0.3− |
| 2003 10 22 | 704 | 0.2+ | 0.3+ | 2008 08 27 | 185 | 0.5− | 0.5− | 2008 10 01 | 704 | 0.4+ | 1.1− |
| 2003 10 22 | 704 | 0.0 | 0.4− | 2008 08 27 | 185 | 0.4− | 0.1+ | 2008 10 31 | G96 | 0.1+ | 0.5− |
| 2003 10 22 | 704 | 0.6+ | 0.4+ | 2008 08 27 | 185 | 0.1+ | 0.3+ | 2008 10 31 | G96 | 0.2+ | 0.3− |
| 2005 01 17 | 691 | 0.2+ | 0.1− | 2008 08 27 | 185 | 0.1+ | 0.5+ | 2008 10 31 | G96 | 0.1− | 0.5− |
| 2005 01 17 | 691 | 0.2+ | 0.4+ | 2008 09 03 | 691 | 0.2− | 0.2+ | 2008 10 31 | G96 | 0.0 | 0.4− |
| 2005 01 17 | 691 | 0.2+ | 0.3+ | 2008 09 03 | 691 | 0.3− | 0.1+ | 2009 11 21 | G96 | 0.2− | 0.1+ |
| 2005 02 02 | 691 | 0.6+ | 0.6+ | 2008 09 03 | 691 | 0.0 | 0.2+ | 2009 11 21 | G96 | 0.1− | 0.0 |
| 2005 02 02 | 691 | 0.4+ | 0.4+ | 2008 09 06 | 691 | 0.3− | 0.3+ | 2009 11 21 | G96 | 0.2+ | 0.2− |
| 2005 02 02 | 691 | 0.7− | 0.6+ | 2008 09 06 | 691 | 0.2− | 0.1+ | 2009 11 21 | G96 | 0.1− | 0.3− |
| 2005 02 09 | 699 | (0.7+ | 2.3+) | 2008 09 06 | 691 | 0.3− | 0.8+ | 2009 12 15 | G96 | 0.3+ | 0.1− |
| 2005 02 09 | 699 | 0.7+ | 1.2− | 2008 09 29 | 704 | 0.6− | 1.2− | 2009 12 15 | G96 | 0.6+ | 0.4− |
| 2005 02 09 | 699 | 0.3− | 0.4− | 2008 09 29 | 704 | 0.1− | 0.3− | 2009 12 15 | G96 | 0.4− | 0.2− |
| 2005 02 09 | 699 | (1.5− | 0.4+) | 2008 09 29 | 704 | 0.2+ | 0.6+ | 2009 12 15 | G96 | 0.5+ | 0.1+ |
| 2008 07 29 | G96 | 0.2− | 0.0 | 2008 09 29 | 704 | 0.7− | 0.9− | 2009 12 26 | 691 | 0.3− | 0.2+ |
| 2008 07 29 | G96 | 0.4− | 0.1− | 2008 09 29 | 704 | 0.7+ | 0.3− | 2009 12 26 | 691 | 0.0 | 0.5− |
| 2008 07 29 | G96 | 0.1+ | 0.2− | 2008 10 01 | 704 | 0.4+ | 0.4+ | 2009 12 26 | 691 | 0.2− | 0.3− |
| 2008 07 29 | G96 | 0.0 | 0.0 | 2008 10 01 | 704 | 0.4+ | 1.0+ | | | | |
| 2008 08 23 | A13 | 0.3+ | 0.3+ | 2008 10 01 | G96 | 0.4+ | 0.1− | | | | |

**(229786)∗ 2008 QU$_8$ = 2006 DE$_{143}$**

Discovered 2008 Aug. 25 at OAM Observatory, La Sagra.

Id. G. V. Williams (*MPO* 146610)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 107.31287 | | (2000.0) | | | |
| $n$ | 0.17260737 | $\omega$ | 282.62190 | | +0.63573636 | +0.77189246 |
| $a$ | 3.1946982 | $\Omega$ | 26.85443 | | −0.70418437 | +0.58240023 |
| $e$ | 0.1439663 | $i$ | 0.58552 | | −0.31617029 | +0.25493527 |
| $P$ | 5.71 | $H$ | 15.9 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1991 09 10 | 691 | (0.4− | 2.9+) | 2006 03 03 | 691 | 0.1+ | 0.2+ | 2008 08 28 | J75 | (1.7+ | 0.4−) |
| 1991 09 10 | 691 | 0.0 | 0.1+ | 2006 03 03 | 691 | 0.1+ | 0.5+ | 2008 08 28 | J75 | 0.2− | 0.4+ |
| 1991 09 10 | 691 | 0.3+ | 1.0− | 2006 03 03 | 691 | 0.1+ | 0.7+ | 2008 08 28 | J75 | 0.1− | 0.7− |
| 2000 03 12 | 691 | 0.2− | 0.5− | 2007 04 18 | G96 | 0.1+ | 0.0 | 2008 09 09 | G96 | 0.1+ | 0.1− |
| 2000 03 12 | 691 | 0.1− | 0.5− | 2007 04 18 | G96 | 0.3+ | 0.0 | 2008 09 09 | G96 | 0.1− | 0.0 |
| 2000 03 12 | 691 | 0.6− | 0.4− | 2007 04 18 | G96 | 0.1− | 0.0 | 2008 09 09 | G96 | 0.3+ | 0.1+ |
| 2002 07 17 | 644 | 0.1+ | 0.1+ | 2007 04 18 | G96 | 0.5+ | 0.1+ | 2008 09 09 | G96 | 0.3+ | 0.1− |
| 2002 07 17 | 644 | 0.1+ | 0.2+ | 2008 08 07 | 691 | 0.0 | 0.1− | 2008 09 20 | G96 | 0.1+ | 0.2− |
| 2002 07 17 | 644 | 0.0 | 0.3+ | 2008 08 07 | 691 | 1.2+ | 0.1− | 2008 09 20 | G96 | 0.4+ | 0.2− |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 03 | 644 | 0.1+ | 0.1− | 2008 08 07 | 691 | 0.0 | 0.0 | 2008 09 20 | G96 | 0.0 | 0.2− |
| 2002 08 03 | 644 | 0.5+ | 0.0 | 2008 08 21 | 691 | 0.5− | 0.1+ | 2008 09 20 | G96 | 0.7+ | 0.1− |
| 2002 08 03 | 644 | 0.0 | 0.0 | 2008 08 21 | 691 | 1.0− | 0.4+ | 2009 09 20 | G96 | 0.1+ | 0.4− |
| 2003 11 23 | 291 | 0.2− | 0.5+ | 2008 08 21 | 691 | 1.0− | 0.6+ | 2009 09 20 | G96 | 0.1− | 0.4− |
| 2003 11 23 | 291 | 0.1+ | 0.5+ | 2008 08 25 | J75 | 0.2+ | 0.7− | 2009 09 20 | G96 | 0.4− | 0.6− |
| 2003 11 23 | 291 | 0.2+ | 0.2+ | 2008 08 25 | J75 | 0.3− | 0.1+ | 2009 09 20 | G96 | 0.1− | 0.0 |
| 2006 02 25 | G96 | 0.5+ | 0.1+ | 2008 08 25 | J75 | 0.3+ | 0.6− | 2009 12 16 | G96 | 0.2− | 0.4+ |
| 2006 02 25 | G96 | 0.3+ | 0.1+ | 2008 08 26 | J75 | 0.2− | 0.2+ | 2009 12 16 | G96 | 0.3+ | 0.2− |
| 2006 02 25 | G96 | 0.4+ | 0.0 | 2008 08 26 | J75 | 0.5+ | 0.6+ | 2009 12 16 | G96 | 0.1+ | 0.4− |
| 2006 02 25 | G96 | 0.3+ | 0.4+ | 2008 08 26 | J75 | 0.4+ | 0.2− | 2009 12 16 | G96 | 0.3+ | 0.0 |

**(229787)∗ 2008 QV$_{22}$ = 2003 SW$_{355}$**

Discovered 2008 Aug. 26 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. K. E. Smalley (*MPO* 143004)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| *M* | 200.54375 | | | (2000.0) | | **P** | | **Q** | |
| *n* | 0.19204650 | | $\omega$ | 335.77462 | | −0.67338121 | | +0.72334847 | |
| *a* | 2.9753071 | | $\Omega$ | 251.50192 | | −0.64928974 | | −0.67742905 | |
| *e* | 0.0496096 | | *i* | 9.26755 | | −0.35352591 | | −0.13362962 | |
| *P* | 5.13 | | *H* | 15.0 | *G* | 0.15 | *U* | 0 | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 15 | 644 | 0.5− | 0.2− | 2006 02 23 | 699 | 0.3+ | 0.7+ | 2008 09 29 | 704 | 0.0 | 1.2+ |
| 2003 09 15 | 644 | 0.4− | 0.2− | 2008 08 26 | 704 | 0.3+ | 0.4+ | 2008 09 29 | 704 | (1.6+ | 0.4+) |
| 2003 09 15 | 644 | 0.3− | 0.1− | 2008 08 26 | 704 | 0.8− | 0.4+ | 2008 09 29 | 704 | 0.2− | 0.3+ |
| 2003 09 30 | 704 | 0.4− | 0.7+ | 2008 08 26 | 704 | 0.7− | 0.3+ | 2008 09 29 | 704 | 0.4− | 0.2+ |
| 2003 09 30 | 704 | 0.1+ | 0.6− | 2008 08 26 | 704 | 0.4− | 0.6+ | 2009 11 09 | 691 | (0.5− | 1.6+) |
| 2003 09 30 | 704 | 0.4+ | 0.7− | 2008 08 30 | 704 | 0.1+ | 0.2+ | 2009 11 09 | 691 | 0.4− | 0.2− |
| 2003 10 05 | 691 | 0.3+ | 0.2− | 2008 08 30 | 704 | 1.0+ | 0.5− | 2009 11 09 | 691 | 0.0 | 0.0 |
| 2003 10 05 | 691 | 0.2− | 0.1− | 2008 08 30 | 704 | 0.4+ | 0.2+ | 2009 11 11 | 691 | 0.3− | 0.1− |
| 2003 10 05 | 691 | 0.1− | 0.0 | 2008 09 01 | A77 | 0.6+ | 0.3− | 2009 11 11 | 691 | 0.2− | 0.1− |
| 2003 10 21 | 699 | 1.3− | 0.2+ | 2008 09 01 | A77 | 0.7+ | 0.0 | 2009 11 11 | 691 | 0.4− | 0.0 |
| 2003 10 21 | 699 | 0.8− | 1.3+ | 2008 09 01 | A77 | 0.0 | 0.2− | 2009 11 23 | D29 | 1.2+ | 0.7− |
| 2003 10 21 | 699 | 0.0 | 0.2− | 2008 09 02 | A77 | 0.7+ | 0.4+ | 2009 11 23 | D29 | 0.8+ | 0.7+ |
| 2003 10 21 | 699 | 0.8+ | 0.2− | 2008 09 02 | A77 | 0.5− | 0.2− | 2009 11 23 | D29 | 0.1+ | 0.8+ |
| 2004 11 04 | 691 | 0.3+ | 0.0 | 2008 09 02 | A77 | 0.1− | 0.4+ | 2009 11 23 | D29 | 0.0 | 0.5+ |
| 2004 11 04 | 691 | 0.3+ | 0.0 | 2008 09 05 | 704 | 0.1− | 0.0 | 2009 12 11 | 703 | 0.1− | 0.6− |
| 2004 11 04 | 691 | 0.3+ | 0.1+ | 2008 09 05 | 704 | 0.0 | 0.5+ | 2009 12 11 | 703 | 1.0− | 0.1− |
| 2004 12 14 | 599 | 0.3+ | 0.5+ | 2008 09 05 | 704 | 0.6− | 0.2− | 2009 12 11 | 703 | 0.1+ | 0.7− |
| 2004 12 14 | 599 | 0.5− | 0.3+ | 2008 09 05 | 704 | 0.1− | 0.0 | 2009 12 11 | 703 | 0.4+ | 1.0− |
| 2004 12 14 | 599 | 0.4+ | 0.2+ | 2008 09 05 | 704 | 0.5− | 0.1+ | 2009 12 17 | G96 | 0.3+ | 0.1− |
| 2006 02 23 | 699 | 0.2− | 0.5+ | 2008 09 26 | A77 | 0.0 | 0.1− | 2009 12 17 | G96 | 0.5+ | 0.1+ |
| 2006 02 23 | 699 | 0.1− | 1.1+ | 2008 09 26 | A77 | 0.7+ | 0.9+ | 2009 12 17 | G96 | 0.0 | 0.1− |
| 2006 02 23 | 699 | 0.8+ | 0.7+ | 2008 09 26 | A77 | 1.0+ | 0.4+ | 2009 12 17 | G96 | 0.0 | 0.3+ |

**(229788)∗ 2008 QV$_{41}$ = 2001 XS$_{223}$**

Discovered 2008 Aug. 24 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 158144)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| *M* | 308.16362 | | | (2000.0) | | **P** | | **Q** | |
| *n* | 0.25965344 | | $\omega$ | 223.14855 | | −0.99869972 | | −0.03748198 | |
| *a* | 2.4333616 | | $\Omega$ | 314.66825 | | +0.04868939 | | −0.90216013 | |
| *e* | 0.0996717 | | *i* | 2.78487 | | −0.01510663 | | −0.42976995 | |
| *P* | 3.80 | | *H* | 16.4 | *G* | 0.15 | *U* | 1 | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 11 23 | 691 | 0.6− | 0.5− | 2001 12 18 | 704 | 0.0 | 1.0+ | 2008 08 24 | 691 | 1.4− | 0.2+ |
| 1997 11 23 | 691 | 0.6− | 0.3− | 2003 04 28 | 699 | 0.1+ | 0.3− | 2008 08 24 | 691 | 0.2+ | 0.2− |
| 1997 11 23 | 691 | 0.6− | 0.3− | 2003 04 28 | 699 | 0.6+ | 0.2+ | 2008 09 03 | 691 | 0.1+ | 0.3+ |
| 1999 03 22 | 699 | 1.7+ | 1.0+ | 2003 04 28 | 699 | 0.6− | 0.4− | 2008 09 03 | 691 | 0.2− | 0.2+ |
| 1999 03 22 | 699 | 1.3+ | 1.6+ | 2003 04 28 | 699 | 0.6− | 0.7+ | 2008 09 03 | 691 | 0.0 | 0.1− |
| 1999 03 22 | 699 | 0.5− | 1.2+ | 2004 09 07 | 691 | 0.5+ | 0.1+ | 2008 09 24 | 691 | 0.2+ | 0.5+ |
| 2000 07 31 | 807 | 0.2+ | 0.3− | 2004 09 07 | 691 | 0.3+ | 0.4+ | 2008 09 24 | 691 | 0.2+ | 0.1− |
| 2000 07 31 | 807 | 0.1− | 0.1− | 2004 09 07 | 691 | 0.3+ | 0.3+ | 2008 09 24 | 691 | 0.0 | 0.1− |
| 2001 12 15 | 704 | 0.7+ | 1.0+ | 2005 12 04 | 691 | 0.4+ | 0.0 | 2009 11 16 | G96 | 0.3+ | 0.0 |
| 2001 12 15 | 704 | 0.4+ | 1.0+ | 2005 12 04 | 691 | 0.6+ | 0.1+ | 2009 11 16 | G96 | 0.4+ | 0.1+ |
| 2001 12 15 | 704 | 0.2+ | 1.2+ | 2005 12 04 | 691 | 1.1+ | 0.8− | 2009 11 16 | G96 | 0.0 | 0.3+ |
| 2001 12 15 | 704 | 0.1− | 1.1+ | 2006 01 27 | G96 | 0.3+ | 0.1+ | 2009 11 16 | G96 | 0.3− | 0.1− |
| 2001 12 18 | 704 | 0.7+ | 0.2+ | 2006 01 27 | G96 | 0.2+ | 0.1+ | 2009 12 25 | 691 | 0.5− | 0.2+ |
| 2001 12 18 | 704 | 0.1+ | 0.6+ | 2006 01 27 | G96 | 0.1+ | 0.0 | 2009 12 25 | 691 | 0.5− | 0.2+ |
| 2001 12 18 | 704 | 0.6− | 1.2− | 2006 01 27 | G96 | 0.0 | 0.1+ | 2009 12 25 | 691 | 0.5− | 0.1+ |
| 2001 12 18 | 704 | 0.8+ | 1.4− | 2008 08 24 | 691 | 0.3− | 0.2+ | | | | |

**(229789)∗ 2008 RH$_{10}$**

Discovered 2008 Sept. 3 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| *M* | 264.44689 | | | (2000.0) | | **P** | | **Q** | |
| *n* | 0.17338822 | | $\omega$ | 6.81732 | | −0.99695743 | | −0.06957413 | |
| *a* | 3.1850994 | | $\Omega$ | 169.00682 | | +0.05993804 | | −0.97252258 | |
| *e* | 0.0240855 | | *i* | 10.62114 | | +0.04983290 | | −0.22216945 | |
| *P* | 5.68 | | *H* | 14.5 | *G* | 0.15 | *U* | 1 | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 03 14 | 703 | 0.0 | 0.4− | 2005 03 02 | 703 | 1.1− | 0.9− | 2008 09 22 | 704 | 0.0 | 0.4+ |
| 2000 03 14 | 703 | 1.6− | 1.0+ | 2006 03 25 | 691 | 0.0 | 0.3+ | 2008 09 22 | 704 | 0.2+ | 0.1+ |
| 2000 03 14 | 703 | 0.2− | 0.5+ | 2006 03 25 | 691 | 0.2+ | 0.4+ | 2008 09 22 | 704 | 0.3+ | 0.3+ |
| 2000 03 14 | 703 | 1.1+ | 1.7+ | 2006 03 25 | 691 | 0.1+ | 0.3+ | 2008 09 28 | 704 | 0.1+ | 0.9+ |
| 2000 04 07 | 699 | 0.9− | 0.0 | 2006 04 19 | 699 | 0.4− | 1.5− | 2008 09 28 | 704 | 0.3+ | 0.9+ |
| 2000 04 07 | 699 | 0.7+ | 0.3− | 2006 04 19 | 699 | 0.9+ | 0.0 | 2008 09 28 | 704 | 0.2− | 1.1+ |
| 2000 04 07 | 699 | 0.1− | 0.0 | 2006 04 19 | 699 | 0.8+ | 1.0+ | 2008 09 28 | 704 | 0.2− | 0.7+ |
| 2000 04 07 | 699 | 0.8+ | 0.3+ | 2006 04 19 | 699 | 0.2+ | 0.2+ | 2008 09 28 | 704 | 0.2− | 1.2+ |
| 2002 08 17 | 644 | 0.0 | 0.1+ | 2006 04 19 | 703 | 0.6+ | 0.5+ | 2008 09 29 | 703 | (2.4+ | 0.2+) |
| 2002 08 17 | 644 | 0.3+ | 0.1+ | 2006 04 19 | 703 | 0.4− | 1.1+ | 2008 09 29 | 703 | 0.7+ | 0.0 |
| 2002 08 17 | 644 | 0.3+ | 0.0 | 2006 04 19 | 703 | 0.2− | 1.0+ | 2008 09 29 | 703 | 0.5+ | 1.3+ |
| 2002 08 27 | 644 | 0.1− | 0.9− | 2006 04 19 | 703 | 0.6− | 0.8+ | 2008 09 29 | 703 | 0.6− | 0.4+ |
| 2002 08 27 | 644 | 0.0 | 0.9− | 2008 09 03 | 691 | 0.2− | 0.0 | 2009 11 21 | A50 | 0.7− | 0.2− |
| 2002 08 27 | 644 | 0.5+ | 0.6− | 2008 09 03 | 691 | 0.2− | 0.1− | 2009 11 21 | A50 | 0.7− | 0.7− |
| 2002 09 14 | 644 | 0.3− | 0.4+ | 2008 09 03 | 691 | 0.1− | 0.0 | 2009 12 13 | 704 | 0.0 | 0.8+ |
| 2002 09 14 | 644 | 0.2− | 0.5+ | 2008 09 04 | 691 | 0.3− | 0.5+ | 2009 12 13 | 704 | (1.4− | 1.8+) |
| 2002 09 14 | 644 | 0.1− | 0.7+ | 2008 09 04 | 691 | 0.3− | 0.1− | 2009 12 13 | 704 | (0.7− | 2.5+) |
| 2005 01 18 | 703 | 0.3+ | 0.6+ | 2008 09 04 | 691 | 0.1+ | 0.2+ | 2009 12 13 | 704 | 0.4− | 0.9+ |
| 2005 01 18 | 703 | 0.7− | 0.1+ | 2008 09 21 | G96 | 0.4+ | 0.1+ | 2009 12 13 | 704 | 0.6+ | 1.4+ |
| 2005 01 18 | 703 | 1.1+ | 0.1+ | 2008 09 21 | G96 | 0.1+ | 0.2− | 2009 12 13 | 900 | 0.3+ | 1.4− |
| 2005 01 18 | 703 | 0.9+ | 0.8+ | 2008 09 21 | G96 | 0.1+ | 0.0 | 2009 12 13 | 900 | 0.5+ | 0.0 |
| 2005 03 02 | 703 | 0.7+ | 0.1+ | 2008 09 21 | G96 | 0.4+ | 0.1− | 2009 12 27 | J02 | 0.0 | 1.0+ |
| 2005 03 02 | 703 | 0.7− | 0.1+ | 2008 09 22 | 704 | 0.1− | 0.4+ | | | | |
| 2005 03 02 | 703 | 0.6+ | 0.2+ | 2008 09 22 | 704 | 0.3− | 0.2+ | | | | |

**(229790)∗ 2008 RH$_{30}$ = 1999 GK$_{56}$ = 1999 GY$_{13}$ = 2001 WX$_{83}$**

Discovered 2008 Sept. 2 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 146655), A. Doppler (d, *MPO* 87830)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| *M* | 296.49660 | | | (2000.0) | | **P** | | **Q** | |
| *n* | 0.25808344 | | $\omega$ | 5.90421 | | −0.99773785 | | +0.06722096 | |
| *a* | 2.4432203 | | $\Omega$ | 177.94975 | | −0.06247835 | | −0.92325001 | |
| *e* | 0.1182065 | | *i* | 1.16298 | | −0.02481211 | | −0.37827340 | |
| *P* | 3.82 | | *H* | 17.0 | *G* | 0.15 | *U* | 0 | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 04 09 | 691 | 0.5− | 0.3− | 2005 11 26 | 691 | 0.1− | 0.5+ | 2008 09 06 | 691 | 0.3+ | 0.1− |
| 1999 04 09 | 691 | 0.5− | 0.5− | 2005 11 26 | 691 | 0.4+ | 0.3+ | 2008 09 06 | 691 | 0.7− | 0.1+ |
| 1999 04 09 | 691 | 0.8− | 0.6− | 2005 11 26 | 691 | 0.1− | 0.4+ | 2008 09 06 | 691 | 0.9− | 0.6+ |
| 1999 04 14 | 691 | 0.4+ | 0.6+ | 2005 12 08 | 691 | 0.3+ | 0.4+ | 2008 09 06 | 691 | 0.2− | 0.1− |
| 1999 04 14 | 691 | 0.5+ | 0.1− | 2005 12 08 | 691 | 0.7+ | 0.3+ | 2008 09 20 | G96 | 0.9+ | 0.6− |
| 1999 04 14 | 691 | 0.5+ | 0.4− | 2005 12 08 | 691 | 0.4+ | 0.2+ | 2008 09 20 | G96 | 0.6+ | 0.2− |
| 1999 04 17 | 691 | 0.4− | 0.4− | 2006 01 23 | G96 | 0.5+ | 0.1+ | 2008 09 20 | G96 | 0.3+ | 0.7− |
| 1999 04 17 | 691 | 0.3− | 0.7− | 2006 01 23 | G96 | 0.1− | 0.1+ | 2008 09 20 | G96 | 0.6+ | 0.5− |
| 1999 04 17 | 691 | 0.6− | 0.3− | 2006 01 23 | G96 | 0.3+ | 0.0 | 2008 10 02 | G96 | 0.2+ | 0.2− |
| 2001 11 20 | 704 | (2.0− | 0.9−) | 2006 01 23 | G96 | (2.9− | 3.3+) | 2008 10 02 | G96 | 0.7+ | 0.3+ |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 11 20 | 704 | 0.2− | 0.8− | 2007 05 25 | G96 | 0.0 | 0.2− | 2008 10 02 | G96 | 0.2+ | 0.0 |
| 2001 11 20 | 704 | 0.8− | 1.2− | 2007 05 25 | G96 | 0.1− | 0.3− | 2008 10 02 | G96 | 0.1+ | 0.0 |
| 2001 11 20 | 704 | 1.2− | 1.4− | 2007 05 25 | G96 | 0.1− | 0.2− | 2009 12 17 | G96 | 0.9+ | 0.6+ |
| 2001 11 21 | 704 | 0.3− | 0.7− | 2007 05 25 | G96 | 0.7+ | 1.4+ | 2009 12 17 | G96 | 0.4+ | 0.2+ |
| 2001 11 21 | 704 | 0.5− | 0.2− | 2007 06 20 | 291 | 0.0 | 0.1+ | 2009 12 17 | G96 | 0.9+ | 0.2+ |
| 2001 11 21 | 704 | 0.3− | 0.2+ | 2007 06 20 | 291 | 0.4− | 0.0 | 2009 12 17 | G96 | 0.3− | 0.5+ |
| 2003 04 26 | 691 | 0.1+ | 0.7+ | 2007 06 20 | 291 | 0.2− | 0.2+ | 2009 12 17 | G96 | 0.2− | 0.5+ |
| 2003 04 26 | 691 | 0.0 | 0.7+ | 2008 09 02 | 691 | 0.5− | 0.2− | 2009 12 18 | 691 | 0.0 | 0.4+ |
| 2003 04 26 | 691 | 0.1+ | 0.6+ | 2008 09 02 | 691 | 0.1+ | 0.7+ | 2009 12 18 | 691 | 0.3+ | 0.2− |
| 2003 05 22 | 691 | 0.8+ | 1.2+ | 2008 09 02 | 691 | 0.0 | 0.3+ | 2009 12 18 | 691 | 0.0 | 0.4+ |
| 2003 05 22 | 691 | 1.0+ | 1.2+ | 2008 09 02 | 691 | 0.6− | 0.8+ | 2009 12 26 | 691 | 0.6− | 0.5+ |
| 2003 05 22 | 691 | 0.8+ | 1.0+ | 2008 09 02 | 691 | 0.3− | 0.1+ | 2009 12 26 | 691 | 0.1+ | 0.8+ |
| 2004 09 07 | 691 | 0.1+ | 0.0 | 2008 09 02 | 691 | 0.7− | 0.5+ | 2009 12 26 | 691 | 0.3− | 0.3+ |
| 2004 09 07 | 691 | 0.5+ | 0.0 | 2008 09 06 | 691 | 0.4+ | 0.1− | | | | |
| 2004 09 07 | 691 | 0.2+ | 0.0 | 2008 09 06 | 691 | 0.3+ | 0.0 | | | | |

**(229791)∗ 2008 RP$_{43}$**

Discovered 2008 Sept. 2 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 33.63622 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17290028 | $\omega$ | 23.19639 | | +0.36046834 | −0.93244599 | |
| $a$ | 3.1910890 | $\Omega$ | 45.68492 | | +0.85031538 | +0.31763032 | |
| $e$ | 0.1440233 | $i$ | 1.97337 | | +0.38344013 | +0.17220762 | |
| $P$ | 5.70 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1991 09 29 | 691 | 0.3− | 0.5+ | 2008 09 02 | 691 | 0.1− | 0.1− | 2008 10 22 | 691 | 0.2− | 0.2+ |
| 1991 09 29 | 691 | 0.7− | 0.9+ | 2008 09 06 | 691 | 0.4− | 0.1+ | 2008 10 24 | 691 | 0.1− | 0.2+ |
| 1991 09 29 | 691 | 0.2− | 1.1+ | 2008 09 06 | 691 | 0.3− | 0.0 | 2008 10 24 | 691 | 0.1+ | 0.1+ |
| 2000 04 26 | 691 | 0.4+ | 0.6+ | 2008 09 06 | 691 | 0.2− | 0.1− | 2008 10 24 | 691 | 0.1+ | 0.1+ |
| 2000 04 26 | 691 | 0.4+ | 0.7+ | 2008 09 10 | 691 | 0.0 | 0.2− | 2008 10 25 | G96 | 0.1+ | 0.3− |
| 2000 04 26 | 691 | 0.7+ | 0.4+ | 2008 09 10 | 691 | 0.2− | 0.0 | 2008 10 25 | G96 | 0.3+ | 0.4− |
| 2000 05 01 | 691 | 0.4− | 0.3+ | 2008 09 10 | 691 | 0.0 | 0.3− | 2008 10 25 | G96 | 0.6+ | 0.4− |
| 2000 05 01 | 691 | 0.2− | 0.6+ | 2008 09 27 | A50 | 0.2− | 0.0 | 2008 10 25 | G96 | 0.2+ | 0.6− |
| 2000 05 01 | 691 | 0.2− | 0.4+ | 2008 09 27 | A50 | 1.0− | 0.5− | 2009 09 27 | 691 | 0.2− | 0.1− |
| 2000 05 04 | 691 | 0.0 | 0.4− | 2008 09 27 | A50 | (0.1− | 1.6+) | 2009 09 27 | 691 | 0.3− | 0.1− |
| 2000 05 04 | 691 | 0.1− | 0.3− | 2008 09 27 | A50 | 1.4+ | 0.9− | 2009 09 27 | 691 | 0.2+ | 0.2− |
| 2000 05 04 | 691 | 0.2− | 0.6− | 2008 09 28 | 704 | 0.4+ | 0.0 | 2009 11 11 | G96 | 0.1+ | 0.0 |
| 2004 01 13 | 691 | 0.5+ | 0.2+ | 2008 09 28 | 704 | 0.6+ | 0.4− | 2009 11 11 | G96 | 0.5+ | 0.3− |
| 2004 01 13 | 691 | 0.1+ | 0.1+ | 2008 09 28 | 704 | 0.1− | 0.1+ | 2009 11 11 | G96 | 0.3+ | 0.0 |
| 2004 01 13 | 691 | 0.2+ | 0.2+ | 2008 09 28 | 704 | 0.7+ | 0.6+ | 2009 11 11 | G96 | 0.5+ | 0.1+ |
| 2006 05 19 | G96 | 0.2− | 0.1+ | 2008 09 28 | 704 | 0.1+ | 0.3− | 2009 12 15 | G96 | 0.0 | 0.2− |
| 2006 05 19 | G96 | 0.8+ | 0.2+ | 2008 10 01 | G96 | 0.5+ | 0.4− | 2009 12 15 | G96 | 0.1+ | 0.3− |
| 2006 05 19 | G96 | 0.3+ | 0.4+ | 2008 10 01 | G96 | 0.5+ | 0.4− | 2009 12 15 | G96 | 0.2+ | 0.1+ |
| 2006 05 19 | G96 | 0.4+ | 0.3+ | 2008 10 01 | G96 | 0.6+ | 0.3− | 2009 12 15 | G96 | 0.3+ | 0.1− |
| 2006 05 26 | G96 | 0.8+ | 0.2+ | 2008 10 01 | G96 | 0.1+ | 0.4− | 2009 12 18 | 691 | 0.6− | 0.4+ |
| 2006 05 26 | G96 | 0.0 | 0.4+ | 2008 10 17 | 691 | 0.1+ | 0.0 | 2009 12 18 | 691 | 0.0 | 0.4+ |
| 2006 05 26 | G96 | 0.4+ | 0.6+ | 2008 10 17 | 691 | 0.1− | 0.0 | 2009 12 18 | 691 | 0.1− | 0.0 |
| 2006 05 26 | G96 | 0.2+ | 0.3+ | 2008 10 17 | 691 | 0.0 | 0.2+ | 2009 12 26 | 691 | 0.4− | 0.1+ |
| 2008 09 02 | 691 | 0.3+ | 0.7− | 2008 10 22 | 691 | 0.1− | 0.4+ | 2009 12 26 | 691 | 0.0 | 0.3− |
| 2008 09 02 | 691 | 0.2− | 0.0 | 2008 10 22 | 691 | 0.1+ | 0.6+ | 2009 12 26 | 691 | 0.3+ | 0.0 |

**(229792)∗ 2008 RD$_{79}$ = 2003 WV$_{33}$**

Discovered 2008 Sept. 9 by W. Bickel at Bergisch Gladbach.

Id. G. V. Williams (*MPO* 146680)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 56.90584 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18770425 | $\omega$ | 79.69240 | | +0.69360011 | −0.72005371 | |
| $a$ | 3.0210179 | $\Omega$ | 326.36063 | | +0.64518507 | +0.63392735 | |
| $e$ | 0.1147004 | $i$ | 2.17387 | | +0.32039836 | +0.28223887 | |
| $P$ | 5.25 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 02 | 691 | 0.2− | 0.1+ | 2008 09 11 | 621 | 0.5+ | 0.1+ | 2008 10 08 | 703 | 0.7+ | 1.0+ |
| 2003 10 02 | 691 | 0.0 | 0.2+ | 2008 09 11 | 621 | 0.3+ | 0.4− | 2008 10 10 | 691 | 0.1+ | 0.2− |
| 2003 10 02 | 691 | 0.5− | 0.0 | 2008 09 21 | 691 | 0.0 | 0.1+ | 2008 10 10 | 691 | 0.0 | 0.1− |
| 2003 10 22 | 691 | 0.2+ | 0.0 | 2008 09 21 | 691 | 0.5− | 0.0 | 2008 10 10 | 691 | 0.3− | 0.1+ |
| 2003 10 22 | 691 | 0.0 | 0.0 | 2008 09 21 | 691 | 0.1− | 0.0 | 2008 10 17 | 691 | 0.2− | 0.0 |
| 2003 10 22 | 691 | 0.1− | 0.1− | 2008 09 24 | 704 | 0.9+ | 0.1− | 2008 10 17 | 691 | 0.2− | 0.1+ |
| 2003 11 02 | 704 | (2.6− | 0.3−) | 2008 09 24 | 704 | 0.4+ | 0.2− | 2008 10 17 | 691 | 0.3− | 0.0 |
| 2003 11 02 | 704 | (0.5+ | 1.7−) | 2008 09 24 | 704 | 0.7+ | 0.2− | 2008 10 19 | 691 | 0.1− | 0.4− |
| 2003 11 02 | 704 | 1.2− | 0.8+ | 2008 09 24 | 704 | 1.0+ | 0.2− | 2008 10 19 | 691 | 0.1− | 0.0 |
| 2003 11 02 | 704 | 0.8+ | 0.9+ | 2008 10 01 | G96 | 0.2+ | 0.1− | 2008 10 19 | 691 | 0.1− | 0.0 |
| 2003 11 19 | 691 | 0.1− | 0.1− | 2008 10 01 | G96 | 0.0 | 0.5− | 2009 11 11 | G96 | 0.1+ | 0.5+ |
| 2003 11 19 | 691 | 0.2+ | 0.0 | 2008 10 01 | G96 | 0.1− | 0.1− | 2009 11 11 | G96 | 0.3+ | 0.1− |
| 2003 11 19 | 691 | 0.2+ | 0.1− | 2008 10 02 | 291 | 0.1+ | 0.0 | 2009 11 11 | G96 | 0.1+ | 0.0 |
| 2003 11 20 | 704 | 0.1+ | 0.6+ | 2008 10 02 | 291 | 0.2− | 0.0 | 2009 11 11 | G96 | 0.2+ | 0.2+ |
| 2003 11 20 | 704 | 0.7− | 0.3− | 2008 10 02 | 291 | 0.1+ | 0.1− | 2009 11 21 | G96 | 0.3+ | 0.3− |
| 2003 11 20 | 704 | 0.8+ | 0.5+ | 2008 10 02 | G96 | 0.2+ | 0.1− | 2009 11 21 | G96 | 0.0 | 0.7− |
| 2003 11 20 | 704 | 0.3+ | 1.2+ | 2008 10 02 | G96 | 0.3+ | 0.2− | 2009 11 21 | G96 | 0.5+ | 0.2− |
| 2005 03 08 | G96 | 0.0 | 0.2− | 2008 10 02 | G96 | 0.3+ | 0.2− | 2009 11 21 | G96 | 0.6+ | 0.2+ |
| 2005 03 08 | G96 | 0.1+ | 0.0 | 2008 10 02 | G96 | 0.4+ | 0.2− | 2009 12 17 | G96 | 0.0 | 0.0 |
| 2005 03 08 | G96 | 0.2+ | 0.1− | 2008 10 03 | 291 | 0.2+ | 0.2− | 2009 12 17 | G96 | 0.3+ | 0.1− |
| 2005 03 08 | G96 | 0.2− | 0.0 | 2008 10 03 | 291 | 0.0 | 0.3− | 2009 12 17 | G96 | 0.1+ | 0.1+ |
| 2008 08 24 | 691 | 0.0 | 0.4− | 2008 10 03 | 291 | 0.2+ | 0.2− | 2009 12 17 | G96 | 0.1− | 0.3− |
| 2008 08 24 | 691 | 0.0 | 0.3− | 2008 10 07 | 691 | 0.1+ | 0.2+ | 2009 12 18 | 691 | 0.0 | 0.2+ |
| 2008 08 24 | 691 | 0.2− | 0.4+ | 2008 10 07 | 691 | 0.1+ | 0.0 | 2009 12 18 | 691 | 0.1+ | 0.1+ |
| 2008 09 09 | 621 | 0.3+ | 0.0 | 2008 10 07 | 691 | 0.2+ | 0.6+ | 2009 12 18 | 691 | 0.1− | 0.0 |
| 2008 09 09 | 621 | 0.2+ | 0.1− | 2008 10 08 | 703 | (0.9− | 2.0+) | 2009 12 26 | 691 | 0.3− | 0.2− |
| 2008 09 09 | 621 | 0.2+ | 0.3− | 2008 10 08 | 703 | 0.6+ | 0.6+ | 2009 12 26 | 691 | 0.2− | 0.4− |
| 2008 09 11 | 621 | 0.3+ | 0.4− | 2008 10 08 | 703 | (1.9+ | 0.5+) | 2009 12 26 | 691 | 0.1− | 0.1− |

**(229793)∗ 2008 RB$_{90}$ = 2006 ES$_{56}$**

Discovered 2008 Sept. 5 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 146686)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 92.47147 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22098973 | $\omega$ | 64.10438 | | +0.91644965 | −0.39507676 | |
| $a$ | 2.7094928 | $\Omega$ | 319.08232 | | +0.32359757 | +0.82510000 | |
| $e$ | 0.0471334 | $i$ | 5.56508 | | +0.23538194 | +0.40388655 | |
| $P$ | 4.46 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 12 31 | 691 | 0.0 | 0.2− | 2008 09 22 | 691 | 0.0 | 0.0 | 2008 10 29 | G96 | 0.1+ | 0.1− |
| 2000 12 31 | 691 | 0.3− | 0.5− | 2008 09 22 | 691 | 0.3+ | 0.9+ | 2008 10 29 | G96 | 0.2+ | 0.3− |
| 2000 12 31 | 691 | 0.1+ | 0.0 | 2008 09 25 | 691 | 0.1− | 0.0 | 2008 10 29 | G96 | 0.1+ | 0.2− |
| 2006 01 08 | G96 | 0.8+ | 0.6+ | 2008 09 25 | 691 | 0.3− | 0.2+ | 2008 11 02 | 704 | 0.7+ | 0.3+ |
| 2006 01 08 | G96 | 0.1+ | 0.5+ | 2008 09 25 | 691 | 0.2+ | 0.0 | 2008 11 02 | 704 | 0.2+ | 1.1+ |
| 2006 01 08 | G96 | 0.9+ | 0.4+ | 2008 10 01 | 704 | 0.1+ | 0.1− | 2008 11 02 | 704 | (1.7+ | 0.6+) |
| 2006 01 08 | G96 | 0.4− | 0.2+ | 2008 10 01 | 704 | 0.1− | 0.0 | 2008 11 02 | 704 | 0.1+ | 0.5+ |
| 2006 03 05 | 691 | 0.2+ | 0.4+ | 2008 10 01 | 704 | 0.2+ | 0.2− | 2009 11 19 | G96 | 0.1+ | 0.1− |
| 2006 03 05 | 691 | 0.1− | 0.6+ | 2008 10 01 | 704 | 0.4− | 0.9+ | 2009 11 19 | G96 | 0.4+ | 0.5− |
| 2006 03 05 | 691 | 0.3+ | 0.3+ | 2008 10 02 | 703 | 0.1+ | 0.9+ | 2009 11 19 | G96 | 0.2+ | 0.2− |
| 2006 03 09 | 691 | 0.3+ | 0.5+ | 2008 10 02 | 703 | 0.1+ | 0.4+ | 2009 11 19 | G96 | 0.4+ | 0.3− |
| 2006 03 09 | 691 | 0.3+ | 0.2+ | 2008 10 02 | 703 | 0.3+ | 0.6− | 2009 11 21 | G96 | 0.3+ | 0.3− |
| 2006 03 09 | 691 | 0.4+ | 0.3+ | 2008 10 02 | 703 | 0.7+ | 0.3+ | 2009 11 21 | G96 | 0.4+ | 0.3− |
| 2008 09 05 | 691 | 0.1− | 0.0 | 2008 10 06 | 691 | 0.2− | 0.1− | 2009 11 21 | G96 | 0.3+ | 0.6− |
| 2008 09 05 | 691 | 0.2− | 0.0 | 2008 10 06 | 691 | 0.3− | 0.0 | 2009 11 21 | G96 | 0.3+ | 0.5− |
| 2008 09 05 | 691 | 0.1− | 0.2+ | 2008 10 06 | 691 | 0.4− | 0.2+ | 2009 12 26 | 291 | 0.2− | 0.2− |
| 2008 09 09 | 691 | 0.0 | 0.3+ | 2008 10 08 | 691 | 0.4− | 0.2− | 2009 12 26 | 291 | 0.4− | 0.2+ |
| 2008 09 09 | 691 | 0.3− | 0.1+ | 2008 10 08 | 691 | 0.0 | 0.1− | 2009 12 26 | 291 | 0.1− | 0.2+ |
| 2008 09 09 | 691 | 0.1− | 0.0 | 2008 10 08 | 691 | 0.0 | 0.1− | | | | |
| 2008 09 22 | 691 | 0.1+ | 0.0 | 2008 10 29 | G96 | 0.8+ | 0.4+ | | | | |

**(229794)∗ 2008 RR$_{99}$ = 2003 SL$_{313}$**

Discovered 2008 Sept. 2 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 146691)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 82.70970 | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.19580830 | $\omega$ | 339.46980 | | +0.95210749 | | −0.30494650 | |
| $a$ | 2.9370769 | $\Omega$ | 38.30783 | | +0.28531975 | | +0.85980969 | |
| $e$ | 0.1250141 | $i$ | 2.06510 | | +0.10992713 | | +0.40955456 | |
| $P$ | 5.03 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 1 | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 10 12 | 691 | 0.4− | 0.2− | 2006 03 24 | G96 | 0.5− | 0.1+ | 2008 09 29 | G96 | 0.3+ | 0.0 |
| 1998 10 12 | 691 | 0.3− | 0.3− | 2006 03 24 | G96 | 0.1− | 0.4+ | 2008 10 17 | 691 | 0.0 | 0.2+ |
| 1998 10 12 | 691 | 0.6− | 0.1− | 2006 03 24 | G96 | 0.7+ | 0.8+ | 2008 10 17 | 691 | 0.1− | 0.0 |
| 2003 09 19 | 699 | 0.1+ | 1.3− | 2008 09 02 | 691 | 0.1− | 0.4+ | 2008 10 17 | 691 | 0.0 | 0.1− |
| 2003 09 19 | 699 | 0.0 | 0.9+ | 2008 09 02 | 691 | 0.2− | 0.2+ | 2008 10 24 | G96 | 0.6+ | 0.1+ |
| 2003 09 19 | 699 | (0.4− | 1.8+) | 2008 09 02 | 691 | 0.5− | 0.5+ | 2008 10 24 | G96 | 0.3+ | 0.1− |
| 2003 09 19 | 699 | 0.1+ | 0.2+ | 2008 09 06 | 691 | (0.9− | 2.3+) | 2008 10 24 | G96 | 0.4+ | 0.1+ |
| 2003 09 21 | 691 | 0.2+ | 0.1− | 2008 09 06 | 691 | (0.3− | 2.4+) | 2008 10 24 | G96 | 0.1+ | 0.1− |
| 2003 09 21 | 691 | 0.4+ | 0.1+ | 2008 09 06 | 691 | 0.2+ | 0.1− | 2008 11 24 | G96 | 0.5+ | 0.2− |
| 2003 09 21 | 691 | 0.2+ | 0.1− | 2008 09 06 | 691 | 0.5− | 0.1− | 2008 11 24 | G96 | 0.4+ | 0.1− |
| 2003 10 19 | 691 | 0.4+ | 0.5+ | 2008 09 06 | 691 | 0.1− | 0.3− | 2008 11 24 | G96 | 0.6+ | 0.1− |
| 2003 10 19 | 691 | 0.3+ | 0.2+ | 2008 09 06 | 691 | 0.0 | 0.3+ | 2008 11 24 | G96 | 0.5+ | 0.1− |
| 2003 10 19 | 691 | 0.2+ | 0.2+ | 2008 09 10 | 691 | 0.1+ | 0.1− | 2009 12 17 | G96 | 0.1− | 0.4− |
| 2004 12 18 | G96 | 0.0 | 0.3− | 2008 09 10 | 691 | 0.2− | 0.5− | 2009 12 17 | G96 | 0.4+ | 0.1− |
| 2004 12 18 | G96 | 0.1− | 0.4− | 2008 09 10 | 691 | 0.0 | 0.2+ | 2009 12 17 | G96 | 0.2+ | 0.5+ |
| 2004 12 18 | G96 | 0.2− | 0.1− | 2008 09 19 | 691 | 0.1− | 0.2− | 2009 12 17 | G96 | 0.3+ | 0.0 |
| 2004 12 18 | G96 | 0.2+ | 0.1− | 2008 09 19 | 691 | 0.5− | 0.1− | 2009 12 18 | 691 | 0.2− | 0.2+ |
| 2005 01 18 | 691 | 0.3+ | 0.0 | 2008 09 19 | 691 | 0.3+ | 0.1+ | 2009 12 18 | 691 | 0.5− | 0.0 |
| 2005 01 18 | 691 | 0.5+ | 0.3− | 2008 09 29 | G96 | 0.2+ | 0.0 | 2009 12 18 | 691 | 0.8− | 0.2+ |
| 2005 01 18 | 691 | 0.4+ | 0.2+ | 2008 09 29 | G96 | 0.5+ | 0.0 | | | | |
| 2006 03 24 | G96 | 0.5+ | 0.2+ | 2008 09 29 | G96 | 0.5+ | 0.0 | | | | |

**(229795)**∗ **2008 RM**$_{100}$

Discovered 2008 Sept. 3 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 359.96554 | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.12432454 | $\omega$ | 273.94756 | | +0.06036767 | | −0.99802398 | |
| $a$ | 3.9758636 | $\Omega$ | 172.52434 | | +0.96073052 | | +0.05335558 | |
| $e$ | 0.2419677 | $i$ | 7.70002 | | +0.27083687 | | +0.03318618 | |
| $P$ | 7.93 | $H$ | 14.8 | $G$ | 0.15 | $U$ | 0 | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1992 09 23 | 691 | 0.1− | 0.8+ | 2008 09 06 | 691 | 0.2+ | 1.4+ | 2009 11 23 | 703 | 0.2− | 0.3− |
| 1992 09 23 | 691 | 0.6− | 0.3+ | 2008 09 06 | 691 | 0.1− | 0.2+ | 2009 11 23 | 703 | 0.5− | 0.1− |
| 1992 09 23 | 691 | 0.2− | 0.8+ | 2008 09 24 | G96 | 0.1− | 0.3− | 2009 11 23 | 703 | 0.8− | 0.5+ |
| 2002 01 08 | 209 | 0.2− | 0.2− | 2008 09 24 | G96 | 0.4− | 0.3− | 2009 12 09 | J75 | 0.3+ | 0.3− |
| 2002 01 08 | 209 | 0.0 | 0.4− | 2008 09 24 | G96 | 0.0 | 0.3− | 2009 12 09 | J75 | 0.0 | 0.7+ |
| 2002 01 08 | 209 | 0.2+ | 0.0 | 2008 09 24 | G96 | 0.0 | 0.2− | 2009 12 09 | J75 | 0.0 | 0.1− |
| 2002 02 02 | 209 | 0.9+ | 0.6− | 2008 10 09 | G96 | 0.7+ | 0.0 | 2009 12 13 | 704 | 0.1+ | 0.3+ |
| 2002 02 02 | 209 | 0.8+ | 0.9− | 2008 10 09 | G96 | 0.1− | 0.1+ | 2009 12 13 | 704 | 0.3+ | 0.5+ |
| 2002 02 02 | 209 | 0.7+ | 0.2− | 2008 10 09 | G96 | 0.2+ | 0.1− | 2009 12 13 | 704 | 0.4− | 0.1+ |
| 2003 03 24 | 691 | 0.3− | 0.1+ | 2008 10 09 | G96 | 0.4+ | 0.1− | 2009 12 13 | 704 | 0.3− | 0.4+ |
| 2003 03 24 | 691 | 0.0 | 0.2− | 2008 12 03 | G96 | 0.0 | 0.0 | 2009 12 15 | 703 | 0.4− | 0.9− |
| 2003 03 24 | 691 | 0.5− | 0.3− | 2008 12 03 | G96 | 0.6+ | 0.1− | 2009 12 15 | 703 | 0.1+ | 1.0− |
| 2003 04 05 | 691 | 0.3+ | 1.1+ | 2008 12 03 | G96 | 0.0 | 0.1− | 2009 12 15 | 703 | 0.1− | 1.0− |
| 2003 04 05 | 691 | 0.5+ | 0.9+ | 2008 12 03 | G96 | 0.0 | 0.4− | 2009 12 15 | 703 | 0.2− | 0.7− |
| 2003 04 05 | 691 | 0.6+ | 0.7+ | 2009 11 19 | 704 | 0.2+ | 1.3+ | 2009 12 15 | 703 | 0.4− | 0.2− |
| 2008 09 03 | 691 | 0.0 | 0.1+ | 2009 11 19 | 704 | 0.4− | 0.3+ | 2009 12 18 | 704 | 1.5+ | 0.4+ |
| 2008 09 03 | 691 | 0.1− | 0.6+ | 2009 11 19 | 704 | 0.3+ | 0.4+ | 2009 12 18 | 704 | 0.3− | 0.3+ |
| 2008 09 03 | 691 | 0.2+ | 1.4− | 2009 11 23 | 703 | 0.3+ | 0.4− | 2009 12 18 | 704 | 0.6− | 0.7+ |
| 2008 09 06 | 691 | 0.3− | 0.3− | 2009 11 23 | 703 | 0.0 | 0.1− | | | | |

**(229796)**∗ **2008 RC**$_{122}$ **= 2003 SH**$_{363}$ **= 2006 JW**$_{30}$ **= 2006 KZ**$_{106}$

Discovered 2008 Sept. 3 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 158148)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 288.26754 | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.18217192 | $\omega$ | 142.69995 | | −0.95226779 | | −0.30415030 | |
| $a$ | 3.0818755 | $\Omega$ | 19.64136 | | +0.25805776 | | −0.84765991 | |
| $e$ | 0.1043797 | $i$ | 4.44501 | | +0.16307130 | | −0.43470135 | |
| $P$ | 5.41 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 0 | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 22 | 691 | 0.1− | 0.2+ | 2005 02 04 | G96 | 0.1− | 0.4− | 2008 09 24 | G96 | 0.3+ | 0.0 |
| 2003 09 22 | 691 | 0.1+ | 0.0 | 2005 02 04 | G96 | 0.1+ | 0.1− | 2008 09 24 | G96 | 0.2− | 0.2+ |
| 2003 09 22 | 691 | 0.1+ | 0.1− | 2006 04 25 | G96 | 0.3− | 0.1+ | 2008 09 24 | G96 | 0.1− | 0.1+ |
| 2003 09 27 | 691 | 0.2− | 0.5+ | 2006 04 25 | G96 | 0.3− | 0.1− | 2008 09 24 | G96 | 0.1− | 0.0 |
| 2003 09 27 | 691 | 0.4− | 0.1− | 2006 04 25 | G96 | 0.0 | 0.9+ | 2008 10 09 | G96 | 0.2+ | 0.0 |
| 2003 09 27 | 691 | 0.1+ | 0.1− | 2006 04 25 | G96 | 0.1− | 0.1+ | 2008 10 09 | G96 | 0.3+ | 0.1− |
| 2003 10 16 | 691 | 0.3− | 0.5+ | 2006 05 03 | G96 | 0.2+ | 0.3+ | 2008 10 09 | G96 | 0.6+ | 0.1+ |
| 2003 10 16 | 691 | 0.5− | 0.2+ | 2006 05 03 | G96 | 0.1− | 0.2− | 2008 10 09 | G96 | 0.3+ | 0.2+ |
| 2003 10 16 | 691 | 0.1− | 0.1− | 2006 05 03 | G96 | 0.2+ | 0.3+ | 2008 11 02 | G96 | 0.0 | 0.5+ |
| 2003 11 16 | 291 | 0.3+ | 1.0− | 2006 05 03 | G96 | 0.2− | 0.1+ | 2008 11 02 | G96 | 0.4+ | 0.4+ |
| 2003 11 16 | 291 | 0.3+ | 0.9− | 2006 05 31 | G96 | 0.1− | 0.1+ | 2008 11 02 | G96 | 0.3+ | 0.1− |
| 2003 11 16 | 291 | 0.7+ | 0.4− | 2006 05 31 | G96 | 0.2− | 0.1+ | 2008 11 02 | G96 | 0.1+ | 0.0 |
| 2004 12 19 | 691 | 0.1− | 0.0 | 2006 05 31 | G96 | 0.3− | 0.2+ | 2009 11 10 | 691 | 0.0 | 0.1− |
| 2004 12 19 | 691 | 0.5+ | 1.2+ | 2006 05 31 | G96 | 0.0 | 0.2+ | 2009 11 10 | 691 | 0.4− | 0.2− |
| 2004 12 19 | 691 | 0.1+ | 0.1− | 2006 06 01 | G96 | 0.0 | 0.2+ | 2009 11 10 | 691 | 0.4− | 0.1− |
| 2005 01 07 | 599 | 0.0 | 0.3+ | 2006 06 01 | G96 | 0.5+ | 0.5− | 2009 12 18 | G96 | 0.2+ | 0.5− |
| 2005 01 07 | 599 | 0.7+ | 0.2+ | 2006 06 01 | G96 | 0.0 | 0.2− | 2009 12 18 | G96 | 0.5+ | 0.1− |
| 2005 01 07 | 599 | 0.4+ | 0.4+ | 2006 06 01 | G96 | 0.0 | 0.0 | 2009 12 18 | G96 | 0.2+ | 0.2+ |
| 2005 01 07 | 599 | 0.9+ | 0.7+ | 2008 09 03 | 691 | 0.3+ | 0.3+ | 2009 12 18 | G96 | 0.4+ | 0.4− |
| 2005 02 04 | G96 | 0.0 | 0.3− | 2008 09 03 | 691 | 0.8− | 0.5+ | | | | |
| 2005 02 04 | G96 | 0.2− | 0.4− | 2008 09 03 | 691 | 0.0 | 0.6+ | | | | |

**(229797)**∗ **2008 RT**$_{130}$

Discovered 2008 Sept. 8 by the Catalina Sky Survey.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 105.02573 | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.20285357 | $\omega$ | 243.39833 | | +0.97862068 | | −0.05431691 | |
| $a$ | 2.8686723 | $\Omega$ | 119.12908 | | +0.11079507 | | +0.95181407 | |
| $e$ | 0.0476682 | $i$ | 13.12598 | | −0.17328015 | | +0.30182717 | |
| $P$ | 4.86 | $H$ | 15.1 | $G$ | 0.15 | $U$ | 1 | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 03 23 | 608 | 0.7+ | 0.5+ | 2006 04 25 | 703 | 0.1− | 0.5+ | 2008 10 22 | E12 | 0.7− | 0.2+ |
| 2001 03 23 | 608 | 0.7+ | 0.6+ | 2006 04 25 | 703 | 0.1− | 0.4+ | 2008 10 29 | 703 | 0.0 | 1.0− |
| 2001 03 23 | 608 | 0.9+ | 0.4+ | 2006 04 25 | 703 | 0.9+ | 1.2− | 2008 10 29 | 703 | (0.3− | 1.7−) |
| 2002 07 12 | 644 | 0.2− | 1.0+ | 2008 09 08 | 703 | 0.2+ | 0.5+ | 2008 10 29 | 703 | 0.1+ | 1.3+ |
| 2002 07 12 | 644 | 0.1− | 1.2+ | 2008 09 08 | 703 | 1.1+ | 0.2+ | 2008 10 29 | 703 | 0.9+ | 0.4+ |
| 2002 07 12 | 644 | 0.2− | 1.4+ | 2008 09 08 | 703 | 0.7+ | 0.2+ | 2009 09 30 | G96 | 0.4+ | 0.7− |
| 2003 09 25 | 644 | 0.4− | 0.2+ | 2008 09 08 | 703 | (2.6+ | 2.1−) | 2009 09 30 | G96 | 0.3− | 0.3− |
| 2003 09 25 | 644 | 0.1− | 0.1+ | 2008 09 22 | 703 | 0.8− | 0.0 | 2009 09 30 | G96 | 0.9− | 0.4− |
| 2003 09 25 | 644 | 0.2− | 0.3+ | 2008 09 22 | 703 | 0.3− | 0.1− | 2009 09 30 | G96 | 0.2− | 0.2− |
| 2005 03 13 | G96 | 0.3− | 0.1− | 2008 09 22 | 703 | 0.9+ | 0.5+ | 2009 12 10 | J75 | 0.3+ | 0.0 |
| 2005 03 13 | G96 | 0.1− | 0.2− | 2008 09 22 | 703 | 0.7− | 0.6+ | 2009 12 10 | J75 | 0.0 | 0.1− |
| 2005 03 13 | G96 | 0.2− | 0.1− | 2008 10 09 | 703 | 0.4+ | 1.1+ | 2009 12 10 | J75 | 0.0 | 0.2− |
| 2005 03 13 | G96 | 0.1− | 0.1+ | 2008 10 09 | 703 | 1.3+ | 0.4+ | 2009 12 17 | 704 | 0.0 | 1.2+ |
| 2006 04 02 | 703 | (1.9− | 0.4+) | 2008 10 09 | 703 | 0.9− | 0.7− | 2009 12 17 | 704 | 0.7− | 0.3+ |
| 2006 04 02 | 703 | 0.4− | 0.4+ | 2008 10 09 | 703 | 1.1− | 0.9+ | 2009 12 17 | 704 | 0.8+ | 1.0+ |
| 2006 04 02 | 703 | 0.0 | 0.1− | 2008 10 22 | E12 | 0.2− | 0.1− | 2009 12 17 | 704 | 0.6− | 1.3+ |
| 2006 04 02 | 703 | 0.6− | 0.6+ | 2008 10 22 | E12 | 0.3− | 0.1+ | | | | |
| 2006 04 25 | 703 | 0.9+ | 1.3+ | 2008 10 22 | E12 | 0.5− | 0.2+ | | | | |

**(229798)**∗ **2008 SK**$_{15}$

Discovered 2008 Sept. 19 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 78.48851 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17832129 | $\omega$ | 149.95652 | | +0.96866123 | | +0.24828444 |
| $a$ | 3.1260836 | $\Omega$ | 195.67223 | | −0.23279694 | | +0.89754563 |
| $e$ | 0.1139266 | $i$ | 1.50389 | | −0.08660839 | | +0.36437161 |
| $P$ | 5.53 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1992 10 25 | 691 | 0.0 | 0.4− | 2007 05 25 | G96 | 0.3− | 0.4+ | 2008 09 19 | 691 | 0.1+ | 0.1− |
| 1992 10 25 | 691 | 0.2− | 0.2+ | 2007 05 25 | G96 | 0.1− | 0.3+ | 2008 09 19 | 691 | 0.0 | 0.2− |
| 1992 10 25 | 691 | 0.5+ | 0.4− | 2007 05 25 | G96 | 0.5− | 0.7− | 2008 09 21 | 691 | 0.5− | 0.2+ |
| 2003 09 27 | 691 | 1.1− | 0.6+ | 2007 05 25 | G96 | 1.0− | 0.5+ | 2008 09 21 | 691 | 0.4− | 0.4+ |
| 2003 09 27 | 691 | 0.3− | 0.8+ | 2008 07 29 | 691 | 0.0 | 0.1− | 2008 09 21 | 691 | 0.1+ | 0.0 |
| 2003 09 27 | 691 | 0.1+ | 0.4+ | 2008 07 29 | 691 | 0.1− | 0.1+ | 2008 09 23 | 691 | 0.6+ | 0.7+ |
| 2003 10 16 | 691 | 0.1− | 0.4+ | 2008 07 29 | 691 | 0.0 | 0.1+ | 2008 09 23 | 691 | 0.2− | 0.3+ |
| 2003 10 16 | 691 | 0.4+ | 0.0 | 2008 08 07 | 691 | 0.0 | 0.5+ | 2008 09 23 | 691 | 0.0 | 0.4+ |
| 2003 10 16 | 691 | 0.1− | 0.0 | 2008 08 07 | 691 | 0.0 | 0.2+ | 2009 11 24 | 691 | 0.6− | 0.2− |
| 2006 02 24 | 691 | 0.4− | 1.1+ | 2008 08 07 | 691 | 0.0 | 0.2+ | 2009 11 24 | 691 | 0.1+ | 0.0 |
| 2006 02 24 | 691 | 0.2− | 0.7+ | 2008 09 07 | G96 | 0.6+ | 0.1+ | 2009 11 24 | 691 | 0.1− | 0.1+ |
| 2006 02 24 | 691 | 0.7+ | 0.6+ | 2008 09 07 | G96 | 0.0 | 0.1− | 2009 12 15 | G96 | 1.0+ | 0.1+ |
| 2006 03 02 | 691 | 0.2+ | 0.1+ | 2008 09 07 | G96 | 0.2− | 0.1− | 2009 12 15 | G96 | 0.2+ | 0.1− |
| 2006 03 02 | 691 | 1.4+ | 0.9+ | 2008 09 07 | G96 | 0.2+ | 0.2− | 2009 12 15 | G96 | 0.4+ | 0.2+ |
| 2006 03 02 | 691 | 0.3+ | 0.4+ | 2008 09 19 | 691 | 0.2− | 0.1− | 2009 12 15 | G96 | 0.7+ | 0.3− |

**(229799)∗ 2008 $SN_{18}$ = 2006 $FB_{22}$**

Discovered 2008 Sept. 19 by Spacewatch at Kitt Peak.

Id. A. Doppler (*MPO* 146721)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 61.84139 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17398873 | $\omega$ | 231.11915 | | +0.99681277 | | −0.07835129 |
| $a$ | 3.1777664 | $\Omega$ | 133.36907 | | +0.07808668 | | +0.91974053 |
| $e$ | 0.0973513 | $i$ | 1.18331 | | +0.01633290 | | +0.38462766 |
| $P$ | 5.66 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 07 04 | 291 | 0.3− | 0.1− | 2008 07 29 | 691 | 0.5− | 0.0 | 2008 10 02 | 807 | 0.6− | 0.6− |
| 2002 07 04 | 291 | 0.1− | 0.2− | 2008 07 29 | 691 | 0.4− | 0.1+ | 2009 09 22 | G96 | 0.1− | 0.5− |
| 2002 07 04 | 291 | 0.5− | 0.0 | 2008 09 19 | 691 | 0.0 | 0.2+ | 2009 09 22 | G96 | 0.2+ | 0.2− |
| 2003 10 22 | 691 | 0.3− | 0.4+ | 2008 09 19 | 691 | 0.2− | 0.1+ | 2009 09 22 | G96 | 0.4+ | 0.1− |
| 2003 10 22 | 691 | 0.0 | 0.1+ | 2008 09 19 | 691 | 0.1− | 0.3+ | 2009 09 22 | G96 | 0.7+ | 0.3+ |
| 2003 10 22 | 691 | 0.0 | 0.3− | 2008 09 20 | G96 | 0.9+ | 0.2+ | 2009 11 10 | 291 | 0.2− | 0.3+ |
| 2003 11 15 | 291 | 0.4+ | 0.1+ | 2008 09 20 | G96 | 1.0+ | 0.0 | 2009 11 10 | 291 | 0.1− | 0.2+ |
| 2003 11 15 | 291 | 0.3+ | 0.0 | 2008 09 20 | G96 | 0.7+ | 0.3− | 2009 11 10 | 291 | 0.2− | 0.2+ |
| 2003 11 15 | 291 | 0.6+ | 0.1− | 2008 09 20 | G96 | 1.0+ | 0.2− | 2009 11 11 | 291 | 0.3− | 0.1+ |
| 2003 11 21 | 691 | 0.0 | 0.0 | 2008 09 23 | 691 | 0.2+ | 0.1− | 2009 11 11 | 291 | 0.2− | 0.2+ |
| 2003 11 21 | 691 | 0.0 | 0.2− | 2008 09 23 | 691 | 0.0 | 0.0 | 2009 11 11 | 291 | 0.3− | 0.1+ |
| 2003 11 21 | 691 | 0.1− | 0.5− | 2008 09 23 | 691 | 0.1− | 0.2− | 2009 11 24 | 691 | 0.4− | 0.1+ |
| 2004 12 20 | G96 | 0.4+ | 0.3− | 2008 09 23 | G96 | 0.5+ | 0.3+ | 2009 11 24 | 691 | 0.5− | 0.1+ |
| 2004 12 20 | G96 | 0.2+ | 0.4− | 2008 09 23 | G96 | 0.4+ | 0.0 | 2009 11 24 | 691 | 0.1− | 0.0 |
| 2004 12 20 | G96 | 0.2− | 0.0 | 2008 09 23 | G96 | 0.3+ | 0.1+ | 2009 11 27 | G96 | 0.4+ | 0.2− |
| 2004 12 20 | G96 | 0.3− | 0.2+ | 2008 09 23 | G96 | 0.7+ | 0.1+ | 2009 11 27 | G96 | 0.4+ | 0.1− |
| 2006 03 24 | G96 | 0.8+ | 0.2+ | 2008 09 30 | 807 | 0.1+ | 0.4+ | 2009 11 27 | G96 | 0.7+ | 0.6− |
| 2006 03 24 | G96 | 0.1+ | 0.4+ | 2008 09 30 | 807 | 0.2+ | 0.3+ | 2009 11 27 | G96 | 0.7+ | 0.2− |
| 2006 03 24 | G96 | 0.0 | 0.4+ | 2008 09 30 | 807 | 0.3+ | 0.3+ | 2009 11 27 | G96 | 0.1+ | 0.0 |
| 2006 03 24 | G96 | 1.0+ | 0.2+ | 2008 10 01 | 807 | 0.1+ | 0.1+ | 2009 12 15 | G96 | 0.5+ | 0.0 |
| 2006 03 25 | G96 | 0.4+ | 0.2+ | 2008 10 01 | 807 | 0.0 | 0.2+ | 2009 12 15 | G96 | 0.0 | 0.0 |
| 2006 03 25 | G96 | 0.2+ | 0.1− | 2008 10 01 | 807 | 0.1+ | 0.4+ | 2009 12 15 | G96 | 0.2+ | 0.0 |
| 2006 03 25 | G96 | 0.2+ | 0.5+ | 2008 10 02 | 807 | 0.2+ | 0.2+ | 2009 12 15 | G96 | 0.4+ | 0.2+ |
| 2006 03 25 | G96 | 0.2+ | 0.2+ | 2008 10 02 | 807 | 0.2+ | 0.3+ | | | | |
| 2008 07 29 | 691 | 0.1− | 0.2+ | 2008 10 02 | 807 | 0.2+ | 0.3+ | | | | |

**(229800)∗ 2008 $ST_{35}$ = 1998 $SF_{45}$ = 1999 $XB_{251}$ = 1999 $XJ_{265}$ = 2006 $FY_3$**

Discovered 2008 Sept. 20 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 150227)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 88.58880 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.19937017 | $\omega$ | 330.69473 | | +0.92855394 | | −0.37092787 |
| $a$ | 2.9019901 | $\Omega$ | 51.08504 | | +0.34400871 | | +0.84560025 |
| $e$ | 0.0669897 | $i$ | 1.04168 | | +0.13944743 | | +0.38389155 |
| $P$ | 4.94 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 09 25 | 691 | 0.3+ | 0.2− | 2006 03 23 | 691 | 0.0 | 0.2+ | 2008 10 24 | G96 | 0.3+ | 0.1+ |
| 1998 09 25 | 691 | 1.8− | 0.7− | 2006 03 23 | 691 | 0.3+ | 0.1− | 2008 10 24 | G96 | 0.5+ | 0.2+ |
| 1998 09 25 | 691 | 0.2− | 0.0 | 2006 03 24 | G96 | 0.1− | 0.1+ | 2008 10 24 | G96 | 0.3+ | 0.0 |
| 1998 09 30 | 691 | 0.4+ | 0.2− | 2006 03 24 | G96 | 0.2− | 0.3+ | 2008 10 24 | G96 | 0.5+ | 0.1+ |
| 1998 09 30 | 691 | 0.2+ | 0.4− | 2006 03 24 | G96 | 0.6+ | 0.1− | 2008 11 07 | G96 | 0.6+ | 0.1− |
| 1998 09 30 | 691 | 0.5+ | 0.4− | 2006 03 24 | G96 | 0.4+ | 0.2+ | 2008 11 07 | G96 | 0.3+ | 0.2+ |
| 1999 12 05 | 691 | 0.1+ | 0.4− | 2006 04 19 | G96 | 0.2− | 0.2− | 2008 11 07 | G96 | 0.1+ | 0.1− |
| 1999 12 05 | 691 | 0.4+ | 0.2− | 2006 04 19 | G96 | 0.3− | 0.3+ | 2008 11 07 | G96 | 0.4+ | 0.0 |
| 1999 12 05 | 691 | 0.5− | 0.5− | 2006 04 19 | G96 | 0.2+ | 0.4+ | 2008 11 20 | G96 | 0.2+ | 0.1+ |
| 1999 12 12 | 691 | 0.4+ | 0.0 | 2006 04 19 | G96 | 0.2+ | 0.3+ | 2008 11 20 | G96 | 0.4+ | 0.1− |
| 1999 12 12 | 691 | 0.0 | 0.4− | 2008 09 20 | 691 | 0.2− | 0.2+ | 2008 11 20 | G96 | 0.3+ | 0.1+ |
| 1999 12 12 | 691 | 0.3+ | 0.0 | 2008 09 20 | 691 | 0.3− | 0.3+ | 2008 11 20 | G96 | 0.1+ | 0.2− |
| 1999 12 15 | 691 | 0.0 | 0.2− | 2008 09 20 | 691 | 0.1− | 0.2− | 2008 12 30 | G96 | 0.2− | 0.3− |
| 1999 12 15 | 691 | 0.1− | 0.3− | 2008 09 20 | G96 | 0.4+ | 0.1+ | 2008 12 30 | G96 | 0.0 | 0.2+ |
| 1999 12 15 | 691 | 0.4+ | 0.0 | 2008 09 20 | G96 | 0.2+ | 0.2+ | 2008 12 30 | G96 | 0.1+ | 0.1+ |
| 2004 12 18 | G96 | 0.2+ | 0.0 | 2008 09 20 | G96 | 0.4+ | 0.4+ | 2008 12 30 | G96 | 0.2− | 0.1− |
| 2004 12 18 | G96 | 0.1− | 0.1+ | 2008 09 20 | G96 | 0.6+ | 0.5+ | 2009 11 17 | G96 | 0.3− | 0.1+ |
| 2004 12 18 | G96 | 0.1− | 0.1+ | 2008 09 24 | 691 | 0.1− | 0.4+ | 2009 11 17 | G96 | 0.3− | 0.3+ |
| 2004 12 18 | G96 | 0.0 | 0.3− | 2008 09 24 | 691 | 0.0 | 0.6+ | 2009 11 17 | G96 | 0.2− | 0.3+ |
| 2005 01 18 | 691 | 0.3+ | 0.1+ | 2008 09 24 | 691 | 0.3− | 0.3+ | 2009 11 17 | G96 | 0.2− | 0.1− |
| 2005 01 18 | 691 | 0.2+ | 0.5+ | 2008 10 17 | H55 | 0.2+ | 0.4+ | 2009 12 25 | 691 | 1.0− | 0.2+ |
| 2005 01 18 | 691 | 0.0 | 0.1+ | 2008 10 17 | H55 | 0.1+ | 0.6+ | 2009 12 25 | 691 | 0.4− | 0.5+ |
| 2006 03 23 | 691 | 0.0 | 0.5− | 2008 10 17 | H55 | 0.1+ | 0.2+ | 2009 12 25 | 691 | 0.2− | 0.2+ |

**(229801)∗ 2008 $SN_{37}$ = 2006 $DN_{157}$**

Discovered 2008 Sept. 20 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 146740)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 230.43397 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21367779 | $\omega$ | 197.85156 | | −0.48412096 | | +0.87419147 |
| $a$ | 2.7709571 | $\Omega$ | 43.21432 | | −0.79594732 | | −0.42211044 |
| $e$ | 0.0236911 | $i$ | 3.15050 | | −0.36344843 | | −0.24002509 |
| $P$ | 4.61 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 05 06 | 691 | 0.0 | 0.2− | 2006 02 27 | 691 | 0.4+ | 0.2+ | 2008 10 02 | G96 | 0.6+ | 0.0 |
| 1997 05 06 | 691 | 0.3− | 0.0 | 2006 02 27 | 691 | 0.7+ | 0.3+ | 2008 10 02 | G96 | 0.6+ | 0.2− |
| 1997 05 06 | 691 | 0.1− | 0.0 | 2006 03 03 | 691 | 0.0 | 0.4+ | 2008 10 06 | 691 | 1.1− | 0.3− |
| 2001 01 01 | 691 | 0.1− | 0.1+ | 2006 03 03 | 691 | 0.1+ | 0.2+ | 2008 10 06 | 691 | 0.2− | 0.6+ |
| 2001 01 01 | 691 | 0.2− | 0.1+ | 2006 03 03 | 691 | 0.2+ | 0.2+ | 2008 10 06 | 691 | 0.7− | 0.6+ |
| 2001 01 01 | 691 | 0.4− | 0.2+ | 2008 09 20 | 691 | 0.5− | 0.1− | 2008 10 10 | 691 | 0.1+ | 0.1− |
| 2003 09 04 | 691 | 0.1+ | 0.3+ | 2008 09 20 | 691 | 0.1− | 0.1+ | 2008 10 10 | 691 | 0.5+ | 0.1+ |
| 2003 09 04 | 691 | 0.2+ | 0.2+ | 2008 09 20 | 691 | 0.4− | 0.3+ | 2008 10 10 | 691 | 0.1+ | 0.1+ |
| 2003 09 04 | 691 | 0.1+ | 0.3+ | 2008 09 24 | 691 | 0.1+ | 0.0 | 2008 12 30 | G96 | (1.1+ | 1.6+) |
| 2004 11 20 | 691 | 0.2+ | 0.4− | 2008 09 24 | 691 | 0.2− | 0.4+ | 2008 12 30 | G96 | 0.8+ | 0.9+ |
| 2004 11 20 | 691 | 0.1+ | 0.1− | 2008 09 24 | 691 | 0.7− | 0.4− | 2008 12 30 | G96 | 0.1− | 0.1+ |
| 2004 11 20 | 691 | 0.1+ | 0.1− | 2008 09 29 | 703 | 1.1+ | 0.4+ | 2008 12 30 | G96 | 0.4− | 0.2− |
| 2004 12 10 | 691 | 0.1+ | 0.0 | 2008 09 29 | 703 | (1.1+ | 1.9+) | 2009 11 11 | G96 | 0.4− | 0.2− |
| 2004 12 10 | 691 | 0.4+ | 0.1− | 2008 09 29 | 703 | (1.7+ | 0.9+) | 2009 11 11 | G96 | 0.2+ | 0.4− |
| 2004 12 10 | 691 | 0.2+ | 0.1− | 2008 09 29 | 703 | 1.2+ | 0.1− | 2009 11 11 | G96 | 0.6− | 0.2− |
| 2005 12 30 | G96 | (1.8+ | 0.5−) | 2008 10 02 | 691 | 0.2+ | 0.0 | 2009 11 11 | G96 | 0.0 | 0.5+ |
| 2005 12 30 | G96 | 1.2+ | 0.3− | 2008 10 02 | 691 | 0.1− | 0.1+ | 2009 12 19 | G96 | 0.3+ | 0.3− |
| 2005 12 30 | G96 | 0.2− | 0.6− | 2008 10 02 | 691 | 0.1− | 0.0 | 2009 12 19 | G96 | 0.3− | 0.3− |
| 2005 12 30 | G96 | 0.1− | 0.2− | 2008 10 02 | G96 | 0.9+ | 0.2− | 2009 12 19 | G96 | 0.2+ | 0.1+ |
| 2006 02 27 | 691 | 0.1− | 0.9+ | 2008 10 02 | G96 | 0.5+ | 0.3− | 2009 12 19 | G96 | 0.7+ | 0.1− |

**(229802)∗ 2008 $SP_{51}$ = 2005 $CC_{58}$**

Discovered 2008 Sept. 20 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 146753)
Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 292.09926 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17541878 | $\omega$ | 289.59196 | | −0.97150539 | −0.22965536 | |
| $a$ | 3.1604724 | $\Omega$ | 237.17166 | | +0.23507396 | −0.90200575 | |
| $e$ | 0.1392450 | $i$ | 3.99990 | | +0.03029036 | −0.36557357 | |
| $P$ | 5.62 | $H$ | 15.3 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 24 | 695 | 0.3+ | 0.2+ | 2006 05 07 | G96 | 0.1− | 0.0 | 2008 09 22 | 291 | 0.3+ | 0.1+ |
| 2003 10 24 | 695 | 0.5+ | 0.2+ | 2006 05 20 | G96 | 0.1+ | 0.2+ | 2008 09 22 | 291 | 0.2+ | 0.4+ |
| 2005 01 13 | 691 | 0.0 | 0.1+ | 2006 05 20 | G96 | 0.1− | 0.4+ | 2008 10 01 | G96 | 0.2+ | 0.5− |
| 2005 01 13 | 691 | 0.4+ | 0.3− | 2006 05 20 | G96 | 0.2− | 0.3+ | 2008 10 01 | G96 | 0.3+ | 0.1− |
| 2005 01 13 | 691 | 0.1+ | 0.3+ | 2006 05 20 | G96 | 0.2+ | 0.3+ | 2008 10 01 | G96 | 0.5+ | 0.0 |
| 2005 02 02 | 703 | 0.2+ | 0.2− | 2006 06 20 | 691 | 0.1− | 0.4+ | 2008 10 01 | G96 | 0.6+ | 0.0 |
| 2005 02 02 | 703 | 0.1− | 0.2+ | 2006 06 20 | 691 | 0.4+ | 0.2+ | 2008 10 07 | 691 | 0.0 | 0.0 |
| 2005 02 02 | 703 | (1.5− | 1.8−) | 2006 06 20 | 691 | 0.1− | 0.5+ | 2008 10 07 | 691 | 0.0 | 0.1− |
| 2005 02 02 | 703 | 0.5− | 0.6− | 2008 09 04 | 691 | 0.4− | 0.1+ | 2008 10 07 | 691 | 0.6− | 0.0 |
| 2005 02 02 | 703 | 0.9− | 0.6+ | 2008 09 04 | 691 | 0.7+ | 0.6− | 2008 10 18 | 691 | 0.0 | 0.5+ |
| 2005 02 02 | 703 | 0.7+ | 0.8+ | 2008 09 04 | 691 | 0.3− | 0.0 | 2008 10 18 | 691 | 0.1+ | 0.3− |
| 2005 02 02 | 703 | 1.2− | 0.5− | 2008 09 20 | 291 | 0.2+ | 0.3+ | 2008 10 18 | 691 | 0.9− | 1.0− |
| 2005 02 02 | 703 | 0.0 | 0.6+ | 2008 09 20 | 291 | 0.2+ | 0.4+ | 2009 08 27 | 691 | 0.0 | 0.3− |
| 2005 02 02 | 703 | 0.6− | 0.1− | 2008 09 20 | 291 | 0.1+ | 0.3+ | 2009 08 27 | 691 | 0.4− | 0.2− |
| 2005 02 02 | 703 | 0.8+ | 0.7+ | 2008 09 21 | 691 | 0.1− | 0.1− | 2009 08 27 | 691 | 0.0 | 0.1− |
| 2005 02 02 | 703 | 0.5+ | 0.9+ | 2008 09 21 | 691 | 1.5− | 0.1+ | 2009 12 10 | G96 | 0.2+ | 0.2− |
| 2005 02 02 | 703 | 0.2+ | 0.4+ | 2008 09 21 | 291 | 0.2+ | 0.4+ | 2009 12 10 | G96 | 0.1+ | 0.1− |
| 2005 02 09 | 699 | 1.3− | 0.3+ | 2008 09 21 | 691 | 0.4− | 0.5+ | 2009 12 10 | G96 | 0.1+ | 0.1− |
| 2005 02 09 | 699 | 0.6− | 0.7+ | 2008 09 21 | 291 | 0.0 | 0.1+ | 2009 12 10 | G96 | 0.1+ | 0.0 |
| 2005 02 09 | 699 | 0.2+ | 0.0 | 2008 09 21 | 291 | 0.5+ | 0.6+ | 2009 12 10 | G96 | 0.4+ | 0.0 |
| 2005 02 09 | 699 | 0.8− | 1.1+ | 2008 09 21 | 291 | 0.0 | 0.1+ | 2009 12 10 | G96 | 0.3+ | 0.1+ |
| 2005 02 09 | 704 | 1.5+ | 1.4+ | 2008 09 21 | 291 | 0.3− | 0.0 | 2009 12 10 | G96 | 0.3+ | 0.1− |
| 2005 02 09 | 704 | 1.0+ | 1.1+ | 2008 09 21 | 291 | 0.2+ | 0.4+ | 2009 12 11 | G96 | 0.1+ | 0.1− |
| 2005 02 09 | 704 | 0.7+ | 0.7+ | 2008 09 22 | 291 | 0.1+ | 0.1+ | 2009 12 11 | G96 | 0.0 | 0.0 |
| 2006 05 07 | G96 | 0.3+ | 0.3+ | 2008 09 22 | 291 | 0.2+ | 0.2+ | 2009 12 11 | G96 | 0.1− | 0.1− |
| 2006 05 07 | G96 | 0.2+ | 0.3+ | 2008 09 22 | 291 | 0.1+ | 0.3+ | | | | |
| 2006 05 07 | G96 | 0.0 | 0.1+ | 2008 09 22 | 291 | 0.0 | 0.0 | | | | |

**(229803)∗ 2008 SL$_{57}$ = 2004 XN$_{45}$**

Discovered 2008 Sept. 20 by the Mt. Lemmon Survey at Mount Lemmon.
Id. G. V. Williams (*MPO* 146760)
Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 204.74040 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21201276 | $\omega$ | 86.29446 | | −0.03116046 | +0.99951348 | |
| $a$ | 2.7854458 | $\Omega$ | 181.92145 | | −0.93230552 | −0.02955301 | |
| $e$ | 0.0486055 | $i$ | 2.31198 | | −0.36032687 | −0.00997113 | |
| $P$ | 4.65 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 11 01 | 691 | 0.3− | 0.8+ | 2008 09 20 | 691 | (2.5+ | 0.6−) | 2008 10 23 | G96 | 0.2+ | 0.2+ |
| 1994 11 01 | 691 | 0.0 | 0.1− | 2008 09 20 | G96 | 0.4+ | 0.3+ | 2008 10 23 | G96 | 0.3− | 0.2+ |
| 1994 11 01 | 691 | 0.3− | 0.1+ | 2008 09 20 | G96 | 0.2+ | 0.0 | 2008 10 23 | G96 | 0.4+ | 0.2+ |
| 1999 10 14 | 691 | 0.5− | 0.1− | 2008 09 20 | G96 | 0.5+ | 0.1− | 2008 10 28 | A50 | 0.3− | 0.1+ |
| 1999 10 14 | 691 | 0.1+ | 0.4− | 2008 09 20 | G96 | 0.2+ | 0.1+ | 2008 10 28 | A50 | 0.5+ | 0.0 |
| 1999 10 14 | 691 | 0.1+ | 0.2− | 2008 09 20 | G96 | 0.5+ | 0.1+ | 2008 10 28 | A50 | 0.2− | 0.3− |
| 2003 09 16 | 691 | 0.3+ | 0.5+ | 2008 09 20 | G96 | 0.2+ | 0.3+ | 2008 10 28 | A50 | 0.4− | 0.2− |
| 2003 09 16 | 691 | 0.0 | 0.1− | 2008 09 20 | G96 | 0.5+ | 0.2− | 2008 11 19 | 703 | 0.3− | 0.0 |
| 2003 09 16 | 691 | 0.1− | 0.2+ | 2008 09 20 | G96 | 0.2+ | 0.3− | 2008 11 19 | 703 | 0.6− | 0.9+ |
| 2004 12 09 | 691 | 0.5+ | 0.1− | 2008 09 24 | 691 | 0.2+ | 0.3+ | 2008 11 19 | 703 | 1.1+ | 0.6− |
| 2004 12 09 | 691 | 0.2− | 0.5− | 2008 09 24 | 691 | 0.1+ | 0.2+ | 2008 11 19 | 703 | 0.2− | 1.4− |
| 2004 12 09 | 691 | 0.1+ | 0.2− | 2008 09 24 | 691 | 0.1+ | 0.1− | 2008 11 24 | G96 | 0.1+ | 0.0 |
| 2004 12 13 | 691 | 0.1+ | 0.2− | 2008 10 02 | 691 | 0.4− | 0.1+ | 2008 11 24 | G96 | 0.2− | 0.1+ |
| 2004 12 13 | 691 | 0.5+ | 0.1+ | 2008 10 02 | 691 | 0.1− | 0.0 | 2008 11 24 | G96 | 0.3+ | 0.0 |
| 2004 12 13 | 691 | 0.2+ | 0.1+ | 2008 10 02 | 691 | 0.2− | 0.1+ | 2008 11 24 | G96 | 0.0 | 0.3− |
| 2006 03 23 | G96 | 0.0 | 0.3+ | 2008 10 06 | 691 | 0.4+ | 0.2− | 2008 12 31 | G96 | 0.3− | 0.1− |
| 2006 03 23 | G96 | 1.4− | 0.1+ | 2008 10 06 | 691 | 0.3− | 0.0 | 2008 12 31 | G96 | 0.1+ | 0.2− |
| 2006 03 23 | G96 | 0.3+ | 0.9− | 2008 10 06 | 691 | 0.2− | 0.1+ | 2008 12 31 | G96 | 0.2− | 0.2+ |
| 2006 03 23 | G96 | 0.3+ | 0.2+ | 2008 10 10 | 691 | 0.2− | 0.1− | 2008 12 31 | G96 | 0.9− | 0.3− |
| 2006 04 21 | G96 | 0.0 | 0.3+ | 2008 10 10 | 691 | 0.1− | 0.1+ | 2009 12 17 | 691 | 0.3− | 0.3+ |
| 2006 04 21 | G96 | 0.2+ | 0.4+ | 2008 10 10 | 691 | 0.2− | 0.2− | 2009 12 17 | 691 | 0.2+ | 0.3+ |
| 2006 04 21 | G96 | 0.5+ | 0.4+ | 2008 10 18 | 291 | 0.3− | 0.1− | 2009 12 17 | 691 | 0.1+ | 0.0 |
| 2006 04 21 | G96 | 0.1+ | 0.2+ | 2008 10 18 | 291 | 0.1+ | 0.1− | 2009 12 18 | 691 | 0.0 | 0.3+ |
| 2008 09 06 | G96 | 0.1+ | 0.2− | 2008 10 18 | 291 | 0.0 | 0.1− | 2009 12 18 | G96 | 0.2+ | 0.2− |
| 2008 09 06 | G96 | 0.3+ | 0.1− | 2008 10 20 | G96 | 0.3+ | 0.2− | 2009 12 18 | 691 | 0.0 | 0.2+ |
| 2008 09 06 | G96 | 0.4+ | 0.0 | 2008 10 20 | G96 | 0.4+ | 0.1− | 2009 12 18 | G96 | 0.1+ | 0.1+ |
| 2008 09 06 | G96 | 0.1− | 0.3− | 2008 10 20 | G96 | 0.6+ | 0.0 | 2009 12 18 | G96 | 0.4+ | 0.2+ |
| 2008 09 20 | 691 | 0.1+ | 0.1+ | 2008 10 20 | G96 | 0.1+ | 0.3− | 2009 12 18 | 691 | 0.4− | 0.1+ |
| 2008 09 20 | 691 | 0.1− | 0.0 | 2008 10 23 | G96 | 0.2+ | 0.1− | 2009 12 18 | G96 | 0.3− | 0.2+ |

**(229804)∗ 2008 SO$_{60}$**

Discovered 2008 Sept. 20 by the Catalina Sky Survey.
Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 30.59624 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17115194 | $\omega$ | 151.83470 | | +0.29548885 | −0.95277875 | |
| $a$ | 3.2127837 | $\Omega$ | 280.90773 | | +0.86258577 | +0.29757315 | |
| $e$ | 0.1543157 | $i$ | 4.08754 | | +0.41064843 | +0.06052169 | |
| $P$ | 5.76 | $H$ | 14.8 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 09 13 | 644 | 0.1+ | 0.7+ | 2008 10 08 | J41 | 0.5+ | 0.6− | 2008 11 07 | G92 | 0.0 | 0.2+ |
| 2002 09 13 | 644 | 0.1+ | 0.5+ | 2008 10 09 | 691 | 0.1− | 0.1+ | 2008 12 01 | G96 | 0.2+ | 0.2− |
| 2002 09 13 | 644 | 0.1− | 0.5+ | 2008 10 09 | 691 | 0.3− | 0.1− | 2008 12 01 | G96 | 0.3+ | 0.2− |
| 2002 10 10 | 645 | 0.0 | 0.1− | 2008 10 09 | 691 | 0.3− | 0.2+ | 2008 12 01 | G96 | 0.3+ | 0.1− |
| 2002 10 10 | 645 | 0.1+ | 0.1− | 2008 10 25 | 704 | 0.7+ | 0.1+ | 2008 12 01 | G96 | 0.4+ | 0.4− |
| 2005 03 13 | 703 | 0.5− | 1.1+ | 2008 10 25 | 704 | 0.5+ | 0.2+ | 2009 09 16 | 691 | 0.3− | 0.0 |
| 2005 03 13 | 703 | 1.4+ | 1.1+ | 2008 10 25 | 704 | 0.2− | 0.8+ | 2009 09 16 | 691 | 0.3− | 0.1− |
| 2005 03 13 | 703 | 0.2+ | 0.8+ | 2008 10 25 | 704 | 0.3− | 0.6+ | 2009 09 16 | 691 | 0.0 | 1.1− |
| 2005 03 13 | 703 | 0.6+ | 0.6+ | 2008 10 27 | G96 | 0.0 | 0.4− | 2009 11 16 | G96 | 0.1− | 0.3− |
| 2008 08 27 | J75 | 0.2+ | 0.3− | 2008 10 27 | G96 | 0.2+ | 0.5− | 2009 11 16 | G96 | 0.0 | 0.3− |
| 2008 08 27 | J75 | 0.4− | 0.3− | 2008 10 27 | G96 | 0.1− | 0.5− | 2009 11 16 | G96 | 0.1+ | 0.3− |
| 2008 08 27 | J75 | 0.3+ | 0.3− | 2008 10 27 | G96 | 0.3+ | 0.4− | 2009 11 16 | G96 | 0.0 | 0.3− |
| 2008 09 05 | 691 | (1.0− | 2.0+) | 2008 11 02 | 704 | 0.1+ | 0.1+ | 2009 12 15 | G96 | 0.5+ | 0.2− |
| 2008 09 05 | 691 | 0.3− | 0.2+ | 2008 11 02 | 704 | (1.7− | 0.3+) | 2009 12 15 | G96 | 0.2+ | 0.1− |
| 2008 09 05 | 691 | 0.3− | 0.0 | 2008 11 02 | 704 | 0.0 | 0.2+ | 2009 12 15 | G96 | 0.2+ | 0.0 |
| 2008 09 20 | 703 | 0.1− | 0.9+ | 2008 11 02 | 704 | 0.9+ | 0.6+ | 2009 12 15 | G96 | 0.3+ | 0.1+ |
| 2008 09 20 | 703 | 0.3− | 0.9+ | 2008 11 02 | 704 | 0.2+ | 0.6+ | 2009 12 17 | 704 | 0.3− | 0.2− |
| 2008 09 20 | 703 | 0.2+ | 0.6+ | 2008 11 04 | G92 | 0.7+ | 1.4+ | 2009 12 17 | 704 | 0.5+ | 0.1+ |
| 2008 09 20 | 703 | 1.0+ | 0.3+ | 2008 11 04 | G92 | (2.1+ | 1.9+) | 2009 12 17 | 704 | 0.1+ | 1.0+ |
| 2008 09 23 | 691 | 0.2− | 0.1+ | 2008 11 04 | G92 | (1.9+ | 1.8+) | 2009 12 17 | 704 | 0.7+ | 0.9+ |
| 2008 09 23 | 691 | 0.2− | 0.1− | 2008 11 06 | G92 | 1.2− | 1.0− | 2009 12 17 | 704 | 0.7+ | 0.5+ |
| 2008 09 23 | 691 | 0.2− | 0.0 | 2008 11 06 | G92 | 0.7+ | 0.2− | 2009 12 17 | 691 | 0.2− | 0.2− |
| 2008 10 08 | J41 | 0.3+ | 0.0 | 2008 11 06 | G92 | 0.7− | 0.5+ | 2009 12 17 | 691 | 0.2− | 0.2+ |
| 2008 10 08 | J41 | 0.0 | 0.2+ | 2008 11 07 | G92 | 0.4+ | 0.5− | 2009 12 17 | 691 | 0.0 | 0.2+ |
| 2008 10 08 | J41 | 0.1− | 1.4+ | 2008 11 07 | G92 | 0.0 | 0.8+ | | | | |

**(229805)∗ 2008 SC$_{69}$ = 2006 AU$_{79}$**

Discovered 2008 Sept. 22 by Spacewatch at Kitt Peak.
Id. G. V. Williams (*MPO* 146770)
Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 199.57871 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23277213 | $\omega$ | 17.52469 | | +0.03116515 | +0.99595059 | |
| $a$ | 2.6172712 | $\Omega$ | 254.32510 | | −0.92720780 | −0.00269824 | |
| $e$ | 0.0934165 | $i$ | 5.02469 | | −0.37324848 | +0.08986180 | |
| $P$ | 4.23 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 12 16 | 691 | 0.0 | 1.0− | 2007 06 22 | G96 | 0.3+ | 0.4− | 2008 10 24 | 703 | 0.8+ | 0.1− |
| 2000 12 16 | 691 | 0.1+ | 0.8− | 2007 06 22 | G96 | 0.4− | 0.1+ | 2008 10 24 | 703 | 0.4+ | 0.3+ |
| 2000 12 16 | 691 | 0.2+ | 0.7− | 2007 06 22 | G96 | 0.1− | 0.0 | 2008 10 24 | 703 | (0.5+ | 2.0−) |
| 2002 02 06 | 644 | 0.1+ | 0.5+ | 2008 09 22 | 691 | 0.2+ | 0.4+ | 2008 10 24 | 703 | 1.2+ | 0.2− |
| 2002 02 06 | 644 | 0.0 | 0.6+ | 2008 09 22 | 691 | 0.1− | 0.6+ | 2008 10 26 | 704 | (2.2+ | 2.7−) |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 02 06 | 644 | 0.1+ | 0.5+ | 2008 09 22 | 691 | 0.1− | 0.2+ | 2008 10 26 | 704 | 0.3+ | 0.0 |
| 2004 10 06 | 691 | 0.0 | 0.0 | 2008 09 23 | 691 | 0.5− | 0.2− | 2008 10 26 | 704 | 0.4+ | 0.4− |
| 2004 10 06 | 691 | 0.2+ | 0.1+ | 2008 09 23 | 691 | 0.1− | 0.1− | 2008 10 26 | 704 | 0.5− | 0.6+ |
| 2004 10 06 | 691 | 0.1+ | 0.0 | 2008 09 23 | 691 | 0.1− | 0.0 | 2008 12 02 | G96 | 0.7− | 0.2− |
| 2004 10 06 | 644 | 0.2− | 0.0 | 2008 09 25 | 691 | 0.1− | 0.2+ | 2008 12 02 | G96 | 0.2− | 0.3− |
| 2004 10 06 | 644 | 0.1− | 0.0 | 2008 09 25 | 691 | 0.0 | 0.3+ | 2008 12 02 | G96 | 0.4+ | 0.1− |
| 2004 10 06 | 644 | 0.1+ | 0.1+ | 2008 09 25 | 691 | 0.2− | 0.1+ | 2008 12 02 | G96 | 0.3+ | 0.6− |
| 2004 11 04 | 703 | 0.1− | 0.3+ | 2008 10 01 | 704 | 0.8− | 0.9+ | 2009 09 26 | 691 | 0.3− | 0.1+ |
| 2004 11 04 | 703 | 1.1− | 0.3− | 2008 10 01 | 704 | 0.9+ | 0.6+ | 2009 09 26 | 691 | 0.2− | 0.0 |
| 2004 11 04 | 703 | 0.3− | 0.3− | 2008 10 01 | 704 | 0.4+ | 0.8+ | 2009 09 26 | 691 | 0.0 | 0.1+ |
| 2004 11 04 | 703 | 0.6+ | 0.2− | 2008 10 06 | 691 | 0.0 | 0.1− | 2009 12 17 | G96 | 0.3+ | 0.2− |
| 2006 01 08 | 703 | 0.2− | 1.1− | 2008 10 06 | 691 | 0.0 | 0.0 | 2009 12 17 | G96 | 0.1+ | 0.4− |
| 2006 01 08 | 703 | 1.1+ | 1.1+ | 2008 10 06 | 691 | 0.2− | 0.1− | 2009 12 17 | G96 | 0.1+ | 0.1− |
| 2006 01 08 | 703 | 0.2+ | 0.5+ | 2008 10 08 | 691 | 0.1+ | 0.1+ | 2009 12 17 | G96 | 0.0 | 0.4− |
| 2006 01 08 | 703 | 0.4+ | 1.0+ | 2008 10 08 | 691 | 0.0 | 0.0 | 2009 12 26 | 691 | 0.0 | 0.3+ |
| 2006 01 09 | 691 | 0.3+ | 0.1+ | 2008 10 08 | 691 | 0.2− | 0.2− | 2009 12 26 | 691 | 0.6− | 0.1− |
| 2006 01 09 | 691 | 0.1− | 0.4+ | 2008 10 09 | 691 | 0.1+ | 0.1+ | 2009 12 26 | 691 | 0.5+ | 0.3+ |
| 2006 01 09 | 691 | 0.2+ | 0.4+ | 2008 10 09 | 691 | 0.0 | 0.3+ | | | | |
| 2007 06 22 | G96 | 0.0 | 0.3− | 2008 10 09 | 691 | 0.1+ | 0.2+ | | | | |

**(229806)∗ 2008 SX$_{112}$ = 1993 KB$_1$ = 2002 JG$_{19}$**

Discovered 2008 Sept. 22 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 146807), A. Doppler (*MPO* 158926)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 262.35949 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21901378 | $\omega$ | 95.78008 | | −0.79270635 | | +0.60668912 |
| $a$ | 2.7257651 | $\Omega$ | 121.58553 | | −0.58331041 | | −0.72651389 |
| $e$ | 0.0273255 | $i$ | 4.00788 | | −0.17710340 | | −0.32265443 |
| $P$ | 4.50 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1993 05 21 | 691 | 0.3+ | 0.5+ | 2006 03 04 | G96 | 0.2+ | 0.2+ | 2008 10 24 | 704 | 0.2− | 0.2+ |
| 1993 05 21 | 691 | 0.1− | 0.2+ | 2006 03 04 | G96 | 0.0 | 0.2+ | 2008 10 24 | 704 | 0.5− | 0.9+ |
| 1993 05 21 | 691 | 0.6− | 0.1− | 2006 03 04 | G96 | 0.5+ | 0.1+ | 2008 10 29 | 703 | (0.3+ | 1.6+) |
| 2002 05 07 | 644 | 0.7+ | 0.6+ | 2006 03 04 | G96 | 0.1+ | 0.1+ | 2008 10 29 | 703 | (0.7− | 1.8+) |
| 2002 05 07 | 644 | 1.0+ | 0.7+ | 2006 03 23 | 703 | 0.1+ | 1.3− | 2008 10 29 | 703 | 1.3− | 1.0+ |
| 2002 05 07 | 644 | 0.3+ | 1.1+ | 2006 03 23 | 703 | 0.0 | 0.4− | 2008 10 29 | 703 | 0.2+ | 0.0 |
| 2002 05 08 | 704 | 0.4+ | 0.6+ | 2006 03 23 | 703 | 1.1− | 0.6+ | 2008 10 30 | 704 | 0.4− | 1.4+ |
| 2002 05 08 | 704 | (2.1+ | 0.1−) | 2006 03 23 | 703 | 0.1+ | 1.4+ | 2008 10 30 | 704 | (0.6− | 1.7+) |
| 2002 05 08 | 704 | 0.6+ | 0.1+ | 2008 09 22 | 691 | 0.0 | 0.3+ | 2008 10 30 | 704 | 0.1− | 0.4+ |
| 2002 05 08 | 704 | 0.8+ | 0.1+ | 2008 09 22 | 691 | 0.9− | 0.3− | 2008 10 30 | 704 | 0.4+ | 1.4+ |
| 2002 05 09 | 644 | 0.6+ | 0.4+ | 2008 09 22 | 691 | 0.1− | 0.0 | 2009 01 02 | G96 | 0.5+ | 0.0 |
| 2002 05 09 | 644 | 0.3+ | 0.7+ | 2008 09 26 | 691 | 0.1− | 0.3+ | 2009 01 02 | G96 | 0.8− | 0.3+ |
| 2002 05 09 | 644 | 0.8+ | 0.6+ | 2008 09 26 | 691 | 0.1− | 0.3+ | 2009 01 02 | G96 | 0.1− | 0.3+ |
| 2004 11 10 | 691 | 0.4+ | 0.1− | 2008 09 26 | 691 | 0.1− | 0.4+ | 2009 01 02 | G96 | 0.9+ | 0.4− |
| 2004 11 10 | 691 | 0.4+ | 0.1+ | 2008 09 29 | 704 | 0.3− | 0.2+ | 2009 11 16 | G96 | 0.4+ | 0.5− |
| 2004 11 10 | 691 | 0.4+ | 0.1+ | 2008 09 29 | 704 | 1.3+ | 0.2− | 2009 11 16 | G96 | 0.4− | 0.4− |
| 2005 10 24 | 568 | 0.2+ | 0.2+ | 2008 09 29 | 704 | 0.3− | 1.3+ | 2009 11 16 | G96 | 0.7+ | 0.5− |
| 2005 10 24 | 568 | 0.3+ | 0.2+ | 2008 09 29 | 704 | 0.5− | 0.9+ | 2009 11 16 | G96 | 0.4+ | 0.0 |
| 2005 10 24 | 568 | 0.4+ | 0.2+ | 2008 10 05 | J75 | 0.2− | 0.2− | 2009 12 17 | 691 | 0.0 | 0.1− |
| 2005 12 01 | 291 | 0.2+ | 0.7+ | 2008 10 05 | J75 | 0.2− | 0.2+ | 2009 12 17 | 691 | 0.0 | 0.1+ |
| 2005 12 01 | 291 | 0.0 | 0.8+ | 2008 10 05 | J75 | 0.6− | 0.7− | 2009 12 17 | 691 | 0.2− | 0.1− |
| 2005 12 01 | 291 | 0.4+ | 0.5+ | 2008 10 23 | G96 | 0.5+ | 0.0 | 2009 12 25 | 691 | 0.1− | 0.0 |
| 2006 02 22 | 703 | 1.4− | 0.9+ | 2008 10 23 | G96 | 0.2+ | 0.2− | 2009 12 25 | 691 | 0.3− | 0.1+ |
| 2006 02 22 | 703 | (0.8+ | 1.8+) | 2008 10 23 | G96 | 0.2+ | 0.1− | 2009 12 25 | 691 | 0.1− | 0.0 |
| 2006 02 22 | 703 | 0.6+ | 0.3+ | 2008 10 23 | G96 | 0.1− | 0.2− | | | | |
| 2006 02 22 | 703 | 0.0 | 0.6− | 2008 10 24 | 704 | 0.1+ | 0.3+ | | | | |

**(229807)∗ 2008 ST$_{145}$ = 2004 VS$_{50}$ = 2007 HQ$_{86}$**

Discovered 2008 Sept. 21 by the Catalina Sky Survey.

Id. G. V. Williams (*MPO* 146832)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 142.69529 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22384385 | $\omega$ | 159.93554 | | +0.75313602 | | +0.65721731 |
| $a$ | 2.6864119 | $\Omega$ | 158.89185 | | −0.61409796 | | +0.71824770 |
| $e$ | 0.1272510 | $i$ | 4.64773 | | −0.23594454 | | +0.22844177 |
| $P$ | 4.40 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 11 14 | 691 | 0.0 | 0.1− | 2006 02 24 | G96 | 0.7+ | 0.3− | 2008 09 29 | 704 | (1.0− | 1.9+) |
| 1995 11 14 | 691 | 0.2+ | 0.1− | 2006 02 24 | G96 | 0.0 | 0.5+ | 2008 09 29 | 704 | 1.0− | 0.4+ |
| 1995 11 14 | 691 | 0.1+ | 0.6− | 2006 02 24 | G96 | 0.4− | 0.0 | 2008 09 29 | 704 | 0.2− | 0.0 |
| 1995 11 25 | 691 | 0.4− | 0.3− | 2007 04 24 | 691 | 0.1− | 0.2+ | 2008 09 29 | 704 | 1.4+ | 0.9− |
| 1995 11 25 | 691 | 0.3− | 0.4− | 2007 04 24 | 691 | 0.1+ | 0.2+ | 2008 10 08 | 703 | 0.5− | 0.6− |
| 1995 11 25 | 691 | 0.3− | 0.4− | 2007 04 24 | 691 | 0.1− | 0.0 | 2008 10 08 | 703 | (0.0 | 1.9+) |
| 1999 08 07 | 691 | 0.0 | 0.1− | 2007 04 28 | 691 | 0.3− | 0.0 | 2008 10 08 | 703 | 0.5+ | 0.6− |
| 1999 08 07 | 691 | 0.1− | 0.2+ | 2007 04 28 | 691 | 0.4+ | 0.1+ | 2008 10 08 | 703 | (1.8− | 0.7+) |
| 1999 08 07 | 691 | 0.1+ | 0.0 | 2007 04 28 | 691 | 0.0 | 0.6+ | 2008 10 17 | 691 | 0.1− | 0.0 |
| 1999 09 05 | 699 | 0.9+ | 0.7+ | 2008 09 21 | 703 | 0.3− | 0.6+ | 2008 10 17 | 691 | 0.5− | 0.4+ |
| 1999 09 05 | 699 | 1.2+ | 0.3− | 2008 09 21 | 703 | 0.6+ | 0.6− | 2008 10 17 | 691 | 0.2− | 0.2+ |
| 1999 09 05 | 699 | 0.2+ | 1.6+ | 2008 09 21 | 703 | 0.1− | 1.2+ | 2008 10 27 | 691 | 0.0 | 0.1+ |
| 2004 11 04 | 691 | 0.0 | 0.2+ | 2008 09 21 | 703 | 0.7+ | 0.9− | 2008 10 27 | 691 | 0.2− | 0.1− |
| 2004 11 04 | 691 | 0.2+ | 0.2+ | 2008 09 27 | A50 | 0.3− | 0.3− | 2008 10 27 | 691 | 0.0 | 0.1+ |
| 2004 11 04 | 691 | 0.1+ | 0.1+ | 2008 09 27 | A50 | 0.3− | 0.3− | 2008 11 02 | G96 | 0.4+ | 0.1− |
| 2004 11 10 | 691 | 0.5+ | 0.0 | 2008 09 27 | A50 | 0.9− | 0.2+ | 2008 11 02 | G96 | 0.2+ | 0.2− |
| 2004 11 10 | 691 | 0.2+ | 0.1+ | 2008 09 27 | A50 | 0.6− | 0.1+ | 2008 11 02 | G96 | 0.0 | 0.1− |
| 2004 11 10 | 691 | 0.3+ | 0.1+ | 2008 09 28 | 704 | 0.3− | 0.4+ | 2008 11 02 | G96 | 0.3+ | 0.3− |
| 2006 01 08 | G96 | (2.4+ | 0.2+) | 2008 09 28 | 704 | 0.2− | 0.9+ | 2009 12 18 | G96 | 0.1− | 0.0 |
| 2006 01 08 | G96 | 0.8+ | 0.3+ | 2008 09 28 | 704 | 0.1− | 1.5+ | 2009 12 18 | G96 | 0.1+ | 0.0 |
| 2006 01 08 | G96 | 0.6+ | 0.1+ | 2008 09 28 | 704 | 0.4− | 1.5+ | 2009 12 18 | G96 | 0.5+ | 0.3+ |
| 2006 01 08 | G96 | 0.8+ | 0.4+ | 2008 09 28 | 704 | (0.4− | 1.7+) | 2009 12 18 | G96 | 0.4+ | 0.2+ |
| 2006 02 04 | G96 | 0.3− | 0.0 | 2008 09 28 | G96 | 0.3+ | 0.3− | 2009 12 20 | 691 | 0.2− | 0.5+ |
| 2006 02 04 | G96 | 0.6+ | 0.0 | 2008 09 28 | G96 | 0.1+ | 0.2− | 2009 12 20 | 691 | 0.2− | 0.4+ |
| 2006 02 04 | G96 | 0.1− | 0.2+ | 2008 09 28 | G96 | 0.3+ | 0.3− | 2009 12 20 | 691 | 0.3− | 0.1+ |
| 2006 02 04 | G96 | 0.1+ | 0.2+ | 2008 09 28 | G96 | 0.0 | 0.2− | | | | |
| 2006 02 24 | G96 | 0.0 | 0.3+ | 2008 09 29 | 704 | 0.0 | 1.2+ | | | | |

**(229808)∗ 2008 SB$_{148}$ = 2007 RS$_{136}$**

Discovered 2008 Sept. 26 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 146835)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 21.89937 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.08306017 | $\omega$ | 5.27242 | | +0.66629399 | | −0.74538108 |
| $a$ | 5.2024452 | $\Omega$ | 42.94829 | | +0.68300147 | | +0.59849357 |
| $e$ | 0.0634362 | $i$ | 1.80264 | | +0.29926796 | | +0.29361962 |
| $P$ | 11.87 | $H$ | 13.5 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 05 17 | 291 | 0.3+ | 0.6+ | 2008 09 27 | 621 | 0.4+ | 0.5− | 2008 11 18 | 691 | 0.2+ | 0.1+ |
| 2002 05 17 | 291 | 0.7+ | 0.9+ | 2008 09 27 | 621 | 0.4+ | 0.1− | 2008 12 04 | G96 | 0.1+ | 0.3− |
| 2002 05 17 | 291 | 0.2+ | 0.9+ | 2008 09 27 | 621 | 0.4+ | 0.3− | 2008 12 04 | G96 | 0.0 | 0.0 |
| 2007 09 14 | G96 | 0.3+ | 0.2+ | 2008 10 02 | 691 | 0.3− | 0.1+ | 2008 12 04 | G96 | 0.6+ | 0.0 |
| 2007 09 14 | G96 | 0.1+ | 0.2− | 2008 10 02 | 691 | 0.0 | 0.1+ | 2008 12 04 | G96 | 0.5+ | 0.2− |
| 2007 09 14 | G96 | 0.1− | 0.1− | 2008 10 02 | 691 | 0.2− | 0.0 | 2009 01 18 | G96 | 0.3− | 0.9− |
| 2007 09 14 | G96 | 0.3− | 0.3− | 2008 10 10 | 691 | 0.2− | 0.2− | 2009 01 18 | G96 | 0.2− | 0.5− |
| 2007 09 15 | D35 | 0.3− | 0.2+ | 2008 10 10 | 691 | 0.1+ | 0.3+ | 2009 01 18 | G96 | 0.7− | 0.7− |
| 2007 09 15 | D35 | 0.3− | 0.5+ | 2008 10 10 | 691 | 0.3− | 0.3+ | 2009 01 18 | G96 | 0.5+ | 0.6− |
| 2007 09 15 | D35 | 0.2− | 0.4+ | 2008 10 19 | 291 | 0.2− | 0.5+ | 2009 11 08 | 691 | 0.6− | 0.2− |
| 2007 10 13 | G96 | 0.2+ | 0.2− | 2008 10 19 | 291 | 0.1− | 0.6+ | 2009 11 08 | 691 | 0.0 | 0.0 |
| 2007 10 13 | G96 | 0.3+ | 0.1− | 2008 10 19 | 291 | 0.2− | 0.8+ | 2009 11 08 | 691 | 0.1− | 0.2− |
| 2007 10 13 | G96 | 0.0 | 0.4− | 2008 10 21 | 691 | 0.2− | 0.0 | 2009 11 21 | 691 | 0.1+ | 0.1− |
| 2007 10 13 | G96 | 0.3+ | 0.0 | 2008 10 21 | 691 | 0.0 | 0.3− | 2009 11 21 | 691 | 0.2+ | 0.1− |
| 2008 09 22 | 691 | 0.5+ | 0.4+ | 2008 10 21 | 691 | 0.0 | 0.2+ | 2009 11 21 | 691 | 0.4− | 0.0 |
| 2008 09 22 | 691 | 0.2− | 0.1− | 2008 11 08 | 691 | 0.2− | 0.3+ | 2009 12 15 | G96 | 0.4+ | 0.2− |
| 2008 09 22 | 691 | 0.3− | 0.0 | 2008 11 08 | 691 | 0.8+ | 0.1+ | 2009 12 15 | G96 | 1.0+ | 0.0 |
| 2008 09 26 | 691 | 0.2− | 0.1− | 2008 11 08 | 691 | 0.0 | 0.3− | 2009 12 15 | G96 | 1.0+ | 0.1+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 09 26 | 691 | 0.0 | 0.0 | 2008 11 18 | 691 | 0.0 | 0.3+ | 2009 12 15 | G96 | 0.7+ | 0.1+ | | |
| 2008 09 26 | 691 | 0.5− | 0.2+ | 2008 11 18 | 691 | 0.1− | 0.1+ | | | | | | |

**(229809)∗ 2008 SA$_{164}$**

Discovered 2008 Sept. 28 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 285.83657 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.08255612 | $\omega$ | 299.37234 | | −0.61896532 | −0.78465572 | |
| $a$ | 5.2235992 | $\Omega$ | 189.11195 | | +0.77485145 | −0.60284259 | |
| $e$ | 0.0244966 | $i$ | 12.62090 | | +0.12840234 | −0.14455521 | |
| $P$ | 11.94 | $H$ | 13.1 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 30 | 645 | 0.1− | 0.0 | 2008 09 29 | 704 | 0.8+ | 0.9+ | 2008 10 10 | G96 | 0.6+ | 0.1+ | | |
| 2000 11 30 | 645 | 0.0 | 0.0 | 2008 09 29 | 704 | 0.3− | 0.3− | 2008 10 17 | 691 | 0.0 | 0.1− | | |
| 2001 02 20 | 645 | 0.0 | 0.0 | 2008 09 29 | 704 | 0.6+ | 0.9+ | 2008 10 17 | 691 | 0.1+ | 0.1− | | |
| 2001 02 20 | 645 | 0.0 | 0.0 | 2008 09 29 | 704 | 0.0 | 1.4+ | 2008 10 17 | 691 | 0.4− | 0.3+ | | |
| 2002 03 13 | 644 | 0.4− | 0.7+ | 2008 10 02 | G96 | 0.2+ | 0.3− | 2008 10 23 | 691 | 0.5− | 0.2+ | | |
| 2002 03 13 | 644 | 0.1− | 0.4+ | 2008 10 02 | G96 | 0.4+ | 0.3− | 2008 10 23 | 691 | 0.4− | 0.1+ | | |
| 2002 03 13 | 644 | 0.1− | 0.7+ | 2008 10 02 | G96 | 0.2+ | 0.3− | 2008 10 23 | 691 | 0.5− | 0.2− | | |
| 2002 04 04 | 644 | 0.0 | 0.1+ | 2008 10 02 | G96 | 0.4+ | 0.2− | 2008 10 28 | 691 | 0.2− | 0.0 | | |
| 2002 04 04 | 644 | 0.1− | 0.3+ | 2008 10 02 | G96 | 0.2+ | 0.1− | 2008 10 28 | 691 | 0.0 | 0.5+ | | |
| 2002 04 04 | 644 | 0.2− | 0.2+ | 2008 10 02 | G96 | 0.5+ | 0.4− | 2008 10 28 | 691 | 0.0 | 0.8+ | | |
| 2002 04 22 | 691 | 0.4+ | 0.1− | 2008 10 02 | G96 | 0.2+ | 0.1− | 2008 10 30 | 691 | 0.4+ | 0.2+ | | |
| 2002 04 22 | 691 | 0.5+ | 0.2+ | 2008 10 02 | G96 | 0.0 | 0.4− | 2008 10 30 | 691 | 0.1+ | 0.2+ | | |
| 2002 04 22 | 691 | 0.3+ | 0.5+ | 2008 10 04 | J75 | 0.4+ | 0.1+ | 2008 10 30 | 691 | 0.3+ | 0.6+ | | |
| 2003 03 23 | 291 | 0.0 | 0.5+ | 2008 10 04 | J75 | 0.7+ | 0.4− | 2008 11 01 | 691 | 0.1− | 0.2− | | |
| 2003 03 23 | 291 | 0.3− | 0.5+ | 2008 10 05 | J75 | 0.6+ | 0.2− | 2008 11 01 | 691 | 0.1+ | 0.2+ | | |
| 2003 03 23 | 291 | 0.1+ | 0.5+ | 2008 10 07 | 291 | 0.0 | 0.1− | 2008 11 01 | 691 | 0.2− | 0.1+ | | |
| 2003 05 01 | 691 | 0.1− | 0.4+ | 2008 10 07 | 291 | 0.1+ | 0.2+ | 2009 10 18 | 703 | 1.1− | 0.5+ | | |
| 2003 05 01 | 691 | 0.0 | 0.4+ | 2008 10 07 | 291 | 0.2− | 0.0 | 2009 10 18 | 703 | 1.0+ | 0.9+ | | |
| 2003 05 01 | 691 | 0.2+ | 0.4+ | 2008 10 09 | G96 | 0.4+ | 0.2− | 2009 10 18 | 703 | 1.1− | 0.6− | | |
| 2008 09 02 | 691 | 0.4− | 0.1+ | 2008 10 09 | G96 | 0.5+ | 0.2− | 2009 10 18 | 703 | 0.5+ | 0.5− | | |
| 2008 09 02 | 691 | 0.3− | 0.3+ | 2008 10 09 | G96 | 0.5+ | 0.0 | 2009 12 10 | 703 | 1.5+ | 1.1+ | | |
| 2008 09 02 | 691 | 0.2− | 0.2+ | 2008 10 09 | G96 | 0.6+ | 0.2− | 2009 12 10 | 703 | 0.3+ | 0.2+ | | |
| 2008 09 28 | 704 | (0.5− | 2.3+) | 2008 10 10 | G96 | 0.0 | 0.0 | 2009 12 10 | 703 | 0.2− | 0.1− | | |
| 2008 09 28 | 704 | (0.8− | 2.1+) | 2008 10 10 | G96 | 0.1+ | 0.3+ | 2009 12 10 | 703 | 1.3− | 0.4+ | | |
| 2008 09 28 | 704 | 0.5− | 1.4+ | 2008 10 10 | G96 | 0.2− | 0.2+ | | | | | | |

**(229810)∗ 2008 SE$_{164}$**

Discovered 2008 Sept. 28 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 53.42663 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.16970236 | $\omega$ | 349.32558 | | +0.67926559 | −0.73326258 | |
| $a$ | 3.2310534 | $\Omega$ | 57.88024 | | +0.67595039 | +0.60896638 | |
| $e$ | 0.1500467 | $i$ | 2.05712 | | +0.28581346 | +0.30246643 | |
| $P$ | 5.81 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 03 11 | 691 | 0.3+ | 0.3+ | 2008 09 29 | 703 | 0.7− | 0.6+ | 2008 10 23 | 691 | 0.1− | 0.0 | | |
| 2005 03 11 | 691 | 0.0 | 0.4+ | 2008 09 29 | 703 | (0.4+ | 2.3+) | 2008 11 01 | 691 | 0.0 | 0.1− | | |
| 2005 03 11 | 691 | 0.6+ | 0.2+ | 2008 09 29 | 703 | 0.0 | 0.7+ | 2008 11 01 | 691 | 0.2+ | 0.3+ | | |
| 2005 04 11 | G96 | 0.3− | 0.5+ | 2008 10 02 | G96 | 0.4+ | 0.0 | 2008 11 01 | 691 | 0.1− | 0.3+ | | |
| 2005 04 11 | G96 | 0.2− | 0.1+ | 2008 10 02 | G96 | 0.4+ | 0.1− | 2008 12 30 | G96 | 0.4− | 0.1+ | | |
| 2005 04 11 | G96 | 0.5− | 0.2+ | 2008 10 02 | G96 | 0.0 | 0.0 | 2008 12 30 | G96 | 0.3+ | 0.3+ | | |
| 2005 04 11 | G96 | 0.5− | 0.0 | 2008 10 02 | G96 | 0.7+ | 0.1− | 2008 12 30 | G96 | 0.4+ | 0.2+ | | |
| 2006 04 28 | 807 | 0.1+ | 0.2+ | 2008 10 05 | J75 | 0.7+ | 0.3+ | 2008 12 30 | G96 | 0.0 | 0.1− | | |
| 2006 04 28 | 807 | 0.1+ | 0.2+ | 2008 10 05 | J75 | 0.6+ | 0.7− | 2009 11 21 | G96 | 0.8+ | 0.2− | | |
| 2008 09 02 | 691 | 0.3− | 0.1+ | 2008 10 05 | J75 | 0.4+ | 0.2− | 2009 11 21 | G96 | 0.2+ | 0.3− | | |
| 2008 09 02 | 691 | 0.4− | 0.3− | 2008 10 08 | 703 | (0.7+ | 1.7+) | 2009 11 21 | G96 | 0.2+ | 0.1− | | |
| 2008 09 02 | 691 | 0.4− | 0.3+ | 2008 10 08 | 703 | 1.2− | 0.3+ | 2009 11 21 | G96 | 0.7+ | 0.1− | | |
| 2008 09 23 | G96 | 0.2+ | 0.5− | 2008 10 08 | 703 | 0.1+ | 0.4+ | 2009 12 17 | G96 | 0.8+ | 0.1− | | |
| 2008 09 23 | G96 | 0.4+ | 0.2− | 2008 10 08 | 703 | 0.1− | 0.2+ | 2009 12 17 | G96 | 0.8+ | 0.0 | | |
| 2008 09 23 | G96 | 0.3+ | 0.2− | 2008 10 09 | G96 | 0.0 | 0.0 | 2009 12 17 | G96 | 0.3+ | 0.4− | | |
| 2008 09 23 | G96 | 0.0 | 0.1− | 2008 10 09 | G96 | 0.1+ | 0.1− | 2009 12 17 | G96 | 0.9+ | 0.2+ | | |
| 2008 09 28 | 704 | 0.3+ | 0.1+ | 2008 10 09 | G96 | 0.3+ | 0.0 | 2009 12 18 | 691 | 0.1+ | 0.2+ | | |
| 2008 09 28 | 704 | 0.7− | 0.3− | 2008 10 09 | G96 | 0.2− | 0.1− | 2009 12 18 | 691 | 0.2+ | 0.6− | | |
| 2008 09 28 | 704 | 0.6− | 0.0 | 2008 10 10 | G96 | 0.5+ | 0.0 | 2009 12 18 | 691 | 0.0 | 0.3+ | | |
| 2008 09 28 | 704 | 0.3− | 1.0+ | 2008 10 10 | G96 | 0.2+ | 0.3− | 2009 12 26 | 691 | 0.3− | 0.1+ | | |
| 2008 09 29 | 704 | 0.3+ | 1.3+ | 2008 10 10 | G96 | 0.4+ | 0.2− | 2009 12 26 | 691 | 0.6− | 0.1− | | |
| 2008 09 29 | 704 | (0.7− | 1.8+) | 2008 10 10 | G96 | 0.1+ | 0.2− | 2009 12 26 | 691 | 0.6− | 0.1− | | |
| 2008 09 29 | 704 | 0.2− | 1.0+ | 2008 10 23 | 691 | 0.1− | 0.0 | | | | | | |
| 2008 09 29 | 703 | 1.0+ | 0.4− | 2008 10 23 | 691 | 0.2− | 0.3− | | | | | | |

**(229811)∗ 2008 ST$_{187}$**

Discovered 2008 Sept. 25 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 20.17979 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.08017890 | $\omega$ | 124.59071 | | +0.70570525 | −0.70553255 | |
| $a$ | 5.3263454 | $\Omega$ | 280.38014 | | +0.62654667 | +0.66417718 | |
| $e$ | 0.0697005 | $i$ | 3.77947 | | +0.33078599 | +0.24716895 | |
| $P$ | 12.29 | $H$ | 13.3 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 10 17 | 327 | 0.2− | 1.2− | 2008 10 09 | 691 | 0.4− | 0.0 | 2009 10 22 | G96 | 0.3+ | 0.5− | | |
| 1995 10 17 | 327 | 1.4+ | 0.5− | 2008 10 09 | 691 | 0.5− | 0.0 | 2009 10 22 | G96 | 0.4+ | 0.4− | | |
| 1995 10 17 | 327 | 0.0 | 1.0− | 2008 10 09 | 691 | 0.3− | 0.1− | 2009 11 17 | 691 | 0.1− | 0.0 | | |
| 2007 09 10 | 703 | 0.1− | 0.3+ | 2008 10 31 | 291 | 0.2+ | 0.0 | 2009 11 17 | 691 | 0.4− | 0.2+ | | |
| 2007 09 10 | 703 | 0.5+ | 0.8+ | 2008 10 31 | 291 | 0.3+ | 0.0 | 2009 11 17 | 691 | 0.0 | 0.1+ | | |
| 2007 09 10 | 703 | (2.0− | 0.5+) | 2008 10 31 | 291 | 0.4+ | 0.0 | 2009 11 21 | 691 | 0.1+ | 0.1+ | | |
| 2007 09 10 | 703 | 0.1− | 1.0+ | 2008 10 31 | G96 | 1.0+ | 0.2− | 2009 11 21 | 691 | 0.8− | 0.2+ | | |
| 2007 09 30 | 691 | 0.1− | 0.2+ | 2008 10 31 | G96 | 0.4+ | 0.2− | 2009 11 21 | 691 | 0.0 | 0.1− | | |
| 2007 09 30 | 691 | 0.0 | 0.1+ | 2008 10 31 | G96 | 0.8+ | 0.2− | 2009 11 25 | 691 | 0.0 | 0.2+ | | |
| 2007 09 30 | 691 | 0.2− | 0.2+ | 2008 10 31 | G96 | 0.6+ | 0.3− | 2009 11 25 | 691 | 0.5+ | 0.2− | | |
| 2007 10 08 | 691 | 0.0 | 0.1+ | 2008 10 31 | G96 | 0.8+ | 0.2− | 2009 11 25 | 691 | 0.1+ | 0.3+ | | |
| 2007 10 08 | 691 | 0.0 | 0.4− | 2008 10 31 | G96 | 1.0+ | 0.1− | 2009 11 25 | 703 | 1.5+ | 0.4− | | |
| 2007 10 08 | 691 | 0.2− | 0.1+ | 2008 10 31 | G96 | 0.5+ | 0.2− | 2009 11 25 | 703 | 0.0 | 0.3+ | | |
| 2008 09 21 | 691 | 0.0 | 0.1+ | 2008 11 07 | 691 | 0.1− | 0.0 | 2009 11 25 | 703 | 0.4+ | 0.9− | | |
| 2008 09 21 | 691 | 0.1− | 0.1+ | 2008 11 07 | 691 | 0.2− | 0.0 | 2009 11 25 | 703 | 0.3+ | 0.9+ | | |
| 2008 09 21 | 691 | 0.1− | 0.0 | 2008 11 07 | 691 | 0.1− | 0.3− | 2009 11 25 | 703 | 1.3− | 0.2− | | |
| 2008 09 25 | 691 | 0.2− | 0.1+ | 2009 01 01 | G96 | 0.3+ | 0.3− | 2009 12 16 | G96 | 0.1+ | 0.1+ | | |
| 2008 09 25 | 691 | 0.0 | 0.1+ | 2009 01 01 | G96 | 0.5+ | 0.2− | 2009 12 16 | G96 | 0.0 | 0.1+ | | |
| 2008 09 25 | 691 | 0.1+ | 0.1+ | 2009 01 01 | G96 | 0.2+ | 0.2− | 2009 12 16 | G96 | 0.0 | 0.2− | | |
| 2008 09 29 | 691 | 0.2− | 0.0 | 2009 01 01 | G96 | 0.4+ | 0.5− | 2009 12 16 | G96 | 0.4+ | 0.1− | | |
| 2008 09 29 | 691 | 0.2− | 0.1+ | 2009 10 22 | G96 | 0.1− | 0.1− | | | | | | |
| 2008 09 29 | 691 | 0.1− | 0.2− | 2009 10 22 | G96 | 0.3+ | 0.2− | | | | | | |

**(229812)∗ 2008 SC$_{201}$**

Discovered 2008 Sept. 26 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 330.70942 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18449130 | $\omega$ | 173.48049 | | −0.84808039 | −0.52966523 | |
| $a$ | 3.0559914 | $\Omega$ | 334.51995 | | +0.48459385 | −0.76414455 | |
| $e$ | 0.0457396 | $i$ | 1.95050 | | +0.21430924 | −0.36815466 | |
| $P$ | 5.34 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 31 | 291 | 0.2+ | 0.4+ | 2008 09 26 | 691 | 0.1− | 0.2+ | 2008 11 18 | 691 | 0.1+ | 0.2− | | |
| 2002 08 31 | 291 | 0.3− | 0.3+ | 2008 09 26 | 691 | 0.1− | 0.1− | 2008 11 18 | 691 | 0.2+ | 0.1− | | |
| 2002 08 31 | 291 | 0.2− | 0.3+ | 2008 09 26 | 691 | 0.2− | 0.1+ | 2008 11 18 | 691 | 0.2+ | 0.4− | | |
| 2003 11 19 | 691 | 0.1− | 0.3− | 2008 10 01 | 691 | 0.5− | 0.4+ | 2009 11 21 | G96 | 0.7+ | 0.8− | | |
| 2003 11 19 | 691 | 0.1+ | 0.2− | 2008 10 01 | 691 | 0.1− | 0.1− | 2009 11 21 | G96 | 0.0 | 0.7− | | |
| 2003 11 19 | 691 | 0.3+ | 0.1− | 2008 10 01 | 691 | 0.5+ | 0.2+ | 2009 11 21 | G96 | 0.4+ | 0.2− | | |
| 2003 12 19 | 691 | 0.0 | 0.1− | 2008 10 09 | 691 | 0.4− | 0.3+ | 2009 11 21 | G96 | 0.3+ | 0.5+ | | |
| 2003 12 19 | 691 | 0.0 | 0.0 | 2008 10 09 | 691 | 0.1− | 0.0 | 2009 12 17 | G96 | 0.3+ | 0.2− | | |
| 2003 12 19 | 691 | 0.1− | 0.1+ | 2008 10 09 | 691 | 0.4− | 0.1− | 2009 12 17 | G96 | 0.2+ | 0.1− | | |
| 2005 02 02 | 691 | 0.2+ | 0.3+ | 2008 10 25 | 691 | 0.3− | 0.0 | 2009 12 17 | G96 | 0.2− | 0.2+ | | |
| 2005 02 02 | 691 | 0.2+ | 0.1+ | 2008 10 25 | 691 | 0.1+ | 0.1+ | 2009 12 17 | G96 | 0.2− | 0.0 | | |
| 2005 02 02 | 691 | 0.1+ | 0.6+ | 2008 10 25 | 691 | 0.2+ | 0.3− | 2009 12 18 | 691 | 0.1+ | 0.2+ | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 03 04 | G96 | 0.4− | 0.3+ | 2008 11 06 | G96 | 0.7+ | 0.2+ | 2009 12 18 | 691 | 0.3+ | 0.2+ | | |
| 2005 03 04 | G96 | 0.6− | 0.4− | 2008 11 06 | G96 | 0.3+ | 0.4− | 2009 12 18 | 691 | 0.1− | 0.3+ | | |
| 2005 03 04 | G96 | 0.5− | 0.4+ | 2008 11 06 | G96 | 0.8+ | 0.4− | | | | | | |
| 2005 03 04 | G96 | 0.4− | 0.6− | 2008 11 06 | G96 | 0.3+ | 0.3− | | | | | | |

**(229813)∗ 2008 SW$_{223}$**

Discovered 2008 Sept. 25 by the Mt. Lemmon Survey at Mount Lemmon.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | (2000.0) | **P** | **Q** |
|---|---|---|---|---|---|
| $M$ | 40.80373 | $\omega$ | 34.72027 | +0.99683056 | −0.05726049 |
| $n$ | 0.08329025 | $\Omega$ | 328.42455 | +0.02395376 | +0.87803273 |
| $a$ | 5.1928601 | $i$ | 6.05437 | +0.07586204 | +0.47516288 |
| $e$ | 0.0779551 | | | | |
| $P$ | 11.83 | $H$ | 13.5 $G$ 0.15 | $U$ 1 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 02 20 | 291 | 0.4+ | 0.5+ | 2008 09 03 | 691 | 0.0 | 0.4+ | 2009 10 14 | 703 | 0.2+ | 0.1+ | | |
| 2002 02 20 | 291 | 0.1+ | 0.5+ | 2008 09 03 | 691 | 0.2− | 0.2+ | 2009 10 14 | 703 | 0.6− | 1.0+ | | |
| 2002 02 20 | 291 | 0.3+ | 0.4+ | 2008 09 25 | G96 | 0.0 | 0.3− | 2009 10 14 | 703 | 0.4+ | 1.0− | | |
| 2007 09 11 | G96 | 0.4+ | 0.1− | 2008 09 25 | G96 | 0.5+ | 0.1− | 2009 10 14 | 703 | 1.5+ | 0.4+ | | |
| 2007 09 11 | G96 | 0.4− | 0.1− | 2008 09 25 | G96 | 0.1− | 0.5+ | 2009 11 11 | J47 | 0.3− | 0.0 | | |
| 2007 09 11 | G96 | 0.0 | 0.2+ | 2008 10 02 | 691 | 0.1+ | 0.1+ | 2009 11 11 | J47 | 0.6− | 0.4− | | |
| 2007 09 11 | G96 | 0.1− | 0.0 | 2008 10 02 | 691 | 0.1− | 0.0 | 2009 11 11 | J47 | 0.8+ | 0.5− | | |
| 2007 10 04 | G96 | 0.0 | 0.1− | 2008 10 02 | 691 | 0.2− | 0.1− | 2009 11 21 | G96 | 0.3− | 0.8− | | |
| 2007 10 04 | G96 | 0.2+ | 0.1− | 2008 10 17 | 691 | 0.2− | 0.0 | 2009 11 21 | G96 | 0.1− | 0.8− | | |
| 2007 10 04 | G96 | 0.2− | 0.1+ | 2008 10 17 | 691 | 0.1+ | 0.8+ | 2009 11 21 | G96 | 0.3+ | 0.6− | | |
| 2007 10 04 | G96 | 0.0 | 0.4+ | 2008 10 17 | 691 | 0.2+ | 0.2− | 2009 11 21 | G96 | 0.1+ | 0.7− | | |
| 2008 08 24 | 691 | 0.8− | 0.2+ | 2008 11 01 | G96 | 0.2+ | 0.3− | 2009 12 11 | A77 | 0.1− | 0.3+ | | |
| 2008 08 24 | 691 | 0.0 | 0.0 | 2008 11 01 | G96 | 0.1+ | 0.4− | 2009 12 11 | A77 | 0.1+ | 0.8+ | | |
| 2008 08 24 | 691 | 0.0 | 0.4+ | 2008 11 01 | G96 | 0.4+ | 0.2− | 2009 12 11 | A77 | 0.7− | 0.1− | | |
| 2008 09 03 | 691 | 0.2− | 0.3+ | 2008 11 01 | G96 | 0.2+ | 0.5− | | | | | | |

**(229814)∗ 2008 SQ$_{246}$ = 2004 XZ$_{56}$**

Discovered 2008 Sept. 30 at OAM Observatory, La Sagra.

Id. G. V. Williams (*MPO* 146896)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | (2000.0) | **P** | **Q** |
|---|---|---|---|---|---|
| $M$ | 100.69102 | $\omega$ | 95.97851 | +0.99821774 | −0.05752025 |
| $n$ | 0.20469558 | $\Omega$ | 267.31974 | +0.04649480 | +0.91662116 |
| $a$ | 2.8514367 | $i$ | 0.91194 | +0.03741084 | +0.39559710 |
| $e$ | 0.0840775 | | | | |
| $P$ | 4.81 | $H$ | 16.4 $G$ 0.15 | $U$ 0 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 01 13 | 691 | 0.3− | 0.2− | 2006 02 25 | G96 | 0.1− | 0.3+ | 2008 10 26 | 104 | 0.2+ | 0.6+ | | |
| 2000 01 13 | 691 | 0.0 | 0.6− | 2006 02 25 | G96 | 0.3− | 0.2+ | 2008 10 26 | 104 | 0.0 | 0.7+ | | |
| 2000 01 13 | 691 | 0.6− | 0.3− | 2006 02 25 | 691 | 0.0 | 0.6+ | 2008 10 26 | 104 | (2.1+ | 1.9+) | | |
| 2001 02 20 | 691 | 0.1+ | 0.6+ | 2006 03 25 | G96 | 0.2− | 0.5+ | 2008 10 31 | 291 | 0.1+ | 0.1+ | | |
| 2001 02 20 | 691 | 0.7+ | 0.3+ | 2006 03 25 | G96 | 0.0 | 0.3+ | 2008 10 31 | 291 | 0.3+ | 0.2+ | | |
| 2001 02 20 | 691 | 0.3+ | 0.2+ | 2008 09 10 | 691 | 0.2− | 0.0 | 2008 10 31 | 291 | 0.0 | 0.3+ | | |
| 2003 09 18 | 644 | 0.3− | 0.3+ | 2008 09 10 | 691 | 0.1− | 0.3+ | 2008 11 07 | G96 | 0.1+ | 0.0 | | |
| 2003 09 18 | 644 | 0.1+ | 0.4+ | 2008 09 10 | 691 | 0.2+ | 0.4+ | 2008 11 07 | G96 | 0.3− | 0.2− | | |
| 2003 09 18 | 644 | 0.2+ | 0.1+ | 2008 09 21 | 691 | 0.3− | 0.4+ | 2008 11 07 | G96 | 0.4+ | 0.3− | | |
| 2003 09 22 | 699 | 0.6− | 1.0+ | 2008 09 21 | 691 | 0.0 | 0.2+ | 2008 11 07 | G96 | 0.1+ | 0.2− | | |
| 2003 09 22 | 699 | 1.3− | 1.2+ | 2008 09 21 | 691 | 0.1− | 0.2+ | 2008 12 03 | G96 | 0.2+ | 0.4− | | |
| 2003 09 22 | 699 | 0.3+ | 0.4+ | 2008 09 30 | J75 | 0.0 | 0.2− | 2008 12 03 | G96 | 0.4+ | 0.4− | | |
| 2003 09 22 | 699 | 0.4− | 1.5− | 2008 09 30 | J75 | 1.0+ | 0.2+ | 2008 12 03 | G96 | 0.2+ | 0.5− | | |
| 2004 12 10 | 691 | 0.3+ | 0.0 | 2008 10 01 | J75 | 0.0 | 0.1+ | 2008 12 03 | G96 | 0.6+ | 1.5− | | |
| 2004 12 10 | 691 | 0.2+ | 0.1+ | 2008 10 07 | 691 | 0.0 | 0.1− | 2009 10 18 | G96 | 0.1− | 0.5+ | | |
| 2004 12 10 | 691 | 0.3+ | 0.3− | 2008 10 07 | 691 | 0.3− | 0.0 | 2009 10 18 | G96 | 0.4− | 0.0 | | |
| 2004 12 14 | 691 | 0.0 | 0.1+ | 2008 10 07 | 691 | 0.4− | 0.1+ | 2009 10 18 | G96 | 0.1+ | 0.1− | | |
| 2004 12 14 | 691 | 0.2+ | 0.0 | 2008 10 10 | 691 | 0.2− | 0.3− | 2009 10 18 | G96 | 0.4+ | 0.2+ | | |
| 2004 12 14 | 691 | 0.4+ | 0.0 | 2008 10 10 | 691 | 0.3− | 0.1+ | 2009 12 17 | 691 | 0.1+ | 0.0 | | |
| 2004 12 19 | 691 | 0.2+ | 0.1+ | 2008 10 10 | 691 | 0.1+ | 0.1+ | 2009 12 17 | 691 | 0.0 | 0.0 | | |
| 2004 12 19 | 691 | 0.1+ | 0.5+ | 2008 10 17 | 691 | 0.2− | 0.0 | 2009 12 17 | 691 | 0.4− | 0.0 | | |
| 2004 12 19 | 691 | 0.0 | 0.0 | 2008 10 17 | 691 | 0.0 | 0.0 | 2009 12 25 | 691 | 0.3− | 0.0 | | |
| 2006 02 25 | 691 | 0.2+ | 0.1+ | 2008 10 17 | 691 | 0.1+ | 0.1+ | 2009 12 25 | 691 | 0.2− | 0.0 | | |
| 2006 02 25 | G96 | 0.3− | 0.0 | 2008 10 19 | 104 | 0.8+ | 0.9+ | 2009 12 25 | 691 | 0.6− | 0.2− | | |
| 2006 02 25 | 691 | 0.5+ | 0.3+ | 2008 10 19 | 104 | 0.5+ | 0.0 | | | | | | |
| 2006 02 25 | G96 | 0.4− | 0.3+ | 2008 10 19 | 104 | (2.7− | 2.0+) | | | | | | |

**(229815)∗ 2008 SX$_{256}$ = 2006 FZ$_{48}$**

Discovered 2008 Sept. 21 by the Catalina Sky Survey.

Id. G. V. Williams (*MPO* 146904)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | (2000.0) | **P** | **Q** |
|---|---|---|---|---|---|
| $M$ | 149.44378 | $\omega$ | 216.73619 | +0.29864546 | +0.93828385 |
| $n$ | 0.17810668 | $\Omega$ | 71.22315 | −0.82591383 | +0.34568889 |
| $a$ | 3.1285942 | $i$ | 10.61804 | −0.47820208 | −0.01107277 |
| $e$ | 0.1684685 | | | | |
| $P$ | 5.53 | $H$ | 14.7 $G$ 0.15 | $U$ 0 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 04 17 | 699 | 1.2+ | 0.8+ | 2006 03 25 | 703 | 0.6+ | 1.1− | 2008 10 08 | 703 | 0.9− | 0.8+ | | |
| 2001 04 17 | 699 | 0.5+ | 0.4+ | 2006 03 25 | 703 | (1.5− | 0.3+) | 2008 10 08 | 703 | 0.2− | 0.9+ | | |
| 2001 04 17 | 699 | 0.6− | 0.7+ | 2006 03 25 | 703 | 0.5+ | 0.5+ | 2008 10 26 | 703 | 0.4− | 0.1− | | |
| 2001 04 17 | 699 | 0.3+ | 0.8+ | 2006 03 25 | 703 | 0.1− | 0.2+ | 2008 10 26 | 703 | 0.6− | 1.3+ | | |
| 2001 05 24 | 645 | 0.0 | 0.1+ | 2006 04 02 | 703 | (1.7+ | 0.1−) | 2008 10 26 | 703 | (2.0+ | 0.8+) | | |
| 2001 05 24 | 645 | 0.1+ | 0.1+ | 2006 04 02 | 703 | 0.3+ | 0.3− | 2008 10 26 | 703 | 0.2+ | 1.3+ | | |
| 2002 09 09 | 644 | 0.5− | 0.1− | 2006 04 02 | 703 | 0.5+ | 0.3+ | 2008 11 06 | 703 | (1.9− | 0.2+) | | |
| 2002 09 09 | 644 | 0.0 | 0.2− | 2006 04 02 | 703 | 0.7− | 0.3+ | 2008 11 06 | 703 | 0.8− | 0.9− | | |
| 2002 09 09 | 644 | 0.1− | 0.1+ | 2008 09 21 | 703 | 0.5+ | 0.9+ | 2008 11 06 | 703 | 0.7− | 0.7− | | |
| 2002 09 09 | 644 | 0.2− | 0.0 | 2008 09 21 | 703 | 0.7+ | 1.4+ | 2008 11 06 | 703 | (0.4+ | 1.6+) | | |
| 2002 09 09 | 644 | 0.2+ | 0.0 | 2008 09 21 | 703 | 0.8− | 0.3+ | 2009 12 11 | G96 | 0.3− | 0.2− | | |
| 2002 09 09 | 644 | 0.1+ | 0.0 | 2008 09 21 | 703 | 0.1− | 1.2+ | 2009 12 11 | G96 | 0.3− | 0.1+ | | |
| 2003 11 18 | 691 | 0.4+ | 0.1− | 2008 10 01 | 703 | 0.2+ | 0.1− | 2009 12 11 | G96 | 0.2− | 0.0 | | |
| 2003 11 18 | 691 | 0.4− | 0.1+ | 2008 10 01 | 703 | 0.5− | 0.5− | 2009 12 20 | G96 | 0.3− | 0.4+ | | |
| 2003 11 18 | 691 | 0.1− | 0.0 | 2008 10 01 | 703 | 0.3− | 0.1+ | 2009 12 20 | G96 | 0.7− | 0.3+ | | |
| 2003 12 18 | 691 | 0.1+ | 0.2+ | 2008 10 01 | 703 | 1.4+ | 1.0− | 2009 12 20 | G96 | 0.3− | 0.3+ | | |
| 2003 12 18 | 691 | 0.0 | 0.3+ | 2008 10 08 | 703 | 0.1− | 0.4+ | | | | | | |
| 2003 12 18 | 691 | 0.1+ | 0.3+ | 2008 10 08 | 703 | 0.1+ | 0.0 | | | | | | |

**(229816)∗ 2008 SY$_{261}$**

Discovered 2008 Sept. 24 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | (2000.0) | **P** | **Q** |
|---|---|---|---|---|---|
| $M$ | 29.74433 | $\omega$ | 212.17672 | +0.87566245 | −0.48291350 |
| $n$ | 0.08374670 | $\Omega$ | 176.69442 | +0.45379511 | +0.82060689 |
| $a$ | 5.1739742 | $i$ | 3.11709 | +0.16518256 | +0.30561231 |
| $e$ | 0.0481310 | | | | |
| $P$ | 11.77 | $H$ | 13.6 $G$ 0.15 | $U$ 1 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 06 22 | 691 | 0.4− | 0.6+ | 2008 10 10 | 691 | 0.0 | 0.1+ | 2009 01 01 | G96 | 0.5+ | 0.2+ | | |
| 2006 06 22 | 691 | 0.3− | 0.0 | 2008 10 25 | G96 | 0.3+ | 0.3− | 2009 01 01 | G96 | 0.2+ | 0.1− | | |
| 2006 06 22 | 691 | 0.4+ | 0.2+ | 2008 10 25 | G96 | 0.3+ | 1.0− | 2009 01 01 | G96 | 0.6+ | 0.1− | | |
| 2007 08 23 | 691 | 0.2+ | 0.1− | 2008 10 25 | G96 | 0.2+ | 0.6− | 2009 10 22 | G96 | 0.1+ | 0.1− | | |
| 2007 08 23 | 691 | 0.0 | 0.2− | 2008 10 25 | G96 | 0.3+ | 0.4− | 2009 10 22 | G96 | 0.0 | 0.0 | | |
| 2007 08 23 | 691 | 0.0 | 0.1+ | 2008 11 07 | G96 | 0.4− | 0.9− | 2009 10 22 | G96 | 0.2− | 0.3+ | | |
| 2007 09 10 | G96 | 1.2+ | 0.0 | 2008 11 07 | G96 | 0.9+ | 0.1− | 2009 11 23 | G96 | 0.3+ | 0.2+ | | |
| 2007 09 10 | G96 | 0.7+ | 0.5− | 2008 11 07 | G96 | 0.7+ | 0.5− | 2009 11 23 | G96 | 0.1+ | 0.3+ | | |
| 2007 09 10 | G96 | 0.1+ | 0.5− | 2008 11 07 | G96 | (2.1+ | 0.2+) | 2009 11 23 | G96 | 0.1− | 0.2+ | | |
| 2007 09 10 | G96 | 0.5+ | 0.7− | 2008 12 31 | G96 | 0.4+ | 0.1− | 2009 11 23 | G96 | 0.1+ | 0.5+ | | |
| 2007 10 09 | 691 | 0.2− | 0.1+ | 2008 12 31 | G96 | 0.2+ | 0.2− | 2009 12 19 | H11 | 0.5− | 0.1+ | | |
| 2007 10 09 | 691 | 0.1− | 0.0 | 2008 12 31 | G96 | 0.4+ | 0.2− | 2009 12 19 | H11 | 0.2− | 0.6+ | | |
| 2007 10 09 | 691 | 0.1+ | 0.0 | 2008 12 31 | G96 | 0.2+ | 0.2+ | 2009 12 19 | G96 | 0.0 | 0.4+ | | |
| 2008 09 24 | 691 | 0.4− | 0.1+ | 2009 01 01 | G96 | 0.7+ | 0.4+ | 2009 12 19 | G96 | 0.0 | 0.3+ | | |
| 2008 09 24 | 691 | 0.5− | 0.2+ | 2009 01 01 | G96 | 0.0 | 0.5+ | 2009 12 19 | G96 | 0.5+ | 0.0 | | |
| 2008 09 24 | 691 | 0.5− | 0.3− | 2009 01 01 | G96 | 0.7− | 0.2− | 2009 12 19 | G96 | 0.1− | 0.1+ | | |
| 2008 10 10 | 691 | 0.0 | 0.1+ | 2009 01 01 | G96 | 0.2+ | 0.2+ | | | | | | |
| 2008 10 10 | 691 | 0.1− | 0.1+ | 2009 01 01 | G96 | 0.1+ | 0.2+ | | | | | | |

**(229817)∗ 2008 SK$_{285}$**

Discovered 2008 Sept. 20 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 220.63286 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21425190 | $\omega$ | 152.00829 | | −0.20591930 | | +0.97807756 |
| $a$ | 2.7660048 | $\Omega$ | 106.09464 | | −0.90373716 | | −0.17792399 |
| $e$ | 0.0219960 | $i$ | 1.84945 | | −0.37530839 | | −0.10820042 |
| $P$ | 4.60 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 07 03 | 691 | 1.1− | 0.7− | 2002 06 16 | 644 | 0.1− | 0.8+ | 2008 10 20 | G96 | 0.0 | 0.1+ |
| 1998 07 03 | 691 | 0.1− | 0.7+ | 2002 06 16 | 644 | 0.8+ | 0.8+ | 2008 10 20 | G96 | 0.2+ | 0.3+ |
| 1998 07 03 | 691 | 0.2− | 0.5+ | 2006 03 03 | G96 | 0.1− | 0.3+ | 2008 10 20 | G96 | 0.2+ | 0.4+ |
| 2001 02 02 | 691 | 0.2+ | 0.3+ | 2006 03 03 | G96 | 0.5+ | 0.1+ | 2008 10 29 | G96 | 0.1− | 0.8+ |
| 2001 02 02 | 691 | 0.4+ | 0.3+ | 2006 03 03 | G96 | 0.1− | 0.3+ | 2008 10 29 | G96 | 0.1+ | 0.2+ |
| 2001 02 02 | 691 | 0.3+ | 0.1+ | 2006 03 03 | G96 | 0.5− | 0.2− | 2008 10 29 | G96 | 0.3+ | 0.0 |
| 2002 05 04 | 644 | 0.1− | 0.0 | 2006 03 26 | G96 | 0.1− | 0.0 | 2008 11 24 | G96 | 0.0 | 0.2+ |
| 2002 05 04 | 644 | 0.4+ | 0.0 | 2006 03 26 | G96 | 0.2+ | 0.1+ | 2008 11 24 | G96 | 0.4+ | 0.0 |
| 2002 05 04 | 644 | 0.0 | 0.0 | 2006 03 26 | G96 | 0.1+ | 0.2− | 2008 11 24 | G96 | 0.7+ | 0.1+ |
| 2002 06 03 | 644 | 0.3+ | 0.5+ | 2006 03 26 | G96 | 0.2+ | 0.1− | 2008 11 24 | G96 | 0.5+ | 0.2+ |
| 2002 06 03 | 644 | 1.0− | 0.1+ | 2008 09 20 | 691 | 0.4− | 0.2+ | 2009 12 15 | G96 | 0.0 | 0.0 |
| 2002 06 03 | 644 | 0.7+ | 0.3− | 2008 09 20 | 691 | 0.1− | 0.4+ | 2009 12 15 | G96 | 0.1− | 0.3+ |
| 2002 06 07 | 291 | 0.2+ | 0.1+ | 2008 09 20 | 691 | 0.2+ | 0.1+ | 2009 12 15 | G96 | 0.2+ | 0.0 |
| 2002 06 07 | 291 | 0.4+ | 0.1+ | 2008 10 08 | G96 | 0.2+ | 0.1+ | 2009 12 15 | G96 | 0.5+ | 0.4+ |
| 2002 06 07 | 291 | 0.1+ | 0.0 | 2008 10 08 | G96 | 0.4+ | 0.0 | 2009 12 25 | 691 | 0.2− | 0.2− |
| 2002 06 11 | 644 | 0.2− | 0.3+ | 2008 10 08 | G96 | 0.1+ | 0.3+ | 2009 12 25 | 691 | 0.5− | 0.6+ |
| 2002 06 11 | 644 | 0.4+ | 0.1− | 2008 10 08 | G96 | 0.3+ | 0.0 | 2009 12 25 | 691 | 0.7− | 0.4+ |
| 2002 06 16 | 644 | 0.2− | 0.5+ | 2008 10 20 | G96 | 0.5+ | 0.3+ | | | | |

**(229818)∗ 2008 TP$_4$ = 1999 TS$_{55}$ = 2004 XH$_{71}$ = 2006 BZ$_{124}$**

Discovered 2008 Oct. 1 at OAM Observatory, La Sagra.

Id. G. V. Williams (*MPO* 146912)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 152.02117 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21586581 | $\omega$ | 299.40686 | | +0.68697825 | | +0.72663531 |
| $a$ | 2.7522010 | $\Omega$ | 13.99333 | | −0.65492152 | | +0.62380077 |
| $e$ | 0.0689416 | $i$ | 1.86611 | | −0.31486295 | | +0.28787797 |
| $P$ | 4.57 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 10 06 | 691 | 0.4+ | 0.5− | 2008 09 24 | 691 | 0.2− | 0.6+ | 2008 10 25 | 291 | 0.1− | 0.3+ |
| 1999 10 06 | 691 | 0.1+ | 0.1+ | 2008 09 24 | 691 | 0.7+ | 0.4+ | 2008 10 25 | 291 | 0.0 | 0.2+ |
| 1999 10 06 | 691 | 0.1+ | 0.3− | 2008 09 24 | 691 | 0.0 | 0.4+ | 2008 10 25 | 291 | 0.1+ | 0.4+ |
| 1999 10 12 | 691 | 0.4− | 0.1− | 2008 10 01 | J75 | 0.5+ | 0.0 | 2008 10 26 | 691 | 0.0 | 0.1+ |
| 1999 10 12 | 691 | 0.5− | 0.3− | 2008 10 01 | J75 | 0.3− | 0.5− | 2008 10 26 | 691 | 0.2− | 0.1+ |
| 1999 10 12 | 691 | 0.4− | 0.2− | 2008 10 01 | J75 | 0.5+ | 0.0 | 2008 10 26 | 691 | 0.2− | 0.1+ |
| 2001 02 01 | 691 | 0.4+ | 0.2+ | 2008 10 01 | J75 | 0.4− | 0.4− | 2008 11 02 | 691 | 0.1+ | 0.3− |
| 2001 02 01 | 691 | 0.6+ | 0.0 | 2008 10 02 | J75 | 0.1+ | 0.5− | 2008 11 02 | 691 | 0.3− | 0.0 |
| 2001 02 01 | 691 | 0.4+ | 0.3− | 2008 10 02 | J75 | 0.1− | 0.0 | 2008 11 02 | 691 | 0.2− | 0.1+ |
| 2002 05 04 | 291 | 0.3+ | 0.3+ | 2008 10 03 | J75 | 0.0 | 0.2+ | 2008 12 30 | G96 | 0.7+ | 0.3+ |
| 2002 05 04 | 291 | 0.2+ | 0.6+ | 2008 10 03 | J75 | 0.3+ | 0.1+ | 2008 12 30 | G96 | 0.1+ | 0.3+ |
| 2002 05 04 | 291 | 0.4+ | 0.5+ | 2008 10 03 | J75 | 0.5+ | 0.1− | 2008 12 30 | G96 | 0.2− | 0.1− |
| 2004 12 11 | 599 | 0.5+ | 0.3+ | 2008 10 03 | G96 | 0.6+ | 0.0 | 2008 12 30 | G96 | 0.1+ | 0.4+ |
| 2004 12 11 | 599 | 0.1+ | 0.5+ | 2008 10 03 | G96 | 0.0 | 0.2+ | 2009 11 11 | G96 | 0.2+ | 0.1+ |
| 2004 12 11 | 599 | 0.3+ | 0.2− | 2008 10 03 | G96 | 0.1+ | 0.2− | 2009 11 11 | G96 | 0.2− | 0.6− |
| 2004 12 11 | 599 | 0.6+ | 0.2+ | 2008 10 03 | G96 | 0.1− | 0.1+ | 2009 11 11 | G96 | 0.4+ | 0.0 |
| 2004 12 13 | 599 | 0.2+ | 0.4+ | 2008 10 08 | 703 | 0.9+ | 0.0 | 2009 11 11 | G96 | 0.0 | 0.1− |
| 2004 12 13 | 599 | 0.3+ | 0.1+ | 2008 10 08 | 703 | (1.2+ | 1.5+) | 2009 12 15 | G96 | 0.3− | 0.2− |
| 2004 12 13 | 599 | 0.1+ | 0.1− | 2008 10 08 | 703 | (2.6+ | 1.5+) | 2009 12 15 | G96 | 0.1− | 0.1− |
| 2004 12 13 | 599 | 0.1− | 0.1− | 2008 10 08 | 703 | (3.0+ | 1.9+) | 2009 12 15 | G96 | 0.6+ | 0.6− |
| 2006 01 26 | 691 | 0.2− | 0.3+ | 2008 10 10 | G96 | 0.3+ | 0.1+ | 2009 12 15 | G96 | 0.1− | 0.6+ |
| 2006 01 26 | 691 | 0.2− | 1.0+ | 2008 10 10 | G96 | 0.5+ | 0.1+ | 2009 12 15 | G96 | (0.6+ | 1.6+) |
| 2006 01 26 | 691 | 0.2+ | 0.3+ | 2008 10 10 | G96 | 0.6+ | 0.0 | 2009 12 19 | G96 | 0.1− | 0.4− |
| 2006 01 30 | 691 | 0.5+ | 0.4+ | 2008 10 17 | 691 | 0.1− | 0.2− | 2009 12 19 | 691 | 0.3− | 0.1+ |
| 2006 01 30 | 691 | 0.3− | 0.0 | 2008 10 17 | 691 | 0.5− | 0.4− | 2009 12 19 | G96 | 0.3+ | 0.0 |
| 2006 01 30 | 691 | 0.2− | 0.0 | 2008 10 17 | 691 | 0.5− | 0.3+ | 2009 12 19 | G96 | 0.1− | 0.6− |
| 2008 09 02 | 691 | 0.1− | 0.4+ | 2008 10 24 | 691 | 0.0 | 0.1− | 2009 12 19 | 691 | 0.3+ | 0.4+ |
| 2008 09 02 | 691 | 0.3− | 0.3+ | 2008 10 24 | 691 | 0.2− | 0.4+ | 2009 12 19 | 691 | 1.3− | 0.6− |
| 2008 09 02 | 691 | 0.1− | 0.3+ | 2008 10 24 | 691 | 0.2+ | 0.3+ | | | | |

**(229819)∗ 2008 TK$_{13}$ = 2003 TZ$_{42}$**

Discovered 2008 Oct. 1 by the Mt. Lemmon Survey at Mount Lemmon.

Id. A. Doppler (*MPO* 146918)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 0.02541 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18520291 | $\omega$ | 159.35856 | | −0.35878950 | | −0.93314598 |
| $a$ | 3.0481583 | $\Omega$ | 311.65995 | | +0.85210591 | | −0.31757522 |
| $e$ | 0.1401633 | $i$ | 1.72994 | | +0.38103231 | | −0.16847719 |
| $P$ | 5.32 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1992 10 03 | 691 | 0.2+ | 0.1− | 2006 05 23 | G96 | 0.4+ | 0.1− | 2008 10 03 | 291 | 0.4− | 0.4+ |
| 1992 10 03 | 691 | 0.0 | 0.1− | 2006 05 31 | G96 | 0.3+ | 0.1+ | 2008 10 03 | 291 | 0.5+ | 0.8+ |
| 1992 10 03 | 691 | 0.2− | 0.1+ | 2006 05 31 | G96 | 0.2+ | 0.7+ | 2008 10 07 | 691 | 0.3+ | 0.1+ |
| 1994 01 18 | 691 | 0.2− | 0.1+ | 2006 05 31 | G96 | 0.4− | 0.5+ | 2008 10 07 | 691 | 0.0 | 0.0 |
| 1994 01 18 | 691 | 0.9− | 0.2+ | 2006 05 31 | G96 | 0.1− | 0.7+ | 2008 10 07 | 691 | 0.5− | 0.1+ |
| 1994 01 18 | 691 | 1.1+ | 0.4− | 2008 10 01 | G96 | 0.5+ | 0.3− | 2008 10 17 | 691 | 0.3+ | 0.1− |
| 2003 10 02 | 691 | 0.2− | 0.0 | 2008 10 01 | G96 | 0.3+ | 0.1− | 2008 10 17 | 691 | 0.2− | 0.2− |
| 2003 10 02 | 691 | 0.0 | 0.1+ | 2008 10 01 | G96 | 0.0 | 0.5− | 2008 10 17 | 691 | 0.8− | 0.1+ |
| 2003 10 02 | 691 | 0.4+ | 0.2+ | 2008 10 01 | G96 | 0.3+ | 0.2− | 2008 10 18 | 691 | 0.2+ | 0.4− |
| 2003 10 21 | 691 | 0.2− | 0.1− | 2008 10 02 | 291 | 0.2− | 0.1+ | 2008 10 18 | 691 | 0.0 | 0.2− |
| 2003 10 21 | 691 | 0.2− | 0.0 | 2008 10 02 | 291 | 0.1− | 0.1+ | 2008 10 18 | 691 | 0.1− | 0.1+ |
| 2003 10 21 | 691 | 0.2− | 0.0 | 2008 10 02 | 291 | 0.1− | 0.2− | 2009 12 15 | G96 | 0.4+ | 0.1+ |
| 2003 11 19 | 691 | 0.1+ | 0.1+ | 2008 10 02 | G96 | 0.3+ | 0.1− | 2009 12 15 | G96 | 0.3− | 0.6+ |
| 2003 11 19 | 691 | 0.5+ | 0.1− | 2008 10 02 | G96 | 0.4− | 0.0 | 2009 12 15 | G96 | 0.0 | 0.4+ |
| 2003 11 19 | 691 | 0.5+ | 0.1− | 2008 10 02 | G96 | 0.1+ | 0.2+ | 2009 12 15 | G96 | 0.9+ | 0.0 |
| 2003 11 30 | 691 | 0.3− | 0.2− | 2008 10 02 | G96 | 0.1+ | 0.0 | 2009 12 18 | 691 | 0.1− | 0.2+ |
| 2003 11 30 | 691 | 0.0 | 0.2+ | 2008 10 03 | G96 | 0.5+ | 0.0 | 2009 12 18 | 691 | 0.8− | 0.7+ |
| 2003 11 30 | 691 | 0.1+ | 0.1− | 2008 10 03 | G96 | 0.1+ | 0.2− | 2009 12 18 | 691 | 0.3− | 0.2+ |
| 2006 05 23 | G96 | 0.1+ | 0.1+ | 2008 10 03 | G96 | 0.1+ | 0.0 | 2009 12 26 | 691 | 0.0 | 0.6+ |
| 2006 05 23 | G96 | 0.5+ | 0.2+ | 2008 10 03 | G96 | 0.3+ | 0.0 | 2009 12 26 | 691 | 0.3− | 0.2+ |
| 2006 05 23 | G96 | 0.1− | 0.4+ | 2008 10 03 | 291 | 0.1− | 0.3+ | 2009 12 26 | 691 | 1.3+ | 1.4− |

**(229820)∗ 2008 TA$_{84}$ = 1992 EZ$_{30}$ = 1999 TH$_{310}$**

Discovered 2008 Oct. 3 by Spacewatch at Kitt Peak.

Id. A. Doppler (*MPO* 146954)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 37.45264 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21745869 | $\omega$ | 119.04604 | | −0.03239542 | | −0.99938137 |
| $a$ | 2.7387446 | $\Omega$ | 332.80013 | | +0.90627068 | | −0.02359587 |
| $e$ | 0.1045509 | $i$ | 1.71627 | | +0.42145461 | | −0.02607903 |
| $P$ | 4.53 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1992 03 01 | 809 | 0.9− | 1.4+ | 2006 05 23 | G96 | 0.2− | 0.1+ | 2008 10 03 | 691 | 0.2− | 0.2+ |
| 1992 03 03 | 809 | 1.0− | 0.4+ | 2006 05 23 | G96 | 0.5− | 0.2+ | 2008 10 07 | 691 | 0.0 | 0.1+ |
| 1999 10 06 | 704 | 0.4+ | 0.3+ | 2006 05 23 | G96 | 0.2− | 0.3+ | 2008 10 07 | 691 | 0.3− | 0.5+ |
| 1999 10 06 | 704 | 0.1+ | 0.4− | 2008 09 09 | G96 | 0.3− | 0.2+ | 2008 10 07 | 691 | 0.1− | 0.5+ |
| 1999 10 06 | 704 | 0.4+ | 0.1− | 2008 09 09 | G96 | 0.1+ | 0.1− | 2008 10 21 | G96 | 0.1+ | 0.2− |
| 1999 10 06 | 704 | 0.5+ | 0.4+ | 2008 09 09 | G96 | 0.1− | 0.0 | 2008 10 21 | G96 | 0.1+ | 0.1− |
| 1999 10 06 | 704 | 0.6+ | 0.5+ | 2008 09 09 | G96 | 0.2− | 0.2+ | 2008 10 21 | G96 | 0.3+ | 0.1− |
| 1999 10 14 | 691 | 0.2+ | 0.1− | 2008 09 09 | G96 | 0.4− | 0.3+ | 2008 10 21 | G96 | 0.1− | 0.5− |
| 1999 10 14 | 645 | 0.0 | 0.1− | 2008 09 09 | G96 | 0.0 | 0.3+ | 2008 11 04 | 703 | 0.5− | 0.3+ |
| 1999 10 14 | 645 | 0.0 | 0.1− | 2008 09 09 | G96 | 0.2− | 0.2+ | 2008 11 04 | 703 | 0.2− | 1.4− |
| 1999 10 14 | 691 | 0.8+ | 1.0− | 2008 09 09 | G96 | 0.4− | 0.3+ | 2008 11 04 | 703 | 0.5+ | 0.4− |
| 1999 10 14 | 691 | 0.2+ | 0.2− | 2008 09 09 | G96 | 0.2− | 0.1− | 2008 11 04 | 703 | 0.7− | 0.5− |
| 2001 02 19 | 699 | (0.6+ | 3.6+) | 2008 09 09 | G96 | 0.0 | 0.1+ | 2008 11 06 | G96 | 0.5+ | 0.2− |
| 2001 02 19 | 699 | (0.2− | 2.9+) | 2008 09 09 | G96 | 0.4− | 0.4+ | 2008 11 06 | G96 | 0.2+ | 0.1− |
| 2001 02 19 | 699 | 0.8+ | 0.9+ | 2008 09 09 | G96 | 0.1− | 0.0 | 2008 11 06 | G96 | 0.2+ | 0.1− |
| 2001 02 19 | 699 | (0.1− | 1.8+) | 2008 09 21 | 691 | 0.2− | 0.2+ | 2008 11 06 | G96 | 0.8− | 1.2− |
| 2003 09 20 | 291 | 0.1− | 0.4+ | 2008 09 21 | 691 | 0.4− | 0.3− | 2009 11 27 | G96 | 0.6+ | 0.3+ |
| 2003 09 20 | 291 | 0.1− | 0.0 | 2008 09 21 | 691 | 0.2− | 0.4+ | 2009 11 27 | G96 | 0.1− | 0.2− |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 20 | 291 | 0.2+ | 0.3+ | 2008 10 01 | 704 | (0.2+ | 1.9+) | 2009 11 27 | G96 | 0.3+ | 0.4+ | | |
| 2006 05 07 | G96 | 0.1+ | 0.0 | 2008 10 01 | 704 | (3.0+ | 7.8−) | 2009 11 27 | G96 | 0.2+ | 0.3+ | | |
| 2006 05 07 | G96 | 0.7+ | 0.0 | 2008 10 01 | 704 | (3.8+ | 2.4−) | 2009 12 19 | G96 | 0.1+ | 0.6+ | | |
| 2006 05 07 | G96 | 0.4+ | 0.1+ | 2008 10 01 | 704 | 0.0 | 1.1+ | 2009 12 19 | G96 | 0.8+ | 0.4+ | | |
| 2006 05 07 | G96 | 0.0 | 0.2− | 2008 10 03 | 691 | 0.2+ | 0.3+ | 2009 12 19 | G96 | 0.4+ | 0.1+ | | |
| 2006 05 23 | G96 | 0.5+ | 0.3− | 2008 10 03 | 691 | 0.2− | 0.5+ | 2009 12 19 | G96 | 0.6+ | 0.4+ | | |

**(229821)∗ 2008 TQ$_{105}$**

Discovered 2008 Oct. 6 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 170.12325 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19042567 | $\omega$ | 292.90010 | | +0.29099745 | +0.95671634 | |
| $a$ | 2.9921662 | $\Omega$ | 354.01379 | | −0.86394501 | +0.26107657 | |
| $e$ | 0.1154105 | $i$ | 2.07948 | | −0.41099818 | +0.12858017 | |
| $P$ | 5.18 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 02 05 | 691 | 0.2− | 0.6− | 2006 01 07 | G96 | 0.1− | 0.6− | 2008 10 10 | 691 | 0.1+ | 0.4+ | | |
| 1995 02 05 | 691 | 0.1− | 0.0 | 2006 01 07 | G96 | 0.6− | 0.2− | 2008 10 20 | G96 | 0.1− | 0.2− | | |
| 1995 02 05 | 691 | 0.1+ | 0.8− | 2006 01 07 | G96 | 0.1+ | 0.7− | 2008 10 20 | G96 | 0.3+ | 0.0 | | |
| 2001 03 04 | 691 | (1.8− | 0.2+) | 2006 02 20 | 691 | 0.3+ | 0.4+ | 2008 10 20 | G96 | 0.2+ | 0.2− | | |
| 2001 03 04 | 691 | 0.1− | 1.2+ | 2006 02 20 | G96 | 0.9+ | 0.1− | 2008 10 20 | G96 | 0.2+ | 0.1− | | |
| 2001 03 04 | 691 | 0.0 | 0.4+ | 2006 02 20 | 691 | 0.1+ | 0.1+ | 2008 11 08 | G96 | 0.4+ | 0.3− | | |
| 2002 07 05 | 644 | 0.2+ | 0.8+ | 2006 02 20 | G96 | 0.5− | 0.1− | 2008 11 08 | G96 | 0.8+ | 0.1− | | |
| 2002 07 05 | 644 | 0.5+ | 1.1+ | 2006 02 20 | G96 | 0.4+ | 0.4− | 2008 11 08 | G96 | 0.1+ | 0.3+ | | |
| 2002 07 05 | 644 | 0.2+ | 0.7+ | 2006 02 20 | 691 | 0.2+ | 0.5+ | 2008 11 08 | G96 | 0.1+ | 0.2+ | | |
| 2003 10 21 | 691 | 0.2+ | 0.1+ | 2006 02 20 | G96 | 0.2+ | 0.2− | 2009 01 01 | G96 | 0.3− | 0.2− | | |
| 2003 10 21 | 691 | 0.1+ | 0.1+ | 2006 03 21 | G96 | 0.9− | 0.1− | 2009 01 01 | G96 | 0.2− | 0.4− | | |
| 2003 10 21 | 691 | 0.8− | 0.4− | 2006 03 21 | G96 | 0.3− | 0.2− | 2009 01 01 | G96 | 0.4+ | 0.5− | | |
| 2003 11 19 | 691 | 0.1− | 0.2+ | 2006 03 21 | G96 | 0.6− | 0.2+ | 2009 01 01 | G96 | 0.0 | 0.4− | | |
| 2003 11 19 | 691 | 0.1− | 0.3+ | 2006 03 21 | G96 | 0.2+ | 0.4+ | 2009 11 21 | G96 | (1.7+ | 0.3+) | | |
| 2003 11 19 | 691 | 0.2− | 0.2+ | 2008 09 21 | 691 | 0.1− | 0.2− | 2009 11 21 | G96 | 0.1+ | 0.0 | | |
| 2004 12 15 | 691 | 0.3+ | 0.5+ | 2008 09 21 | 691 | 0.1− | 0.1+ | 2009 11 21 | G96 | 0.0 | 0.3− | | |
| 2004 12 15 | 691 | 0.1− | 0.1+ | 2008 09 21 | 691 | 0.2+ | 0.3+ | 2009 11 21 | G96 | 0.3+ | 0.2− | | |
| 2004 12 15 | 691 | 0.0 | 0.3+ | 2008 10 06 | 691 | 0.4− | 0.1− | 2009 12 26 | 691 | 0.2+ | 0.1− | | |
| 2005 01 17 | 691 | 0.2+ | 0.1+ | 2008 10 06 | 691 | 0.1− | 0.2+ | 2009 12 26 | 691 | 0.2− | 0.3+ | | |
| 2005 01 17 | 691 | 0.1− | 0.4− | 2008 10 06 | 691 | 0.1− | 0.0 | 2009 12 26 | 691 | 0.4− | 0.2+ | | |
| 2005 01 17 | 691 | 0.7+ | 0.0 | 2008 10 10 | 691 | 0.1+ | 0.2− | | | | | | |
| 2006 01 07 | G96 | 0.1− | 0.0 | 2008 10 10 | 691 | 0.0 | 0.2+ | | | | | | |

**(229822)∗ 2008 TA$_{112}$**

Discovered 2008 Oct. 6 by the Catalina Sky Survey.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 57.63187 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.08296959 | $\omega$ | 112.73335 | | +0.98950722 | −0.10328801 | |
| $a$ | 5.2062308 | $\Omega$ | 253.31414 | | +0.05931968 | +0.92802120 | |
| $e$ | 0.0468294 | $i$ | 6.05430 | | +0.13174461 | +0.35792211 | |
| $P$ | 11.88 | $H$ | 13.2 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 04 05 | 644 | 0.1+ | 0.5+ | 2008 10 08 | G96 | 0.9+ | 0.2+ | 2008 11 06 | 691 | 0.2− | 0.1+ | | |
| 2002 04 05 | 644 | 0.2+ | 0.3+ | 2008 10 08 | G96 | 0.6+ | 0.2− | 2008 11 06 | 691 | 0.2− | 0.3+ | | |
| 2002 04 14 | 644 | 0.4+ | 0.1+ | 2008 10 08 | G96 | 0.4+ | 0.3− | 2008 11 09 | 691 | 0.0 | 0.9− | | |
| 2002 04 14 | 644 | 0.6+ | 0.6+ | 2008 10 20 | 691 | 0.3+ | 0.2+ | 2008 11 09 | 691 | 0.4− | 0.1+ | | |
| 2002 04 30 | 644 | 0.1− | 0.6+ | 2008 10 20 | 691 | 1.1− | 0.9+ | 2008 11 09 | 691 | 0.8+ | 0.1+ | | |
| 2002 04 30 | 644 | 0.4− | 0.5+ | 2008 10 20 | 691 | 0.1+ | 0.2+ | 2009 01 01 | G96 | 0.4+ | 0.0 | | |
| 2002 04 30 | 644 | 0.1− | 0.0 | 2008 10 22 | 691 | 0.1− | 0.4+ | 2009 01 01 | G96 | 0.2+ | 0.2− | | |
| 2003 05 03 | 691 | 0.2− | 0.9+ | 2008 10 22 | 691 | 0.3− | 0.3+ | 2009 01 01 | G96 | 0.5+ | 0.3− | | |
| 2003 05 03 | 691 | 0.2− | 1.1+ | 2008 10 22 | 691 | 0.1+ | 0.5+ | 2009 01 01 | G96 | 0.3+ | 0.2− | | |
| 2003 05 03 | 691 | 0.1− | 0.7+ | 2008 10 31 | G96 | 0.9+ | 0.0 | 2009 10 22 | G96 | 0.2+ | 0.2+ | | |
| 2003 06 05 | 691 | 0.6+ | 0.1− | 2008 10 31 | G96 | 0.4+ | 0.2− | 2009 10 22 | G96 | 0.1+ | 0.1+ | | |
| 2003 06 05 | 691 | 0.4+ | 0.1− | 2008 10 31 | G96 | 0.4+ | 0.0 | 2009 10 22 | G96 | 0.6+ | 0.2+ | | |
| 2003 06 05 | 691 | 0.6+ | 0.8+ | 2008 10 31 | G96 | 0.4+ | 0.3− | 2009 10 22 | G96 | 0.7+ | 0.3+ | | |
| 2008 09 23 | 691 | 0.0 | 0.2+ | 2008 11 02 | 704 | 0.1+ | 0.5+ | 2009 11 20 | 691 | 0.5− | 0.4− | | |
| 2008 09 23 | 691 | 0.3− | 0.1+ | 2008 11 02 | 704 | 1.2+ | 0.6+ | 2009 11 20 | 691 | 0.2+ | 0.2+ | | |
| 2008 09 23 | 691 | 0.2− | 0.1+ | 2008 11 02 | 704 | 0.8+ | 0.2− | 2009 11 20 | 691 | 0.4− | 0.8+ | | |
| 2008 10 06 | 703 | 1.2+ | 0.2+ | 2008 11 04 | 691 | 0.4− | 0.1+ | 2009 12 16 | G96 | 0.4+ | 0.3− | | |
| 2008 10 06 | 703 | 0.3+ | 0.1− | 2008 11 04 | 691 | 0.3− | 0.0 | 2009 12 16 | G96 | 0.2+ | 0.1+ | | |
| 2008 10 06 | 703 | 0.0 | 0.1− | 2008 11 04 | 691 | 0.4− | 0.1+ | 2009 12 16 | G96 | 0.1+ | 0.2− | | |
| 2008 10 06 | 703 | 1.4− | 0.7+ | 2008 11 06 | 691 | 0.3− | 0.4+ | 2009 12 16 | G96 | 0.1+ | 0.1− | | |

**(229823)∗ 2008 TA$_{152}$**

Discovered 2008 Oct. 9 by the Mt. Lemmon Survey at Mount Lemmon.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 75.45274 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18600831 | $\omega$ | 310.00183 | | +0.91141823 | −0.40739281 | |
| $a$ | 3.0393531 | $\Omega$ | 74.10961 | | +0.39348269 | +0.82175906 | |
| $e$ | 0.0793993 | $i$ | 3.44900 | | +0.12036686 | +0.39842582 | |
| $P$ | 5.30 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 19 | 691 | 0.1+ | 0.0 | 2006 04 08 | G96 | 0.1+ | 0.6+ | 2008 09 28 | G96 | 0.8+ | 0.2− | | |
| 2003 10 19 | 691 | 0.1+ | 0.2− | 2006 04 08 | G96 | 0.6− | 0.4+ | 2008 09 28 | G96 | 0.2+ | 0.1− | | |
| 2003 10 19 | 691 | 0.1− | 0.4− | 2006 04 08 | G96 | 0.5− | 0.7+ | 2008 10 09 | G96 | 0.1+ | 0.0 | | |
| 2003 11 20 | 691 | 0.1− | 0.1+ | 2006 04 08 | G96 | 0.3+ | 0.4+ | 2008 10 09 | G96 | 0.2− | 0.2− | | |
| 2003 11 20 | 691 | 0.2+ | 0.0 | 2006 05 06 | G96 | 1.2+ | 0.0 | 2008 10 09 | G96 | 0.0 | 0.3− | | |
| 2003 11 20 | 691 | 0.1+ | 0.1− | 2006 05 06 | G96 | 0.6+ | 0.4+ | 2008 10 09 | G96 | 0.4+ | 0.1− | | |
| 2005 01 19 | 691 | 0.1+ | 0.3+ | 2006 05 06 | G96 | 0.4− | 0.2+ | 2008 10 10 | G96 | 0.4+ | 0.1− | | |
| 2005 01 19 | 691 | 0.2+ | 0.0 | 2006 05 06 | G96 | 0.2+ | 0.2− | 2008 10 10 | G96 | 0.6+ | 0.1− | | |
| 2005 01 19 | 691 | 0.1− | 0.4+ | 2008 09 03 | 691 | 0.3− | 0.1+ | 2008 10 10 | G96 | 0.5+ | 0.2− | | |
| 2005 02 04 | G96 | 0.2− | 0.0 | 2008 09 03 | 691 | 0.2+ | 0.4+ | 2008 10 10 | G96 | 0.2+ | 0.3− | | |
| 2005 02 04 | G96 | 0.1− | 0.2− | 2008 09 03 | 691 | 0.4− | 0.4+ | 2008 10 23 | 691 | 0.2− | 0.4+ | | |
| 2005 02 04 | G96 | 0.2+ | 0.1− | 2008 09 28 | G96 | 0.3+ | 0.2− | 2008 10 23 | 691 | 0.5− | 0.2+ | | |
| 2005 02 04 | G96 | 0.0 | 0.2− | 2008 09 28 | G96 | 0.3+ | 0.2− | 2008 10 23 | 691 | 0.4− | 0.4+ | | |

**(229824)∗ 2008 UQ$_1$ = 2002 TZ$_{372}$ = 2002 TD$_{15}$**

Discovered 2008 Oct. 21 by R. A. Tucker at the Goodricke-Pigott Observatory, Tucson.

Id. T. B. Spahr (*MPO* 146990), G. V. Williams (d, *MPO* 74503)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 158.87487 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17301597 | $\omega$ | 177.25114 | | +0.57642269 | +0.81288929 | |
| $a$ | 3.1896663 | $\Omega$ | 127.93334 | | −0.75172366 | +0.56749768 | |
| $e$ | 0.0416713 | $i$ | 6.06645 | | −0.32038793 | +0.13098619 | |
| $P$ | 5.70 | $H$ | 15.0 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 01 18 | 691 | 0.1+ | 0.3− | 2006 04 18 | 691 | 0.1+ | 0.2+ | 2008 10 24 | 683 | (1.6− | 0.5−) | | |
| 1999 01 18 | 691 | 0.2+ | 0.2− | 2006 05 24 | 699 | 0.3+ | 0.7+ | 2008 10 24 | 704 | 0.1− | 1.0+ | | |
| 1999 01 18 | 691 | 0.2+ | 0.2− | 2006 05 24 | 699 | 0.2− | 0.3+ | 2008 10 24 | 683 | (0.5+ | 2.1+) | | |
| 2000 04 07 | 699 | 0.6− | 1.3+ | 2006 05 24 | 699 | 0.0 | 0.8+ | 2008 10 24 | 704 | 0.3− | 1.0+ | | |
| 2000 04 07 | 699 | (1.0+ | 2.1+) | 2006 05 24 | 699 | 0.9+ | 0.3+ | 2008 10 24 | 704 | 0.5− | 0.8+ | | |
| 2000 04 07 | 699 | 0.4+ | 0.5+ | 2007 09 14 | G96 | 0.5+ | 0.3− | 2008 10 24 | 683 | (3.7+ | 3.6+) | | |
| 2000 04 07 | 699 | 1.0+ | 1.0+ | 2007 09 14 | G96 | 0.1+ | 0.0 | 2008 10 24 | 704 | 0.6+ | 0.5+ | | |
| 2002 10 01 | 699 | 1.0+ | 0.6+ | 2007 09 14 | G96 | 0.2+ | 0.4− | 2008 10 30 | 704 | 0.1+ | 1.4+ | | |
| 2002 10 01 | 699 | 0.0 | 0.6− | 2008 10 08 | 703 | 0.5− | 0.5+ | 2008 10 30 | 704 | 0.4− | 0.1+ | | |
| 2002 10 01 | 699 | 0.1+ | 1.3− | 2008 10 08 | 703 | 1.3+ | 0.2− | 2008 10 30 | 704 | 0.3− | 0.9+ | | |
| 2002 10 01 | 699 | 0.6+ | 0.4+ | 2008 10 08 | 703 | 1.3− | 0.6− | 2008 10 30 | 704 | 0.2− | 1.1+ | | |
| 2002 10 01 | 608 | 0.8− | 0.7− | 2008 10 08 | 703 | 0.0 | 0.3− | 2008 10 30 | 704 | 0.5− | 1.0+ | | |
| 2002 10 01 | 608 | 1.3− | 0.0 | 2008 10 21 | 683 | 1.3+ | 0.3+ | 2009 09 18 | 691 | 0.1+ | 0.1+ | | |
| 2002 10 01 | 608 | 0.9− | 1.0− | 2008 10 21 | 683 | 0.5+ | 1.1+ | 2009 09 18 | 691 | 0.0 | 0.0 | | |
| 2002 10 03 | 704 | 0.9− | 0.5+ | 2008 10 21 | 683 | (1.7− | 0.9+) | 2009 09 18 | 691 | 0.1+ | 0.0 | | |
| 2002 10 03 | 704 | 0.8− | 0.7+ | 2008 10 22 | 683 | (1.6+ | 0.5+) | 2009 12 09 | J75 | 0.7+ | 0.4− | | |
| 2002 10 03 | 704 | 0.2− | 1.4+ | 2008 10 22 | 683 | 1.4− | 1.0+ | 2009 12 09 | J75 | 0.4+ | 0.3− | | |
| 2002 10 03 | 704 | (1.6− | 1.8+) | 2008 10 22 | 683 | (1.9− | 0.7−) | 2009 12 09 | J75 | 0.1+ | 0.1− | | |
| 2006 01 28 | 691 | 0.1+ | 0.7+ | 2008 10 22 | G96 | 0.1+ | 0.4− | 2009 12 19 | 691 | 0.3− | 0.2+ | | |
| 2006 01 28 | 691 | 0.2− | 0.1+ | 2008 10 22 | G96 | 0.2+ | 0.2− | 2009 12 19 | 691 | 0.4− | 0.0 | | |
| 2006 01 28 | 691 | 0.5− | 0.7+ | 2008 10 22 | G96 | 0.3+ | 0.2− | 2009 12 19 | 691 | 0.1− | 0.7+ | | |
| 2006 04 18 | 691 | 0.1− | 0.3+ | 2008 10 22 | G96 | 0.5+ | 0.2− | | | | | | |
| 2006 04 18 | 691 | 0.7+ | 0.1+ | 2008 10 24 | 704 | 0.4+ | 1.2+ | | | | | | |

**(229825)∗ 2008 UB$_5$ = 2006 BA$_{283}$**

Discovered 2008 Oct. 25 by R. Apitzsch at Wildberg.

Id. G. V. Williams (*MPO* 150470)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 209.83303 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23227113 | $\omega$ | 225.77626 | | +0.01398197 | +0.98542208 | |
| $a$ | 2.6210334 | $\Omega$ | 45.85928 | | −0.83679576 | +0.10435183 | |
| $e$ | 0.2619979 | $i$ | 13.66625 | | −0.54733660 | −0.13436527 | |
| $P$ | 4.24 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1991 11 07 | 691 | 0.1+ | 0.3− | 2008 10 25 | H10 | 0.0 | 0.1− | 2008 11 07 | 703 | 0.5+ | 0.2+ | 2008 11 07 | G96 | 0.6+ | 0.1− | 2008 11 07 | G96 | 0.8+ | 0.1− | 2009 11 11 | J75 | 1.3+ | 0.3+ |
| 1991 11 07 | 691 | 0.3− | 0.5+ | 2008 10 25 | H10 | 0.1+ | 0.2− | 2008 11 17 | 291 | 0.5+ | 0.0 | 2007 09 11 | G96 | 0.5+ | 0.2− | 2008 11 07 | G96 | 0.5+ | 0.1+ | 2009 11 11 | J75 | 1.0− | 1.0+ |
| 1991 11 07 | 691 | 0.0 | 0.2− | 2008 10 25 | 198 | 0.0 | 0.1− | 2008 11 17 | 291 | 0.4+ | 0.0 | 2008 09 02 | 691 | 0.3− | 0.3− | 2008 11 07 | G96 | 0.9+ | 0.5− | 2009 11 11 | J75 | 0.4+ | 0.6− |
| 1994 05 16 | 691 | 0.7− | 0.5− | 2008 10 25 | 198 | 0.1+ | 0.0 | 2008 11 17 | 291 | 0.5+ | 0.1+ | 2008 09 02 | 691 | 0.3− | 0.2− | 2008 12 30 | G96 | 0.2+ | 0.1− | 2009 11 23 | 703 | 0.7+ | 0.6+ |
| 1994 05 16 | 691 | 0.3− | 0.7− | 2008 10 25 | 198 | 0.2+ | 0.1+ | 2008 11 18 | 291 | 0.0 | 0.0 | 2008 09 02 | 691 | 0.3− | 0.2− | 2008 12 30 | G96 | 0.4+ | 0.1− | 2009 11 23 | 703 | 0.0 | 1.1+ |
| 1994 05 16 | 691 | 0.2− | 0.9− | 2008 10 25 | 198 | 0.2+ | 0.1− | 2008 11 18 | 291 | 0.0 | 0.0 | 2008 09 06 | 691 | 0.2− | 0.0 | 2008 12 30 | G96 | 0.6+ | 0.6− | 2009 11 23 | 703 | 0.3+ | 1.3+ |
| 1995 09 03 | 691 | 0.4+ | 0.5− | 2008 10 25 | 198 | 0.3+ | 0.0 | 2008 11 18 | 291 | 0.1− | 0.0 | 2008 09 06 | 691 | 0.1− | 0.2+ | 2008 12 30 | G96 | 0.7+ | 0.2− | 2009 11 23 | 703 | 0.3+ | 0.8+ |
| 1995 09 03 | 691 | 0.2− | 0.2− | 2008 10 25 | 198 | 0.2+ | 0.0 | 2008 11 18 | 703 | 0.7+ | 1.1− | 2008 09 06 | 691 | 0.4− | 0.0 | 2009 10 11 | G96 | 0.0 | 0.1+ | 2009 12 17 | G96 | 0.2+ | 0.0 |
| 1995 09 03 | 691 | 0.2+ | 0.6− | 2008 10 25 | 198 | 0.1+ | 0.1− | 2008 11 18 | 703 | 0.4+ | 0.0 | 2008 09 24 | 691 | 0.2+ | 0.0 | 2009 10 11 | G96 | 0.4+ | 0.0 | 2009 12 17 | G96 | 0.2− | 0.2− |
| 2004 11 04 | 691 | 0.7+ | 1.5+ | 2008 10 25 | 198 | 0.1− | 0.0 | 2008 11 18 | 703 | 0.3− | 0.3+ | 2008 09 24 | 691 | 0.2− | 0.2+ | 2009 10 11 | G96 | 0.0 | 0.1+ | 2009 12 17 | G96 | 0.2+ | 0.2+ |
| 2004 11 04 | 691 | 0.2+ | 0.2− | 2008 10 25 | 198 | 0.0 | 0.1+ | 2008 11 18 | 703 | 0.9+ | 0.3+ | 2008 09 24 | 691 | 0.2− | 1.0+ | 2009 10 11 | G96 | 0.2+ | 0.0 | 2009 12 17 | G96 | 0.0 | 0.0 |
| 2004 11 04 | 691 | 0.0 | 0.3− | 2008 10 25 | 198 | 0.3+ | 0.1+ | 2008 11 20 | 704 | 0.9− | 0.5+ | 2008 10 01 | G96 | 0.4+ | 0.2− | 2009 10 24 | 691 | 0.1− | 0.3+ | | | | |
| 2006 01 27 | 703 | 0.2− | 1.1− | 2008 10 25 | 198 | 0.3+ | 0.1+ | 2008 11 20 | 704 | 0.1− | 0.2+ | | | | | | | | | | | | |
| 2006 01 27 | 703 | 0.2− | 0.8+ | 2008 10 25 | 198 | 0.4+ | 0.0 | 2008 11 20 | 704 | 0.7− | 0.7+ | | | | | | | | | | | | |
| 2006 01 27 | 703 | 0.0 | 0.6+ | 2008 10 26 | D25 | 0.2+ | 0.6− | 2008 11 20 | 704 | 0.7− | 0.1+ | | | | | | | | | | | | |
| 2006 01 27 | 703 | 0.4− | 0.5+ | 2008 10 26 | D25 | 0.1− | 0.6− | 2008 11 27 | 198 | 0.2− | 0.2+ | | | | | | | | | | | | |
| 2006 02 04 | 703 | 0.5− | 0.4+ | 2008 10 26 | D25 | 0.0 | 0.8− | 2008 11 27 | 198 | 0.2− | 0.0 | | | | | | | | | | | | |
| 2006 02 04 | 703 | 1.2+ | 0.0 | 2008 10 26 | D25 | 0.4− | 0.9− | 2008 11 27 | 198 | 0.1− | 0.0 | | | | | | | | | | | | |
| 2006 02 04 | 703 | 1.5+ | 1.0− | 2008 10 27 | 691 | 0.1− | 0.4− | 2008 11 27 | 198 | 0.3− | 0.0 | | | | | | | | | | | | |
| 2006 02 04 | 703 | 0.3+ | 0.4+ | 2008 10 27 | 691 | 0.1− | 0.2− | 2008 12 30 | 198 | 0.3+ | 0.3+ | | | | | | | | | | | | |
| 2006 03 03 | 703 | (1.6− | 1.3−) | 2008 10 27 | 691 | 0.3− | 0.8− | 2008 12 30 | 198 | 0.4+ | 0.4+ | | | | | | | | | | | | |
| 2006 03 03 | 703 | 0.1+ | 0.3+ | 2008 10 31 | 691 | 0.1+ | 0.3− | 2008 12 30 | 198 | 0.7+ | 0.7+ | | | | | | | | | | | | |
| 2006 03 03 | 703 | 1.4− | 0.9− | 2008 10 31 | 691 | 0.1− | 0.1− | 2009 11 19 | 198 | 0.2− | 0.1− | | | | | | | | | | | | |
| 2006 03 03 | 703 | 0.8− | 0.7− | 2008 10 31 | 691 | 0.1− | 0.0 | 2009 11 19 | 198 | 0.2− | 0.4+ | | | | | | | | | | | | |
| 2008 10 07 | 703 | 0.3+ | 0.0 | 2008 11 01 | 704 | 0.2+ | 0.2+ | 2009 11 19 | 198 | 0.2− | 0.4+ | | | | | | | | | | | | |
| 2008 10 07 | 703 | 0.5+ | 0.2+ | 2008 11 01 | 704 | 1.1+ | 0.0 | 2009 11 19 | 198 | 0.4− | 0.0 | | | | | | | | | | | | |
| 2008 10 07 | 703 | 1.0− | 0.6+ | 2008 11 01 | 704 | 0.2− | 0.4+ | 2009 11 19 | 198 | 0.4− | 0.1+ | | | | | | | | | | | | |
| 2008 10 07 | 703 | 1.1+ | 0.6− | 2008 11 07 | 691 | 0.2− | 0.3− | 2009 11 19 | 198 | 0.2− | 0.2+ | | | | | | | | | | | | |
| 2008 10 23 | 691 | 0.1− | 0.1− | 2008 11 07 | 691 | 0.6− | 0.1+ | 2009 12 19 | 198 | 0.2− | 0.1− | | | | | | | | | | | | |
| 2008 10 23 | 691 | 0.1+ | 0.0 | 2008 11 07 | 691 | 0.0 | 0.3− | 2009 12 19 | 198 | 0.4− | 0.1+ | | | | | | | | | | | | |
| 2008 10 23 | 691 | 0.2+ | 0.3+ | 2008 11 07 | 703 | 0.2+ | 0.1− | 2009 12 19 | 198 | 0.2− | 0.3− | | | | | | | | | | | | |
| 2008 10 25 | H10 | 0.3− | 0.1+ | 2008 11 07 | 703 | 0.6+ | 0.2+ | 2009 12 19 | 198 | 0.2− | 0.1− | | | | | | | | | | | | |
| 2008 10 25 | H10 | 0.3− | 0.2− | 2008 11 07 | 703 | 0.6+ | 0.8− | 2009 12 19 | 198 | 0.1− | 0.2− | | | | | | | | | | | | |

**(229826)∗ 2008 UK$_8$**

Discovered 2008 Oct. 17 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 347.66688 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.08153291 | $\omega$ | 45.05074 | | +0.42974637 | −0.90293018 | |
| $a$ | 5.2672115 | $\Omega$ | 19.50016 | | +0.82336037 | +0.38916343 | |
| $e$ | 0.0825466 | $i$ | 1.01756 | | +0.37066934 | +0.18239768 | |
| $P$ | 12.09 | $H$ | 13.3 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 03 18 | 691 | 0.1+ | 0.6+ | 2008 10 01 | G96 | 0.4+ | 0.2− | 2009 10 24 | 691 | 0.3− | 0.1+ | 2007 09 13 | 703 | 0.5− | 0.1− | 2008 11 03 | 691 | 0.0 | 0.6+ | 2009 11 19 | G96 | 0.7+ | 0.3− |
| 2002 03 18 | 691 | 0.1+ | 0.7+ | 2008 10 01 | G96 | 0.6+ | 0.3− | 2009 10 24 | 691 | 0.7− | 0.3+ | 2007 09 13 | 703 | (1.8+ | 0.7−) | 2008 11 03 | 691 | 0.1− | 0.6− | 2009 11 19 | G96 | 0.2+ | 0.3− |
| 2002 03 18 | 691 | 1.0+ | 1.0+ | 2008 10 01 | G96 | 0.1+ | 0.3− | 2009 10 25 | 703 | 0.7− | 0.3− | 2007 09 13 | 703 | 0.6+ | 0.1− | 2008 11 07 | 691 | 0.1− | 0.2+ | 2009 12 18 | 691 | 0.0 | 0.2− |
| 2003 04 26 | 691 | 0.2+ | 0.4+ | 2008 10 17 | 691 | 0.6− | 0.2+ | 2009 10 25 | 703 | 0.3+ | 0.3− | 2007 10 08 | 703 | 0.5− | 0.1+ | 2008 11 07 | 691 | 0.2− | 0.0 | | | | |
| 2003 04 26 | 691 | 0.4+ | 0.9+ | 2008 10 17 | 691 | 0.3− | 0.9+ | 2009 10 25 | 703 | 0.3− | 0.1+ | 2007 10 08 | 703 | 0.3− | 0.0 | 2008 11 07 | 691 | 0.4− | 0.6+ | | | | |
| 2003 04 26 | 691 | 0.0 | 0.6+ | 2008 10 17 | 691 | 0.4− | 0.5+ | 2009 10 25 | 703 | (1.7+ | 2.3+) | 2007 10 08 | 703 | 1.0+ | 0.4+ | 2009 11 19 | G96 | 0.7+ | 0.3− | | | | |
| 2003 05 30 | 807 | 0.0 | 0.6+ | 2008 10 18 | 691 | 0.3− | 0.6+ | 2009 11 08 | G96 | 0.5+ | 0.1− | 2006 05 04 | E12 | 0.1+ | 0.5+ | 2007 10 08 | 703 | 0.2+ | 1.0+ | 2009 11 19 | G96 | 0.2+ | 0.3− |
| 2003 05 30 | 807 | 0.0 | 0.6+ | 2008 10 18 | 691 | 0.0 | 0.3+ | 2009 11 08 | G96 | 0.4+ | 0.0 | 2006 05 04 | E12 | 0.2+ | 0.3+ | 2008 10 22 | 691 | 0.0 | 0.5− | 2009 11 19 | G96 | 0.2+ | 0.0 |
| 2007 09 11 | G96 | 0.4+ | 0.1− | 2008 10 18 | 691 | 0.1+ | 0.2+ | 2009 11 08 | G96 | 0.3+ | 0.1− | 2006 05 04 | E12 | 0.3+ | 0.4+ | 2008 10 22 | 691 | 0.3+ | 0.3+ | 2009 11 19 | G96 | 0.2+ | 0.3+ |
| 2007 09 11 | G96 | 0.7+ | 0.1− | 2008 11 07 | G96 | 0.4+ | 0.1− | 2009 11 08 | G96 | 0.2+ | 0.1− | 2006 05 30 | E12 | 0.7− | 0.3+ | 2008 10 22 | 691 | 0.0 | 0.0 | 2009 12 18 | 691 | 0.0 | 0.2− |

**(229827)∗ 2008 UC$_{56}$ = 1998 SC$_{38}$ = 2004 XL$_{192}$**

Discovered 2008 Oct. 21 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 147009), A. Doppler (*MPO* 153688)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 142.43187 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.20362276 | $\omega$ | 347.53841 | | +0.77057490 | +0.63726340 | |
| $a$ | 2.8614435 | $\Omega$ | 332.86480 | | −0.58276800 | +0.69783560 | |
| $e$ | 0.0598092 | $i$ | 1.31580 | | −0.25806160 | +0.32698751 | |
| $P$ | 4.84 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 09 23 | 691 | 0.3+ | 0.0 | 2004 12 15 | 691 | 0.2+ | 0.0 | 2008 10 21 | 691 | 0.4− | 0.1− | 2008 10 21 | 691 | 0.4− | 0.1− | 2008 10 30 | 691 | 0.0 | 0.1− | 2009 11 19 | G96 | 0.2+ | 0.3− |
| 1998 09 23 | 691 | 0.1+ | 0.1+ | 2004 12 15 | 691 | 0.1+ | 0.0 | 2008 10 21 | 691 | 0.3− | 0.1− | 2008 10 21 | 691 | 0.3− | 0.1− | 2008 10 30 | 691 | 0.0 | 0.3+ | 2009 11 19 | G96 | 0.7+ | 0.3− |
| 1998 09 23 | 691 | 0.3+ | 0.8− | 2004 12 15 | 691 | 0.0 | 0.1− | 2008 10 21 | 691 | 0.1− | 0.2+ | 2008 10 21 | 691 | 0.1− | 0.2+ | 2008 10 30 | 691 | 0.4− | 0.1+ | 2009 12 18 | G96 | 0.2+ | 0.6− |
| 1998 09 27 | 691 | 0.3− | 0.1− | 2005 12 03 | 568 | 0.6+ | 0.4+ | 2008 10 23 | 691 | 0.3+ | 0.3+ | 2008 10 23 | 691 | 0.3+ | 0.3+ | 2008 10 30 | 691 | 0.4− | 0.1+ | 2009 12 18 | G96 | 0.4+ | 0.2− |
| 1998 09 27 | 691 | 0.1+ | 0.6− | 2005 12 03 | 568 | 0.7+ | 0.4+ | 2008 10 23 | 691 | 0.1− | 0.3+ | 2008 10 23 | 691 | 0.1− | 0.3+ | 2008 11 02 | 691 | 0.2+ | 0.5+ | 2009 12 18 | G96 | 0.6+ | 0.2− |
| 1998 09 27 | 691 | 0.2+ | 0.2− | 2005 12 03 | 568 | 0.7+ | 0.4+ | 2008 10 23 | 691 | 0.2− | 0.1+ | 2008 10 23 | 691 | 0.2− | 0.1+ | 2008 11 02 | 691 | 0.1+ | 0.1+ | 2009 12 18 | G96 | 0.3+ | 0.2− |
| 2001 02 20 | 645 | 0.1− | 0.1+ | 2006 02 20 | 691 | 0.4+ | 0.0 | 2008 10 30 | 691 | 0.0 | 0.1− | 2008 10 30 | 691 | 0.0 | 0.1− | 2008 11 02 | 691 | 0.1+ | 0.2+ | 2009 12 18 | G96 | 0.5+ | 0.2− |
| 2001 02 20 | 645 | 0.0 | 0.0 | 2006 02 20 | 691 | 0.4+ | 0.3+ | 2008 10 30 | 691 | 0.0 | 0.3+ | 2008 10 30 | 691 | 0.0 | 0.3+ | 2008 11 02 | 691 | 0.1+ | 0.2+ | 2009 12 25 | 691 | 0.1+ | 0.3− |
| 2003 09 29 | 691 | 0.2+ | 0.3+ | 2006 02 20 | G96 | 0.2− | 0.2+ | 2008 10 30 | 691 | 0.4− | 0.1+ | 2008 10 30 | 691 | 0.4− | 0.1+ | 2008 11 02 | 691 | 0.1+ | 0.2+ | 2009 12 25 | 691 | 1.1− | 0.9− |
| 2003 09 29 | 691 | 0.2+ | 0.1+ | 2006 02 20 | G96 | 0.3− | 0.4+ | 2008 11 02 | 691 | 0.2+ | 0.5+ | 2008 11 02 | 691 | 0.2+ | 0.5+ | 2008 11 02 | 691 | 0.1+ | 0.2+ | 2009 12 25 | 691 | 0.5− | 0.1− |
| 2003 09 29 | 691 | 0.2+ | 0.1+ | 2006 02 20 | G96 | 0.1+ | 0.5+ | 2008 11 02 | 691 | 0.1+ | 0.1+ | 2008 11 02 | 691 | 0.1+ | 0.1+ | 2008 11 02 | 691 | 0.1+ | 0.2+ | | | | |
| 2003 09 29 | 645 | 0.0 | 0.0 | 2006 02 20 | 691 | 0.4+ | 0.4+ | 2008 11 02 | 691 | 0.1+ | 0.2+ | 2008 11 02 | 691 | 0.1+ | 0.2+ | 2008 11 02 | 691 | 0.1+ | 0.2+ | | | | |
| 2003 09 29 | 645 | 0.1+ | 0.0 | 2006 02 20 | G96 | (0.8− | 2.3+) | 2009 12 18 | G96 | 0.2+ | 0.6− | 2008 11 02 | 691 | 0.1+ | 0.2+ | 2008 11 02 | 691 | 0.1+ | 0.2+ | | | | |
| 2003 10 18 | 645 | 0.1− | 0.0 | 2008 09 24 | 691 | 1.0− | 1.1+ | 2009 12 18 | G96 | 0.4+ | 0.2− | 2009 12 18 | G96 | 0.4+ | 0.2− | 2009 12 18 | G96 | 0.4+ | 0.2− | | | | |
| 2003 10 18 | 645 | 0.1− | 0.1− | 2008 09 24 | 691 | 0.0 | 0.4+ | 2009 12 18 | G96 | 0.6+ | 0.2− | 2009 12 18 | G96 | 0.6+ | 0.2− | 2009 12 18 | G96 | 0.6+ | 0.2− | | | | |
| 2003 10 23 | 645 | 0.0 | 0.1− | 2008 09 24 | 691 | 0.1− | 0.5+ | 2009 12 18 | G96 | 0.3+ | 0.2− | 2009 12 18 | G96 | 0.3+ | 0.2− | 2009 12 18 | G96 | 0.3+ | 0.2− | | | | |
| 2003 10 23 | 645 | 0.1− | 0.2− | 2008 10 10 | G96 | 0.1+ | 0.2+ | 2009 12 25 | 691 | 0.1+ | 0.3− | 2009 12 25 | 691 | 0.1+ | 0.3− | 2009 12 25 | 691 | 0.1+ | 0.3− | | | | |
| 2004 12 11 | 691 | 0.0 | 0.1+ | 2008 10 10 | G96 | 0.1+ | 0.0 | 2009 12 25 | 691 | 1.1− | 0.9− | 2009 12 25 | 691 | 1.1− | 0.9− | 2009 12 25 | 691 | 1.1− | 0.9− | | | | |
| 2004 12 11 | 691 | 0.1+ | 0.1− | 2008 10 10 | G96 | 0.6+ | 0.2+ | 2009 12 25 | 691 | 0.5− | 0.1− | 2009 12 25 | 691 | 0.5− | 0.1− | 2009 12 25 | 691 | 0.5− | 0.1− | | | | |
| 2004 12 11 | 691 | 0.5+ | 0.2− | 2008 10 10 | G96 | 0.1+ | 0.1+ | | | | | | | | | | | | | | | | |

**(229828)∗ 2008 UH$_{124}$**

Discovered 2008 Oct. 22 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 209.24116 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17590158 | $\omega$ | 351.14151 | | −0.04177527 | +0.96646427 | |
| $a$ | 3.1546866 | $\Omega$ | 276.17429 | | −0.90036212 | −0.14635394 | |
| $e$ | 0.2238674 | $i$ | 14.76522 | | −0.43313147 | +0.21101501 | |
| $P$ | 5.60 | $H$ | 15.3 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 07 18 | 608 | 0.1+ | 0.4+ | 2007 09 13 | 703 | 0.5− | 0.1− | 2008 11 03 | 691 | 0.0 | 0.6+ | 2009 11 19 | G96 | 0.7+ | 0.3− | 2009 12 18 | 691 | 0.0 | 0.2− | | | | |
| 2001 07 18 | 608 | 0.4+ | 0.2− | 2007 09 13 | 703 | (1.8+ | 0.7−) | 2008 11 03 | 691 | 0.1− | 0.6− | 2009 11 19 | G96 | 0.2+ | 0.3− | | | | | | | | |
| 2001 07 18 | 608 | 0.2+ | 0.4− | 2007 09 13 | 703 | 0.6+ | 0.1− | 2008 11 07 | 691 | 0.1− | 0.2+ | 2009 12 18 | 691 | 0.0 | 0.2− | | | | | | | | |
| 2001 07 28 | 608 | 0.1+ | 0.2+ | 2007 10 08 | 703 | 0.5− | 0.1+ | 2008 11 07 | 691 | 0.2− | 0.0 | | | | | | | | | | | | |
| 2001 07 28 | 608 | 0.3− | 0.9− | 2007 10 08 | 703 | 0.3− | 0.0 | 2008 11 07 | 691 | 0.4− | 0.6+ | | | | | | | | | | | | |
| 2001 07 28 | 608 | 0.1+ | 0.1+ | 2007 10 08 | 703 | 1.0+ | 0.4+ | 2009 11 19 | G96 | 0.7+ | 0.3− | | | | | | | | | | | | |
| 2006 05 04 | E12 | 0.1+ | 0.5+ | 2007 10 08 | 703 | 0.2+ | 1.0+ | 2009 11 19 | G96 | 0.2+ | 0.3− | | | | | | | | | | | | |
| 2006 05 04 | E12 | 0.2+ | 0.3+ | 2008 10 22 | 691 | 0.0 | 0.5− | 2009 11 19 | G96 | 0.2+ | 0.0 | | | | | | | | | | | | |
| 2006 05 04 | E12 | 0.3+ | 0.4+ | 2008 10 22 | 691 | 0.3+ | 0.3+ | 2009 11 19 | G96 | 0.2+ | 0.3+ | | | | | | | | | | | | |
| 2006 05 30 | E12 | 0.7− | 0.3+ | 2008 10 22 | 691 | 0.0 | 0.0 | 2009 12 18 | 691 | 0.0 | 0.2− | | | | | | | | | | | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 05 30 | E12 | 0.2− | 0.1− | 2008 10 26 | 691 | 0.3+ | 0.1− | 2009 12 18 | 691 | 0.1+ | 0.3− | | |
| 2006 05 30 | E12 | 0.1+ | 0.2− | 2008 10 26 | 691 | 0.2− | 0.1− | 2009 12 18 | 691 | 0.2+ | 0.1+ | | |
| 2006 05 30 | E12 | 0.5− | 0.4+ | 2008 10 26 | 691 | 0.1− | 0.1+ | | | | | | |
| 2007 09 13 | 703 | 0.3+ | 0.3+ | 2008 11 03 | 691 | 0.3− | 0.1− | | | | | | |

**(229829)∗ 2008 UG$_{134}$ = 2005 GX$_{216}$**

Discovered 2008 Oct. 23 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 148653)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 215.12553 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.16957129 | $\omega$ | 9.40618 | | −0.25303653 | +0.96712776 | |
| $a$ | 3.2327181 | $\Omega$ | 245.93992 | | −0.88941058 | −0.24280520 | |
| $e$ | 0.0773487 | $i$ | 1.58314 | | −0.38068534 | −0.07556146 | |
| $P$ | 5.81 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 10 07 | 691 | 0.1− | 0.7− | 2005 04 09 | G96 | 0.2− | 0.1− | 2008 11 07 | 691 | 0.1+ | 0.1− |
| 1996 10 07 | 691 | 0.2− | 0.7− | 2005 04 09 | G96 | 0.3+ | 0.2− | 2008 11 07 | 691 | 0.0 | 0.5+ |
| 1996 10 07 | 691 | 0.2− | 0.9− | 2006 05 25 | 568 | 0.5− | 1.2+ | 2008 11 07 | 691 | 0.1+ | 0.1+ |
| 2001 09 22 | 691 | 0.2+ | 0.5+ | 2006 05 25 | 568 | 0.5− | 1.2+ | 2008 11 19 | 691 | 0.2+ | 0.2− |
| 2001 09 22 | 691 | 0.1+ | 0.2+ | 2006 05 25 | 568 | 0.6− | 1.3+ | 2008 11 19 | 691 | 0.2− | 0.1− |
| 2001 09 22 | 691 | 0.1+ | 0.4+ | 2007 09 12 | G96 | 0.2+ | 0.7+ | 2008 11 19 | 691 | 0.0 | 0.0 |
| 2002 10 29 | 291 | 0.7+ | 0.3+ | 2007 09 12 | G96 | 0.0 | 0.5+ | 2008 11 30 | 691 | 0.1− | 0.8+ |
| 2002 10 29 | 291 | 0.6+ | 0.7+ | 2007 09 12 | G96 | 0.3+ | 0.1+ | 2008 11 30 | 691 | 0.0 | 0.1− |
| 2002 10 29 | 291 | 0.6+ | 0.1+ | 2007 09 12 | G96 | 0.1+ | 0.4+ | 2008 11 30 | 691 | 0.1− | 0.2− |
| 2005 02 02 | 691 | 0.1− | 0.0 | 2008 10 06 | 691 | 0.3− | 0.2− | 2008 12 02 | 691 | 0.2− | 0.3+ |
| 2005 02 02 | 691 | 0.1+ | 0.6+ | 2008 10 06 | 691 | 0.8− | 0.1− | 2008 12 02 | 691 | 0.0 | 0.2+ |
| 2005 02 02 | 691 | 0.5− | 0.6+ | 2008 10 06 | 691 | 0.3− | 0.2+ | 2008 12 02 | 691 | 0.4− | 0.3+ |
| 2005 03 11 | G96 | 0.6+ | 0.2+ | 2008 10 23 | 691 | 0.1− | 0.2− | 2009 12 10 | G96 | 0.7+ | 0.4− |
| 2005 03 11 | G96 | 0.1− | 0.2− | 2008 10 23 | 691 | 0.3+ | 0.1− | 2009 12 10 | G96 | 0.0 | 0.9− |
| 2005 03 11 | G96 | 0.0 | 0.1− | 2008 10 23 | 691 | 0.2+ | 0.1− | 2009 12 10 | G96 | 0.2− | 0.4− |
| 2005 03 11 | G96 | 0.1+ | 0.3− | 2008 10 27 | 691 | 0.3+ | 0.2+ | 2009 12 10 | G96 | 0.7+ | 0.5− |
| 2005 04 02 | 691 | 0.1+ | 0.2+ | 2008 10 27 | 691 | 0.1− | 0.1+ | 2009 12 25 | 691 | 0.1− | 0.1+ |
| 2005 04 02 | 691 | 0.6+ | 0.2− | 2008 10 27 | 691 | 0.1− | 0.2+ | 2009 12 25 | 691 | 0.1− | 0.2− |
| 2005 04 02 | 691 | 0.4+ | 0.2+ | 2008 10 31 | 691 | 1.1− | 0.4+ | 2009 12 25 | 691 | 0.1+ | 0.0 |
| 2005 04 09 | G96 | 0.1− | 0.1− | 2008 10 31 | 691 | 0.1− | 0.1+ | | | | |
| 2005 04 09 | G96 | 0.0 | 0.1+ | 2008 10 31 | 691 | 0.1+ | 0.2+ | | | | |

**(229830)∗ 2008 US$_{357}$ = 1999 AO$_{39}$ = 2005 EX$_{290}$ = 2007 PZ$_5$**

Discovered 2008 Oct. 24 by the Catalina Sky Survey.

Id. G. V. Williams (*MPO* 165635)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 83.75500 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18038940 | $\omega$ | 272.24271 | | +0.65587346 | −0.74367410 | |
| $a$ | 3.1021447 | $\Omega$ | 135.84339 | | +0.74518101 | +0.61044481 | |
| $e$ | 0.0658343 | $i$ | 10.71621 | | +0.12056231 | +0.27259119 | |
| $P$ | 5.46 | $H$ | 15.3 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 01 13 | 691 | 0.2− | 0.4− | 2005 03 16 | 703 | 0.8+ | 0.4− | 2008 10 24 | 703 | 0.9− | 0.8− |
| 1999 01 13 | 691 | 0.5− | 0.5− | 2005 03 16 | 703 | (1.8− | 0.9−) | 2008 11 09 | G96 | 0.4− | 0.1+ |
| 1999 01 15 | 691 | 0.0 | 0.1− | 2005 04 06 | 703 | 0.3+ | 1.2+ | 2008 11 09 | G96 | 0.5− | 0.3+ |
| 1999 01 15 | 691 | 0.3+ | 0.3+ | 2005 04 06 | 703 | 0.9− | 0.4+ | 2008 11 09 | G96 | 0.7− | 0.2+ |
| 1999 01 15 | 691 | 1.1+ | 0.6− | 2005 04 06 | 703 | (1.0+ | 1.7−) | 2008 11 09 | G96 | 0.3− | 0.4+ |
| 1999 02 16 | 691 | 0.1− | 0.1+ | 2005 04 06 | 703 | (2.4− | 1.4+) | 2008 11 24 | 683 | (0.8− | 2.2+) |
| 1999 02 16 | 691 | 0.0 | 0.0 | 2006 05 09 | G96 | 0.8+ | 0.2− | 2008 11 24 | 683 | (2.8− | 0.6+) |
| 1999 02 16 | 691 | 0.1+ | 0.4+ | 2006 05 09 | G96 | 0.5− | 0.3− | 2008 12 01 | 703 | 0.2+ | 0.8+ |
| 2000 05 04 | 645 | 0.1− | 0.1+ | 2006 05 09 | G96 | 0.2+ | 0.5− | 2008 12 01 | 703 | 0.2+ | 0.6− |
| 2000 05 04 | 645 | 0.1− | 0.1+ | 2006 05 09 | G96 | 0.6+ | 0.0 | 2008 12 01 | 703 | 0.4− | 0.8+ |
| 2005 03 03 | 703 | 0.3+ | 0.7+ | 2007 08 08 | 704 | 1.0+ | 0.2− | 2008 12 01 | 703 | 0.6− | 0.3+ |
| 2005 03 03 | 703 | (0.4− | 2.8+) | 2007 08 08 | 704 | 0.0 | 0.7+ | 2009 11 27 | G96 | 0.2− | 0.3+ |
| 2005 03 03 | 703 | 0.3− | 1.4+ | 2007 08 08 | 704 | 0.1− | 0.1− | 2009 11 27 | G96 | 0.5+ | 0.2+ |
| 2005 03 03 | 703 | 0.4− | 0.1+ | 2007 08 08 | 704 | 0.8+ | 0.3+ | 2009 11 27 | G96 | 0.2+ | 0.3+ |
| 2005 03 10 | 703 | 0.7− | 0.9− | 2007 08 09 | 704 | 0.6− | 1.3+ | 2009 11 27 | G96 | 0.3+ | 0.5+ |
| 2005 03 10 | 703 | 0.5+ | 0.9− | 2007 08 09 | 704 | 0.3− | 0.6+ | 2009 11 27 | G96 | 0.5+ | 0.1− |
| 2005 03 10 | 703 | 0.8− | 0.5− | 2007 08 09 | 704 | 0.6+ | 0.2− | 2009 12 19 | G96 | 0.7+ | 0.2+ |
| 2005 03 10 | 703 | 1.1− | 0.1+ | 2008 10 24 | 703 | (1.5+ | 0.4+) | 2009 12 19 | G96 | 0.0 | 0.6+ |
| 2005 03 16 | 703 | 1.3+ | 1.0− | 2008 10 24 | 703 | 0.4+ | 0.1− | 2009 12 19 | G96 | 0.4+ | 0.5+ |
| 2005 03 16 | 703 | 0.6+ | 1.2+ | 2008 10 24 | 703 | 0.8− | 0.7+ | 2009 12 19 | G96 | 0.3+ | 0.0 |

**(229831)∗ 2008 VH$_{72}$ = 2004 VC$_{65}$**

Discovered 2008 Nov. 3 by the Mt. Lemmon Survey at Mount Lemmon.

Id. G. V. Williams (*MPO* 165639)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 286.50176 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23867972 | $\omega$ | 152.38548 | | −0.65562485 | +0.70761267 | |
| $a$ | 2.5739041 | $\Omega$ | 75.34803 | | −0.73324589 | −0.51330327 | |
| $e$ | 0.0552493 | $i$ | 15.80552 | | −0.18029562 | −0.48559661 | |
| $P$ | 4.13 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 06 10 | 691 | 0.2− | 0.1+ | 2006 02 24 | 703 | (1.8− | 1.3−) | 2007 08 07 | E12 | 0.2− | 0.0 |
| 1994 06 10 | 691 | 0.1+ | 0.6− | 2006 02 24 | 703 | 1.0− | 0.4− | 2007 08 07 | E12 | 0.0 | 0.5+ |
| 1994 06 10 | 691 | 0.2− | 0.2− | 2006 02 24 | 703 | 0.5− | 1.0+ | 2008 11 03 | G96 | 0.2+ | 0.2+ |
| 2002 04 11 | 644 | 0.1− | 0.6+ | 2006 03 06 | 703 | 1.1+ | 0.8+ | 2008 11 03 | G96 | 0.6+ | 0.8+ |
| 2002 04 11 | 644 | 0.2+ | 0.4+ | 2006 03 06 | 703 | 0.1+ | 1.0+ | 2008 11 03 | G96 | 0.4+ | 0.2+ |
| 2002 04 11 | 644 | 0.2+ | 0.6+ | 2006 03 06 | 703 | 0.2+ | 0.3+ | 2008 11 03 | G96 | 0.3− | 0.1+ |
| 2002 05 05 | 644 | 0.3+ | 0.6+ | 2006 03 06 | 703 | 1.2− | 1.1+ | 2008 11 08 | D29 | 0.3+ | 0.1− |
| 2002 05 05 | 644 | 0.4+ | 0.6+ | 2006 04 07 | 703 | 0.4+ | 2.2− | 2008 11 08 | D29 | 1.2− | 0.3− |
| 2002 05 05 | 644 | 0.5+ | 0.8+ | 2006 04 07 | 703 | 0.7− | 1.0+ | 2008 12 20 | 703 | 0.5− | 0.5+ |
| 2004 11 10 | 691 | 0.1− | 0.2− | 2006 04 07 | 703 | 0.4+ | 0.1+ | 2008 12 20 | 703 | 1.3+ | 0.0 |
| 2004 11 10 | 691 | 0.1− | 0.1− | 2006 04 07 | 703 | 0.4+ | 1.5− | 2008 12 20 | 703 | (1.6− | 0.9+) |
| 2004 11 10 | 691 | 0.1+ | 0.0 | 2006 04 26 | 703 | 0.2+ | 0.0 | 2008 12 20 | 703 | 0.4+ | 1.1+ |
| 2004 11 13 | 703 | 0.5+ | 0.6− | 2006 04 26 | 703 | 1.3+ | 1.0− | 2009 01 01 | G96 | 0.3− | 0.1− |
| 2004 11 13 | 703 | 0.8+ | 0.6+ | 2006 04 26 | 703 | 0.2− | 0.3− | 2009 01 01 | G96 | 0.2− | 0.0 |
| 2004 11 13 | 703 | 0.1− | 0.3+ | 2006 04 26 | 703 | (0.7− | 1.5−) | 2009 01 01 | G96 | 0.5− | 0.1+ |
| 2004 11 13 | 703 | 0.8− | 0.9− | 2007 08 07 | E12 | 0.6− | 0.1+ | 2009 01 01 | G96 | 0.4− | 0.1− |
| 2006 02 24 | 703 | 0.6− | 0.5− | 2007 08 07 | E12 | 0.3+ | 1.3+ | | | | |

**(229832)∗ 2008 WQ$_{33}$ = 2001 FH$_{86}$**

Discovered 2008 Nov. 17 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 150703)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 342.79284 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.08399495 | $\omega$ | 34.20588 | | −0.15000887 | −0.98803363 | |
| $a$ | 5.1637743 | $\Omega$ | 64.44480 | | +0.89797679 | −0.15133827 | |
| $e$ | 0.0570467 | $i$ | 2.27887 | | +0.41368470 | −0.02977038 | |
| $P$ | 11.73 | $H$ | 14.0 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 03 26 | 691 | 0.2+ | 0.0 | 2007 11 03 | G96 | 0.4+ | 0.0 | 2008 11 17 | 691 | 0.4− | 0.1− |
| 2001 03 26 | 691 | 0.3+ | 0.2+ | 2007 11 03 | G96 | 0.1− | 0.0 | 2008 11 17 | 691 | 0.1− | 0.0 |
| 2001 03 26 | 691 | 0.2+ | 0.1+ | 2007 11 03 | G96 | 0.1+ | 0.2− | 2008 11 17 | 691 | 0.0 | 0.1+ |
| 2001 03 28 | 691 | 1.0+ | 0.0 | 2008 09 29 | 691 | 0.0 | 0.2+ | 2008 11 19 | 691 | 0.3+ | 0.3+ |
| 2001 03 28 | 691 | 0.8− | 0.7− | 2008 09 29 | 691 | 0.2− | 0.1+ | 2008 11 19 | 691 | 0.7− | 0.3+ |
| 2001 03 28 | 691 | 0.6− | 1.1+ | 2008 09 29 | 691 | 0.0 | 0.3− | 2008 11 19 | 691 | 1.0− | 0.3+ |
| 2001 04 16 | 645 | 0.0 | 0.0 | 2008 10 20 | 691 | 0.0 | 0.1+ | 2008 11 21 | 691 | 0.2− | 0.1+ |
| 2001 04 16 | 645 | 0.0 | 0.1− | 2008 10 20 | 691 | 0.0 | 0.3− | 2008 11 21 | 691 | 0.1+ | 0.0 |
| 2002 04 04 | 691 | 0.1+ | 0.5+ | 2008 10 20 | 691 | 0.2+ | 0.0 | 2008 11 21 | 691 | 0.7− | 0.3+ |
| 2002 04 04 | 691 | 0.2+ | 0.5+ | 2008 10 28 | G96 | 0.0 | 0.1− | 2008 12 01 | 691 | 0.1+ | 0.4+ |
| 2002 04 04 | 691 | 0.1− | 0.3+ | 2008 10 28 | G96 | 0.2+ | 0.1+ | 2008 12 01 | 691 | 0.1− | 0.0 |
| 2007 09 15 | G96 | 0.2+ | 0.2+ | 2008 10 28 | G96 | 0.1− | 0.0 | 2008 12 01 | 691 | 0.4+ | 0.5+ |
| 2007 09 15 | G96 | 0.2− | 0.3+ | 2008 10 28 | G96 | 0.7+ | 0.1+ | 2009 11 21 | 691 | 0.2− | 0.3− |
| 2007 09 15 | G96 | 0.1+ | 0.2+ | 2008 10 28 | G96 | 0.5+ | 0.1− | 2009 11 21 | 691 | 0.2− | 0.1+ |
| 2007 09 15 | G96 | 0.3+ | 0.5+ | 2008 10 28 | G96 | 0.2+ | 0.3− | 2009 11 21 | 691 | 0.2− | 0.3− |
| 2007 10 09 | G96 | 0.1+ | 0.2− | 2008 10 28 | G96 | 0.1− | 0.1− | 2009 12 10 | G96 | 0.2+ | 0.2− |
| 2007 10 09 | G96 | 0.2+ | 0.3+ | 2008 10 28 | G96 | 0.3− | 0.4− | 2009 12 10 | G96 | 0.7+ | 0.3− |
| 2007 10 09 | G96 | 0.2+ | 0.0 | 2008 11 08 | 691 | 0.0 | 0.4+ | 2009 12 10 | G96 | 0.3+ | 0.1− |
| 2007 10 09 | G96 | 0.3+ | 0.1+ | 2008 11 08 | 691 | 0.3− | 0.2+ | 2009 12 10 | G96 | 0.9+ | 0.1− |
| 2007 11 03 | G96 | 0.4+ | 0.0 | 2008 11 08 | G96 | 0.3+ | 0.1− | 2009 12 19 | G96 | 0.4+ | 0.2− |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 11 03 | G96 | 0.5− | 0.3+ | 2008 11 08 | G96 | 0.8+ | 0.6− | 2009 12 19 | G96 | 0.7+ | 0.4− |
| 2007 11 03 | G96 | 0.1+ | 0.0 | 2008 11 08 | 691 | 0.1− | 0.2− | 2009 12 19 | G96 | 0.8+ | 0.2− |
| 2007 11 03 | G96 | 0.2+ | 0.2− | 2008 11 08 | G96 | 0.2+ | 0.3+ | 2009 12 19 | G96 | 0.5+ | 0.2− |
| 2007 11 03 | G96 | 0.3+ | 0.1+ | 2008 11 08 | G96 | 0.8+ | 0.0 | | | | |

**(229833)∗ 2009 BQ$_{25}$ = 2000 KU$_{51}$ = 2007 RL$_{209}$**

Discovered 2009 Jan. 16 by Spacewatch at Kitt Peak.

Id. A. Doppler (*MPO* 158942)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 324.87422 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.30496336 | $\omega$ | 204.44897 | | +0.07814080 | | +0.99600511 |
| $a$ | 2.1859368 | $\Omega$ | 70.05639 | | −0.90694097 | | +0.08901967 |
| $e$ | 0.1639784 | $i$ | 2.63514 | | −0.41394697 | | −0.00702251 |
| $P$ | 3.23 | $H$ | 18.3 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 05 31 | 691 | 0.1+ | 0.2− | 2006 02 01 | 691 | 0.1− | 0.1+ | 2007 10 20 | G96 | 0.8+ | 0.2+ |
| 2000 05 31 | 691 | 0.2− | 0.2− | 2006 02 01 | 691 | 0.2+ | 0.2− | 2007 10 20 | G96 | 0.6+ | 0.2+ |
| 2000 05 31 | 691 | 0.2+ | 0.2− | 2006 02 24 | 691 | 0.0 | 0.2− | 2008 12 29 | G96 | 0.8+ | 0.7− |
| 2000 06 05 | 691 | 0.5+ | 0.3+ | 2006 02 24 | 691 | 0.4+ | 0.3+ | 2008 12 29 | G96 | 0.1+ | 0.3− |
| 2000 06 05 | 691 | 0.5− | 0.4− | 2006 02 24 | 691 | 0.0 | 0.3− | 2008 12 29 | G96 | 0.4− | 0.3− |
| 2000 06 05 | 691 | 0.3− | 0.5− | 2007 09 10 | 691 | 0.2+ | 0.2− | 2008 12 29 | G96 | 0.0 | 0.4− |
| 2003 03 26 | 691 | 0.2+ | 0.9+ | 2007 09 10 | 691 | 0.0 | 0.1+ | 2009 01 16 | 691 | 0.3+ | 0.8− |
| 2003 03 26 | 691 | (0.0 | 1.6+) | 2007 09 10 | 691 | 0.0 | 0.4− | 2009 01 16 | 691 | 0.1+ | 0.2− |
| 2003 03 26 | 691 | 0.1− | 1.2+ | 2007 09 15 | 691 | 0.3− | 0.6+ | 2009 01 16 | 691 | 0.3− | 0.2+ |
| 2003 04 10 | 691 | 0.4− | 0.3− | 2007 09 15 | 691 | 0.1− | 0.1− | 2009 01 20 | 691 | 0.8− | 0.3− |
| 2003 04 10 | 691 | 0.5+ | 0.2− | 2007 09 15 | 691 | 0.2− | 0.1− | 2009 01 20 | 691 | 0.1− | 0.2+ |
| 2003 04 10 | 691 | 0.2− | 0.5− | 2007 10 20 | G96 | 0.3+ | 0.1+ | 2009 01 20 | 691 | 0.3− | 0.1− |
| 2006 02 01 | 691 | 0.5+ | 0.1+ | 2007 10 20 | G96 | 0.6+ | 0.2− | | | | |

**(229834)∗ 2009 FM$_{59}$ = 2008 BS$_{5}$**

Discovered 2009 Mar. 26 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 157235)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 344.27103 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.19701585 | $\omega$ | 340.89596 | | +0.28574958 | | +0.95818618 |
| $a$ | 2.9250633 | $\Omega$ | 305.70498 | | −0.87679701 | | +0.25507634 |
| $e$ | 0.0784547 | $i$ | 1.06178 | | −0.38674821 | | +0.12967383 |
| $P$ | 5.00 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 07 31 | 807 | 0.6− | 0.1− | 2006 11 09 | 691 | 0.1+ | 0.5+ | 2009 03 17 | 691 | 0.2+ | 0.3− |
| 2000 07 31 | 807 | 0.5− | 0.2+ | 2006 11 09 | 691 | 0.2+ | 0.5+ | 2009 03 17 | 691 | 0.1− | 0.0 |
| 2004 05 13 | 691 | 0.4+ | 0.5+ | 2007 01 15 | 568 | 0.0 | 0.1− | 2009 03 21 | 691 | 0.2− | 0.5− |
| 2004 05 13 | 691 | 0.3+ | 0.6+ | 2007 01 15 | 568 | 0.1+ | 0.2− | 2009 03 21 | 691 | 0.1+ | 0.1+ |
| 2004 05 13 | 691 | 0.3+ | 0.3+ | 2007 01 15 | 568 | 0.0 | 0.0 | 2009 03 21 | 691 | 0.3+ | 0.2+ |
| 2004 05 21 | 691 | 0.2+ | 0.4+ | 2007 01 16 | 568 | 0.4+ | 0.5+ | 2009 03 26 | 691 | 0.6+ | 0.2+ |
| 2004 05 21 | 691 | 0.3+ | 0.4+ | 2007 12 30 | 691 | 0.1− | 0.0 | 2009 03 26 | 691 | 0.8− | 0.4− |
| 2004 05 21 | 691 | 0.1− | 0.2+ | 2007 12 30 | 691 | 0.5− | 0.2+ | 2009 03 26 | 691 | 0.5+ | 0.2− |
| 2005 07 05 | G96 | 0.2+ | 0.2− | 2007 12 30 | 691 | 0.1− | 0.2+ | 2009 03 31 | 691 | 0.1− | 0.1+ |
| 2005 07 05 | G96 | 0.3+ | 0.1− | 2008 01 06 | 568 | 0.3+ | 0.2− | 2009 03 31 | 691 | 0.1− | 0.0 |
| 2005 07 05 | G96 | 0.2− | 0.1− | 2008 01 06 | 568 | 0.2+ | 0.2− | 2009 03 31 | 691 | 0.7− | 0.1+ |
| 2005 07 05 | G96 | 0.3− | 0.1− | 2008 01 06 | 568 | 0.3+ | 0.3− | 2009 04 19 | G96 | 0.2− | 0.1− |
| 2005 08 06 | 644 | 0.4− | 0.3+ | 2008 01 07 | 568 | 0.4+ | 0.4− | 2009 04 19 | G96 | 0.0 | 0.0 |
| 2005 08 06 | 644 | 0.3− | 0.4+ | 2008 01 16 | 691 | 0.3+ | 0.1+ | 2009 04 19 | G96 | 0.1− | 0.1− |
| 2005 08 06 | 644 | 0.2− | 0.5+ | 2008 01 16 | 691 | 0.6− | 0.1− | 2009 04 19 | G96 | 0.2+ | 0.1− |
| 2006 10 31 | G96 | 0.1− | 0.0 | 2008 01 16 | 691 | 0.2− | 0.4+ | 2009 04 29 | 703 | 0.2+ | 0.5+ |
| 2006 10 31 | G96 | 0.1− | 0.1− | 2008 01 20 | 691 | 0.2+ | 0.0 | 2009 04 29 | 703 | 0.4− | 0.4+ |
| 2006 10 31 | G96 | 0.2− | 0.8+ | 2008 01 20 | 691 | 0.0 | 0.2− | 2009 04 29 | 703 | 0.4− | 0.0 |
| 2006 10 31 | G96 | 0.2− | 0.5+ | 2008 01 20 | 691 | 0.1− | 0.1− | 2009 04 29 | 703 | (0.7− | 1.6+) |
| 2006 11 09 | 691 | 0.2− | 0.9+ | 2009 03 17 | 691 | 0.4+ | 0.1− | | | | |

**(229835)∗ 2009 QA$_{31}$ = 2005 GL$_{177}$ = 2008 EL$_{94}$**

Discovered 2009 Aug. 24 at OAM Observatory, La Sagra.

Id. G. V. Williams (*MPO* 162159)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 52.78996 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.28802599 | $\omega$ | 298.81672 | | +0.77396445 | | +0.62790750 |
| $a$ | 2.2708142 | $\Omega$ | 22.60012 | | −0.48083411 | | +0.66694263 |
| $e$ | 0.2743557 | $i$ | 12.30838 | | −0.41204077 | | +0.40114797 |
| $P$ | 3.42 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 04 03 | 691 | 0.4− | 0.5− | 2009 08 24 | J75 | 0.2− | 0.5− | 2009 10 13 | 704 | 0.1− | 0.5+ |
| 1998 04 03 | 691 | 0.8− | 0.2− | 2009 08 24 | J75 | 0.3− | 0.0 | 2009 10 13 | 704 | 0.4− | 0.8+ |
| 1998 04 03 | 691 | 0.2+ | 0.5− | 2009 08 24 | J75 | 0.5+ | 0.1+ | 2009 10 13 | 704 | 0.3− | 0.8+ |
| 2005 04 15 | 691 | 0.2+ | 0.2+ | 2009 08 24 | J75 | 0.1− | 0.4+ | 2009 10 13 | 704 | 1.1− | 0.5+ |
| 2005 04 15 | 691 | 0.4+ | 0.4+ | 2009 08 26 | J75 | 0.3+ | 0.3− | 2009 10 13 | 704 | 0.6− | 0.0 |
| 2005 04 15 | 691 | 0.5+ | 0.0 | 2009 08 26 | J75 | 0.4+ | 0.3− | 2009 10 19 | 704 | 0.5− | 0.9+ |
| 2005 04 17 | 691 | 0.1+ | 0.4+ | 2009 08 26 | J75 | 0.4− | 0.6− | 2009 10 19 | 704 | 0.5− | 0.4+ |
| 2005 04 17 | 691 | 0.3+ | 0.3+ | 2009 08 26 | J75 | 0.3+ | 0.3− | 2009 10 19 | 704 | 0.8− | 0.2+ |
| 2005 04 17 | 691 | 0.1+ | 0.5+ | 2009 08 26 | J75 | 0.1+ | 0.5− | 2009 10 19 | 704 | 0.5− | 0.9+ |
| 2005 05 01 | 644 | 0.2+ | 0.3+ | 2009 08 26 | J75 | 0.3+ | 0.7− | 2009 10 19 | 704 | 0.8− | 0.8+ |
| 2005 05 01 | 644 | 0.0 | 0.1− | 2009 09 16 | 703 | 0.6+ | 0.3− | 2009 10 22 | 704 | (0.2+ | 1.7+) |
| 2005 05 01 | 644 | 0.3+ | 0.1− | 2009 09 16 | 703 | 0.2− | 0.0 | 2009 10 22 | 704 | 0.3− | 1.0+ |
| 2008 03 05 | G96 | 0.1+ | 0.0 | 2009 09 16 | 703 | 0.9− | 0.3− | 2009 10 22 | 704 | 0.0 | 0.7+ |
| 2008 03 05 | G96 | 0.1− | 0.0 | 2009 09 19 | 703 | 0.3+ | 0.0 | 2009 10 22 | 704 | 1.2+ | 0.9+ |
| 2008 03 05 | G96 | 0.4− | 0.1+ | 2009 09 19 | 703 | 0.5+ | 0.1+ | 2009 10 26 | G96 | 0.7+ | 0.7− |
| 2008 03 05 | G96 | 0.1− | 0.1− | 2009 09 19 | 703 | 0.2+ | 0.2− | 2009 10 26 | G96 | 0.4+ | 0.7− |
| 2008 03 09 | 291 | 0.1− | 0.3+ | 2009 09 19 | 703 | 0.0 | 0.2− | 2009 10 26 | G96 | 0.1+ | 0.7− |
| 2008 03 09 | 291 | 0.1+ | 0.2+ | 2009 09 27 | 703 | 0.1+ | 0.4+ | 2009 10 26 | G96 | 0.3+ | 0.8− |
| 2008 03 09 | 291 | 0.4+ | 0.3+ | 2009 09 27 | 703 | 0.5+ | 0.5+ | 2009 12 17 | G96 | 0.1− | 0.3+ |
| 2009 08 24 | J75 | 0.0 | 0.2− | 2009 09 27 | 703 | 0.8− | 0.3+ | 2009 12 17 | G96 | 0.8− | 0.3+ |
| 2009 08 24 | J75 | 0.0 | 0.0 | 2009 09 27 | 703 | 0.0 | 0.4+ | 2009 12 17 | G96 | 0.4− | 0.3− |

**(229836)∗ 2009 QR$_{34}$**

Discovered 2009 Aug. 28 by M. Micheli and G. P. Pizzetti at Lumezzane.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 28.72514 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18919046 | $\omega$ | 341.34295 | | +0.91667005 | | +0.39930971 |
| $a$ | 3.0051759 | $\Omega$ | 355.02966 | | −0.33841880 | | +0.75380476 |
| $e$ | 0.0520018 | $i$ | 10.88679 | | −0.21257641 | | +0.52185260 |
| $P$ | 5.21 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 10 14 | 645 | 0.0 | 0.0 | 2009 08 28 | 130 | 0.5− | 0.3+ | 2009 09 12 | F65 | 0.1− | 0.3+ |
| 1999 10 14 | 645 | 0.0 | 0.0 | 2009 08 28 | 130 | 0.3+ | 0.6− | 2009 09 16 | F65 | 0.1+ | 0.1+ |
| 2002 03 13 | 644 | 0.2− | 0.8− | 2009 08 28 | 130 | 1.1+ | 0.7− | 2009 09 16 | F65 | 0.1+ | 0.1+ |
| 2002 03 13 | 644 | 0.1+ | 0.1− | 2009 08 28 | 130 | 0.2− | 1.0− | 2009 09 28 | F65 | 0.0 | 0.4+ |
| 2002 04 04 | 644 | 0.1+ | 0.2+ | 2009 08 29 | 130 | 0.7+ | 0.3− | 2009 09 28 | F65 | 0.1− | 0.4+ |
| 2002 04 04 | 644 | 0.0 | 0.1+ | 2009 08 31 | F65 | 0.2− | 0.0 | 2009 10 19 | G96 | 0.2+ | 0.1+ |
| 2002 04 04 | 644 | 0.3− | 0.3+ | 2009 08 31 | F65 | 0.3− | 0.3+ | 2009 10 19 | G96 | 0.3+ | 0.0 |
| 2002 04 15 | 644 | 0.0 | 0.1− | 2009 08 31 | F65 | 0.3− | 0.1+ | 2009 10 19 | G96 | 0.2+ | 0.2− |
| 2002 04 15 | 644 | 0.1− | 0.1− | 2009 08 31 | F65 | 0.3− | 0.3+ | 2009 10 19 | G96 | 0.2+ | 0.3− |
| 2007 02 21 | 691 | 0.0 | 0.6+ | 2009 08 31 | F65 | 0.3− | 0.0 | 2009 11 09 | G96 | 0.2− | 0.1+ |
| 2007 02 21 | 691 | 0.0 | 0.0 | 2009 09 01 | F65 | 0.1− | 0.2+ | 2009 11 09 | G96 | 0.3− | 0.4− |
| 2007 02 21 | 691 | 0.0 | 0.0 | 2009 09 01 | F65 | 0.1− | 0.2+ | 2009 11 09 | G96 | 0.2− | 0.3− |
| 2007 03 10 | G96 | 0.4+ | 0.1− | 2009 09 01 | F65 | 0.1+ | 0.4+ | 2009 11 09 | G96 | 0.2− | 0.0 |
| 2007 03 10 | G96 | 0.3+ | 0.2− | 2009 09 12 | F65 | 0.3− | 0.4+ | 2009 12 08 | F65 | 0.0 | 0.3+ |
| 2007 03 10 | G96 | 0.3+ | 0.2− | 2009 09 12 | F65 | 0.2− | 0.2+ | 2009 12 08 | F65 | 0.0 | 0.3+ |
| 2007 03 10 | G96 | 0.2+ | 0.2− | 2009 09 12 | F65 | 0.2− | 0.4+ | | | | |

**(229837)∗ 2009 RL$_{10}$**

Discovered 2009 Sept. 12 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 37.15846 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18746855 | $\omega$ | 146.61681 | | +0.94239605 | +0.33446149 | |
| $a$ | 3.0235496 | $\Omega$ | 193.84607 | | −0.31130475 | +0.87146072 | |
| $e$ | 0.2156845 | $i$ | 1.20178 | | −0.12238884 | +0.35873630 | |
| $P$ | 5.26 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 08 | 691 | 0.0 | 0.2− | 2009 09 12 | 691 | 0.0 | 0.1+ | 2009 09 24 | 114 | 0.4+ | 0.5− |
| 2004 10 08 | 691 | 0.1− | 0.0 | 2009 09 12 | 691 | 0.3+ | 0.2+ | 2009 09 24 | 114 | 0.0 | 0.2− |
| 2004 10 08 | 691 | 0.0 | 0.0 | 2009 09 16 | 691 | 0.0 | 0.0 | 2009 09 24 | 114 | 0.1− | 0.7− |
| 2004 11 03 | 691 | 0.1+ | 0.1+ | 2009 09 16 | 691 | 0.1− | 0.1+ | 2009 09 25 | 114 | 0.5+ | 0.2− |
| 2004 11 03 | 691 | 0.0 | 0.1+ | 2009 09 16 | 691 | 0.1− | 0.0 | 2009 09 25 | 114 | 0.4+ | 0.0 |
| 2004 11 03 | 691 | 0.0 | 0.2− | 2009 09 18 | D29 | 0.2− | 1.3+ | 2009 09 25 | 114 | 0.6+ | 0.3− |
| 2004 12 12 | 691 | 0.3+ | 0.2+ | 2009 09 18 | D29 | 0.3+ | 0.0 | 2009 09 25 | 114 | 0.4+ | 0.5− |
| 2004 12 12 | 691 | 0.0 | 0.3+ | 2009 09 18 | D29 | (0.1− | 2.0−) | 2009 09 25 | 114 | 0.6+ | 0.7− |
| 2004 12 12 | 691 | 0.2− | 0.3+ | 2009 09 18 | D29 | 0.4+ | 1.4− | 2009 10 15 | G96 | 0.2+ | 0.1− |
| 2005 03 11 | 695 | 0.7− | 0.4+ | 2009 09 19 | 291 | 0.4− | 0.1− | 2009 10 15 | G96 | 0.4+ | 0.1+ |
| 2005 03 11 | 695 | 0.5− | 0.5+ | 2009 09 19 | 291 | 0.2− | 0.1− | 2009 10 15 | G96 | 0.4+ | 0.2− |
| 2005 03 11 | 695 | 0.1+ | 0.1− | 2009 09 19 | 291 | 0.1− | 0.0 | 2009 10 15 | G96 | 0.1+ | 0.1+ |
| 2005 03 11 | 695 | 0.7− | 0.4+ | 2009 09 20 | 691 | 0.3+ | 0.3+ | 2009 10 21 | G96 | 0.1− | 0.6− |
| 2007 03 16 | G96 | 0.1+ | 0.6+ | 2009 09 20 | 691 | 0.2− | 0.0 | 2009 10 21 | G96 | (0.0 | 1.8−) |
| 2007 03 16 | G96 | 0.1+ | 0.3+ | 2009 09 20 | 691 | 0.0 | 0.1− | 2009 10 21 | G96 | (1.6+ | 1.4−) |
| 2007 03 16 | G96 | 0.2+ | 0.3+ | 2009 09 20 | 691 | 0.2− | 0.1+ | 2009 10 21 | G96 | 0.5+ | 0.2− |
| 2007 03 16 | G96 | 0.3+ | 0.1+ | 2009 09 20 | 691 | 0.1− | 0.3+ | 2009 10 21 | G96 | 0.5+ | 0.2− |
| 2008 05 08 | G96 | 0.1+ | 0.1+ | 2009 09 20 | 691 | 0.2− | 0.0 | 2009 10 21 | G96 | 0.3+ | 0.4− |
| 2008 05 08 | G96 | 0.5− | 0.2+ | 2009 09 23 | 691 | 0.6− | 0.3+ | 2009 10 21 | G96 | 0.4+ | 0.3− |
| 2008 05 08 | G96 | 0.1+ | 0.1+ | 2009 09 23 | 691 | 0.3− | 0.2+ | 2009 10 21 | G96 | 0.4+ | 0.3− |
| 2008 05 08 | G96 | 0.2+ | 0.2+ | 2009 09 23 | 691 | 0.1− | 0.2+ | 2009 12 13 | G96 | 0.2+ | 0.7+ |
| 2008 05 27 | G96 | 0.4− | 0.7+ | 2009 09 24 | 691 | 0.2− | 0.0 | 2009 12 13 | G96 | 0.1+ | 0.2− |
| 2008 05 27 | G96 | 0.2+ | 0.1+ | 2009 09 24 | 691 | 0.1+ | 0.1− | 2009 12 13 | G96 | 0.6+ | 0.1+ |
| 2008 05 27 | G96 | 0.3+ | 0.6+ | 2009 09 24 | 691 | 0.2− | 0.0 | 2009 12 13 | G96 | 0.4+ | 0.0 |
| 2008 05 27 | G96 | 0.4+ | 0.0 | 2009 09 24 | 114 | 0.6+ | 0.3− | | | | |
| 2009 09 12 | 691 | 0.3+ | 0.1+ | 2009 09 24 | 114 | 0.2+ | 0.1+ | | | | |

**(229838)∗ 2009 RV$_{16}$ = 2004 PW$_{64}$ = 2007 DS$_{64}$**

Discovered 2009 Sept. 12 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 162182)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 75.02154 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21488151 | $\omega$ | 156.41700 | | +0.68400037 | +0.72932250 | |
| $a$ | 2.7605992 | $\Omega$ | 156.73081 | | −0.67527489 | +0.64093676 | |
| $e$ | 0.0710448 | $i$ | 2.21053 | | −0.27594803 | +0.23935070 | |
| $P$ | 4.59 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 01 08 | 691 | 0.4+ | 0.9+ | 2004 08 11 | 704 | 0.4− | 0.6+ | 2007 03 26 | G96 | 0.2+ | 0.0 |
| 2002 01 08 | 691 | 0.2− | 0.6+ | 2004 08 11 | 704 | 1.3− | 0.6+ | 2007 03 26 | G96 | 0.1− | 0.1− |
| 2002 01 08 | 691 | 0.2+ | 0.6+ | 2004 08 11 | 704 | 1.2− | 0.6− | 2007 03 26 | G96 | 0.0 | 0.3− |
| 2003 04 26 | 691 | 0.5+ | 1.0+ | 2004 08 11 | 704 | 0.5− | 0.5+ | 2007 03 26 | G96 | 0.2− | 0.2+ |
| 2003 04 26 | 691 | 0.4+ | 1.2+ | 2005 11 30 | G96 | 0.3+ | 0.1− | 2009 09 12 | 691 | 0.4− | 0.5+ |
| 2003 04 26 | 691 | 0.5+ | 1.5+ | 2005 11 30 | G96 | 0.1+ | 0.3+ | 2009 09 12 | 691 | 0.2− | 0.4+ |
| 2003 05 22 | 691 | 0.9+ | 0.1− | 2005 11 30 | G96 | 0.2+ | 0.4+ | 2009 09 12 | 691 | 0.2− | 0.3− |
| 2003 05 22 | 691 | 0.1+ | 0.4+ | 2005 11 30 | G96 | 0.0 | 0.2+ | 2009 09 16 | 691 | 0.0 | 0.1+ |
| 2003 05 22 | 691 | 0.2+ | 0.1+ | 2005 12 27 | G96 | 0.2− | 0.3+ | 2009 09 16 | 691 | 0.1− | 0.2+ |
| 2003 06 06 | 691 | 1.1− | 0.2− | 2005 12 27 | G96 | 0.3− | 0.1+ | 2009 09 16 | 691 | 0.2− | 0.3+ |
| 2003 06 06 | 691 | 0.1− | 0.6− | 2005 12 27 | G96 | 0.0 | 0.1− | 2009 09 24 | 691 | 0.7+ | 0.4+ |
| 2003 06 06 | 691 | 0.4− | 0.1+ | 2005 12 27 | G96 | 0.1− | 0.1+ | 2009 09 24 | 691 | 0.2+ | 0.5+ |
| 2004 08 10 | 704 | 0.5+ | 0.4+ | 2007 02 21 | 691 | 0.1+ | 0.3+ | 2009 09 24 | 691 | 1.4− | 0.8+ |
| 2004 08 10 | 704 | 0.0 | 0.2− | 2007 02 21 | 691 | 0.1− | 0.0 | 2009 12 13 | G96 | 0.3+ | 0.2+ |
| 2004 08 10 | 704 | 0.4+ | 0.8+ | 2007 02 21 | 691 | 0.1− | 0.0 | 2009 12 13 | G96 | 0.3+ | 0.0 |
| 2004 08 10 | 704 | 0.7+ | 0.6+ | 2007 02 25 | 691 | 0.0 | 0.0 | 2009 12 13 | G96 | 0.3+ | 0.7+ |
| 2004 08 10 | 704 | 0.8+ | 0.8+ | 2007 02 25 | 691 | 0.2+ | 0.1− | 2009 12 13 | G96 | 0.2− | 0.0 |
| 2004 08 11 | 704 | 0.3− | 1.1+ | 2007 02 25 | 691 | 0.1+ | 0.0 | | | | |

**(229839)∗ 2009 SB$_{46}$**

Discovered 2009 Sept. 16 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 141.27013 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26763200 | $\omega$ | 14.13450 | | −0.27022628 | +0.96016938 | |
| $a$ | 2.3847564 | $\Omega$ | 240.23013 | | −0.89111263 | −0.27737806 | |
| $e$ | 0.1342585 | $i$ | 4.69710 | | −0.36454909 | −0.03370714 | |
| $P$ | 3.68 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 02 14 | 644 | 0.7+ | 1.3+ | 2005 09 25 | 291 | 0.2+ | 0.2+ | 2009 09 20 | 691 | 0.3− | 0.5+ |
| 2004 02 14 | 644 | 0.4+ | 0.9+ | 2005 09 25 | 291 | 0.0 | 0.1+ | 2009 09 20 | 691 | (1.8− | 0.2+) |
| 2004 02 14 | 644 | 0.5+ | 0.8+ | 2008 05 02 | 703 | 0.9+ | 0.1− | 2009 09 24 | 691 | 0.2+ | 0.1+ |
| 2004 04 12 | 703 | 0.1− | 1.5+ | 2008 05 02 | 703 | 0.4− | 0.1+ | 2009 09 24 | 691 | 0.2− | 0.0 |
| 2004 04 12 | 703 | 0.6+ | 0.6+ | 2008 05 02 | 703 | 0.4+ | 0.9− | 2009 09 24 | 691 | 0.4− | 0.1+ |
| 2004 04 12 | 703 | (1.7+ | 5.0+) | 2008 05 02 | 703 | 0.2+ | 0.6− | 2009 09 28 | 691 | 0.1− | 0.3+ |
| 2004 04 12 | 703 | 0.4+ | 1.3+ | 2008 05 14 | 691 | 0.1− | 0.2+ | 2009 09 28 | 691 | 0.3+ | 0.2+ |
| 2005 09 24 | 291 | 0.1− | 0.2− | 2008 05 14 | 691 | 0.0 | 0.0 | 2009 09 28 | 691 | 0.0 | 0.2+ |
| 2005 09 24 | 291 | 0.0 | 0.2+ | 2008 05 14 | 691 | 0.1− | 0.2+ | 2009 10 21 | G96 | 0.6+ | 0.0 |
| 2005 09 24 | 291 | 0.1− | 0.1+ | 2008 06 06 | 703 | 0.2+ | 0.5+ | 2009 10 21 | G96 | 0.0 | 0.0 |
| 2005 09 24 | 291 | 0.0 | 0.1+ | 2008 06 06 | 703 | 0.8− | 0.6+ | 2009 10 21 | G96 | 0.2+ | 0.3− |
| 2005 09 24 | 291 | 0.2− | 0.3+ | 2008 06 06 | 703 | 0.7+ | 0.4+ | 2009 10 21 | G96 | 0.3+ | 0.2− |
| 2005 09 24 | 291 | 0.1− | 0.1+ | 2008 06 06 | 703 | 0.6+ | 1.3+ | 2009 11 25 | G96 | 0.2+ | 0.2− |
| 2005 09 24 | 291 | 0.1+ | 0.1+ | 2009 09 16 | 691 | 0.1− | 0.1+ | 2009 11 25 | G96 | 0.1+ | 0.3− |
| 2005 09 24 | 291 | 0.0 | 0.1+ | 2009 09 16 | 691 | 0.1+ | 0.1+ | 2009 11 25 | G96 | 0.2+ | 0.0 |
| 2005 09 24 | 291 | 0.1+ | 0.1+ | 2009 09 16 | 691 | 0.0 | 0.3+ | 2009 11 25 | G96 | 0.1+ | 0.2+ |
| 2005 09 25 | 291 | 0.3− | 0.1+ | 2009 09 20 | 691 | 0.8− | 0.5+ | | | | |

**(229840)∗ 2009 SF$_{99}$ = 2002 GX$_{177}$**

Discovered 2009 Sept. 22 by F. Kugel at Observatoire Chante-Perdrix, Dauban.

Id. K. E. Smalley (*MPO* 163977)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 44.80427 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18586436 | $\omega$ | 321.83620 | | +0.85722145 | +0.51416453 | |
| $a$ | 3.0409221 | $\Omega$ | 7.38872 | | −0.40130336 | +0.70157642 | |
| $e$ | 0.1963006 | $i$ | 12.75559 | | −0.32268716 | +0.49338155 | |
| $P$ | 5.30 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 03 20 | 644 | 0.7− | 0.4+ | 2007 04 23 | G96 | 0.4+ | 0.3+ | 2009 10 08 | J75 | 0.3+ | 0.2− |
| 2002 03 20 | 644 | (5.2− | 1.4+) | 2007 04 23 | G96 | 0.0 | 0.1+ | 2009 10 08 | J75 | 0.7+ | 0.3+ |
| 2002 03 20 | 644 | 1.0− | 0.7+ | 2009 09 10 | 703 | 0.6+ | 0.4− | 2009 10 09 | 703 | 1.0+ | 0.2+ |
| 2002 04 03 | 644 | 0.5+ | 1.2+ | 2009 09 10 | 703 | 1.3+ | 1.1+ | 2009 10 09 | 703 | 0.8+ | 0.5+ |
| 2002 04 03 | 644 | (0.7+ | 2.5+) | 2009 09 10 | 703 | 0.9+ | 0.8+ | 2009 10 09 | 703 | 0.0 | 0.2+ |
| 2002 04 04 | 644 | 0.9+ | 0.5− | 2009 09 10 | 703 | 0.3+ | 0.0 | 2009 10 14 | 704 | 0.7+ | 0.3+ |
| 2002 04 04 | 644 | 0.7+ | 0.1− | 2009 09 15 | 691 | 0.2− | 0.1− | 2009 10 14 | 704 | 0.2+ | 0.2+ |
| 2002 04 04 | 644 | 0.7+ | 0.2+ | 2009 09 15 | 691 | 0.2− | 0.0 | 2009 10 14 | 704 | 0.4− | 0.9+ |
| 2004 11 03 | 699 | 0.9− | 0.8+ | 2009 09 15 | 691 | 0.3− | 0.1− | 2009 10 14 | 704 | 0.6+ | 0.2− |
| 2004 11 03 | 699 | 1.2+ | 0.6− | 2009 09 22 | A77 | 0.5− | 0.1+ | 2009 10 22 | 703 | 0.1− | 0.1− |
| 2004 11 03 | 699 | 0.0 | 0.5− | 2009 09 23 | A77 | 0.2− | 0.1+ | 2009 10 22 | 703 | 1.0− | 0.2+ |
| 2004 11 03 | 699 | 0.3− | 0.6+ | 2009 09 23 | A77 | 0.4+ | 0.0 | 2009 10 22 | 703 | 0.4− | 0.0 |
| 2007 02 26 | G96 | 0.1+ | 0.1− | 2009 09 24 | A77 | (2.1− | 0.4−) | 2009 10 22 | 703 | 0.6+ | 0.2+ |
| 2007 02 26 | G96 | 0.2+ | 0.3+ | 2009 09 24 | A77 | 1.0− | 0.1− | 2009 12 16 | G96 | 0.1+ | 0.1+ |
| 2007 02 26 | G96 | 0.4+ | 0.3+ | 2009 09 24 | 691 | 0.4− | 0.1− | 2009 12 16 | G96 | 0.7− | 0.5− |
| 2007 02 26 | G96 | 0.5− | 0.0 | 2009 09 24 | 691 | 0.1− | 0.2− | 2009 12 16 | G96 | 0.1− | 0.2− |
| 2007 04 23 | G96 | 0.1− | 0.4− | 2009 09 24 | 691 | 0.4− | 0.1− | 2009 12 16 | G96 | 0.2+ | 0.2− |
| 2007 04 23 | G96 | 0.4− | 0.6− | 2009 10 08 | J75 | 0.6+ | 0.4− | | | | |

**(229841)∗ 2009 SO$_{114}$**

Discovered 2009 Sept. 18 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 60.15804 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.27330789 | $\omega$ | 80.52184 | | +0.75579196 | | +0.65311741 |
| $a$ | 2.3516243 | $\Omega$ | 238.68493 | | −0.62032464 | | +0.69111010 |
| $e$ | 0.2017031 | $i$ | 3.15879 | | −0.20970419 | | +0.30952298 |
| $P$ | 3.61 | $H$ | 17.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 11 04 | 644 | 0.3− | 0.2+ | 2008 05 03 | G96 | 0.5+ | 0.3+ | 2009 10 15 | 704 | 0.2+ | 0.1− |
| 2002 11 04 | 644 | 0.2− | 0.1+ | 2008 05 03 | G96 | 0.1− | 0.1− | 2009 10 22 | 703 | 0.1+ | 0.3+ |
| 2002 11 04 | 644 | 0.3− | 0.3+ | 2008 05 03 | G96 | 0.0 | 0.5+ | 2009 10 22 | 703 | 1.1− | 0.7− |
| 2002 11 13 | 291 | 0.2− | 0.1− | 2009 09 18 | 691 | 0.0 | 0.3+ | 2009 10 22 | 703 | 1.1− | 0.7+ |
| 2002 11 13 | 291 | 0.1+ | 0.1+ | 2009 09 18 | 691 | 0.1− | 0.1+ | 2009 10 22 | 703 | 0.4+ | 0.8− |
| 2002 11 13 | 291 | 0.3+ | 0.0 | 2009 09 18 | 691 | 0.2− | 0.0 | 2009 11 17 | G96 | 0.1+ | 0.1+ |
| 2006 12 14 | 691 | 0.4+ | 0.1+ | 2009 09 22 | 691 | 0.0 | 0.1− | 2009 11 17 | G96 | 0.2− | 0.5+ |
| 2006 12 14 | 691 | 0.6− | 0.1+ | 2009 09 22 | 691 | 0.2− | 0.1+ | 2009 11 17 | G96 | 0.1+ | 0.3− |
| 2006 12 14 | 691 | 0.5− | 0.2+ | 2009 09 22 | 691 | 0.0 | 0.0 | 2009 11 17 | G96 | 0.4+ | 0.2− |
| 2006 12 22 | 691 | 0.2+ | 0.1− | 2009 09 24 | 683 | 0.3− | 0.2− | 2009 12 11 | G96 | 0.3+ | 0.0 |
| 2006 12 22 | 691 | 0.2+ | 0.3− | 2009 09 24 | 683 | (1.2− | 1.6+) | 2009 12 11 | G96 | 0.1+ | 0.3− |
| 2006 12 22 | 691 | 0.1+ | 0.1− | 2009 09 24 | 683 | (2.4− | 0.7+) | 2009 12 11 | G96 | 0.2− | 0.0 |
| 2008 03 02 | 691 | 0.1+ | 0.3+ | 2009 09 25 | 691 | 0.1− | 0.1+ | 2009 12 11 | G96 | 0.6+ | 0.3+ |
| 2008 03 02 | 691 | 0.1+ | 0.2+ | 2009 09 25 | 691 | 0.0 | 0.1+ | 2009 12 17 | G96 | 0.1− | 0.5− |
| 2008 03 02 | 691 | 0.1+ | 0.0 | 2009 09 25 | 691 | 0.0 | 0.0 | 2009 12 17 | G96 | 0.4+ | 0.1− |
| 2008 03 10 | 691 | 0.2+ | 0.8+ | 2009 10 15 | 704 | 0.9+ | 0.3+ | 2009 12 17 | G96 | 0.2− | 0.1− |
| 2008 03 10 | 691 | 0.2+ | 0.3− | 2009 10 15 | 704 | 0.4+ | 0.4+ | 2009 12 17 | G96 | 0.8+ | 0.3+ |
| 2008 03 10 | 691 | 0.2− | 0.2− | 2009 10 15 | 704 | 0.4− | 1.0+ | | | | |
| 2008 05 03 | G96 | 0.6− | 0.3+ | 2009 10 15 | 704 | 0.4+ | 0.5+ | | | | |

**(229842)∗ 2009 SF$_{143}$**

Discovered 2009 Sept. 19 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 117.96591 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21471895 | $\omega$ | 75.24089 | | +0.04987889 | | +0.99850520 |
| $a$ | 2.7619924 | $\Omega$ | 197.66386 | | −0.94233797 | | +0.03963538 |
| $e$ | 0.0704199 | $i$ | 4.22383 | | −0.33092484 | | +0.03763516 |
| $P$ | 4.59 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1993 02 26 | 691 | 0.2+ | 0.5+ | 2007 02 10 | 703 | (0.5+ | 1.7+) | 2009 10 14 | 703 | 1.0− | 0.2− |
| 1993 02 26 | 691 | 0.1− | 0.3+ | 2007 02 10 | 703 | (1.6+ | 0.2+) | 2009 10 14 | 703 | 0.7+ | 0.6+ |
| 1993 02 26 | 691 | 0.1− | 0.2+ | 2007 02 10 | 703 | 1.1− | 0.4− | 2009 10 14 | 703 | 0.7+ | 0.3− |
| 2003 04 24 | 599 | 1.2+ | 0.3− | 2007 02 10 | 703 | 0.3− | 0.1+ | 2009 10 14 | 703 | 0.2− | 0.6− |
| 2003 04 24 | 599 | 1.3− | 0.5+ | 2007 03 10 | 644 | 0.8+ | 0.1+ | 2009 10 17 | J75 | 0.2+ | 0.6− |
| 2003 04 25 | 599 | 0.3+ | 0.2+ | 2007 03 10 | 644 | 0.4+ | 0.6+ | 2009 10 17 | J75 | 0.5+ | 0.3− |
| 2004 09 18 | E12 | 0.7+ | 0.4+ | 2007 03 10 | 644 | 0.8+ | 0.1+ | 2009 10 17 | J75 | 0.1+ | 0.3− |
| 2004 09 18 | E12 | 0.7+ | 0.3+ | 2007 03 15 | 703 | 1.1− | 0.5+ | 2009 10 21 | G96 | 0.1+ | 0.2− |
| 2004 09 18 | E12 | 0.1− | 0.8− | 2007 03 15 | 703 | 0.1− | 0.4+ | 2009 10 21 | G96 | 0.2+ | 0.1− |
| 2004 09 18 | E12 | 0.2− | 0.4− | 2007 03 15 | 703 | 0.9+ | 0.8− | 2009 10 21 | G96 | 0.3+ | 0.1+ |
| 2004 10 04 | 691 | 0.1− | 0.5+ | 2007 03 15 | 703 | 0.3+ | 0.8+ | 2009 10 21 | G96 | 0.1− | 0.1− |
| 2004 10 04 | 691 | 0.2− | 0.3+ | 2009 09 19 | 691 | 0.5+ | 0.5+ | 2009 10 27 | G96 | 0.5+ | 0.3− |
| 2004 10 04 | 691 | 0.1− | 0.4+ | 2009 09 19 | 691 | 0.5− | 0.4+ | 2009 10 27 | G96 | 0.4+ | 0.8− |
| 2005 11 01 | G96 | 0.2+ | 0.3+ | 2009 09 19 | 691 | 0.0 | 0.5+ | 2009 10 27 | G96 | 0.1+ | 0.4− |
| 2005 11 01 | G96 | 0.2+ | 0.2− | 2009 09 23 | 691 | 0.2− | 0.2+ | 2009 10 27 | G96 | 0.1+ | 0.0 |
| 2005 11 01 | G96 | 0.1− | 0.2− | 2009 09 23 | 691 | 0.5− | 0.2− | 2009 12 10 | G96 | 0.4− | 0.3+ |
| 2005 11 01 | G96 | 0.1− | 0.3− | 2009 09 23 | 691 | 0.1− | 0.2− | 2009 12 10 | G96 | 0.2− | 0.4− |
| 2005 12 07 | 691 | 0.3+ | 0.0 | 2009 09 27 | 691 | 0.2+ | 0.1− | 2009 12 10 | G96 | 0.6− | 0.7− |
| 2005 12 07 | 691 | 0.1+ | 0.1− | 2009 09 27 | 691 | 0.4− | 0.1+ | 2009 12 10 | G96 | 0.3+ | 0.6− |
| 2005 12 07 | 691 | 0.1+ | 0.1− | 2009 09 27 | 691 | 0.2− | 0.1+ | | | | |

**(229843)∗ 2009 SF$_{147}$ = 2008 GG$_{122}$**

Discovered 2009 Sept. 19 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 163994)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 75.47768 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.28921520 | $\omega$ | 278.73002 | | +0.81273648 | | +0.57576196 |
| $a$ | 2.2645851 | $\Omega$ | 46.17583 | | −0.47404889 | | +0.74248675 |
| $e$ | 0.1175789 | $i$ | 7.10246 | | −0.33872860 | | +0.34236179 |
| $P$ | 3.41 | $H$ | 17.5 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 03 19 | 645 | 0.1− | 0.0 | 2006 11 23 | 691 | 0.1+ | 0.2− | 2009 09 19 | 691 | 0.1− | 0.4+ |
| 2001 03 19 | 645 | 0.1− | 0.0 | 2008 03 31 | 691 | 0.2+ | 0.2− | 2009 09 23 | 691 | 0.3− | 0.0 |
| 2001 04 13 | 691 | 0.5+ | 0.2+ | 2008 03 31 | 691 | 0.2− | 0.1− | 2009 09 23 | 691 | 0.1+ | 0.4+ |
| 2001 04 13 | 691 | 0.4+ | 0.3+ | 2008 03 31 | 691 | 0.2− | 0.5+ | 2009 09 23 | 691 | 0.2− | 0.2+ |
| 2001 04 13 | 691 | 0.9+ | 0.4+ | 2008 04 13 | 691 | 0.8− | 0.6− | 2009 10 21 | 703 | 0.4+ | 0.7− |
| 2002 08 31 | 699 | 0.6+ | 1.2− | 2008 04 13 | 691 | 0.0 | 0.0 | 2009 10 21 | 703 | 1.4+ | 0.4− |
| 2002 08 31 | 699 | 0.6− | 0.2+ | 2008 04 13 | 691 | 0.1+ | 0.0 | 2009 10 21 | 703 | 0.3− | 0.5+ |
| 2002 08 31 | 699 | 0.5− | 0.7+ | 2008 04 15 | 691 | 0.2+ | 0.1− | 2009 10 21 | 703 | 0.2− | 0.7− |
| 2002 08 31 | 699 | 0.2− | 0.4+ | 2008 04 15 | 691 | 0.1+ | 0.3− | 2009 10 22 | G96 | 0.3+ | 0.2− |
| 2004 02 16 | 691 | 0.2+ | 0.2+ | 2008 04 15 | 691 | 0.0 | 0.2+ | 2009 10 22 | G96 | 0.5+ | 0.2− |
| 2004 02 16 | 691 | 0.1− | 0.1− | 2008 04 27 | G96 | 0.1+ | 0.7+ | 2009 10 22 | G96 | 0.1+ | 0.3− |
| 2004 02 16 | 691 | 0.1− | 0.4+ | 2008 04 27 | G96 | 0.0 | 0.3+ | 2009 10 22 | G96 | 0.5+ | 0.3− |
| 2004 03 18 | 645 | 0.1− | 0.0 | 2008 04 27 | G96 | 0.6+ | 0.0 | 2009 12 15 | G96 | 0.2+ | 0.1+ |
| 2004 03 18 | 645 | 0.0 | 0.0 | 2008 04 27 | G96 | 0.0 | 0.0 | 2009 12 15 | G96 | 0.2− | 0.4+ |
| 2006 11 23 | 691 | 0.1+ | 0.2− | 2009 09 19 | 691 | 0.2− | 0.2+ | 2009 12 15 | G96 | 0.1+ | 0.4+ |
| 2006 11 23 | 691 | 0.2− | 0.2− | 2009 09 19 | 691 | 0.4− | 0.3+ | 2009 12 15 | G96 | 0.3+ | 0.6+ |

**(229844)∗ 2009 ST$_{204}$**

Discovered 2009 Sept. 22 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 269.12108 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.27546324 | $\omega$ | 295.07740 | | −0.89534521 | | −0.44490607 |
| $a$ | 2.3393414 | $\Omega$ | 218.51432 | | +0.41950911 | | −0.82709649 |
| $e$ | 0.1219767 | $i$ | 1.87595 | | +0.14956291 | | −0.34346758 |
| $P$ | 3.58 | $H$ | 17.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 11 05 | 291 | 0.1+ | 0.5+ | 2007 01 19 | 699 | 1.2− | 1.9− | 2009 09 26 | 691 | 0.5− | 0.3− |
| 2002 11 05 | 291 | 0.1− | 0.3+ | 2007 01 19 | 699 | 1.3+ | 1.2+ | 2009 10 22 | G96 | 0.2+ | 0.1+ |
| 2002 11 05 | 291 | 0.2− | 0.0 | 2007 01 19 | 699 | 0.4+ | 0.3+ | 2009 10 22 | G96 | 0.4+ | 0.2− |
| 2004 04 26 | 291 | 0.1− | 0.8+ | 2007 01 19 | 699 | 1.0+ | 1.7+ | 2009 10 22 | G96 | 0.1+ | 0.0 |
| 2004 04 26 | 291 | 0.2+ | 0.2+ | 2007 02 10 | G96 | 0.5− | 0.2+ | 2009 10 22 | G96 | 0.3+ | 0.3− |
| 2004 04 26 | 291 | 0.1− | 0.5+ | 2007 02 10 | G96 | 0.1− | 0.3− | 2009 10 22 | G96 | 0.5+ | 0.3+ |
| 2004 05 19 | 691 | 0.1+ | 0.3+ | 2007 02 10 | G96 | 0.1− | 0.0 | 2009 10 22 | G96 | 0.6+ | 0.0 |
| 2004 05 19 | 691 | 0.2+ | 0.1+ | 2007 02 10 | G96 | 0.8− | 0.2+ | 2009 10 22 | G96 | 0.5+ | 0.1+ |
| 2004 05 19 | 691 | 0.1+ | 0.1− | 2007 03 15 | G96 | 0.2− | 0.1− | 2009 10 22 | G96 | 0.5+ | 0.0 |
| 2006 12 13 | G96 | 0.4+ | 0.1− | 2007 03 15 | G96 | 0.0 | 0.1− | 2009 10 22 | G96 | 0.7+ | 0.2+ |
| 2006 12 13 | G96 | 0.7+ | 0.1− | 2007 03 15 | G96 | 0.1− | 0.3+ | 2009 10 22 | G96 | 0.4+ | 0.3+ |
| 2006 12 13 | G96 | 0.7+ | 0.1+ | 2007 03 15 | G96 | 0.4− | 0.2+ | 2009 10 22 | G96 | 0.5+ | 0.2− |
| 2006 12 13 | G96 | 0.0 | 0.0 | 2009 09 22 | 691 | 0.5− | 0.6− | 2009 10 22 | G96 | 0.8+ | 0.2+ |
| 2007 01 10 | G96 | 0.5− | 0.0 | 2009 09 22 | 691 | 0.5− | 0.7+ | 2009 10 24 | 691 | 0.0 | 0.1+ |
| 2007 01 10 | G96 | 0.4+ | 0.2− | 2009 09 22 | 691 | 0.0 | 0.3+ | 2009 10 24 | 691 | 0.2− | 0.4+ |
| 2007 01 10 | G96 | 0.3− | 0.2− | 2009 09 26 | 691 | 0.1+ | 0.1− | 2009 10 24 | 691 | 0.0 | 0.5+ |
| 2007 01 10 | G96 | 0.5− | 0.5− | 2009 09 26 | 691 | 0.3− | 0.1− | | | | |

**(229845)∗ 2009 ST$_{229}$ = 2002 CZ$_{222}$**

Discovered 2009 Sept. 16 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 164020)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 354.63336 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21409187 | $\omega$ | 139.96785 | | +0.79229372 | | −0.60873432 |
| $a$ | 2.7673829 | $\Omega$ | 257.57873 | | +0.54838943 | | +0.74020591 |
| $e$ | 0.0952226 | $i$ | 2.42908 | | +0.26746905 | | +0.28554813 |
| $P$ | 4.60 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 07 26 | 691 | 0.3− | 0.4− | 2005 11 30 | 691 | 0.2− | 0.1− | 2009 09 16 | 691 | 0.2− | 0.3+ |
| 1995 07 26 | 691 | 0.3− | 0.1− | 2005 11 30 | 691 | 0.4− | 0.3− | 2009 09 16 | 691 | 0.1− | 0.2+ |
| 1995 07 26 | 691 | 0.2− | 0.1− | 2005 12 25 | G96 | 0.5− | 0.4− | 2009 09 16 | 691 | 0.3− | 0.2+ |
| 2000 09 20 | 691 | 0.1− | 0.1− | 2005 12 25 | G96 | 0.6− | 0.3− | 2009 09 27 | G96 | 0.3+ | 0.0 |
| 2000 09 20 | 691 | 0.0 | 0.2− | 2005 12 25 | G96 | 0.7− | 0.2− | 2009 09 27 | G96 | 0.1+ | 0.1− |
| 2000 09 20 | 691 | 0.4+ | 0.6− | 2005 12 25 | G96 | 0.3− | 0.3− | 2009 09 27 | G96 | 0.1+ | 0.1− |
| 2000 12 04 | 691 | 0.5+ | 0.1− | 2006 01 06 | G96 | 0.9− | 0.1− | 2009 09 27 | G96 | 0.0 | 0.0 |
| 2000 12 04 | 691 | 0.6+ | 0.1+ | 2006 01 06 | G96 | 0.1− | 0.6+ | 2009 10 15 | 704 | 0.0 | 1.1+ |
| 2000 12 04 | 691 | 0.3+ | 0.0 | 2006 01 06 | G96 | 0.2+ | 0.2− | 2009 10 15 | 704 | 0.1− | 1.5+ |
| 2002 02 11 | 704 | 0.3+ | 1.1+ | 2006 01 06 | G96 | 0.1− | 0.1− | 2009 10 15 | 704 | 0.5+ | 1.1+ |
| 2002 02 11 | 704 | 0.6+ | 0.1+ | 2007 02 27 | 691 | 0.5− | 0.1+ | 2009 12 16 | G96 | 0.8− | 0.6− |
| 2002 02 11 | 704 | 0.3+ | 0.1+ | 2007 02 27 | 691 | 0.2− | 0.5− | 2009 12 16 | G96 | 0.5+ | 0.1+ |
| 2002 02 11 | 704 | 0.5+ | 0.3+ | 2007 02 27 | 691 | 0.2− | 0.0 | 2009 12 16 | G96 | 0.1− | 0.2− |
| 2002 02 11 | 704 | (0.5− | 2.1+) | 2007 03 12 | 691 | 0.1+ | 0.1− | 2009 12 16 | G96 | 0.3+ | 0.0 |
| 2002 02 12 | 704 | (2.8+ | 0.5+) | 2007 03 12 | 691 | 0.1− | 0.0 | 2009 12 16 | G96 | 0.2+ | 0.2− |
| 2002 02 12 | 704 | 1.1+ | 1.0+ | 2007 03 12 | 691 | 0.3+ | 0.1+ | 2009 12 16 | G96 | 1.5+ | 0.3+ |
| 2002 02 12 | 704 | 0.6+ | 0.3+ | 2007 04 22 | G96 | 0.4+ | 0.3− | 2009 12 16 | G96 | 0.2− | 0.3− |
| 2002 02 12 | 704 | 0.8+ | 0.0 | 2007 04 22 | G96 | 0.1− | 0.3− | 2009 12 16 | G96 | 0.7+ | 0.3− |
| 2002 02 12 | 704 | 1.1+ | 0.3− | 2007 04 22 | G96 | 0.4− | 0.3− | | | | |
| 2005 11 30 | 691 | 0.2− | 0.5+ | 2007 04 22 | G96 | 0.3− | 0.6− | | | | |

**(229846)∗ 2009 SZ$_{230}$**

Discovered 2009 Sept. 17 by the Mt. Lemmon Survey at Mount Lemmon.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 332.80879 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21123154 | $\omega$ | 227.81390 | | +0.40069448 | | −0.91584848 |
| $a$ | 2.7923094 | $\Omega$ | 198.61287 | | +0.86263255 | | +0.38660011 |
| $e$ | 0.1464941 | $i$ | 4.63601 | | +0.30872157 | | +0.10845239 |
| $P$ | 4.67 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 03 10 | 291 | 0.2+ | 0.6+ | 2007 04 18 | G96 | 0.0 | 0.4− | 2009 09 28 | G96 | 0.0 | 0.1+ |
| 2002 03 10 | 291 | 0.2+ | 0.4+ | 2007 04 18 | G96 | 0.4+ | 0.1− | 2009 09 28 | G96 | 0.0 | 0.0 |
| 2002 03 10 | 291 | 0.1+ | 0.3+ | 2007 05 09 | G96 | 0.4− | 0.4− | 2009 09 28 | G96 | 0.6+ | 0.1+ |
| 2002 04 09 | 291 | 0.1− | 0.3+ | 2007 05 09 | G96 | 0.3− | 0.1+ | 2009 10 14 | G96 | 0.0 | 0.1+ |
| 2002 04 09 | 291 | 0.3+ | 0.3+ | 2007 05 09 | G96 | 0.6− | 0.1+ | 2009 10 14 | G96 | 0.4+ | 0.2+ |
| 2002 04 09 | 291 | 0.1− | 0.0 | 2007 05 09 | G96 | 0.1+ | 0.5− | 2009 10 14 | G96 | 0.3+ | 0.1+ |
| 2004 08 20 | 691 | 0.0 | 0.3+ | 2009 09 17 | G96 | 0.0 | 0.0 | 2009 10 14 | G96 | 0.3+ | 0.1+ |
| 2004 08 20 | 691 | 0.2− | 0.3+ | 2009 09 17 | G96 | 0.1− | 0.3+ | 2009 10 24 | 691 | 0.3− | 0.2+ |
| 2004 08 20 | 691 | 0.0 | 0.2+ | 2009 09 17 | G96 | 0.4+ | 0.0 | 2009 10 24 | 691 | 0.4− | 0.2+ |
| 2007 04 07 | G96 | 0.7+ | 1.4+ | 2009 09 17 | G96 | 0.3− | 0.3− | 2009 10 24 | 691 | 0.4− | 0.4+ |
| 2007 04 07 | G96 | 0.7+ | 0.0 | 2009 09 27 | G96 | 0.0 | 0.0 | 2009 11 23 | G96 | 0.5− | 0.2+ |
| 2007 04 07 | G96 | 0.4− | 0.4+ | 2009 09 27 | G96 | 0.2+ | 0.1− | 2009 11 23 | G96 | 0.1− | 0.1− |
| 2007 04 07 | G96 | 0.6− | 0.3− | 2009 09 27 | G96 | 0.0 | 0.0 | 2009 11 23 | G96 | 0.0 | 0.1− |
| 2007 04 18 | G96 | 0.3+ | 0.3− | 2009 09 27 | G96 | 0.1+ | 0.3+ | 2009 11 23 | G96 | 1.0+ | 0.0 |
| 2007 04 18 | G96 | 0.0 | 0.5− | 2009 09 28 | G96 | 0.5+ | 0.1− | | | | |

**(229847)∗ 2009 SR$_{234}$**

Discovered 2009 Sept. 16 by the Mt. Lemmon Survey at Mount Lemmon.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 38.58490 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18459853 | $\omega$ | 327.47025 | | +0.99198038 | | +0.05581890 |
| $a$ | 3.0548078 | $\Omega$ | 29.96086 | | +0.01861186 | | +0.82290375 |
| $e$ | 0.2642662 | $i$ | 13.12436 | | −0.12501413 | | +0.56543229 |
| $P$ | 5.34 | $H$ | 14.9 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 09 22 | 699 | 0.5+ | 0.7− | 2009 10 14 | 703 | 0.1+ | 0.3− | 2009 11 09 | G96 | 0.2+ | 0.2− |
| 1998 09 22 | 699 | 0.3− | 0.1+ | 2009 10 14 | 703 | 0.0 | 0.2− | 2009 11 10 | G96 | 0.1+ | 0.0 |
| 1998 09 22 | 699 | 0.0 | 0.1+ | 2009 10 14 | 703 | 0.2− | 0.3+ | 2009 11 10 | G96 | 0.0 | 0.0 |
| 2002 04 12 | 691 | 0.2− | 0.2+ | 2009 10 14 | 703 | 0.3+ | 0.1− | 2009 11 10 | G96 | 0.2+ | 0.1+ |
| 2002 04 12 | 691 | 0.4− | 0.4− | 2009 10 14 | 703 | 0.6− | 0.1− | 2009 11 10 | G96 | 0.4+ | 0.0 |
| 2002 04 12 | 691 | 0.5+ | 0.5+ | 2009 10 14 | 703 | 0.6− | 0.1+ | 2009 11 12 | 704 | 0.0 | 0.2+ |
| 2002 05 09 | 644 | 0.4+ | 0.2+ | 2009 10 22 | 703 | 0.3− | 0.4− | 2009 11 12 | 704 | 0.2+ | 0.1+ |
| 2002 05 09 | 644 | 0.1+ | 0.3+ | 2009 10 22 | 703 | 0.6− | 0.0 | 2009 11 12 | 704 | 0.2− | 0.1+ |
| 2002 05 09 | 644 | 0.0 | 0.4− | 2009 10 22 | 703 | 0.1− | 0.2− | 2009 11 12 | J75 | 0.3+ | 0.1− |
| 2002 05 18 | 644 | 0.1− | 0.5− | 2009 10 22 | 703 | 0.3+ | 0.0 | 2009 11 12 | J75 | 0.2+ | 0.2− |
| 2002 05 18 | 644 | 0.8+ | 1.4− | 2009 10 22 | 703 | 0.2+ | 0.1− | 2009 11 12 | J75 | 0.2+ | 0.5− |
| 2007 03 15 | 691 | 0.1+ | 0.1− | 2009 10 22 | 703 | 0.5− | 0.1+ | 2009 11 16 | 704 | 0.4− | 0.7+ |
| 2007 03 15 | 691 | 0.0 | 0.1− | 2009 10 22 | 703 | 0.2+ | 0.3+ | 2009 11 16 | 704 | 0.1+ | 0.9+ |
| 2007 03 15 | 691 | 0.1+ | 0.1+ | 2009 10 22 | 703 | 0.1− | 0.2+ | 2009 11 16 | 704 | 0.4+ | 0.7+ |
| 2007 04 22 | G96 | 0.2− | 0.2+ | 2009 10 23 | G96 | 0.1− | 0.0 | 2009 11 16 | 704 | 0.1− | 0.1− |
| 2007 04 22 | G96 | 0.4− | 0.2− | 2009 10 23 | G96 | 0.1+ | 0.0 | 2009 11 16 | 704 | 0.1+ | 0.1+ |
| 2007 04 22 | G96 | 0.3− | 0.1− | 2009 10 23 | G96 | 0.0 | 0.2− | 2009 11 21 | 704 | 0.8+ | 0.7+ |
| 2007 04 22 | G96 | 0.2+ | 0.1− | 2009 10 23 | G96 | 0.2+ | 0.1− | 2009 11 21 | 704 | 0.5+ | 1.1+ |
| 2007 05 12 | G96 | 0.3+ | 0.2− | 2009 10 24 | 703 | 0.4− | 0.2+ | 2009 11 21 | 704 | 0.0 | 0.5+ |
| 2007 05 12 | G96 | 1.3− | 0.3− | 2009 10 24 | 703 | 0.1− | 0.1− | 2009 11 21 | G96 | 0.0 | 0.1− |
| 2007 05 12 | G96 | 0.7− | 0.8− | 2009 10 24 | 703 | 0.4− | 0.1+ | 2009 11 21 | G96 | 0.2− | 0.1− |
| 2007 05 12 | G96 | 0.2− | 0.2+ | 2009 10 28 | J75 | 0.3− | 0.0 | 2009 11 21 | G96 | 0.3− | 0.1− |
| 2009 09 16 | G96 | 0.1+ | 0.1− | 2009 10 28 | J75 | 0.1− | 0.1− | 2009 11 21 | G96 | 0.2− | 0.1− |
| 2009 09 16 | G96 | 0.2− | 0.1+ | 2009 10 28 | J75 | 0.4− | 0.2− | 2009 12 06 | J75 | 0.1+ | 0.3− |
| 2009 09 16 | G96 | 0.0 | 0.1− | 2009 11 09 | G96 | 0.1+ | 0.5− | 2009 12 06 | J75 | 0.2+ | 0.3− |
| 2009 09 16 | G96 | 0.3+ | 0.1− | 2009 11 09 | G96 | 0.3+ | 0.2− | 2009 12 06 | J75 | 0.0 | 0.9− |
| 2009 09 21 | J75 | 0.2− | 0.2+ | 2009 11 09 | G96 | 0.1+ | 0.1− | 2009 12 11 | A77 | 0.3− | 0.3+ |
| 2009 09 21 | J75 | 0.6− | 0.3+ | 2009 11 09 | G96 | 0.2+ | 0.2− | 2009 12 11 | A77 | 0.2− | 0.5+ |
| 2009 09 21 | J75 | 0.9+ | 0.5− | 2009 11 09 | G96 | 0.2+ | 0.2− | 2009 12 11 | A77 | 0.2− | 0.2− |
| 2009 10 14 | 703 | 0.0 | 0.8− | 2009 11 09 | G96 | 0.2− | 0.2− | | | | |
| 2009 10 14 | 703 | 0.6+ | 0.4− | 2009 11 09 | G96 | 0.3+ | 0.1− | | | | |

**(229848)∗ 2009 SW$_{251}$ = 2005 QL$_{158}$**

Discovered 2009 Sept. 20 by the Mt. Lemmon Survey at Mount Lemmon.

Id. G. V. Williams (*MPO* 165787)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 11.18328 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.27279414 | $\omega$ | 358.81953 | | +0.37220878 | | −0.92661613 |
| $a$ | 2.3545759 | $\Omega$ | 69.32663 | | +0.85202644 | | +0.31833233 |
| $e$ | 0.1224164 | $i$ | 3.26712 | | +0.36811896 | | +0.20011764 |
| $P$ | 3.61 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 10 17 | 691 | 0.1− | 0.3+ | 2009 09 20 | G96 | 0.7+ | 0.2+ | 2009 11 27 | G96 | 0.1+ | 0.1− |
| 1998 10 17 | 691 | 0.0 | 0.1+ | 2009 09 30 | G96 | 0.0 | 0.3− | 2009 12 07 | F84 | 0.3+ | 0.1− |
| 1998 10 17 | 691 | 0.1− | 0.4+ | 2009 09 30 | G96 | 0.2− | 0.2− | 2009 12 07 | F84 | 0.1+ | 0.2+ |
| 2005 08 26 | 644 | 0.0 | 0.2+ | 2009 09 30 | G96 | 1.0+ | 0.0 | 2009 12 07 | F84 | 0.4+ | 0.6+ |
| 2005 08 26 | 644 | 0.2+ | 0.0 | 2009 09 30 | G96 | 0.1− | 0.2− | 2009 12 08 | J75 | 0.6+ | 0.4+ |
| 2005 08 26 | 644 | 0.3+ | 0.3+ | 2009 10 16 | G96 | 0.0 | 0.7− | 2009 12 08 | J75 | 0.3− | 0.6+ |
| 2005 08 31 | 644 | 0.0 | 0.2+ | 2009 10 16 | G96 | 0.3+ | 0.2− | 2009 12 08 | J75 | 0.8+ | 0.1− |
| 2005 08 31 | 644 | 0.1+ | 0.1+ | 2009 10 16 | G96 | 0.1+ | 0.1− | 2009 12 09 | J75 | 0.5+ | 0.2+ |
| 2005 08 31 | 644 | 0.4+ | 0.1− | 2009 10 16 | G96 | 0.2− | 0.0 | 2009 12 09 | J75 | 0.2+ | 0.2+ |
| 2005 09 28 | 644 | 0.2+ | 0.2+ | 2009 11 08 | 691 | 0.2− | 0.0 | 2009 12 09 | J75 | 0.1− | 0.2− |
| 2005 09 28 | 644 | 0.1+ | 0.2+ | 2009 11 08 | 691 | 0.0 | 0.1+ | 2009 12 11 | 703 | 0.8+ | 0.3+ |
| 2005 09 28 | 644 | 0.0 | 0.5+ | 2009 11 08 | 691 | 0.1− | 0.2+ | 2009 12 11 | 703 | 0.0 | 0.7− |
| 2005 09 30 | 699 | (2.4+ | 3.1+) | 2009 11 16 | 691 | (1.5− | 1.6−) | 2009 12 11 | 703 | 1.2+ | 0.4+ |
| 2005 09 30 | 699 | 1.0− | 0.8+ | 2009 11 16 | 691 | 0.7− | 0.2− | 2009 12 11 | 703 | 0.8+ | 0.7+ |
| 2005 09 30 | 699 | 0.4− | 0.2− | 2009 11 16 | 691 | 0.3− | 0.2− | 2009 12 15 | G96 | 0.3+ | 0.7− |
| 2005 09 30 | 699 | 1.0− | 0.4− | 2009 11 20 | 691 | 0.5− | 0.0 | 2009 12 15 | G96 | 0.2+ | 0.2− |
| 2007 02 26 | G96 | 0.2+ | 0.3− | 2009 11 20 | 691 | 0.6− | 0.0 | 2009 12 15 | G96 | 0.3+ | 0.0 |
| 2007 02 26 | G96 | 0.0 | 0.1− | 2009 11 20 | 691 | 0.7− | 0.0 | 2009 12 15 | G96 | 0.5+ | 0.2− |
| 2007 02 26 | G96 | 0.4+ | 0.0 | 2009 11 24 | J75 | 0.6+ | 0.6− | 2009 12 16 | G96 | 0.4+ | 0.2− |
| 2007 02 26 | G96 | 0.2− | 0.0 | 2009 11 24 | J75 | 0.4+ | 0.4+ | 2009 12 16 | 704 | 1.3+ | 0.3− |
| 2007 03 09 | 703 | (2.1− | 0.3−) | 2009 11 24 | J75 | 0.5+ | 0.8− | 2009 12 16 | G96 | 0.2+ | 0.2− |
| 2007 03 09 | 703 | 0.2+ | 0.8+ | 2009 11 24 | 691 | 0.1+ | 0.0 | 2009 12 16 | 704 | 0.9+ | 0.0 |
| 2007 03 09 | 703 | 0.7− | 0.2− | 2009 11 24 | 691 | 0.0 | 0.0 | 2009 12 16 | G96 | 0.0 | 0.2− |
| 2007 03 12 | 691 | 0.1+ | 0.3+ | 2009 11 24 | 691 | 0.5− | 0.1+ | 2009 12 16 | G96 | 0.3+ | 0.3− |
| 2007 03 12 | 691 | 0.2+ | 0.1+ | 2009 11 27 | G96 | 0.0 | 0.1+ | 2009 12 16 | 704 | 0.6+ | 0.0 |
| 2007 03 12 | 691 | 0.1+ | 0.4+ | 2009 11 27 | G96 | 0.2+ | 0.2− | 2009 12 16 | 704 | 0.3+ | 0.9+ |
| 2009 09 20 | G96 | 0.4+ | 0.3− | 2009 11 27 | G96 | 0.4+ | 0.0 | | | | |
| 2009 09 20 | G96 | 0.6+ | 0.3+ | 2009 11 27 | G96 | 0.4+ | 0.2− | | | | |

**(229849)∗ 2009 SK$_{253}$**

Discovered 2009 Sept. 23 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 340.07004 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.25890389 | $\omega$ | 151.98960 | | +0.18337403 | −0.98301490 | |
| $a$ | 2.4380559 | $\Omega$ | 287.44325 | | +0.90045724 | +0.17100889 | |
| $e$ | 0.1646885 | $i$ | 0.44810 | | +0.39439921 | +0.06661577 | |
| $P$ | 3.81 | $H$ | 17.9 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 21 | 691 | 0.9− | 0.7+ | 2005 10 25 | G96 | 0.1+ | 0.0 | 2009 10 14 | G96 | 0.4+ | 0.0 | |
| 2001 08 21 | 691 | 0.2− | 0.4+ | 2005 10 25 | G96 | 0.2+ | 0.1+ | 2009 10 14 | G96 | 0.4+ | 0.2− | |
| 2001 08 21 | 691 | 0.5+ | 0.3+ | 2005 10 25 | G96 | 0.1− | 1.3− | 2009 10 27 | G96 | 0.0 | 0.8− | |
| 2002 12 14 | 645 | 0.0 | 0.2− | 2005 10 25 | G96 | 0.0 | 0.5− | 2009 10 27 | G96 | 0.4− | 0.7− | |
| 2002 12 14 | 645 | 0.0 | 0.2− | 2007 02 23 | G96 | 0.6+ | 0.1− | 2009 10 27 | G96 | 0.3− | 0.7− | |
| 2003 01 27 | 291 | 0.1+ | 0.5+ | 2007 02 23 | G96 | 0.0 | 0.3− | 2009 10 27 | G96 | 0.5− | 0.7− | |
| 2003 01 27 | 291 | 0.1− | 0.3+ | 2007 02 23 | G96 | 0.4+ | 0.8− | 2009 11 11 | G96 | 0.3+ | 0.1+ | |
| 2003 01 27 | 291 | 0.2+ | 0.7+ | 2007 02 23 | G96 | 0.2− | 0.1+ | 2009 11 11 | G96 | 0.2+ | 0.0 | |
| 2003 01 28 | 291 | 0.2+ | 0.4+ | 2007 03 09 | 691 | 0.2+ | 0.1− | 2009 11 11 | G96 | 0.1+ | 0.2+ | |
| 2003 01 28 | 291 | 0.2− | 0.4+ | 2007 03 09 | 691 | 0.0 | 0.3+ | 2009 11 11 | G96 | 0.4+ | 0.2− | |
| 2003 01 28 | 291 | 0.0 | 0.4+ | 2007 03 09 | 691 | 0.1− | 0.5+ | 2009 11 18 | G96 | 0.1+ | 0.5− | |
| 2005 09 13 | 691 | 0.2+ | 0.1+ | 2009 09 15 | 691 | 0.2− | 0.3+ | 2009 11 18 | G96 | 0.0 | 0.2− | |
| 2005 09 13 | 691 | 0.1− | 0.2+ | 2009 09 15 | 691 | 0.0 | 0.0 | 2009 11 18 | G96 | 0.1− | 0.1+ | |
| 2005 09 13 | 691 | 0.1+ | 0.2+ | 2009 09 15 | 691 | 0.0 | 0.4+ | 2009 11 18 | G96 | 0.2+ | 0.3− | |
| 2005 09 30 | G96 | 0.0 | 0.1− | 2009 09 23 | 691 | 0.5− | 0.2+ | 2009 11 24 | G96 | 0.3+ | 0.4− | |
| 2005 09 30 | G96 | 0.1+ | 0.0 | 2009 09 23 | 691 | 0.4− | 0.3+ | 2009 11 24 | G96 | 0.8+ | 0.1− | |
| 2005 09 30 | G96 | 0.4− | 0.1− | 2009 09 23 | 691 | (1.8− | 0.3+) | 2009 11 24 | G96 | 0.1− | 0.4− | |
| 2005 09 30 | G96 | 0.2+ | 0.1+ | 2009 09 28 | 691 | 0.0 | 0.0 | 2009 11 24 | G96 | 0.4+ | 0.4− | |
| 2005 10 25 | G96 | 0.2− | 0.6− | 2009 09 28 | 691 | 0.0 | 0.0 | 2009 12 15 | G96 | 0.3+ | 0.0 | |
| 2005 10 25 | G96 | 0.1− | 0.2− | 2009 09 28 | 691 | 0.2+ | 0.4+ | 2009 12 15 | G96 | 0.1− | 0.2+ | |
| 2005 10 25 | G96 | 0.4− | 0.2+ | 2009 10 14 | G96 | 0.6+ | 0.0 | 2009 12 15 | G96 | 0.9− | 0.1− | |
| 2005 10 25 | G96 | 0.4+ | 0.5+ | 2009 10 14 | G96 | 0.5+ | 0.0 | 2009 12 15 | G96 | 0.1− | 0.9+ | |

**(229850)∗ 2009 SP$_{255}$ = 2004 XN$_{162}$**

Discovered 2009 Sept. 20 by the Catalina Sky Survey.

Id. G. V. Williams (*MPO* 165790)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 38.59171 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.37831616 | $\omega$ | 297.08497 | | +0.76650083 | −0.48726696 | |
| $a$ | 1.8933582 | $\Omega$ | 94.86642 | | +0.62783533 | +0.70570747 | |
| $e$ | 0.1022304 | $i$ | 24.82829 | | −0.13527483 | +0.51434218 | |
| $P$ | 2.61 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 15 | 704 | 0.2+ | 1.1+ | 2008 04 28 | 703 | 0.0 | 0.7+ | 2009 11 18 | 703 | 0.1− | 1.0− | |
| 2004 12 15 | 704 | 0.5+ | 0.8+ | 2008 04 28 | 703 | 0.2− | 0.1− | 2009 11 18 | 703 | (0.3− | 1.9−) | |
| 2004 12 15 | 704 | 0.7− | 0.2− | 2008 04 28 | 703 | 0.8+ | 0.1− | 2009 11 18 | 703 | 1.0− | 0.3− | |
| 2004 12 15 | 704 | 0.2+ | 0.1− | 2008 04 28 | 703 | 1.2− | 0.1+ | 2009 11 18 | H01 | 0.1+ | 0.0 | |
| 2004 12 21 | 703 | 0.5− | 0.4+ | 2009 09 20 | 703 | 0.1− | 1.3+ | 2009 11 18 | H01 | 0.1+ | 0.1+ | |
| 2004 12 21 | 703 | 0.5− | 0.1− | 2009 09 20 | 703 | 0.8+ | 0.5+ | 2009 11 18 | H01 | 0.1+ | 0.1− | |
| 2004 12 21 | 703 | 0.1− | 0.2+ | 2009 09 20 | 703 | 0.1− | 0.2+ | 2009 11 18 | H01 | 0.0 | 0.0 | |
| 2004 12 21 | 703 | 0.1+ | 0.4− | 2009 09 29 | 703 | 0.6− | 0.7+ | 2009 11 18 | H01 | 0.0 | 0.0 | |
| 2005 01 15 | 703 | 0.3+ | 0.9+ | 2009 09 29 | 703 | 0.4− | 0.1− | 2009 11 24 | 703 | 0.4+ | 0.3− | |
| 2005 01 15 | 703 | 0.2+ | 0.6+ | 2009 09 29 | 703 | 0.1+ | 0.5− | 2009 11 24 | 703 | 1.1+ | 0.2− | |
| 2005 01 15 | 703 | 0.4+ | 0.7+ | 2009 09 29 | 703 | 0.3− | 0.4+ | 2009 11 24 | 703 | 0.2+ | 0.2− | |
| 2005 01 15 | 703 | 0.7− | 0.5+ | 2009 11 10 | 703 | 0.0 | 0.5− | 2009 11 24 | 703 | 0.6+ | 0.1+ | |
| 2006 07 29 | E12 | 0.2+ | 0.4+ | 2009 11 10 | 703 | 0.4+ | 0.0 | 2009 11 24 | 703 | 0.9+ | 0.5+ | |
| 2006 07 29 | E12 | 0.7+ | 0.2+ | 2009 11 10 | 703 | 0.8− | 0.3+ | 2009 12 17 | 703 | 0.8+ | 0.6− | |
| 2006 07 29 | E12 | 0.4− | 0.5+ | 2009 11 10 | 703 | 0.2+ | 0.4− | 2009 12 17 | 703 | 1.1− | 0.6− | |
| 2006 08 22 | E12 | 0.6+ | 0.0 | 2009 11 18 | 703 | (0.5− | 3.0−) | 2009 12 17 | 703 | 0.7− | 0.5+ | |
| 2006 08 22 | E12 | 0.2+ | 1.1+ | 2009 11 18 | 703 | 0.4+ | 0.2+ | 2009 12 17 | 703 | 0.7− | 0.4− | |
| 2006 08 22 | E12 | (1.1− | 2.2+) | 2009 11 18 | 703 | 0.1+ | 0.1+ | | | | | |
| 2006 08 22 | E12 | 0.5− | 1.0+ | 2009 11 18 | 703 | (2.6− | 0.1+) | | | | | |

**(229851)∗ 2009 SQ$_{267}$**

Discovered 2009 Sept. 23 by the Mt. Lemmon Survey at Mount Lemmon.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 342.16107 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.08115997 | $\omega$ | 202.76703 | | +0.44508577 | −0.85516983 | |
| $a$ | 5.2833347 | $\Omega$ | 222.15386 | | +0.87041956 | +0.48285492 | |
| $e$ | 0.0479829 | $i$ | 23.31999 | | +0.21040069 | −0.18850910 | |
| $P$ | 12.14 | $H$ | 12.5 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 10 01 | 910 | 0.1+ | 0.9+ | 2008 09 22 | 703 | (0.9− | 1.9+) | 2009 11 06 | 703 | 0.5− | 1.2+ | |
| 1997 10 01 | 910 | 0.3+ | 1.2+ | 2008 09 22 | 703 | (1.9− | 1.2+) | 2009 11 11 | J75 | 0.4− | 0.4− | |
| 1997 10 01 | 910 | 0.0 | 1.0+ | 2008 10 06 | 703 | 0.5+ | 0.5+ | 2009 11 11 | J75 | 0.5+ | 0.0 | |
| 2001 02 20 | 608 | 0.1+ | 0.5− | 2008 10 06 | 703 | 0.1+ | 0.8+ | 2009 11 11 | J75 | 0.2+ | 0.4− | |
| 2001 02 20 | 608 | 0.1+ | 0.4+ | 2008 10 06 | 703 | 0.4+ | 0.3− | 2009 11 16 | A50 | 0.7− | 0.5+ | |
| 2001 02 20 | 608 | 0.1− | 0.0 | 2008 10 06 | 703 | 0.6+ | 0.5+ | 2009 11 16 | A50 | 0.4+ | 0.1+ | |
| 2003 05 11 | 691 | 0.2+ | 0.8+ | 2009 09 23 | G96 | 0.2+ | 0.5+ | 2009 11 16 | A50 | 1.0+ | 0.5+ | |
| 2003 05 11 | 691 | 0.1+ | 1.1+ | 2009 09 23 | G96 | 0.1+ | 0.2+ | 2009 11 17 | G96 | 0.3+ | 0.1+ | |
| 2003 05 11 | 691 | 0.3+ | 1.0+ | 2009 09 23 | G96 | 0.1+ | 0.1+ | 2009 11 17 | G96 | 0.2− | 0.3+ | |
| 2003 05 25 | 691 | 0.3− | 0.1− | 2009 09 23 | G96 | 0.3+ | 0.5+ | 2009 11 17 | G96 | 0.1− | 0.3+ | |
| 2003 05 25 | 691 | 0.2− | 0.0 | 2009 09 29 | G96 | 0.5+ | 0.1+ | 2009 11 17 | G96 | 0.1− | 0.3+ | |
| 2003 05 25 | 691 | 0.3− | 0.0 | 2009 09 29 | G96 | 0.1+ | 0.2+ | 2009 11 20 | 704 | 1.0+ | 1.1+ | |
| 2003 06 06 | 691 | 0.2− | 1.0+ | 2009 09 29 | G96 | 0.2+ | 0.3+ | 2009 11 20 | 704 | 0.3− | 0.9+ | |
| 2003 06 06 | 691 | 0.5+ | 1.2+ | 2009 09 29 | G96 | 0.2+ | 0.2+ | 2009 11 20 | 704 | 0.3− | 0.7+ | |
| 2003 06 06 | 691 | 0.1− | 1.0+ | 2009 10 17 | J75 | 0.3+ | 0.1− | 2009 11 23 | J75 | 0.3+ | 0.2+ | |
| 2004 06 17 | 644 | 0.1− | 0.3+ | 2009 10 17 | J75 | 1.3+ | 0.6+ | 2009 11 23 | J75 | 0.1+ | 1.0+ | |
| 2004 06 17 | 644 | 0.4− | 0.1+ | 2009 10 17 | J75 | 1.1+ | 0.1+ | 2009 11 23 | J75 | 0.4+ | 0.4+ | |
| 2004 06 17 | 644 | 0.0 | 0.7+ | 2009 10 25 | 691 | 0.2− | 0.4+ | 2009 12 19 | G96 | 0.4+ | 0.1+ | |
| 2008 08 26 | J75 | 0.8− | 0.9+ | 2009 10 25 | 691 | 0.3− | 0.7+ | 2009 12 19 | G96 | 0.2+ | 0.4+ | |
| 2008 08 26 | J75 | 0.4− | 0.6+ | 2009 10 25 | 691 | 0.2− | 0.5+ | 2009 12 19 | G96 | 0.1− | 0.2+ | |
| 2008 08 26 | J75 | 0.6− | 0.4+ | 2009 11 06 | 703 | 1.1− | 0.6+ | 2009 12 19 | G96 | 0.1+ | 0.2+ | |
| 2008 09 22 | 703 | (0.1− | 1.9+) | 2009 11 06 | 703 | (2.0− | 0.2−) | | | | | |
| 2008 09 22 | 703 | (0.7− | 2.2+) | 2009 11 06 | 703 | 1.0− | 0.5+ | | | | | |

**(229852)∗ 2009 SH$_{275}$**

Discovered 2009 Sept. 25 by Spacewatch at Kitt Peak.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 353.84770 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.25400678 | $\omega$ | 312.46354 | | +0.54186243 | −0.83984353 | |
| $a$ | 2.4692924 | $\Omega$ | 104.69869 | | +0.78060155 | +0.48861627 | |
| $e$ | 0.1901707 | $i$ | 1.91789 | | +0.31152259 | +0.23646771 | |
| $P$ | 3.88 | $H$ | 17.6 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 03 30 | 645 | 0.1+ | 0.0 | 2007 03 10 | G96 | 0.5− | 0.3+ | 2009 10 09 | 703 | 0.6− | 0.1− | |
| 2003 03 30 | 645 | 0.1− | 0.0 | 2007 03 10 | G96 | 0.1+ | 0.2+ | 2009 10 16 | G96 | 0.1+ | 0.0 | |
| 2005 08 30 | 691 | 0.0 | 0.0 | 2007 03 10 | G96 | 0.2+ | 0.2+ | 2009 10 16 | G96 | 0.4+ | 0.1− | |
| 2005 08 30 | 691 | 0.1+ | 0.3+ | 2009 09 25 | 691 | 0.1− | 0.2+ | 2009 10 16 | G96 | 0.0 | 0.1− | |
| 2005 08 30 | 691 | 0.1+ | 0.1− | 2009 09 25 | 691 | 0.2− | 0.2+ | 2009 10 16 | G96 | 0.6+ | 0.1− | |
| 2005 09 13 | 691 | 0.1− | 0.2+ | 2009 09 25 | 691 | 0.2− | 0.2+ | 2009 10 24 | G96 | 0.1− | 0.2− | |
| 2005 09 13 | 691 | 0.1− | 0.1+ | 2009 09 25 | 703 | 0.3− | 0.2+ | 2009 10 24 | G96 | 0.1+ | 0.3− | |
| 2005 09 13 | 691 | 0.4− | 0.2+ | 2009 09 25 | 703 | 0.8+ | 0.1− | 2009 10 24 | G96 | 0.1+ | 0.1− | |
| 2005 10 06 | G96 | 0.3+ | 0.1+ | 2009 09 25 | 703 | 0.6− | 0.2+ | 2009 10 24 | G96 | 0.1+ | 0.1− | |
| 2005 10 06 | G96 | 0.1+ | 0.1− | 2009 09 25 | 703 | (1.8+ | 0.0 ) | 2009 12 13 | G96 | 0.2+ | 0.6− | |
| 2005 10 06 | G96 | 0.0 | 0.1− | 2009 09 29 | 691 | 0.0 | 0.1+ | 2009 12 13 | G96 | 0.1+ | 0.1+ | |
| 2005 10 06 | G96 | 0.0 | 0.0 | 2009 09 29 | 691 | 0.0 | 0.0 | 2009 12 13 | G96 | 0.5+ | 0.1− | |
| 2007 02 21 | 691 | 0.0 | 0.0 | 2009 09 29 | 691 | 0.2− | 0.1− | 2009 12 13 | G96 | 0.3+ | 0.6− | |
| 2007 02 21 | 691 | 0.0 | 0.0 | 2009 10 09 | 703 | 1.3+ | 0.5− | 2009 12 18 | 291 | 0.0 | 0.4+ | |
| 2007 02 21 | 691 | 0.2+ | 0.4+ | 2009 10 09 | 703 | 0.2− | 0.2− | 2009 12 18 | 291 | 0.2− | 0.0 | |
| 2007 03 10 | G96 | 0.4+ | 0.1+ | 2009 10 09 | 703 | 0.5+ | 1.3− | 2009 12 18 | 291 | 0.1− | 0.1+ | |

**(229853)∗ 2009 SN$_{275}$ = 2006 CK$_{37}$**

Discovered 2009 Sept. 25 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 164035)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 286.22990 | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.18798335 | $\omega$ | 17.19845 | | −0.51009670 | | −0.85901777 | |
| $a$ | 3.0180271 | $\Omega$ | 103.49098 | | +0.78379068 | | −0.48505169 | |
| $e$ | 0.1234666 | $i$ | 2.56231 | | +0.35422243 | | −0.16374778 | |
| $P$ | 5.24 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 0 | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 03 17 | 691 | 0.3+ | 0.6+ | 2006 02 03 | 704 | 0.7+ | 0.2− | 2009 09 25 | 691 | 0.2− | 0.2+ |
| 2001 03 17 | 691 | 0.1− | 0.2+ | 2006 02 03 | 704 | 1.3+ | 0.7+ | 2009 09 25 | 691 | 0.2− | 0.2+ |
| 2001 03 17 | 691 | 0.2− | 0.4+ | 2006 03 02 | G96 | 0.4− | 0.1− | 2009 09 29 | 691 | 0.1+ | 0.3+ |
| 2004 10 06 | 691 | 0.4− | 0.2− | 2006 03 02 | G96 | 0.1− | 0.0 | 2009 09 29 | 691 | 0.2− | 0.3+ |
| 2004 10 06 | 691 | 0.6+ | 0.5+ | 2006 03 02 | G96 | 0.5− | 0.1+ | 2009 09 29 | 691 | 0.1− | 0.1+ |
| 2004 10 06 | 691 | 0.2+ | 0.3+ | 2006 03 02 | G96 | 0.2− | 0.1− | 2009 10 16 | G96 | 0.2+ | 0.0 |
| 2005 09 30 | 568 | 0.2− | 0.2+ | 2007 04 19 | G96 | 0.5+ | 0.1+ | 2009 10 16 | G96 | 0.4+ | 0.0 |
| 2005 09 30 | 568 | 0.2− | 0.2+ | 2007 04 19 | G96 | 0.6+ | 0.2− | 2009 10 16 | G96 | 0.1+ | 0.0 |
| 2005 09 30 | 568 | 0.0 | 0.2+ | 2007 04 19 | G96 | 0.6+ | 0.4+ | 2009 10 17 | H10 | 0.9+ | 0.7− |
| 2005 10 07 | 568 | 0.2− | 0.1+ | 2007 04 19 | G96 | 0.6+ | 0.0 | 2009 10 17 | H10 | 1.0− | 0.4− |
| 2005 10 07 | 568 | 0.1− | 0.0 | 2007 05 12 | 691 | 0.1− | 0.4+ | 2009 10 17 | H10 | 0.2− | 0.0 |
| 2005 10 07 | 568 | 0.1− | 0.0 | 2007 05 12 | 691 | 0.4+ | 0.4+ | 2009 10 17 | H10 | 0.0 | 0.6− |
| 2006 02 02 | G96 | 0.4− | 0.0 | 2007 05 12 | 691 | 0.7− | 0.1+ | 2009 10 18 | H10 | 0.3− | 0.1+ |
| 2006 02 02 | G96 | 0.2− | 0.1− | 2007 05 26 | G96 | 0.4+ | 0.4+ | 2009 10 18 | H10 | 0.0 | 0.3+ |
| 2006 02 02 | G96 | 0.3− | 0.1− | 2007 05 26 | G96 | 0.3+ | 0.1+ | 2009 10 18 | H10 | 0.2+ | 0.3− |
| 2006 02 02 | G96 | 0.1− | 0.3− | 2007 05 26 | G96 | 0.7+ | 0.2+ | 2009 12 13 | G96 | 0.0 | 0.4− |
| 2006 02 03 | 704 | 1.3+ | 0.5+ | 2007 05 26 | G96 | 0.1+ | 0.1+ | 2009 12 13 | G96 | 0.3+ | 0.1+ |
| 2006 02 03 | 704 | 0.5+ | 0.2+ | 2009 09 25 | 691 | 0.7− | 0.5+ | 2009 12 13 | G96 | 0.0 | 0.7+ |

**(229854)∗ 2009 SD$_{276}$ = 2005 VT$_{103}$ = 2006 BX$_{46}$**

Discovered 2009 Sept. 25 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 164036)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 25.35501 | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.22524434 | $\omega$ | 221.34343 | | +0.98126037 | | −0.19045323 | |
| $a$ | 2.6752649 | $\Omega$ | 149.59873 | | +0.18846905 | | +0.91707050 | |
| $e$ | 0.0440983 | $i$ | 3.31375 | | +0.04009378 | | +0.35029882 | |
| $P$ | 4.38 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 1 | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 04 05 | 691 | 0.2+ | 1.0+ | 2006 01 24 | G96 | 0.2− | 0.1− | 2009 09 29 | 691 | 0.1− | 0.2+ |
| 2003 04 05 | 691 | 0.5+ | 0.7+ | 2006 01 26 | G96 | 0.4+ | 0.1+ | 2009 10 01 | 291 | 0.2− | 0.1+ |
| 2003 04 05 | 691 | 0.2+ | 0.8+ | 2006 01 26 | G96 | 0.2+ | 0.2+ | 2009 10 01 | 291 | 0.0 | 0.3+ |
| 2005 11 01 | G96 | 0.0 | 0.0 | 2006 01 26 | G96 | 0.2+ | 0.3− | 2009 10 01 | 291 | 0.0 | 0.3+ |
| 2005 11 01 | G96 | 0.2+ | 0.2− | 2006 01 26 | G96 | 0.7+ | 0.9+ | 2009 10 14 | 703 | 0.2− | 0.4− |
| 2005 11 01 | G96 | 0.2+ | 0.1+ | 2007 03 11 | G96 | 0.1− | 0.5+ | 2009 10 14 | 703 | 1.1− | 0.1− |
| 2005 11 01 | G96 | 0.2− | 0.1+ | 2007 03 11 | G96 | 0.2+ | 0.4+ | 2009 10 14 | 703 | 1.5− | 0.5− |
| 2005 11 02 | G96 | 0.0 | 0.0 | 2007 03 11 | G96 | 0.1+ | 0.2+ | 2009 10 14 | 703 | 1.3− | 0.8+ |
| 2005 11 02 | G96 | 0.1− | 0.2+ | 2007 03 11 | G96 | 0.3+ | 0.4+ | 2009 10 16 | G96 | 0.2− | 0.3− |
| 2005 11 02 | G96 | 0.7− | 0.2− | 2007 03 25 | G96 | 0.0 | 0.1+ | 2009 10 16 | G96 | 0.7+ | 0.1− |
| 2005 11 02 | G96 | 0.2+ | 0.4− | 2007 03 25 | G96 | 0.2+ | 0.1+ | 2009 10 16 | G96 | 0.0 | 0.1− |
| 2005 11 04 | G96 | 0.0 | 0.2+ | 2007 03 25 | G96 | 0.4+ | 0.2+ | 2009 10 24 | G96 | 0.6+ | 0.2+ |
| 2005 11 04 | G96 | 0.1− | 0.4+ | 2007 03 25 | G96 | 0.0 | 0.6+ | 2009 10 24 | G96 | 0.3+ | 0.2+ |
| 2005 11 04 | G96 | 0.2− | 0.0 | 2009 09 17 | 691 | 0.0 | 0.6+ | 2009 10 24 | G96 | 0.6+ | 0.2+ |
| 2005 11 26 | 703 | 0.5− | 0.4− | 2009 09 17 | 691 | 0.3− | 0.2+ | 2009 10 24 | G96 | 0.4+ | 0.2+ |
| 2005 11 26 | 703 | 1.1− | 0.0 | 2009 09 17 | 691 | 0.2− | 0.4+ | 2009 12 13 | G96 | 0.3+ | 0.2− |
| 2005 11 26 | 703 | 1.3+ | 0.4− | 2009 09 25 | 691 | 0.2+ | 0.0 | 2009 12 13 | G96 | 0.3+ | 0.4+ |
| 2005 11 26 | 703 | (1.6+ | 0.5+) | 2009 09 25 | 691 | 0.5+ | 0.0 | 2009 12 13 | G96 | 0.2− | 0.5− |
| 2006 01 24 | G96 | 0.1+ | 0.5− | 2009 09 25 | 691 | 0.1− | 0.1+ | 2009 12 13 | G96 | 0.3+ | 0.0 |
| 2006 01 24 | G96 | 0.2+ | 0.4+ | 2009 09 29 | 691 | 0.3− | 0.5+ | | | | |
| 2006 01 24 | G96 | 0.3− | 0.2+ | 2009 09 29 | 691 | 0.1− | 0.2+ | | | | |

**(229855)∗ 2009 ST$_{288}$ = 1998 SS$_{35}$**

Discovered 2009 Sept. 25 by the Catalina Sky Survey.

Id. G. V. Williams (*MPO* 164040)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 22.57257 | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.18074697 | $\omega$ | 337.04392 | | +0.98904358 | | −0.11855627 | |
| $a$ | 3.0980520 | $\Omega$ | 30.17714 | | +0.14724650 | | +0.83484355 | |
| $e$ | 0.1052362 | $i$ | 10.07788 | | −0.01054836 | | +0.53756921 | |
| $P$ | 5.45 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 1 | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1993 12 13 | 691 | 0.1− | 0.2+ | 2007 03 26 | G96 | 0.3− | 0.0 | 2009 09 29 | 691 | 0.3− | 0.1+ |
| 1993 12 13 | 691 | 0.3+ | 0.2− | 2007 03 26 | G96 | 0.0 | 0.1− | 2009 09 29 | 691 | 0.1− | 0.1− |
| 1993 12 13 | 691 | 0.5− | 0.1+ | 2007 03 26 | G96 | 0.2+ | 0.1− | 2009 10 09 | 703 | 0.1+ | 0.9+ |
| 1998 09 24 | 910 | 0.4+ | 0.5− | 2007 03 26 | G96 | 0.2+ | 0.0 | 2009 10 09 | 703 | (0.9+ | 1.9+) |
| 1998 09 24 | 910 | 0.1+ | 0.4− | 2007 04 18 | G96 | 0.5+ | 0.3+ | 2009 10 09 | 703 | 0.8+ | 0.8+ |
| 1998 09 24 | 910 | 0.4+ | 0.3− | 2007 04 18 | G96 | 0.3+ | 0.1+ | 2009 10 11 | J75 | 0.0 | 0.6− |
| 1998 09 29 | 910 | 0.2+ | 0.3+ | 2007 04 18 | G96 | 0.3− | 0.4− | 2009 10 11 | J75 | 0.3− | 0.2+ |
| 1998 09 29 | 910 | 0.1− | 0.4+ | 2007 04 18 | G96 | 0.1+ | 0.3+ | 2009 10 11 | J75 | 0.2− | 0.5+ |
| 1998 09 29 | 910 | 0.1+ | 0.4+ | 2007 04 18 | G96 | 0.3+ | 0.0 | 2009 10 16 | G96 | 0.3+ | 0.2− |
| 2004 11 09 | 703 | 0.8+ | 1.2+ | 2007 04 18 | G96 | 0.2+ | 0.2+ | 2009 10 16 | G96 | 0.3− | 0.0 |
| 2004 11 09 | 703 | 0.1− | 0.9+ | 2007 04 18 | G96 | 0.2+ | 0.0 | 2009 10 16 | G96 | 0.3+ | 0.2+ |
| 2004 11 09 | 703 | 0.3+ | 0.2+ | 2007 04 18 | G96 | 0.0 | 0.2+ | 2009 10 16 | G96 | 0.0 | 0.1− |
| 2004 11 09 | 703 | 0.4− | 0.6+ | 2009 09 17 | 691 | 0.1− | 0.0 | 2009 10 22 | 704 | 0.1+ | 0.5+ |
| 2004 12 02 | 703 | 0.2− | 1.5− | 2009 09 17 | 691 | 0.0 | 0.1+ | 2009 10 22 | 704 | 0.3− | 0.2+ |
| 2004 12 02 | 703 | 0.8+ | 0.2− | 2009 09 17 | 691 | 0.2+ | 0.1+ | 2009 10 22 | 704 | 0.9+ | 1.5+ |
| 2004 12 02 | 703 | 1.0+ | 1.0− | 2009 09 25 | 703 | 0.5− | 0.5− | 2009 12 13 | G96 | 0.2− | 0.1− |
| 2004 12 02 | 703 | 0.8− | 0.2− | 2009 09 25 | 703 | 0.1− | 0.9− | 2009 12 13 | G96 | 0.3− | 0.0 |
| 2007 03 13 | 691 | 0.0 | 0.2+ | 2009 09 25 | 703 | 0.3− | 0.3− | 2009 12 13 | G96 | 0.3− | 0.0 |
| 2007 03 13 | 691 | 0.0 | 0.4+ | 2009 09 25 | 703 | 0.9− | 0.5− | 2009 12 13 | G96 | 0.0 | 0.2− |
| 2007 03 13 | 691 | 0.1+ | 0.1+ | 2009 09 29 | 691 | 0.2− | 0.1+ | | | | |

**(229856)∗ 2009 SU$_{339}$**

Discovered 2009 Sept. 22 by the Mt. Lemmon Survey at Mount Lemmon.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 359.98978 | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.23686348 | $\omega$ | 208.96023 | | +0.09006265 | | −0.98260640 | |
| $a$ | 2.5870450 | $\Omega$ | 236.31813 | | +0.94721988 | | +0.13488526 | |
| $e$ | 0.1401208 | $i$ | 11.25410 | | +0.30767389 | | −0.12763471 | |
| $P$ | 4.16 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 2 | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 12 23 | 608 | 0.4+ | 1.1+ | 2007 05 11 | G96 | 0.3+ | 0.1− | 2009 11 22 | 691 | 0.3− | 0.0 |
| 2001 12 23 | 608 | 0.9+ | 1.2+ | 2009 09 22 | G96 | 0.0 | 0.2+ | 2009 11 22 | 691 | 0.7− | 0.2+ |
| 2001 12 23 | 608 | 0.2+ | 0.9+ | 2009 09 22 | G96 | 0.2+ | 0.1− | 2009 11 22 | 691 | 0.0 | 0.5− |
| 2002 01 06 | 699 | 1.3+ | 0.6− | 2009 09 22 | G96 | 0.4+ | 0.1+ | 2009 11 26 | 691 | 1.1− | 0.2+ |
| 2002 01 06 | 699 | 0.8− | 0.0 | 2009 09 22 | G96 | 0.6+ | 0.1− | 2009 11 26 | 691 | 0.5− | 0.0 |
| 2002 01 06 | 699 | 0.8− | 0.1− | 2009 09 30 | G96 | 0.1− | 0.1+ | 2009 11 26 | 691 | 0.0 | 0.0 |
| 2002 01 06 | 699 | 0.7− | 0.2+ | 2009 09 30 | G96 | 0.4+ | 0.0 | 2009 12 11 | 703 | 0.2+ | 0.6− |
| 2002 02 08 | 644 | 0.2+ | 0.1− | 2009 09 30 | G96 | 0.0 | 0.4− | 2009 12 11 | 703 | 0.3+ | 0.9− |
| 2002 02 08 | 644 | 0.2+ | 0.2− | 2009 09 30 | G96 | 0.3+ | 0.1− | 2009 12 11 | 703 | 0.5+ | 0.4− |
| 2002 02 08 | 644 | 0.1− | 0.1− | 2009 11 18 | 691 | 0.1+ | 0.1+ | 2009 12 11 | 703 | 0.3+ | 0.3− |
| 2003 06 02 | 291 | 0.1+ | 0.2− | 2009 11 18 | 691 | 0.1+ | 0.1+ | 2009 12 12 | 704 | 0.4+ | 1.4+ |
| 2003 06 02 | 291 | 0.1+ | 0.0 | 2009 11 18 | 704 | 0.5+ | 0.4− | 2009 12 12 | 704 | 0.7+ | 0.3− |
| 2003 06 02 | 291 | 0.1− | 0.1− | 2009 11 18 | 691 | 0.1+ | 0.0 | 2009 12 12 | 704 | 0.2+ | 0.6− |
| 2007 04 14 | G96 | 0.1+ | 0.2− | 2009 11 18 | 704 | 0.3+ | 0.5+ | 2009 12 12 | 704 | 0.4+ | 0.4− |
| 2007 04 14 | G96 | 0.1− | 0.3− | 2009 11 18 | 704 | 0.5+ | 0.8+ | 2009 12 12 | 704 | 0.6+ | 0.5− |
| 2007 04 14 | G96 | 0.5− | 0.3− | 2009 11 20 | 704 | (0.5+ | 2.2+) | 2009 12 18 | 704 | 1.1+ | 0.5− |
| 2007 04 14 | G96 | 0.3+ | 0.2+ | 2009 11 20 | 704 | (1.0+ | 2.0+) | 2009 12 18 | 704 | 0.6+ | 0.3− |
| 2007 05 11 | G96 | 0.3− | 0.0 | 2009 11 20 | 704 | (1.5+ | 1.6+) | 2009 12 18 | 704 | 0.7+ | 0.5− |
| 2007 05 11 | G96 | 0.2− | 0.1− | 2009 11 20 | 704 | 0.1+ | 1.1+ | 2009 12 18 | 704 | 0.4+ | 1.7− |
| 2007 05 11 | G96 | 0.3+ | 0.4− | 2009 11 20 | 704 | (0.1+ | 1.8+) | | | | |

**(229857)∗ 2009 SM$_{346}$ = 2003 GX$_{14}$**

Discovered 2009 Sept. 20 by the Mt. Lemmon Survey at Mount Lemmon.

Id. G. V. Williams (*MPO* 165830)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| $M$ | 137.25362 | | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24166591 | $\omega$ | 239.38151 | | | +0.34238654 | +0.91521203 | |
| $a$ | 2.5526570 | $\Omega$ | 52.17679 | | | −0.74335617 | +0.40219456 | |
| $e$ | 0.0768819 | $i$ | 15.60629 | | | −0.57462428 | +0.02502935 | |
| $P$ | 4.08 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 1 | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 03 25 | 644 | (1.9+ | 1.0+) | 2007 03 26 | 703 | 0.8+ | 0.4− | 2009 11 09 | 691 | 0.2− | 0.2+ | |
| 2003 03 25 | 644 | 1.3+ | 0.9+ | 2007 03 26 | 703 | 1.0+ | 0.8+ | 2009 11 09 | 691 | 0.1− | 0.2+ | |
| 2003 03 25 | 644 | 1.4+ | 1.0+ | 2007 04 14 | 703 | 0.0 | 0.2− | 2009 11 09 | 691 | 0.1− | 0.1+ | |
| 2003 04 03 | 608 | 0.5− | 0.6+ | 2007 04 14 | 703 | 0.1− | 0.7+ | 2009 11 11 | 704 | 0.7+ | 0.1+ | |
| 2003 04 03 | 608 | 0.4+ | 0.2+ | 2007 04 14 | 703 | 1.2− | 0.1− | 2009 11 11 | 704 | 1.1+ | 0.0 | |
| 2003 04 03 | 608 | 0.1+ | 0.5+ | 2007 04 14 | 703 | 0.9− | 0.8+ | 2009 11 11 | 704 | (0.7+ | 2.3+) | |
| 2003 04 05 | 699 | 0.9+ | 0.0 | 2008 06 26 | E12 | 0.0 | 0.5+ | 2009 11 11 | 704 | 0.4+ | 0.6+ | |
| 2003 04 05 | 699 | 1.1+ | 0.1− | 2008 06 26 | E12 | 0.9− | 0.6+ | 2009 11 17 | 704 | 1.0+ | 0.5+ | |
| 2003 04 05 | 699 | (1.4+ | 1.7+) | 2008 06 26 | E12 | 0.1− | 0.6+ | 2009 11 17 | 704 | (2.3− | 0.2−) | |
| 2003 04 05 | 699 | 0.8− | 0.4+ | 2008 06 26 | E12 | 0.1− | 0.1− | 2009 11 17 | 704 | 0.3+ | 0.6− | |
| 2004 06 29 | E12 | 0.2− | 0.2+ | 2008 08 03 | E12 | 0.2− | 0.2+ | 2009 11 17 | 704 | 0.0 | 0.1− | |
| 2004 06 29 | E12 | 0.2+ | 0.7− | 2008 08 03 | E12 | 1.2+ | 0.8+ | 2009 11 19 | 691 | 0.2− | 0.2+ | |
| 2004 06 29 | E12 | 0.2+ | 0.3− | 2008 08 03 | E12 | 0.1− | 0.1+ | 2009 11 19 | 691 | 0.1− | 0.3+ | |
| 2004 06 29 | E12 | 0.1+ | 0.9− | 2008 08 03 | E12 | 0.1+ | 0.7+ | 2009 11 19 | 691 | 0.1− | 0.3+ | |
| 2004 07 13 | E12 | 0.7− | 0.7+ | 2008 08 26 | E12 | 0.1+ | 0.6+ | 2009 11 25 | 703 | 0.3+ | 0.1+ | |
| 2004 07 13 | E12 | 0.3+ | 0.0 | 2008 08 26 | E12 | 0.5− | 1.1+ | 2009 11 25 | 703 | 1.0− | 0.7+ | |
| 2004 07 13 | E12 | 0.1− | 0.4− | 2009 09 20 | G96 | 0.2+ | 0.1− | 2009 11 25 | 703 | (1.5+ | 0.5+) | |
| 2004 07 13 | E12 | 0.4− | 0.2− | 2009 09 20 | G96 | 0.1− | 0.0 | 2009 11 25 | 703 | 0.7− | 0.6− | |
| 2004 08 23 | E12 | 0.7− | 0.5+ | 2009 09 20 | G96 | 0.5+ | 0.1− | 2009 11 25 | 703 | 1.0− | 0.7− | |
| 2004 08 23 | E12 | 0.2+ | 0.7+ | 2009 09 20 | G96 | 0.1− | 0.1+ | 2009 12 10 | J75 | 0.5− | 0.2− | |
| 2004 08 23 | E12 | 0.1− | 0.0 | 2009 10 17 | G96 | 0.5+ | 0.0 | 2009 12 10 | J75 | 0.6+ | 0.4− | |
| 2004 08 23 | E12 | 0.5+ | 0.0 | 2009 10 17 | G96 | 0.3+ | 0.1− | 2009 12 10 | J75 | 0.2+ | 0.3+ | |
| 2007 02 16 | 703 | 0.8+ | 0.7− | 2009 10 17 | G96 | 0.2+ | 0.1− | 2009 12 15 | 704 | 0.0 | 0.8− | |
| 2007 02 16 | 703 | 0.4− | 1.1+ | 2009 10 17 | G96 | 0.5+ | 0.1− | 2009 12 15 | 704 | 0.2+ | 1.0+ | |
| 2007 02 16 | 703 | 1.4− | 1.2− | 2009 10 24 | 703 | 1.0− | 0.5− | 2009 12 15 | 704 | 0.2+ | 0.3+ | |
| 2007 02 16 | 703 | 0.7− | 0.6− | 2009 10 24 | 703 | 0.6− | 0.6+ | 2009 12 15 | 704 | 0.9+ | 0.6− | |
| 2007 03 26 | 703 | 0.1− | 0.4+ | 2009 10 24 | 703 | 1.2− | 0.6+ | 2009 12 15 | 704 | 0.4− | 0.4− | |
| 2007 03 26 | 703 | 0.6+ | 0.9+ | 2009 10 24 | 703 | 1.0+ | 0.4+ | | | | | |

## (229858)∗ 2009 TZ$_5$ = 2002 JB$_{150}$

Discovered 2009 Oct. 11 at OAM Observatory, La Sagra.

Id. K. E. Smalley (*MPO* 165839)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| $M$ | 67.12041 | | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18230635 | $\omega$ | 280.32715 | | | +0.79780203 | +0.58422097 | |
| $a$ | 3.0803603 | $\Omega$ | 44.12871 | | | −0.43461551 | +0.72853256 | |
| $e$ | 0.1470680 | $i$ | 12.35576 | | | −0.41787711 | +0.35766767 | |
| $P$ | 5.41 | $H$ | 15.2 | $G$ | 0.15 | $U$ | 2 | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 04 09 | 291 | 0.5+ | 0.3+ | 2007 04 26 | G96 | 0.0 | 0.2− | 2009 10 22 | 704 | 0.2+ | 0.4+ | |
| 2002 04 09 | 291 | 0.2+ | 0.0 | 2007 05 22 | G96 | 0.3+ | 0.1+ | 2009 10 22 | G96 | 0.1− | 0.0 | |
| 2002 04 09 | 291 | 0.2+ | 0.0 | 2007 05 22 | G96 | 0.4+ | 0.1+ | 2009 10 22 | G96 | 0.2− | 0.1− | |
| 2002 05 03 | 291 | 0.1− | 0.2+ | 2007 05 22 | G96 | 0.1+ | 0.0 | 2009 10 22 | G96 | 0.2+ | 0.1− | |
| 2002 05 03 | 291 | 0.1+ | 0.4+ | 2007 05 22 | G96 | 0.2+ | 0.0 | 2009 10 22 | G96 | 0.1+ | 0.1− | |
| 2002 05 03 | 291 | 0.2− | 0.3+ | 2009 09 28 | 703 | 0.3+ | 0.2+ | 2009 10 26 | 691 | 0.5− | 0.2+ | |
| 2002 05 08 | 608 | 0.1+ | 0.4− | 2009 09 28 | 703 | 1.0+ | 0.6+ | 2009 10 26 | 691 | 0.3− | 0.2+ | |
| 2002 05 08 | 608 | 0.1− | 0.1− | 2009 09 28 | 703 | (1.7+ | 0.7+) | 2009 10 26 | 691 | 0.3− | 0.3+ | |
| 2002 05 09 | 644 | 0.2+ | 0.8+ | 2009 09 28 | 703 | 0.4− | 0.6− | 2009 10 27 | 704 | (0.4− | 1.8+) | |
| 2002 05 09 | 644 | 0.1+ | 0.7+ | 2009 10 11 | J75 | 0.0 | 0.6− | 2009 10 27 | 704 | 0.8− | 0.5+ | |
| 2002 05 18 | 644 | 0.1− | 0.2− | 2009 10 11 | J75 | 0.3+ | 0.1− | 2009 10 27 | 704 | (0.1− | 1.9+) | |
| 2002 05 18 | 644 | 0.0 | 0.2− | 2009 10 12 | J75 | 0.5+ | 0.4− | 2009 11 09 | 703 | 0.2+ | 0.4+ | |
| 2002 05 18 | 644 | 0.3+ | 0.4− | 2009 10 13 | J75 | 0.2− | 0.1− | 2009 11 09 | 703 | 0.4+ | 0.9− | |
| 2003 08 25 | 644 | 0.1− | 0.1− | 2009 10 13 | J75 | 0.2− | 0.1− | 2009 11 09 | 703 | 0.2+ | 1.5− | |
| 2003 08 25 | 644 | 0.0 | 0.2− | 2009 10 14 | J75 | 0.5− | 0.1+ | 2009 11 09 | 703 | 0.1− | 0.1− | |
| 2003 08 25 | 644 | 0.1+ | 0.0 | 2009 10 15 | J75 | 0.5+ | 0.5− | 2009 11 16 | 683 | 0.3+ | 1.4+ | |
| 2003 09 19 | 644 | 0.2+ | 0.0 | 2009 10 15 | J75 | 0.2− | 0.7+ | 2009 11 16 | 683 | (1.8− | 0.8−) | |
| 2003 09 19 | 644 | 0.1+ | 0.1− | 2009 10 15 | J75 | 0.1− | 0.1− | 2009 11 16 | 683 | (2.8− | 1.7−) | |
| 2003 09 19 | 644 | 0.0 | 0.4− | 2009 10 18 | 683 | (0.8− | 1.6−) | 2009 11 19 | G96 | 0.1+ | 0.1+ | |
| 2007 04 26 | G96 | 0.2− | 0.0 | 2009 10 18 | 683 | (0.0 | 1.7+) | 2009 11 19 | G96 | 0.3− | 0.2+ | |
| 2007 04 26 | G96 | 0.4− | 0.2− | 2009 10 22 | 704 | 0.1+ | 1.0+ | 2009 11 19 | G96 | 0.1− | 0.2+ | |
| 2007 04 26 | G96 | 0.4− | 0.3+ | 2009 10 22 | 704 | 0.2+ | 1.2+ | 2009 11 19 | G96 | 0.1− | 0.4+ | |

## (229859)∗ 2009 TD$_6$

Discovered 2009 Oct. 12 at OAM Observatory, La Sagra.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| $M$ | 4.79777 | | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.08280131 | $\omega$ | 342.23656 | | | +0.63012372 | −0.75927801 | |
| $a$ | 5.2132823 | $\Omega$ | 68.38082 | | | +0.73196237 | +0.51091745 | |
| $e$ | 0.1354201 | $i$ | 10.07350 | | | +0.25918176 | +0.40306361 | |
| $P$ | 11.90 | $H$ | 12.5 | $G$ | 0.15 | $U$ | 1 | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 05 20 | 599 | 0.0 | 0.2+ | 2009 10 21 | 703 | 0.3+ | 0.1− | 2009 11 17 | G96 | 0.2+ | 0.2− | |
| 2004 05 20 | 599 | 0.5+ | 0.0 | 2009 10 21 | 703 | 0.5+ | 0.4+ | 2009 11 18 | 704 | 0.1− | 0.7+ | |
| 2004 05 20 | 599 | 0.1− | 0.4+ | 2009 10 21 | 703 | 0.4− | 0.4− | 2009 11 18 | 704 | 0.2− | 1.4+ | |
| 2004 05 20 | 599 | 0.4− | 0.1− | 2009 10 21 | 703 | 1.2− | 1.4− | 2009 11 18 | 704 | 0.1− | 0.5+ | |
| 2007 07 19 | E12 | 0.4− | 0.7+ | 2009 10 22 | 704 | (0.4− | 1.7+) | 2009 11 18 | 704 | 0.6+ | 1.1+ | |
| 2007 07 19 | E12 | 0.3+ | 0.5− | 2009 10 22 | 704 | 0.4− | 0.1− | 2009 11 18 | 704 | 0.1+ | 0.3+ | |
| 2007 07 19 | E12 | 0.2− | 0.2+ | 2009 10 22 | 704 | 0.0 | 0.2+ | 2009 11 19 | J75 | 0.1+ | 0.5− | |
| 2007 07 19 | E12 | 0.4− | 0.4+ | 2009 10 22 | 704 | 0.3+ | 0.2− | 2009 11 19 | J75 | 0.8+ | 0.9− | |
| 2007 08 14 | E12 | 0.3+ | 0.2+ | 2009 10 23 | G96 | 0.4− | 0.2− | 2009 11 19 | J75 | 0.4+ | 0.3− | |
| 2007 08 14 | E12 | 0.2+ | 0.5− | 2009 10 23 | G96 | 0.2+ | 0.3− | 2009 11 20 | 704 | 0.0 | 1.0+ | |
| 2007 08 14 | E12 | 0.4− | 0.4− | 2009 10 23 | G96 | 0.4+ | 0.3− | 2009 11 20 | 704 | 0.1− | 0.5+ | |
| 2007 08 14 | E12 | 0.4+ | 0.4+ | 2009 10 23 | G96 | 0.5+ | 0.2− | 2009 11 20 | 704 | 0.9− | 0.5+ | |
| 2008 10 01 | 703 | 0.0 | 0.3+ | 2009 10 25 | 703 | 0.1− | 0.8− | 2009 11 20 | 704 | 0.2− | 0.5+ | |
| 2008 10 01 | 703 | 0.6− | 0.6+ | 2009 10 25 | 703 | 0.5− | 0.1− | 2009 11 20 | 704 | 0.0 | 0.7+ | |
| 2008 10 01 | 703 | 1.2− | 0.1− | 2009 10 25 | 703 | 0.4+ | 0.1− | 2009 11 23 | 703 | 0.3+ | 0.3+ | |
| 2008 10 01 | 703 | 0.2− | 0.7− | 2009 10 25 | 703 | 0.2− | 0.3− | 2009 11 23 | 703 | 0.5− | 0.2− | |
| 2008 10 08 | 703 | 0.6+ | 0.1+ | 2009 10 26 | 691 | 0.5− | 0.2− | 2009 11 23 | 703 | 0.0 | 0.6− | |
| 2008 10 08 | 703 | 0.5+ | 0.6+ | 2009 10 26 | 691 | 0.4− | 0.2− | 2009 11 23 | 703 | 0.3− | 0.5+ | |
| 2008 10 08 | 703 | 0.3− | 0.0 | 2009 10 26 | 691 | 0.3− | 0.1− | 2009 11 23 | 703 | 1.1+ | 1.0− | |
| 2008 10 08 | 703 | 0.5+ | 0.1− | 2009 10 27 | 704 | 0.5+ | 1.2+ | 2009 11 24 | G96 | 0.2+ | 0.3− | |
| 2008 10 27 | 703 | 1.1+ | 0.4+ | 2009 10 27 | 704 | 0.0 | 1.0+ | 2009 11 24 | G96 | 0.1+ | 0.3− | |
| 2008 10 27 | 703 | 1.1+ | 0.8− | 2009 10 27 | 704 | (0.2− | 1.9+) | 2009 11 24 | G96 | 0.5+ | 0.3− | |
| 2008 10 27 | 703 | 0.3+ | 0.7− | 2009 10 27 | 704 | 0.7+ | 1.2+ | 2009 12 11 | 703 | 0.7− | 2.6+ | |
| 2008 10 27 | 703 | (0.8+ | 2.0−) | 2009 10 27 | 704 | (0.0 | 1.6+) | 2009 12 11 | 703 | 0.4− | 0.6+ | |
| 2008 12 04 | H36 | 0.5− | 0.3− | 2009 10 30 | J75 | 0.4+ | 0.3− | 2009 12 11 | 703 | 0.2− | 0.1− | |
| 2008 12 04 | H36 | 0.4− | 0.2+ | 2009 10 30 | J75 | 0.0 | 0.0 | 2009 12 11 | 703 | 0.1+ | 1.2− | |
| 2008 12 04 | H36 | 0.4− | 0.1+ | 2009 10 30 | J75 | 0.0 | 0.0 | 2009 12 12 | 704 | 0.3+ | 0.1+ | |
| 2008 12 04 | H36 | 0.5− | 0.1+ | 2009 11 08 | 703 | 0.6− | 0.2− | 2009 12 12 | 704 | 0.2+ | 0.4+ | |
| 2009 10 12 | J75 | (0.7− | 1.7−) | 2009 11 08 | 703 | 0.1+ | 0.1− | 2009 12 12 | 704 | 0.6+ | 0.8+ | |
| 2009 10 12 | J75 | 0.3− | 0.5− | 2009 11 08 | 703 | 0.2+ | 0.4− | 2009 12 12 | 704 | 0.1+ | 0.2+ | |
| 2009 10 12 | J75 | (0.2− | 1.7−) | 2009 11 08 | 703 | 0.1− | 0.4− | 2009 12 17 | 704 | 0.5− | 1.4+ | |
| 2009 10 14 | J75 | 0.3+ | 0.3− | 2009 11 15 | 703 | 0.6− | 0.5− | 2009 12 17 | 704 | 0.5+ | 0.9+ | |
| 2009 10 14 | J75 | 1.1+ | 0.5− | 2009 11 15 | 703 | 0.6− | 0.1+ | 2009 12 17 | 704 | 0.2− | 0.3+ | |
| 2009 10 14 | J75 | 0.0 | 0.4− | 2009 11 15 | 703 | 0.4− | 0.8− | 2009 12 19 | G96 | 0.1+ | 0.4− | |
| 2009 10 19 | 106 | 0.8+ | 0.3+ | 2009 11 15 | 703 | 0.2− | 0.8− | 2009 12 19 | G96 | 0.1− | 0.4− | |
| 2009 10 19 | 106 | 0.4+ | 0.2+ | 2009 11 17 | G96 | 0.1+ | 0.2− | 2009 12 19 | G96 | 0.4+ | 0.4− | |
| 2009 10 19 | 106 | 0.8+ | 0.2+ | 2009 11 17 | G96 | 0.5+ | 0.2− | 2009 12 19 | G96 | 0.2+ | 0.4− | |
| 2009 10 19 | 106 | 0.0 | 0.2+ | 2009 11 17 | G96 | 0.3+ | 0.3− | | | | | |

## (229860)∗ 2009 TA$_{12}$ = 2001 YQ$_{159}$ = 2005 XE$_{92}$

Discovered 2009 Oct. 14 by W. Bickel at Bergisch Gladbach.

Id. G. V. Williams (*MPO* 165845)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| $M$ | 36.49177 | | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23182928 | $\omega$ | 311.67859 | | | +0.96529264 | −0.16738300 | |
| $a$ | 2.6243627 | $\Omega$ | 58.87837 | | | +0.24751995 | +0.83123992 | |
| $e$ | 0.1845415 | $i$ | 13.54378 | | | −0.08333058 | +0.53011615 | |
| $P$ | 4.25 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 2 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 12 15 | 645 | 0.0 | 0.1− | 2009 10 15 | 621 | 0.1+ | 0.4− | 2009 11 12 | J75 | 0.4− | 0.4− |
| 2001 12 15 | 645 | 0.1− | 0.2− | 2009 10 15 | 621 | 0.2+ | 0.2− | 2009 11 18 | 704 | 0.3− | 0.8+ |
| 2001 12 18 | 645 | 0.0 | 0.1− | 2009 10 18 | J75 | 0.2+ | 0.1+ | 2009 11 18 | 704 | 0.1+ | 0.7+ |
| 2001 12 18 | 645 | 0.1+ | 0.0 | 2009 10 18 | J75 | 0.1+ | 0.0 | 2009 11 18 | 704 | 0.3− | 1.0+ |
| 2001 12 19 | 645 | 0.0 | 0.0 | 2009 10 18 | J75 | 0.3− | 0.0 | 2009 11 18 | G96 | 0.2+ | 0.1− |
| 2001 12 19 | 645 | 0.0 | 0.1+ | 2009 10 18 | 703 | 0.0 | 0.6+ | 2009 11 18 | G96 | 0.1− | 0.0 |
| 2003 03 11 | 291 | 0.1+ | 0.0 | 2009 10 18 | 703 | 0.4+ | 0.1+ | 2009 11 18 | 704 | 0.3+ | 0.7+ |
| 2003 03 11 | 291 | 0.3+ | 0.3+ | 2009 10 18 | 703 | 0.4− | 0.1− | 2009 11 18 | G96 | 0.3+ | 0.0 |
| 2003 03 11 | 291 | 0.3+ | 0.8+ | 2009 10 18 | 703 | 0.1− | 0.3− | 2009 11 18 | 704 | 0.0 | 0.2+ |
| 2003 04 01 | 645 | 0.0 | 0.0 | 2009 10 20 | 621 | 0.5− | 0.1+ | 2009 11 18 | G96 | 0.2+ | 0.1+ |
| 2003 04 01 | 645 | 0.0 | 0.0 | 2009 10 20 | 621 | 0.6− | 0.1− | 2009 11 25 | 703 | 0.9− | 0.6− |
| 2003 04 01 | 645 | 0.0 | 0.0 | 2009 10 20 | 621 | 0.0 | 0.1− | 2009 11 25 | 703 | 0.8+ | 0.4+ |
| 2003 04 01 | 645 | 0.1− | 0.0 | 2009 10 20 | 621 | 0.2+ | 0.5− | 2009 11 25 | 703 | 0.1+ | 0.3+ |
| 2005 12 05 | 704 | 1.0− | 0.4+ | 2009 10 20 | 704 | 0.1+ | 0.1− | 2009 11 25 | 703 | 0.2+ | 1.0− |
| 2005 12 05 | 704 | 1.0− | 0.7+ | 2009 10 20 | 704 | 0.2+ | 0.0 | 2009 12 12 | 704 | 0.4+ | 2.1+ |
| 2005 12 05 | 704 | 0.2− | 1.3+ | 2009 10 20 | 704 | 0.3+ | 0.4+ | 2009 12 12 | 704 | 0.1− | 1.1+ |
| 2005 12 05 | 704 | 0.9− | 0.7+ | 2009 10 20 | 704 | 0.6− | 0.1− | 2009 12 12 | 704 | 0.9+ | 1.3+ |
| 2005 12 05 | 704 | 0.1+ | 0.4+ | 2009 10 24 | 703 | 0.2− | 0.5− | 2009 12 12 | 704 | 0.6− | 1.2+ |
| 2005 12 24 | 704 | (0.6+ | 2.3+) | 2009 10 24 | 703 | 1.4+ | 1.5− | 2009 12 16 | 704 | 0.0 | 2.5− |
| 2005 12 24 | 704 | 0.5+ | 0.9+ | 2009 10 24 | 703 | 0.3− | 0.3+ | 2009 12 16 | 704 | 0.3+ | 1.1− |
| 2005 12 24 | 704 | (1.6− | 1.0+) | 2009 10 24 | 703 | 0.8+ | 0.2− | 2009 12 16 | 704 | 0.0 | 1.2− |
| 2005 12 24 | 704 | 0.9+ | 0.6+ | 2009 10 26 | 704 | 0.9− | 1.2+ | 2009 12 16 | 704 | 0.6− | 0.2− |
| 2009 10 14 | 621 | 0.1+ | 0.4− | 2009 10 26 | 704 | 0.1− | 0.3+ | 2009 12 17 | G96 | 0.1+ | 0.3+ |
| 2009 10 14 | 621 | 0.1+ | 0.3− | 2009 10 26 | 704 | 0.2− | 0.2− | 2009 12 17 | G96 | 0.1+ | 0.1− |
| 2009 10 14 | 621 | 0.1+ | 0.2− | 2009 10 26 | 704 | 0.7− | 0.1− | 2009 12 17 | G96 | 0.2+ | 0.0 |
| 2009 10 14 | 621 | 0.4+ | 0.2− | 2009 10 26 | 704 | 0.4− | 1.0+ | 2009 12 17 | G96 | 0.2+ | 0.2+ |
| 2009 10 15 | 621 | 0.5− | 0.2− | 2009 11 12 | J75 | 0.4− | 0.2+ | | | | |
| 2009 10 15 | 621 | 0.1− | 0.3− | 2009 11 12 | J75 | 0.0 | 0.2+ | | | | |

**(229861)∗ 2009 TL$_{17}$**

Discovered 2009 Oct. 15 at OAM Observatory, La Sagra.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 351.20506 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17878320 | $\omega$ | 295.08560 | | +0.33475688 | | −0.93956072 |
| $a$ | 3.1206968 | $\Omega$ | 135.15439 | | +0.89710037 | | +0.29443449 |
| $e$ | 0.1148733 | $i$ | 5.84840 | | +0.28835528 | | +0.17473975 |
| $P$ | 5.51 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 03 | 691 | 0.2+ | 0.1− | 2008 07 30 | G96 | 0.1− | 0.1+ | 2009 11 10 | G96 | 0.1+ | 0.1+ |
| 2004 12 03 | 691 | 0.2− | 0.1+ | 2008 08 09 | J75 | (1.8+ | 0.2+) | 2009 11 10 | G96 | 0.4+ | 0.1+ |
| 2004 12 03 | 691 | 0.1+ | 0.0 | 2008 08 09 | J75 | 0.3+ | 0.4+ | 2009 11 10 | G96 | 0.2+ | 0.1− |
| 2004 12 15 | 691 | 0.1− | 0.4+ | 2008 08 09 | J75 | 0.2+ | 0.3− | 2009 11 10 | G96 | 0.2− | 0.2− |
| 2004 12 15 | 691 | 0.1+ | 0.1+ | 2008 09 06 | G96 | 0.2− | 0.4+ | 2009 11 14 | 704 | 0.3+ | 0.4− |
| 2004 12 15 | 691 | 0.0 | 0.4+ | 2008 09 06 | G96 | 0.2+ | 0.6+ | 2009 11 14 | 704 | 0.5+ | 0.3+ |
| 2005 01 16 | 691 | 0.2− | 0.1+ | 2008 09 06 | G96 | 0.0 | 0.3− | 2009 11 14 | 704 | (0.0 | 1.9+) |
| 2005 01 16 | 691 | 0.0 | 0.0 | 2008 09 06 | G96 | 0.2− | 0.1− | 2009 11 19 | J75 | 1.0+ | 0.0 |
| 2005 01 16 | 691 | 0.2+ | 0.1− | 2009 10 15 | J75 | 0.2+ | 0.3− | 2009 11 19 | J75 | 0.2+ | 0.2+ |
| 2005 03 16 | G96 | 0.6− | 0.1− | 2009 10 15 | J75 | 0.5+ | 0.1− | 2009 11 19 | J75 | 0.1+ | 0.9− |
| 2005 03 16 | G96 | 0.5− | 0.0 | 2009 10 15 | J75 | 0.1+ | 0.1− | 2009 11 21 | 703 | 0.4+ | 1.0+ |
| 2005 03 16 | G96 | 0.7− | 0.0 | 2009 10 18 | 703 | 0.6+ | 0.5− | 2009 11 21 | 703 | 1.1− | 1.5− |
| 2005 03 16 | G96 | 0.1+ | 0.2− | 2009 10 18 | 703 | 0.8− | 0.1+ | 2009 11 21 | 703 | 0.5+ | 0.6+ |
| 2006 03 23 | 691 | 0.1− | 0.1− | 2009 10 18 | 703 | 1.0− | 0.4+ | 2009 11 21 | 703 | 1.0− | 0.1− |
| 2006 03 23 | 691 | 0.4+ | 0.4− | 2009 10 18 | 703 | 0.8+ | 0.4− | 2009 12 10 | 703 | 0.4− | 0.1− |
| 2006 03 23 | 691 | 0.4− | 0.1− | 2009 10 25 | 703 | 0.9+ | 1.3− | 2009 12 10 | 703 | 0.9− | 0.3− |
| 2008 07 30 | G96 | 0.2− | 0.1+ | 2009 10 25 | 703 | 0.6+ | 0.9− | 2009 12 10 | 703 | 0.3− | 0.5+ |
| 2008 07 30 | G96 | 0.0 | 0.2+ | 2009 10 25 | 703 | 0.4− | 1.0− | 2009 12 10 | 703 | 0.3− | 1.1+ |
| 2008 07 30 | G96 | 0.3− | 0.7+ | 2009 10 25 | 703 | 0.1− | 0.0 | | | | |

**(229862)∗ 2009 TY$_{17}$ = 2006 DV$_{204}$**

Discovered 2009 Oct. 15 by the Catalina Sky Survey.

Id. G. V. Williams (*MPO* 165850)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 44.17907 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18169578 | $\omega$ | 259.62669 | | +0.94717718 | | −0.14879367 |
| $a$ | 3.0872572 | $\Omega$ | 108.47624 | | +0.23339267 | | +0.92737301 |
| $e$ | 0.1175770 | $i$ | 17.43030 | | −0.21996195 | | +0.34327795 |
| $P$ | 5.42 | $H$ | 14.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 08 27 | 644 | 0.0 | 0.4− | 2006 03 06 | 703 | 1.2− | 0.1− | 2009 10 15 | 703 | 0.7+ | 0.4− |
| 2003 08 27 | 644 | 0.1− | 0.6− | 2007 04 16 | 703 | 0.5+ | 1.2− | 2009 10 15 | 703 | 0.3− | 0.9− |
| 2003 08 27 | 644 | 0.2− | 0.5− | 2007 04 16 | 703 | 0.0 | 1.3+ | 2009 10 15 | 703 | 0.2+ | 0.2+ |
| 2003 09 26 | 644 | 0.4− | 0.1− | 2007 04 16 | 703 | 0.9− | 1.1+ | 2009 10 15 | 703 | 0.2− | 0.6+ |
| 2003 09 26 | 644 | 0.2− | 0.1− | 2007 04 16 | 703 | 0.2+ | 0.7+ | 2009 10 16 | J75 | 0.1+ | 0.3− |
| 2003 09 26 | 644 | 0.2− | 0.1− | 2007 05 10 | 703 | (1.7+ | 0.4+) | 2009 10 16 | J75 | 0.5+ | 0.4− |
| 2003 09 27 | 699 | 1.2+ | 1.3+ | 2007 05 10 | 703 | 0.7− | 1.0− | 2009 10 16 | J75 | 0.0 | 0.2− |
| 2003 09 27 | 699 | 0.1− | 0.5+ | 2007 05 10 | 703 | 0.7+ | 0.5+ | 2009 11 17 | 703 | 0.2− | 0.4− |
| 2003 09 27 | 699 | 0.6+ | 0.1+ | 2007 05 10 | 703 | 0.5− | 0.8− | 2009 11 17 | 703 | 0.2+ | 0.0 |
| 2003 09 27 | 699 | 0.6− | 0.0 | 2007 05 10 | 703 | 0.1+ | 0.1− | 2009 11 17 | 703 | 1.3− | 0.4− |
| 2006 02 01 | 703 | 0.7+ | 0.7− | 2007 05 10 | 703 | (0.4+ | 1.6−) | 2009 11 22 | J75 | 0.3+ | 0.2+ |
| 2006 02 01 | 703 | 0.6− | 0.5+ | 2007 05 10 | 703 | 0.5− | 0.1− | 2009 11 22 | J75 | 0.1− | 0.3− |
| 2006 02 01 | 703 | 0.1+ | 0.6− | 2007 05 10 | 703 | 0.3− | 0.9− | 2009 11 22 | J75 | 0.4− | 0.9+ |
| 2006 02 01 | 703 | 0.6− | 0.3+ | 2007 05 22 | G96 | 0.7+ | 0.1+ | 2009 12 13 | 703 | 0.3− | 0.2− |
| 2006 02 27 | 703 | 0.5+ | 0.1− | 2007 05 22 | G96 | 0.1− | 0.1− | 2009 12 13 | 703 | 0.7− | 0.4− |
| 2006 02 27 | 703 | 0.6− | 0.5+ | 2007 05 22 | G96 | 0.4+ | 0.2− | 2009 12 13 | 703 | 0.1− | 0.6+ |
| 2006 02 27 | 703 | 0.3+ | 0.2− | 2007 05 22 | G96 | 0.2+ | 0.0 | 2009 12 13 | 703 | 1.0− | 0.2+ |
| 2006 02 27 | 703 | 0.7+ | 0.7− | 2009 08 26 | 703 | 0.2+ | 0.3− | 2009 12 20 | 704 | 0.4+ | 0.3− |
| 2006 03 06 | 703 | (0.5+ | 2.2+) | 2009 08 26 | 703 | 0.1− | 0.0 | 2009 12 20 | 704 | 1.3+ | 0.4+ |
| 2006 03 06 | 703 | 0.7+ | 0.5+ | 2009 08 26 | 703 | 0.3+ | 0.5− | 2009 12 20 | 704 | 1.3+ | 0.0 |
| 2006 03 06 | 703 | 0.4− | 0.0 | 2009 08 26 | 703 | (2.1+ | 1.5−) | 2009 12 20 | 704 | 0.1+ | 0.9+ |

**(229863)∗ 2009 TC$_{20}$**

Discovered 2009 Oct. 11 by the Mt. Lemmon Survey at Mount Lemmon.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 343.85664 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22732797 | $\omega$ | 218.34768 | | +0.11210633 | | −0.97200621 |
| $a$ | 2.6588926 | $\Omega$ | 226.29193 | | +0.96757726 | | +0.15410608 |
| $e$ | 0.0316853 | $i$ | 16.59748 | | +0.22633254 | | −0.17735623 |
| $P$ | 4.34 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 01 11 | 644 | 0.2− | 1.0+ | 2009 10 11 | G96 | 0.2− | 0.0 | 2009 11 17 | G96 | 0.2− | 0.0 |
| 2002 01 11 | 644 | 1.0+ | 1.2+ | 2009 10 11 | G96 | 0.1+ | 0.2− | 2009 11 19 | J75 | 0.5+ | 0.1− |
| 2002 02 09 | 644 | 0.1+ | 0.3− | 2009 10 11 | G96 | 0.2− | 0.0 | 2009 11 19 | J75 | 0.5+ | 0.0 |
| 2002 02 09 | 644 | 0.4− | 0.1− | 2009 10 18 | G96 | 0.1+ | 0.1− | 2009 11 19 | J75 | 0.4+ | 0.5− |
| 2002 02 09 | 644 | 0.1− | 0.1+ | 2009 10 18 | G96 | 0.0 | 0.1− | 2009 11 20 | 704 | 0.1− | 0.7+ |
| 2004 08 11 | 644 | 0.0 | 0.3+ | 2009 10 18 | G96 | 0.1− | 0.2− | 2009 11 20 | 704 | 0.3− | 0.5+ |
| 2004 08 11 | 644 | 0.3− | 0.1− | 2009 10 18 | G96 | 0.2− | 0.1+ | 2009 11 20 | 704 | (1.2− | 1.7+) |
| 2004 08 11 | 644 | 0.1− | 0.5+ | 2009 10 21 | 703 | 0.1− | 0.5− | 2009 11 20 | 704 | 0.3− | 0.6+ |
| 2004 10 05 | 644 | 0.1+ | 0.2+ | 2009 10 21 | 703 | 0.1+ | 1.0+ | 2009 11 20 | 704 | 0.8− | 0.3+ |
| 2004 10 05 | 644 | 0.0 | 0.2+ | 2009 10 21 | 703 | 0.3+ | 0.4− | 2009 11 22 | 703 | 0.6− | 0.0 |
| 2004 10 05 | 644 | 0.2− | 0.4+ | 2009 10 21 | 703 | (1.1− | 2.2−) | 2009 11 22 | 703 | 0.5+ | 0.2− |
| 2007 04 13 | E12 | 0.6+ | 0.2+ | 2009 10 23 | 691 | 0.2− | 0.2− | 2009 11 22 | 703 | 0.0 | 1.0− |
| 2007 04 13 | E12 | 0.7− | 0.2+ | 2009 10 23 | 691 | 0.4− | 0.2− | 2009 11 22 | 703 | 0.5− | 0.7− |
| 2007 04 13 | E12 | 0.2+ | 0.9+ | 2009 10 23 | 691 | 0.1− | 0.2− | 2009 11 23 | J75 | 1.0+ | 0.1+ |
| 2007 05 10 | 699 | (2.3+ | 1.3+) | 2009 11 09 | 703 | 0.2+ | 0.4+ | 2009 11 23 | J75 | 0.1+ | 0.2− |
| 2007 05 10 | 699 | 0.1+ | 1.1+ | 2009 11 09 | 703 | 0.3− | 0.3+ | 2009 11 23 | J75 | 0.3− | 0.2− |
| 2007 05 10 | 699 | (2.2+ | 1.3+) | 2009 11 09 | 703 | 0.3− | 0.5+ | 2009 11 24 | G96 | 0.5+ | 0.2− |
| 2007 05 10 | 699 | (3.8+ | 1.3+) | 2009 11 09 | 703 | 0.6+ | 0.1− | 2009 11 24 | G96 | 0.3+ | 0.2− |
| 2008 05 30 | G96 | 0.3+ | 0.2+ | 2009 11 15 | 703 | 1.2+ | 0.7+ | 2009 11 24 | G96 | 0.0 | 0.2− |
| 2008 05 30 | G96 | 0.1− | 0.2+ | 2009 11 15 | 703 | 0.2+ | 0.8− | 2009 11 24 | G96 | 0.1+ | 0.1− |
| 2008 05 30 | G96 | 0.1+ | 0.6+ | 2009 11 15 | 703 | 1.3+ | 0.5+ | 2009 12 10 | 703 | 1.0− | 0.3− |
| 2009 07 28 | 691 | 0.3− | 0.1+ | 2009 11 15 | 703 | 0.3− | 0.4+ | 2009 12 10 | 703 | 0.3+ | 0.2+ |
| 2009 07 28 | 691 | 0.3+ | 0.6+ | 2009 11 15 | 703 | 0.7+ | 0.4+ | 2009 12 10 | 703 | 0.8− | 0.9+ |
| 2009 07 28 | 691 | 0.3− | 0.7+ | 2009 11 15 | 703 | 0.1+ | 0.7+ | 2009 12 10 | 703 | 0.4+ | 0.5− |
| 2009 09 21 | G96 | 0.0 | 0.1− | 2009 11 15 | 703 | 0.2+ | 0.3− | 2009 12 18 | 704 | 0.5+ | 0.5+ |
| 2009 09 21 | G96 | 0.0 | 0.5− | 2009 11 15 | 703 | 0.9− | 0.2+ | 2009 12 18 | 704 | 0.7+ | 0.0 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2009 09 21 | G96 | 0.2− | 0.2− | 2009 11 17 | G96 | 0.3+ | 0.2− | 2009 12 18 | 704 | 0.2− | 0.3+ | | |
| 2009 09 21 | G96 | 0.2− | 0.3− | 2009 11 17 | G96 | 0.0 | 0.1− | | | | | | |
| 2009 10 11 | G96 | 0.1+ | 0.2− | 2009 11 17 | G96 | 0.4− | 0.2− | | | | | | |

**(229864)∗ 2009 TC$_{26}$**

Discovered 2009 Oct. 14 by the PMO Neo Survey Program at the XuYi Station of the Purple Mountain Observatory.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 34.69835 | | (2000.0) | | | |
| $n$ | 0.18085404 | $\omega$ | 323.44533 | | +0.96934171 | +0.04502850 |
| $a$ | 3.0968291 | $\Omega$ | 36.34337 | | +0.13140569 | +0.73568158 |
| $e$ | 0.1898410 | $i$ | 24.05441 | | −0.20762754 | +0.67582916 |
| $P$ | 5.45 | $H$ | 14.9 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 09 21 | 699 | 0.5+ | 0.3− | 2009 10 14 | D29 | 0.1+ | 0.2+ | 2009 10 27 | 704 | 0.4+ | 0.7+ | | |
| 1998 09 21 | 699 | 0.5+ | 0.4+ | 2009 10 15 | J75 | 0.7+ | 0.1− | 2009 10 27 | 704 | (2.7+ | 0.5−) | | |
| 1998 09 21 | 699 | 0.4− | 0.3+ | 2009 10 15 | J75 | 0.2+ | 0.0 | 2009 10 27 | 704 | 1.2− | 0.6+ | | |
| 1998 10 17 | 699 | 1.1+ | 1.2− | 2009 10 15 | J75 | 0.2+ | 0.5− | 2009 11 09 | 703 | 0.2+ | 0.0 | | |
| 1998 10 17 | 699 | 0.3− | 0.3+ | 2009 10 15 | J75 | 0.3− | 0.1− | 2009 11 09 | 703 | 0.3− | 0.0 | | |
| 1998 10 17 | 699 | 0.4+ | 0.1− | 2009 10 15 | J75 | 0.4+ | 0.3+ | 2009 11 09 | 703 | 0.2− | 0.5+ | | |
| 1998 11 11 | 699 | 1.2+ | 1.0− | 2009 10 15 | J75 | 0.0 | 0.2+ | 2009 11 09 | 703 | 0.0 | 0.5+ | | |
| 1998 11 11 | 699 | 0.2− | 1.0− | 2009 10 21 | 703 | 0.1− | 0.6+ | 2009 11 17 | 704 | 0.1− | 0.1+ | | |
| 1998 11 11 | 699 | 0.9− | 0.6+ | 2009 10 21 | 703 | 0.5− | 0.4+ | 2009 11 17 | 704 | 0.3− | 0.7+ | | |
| 2002 04 18 | 644 | 0.1+ | 0.1+ | 2009 10 21 | 703 | 0.2+ | 0.3+ | 2009 11 17 | 704 | 0.1+ | 0.5+ | | |
| 2002 04 18 | 644 | 0.3+ | 0.0 | 2009 10 21 | 703 | 0.3+ | 0.2− | 2009 12 10 | 703 | 0.7+ | 0.2− | | |
| 2002 04 18 | 644 | 1.2+ | 0.8+ | 2009 10 22 | G96 | 0.2− | 0.4− | 2009 12 10 | 703 | 0.8− | 0.2+ | | |
| 2002 05 10 | 644 | 0.5+ | 0.6+ | 2009 10 22 | G96 | 0.1+ | 0.4− | 2009 12 10 | 703 | 0.4− | 0.1+ | | |
| 2002 05 10 | 644 | 0.4+ | 0.6+ | 2009 10 22 | G96 | 0.1− | 0.5− | 2009 12 10 | 703 | 0.3− | 0.4+ | | |
| 2002 05 10 | 644 | 0.9+ | 0.6+ | 2009 10 22 | G96 | 0.0 | 0.4− | 2009 12 12 | 704 | 0.9− | 1.0+ | | |
| 2007 05 06 | 691 | 0.3+ | 0.0 | 2009 10 23 | 683 | 0.7+ | 0.3+ | 2009 12 12 | 704 | 0.2+ | 0.5+ | | |
| 2007 05 06 | 691 | 0.1− | 0.1+ | 2009 10 23 | 683 | (0.8− | 1.7+) | 2009 12 12 | 704 | 0.3+ | 1.3+ | | |
| 2007 05 06 | 691 | 0.2+ | 0.5+ | 2009 10 23 | 683 | (1.1− | 2.0+) | 2009 12 12 | 704 | 0.0 | 0.5+ | | |
| 2009 09 19 | 703 | 0.6− | 0.2+ | 2009 10 24 | 691 | 0.4− | 0.1+ | 2009 12 12 | 704 | 0.6− | 0.2+ | | |
| 2009 09 19 | 703 | 1.2− | 0.0 | 2009 10 24 | 691 | 0.3− | 0.1+ | 2009 12 16 | 704 | 0.5− | 0.6− | | |
| 2009 09 19 | 703 | 0.9− | 0.1− | 2009 10 24 | 691 | 0.3− | 0.2+ | 2009 12 16 | 704 | 0.6+ | 1.0− | | |
| 2009 09 19 | 703 | 0.9− | 0.2− | 2009 10 24 | 683 | 0.4+ | 0.6+ | 2009 12 16 | 704 | 0.0 | 0.2+ | | |
| 2009 10 14 | D29 | 0.1+ | 0.2− | 2009 10 24 | 683 | 0.8+ | 0.6− | 2009 12 16 | 704 | 0.0 | 0.2+ | | |
| 2009 10 14 | D29 | 0.2− | 0.2− | 2009 10 24 | 683 | 0.6+ | 1.0− | 2009 12 16 | 704 | 0.3+ | 0.2+ | | |
| 2009 10 14 | D29 | 0.3− | 0.2− | 2009 10 27 | 704 | 0.4+ | 1.2+ | | | | | | |

**(229865)∗ 2009 TQ$_{26}$ = 2002 TY$_{126}$**

Discovered 2009 Oct. 14 at OAM Observatory, La Sagra.

Id. G. V. Williams (*MPO* 165857)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 40.35014 | | (2000.0) | | | |
| $n$ | 0.28567301 | $\omega$ | 299.53301 | | +0.99182004 | +0.07755088 |
| $a$ | 2.2832664 | $\Omega$ | 56.19503 | | −0.02279755 | +0.88912953 |
| $e$ | 0.1975752 | $i$ | 7.00828 | | −0.12559173 | +0.45103719 |
| $P$ | 3.45 | $H$ | 16.7 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 30 | 699 | 0.9− | 0.6+ | 2008 04 30 | G96 | 0.4+ | 0.4+ | 2009 11 15 | 704 | 0.2− | 0.3+ | | |
| 2002 08 30 | 699 | 0.6− | 0.5+ | 2008 04 30 | G96 | 0.1+ | 0.5+ | 2009 11 15 | 704 | 0.9− | 0.1+ | | |
| 2002 08 30 | 699 | 0.9− | 0.1− | 2008 04 30 | G96 | 0.3+ | 0.4+ | 2009 11 15 | 704 | 0.3− | 1.0+ | | |
| 2002 08 30 | 699 | 0.8+ | 0.4− | 2009 09 27 | 703 | 0.1− | 0.3+ | 2009 11 18 | 704 | 0.4− | 0.4+ | | |
| 2002 10 04 | 704 | 0.3− | 1.3+ | 2009 09 27 | 703 | 0.3+ | 0.5− | 2009 11 18 | 704 | 0.2+ | 1.1+ | | |
| 2002 10 04 | 704 | 0.1+ | 1.3+ | 2009 09 27 | 703 | 1.1+ | 0.2+ | 2009 11 18 | 704 | (0.3− | 1.6+) | | |
| 2002 10 04 | 704 | 0.3− | 1.0+ | 2009 09 27 | 703 | 0.1− | 0.7− | 2009 11 18 | 704 | 0.8− | 0.3+ | | |
| 2002 10 04 | 704 | (1.1− | 1.6+) | 2009 10 14 | J75 | 0.2+ | 0.3− | 2009 11 18 | 704 | 0.6− | 1.1+ | | |
| 2002 10 05 | 704 | 0.5− | 0.3+ | 2009 10 14 | J75 | 0.3+ | 0.2− | 2009 11 23 | 703 | 0.3− | 0.9− | | |
| 2002 10 05 | 704 | 0.4+ | 0.1− | 2009 10 14 | J75 | 0.3+ | 0.2+ | 2009 11 23 | 703 | 0.7− | 1.4− | | |
| 2002 10 05 | 704 | 0.5+ | 0.2− | 2009 10 16 | G96 | 0.0 | 0.1− | 2009 11 23 | 703 | (2.2− | 0.6−) | | |
| 2002 10 05 | 704 | 0.2+ | 0.5− | 2009 10 16 | G96 | 0.2+ | 0.1− | 2009 11 23 | 703 | 0.0 | 0.6− | | |
| 2002 10 05 | 704 | 0.3− | 0.5− | 2009 10 16 | G96 | 0.1+ | 0.0 | 2009 11 23 | 703 | 0.6− | 0.0 | | |
| 2004 02 17 | 691 | 0.2+ | 0.0 | 2009 10 16 | G96 | 0.5+ | 0.1− | 2009 12 10 | 703 | 0.6− | 0.4+ | | |
| 2004 02 17 | 691 | 0.1− | 0.1− | 2009 10 24 | G96 | 0.1+ | 0.0 | 2009 12 10 | 703 | 0.9− | 0.6− | | |
| 2004 02 17 | 691 | 0.2+ | 0.5+ | 2009 10 24 | G96 | 0.3+ | 0.1− | 2009 12 10 | 703 | 0.6− | 0.6+ | | |
| 2008 03 28 | 691 | 0.3+ | 0.1+ | 2009 10 24 | G96 | 0.2+ | 0.0 | 2009 12 10 | 703 | 1.3+ | 0.1− | | |
| 2008 03 28 | 691 | 0.1− | 0.2+ | 2009 10 24 | G96 | 0.1+ | 0.1+ | 2009 12 15 | G96 | 0.5+ | 0.2− | | |
| 2008 03 28 | 691 | 0.3+ | 0.0 | 2009 11 09 | 703 | 0.3+ | 0.1− | 2009 12 15 | G96 | 0.0 | 0.1− | | |
| 2008 04 08 | 691 | 0.3+ | 0.2+ | 2009 11 09 | 703 | 0.3+ | 0.3+ | 2009 12 15 | G96 | 0.5+ | 0.2− | | |
| 2008 04 08 | 691 | 0.5− | 0.2− | 2009 11 09 | 703 | 0.3− | 0.1− | 2009 12 15 | G96 | 0.4+ | 0.0 | | |
| 2008 04 08 | 691 | 0.2− | 0.2+ | 2009 11 09 | 703 | 0.1− | 0.0 | | | | | | |
| 2008 04 30 | G96 | 0.1+ | 0.2+ | 2009 11 15 | 704 | 0.1+ | 0.1+ | | | | | | |

**(229866)∗ 2009 TV$_{27}$ = 1998 VX$_{46}$ = 2007 HU$_{76}$**

Discovered 2009 Oct. 15 at OAM Observatory, La Sagra.

Id. G. V. Williams (*MPO* 165858)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 96.05605 | | (2000.0) | | | |
| $n$ | 0.17675124 | $\omega$ | 246.92433 | | +0.55050372 | +0.80079428 |
| $a$ | 3.1445686 | $\Omega$ | 58.60379 | | −0.62838261 | +0.58354762 |
| $e$ | 0.0876027 | $i$ | 16.04705 | | −0.54961891 | +0.13490995 |
| $P$ | 5.58 | $H$ | 14.9 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 11 14 | 691 | 0.1− | 0.3− | 2008 06 28 | E12 | 0.2+ | 0.0 | 2009 10 25 | 703 | 0.5− | 0.3− | | |
| 1998 11 14 | 691 | 0.0 | 0.3− | 2008 06 28 | E12 | 0.6+ | 0.0 | 2009 10 25 | 703 | 1.2− | 0.2+ | | |
| 1998 11 14 | 691 | 0.3− | 0.3− | 2008 08 08 | E12 | 0.0 | 0.4− | 2009 11 09 | 703 | (1.6− | 0.2+) | | |
| 1998 11 19 | 691 | 0.0 | 0.3− | 2008 08 08 | E12 | 0.1+ | 0.3+ | 2009 11 09 | 703 | 0.3− | 0.9− | | |
| 1998 11 19 | 691 | 0.5+ | 0.1+ | 2008 08 08 | E12 | 0.5− | 0.7+ | 2009 11 09 | 703 | 0.8− | 0.2+ | | |
| 1998 11 19 | 691 | 0.5+ | 0.1− | 2008 08 08 | E12 | 0.4− | 0.5− | 2009 11 09 | 703 | 0.7− | 0.5− | | |
| 2003 10 01 | 699 | 0.9+ | 0.4− | 2008 08 26 | E12 | 0.4− | 0.2− | 2009 11 11 | 106 | 0.2+ | 0.1+ | | |
| 2003 10 01 | 699 | 0.5+ | 1.8+ | 2008 08 26 | E12 | 0.1+ | 0.1− | 2009 11 11 | 106 | 1.2+ | 0.1− | | |
| 2003 10 01 | 699 | 0.0 | 0.7+ | 2008 08 26 | E12 | 0.1− | 0.4− | 2009 11 11 | 106 | 0.7− | 0.3+ | | |
| 2003 10 01 | 699 | 0.3− | 0.2− | 2008 08 26 | E12 | 0.1− | 0.0 | 2009 11 11 | 106 | 0.0 | 0.3− | | |
| 2003 10 24 | 699 | 0.9− | 0.8− | 2009 10 15 | J75 | 0.5+ | 0.2− | 2009 11 14 | 704 | 0.1− | 0.5+ | | |
| 2003 10 24 | 699 | 0.3− | 0.0 | 2009 10 15 | J75 | 0.2+ | 0.2− | 2009 11 14 | 704 | (0.2− | 1.6+) | | |
| 2003 10 24 | 699 | (1.6− | 2.6−) | 2009 10 15 | J75 | 0.2− | 0.6+ | 2009 11 14 | 704 | 0.5+ | 0.6+ | | |
| 2003 10 24 | 699 | (2.6− | 0.6−) | 2009 10 18 | 703 | 0.1− | 0.2− | 2009 11 18 | 704 | 0.3− | 0.4− | | |
| 2007 04 23 | 691 | 0.3+ | 0.2− | 2009 10 18 | 703 | 0.2+ | 1.0+ | 2009 11 18 | 704 | 0.5+ | 0.1+ | | |
| 2007 04 23 | 691 | 0.3− | 0.1+ | 2009 10 18 | 703 | 1.0+ | 0.4− | 2009 11 18 | 704 | 0.6+ | 0.0 | | |
| 2007 04 23 | 691 | 0.2− | 0.1− | 2009 10 18 | 703 | 1.3+ | 0.7+ | 2009 11 18 | 704 | 0.6− | 0.4+ | | |
| 2007 04 26 | 691 | 0.0 | 0.1− | 2009 10 18 | J75 | 0.4+ | 0.1+ | 2009 11 20 | G96 | 0.1+ | 0.1+ | | |
| 2007 04 26 | 691 | 0.0 | 0.1+ | 2009 10 18 | J75 | 0.2− | 0.3− | 2009 11 20 | G96 | 0.1+ | 0.3+ | | |
| 2007 04 26 | 691 | 0.1+ | 0.0 | 2009 10 19 | J75 | 0.0 | 0.1− | 2009 11 20 | G96 | 0.5− | 0.0 | | |
| 2007 06 11 | G96 | 0.1− | 0.1+ | 2009 10 24 | 703 | 0.7+ | 0.8− | 2009 11 20 | G96 | 0.0 | 0.1− | | |
| 2007 06 11 | G96 | 0.1− | 0.1+ | 2009 10 24 | 703 | 1.2− | 0.9+ | 2009 12 10 | 703 | 0.2− | 0.2− | | |
| 2007 06 11 | G96 | 0.5+ | 0.4+ | 2009 10 24 | 703 | 0.0 | 0.6+ | 2009 12 10 | 703 | 0.3− | 0.7− | | |
| 2007 06 11 | G96 | 0.1+ | 0.0 | 2009 10 24 | 703 | 0.4− | 0.0 | 2009 12 10 | 703 | 0.4+ | 0.7+ | | |
| 2008 06 28 | E12 | 0.1− | 0.3− | 2009 10 25 | 703 | 0.1− | 0.2+ | 2009 12 10 | 703 | 1.5− | 1.3+ | | |
| 2008 06 28 | E12 | 0.7+ | 0.7− | 2009 10 25 | 703 | (1.7− | 0.1−) | | | | | | |

**(229867)∗ 2009 TS$_{29}$**

Discovered 2009 Oct. 15 by the Mt. Lemmon Survey at Mount Lemmon.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 62.35445 | | (2000.0) | | | |
| $n$ | 0.20865763 | $\omega$ | 4.20442 | | +0.86953228 | +0.49207467 |
| $a$ | 2.8152256 | $\Omega$ | 326.21352 | | −0.45530392 | +0.76563635 |
| $e$ | 0.0781957 | $i$ | 4.34634 | | −0.19134248 | +0.41432295 |
| $P$ | 4.72 | $H$ | 16.6 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 11 | 691 | 0.1− | 0.3+ | 2007 04 20 | G96 | 0.0 | 0.1− | 2009 10 17 | G96 | 0.7+ | 0.1− | | |
| 2004 09 11 | 691 | 0.0 | 0.2+ | 2007 04 20 | G96 | 0.3+ | 0.2− | 2009 10 17 | G96 | 0.7+ | 0.0 | | |
| 2004 09 11 | 691 | 0.7− | 0.3− | 2007 04 20 | G96 | 0.0 | 0.1+ | 2009 10 22 | 703 | 1.3− | 0.0 | | |
| 2004 09 23 | 691 | 0.4+ | 0.4− | 2007 04 20 | G96 | 0.3+ | 0.0 | 2009 10 22 | 703 | 0.6− | 0.6+ | | |
| 2004 09 23 | 691 | 0.6+ | 0.3− | 2009 09 18 | 691 | 0.2− | 0.1+ | 2009 10 22 | 703 | 0.6− | 0.9+ | | |
| 2004 09 23 | 691 | 0.5+ | 0.6− | 2009 09 18 | 691 | 0.4− | 0.0 | 2009 10 22 | 703 | (2.1+ | 0.7−) | | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 10 | 691 | 0.2− | 0.2− | 2009 09 18 | 691 | 0.2− | 0.2+ | 2009 10 27 | G96 | 0.5+ | 0.0 |
| 2004 10 10 | 691 | 0.1+ | 0.3+ | 2009 09 26 | 691 | 0.4− | 0.3+ | 2009 10 27 | G96 | 0.7+ | 0.0 |
| 2004 10 10 | 691 | 0.1− | 0.1+ | 2009 09 26 | 691 | 0.3− | 0.2+ | 2009 10 27 | G96 | 0.5+ | 0.4+ |
| 2005 12 28 | 691 | 0.1− | 0.1− | 2009 09 26 | 691 | 0.4− | 0.1+ | 2009 10 27 | G96 | 1.0+ | 0.1+ |
| 2005 12 28 | 691 | 0.0 | 0.1− | 2009 10 15 | G96 | 0.5+ | 0.4− | 2009 12 17 | G96 | 0.8+ | 0.2+ |
| 2005 12 28 | 691 | 0.0 | 0.3− | 2009 10 15 | G96 | 0.4+ | 0.2− | 2009 12 17 | G96 | 0.9+ | 0.2+ |
| 2007 03 13 | G96 | 0.1+ | 0.4+ | 2009 10 15 | G96 | 0.1+ | 0.0 | 2009 12 17 | G96 | 0.0 | 0.0 |
| 2007 03 13 | G96 | 0.0 | 0.0 | 2009 10 15 | G96 | 0.4+ | 0.2− | 2009 12 17 | G96 | 0.6+ | 0.1− |
| 2007 03 13 | G96 | 0.3− | 0.4+ | 2009 10 17 | G96 | 0.5+ | 0.0 | | | | |
| 2007 03 13 | G96 | 0.1+ | 0.2+ | 2009 10 17 | G96 | 0.1+ | 0.1− | | | | |

**(229868)∗ 2009 $TS_{35}$ = 2003 $TT_{50}$**

Discovered 2009 Oct. 14 at OAM Observatory, La Sagra.

Id. G. V. Williams (*MPO* 165863)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 27.58328 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18000165 | $\omega$ | 174.60761 | | +0.85732432 | | −0.48924728 |
| $a$ | 3.1065980 | $\Omega$ | 216.14249 | | +0.46157085 | | +0.86829159 |
| $e$ | 0.1294856 | $i$ | 15.75060 | | +0.22791964 | | +0.08189511 |
| $P$ | 5.48 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 09 18 | 910 | 0.1− | 0.1+ | 2007 05 12 | 691 | 0.2− | 0.1+ | 2009 11 14 | 704 | 0.8+ | 1.5+ |
| 1998 09 18 | 910 | 0.1− | 0.2− | 2007 05 12 | 691 | 0.3+ | 0.5− | 2009 11 14 | 704 | 0.4+ | 0.5− |
| 1998 09 18 | 910 | 0.4− | 0.4+ | 2009 07 31 | 691 | 0.8− | 0.1− | 2009 11 15 | 703 | 0.5+ | 0.4+ |
| 2003 08 27 | 644 | 0.5− | 0.0 | 2009 07 31 | 691 | 0.1− | 0.0 | 2009 11 15 | 703 | 1.1− | 0.8− |
| 2003 08 27 | 644 | 0.4− | 0.1+ | 2009 07 31 | 691 | 0.3− | 0.2− | 2009 11 15 | 703 | 0.6− | 0.4− |
| 2003 08 27 | 644 | 0.3− | 0.1− | 2009 10 14 | J75 | 0.4− | 0.7+ | 2009 11 15 | 703 | 0.7− | 0.9− |
| 2003 08 27 | 644 | 0.2− | 0.3+ | 2009 10 14 | J75 | 0.4− | 0.2+ | 2009 11 18 | G96 | 0.1+ | 0.0 |
| 2003 08 27 | 644 | 0.2− | 0.3+ | 2009 10 14 | J75 | 0.8− | 0.1− | 2009 11 18 | G96 | 0.3+ | 0.3− |
| 2003 08 27 | 644 | 0.0 | 0.1+ | 2009 10 21 | 703 | 0.6+ | 0.0 | 2009 11 18 | G96 | 0.3+ | 0.0 |
| 2003 10 04 | 691 | 0.0 | 0.0 | 2009 10 21 | 703 | 0.4− | 1.4+ | 2009 11 18 | G96 | 0.2+ | 0.5− |
| 2003 10 04 | 691 | 0.2+ | 0.1+ | 2009 10 21 | 703 | 0.8+ | 0.3+ | 2009 11 19 | 704 | (0.9+ | 1.7+) |
| 2003 10 04 | 691 | 0.2+ | 0.2+ | 2009 10 21 | 703 | 0.9+ | 0.0 | 2009 11 19 | 704 | 1.0+ | 0.9+ |
| 2003 10 20 | 691 | 0.1+ | 0.0 | 2009 10 24 | 703 | 0.2− | 0.5− | 2009 11 19 | 704 | 1.2+ | 0.3+ |
| 2003 10 20 | 691 | 0.1+ | 0.2− | 2009 10 24 | 703 | 1.1− | 0.5+ | 2009 11 19 | 704 | (0.2− | 1.6+) |
| 2003 10 20 | 691 | 0.1+ | 0.1− | 2009 10 24 | 703 | 0.2+ | 0.9− | 2009 11 25 | G96 | 0.2− | 0.2− |
| 2007 04 15 | 691 | 0.0 | 0.0 | 2009 10 24 | 703 | 0.5− | 0.1− | 2009 11 25 | G96 | 0.1− | 0.3− |
| 2007 04 15 | 691 | 0.2− | 0.3+ | 2009 11 12 | J75 | 0.2+ | 0.4+ | 2009 11 25 | G96 | 0.3− | 0.3− |
| 2007 04 15 | 691 | 0.8− | 0.5+ | 2009 11 12 | J75 | 0.3+ | 0.1+ | 2009 11 25 | G96 | 0.1− | 0.4− |
| 2007 04 24 | 691 | 0.5+ | 0.1+ | 2009 11 12 | J75 | 0.2+ | 0.6− | 2009 12 13 | 704 | 1.3+ | 0.7+ |
| 2007 04 24 | 691 | 0.4− | 0.6− | 2009 11 14 | 704 | 0.3+ | 0.0 | 2009 12 13 | 704 | 0.2− | 0.9+ |
| 2007 04 24 | 691 | 0.4+ | 0.2+ | 2009 11 14 | 704 | 0.1+ | 0.1+ | 2009 12 13 | 704 | 0.0 | 0.6+ |
| 2007 05 12 | 691 | 0.3+ | 0.3+ | 2009 11 14 | 704 | 0.4+ | 0.3− | | | | |

**(229869)∗ 2009 $UZ_4$ = 2003 $SN_{256}$**

Discovered 2009 Oct. 20 by A. Lowe at RAS Observatory, Mayhill.

Id. G. V. Williams (*MPO* 165874)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 358.46014 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18489698 | $\omega$ | 223.59221 | | +0.48012970 | | −0.87718325 |
| $a$ | 3.0515196 | $\Omega$ | 197.71577 | | +0.80925392 | | +0.44513414 |
| $e$ | 0.1193190 | $i$ | 0.94178 | | +0.33850195 | | +0.18001427 |
| $P$ | 5.33 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 09 19 | 691 | 0.5− | 0.3− | 2007 06 18 | 691 | 0.1+ | 0.2− | 2009 11 08 | G96 | 0.1− | 0.1+ |
| 1998 09 19 | 691 | 0.2− | 0.1− | 2007 06 18 | 691 | 0.4− | 0.2+ | 2009 11 08 | G96 | 0.3+ | 0.2− |
| 1998 09 19 | 691 | 0.4− | 0.1− | 2007 06 18 | 691 | 0.6− | 0.1+ | 2009 11 08 | G96 | 0.0 | 0.1− |
| 2003 08 23 | 644 | 0.2− | 0.1− | 2008 07 02 | 691 | 0.4− | 0.2− | 2009 11 08 | G96 | 0.4+ | 0.0 |
| 2003 08 23 | 644 | 0.1+ | 0.1+ | 2008 07 02 | 691 | 0.7− | 0.0 | 2009 11 08 | G96 | 0.1+ | 0.0 |
| 2003 08 23 | 644 | 0.3+ | 0.2+ | 2008 07 02 | 691 | 0.5− | 0.9+ | 2009 11 08 | G96 | 0.1+ | 0.0 |
| 2003 09 28 | 291 | 0.4+ | 0.2+ | 2008 07 29 | G96 | 0.4+ | 0.4− | 2009 11 08 | G96 | 0.2+ | 0.1− |
| 2003 09 28 | 291 | 0.7+ | 0.4+ | 2008 07 29 | G96 | 0.4+ | 0.0 | 2009 11 10 | J75 | 0.9+ | 0.3+ |
| 2003 09 28 | 291 | 0.5+ | 0.3+ | 2008 07 29 | G96 | 0.2+ | 0.2+ | 2009 11 10 | J75 | 0.4− | 0.6+ |
| 2003 09 29 | 291 | 0.3+ | 0.1− | 2008 07 29 | G96 | 0.0 | 0.0 | 2009 11 10 | J75 | 0.3+ | 0.5+ |
| 2003 09 29 | 291 | 0.4+ | 0.2− | 2009 10 18 | G96 | 0.0 | 0.3− | 2009 11 11 | J75 | 0.6− | 0.1+ |
| 2003 09 29 | 291 | 0.3+ | 0.1− | 2009 10 18 | G96 | 0.0 | 0.2− | 2009 11 11 | J75 | 0.3− | 0.3− |
| 2006 02 28 | G96 | 0.1+ | 0.1+ | 2009 10 18 | G96 | 0.3+ | 0.2− | 2009 11 11 | J75 | 0.2+ | 0.1− |
| 2006 02 28 | G96 | 0.9+ | 0.2− | 2009 10 18 | G96 | 0.3+ | 0.2− | 2009 11 18 | 704 | 0.1+ | 0.5+ |
| 2006 02 28 | G96 | 0.9+ | 0.3+ | 2009 10 19 | H06 | 1.2+ | 0.2+ | 2009 11 18 | 704 | 0.3− | 0.3− |
| 2006 02 28 | G96 | 0.4+ | 0.4+ | 2009 10 19 | H06 | (1.6+ | 0.6−) | 2009 11 18 | 704 | 0.2+ | 0.6+ |
| 2006 04 21 | G96 | 0.0 | 0.2− | 2009 10 19 | H06 | 0.6+ | 0.2+ | 2009 11 18 | 704 | 0.3+ | 1.2+ |
| 2006 04 21 | G96 | 0.4+ | 0.1+ | 2009 10 20 | H06 | 0.4+ | 0.2+ | 2009 11 20 | 704 | 0.3− | 1.2− |
| 2006 04 21 | G96 | 0.3+ | 0.2− | 2009 10 20 | H06 | 0.1− | 0.1− | 2009 11 20 | 704 | 0.2+ | 0.7+ |
| 2006 04 21 | G96 | 0.2− | 0.1− | 2009 10 20 | H06 | 0.6+ | 0.3− | 2009 11 20 | 704 | (1.5+ | 0.3+) |
| 2006 05 24 | G96 | 0.2+ | 0.4+ | 2009 10 23 | H06 | 0.4+ | 0.1− | 2009 11 23 | 703 | (3.7− | 1.1−) |
| 2006 05 24 | G96 | 0.5− | 0.4+ | 2009 10 23 | H06 | 0.4+ | 0.1− | 2009 11 23 | 703 | 1.4− | 0.2− |
| 2006 05 24 | G96 | 0.5+ | 0.0 | 2009 10 23 | H06 | 0.8+ | 0.1+ | 2009 11 23 | 703 | 0.4+ | 0.6− |
| 2006 05 24 | G96 | 0.4+ | 0.0 | 2009 10 23 | 691 | 0.4− | 0.2+ | 2009 11 23 | 703 | (0.0 | 1.9+) |
| 2007 05 11 | G96 | 0.5+ | 0.0 | 2009 10 23 | 691 | 0.1− | 0.1+ | 2009 11 25 | G96 | 0.3− | 0.1− |
| 2007 05 11 | G96 | 0.0 | 0.2− | 2009 10 23 | 691 | 0.5− | 0.1+ | 2009 11 25 | G96 | 0.0 | 0.0 |
| 2007 05 11 | G96 | 0.9+ | 0.9− | 2009 10 24 | H06 | 0.5− | 0.5− | 2009 11 25 | G96 | 0.1− | 0.2− |
| 2007 05 11 | G96 | 0.4+ | 0.2− | 2009 10 24 | H06 | 0.1− | 0.1+ | 2009 11 25 | G96 | 0.1+ | 0.1− |
| 2007 05 25 | G96 | 0.6− | 0.6+ | 2009 10 24 | H06 | 0.2+ | 0.0 | 2009 12 15 | G96 | 0.7− | 0.1− |
| 2007 05 25 | G96 | 0.0 | 0.1− | 2009 10 25 | H06 | 0.1− | 0.1− | 2009 12 15 | G96 | 0.2− | 0.2+ |
| 2007 05 25 | G96 | 0.4− | 0.3− | 2009 10 25 | H06 | 0.4+ | 0.6− | 2009 12 15 | G96 | 0.2− | 0.0 |
| 2007 05 25 | G96 | 0.3− | 0.1+ | 2009 10 25 | H06 | 0.7− | 0.2− | 2009 12 15 | G96 | 0.2− | 0.1+ |

**(229870)∗ 2009 $UD_{12}$**

Discovered 2009 Oct. 17 at OAM Observatory, La Sagra.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 16.85165 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18597030 | $\omega$ | 178.40840 | | +0.73531701 | | −0.66347779 |
| $a$ | 3.0397672 | $\Omega$ | 224.22510 | | +0.61958895 | | +0.74075768 |
| $e$ | 0.0964437 | $i$ | 11.43043 | | +0.27462416 | | +0.10523920 |
| $P$ | 5.30 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 17 | 699 | 0.8+ | 0.0 | 2009 10 17 | J75 | 0.3− | 0.2− | 2009 11 11 | J75 | 0.1− | 0.5+ |
| 2003 09 17 | 699 | 1.0+ | 0.1+ | 2009 10 17 | J75 | 1.3+ | 0.6− | 2009 11 11 | J75 | 0.1− | 0.2+ |
| 2003 09 17 | 699 | 0.2− | 0.7+ | 2009 10 18 | G96 | 0.1+ | 0.3− | 2009 11 11 | J75 | 0.2+ | 0.2− |
| 2003 09 17 | 699 | 0.3− | 0.8+ | 2009 10 18 | G96 | 0.1− | 0.3− | 2009 11 11 | J75 | 0.2+ | 0.2− |
| 2003 10 02 | 691 | 0.5− | 0.6+ | 2009 10 18 | G96 | 0.3+ | 0.3− | 2009 11 15 | 703 | 1.2+ | 0.9− |
| 2003 10 02 | 691 | 0.0 | 0.3+ | 2009 10 18 | G96 | 0.4− | 0.3− | 2009 11 15 | 703 | 0.9+ | 1.3− |
| 2003 10 02 | 691 | 0.3+ | 0.1+ | 2009 10 23 | 691 | 0.2− | 0.1+ | 2009 11 15 | 703 | 1.1+ | 0.1− |
| 2003 10 24 | 645 | 0.1− | 0.1− | 2009 10 23 | 691 | 0.3− | 0.2− | 2009 11 15 | 703 | 0.1− | 0.3− |
| 2003 10 24 | 645 | 0.0 | 0.1− | 2009 10 23 | 691 | 0.5− | 0.3+ | 2009 11 17 | G96 | 0.0 | 0.1− |
| 2007 03 14 | G96 | 0.3− | 0.3+ | 2009 10 24 | 703 | 0.8− | 0.8− | 2009 11 17 | G96 | 0.2+ | 0.1− |
| 2007 03 14 | G96 | 0.5+ | 0.3+ | 2009 10 24 | 703 | 1.3− | 0.4+ | 2009 11 17 | G96 | 0.1− | 0.3− |
| 2007 03 14 | G96 | 0.2− | 0.2+ | 2009 10 24 | 703 | 0.2− | 0.1− | 2009 11 17 | G96 | 0.2+ | 0.1− |
| 2007 03 14 | G96 | 0.1+ | 0.1+ | 2009 10 24 | 703 | 0.2− | 0.6+ | 2009 11 17 | G96 | 0.2+ | 0.3− |
| 2007 04 19 | G96 | 0.1+ | 0.0 | 2009 10 25 | 703 | 0.5− | 0.4+ | 2009 11 17 | G96 | 0.4+ | 0.3− |
| 2007 04 19 | G96 | 0.2+ | 0.1+ | 2009 10 25 | 703 | 1.1− | 0.6− | 2009 11 17 | G96 | 0.2+ | 0.2− |
| 2007 04 19 | G96 | 0.3− | 0.2+ | 2009 10 25 | 703 | 0.4+ | 0.2− | 2009 11 17 | G96 | 0.1− | 0.2− |
| 2007 04 19 | G96 | 0.3+ | 0.1+ | 2009 10 25 | 703 | 0.8− | 0.9− | 2009 11 18 | 704 | (0.7+ | 3.2+) |
| 2007 05 12 | 691 | 0.0 | 0.2+ | 2009 11 08 | 703 | 1.0− | 0.4− | 2009 11 18 | 704 | 0.5+ | 0.2+ |
| 2007 05 12 | 691 | 0.1− | 0.4+ | 2009 11 08 | 703 | 0.4− | 0.1+ | 2009 11 18 | 704 | 0.2+ | 1.1+ |
| 2007 05 12 | 691 | 0.1+ | 0.1− | 2009 11 08 | 703 | 0.5+ | 1.1+ | 2009 11 18 | 704 | 1.5− | 0.4+ |
| 2008 07 28 | G96 | 0.0 | 0.2− | 2009 11 08 | 703 | 0.5− | 0.4+ | 2009 11 20 | 704 | 0.3+ | 0.9+ |
| 2008 07 28 | G96 | 0.1+ | 0.0 | 2009 11 10 | J75 | 0.2− | 0.2+ | 2009 11 20 | 704 | 0.3− | 0.4+ |
| 2008 07 28 | G96 | 0.3− | 0.3− | 2009 11 10 | J75 | 0.2+ | 0.4− | 2009 11 20 | 704 | 0.6+ | 1.3+ |
| 2008 07 28 | G96 | 0.2+ | 0.0 | 2009 11 10 | J75 | 0.4+ | 0.0 | 2009 11 20 | 704 | 0.2− | 1.2+ |
| 2009 09 21 | G96 | 0.4+ | 0.1− | 2009 11 10 | J75 | 0.4− | 0.2− | 2009 11 24 | G96 | 0.4+ | 0.1− |
| 2009 09 21 | G96 | 0.1+ | 0.1− | 2009 11 10 | J75 | 0.6+ | 0.1+ | 2009 11 24 | G96 | 0.3+ | 0.1− |
| 2009 09 21 | G96 | 0.1+ | 0.1− | 2009 11 10 | J75 | 0.1+ | 0.0 | 2009 11 24 | G96 | 0.1+ | 0.1+ |
| 2009 09 21 | G96 | 0.2+ | 0.2− | 2009 11 11 | J75 | 0.4+ | 0.4+ | 2009 11 24 | G96 | 0.3+ | 0.1− |
| 2009 10 17 | J75 | 1.1+ | 0.1− | 2009 11 11 | J75 | 0.1− | 0.1− | | | | |

**(229871)∗ 2009 $UO_{26}$ = 1999 $TL_{238}$ = 2007 $BC_{20}$**

Discovered 2009 Oct. 21 by the Catalina Sky Survey.

Id. G. V. Williams (*MPO* 165888)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 24.15034 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.29882484 | $\omega$ | 342.06276 | | +0.78105040 | −0.61989413 | |
| $a$ | 2.2157712 | $\Omega$ | 56.48364 | | +0.58345264 | +0.68134434 | |
| $e$ | 0.1325828 | $i$ | 5.19168 | | +0.22258322 | +0.38923149 | |
| $P$ | 3.30 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 10 04 | 703 | 0.7− | 0.1+ | 2009 10 23 | G96 | 0.0 | 0.1− | 2009 11 18 | 704 | 0.4+ | 0.3− |
| 1999 10 04 | 703 | 1.4− | 1.2+ | 2009 10 23 | G96 | 0.0 | 0.0 | 2009 11 18 | 704 | 0.3− | 0.3+ |
| 1999 10 04 | 703 | 1.4+ | 1.5+ | 2009 10 25 | 703 | 0.2− | 0.1+ | 2009 11 18 | 704 | (1.6− | 0.3−) |
| 1999 10 04 | 703 | 1.1− | 1.5+ | 2009 10 25 | 703 | 0.8− | 0.0 | 2009 11 18 | 704 | 0.6− | 0.0 |
| 1999 10 09 | 704 | 1.8+ | 0.9− | 2009 10 25 | 703 | 0.8+ | 0.5+ | 2009 11 20 | 704 | 0.2− | 0.0 |
| 1999 10 09 | 704 | 0.7− | 0.3− | 2009 10 25 | 703 | 0.7− | 0.9+ | 2009 11 20 | 704 | 0.1+ | 0.1− |
| 1999 10 09 | 704 | 0.4− | 0.3− | 2009 11 08 | 703 | 0.3− | 0.4+ | 2009 11 20 | 704 | 0.4+ | 0.1+ |
| 1999 10 09 | 704 | 0.3− | 0.1− | 2009 11 08 | 703 | 0.2− | 0.5+ | 2009 11 20 | 704 | 0.2− | 0.1+ |
| 2006 12 10 | 691 | 0.1− | 0.4+ | 2009 11 08 | 703 | 0.3+ | 0.9+ | 2009 11 20 | 704 | 0.5+ | 0.2+ |
| 2006 12 10 | 691 | 0.0 | 0.2− | 2009 11 08 | 703 | (0.1− | 1.6−) | 2009 11 20 | J75 | 0.3− | 0.3− |
| 2006 12 10 | 691 | 0.0 | 0.1+ | 2009 11 10 | J75 | 0.2+ | 0.3+ | 2009 11 20 | J75 | 0.0 | 0.9− |
| 2007 01 23 | 704 | 0.2+ | 0.3− | 2009 11 10 | J75 | 0.6+ | 0.3− | 2009 11 20 | J75 | 1.2+ | 0.5− |
| 2007 01 23 | 704 | 0.8+ | 1.0+ | 2009 11 10 | J75 | 0.4+ | 0.2+ | 2009 11 23 | 703 | 1.4− | 0.1− |
| 2007 01 23 | 704 | (0.1− | 2.2+) | 2009 11 11 | J75 | 0.0 | 0.3+ | 2009 11 23 | 703 | 0.1− | 0.2− |
| 2007 01 24 | 704 | 0.8+ | 1.2− | 2009 11 11 | J75 | 0.1− | 0.2− | 2009 11 23 | 703 | (1.9− | 0.9−) |
| 2007 01 24 | 704 | (1.6− | 0.4+) | 2009 11 11 | J75 | 0.2+ | 0.4− | 2009 11 23 | J75 | 0.4+ | 0.0 |
| 2007 01 24 | 704 | 0.0 | 1.1+ | 2009 11 13 | J75 | 0.5− | 0.2− | 2009 11 23 | J75 | 0.3− | 0.3+ |
| 2007 01 24 | 704 | 1.3− | 1.2+ | 2009 11 13 | J75 | 0.4− | 0.8− | 2009 11 23 | J75 | 0.4+ | 0.6− |
| 2008 05 30 | G96 | 0.4+ | 0.1+ | 2009 11 13 | J75 | 0.0 | 0.2− | 2009 11 24 | G96 | 0.2− | 0.4− |
| 2008 05 30 | G96 | 0.0 | 0.7+ | 2009 11 14 | J75 | 0.3− | 0.5− | 2009 11 24 | G96 | 0.1− | 0.4− |
| 2008 05 30 | G96 | 0.2+ | 0.5+ | 2009 11 14 | J75 | 0.5+ | 0.1− | 2009 11 24 | G96 | 0.1+ | 0.3− |
| 2008 05 30 | G96 | 0.2− | 0.4+ | 2009 11 14 | J75 | 0.2+ | 0.1− | 2009 11 24 | G96 | 0.2− | 0.2− |
| 2009 10 21 | 703 | 0.5− | 0.5+ | 2009 11 15 | 703 | (0.2− | 1.9+) | 2009 12 10 | 703 | 0.6+ | 1.3− |
| 2009 10 21 | 703 | 0.1+ | 1.2− | 2009 11 15 | 703 | 0.2− | 1.1+ | 2009 12 10 | 703 | 0.1+ | 0.1+ |
| 2009 10 21 | 703 | 0.0 | 0.3− | 2009 11 15 | 703 | 0.2+ | 0.1− | 2009 12 10 | 703 | 0.1+ | 0.9+ |
| 2009 10 21 | 703 | 0.8− | 0.1+ | 2009 11 15 | 703 | 0.2+ | 0.9− | 2009 12 10 | 703 | 1.2+ | 0.7+ |
| 2009 10 23 | G96 | 0.1+ | 0.4− | 2009 11 15 | 703 | 0.1+ | 0.1+ | 2009 12 11 | J75 | 0.1+ | 0.0 |
| 2009 10 23 | G96 | 0.1− | 0.1− | 2009 11 15 | 703 | 0.2+ | 0.9+ | 2009 12 11 | J75 | 0.3+ | 0.2− |
| 2009 10 23 | G96 | 0.4+ | 0.1− | 2009 11 15 | 703 | 0.6+ | 0.5+ | 2009 12 11 | J75 | 0.4− | 0.1+ |
| 2009 10 23 | G96 | 0.3+ | 0.1− | 2009 11 15 | 703 | 0.5− | 0.3− | | | | |
| 2009 10 23 | G96 | 0.3− | 0.1− | 2009 11 18 | 704 | 0.4+ | 0.4− | | | | |

**(229872)∗ 2009 UB$_{30}$**

Discovered 2009 Oct. 18 by the Mt. Lemmon Survey at Mount Lemmon.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 333.05530 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17190416 | $\omega$ | 233.53117 | | −0.05022086 | −0.99764650 | |
| $a$ | 3.2034046 | $\Omega$ | 219.42675 | | +0.93823152 | −0.03110458 | |
| $e$ | 0.1098076 | $i$ | 4.21542 | | +0.34234409 | −0.06110626 | |
| $P$ | 5.73 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 18 | 691 | 0.2− | 0.0 | 2006 05 06 | G96 | 0.4+ | 0.4+ | 2009 11 08 | G96 | 0.0 | 0.1− |
| 2003 09 18 | 691 | 0.2− | 0.0 | 2008 07 29 | 691 | 0.2− | 0.0 | 2009 11 08 | G96 | 0.4+ | 0.1− |
| 2003 09 18 | 691 | 0.2− | 0.1− | 2008 07 29 | 691 | 0.0 | 0.3+ | 2009 11 08 | G96 | 0.3+ | 0.4+ |
| 2003 09 29 | 691 | 0.1− | 0.1+ | 2008 07 29 | 691 | 0.3− | 0.1+ | 2009 11 23 | 703 | 0.8+ | 0.8+ |
| 2003 09 29 | 691 | 0.0 | 0.2− | 2008 09 19 | 691 | 0.2+ | 0.1− | 2009 11 23 | 703 | 0.1− | 0.4+ |
| 2003 09 29 | 691 | 0.2+ | 0.1+ | 2008 09 19 | 691 | 0.2− | 0.2− | 2009 11 23 | 703 | (1.7+ | 0.1−) |
| 2003 10 18 | 691 | 0.0 | 0.2+ | 2008 09 19 | 691 | 0.4+ | 0.1+ | 2009 11 23 | 703 | 0.7− | 0.1+ |
| 2003 10 18 | 691 | 0.3+ | 0.0 | 2009 10 18 | G96 | 0.1+ | 0.1− | 2009 11 24 | G96 | 0.2+ | 0.2− |
| 2003 10 18 | 691 | 0.3+ | 0.0 | 2009 10 18 | G96 | 0.1− | 0.1− | 2009 11 24 | G96 | 0.5+ | 0.3+ |
| 2003 11 24 | 691 | 0.0 | 0.1+ | 2009 10 18 | G96 | 0.5+ | 0.1− | 2009 11 24 | G96 | 0.5+ | 0.2− |
| 2003 11 24 | 691 | 0.2− | 0.1+ | 2009 10 18 | G96 | 0.2+ | 0.1− | 2009 11 24 | G96 | 0.4+ | 0.1− |
| 2003 11 24 | 691 | 0.1+ | 0.1− | 2009 10 23 | 691 | 0.2− | 0.6+ | 2009 12 15 | G96 | 0.0 | 0.3+ |
| 2006 05 06 | G96 | 0.1− | 0.1+ | 2009 10 23 | 691 | 0.4− | 0.5− | 2009 12 15 | G96 | 0.0 | 0.1+ |
| 2006 05 06 | G96 | 0.0 | 0.4+ | 2009 10 23 | 691 | 0.2− | 0.3− | 2009 12 15 | G96 | 0.1+ | 0.2+ |
| 2006 05 06 | G96 | 0.2+ | 0.4+ | 2009 11 08 | G96 | 0.1+ | 0.1+ | 2009 12 15 | G96 | 0.1− | 0.2+ |

**(229873)∗ 2009 UD$_{30}$ = 1993 TO$_{30}$**

Discovered 2009 Oct. 18 by the Mt. Lemmon Survey at Mount Lemmon.

Id. G. V. Williams (*MPO* 165893)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 82.75449 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18771070 | $\omega$ | 274.80048 | | +0.76929892 | +0.62648905 | |
| $a$ | 3.0209488 | $\Omega$ | 46.47499 | | −0.49601041 | +0.70923936 | |
| $e$ | 0.1258758 | $i$ | 9.94821 | | −0.40268207 | +0.32325066 | |
| $P$ | 5.25 | $H$ | 15.3 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1993 10 09 | 809 | (3.0− | 2.0+) | 2004 12 02 | 703 | 0.0 | 0.3+ | 2009 10 23 | 691 | 0.2− | 0.0 |
| 1993 10 09 | 809 | 1.6− | 1.1+ | 2006 12 26 | 291 | 0.8− | 0.6+ | 2009 10 23 | 691 | 0.3− | 0.1+ |
| 1993 10 09 | 809 | 1.3− | 0.8+ | 2006 12 26 | 291 | 0.6− | 0.4+ | 2009 10 23 | 691 | 0.1− | 0.2+ |
| 1993 10 11 | 809 | 1.0+ | 1.7+ | 2006 12 26 | 291 | 0.3− | 0.3+ | 2009 10 24 | 703 | (1.0− | 1.6−) |
| 1993 10 11 | 809 | 0.4+ | 1.7+ | 2007 03 16 | 691 | 0.1+ | 0.1− | 2009 10 24 | 703 | 1.0− | 0.7− |
| 1993 10 11 | 809 | (0.7− | 2.9+) | 2007 03 16 | 691 | 0.3+ | 0.5+ | 2009 10 24 | 703 | (1.0+ | 1.5−) |
| 1998 08 26 | 910 | 1.1− | 0.6− | 2007 03 16 | 691 | 0.2− | 0.3+ | 2009 10 24 | 703 | 1.0− | 1.4− |
| 1998 08 26 | 910 | 0.8− | 0.3− | 2007 04 15 | 703 | (1.6+ | 0.0 ) | 2009 11 08 | G96 | 0.5+ | 0.1+ |
| 1998 08 26 | 910 | 1.2− | 0.3− | 2007 04 15 | 703 | 0.4− | 0.6− | 2009 11 08 | G96 | 0.7+ | 0.1+ |
| 2002 05 02 | 735 | 0.4− | 1.5+ | 2007 04 15 | 703 | 0.3+ | 0.8− | 2009 11 08 | G96 | 0.3+ | 0.2+ |
| 2002 05 02 | 735 | 0.4+ | 0.2+ | 2007 04 15 | 703 | 0.9+ | 0.0 | 2009 11 08 | G96 | 0.4+ | 0.2+ |
| 2002 06 03 | 291 | 0.4+ | 0.4+ | 2007 04 25 | 691 | 0.1+ | 0.1+ | 2009 11 10 | J75 | 0.5+ | 0.2− |
| 2002 06 03 | 291 | 0.1− | 0.4+ | 2007 04 25 | 691 | 0.2− | 0.2+ | 2009 11 10 | J75 | 0.0 | 0.3+ |
| 2002 06 03 | 291 | 1.0+ | 0.4− | 2007 04 25 | 691 | 0.2+ | 0.5+ | 2009 11 10 | J75 | 1.1+ | 0.3− |
| 2003 07 08 | 644 | 0.4− | 0.1− | 2007 05 07 | 691 | 0.1+ | 0.4+ | 2009 11 11 | J75 | 0.5+ | 0.7+ |
| 2003 07 08 | 644 | 0.1− | 0.1+ | 2007 05 07 | 691 | 0.6+ | 0.4+ | 2009 11 11 | J75 | 0.0 | 0.1+ |
| 2003 07 08 | 644 | 0.6− | 0.2+ | 2007 05 07 | 691 | 0.2+ | 0.3− | 2009 11 11 | J75 | 0.4+ | 0.2+ |
| 2003 09 26 | 644 | 0.5− | 0.2+ | 2008 07 30 | E12 | 0.4+ | 0.4+ | 2009 11 14 | J75 | 0.4+ | 0.8+ |
| 2003 09 26 | 644 | 0.0 | 0.4− | 2008 07 30 | E12 | 0.6+ | 0.3+ | 2009 11 14 | J75 | 0.2− | 0.2− |
| 2003 09 26 | 644 | 0.2− | 0.1− | 2008 07 30 | E12 | 0.0 | 0.1+ | 2009 11 14 | J75 | 0.0 | 0.4− |
| 2003 09 26 | 644 | 0.1− | 0.2− | 2008 07 30 | E12 | 0.2+ | 0.3+ | 2009 11 15 | 703 | 0.5− | 0.3− |
| 2003 09 26 | 644 | 0.3− | 0.4− | 2008 08 26 | E12 | 0.7+ | 0.5+ | 2009 11 15 | 703 | 1.0− | 0.3+ |
| 2003 09 26 | 644 | 0.1+ | 0.3− | 2008 08 26 | E12 | 0.4+ | 0.7+ | 2009 11 15 | 703 | 0.6+ | 1.2+ |
| 2004 11 04 | 691 | 0.3+ | 0.1+ | 2008 08 26 | E12 | 0.6+ | 0.5+ | 2009 11 15 | 703 | 0.7+ | 0.4− |
| 2004 11 04 | 691 | 0.1+ | 0.0 | 2008 08 26 | E12 | 0.1− | 0.1+ | 2009 11 22 | G96 | 0.7+ | 0.5+ |
| 2004 11 04 | 691 | 0.2+ | 0.1− | 2009 10 18 | G96 | 0.4+ | 0.2+ | 2009 11 22 | G96 | 0.6+ | 0.0 |
| 2004 11 11 | 691 | 0.0 | 0.6+ | 2009 10 18 | G96 | 0.5+ | 0.1+ | 2009 11 22 | G96 | 0.3+ | 0.0 |
| 2004 11 11 | 691 | 0.2− | 0.3+ | 2009 10 18 | G96 | 0.1+ | 0.1+ | 2009 11 22 | G96 | 0.5+ | 0.0 |
| 2004 11 11 | 691 | 0.3+ | 0.3+ | 2009 10 18 | G96 | 0.4+ | 0.1+ | 2009 12 13 | 703 | 0.5− | 0.3+ |
| 2004 12 02 | 703 | (1.5− | 0.4−) | 2009 10 23 | 691 | 0.0 | 0.3+ | 2009 12 13 | 703 | 0.1+ | 1.0+ |
| 2004 12 02 | 703 | 0.2− | 1.1+ | 2009 10 23 | 691 | 0.4− | 0.2− | 2009 12 13 | 703 | 1.4− | 0.8− |
| 2004 12 02 | 703 | (1.8+ | 1.5+) | 2009 10 23 | 691 | 0.5− | 0.1+ | 2009 12 13 | 703 | 1.7− | 0.3− |

**(229874)∗ 2009 UC$_{31}$ = 2009 VK$_{81}$**

Discovered 2009 Oct. 18 by the Mt. Lemmon Survey at Mount Lemmon.

Id. G. V. Williams (d, *MPO* 165894)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 349.53437 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18604150 | $\omega$ | 207.21868 | | +0.32682065 | −0.94013970 | |
| $a$ | 3.0389915 | $\Omega$ | 223.89271 | | +0.89046914 | +0.34055463 | |
| $e$ | 0.0685266 | $i$ | 8.00660 | | +0.31662749 | +0.01264477 | |
| $P$ | 5.30 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 18 | 691 | 0.0 | 0.5+ | 2007 05 26 | G96 | 0.0 | 0.6+ | 2009 11 15 | 703 | 0.4− | 1.1+ |
| 2003 09 18 | 691 | 0.2+ | 0.3+ | 2007 05 26 | G96 | 0.7+ | 0.8+ | 2009 11 15 | 703 | 0.3+ | 0.7+ |
| 2003 09 18 | 691 | 0.3+ | 0.4+ | 2007 05 26 | G96 | 0.1+ | 0.1+ | 2009 11 15 | 703 | 0.1− | 0.4− |
| 2003 09 23 | 644 | 0.2− | 0.2+ | 2007 05 26 | G96 | 0.3+ | 0.1+ | 2009 11 17 | J95 | 0.8− | 0.0 |
| 2003 09 23 | 644 | 0.3− | 0.1+ | 2007 06 13 | 691 | 0.2− | 0.0 | 2009 11 17 | J95 | 0.8− | 0.6+ |
| 2003 09 23 | 644 | 0.2− | 0.4+ | 2007 06 13 | 691 | 0.2− | 0.2+ | 2009 11 17 | J95 | 0.6+ | 0.1− |
| 2003 10 23 | 645 | 0.1− | 0.1− | 2007 06 13 | 691 | 0.3+ | 0.4+ | 2009 11 17 | J95 | 0.2− | 0.2+ |
| 2003 10 23 | 645 | 0.0 | 0.2− | 2009 10 18 | G96 | 0.1− | 0.2− | 2009 11 17 | J95 | 0.5+ | 0.3− |
| 2006 02 24 | 644 | 0.0 | 0.3+ | 2009 10 18 | G96 | 0.0 | 0.3− | 2009 11 18 | 704 | 0.4+ | 0.4+ |
| 2006 02 24 | 644 | 0.4+ | 1.0+ | 2009 10 18 | G96 | 1.0+ | 0.1+ | 2009 11 18 | 704 | 1.1+ | 0.5+ |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 02 24 | 644 | 0.1+ | 0.5+ | 2009 10 18 | G96 | 0.1− | 0.3− | 2009 11 18 | 704 | 1.0+ | 1.0+ |
| 2006 02 24 | 644 | 0.0 | 0.2+ | 2009 10 23 | 691 | 0.7− | 0.2+ | 2009 11 18 | 704 | 1.4+ | 0.8− |
| 2006 02 24 | 644 | 0.3+ | 0.4+ | 2009 10 23 | 691 | 0.4− | 0.2− | 2009 11 18 | 704 | 1.1+ | 1.3+ |
| 2006 02 24 | 644 | 0.2+ | 0.5+ | 2009 10 23 | 691 | 0.2− | 0.0 | 2009 11 25 | G96 | 0.6− | 0.1− |
| 2007 04 19 | G96 | 0.4− | 0.1− | 2009 11 08 | G96 | 0.3+ | 0.0 | 2009 11 25 | G96 | 0.2+ | 0.1+ |
| 2007 04 19 | G96 | 0.2− | 0.1+ | 2009 11 08 | G96 | 0.2+ | 0.1+ | 2009 11 25 | G96 | 0.5+ | 0.3+ |
| 2007 04 19 | G96 | 0.1− | 0.1+ | 2009 11 08 | G96 | 0.2+ | 0.1− | 2009 11 25 | G96 | 0.3+ | 0.1− |
| 2007 04 19 | G96 | 0.0 | 0.1− | 2009 11 08 | G96 | 0.2+ | 0.0 | 2009 12 15 | G96 | 0.3− | 0.1− |
| 2007 05 26 | G96 | 0.1− | 0.1+ | 2009 11 09 | 204 | 0.2+ | 0.0 | 2009 12 15 | G96 | 0.1− | 0.4− |
| 2007 05 26 | G96 | 0.2+ | 0.1+ | 2009 11 09 | 204 | 0.2+ | 0.1+ | 2009 12 15 | G96 | 0.5− | 0.0 |
| 2007 05 26 | G96 | 0.3+ | 0.1− | 2009 11 09 | 204 | 0.3+ | 0.0 | 2009 12 15 | G96 | 0.1− | 0.1+ |
| 2007 05 26 | G96 | 0.2+ | 0.0 | 2009 11 15 | 703 | 0.5+ | 0.1+ | | | | |

**(229875)∗ 2009 UR$_{33}$**

Discovered 2009 Oct. 18 by the Mt. Lemmon Survey at Mount Lemmon.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 255.10775 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17145988 | $\omega$ | 314.97060 | | −0.99671403 | +0.00563025 | |
| $a$ | 3.2089359 | $\Omega$ | 225.53782 | | +0.02079662 | −0.94635417 | |
| $e$ | 0.1211598 | $i$ | 6.50084 | | −0.07828569 | −0.32308216 | |
| $P$ | 5.75 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 16 | 644 | 0.5+ | 0.3+ | 2005 01 13 | 703 | 0.6+ | 0.0 | 2009 10 18 | G96 | 0.1+ | 0.4− |
| 2002 08 16 | 644 | 0.3+ | 0.1+ | 2005 01 13 | 703 | 0.6+ | 0.3+ | 2009 10 18 | G96 | 0.6+ | 0.2− |
| 2002 08 28 | 644 | 0.3− | 0.1− | 2005 01 13 | 703 | 0.0 | 0.6+ | 2009 10 18 | G96 | 0.2+ | 0.4− |
| 2002 08 28 | 644 | 0.2− | 0.0 | 2005 01 13 | 703 | 0.6− | 0.4+ | 2009 10 18 | G96 | 0.3+ | 0.4− |
| 2002 08 28 | 644 | 0.1− | 0.6+ | 2006 04 20 | 703 | 0.7− | 0.2− | 2009 10 23 | 691 | 0.5− | 0.1+ |
| 2002 08 28 | 644 | 0.0 | 0.3+ | 2006 04 20 | 703 | 0.4− | 0.0 | 2009 10 23 | 691 | 0.2− | 0.0 |
| 2002 08 28 | 644 | 0.7+ | 0.1+ | 2006 04 20 | 703 | 0.6+ | 1.4− | 2009 10 23 | 691 | 0.2− | 0.1+ |
| 2002 08 28 | 644 | 0.1+ | 0.1− | 2006 04 20 | 703 | 1.7− | 0.7− | 2009 10 27 | 691 | 0.1− | 0.3− |
| 2002 09 13 | 644 | 0.2− | 0.3+ | 2006 05 06 | G96 | 0.4+ | 0.2+ | 2009 10 27 | 691 | 0.2− | 0.1+ |
| 2002 09 13 | 644 | 0.5− | 0.0 | 2006 05 06 | G96 | 0.4+ | 0.3+ | 2009 10 27 | 691 | 0.0 | 0.0 |
| 2002 09 13 | 644 | 0.1− | 0.0 | 2006 05 06 | G96 | 0.1+ | 0.2+ | 2009 11 23 | G96 | 0.4+ | 0.1+ |
| 2003 10 21 | 691 | 0.1− | 0.4+ | 2006 05 06 | G96 | 0.0 | 0.2+ | 2009 11 23 | G96 | 0.6+ | 0.2+ |
| 2003 10 21 | 691 | 0.0 | 0.4+ | 2006 05 23 | G96 | 0.1− | 0.4+ | 2009 11 23 | G96 | 0.1+ | 0.5− |
| 2003 10 21 | 691 | 0.4− | 0.5+ | 2006 05 23 | G96 | 0.8+ | 0.4+ | 2009 11 23 | G96 | 0.5+ | 0.0 |
| 2003 11 21 | 691 | 0.4+ | 0.5− | 2006 05 23 | G96 | 0.5+ | 0.4+ | 2009 12 19 | G96 | 0.3+ | 0.3− |
| 2003 11 21 | 691 | 0.0 | 0.5− | 2006 05 23 | G96 | 0.3+ | 0.4+ | 2009 12 19 | G96 | 0.2+ | 0.1+ |
| 2003 11 21 | 691 | 0.2+ | 0.3− | 2008 09 29 | G96 | 0.5+ | 0.2− | 2009 12 19 | G96 | 0.3+ | 0.3− |
| 2003 11 30 | 691 | 0.1− | 0.2− | 2008 09 29 | G96 | 0.3− | 0.9− | 2009 12 19 | G96 | 0.7+ | 0.0 |
| 2003 11 30 | 691 | 0.0 | 0.1+ | 2008 09 29 | G96 | 0.0 | 0.1+ | | | | |
| 2003 11 30 | 691 | 0.2− | 0.3+ | 2008 09 29 | G96 | 0.2+ | 0.1− | | | | |

**(229876)∗ 2009 UT$_{34}$**

Discovered 2009 Oct. 21 by the Mt. Lemmon Survey at Mount Lemmon.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 202.96691 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18556968 | $\omega$ | 165.56388 | | −0.67216876 | +0.72835369 | |
| $a$ | 3.0441405 | $\Omega$ | 62.00679 | | −0.69336467 | −0.55622483 | |
| $e$ | 0.0538512 | $i$ | 8.66325 | | −0.25968170 | −0.40014352 | |
| $P$ | 5.31 | $H$ | 15.0 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 04 13 | 691 | 0.3− | 0.3+ | 2004 12 02 | 691 | 0.1− | 0.3− | 2009 10 24 | 703 | 0.3+ | 0.3− |
| 1996 04 13 | 691 | 0.1− | 2.2+ | 2004 12 21 | 691 | 0.2+ | 0.3+ | 2009 11 08 | 691 | 0.3− | 0.2+ |
| 1996 04 13 | 691 | 0.2− | 0.1− | 2004 12 21 | 691 | 0.0 | 0.2+ | 2009 11 08 | 691 | 0.1− | 0.4+ |
| 2001 03 27 | 699 | 0.5+ | 0.0 | 2004 12 21 | 691 | 0.2+ | 0.2+ | 2009 11 08 | 691 | 0.4− | 0.2+ |
| 2001 03 27 | 699 | 0.2− | 0.1+ | 2006 02 21 | 703 | 0.9− | 0.3+ | 2009 11 16 | 691 | 0.3− | 0.0 |
| 2001 03 27 | 699 | 0.6+ | 0.3+ | 2006 02 21 | 703 | 1.2+ | 0.2− | 2009 11 16 | 691 | 0.3− | 0.0 |
| 2001 03 27 | 699 | 0.1+ | 0.6+ | 2006 02 21 | 703 | 0.0 | 0.5+ | 2009 11 16 | 691 | 0.9− | 0.2− |
| 2001 04 15 | 608 | 1.4+ | 0.1+ | 2006 02 21 | 703 | 0.6− | 0.6+ | 2009 11 18 | 704 | 1.3+ | 0.4+ |
| 2001 04 15 | 608 | 1.2+ | 0.1− | 2006 02 21 | 703 | 0.1− | 0.2− | 2009 11 18 | 704 | 0.6+ | 0.1+ |
| 2001 04 15 | 608 | 1.5+ | 0.4− | 2006 02 21 | 703 | 0.7− | 0.3+ | 2009 11 18 | 704 | 0.2+ | 0.5− |
| 2002 06 13 | 644 | 0.4− | 0.6+ | 2006 02 21 | 703 | 0.3− | 0.3+ | 2009 11 18 | 704 | 0.1− | 0.9− |
| 2002 06 13 | 644 | 0.2+ | 0.3+ | 2006 02 21 | 703 | 0.4− | 0.7− | 2009 11 20 | 691 | 0.3− | 0.1− |
| 2002 06 13 | 644 | 1.1+ | 0.3+ | 2006 02 27 | G96 | 0.5+ | 0.3− | 2009 11 20 | 691 | 0.2− | 0.2− |
| 2002 06 18 | 644 | 0.3− | 0.3+ | 2006 02 27 | G96 | 0.5+ | 0.0 | 2009 11 20 | 691 | 0.0 | 0.1+ |
| 2002 06 18 | 644 | 0.4+ | 0.1+ | 2006 02 27 | G96 | 0.5+ | 0.0 | 2009 11 23 | J75 | 0.5+ | 0.2+ |
| 2002 06 18 | 644 | 0.2+ | 0.1+ | 2006 02 27 | G96 | 0.5+ | 0.0 | 2009 11 23 | J75 | 0.4+ | 0.2− |
| 2002 07 16 | 644 | 0.4+ | 0.1+ | 2009 09 19 | G96 | 0.0 | 0.1+ | 2009 11 23 | J75 | 0.7+ | 0.8− |
| 2002 07 16 | 644 | 0.0 | 0.3+ | 2009 09 19 | G96 | 0.5+ | 0.4+ | 2009 11 24 | 691 | 0.3− | 0.0 |
| 2002 07 16 | 644 | 0.3+ | 0.3+ | 2009 09 19 | G96 | 0.3+ | 0.3+ | 2009 11 24 | 691 | 0.2− | 0.1+ |
| 2002 07 19 | 644 | 0.5+ | 0.3+ | 2009 09 19 | G96 | 0.3+ | 0.0 | 2009 11 24 | 691 | 0.2− | 0.2+ |
| 2002 07 19 | 644 | 0.0 | 0.1− | 2009 10 21 | G96 | 0.3+ | 0.1− | 2009 12 10 | 114 | 0.2+ | 0.0 |
| 2002 07 19 | 644 | 0.0 | 0.1− | 2009 10 21 | G96 | 0.3+ | 0.0 | 2009 12 10 | 114 | 0.3+ | 0.3− |
| 2003 09 20 | 644 | 0.5− | 0.5+ | 2009 10 21 | G96 | 0.3− | 0.2+ | 2009 12 10 | 114 | 0.5+ | 0.5− |
| 2003 09 20 | 644 | 0.2− | 0.3+ | 2009 10 21 | G96 | 0.3+ | 0.2+ | 2009 12 10 | 114 | 0.2+ | 0.2+ |
| 2003 09 20 | 644 | 0.3+ | 0.5+ | 2009 10 23 | 691 | 0.1− | 0.5+ | 2009 12 10 | 114 | 0.7− | 0.3− |
| 2003 10 02 | 691 | 0.1− | 0.3+ | 2009 10 23 | 691 | 0.7− | 0.6+ | 2009 12 11 | G96 | 0.2+ | 0.1+ |
| 2003 10 02 | 691 | 0.2− | 0.3+ | 2009 10 23 | 691 | 0.1− | 0.2+ | 2009 12 11 | G96 | 0.2+ | 0.0 |
| 2003 10 02 | 691 | 0.2+ | 0.2+ | 2009 10 24 | 703 | 0.3+ | 0.9− | 2009 12 11 | G96 | 0.0 | 0.1+ |
| 2004 12 02 | 691 | 0.4+ | 0.0 | 2009 10 24 | 703 | 0.5− | 0.0 | 2009 12 11 | G96 | 0.1+ | 0.2− |
| 2004 12 02 | 691 | 0.6+ | 0.2− | 2009 10 24 | 703 | 0.7+ | 0.1+ | | | | |

**(229877)∗ 2009 UR$_{35}$ = 2006 BJ$_{200}$**

Discovered 2009 Oct. 21 by the Mt. Lemmon Survey at Mount Lemmon.

Id. G. V. Williams (*MPO* 165900)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 221.07835 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24299088 | $\omega$ | 340.27776 | | −0.80438296 | +0.57199948 | |
| $a$ | 2.5433691 | $\Omega$ | 235.65531 | | −0.51564406 | −0.80640707 | |
| $e$ | 0.0988535 | $i$ | 11.21448 | | −0.29509193 | −0.15008077 | |
| $P$ | 4.06 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 06 13 | 691 | 0.0 | 0.6− | 2006 01 31 | G96 | 0.1+ | 0.2− | 2009 10 21 | G96 | 0.4+ | 0.1− |
| 1999 06 13 | 691 | 0.3− | 0.1+ | 2006 02 02 | G96 | 0.1+ | 0.3− | 2009 10 23 | 691 | 0.2− | 0.3+ |
| 1999 06 13 | 691 | 0.4− | 0.5− | 2006 02 02 | G96 | 0.5+ | 0.1− | 2009 10 23 | 691 | 0.0 | 0.4+ |
| 2003 03 23 | 644 | 0.2+ | 0.0 | 2006 02 02 | G96 | 0.2− | 0.0 | 2009 10 23 | 691 | 0.5− | 0.2+ |
| 2003 03 23 | 644 | 0.0 | 0.2+ | 2006 02 02 | G96 | 0.7+ | 0.0 | 2009 10 27 | 691 | 0.0 | 0.0 |
| 2003 03 23 | 644 | 0.6+ | 0.0 | 2007 03 14 | 703 | 0.2+ | 1.3− | 2009 10 27 | 691 | 0.1− | 0.0 |
| 2003 03 29 | 699 | 0.1+ | 0.3+ | 2007 03 14 | 703 | 0.1− | 1.1− | 2009 10 27 | 691 | 0.3− | 0.4− |
| 2003 03 29 | 699 | 0.3− | 1.2+ | 2007 03 14 | 703 | (2.1− | 0.1−) | 2009 11 08 | 691 | 0.2− | 0.0 |
| 2003 03 29 | 699 | 0.6+ | 0.2− | 2007 03 14 | 703 | (1.9− | 0.7−) | 2009 11 08 | 691 | 0.2− | 0.3+ |
| 2003 03 29 | 699 | (2.6− | 1.4+) | 2007 03 20 | 703 | 0.9− | 0.7+ | 2009 11 08 | 691 | 0.7− | 0.1+ |
| 2005 09 30 | G96 | 0.4+ | 0.0 | 2007 03 20 | 703 | 0.7+ | 0.3+ | 2009 11 18 | 691 | 0.2− | 0.0 |
| 2005 09 30 | G96 | 0.3+ | 0.1+ | 2007 03 20 | 703 | 0.1+ | 0.8+ | 2009 11 18 | 691 | 0.3− | 0.0 |
| 2005 09 30 | G96 | 0.1+ | 0.1− | 2007 03 20 | 703 | 0.6+ | 0.9+ | 2009 11 18 | 691 | 0.0 | 0.0 |
| 2005 09 30 | G96 | 0.5+ | 0.0 | 2008 07 25 | G96 | 0.0 | 0.0 | 2009 11 22 | 691 | 0.0 | 0.1− |
| 2005 10 25 | G96 | 0.2+ | 0.0 | 2008 07 25 | G96 | 0.0 | 0.3+ | 2009 11 22 | 691 | 0.3+ | 0.5+ |
| 2005 10 25 | G96 | 0.3− | 0.3+ | 2008 07 25 | G96 | 0.1+ | 0.1+ | 2009 11 22 | 691 | 0.3− | 0.1− |
| 2005 10 25 | G96 | 0.3+ | 0.1+ | 2008 07 25 | G96 | 0.4+ | 0.1+ | 2009 11 25 | 703 | 0.7+ | 0.1+ |
| 2005 10 25 | G96 | 0.2+ | 0.3− | 2009 09 21 | G96 | 0.6+ | 0.0 | 2009 11 25 | 703 | 0.3+ | 1.0− |
| 2005 11 04 | 691 | 0.1− | 0.1+ | 2009 09 21 | G96 | 0.8+ | 0.3− | 2009 11 25 | 703 | 0.2− | 0.5+ |
| 2005 11 04 | 691 | 0.0 | 0.0 | 2009 09 21 | G96 | 0.2+ | 0.2− | 2009 11 25 | 703 | 0.5+ | 0.7− |
| 2005 11 04 | 691 | 0.0 | 0.7− | 2009 09 21 | G96 | 0.6+ | 0.1− | 2009 11 25 | 703 | 0.6+ | 0.4− |
| 2005 12 01 | G96 | 0.6+ | 0.0 | 2009 09 21 | G96 | 0.3+ | 0.4− | 2009 11 26 | 691 | 0.1− | 0.2− |
| 2005 12 01 | G96 | 0.2− | 0.1− | 2009 09 21 | G96 | 0.6+ | 0.1+ | 2009 11 26 | 691 | 0.4+ | 0.2+ |
| 2005 12 01 | G96 | 0.1+ | 0.0 | 2009 09 21 | G96 | 0.4+ | 0.2− | 2009 11 26 | 691 | 0.1+ | 0.0 |
| 2005 12 01 | G96 | 0.1− | 0.1− | 2009 09 21 | G96 | 0.8+ | 0.2− | 2009 12 18 | 691 | 0.1− | 0.1+ |
| 2006 01 31 | G96 | 0.0 | 0.0 | 2009 10 21 | G96 | 0.8+ | 1.0− | 2009 12 18 | 691 | 0.0 | 0.1+ |
| 2006 01 31 | G96 | 0.4+ | 0.3− | 2009 10 21 | G96 | 0.1+ | 0.1+ | 2009 12 18 | 691 | 0.2− | 0.0 |
| 2006 01 31 | G96 | 0.3+ | 0.1− | 2009 10 21 | G96 | 0.5+ | 0.1+ | | | | |

**(229878)∗ 2009 UE$_{40}$ = 2007 OY$_{9}$**

Discovered 2009 Oct. 18 at OAM Observatory, La Sagra.

Id. T. B. Spahr (*MPO* 165904)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 337.53192 | | (2000.0) | | **P** | **Q** |
| $n$ | 0.08231427 | $\omega$ | 211.53824 | | +0.22559888 | −0.95778262 |
| $a$ | 5.2338264 | $\Omega$ | 226.11120 | | +0.93736602 | +0.26323896 |
| $e$ | 0.1315870 | $i$ | 14.31622 | | +0.26542436 | −0.11557555 |
| $P$ | 11.97 | $H$ | 12.8 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 07 28 | 691 | 0.5− | 0.3− | 2009 09 21 | G96 | 0.2+ | 0.2+ | 2009 11 13 | J75 | 0.3+ | 0.4− |
| 1995 07 28 | 691 | 0.1− | 0.0 | 2009 09 21 | G96 | 0.1+ | 0.1+ | 2009 11 13 | J75 | (2.8− | 0.4+) |
| 1995 07 28 | 691 | 0.2− | 0.3− | 2009 09 21 | G96 | 0.0 | 0.0 | 2009 11 13 | J75 | (1.6− | 0.5+) |
| 1997 09 30 | 910 | 0.4+ | 0.4+ | 2009 09 21 | G96 | 0.0 | 0.1+ | 2009 11 14 | J75 | 0.2− | 0.2+ |
| 1997 09 30 | 910 | 0.2− | 0.2+ | 2009 10 18 | J75 | 0.2− | 0.1− | 2009 11 14 | J75 | 0.2− | 0.0 |
| 1997 10 01 | 910 | 0.1− | 0.5+ | 2009 10 18 | J75 | 0.8− | 0.1+ | 2009 11 14 | J75 | 0.3− | 0.8+ |
| 1997 11 23 | 691 | 0.2+ | 0.3− | 2009 10 18 | J75 | 0.0 | 0.3+ | 2009 11 17 | 704 | 0.3+ | 0.1+ |
| 1997 11 23 | 691 | 0.2+ | 0.1− | 2009 10 24 | 691 | 0.6− | 0.2+ | 2009 11 17 | 704 | 0.1− | 0.8+ |
| 1997 11 23 | 691 | 0.3+ | 0.3− | 2009 10 24 | 691 | 0.4− | 0.3+ | 2009 11 17 | 704 | 0.4+ | 1.3+ |
| 2003 05 01 | 691 | 0.2+ | 1.3+ | 2009 10 24 | 691 | 0.6− | 0.2+ | 2009 11 20 | 704 | 0.2− | 0.8+ |
| 2003 05 01 | 691 | 0.0 | 0.3+ | 2009 10 28 | J75 | 0.5− | 0.3+ | 2009 11 20 | 704 | 0.2+ | 1.1+ |
| 2003 05 01 | 691 | 0.4+ | 0.5+ | 2009 10 28 | J75 | 1.2+ | 0.0 | 2009 11 20 | 704 | 0.6+ | 0.6+ |
| 2003 05 24 | 691 | 0.5− | 0.5+ | 2009 10 28 | J75 | 0.1+ | 0.7+ | 2009 11 20 | 704 | 0.0 | 0.6+ |
| 2003 05 24 | 691 | 0.1+ | 0.0 | 2009 10 28 | J75 | 0.6+ | 0.7+ | 2009 11 23 | 703 | 0.1− | 0.3− |
| 2003 05 24 | 691 | 0.1− | 0.2+ | 2009 10 28 | J75 | 0.4+ | 0.7+ | 2009 11 23 | 703 | 0.4+ | 0.6− |
| 2007 07 22 | 675 | 1.0+ | 0.2− | 2009 10 28 | J75 | 0.3− | 0.1− | 2009 11 23 | 703 | 0.1+ | 0.2+ |
| 2007 07 22 | 675 | 0.5+ | 0.3+ | 2009 11 08 | G96 | 0.3+ | 0.1+ | 2009 11 23 | 703 | (2.0− | 0.0 ) |
| 2007 07 24 | 675 | 0.5+ | 0.2+ | 2009 11 08 | G96 | 0.0 | 0.1− | 2009 11 23 | 703 | 0.3− | 0.1− |
| 2007 07 24 | 675 | 0.6+ | 0.0 | 2009 11 08 | G96 | 0.2− | 0.2+ | 2009 11 23 | J75 | 0.3+ | 0.5− |
| 2008 09 22 | 703 | 0.1− | 1.4+ | 2009 11 08 | G96 | 0.1+ | 0.1+ | 2009 11 23 | J75 | 0.2− | 0.1− |
| 2008 09 22 | 703 | 1.3+ | 1.4+ | 2009 11 11 | J75 | (1.7− | 1.0+) | 2009 11 23 | J75 | 0.2− | 0.1+ |
| 2008 09 22 | 703 | 0.8+ | 0.3+ | 2009 11 11 | J75 | (2.0− | 0.1−) | 2009 12 17 | G96 | 0.0 | 0.1+ |
| 2008 09 22 | 703 | 0.2+ | 0.6+ | 2009 11 11 | J75 | 0.2− | 0.2+ | 2009 12 17 | G96 | 0.2− | 0.1+ |
| 2008 10 10 | 703 | 1.1− | 0.2− | 2009 11 11 | 106 | 0.3− | 0.5+ | 2009 12 17 | G96 | 0.2+ | 0.1+ |
| 2008 10 10 | 703 | 0.8− | 0.4− | 2009 11 11 | 106 | 0.2+ | 0.1+ | 2009 12 17 | G96 | 0.0 | 0.0 |
| 2008 10 10 | 703 | 0.0 | 0.4− | 2009 11 11 | 106 | 0.2+ | 0.0 | | | | |
| 2008 10 10 | 703 | 0.4+ | 0.3− | 2009 11 11 | 106 | 0.5+ | 0.1− | | | | |

**(229879)∗ 2009 UZ$_{46}$ = 1999 GA$_{63}$**

Discovered 2009 Oct. 18 by the Mt. Lemmon Survey at Mount Lemmon.

Id. G. V. Williams (*MPO* 165907)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 128.03234 | | (2000.0) | | **P** | **Q** |
| $n$ | 0.22858901 | $\omega$ | 223.75942 | | +0.03941679 | +0.96646673 |
| $a$ | 2.6491049 | $\Omega$ | 50.21039 | | −0.80164739 | +0.18218194 |
| $e$ | 0.2829734 | $i$ | 19.28274 | | −0.59649625 | −0.18097458 |
| $P$ | 4.31 | $H$ | 15.5 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 04 12 | 704 | 0.1+ | 0.9− | 2004 08 09 | 644 | 0.6− | 0.1− | 2009 11 09 | 691 | 0.1+ | 0.1− |
| 1999 04 12 | 704 | 0.6− | 1.1+ | 2004 08 09 | 644 | 0.4− | 0.1+ | 2009 11 09 | 691 | 0.5− | 0.1+ |
| 1999 04 12 | 704 | 0.0 | 0.4+ | 2004 08 10 | E12 | 0.3− | 0.6+ | 2009 11 14 | J75 | 0.2+ | 0.7+ |
| 1999 04 12 | 704 | 0.7+ | 0.5+ | 2004 08 10 | E12 | (1.8− | 0.8+) | 2009 11 14 | J75 | 0.6+ | 0.4+ |
| 1999 04 12 | 704 | 1.7− | 1.8− | 2004 08 10 | E12 | 1.1− | 0.5+ | 2009 11 14 | J75 | 0.3− | 0.1+ |
| 1999 04 19 | 704 | 0.9+ | 0.1− | 2004 08 10 | E12 | 0.6+ | 0.1+ | 2009 11 24 | G96 | 0.4+ | 0.4− |
| 1999 04 19 | 704 | 0.2− | 1.6+ | 2004 09 03 | E12 | 0.1+ | 1.4+ | 2009 11 24 | G96 | 0.7+ | 0.1− |
| 1999 04 19 | 704 | 0.9+ | 0.6+ | 2004 09 03 | E12 | 0.6+ | 0.6− | 2009 11 24 | G96 | 0.4+ | 0.1− |
| 1999 04 19 | 704 | 0.0 | 0.2− | 2004 09 03 | E12 | 0.1− | 0.2− | 2009 11 24 | G96 | 0.7+ | 0.6− |
| 1999 04 19 | 704 | 0.3+ | 1.4+ | 2004 09 03 | E12 | 0.6− | 0.2+ | 2009 11 25 | 691 | 0.8− | 0.1− |
| 2000 10 02 | 699 | 0.7− | 1.2+ | 2008 01 19 | G96 | 0.1− | 0.1− | 2009 11 25 | 691 | 0.1− | 0.3+ |
| 2000 10 02 | 699 | 0.3+ | 0.3+ | 2008 01 19 | G96 | 0.5+ | 0.1+ | 2009 11 25 | 691 | 0.7− | 0.5+ |
| 2000 10 02 | 699 | 1.2− | 1.3+ | 2008 01 19 | G96 | 0.0 | 0.0 | 2009 11 26 | G96 | 0.5+ | 0.4− |
| 2000 10 02 | 699 | 1.4− | 0.8+ | 2008 01 19 | G96 | 0.2− | 0.1+ | 2009 11 26 | G96 | 0.2+ | 0.5− |
| 2000 10 02 | 645 | 0.1+ | 0.0 | 2009 09 22 | G96 | 0.8+ | 0.1− | 2009 11 26 | G96 | 0.6+ | 0.2− |
| 2000 10 02 | 645 | 0.0 | 0.0 | 2009 09 22 | G96 | 0.6+ | 0.0 | 2009 11 26 | G96 | 0.5+ | 0.3− |
| 2003 02 01 | 644 | 0.2+ | 0.1+ | 2009 09 22 | G96 | 0.3+ | 0.2− | 2009 11 26 | G96 | 0.1+ | 0.7− |
| 2003 02 01 | 644 | 0.7+ | 0.2+ | 2009 09 22 | G96 | 0.1+ | 0.2− | 2009 11 27 | 691 | 0.4− | 0.2− |
| 2003 02 01 | 644 | 0.3+ | 0.1+ | 2009 10 18 | G96 | 0.7+ | 0.4− | 2009 11 27 | 691 | 0.5+ | 0.1+ |
| 2003 02 01 | 644 | 0.4+ | 0.2+ | 2009 10 18 | G96 | 1.0+ | 0.2− | 2009 11 27 | 691 | 0.4− | 0.0 |
| 2003 02 01 | 644 | 0.0 | 0.0 | 2009 10 18 | G96 | 0.5+ | 0.1+ | 2009 12 18 | G96 | 0.6+ | 0.4− |
| 2003 02 01 | 644 | 0.5+ | 0.0 | 2009 10 18 | G96 | 0.3+ | 0.1+ | 2009 12 18 | G96 | 0.4+ | 0.0 |
| 2003 03 20 | 644 | 0.4+ | 0.6+ | 2009 10 24 | 691 | 0.0 | 0.0 | 2009 12 18 | G96 | 0.2+ | 0.1− |
| 2003 03 20 | 644 | 0.4+ | 0.2+ | 2009 10 24 | 691 | 0.3− | 0.2+ | 2009 12 18 | G96 | 0.5+ | 0.2− |
| 2003 03 20 | 644 | 0.4+ | 0.4+ | 2009 10 24 | 691 | 0.3− | 0.1− | | | | |
| 2004 08 09 | 644 | 0.4− | 0.1− | 2009 11 09 | 691 | 0.3+ | 0.0 | | | | |

**(229880)∗ 2009 UM$_{71}$ = 2008 SV$_{211}$**

Discovered 2009 Oct. 22 by the Catalina Sky Survey.

Id. G. V. Williams (*MPO* 165917)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 309.43031 | | (2000.0) | | **P** | **Q** |
| $n$ | 0.18086643 | $\omega$ | 230.93636 | | −0.54524597 | −0.82448050 |
| $a$ | 3.0966877 | $\Omega$ | 252.74889 | | +0.80974127 | −0.47127915 |
| $e$ | 0.1087492 | $i$ | 9.12505 | | +0.21685458 | −0.31325368 |
| $P$ | 5.45 | $H$ | 14.8 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 06 23 | 950 | 0.0 | 0.4+ | 2008 10 01 | G96 | 0.0 | 0.0 | 2009 11 24 | G96 | 0.4+ | 0.4− |
| 2002 06 23 | 950 | 0.1+ | 0.4+ | 2008 10 01 | G96 | 0.1+ | 0.2+ | 2009 11 24 | G96 | 0.5+ | 0.4− |
| 2002 06 23 | 950 | 0.0 | 0.4+ | 2008 10 01 | G96 | 0.2+ | 0.1+ | 2009 11 24 | G96 | 0.2+ | 0.3− |
| 2002 08 05 | 644 | 0.1+ | 0.5+ | 2008 10 01 | G96 | 0.4+ | 0.2+ | 2009 11 24 | G96 | 0.4+ | 0.4− |
| 2002 08 05 | 644 | 0.1− | 0.2− | 2009 10 22 | 703 | 0.3+ | 0.7+ | 2009 11 24 | J75 | 0.4+ | 0.8− |
| 2002 08 05 | 644 | 0.2− | 0.7+ | 2009 10 22 | 703 | 0.6+ | 0.5− | 2009 11 24 | J75 | 0.3− | 0.6− |
| 2003 09 20 | 644 | 0.2− | 0.2+ | 2009 10 22 | 703 | 0.5+ | 0.9+ | 2009 11 24 | J75 | 0.5+ | 1.0− |
| 2003 09 20 | 644 | 0.0 | 0.2+ | 2009 10 22 | 703 | 0.1− | 0.6− | 2009 11 25 | 691 | 0.1− | 0.0 |
| 2003 09 20 | 644 | 0.0 | 0.0 | 2009 10 24 | 703 | 0.8+ | 0.2− | 2009 11 25 | 691 | 0.1+ | 0.0 |
| 2003 09 20 | 644 | 0.3− | 0.4− | 2009 10 24 | 703 | 0.5− | 0.7+ | 2009 11 25 | 691 | 0.1− | 0.1− |
| 2003 09 20 | 644 | 0.4− | 0.2− | 2009 10 24 | 703 | 0.3− | 0.3+ | 2009 11 27 | 691 | 0.1+ | 0.1− |
| 2003 09 20 | 644 | 0.2− | 0.1− | 2009 10 24 | 703 | 0.6− | 0.4− | 2009 11 27 | 691 | 0.1− | 0.0 |
| 2003 10 18 | 644 | 0.2− | 0.2+ | 2009 10 30 | G96 | 0.5+ | 0.1− | 2009 11 27 | 691 | 0.1− | 0.0 |
| 2003 10 18 | 644 | 0.1− | 0.2− | 2009 10 30 | G96 | 0.2+ | 0.5− | 2009 12 09 | 106 | 0.2+ | 0.6− |
| 2003 10 18 | 644 | 0.2− | 0.4+ | 2009 10 30 | G96 | 0.2+ | 0.4− | 2009 12 09 | 106 | 0.3+ | 0.1− |
| 2004 12 11 | 691 | 0.1+ | 0.2− | 2009 10 30 | G96 | 0.0 | 0.3− | 2009 12 09 | 106 | 0.1− | 0.2− |
| 2004 12 11 | 691 | 0.1+ | 0.1− | 2009 11 11 | G96 | 0.4+ | 0.4− | 2009 12 09 | 106 | 0.5− | 0.1+ |
| 2004 12 11 | 691 | 0.4+ | 0.6+ | 2009 11 11 | G96 | 0.4+ | 0.4− | 2009 12 11 | J75 | 0.2− | 0.3− |
| 2004 12 21 | 691 | 0.1− | 0.1− | 2009 11 11 | G96 | 0.6+ | 0.4− | 2009 12 11 | J75 | 0.0 | 0.0 |
| 2004 12 21 | 691 | 0.1− | 0.9+ | 2009 11 11 | G96 | 0.1+ | 0.1− | 2009 12 11 | J75 | 0.3− | 0.1+ |
| 2004 12 21 | 691 | 0.1+ | 0.0 | 2009 11 13 | J75 | 0.1+ | 0.5− | 2009 12 13 | 703 | 0.0 | 0.4+ |
| 2006 03 24 | 703 | 0.0 | 0.3− | 2009 11 13 | J75 | 0.4− | 0.1− | 2009 12 13 | 703 | 0.2− | 0.1+ |
| 2006 03 24 | 703 | 0.5− | 0.4+ | 2009 11 13 | J75 | 1.1− | 0.4− | 2009 12 13 | 703 | 0.1+ | 0.4+ |
| 2006 03 24 | 703 | (2.7− | 0.6+) | 2009 11 17 | 704 | 0.0 | 0.8+ | 2009 12 13 | 703 | 1.0− | 0.8− |
| 2006 03 24 | 703 | 0.2− | 0.1− | 2009 11 17 | 704 | 0.1+ | 0.7+ | 2009 12 16 | 704 | 0.8− | 1.0+ |
| 2008 09 29 | G96 | 0.2+ | 0.2− | 2009 11 17 | 704 | 0.4− | 0.6− | 2009 12 16 | 704 | 1.6− | 0.2+ |
| 2008 09 29 | G96 | 0.3+ | 0.2− | 2009 11 17 | 704 | 0.2+ | 0.7+ | 2009 12 16 | 704 | 0.3+ | 0.7+ |
| 2008 09 29 | G96 | 0.2− | 0.2− | 2009 11 17 | 704 | 0.3+ | 0.7+ | 2009 12 16 | 704 | 0.9− | 0.4+ |
| 2008 09 29 | G96 | 0.1+ | 0.1+ | 2009 11 23 | 703 | 0.0 | 0.3+ | 2009 12 16 | 704 | 0.8+ | 0.7− |
| 2008 10 01 | G96 | 0.0 | 1.4+ | 2009 11 23 | 703 | 0.1+ | 0.7+ | 2009 12 18 | G96 | 0.1− | 0.1− |
| 2008 10 01 | G96 | 0.4− | 0.2+ | 2009 11 23 | 703 | 0.3+ | 0.2+ | 2009 12 18 | G96 | 0.6+ | 0.2− |
| 2008 10 01 | G96 | 0.2− | 0.1+ | 2009 11 23 | 703 | 0.1− | 0.2− | 2009 12 18 | G96 | 0.3+ | 0.3− |
| 2008 10 01 | G96 | 0.1+ | 0.0 | 2009 11 23 | 703 | 0.4− | 0.1+ | 2009 12 18 | G96 | 0.6+ | 0.3− |

**(229881)∗ 2009 US$_{71}$ = 2007 GH$_{56}$**

Discovered 2009 Oct. 22 by the Mt. Lemmon Survey at Mount Lemmon.

Id. G. V. Williams (*MPO* 165917)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 14.56199 | | (2000.0) | | **P** | **Q** |
| $n$ | 0.22361454 | $\omega$ | 347.69315 | | +0.65652175 | −0.73651962 |
| $a$ | 2.6882482 | $\Omega$ | 61.02370 | | +0.70688753 | +0.52540437 |
| $e$ | 0.2098518 | $i$ | 10.72791 | | +0.26322844 | +0.42601537 |
| $P$ | 4.41 | $H$ | 16.3 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 10 02 | 699 | 0.4− | 0.6+ | 2009 10 24 | 703 | 0.7− | 0.4+ | 2009 11 20 | 704 | 0.2− | 0.7+ |
| 2000 10 02 | 699 | 1.2− | 0.1+ | 2009 10 24 | 703 | 0.4− | 0.3− | 2009 11 20 | 704 | 0.9− | 0.9+ |
| 2000 10 02 | 699 | 0.1+ | 0.9+ | 2009 10 24 | 703 | 0.2− | 0.1+ | 2009 11 20 | 704 | 0.7− | 0.9+ |
| 2000 10 02 | 699 | 0.1+ | 0.4− | 2009 10 24 | 703 | 0.4− | 0.2+ | 2009 11 20 | J75 | 0.4− | 0.0 |
| 2000 11 20 | 699 | 1.3+ | 0.7− | 2009 10 26 | 703 | 0.3− | 0.3− | 2009 11 20 | J75 | 0.8+ | 0.2− |
| 2000 11 20 | 699 | 0.5− | 1.7− | 2009 10 26 | 703 | (1.9− | 0.5−) | 2009 11 20 | J75 | 0.3− | 0.1− |
| 2000 11 20 | 699 | 1.6+ | 0.9− | 2009 10 26 | 703 | 0.3+ | 0.2+ | 2009 11 22 | 703 | 0.0 | 0.1− |
| 2000 11 20 | 699 | 0.0 | 0.4+ | 2009 10 26 | 703 | 0.1− | 0.2+ | 2009 11 22 | 703 | 1.0+ | 0.3− |
| 2006 01 05 | 703 | 0.7− | 0.0 | 2009 10 27 | 704 | 0.4+ | 0.7− | 2009 11 22 | 703 | 0.4− | 0.7− |
| 2006 01 05 | 703 | 0.0 | 0.5− | 2009 10 27 | 704 | 0.6− | 1.3+ | 2009 11 22 | 703 | 0.2− | 0.5− |
| 2006 01 05 | 703 | 0.3− | 0.7+ | 2009 10 27 | 704 | 0.2+ | 0.7+ | 2009 11 23 | G96 | 0.1+ | 0.2− |
| 2006 01 05 | 703 | 0.2− | 0.4+ | 2009 10 27 | 704 | 0.4− | 0.4+ | 2009 11 23 | G96 | 0.3+ | 0.3− |
| 2006 01 23 | G96 | 0.3+ | 0.2− | 2009 10 27 | 704 | 0.6− | 1.2+ | 2009 11 23 | G96 | 0.2+ | 0.3− |
| 2006 01 23 | G96 | 0.3+ | 0.5− | 2009 11 09 | 703 | 0.4+ | 0.3+ | 2009 11 23 | G96 | 0.5+ | 0.2− |
| 2006 01 23 | G96 | 0.6+ | 0.4− | 2009 11 09 | 703 | 0.2+ | 0.2− | 2009 12 05 | J75 | 0.1+ | 0.8− |
| 2006 01 23 | G96 | 0.6+ | 0.3− | 2009 11 09 | 703 | 0.0 | 0.2+ | 2009 12 05 | J75 | 0.2+ | 0.8− |
| 2006 02 02 | 703 | 0.5+ | 0.7+ | 2009 11 09 | 703 | 0.4+ | 0.1− | 2009 12 05 | J75 | 0.3+ | 0.4+ |
| 2006 02 02 | 703 | 0.4− | 0.2− | 2009 11 10 | J75 | 0.4+ | 0.4− | 2009 12 09 | 106 | 0.1− | 0.3− |
| 2006 02 02 | 703 | 0.9+ | 0.1+ | 2009 11 10 | J75 | 0.0 | 0.6− | 2009 12 09 | 106 | 0.9+ | 0.6− |
| 2006 02 02 | 703 | 1.5− | 0.6− | 2009 11 10 | J75 | 0.0 | 0.2− | 2009 12 09 | 106 | 1.2− | 0.1− |
| 2007 04 15 | 691 | 0.3+ | 0.4+ | 2009 11 14 | J75 | 0.1+ | 0.4− | 2009 12 09 | 106 | 0.2+ | 0.0 |
| 2007 04 15 | 691 | 0.0 | 0.3+ | 2009 11 14 | J75 | 0.7+ | 0.0 | 2009 12 11 | 703 | 1.3− | 0.1− |
| 2007 04 15 | 691 | 0.0 | 0.2+ | 2009 11 14 | J75 | 0.1+ | 0.3− | 2009 12 11 | 703 | 0.5+ | 0.3+ |
| 2007 04 19 | 691 | 0.3− | 0.1+ | 2009 11 15 | 703 | (2.2− | 0.5+) | 2009 12 11 | 703 | 0.4− | 0.8− |
| 2007 04 19 | 691 | 0.2− | 0.2− | 2009 11 15 | 703 | 0.8− | 0.1+ | 2009 12 11 | 703 | 0.6− | 1.4− |
| 2007 04 19 | 691 | 0.6+ | 0.2− | 2009 11 15 | 703 | 0.0 | 0.7− | 2009 12 16 | 704 | 0.2− | 1.1+ |
| 2009 10 21 | 703 | 0.2+ | 0.2+ | 2009 11 15 | 703 | 0.9+ | 0.1+ | 2009 12 16 | 704 | 0.2− | 0.7+ |
| 2009 10 21 | 703 | 0.5− | 0.1+ | 2009 11 18 | 704 | 0.1+ | 0.1+ | 2009 12 16 | 704 | 0.4+ | 0.7+ |
| 2009 10 21 | 703 | 0.5− | 0.0 | 2009 11 18 | 704 | 0.5− | 0.3+ | 2009 12 16 | 704 | 0.2+ | 0.0 |
| 2009 10 21 | 703 | (1.6− | 0.2+) | 2009 11 18 | 704 | 0.0 | 0.3+ | 2009 12 16 | 704 | 0.0 | 0.9+ |
| 2009 10 22 | G96 | 0.1− | 0.1− | 2009 11 18 | 704 | 0.0 | 0.0 | 2009 12 18 | G96 | 0.1− | 0.0 |
| 2009 10 22 | G96 | 0.1− | 0.4+ | 2009 11 18 | 704 | 0.3+ | 0.3+ | 2009 12 18 | G96 | 0.1+ | 0.1+ |
| 2009 10 22 | G96 | 0.9+ | 0.2− | 2009 11 20 | 704 | 0.3− | 1.0+ | 2009 12 18 | G96 | 0.3+ | 0.1+ |
| 2009 10 22 | G96 | 0.1− | 0.0 | 2009 11 20 | 704 | 0.0 | 1.0+ | 2009 12 18 | G96 | 0.0 | 0.1− |

**(229882)∗ 2009 UT$_{71}$ = 2003 PQ$_{10}$**

Discovered 2009 Oct. 22 by the Mt. Lemmon Survey at Mount Lemmon.

Id. G. V. Williams (*MPO* 165918)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 349.68753 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.20003807 | $\omega$ | 304.62051 | | +0.19318352 | −0.98046305 | |
| $a$ | 2.8955269 | $\Omega$ | 134.19484 | | +0.91626691 | +0.16677407 | |
| $e$ | 0.0858404 | $i$ | 2.96173 | | +0.35090609 | +0.10430065 | |
| $P$ | 4.93 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 01 26 | 691 | 0.1+ | 0.0 | 2008 07 30 | G96 | 0.2+ | 0.0 | 2009 11 15 | 703 | 0.3− | 0.6− |
| 2001 01 26 | 691 | 0.3+ | 0.3+ | 2008 07 30 | G96 | 0.1+ | 0.2+ | 2009 11 15 | 703 | 0.5+ | 1.1+ |
| 2001 01 26 | 691 | 0.0 | 0.3+ | 2008 07 30 | G96 | 0.5+ | 0.0 | 2009 11 15 | 703 | 0.1− | 0.1+ |
| 2003 08 05 | 691 | 0.1− | 0.3+ | 2008 07 30 | G96 | 0.4+ | 0.2+ | 2009 11 15 | 703 | 0.4+ | 0.1− |
| 2003 08 05 | 691 | 0.0 | 0.2+ | 2008 09 06 | G96 | 0.2+ | 0.3+ | 2009 11 15 | 703 | 1.2+ | 0.1+ |
| 2003 08 05 | 691 | 0.0 | 0.2+ | 2008 09 06 | G96 | 0.1+ | 0.3+ | 2009 11 17 | G96 | 0.2− | 0.1− |
| 2003 08 06 | 291 | 0.3− | 0.4+ | 2008 09 06 | G96 | 0.0 | 0.6+ | 2009 11 17 | G96 | 0.1− | 0.2− |
| 2003 08 06 | 291 | 0.2− | 0.3+ | 2008 09 06 | G96 | 0.5+ | 0.2− | 2009 11 17 | G96 | 0.1+ | 0.7− |
| 2003 08 06 | 291 | 0.1− | 0.3+ | 2008 09 22 | G96 | 0.3+ | 0.4− | 2009 11 17 | G96 | 0.2+ | 0.1− |
| 2004 11 19 | 703 | 0.8− | 0.4− | 2008 09 22 | G96 | 0.4+ | 0.2− | 2009 11 20 | 704 | 0.6− | 0.4+ |
| 2004 11 19 | 703 | 0.7+ | 0.1+ | 2008 09 22 | G96 | 0.7+ | 0.8− | 2009 11 20 | 704 | 0.9− | 0.1+ |
| 2004 11 19 | 703 | 0.9+ | 0.3− | 2008 09 22 | G96 | 0.4+ | 0.6− | 2009 11 20 | 704 | 1.0− | 0.3+ |
| 2004 11 19 | 703 | 0.7+ | 0.5− | 2009 10 22 | G96 | 0.1− | 0.7− | 2009 11 20 | 704 | 0.4+ | 0.7+ |
| 2004 11 19 | 703 | 0.5− | 0.3− | 2009 10 22 | G96 | 0.0 | 0.1+ | 2009 11 22 | 703 | 0.3+ | 0.3− |
| 2004 11 19 | 703 | 0.1− | 0.1− | 2009 10 22 | G96 | 0.4− | 0.0 | 2009 11 22 | 703 | 0.2− | 0.1− |
| 2004 11 19 | 703 | 0.8− | 0.0 | 2009 10 22 | G96 | 0.1+ | 0.1− | 2009 11 22 | 703 | 0.3− | 1.4− |
| 2004 11 19 | 703 | (1.8− | 0.4+) | 2009 10 24 | 703 | 0.6+ | 0.6+ | 2009 11 22 | 703 | 0.8− | 0.5+ |
| 2004 12 13 | 691 | 0.1− | 0.2+ | 2009 10 24 | 703 | 0.9− | 0.1− | 2009 11 23 | J75 | 0.1− | 0.1+ |
| 2004 12 13 | 691 | 0.1+ | 0.2+ | 2009 10 24 | 703 | 0.2+ | 0.8+ | 2009 11 23 | J75 | 0.3+ | 0.7− |
| 2004 12 13 | 691 | 0.1− | 0.2+ | 2009 10 24 | 703 | 0.9+ | 0.9+ | 2009 11 23 | J75 | 0.2+ | 0.3− |
| 2006 01 26 | 691 | 0.1+ | 0.1+ | 2009 11 09 | 703 | 0.2+ | 0.7+ | 2009 11 24 | G96 | 0.1+ | 0.2− |
| 2006 01 26 | 691 | 0.3+ | 0.3+ | 2009 11 09 | 703 | 0.5+ | 0.4− | 2009 11 24 | G96 | 0.1+ | 0.2− |
| 2006 01 26 | 691 | 0.2+ | 0.4+ | 2009 11 09 | 703 | (1.8− | 1.3−) | 2009 11 24 | G96 | 0.0 | 0.3− |
| 2006 02 25 | G96 | 0.0 | 0.1− | 2009 11 09 | 703 | 1.0− | 0.5+ | 2009 11 24 | G96 | 0.0 | 0.1− |
| 2006 02 25 | G96 | 0.2− | 0.0 | 2009 11 12 | J75 | 0.3+ | 0.0 | 2009 12 10 | 703 | 0.1− | 1.1− |
| 2006 02 25 | G96 | 0.0 | 0.1+ | 2009 11 12 | J75 | 0.5− | 0.8− | 2009 12 10 | 703 | 1.3− | 0.8+ |
| 2006 02 25 | G96 | 0.2− | 0.5+ | 2009 11 12 | J75 | 0.1+ | 0.2− | 2009 12 10 | 703 | 0.4− | 0.2+ |
| 2007 06 09 | 691 | 0.0 | 0.2+ | 2009 11 15 | 703 | 0.1+ | 1.3+ | 2009 12 10 | 703 | 1.0+ | 0.5+ |
| 2007 06 09 | 691 | 0.1− | 0.1+ | 2009 11 15 | 703 | 0.0 | 0.5+ | | | | |
| 2007 06 09 | 691 | 0.3− | 0.1+ | 2009 11 15 | 703 | 0.7− | 1.2+ | | | | |

**(229883)∗ 2009 UV$_{72}$ = 1999 JD$_{114}$**

Discovered 2009 Oct. 23 by the Mt. Lemmon Survey at Mount Lemmon.

Id. G. V. Williams (*MPO* 165919)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 91.08119 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22310437 | $\omega$ | 249.34145 | | +0.62385330 | +0.76003488 | |
| $a$ | 2.6923447 | $\Omega$ | 60.58907 | | −0.61643696 | +0.62173734 | |
| $e$ | 0.1894491 | $i$ | 12.06499 | | −0.48042953 | +0.18918154 | |
| $P$ | 4.42 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 05 13 | 704 | 0.0 | 1.4− | 2004 09 18 | E12 | 0.2+ | 0.9− | 2009 11 15 | 703 | 0.1+ | 0.7− |
| 1999 05 13 | 704 | 0.2+ | 0.4+ | 2004 10 08 | 644 | 0.3− | 0.2+ | 2009 11 16 | G96 | 0.2− | 0.2− |
| 1999 05 13 | 704 | (2.7− | 0.8+) | 2004 10 08 | 644 | 0.2− | 0.4+ | 2009 11 16 | G96 | 0.1− | 0.3− |
| 1999 05 13 | 704 | 0.7+ | 0.7+ | 2004 10 08 | 644 | 0.2− | 0.0 | 2009 11 16 | G96 | 0.3− | 0.5− |
| 1999 05 18 | 704 | 1.1+ | 1.0− | 2004 10 08 | 644 | 0.3− | 0.4+ | 2009 11 17 | G96 | 0.0 | 0.0 |
| 1999 05 18 | 704 | 1.1+ | 0.7+ | 2004 10 08 | 644 | 0.4− | 0.2− | 2009 11 17 | G96 | 0.4+ | 0.0 |
| 1999 05 18 | 704 | (0.6+ | 2.5+) | 2004 10 08 | 644 | 0.2− | 0.3+ | 2009 11 17 | G96 | 0.1+ | 0.0 |
| 1999 05 18 | 704 | 0.2+ | 0.0 | 2007 02 23 | 703 | 0.1− | 1.1+ | 2009 11 17 | G96 | 0.0 | 0.0 |
| 1999 05 18 | 704 | 0.7− | 1.6+ | 2007 02 23 | 703 | 0.1− | 1.0+ | 2009 11 20 | 704 | 0.1+ | 1.1+ |
| 2000 11 19 | 699 | 0.8+ | 1.0− | 2007 02 23 | 703 | (0.5− | 2.6+) | 2009 11 20 | 704 | 0.1+ | 1.1+ |
| 2000 11 19 | 699 | 2.7− | 1.4+ | 2007 02 23 | 703 | 1.0+ | 0.9+ | 2009 11 20 | 704 | 0.2− | 0.8+ |
| 2000 11 19 | 699 | 0.5− | 1.6+ | 2009 10 23 | G96 | 0.2+ | 0.1+ | 2009 11 20 | 704 | (0.0 | 1.5+) |
| 2000 11 19 | 699 | 0.4− | 0.9+ | 2009 10 23 | G96 | 0.5+ | 0.2+ | 2009 11 20 | 704 | 0.4− | 0.7+ |
| 2002 01 13 | 644 | 0.2− | 0.5− | 2009 10 23 | G96 | 0.1− | 0.1− | 2009 11 23 | 703 | 0.1− | 0.4+ |
| 2002 01 13 | 644 | 0.1+ | 0.7− | 2009 10 23 | G96 | 0.4+ | 0.1+ | 2009 11 23 | 703 | 0.4− | 0.2− |
| 2002 01 13 | 644 | 0.7+ | 0.4− | 2009 10 24 | 703 | 0.8− | 0.1+ | 2009 11 23 | 703 | 0.8− | 0.1− |
| 2003 04 27 | 645 | 0.0 | 0.1+ | 2009 10 24 | 703 | (0.2− | 2.1−) | 2009 11 23 | 703 | 0.5+ | 0.2− |
| 2003 04 27 | 645 | 0.0 | 0.1+ | 2009 10 24 | 703 | (1.8− | 0.0 ) | 2009 11 23 | 703 | 0.4− | 1.0− |
| 2004 08 11 | E12 | 0.1− | 0.5+ | 2009 10 24 | 703 | 0.8− | 1.3− | 2009 11 23 | J75 | 0.2− | 1.1+ |
| 2004 08 11 | E12 | 0.3− | 0.2+ | 2009 11 08 | 703 | 0.2− | 0.5+ | 2009 11 23 | J75 | 0.6+ | 0.0 |
| 2004 08 11 | E12 | 0.4− | 0.4+ | 2009 11 08 | 703 | 0.1− | 0.3+ | 2009 11 23 | J75 | 0.3+ | 0.1− |
| 2004 08 11 | E12 | 0.2+ | 0.2− | 2009 11 08 | 703 | 0.4+ | 1.1+ | 2009 11 24 | G96 | 0.1− | 0.1− |
| 2004 09 03 | E12 | 0.4− | 0.1− | 2009 11 08 | 703 | 0.0 | 0.1− | 2009 11 24 | G96 | 0.4+ | 0.2+ |
| 2004 09 03 | E12 | 0.3− | 0.2− | 2009 11 09 | J75 | 0.7+ | 1.0− | 2009 11 24 | G96 | 0.0 | 0.0 |
| 2004 09 03 | E12 | 0.1+ | 0.7− | 2009 11 09 | J75 | 0.2+ | 0.5+ | 2009 11 24 | G96 | 0.3+ | 0.1+ |
| 2004 09 03 | E12 | 0.0 | 0.8+ | 2009 11 09 | J75 | 0.2+ | 0.1− | 2009 12 10 | G96 | 0.7+ | 0.2− |
| 2004 09 18 | E12 | 0.4− | 0.3+ | 2009 11 15 | 703 | 0.1+ | 1.1+ | 2009 12 10 | G96 | 0.2+ | 0.1+ |
| 2004 09 18 | E12 | 0.7+ | 0.6+ | 2009 11 15 | 703 | (1.9− | 0.1+) | 2009 12 10 | G96 | 0.2+ | 0.2− |
| 2004 09 18 | E12 | 0.1+ | 0.3+ | 2009 11 15 | 703 | 0.6− | 0.7− | 2009 12 10 | G96 | 0.0 | 0.0 |

**(229884)∗ 2009 UL$_{82}$ = 2000 UH$_{84}$**

Discovered 2009 Oct. 23 by the Mt. Lemmon Survey at Mount Lemmon.

Id. G. V. Williams (*MPO* 165924)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 30.03396 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22181459 | $\omega$ | 337.53606 | | +0.88542578 | −0.43739894 | |
| $a$ | 2.7027714 | $\Omega$ | 49.37474 | | +0.45167778 | +0.73004073 | |
| $e$ | 0.0875427 | $i$ | 11.95148 | | +0.10958271 | +0.52509304 | |
| $P$ | 4.44 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 05 11 | 691 | 0.4+ | 0.1− | 2007 04 26 | G96 | 0.3− | 0.1+ | 2009 11 08 | G96 | 0.3+ | 0.1+ |
| 1994 05 11 | 691 | 0.3− | 0.4+ | 2007 04 26 | G96 | 0.3− | 0.2− | 2009 11 08 | G96 | 0.4+ | 0.0 |
| 1994 05 11 | 691 | 0.1− | 0.3+ | 2007 04 26 | G96 | 0.6+ | 0.2− | 2009 11 08 | G96 | 0.7+ | 0.1+ |
| 2000 10 31 | 704 | 0.4+ | 0.5− | 2007 05 22 | G96 | 0.2+ | 0.0 | 2009 11 15 | 703 | (2.1− | 0.2−) |
| 2000 10 31 | 704 | 0.1+ | 0.6+ | 2007 05 22 | G96 | 0.1− | 0.0 | 2009 11 15 | 703 | 0.5− | 0.3+ |
| 2000 10 31 | 704 | 1.2+ | 0.1− | 2007 05 22 | G96 | 0.3− | 0.0 | 2009 11 15 | 703 | 0.2+ | 0.6− |
| 2000 11 02 | 704 | 0.6− | 0.4+ | 2007 05 22 | G96 | 0.6− | 1.0− | 2009 11 15 | 703 | 0.1− | 0.7− |
| 2000 11 02 | 704 | 0.5+ | 0.4− | 2009 10 14 | J75 | 0.1+ | 0.5− | 2009 11 17 | 704 | (0.3− | 1.6+) |
| 2000 11 02 | 704 | 0.0 | 0.5+ | 2009 10 14 | J75 | 0.0 | 0.1+ | 2009 11 17 | 704 | (2.7+ | 0.3+) |
| 2000 11 02 | 704 | 0.7− | 0.1− | 2009 10 14 | J75 | 0.5− | 0.1+ | 2009 11 17 | 704 | 0.1− | 0.9+ |
| 2004 08 21 | E12 | 0.0 | 0.2+ | 2009 10 23 | 691 | 0.1− | 0.1− | 2009 11 17 | 704 | 0.3+ | 1.0+ |
| 2004 08 21 | E12 | 0.6+ | 0.1+ | 2009 10 23 | 691 | 0.2− | 0.3+ | 2009 11 17 | 704 | 0.4+ | 1.0+ |
| 2004 08 21 | E12 | 0.7− | 0.2+ | 2009 10 23 | 691 | 0.3− | 0.2+ | 2009 11 25 | G96 | 0.3+ | 0.3− |
| 2004 08 21 | E12 | 0.1+ | 0.4− | 2009 10 23 | G96 | 0.5+ | 0.2+ | 2009 11 25 | G96 | 0.2+ | 0.0 |
| 2004 09 14 | 644 | 0.1+ | 0.3− | 2009 10 23 | G96 | 0.1+ | 0.0 | 2009 11 25 | G96 | 0.2+ | 0.1− |
| 2004 09 14 | 644 | 0.1− | 0.2+ | 2009 10 23 | G96 | 0.1+ | 0.1+ | 2009 11 25 | G96 | 0.3+ | 0.1+ |
| 2004 09 14 | 644 | 0.0 | 0.3− | 2009 10 23 | G96 | 0.3+ | 0.1− | 2009 12 13 | 703 | 0.9+ | 0.2− |
| 2007 03 19 | G96 | 0.7+ | 0.1− | 2009 10 25 | 703 | 0.0 | 0.3+ | 2009 12 13 | 703 | 0.2+ | 0.5− |
| 2007 03 19 | G96 | 0.3+ | 0.1− | 2009 10 25 | 703 | 1.3− | 0.2− | 2009 12 13 | 703 | 1.1− | 0.1− |
| 2007 03 19 | G96 | 0.5+ | 0.3+ | 2009 10 25 | 703 | 0.1− | 0.7+ | 2009 12 13 | 703 | 0.6− | 2.4− |
| 2007 03 19 | G96 | 0.1+ | 0.2+ | 2009 10 25 | 703 | 1.0− | 0.0 | | | | |
| 2007 04 26 | G96 | 0.1− | 0.3+ | 2009 11 08 | G96 | 0.6+ | 0.1+ | | | | |

**(229885)∗ 2009 UV$_{82}$ = 2005 WL$_{167}$**

Discovered 2009 Oct. 23 by the Mt. Lemmon Survey at Mount Lemmon.
Id. G. V. Williams (*MPO* 165924)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 43.03777 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23859240 | $\omega$ | 276.55633 | | +0.93979149 | −0.33880487 | |
| $a$ | 2.5745321 | $\Omega$ | 103.25490 | | +0.32890524 | +0.86111724 | |
| $e$ | 0.0675445 | $i$ | 2.63552 | | +0.09280782 | +0.37906247 | |
| $P$ | 4.13 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1992 09 28 | 691 | 1.4− | 0.6+ | 2006 03 05 | G96 | 0.3− | 0.3+ | 2009 11 14 | J75 | 0.2− | 0.3+ |
| 1992 09 28 | 691 | 0.1+ | 0.4+ | 2006 03 05 | G96 | 0.2− | 0.2+ | 2009 11 14 | J75 | 0.1+ | 0.6+ |
| 1992 09 28 | 691 | 0.5+ | 0.3+ | 2007 02 21 | 691 | 0.1− | 0.2+ | 2009 11 14 | J75 | 0.5− | 0.4− |
| 1998 01 05 | 461 | 1.0+ | 0.9+ | 2007 02 21 | 691 | 0.1+ | 0.3+ | 2009 11 16 | G96 | 0.2− | 0.0 |
| 1998 01 05 | 461 | 0.3+ | 0.0 | 2007 02 21 | 691 | 0.4+ | 0.3+ | 2009 11 16 | G96 | 0.1− | 0.1− |
| 2004 07 21 | E12 | 0.2+ | 0.7+ | 2007 03 14 | 691 | 0.1− | 0.4+ | 2009 11 16 | G96 | 0.2+ | 0.0 |
| 2004 07 21 | E12 | 0.4+ | 0.0 | 2007 03 14 | 691 | 0.0 | 0.4+ | 2009 11 16 | G96 | 0.2+ | 0.0 |
| 2004 07 21 | E12 | 0.6+ | 0.1− | 2007 03 14 | 691 | 0.1+ | 0.1+ | 2009 11 19 | J75 | 0.1− | 0.2− |
| 2004 07 21 | E12 | 0.2− | 0.1+ | 2007 04 18 | 691 | 0.0 | 0.8− | 2009 11 19 | J75 | 0.0 | 0.1+ |
| 2005 11 30 | 691 | 0.1+ | 0.2+ | 2007 04 18 | 691 | 0.1− | 0.4+ | 2009 11 19 | J75 | 0.1+ | 0.7− |
| 2005 11 30 | 691 | 0.0 | 0.2+ | 2007 04 18 | 691 | 0.0 | 0.2− | 2009 11 23 | G96 | 0.5+ | 0.4− |
| 2005 11 30 | 691 | 0.2+ | 0.1+ | 2009 10 23 | G96 | 0.0 | 0.0 | 2009 11 23 | G96 | 0.1− | 0.2− |
| 2005 11 30 | G96 | 0.2+ | 0.4− | 2009 10 23 | G96 | 0.1− | 0.1− | 2009 11 23 | G96 | 0.4+ | 0.1− |
| 2005 11 30 | G96 | 0.1+ | 0.1− | 2009 10 23 | G96 | 0.0 | 0.1− | 2009 11 23 | G96 | 0.3− | 0.1− |
| 2005 11 30 | G96 | 0.2+ | 0.2− | 2009 10 23 | G96 | 0.1− | 0.3+ | 2009 11 23 | D29 | 0.9+ | 0.7− |
| 2005 11 30 | G96 | 0.3+ | 0.2− | 2009 10 25 | 691 | 0.1− | 0.5− | 2009 11 23 | D29 | (1.7+ | 1.1−) |
| 2005 12 04 | 704 | 1.0− | 0.7+ | 2009 10 25 | 691 | 0.2− | 0.2− | 2009 11 23 | D29 | 0.0 | 0.4+ |
| 2005 12 04 | 704 | 0.1− | 1.0+ | 2009 10 25 | 691 | 0.2− | 0.2− | 2009 11 23 | D29 | 1.3+ | 0.3− |
| 2005 12 04 | 704 | 0.2− | 0.6+ | 2009 11 09 | 703 | 1.2− | 0.5− | 2009 12 19 | G96 | 0.2+ | 0.1− |
| 2005 12 04 | 704 | 0.5− | 0.3− | 2009 11 09 | 703 | (0.7+ | 1.8−) | 2009 12 19 | G96 | 0.2+ | 0.3− |
| 2006 03 05 | G96 | 0.1+ | 0.0 | 2009 11 09 | 703 | 1.1+ | 0.4+ | 2009 12 19 | G96 | 0.3+ | 0.2− |
| 2006 03 05 | G96 | 0.4− | 1.0+ | 2009 11 09 | 703 | 0.5+ | 0.7+ | 2009 12 19 | G96 | 0.4− | 0.3− |

**(229886)∗ 2009 UZ$_{84}$ = 2000 XG$_{1}$ = 2004 TT$_{170}$ = 2005 YS$_{54}$ = 2007 EX$_{110}$**

Discovered 2009 Oct. 23 by the Mt. Lemmon Survey at Mount Lemmon.
Id. G. V. Williams (*MPO* 165926)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 74.15983 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.20973514 | $\omega$ | 251.04665 | | +0.94732262 | +0.30948652 | |
| $a$ | 2.8055752 | $\Omega$ | 90.85841 | | −0.25398538 | +0.88274456 | |
| $e$ | 0.1029827 | $i$ | 4.72992 | | −0.19511862 | +0.35352530 | |
| $P$ | 4.70 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 09 12 | 557 | 0.0 | 0.7+ | 2006 01 27 | G96 | 0.4+ | 0.2− | 2009 11 09 | G96 | 0.0 | 0.0 |
| 1999 09 12 | 557 | 0.2+ | 1.0+ | 2006 02 20 | 691 | 0.5+ | 0.6+ | 2009 11 09 | G96 | 0.4+ | 0.1− |
| 1999 09 12 | 557 | 0.0 | 0.4+ | 2006 02 20 | 691 | 0.1+ | 0.9+ | 2009 11 16 | G96 | 0.3+ | 0.1− |
| 2000 12 03 | 691 | 0.1+ | 0.3− | 2006 02 20 | 691 | 0.2+ | 0.2+ | 2009 11 16 | G96 | 0.2+ | 0.1− |
| 2000 12 03 | 691 | 0.8+ | 0.2+ | 2007 03 11 | 691 | 0.3− | 0.0 | 2009 11 16 | G96 | 0.1+ | 0.0 |
| 2000 12 03 | 691 | 0.8+ | 0.1+ | 2007 03 11 | 691 | 0.0 | 0.4+ | 2009 11 16 | G96 | 0.3+ | 0.1− |
| 2000 12 04 | 691 | 1.4− | 0.3+ | 2007 03 11 | 691 | 0.7− | 0.7+ | 2009 11 19 | J75 | 0.4− | 1.1− |
| 2000 12 04 | 691 | 0.5− | 0.4− | 2007 03 15 | 691 | 0.0 | 0.2− | 2009 11 19 | J75 | 0.1− | 0.2− |
| 2000 12 04 | 691 | 0.8− | 0.5− | 2007 03 15 | 691 | 0.1+ | 0.1+ | 2009 11 19 | J75 | 0.3− | 0.4− |
| 2004 10 07 | 704 | 0.4− | 0.2+ | 2007 03 15 | 691 | 0.5+ | 0.2+ | 2009 11 20 | 704 | (0.7+ | 2.8+) |
| 2004 10 07 | 704 | 1.2− | 0.1+ | 2007 03 15 | 291 | 0.3− | 0.1+ | 2009 11 20 | 704 | 0.1− | 0.7+ |
| 2004 10 07 | 704 | (1.3− | 2.1+) | 2007 03 15 | 291 | 0.1− | 0.2+ | 2009 11 20 | 704 | 0.4+ | 1.3+ |
| 2004 10 09 | 704 | 1.1+ | 0.6− | 2007 03 15 | 291 | 0.1+ | 0.0 | 2009 11 20 | 704 | 0.9+ | 0.0 |
| 2004 10 09 | 704 | 0.1+ | 0.3− | 2008 06 24 | 691 | 0.0 | 0.6+ | 2009 11 23 | G96 | (2.0+ | 0.3−) |
| 2004 10 09 | 704 | 0.6+ | 0.6+ | 2008 06 24 | 691 | 0.0 | 0.9+ | 2009 11 23 | G96 | 0.2+ | 0.1− |
| 2004 10 09 | 704 | 0.8− | 1.2+ | 2008 06 24 | 691 | 0.3+ | 0.5+ | 2009 11 23 | G96 | 0.1− | 0.4− |
| 2005 12 25 | 691 | 0.6+ | 0.2− | 2009 10 23 | G96 | 0.0 | 0.1− | 2009 11 23 | G96 | 0.0 | 0.1− |
| 2005 12 25 | 691 | 0.0 | 0.3+ | 2009 10 23 | G96 | 0.3+ | 0.0 | 2009 12 11 | 703 | 0.9− | 2.1+ |
| 2005 12 25 | 691 | 0.2+ | 0.2+ | 2009 10 23 | G96 | 0.0 | 0.1+ | 2009 12 11 | 703 | 0.0 | 0.8+ |
| 2005 12 29 | 691 | 0.3+ | 0.4+ | 2009 10 23 | G96 | 0.3+ | 0.2− | 2009 12 11 | 703 | 0.5− | 0.2− |
| 2005 12 29 | 691 | 0.5+ | 0.2+ | 2009 10 25 | 691 | 0.5− | 0.1+ | 2009 12 11 | 703 | 1.7− | 0.4+ |
| 2005 12 29 | 691 | 0.4+ | 0.6− | 2009 10 25 | 691 | 0.3− | 0.0 | 2009 12 19 | G96 | 0.5+ | 0.0 |
| 2006 01 27 | G96 | 0.4− | 0.1− | 2009 10 25 | 691 | 0.4− | 0.3+ | 2009 12 19 | G96 | 0.7− | 0.2− |
| 2006 01 27 | G96 | 0.1+ | 0.4− | 2009 11 09 | G96 | 0.5+ | 0.1− | 2009 12 19 | G96 | 0.3+ | 0.7+ |
| 2006 01 27 | G96 | 0.0 | 0.3− | 2009 11 09 | G96 | 0.1− | 0.0 | 2009 12 19 | G96 | 0.2+ | 0.1− |

**(229887)∗ 2009 UA$_{85}$ = 2003 SX$_{421}$**

Discovered 2009 Oct. 23 by the Mt. Lemmon Survey at Mount Lemmon.
Id. G. V. Williams (*MPO* 165927)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 56.84640 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17624553 | $\omega$ | 219.84062 | | +0.99408673 | +0.10214335 | |
| $a$ | 3.1505809 | $\Omega$ | 134.25480 | | −0.08181356 | +0.92767919 | |
| $e$ | 0.1560158 | $i$ | 2.94952 | | −0.07140102 | +0.35913515 | |
| $P$ | 5.59 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 30 | 691 | 0.3− | 0.1+ | 2007 04 22 | 691 | 0.2+ | 0.3+ | 2009 11 09 | G96 | 0.5+ | 0.2− |
| 2003 09 30 | 691 | 0.3− | 0.1+ | 2007 04 22 | 691 | 0.0 | 0.1+ | 2009 11 09 | G96 | 0.4+ | 0.1− |
| 2003 09 30 | 691 | 0.3− | 0.1+ | 2007 05 12 | G96 | 0.1− | 0.2− | 2009 11 16 | G96 | 0.0 | 0.1− |
| 2003 10 02 | 327 | (5.3− | 2.1−) | 2007 05 12 | G96 | 1.1+ | 0.4+ | 2009 11 16 | G96 | 0.5+ | 0.1− |
| 2003 10 02 | 327 | (6.1− | 3.6−) | 2007 05 12 | G96 | 0.1+ | 0.2+ | 2009 11 16 | G96 | 0.1− | 0.2− |
| 2003 10 02 | 327 | (4.1− | 1.6−) | 2007 05 12 | G96 | 0.5+ | 0.2+ | 2009 11 16 | G96 | 0.3+ | 0.2− |
| 2003 10 19 | 691 | 0.1+ | 0.7+ | 2008 10 02 | G96 | 0.5− | 0.2+ | 2009 11 22 | 703 | 0.1− | 0.3− |
| 2003 10 19 | 691 | 0.3+ | 0.1+ | 2008 10 02 | G96 | 1.0− | 0.2+ | 2009 11 22 | 703 | 0.1+ | 0.5− |
| 2003 10 19 | 691 | 0.2− | 0.3+ | 2008 10 02 | G96 | 0.2− | 0.1+ | 2009 11 22 | 703 | 0.1− | 0.1− |
| 2003 10 23 | 645 | 0.1+ | 0.0 | 2008 10 02 | G96 | 0.2+ | 0.0 | 2009 11 22 | 703 | (1.8+ | 0.2+) |
| 2003 10 23 | 645 | 0.1+ | 0.1− | 2009 10 23 | G96 | 0.1+ | 0.2+ | 2009 11 23 | G96 | 0.1− | 0.1+ |
| 2006 03 08 | G96 | 1.3− | 0.0 | 2009 10 23 | G96 | 0.1+ | 0.1− | 2009 11 23 | G96 | 0.1+ | 0.3+ |
| 2006 03 08 | G96 | 0.4+ | 0.3− | 2009 10 23 | G96 | 0.6+ | 0.1+ | 2009 11 23 | G96 | 0.0 | 0.1+ |
| 2006 03 08 | G96 | 0.2+ | 0.1+ | 2009 10 23 | G96 | 0.4+ | 0.2+ | 2009 11 23 | G96 | 0.2+ | 0.1+ |
| 2006 03 08 | G96 | 1.0+ | 0.1+ | 2009 10 25 | 691 | 0.5− | 0.2+ | 2009 12 19 | G96 | 0.5+ | 0.1+ |
| 2006 03 29 | 691 | 0.0 | 0.4+ | 2009 10 25 | 691 | 0.4− | 0.0 | 2009 12 19 | G96 | 0.6+ | 0.3+ |
| 2006 03 29 | 691 | 0.1+ | 0.4+ | 2009 10 25 | 691 | 0.2− | 0.1+ | 2009 12 19 | G96 | 0.3+ | 0.1− |
| 2006 03 29 | 691 | 0.3− | 0.1+ | 2009 11 09 | G96 | 0.1− | 0.3− | 2009 12 19 | G96 | 0.6+ | 0.3+ |
| 2007 04 22 | 691 | 0.1− | 0.2− | 2009 11 09 | G96 | 0.5+ | 0.2− | | | | |

**(229888)∗ 2009 UZ$_{88}$**

Discovered 2009 Oct. 24 by the Catalina Sky Survey.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 35.85446 | | $\omega$ | 321.84179 | +0.91271209 | −0.38630985 |
| $n$ | 0.29680626 | | $\Omega$ | 61.38010 | +0.40216690 | +0.79172277 |
| $a$ | 2.2258062 | | $i$ | 8.72260 | +0.07223866 | +0.47322273 |
| $e$ | 0.0959187 | | $H$ | 17.0 | $G$ 0.15 | $U$ 1 |
| $P$ | 3.32 | | | | | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 10 31 | 143 | 0.3+ | 1.1+ | 2009 10 14 | G96 | 0.3+ | 0.4+ | 2009 11 20 | 704 | (0.4+ | 1.7+) |
| 1999 10 31 | 143 | 0.1+ | 0.7+ | 2009 10 24 | 703 | 0.5− | 0.8− | 2009 11 20 | 704 | 0.9+ | 0.0 |
| 1999 10 31 | 143 | 0.8+ | 0.4− | 2009 10 24 | 703 | 0.9+ | 0.1− | 2009 11 20 | J75 | 0.1+ | 0.8+ |
| 2001 03 19 | 645 | 0.1+ | 0.0 | 2009 10 24 | 703 | 0.3− | 0.3− | 2009 11 20 | J75 | 0.3+ | 1.0− |
| 2001 03 19 | 645 | 0.0 | 0.1+ | 2009 10 24 | 703 | (0.0 | 1.5+) | 2009 11 20 | J75 | 0.6+ | 0.8+ |
| 2002 04 08 | 807 | 0.5+ | 0.3+ | 2009 10 24 | 703 | 0.4− | 0.1+ | 2009 11 23 | 703 | 0.0 | 0.6+ |
| 2002 04 08 | 807 | 0.3+ | 0.5+ | 2009 10 24 | 703 | (1.5− | 0.4−) | 2009 11 23 | 703 | 0.7− | 0.4+ |
| 2002 08 31 | 699 | (1.9− | 1.7−) | 2009 10 24 | 703 | 0.5− | 0.0 | 2009 11 23 | 703 | 0.7− | 0.2− |
| 2002 08 31 | 699 | 1.4− | 1.1+ | 2009 10 24 | 703 | 0.2+ | 0.5− | 2009 11 23 | 703 | 0.2+ | 0.2+ |
| 2002 08 31 | 699 | 0.3− | 0.5− | 2009 10 25 | 703 | 0.5+ | 0.1− | 2009 11 23 | 703 | 0.4− | 0.4+ |
| 2002 08 31 | 699 | 0.8− | 0.5− | 2009 10 25 | 703 | 0.6− | 0.1+ | 2009 11 25 | G96 | 0.3+ | 0.1+ |
| 2006 12 16 | G96 | 0.0 | 0.4− | 2009 10 25 | 703 | 0.3− | 0.3− | 2009 11 25 | G96 | 0.4+ | 0.1− |
| 2006 12 16 | G96 | 0.4− | 0.1− | 2009 10 25 | 703 | 1.0− | 1.1− | 2009 11 25 | G96 | 0.1+ | 0.1− |
| 2006 12 16 | G96 | 0.2− | 0.3− | 2009 10 29 | J75 | 1.0− | 0.6− | 2009 11 25 | G96 | 0.3+ | 0.2− |
| 2006 12 16 | G96 | 0.4− | 0.3− | 2009 10 30 | J75 | 1.3+ | 0.0 | 2009 11 27 | 703 | 0.6− | 1.4− |
| 2008 05 03 | 691 | 0.1− | 0.1+ | 2009 10 30 | J75 | 0.1− | 0.2+ | 2009 11 27 | 703 | 0.2− | 0.2− |
| 2008 05 03 | 691 | 0.0 | 0.1+ | 2009 11 09 | 703 | 0.4− | 0.3− | 2009 11 27 | 703 | 1.2− | 0.6− |
| 2008 05 03 | 691 | 0.1+ | 0.0 | 2009 11 09 | 703 | 0.5+ | 0.2+ | 2009 11 27 | 703 | 0.5− | 0.1+ |
| 2008 05 26 | 691 | 0.5+ | 0.2− | 2009 11 09 | 703 | 0.7− | 0.0 | 2009 12 15 | G96 | 0.1− | 0.2+ |
| 2008 05 26 | 691 | 0.1− | 0.0 | 2009 11 09 | 703 | 0.3− | 0.4− | 2009 12 15 | G96 | 0.4− | 0.3+ |
| 2008 05 26 | 691 | 0.2+ | 0.2+ | 2009 11 18 | 704 | (1.8+ | 0.5+) | 2009 12 15 | G96 | 0.1− | 0.1+ |
| 2008 06 09 | 691 | 0.1+ | 0.0 | 2009 11 18 | 704 | 0.7+ | 0.0 | 2009 12 15 | G96 | 0.2− | 0.4− |
| 2008 06 09 | 691 | 0.2− | 0.8− | 2009 11 18 | 704 | 1.3+ | 0.2+ | 2009 12 17 | G96 | 0.5− | 0.1+ |
| 2008 06 09 | 691 | 0.3− | 0.3+ | 2009 11 18 | 704 | 0.9+ | 1.2+ | 2009 12 17 | G96 | 0.1− | 0.1+ |
| 2009 10 14 | G96 | 0.4+ | 0.2+ | 2009 11 20 | 704 | 0.4+ | 0.8+ | 2009 12 17 | G96 | 0.8− | 0.0 |
| 2009 10 14 | G96 | 0.2+ | 0.1− | 2009 11 20 | 704 | 0.7+ | 1.1+ | 2009 12 17 | G96 | 0.5− | 0.5− |
| 2009 10 14 | G96 | 0.2+ | 0.2+ | 2009 11 20 | 704 | 1.1+ | 1.1+ | | | | |

**(229889)∗ 2009 UX$_{102}$**

Discovered 2009 Oct. 24 by the Catalina Sky Survey.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 98.67178 | | $\omega$ | 271.97453 | +0.68105077 | +0.71899071 |
| $n$ | 0.23457509 | | $\Omega$ | 42.09541 | −0.56227360 | +0.63480003 |
| $a$ | 2.6038429 | | $i$ | 11.93596 | −0.46906102 | +0.28298637 |
| $e$ | 0.1982603 | | $H$ | 15.4 | $G$ 0.15 | $U$ 1 |
| $P$ | 4.20 | | | | | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 30 | 699 | 0.3+ | 0.3− | 2004 09 10 | E12 | 0.3+ | 0.5− | 2009 11 13 | J75 | 0.2− | 0.5− |
| 2000 09 30 | 699 | 0.1− | 0.2− | 2004 09 10 | E12 | 0.2− | 0.2+ | 2009 11 16 | 704 | 0.4− | 0.2+ |
| 2000 09 30 | 699 | 0.4− | 0.1+ | 2007 02 23 | 703 | 0.1+ | 0.2− | 2009 11 16 | 704 | 0.4− | 0.4+ |
| 2000 09 30 | 699 | 0.3+ | 0.0 | 2007 02 23 | 703 | 0.4+ | 0.6− | 2009 11 16 | 704 | 0.3+ | 0.2+ |
| 2003 03 28 | 049 | 0.1+ | 0.3+ | 2007 02 23 | 703 | 0.7− | 0.4+ | 2009 11 16 | 704 | 0.4− | 0.1+ |
| 2003 03 28 | 049 | 0.7+ | 0.3− | 2007 02 23 | 703 | 0.9− | 0.2− | 2009 11 16 | 704 | 0.7+ | 0.7+ |
| 2003 03 28 | 049 | 0.0 | 0.4+ | 2007 03 12 | 703 | (1.7+ | 0.4−) | 2009 11 19 | 691 | 0.4− | 0.0 |
| 2004 05 16 | E12 | (1.6− | 1.4+) | 2007 03 12 | 703 | (1.1+ | 1.8−) | 2009 11 19 | 691 | 0.3− | 0.2− |
| 2004 05 16 | E12 | 1.1+ | 0.4− | 2007 03 12 | 703 | 1.0+ | 0.1− | 2009 11 19 | 691 | 0.4− | 0.1− |
| 2004 05 16 | E12 | 0.4− | 0.9+ | 2007 03 12 | 703 | 0.6− | 1.3+ | 2009 11 22 | 704 | 1.4+ | 1.2+ |
| 2004 05 16 | E12 | 0.0 | 1.2+ | 2009 10 24 | 703 | 0.8+ | 0.2+ | 2009 11 22 | 704 | (0.5+ | 1.8+) |
| 2004 07 14 | E12 | 0.1− | 0.2+ | 2009 10 24 | 703 | 1.4+ | 0.4+ | 2009 11 22 | 704 | 0.2− | 0.9+ |
| 2004 07 14 | E12 | 0.1− | 0.3+ | 2009 10 24 | 703 | 0.0 | 0.4+ | 2009 11 22 | 704 | 0.1− | 0.5− |
| 2004 07 14 | E12 | 0.8+ | 1.2− | 2009 10 24 | 703 | 0.1+ | 0.2− | 2009 11 22 | 704 | 0.8+ | 1.0+ |
| 2004 07 14 | E12 | 0.2+ | 0.3+ | 2009 10 26 | 703 | 1.1+ | 0.5+ | 2009 11 24 | J75 | 0.2− | 0.1− |
| 2004 08 09 | E12 | 0.3− | 0.0 | 2009 10 26 | 703 | 1.4+ | 0.1− | 2009 11 24 | J75 | 0.6+ | 0.2+ |
| 2004 08 09 | E12 | 0.2− | 0.1+ | 2009 10 26 | 703 | 1.2+ | 1.2− | 2009 11 24 | J75 | 0.2+ | 0.2− |
| 2004 08 09 | E12 | 0.1+ | 0.8+ | 2009 10 26 | 703 | 0.6− | 0.7− | 2009 11 24 | J75 | 0.1− | 0.4− |
| 2004 08 09 | E12 | 0.0 | 0.3+ | 2009 11 08 | 703 | 0.7+ | 0.7+ | 2009 11 24 | J75 | 0.5− | 0.3− |
| 2004 08 20 | E12 | 0.1− | 0.0 | 2009 11 08 | 703 | 0.4− | 1.3+ | 2009 11 24 | J75 | 0.4− | 0.2− |
| 2004 08 20 | E12 | 0.1− | 0.0 | 2009 11 08 | 703 | 1.4+ | 0.4+ | 2009 11 27 | 691 | 0.3− | 0.1+ |
| 2004 08 20 | E12 | 0.1+ | 0.2+ | 2009 11 08 | 703 | (1.9+ | 1.5+) | 2009 11 27 | 691 | 0.4− | 0.1− |
| 2004 08 20 | E12 | 0.4− | 0.0 | 2009 11 09 | H06 | 0.2+ | 0.0 | 2009 11 27 | 691 | 0.4− | 0.1− |
| 2004 08 20 | E12 | 0.1− | 0.1+ | 2009 11 09 | H06 | 0.6− | 0.6− | 2009 12 06 | J75 | 0.2− | 0.7+ |
| 2004 08 20 | E12 | 0.1− | 0.1− | 2009 11 09 | H06 | 0.3+ | 0.1− | 2009 12 06 | J75 | 0.3+ | 0.1− |
| 2004 08 20 | E12 | 0.4− | 0.1+ | 2009 11 10 | H06 | 0.4− | 0.1− | 2009 12 06 | J75 | 0.2+ | 0.5− |
| 2004 08 20 | E12 | 0.0 | 0.1+ | 2009 11 10 | H06 | 0.2− | 0.0 | 2009 12 10 | 704 | 0.2− | 0.2+ |
| 2004 08 20 | E12 | 0.2+ | 0.4+ | 2009 11 10 | H06 | 0.3+ | 0.1− | 2009 12 10 | 704 | 0.0 | 0.3+ |
| 2004 08 20 | E12 | 0.3− | 0.0 | 2009 11 11 | 704 | 0.6+ | 0.6− | 2009 12 10 | 704 | 0.1+ | 0.2+ |
| 2004 08 20 | E12 | 0.2− | 0.1− | 2009 11 11 | 691 | 0.0 | 0.2− | 2009 12 10 | 704 | 0.2− | 0.2+ |
| 2004 08 20 | E12 | 0.0 | 0.1− | 2009 11 11 | 704 | 0.7+ | 0.3− | 2009 12 10 | 704 | 0.0 | 0.4+ |
| 2004 08 20 | E12 | 0.1+ | 0.0 | 2009 11 11 | 691 | 0.0 | 0.2− | 2009 12 15 | 704 | 0.7− | 0.6+ |
| 2004 08 20 | E12 | 0.0 | 0.2+ | 2009 11 11 | 704 | (1.6+ | 0.7−) | 2009 12 15 | 704 | 0.0 | 0.8+ |
| 2004 08 20 | E12 | 0.1+ | 0.2+ | 2009 11 11 | 691 | 0.0 | 0.2− | 2009 12 15 | 704 | 0.1− | 0.3− |
| 2004 08 20 | E12 | 0.2+ | 0.4− | 2009 11 11 | 704 | 0.6+ | 0.7+ | 2009 12 15 | 704 | 0.0 | 0.3+ |
| 2004 09 10 | E12 | 0.5− | 0.1+ | 2009 11 13 | J75 | 0.1+ | 0.1− | 2009 12 15 | 704 | 0.3− | 0.5− |
| 2004 09 10 | E12 | 0.1+ | 0.2− | 2009 11 13 | J75 | 0.1+ | 0.6− | | | | |

**(229890)∗ 2009 UH$_{110}$ = 1998 SW$_{89}$**

Discovered 2009 Oct. 23 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 165945)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 42.20453 | | $\omega$ | 111.56416 | +0.96953230 | −0.24372266 |
| $n$ | 0.27439536 | | $\Omega$ | 262.54884 | +0.21456126 | +0.89340676 |
| $a$ | 2.3454069 | | $i$ | 1.42306 | +0.11819719 | +0.37739055 |
| $e$ | 0.2091395 | | $H$ | 17.5 | $G$ 0.15 | $U$ 1 |
| $P$ | 3.59 | | | | | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 09 26 | 704 | 0.3− | 0.6− | 2007 03 14 | G96 | 0.4+ | 0.2+ | 2009 11 16 | 691 | 0.4− | 0.7+ |
| 1998 09 26 | 704 | 1.2− | 0.5+ | 2007 03 14 | G96 | 0.3− | 0.4+ | 2009 11 17 | 704 | 0.8+ | 0.0 |
| 1998 09 26 | 704 | 0.6+ | 0.8+ | 2009 09 17 | 291 | 0.1− | 0.2− | 2009 11 17 | 704 | 0.7+ | 0.2+ |
| 1998 09 27 | 704 | 0.3+ | 2.0− | 2009 09 17 | 291 | 0.1− | 0.1− | 2009 11 17 | 704 | 0.3− | 0.9+ |
| 1998 09 27 | 704 | 0.0 | 0.6− | 2009 09 17 | 291 | 0.3+ | 1.1+ | 2009 11 17 | 704 | 1.4+ | 1.0+ |
| 1998 09 27 | 704 | 0.3+ | 1.1+ | 2009 10 23 | 691 | 0.2− | 0.1+ | 2009 11 23 | J75 | 0.2+ | 0.2− |
| 1998 09 27 | 704 | 0.3+ | 0.6+ | 2009 10 23 | 691 | 0.6+ | 0.5− | 2009 11 23 | J75 | 0.2+ | 0.1− |
| 2005 06 17 | G96 | 0.3− | 0.2− | 2009 10 23 | 691 | 0.1− | 0.0 | 2009 11 23 | J75 | 0.1+ | 0.4− |
| 2005 06 17 | G96 | 0.3+ | 0.1+ | 2009 10 27 | 691 | 0.2− | 0.1− | 2009 12 11 | G96 | 0.1+ | 0.1− |
| 2005 06 17 | G96 | 0.0 | 0.1+ | 2009 10 27 | 691 | 0.4− | 0.1+ | 2009 12 11 | G96 | 0.1+ | 0.2− |
| 2005 06 17 | G96 | 0.0 | 0.0 | 2009 10 27 | 691 | 0.3− | 0.0 | 2009 12 11 | G96 | 0.1+ | 0.2+ |
| 2005 07 09 | 691 | 0.0 | 0.0 | 2009 11 11 | J75 | 0.3+ | 0.5+ | 2009 12 11 | G96 | 0.3+ | 0.1− |
| 2005 07 09 | 691 | 0.1− | 0.1+ | 2009 11 11 | J75 | 0.4− | 0.9− | 2009 12 15 | A77 | 0.1− | 0.6+ |
| 2005 07 09 | 691 | 0.1+ | 0.2+ | 2009 11 12 | J75 | 0.4− | 0.9− | 2009 12 15 | A77 | 0.4+ | 0.9+ |
| 2005 07 28 | 644 | 0.1− | 0.0 | 2009 11 15 | J75 | 0.1− | 0.2− | 2009 12 15 | A77 | 0.4+ | 0.8+ |
| 2005 07 28 | 644 | 0.1+ | 0.2− | 2009 11 15 | J75 | 0.1+ | 0.2− | 2009 12 17 | G96 | 0.3+ | 0.2− |
| 2005 07 28 | 644 | 0.1− | 0.1− | 2009 11 15 | J75 | 0.5+ | 0.1− | 2009 12 17 | G96 | 0.4+ | 0.3− |
| 2007 03 14 | G96 | 0.1+ | 0.7+ | 2009 11 16 | 691 | 0.0 | 0.1− | 2009 12 17 | G96 | 0.5− | 0.6− |
| 2007 03 14 | G96 | 0.4+ | 0.3+ | 2009 11 16 | 691 | 0.2− | 0.5− | | | | |

**(229891)∗ 2009 UF$_{111}$ = 2003 TS$_{56}$**

Discovered 2009 Oct. 23 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 165946)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 348.47708 | | $\omega$ | 29.46714 | +0.07714923 | −0.98112367 |
| $n$ | 0.17719384 | | $\Omega$ | 56.64619 | +0.86817529 | −0.02134154 |
| $a$ | 3.1393300 | | $i$ | 12.25669 | +0.49022409 | +0.19220012 |
| $e$ | 0.1390832 | | $H$ | 15.8 | $G$ 0.15 | $U$ 0 |
| $P$ | 5.56 | | | | | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 04 26 | 691 | 0.2− | 1.7− | 2006 05 05 | 691 | 0.1+ | 0.1+ | 2009 11 16 | 691 | 0.1+ | 0.2− |
| 1995 04 26 | 691 | 0.1+ | 0.1+ | 2006 05 05 | 691 | 0.4+ | 0.9+ | 2009 11 16 | 691 | 0.2− | 0.6+ |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 04 26 | 691 | 0.2+ | 0.7− | 2006 05 30 | G96 | 0.5+ | 0.5+ | 2009 11 20 | 691 | 0.0 | 0.0 | |
| 1995 05 08 | 691 | 0.3− | 1.0+ | 2006 05 30 | G96 | 0.2− | 0.4+ | 2009 11 20 | 691 | 0.0 | 0.1− | |
| 2003 10 05 | 691 | 0.1− | 0.1− | 2006 05 30 | G96 | 0.4− | 0.0 | 2009 11 20 | 691 | 0.0 | 0.1− | |
| 2003 10 05 | 691 | 0.2− | 0.1− | 2006 05 30 | G96 | 0.6+ | 0.1− | 2009 11 24 | 691 | 0.1− | 0.1− | |
| 2003 10 05 | 691 | 0.1+ | 0.1− | 2009 10 23 | 691 | 0.2− | 0.0 | 2009 11 24 | 691 | 0.1+ | 0.1− | |
| 2003 10 18 | 699 | 0.9− | 0.4− | 2009 10 23 | 691 | 0.3− | 0.0 | 2009 11 24 | 691 | 0.5+ | 0.0 | |
| 2003 10 18 | 699 | 0.6− | 0.6+ | 2009 10 23 | 691 | 0.2− | 0.2+ | 2009 12 11 | 703 | 0.4+ | 0.4+ | |
| 2003 10 18 | 699 | (1.5+ | 2.1+) | 2009 10 27 | 691 | 0.2− | 0.2+ | 2009 12 11 | 703 | 0.5− | 0.4+ | |
| 2003 10 18 | 699 | 0.4+ | 1.1+ | 2009 10 27 | 691 | 0.0 | 0.1+ | 2009 12 11 | 703 | 0.3− | 0.2+ | |
| 2003 10 23 | 691 | 0.1− | 0.1− | 2009 10 27 | 691 | 0.2+ | 0.1+ | 2009 12 11 | 703 | 0.7+ | 0.8+ | |
| 2003 10 23 | 691 | 0.1− | 0.0 | 2009 11 08 | 691 | 0.1− | 0.2− | 2009 12 18 | G96 | 0.7+ | 0.2− | |
| 2003 10 23 | 691 | 0.0 | 0.1+ | 2009 11 08 | 691 | 0.1− | 0.1− | 2009 12 18 | G96 | 0.6+ | 0.1− | |
| 2004 12 21 | 703 | 0.7+ | 0.4+ | 2009 11 08 | 691 | 0.2− | 0.0 | 2009 12 18 | G96 | 0.6+ | 0.1+ | |
| 2004 12 21 | 703 | 1.0− | 0.8+ | 2009 11 15 | J75 | 0.0 | 0.0 | 2009 12 18 | G96 | 0.6+ | 0.2− | |
| 2004 12 21 | 703 | 0.0 | 0.2− | 2009 11 15 | J75 | 0.1+ | 0.2− | 2009 12 19 | 691 | 0.0 | 0.0 | |
| 2004 12 21 | 703 | 0.9− | 1.2− | 2009 11 15 | J75 | 0.6+ | 0.1− | 2009 12 19 | 691 | 0.3− | 0.1+ | |
| 2006 05 05 | 691 | 0.1− | 0.5+ | 2009 11 16 | 691 | 0.2+ | 0.2− | 2009 12 19 | 691 | 0.3+ | 0.2+ | |

**(229892)∗ 2009 UW$_{127}$**

Discovered 2009 Oct. 28 by the BATTeRS program at the Bisei Spaceguard Center.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 358.93053 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18977162 | $\omega$ | 165.21659 | | +0.43901619 | −0.89725904 | |
| $a$ | 2.9990373 | $\Omega$ | 258.72409 | | +0.81941828 | +0.42121064 | |
| $e$ | 0.0586441 | $i$ | 2.73573 | | +0.36853558 | +0.13231707 | |
| $P$ | 5.19 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 03 | 291 | 0.0 | 0.2− | 2008 09 07 | G96 | 0.1− | 0.6+ | 2009 11 11 | J75 | 0.3+ | 0.7− | |
| 2004 12 03 | 291 | 0.2+ | 0.3− | 2008 09 07 | G96 | 0.3− | 0.9+ | 2009 11 11 | J75 | 0.3+ | 0.5− | |
| 2004 12 03 | 291 | 0.1− | 0.3− | 2008 09 07 | G96 | 0.6− | 0.2+ | 2009 11 14 | J75 | 0.9+ | 0.2− | |
| 2005 12 04 | 691 | 0.1− | 0.1+ | 2008 09 21 | G96 | 0.4− | 0.7+ | 2009 11 14 | J75 | 0.5− | 0.4+ | |
| 2005 12 04 | 691 | 0.5− | 0.3+ | 2008 09 21 | G96 | 0.1− | 0.6+ | 2009 11 14 | J75 | 0.3+ | 0.1− | |
| 2005 12 04 | 691 | 0.3− | 0.2+ | 2008 09 21 | G96 | 0.3+ | 0.0 | 2009 11 17 | 704 | 1.0+ | 0.6+ | |
| 2006 02 02 | 691 | 0.0 | 0.1+ | 2008 09 21 | G96 | 0.6+ | 0.3+ | 2009 11 17 | 704 | 0.4+ | 0.9+ | |
| 2006 02 02 | 691 | 0.2− | 0.3− | 2009 07 31 | 691 | 0.2− | 0.5+ | 2009 11 17 | 704 | 0.2+ | 0.6− | |
| 2006 02 02 | 691 | 0.4+ | 0.7+ | 2009 07 31 | 691 | 0.1+ | 0.5+ | 2009 11 17 | 704 | 1.1+ | 0.7− | |
| 2006 02 06 | 691 | 0.2+ | 0.5+ | 2009 07 31 | 691 | 0.2− | 0.1+ | 2009 11 21 | 691 | 0.2+ | 0.2− | |
| 2006 02 06 | 691 | 0.3+ | 0.2− | 2009 10 24 | 691 | 0.5− | 0.2+ | 2009 11 21 | 691 | 0.2+ | 0.1+ | |
| 2006 02 06 | 691 | 0.4+ | 0.9+ | 2009 10 24 | 691 | 0.3− | 0.3+ | 2009 11 21 | 691 | 0.7− | 0.6− | |
| 2006 03 02 | G96 | 1.2+ | 1.2− | 2009 10 24 | 691 | 0.3− | 0.0 | 2009 11 23 | 691 | 0.3+ | 0.2+ | |
| 2006 03 02 | G96 | 0.5− | 0.1− | 2009 10 26 | 300 | 0.6− | 0.3+ | 2009 11 23 | 691 | 0.2+ | 0.3+ | |
| 2006 03 02 | G96 | 0.2− | 0.3− | 2009 10 26 | 300 | 0.4+ | 0.1+ | 2009 11 23 | 691 | 0.3− | 0.3+ | |
| 2006 03 02 | G96 | 0.3− | 0.3− | 2009 10 26 | 300 | (1.9− | 0.3+) | 2009 11 24 | G96 | 0.1+ | 0.1− | |
| 2007 06 15 | 691 | 0.0 | 0.2− | 2009 10 28 | 300 | 0.6+ | 0.2− | 2009 11 24 | G96 | 0.1+ | 0.2− | |
| 2007 06 15 | 691 | 0.2− | 0.2+ | 2009 10 28 | 300 | 0.7+ | 0.2− | 2009 11 24 | G96 | 0.3+ | 0.2− | |
| 2007 06 15 | 691 | 0.2− | 0.5− | 2009 10 28 | 300 | 0.2− | 0.3+ | 2009 11 24 | G96 | 0.3+ | 0.2− | |
| 2007 06 20 | 691 | 0.5− | 0.1+ | 2009 11 08 | 691 | 0.2− | 0.1+ | 2009 12 10 | G96 | 0.0 | 0.2+ | |
| 2007 06 20 | 691 | 0.4+ | 0.3+ | 2009 11 08 | 691 | 0.1− | 0.2+ | 2009 12 10 | G96 | 0.0 | 0.1− | |
| 2007 06 20 | 691 | 0.4+ | 0.0 | 2009 11 08 | 691 | 0.0 | 0.1+ | 2009 12 10 | G96 | 0.4+ | 0.3− | |
| 2008 09 07 | G96 | 0.9− | 0.2+ | 2009 11 11 | J75 | 0.3+ | 0.0 | 2009 12 10 | G96 | 0.7− | 0.4− | |

**(229893)∗ 2009 UJ$_{128}$ = 2004 TD$_{215}$**

Discovered 2009 Oct. 26 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 165950)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 42.95244 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21387800 | $\omega$ | 163.49977 | | +0.95114165 | −0.30639267 | |
| $a$ | 2.7692275 | $\Omega$ | 214.41649 | | +0.27511180 | +0.89706116 | |
| $e$ | 0.1135900 | $i$ | 3.86718 | | +0.14015371 | +0.31844122 | |
| $P$ | 4.61 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 22 | 704 | 0.9+ | 0.2− | 2007 05 07 | 691 | 0.2+ | 0.2+ | 2009 11 16 | J75 | 0.3+ | 0.6− | |
| 2004 09 22 | 704 | 0.2− | 0.6+ | 2009 09 19 | G96 | 0.3+ | 0.1− | 2009 11 18 | 704 | 0.6+ | 0.1+ | |
| 2004 09 22 | 704 | 0.6− | 0.1+ | 2009 09 19 | G96 | 0.6+ | 0.3− | 2009 11 18 | 704 | 0.2− | 1.9+ | |
| 2004 09 22 | 704 | 0.3+ | 0.4+ | 2009 09 19 | G96 | 0.4+ | 0.2− | 2009 11 18 | 704 | 1.1− | 0.5− | |
| 2004 09 22 | 704 | 0.1+ | 0.1− | 2009 09 19 | G96 | 0.5+ | 0.1− | 2009 11 18 | 704 | 0.5+ | 0.1− | |
| 2004 10 10 | 691 | 0.1+ | 0.0 | 2009 10 26 | 291 | 0.2− | 0.0 | 2009 11 18 | 704 | 1.6+ | 1.1+ | |
| 2004 10 10 | 691 | 0.1− | 0.1− | 2009 10 26 | 291 | 0.3− | 0.0 | 2009 11 20 | 704 | 1.0− | 0.9+ | |
| 2004 10 10 | 691 | 0.1+ | 0.1+ | 2009 10 26 | 291 | 0.0 | 0.1− | 2009 11 20 | 704 | 0.3+ | 0.6+ | |
| 2004 10 11 | 691 | 0.0 | 0.1+ | 2009 10 29 | 291 | 0.2− | 0.1− | 2009 11 20 | 704 | 0.3− | 0.7− | |
| 2004 10 11 | 691 | 0.0 | 0.1− | 2009 10 29 | 291 | 0.2− | 0.2+ | 2009 11 20 | 704 | 0.6+ | 0.1− | |
| 2004 10 11 | 691 | 0.1− | 0.1+ | 2009 10 29 | 291 | 0.3− | 0.1− | 2009 11 20 | 704 | 0.6− | 0.5+ | |
| 2004 10 15 | 691 | 0.1− | 0.1+ | 2009 10 29 | 291 | 0.0 | 0.3− | 2009 11 20 | G96 | 0.8+ | 0.2− | |
| 2004 10 15 | 691 | 0.1− | 0.1+ | 2009 10 29 | 291 | 0.1+ | 0.1− | 2009 11 20 | G96 | 0.0 | 0.1− | |
| 2004 10 15 | 691 | 0.1− | 0.1+ | 2009 10 29 | 291 | 0.1− | 0.2− | 2009 11 20 | G96 | 0.3+ | 0.2− | |
| 2006 01 10 | 691 | 0.0 | 0.1+ | 2009 11 08 | 703 | 0.8− | 0.5+ | 2009 11 20 | G96 | 0.5+ | 0.1− | |
| 2006 01 10 | 691 | 0.4+ | 0.3+ | 2009 11 08 | 703 | 1.5+ | 0.7+ | 2009 11 26 | 691 | 0.0 | 0.2+ | |
| 2006 01 10 | 691 | 0.3− | 0.0 | 2009 11 08 | 703 | 1.3+ | 1.2− | 2009 11 26 | 691 | 0.1− | 0.0 | |
| 2006 02 03 | G96 | 0.6− | 0.2− | 2009 11 08 | 703 | 0.6+ | 0.4− | 2009 11 26 | 691 | 0.2− | 0.1− | |
| 2006 02 03 | G96 | 0.6+ | 0.3− | 2009 11 11 | J75 | 0.2− | 0.1− | 2009 12 11 | 703 | 0.6+ | 0.7+ | |
| 2006 02 03 | G96 | 0.1+ | 0.1− | 2009 11 11 | J75 | 0.3− | 0.4+ | 2009 12 11 | 703 | 0.7− | 0.1− | |
| 2006 02 03 | G96 | 0.3− | 0.0 | 2009 11 11 | J75 | 0.3+ | 0.3− | 2009 12 11 | 703 | 0.2− | 0.9+ | |
| 2007 05 07 | 691 | 0.2+ | 0.1− | 2009 11 16 | J75 | 0.2+ | 0.1− | 2009 12 11 | 703 | 0.2+ | 0.3− | |
| 2007 05 07 | 691 | 0.2− | 0.4+ | 2009 11 16 | J75 | 0.3− | 0.4− | | | | | |

**(229894)∗ 2009 UC$_{130}$**

Discovered 2009 Oct. 29 at OAM Observatory, La Sagra.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 357.36009 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23913215 | $\omega$ | 22.75492 | | +0.18542093 | −0.88832805 | |
| $a$ | 2.5706566 | $\Omega$ | 59.03023 | | +0.80926380 | −0.10446966 | |
| $e$ | 0.1318105 | $i$ | 29.33789 | | +0.55741472 | +0.44716817 | |
| $P$ | 4.12 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 05 20 | 691 | 0.3− | 0.2+ | 2009 10 29 | J75 | 0.2− | 0.1− | 2009 11 23 | 691 | 0.4− | 0.0 | |
| 1999 05 20 | 691 | 0.2− | 0.2+ | 2009 10 30 | G96 | 0.0 | 0.2− | 2009 11 25 | 703 | 0.3+ | 0.2+ | |
| 1999 05 20 | 691 | 0.1+ | 0.3+ | 2009 10 30 | G96 | 0.4+ | 0.0 | 2009 11 25 | 703 | 0.1− | 0.1− | |
| 2003 04 25 | 691 | 0.5+ | 0.1+ | 2009 10 30 | G96 | 0.1+ | 0.1− | 2009 11 25 | 703 | 0.4− | 0.1− | |
| 2003 04 25 | 691 | 0.4+ | 0.1+ | 2009 10 30 | G96 | 0.4+ | 0.2− | 2009 11 25 | 703 | 0.1− | 0.0 | |
| 2003 04 25 | 691 | 1.0+ | 0.1+ | 2009 11 09 | 691 | 0.3− | 0.0 | 2009 11 25 | 703 | 0.5− | 0.0 | |
| 2003 05 27 | 691 | 0.6+ | 0.2+ | 2009 11 09 | 691 | 0.4− | 0.7+ | 2009 11 27 | 691 | 0.1− | 0.0 | |
| 2003 05 27 | 691 | 0.1+ | 0.4− | 2009 11 09 | 691 | 0.3− | 0.0 | 2009 11 27 | 691 | 0.2− | 0.0 | |
| 2003 05 27 | 691 | 0.1− | 0.3+ | 2009 11 12 | J75 | 0.6+ | 0.8− | 2009 11 27 | 691 | 0.2− | 0.0 | |
| 2007 04 23 | G96 | 0.9− | 0.1− | 2009 11 12 | J75 | 0.8+ | 0.2− | 2009 12 06 | J75 | 0.3+ | 0.0 | |
| 2007 04 23 | 703 | (2.5− | 0.7+) | 2009 11 12 | J75 | 0.0 | 0.6− | 2009 12 06 | J75 | 0.4− | 0.5− | |
| 2007 04 23 | G96 | 0.8− | 0.1+ | 2009 11 17 | 704 | 0.7− | 0.3+ | 2009 12 06 | J75 | 0.1− | 0.1+ | |
| 2007 04 23 | 703 | 0.7− | 0.3− | 2009 11 17 | 704 | 0.1+ | 0.4− | 2009 12 10 | 704 | 0.3+ | 0.7+ | |
| 2007 04 23 | G96 | 0.3− | 0.1− | 2009 11 17 | 704 | 0.0 | 0.6+ | 2009 12 10 | 704 | 0.0 | 0.2− | |
| 2007 04 23 | 703 | 0.9− | 1.2− | 2009 11 17 | 704 | 1.2+ | 0.0 | 2009 12 10 | 704 | 1.3− | 0.8+ | |
| 2007 04 23 | G96 | 0.9− | 0.1− | 2009 11 17 | 704 | 0.5+ | 0.5+ | 2009 12 10 | 704 | 0.3+ | 0.7+ | |
| 2007 04 23 | 703 | 0.7− | 0.8+ | 2009 11 20 | J75 | 0.4− | 0.3− | 2009 12 10 | 704 | 0.3+ | 0.5+ | |
| 2007 05 10 | 703 | 0.5− | 1.3− | 2009 11 20 | J75 | 0.4+ | 0.0 | 2009 12 15 | 704 | 0.9+ | 0.6+ | |
| 2007 05 10 | 703 | 0.2− | 0.1+ | 2009 11 21 | J75 | 0.2+ | 0.6− | 2009 12 15 | 704 | 0.2+ | 0.6+ | |
| 2007 05 10 | 703 | (1.6− | 0.6−) | 2009 11 22 | 704 | 0.0 | 0.1− | 2009 12 15 | 704 | 0.3+ | 0.1− | |
| 2007 05 10 | 703 | 0.1− | 0.1+ | 2009 11 22 | 704 | 1.0+ | 0.0 | 2009 12 15 | 704 | 0.5+ | 0.6+ | |
| 2009 10 12 | G96 | 0.1+ | 0.0 | 2009 11 22 | 704 | 0.1− | 0.4− | 2009 12 15 | 704 | 0.6+ | 0.4+ | |
| 2009 10 12 | G96 | 0.1− | 0.0 | 2009 11 22 | 704 | 0.1+ | 0.3− | 2009 12 18 | 703 | 0.1− | 0.5− | |
| 2009 10 12 | G96 | 0.0 | 0.1+ | 2009 11 22 | 704 | 0.3+ | 0.1− | 2009 12 18 | 703 | 1.0+ | 0.6− | |
| 2009 10 29 | J75 | 0.4+ | 0.7+ | 2009 11 23 | 691 | 0.2− | 0.0 | 2009 12 18 | 703 | 0.2− | 0.4− | |
| 2009 10 29 | J75 | 0.0 | 0.5− | 2009 11 23 | 691 | 0.2− | 0.0 | 2009 12 18 | 703 | 0.4+ | 0.2+ | |

**(229895)∗ 2009 VK$_{1}$**

Discovered 2009 Nov. 9 at RAS Observatory, Mayhill.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 57.19054 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.24311625 | $\omega$ | 244.13813 | | +0.97886332 | | −0.17010520 |
| $a$ | 2.5424947 | $\Omega$ | 125.45420 | | +0.19810198 | | +0.92657255 |
| $e$ | 0.1091290 | $i$ | 8.01209 | | −0.05081549 | | +0.33545123 |
| $P$ | 4.05 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 04 01 | 645 | 0.0 | 0.1− | 2006 02 04 | G96 | 0.1+ | 0.0 | 2009 11 10 | H06 | 0.4+ | 0.7− |
| 2003 04 01 | 645 | 0.0 | 0.1− | 2006 02 04 | G96 | 0.3+ | 0.1+ | 2009 11 10 | H06 | 0.4+ | 0.3− |
| 2005 11 25 | 703 | (0.5+ | 1.6+) | 2006 02 04 | G96 | 0.4+ | 0.2− | 2009 11 11 | H06 | 0.1+ | 0.5− |
| 2005 11 25 | 703 | 1.0− | 0.5+ | 2007 03 11 | 691 | 0.0 | 0.4− | 2009 11 11 | H06 | 0.2− | 0.1+ |
| 2005 11 25 | 703 | (1.7− | 0.9+) | 2007 03 11 | 691 | 0.3+ | 0.1+ | 2009 11 11 | H06 | 0.1− | 0.2− |
| 2005 11 25 | 703 | 0.0 | 0.5+ | 2007 03 11 | 691 | 0.4+ | 0.1+ | 2009 11 19 | J75 | 0.6− | 0.2− |
| 2005 12 07 | 703 | 0.8+ | 0.0 | 2007 04 15 | 691 | 0.1+ | 0.3− | 2009 11 19 | J75 | 0.1− | 0.1− |
| 2005 12 07 | 703 | 1.3+ | 0.9+ | 2007 04 15 | 691 | 0.2+ | 0.1− | 2009 11 19 | J75 | 0.0 | 0.4− |
| 2005 12 07 | 703 | 0.1− | 0.2+ | 2007 04 15 | 691 | 0.0 | 0.3+ | 2009 11 20 | J75 | 0.1− | 0.2− |
| 2005 12 07 | 703 | 0.4+ | 0.1− | 2007 04 18 | 691 | 0.8− | 1.1+ | 2009 11 20 | J75 | 0.2+ | 0.3+ |
| 2005 12 07 | 703 | 1.0− | 0.4− | 2007 04 18 | 691 | 0.4− | 0.0 | 2009 11 20 | J75 | 0.3+ | 0.5− |
| 2005 12 07 | 703 | 0.1+ | 0.2− | 2007 04 18 | 691 | 0.0 | 0.2− | 2009 12 11 | 703 | (1.8− | 0.8+) |
| 2005 12 07 | 703 | 0.3− | 1.0− | 2009 10 28 | J75 | 0.1− | 0.0 | 2009 12 11 | 703 | 0.2− | 0.4+ |
| 2005 12 07 | 703 | (0.2+ | 1.6−) | 2009 10 28 | J75 | 0.0 | 0.4− | 2009 12 11 | 703 | 0.3− | 0.5− |
| 2005 12 29 | 703 | 0.7− | 0.4− | 2009 10 28 | J75 | 0.1− | 0.4− | 2009 12 11 | 703 | 0.3+ | 0.9+ |
| 2005 12 29 | 703 | 0.4− | 0.4− | 2009 11 09 | H06 | 0.2− | 0.7− | 2009 12 13 | 704 | 0.8− | 1.3+ |
| 2005 12 29 | 703 | 0.6+ | 1.1− | 2009 11 09 | H06 | 0.6+ | 0.0 | 2009 12 13 | 704 | 0.2+ | 0.7+ |
| 2005 12 29 | 703 | 1.1− | 1.5+ | 2009 11 09 | H06 | 0.3+ | 0.0 | 2009 12 13 | 704 | (0.0 | 1.9+) |
| 2006 02 04 | G96 | 0.1+ | 0.3+ | 2009 11 10 | H06 | 0.3+ | 0.4− | 2009 12 13 | 704 | 0.1+ | 1.3+ |

**(229896)∗ 2009 VE$_3$ = 2001 BF$_{39}$ = 2006 WK$_{150}$**

Discovered 2009 Nov. 10 at RAS Observatory, Mayhill.

Id. T. B. Spahr (*MPO* 165964)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 84.50369 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.31193955 | $\omega$ | 218.57011 | | +0.92587453 | | +0.37368538 |
| $a$ | 2.1532234 | $\Omega$ | 119.40034 | | −0.32882126 | | +0.86969912 |
| $e$ | 0.1185381 | $i$ | 3.67339 | | −0.18609927 | | +0.32246345 |
| $P$ | 3.16 | $H$ | 17.6 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1993 10 21 | 809 | 1.2+ | 0.6+ | 2006 11 24 | 691 | 0.2+ | 0.4− | 2009 11 16 | H06 | 0.4+ | 0.2− |
| 1993 10 21 | 809 | 0.5− | 1.1− | 2006 11 24 | 691 | 0.1+ | 0.4− | 2009 11 16 | H06 | 1.1+ | 0.5+ |
| 1993 10 21 | 809 | 1.0− | 1.3− | 2006 11 28 | 691 | 0.3− | 0.4+ | 2009 11 16 | H06 | 0.6+ | 0.5+ |
| 1998 01 28 | 691 | 0.1+ | 0.3− | 2006 11 28 | 691 | 0.2− | 0.2+ | 2009 11 17 | H06 | 0.2+ | 0.1+ |
| 1998 01 28 | 691 | 0.6+ | 0.4− | 2006 11 28 | 691 | (0.4− | 1.9+) | 2009 11 17 | H06 | 0.8− | 0.2+ |
| 1998 01 28 | 691 | 0.5+ | 0.3− | 2008 04 06 | 691 | 0.0 | 0.5− | 2009 11 17 | H06 | 0.2+ | 0.3+ |
| 2001 01 19 | 691 | 0.2+ | 0.4+ | 2008 04 06 | 691 | 0.2− | 0.1+ | 2009 11 18 | H06 | 1.1+ | 0.5− |
| 2001 01 19 | 691 | 0.9− | 0.2+ | 2008 04 06 | 691 | 0.0 | 0.0 | 2009 11 18 | H06 | 0.5+ | 0.3− |
| 2001 01 19 | 691 | 0.9− | 0.1− | 2008 04 29 | G96 | 0.4− | 0.0 | 2009 11 18 | H06 | 0.9+ | 0.8− |
| 2001 01 25 | 691 | 0.1+ | 0.3− | 2008 04 29 | G96 | 0.2− | 0.0 | 2009 11 19 | H06 | 0.3− | 0.2− |
| 2001 01 25 | 691 | 0.5+ | 0.5+ | 2008 04 29 | G96 | 0.3− | 0.0 | 2009 11 19 | H06 | 0.5+ | 0.1+ |
| 2001 01 25 | 691 | 0.2− | 0.3− | 2008 04 29 | G96 | 0.2− | 0.0 | 2009 11 19 | H06 | 0.3+ | 0.4+ |
| 2003 12 19 | 691 | 0.4+ | 0.0 | 2008 05 05 | 703 | 0.7− | 0.4− | 2009 11 20 | H06 | 0.3− | 0.5− |
| 2003 12 19 | 691 | 0.0 | 0.5+ | 2008 05 05 | 703 | 1.5− | 0.3+ | 2009 11 20 | H06 | 0.3+ | 0.7+ |
| 2003 12 19 | 691 | 0.0 | 0.1+ | 2008 05 05 | 703 | (1.7− | 0.9+) | 2009 11 20 | H06 | 0.2− | 0.1+ |
| 2005 05 15 | G96 | 0.2− | 0.2− | 2008 05 05 | 703 | 0.1+ | 1.2+ | 2009 11 21 | H06 | 0.5− | 0.1− |
| 2005 05 15 | G96 | 0.2− | 0.2+ | 2008 06 03 | G96 | 0.2+ | 0.0 | 2009 11 21 | H06 | 0.2+ | 0.4+ |
| 2005 05 15 | G96 | 0.3− | 0.2− | 2008 06 03 | G96 | 0.1− | 0.1+ | 2009 11 21 | H06 | 0.5− | 0.2− |
| 2005 05 15 | G96 | 0.2+ | 0.5+ | 2008 06 03 | G96 | 0.8+ | 0.5+ | 2009 11 22 | H06 | 0.2− | 0.3+ |
| 2005 06 08 | 691 | 0.0 | 0.1− | 2008 06 03 | G96 | 0.1− | 0.1− | 2009 11 22 | H06 | 0.3− | 0.0 |
| 2005 06 08 | 691 | 1.2+ | 0.0 | 2009 11 10 | H06 | 0.0 | 0.5− | 2009 11 22 | H06 | 0.0 | 0.7− |
| 2005 06 08 | 691 | 0.4+ | 0.1+ | 2009 11 10 | H06 | 0.5− | 0.1− | 2009 11 23 | G96 | 0.2− | 0.0 |
| 2005 06 13 | 691 | 0.2+ | 0.1− | 2009 11 10 | H06 | 0.3+ | 0.0 | 2009 11 23 | G96 | 0.2+ | 0.1− |
| 2005 06 13 | 691 | 0.3+ | 0.2− | 2009 11 11 | H06 | 0.3− | 0.1− | 2009 11 23 | G96 | 0.1− | 0.1+ |
| 2005 06 13 | 691 | 1.4− | 0.9+ | 2009 11 11 | H06 | 0.2− | 0.5+ | 2009 11 23 | G96 | 0.1− | 0.2− |
| 2006 11 20 | 691 | 0.0 | 0.3+ | 2009 11 11 | H06 | 0.9− | 0.1− | 2009 12 11 | 703 | 0.9− | 2.0+ |
| 2006 11 20 | 691 | 0.2+ | 0.2− | 2009 11 14 | H06 | 0.1− | 0.0 | 2009 12 11 | 703 | 0.3+ | 0.5+ |
| 2006 11 20 | 691 | 0.1− | 0.1+ | 2009 11 14 | H06 | 0.7+ | 1.1+ | 2009 12 11 | 703 | 0.4− | 0.3+ |
| 2006 11 24 | 691 | 0.3− | 0.3− | 2009 11 14 | H06 | 0.8+ | 0.4+ | 2009 12 11 | 703 | 0.4− | 0.5+ |

**(229897)∗ 2009 VL$_{22}$ = 2002 NO$_9$**

Discovered 2009 Nov. 9 by the Mt. Lemmon Survey at Mount Lemmon.

Id. G. V. Williams (*MPO* 165971)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 178.92911 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18523122 | $\omega$ | 41.38190 | | −0.34933054 | | +0.93604314 |
| $a$ | 3.0478476 | $\Omega$ | 208.24836 | | −0.88148317 | | −0.34361494 |
| $e$ | 0.1188108 | $i$ | 5.13061 | | −0.31773511 | | −0.07584202 |
| $P$ | 5.32 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 08 12 | 691 | 0.4− | 0.0 | 2003 09 30 | 691 | 0.3+ | 0.3+ | 2008 11 19 | G96 | 0.2+ | 0.1− |
| 1997 08 12 | 691 | 0.5− | 0.0 | 2003 09 30 | 691 | 0.2+ | 0.3+ | 2008 11 19 | G96 | 0.0 | 0.1+ |
| 1997 08 12 | 691 | 0.5− | 0.3+ | 2003 09 30 | 691 | 0.3+ | 0.3+ | 2008 11 19 | G96 | 0.1− | 0.1− |
| 1998 10 17 | 691 | 0.2+ | 0.4− | 2003 10 19 | 691 | 0.0 | 0.3+ | 2008 11 19 | G96 | 0.2− | 0.1+ |
| 1998 10 17 | 691 | 0.1− | 0.4− | 2003 10 19 | 691 | 0.3+ | 0.5+ | 2009 11 09 | G96 | 0.7+ | 0.2+ |
| 1998 10 17 | 691 | (4.9+ | 0.5+) | 2003 10 19 | 691 | 0.0 | 0.3+ | 2009 11 09 | G96 | 0.6+ | 0.2− |
| 2001 03 20 | 608 | 1.0+ | 0.8+ | 2006 02 22 | 703 | 1.6− | 0.7− | 2009 11 09 | G96 | 0.1+ | 0.1− |
| 2001 03 20 | 608 | 1.0+ | 0.3+ | 2006 02 22 | 703 | 0.4− | 0.2+ | 2009 11 09 | G96 | 0.2+ | 0.0 |
| 2001 03 20 | 608 | 1.3+ | 0.5+ | 2006 02 22 | 703 | 0.7− | 1.3+ | 2009 11 10 | 691 | 0.2− | 0.2+ |
| 2001 03 29 | 699 | 0.4+ | 0.8+ | 2006 02 22 | 703 | 1.0− | 0.9+ | 2009 11 10 | 691 | 0.1+ | 0.2+ |
| 2001 03 29 | 699 | (0.6− | 1.8+) | 2006 04 06 | G96 | 0.1− | 0.4+ | 2009 11 10 | 691 | 0.2+ | 0.2+ |
| 2001 03 29 | 699 | 0.0 | 0.0 | 2006 04 06 | G96 | 0.7− | 0.0 | 2009 11 18 | 691 | 0.6− | 0.2+ |
| 2001 03 29 | 699 | 0.9− | 0.1+ | 2006 04 06 | G96 | 0.3+ | 0.4− | 2009 11 18 | 691 | 0.2− | 0.2− |
| 2001 03 29 | 608 | 0.8+ | 0.3+ | 2006 04 06 | G96 | 0.3+ | 0.2− | 2009 11 18 | 691 | 0.1+ | 0.0 |
| 2001 03 29 | 608 | 1.3+ | 0.0 | 2008 09 25 | G96 | 0.2+ | 0.4− | 2009 11 19 | J75 | 1.0+ | 0.3− |
| 2001 03 29 | 608 | 0.7+ | 0.4+ | 2008 09 25 | G96 | 0.0 | 0.1− | 2009 11 19 | J75 | 1.3+ | 0.4− |
| 2002 07 03 | 644 | 0.3− | 0.7+ | 2008 09 25 | G96 | 0.2− | 0.5− | 2009 11 20 | J75 | 0.7+ | 0.6− |
| 2002 07 03 | 644 | 0.3+ | 0.8+ | 2008 09 25 | G96 | 0.2+ | 0.4− | 2009 11 22 | 691 | 0.2− | 0.0 |
| 2002 07 03 | 644 | 0.1− | 0.7+ | 2008 10 08 | G96 | 0.2− | 0.4− | 2009 11 22 | 691 | 0.1− | 0.2+ |
| 2002 07 05 | 704 | 0.3+ | 1.0+ | 2008 10 08 | G96 | 0.1− | 0.1− | 2009 11 22 | 691 | 0.1− | 0.1+ |
| 2002 07 05 | 704 | 0.5+ | 0.1− | 2008 10 08 | G96 | 0.1+ | 0.2+ | 2009 11 26 | 691 | 0.6− | 0.3+ |
| 2002 07 05 | 704 | 0.5− | 0.1− | 2008 10 08 | G96 | 0.4+ | 0.0 | 2009 11 26 | 691 | 0.1− | 0.2+ |
| 2002 07 05 | 704 | 0.6+ | 0.7+ | 2008 10 24 | G96 | 0.1− | 0.3− | 2009 11 26 | 691 | 0.0 | 0.0 |
| 2003 09 05 | 621 | 0.3− | 1.2− | 2008 10 24 | G96 | 0.1+ | 0.7− | 2009 12 19 | 691 | 0.2− | 0.0 |
| 2003 09 05 | 621 | 0.7+ | 0.0 | 2008 10 24 | G96 | 0.2+ | 0.5− | 2009 12 19 | 691 | 0.1+ | 0.0 |
| 2003 09 05 | 621 | 0.6+ | 0.1+ | 2008 10 24 | G96 | 0.3+ | 0.4− | 2009 12 19 | 691 | 0.1− | 0.3+ |

**(229898)∗ 2009 VG$_{23}$**

Discovered 2009 Nov. 9 by the Mt. Lemmon Survey at Mount Lemmon.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 39.29306 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.31722377 | $\omega$ | 274.94763 | | +0.90434750 | | −0.42615489 |
| $a$ | 2.1292447 | $\Omega$ | 110.27775 | | +0.40080042 | | +0.82914215 |
| $e$ | 0.1904127 | $i$ | 1.42952 | | +0.14667864 | | +0.36182220 |
| $P$ | 3.11 | $H$ | 17.7 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 01 28 | 691 | 0.6+ | 0.2− | 2008 05 02 | G96 | 0.0 | 0.0 | 2009 11 20 | A50 | (1.5+ | 0.3+) |
| 1998 01 28 | 691 | (0.8− | 4.2−) | 2008 05 02 | G96 | 0.0 | 0.3+ | 2009 11 21 | 704 | 0.5+ | 0.2− |
| 1998 01 28 | 691 | 0.2+ | 0.5+ | 2008 05 02 | G96 | 0.3+ | 0.1− | 2009 11 21 | 704 | 1.3+ | 1.0+ |
| 2003 12 19 | 691 | 0.0 | 0.2− | 2008 05 31 | G96 | 0.2+ | 0.1− | 2009 11 21 | 704 | 0.3+ | 1.4+ |
| 2003 12 19 | 691 | 0.0 | 0.1+ | 2008 05 31 | G96 | 0.2+ | 0.1+ | 2009 11 22 | 691 | 0.1− | 0.1− |
| 2003 12 19 | 691 | 0.4− | 0.1− | 2008 05 31 | G96 | 0.3− | 0.5− | 2009 11 22 | 691 | 0.2− | 0.1+ |
| 2003 12 20 | H36 | 1.0− | 1.3− | 2009 11 09 | G96 | 0.7+ | 0.2− | 2009 11 22 | 691 | 0.0 | 0.0 |
| 2003 12 20 | H36 | 0.2− | 0.5− | 2009 11 09 | G96 | 0.4+ | 0.4− | 2009 11 26 | 691 | 1.1− | 0.7− |
| 2003 12 20 | H36 | 0.7+ | 0.6− | 2009 11 09 | G96 | 0.3+ | 0.2− | 2009 11 26 | 691 | 0.1+ | 0.1− |
| 2003 12 20 | H36 | 0.6− | 0.0 | 2009 11 09 | G96 | 0.1+ | 0.2− | 2009 11 26 | 691 | 0.0 | 0.0 |
| 2004 01 31 | 691 | 0.2− | 0.0 | 2009 11 10 | 691 | 0.0 | 0.1− | 2009 12 09 | J75 | 0.4− | 0.1+ |
| 2004 01 31 | 691 | 0.0 | 0.2− | 2009 11 10 | 691 | 0.5− | 0.1− | 2009 12 09 | J75 | 0.6+ | 0.3+ |
| 2004 01 31 | 691 | 0.4− | 0.2+ | 2009 11 10 | 691 | 0.0 | 0.1− | 2009 12 09 | J75 | 0.5+ | 0.4− |
| 2005 05 08 | G96 | 0.2+ | 0.1− | 2009 11 16 | J75 | 0.6+ | 0.7− | 2009 12 11 | 704 | 0.3+ | 0.4+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 05 08 | G96 | 0.6− | 0.1− | 2009 11 16 | J75 | 0.1+ | 0.8+ | 2009 12 11 | 704 | 0.2− | 2.2+ | | |
| 2005 05 08 | G96 | 0.0 | 0.1+ | 2009 11 16 | J75 | 0.5+ | 0.2+ | 2009 12 11 | 704 | 1.0− | 0.6+ | | |
| 2005 05 08 | G96 | 0.8− | 0.5+ | 2009 11 18 | 691 | 0.3− | 0.1− | 2009 12 11 | 703 | 0.6− | 0.1+ | | |
| 2006 11 26 | 691 | 0.1+ | 0.2− | 2009 11 18 | 691 | 0.0 | 0.0 | 2009 12 11 | 703 | 0.5+ | 0.4+ | | |
| 2006 11 26 | 691 | 0.2− | 0.0 | 2009 11 18 | 691 | 0.0 | 0.2− | 2009 12 11 | 703 | 0.5− | 0.8+ | | |
| 2006 11 26 | 691 | 0.3+ | 0.1− | 2009 11 18 | 704 | 0.5− | 0.9+ | 2009 12 11 | 703 | 0.6− | 0.5− | | |
| 2006 12 10 | 691 | 0.1− | 0.2+ | 2009 11 18 | 704 | 0.4+ | 0.1+ | 2009 12 16 | G96 | 0.9+ | 0.2− | | |
| 2006 12 10 | 691 | 0.1+ | 0.4+ | 2009 11 18 | 704 | 0.1+ | 0.4+ | 2009 12 16 | G96 | 1.2+ | 0.1− | | |
| 2006 12 10 | 691 | 0.2+ | 0.1+ | 2009 11 18 | 704 | 0.6+ | 0.5+ | 2009 12 16 | G96 | 0.6+ | 0.2− | | |
| 2007 01 08 | G96 | 0.3− | 0.6− | 2009 11 18 | 704 | 0.2− | 0.1− | 2009 12 16 | G96 | 0.9+ | 0.4− | | |
| 2007 01 08 | G96 | 0.1− | 0.4− | 2009 11 20 | A50 | 1.1+ | 0.1− | | | | | | |
| 2008 05 02 | G96 | 0.3+ | 0.0 | 2009 11 20 | A50 | 1.0+ | 0.5+ | | | | | | |

**(229899)∗ 2009 VW$_{25}$ = 2008 OP$_{18}$**

Discovered 2009 Nov. 11 by F. Tozzi at Tzec Maun Observatory, Mayhill.

Id. T. B. Spahr (*MPO* 165973)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 96.18737 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18673344 | $\omega$ | 242.44790 | | +0.71658614 | +0.66327265 | |
| $a$ | 3.0314797 | $\Omega$ | 75.13213 | | −0.53488204 | +0.72113614 | |
| $e$ | 0.0394240 | $i$ | 12.90205 | | −0.44766674 | +0.20008012 | |
| $P$ | 5.28 | $H$ | 15.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 08 28 | 644 | 0.2− | 0.1− | 2007 05 24 | 703 | 0.1+ | 0.8− | 2009 11 09 | 703 | 0.2+ | 0.6+ | | |
| 2003 08 28 | 644 | 0.3− | 0.0 | 2007 05 24 | 703 | 1.2+ | 1.0+ | 2009 11 09 | 703 | 0.6− | 0.3+ | | |
| 2003 08 28 | 644 | 0.1− | 0.4− | 2007 05 24 | 703 | 0.8− | 0.4+ | 2009 11 09 | 703 | 0.6− | 1.0− | | |
| 2003 09 26 | 644 | 0.0 | 0.0 | 2007 05 24 | 703 | 1.1− | 0.9+ | 2009 11 09 | 703 | 0.4− | 0.2− | | |
| 2003 09 26 | 644 | 0.2+ | 0.3− | 2008 07 30 | E12 | 0.5+ | 0.7+ | 2009 11 11 | H10 | 0.2+ | 0.1− | | |
| 2003 09 26 | 644 | 0.0 | 0.0 | 2008 07 30 | E12 | 0.4+ | 0.0 | 2009 11 11 | H10 | (0.9+ | 1.6+) | | |
| 2004 12 20 | G96 | 0.1+ | 0.2+ | 2008 07 30 | E12 | 0.3+ | 0.1+ | 2009 11 11 | H10 | 0.2+ | 0.6+ | | |
| 2004 12 20 | G96 | 0.0 | 0.4+ | 2008 07 30 | E12 | 0.7+ | 0.3− | 2009 11 11 | H10 | 0.1+ | 0.3+ | | |
| 2004 12 20 | G96 | 0.2− | 0.2+ | 2008 08 04 | E12 | 0.5+ | 0.2+ | 2009 11 12 | H10 | 0.2+ | 0.3+ | | |
| 2004 12 20 | G96 | 0.1− | 0.2+ | 2008 08 04 | E12 | 0.5+ | 0.3+ | 2009 11 12 | H10 | 0.5+ | 0.1− | | |
| 2006 02 27 | 703 | 0.2+ | 0.0 | 2008 08 28 | E12 | 0.1− | 0.3+ | 2009 11 12 | J75 | 0.4+ | 0.2+ | | |
| 2006 02 27 | 703 | 1.4− | 0.1+ | 2008 08 28 | E12 | 0.3− | 0.4+ | 2009 11 12 | J75 | 0.4+ | 0.3+ | | |
| 2006 02 27 | 703 | 0.2− | 1.2− | 2008 08 28 | E12 | 0.5− | 0.3+ | 2009 11 12 | J75 | 0.4− | 0.1+ | | |
| 2006 02 27 | 703 | (0.5− | 3.6−) | 2008 08 28 | E12 | 0.1− | 0.7− | 2009 11 14 | 704 | 0.2+ | 0.1+ | | |
| 2006 03 24 | 703 | 1.7+ | 0.6+ | 2009 10 14 | J75 | 0.2+ | 0.5− | 2009 11 14 | 704 | 0.6− | 0.3+ | | |
| 2006 03 24 | 703 | 0.1− | 0.3+ | 2009 10 14 | J75 | 0.2− | 1.3− | 2009 11 14 | 704 | 0.9− | 0.3+ | | |
| 2006 03 24 | 703 | 0.5+ | 1.5+ | 2009 10 14 | J75 | 0.4− | 1.0+ | 2009 11 14 | 704 | 0.6+ | 0.4+ | | |
| 2006 03 24 | 703 | 1.2+ | 2.1+ | 2009 10 24 | 703 | (1.9− | 0.5+) | 2009 11 19 | 704 | (1.8+ | 0.7−) | | |
| 2007 04 28 | 691 | 0.1− | 0.0 | 2009 10 24 | 703 | 1.1− | 0.1− | 2009 11 19 | 704 | 1.0+ | 0.0 | | |
| 2007 04 28 | 691 | 0.2− | 0.2+ | 2009 10 24 | 703 | 0.3− | 0.5− | 2009 11 19 | 704 | 0.1+ | 1.5− | | |
| 2007 04 28 | 691 | 0.1+ | 0.1− | 2009 10 24 | 703 | 0.1− | 0.6− | 2009 11 19 | 704 | 0.4− | 1.1+ | | |

**(229900)∗ 2009 VO$_{42}$ = 1996 OX$_{2}$**

Discovered 2009 Nov. 14 by N. Falla at RAS Observatory, Mayhill.

Id. G. V. Williams (*MPO* 165986)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 58.42285 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23808411 | $\omega$ | 230.15821 | | +0.99537553 | −0.03210964 | |
| $a$ | 2.5781951 | $\Omega$ | 131.48022 | | +0.05972146 | +0.94505012 | |
| $e$ | 0.1552147 | $i$ | 6.94083 | | −0.07523899 | +0.32534482 | |
| $P$ | 4.14 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 01 12 | 691 | 0.1+ | 0.1− | 2003 04 09 | 691 | 0.1− | 1.1+ | 2009 11 16 | H06 | 0.4− | 0.3+ | | |
| 1994 01 12 | 691 | 0.1+ | 0.6− | 2003 04 09 | 691 | 0.7+ | 1.3+ | 2009 11 23 | 703 | 0.1+ | 0.5+ | | |
| 1994 01 12 | 691 | 0.3− | 0.0 | 2006 02 01 | G96 | 0.1+ | 0.1+ | 2009 11 23 | 703 | 0.1+ | 0.7+ | | |
| 1996 07 22 | 608 | 0.3+ | 0.1+ | 2006 02 01 | G96 | 0.3+ | 0.3+ | 2009 11 23 | 703 | 1.4− | 0.3+ | | |
| 1996 07 22 | 608 | 0.1− | 0.1− | 2006 02 01 | G96 | 0.4+ | 0.2+ | 2009 11 23 | 703 | 0.6− | 0.1− | | |
| 1996 07 25 | 608 | 0.8+ | 0.1+ | 2006 02 01 | G96 | 0.0 | 0.0 | 2009 11 23 | 703 | 0.4− | 0.0 | | |
| 1996 07 25 | 608 | (1.9− | 2.3−) | 2007 02 26 | G96 | 0.0 | 0.1+ | 2009 11 24 | H06 | 0.0 | 0.0 | | |
| 1996 07 26 | 608 | 0.9− | 1.0− | 2007 02 26 | G96 | 0.0 | 0.1− | 2009 11 24 | H06 | 0.1− | 0.3+ | | |
| 1996 07 26 | 608 | 0.0 | 0.3− | 2007 02 26 | G96 | 0.5− | 0.1+ | 2009 11 25 | G96 | 0.1+ | 0.1+ | | |
| 1999 03 22 | 645 | 0.0 | 0.0 | 2007 02 26 | G96 | 0.7+ | 0.1+ | 2009 11 25 | G96 | 0.2+ | 0.0 | | |
| 1999 03 22 | 645 | 0.0 | 0.0 | 2009 10 28 | J75 | 0.1+ | 0.2− | 2009 11 25 | G96 | 0.2+ | 0.1+ | | |
| 2000 07 06 | 691 | 0.1+ | 0.1+ | 2009 10 28 | J75 | 0.0 | 0.3− | 2009 11 25 | G96 | 0.2+ | 0.1+ | | |
| 2000 07 06 | 691 | 0.1− | 0.0 | 2009 10 28 | J75 | 0.1+ | 0.2+ | 2009 12 10 | 703 | 0.8+ | 0.1− | | |
| 2000 07 06 | 691 | 0.1+ | 0.2+ | 2009 11 14 | H06 | 0.1+ | 0.2− | 2009 12 10 | 703 | 0.6− | 0.2+ | | |
| 2000 08 01 | 691 | 0.6− | 0.5+ | 2009 11 14 | H06 | 0.1− | 0.1+ | 2009 12 10 | 703 | 0.8− | 1.8+ | | |
| 2000 08 01 | 691 | 0.2+ | 0.9+ | 2009 11 14 | H06 | 0.5+ | 1.3+ | 2009 12 10 | 703 | 0.7+ | 0.1− | | |
| 2000 08 01 | 691 | 0.0 | 0.8+ | 2009 11 15 | H06 | 0.1+ | 0.3+ | 2009 12 13 | 704 | 0.1+ | 1.2+ | | |
| 2003 03 26 | 691 | 0.2+ | 0.0 | 2009 11 15 | H06 | 0.3− | 0.2+ | 2009 12 13 | 704 | 0.4+ | 0.5+ | | |
| 2003 03 26 | 691 | 0.0 | 0.4− | 2009 11 15 | H06 | 0.6− | 0.4+ | 2009 12 13 | 704 | 0.4− | 0.9+ | | |
| 2003 03 26 | 691 | 0.1+ | 0.0 | 2009 11 16 | H06 | 0.1+ | 0.9+ | 2009 12 13 | 704 | 1.4− | 1.9+ | | |
| 2003 04 09 | 691 | 0.4+ | 1.3+ | 2009 11 16 | H06 | 0.4− | 0.5+ | | | | | | |

**(229901)∗ 2009 VD$_{61}$ = 2003 UV$_{399}$**

Discovered 2009 Nov. 8 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 165996)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 21.80006 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.16886434 | $\omega$ | 138.40082 | | +0.75246257 | −0.65671609 | |
| $a$ | 3.2417344 | $\Omega$ | 262.72145 | | +0.59012205 | +0.70610068 | |
| $e$ | 0.1086433 | $i$ | 2.90317 | | +0.29249965 | +0.26485055 | |
| $P$ | 5.84 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 22 | 691 | 0.0 | 0.4+ | 2005 03 11 | G96 | 0.1+ | 0.3− | 2009 11 08 | 691 | 0.0 | 0.1+ | | |
| 2003 10 22 | 691 | 0.1− | 0.2+ | 2005 03 11 | G96 | 0.3− | 0.3− | 2009 11 08 | 691 | 0.2− | 0.0 | | |
| 2003 10 22 | 691 | 0.1+ | 0.3+ | 2005 03 11 | G96 | 0.7− | 0.8− | 2009 11 08 | 691 | 0.3+ | 0.1− | | |
| 2003 10 29 | 704 | (1.2− | 1.7+) | 2006 05 01 | 691 | 0.3+ | 0.7+ | 2009 11 16 | 691 | 0.1− | 0.0 | | |
| 2003 10 29 | 704 | 0.6− | 0.3+ | 2006 05 01 | 691 | 0.1+ | 0.3+ | 2009 11 16 | 691 | 0.1+ | 0.1− | | |
| 2003 10 29 | 704 | 0.0 | 0.1+ | 2006 05 01 | 691 | 0.0 | 0.6+ | 2009 11 16 | 691 | 0.1+ | 0.2+ | | |
| 2003 10 29 | 704 | 1.2− | 0.9+ | 2008 09 07 | G96 | 0.3− | 0.5+ | 2009 11 24 | 691 | 0.2+ | 0.1− | | |
| 2003 11 18 | 644 | 0.3+ | 0.1+ | 2008 09 07 | G96 | 0.2− | 0.2+ | 2009 11 24 | 691 | 0.0 | 0.0 | | |
| 2003 11 18 | 644 | 0.2− | 0.4− | 2008 09 07 | G96 | 0.2− | 0.2+ | 2009 11 24 | 691 | 0.1− | 0.2+ | | |
| 2003 11 18 | 644 | 0.3+ | 0.1− | 2008 09 07 | G96 | 0.2− | 0.3+ | 2009 12 11 | G96 | 0.0 | 0.1− | | |
| 2005 02 04 | 691 | 0.7+ | 0.2+ | 2008 09 24 | G96 | 0.1− | 0.3+ | 2009 12 11 | G96 | 0.2− | 0.0 | | |
| 2005 02 04 | 691 | 0.1− | 0.2+ | 2008 09 24 | G96 | 0.2+ | 0.5+ | 2009 12 11 | G96 | 0.2− | 0.0 | | |
| 2005 02 04 | 691 | 0.0 | 0.0 | 2008 09 24 | G96 | 0.2− | 0.1+ | 2009 12 11 | G96 | 0.2+ | 0.1+ | | |
| 2005 03 11 | 691 | 0.3− | 0.1+ | 2008 09 24 | G96 | 0.7+ | 0.5+ | 2009 12 17 | G96 | 0.2+ | 0.0 | | |
| 2005 03 11 | 691 | 0.1+ | 0.0 | 2009 10 23 | 691 | 0.3− | 0.0 | 2009 12 17 | G96 | 0.3+ | 0.2− | | |
| 2005 03 11 | 691 | 0.1+ | 0.1− | 2009 10 23 | 691 | 0.2− | 0.2− | 2009 12 17 | G96 | 0.7+ | 0.1− | | |
| 2005 03 11 | G96 | 0.5− | 0.6− | 2009 10 23 | 691 | 0.3− | 0.1+ | 2009 12 17 | G96 | 0.4+ | 0.2− | | |

**(229902)∗ 2009 VA$_{81}$**

Discovered 2009 Nov. 15 by the Catalina Sky Survey.

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 356.51264 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.08320186 | $\omega$ | 323.88740 | | +0.49504350 | −0.85665406 | |
| $a$ | 5.1965371 | $\Omega$ | 96.02507 | | +0.82747682 | +0.41387687 | |
| $e$ | 0.0202382 | $i$ | 8.39411 | | +0.26497933 | +0.30797689 | |
| $P$ | 11.85 | $H$ | 12.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 03 11 | 644 | 0.3+ | 0.4+ | 2007 09 10 | 703 | 0.8+ | 0.0 | 2009 10 24 | 703 | 0.9− | 0.8− | | |
| 2002 03 11 | 644 | 0.6+ | 0.7+ | 2007 09 18 | 699 | 0.1+ | 0.9− | 2009 10 24 | 703 | 1.0+ | 0.6+ | | |
| 2002 03 11 | 644 | 0.8+ | 0.3+ | 2007 09 18 | 699 | 0.6+ | 2.5+ | 2009 10 24 | 703 | 0.1− | 1.2+ | | |
| 2002 03 19 | 699 | 0.0 | 0.6+ | 2007 09 18 | 699 | (2.4− | 3.6+) | 2009 10 24 | 703 | 0.1− | 0.0 | | |
| 2002 03 19 | 699 | 0.4− | 0.8+ | 2007 09 18 | 699 | 0.7− | 0.5+ | 2009 11 15 | 703 | 0.1− | 0.7− | | |
| 2002 03 19 | 699 | (1.9+ | 0.7+) | 2008 09 29 | 703 | 1.2+ | 1.3+ | 2009 11 15 | 703 | (2.1− | 0.5+) | | |
| 2002 03 19 | 699 | 0.8+ | 1.7+ | 2008 09 29 | 703 | 0.3+ | 0.2+ | 2009 11 15 | 703 | (1.8− | 0.4−) | | |
| 2003 03 24 | 691 | 0.2+ | 1.0+ | 2008 09 29 | 703 | 0.8+ | 1.1+ | 2009 11 15 | 703 | (2.1− | 0.2+) | | |
| 2003 03 24 | 691 | 0.7+ | 1.3+ | 2008 09 29 | 703 | 1.1− | 1.1+ | 2009 11 16 | G96 | 0.7− | 0.6+ | | |
| 2003 03 24 | 691 | 0.4+ | 0.6+ | 2008 10 08 | 703 | 0.6− | 0.5+ | 2009 11 16 | G96 | 0.6− | 0.5+ | | |
| 2007 08 16 | D29 | 0.1+ | 1.2− | 2008 10 08 | 703 | 0.5− | 0.0 | 2009 11 16 | G96 | 0.4− | 0.7+ | | |
| 2007 08 16 | D29 | 0.7+ | 0.2− | 2008 10 08 | 703 | 0.2+ | 1.2− | 2009 11 16 | G96 | 0.3− | 0.6+ | | |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 08 16 | D29 | 0.3+ | 0.4− | 2008 10 08 | 703 | 0.3− | 0.3+ | 2009 11 21 | 703 | (0.5− | 2.2+) | | | |
| 2007 08 16 | D29 | 0.2− | 1.1+ | 2008 10 21 | G96 | 0.1− | 0.1+ | 2009 11 21 | 703 | 1.2+ | 0.7+ | | | |
| 2007 09 04 | 703 | 0.8− | 0.1− | 2008 10 21 | G96 | 0.3− | 0.1+ | 2009 11 21 | 703 | 0.9+ | 1.3+ | | | |
| 2007 09 04 | 703 | 1.1− | 0.0 | 2008 10 21 | G96 | 0.1+ | 0.3+ | 2009 11 21 | 703 | (1.6+ | 1.1+) | | | |
| 2007 09 04 | 703 | 1.1− | 0.6+ | 2008 10 21 | G96 | 0.3+ | 0.2+ | 2009 11 26 | G96 | 0.4− | 0.6+ | | | |
| 2007 09 04 | 703 | 0.8− | 0.6+ | 2009 10 14 | G96 | 0.3− | 0.3+ | 2009 11 26 | G96 | 0.7− | 0.5+ | | | |
| 2007 09 10 | 703 | 0.9+ | 1.0− | 2009 10 14 | G96 | 0.3− | 0.3+ | 2009 11 26 | G96 | 0.5− | 0.5+ | | | |
| 2007 09 10 | 703 | 0.1− | 0.3+ | 2009 10 14 | G96 | 0.3− | 0.1+ | 2009 11 26 | G96 | 0.4− | 0.4+ | | | |
| 2007 09 10 | 703 | 0.4+ | 0.3+ | 2009 10 14 | G96 | 0.2− | 0.3+ | 2009 11 26 | G96 | 0.3− | 0.5+ | | | |

**(229903)∗ 2009 WH$_{14}$ = 1995 ET$_{7}$ = 2008 SX$_{69}$**

Discovered 2009 Nov. 16 by the Mt. Lemmon Survey at Mount Lemmon.

Id. G. V. Williams (*MPO* 166009)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 1.24718 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18379278 | $\omega$ | 288.52828 | | +0.21189159 | −0.97689101 | |
| $a$ | 3.0637295 | $\Omega$ | 149.19581 | | +0.91603015 | +0.18853063 | |
| $e$ | 0.0478118 | $i$ | 3.13810 | | +0.34057410 | +0.10069834 | |
| $P$ | 5.36 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 03 02 | 691 | 0.2− | 0.5+ | 2005 03 13 | G96 | 0.1+ | 0.2− | 2008 09 23 | G96 | 0.2+ | 0.3− |
| 1995 03 02 | 691 | 0.1− | 0.9+ | 2005 03 13 | G96 | 0.4− | 0.1− | 2008 09 23 | G96 | 0.4+ | 0.2− |
| 1995 03 02 | 691 | 0.0 | 0.7− | 2005 03 13 | G96 | 0.2− | 0.2− | 2008 09 23 | G96 | 0.1+ | 0.3− |
| 1995 03 08 | 691 | 0.0 | 0.3+ | 2006 03 02 | G96 | 0.3− | 0.1+ | 2009 09 30 | G96 | 0.2+ | 0.1− |
| 1995 03 08 | 691 | 0.1− | 0.4+ | 2006 03 02 | G96 | 0.4+ | 0.2+ | 2009 09 30 | G96 | 0.0 | 0.2− |
| 1995 03 08 | 691 | 0.2+ | 0.4+ | 2006 03 02 | G96 | 0.5+ | 0.0 | 2009 09 30 | G96 | 0.4+ | 0.4+ |
| 2000 02 05 | 691 | 0.0 | 0.5− | 2006 03 02 | G96 | 0.0 | 0.2+ | 2009 09 30 | G96 | 0.1+ | 0.2− |
| 2000 02 05 | 691 | 0.1+ | 0.4− | 2008 07 30 | 691 | 0.0 | 0.2+ | 2009 11 16 | G96 | 0.1+ | 0.3+ |
| 2000 02 05 | 691 | 0.2+ | 0.7− | 2008 07 30 | 691 | 0.0 | 0.1− | 2009 11 16 | G96 | 0.2+ | 0.1− |
| 2000 02 27 | 691 | 0.1+ | 0.2− | 2008 07 30 | 691 | 0.1− | 0.2+ | 2009 11 16 | G96 | 0.2+ | 0.2− |
| 2000 02 27 | 691 | 0.0 | 0.1− | 2008 07 30 | G96 | 0.2+ | 0.3− | 2009 11 16 | G96 | 0.2+ | 0.0 |
| 2000 02 27 | 691 | 0.1+ | 0.1− | 2008 07 30 | G96 | 0.1+ | 0.1+ | 2009 11 19 | 691 | 0.4− | 0.1+ |
| 2003 10 19 | 691 | 0.2+ | 0.0 | 2008 07 30 | G96 | 0.0 | 0.2+ | 2009 11 19 | 691 | 0.2− | 0.2+ |
| 2003 10 19 | 691 | 0.2− | 0.0 | 2008 07 30 | G96 | 0.1+ | 0.0 | 2009 11 19 | 691 | 0.1− | 0.0 |
| 2003 10 19 | 691 | 0.1+ | 0.1− | 2008 08 07 | 691 | 0.1− | 0.2+ | 2009 11 23 | 691 | 0.0 | 0.1+ |
| 2004 12 18 | 691 | 0.0 | 0.5+ | 2008 08 07 | 691 | 0.0 | 0.1+ | 2009 11 23 | 691 | 0.1− | 0.2+ |
| 2004 12 18 | 691 | 0.2+ | 0.3+ | 2008 08 07 | 691 | 0.3− | 0.0 | 2009 11 23 | 691 | 0.2− | 0.0 |
| 2004 12 18 | 691 | 0.2− | 0.3− | 2008 09 22 | G96 | 0.4+ | 0.2+ | 2009 12 11 | G96 | 0.0 | 0.1− |
| 2005 01 16 | 691 | 0.1− | 0.1+ | 2008 09 22 | G96 | 0.4+ | 0.4+ | 2009 12 11 | G96 | 0.0 | 0.2− |
| 2005 01 16 | 691 | 0.0 | 0.1− | 2008 09 22 | G96 | 0.1− | 0.1+ | 2009 12 11 | G96 | 0.2+ | 0.1− |
| 2005 01 16 | 691 | 0.1+ | 0.2+ | 2008 09 22 | G96 | 0.0 | 0.2+ | 2009 12 11 | G96 | 0.2+ | 0.0 |
| 2005 03 13 | G96 | 0.0 | 0.1+ | 2008 09 23 | G96 | 0.1− | 0.1+ | | | | |

**(229904)∗ 2009 WO$_{19}$ = 2002 CG$_{113}$ = 2005 WH$_{175}$**

Discovered 2009 Nov. 17 by the Mt. Lemmon Survey at Mount Lemmon.

Id. G. V. Williams (*MPO* 166010)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 185.58262 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21968755 | $\omega$ | 156.49113 | | −0.47135604 | +0.86303549 | |
| $a$ | 2.7201891 | $\Omega$ | 84.95284 | | −0.83534330 | −0.37081863 | |
| $e$ | 0.1087927 | $i$ | 10.50652 | | −0.28288699 | −0.34302084 | |
| $P$ | 4.49 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 02 06 | 704 | 0.9+ | 1.3+ | 2005 11 30 | 691 | 0.0 | 0.1+ | 2008 08 05 | E12 | 1.1+ | 0.5+ |
| 2002 02 06 | 704 | 1.0− | 1.4− | 2005 11 30 | 691 | 0.2+ | 0.0 | 2008 08 05 | E12 | 0.0 | 0.8+ |
| 2002 02 06 | 704 | (1.7− | 1.3−) | 2005 11 30 | 691 | 0.3+ | 0.1− | 2008 08 23 | E12 | 0.4+ | 0.9+ |
| 2002 02 08 | 704 | 0.2+ | 0.4+ | 2005 11 30 | 691 | 0.2+ | 0.1− | 2008 08 23 | E12 | 0.5+ | 0.3− |
| 2002 02 08 | 704 | 1.2+ | 0.1+ | 2005 12 04 | 691 | 0.2+ | 0.1− | 2008 08 23 | E12 | 0.0 | 0.1+ |
| 2002 02 08 | 704 | 0.4+ | 1.4+ | 2005 12 04 | 691 | 0.0 | 0.1+ | 2008 08 23 | E12 | 0.3− | 0.7+ |
| 2002 02 08 | 704 | (1.1+ | 1.7+) | 2005 12 04 | 691 | 0.1+ | 0.0 | 2009 11 17 | G96 | 0.2+ | 0.3− |
| 2002 02 10 | 704 | 0.1− | 0.3− | 2007 03 12 | 703 | 0.1+ | 0.3+ | 2009 11 17 | G96 | 0.0 | 0.3− |
| 2002 02 10 | 704 | 0.3− | 0.5+ | 2007 03 12 | 703 | 0.0 | 0.6− | 2009 11 17 | G96 | 0.1+ | 0.4− |
| 2002 02 10 | 704 | 0.3− | 0.3+ | 2007 03 12 | 703 | 0.4+ | 1.0+ | 2009 11 17 | G96 | 0.0 | 0.4− |
| 2002 02 10 | 704 | 1.2− | 0.3− | 2007 03 12 | 703 | 0.4− | 0.7− | 2009 11 19 | G96 | 0.2− | 0.2− |
| 2002 02 10 | 704 | 0.7− | 0.6+ | 2007 04 11 | 703 | 0.1+ | 0.1− | 2009 11 19 | G96 | 0.3+ | 0.1− |
| 2002 04 01 | 644 | 0.8+ | 0.5+ | 2007 04 11 | 703 | 0.3− | 0.2+ | 2009 11 19 | G96 | 0.0 | 0.3− |
| 2002 04 01 | 644 | 0.5+ | 0.6+ | 2007 04 11 | 703 | 1.2− | 0.2− | 2009 11 19 | G96 | 0.1− | 0.4− |
| 2002 04 01 | 644 | 1.0+ | 0.8+ | 2007 04 11 | 703 | 0.4− | 0.3− | 2009 11 25 | G96 | 0.4+ | 0.1− |
| 2004 10 20 | 703 | 0.6− | 0.6+ | 2007 05 13 | 703 | 0.1− | 0.4− | 2009 11 25 | G96 | 0.6+ | 0.3− |
| 2004 10 20 | 703 | 0.1− | 0.7+ | 2007 05 13 | 703 | (0.2+ | 1.7+) | 2009 11 25 | G96 | 0.1− | 0.3− |
| 2004 10 20 | 703 | 0.9− | 1.0− | 2007 05 13 | 703 | 0.3− | 0.1+ | 2009 11 25 | G96 | 0.4+ | 0.0 |
| 2004 10 20 | 703 | 0.9− | 0.6− | 2007 05 13 | 703 | 0.0 | 0.0 | 2009 12 19 | 691 | 0.4− | 0.1+ |
| 2005 11 30 | 691 | 0.1+ | 0.0 | 2008 08 05 | E12 | 0.6+ | 0.1− | 2009 12 19 | 691 | 0.5− | 0.0 |
| 2005 11 30 | 691 | 0.0 | 0.5− | 2008 08 05 | E12 | 0.2− | 0.3+ | 2009 12 19 | 691 | 0.2− | 0.5+ |

**(229905)∗ 2009 WC$_{33}$ = 2007 LM$_{12}$**

Discovered 2009 Nov. 16 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 166013)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 52.47904 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18830755 | $\omega$ | 303.19896 | | +0.95005056 | −0.26401653 | |
| $a$ | 3.0145621 | $\Omega$ | 72.58587 | | +0.31115807 | +0.84258892 | |
| $e$ | 0.1307793 | $i$ | 10.04521 | | −0.02417814 | +0.46940300 | |
| $P$ | 5.23 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 08 23 | 644 | 0.3− | 0.0 | 2007 06 13 | 691 | 0.1− | 0.2+ | 2009 11 16 | 691 | 0.2− | 0.0 |
| 2003 08 23 | 644 | 0.3− | 0.2+ | 2007 06 13 | 691 | 0.1+ | 0.1− | 2009 11 20 | 691 | 0.2− | 0.0 |
| 2003 08 23 | 644 | 0.2− | 0.3+ | 2007 06 13 | 691 | 0.2+ | 0.3+ | 2009 11 20 | 691 | 0.1− | 0.1− |
| 2003 09 27 | 699 | 0.8− | 0.8− | 2008 08 04 | E12 | 0.4+ | 0.3− | 2009 11 20 | 691 | 0.2− | 0.0 |
| 2003 09 27 | 699 | 0.1+ | 0.0 | 2008 08 04 | E12 | 0.1+ | 0.3+ | 2009 11 24 | 691 | 0.4− | 0.1− |
| 2003 09 27 | 699 | (1.3+ | 2.6−) | 2008 08 04 | E12 | 0.3+ | 0.2+ | 2009 11 24 | 691 | 0.4− | 0.0 |
| 2003 09 27 | 699 | 0.3− | 0.3− | 2008 08 04 | E12 | 0.2+ | 0.1+ | 2009 11 24 | 691 | 0.7− | 0.0 |
| 2004 12 09 | 691 | 0.3+ | 0.2+ | 2008 08 28 | E12 | 0.1+ | 0.8+ | 2009 12 10 | G96 | 0.6+ | 0.2− |
| 2004 12 09 | 691 | 0.2+ | 0.2+ | 2008 08 28 | E12 | 0.6+ | 0.6+ | 2009 12 10 | G96 | 0.6+ | 0.2− |
| 2004 12 09 | 691 | 0.2+ | 0.1+ | 2008 08 28 | E12 | 0.4− | 0.8+ | 2009 12 10 | G96 | 0.4+ | 0.2− |
| 2007 05 12 | 691 | 0.4− | 0.4+ | 2008 08 28 | E12 | 1.1+ | 0.2− | 2009 12 16 | 704 | 0.1+ | 0.8+ |
| 2007 05 12 | 691 | 0.0 | 0.2+ | 2009 11 08 | 691 | 0.2+ | 0.1− | 2009 12 16 | 704 | 1.1+ | 1.0+ |
| 2007 05 12 | 691 | 0.3+ | 0.0 | 2009 11 08 | 691 | 0.2− | 0.3+ | 2009 12 16 | 704 | 1.2+ | 0.3− |
| 2007 06 09 | 691 | 0.1+ | 0.2+ | 2009 11 08 | 691 | 0.5+ | 0.3+ | 2009 12 16 | 704 | 0.4− | 1.2+ |
| 2007 06 09 | 691 | 0.1+ | 0.2+ | 2009 11 16 | 691 | 0.2+ | 0.0 | | | | |
| 2007 06 09 | 691 | 0.1− | 0.0 | 2009 11 16 | 691 | 0.3− | 0.0 | | | | |

**(229906)∗ 2009 WE$_{85}$ = 2007 HL$_{64}$**

Discovered 2009 Nov. 19 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPO* 166021)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 65.59379 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18147777 | $\omega$ | 302.24031 | | +0.94909326 | +0.24436909 | |
| $a$ | 3.0897293 | $\Omega$ | 44.51998 | | −0.09205577 | +0.81862639 | |
| $e$ | 0.1849374 | $i$ | 16.46769 | | −0.30124361 | +0.51974473 | |
| $P$ | 5.43 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 04 25 | 691 | 0.4+ | 0.5+ | 2007 03 15 | G96 | 0.6− | 0.2+ | 2008 08 26 | E12 | 0.1− | 1.2+ |
| 1996 04 25 | 691 | 0.2+ | 0.7+ | 2007 03 15 | G96 | 0.4− | 0.1− | 2008 08 26 | E12 | 0.5− | 0.7+ |
| 1996 04 25 | 691 | 0.4+ | 0.2+ | 2007 03 15 | G96 | 0.1− | 0.1+ | 2009 11 11 | 691 | 0.2− | 0.1+ |
| 1996 05 11 | 691 | 0.1+ | 0.3+ | 2007 04 22 | G96 | 0.3+ | 0.1− | 2009 11 11 | 691 | 0.2− | 0.1− |
| 1996 05 11 | 691 | 0.4+ | 0.1+ | 2007 04 22 | G96 | 0.0 | 0.0 | 2009 11 11 | 691 | 0.1− | 0.2+ |
| 1996 05 11 | 691 | 0.3+ | 0.2+ | 2007 04 22 | G96 | 0.3+ | 0.1− | 2009 11 19 | 691 | 0.2− | 0.3+ |
| 2003 10 17 | 644 | 0.7− | 0.3+ | 2007 04 22 | G96 | 0.6− | 0.3− | 2009 11 19 | 691 | 0.1− | 0.3+ |
| 2003 10 17 | 644 | 0.7− | 0.1+ | 2007 04 25 | 691 | 0.1+ | 0.1− | 2009 11 19 | 691 | 0.3+ | 0.3+ |
| 2003 10 17 | 644 | 0.7− | 0.2+ | 2007 04 25 | 691 | 0.3− | 0.2+ | 2009 11 23 | 691 | 0.2− | 0.3+ |
| 2003 10 24 | 699 | 0.6+ | 0.5− | 2007 04 25 | 691 | 0.1+ | 0.4− | 2009 11 23 | 691 | 0.2− | 0.0 |
| 2003 10 24 | 699 | 0.6+ | 0.9− | 2008 06 26 | E12 | 0.1− | 0.5+ | 2009 11 23 | 691 | 0.2− | 0.3+ |
| 2003 10 24 | 699 | 0.3− | 0.3− | 2008 06 26 | E12 | 0.2+ | 1.1+ | 2009 11 25 | G96 | 0.0 | 0.2+ |
| 2003 10 24 | 699 | 0.8+ | 0.0 | 2008 06 26 | E12 | 0.0 | 0.7+ | 2009 11 25 | G96 | 0.1+ | 0.1+ |
| 2006 02 28 | G96 | 0.4− | 0.7+ | 2008 08 03 | E12 | 0.2− | 0.5+ | 2009 11 25 | G96 | 0.1+ | 0.1+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 02 28 | G96 | 0.3− | 0.5+ | 2008 08 03 | E12 | 0.0 | 0.9+ | 2009 11 25 | G96 | 0.5+ | 0.1+ | | |
| 2006 02 28 | G96 | 0.5− | 0.3+ | 2008 08 03 | E12 | 0.4− | 0.3+ | 2009 12 15 | 704 | 0.4+ | 0.9+ | | |
| 2006 02 28 | G96 | 0.4− | 0.3+ | 2008 08 26 | E12 | 0.1+ | 0.3+ | 2009 12 15 | 704 | 0.1+ | 0.7+ | | |
| 2007 03 15 | G96 | 0.4− | 0.3+ | 2008 08 26 | E12 | 0.2− | 1.1+ | 2009 12 15 | 704 | 0.1− | 1.2+ | | |

**(229907)∗ 4513 P-L = 2002 $XZ_{72}$**

Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. A. Doppler (*MPO* 47580)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 39.45677 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28359819 | $\omega$ | 357.13181 | | +0.79654890 | −0.60329220 | |
| $a$ | 2.2943892 | $\Omega$ | 40.06068 | | +0.55589572 | +0.70527315 | |
| $e$ | 0.1569845 | $i$ | 3.50522 | | +0.23767581 | +0.37232822 | |
| $P$ | 3.48 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1960 09 24 | 675 | 0.2+ | 0.5− | 2002 12 14 | 704 | 1.3+ | 0.3− | 2005 08 30 | 644 | 0.3+ | 0.4+ | | |
| 1960 09 24 | 675 | 0.1− | 0.1− | 2002 12 14 | 704 | 0.2+ | 0.3− | 2005 08 30 | 644 | 0.4+ | 0.2+ | | |
| 1960 09 26 | 675 | 0.1+ | 0.5− | 2002 12 14 | 704 | 0.1− | 0.3− | 2005 09 01 | 644 | 0.1+ | 0.1+ | | |
| 1960 09 27 | 675 | 0.2+ | 0.7− | 2005 08 01 | E12 | 0.5− | 0.5+ | 2005 09 01 | 644 | 0.1+ | 0.3+ | | |
| 1960 09 27 | 675 | 1.1+ | 0.1− | 2005 08 01 | E12 | 0.9+ | 0.5− | 2005 09 01 | 644 | 0.1+ | 0.2+ | | |
| 1960 09 28 | 675 | 0.0 | 0.3+ | 2005 08 01 | E12 | 0.1− | 0.3− | 2007 02 25 | G96 | 0.2− | 0.2+ | | |
| 1960 09 28 | 675 | 0.1− | 0.1− | 2005 08 01 | E12 | 0.5− | 0.3+ | 2007 02 25 | G96 | 0.5− | 0.2− | | |
| 1960 10 17 | 675 | 0.4− | 0.1+ | 2005 08 05 | 644 | 0.2+ | 0.3+ | 2007 02 25 | G96 | 0.2+ | 0.3− | | |
| 1960 10 17 | 675 | 0.2− | 0.5− | 2005 08 05 | 644 | 0.2− | 0.4+ | 2007 02 25 | G96 | 0.1− | 0.0 | | |
| 1960 10 22 | 675 | 0.1+ | 0.3− | 2005 08 05 | 644 | 0.1+ | 0.4+ | 2007 02 25 | G96 | 0.3− | 0.0 | | |
| 1960 10 22 | 675 | 0.3+ | 0.1+ | 2005 08 10 | 568 | 0.0 | 0.3+ | 2007 02 25 | G96 | 0.3+ | 0.2− | | |
| 1960 10 25 | 675 | 0.5+ | 0.8− | 2005 08 10 | 568 | 0.1+ | 0.5+ | 2007 02 25 | G96 | 0.4+ | 0.3+ | | |
| 1960 10 26 | 675 | 0.5+ | 0.6− | 2005 08 11 | 568 | 0.0 | 0.3+ | 2007 02 25 | G96 | 0.1− | 0.1− | | |
| 1960 10 26 | 675 | 0.8− | 0.1− | 2005 08 11 | 568 | 0.2− | 0.0 | 2009 11 22 | 691 | 0.1+ | 0.1− | | |
| 2002 12 06 | 704 | 0.8− | 1.1+ | 2005 08 11 | 568 | 0.1− | 0.2+ | 2009 11 22 | 691 | 0.4− | 0.1− | | |
| 2002 12 06 | 704 | 0.8− | 1.0+ | 2005 08 12 | 568 | 0.7− | 0.3− | 2009 11 22 | 691 | 0.2− | 0.2− | | |
| 2002 12 06 | 704 | 0.7− | 0.8+ | 2005 08 12 | 568 | 0.7− | 0.1− | 2009 12 10 | 704 | 0.6+ | 0.3+ | | |
| 2002 12 06 | 704 | 0.7− | 1.2+ | 2005 08 12 | 568 | 0.6− | 0.2− | 2009 12 10 | 704 | 0.0 | 0.1− | | |
| 2002 12 06 | 704 | 0.2− | 1.0+ | 2005 08 12 | 568 | 0.0 | 0.0 | 2009 12 10 | 704 | 0.5+ | 0.4− | | |
| 2002 12 11 | 704 | 0.8+ | 0.0 | 2005 08 12 | 568 | 0.1− | 0.0 | 2009 12 10 | 704 | 0.5− | 0.6− | | |
| 2002 12 11 | 704 | 1.3+ | 0.4− | 2005 08 12 | 568 | 0.0 | 0.1+ | 2009 12 16 | 704 | 0.7− | 1.5+ | | |
| 2002 12 11 | 704 | 0.7+ | 0.0 | 2005 08 12 | 568 | 0.1+ | 0.1+ | 2009 12 16 | 704 | 0.2− | 0.1− | | |
| 2002 12 11 | 704 | 0.5+ | 0.0 | 2005 08 12 | 568 | 0.0 | 0.0 | 2009 12 16 | 704 | 0.1− | 0.0 | | |
| 2002 12 11 | 704 | 0.7+ | 0.3+ | 2005 08 12 | 568 | 0.0 | 0.0 | | | | | | |
| 2002 12 14 | 704 | (0.1+ | 1.7−) | 2005 08 30 | 644 | 0.0 | 0.3+ | | | | | | |

**(229908)∗ 6005 P-L = 2005 $SS_{173}$ = 2009 $UK_{110}$**

Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. G. V. Williams (*MPO* 166025)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 32.85958 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26289961 | $\omega$ | 51.18191 | | +0.87847266 | −0.47776237 | |
| $a$ | 2.4132895 | $\Omega$ | 337.35591 | | +0.43392433 | +0.80247581 | |
| $e$ | 0.1990912 | $i$ | 0.80017 | | +0.19998868 | +0.35745726 | |
| $P$ | 3.75 | $H$ | 17.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1960 09 24 | 675 | 0.6+ | 0.9− | 2005 10 02 | 644 | 0.2− | 0.0 | 2009 11 16 | 691 | 0.2− | 0.0 | | |
| 1960 09 25 | 675 | 0.6+ | 0.1− | 2005 10 02 | 644 | 0.3− | 0.2+ | 2009 11 16 | 691 | 0.0 | 0.2− | | |
| 1960 09 25 | 675 | 0.9+ | 0.0 | 2005 10 02 | 644 | 0.2− | 0.2+ | 2009 11 20 | 691 | 0.0 | 0.3− | | |
| 1960 09 26 | 675 | 0.2− | 0.1− | 2007 02 21 | G96 | 0.6− | 0.0 | 2009 11 20 | 691 | 0.5− | 0.2+ | | |
| 1960 09 26 | 675 | 0.5+ | 0.4− | 2007 02 21 | G96 | 0.2− | 0.2+ | 2009 11 20 | 691 | 0.1− | 0.1− | | |
| 1960 09 28 | 675 | 0.8− | 0.2− | 2007 02 21 | G96 | 0.2+ | 0.4− | 2009 11 24 | 691 | 0.0 | 0.0 | | |
| 1960 09 28 | 675 | 1.0− | 0.2+ | 2007 02 21 | G96 | 0.1− | 0.4− | 2009 11 24 | 691 | 0.2− | 0.2− | | |
| 2001 08 21 | 807 | 0.6− | 0.0 | 2007 03 09 | G96 | 0.6− | 0.3+ | 2009 11 24 | 691 | 0.1− | 0.1− | | |
| 2001 08 21 | 807 | 0.4− | 0.1+ | 2007 03 09 | G96 | 0.5− | 0.1− | 2009 12 11 | 703 | 0.5− | 0.1− | | |
| 2003 02 06 | 291 | 0.3+ | 0.6+ | 2007 03 09 | G96 | 0.3+ | 0.3+ | 2009 12 11 | 703 | 0.0 | 0.5− | | |
| 2003 02 06 | 291 | 0.3+ | 0.6+ | 2007 03 09 | G96 | 0.6+ | 0.3− | 2009 12 11 | 703 | 0.2+ | 0.2− | | |
| 2003 02 06 | 291 | 0.6+ | 1.1+ | 2009 09 21 | G96 | 0.5+ | 0.1− | 2009 12 11 | 703 | 0.2+ | 0.2− | | |
| 2005 08 31 | 691 | 0.4− | 0.4+ | 2009 09 21 | G96 | 0.6+ | 0.0 | 2009 12 11 | A77 | 1.2+ | 0.7+ | | |
| 2005 08 31 | 691 | 0.3− | 0.5+ | 2009 09 21 | G96 | 0.1+ | 0.1− | 2009 12 11 | A77 | 1.0+ | 0.2+ | | |
| 2005 08 31 | 691 | 0.1− | 0.4+ | 2009 09 21 | G96 | 0.4+ | 0.1− | 2009 12 11 | A77 | 1.3+ | 0.7+ | | |
| 2005 09 14 | 691 | 0.0 | 0.3+ | 2009 10 23 | 691 | 0.2− | 0.1− | 2009 12 16 | 704 | 0.8+ | 0.4− | | |
| 2005 09 14 | 691 | 0.0 | 0.4+ | 2009 10 23 | 691 | 0.3− | 0.1+ | 2009 12 16 | 704 | 1.4+ | 0.4− | | |
| 2005 09 14 | 691 | 0.0 | 0.3+ | 2009 10 23 | 691 | 0.1− | 0.2+ | 2009 12 16 | 704 | 1.2+ | 0.3+ | | |
| 2005 09 29 | 699 | 1.4+ | 0.3− | 2009 10 27 | 691 | 0.1− | 0.2− | 2009 12 18 | G96 | 0.6+ | 0.1− | | |
| 2005 09 29 | 699 | 0.5+ | 0.4+ | 2009 10 27 | 691 | 0.3− | 0.2+ | 2009 12 18 | G96 | 0.1+ | 0.2− | | |
| 2005 09 29 | 699 | 0.9− | 0.2− | 2009 10 27 | 691 | 0.2− | 0.3− | 2009 12 18 | G96 | 0.5+ | 0.1− | | |
| 2005 09 29 | 699 | (1.3+ | 1.8+) | 2009 11 16 | 691 | 0.0 | 0.1− | 2009 12 18 | G96 | 0.5+ | 0.1− | | |

**(229909)∗ 6201 P-L = 1999 $TB_{158}$**

Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. A. Doppler (*MPO* 2584)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 65.94424 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.30367914 | $\omega$ | 114.92541 | | +0.99932453 | −0.00071279 | |
| $a$ | 2.1920952 | $\Omega$ | 245.13340 | | −0.01337940 | +0.92413696 | |
| $e$ | 0.1866801 | $i$ | 2.32091 | | +0.03422677 | +0.38206070 | |
| $P$ | 3.25 | $H$ | 18.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1960 09 24 | 675 | 0.2− | 0.1+ | 1999 10 07 | 704 | 0.6− | 0.7+ | 2007 01 10 | G96 | 0.7+ | 0.2− | | |
| 1960 09 24 | 675 | 0.2+ | 0.7− | 1999 10 13 | 704 | 0.8+ | 0.5− | 2007 01 10 | G96 | 0.6+ | 0.1+ | | |
| 1960 09 25 | 675 | 0.0 | 0.3− | 1999 10 13 | 704 | 0.7+ | 0.8− | 2007 01 10 | G96 | 0.7+ | 0.3+ | | |
| 1960 09 25 | 675 | 1.8+ | 1.3+ | 1999 10 13 | 704 | 0.6+ | 0.3− | 2007 01 10 | G96 | 0.8+ | 0.1+ | | |
| 1960 09 26 | 675 | 0.2− | 0.1− | 1999 10 13 | 704 | 0.5+ | 0.5− | 2008 05 03 | G96 | 0.6+ | 0.6− | | |
| 1960 09 26 | 675 | 0.2− | 0.1+ | 1999 10 13 | 704 | 0.7+ | 0.7− | 2008 05 03 | G96 | 0.1+ | 0.1+ | | |
| 1960 09 28 | 675 | 0.3+ | 0.4− | 1999 10 15 | 704 | 1.9+ | 0.5+ | 2008 05 03 | G96 | 0.4+ | 0.0 | | |
| 1960 09 28 | 675 | 0.4− | 0.1+ | 1999 10 15 | 704 | 1.1+ | 0.3− | 2008 05 03 | G96 | 0.3+ | 0.0 | | |
| 1960 10 17 | 675 | 0.8− | 0.0 | 1999 10 15 | 704 | 0.7+ | 0.7− | 2008 05 03 | G96 | 0.6+ | 0.1− | | |
| 1960 10 22 | 675 | 0.0 | 0.1− | 1999 10 15 | 704 | 1.3+ | 0.1+ | 2008 05 03 | G96 | 0.1+ | 0.3+ | | |
| 1960 10 22 | 675 | 0.2− | 0.0 | 2002 08 06 | 644 | 0.6− | 0.2+ | 2008 05 03 | G96 | 0.2+ | 0.1+ | | |
| 1994 01 13 | 691 | 0.4− | 0.6+ | 2002 08 06 | 644 | 0.7− | 0.0 | 2008 05 03 | G96 | 0.2− | 0.3+ | | |
| 1994 01 13 | 691 | 0.2− | 0.1+ | 2002 08 06 | 644 | 0.5− | 0.1+ | 2009 11 20 | 691 | 0.4− | 0.1+ | | |
| 1994 01 13 | 691 | 0.6− | 0.9− | 2002 08 07 | 644 | 0.6− | 0.1− | 2009 11 20 | 691 | 0.0 | 0.2+ | | |
| 1999 10 01 | 703 | 1.7− | 0.3+ | 2002 08 07 | 644 | 0.4− | 0.1− | 2009 11 20 | 691 | 0.3− | 0.2+ | | |
| 1999 10 01 | 703 | 1.4− | 0.3+ | 2002 08 07 | 644 | 0.0 | 0.0 | 2009 12 10 | G96 | 0.4+ | 0.0 | | |
| 1999 10 01 | 703 | (2.5− | 2.2+) | 2006 12 13 | G96 | 0.4+ | 0.3+ | 2009 12 10 | G96 | 0.2+ | 0.1− | | |
| 1999 10 01 | 703 | 0.4− | 1.0+ | 2006 12 13 | G96 | 0.2+ | 0.2+ | 2009 12 10 | G96 | 0.2− | 0.3+ | | |
| 1999 10 07 | 704 | 0.5− | 0.0 | 2006 12 13 | G96 | 0.4+ | 0.2− | 2009 12 10 | G96 | 0.2+ | 0.1+ | | |
| 1999 10 07 | 704 | 1.0− | 1.2+ | 2006 12 13 | G96 | 1.1+ | 0.1+ | | | | | | |

**(229910)∗ 6798 P-L = 2001 $QM_{285}$**

Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. G. V. Williams (*MPO* 18109)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 57.84746 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26351435 | $\omega$ | 353.78062 | | +0.99178281 | −0.12474093 | |
| $a$ | 2.4095348 | $\Omega$ | 13.48484 | | +0.12199873 | +0.85535271 | |
| $e$ | 0.2062488 | $i$ | 6.99544 | | +0.03851200 | +0.50280358 | |
| $P$ | 3.74 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1960 09 24 | 675 | 0.6− | 0.0 | 2005 09 13 | 683 | 0.3+ | 0.2− | 2005 11 01 | 704 | 0.7+ | 0.0 | | |
| 1960 09 24 | 675 | 0.5− | 0.3− | 2005 09 13 | 683 | (1.6+ | 0.8+) | 2005 11 01 | 704 | 0.1+ | 0.1+ | | |
| 1960 09 26 | 675 | 0.4+ | 0.3− | 2005 09 13 | 683 | 0.5− | 0.0 | 2005 11 04 | 704 | 0.1+ | 0.4+ | | |
| 1960 09 26 | 675 | 0.6+ | 0.2− | 2005 09 24 | 691 | 0.0 | 0.0 | 2005 11 04 | 704 | 0.0 | 0.1− | | |
| 1960 09 27 | 675 | 0.4+ | 0.3− | 2005 09 24 | 691 | 0.0 | 0.1− | 2005 11 04 | 704 | 0.6+ | 0.1− | | |
| 1960 09 27 | 675 | 1.8− | 1.1+ | 2005 09 24 | 691 | 0.1− | 0.1− | 2005 11 04 | 704 | 0.1− | 1.2− | | |
| 1960 09 28 | 675 | 0.5+ | 0.4− | 2005 09 25 | 703 | 0.5− | 0.2+ | 2005 11 04 | 704 | 0.1+ | 0.2− | | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1960 09 28 | 675 | 0.1+ | 0.3+ | 2005 09 25 | 703 | 0.9+ | 0.4+ | 2005 11 06 | 704 | 0.1− | 0.7+ |
| 1960 10 17 | 675 | 0.3+ | 1.0− | 2005 09 25 | 703 | 0.6+ | 0.0 | 2005 11 06 | 704 | 0.4+ | 1.1+ |
| 1960 10 17 | 675 | 0.2+ | 0.3− | 2005 09 25 | 703 | 0.1− | 0.3− | 2005 11 06 | 704 | 0.6− | 0.9+ |
| 1960 10 17 | 675 | 0.3+ | 0.1+ | 2005 10 03 | 703 | 0.3+ | 0.0 | 2005 11 06 | 704 | 0.5+ | 0.7+ |
| 1960 10 17 | 675 | 0.9+ | 0.7+ | 2005 10 03 | 703 | 0.2+ | 0.1− | 2005 11 06 | 704 | 0.4− | 0.1+ |
| 1960 10 22 | 675 | 0.2+ | 0.5− | 2005 10 03 | 703 | 0.3− | 0.1− | 2005 11 09 | 703 | 0.0 | 0.4− |
| 1960 10 22 | 675 | 0.1− | 0.1− | 2005 10 03 | 703 | 0.8+ | 0.0 | 2005 11 09 | 703 | 0.4− | 0.3+ |
| 1960 10 24 | 675 | 0.9− | 1.7− | 2005 10 03 | G96 | 0.0 | 0.3− | 2005 11 09 | 703 | 0.8− | 1.0− |
| 1960 10 24 | 675 | 1.5+ | 0.1+ | 2005 10 03 | G96 | 0.2+ | 0.4− | 2005 11 09 | 703 | (0.5− | 1.6−) |
| 1960 10 26 | 675 | 0.7+ | 0.6− | 2005 10 03 | G96 | 0.0 | 0.5− | 2005 11 19 | 699 | 0.9− | 0.5− |
| 1960 10 26 | 675 | 0.4+ | 0.0 | 2005 10 03 | G96 | 0.2+ | 0.3− | 2005 11 19 | 699 | 0.4− | 0.0 |
| 1990 10 12 | 261 | 1.2− | 0.8− | 2005 10 07 | 704 | 0.3− | 0.8+ | 2005 11 19 | 699 | 0.0 | 0.6− |
| 1990 10 12 | 261 | 0.4+ | 0.6− | 2005 10 07 | 704 | 0.2+ | 1.1+ | 2005 11 19 | 699 | 1.3− | 0.8+ |
| 2001 08 14 | 644 | 0.6+ | 0.6+ | 2005 10 07 | 704 | 0.0 | 0.6+ | 2005 11 30 | 644 | 0.1− | 0.1+ |
| 2001 08 14 | 644 | 0.3+ | 0.1+ | 2005 10 07 | 704 | 0.3− | 0.7+ | 2005 11 30 | 644 | 0.3+ | 0.1− |
| 2001 08 14 | 644 | 0.6+ | 0.6+ | 2005 10 07 | 704 | 0.5+ | 0.6+ | 2005 11 30 | 644 | 0.2+ | 0.1− |
| 2001 08 19 | 704 | 0.6− | 0.3− | 2005 10 07 | 691 | 0.2+ | 0.0 | 2005 12 06 | 699 | 0.2− | 0.2− |
| 2001 08 19 | 704 | 0.5− | 0.6+ | 2005 10 07 | 691 | 0.2+ | 0.0 | 2005 12 06 | 699 | 0.4− | 0.3+ |
| 2001 08 19 | 704 | 0.7+ | 0.5+ | 2005 10 07 | 691 | 0.2+ | 0.1− | 2005 12 06 | 699 | 0.3+ | 0.6− |
| 2001 08 19 | 704 | 0.3+ | 0.1− | 2005 10 12 | 704 | 0.5+ | 0.1+ | 2005 12 06 | 699 | 0.4− | 0.2+ |
| 2001 08 19 | 704 | 0.1− | 0.2− | 2005 10 12 | 704 | 0.4+ | 0.1+ | 2005 12 21 | 291 | 0.3+ | 0.0 |
| 2001 08 23 | 608 | 0.1+ | 0.3− | 2005 10 12 | 704 | 1.0+ | 0.3+ | 2005 12 21 | 291 | 0.2+ | 0.0 |
| 2001 08 23 | 608 | 0.0 | 0.7− | 2005 10 12 | 704 | 0.5+ | 0.0 | 2005 12 21 | 291 | 0.4+ | 0.1+ |
| 2001 08 23 | 608 | 0.2− | 0.3− | 2005 10 12 | 704 | 0.2+ | 0.8+ | 2005 12 22 | 644 | 0.1− | 0.0 |
| 2001 08 27 | 608 | 0.2− | 0.5+ | 2005 10 22 | 703 | 0.9− | 0.3+ | 2005 12 22 | 644 | 0.3− | 0.1− |
| 2001 08 27 | 608 | 0.3− | 1.0+ | 2005 10 22 | 703 | 0.2+ | 0.2− | 2005 12 22 | 644 | 0.1− | 0.1− |
| 2001 08 27 | 608 | 0.4− | 0.9+ | 2005 10 22 | 703 | 0.3− | 0.2+ | 2007 02 25 | G96 | 0.4+ | 0.2+ |
| 2001 09 11 | 704 | 0.6− | 0.5+ | 2005 10 22 | 703 | 0.2− | 0.4− | 2007 02 25 | G96 | 0.3+ | 0.1+ |
| 2001 09 11 | 704 | (1.6− | 0.6−) | 2005 10 24 | 699 | 0.1+ | 0.1− | 2007 02 25 | G96 | 0.7+ | 0.0 |
| 2001 09 11 | 704 | 1.1− | 1.1− | 2005 10 24 | 699 | 0.7− | 0.5+ | 2007 02 25 | G96 | 0.5+ | 0.1− |
| 2001 09 11 | 704 | 0.6− | 0.0 | 2005 10 24 | 699 | 0.0 | 0.1− | 2009 11 26 | H23 | 1.2− | 1.0+ |
| 2001 09 11 | 704 | 1.3− | 0.2− | 2005 10 24 | 699 | 0.2− | 0.4+ | 2009 11 26 | H23 | 1.2− | 0.5+ |
| 2005 08 31 | 699 | 0.2+ | 0.5+ | 2005 10 29 | 703 | 0.4− | 0.7+ | 2009 11 26 | H23 | 0.7− | 0.3− |
| 2005 08 31 | 699 | 0.7+ | 0.8+ | 2005 10 29 | 703 | 0.5− | 0.0 | 2009 12 15 | 704 | 0.4− | 0.3+ |
| 2005 08 31 | 699 | 0.1− | 0.7+ | 2005 10 29 | 703 | 0.6− | 0.5− | 2009 12 15 | 704 | 0.0 | 0.3+ |
| 2005 08 31 | 699 | 0.5− | 0.2+ | 2005 10 29 | 703 | 0.7− | 0.1+ | 2009 12 15 | 704 | 0.1− | 0.2+ |
| 2005 09 11 | 683 | 0.4+ | 0.1+ | 2005 11 01 | 704 | 0.8+ | 0.2− | 2009 12 15 | 704 | 0.1− | 0.2− |
| 2005 09 11 | 683 | (1.1+ | 2.6+) | 2005 11 01 | 704 | 0.0 | 0.6+ | | | | |
| 2005 09 11 | 683 | (1.3− | 1.9+) | 2005 11 01 | 704 | 0.2− | 1.4− | | | | |

**(229911)∗ 2107 T-3 = 1999 CY$_{27}$**

Discovered 1977 Oct. 16 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. A. Doppler (MPC 34274)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 354.23078 | | (2000.0) | | **P** | **Q** |
| $n$ | 0.24589991 | $\omega$ | 56.37614 | | +0.77506882 | −0.63075000 |
| $a$ | 2.5232705 | $\Omega$ | 342.63158 | | +0.52978938 | +0.68122132 |
| $e$ | 0.0273813 | $i$ | 7.25913 | | +0.34437122 | +0.37160725 |
| $P$ | 4.01 | $H$ | 15.1 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1977 10 07 | 675 | (2.1+ | 3.1−) | 2003 02 04 | 704 | 0.3− | 0.1+ | 2007 01 16 | 699 | 0.2+ | 1.4+ |
| 1977 10 11 | 675 | 0.4+ | 2.2− | 2003 02 04 | 704 | 0.5− | 0.0 | 2007 01 16 | 699 | 0.5+ | 0.2+ |
| 1977 10 11 | 675 | 0.1+ | 1.2− | 2003 02 04 | 704 | 0.1+ | 0.0 | 2007 01 16 | 699 | 0.6+ | 0.2− |
| 1977 10 12 | 675 | 0.5− | 0.5− | 2003 02 04 | 704 | 0.2− | 0.1+ | 2007 01 16 | 699 | (2.8− | 1.3+) |
| 1977 10 12 | 675 | 0.3+ | 1.0− | 2003 02 04 | 704 | 0.0 | 0.2+ | 2007 01 17 | 691 | 0.2− | 0.2− |
| 1977 10 16 | 675 | 1.9+ | 1.8− | 2003 02 07 | 704 | 1.0+ | 0.0 | 2007 01 17 | 691 | 0.0 | 0.3− |
| 1977 10 16 | 675 | 2.2+ | 2.4− | 2003 02 07 | 704 | 0.1− | 0.1+ | 2007 01 17 | 691 | 0.1− | 0.3− |
| 1999 02 10 | 704 | 1.4− | 0.8+ | 2003 02 07 | 704 | 0.1− | 0.1− | 2007 01 21 | 704 | (2.1+ | 0.3+) |
| 1999 02 10 | 704 | 0.3+ | 0.9+ | 2003 02 21 | 699 | 0.2+ | 0.8+ | 2007 01 21 | 704 | (2.1+ | 0.3+) |
| 1999 02 10 | 704 | 1.9+ | 0.4− | 2003 02 21 | 699 | 0.5+ | 0.6+ | 2007 01 21 | 704 | (1.5+ | 0.3+) |
| 1999 02 12 | 699 | 1.4+ | 0.7+ | 2003 02 21 | 699 | 0.2− | 0.9+ | 2007 01 21 | 704 | (1.5+ | 0.3−) |
| 1999 02 12 | 699 | 1.0+ | 0.2+ | 2003 02 21 | 699 | 0.1+ | 0.3+ | 2007 01 21 | 704 | (1.7+ | 0.1+) |
| 1999 02 12 | 699 | 1.0+ | 0.7+ | 2003 02 22 | 644 | 0.0 | 0.4+ | 2007 01 21 | 704 | 1.1+ | 0.3− |
| 1999 02 13 | 704 | 0.6+ | 0.2+ | 2003 02 22 | 644 | 0.2+ | 0.5+ | 2007 01 21 | 704 | (0.3− | 2.0−) |
| 1999 02 13 | 704 | 0.1− | 0.8− | 2003 02 22 | 644 | 0.3+ | 0.5+ | 2007 01 21 | 704 | 0.3− | 0.0 |
| 1999 02 13 | 704 | 0.3− | 1.3− | 2003 02 23 | 699 | 0.4− | 0.1− | 2007 01 21 | 704 | 0.2− | 0.1+ |
| 2001 08 27 | 699 | 0.2+ | 0.5+ | 2003 02 23 | 699 | 0.3+ | 0.0 | 2007 01 24 | 691 | 0.3− | 0.4− |
| 2001 08 27 | 699 | 1.5− | 0.3− | 2003 02 23 | 699 | 0.4− | 0.8− | 2007 01 24 | 704 | 0.7+ | 0.4+ |
| 2001 08 27 | 699 | 0.5− | 1.3+ | 2003 02 23 | 699 | 0.9− | 0.3+ | 2007 01 24 | 691 | 0.4− | 0.2− |
| 2001 08 27 | 699 | 0.3− | 1.1− | 2003 03 06 | 704 | 0.2− | 0.5+ | 2007 01 24 | 704 | 0.4+ | 0.1+ |
| 2001 08 28 | 644 | 0.6− | 0.4+ | 2003 03 06 | 704 | 0.1− | 0.2+ | 2007 01 24 | 691 | 0.3− | 0.2− |
| 2001 08 28 | 644 | 0.8− | 0.4+ | 2003 03 06 | 704 | 0.2+ | 0.4+ | 2007 01 24 | 704 | 0.9+ | 0.0 |
| 2001 08 28 | 644 | 0.6− | 0.6+ | 2003 03 06 | 704 | 0.0 | 0.4+ | 2007 01 24 | 704 | 0.6+ | 0.3+ |
| 2001 09 10 | 644 | 0.0 | 0.2+ | 2003 03 06 | 704 | 0.2− | 0.7+ | 2007 01 24 | 704 | 0.0 | 0.1− |
| 2001 09 10 | 644 | 0.1+ | 0.5+ | 2003 03 08 | 704 | 0.7+ | 0.2+ | 2007 01 27 | 699 | 0.0 | 0.8+ |
| 2001 09 10 | 644 | 0.1− | 0.2+ | 2003 03 08 | 704 | 0.3+ | 0.2+ | 2007 01 27 | 699 | (0.3− | 1.8+) |
| 2001 09 11 | 699 | 0.0 | 0.9− | 2003 03 08 | 704 | 1.1+ | 0.9+ | 2007 01 27 | 699 | 0.6+ | 0.1+ |
| 2001 09 11 | 699 | 0.7− | 1.0+ | 2003 03 08 | 704 | 1.0+ | 0.4+ | 2007 01 27 | 699 | 0.5− | 0.1+ |
| 2001 09 11 | 699 | 1.2− | 0.1+ | 2003 03 08 | 704 | 0.5+ | 0.1+ | 2007 02 07 | 703 | 0.8− | 0.5− |
| 2001 09 11 | 699 | 0.1− | 0.5+ | 2003 03 08 | 704 | 1.3+ | 0.4− | 2007 02 07 | 703 | 0.6− | 0.4− |
| 2001 09 17 | 644 | 0.2+ | 0.2− | 2003 03 08 | 704 | 1.0+ | 0.1− | 2007 02 07 | 703 | (1.5− | 0.1+) |
| 2001 09 17 | 644 | 0.2+ | 0.1+ | 2003 03 08 | 704 | 1.1+ | 0.2+ | 2007 02 07 | 703 | 1.5− | 1.1− |
| 2001 09 17 | 704 | 0.1− | 0.2− | 2003 03 08 | 704 | 0.6+ | 0.1− | 2007 02 08 | 644 | 0.0 | 0.1− |
| 2001 09 17 | 704 | 0.5− | 0.0 | 2003 03 08 | 704 | (1.8+ | 0.2+) | 2007 02 08 | 644 | 0.0 | 0.0 |
| 2001 09 17 | 644 | 0.4+ | 0.0 | 2005 08 29 | 699 | 1.3− | 0.3+ | 2007 02 08 | 644 | 0.1+ | 0.1− |
| 2001 09 17 | 704 | 0.4− | 0.1+ | 2005 08 29 | 699 | 0.3+ | 0.5+ | 2007 02 10 | 644 | 0.1− | 0.0 |
| 2001 09 17 | 704 | 0.2− | 0.6+ | 2005 08 29 | 699 | 0.2− | 0.4− | 2007 02 10 | 644 | 0.1− | 0.0 |
| 2001 09 20 | 704 | 0.0 | 0.9− | 2005 08 29 | 699 | 0.7− | 0.3+ | 2007 02 10 | 644 | 0.1+ | 0.1− |
| 2001 09 20 | 704 | 0.4+ | 1.1− | 2005 08 29 | 644 | 0.0 | 0.0 | 2007 02 16 | 703 | 0.6− | 0.0 |
| 2001 09 20 | 704 | 0.6+ | 0.3− | 2005 08 29 | 644 | 0.1− | 0.0 | 2007 02 16 | 703 | 0.2+ | 0.1− |
| 2001 09 20 | 333 | 0.2− | 0.5+ | 2005 08 29 | 644 | 0.1− | 0.0 | 2007 02 16 | 703 | 1.3+ | 0.5+ |
| 2001 09 20 | 704 | 1.0+ | 0.2− | 2005 08 30 | 704 | 0.3+ | 0.1− | 2007 02 16 | 644 | 0.0 | 0.3− |
| 2001 09 20 | 333 | 0.0 | 0.1+ | 2005 08 30 | 704 | 0.5− | 0.2− | 2007 02 16 | 644 | 0.2+ | 0.2− |
| 2001 09 20 | 704 | 0.2− | 0.2− | 2005 08 30 | 704 | 0.4+ | 0.2+ | 2007 02 16 | 703 | 0.1+ | 0.1− |
| 2001 09 20 | 333 | 0.4− | 0.5+ | 2005 08 30 | 704 | 0.4+ | 0.1+ | 2007 02 16 | 644 | 0.1− | 0.1− |
| 2001 09 21 | 333 | 0.8− | 0.6+ | 2005 08 30 | 704 | 0.3− | 0.4+ | 2007 02 16 | 644 | 0.1+ | 0.2− |
| 2001 09 21 | 333 | 0.7− | 0.5+ | 2005 09 11 | 704 | 0.1+ | 0.3+ | 2007 02 16 | 644 | 0.1− | 0.2+ |
| 2001 09 21 | 333 | 1.3− | 0.9+ | 2005 09 11 | 704 | 0.7+ | 0.3− | 2007 02 16 | 644 | 0.1− | 0.2− |
| 2001 09 22 | 704 | 0.1+ | 0.0 | 2005 09 11 | 704 | (1.3+ | 1.6−) | 2007 02 17 | 644 | 0.3− | 0.0 |
| 2001 09 22 | 704 | 0.2+ | 0.4− | 2005 09 11 | 704 | (1.5+ | 2.0−) | 2007 02 17 | 644 | 0.1− | 0.1+ |
| 2001 09 22 | 704 | 0.2− | 0.3− | 2005 09 23 | 703 | 0.0 | 0.2− | 2007 02 17 | 644 | 0.3− | 0.1− |
| 2001 09 22 | 704 | 0.1+ | 0.3− | 2005 09 23 | 703 | 0.3− | 0.2− | 2007 02 25 | 703 | 0.4− | 1.2− |
| 2001 09 23 | 704 | 0.2− | 0.1+ | 2005 09 23 | 703 | 0.2− | 0.0 | 2007 02 25 | 703 | 0.1− | 0.1− |
| 2001 09 23 | 704 | 0.4+ | 0.3− | 2005 09 23 | 703 | 1.1− | 0.5+ | 2007 02 25 | 703 | 0.6− | 0.4+ |
| 2001 09 23 | 704 | 0.5− | 0.3− | 2005 09 29 | 691 | 0.2− | 0.1+ | 2007 02 25 | 703 | 1.1− | 0.3− |
| 2001 09 23 | 704 | 0.5− | 0.3− | 2005 09 29 | 691 | 0.2− | 0.1+ | 2007 03 12 | H55 | 0.1+ | 0.0 |
| 2001 09 23 | 704 | 0.1− | 0.2+ | 2005 09 29 | 691 | 0.3− | 0.2+ | 2007 03 12 | H55 | 0.1+ | 0.1+ |
| 2001 09 25 | 699 | 0.7+ | 0.4+ | 2005 09 29 | 699 | 0.2− | 0.6− | 2007 03 12 | H55 | 0.1+ | 0.1+ |
| 2001 09 25 | 699 | 0.2− | 0.8+ | 2005 09 29 | 699 | 0.0 | 0.2+ | 2007 03 13 | H55 | 0.1+ | 0.1+ |
| 2001 09 25 | 699 | 0.3− | 0.5+ | 2005 09 29 | 699 | 0.8+ | 0.3+ | 2007 03 13 | H55 | 0.2+ | 0.4+ |
| 2001 09 25 | 699 | 1.1− | 1.3+ | 2005 09 29 | 699 | 0.2− | 0.2− | 2007 03 13 | H55 | 0.2+ | 0.1+ |
| 2001 09 28 | 644 | 1.1− | 0.4+ | 2005 10 01 | 703 | 0.6− | 0.0 | 2007 03 20 | H55 | 0.1− | 0.4+ |
| 2001 09 28 | 644 | 1.2− | 0.2+ | 2005 10 01 | 703 | 0.5− | 0.1+ | 2007 03 20 | H55 | 0.2− | 0.1+ |
| 2001 09 28 | 644 | 1.1− | 0.3+ | 2005 10 01 | 703 | 0.5+ | 0.0 | 2007 03 20 | H55 | 0.1+ | 0.4+ |
| 2001 10 06 | 644 | 0.4+ | 1.0+ | 2005 10 01 | 703 | 0.6+ | 0.6+ | 2007 03 20 | H55 | 0.2− | 0.4+ |
| 2001 10 06 | 644 | 0.2+ | 0.8+ | 2005 10 03 | 691 | 0.0 | 0.1+ | 2009 09 10 | 703 | 0.1+ | 0.7− |
| 2001 10 06 | 644 | 0.2+ | 0.9+ | 2005 10 03 | 691 | 0.5+ | 0.3+ | 2009 09 10 | 703 | (1.6+ | 0.4−) |
| 2001 10 13 | 699 | 0.7+ | 0.8+ | 2005 10 03 | 691 | 0.0 | 0.1+ | 2009 09 10 | 703 | 0.1− | 0.4+ |
| 2001 10 13 | 699 | 0.2+ | 0.1+ | 2005 10 04 | 644 | 0.3− | 0.1+ | 2009 09 10 | 703 | 0.2− | 0.1− |
| 2001 10 13 | 699 | 0.7+ | 0.2− | 2005 10 04 | 644 | 0.2− | 0.2− | 2009 09 17 | 703 | 0.5− | 0.4− |
| 2001 10 13 | 699 | 0.3+ | 0.6+ | 2005 10 04 | 644 | 0.1− | 0.1− | 2009 09 17 | 703 | 1.5− | 0.4− |
| 2001 10 14 | 704 | 0.3+ | 0.3− | 2005 10 06 | 699 | 0.1− | 0.2+ | 2009 09 17 | 703 | 0.2− | 0.4− |
| 2001 10 14 | 704 | 0.3+ | 0.2− | 2005 10 06 | 699 | 0.3− | 0.1− | 2009 09 17 | 703 | 1.0− | 0.4− |
| 2001 10 14 | 704 | 0.0 | 0.1+ | 2005 10 06 | 703 | 0.2+ | 0.4− | 2009 09 17 | 152 | 0.8+ | 0.4− |
| 2001 10 14 | 704 | 0.1+ | 0.1− | 2005 10 06 | 703 | 0.3+ | 0.9− | 2009 09 17 | 152 | 0.4+ | 0.3− |
| 2001 10 14 | 704 | (2.0+ | 0.7+) | 2005 10 06 | 703 | 0.1− | 0.0 | 2009 09 17 | 152 | 0.6+ | 0.3− |
| 2001 10 15 | 704 | 0.1+ | 0.4− | 2005 10 06 | 699 | 0.8+ | 0.1− | 2009 09 20 | 691 | 0.1+ | 0.1+ |
| 2001 10 15 | 704 | 0.2− | 0.2− | 2005 10 06 | 699 | 0.3+ | 0.5+ | 2009 09 20 | 691 | 0.1− | 0.0 |
| 2001 10 15 | 704 | 0.3+ | 0.0 | 2005 10 07 | 691 | 0.2+ | 0.1− | 2009 09 20 | 691 | 0.0 | 0.1+ |
| 2001 10 15 | 704 | 0.1− | 0.7+ | 2005 10 07 | 691 | 0.6− | 0.5+ | 2009 09 21 | J75 | 0.1+ | 0.2+ |
| 2001 10 17 | 704 | 0.1− | 0.2− | 2005 10 07 | 691 | 0.2− | 0.2− | 2009 09 21 | J75 | 0.2− | 0.2− |
| 2001 10 17 | 704 | 0.4− | 0.2− | 2005 10 21 | 699 | 0.2− | 0.4+ | 2009 09 21 | J75 | 0.3+ | 0.0 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 10 17 | 704 | 0.4− | 0.9− | 2005 10 21 | 699 | 0.1+ | 0.5− | 2009 09 22 | 704 | 0.2+ | 0.5− |
| 2001 10 17 | 704 | 1.1− | 0.4− | 2005 10 21 | 699 | 0.1− | 0.1+ | 2009 09 22 | 704 | 1.1+ | 0.4− |
| 2001 10 17 | 704 | 0.7− | 0.6− | 2005 10 21 | 699 | 0.5+ | 0.5+ | 2009 09 22 | 704 | 0.2+ | 0.3− |
| 2001 10 19 | 704 | 0.1+ | 1.0− | 2005 10 22 | 699 | 0.2− | 0.4+ | 2009 09 22 | 704 | 0.1+ | 0.9− |
| 2001 10 19 | 704 | 0.4+ | 1.0− | 2005 10 22 | 699 | 0.3− | 0.8+ | 2009 09 23 | 691 | 0.0 | 0.1+ |
| 2001 10 19 | 704 | 0.3+ | 0.6− | 2005 10 22 | 699 | 0.3+ | 0.4+ | 2009 09 23 | 691 | 0.1− | 0.0 |
| 2001 10 19 | 704 | 0.4+ | 1.5− | 2005 10 22 | 699 | 1.1+ | 0.5+ | 2009 09 23 | 691 | 0.0 | 0.0 |
| 2001 10 21 | 704 | 0.2− | 0.1+ | 2005 10 30 | 704 | 0.1+ | 0.1+ | 2009 09 26 | 691 | 0.3− | 0.1− |
| 2001 10 21 | 704 | 0.3− | 0.8− | 2005 10 30 | 704 | 0.6+ | 0.1+ | 2009 09 26 | 691 | 0.2− | 0.0 |
| 2001 10 21 | 704 | 0.6+ | 0.2+ | 2005 10 30 | 704 | 0.3+ | 0.1− | 2009 09 26 | 691 | 0.1− | 0.0 |
| 2001 10 21 | 704 | 0.0 | 0.2+ | 2005 10 30 | 704 | 1.1+ | 0.5+ | 2009 10 08 | J75 | 0.4+ | 0.0 |
| 2001 10 21 | 704 | 0.6− | 0.7+ | 2005 10 30 | 704 | 0.4+ | 0.5− | 2009 10 08 | J75 | 0.3+ | 0.2− |
| 2001 11 10 | 704 | 0.0 | 0.4+ | 2005 11 01 | G96 | 0.0 | 0.2− | 2009 10 08 | J75 | 0.1+ | 0.0 |
| 2001 11 10 | 704 | 0.1+ | 0.6+ | 2005 11 01 | G96 | 0.2+ | 0.3− | 2009 10 10 | 703 | 0.6− | 0.4− |
| 2001 11 10 | 704 | 0.1+ | 0.6+ | 2005 11 01 | G96 | 0.3+ | 0.2− | 2009 10 10 | 703 | (2.0− | 0.2+) |
| 2001 12 11 | 704 | 0.8+ | 0.5− | 2005 11 01 | G96 | 0.3+ | 0.2− | 2009 10 10 | 703 | 0.7− | 0.9− |
| 2001 12 11 | 704 | 0.9+ | 0.2− | 2005 11 02 | 704 | 0.7+ | 0.2− | 2009 10 10 | 703 | 0.6− | 0.9+ |
| 2001 12 11 | 704 | 1.1− | 0.4+ | 2005 11 02 | 704 | 0.1+ | 1.0+ | 2009 10 15 | 704 | 0.6+ | 0.4+ |
| 2002 12 31 | 704 | 0.1+ | 0.7− | 2005 11 02 | 704 | 1.1+ | 1.3− | 2009 10 15 | 704 | 0.1+ | 0.8+ |
| 2002 12 31 | 704 | 0.2+ | 0.9+ | 2005 11 02 | 704 | 0.7+ | 0.5+ | 2009 10 15 | 704 | 0.0 | 0.7+ |
| 2002 12 31 | 704 | 0.5− | 1.5+ | 2005 11 02 | 704 | 0.2+ | 0.6+ | 2009 10 15 | 704 | 0.2+ | 0.9+ |
| 2003 01 05 | 704 | 1.0+ | 0.8+ | 2005 11 02 | 704 | 0.1+ | 0.6+ | 2009 10 15 | 704 | 0.2+ | 0.3+ |
| 2003 01 05 | 704 | 0.6+ | 0.2− | 2005 11 02 | 704 | 0.5− | 0.1+ | 2009 10 22 | 703 | (1.8+ | 1.0+) |
| 2003 01 05 | 704 | 0.0 | 0.3− | 2005 11 02 | 704 | 0.3+ | 0.9+ | 2009 10 22 | 703 | 0.1+ | 0.1− |
| 2003 01 05 | 704 | 0.3− | 0.8+ | 2005 11 02 | 704 | 0.1+ | 0.1+ | 2009 10 22 | 703 | 0.3+ | 0.8− |
| 2003 01 05 | 704 | 0.2− | 0.0 | 2005 11 02 | 704 | 0.9+ | 0.3+ | 2009 10 22 | 703 | 0.2+ | 0.1+ |
| 2003 01 09 | 704 | 0.2+ | 0.5+ | 2005 11 04 | 704 | 1.0+ | 0.5+ | 2009 10 23 | 704 | 0.5+ | 0.7+ |
| 2003 01 09 | 704 | 0.5+ | 0.1+ | 2005 11 04 | 704 | 1.1+ | 0.5− | 2009 10 23 | 704 | 0.9− | 0.5+ |
| 2003 01 09 | 704 | 0.1+ | 0.3+ | 2005 11 04 | 704 | 0.4+ | 0.4+ | 2009 10 23 | 704 | 0.0 | 0.4+ |
| 2003 01 09 | 704 | 0.2− | 0.3− | 2005 11 04 | 704 | 0.4+ | 0.6+ | 2009 10 23 | 704 | 0.0 | 0.4+ |
| 2003 01 17 | 644 | 0.0 | 0.1− | 2007 01 08 | 691 | 0.1− | 0.3+ | 2009 10 23 | 704 | 0.1+ | 0.0 |
| 2003 01 17 | 644 | 0.1+ | 0.1− | 2007 01 08 | 691 | 0.0 | 0.0 | 2009 10 23 | 704 | 0.5− | 0.3− |
| 2003 01 17 | 644 | 0.1+ | 0.1− | 2007 01 08 | 691 | 1.1− | 0.3− | 2009 10 23 | 704 | 0.3− | 0.0 |
| 2003 02 01 | 704 | 0.0 | 0.4+ | 2007 01 10 | 703 | 0.2− | 0.8− | 2009 12 16 | G96 | 0.6+ | 0.1− |
| 2003 02 01 | 704 | 0.5+ | 0.1− | 2007 01 10 | 703 | 0.2+ | 0.6− | 2009 12 16 | G96 | 0.1− | 0.1− |
| 2003 02 01 | 704 | 0.1− | 0.6+ | 2007 01 10 | 703 | 0.6+ | 0.5+ | 2009 12 16 | G96 | 0.4+ | 0.0 |
| 2003 02 01 | 704 | 0.2− | 0.2+ | 2007 01 10 | 703 | 0.6− | 0.3− | 2009 12 16 | G96 | 0.6+ | 0.2− |
| 2003 02 01 | 704 | 0.2− | 0.5+ | 2007 01 16 | 703 | 0.1− | 1.0− | 2009 12 20 | G96 | 0.6+ | 0.5− |
| 2003 02 02 | 644 | 0.1+ | 0.5+ | 2007 01 16 | 703 | 1.0+ | 0.5− | 2009 12 20 | G96 | 0.2+ | 0.0 |
| 2003 02 02 | 644 | 0.1+ | 0.5+ | 2007 01 16 | 703 | 0.9− | 0.8− | 2009 12 20 | G96 | 0.4+ | 0.2− |
| 2003 02 02 | 644 | 0.1− | 0.5+ | 2007 01 16 | 703 | 0.7− | 0.0 | 2009 12 20 | G96 | 0.6+ | 0.1− |

**(229912)∗ 4378 T-3 = 1995 UX$_{74}$**

Discovered 1977 Oct. 16 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. M. E. Sansaturio (*MPO* 15991)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 63.43947 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21982578 | $\omega$ | 312.27156 | | +0.88255970 | −0.45840530 | |
| $a$ | 2.7190486 | $\Omega$ | 75.25926 | | +0.45695126 | +0.78371120 | |
| $e$ | 0.1228293 | $i$ | 6.21261 | | +0.11083282 | +0.41911973 | |
| $P$ | 4.48 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1977 10 16 | 675 | 0.9+ | 1.0− | 2007 04 14 | 691 | 0.1− | 0.2− | 2007 05 26 | G96 | 0.2− | 0.1+ |
| 1977 10 16 | 675 | 0.3+ | 0.7+ | 2007 04 14 | 691 | 0.1− | 0.1− | 2007 06 18 | H55 | 0.4− | 0.6− |
| 1977 10 17 | 675 | 0.8+ | 0.7− | 2007 04 14 | 691 | 0.3− | 0.5+ | 2007 06 18 | H55 | 0.0 | 0.1− |
| 1977 10 17 | 675 | 0.1− | 2.0− | 2007 04 22 | 691 | 0.2− | 0.1+ | 2007 06 18 | H55 | 0.1+ | 0.1− |
| 1977 10 21 | 675 | 0.0 | 1.4− | 2007 04 22 | 691 | 0.1− | 0.1− | 2008 08 23 | 704 | 0.8+ | 0.5+ |
| 1977 10 21 | 675 | 0.7+ | 1.6− | 2007 04 22 | 691 | 0.1+ | 0.1+ | 2008 08 23 | 704 | 0.1+ | 0.6+ |
| 1993 03 18 | 809 | 1.3+ | 1.5− | 2007 04 28 | 691 | 0.3− | 0.3+ | 2008 08 23 | 704 | (1.2− | 1.9+) |
| 1993 03 19 | 691 | 0.3+ | 0.2+ | 2007 04 28 | 691 | 0.3+ | 0.3+ | 2008 08 23 | E12 | 0.3− | 0.9+ |
| 1993 03 19 | 691 | 0.2+ | 0.0 | 2007 04 28 | 691 | 0.1+ | 0.1+ | 2008 08 23 | E12 | 0.7+ | 0.2+ |
| 1993 03 19 | 691 | 0.1+ | 0.0 | 2007 05 10 | 691 | 0.1− | 0.3+ | 2008 08 23 | E12 | 0.2+ | 0.8+ |
| 1995 10 21 | 691 | 0.3− | 0.1+ | 2007 05 10 | 691 | 0.0 | 0.1+ | 2008 08 23 | E12 | 0.3− | 0.4+ |
| 1995 10 21 | 691 | 0.2+ | 0.1+ | 2007 05 10 | 691 | 0.3+ | 0.1+ | 2009 11 20 | G96 | 0.3+ | 0.1− |
| 1995 10 21 | 691 | 0.1+ | 0.1+ | 2007 05 10 | G96 | 0.4+ | 0.3− | 2009 11 20 | G96 | 0.4− | 0.2+ |
| 1995 10 25 | 691 | 0.4− | 0.3+ | 2007 05 10 | G96 | 0.6− | 0.2− | 2009 11 20 | G96 | 0.1− | 0.3+ |
| 1995 10 25 | 691 | 0.3− | 0.3+ | 2007 05 10 | G96 | 0.5− | 0.2− | 2009 11 20 | G96 | 0.2+ | 0.1+ |
| 1995 10 25 | 691 | 0.3− | 0.2+ | 2007 05 10 | G96 | 0.4− | 0.2− | 2009 12 09 | J75 | 0.6+ | 0.3+ |
| 2004 11 03 | 644 | 0.2+ | 0.7+ | 2007 05 26 | G96 | 0.4− | 0.1+ | 2009 12 09 | J75 | 0.6− | 0.5+ |
| 2004 11 03 | 644 | 0.1+ | 0.5+ | 2007 05 26 | G96 | 0.0 | 0.5− | 2009 12 09 | J75 | 0.4− | 0.6+ |
| 2004 11 03 | 644 | 0.1− | 0.9+ | 2007 05 26 | G96 | 0.4+ | 0.1+ | | | | |

**(229913)∗ 4503 T-3 = 2002 YH$_{12}$**

Discovered 1977 Oct. 16 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. G. V. Williams (*MPO* 41496)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 31.60490 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27865932 | $\omega$ | 296.25441 | | +0.82795298 | −0.55724500 | |
| $a$ | 2.3214197 | $\Omega$ | 97.67233 | | +0.53453999 | +0.75020257 | |
| $e$ | 0.2177637 | $i$ | 3.64601 | | +0.16959025 | +0.35591307 | |
| $P$ | 3.54 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1977 10 11 | 675 | (3.2+ | 0.5−) | 2004 04 14 | 691 | 0.2+ | 0.4+ | 2009 11 18 | 704 | 0.2− | 0.0 |
| 1977 10 11 | 675 | (3.0+ | 1.1−) | 2004 04 14 | 691 | 0.1− | 0.0 | 2009 11 18 | 704 | 0.3− | 1.3+ |
| 1977 10 12 | 675 | 0.1+ | 2.3− | 2007 02 25 | G96 | 0.6− | 0.2− | 2009 11 18 | 704 | 0.5− | 0.0 |
| 1977 10 12 | 675 | 0.8+ | 1.2− | 2007 02 25 | G96 | 0.1− | 0.3− | 2009 11 20 | 704 | 0.7+ | 0.5− |
| 1977 10 16 | 675 | 1.5+ | 0.5+ | 2007 02 25 | G96 | 0.9− | 0.2− | 2009 11 20 | 704 | 0.3+ | 0.5− |
| 1977 10 16 | 675 | 1.8+ | 0.8+ | 2007 02 25 | G96 | 0.4− | 0.3− | 2009 11 20 | 704 | 0.1+ | 0.1− |
| 1977 10 17 | 675 | 1.8− | 0.5− | 2007 02 25 | G96 | 0.1+ | 0.4− | 2009 11 20 | 704 | 0.4+ | 0.2+ |
| 1977 10 17 | 675 | 1.2− | 0.6− | 2007 02 25 | G96 | 0.4− | 0.3− | 2009 11 20 | 704 | 0.2+ | 0.1+ |
| 1977 10 21 | 675 | 1.2− | 0.1− | 2007 02 25 | G96 | 0.0 | 0.2− | 2009 11 26 | 691 | 0.2− | 0.1− |
| 1977 10 21 | 675 | 0.7+ | 0.3+ | 2007 02 25 | G96 | 0.1− | 0.0 | 2009 11 26 | 691 | 0.4− | 0.1− |
| 2002 12 05 | 704 | 0.3− | 0.0 | 2007 02 25 | G96 | 0.2− | 0.1+ | 2009 11 26 | 691 | 0.2− | 0.0 |
| 2002 12 05 | 704 | 0.8+ | 0.3+ | 2007 02 25 | G96 | 0.4− | 0.5− | 2009 12 09 | 106 | 0.5+ | 0.3+ |
| 2002 12 05 | 704 | 0.3− | 0.3+ | 2007 02 25 | G96 | 0.5− | 1.1− | 2009 12 09 | 106 | 0.1− | 0.1− |
| 2002 12 05 | 704 | 0.3− | 0.1− | 2007 02 25 | G96 | 0.2− | 0.3− | 2009 12 09 | 106 | 0.1+ | 0.1+ |
| 2002 12 05 | 704 | 0.7+ | 0.3+ | 2008 05 27 | G96 | 0.1+ | 0.2+ | 2009 12 09 | 106 | 0.0 | 0.6− |
| 2002 12 10 | 704 | 0.2+ | 0.9− | 2008 05 27 | G96 | 0.6+ | 0.1+ | 2009 12 11 | 703 | 0.2+ | 0.3− |
| 2002 12 10 | 704 | 0.4+ | 0.3− | 2008 05 27 | G96 | 0.6+ | 0.3+ | 2009 12 11 | 703 | 0.1+ | 0.1− |
| 2002 12 10 | 704 | 0.1+ | 1.1− | 2008 05 27 | G96 | 0.2− | 0.3+ | 2009 12 11 | 703 | 0.2− | 0.3− |
| 2002 12 31 | 704 | 0.3− | 0.9+ | 2009 10 12 | G96 | 0.1+ | 0.0 | 2009 12 11 | 703 | 0.3− | 0.2− |
| 2002 12 31 | 704 | 0.4− | 0.1+ | 2009 10 12 | G96 | 0.1+ | 0.0 | 2009 12 12 | 704 | 0.1+ | 1.1+ |
| 2002 12 31 | 704 | 0.4+ | 0.2+ | 2009 10 12 | G96 | 0.3+ | 0.0 | 2009 12 12 | 704 | 0.6− | 1.7+ |
| 2002 12 31 | 704 | 0.1+ | 0.4− | 2009 10 12 | G96 | 0.2− | 0.1− | 2009 12 12 | 704 | 0.2− | 0.8+ |
| 2003 01 02 | 291 | 0.3− | 0.3− | 2009 11 09 | J75 | 0.0 | 0.1+ | 2009 12 12 | 704 | 0.6− | 1.3+ |
| 2003 01 02 | 291 | 0.1+ | 0.0 | 2009 11 09 | J75 | 0.6− | 0.5+ | 2009 12 17 | 704 | 1.0+ | 0.1+ |
| 2003 01 02 | 291 | 0.3+ | 0.0 | 2009 11 10 | J75 | (0.3+ | 1.6+) | 2009 12 17 | 704 | 0.8+ | 0.8+ |
| 2003 01 04 | 704 | 0.0 | 0.1+ | 2009 11 10 | 691 | 0.2− | 0.0 | 2009 12 17 | 704 | 0.2+ | 0.7− |
| 2003 01 04 | 704 | 0.5+ | 0.5− | 2009 11 10 | 691 | 0.1+ | 0.4+ | 2009 12 17 | 704 | 0.1− | 0.5+ |
| 2003 01 04 | 704 | 0.3+ | 0.3+ | 2009 11 10 | 691 | 0.2− | 0.0 | 2009 12 17 | 704 | 0.1− | 0.6+ |
| 2003 01 04 | 704 | 0.2− | 0.1+ | 2009 11 13 | J75 | 0.1+ | 0.5− | 2009 12 17 | G96 | 0.2+ | 0.0 |
| 2003 01 08 | 704 | (1.8+ | 1.3−) | 2009 11 13 | J75 | 0.3+ | 0.0 | 2009 12 17 | G96 | 0.0 | 0.0 |
| 2003 01 08 | 704 | 1.1+ | 0.5− | 2009 11 13 | J75 | 0.2+ | 0.2+ | 2009 12 17 | G96 | 0.2+ | 0.1− |
| 2003 01 08 | 704 | 0.1+ | 0.8+ | 2009 11 18 | 704 | 0.6− | 0.5+ | 2009 12 17 | G96 | 0.5+ | 0.0 |
| 2004 04 14 | 691 | 0.3+ | 0.5+ | 2009 11 18 | 704 | 0.2− | 0.4− | | | | |

**(229914)∗ 5104 T-3 = 2008 NT$_4$**

Discovered 1977 Oct. 16 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. G. V. Williams (*MPO* 143009)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 38.09046 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18706265 | $\omega$ | 256.04982 | | +0.87783113 | −0.45732238 | |
| $a$ | 3.0279219 | $\Omega$ | 130.95452 | | +0.47889964 | +0.83292885 | |
| $e$ | 0.1094616 | $i$ | 10.86584 | | +0.00822403 | +0.31158590 | |
| $P$ | 5.27 | $H$ | 15.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1977 10 11 | 675 | 0.7− | 0.1+ | 2008 07 12 | J75 | 0.5− | 0.8− | 2009 11 09 | 703 | 0.3− | 0.3− |
| 1977 10 11 | 675 | 0.5− | 0.1− | 2008 07 12 | J75 | 0.4+ | 0.3+ | 2009 11 09 | 703 | 0.1− | 0.2+ |
| 1977 10 12 | 675 | 0.5+ | 1.1− | 2008 07 28 | E12 | 0.1− | 0.8+ | 2009 11 14 | 704 | 0.3− | 0.8+ |
| 1977 10 12 | 675 | 0.1− | 2.2− | 2008 07 28 | E12 | 0.3+ | 1.0+ | 2009 11 14 | 704 | 0.1− | 0.1− |
| 1977 10 16 | 675 | 0.3+ | 1.3− | 2008 07 28 | E12 | 0.1+ | 0.2− | 2009 11 14 | 704 | 0.2− | 1.0+ |
| 1977 10 16 | 675 | 1.6+ | 1.7− | 2008 07 28 | E12 | 1.1+ | 0.2− | 2009 11 14 | 704 | (0.3+ | 1.6+) |
| 1977 10 17 | 675 | 0.5− | 2.1− | 2008 08 03 | 704 | 0.7− | 0.2− | 2009 11 23 | 703 | 0.4− | 0.1+ |
| 1977 10 17 | 675 | 1.6+ | 0.7− | 2008 08 03 | 704 | 0.2+ | 0.2− | 2009 11 23 | 703 | 0.7− | 0.2+ |
| 1977 10 21 | 675 | 0.3+ | 0.8+ | 2008 08 03 | 704 | 0.7− | 0.1+ | 2009 11 23 | 703 | 0.4− | 0.6− |
| 1977 10 21 | 675 | (0.5+ | 3.0−) | 2008 08 07 | 428 | 1.3− | 1.4+ | 2009 11 23 | 703 | 0.7− | 0.3+ |
| 2003 09 15 | 644 | 0.2− | 0.6+ | 2008 08 07 | 428 | (1.6+ | 1.4+) | 2009 11 23 | 703 | 0.3− | 0.1+ |
| 2003 09 15 | 644 | 0.2+ | 0.8+ | 2008 08 24 | 704 | 0.1+ | 0.2− | 2009 12 10 | 703 | 0.3− | 0.4+ |
| 2003 09 15 | 644 | 0.3+ | 0.8+ | 2008 08 24 | 704 | 0.1− | 0.3− | 2009 12 10 | 703 | 0.3− | 0.8+ |
| 2003 09 27 | 699 | 0.9− | 0.4− | 2008 08 24 | 704 | 0.5− | 0.2+ | 2009 12 10 | 703 | 0.1− | 0.1+ |
| 2003 09 27 | 699 | 0.1+ | 1.0+ | 2008 08 24 | 704 | 0.1− | 0.1− | 2009 12 10 | 703 | 0.1+ | 0.4− |
| 2003 09 27 | 699 | 0.1− | 0.1− | 2008 08 24 | 704 | 0.5+ | 0.6+ | 2009 12 13 | 704 | 0.9+ | 0.8+ |
| 2003 09 27 | 699 | 0.0 | 0.5− | 2008 09 02 | 704 | 0.4− | 1.3+ | 2009 12 13 | 704 | 1.0− | 0.4+ |
| 2007 06 14 | 691 | 0.0 | 0.2− | 2008 09 02 | 704 | 0.4+ | 0.0 | 2009 12 13 | 704 | 0.8+ | 0.6+ |
| 2007 06 14 | 691 | 0.2− | 0.0 | 2008 09 02 | 704 | 0.8+ | 0.6+ | 2009 12 13 | 704 | 0.7+ | 0.6+ |
| 2007 06 14 | 691 | 0.2+ | 0.1+ | 2009 11 09 | 703 | 0.2+ | 0.2+ | 2009 12 13 | 704 | 0.3+ | 0.8+ |
| 2008 07 12 | J75 | 0.1− | 0.2+ | 2009 11 09 | 703 | 0.5+ | 0.6+ | | | | |

**1993 UN$_5$ = 2009 UW$_{14}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 4.16578 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18298972 | $\omega$ | 318.91520 | | +0.82396335 | −0.55249951 | |
| $a$ | 3.0726866 | $\Omega$ | 75.05075 | | +0.54796238 | +0.72037048 | |
| $e$ | 0.1866972 | $i$ | 7.48227 | | +0.14429702 | +0.41929782 | |
| $P$ | 5.39 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1993 10 10 | 809 | 1.3− | 1.4+ | 2007 03 16 | G96 | 0.5+ | 0.1+ | 2009 10 16 | 703 | 0.1+ | 0.9− |
| 1993 10 10 | 809 | 1.0− | 0.8+ | 2007 03 16 | G96 | 0.3+ | 0.4+ | 2009 10 16 | 703 | 0.8+ | 0.2+ |
| 1993 10 10 | 809 | (3.0− | 1.0+) | 2007 05 22 | G96 | 0.2− | 0.2− | 2009 10 21 | 291 | 0.1+ | 0.1− |
| 1993 10 20 | 809 | 0.3− | 1.9+ | 2007 05 22 | G96 | 0.3+ | 0.1− | 2009 10 21 | 291 | 0.1+ | 0.0 |
| 1993 10 20 | 809 | 1.3− | 1.4+ | 2007 05 22 | G96 | 0.4− | 0.6+ | 2009 10 21 | 291 | 0.2+ | 0.1− |
| 1993 10 20 | 809 | 1.2− | 1.9+ | 2007 05 22 | G96 | 0.6+ | 0.2+ | 2009 10 26 | J75 | 0.7+ | 0.3− |
| 1993 10 21 | 809 | 0.8+ | 1.3+ | 2009 09 27 | 703 | 1.3− | 1.4− | 2009 10 26 | J75 | 0.8+ | 0.8− |
| 1993 10 21 | 809 | 0.4− | 1.5+ | 2009 09 27 | 703 | 0.3− | 1.1− | 2009 10 26 | J75 | 0.0 | 1.0− |
| 1993 10 21 | 809 | (0.6− | 3.6+) | 2009 09 27 | 703 | 0.6+ | 0.8− | 2009 10 26 | J75 | 0.2+ | 0.2+ |
| 2003 06 01 | 807 | 0.2− | 0.2− | 2009 09 27 | 703 | 0.9+ | 0.6− | 2009 10 26 | J75 | 0.4+ | 0.2− |
| 2003 06 01 | 807 | 0.3− | 0.1− | 2009 10 09 | 703 | 0.9+ | 0.2− | 2009 10 26 | J75 | 0.7+ | 0.1− |
| 2004 11 20 | 691 | 0.0 | 0.3− | 2009 10 09 | 703 | 1.7− | 0.0 | 2009 10 27 | 703 | 0.8+ | 0.3+ |
| 2004 11 20 | 691 | 0.0 | 0.2− | 2009 10 09 | 703 | 1.1− | 0.1− | 2009 10 27 | 703 | 0.5− | 0.2− |
| 2004 11 20 | 691 | 0.2+ | 0.2− | 2009 10 09 | 703 | 1.1− | 0.2− | 2009 10 27 | 703 | 0.1− | 0.4+ |
| 2007 03 16 | G96 | 0.6+ | 0.8+ | 2009 10 16 | 703 | 0.1− | 0.2+ | 2009 10 27 | 703 | 1.8+ | 0.8+ |
| 2007 03 16 | G96 | 0.2− | 0.7+ | 2009 10 16 | 703 | 0.6− | 0.2− | | | | |

**1994 CU$_3$ = 2006 UP$_{209}$ = 2008 GK$_7$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 218.46215 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28784640 | $\omega$ | 212.90504 | | −0.90089683 | −0.42125200 | |
| $a$ | 2.2717586 | $\Omega$ | 301.83827 | | +0.42005969 | −0.78558513 | |
| $e$ | 0.0508254 | $i$ | 7.06942 | | +0.10924633 | −0.45321381 | |
| $P$ | 3.42 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 02 10 | 691 | 0.1− | 0.0 | 2002 08 07 | 644 | 0.5− | 0.1+ | 2006 10 27 | 703 | 0.1− | 0.1− |
| 1994 02 10 | 691 | 0.1− | 0.1+ | 2002 08 07 | 644 | 0.0 | 0.2+ | 2006 10 27 | 703 | 0.3− | 0.6− |
| 1994 02 10 | 691 | 0.3− | 0.0 | 2002 08 07 | 644 | 0.0 | 0.4+ | 2008 04 01 | G96 | 0.1+ | 0.2− |
| 1994 02 11 | 691 | 0.1+ | 0.1+ | 2002 08 17 | 644 | 0.9+ | 0.2+ | 2008 04 01 | G96 | 0.1+ | 0.1− |
| 1994 02 11 | 691 | 0.2+ | 0.1+ | 2002 08 17 | 644 | 0.1− | 0.5+ | 2008 04 01 | G96 | 0.6+ | 0.1− |
| 1994 02 11 | 691 | 0.1+ | 0.0 | 2002 08 17 | 644 | 0.0 | 0.2+ | 2008 04 01 | G96 | 0.6+ | 0.2− |
| 1999 10 14 | 645 | 0.1− | 0.1− | 2002 08 27 | 644 | 0.2+ | 0.7+ | 2008 04 05 | 703 | 0.7− | 0.2− |
| 1999 10 14 | 645 | 0.1+ | 0.0 | 2002 08 27 | 644 | 0.3− | 0.2+ | 2008 04 05 | 703 | 0.5+ | 1.0− |
| 2000 12 23 | 645 | 0.1+ | 0.1− | 2002 08 27 | 644 | 0.2− | 0.6+ | 2008 04 05 | 703 | 0.1+ | 0.8− |
| 2000 12 23 | 645 | 0.1+ | 0.0 | 2006 10 23 | 644 | 0.3+ | 0.7+ | 2008 04 05 | 703 | 0.4− | 0.0 |
| 2001 03 21 | 699 | 0.4+ | 0.4+ | 2006 10 23 | 644 | 0.2+ | 0.6+ | 2008 04 05 | 703 | 0.7− | 1.2+ |
| 2001 03 21 | 699 | 1.9− | 1.1+ | 2006 10 23 | 644 | 0.1− | 0.8+ | 2008 04 05 | 703 | 0.7− | 0.3− |
| 2001 03 21 | 699 | 0.9+ | 0.5+ | 2006 10 27 | 703 | 0.1+ | 0.1− | 2008 04 05 | 703 | 1.3− | 0.3+ |
| 2001 03 21 | 699 | 1.3+ | 0.4+ | 2006 10 27 | 703 | 0.5− | 0.4+ | 2008 04 05 | 703 | 0.4− | 0.2+ |

**1995 SS$_{19}$ = 2005 EN$_{330}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 58.84144 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.25986941 | $\omega$ | 212.05900 | | −0.68136720 | +0.73127242 | |
| $a$ | 2.4320133 | $\Omega$ | 15.06893 | | −0.64356412 | −0.57818118 | |
| $e$ | 0.0669365 | $i$ | 6.91378 | | −0.34866025 | −0.36186624 | |
| $P$ | 3.79 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 09 18 | 691 | 0.2− | 0.1+ | 1995 09 27 | 691 | 0.4+ | 0.1− | 2005 04 04 | 703 | 0.0 | 0.1− |
| 1995 09 18 | 691 | 0.1+ | 0.3− | 1995 09 27 | 691 | 0.0 | 0.1− | 2005 04 04 | 703 | 0.4− | 0.7− |
| 1995 09 18 | 691 | 0.7− | 0.2− | 2005 03 10 | G96 | 0.1− | 0.0 | 2005 04 04 | 703 | 0.4− | 0.5+ |
| 1995 09 24 | 691 | 0.1− | 0.3+ | 2005 03 10 | G96 | 0.0 | 0.1+ | 2005 05 08 | G96 | 0.3− | 0.1+ |
| 1995 09 24 | 691 | 0.3+ | 0.0 | 2005 03 10 | G96 | 0.1− | 0.1+ | 2005 05 08 | G96 | 0.5− | 0.6− |
| 1995 09 24 | 691 | 0.1+ | 0.1− | 2005 03 10 | G96 | 0.3− | 0.1+ | 2005 05 08 | G96 | 0.0 | 0.3− |
| 1995 09 27 | 691 | 0.2+ | 0.0 | 2005 04 04 | 703 | 1.1+ | 0.9− | 2005 05 08 | G96 | 0.2+ | 0.1+ |

**1998 RR$_2$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 207.55495 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22789722 | $\omega$ | 30.29900 | | +0.88234538 | −0.47059815 | |
| $a$ | 2.6544631 | $\Omega$ | 357.77124 | | +0.42078325 | +0.79083540 | |
| $e$ | 0.4164256 | $i$ | 2.95007 | | +0.21073225 | +0.39130136 | |
| $P$ | 4.32 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 09 14 | 704 | 0.5− | 0.6− | 1998 09 27 | 704 | 1.2− | 0.7− | 1998 10 22 | 327 | 0.2+ | 0.2− |
| 1998 09 14 | 704 | 0.1+ | 1.2+ | 1998 09 27 | 704 | 0.6− | 0.1+ | 1998 10 22 | 327 | 0.2+ | 0.6− |
| 1998 09 14 | 704 | (2.8− | 0.5−) | 1998 09 27 | 704 | 0.7− | 0.0 | 1998 10 22 | 327 | 0.5+ | 0.4− |
| 1998 09 16 | 422 | 0.8− | 0.0 | 1998 09 27 | 704 | 0.2− | 0.6+ | 1998 10 23 | 071 | 0.6+ | 0.0 |
| 1998 09 16 | 422 | 0.7− | 0.1+ | 1998 09 28 | 426 | 0.7− | 0.4− | 1998 10 23 | 071 | 0.3+ | 0.3− |
| 1998 09 16 | 422 | 0.0 | 0.1− | 1998 09 28 | 426 | 0.2− | 0.3− | 1998 10 23 | 071 | 0.5+ | 0.1+ |
| 1998 09 16 | 422 | 0.2− | 0.2+ | 1998 09 28 | 426 | 0.6− | 0.1+ | 1998 10 23 | 071 | 0.3+ | 0.1− |
| 1998 09 16 | 426 | 0.1− | 0.1− | 1998 09 28 | 470 | 0.0 | 1.0− | 1998 10 23 | 071 | 0.5+ | 0.0 |
| 1998 09 16 | 426 | 0.3− | 0.1− | 1998 09 28 | 470 | 0.8+ | 0.0 | 1998 10 25 | 402 | 0.4+ | 0.4− |
| 1998 09 16 | 426 | 0.3− | 0.3− | 1998 09 28 | 470 | 0.3+ | 0.9+ | 1998 10 25 | 402 | 0.3+ | 0.3− |
| 1998 09 16 | 557 | 0.2+ | 0.3+ | 1998 10 02 | 402 | 0.0 | 0.1+ | 1998 10 25 | 402 | 0.3+ | 0.5− |
| 1998 09 16 | 557 | 0.3− | 0.4− | 1998 10 02 | 402 | 0.0 | 0.0 | 1998 10 28 | 587 | 0.9+ | 0.5− |
| 1998 09 17 | 422 | 0.0 | 1.1+ | 1998 10 02 | 402 | 0.1+ | 0.0 | 1998 10 28 | 587 | 0.2+ | 0.5− |
| 1998 09 17 | 422 | 0.0 | 0.3+ | 1998 10 11 | 761 | 0.6− | 0.1− | 1998 10 30 | 426 | 0.1+ | 1.2− |
| 1998 09 17 | 422 | 0.1− | 0.2+ | 1998 10 11 | 761 | (4.6− | 1.7−) | 1998 10 30 | 426 | 0.7+ | 0.9− |
| 1998 09 19 | 468 | 0.1− | 0.5+ | 1998 10 11 | 699 | 0.1− | 0.0 | 1998 10 30 | 426 | 0.2− | 1.3− |
| 1998 09 19 | 468 | 0.0 | 0.5+ | 1998 10 11 | 699 | 0.1− | 0.1− | 1998 11 18 | 711 | 0.7− | 0.0 |
| 1998 09 19 | 468 | 0.8− | 0.2+ | 1998 10 11 | 699 | 0.1− | 0.1− | 1998 11 18 | 711 | 0.9− | 0.1− |
| 1998 09 19 | 422 | 0.3− | 0.2+ | 1998 10 13 | 761 | 1.2− | 1.3+ | 2007 11 12 | G96 | 0.6+ | 0.0 |
| 1998 09 19 | 422 | 0.1− | 0.6+ | 1998 10 13 | 761 | 0.3− | 0.7+ | 2007 11 12 | G96 | 0.2− | 0.3+ |
| 1998 09 19 | 402 | 0.1− | 0.3+ | 1998 10 13 | 422 | 0.0 | 0.0 | 2007 11 12 | G96 | 0.3+ | 0.0 |
| 1998 09 19 | 402 | 0.1− | 0.4+ | 1998 10 13 | 422 | 0.1− | 0.0 | 2007 11 12 | G96 | 0.1+ | 0.2− |
| 1998 09 19 | 402 | 0.2− | 0.4+ | 1998 10 13 | 422 | 0.3+ | 0.2− | 2008 01 01 | 691 | 0.0 | 0.0 |
| 1998 09 20 | 470 | (4.3+ | 1.0+) | 1998 10 15 | 422 | 0.1+ | 0.2− | 2008 01 01 | 691 | 0.1− | 0.4+ |
| 1998 09 20 | 470 | (4.1+ | 2.0+) | 1998 10 15 | 422 | 0.0 | 0.4− | 2008 01 01 | 691 | 0.4− | 0.0 |
| 1998 09 20 | 470 | (4.9+ | 0.5+) | 1998 10 15 | 422 | 0.5+ | 0.3+ | 2008 01 18 | 691 | (2.3+ | 0.1+) |
| 1998 09 20 | 470 | (2.9+ | 1.3+) | 1998 10 19 | 071 | 0.1− | 0.3+ | 2008 01 18 | 691 | 0.3+ | 0.2+ |
| 1998 09 26 | 704 | 0.3+ | 1.3+ | 1998 10 19 | 071 | 0.1+ | 0.5+ | 2008 01 18 | 691 | 0.0 | 0.4+ |
| 1998 09 26 | 704 | 1.3+ | 0.8+ | 1998 10 19 | 071 | 1.3+ | 0.3+ | 2008 02 07 | G96 | 0.2+ | 0.1+ |
| 1998 09 26 | 704 | 0.8− | 1.0− | 1998 10 19 | 071 | 0.3+ | 0.1+ | 2008 02 07 | G96 | 0.5+ | 0.1− |
| 1998 09 26 | 704 | 0.8+ | 0.2+ | 1998 10 19 | 071 | 0.4+ | 0.3+ | 2008 02 07 | G96 | 0.4+ | 0.2− |
| 1998 09 27 | 704 | 0.4+ | 1.1− | 1998 10 19 | 071 | 0.6+ | 0.3+ | 2008 02 07 | G96 | 0.2+ | 0.0 |

**1998 SD$_{177}$ = 2009 SH$_{304}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 355.45376 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17912782 | $\omega$ | 210.65276 | | +0.83829823 | −0.54503855 | |
| $a$ | 3.1166930 | $\Omega$ | 182.50509 | | +0.54188669 | +0.83570154 | |
| $e$ | 0.1821998 | $i$ | 18.33593 | | +0.06012399 | +0.06734924 | |
| $P$ | 5.50 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 09 18 | 703 | (3.0+ | 0.3−) | 1998 10 14 | 910 | 0.3+ | 0.7+ | 2009 09 17 | 691 | 0.3− | 0.1− |
| 1998 09 18 | 703 | 1.1+ | 0.4+ | 1998 10 14 | 910 | 0.3+ | 0.7+ | 2009 09 17 | 691 | 0.3− | 0.1− |
| 1998 09 18 | 703 | 1.9+ | 1.1+ | 2009 08 17 | 691 | 0.1− | 0.2+ | 2009 09 17 | 691 | 0.1+ | 0.1+ |
| 1998 09 18 | 703 | 1.2+ | 1.7+ | 2009 08 17 | 691 | 0.1+ | 0.3− | 2009 09 28 | G96 | 0.5+ | 0.5− |
| 1998 09 25 | 691 | 0.4− | 0.2− | 2009 08 17 | 691 | 0.2− | 0.0 | 2009 09 28 | G96 | 0.4+ | 0.5− |
| 1998 09 25 | 691 | 0.6− | 0.3− | 2009 08 29 | 691 | 0.1− | 0.2+ | 2009 09 28 | G96 | 0.5+ | 0.6− |
| 1998 09 25 | 691 | 0.5− | 0.3− | 2009 08 29 | 691 | 0.2+ | 0.1− | 2009 09 28 | G96 | 0.5+ | 0.4− |
| 1998 10 14 | 910 | 0.8+ | 0.7+ | 2009 08 29 | 691 | 0.2+ | 0.0 | | | | |

**1998 VF$_{19}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 345.01689 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26354348 | $\omega$ | 3.31987 | | +0.53337913 | −0.83843175 | |
| $a$ | 2.4093572 | $\Omega$ | 54.47643 | | +0.77287257 | +0.42925699 | |
| $e$ | 0.2271090 | $i$ | 7.90813 | | +0.34376546 | +0.33581339 | |
| $P$ | 3.74 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 10 14 | 699 | 0.7− | 0.2− | 1998 11 11 | 704 | (2.5+ | 0.8+) | 2009 09 16 | 703 | 0.9+ | 0.5+ |
| 1998 10 14 | 699 | 0.8− | 0.6− | 1998 11 11 | 704 | 0.6+ | 1.0− | 2009 09 16 | 703 | 0.2+ | 0.0 |
| 1998 10 14 | 699 | 0.4− | 1.2+ | 1998 12 11 | 691 | 0.6− | 0.2+ | 2009 09 16 | 703 | 0.3− | 1.3+ |
| 1998 11 10 | 704 | 0.8+ | 0.7+ | 1998 12 11 | 691 | 0.1− | 0.4− | 2009 09 24 | 703 | (3.0− | 1.3−) |
| 1998 11 10 | 704 | 0.1− | 0.2− | 1998 12 11 | 691 | 0.0 | 0.6+ | 2009 09 24 | 703 | 1.5− | 1.1− |
| 1998 11 10 | 704 | 0.7+ | 0.4+ | 1998 12 17 | 691 | 0.1− | 0.2− | 2009 09 24 | 703 | 1.4+ | 1.7− |
| 1998 11 11 | 704 | 1.3− | 0.1− | 1998 12 17 | 691 | 0.2+ | 0.1− | 2009 09 24 | 703 | (2.8+ | 0.9−) |
| 1998 11 11 | 704 | 1.4+ | 0.5+ | 1998 12 17 | 691 | 0.4+ | 0.3− | | | | |
| 1998 11 11 | 704 | (0.2− | 3.2−) | 2009 09 16 | 703 | 0.5− | 0.6+ | | | | |

**1998 VG$_{57}$ = 1992 ER$_{35}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 11.75054 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27464611 | $\omega$ | 60.32426 | | −0.28181990 | −0.95895257 | |
| $a$ | 2.3439792 | $\Omega$ | 46.08018 | | +0.86452932 | −0.26800298 | |
| $e$ | 0.3876155 | $i$ | 2.50041 | | +0.41613291 | −0.09265184 | |
| $P$ | 3.59 | $H$ | 18.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1992 03 02 | 809 | 0.5+ | 0.1− | 1998 11 10 | 699 | 0.9+ | 1.9+ | 2003 04 28 | 691 | 0.1+ | 0.3+ |
| 1992 03 05 | 809 | 0.9− | 0.2+ | 1998 11 10 | 699 | 0.3− | 1.9+ | 2005 10 29 | G96 | 0.1− | 0.1+ |
| 1992 03 07 | 809 | 0.0 | 0.2− | 1998 11 16 | 691 | 0.3− | 0.4− | 2005 10 29 | G96 | 0.2− | 0.3− |
| 1998 10 18 | 699 | 0.3+ | 1.0+ | 1998 11 16 | 691 | 0.2− | 0.5− | 2005 10 29 | G96 | 0.3− | 0.4− |
| 1998 10 18 | 699 | 0.4− | 0.5+ | 1998 11 16 | 691 | 0.1− | 0.5− | 2005 10 29 | G96 | 0.0 | 0.3− |
| 1998 10 18 | 699 | 0.3+ | 0.8+ | 1998 12 16 | 699 | 0.0 | 0.2− | 2005 12 01 | G96 | 0.5− | 0.6− |
| 1998 11 09 | 910 | 1.3+ | 0.9+ | 1998 12 16 | 699 | 1.0− | 0.4− | 2005 12 01 | G96 | 0.2+ | 0.0 |
| 1998 11 09 | 910 | 1.4+ | 0.9+ | 1998 12 16 | 699 | 0.7− | 0.8− | 2005 12 01 | G96 | 0.3+ | 0.1− |
| 1998 11 10 | 910 | 1.3+ | 1.2+ | 2003 04 28 | 691 | 0.1+ | 0.4+ | 2005 12 01 | G96 | 0.1− | 0.2− |
| 1998 11 10 | 699 | 0.2− | 1.3+ | 2003 04 28 | 691 | 0.3+ | 0.1+ | | | | |

**1998 XQ$_{15}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 28.44507 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26939116 | $\omega$ | 185.53661 | | +0.69363308 | −0.71833599 | |
| $a$ | 2.3743632 | $\Omega$ | 220.56194 | | +0.66400818 | +0.66644328 | |
| $e$ | 0.1738181 | $i$ | 4.72282 | | +0.27922444 | +0.19961653 | |
| $P$ | 3.66 | $H$ | 17.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 11 20 | 910 | 1.3− | 0.1− | 2005 10 30 | G96 | 0.4+ | 0.3− | 2009 11 18 | 691 | 0.0 | 0.1− |
| 1998 11 20 | 910 | 0.2− | 0.1+ | 2005 10 30 | G96 | 0.1+ | 0.6− | 2009 11 18 | 691 | 0.1− | 0.2− |
| 1998 11 20 | 910 | 0.3+ | 0.1+ | 2005 10 30 | G96 | 0.7− | 0.1− | 2009 11 18 | 691 | 0.2+ | 0.1− |
| 1998 12 15 | 910 | 0.3− | 0.1+ | 2007 03 13 | G96 | 0.5+ | 0.1− | 2009 11 27 | 691 | 0.4− | 0.3− |
| 1998 12 16 | 910 | 0.2+ | 0.5+ | 2007 03 13 | G96 | 0.2+ | 0.1+ | 2009 11 27 | 691 | 0.3− | 0.5+ |
| 1998 12 16 | 910 | 0.0 | 0.6+ | 2007 03 13 | G96 | 0.4+ | 0.1− | 2009 11 27 | 691 | 0.4− | 0.3− |
| 1998 12 16 | 910 | 0.1− | 0.5+ | 2007 03 13 | G96 | 0.4+ | 0.2+ | 2009 12 08 | J75 | 1.1+ | 0.2+ |
| 1998 12 16 | 910 | 0.1− | 0.6+ | 2009 09 20 | G96 | 0.6− | 0.7+ | 2009 12 09 | J75 | 0.3+ | 0.0 |
| 1998 12 16 | 910 | 0.5+ | 0.1− | 2009 09 20 | G96 | 0.3− | 0.1− | 2009 12 09 | J75 | (0.4+ | 2.1+) |
| 1998 12 25 | 910 | 0.7+ | 0.8+ | 2009 09 20 | G96 | 0.2− | 0.3− | 2009 12 12 | 704 | 0.8+ | 0.1+ |
| 1998 12 26 | 910 | 0.6+ | 0.4+ | 2009 09 20 | G96 | 0.1+ | 0.3− | 2009 12 12 | 704 | 0.3+ | 0.1− |
| 1998 12 26 | 910 | 0.4+ | 0.8+ | 2009 09 30 | G96 | 0.2+ | 0.4+ | 2009 12 12 | 704 | 1.5+ | 0.1+ |
| 2003 01 28 | 645 | 0.1− | 0.0 | 2009 09 30 | G96 | 0.0 | 0.4− | 2009 12 12 | 704 | 1.2+ | 0.9+ |
| 2003 01 28 | 645 | 0.0 | 0.1− | 2009 09 30 | G96 | 0.1+ | 0.8− | | | | |
| 2005 10 30 | G96 | 0.0 | 0.5− | 2009 09 30 | G96 | 0.3− | 1.0− | | | | |

**1998 YE$_{15}$ = 2009 WJ$_{246}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 24.06914 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26563523 | $\omega$ | 312.68884 | | +0.56517725 | −0.81904772 | |
| $a$ | 2.3966922 | $\Omega$ | 102.64084 | | +0.78338225 | +0.49533880 | |
| $e$ | 0.2180694 | $i$ | 5.80365 | | +0.25862506 | +0.28948282 | |
| $P$ | 3.71 | $H$ | 18.4 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 12 22 | 691 | 0.4− | 0.1+ | 1999 01 07 | 691 | 0.1− | 0.3+ | 2009 11 27 | 691 | 0.1− | 0.1− |
| 1998 12 22 | 691 | 0.0 | 0.4+ | 1999 01 07 | 691 | 0.3+ | 0.3− | 2009 11 27 | 691 | 0.1− | 0.1− |
| 1998 12 28 | 691 | 0.1− | 0.4+ | 2009 11 23 | 691 | 0.2+ | 0.0 | 2009 12 17 | 704 | 0.3+ | 1.3+ |
| 1998 12 28 | 691 | 0.1+ | 0.0 | 2009 11 23 | 691 | 0.2− | 0.2− | 2009 12 17 | 704 | 0.2+ | 0.1− |
| 1998 12 28 | 691 | 0.4+ | 0.2− | 2009 11 23 | 691 | 0.2+ | 0.1+ | 2009 12 17 | 704 | 0.3− | 0.3− |
| 1999 01 07 | 691 | 0.2− | 0.6− | 2009 11 27 | 691 | 0.0 | 0.0 | | | | |

**1999 RV$_{154}$ = 2009 XY$_{13}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 104.27551 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.30930246 | $\omega$ | 356.78104 | | +0.72266326 | +0.68999242 | |
| $a$ | 2.1654449 | $\Omega$ | 319.48778 | | −0.63275119 | +0.63661549 | |
| $e$ | 0.2146860 | $i$ | 3.60487 | | −0.27817933 | +0.34442877 | |
| $P$ | 3.19 | $H$ | 17.9 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 09 07 | 704 | 0.1+ | 0.8− | 1999 09 14 | 704 | 0.5+ | 0.6− | 2009 11 23 | 691 | 0.2− | 0.3− |
| 1999 09 07 | 704 | 0.1− | 0.0 | 1999 09 14 | 704 | 0.8+ | 0.1− | 2009 11 23 | 691 | 0.0 | 0.2− |
| 1999 09 07 | 704 | 0.8− | 0.9+ | 1999 09 14 | 704 | 0.0 | 0.6+ | 2009 12 13 | G96 | 0.0 | 0.1− |
| 1999 09 07 | 704 | 0.4− | 0.2+ | 1999 09 14 | 704 | 0.4+ | 0.5+ | 2009 12 13 | G96 | 0.3+ | 0.1+ |
| 1999 09 07 | 704 | 0.1− | 0.4+ | 2008 04 15 | G96 | 0.2+ | 0.0 | 2009 12 13 | G96 | 0.2+ | 0.3− |
| 1999 09 09 | 704 | 0.3+ | 0.4− | 2008 04 15 | G96 | 0.0 | 0.2− | 2009 12 13 | G96 | 0.6+ | 0.2+ |
| 1999 09 09 | 704 | 0.7− | 0.3− | 2008 04 15 | G96 | 0.3− | 0.0 | 2009 12 18 | G96 | 0.1− | 0.0 |
| 1999 09 09 | 704 | 0.7− | 0.1+ | 2008 04 15 | G96 | 0.1+ | 0.0 | 2009 12 18 | G96 | 0.2+ | 0.2− |
| 1999 09 09 | 704 | 0.7+ | 0.7− | 2009 11 23 | 691 | 0.1− | 0.5+ | 2009 12 18 | G96 | 0.0 | 0.1− |

**1999 RK$_{199}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 306.47847 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17593736 | $\omega$ | 13.76110 | | +0.99686270 | +0.05397319 | |
| $a$ | 3.1542589 | $\Omega$ | 342.82551 | | −0.07722488 | +0.82358004 | |
| $e$ | 0.3318292 | $i$ | 11.30670 | | +0.01735131 | +0.56462626 | |
| $P$ | 5.60 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 08 13 | 699 | 1.2− | 0.4+ | 1999 09 30 | 703 | 0.1+ | 0.2− | 1999 10 10 | 704 | 0.7+ | 0.4− |
| 1999 08 13 | 699 | 0.9− | 0.1+ | 1999 09 30 | 703 | 0.5− | 0.3+ | 1999 10 10 | 704 | 0.6+ | 0.2− |
| 1999 08 13 | 699 | 1.3− | 0.4+ | 1999 09 30 | 703 | 0.8− | 0.5+ | 1999 10 10 | 704 | 1.2+ | 0.4− |
| 1999 09 08 | 704 | 0.5− | 0.3+ | 1999 10 03 | 704 | 0.1+ | 0.4− | 1999 11 04 | 704 | 0.9− | 0.2+ |
| 1999 09 08 | 704 | 0.8+ | 0.6− | 1999 10 03 | 704 | 0.1− | 0.3+ | 1999 11 04 | 704 | 0.3− | 0.9− |
| 1999 09 08 | 704 | 0.7+ | 0.6− | 1999 10 03 | 704 | 0.4− | 0.1− | 1999 11 04 | 704 | 0.3+ | 0.5− |
| 1999 09 08 | 704 | 0.0 | 0.1− | 1999 10 03 | 704 | 0.6− | 1.4+ | 1999 11 04 | 704 | 0.6+ | 0.8− |
| 1999 09 08 | 704 | 0.5− | 0.3+ | 1999 10 03 | 704 | 0.2+ | 0.5− | 2007 01 26 | 691 | 0.1+ | 0.1− |
| 1999 09 18 | 704 | 0.3+ | 0.5+ | 1999 10 09 | 703 | 0.6− | 0.7+ | 2007 01 26 | 691 | 0.3− | 0.1+ |
| 1999 09 18 | 704 | 1.1+ | 0.9+ | 1999 10 09 | 703 | 0.8− | 0.4+ | 2007 01 26 | 691 | 0.2− | 0.1− |
| 1999 09 18 | 704 | 0.4+ | 0.4− | 1999 10 09 | 703 | 0.3− | 0.4− | 2007 03 16 | 691 | 0.2+ | 0.4+ |
| 1999 09 18 | 704 | 1.1+ | 0.2− | 1999 10 09 | 703 | 0.7− | 0.4+ | 2007 03 16 | 691 | 0.4+ | 0.1− |
| 1999 09 18 | 704 | 0.5+ | 0.1+ | 1999 10 10 | 704 | 0.2− | 0.2+ | 2007 03 16 | 691 | 0.1+ | 0.2+ |
| 1999 09 30 | 703 | 0.1− | 0.0 | 1999 10 10 | 704 | 0.5+ | 0.0 | | | | |

**1999 TG$_{217}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 326.02493 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17761013 | $\omega$ | 294.57516 | | +0.84351267 | +0.48860935 | |
| $a$ | 3.1344227 | $\Omega$ | 37.33011 | | −0.25251085 | +0.72726055 | |
| $e$ | 0.4115477 | $i$ | 21.58048 | | −0.47405132 | +0.48203008 | |
| $P$ | 5.55 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 10 07 | 704 | 1.0+ | 0.1− | 1999 11 03 | 699 | 1.0+ | 1.7+ | 1999 12 12 | 703 | 0.3− | 0.4+ |
| 1999 10 07 | 704 | 0.6+ | 0.9− | 1999 11 03 | 703 | 0.3+ | 0.1− | 1999 12 12 | 703 | 1.1+ | 0.5− |
| 1999 10 07 | 704 | 0.2+ | 0.3− | 1999 11 03 | 699 | 0.3+ | 1.1+ | 1999 12 12 | 703 | 1.4− | 0.7+ |
| 1999 10 07 | 704 | 0.6+ | 0.9− | 1999 11 03 | 699 | 0.4− | 1.2+ | 1999 12 12 | 703 | 1.4+ | 1.4+ |
| 1999 10 15 | 704 | 0.8+ | 1.4+ | 1999 11 05 | 704 | 0.6− | 0.1− | 2009 04 02 | 691 | 0.5− | 0.2+ |
| 1999 10 15 | 704 | 0.3− | 1.3+ | 1999 11 05 | 704 | 0.6− | 0.1− | 2009 04 02 | 691 | 0.2+ | 0.2− |
| 1999 10 15 | 704 | 0.5− | 1.2+ | 1999 11 05 | 704 | 0.0 | 0.6− | 2009 04 02 | 691 | 0.1− | 0.1− |
| 1999 10 15 | 704 | 1.0− | 1.2+ | 1999 11 05 | 704 | 0.3− | 0.2+ | 2009 04 18 | G96 | 0.2+ | 0.0 |
| 1999 10 19 | 704 | 0.1+ | 0.6− | 1999 11 12 | 704 | 0.0 | 0.3− | 2009 04 18 | G96 | 0.3− | 0.3+ |
| 1999 10 19 | 704 | 0.1+ | 0.1− | 1999 11 12 | 704 | 1.1− | 0.4− | 2009 04 18 | G96 | 0.9+ | 0.6+ |
| 1999 10 19 | 704 | 0.3− | 0.4− | 1999 11 12 | 704 | 0.5+ | 0.7− | 2009 04 18 | G96 | 0.2+ | 0.5− |
| 1999 10 19 | 704 | 0.1+ | 0.1+ | 1999 11 12 | 704 | 0.1− | 0.8− | 2009 05 13 | G96 | 0.4+ | 0.0 |
| 1999 10 19 | 704 | 0.5+ | 0.4+ | 1999 11 12 | 691 | 0.1− | 0.4− | 2009 05 13 | G96 | 0.1− | 0.1+ |
| 1999 11 03 | 703 | 0.0 | 0.1− | 1999 11 12 | 704 | 0.2− | 0.3+ | 2009 05 13 | G96 | 0.1− | 0.0 |
| 1999 11 03 | 703 | 0.4− | 0.0 | 1999 11 12 | 691 | 0.0 | 0.6− | 2009 05 13 | G96 | 0.4+ | 0.2+ |
| 1999 11 03 | 703 | 0.1+ | 0.2− | 1999 11 12 | 691 | 0.2− | 0.3− | | | | |

**1999 VF$_{52}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 119.89362 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22972446 | $\omega$ | 25.97027 | | +0.33020038 | −0.92681035 | |
| $a$ | 2.6403686 | $\Omega$ | 45.35502 | | +0.81632199 | +0.18525892 | |
| $e$ | 0.2346988 | $i$ | 14.55984 | | +0.47390519 | +0.32665226 | |
| $P$ | 4.29 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 10 10 | 704 | 0.0 | 0.4+ | 1999 11 04 | 704 | 0.9+ | 0.3− | 1999 12 13 | 703 | 0.8− | 0.1+ |
| 1999 10 10 | 704 | 0.3− | 0.5+ | 1999 11 16 | 704 | 0.1− | 0.2− | 1999 12 13 | 703 | 0.6+ | 0.5+ |
| 1999 10 10 | 704 | 0.1+ | 0.3+ | 1999 11 16 | 704 | 0.1+ | 0.1− | 1999 12 13 | 703 | 0.1+ | 0.3+ |
| 1999 10 10 | 704 | 0.4− | 0.1+ | 1999 11 16 | 704 | 0.7− | 0.2+ | 2009 01 30 | 703 | 0.5− | 0.7− |
| 1999 11 03 | 704 | 0.1+ | 1.7− | 1999 11 16 | 704 | 0.0 | 0.2− | 2009 01 30 | 703 | 0.4− | 1.1− |
| 1999 11 03 | 704 | 0.4− | 0.0 | 1999 11 16 | 704 | 0.4+ | 0.9− | 2009 01 30 | 703 | 0.4− | 0.2− |
| 1999 11 03 | 704 | 0.8+ | 0.1− | 1999 12 07 | 703 | 0.3+ | 0.3+ | 2009 02 22 | 703 | 0.0 | 0.3+ |
| 1999 11 04 | 704 | 0.6− | 0.7+ | 1999 12 07 | 703 | 1.2− | 0.0 | 2009 02 22 | 703 | 0.8+ | 0.2− |
| 1999 11 04 | 704 | 0.2− | 0.0 | 1999 12 07 | 703 | 0.2− | 0.7+ | 2009 02 22 | 703 | 0.1− | 0.4+ |
| 1999 11 04 | 704 | 0.1+ | 0.8+ | 1999 12 07 | 703 | 0.6+ | 0.1− | 2009 02 22 | 703 | 0.3+ | 1.6+ |
| 1999 11 04 | 704 | 0.0 | 0.3− | 1999 12 13 | 703 | 0.4+ | 0.3− | | | | |

**1999 VV$_{71}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 121.83008 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22710351 | $\omega$ | 355.52983 | | +0.60573481 | −0.78388812 | |
| $a$ | 2.6606443 | $\Omega$ | 57.12582 | | +0.73495249 | +0.48555177 | |
| $e$ | 0.2557706 | $i$ | 9.34659 | | +0.30484451 | +0.38698694 | |
| $P$ | 4.34 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 11 09 | 704 | 0.3− | 0.4+ | 1999 11 15 | 734 | 0.1− | 0.3+ | 1999 12 08 | 704 | 0.4+ | 0.6− |
| 1999 11 09 | 704 | 0.2+ | 0.5+ | 1999 11 16 | 704 | 0.1− | 1.2− | 1999 12 08 | 704 | 0.4+ | 1.0+ |
| 1999 11 09 | 704 | 0.3− | 0.6+ | 1999 11 16 | 704 | 0.2+ | 0.9− | 1999 12 08 | 704 | 0.8− | 0.5− |
| 1999 11 09 | 704 | 0.3− | 1.3+ | 1999 11 16 | 704 | 0.2− | 1.5+ | 2000 01 08 | 734 | 0.1+ | 0.9− |
| 1999 11 09 | 704 | 0.4− | 0.1− | 1999 11 16 | 704 | 0.4+ | 0.3− | 2000 01 08 | 734 | 0.7+ | 1.2− |
| 1999 11 12 | 704 | 0.9− | 0.5+ | 1999 11 19 | 734 | 0.6− | 0.8+ | 2000 01 08 | 734 | 1.2+ | 1.0+ |
| 1999 11 12 | 704 | 0.1+ | 0.7+ | 1999 11 19 | 734 | 0.6− | 0.6− | 2008 12 31 | D29 | 0.4− | 0.8− |
| 1999 11 12 | 704 | 0.0 | 0.1− | 1999 11 19 | 734 | 0.9− | 0.9+ | 2008 12 31 | D29 | 1.2+ | 0.0 |
| 1999 11 12 | 704 | 0.6− | 0.2− | 1999 12 01 | 734 | 1.4+ | 1.7− | 2008 12 31 | D29 | 1.5+ | 0.3− |
| 1999 11 12 | 704 | 0.1− | 0.1+ | 1999 12 01 | 734 | 0.3+ | 2.0− | 2008 12 31 | D29 | 0.8+ | 0.2− |
| 1999 11 15 | 734 | 0.5− | 0.5− | 1999 12 01 | 734 | 0.4− | 0.4− | 2009 01 29 | 703 | 0.6− | 0.2− |
| 1999 11 15 | 734 | 0.0 | 0.2+ | 1999 12 03 | 691 | 0.3+ | 0.1+ | 2009 01 29 | 703 | 0.6− | 0.8+ |
| 1999 11 15 | 734 | 1.0− | 0.4+ | 1999 12 03 | 691 | 0.3+ | 0.2+ | 2009 01 29 | 703 | 1.6− | 0.8+ |
| 1999 11 15 | 734 | 0.0 | 0.3+ | 1999 12 03 | 691 | 0.3+ | 0.2− | 2009 01 29 | 703 | 0.2− | 1.3+ |

**1999 VV$_{91}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 118.83242 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22533504 | $\omega$ | 353.51456 | | +0.95745629 | −0.27071321 | |
| $a$ | 2.6745469 | $\Omega$ | 22.96375 | | +0.27494203 | +0.75052057 | |
| $e$ | 0.2574148 | $i$ | 14.84515 | | +0.08766036 | +0.60285424 | |
| $P$ | 4.37 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 09 08 | 703 | 0.6− | 1.8− | 1999 10 12 | 699 | 0.5+ | 0.6− | 1999 11 12 | 704 | 0.0 | 1.2− |
| 1999 09 08 | 703 | 0.1+ | 0.0 | 1999 10 12 | 699 | 0.6− | 0.0 | 1999 11 12 | 704 | 0.1− | 0.1+ |
| 1999 09 08 | 703 | 0.1+ | 0.4− | 1999 11 05 | 703 | 0.0 | 0.1− | 1999 11 12 | 704 | 0.6− | 0.1+ |
| 1999 09 08 | 703 | 0.6+ | 0.9+ | 1999 11 05 | 703 | 0.4− | 1.3+ | 1999 11 12 | 704 | 0.2+ | 0.8− |
| 1999 09 14 | 704 | (3.7− | 0.9−) | 1999 11 05 | 703 | 0.6+ | 0.1+ | 2008 09 23 | 703 | 0.7+ | 0.1+ |
| 1999 09 14 | 704 | (2.2− | 0.7−) | 1999 11 05 | 703 | 0.1+ | 0.7+ | 2008 09 23 | 703 | 0.2+ | 0.1− |
| 1999 09 14 | 704 | 0.9− | 0.3+ | 1999 11 09 | 704 | 0.2+ | 0.3+ | 2008 09 23 | 703 | 0.2− | 0.7− |
| 1999 10 02 | 704 | 0.2+ | 0.6− | 1999 11 09 | 704 | 0.1− | 0.4− | 2008 09 23 | 703 | 0.3+ | 0.6− |
| 1999 10 02 | 704 | 0.6+ | 0.2− | 1999 11 09 | 704 | 0.2− | 0.3+ | 2008 10 22 | 691 | 0.0 | 0.1+ |
| 1999 10 02 | 704 | 0.1+ | 0.8+ | 1999 11 09 | 704 | 0.0 | 0.4+ | 2008 10 22 | 691 | 0.0 | 0.0 |
| 1999 10 02 | 704 | 0.4+ | 0.5+ | 1999 11 09 | 704 | 0.2− | 0.1− | 2008 10 22 | 691 | 0.1− | 0.1+ |
| 1999 10 12 | 699 | 0.1− | 1.6+ | 1999 11 12 | 704 | 0.1− | 1.1− | | | | |

**1999 VC$_{182}$ = 2009 YX$_2$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 6.67404 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.20597108 | $\omega$ | 226.10509 | | −0.15531354 | −0.98732325 | |
| $a$ | 2.8396526 | $\Omega$ | 232.85797 | | +0.91770752 | −0.13194526 | |
| $e$ | 0.1175963 | $i$ | 2.35236 | | +0.36563727 | −0.08822273 | |
| $P$ | 4.79 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 10 11 | 691 | 0.3+ | 0.4− | 1999 11 17 | 691 | 0.5+ | 0.1+ | 2008 10 24 | G96 | 0.6− | 0.7+ |
| 1994 10 11 | 691 | 0.3+ | 1.4− | 2003 10 24 | 695 | 0.0 | 0.6+ | 2008 10 24 | G96 | 0.1− | 0.2+ |
| 1994 10 11 | 691 | 0.1+ | 2.2− | 2003 10 24 | 695 | 0.0 | 0.6+ | 2008 10 24 | G96 | 0.1− | 0.2+ |
| 1994 12 02 | 691 | 0.6− | 0.4+ | 2004 12 14 | 691 | 0.2+ | 0.2+ | 2008 10 24 | G96 | 0.6− | 0.4+ |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 12 02 | 691 | 0.4− | 0.8+ | 2004 12 14 | 691 | 0.1+ | 0.1+ | 2009 12 17 | G96 | 0.0 | 0.3− |
| 1994 12 02 | 691 | 1.0− | 0.6+ | 2004 12 14 | 691 | 0.3+ | 0.4+ | 2009 12 17 | G96 | 0.0 | 0.3− |
| 1999 11 09 | 704 | (2.1+ | 1.2−) | 2006 04 19 | 691 | 0.5+ | 0.3− | 2009 12 17 | G96 | 0.3+ | 0.1− |
| 1999 11 09 | 704 | 1.0+ | 0.0 | 2006 04 19 | 691 | 0.1− | 0.3− | 2009 12 17 | G96 | 0.3+ | 0.2− |
| 1999 11 09 | 704 | 0.2− | 0.4+ | 2006 04 19 | 691 | 0.1+ | 0.0 | 2009 12 17 | G96 | 0.2− | 0.1− |
| 1999 11 09 | 704 | 1.1+ | 0.1+ | 2006 05 01 | 691 | 0.3− | 0.2− | 2009 12 18 | 691 | 0.3− | 0.4+ |
| 1999 11 12 | 704 | 0.7+ | 1.0− | 2006 05 01 | 691 | 0.4− | 0.6− | 2009 12 18 | 691 | 0.2+ | 0.1− |
| 1999 11 12 | 704 | 0.6+ | 0.7− | 2006 05 01 | 691 | 0.0 | 0.0 | 2009 12 18 | 691 | 0.1− | 0.1− |
| 1999 11 12 | 704 | 0.4+ | 0.6+ | 2008 10 08 | G96 | 0.1+ | 0.5+ | 2009 12 26 | 691 | 0.4− | 0.2− |
| 1999 11 12 | 704 | 0.7− | 1.0− | 2008 10 08 | G96 | 0.1+ | 1.0+ | 2009 12 26 | 691 | 0.3− | 0.1+ |
| 1999 11 17 | 691 | 0.4+ | 0.2+ | 2008 10 08 | G96 | 0.4+ | 0.4− | 2009 12 26 | 691 | 0.4− | 0.0 |
| 1999 11 17 | 691 | 0.2+ | 0.1+ | 2008 10 08 | G96 | 0.3+ | 0.2− | | | | |

**1999 VZ$_{210}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 96.12336 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21512693 | $\omega$ | 286.88193 | | +0.96491454 | | −0.19174132 |
| $a$ | 2.7584992 | $\Omega$ | 84.44890 | | +0.25024976 | | +0.87835945 |
| $e$ | 0.3626092 | $i$ | 10.38255 | | −0.07946692 | | +0.43785837 |
| $P$ | 4.58 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 09 08 | 703 | 0.7− | 1.1− | 1999 11 16 | 703 | 0.2+ | 0.0 | 2007 05 14 | G96 | 0.7+ | 0.1− |
| 1999 09 08 | 703 | 0.6− | 0.2+ | 1999 12 04 | 699 | 0.4+ | 0.6− | 2007 05 14 | G96 | 0.3+ | 0.2+ |
| 1999 09 08 | 703 | 1.6+ | 0.8− | 1999 12 04 | 699 | 0.8+ | 0.1+ | 2008 09 10 | E12 | 0.0 | 0.1− |
| 1999 09 08 | 703 | 0.0 | 0.6+ | 1999 12 04 | 699 | 0.7+ | 1.0− | 2008 09 10 | E12 | 0.1+ | 0.2− |
| 1999 11 05 | 704 | 0.6− | 0.4− | 1999 12 05 | 704 | 0.0 | 0.0 | 2008 10 29 | 703 | 0.3+ | 0.2+ |
| 1999 11 05 | 704 | 1.0− | 0.1− | 1999 12 05 | 704 | 0.5+ | 0.1+ | 2008 10 29 | 703 | 0.2+ | 0.0 |
| 1999 11 05 | 704 | 0.6− | 0.1− | 1999 12 05 | 704 | 0.1− | 0.5+ | 2008 10 29 | 703 | 0.0 | 0.3+ |
| 1999 11 05 | 704 | 0.6− | 0.1+ | 1999 12 05 | 704 | 0.2− | 0.7+ | 2008 10 29 | 703 | 0.5− | 0.6+ |
| 1999 11 13 | 699 | 0.1+ | 0.1+ | 1999 12 05 | 704 | 0.4+ | 0.9+ | 2008 11 21 | 703 | 0.8− | 0.1− |
| 1999 11 13 | 699 | 0.0 | 0.1+ | 2007 04 25 | 691 | 0.1+ | 0.1+ | 2008 11 21 | 703 | 0.2+ | 0.9+ |
| 1999 11 13 | 699 | 0.4− | 0.3+ | 2007 04 25 | 691 | 0.2− | 0.3+ | 2008 11 21 | 703 | 0.4+ | 0.5− |
| 1999 11 16 | 703 | 0.4+ | 0.3+ | 2007 04 25 | 691 | 0.1+ | 0.5+ | 2008 11 21 | 703 | 0.6− | 0.8+ |
| 1999 11 16 | 703 | 0.0 | 0.6+ | 2007 05 14 | G96 | 0.3+ | 0.2− | | | | |
| 1999 11 16 | 703 | 0.4− | 0.4+ | 2007 05 14 | G96 | 0.1− | 0.0 | | | | |

**1999 YR$_8$ = 2009 VB$_{105}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 40.84923 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18427031 | $\omega$ | 269.28311 | | +0.93564108 | | −0.30316202 |
| $a$ | 3.0584342 | $\Omega$ | 108.35145 | | +0.34840321 | | +0.87524948 |
| $e$ | 0.0677385 | $i$ | 10.97783 | | −0.05648865 | | +0.37687019 |
| $P$ | 5.35 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 12 27 | 691 | 0.6+ | 0.4+ | 2000 01 11 | 691 | 0.5+ | 0.3+ | 2009 11 09 | 703 | 1.0+ | 1.4+ |
| 1999 12 27 | 691 | 0.1− | 0.5+ | 2000 01 11 | 691 | 0.5+ | 0.2+ | 2009 11 21 | 703 | 1.2− | 0.3− |
| 1999 12 27 | 691 | 0.0 | 0.1+ | 2000 01 11 | 691 | 0.5+ | 0.2+ | 2009 11 21 | 703 | 0.3− | 0.8+ |
| 1999 12 31 | 691 | 0.1− | 0.6− | 2000 01 13 | 691 | 0.1− | 0.1− | 2009 11 21 | 703 | 0.2+ | 0.6+ |
| 1999 12 31 | 691 | 1.0− | 0.4− | 2000 01 13 | 691 | 0.1+ | 0.1− | 2009 11 21 | 703 | 0.6− | 0.3− |
| 1999 12 31 | 691 | 0.8− | 0.5− | 2000 01 13 | 691 | 0.1+ | 0.1+ | 2009 12 10 | 703 | 0.7− | 0.7+ |
| 2000 01 08 | 691 | 0.1− | 0.0 | 2009 11 09 | 703 | 0.4− | 0.5− | 2009 12 10 | 703 | 1.4+ | 0.1− |
| 2000 01 08 | 691 | 0.0 | 0.1+ | 2009 11 09 | 703 | 0.3+ | 1.1− | 2009 12 10 | 703 | 0.3+ | 0.2+ |
| 2000 01 08 | 691 | 0.0 | 0.1− | 2009 11 09 | 703 | 0.1− | 1.1− | 2009 12 10 | 703 | 0.1+ | 0.1− |

**2000 CU$_{100}$ = 2008 RT$_{133}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 92.49981 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18205458 | $\omega$ | 207.47720 | | +0.94127858 | | +0.30946687 |
| $a$ | 3.0831996 | $\Omega$ | 133.81328 | | −0.26513944 | | +0.92507280 |
| $e$ | 0.0687263 | $i$ | 10.78265 | | −0.20903521 | | +0.22016031 |
| $P$ | 5.41 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 02 10 | 691 | 0.4− | 0.2− | 2001 04 17 | 699 | 0.4+ | 0.5− | 2007 06 09 | 703 | 0.4+ | 0.2+ |
| 2000 02 10 | 691 | 0.3− | 0.2+ | 2001 04 17 | 699 | 0.9− | 0.2+ | 2007 06 09 | 703 | 0.7− | 0.9+ |
| 2000 02 10 | 691 | 0.1− | 0.1− | 2001 04 17 | 699 | (1.9+ | 0.0 ) | 2008 09 03 | J75 | 0.1+ | 0.6+ |
| 2000 02 14 | 691 | 0.0 | 0.3− | 2001 04 17 | 699 | 0.4+ | 1.0+ | 2008 09 03 | J75 | 0.1− | 0.4+ |
| 2000 02 14 | 691 | 0.7+ | 0.3− | 2003 09 28 | 699 | 0.1− | 0.8+ | 2008 09 03 | J75 | 0.1− | 0.0 |
| 2000 02 14 | 691 | 0.2+ | 0.0 | 2003 09 28 | 699 | 0.4+ | 1.4+ | 2008 09 06 | 703 | 1.3− | 0.5− |
| 2000 02 28 | 704 | 0.5− | 0.3+ | 2003 09 28 | 699 | 1.0− | 0.5− | 2008 09 06 | 703 | 0.7+ | 0.2+ |
| 2000 02 28 | 704 | 0.5+ | 0.6+ | 2003 09 28 | 699 | 0.1− | 0.7+ | 2008 09 06 | 703 | 0.1+ | 0.9− |
| 2000 02 28 | 704 | 0.1+ | 1.0+ | 2007 06 09 | 703 | 0.3− | 0.3− | 2008 09 06 | 703 | 0.5+ | 0.6− |
| 2000 02 28 | 704 | 0.2− | 1.6+ | 2007 06 09 | 703 | 1.2+ | 0.3+ | | | | |

**2000 DZ$_{100}$ = 2009 WA$_{251}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 317.70786 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18402888 | $\omega$ | 1.87678 | | −0.71535197 | | −0.68608437 |
| $a$ | 3.0611085 | $\Omega$ | 133.82824 | | +0.63868706 | | −0.71891309 |
| $e$ | 0.1798511 | $i$ | 10.58444 | | +0.28346147 | | −0.11158948 |
| $P$ | 5.36 | $H$ | 15.3 | $G$ | 0.15 | $U$ | 5 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 02 29 | 704 | 0.7− | 0.1− | 2000 03 05 | 704 | 0.5− | 0.4+ | 2009 11 26 | G96 | 0.1+ | 0.1+ |
| 2000 02 29 | 704 | 0.1− | 1.2+ | 2000 03 12 | 704 | 0.4− | 0.8+ | 2009 11 26 | G96 | 0.3+ | 0.1+ |
| 2000 02 29 | 704 | 0.1− | 0.3+ | 2000 03 12 | 704 | 0.2− | 0.0 | 2009 12 11 | 703 | 0.1+ | 0.1+ |
| 2000 02 29 | 704 | 0.6− | 0.4− | 2000 03 12 | 704 | 0.2− | 0.9− | 2009 12 11 | 703 | 0.7− | 0.7− |
| 2000 02 29 | 704 | 0.9+ | 0.0 | 2000 03 12 | 704 | 0.4+ | 0.4− | 2009 12 11 | 703 | 0.2− | 0.3− |
| 2000 03 05 | 704 | 0.8+ | 0.0 | 2009 11 26 | G96 | 0.5+ | 0.2+ | 2009 12 11 | 703 | 0.3− | 0.0 |
| 2000 03 05 | 704 | 0.1− | 0.1+ | 2009 11 26 | G96 | 0.2+ | 0.1+ | | | | |
| 2000 03 05 | 704 | 0.9+ | 1.1− | 2009 11 26 | G96 | 0.2− | 0.3+ | | | | |

**2000 HO$_{16}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 264.75303 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17737579 | $\omega$ | 180.69703 | | −0.97452048 | | +0.22155524 |
| $a$ | 3.1371827 | $\Omega$ | 12.27360 | | −0.20498561 | | −0.81642157 |
| $e$ | 0.1073517 | $i$ | 9.46919 | | −0.09105352 | | −0.53326269 |
| $P$ | 5.56 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 03 11 | 704 | 0.1+ | 0.8+ | 2000 04 24 | 691 | 0.2− | 0.2+ | 2008 10 10 | G96 | 0.1+ | 0.1+ |
| 2000 03 11 | 704 | 0.3+ | 0.5+ | 2000 04 24 | 691 | 0.3− | 0.3+ | 2008 10 10 | G96 | 0.0 | 0.4+ |
| 2000 03 11 | 704 | 0.4− | 0.7− | 2000 04 24 | 691 | 0.1− | 0.0 | 2008 10 10 | G96 | 0.5+ | 0.1− |
| 2000 04 05 | 704 | 0.0 | 0.5− | 2000 04 30 | 691 | 0.0 | 0.0 | 2008 10 10 | G96 | 0.2+ | 0.4+ |
| 2000 04 05 | 704 | 0.8+ | 0.0 | 2000 04 30 | 691 | 0.2+ | 0.3− | 2008 10 26 | 691 | 0.1− | 0.1− |
| 2000 04 05 | 704 | 0.3+ | 0.8− | 2000 04 30 | 691 | 0.2+ | 0.2− | 2008 10 26 | 691 | 0.3− | 0.2− |
| 2000 04 05 | 704 | 0.3− | 0.6− | 2000 05 04 | 645 | 0.0 | 0.0 | 2008 10 26 | 691 | 0.2+ | 0.0 |
| 2000 04 05 | 704 | 0.6+ | 0.3+ | 2000 05 04 | 645 | 0.0 | 0.0 | | | | |

**2000 HH$_{59}$ = 2009 VT$_{112}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 177.11175 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.26117376 | $\omega$ | 18.14255 | | −0.34695279 | | +0.93365300 |
| $a$ | 2.4239093 | $\Omega$ | 231.65268 | | −0.87393130 | | −0.35626688 |
| $e$ | 0.0938018 | $i$ | 6.51396 | | −0.34039366 | | −0.03695938 |
| $P$ | 3.77 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 04 25 | 699 | 0.2− | 0.9+ | 2003 01 24 | 644 | 0.3+ | 0.6+ | 2009 10 27 | 691 | 0.2− | 0.4+ |
| 2000 04 25 | 699 | 0.2+ | 1.1+ | 2003 01 24 | 644 | 0.0 | 0.6+ | 2009 10 27 | 691 | 0.0 | 0.1+ |
| 2000 04 25 | 699 | 0.2− | 0.9+ | 2003 01 24 | 644 | 0.1− | 0.8+ | 2009 11 08 | 691 | 0.8− | 0.2− |
| 2000 04 25 | 699 | 0.2− | 1.4+ | 2005 10 10 | 691 | 0.5+ | 0.5+ | 2009 11 08 | 691 | 0.1− | 0.0 |
| 2000 04 28 | 704 | 0.6− | 0.2+ | 2005 10 10 | 691 | 0.4− | 0.4+ | 2009 11 08 | 691 | 0.1− | 0.0 |
| 2000 04 28 | 704 | 0.1+ | 0.6− | 2005 10 10 | 691 | 0.4− | 0.0 | 2009 11 23 | G96 | 0.0 | 0.0 |
| 2000 04 28 | 704 | 0.4+ | 0.0 | 2005 10 28 | 703 | 0.4− | 0.4+ | 2009 11 23 | G96 | 0.1+ | 0.2− |
| 2000 04 28 | 704 | 0.3− | 0.8+ | 2005 10 28 | 703 | 0.1− | 1.9+ | 2009 11 23 | G96 | 0.1+ | 0.1− |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 05 07 | 704 | 0.3+ | 1.1+ | 2005 10 28 | 703 | 0.8+ | 0.3+ | 2009 11 23 | G96 | 0.5+ | 0.4− |
| 2000 05 07 | 704 | 0.4− | 0.2+ | 2005 10 28 | 703 | 0.4− | 0.2+ | 2009 12 11 | G96 | 0.2+ | 0.1+ |
| 2000 05 07 | 704 | 0.0 | 1.2+ | 2005 12 28 | G96 | 0.1+ | 0.2− | 2009 12 11 | G96 | 0.1+ | 0.0 |
| 2000 05 07 | 704 | 0.1− | 0.3− | 2005 12 28 | G96 | 0.6+ | 0.1− | 2009 12 11 | G96 | 0.4+ | 0.3− |
| 2000 05 10 | 704 | 1.4− | 0.5− | 2005 12 28 | G96 | 0.3− | 0.3+ | 2009 12 11 | G96 | 0.3+ | 0.2+ |
| 2000 05 10 | 704 | 1.2+ | 0.8+ | 2005 12 28 | G96 | 0.7+ | 0.1− | 2009 12 19 | G96 | 0.8+ | 0.2− |
| 2000 05 10 | 704 | 1.3+ | 0.3− | 2009 09 21 | G96 | 0.5+ | 0.1− | 2009 12 19 | G96 | 0.3+ | 0.1− |
| 2000 05 10 | 704 | 1.6+ | 1.0+ | 2009 09 21 | G96 | 0.2+ | 0.1+ | 2009 12 19 | G96 | 0.3+ | 0.4+ |
| 2001 09 28 | 644 | 0.3− | 0.7+ | 2009 09 21 | G96 | 0.5+ | 0.1− | 2009 12 19 | G96 | 0.3+ | 0.2+ |
| 2001 09 28 | 644 | 0.4− | 0.7+ | 2009 09 21 | G96 | 0.6+ | 0.0 | | | | |
| 2001 09 28 | 644 | 0.5− | 0.7+ | 2009 10 27 | 691 | 0.1− | 0.0 | | | | |

**2000 KQ$_{81}$ = 2009 WC$_{255}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 198.72208 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26335578 | $\omega$ | 158.54543 | | −0.40225837 | +0.90364839 | |
| $a$ | 2.4105019 | $\Omega$ | 87.48600 | | −0.85993372 | −0.31783371 | |
| $e$ | 0.0416857 | $i$ | 8.46108 | | −0.31416906 | −0.28705631 | |
| $P$ | 3.74 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 05 25 | 699 | 0.4+ | 0.3+ | 2005 11 10 | 703 | 0.8− | 1.0− | 2009 11 19 | 691 | 0.5− | 0.1+ |
| 2000 05 25 | 699 | 0.1− | 0.4− | 2005 11 10 | 703 | 1.2+ | 0.8+ | 2009 11 19 | 691 | 0.5− | 0.2− |
| 2000 05 25 | 699 | 0.2+ | 0.2+ | 2006 01 28 | G96 | 0.2+ | 0.6− | 2009 11 19 | 691 | 0.6− | 0.0 |
| 2000 05 25 | 699 | 0.1− | 0.1+ | 2006 01 28 | G96 | 0.5+ | 0.0 | 2009 12 11 | G96 | 0.1+ | 0.1− |
| 2000 06 01 | 691 | 0.0 | 0.1+ | 2006 01 28 | G96 | 0.1+ | 0.4− | 2009 12 11 | G96 | 0.2+ | 0.1− |
| 2000 06 01 | 691 | 0.0 | 0.5+ | 2006 01 28 | G96 | 0.6− | 0.1+ | 2009 12 11 | G96 | 0.3+ | 0.0 |
| 2000 06 01 | 691 | 0.3− | 0.3+ | 2006 11 28 | 691 | 1.0+ | 0.4+ | 2009 12 11 | G96 | 0.1− | 0.2− |
| 2000 06 05 | 691 | 0.3+ | 0.3+ | 2006 11 28 | 691 | 0.5+ | 0.2+ | 2009 12 17 | 704 | 0.5+ | 0.4+ |
| 2000 06 05 | 691 | 0.3+ | 0.2+ | 2006 11 28 | 691 | 0.3+ | 0.2+ | 2009 12 17 | 704 | 0.6+ | 1.4+ |
| 2000 06 05 | 691 | (1.7+ | 2.4−) | 2007 03 09 | 703 | 0.5+ | 0.0 | 2009 12 17 | 704 | 0.3+ | 1.0+ |
| 2001 10 15 | 644 | 0.1− | 1.0+ | 2007 03 09 | 703 | (1.3+ | 1.6−) | 2009 12 17 | 704 | 0.9+ | 1.1+ |
| 2001 10 15 | 644 | 0.0 | 1.4+ | 2007 03 09 | 703 | 0.7+ | 0.4− | 2009 12 19 | G96 | 0.1+ | 0.3+ |
| 2001 10 15 | 644 | 0.5− | 1.1+ | 2007 03 09 | 703 | 0.1+ | 0.1+ | 2009 12 19 | G96 | 0.1+ | 0.3− |
| 2003 03 07 | 645 | 0.0 | 0.1− | 2007 03 16 | 703 | 0.5+ | 1.3+ | 2009 12 19 | G96 | 0.2− | 0.0 |
| 2003 03 07 | 645 | 0.0 | 0.0 | 2007 03 16 | 703 | 1.2− | 0.5− | 2009 12 19 | G96 | 0.3+ | 0.1− |
| 2005 11 10 | 703 | 0.2+ | 0.8+ | 2007 03 16 | 703 | 0.2+ | 0.7+ | | | | |
| 2005 11 10 | 703 | 0.1− | 0.9+ | 2007 03 16 | 703 | 1.0− | 0.7− | | | | |

**2000 QM$_{70}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 117.98455 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.35823586 | $\omega$ | 230.60177 | | +0.88433514 | −0.42999204 | |
| $a$ | 1.9634658 | $\Omega$ | 153.32548 | | +0.44231671 | +0.89630036 | |
| $e$ | 0.0992936 | $i$ | 23.89195 | | −0.14935622 | +0.10840897 | |
| $P$ | 2.75 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 08 28 | 704 | 0.1+ | 0.5+ | 2000 09 20 | 704 | 0.3+ | 0.3+ | 2007 01 28 | 703 | 0.1− | 0.4+ |
| 2000 08 28 | 704 | 0.3+ | 0.3− | 2000 09 20 | 704 | 0.5− | 0.0 | 2007 01 28 | 703 | 0.5− | 0.4− |
| 2000 08 28 | 704 | 0.4− | 0.4+ | 2000 09 23 | 704 | 0.7+ | 0.3− | 2007 01 28 | 703 | 0.4− | 0.1+ |
| 2000 08 28 | 704 | 0.6+ | 0.1− | 2000 09 23 | 704 | 0.0 | 0.1− | 2007 02 05 | 644 | 0.3+ | 0.1− |
| 2000 08 28 | 704 | 0.6+ | 0.6+ | 2000 09 23 | 704 | 0.4− | 0.4− | 2007 02 05 | 644 | 0.4+ | 0.0 |
| 2000 08 31 | 704 | 0.3+ | 0.2+ | 2000 09 23 | 704 | 0.5− | 0.1− | 2007 02 05 | 644 | 0.4− | 0.4+ |
| 2000 08 31 | 704 | 0.0 | 0.2+ | 2000 09 23 | 704 | 0.3− | 0.2+ | 2007 03 20 | G96 | 0.1+ | 0.1+ |
| 2000 08 31 | 704 | 0.4+ | 0.1− | 2000 09 24 | 704 | 0.5+ | 0.0 | 2007 03 20 | G96 | 0.4+ | 0.0 |
| 2000 08 31 | 704 | 0.4+ | 0.5+ | 2000 09 24 | 704 | 0.0 | 0.1− | 2007 03 20 | G96 | 0.2+ | 0.1+ |
| 2000 09 20 | 704 | 0.9− | 0.0 | 2000 09 24 | 704 | 0.8− | 1.0− | 2007 03 20 | G96 | 0.0 | 0.0 |
| 2000 09 20 | 704 | 0.1+ | 0.3− | 2000 09 24 | 704 | 0.1− | 0.1+ | | | | |
| 2000 09 20 | 704 | 0.0 | 0.2+ | 2000 09 24 | 704 | 0.1− | 0.1− | | | | |

**2000 RR$_{57}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 315.25500 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21130422 | $\omega$ | 228.15312 | | +0.29713588 | −0.95249850 | |
| $a$ | 2.7916690 | $\Omega$ | 204.80007 | | +0.91642583 | +0.30411642 | |
| $e$ | 0.2076552 | $i$ | 9.15810 | | +0.26809319 | +0.01611879 | |
| $P$ | 4.66 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 07 | 691 | 0.3+ | 0.3− | 2000 09 27 | 704 | 0.3− | 0.2+ | 2000 11 20 | 691 | 0.0 | 0.1− |
| 2000 09 07 | 691 | 0.1+ | 0.1− | 2000 09 27 | 704 | 0.1− | 0.2+ | 2007 04 18 | G96 | 0.1+ | 0.0 |
| 2000 09 07 | 691 | 0.4+ | 0.7+ | 2000 10 02 | 704 | 0.1− | 0.5+ | 2007 04 18 | G96 | 0.2+ | 0.0 |
| 2000 09 08 | 691 | 0.2− | 0.3− | 2000 10 02 | 704 | 0.6− | 0.3− | 2007 04 18 | G96 | 0.2− | 0.3+ |
| 2000 09 08 | 691 | 0.2− | 0.3− | 2000 10 02 | 704 | 0.1− | 1.7+ | 2007 04 18 | G96 | 0.0 | 0.1+ |
| 2000 09 08 | 691 | 0.1+ | 0.1− | 2000 10 02 | 704 | 1.1+ | 0.0 | 2007 05 09 | G96 | 0.1+ | 0.2− |
| 2000 09 27 | 704 | 1.5− | 0.4− | 2000 10 02 | 704 | 0.8− | 0.9+ | 2007 05 09 | G96 | 0.3+ | 0.2− |
| 2000 09 27 | 704 | (2.4− | 0.6−) | 2000 11 20 | 691 | 0.1+ | 0.0 | 2007 05 09 | G96 | 0.2− | 0.9+ |
| 2000 09 27 | 704 | 0.2+ | 0.1+ | 2000 11 20 | 691 | 0.1+ | 0.0 | 2007 05 09 | G96 | 0.0 | 0.3− |

**2000 SJ$_{9}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 24.07335 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23250890 | $\omega$ | 94.68250 | | +0.01656370 | −0.99858163 | |
| $a$ | 2.6192462 | $\Omega$ | 353.66648 | | +0.63401151 | +0.04962154 | |
| $e$ | 0.4070037 | $i$ | 27.30218 | | +0.77314620 | −0.01929831 | |
| $P$ | 4.24 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 5 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 21 | 699 | 0.2− | 0.0 | 2000 09 24 | 704 | 0.5− | 0.1− | 2000 10 01 | 699 | 1.2+ | 0.4− |
| 2000 09 21 | 699 | 0.9− | 1.5+ | 2000 09 24 | 704 | 0.4+ | 0.2− | 2000 10 03 | 704 | 0.3+ | 1.7− |
| 2000 09 21 | 699 | 0.1+ | 0.9+ | 2000 09 25 | 704 | 0.2+ | 0.3+ | 2000 10 03 | 704 | 0.2− | 0.4+ |
| 2000 09 21 | 699 | 0.7− | 0.2− | 2000 09 25 | 704 | 0.5+ | 0.5− | 2000 10 03 | 704 | 0.4+ | 0.5− |
| 2000 09 22 | 608 | 0.3− | 0.6− | 2000 09 25 | 704 | 0.2+ | 0.2− | 2000 10 03 | 704 | 0.6− | 0.2+ |
| 2000 09 22 | 608 | 0.6− | 0.3+ | 2000 09 25 | 704 | 0.7− | 1.3− | 2000 10 03 | 704 | 0.4− | 0.4+ |
| 2000 09 22 | 608 | 0.1− | 0.9− | 2000 09 26 | 704 | 0.2− | 0.7+ | 2009 12 19 | 703 | 0.0 | 0.5+ |
| 2000 09 23 | 704 | 0.8+ | 0.4− | 2000 09 26 | 704 | 0.2− | 0.2− | 2009 12 19 | 703 | 0.3+ | 0.0 |
| 2000 09 23 | 704 | 0.1+ | 0.3+ | 2000 09 26 | 704 | 0.3− | 0.4+ | 2009 12 19 | 703 | 1.5+ | 0.5− |
| 2000 09 23 | 704 | 0.7+ | 0.0 | 2000 09 26 | 704 | 0.2− | 0.5+ | 2009 12 19 | 703 | 0.9− | 0.0 |
| 2000 09 23 | 704 | 0.6+ | 0.4− | 2000 09 26 | 704 | 0.7+ | 0.2+ | 2009 12 19 | 703 | 1.0− | 0.5+ |
| 2000 09 23 | 704 | 0.0 | 0.1− | 2000 10 01 | 699 | 0.3+ | 1.2+ | 2009 12 19 | 703 | 0.1− | 0.3− |
| 2000 09 24 | 704 | 0.3+ | 0.8− | 2000 10 01 | 699 | 0.4− | 0.9+ | 2009 12 19 | 703 | 0.7+ | 0.3− |
| 2000 09 24 | 704 | 0.0 | 0.5− | 2000 10 01 | 699 | 0.5− | 0.6+ | 2009 12 19 | 703 | 0.6− | 0.1+ |

**2000 ST$_{18}$ = 2009 RC$_{60}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 32.09423 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22040814 | $\omega$ | 54.42298 | | +0.98754947 | +0.09902254 | |
| $a$ | 2.7142570 | $\Omega$ | 299.60480 | | −0.14460440 | +0.87734868 | |
| $e$ | 0.2034886 | $i$ | 8.08167 | | +0.06193240 | +0.46952511 | |
| $P$ | 4.47 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 23 | 704 | 0.2+ | 0.1− | 2000 10 03 | 704 | 0.1+ | 0.0 | 2009 09 22 | 703 | 0.1+ | 0.2− |
| 2000 09 23 | 704 | 0.1− | 1.2+ | 2000 10 03 | 704 | 0.4− | 0.1+ | 2009 09 22 | 703 | 0.4− | 0.3− |
| 2000 09 23 | 704 | 0.1+ | 0.1+ | 2000 10 03 | 704 | 0.2− | 0.4− | 2009 09 22 | 703 | 0.7− | 0.1− |
| 2000 09 23 | 704 | 0.9− | 0.8+ | 2000 10 03 | 704 | 0.0 | 0.7+ | 2009 09 22 | 703 | (1.5− | 1.8−) |
| 2000 09 24 | 704 | 0.7+ | 0.2− | 2002 01 22 | 291 | 0.1− | 0.2+ | 2009 09 22 | 703 | 0.8− | 0.3− |
| 2000 09 24 | 704 | 0.1+ | 0.6− | 2002 01 22 | 291 | 0.3+ | 0.1+ | 2009 09 22 | 703 | 0.2+ | 0.1− |
| 2000 09 24 | 704 | 0.7− | 0.5+ | 2002 01 22 | 291 | 0.0 | 0.1+ | 2009 10 10 | 703 | 0.3− | 0.1− |
| 2000 09 24 | 704 | 0.1+ | 0.6+ | 2006 02 01 | G96 | 0.0 | 0.1− | 2009 10 10 | 703 | 0.3+ | 0.0 |
| 2000 09 26 | 704 | 0.1+ | 0.3+ | 2006 02 01 | G96 | 0.0 | 0.5− | 2009 10 10 | 703 | 0.1+ | 0.4− |
| 2000 09 26 | 704 | 1.4− | 0.2− | 2006 02 01 | G96 | 0.1+ | 0.4− | 2009 10 10 | 703 | 1.4− | 1.1− |
| 2000 09 26 | 704 | (1.7− | 2.5−) | 2006 02 01 | G96 | 0.3− | 0.1− | 2009 10 26 | 703 | 1.3+ | 0.6− |
| 2000 09 28 | 704 | 0.0 | 0.6− | 2009 09 11 | 703 | 0.1+ | 0.3− | 2009 10 26 | 703 | 0.0 | 0.8+ |
| 2000 09 28 | 704 | 0.0 | 0.3+ | 2009 09 11 | 703 | 0.9+ | 0.1+ | 2009 10 26 | 703 | 0.9+ | 1.1+ |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 28 | 704 | 1.6+ | 0.1+ | 2009 09 11 | 703 | (1.8+ | 0.9+) | 2009 10 26 | 703 | 0.1+ | 0.4− |
| 2000 10 03 | 704 | 0.6− | 0.3− | 2009 09 11 | 703 | 0.6+ | 0.3+ | | | | |

**2000 SP$_{105}$ = 2009 SC$_{349}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 5.81509 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22185977 | $\omega$ | 53.34580 | | +0.52608919 | −0.85032925 | |
| $a$ | 2.7024044 | $\Omega$ | 4.96607 | | +0.72421025 | +0.43991032 | |
| $e$ | 0.3189690 | $i$ | 8.67125 | | +0.44581349 | +0.28882362 | |
| $P$ | 4.44 | $H$ | 17.4 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 24 | 704 | 1.0− | 0.1− | 2009 09 20 | 703 | 0.2+ | 0.1+ | 2009 10 27 | G96 | 0.1+ | 0.1− |
| 2000 09 24 | 704 | 0.2+ | 0.2− | 2009 09 20 | 703 | 1.5+ | 0.9− | 2009 10 27 | G96 | 0.3+ | 0.0 |
| 2000 09 24 | 704 | 0.0 | 0.2− | 2009 09 20 | 703 | 0.8− | 0.9− | 2009 10 27 | G96 | 0.0 | 0.1− |
| 2000 09 27 | 704 | 0.6− | 0.1+ | 2009 09 20 | 703 | 0.0 | 0.8+ | 2009 11 08 | 703 | 0.3− | 0.3− |
| 2000 09 27 | 704 | 0.1+ | 0.3− | 2009 10 13 | J75 | 0.1+ | 0.3− | 2009 11 08 | 703 | 0.1+ | 0.1+ |
| 2000 09 27 | 704 | 0.8+ | 0.9+ | 2009 10 13 | J75 | 0.4− | 0.8+ | 2009 11 08 | 703 | 0.1+ | 0.2+ |
| 2000 09 27 | 704 | 0.5+ | 0.1+ | 2009 10 13 | J75 | 1.0+ | 0.5− | 2009 11 08 | 703 | 0.0 | 0.2+ |
| 2000 10 01 | 704 | 0.1− | 0.0 | 2009 10 14 | 703 | 1.4+ | 0.3+ | 2009 11 19 | 703 | 0.4+ | 0.2+ |
| 2000 10 01 | 704 | 0.4− | 0.3− | 2009 10 14 | 703 | 0.8+ | 0.9+ | 2009 11 19 | 703 | 0.1+ | 0.8− |
| 2000 10 01 | 704 | 0.5− | 0.3+ | 2009 10 14 | 703 | 1.2− | 0.5− | 2009 11 19 | 703 | 0.6− | 0.4+ |
| 2000 10 01 | 704 | 0.4+ | 0.1− | 2009 10 14 | 703 | 1.4− | 1.1− | 2009 11 19 | 703 | 0.8− | 0.6+ |
| 2000 10 01 | 704 | 0.2+ | 0.6+ | 2009 10 27 | G96 | 0.1− | 0.1− | | | | |

**2000 ST$_{105}$ = 2009 YT$_{12}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 28.98131 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23115506 | $\omega$ | 87.46965 | | +0.49477959 | −0.86865178 | |
| $a$ | 2.6294633 | $\Omega$ | 332.82913 | | +0.77372913 | +0.45356552 | |
| $e$ | 0.2219546 | $i$ | 3.16898 | | +0.39564680 | +0.19930481 | |
| $P$ | 4.26 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 21 | 695 | 0.0 | 0.3+ | 2002 04 09 | 291 | 0.1+ | 0.3+ | 2006 03 23 | G96 | 0.1+ | 0.4− |
| 2000 09 21 | 695 | 0.1− | 0.1+ | 2004 08 22 | 691 | 0.1− | 0.1+ | 2006 03 23 | G96 | 0.5+ | 0.0 |
| 2000 09 24 | 704 | 0.5− | 0.4− | 2004 08 22 | 691 | 0.1+ | 0.2+ | 2009 12 18 | G96 | 0.2+ | 0.1− |
| 2000 09 24 | 704 | 0.4− | 0.2− | 2004 08 22 | 691 | 0.2+ | 0.2+ | 2009 12 18 | G96 | 0.2+ | 0.1− |
| 2000 09 24 | 704 | 0.5− | 0.0 | 2004 09 15 | 691 | 0.5− | 0.2+ | 2009 12 18 | G96 | 0.3+ | 0.1+ |
| 2000 09 24 | 704 | 1.1− | 0.3+ | 2004 09 15 | 691 | 0.0 | 0.1+ | 2009 12 18 | G96 | 0.3+ | 0.1− |
| 2000 09 27 | 704 | 0.2− | 0.0 | 2004 09 15 | 691 | 0.1− | 0.2+ | 2009 12 19 | 691 | 0.2− | 0.1− |
| 2000 09 27 | 704 | 0.9+ | 0.1+ | 2006 01 26 | G96 | 0.2+ | 0.3− | 2009 12 19 | 691 | 0.1− | 0.0 |
| 2000 09 27 | 704 | 0.8− | 0.1+ | 2006 01 26 | G96 | 0.1+ | 0.1− | 2009 12 19 | 691 | 0.2− | 0.2− |
| 2000 09 27 | 704 | 0.6+ | 0.8+ | 2006 01 26 | G96 | 0.1+ | 0.3− | 2009 12 27 | 691 | 0.1+ | 0.0 |
| 2000 09 27 | 704 | 0.4+ | 0.3− | 2006 01 26 | G96 | 0.5+ | 0.2− | 2009 12 27 | 691 | 0.0 | 0.0 |
| 2000 10 04 | 704 | 0.2− | 0.4+ | 2006 02 23 | G96 | 0.4− | 0.1+ | 2009 12 27 | 691 | 0.0 | 0.3+ |
| 2000 10 04 | 704 | 0.3+ | 0.5+ | 2006 02 23 | G96 | 1.8+ | 0.7− | 2009 12 27 | 691 | 0.2− | 0.1+ |
| 2000 10 04 | 704 | 0.4+ | 0.6+ | 2006 02 23 | G96 | 0.3+ | 0.3+ | 2009 12 27 | 691 | 0.0 | 0.1+ |
| 2000 10 04 | 704 | 0.5− | 0.8+ | 2006 02 23 | G96 | 0.4+ | 0.0 | 2009 12 27 | 691 | 0.0 | 0.1+ |
| 2002 04 09 | 291 | 0.4− | 1.1+ | 2006 03 23 | G96 | 0.5+ | 0.1+ | | | | |
| 2002 04 09 | 291 | 0.5+ | 0.8+ | 2006 03 23 | G96 | 0.3+ | 0.5+ | | | | |

**2000 SB$_{136}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 266.84594 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.29707751 | $\omega$ | 164.60678 | | +0.81931432 | −0.56695162 | |
| $a$ | 2.2244511 | $\Omega$ | 230.25066 | | +0.51361226 | +0.79195451 | |
| $e$ | 0.1691469 | $i$ | 6.37587 | | +0.25480678 | +0.22665814 | |
| $P$ | 3.32 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 04 | 699 | 0.4− | 0.0 | 2000 10 03 | 704 | 0.3+ | 0.1− | 2000 11 18 | 699 | 1.3− | 0.4− |
| 2000 09 04 | 699 | 0.3− | 0.4− | 2000 10 03 | 704 | 0.2+ | 0.1+ | 2000 11 18 | 699 | 0.8− | 0.1+ |
| 2000 09 04 | 699 | 0.3+ | 0.1+ | 2000 10 03 | 704 | 0.2− | 0.3+ | 2000 11 18 | 699 | 1.7− | 0.0 |
| 2000 09 04 | 699 | 0.8− | 0.8+ | 2000 10 03 | 704 | 0.1− | 0.3+ | 2000 11 26 | 704 | 1.4− | 0.6− |
| 2000 09 23 | 704 | 0.0 | 0.5+ | 2000 10 25 | 704 | 0.3− | 0.2+ | 2000 11 26 | 704 | 1.4+ | 1.1+ |
| 2000 09 23 | 704 | 0.3+ | 0.1+ | 2000 10 25 | 704 | 0.2− | 0.2+ | 2000 11 26 | 704 | 0.4+ | 0.4+ |
| 2000 09 23 | 704 | 0.3− | 0.1− | 2000 10 25 | 704 | 0.5+ | 0.2+ | 2000 11 26 | 704 | 0.6− | 0.5− |
| 2000 09 23 | 704 | 0.5− | 1.3− | 2000 10 25 | 704 | 0.1+ | 0.5− | 2000 11 26 | 704 | 0.2− | 0.8+ |
| 2000 09 26 | 699 | 0.5− | 0.4− | 2000 10 25 | 704 | 0.4− | 0.7+ | 2009 05 27 | G96 | 0.1− | 0.0 |
| 2000 09 26 | 699 | 0.4− | 0.2+ | 2000 10 29 | 691 | 0.4+ | 0.7− | 2009 05 27 | G96 | 0.7+ | 0.0 |
| 2000 09 26 | 699 | 0.9− | 0.3+ | 2000 10 29 | 691 | 0.5+ | 0.8− | 2009 05 27 | G96 | 0.3+ | 0.2− |
| 2000 09 26 | 699 | 0.1− | 0.5− | 2000 10 29 | 691 | 0.6+ | 0.7− | 2009 05 27 | G96 | 0.2− | 0.2− |
| 2000 09 28 | 704 | 0.4− | 0.5+ | 2000 11 03 | 704 | 1.1+ | 0.0 | 2009 06 14 | G96 | 0.0 | 0.5− |
| 2000 09 28 | 704 | 1.2+ | 0.6+ | 2000 11 03 | 704 | 0.6+ | 0.2+ | 2009 06 14 | G96 | 0.3− | 0.3− |
| 2000 09 28 | 704 | 0.3+ | 0.8+ | 2000 11 03 | 704 | 0.3− | 0.5+ | 2009 06 14 | G96 | 0.3− | 0.1+ |
| 2000 09 28 | 704 | 0.3− | 0.5+ | 2000 11 03 | 704 | 0.2+ | 1.8+ | 2009 06 14 | G96 | 0.5− | 0.1− |
| 2000 09 28 | 704 | 0.6− | 0.2+ | 2000 11 03 | 704 | 0.5− | 1.1+ | | | | |
| 2000 10 03 | 704 | 0.5+ | 0.1+ | 2000 11 18 | 699 | 0.5− | 0.4+ | | | | |

**2000 SL$_{164}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 301.94617 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.31137807 | $\omega$ | 38.64530 | | +0.33742015 | −0.91027154 | |
| $a$ | 2.1558111 | $\Omega$ | 33.69564 | | +0.71995407 | +0.08535160 | |
| $e$ | 0.2656657 | $i$ | 25.62174 | | +0.60647652 | +0.40511829 | |
| $P$ | 3.17 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 25 | 704 | 1.7− | 0.1+ | 2000 10 27 | 704 | 0.8− | 0.2+ | 2000 11 06 | 704 | 0.1+ | 0.2+ |
| 2000 09 25 | 704 | 0.1+ | 0.0 | 2000 10 31 | 704 | 0.2− | 0.2− | 2000 11 06 | 704 | 0.0 | 0.1+ |
| 2000 09 25 | 704 | 0.7+ | 0.6+ | 2000 10 31 | 704 | 0.3− | 0.1− | 2000 11 06 | 704 | 0.3+ | 0.0 |
| 2000 10 01 | 704 | 0.2− | 0.2− | 2000 10 31 | 704 | 0.2+ | 0.3− | 2000 11 06 | 704 | 0.1+ | 0.1+ |
| 2000 10 01 | 704 | 0.4− | 0.1− | 2000 10 31 | 704 | 0.2+ | 0.3− | 2000 11 06 | 704 | 0.3− | 0.5− |
| 2000 10 01 | 704 | 0.1+ | 0.4− | 2000 11 01 | 704 | 0.2− | 0.2− | 2000 11 06 | 704 | 0.2− | 0.1+ |
| 2000 10 01 | 704 | 0.3− | 0.0 | 2000 11 01 | 704 | 0.3+ | 0.1− | 2000 11 06 | 704 | 0.2+ | 0.3+ |
| 2000 10 24 | 704 | 0.0 | 0.4+ | 2000 11 01 | 704 | 0.5− | 0.2− | 2000 11 16 | 699 | 0.2+ | 0.3+ |
| 2000 10 24 | 704 | 0.2+ | 0.4− | 2000 11 01 | 704 | 0.2− | 0.1+ | 2000 11 16 | 699 | 0.7+ | 0.4− |
| 2000 10 24 | 704 | 0.0 | 0.1+ | 2000 11 01 | 704 | 0.2+ | 0.3− | 2000 11 16 | 699 | 0.1+ | 0.3− |
| 2000 10 24 | 704 | 0.5+ | 0.5− | 2000 11 01 | 704 | 0.0 | 0.1+ | 2000 11 16 | 699 | 0.2+ | 0.4+ |
| 2000 10 25 | 704 | 0.3− | 0.3− | 2000 11 01 | 704 | 0.4− | 0.2+ | 2000 11 19 | 704 | 0.2+ | 0.0 |
| 2000 10 25 | 704 | 0.2− | 0.1+ | 2000 11 01 | 704 | 0.6+ | 0.2+ | 2000 11 19 | 704 | 0.3+ | 0.5− |
| 2000 10 25 | 704 | 0.1+ | 0.1− | 2000 11 01 | 704 | 1.1− | 0.4+ | 2000 11 19 | 704 | 0.4+ | 0.0 |
| 2000 10 25 | 704 | 0.2+ | 0.3− | 2000 11 01 | 704 | 0.4− | 0.2+ | 2000 11 19 | 704 | 0.4+ | 0.5+ |
| 2000 10 25 | 704 | 0.4− | 0.5− | 2000 11 02 | 704 | 0.0 | 0.4− | 2000 11 19 | 704 | 0.8+ | 1.0+ |
| 2000 10 26 | 704 | 0.5+ | 0.1− | 2000 11 02 | 704 | 0.2− | 0.1− | 2000 11 28 | 704 | 0.6− | 0.2− |
| 2000 10 26 | 704 | 0.3+ | 0.1+ | 2000 11 02 | 704 | 0.1− | 0.0 | 2000 11 28 | 704 | 0.9− | 0.7− |
| 2000 10 26 | 704 | 0.5+ | 0.1+ | 2000 11 02 | 704 | 0.0 | 0.2+ | 2000 11 28 | 704 | 0.5− | 0.4+ |
| 2000 10 26 | 704 | 0.1− | 0.1+ | 2000 11 02 | 704 | 0.1+ | 0.0 | 2000 11 28 | 704 | 1.2+ | 0.0 |
| 2000 10 26 | 704 | 0.4+ | 0.1− | 2000 11 02 | 704 | 0.2+ | 0.4− | 2008 04 14 | 691 | 0.3+ | 0.2+ |
| 2000 10 26 | 704 | 0.7+ | 0.3+ | 2000 11 02 | 704 | 0.1− | 0.3+ | 2008 04 14 | 691 | 0.2+ | 0.3+ |
| 2000 10 26 | 704 | 0.3+ | 0.1− | 2000 11 02 | 704 | 0.3+ | 0.3+ | 2008 04 14 | 691 | 0.1+ | 0.1− |
| 2000 10 26 | 704 | 0.4− | 0.2+ | 2000 11 02 | 704 | 0.4+ | 0.2+ | 2008 04 28 | G96 | 0.5− | 0.1+ |
| 2000 10 26 | 704 | 0.7− | 0.2+ | 2000 11 02 | 704 | 0.0 | 0.1− | 2008 04 28 | G96 | 0.1− | 0.1+ |
| 2000 10 27 | 704 | 0.7− | 0.3+ | 2000 11 03 | 704 | 0.8− | 0.9+ | 2008 04 28 | G96 | 0.8+ | 0.5+ |
| 2000 10 27 | 704 | 0.4− | 0.5+ | 2000 11 03 | 704 | 0.4− | 0.2− | 2008 04 28 | G96 | 0.3+ | 0.1+ |
| 2000 10 27 | 704 | 0.4− | 0.2+ | 2000 11 03 | 704 | 0.2+ | 0.0 | | | | |
| 2000 10 27 | 704 | 0.1− | 0.0 | 2000 11 06 | 704 | 0.1− | 0.4+ | | | | |

**2000 SN$_{232}$ = 2008 SD$_{292}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 130.48934 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.36740325 | $\omega$ | 70.43436 | | +0.50642016 | −0.85974824 | |
| $a$ | 1.9306671 | $\Omega$ | 348.43513 | | +0.61435703 | +0.41355342 | |
| $e$ | 0.1766586 | $i$ | 19.25680 | | +0.60506533 | +0.29967737 | |
| $P$ | 2.68 | $H$ | 18.0 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 28 | 704 | 0.6+ | 1.0+ | 2000 10 03 | 704 | 0.0 | 0.3− | 2008 09 05 | 691 | 0.0 | 0.7− |
| 2000 09 28 | 704 | 0.2− | 0.3+ | 2000 10 04 | 704 | 0.3+ | 0.4+ | 2008 09 21 | 703 | 0.4− | 0.9− |
| 2000 09 28 | 704 | 0.4+ | 0.6− | 2000 10 04 | 704 | 0.1− | 0.3− | 2008 09 21 | 703 | 0.2− | 0.4+ |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 10 02 | 704 | 0.5− | 0.7− | 2000 10 04 | 704 | (0.2− | 2.2−) | 2008 09 21 | 703 | 0.0 | 0.7+ |
| 2000 10 02 | 704 | 0.5− | 0.4+ | 2000 10 04 | 704 | 0.3+ | 0.2− | 2008 09 21 | 703 | 0.1+ | 0.8+ |
| 2000 10 02 | 704 | 0.3+ | 0.7+ | 2000 10 04 | 704 | 0.2− | 0.0 | 2008 09 28 | 703 | 0.2+ | 0.0 |
| 2000 10 02 | 704 | 0.0 | 0.6− | 2008 08 24 | 691 | 0.4+ | 0.3+ | 2008 09 28 | 703 | 0.7+ | 0.4− |
| 2000 10 03 | 704 | 0.2− | 0.3+ | 2008 08 24 | 691 | 0.0 | 0.0 | 2008 09 28 | 703 | 0.3− | 0.4+ |
| 2000 10 03 | 704 | 0.3− | 0.2− | 2008 08 24 | 691 | 0.3− | 0.1+ | 2008 09 28 | 703 | 0.4+ | 0.0 |
| 2000 10 03 | 704 | 0.2− | 0.2+ | 2008 09 05 | 691 | 0.0 | 0.1− | | | | |
| 2000 10 03 | 704 | 0.3+ | 0.2− | 2008 09 05 | 691 | 0.1− | 0.1+ | | | | |

### 2000 $SR_{304}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 23.55241 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.22144187 | $\omega$ | 28.38501 | | +0.89410230 | | −0.44779798 | | |
| $a$ | 2.7058033 | $\Omega$ | 358.16563 | | +0.35256551 | | +0.71424220 | | |
| $e$ | 0.2468978 | $i$ | 13.76968 | | +0.27618589 | | +0.53789874 | | |
| $P$ | 4.45 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 3 | | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 30 | 704 | 0.6− | 0.5+ | 2000 10 03 | 704 | 0.6− | 0.9− | 2009 10 15 | J75 | 0.3− | 0.3− |
| 2000 09 30 | 704 | 1.5+ | 0.7+ | 2000 11 01 | 704 | 0.3− | 0.6+ | 2009 11 09 | 703 | 0.1− | 0.6− |
| 2000 09 30 | 704 | 0.0 | 0.8+ | 2000 11 01 | 704 | 0.7+ | 0.3+ | 2009 11 09 | 703 | 1.1− | 0.0 |
| 2000 10 03 | 704 | 0.2− | 0.7− | 2000 11 01 | 704 | 0.5+ | 1.1− | 2009 11 09 | 703 | 0.6+ | 0.1− |
| 2000 10 03 | 704 | 0.5− | 0.5− | 2000 11 01 | 704 | 0.2+ | 0.2+ | 2009 11 09 | 703 | 1.2− | 0.3− |
| 2000 10 03 | 704 | 0.1+ | 0.0 | 2009 09 28 | 703 | 0.3+ | 1.3+ | 2009 11 19 | 703 | 0.7+ | 0.8+ |
| 2000 10 03 | 704 | 0.0 | 0.5− | 2009 09 28 | 703 | 0.8+ | 0.0 | 2009 11 19 | 703 | 0.7+ | 0.2+ |
| 2000 10 03 | 704 | 0.9− | 0.4+ | 2009 09 28 | 703 | (1.8+ | 0.4−) | 2009 11 19 | 703 | 1.0+ | 0.3+ |
| 2000 10 03 | 704 | 0.3+ | 0.4− | 2009 09 28 | 703 | 0.9− | 0.7− | 2009 11 19 | 703 | 1.0− | 0.1+ |
| 2000 10 03 | 704 | 0.3+ | 0.6+ | 2009 10 15 | J75 | 0.1− | 0.2− | | | | |
| 2000 10 03 | 704 | 0.3− | 0.2− | 2009 10 15 | J75 | 0.4+ | 0.0 | | | | |

### 2000 $SH_{357}$ = 2009 $XK_7$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 32.02668 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.22992966 | $\omega$ | 335.90734 | | +0.48427256 | | −0.84640472 | | |
| $a$ | 2.6387975 | $\Omega$ | 84.45820 | | +0.83452239 | | +0.37080972 | | |
| $e$ | 0.2605700 | $i$ | 12.86052 | | +0.26277834 | | +0.38222925 | | |
| $P$ | 4.29 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 3 | | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 10 | 699 | 0.1+ | 0.6+ | 2000 10 27 | 704 | 1.0+ | 0.0 | 2009 12 10 | 704 | 0.2− | 0.7+ |
| 2000 09 10 | 699 | 0.3− | 0.6− | 2000 10 27 | 704 | 0.3+ | 0.0 | 2009 12 10 | 704 | 0.1+ | 0.3+ |
| 2000 09 10 | 699 | 0.5− | 0.6+ | 2006 03 03 | 699 | 0.9+ | 1.2− | 2009 12 10 | 704 | 0.2− | 0.9+ |
| 2000 09 10 | 699 | 0.1− | 1.6+ | 2006 03 03 | 699 | 0.9− | 0.3+ | 2009 12 10 | 704 | 0.5+ | 0.2+ |
| 2000 09 28 | 699 | 0.6− | 0.2+ | 2006 03 03 | 699 | 0.2− | 0.3+ | 2009 12 10 | 703 | (2.3− | 0.8−) |
| 2000 09 28 | 699 | 0.5− | 0.2− | 2006 03 03 | 699 | 0.2− | 0.6+ | 2009 12 10 | 703 | 1.3− | 0.9− |
| 2000 09 28 | 699 | 1.3− | 0.5− | 2009 10 18 | G96 | 0.3− | 0.2− | 2009 12 10 | 703 | 0.3+ | 0.6+ |
| 2000 09 28 | 699 | 0.0 | 1.0− | 2009 10 18 | G96 | 0.3− | 0.1− | 2009 12 10 | 703 | 0.4+ | 0.3+ |
| 2000 10 05 | 704 | 0.2− | 0.0 | 2009 10 18 | G96 | 0.2− | 0.2− | 2009 12 15 | 704 | 0.7+ | 0.4− |
| 2000 10 05 | 704 | 0.2− | 1.0− | 2009 10 18 | G96 | 0.4− | 0.5− | 2009 12 15 | 704 | 0.5+ | 0.3+ |
| 2000 10 05 | 704 | 0.5− | 0.1+ | 2009 11 11 | G96 | 0.0 | 0.2− | 2009 12 15 | 704 | 0.5+ | 0.1− |
| 2000 10 05 | 704 | 0.8+ | 1.2+ | 2009 11 11 | G96 | 0.0 | 0.4− | 2009 12 15 | 704 | 0.7+ | 0.4+ |
| 2000 10 27 | 704 | 1.6+ | 0.4− | 2009 11 11 | G96 | 0.8− | 0.2− | | | | |
| 2000 10 27 | 704 | 0.1+ | 0.3− | 2009 11 11 | G96 | 0.3− | 0.4− | | | | |

### 2000 $TM_7$ = 2008 $VS_{75}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 89.76147 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.25216908 | $\omega$ | 69.78393 | | +0.28886253 | | −0.95729694 | | |
| $a$ | 2.4812746 | $\Omega$ | 3.49183 | | +0.78940702 | | +0.23114787 | | |
| $e$ | 0.2124764 | $i$ | 11.24270 | | +0.54165949 | | +0.17364686 | | |
| $P$ | 3.91 | $H$ | 17.5 | $G$ | 0.15 | $U$ | 3 | | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 21 | 691 | 0.4+ | 0.1+ | 2000 10 02 | 704 | 0.7+ | 0.0 | 2008 10 25 | 703 | 1.4+ | 0.6− |
| 2000 09 21 | 691 | 0.1+ | 0.3− | 2000 10 02 | 704 | 1.2− | 0.7+ | 2008 10 25 | 703 | 0.5+ | 1.2+ |
| 2000 09 21 | 691 | 0.0 | 0.2− | 2000 10 02 | 704 | 0.7+ | 0.1+ | 2008 10 25 | 703 | 1.9+ | 1.8+ |
| 2000 09 26 | 699 | 1.2− | 0.9− | 2004 09 07 | 691 | 0.2+ | 0.3− | 2008 10 25 | 703 | 1.9+ | 1.6+ |
| 2000 09 26 | 699 | (2.2− | 1.5−) | 2004 09 07 | 691 | 0.0 | 0.0 | 2008 11 08 | 703 | 1.3− | 0.6− |
| 2000 09 26 | 699 | 1.0− | 0.4+ | 2004 09 07 | 691 | 0.1+ | 0.2− | 2008 11 08 | 703 | 0.4− | 0.5− |
| 2000 09 26 | 699 | 0.5− | 0.3− | 2004 10 08 | 699 | 2.6− | 1.3+ | 2008 11 08 | 703 | 0.0 | 1.4− |
| 2000 10 01 | 704 | 0.4+ | 0.6+ | 2004 10 08 | 699 | 0.0 | 0.1+ | 2008 11 08 | 703 | 0.2− | 0.7− |
| 2000 10 01 | 704 | 0.7+ | 0.2+ | 2004 10 08 | 699 | 1.0− | 0.1+ | 2008 11 17 | 703 | 0.1+ | 0.6− |
| 2000 10 01 | 704 | 0.2− | 0.5+ | 2004 10 08 | 699 | 1.1+ | 0.7+ | 2008 11 17 | 703 | 0.0 | 0.3− |
| 2000 10 01 | 704 | 0.2− | 0.7+ | 2008 10 05 | J75 | 0.8− | 0.3− | 2008 11 17 | 703 | 0.9− | 0.3− |
| 2000 10 01 | 704 | 0.2+ | 0.2− | 2008 10 05 | J75 | 0.8− | 0.0 | 2008 11 17 | 703 | 0.1+ | 0.1− |
| 2000 10 02 | 704 | 1.0+ | 0.5− | 2008 10 05 | J75 | 0.8− | 0.4+ | | | | |

### 2000 $TD_{13}$ = 2009 $WW_{214}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 357.83870 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.22331132 | $\omega$ | 235.44718 | | +0.28061277 | | −0.95645901 | | |
| $a$ | 2.6906810 | $\Omega$ | 198.75588 | | +0.94196068 | | +0.29048395 | | |
| $e$ | 0.2180659 | $i$ | 14.45577 | | +0.18430018 | | −0.02837675 | | |
| $P$ | 4.41 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 1 | | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 25 | 699 | 0.1− | 0.1+ | 2006 01 26 | 699 | 0.4+ | 0.8+ | 2009 10 24 | G96 | 0.3+ | 0.2− |
| 2000 09 25 | 699 | 0.2− | 0.1− | 2006 01 26 | 699 | 0.6+ | 0.5− | 2009 10 24 | G96 | 0.4+ | 0.2− |
| 2000 09 25 | 699 | 1.1+ | 0.0 | 2006 01 26 | 699 | 0.3+ | 0.5− | 2009 11 08 | 703 | 0.1+ | 0.3+ |
| 2000 09 25 | 699 | 0.0 | 0.6− | 2006 01 26 | 699 | 0.1− | 0.4− | 2009 11 08 | 703 | 0.3+ | 0.7+ |
| 2000 10 01 | 704 | 0.3+ | 0.2+ | 2007 04 25 | 691 | 0.1+ | 0.4+ | 2009 11 08 | 703 | 0.5− | 0.6+ |
| 2000 10 01 | 704 | 0.5+ | 0.2− | 2007 04 25 | 691 | 0.2+ | 0.6+ | 2009 11 08 | 703 | 0.3− | 0.0 |
| 2000 10 01 | 704 | 0.5+ | 0.3+ | 2007 04 25 | 691 | 0.1− | 0.3+ | 2009 11 21 | 703 | 0.5+ | 0.6+ |
| 2000 10 01 | 704 | 0.1+ | 0.4+ | 2007 05 14 | G96 | 0.4− | 0.3+ | 2009 11 21 | 703 | (0.4+ | 1.6−) |
| 2000 10 01 | 704 | 0.2− | 0.5+ | 2007 05 14 | G96 | 0.1− | 0.4+ | 2009 11 21 | 703 | 0.8+ | 0.0 |
| 2000 10 02 | 704 | 0.0 | 0.1+ | 2007 05 14 | G96 | 0.0 | 0.4− | 2009 11 21 | 703 | 0.1− | 0.7+ |
| 2000 10 02 | 704 | 0.6+ | 0.6+ | 2007 05 14 | G96 | 0.3− | 0.2− | 2009 11 27 | 703 | 1.0− | 0.3+ |
| 2000 10 02 | 704 | 0.9+ | 1.4+ | 2009 09 19 | 703 | 0.5− | 0.5− | 2009 11 27 | 703 | 0.7− | 0.7+ |
| 2000 10 05 | 704 | 1.7− | 0.4− | 2009 09 19 | 703 | 0.9− | 0.6− | 2009 11 27 | 703 | 0.7+ | 0.7+ |
| 2000 10 05 | 704 | 0.7− | 0.8+ | 2009 09 19 | 703 | (0.3− | 2.2−) | 2009 11 27 | 703 | 0.1+ | 0.5+ |
| 2000 10 05 | 704 | 0.7− | 0.3− | 2009 09 19 | 703 | 0.1− | 0.6− | 2009 12 13 | 703 | 0.4+ | 0.6− |
| 2000 10 05 | 704 | 0.7− | 0.0 | 2009 10 14 | G96 | 0.1− | 0.2− | 2009 12 13 | 703 | 0.4− | 0.1+ |
| 2005 12 28 | 703 | 0.0 | 1.2+ | 2009 10 14 | G96 | 0.3+ | 0.0 | 2009 12 13 | 703 | 0.0 | 0.3+ |
| 2005 12 28 | 703 | 0.6− | 0.7+ | 2009 10 14 | G96 | 0.3+ | 0.0 | 2009 12 13 | 703 | 0.7− | 1.3− |
| 2005 12 28 | 703 | 0.4− | 0.0 | 2009 10 24 | G96 | 0.1+ | 0.4− | | | | |
| 2005 12 28 | 703 | 0.0 | 0.7− | 2009 10 24 | G96 | 0.2+ | 0.1− | | | | |

### 2000 $TW_{17}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 247.06929 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.17707221 | $\omega$ | 349.96527 | | +0.98212250 | | −0.18179413 | | |
| $a$ | 3.1407674 | $\Omega$ | 20.70364 | | +0.18086805 | | +0.83939342 | | |
| $e$ | 0.2543320 | $i$ | 7.94226 | | +0.05217415 | | +0.51222025 | | |
| $P$ | 5.57 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 3 | | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 10 01 | 704 | 0.6− | 0.4− | 2000 10 07 | 699 | 0.8+ | 0.9+ | 2000 11 03 | 704 | 0.0 | 0.1− |
| 2000 10 01 | 704 | 0.0 | 0.2− | 2000 10 24 | 704 | 1.1+ | 0.0 | 2000 11 03 | 704 | 1.0+ | 0.3+ |
| 2000 10 01 | 704 | 0.4− | 0.6− | 2000 10 24 | 704 | 1.3− | 1.1− | 2000 11 30 | 645 | 0.0 | 0.0 |
| 2000 10 01 | 704 | 0.2− | 0.6− | 2000 10 24 | 704 | 1.3− | 0.1+ | 2000 11 30 | 645 | 0.1+ | 0.0 |
| 2000 10 01 | 704 | 0.2− | 0.2− | 2000 11 01 | 704 | 1.6− | 0.2+ | 2008 02 09 | G96 | 0.3− | 0.2+ |
| 2000 10 02 | 704 | 0.9+ | 0.3+ | 2000 11 01 | 704 | 0.0 | 0.2− | 2008 02 09 | G96 | 0.3− | 0.1− |
| 2000 10 02 | 704 | 0.5+ | 0.1− | 2000 11 01 | 704 | 0.3+ | 0.7− | 2008 02 09 | G96 | 0.2+ | 0.4+ |
| 2000 10 02 | 704 | 0.9− | 0.1− | 2000 11 01 | 704 | 1.0− | 0.1+ | 2008 02 09 | G96 | 0.2+ | 0.3+ |
| 2000 10 02 | 704 | 0.1+ | 0.6+ | 2000 11 01 | 704 | 0.8− | 0.2+ | 2008 02 28 | G96 | 0.0 | 0.3− |
| 2000 10 07 | 699 | 0.9+ | 0.5+ | 2000 11 03 | 704 | 0.6+ | 0.0 | 2008 02 28 | G96 | 0.2− | 0.3− |
| 2000 10 07 | 699 | 0.4+ | 0.3+ | 2000 11 03 | 704 | 0.4− | 0.2+ | 2008 02 28 | G96 | 0.2+ | 0.4+ |
| 2000 10 07 | 699 | 0.5− | 1.0+ | 2000 11 03 | 704 | 0.1+ | 0.8+ | 2008 02 28 | G96 | 0.5+ | 0.0 |

**2000 TM$_{30}$ = 2009 XO$_{1}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 20.64913 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22472237 | $\omega$ | 11.99724 | | +0.64622547 | −0.75479155 | |
| $a$ | 2.6794059 | $\Omega$ | 37.90740 | | +0.68414429 | +0.50759903 | |
| $e$ | 0.2069351 | $i$ | 10.56192 | | +0.33814084 | +0.41549121 | |
| $P$ | 4.39 | $H$ | 17.4 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 30 | 691 | 0.1+ | 0.2+ | 2009 11 21 | 703 | 0.4+ | 1.0− | 2009 12 13 | H10 | 0.5− | 0.2− |
| 2000 09 30 | 691 | 0.1− | 0.2− | 2009 11 21 | 703 | 0.8+ | 0.0 | 2009 12 15 | B42 | 0.1+ | 0.0 |
| 2000 09 30 | 691 | 0.1− | 0.2+ | 2009 11 21 | 703 | 1.0+ | 0.5+ | 2009 12 15 | B42 | 0.3+ | 0.2− |
| 2000 10 02 | 691 | 0.1− | 0.0 | 2009 11 21 | 703 | 0.5− | 1.1− | 2009 12 15 | B42 | 0.3− | 0.4+ |
| 2000 10 02 | 691 | 0.2− | 0.3+ | 2009 11 21 | 703 | 1.1+ | 0.2+ | 2009 12 19 | H10 | 0.1− | 0.2+ |
| 2000 10 02 | 691 | 0.8− | 0.2− | 2009 12 10 | H10 | 0.1− | 0.1+ | 2009 12 19 | H10 | 0.8− | 0.2+ |
| 2000 10 03 | 691 | 0.3− | 0.2− | 2009 12 10 | H10 | 0.6+ | 0.3− | 2009 12 21 | H10 | 0.1− | 0.6− |
| 2000 10 03 | 691 | 0.1− | 0.1− | 2009 12 10 | H10 | 0.0 | 0.1+ | 2009 12 21 | H10 | 0.2+ | 0.5− |
| 2000 10 03 | 691 | 0.2− | 0.1− | 2009 12 10 | H10 | 0.8+ | 0.4− | 2009 12 21 | H10 | 0.2− | 0.8− |
| 2000 10 07 | 699 | 0.9+ | 0.0 | 2009 12 11 | H10 | 0.7− | 1.3+ | 2009 12 21 | H10 | 0.4+ | 0.0 |
| 2000 10 07 | 699 | 1.4+ | 1.7+ | 2009 12 11 | H10 | 0.9− | 0.1+ | 2009 12 21 | H10 | 0.1+ | 0.1+ |
| 2000 10 07 | 699 | (0.6− | 2.3+) | 2009 12 11 | H10 | 0.6− | 0.7+ | 2009 12 25 | H10 | 0.3+ | 0.2+ |
| 2000 10 07 | 699 | (1.5− | 2.9+) | 2009 12 13 | H10 | 0.9− | 0.1+ | 2009 12 25 | H10 | 0.5− | 0.5+ |
| 2000 11 17 | 691 | 1.3+ | 0.2+ | 2009 12 13 | H10 | 0.0 | 0.3+ | 2009 12 25 | H10 | 0.2− | 0.4+ |
| 2000 11 17 | 691 | 0.2− | 0.4− | 2009 12 13 | H10 | 0.2− | 0.1+ | | | | |
| 2000 11 17 | 691 | 0.2+ | 0.2− | 2009 12 13 | H10 | 0.1− | 0.4+ | | | | |

**2000 VR$_{19}$ = 2007 ES$_{176}$ = 2009 RT$_{59}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 338.99754 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21183533 | $\omega$ | 201.50739 | | +0.55038173 | −0.83089470 | |
| $a$ | 2.7870010 | $\Omega$ | 215.24594 | | +0.78520752 | +0.54843106 | |
| $e$ | 0.1367020 | $i$ | 8.15057 | | +0.28377651 | +0.09400733 | |
| $P$ | 4.65 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 01 | 704 | 0.7+ | 0.9+ | 2000 11 05 | 704 | 0.1+ | 0.9+ | 2009 09 10 | 703 | 0.1− | 0.6− |
| 2000 11 01 | 704 | 0.5+ | 0.2+ | 2000 11 19 | 699 | 0.6+ | 0.8− | 2009 09 17 | 703 | 0.3− | 0.3− |
| 2000 11 01 | 704 | 0.3+ | 0.2− | 2000 11 19 | 699 | 0.3− | 0.4− | 2009 09 17 | 703 | 0.9+ | 0.4− |
| 2000 11 01 | 704 | 0.6+ | 0.7− | 2000 11 19 | 699 | 0.1− | 0.1− | 2009 09 17 | 703 | 0.1− | 0.2− |
| 2000 11 02 | 704 | 0.2− | 0.3− | 2007 03 14 | 691 | 0.0 | 0.1− | 2009 09 17 | 703 | 0.5+ | 0.3+ |
| 2000 11 02 | 704 | (2.6− | 0.5−) | 2007 03 14 | 691 | 0.1− | 0.2− | 2009 10 08 | J75 | 0.0 | 0.2+ |
| 2000 11 02 | 704 | 0.5− | 0.6− | 2007 03 14 | 691 | 0.1+ | 0.1+ | 2009 10 08 | J75 | 0.0 | 0.0 |
| 2000 11 02 | 704 | 0.2+ | 0.8− | 2007 03 18 | 691 | 0.1+ | 0.2− | 2009 10 08 | J75 | 0.4+ | 0.2+ |
| 2000 11 02 | 704 | 0.2+ | 0.3+ | 2007 03 18 | 691 | 0.0 | 0.0 | 2009 10 22 | 703 | 0.1+ | 0.2+ |
| 2000 11 05 | 704 | 0.2+ | 0.8− | 2007 03 18 | 691 | 0.0 | 0.3+ | 2009 10 22 | 703 | 0.1+ | 0.9− |
| 2000 11 05 | 704 | 1.3− | 0.5+ | 2009 09 10 | 703 | 0.9− | 0.2− | 2009 10 22 | 703 | 0.8− | 1.1+ |
| 2000 11 05 | 704 | 0.1− | 1.1+ | 2009 09 10 | 703 | 0.9− | 0.4+ | 2009 10 22 | 703 | 0.3+ | 0.2− |
| 2000 11 05 | 704 | 0.8− | 0.6+ | 2009 09 10 | 703 | 0.8+ | 0.5+ | | | | |

**2000 VB$_{61}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 247.70347 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17377032 | $\omega$ | 296.34117 | | +0.99729276 | −0.06393546 | |
| $a$ | 3.1804286 | $\Omega$ | 67.34278 | | +0.07322758 | +0.90851742 | |
| $e$ | 0.1964096 | $i$ | 2.25582 | | −0.00669893 | +0.41292657 | |
| $P$ | 5.67 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 02 | 704 | 1.0− | 0.2− | 2005 07 18 | 644 | 0.2+ | 0.2+ | 2008 01 10 | G96 | 0.1− | 0.6+ |
| 2000 11 02 | 704 | 0.3− | 0.2+ | 2005 09 01 | 644 | 0.1− | 0.1+ | 2008 01 10 | G96 | 0.2− | 0.3− |
| 2000 11 02 | 704 | 0.3+ | 0.3+ | 2005 09 01 | 644 | 0.2+ | 0.0 | 2008 01 10 | G96 | 0.3− | 0.2− |
| 2000 11 02 | 704 | 0.8+ | 0.6+ | 2005 09 01 | 644 | 0.1− | 0.1+ | 2008 02 08 | G96 | 0.1+ | 0.2− |
| 2000 11 03 | 691 | 0.1+ | 0.3− | 2006 11 16 | 691 | 0.0 | 0.0 | 2008 02 08 | G96 | 0.2+ | 0.4− |
| 2000 11 03 | 691 | 0.0 | 0.4− | 2006 11 16 | 691 | 0.1− | 0.1+ | 2008 02 08 | G96 | 0.9+ | 0.1+ |
| 2000 11 03 | 691 | 0.2− | 0.3− | 2006 11 16 | 691 | 0.0 | 0.3+ | 2008 02 08 | G96 | 0.4+ | 0.1− |
| 2000 11 18 | 699 | 1.6+ | 0.2− | 2006 12 13 | G96 | 0.1− | 0.4− | 2008 03 15 | G96 | 0.0 | 0.0 |
| 2000 11 18 | 699 | 0.3+ | 1.3+ | 2006 12 13 | G96 | 0.1+ | 0.3− | 2008 03 15 | G96 | 0.0 | 0.6+ |
| 2000 11 18 | 699 | 0.8+ | 0.1+ | 2006 12 13 | G96 | 0.5+ | 0.1− | 2008 03 15 | G96 | 0.0 | 0.1− |
| 2000 11 18 | 699 | 0.6− | 0.8+ | 2006 12 13 | G96 | 0.3− | 0.5− | 2008 03 15 | G96 | 0.1+ | 0.0 |
| 2000 11 21 | 704 | 1.2− | 0.7+ | 2007 01 09 | G96 | 0.2+ | 0.0 | 2009 04 29 | G96 | 0.1− | 0.5+ |
| 2000 11 21 | 704 | 0.5− | 0.5+ | 2007 01 09 | G96 | 0.2+ | 0.0 | 2009 04 29 | G96 | 0.3+ | 0.2+ |
| 2000 11 21 | 704 | 0.1− | 0.8+ | 2007 01 09 | G96 | 0.3− | 0.3− | 2009 04 29 | G96 | 0.1+ | 0.3+ |
| 2005 07 18 | 644 | 0.0 | 0.1− | 2007 01 09 | G96 | 0.2− | 0.2− | 2009 04 29 | G96 | 0.1− | 0.4+ |
| 2005 07 18 | 644 | 0.1− | 0.1+ | 2008 01 10 | G96 | 0.9− | 0.1− | | | | |

**2000 WB$_{5}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 58.04990 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23900773 | $\omega$ | 181.45354 | | +0.16782664 | −0.96058691 | |
| $a$ | 2.5715487 | $\Omega$ | 258.92235 | | +0.90673214 | +0.23862888 | |
| $e$ | 0.1349145 | $i$ | 13.05042 | | +0.38687341 | −0.14257997 | |
| $P$ | 4.12 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 12 10 | 327 | 0.2+ | 0.5− | 2000 11 20 | 704 | 0.4− | 0.5+ | 2004 11 03 | 699 | 0.4+ | 0.5+ |
| 1996 12 10 | 327 | 0.2− | 0.2− | 2000 11 20 | 704 | 0.0 | 0.0 | 2004 11 03 | 699 | 0.0 | 0.9− |
| 1996 12 10 | 327 | 0.5− | 0.2+ | 2000 11 20 | 704 | 0.0 | 0.2+ | 2004 11 03 | 699 | 0.8− | 1.2− |
| 2000 10 25 | 704 | 0.0 | 0.5+ | 2000 11 20 | 704 | 1.3+ | 0.5+ | 2008 10 04 | 703 | 0.1− | 0.5+ |
| 2000 10 25 | 704 | 0.9+ | 0.5+ | 2000 11 20 | 704 | 0.5+ | 0.4+ | 2008 10 04 | 703 | 0.1+ | 1.4+ |
| 2000 10 25 | 704 | 0.8+ | 0.5− | 2000 11 29 | 704 | 0.2− | 0.3− | 2008 10 04 | 703 | 0.2− | 0.7− |
| 2000 10 25 | 704 | 1.1+ | 0.5+ | 2000 11 29 | 704 | 0.4− | 0.2− | 2008 10 04 | 703 | 1.0+ | 0.8+ |
| 2000 11 19 | 704 | 0.4− | 0.4− | 2000 11 29 | 704 | 0.0 | 0.1+ | 2008 11 02 | 703 | 0.2− | 0.5− |
| 2000 11 19 | 704 | 0.2− | 0.1− | 2000 11 29 | 704 | 0.6− | 0.6+ | 2008 11 02 | 703 | 0.2− | 0.6− |
| 2000 11 19 | 704 | 0.3+ | 0.5− | 2000 11 29 | 704 | 0.2− | 0.2− | 2008 11 02 | 703 | 0.1− | 1.3− |
| 2000 11 19 | 704 | 1.2− | 0.0 | 2004 11 03 | 699 | 0.6− | 1.3+ | 2008 11 02 | 703 | 0.3+ | 0.5− |

**2000 WZ$_{105}$ = 2004 UT$_{4}$ = 2008 QF$_{30}$ = 2009 WP$_{28}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 210.71634 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21840758 | $\omega$ | 341.95509 | | −0.69995620 | +0.70301424 | |
| $a$ | 2.7308064 | $\Omega$ | 243.39989 | | −0.63669183 | −0.69406162 | |
| $e$ | 0.0744805 | $i$ | 8.08959 | | −0.32355034 | −0.15507884 | |
| $P$ | 4.51 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 10 13 | 645 | 0.0 | 0.3− | 2004 10 16 | 704 | 0.8+ | 0.3− | 2009 11 08 | 691 | 0.7− | 0.4+ |
| 1999 10 13 | 645 | 0.0 | 0.3− | 2004 10 16 | 704 | 0.6+ | 0.7+ | 2009 11 08 | 691 | 0.1− | 0.6+ |
| 2000 11 29 | 691 | 0.4+ | 0.1− | 2008 08 30 | 704 | 0.1− | 0.4+ | 2009 11 08 | 691 | 0.0 | 0.5+ |
| 2000 11 29 | 691 | 0.1+ | 0.2+ | 2008 08 30 | 704 | 0.1+ | 0.5+ | 2009 11 16 | 691 | 0.3− | 0.7+ |
| 2000 11 29 | 691 | 0.5+ | 0.1− | 2008 08 30 | 704 | 0.2+ | 1.8+ | 2009 11 16 | 691 | 0.1− | 0.4+ |
| 2000 11 30 | 691 | 0.2+ | 0.8− | 2008 08 30 | 704 | 0.1− | 0.6+ | 2009 11 16 | 691 | 0.2+ | 0.8+ |
| 2000 11 30 | 691 | 0.3+ | 0.9− | 2008 08 30 | 704 | 0.8+ | 1.0+ | 2009 11 20 | 691 | 0.1− | 0.5+ |
| 2000 11 30 | 691 | 0.1+ | 1.0− | 2008 09 05 | 704 | 0.0 | 0.3+ | 2009 11 20 | 691 | 0.2− | 0.5+ |
| 2000 12 03 | 691 | 0.2+ | 0.5− | 2008 09 05 | 704 | 0.0 | 0.4+ | 2009 11 20 | 691 | 0.2+ | 0.6+ |
| 2000 12 03 | 691 | 0.4− | 0.8− | 2008 09 05 | 704 | 0.1+ | 1.4+ | 2009 12 11 | 703 | 0.3+ | 1.1+ |
| 2000 12 03 | 691 | 0.1+ | 0.5− | 2008 09 05 | 704 | 0.1− | 0.5+ | 2009 12 11 | 703 | 1.1− | 0.7+ |
| 2000 12 05 | 691 | 0.3− | 0.1− | 2009 10 21 | G96 | 0.1+ | 0.7+ | 2009 12 11 | 703 | 0.9− | 0.4+ |
| 2000 12 05 | 691 | 0.1− | 0.6− | 2009 10 21 | G96 | 0.1− | 0.5+ | 2009 12 11 | 703 | 0.2+ | 0.5+ |
| 2000 12 05 | 691 | 0.2− | 0.7− | 2009 10 21 | G96 | 0.5+ | 0.4+ | | | | |
| 2004 10 16 | 704 | 0.1+ | 1.4+ | 2009 10 21 | G96 | 0.1− | 0.1− | | | | |

**2000 XG$_{12}$ = 2009 WR$_{214}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 347.46270 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22371248 | $\omega$ | 204.52106 | | −0.54180397 | −0.81163590 | |
| $a$ | 2.6874635 | $\Omega$ | 278.97982 | | +0.80304008 | −0.42316192 | |
| $e$ | 0.1984730 | $i$ | 12.77384 | | +0.24814328 | −0.40271721 | |
| $P$ | 4.41 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 10 14 | 645 | 0.0 | 0.0 | 2000 12 20 | 704 | 0.4− | 0.1− | 2009 11 20 | G96 | 0.6+ | 0.2− |
| 1999 10 14 | 645 | 0.0 | 0.1− | 2000 12 20 | 704 | 1.7+ | 0.1+ | 2009 11 27 | 703 | 0.6+ | 0.1− |
| 2000 12 04 | 704 | 0.5− | 0.0 | 2000 12 20 | 704 | 0.4+ | 0.3+ | 2009 11 27 | 703 | 0.1− | 1.2− |
| 2000 12 04 | 704 | 0.3+ | 0.2− | 2006 01 31 | 703 | 0.0 | 0.0 | 2009 11 27 | 703 | 1.3− | 0.3+ |
| 2000 12 04 | 704 | 0.0 | 0.1− | 2006 01 31 | 703 | 1.1+ | 0.1+ | 2009 11 27 | 703 | 0.1− | 0.3+ |
| 2000 12 04 | 704 | 0.6− | 0.5+ | 2006 01 31 | 703 | (1.9− | 1.6−) | 2009 12 16 | 691 | 0.0 | 0.0 |
| 2000 12 05 | 704 | 0.1+ | 0.5− | 2006 01 31 | 703 | 0.8− | 0.2− | 2009 12 16 | 691 | 0.1+ | 0.1+ |
| 2000 12 05 | 704 | 0.4+ | 0.1− | 2006 02 24 | 703 | 0.5− | 0.2+ | 2009 12 16 | 691 | 0.1+ | 0.0 |
| 2000 12 05 | 704 | 0.6+ | 0.6+ | 2006 02 24 | 703 | (0.3− | 1.8−) | 2009 12 20 | 691 | 0.1+ | 0.1+ |
| 2000 12 05 | 704 | 0.0 | 0.8+ | 2006 02 24 | 703 | 0.5− | 0.6− | 2009 12 20 | 691 | 0.1+ | 0.1− |
| 2000 12 06 | 704 | 0.3− | 0.3+ | 2006 02 24 | 703 | 0.3+ | 0.7− | 2009 12 20 | 691 | 0.2+ | 0.0 |
| 2000 12 06 | 704 | 0.1+ | 0.7+ | 2009 11 20 | G96 | 0.8+ | 0.2− | 2009 12 25 | 691 | 0.8− | 0.3− |
| 2000 12 06 | 704 | 1.6− | 0.2− | 2009 11 20 | G96 | 0.5+ | 0.1− | 2009 12 25 | 691 | 0.1− | 0.1+ |
| 2000 12 20 | 704 | 0.0 | 0.4− | 2009 11 20 | G96 | 0.1+ | 0.2− | 2009 12 25 | 691 | 0.0 | 0.0 |

## 2000 $YT_{113}$ = 2009 $WB_{235}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 39.97344 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22807459 | $\omega$ | 151.10854 | | −0.08480280 | | −0.97884907 |
| $a$ | 2.6530867 | $\Omega$ | 303.17382 | | +0.86609531 | | +0.01996820 |
| $e$ | 0.2159730 | $i$ | 12.85200 | | +0.49263313 | | −0.20360690 |
| $P$ | 4.32 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 12 30 | 704 | 1.4+ | 1.0+ | 2001 01 19 | 704 | 0.4+ | 0.0 | 2008 09 28 | 703 | 0.2− | 0.8+ |
| 2000 12 30 | 704 | 0.4− | 0.9+ | 2001 01 21 | 704 | 0.3+ | 0.5+ | 2009 11 19 | G96 | 0.4+ | 0.4− |
| 2000 12 30 | 704 | 0.5− | 0.2− | 2001 01 21 | 704 | 0.8− | 0.5− | 2009 11 19 | G96 | 0.3+ | 0.2+ |
| 2000 12 30 | 704 | 0.4− | 0.6+ | 2001 01 21 | 704 | 0.0 | 0.1− | 2009 11 19 | G96 | 0.1− | 0.2− |
| 2001 01 04 | 704 | 0.5− | 1.1− | 2001 01 21 | 704 | 0.4+ | 0.1− | 2009 11 20 | G96 | 0.1− | 0.3+ |
| 2001 01 04 | 704 | (1.6− | 0.0 ) | 2001 01 24 | 704 | 0.3− | 0.3+ | 2009 11 20 | G96 | 0.1− | 0.2+ |
| 2001 01 04 | 704 | 1.0− | 0.1+ | 2001 01 24 | 704 | 0.4+ | 0.2− | 2009 11 20 | G96 | 0.1− | 0.1+ |
| 2001 01 04 | 704 | 0.0 | 0.7− | 2001 01 24 | 704 | 0.6+ | 0.5+ | 2009 11 20 | G96 | 0.0 | 0.2− |
| 2001 01 04 | 704 | 0.1+ | 0.8− | 2008 09 28 | 703 | 0.2+ | 0.1− | 2009 12 17 | 691 | 0.0 | 0.5+ |
| 2001 01 19 | 704 | 0.2+ | 0.4+ | 2008 09 28 | 703 | 0.4− | 0.0 | 2009 12 17 | 691 | 0.2+ | 0.2− |
| 2001 01 19 | 704 | 0.3− | 1.1− | 2008 09 28 | 703 | (2.2− | 1.2+) | 2009 12 17 | 691 | 0.0 | 0.1+ |

## 2001 $AE_{19}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 323.81675 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21091301 | $\omega$ | 27.94681 | | −0.79701988 | | −0.58904724 |
| $a$ | 2.7951200 | $\Omega$ | 115.34171 | | +0.52296599 | | −0.78355548 |
| $e$ | 0.2384731 | $i$ | 8.48498 | | +0.30210242 | | −0.19764652 |
| $P$ | 4.67 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 01 04 | 704 | 0.4− | 0.0 | 2001 01 19 | 704 | 0.2− | 0.6− | 2001 03 14 | 699 | (2.3− | 0.8+) |
| 2001 01 04 | 704 | 0.5− | 0.5+ | 2001 01 19 | 704 | 0.5− | 0.9− | 2001 03 14 | 699 | (1.8− | 0.8−) |
| 2001 01 04 | 704 | 0.1+ | 0.1+ | 2001 02 01 | 704 | 0.3+ | 0.0 | 2006 04 02 | 699 | 0.2+ | 0.5− |
| 2001 01 04 | 704 | 0.6+ | 0.1− | 2001 02 01 | 704 | 0.4+ | 0.4+ | 2006 04 02 | 699 | 0.2+ | 0.8− |
| 2001 01 04 | 608 | 0.1+ | 1.1− | 2001 02 01 | 704 | 0.3+ | 0.4+ | 2006 04 02 | 699 | 0.2− | 0.7+ |
| 2001 01 04 | 608 | 0.2+ | 1.1− | 2001 02 01 | 704 | 0.4+ | 1.2+ | 2006 04 02 | 699 | 0.1− | 0.7+ |
| 2001 01 04 | 608 | 0.1+ | 1.0− | 2001 02 02 | 699 | 1.1− | 0.1+ | 2009 12 15 | 703 | 0.5− | 0.8− |
| 2001 01 05 | 608 | 0.1+ | 0.2− | 2001 02 02 | 699 | 0.2− | 0.7+ | 2009 12 15 | 703 | 0.6+ | 1.0− |
| 2001 01 05 | 608 | 0.3+ | 0.2− | 2001 02 02 | 699 | 0.4− | 0.5− | 2009 12 15 | 703 | 0.5− | 0.9+ |
| 2001 01 05 | 608 | 0.7− | 0.3+ | 2001 02 02 | 699 | 0.5− | 0.2+ | 2009 12 15 | 703 | 0.7− | 0.7+ |
| 2001 01 17 | 608 | 0.6+ | 0.6− | 2001 02 17 | 704 | 0.0 | 0.1− | 2009 12 17 | G96 | 0.3+ | 0.3+ |
| 2001 01 17 | 608 | 0.5+ | 0.8− | 2001 02 17 | 704 | 0.2− | 0.1− | 2009 12 17 | G96 | 0.2+ | 0.4+ |
| 2001 01 17 | 608 | 0.8+ | 0.5− | 2001 02 17 | 704 | 0.3− | 0.8+ | 2009 12 17 | G96 | 0.1+ | 0.3+ |
| 2001 01 19 | 704 | 0.3− | 0.2− | 2001 02 17 | 704 | 0.1+ | 0.7+ | 2009 12 17 | G96 | 0.3+ | 0.3+ |
| 2001 01 19 | 704 | 0.1+ | 1.0+ | 2001 03 14 | 699 | (1.9+ | 0.8+) | | | | |
| 2001 01 19 | 704 | 0.4− | 0.7+ | 2001 03 14 | 699 | 0.6+ | 0.1− | | | | |

## 2001 $AW_{30}$ = 2009 $XD_9$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 339.02619 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21862684 | $\omega$ | 39.13198 | | −0.50166209 | | −0.82095897 |
| $a$ | 2.7289802 | $\Omega$ | 82.58946 | | +0.70851062 | | −0.57079078 |
| $e$ | 0.0859829 | $i$ | 15.96142 | | +0.49633442 | | −0.01497511 |
| $P$ | 4.51 | $H$ | 15.0 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 01 04 | 704 | 0.8+ | 0.3− | 2001 01 19 | 704 | 0.9− | 0.6+ | 2009 12 10 | 704 | 0.2+ | 0.1− |
| 2001 01 04 | 704 | 0.4− | 0.1− | 2001 01 19 | 704 | 0.7+ | 0.3+ | 2009 12 10 | 704 | 1.4+ | 0.3+ |
| 2001 01 04 | 704 | 0.0 | 0.2− | 2006 03 03 | 699 | 0.8− | 0.8+ | 2009 12 16 | 704 | 0.5+ | 0.2− |
| 2001 01 04 | 704 | 0.0 | 0.4+ | 2006 03 03 | 699 | 0.2+ | 0.3+ | 2009 12 16 | 704 | 0.8+ | 0.1− |
| 2001 01 04 | 704 | 0.3− | 0.7− | 2006 03 03 | 699 | 0.9+ | 0.4− | 2009 12 16 | 704 | 0.7+ | 0.1− |
| 2001 01 06 | 704 | 0.2+ | 0.1− | 2006 03 03 | 699 | 0.3− | 0.7− | 2009 12 18 | 691 | 0.5− | 0.0 |
| 2001 01 06 | 704 | 0.1+ | 0.5− | 2009 12 10 | 704 | 0.4+ | 0.5+ | 2009 12 18 | 691 | 0.2− | 0.1− |
| 2001 01 06 | 704 | 1.0− | 0.6+ | 2009 12 10 | 704 | 0.8+ | 0.8+ | 2009 12 18 | 691 | 0.5− | 0.3− |
| 2001 01 19 | 704 | 0.6+ | 0.0 | 2009 12 10 | 704 | 0.4+ | 0.5+ | | | | |

## 2001 $AR_{49}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 179.00541 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21232688 | $\omega$ | 349.30978 | | +0.07381306 | | +0.98209921 |
| $a$ | 2.7826980 | $\Omega$ | 284.75642 | | −0.90124732 | | −0.00870852 |
| $e$ | 0.0450628 | $i$ | 10.32378 | | −0.42697178 | | +0.18816297 |
| $P$ | 4.64 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 12 22 | 691 | 0.2− | 0.0 | 2001 01 21 | 691 | 0.0 | 0.1+ | 2001 01 24 | 691 | 0.1− | 0.0 |
| 2000 12 22 | 691 | 0.0 | 0.2− | 2001 01 21 | 691 | 0.2− | 0.0 | 2001 01 26 | 691 | 0.0 | 0.2− |
| 2000 12 22 | 691 | 0.2+ | 0.3+ | 2001 01 21 | 691 | 0.1− | 0.4+ | 2001 01 26 | 691 | 0.2− | 0.2− |
| 2001 01 15 | 691 | 0.3− | 0.1+ | 2001 01 21 | 691 | 0.3+ | 0.3+ | 2001 01 26 | 691 | 0.2+ | 0.3− |
| 2001 01 15 | 691 | 0.3− | 0.0 | 2001 01 21 | 691 | 0.7+ | 0.3+ | 2009 11 18 | 691 | 0.1+ | 0.0 |
| 2001 01 15 | 691 | 0.2− | 0.3− | 2001 01 22 | 691 | 0.2+ | 0.3+ | 2009 11 18 | 691 | 0.0 | 0.0 |
| 2001 01 20 | 691 | 0.0 | 0.3− | 2001 01 22 | 691 | 0.1− | 0.2+ | 2009 11 18 | 691 | 0.0 | 0.4+ |
| 2001 01 20 | 691 | 0.3+ | 0.2− | 2001 01 22 | 691 | 0.3− | 0.1+ | 2009 11 22 | 691 | (1.6+ | 2.8−) |
| 2001 01 20 | 691 | 0.3+ | 0.2− | 2001 01 24 | 691 | 0.1+ | 0.1− | 2009 11 22 | 691 | 0.2− | 0.0 |
| 2001 01 21 | 691 | 0.1− | 0.1+ | 2001 01 24 | 691 | 0.2− | 0.1− | 2009 11 22 | 691 | 0.1+ | 0.4− |

## 2001 $DD_{31}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 0.14715 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22497348 | $\omega$ | 30.23718 | | −0.98920959 | | −0.10782663 |
| $a$ | 2.6774118 | $\Omega$ | 143.16128 | | +0.07743435 | | −0.95950940 |
| $e$ | 0.2386552 | $i$ | 9.52219 | | +0.12437164 | | −0.26022129 |
| $P$ | 4.38 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 09 06 | 691 | 0.3+ | 0.1− | 2001 02 20 | 704 | 0.2− | 0.9+ | 2001 03 23 | 699 | 0.0 | 0.2+ |
| 1994 09 06 | 691 | 0.2− | 0.1− | 2001 02 20 | 704 | 0.3− | 0.3+ | 2001 03 23 | 699 | 0.2+ | 0.3+ |
| 1994 09 06 | 691 | 0.1− | 0.0 | 2001 02 20 | 704 | 0.2− | 0.0 | 2001 03 23 | 699 | 1.4+ | 0.5+ |
| 2001 01 21 | 704 | 0.0 | 0.3+ | 2001 02 20 | 704 | 1.4− | 0.8− | 2001 03 26 | 704 | 1.2− | 1.2+ |
| 2001 01 21 | 704 | 0.7+ | 0.9+ | 2001 03 03 | 704 | 0.1+ | 0.0 | 2001 03 26 | 704 | 0.1− | 1.0+ |
| 2001 01 21 | 704 | 0.2− | 0.6+ | 2001 03 03 | 704 | 0.0 | 0.0 | 2001 03 26 | 704 | 1.0− | 0.4− |
| 2001 01 21 | 704 | 0.2+ | 0.0 | 2001 03 03 | 704 | 1.1− | 0.0 | 2001 03 26 | 704 | 1.0− | 0.1+ |
| 2001 01 31 | 704 | 0.6+ | 0.4− | 2001 03 03 | 704 | 0.8+ | 0.3+ | 2001 03 26 | 704 | 0.0 | 0.6+ |
| 2001 01 31 | 704 | 0.9+ | 0.1− | 2001 03 03 | 704 | 0.4− | 1.0− | 2001 03 29 | 699 | 0.1− | 0.5− |
| 2001 01 31 | 704 | 0.8+ | 0.7− | 2001 03 19 | 704 | 0.3− | 0.4+ | 2001 03 29 | 699 | 0.8− | 1.1+ |
| 2001 01 31 | 704 | 1.6+ | 0.2− | 2001 03 19 | 704 | 0.8+ | 2.0+ | 2001 03 29 | 699 | 0.9− | 0.7+ |
| 2001 02 17 | 704 | 0.0 | 0.2− | 2001 03 19 | 704 | 0.1+ | 1.2+ | 2001 03 29 | 699 | 0.6− | 0.5+ |
| 2001 02 17 | 704 | 0.2− | 0.0 | 2001 03 19 | 704 | (1.0− | 5.6+) | 2007 09 12 | 691 | 0.5− | 0.2+ |
| 2001 02 17 | 704 | 0.1+ | 0.2− | 2001 03 21 | 608 | 1.0+ | 1.3− | 2007 09 12 | 691 | 0.0 | 0.5+ |
| 2001 02 17 | 704 | 0.2− | 0.4− | 2001 03 21 | 608 | 0.7+ | 1.2− | 2007 09 12 | 691 | 0.1+ | 0.8+ |
| 2001 02 17 | 704 | 0.1− | 0.5− | 2001 03 21 | 608 | 0.8+ | 1.5− | | | | |
| 2001 02 20 | 704 | 0.2+ | 1.0+ | 2001 03 23 | 699 | 0.7+ | 0.1+ | | | | |

**2001 DB$_{62}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 198.49670 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17542651 | $\omega$ | 191.11675 | | −0.91325963 | −0.35838551 | |
| $a$ | 3.1603795 | $\Omega$ | 325.79420 | | +0.39518390 | −0.66391906 | |
| $e$ | 0.0582499 | $i$ | 20.15406 | | +0.09892695 | −0.65633171 | |
| $P$ | 5.62 | $H$ | 14.6 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 01 19 | 704 | 0.3+ | 0.3− | 2001 02 19 | 704 | 0.4+ | 0.5− | 2009 07 29 | 703 | 1.1− | 1.0− |
| 2001 01 19 | 704 | 0.5− | 0.7− | 2001 02 19 | 704 | 0.3− | 0.4− | 2009 07 29 | 703 | 0.9− | 0.1− |
| 2001 01 19 | 704 | 0.0 | 0.1+ | 2001 02 19 | 704 | (1.8− | 2.2−) | 2009 08 23 | J75 | 0.7− | 0.4+ |
| 2001 02 02 | 704 | 0.2+ | 0.3+ | 2001 02 22 | 704 | 1.4− | 0.4+ | 2009 08 23 | J75 | 0.3+ | 0.7− |
| 2001 02 02 | 704 | 0.1+ | 0.3− | 2001 02 22 | 704 | 0.3− | 0.5− | 2009 08 23 | J75 | 0.2+ | 0.1+ |
| 2001 02 02 | 704 | 0.7+ | 0.2+ | 2001 02 22 | 704 | 0.1+ | 0.9− | 2009 08 27 | 703 | 0.8+ | 0.9+ |
| 2001 02 16 | 699 | 0.2− | 1.1+ | 2001 02 22 | 704 | 0.2+ | 0.0 | 2009 08 27 | 703 | 1.8+ | 0.8+ |
| 2001 02 16 | 699 | 0.4+ | 0.5+ | 2001 02 22 | 704 | 0.6− | 0.9− | 2009 08 27 | 703 | 0.1− | 0.1+ |
| 2001 02 16 | 699 | 0.2+ | 0.4+ | 2009 07 29 | 703 | 0.5+ | 0.8− | 2009 08 27 | 703 | 0.0 | 0.2+ |
| 2001 02 16 | 699 | 0.4+ | 1.5+ | 2009 07 29 | 703 | 0.9− | 0.2− | | | | |

**2001 NX$_{5}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 346.51030 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23215283 | $\omega$ | 280.83544 | | +0.76717466 | +0.63979025 | |
| $a$ | 2.6219238 | $\Omega$ | 39.41171 | | −0.55660665 | +0.69960780 | |
| $e$ | 0.3137411 | $i$ | 4.15049 | | −0.31879788 | +0.31814676 | |
| $P$ | 4.25 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 06 27 | 644 | 0.5− | 0.0 | 2001 07 26 | 644 | 0.1+ | 0.5− | 2001 08 28 | 644 | 0.2+ | 0.0 |
| 2001 06 27 | 644 | 0.2− | 0.1− | 2001 07 31 | 644 | (0.5+ | 2.4−) | 2001 08 28 | 644 | 0.3+ | 0.0 |
| 2001 06 27 | 644 | 0.4− | 0.1+ | 2001 07 31 | 644 | 0.1− | 0.2+ | 2001 09 11 | 704 | 0.7+ | 0.7+ |
| 2001 07 13 | 644 | 0.3− | 0.4+ | 2001 07 31 | 644 | (0.5+ | 2.2−) | 2001 09 11 | 704 | 0.4+ | 0.4− |
| 2001 07 13 | 644 | 0.5− | 0.3+ | 2001 07 31 | 644 | 0.5+ | 0.2− | 2001 09 11 | 704 | 0.0 | 0.4+ |
| 2001 07 13 | 644 | 0.2− | 0.5+ | 2001 07 31 | 644 | (0.3+ | 2.3−) | 2001 09 11 | 704 | 0.1+ | 0.1− |
| 2001 07 14 | 644 | 0.4− | 0.7+ | 2001 07 31 | 644 | 0.3+ | 0.0 | 2001 09 24 | 644 | 0.7− | 0.1+ |
| 2001 07 14 | 644 | 0.2− | 0.3+ | 2001 08 11 | 644 | 0.5+ | 0.1− | 2001 09 24 | 644 | 0.6− | 0.3+ |
| 2001 07 14 | 644 | 0.0 | 0.4+ | 2001 08 11 | 644 | 0.1+ | 0.2+ | 2001 09 24 | 644 | 0.4− | 0.1− |
| 2001 07 17 | 644 | 0.5+ | 0.1+ | 2001 08 11 | 644 | 0.1− | 0.2+ | 2009 03 16 | 691 | 0.1− | 0.0 |
| 2001 07 17 | 644 | 0.4+ | 0.2+ | 2001 08 21 | 644 | (0.1− | 2.4−) | 2009 03 16 | 691 | 0.4+ | 0.1+ |
| 2001 07 17 | 644 | 0.4+ | 0.4+ | 2001 08 21 | 644 | (0.0 | 2.2−) | 2009 03 16 | 691 | 0.3− | 0.1+ |
| 2001 07 21 | 644 | (1.8+ | 1.5−) | 2001 08 21 | 644 | (0.3− | 2.2−) | 2009 04 21 | G96 | 0.0 | 0.1+ |
| 2001 07 21 | 644 | (1.8+ | 1.3−) | 2001 08 21 | 644 | (0.4− | 2.0−) | 2009 04 21 | G96 | (0.6− | 1.8−) |
| 2001 07 21 | 644 | (1.7+ | 1.5−) | 2001 08 21 | 644 | (0.2− | 1.9−) | 2009 04 21 | G96 | 0.1− | 0.0 |
| 2001 07 26 | 644 | 0.1− | 0.7− | 2001 08 21 | 644 | (0.4− | 1.9−) | 2009 04 21 | G96 | 0.2+ | 0.1− |
| 2001 07 26 | 644 | 0.2− | 0.3− | 2001 08 25 | 644 | 0.0 | 0.3− | 2009 05 16 | G96 | 0.0 | 0.2− |
| 2001 07 26 | 644 | 0.0 | 0.5− | 2001 08 25 | 644 | 0.0 | 0.4− | 2009 05 16 | G96 | 0.2− | 0.3− |
| 2001 07 26 | 644 | 0.1+ | 0.4− | 2001 08 25 | 644 | 0.4− | 0.4− | 2009 05 16 | G96 | 0.3+ | 0.3− |
| 2001 07 26 | 644 | 0.0 | 0.8− | 2001 08 28 | 644 | 0.0 | 0.1+ | | | | |

**2001 OG$_{62}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 206.02683 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17537628 | $\omega$ | 318.63680 | | +0.07127174 | +0.98328961 | |
| $a$ | 3.1609829 | $\Omega$ | 314.69069 | | −0.84198853 | −0.03073136 | |
| $e$ | 0.2693341 | $i$ | 13.62911 | | −0.53476691 | +0.17943558 | |
| $P$ | 5.62 | $H$ | 15.3 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 07 21 | 608 | 0.2− | 0.3+ | 2001 08 16 | 704 | 0.5− | 0.1− | 2001 09 20 | 704 | 0.1+ | 0.7+ |
| 2001 07 21 | 608 | 0.3− | 0.1+ | 2001 08 16 | 704 | 0.0 | 0.1− | 2007 09 13 | 703 | 1.0+ | 0.4+ |
| 2001 07 21 | 608 | 0.1− | 0.0 | 2001 08 24 | 699 | 0.0 | 0.3− | 2007 09 13 | 703 | 0.3− | 0.1+ |
| 2001 07 27 | 608 | 0.1+ | 0.2+ | 2001 08 24 | 699 | 0.4− | 0.6+ | 2007 09 13 | 703 | 1.2− | 0.4+ |
| 2001 07 27 | 608 | 0.2+ | 0.5+ | 2001 08 24 | 699 | 0.5+ | 0.9− | 2007 09 13 | 703 | 0.1+ | 0.4− |
| 2001 07 27 | 608 | 0.5+ | 0.2− | 2001 08 24 | 699 | 0.2− | 0.0 | 2007 11 01 | G96 | 0.3+ | 0.2− |
| 2001 08 16 | 704 | 0.4+ | 0.2− | 2001 09 20 | 704 | 0.1+ | 0.5− | 2007 11 01 | G96 | 0.1+ | 0.0 |
| 2001 08 16 | 704 | 0.2+ | 0.5− | 2001 09 20 | 704 | 0.1− | 0.1+ | 2007 11 01 | G96 | 0.2+ | 0.2− |
| 2001 08 16 | 704 | 0.0 | 0.3− | 2001 09 20 | 704 | 0.1− | 0.6+ | 2007 11 01 | G96 | 0.0 | 0.0 |

**2001 OA$_{100}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 219.01838 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17909225 | $\omega$ | 315.48046 | | +0.06379659 | +0.96464852 | |
| $a$ | 3.1171056 | $\Omega$ | 316.20772 | | −0.78117302 | −0.11118060 | |
| $e$ | 0.2160181 | $i$ | 21.68394 | | −0.62104646 | +0.23893956 | |
| $P$ | 5.50 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 07 16 | 699 | 0.9+ | 0.3+ | 2001 08 16 | 704 | 0.4+ | 0.1− | 2001 09 20 | 704 | 0.1+ | 0.1+ |
| 2001 07 16 | 699 | 0.1+ | 0.5+ | 2001 08 16 | 704 | 0.5+ | 0.4+ | 2001 09 20 | 704 | 0.6+ | 1.0+ |
| 2001 07 16 | 699 | 0.1+ | 0.9+ | 2001 08 19 | 704 | 0.7+ | 0.2+ | 2001 09 20 | 704 | 0.0 | 0.2+ |
| 2001 07 16 | 699 | 1.2− | 0.9− | 2001 08 19 | 704 | 0.8+ | 0.1− | 2001 09 20 | 704 | 0.5+ | 0.3− |
| 2001 07 27 | 699 | 0.5− | 0.3+ | 2001 08 19 | 704 | 0.3+ | 0.0 | 2007 09 13 | 703 | 0.2− | 0.0 |
| 2001 07 27 | 699 | 0.0 | 0.1+ | 2001 08 19 | 704 | 1.1+ | 1.0+ | 2007 09 13 | 703 | 0.5+ | 0.6+ |
| 2001 07 27 | 699 | 0.2− | 0.7+ | 2001 08 19 | 704 | 0.3+ | 1.5+ | 2007 09 13 | 703 | 0.3− | 0.1+ |
| 2001 07 27 | 699 | 0.1− | 0.2− | 2001 08 27 | 691 | 0.1− | 0.1+ | 2007 09 13 | 703 | 1.5+ | 0.3+ |
| 2001 08 02 | 608 | 0.1+ | 0.7− | 2001 08 27 | 691 | 0.2− | 0.0 | 2007 10 09 | 703 | 0.2+ | 0.0 |
| 2001 08 02 | 608 | 0.2− | 1.0− | 2001 08 27 | 691 | 0.1− | 0.0 | 2007 10 09 | 703 | 1.6− | 1.0− |
| 2001 08 02 | 608 | 0.1+ | 0.7− | 2001 08 28 | 644 | 1.1− | 0.5− | 2007 10 09 | 703 | 0.1− | 0.3+ |
| 2001 08 16 | 704 | 0.2+ | 0.4+ | 2001 08 28 | 644 | 1.0− | 1.4− | 2007 10 09 | 703 | 0.0 | 0.2− |
| 2001 08 16 | 704 | 0.6+ | 0.5− | 2001 08 28 | 644 | 1.1− | 1.3− | | | | |

**2001 OJ$_{113}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 135.64267 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28268685 | $\omega$ | 216.81169 | | +0.99494686 | +0.05943844 | |
| $a$ | 2.2993177 | $\Omega$ | 139.54791 | | −0.03179529 | +0.95098482 | |
| $e$ | 0.2204491 | $i$ | 7.16447 | | −0.09523550 | +0.30347148 | |
| $P$ | 3.49 | $H$ | 17.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 07 29 | 644 | 0.1+ | 0.4− | 2001 09 12 | 704 | 0.5+ | 0.0 | 2008 09 06 | 703 | 0.9+ | 0.9− |
| 2001 07 29 | 644 | 0.0 | 0.4− | 2001 09 19 | 699 | 0.8− | 0.9+ | 2008 09 06 | 703 | 0.2− | 0.4− |
| 2001 07 29 | 644 | 0.4+ | 0.4− | 2001 09 19 | 699 | 0.1+ | 1.2+ | 2008 09 06 | 703 | 0.3+ | 0.4− |
| 2001 08 25 | 644 | 0.7− | 0.3+ | 2001 09 19 | 699 | 0.9− | 1.3− | 2008 09 20 | 703 | 0.3+ | 0.3− |
| 2001 08 25 | 644 | 0.5− | 0.7+ | 2001 09 19 | 699 | 0.2− | 0.6− | 2008 09 20 | 703 | 0.0 | 0.7− |
| 2001 08 25 | 644 | 0.5− | 0.2+ | 2001 10 11 | 644 | 0.6+ | 0.0 | 2008 09 20 | 703 | 0.3− | 0.1+ |
| 2001 09 12 | 704 | 0.0 | 0.2+ | 2001 10 11 | 644 | 0.4+ | 0.3− | 2008 09 20 | 703 | 0.0 | 0.3− |
| 2001 09 12 | 704 | 0.2+ | 0.5+ | 2001 10 11 | 644 | 0.4+ | 0.1− | 2008 10 02 | 703 | 0.2− | 0.4+ |
| 2001 09 12 | 704 | 0.3+ | 1.4+ | 2008 09 06 | 703 | 0.9+ | 0.1+ | 2008 10 02 | 703 | 1.0− | 0.3+ |

**2001 PN$_{12}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 195.44930 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17574726 | $\omega$ | 205.46629 | | +0.75066823 | +0.63460043 | |
| $a$ | 3.1565331 | $\Omega$ | 113.88277 | | −0.56657380 | +0.76142789 | |
| $e$ | 0.2301186 | $i$ | 11.59560 | | −0.33984018 | +0.13232484 | |
| $P$ | 5.61 | $H$ | 15.1 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 12 | 644 | 0.0 | 0.5+ | 2001 08 26 | 644 | 0.0 | 0.1− | 2007 10 08 | 699 | 1.5+ | 1.2− |
| 2001 08 12 | 644 | 0.3+ | 0.6+ | 2001 09 11 | 704 | 0.9− | 0.0 | 2007 10 10 | 703 | 0.3− | 1.1− |
| 2001 08 12 | 644 | 0.4+ | 0.7+ | 2001 09 11 | 704 | 0.4+ | 1.1+ | 2007 10 10 | 703 | 0.3− | 0.1+ |
| 2001 08 13 | 608 | 0.5+ | 0.7− | 2001 09 11 | 704 | 0.8− | 0.2+ | 2007 10 10 | 703 | 1.4− | 1.0+ |
| 2001 08 13 | 608 | 0.0 | 0.4− | 2001 09 11 | 704 | 0.2+ | 0.5− | 2007 10 10 | 703 | 0.3+ | 0.2− |
| 2001 08 13 | 608 | 0.3+ | 0.5− | 2001 10 15 | 644 | 0.4+ | 0.0 | 2007 11 15 | 703 | 0.7− | 0.7+ |
| 2001 08 20 | 608 | 0.6− | 0.4− | 2001 10 15 | 644 | 0.1+ | 0.1− | 2007 11 15 | 703 | 0.3+ | 0.5− |
| 2001 08 20 | 608 | 0.6− | 0.2− | 2001 10 15 | 644 | 0.5+ | 0.1+ | 2007 11 15 | 703 | 0.1− | 0.6+ |
| 2001 08 20 | 608 | 0.5− | 0.6− | 2007 10 08 | 699 | 1.2+ | 0.9+ | 2007 11 15 | 703 | 0.1− | 0.7− |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 2001 08 26 | 644 | 0.1+ | 0.0 | 2007 10 08 | 699 | 0.7− | 0.3+ | |
| 2001 08 26 | 644 | 0.1+ | 0.3+ | 2007 10 08 | 699 | 0.3+ | 0.0 | |

**2001 PR$_{47}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 139.23268 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.27602342 | $\omega$ | 208.22004 | | +0.74633209 | | +0.65573083 |
| $a$ | 2.3361753 | $\Omega$ | 110.33775 | | −0.58549155 | | +0.72830905 |
| $e$ | 0.2446176 | $i$ | 6.98582 | | −0.31652499 | | +0.19895479 |
| $P$ | 3.57 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 13 | 608 | 0.2− | 0.3− | 2001 09 25 | 704 | 0.4+ | 0.2+ | 2008 06 06 | G96 | 0.4− | 0.6+ |
| 2001 08 13 | 608 | 0.5− | 0.3− | 2001 10 15 | 644 | 0.7+ | 0.2− | 2008 06 06 | G96 | 0.1+ | 0.0 |
| 2001 08 13 | 608 | 0.5− | 0.1− | 2001 10 15 | 644 | 0.5+ | 0.2+ | 2008 06 06 | G96 | 0.1+ | 0.0 |
| 2001 08 20 | 608 | 0.6+ | 0.5+ | 2001 10 15 | 644 | 0.7+ | 0.1− | 2008 07 28 | E12 | 0.1+ | 0.2− |
| 2001 08 20 | 608 | 0.7+ | 0.3+ | 2001 10 23 | 644 | 0.1− | 0.8− | 2008 07 28 | E12 | 0.2− | 0.4− |
| 2001 08 20 | 608 | 0.4+ | 0.1+ | 2001 10 23 | 644 | 0.2− | 0.9− | 2008 07 28 | E12 | 0.0 | 0.2− |
| 2001 09 12 | 704 | 0.1− | 1.0+ | 2001 10 23 | 644 | 0.2− | 0.9− | 2008 07 28 | E12 | 0.2− | 1.4+ |
| 2001 09 12 | 704 | 0.5− | 0.4+ | 2005 11 03 | G96 | 0.1− | 0.2+ | 2008 08 23 | E12 | 0.1+ | 0.4− |
| 2001 09 12 | 704 | 0.5− | 0.4+ | 2005 11 03 | G96 | 0.2+ | 0.1+ | 2008 08 23 | E12 | 0.1+ | 1.5− |
| 2001 09 12 | 704 | 0.5− | 0.3− | 2005 11 03 | G96 | 0.1− | 0.2+ | 2008 08 23 | E12 | 0.0 | 0.6− |
| 2001 09 25 | 704 | 1.1− | 0.8+ | 2005 11 03 | G96 | 0.2− | 0.1+ | 2008 08 23 | E12 | 0.0 | 0.1− |
| 2001 09 25 | 704 | 0.0 | 0.7+ | 2008 06 06 | G96 | 0.7+ | 0.7+ | | | | |

**2001 QK**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 327.49659 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22576273 | $\omega$ | 353.69373 | | +0.90460086 | | +0.41999097 |
| $a$ | 2.6711681 | $\Omega$ | 340.95457 | | −0.38068581 | | +0.71913190 |
| $e$ | 0.2824079 | $i$ | 12.89712 | | −0.19176964 | | +0.55358550 |
| $P$ | 4.37 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 07 19 | 699 | 0.5+ | 0.0 | 2001 09 07 | 704 | 0.4− | 0.3+ | 2001 10 11 | 704 | 0.3− | 1.5+ |
| 2001 07 19 | 699 | 0.7+ | 0.6− | 2001 09 07 | 704 | 0.3− | 0.1− | 2001 10 11 | 704 | 0.1+ | 0.1+ |
| 2001 07 19 | 699 | 0.4+ | 0.5+ | 2001 09 07 | 704 | 0.6− | 0.1+ | 2001 10 11 | 704 | 0.8− | 0.3− |
| 2001 07 19 | 699 | 1.4− | 0.6+ | 2001 09 07 | 704 | 0.9− | 0.7+ | 2001 10 11 | 704 | 1.2− | 0.3− |
| 2001 08 16 | 704 | 0.2+ | 0.4+ | 2001 09 07 | 704 | 0.2− | 0.2− | 2001 10 11 | 704 | 0.9− | 0.4− |
| 2001 08 16 | 704 | 0.1+ | 0.1− | 2001 09 07 | 699 | 0.3+ | 0.2− | 2001 10 14 | 704 | 0.0 | 0.2+ |
| 2001 08 16 | 704 | 0.1+ | 0.1− | 2001 09 07 | 699 | 0.5+ | 0.2− | 2001 10 14 | 704 | 0.2+ | 0.3+ |
| 2001 08 16 | 704 | 0.5+ | 0.3+ | 2001 09 07 | 699 | 0.2+ | 0.6− | 2001 10 14 | 704 | 0.1+ | 0.1− |
| 2001 08 16 | 704 | 0.2+ | 0.1+ | 2001 09 07 | 699 | 0.4+ | 0.1+ | 2001 10 14 | 704 | 0.6− | 0.3− |
| 2001 08 16 | 428 | 2.0− | 1.9+ | 2001 09 12 | 704 | 0.2− | 0.0 | 2001 10 14 | 704 | 0.1− | 0.3+ |
| 2001 08 17 | 428 | 0.5+ | 0.2+ | 2001 09 12 | 704 | 0.3− | 0.1− | 2001 10 19 | 644 | 1.5+ | 1.4− |
| 2001 08 17 | 428 | 0.9+ | 0.1+ | 2001 09 12 | 704 | 0.1− | 0.2+ | 2001 10 19 | 644 | 1.4+ | 1.5− |
| 2001 08 18 | 704 | 1.0+ | 0.2− | 2001 09 12 | 704 | 0.4− | 0.0 | 2001 10 19 | 644 | 1.1+ | 1.2− |
| 2001 08 18 | 704 | 0.9− | 0.2+ | 2001 09 12 | 704 | 0.2+ | 0.0 | 2001 10 21 | 704 | 0.0 | 0.2+ |
| 2001 08 18 | 704 | 0.6+ | 0.8+ | 2001 09 20 | 704 | 0.3− | 0.0 | 2001 10 21 | 704 | 0.0 | 0.6− |
| 2001 08 18 | 704 | 0.3+ | 0.4+ | 2001 09 20 | 704 | 0.2− | 0.0 | 2001 10 21 | 704 | 0.3+ | 0.1− |
| 2001 08 19 | 704 | 0.6− | 0.1+ | 2001 09 20 | 704 | 0.0 | 0.2+ | 2001 10 21 | 704 | 0.3+ | 0.6− |
| 2001 08 19 | 704 | 0.9− | 0.2− | 2001 09 20 | 704 | 0.3− | 0.1+ | 2001 10 21 | 704 | 0.2− | 0.4− |
| 2001 08 19 | 704 | 0.5− | 1.1− | 2001 09 20 | 704 | 0.3− | 0.1+ | 2001 11 10 | 704 | 0.5− | 0.0 |
| 2001 08 19 | 704 | 0.0 | 0.6− | 2001 09 22 | 704 | 0.2− | 0.1− | 2001 11 10 | 704 | 1.1+ | 0.5+ |
| 2001 08 25 | 704 | 0.5− | 0.3+ | 2001 09 22 | 704 | 0.0 | 0.1− | 2001 11 10 | 704 | 0.6+ | 1.0+ |
| 2001 08 25 | 704 | 0.1+ | 0.0 | 2001 09 22 | 704 | 0.2− | 0.3+ | 2001 11 10 | 704 | 0.4+ | 0.8+ |
| 2001 08 25 | 704 | 0.4− | 0.0 | 2001 09 22 | 704 | 0.2− | 0.0 | 2008 02 07 | 691 | 0.1+ | 0.5+ |
| 2001 08 25 | 704 | 0.1− | 0.2+ | 2001 09 22 | 704 | 0.0 | 0.0 | 2008 02 07 | 691 | 0.2− | 0.1+ |
| 2001 08 25 | 704 | 0.3− | 0.1− | 2001 09 23 | 704 | 0.3+ | 0.1− | 2008 02 07 | 691 | 0.5+ | 0.3+ |
| 2001 08 26 | 428 | 0.2+ | 0.5− | 2001 09 23 | 704 | 0.3+ | 0.4+ | 2008 03 05 | G96 | 0.5+ | 0.5+ |
| 2001 08 26 | 428 | 0.1− | 0.1− | 2001 09 23 | 704 | 0.1+ | 0.3+ | 2008 03 05 | G96 | 0.3+ | 0.6+ |
| 2001 08 27 | 699 | 0.1+ | 0.1+ | 2001 09 23 | 704 | 0.4+ | 0.6+ | 2008 03 05 | G96 | 0.6+ | 0.3+ |
| 2001 08 27 | 699 | 0.4+ | 0.0 | 2001 10 06 | 704 | 0.2+ | 0.9+ | 2008 03 05 | G96 | 0.4+ | 0.3+ |
| 2001 08 27 | 699 | 0.1+ | 0.1+ | 2001 10 06 | 704 | 1.6− | 0.8+ | | | | |
| 2001 08 27 | 699 | 0.7+ | 0.1+ | 2001 10 06 | 704 | (1.0− | 2.3+) | | | | |

**2001 QT$_{15}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 201.34262 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.29979720 | $\omega$ | 321.91184 | | +0.80456859 | | +0.59385352 |
| $a$ | 2.2109776 | $\Omega$ | 1.66435 | | −0.51932738 | | +0.70580261 |
| $e$ | 0.2118316 | $i$ | 5.36682 | | −0.28804246 | | +0.38623914 |
| $P$ | 3.29 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 12 | 608 | 0.2− | 0.6− | 2001 08 25 | 704 | 0.4+ | 0.9− | 2001 10 18 | 699 | 0.2− | 0.8+ |
| 2001 08 12 | 608 | 0.5− | 0.9− | 2001 08 25 | 699 | 0.4− | 0.3− | 2001 10 18 | 699 | 0.7+ | 0.4− |
| 2001 08 12 | 608 | 0.2− | 0.9− | 2001 08 25 | 704 | 0.2− | 0.7− | 2001 10 18 | 699 | 0.4+ | 0.4+ |
| 2001 08 16 | 704 | 0.6− | 0.1− | 2001 09 10 | 699 | 0.6− | 0.3− | 2001 10 23 | 704 | 0.2+ | 0.4− |
| 2001 08 16 | 704 | 0.2+ | 0.5− | 2001 09 10 | 699 | 0.6− | 0.5− | 2001 10 23 | 704 | 0.1+ | 0.7− |
| 2001 08 16 | 704 | 0.3+ | 0.3+ | 2001 09 10 | 699 | 0.3− | 0.9− | 2001 10 23 | 704 | 0.7+ | 0.0 |
| 2001 08 16 | 704 | 0.1+ | 0.2− | 2001 09 10 | 699 | 0.8− | 0.1− | 2001 10 23 | 704 | 0.8+ | 0.1− |
| 2001 08 16 | 704 | 0.4+ | 1.1− | 2001 09 12 | 704 | 0.8− | 0.3− | 2001 10 23 | 704 | 0.5− | 0.2+ |
| 2001 08 18 | 704 | 1.9+ | 1.3+ | 2001 09 12 | 704 | 0.5− | 0.5− | 2001 10 24 | 704 | 0.5− | 0.1+ |
| 2001 08 18 | 704 | 1.4+ | 1.1+ | 2001 09 12 | 704 | 0.3− | 0.6− | 2001 10 24 | 704 | 0.3+ | 0.6+ |
| 2001 08 18 | 704 | 1.7+ | 0.9+ | 2001 09 12 | 704 | 0.1− | 0.5− | 2001 10 24 | 704 | 0.3+ | 0.4− |
| 2001 08 18 | 704 | 1.6+ | 0.4+ | 2001 09 19 | 704 | 0.3− | 0.3+ | 2001 10 24 | 704 | 0.5+ | 0.0 |
| 2001 08 19 | 704 | 0.5− | 1.5+ | 2001 09 19 | 704 | 0.8− | 0.0 | 2001 11 20 | 699 | 0.4+ | 0.8+ |
| 2001 08 19 | 735 | 0.2− | 0.1− | 2001 09 19 | 704 | 0.3− | 0.4− | 2001 11 20 | 699 | 1.3− | 1.0+ |
| 2001 08 19 | 704 | 0.6− | 1.2+ | 2001 09 19 | 704 | 0.6− | 0.0 | 2001 11 20 | 699 | 1.4− | 0.9+ |
| 2001 08 19 | 735 | 1.7+ | 0.0 | 2001 09 19 | 704 | 1.0− | 0.3− | 2001 11 20 | 699 | 0.4+ | 1.6+ |
| 2001 08 19 | 704 | 0.7− | 1.5+ | 2001 09 21 | 704 | 0.1+ | 0.5− | 2008 11 18 | 703 | 0.1− | 0.3− |
| 2001 08 19 | 735 | 0.1+ | 0.2− | 2001 09 21 | 704 | 0.1− | 0.3− | 2008 11 18 | 703 | 0.7+ | 0.3+ |
| 2001 08 19 | 704 | 0.5− | 1.4+ | 2001 09 21 | 704 | 0.2+ | 0.4+ | 2008 11 18 | 703 | 0.8+ | 0.4+ |
| 2001 08 19 | 704 | 0.2+ | 1.5+ | 2001 09 21 | 704 | 0.7− | 0.6− | 2008 11 18 | 703 | 1.6− | 0.7+ |
| 2001 08 25 | 704 | 0.1− | 0.2+ | 2001 09 21 | 704 | 0.6− | 0.1− | 2008 12 06 | G96 | 0.1− | 0.4− |
| 2001 08 25 | 699 | (2.5+ | 1.0−) | 2001 10 13 | 704 | 0.3+ | 0.1+ | 2008 12 06 | G96 | 0.5+ | 0.6− |
| 2001 08 25 | 704 | 0.0 | 0.4− | 2001 10 13 | 704 | 0.7− | 0.1+ | 2008 12 06 | G96 | 0.0 | 0.5− |
| 2001 08 25 | 699 | 0.2+ | 0.3− | 2001 10 13 | 704 | 0.7+ | 0.3− | 2008 12 06 | G96 | 0.1+ | 0.4− |
| 2001 08 25 | 704 | 0.1+ | 0.9− | 2001 10 13 | 704 | 1.1+ | 0.8− | | | | |
| 2001 08 25 | 699 | 0.1− | 0.1+ | 2001 10 18 | 699 | 0.3+ | 0.4− | | | | |

**2001 QA$_{32}$ = 2008 VF$_{75}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 145.21095 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.28778594 | $\omega$ | 202.39770 | | +0.99676656 | | +0.05354312 |
| $a$ | 2.2720767 | $\Omega$ | 154.31230 | | −0.03472866 | | +0.95946518 |
| $e$ | 0.3037669 | $i$ | 7.94476 | | −0.07245924 | | +0.27669423 |
| $P$ | 3.42 | $H$ | 18.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 15 | 608 | 0.3− | 0.1− | 2001 08 20 | 704 | 0.6+ | 0.5+ | 2008 10 08 | 703 | 1.0+ | 1.5− |
| 2001 08 15 | 608 | 0.1− | 0.8+ | 2001 08 20 | 704 | 0.2+ | 0.0 | 2008 10 08 | 703 | 0.1− | 0.7− |
| 2001 08 15 | 608 | 0.3− | 0.1+ | 2001 08 28 | 691 | 0.2− | 0.3− | 2008 10 08 | 703 | 0.2− | 0.3+ |
| 2001 08 17 | 704 | 0.7+ | 0.8− | 2001 08 28 | 691 | 0.1− | 0.0 | 2008 10 30 | 703 | 0.4+ | 0.1+ |
| 2001 08 17 | 704 | 0.5− | 0.5+ | 2001 08 28 | 691 | 0.0 | 0.2− | 2008 10 30 | 703 | 0.8− | 1.7− |
| 2001 08 17 | 704 | 0.3− | 0.3+ | 2001 09 13 | 734 | (1.3+ | 2.6−) | 2008 10 30 | 703 | 0.1+ | 0.4− |
| 2001 08 17 | 704 | 0.3− | 0.7+ | 2001 09 13 | 734 | 1.7− | 1.9− | 2008 10 30 | 703 | 1.2− | 0.7− |
| 2001 08 18 | 704 | 0.6− | 0.1+ | 2001 09 13 | 734 | (0.8+ | 2.9+) | 2008 11 02 | 703 | 1.3− | 1.3+ |
| 2001 08 18 | 704 | 0.1+ | 0.1+ | 2001 09 19 | 704 | 0.1− | 0.7+ | 2008 11 02 | 703 | 0.7+ | 0.1− |
| 2001 08 18 | 704 | 0.1− | 0.4+ | 2001 09 19 | 704 | 0.7+ | 0.2− | 2008 11 02 | 703 | 1.6+ | 0.5+ |
| 2001 08 18 | 704 | 0.1+ | 1.2− | 2001 09 19 | 704 | 1.2+ | 0.9+ | 2008 11 02 | 703 | 0.8+ | 1.6+ |
| 2001 08 18 | 704 | 0.3+ | 0.5− | 2001 09 21 | 704 | 0.5+ | 1.2+ | 2008 11 17 | 703 | 0.2− | 1.3+ |
| 2001 08 18 | 704 | 0.6+ | 0.3+ | 2001 09 21 | 704 | 0.9− | 1.2+ | 2008 11 17 | 703 | 0.7+ | 0.2+ |
| 2001 08 18 | 704 | 1.4+ | 0.6− | 2001 09 21 | 704 | 0.4+ | 0.6+ | 2008 11 17 | 703 | 0.5+ | 1.1− |
| 2001 08 20 | 704 | 0.4− | 0.5− | 2008 10 08 | 703 | 0.4− | 0.2− | 2008 11 17 | 703 | 1.3− | 0.2+ |

**2001 QZ$_{33}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 216.84235 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19192066 | $\omega$ | 231.65270 | | +0.99186137 | +0.08948832 | |
| $a$ | 2.9766075 | $\Omega$ | 123.03797 | | −0.05348933 | +0.93839220 | |
| $e$ | 0.4794130 | $i$ | 6.20225 | | −0.11554183 | +0.33378424 | |
| $P$ | 5.14 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 05 | 608 | 0.5+ | 0.3− | 2001 08 19 | 046 | 0.2+ | 0.5+ | 2001 09 12 | 704 | 0.2− | 0.4− | |
| 2001 08 05 | 608 | 0.6− | 0.3+ | 2001 08 19 | 046 | 0.2− | 0.2− | 2001 09 12 | 704 | 0.2− | 0.2− | |
| 2001 08 16 | 704 | 0.3− | 0.3+ | 2001 08 19 | 046 | 0.4− | 0.1− | 2001 09 18 | 699 | 1.2+ | 0.1+ | |
| 2001 08 16 | 704 | 0.4+ | 0.1+ | 2001 08 19 | 046 | 0.0 | 0.1+ | 2001 09 18 | 699 | 0.7+ | 0.1− | |
| 2001 08 16 | 704 | 0.8+ | 0.5+ | 2001 08 19 | 860 | 0.9− | 0.9+ | 2001 09 18 | 699 | 0.3− | 0.7+ | |
| 2001 08 16 | 704 | 0.2+ | 0.5+ | 2001 08 19 | 860 | (4.3+ | 0.2+) | 2001 09 18 | 699 | 0.3− | 0.6+ | |
| 2001 08 17 | 046 | 0.1− | 0.7− | 2001 08 19 | 860 | (2.6+ | 3.2+) | 2001 09 24 | 644 | 0.3+ | 0.1+ | |
| 2001 08 17 | 946 | 0.2+ | 1.5− | 2001 08 19 | 704 | 0.4− | 0.6+ | 2001 09 24 | 644 | 0.0 | 0.0 | |
| 2001 08 17 | 046 | 0.4+ | 0.0 | 2001 08 19 | 704 | 0.6+ | 0.2+ | 2001 09 24 | 644 | 0.3+ | 0.2+ | |
| 2001 08 17 | 046 | 0.9− | 1.0+ | 2001 08 19 | 704 | 0.1+ | 0.8− | 2001 09 25 | 704 | 0.2+ | 0.3− | |
| 2001 08 17 | 046 | 0.6− | 0.4+ | 2001 08 19 | 704 | 0.2+ | 0.0 | 2001 09 25 | 704 | 0.4+ | 0.0 | |
| 2001 08 17 | 946 | 0.5− | 0.8− | 2001 08 20 | 557 | 0.1+ | 0.1+ | 2001 09 25 | 704 | 0.1− | 0.0 | |
| 2001 08 17 | 946 | 0.5− | 0.4− | 2001 08 20 | 557 | 0.4+ | 0.4− | 2001 09 25 | 704 | 0.2+ | 0.4− | |
| 2001 08 17 | 946 | 0.4− | 1.5− | 2001 08 20 | 557 | 0.0 | 0.6+ | 2001 09 25 | 704 | 0.1+ | 0.2− | |
| 2001 08 17 | 557 | 0.3+ | 0.2− | 2001 08 20 | 704 | 0.3+ | 0.8+ | 2001 10 23 | 644 | 0.4− | 0.3+ | |
| 2001 08 17 | 557 | 1.0+ | 0.3+ | 2001 08 20 | 704 | 0.8+ | 0.2− | 2001 10 23 | 644 | 0.5− | 0.3+ | |
| 2001 08 17 | 104 | 0.8− | 0.3+ | 2001 08 20 | 704 | 0.3+ | 0.9− | 2001 10 23 | 644 | 0.5− | 0.5+ | |
| 2001 08 17 | 104 | 0.4− | 0.8− | 2001 09 02 | 644 | 0.7− | 0.7+ | 2001 11 07 | 704 | 0.6− | 0.1− | |
| 2001 08 17 | 104 | 0.9− | 0.2+ | 2001 09 02 | 644 | 0.5− | 1.0+ | 2001 11 07 | 704 | 0.3− | 0.3− | |
| 2001 08 18 | 704 | 0.0 | 0.6+ | 2001 09 02 | 644 | 0.6− | 1.2+ | 2001 11 07 | 704 | 0.8+ | 0.1− | |
| 2001 08 18 | 704 | 0.3− | 0.3− | 2001 09 11 | 699 | 0.5+ | 0.1+ | 2001 11 19 | 608 | 0.2− | 0.0 | |
| 2001 08 18 | 704 | 0.2+ | 0.1+ | 2001 09 11 | 699 | 0.8+ | 0.2− | 2001 11 19 | 608 | 0.1− | 0.5− | |
| 2001 08 18 | 422 | 0.3+ | 0.6− | 2001 09 11 | 699 | 0.4+ | 0.3− | 2001 11 19 | 608 | 0.1− | 0.4− | |
| 2001 08 18 | 422 | 0.3+ | 0.5− | 2001 09 11 | 699 | 0.4+ | 0.4− | 2008 01 06 | 568 | 0.2− | 0.1+ | |
| 2001 08 18 | 422 | 0.2+ | 0.4− | 2001 09 12 | 704 | 0.3− | 0.2− | 2008 01 06 | 568 | 0.0 | 0.1+ | |
| 2001 08 18 | 611 | 0.1− | 0.8+ | 2001 09 12 | 704 | 0.3− | 0.1− | 2008 01 06 | 568 | 0.1+ | 0.0 | |
| 2001 08 18 | 611 | 0.5− | 0.3− | 2001 09 12 | 704 | 0.1− | 0.3− | 2008 01 07 | 568 | 0.2+ | 0.0 | |

**2001 QL$_{35}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 348.57497 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23705297 | $\omega$ | 193.88279 | | +0.96458043 | +0.25949588 | |
| $a$ | 2.5856662 | $\Omega$ | 150.94350 | | −0.23175203 | +0.91946460 | |
| $e$ | 0.2928612 | $i$ | 5.60046 | | −0.12599842 | +0.29537559 | |
| $P$ | 4.16 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 07 14 | 608 | 0.6− | 0.2− | 2001 08 19 | 704 | 0.5+ | 0.4+ | 2001 09 21 | 704 | 0.0 | 0.6− | |
| 2001 07 14 | 608 | 0.5− | 0.6− | 2001 08 24 | 608 | 0.3+ | 0.8− | 2001 09 21 | 704 | 0.2− | 0.9− | |
| 2001 07 14 | 608 | 0.4− | 0.6− | 2001 08 24 | 608 | 0.4+ | 0.7− | 2009 04 30 | G96 | 0.1+ | 0.2+ | |
| 2001 07 24 | 608 | 0.1+ | 0.9+ | 2001 08 24 | 608 | 0.3+ | 0.8− | 2009 04 30 | G96 | 0.8− | 0.5+ | |
| 2001 07 24 | 608 | 0.2+ | 1.5+ | 2001 09 18 | 644 | 0.5+ | 0.1− | 2009 04 30 | G96 | 0.2+ | 0.2+ | |
| 2001 07 24 | 608 | (0.1+ | 1.7+) | 2001 09 18 | 644 | 0.2+ | 0.5+ | 2009 04 30 | G96 | 0.3− | 0.0 | |
| 2001 08 16 | 704 | 0.7− | 0.3+ | 2001 09 18 | 644 | 0.5+ | 0.1− | 2009 05 17 | G96 | 0.0 | 0.0 | |
| 2001 08 16 | 704 | 0.9+ | 0.4+ | 2001 09 19 | 704 | 0.3− | 0.7+ | 2009 05 17 | G96 | 0.3− | 0.2− | |
| 2001 08 16 | 704 | (0.1− | 2.0−) | 2001 09 19 | 704 | 0.9− | 0.2+ | 2009 05 17 | G96 | 0.0 | 0.1− | |
| 2001 08 16 | 704 | 0.1+ | 0.4− | 2001 09 19 | 704 | 0.7− | 0.4+ | 2009 05 17 | G96 | 0.3− | 0.1− | |
| 2001 08 16 | 704 | 0.3− | 0.6− | 2001 09 19 | 704 | 0.5− | 0.5+ | 2009 06 01 | G96 | 0.2+ | 0.2− | |
| 2001 08 19 | 704 | 0.5+ | 0.4+ | 2001 09 19 | 704 | 0.5− | 0.3+ | 2009 06 01 | G96 | 0.3+ | 0.4− | |
| 2001 08 19 | 704 | 0.2− | 0.3+ | 2001 09 21 | 704 | 0.1+ | 0.7− | 2009 06 01 | G96 | 0.5+ | 0.1− | |
| 2001 08 19 | 704 | 0.2− | 0.0 | 2001 09 21 | 704 | 0.2+ | 0.3− | 2009 06 01 | G96 | 0.1+ | 0.3− | |
| 2001 08 19 | 704 | 0.2+ | 0.3+ | 2001 09 21 | 704 | 0.4+ | 0.3+ | | | | | |

**2001 QP$_{47}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 168.68399 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18007648 | $\omega$ | 36.33687 | | +0.98518802 | −0.01067427 | |
| $a$ | 3.1057373 | $\Omega$ | 323.12440 | | −0.09390978 | +0.80149906 | |
| $e$ | 0.2125703 | $i$ | 16.57104 | | +0.14347658 | +0.59790076 | |
| $P$ | 5.47 | $H$ | 15.3 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 07 27 | 699 | 0.7+ | 0.5− | 2001 08 20 | 704 | 0.5− | 0.7+ | 2001 09 20 | 704 | 0.7− | 1.4− | |
| 2001 07 27 | 699 | 0.6+ | 0.5+ | 2001 08 20 | 704 | 0.0 | 0.0 | 2001 09 20 | 704 | 0.2− | 0.7− | |
| 2001 07 27 | 699 | 0.1+ | 0.6− | 2001 08 20 | 704 | 0.4+ | 1.8+ | 2001 09 20 | 704 | (2.8+ | 0.6−) | |
| 2001 07 27 | 699 | 0.6− | 0.5+ | 2001 08 20 | 704 | 0.3+ | 0.2+ | 2001 09 22 | 704 | 0.0 | 0.1+ | |
| 2001 08 15 | 608 | 0.0 | 1.3− | 2001 08 20 | 704 | 0.4− | 0.7+ | 2001 09 22 | 704 | 0.7− | 0.7+ | |
| 2001 08 15 | 608 | 0.3+ | 0.7− | 2001 08 20 | 704 | 0.1− | 0.3+ | 2001 09 22 | 704 | 0.5+ | 0.2− | |
| 2001 08 15 | 608 | 0.6+ | 0.3− | 2001 08 21 | 704 | 0.0 | 0.5+ | 2001 09 22 | 704 | 0.0 | 1.0+ | |
| 2001 08 16 | 704 | 0.3+ | 0.2+ | 2001 08 21 | 704 | 0.6− | 1.2+ | 2001 09 22 | 704 | 0.6− | 0.5+ | |
| 2001 08 16 | 704 | 0.0 | 0.3− | 2001 08 21 | 704 | 0.3− | 0.3+ | 2001 09 23 | 704 | 0.6+ | 0.3− | |
| 2001 08 16 | 704 | 0.2− | 0.2− | 2001 08 21 | 691 | 0.1+ | 0.2− | 2001 09 23 | 704 | 0.5+ | 0.3− | |
| 2001 08 16 | 704 | 0.5− | 1.1− | 2001 08 21 | 691 | 0.3+ | 0.1− | 2001 09 23 | 704 | 0.3− | 0.1+ | |
| 2001 08 16 | 704 | 0.6− | 0.5− | 2001 08 21 | 691 | 0.5+ | 0.1− | 2009 02 05 | 691 | 0.1− | 0.2− | |
| 2001 08 19 | 704 | 0.7− | 0.1− | 2001 08 24 | 699 | 0.5− | 1.4+ | 2009 02 05 | 691 | 0.1+ | 0.0 | |
| 2001 08 19 | 704 | 1.0+ | 0.1− | 2001 08 24 | 699 | 0.6+ | 0.1+ | 2009 02 05 | 691 | 0.6+ | 0.2− | |
| 2001 08 19 | 704 | 1.2− | 0.8− | 2001 08 24 | 699 | 0.0 | 1.1− | 2009 02 13 | 691 | 0.2+ | 0.0 | |
| 2001 08 20 | 704 | 0.5+ | 1.4+ | 2001 08 24 | 699 | 0.5+ | 0.0 | 2009 02 13 | 691 | 1.1− | 0.4+ | |
| 2001 08 20 | 704 | 0.3− | 0.0 | 2001 09 20 | 704 | 0.1− | 0.1− | 2009 02 13 | 691 | 0.3+ | 0.1+ | |
| 2001 08 20 | 704 | 1.5− | 0.3+ | 2001 09 20 | 704 | 0.4− | 0.6− | | | | | |

**2001 QZ$_{60}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 335.42792 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22805717 | $\omega$ | 331.79990 | | +0.87118087 | +0.49095169 | |
| $a$ | 2.6532218 | $\Omega$ | 358.78277 | | −0.41720785 | +0.73684176 | |
| $e$ | 0.3916194 | $i$ | 8.70211 | | −0.25880785 | +0.46479099 | |
| $P$ | 4.32 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 07 30 | 704 | 0.9+ | 0.9− | 2001 09 11 | 704 | 0.2− | 1.2+ | 2001 10 13 | 704 | 0.3− | 0.1− | |
| 2001 07 30 | 704 | (1.5+ | 0.4+) | 2001 09 11 | 704 | 0.5− | 0.9+ | 2001 10 13 | 704 | 0.9− | 0.3− | |
| 2001 07 30 | 704 | 0.2+ | 0.6+ | 2001 09 11 | 704 | 0.5− | 0.4+ | 2001 10 13 | 704 | 0.7− | 0.2+ | |
| 2001 08 13 | 608 | 0.6+ | 0.6− | 2001 09 11 | 704 | 0.3− | 0.9+ | 2001 10 13 | 704 | 1.2− | 0.3− | |
| 2001 08 13 | 608 | 0.4+ | 0.6− | 2001 09 19 | 704 | 0.7− | 0.2− | 2001 10 13 | 704 | 1.5− | 0.2− | |
| 2001 08 13 | 608 | 0.5+ | 0.5− | 2001 09 19 | 704 | 0.3− | 0.0 | 2001 10 19 | 644 | 0.7− | 0.2+ | |
| 2001 08 19 | 704 | 0.2− | 0.0 | 2001 09 19 | 704 | 0.0 | 0.3+ | 2001 10 19 | 644 | 1.1− | 0.2+ | |
| 2001 08 19 | 704 | 0.2− | 0.3− | 2001 09 19 | 704 | 0.1+ | 0.1+ | 2001 10 19 | 644 | 0.9− | 0.1+ | |
| 2001 08 19 | 704 | 0.1− | 0.5− | 2001 09 21 | 704 | 0.3+ | 0.2− | 2001 10 23 | 704 | 0.2+ | 0.1+ | |
| 2001 08 19 | 704 | 0.1+ | 0.5− | 2001 09 21 | 704 | 0.1+ | 0.0 | 2001 10 23 | 704 | 0.3+ | 0.9− | |
| 2001 08 19 | 704 | 0.0 | 0.5− | 2001 09 21 | 704 | 0.6+ | 0.2+ | 2001 10 23 | 704 | 0.3+ | 0.2− | |
| 2001 08 20 | 704 | 0.2+ | 0.1− | 2001 09 21 | 704 | 0.1+ | 0.1− | 2001 10 23 | 704 | 0.3+ | 0.3− | |
| 2001 08 20 | 704 | 0.3+ | 0.6− | 2001 09 21 | 704 | 0.1+ | 0.3+ | 2001 10 23 | 704 | 0.5+ | 0.1− | |
| 2001 08 20 | 704 | 0.2+ | 0.2− | 2001 09 24 | 644 | 0.1+ | 0.1− | 2001 12 07 | 704 | 0.1− | 0.4− | |
| 2001 08 20 | 704 | 0.4+ | 0.4− | 2001 09 24 | 644 | 0.2+ | 0.3− | 2001 12 07 | 704 | 0.1− | 0.3− | |
| 2001 08 20 | 704 | 0.3+ | 0.0 | 2001 09 24 | 644 | 0.3+ | 0.0 | 2001 12 07 | 704 | 0.1+ | 0.1+ | |
| 2001 08 20 | 704 | 0.3+ | 0.7− | 2001 10 04 | 644 | 0.4+ | 0.8+ | 2001 12 07 | 704 | 1.1+ | 0.6+ | |
| 2001 08 20 | 704 | 0.5+ | 0.6+ | 2001 10 04 | 644 | 0.3+ | 1.0+ | 2001 12 07 | 704 | 0.5+ | 0.0 | |
| 2001 08 25 | 699 | 0.0 | 0.5− | 2001 10 04 | 644 | 0.2+ | 0.7+ | 2008 03 06 | G96 | 0.1− | 0.6+ | |
| 2001 08 25 | 699 | 0.1− | 0.1− | 2001 10 06 | 704 | (0.1− | 2.0+) | 2008 03 06 | G96 | 0.3+ | 0.4+ | |
| 2001 08 25 | 699 | 0.1+ | 0.6− | 2001 10 06 | 704 | 0.1+ | 0.2− | 2008 03 06 | G96 | 0.6+ | 0.1+ | |
| 2001 08 25 | 699 | 0.4+ | 0.2− | 2001 10 06 | 704 | 0.1− | 0.2+ | 2008 03 06 | G96 | 0.1− | 0.0 | |
| 2001 08 25 | 608 | 0.9− | 1.3+ | 2001 10 06 | 704 | 0.4− | 0.4− | 2009 03 17 | 691 | 0.7− | 1.0+ | |
| 2001 08 25 | 608 | 0.9− | 0.7+ | 2001 10 06 | 704 | 0.4+ | 0.5− | 2009 03 17 | 691 | 0.3+ | 0.1− | |
| 2001 08 25 | 608 | 0.7− | 1.3+ | 2001 10 11 | 704 | (0.8− | 2.2+) | 2009 03 17 | 691 | 0.3+ | 0.2+ | |
| 2001 09 06 | 644 | 0.3+ | 0.2+ | 2001 10 11 | 704 | (0.4− | 2.3+) | 2009 04 17 | G96 | 0.8+ | 0.0 | |
| 2001 09 06 | 644 | 0.1− | 0.2+ | 2001 10 11 | 704 | (1.3− | 1.9+) | 2009 04 17 | G96 | 0.1+ | 0.2− | |
| 2001 09 06 | 644 | 0.1+ | 0.2+ | 2001 10 11 | 704 | (1.0− | 2.9+) | 2009 04 17 | G96 | 1.1+ | 0.1− | |
| 2001 09 11 | 704 | 0.1+ | 1.0+ | 2001 10 11 | 704 | (1.6− | 2.1+) | 2009 04 17 | G96 | 0.3+ | 0.2− | |

**2001 QE$_{63}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 271.64184 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21787668 | $\omega$ | 46.35363 | | +0.83848685 | −0.54247296 | |
| $a$ | 2.7352407 | $\Omega$ | 346.23237 | | +0.41636947 | +0.69889121 | |
| $e$ | 0.2114188 | $i$ | 12.52315 | | +0.35153415 | +0.46612677 | |
| $P$ | 4.52 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 16 | 704 | 0.3− | 0.2+ | 2001 09 12 | 704 | 0.6− | 0.2− | 2001 10 11 | 644 | 0.2− | 0.3+ |
| 2001 08 16 | 704 | 0.3− | 0.3+ | 2001 09 20 | 704 | 0.1+ | 0.8+ | 2001 10 11 | 644 | 0.0 | 0.4+ |
| 2001 08 16 | 704 | 0.1− | 0.5− | 2001 09 20 | 704 | 0.0 | 0.1+ | 2001 10 11 | 644 | 0.3− | 0.4+ |
| 2001 08 16 | 704 | 0.6− | 0.0 | 2001 09 20 | 704 | 0.1− | 0.0 | 2001 10 14 | 704 | 0.1− | 0.0 |
| 2001 08 16 | 704 | 0.9− | 0.0 | 2001 09 20 | 691 | 0.1+ | 0.1+ | 2001 10 14 | 704 | 0.9+ | 0.3+ |
| 2001 08 16 | 644 | 0.2+ | 0.8− | 2001 09 20 | 704 | 0.3− | 0.7+ | 2001 10 14 | 704 | 0.4+ | 0.3− |
| 2001 08 16 | 644 | 0.0 | 0.8− | 2001 09 20 | 704 | 0.4+ | 0.4+ | 2001 10 14 | 704 | (0.3− | 2.0+) |
| 2001 08 16 | 644 | 0.1+ | 0.8− | 2001 09 20 | 691 | 0.5+ | 0.5− | 2001 10 19 | 644 | 0.0 | 0.7− |
| 2001 08 20 | 704 | 0.0 | 1.0− | 2001 09 20 | 691 | 0.2+ | 0.1+ | 2001 10 19 | 644 | 0.3+ | 0.8− |
| 2001 08 20 | 704 | 0.1− | 0.6− | 2001 09 22 | 704 | 0.5− | 0.2+ | 2001 10 19 | 644 | 0.2+ | 0.6− |
| 2001 08 20 | 704 | 0.6+ | 0.3+ | 2001 09 22 | 704 | 0.5− | 0.7+ | 2001 10 21 | 704 | 0.7− | 0.2+ |
| 2001 08 23 | 699 | 0.4+ | 0.0 | 2001 09 22 | 704 | 0.3− | 0.2− | 2001 10 21 | 704 | 0.1− | 0.4+ |
| 2001 08 23 | 699 | 0.0 | 0.1+ | 2001 09 22 | 704 | 0.3− | 0.4+ | 2001 10 21 | 704 | 0.7− | 0.9+ |
| 2001 08 23 | 699 | 0.1+ | 0.3+ | 2001 09 22 | 704 | 0.5− | 0.6+ | 2001 10 21 | 704 | 0.3− | 0.9+ |
| 2001 08 23 | 699 | 0.3+ | 0.4− | 2001 09 23 | 704 | (1.8− | 0.3+) | 2001 10 21 | 704 | 0.9− | 0.3+ |
| 2001 08 24 | 704 | 0.4+ | 0.5+ | 2001 09 23 | 704 | (2.0− | 0.1+) | 2001 11 18 | 645 | 0.0 | 0.1− |
| 2001 08 24 | 704 | 0.2+ | 0.0 | 2001 09 23 | 704 | (1.8− | 0.0 ) | 2001 11 18 | 645 | 0.0 | 0.1− |
| 2001 08 24 | 704 | 0.0 | 0.2+ | 2001 09 23 | 704 | (1.9− | 0.4+) | 2008 01 09 | G96 | 0.3− | 0.3+ |
| 2001 09 07 | 704 | 0.0 | 0.1− | 2001 09 23 | 704 | (2.1− | 0.3+) | 2008 01 09 | G96 | 0.1− | 0.2+ |
| 2001 09 07 | 704 | 0.2+ | 0.8+ | 2001 09 26 | 699 | 0.2+ | 0.3− | 2008 01 09 | G96 | 0.7+ | 0.0 |
| 2001 09 07 | 704 | 0.6+ | 0.9+ | 2001 09 26 | 699 | 0.2+ | 0.3+ | 2008 01 09 | G96 | 0.5− | 0.2+ |
| 2001 09 07 | 704 | 0.2+ | 0.2+ | 2001 09 26 | 699 | 0.9− | 0.4+ | 2008 03 10 | 691 | 0.3+ | 0.2+ |
| 2001 09 07 | 704 | 0.1− | 0.4+ | 2001 09 26 | 699 | 0.8− | 0.6+ | 2008 03 10 | 691 | 0.1+ | 0.1− |
| 2001 09 12 | 704 | 0.2− | 0.2+ | 2001 10 05 | 644 | 0.1+ | 0.3+ | 2008 03 10 | 691 | 0.0 | 0.4+ |
| 2001 09 12 | 704 | 0.7+ | 0.8− | 2001 10 05 | 644 | 0.2+ | 0.4+ | | | | |
| 2001 09 12 | 704 | 1.0− | 0.1− | 2001 10 05 | 644 | 0.1+ | 0.5+ | | | | |

**2001 QO$_{115}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 300.10626 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21878372 | $\omega$ | 45.06351 | | +0.99387359 | +0.06837311 | |
| $a$ | 2.7276755 | $\Omega$ | 310.81318 | | −0.10108019 | +0.88007479 | |
| $e$ | 0.2951274 | $i$ | 6.58826 | | +0.04469994 | +0.46988666 | |
| $P$ | 4.50 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 07 19 | 699 | 0.5− | 1.5+ | 2001 09 09 | 704 | 0.3− | 0.3+ | 2001 09 18 | 699 | 0.2− | 0.2− |
| 2001 07 19 | 699 | 0.4− | 0.4+ | 2001 09 09 | 704 | 0.3− | 0.5+ | 2001 09 18 | 699 | 1.1− | 0.4+ |
| 2001 07 19 | 699 | 0.5− | 0.2+ | 2001 09 09 | 704 | 0.2− | 0.2− | 2001 09 18 | 699 | 0.3− | 0.2− |
| 2001 07 19 | 699 | 1.1− | 0.0 | 2001 09 09 | 704 | 0.3− | 0.1+ | 2001 09 20 | 704 | 0.0 | 0.3− |
| 2001 08 03 | 608 | 0.1− | 0.5+ | 2001 09 09 | 704 | 1.1− | 0.7+ | 2001 09 20 | 704 | 0.0 | 0.3− |
| 2001 08 03 | 608 | 0.0 | 0.5+ | 2001 09 10 | 704 | 0.1+ | 0.0 | 2001 09 20 | 704 | 0.1+ | 0.1− |
| 2001 08 03 | 608 | 0.2− | 0.9+ | 2001 09 10 | 704 | 0.7+ | 0.1− | 2001 09 20 | 704 | 0.1− | 0.6− |
| 2001 08 17 | 704 | 0.8+ | 0.4+ | 2001 09 10 | 704 | 0.1− | 0.0 | 2001 09 20 | 704 | 1.0+ | 0.4− |
| 2001 08 17 | 704 | 0.1+ | 1.1− | 2001 09 10 | 704 | 0.2+ | 0.0 | 2001 09 23 | 704 | 0.2− | 0.0 |
| 2001 08 17 | 704 | 0.8+ | 0.0 | 2001 09 10 | 704 | 0.3+ | 0.4+ | 2001 09 23 | 704 | 0.2− | 0.2− |
| 2001 08 17 | 704 | 0.4− | 0.1− | 2001 09 10 | 704 | 0.7+ | 0.1− | 2001 09 23 | 704 | 0.2+ | 0.8− |
| 2001 08 24 | 699 | 0.4+ | 0.1+ | 2001 09 10 | 704 | 0.1− | 0.4+ | 2001 10 05 | 644 | 0.8− | 0.4+ |
| 2001 08 24 | 699 | 1.0+ | 0.2− | 2001 09 10 | 704 | 0.5+ | 0.0 | 2001 10 05 | 644 | 0.8− | 0.7+ |
| 2001 08 24 | 699 | 1.0+ | 0.6+ | 2001 09 10 | 704 | 0.0 | 0.7+ | 2001 10 05 | 644 | 0.9− | 0.4+ |
| 2001 08 24 | 699 | 0.2+ | 0.2+ | 2001 09 10 | 704 | 0.3+ | 0.3− | 2001 10 14 | 704 | 0.7+ | 0.6+ |
| 2001 08 25 | 704 | 0.3− | 0.8+ | 2001 09 11 | 699 | 0.4− | 0.2+ | 2001 10 14 | 704 | 0.3+ | 0.2− |
| 2001 08 25 | 704 | 0.3+ | 0.4+ | 2001 09 11 | 699 | 0.1− | 0.4− | 2001 10 14 | 704 | 0.4+ | 0.0 |
| 2001 08 25 | 704 | 0.5+ | 0.3− | 2001 09 11 | 699 | 0.5− | 0.8− | 2008 02 02 | 691 | 0.3+ | 0.5+ |
| 2001 08 25 | 704 | 0.3− | 0.4+ | 2001 09 11 | 699 | 0.3− | 0.3− | 2008 02 02 | 691 | 0.2+ | 0.4+ |
| 2001 08 25 | 704 | 0.0 | 0.3− | 2001 09 16 | 704 | 0.4− | 0.3− | 2008 02 02 | 691 | 0.2− | 0.4+ |
| 2001 09 08 | 704 | 0.1+ | 1.1− | 2001 09 16 | 704 | 0.3− | 0.1− | 2008 04 09 | G96 | 0.3+ | 0.1+ |
| 2001 09 08 | 704 | 0.0 | 0.1+ | 2001 09 16 | 704 | 0.2− | 0.1+ | 2008 04 09 | G96 | 0.6+ | 0.1− |
| 2001 09 08 | 704 | 0.3+ | 0.2+ | 2001 09 16 | 704 | 0.4− | 0.1+ | 2008 04 09 | G96 | 0.4+ | 0.3+ |
| 2001 09 08 | 704 | 0.2+ | 0.2+ | 2001 09 16 | 704 | 0.1− | 0.1+ | 2008 04 09 | G96 | 0.7+ | 0.5+ |
| 2001 09 08 | 704 | 0.2− | 0.1+ | 2001 09 18 | 699 | 0.0 | 0.2− | | | | |

**2001 QZ$_{133}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 336.08055 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23387227 | $\omega$ | 193.43957 | | +0.96998845 | −0.24312487 | |
| $a$ | 2.6090569 | $\Omega$ | 180.66377 | | +0.24166656 | +0.96558050 | |
| $e$ | 0.3084153 | $i$ | 17.92085 | | +0.02682696 | +0.09243693 | |
| $P$ | 4.21 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 21 | 704 | 1.0− | 0.7− | 2001 09 16 | 704 | 0.5− | 0.3− | 2001 10 11 | 704 | 0.0 | 0.6+ |
| 2001 08 21 | 704 | 0.5− | 0.1− | 2001 09 18 | 699 | 0.8+ | 0.2+ | 2001 10 13 | 704 | 0.9− | 0.7+ |
| 2001 08 21 | 704 | 0.3− | 0.2− | 2001 09 18 | 699 | 0.9+ | 0.6+ | 2001 10 13 | 704 | 0.3− | 0.0 |
| 2001 08 21 | 704 | 0.9− | 0.1− | 2001 09 18 | 699 | 1.4+ | 0.4− | 2001 10 13 | 704 | 0.1+ | 0.5+ |
| 2001 08 24 | 699 | 0.3− | 0.2+ | 2001 09 18 | 699 | 0.7+ | 0.2+ | 2001 10 13 | 704 | 0.1− | 0.6+ |
| 2001 08 24 | 699 | 0.2− | 0.0 | 2001 09 20 | 704 | 0.1− | 0.5+ | 2001 10 13 | 704 | 0.3+ | 0.2− |
| 2001 08 24 | 699 | 0.1− | 0.4− | 2001 09 20 | 704 | 0.1+ | 0.3+ | 2001 10 17 | 644 | 0.5− | 0.7− |
| 2001 08 24 | 699 | 0.2+ | 0.0 | 2001 09 20 | 704 | 0.2− | 0.6+ | 2001 10 17 | 644 | 0.4− | 0.6− |
| 2001 08 25 | 704 | 0.1− | 0.6− | 2001 09 20 | 704 | (1.1+ | 14.4−) | 2001 10 17 | 644 | 0.4− | 0.9− |
| 2001 08 25 | 704 | 0.3− | 0.3− | 2001 09 23 | 704 | 0.7+ | 0.2+ | 2001 10 23 | 704 | 0.2− | 0.8− |
| 2001 08 25 | 704 | 0.3− | 0.8− | 2001 09 23 | 704 | 0.7+ | 0.1+ | 2001 10 23 | 704 | 0.3− | 0.5− |
| 2001 08 25 | 704 | 0.3− | 0.2+ | 2001 09 23 | 704 | 1.0+ | 0.0 | 2001 10 23 | 704 | 0.1− | 0.2− |
| 2001 08 31 | 644 | 0.4+ | 0.4+ | 2001 09 24 | 644 | 0.5− | 0.7− | 2001 10 23 | 704 | 0.1− | 0.2− |
| 2001 08 31 | 644 | 0.4+ | 0.2+ | 2001 09 24 | 644 | 0.9− | 0.7− | 2001 10 23 | 704 | 0.9− | 0.8− |
| 2001 08 31 | 644 | 0.4+ | 0.2+ | 2001 09 24 | 644 | 0.4− | 0.6− | 2001 10 24 | 704 | 0.6+ | 0.2− |
| 2001 09 10 | 683 | (0.1+ | 2.3+) | 2001 09 26 | 699 | 0.1+ | 0.4− | 2001 10 24 | 704 | 0.7+ | 0.0 |
| 2001 09 10 | 683 | 0.1+ | 0.0 | 2001 09 26 | 699 | 0.4+ | 0.1− | 2001 10 24 | 704 | 0.8+ | 0.7+ |
| 2001 09 10 | 683 | 0.5− | 0.2+ | 2001 09 26 | 699 | 0.8+ | 0.2− | 2001 10 24 | 704 | 0.4+ | 0.4+ |
| 2001 09 11 | 699 | 0.3− | 0.3− | 2001 09 26 | 699 | 1.0+ | 0.1− | 2001 10 24 | 704 | 0.3+ | 0.5+ |
| 2001 09 11 | 699 | 0.1− | 0.3+ | 2001 10 06 | 704 | 1.0+ | 0.2− | 2008 04 01 | G96 | 0.5+ | 0.0 |
| 2001 09 11 | 699 | 0.1− | 0.4+ | 2001 10 06 | 704 | 0.3+ | 0.1− | 2008 04 01 | G96 | 0.0 | 0.0 |
| 2001 09 11 | 699 | 0.6− | 0.5+ | 2001 10 06 | 704 | 0.6+ | 0.7− | 2008 04 01 | G96 | 0.0 | 0.6+ |
| 2001 09 12 | 644 | 0.2+ | 0.1+ | 2001 10 11 | 644 | 0.1+ | 0.1+ | 2008 04 01 | G96 | 0.5− | 0.4+ |
| 2001 09 12 | 644 | 0.1+ | 0.0 | 2001 10 11 | 704 | 0.1− | 0.9+ | 2008 04 09 | G96 | 0.5− | 0.0 |
| 2001 09 12 | 644 | 0.3+ | 0.4+ | 2001 10 11 | 644 | 0.0 | 0.3+ | 2008 04 09 | G96 | 0.4− | 0.3+ |
| 2001 09 16 | 704 | 0.0 | 0.0 | 2001 10 11 | 644 | 0.1− | 0.3+ | 2008 04 09 | G96 | 0.4+ | 0.6+ |
| 2001 09 16 | 704 | 0.5− | 0.4− | 2001 10 11 | 704 | 0.3− | 0.6+ | 2008 04 09 | G96 | 0.6+ | 0.6− |
| 2001 09 16 | 704 | 0.7− | 0.1+ | 2001 10 11 | 704 | 1.9− | 1.9+ | | | | |

**2001 QD$_{146}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 154.54660 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17492570 | $\omega$ | 198.71246 | | +0.97886063 | −0.20234119 | |
| $a$ | 3.1664088 | $\Omega$ | 172.76296 | | +0.20444518 | +0.96383864 | |
| $e$ | 0.0980963 | $i$ | 13.69800 | | +0.00583371 | +0.17341605 | |
| $P$ | 5.63 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 20 | 807 | 0.1− | 0.0 | 2001 09 19 | 704 | 0.1+ | 0.1+ | 2007 10 10 | 703 | 0.5+ | 1.0+ |
| 2001 08 20 | 807 | 0.5− | 0.2+ | 2001 09 19 | 704 | 0.2+ | 0.4+ | 2007 10 10 | 703 | 0.6− | 0.2+ |
| 2001 08 24 | 704 | 0.2+ | 1.0+ | 2001 09 19 | 704 | 0.3+ | 0.3+ | 2007 10 10 | 703 | 0.5+ | 1.2− |
| 2001 08 24 | 704 | 1.4+ | 0.3+ | 2001 09 19 | 704 | 0.3− | 0.3+ | 2007 10 19 | 703 | 0.5− | 0.2+ |
| 2001 08 24 | 704 | 0.2+ | 0.6− | 2001 09 20 | 291 | 0.2+ | 0.4+ | 2007 10 19 | 703 | 1.0− | 0.6+ |
| 2001 08 25 | 691 | 0.3− | 0.1+ | 2001 09 20 | 291 | 0.0 | 0.3+ | 2007 10 19 | 703 | 1.0+ | 0.8+ |
| 2001 08 25 | 691 | 0.3− | 0.2− | 2001 09 20 | 291 | 0.2− | 0.8− | 2007 10 19 | 703 | 1.1+ | 1.2− |
| 2001 08 25 | 691 | 0.3− | 0.1− | 2001 09 21 | 704 | 0.1− | 0.2+ | 2007 11 11 | 703 | 0.5− | 0.6− |
| 2001 08 26 | 691 | 0.2+ | 0.2− | 2001 09 21 | 704 | 0.0 | 0.1− | 2007 11 11 | 703 | 0.2− | 0.5− |
| 2001 08 26 | 691 | 0.2+ | 0.1+ | 2001 09 21 | 704 | 0.1− | 0.0 | 2007 11 11 | 703 | (2.5− | 0.9+) |
| 2001 08 26 | 691 | 0.2+ | 0.0 | 2001 09 21 | 704 | 0.2− | 0.6− | 2007 11 11 | 703 | 0.3− | 0.8+ |
| 2001 09 19 | 704 | 0.1+ | 0.0 | 2007 10 10 | 703 | 0.1− | 0.1− | | | | |

**2001 QJ$_{154}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 18.99346 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23591406 | $\omega$ | 309.64662 | | +0.79655909 | +0.60167493 | |
| $a$ | 2.5939813 | $\Omega$ | 13.70429 | | −0.44975713 | +0.65497795 | |
| $e$ | 0.1551725 | $i$ | 14.42039 | | −0.40399522 | +0.45715551 | |
| $P$ | 4.18 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 30 | 557 | 1.4− | 1.8− | 2001 09 18 | 699 | 0.3− | 0.3+ | 2001 10 18 | 644 | 0.2− | 1.3+ | |
| 2001 08 30 | 557 | 0.7− | 2.1− | 2001 09 18 | 699 | 0.2+ | 0.6+ | 2001 10 18 | 644 | 0.1+ | 1.1+ | |
| 2001 08 30 | 557 | 0.9− | 2.5− | 2001 09 18 | 699 | 0.9+ | 0.4+ | 2001 12 10 | 645 | 0.1− | 0.2− | |
| 2001 08 31 | 557 | 0.2− | 1.1− | 2001 09 18 | 699 | 0.7+ | 0.5− | 2001 12 10 | 645 | 0.0 | 0.2− | |
| 2001 08 31 | 557 | 2.7+ | 1.2− | 2001 09 18 | 557 | 0.4+ | 0.1− | 2008 03 11 | 691 | 0.6− | 0.3+ | |
| 2001 08 31 | 557 | (4.0+ | 1.1−) | 2001 09 19 | 557 | 0.1+ | 0.3− | 2008 03 11 | 691 | 0.2− | 0.3+ | |
| 2001 09 12 | 704 | 0.1− | 0.0 | 2001 09 19 | 704 | 1.1+ | 0.3+ | 2008 03 11 | 691 | 0.8− | 2.8− | |
| 2001 09 12 | 704 | 0.2+ | 0.7+ | 2001 09 19 | 704 | 0.9+ | 0.3+ | 2008 04 05 | G96 | 0.3+ | 0.4+ | |
| 2001 09 12 | 704 | 0.6− | 0.3− | 2001 09 19 | 704 | 1.1− | 1.6+ | 2008 04 05 | G96 | 0.5+ | 0.4+ | |
| 2001 09 12 | 704 | 0.0 | 0.3+ | 2001 09 19 | 704 | 0.1+ | 0.9+ | 2008 04 05 | G96 | 0.2+ | 0.2+ | |
| 2001 09 12 | 704 | 0.5+ | 0.1+ | 2001 10 18 | 644 | 0.3+ | 1.3+ | 2008 04 05 | G96 | 0.5+ | 0.6+ | |

**2001 QB$_{179}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 166.33527 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28681565 | $\omega$ | 322.30577 | | +0.93529320 | +0.35185477 | |
| $a$ | 2.2771981 | $\Omega$ | 17.21048 | | −0.28565777 | +0.81364960 | |
| $e$ | 0.3220801 | $i$ | 7.32949 | | −0.20886903 | +0.46278780 | |
| $P$ | 3.44 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 24 | 704 | 1.2− | 0.3− | 2001 09 24 | 704 | 0.8− | 0.5+ | 2001 10 24 | 333 | 0.2− | 0.7− | |
| 2001 08 24 | 704 | 0.1+ | 0.6− | 2001 09 24 | 704 | 1.3− | 0.2+ | 2001 10 24 | 333 | 0.6+ | 0.2+ | |
| 2001 08 24 | 704 | 0.3+ | 0.4− | 2001 09 24 | 704 | 1.0− | 0.4− | 2001 10 24 | 333 | 0.6+ | 0.4− | |
| 2001 08 24 | 704 | 0.1+ | 0.3+ | 2001 09 24 | 704 | 1.3− | 0.5− | 2001 10 25 | 333 | 1.2− | 0.0 | |
| 2001 08 27 | 644 | 0.2+ | 0.2− | 2001 09 25 | 333 | 0.1+ | 0.5− | 2001 10 25 | 333 | 0.4− | 0.2− | |
| 2001 08 27 | 644 | 0.1− | 0.2+ | 2001 09 25 | 333 | 0.5+ | 0.2+ | 2001 10 25 | 333 | 0.1− | 0.5− | |
| 2001 08 27 | 644 | 0.2− | 0.1+ | 2001 09 25 | 333 | 1.4+ | 0.6− | 2001 10 28 | 704 | 0.1+ | 0.5+ | |
| 2001 08 28 | 699 | 1.5− | 0.6+ | 2001 09 26 | 333 | 0.3+ | 0.2+ | 2001 10 28 | 704 | 0.2− | 0.2+ | |
| 2001 08 28 | 699 | 0.4− | 0.9+ | 2001 09 26 | 333 | 0.3+ | 0.0 | 2001 10 28 | 704 | 0.1− | 0.0 | |
| 2001 08 28 | 699 | 1.0− | 0.4− | 2001 09 26 | 333 | 0.7+ | 0.8− | 2001 10 28 | 704 | 0.3+ | 0.4− | |
| 2001 08 28 | 699 | 0.4− | 0.6+ | 2001 09 26 | 333 | 0.1+ | 0.7+ | 2001 11 10 | 644 | 0.1+ | 0.2+ | |
| 2001 08 30 | 644 | 0.0 | 0.5− | 2001 09 26 | 333 | (0.4+ | 2.6−) | 2001 11 10 | 644 | 0.3− | 0.1+ | |
| 2001 08 30 | 644 | 0.2− | 0.2− | 2001 09 26 | 333 | 0.3− | 1.0− | 2001 11 10 | 644 | 0.1− | 0.2+ | |
| 2001 08 30 | 644 | 0.3− | 0.3− | 2001 10 11 | 644 | 0.2− | 0.2+ | 2001 11 12 | 704 | 0.1+ | 0.5− | |
| 2001 09 10 | 704 | 0.1+ | 0.0 | 2001 10 11 | 644 | 0.6− | 0.1+ | 2001 11 12 | 704 | 0.2+ | 0.1− | |
| 2001 09 10 | 704 | 0.5+ | 0.2− | 2001 10 11 | 644 | 0.4− | 0.0 | 2001 11 12 | 704 | 0.7+ | 0.0 | |
| 2001 09 10 | 704 | 0.2+ | 0.9+ | 2001 10 13 | 704 | 0.5+ | 0.6+ | 2001 11 12 | 704 | 0.4− | 0.2+ | |
| 2001 09 17 | 704 | 0.7+ | 0.4− | 2001 10 13 | 704 | 0.1− | 0.3+ | 2001 11 12 | 704 | 1.1+ | 0.2+ | |
| 2001 09 17 | 704 | 0.6+ | 0.6+ | 2001 10 13 | 704 | 0.3+ | 0.0 | 2001 11 17 | 644 | 0.1+ | 0.1+ | |
| 2001 09 17 | 704 | 0.7+ | 0.0 | 2001 10 13 | 699 | 0.2+ | 0.2− | 2001 11 17 | 644 | 0.1− | 0.0 | |
| 2001 09 17 | 704 | 0.2− | 1.8+ | 2001 10 13 | 704 | 0.0 | 0.1+ | 2001 11 17 | 644 | 0.4− | 0.1+ | |
| 2001 09 17 | 704 | 0.0 | 0.2+ | 2001 10 13 | 704 | 0.0 | 0.0 | 2001 11 20 | 699 | 0.1− | 0.4+ | |
| 2001 09 19 | 704 | 0.1+ | 0.4− | 2001 10 13 | 699 | 0.1+ | 0.3− | 2001 11 20 | 699 | 0.8− | 0.7+ | |
| 2001 09 19 | 704 | 0.0 | 0.1− | 2001 10 13 | 699 | 0.1+ | 0.0 | 2001 11 20 | 699 | 0.7+ | 1.1+ | |
| 2001 09 19 | 704 | 0.1− | 0.1− | 2001 10 13 | 699 | 0.3+ | 0.5+ | 2001 11 20 | 699 | 0.4− | 0.5+ | |
| 2001 09 19 | 704 | 0.1+ | 0.1− | 2001 10 17 | 704 | 0.6+ | 0.3− | 2001 12 10 | 704 | 0.6+ | 0.6− | |
| 2001 09 19 | 704 | 0.2+ | 0.2+ | 2001 10 17 | 704 | 0.8+ | 0.1+ | 2001 12 10 | 704 | 1.0− | 0.2− | |
| 2001 09 21 | 704 | (1.2+ | 2.7−) | 2001 10 17 | 704 | 0.6+ | 0.1− | 2001 12 10 | 704 | 1.2− | 0.5+ | |
| 2001 09 21 | 704 | (0.6+ | 3.1−) | 2001 10 17 | 704 | 0.9+ | 0.6+ | 2001 12 10 | 704 | 1.7− | 0.4− | |
| 2001 09 21 | 704 | (1.3+ | 2.9−) | 2001 10 19 | 644 | 0.0 | 0.5+ | 2008 10 04 | G96 | 0.1+ | 0.2− | |
| 2001 09 21 | 704 | (1.2+ | 2.8−) | 2001 10 19 | 644 | 0.0 | 0.3+ | 2008 10 04 | G96 | 0.0 | 0.5− | |
| 2001 09 21 | 704 | (1.5+ | 3.7−) | 2001 10 19 | 644 | 0.2− | 0.2+ | 2008 10 04 | G96 | 0.1+ | 0.4− | |
| 2001 09 22 | 699 | 0.9+ | 0.4+ | 2001 10 21 | 704 | 0.1− | 0.4− | 2008 10 04 | G96 | 0.3+ | 0.2− | |
| 2001 09 22 | 699 | 1.7+ | 0.1− | 2001 10 21 | 704 | 0.5− | 0.4− | 2008 12 04 | 703 | 0.8+ | 0.7+ | |
| 2001 09 22 | 699 | 0.8+ | 0.4+ | 2001 10 21 | 704 | 0.6− | 0.5− | 2008 12 04 | 703 | 0.1− | 0.2− | |
| 2001 09 22 | 699 | 1.0+ | 0.3− | 2001 10 21 | 704 | 0.5− | 0.7− | 2008 12 04 | 703 | 0.9− | 0.0 | |
| 2001 09 24 | 704 | 0.9− | 0.2− | 2001 10 21 | 704 | 0.5− | 0.9− | 2008 12 04 | 703 | 0.1+ | 0.7− | |

**2001 QQ$_{189}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 271.06785 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21779832 | $\omega$ | 192.26617 | | +0.73226201 | −0.66514843 | |
| $a$ | 2.7358967 | $\Omega$ | 211.03434 | | +0.64633964 | +0.74639850 | |
| $e$ | 0.3185700 | $i$ | 16.47218 | | +0.21456333 | +0.02160662 | |
| $P$ | 4.53 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 07 22 | 699 | 1.2− | 0.3+ | 2001 09 10 | 704 | 0.2+ | 0.1+ | 2001 10 19 | 704 | 0.5+ | 0.5+ | |
| 2001 07 22 | 699 | 0.2+ | 0.5+ | 2001 09 10 | 704 | 0.2+ | 0.0 | 2001 10 19 | 704 | 0.2− | 0.2+ | |
| 2001 07 22 | 699 | 0.5+ | 0.2+ | 2001 09 10 | 704 | 0.2+ | 0.7+ | 2001 10 19 | 704 | 0.3+ | 0.5+ | |
| 2001 07 22 | 699 | 0.8− | 0.8− | 2001 09 10 | 704 | 1.4− | 0.7− | 2001 10 19 | 704 | 0.9− | 0.2− | |
| 2001 08 18 | 699 | 0.3− | 0.1+ | 2001 09 10 | 704 | 0.0 | 0.2− | 2001 10 20 | 699 | 0.2− | 1.0+ | |
| 2001 08 18 | 699 | 0.7− | 0.1+ | 2001 09 18 | 645 | 0.0 | 0.2− | 2001 10 20 | 699 | 0.5+ | 0.1− | |
| 2001 08 18 | 699 | 0.1− | 0.5+ | 2001 09 18 | 645 | 0.0 | 0.2− | 2001 10 20 | 699 | 0.1− | 0.9− | |
| 2001 08 18 | 699 | 0.6+ | 0.2+ | 2001 09 25 | 644 | 0.1− | 0.2+ | 2001 10 20 | 699 | 0.0 | 0.1+ | |
| 2001 08 22 | 704 | 0.1+ | 0.0 | 2001 09 25 | 644 | 0.0 | 0.3+ | 2001 12 07 | 704 | 0.3− | 0.3+ | |
| 2001 08 22 | 704 | 0.8+ | 0.5+ | 2001 09 25 | 644 | 0.0 | 0.1+ | 2001 12 07 | 704 | 0.5− | 0.5+ | |
| 2001 08 22 | 704 | 0.0 | 0.8+ | 2001 10 13 | 644 | 1.1− | 0.6+ | 2001 12 07 | 704 | 0.2− | 0.9+ | |
| 2001 08 22 | 704 | 0.1− | 0.7+ | 2001 10 13 | 644 | 1.1− | 0.7+ | 2001 12 07 | 704 | 0.4+ | 1.0+ | |
| 2001 08 22 | 704 | 0.1+ | 0.7+ | 2001 10 13 | 644 | 1.2− | 0.8+ | 2001 12 07 | 704 | 0.6+ | 1.4+ | |
| 2001 08 26 | 699 | 0.2+ | 1.0+ | 2001 10 15 | 691 | 0.1+ | 0.0 | 2008 03 01 | 691 | 0.1− | 0.1− | |
| 2001 08 26 | 699 | 0.4+ | 0.8+ | 2001 10 15 | 691 | 0.2+ | 0.1− | 2008 03 01 | 691 | 0.4+ | 0.5+ | |
| 2001 08 26 | 699 | 0.3+ | 0.5+ | 2001 10 15 | 691 | 0.2+ | 0.0 | 2008 03 01 | 691 | 0.2− | 0.2+ | |
| 2001 08 26 | 699 | 0.3+ | 0.9+ | 2001 10 16 | 704 | 0.4− | 1.2− | 2009 05 30 | G96 | 0.8− | 0.4− | |
| 2001 08 26 | 608 | 1.0+ | 0.6+ | 2001 10 16 | 704 | 0.0 | 0.8− | 2009 05 30 | G96 | 0.6+ | 0.3− | |
| 2001 08 26 | 608 | 0.6+ | 0.4− | 2001 10 16 | 704 | 0.4− | 0.2− | 2009 05 30 | G96 | 0.2+ | 0.1+ | |
| 2001 08 26 | 608 | 1.5+ | 0.4+ | 2001 10 16 | 704 | 0.3− | 1.2− | 2009 05 30 | G96 | 0.1− | 0.1+ | |

**2001 QT$_{221}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 288.70103 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21555002 | $\omega$ | 51.89143 | | +0.92857260 | +0.30880333 | |
| $a$ | 2.7548884 | $\Omega$ | 289.27438 | | −0.37019901 | +0.81030975 | |
| $e$ | 0.1668060 | $i$ | 12.59880 | | +0.02656353 | +0.49803474 | |
| $P$ | 4.57 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 24 | 699 | 0.7− | 0.1+ | 2001 09 20 | 645 | 0.1− | 0.0 | 2006 11 22 | 703 | (3.1− | 2.3−) | |
| 2001 08 24 | 699 | 0.5+ | 0.9+ | 2001 09 20 | 645 | 0.1− | 0.1− | 2006 11 22 | 703 | (2.4− | 1.0+) | |
| 2001 08 24 | 699 | 0.3− | 0.2+ | 2001 10 15 | 645 | 0.1− | 0.0 | 2008 01 13 | 691 | 0.0 | 1.0+ | |
| 2001 08 24 | 699 | 0.1− | 0.5+ | 2001 10 15 | 645 | 0.1− | 0.1− | 2008 01 13 | 691 | 0.2− | 0.1+ | |
| 2001 08 25 | 704 | 0.4+ | 1.5+ | 2001 11 18 | 645 | 0.1+ | 0.0 | 2008 01 13 | 691 | 0.1+ | 0.5− | |
| 2001 08 25 | 704 | 1.2+ | 0.2+ | 2006 10 23 | 703 | 0.2− | 1.5− | 2008 02 07 | G96 | 0.3+ | 0.1− | |
| 2001 08 25 | 704 | 0.7+ | 0.2+ | 2006 10 23 | 703 | 0.7− | 0.5− | 2008 02 07 | G96 | 0.3+ | 0.0 | |
| 2001 08 25 | 704 | 0.7+ | 1.9+ | 2006 10 23 | 703 | (1.6− | 4.3−) | 2008 02 07 | G96 | 0.3+ | 0.3− | |
| 2001 08 29 | 644 | 0.3+ | 0.0 | 2006 10 23 | 703 | (3.1+ | 2.2−) | 2008 02 07 | G96 | 0.2+ | 0.3− | |
| 2001 08 29 | 644 | 0.2+ | 0.0 | 2006 11 22 | 703 | 1.3+ | 1.2+ | | | | | |
| 2001 08 29 | 644 | 0.0 | 0.0 | 2006 11 22 | 703 | 0.4− | 1.1+ | | | | | |

**2001 QL$_{257}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 232.81318 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.30293262 | $\omega$ | 153.21063 | | +0.62954393 | +0.77527703 | |
| $a$ | 2.1956951 | $\Omega$ | 155.69972 | | −0.73329290 | +0.61464318 | |
| $e$ | 0.2269736 | $i$ | 7.14506 | | −0.25681891 | +0.14546231 | |
| $P$ | 3.25 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 16 | 704 | 0.3− | 0.2− | 2001 09 18 | 699 | 0.9+ | 0.2− | 2001 10 16 | 644 | 0.0 | 0.4+ | |
| 2001 08 16 | 704 | 0.5− | 0.1+ | 2001 09 18 | 699 | 0.2+ | 0.3− | 2001 10 16 | 644 | 0.2+ | 0.5+ | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 16 | 704 | 1.0− | 0.1+ | 2001 09 19 | 704 | 0.5+ | 0.0 | 2001 10 16 | 644 | 0.0 | 0.3+ | |
| 2001 08 16 | 704 | 0.2− | 0.7− | 2001 09 19 | 704 | 0.2+ | 0.1− | 2001 10 19 | 699 | 0.6− | 0.2− | |
| 2001 08 16 | 704 | 0.8− | 0.2+ | 2001 09 19 | 704 | 0.3+ | 0.5− | 2001 10 19 | 699 | 0.8− | 0.0 | |
| 2001 08 25 | 704 | 1.5− | 0.4+ | 2001 09 19 | 704 | 0.1+ | 0.4+ | 2001 10 19 | 699 | 0.3− | 1.1+ | |
| 2001 08 25 | 704 | 0.0 | 0.3− | 2001 09 21 | 704 | 0.4+ | 0.3− | 2001 10 19 | 699 | 0.8− | 0.2+ | |
| 2001 08 25 | 704 | 0.3− | 0.4+ | 2001 09 21 | 704 | 0.6+ | 0.3− | 2001 10 20 | 704 | 0.1− | 0.2+ | |
| 2001 08 25 | 704 | 1.4− | 0.7+ | 2001 09 21 | 704 | 0.3+ | 0.2− | 2001 10 20 | 704 | 0.4− | 0.0 | |
| 2001 08 27 | 699 | 0.7+ | 0.0 | 2001 09 21 | 704 | 0.4+ | 0.3− | 2001 10 20 | 704 | 0.5− | 0.1+ | |
| 2001 08 27 | 699 | 0.3+ | 0.6− | 2001 09 21 | 704 | 0.2− | 0.6− | 2001 10 20 | 704 | 0.2− | 0.4+ | |
| 2001 08 27 | 699 | 0.2− | 0.0 | 2001 09 27 | 644 | 0.1− | 0.6− | 2007 04 15 | 703 | 0.3− | 0.5+ | |
| 2001 08 27 | 699 | 0.8+ | 0.3− | 2001 09 27 | 644 | 0.5− | 0.4− | 2007 04 15 | 703 | 0.5− | 0.1+ | |
| 2001 09 16 | 704 | 0.9+ | 0.2+ | 2001 09 27 | 644 | 0.5− | 0.2− | 2007 04 15 | 703 | 0.0 | 0.1+ | |
| 2001 09 16 | 704 | 0.5+ | 0.4− | 2001 10 11 | 704 | 0.9+ | 0.6+ | 2007 04 15 | 703 | (5.4− | 3.2−) | |
| 2001 09 16 | 704 | 0.1+ | 0.0 | 2001 10 11 | 704 | 0.2+ | 0.6+ | 2007 04 16 | 699 | 0.5+ | 0.4− | |
| 2001 09 16 | 704 | 0.1− | 0.2+ | 2001 10 11 | 704 | 0.2+ | 0.8+ | 2007 04 16 | 699 | 0.3+ | 0.1− | |
| 2001 09 18 | 699 | 0.3+ | 0.0 | 2001 10 11 | 704 | 0.5+ | 0.8+ | 2007 04 16 | 699 | 0.2− | 0.5+ | |
| 2001 09 18 | 699 | 0.6+ | 0.3− | 2001 10 11 | 704 | 0.3− | 0.1+ | 2007 04 16 | 699 | 0.6+ | 1.1+ | |

**2001 QM$_{259}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 216.42637 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.28639249 | $\omega$ | 280.86594 | | −0.16254834 | | +0.97535753 |
| $a$ | 2.2794407 | $\Omega$ | 338.00676 | | −0.67546707 | | −0.22020918 |
| $e$ | 0.2894190 | $i$ | 23.47550 | | −0.71925119 | | −0.01362347 |
| $P$ | 3.44 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 25 | 704 | 0.1− | 0.2+ | 2001 09 10 | 704 | 0.1− | 0.1− | 2001 09 29 | 644 | 0.2+ | 0.4− | |
| 2001 08 25 | 704 | 0.2+ | 1.0+ | 2001 09 10 | 704 | 0.1− | 0.1+ | 2001 09 29 | 644 | 0.1+ | 0.4− | |
| 2001 08 25 | 704 | 0.4− | 0.1− | 2001 09 11 | 704 | 0.1− | 0.0 | 2007 02 09 | 703 | 0.1+ | 0.3+ | |
| 2001 08 25 | 704 | 0.4− | 0.0 | 2001 09 11 | 704 | 0.4− | 0.1− | 2007 02 09 | 703 | 0.8+ | 0.8− | |
| 2001 08 26 | 699 | (2.2− | 1.4−) | 2001 09 11 | 704 | 0.3+ | 0.3+ | 2007 02 09 | 703 | 0.2+ | 0.0 | |
| 2001 08 26 | 699 | 0.6+ | 0.6− | 2001 09 11 | 704 | 0.2− | 0.2+ | 2007 02 09 | 703 | 0.5− | 0.9− | |
| 2001 08 26 | 699 | 0.4− | 0.3+ | 2001 09 12 | 704 | 0.3+ | 0.4+ | 2007 03 12 | 703 | 0.0 | 0.3+ | |
| 2001 08 26 | 699 | 0.5+ | 0.3− | 2001 09 12 | 704 | 0.1+ | 0.6+ | 2007 03 12 | 703 | 1.1+ | 1.6+ | |
| 2001 09 10 | 704 | 0.0 | 0.5− | 2001 09 12 | 704 | 0.3+ | 0.7+ | 2007 03 12 | 703 | 1.8− | 0.5− | |
| 2001 09 10 | 704 | 0.0 | 0.0 | 2001 09 12 | 704 | 0.6− | 0.0 | 2007 03 12 | 703 | 0.3+ | 0.4+ | |
| 2001 09 10 | 704 | 0.2− | 0.6− | 2001 09 29 | 644 | 0.2+ | 0.5− | | | | | |

**2001 QS$_{259}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 349.02442 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23072009 | $\omega$ | 143.41263 | | +0.94083155 | | +0.33284743 |
| $a$ | 2.6327671 | $\Omega$ | 197.47794 | | −0.33874883 | | +0.91863975 |
| $e$ | 0.2628791 | $i$ | 12.23114 | | −0.00923200 | | +0.21286989 |
| $P$ | 4.27 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 25 | 704 | 0.0 | 0.4− | 2001 09 19 | 704 | 0.1− | 0.3− | 2001 10 14 | 704 | 0.0 | 0.2− | |
| 2001 08 25 | 704 | 0.3+ | 0.3− | 2001 09 19 | 704 | 0.3+ | 0.5− | 2001 10 14 | 704 | 0.4+ | 0.7− | |
| 2001 08 25 | 704 | 0.3+ | 0.7− | 2001 09 19 | 704 | 0.2+ | 0.5− | 2001 10 14 | 704 | 0.1− | 0.5− | |
| 2001 08 25 | 704 | 0.2+ | 0.4− | 2001 09 20 | 704 | 0.3+ | 0.1+ | 2001 10 14 | 704 | 0.2+ | 0.7− | |
| 2001 08 27 | 699 | 0.2+ | 0.6+ | 2001 09 20 | 704 | 0.1+ | 0.1+ | 2001 10 14 | 704 | 0.5− | 0.8− | |
| 2001 08 27 | 699 | 0.2− | 0.1+ | 2001 09 20 | 704 | 1.1− | 0.1+ | 2001 10 16 | 704 | 1.0− | 0.1+ | |
| 2001 08 27 | 699 | 0.4+ | 0.5+ | 2001 09 20 | 704 | 0.6+ | 0.4+ | 2001 10 16 | 704 | 0.6− | 0.0 | |
| 2001 08 27 | 699 | 0.2+ | 0.3+ | 2001 09 20 | 704 | 0.4+ | 0.2+ | 2001 10 16 | 704 | 0.5− | 0.4+ | |
| 2001 08 30 | 644 | 0.4− | 0.4+ | 2001 09 22 | 704 | 0.2− | 0.2+ | 2001 10 16 | 704 | 1.4− | 0.1+ | |
| 2001 08 30 | 644 | 0.2+ | 0.2+ | 2001 09 22 | 704 | 0.9+ | 0.5− | 2001 10 16 | 704 | 1.3− | 0.5− | |
| 2001 08 30 | 644 | 0.5+ | 0.2− | 2001 09 22 | 704 | 0.4+ | 1.0+ | 2001 10 21 | 704 | 0.2+ | 0.5− | |
| 2001 09 14 | 644 | 0.5+ | 0.0 | 2001 09 22 | 704 | 0.9+ | 0.3+ | 2001 10 21 | 704 | 0.1− | 0.1− | |
| 2001 09 14 | 644 | 0.4+ | 0.3− | 2001 09 23 | 704 | 0.1− | 0.3+ | 2001 10 21 | 704 | 0.1− | 0.5− | |
| 2001 09 14 | 644 | 0.5+ | 0.4− | 2001 09 23 | 704 | 0.6− | 0.0 | 2001 10 21 | 704 | 0.2+ | 0.1− | |
| 2001 09 16 | 644 | 0.5+ | 0.7+ | 2001 09 23 | 704 | 0.1+ | 0.2− | 2001 10 21 | 704 | 0.2− | 0.5− | |
| 2001 09 16 | 644 | 0.6+ | 0.6+ | 2001 09 23 | 704 | (2.7+ | 7.1+) | 2001 11 20 | 704 | 0.5+ | 0.6− | |
| 2001 09 16 | 644 | 0.6+ | 0.8+ | 2001 09 25 | 699 | 0.0 | 0.5+ | 2001 11 20 | 704 | 1.0+ | 1.3+ | |
| 2001 09 17 | 704 | 1.1− | 0.6+ | 2001 09 25 | 699 | 0.4− | 0.5+ | 2001 11 20 | 704 | 0.4+ | 0.3+ | |
| 2001 09 17 | 704 | 1.1− | 0.8+ | 2001 09 25 | 699 | 0.5− | 0.0 | 2001 11 20 | 704 | 0.5− | 0.1− | |
| 2001 09 17 | 704 | 0.9− | 0.9+ | 2001 09 25 | 699 | 0.1+ | 0.3+ | 2009 06 13 | 691 | 0.1+ | 0.1− | |
| 2001 09 18 | 699 | 0.5+ | 0.0 | 2001 10 05 | 644 | 0.5− | 0.7− | 2009 06 13 | 691 | 0.1+ | 0.2+ | |
| 2001 09 18 | 699 | 0.0 | 0.1+ | 2001 10 05 | 644 | 0.7− | 0.4− | 2009 06 13 | 691 | 0.0 | 0.2+ | |
| 2001 09 18 | 699 | 0.2− | 0.1+ | 2001 10 05 | 644 | 0.9− | 0.7− | 2009 06 22 | 691 | 0.1− | 0.1− | |
| 2001 09 18 | 699 | 0.4+ | 0.6+ | 2001 10 11 | 683 | 1.0+ | 0.1+ | 2009 06 22 | 691 | 0.1− | 0.3− | |
| 2001 09 19 | 704 | 0.3+ | 0.5− | 2001 10 11 | 683 | (3.0+ | 0.2+) | 2009 06 22 | 691 | 0.0 | 0.0 | |
| 2001 09 19 | 704 | 0.6+ | 0.8− | 2001 10 11 | 683 | (3.3+ | 2.9+) | | | | | |

**2001 RA$_{43}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 10.53146 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23338209 | $\omega$ | 93.64175 | | +0.64789738 | | +0.75397612 |
| $a$ | 2.6127090 | $\Omega$ | 217.47616 | | −0.75028964 | | +0.60710737 |
| $e$ | 0.2474515 | $i$ | 10.26210 | | −0.13150833 | | +0.25087975 |
| $P$ | 4.22 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 10 | 644 | 0.1− | 0.1+ | 2001 09 11 | 699 | 0.7− | 0.7+ | 2001 10 14 | 704 | 0.0 | 1.6− | |
| 2001 08 10 | 644 | 0.2− | 0.0 | 2001 09 12 | 644 | 0.4− | 0.7− | 2001 10 14 | 704 | 0.2+ | 0.4+ | |
| 2001 08 10 | 644 | 0.2− | 0.2− | 2001 09 12 | 644 | 0.1− | 0.1− | 2001 10 14 | 704 | 0.4− | 0.5− | |
| 2001 08 24 | 699 | 0.1− | 0.3− | 2001 09 12 | 644 | 0.3− | 0.3− | 2001 10 14 | 704 | 0.2− | 0.1+ | |
| 2001 08 24 | 699 | 0.0 | 0.2+ | 2001 09 21 | 699 | 0.0 | 1.0− | 2001 10 14 | 704 | 0.8− | 0.5− | |
| 2001 08 24 | 699 | 0.1+ | 0.5+ | 2001 09 21 | 699 | 1.6+ | 0.7+ | 2009 06 01 | G96 | 0.1− | 0.0 | |
| 2001 08 24 | 699 | 0.9+ | 0.2+ | 2001 09 21 | 699 | 0.8− | 0.4+ | 2009 06 01 | G96 | 0.3+ | 0.0 | |
| 2001 09 07 | 644 | 0.6+ | 0.1− | 2001 09 21 | 699 | 0.1+ | 0.2− | 2009 06 01 | G96 | 0.3− | 0.0 | |
| 2001 09 07 | 644 | 0.6+ | 0.2+ | 2001 09 25 | 704 | 0.1− | 0.4− | 2009 06 01 | G96 | 0.1+ | 0.0 | |
| 2001 09 07 | 644 | 0.7+ | 0.1+ | 2001 09 25 | 704 | 0.5− | 0.1− | 2009 06 01 | G96 | 0.1− | 0.1− | |
| 2001 09 11 | 699 | 0.6− | 0.5+ | 2001 09 25 | 704 | 0.4+ | 0.1+ | 2009 06 01 | G96 | 0.0 | 0.1+ | |
| 2001 09 11 | 699 | 0.1− | 0.2+ | 2001 09 25 | 704 | 0.3+ | 0.5+ | 2009 06 01 | G96 | 0.0 | 0.2− | |
| 2001 09 11 | 699 | 0.1− | 0.6+ | 2001 09 25 | 704 | 0.2+ | 0.3+ | 2009 06 01 | G96 | 0.0 | 0.1− | |

**2001 RS$_{52}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 15.52551 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.12232281 | $\omega$ | 219.63514 | | +0.94721264 | | +0.31666675 |
| $a$ | 4.0191210 | $\Omega$ | 121.83460 | | −0.27715381 | | +0.88733363 |
| $e$ | 0.2670048 | $i$ | 3.38099 | | −0.16116447 | | +0.33520323 |
| $P$ | 8.06 | $H$ | 15.0 | $G$ | 0.15 | $U$ | 5 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 16 | 704 | (1.7− | 1.0+) | 2001 09 12 | 704 | 0.4+ | 0.0 | 2001 09 21 | 704 | 0.3+ | 0.3− | |
| 2001 08 16 | 704 | 1.2− | 0.0 | 2001 09 12 | 704 | 0.8+ | 0.2+ | 2001 09 21 | 704 | 0.5+ | 0.2+ | |
| 2001 08 16 | 704 | 0.7+ | 0.7+ | 2001 09 12 | 704 | 0.4− | 0.6+ | 2009 08 15 | 703 | 0.7+ | 0.4− | |
| 2001 08 16 | 704 | 0.8+ | 0.9− | 2001 09 16 | 704 | 0.0 | 0.0 | 2009 08 15 | 703 | 0.2− | 0.8+ | |
| 2001 08 16 | 704 | 0.4+ | 0.5+ | 2001 09 16 | 704 | 0.0 | 0.0 | 2009 08 15 | 703 | 0.6− | 0.1+ | |
| 2001 08 25 | 644 | 0.2+ | 0.2− | 2001 09 16 | 704 | 1.2+ | 0.1+ | 2009 08 15 | 703 | (2.7− | 0.2−) | |
| 2001 08 25 | 644 | 0.4− | 0.3− | 2001 09 16 | 704 | 0.1− | 0.6+ | 2009 08 29 | 703 | 0.8− | 0.9− | |
| 2001 08 25 | 644 | 0.2− | 0.4− | 2001 09 19 | 704 | 0.1+ | 0.4− | 2009 08 29 | 703 | 0.7+ | 0.7+ | |
| 2001 08 25 | 699 | 0.3− | 0.9+ | 2001 09 19 | 704 | 0.3− | 0.1+ | 2009 08 29 | 703 | 0.1+ | 1.0+ | |
| 2001 08 25 | 699 | 1.3− | 1.3− | 2001 09 19 | 704 | 0.1− | 0.5− | 2009 08 29 | 703 | 1.0− | 0.1+ | |
| 2001 08 25 | 699 | 0.2− | 0.4− | 2001 09 19 | 704 | 0.0 | 0.5− | 2009 08 30 | J75 | 0.3+ | 0.1− | |
| 2001 08 25 | 699 | 0.4+ | 0.4− | 2001 09 21 | 704 | 1.3− | 0.2+ | 2009 08 30 | J75 | 0.4+ | 0.9− | |
| 2001 09 12 | 704 | 0.4+ | 0.5+ | 2001 09 21 | 704 | 0.3+ | 0.1− | 2009 08 30 | J75 | 0.3+ | 0.3+ | |
| 2001 09 12 | 704 | 0.2− | 0.4+ | 2001 09 21 | 704 | 0.1− | 0.0 | | | | | |

**2001 RR$_{65}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 348.81139 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22926204 | $\omega$ | 139.86710 | | +0.91656956 | | +0.39436947 |
| $a$ | 2.6439178 | $\Omega$ | 197.26150 | | −0.39952836 | | +0.89627794 |
| $e$ | 0.2750474 | $i$ | 12.87677 | | −0.01665352 | | +0.20287577 |
| $P$ | 4.30 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 17 | 704 | 0.9+ | 0.6+ | 2001 09 21 | 333 | 0.8− | 0.9+ | 2001 10 16 | 704 | 1.0+ | 1.2+ |
| 2001 08 17 | 704 | 1.0+ | 1.1+ | 2001 09 21 | 333 | 0.8− | 0.3+ | 2001 10 16 | 704 | 1.0+ | 1.7+ |
| 2001 08 17 | 704 | 0.7+ | 1.2− | 2001 09 21 | 333 | 0.3+ | 0.1− | 2001 10 18 | 644 | 0.0 | 0.1− |
| 2001 08 25 | 704 | (1.9− | 3.1+) | 2001 09 22 | 704 | 0.4− | 0.2+ | 2001 10 18 | 644 | 0.1+ | 0.1+ |
| 2001 08 25 | 704 | (0.0 | 3.2+) | 2001 09 22 | 704 | 0.0 | 0.2− | 2001 10 18 | 644 | 0.1− | 0.0 |
| 2001 08 25 | 704 | (0.4+ | 2.5+) | 2001 09 22 | 704 | 0.1− | 0.1+ | 2001 10 21 | 704 | 0.5+ | 0.2− |
| 2001 08 27 | 644 | 0.3− | 0.0 | 2001 09 22 | 704 | 0.1− | 0.1+ | 2001 10 21 | 704 | 0.6+ | 0.1+ |
| 2001 08 27 | 644 | 0.2− | 0.0 | 2001 09 25 | 699 | 0.4− | 0.0 | 2001 10 21 | 704 | 0.4+ | 0.2− |
| 2001 08 27 | 644 | 0.3− | 0.1+ | 2001 09 25 | 699 | 0.3− | 0.4+ | 2001 10 21 | 704 | 1.3+ | 0.8− |
| 2001 09 10 | 704 | 0.0 | 0.7− | 2001 09 25 | 699 | 0.6+ | 0.1− | 2001 10 21 | 704 | 0.2+ | 0.8− |
| 2001 09 10 | 704 | 0.3− | 0.6− | 2001 09 25 | 699 | 0.1− | 0.5− | 2001 10 24 | 704 | 0.4− | 0.6+ |
| 2001 09 10 | 704 | 0.1− | 0.7− | 2001 09 28 | 644 | 0.8− | 1.1− | 2001 10 24 | 704 | 0.2− | 0.9+ |
| 2001 09 10 | 704 | 0.1− | 0.9− | 2001 09 28 | 644 | 1.0− | 1.2− | 2001 10 24 | 704 | 0.3− | 0.4+ |
| 2001 09 10 | 704 | 0.3− | 0.8− | 2001 09 28 | 644 | 0.9− | 1.1− | 2001 10 24 | 704 | 0.4− | 0.9+ |
| 2001 09 11 | 699 | 0.7+ | 0.6+ | 2001 10 06 | 644 | 0.3+ | 0.2− | 2001 10 24 | 704 | 0.0 | 0.4+ |
| 2001 09 11 | 699 | 0.4− | 0.8+ | 2001 10 06 | 644 | 0.1+ | 0.2− | 2001 11 05 | 704 | 0.7− | 0.2+ |
| 2001 09 11 | 699 | 0.0 | 0.6+ | 2001 10 06 | 644 | 0.1+ | 0.3− | 2001 11 05 | 704 | 1.2− | 0.5− |
| 2001 09 11 | 699 | 0.2− | 0.2+ | 2001 10 13 | 704 | 0.1− | 0.2+ | 2001 11 05 | 704 | 0.4− | 0.2− |
| 2001 09 17 | 704 | 0.8− | 0.1− | 2001 10 13 | 704 | 0.2+ | 0.1+ | 2001 11 09 | 704 | 0.1+ | 1.4+ |
| 2001 09 17 | 704 | 0.9− | 0.1+ | 2001 10 13 | 699 | 0.3+ | 0.1− | 2001 11 09 | 704 | 0.3+ | 0.1+ |
| 2001 09 17 | 704 | 0.6− | 0.6+ | 2001 10 13 | 704 | 0.5+ | 0.1+ | 2001 11 09 | 704 | 0.7+ | 1.2+ |
| 2001 09 20 | 704 | 0.5− | 0.1+ | 2001 10 13 | 699 | 0.3+ | 0.2+ | 2001 11 09 | 704 | 0.6+ | 1.4+ |
| 2001 09 20 | 704 | 0.4− | 0.5+ | 2001 10 13 | 704 | 0.1+ | 0.0 | 2001 11 19 | 608 | 0.2− | 0.7− |
| 2001 09 20 | 704 | 0.5− | 0.5+ | 2001 10 13 | 704 | 0.1+ | 0.4+ | 2001 11 19 | 608 | 0.4− | 0.6− |
| 2001 09 20 | 333 | 0.1+ | 1.8− | 2001 10 13 | 699 | 0.2− | 0.1− | 2001 11 19 | 608 | 0.5− | 0.5− |
| 2001 09 20 | 333 | 1.0− | 1.0− | 2001 10 13 | 691 | 0.5+ | 0.4− | 2009 05 16 | 691 | 0.3+ | 0.1− |
| 2001 09 20 | 704 | 0.6− | 0.6+ | 2001 10 13 | 699 | 0.4+ | 0.4− | 2009 05 16 | 691 | 0.2+ | 0.1− |
| 2001 09 20 | 333 | 0.0 | 0.3+ | 2001 10 13 | 691 | 0.4+ | 0.3− | 2009 05 16 | 691 | 0.1+ | 0.1+ |
| 2001 09 20 | 333 | 0.6− | 0.1+ | 2001 10 13 | 691 | 0.5+ | 0.3− | 2009 05 31 | 703 | 0.3+ | 0.4+ |
| 2001 09 20 | 704 | 0.5− | 0.0 | 2001 10 16 | 704 | 0.7+ | 0.9+ | 2009 05 31 | 703 | 0.5− | 0.7− |
| 2001 09 20 | 333 | 0.4− | 0.9+ | 2001 10 16 | 704 | 0.6+ | 0.9+ | 2009 05 31 | 703 | 1.3− | 1.6+ |
| 2001 09 20 | 333 | 0.7− | 0.9− | 2001 10 16 | 704 | 0.5+ | 0.7+ | 2009 05 31 | 703 | 1.0− | 0.0 |

**2001 RD$_{74}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 321.38014 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21994414 | $\omega$ | 141.42190 | | +0.96727045 | | +0.23651899 |
| $a$ | 2.7180730 | $\Omega$ | 205.35646 | | −0.25103176 | | +0.94479604 |
| $e$ | 0.2169849 | $i$ | 12.39254 | | +0.03702618 | | +0.22675805 |
| $P$ | 4.48 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 28 | 699 | 0.0 | 0.9− | 2001 09 24 | 691 | 0.2+ | 0.4− | 2001 10 17 | 704 | 0.0 | 0.0 |
| 2001 08 28 | 699 | 0.0 | 1.2+ | 2001 09 24 | 691 | 0.3+ | 0.4− | 2001 10 17 | 704 | 0.6− | 0.1+ |
| 2001 08 28 | 699 | 0.0 | 0.6+ | 2001 09 24 | 691 | 0.4+ | 0.3− | 2001 10 17 | 704 | 0.3+ | 0.2+ |
| 2001 08 28 | 699 | 0.2+ | 0.7− | 2001 09 28 | 644 | 0.2+ | 0.1+ | 2001 10 17 | 704 | 0.1+ | 0.3+ |
| 2001 09 10 | 704 | 0.1+ | 0.3− | 2001 09 28 | 644 | 0.0 | 0.1+ | 2001 10 19 | 644 | 0.4+ | 0.0 |
| 2001 09 10 | 704 | 1.0+ | 0.0 | 2001 09 28 | 644 | 0.0 | 0.3+ | 2001 10 19 | 644 | 0.4+ | 0.0 |
| 2001 09 10 | 704 | 0.4+ | 0.5− | 2001 10 11 | 644 | 0.2+ | 0.7+ | 2001 10 19 | 644 | 0.5+ | 0.2+ |
| 2001 09 17 | 704 | 1.2+ | 0.1− | 2001 10 11 | 644 | 0.2+ | 0.8+ | 2001 10 21 | 704 | 0.1− | 0.3+ |
| 2001 09 17 | 704 | 0.5+ | 0.5+ | 2001 10 11 | 644 | 0.3+ | 0.7+ | 2001 10 21 | 704 | 0.2− | 0.1+ |
| 2001 09 17 | 704 | 0.5+ | 0.5− | 2001 10 12 | 699 | 0.2− | 0.5+ | 2001 10 21 | 704 | 0.1− | 0.6+ |
| 2001 09 17 | 704 | 1.1+ | 0.6+ | 2001 10 12 | 699 | 0.3− | 0.1+ | 2001 10 21 | 704 | 0.9+ | 1.4+ |
| 2001 09 20 | 704 | 0.1− | 0.2+ | 2001 10 12 | 699 | 0.7− | 0.4+ | 2001 11 20 | 704 | 0.6− | 1.0− |
| 2001 09 20 | 704 | 0.2+ | 0.2+ | 2001 10 12 | 699 | 1.2− | 0.1+ | 2001 11 20 | 704 | 0.2− | 1.5− |
| 2001 09 20 | 704 | 1.3− | 1.0+ | 2001 10 13 | 704 | 1.3− | 0.9+ | 2001 11 20 | 704 | 0.4− | 1.1− |
| 2001 09 20 | 704 | 0.5− | 0.4+ | 2001 10 13 | 704 | 1.5− | 1.1+ | 2001 11 20 | 704 | 0.5− | 1.0− |
| 2001 09 20 | 704 | 0.1− | 0.0 | 2001 10 13 | 704 | 0.6− | 1.7+ | 2001 11 20 | 704 | 0.1− | 1.8− |
| 2001 09 20 | 704 | 0.2− | 0.5+ | 2001 10 13 | 704 | 0.6− | 0.8+ | 2001 11 21 | 704 | 0.7− | 0.5− |
| 2001 09 20 | 704 | 0.2− | 0.3+ | 2001 10 13 | 704 | 1.2− | 1.2+ | 2001 11 21 | 704 | 1.0− | 1.8− |
| 2001 09 20 | 704 | 0.4− | 0.4+ | 2001 10 14 | 699 | 0.1+ | 0.3− | 2001 11 21 | 704 | 0.1+ | 1.5− |
| 2001 09 20 | 704 | 0.4− | 0.5− | 2001 10 14 | 699 | 0.0 | 0.1− | 2001 11 21 | 704 | 0.2+ | 0.8− |
| 2001 09 22 | 704 | 0.2− | 0.9+ | 2001 10 14 | 699 | 0.6− | 0.7− | 2009 04 27 | 691 | 0.2+ | 0.1+ |
| 2001 09 22 | 704 | 1.2+ | 1.2+ | 2001 10 14 | 699 | 0.2+ | 0.5+ | 2009 04 27 | 691 | 0.0 | 0.4− |
| 2001 09 22 | 704 | 0.1+ | 0.2− | 2001 10 14 | 704 | 0.5− | 0.1+ | 2009 04 27 | 691 | 0.2− | 0.1− |
| 2001 09 22 | 704 | 0.8+ | 0.0 | 2001 10 14 | 704 | 0.2+ | 1.8− | 2009 05 15 | 691 | 0.2+ | 0.1+ |
| 2001 09 23 | 704 | 0.0 | 0.6− | 2001 10 14 | 704 | 0.0 | 0.6− | 2009 05 15 | 691 | 0.3− | 0.1− |
| 2001 09 23 | 704 | 0.3− | 0.3− | 2001 10 14 | 704 | 0.2− | 0.8− | 2009 05 15 | 691 | 0.0 | 0.5− |
| 2001 09 23 | 704 | 1.0+ | 0.3− | 2001 10 14 | 704 | 0.2− | 0.7− | | | | |
| 2001 09 23 | 704 | 0.3+ | 0.5− | 2001 10 17 | 704 | 0.6+ | 0.1+ | | | | |

**2001 RX$_{74}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 301.47581 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21687911 | $\omega$ | 171.85613 | | +0.99372388 | | −0.10676960 |
| $a$ | 2.7436218 | $\Omega$ | 194.40124 | | +0.09357971 | | +0.95688669 |
| $e$ | 0.2573404 | $i$ | 7.70916 | | +0.06128368 | | +0.27012611 |
| $P$ | 4.54 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 16 | 704 | 0.4+ | 0.4− | 2001 09 21 | 704 | 0.0 | 0.3+ | 2001 10 20 | 704 | 0.0 | 0.5− |
| 2001 08 16 | 704 | 0.3+ | 0.8+ | 2001 09 26 | 704 | 0.8+ | 0.8− | 2001 10 20 | 704 | 0.1− | 0.4− |
| 2001 08 16 | 704 | 0.2+ | 0.0 | 2001 09 26 | 704 | 0.0 | 0.5− | 2001 10 20 | 704 | 0.3− | 0.6− |
| 2001 08 16 | 704 | 1.2− | 0.3− | 2001 09 26 | 704 | 0.4− | 0.9− | 2001 10 22 | 704 | 0.7+ | 0.0 |
| 2001 08 28 | 699 | 0.1+ | 0.3+ | 2001 09 26 | 704 | 0.6− | 0.1− | 2001 10 22 | 704 | 0.7+ | 0.4− |
| 2001 08 28 | 699 | 0.6− | 0.3− | 2001 09 26 | 704 | 0.2+ | 0.0 | 2001 10 22 | 704 | 0.3+ | 0.4− |
| 2001 08 28 | 699 | 0.0 | 1.1− | 2001 10 07 | 644 | 0.3− | 0.2− | 2001 10 22 | 704 | 0.7+ | 1.1+ |
| 2001 08 28 | 699 | 0.3+ | 0.1− | 2001 10 07 | 644 | 0.5− | 0.2− | 2001 10 23 | 704 | 0.3+ | 0.3− |
| 2001 09 10 | 704 | 0.4+ | 0.4− | 2001 10 07 | 644 | 0.1− | 0.1− | 2001 10 23 | 704 | 0.3+ | 0.3− |
| 2001 09 10 | 704 | 0.4+ | 0.2− | 2001 10 11 | 644 | 0.5− | 0.5− | 2001 10 23 | 704 | 0.4+ | 0.2− |
| 2001 09 10 | 704 | 0.0 | 0.2− | 2001 10 11 | 644 | 0.5− | 0.3− | 2001 10 23 | 704 | 0.5+ | 0.1− |
| 2001 09 10 | 704 | 1.3+ | 1.0− | 2001 10 11 | 644 | 0.3− | 0.4− | 2001 10 23 | 704 | 0.6+ | 0.2+ |
| 2001 09 10 | 704 | 0.6+ | 0.8− | 2001 10 13 | 704 | 0.5+ | 0.0 | 2001 10 24 | 704 | 0.0 | 0.5− |
| 2001 09 10 | 644 | 0.4− | 0.4− | 2001 10 13 | 704 | 0.6− | 0.3+ | 2001 10 24 | 704 | 0.1− | 0.0 |
| 2001 09 10 | 644 | 0.5− | 0.3− | 2001 10 13 | 704 | 0.8− | 0.6+ | 2001 10 24 | 704 | 0.1− | 0.1+ |
| 2001 09 10 | 644 | 0.3− | 0.6− | 2001 10 13 | 704 | 0.7− | 0.1+ | 2001 10 24 | 704 | 0.1+ | 0.3+ |
| 2001 09 17 | 699 | 1.8+ | 0.4+ | 2001 10 13 | 704 | 0.5− | 0.9+ | 2001 10 24 | 704 | 0.3− | 0.4+ |
| 2001 09 17 | 699 | 0.8− | 0.6− | 2001 10 14 | 704 | 0.2− | 0.3+ | 2001 11 15 | 644 | 0.0 | 0.1− |
| 2001 09 17 | 704 | 0.4+ | 0.6+ | 2001 10 14 | 704 | 0.1− | 0.0 | 2001 11 15 | 644 | 0.1− | 0.1+ |
| 2001 09 17 | 704 | 0.3− | 0.0 | 2001 10 14 | 704 | 0.1+ | 0.2+ | 2001 11 15 | 644 | 0.1− | 0.0 |
| 2001 09 17 | 699 | 0.8− | 1.0+ | 2001 10 14 | 704 | 0.0 | 0.5+ | 2001 11 18 | 704 | 0.5− | 0.1+ |
| 2001 09 17 | 704 | 0.4− | 0.4− | 2001 10 14 | 704 | 0.0 | 0.5+ | 2001 11 18 | 704 | 0.7− | 0.4− |
| 2001 09 17 | 699 | 0.6− | 0.1+ | 2001 10 17 | 704 | 0.3+ | 0.1+ | 2001 11 18 | 704 | 1.3− | 0.0 |
| 2001 09 19 | 704 | 0.2− | 1.0+ | 2001 10 17 | 704 | 0.6+ | 0.4− | 2001 11 18 | 704 | 0.1+ | 0.3+ |
| 2001 09 19 | 704 | 0.1− | 1.1+ | 2001 10 17 | 704 | 0.3+ | 0.1− | 2009 04 30 | 691 | 0.4+ | 0.4+ |
| 2001 09 19 | 704 | 0.1+ | 1.3+ | 2001 10 17 | 704 | 0.1+ | 0.6− | 2009 04 30 | 691 | 0.2− | 0.1+ |
| 2001 09 19 | 704 | 0.3+ | 0.5+ | 2001 10 17 | 704 | 0.5+ | 0.9− | 2009 04 30 | 691 | 0.2+ | 0.3− |
| 2001 09 19 | 704 | 0.1− | 0.6+ | 2001 10 17 | 644 | 0.6+ | 0.2+ | 2009 05 26 | 691 | 0.6− | 0.3+ |
| 2001 09 21 | 704 | 0.1− | 0.6+ | 2001 10 17 | 644 | 0.6+ | 0.8+ | 2009 05 26 | 691 | 0.4+ | 0.2+ |
| 2001 09 21 | 704 | 0.3− | 0.6+ | 2001 10 17 | 644 | 0.5+ | 0.9+ | 2009 05 26 | 691 | 0.3− | 0.6− |
| 2001 09 21 | 704 | 0.2− | 0.6+ | 2001 10 20 | 704 | 0.1− | 0.3− | | | | |
| 2001 09 21 | 704 | 0.0 | 0.4+ | 2001 10 20 | 704 | 0.1− | 0.6− | | | | |

**2001 RP$_{91}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 179.35872 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17834496 | $\omega$ | 190.09699 | | +0.99764086 | | +0.03364472 |
| $a$ | 3.1258070 | $\Omega$ | 167.49877 | | −0.02532942 | | +0.99056857 |
| $e$ | 0.2449141 | $i$ | 16.04810 | | −0.06380540 | | +0.13282297 |
| $P$ | 5.53 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 16 | 704 | 0.1− | 0.0 | 2001 09 19 | 704 | 0.0 | 0.5− | 2001 09 26 | 704 | 1.0− | 1.2+ |
| 2001 08 16 | 704 | 0.3− | 0.4+ | 2001 09 19 | 704 | 0.4+ | 0.3+ | 2001 09 26 | 704 | 0.3+ | 1.4+ |
| 2001 08 16 | 704 | 0.1+ | 0.4+ | 2001 09 19 | 704 | 0.3− | 0.1− | 2001 09 27 | 644 | 0.6− | 0.6− |
| 2001 08 16 | 704 | 0.6− | 0.4− | 2001 09 21 | 704 | 0.1− | 0.4+ | 2001 09 27 | 644 | 0.7− | 0.4− |
| 2001 08 27 | 699 | 0.1− | 0.4− | 2001 09 21 | 704 | 1.0+ | 0.0 | 2001 09 27 | 644 | 0.1− | 0.3− |
| 2001 08 27 | 699 | 0.9− | 1.0− | 2001 09 21 | 704 | 0.2+ | 0.1− | 2001 10 08 | 644 | 0.1− | 0.5− |
| 2001 08 27 | 699 | 0.1− | 0.3− | 2001 09 21 | 704 | 0.1− | 0.4− | 2001 10 08 | 644 | 0.3− | 0.5− |
| 2001 08 27 | 699 | 0.9− | 0.6+ | 2001 09 21 | 704 | 0.4− | 0.3− | 2001 10 08 | 644 | 0.0 | 0.5− |
| 2001 09 11 | 699 | 1.1+ | 0.1− | 2001 09 25 | 704 | 1.0+ | 0.3− | 2001 10 24 | 644 | 0.3− | 0.6+ |
| 2001 09 11 | 699 | 1.2+ | 0.3+ | 2001 09 25 | 704 | 0.7+ | 0.1− | 2001 10 24 | 644 | 0.3− | 0.1− |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 11 | 699 | 1.1+ | 0.1+ | 2001 09 25 | 704 | 0.2+ | 0.3+ | 2001 10 24 | 644 | 0.4− | 0.2+ |
| 2001 09 11 | 699 | 0.5+ | 0.2+ | 2001 09 25 | 704 | 1.2+ | 0.7− | 2007 12 05 | 703 | 0.2− | 0.7+ |
| 2001 09 12 | 704 | 0.3− | 0.1− | 2001 09 25 | 704 | 0.7+ | 0.3− | 2007 12 05 | 703 | 0.6+ | 1.0+ |
| 2001 09 12 | 704 | 0.6− | 0.3− | 2001 09 25 | 704 | 0.2− | 0.3− | 2007 12 05 | 703 | 0.2− | 1.5+ |
| 2001 09 12 | 704 | 0.5− | 0.1− | 2001 09 25 | 704 | 0.5− | 0.3+ | 2007 12 05 | 703 | 1.1− | 0.9− |
| 2001 09 12 | 704 | 0.6− | 0.2− | 2001 09 25 | 704 | 0.6+ | 0.5+ | 2008 01 01 | G96 | 0.1+ | 1.0− |
| 2001 09 12 | 704 | 0.7− | 0.6− | 2001 09 25 | 704 | 0.5+ | 1.1+ | 2008 01 01 | G96 | 0.1+ | 0.6− |
| 2001 09 18 | 699 | 0.9+ | 0.6+ | 2001 09 25 | 704 | 0.6+ | 0.4− | 2008 01 01 | G96 | 0.4+ | 0.1− |
| 2001 09 18 | 699 | 0.2− | 0.6+ | 2001 09 26 | 704 | (2.8+ | 0.2+) | 2008 01 01 | G96 | 0.3+ | 0.7− |
| 2001 09 18 | 699 | 0.7− | 0.4+ | 2001 09 26 | 704 | 0.2− | 1.1− | | | | |
| 2001 09 18 | 699 | 0.5+ | 1.0+ | 2001 09 26 | 704 | 1.0− | 0.0 | | | | |

**2001 RZ$_{123}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 182.65609 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17764675 | $\omega$ | 341.73195 | | +0.96197784 | | +0.27307132 |
| $a$ | 3.1339919 | $\Omega$ | 2.44140 | | −0.23157012 | | +0.82619482 |
| $e$ | 0.2729364 | $i$ | 7.47137 | | −0.14482370 | | +0.49278207 |
| $P$ | 5.55 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 12 | 704 | 0.1− | 0.3− | 2001 09 19 | 644 | 0.1− | 0.2+ | 2001 10 24 | 704 | 0.3− | 0.0 |
| 2001 09 12 | 704 | 0.0 | 0.0 | 2001 09 19 | 644 | 0.4+ | 0.3− | 2001 10 24 | 704 | 0.3− | 0.1− |
| 2001 09 12 | 704 | 0.0 | 0.0 | 2001 09 19 | 644 | 0.2+ | 0.0 | 2007 11 20 | G96 | 0.1+ | 0.0 |
| 2001 09 12 | 704 | 0.2− | 0.3− | 2001 09 21 | 704 | 0.6− | 0.1+ | 2007 11 20 | G96 | 0.0 | 0.1+ |
| 2001 09 12 | 704 | 0.1+ | 0.1+ | 2001 09 21 | 704 | 0.4− | 0.1+ | 2007 11 20 | G96 | 0.2− | 0.3+ |
| 2001 09 19 | 704 | 0.1− | 0.2+ | 2001 09 21 | 704 | 0.4− | 0.1+ | 2007 11 20 | G96 | 0.2+ | 0.0 |
| 2001 09 19 | 704 | 0.2+ | 0.1+ | 2001 09 24 | 644 | 0.3+ | 0.1+ | 2007 12 04 | G96 | 0.1+ | 0.0 |
| 2001 09 19 | 704 | 0.1+ | 0.2+ | 2001 09 24 | 644 | 0.2+ | 0.2− | 2007 12 04 | G96 | 0.3+ | 0.2− |
| 2001 09 19 | 704 | 0.0 | 0.2− | 2001 09 24 | 644 | 0.1+ | 0.1− | 2007 12 04 | G96 | 0.3− | 0.2− |
| 2001 09 19 | 704 | 0.2+ | 0.3+ | 2001 10 24 | 704 | 0.6+ | 0.1− | 2007 12 04 | G96 | 0.1− | 0.0 |

**2001 SW$_5$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 110.10668 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.27988269 | $\omega$ | 39.95682 | | +0.85101050 | | −0.52097112 |
| $a$ | 2.3146501 | $\Omega$ | 350.71460 | | +0.31231158 | | +0.60328184 |
| $e$ | 0.2397836 | $i$ | 24.18657 | | +0.42218787 | | +0.60385437 |
| $P$ | 3.52 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 16 | 704 | 0.1− | 1.2+ | 2001 09 20 | 704 | 0.4+ | 0.1− | 2001 10 17 | 704 | 1.1+ | 0.5− |
| 2001 08 16 | 704 | 0.5− | 0.3− | 2001 09 20 | 704 | 0.2+ | 0.1− | 2001 10 17 | 704 | 0.4+ | 0.4+ |
| 2001 08 16 | 704 | 0.0 | 0.9+ | 2001 09 20 | 704 | 0.7+ | 0.1+ | 2001 10 17 | 704 | 0.6− | 0.5+ |
| 2001 08 27 | 699 | 0.5+ | 0.6− | 2001 09 20 | 704 | 0.2+ | 0.4− | 2008 09 06 | G96 | 0.2+ | 0.3− |
| 2001 08 27 | 699 | (1.5− | 1.7−) | 2001 09 20 | 704 | 0.4+ | 0.4− | 2008 09 06 | G96 | 0.1− | 0.2− |
| 2001 08 27 | 699 | 0.1+ | 0.0 | 2001 09 20 | 704 | 0.6− | 0.2− | 2008 09 06 | G96 | 0.4+ | 0.3− |
| 2001 08 27 | 699 | 1.4− | 0.2− | 2001 09 20 | 704 | 0.4+ | 0.0 | 2008 09 06 | G96 | 0.1− | 0.4− |
| 2001 09 16 | 644 | 0.3− | 0.8− | 2001 09 20 | 704 | 0.3+ | 0.9− | 2008 09 20 | 703 | 0.2+ | 0.2− |
| 2001 09 16 | 644 | 0.7− | 0.4− | 2001 09 25 | 704 | 0.6− | 0.0 | 2008 09 20 | 703 | 0.3+ | 1.0+ |
| 2001 09 16 | 644 | 0.2− | 0.1+ | 2001 09 25 | 704 | 0.7− | 0.1− | 2008 09 20 | 703 | 0.4+ | 0.1+ |
| 2001 09 17 | 704 | 0.8+ | 0.1+ | 2001 09 25 | 704 | 0.4− | 0.3+ | 2008 09 20 | 703 | 0.1− | 1.1− |
| 2001 09 17 | 704 | 0.6− | 0.5+ | 2001 09 25 | 704 | 0.5− | 0.7+ | 2008 10 01 | G96 | 0.0 | 0.1− |
| 2001 09 17 | 704 | 0.1+ | 0.2+ | 2001 09 25 | 704 | 0.0 | 0.5+ | 2008 10 01 | G96 | 0.2+ | 0.2− |
| 2001 09 19 | 704 | 0.1− | 0.0 | 2001 10 05 | 644 | 0.3− | 0.4+ | 2008 10 01 | G96 | 0.3+ | 0.3− |
| 2001 09 19 | 704 | 0.2− | 0.2+ | 2001 10 05 | 644 | 0.2+ | 0.5+ | 2008 10 01 | G96 | 0.2− | 0.3− |
| 2001 09 19 | 704 | 0.1+ | 0.3+ | 2001 10 05 | 644 | 0.2+ | 0.3+ | 2008 10 25 | 703 | 0.1+ | 0.1+ |
| 2001 09 19 | 704 | 0.7− | 0.2+ | 2001 10 05 | 644 | 0.2+ | 0.4+ | 2008 10 25 | 703 | 0.1− | 1.7+ |
| 2001 09 19 | 704 | 0.1+ | 0.4+ | 2001 10 05 | 644 | 0.2+ | 0.3+ | 2008 10 25 | 703 | 1.0+ | 0.6− |
| 2001 09 20 | 704 | 0.1+ | 0.3− | 2001 10 05 | 644 | 0.4+ | 0.4+ | 2008 10 25 | 703 | 0.6− | 0.6− |
| 2001 09 20 | 704 | 0.1− | 0.7− | 2001 10 17 | 704 | 0.4− | 0.9− | | | | |

**2001 SW$_{133}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 161.70100 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17465709 | $\omega$ | 180.90330 | | +0.97694246 | | −0.20464977 |
| $a$ | 3.1696543 | $\Omega$ | 191.46471 | | +0.19775449 | | +0.97477882 |
| $e$ | 0.2060047 | $i$ | 17.82482 | | +0.08047730 | | +0.08902097 |
| $P$ | 5.64 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 16 | 704 | 0.6+ | 0.4− | 2001 09 24 | 704 | 0.2+ | 0.1+ | 2001 10 24 | 704 | 0.1− | 1.1− |
| 2001 09 16 | 704 | 1.0+ | 1.1− | 2001 09 24 | 704 | 1.1− | 0.9+ | 2001 10 24 | 704 | 0.7− | 0.7− |
| 2001 09 16 | 704 | 0.7+ | 0.4− | 2001 09 24 | 704 | 0.9− | 0.6+ | 2007 10 31 | 703 | 0.7+ | 1.1− |
| 2001 09 16 | 704 | 0.3+ | 0.4− | 2001 10 06 | 644 | 0.1+ | 0.8+ | 2007 10 31 | 703 | 0.3+ | 0.1− |
| 2001 09 20 | 704 | 0.2+ | 0.3− | 2001 10 06 | 644 | 0.1+ | 0.5+ | 2007 10 31 | 703 | 0.7− | 0.7+ |
| 2001 09 20 | 704 | 0.0 | 0.0 | 2001 10 06 | 644 | 0.2− | 0.4+ | 2007 10 31 | 703 | 0.9+ | 0.9+ |
| 2001 09 20 | 704 | 0.3+ | 0.3− | 2001 10 11 | 644 | 0.0 | 0.2+ | 2007 11 17 | G96 | 0.4− | 0.2− |
| 2001 09 20 | 704 | 0.1+ | 0.1+ | 2001 10 11 | 644 | 0.0 | 0.1+ | 2007 11 17 | G96 | 0.5− | 0.1− |
| 2001 09 20 | 704 | 0.3+ | 0.2− | 2001 10 11 | 644 | 0.1+ | 0.0 | 2007 11 17 | G96 | 0.0 | 0.1+ |
| 2001 09 24 | 704 | 0.1+ | 1.1+ | 2001 10 24 | 704 | 0.7− | 1.1− | 2007 11 17 | G96 | 0.2− | 0.0 |
| 2001 09 24 | 704 | 0.6− | 1.1+ | 2001 10 24 | 704 | 0.3+ | 0.4− | | | | |

**2001 SJ$_{157}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 199.41007 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17901020 | $\omega$ | 115.17741 | | +0.90723216 | | +0.41002191 |
| $a$ | 3.1180580 | $\Omega$ | 220.79740 | | −0.41874000 | | +0.85924421 |
| $e$ | 0.2256856 | $i$ | 8.26021 | | −0.03983234 | | +0.30591080 |
| $P$ | 5.51 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 17 | 704 | 0.6+ | 0.4− | 2001 09 25 | 704 | 0.2+ | 0.9+ | 2007 08 10 | 691 | 0.0 | 0.1− |
| 2001 09 17 | 704 | 0.3+ | 0.2+ | 2001 09 28 | 644 | 0.4+ | 0.3− | 2007 08 10 | 691 | 0.2+ | 0.2− |
| 2001 09 17 | 704 | 0.5− | 0.4+ | 2001 09 28 | 644 | 0.3+ | 0.5− | 2007 09 14 | G96 | 0.1− | 0.5− |
| 2001 09 20 | 704 | 1.1+ | 0.2− | 2001 09 28 | 644 | 0.3+ | 0.4− | 2007 09 14 | G96 | 0.6− | 0.6− |
| 2001 09 20 | 704 | 0.1+ | 0.8− | 2001 10 06 | 644 | 0.2+ | 0.3− | 2007 09 14 | G96 | 0.1− | 0.2− |
| 2001 09 20 | 704 | 0.2+ | 1.2− | 2001 10 06 | 644 | 0.1− | 0.3− | 2007 09 14 | G96 | 0.2+ | 1.0− |
| 2001 09 20 | 704 | 0.4− | 0.8− | 2001 10 06 | 644 | 0.1− | 0.2− | 2007 10 20 | G96 | 0.1+ | 0.1− |
| 2001 09 22 | 704 | 0.3+ | 1.1+ | 2001 10 14 | 704 | 0.2− | 0.6+ | 2007 10 20 | G96 | 0.4+ | 0.0 |
| 2001 09 22 | 704 | 0.2− | 0.4− | 2001 10 14 | 704 | 0.4− | 0.5+ | 2007 10 20 | G96 | 0.7+ | 0.4− |
| 2001 09 22 | 704 | 1.1+ | 0.3− | 2001 10 14 | 704 | 0.1+ | 0.9+ | 2007 10 20 | G96 | 0.2− | 0.3+ |
| 2001 09 22 | 704 | 0.4− | 0.4− | 2001 10 14 | 704 | 0.1+ | 0.8+ | 2007 11 04 | 691 | 0.0 | 0.1− |
| 2001 09 22 | 704 | (1.7+ | 0.6+) | 2001 10 14 | 704 | 0.8− | 0.2+ | 2007 11 04 | 691 | 0.2+ | 0.1− |
| 2001 09 23 | 704 | 0.1− | 0.5+ | 2001 10 17 | 704 | 0.1− | 0.2+ | 2007 11 04 | 691 | 0.1− | 0.1+ |
| 2001 09 23 | 704 | 0.3+ | 0.9+ | 2001 10 17 | 704 | 0.1− | 0.1− | 2007 11 20 | G96 | 0.2+ | 0.3− |
| 2001 09 23 | 704 | 0.4+ | 0.3+ | 2001 10 17 | 704 | 0.2+ | 1.1+ | 2007 11 20 | G96 | 0.4+ | 0.0 |
| 2001 09 23 | 704 | 0.6+ | 0.2+ | 2001 10 17 | 704 | 0.0 | 0.6+ | 2007 11 20 | G96 | 0.1− | 0.1− |
| 2001 09 25 | 704 | 1.0− | 0.8+ | 2001 10 17 | 704 | 0.3− | 1.4− | 2007 11 20 | G96 | 0.2+ | 0.0 |
| 2001 09 25 | 704 | 0.0 | 0.3+ | 2001 11 17 | 691 | 0.2− | 0.0 | 2009 02 01 | G96 | 0.2+ | 0.9+ |
| 2001 09 25 | 704 | 0.1− | 1.1+ | 2001 11 17 | 691 | 0.2− | 0.2− | 2009 02 01 | G96 | 0.2+ | 0.4+ |
| 2001 09 25 | 704 | 0.8+ | 0.0 | 2001 11 17 | 691 | 0.4− | 0.2+ | 2009 02 01 | G96 | 0.3− | 0.7+ |
| 2001 09 25 | 704 | 1.3− | 0.1− | 2007 08 10 | 691 | 0.5− | 0.1− | 2009 02 01 | G96 | 0.3+ | 0.4+ |

**2001 SW$_{170}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 288.36611 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21662100 | $\omega$ | 80.75054 | | +0.99124280 | | −0.11746956 |
| $a$ | 2.7458007 | $\Omega$ | 285.97798 | | +0.08237175 | | +0.90707122 |
| $e$ | 0.1297966 | $i$ | 3.59738 | | +0.10321143 | | +0.40425574 |
| $P$ | 4.55 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 16 | 704 | 1.1+ | 1.2+ | 2001 10 19 | 644 | 0.4− | 0.2− | 2008 02 09 | 691 | 1.3+ | 0.0 |
| 2001 09 16 | 704 | 0.1+ | 0.7+ | 2001 10 19 | 644 | 0.8− | 0.0 | 2008 02 26 | G96 | 0.0 | 0.1+ |
| 2001 09 16 | 704 | 0.8+ | 0.6− | 2001 10 19 | 644 | 0.8− | 0.1− | 2008 02 26 | G96 | 0.1− | 0.1+ |
| 2001 09 21 | 704 | 0.2+ | 0.6+ | 2006 11 17 | 691 | 0.2− | 0.1+ | 2008 02 26 | G96 | 0.2+ | 0.1− |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 21 | 704 | 0.3− | 0.4− | 2006 11 17 | 691 | 0.2+ | 0.3+ | 2008 02 26 | G96 | 0.2+ | 0.9+ |
| 2001 09 21 | 704 | 0.1− | 0.4+ | 2006 11 17 | 691 | 0.5+ | 0.1+ | 2008 03 13 | G96 | (0.6− | 2.0−) |
| 2001 09 21 | 704 | 0.1+ | 0.4− | 2006 12 12 | 691 | 0.2− | 0.1− | 2008 03 13 | G96 | 0.4− | 0.2+ |
| 2001 09 21 | 704 | 0.8+ | 0.7+ | 2006 12 12 | 691 | 0.1+ | 0.0 | 2008 03 13 | G96 | 0.3+ | 0.4− |
| 2001 09 21 | 704 | 0.5− | 0.1− | 2006 12 12 | 691 | 0.3− | 0.6− | 2008 03 13 | G96 | 0.6− | 0.4+ |
| 2001 09 21 | 704 | 0.3− | 0.3+ | 2008 02 09 | 691 | 0.4− | 0.0 | | | | |
| 2001 09 21 | 704 | 0.7− | 0.6− | 2008 02 09 | 691 | 0.6− | 0.1+ | | | | |

**2001 SM$_{171}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 112.61197 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27337926 | $\omega$ | 353.25454 | | +0.99482021 | +0.10162608 | |
| $a$ | 2.3512150 | $\Omega$ | 0.92138 | | −0.08565366 | +0.84978149 | |
| $e$ | 0.1846375 | $i$ | 7.90275 | | −0.05473755 | +0.51724612 | |
| $P$ | 3.61 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 27 | 699 | 0.3− | 1.1− | 2001 09 23 | 704 | 0.1+ | 0.3+ | 2001 10 13 | 704 | 1.4− | 1.9− |
| 2001 08 27 | 699 | 0.1+ | 0.1+ | 2001 09 23 | 704 | 0.5+ | 0.3− | 2001 10 13 | 704 | 0.3− | 1.2− |
| 2001 08 27 | 699 | 0.0 | 0.6− | 2001 09 23 | 704 | 0.6+ | 0.2− | 2001 10 13 | 704 | 1.1− | 1.1− |
| 2001 08 27 | 699 | 1.5− | 0.7− | 2001 09 23 | 704 | 0.3− | 0.3− | 2001 10 13 | 704 | 1.2− | 0.1+ |
| 2001 09 11 | 699 | 0.5+ | 0.3− | 2001 09 23 | 704 | 1.2+ | 1.0+ | 2001 10 13 | 704 | 0.1− | 0.4− |
| 2001 09 11 | 699 | 0.3+ | 0.4− | 2001 09 23 | 704 | 0.2+ | 0.2− | 2001 10 16 | 704 | 0.3− | 0.0 |
| 2001 09 11 | 699 | 0.1+ | 0.2− | 2001 09 23 | 704 | 1.0+ | 0.2+ | 2001 10 16 | 704 | 0.5− | 0.7− |
| 2001 09 11 | 699 | 0.3− | 0.2− | 2001 09 23 | 704 | 0.3+ | 0.1− | 2001 10 16 | 704 | 0.0 | 0.0 |
| 2001 09 16 | 644 | 0.7− | 0.5− | 2001 09 23 | 704 | 1.0+ | 0.4+ | 2001 10 16 | 704 | 0.8+ | 0.0 |
| 2001 09 16 | 644 | 0.5− | 0.4− | 2001 09 25 | 699 | 0.2− | 0.6− | 2001 10 19 | 644 | 0.1+ | 0.4− |
| 2001 09 16 | 644 | 1.1− | 0.2− | 2001 09 25 | 699 | 1.1− | 0.1+ | 2001 10 19 | 644 | 0.0 | 0.2− |
| 2001 09 16 | 704 | 0.0 | 0.5− | 2001 09 25 | 699 | 0.5− | 0.3+ | 2001 10 19 | 644 | 0.0 | 0.1− |
| 2001 09 16 | 704 | 0.2+ | 0.1− | 2001 09 25 | 699 | 0.2− | 0.2− | 2001 10 21 | 704 | 0.2− | 0.1− |
| 2001 09 16 | 704 | 0.2− | 0.2− | 2001 09 26 | 704 | 1.0+ | 0.0 | 2001 10 21 | 704 | 0.1+ | 0.4− |
| 2001 09 16 | 704 | 0.4+ | 0.1+ | 2001 09 26 | 704 | 1.1+ | 0.0 | 2001 10 21 | 704 | 0.3− | 0.6− |
| 2001 09 19 | 704 | 0.4− | 0.7+ | 2001 09 26 | 704 | 1.0+ | 0.0 | 2001 10 21 | 704 | 0.0 | 0.4+ |
| 2001 09 19 | 704 | 0.9− | 0.7+ | 2001 09 26 | 704 | 0.9+ | 0.2+ | 2001 10 21 | 704 | 0.0 | 0.6− |
| 2001 09 19 | 704 | 2.0+ | 0.9+ | 2001 09 26 | 704 | 1.4+ | 0.5+ | 2001 10 26 | 644 | 0.2− | 0.3+ |
| 2001 09 19 | 704 | 0.9− | 0.4+ | 2001 09 27 | 704 | 0.4+ | 0.2− | 2001 10 26 | 644 | 0.1− | 0.7+ |
| 2001 09 19 | 704 | 0.8− | 0.6+ | 2001 09 27 | 704 | 0.2− | 0.4+ | 2001 10 26 | 644 | 0.4− | 0.7+ |
| 2001 09 19 | 704 | 1.4− | 0.4− | 2001 09 27 | 704 | 0.6+ | 0.5+ | 2008 08 04 | E12 | 0.7+ | 0.0 |
| 2001 09 19 | 704 | 0.2− | 0.3+ | 2001 09 27 | 704 | 0.4+ | 0.4+ | 2008 08 04 | E12 | 0.4− | 0.4− |
| 2001 09 19 | 704 | 0.8− | 0.0 | 2001 09 27 | 704 | 0.6+ | 0.2− | 2008 08 04 | E12 | 0.0 | 1.1+ |
| 2001 09 19 | 704 | 0.6− | 0.8+ | 2001 09 28 | 704 | 0.2+ | 0.0 | 2008 08 04 | E12 | 0.3− | 0.4− |
| 2001 09 19 | 704 | 0.7− | 0.4+ | 2001 09 28 | 704 | 0.3+ | 0.0 | 2008 08 04 | E12 | 0.6+ | 0.5+ |
| 2001 09 21 | 704 | 0.2− | 0.3+ | 2001 09 28 | 704 | 0.4+ | 0.0 | 2008 08 04 | E12 | 0.7− | 0.3− |
| 2001 09 21 | 704 | 0.1− | 0.6+ | 2001 09 28 | 704 | 0.4+ | 0.0 | 2008 08 04 | E12 | 0.1− | 0.5− |
| 2001 09 21 | 704 | 0.1+ | 0.3+ | 2001 09 28 | 704 | 0.6+ | 0.2+ | 2008 10 27 | G96 | 0.2− | 0.4− |
| 2001 09 21 | 704 | 0.3+ | 0.9+ | 2001 10 11 | 644 | 0.3− | 0.2+ | 2008 10 27 | G96 | 0.0 | 0.2− |
| 2001 09 21 | 704 | 0.5+ | 1.0+ | 2001 10 11 | 644 | 0.2− | 0.4+ | 2008 10 27 | G96 | 0.7+ | 0.2+ |
| 2001 09 23 | 704 | 0.6+ | 0.3− | 2001 10 11 | 644 | 0.3− | 0.2+ | 2008 10 27 | G96 | 0.3− | 0.5+ |

**2001 SQ$_{180}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 154.52341 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17138951 | $\omega$ | 189.55290 | | +0.94305822 | +0.24795396 | |
| $a$ | 3.2098142 | $\Omega$ | 152.72668 | | −0.26421213 | +0.96334466 | |
| $e$ | 0.1574522 | $i$ | 28.93762 | | −0.20207211 | −0.10240069 | |
| $P$ | 5.75 | $H$ | 15.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 07 17 | 699 | 0.3+ | 0.4+ | 2001 08 24 | 644 | 0.5− | 0.0 | 2007 09 14 | 703 | 0.1+ | 0.2− |
| 2001 07 17 | 699 | 1.0+ | 0.3+ | 2001 08 24 | 699 | 0.3+ | 0.2+ | 2007 09 14 | 703 | 0.1− | 0.5− |
| 2001 07 17 | 699 | 1.0− | 1.0+ | 2001 08 24 | 699 | 1.0+ | 0.4+ | 2007 09 14 | 703 | 0.3+ | 1.0+ |
| 2001 07 17 | 699 | 1.7− | 0.1− | 2001 09 07 | 704 | 0.7− | 0.4+ | 2007 09 14 | 703 | 0.2+ | 0.2− |
| 2001 08 15 | 608 | 0.7− | 0.8− | 2001 09 07 | 704 | 0.1− | 0.6− | 2007 09 14 | 703 | 0.6+ | 0.5+ |
| 2001 08 15 | 608 | 0.1+ | 0.1− | 2001 09 07 | 704 | 0.2+ | 0.6+ | 2007 09 14 | 703 | 0.9+ | 0.2− |
| 2001 08 15 | 608 | 0.1+ | 0.3− | 2001 09 19 | 704 | 0.6− | 0.2− | 2007 09 14 | 703 | 0.1− | 0.6+ |
| 2001 08 15 | 608 | 0.3− | 0.6− | 2001 09 19 | 704 | 0.0 | 1.0+ | 2007 09 14 | 703 | 0.3− | 0.0 |
| 2001 08 15 | 608 | 0.2− | 1.1− | 2001 09 19 | 704 | 1.0− | 1.5+ | 2007 10 12 | 703 | 0.8− | 0.5+ |
| 2001 08 15 | 608 | 0.2− | 0.6− | 2001 09 19 | 704 | 0.2+ | 1.7+ | 2007 10 12 | 703 | 0.6− | 0.7− |
| 2001 08 24 | 699 | 0.8+ | 0.4− | 2001 09 21 | 704 | 0.2+ | 0.6− | 2007 10 12 | 703 | 0.3− | 0.1− |
| 2001 08 24 | 644 | 0.3− | 0.0 | 2001 09 21 | 704 | 0.4+ | 0.3− | 2007 10 12 | 703 | 0.0 | 0.8− |
| 2001 08 24 | 699 | 0.7+ | 0.8− | 2001 09 21 | 704 | 0.6+ | 0.5− | | | | |
| 2001 08 24 | 644 | 0.1+ | 0.6+ | 2001 09 21 | 704 | 1.1+ | 0.8− | | | | |

**2001 SR$_{207}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 292.42571 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18381827 | $\omega$ | 254.90668 | | −0.18046150 | +0.98348949 | |
| $a$ | 3.0634462 | $\Omega$ | 4.75880 | | −0.82837820 | −0.14457492 | |
| $e$ | 0.0550190 | $i$ | 9.36052 | | −0.53030483 | −0.10884170 | |
| $P$ | 5.36 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 19 | 704 | 1.0+ | 0.4− | 2001 09 21 | 704 | 0.1+ | 0.1+ | 2007 11 15 | G96 | 0.2+ | 0.2− |
| 2001 09 19 | 704 | 0.0 | 0.4+ | 2001 09 21 | 704 | 0.6+ | 0.6+ | 2007 11 15 | G96 | 0.0 | 0.1− |
| 2001 09 19 | 704 | (2.0+ | 0.1+) | 2001 10 14 | 645 | 0.0 | 0.0 | 2007 11 15 | G96 | 0.0 | 0.1+ |
| 2001 09 19 | 704 | 0.0 | 0.2+ | 2001 10 14 | 645 | 0.0 | 0.0 | 2007 11 15 | G96 | 0.1− | 0.1+ |
| 2001 09 19 | 691 | 0.3− | 0.0 | 2001 10 15 | 645 | 0.0 | 0.0 | 2007 12 16 | G96 | 0.4+ | 0.1+ |
| 2001 09 19 | 691 | 0.3− | 0.3− | 2001 10 15 | 645 | 0.1+ | 0.0 | 2007 12 16 | G96 | 0.0 | 0.1− |
| 2001 09 19 | 691 | 0.4− | 0.2− | 2007 10 18 | 691 | 0.2− | 0.1+ | 2007 12 16 | G96 | 0.1+ | 0.1− |
| 2001 09 21 | 704 | 1.2+ | 0.8+ | 2007 10 18 | 691 | 0.1− | 0.1+ | 2007 12 16 | G96 | 0.2+ | 0.0 |
| 2001 09 21 | 704 | 0.3+ | 0.1+ | 2007 10 18 | 691 | 0.1+ | 0.1− | | | | |

**2001 SM$_{214}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 163.89605 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17815174 | $\omega$ | 217.45168 | | +0.87540049 | −0.48190142 | |
| $a$ | 3.1280667 | $\Omega$ | 171.11174 | | +0.48124450 | +0.86138611 | |
| $e$ | 0.2252466 | $i$ | 14.24257 | | +0.04558191 | +0.16057707 | |
| $P$ | 5.53 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 14 | 644 | 0.0 | 0.5+ | 2001 09 23 | 704 | 0.3+ | 0.2+ | 2001 10 16 | 644 | 0.2+ | 0.1− |
| 2001 09 14 | 644 | 0.2+ | 0.2+ | 2001 09 23 | 704 | 0.5+ | 0.3− | 2001 10 16 | 644 | 0.0 | 0.0 |
| 2001 09 14 | 644 | 0.2− | 0.0 | 2001 09 23 | 704 | 0.2+ | 0.4− | 2001 10 24 | 644 | 0.5− | 0.1− |
| 2001 09 18 | 699 | 0.0 | 0.5+ | 2001 09 23 | 704 | 0.1− | 0.2+ | 2001 10 24 | 644 | 0.3− | 0.3− |
| 2001 09 18 | 699 | 0.4+ | 0.1− | 2001 09 24 | 644 | 0.5+ | 0.7+ | 2001 10 24 | 644 | 0.6− | 0.2− |
| 2001 09 18 | 699 | 1.2− | 0.5− | 2001 09 24 | 644 | 0.5+ | 0.4+ | 2007 11 15 | 703 | 0.1+ | 0.1− |
| 2001 09 18 | 699 | 0.0 | 0.4+ | 2001 09 24 | 644 | 0.0 | 0.1+ | 2007 11 15 | 703 | 0.2− | 0.5− |
| 2001 09 19 | 704 | 0.5+ | 0.1+ | 2001 10 08 | 644 | 0.2− | 0.4+ | 2007 11 15 | 703 | 0.0 | 0.5+ |
| 2001 09 19 | 704 | 0.3− | 0.6− | 2001 10 08 | 644 | 0.3− | 0.0 | 2007 11 15 | 703 | 0.2+ | 0.4− |
| 2001 09 19 | 704 | 0.4+ | 0.1− | 2001 10 08 | 644 | 0.3− | 0.4+ | 2007 12 05 | 703 | 0.2− | 0.1+ |
| 2001 09 19 | 704 | 0.3− | 1.0− | 2001 10 11 | 704 | 0.1+ | 0.3+ | 2007 12 05 | 703 | 0.7− | 0.3+ |
| 2001 09 21 | 704 | 0.4− | 0.0 | 2001 10 11 | 704 | 0.1+ | 0.0 | 2007 12 05 | 703 | 1.2+ | 0.1− |
| 2001 09 21 | 704 | 0.4− | 0.0 | 2001 10 11 | 704 | 1.1+ | 0.2− | 2007 12 05 | 703 | 0.4− | 0.3+ |
| 2001 09 21 | 704 | 0.5− | 0.3− | 2001 10 11 | 704 | 0.3+ | 0.2+ | | | | |
| 2001 09 21 | 704 | 0.3− | 0.1− | 2001 10 16 | 644 | 0.5+ | 0.3− | | | | |

**2001 SL$_{290}$ = 2009 YF$_{18}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 63.78930 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26081104 | $\omega$ | 68.81496 | | +0.93833931 | −0.31864094 | |
| $a$ | 2.4261561 | $\Omega$ | 309.50940 | | +0.21569209 | +0.84275819 | |
| $e$ | 0.2837562 | $i$ | 10.01083 | | +0.27017819 | +0.43385088 | |
| $P$ | 3.78 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 07 22 | 644 | 0.6− | 0.1+ | 2001 09 19 | 644 | 0.3+ | 1.4− | 2001 10 20 | 699 | 0.2+ | 0.6− |
| 2001 07 22 | 644 | 0.5− | 0.5+ | 2001 09 29 | 644 | 0.1+ | 0.5+ | 2001 11 12 | 704 | 0.3+ | 0.4− |
| 2001 07 22 | 644 | 0.6− | 0.5+ | 2001 09 29 | 644 | 0.1+ | 0.5+ | 2001 11 12 | 704 | 0.1− | 0.0 |
| 2001 08 16 | 644 | 0.1− | 0.3− | 2001 09 29 | 644 | 0.1+ | 0.0 | 2001 11 12 | 704 | 0.2− | 0.2+ |
| 2001 08 16 | 644 | 0.2− | 0.0 | 2001 09 30 | 644 | 0.6− | 0.4+ | 2001 11 12 | 704 | 0.4+ | 0.1+ |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 16 | 644 | 0.3− | 0.2+ | 2001 09 30 | 644 | 0.6− | 0.4+ | 2005 12 24 | 704 | 0.7− | 0.9+ |
| 2001 08 26 | 699 | 0.4+ | 0.2+ | 2001 09 30 | 644 | 0.7− | 0.0 | 2005 12 24 | 704 | 0.2+ | 0.8+ |
| 2001 08 26 | 699 | 0.0 | 0.2+ | 2001 10 18 | 704 | 0.1− | 0.4+ | 2005 12 24 | 704 | 0.9+ | 0.6+ |
| 2001 08 26 | 699 | 0.1+ | 0.1− | 2001 10 18 | 704 | 0.1− | 0.4+ | 2005 12 24 | 704 | 0.1− | 0.5+ |
| 2001 08 26 | 699 | 0.6+ | 0.0 | 2001 10 18 | 704 | 0.1+ | 0.1− | 2009 12 20 | 691 | 0.7− | 0.0 |
| 2001 09 09 | 704 | 1.2+ | 0.1− | 2001 10 18 | 704 | 0.4− | 0.5+ | 2009 12 20 | 691 | 0.2+ | 0.2+ |
| 2001 09 09 | 704 | 0.5+ | 0.8+ | 2001 10 18 | 704 | 0.1− | 0.6− | 2009 12 20 | 691 | 0.2− | 0.0 |
| 2001 09 09 | 704 | 0.1+ | 0.7− | 2001 10 20 | 699 | 0.7+ | 0.2− | 2009 12 26 | 691 | 0.2+ | 0.5− |
| 2001 09 19 | 644 | 0.1− | 1.1− | 2001 10 20 | 699 | 0.0 | 0.3− | 2009 12 26 | 691 | 0.1+ | 0.3+ |
| 2001 09 19 | 644 | (0.2+ | 1.7−) | 2001 10 20 | 699 | 0.1− | 0.7− | 2009 12 26 | 691 | 0.0 | 0.5− |

**2001 SN$_{305}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 271.93775 | | (2000.0) | | | |
| $n$ | 0.22896464 | $\omega$ | 242.36090 | | +0.15946953 | −0.98408512 |
| $a$ | 2.6462067 | $\Omega$ | 198.95633 | | +0.96928811 | +0.17114117 |
| $e$ | 0.0722626 | $i$ | 13.96516 | | +0.18721655 | −0.04782436 |
| $P$ | 4.30 | $H$ | 16.3 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 20 | 704 | 0.6− | 0.4− | 2001 10 15 | 291 | 0.4+ | 0.0 | 2001 10 21 | 704 | 0.9− | 0.1+ |
| 2001 09 20 | 704 | 0.6+ | 0.6− | 2001 10 15 | 291 | (2.1+ | 2.6+) | 2001 10 21 | 704 | 0.6− | 0.3+ |
| 2001 09 20 | 704 | 0.2+ | 0.1− | 2001 10 16 | 691 | 0.1+ | 0.1− | 2001 12 10 | 645 | 0.1+ | 0.0 |
| 2001 09 20 | 704 | 0.7− | 0.7− | 2001 10 16 | 691 | 0.0 | 0.1− | 2001 12 10 | 645 | 0.0 | 0.0 |
| 2001 09 20 | 704 | 0.2− | 0.0 | 2001 10 16 | 691 | 0.1+ | 0.2− | 2008 03 29 | 691 | 0.1+ | 0.2+ |
| 2001 09 23 | 704 | 0.3+ | 0.9+ | 2001 10 18 | 644 | 1.2− | 0.2+ | 2008 03 29 | 691 | 0.1− | 0.2− |
| 2001 09 23 | 704 | 0.3− | 0.8+ | 2001 10 18 | 644 | 0.0 | 0.6+ | 2008 03 29 | 691 | 0.1− | 0.5+ |
| 2001 09 23 | 704 | 1.3+ | 0.1− | 2001 10 18 | 644 | 0.8− | 0.4+ | 2008 04 10 | 691 | 0.3+ | 0.2+ |
| 2001 09 23 | 704 | 0.8+ | 1.6− | 2001 10 21 | 704 | 1.6− | 1.1+ | 2008 04 10 | 691 | 0.1+ | 0.1+ |
| 2001 10 15 | 291 | 0.2+ | 0.3+ | 2001 10 21 | 704 | 1.0− | 0.4+ | 2008 04 10 | 691 | 0.3− | 0.3− |

**2001 SU$_{325}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 207.20021 | | (2000.0) | | | |
| $n$ | 0.18194444 | $\omega$ | 32.78300 | | +0.86500504 | +0.46651916 |
| $a$ | 3.0844437 | $\Omega$ | 298.33542 | | −0.49360012 | +0.72502291 |
| $e$ | 0.2559297 | $i$ | 12.11529 | | −0.09013987 | +0.50665733 |
| $P$ | 5.42 | $H$ | 15.7 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 22 | 704 | 0.6+ | 1.0− | 2001 09 10 | 704 | 0.8− | 0.4+ | 2001 09 29 | 644 | 0.3+ | 0.2− |
| 2001 08 22 | 704 | 0.3− | 0.4− | 2001 09 10 | 704 | 0.8− | 0.3+ | 2001 09 29 | 644 | 0.1+ | 0.1− |
| 2001 08 22 | 704 | 0.6+ | 0.6− | 2001 09 10 | 704 | 0.6− | 0.2+ | 2009 01 16 | G96 | 0.5+ | 0.3+ |
| 2001 08 22 | 704 | 0.7− | 0.1+ | 2001 09 17 | 644 | 0.4− | 0.4− | 2009 01 16 | G96 | 0.1− | 0.4+ |
| 2001 08 22 | 704 | 0.7− | 0.7+ | 2001 09 17 | 644 | 0.1− | 0.2− | 2009 01 16 | G96 | 0.4+ | 0.2+ |
| 2001 08 26 | 699 | 0.1+ | 0.5+ | 2001 09 17 | 644 | 0.1+ | 0.4− | 2009 01 16 | G96 | 0.6− | 0.0 |
| 2001 08 26 | 699 | 0.7+ | 0.0 | 2001 09 21 | 699 | 0.9+ | 0.1− | 2009 02 01 | G96 | 0.1+ | 0.5− |
| 2001 08 26 | 699 | 0.7+ | 0.3+ | 2001 09 21 | 699 | 0.3+ | 0.4+ | 2009 02 01 | G96 | 0.6− | 0.0 |
| 2001 08 26 | 699 | 0.4+ | 0.0 | 2001 09 21 | 699 | 0.3− | 0.6− | 2009 02 01 | G96 | 0.5+ | 0.2− |
| 2001 09 10 | 704 | 1.0− | 0.1+ | 2001 09 21 | 699 | 1.5+ | 0.7+ | 2009 02 01 | G96 | 0.1− | 0.2− |
| 2001 09 10 | 704 | 0.7− | 0.5+ | 2001 09 29 | 644 | 0.1+ | 0.1− | | | | |

**2001 SN$_{332}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 221.11422 | | (2000.0) | | | |
| $n$ | 0.19459456 | $\omega$ | 59.13472 | | +0.98935673 | −0.14490857 |
| $a$ | 2.9492772 | $\Omega$ | 309.19392 | | +0.12700136 | +0.90428168 |
| $e$ | 0.0981843 | $i$ | 0.97737 | | +0.07102050 | +0.40159203 |
| $P$ | 5.06 | $H$ | 17.2 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 19 | 691 | 0.1+ | 0.7+ | 2001 10 14 | 645 | 0.1− | 0.1− | 2004 03 28 | 291 | 0.4+ | 0.6+ |
| 2001 09 19 | 691 | 0.6+ | 0.4+ | 2001 10 15 | 645 | 0.1− | 0.0 | 2006 10 19 | G96 | 0.5− | 0.5− |
| 2001 09 19 | 691 | 0.4+ | 0.5+ | 2001 10 15 | 645 | 0.1− | 0.1− | 2006 10 19 | G96 | 0.2− | 0.4+ |
| 2001 09 20 | 704 | 0.2+ | 0.0 | 2001 11 18 | 645 | 0.1− | 0.0 | 2006 10 19 | G96 | 0.2+ | 0.0 |
| 2001 09 20 | 704 | 0.1− | 0.2− | 2001 11 18 | 645 | 0.1+ | 0.0 | 2006 10 19 | G96 | 0.5+ | 0.1− |
| 2001 09 20 | 704 | 0.3− | 0.8+ | 2004 03 28 | 291 | 0.7+ | 0.5+ | | | | |
| 2001 10 14 | 645 | 0.1− | 0.0 | 2004 03 28 | 291 | 0.5− | 0.1+ | | | | |

**2001 SC$_{342}$ = 2001 UV$_{196}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 109.98436 | | (2000.0) | | | |
| $n$ | 0.27500860 | $\omega$ | 315.57327 | | +0.98144752 | −0.16708341 |
| $a$ | 2.3419190 | $\Omega$ | 54.27191 | | +0.19165798 | +0.86848672 |
| $e$ | 0.2740119 | $i$ | 6.65232 | | −0.00528987 | +0.46670542 |
| $P$ | 3.58 | $H$ | 17.6 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 21 | 704 | 0.4− | 0.1− | 2001 09 25 | 644 | 0.3+ | 0.2+ | 2001 10 24 | 644 | 0.1+ | 0.5+ |
| 2001 09 21 | 704 | 0.3+ | 0.9+ | 2001 10 11 | 704 | 0.3+ | 0.3− | 2001 10 24 | 644 | 0.0 | 0.5+ |
| 2001 09 21 | 704 | 0.2− | 0.2+ | 2001 10 11 | 704 | 0.3+ | 0.4+ | 2001 10 24 | 644 | 0.0 | 0.5+ |
| 2001 09 21 | 704 | 1.0+ | 0.6+ | 2001 10 11 | 704 | 0.1+ | 0.3+ | 2001 11 18 | 645 | 0.0 | 0.1− |
| 2001 09 21 | 704 | 0.3− | 0.3− | 2001 10 11 | 704 | 0.2− | 0.5− | 2001 11 18 | 645 | 0.0 | 0.2− |
| 2001 09 21 | 704 | 0.5− | 0.0 | 2001 10 11 | 704 | 0.7− | 0.3− | 2001 11 20 | 704 | 0.0 | 0.4+ |
| 2001 09 21 | 704 | 1.1+ | 0.9+ | 2001 10 16 | 644 | 0.1− | 0.2+ | 2001 11 20 | 704 | 0.1+ | 1.3+ |
| 2001 09 21 | 704 | 0.6− | 0.3− | 2001 10 16 | 644 | 0.0 | 0.2+ | 2001 11 20 | 704 | 0.3+ | 0.9+ |
| 2001 09 23 | 699 | 0.7− | 0.4− | 2001 10 16 | 644 | 0.0 | 0.3+ | 2001 11 20 | 704 | 0.2+ | 1.5+ |
| 2001 09 23 | 699 | 0.3+ | 0.5− | 2001 10 19 | 699 | 0.4− | 0.8− | 2001 11 20 | 704 | 0.0 | 0.8+ |
| 2001 09 23 | 699 | 0.8− | 0.2− | 2001 10 19 | 699 | 0.5+ | 0.6− | 2008 08 04 | E12 | 0.2+ | 0.3− |
| 2001 09 23 | 699 | 0.2− | 0.1+ | 2001 10 19 | 699 | 0.0 | 0.7+ | 2008 08 04 | E12 | 0.0 | 0.1− |
| 2001 09 25 | 704 | 0.3+ | 0.1+ | 2001 10 19 | 699 | 0.6− | 0.4+ | 2008 08 04 | E12 | 0.6+ | 0.1+ |
| 2001 09 25 | 704 | 0.9− | 0.2− | 2001 10 20 | 704 | 1.5+ | 0.6− | 2008 08 04 | E12 | 0.1+ | 0.3− |
| 2001 09 25 | 704 | 0.4− | 0.7+ | 2001 10 20 | 704 | 0.4+ | 0.5− | 2008 08 28 | E12 | 0.4− | 0.0 |
| 2001 09 25 | 704 | 0.2− | 0.3+ | 2001 10 20 | 704 | 0.4− | 0.3+ | 2008 08 28 | E12 | 0.2− | 0.4− |
| 2001 09 25 | 644 | 0.5+ | 0.2+ | 2001 10 20 | 704 | 0.0 | 0.8− | 2008 08 28 | E12 | 0.1− | 0.4+ |
| 2001 09 25 | 644 | 0.2+ | 0.2+ | 2001 10 20 | 704 | 0.1− | 1.0− | | | | |

**2001 SN$_{355}$ = 2004 PM$_{20}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 242.87198 | | (2000.0) | | | |
| $n$ | 0.31053549 | $\omega$ | 198.03367 | | +0.85880575 | +0.50824430 |
| $a$ | 2.1597089 | $\Omega$ | 131.24472 | | −0.45886014 | +0.81898102 |
| $e$ | 0.2418437 | $i$ | 4.90926 | | −0.22781583 | +0.26637910 |
| $P$ | 3.17 | $H$ | 19.0 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 27 | 644 | 0.5− | 0.3− | 2001 10 16 | 644 | 0.1− | 0.1− | 2004 08 03 | E12 | 0.1− | 0.1− |
| 2001 09 27 | 644 | 0.6− | 0.4− | 2001 10 24 | 644 | 0.0 | 0.1− | 2004 08 03 | E12 | 0.0 | 0.4+ |
| 2001 10 08 | 644 | 0.4+ | 0.2− | 2001 10 24 | 644 | 0.2+ | 0.2− | 2004 08 09 | 699 | 0.1+ | 0.7+ |
| 2001 10 08 | 644 | 0.1− | 0.2− | 2001 10 24 | 644 | 0.1− | 0.8+ | 2004 08 09 | 699 | 0.2− | 0.0 |
| 2001 10 10 | 644 | 0.2+ | 0.2+ | 2003 02 08 | I03 | 0.4+ | 1.3+ | 2004 08 09 | 699 | 1.4+ | 0.8− |
| 2001 10 10 | 644 | 0.2+ | 0.4+ | 2003 02 08 | I03 | 0.8+ | 0.1− | 2004 08 09 | 699 | 0.4− | 0.0 |
| 2001 10 10 | 644 | 0.4+ | 0.3+ | 2003 02 08 | I03 | 0.6− | 0.9+ | | | | |
| 2001 10 16 | 644 | 0.3− | 0.2+ | 2004 08 03 | E12 | 0.9− | 0.8+ | | | | |

**2001 TJ$_4$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 300.07401 | | (2000.0) | | | |
| $n$ | 0.21346072 | $\omega$ | 345.64739 | | +0.99946920 | +0.02721802 |
| $a$ | 2.7728353 | $\Omega$ | 12.83307 | | −0.01566056 | +0.88327902 |
| $e$ | 0.1668109 | $i$ | 4.62313 | | −0.02856687 | +0.46805701 |
| $P$ | 4.62 | $H$ | 16.2 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 20 | 704 | 0.1+ | 0.7+ | 2001 10 11 | 644 | 0.0 | 0.1+ | 2001 11 09 | 704 | 0.7+ | 0.4− |
| 2001 09 20 | 704 | (1.8− | 0.4+) | 2001 10 13 | 704 | 0.0 | 0.3− | 2001 11 09 | 704 | 1.1+ | 0.6+ |
| 2001 09 20 | 704 | 0.4+ | 0.1+ | 2001 10 13 | 704 | 0.2+ | 0.0 | 2001 11 09 | 704 | 0.5+ | 0.6+ |
| 2001 09 20 | 704 | (2.1+ | 0.7+) | 2001 10 13 | 704 | 0.5+ | 0.1+ | 2001 11 11 | 699 | 0.3− | 0.6+ |
| 2001 09 20 | 704 | 0.0 | 0.3+ | 2001 10 13 | 704 | 0.0 | 1.2− | 2001 11 11 | 699 | 0.7− | 0.2− |
| 2001 09 20 | 704 | 0.4+ | 0.9+ | 2001 10 15 | 691 | 0.2− | 0.0 | 2001 11 11 | 699 | 1.2− | 0.8− |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 20 | 704 | 0.1+ | 0.5+ | 2001 10 15 | 691 | 0.2− | 0.2+ | 2001 11 11 | 699 | 0.0 | 0.2− |
| 2001 09 20 | 704 | 0.0 | 0.1− | 2001 10 15 | 691 | 0.1− | 0.1+ | 2001 12 18 | 704 | 0.3− | 0.5+ |
| 2001 09 20 | 704 | 0.6+ | 1.2+ | 2001 10 17 | 704 | 0.1+ | 0.1+ | 2001 12 18 | 704 | 0.9+ | 0.4+ |
| 2001 09 23 | 291 | 0.7− | 0.2− | 2001 10 17 | 704 | 0.4+ | 0.4+ | 2001 12 18 | 704 | 0.3+ | 0.7+ |
| 2001 09 23 | 291 | 1.0− | 0.2− | 2001 10 17 | 704 | 0.4+ | 1.0+ | 2008 03 08 | G96 | 0.5+ | 0.1+ |
| 2001 09 23 | 291 | 1.3− | 0.2− | 2001 10 17 | 704 | 0.2− | 0.3− | 2008 03 08 | G96 | 0.4+ | 0.2− |
| 2001 09 23 | 291 | 0.7+ | 0.1+ | 2001 10 19 | 644 | 0.1− | 0.0 | 2008 03 08 | G96 | 0.2+ | 0.3+ |
| 2001 09 23 | 291 | 0.7+ | 0.1+ | 2001 10 19 | 644 | 0.1− | 0.1+ | 2008 03 08 | G96 | 0.3− | 0.2+ |
| 2001 09 23 | 291 | 0.6+ | 0.3+ | 2001 10 19 | 644 | 0.2− | 0.3+ | 2008 03 08 | G96 | 0.0 | 0.1+ |
| 2001 09 26 | 704 | (1.9+ | 0.0 ) | 2001 10 21 | 704 | 0.1+ | 1.0− | 2008 03 08 | G96 | 0.1+ | 0.1+ |
| 2001 09 26 | 704 | 0.4+ | 1.0+ | 2001 10 21 | 704 | 0.2+ | 0.8− | 2008 03 08 | G96 | 0.5+ | 0.1+ |
| 2001 09 26 | 704 | (0.7+ | 3.3+) | 2001 10 21 | 704 | 0.1− | 0.9− | 2008 03 08 | G96 | 0.2− | 0.2+ |
| 2001 09 26 | 704 | (0.9− | 1.8+) | 2001 10 21 | 704 | 0.1+ | 0.9− | 2008 04 06 | G96 | 0.5− | 0.2+ |
| 2001 10 07 | 644 | 0.1+ | 0.5+ | 2001 10 21 | 704 | 0.6+ | 0.8− | 2008 04 06 | G96 | 0.0 | 0.1− |
| 2001 10 07 | 644 | 0.2+ | 1.1+ | 2001 10 26 | 691 | 0.2+ | 0.1− | 2008 04 06 | G96 | 0.2− | 0.0 |
| 2001 10 07 | 644 | 0.1+ | 0.5+ | 2001 10 26 | 691 | 0.0 | 0.3− | 2008 04 06 | G96 | 0.2− | 0.2− |
| 2001 10 11 | 644 | 0.2− | 0.3− | 2001 10 26 | 691 | 0.3+ | 0.4− | | | | |
| 2001 10 11 | 644 | 0.2+ | 0.4− | 2001 11 09 | 704 | 1.3− | 0.0 | | | | |

**2001 TV$_{19}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 280.96634 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21075864 | $\omega$ | 142.80903 | | +0.90465796 | −0.36001085 | |
| $a$ | 2.7964848 | $\Omega$ | 239.79759 | | +0.29913220 | +0.91756035 | |
| $e$ | 0.2447393 | $i$ | 15.29667 | | +0.30350272 | +0.16874591 | |
| $P$ | 4.68 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 23 | 704 | (2.4+ | 0.3+) | 2001 10 19 | 704 | 1.3− | 0.2+ | 2001 12 11 | 704 | 0.4− | 0.5− |
| 2001 08 23 | 704 | 0.6+ | 0.3− | 2001 10 19 | 704 | 1.0− | 0.1− | 2001 12 11 | 704 | 0.2+ | 0.6− |
| 2001 08 23 | 704 | 1.7+ | 0.6+ | 2001 10 19 | 704 | 0.3− | 0.7− | 2001 12 11 | 704 | 0.4− | 0.5+ |
| 2001 08 23 | 704 | 1.6+ | 1.0− | 2001 10 27 | 704 | 0.4− | 0.3+ | 2001 12 11 | 704 | 0.3− | 0.6+ |
| 2001 09 21 | 644 | 0.0 | 0.6+ | 2001 10 27 | 704 | 0.8− | 0.5− | 2001 12 15 | 704 | 0.2+ | 0.4+ |
| 2001 09 21 | 644 | 0.1− | 0.9+ | 2001 10 27 | 704 | 1.7− | 0.6− | 2001 12 15 | 704 | 0.3+ | 0.6+ |
| 2001 09 21 | 644 | 0.1− | 0.6+ | 2001 10 27 | 704 | 0.6− | 0.2+ | 2001 12 15 | 704 | (1.4+ | 3.0+) |
| 2001 09 22 | 699 | 0.1− | 0.1+ | 2001 11 10 | 704 | 0.4+ | 0.1− | 2001 12 15 | 704 | 0.5+ | 0.3+ |
| 2001 09 22 | 699 | 0.7− | 0.1− | 2001 11 10 | 704 | 0.3+ | 0.1− | 2001 12 18 | 704 | 1.0+ | 0.4+ |
| 2001 09 22 | 699 | 0.3− | 0.3− | 2001 11 10 | 704 | 0.2− | 0.1− | 2001 12 18 | 704 | 1.2+ | 0.3+ |
| 2001 09 22 | 699 | 0.5+ | 0.2+ | 2001 11 10 | 704 | 0.1+ | 0.1+ | 2001 12 18 | 704 | 0.8+ | 0.0 |
| 2001 09 25 | 704 | 0.4+ | 0.8+ | 2001 11 10 | 704 | 0.5+ | 0.0 | 2001 12 18 | 704 | 0.5+ | 0.1+ |
| 2001 09 25 | 704 | 0.4− | 0.9+ | 2001 11 10 | 644 | 0.3− | 0.2+ | 2001 12 18 | 704 | 0.8+ | 0.1− |
| 2001 09 25 | 704 | 0.4+ | 0.5+ | 2001 11 10 | 644 | 0.2− | 0.2+ | 2001 12 19 | 704 | 0.7+ | 0.3− |
| 2001 09 25 | 704 | 0.8+ | 0.9− | 2001 11 10 | 644 | 0.4− | 0.2+ | 2001 12 19 | 704 | 1.1+ | 0.5− |
| 2001 10 09 | 704 | 0.1+ | 0.8− | 2001 11 12 | 704 | 0.3+ | 0.5− | 2001 12 19 | 704 | 0.7+ | 0.5− |
| 2001 10 09 | 704 | 0.9+ | 0.1+ | 2001 11 12 | 704 | 0.2− | 0.6− | 2001 12 19 | 644 | 0.2− | 0.3+ |
| 2001 10 09 | 704 | 1.3− | 0.2− | 2001 11 12 | 704 | 0.1− | 0.0 | 2001 12 19 | 644 | 0.1− | 0.1+ |
| 2001 10 09 | 704 | 0.3− | 0.4+ | 2001 11 12 | 704 | 0.5− | 0.5− | 2001 12 19 | 704 | 0.8+ | 0.2− |
| 2001 10 15 | 704 | 0.4− | 0.2− | 2001 11 12 | 704 | 0.1− | 0.3− | 2001 12 19 | 644 | 0.1− | 0.0 |
| 2001 10 15 | 704 | 0.2− | 0.6− | 2001 11 17 | 644 | 0.2− | 0.1+ | 2001 12 19 | 704 | 0.7+ | 0.2+ |
| 2001 10 15 | 704 | 0.4− | 0.5− | 2001 11 17 | 644 | 0.3− | 0.1+ | 2009 05 28 | G96 | 0.1− | 0.1+ |
| 2001 10 15 | 704 | 0.8− | 0.3− | 2001 11 17 | 644 | 0.3− | 0.2+ | 2009 05 28 | G96 | 0.1+ | 0.4+ |
| 2001 10 15 | 704 | 0.6− | 1.0− | 2001 11 24 | 704 | 0.3+ | 0.7+ | 2009 05 28 | G96 | 0.0 | 0.2+ |
| 2001 10 18 | 704 | 0.5+ | 0.7+ | 2001 11 24 | 704 | 0.0 | 0.3+ | 2009 06 23 | G96 | 0.3+ | 0.1+ |
| 2001 10 18 | 704 | 0.3+ | 0.5+ | 2001 11 24 | 704 | 0.1+ | 0.1− | 2009 06 23 | G96 | 0.0 | 0.0 |
| 2001 10 18 | 704 | 0.2+ | 0.7− | 2001 11 24 | 704 | 0.4− | 0.7+ | 2009 06 23 | G96 | 0.2− | 0.1− |
| 2001 10 19 | 704 | 0.1− | 0.5+ | 2001 11 24 | 704 | 0.3− | 0.5+ | 2009 06 23 | G96 | 0.0 | 0.4+ |

**2001 TP$_{29}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 146.34617 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17685656 | $\omega$ | 191.68230 | | +0.61047888 | −0.78236593 | |
| $a$ | 3.1433200 | $\Omega$ | 220.86526 | | +0.74101753 | +0.61918347 | |
| $e$ | 0.1177354 | $i$ | 10.86824 | | +0.27965791 | +0.06719664 | |
| $P$ | 5.57 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 28 | 644 | 0.0 | 0.0 | 2001 10 17 | 704 | 0.4− | 0.4− | 2007 10 20 | G96 | 0.1− | 0.4− |
| 2001 09 28 | 644 | 0.5+ | 0.2− | 2001 10 17 | 704 | 0.5− | 0.2− | 2007 10 20 | G96 | 0.0 | 0.3− |
| 2001 09 28 | 644 | 0.3+ | 0.0 | 2001 10 17 | 704 | 0.1− | 1.1+ | 2007 11 04 | 691 | 0.7+ | 0.0 |
| 2001 10 14 | 704 | 0.7+ | 0.4− | 2001 10 19 | 644 | (0.5+ | 1.7−) | 2007 11 04 | 691 | 0.3− | 0.2+ |
| 2001 10 14 | 704 | 0.2+ | 0.7− | 2001 10 19 | 644 | (0.4− | 1.6−) | 2007 11 04 | 691 | 0.3− | 0.3+ |
| 2001 10 14 | 704 | 0.1+ | 0.4+ | 2001 10 19 | 644 | 0.6+ | 1.1− | 2007 12 19 | G96 | 0.1+ | 0.2− |
| 2001 10 14 | 704 | 0.6+ | 0.2− | 2001 12 20 | 291 | 0.1+ | 0.0 | 2007 12 19 | G96 | 0.1− | 0.1+ |
| 2001 10 15 | 704 | 0.7− | 1.0+ | 2001 12 20 | 291 | 0.1− | 0.1− | 2007 12 19 | G96 | 0.0 | 0.1− |
| 2001 10 15 | 704 | 1.0− | 0.9+ | 2001 12 20 | 291 | 0.1+ | 0.2+ | 2007 12 19 | G96 | 0.1+ | 0.1− |
| 2001 10 15 | 704 | 0.4− | 0.2− | 2007 10 20 | G96 | 0.5− | 0.5− | | | | |
| 2001 10 15 | 704 | 0.2− | 0.1− | 2007 10 20 | G96 | 0.1+ | 0.3− | | | | |

**2001 TO$_{45}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 330.49817 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22485977 | $\omega$ | 349.07396 | | +0.96598178 | −0.24137047 | |
| $a$ | 2.6783143 | $\Omega$ | 25.48189 | | +0.25055373 | +0.78459007 | |
| $e$ | 0.1995967 | $i$ | 12.46227 | | +0.06404712 | +0.57110308 | |
| $P$ | 4.38 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 20 | 704 | 1.6+ | 0.6− | 2001 10 19 | 644 | 0.5+ | 0.1+ | 2001 11 12 | 704 | 0.2+ | 0.1− |
| 2001 09 20 | 704 | 0.1+ | 0.6+ | 2001 10 19 | 644 | 0.1+ | 0.4− | 2001 11 12 | 704 | 1.3− | 0.6− |
| 2001 09 20 | 704 | 0.3+ | 0.6+ | 2001 10 21 | 704 | 0.4+ | 0.3+ | 2001 11 12 | 704 | 0.1− | 0.1− |
| 2001 09 24 | 691 | 0.2− | 0.1− | 2001 10 21 | 704 | 0.2+ | 0.2− | 2001 11 12 | 704 | 0.1− | 0.1− |
| 2001 09 24 | 691 | 0.1− | 0.2− | 2001 10 21 | 704 | 0.5+ | 0.2+ | 2001 11 12 | 704 | 0.5+ | 0.2+ |
| 2001 09 24 | 691 | 0.0 | 0.0 | 2001 10 21 | 704 | 0.7+ | 0.3+ | 2001 11 21 | 704 | 1.0− | 0.6+ |
| 2001 10 14 | 704 | 1.0− | 0.1− | 2001 10 21 | 704 | 0.6+ | 0.3+ | 2001 11 21 | 704 | 1.1− | 0.5+ |
| 2001 10 14 | 704 | 0.5− | 0.1− | 2001 10 22 | 644 | (1.0+ | 2.0+) | 2001 11 21 | 704 | 1.3− | 0.2+ |
| 2001 10 14 | 704 | 0.5− | 0.2+ | 2001 10 22 | 644 | 0.8+ | 1.7+ | 2001 11 24 | 704 | (1.0− | 2.7−) |
| 2001 10 14 | 704 | 0.1− | 0.4+ | 2001 10 22 | 644 | (1.1+ | 2.1+) | 2001 11 24 | 704 | (0.8− | 3.0−) |
| 2001 10 14 | 333 | 0.4+ | 0.2− | 2001 10 26 | 644 | 0.1+ | 0.8+ | 2001 11 24 | 704 | 0.2+ | 1.1− |
| 2001 10 14 | 704 | 1.1− | 0.5+ | 2001 10 26 | 644 | 0.0 | 0.6+ | 2001 11 24 | 704 | (0.4− | 2.5−) |
| 2001 10 14 | 333 | 0.5− | 0.9− | 2001 10 26 | 644 | 0.0 | 0.8+ | 2008 04 05 | G96 | 0.5− | 0.3− |
| 2001 10 14 | 333 | 0.4− | 0.1− | 2001 11 10 | 704 | 1.5+ | 0.3+ | 2008 04 05 | G96 | 0.3− | 0.5− |
| 2001 10 15 | 333 | 0.3− | 0.0 | 2001 11 10 | 704 | 1.5+ | 0.5− | 2008 04 05 | G96 | 0.1− | 0.2− |
| 2001 10 15 | 333 | 0.2− | 0.2+ | 2001 11 10 | 704 | 0.6+ | 0.5+ | 2008 04 05 | G96 | 0.1+ | 0.1− |
| 2001 10 15 | 333 | 0.1+ | 0.1+ | 2001 11 10 | 704 | (2.2+ | 0.6−) | 2008 04 25 | 691 | 0.2+ | 0.2− |
| 2001 10 19 | 691 | 0.0 | 0.1− | 2001 11 10 | 704 | 1.3+ | 0.8− | 2008 04 25 | 691 | 0.4+ | 0.1+ |
| 2001 10 19 | 691 | 0.1− | 0.1− | 2001 11 10 | 644 | 0.1− | 0.0 | 2008 04 25 | 691 | 0.4− | 0.4+ |
| 2001 10 19 | 691 | 0.0 | 0.4− | 2001 11 10 | 644 | 0.5− | 0.1+ | | | | |
| 2001 10 19 | 644 | 0.4+ | 0.1+ | 2001 11 10 | 644 | 0.6− | 0.5− | | | | |

**2001 TH$_{61}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 317.96226 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22608736 | $\omega$ | 346.11019 | | +0.82297419 | −0.53514724 | |
| $a$ | 2.6686106 | $\Omega$ | 47.89860 | | +0.54265251 | +0.64130850 | |
| $e$ | 0.1640374 | $i$ | 14.88598 | | +0.16805276 | +0.54985530 | |
| $P$ | 4.36 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 17 | 699 | 0.3+ | 0.3+ | 2001 10 24 | 704 | 1.4− | 0.8+ | 2001 11 21 | 704 | 0.2+ | 0.2− |
| 2001 09 17 | 699 | 0.1− | 1.0− | 2001 10 24 | 644 | 0.1− | 0.2+ | 2001 11 21 | 704 | 0.2− | 0.1+ |
| 2001 09 17 | 699 | 0.1− | 0.4− | 2001 10 24 | 644 | 0.5− | 0.0 | 2001 11 21 | 704 | 0.4− | 0.4− |
| 2001 09 17 | 699 | 0.9− | 0.9− | 2001 10 24 | 644 | 0.2− | 0.0 | 2001 11 21 | 704 | (1.7− | 0.8−) |
| 2001 09 21 | 704 | 0.8+ | 0.6+ | 2001 10 25 | 644 | 0.2+ | 0.2− | 2001 11 21 | 704 | 0.5− | 0.4− |
| 2001 09 21 | 704 | 0.2+ | 0.2+ | 2001 10 25 | 644 | 0.3+ | 0.2− | 2001 12 11 | 704 | 0.8+ | 0.1+ |
| 2001 09 21 | 704 | 0.2− | 0.7− | 2001 10 25 | 644 | 0.1+ | 0.2− | 2001 12 11 | 704 | 0.1− | 0.6+ |
| 2001 09 21 | 704 | 0.1+ | 0.3− | 2001 11 09 | 704 | 0.0 | 1.2− | 2001 12 11 | 704 | 0.6− | 0.3− |
| 2001 10 10 | 644 | 0.9+ | 1.0+ | 2001 11 09 | 704 | (0.3− | 1.6−) | 2001 12 15 | 704 | (1.4+ | 1.6−) |
| 2001 10 10 | 644 | 1.0+ | 1.3+ | 2001 11 09 | 704 | 0.4− | 0.4− | 2001 12 15 | 704 | (1.7+ | 1.2+) |
| 2001 10 10 | 644 | 1.0+ | 1.1+ | 2001 11 09 | 704 | 0.4− | 1.2− | 2001 12 15 | 704 | 0.2+ | 0.2− |
| 2001 10 13 | 704 | 0.5− | 0.9+ | 2001 11 09 | 704 | 0.5− | 1.2− | 2001 12 15 | 704 | 0.4+ | 0.0 |
| 2001 10 13 | 704 | 0.4− | 0.6+ | 2001 11 14 | 691 | 0.2+ | 0.1+ | 2001 12 19 | 704 | 0.2− | 0.4+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 10 13 | 704 | 0.9− | 0.3− | 2001 11 14 | 691 | 0.1+ | 0.1+ | 2001 12 19 | 704 | 0.4+ | 0.3+ | | |
| 2001 10 13 | 704 | 0.8+ | 1.1+ | 2001 11 14 | 691 | 0.1− | 0.1+ | 2001 12 19 | 704 | 0.5+ | 0.4+ | | |
| 2001 10 13 | 704 | 0.1+ | 0.5+ | 2001 11 15 | 644 | 0.1+ | 0.9+ | 2001 12 19 | 704 | 0.2+ | 0.2− | | |
| 2001 10 17 | 704 | 0.3+ | 0.1+ | 2001 11 15 | 644 | 0.1− | 0.5+ | 2001 12 19 | 704 | 0.4+ | 0.7+ | | |
| 2001 10 17 | 704 | 0.1+ | 0.2+ | 2001 11 15 | 644 | 0.0 | 1.2+ | 2008 04 12 | 691 | 0.0 | 0.5+ | | |
| 2001 10 17 | 704 | 0.3− | 0.4− | 2001 11 17 | 704 | (1.5− | 2.6+) | 2008 04 12 | 691 | 0.2− | 0.6− | | |
| 2001 10 17 | 704 | 0.4− | 0.2− | 2001 11 17 | 704 | 0.3− | 1.2+ | 2008 04 12 | 691 | 0.1+ | 0.3+ | | |
| 2001 10 17 | 704 | 0.3+ | 0.5− | 2001 11 17 | 704 | (1.9− | 2.0+) | 2008 04 28 | G96 | 0.9+ | 0.3+ | | |
| 2001 10 22 | 704 | 0.5+ | 0.1+ | 2001 11 17 | 704 | (1.0− | 2.5+) | 2008 04 28 | G96 | 0.5+ | 0.3+ | | |
| 2001 10 22 | 704 | 1.2− | 0.7− | 2001 11 17 | 704 | 1.5− | 0.5+ | 2008 04 28 | G96 | 1.0+ | 0.3+ | | |
| 2001 10 22 | 704 | (3.0+ | 1.2+) | 2001 11 20 | 704 | 0.6+ | 0.3− | 2008 04 28 | G96 | 0.2− | 0.1+ | | |
| 2001 10 22 | 704 | 0.5+ | 0.4+ | 2001 11 20 | 704 | 0.0 | 0.3− | 2008 06 01 | G96 | 0.1+ | 0.5+ | | |
| 2001 10 24 | 704 | (0.0 | 1.9+) | 2001 11 20 | 704 | 0.2− | 0.7− | 2008 06 01 | G96 | 0.1+ | 0.4+ | | |
| 2001 10 24 | 704 | (0.6− | 1.9+) | 2001 11 20 | 704 | 0.1− | 0.8− | 2008 06 01 | G96 | 0.7+ | 0.8+ | | |
| 2001 10 24 | 704 | 1.1− | 0.7+ | 2001 11 20 | 704 | 0.2− | 1.0− | 2008 06 01 | G96 | 0.1+ | 0.6+ | | |

**2001 TH**$_{91}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 262.65788 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22038802 | $\omega$ | 229.36945 | | +0.27154144 | −0.94348557 | |
| $a$ | 2.7144222 | $\Omega$ | 206.76563 | | +0.96007411 | +0.27934189 | |
| $e$ | 0.1650381 | $i$ | 24.95478 | | +0.06725287 | −0.17833419 | |
| $P$ | 4.47 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 28 | 644 | 0.3+ | 0.2− | 2001 10 21 | 704 | 0.1− | 0.5+ | 2001 11 20 | 704 | 1.0+ | 0.6− | | |
| 2001 09 28 | 644 | 0.0 | 0.0 | 2001 10 21 | 704 | 0.0 | 0.0 | 2001 11 20 | 704 | 0.9+ | 0.9+ | | |
| 2001 09 28 | 644 | 0.2+ | 0.1+ | 2001 10 21 | 704 | 0.5+ | 0.4+ | 2001 11 20 | 704 | 0.2+ | 1.4+ | | |
| 2001 10 14 | 704 | 0.0 | 0.9+ | 2001 10 21 | 704 | 0.2+ | 0.4+ | 2001 11 20 | 704 | 0.1− | 1.0+ | | |
| 2001 10 14 | 704 | 0.6+ | 0.3+ | 2001 10 21 | 704 | 0.3+ | 0.2− | 2002 01 14 | 645 | 0.0 | 0.1− | | |
| 2001 10 14 | 704 | 0.8− | 1.4+ | 2001 10 23 | 691 | 0.1+ | 0.0 | 2002 01 14 | 645 | 0.0 | 0.0 | | |
| 2001 10 14 | 704 | 0.2+ | 0.4+ | 2001 10 23 | 691 | 1.0− | 0.4− | 2008 04 09 | 691 | 0.1+ | 0.6− | | |
| 2001 10 14 | 704 | 0.5+ | 0.3+ | 2001 10 23 | 691 | 0.1− | 0.2− | 2008 04 09 | 691 | 0.2+ | 0.0 | | |
| 2001 10 17 | 704 | 0.5+ | 1.2− | 2001 10 24 | 704 | 0.1+ | 0.3− | 2008 04 09 | 691 | 0.2− | 0.1+ | | |
| 2001 10 17 | 704 | 0.0 | 0.2− | 2001 10 24 | 704 | 0.7− | 0.6− | 2008 04 28 | G96 | 0.1− | 0.2+ | | |
| 2001 10 17 | 704 | 0.1− | 0.9− | 2001 10 24 | 704 | 0.1+ | 0.4− | 2008 04 28 | G96 | 0.5+ | 0.5+ | | |
| 2001 10 17 | 704 | 0.5− | 0.5− | 2001 10 24 | 704 | 0.1+ | 0.7− | 2008 04 28 | G96 | 0.1− | 0.0 | | |
| 2001 10 17 | 704 | 0.1− | 0.2− | 2001 10 24 | 704 | 0.7+ | 0.2+ | 2008 04 28 | G96 | 0.7− | 0.1+ | | |

**2001 TM**$_{94}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 282.38145 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.08431396 | $\omega$ | 335.37241 | | +0.98082159 | +0.17271146 | |
| $a$ | 5.1507412 | $\Omega$ | 15.51215 | | −0.06771367 | +0.73653547 | |
| $e$ | 0.1147240 | $i$ | 19.74043 | | −0.18276722 | +0.65397726 | |
| $P$ | 11.69 | $H$ | 12.6 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 19 | 704 | 0.1− | 0.0 | 2001 10 17 | 704 | 0.2+ | 0.4− | 2001 11 17 | 704 | 0.5− | 0.6− | | |
| 2001 09 19 | 704 | 0.4− | 0.3− | 2001 10 17 | 704 | 1.4+ | 0.7+ | 2001 11 17 | 704 | 0.2− | 0.3+ | | |
| 2001 09 19 | 704 | 0.3+ | 0.8− | 2001 10 17 | 704 | 0.4+ | 0.3+ | 2001 11 20 | 699 | 0.7− | 0.2+ | | |
| 2001 09 24 | 704 | 1.0− | 0.4+ | 2001 10 17 | 704 | 0.5− | 0.2− | 2001 11 20 | 699 | 1.4− | 1.0+ | | |
| 2001 09 24 | 704 | 1.2− | 0.4+ | 2001 10 19 | 644 | 0.0 | 0.2+ | 2001 11 20 | 699 | 0.6− | 0.0 | | |
| 2001 09 24 | 704 | 1.2− | 0.7+ | 2001 10 19 | 644 | 0.0 | 0.1+ | 2001 11 20 | 699 | 0.8− | 0.9+ | | |
| 2001 09 24 | 704 | (0.4− | 2.3+) | 2001 10 19 | 644 | 0.1+ | 0.3+ | 2007 03 11 | 691 | 0.2− | 0.4+ | | |
| 2001 09 24 | 704 | 0.7+ | 0.7+ | 2001 10 20 | 644 | 0.3− | 0.3− | 2007 03 11 | 691 | 0.1+ | 0.2− | | |
| 2001 09 24 | 704 | 0.2+ | 0.6+ | 2001 10 20 | 644 | 0.2+ | 0.3− | 2007 03 11 | 691 | 0.0 | 0.0 | | |
| 2001 09 24 | 704 | 0.0 | 0.4− | 2001 10 20 | 644 | 0.3+ | 0.0 | 2007 04 23 | G96 | 0.1+ | 0.1− | | |
| 2001 09 24 | 704 | 1.2− | 0.5− | 2001 10 21 | 704 | 0.8+ | 1.5− | 2007 04 23 | G96 | 0.1− | 0.1− | | |
| 2001 09 24 | 704 | 0.2− | 0.2+ | 2001 10 21 | 704 | 0.8+ | 0.5− | 2007 04 23 | G96 | 0.3+ | 0.1+ | | |
| 2001 10 07 | 644 | 0.6− | 0.2+ | 2001 10 21 | 704 | 1.6+ | 0.1+ | 2007 04 23 | G96 | 0.2+ | 0.2− | | |
| 2001 10 07 | 644 | 0.3− | 0.2+ | 2001 10 21 | 704 | 0.2+ | 0.4− | 2008 04 29 | G96 | 0.2+ | 0.2+ | | |
| 2001 10 07 | 644 | 0.6− | 0.2+ | 2001 10 21 | 704 | 1.1+ | 0.2+ | 2008 04 29 | G96 | 0.1+ | 0.3+ | | |
| 2001 10 14 | 704 | 1.4+ | 0.5+ | 2001 10 21 | 704 | 0.5− | 1.0− | 2008 04 29 | G96 | 0.0 | 0.2+ | | |
| 2001 10 14 | 704 | 0.3+ | 0.6+ | 2001 10 21 | 704 | 0.3+ | 0.0 | 2008 04 29 | G96 | 0.2+ | 0.6+ | | |
| 2001 10 14 | 704 | (1.0+ | 2.1+) | 2001 11 17 | 704 | 0.2+ | 0.2+ | 2008 04 29 | G96 | 0.5+ | 0.1+ | | |
| 2001 10 14 | 704 | 0.5+ | 0.8+ | 2001 11 17 | 704 | 0.2− | 0.2− | 2008 04 29 | G96 | 0.4+ | 0.2+ | | |
| 2001 10 14 | 704 | 0.3+ | 0.2− | 2001 11 17 | 704 | 0.6− | 0.5− | 2008 04 29 | G96 | 0.2+ | 0.1+ | | |

**2001 TY**$_{101}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 314.84117 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22024998 | $\omega$ | 10.49388 | | +0.99428987 | −0.10652628 | |
| $a$ | 2.7155562 | $\Omega$ | 355.60649 | | +0.09096843 | +0.87701805 | |
| $e$ | 0.1739640 | $i$ | 4.72419 | | +0.05578889 | +0.46849918 | |
| $P$ | 4.47 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 20 | 704 | 0.8+ | 0.4− | 2001 10 19 | 644 | 0.3− | 0.0 | 2001 11 17 | 704 | 0.8+ | 1.0+ | | |
| 2001 09 20 | 704 | 1.0+ | 0.0 | 2001 10 19 | 644 | 0.3− | 0.2+ | 2001 11 17 | 704 | 0.1+ | 1.1− | | |
| 2001 09 20 | 704 | 0.9+ | 0.5− | 2001 10 19 | 644 | 0.5− | 0.2− | 2001 11 17 | 704 | 0.7− | 0.7+ | | |
| 2001 09 20 | 704 | 1.0+ | 0.5− | 2001 10 21 | 704 | 0.1+ | 0.1− | 2001 11 17 | 704 | 0.6− | 0.3+ | | |
| 2001 09 24 | 704 | 1.0− | 0.4+ | 2001 10 21 | 704 | 0.4+ | 0.1− | 2001 11 19 | 704 | 0.2− | 0.7+ | | |
| 2001 09 24 | 704 | 0.8− | 1.1+ | 2001 10 21 | 704 | 0.1− | 0.1− | 2001 11 19 | 704 | 0.2− | 0.6+ | | |
| 2001 09 24 | 704 | 0.0 | 0.8+ | 2001 10 21 | 704 | 0.7+ | 0.2+ | 2001 11 19 | 704 | 0.1− | 1.0+ | | |
| 2001 10 07 | 644 | 0.6− | 0.1+ | 2001 10 21 | 704 | 0.4+ | 0.2+ | 2008 02 13 | G96 | 0.2− | 0.2− | | |
| 2001 10 07 | 644 | 0.4− | 0.2− | 2001 10 25 | 691 | 0.1+ | 0.0 | 2008 02 13 | G96 | 0.6− | 0.0 | | |
| 2001 10 07 | 644 | 0.5− | 0.1− | 2001 10 25 | 691 | 0.1+ | 0.0 | 2008 02 13 | G96 | 0.3− | 0.1− | | |
| 2001 10 14 | 704 | 0.1+ | 0.2+ | 2001 10 25 | 691 | 0.2+ | 0.1− | 2008 02 13 | G96 | 0.0 | 0.2+ | | |
| 2001 10 14 | 704 | (0.6+ | 1.8+) | 2001 10 26 | 644 | 0.2− | 0.1+ | 2008 02 27 | G96 | 0.4− | 0.3− | | |
| 2001 10 14 | 704 | 0.8− | 0.6− | 2001 10 26 | 644 | 0.3− | 0.1− | 2008 02 27 | G96 | 0.1+ | 0.0 | | |
| 2001 10 14 | 704 | (0.9+ | 3.5+) | 2001 10 26 | 644 | 0.2− | 0.2− | 2008 02 27 | G96 | 0.1− | 0.2+ | | |
| 2001 10 14 | 704 | (0.0 | 1.9+) | 2001 11 10 | 704 | 0.9+ | 0.3+ | 2008 02 27 | G96 | 0.1− | 0.2− | | |
| 2001 10 15 | 704 | (1.8+ | 0.0 ) | 2001 11 10 | 704 | 0.3− | 0.2+ | 2008 03 28 | G96 | 0.3+ | 0.1+ | | |
| 2001 10 15 | 704 | 0.3− | 0.2− | 2001 11 10 | 704 | 0.8− | 0.2+ | 2008 03 28 | G96 | 0.3+ | 0.1− | | |
| 2001 10 15 | 704 | 0.3− | 0.3− | 2001 11 11 | 699 | 0.6+ | 0.7− | 2008 03 28 | G96 | 0.9− | 0.1+ | | |
| 2001 10 15 | 704 | 0.3+ | 0.2− | 2001 11 11 | 699 | 0.8− | 0.0 | 2008 03 28 | G96 | 0.2+ | 0.3− | | |
| 2001 10 15 | 704 | 0.0 | 0.4− | 2001 11 11 | 699 | 0.6− | 0.7+ | 2008 04 26 | G96 | 0.6− | 0.1− | | |
| 2001 10 17 | 704 | 0.3+ | 0.6− | 2001 11 11 | 699 | 1.3− | 1.0+ | 2008 04 26 | G96 | 0.4+ | 0.1+ | | |
| 2001 10 17 | 704 | 0.7+ | 0.5− | 2001 11 17 | 691 | 0.2+ | 0.2− | 2008 04 26 | G96 | 0.2+ | 0.1− | | |
| 2001 10 17 | 704 | 0.4+ | 0.8− | 2001 11 17 | 691 | 0.0 | 0.2− | 2008 04 26 | G96 | 1.1+ | 0.3− | | |
| 2001 10 17 | 704 | 0.1+ | 0.1− | 2001 11 17 | 691 | 0.2+ | 0.2− | | | | | | |
| 2001 10 17 | 704 | 0.0 | 1.1− | 2001 11 17 | 704 | 0.4− | 0.5+ | | | | | | |

**2001 TA**$_{103}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 168.91142 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17314259 | $\omega$ | 115.28710 | | +0.95041112 | −0.23261196 | |
| $a$ | 3.1881110 | $\Omega$ | 258.71734 | | +0.14995878 | +0.92425882 | |
| $e$ | 0.3002568 | $i$ | 12.15112 | | +0.27245380 | +0.30271654 | |
| $P$ | 5.69 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 10 13 | 644 | 0.7+ | 0.7+ | 2001 10 17 | 704 | 1.2− | 0.9− | 2001 12 10 | 704 | 0.7+ | 0.1− | | |
| 2001 10 13 | 644 | 0.5+ | 0.5+ | 2001 10 27 | 704 | 0.2+ | 0.2− | 2001 12 10 | 704 | 0.7+ | 0.3− | | |
| 2001 10 13 | 644 | 0.2+ | 0.2+ | 2001 10 27 | 704 | 0.0 | 0.2− | 2001 12 20 | 644 | 0.3− | 0.1+ | | |
| 2001 10 15 | 704 | 1.0− | 0.0 | 2001 10 27 | 704 | 0.3− | 0.0 | 2001 12 20 | 644 | 0.5− | 0.5+ | | |
| 2001 10 15 | 704 | 0.0 | 0.1+ | 2001 10 27 | 704 | 0.2− | 0.1+ | 2001 12 20 | 644 | 0.2− | 0.3+ | | |
| 2001 10 15 | 704 | 0.3− | 0.0 | 2001 10 27 | 704 | 0.6+ | 0.6+ | 2007 11 18 | 691 | 0.1− | 0.1+ | | |
| 2001 10 15 | 704 | 0.1+ | 1.0+ | 2001 11 12 | 704 | 0.5+ | 0.0 | 2007 11 18 | 691 | 0.0 | 0.0 | | |
| 2001 10 15 | 704 | 0.2+ | 0.6+ | 2001 11 12 | 704 | 0.5+ | 0.3− | 2007 11 18 | 691 | 0.0 | 0.3− | | |
| 2001 10 17 | 704 | 0.9+ | 0.3− | 2001 11 12 | 704 | 0.6+ | 0.3− | 2007 12 30 | 691 | 0.1+ | 0.3+ | | |
| 2001 10 17 | 704 | 0.8− | 0.7− | 2001 11 12 | 704 | 0.4+ | 0.0 | 2007 12 30 | 691 | 0.2+ | 0.1− | | |
| 2001 10 17 | 704 | 1.4− | 0.8− | 2001 11 12 | 704 | 0.8+ | 0.4+ | 2007 12 30 | 691 | 0.1− | 0.0 | | |
| 2001 10 17 | 704 | 1.4− | 0.8− | 2001 12 10 | 704 | 0.5− | 0.2+ | | | | | | |

**2001 TL$_{111}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 282.94106 | | (2000.0) | | | |
| $n$ | 0.08358015 | $\omega$ | 326.12567 | | +0.97331714 | +0.09591722 |
| $a$ | 5.1808451 | $\Omega$ | 30.50667 | | +0.07600755 | +0.72239441 |
| $e$ | 0.1391007 | $i$ | 24.24487 | | −0.21651003 | +0.68479647 |
| $P$ | 11.79 | $H$ | 13.1 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 20 | 704 | 0.1− | 0.4+ | 2001 10 19 | 644 | 0.6+ | 0.9− | 2001 11 20 | 291 | 0.2+ | 0.1− |
| 2001 09 20 | 704 | 0.2+ | 0.3+ | 2001 10 21 | 704 | 1.4+ | 0.7− | 2001 11 20 | 291 | 0.2+ | 0.2+ |
| 2001 09 20 | 704 | 0.3+ | 0.4+ | 2001 10 21 | 704 | 0.2+ | 0.2− | 2007 04 14 | 291 | 0.0 | 0.1+ |
| 2001 09 20 | 704 | 0.0 | 0.5+ | 2001 10 21 | 704 | 0.3− | 0.5− | 2007 04 14 | 291 | 0.0 | 0.3− |
| 2001 10 14 | 704 | 1.1+ | 0.0 | 2001 10 21 | 704 | 0.0 | 0.5+ | 2007 04 14 | 291 | 0.1− | 0.2+ |
| 2001 10 14 | 704 | 0.6+ | 0.3− | 2001 10 21 | 704 | 0.2+ | 0.0 | 2008 04 14 | G96 | 0.3+ | 0.1+ |
| 2001 10 14 | 704 | 0.3+ | 0.8− | 2001 10 25 | 691 | 0.6− | 0.2+ | 2008 04 14 | G96 | 0.1− | 0.1+ |
| 2001 10 18 | 704 | 1.2+ | 1.2+ | 2001 10 25 | 691 | 1.2− | 0.7+ | 2008 04 14 | G96 | 0.0 | 0.2+ |
| 2001 10 18 | 704 | 0.7+ | 0.0 | 2001 10 25 | 691 | 0.8− | 0.4+ | 2008 04 14 | G96 | 0.1+ | 0.3+ |
| 2001 10 18 | 704 | 0.2+ | 0.1− | 2001 11 10 | 704 | 0.3+ | 0.1− | 2008 04 25 | G96 | 0.4+ | 0.4+ |
| 2001 10 18 | 704 | 0.4+ | 0.3− | 2001 11 10 | 704 | 0.4+ | 0.2+ | 2008 04 25 | G96 | 0.2+ | 0.3+ |
| 2001 10 18 | 704 | 0.4+ | 0.4+ | 2001 11 10 | 704 | 0.9− | 1.2− | 2008 04 25 | G96 | 0.2+ | 0.3+ |
| 2001 10 19 | 644 | 0.6+ | 0.7− | 2001 11 10 | 704 | 0.9− | 1.1− | 2008 04 25 | G96 | 0.6+ | 0.2+ |
| 2001 10 19 | 644 | 0.3+ | 0.9− | 2001 11 20 | 291 | 0.1+ | 0.0 | | | | |

**2001 TD$_{127}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 202.36165 | | (2000.0) | | | |
| $n$ | 0.18697877 | $\omega$ | 339.24373 | | +0.76432146 | −0.63768086 |
| $a$ | 3.0288273 | $\Omega$ | 60.74323 | | +0.60602475 | +0.65959146 |
| $e$ | 0.1637087 | $i$ | 6.30357 | | +0.22033316 | +0.39787212 |
| $P$ | 5.27 | $H$ | 16.4 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 10 13 | 691 | 0.9− | 0.1+ | 2001 10 24 | 704 | 0.6− | 0.7+ | 2001 12 14 | 704 | 0.2+ | 0.1+ |
| 2001 10 13 | 691 | 0.5− | 0.4− | 2001 10 24 | 704 | 1.4+ | 0.2+ | 2001 12 14 | 704 | 0.4− | 0.2+ |
| 2001 10 13 | 691 | 0.5− | 0.6− | 2001 11 20 | 704 | 0.7− | 0.5+ | 2001 12 14 | 704 | 0.3+ | 0.1− |
| 2001 10 14 | 691 | 0.6+ | 0.1− | 2001 11 20 | 704 | 0.5− | 0.2− | 2007 12 18 | G96 | 0.1+ | 0.2− |
| 2001 10 14 | 691 | 0.8+ | 0.3+ | 2001 11 20 | 704 | 1.0− | 0.3− | 2007 12 18 | G96 | 0.1− | 0.3− |
| 2001 10 14 | 691 | 0.4+ | 0.2− | 2001 11 20 | 704 | 1.1− | 0.5− | 2007 12 18 | G96 | 0.6− | 0.0 |
| 2001 10 23 | 704 | 0.6+ | 1.5+ | 2001 11 20 | 704 | 0.6− | 0.3+ | 2007 12 18 | G96 | 0.2− | 0.6− |
| 2001 10 23 | 704 | 0.2+ | 0.5+ | 2001 11 21 | 704 | 0.5− | 0.7− | 2008 03 02 | G96 | 0.0 | 0.3+ |
| 2001 10 23 | 704 | 0.4+ | 1.1+ | 2001 11 21 | 704 | 0.1+ | 0.0 | 2008 03 02 | G96 | 0.0 | 0.1+ |
| 2001 10 24 | 704 | 0.9+ | 0.5− | 2001 11 21 | 704 | 0.8− | 0.3+ | 2008 03 02 | G96 | 0.3+ | 0.1+ |
| 2001 10 24 | 704 | 1.6+ | 0.1− | 2001 11 21 | 704 | 0.1+ | 0.4− | 2008 03 02 | G96 | 0.4+ | 0.3+ |
| 2001 10 24 | 704 | 0.8+ | 0.2+ | 2001 11 21 | 704 | 0.5+ | 0.3+ | | | | |

**2001 TU$_{186}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 145.64622 | | (2000.0) | | | |
| $n$ | 0.27341398 | $\omega$ | 330.08687 | | +0.84563662 | +0.53374848 |
| $a$ | 2.3510160 | $\Omega$ | 357.64599 | | −0.47207731 | +0.74496512 |
| $e$ | 0.1483512 | $i$ | 4.68673 | | −0.24908175 | +0.40017438 |
| $P$ | 3.60 | $H$ | 17.4 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 20 | 704 | 0.8+ | 1.1+ | 2001 10 21 | 704 | 1.2+ | 0.3− | 2008 09 22 | G96 | 0.0 | 0.1− |
| 2001 09 20 | 704 | 0.8+ | 0.5+ | 2001 10 21 | 704 | 0.4+ | 1.0− | 2008 09 22 | G96 | 0.0 | 0.1+ |
| 2001 09 20 | 704 | 1.2+ | 1.4+ | 2001 10 21 | 704 | 0.1− | 0.8− | 2008 09 22 | G96 | 0.2− | 0.0 |
| 2001 10 14 | 704 | 0.5− | 0.6+ | 2001 11 16 | 691 | 0.2− | 0.1− | 2008 09 29 | 703 | (1.7− | 0.4+) |
| 2001 10 14 | 704 | 1.0+ | 0.0 | 2001 11 16 | 691 | 0.8− | 0.2+ | 2008 09 29 | 703 | 0.4− | 0.1− |
| 2001 10 14 | 704 | 0.2+ | 0.3− | 2001 11 16 | 691 | 0.4− | 0.4− | 2008 09 29 | 703 | 0.2− | 0.1+ |
| 2001 10 19 | 644 | 0.5− | 0.0 | 2008 09 07 | 703 | 0.6+ | 1.1− | 2008 09 29 | 703 | 0.4+ | 1.1+ |
| 2001 10 19 | 644 | 0.4− | 0.1+ | 2008 09 07 | 703 | 0.6− | 0.1+ | 2009 12 20 | G96 | 0.2− | 0.9− |
| 2001 10 19 | 644 | 0.4− | 0.1+ | 2008 09 07 | 703 | 0.2+ | 0.2− | 2009 12 20 | G96 | 0.3+ | 0.0 |
| 2001 10 21 | 704 | 0.3+ | 0.4− | 2008 09 07 | 703 | 0.2+ | 0.5− | 2009 12 20 | G96 | 0.1− | 0.0 |
| 2001 10 21 | 704 | 1.2+ | 0.2+ | 2008 09 22 | G96 | 0.2+ | 0.0 | 2009 12 20 | G96 | 0.0 | 0.2+ |

**2001 TN$_{191}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 157.75480 | | (2000.0) | | | |
| $n$ | 0.18234872 | $\omega$ | 52.85252 | | +0.04296169 | −0.98475413 |
| $a$ | 3.0798831 | $\Omega$ | 35.81851 | | +0.80077930 | −0.06694780 |
| $e$ | 0.2020030 | $i$ | 16.74031 | | +0.59741678 | +0.16055309 |
| $P$ | 5.41 | $H$ | 15.6 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 10 14 | 704 | 0.1+ | 0.6+ | 2001 11 10 | 704 | 0.6+ | 0.2− | 2001 11 19 | 699 | 0.1− | 0.5− |
| 2001 10 14 | 704 | 0.1+ | 0.7+ | 2001 11 10 | 644 | 0.1+ | 0.2− | 2001 11 24 | 704 | 0.1+ | 0.1− |
| 2001 10 14 | 704 | 0.3+ | 0.4− | 2001 11 10 | 644 | 0.4+ | 0.3+ | 2001 11 24 | 704 | 0.1− | 1.5+ |
| 2001 10 14 | 704 | 1.4+ | 1.1+ | 2001 11 10 | 644 | 0.1+ | 0.3− | 2001 11 24 | 704 | 0.7− | 0.1− |
| 2001 10 19 | 644 | 0.1− | 0.8− | 2001 11 11 | 699 | 0.4− | 0.2+ | 2001 11 24 | 704 | 0.4+ | 0.9− |
| 2001 10 19 | 644 | 0.1− | 1.1− | 2001 11 11 | 699 | 0.9− | 0.4+ | 2009 03 26 | 691 | 0.0 | 0.4− |
| 2001 10 19 | 644 | 1.0− | 1.3− | 2001 11 11 | 699 | 0.2− | 0.3+ | 2009 03 26 | 691 | 0.1− | 0.2+ |
| 2001 10 21 | 704 | 0.6− | 0.0 | 2001 11 11 | 699 | 0.2− | 0.2+ | 2009 03 26 | 691 | 0.0 | 0.3+ |
| 2001 10 21 | 704 | 0.1+ | 0.1− | 2001 11 12 | 704 | 0.8+ | 1.3+ | 2009 04 22 | G96 | 0.1− | 0.1− |
| 2001 10 21 | 704 | 0.2− | 0.1+ | 2001 11 12 | 704 | 0.2+ | 0.6+ | 2009 04 22 | G96 | 0.0 | 0.3− |
| 2001 10 21 | 704 | 0.6− | 0.4+ | 2001 11 12 | 704 | 0.4− | 0.1− | 2009 04 22 | G96 | 0.3+ | 0.1− |
| 2001 11 10 | 704 | 0.3+ | 0.1+ | 2001 11 19 | 699 | 0.4− | 0.1+ | 2009 04 22 | G96 | 0.1− | 0.1− |
| 2001 11 10 | 704 | 0.5+ | 0.9− | 2001 11 19 | 699 | 0.1+ | 0.6− | | | | |
| 2001 11 10 | 704 | 0.6+ | 0.7− | 2001 11 19 | 699 | 0.0 | 0.1− | | | | |

**2001 TP$_{249}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 169.40668 | | (2000.0) | | | |
| $n$ | 0.18089085 | $\omega$ | 1.73393 | | +0.85087155 | −0.51974916 |
| $a$ | 3.0964090 | $\Omega$ | 29.97900 | | +0.48015540 | +0.71008166 |
| $e$ | 0.1576297 | $i$ | 8.82628 | | +0.21323321 | +0.47502090 |
| $P$ | 5.45 | $H$ | 15.8 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 21 | 704 | 0.3+ | 1.3+ | 2001 10 23 | 704 | 0.9− | 0.3− | 2008 01 01 | G96 | 1.0+ | 0.7+ |
| 2001 09 21 | 704 | 0.6+ | 0.2+ | 2001 10 23 | 704 | 0.1− | 0.8− | 2008 01 01 | G96 | 0.0 | 0.2− |
| 2001 09 21 | 704 | 0.0 | 0.4+ | 2001 10 23 | 704 | 0.7− | 0.0 | 2008 01 01 | G96 | 0.3+ | 0.3− |
| 2001 10 08 | 644 | 0.5− | 0.7+ | 2001 11 18 | 645 | 0.0 | 0.1+ | 2008 01 01 | G96 | 0.2− | 0.4− |
| 2001 10 08 | 644 | 0.6− | 0.4+ | 2001 11 18 | 645 | 0.0 | 0.1+ | 2008 03 01 | G96 | 0.3+ | 0.1+ |
| 2001 10 08 | 644 | 0.5− | 0.4+ | 2007 12 16 | 703 | 0.5− | 1.4− | 2008 03 01 | G96 | 0.8+ | 0.3− |
| 2001 10 14 | 645 | 0.0 | 0.0 | 2007 12 16 | 703 | 1.0− | 0.5+ | 2008 03 01 | G96 | 0.0 | 0.1+ |
| 2001 10 14 | 645 | 0.0 | 0.0 | 2007 12 16 | 703 | 0.3+ | 0.2+ | 2008 03 01 | G96 | 0.3− | 0.2− |
| 2001 10 15 | 645 | 0.0 | 0.0 | 2007 12 16 | 703 | 1.1− | 0.0 | 2009 03 29 | 691 | 0.0 | 0.5+ |
| 2001 10 15 | 645 | 0.1+ | 0.1− | 2007 12 16 | G96 | 0.2− | 0.3− | 2009 03 29 | 691 | 0.2+ | 0.3+ |
| 2001 10 17 | 644 | 0.2− | 0.2+ | 2007 12 16 | G96 | 1.0+ | 0.2− | 2009 03 29 | 691 | 0.2+ | 0.0 |
| 2001 10 17 | 644 | 0.2+ | 0.3+ | 2007 12 16 | G96 | 0.3+ | 0.1− | | | | |
| 2001 10 17 | 644 | 0.2− | 0.3+ | 2007 12 16 | G96 | 0.2+ | 0.1− | | | | |

**2001 UF$_{9}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 288.77698 | | (2000.0) | | | |
| $n$ | 0.21475224 | $\omega$ | 340.23128 | | +0.90311917 | −0.41288932 |
| $a$ | 2.7617069 | $\Omega$ | 44.74514 | | +0.41304587 | +0.76033080 |
| $e$ | 0.2126298 | $i$ | 9.64069 | | +0.11734086 | +0.50141747 |
| $P$ | 4.59 | $H$ | 16.1 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 03 21 | 645 | 0.0 | 0.0 | 2001 10 24 | 704 | 0.7− | 0.2− | 2001 11 21 | 704 | 0.5− | 0.8− |
| 1999 03 21 | 645 | 0.0 | 0.1+ | 2001 10 24 | 704 | 0.7− | 0.5− | 2001 11 21 | 704 | 0.1+ | 0.7− |
| 2001 10 17 | 704 | 0.3− | 0.0 | 2001 10 24 | 704 | 0.7− | 0.2− | 2001 11 21 | 704 | 0.1− | 0.2− |
| 2001 10 17 | 704 | 0.4− | 0.3+ | 2001 10 24 | 704 | 0.4− | 0.3+ | 2001 11 21 | 704 | 0.2+ | 0.1− |
| 2001 10 17 | 704 | 0.1+ | 0.6− | 2001 10 24 | 704 | 1.6− | 0.3− | 2001 11 21 | 704 | 0.2+ | 0.3− |
| 2001 10 17 | 704 | 0.2− | 0.1+ | 2001 10 26 | 704 | 0.9+ | 1.1+ | 2001 11 21 | 691 | 0.6+ | 0.1+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 10 17 | 704 | 0.4− | 0.0 | 2001 10 26 | 704 | 0.6− | 0.2− | 2001 11 21 | 691 | 0.4+ | 0.1− |
| 2001 10 18 | 704 | 0.4+ | 0.0 | 2001 10 26 | 704 | 1.1− | 0.8+ | 2001 11 21 | 691 | 0.6+ | 0.1+ |
| 2001 10 18 | 704 | 0.5+ | 0.3+ | 2001 10 26 | 704 | 0.4+ | 0.1+ | 2001 12 18 | 704 | 1.0− | 0.1− |
| 2001 10 18 | 704 | 0.2+ | 1.3+ | 2001 11 09 | 704 | 0.4− | 0.6+ | 2001 12 18 | 704 | 0.5+ | 0.1+ |
| 2001 10 18 | 644 | 0.2− | 0.1− | 2001 11 09 | 704 | 0.3− | 0.0 | 2001 12 18 | 704 | 0.1+ | 0.2+ |
| 2001 10 18 | 644 | 0.2− | 0.1+ | 2001 11 09 | 704 | 0.4− | 0.7+ | 2001 12 19 | 704 | 0.2+ | 0.6+ |
| 2001 10 18 | 644 | 0.2− | 0.1+ | 2001 11 09 | 704 | 0.8− | 0.5+ | 2001 12 19 | 704 | 0.3− | 0.6+ |
| 2001 10 20 | 704 | 1.7− | 0.3− | 2001 11 17 | 704 | 0.5+ | 0.5+ | 2001 12 19 | 704 | 0.1− | 0.2+ |
| 2001 10 20 | 704 | 0.0 | 0.1+ | 2001 11 17 | 704 | 0.2+ | 0.1− | 2001 12 19 | 704 | 0.6− | 0.5+ |
| 2001 10 20 | 704 | 0.3− | 0.1+ | 2001 11 17 | 704 | 0.1− | 0.6− | 2001 12 19 | 704 | 0.3− | 0.9+ |
| 2001 10 20 | 704 | 0.4+ | 0.5− | 2001 11 17 | 704 | 0.5+ | 0.7− | 2008 03 06 | G96 | 0.5− | 0.2− |
| 2001 10 23 | 704 | 0.2+ | 0.2+ | 2001 11 20 | 704 | 0.1+ | 0.6− | 2008 03 06 | G96 | 0.0 | 0.6− |
| 2001 10 23 | 704 | 0.4+ | 0.2− | 2001 11 20 | 704 | 0.1+ | 0.5− | 2008 03 06 | G96 | 0.2− | 0.2− |
| 2001 10 23 | 704 | 0.1− | 0.3+ | 2001 11 20 | 704 | 0.2+ | 0.7− | 2008 03 06 | G96 | 0.1− | 0.3− |
| 2001 10 23 | 704 | 0.6+ | 0.0 | 2001 11 20 | 704 | 0.0 | 0.7− | | | | |
| 2001 10 23 | 704 | 0.6+ | 0.0 | 2001 11 20 | 704 | 0.3+ | 0.3− | | | | |

**2001 UQ$_{59}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 300.08106 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22395133 | $\omega$ | 190.42807 | | +0.64655610 | | −0.75763349 |
| $a$ | 2.6855523 | $\Omega$ | 219.37511 | | +0.70965011 | | +0.64023408 |
| $e$ | 0.2166060 | $i$ | 8.08298 | | +0.27993201 | | +0.12685354 |
| $P$ | 4.40 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 21 | 699 | 0.1− | 0.8+ | 2001 10 26 | 644 | 0.3− | 0.0 | 2001 12 11 | 704 | 0.7− | 1.0− |
| 2001 09 21 | 699 | (1.8− | 1.6−) | 2001 10 26 | 644 | 0.2− | 0.1− | 2001 12 11 | 704 | 0.3+ | 0.4− |
| 2001 09 21 | 699 | 0.2− | 0.2− | 2001 11 09 | 704 | 1.1− | 0.1− | 2001 12 11 | 704 | 1.0+ | 0.5− |
| 2001 09 21 | 699 | 0.6+ | 0.1+ | 2001 11 09 | 704 | 0.4− | 0.2+ | 2001 12 11 | 704 | 0.1+ | 0.5+ |
| 2001 09 22 | 699 | 0.2+ | 0.4+ | 2001 11 09 | 704 | 0.6− | 0.1+ | 2001 12 11 | 704 | 0.3+ | 0.0 |
| 2001 09 22 | 699 | 1.0+ | 0.4− | 2001 11 09 | 704 | 0.5− | 1.5+ | 2001 12 14 | 704 | 0.8− | 0.2+ |
| 2001 09 22 | 699 | 1.0− | 0.7− | 2001 11 09 | 704 | (2.6+ | 2.2+) | 2001 12 14 | 704 | 0.5− | 0.2− |
| 2001 09 22 | 699 | 0.4+ | 1.1+ | 2001 11 11 | 699 | 0.8+ | 0.1+ | 2001 12 14 | 704 | 1.0+ | 1.0− |
| 2001 10 13 | 699 | 0.7+ | 0.3+ | 2001 11 11 | 699 | 0.9+ | 1.0+ | 2001 12 14 | 704 | 0.7+ | 0.5− |
| 2001 10 13 | 699 | 0.7+ | 1.0− | 2001 11 11 | 699 | 1.2+ | 0.6+ | 2001 12 17 | 704 | 0.1+ | 0.5− |
| 2001 10 13 | 699 | 0.3+ | 0.6− | 2001 11 11 | 699 | 0.3− | 0.7+ | 2001 12 17 | 704 | 0.3+ | 0.0 |
| 2001 10 13 | 699 | 0.9− | 0.6− | 2001 11 16 | 644 | 0.2− | 0.4+ | 2001 12 17 | 704 | 0.6− | 0.2+ |
| 2001 10 17 | 704 | 0.1+ | 0.4+ | 2001 11 16 | 644 | 0.2− | 0.1− | 2001 12 17 | 704 | 1.0+ | 0.5+ |
| 2001 10 17 | 704 | 0.0 | 0.1− | 2001 11 16 | 644 | 0.3− | 0.0 | 2008 03 31 | 691 | 0.2− | 0.7+ |
| 2001 10 17 | 704 | 0.3+ | 0.2+ | 2001 11 19 | 704 | 0.2− | 0.1+ | 2008 03 31 | 691 | 0.4− | 0.3+ |
| 2001 10 17 | 704 | 0.0 | 0.5− | 2001 11 19 | 704 | 0.3− | 0.1− | 2008 03 31 | 691 | 0.2− | 0.1+ |
| 2001 10 19 | 644 | 0.0 | 0.2+ | 2001 11 19 | 704 | 0.5− | 0.2− | 2008 04 12 | 691 | 0.4+ | 0.1+ |
| 2001 10 19 | 644 | 0.2− | 0.0 | 2001 11 19 | 704 | 0.4− | 0.7− | 2008 04 12 | 691 | 0.1+ | 0.6− |
| 2001 10 19 | 644 | 0.4− | 0.2+ | 2001 11 19 | 704 | 0.4− | 0.1− | 2008 04 12 | 691 | 0.1+ | 0.5− |
| 2001 10 21 | 704 | 0.4+ | 0.3− | 2001 11 21 | 704 | 0.4− | 0.3+ | 2008 04 25 | G96 | 0.4+ | 0.5− |
| 2001 10 21 | 704 | 0.9+ | 0.2− | 2001 11 21 | 704 | 0.1− | 0.4+ | 2008 04 25 | G96 | (1.6+ | 0.3−) |
| 2001 10 21 | 704 | 0.2+ | 0.9− | 2001 11 21 | 704 | 0.1− | 0.2− | 2008 04 25 | G96 | 0.3+ | 0.2− |
| 2001 10 21 | 704 | 0.1− | 0.8− | 2001 11 21 | 704 | 0.3− | 0.5+ | | | | |
| 2001 10 26 | 644 | 0.3− | 0.0 | 2001 11 21 | 704 | 0.5− | 0.4+ | | | | |

**2001 UC$_{72}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 156.77721 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.28464931 | $\omega$ | 220.83254 | | +0.96777148 | | +0.22387923 |
| $a$ | 2.2887374 | $\Omega$ | 125.86345 | | −0.17769833 | | +0.93154481 |
| $e$ | 0.2814997 | $i$ | 8.18011 | | −0.17844231 | | +0.28653510 |
| $P$ | 3.46 | $H$ | 17.5 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 27 | 644 | 0.4− | 0.6+ | 2001 10 22 | 644 | 0.2+ | 0.6+ | 2008 10 24 | 703 | 1.1− | 0.9− |
| 2001 08 27 | 644 | 0.3− | 0.3+ | 2001 10 22 | 644 | 0.4+ | 1.0+ | 2008 10 24 | 703 | 0.1+ | 0.3+ |
| 2001 08 27 | 644 | 0.0 | 0.3+ | 2001 10 23 | 699 | 0.3+ | 0.1+ | 2008 10 24 | 703 | 0.1+ | 0.6− |
| 2001 09 17 | 699 | 0.1− | 0.4− | 2001 10 23 | 699 | 0.4+ | 0.3− | 2008 11 03 | 703 | 1.4+ | 1.0+ |
| 2001 09 17 | 699 | (0.7− | 2.0−) | 2001 10 23 | 699 | 0.7+ | 0.3+ | 2008 11 03 | 703 | (0.0 | 1.8+) |
| 2001 09 17 | 699 | 0.4− | 0.8− | 2001 10 23 | 699 | 0.2− | 0.1− | 2008 11 03 | 703 | (0.1+ | 2.6+) |
| 2001 09 17 | 699 | 1.2+ | 0.4+ | 2001 10 23 | 644 | 0.1+ | 0.1+ | 2008 11 03 | 703 | (0.1− | 1.7+) |
| 2001 10 11 | 704 | 1.1− | 0.7− | 2001 10 23 | 644 | 0.1+ | 0.0 | 2008 11 03 | 703 | 0.0 | 0.7− |
| 2001 10 11 | 704 | 0.5− | 1.2+ | 2001 10 23 | 644 | 0.3+ | 0.1− | 2008 11 03 | 703 | 0.1+ | 0.3− |
| 2001 10 11 | 704 | 0.0 | 0.6− | 2001 10 26 | 608 | 0.3+ | 0.8− | 2008 11 03 | 703 | 0.1− | 0.4+ |
| 2001 10 11 | 704 | 0.5− | 0.3+ | 2001 10 26 | 608 | 0.4+ | 0.4− | 2008 11 03 | 703 | 0.1− | 0.1− |
| 2001 10 11 | 704 | 0.7+ | 0.0 | 2001 10 26 | 608 | 0.6+ | 0.3− | 2008 11 27 | J75 | 0.8− | 0.2+ |
| 2001 10 17 | 608 | 0.0 | 0.4− | 2001 11 17 | 608 | 0.8− | 0.1− | 2008 11 27 | J75 | 0.1+ | 0.1+ |
| 2001 10 17 | 608 | 0.0 | 0.7− | 2001 11 17 | 608 | 0.6− | 0.0 | 2008 11 28 | J75 | 0.2+ | 0.6+ |
| 2001 10 17 | 608 | 0.4− | 0.4− | 2001 11 17 | 608 | 0.9− | 0.3− | | | | |
| 2001 10 22 | 644 | 0.4+ | 1.2+ | 2008 10 24 | 703 | 0.0 | 0.2+ | | | | |

**2001 UK$_{122}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 267.39983 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21709183 | $\omega$ | 223.83700 | | +0.10477806 | | −0.91046586 |
| $a$ | 2.7418292 | $\Omega$ | 225.07547 | | +0.99448505 | | +0.09777996 |
| $e$ | 0.2376747 | $i$ | 34.40726 | | +0.00458834 | | −0.40185943 |
| $P$ | 4.54 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 10 13 | 704 | 1.1− | 0.1+ | 2001 10 24 | 704 | 0.4− | 1.4− | 2001 12 07 | 704 | 0.1+ | 0.6− |
| 2001 10 13 | 704 | 0.4− | 1.2+ | 2001 11 18 | 704 | 0.1− | 0.4+ | 2001 12 07 | 704 | 0.4+ | 0.9− |
| 2001 10 13 | 704 | 0.0 | 0.3+ | 2001 11 18 | 704 | 0.4− | 0.1− | 2001 12 08 | 704 | 0.7− | 0.3− |
| 2001 10 22 | 704 | 0.5− | 0.1+ | 2001 11 18 | 704 | 0.2− | 0.3+ | 2001 12 08 | 704 | 0.1+ | 0.3− |
| 2001 10 22 | 704 | 0.1− | 1.1+ | 2001 11 18 | 704 | 0.0 | 0.5+ | 2001 12 08 | 704 | 1.0+ | 0.2+ |
| 2001 10 22 | 704 | 0.4− | 1.0+ | 2001 11 18 | 704 | 0.3− | 0.0 | 2001 12 08 | 704 | 0.5+ | 0.0 |
| 2001 10 23 | 704 | 0.8+ | 0.0 | 2001 11 19 | 699 | 0.1+ | 0.0 | 2001 12 08 | 704 | 0.1+ | 0.1− |
| 2001 10 23 | 704 | 0.9+ | 0.8+ | 2001 11 19 | 699 | 0.1+ | 0.3+ | 2001 12 14 | 644 | 0.2+ | 0.6+ |
| 2001 10 23 | 704 | 0.1+ | 0.6+ | 2001 11 19 | 699 | 0.2+ | 1.0+ | 2001 12 14 | 644 | 0.1− | 0.7+ |
| 2001 10 23 | 704 | 1.1+ | 1.1+ | 2001 11 19 | 699 | 0.7+ | 1.0+ | 2001 12 14 | 644 | 0.2+ | 0.7+ |
| 2001 10 24 | 333 | 1.0+ | 0.4+ | 2001 11 20 | 699 | 1.0− | 0.6+ | 2008 06 03 | 691 | 0.4− | 0.1− |
| 2001 10 24 | 333 | 0.6+ | 0.2− | 2001 11 20 | 699 | 0.2− | 0.8+ | 2008 06 03 | 691 | 0.1+ | 0.1+ |
| 2001 10 24 | 333 | 0.3+ | 0.8− | 2001 11 20 | 699 | 0.3− | 0.1− | 2008 06 03 | 691 | 0.2+ | 0.1+ |
| 2001 10 24 | 704 | 0.1+ | 1.1− | 2001 11 20 | 699 | 0.5− | 0.3+ | 2008 06 11 | 691 | 0.2− | 0.5+ |
| 2001 10 24 | 704 | 1.8− | 1.4− | 2001 12 07 | 704 | 1.0+ | 0.9− | 2008 06 11 | 691 | 0.1+ | 0.1− |
| 2001 10 24 | 704 | 0.4− | 1.3− | 2001 12 07 | 704 | 0.1+ | 0.5− | 2008 06 11 | 691 | 0.2+ | 0.0 |
| 2001 10 24 | 704 | 0.8− | 1.8− | 2001 12 07 | 704 | 0.1+ | 1.1− | | | | |

**2001 UP$_{174}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 46.37903 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.25674143 | $\omega$ | 348.60335 | | +0.68285665 | | −0.72972252 |
| $a$ | 2.4517269 | $\Omega$ | 58.31834 | | +0.67344306 | | +0.61029117 |
| $e$ | 0.1807342 | $i$ | 2.34449 | | +0.28316292 | | +0.30830137 |
| $P$ | 3.84 | $H$ | 17.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 10 18 | 644 | 0.4+ | 0.4+ | 2001 11 19 | 704 | 0.8− | 0.6+ | 2007 04 19 | G96 | 0.5− | 1.1+ |
| 2001 10 18 | 644 | 0.1+ | 1.0+ | 2001 11 21 | 704 | (1.7− | 3.4−) | 2007 04 19 | G96 | 0.9+ | 0.5+ |
| 2001 10 18 | 644 | 0.1+ | 0.3+ | 2001 11 21 | 704 | 1.1− | 1.4+ | 2007 04 19 | G96 | 0.7+ | 0.6+ |
| 2001 10 25 | 644 | 0.4− | 0.6+ | 2001 11 21 | 704 | 0.2− | 0.1+ | 2007 04 19 | G96 | 0.0 | 0.3+ |
| 2001 10 25 | 644 | 0.2− | 0.4+ | 2001 11 21 | 704 | 1.2+ | 0.1− | 2009 12 15 | G96 | 0.4− | 0.3− |
| 2001 10 25 | 644 | 0.4− | 0.8+ | 2001 11 21 | 704 | (0.9− | 4.5−) | 2009 12 15 | G96 | 0.1+ | 0.6− |
| 2001 11 09 | 704 | 0.9+ | 0.5− | 2001 12 10 | 291 | 0.1− | 0.3− | 2009 12 15 | G96 | 0.4− | 0.1+ |
| 2001 11 09 | 704 | 0.2+ | 0.3− | 2001 12 10 | 291 | 0.2+ | 0.0 | 2009 12 15 | G96 | 0.2+ | 0.3− |
| 2001 11 09 | 704 | 0.4+ | 0.4− | 2001 12 10 | 291 | 0.2− | 0.1+ | 2009 12 18 | G96 | 0.3+ | 0.5+ |
| 2001 11 19 | 704 | 1.2− | 0.3− | 2006 01 07 | G96 | 0.6+ | 0.1− | 2009 12 18 | G96 | 0.7− | 0.2+ |
| 2001 11 19 | 704 | 0.0 | 0.2− | 2006 01 07 | G96 | 0.5+ | 0.2+ | 2009 12 18 | G96 | 0.0 | 0.0 |
| 2001 11 19 | 704 | 0.7+ | 0.8− | 2006 01 07 | G96 | 0.2− | 0.4− | 2009 12 18 | G96 | 0.2+ | 0.1+ |
| 2001 11 19 | 704 | 0.6− | 0.0 | 2006 01 07 | G96 | 0.2+ | 0.1+ | | | | |

**2001 VS$_4$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 194.14913 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.29379527 | $\omega$ | 73.59456 | | +0.95693711 | +0.27395981 | |
| $a$ | 2.2409879 | $\Omega$ | 270.42766 | | −0.28921631 | +0.87124319 | |
| $e$ | 0.3095467 | $i$ | 5.50945 | | −0.02500597 | +0.40728531 | |
| $P$ | 3.35 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 22 | 704 | 0.4− | 0.5− | 2001 11 12 | 704 | 0.7− | 1.0+ | 2001 12 10 | 704 | 0.6+ | 0.3− |
| 2001 09 22 | 704 | 0.9− | 0.5− | 2001 11 12 | 704 | 0.3− | 1.2+ | 2001 12 10 | 704 | 1.1+ | 0.5+ |
| 2001 09 22 | 704 | 1.2− | 0.6+ | 2001 11 19 | 699 | 0.2+ | 0.1+ | 2001 12 10 | 704 | 1.0+ | 0.1− |
| 2001 09 22 | 704 | 0.8+ | 1.1− | 2001 11 19 | 699 | 0.2− | 0.3− | 2001 12 10 | 704 | 0.6+ | 1.4− |
| 2001 09 22 | 704 | 0.5+ | 0.8− | 2001 11 19 | 699 | 0.3+ | 0.3+ | 2001 12 15 | 704 | 0.2− | 0.1+ |
| 2001 10 21 | 704 | 0.4+ | 0.1− | 2001 11 19 | 699 | 0.3− | 0.2− | 2001 12 15 | 704 | 0.6− | 0.2+ |
| 2001 10 21 | 704 | 1.9+ | 0.4+ | 2001 11 21 | 704 | 0.2− | 0.7− | 2001 12 15 | 704 | 0.0 | 0.1+ |
| 2001 10 21 | 704 | 1.0+ | 0.0 | 2001 11 21 | 704 | 0.2+ | 1.5− | 2001 12 15 | 704 | 0.5− | 0.5+ |
| 2001 10 21 | 704 | 0.2+ | 0.1+ | 2001 11 21 | 704 | 0.6− | 0.7− | 2001 12 15 | 704 | 0.3− | 0.5+ |
| 2001 10 21 | 704 | 0.3+ | 0.6− | 2001 11 21 | 704 | 0.6− | 1.2− | 2001 12 18 | 704 | 0.0 | 0.7− |
| 2001 11 10 | 704 | 0.4− | 0.6+ | 2001 11 21 | 704 | 0.6− | 0.5− | 2001 12 18 | 704 | 0.6− | 0.2− |
| 2001 11 10 | 704 | 0.1− | 0.1+ | 2001 11 24 | 704 | 0.5+ | 0.5+ | 2001 12 18 | 704 | 0.1+ | 0.2− |
| 2001 11 10 | 704 | 0.4+ | 0.1+ | 2001 11 24 | 704 | 0.3+ | 0.1− | 2001 12 18 | 704 | 0.3− | 0.0 |
| 2001 11 10 | 704 | 1.2− | 0.6− | 2001 11 24 | 704 | 0.4+ | 0.4+ | 2001 12 18 | 704 | 0.9− | 0.4− |
| 2001 11 10 | 704 | 0.1+ | 0.4+ | 2001 11 24 | 704 | 0.8+ | 0.2+ | 2008 12 21 | G96 | 0.6+ | 0.1− |
| 2001 11 11 | 699 | 0.2+ | 0.3+ | 2001 11 24 | 704 | 0.6+ | 1.2+ | 2008 12 21 | G96 | 0.1+ | 0.0 |
| 2001 11 11 | 699 | 0.2− | 0.5+ | 2001 12 08 | 699 | 0.5+ | 0.3− | 2008 12 21 | G96 | 0.2+ | 0.0 |
| 2001 11 11 | 699 | 0.4+ | 0.5− | 2001 12 08 | 699 | 0.7+ | 0.7+ | 2009 01 17 | 691 | 0.0 | 0.2+ |
| 2001 11 11 | 699 | 0.1+ | 0.1− | 2001 12 08 | 699 | 0.4− | 0.3+ | 2009 01 17 | 691 | 0.2− | 0.2− |
| 2001 11 12 | 704 | 0.5− | 1.3+ | 2001 12 08 | 699 | 1.6− | 0.6− | 2009 01 17 | 691 | 0.1− | 0.1− |
| 2001 11 12 | 704 | 0.5− | 1.5+ | 2001 12 10 | 704 | 0.2+ | 0.2+ | | | | |

**2001 VM$_6$ = 2009 YN$_{18}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 68.56839 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26226550 | $\omega$ | 31.58147 | | +0.79795492 | −0.60271500 | |
| $a$ | 2.4171778 | $\Omega$ | 5.48394 | | +0.54943149 | +0.72631328 | |
| $e$ | 0.0872510 | $i$ | 0.96048 | | +0.24777606 | +0.33045975 | |
| $P$ | 3.76 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 11 09 | 704 | 0.9− | 0.4− | 2001 11 19 | 704 | 0.2− | 0.6+ | 2006 02 23 | G96 | 0.4+ | 0.2− |
| 2001 11 09 | 704 | 0.2+ | 0.6− | 2001 11 21 | 704 | 0.1− | 0.5+ | 2008 08 10 | J75 | 0.7− | 1.0− |
| 2001 11 09 | 704 | 0.2+ | 1.4− | 2001 11 21 | 704 | 0.5− | 0.0 | 2008 08 10 | J75 | 0.3− | 0.0 |
| 2001 11 09 | 704 | 0.1+ | 0.3− | 2001 11 21 | 704 | 0.6− | 1.0+ | 2008 08 10 | J75 | 1.0+ | 1.1+ |
| 2001 11 09 | 704 | 0.6− | 0.4+ | 2001 11 21 | 704 | 0.3− | 0.3+ | 2009 11 16 | G96 | 0.1− | 0.1+ |
| 2001 11 11 | 704 | 0.5+ | 0.1− | 2001 11 22 | 644 | 0.7+ | 0.7+ | 2009 11 16 | G96 | 0.5− | 0.8− |
| 2001 11 11 | 704 | 1.0− | 0.5− | 2001 11 22 | 644 | 0.2+ | 1.2+ | 2009 11 16 | G96 | 0.1+ | 0.3− |
| 2001 11 11 | 704 | 1.1− | 0.4− | 2001 11 22 | 644 | 0.6+ | 0.9+ | 2009 11 16 | G96 | 0.5− | 0.3+ |
| 2001 11 12 | 704 | 0.2+ | 0.0 | 2004 06 11 | 691 | 0.1+ | 0.2+ | 2009 12 17 | G96 | 0.1+ | 0.1+ |
| 2001 11 12 | 704 | 1.1+ | 0.6− | 2004 06 11 | 691 | 0.1− | 0.0 | 2009 12 17 | G96 | 0.1+ | 0.0 |
| 2001 11 12 | 704 | 0.1− | 0.4− | 2004 06 11 | 691 | 0.1+ | 0.2− | 2009 12 17 | G96 | 0.1+ | 0.1− |
| 2001 11 12 | 704 | 0.5+ | 0.2− | 2005 11 25 | 691 | 0.2+ | 0.3− | 2009 12 25 | 691 | 0.2+ | 0.1+ |
| 2001 11 12 | 704 | 0.3+ | 0.2− | 2005 11 25 | 691 | 0.1+ | 0.4− | 2009 12 25 | 691 | 0.3− | 0.1+ |
| 2001 11 19 | 704 | 0.3+ | 0.6+ | 2005 11 25 | 691 | 0.2+ | 0.5− | 2009 12 25 | 691 | 0.1+ | 0.3+ |
| 2001 11 19 | 704 | 0.8− | 0.3+ | 2006 02 23 | G96 | 0.4− | 0.3+ | 2009 12 26 | 691 | 0.1− | 0.1− |
| 2001 11 19 | 704 | 0.1− | 0.7+ | 2006 02 23 | G96 | 0.1− | 0.2− | 2009 12 26 | 691 | 0.0 | 0.0 |
| 2001 11 19 | 704 | 0.3− | 0.4+ | 2006 02 23 | G96 | 0.1− | 0.3+ | 2009 12 26 | 691 | 0.1+ | 0.3+ |

**2001 VD$_8$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 146.56174 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17192477 | $\omega$ | 173.47212 | | +0.59280890 | −0.80258491 | |
| $a$ | 3.2031486 | $\Omega$ | 240.15058 | | +0.73537224 | +0.57316355 | |
| $e$ | 0.1816261 | $i$ | 4.40365 | | +0.32833713 | +0.16535115 | |
| $P$ | 5.73 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 10 19 | 644 | 0.1− | 0.1+ | 2001 11 11 | 704 | 1.1+ | 0.0 | 2007 12 04 | G96 | 0.2+ | 0.4− |
| 2001 10 19 | 644 | 0.1+ | 0.2− | 2001 11 19 | 704 | 0.5+ | 0.1− | 2007 12 16 | 691 | 0.2− | 0.8− |
| 2001 10 19 | 644 | 0.2− | 0.2− | 2001 11 19 | 704 | 0.1− | 0.3+ | 2007 12 16 | 691 | 0.1− | 0.3+ |
| 2001 10 21 | 704 | 0.5− | 0.0 | 2001 11 19 | 704 | 0.6+ | 0.2+ | 2007 12 16 | 691 | 0.1− | 0.3+ |
| 2001 10 21 | 704 | 0.3− | 0.6− | 2001 11 19 | 704 | 0.3− | 0.3+ | 2007 12 28 | 691 | 0.2+ | 0.1− |
| 2001 10 21 | 704 | 0.2− | 0.2+ | 2001 11 19 | 704 | 0.3− | 0.7+ | 2007 12 28 | 691 | 0.1− | 0.3+ |
| 2001 10 21 | 704 | 0.3− | 0.5− | 2001 11 21 | 704 | 0.6− | 0.1− | 2007 12 28 | 691 | 0.1− | 0.2+ |
| 2001 10 21 | 704 | 0.9− | 1.0− | 2001 11 21 | 704 | 0.4+ | 0.1+ | 2008 01 15 | G96 | 0.1+ | 0.5− |
| 2001 10 26 | 644 | 0.1− | 0.3+ | 2001 11 21 | 704 | 0.7− | 0.7+ | 2008 01 15 | G96 | 0.1− | 0.3− |
| 2001 10 26 | 644 | 0.0 | 0.2+ | 2001 11 21 | 704 | 1.1− | 1.2+ | 2008 01 15 | G96 | 0.3+ | 0.2− |
| 2001 10 26 | 644 | 0.2+ | 0.0 | 2007 09 18 | G96 | 0.2+ | 0.1+ | 2008 01 15 | G96 | 0.5− | 0.7− |
| 2001 11 09 | 704 | 0.5+ | 0.3− | 2007 09 18 | G96 | 0.3+ | 0.0 | 2008 02 11 | G96 | 0.1+ | 0.3+ |
| 2001 11 09 | 704 | 0.5+ | 0.1+ | 2007 09 18 | G96 | 0.5+ | 0.1− | 2008 02 11 | G96 | 0.1− | 0.1+ |
| 2001 11 09 | 704 | 1.0+ | 0.0 | 2007 09 18 | G96 | 0.5− | 0.4− | 2008 02 11 | G96 | 0.2+ | 0.5+ |
| 2001 11 11 | 704 | 0.4+ | 0.4− | 2007 12 04 | G96 | 0.3+ | 0.2− | 2008 02 11 | G96 | 0.9+ | 0.1+ |
| 2001 11 11 | 704 | 0.2+ | 0.5− | 2007 12 04 | G96 | 0.2+ | 0.0 | | | | |

**2001 VV$_{15}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 43.13096 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26344077 | $\omega$ | 260.72902 | | +0.19080791 | −0.98155380 | |
| $a$ | 2.4099835 | $\Omega$ | 178.13823 | | +0.98124351 | +0.19037659 | |
| $e$ | 0.2796832 | $i$ | 21.71340 | | +0.02745006 | +0.01757502 | |
| $P$ | 3.74 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 14 | 644 | 1.3− | 0.6+ | 2001 10 11 | 704 | 0.7+ | 1.0− | 2001 11 12 | 608 | 0.9+ | 0.2− |
| 2001 09 14 | 644 | 1.0− | 0.5+ | 2001 10 11 | 704 | 0.3+ | 1.0− | 2001 11 12 | 608 | 0.5+ | 0.5+ |
| 2001 09 14 | 644 | 1.4− | 0.6+ | 2001 10 11 | 704 | (0.0 | 2.2−) | 2001 11 17 | 608 | 1.7+ | 0.9+ |
| 2001 09 16 | 704 | 0.8− | 0.2+ | 2001 10 12 | 608 | 0.2+ | 0.6− | 2001 11 17 | 608 | 1.7+ | 1.0+ |
| 2001 09 16 | 704 | 0.7− | 0.3+ | 2001 10 12 | 608 | 0.3+ | 0.4− | 2001 11 17 | 608 | 1.5+ | 1.1+ |
| 2001 09 16 | 704 | 1.0− | 0.1+ | 2001 10 12 | 608 | 0.5+ | 0.6− | 2001 11 22 | 644 | 0.0 | 0.3− |
| 2001 09 17 | 699 | 0.9− | 0.1+ | 2001 10 23 | 699 | 0.5+ | 0.4+ | 2001 11 22 | 644 | 0.1+ | 0.2− |
| 2001 09 17 | 699 | 0.8− | 0.5+ | 2001 10 23 | 699 | 0.1+ | 0.6− | 2001 11 22 | 644 | 0.3− | 0.3− |
| 2001 09 17 | 699 | 0.6− | 0.5+ | 2001 10 23 | 699 | 0.7+ | 0.4+ | 2002 01 13 | 704 | 0.7− | 0.0 |
| 2001 09 17 | 699 | 0.3− | 0.3+ | 2001 10 23 | 699 | 0.0 | 0.1+ | 2002 01 13 | 704 | 0.4− | 1.6− |
| 2001 09 21 | 645 | 0.1+ | 0.1− | 2001 11 06 | 704 | 0.5+ | 0.8+ | 2002 01 13 | 704 | 0.3− | 0.3− |
| 2001 09 21 | 645 | 0.0 | 0.1− | 2001 11 06 | 704 | 0.1+ | 1.2+ | 2008 07 31 | G96 | 0.1− | 0.1+ |
| 2001 09 25 | 704 | 0.3− | 0.1+ | 2001 11 06 | 704 | 0.1− | 0.5+ | 2008 07 31 | G96 | 0.6+ | 0.2− |
| 2001 09 25 | 704 | 0.3− | 0.3+ | 2001 11 06 | 704 | 0.8− | 0.8+ | 2008 07 31 | G96 | 0.1+ | 0.2+ |
| 2001 09 25 | 704 | 0.8− | 0.2− | 2001 11 06 | 704 | 1.3− | 1.0+ | 2008 07 31 | G96 | 0.2+ | 0.3+ |
| 2001 09 25 | 704 | 0.6− | 0.1− | 2001 11 06 | 644 | 0.3− | 0.4+ | 2008 10 30 | G96 | 0.2− | 0.3+ |
| 2001 09 25 | 704 | 0.1− | 0.7+ | 2001 11 06 | 644 | 0.3− | 0.6+ | 2008 10 30 | G96 | 0.3− | 0.2+ |
| 2001 10 11 | 704 | 0.4+ | 1.5− | 2001 11 06 | 644 | 0.2− | 0.5+ | 2008 10 30 | G96 | 0.1− | 0.3+ |
| 2001 10 11 | 704 | 0.5+ | 0.9− | 2001 11 12 | 608 | 0.5+ | 0.1− | 2008 10 30 | G96 | 0.5− | 0.2+ |

**2001 VT$_{50}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 281.63911 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22404754 | $\omega$ | 170.83628 | | +0.04311003 | −0.99057686 | |
| $a$ | 2.6847834 | $\Omega$ | 276.61491 | | +0.90813939 | +0.09308995 | |
| $e$ | 0.2213436 | $i$ | 7.51972 | | +0.41644252 | −0.10045769 | |
| $P$ | 4.40 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 10 15 | 704 | 0.1− | 0.6+ | 2001 11 11 | 699 | 0.0 | 0.5+ | 2001 12 17 | 704 | 0.5− | 0.5+ |
| 2001 10 15 | 704 | 0.0 | 0.4− | 2001 11 11 | 644 | 0.1+ | 0.2+ | 2001 12 17 | 704 | 0.7− | 0.4+ |
| 2001 10 15 | 704 | 0.4− | 0.3− | 2001 11 11 | 644 | 0.6+ | 0.1+ | 2001 12 17 | 704 | 0.2+ | 0.3− |
| 2001 10 15 | 704 | 0.1− | 0.7− | 2001 11 12 | 704 | 0.0 | 0.3− | 2001 12 17 | 704 | 0.6+ | 0.1− |
| 2001 10 15 | 704 | 0.4− | 0.2− | 2001 11 12 | 704 | 0.1− | 1.0− | 2001 12 17 | 704 | 1.5+ | 0.4− |
| 2001 10 19 | 704 | 0.9− | 1.9− | 2001 11 12 | 704 | 0.1− | 0.4− | 2001 12 18 | 699 | 0.2− | 0.2− |
| 2001 10 19 | 704 | 1.0− | 0.5− | 2001 11 12 | 704 | 0.2+ | 0.4+ | 2001 12 18 | 699 | 1.4− | 0.7+ |
| 2001 10 19 | 704 | 0.2− | 1.2− | 2001 11 12 | 704 | 0.6+ | 0.2− | 2001 12 18 | 699 | 0.3+ | 0.1+ |
| 2001 10 19 | 704 | (2.5− | 1.1+) | 2001 11 21 | 704 | (2.0+ | 0.5−) | 2001 12 18 | 699 | 0.5+ | 0.1− |
| 2001 10 27 | 699 | 0.3− | 0.3+ | 2001 11 21 | 704 | 0.5+ | 0.2− | 2001 12 20 | 644 | 0.1+ | 0.9− |
| 2001 10 27 | 699 | 0.4− | 0.5+ | 2001 11 21 | 704 | 0.0 | 1.0+ | 2001 12 20 | 644 | 0.2− | 0.7− |
| 2001 10 27 | 699 | 0.6+ | 0.4+ | 2001 11 21 | 704 | 1.3+ | 0.5+ | 2001 12 20 | 644 | 0.0 | 0.9− |
| 2001 10 27 | 699 | 0.5− | 0.7+ | 2001 11 24 | 704 | 0.1+ | 1.0+ | 2002 01 06 | 644 | 0.2− | 0.2+ |
| 2001 11 10 | 704 | 0.1− | 1.0− | 2001 11 24 | 704 | 0.1− | 0.4+ | 2002 01 06 | 644 | 0.0 | 0.4+ |
| 2001 11 10 | 704 | 0.3+ | 1.5− | 2001 11 24 | 704 | 0.9+ | 0.7+ | 2002 01 06 | 644 | 0.3− | 0.3+ |
| 2001 11 10 | 704 | 0.5− | 0.7− | 2001 11 24 | 704 | 1.0+ | 0.2+ | 2007 03 12 | 703 | 0.3− | 0.2− |
| 2001 11 10 | 704 | 0.5− | 1.1− | 2001 11 24 | 704 | 0.9+ | 0.6+ | 2007 03 12 | 703 | 0.8− | 0.6− |
| 2001 11 10 | 704 | 0.7− | 0.6− | 2001 12 10 | 704 | 0.4+ | 0.1+ | 2007 03 12 | 703 | 0.3+ | 0.7+ |
| 2001 11 11 | 699 | 0.1+ | 0.4+ | 2001 12 10 | 704 | 0.2+ | 0.7+ | 2007 03 12 | 703 | 0.8+ | 0.1− |
| 2001 11 11 | 699 | 0.3+ | 1.3+ | 2001 12 10 | 704 | 0.2− | 0.8+ | 2009 08 10 | 291 | 0.3+ | 0.3+ |
| 2001 11 11 | 699 | 0.3− | 0.6+ | 2001 12 10 | 704 | 0.4+ | 0.5+ | 2009 08 10 | 291 | 0.4− | 0.0 |
| 2001 11 11 | 644 | 0.0 | 0.2+ | 2001 12 10 | 704 | 1.6− | 0.6+ | 2009 08 10 | 291 | 0.0 | 0.1− |

**2001 VQ$_{95}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 281.01461 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22845380 | $\omega$ | 2.98786 | | −0.22486035 | | −0.95200208 |
| $a$ | 2.6501500 | $\Omega$ | 100.07471 | | +0.88955596 | | −0.28754760 |
| $e$ | 0.1286410 | $i$ | 12.17684 | | +0.39765314 | | +0.10492099 |
| $P$ | 4.31 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 5 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 11 15 | 704 | 0.9+ | 1.0− | 2001 12 07 | 704 | 1.5− | 1.8+ | 2001 12 18 | 704 | 0.3+ | 0.7− |
| 2001 11 15 | 704 | (2.2+ | 0.3+) | 2001 12 09 | 699 | 1.1− | 0.8+ | 2007 02 16 | 703 | 1.0+ | 0.3+ |
| 2001 11 15 | 704 | 0.9+ | 0.7− | 2001 12 09 | 699 | 0.3− | 0.3+ | 2007 02 16 | 703 | 1.3− | 0.1+ |
| 2001 11 15 | 704 | 1.2+ | 0.1+ | 2001 12 09 | 699 | 0.6− | 0.4+ | 2007 02 16 | 703 | 0.1− | 0.2− |
| 2001 11 18 | 704 | 0.0 | 0.0 | 2001 12 09 | 699 | 0.8− | 0.6− | 2007 02 16 | 703 | 0.1− | 0.3− |
| 2001 11 18 | 704 | 0.0 | 0.9+ | 2001 12 18 | 704 | 0.0 | 0.1− | 2007 03 15 | 703 | 0.2+ | 0.8− |
| 2001 11 18 | 704 | 0.1+ | 0.1− | 2001 12 18 | 704 | 0.4+ | 0.2− | 2007 03 15 | 703 | (1.0− | 2.4+) |
| 2001 12 07 | 704 | 0.4+ | 0.8− | 2001 12 18 | 704 | 0.3+ | 0.2− | 2007 03 15 | 703 | 0.3+ | 0.8+ |
| 2001 12 07 | 704 | 0.2− | 0.1+ | 2001 12 18 | 704 | 0.0 | 0.1− | 2007 03 15 | 703 | (2.4+ | 0.2+) |

**2001 VK$_{115}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 331.78957 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.12497480 | $\omega$ | 232.69218 | | −0.56043624 | | −0.80879940 |
| $a$ | 3.9620603 | $\Omega$ | 252.32407 | | +0.80667179 | | −0.48434757 |
| $e$ | 0.1947576 | $i$ | 10.77942 | | +0.18759489 | | −0.33354305 |
| $P$ | 7.89 | $H$ | 14.4 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 11 12 | 704 | 0.1+ | 0.4− | 2001 12 14 | 704 | 0.3+ | 1.2+ | 2001 12 20 | 704 | 0.1+ | 1.1+ |
| 2001 11 12 | 704 | 0.2+ | 0.2− | 2001 12 14 | 704 | 0.8− | 0.7+ | 2001 12 23 | 704 | 0.7+ | 0.6− |
| 2001 11 12 | 704 | 1.0+ | 0.3− | 2001 12 14 | 704 | 0.0 | 0.3− | 2001 12 23 | 704 | 0.1+ | 0.0 |
| 2001 11 12 | 704 | (1.5+ | 0.5+) | 2001 12 14 | 704 | 0.8− | 0.4+ | 2001 12 23 | 704 | 0.0 | 0.1+ |
| 2001 11 12 | 704 | 0.3− | 1.2+ | 2001 12 14 | 704 | 0.1− | 0.5− | 2001 12 23 | 704 | (1.2+ | 1.6−) |
| 2001 11 19 | 704 | 0.2+ | 1.0+ | 2001 12 17 | 704 | 0.1+ | 0.3+ | 2009 11 22 | 703 | 0.1− | 0.2− |
| 2001 11 19 | 704 | 0.2+ | 1.1+ | 2001 12 17 | 704 | 0.4− | 0.0 | 2009 11 22 | 703 | 0.1− | 0.2+ |
| 2001 11 19 | 704 | 0.0 | 0.6+ | 2001 12 17 | 704 | 0.0 | 0.2+ | 2009 11 22 | 703 | (0.4+ | 1.9+) |
| 2001 11 19 | 291 | 0.3− | 0.2− | 2001 12 17 | 704 | 0.5+ | 0.6+ | 2009 11 22 | 703 | 0.2− | 0.0 |
| 2001 11 19 | 291 | 0.0 | 0.3− | 2001 12 18 | 691 | 0.1+ | 0.5− | 2009 11 24 | 691 | 0.1− | 0.0 |
| 2001 11 19 | 291 | 0.2+ | 0.1− | 2001 12 18 | 691 | 0.2+ | 0.2− | 2009 11 24 | 691 | 0.2− | 0.1+ |
| 2001 11 21 | 704 | 0.0 | 0.3+ | 2001 12 18 | 691 | 0.3+ | 0.2− | 2009 11 24 | 691 | 0.3+ | 0.1+ |
| 2001 11 21 | 704 | 0.1− | 0.2− | 2001 12 19 | 704 | 0.6− | 0.8+ | 2009 12 10 | G96 | 0.2− | 0.3− |
| 2001 11 21 | 704 | 0.2− | 0.4+ | 2001 12 19 | 704 | 0.6− | 0.5+ | 2009 12 10 | G96 | 0.0 | 0.3− |
| 2001 11 24 | 704 | 0.5+ | 0.5− | 2001 12 19 | 704 | 0.7− | 1.2+ | 2009 12 10 | G96 | 0.2+ | 0.2+ |
| 2001 11 24 | 704 | 0.8− | 1.2− | 2001 12 20 | 704 | 0.8− | 0.9− | 2009 12 10 | G96 | 0.4+ | 0.2− |
| 2001 11 24 | 704 | (1.8− | 1.3−) | 2001 12 20 | 704 | 0.6+ | 0.4− | | | | |

**2001 VH$_{132}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 320.41278 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.08371831 | $\omega$ | 199.87420 | | +0.64249765 | | +0.73558505 |
| $a$ | 5.1751438 | $\Omega$ | 110.74226 | | −0.66834720 | | +0.67500589 |
| $e$ | 0.1575874 | $i$ | 13.27463 | | −0.37484503 | | +0.05728599 |
| $P$ | 11.77 | $H$ | 13.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 11 12 | 645 | 0.0 | 0.0 | 2002 01 08 | 645 | 0.0 | 0.1− | 2009 05 13 | 691 | 0.1+ | 0.5− |
| 2001 11 12 | 645 | 0.1+ | 0.0 | 2002 01 08 | 645 | 0.0 | 0.0 | 2009 06 13 | 691 | 0.1− | 0.1+ |
| 2001 11 21 | 645 | 0.0 | 0.0 | 2002 01 13 | 645 | 0.1− | 0.0 | 2009 06 13 | 691 | 0.2+ | 0.6+ |
| 2001 11 21 | 645 | 0.1− | 0.0 | 2002 01 13 | 645 | 0.0 | 0.0 | 2009 06 13 | 691 | 0.2− | 0.0 |
| 2001 12 18 | 645 | 0.0 | 0.0 | 2009 05 13 | 691 | 0.3− | 0.0 | | | | |
| 2001 12 18 | 645 | 0.0 | 0.0 | 2009 05 13 | 691 | 0.3+ | 0.2− | | | | |

**2001 VY$_{132}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 108.22644 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.25837301 | $\omega$ | 50.47571 | | +0.89007313 | | +0.42601177 |
| $a$ | 2.4413945 | $\Omega$ | 283.75915 | | −0.45238866 | | +0.78206749 |
| $e$ | 0.2678172 | $i$ | 9.60835 | | −0.05580613 | | +0.45484548 |
| $P$ | 3.81 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 11 11 | 704 | 0.6− | 0.1− | 2001 12 09 | 704 | 0.7+ | 0.0 | 2005 12 02 | 691 | 0.1+ | 0.1− |
| 2001 11 11 | 704 | 0.4− | 0.5− | 2001 12 09 | 704 | 0.3− | 0.6− | 2009 12 15 | G96 | 0.4+ | 0.0 |
| 2001 11 11 | 704 | 1.5− | 0.1+ | 2001 12 17 | 704 | 0.4+ | 0.3+ | 2009 12 15 | G96 | 0.6+ | 0.3− |
| 2001 11 11 | 704 | 1.4− | 0.2+ | 2001 12 17 | 704 | 0.1− | 0.9+ | 2009 12 15 | G96 | 0.3+ | 0.5− |
| 2001 11 11 | 704 | 0.7− | 1.1+ | 2001 12 17 | 704 | 0.5+ | 0.5+ | 2009 12 15 | G96 | 0.6− | 0.1− |
| 2001 11 24 | 704 | 0.4+ | 0.4− | 2001 12 17 | 704 | 0.6+ | 0.2− | 2009 12 17 | 691 | 0.1+ | 0.1+ |
| 2001 11 24 | 704 | 0.7+ | 0.3− | 2001 12 17 | 704 | 0.8+ | 0.3+ | 2009 12 17 | 691 | 0.3− | 0.7+ |
| 2001 11 24 | 704 | 1.4+ | 0.4− | 2002 01 14 | 704 | 0.1− | 0.5− | 2009 12 17 | 691 | 0.5+ | 0.2− |
| 2001 11 24 | 704 | 0.3+ | 0.1+ | 2002 01 14 | 704 | 1.2− | 0.0 | 2009 12 25 | 691 | 0.5− | 0.5− |
| 2001 12 09 | 704 | 0.2− | 0.2− | 2002 01 14 | 704 | 0.8− | 0.1− | 2009 12 25 | 691 | 0.4− | 0.1+ |
| 2001 12 09 | 704 | 0.1+ | 0.3− | 2005 12 02 | 691 | 0.1+ | 0.0 | 2009 12 25 | 691 | 0.3+ | 0.1+ |
| 2001 12 09 | 704 | 0.4+ | 0.0 | 2005 12 02 | 691 | 0.1+ | 0.0 | | | | |

**2001 WO$_{50}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 134.11820 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.27176029 | $\omega$ | 296.20975 | | +0.92844771 | | +0.33271354 |
| $a$ | 2.3605437 | $\Omega$ | 44.88197 | | −0.19756550 | | +0.81887009 |
| $e$ | 0.2843273 | $i$ | 13.53808 | | −0.31456751 | | +0.46771089 |
| $P$ | 3.63 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 10 21 | 704 | 0.5− | 0.1+ | 2001 11 21 | 704 | 0.0 | 0.1− | 2008 08 27 | E12 | 0.2− | 0.3− |
| 2001 10 21 | 704 | 0.8− | 0.5+ | 2001 11 21 | 704 | 1.0+ | 0.8− | 2008 08 27 | E12 | 0.1− | 0.2+ |
| 2001 10 21 | 704 | 0.7− | 0.0 | 2001 11 21 | 704 | 0.4+ | 0.4+ | 2008 09 21 | E12 | 0.3+ | 0.5− |
| 2001 10 21 | 704 | 0.5− | 0.1+ | 2001 11 21 | 704 | 0.5+ | 0.3+ | 2008 09 21 | E12 | 0.7+ | 0.5− |
| 2001 10 21 | 704 | 0.3− | 0.9+ | 2001 11 21 | 704 | 0.3+ | 1.0+ | 2008 09 21 | E12 | 0.0 | 0.4− |
| 2001 11 12 | 704 | (1.9+ | 0.3+) | 2001 11 24 | 704 | 0.4+ | 0.1− | 2008 09 21 | E12 | 0.4+ | 0.3+ |
| 2001 11 12 | 704 | 1.1+ | 0.9− | 2001 11 24 | 704 | 0.5+ | 0.2− | 2008 10 08 | E12 | 0.2− | 0.4+ |
| 2001 11 12 | 704 | 0.3+ | 0.3− | 2001 11 24 | 704 | 0.4+ | 0.5− | 2008 10 08 | E12 | 0.8+ | 0.1+ |
| 2001 11 12 | 704 | (2.9+ | 0.4+) | 2001 11 24 | 704 | 0.2+ | 0.0 | 2008 10 08 | E12 | 0.1+ | 0.5− |
| 2001 11 12 | 704 | 0.4+ | 0.3− | 2001 11 24 | 704 | 0.2+ | 0.4+ | 2008 10 08 | E12 | 1.4− | 0.5+ |
| 2001 11 17 | 704 | (1.7− | 0.7−) | 2001 12 20 | 644 | 0.5− | 0.3+ | 2008 12 31 | G96 | 0.1+ | 0.1− |
| 2001 11 17 | 704 | 0.6− | 0.1− | 2001 12 20 | 644 | 0.6− | 0.1+ | 2008 12 31 | G96 | 0.3− | 0.4+ |
| 2001 11 17 | 704 | 0.5− | 0.3− | 2001 12 20 | 644 | 0.4− | 0.0 | 2008 12 31 | G96 | 0.2− | 0.2+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 11 17 | 704 | 0.4− | 0.5− | 2008 08 27 | E12 | 0.2+ | 0.2+ | 2008 12 31 | G96 | 0.1− | 0.2+ | | |
| 2001 11 17 | 704 | 0.2− | 0.4− | 2008 08 27 | E12 | 0.4− | 0.2+ | | | | | | |

**2001 XZ$_{41}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 167.07038 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17456209 | $\omega$ | 135.91516 | | +0.32387656 | −0.84018702 | |
| $a$ | 3.1708043 | $\Omega$ | 290.60317 | | +0.68718262 | +0.52490674 | |
| $e$ | 0.2637910 | $i$ | 27.68954 | | +0.65029533 | −0.13623028 | |
| $P$ | 5.65 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 12 09 | 704 | 0.8− | 0.3+ | 2001 12 23 | 704 | 1.0− | 0.4− | 2002 02 12 | 704 | 1.2+ | 0.6+ |
| 2001 12 09 | 704 | 0.7+ | 0.8+ | 2001 12 23 | 704 | 0.9− | 0.8− | 2002 02 12 | 704 | 1.9+ | 0.4+ |
| 2001 12 09 | 704 | 0.8− | 0.1− | 2001 12 23 | 704 | 0.2− | 1.1− | 2007 12 20 | 703 | 0.2+ | 0.7− |
| 2001 12 09 | 704 | 0.7− | 0.2− | 2001 12 23 | 704 | 0.1− | 1.1− | 2007 12 20 | 703 | 1.3− | 0.0 |
| 2001 12 14 | 704 | 0.4− | 1.6+ | 2002 01 15 | 704 | 1.0+ | 0.6+ | 2007 12 20 | 703 | 0.2− | 0.6+ |
| 2001 12 14 | 704 | 0.5− | 0.6+ | 2002 01 15 | 704 | 0.2+ | 0.6− | 2007 12 20 | 703 | 0.0 | 0.4− |
| 2001 12 14 | 704 | 0.1+ | 1.8+ | 2002 01 15 | 704 | 0.4+ | 0.7+ | 2008 02 02 | 703 | 0.1− | 0.1− |
| 2001 12 22 | 704 | 1.1− | 0.2+ | 2002 01 15 | 704 | 1.4+ | 0.4+ | 2008 02 02 | 703 | 0.1+ | 0.3− |
| 2001 12 22 | 704 | 0.5− | 0.7− | 2002 01 15 | 704 | 1.2+ | 0.1− | 2008 02 02 | 703 | 0.1− | 1.1− |
| 2001 12 22 | 704 | 0.5+ | 0.7− | 2002 02 12 | 704 | 0.4+ | 0.1− | 2008 02 02 | 703 | 0.5+ | 1.0+ |
| 2001 12 23 | 704 | 0.6− | 0.3− | 2002 02 12 | 704 | (2.1+ | 0.4+) | | | | |

**2001 XF$_{51}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 186.00829 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17454081 | $\omega$ | 311.18557 | | +0.92649795 | −0.33783303 | |
| $a$ | 3.1710620 | $\Omega$ | 69.15432 | | +0.37589293 | +0.81041171 | |
| $e$ | 0.1970229 | $i$ | 10.21550 | | +0.01749432 | +0.47864570 | |
| $P$ | 5.65 | $H$ | 15.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 16 | 644 | 0.2− | 0.0 | 2001 11 21 | 704 | 0.3+ | 1.9+ | 2001 12 19 | 704 | 0.5− | 0.2− |
| 2001 09 16 | 644 | 0.4− | 0.1− | 2001 11 24 | 704 | 0.0 | 0.3+ | 2001 12 19 | 704 | 0.9− | 0.3+ |
| 2001 09 16 | 644 | 0.1− | 0.0 | 2001 11 24 | 704 | 0.2+ | 0.7+ | 2001 12 19 | 704 | 0.6− | 0.1+ |
| 2001 10 23 | 704 | 0.8− | 0.5− | 2001 11 24 | 704 | 0.4+ | 0.8+ | 2001 12 19 | 704 | 0.2− | 0.6+ |
| 2001 10 23 | 704 | 0.9+ | 0.3− | 2001 11 24 | 704 | 0.5+ | 0.5− | 2001 12 19 | 704 | 0.3+ | 0.5− |
| 2001 10 23 | 704 | 0.3− | 0.8− | 2001 11 24 | 704 | 0.6+ | 0.3+ | 2001 12 19 | 704 | 0.2− | 0.4− |
| 2001 10 23 | 704 | 0.3− | 0.7− | 2001 12 07 | 644 | (4.5− | 0.1−) | 2001 12 19 | 704 | 0.8− | 1.0− |
| 2001 10 24 | 704 | (0.4+ | 2.3−) | 2001 12 07 | 644 | (4.8− | 0.2+) | 2002 01 08 | 691 | 0.7− | 0.2− |
| 2001 10 24 | 704 | 0.1− | 0.2− | 2001 12 07 | 644 | (4.9− | 0.3−) | 2002 01 08 | 691 | 0.6− | 0.2− |
| 2001 10 24 | 704 | 0.3+ | 0.3− | 2001 12 10 | 704 | 0.6− | 0.3+ | 2002 01 08 | 691 | 0.6− | 0.3− |
| 2001 10 24 | 704 | 1.2+ | 0.3+ | 2001 12 10 | 704 | 0.4+ | 0.4+ | 2006 09 17 | 699 | 0.4− | 0.4+ |
| 2001 11 19 | 699 | 0.3+ | 0.3+ | 2001 12 10 | 704 | 1.1+ | 0.6+ | 2006 09 17 | 699 | 1.1− | 0.4− |
| 2001 11 19 | 699 | 1.4− | 0.1− | 2001 12 14 | 704 | 0.4+ | 0.3− | 2006 09 17 | 699 | 0.5− | 0.3− |
| 2001 11 19 | 699 | 0.0 | 0.3− | 2001 12 14 | 704 | 0.6+ | 0.5− | 2006 09 17 | 699 | 1.7+ | 0.8+ |
| 2001 11 19 | 699 | 0.2− | 0.6− | 2001 12 14 | 704 | 0.2− | 0.2− | 2007 11 06 | G96 | 0.2+ | 0.2− |
| 2001 11 20 | 704 | 1.7+ | 0.1+ | 2001 12 14 | 704 | 0.7+ | 0.4− | 2007 11 06 | G96 | 0.1+ | 0.1− |
| 2001 11 20 | 704 | 1.2+ | 0.0 | 2001 12 14 | 704 | 0.3+ | 0.6+ | 2007 11 06 | G96 | 0.0 | 0.4− |
| 2001 11 20 | 704 | 1.5+ | 0.1+ | 2001 12 17 | 704 | 0.2+ | 0.2− | 2007 11 06 | G96 | 0.2− | 0.2− |
| 2001 11 20 | 704 | 0.9+ | 0.5− | 2001 12 17 | 704 | 0.2− | 0.7− | 2009 02 02 | G96 | 0.3− | 0.2− |
| 2001 11 20 | 704 | 1.6+ | 0.3− | 2001 12 17 | 704 | 0.3+ | 0.4+ | 2009 02 02 | G96 | 0.2− | 0.7+ |
| 2001 11 21 | 704 | 0.2− | 1.4+ | 2001 12 17 | 704 | 0.3+ | 0.1+ | 2009 02 02 | G96 | 0.2+ | 0.1+ |
| 2001 11 21 | 704 | 0.3− | 0.7+ | 2001 12 17 | 704 | 0.1− | 0.1− | 2009 02 02 | G96 | 0.7+ | 0.1+ |
| 2001 11 21 | 704 | 0.0 | 1.0+ | 2001 12 19 | 704 | 0.6− | 0.2− | | | | |
| 2001 11 21 | 704 | 0.3− | 1.2+ | 2001 12 19 | 704 | 0.9− | 0.2− | | | | |

**2001 XR$_{57}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 106.24310 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27690604 | $\omega$ | 331.51638 | | +0.43772068 | −0.88975504 | |
| $a$ | 2.3312084 | $\Omega$ | 92.26921 | | +0.84753181 | +0.36028278 | |
| $e$ | 0.1640943 | $i$ | 7.43905 | | +0.30015070 | +0.28023612 | |
| $P$ | 3.56 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 12 10 | 704 | 0.1+ | 0.9+ | 2001 12 20 | 704 | 0.2− | 1.1+ | 2008 11 08 | G96 | 0.2− | 0.1− |
| 2001 12 10 | 704 | 0.7+ | 0.9+ | 2001 12 20 | 704 | (0.5+ | 1.6+) | 2008 11 08 | G96 | 0.2+ | 0.2− |
| 2001 12 10 | 704 | 1.2− | 1.0+ | 2001 12 20 | 704 | (2.3+ | 1.9+) | 2008 11 08 | G96 | 0.4+ | 0.1− |
| 2001 12 14 | 704 | 0.2+ | 0.8− | 2002 01 09 | 704 | (1.7− | 0.2−) | 2008 11 08 | G96 | 0.0 | 0.0 |
| 2001 12 14 | 704 | 0.5+ | 0.7− | 2002 01 09 | 704 | (2.1− | 0.7−) | 2008 11 18 | 703 | 0.3− | 0.1− |
| 2001 12 14 | 704 | 0.2+ | 1.0− | 2002 01 09 | 704 | 1.4− | 0.0 | 2008 11 18 | 703 | 0.1+ | 0.3+ |
| 2001 12 14 | 704 | 0.5− | 0.8− | 2002 01 09 | 704 | 0.6− | 0.4+ | 2008 11 18 | 703 | 0.5− | 0.4+ |
| 2001 12 14 | 691 | 0.0 | 0.2− | 2002 01 13 | 704 | 0.1− | 0.1+ | 2008 11 18 | 703 | 0.1+ | 0.1− |
| 2001 12 14 | 691 | 0.0 | 0.1− | 2002 01 13 | 704 | 0.2+ | 0.1+ | 2008 11 27 | J75 | 0.1− | 0.3− |
| 2001 12 14 | 691 | 0.4+ | 0.4− | 2002 01 13 | 704 | 0.6+ | 0.4− | 2008 11 27 | J75 | 0.8+ | 0.3+ |
| 2001 12 17 | 704 | 0.1+ | 0.3− | 2002 01 13 | 704 | 0.1+ | 0.0 | 2008 11 28 | J75 | 0.9− | 0.0 |
| 2001 12 17 | 704 | 0.2+ | 0.2− | 2002 01 13 | 704 | 0.2+ | 0.2+ | 2009 01 02 | G96 | 0.0 | 0.0 |
| 2001 12 17 | 704 | 0.1+ | 0.1− | 2002 01 15 | 704 | 0.9+ | 0.9+ | 2009 01 02 | G96 | 0.2+ | 0.2+ |
| 2001 12 17 | 704 | 0.1+ | 0.2+ | 2002 01 15 | 704 | 0.0 | 0.0 | 2009 01 02 | G96 | 0.2+ | 0.3+ |
| 2001 12 17 | 704 | 0.0 | 0.4+ | 2002 01 15 | 704 | 1.0− | 1.0− | 2009 01 02 | G96 | 0.2− | 0.1+ |
| 2001 12 20 | 704 | 0.1+ | 0.9+ | 2002 01 15 | 704 | 0.6− | 0.3+ | | | | |

**2001 XF$_{110}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 107.51449 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27567901 | $\omega$ | 308.71566 | | +0.74044283 | −0.66219817 | |
| $a$ | 2.3381206 | $\Omega$ | 93.07092 | | +0.64687734 | +0.65564249 | |
| $e$ | 0.2398874 | $i$ | 6.61643 | | +0.18246678 | +0.36280367 | |
| $P$ | 3.58 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 11 09 | 644 | 0.3− | 0.3− | 2001 12 11 | 704 | 0.9+ | 0.5+ | 2008 09 20 | 703 | 0.4− | 0.5− |
| 2001 11 09 | 644 | 0.3− | 0.4− | 2001 12 11 | 704 | 0.4+ | 0.8+ | 2008 09 20 | 703 | 0.3+ | 0.1+ |
| 2001 11 09 | 644 | 0.2+ | 0.6− | 2001 12 11 | 704 | 0.6+ | 0.7+ | 2008 09 20 | 703 | 0.7− | 1.0+ |
| 2001 11 17 | 704 | 0.1− | 0.1+ | 2001 12 17 | 704 | 0.2+ | 0.2− | 2008 09 20 | 703 | 0.0 | 0.5+ |
| 2001 11 17 | 704 | 0.3− | 0.4− | 2001 12 17 | 704 | 0.1+ | 0.4+ | 2008 10 01 | 703 | 0.4+ | 1.3− |
| 2001 11 17 | 704 | 0.2− | 0.1+ | 2001 12 17 | 704 | 0.1− | 0.6− | 2008 10 01 | 703 | 0.8− | 0.7− |
| 2001 11 19 | 699 | 0.5− | 0.5− | 2001 12 17 | 704 | 0.2− | 0.0 | 2008 10 01 | 703 | 0.7+ | 0.6− |
| 2001 11 19 | 699 | 0.8− | 0.1− | 2001 12 17 | 704 | 0.2− | 1.0− | 2008 10 01 | 703 | 0.9− | 0.7+ |
| 2001 11 19 | 699 | 0.3+ | 0.4− | 2001 12 18 | 644 | 0.7+ | 0.5+ | 2008 10 09 | 703 | (1.0− | 1.8+) |
| 2001 11 19 | 699 | 0.0 | 0.5− | 2001 12 18 | 644 | 0.9+ | 0.0 | 2008 10 09 | 703 | 0.2− | 0.4+ |
| 2001 11 24 | 704 | 0.4+ | 0.1+ | 2001 12 18 | 644 | 0.7+ | 0.4+ | 2008 10 09 | 703 | 0.9− | 0.6+ |
| 2001 11 24 | 704 | 0.1+ | 1.2+ | 2002 01 13 | 704 | 1.5− | 0.1− | 2008 10 09 | 703 | (0.8− | 2.4+) |
| 2001 11 24 | 704 | 0.1+ | 1.5− | 2002 01 13 | 704 | 0.9− | 0.3+ | 2008 10 26 | 703 | 0.5+ | 0.2+ |
| 2001 11 24 | 704 | 0.0 | 1.2− | 2002 01 13 | 704 | 1.2− | 0.2− | 2008 10 26 | 703 | 0.1− | 0.4+ |
| 2001 12 11 | 704 | 0.9+ | 0.3+ | 2002 01 13 | 704 | 0.5− | 1.2+ | 2008 10 26 | 703 | 0.8+ | 0.2+ |
| 2001 12 11 | 704 | 0.4+ | 0.3+ | 2002 01 13 | 704 | 0.7− | 0.6+ | 2008 10 26 | 703 | 0.8+ | 0.3+ |

**2001 XW$_{134}$ = 2009 WB$_{252}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 352.37719 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.12365803 | $\omega$ | 202.56911 | | −0.11633630 | −0.98348591 | |
| $a$ | 3.9901373 | $\Omega$ | 254.33379 | | +0.93182295 | −0.05976408 | |
| $e$ | 0.2518632 | $i$ | 8.27880 | | +0.34376133 | −0.17083240 | |
| $P$ | 7.97 | $H$ | 15.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 11 17 | 291 | 0.0 | 0.3− | 2001 12 17 | 704 | (4.0+ | 1.9+) | 2009 11 09 | 691 | 0.3− | 0.0 |
| 2001 11 17 | 291 | 0.0 | 0.1− | 2001 12 17 | 704 | (3.6+ | 2.4+) | 2009 11 24 | 691 | 0.1− | 0.1− |
| 2001 11 17 | 291 | 0.1+ | 0.2− | 2001 12 20 | 704 | 0.6− | 0.1− | 2009 11 24 | 691 | 0.2− | 0.0 |
| 2001 11 19 | 704 | 0.4+ | 0.2− | 2001 12 20 | 704 | 0.3+ | 0.8− | 2009 11 24 | 691 | 0.3− | 0.0 |
| 2001 11 19 | 704 | (1.6+ | 0.2+) | 2001 12 20 | 704 | 0.4+ | 0.2+ | 2009 12 09 | J75 | 0.5+ | 0.5− |
| 2001 11 19 | 704 | 1.2+ | 1.1+ | 2008 10 30 | G96 | 0.3+ | 0.0 | 2009 12 09 | J75 | 0.5+ | 0.1− |
| 2001 12 07 | 691 | 0.2− | 0.1+ | 2008 10 30 | G96 | 0.2− | 0.0 | 2009 12 09 | J75 | 0.4+ | 0.1− |
| 2001 12 07 | 691 | 0.2− | 0.0 | 2008 10 30 | G96 | 0.1− | 0.1− | 2009 12 10 | G96 | 0.2+ | 0.1− |
| 2001 12 07 | 691 | 0.3− | 0.3+ | 2008 10 30 | G96 | 0.6+ | 0.2− | 2009 12 10 | G96 | 0.2+ | 0.1− |
| 2001 12 14 | 704 | (1.6+ | 0.3−) | 2008 12 01 | G96 | 0.2− | 0.0 | 2009 12 10 | G96 | 0.4+ | 0.1− |
| 2001 12 14 | 704 | 0.7+ | 0.2− | 2008 12 01 | G96 | 0.6− | 0.0 | 2009 12 10 | G96 | 0.5+ | 0.1− |
| 2001 12 14 | 704 | (2.0+ | 0.4−) | 2008 12 01 | G96 | 0.1+ | 0.2+ | 2009 12 17 | 704 | 0.2+ | 0.5+ |
| 2001 12 14 | 704 | (1.8+ | 1.1+) | 2008 12 01 | G96 | 0.3− | 0.4+ | 2009 12 17 | 704 | 0.3+ | 0.9+ |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 12 17 | 704 | (3.1+ | 2.8+) | 2009 11 09 | 691 | 0.2− | 0.1− | 2009 12 17 | 704 | 1.1+ | 0.4+ | | | |
| 2001 12 17 | 704 | (3.3+ | 2.9+) | 2009 11 09 | 691 | 0.2− | 0.0 | 2009 12 17 | 704 | 0.4+ | 0.9+ | | | |

**2001 XS$_{146}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 9.09049 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.12636399 | $\omega$ | 181.79447 | | +0.03562824 | | −0.99061795 |
| $a$ | 3.9329688 | $\Omega$ | 266.17948 | | +0.91853874 | | +0.08447165 |
| $e$ | 0.1992372 | $i$ | 7.59838 | | +0.39372224 | | −0.10742727 |
| $P$ | 7.80 | $H$ | 14.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 12 14 | 704 | 0.2− | 0.4+ | 2001 12 19 | 704 | 1.4+ | 0.0 | 2008 10 08 | G96 | 0.3− | 0.2− |
| 2001 12 14 | 704 | 0.4+ | 0.4+ | 2001 12 19 | 704 | 0.2− | 0.7− | 2008 11 01 | G96 | 0.2+ | 0.2− |
| 2001 12 14 | 704 | 0.4+ | 0.2− | 2002 01 08 | 704 | 0.6− | 0.0 | 2008 11 01 | G96 | 0.3− | 0.1− |
| 2001 12 14 | 704 | 0.4+ | 0.1+ | 2002 01 08 | 704 | 0.5+ | 1.0+ | 2008 11 01 | G96 | 0.3+ | 0.2− |
| 2001 12 14 | 704 | 0.7+ | 0.2+ | 2002 01 08 | 704 | 0.2+ | 0.6+ | 2008 11 01 | G96 | 0.4+ | 0.2− |
| 2001 12 17 | 704 | 1.0− | 0.2+ | 2002 01 08 | 704 | 0.2− | 0.1+ | 2009 12 16 | 691 | 0.1− | 0.0 |
| 2001 12 17 | 704 | 0.6− | 0.7+ | 2002 01 08 | 704 | 0.1+ | 0.3+ | 2009 12 16 | 691 | 0.1+ | 0.3− |
| 2001 12 17 | 704 | 0.7− | 0.6+ | 2002 01 12 | 691 | 0.2+ | 0.1− | 2009 12 16 | 691 | 0.2− | 0.1− |
| 2001 12 17 | 704 | 0.4− | 0.9+ | 2002 01 12 | 691 | 0.1+ | 0.2− | 2009 12 20 | 691 | 0.2− | 0.2− |
| 2001 12 17 | 704 | 0.4− | 0.9+ | 2002 01 12 | 691 | 0.1+ | 0.1− | 2009 12 20 | 691 | 0.3+ | 0.1− |
| 2001 12 19 | 704 | 1.0− | 0.1+ | 2008 10 08 | G96 | 0.1− | 0.1+ | 2009 12 20 | 691 | 0.1− | 0.1− |
| 2001 12 19 | 704 | 0.2− | 0.3+ | 2008 10 08 | G96 | 0.0 | 0.2− | | | | |
| 2001 12 19 | 704 | 0.3+ | 0.1− | 2008 10 08 | G96 | 0.1+ | 0.1− | | | | |

**2001 XP$_{225}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 97.58036 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.26791466 | $\omega$ | 323.30891 | | +0.88537815 | | −0.46195134 |
| $a$ | 2.3830788 | $\Omega$ | 64.28208 | | +0.43905910 | | +0.79419166 |
| $e$ | 0.2386435 | $i$ | 3.31033 | | +0.15275026 | | +0.39479179 |
| $P$ | 3.68 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 11 09 | 704 | 0.1− | 0.0 | 2001 12 10 | 704 | 0.3− | 0.9− | 2001 12 19 | 704 | 0.6+ | 1.1+ |
| 2001 11 09 | 704 | 1.3+ | 0.1+ | 2001 12 10 | 704 | 1.5− | 1.1− | 2002 01 14 | 704 | 0.5+ | 0.4+ |
| 2001 11 09 | 704 | 0.9+ | 0.4+ | 2001 12 15 | 704 | 0.0 | 0.9+ | 2002 01 14 | 704 | 0.1+ | 0.6+ |
| 2001 11 09 | 704 | 0.4+ | 0.1+ | 2001 12 15 | 704 | 0.3− | 0.5+ | 2002 01 14 | 704 | 0.8− | 0.3+ |
| 2001 11 19 | 704 | 0.2− | 0.2+ | 2001 12 15 | 704 | 0.3− | 0.9+ | 2002 01 14 | 704 | 0.0 | 0.1− |
| 2001 11 19 | 704 | 0.4− | 0.4+ | 2001 12 18 | 704 | 0.8+ | 0.2− | 2005 12 30 | G96 | 0.1− | 0.1− |
| 2001 11 19 | 704 | 1.6+ | 0.4+ | 2001 12 18 | 704 | 0.6+ | 0.5− | 2005 12 30 | G96 | 0.2− | 0.3− |
| 2001 11 21 | 704 | 0.7− | 0.6+ | 2001 12 18 | 704 | 0.5+ | 0.1− | 2005 12 30 | G96 | 0.1+ | 0.7− |
| 2001 11 21 | 704 | 1.2− | 1.8+ | 2001 12 18 | 704 | 0.5+ | 0.0 | 2005 12 30 | G96 | 0.2− | 0.1+ |
| 2001 11 21 | 704 | 0.9− | 1.6− | 2001 12 18 | 704 | 0.6+ | 0.2+ | 2007 04 22 | G96 | 0.1+ | 0.8+ |
| 2001 11 21 | 704 | 1.2− | 0.5− | 2001 12 19 | 704 | 0.1+ | 0.3− | 2007 04 22 | G96 | 0.0 | 0.3+ |
| 2001 11 21 | 704 | (1.2− | 2.2+) | 2001 12 19 | 704 | 0.1+ | 0.5− | 2007 04 22 | G96 | 0.4+ | 0.0 |
| 2001 12 10 | 704 | 1.1− | 0.3− | 2001 12 19 | 704 | 0.3+ | 0.1− | 2007 04 22 | G96 | 0.1+ | 0.3+ |
| 2001 12 10 | 704 | 0.2− | 1.3− | 2001 12 19 | 704 | 0.3+ | 0.5+ | | | | |

**2001 XF$_{258}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 175.77792 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17982668 | $\omega$ | 336.50123 | | +0.49766439 | | −0.80675156 |
| $a$ | 3.1086128 | $\Omega$ | 82.25775 | | +0.83804783 | | +0.35254746 |
| $e$ | 0.1821948 | $i$ | 18.75325 | | +0.22362019 | | +0.47419639 |
| $P$ | 5.48 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 11 17 | 704 | 0.3+ | 0.3− | 2001 12 08 | 699 | 0.3− | 0.3− | 2002 01 19 | 691 | 0.3+ | 0.1+ |
| 2001 11 17 | 704 | 0.5− | 0.4+ | 2001 12 11 | 704 | 0.5+ | 0.5+ | 2002 01 19 | 691 | 0.3+ | 0.6− |
| 2001 11 17 | 704 | 0.2− | 0.5+ | 2001 12 11 | 704 | 0.0 | 0.0 | 2008 01 16 | G96 | 0.1− | 0.1− |
| 2001 11 17 | 704 | 0.2− | 0.2+ | 2001 12 11 | 704 | 0.0 | 0.7− | 2008 01 16 | G96 | 0.1− | 0.0 |
| 2001 11 21 | 608 | 0.0 | 0.8− | 2001 12 11 | 704 | 1.1+ | 0.2− | 2008 01 16 | G96 | 0.0 | 0.1+ |
| 2001 11 21 | 608 | 0.6− | 0.2− | 2001 12 11 | 704 | 0.6+ | 0.0 | 2008 01 16 | G96 | 0.4+ | 0.0 |
| 2001 11 21 | 608 | 0.4− | 0.1+ | 2002 01 13 | 704 | 1.3+ | 0.4− | 2008 02 10 | 703 | 0.7− | 0.6+ |
| 2001 12 08 | 699 | 0.9− | 1.2+ | 2002 01 13 | 704 | 0.5+ | 1.0+ | 2008 02 10 | 703 | 0.3− | 0.0 |
| 2001 12 08 | 699 | 0.2− | 0.4+ | 2002 01 13 | 704 | 0.5− | 1.1+ | 2008 02 10 | 703 | 0.0 | 0.2+ |
| 2001 12 08 | 699 | 1.3− | 0.6− | 2002 01 19 | 691 | 0.3− | 0.0 | 2008 02 10 | 703 | 0.9+ | 0.2− |

**2001 YB$_{104}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 333.44666 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.24069256 | $\omega$ | 3.75308 | | −0.44809204 | | −0.87682387 |
| $a$ | 2.5595342 | $\Omega$ | 112.93814 | | +0.81520963 | | −0.48080487 |
| $e$ | 0.1700861 | $i$ | 10.91230 | | +0.36694248 | | −0.00256453 |
| $P$ | 4.09 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 12 17 | 704 | 0.1− | 0.2− | 2002 01 15 | 704 | 1.2− | 0.1− | 2007 04 20 | G96 | 0.5+ | 0.0 |
| 2001 12 17 | 704 | 0.5− | 0.6− | 2002 02 06 | 704 | 0.0 | 0.4+ | 2007 04 20 | G96 | 0.5+ | 0.1− |
| 2001 12 17 | 704 | 0.2− | 0.4− | 2002 02 06 | 704 | 0.5− | 0.2+ | 2007 05 10 | 691 | 0.1+ | 0.0 |
| 2001 12 17 | 704 | 0.5− | 0.1− | 2002 02 06 | 704 | 0.0 | 1.0+ | 2007 05 10 | 691 | 0.0 | 0.4+ |
| 2001 12 17 | 704 | 0.8− | 0.6− | 2002 02 06 | 704 | 0.2+ | 0.5+ | 2007 05 10 | 691 | 0.2− | 0.2+ |
| 2001 12 20 | 704 | 0.2− | 0.1− | 2002 02 06 | 704 | 0.0 | 0.4+ | 2009 11 26 | G96 | 0.0 | 0.2+ |
| 2001 12 20 | 704 | 0.5+ | 0.3− | 2002 02 07 | 704 | 0.6+ | 0.3+ | 2009 11 26 | G96 | 0.0 | 0.0 |
| 2001 12 20 | 704 | (0.8− | 2.0+) | 2002 02 07 | 704 | 0.5+ | 0.2+ | 2009 11 26 | G96 | 0.1− | 0.0 |
| 2001 12 20 | 704 | 0.1− | 0.2+ | 2002 02 07 | 704 | 0.2+ | 1.0− | 2009 11 26 | G96 | 0.2− | 0.0 |
| 2001 12 20 | 704 | 0.3+ | 0.4+ | 2002 02 07 | 704 | 0.4+ | 0.3+ | 2009 11 26 | G96 | 0.3+ | 0.0 |
| 2002 01 09 | 704 | 0.2− | 0.3+ | 2002 02 10 | 704 | 0.1+ | 0.0 | 2009 12 11 | 703 | 0.6− | 0.4− |
| 2002 01 09 | 704 | 0.3+ | 0.2+ | 2002 02 10 | 704 | 0.3+ | 0.1+ | 2009 12 11 | 703 | 0.1− | 0.5− |
| 2002 01 09 | 704 | 0.1+ | 0.2+ | 2002 02 10 | 704 | 0.4+ | 0.0 | 2009 12 11 | 703 | 0.4− | 0.2+ |
| 2002 01 09 | 704 | 0.1− | 0.0 | 2002 02 12 | 704 | 0.6+ | 0.4− | 2009 12 11 | 703 | 0.5− | 0.4+ |
| 2002 01 13 | 704 | 0.8− | 0.5− | 2002 02 12 | 704 | 0.8+ | 0.4− | 2009 12 13 | 704 | 0.4+ | 0.6+ |
| 2002 01 13 | 704 | 0.3+ | 0.0 | 2002 02 12 | 704 | 0.6+ | 0.6+ | 2009 12 13 | 704 | 0.2+ | 0.8+ |
| 2002 01 13 | 704 | 0.5+ | 0.4+ | 2002 02 12 | 704 | 0.7+ | 0.1+ | 2009 12 13 | 704 | 0.3+ | 0.1− |
| 2002 01 13 | 704 | 0.8− | 0.6− | 2006 01 28 | G96 | 0.2− | 0.2− | 2009 12 13 | 704 | 0.2+ | 1.2+ |
| 2002 01 14 | 608 | 0.3− | 0.5− | 2006 01 28 | G96 | 0.1− | 0.0 | 2009 12 18 | 704 | 0.3+ | 0.1+ |
| 2002 01 14 | 608 | 0.2− | 0.4− | 2006 01 28 | G96 | 0.2+ | 0.2− | 2009 12 18 | 704 | 0.5− | 1.1+ |
| 2002 01 14 | 608 | 0.4− | 0.3− | 2006 01 28 | G96 | 0.2− | 0.2− | 2009 12 18 | 704 | 0.2− | 0.5+ |
| 2002 01 15 | 704 | 0.3+ | 0.1− | 2007 04 20 | G96 | 0.2− | 0.1− | | | | |
| 2002 01 15 | 704 | 0.1+ | 0.4− | 2007 04 20 | G96 | 0.4+ | 0.1+ | | | | |

**2001 YL$_{108}$ = 2009 WJ$_{247}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 352.30317 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23252500 | $\omega$ | 325.13452 | | +0.14727502 | | −0.92333508 |
| $a$ | 2.6191253 | $\Omega$ | 114.01572 | | +0.97261902 | | +0.07002280 |
| $e$ | 0.0236397 | $i$ | 22.84492 | | +0.17978404 | | +0.37755679 |
| $P$ | 4.24 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 12 17 | 704 | 0.8− | 0.5− | 2002 01 18 | 704 | 1.2+ | 1.3+ | 2006 02 04 | G96 | 0.4+ | 0.1− |
| 2001 12 17 | 704 | 0.6− | 0.8− | 2002 01 18 | 704 | (1.1+ | 1.6+) | 2006 02 04 | G96 | 0.0 | 0.0 |
| 2001 12 17 | 704 | 0.9− | 1.0− | 2002 01 18 | 704 | (1.6+ | 2.3+) | 2008 06 02 | G96 | 0.5+ | 0.2+ |
| 2001 12 20 | 704 | 0.5− | 0.1− | 2002 02 07 | 704 | 1.0− | 0.3+ | 2008 06 02 | G96 | 0.6+ | 0.2+ |
| 2001 12 20 | 704 | 0.3− | 0.4+ | 2002 02 07 | 704 | 0.2+ | 0.7+ | 2008 06 02 | G96 | 0.3+ | 0.1+ |
| 2001 12 20 | 704 | 1.3+ | 0.1+ | 2002 02 07 | 704 | (1.5− | 0.9−) | 2008 06 02 | G96 | 0.4+ | 0.7+ |
| 2001 12 24 | 691 | 0.0 | 0.0 | 2002 02 07 | 704 | 0.0 | 0.2+ | 2008 07 28 | E12 | 0.5− | 0.6+ |
| 2001 12 24 | 691 | 0.3− | 0.5+ | 2002 02 07 | 704 | 0.1+ | 0.5+ | 2008 07 28 | E12 | 0.2− | 0.4− |
| 2001 12 24 | 691 | 0.0 | 0.4+ | 2002 02 07 | 704 | 0.9+ | 0.3+ | 2008 07 28 | E12 | 0.2− | 0.6+ |
| 2002 01 04 | 644 | 0.6− | 0.7+ | 2002 02 07 | 704 | 0.1+ | 0.2− | 2008 07 28 | E12 | 0.3− | 0.2+ |
| 2002 01 04 | 644 | 0.1+ | 0.2+ | 2002 02 10 | 704 | 0.4+ | 0.3+ | 2009 11 18 | 703 | 0.4+ | 0.8− |
| 2002 01 04 | 644 | 0.1+ | 0.5+ | 2002 02 10 | 704 | 0.2− | 0.5− | 2009 11 18 | 703 | 0.6− | 0.1+ |
| 2002 01 09 | 704 | 0.5− | 0.9+ | 2002 02 10 | 704 | 0.1+ | 0.1− | 2009 11 18 | 703 | 0.2− | 0.5− |
| 2002 01 09 | 704 | 0.1+ | 0.7+ | 2002 02 12 | 704 | 0.4− | 0.0 | 2009 11 18 | 703 | 0.8− | 0.9− |
| 2002 01 09 | 704 | 0.0 | 0.8+ | 2002 02 12 | 704 | 0.2− | 0.2− | 2009 11 24 | 703 | 0.3+ | 1.1+ |
| 2002 01 14 | 704 | 0.3+ | 0.5− | 2002 02 12 | 704 | 0.1+ | 0.1+ | 2009 11 24 | 703 | 0.5− | 1.1− |
| 2002 01 14 | 704 | 0.5+ | 1.2− | 2002 02 12 | 704 | 0.0 | 0.0 | 2009 11 24 | 703 | 0.2− | 1.0+ |
| 2002 01 14 | 704 | 0.3+ | 0.9− | 2002 02 12 | 704 | 0.1+ | 0.9− | 2009 11 24 | 703 | 1.2+ | 1.0+ |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 01 14 | 704 | 0.2+ | 1.2− | 2006 02 04 | G96 | 0.0 | 0.2+ | 2009 11 24 | 703 | 0.4+ | 0.3− |
| 2002 01 14 | 704 | 0.4+ | 1.3− | 2006 02 04 | G96 | 0.2− | 0.0 | | | | |

**2001 YA$_{157}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 272.06963 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21687918 | $\omega$ | 144.22380 | | −0.35312884 | | −0.93095130 |
| $a$ | 2.7436211 | $\Omega$ | 326.17578 | | +0.81488388 | | −0.25727324 |
| $e$ | 0.1973299 | $i$ | 9.60677 | | +0.45963494 | | −0.25911418 |
| $P$ | 4.54 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 12 19 | 644 | 0.4+ | 0.5+ | 2002 01 08 | 704 | 0.2+ | 0.6+ | 2007 03 10 | 644 | 0.3− | 0.3+ |
| 2001 12 19 | 644 | 0.2− | 0.2− | 2002 01 13 | 644 | 0.1+ | 0.1+ | 2007 03 10 | 644 | 0.5− | 0.2+ |
| 2001 12 19 | 644 | 0.3− | 0.3− | 2002 01 13 | 644 | 0.1+ | 0.1+ | 2007 03 10 | 644 | 0.4− | 0.1− |
| 2002 01 08 | 704 | 0.2+ | 0.1− | 2002 01 13 | 644 | 0.3+ | 0.3+ | 2007 03 14 | 699 | 0.7+ | 0.5+ |
| 2002 01 08 | 704 | 0.3+ | 0.4+ | 2002 02 08 | 704 | 0.6+ | 0.3− | 2007 03 14 | 699 | 0.7− | 1.4− |
| 2002 01 08 | 704 | 0.0 | 0.3− | 2002 02 08 | 704 | 0.6− | 0.3− | 2007 03 14 | 699 | 0.5+ | 0.5+ |
| 2002 01 08 | 704 | 0.4+ | 0.3− | 2002 02 08 | 704 | 1.5− | 0.4− | 2007 03 14 | 699 | 0.7+ | 0.2+ |

**2002 AH$_{124}$ = 2009 VM$_{106}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 17.07434 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22801899 | $\omega$ | 280.03984 | | +0.66054935 | | −0.67931591 |
| $a$ | 2.6535180 | $\Omega$ | 123.62521 | | +0.74550777 | | +0.64385992 |
| $e$ | 0.1120659 | $i$ | 22.57766 | | −0.08884098 | | +0.35209985 |
| $P$ | 4.32 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 01 09 | 704 | 0.9− | 0.5+ | 2002 01 14 | 704 | 0.8+ | 0.3+ | 2009 10 23 | 703 | 0.6+ | 0.1+ |
| 2002 01 09 | 704 | 0.0 | 0.6− | 2002 01 14 | 704 | 0.2+ | 0.3+ | 2009 11 11 | 703 | 0.4+ | 0.6+ |
| 2002 01 09 | 704 | 0.8+ | 0.1+ | 2002 01 14 | 704 | 0.0 | 0.1+ | 2009 11 11 | 703 | 0.9− | 0.5− |
| 2002 01 09 | 704 | 0.9− | 0.1+ | 2002 02 04 | 644 | 0.4− | 0.2− | 2009 11 11 | 703 | 0.0 | 0.5+ |
| 2002 01 11 | 291 | 0.1+ | 0.1+ | 2002 02 04 | 644 | 0.3− | 0.0 | 2009 11 11 | 703 | 0.3+ | 0.6− |
| 2002 01 11 | 291 | 0.0 | 0.1− | 2002 02 04 | 644 | 0.7− | 0.0 | 2009 11 18 | 703 | (1.1− | 1.7+) |
| 2002 01 11 | 291 | 0.0 | 0.2− | 2009 10 23 | 703 | 0.5+ | 0.5+ | 2009 11 18 | 703 | 1.0+ | 1.2− |
| 2002 01 14 | 704 | 0.0 | 0.3+ | 2009 10 23 | 703 | 0.4− | 0.2+ | 2009 11 18 | 703 | 0.6− | 0.1+ |
| 2002 01 14 | 704 | 0.7+ | 0.3+ | 2009 10 23 | 703 | 1.1− | 0.2+ | 2009 11 18 | 703 | (0.3− | 2.0−) |

**2002 AO$_{131}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 18.17095 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.36766506 | $\omega$ | 342.76277 | | −0.06879646 | | −0.92121823 |
| $a$ | 1.9297504 | $\Omega$ | 109.79707 | | +0.95656657 | | −0.16990015 |
| $e$ | 0.0781750 | $i$ | 24.01449 | | +0.28327980 | | +0.34998700 |
| $P$ | 2.68 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 01 07 | 699 | 0.8+ | 0.5+ | 2002 01 25 | 704 | 0.0 | 0.2− | 2009 12 10 | 703 | 0.2+ | 0.5+ |
| 2002 01 07 | 699 | 0.4− | 0.4− | 2002 01 25 | 704 | 0.1− | 0.7− | 2009 12 10 | 703 | 0.1+ | 1.6− |
| 2002 01 07 | 699 | 0.6+ | 0.6− | 2002 01 25 | 704 | 0.2− | 0.2+ | 2009 12 13 | J75 | 0.0 | 0.3+ |
| 2002 01 07 | 699 | 0.8− | 0.3+ | 2002 02 19 | 704 | 0.1+ | 0.3+ | 2009 12 13 | J75 | 0.4− | 0.8− |
| 2002 01 08 | 704 | 0.6+ | 1.2− | 2002 02 19 | 704 | 0.0 | 0.7− | 2009 12 13 | J75 | 0.6− | 0.5+ |
| 2002 01 08 | 704 | 0.1+ | 0.0 | 2002 02 19 | 704 | 0.5+ | 0.5+ | 2009 12 17 | 704 | 1.0+ | 0.7+ |
| 2002 01 08 | 704 | 0.7+ | 1.0− | 2002 02 21 | 704 | 0.5− | 0.3+ | 2009 12 17 | 704 | 0.6− | 1.3+ |
| 2002 01 08 | 704 | 0.0 | 0.4+ | 2002 02 21 | 704 | 1.0− | 0.0 | 2009 12 17 | 704 | 0.5+ | 0.6+ |
| 2002 01 08 | 704 | 0.2+ | 0.3+ | 2002 02 21 | 704 | 0.4+ | 0.1+ | 2009 12 17 | G92 | (0.1+ | 2.4−) |
| 2002 01 23 | 704 | 0.5− | 0.7+ | 2002 02 21 | 704 | 0.7− | 0.6+ | 2009 12 17 | G92 | 0.0 | 0.4− |
| 2002 01 23 | 704 | 0.4− | 1.0+ | 2002 02 21 | 704 | 0.8− | 0.6+ | 2009 12 17 | G92 | 1.0+ | 0.6+ |
| 2002 01 23 | 704 | 0.2− | 1.2+ | 2002 03 19 | 644 | 0.5+ | 0.4− | 2009 12 25 | 691 | 0.2− | 0.1− |
| 2002 01 25 | 704 | 0.3+ | 0.1− | 2002 03 19 | 644 | 0.3+ | 0.1− | 2009 12 25 | 691 | 0.0 | 0.2− |
| 2002 01 25 | 704 | 0.3+ | 0.5− | 2002 03 19 | 644 | 0.7+ | 0.4− | 2009 12 25 | 691 | 0.2− | 0.1− |
| 2002 01 25 | 704 | 0.1− | 0.1− | 2009 12 10 | 703 | 0.6− | 0.1− | | | | |
| 2002 01 25 | 704 | 0.1+ | 1.2− | 2009 12 10 | 703 | 0.9+ | 0.7+ | | | | |

**2002 CP**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 105.62319 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.16077580 | $\omega$ | 329.61707 | | −0.63049343 | | −0.77083040 |
| $a$ | 3.3495691 | $\Omega$ | 159.03071 | | +0.75349239 | | −0.63599987 |
| $e$ | 0.2774548 | $i$ | 14.74710 | | +0.18635250 | | −0.03639578 |
| $P$ | 6.13 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 02 02 | 209 | 0.3+ | 0.2+ | 2002 02 17 | 644 | 0.1+ | 0.5+ | 2009 04 22 | G96 | 0.1− | 0.4+ |
| 2002 02 02 | 209 | 0.1+ | 0.1+ | 2002 03 04 | 699 | 0.8− | 0.1− | 2009 04 22 | G96 | 0.2+ | 0.0 |
| 2002 02 02 | 209 | 0.3+ | 0.2+ | 2002 03 04 | 699 | 0.1− | 0.4+ | 2009 04 22 | G96 | 0.0 | 0.0 |
| 2002 02 03 | 209 | 0.0 | 0.2− | 2002 03 04 | 699 | 0.9− | 0.5− | 2009 04 22 | G96 | 0.2+ | 0.2− |
| 2002 02 03 | 209 | 0.2− | 0.3− | 2002 03 04 | 699 | 0.0 | 0.4− | 2009 04 22 | G96 | 0.0 | 0.2− |
| 2002 02 03 | 209 | 0.4− | 0.2− | 2002 03 12 | 291 | 0.3+ | 0.2− | 2009 05 25 | G96 | 0.1− | 0.1− |
| 2002 02 07 | 644 | 0.4− | 0.1− | 2002 03 12 | 291 | 0.0 | 0.0 | 2009 05 25 | G96 | 0.1− | 0.1+ |
| 2002 02 07 | 644 | 0.3− | 0.1− | 2002 03 12 | 291 | 0.1+ | 0.1+ | 2009 05 25 | G96 | 0.1+ | 0.1− |
| 2002 02 07 | 644 | 0.0 | 0.2+ | 2009 04 22 | G96 | 0.1+ | 0.0 | 2009 05 25 | G96 | 0.1− | 0.2+ |
| 2002 02 17 | 644 | 0.4+ | 0.8+ | 2009 04 22 | G96 | 0.1− | 0.0 | | | | |
| 2002 02 17 | 644 | 0.2+ | 0.3+ | 2009 04 22 | G96 | 0.0 | 0.0 | | | | |

**2002 CY$_{45}$ = 2008 GM$_{143}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 142.50433 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17971093 | $\omega$ | 293.70674 | | −0.94955218 | | −0.26059514 |
| $a$ | 3.1099475 | $\Omega$ | 231.65628 | | +0.29980416 | | −0.91754925 |
| $e$ | 0.1601861 | $i$ | 12.85333 | | −0.09202242 | | −0.30032242 |
| $P$ | 5.48 | $H$ | 15.3 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 02 08 | 644 | 0.4+ | 0.7+ | 2002 02 15 | 704 | 0.2− | 0.7− | 2008 04 14 | 703 | 0.2+ | 0.2+ |
| 2002 02 08 | 644 | 0.2+ | 0.4+ | 2002 02 21 | 644 | 0.1+ | 0.1+ | 2008 04 27 | 703 | 0.4+ | 0.2− |
| 2002 02 08 | 644 | 0.7+ | 0.3+ | 2002 02 21 | 644 | 0.3− | 0.3+ | 2008 04 27 | 703 | 0.9− | 0.2+ |
| 2002 02 09 | 644 | 0.1+ | 0.4+ | 2002 02 21 | 644 | 0.3+ | 0.1+ | 2008 04 27 | 703 | 0.6+ | 0.2− |
| 2002 02 09 | 644 | 0.1− | 0.3+ | 2008 04 04 | 703 | 0.3− | 0.3+ | 2008 04 27 | 703 | 0.5− | 1.1− |
| 2002 02 09 | 644 | 0.3− | 0.8+ | 2008 04 04 | 703 | 0.1− | 0.7+ | 2008 06 10 | 291 | 0.0 | 0.2− |
| 2002 02 15 | 704 | 0.3− | 1.0− | 2008 04 04 | 703 | (1.4+ | 2.9+) | 2008 06 10 | 291 | 0.0 | 0.0 |
| 2002 02 15 | 704 | 0.3− | 0.4− | 2008 04 04 | 703 | (3.0+ | 1.6+) | 2008 06 10 | 291 | 0.1+ | 0.2+ |
| 2002 02 15 | 704 | 0.8− | 0.4− | 2008 04 14 | 703 | 0.4+ | 0.1+ | | | | |
| 2002 02 15 | 704 | 0.6+ | 0.9− | 2008 04 14 | 703 | 0.1+ | 0.1− | | | | |

**2002 CT$_{61}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 291.11421 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22547687 | $\omega$ | 143.31220 | | −0.72439596 | | −0.68879024 |
| $a$ | 2.6734253 | $\Omega$ | 352.93907 | | +0.56418637 | | −0.56848064 |
| $e$ | 0.1918884 | $i$ | 13.45838 | | +0.39616188 | | −0.44988639 |
| $P$ | 4.37 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 01 08 | 704 | 0.8+ | 0.4− | 2002 02 06 | 704 | 1.0− | 0.4+ | 2002 03 11 | 644 | 0.1− | 0.6+ |
| 2002 01 08 | 704 | 0.9+ | 0.7− | 2002 02 06 | 704 | 1.5− | 1.4+ | 2002 03 11 | 644 | 0.2− | 0.8+ |
| 2002 01 08 | 704 | 0.3+ | 0.3− | 2002 02 10 | 704 | 0.0 | 0.4− | 2002 04 04 | 608 | 1.1+ | 1.2− |
| 2002 01 08 | 704 | 0.6+ | 1.9− | 2002 02 10 | 704 | 0.0 | 0.1+ | 2002 04 04 | 608 | 0.7+ | 1.0− |
| 2002 01 23 | 704 | 0.8+ | 0.3− | 2002 02 10 | 704 | 0.1+ | 0.6− | 2002 04 04 | 608 | 0.5+ | 0.9− |
| 2002 01 23 | 704 | 0.4− | 1.2− | 2002 02 10 | 704 | 0.4+ | 0.5− | 2009 10 16 | 703 | 1.5+ | 0.8+ |
| 2002 01 23 | 704 | 0.9− | 0.9− | 2002 02 10 | 704 | 0.2− | 0.0 | 2009 10 16 | 703 | 0.6+ | 1.2+ |
| 2002 01 23 | 704 | 0.5− | 0.8− | 2002 02 13 | 644 | 0.4+ | 0.6+ | 2009 10 16 | 703 | 0.7− | 0.7+ |
| 2002 01 23 | 704 | 0.9− | 0.4− | 2002 02 13 | 644 | 0.4+ | 0.6+ | 2009 10 16 | 703 | (4.1− | 1.6−) |
| 2002 02 03 | 644 | 0.4+ | 0.3+ | 2002 02 13 | 644 | 0.0 | 0.3+ | 2009 11 19 | 703 | 1.2− | 1.1− |
| 2002 02 03 | 644 | 0.9+ | 0.6+ | 2002 03 05 | 699 | 0.7− | 0.0 | 2009 11 19 | 703 | 1.3− | 0.7− |
| 2002 02 03 | 644 | 1.0+ | 0.2+ | 2002 03 05 | 699 | 0.4+ | 0.9+ | 2009 11 19 | 703 | 0.2+ | 0.5− |
| 2002 02 06 | 704 | 0.6− | 0.7+ | 2002 03 05 | 699 | 0.7− | 0.5+ | 2009 11 19 | 703 | 0.6+ | 0.0 |
| 2002 02 06 | 704 | 0.8− | 0.8+ | 2002 03 05 | 699 | 0.5− | 0.5+ | | | | |
| 2002 02 06 | 704 | 0.6− | 0.8+ | 2002 03 11 | 644 | 0.1+ | 0.8+ | | | | |

**2002 CH$_{112}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 236.40220 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21309304 | $\omega$ | 38.06699 | | −0.89551212 | +0.43988415 | |
| $a$ | 2.7760240 | $\Omega$ | 167.48859 | | −0.44472477 | −0.89020589 | |
| $e$ | 0.2262700 | $i$ | 18.16248 | | +0.01667091 | −0.11847112 | |
| $P$ | 4.63 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 02 07 | 704 | 1.6− | 0.9+ | 2002 03 12 | 704 | 0.8+ | 0.4− | 2002 04 12 | 644 | 0.1+ | 0.8+ |
| 2002 02 07 | 704 | 1.0− | 0.9+ | 2002 03 12 | 704 | 1.1+ | 0.3+ | 2002 04 17 | 704 | 0.3+ | 0.2− |
| 2002 02 07 | 704 | 1.9− | 0.1+ | 2002 03 20 | 704 | 0.2+ | 0.5+ | 2002 04 17 | 704 | 1.4+ | 0.8− |
| 2002 02 10 | 704 | 0.1− | 1.2− | 2002 03 20 | 704 | 0.0 | 0.4− | 2002 04 17 | 704 | 0.7+ | 0.7− |
| 2002 02 10 | 704 | 0.3+ | 0.3− | 2002 03 20 | 704 | 0.2+ | 0.1− | 2002 04 17 | 704 | 0.3− | 0.4+ |
| 2002 02 10 | 704 | 0.0 | 0.0 | 2002 03 20 | 704 | 0.9− | 0.5+ | 2002 04 17 | 704 | 0.1− | 0.5+ |
| 2002 02 10 | 704 | 0.1− | 0.5− | 2002 03 23 | 608 | 0.7− | 0.4+ | 2002 05 13 | 644 | 0.5− | 0.1− |
| 2002 02 10 | 704 | 0.2− | 0.2− | 2002 03 23 | 608 | 0.6− | 0.2+ | 2002 05 13 | 644 | 0.0 | 0.0 |
| 2002 02 15 | 704 | 0.8+ | 0.2− | 2002 03 23 | 608 | 0.4− | 0.4+ | 2002 05 13 | 644 | 0.1− | 0.1− |
| 2002 02 15 | 704 | 0.8+ | 1.6+ | 2002 04 03 | 049 | 0.2− | 0.3− | 2008 09 07 | G96 | 0.1+ | 0.2+ |
| 2002 02 15 | 704 | 1.4+ | 0.7+ | 2002 04 03 | 049 | 0.6− | 0.1+ | 2008 09 07 | G96 | 0.2− | 0.3− |
| 2002 02 15 | 704 | 0.4+ | 0.9+ | 2002 04 03 | 049 | 0.6− | 0.1+ | 2008 09 07 | G96 | 1.5− | 0.0 |
| 2002 02 20 | 704 | 0.3− | 0.4− | 2002 04 11 | 699 | 0.6− | 0.5− | 2008 09 07 | G96 | 0.2− | 1.2+ |
| 2002 02 20 | 704 | 1.3+ | 0.5− | 2002 04 11 | 699 | 0.0 | 1.1− | 2008 09 25 | G96 | 0.4+ | 0.1− |
| 2002 02 20 | 704 | 0.2− | 1.1− | 2002 04 11 | 699 | 0.2− | 0.0 | 2008 09 25 | G96 | 0.7+ | 0.3− |
| 2002 02 20 | 704 | 0.1+ | 0.4+ | 2002 04 11 | 699 | 0.3− | 0.0 | 2008 09 25 | G96 | 0.4+ | 0.1+ |
| 2002 03 12 | 704 | 0.3+ | 0.2− | 2002 04 12 | 644 | 0.3+ | 0.6+ | 2008 09 25 | G96 | 0.1+ | 0.5+ |
| 2002 03 12 | 704 | 0.8+ | 0.7− | 2002 04 12 | 644 | 0.1+ | 0.7+ | | | | |

**2002 CT$_{146}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 95.13584 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28459925 | $\omega$ | 205.39633 | | −0.97582294 | −0.20791215 | |
| $a$ | 2.2890058 | $\Omega$ | 322.40598 | | +0.21460532 | −0.85305271 | |
| $e$ | 0.0792607 | $i$ | 6.34257 | | +0.04140225 | −0.47861635 | |
| $P$ | 3.46 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 02 09 | 704 | 0.2+ | 0.5+ | 2002 03 13 | 644 | 0.2+ | 0.0 | 2007 10 08 | 703 | 0.9− | 0.5+ |
| 2002 02 09 | 704 | 0.5− | 0.5− | 2002 03 13 | 644 | 0.3+ | 0.1− | 2007 11 08 | 703 | 0.9+ | 0.5+ |
| 2002 02 09 | 704 | 0.1+ | 0.3− | 2002 03 14 | 644 | 0.7+ | 0.2− | 2007 11 08 | 703 | 0.8+ | 0.7− |
| 2002 02 09 | 704 | 0.9+ | 0.6+ | 2002 03 14 | 644 | 0.6+ | 0.3− | 2007 11 08 | 703 | 0.8+ | 0.6− |
| 2002 02 11 | 704 | 0.6− | 0.4+ | 2002 03 14 | 644 | 0.5+ | 0.3− | 2007 11 08 | 703 | 0.4− | 0.3− |
| 2002 02 11 | 704 | 0.5− | 0.6+ | 2002 03 16 | 704 | 1.4− | 0.6+ | 2008 12 07 | G96 | 0.6− | 0.3− |
| 2002 02 11 | 704 | 0.9− | 1.1+ | 2002 03 16 | 704 | 1.0− | 0.2− | 2008 12 07 | G96 | 0.1+ | 0.6− |
| 2002 02 11 | 704 | 0.8− | 0.2+ | 2002 03 16 | 704 | 0.1+ | 0.4− | 2008 12 07 | G96 | 0.7+ | 0.1+ |
| 2002 02 11 | 704 | 1.1− | 0.5+ | 2002 03 16 | 704 | 0.3− | 0.9− | 2008 12 07 | G96 | 0.1− | 0.3− |
| 2002 02 15 | 704 | 0.8+ | 0.3+ | 2002 03 16 | 704 | (0.6− | 1.9−) | 2009 02 20 | 703 | 0.5+ | 0.6+ |
| 2002 02 15 | 704 | 0.5+ | 0.0 | 2002 04 04 | 644 | 0.0 | 0.0 | 2009 02 20 | 703 | 1.1− | 0.4− |
| 2002 02 15 | 704 | 0.7+ | 0.8+ | 2002 04 04 | 644 | 0.2+ | 0.1− | 2009 02 20 | 703 | 0.6− | 0.4− |
| 2002 02 15 | 704 | 0.2+ | 0.0 | 2002 04 04 | 644 | 0.1+ | 0.1− | 2009 02 20 | 703 | 0.4+ | 0.2+ |
| 2002 02 15 | 704 | 0.6+ | 0.1+ | 2002 04 05 | 644 | 0.5+ | 0.8+ | 2009 03 16 | 703 | 0.7− | 0.1+ |
| 2002 03 10 | 608 | 0.6− | 1.4− | 2002 04 05 | 644 | 0.0 | 1.1+ | 2009 03 16 | 703 | 0.3− | 0.7− |
| 2002 03 10 | 608 | 0.1− | 0.3− | 2002 04 05 | 644 | 0.0 | 0.8+ | 2009 03 16 | 703 | 0.1− | 0.7− |
| 2002 03 10 | 608 | 0.4− | 0.7− | 2002 04 14 | 704 | 0.6+ | 0.4− | 2009 03 16 | 703 | 0.3− | 0.4− |
| 2002 03 12 | 704 | 0.0 | 0.5+ | 2002 04 14 | 704 | 0.7− | 0.9− | 2009 04 19 | 703 | 1.1+ | 0.7+ |
| 2002 03 12 | 704 | 0.9+ | 0.8+ | 2002 04 14 | 704 | 0.3− | 0.2− | 2009 04 19 | 703 | 0.7− | 0.4+ |
| 2002 03 12 | 704 | 0.4+ | 0.4− | 2007 10 08 | 703 | 0.4− | 0.0 | 2009 04 19 | 703 | 0.7+ | 0.2+ |
| 2002 03 12 | 704 | 0.6+ | 0.1+ | 2007 10 08 | 703 | 0.4− | 0.0 | 2009 04 19 | 703 | 0.5+ | 0.5− |
| 2002 03 13 | 644 | 0.3+ | 0.1− | 2007 10 08 | 703 | 0.4− | 0.9+ | | | | |

**2002 CG$_{149}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 326.91795 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22751761 | $\omega$ | 331.12749 | | −0.27359186 | −0.95000934 | |
| $a$ | 2.6574150 | $\Omega$ | 134.29133 | | +0.91791685 | −0.30460915 | |
| $e$ | 0.0798660 | $i$ | 12.13170 | | +0.28736066 | +0.06852384 | |
| $P$ | 4.33 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 01 14 | 704 | 0.5− | 0.1+ | 2002 02 10 | 704 | 0.2− | 0.4− | 2002 02 12 | 704 | 0.2− | 0.7+ |
| 2002 01 14 | 704 | 0.7− | 0.3− | 2002 02 10 | 704 | 0.0 | 0.7− | 2002 03 12 | 644 | 0.3+ | 0.1− |
| 2002 01 14 | 704 | 0.7− | 0.4− | 2002 02 10 | 704 | 0.3− | 0.4− | 2002 03 12 | 644 | 0.3− | 0.1− |
| 2002 01 14 | 704 | 0.9+ | 0.1− | 2002 02 11 | 704 | 0.5+ | 1.0+ | 2002 03 12 | 644 | 0.2− | 0.1+ |
| 2002 01 14 | 704 | 0.3+ | 0.0 | 2002 02 11 | 704 | 0.2+ | 0.4+ | 2008 07 02 | 691 | 0.1− | 0.2+ |
| 2002 02 05 | 644 | 0.3− | 0.5+ | 2002 02 11 | 704 | 0.1− | 0.0 | 2008 07 02 | 691 | 0.4− | 0.1+ |
| 2002 02 05 | 644 | 0.1− | 0.7+ | 2002 02 11 | 704 | 0.2+ | 0.5− | 2008 07 02 | 691 | 0.1+ | 0.1− |
| 2002 02 05 | 644 | 0.2− | 0.6+ | 2002 02 11 | 704 | 0.2− | 0.2+ | 2008 07 02 | 691 | 0.4+ | 0.2− |
| 2002 02 07 | 704 | (0.1+ | 3.6+) | 2002 02 12 | 704 | 0.4− | 0.3+ | 2008 07 02 | 691 | 0.1+ | 0.2− |
| 2002 02 07 | 704 | 1.8+ | 0.7+ | 2002 02 12 | 704 | 0.3+ | 0.1− | 2008 07 02 | 691 | 0.4− | 0.3+ |
| 2002 02 07 | 704 | 0.2+ | 0.0 | 2002 02 12 | 704 | 0.6− | 0.7− | 2008 07 29 | G96 | 0.5+ | 0.4− |
| 2002 02 07 | 704 | 0.4+ | 0.4− | 2002 02 12 | 704 | 0.3+ | 0.9− | 2008 07 29 | G96 | 0.1− | 0.1− |
| 2002 02 07 | 704 | 0.6+ | 0.3− | 2002 02 12 | 704 | 0.3− | 0.7+ | 2008 07 29 | G96 | 0.1+ | 0.2− |
| 2002 02 10 | 704 | 0.4− | 0.8− | 2002 02 12 | 704 | 0.0 | 0.3− | 2008 07 29 | G96 | 0.2+ | 0.0 |
| 2002 02 10 | 704 | 0.2− | 0.2− | 2002 02 12 | 704 | 0.3− | 0.4+ | | | | |

**2002 CU$_{192}$ = 2009 WC$_{234}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 329.79653 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22403627 | $\omega$ | 56.14784 | | −0.02364302 | −0.99924789 | |
| $a$ | 2.6848735 | $\Omega$ | 35.24592 | | +0.89873346 | −0.03470988 | |
| $e$ | 0.0918935 | $i$ | 3.05298 | | +0.43785749 | +0.01728803 | |
| $P$ | 4.40 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 02 10 | 704 | 0.4− | 0.9− | 2005 12 29 | 691 | 0.1− | 0.2+ | 2007 05 09 | G96 | 0.1− | 0.6− |
| 2002 02 10 | 704 | 0.2− | 0.5+ | 2005 12 29 | 691 | 0.1− | 0.1− | 2007 05 09 | G96 | 0.6+ | 0.4+ |
| 2002 02 10 | 704 | 0.1+ | 0.8− | 2007 03 11 | G96 | 0.8+ | 0.4+ | 2007 05 09 | G96 | 0.4− | 0.2− |
| 2002 02 10 | 704 | 0.0 | 0.7+ | 2007 03 11 | G96 | 1.2+ | 0.2+ | 2007 05 09 | G96 | 0.3− | 0.6− |
| 2002 02 10 | 704 | 0.5+ | 0.9− | 2007 03 11 | G96 | 0.1− | 0.3− | 2009 10 11 | G96 | 0.2+ | 0.3+ |
| 2002 02 10 | 704 | 0.2− | 0.6+ | 2007 03 11 | G96 | 0.8+ | 0.2+ | 2009 10 11 | G96 | 0.2+ | 0.2+ |
| 2002 02 10 | 704 | 0.1− | 1.0− | 2007 04 14 | G96 | 0.6− | 0.2− | 2009 10 11 | G96 | 0.2− | 0.1+ |
| 2002 02 10 | 704 | 0.5− | 0.9+ | 2007 04 14 | G96 | 0.0 | 0.1− | 2009 10 11 | G96 | 0.1+ | 0.3+ |
| 2002 02 10 | 704 | 0.3− | 1.0− | 2007 04 14 | G96 | 0.3− | 0.7− | 2009 11 18 | G96 | 0.1+ | 0.1− |
| 2002 02 10 | 704 | 0.1+ | 0.3+ | 2007 04 14 | G96 | 0.4+ | 0.3− | 2009 11 18 | G96 | 0.0 | 0.0 |
| 2002 02 12 | 704 | 0.6+ | 0.4+ | 2007 04 25 | 291 | 0.1+ | 0.3+ | 2009 11 18 | G96 | 0.3− | 0.0 |
| 2002 02 12 | 704 | 0.4− | 0.6+ | 2007 04 25 | 291 | 0.2− | 0.3+ | 2009 11 18 | G96 | 0.1+ | 0.0 |
| 2002 02 12 | 704 | 0.0 | 0.2+ | 2007 04 25 | 291 | 0.1− | 0.2+ | 2009 11 18 | G96 | 0.2+ | 0.3+ |
| 2002 02 12 | 704 | 0.1− | 0.7+ | 2007 04 25 | G96 | 0.1+ | 0.1+ | 2009 11 18 | G96 | 0.4+ | 0.2+ |
| 2002 02 16 | 049 | 0.4+ | 0.7+ | 2007 04 25 | G96 | 0.4− | 0.1− | 2009 11 18 | G96 | 0.1+ | 0.2+ |
| 2002 02 16 | 049 | 0.5− | 0.3+ | 2007 04 25 | G96 | 0.3− | 0.6+ | 2009 11 18 | G96 | 0.1− | 0.4+ |
| 2002 02 16 | 049 | 0.9− | 0.9+ | 2007 04 25 | G96 | 0.2+ | 0.2+ | 2009 11 21 | 114 | 0.7− | 0.1− |
| 2002 03 09 | 691 | 0.3+ | 0.5− | 2007 04 25 | G96 | 0.5+ | 0.1+ | 2009 11 21 | 114 | 0.8+ | 0.1− |
| 2002 03 09 | 691 | 0.2+ | 0.3− | 2007 04 25 | G96 | 0.4+ | 0.1+ | 2009 11 21 | 114 | 1.3− | 0.1− |
| 2002 03 09 | 691 | 0.0 | 0.1− | 2007 04 25 | G96 | 0.1+ | 0.1+ | 2009 11 21 | 114 | 0.3− | 0.4− |
| 2005 12 29 | 691 | 0.1+ | 0.2+ | 2007 04 25 | G96 | 0.5− | 0.0 | 2009 11 21 | 114 | 0.6+ | 0.3− |

**2002 CF$_{211}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 265.99162 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.08523857 | $\omega$ | 152.64280 | | −0.72503159 | −0.68122245 | |
| $a$ | 5.1134256 | $\Omega$ | 343.13477 | | +0.55065493 | −0.48502744 | |
| $e$ | 0.0282184 | $i$ | 20.43981 | | +0.41365245 | −0.54834693 | |
| $P$ | 11.56 | $H$ | 13.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 01 22 | 644 | 0.1− | 0.4− | 2002 03 12 | 644 | 0.4+ | 0.4+ | 2008 09 21 | 703 | 0.4− | 0.4− |
| 2002 01 22 | 644 | 0.5+ | 0.4+ | 2002 03 12 | 644 | 0.1+ | 0.4+ | 2008 10 30 | G96 | 0.0 | 0.1+ |
| 2002 02 10 | 704 | 0.1+ | 0.2− | 2002 04 03 | 644 | 0.4− | 0.1+ | 2008 10 30 | G96 | 0.3+ | 0.1+ |
| 2002 02 10 | 704 | 0.2− | 0.3+ | 2002 04 03 | 644 | 0.4− | 0.1− | 2008 10 30 | G96 | 0.2+ | 0.0 |
| 2002 02 10 | 704 | 0.0 | 0.9+ | 2003 03 30 | 691 | 0.1+ | 0.3+ | 2008 10 30 | G96 | 0.0 | 0.3+ |
| 2002 02 10 | 704 | 0.3− | 0.7− | 2003 03 30 | 691 | 0.5+ | 0.2+ | 2009 09 30 | G96 | 0.3− | 0.1+ |
| 2002 02 10 | 704 | 0.3− | 0.7− | 2003 03 30 | 691 | 0.0 | 0.2+ | 2009 09 30 | G96 | 0.2− | 0.2+ |
| 2002 02 12 | 704 | 0.6− | 0.1− | 2007 10 16 | G96 | 0.0 | 0.2+ | 2009 09 30 | G96 | 0.3− | 0.2+ |
| 2002 02 12 | 704 | (1.6− | 0.4+) | 2007 10 16 | G96 | 0.1+ | 0.1− | 2009 09 30 | G96 | 0.5− | 0.2+ |
| 2002 02 12 | 704 | 1.0− | 0.7− | 2007 10 16 | G96 | 0.4− | 0.1− | 2009 10 17 | 703 | 0.4+ | 0.1− |
| 2002 02 19 | 691 | 0.1+ | 0.3− | 2007 10 16 | G96 | 0.3+ | 0.2+ | 2009 10 17 | 703 | 1.1− | 1.3+ |
| 2002 02 19 | 691 | 0.0 | 0.2+ | 2008 09 21 | 703 | 1.3− | 1.7+ | 2009 10 17 | 703 | 0.5+ | 0.1− |
| 2002 02 19 | 691 | 0.2+ | 0.0 | 2008 09 21 | 703 | 0.0 | 0.0 | 2009 10 17 | 703 | 0.1− | 0.3+ |
| 2002 03 12 | 644 | 0.4+ | 0.4+ | 2008 09 21 | 703 | 0.6+ | 1.2− | | | | |

**2002 CD$_{296}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 124.35715 | | (2000.0) | | | |
| $n$ | 0.18010013 | $\omega$ | 214.62078 | | −0.97235780 | +0.22541691 |
| $a$ | 3.1054654 | $\Omega$ | 338.16389 | | −0.15950438 | −0.83169500 |
| $e$ | 0.0385645 | $i$ | 9.42185 | | −0.17052468 | −0.50741566 |
| $P$ | 5.47 | $H$ | 16.0 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 02 06 | 695 | 0.2+ | 0.3+ | 2002 03 05 | 691 | 0.3− | 0.4− | 2006 12 15 | 691 | 0.1+ | 0.3+ |
| 2002 02 06 | 695 | 0.1+ | 0.2+ | 2002 03 05 | 691 | 0.1− | 0.8+ | 2006 12 15 | 691 | 0.0 | 0.3+ |
| 2002 02 10 | 704 | 0.0 | 0.8+ | 2002 03 09 | 644 | 0.6+ | 0.5+ | 2006 12 15 | 691 | 0.4+ | 1.0− |
| 2002 02 10 | 704 | 0.5− | 0.8+ | 2002 03 09 | 644 | 0.4+ | 0.2+ | 2006 12 15 | 691 | 0.0 | 0.0 |
| 2002 02 10 | 704 | 0.2− | 1.1+ | 2002 03 09 | 644 | 0.5+ | 0.0 | 2007 01 28 | 691 | 0.5− | 0.7− |
| 2002 02 13 | 691 | 0.4− | 0.1− | 2002 03 12 | 645 | 0.1+ | 0.1− | 2007 01 28 | 691 | 0.9− | 0.5− |
| 2002 02 13 | 691 | 0.2− | 0.0 | 2002 03 12 | 645 | 0.1+ | 0.1− | 2007 01 28 | 691 | 0.1+ | 1.8+ |
| 2002 02 13 | 691 | 0.3− | 0.1+ | 2006 12 15 | 691 | 0.4+ | 0.2− | | | | |
| 2002 03 05 | 691 | 0.2+ | 0.2− | 2006 12 15 | 691 | 0.4+ | 0.2− | | | | |

**2002 DB$_6$ = 2009 WQ$_{247}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 357.88601 | | (2000.0) | | | |
| $n$ | 0.23147980 | $\omega$ | 264.10152 | | +0.27940163 | −0.95950492 |
| $a$ | 2.6270035 | $\Omega$ | 169.46327 | | +0.94014949 | +0.26579885 |
| $e$ | 0.1558050 | $i$ | 11.30498 | | +0.19507351 | +0.09328066 |
| $P$ | 4.26 | $H$ | 16.0 | $G$ | 0.15 | $U$ 5 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 02 07 | 644 | 0.3− | 0.3− | 2002 02 16 | 644 | 0.2− | 0.1− | 2009 11 21 | 703 | 0.4− | 0.2− |
| 2002 02 07 | 644 | 0.8− | 0.9− | 2002 02 16 | 644 | 0.4− | 0.1− | 2009 11 21 | 703 | 1.2+ | 1.4+ |
| 2002 02 07 | 644 | 0.2+ | 0.2+ | 2002 02 17 | 644 | 0.1− | 1.1+ | 2009 11 21 | 703 | 0.4+ | 1.7− |
| 2002 02 13 | 704 | 0.2+ | 0.4+ | 2002 02 17 | 644 | 0.2+ | 0.8+ | 2009 11 27 | 703 | 0.1+ | 1.0+ |
| 2002 02 13 | 704 | 0.3+ | 0.4− | 2002 02 17 | 644 | 0.6+ | 1.0+ | 2009 11 27 | 703 | 0.7+ | 0.0 |
| 2002 02 13 | 704 | 0.2+ | 0.3+ | 2002 03 13 | 644 | 0.1+ | 0.6− | 2009 11 27 | 703 | 1.0− | 0.6− |
| 2002 02 13 | 704 | 0.3− | 0.7− | 2002 03 13 | 644 | 0.6+ | 0.4− | 2009 11 27 | 703 | 1.0− | 0.0 |
| 2002 02 16 | 644 | 0.1− | 0.2− | 2002 03 13 | 644 | 0.1+ | 0.3− | | | | |

**2002 DK$_{16}$ = 2009 VR$_{80}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 359.22479 | | (2000.0) | | | |
| $n$ | 0.23182876 | $\omega$ | 282.11019 | | +0.29060566 | −0.94939651 |
| $a$ | 2.6243667 | $\Omega$ | 150.14658 | | +0.94431245 | +0.26448301 |
| $e$ | 0.2459818 | $i$ | 13.84781 | | +0.15434486 | +0.16939600 |
| $P$ | 4.25 | $H$ | 16.6 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 07 29 | 807 | 0.5− | 0.8+ | 2002 02 21 | 333 | 0.4− | 0.1+ | 2009 11 11 | 703 | 0.1− | 0.3− |
| 2000 07 29 | 807 | 0.2+ | 0.6+ | 2002 02 21 | 333 | 0.9+ | 0.0 | 2009 11 11 | 703 | 0.7− | 0.2+ |
| 2002 02 11 | 704 | 1.0+ | 0.5− | 2002 03 16 | 704 | 0.4+ | 0.7− | 2009 11 11 | 703 | 0.2+ | 0.1+ |
| 2002 02 11 | 704 | (1.7+ | 0.4−) | 2002 03 16 | 704 | (2.6+ | 0.1−) | 2009 11 11 | 703 | 0.6− | 0.1+ |
| 2002 02 11 | 704 | 0.3+ | 0.3+ | 2002 03 16 | 704 | 0.8+ | 0.6− | 2009 11 18 | 703 | 0.8+ | 0.8+ |
| 2002 02 11 | 704 | 0.5+ | 0.2− | 2002 03 16 | 704 | 1.3+ | 0.7+ | 2009 11 18 | 703 | 0.2− | 0.7+ |
| 2002 02 11 | 704 | 1.2+ | 0.6+ | 2009 10 19 | 704 | 1.4+ | 0.2+ | 2009 11 18 | 703 | 1.0+ | 0.3− |
| 2002 02 20 | 704 | 1.2− | 0.2+ | 2009 10 19 | 704 | 0.9+ | 0.8+ | 2009 11 18 | 703 | 1.0+ | 0.0 |
| 2002 02 20 | 704 | 0.8− | 0.4− | 2009 10 19 | 704 | 0.9+ | 0.7+ | 2009 12 17 | 703 | 0.3− | 0.0 |
| 2002 02 20 | 704 | 1.1− | 0.5+ | 2009 10 27 | 703 | 0.6+ | 1.2− | 2009 12 17 | 703 | 0.5− | 0.2− |
| 2002 02 20 | 704 | 0.9− | 0.0 | 2009 10 27 | 703 | 0.5− | 0.3− | 2009 12 17 | 703 | 0.8− | 0.0 |
| 2002 02 20 | 704 | 0.8− | 1.4+ | 2009 10 27 | 703 | 1.1− | 0.8− | 2009 12 17 | 703 | 1.0− | 0.2+ |
| 2002 02 21 | 333 | 0.8− | 0.4− | 2009 10 27 | 703 | 1.0− | 0.5− | | | | |

**2002 DH$_{17}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 236.67842 | | (2000.0) | | | |
| $n$ | 0.22351516 | $\omega$ | 146.81716 | | −0.76507784 | +0.59754449 |
| $a$ | 2.6890450 | $\Omega$ | 71.74350 | | −0.63202970 | −0.62548490 |
| $e$ | 0.2019168 | $i$ | 14.63813 | | −0.12326538 | −0.50170631 |
| $P$ | 4.41 | $H$ | 15.5 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 02 20 | 699 | 0.8− | 0.4+ | 2002 03 16 | 699 | 0.5− | 0.2− | 2002 04 14 | 699 | 0.9− | 0.7+ |
| 2002 02 20 | 699 | 1.3− | 0.7+ | 2002 03 16 | 699 | 0.1− | 0.1− | 2002 04 14 | 699 | 0.2+ | 0.7− |
| 2002 02 20 | 699 | 0.8− | 0.3− | 2002 03 19 | 644 | 0.6+ | 0.1− | 2002 04 14 | 699 | (0.1− | 3.2−) |
| 2002 02 20 | 699 | 0.1− | 0.6− | 2002 03 19 | 644 | 0.2+ | 0.2− | 2009 11 24 | 691 | 0.2+ | 0.0 |
| 2002 02 21 | 704 | 0.2+ | 0.5− | 2002 03 19 | 644 | 0.6+ | 0.2− | 2009 11 24 | 691 | 0.2− | 0.0 |
| 2002 02 21 | 704 | 0.5+ | 0.3− | 2002 03 21 | 704 | 0.4+ | 0.5− | 2009 11 24 | 691 | 0.3− | 0.0 |
| 2002 02 21 | 704 | 0.8+ | 0.4+ | 2002 03 21 | 704 | 0.8+ | 0.8− | 2009 12 10 | G96 | 0.0 | 0.1+ |
| 2002 02 21 | 704 | 0.4+ | 0.4+ | 2002 03 21 | 704 | 0.7− | 0.7+ | 2009 12 10 | G96 | 0.4+ | 0.3+ |
| 2002 03 16 | 699 | 0.1+ | 0.1+ | 2002 03 21 | 704 | 0.8+ | 1.2+ | 2009 12 10 | G96 | 0.3+ | 0.5− |
| 2002 03 16 | 699 | 0.3− | 0.4+ | 2002 04 14 | 699 | 0.0 | 0.5− | 2009 12 10 | G96 | 0.4+ | 0.3+ |

**2002 ES$_{41}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 93.26065 | | (2000.0) | | | |
| $n$ | 0.27196037 | $\omega$ | 154.41249 | | −0.47991108 | −0.87522399 |
| $a$ | 2.3593858 | $\Omega$ | 324.17851 | | +0.78609900 | −0.39833470 |
| $e$ | 0.0767098 | $i$ | 5.93997 | | +0.38953012 | −0.27443111 |
| $P$ | 3.62 | $H$ | 16.9 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 01 13 | 691 | 0.1− | 0.2− | 2002 03 12 | 704 | 0.3− | 0.1− | 2008 12 31 | 691 | 0.1+ | 0.0 |
| 2002 01 13 | 691 | 0.1− | 0.0 | 2002 03 12 | 704 | 0.6− | 0.1− | 2009 01 21 | G96 | 0.2− | 0.3− |
| 2002 01 13 | 691 | 0.1− | 0.4− | 2002 03 12 | 704 | 0.4− | 0.3+ | 2009 01 21 | G96 | 0.1+ | 0.2− |
| 2002 02 11 | 704 | 0.5+ | 0.6+ | 2002 03 13 | 704 | 0.4− | 0.3+ | 2009 01 21 | G96 | 0.0 | 0.2− |
| 2002 02 11 | 704 | 1.3+ | 0.4+ | 2002 03 13 | 704 | 0.2− | 0.2− | 2009 01 21 | G96 | 0.2− | 0.2− |
| 2002 02 11 | 704 | 1.2+ | 0.3+ | 2002 03 13 | 704 | 0.4+ | 0.1− | 2009 03 16 | G96 | 0.1− | 0.1− |
| 2002 02 11 | 704 | 0.8+ | 0.3+ | 2002 03 13 | 704 | 0.3− | 0.8+ | 2009 03 16 | G96 | 0.4+ | 0.4− |
| 2002 02 14 | 291 | 0.3+ | 0.3+ | 2002 03 13 | 704 | 0.4− | 0.3+ | 2009 03 16 | G96 | 0.1+ | 0.3− |
| 2002 02 14 | 291 | 0.4+ | 0.3+ | 2002 03 15 | 704 | 0.7+ | 0.4+ | 2009 03 16 | G96 | 0.0 | 0.2− |
| 2002 02 14 | 291 | 0.4+ | 0.3+ | 2002 03 15 | 704 | (0.2+ | 1.7+) | 2009 04 27 | G96 | 0.5− | 0.3− |
| 2002 03 05 | 644 | 0.4+ | 0.1− | 2002 03 15 | 704 | 0.1+ | 0.8+ | 2009 04 27 | G96 | 0.3− | 0.5− |
| 2002 03 05 | 644 | 0.9+ | 0.1+ | 2002 03 15 | 704 | 0.8+ | 0.9+ | 2009 04 27 | G96 | 0.1− | 0.2+ |
| 2002 03 05 | 644 | 0.4+ | 0.0 | 2002 03 15 | 704 | 0.2− | 0.1− | 2009 04 27 | G96 | 0.0 | 0.4− |
| 2002 03 12 | 645 | 0.2− | 0.1− | 2008 12 31 | 691 | 0.1− | 0.0 | | | | |
| 2002 03 12 | 645 | 0.2− | 0.1− | 2008 12 31 | 691 | 0.1+ | 0.2+ | | | | |

**2002 EQ$_{140}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 297.01766 | | (2000.0) | | | |
| $n$ | 0.08442246 | $\omega$ | 100.59608 | | −0.16214175 | −0.98676213 |
| $a$ | 5.1463270 | $\Omega$ | 358.72158 | | +0.83884147 | −0.13610073 |
| $e$ | 0.0730427 | $i$ | 8.37185 | | +0.51966820 | −0.08818781 |
| $P$ | 11.67 | $H$ | 13.0 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 01 22 | 644 | 0.2+ | 0.1+ | 2002 03 16 | 704 | 0.2− | 0.6− | 2008 09 06 | G96 | 0.2− | 0.1+ |
| 2002 01 22 | 644 | 0.2+ | 0.7− | 2002 03 16 | 704 | 0.5− | 0.0 | 2008 09 06 | G96 | 0.4− | 0.0 |
| 2002 02 10 | 704 | 0.5+ | 0.6+ | 2002 03 16 | 704 | 0.5− | 0.1− | 2009 09 26 | 691 | 0.2− | 0.0 |
| 2002 02 10 | 704 | 0.2+ | 0.6+ | 2002 03 16 | 704 | 0.6− | 0.8+ | 2009 09 26 | 691 | 0.0 | 0.0 |
| 2002 02 10 | 704 | 0.6− | 0.8+ | 2002 03 20 | 691 | 0.1+ | 0.2− | 2009 09 26 | 691 | 0.2− | 0.0 |
| 2002 02 10 | 704 | 0.2+ | 1.3+ | 2002 03 20 | 691 | 0.2+ | 0.1− | 2009 10 27 | G96 | 0.3+ | 0.1− |
| 2002 02 10 | 704 | 0.2+ | 0.9+ | 2002 03 20 | 691 | 0.4+ | 0.1− | 2009 10 27 | G96 | 0.2+ | 0.0 |
| 2002 03 12 | 644 | 0.3− | 0.0 | 2002 04 03 | 644 | 0.3− | 0.5− | 2009 10 27 | G96 | 0.0 | 0.2− |
| 2002 03 12 | 644 | 0.2− | 0.0 | 2002 04 03 | 644 | 0.0 | 0.2+ | 2009 10 27 | G96 | 0.9+ | 0.1+ |
| 2002 03 12 | 644 | 0.2− | 0.2− | 2008 09 06 | G96 | 0.1+ | 0.5+ | | | | |
| 2002 03 16 | 704 | 0.8− | 1.2− | 2008 09 06 | G96 | 0.2− | 0.3+ | | | | |

**2002 GZ$_{45}$ = 2002 GC$_{59}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 120.12272 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18105511 | $\omega$ | 40.52177 | | −0.37144322 | +0.92493099 | |
| $a$ | 3.0945359 | $\Omega$ | 207.95479 | | −0.89017915 | −0.37951584 | |
| $e$ | 0.1824743 | $i$ | 9.92835 | | −0.26383899 | −0.02168842 | |
| $P$ | 5.44 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 04 04 | 644 | 0.2+ | 1.1+ | 2002 04 09 | 704 | 0.8− | 1.2− | 2002 05 11 | 704 | 0.0 | 1.0− |
| 2002 04 04 | 644 | 0.1+ | 0.9+ | 2002 04 09 | 704 | 0.4+ | 0.7+ | 2002 05 11 | 704 | 0.9− | 0.3+ |
| 2002 04 04 | 644 | 0.1+ | 0.6+ | 2002 04 11 | 704 | 0.4− | 0.8− | 2002 05 11 | 704 | 0.3− | 1.1+ |
| 2002 04 05 | 699 | 0.2+ | 0.2− | 2002 04 11 | 704 | 0.4+ | 1.5− | 2002 05 11 | 704 | 0.5+ | 0.5+ |
| 2002 04 05 | 699 | 0.6+ | 1.0+ | 2002 04 11 | 704 | 0.2+ | 0.4− | 2009 09 25 | 691 | 0.7− | 0.0 |
| 2002 04 05 | 699 | 0.8+ | 0.3+ | 2002 04 11 | 704 | (0.1− | 1.6−) | 2009 09 25 | 691 | 0.4+ | 0.2− |
| 2002 04 05 | 699 | 0.6+ | 0.5+ | 2002 04 14 | 704 | 0.1− | 0.5+ | 2009 09 25 | 691 | 0.2− | 0.2− |
| 2002 04 08 | 644 | 0.4− | 0.1− | 2002 04 14 | 704 | 0.0 | 0.0 | 2009 10 27 | 291 | 0.0 | 0.4+ |
| 2002 04 08 | 644 | 0.4− | 0.1+ | 2002 04 14 | 704 | 0.5− | 0.2+ | 2009 10 27 | 291 | 0.1+ | 0.1+ |
| 2002 04 08 | 644 | 0.4− | 0.2− | 2002 04 14 | 704 | 0.2− | 0.3+ | 2009 10 27 | 291 | 0.3+ | 0.2+ |
| 2002 04 09 | 644 | 0.3− | 0.0 | 2002 04 14 | 704 | 0.3+ | 0.1+ | 2009 11 17 | G96 | 0.1− | 0.2+ |
| 2002 04 09 | 644 | 0.8− | 0.0 | 2002 05 08 | 291 | 0.1+ | 0.0 | 2009 11 17 | G96 | 0.2+ | 0.2+ |
| 2002 04 09 | 644 | 0.6− | 0.1+ | 2002 05 08 | 291 | 0.1+ | 0.2− | 2009 11 17 | G96 | 0.4+ | 0.4+ |
| 2002 04 09 | 704 | (1.3− | 2.2−) | 2002 05 08 | 291 | 0.3+ | 0.2− | 2009 11 17 | G96 | 0.2+ | 0.2+ |

**2002 GX$_{56}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 245.45013 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21780398 | $\omega$ | 332.71099 | | −0.94520115 | +0.29587100 | |
| $a$ | 2.7358493 | $\Omega$ | 225.22258 | | −0.25269690 | −0.93068607 | |
| $e$ | 0.2873896 | $i$ | 11.21344 | | −0.20673427 | −0.21513667 | |
| $P$ | 4.53 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 02 08 | 644 | 0.7+ | 0.1+ | 2002 03 23 | 704 | 0.6− | 0.4− | 2009 10 18 | G96 | 0.2− | 0.1+ |
| 2002 02 08 | 644 | 0.5+ | 0.1− | 2002 03 23 | 704 | 0.1+ | 0.1− | 2009 10 18 | G96 | 0.5− | 0.0 |
| 2002 02 08 | 644 | 0.5+ | 0.1− | 2002 03 23 | 704 | 0.8− | 0.6+ | 2009 10 18 | G96 | 0.3− | 0.2+ |
| 2002 02 13 | 704 | 0.2+ | 0.0 | 2002 04 08 | 644 | 0.0 | 0.1+ | 2009 10 18 | G96 | 0.1− | 0.3− |
| 2002 02 13 | 704 | 0.5+ | 0.6+ | 2002 04 08 | 644 | 0.5+ | 0.0 | 2009 11 23 | G96 | 0.5+ | 0.7− |
| 2002 02 13 | 704 | 0.3+ | 0.3− | 2002 04 08 | 644 | 0.4+ | 0.2+ | 2009 11 23 | G96 | 0.2− | 0.0 |
| 2002 02 13 | 704 | 1.3− | 0.4− | 2002 04 09 | 644 | 0.4+ | 0.0 | 2009 11 23 | G96 | 0.1− | 0.8+ |
| 2002 03 23 | 704 | 0.8− | 0.3− | 2002 04 09 | 644 | 0.4+ | 0.1+ | 2009 11 23 | G96 | 0.8+ | 0.2+ |
| 2002 03 23 | 704 | 0.8− | 0.1− | 2002 04 09 | 644 | 0.4+ | 0.2+ | | | | |

**2002 GW$_{80}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 237.29228 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.20918240 | $\omega$ | 152.47965 | | −0.97446566 | +0.16681334 | |
| $a$ | 2.8105153 | $\Omega$ | 38.08251 | | −0.22302276 | −0.79666930 | |
| $e$ | 0.1264677 | $i$ | 14.10373 | | +0.02602938 | −0.58094005 | |
| $P$ | 4.71 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 03 16 | 608 | 0.1+ | 0.8− | 2002 04 13 | 644 | 0.2− | 0.1− | 2009 10 24 | 691 | 0.3+ | 0.1+ |
| 2002 03 16 | 608 | 0.2− | 0.5− | 2002 04 13 | 644 | 0.2− | 0.3− | 2009 10 24 | 691 | 0.1− | 0.1− |
| 2002 03 16 | 608 | 0.3− | 0.2+ | 2002 04 15 | 644 | 0.2− | 0.4+ | 2009 11 08 | G96 | 0.5+ | 0.1− |
| 2002 03 23 | 734 | 0.9− | 0.4+ | 2002 04 15 | 644 | 0.0 | 0.2+ | 2009 11 08 | G96 | 0.4+ | 0.0 |
| 2002 03 23 | 734 | 1.2+ | 0.3+ | 2002 04 15 | 644 | 0.0 | 0.4+ | 2009 11 08 | G96 | 0.1− | 0.1− |
| 2002 04 04 | 608 | (2.5− | 0.0 ) | 2002 04 16 | 704 | 0.0 | 0.3− | 2009 11 08 | G96 | 0.3+ | 0.2− |
| 2002 04 04 | 608 | (2.8− | 0.3+) | 2002 04 16 | 704 | 0.0 | 0.2− | 2009 11 22 | G96 | 0.4+ | 0.0 |
| 2002 04 04 | 608 | (2.4− | 0.3−) | 2002 04 16 | 704 | 0.0 | 0.4− | 2009 11 22 | G96 | 0.0 | 0.2+ |
| 2002 04 10 | 704 | 0.3− | 0.2− | 2002 04 16 | 704 | 0.2+ | 0.4+ | 2009 11 22 | G96 | 0.1+ | 0.1− |
| 2002 04 10 | 704 | 0.1+ | 0.4− | 2002 04 16 | 704 | 0.4+ | 0.6+ | 2009 11 22 | G96 | 0.1+ | 0.3− |
| 2002 04 10 | 704 | 0.2+ | 0.2+ | 2009 09 18 | G96 | 0.0 | 0.2+ | 2009 12 18 | G96 | 0.5− | 0.1− |
| 2002 04 11 | 704 | 0.8− | 0.2− | 2009 09 18 | G96 | 0.3− | 0.4− | 2009 12 18 | G96 | 0.5− | 0.2+ |
| 2002 04 11 | 704 | 0.5+ | 0.2+ | 2009 09 18 | G96 | 0.1+ | 0.1+ | 2009 12 18 | G96 | 0.2− | 0.6− |
| 2002 04 11 | 704 | 0.5+ | 0.4+ | 2009 09 18 | G96 | 0.3+ | 0.1− | 2009 12 18 | G96 | 0.1− | 0.0 |
| 2002 04 13 | 644 | 0.0 | 0.3− | 2009 10 24 | 691 | 0.4− | 0.3+ | | | | |

**2002 GJ$_{111}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 84.07860 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17796052 | $\omega$ | 214.04368 | | +0.03631009 | +0.99379694 | |
| $a$ | 3.1303071 | $\Omega$ | 58.24655 | | −0.88714789 | +0.08047746 | |
| $e$ | 0.1415718 | $i$ | 7.10098 | | −0.46005455 | −0.07675298 | |
| $P$ | 5.54 | $H$ | 14.8 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 04 04 | 608 | 1.3− | 0.3+ | 2002 04 16 | 704 | 0.2− | 0.5+ | 2007 03 14 | G96 | 0.2− | 0.4− |
| 2002 04 04 | 608 | 1.1− | 0.6+ | 2002 05 07 | 704 | 0.8− | 0.7+ | 2007 03 14 | G96 | 0.2+ | 0.2− |
| 2002 04 04 | 608 | 1.2− | 0.8+ | 2002 05 07 | 704 | 0.3+ | 0.7+ | 2007 03 14 | G96 | 0.1− | 0.2− |
| 2002 04 10 | 704 | 0.2− | 0.7− | 2002 05 07 | 704 | 0.2− | 0.0 | 2009 08 29 | J75 | 0.7+ | 0.0 |
| 2002 04 10 | 704 | 0.1− | 0.4− | 2002 05 07 | 704 | 0.0 | 0.5− | 2009 08 29 | J75 | 0.9− | 0.3− |
| 2002 04 10 | 704 | 0.2+ | 0.4− | 2007 01 28 | G96 | 0.3+ | 0.3− | 2009 08 29 | J75 | 0.1− | 0.2+ |
| 2002 04 13 | 644 | 0.8+ | 0.1− | 2007 01 28 | G96 | 0.4− | 0.2− | 2009 08 29 | J75 | 0.1+ | 0.2+ |
| 2002 04 13 | 644 | 0.9+ | 0.0 | 2007 01 28 | G96 | 0.1− | 0.4− | 2009 08 29 | J75 | 0.3− | 0.2+ |
| 2002 04 13 | 644 | 0.7+ | 0.2+ | 2007 01 28 | G96 | 0.1− | 0.3− | 2009 08 29 | J75 | 0.1− | 0.2− |
| 2002 04 16 | 704 | 0.0 | 0.1− | 2007 02 17 | G92 | 0.2− | 1.0+ | 2009 09 19 | 703 | 0.0 | 0.6+ |
| 2002 04 16 | 704 | 0.6+ | 0.4+ | 2007 02 17 | G92 | 0.4+ | 1.6+ | 2009 09 19 | 703 | 0.9+ | 0.3− |
| 2002 04 16 | 704 | 0.7+ | 0.6− | 2007 02 17 | G92 | 0.2+ | 0.2− | 2009 09 19 | 703 | 0.4− | 0.4− |
| 2002 04 16 | 704 | 0.8+ | 1.2− | 2007 03 14 | G96 | 0.1+ | 0.4− | | | | |

**2002 GS$_{186}$ = 2009 UJ$_{8}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 80.77011 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17803000 | $\omega$ | 257.44081 | | +0.21264414 | +0.95956425 | |
| $a$ | 3.1294926 | $\Omega$ | 27.08090 | | −0.66249810 | +0.28033081 | |
| $e$ | 0.1982078 | $i$ | 23.90031 | | −0.71824699 | +0.02551641 | |
| $P$ | 5.54 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 5 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 04 08 | 644 | 0.2− | 0.3− | 2002 04 15 | 644 | 0.4+ | 0.5+ | 2009 10 16 | 703 | 1.3+ | 0.5+ |
| 2002 04 08 | 644 | 0.3− | 0.4− | 2002 04 22 | 644 | 0.3+ | 0.4+ | 2009 10 16 | 703 | 0.1− | 0.2+ |
| 2002 04 08 | 644 | 0.0 | 0.5− | 2002 04 22 | 644 | 0.2+ | 0.1+ | 2009 10 17 | G96 | 0.5− | 1.1− |
| 2002 04 14 | 644 | 0.1− | 0.1+ | 2002 04 22 | 644 | 0.1− | 0.2+ | 2009 10 17 | G96 | 0.3− | 0.4− |
| 2002 04 14 | 644 | 0.2+ | 0.2− | 2002 05 09 | 644 | 0.1+ | 0.2− | 2009 10 17 | G96 | 0.6+ | 0.5− |
| 2002 04 14 | 644 | 0.0 | 0.5− | 2002 05 09 | 644 | 0.3− | 0.3− | 2009 10 17 | G96 | 0.4+ | 1.0− |
| 2002 04 15 | 644 | 0.1+ | 0.4+ | 2009 10 16 | 703 | 0.7− | 0.7+ | | | | |
| 2002 04 15 | 644 | 0.2− | 0.8+ | 2009 10 16 | 703 | 0.6− | 1.5+ | | | | |

**2002 GT$_{186}$ = 2006 HN$_{37}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 303.92063 | | (2000.0) | | | |
| $n$ | 0.24351075 | $\omega$ | 43.31619 | | −0.62110520 | +0.78301523 |
| $a$ | 2.5397480 | $\Omega$ | 188.47888 | | −0.76659245 | −0.61583636 |
| $e$ | 0.1119668 | $i$ | 13.09213 | | −0.16298572 | −0.08736545 |
| $P$ | 4.05 | $H$ | 17.9 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 03 13 | 691 | 0.1− | 0.1+ | 2002 04 14 | 644 | 0.4− | 0.0 | 2006 04 25 | 691 | 0.0 | 0.3− |
| 2002 03 13 | 691 | 0.0 | 0.1+ | 2002 05 07 | 644 | 0.4+ | 0.1− | 2006 04 25 | 691 | 0.4− | 0.4+ |
| 2002 03 13 | 691 | 0.0 | 0.0 | 2002 05 07 | 644 | 0.1+ | 0.5+ | 2007 10 13 | G96 | 0.1− | 0.3+ |
| 2002 04 08 | 644 | 0.2− | 0.3− | 2002 05 07 | 644 | 0.0 | 0.1− | 2007 10 13 | G96 | 0.0 | 0.4− |
| 2002 04 08 | 644 | 0.1+ | 0.4− | 2006 04 21 | 691 | 0.1+ | 0.0 | 2007 10 13 | G96 | 0.2+ | 0.4+ |
| 2002 04 08 | 644 | 0.0 | 0.4− | 2006 04 21 | 691 | 0.4+ | 0.0 | 2007 10 13 | G96 | 0.1− | 0.1− |
| 2002 04 14 | 644 | 0.4+ | 0.1− | 2006 04 21 | 691 | 0.1− | 0.1+ | | | | |
| 2002 04 14 | 644 | 0.1− | 0.3− | 2006 04 25 | 691 | 0.0 | 0.2− | | | | |

**2002 GY$_{186}$ = 2009 BO$_{120}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 339.61156 | | (2000.0) | | | |
| $n$ | 0.26190750 | $\omega$ | 144.06493 | | −0.23862957 | +0.97028537 |
| $a$ | 2.4193800 | $\Omega$ | 112.09945 | | −0.90075805 | −0.20575092 |
| $e$ | 0.1639979 | $i$ | 2.47605 | | −0.36289236 | −0.12732973 |
| $P$ | 3.76 | $H$ | 17.7 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 04 01 | 644 | 0.6− | 0.3+ | 2002 04 14 | 644 | 0.1+ | 0.0 | 2008 12 22 | 691 | 0.3− | 0.2+ |
| 2002 04 01 | 644 | 0.3+ | 0.4+ | 2002 04 22 | 644 | 0.6− | 0.3+ | 2008 12 22 | 691 | 0.3+ | 0.0 |
| 2002 04 01 | 644 | 0.1+ | 0.4+ | 2002 04 22 | 644 | 0.4− | 0.4+ | 2008 12 22 | 691 | 0.2− | 0.9− |
| 2002 04 08 | 644 | 0.0 | 0.1+ | 2002 04 22 | 644 | 0.4− | 0.4+ | 2009 01 31 | 691 | 0.1− | 0.0 |
| 2002 04 08 | 644 | 0.0 | 0.3− | 2003 09 30 | 691 | 0.1+ | 0.2+ | 2009 01 31 | 691 | 0.0 | 0.0 |
| 2002 04 08 | 644 | 0.1+ | 0.1− | 2003 09 30 | 691 | 0.0 | 0.2+ | 2009 01 31 | 691 | 0.1− | 0.0 |
| 2002 04 08 | 644 | 0.2+ | 0.1− | 2003 09 30 | 691 | 0.1− | 0.1− | 2009 02 01 | 291 | 0.1− | 0.3+ |
| 2002 04 08 | 644 | 0.5+ | 0.1+ | 2007 10 09 | G96 | 0.2− | 0.7+ | 2009 02 01 | 291 | 0.1+ | 0.6+ |
| 2002 04 08 | 644 | 0.2+ | 0.1+ | 2007 10 09 | G96 | 0.5− | 0.0 | 2009 02 01 | 291 | 0.4+ | 0.2− |
| 2002 04 14 | 644 | 0.7+ | 0.5− | 2007 10 09 | G96 | 0.1+ | 0.0 | | | | |
| 2002 04 14 | 644 | 0.4+ | 0.2− | 2007 10 09 | G96 | 0.2− | 0.3+ | | | | |

**2002 JW$_{10}$ = 2009 XD$_{18}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 228.20731 | | (2000.0) | | | |
| $n$ | 0.21704148 | $\omega$ | 154.78034 | | −0.19108068 | +0.94556579 |
| $a$ | 2.7422532 | $\Omega$ | 103.29877 | | −0.94021642 | −0.09923463 |
| $e$ | 0.1605456 | $i$ | 15.70505 | | −0.28192421 | −0.30993196 |
| $P$ | 4.54 | $H$ | 15.6 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 05 07 | 704 | 1.0− | 0.8+ | 2006 02 01 | 703 | 0.8− | 1.7+ | 2009 10 30 | G96 | 0.4− | 0.5− |
| 2002 05 07 | 704 | 0.4− | 0.8+ | 2006 02 01 | 703 | (2.4+ | 4.3+) | 2009 10 30 | G96 | 0.4+ | 0.3− |
| 2002 05 07 | 704 | 1.2− | 0.1+ | 2006 03 23 | 703 | 1.0− | 0.5+ | 2009 11 16 | G96 | 0.3+ | 0.1− |
| 2002 05 07 | 704 | 1.1− | 1.3− | 2006 03 23 | 703 | 1.3+ | 0.4+ | 2009 11 16 | G96 | 0.2+ | 0.0 |
| 2002 05 08 | 704 | (0.2− | 1.5+) | 2006 03 23 | 703 | 0.1− | 0.3+ | 2009 11 16 | G96 | 0.2+ | 0.3− |
| 2002 05 08 | 704 | 1.0− | 1.3+ | 2006 03 23 | 703 | 0.8+ | 0.7− | 2009 11 16 | G96 | 0.3+ | 0.1+ |
| 2002 05 08 | 704 | 0.6− | 0.4+ | 2007 06 21 | 699 | 0.4+ | 0.9− | 2009 12 15 | G96 | 0.2− | 0.1− |
| 2002 05 13 | 644 | 0.3− | 0.8+ | 2007 06 21 | 699 | 0.6− | 0.4− | 2009 12 15 | G96 | 0.1+ | 0.2− |
| 2002 05 13 | 644 | 0.1+ | 0.8+ | 2007 06 21 | 699 | 0.5− | 1.3+ | 2009 12 15 | G96 | 0.0 | 0.5− |
| 2002 05 13 | 644 | 0.3− | 0.7+ | 2007 06 21 | 699 | 0.1+ | 0.0 | 2009 12 15 | G96 | 0.7+ | 0.0 |
| 2002 05 15 | 704 | 0.7+ | 0.9− | 2007 08 04 | E12 | 0.6− | 0.5+ | 2009 12 18 | 691 | 0.3+ | 0.1− |
| 2002 05 15 | 704 | 0.6+ | 1.2− | 2007 08 04 | E12 | 0.2− | 0.8+ | 2009 12 18 | 691 | 0.1+ | 0.4+ |
| 2002 05 15 | 704 | 0.6+ | 1.2− | 2007 08 04 | E12 | 0.3+ | 0.2+ | 2009 12 18 | 691 | 0.5+ | 0.1+ |
| 2002 05 15 | 704 | 0.5+ | 1.4− | 2007 09 01 | E12 | 0.4+ | 1.4+ | 2009 12 18 | 691 | 0.1− | 0.3− |
| 2002 05 15 | 704 | 0.4+ | 0.7− | 2007 09 01 | E12 | 0.3− | 0.6+ | 2009 12 18 | 691 | 0.2+ | 0.1− |
| 2002 06 05 | 699 | (2.3+ | 0.1−) | 2007 09 01 | E12 | 0.5+ | 0.4+ | 2009 12 18 | 691 | 0.1− | 0.0 |
| 2002 06 05 | 699 | 1.0+ | 0.5− | 2007 09 01 | E12 | 0.1− | 1.0− | 2009 12 26 | 691 | 1.7− | 1.0+ |
| 2002 06 05 | 699 | 1.1+ | 0.2− | 2007 10 04 | E12 | 0.2+ | 0.0 | 2009 12 26 | 691 | 0.3+ | 0.4− |
| 2002 06 05 | 699 | 0.7+ | 0.2− | 2007 10 04 | E12 | 0.7+ | 0.3+ | 2009 12 26 | 691 | 0.2+ | 0.4− |
| 2006 02 01 | 703 | 1.2− | 0.7− | 2009 10 30 | G96 | 0.2+ | 0.1+ | | | | |
| 2006 02 01 | 703 | 0.9− | 1.6− | 2009 10 30 | G96 | 0.7+ | 0.1− | | | | |

**2002 JU$_{72}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 74.32575 | | (2000.0) | | | |
| $n$ | 0.17958006 | $\omega$ | 205.05590 | | +0.61811461 | +0.76500641 |
| $a$ | 3.1114582 | $\Omega$ | 103.64852 | | −0.68624037 | +0.63733317 |
| $e$ | 0.0903513 | $i$ | 10.72439 | | −0.38341685 | +0.09258301 |
| $P$ | 5.49 | $H$ | 14.8 | $G$ | 0.15 | $U$ 5 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 05 04 | 699 | 1.4+ | 0.2− | 2002 05 13 | 704 | 0.3+ | 0.5+ | 2009 09 16 | 703 | 1.3+ | 0.3− |
| 2002 05 04 | 699 | 0.4− | 0.4− | 2002 05 13 | 704 | 0.3− | 1.2+ | 2009 09 16 | 703 | 0.9+ | 0.0 |
| 2002 05 04 | 699 | 0.2+ | 0.0 | 2002 06 02 | 644 | 0.5+ | 0.4− | 2009 09 16 | 703 | 1.1− | 1.1− |
| 2002 05 04 | 699 | 0.6− | 1.4+ | 2002 06 02 | 644 | 0.1− | 0.3− | 2009 09 16 | 703 | 0.8− | 0.1− |
| 2002 05 08 | 704 | 0.3− | 0.2+ | 2002 06 02 | 644 | 0.1+ | 0.2− | 2009 09 24 | 703 | 0.6− | 0.2− |
| 2002 05 08 | 704 | 0.1+ | 0.1− | 2002 06 08 | 644 | 0.3+ | 0.0 | 2009 09 24 | 703 | 0.5− | 0.6+ |
| 2002 05 08 | 704 | 0.9+ | 0.4+ | 2002 06 08 | 644 | 0.2+ | 0.1− | 2009 09 24 | 703 | 0.7+ | 0.3− |
| 2002 05 08 | 704 | 0.8− | 0.4+ | 2002 06 08 | 644 | 0.1+ | 0.1+ | 2009 09 24 | 703 | 0.3+ | 1.2+ |
| 2002 05 09 | 291 | 0.1− | 0.3− | 2002 06 09 | 704 | 0.7+ | 0.9+ | 2009 10 17 | 703 | (2.0− | 0.7−) |
| 2002 05 09 | 291 | 0.2− | 0.2− | 2002 06 09 | 704 | 0.6− | 0.5− | 2009 10 17 | 703 | 0.3− | 0.2− |
| 2002 05 09 | 291 | 0.4− | 0.2− | 2002 06 09 | 704 | 0.5+ | 0.2− | 2009 10 17 | 703 | 0.5− | 0.8− |
| 2002 05 13 | 704 | 0.7+ | 0.4− | 2002 06 09 | 704 | 0.0 | 0.4+ | 2009 10 17 | 703 | 0.6+ | 1.1+ |

**2002 JM$_{84}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 121.79678 | | (2000.0) | | | |
| $n$ | 0.16371513 | $\omega$ | 323.57153 | | −0.98369444 | +0.17174226 |
| $a$ | 3.3093561 | $\Omega$ | 226.40980 | | −0.14263671 | −0.92580035 |
| $e$ | 0.1992443 | $i$ | 4.22684 | | −0.10954463 | −0.33674664 |
| $P$ | 6.02 | $H$ | 15.3 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 04 09 | 704 | 0.4+ | 0.2+ | 2002 05 09 | 644 | 0.2+ | 0.1+ | 2002 06 05 | 291 | 0.1− | 0.1+ |
| 2002 04 09 | 704 | 1.0+ | 0.4+ | 2002 05 09 | 644 | 0.1− | 0.4+ | 2002 06 05 | 291 | 0.1+ | 0.1− |
| 2002 04 09 | 704 | 0.1− | 1.4+ | 2002 05 11 | 704 | 0.4− | 0.7+ | 2002 06 05 | 291 | 0.1+ | 0.4+ |
| 2002 04 14 | 704 | 0.8− | 0.4+ | 2002 05 11 | 704 | 0.3− | 0.5− | 2008 04 05 | 691 | 0.3+ | 0.4− |
| 2002 04 14 | 704 | 0.1+ | 0.3+ | 2002 05 11 | 704 | 0.5+ | 0.4− | 2008 04 05 | 691 | 0.0 | 0.1− |
| 2002 04 14 | 704 | 1.4− | 0.1+ | 2002 05 11 | 704 | 0.3+ | 0.2+ | 2008 04 05 | 691 | 0.3− | 0.3+ |
| 2002 04 14 | 704 | 0.0 | 0.6+ | 2002 05 11 | 704 | 0.1+ | 0.1− | 2008 05 02 | 703 | 0.5+ | 0.8− |
| 2002 04 14 | 704 | 0.5+ | 0.5+ | 2002 05 13 | 704 | 0.3+ | 0.0 | 2008 05 02 | 703 | 0.6− | 0.6− |
| 2002 04 18 | 644 | 0.2+ | 0.7− | 2002 05 13 | 704 | 0.3+ | 0.7− | 2008 05 02 | 703 | 0.5− | 0.7− |
| 2002 04 18 | 644 | 0.5+ | 0.8− | 2002 05 13 | 704 | 0.4− | 0.5+ | 2008 05 02 | 703 | (2.2− | 2.3−) |
| 2002 04 18 | 644 | 0.4+ | 0.7− | 2002 05 13 | 704 | 0.0 | 0.4− | | | | |
| 2002 05 09 | 644 | 0.2+ | 0.3+ | 2002 05 13 | 704 | 1.0− | 0.1− | | | | |

**2002 JJ$_{86}$ = 2003 UF$_{327}$ = 2007 FS$_{8}$ = 2008 OF$_{23}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 131.21832 | | (2000.0) | | | |
| $n$ | 0.18789355 | $\omega$ | 34.18554 | | +0.02753901 | +0.99521931 |
| $a$ | 3.0189886 | $\Omega$ | 237.56058 | | −0.94016105 | −0.00606005 |
| $e$ | 0.1514366 | $i$ | 6.37453 | | −0.33961567 | +0.09747717 |
| $P$ | 5.25 | $H$ | 16.4 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 03 13 | 691 | 0.5− | 0.0 | 2003 10 19 | 645 | 0.1− | 0.1− | 2008 08 21 | 691 | 0.5− | 0.7+ |
| 1996 03 13 | 691 | 0.4− | 0.4− | 2003 10 22 | 645 | 0.1+ | 0.1− | 2008 08 21 | 691 | 0.1− | 0.2− |
| 1996 03 13 | 691 | 0.1+ | 1.2− | 2003 10 22 | 645 | 0.0 | 0.2− | 2008 08 21 | 691 | 0.1+ | 0.1− |
| 2002 05 09 | 644 | 0.2− | 0.1+ | 2007 03 16 | 691 | 0.0 | 0.1− | 2008 10 26 | G96 | 0.4+ | 0.5− |
| 2002 05 09 | 644 | 0.1+ | 0.2+ | 2007 03 16 | 691 | 0.1− | 0.1+ | 2008 10 26 | G96 | 0.5− | 0.3− |
| 2002 05 09 | 644 | 0.1− | 0.2+ | 2007 03 16 | 691 | 0.1− | 0.0 | 2008 10 26 | G96 | 0.8+ | 0.6− |
| 2002 05 11 | 704 | 0.1+ | 0.9− | 2007 03 20 | 691 | 0.2− | 0.1+ | 2008 10 26 | G96 | 0.1− | 0.5− |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 05 11 | 704 | 0.5+ | 0.3− | 2007 03 20 | 691 | 0.2+ | 0.2− | 2009 10 23 | G96 | 0.3+ | 0.0 | | |
| 2002 05 11 | 704 | 0.2− | 1.3− | 2007 03 20 | 691 | 0.2− | 0.1+ | 2009 10 23 | G96 | 0.3+ | 0.3+ | | |
| 2002 05 11 | 704 | 1.3+ | 0.4− | 2007 04 11 | 703 | 0.7− | 0.2+ | 2009 10 23 | G96 | 0.4+ | 0.3+ | | |
| 2002 05 11 | 704 | (1.6+ | 0.1−) | 2007 04 11 | 703 | (1.2− | 1.6+) | 2009 10 23 | G96 | 0.3+ | 0.2+ | | |
| 2002 05 13 | 704 | 0.2+ | 0.5+ | 2007 04 11 | 703 | (3.1− | 0.0 ) | 2009 11 08 | G96 | 0.1+ | 0.5+ | | |
| 2002 05 13 | 704 | 0.6+ | 0.2+ | 2007 04 11 | 703 | (0.9+ | 3.2−) | 2009 11 08 | G96 | 0.2− | 0.5+ | | |
| 2002 05 13 | 704 | 1.1+ | 1.2+ | 2008 07 26 | E12 | 1.2+ | 0.9+ | 2009 11 08 | G96 | 0.1+ | 0.5+ | | |
| 2003 09 18 | 691 | 0.2+ | 0.3+ | 2008 07 26 | E12 | 0.3− | 0.1− | 2009 11 08 | G96 | 0.4+ | 0.4+ | | |
| 2003 09 18 | 691 | 0.1+ | 0.3+ | 2008 07 26 | E12 | 0.7− | 0.9+ | 2009 12 17 | G96 | 0.3+ | 0.8+ | | |
| 2003 09 18 | 691 | 0.2− | 0.3+ | 2008 07 26 | E12 | 0.7− | 0.3− | 2009 12 17 | G96 | 0.4+ | 0.6+ | | |
| 2003 10 17 | 645 | 0.1+ | 0.1− | 2008 08 05 | J75 | 0.4+ | 0.0 | 2009 12 17 | G96 | 0.6− | 0.4+ | | |
| 2003 10 17 | 645 | 0.0 | 0.1− | 2008 08 05 | J75 | 0.3+ | 0.2+ | 2009 12 17 | G96 | 0.0 | 0.5+ | | |
| 2003 10 19 | 645 | 0.0 | 0.1− | 2008 08 05 | J75 | 0.8+ | 0.4− | | | | | | |

**2002 JZ$_{115}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 64.56938 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.08360554 | $\omega$ | 178.86112 | | +0.95006867 | +0.28693996 | |
| $a$ | 5.1797961 | $\Omega$ | 162.85935 | | −0.28948072 | +0.95717900 | |
| $e$ | 0.0627507 | $i$ | 24.58538 | | −0.11649220 | −0.03839053 | |
| $P$ | 11.79 | $H$ | 13.9 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 02 08 | 291 | 0.3+ | 0.1− | 2002 05 11 | 950 | 0.3− | 0.0 | 2007 09 13 | G96 | 0.5+ | 0.2− | | |
| 2002 02 08 | 291 | 0.2+ | 0.4+ | 2002 05 11 | 950 | 0.2− | 0.1− | 2007 09 13 | G96 | 0.1− | 0.3− | | |
| 2002 02 08 | 291 | 0.1+ | 0.1+ | 2002 05 11 | 950 | 0.4− | 0.1− | 2007 10 09 | G96 | 0.4− | 0.4+ | | |
| 2002 03 05 | 645 | 0.1− | 0.0 | 2002 05 12 | 950 | 0.2− | 0.1+ | 2007 10 09 | G96 | 0.2+ | 0.1− | | |
| 2002 03 05 | 645 | 0.0 | 0.1− | 2002 05 12 | 950 | 0.1− | 0.0 | 2007 10 09 | G96 | 0.0 | 0.2+ | | |
| 2002 04 06 | 807 | 0.4+ | 0.3+ | 2007 09 13 | G96 | 0.1− | 0.0 | 2007 10 09 | G96 | 0.0 | 0.2+ | | |
| 2002 04 06 | 807 | 0.6+ | 0.2+ | 2007 09 13 | G96 | 0.1− | 0.1+ | | | | | | |

**2002 KN$_{14}$ = 2009 YN$_{13}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 288.22284 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22440660 | $\omega$ | 85.23908 | | −0.87478581 | +0.43917472 | |
| $a$ | 2.6819188 | $\Omega$ | 120.68148 | | −0.48197607 | −0.83192386 | |
| $e$ | 0.2044172 | $i$ | 13.76514 | | +0.04948597 | −0.33915816 | |
| $P$ | 4.39 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 05 15 | 704 | 0.7+ | 0.4+ | 2002 06 03 | 704 | 0.8+ | 0.9− | 2009 12 18 | G96 | 0.1+ | 0.1+ | | |
| 2002 05 15 | 704 | 0.1− | 0.6− | 2002 06 03 | 704 | 0.0 | 0.8− | 2009 12 18 | G96 | 0.5+ | 0.0 | | |
| 2002 05 15 | 704 | 0.6− | 0.3+ | 2002 06 08 | 644 | 0.1− | 0.3− | 2009 12 18 | G96 | 0.3+ | 0.0 | | |
| 2002 05 15 | 704 | 0.4− | 0.1+ | 2002 06 08 | 644 | 0.1+ | 0.0 | 2009 12 18 | G96 | 0.2+ | 0.0 | | |
| 2002 05 30 | 644 | 0.1− | 0.3+ | 2002 06 08 | 644 | 0.3+ | 0.1+ | 2009 12 20 | 691 | 0.4+ | 0.2− | | |
| 2002 05 30 | 644 | 0.1− | 0.3+ | 2009 10 26 | G96 | 0.0 | 0.1+ | 2009 12 20 | 691 | 0.1− | 0.1− | | |
| 2002 05 30 | 644 | 0.3− | 0.3+ | 2009 10 26 | G96 | 0.4− | 0.1− | 2009 12 20 | 691 | 0.6− | 0.3+ | | |
| 2002 06 03 | 704 | 0.2− | 0.6+ | 2009 10 26 | G96 | 0.8− | 0.1+ | | | | | | |
| 2002 06 03 | 704 | (1.6− | 1.9+) | 2009 10 26 | G96 | 1.4+ | 0.8− | | | | | | |

**2002 LS$_9$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 192.02258 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19697137 | $\omega$ | 9.38219 | | −0.46415379 | +0.85904948 | |
| $a$ | 2.9255037 | $\Omega$ | 233.27419 | | −0.82912902 | −0.50711827 | |
| $e$ | 0.2407532 | $i$ | 15.62363 | | −0.31161887 | +0.06974998 | |
| $P$ | 5.00 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 05 16 | 704 | 0.9+ | 0.3− | 2002 06 05 | 704 | 0.5− | 0.2+ | 2002 06 09 | 644 | 0.6+ | 0.3+ | | |
| 2002 05 16 | 704 | 0.6+ | 0.1+ | 2002 06 05 | 704 | 0.7− | 0.8+ | 2009 11 10 | 691 | 0.1− | 0.1− | | |
| 2002 05 16 | 704 | 0.4+ | 0.4+ | 2002 06 05 | 704 | 0.2− | 0.8+ | 2009 11 10 | 691 | 0.0 | 0.3− | | |
| 2002 05 16 | 704 | 0.2+ | 0.2+ | 2002 06 09 | 644 | 0.2+ | 0.0 | 2009 11 10 | 691 | 0.2− | 0.1− | | |
| 2002 05 16 | 704 | 0.2− | 0.1− | 2002 06 09 | 704 | 0.4− | 0.7− | 2009 11 18 | 691 | 0.7− | 0.2− | | |
| 2002 06 04 | 644 | (1.8+ | 1.2−) | 2002 06 09 | 704 | 0.3− | 0.7− | 2009 11 18 | 691 | 0.3+ | 0.1+ | | |
| 2002 06 04 | 644 | 0.2+ | 0.3− | 2002 06 09 | 644 | 0.2+ | 0.1+ | 2009 11 18 | 691 | 0.0 | 0.1+ | | |
| 2002 06 04 | 644 | 0.1+ | 0.2− | 2002 06 09 | 704 | 0.1+ | 0.7− | 2009 11 26 | 691 | 0.2+ | 0.6+ | | |
| 2002 06 05 | 704 | 0.2− | 0.7+ | 2002 06 09 | 704 | 0.4− | 0.1− | 2009 11 26 | 691 | 0.2+ | 0.1+ | | |
| 2002 06 05 | 704 | 0.5− | 0.2+ | 2002 06 09 | 704 | 0.2− | 0.2− | 2009 11 26 | 691 | 0.3+ | 0.1+ | | |

**2002 LJ$_{61}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 242.20646 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21246740 | $\omega$ | 330.19058 | | −0.74891919 | +0.62143598 | |
| $a$ | 2.7814708 | $\Omega$ | 250.06835 | | −0.54924928 | −0.77637759 | |
| $e$ | 0.1407190 | $i$ | 14.16654 | | −0.37073612 | −0.10514350 | |
| $P$ | 4.64 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 05 10 | 644 | 0.4+ | 0.4+ | 2002 06 04 | 644 | 0.2− | 0.4− | 2008 10 10 | G96 | 0.3− | 0.3− | | |
| 2002 05 10 | 644 | 0.4+ | 0.3+ | 2002 06 04 | 644 | 0.9+ | 0.3− | 2008 10 10 | G96 | 0.1+ | 0.1− | | |
| 2002 05 10 | 644 | 0.3+ | 0.4+ | 2002 06 12 | 644 | 0.1+ | 0.2+ | 2008 11 03 | G96 | 0.3− | 0.2+ | | |
| 2002 05 17 | 704 | 1.1− | 0.3+ | 2002 06 12 | 644 | 0.1− | 0.4+ | 2008 11 03 | G96 | 0.1+ | 0.3+ | | |
| 2002 05 17 | 704 | 0.6− | 0.4− | 2002 06 12 | 644 | 0.0 | 0.3+ | 2008 11 03 | G96 | 0.0 | 0.1+ | | |
| 2002 05 17 | 704 | 0.4− | 0.3− | 2008 10 10 | G96 | 0.3+ | 0.0 | 2008 11 03 | G96 | 0.1− | 0.0 | | |
| 2002 06 04 | 644 | 0.4+ | 0.7− | 2008 10 10 | G96 | 0.1+ | 0.1− | | | | | | |

**2002 MW$_3$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 234.58897 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21472338 | $\omega$ | 173.74506 | | +0.52470204 | +0.83715407 | |
| $a$ | 2.7619543 | $\Omega$ | 127.79141 | | −0.78926657 | +0.54639059 | |
| $e$ | 0.4315812 | $i$ | 11.27217 | | −0.31897656 | +0.02510724 | |
| $P$ | 4.59 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 06 25 | 608 | 0.4+ | 1.2− | 2002 08 14 | 704 | 0.3− | 0.3+ | 2002 10 06 | 608 | 0.2+ | 0.9− | | |
| 2002 06 25 | 608 | 0.6− | 1.0− | 2002 08 14 | 704 | 0.5+ | 0.1− | 2002 10 06 | 608 | 0.3− | 1.4− | | |
| 2002 06 25 | 608 | 0.2− | 0.9− | 2002 08 14 | 704 | 0.1− | 0.3− | 2002 10 06 | 608 | 0.1− | 1.2− | | |
| 2002 06 27 | 673 | 0.2− | 0.1+ | 2002 08 14 | 704 | 0.6− | 0.4+ | 2002 10 08 | 644 | 0.3− | 0.0 | | |
| 2002 06 27 | 673 | 0.4− | 0.1+ | 2002 08 14 | 704 | 0.6+ | 0.5− | 2002 10 08 | 644 | 0.3− | 0.1− | | |
| 2002 06 27 | 673 | 0.9− | 0.1− | 2002 09 10 | 644 | 0.0 | 0.6+ | 2002 10 08 | 644 | 0.3− | 0.3+ | | |
| 2002 07 02 | 673 | 0.6+ | 0.3− | 2002 09 10 | 644 | 0.1− | 0.5+ | 2002 10 23 | 644 | 0.1+ | 0.5+ | | |
| 2002 07 02 | 673 | 0.3+ | 0.4+ | 2002 09 10 | 644 | 0.0 | 0.6+ | 2002 10 23 | 644 | 0.0 | 0.4+ | | |
| 2002 07 02 | 673 | 1.9+ | 0.2− | 2002 09 19 | 644 | 0.4− | 0.1+ | 2002 10 23 | 644 | 0.1+ | 0.4+ | | |
| 2002 07 02 | 673 | 0.5+ | 0.2+ | 2002 09 19 | 644 | 0.4− | 0.1+ | 2007 11 18 | G96 | 0.3− | 0.4+ | | |
| 2002 07 02 | 413 | 0.4− | 0.1+ | 2002 09 19 | 644 | 0.3− | 0.1+ | 2007 11 18 | G96 | 0.3+ | 0.4+ | | |
| 2002 07 02 | 413 | 0.4− | 0.1+ | 2002 09 27 | 704 | 0.4+ | 0.2− | 2007 11 18 | G96 | 0.2− | 0.3+ | | |
| 2002 07 02 | 413 | 0.3− | 0.2+ | 2002 09 27 | 704 | 0.8+ | 0.4− | 2007 11 18 | G96 | 0.7− | 0.4+ | | |
| 2002 07 09 | 704 | 0.1− | 1.3+ | 2002 09 27 | 704 | 0.4+ | 0.1− | 2009 01 18 | G96 | 0.1− | 0.3+ | | |
| 2002 07 09 | 704 | 0.5+ | 1.4+ | 2002 09 27 | 704 | 0.4+ | 0.2− | 2009 01 18 | G96 | 0.1+ | 0.5+ | | |
| 2002 07 09 | 704 | 0.1− | 1.6+ | 2002 09 29 | 608 | 0.2− | 0.7− | 2009 01 18 | G96 | 0.4+ | 0.6+ | | |
| 2002 07 09 | 704 | 0.1+ | 1.3+ | 2002 09 29 | 608 | 0.2− | 0.6− | 2009 01 18 | G96 | 0.2+ | 0.2+ | | |
| 2002 07 09 | 704 | 0.4+ | 0.8+ | 2002 09 29 | 608 | 0.3− | 0.8− | | | | | | |

**2002 NU$_7$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 52.58588 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28915573 | $\omega$ | 41.39211 | | +0.98297205 | +0.15078653 | |
| $a$ | 2.2648955 | $\Omega$ | 309.62249 | | −0.18276810 | +0.86143690 | |
| $e$ | 0.3739552 | $i$ | 7.83635 | | +0.01902048 | +0.48496380 | |
| $P$ | 3.41 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 06 09 | 608 | 0.7− | 0.5− | 2002 08 16 | 704 | 0.0 | 0.5− | 2002 10 03 | 644 | 0.3− | 0.1− | | |
| 2002 06 09 | 608 | 0.3− | 0.4− | 2002 08 16 | 704 | 0.0 | 1.0− | 2002 10 03 | 644 | 0.4− | 0.1− | | |
| 2002 06 27 | 644 | 0.1+ | 0.6− | 2002 08 16 | 704 | 0.1+ | 0.4− | 2002 10 03 | 644 | 0.2− | 0.1− | | |
| 2002 06 27 | 644 | 0.0 | 0.3− | 2002 08 16 | 704 | 0.5− | 0.5− | 2002 10 05 | 699 | 0.1+ | 0.2− | | |
| 2002 06 27 | 644 | 0.4− | 0.4− | 2002 08 16 | 704 | 0.1+ | 0.3− | 2002 10 05 | 699 | 0.1− | 0.4− | | |
| 2002 07 09 | 704 | 0.7+ | 0.3− | 2002 08 16 | 704 | 0.2− | 0.3− | 2002 10 05 | 699 | 0.4− | 0.1− | | |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 07 09 | 704 | 0.1− | 0.3− | 2002 08 16 | 704 | 0.3+ | 0.4− | 2002 10 05 | 699 | 0.2− | 0.2− |
| 2002 07 09 | 704 | 0.3+ | 0.4− | 2002 08 16 | 704 | 0.4+ | 0.4− | 2002 10 31 | 644 | 0.1+ | 0.8+ |
| 2002 07 09 | 704 | 1.1+ | 0.4− | 2002 08 16 | 704 | 0.2+ | 0.1− | 2002 10 31 | 644 | 0.1+ | 0.8+ |
| 2002 07 09 | 704 | 0.4+ | 0.5− | 2002 08 16 | 704 | 0.5− | 0.3− | 2002 10 31 | 644 | 0.1+ | 0.7+ |
| 2002 07 13 | 704 | 0.5+ | 1.0+ | 2002 08 16 | 608 | 0.2+ | 0.9+ | 2002 11 08 | 704 | 0.2+ | 1.3+ |
| 2002 07 13 | 704 | 0.2− | 1.0+ | 2002 08 16 | 608 | 0.3+ | 1.2+ | 2002 11 08 | 704 | 0.5+ | 0.2+ |
| 2002 07 13 | 704 | 0.2+ | 0.5+ | 2002 08 16 | 608 | 0.3+ | 0.9+ | 2002 11 08 | 704 | 0.7+ | 0.5+ |
| 2002 07 13 | 704 | 0.2+ | 0.9+ | 2002 09 29 | H35 | 1.5+ | 0.8− | 2002 11 08 | 704 | 0.0 | 0.6− |
| 2002 07 14 | 704 | 0.1− | 0.7+ | 2002 09 29 | H35 | 0.2+ | 0.2− | 2002 11 14 | 704 | 0.3+ | 0.2− |
| 2002 07 14 | 704 | 1.1− | 0.0 | 2002 09 29 | H35 | 0.6− | 0.0 | 2002 11 14 | 704 | 0.1− | 0.4− |
| 2002 07 14 | 704 | 0.2− | 0.5+ | 2002 09 29 | 151 | 0.0 | 0.1+ | 2002 11 14 | 704 | 0.6− | 0.5− |
| 2002 07 14 | 704 | 0.8− | 0.8+ | 2002 09 29 | 636 | 0.2− | 0.2− | 2002 11 14 | 704 | 0.2− | 0.3− |
| 2002 08 11 | 704 | 0.1+ | 0.2+ | 2002 09 29 | 151 | 0.2− | 0.2− | 2009 12 06 | 114 | 1.5+ | 0.4+ |
| 2002 08 11 | 704 | 0.0 | 0.1+ | 2002 09 29 | 636 | 0.1− | 0.1− | 2009 12 06 | 114 | 1.3− | 0.4+ |
| 2002 08 11 | 704 | 0.3− | 0.2+ | 2002 09 29 | 151 | 0.1+ | 0.5− | 2009 12 06 | 114 | 0.1− | 0.1− |
| 2002 08 11 | 704 | 0.2− | 0.3+ | 2002 09 29 | 151 | 0.2− | 0.1+ | | | | |
| 2002 08 11 | 704 | 0.3− | 0.4+ | 2002 09 29 | 636 | 0.1+ | 0.1− | | | | |

### 2002 $NR_{36}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 280.67869 | | (2000.0) | | | |
| $n$ | 0.23742450 | $\omega$ | 171.61976 | | +0.67155885 | +0.72146970 |
| $a$ | 2.5829680 | $\Omega$ | 140.31230 | | −0.69421301 | +0.69228064 |
| $e$ | 0.1912705 | $i$ | 15.32608 | | −0.25899229 | +0.01513224 |
| $P$ | 4.15 | $H$ | 16.5 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 07 09 | 704 | 0.7− | 0.1− | 2002 07 21 | 644 | 0.1+ | 0.0 | 2009 02 02 | 691 | 0.1+ | 0.1− |
| 2002 07 09 | 704 | 0.0 | 0.1− | 2002 07 21 | 644 | 0.2+ | 0.2− | 2009 02 02 | 691 | 0.4− | 0.2− |
| 2002 07 09 | 704 | 0.4+ | 0.3− | 2002 08 07 | 644 | 0.3+ | 0.5+ | 2009 02 02 | 691 | 0.2+ | 0.1+ |
| 2002 07 09 | 704 | 0.8+ | 0.2− | 2002 08 07 | 644 | 0.1+ | 0.6+ | 2009 03 01 | G96 | 0.5+ | 0.5+ |
| 2002 07 12 | 644 | 0.5− | 0.3+ | 2002 08 07 | 644 | 0.4+ | 0.3+ | 2009 03 01 | G96 | 0.1− | 0.4− |
| 2002 07 12 | 644 | 0.2− | 0.1− | 2002 08 27 | 644 | 0.3− | 0.5− | 2009 03 01 | G96 | 0.0 | 0.2+ |
| 2002 07 12 | 644 | 0.5− | 0.1+ | 2002 08 27 | 644 | 0.2+ | 0.2− | 2009 03 01 | G96 | 0.1− | 0.2+ |
| 2002 07 21 | 644 | 0.0 | 0.1− | 2002 08 27 | 644 | 0.5− | 0.5− | | | | |

### 2002 $NC_{70}$ = 2007 $KF_5$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 136.56468 | | (2000.0) | | | |
| $n$ | 0.17768736 | $\omega$ | 44.42329 | | +0.31317342 | +0.94429364 |
| $a$ | 3.1335144 | $\Omega$ | 244.06845 | | −0.89964647 | +0.26086071 |
| $e$ | 0.1663002 | $i$ | 6.45816 | | −0.30423452 | +0.20065197 |
| $P$ | 5.55 | $H$ | 16.2 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 10 06 | 691 | 0.1− | 0.0 | 2002 08 16 | 644 | 0.6+ | 0.2− | 2008 10 06 | G96 | 0.3+ | 0.5+ |
| 1997 10 06 | 691 | 0.3+ | 0.4− | 2002 08 16 | 644 | 0.1− | 0.7− | 2008 10 06 | G96 | 0.7+ | 0.0 |
| 2002 07 03 | 644 | 0.1+ | 0.2+ | 2002 08 16 | 644 | 0.3+ | 0.5− | 2008 10 06 | G96 | 1.7− | 0.5+ |
| 2002 07 03 | 644 | 0.4− | 0.5− | 2002 08 26 | 644 | 0.1− | 0.0 | 2008 10 29 | G96 | 0.4+ | 0.1+ |
| 2002 07 03 | 644 | 0.3− | 0.0 | 2002 08 26 | 644 | 0.2+ | 0.0 | 2008 10 29 | G96 | 0.2+ | 0.6− |
| 2002 07 12 | 644 | 0.2− | 0.2− | 2002 08 26 | 644 | 0.5− | 0.3+ | 2008 10 29 | G96 | 0.4− | 0.2+ |
| 2002 07 12 | 644 | 0.1− | 0.1+ | 2007 05 24 | G96 | 0.0 | 0.1− | 2008 10 29 | G96 | 0.6+ | 0.3+ |
| 2002 07 21 | 644 | 0.8− | 0.4+ | 2007 05 24 | G96 | 0.0 | 0.0 | 2009 11 27 | G96 | 0.1− | 0.0 |
| 2002 07 21 | 644 | 0.4− | 0.1− | 2007 05 24 | G96 | 0.1+ | 0.0 | 2009 11 27 | G96 | 0.3+ | 0.1+ |
| 2002 07 21 | 644 | 0.2− | 0.1− | 2007 05 24 | G96 | 0.2− | 0.2− | 2009 11 27 | G96 | 0.9− | 0.1− |
| 2002 08 06 | 644 | 0.4+ | 0.4+ | 2007 05 25 | G96 | 0.0 | 0.2− | 2009 11 27 | G96 | 0.6+ | 0.2− |
| 2002 08 06 | 644 | 0.3+ | 0.6+ | 2007 05 25 | G96 | 0.1+ | 0.4− | 2009 12 10 | G96 | 0.3+ | 0.6− |
| 2002 08 06 | 644 | 0.3+ | 0.7+ | 2007 05 25 | G96 | 0.2− | 0.3− | 2009 12 10 | G96 | 0.1+ | 0.3− |
| 2002 08 07 | 644 | 0.5+ | 0.1+ | 2007 05 25 | G96 | 0.0 | 0.3− | 2009 12 10 | G96 | 0.3− | 0.5+ |
| 2002 08 07 | 644 | 0.1+ | 0.1− | 2008 10 06 | G96 | 0.2− | 0.2− | 2009 12 10 | G96 | 0.1− | 0.2− |

### 2002 $ND_{70}$ = 1995 $DL_7$ = 2008 $ST_3$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 134.78937 | | (2000.0) | | | |
| $n$ | 0.18258891 | $\omega$ | 150.59650 | | +0.62931359 | +0.77414507 |
| $a$ | 3.0771815 | $\Omega$ | 158.17439 | | −0.74407823 | +0.62556369 |
| $e$ | 0.0595587 | $i$ | 10.58466 | | −0.22430335 | +0.09679613 |
| $P$ | 5.40 | $H$ | 15.6 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 02 24 | 691 | 1.0+ | 0.4+ | 2002 07 12 | 644 | 0.0 | 0.0 | 2008 08 23 | 691 | 0.2− | 0.3− |
| 1995 02 24 | 691 | 0.3+ | 0.6+ | 2002 07 12 | 644 | 0.2+ | 0.4− | 2008 08 23 | 691 | 0.2− | 0.4− |
| 1995 03 01 | 691 | 0.1− | 0.5+ | 2002 07 14 | 644 | 0.4+ | 0.3+ | 2008 08 23 | 691 | 0.3− | 0.2− |
| 1995 03 01 | 691 | 0.1+ | 0.2− | 2002 07 14 | 644 | 0.1− | 0.1+ | 2008 09 22 | 704 | 0.4− | 1.2+ |
| 1995 03 01 | 691 | 0.7− | 0.5− | 2002 07 14 | 644 | 0.3− | 0.0 | 2008 09 22 | 704 | (1.3+ | 1.7+) |
| 1995 04 04 | 691 | 0.2− | 0.2− | 2002 07 21 | 644 | 0.1− | 0.1− | 2008 09 22 | 704 | 0.1− | 1.2+ |
| 1995 04 04 | 691 | 0.2+ | 0.2− | 2002 07 21 | 644 | 0.1− | 0.2+ | 2008 09 22 | 704 | (1.6+ | 1.0+) |
| 1995 04 04 | 691 | 0.5− | 0.1+ | 2002 07 21 | 644 | 0.0 | 0.1− | 2008 09 22 | 704 | (0.9+ | 2.1+) |
| 2002 06 24 | 644 | 0.2+ | 0.1− | 2002 08 16 | 644 | 0.1+ | 0.2− | 2008 09 23 | 704 | 0.4+ | 1.2+ |
| 2002 06 24 | 644 | 0.2+ | 0.3+ | 2002 08 16 | 644 | 0.2− | 0.4− | 2008 09 23 | 704 | 0.4+ | 1.3+ |
| 2002 06 24 | 644 | 0.4+ | 0.2− | 2002 08 16 | 644 | 0.7− | 0.1+ | 2008 09 23 | 704 | 0.1+ | 1.4+ |
| 2002 07 03 | 644 | 0.3− | 0.2+ | 2003 11 28 | 645 | 0.0 | 0.0 | 2008 09 23 | 704 | 0.9+ | 1.3+ |
| 2002 07 12 | 644 | 0.6+ | 0.2+ | 2003 11 28 | 645 | 0.0 | 0.1− | | | | |

### 2002 $NJ_{70}$ = 2006 $WJ_{163}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 6.55492 | | (2000.0) | | | |
| $n$ | 0.27654632 | $\omega$ | 129.65959 | | +0.96030403 | +0.27490416 |
| $a$ | 2.3332295 | $\Omega$ | 214.45964 | | −0.27464880 | +0.90202329 |
| $e$ | 0.2429556 | $i$ | 4.80228 | | −0.04882832 | +0.33283883 |
| $P$ | 3.56 | $H$ | 17.8 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 06 10 | 644 | 0.2− | 0.3+ | 2002 07 29 | 644 | 0.0 | 0.1− | 2006 11 15 | 691 | 0.3− | 0.0 |
| 2002 06 10 | 644 | 0.4− | 0.2− | 2002 08 24 | 644 | 0.0 | 0.5+ | 2006 11 23 | 691 | 0.1− | 0.2+ |
| 2002 06 10 | 644 | 0.4+ | 0.2+ | 2002 08 24 | 644 | 0.1− | 0.1− | 2006 11 23 | 691 | 0.1+ | 0.1+ |
| 2002 07 03 | 644 | 0.5− | 0.3+ | 2002 08 24 | 644 | 0.3− | 0.2− | 2006 11 23 | 691 | 0.1− | 0.2− |
| 2002 07 03 | 644 | 0.0 | 0.1+ | 2002 09 22 | 644 | 1.1+ | 0.4− | 2006 11 27 | 691 | 0.0 | 0.3+ |
| 2002 07 03 | 644 | 0.2− | 0.0 | 2002 09 22 | 644 | 0.9+ | 0.4+ | 2006 11 27 | 691 | 0.0 | 0.1+ |
| 2002 07 12 | 644 | 0.0 | 0.2+ | 2002 09 22 | 644 | 0.6+ | 0.6+ | 2006 11 27 | 691 | 0.1− | 0.2+ |
| 2002 07 12 | 644 | 0.4− | 0.7+ | 2006 09 27 | G96 | 0.0 | 0.1− | 2008 03 05 | G96 | 0.4+ | 0.1− |
| 2002 07 12 | 644 | 0.3+ | 0.5+ | 2006 09 27 | G96 | 0.1− | 0.3− | 2008 03 05 | G96 | 0.5+ | 0.2+ |
| 2002 07 21 | 644 | 0.2− | 0.5− | 2006 09 27 | G96 | 0.2− | 0.7− | 2008 03 05 | G96 | 0.7+ | 0.1+ |
| 2002 07 21 | 644 | 0.2− | 0.0 | 2006 09 27 | G96 | 0.2+ | 0.8− | 2008 03 05 | G96 | 0.7− | 0.6+ |
| 2002 07 29 | 644 | 0.5− | 0.3− | 2006 11 15 | 691 | 0.1+ | 0.2− | | | | |
| 2002 07 29 | 644 | 0.1+ | 0.1− | 2006 11 15 | 691 | 0.2+ | 0.2+ | | | | |

### 2002 $NK_{70}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 285.08102 | | (2000.0) | | | |
| $n$ | 0.24592338 | $\omega$ | 74.12081 | | +0.90816961 | +0.41261305 |
| $a$ | 2.5231099 | $\Omega$ | 261.46672 | | −0.40616160 | +0.82778314 |
| $e$ | 0.1803991 | $i$ | 4.09141 | | −0.10129519 | +0.38016516 |
| $P$ | 4.01 | $H$ | 17.6 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 06 16 | 644 | 0.5− | 0.2− | 2002 07 09 | 644 | 0.0 | 0.1− | 2002 08 24 | 644 | 0.5+ | 0.0 |
| 2002 06 16 | 644 | 0.3+ | 0.1+ | 2002 07 22 | 644 | 0.1− | 0.1+ | 2002 08 24 | 644 | 0.2+ | 0.1− |
| 2002 06 16 | 644 | 0.0 | 0.4+ | 2002 07 22 | 644 | 0.1+ | 0.0 | 2006 07 23 | G96 | 0.6+ | 0.2− |
| 2002 06 25 | 644 | 0.5+ | 0.0 | 2002 07 22 | 644 | 0.3− | 0.6+ | 2006 07 23 | G96 | 0.1+ | 0.2− |
| 2002 07 04 | 644 | 0.0 | 0.3− | 2002 08 07 | 644 | 0.3− | 0.3+ | 2006 07 23 | G96 | 0.2+ | 0.4− |
| 2002 07 04 | 644 | 0.4− | 0.2+ | 2002 08 07 | 644 | 0.3− | 0.0 | 2006 07 23 | G96 | 0.1− | 0.1− |
| 2002 07 04 | 644 | 0.1− | 0.1− | 2002 08 15 | 291 | 0.0 | 0.0 | 2006 08 20 | 644 | 0.0 | 0.2− |
| 2002 07 09 | 644 | 0.0 | 0.2− | 2002 08 15 | 291 | 0.0 | 0.1+ | 2006 08 20 | 644 | 0.0 | 0.1+ |
| 2002 07 09 | 644 | 0.1− | 0.1+ | 2002 08 15 | 291 | 0.1+ | 0.0 | 2006 08 20 | 644 | 0.6− | 0.4− |

**2002 NL$_{70}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 275.93527 | | (2000.0) | | | |
| $n$ | 0.23723556 | $\omega$ | 178.24028 | | +0.69893220 | +0.70943288 |
| $a$ | 2.5843392 | $\Omega$ | 136.08652 | | −0.65775648 | +0.68734256 |
| $e$ | 0.1316727 | $i$ | 7.50149 | | −0.28080277 | +0.15577289 |
| $P$ | 4.15 | $H$ | 16.5 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 07 04 | 644 | 0.2− | 0.5− | 2002 08 07 | 644 | 0.1+ | 0.2− | 2007 11 04 | G96 | 0.1+ | 0.1− |
| 2002 07 04 | 644 | 0.2+ | 0.2+ | 2002 08 07 | 644 | 0.2+ | 0.0 | 2007 11 04 | G96 | 0.4− | 0.1+ |
| 2002 07 09 | 644 | 0.2− | 0.1− | 2002 08 07 | 644 | 0.1− | 0.1+ | 2007 11 04 | G96 | 0.3+ | 0.1− |
| 2002 07 09 | 644 | 0.1− | 0.1− | 2002 08 17 | 644 | 0.3− | 0.3+ | 2009 02 02 | 691 | 0.2− | 0.1+ |
| 2002 07 09 | 644 | 0.1− | 0.1+ | 2002 08 28 | 644 | 0.6+ | 0.1+ | 2009 02 02 | 691 | 0.2+ | 0.0 |
| 2002 07 22 | 644 | 0.5− | 0.3− | 2002 08 28 | 644 | 0.9+ | 0.9+ | 2009 02 02 | 691 | 0.2− | 0.4+ |
| 2002 07 22 | 644 | 0.6− | 0.1− | 2007 10 17 | G96 | 0.2+ | 0.3+ | 2009 02 28 | G96 | 0.6+ | 0.3+ |
| 2002 07 22 | 644 | 0.5− | 0.3+ | 2007 10 17 | G96 | 0.4− | 0.4+ | 2009 02 28 | G96 | 0.0 | 0.3− |
| 2002 08 06 | 644 | 0.3+ | 0.5+ | 2007 10 17 | G96 | 0.0 | 0.2− | 2009 02 28 | G96 | 0.4+ | 0.2− |
| 2002 08 06 | 644 | 0.1+ | 0.0 | 2007 10 17 | G96 | 0.1− | 0.2+ | 2009 02 28 | G96 | 0.4+ | 0.0 |
| 2002 08 06 | 644 | 0.3+ | 0.4+ | 2007 11 04 | G96 | 0.0 | 0.2+ | | | | |

**2002 NM$_{70}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 253.91416 | | (2000.0) | | | |
| $n$ | 0.22756233 | $\omega$ | 137.05335 | | +0.65734556 | +0.75351101 |
| $a$ | 2.6570668 | $\Omega$ | 174.01501 | | −0.71656330 | +0.62944575 |
| $e$ | 0.1768911 | $i$ | 5.97947 | | −0.23331064 | +0.18978727 |
| $P$ | 4.33 | $H$ | 17.1 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 09 25 | 645 | 0.1+ | 0.1− | 2002 07 12 | 644 | 0.1+ | 0.1− | 2006 05 25 | G96 | 0.1− | 0.1− |
| 1998 09 25 | 645 | 0.0 | 0.1− | 2002 07 21 | 644 | 0.2+ | 0.1+ | 2006 05 25 | G96 | 0.4+ | 0.3− |
| 2002 07 03 | 644 | 0.2− | 0.3+ | 2002 07 21 | 644 | 0.5− | 0.3+ | 2007 10 12 | G96 | 0.0 | 0.2+ |
| 2002 07 03 | 644 | 0.5− | 0.7+ | 2002 07 21 | 644 | 0.3+ | 0.5+ | 2007 10 12 | G96 | 0.5+ | 0.5− |
| 2002 07 03 | 644 | 0.7− | 0.4+ | 2002 08 16 | 644 | 0.5+ | 0.0 | 2007 10 12 | G96 | 0.4+ | 0.8+ |
| 2002 07 09 | 644 | 0.0 | 0.1− | 2002 08 16 | 644 | 0.0 | 0.3− | 2007 10 12 | G96 | 0.1− | 0.3+ |
| 2002 07 09 | 644 | 0.2− | 0.0 | 2002 08 16 | 644 | 0.1+ | 0.2+ | 2007 11 13 | G96 | 0.0 | 0.2+ |
| 2002 07 09 | 644 | 0.0 | 0.1+ | 2002 08 16 | 644 | 0.3+ | 0.2− | 2007 11 13 | G96 | 0.2− | 0.3+ |
| 2002 07 12 | 644 | 0.2− | 0.0 | 2006 05 25 | G96 | 0.4− | 0.5− | 2007 11 13 | G96 | 0.4− | 0.3+ |
| 2002 07 12 | 644 | 0.3+ | 0.4+ | 2006 05 25 | G96 | 0.1+ | 0.3− | 2007 11 13 | G96 | 0.7− | 0.3+ |

**2002 NN$_{70}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 131.46748 | | (2000.0) | | | |
| $n$ | 0.20338148 | $\omega$ | 106.55303 | | +0.89236607 | −0.38688951 |
| $a$ | 2.8637061 | $\Omega$ | 276.69695 | | +0.27011106 | +0.87033641 |
| $e$ | 0.1568369 | $i$ | 13.53115 | | +0.36155609 | +0.30468186 |
| $P$ | 4.85 | $H$ | 16.2 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 06 24 | 644 | 0.0 | 0.5+ | 2002 07 12 | 644 | 0.3+ | 0.1− | 2002 09 03 | 644 | 0.2+ | 0.2− |
| 2002 06 24 | 644 | 0.3+ | 0.0 | 2002 07 12 | 644 | 0.2− | 0.1− | 2002 09 03 | 644 | 0.7+ | 0.0 |
| 2002 06 24 | 644 | 0.1− | 0.3+ | 2002 07 21 | 644 | 0.5− | 0.4− | 2008 12 02 | 691 | 0.6+ | 0.1− |
| 2002 07 03 | 644 | 0.5− | 0.0 | 2002 07 21 | 644 | 0.3− | 0.2− | 2008 12 02 | 691 | 0.4+ | 0.1− |
| 2002 07 03 | 644 | 0.7+ | 0.2+ | 2002 07 21 | 644 | 0.7− | 0.0 | 2008 12 02 | 691 | 0.4+ | 0.0 |
| 2002 07 03 | 644 | 0.1+ | 0.2+ | 2002 08 15 | 644 | 0.0 | 0.2+ | 2008 12 31 | 691 | 0.3− | 0.1+ |
| 2002 07 09 | 644 | 0.6− | 0.2+ | 2002 08 15 | 644 | 0.1+ | 0.1− | 2008 12 31 | 691 | 0.2+ | 0.5+ |
| 2002 07 09 | 644 | 0.3− | 0.1− | 2002 08 15 | 644 | 0.4+ | 0.1− | 2008 12 31 | 691 | 1.1− | 0.4− |
| 2002 07 09 | 644 | 0.3− | 0.0 | 2002 08 23 | 644 | 0.2− | 0.0 | | | | |
| 2002 07 12 | 644 | 0.7+ | 0.6− | 2002 08 23 | 644 | 0.2+ | 0.2+ | | | | |

**2002 NP$_{70}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 243.34894 | | (2000.0) | | | |
| $n$ | 0.24295871 | $\omega$ | 156.18686 | | +0.85251223 | −0.51714002 |
| $a$ | 2.5435937 | $\Omega$ | 235.17042 | | +0.46345711 | +0.81514152 |
| $e$ | 0.2844468 | $i$ | 5.31846 | | +0.24172382 | +0.26097991 |
| $P$ | 4.06 | $H$ | 16.5 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 07 03 | 644 | 0.2− | 0.1− | 2002 07 29 | 644 | 0.0 | 0.1− | 2008 01 30 | 703 | 0.2− | 0.1− |
| 2002 07 03 | 644 | 0.8− | 0.5− | 2002 07 29 | 644 | 0.1+ | 0.1+ | 2009 03 19 | 691 | 0.2+ | 0.4+ |
| 2002 07 03 | 644 | 0.2+ | 0.2+ | 2002 07 29 | 644 | 0.1− | 0.2− | 2009 03 19 | 691 | 0.3+ | 0.5− |
| 2002 07 09 | 644 | 0.1− | 0.0 | 2002 08 24 | 644 | 0.0 | 0.0 | 2009 03 19 | 691 | 0.3− | 0.1+ |
| 2002 07 09 | 644 | 0.2+ | 0.3+ | 2002 08 24 | 644 | 0.5+ | 0.2+ | 2009 04 20 | G96 | 0.4+ | 0.1+ |
| 2002 07 12 | 644 | 0.2+ | 0.1− | 2008 01 30 | 703 | 0.6+ | 0.9− | 2009 04 20 | G96 | 1.1− | 0.1+ |
| 2002 07 12 | 644 | 0.1− | 0.3− | 2008 01 30 | 703 | 1.1− | 0.5+ | 2009 04 20 | G96 | 0.0 | 0.1− |
| 2002 07 12 | 644 | 0.2+ | 0.0 | 2008 01 30 | 703 | 0.5+ | 0.2+ | | | | |

**2002 NQ$_{70}$ = 1997 AN$_{25}$ = 1999 XW$_{154}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 5.25724 | | (2000.0) | | | |
| $n$ | 0.28524958 | $\omega$ | 261.81653 | | +0.94479645 | −0.32300627 |
| $a$ | 2.2855253 | $\Omega$ | 117.01365 | | +0.31965658 | +0.87176111 |
| $e$ | 0.2510609 | $i$ | 3.54038 | | +0.07196761 | +0.36837416 |
| $P$ | 3.46 | $H$ | 17.1 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 01 09 | 691 | 0.0 | 0.3− | 2002 07 04 | 644 | 0.1− | 0.4− | 2002 08 29 | 644 | 0.1− | 0.1− |
| 1997 01 09 | 691 | 0.4− | 0.1+ | 2002 07 04 | 644 | 0.3− | 0.0 | 2006 12 22 | 691 | 0.1+ | 0.3+ |
| 1997 01 09 | 691 | 0.1+ | 0.2− | 2002 07 04 | 644 | 0.2− | 0.3− | 2006 12 22 | 691 | 0.1− | 0.5+ |
| 1999 12 08 | 704 | 0.1+ | 0.1− | 2002 07 09 | 644 | 0.3+ | 0.2+ | 2006 12 22 | 691 | 0.1+ | 0.3+ |
| 1999 12 08 | 704 | 0.4+ | 0.4+ | 2002 07 09 | 644 | 0.4− | 0.2+ | 2009 07 27 | 703 | 0.3− | 0.1− |
| 1999 12 08 | 704 | 0.0 | 0.7+ | 2002 07 09 | 644 | 0.1− | 0.0 | 2009 07 27 | 703 | 0.8+ | 0.5+ |
| 1999 12 14 | 704 | 0.0 | 0.8− | 2002 07 14 | 644 | 0.1+ | 0.3− | 2009 07 27 | 703 | 0.7− | 0.4+ |
| 1999 12 14 | 704 | 0.2+ | 0.5− | 2002 07 14 | 644 | 0.2+ | 0.5+ | 2009 07 27 | 703 | 0.0 | 0.2+ |
| 1999 12 14 | 704 | 0.7− | 1.3− | 2002 07 14 | 644 | 0.6+ | 0.3+ | 2009 08 20 | J75 | 0.0 | 0.4− |
| 2002 06 16 | 644 | 0.0 | 0.1+ | 2002 07 22 | 644 | 0.4− | 0.1− | 2009 08 20 | J75 | 0.7+ | 0.6− |
| 2002 06 16 | 644 | 0.0 | 0.4+ | 2002 07 22 | 644 | 0.6− | 0.0 | 2009 08 20 | J75 | 0.4+ | 0.2− |
| 2002 06 16 | 644 | 0.2+ | 0.3+ | 2002 07 22 | 644 | 0.2+ | 0.2− | 2009 09 11 | E12 | 0.2− | 0.0 |
| 2002 06 16 | 644 | 0.3− | 0.8+ | 2002 08 08 | 644 | 0.0 | 0.2− | 2009 09 11 | E12 | 0.3+ | 0.0 |
| 2002 06 16 | 644 | 0.5+ | 0.6+ | 2002 08 08 | 644 | 0.1+ | 0.2− | 2009 09 11 | E12 | 0.6− | 0.5− |
| 2002 06 16 | 644 | 0.2− | 0.7+ | 2002 08 29 | 644 | 0.1+ | 0.3+ | 2009 09 11 | E12 | 0.7− | 0.5− |
| 2002 06 25 | 644 | 0.5+ | 0.4+ | 2002 08 29 | 644 | 0.1+ | 0.1+ | | | | |

**2002 NS$_{70}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 190.38581 | | (2000.0) | | | |
| $n$ | 0.37166517 | $\omega$ | 288.48132 | | +0.51549882 | −0.78930681 |
| $a$ | 1.9158793 | $\Omega$ | 125.81635 | | +0.85515844 | +0.49861710 |
| $e$ | 0.1107323 | $i$ | 24.28872 | | −0.05445194 | +0.35829561 |
| $P$ | 2.65 | $H$ | 17.7 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 07 03 | 644 | 0.1+ | 0.1+ | 2002 07 12 | 644 | 0.0 | 0.0 | 2002 08 29 | 644 | 0.6− | 0.2+ |
| 2002 07 03 | 644 | 0.3+ | 0.0 | 2002 07 22 | 644 | 0.2+ | 0.5− | 2009 01 01 | 691 | 0.2+ | 0.3+ |
| 2002 07 03 | 644 | 0.7+ | 0.1+ | 2002 07 22 | 644 | 0.2+ | 0.1+ | 2009 01 01 | 691 | 0.2− | 0.1+ |
| 2002 07 09 | 644 | 0.0 | 0.2+ | 2002 07 22 | 644 | 0.2− | 0.2− | 2009 01 01 | 691 | 0.3+ | 0.2− |
| 2002 07 09 | 644 | 0.1− | 0.0 | 2002 08 08 | 644 | 0.0 | 0.0 | 2009 02 04 | 703 | 0.9− | 0.5− |
| 2002 07 09 | 644 | 0.0 | 0.0 | 2002 08 08 | 644 | 0.1− | 0.0 | 2009 02 04 | 703 | 0.3− | 0.1− |
| 2002 07 12 | 644 | 0.2− | 0.3+ | 2002 08 29 | 644 | 0.3− | 0.2+ | 2009 02 04 | 703 | 0.0 | 0.0 |
| 2002 07 12 | 644 | 0.0 | 0.1+ | 2002 08 29 | 644 | 0.2+ | 0.6+ | 2009 02 04 | 703 | 0.0 | 1.0+ |

**2002 NT$_{70}$ = 2009 SN$_{229}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 99.32664 | | (2000.0) | | | |
| $n$ | 0.17106225 | $\omega$ | 166.59058 | | +0.65382757 | +0.74548487 |
| $a$ | 3.2139067 | $\Omega$ | 143.98728 | | −0.71293668 | +0.66428685 |
| $e$ | 0.0718940 | $i$ | 12.72054 | | −0.25343795 | +0.05454629 |
| $P$ | 5.76 | $H$ | 15.6 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 06 24 | 644 | 0.5− | 0.0 | 2002 08 17 | 644 | 0.5+ | 0.0 | 2008 07 30 | G96 | 0.5+ | 0.1− |
| 2002 06 24 | 644 | 0.3− | 0.3− | 2002 08 17 | 644 | 0.0 | 0.2+ | 2008 07 30 | G96 | 0.1+ | 0.1+ |
| 2002 06 24 | 644 | 0.1+ | 0.2+ | 2002 08 28 | 644 | 0.2− | 0.0 | 2008 07 30 | G96 | 0.4+ | 0.1− |
| 2002 07 03 | 644 | 0.6+ | 0.3+ | 2002 08 28 | 644 | 0.2+ | 0.6+ | 2008 09 25 | G96 | 0.3+ | 0.1− |
| 2002 07 03 | 644 | 0.2+ | 0.5+ | 2002 08 28 | 644 | 0.2+ | 0.2+ | 2008 09 25 | G96 | 0.5+ | 0.0 |
| 2002 07 03 | 644 | 0.3− | 0.7+ | 2005 10 31 | 568 | 0.1− | 0.4+ | 2008 09 25 | G96 | 0.5+ | 0.0 |
| 2002 07 09 | 644 | 0.2+ | 0.0 | 2005 10 31 | 568 | 0.1− | 0.3+ | 2008 09 25 | G96 | 0.5+ | 0.2− |
| 2002 07 09 | 644 | 0.4+ | 0.2+ | 2005 10 31 | 568 | 0.2− | 0.3+ | 2009 09 29 | G96 | 0.2− | 0.2− |
| 2002 07 09 | 644 | 0.1− | 0.2+ | 2006 02 04 | G96 | 0.5− | 0.2+ | 2009 09 29 | G96 | 0.3− | 0.2+ |
| 2002 07 21 | 644 | 0.2− | 0.1+ | 2006 02 04 | G96 | 0.2+ | 0.1+ | 2009 09 29 | G96 | 0.3− | 0.3− |
| 2002 07 21 | 644 | 0.1− | 0.3+ | 2006 02 04 | G96 | 0.3+ | 0.2− | 2009 09 29 | G96 | 0.4− | 0.2+ |
| 2002 07 21 | 644 | 0.1− | 0.2+ | 2006 02 04 | G96 | 0.1− | 0.0 | 2009 09 29 | F65 | 0.2− | 0.2+ |
| 2002 07 22 | 644 | 0.5− | 0.2− | 2006 03 08 | 691 | 0.5+ | 0.6+ | 2009 09 29 | F65 | 0.1− | 0.2+ |
| 2002 07 22 | 644 | 0.6− | 0.3+ | 2006 03 08 | 691 | 0.1+ | 0.1− | 2009 09 29 | F65 | 0.4− | 0.3+ |
| 2002 07 22 | 644 | 0.2+ | 0.1− | 2006 03 08 | 691 | 0.3+ | 0.1+ | 2009 09 29 | F65 | 0.0 | 0.3+ |
| 2002 08 07 | 644 | 0.3+ | 0.0 | 2006 03 23 | G96 | 0.0 | 1.1+ | 2009 09 29 | F65 | 0.2− | 0.2+ |
| 2002 08 07 | 644 | 0.2+ | 0.1+ | 2006 03 23 | G96 | 0.0 | 0.1+ | 2009 09 30 | G96 | 0.2− | 0.0 |
| 2002 08 07 | 599 | 0.0 | 0.1− | 2006 03 23 | G96 | 0.0 | 0.2+ | 2009 09 30 | G96 | 0.4− | 0.1+ |
| 2002 08 07 | 599 | 0.0 | 0.2+ | 2006 03 23 | G96 | 0.0 | 0.3− | 2009 09 30 | G96 | 0.5− | 0.2+ |
| 2002 08 07 | 599 | 0.6− | 0.4+ | 2007 05 07 | 691 | 0.2− | 0.0 | 2009 09 30 | G96 | 0.1+ | 0.2+ |
| 2002 08 16 | 644 | 0.2− | 0.1+ | 2007 05 07 | 691 | 0.6− | 0.2+ | 2009 09 30 | 926 | 0.1+ | 0.7+ |
| 2002 08 16 | 644 | 0.1+ | 0.7+ | 2007 05 07 | 691 | 0.1+ | 0.0 | 2009 09 30 | 926 | 0.5− | 0.3+ |
| 2002 08 16 | 644 | 0.3− | 0.0 | 2008 07 30 | G96 | 0.4+ | 0.2− | 2009 09 30 | 926 | 0.2+ | 0.5+ |

**2002 NV$_{70}$ = 2005 UZ$_{504}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 181.17223 | | (2000.0) | | | |
| $n$ | 0.17925925 | $\omega$ | 104.48377 | | −0.43866248 | +0.89025158 |
| $a$ | 3.1151693 | $\Omega$ | 138.78531 | | −0.87941725 | −0.39718859 |
| $e$ | 0.0550904 | $i$ | 10.72245 | | −0.18493386 | −0.22292003 |
| $P$ | 5.50 | $H$ | 15.3 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 07 09 | 644 | 0.2− | 0.3+ | 2002 08 07 | 644 | 0.5− | 0.4+ | 2005 10 24 | 568 | 0.0 | 0.3+ |
| 2002 07 09 | 644 | 0.2− | 0.1+ | 2002 08 17 | 644 | 0.7+ | 0.5− | 2005 10 31 | 568 | 0.0 | 0.3+ |
| 2002 07 09 | 644 | 0.0 | 0.2− | 2002 08 17 | 644 | 0.3+ | 0.4− | 2005 10 31 | 568 | 0.0 | 0.2+ |
| 2002 07 22 | 644 | 0.2+ | 0.3+ | 2002 08 28 | 644 | 0.1− | 0.2+ | 2005 10 31 | 568 | 0.1− | 0.2+ |
| 2002 07 22 | 644 | 0.2+ | 0.1− | 2002 08 28 | 644 | 0.2+ | 0.1+ | 2006 02 08 | 703 | 1.2− | 0.3− |
| 2002 07 22 | 644 | 0.4− | 0.4− | 2002 08 28 | 644 | 0.2+ | 0.5+ | 2006 02 08 | 703 | 0.9+ | 0.2+ |
| 2002 08 07 | 644 | 0.0 | 0.0 | 2005 10 24 | 568 | 0.1+ | 0.2+ | 2006 02 08 | 703 | 0.2+ | 0.6− |
| 2002 08 07 | 644 | 0.4− | 0.1+ | 2005 10 24 | 568 | 0.1+ | 0.1+ | 2006 02 08 | 703 | 0.1+ | 0.2+ |

**2002 NW$_{70}$ = 2006 SQ$_{21}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 325.13907 | | (2000.0) | | | |
| $n$ | 0.25978698 | $\omega$ | 95.48464 | | +0.92680805 | +0.36855332 |
| $a$ | 2.4325277 | $\Omega$ | 242.90615 | | −0.36857707 | +0.85594598 |
| $e$ | 0.2440157 | $i$ | 4.64393 | | −0.07195680 | +0.36266365 |
| $P$ | 3.79 | $H$ | 18.1 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 07 03 | 644 | 0.4− | 0.3+ | 2002 08 05 | 644 | 0.3− | 0.2+ | 2006 09 19 | 699 | (2.2+ | 0.0 ) |
| 2002 07 03 | 644 | 0.4+ | 0.0 | 2002 08 05 | 644 | 0.0 | 0.6+ | 2006 09 19 | 699 | 0.6+ | 1.3+ |
| 2002 07 03 | 644 | 0.3+ | 0.2− | 2002 08 16 | 644 | 0.2+ | 0.4− | 2006 09 19 | 699 | 0.8− | 1.0+ |
| 2002 07 09 | 644 | 0.3+ | 0.0 | 2002 08 16 | 644 | 0.5+ | 0.8− | 2006 09 27 | 703 | 0.3− | 1.1+ |
| 2002 07 09 | 644 | 0.2− | 0.0 | 2002 08 16 | 644 | 0.6+ | 0.6− | 2006 09 27 | 703 | 0.2+ | 0.5+ |
| 2002 07 12 | 644 | 0.4− | 0.4+ | 2002 08 26 | 644 | 0.3− | 0.5− | 2006 09 27 | 703 | 0.0 | 0.0 |
| 2002 07 12 | 644 | 0.3− | 0.7+ | 2002 08 26 | 644 | 0.6+ | 0.2− | 2006 09 27 | 703 | 0.5+ | 0.7− |
| 2002 07 12 | 644 | 0.1+ | 0.0 | 2006 09 17 | 703 | 0.3+ | 0.0 | 2006 10 23 | G96 | 0.1+ | 0.6− |
| 2002 07 21 | 644 | 0.6− | 0.1+ | 2006 09 17 | 703 | 0.6− | 0.7− | 2006 10 23 | G96 | 0.0 | 0.4− |
| 2002 07 21 | 644 | 0.3− | 0.6− | 2006 09 17 | 703 | 1.2− | 0.0 | 2006 10 23 | G96 | 0.1− | 0.2− |
| 2002 07 21 | 644 | 0.4+ | 0.1− | 2006 09 17 | 703 | 0.2− | 0.9− | 2006 10 23 | G96 | 0.1− | 0.2− |
| 2002 08 05 | 644 | 0.2− | 0.3+ | 2006 09 19 | 699 | 1.4+ | 0.5+ | | | | |

**2002 NX$_{70}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 67.38896 | | (2000.0) | | | |
| $n$ | 0.18263941 | $\omega$ | 243.61789 | | +0.87507635 | −0.47183900 |
| $a$ | 3.0766143 | $\Omega$ | 144.24688 | | +0.48309181 | +0.83802325 |
| $e$ | 0.1331065 | $i$ | 10.62644 | | +0.02938868 | +0.27401642 |
| $P$ | 5.40 | $H$ | 16.1 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 06 24 | 644 | 1.0+ | 0.7+ | 2002 07 22 | 644 | 0.3+ | 0.0 | 2005 01 19 | 691 | 0.0 | 0.2+ |
| 2002 06 24 | 644 | 0.5+ | 0.3− | 2002 08 07 | 644 | 0.0 | 0.2− | 2005 01 19 | 691 | 0.0 | 0.2+ |
| 2002 06 24 | 644 | 0.3+ | 0.3+ | 2002 08 07 | 644 | 0.1+ | 0.5− | 2005 01 19 | 691 | 0.2+ | 0.2− |
| 2002 07 03 | 644 | 0.3+ | 0.0 | 2002 08 07 | 644 | 0.1+ | 0.2+ | 2005 03 04 | G96 | 0.2− | 0.0 |
| 2002 07 03 | 644 | 0.4+ | 0.0 | 2002 08 16 | 644 | 0.7− | 0.6+ | 2005 03 04 | G96 | 0.2− | 0.1− |
| 2002 07 03 | 644 | 0.3+ | 0.3+ | 2002 08 16 | 644 | 0.2− | 0.1+ | 2005 03 04 | G96 | 0.2+ | 0.2− |
| 2002 07 09 | 644 | 0.0 | 0.1− | 2002 08 16 | 644 | 0.4− | 0.6− | 2005 03 04 | G96 | 0.0 | 0.2− |
| 2002 07 09 | 644 | 0.2− | 0.1+ | 2002 08 28 | 644 | 0.2+ | 0.5+ | 2009 10 26 | G96 | 0.4− | 0.3− |
| 2002 07 09 | 644 | 0.4− | 0.0 | 2002 08 28 | 644 | 0.4− | 0.6− | 2009 10 26 | G96 | 0.2+ | 0.2+ |
| 2002 07 12 | 644 | 0.3− | 0.3− | 2002 08 28 | 644 | 0.5− | 0.4− | 2009 10 26 | G96 | 0.2− | 0.2− |
| 2002 07 12 | 644 | 0.3− | 0.1− | 2002 08 28 | 644 | 0.1− | 0.2+ | 2009 10 26 | G96 | 0.4+ | 0.5+ |
| 2002 07 12 | 644 | 0.2− | 0.1− | 2002 08 28 | 644 | 1.0− | 0.3+ | | | | |
| 2002 07 22 | 644 | 0.8+ | 0.3+ | 2002 08 28 | 644 | 0.1+ | 0.2+ | | | | |

**2002 NY$_{70}$ = 2005 GR$_{224}$ = 2007 TG$_{143}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 156.19524 | | (2000.0) | | | |
| $n$ | 0.21869870 | $\omega$ | 200.77465 | | +0.82841485 | −0.55979486 |
| $a$ | 2.7283824 | $\Omega$ | 193.31738 | | +0.52479679 | +0.78754970 |
| $e$ | 0.1067974 | $i$ | 4.71526 | | +0.19574769 | +0.25767264 |
| $P$ | 4.51 | $H$ | 16.5 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 10 16 | 691 | 0.2− | 0.2+ | 2003 11 24 | 691 | 0.2− | 0.0 | 2007 10 11 | 704 | 0.4− | 0.2+ |
| 1998 10 16 | 691 | 0.0 | 0.5+ | 2005 03 09 | 691 | 0.1+ | 0.4+ | 2007 10 11 | 704 | 0.1− | 0.2+ |
| 1998 10 16 | 691 | 0.6+ | 0.0 | 2005 03 09 | 691 | 0.2+ | 0.0 | 2007 10 11 | 704 | 0.2− | 0.7+ |
| 2002 07 03 | 644 | 1.0− | 0.3+ | 2005 03 09 | 691 | 0.4+ | 0.3+ | 2007 10 31 | G96 | 0.1− | 0.1+ |
| 2002 07 03 | 644 | 0.6− | 0.4− | 2005 04 06 | G96 | 0.3− | 0.3+ | 2007 10 31 | G96 | 0.1+ | 0.0 |
| 2002 07 03 | 644 | 0.0 | 0.4+ | 2005 04 06 | G96 | 0.1+ | 0.0 | 2007 10 31 | G96 | 0.2− | 0.2− |
| 2002 07 09 | 644 | 0.6− | 0.0 | 2005 04 06 | G96 | 0.1+ | 0.1− | 2007 10 31 | G96 | 0.3+ | 0.1+ |
| 2002 07 09 | 644 | 0.2− | 0.3+ | 2005 04 06 | G96 | 0.4+ | 0.1+ | 2009 01 01 | 691 | 0.1− | 0.2+ |
| 2002 07 09 | 644 | 0.1− | 0.4+ | 2005 04 12 | G96 | 0.1− | 0.0 | 2009 01 01 | 691 | 0.0 | 0.0 |
| 2002 07 12 | 644 | 0.0 | 0.2− | 2005 04 12 | G96 | 0.3− | 0.2+ | 2009 01 01 | 691 | 0.4+ | 1.0+ |
| 2002 07 12 | 644 | 0.0 | 0.2+ | 2005 04 12 | G96 | 0.3− | 0.3− | 2009 01 20 | G96 | 0.2+ | 0.1+ |
| 2002 07 12 | 644 | 0.4− | 0.4− | 2005 04 12 | G96 | 0.6− | 0.5− | 2009 01 20 | G96 | 0.4+ | 0.1− |
| 2002 07 21 | 644 | 0.1+ | 0.1− | 2007 09 13 | G96 | 0.2+ | 0.3+ | 2009 01 20 | G96 | 0.2+ | 0.0 |
| 2002 07 21 | 644 | 0.3− | 0.6+ | 2007 09 13 | G96 | 0.3+ | 0.0 | 2009 01 20 | G96 | 0.0 | 0.1− |
| 2002 07 21 | 644 | 0.2− | 0.3+ | 2007 09 13 | G96 | 0.6+ | 0.1+ | 2009 01 24 | D29 | (0.3− | 1.5−) |
| 2002 08 16 | 644 | 0.2− | 0.8+ | 2007 09 13 | G96 | 0.3+ | 0.1+ | 2009 01 24 | D29 | 0.1− | 0.2− |
| 2002 08 16 | 644 | 0.0 | 0.8+ | 2007 10 06 | 704 | (0.6− | 3.9−) | 2009 01 24 | D29 | 0.4+ | 0.1− |
| 2002 08 16 | 644 | 0.3+ | 0.6+ | 2007 10 06 | 704 | (0.5+ | 4.6−) | 2009 01 24 | D29 | (1.8+ | 0.4−) |
| 2003 11 24 | 691 | 0.4− | 0.3− | 2007 10 06 | 704 | (0.2− | 4.8−) | | | | |
| 2003 11 24 | 691 | 0.3− | 0.1− | 2007 10 06 | 704 | (0.3− | 4.6−) | | | | |

**2002 NC$_{71}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 279.63738 | | (2000.0) | | | |
| $n$ | 0.24085752 | $\omega$ | 175.11410 | | +0.78415863 | +0.61243629 |
| $a$ | 2.5583654 | $\Omega$ | 146.45701 | | −0.57531364 | +0.77792187 |
| $e$ | 0.1384751 | $i$ | 10.43553 | | −0.23261441 | +0.14056798 |
| $P$ | 4.09 | $H$ | 17.3 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 07 03 | 644 | 0.1+ | 0.5+ | 2002 07 29 | 644 | 0.2− | 0.2− | 2002 08 28 | 644 | 0.5+ | 0.3+ |
| 2002 07 03 | 644 | 0.1+ | 0.1+ | 2002 07 29 | 644 | 0.1+ | 0.4− | 2002 08 28 | 644 | 0.1+ | 0.3+ |
| 2002 07 08 | 644 | 0.0 | 0.2+ | 2002 08 07 | 644 | 0.1− | 0.1− | 2009 02 01 | 691 | 0.1− | 0.1+ |
| 2002 07 08 | 644 | 0.1− | 0.2+ | 2002 08 07 | 644 | 0.2+ | 0.1+ | 2009 02 01 | 691 | 0.4+ | 0.1− |
| 2002 07 08 | 644 | 0.2+ | 0.1+ | 2002 08 07 | 644 | 0.3− | 0.3− | 2009 02 01 | 691 | 0.0 | 0.1+ |
| 2002 07 11 | 644 | 0.4+ | 0.7− | 2002 08 24 | 644 | 0.3− | 0.1+ | 2009 03 15 | 291 | 0.0 | 0.3− |
| 2002 07 11 | 644 | 0.0 | 0.2− | 2002 08 24 | 644 | 0.0 | 0.3− | 2009 03 15 | 291 | 0.2+ | 0.1− |
| 2002 07 29 | 644 | 0.7− | 0.2+ | 2002 08 28 | 644 | 0.2− | 0.3+ | 2009 03 15 | 291 | 0.4− | 0.3+ |

**2002 NK$_{71}$ = 2000 DP$_{89}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 107.00208 | | (2000.0) | | | |
| $n$ | 0.18266860 | $\omega$ | 192.90331 | | +0.92634006 | +0.35995013 |
| $a$ | 3.0762866 | $\Omega$ | 145.34281 | | −0.32593684 | +0.91369317 |
| $e$ | 0.0988103 | $i$ | 11.26022 | | −0.18883661 | +0.18868147 |
| $P$ | 5.40 | $H$ | 15.9 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 02 26 | 691 | 0.0 | 0.3+ | 2002 07 08 | 644 | 0.4− | 0.2− | 2002 08 24 | 644 | 0.5− | 0.1− |
| 2000 02 26 | 691 | 0.0 | 0.9+ | 2002 07 21 | 644 | 0.3+ | 0.1− | 2002 08 24 | 644 | 0.3+ | 0.2+ |
| 2000 02 26 | 691 | 0.0 | 0.3− | 2002 07 21 | 644 | 0.4+ | 0.2− | 2002 08 28 | 644 | 0.6− | 0.2− |
| 2000 03 03 | 691 | 0.1− | 0.3+ | 2002 07 21 | 644 | 0.2+ | 0.2+ | 2002 08 28 | 644 | 0.2− | 0.3− |
| 2000 03 03 | 691 | 0.2+ | 0.9+ | 2002 07 29 | 644 | 0.2− | 0.0 | 2002 08 28 | 644 | 0.1− | 0.3+ |
| 2000 03 03 | 691 | 0.2+ | 0.3+ | 2002 07 29 | 644 | 0.2+ | 0.4− | 2003 11 20 | 645 | 0.0 | 0.0 |
| 2002 06 10 | 644 | 0.1− | 0.2+ | 2002 07 29 | 644 | 0.1− | 0.1+ | 2003 11 20 | 645 | 0.0 | 0.0 |
| 2002 06 10 | 644 | 0.2+ | 0.0 | 2002 08 05 | 644 | 0.4+ | 0.8+ | 2008 09 06 | 703 | 2.4− | 0.1− |
| 2002 06 10 | 644 | 0.1− | 0.2+ | 2002 08 05 | 644 | 0.2+ | 0.8+ | 2008 09 06 | 703 | 0.4− | 0.9+ |
| 2002 06 24 | 644 | 0.2− | 0.1+ | 2002 08 05 | 644 | 0.3+ | 0.4+ | 2008 09 06 | 703 | 0.6− | 0.9− |
| 2002 06 24 | 644 | 0.0 | 0.1− | 2002 08 07 | 644 | 0.0 | 0.3+ | 2008 09 06 | 703 | 1.7− | 0.3+ |
| 2002 06 24 | 644 | 0.1− | 0.3+ | 2002 08 07 | 644 | 0.1− | 0.5+ | 2008 10 02 | 703 | 0.3+ | 0.6+ |
| 2002 07 03 | 644 | 0.2− | 0.2− | 2002 08 07 | 644 | 0.2− | 0.3− | 2008 10 02 | 703 | 0.4− | 0.7+ |
| 2002 07 03 | 644 | 0.2+ | 0.1− | 2002 08 15 | 291 | 0.1+ | 0.3+ | 2008 10 02 | 703 | 2.1+ | 1.9+ |
| 2002 07 03 | 644 | 0.1− | 0.2− | 2002 08 15 | 291 | 0.1+ | 0.1+ | 2008 10 02 | 703 | 1.5+ | 2.3+ |
| 2002 07 08 | 644 | 0.4− | 0.0 | 2002 08 15 | 291 | 0.0 | 0.3+ | | | | |
| 2002 07 08 | 644 | 0.3− | 0.3− | 2002 08 24 | 644 | 0.1− | 0.5− | | | | |

**2002 OX$_{32}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 311.01696 | | (2000.0) | | | |
| $n$ | 0.12661361 | $\omega$ | 57.88066 | | +0.96680675 | −0.23513421 |
| $a$ | 3.9277979 | $\Omega$ | 315.49435 | | +0.15851673 | +0.85887425 |
| $e$ | 0.2578561 | $i$ | 8.20025 | | +0.20039248 | +0.45502409 |
| $P$ | 7.78 | $H$ | 16.3 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 07 07 | 291 | 0.5− | 0.1+ | 2002 08 08 | 644 | 0.5− | 0.5+ | 2003 11 20 | 691 | 0.1+ | 0.0 |
| 2002 07 07 | 291 | 0.0 | 0.1+ | 2002 08 08 | 644 | 0.3− | 0.1− | 2003 11 20 | 691 | 0.2+ | 0.0 |
| 2002 07 07 | 291 | 0.2+ | 0.1+ | 2002 08 08 | 644 | 0.2− | 0.1+ | 2003 11 20 | 691 | 0.2+ | 0.0 |
| 2002 07 29 | 644 | 0.1− | 0.6− | 2002 08 17 | 644 | 0.2+ | 0.1+ | 2003 12 01 | 691 | 0.2− | 0.1+ |
| 2002 07 29 | 644 | 0.4+ | 0.5− | 2002 08 17 | 644 | 0.1− | 0.1− | 2003 12 01 | 691 | 0.0 | 0.3+ |
| 2002 07 29 | 644 | 0.6+ | 0.6− | 2002 08 17 | 644 | 0.1− | 0.4− | 2003 12 01 | 691 | 0.3− | 0.1+ |
| 2002 08 07 | 644 | 0.2+ | 0.4− | 2002 08 27 | 644 | 0.7+ | 0.2+ | 2003 12 17 | 691 | 0.1+ | 0.3− |
| 2002 08 07 | 644 | 0.1+ | 0.8− | 2002 08 27 | 644 | 0.1− | 1.0+ | 2003 12 17 | 691 | 0.2+ | 0.0 |
| 2002 08 07 | 644 | 0.4+ | 0.3− | 2002 08 27 | 644 | 0.1+ | 0.6+ | 2003 12 17 | 691 | 0.3− | 0.4− |

**2002 OZ$_{32}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 292.09415 | | (2000.0) | | | |
| $n$ | 0.17568636 | $\omega$ | 330.93920 | | −0.60154845 | −0.79449429 |
| $a$ | 3.1572624 | $\Omega$ | 155.74581 | | +0.76646423 | −0.60337460 |
| $e$ | 0.0744782 | $i$ | 11.68207 | | +0.22510454 | −0.06868701 |
| $P$ | 5.61 | $H$ | 15.2 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 07 03 | 644 | 0.2− | 0.2+ | 2002 08 16 | 644 | 0.0 | 0.4+ | 2008 09 20 | G96 | 0.5− | 0.2+ |
| 2002 07 03 | 644 | 0.1− | 0.0 | 2003 10 02 | 691 | 0.0 | 0.3+ | 2008 09 20 | G96 | 0.3+ | 0.7− |
| 2002 07 03 | 644 | 0.3− | 0.1− | 2003 10 02 | 691 | 0.1− | 0.1+ | 2008 10 29 | G96 | 0.1− | 0.1− |
| 2002 07 21 | 644 | 0.1+ | 0.2+ | 2003 10 02 | 691 | 0.0 | 0.1+ | 2008 10 29 | G96 | 0.3+ | 0.3− |
| 2002 07 21 | 644 | 0.1+ | 0.0 | 2006 02 22 | 699 | 0.0 | 0.2+ | 2008 10 29 | G96 | 0.1+ | 0.0 |
| 2002 07 29 | 644 | 0.0 | 0.1+ | 2006 02 22 | 699 | (0.5− | 1.6+) | 2008 10 29 | G96 | 0.4+ | 0.2− |
| 2002 07 29 | 644 | 0.1− | 0.1− | 2006 02 22 | 699 | (2.1+ | 1.0+) | 2009 10 01 | G96 | 0.3− | 0.1+ |
| 2002 07 29 | 644 | 0.1+ | 0.2− | 2006 02 22 | 699 | 0.4+ | 1.1+ | 2009 10 01 | G96 | 0.2+ | 0.0 |
| 2002 08 16 | 644 | 0.1− | 0.2+ | 2008 09 20 | G96 | 0.0 | 0.4− | 2009 10 01 | G96 | 0.0 | 0.4− |
| 2002 08 16 | 644 | 0.1+ | 0.2+ | 2008 09 20 | G96 | 0.0 | 0.4+ | 2009 10 01 | G96 | 0.1− | 0.2− |

**2002 OA$_{33}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 288.15574 | | (2000.0) | | | |
| $n$ | 0.22830980 | $\omega$ | 93.68158 | | −0.09862899 | +0.99492641 |
| $a$ | 2.6512642 | $\Omega$ | 170.58875 | | −0.95439453 | −0.08892678 |
| $e$ | 0.1784969 | $i$ | 6.97020 | | −0.28178611 | −0.04704757 |
| $P$ | 4.32 | $H$ | 17.4 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 06 24 | 644 | 0.6+ | 0.5+ | 2002 07 29 | 644 | 0.2− | 0.3− | 2006 06 15 | 691 | 0.2+ | 0.2− |
| 2002 06 24 | 644 | 0.2− | 0.3+ | 2002 07 29 | 644 | 0.2+ | 0.2− | 2006 06 15 | 691 | 0.0 | 0.0 |
| 2002 06 24 | 644 | 0.1− | 0.1− | 2002 08 16 | 644 | 0.2+ | 0.0 | 2006 06 15 | 691 | 0.1− | 0.1− |
| 2002 07 12 | 644 | 0.2+ | 0.5+ | 2002 08 24 | 644 | 0.3− | 0.4− | 2007 09 13 | G96 | 0.8− | 0.1+ |
| 2002 07 12 | 644 | 0.1+ | 0.1+ | 2002 08 24 | 644 | 0.1+ | 0.2+ | 2007 09 13 | G96 | 0.1− | 0.0 |
| 2002 07 12 | 644 | 0.1+ | 0.3+ | 2002 08 24 | 644 | 0.1− | 0.2− | 2007 09 13 | G96 | 0.5+ | 0.0 |
| 2002 07 21 | 644 | 0.2− | 0.3− | 2006 05 31 | 691 | 0.3− | 0.5+ | 2007 09 13 | G96 | 0.5+ | 0.4− |
| 2002 07 21 | 644 | 0.2− | 0.1− | 2006 05 31 | 691 | 0.0 | 0.3− | | | | |
| 2002 07 29 | 644 | 0.3− | 0.3+ | 2006 05 31 | 691 | 0.2+ | 0.1− | | | | |

**2002 PM$_{3}$ = 2008 UA$_{364}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 103.46146 | | (2000.0) | | | |
| $n$ | 0.18077934 | $\omega$ | 69.96167 | | +0.97137516 | +0.07662052 |
| $a$ | 3.0976821 | $\Omega$ | 285.12100 | | −0.17187031 | +0.88010332 |
| $e$ | 0.2797163 | $i$ | 13.46898 | | +0.16398442 | +0.46855889 |
| $P$ | 5.45 | $H$ | 16.2 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 07 14 | 704 | 0.0 | 0.1+ | 2002 08 03 | 644 | 0.2+ | 0.2+ | 2008 10 26 | 703 | 0.4+ | 0.1− |
| 2002 07 14 | 704 | 0.3− | 0.9+ | 2002 08 05 | 644 | 0.4− | 0.2+ | 2008 10 26 | 703 | 0.3+ | 0.7+ |
| 2002 07 14 | 704 | 0.1+ | 0.4− | 2002 08 05 | 644 | 0.2− | 0.3+ | 2008 10 26 | 703 | 0.9− | 0.7+ |
| 2002 07 14 | 704 | 0.1− | 0.3− | 2002 08 05 | 644 | 0.2− | 0.2+ | 2008 11 08 | 703 | 0.2+ | 0.0 |
| 2002 07 21 | 644 | 0.0 | 0.3− | 2008 10 06 | 703 | 0.2+ | 0.1− | 2008 11 08 | 703 | 1.0+ | 0.7+ |
| 2002 07 21 | 644 | 0.1+ | 0.5− | 2008 10 06 | 703 | 0.2− | 0.5− | 2008 11 08 | 703 | 0.3− | 0.2+ |
| 2002 07 21 | 644 | 0.1− | 0.1− | 2008 10 06 | 703 | 0.6− | 0.9− | 2008 11 08 | 703 | 0.6− | 0.8− |
| 2002 08 03 | 644 | 0.4+ | 0.1+ | 2008 10 06 | 703 | 0.5+ | 0.5− | | | | |
| 2002 08 03 | 644 | 0.2+ | 0.2− | 2008 10 26 | 703 | 0.2− | 0.5+ | | | | |

**2002 PM$_5$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 158.78964 | | (2000.0) | | | |
| $n$ | 0.19140162 | $\omega$ | 136.28204 | | +0.79727716 | +0.60333325 |
| $a$ | 2.9819863 | $\Omega$ | 186.68482 | | −0.58809677 | +0.76955884 |
| $e$ | 0.3189827 | $i$ | 9.08868 | | −0.13598278 | +0.20920850 |
| $P$ | 5.15 | $H$ | 16.6 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1992 10 03 | 691 | 0.0 | 0.3+ | 2002 08 15 | 644 | 0.3− | 0.3− | 2002 09 14 | 608 | (0.3+ | 1.7−) |
| 1992 10 03 | 691 | 0.0 | 0.3+ | 2002 08 15 | 644 | 0.1− | 0.3− | 2002 09 14 | 608 | (0.4+ | 1.6−) |
| 1992 10 03 | 691 | 0.2− | 0.2+ | 2002 08 15 | 644 | 0.1− | 0.2− | 2002 09 28 | 291 | 0.2− | 0.2+ |
| 2002 08 04 | 644 | 0.0 | 0.3− | 2002 08 26 | 644 | 0.3+ | 0.9+ | 2002 09 28 | 291 | 0.2− | 0.7+ |
| 2002 08 04 | 644 | 0.2+ | 0.0 | 2002 08 26 | 644 | 0.2+ | 1.0+ | 2002 09 28 | 291 | 0.4− | 1.1+ |
| 2002 08 04 | 644 | 0.1+ | 0.3− | 2002 08 26 | 644 | 0.2+ | 0.8+ | 2006 03 02 | 691 | 0.1+ | 1.0+ |
| 2002 08 05 | 644 | 0.1+ | 0.3+ | 2002 08 26 | 644 | 0.1+ | 0.2+ | 2006 03 02 | 691 | 0.0 | 0.8+ |
| 2002 08 05 | 644 | 0.3+ | 0.4+ | 2002 08 26 | 644 | 0.1+ | 0.1+ | 2006 03 02 | 691 | 0.5+ | 0.8+ |
| 2002 08 05 | 644 | 0.5+ | 0.4+ | 2002 08 26 | 644 | 0.2+ | 0.1+ | 2007 11 02 | G96 | 0.2− | 0.5− |
| 2002 08 08 | 699 | 0.4− | 0.7− | 2002 09 06 | 704 | 0.4+ | 0.6− | 2007 11 02 | G96 | 0.5+ | 0.2− |
| 2002 08 08 | 699 | 0.2− | 0.7− | 2002 09 06 | 704 | (1.8+ | 0.8+) | 2007 11 02 | G96 | 1.2+ | 0.7+ |
| 2002 08 08 | 699 | 0.4− | 0.3+ | 2002 09 06 | 704 | 0.5− | 0.0 | 2007 11 02 | G96 | 0.0 | 0.7− |
| 2002 08 08 | 699 | 0.1+ | 0.4− | 2002 09 06 | 704 | 0.5+ | 0.3− | 2007 11 03 | G96 | 0.2+ | 0.2− |
| 2002 08 12 | 704 | 0.1+ | 0.2− | 2002 09 06 | 704 | 0.4− | 1.0− | 2007 11 03 | G96 | 0.1− | 0.5− |
| 2002 08 12 | 704 | 0.1+ | 0.5− | 2002 09 13 | 644 | 0.4− | 0.1− | 2007 11 03 | G96 | 0.2− | 0.3− |
| 2002 08 12 | 704 | 0.3− | 0.5− | 2002 09 13 | 644 | 0.0 | 0.2+ | 2007 11 03 | G96 | 0.2− | 0.5− |
| 2002 08 12 | 704 | 0.5+ | 0.1+ | 2002 09 13 | 644 | 0.1− | 0.1− | | | | |
| 2002 08 12 | 704 | 0.2+ | 0.3− | 2002 09 14 | 608 | (0.2+ | 1.9−) | | | | |

**2002 PN$_6$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 49.52180 | | (2000.0) | | | |
| $n$ | 0.28821810 | $\omega$ | 89.23678 | | +0.96737603 | +0.23694820 |
| $a$ | 2.2698050 | $\Omega$ | 257.05349 | | −0.25316686 | +0.89086609 |
| $e$ | 0.4442015 | $i$ | 5.27868 | | −0.00949559 | +0.38757342 |
| $P$ | 3.42 | $H$ | 20.9 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 07 12 | 644 | 0.6+ | 0.6+ | 2002 08 11 | 649 | 0.3+ | 0.1+ | 2002 09 22 | 715 | 0.4− | 0.6− |
| 2002 07 12 | 644 | 0.2+ | 0.9+ | 2002 08 19 | 413 | 0.4− | 0.1+ | 2002 09 22 | 715 | 0.7+ | 0.2− |
| 2002 07 12 | 644 | 0.0 | 0.0 | 2002 08 19 | 413 | 0.0 | 0.2− | 2002 09 22 | 715 | 1.2+ | 0.0 |
| 2002 08 03 | 644 | 0.0 | 0.0 | 2002 08 19 | 413 | 0.1− | 0.3+ | 2002 10 01 | 246 | 0.5− | 0.1+ |
| 2002 08 03 | 644 | 0.0 | 0.5+ | 2002 08 26 | 649 | 0.2+ | 0.2+ | 2002 10 01 | 246 | 1.1− | 0.8+ |
| 2002 08 03 | 644 | 0.1+ | 0.7+ | 2002 08 26 | 649 | 0.2+ | 0.0 | 2002 10 01 | 246 | 0.7− | 0.2− |
| 2002 08 03 | 046 | 1.2− | 0.9+ | 2002 08 26 | 649 | 0.2+ | 0.0 | 2002 10 01 | 246 | 0.5− | 0.1− |
| 2002 08 03 | 046 | 0.2− | 1.6+ | 2002 08 31 | 649 | 0.1+ | 0.0 | 2002 10 01 | 246 | 1.3− | 0.1+ |
| 2002 08 04 | 649 | 0.3+ | 0.0 | 2002 08 31 | 649 | 0.0 | 0.3− | 2002 10 01 | 246 | 0.3− | 0.0 |
| 2002 08 04 | 649 | 0.2+ | 0.5− | 2002 08 31 | 649 | 0.5+ | 0.2+ | 2002 10 06 | 704 | 0.5+ | 0.1− |
| 2002 08 04 | 649 | 0.2+ | 0.5− | 2002 08 31 | 848 | 0.6+ | 1.1− | 2002 10 06 | 704 | 0.3+ | 0.4+ |
| 2002 08 04 | 649 | 0.4− | 0.4− | 2002 08 31 | 848 | 0.3− | 1.8− | 2002 10 06 | 704 | 1.7+ | 0.9+ |
| 2002 08 05 | 649 | 0.5− | 0.1− | 2002 08 31 | 848 | 0.1+ | 0.9− | 2002 10 08 | 246 | 0.7+ | 0.4− |
| 2002 08 05 | 649 | 0.2− | 0.7− | 2002 08 31 | 848 | 1.5− | 0.1+ | 2002 10 08 | 246 | 0.6+ | 0.1− |
| 2002 08 05 | 246 | 0.0 | 0.4− | 2002 09 09 | 848 | 0.1− | 0.3+ | 2002 10 08 | 246 | 1.0+ | 0.0 |
| 2002 08 05 | 557 | 0.3+ | 0.4+ | 2002 09 09 | 848 | (2.3+ | 1.5−) | 2002 10 08 | 246 | 0.2+ | 1.1+ |
| 2002 08 05 | 246 | 0.0 | 0.3+ | 2002 09 09 | 848 | 1.4+ | 0.3+ | 2009 12 19 | 291 | 0.6− | 0.0 |
| 2002 08 05 | 246 | 0.0 | 0.4+ | 2002 09 09 | 848 | (2.9− | 0.6−) | 2009 12 19 | 291 | 0.3− | 0.2+ |
| 2002 08 05 | 557 | 0.2+ | 0.3+ | 2002 09 09 | 246 | 0.3− | 0.5− | 2009 12 19 | 291 | 0.5− | 0.1+ |
| 2002 08 05 | 246 | 0.1+ | 0.2− | 2002 09 09 | 246 | 1.0− | 0.4− | 2009 12 19 | 568 | 0.0 | 0.0 |
| 2002 08 05 | 246 | 0.4− | 0.1+ | 2002 09 09 | 246 | 0.3− | 0.4− | 2009 12 19 | 568 | 0.1+ | 0.0 |
| 2002 08 05 | 246 | 0.6− | 0.7+ | 2002 09 09 | 246 | 0.4− | 0.2− | | | | |
| 2002 08 11 | 649 | 0.6+ | 0.8+ | 2002 09 09 | 246 | 0.1− | 0.7− | | | | |

**2002 PH$_{15}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 280.78347 | | (2000.0) | | | |
| $n$ | 0.22312012 | $\omega$ | 80.67799 | | −0.10677310 | +0.99422832 |
| $a$ | 2.6922180 | $\Omega$ | 183.24813 | | −0.96928370 | −0.10642835 |
| $e$ | 0.1336490 | $i$ | 10.64490 | | −0.22155949 | −0.01352944 |
| $P$ | 4.42 | $H$ | 16.0 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 07 09 | 704 | 1.5+ | 0.6− | 2002 07 20 | 644 | 0.2− | 0.1+ | 2002 08 25 | 644 | 0.1− | 0.5− |
| 2002 07 09 | 704 | 0.4+ | 0.3− | 2002 08 06 | 644 | 0.4+ | 0.4+ | 2002 08 25 | 644 | 0.1− | 0.5− |
| 2002 07 09 | 704 | 0.9− | 0.1+ | 2002 08 06 | 644 | 0.2+ | 0.4+ | 2002 08 25 | 644 | 0.1+ | 0.5− |
| 2002 07 09 | 704 | 0.2− | 0.8− | 2002 08 06 | 644 | 0.1+ | 0.1− | 2007 09 20 | 691 | 0.6− | 0.5+ |
| 2002 07 09 | 704 | 0.0 | 0.1+ | 2002 08 07 | 644 | 0.3+ | 0.4+ | 2007 09 20 | 691 | 0.1− | 0.1+ |
| 2002 07 13 | 608 | 0.3+ | 0.9+ | 2002 08 07 | 644 | 0.8− | 0.7+ | 2007 09 20 | 691 | 0.1− | 0.4− |
| 2002 07 13 | 608 | 0.2+ | 1.0+ | 2002 08 07 | 644 | 0.1− | 0.4+ | 2007 10 13 | G96 | 1.2+ | 0.3+ |
| 2002 07 13 | 608 | 0.2+ | 0.5+ | 2002 08 15 | 644 | 0.3− | 0.8− | 2007 10 13 | G96 | 0.7+ | 0.4− |
| 2002 07 20 | 644 | 0.0 | 0.3− | 2002 08 15 | 644 | 0.4− | 0.5− | 2007 10 13 | G96 | 0.6+ | 0.3− |
| 2002 07 20 | 644 | 0.3− | 0.1+ | 2002 08 15 | 644 | 0.5− | 0.6− | 2007 10 13 | G96 | 0.5+ | 0.0 |

**2002 PK$_{27}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 168.12874 | | (2000.0) | | | |
| $n$ | 0.17929417 | $\omega$ | 353.18841 | | −0.08545936 | +0.99380914 |
| $a$ | 3.1147649 | $\Omega$ | 271.89193 | | −0.91074173 | −0.10681372 |
| $e$ | 0.1232229 | $i$ | 4.07328 | | −0.40403737 | +0.03056504 |
| $P$ | 5.50 | $H$ | 15.8 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 07 22 | 644 | 0.4− | 0.1− | 2002 08 16 | 644 | 0.1− | 0.9+ | 2008 08 24 | 691 | 0.0 | 0.0 |
| 2002 07 22 | 644 | 0.6+ | 0.4− | 2002 08 17 | 644 | 0.1− | 0.6− | 2008 08 24 | 691 | 0.0 | 0.4+ |
| 2002 07 22 | 644 | 0.0 | 0.1− | 2002 08 17 | 644 | 0.2− | 0.6− | 2008 09 25 | G96 | 0.2+ | 0.2− |
| 2002 08 06 | 644 | 0.0 | 0.1− | 2002 08 17 | 644 | 0.1− | 0.5− | 2008 09 25 | G96 | 0.2+ | 0.1− |
| 2002 08 06 | 644 | 0.3− | 0.1+ | 2002 08 26 | 644 | 0.5+ | 0.0 | 2008 09 25 | G96 | 0.1+ | 0.3− |
| 2002 08 06 | 644 | 0.0 | 0.2− | 2002 08 26 | 644 | 0.2+ | 0.2− | 2008 09 25 | G96 | 0.0 | 0.2− |
| 2002 08 07 | 644 | 0.3+ | 0.4+ | 2002 08 26 | 644 | 0.1− | 0.4− | 2008 10 30 | G96 | 0.3− | 0.3− |
| 2002 08 07 | 644 | 0.4− | 0.2+ | 2002 08 27 | 644 | 0.1− | 0.1+ | 2008 10 30 | G96 | 0.3+ | 0.1+ |
| 2002 08 07 | 644 | 0.2+ | 0.1+ | 2002 08 27 | 644 | 0.0 | 0.1− | 2008 10 30 | G96 | 0.1− | 0.0 |
| 2002 08 16 | 644 | 0.1+ | 0.8+ | 2002 08 27 | 644 | 0.1+ | 0.1− | 2008 10 30 | G96 | 0.0 | 0.0 |
| 2002 08 16 | 644 | 0.2− | 0.5+ | 2008 08 24 | 691 | 0.2− | 0.1− | | | | |

**2002 PF$_{33}$ = 2005 GF$_{51}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 72.28550 | | (2000.0) | | | |
| $n$ | 0.28966959 | $\omega$ | 137.01809 | | +0.44428116 | +0.89521611 |
| $a$ | 2.2622162 | $\Omega$ | 159.28501 | | −0.84625522 | +0.43205738 |
| $e$ | 0.1773776 | $i$ | 5.62576 | | −0.29405163 | +0.10915374 |
| $P$ | 3.40 | $H$ | 18.3 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 07 03 | 644 | 0.0 | 0.1+ | 2002 08 05 | 599 | 0.2+ | 0.3− | 2002 08 28 | 644 | 0.0 | 0.4− |
| 2002 07 03 | 644 | 0.3+ | 0.5+ | 2002 08 07 | 644 | 0.1− | 0.1− | 2005 04 02 | 691 | 0.1− | 0.5+ |
| 2002 07 03 | 644 | 0.0 | 0.8+ | 2002 08 07 | 644 | 0.2− | 0.1+ | 2005 04 02 | 691 | 0.2− | 0.2− |
| 2002 07 09 | 644 | 0.2− | 0.1+ | 2002 08 07 | 644 | 0.1− | 0.3+ | 2005 04 02 | 691 | 0.3− | 0.5− |
| 2002 07 09 | 644 | 0.0 | 0.1− | 2002 08 07 | 599 | 0.3+ | 0.1+ | 2005 04 07 | 691 | 0.3+ | 0.2+ |
| 2002 07 09 | 644 | 0.3− | 0.1− | 2002 08 07 | 599 | 0.3+ | 0.2+ | 2005 04 07 | 691 | 0.2+ | 0.0 |
| 2002 07 12 | 644 | 0.4− | 0.2+ | 2002 08 07 | 599 | 0.4+ | 0.4− | 2005 04 07 | 691 | 0.1+ | 0.1− |
| 2002 07 12 | 644 | 0.1− | 0.3− | 2002 08 16 | 644 | 0.6− | 0.2+ | 2008 02 13 | 691 | 0.1+ | 0.3+ |
| 2002 07 12 | 644 | 0.1− | 0.1− | 2002 08 16 | 644 | 0.3+ | 0.1− | 2008 02 13 | 691 | 0.5− | 0.2+ |
| 2002 07 21 | 644 | 0.2+ | 0.1+ | 2002 08 16 | 644 | 0.1+ | 0.5− | 2008 02 13 | 691 | 0.0 | 0.0 |
| 2002 07 21 | 644 | 0.0 | 0.4− | 2002 08 17 | 644 | 0.3+ | 0.3− | 2008 02 26 | G96 | 0.7+ | 0.3+ |
| 2002 07 21 | 644 | 0.2− | 0.2− | 2002 08 17 | 644 | 0.2+ | 0.0 | 2008 02 26 | G96 | 0.3− | 0.6− |
| 2002 08 05 | 599 | 0.7− | 0.7+ | 2002 08 28 | 644 | 0.2− | 0.4+ | 2008 02 26 | G96 | 0.7+ | 0.1− |
| 2002 08 05 | 599 | 0.2+ | 0.3+ | 2002 08 28 | 644 | 0.1+ | 0.2− | 2008 02 26 | G96 | 0.7+ | 0.4− |

**2002 PB$_{43}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | |
|---|---|---|---|---|---|---|
| $M$ | 222.11294 | | (2000.0) | | **P** | **Q** |
| $n$ | 0.22423266 | $\omega$ | 87.14311 | | +0.99241426 | −0.02833266 |
| $a$ | 2.6833056 | $\Omega$ | 274.45987 | | −0.02252058 | +0.91471837 |
| $e$ | 0.2713066 | $i$ | 6.89168 | | +0.12085841 | +0.40309746 |
| $P$ | 4.40 | $H$ | 16.9 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 07 12 | 644 | 0.4− | 0.4− | 2002 08 12 | 735 | 0.3− | 1.0− | 2002 09 21 | 644 | 0.0 | 0.3+ |
| 2002 07 21 | 644 | 0.0 | 0.3+ | 2002 08 12 | 735 | 0.0 | 0.2− | 2002 09 21 | 644 | 0.8− | 0.2− |
| 2002 07 21 | 644 | 0.1− | 0.4+ | 2002 08 12 | 704 | 0.2+ | 0.2+ | 2002 09 22 | 644 | 0.5− | 0.3+ |
| 2002 08 05 | 644 | 0.2− | 0.4+ | 2002 08 12 | 704 | 0.8− | 0.8+ | 2007 12 03 | 691 | 0.2+ | 0.2− |
| 2002 08 05 | 644 | 0.0 | 0.2+ | 2002 08 12 | 704 | 0.9+ | 0.5− | 2007 12 03 | 691 | 0.3+ | 0.2− |
| 2002 08 05 | 644 | 0.1− | 0.4+ | 2002 08 12 | 704 | (0.7− | 2.1+) | 2007 12 03 | 691 | 0.0 | 0.4− |
| 2002 08 07 | 735 | 0.3− | 0.4− | 2002 08 16 | 644 | 0.3+ | 0.3+ | 2007 12 16 | 691 | 0.2− | 1.1+ |
| 2002 08 07 | 735 | 0.2− | 0.9− | 2002 08 16 | 644 | 0.2+ | 0.1+ | 2007 12 16 | 691 | 0.0 | 0.1+ |
| 2002 08 07 | 735 | 0.2+ | 0.5+ | 2002 08 16 | 644 | 0.2+ | 0.1+ | 2007 12 16 | 691 | 0.3− | 0.4− |
| 2002 08 11 | 735 | 0.0 | 0.1+ | 2002 09 12 | 735 | 0.1+ | 0.5+ | 2008 02 08 | G96 | 0.1− | 0.0 |
| 2002 08 11 | 735 | 0.2− | 0.0 | 2002 09 12 | 735 | 0.2− | 0.0 | 2008 02 08 | G96 | 0.1+ | 0.0 |
| 2002 08 11 | 735 | 1.1+ | 0.1− | 2002 09 12 | 735 | 1.2+ | 0.2+ | 2008 02 08 | G96 | 0.1+ | 0.1+ |
| 2002 08 12 | 735 | 0.0 | 1.1− | 2002 09 21 | 644 | 0.6− | 0.4− | 2008 02 08 | G96 | 0.1− | 0.5− |

**2002 PE$_{54}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | |
|---|---|---|---|---|---|---|
| $M$ | 153.41549 | | (2000.0) | | **P** | **Q** |
| $n$ | 0.23988439 | $\omega$ | 336.89697 | | −0.29368368 | −0.94610011 |
| $a$ | 2.5652797 | $\Omega$ | 129.89381 | | +0.90245804 | −0.32151444 |
| $e$ | 0.0770661 | $i$ | 10.25155 | | +0.31514976 | +0.03902630 |
| $P$ | 4.11 | $H$ | 16.3 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 07 23 | 644 | 0.0 | 0.1− | 2002 08 18 | 644 | 0.0 | 0.2+ | 2009 04 19 | G96 | 0.0 | 0.2− |
| 2002 07 23 | 644 | 0.2+ | 0.2− | 2002 08 18 | 644 | 0.2+ | 0.0 | 2009 04 19 | G96 | 0.0 | 0.1+ |
| 2002 08 08 | 644 | 0.4− | 0.0 | 2002 08 18 | 644 | 0.0 | 0.2− | 2009 04 19 | G96 | 0.0 | 0.3− |
| 2002 08 08 | 644 | 0.1− | 0.1+ | 2002 08 30 | 644 | 0.0 | 0.1− | 2009 04 19 | G96 | 0.1+ | 0.4− |
| 2002 08 08 | 644 | 0.1− | 0.0 | 2002 08 30 | 644 | 0.1− | 0.2+ | 2009 05 04 | G96 | 0.2− | 0.1+ |
| 2002 08 11 | 644 | 0.4− | 0.2+ | 2002 08 30 | 644 | 0.1− | 0.1− | 2009 05 04 | G96 | 0.1+ | 0.2+ |
| 2002 08 11 | 644 | 0.1+ | 0.2− | 2002 09 15 | 644 | 0.2+ | 0.4− | 2009 05 04 | G96 | 0.1+ | 0.3+ |
| 2002 08 11 | 644 | 0.4− | 0.1+ | 2002 09 15 | 644 | 0.8+ | 0.5+ | 2009 05 04 | G96 | 0.0 | 0.0 |

**2002 PD$_{80}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | |
|---|---|---|---|---|---|---|
| $M$ | 138.30138 | | (2000.0) | | **P** | **Q** |
| $n$ | 0.17647703 | $\omega$ | 24.26442 | | +0.52796454 | +0.80059320 |
| $a$ | 3.1478250 | $\Omega$ | 278.76145 | | −0.81852060 | +0.39071740 |
| $e$ | 0.2034549 | $i$ | 16.66201 | | −0.22644530 | +0.45430214 |
| $P$ | 5.58 | $H$ | 15.3 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 04 | 644 | 0.1+ | 0.0 | 2002 08 22 | 644 | 0.1− | 0.2− | 2008 09 20 | G96 | 0.2+ | 0.8− |
| 2002 08 04 | 644 | 0.4+ | 0.1+ | 2002 08 30 | 699 | 0.0 | 0.2+ | 2008 09 20 | G96 | 0.0 | 0.8− |
| 2002 08 04 | 644 | 0.3+ | 0.4+ | 2002 08 30 | 699 | 0.0 | 0.3+ | 2008 09 20 | G96 | 0.1− | 1.0− |
| 2002 08 14 | 644 | 0.1+ | 0.2+ | 2002 08 30 | 699 | 0.2− | 0.6− | 2008 09 20 | G96 | 0.1− | 1.0− |
| 2002 08 14 | 644 | 0.2+ | 0.2+ | 2002 08 30 | 699 | 0.1+ | 0.1− | 2008 10 06 | 703 | 0.2− | 1.3+ |
| 2002 08 14 | 644 | 0.1+ | 0.2+ | 2002 10 19 | 644 | 0.3+ | 0.4− | 2008 10 06 | 703 | 0.9+ | 1.8+ |
| 2002 08 22 | 644 | 0.6− | 0.5− | 2002 10 19 | 644 | 0.2+ | 0.2− | 2008 10 06 | 703 | 0.3− | 0.6− |
| 2002 08 22 | 644 | 1.2− | 0.3+ | 2002 10 19 | 644 | 0.6+ | 0.2− | 2008 10 06 | 703 | 0.6− | 1.1+ |

**2002 PL$_{82}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | |
|---|---|---|---|---|---|---|
| $M$ | 225.67467 | | (2000.0) | | **P** | **Q** |
| $n$ | 0.21207326 | $\omega$ | 154.87645 | | +0.56741081 | +0.81893164 |
| $a$ | 2.7849160 | $\Omega$ | 149.47704 | | −0.78119897 | +0.56838231 |
| $e$ | 0.2967132 | $i$ | 9.74883 | | −0.26033276 | +0.07932537 |
| $P$ | 4.65 | $H$ | 16.2 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 07 09 | 704 | 1.0− | 0.5− | 2002 08 17 | 644 | 0.1+ | 0.2+ | 2002 09 15 | 644 | 0.3− | 0.2− |
| 2002 07 09 | 704 | 0.5− | 0.8− | 2002 08 17 | 644 | 0.0 | 0.2+ | 2002 09 15 | 644 | 0.3− | 0.2− |
| 2002 07 09 | 704 | 0.6− | 0.2+ | 2002 08 17 | 644 | 0.1+ | 0.3+ | 2007 09 26 | G96 | 0.0 | 0.5− |
| 2002 08 08 | 644 | 0.2+ | 0.5+ | 2002 09 05 | 704 | 0.1+ | 0.0 | 2007 09 26 | G96 | 0.1− | 0.6− |
| 2002 08 08 | 644 | 0.4+ | 0.4+ | 2002 09 05 | 704 | 0.4+ | 0.1+ | 2007 09 26 | G96 | 0.2+ | 0.4− |
| 2002 08 08 | 644 | 0.2+ | 0.3+ | 2002 09 05 | 704 | 0.9+ | 0.7− | 2007 09 26 | G96 | 0.2− | 0.4− |
| 2002 08 09 | 704 | 0.7+ | 0.2− | 2002 09 05 | 704 | 0.0 | 1.0+ | 2007 10 19 | 703 | 0.6− | 0.0 |
| 2002 08 09 | 704 | 0.5+ | 0.3− | 2002 09 05 | 704 | 0.0 | 0.5− | 2007 10 19 | 703 | 1.1+ | 0.2− |
| 2002 08 09 | 704 | 0.1− | 0.4− | 2002 09 05 | 608 | 0.9− | 0.4− | 2007 10 19 | 703 | 0.1− | 0.3− |
| 2002 08 13 | 699 | 0.1+ | 0.1+ | 2002 09 05 | 608 | 0.7− | 0.3− | 2007 10 19 | 703 | 0.6− | 0.5− |
| 2002 08 13 | 699 | 0.8+ | 0.2− | 2002 09 05 | 608 | 0.6− | 0.8− | 2007 11 07 | 703 | 0.8− | 1.1+ |
| 2002 08 13 | 699 | 0.0 | 0.3+ | 2002 09 06 | 704 | 0.2− | 0.2+ | 2007 11 07 | 703 | 1.1− | 0.4− |
| 2002 08 13 | 699 | 0.2+ | 0.5+ | 2002 09 06 | 704 | 0.2+ | 0.3+ | 2007 11 07 | 703 | 0.8− | 0.0 |
| 2002 08 14 | 704 | 1.3+ | 0.1+ | 2002 09 06 | 704 | 0.1+ | 0.9+ | 2007 11 07 | 703 | 1.2+ | 1.0+ |
| 2002 08 14 | 704 | 0.3+ | 0.6+ | 2002 09 06 | 704 | 0.7− | 0.6+ | 2007 11 15 | 703 | 0.2− | 0.2− |
| 2002 08 14 | 704 | 0.6+ | 0.2+ | 2002 09 11 | 608 | 0.4− | 0.5− | 2007 11 15 | 703 | 0.3+ | 0.5+ |
| 2002 08 17 | 644 | 0.1+ | 0.1+ | 2002 09 11 | 608 | 0.6− | 0.7− | 2007 11 15 | 703 | 1.4+ | 0.2− |
| 2002 08 17 | 644 | 0.2− | 0.1+ | 2002 09 11 | 608 | 0.8− | 0.7− | 2007 11 15 | 703 | 0.2+ | 0.9+ |
| 2002 08 17 | 644 | 0.1+ | 0.1+ | 2002 09 15 | 644 | 0.2− | 0.2− | | | | |

**2002 PU$_{83}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | |
|---|---|---|---|---|---|---|
| $M$ | 261.93206 | | (2000.0) | | **P** | **Q** |
| $n$ | 0.22970593 | $\omega$ | 186.91411 | | +0.83867099 | +0.52077465 |
| $a$ | 2.6405105 | $\Omega$ | 140.34315 | | −0.48696934 | +0.84812364 |
| $e$ | 0.1863010 | $i$ | 14.46864 | | −0.24390947 | +0.09736560 |
| $P$ | 4.29 | $H$ | 15.7 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 07 14 | 704 | 0.9− | 0.8+ | 2002 08 15 | 699 | 0.5+ | 0.7+ | 2002 09 15 | 608 | 0.1+ | 0.2− |
| 2002 07 14 | 704 | 0.0 | 0.5+ | 2002 08 15 | 699 | 0.2− | 1.0+ | 2002 09 15 | 608 | 0.1− | 0.1− |
| 2002 07 14 | 704 | 0.8− | 0.8+ | 2002 08 15 | 699 | 0.5− | 0.3+ | 2002 09 15 | 608 | 0.1− | 0.1+ |
| 2002 08 10 | 704 | 0.2+ | 0.2− | 2002 08 18 | 644 | 0.5− | 0.1+ | 2002 09 30 | 608 | 0.9− | 0.2+ |
| 2002 08 10 | 704 | 0.8+ | 0.1− | 2002 08 18 | 644 | 0.3− | 0.1+ | 2002 09 30 | 608 | 0.9− | 0.0 |
| 2002 08 10 | 704 | 0.2− | 0.1− | 2002 08 18 | 644 | 0.4− | 0.1+ | 2002 09 30 | 608 | 1.0− | 0.6− |
| 2002 08 10 | 704 | 0.4− | 0.4+ | 2002 09 05 | 608 | 0.8+ | 0.7− | 2009 01 17 | 691 | 0.0 | 0.1+ |
| 2002 08 10 | 704 | 0.1− | 0.4+ | 2002 09 05 | 608 | 0.1+ | 0.8− | 2009 01 17 | 691 | 0.1+ | 0.9+ |
| 2002 08 14 | 704 | 0.8+ | 0.8+ | 2002 09 05 | 608 | 0.6+ | 0.7− | 2009 01 17 | 691 | 0.1− | 0.3+ |
| 2002 08 14 | 704 | 1.0+ | 0.6+ | 2002 09 11 | 608 | 0.5− | 1.1+ | 2009 02 05 | 691 | 0.1+ | 0.1+ |
| 2002 08 14 | 704 | 1.7+ | 0.9− | 2002 09 11 | 608 | 0.6− | 1.2+ | 2009 02 05 | 691 | 0.0 | 0.3+ |
| 2002 08 15 | 699 | 1.1+ | 0.5− | 2002 09 11 | 608 | 0.5− | 1.2+ | 2009 02 05 | 691 | 0.1+ | 0.1+ |

**2002 PA$_{101}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | |
|---|---|---|---|---|---|---|
| $M$ | 114.48274 | | (2000.0) | | **P** | **Q** |
| $n$ | 0.18090850 | $\omega$ | 352.59413 | | +0.91982674 | +0.38997381 |
| $a$ | 3.0962075 | $\Omega$ | 344.24257 | | −0.35136918 | +0.77024039 |
| $e$ | 0.1027635 | $i$ | 9.08625 | | −0.17452356 | +0.50462874 |
| $P$ | 5.45 | $H$ | 15.7 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 07 15 | 644 | 0.7− | 0.4+ | 2002 08 18 | 644 | 0.3+ | 0.3− | 2008 10 08 | 691 | 0.2− | 0.0 |
| 2002 08 11 | 644 | 0.1+ | 0.1− | 2002 08 29 | 644 | 0.1− | 0.1− | 2008 10 08 | 691 | 0.0 | 0.2− |
| 2002 08 11 | 644 | 0.1+ | 0.8+ | 2002 08 29 | 644 | 0.3− | 0.2− | 2008 10 08 | 691 | 0.2− | 0.0 |
| 2002 08 11 | 644 | 0.4− | 0.2+ | 2002 08 29 | 644 | 0.6+ | 0.1− | 2008 10 29 | G96 | 0.1− | 0.0 |
| 2002 08 15 | 644 | 0.1+ | 0.1− | 2002 09 15 | 644 | 0.0 | 0.6+ | 2008 10 29 | G96 | 0.0 | 0.0 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 15 | 644 | 0.3− | 0.5− | 2008 10 02 | 703 | (0.2+ | 1.9+) | 2008 10 29 | G96 | 0.2+ | 0.1− | | |
| 2002 08 15 | 644 | 0.2− | 0.4− | 2008 10 02 | 703 | (0.9+ | 1.9+) | 2008 10 29 | G96 | 0.3+ | 0.1− | | |
| 2002 08 18 | 644 | 0.3+ | 0.1− | 2008 10 02 | 703 | 1.2+ | 1.2+ | | | | | | |
| 2002 08 18 | 644 | 0.4+ | 0.2− | 2008 10 02 | 703 | (2.6+ | 0.5−) | | | | | | |

**2002 PH$_{105}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| $M$ | 274.26788 | | (2000.0) | | **P** | | **Q** |
|---|---|---|---|---|---|---|---|
| $n$ | 0.22753000 | $\omega$ | 358.41119 | | +0.46190145 | | +0.86343818 |
| $a$ | 2.6573185 | $\Omega$ | 299.05598 | | −0.81116362 | | +0.31878795 |
| $e$ | 0.2380107 | $i$ | 13.41369 | | −0.35869296 | | +0.39095877 |
| $P$ | 4.33 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 07 21 | 644 | 0.4+ | 0.1+ | 2002 08 15 | 644 | 0.2+ | 0.1− | 2002 09 11 | 049 | 0.4+ | 0.1+ |
| 2002 07 21 | 644 | 0.1+ | 0.3+ | 2002 08 15 | 644 | 0.0 | 0.3− | 2002 09 11 | 049 | 0.1+ | 0.3− |
| 2002 07 21 | 644 | 0.5+ | 0.2+ | 2002 08 15 | 644 | 0.3− | 0.1+ | 2008 12 22 | 691 | 0.0 | 0.1+ |
| 2002 08 12 | 704 | 0.5− | 0.6+ | 2002 08 26 | 644 | 0.0 | 0.3− | 2008 12 22 | 691 | 0.2− | 1.0+ |
| 2002 08 12 | 704 | 0.5+ | 0.2+ | 2002 08 26 | 644 | 0.0 | 0.3− | 2008 12 22 | 691 | 0.4− | 1.2− |
| 2002 08 12 | 704 | 0.3+ | 0.4− | 2002 08 26 | 644 | 0.4+ | 0.3− | 2009 02 01 | G96 | 0.7+ | 0.1− |
| 2002 08 13 | 699 | 0.5− | 0.0 | 2002 09 04 | 644 | 0.2− | 0.4+ | 2009 02 01 | G96 | 0.8+ | 0.6+ |
| 2002 08 13 | 699 | 0.4− | 0.2− | 2002 09 04 | 644 | 0.3− | 0.5+ | 2009 02 01 | G96 | 0.5+ | 0.1+ |
| 2002 08 13 | 699 | 0.2− | 0.1− | 2002 09 04 | 644 | 0.2− | 0.4+ | 2009 02 01 | G96 | 0.1+ | 0.1− |
| 2002 08 13 | 699 | 0.2− | 0.2− | 2002 09 11 | 049 | 0.0 | 0.2− | | | | |

**2002 PP$_{107}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| $M$ | 154.26967 | | (2000.0) | | **P** | | **Q** |
|---|---|---|---|---|---|---|---|
| $n$ | 0.17814793 | $\omega$ | 25.20035 | | +0.21506524 | | +0.96657949 |
| $a$ | 3.1281113 | $\Omega$ | 257.46954 | | −0.91848093 | | +0.15163617 |
| $e$ | 0.0607075 | $i$ | 8.21821 | | −0.33187305 | | +0.20671374 |
| $P$ | 5.53 | $H$ | 14.9 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 07 21 | 644 | 0.4− | 0.1+ | 2002 08 15 | 644 | 0.2+ | 0.3+ | 2009 12 10 | G96 | 0.1+ | 0.1− |
| 2002 07 21 | 644 | 0.0 | 0.0 | 2002 08 15 | 644 | 0.6+ | 0.0 | 2009 12 10 | G96 | 0.1− | 0.0 |
| 2002 07 21 | 644 | 0.3+ | 0.0 | 2002 08 15 | 644 | 0.5+ | 0.3+ | 2009 12 10 | G96 | 0.0 | 0.1+ |
| 2002 08 05 | 644 | 0.3− | 0.2− | 2002 08 25 | 644 | 0.1− | 0.0 | 2009 12 10 | G96 | 0.2+ | 0.1+ |
| 2002 08 05 | 644 | 0.2+ | 0.5− | 2002 08 25 | 644 | 0.1+ | 0.4− | 2009 12 19 | G96 | 0.2+ | 0.1− |
| 2002 08 05 | 644 | 0.0 | 0.0 | 2002 08 25 | 644 | 0.1− | 0.4− | 2009 12 19 | G96 | 0.3− | 0.1+ |
| 2002 08 13 | 644 | 0.4− | 0.2+ | 2009 11 09 | G96 | 0.5− | 0.1− | 2009 12 19 | G96 | 0.1+ | 0.2− |
| 2002 08 13 | 644 | 0.5− | 0.2+ | 2009 11 09 | G96 | 0.2+ | 0.2+ | 2009 12 19 | G96 | 0.1+ | 0.1+ |
| 2002 08 13 | 644 | 0.3− | 0.3+ | 2009 11 09 | G96 | 0.1− | 0.1− | | | | |

**2002 PL$_{112}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| $M$ | 266.18807 | | (2000.0) | | **P** | | **Q** |
|---|---|---|---|---|---|---|---|
| $n$ | 0.23212378 | $\omega$ | 190.32925 | | +0.83042796 | | +0.53147755 |
| $a$ | 2.6221425 | $\Omega$ | 136.19281 | | −0.49239184 | | +0.84046989 |
| $e$ | 0.1687267 | $i$ | 13.96838 | | −0.26065240 | | +0.10555555 |
| $P$ | 4.25 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 07 23 | 644 | 0.2− | 0.1+ | 2002 08 16 | 608 | 0.3− | 0.7− | 2002 10 09 | 644 | 0.1− | 0.9+ |
| 2002 07 23 | 644 | 0.2− | 0.2+ | 2002 08 16 | 608 | 0.4− | 0.1− | 2002 10 09 | 644 | 0.3+ | 0.3+ |
| 2002 07 23 | 644 | 0.2− | 0.2+ | 2002 08 16 | 608 | 0.1− | 0.0 | 2009 01 17 | 691 | 0.5− | 0.7+ |
| 2002 08 08 | 644 | 0.5+ | 0.3+ | 2002 08 18 | 644 | 0.0 | 0.1− | 2009 01 17 | 691 | 0.1+ | 0.2+ |
| 2002 08 08 | 644 | 0.1+ | 0.3+ | 2002 08 18 | 644 | 0.1+ | 0.2− | 2009 01 17 | 691 | 0.8− | 0.1+ |
| 2002 08 08 | 644 | 0.3+ | 0.2+ | 2002 08 18 | 644 | 0.1− | 0.3− | 2009 02 28 | 691 | 0.4+ | 0.1+ |
| 2002 08 14 | 704 | 0.3− | 0.9− | 2002 09 16 | 644 | 0.2+ | 0.5− | 2009 02 28 | 691 | 0.6+ | 0.2+ |
| 2002 08 14 | 704 | 0.9− | 0.8+ | 2002 09 16 | 644 | 0.3+ | 0.6− | 2009 02 28 | 691 | 0.3+ | 0.2− |
| 2002 08 14 | 704 | 0.6+ | 0.8+ | 2002 09 16 | 644 | 0.1+ | 0.2+ | | | | |
| 2002 08 14 | 704 | 0.2− | 1.4+ | 2002 10 09 | 644 | 0.4+ | 0.9+ | | | | |

**2002 PH$_{141}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| $M$ | 60.50098 | | (2000.0) | | **P** | | **Q** |
|---|---|---|---|---|---|---|---|
| $n$ | 0.29574027 | $\omega$ | 78.81735 | | +0.98618219 | | −0.13684259 |
| $a$ | 2.2311516 | $\Omega$ | 288.99599 | | +0.08476055 | | +0.90106312 |
| $e$ | 0.2585037 | $i$ | 5.66733 | | +0.14233884 | | +0.41153295 |
| $P$ | 3.33 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 11 | 704 | 0.9+ | 0.3+ | 2002 09 07 | 704 | 0.2+ | 0.2− | 2002 10 09 | 704 | 0.2− | 0.4− |
| 2002 08 11 | 704 | 1.2+ | 0.3+ | 2002 09 07 | 704 | 0.1− | 0.0 | 2002 10 10 | 704 | 0.1+ | 1.1+ |
| 2002 08 11 | 704 | 0.2+ | 0.3− | 2002 09 07 | 704 | 0.2− | 0.4− | 2002 10 10 | 704 | 0.5− | 0.1− |
| 2002 08 11 | 704 | 0.6+ | 0.6+ | 2002 09 12 | 644 | 0.2− | 0.4+ | 2002 10 10 | 704 | 0.6− | 1.5+ |
| 2002 08 11 | 704 | 0.0 | 1.1+ | 2002 09 12 | 644 | 0.1+ | 0.4+ | 2002 10 10 | 704 | 0.5+ | 0.3− |
| 2002 08 16 | 704 | 0.0 | 0.7− | 2002 09 12 | 644 | 0.2− | 0.6+ | 2002 10 10 | 704 | 0.4− | 0.1− |
| 2002 08 16 | 704 | 0.6− | 1.2− | 2002 10 05 | 704 | 0.2− | 0.2+ | 2003 01 07 | 695 | 0.2+ | 0.3− |
| 2002 08 16 | 704 | 0.3+ | 0.7− | 2002 10 05 | 704 | 0.1− | 0.3− | 2003 01 07 | 695 | 1.4− | 0.4− |
| 2002 08 16 | 704 | 0.1+ | 0.3− | 2002 10 05 | 704 | 0.2+ | 0.6− | 2003 01 07 | 695 | 0.1− | 0.1+ |
| 2002 08 16 | 704 | 0.3+ | 0.7− | 2002 10 05 | 704 | 0.3− | 0.8− | 2003 01 07 | 695 | 0.9+ | 0.3+ |
| 2002 08 16 | 704 | 0.2− | 0.3− | 2002 10 05 | 704 | 0.4+ | 0.5− | 2003 01 07 | 695 | 1.1+ | 0.1+ |
| 2002 08 16 | 704 | 1.1− | 0.7− | 2002 10 06 | 644 | 0.4+ | 0.9+ | 2007 02 26 | G96 | 0.2+ | 0.2+ |
| 2002 08 16 | 704 | 0.4+ | 0.2− | 2002 10 06 | 644 | 0.3+ | 1.0+ | 2007 02 26 | G96 | 0.4− | 0.3− |
| 2002 08 22 | 644 | 0.4+ | 0.4+ | 2002 10 06 | 644 | 0.2+ | 0.9+ | 2007 02 26 | G96 | 0.3+ | 0.3+ |
| 2002 08 22 | 644 | 0.2+ | 0.4+ | 2002 10 09 | 704 | 0.3− | 0.6− | 2007 02 26 | G96 | 0.1− | 0.0 |
| 2002 08 22 | 644 | 0.3+ | 0.4+ | 2002 10 09 | 704 | 0.5− | 0.5− | 2009 12 17 | 691 | 0.4− | 0.0 |
| 2002 09 07 | 704 | 0.0 | 0.1− | 2002 10 09 | 704 | 0.3− | 0.4− | 2009 12 17 | 691 | 0.4− | 0.0 |
| 2002 09 07 | 704 | 0.8− | 0.1− | 2002 10 09 | 704 | 0.4− | 0.3− | 2009 12 17 | 691 | 0.8+ | 0.3− |

**2002 PF$_{142}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| $M$ | 226.38013 | | (2000.0) | | **P** | | **Q** |
|---|---|---|---|---|---|---|---|
| $n$ | 0.22976423 | $\omega$ | 75.39524 | | +0.82237918 | | −0.54239679 |
| $a$ | 2.6400639 | $\Omega$ | 317.07398 | | +0.37446375 | | +0.74329237 |
| $e$ | 0.2528612 | $i$ | 14.60676 | | +0.42833326 | | +0.39156375 |
| $P$ | 4.29 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 11 | 704 | 0.3+ | 0.8+ | 2002 09 04 | 644 | 0.2− | 0.2+ | 2008 01 20 | 691 | 0.1+ | 0.2+ |
| 2002 08 11 | 704 | 0.3+ | 0.0 | 2002 09 12 | 644 | 0.2− | 0.5+ | 2008 01 20 | 691 | 0.1− | 0.1+ |
| 2002 08 11 | 704 | 0.4− | 0.5− | 2002 09 12 | 644 | 0.3− | 0.2+ | 2008 01 20 | 691 | 0.3− | 0.0 |
| 2002 08 14 | 699 | 0.0 | 1.1− | 2002 09 12 | 644 | 0.3− | 0.4+ | 2008 01 30 | 703 | 0.1+ | 0.7− |
| 2002 08 14 | 699 | 0.5+ | 0.1− | 2002 10 06 | 704 | 0.1+ | 0.0 | 2008 01 30 | 703 | 0.7− | 0.4− |
| 2002 08 14 | 699 | 1.0+ | 0.4− | 2002 10 06 | 644 | 0.2+ | 0.5+ | 2008 01 30 | 703 | 1.0+ | 0.5− |
| 2002 08 14 | 699 | 0.5+ | 0.0 | 2002 10 06 | 704 | 0.2+ | 0.1+ | 2008 01 30 | 703 | (1.8+ | 0.8+) |
| 2002 08 27 | 644 | 0.5− | 0.3+ | 2002 10 06 | 644 | 0.2+ | 0.1+ | 2008 03 12 | G96 | 0.2+ | 0.0 |
| 2002 08 27 | 644 | 0.1− | 0.1+ | 2002 10 06 | 704 | 0.5− | 0.1− | 2008 03 12 | G96 | 0.6+ | 0.2+ |
| 2002 08 27 | 644 | 0.0 | 0.4+ | 2002 10 06 | 704 | 0.1− | 0.5− | 2008 03 12 | G96 | 0.4+ | 0.1− |
| 2002 09 04 | 699 | 0.4+ | 0.1+ | 2002 10 06 | 644 | 0.0 | 0.3+ | 2008 03 12 | G96 | 0.1+ | 0.1− |
| 2002 09 04 | 699 | 0.0 | 0.0 | 2002 10 06 | 704 | 0.6− | 1.0− | 2008 03 26 | G96 | 0.0 | 0.1− |
| 2002 09 04 | 699 | 0.3+ | 0.0 | 2007 12 18 | G96 | 0.2− | 0.1− | 2008 03 26 | G96 | 0.0 | 0.1− |
| 2002 09 04 | 699 | 0.5− | 0.7− | 2007 12 18 | G96 | 0.1− | 0.1+ | 2008 03 26 | G96 | 0.0 | 0.5+ |
| 2002 09 04 | 644 | 0.1− | 0.1+ | 2007 12 18 | G96 | 0.0 | 0.1− | 2008 03 26 | G96 | 0.1+ | 0.0 |
| 2002 09 04 | 644 | 0.1− | 0.1+ | 2007 12 18 | G96 | 0.5− | 0.2+ | | | | |

**2002 PH$_{174}$ = 2009 VK$_{105}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| $M$ | 40.68911 | | (2000.0) | | **P** | | **Q** |
|---|---|---|---|---|---|---|---|
| $n$ | 0.29653072 | $\omega$ | 20.43472 | | +0.89522487 | | −0.44540588 |
| $a$ | 2.2271848 | $\Omega$ | 6.06759 | | +0.38882856 | | +0.76582600 |
| $e$ | 0.1673805 | $i$ | 7.41375 | | +0.21768046 | | +0.46381476 |
| $P$ | 3.32 | $H$ | 18.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 12 | 608 | 0.3+ | 0.1+ | 2002 08 30 | 644 | 0.2+ | 0.3− | 2009 11 10 | 703 | 0.6− | 0.2+ |
| 2002 08 12 | 608 | 0.0 | 0.4+ | 2002 09 15 | 644 | 0.6− | 0.5+ | 2009 11 10 | 703 | 0.4+ | 0.6+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 12 | 608 | 0.3+ | 0.6+ | 2002 09 15 | 644 | 0.2− | 0.4+ | 2009 11 10 | 703 | 0.8− | 0.1+ | | |
| 2002 08 19 | 644 | 0.1− | 0.4− | 2002 09 16 | 608 | 0.3− | 0.5+ | 2009 11 10 | 703 | 0.5+ | 0.0 | | |
| 2002 08 19 | 644 | 0.0 | 0.8− | 2002 09 16 | 608 | 0.3+ | 0.6+ | 2009 11 19 | 703 | 1.4+ | 0.3+ | | |
| 2002 08 19 | 644 | 0.3− | 0.3− | 2004 03 14 | 691 | 0.2+ | 0.2+ | 2009 11 19 | 703 | 0.3+ | 0.9− | | |
| 2002 08 30 | 644 | 0.3+ | 0.3− | 2004 03 14 | 691 | 0.0 | 0.0 | 2009 11 19 | 703 | 0.9− | 0.1− | | |
| 2002 08 30 | 644 | 0.1− | 0.4− | 2004 03 14 | 691 | 0.1− | 0.0 | 2009 11 19 | 703 | 0.2− | 0.3− | | |

**2002 PF$_{175}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| $M$ | 131.56470 | | (2000.0) | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $n$ | 0.18464954 | $\omega$ | 308.32580 | | +0.89737421 | +0.43988797 |
| $a$ | 3.0542452 | $\Omega$ | 25.63325 | | −0.37549639 | +0.80276692 |
| $e$ | 0.2588857 | $i$ | 4.62743 | | −0.23178004 | +0.40257154 |
| $P$ | 5.34 | $H$ | 16.0 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 07 15 | 644 | 0.3− | 0.3− | 2002 08 30 | 644 | 0.7+ | 0.4+ | 2008 11 20 | G96 | 0.3+ | 0.1− | | |
| 2002 07 15 | 644 | 0.5− | 0.4− | 2002 08 30 | 644 | 0.2+ | 0.4+ | 2008 11 20 | G96 | 0.0 | 0.4− | | |
| 2002 08 11 | 644 | 0.0 | 0.0 | 2002 09 15 | 644 | 0.2+ | 0.6− | 2008 11 20 | G96 | 0.3+ | 0.1− | | |
| 2002 08 11 | 644 | 0.3+ | 0.1− | 2002 09 15 | 644 | 0.5− | 0.1− | 2008 12 07 | G96 | 0.0 | 0.1+ | | |
| 2002 08 11 | 644 | 0.0 | 0.3− | 2002 09 15 | 644 | 0.5− | 0.0 | 2008 12 07 | G96 | 0.4+ | 0.1− | | |
| 2002 08 19 | 644 | 0.2− | 0.1+ | 2008 10 28 | 691 | 0.3− | 0.2+ | 2008 12 07 | G96 | 0.3+ | 0.2+ | | |
| 2002 08 19 | 644 | 0.3+ | 0.2+ | 2008 10 28 | 691 | 0.0 | 0.1− | 2008 12 07 | G96 | 0.8+ | 0.1+ | | |
| 2002 08 19 | 644 | 0.1− | 0.1+ | 2008 10 28 | 691 | 0.3− | 0.0 | | | | | | |
| 2002 08 30 | 644 | 0.5+ | 0.4+ | 2008 11 20 | G96 | 0.3+ | 0.3− | | | | | | |

**2002 PW$_{175}$ = 2009 WE$_{259}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| $M$ | 232.15968 | | (2000.0) | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $n$ | 0.18628740 | $\omega$ | 302.19239 | | −0.71790836 | +0.68193581 |
| $a$ | 3.0363166 | $\Omega$ | 281.22265 | | −0.58100978 | −0.69765141 |
| $e$ | 0.0329930 | $i$ | 8.19972 | | −0.38345172 | −0.21964987 |
| $P$ | 5.29 | $H$ | 16.0 | $G$ | 0.15 | $U$ 5 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 07 | 644 | 0.4− | 1.0− | 2002 08 16 | 644 | 0.2− | 0.4− | 2009 11 20 | 691 | 0.2+ | 0.1− | | |
| 2002 08 07 | 644 | 1.0+ | 0.1+ | 2002 08 16 | 644 | 0.1+ | 0.1− | 2009 11 20 | 691 | 0.4+ | 0.7− | | |
| 2002 08 11 | 644 | 0.3− | 0.1+ | 2002 08 26 | 644 | 0.2− | 0.2+ | 2009 11 24 | 691 | 0.1+ | 0.3− | | |
| 2002 08 11 | 644 | 0.0 | 0.4+ | 2002 08 26 | 644 | 0.9− | 0.4− | 2009 11 24 | 691 | 0.6− | 0.0 | | |
| 2002 08 11 | 644 | 0.1− | 0.4+ | 2002 08 26 | 644 | 0.5+ | 0.1+ | 2009 11 24 | 691 | 0.2+ | 0.4− | | |
| 2002 08 16 | 644 | 0.4+ | 0.6+ | 2009 11 20 | 691 | 0.2− | 1.5+ | | | | | | |

**2002 PO$_{181}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| $M$ | 195.19226 | | (2000.0) | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $n$ | 0.17673487 | $\omega$ | 349.73794 | | −0.28679177 | +0.93812439 |
| $a$ | 3.1447627 | $\Omega$ | 263.39196 | | −0.86451450 | −0.34073319 |
| $e$ | 0.0248313 | $i$ | 11.26772 | | −0.41275315 | +0.06183459 |
| $P$ | 5.58 | $H$ | 15.8 | $G$ | 0.15 | $U$ 5 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 15 | 644 | 0.1+ | 0.0 | 2002 09 04 | 644 | 0.3− | 0.3+ | 2008 09 24 | G96 | 0.2− | 0.0 | | |
| 2002 08 15 | 644 | 0.4+ | 0.1− | 2002 09 04 | 644 | 0.1+ | 0.3+ | 2008 09 24 | G96 | 0.2− | 0.0 | | |
| 2002 08 15 | 644 | 0.4− | 0.2− | 2002 09 04 | 644 | 0.5+ | 0.5+ | 2008 10 09 | G96 | 0.2+ | 0.2− | | |
| 2002 08 26 | 644 | 0.4− | 0.2+ | 2002 09 12 | 644 | 0.1+ | 0.3− | 2008 10 09 | G96 | 0.1+ | 0.2+ | | |
| 2002 08 26 | 644 | 0.2+ | 0.2+ | 2002 09 12 | 644 | 0.3− | 0.4− | 2008 10 09 | G96 | 0.0 | 0.2+ | | |
| 2002 08 27 | 644 | 0.1+ | 0.0 | 2002 09 12 | 644 | 0.2− | 0.6− | 2008 10 09 | G96 | 0.3+ | 0.1− | | |
| 2002 08 27 | 644 | 0.5+ | 0.2− | 2008 09 24 | G96 | 0.1+ | 0.1− | | | | | | |
| 2002 08 27 | 644 | 0.5− | 0.1+ | 2008 09 24 | G96 | 0.3− | 0.1+ | | | | | | |

**2002 PS$_{186}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| $M$ | 94.32944 | | (2000.0) | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $n$ | 0.29976555 | $\omega$ | 200.72884 | | +0.72577908 | +0.68282566 |
| $a$ | 2.2111332 | $\Omega$ | 115.91985 | | −0.61734760 | +0.70012178 |
| $e$ | 0.1590112 | $i$ | 5.33522 | | −0.30352375 | +0.20875492 |
| $P$ | 3.29 | $H$ | 18.3 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 07 23 | 644 | 0.0 | 0.2− | 2002 08 29 | 644 | 0.2− | 0.2− | 2009 11 18 | G96 | 0.1+ | 0.1− | | |
| 2002 07 23 | 644 | 0.1− | 0.1+ | 2002 08 29 | 644 | 0.0 | 0.3+ | 2009 11 18 | G96 | 0.3− | 0.1− | | |
| 2002 07 23 | 644 | 0.4+ | 0.1− | 2002 08 29 | 644 | 0.1+ | 0.1+ | 2009 11 18 | G96 | 0.5− | 0.1+ | | |
| 2002 08 11 | 644 | 0.7− | 0.1+ | 2002 08 30 | 644 | 0.1− | 0.0 | 2009 11 25 | G96 | 0.4+ | 0.2+ | | |
| 2002 08 11 | 644 | 0.1− | 0.4− | 2002 08 30 | 644 | 0.0 | 0.0 | 2009 11 25 | G96 | 0.0 | 0.3+ | | |
| 2002 08 11 | 644 | 0.0 | 0.7− | 2002 09 16 | 644 | 0.1+ | 0.9+ | 2009 11 25 | G96 | 0.1− | 0.3− | | |
| 2002 08 18 | 644 | 0.2+ | 0.1+ | 2002 09 16 | 644 | 0.3+ | 0.1− | 2009 11 25 | G96 | 0.1+ | 0.2− | | |
| 2002 08 18 | 644 | 0.1+ | 0.0 | 2002 09 16 | 644 | 0.0 | 0.4+ | | | | | | |
| 2002 08 18 | 644 | 0.2+ | 0.0 | 2009 11 18 | G96 | 0.4+ | 0.2− | | | | | | |

**2002 PU$_{188}$ = 2008 TD$_{155}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| $M$ | 236.07257 | | (2000.0) | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $n$ | 0.19137413 | $\omega$ | 275.15604 | | −0.55824578 | +0.82298137 |
| $a$ | 2.9822719 | $\Omega$ | 320.30745 | | −0.68094384 | −0.52690288 |
| $e$ | 0.0290643 | $i$ | 9.47923 | | −0.47400120 | −0.21230877 |
| $P$ | 5.15 | $H$ | 15.8 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 07 14 | 644 | 0.1+ | 0.4+ | 2002 08 27 | 644 | 0.6− | 0.6− | 2008 10 06 | 703 | 0.2− | 0.5+ | | |
| 2002 07 14 | 644 | 0.0 | 0.4+ | 2005 01 17 | 691 | 0.1+ | 0.2+ | 2008 10 06 | 703 | 1.1+ | 0.1− | | |
| 2002 07 14 | 644 | 0.1− | 0.5+ | 2005 01 17 | 691 | 0.3+ | 0.3+ | 2008 10 09 | G96 | 0.0 | 0.0 | | |
| 2002 08 08 | 644 | 0.2+ | 0.1− | 2005 01 17 | 691 | 0.2+ | 0.4+ | 2008 10 09 | G96 | 0.0 | 0.0 | | |
| 2002 08 08 | 644 | 0.0 | 0.2+ | 2007 09 05 | G96 | 0.0 | 0.0 | 2008 10 09 | G96 | 0.1+ | 0.0 | | |
| 2002 08 08 | 644 | 0.0 | 0.3+ | 2007 09 05 | G96 | 0.4− | 0.4+ | 2008 10 09 | G96 | 0.3− | 0.2− | | |
| 2002 08 17 | 644 | 0.2− | 0.4+ | 2007 09 05 | G96 | 0.5+ | 0.0 | 2008 10 10 | G96 | 0.3+ | 0.2− | | |
| 2002 08 17 | 644 | 0.2− | 0.4+ | 2007 09 05 | G96 | 0.4− | 0.4+ | 2008 10 10 | G96 | 0.2+ | 0.0 | | |
| 2002 08 17 | 644 | 0.3+ | 0.0 | 2007 09 05 | G96 | 0.0 | 0.1− | 2008 10 10 | G96 | 0.2− | 0.0 | | |
| 2002 08 18 | 644 | 0.6− | 0.2+ | 2007 09 05 | G96 | 0.3− | 0.2+ | 2008 10 10 | G96 | 0.3− | 0.3− | | |
| 2002 08 18 | 644 | 0.3− | 0.1− | 2007 09 05 | G96 | 0.6+ | 0.0 | 2009 10 27 | G96 | 0.5− | 0.1− | | |
| 2002 08 18 | 644 | 0.3+ | 0.0 | 2007 09 05 | G96 | 0.2+ | 0.1− | 2009 10 27 | G96 | 0.6− | 0.1+ | | |
| 2002 08 27 | 644 | 0.2− | 0.5− | 2008 10 06 | 703 | (1.7− | 0.7+) | 2009 10 27 | G96 | 0.6− | 0.3− | | |
| 2002 08 27 | 644 | 0.6− | 0.6+ | 2008 10 06 | 703 | (0.0 | 1.9+) | | | | | | |

**2002 QU$_{3}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| $M$ | 261.78535 | | (2000.0) | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $n$ | 0.22588210 | $\omega$ | 24.46409 | | +0.68901395 | +0.72154897 |
| $a$ | 2.6702270 | $\Omega$ | 289.16835 | | −0.67624288 | +0.60630419 |
| $e$ | 0.1535820 | $i$ | 4.12965 | | −0.26068246 | +0.33430873 |
| $P$ | 4.36 | $H$ | 16.8 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 16 | 644 | 0.1− | 0.5+ | 2002 08 28 | 644 | 0.1+ | 0.0 | 2009 02 05 | 691 | 0.4− | 0.1− | | |
| 2002 08 16 | 644 | 0.1− | 0.4+ | 2002 09 13 | 644 | 0.0 | 0.2− | 2009 02 05 | 691 | 0.1+ | 0.6+ | | |
| 2002 08 16 | 644 | 0.1− | 0.0 | 2002 09 13 | 644 | 0.6− | 0.2− | 2009 02 05 | 691 | 1.0+ | 0.2− | | |
| 2002 08 17 | 644 | 0.2+ | 0.1+ | 2002 09 13 | 644 | 0.6− | 0.7− | 2009 03 01 | G96 | 0.2+ | 0.3− | | |
| 2002 08 17 | 644 | 0.2− | 0.2− | 2007 10 21 | G96 | 0.1− | 0.2− | 2009 03 01 | G96 | 0.2− | 0.1− | | |
| 2002 08 17 | 644 | 0.0 | 0.1− | 2007 10 21 | G96 | 0.4+ | 0.3− | 2009 03 01 | G96 | 0.1+ | 0.3− | | |
| 2002 08 18 | 644 | 0.1− | 0.5+ | 2007 10 21 | G96 | 0.1− | 0.0 | 2009 03 01 | G96 | 0.8+ | 0.3− | | |
| 2002 08 18 | 644 | 0.4+ | 0.8+ | 2007 10 21 | G96 | 0.2− | 0.0 | 2009 03 21 | G96 | 0.2+ | 0.4− | | |
| 2002 08 18 | 644 | 0.1+ | 0.8+ | 2009 01 18 | 691 | 0.3+ | 0.1+ | 2009 03 21 | G96 | 0.3− | 0.0 | | |
| 2002 08 28 | 644 | 0.3− | 0.1+ | 2009 01 18 | 691 | 0.8− | 0.2+ | 2009 03 21 | G96 | 0.3− | 0.2− | | |
| 2002 08 28 | 644 | 0.7+ | 0.4− | 2009 01 18 | 691 | 0.2− | 0.3+ | 2009 03 21 | G96 | 0.1− | 0.1− | | |

**2002 QB$_8$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 199.51920 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22342833 | $\omega$ | 250.89177 | | +0.91960091 | −0.37318286 | |
| $a$ | 2.6897415 | $\Omega$ | 130.81782 | | +0.39284030 | +0.87092712 | |
| $e$ | 0.0195793 | $i$ | 9.33485 | | +0.00326546 | +0.31971941 | |
| $P$ | 4.41 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 19 | 644 | 0.0 | 0.2+ | 2002 08 30 | 644 | 0.0 | 0.3+ | 2009 02 25 | 703 | 0.3+ | 1.0+ |
| 2002 08 19 | 644 | 0.3+ | 0.8+ | 2002 08 30 | 644 | 0.4− | 0.1+ | 2009 02 25 | 703 | 0.1+ | 0.8+ |
| 2002 08 19 | 644 | 0.1+ | 0.6+ | 2002 09 08 | 608 | 0.2− | 0.5− | 2009 03 01 | G96 | 0.4+ | 0.7− |
| 2002 08 20 | 644 | 0.3− | 0.0 | 2002 09 08 | 608 | 0.0 | 0.7− | 2009 03 01 | G96 | 0.5+ | 0.7− |
| 2002 08 20 | 644 | 0.2+ | 0.3+ | 2002 09 08 | 608 | 0.2+ | 0.3− | 2009 03 01 | G96 | 0.2+ | 0.6− |
| 2002 08 20 | 644 | 0.1− | 0.3− | 2009 02 25 | 703 | 1.6− | 0.4+ | 2009 03 01 | G96 | 0.4+ | 0.6− |
| 2002 08 30 | 644 | 0.1+ | 0.1+ | 2009 02 25 | 703 | 0.2− | 1.0+ | | | | |

**2002 QG$_{13}$ = 2008 TC$_{181}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 99.85226 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17801155 | $\omega$ | 181.35144 | | +0.99438435 | +0.10240500 | |
| $a$ | 3.1297088 | $\Omega$ | 172.60951 | | −0.09504475 | +0.97512589 | |
| $e$ | 0.1055649 | $i$ | 11.98082 | | −0.04654313 | +0.19657751 | |
| $P$ | 5.54 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 26 | 644 | 0.1− | 0.2− | 2002 08 31 | 644 | 0.2− | 0.3+ | 2008 10 21 | G96 | 0.4+ | 0.1− |
| 2002 08 26 | 644 | 0.1+ | 0.6− | 2006 03 25 | 691 | 0.1− | 0.1− | 2008 10 21 | G96 | 0.4+ | 0.0 |
| 2002 08 26 | 644 | 0.1+ | 0.4− | 2006 03 25 | 691 | 0.0 | 0.2+ | 2008 10 21 | G96 | 0.3+ | 0.0 |
| 2002 08 27 | 644 | 0.2− | 0.0 | 2006 03 25 | 691 | 0.1+ | 0.1− | 2008 10 27 | G96 | 0.0 | 0.0 |
| 2002 08 27 | 644 | 0.4− | 0.3+ | 2008 10 06 | G96 | 0.0 | 0.2− | 2008 10 27 | G96 | 0.1− | 0.1+ |
| 2002 08 27 | 644 | 0.2+ | 0.1+ | 2008 10 06 | G96 | 0.3− | 0.1− | 2008 10 27 | G96 | 0.2− | 0.6+ |
| 2002 08 31 | 644 | 0.4+ | 0.3+ | 2008 10 06 | G96 | 0.1− | 0.1− | 2008 10 27 | G96 | 0.2− | 0.0 |
| 2002 08 31 | 644 | 0.1+ | 0.3+ | 2008 10 21 | G96 | 0.0 | 0.3− | | | | |

**2002 QH$_{43}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 270.28165 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23190944 | $\omega$ | 234.35084 | | +0.66193030 | +0.74283367 | |
| $a$ | 2.6237579 | $\Omega$ | 77.41775 | | −0.65024173 | +0.63558123 | |
| $e$ | 0.2429926 | $i$ | 5.89456 | | −0.37287259 | +0.21032032 | |
| $P$ | 4.25 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 07 15 | 644 | 0.1− | 0.2+ | 2002 08 19 | 644 | 0.1+ | 0.4− | 2002 08 31 | 704 | 0.6− | 1.4+ |
| 2002 07 15 | 644 | 0.1− | 0.1+ | 2002 08 19 | 644 | 0.2+ | 0.2− | 2007 11 02 | 691 | 0.3− | 0.1+ |
| 2002 07 15 | 644 | 0.1+ | 0.1+ | 2002 08 19 | 644 | 0.2+ | 0.1+ | 2007 11 02 | 691 | 0.1+ | 0.1+ |
| 2002 08 13 | 704 | 0.0 | 0.4− | 2002 08 19 | 644 | 0.4+ | 0.1− | 2007 11 02 | 691 | 0.2+ | 0.4− |
| 2002 08 13 | 704 | 0.6− | 0.6− | 2002 08 19 | 644 | 0.1+ | 0.0 | 2007 11 14 | 691 | 0.2− | 0.2− |
| 2002 08 13 | 704 | 0.4− | 0.5+ | 2002 08 19 | 644 | 0.5+ | 0.2− | 2007 11 14 | 691 | 0.1+ | 0.0 |
| 2002 08 13 | 704 | 0.3− | 0.7− | 2002 08 30 | 644 | 0.0 | 0.1− | 2007 11 14 | 691 | 0.0 | 0.2+ |
| 2002 08 13 | 704 | (1.6− | 0.3+) | 2002 08 30 | 644 | 0.3− | 0.3− | 2007 12 04 | G96 | 0.1+ | 0.1− |
| 2002 08 13 | 644 | 0.2+ | 0.1+ | 2002 08 30 | 644 | 0.1+ | 0.1− | 2007 12 04 | G96 | 0.1+ | 0.2+ |
| 2002 08 13 | 644 | 0.2+ | 0.2+ | 2002 08 31 | 704 | 0.1+ | 0.1− | 2007 12 04 | G96 | 0.3− | 0.2+ |
| 2002 08 13 | 644 | 0.1+ | 0.2+ | 2002 08 31 | 704 | 0.0 | 0.3+ | 2007 12 04 | G96 | 0.4+ | 0.1+ |

**2002 QE$_{58}$ = 2009 VG$_{99}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 66.22117 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.29779970 | $\omega$ | 41.17710 | | +0.99540095 | +0.09316684 | |
| $a$ | 2.2208533 | $\Omega$ | 313.46225 | | −0.09395428 | +0.90405046 | |
| $e$ | 0.2015142 | $i$ | 1.75989 | | −0.01869586 | +0.41714831 | |
| $P$ | 3.31 | $H$ | 18.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 17 | 644 | 0.2+ | 0.0 | 2007 01 24 | G96 | 0.1− | 0.0 | 2009 11 09 | G96 | 0.6− | 0.2+ |
| 2002 08 17 | 644 | 0.0 | 0.1+ | 2007 01 24 | G96 | 0.1+ | 0.2+ | 2009 11 21 | 691 | 0.1− | 0.2− |
| 2002 08 17 | 644 | 0.3− | 0.3− | 2007 01 24 | G96 | 0.2+ | 0.3− | 2009 11 21 | 691 | 0.1+ | 0.0 |
| 2002 08 18 | 644 | 0.2− | 0.2− | 2007 01 24 | G96 | 0.2− | 0.5+ | 2009 11 21 | 691 | 0.0 | 0.1+ |
| 2002 08 18 | 644 | 0.0 | 0.2− | 2009 11 09 | 691 | 0.5+ | 0.0 | 2009 12 11 | G96 | 0.6+ | 0.1+ |
| 2002 08 18 | 644 | 0.0 | 0.2− | 2009 11 09 | 691 | 0.2+ | 0.2− | 2009 12 11 | G96 | 0.5+ | 0.1− |
| 2002 08 28 | 644 | 0.4− | 0.3+ | 2009 11 09 | 691 | 0.6− | 0.1− | 2009 12 11 | G96 | 0.1+ | 0.0 |
| 2002 08 28 | 644 | 0.1− | 0.1+ | 2009 11 09 | G96 | 0.1+ | 0.1− | 2009 12 11 | G96 | 0.4+ | 0.3− |
| 2002 08 28 | 644 | 0.4+ | 0.1+ | 2009 11 09 | G96 | 0.6− | 0.4+ | | | | |
| 2002 09 14 | 644 | 0.3+ | 0.5+ | 2009 11 09 | G96 | 0.7− | 1.0+ | | | | |

**2002 QZ$_{65}$ = 2008 SW$_{291}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 81.78940 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17501177 | $\omega$ | 44.49161 | | +0.95630737 | −0.25802896 | |
| $a$ | 3.1653705 | $\Omega$ | 329.65656 | | +0.12746554 | +0.79112399 | |
| $e$ | 0.2251222 | $i$ | 15.79013 | | +0.26311358 | +0.55456640 | |
| $P$ | 5.63 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 07 23 | 644 | 0.1− | 0.2+ | 2002 08 18 | 644 | 0.4− | 0.2− | 2008 09 22 | 703 | 0.2+ | 0.5+ |
| 2002 07 23 | 644 | 0.5− | 0.6− | 2002 08 18 | 644 | 0.1− | 0.1+ | 2008 09 22 | 703 | 0.0 | 0.4− |
| 2002 07 23 | 644 | 0.3+ | 0.1− | 2002 08 18 | 644 | 0.1+ | 0.0 | 2008 09 30 | 703 | 0.6+ | 0.7+ |
| 2002 08 08 | 644 | 0.0 | 0.5+ | 2002 09 14 | 644 | 0.2+ | 0.2− | 2008 09 30 | 703 | 0.2− | 0.5+ |
| 2002 08 08 | 644 | 0.2+ | 0.7+ | 2002 09 14 | 644 | 0.1+ | 0.3− | 2008 09 30 | 703 | 0.3+ | 0.5− |
| 2002 08 14 | 704 | 0.5+ | 0.1− | 2002 09 14 | 644 | 0.1+ | 0.4− | 2008 09 30 | 703 | 0.2− | 0.5+ |
| 2002 08 14 | 704 | 0.7+ | 0.3+ | 2002 09 16 | 608 | 0.6− | 0.2+ | 2008 10 25 | 703 | 1.2+ | 1.0− |
| 2002 08 14 | 704 | 0.1+ | 0.4− | 2002 09 16 | 608 | 0.9− | 0.1− | 2008 10 25 | 703 | 1.1+ | 0.9− |
| 2002 08 18 | 644 | 0.1+ | 0.2− | 2002 09 16 | 608 | 0.2− | 0.6+ | 2008 10 25 | 703 | 1.0− | 0.0 |
| 2002 08 18 | 644 | 0.0 | 0.1− | 2008 09 22 | 703 | 0.9− | 0.4− | 2008 10 25 | 703 | 0.5− | 1.2+ |
| 2002 08 18 | 644 | 0.2+ | 0.1− | 2008 09 22 | 703 | 0.5− | 0.2− | | | | |

**2002 QP$_{81}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 99.86908 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18091125 | $\omega$ | 292.21650 | | +0.89929464 | −0.43038771 | |
| $a$ | 3.0961761 | $\Omega$ | 93.34835 | | +0.42443044 | +0.81601506 | |
| $e$ | 0.3162217 | $i$ | 4.46337 | | +0.10548909 | +0.38585727 | |
| $P$ | 5.45 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 19 | 644 | 0.2+ | 0.2+ | 2002 09 13 | 608 | 0.3− | 0.3− | 2002 11 04 | 644 | 0.0 | 0.4− |
| 2002 08 19 | 644 | 0.2+ | 0.2+ | 2002 09 16 | 644 | 0.0 | 0.1+ | 2008 12 21 | 703 | 0.3− | 0.7+ |
| 2002 08 19 | 644 | 0.3+ | 0.1− | 2002 09 16 | 644 | 0.2+ | 0.1+ | 2008 12 21 | 703 | 0.3− | 0.0 |
| 2002 08 30 | 644 | 0.2+ | 0.1+ | 2002 09 16 | 644 | 0.1+ | 0.1+ | 2008 12 21 | 703 | 0.2− | 0.2+ |
| 2002 08 30 | 644 | 0.2+ | 0.1+ | 2002 09 17 | 608 | 0.3− | 0.2+ | 2008 12 21 | 703 | 0.2− | 0.0 |
| 2002 08 30 | 644 | 0.4+ | 0.2+ | 2002 09 17 | 608 | 1.0− | 0.4− | 2008 12 21 | 703 | 0.3+ | 0.8+ |
| 2002 09 08 | 608 | 0.1− | 0.1− | 2002 10 01 | 608 | 0.4− | 0.8+ | 2009 01 16 | G96 | 0.4+ | 0.4− |
| 2002 09 08 | 608 | 0.0 | 0.0 | 2002 10 01 | 608 | 0.5− | 0.6− | 2009 01 16 | G96 | 0.2+ | 0.3− |
| 2002 09 08 | 608 | 0.1− | 0.1+ | 2002 11 04 | 644 | 0.6+ | 0.6− | 2009 01 16 | G96 | 0.1+ | 0.4− |
| 2002 09 13 | 608 | 0.0 | 0.1− | 2002 11 04 | 644 | 0.4+ | 0.0 | 2009 01 16 | G96 | 0.0 | 0.5− |

**2002 QP$_{93}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 138.76424 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17726626 | $\omega$ | 328.19678 | | +0.62932921 | +0.77478129 | |
| $a$ | 3.1384749 | $\Omega$ | 340.58853 | | −0.66940741 | +0.50090660 | |
| $e$ | 0.1236908 | $i$ | 10.48618 | | −0.39476380 | +0.38575449 | |
| $P$ | 5.56 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 08 | 599 | 0.0 | 0.3− | 2002 09 01 | 608 | 0.2− | 0.4+ | 2008 10 08 | G96 | 0.1− | 0.1− |
| 2002 08 08 | 599 | 0.1+ | 0.1− | 2002 09 14 | 644 | 0.4− | 0.4+ | 2008 11 01 | G96 | 0.2+ | 0.2− |
| 2002 08 08 | 599 | 0.5+ | 0.3+ | 2002 09 14 | 644 | 0.0 | 0.5+ | 2008 11 01 | G96 | 0.0 | 0.1− |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 18 | 644 | 0.3− | 0.2− | 2002 09 14 | 644 | 0.2− | 0.3+ | 2008 11 01 | G96 | 0.2+ | 0.1+ | | |
| 2002 08 18 | 644 | 0.3+ | 0.6− | 2002 09 16 | 644 | 0.5− | 0.4+ | 2008 11 01 | G96 | 0.0 | 0.0 | | |
| 2002 08 18 | 644 | 0.1− | 0.1− | 2002 09 16 | 644 | 0.1− | 0.2− | 2009 12 20 | G96 | 0.4− | 0.3− | | |
| 2002 08 29 | 644 | 0.1+ | 0.3− | 2002 09 16 | 644 | 0.3+ | 0.1+ | 2009 12 20 | G96 | 0.3+ | 0.5+ | | |
| 2002 08 29 | 644 | 0.2+ | 0.0 | 2008 10 08 | G96 | 0.2+ | 0.4− | 2009 12 20 | G96 | 0.2+ | 0.5+ | | |
| 2002 08 29 | 644 | 0.2− | 0.3− | 2008 10 08 | G96 | 0.3+ | 0.1− | | | | | | |
| 2002 09 01 | 608 | 0.1− | 0.6+ | 2008 10 08 | G96 | 0.2− | 0.2− | | | | | | |

**2002 QW$_{99}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 120.39053 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18191732 | $\omega$ | 351.08122 | | +0.96761109 | +0.25171154 | |
| $a$ | 3.0847503 | $\Omega$ | 354.23126 | | −0.21820601 | +0.79562099 | |
| $e$ | 0.0569127 | $i$ | 11.03390 | | −0.12694451 | +0.55102499 | |
| $P$ | 5.42 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 11 | 608 | 0.5+ | 0.1+ | 2002 08 29 | 644 | 0.2+ | 0.1+ | 2008 10 29 | G96 | 0.1− | 0.0 | | |
| 2002 08 11 | 608 | 0.1− | 0.0 | 2002 09 30 | 608 | 0.4+ | 0.2+ | 2008 10 29 | G96 | 0.1− | 0.0 | | |
| 2002 08 11 | 608 | 0.2+ | 0.2− | 2002 09 30 | 608 | 0.2− | 0.3− | 2008 10 29 | G96 | 0.3+ | 0.2+ | | |
| 2002 08 18 | 644 | 0.0 | 0.1− | 2002 09 30 | 608 | 0.7− | 0.0 | 2008 10 29 | G96 | 0.4− | 0.2− | | |
| 2002 08 18 | 644 | 0.0 | 0.2+ | 2008 10 09 | G96 | 0.2+ | 0.0 | 2008 10 29 | G96 | 0.1− | 0.1+ | | |
| 2002 08 18 | 644 | 0.1+ | 0.1− | 2008 10 09 | G96 | 0.1− | 0.1+ | 2008 10 29 | G96 | 0.1− | 0.1+ | | |
| 2002 08 29 | 644 | 0.2− | 0.2− | 2008 10 09 | G96 | 0.1+ | 0.0 | 2008 10 29 | G96 | 0.2+ | 0.2− | | |
| 2002 08 29 | 644 | 0.1− | 0.2+ | 2008 10 09 | G96 | 0.1− | 0.1− | | | | | | |

**2002 QF$_{100}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 37.90775 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17596774 | $\omega$ | 293.50150 | | +0.21888408 | −0.95849070 | |
| $a$ | 3.1538959 | $\Omega$ | 142.34452 | | +0.96823983 | +0.19016732 | |
| $e$ | 0.2315298 | $i$ | 17.40284 | | +0.12083620 | +0.21244287 | |
| $P$ | 5.60 | $H$ | 15.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 18 | 644 | 0.0 | 0.0 | 2002 09 30 | 608 | 0.3− | 0.1+ | 2008 10 09 | 703 | 0.4+ | 0.7+ | | |
| 2002 08 18 | 644 | 0.1− | 0.1+ | 2002 09 30 | 608 | 0.4− | 0.8+ | 2008 10 09 | 703 | 0.1− | 0.2+ | | |
| 2002 08 18 | 644 | 0.2− | 0.3+ | 2006 05 20 | 691 | 0.1+ | 0.2+ | 2008 10 09 | 703 | 0.2+ | 0.9+ | | |
| 2002 08 29 | 644 | 1.0+ | 0.2+ | 2006 05 20 | 691 | 0.1− | 0.4+ | 2008 10 26 | E12 | 0.3+ | 0.6− | | |
| 2002 08 29 | 644 | 0.2+ | 0.0 | 2006 05 20 | 691 | 0.2+ | 0.3+ | 2008 10 26 | E12 | 0.5− | 0.6+ | | |
| 2002 08 29 | 644 | 0.3+ | 0.1− | 2008 09 07 | 703 | 0.7− | 0.5− | 2008 10 26 | E12 | 0.7− | 0.6+ | | |
| 2002 09 16 | 644 | 0.1− | 0.6− | 2008 09 07 | 703 | 0.4+ | 0.6+ | 2008 10 26 | E12 | 0.9− | 0.4+ | | |
| 2002 09 16 | 644 | 0.3− | 0.4− | 2008 09 07 | 703 | 0.0 | 0.2− | 2009 11 19 | 691 | 0.0 | 0.3− | | |
| 2002 09 16 | 644 | 0.2+ | 0.4− | 2008 09 07 | 703 | 0.7+ | 0.1− | 2009 11 19 | 691 | 0.1− | 1.1+ | | |
| 2002 09 30 | 608 | 0.1− | 0.8− | 2008 10 09 | 703 | 0.1− | 0.6+ | 2009 11 19 | 691 | 0.1+ | 0.1− | | |

**2002 QO$_{102}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 28.20542 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27875997 | $\omega$ | 85.66742 | | +0.96460775 | +0.26036070 | |
| $a$ | 2.3208609 | $\Omega$ | 259.23713 | | −0.25564509 | +0.88455703 | |
| $e$ | 0.2405100 | $i$ | 2.43645 | | −0.06463336 | +0.38700280 | |
| $P$ | 3.54 | $H$ | 18.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 28 | 644 | 0.5+ | 0.1− | 2002 09 13 | 644 | 0.1− | 0.0 | 2002 11 08 | 645 | 0.1− | 0.1− | | |
| 2002 08 28 | 644 | 0.2+ | 0.2+ | 2002 09 13 | 644 | 0.2+ | 0.3− | 2002 11 08 | 645 | 0.1− | 0.0 | | |
| 2002 08 28 | 644 | 0.1+ | 0.2+ | 2002 09 13 | 644 | 0.8− | 0.1+ | 2009 11 16 | G96 | 0.5+ | 0.1− | | |
| 2002 09 06 | 704 | 0.3+ | 0.4+ | 2002 09 13 | 644 | 0.4− | 0.2− | 2009 11 16 | G96 | 0.1+ | 0.4− | | |
| 2002 09 06 | 704 | (2.5− | 0.6+) | 2002 10 04 | 704 | 0.0 | 1.1+ | 2009 11 16 | G96 | 0.0 | 0.4− | | |
| 2002 09 06 | 704 | 0.6− | 1.1− | 2002 10 04 | 704 | 0.1− | 1.5+ | 2009 11 16 | G96 | 0.9− | 0.2+ | | |
| 2002 09 06 | 704 | 0.8− | 1.2− | 2002 10 04 | 704 | 0.2+ | 1.2+ | 2009 11 18 | G96 | 0.2− | 0.5+ | | |
| 2002 09 10 | 608 | 0.3+ | 1.0− | 2002 10 04 | 704 | 0.0 | 2.0+ | 2009 11 18 | G96 | 0.1+ | 0.0 | | |
| 2002 09 10 | 608 | 0.4+ | 0.5− | 2002 10 04 | 704 | 0.2− | 0.5+ | 2009 11 18 | G96 | 0.1− | 0.5+ | | |
| 2002 09 13 | 644 | 0.1− | 0.0 | 2002 10 30 | 645 | 0.1+ | 0.0 | 2009 11 18 | G96 | 0.4+ | 0.4+ | | |
| 2002 09 13 | 644 | 0.3− | 0.3− | 2002 10 30 | 645 | 0.2+ | 0.0 | | | | | | |

**2002 QR$_{106}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 169.10563 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.20624707 | $\omega$ | 327.41281 | | +0.99340469 | −0.08943628 | |
| $a$ | 2.8371188 | $\Omega$ | 37.92211 | | +0.11298206 | +0.87020916 | |
| $e$ | 0.1011627 | $i$ | 6.70440 | | −0.01954936 | +0.48449683 | |
| $P$ | 4.78 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 11 | 608 | 0.2− | 0.2+ | 2002 08 30 | 644 | 0.1− | 0.1+ | 2007 10 15 | 703 | (0.1− | 1.9+) | | |
| 2002 08 11 | 608 | 0.4+ | 0.6+ | 2002 09 08 | 599 | 0.7− | 0.5− | 2007 10 15 | 703 | 0.8− | 0.1− | | |
| 2002 08 19 | 644 | 0.0 | 0.5+ | 2002 09 08 | 599 | 0.1+ | 0.4− | 2007 10 15 | 703 | 0.4− | 0.0 | | |
| 2002 08 19 | 644 | 0.0 | 0.2− | 2002 09 16 | 644 | 0.1− | 0.2− | 2007 10 15 | 703 | 0.6− | 0.0 | | |
| 2002 08 19 | 644 | 0.4+ | 0.3− | 2002 09 16 | 644 | 0.5+ | 0.5− | 2007 11 17 | G96 | 0.2− | 0.4− | | |
| 2002 08 26 | 644 | 0.2+ | 0.3+ | 2002 09 16 | 644 | 0.4− | 0.2+ | 2007 11 17 | G96 | 0.7+ | 0.0 | | |
| 2002 08 26 | 644 | 0.1− | 0.1− | 2007 09 19 | 691 | 0.2+ | 0.1+ | 2007 11 17 | G96 | 0.4+ | 0.1+ | | |
| 2002 08 30 | 644 | 0.2+ | 0.1− | 2007 09 19 | 691 | 0.0 | 0.0 | 2007 11 17 | G96 | 0.1+ | 0.1− | | |
| 2002 08 30 | 644 | 0.1− | 0.0 | 2007 09 19 | 691 | 0.0 | 0.1+ | | | | | | |

**2002 QO$_{110}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 140.70376 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17245844 | $\omega$ | 139.17291 | | +0.30168483 | +0.93877125 | |
| $a$ | 3.1965371 | $\Omega$ | 147.35502 | | −0.93516591 | +0.32535135 | |
| $e$ | 0.0065285 | $i$ | 17.96916 | | −0.18560977 | −0.11338005 | |
| $P$ | 5.72 | $H$ | 15.2 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 07 22 | 644 | 0.3+ | 0.0 | 2002 08 17 | 644 | 0.2+ | 0.1+ | 2002 09 14 | 644 | 0.1+ | 0.2− | | |
| 2002 07 22 | 644 | 0.1+ | 0.4+ | 2002 08 17 | 644 | 0.2+ | 0.3+ | 2002 09 14 | 644 | 0.5− | 0.1− | | |
| 2002 08 07 | 644 | 0.1− | 0.2− | 2002 08 17 | 644 | 0.2+ | 0.0 | 2008 09 03 | J75 | 0.3− | 0.4+ | | |
| 2002 08 07 | 644 | 0.7− | 0.2− | 2002 08 26 | 644 | 0.1− | 0.3+ | 2008 09 03 | J75 | 0.7− | 0.8− | | |
| 2002 08 16 | 608 | 0.3+ | 0.3− | 2002 08 26 | 644 | 0.0 | 0.2+ | 2008 09 03 | J75 | 0.7+ | 0.3− | | |
| 2002 08 16 | 608 | 0.6+ | 0.5− | 2002 08 27 | 644 | 0.0 | 0.2+ | 2008 09 06 | 703 | 0.7+ | 0.4+ | | |
| 2002 08 17 | 644 | 0.0 | 0.1− | 2002 08 27 | 644 | 0.1+ | 0.0 | 2008 09 06 | 703 | 0.9+ | 0.4+ | | |
| 2002 08 17 | 644 | 0.2− | 0.0 | 2002 08 27 | 644 | 0.0 | 0.2+ | 2008 09 06 | 703 | 0.2+ | 0.7+ | | |
| 2002 08 17 | 644 | 0.0 | 0.1+ | 2002 09 14 | 644 | 0.5− | 0.1− | 2008 09 06 | 703 | 1.6− | 0.7− | | |

**2002 QU$_{113}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 281.86159 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22853971 | $\omega$ | 354.03703 | | +0.45006363 | +0.87737782 | |
| $a$ | 2.6494859 | $\Omega$ | 302.60032 | | −0.81093568 | +0.32358337 | |
| $e$ | 0.1711727 | $i$ | 11.38399 | | −0.37393322 | +0.35426257 | |
| $P$ | 4.31 | $H$ | 17.4 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 16 | 644 | 0.2+ | 0.1+ | 2002 08 27 | 644 | 0.0 | 0.0 | 2002 10 31 | 645 | 0.1+ | 0.0 | | |
| 2002 08 16 | 644 | 0.6− | 0.0 | 2002 08 27 | 644 | 0.2+ | 0.1− | 2002 10 31 | 645 | 0.1− | 0.0 | | |
| 2002 08 16 | 644 | 0.0 | 0.2− | 2002 08 27 | 644 | 0.1− | 0.0 | 2009 01 18 | 691 | 0.0 | 0.1− | | |
| 2002 08 26 | 644 | 0.1+ | 0.1− | 2002 08 27 | 644 | 0.1+ | 0.2+ | 2009 01 18 | 691 | 0.6+ | 0.2+ | | |
| 2002 08 26 | 644 | 0.7+ | 0.2+ | 2002 08 27 | 644 | 0.4− | 0.3− | 2009 01 18 | 691 | 0.3− | 0.4− | | |
| 2002 08 26 | 644 | 0.4− | 0.5− | 2002 09 04 | 644 | 0.4+ | 0.1+ | 2009 02 03 | G96 | 0.4− | 0.2+ | | |
| 2002 08 26 | 644 | 0.5+ | 0.3+ | 2002 09 04 | 644 | 0.0 | 0.4− | 2009 02 03 | G96 | 0.5− | 0.6+ | | |
| 2002 08 26 | 644 | 0.3− | 0.3+ | 2002 09 04 | 644 | 0.0 | 0.1+ | 2009 02 03 | G96 | 0.1+ | 0.3+ | | |
| 2002 08 26 | 644 | 0.2+ | 0.1− | 2002 09 12 | 644 | 0.3− | 0.2+ | 2009 02 03 | G96 | 0.6− | 0.1+ | | |
| 2002 08 27 | 644 | 0.0 | 0.1+ | 2002 09 12 | 644 | 0.4− | 0.2− | | | | | | |

**2002 QB$_{122}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 143.96848 | | (2000.0) | | | |
| $n$ | 0.18487969 | $\omega$ | 130.49104 | | +0.82153507 | +0.56920945 |
| $a$ | 3.0517099 | $\Omega$ | 194.90921 | | −0.55410928 | +0.78349861 |
| $e$ | 0.1400754 | $i$ | 7.34088 | | −0.13432434 | +0.24925995 |
| $P$ | 5.33 | $H$ | 16.2 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 07 21 | 644 | 0.0 | 0.2+ | 2002 09 13 | 644 | 0.2+ | 0.2− | 2008 10 06 | G96 | 0.1− | 0.6+ |
| 2002 07 21 | 644 | 0.4+ | 0.2+ | 2002 09 13 | 644 | 0.3− | 0.3+ | 2008 10 06 | G96 | 0.5+ | 0.6+ |
| 2002 08 16 | 644 | 0.0 | 0.0 | 2002 09 13 | 644 | 0.1− | 0.5+ | 2008 10 06 | G96 | 0.0 | 0.2+ |
| 2002 08 16 | 644 | 0.2+ | 0.2− | 2002 09 13 | 644 | 0.1+ | 0.3+ | 2008 10 27 | G96 | 0.2− | 0.3− |
| 2002 08 16 | 644 | 0.6− | 0.0 | 2002 09 26 | 644 | 0.1− | 0.2− | 2008 10 27 | G96 | 0.4− | 0.4− |
| 2002 08 26 | 644 | 0.2− | 0.1− | 2002 09 26 | 644 | 0.1+ | 0.0 | 2008 10 27 | G96 | 0.5− | 0.4− |
| 2002 08 26 | 644 | 0.1− | 0.0 | 2002 09 26 | 644 | 0.0 | 0.3+ | 2008 10 27 | G96 | 0.2− | 0.3− |
| 2002 08 26 | 644 | 0.3+ | 0.6− | 2006 03 24 | G96 | 0.3− | 0.1+ | 2008 12 01 | G96 | 0.4+ | 0.2+ |
| 2002 08 28 | 644 | 0.2− | 0.0 | 2006 03 24 | G96 | 0.9+ | 0.2+ | 2008 12 01 | G96 | 0.5− | 0.0 |
| 2002 08 28 | 644 | 0.1− | 0.1− | 2006 03 24 | G96 | 0.0 | 0.2+ | 2008 12 01 | G96 | 0.7+ | 0.1+ |
| 2002 08 28 | 644 | 0.3− | 0.2− | 2006 03 24 | G96 | 0.4− | 0.3+ | 2008 12 01 | G96 | 0.3− | 0.1+ |
| 2002 09 13 | 644 | 0.8+ | 0.2+ | 2008 10 06 | G96 | 0.4+ | 0.2+ | | | | |

**2002 QY$_{137}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 263.30026 | | (2000.0) | | | |
| $n$ | 0.22761845 | $\omega$ | 176.70912 | | +0.64856365 | +0.75890305 |
| $a$ | 2.6566300 | $\Omega$ | 133.71400 | | −0.70018856 | +0.62502203 |
| $e$ | 0.0469285 | $i$ | 4.64852 | | −0.29849819 | +0.18279395 |
| $P$ | 4.33 | $H$ | 17.0 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 07 29 | 644 | 0.3− | 1.2+ | 2002 08 29 | 291 | 0.1− | 0.3+ | 2007 11 02 | G96 | 0.2− | 0.3+ |
| 2002 07 29 | 644 | 0.1+ | 0.3+ | 2002 08 29 | 291 | 0.1+ | 0.2− | 2007 11 02 | G96 | 0.2− | 0.3+ |
| 2002 07 29 | 644 | 0.2− | 0.7+ | 2002 08 29 | 644 | 0.2− | 0.3− | 2009 01 29 | 691 | 0.2+ | 0.6+ |
| 2002 08 17 | 644 | 0.0 | 0.4+ | 2002 08 29 | 644 | 0.4+ | 0.3+ | 2009 01 29 | 691 | 0.2− | 0.4− |
| 2002 08 17 | 644 | 0.5− | 0.3+ | 2002 08 29 | 644 | 0.5+ | 0.0 | 2009 01 29 | 691 | 0.1− | 0.4+ |
| 2002 08 17 | 644 | 0.3− | 0.1+ | 2007 10 10 | G96 | 0.1+ | 0.2− | 2009 02 20 | G96 | 0.4+ | 0.5+ |
| 2002 08 18 | 644 | 0.9− | 0.1+ | 2007 10 10 | G96 | 0.4+ | 0.2− | 2009 02 20 | G96 | 0.0 | 0.7+ |
| 2002 08 18 | 644 | 0.6− | 0.4+ | 2007 10 10 | G96 | 0.1+ | 0.6− | 2009 02 20 | G96 | 0.7+ | 0.2+ |
| 2002 08 18 | 644 | 0.1+ | 0.4− | 2007 10 10 | G96 | 0.4+ | 0.3− | 2009 02 20 | G96 | 0.3+ | 0.4+ |
| 2002 08 27 | 644 | 0.1+ | 0.4+ | 2007 11 02 | G96 | 0.2− | 0.3+ | | | | |
| 2002 08 29 | 291 | 0.2+ | 0.1+ | 2007 11 02 | G96 | 0.3− | 0.3+ | | | | |

**2002 QZ$_{137}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 7.75286 | | (2000.0) | | | |
| $n$ | 0.28115520 | $\omega$ | 223.09097 | | +0.99645057 | −0.08096738 |
| $a$ | 2.3076608 | $\Omega$ | 141.53529 | | +0.08372627 | +0.92488960 |
| $e$ | 0.1778343 | $i$ | 2.12211 | | +0.00872761 | +0.37151515 |
| $P$ | 3.51 | $H$ | 18.5 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 07 22 | 644 | 0.2+ | 0.1+ | 2002 08 08 | 644 | 0.6− | 0.3− | 2006 11 22 | 691 | 0.0 | 0.0 |
| 2002 07 22 | 644 | 0.2+ | 0.4+ | 2002 08 17 | 644 | 0.1− | 0.2+ | 2006 11 22 | 691 | 0.0 | 0.0 |
| 2002 07 22 | 644 | 0.4+ | 0.2− | 2002 08 17 | 644 | 0.1+ | 0.0 | 2006 11 22 | 691 | 0.1+ | 0.1− |
| 2002 07 23 | 644 | 0.1− | 1.0− | 2002 08 17 | 644 | 0.0 | 0.2+ | 2006 12 27 | G96 | 0.1− | 0.0 |
| 2002 07 29 | 644 | 0.1− | 0.1− | 2002 08 27 | 644 | 0.2+ | 0.1− | 2006 12 27 | G96 | 0.4− | 0.1+ |
| 2002 07 29 | 644 | 0.0 | 0.0 | 2002 08 27 | 644 | 0.0 | 0.4+ | 2006 12 27 | G96 | 0.1+ | 0.3− |
| 2002 08 08 | 644 | 0.5− | 0.3− | 2002 08 27 | 644 | 0.5+ | 0.5+ | 2006 12 27 | G96 | 0.5+ | 0.2+ |

**2002 QB$_{138}$ = 1995 UC$_{78}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 3.57959 | | (2000.0) | | | |
| $n$ | 0.27250325 | $\omega$ | 359.23111 | | +0.92017500 | +0.39147190 |
| $a$ | 2.3562512 | $\Omega$ | 337.72050 | | −0.35912676 | +0.83863774 |
| $e$ | 0.1675378 | $i$ | 0.79577 | | −0.15590364 | +0.37873011 |
| $P$ | 3.62 | $H$ | 18.6 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 10 23 | 691 | 0.3+ | 0.1+ | 2002 08 27 | 644 | 0.3+ | 0.5+ | 2006 09 27 | G96 | 0.4− | 0.6− |
| 1995 10 23 | 691 | 0.4+ | 0.2+ | 2002 08 27 | 644 | 0.3− | 0.8+ | 2006 11 01 | 691 | 0.0 | 0.3+ |
| 1995 10 23 | 691 | 0.6+ | 0.2+ | 2002 08 29 | 644 | 0.3+ | 0.1+ | 2006 11 01 | 691 | 0.2− | 0.2− |
| 1995 10 27 | 691 | 0.5− | 1.0− | 2002 08 29 | 644 | 0.1+ | 0.5+ | 2006 11 01 | 691 | 0.0 | 0.4+ |
| 1995 10 27 | 691 | 0.4− | 0.0 | 2002 08 29 | 644 | 0.0 | 0.3+ | 2006 11 15 | G96 | 0.1− | 0.1− |
| 1995 10 27 | 691 | 0.3− | 0.2+ | 2002 09 01 | 644 | 0.0 | 0.4− | 2006 11 15 | G96 | 0.1+ | 0.2− |
| 2002 07 29 | 644 | 0.1− | 0.1+ | 2002 09 01 | 644 | 0.5+ | 0.1− | 2006 11 15 | G96 | 0.6+ | 0.5+ |
| 2002 07 29 | 644 | 0.1− | 0.1+ | 2002 09 04 | 644 | 0.0 | 0.9− | 2006 11 15 | G96 | 0.2+ | 0.5+ |
| 2002 08 17 | 644 | 0.4− | 0.1+ | 2002 09 04 | 644 | 0.5− | 0.5− | 2006 11 27 | G96 | 0.0 | 0.2− |
| 2002 08 17 | 644 | 0.5− | 0.2+ | 2002 09 04 | 644 | 0.2+ | 0.6− | 2006 11 27 | G96 | 0.2− | 0.3− |
| 2002 08 17 | 644 | 0.1− | 0.2+ | 2006 09 27 | G96 | 0.2− | 0.3− | 2006 11 27 | G96 | 0.1+ | 0.0 |
| 2002 08 18 | 644 | 0.1− | 0.2+ | 2006 09 27 | G96 | 0.4+ | 0.3− | 2006 11 27 | G96 | 0.1− | 0.1+ |
| 2002 08 27 | 644 | 0.2+ | 0.0 | 2006 09 27 | G96 | 0.5+ | 0.1+ | | | | |

**2002 QC$_{138}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 87.99635 | | (2000.0) | | | |
| $n$ | 0.17920632 | $\omega$ | 231.65494 | | +0.98280788 | −0.18357080 |
| $a$ | 3.1157827 | $\Omega$ | 138.91214 | | +0.17738821 | +0.90914798 |
| $e$ | 0.1845098 | $i$ | 1.72288 | | +0.05120642 | +0.37383379 |
| $P$ | 5.50 | $H$ | 16.2 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 08 | 644 | 0.3+ | 0.2+ | 2002 09 14 | 644 | 0.3− | 0.1+ | 2008 09 24 | 691 | 0.2− | 0.0 |
| 2002 08 08 | 644 | 0.4+ | 0.3+ | 2002 09 15 | 644 | 0.5+ | 0.3− | 2008 09 24 | 691 | 0.4− | 0.2+ |
| 2002 08 08 | 644 | 0.3− | 0.0 | 2002 09 15 | 644 | 0.4+ | 0.3+ | 2008 10 08 | 691 | 0.1+ | 0.3− |
| 2002 08 17 | 644 | 0.0 | 0.2+ | 2002 09 15 | 644 | 0.5− | 0.1+ | 2008 10 08 | 691 | 0.0 | 0.1+ |
| 2002 08 17 | 644 | 0.3− | 0.0 | 2005 03 04 | G96 | 0.6+ | 0.2− | 2008 10 08 | 691 | 0.1+ | 0.0 |
| 2002 08 18 | 644 | 0.1+ | 0.2− | 2005 03 04 | G96 | 0.4+ | 0.1+ | 2008 10 08 | 703 | 0.4+ | 0.7− |
| 2002 08 18 | 644 | 0.4− | 0.0 | 2005 03 04 | G96 | 0.6− | 0.1− | 2008 10 08 | 703 | 0.1+ | 0.2+ |
| 2002 08 18 | 644 | 0.0 | 0.2− | 2005 03 04 | G96 | 0.2+ | 0.3− | 2008 10 08 | 703 | 0.3+ | 0.8+ |
| 2002 09 04 | 644 | 0.1− | 0.0 | 2005 04 02 | G96 | 0.6+ | 0.5− | 2008 10 08 | 703 | 0.0 | 1.3+ |
| 2002 09 04 | 644 | 0.1− | 0.0 | 2005 04 02 | G96 | 1.5− | 0.2+ | 2008 11 07 | G96 | 0.1− | 0.4− |
| 2002 09 04 | 644 | 0.3+ | 0.0 | 2005 04 02 | G96 | 0.3+ | 0.5+ | 2008 11 07 | G96 | 0.1+ | 0.3− |
| 2002 09 14 | 644 | 0.0 | 0.5− | 2005 04 02 | G96 | 0.0 | 0.4+ | 2008 11 07 | G96 | 0.1+ | 0.7− |
| 2002 09 14 | 644 | 0.0 | 0.6− | 2008 09 24 | 691 | 0.1+ | 0.3+ | 2008 11 07 | G96 | 0.2+ | 0.5− |

**2002 QE$_{138}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 213.32134 | | (2000.0) | | | |
| $n$ | 0.21968651 | $\omega$ | 206.72137 | | +0.95213623 | +0.29420045 |
| $a$ | 2.7201976 | $\Omega$ | 135.90309 | | −0.25478011 | +0.91377627 |
| $e$ | 0.0756590 | $i$ | 6.84708 | | −0.16888961 | +0.28010539 |
| $P$ | 4.49 | $H$ | 17.2 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 09 19 | 645 | 0.2− | 0.1+ | 2002 08 29 | 644 | 0.3− | 0.0 | 2009 01 17 | G96 | 0.0 | 0.2+ |
| 1998 09 19 | 645 | 0.0 | 0.0 | 2002 08 29 | 644 | 0.0 | 0.7− | 2009 01 17 | G96 | 0.4+ | 0.1− |
| 1998 09 25 | 645 | 0.1+ | 0.1− | 2002 08 29 | 644 | 0.3− | 0.2+ | 2009 01 17 | G96 | 0.2+ | 0.1+ |
| 1998 09 25 | 645 | 0.1+ | 0.0 | 2007 10 14 | G96 | 0.1− | 0.4+ | 2009 02 14 | 691 | 0.3− | 0.0 |
| 2002 07 22 | 644 | 0.1+ | 0.5− | 2007 10 14 | G96 | 0.4+ | 0.2− | 2009 02 14 | 691 | 0.0 | 0.3+ |
| 2002 07 22 | 644 | 0.3− | 0.3+ | 2007 10 14 | G96 | 0.3+ | 0.2− | 2009 02 14 | 691 | 0.3− | 0.3+ |
| 2002 07 22 | 644 | 0.6+ | 0.2+ | 2007 10 14 | G96 | 0.3+ | 0.0 | 2009 02 14 | G96 | 0.0 | 0.7+ |
| 2002 07 29 | 644 | 0.3+ | 0.4+ | 2007 10 21 | G96 | 0.2+ | 0.2+ | 2009 02 14 | G96 | 0.1+ | 0.0 |
| 2002 07 29 | 644 | 0.1+ | 0.1+ | 2007 10 21 | G96 | 0.5− | 0.1+ | 2009 02 14 | G96 | 0.1+ | 0.4− |
| 2002 08 08 | 644 | 0.1+ | 0.2+ | 2007 10 21 | G96 | 0.5− | 0.4+ | 2009 02 14 | G96 | 0.3+ | 0.3+ |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 08 | 644 | 0.2+ | 0.3− | 2007 10 21 | G96 | 0.5− | 0.4+ | 2009 02 27 | G96 | 0.2+ | 0.0 |
| 2002 08 08 | 644 | 0.2+ | 0.2− | 2008 12 22 | G96 | 1.2+ | 0.2− | 2009 02 27 | G96 | 0.0 | 0.1− |
| 2002 08 17 | 644 | 0.3+ | 0.0 | 2008 12 22 | G96 | 0.5+ | 0.2+ | 2009 02 27 | G96 | 0.1+ | 0.0 |
| 2002 08 17 | 644 | 0.5− | 0.1+ | 2008 12 22 | G96 | 0.1− | 0.2− | 2009 02 27 | G96 | 0.7+ | 0.0 |
| 2002 08 17 | 644 | 0.1+ | 0.0 | 2008 12 22 | G96 | (1.8− | 3.1−) | | | | |
| 2002 08 18 | 644 | 0.6− | 0.1+ | 2009 01 17 | G96 | 0.2+ | 0.2− | | | | |

**2002 QF$_{138}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 254.68367 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23733243 | $\omega$ | 212.21253 | | +0.98721334 | | +0.15789974 |
| $a$ | 2.5836360 | $\Omega$ | 138.68470 | | −0.13833411 | | +0.91674718 |
| $e$ | 0.0965521 | $i$ | 1.89673 | | −0.07920536 | | +0.36693634 |
| $P$ | 4.15 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 09 24 | 691 | 0.3+ | 0.0 | 2002 09 15 | 644 | 0.0 | 0.8+ | 2006 07 21 | G96 | 0.1+ | 0.0 |
| 1998 09 24 | 691 | 0.1+ | 0.2+ | 2003 12 24 | 413 | 0.6+ | 0.0 | 2007 11 17 | 691 | 0.3+ | 0.3+ |
| 1998 09 24 | 691 | 1.5− | 0.9+ | 2003 12 24 | 413 | 0.6+ | 0.2+ | 2007 11 17 | 691 | 0.5− | 0.2+ |
| 2002 07 29 | 644 | 0.1+ | 0.1− | 2003 12 24 | 413 | 0.6+ | 0.3− | 2007 11 17 | 691 | 0.3− | 0.0 |
| 2002 07 29 | 644 | 0.0 | 0.1+ | 2005 03 10 | G96 | 0.2+ | 0.2+ | 2008 02 09 | G96 | 0.5+ | 0.5− |
| 2002 07 29 | 644 | 0.4+ | 0.1+ | 2005 03 10 | G96 | 0.1+ | 0.0 | 2008 02 09 | G96 | 0.7− | 0.3− |
| 2002 08 08 | 644 | 0.4+ | 0.3+ | 2005 03 10 | G96 | 0.3− | 0.2− | 2008 02 09 | G96 | 0.3+ | 0.1− |
| 2002 08 08 | 644 | 0.2+ | 0.1+ | 2005 03 10 | G96 | 0.5− | 0.0 | 2008 02 09 | G96 | 0.2+ | 0.1− |
| 2002 08 08 | 644 | 0.0 | 0.2+ | 2005 05 09 | G96 | 0.1− | 0.4+ | 2009 03 03 | 691 | 0.3+ | 0.7+ |
| 2002 08 17 | 644 | 0.5+ | 0.1− | 2005 05 09 | G96 | 0.0 | 0.5+ | 2009 03 03 | 691 | 0.1+ | 0.1+ |
| 2002 08 17 | 644 | 0.0 | 0.1− | 2005 05 09 | G96 | 0.2+ | 0.3+ | 2009 03 03 | 691 | 0.2− | 0.5+ |
| 2002 08 17 | 644 | 0.2− | 0.1+ | 2005 05 09 | G96 | 0.0 | 0.1+ | 2009 03 16 | G96 | 0.4+ | 0.1+ |
| 2002 08 27 | 644 | 0.2+ | 0.6+ | 2006 06 22 | 691 | 0.1− | 0.2− | 2009 03 16 | G96 | 1.0+ | 0.8+ |
| 2002 08 27 | 644 | 0.2+ | 0.1+ | 2006 06 22 | 691 | 0.0 | 0.4− | 2009 03 16 | G96 | 0.4+ | 0.2+ |
| 2002 08 27 | 644 | 0.7+ | 0.1− | 2006 06 22 | 691 | 0.4− | 0.2+ | 2009 03 16 | G96 | 0.6+ | 0.2+ |
| 2002 09 15 | 644 | 0.5+ | 0.3+ | 2006 07 21 | G96 | 0.4− | 0.2+ | | | | |
| 2002 09 15 | 644 | 0.4+ | 0.4+ | 2006 07 21 | G96 | 0.6+ | 0.6+ | | | | |

**2002 QQ$_{138}$ = 2006 US$_4$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 348.21746 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.26438921 | $\omega$ | 184.65661 | | +0.85688568 | | +0.51507790 |
| $a$ | 2.4042164 | $\Omega$ | 144.31549 | | −0.47179686 | | +0.80000728 |
| $e$ | 0.2055607 | $i$ | 2.06473 | | −0.20773698 | | +0.30770620 |
| $P$ | 3.73 | $H$ | 18.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 07 22 | 644 | 0.3− | 0.5− | 2002 08 08 | 644 | 0.4− | 0.3− | 2006 09 19 | 691 | 0.1+ | 0.4− |
| 2002 07 22 | 644 | 0.2− | 0.2− | 2002 08 16 | 291 | 0.3+ | 0.2+ | 2006 09 19 | 691 | 0.3+ | 0.4− |
| 2002 07 22 | 644 | 0.0 | 0.4− | 2002 08 16 | 291 | 0.8+ | 0.5+ | 2006 10 01 | 691 | 0.0 | 0.0 |
| 2002 07 23 | 644 | 0.2− | 0.1+ | 2002 08 16 | 291 | 0.1+ | 0.8+ | 2006 10 01 | 691 | 0.2− | 0.3+ |
| 2002 07 23 | 644 | 0.6− | 0.4− | 2002 08 17 | 644 | 0.6− | 0.1− | 2006 10 01 | 691 | 0.1− | 0.2+ |
| 2002 07 29 | 644 | 0.2+ | 0.2− | 2002 08 17 | 644 | 0.5− | 0.5− | 2006 10 16 | 691 | 0.4− | 0.0 |
| 2002 07 29 | 644 | 0.1− | 0.3− | 2002 08 17 | 644 | 0.4− | 0.4+ | 2006 10 16 | 691 | 0.0 | 0.4+ |
| 2002 07 29 | 644 | 0.1+ | 0.4− | 2002 08 27 | 644 | 0.5− | 0.4− | 2006 10 16 | 691 | 0.0 | 0.3+ |
| 2002 08 07 | 644 | 0.1− | 0.2− | 2002 08 27 | 644 | 0.1− | 0.1− | 2006 10 17 | G96 | 0.2− | 0.4− |
| 2002 08 07 | 644 | 0.2− | 0.5− | 2002 08 27 | 644 | 0.5− | 0.6− | 2006 10 17 | G96 | 0.3+ | 0.6− |
| 2002 08 07 | 644 | 0.2− | 0.1− | 2002 09 15 | 644 | 0.4− | 0.1+ | 2006 10 17 | G96 | 0.1+ | 0.1+ |
| 2002 08 08 | 644 | 0.1− | 0.0 | 2002 09 15 | 644 | 0.3− | 0.4− | 2006 10 17 | G96 | 0.5+ | 0.7− |
| 2002 08 08 | 644 | 0.4+ | 0.6− | 2006 09 19 | 691 | 0.1+ | 0.3− | | | | |

**2002 QR$_{138}$ = 2008 YK$_{140}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 350.96916 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23461713 | $\omega$ | 78.74523 | | −0.67233799 | | +0.73781336 |
| $a$ | 2.6035319 | $\Omega$ | 148.74273 | | −0.71622674 | | −0.62792774 |
| $e$ | 0.1243994 | $i$ | 6.63373 | | −0.18703176 | | −0.24766551 |
| $P$ | 4.20 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 03 04 | 691 | 0.0 | 0.2+ | 2003 11 21 | 691 | 0.1− | 0.2+ | 2007 10 20 | G96 | 0.0 | 0.3− |
| 2001 03 04 | 691 | 0.1+ | 0.2+ | 2003 11 21 | 691 | 0.1− | 0.4+ | 2008 12 30 | G96 | 0.5+ | 0.0 |
| 2001 03 04 | 691 | 0.0 | 0.3+ | 2005 02 09 | 699 | 0.9+ | 0.0 | 2008 12 30 | G96 | 0.1+ | 0.1− |
| 2002 07 22 | 644 | 0.6− | 0.1+ | 2005 02 09 | 699 | 0.0 | 1.6+ | 2008 12 30 | G96 | 0.1− | 0.2− |
| 2002 07 22 | 644 | 0.0 | 0.0 | 2005 02 09 | 699 | 0.2+ | 0.9+ | 2008 12 30 | G96 | 0.2+ | 0.1− |
| 2002 07 22 | 644 | 0.1+ | 0.5+ | 2005 02 09 | 699 | 1.2+ | 0.1− | 2008 12 30 | 691 | 0.1− | 0.1− |
| 2002 08 07 | 644 | 0.5− | 0.1+ | 2005 03 04 | G96 | 0.0 | 0.0 | 2008 12 30 | 691 | 0.1− | 0.1− |
| 2002 08 07 | 644 | 0.7+ | 0.7+ | 2005 03 04 | G96 | 0.1+ | 0.1− | 2008 12 30 | 691 | 0.1+ | 0.0 |
| 2002 08 07 | 644 | 0.7+ | 0.4+ | 2005 03 04 | G96 | 0.1− | 0.1+ | 2009 01 03 | 691 | 0.1− | 0.3− |
| 2002 08 17 | 644 | 0.4− | 0.2+ | 2005 03 04 | G96 | 0.3+ | 0.0 | 2009 01 03 | 691 | 0.2− | 0.4− |
| 2002 08 17 | 644 | 0.1− | 0.1− | 2007 10 19 | 621 | 0.0 | 0.7+ | 2009 01 03 | 691 | 0.4− | 0.1− |
| 2002 08 17 | 644 | 0.2− | 0.1+ | 2007 10 19 | 621 | 0.1+ | 0.2+ | 2009 01 17 | G96 | 0.1+ | 0.0 |
| 2002 08 27 | 644 | 1.2− | 0.7− | 2007 10 19 | 621 | 0.3+ | 0.2+ | 2009 01 17 | G96 | 0.7− | 0.0 |
| 2002 08 27 | 644 | 0.2+ | 0.2+ | 2007 10 20 | G96 | 0.2+ | 0.1− | 2009 01 17 | G96 | 1.0+ | 0.1+ |
| 2002 08 27 | 644 | 0.7+ | 0.1− | 2007 10 20 | G96 | 0.1+ | 0.5− | 2009 01 17 | G96 | 0.2+ | 0.2− |
| 2003 11 21 | 691 | 0.0 | 0.3+ | 2007 10 20 | G96 | 0.0 | 0.3− | | | | |

**2002 QB$_{139}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 6.57264 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.27068271 | $\omega$ | 170.19631 | | +0.84255300 | | +0.53827843 |
| $a$ | 2.3668044 | $\Omega$ | 157.20595 | | −0.49742946 | | +0.79116929 |
| $e$ | 0.2180487 | $i$ | 2.81018 | | −0.20656325 | | +0.29035753 |
| $P$ | 3.64 | $H$ | 18.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 07 22 | 644 | 0.3+ | 0.2+ | 2002 08 17 | 644 | 0.1− | 0.0 | 2006 09 30 | G96 | 0.1+ | 0.0 |
| 2002 07 22 | 644 | 0.0 | 0.0 | 2002 08 17 | 644 | 0.1+ | 0.1− | 2006 09 30 | G96 | 0.1+ | 0.8− |
| 2002 07 22 | 644 | 0.2− | 0.1+ | 2002 08 17 | 644 | 0.0 | 0.1− | 2006 09 30 | G96 | 0.0 | 0.2+ |
| 2002 07 29 | 644 | 0.1− | 0.1− | 2002 08 27 | 644 | 0.0 | 0.0 | 2006 09 30 | G96 | 0.0 | 0.7+ |
| 2002 07 29 | 644 | 0.0 | 0.0 | 2002 08 27 | 644 | 0.4− | 0.2+ | 2006 11 16 | G96 | 0.2− | 0.0 |
| 2002 07 29 | 644 | 0.0 | 0.1+ | 2002 08 27 | 644 | 0.1+ | 0.1+ | 2006 11 16 | G96 | 0.3− | 0.1− |
| 2002 08 06 | 644 | 0.2+ | 0.4+ | 2002 09 14 | 644 | 0.5− | 0.1− | 2006 11 16 | G96 | 0.2− | 0.7+ |
| 2002 08 06 | 644 | 0.3+ | 0.3+ | 2002 09 14 | 644 | 0.1+ | 0.2+ | 2006 11 16 | G96 | 0.4+ | 0.3− |
| 2002 08 06 | 644 | 0.2+ | 0.3+ | 2002 09 14 | 644 | 0.4− | 0.2− | 2009 06 03 | G96 | 0.6− | 0.5− |
| 2002 08 07 | 644 | 0.0 | 0.2+ | 2005 04 10 | 691 | 0.4+ | 0.0 | 2009 06 03 | G96 | 0.3− | 0.5− |
| 2002 08 07 | 644 | 0.1− | 0.1− | 2005 04 10 | 691 | 0.5− | 0.2+ | 2009 06 03 | G96 | 0.2+ | 0.4− |
| 2002 08 07 | 644 | 0.1+ | 0.1+ | 2005 04 10 | 691 | 0.3+ | 0.4+ | 2009 06 03 | G96 | 0.5+ | 0.4− |

**2002 QE$_{139}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 218.48964 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18876316 | $\omega$ | 86.85465 | | −0.43878663 | | +0.89828319 |
| $a$ | 3.0097093 | $\Omega$ | 157.07357 | | −0.84657209 | | −0.40446404 |
| $e$ | 0.0752090 | $i$ | 3.46279 | | −0.30130050 | | −0.17174444 |
| $P$ | 5.22 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 07 22 | 644 | 0.0 | 0.3+ | 2002 08 17 | 644 | 0.3− | 0.5+ | 2007 06 16 | 691 | 0.1− | 0.1+ |
| 2002 07 22 | 644 | 0.4+ | 0.5+ | 2002 08 17 | 644 | 0.1− | 0.2+ | 2007 06 16 | 691 | 0.0 | 0.2− |
| 2002 07 22 | 644 | 0.1− | 0.0 | 2002 08 17 | 644 | 0.7− | 0.7+ | 2008 09 22 | 691 | 0.4− | 0.5+ |
| 2002 07 29 | 644 | 0.3+ | 0.0 | 2002 08 27 | 644 | 0.4− | 0.4+ | 2008 09 22 | 691 | 0.1+ | 0.1+ |
| 2002 07 29 | 644 | 0.0 | 0.5− | 2002 08 27 | 644 | 0.2+ | 0.0 | 2008 09 22 | 691 | 0.0 | 0.2+ |
| 2002 07 29 | 644 | 0.6+ | 0.3+ | 2002 08 27 | 644 | 0.3− | 0.2− | 2008 10 22 | G96 | 0.9+ | 0.1+ |
| 2002 08 07 | 644 | 0.4− | 0.2+ | 2006 03 23 | 691 | 0.1− | 0.1+ | 2008 10 22 | G96 | 0.6+ | 0.4− |
| 2002 08 07 | 644 | 0.1+ | 0.2− | 2006 03 23 | 691 | 0.1− | 0.3+ | 2008 10 22 | G96 | 0.4+ | 0.3+ |
| 2002 08 07 | 644 | 0.5+ | 0.2+ | 2006 03 23 | 691 | 0.0 | 0.1+ | 2008 10 22 | G96 | 0.6+ | 0.1+ |
| 2002 08 07 | 644 | 0.3− | 0.1− | 2006 05 03 | 691 | 0.2+ | 0.2+ | 2009 12 18 | 691 | 0.3− | 0.3+ |
| 2002 08 17 | 644 | 0.3− | 0.1− | 2006 05 03 | 691 | 0.5+ | 0.4+ | 2009 12 18 | 691 | 0.3− | 0.5+ |
| 2002 08 17 | 644 | 0.5− | 0.9+ | 2006 05 03 | 691 | 0.2+ | 0.1+ | 2009 12 18 | 691 | 0.1+ | 0.3+ |
| 2002 08 17 | 644 | 0.2− | 0.1+ | 2007 06 16 | 691 | 0.2− | 0.1+ | | | | |

**2002 RN$_{54}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 53.44734 | | (2000.0) | | | |
| $n$ | 0.29338490 | $\omega$ | 179.29411 | | +0.98008643 | −0.19793698 |
| $a$ | 2.2430771 | $\Omega$ | 192.15719 | | +0.18181461 | +0.92662584 |
| $e$ | 0.1571493 | $i$ | 4.31902 | | +0.07983752 | +0.31966469 |
| $P$ | 3.36 | $H$ | 17.5 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 09 05 | 704 | 0.2− | 1.5+ | 2002 09 30 | 704 | 1.0+ | 1.3+ | 2006 12 27 | G96 | 0.1+ | 0.1− |
| 2002 09 05 | 704 | 0.1+ | 0.5+ | 2002 09 30 | 704 | 0.3+ | 0.1− | 2006 12 27 | G96 | 0.1− | 0.1− |
| 2002 09 05 | 704 | 1.0− | 0.8+ | 2002 10 02 | 704 | (0.9− | 1.9+) | 2006 12 27 | G96 | 0.0 | 0.4− |
| 2002 09 05 | 704 | (0.5− | 2.0+) | 2002 10 02 | 704 | 0.9− | 0.9+ | 2006 12 27 | G96 | 0.2− | 0.1− |
| 2002 09 06 | 704 | 1.4+ | 0.6− | 2002 10 02 | 704 | 0.2+ | 0.1+ | 2008 05 27 | 691 | 0.3+ | 0.3+ |
| 2002 09 06 | 704 | 0.1+ | 0.9+ | 2002 10 02 | 704 | 0.3+ | 0.1+ | 2008 05 27 | 691 | 0.1− | 0.4− |
| 2002 09 06 | 704 | 0.3+ | 1.2− | 2002 10 04 | 644 | 0.3− | 0.7− | 2008 05 27 | 691 | 0.3− | 0.4− |
| 2002 09 06 | 704 | 1.1+ | 0.4+ | 2002 10 04 | 644 | 0.4− | 0.6− | 2009 10 12 | G96 | 0.1− | 0.1− |
| 2002 09 14 | 644 | 0.5− | 0.5+ | 2002 10 04 | 644 | 0.3− | 0.4− | 2009 10 12 | G96 | 0.4+ | 0.0 |
| 2002 09 14 | 644 | 0.2− | 0.6+ | 2002 10 07 | 704 | 1.1− | 0.7− | 2009 10 12 | G96 | 0.0 | 0.3− |
| 2002 09 14 | 644 | 0.3− | 0.4+ | 2002 10 07 | 704 | 0.0 | 0.6− | 2009 10 12 | G96 | 0.5− | 0.2− |
| 2002 09 27 | 699 | 0.2− | 0.5+ | 2002 10 07 | 704 | 0.1− | 0.4+ | 2009 11 17 | 703 | 0.7+ | 0.1+ |
| 2002 09 27 | 699 | 1.3+ | 0.9+ | 2002 10 10 | 645 | 0.0 | 0.2− | 2009 11 17 | 703 | 0.7+ | 0.9+ |
| 2002 09 27 | 699 | 0.2− | 0.2+ | 2002 10 10 | 645 | 0.0 | 0.2− | 2009 11 17 | 703 | 0.3+ | 0.5− |
| 2002 09 27 | 699 | 0.7+ | 0.5+ | 2002 10 11 | 704 | 1.5− | 1.1+ | 2009 11 17 | 703 | 1.2− | 0.5+ |
| 2002 09 29 | 608 | 0.0 | 0.0 | 2002 10 11 | 704 | 0.4+ | 1.3+ | 2009 11 18 | G96 | 0.4− | 0.2− |
| 2002 09 29 | 608 | 0.5+ | 0.1− | 2002 10 11 | 704 | 0.1+ | 0.2− | 2009 11 18 | G96 | 0.2− | 0.2− |
| 2002 09 29 | 608 | 0.2+ | 0.2− | 2002 10 11 | 704 | 0.0 | 0.9+ | 2009 11 18 | G96 | 0.1+ | 0.1− |
| 2002 09 30 | 704 | 0.5+ | 0.7+ | 2002 10 11 | 645 | 0.0 | 0.1− | 2009 11 18 | G96 | 0.3+ | 0.2− |
| 2002 09 30 | 704 | 0.1+ | 0.2+ | 2002 10 11 | 645 | 0.0 | 0.0 | | | | |

**2002 RO$_{80}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 247.16350 | | (2000.0) | | | |
| $n$ | 0.22202153 | $\omega$ | 353.72011 | | +0.85140231 | +0.52340115 |
| $a$ | 2.7010916 | $\Omega$ | 334.62814 | | −0.47769860 | +0.74689048 |
| $e$ | 0.2578757 | $i$ | 4.56949 | | −0.21660600 | +0.41012906 |
| $P$ | 4.44 | $H$ | 16.3 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 09 05 | 704 | 0.3− | 0.5+ | 2002 09 30 | 704 | 0.9− | 0.5+ | 2002 11 08 | 645 | 0.1+ | 0.1− |
| 2002 09 05 | 704 | 0.2+ | 0.4+ | 2002 09 30 | 704 | 0.3+ | 1.1− | 2002 11 08 | 645 | 0.0 | 0.1− |
| 2002 09 05 | 704 | 0.0 | 0.9+ | 2002 09 30 | 704 | 0.5+ | 1.4− | 2007 11 03 | 691 | 0.1− | 0.8− |
| 2002 09 05 | 704 | 0.3− | 0.2+ | 2002 09 30 | 704 | 0.9− | 1.0− | 2007 11 03 | 691 | 0.3+ | 0.1+ |
| 2002 09 05 | 704 | 0.6− | 0.1+ | 2002 10 01 | 699 | 0.2− | 1.0+ | 2007 11 03 | 691 | 0.0 | 0.2+ |
| 2002 09 07 | 704 | 0.5+ | 0.4− | 2002 10 01 | 699 | 0.6− | 0.5− | 2007 11 20 | 691 | 0.0 | 0.1+ |
| 2002 09 07 | 704 | 0.4− | 0.5+ | 2002 10 01 | 699 | 0.1+ | 0.2− | 2007 11 20 | 691 | 0.2− | 0.4+ |
| 2002 09 07 | 704 | 0.4− | 0.4+ | 2002 10 01 | 699 | 0.3+ | 0.0 | 2007 11 20 | 691 | 0.0 | 0.4+ |
| 2002 09 07 | 704 | 0.5+ | 0.7+ | 2002 10 04 | 704 | 0.1+ | 0.7+ | 2009 01 17 | 691 | 0.4+ | 0.5+ |
| 2002 09 14 | 644 | 0.1− | 0.5+ | 2002 10 04 | 704 | 0.2− | 0.8+ | 2009 01 17 | 691 | 0.2+ | 0.1− |
| 2002 09 14 | 644 | 0.3− | 0.5+ | 2002 10 04 | 704 | 0.1− | 0.8+ | 2009 01 17 | 691 | 0.5− | 0.2+ |
| 2002 09 14 | 644 | 0.1− | 0.4+ | 2002 10 04 | 704 | 0.3+ | 1.0+ | 2009 02 02 | 691 | 0.2+ | 0.4+ |
| 2002 09 15 | 608 | 0.7− | 0.2+ | 2002 10 04 | 704 | (0.5+ | 1.7+) | 2009 02 02 | 691 | 0.2− | 0.5− |
| 2002 09 15 | 608 | 1.1− | 0.5+ | 2002 10 10 | 645 | 0.1+ | 0.2− | 2009 02 02 | 691 | 0.1+ | 0.0 |
| 2002 09 15 | 608 | 0.7− | 0.5+ | 2002 10 10 | 645 | 0.0 | 0.1− | 2009 03 16 | G96 | 0.5+ | 0.3+ |
| 2002 09 19 | 644 | 0.3− | 0.3+ | 2002 10 12 | 704 | 0.7+ | 0.3+ | 2009 03 16 | G96 | 0.6+ | 0.1− |
| 2002 09 19 | 644 | 0.3− | 0.5+ | 2002 10 12 | 704 | 0.3+ | 0.7+ | 2009 03 16 | G96 | 0.0 | 0.3− |
| 2002 09 19 | 644 | 0.2− | 0.4+ | 2002 10 12 | 704 | 0.7+ | 0.8+ | 2009 03 16 | G96 | 0.4− | 0.3+ |

**2002 RR$_{84}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 257.16656 | | (2000.0) | | | |
| $n$ | 0.23350222 | $\omega$ | 190.01250 | | +0.98895161 | −0.14819646 |
| $a$ | 2.6118127 | $\Omega$ | 178.49624 | | +0.14362155 | +0.95196311 |
| $e$ | 0.3634528 | $i$ | 7.75123 | | +0.03670923 | +0.26796276 |
| $P$ | 4.22 | $H$ | 16.9 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 19 | 608 | 0.3+ | 0.4+ | 2002 09 26 | 644 | 0.1− | 0.2− | 2002 10 30 | 704 | 0.7+ | 0.9+ |
| 2002 08 19 | 608 | 0.1+ | 0.1+ | 2002 09 30 | 704 | 0.0 | 0.2+ | 2002 10 30 | 704 | 0.6− | 0.2− |
| 2002 09 05 | 704 | 0.4+ | 0.5+ | 2002 09 30 | 704 | 0.2+ | 0.2+ | 2002 10 30 | 704 | 0.1+ | 0.8+ |
| 2002 09 05 | 704 | 0.2+ | 0.1− | 2002 09 30 | 704 | 0.2+ | 0.0 | 2002 10 30 | 704 | 0.0 | 0.6− |
| 2002 09 05 | 704 | 0.1+ | 0.0 | 2002 09 30 | 704 | 0.0 | 0.2+ | 2002 11 07 | 704 | 0.0 | 0.1− |
| 2002 09 05 | 704 | 0.2+ | 0.0 | 2002 09 30 | 704 | 0.1+ | 0.1− | 2002 11 07 | 704 | 0.2+ | 0.4+ |
| 2002 09 05 | 704 | 0.9+ | 0.1− | 2002 09 30 | 608 | 0.4− | 0.3− | 2002 11 07 | 704 | 0.0 | 0.0 |
| 2002 09 07 | 704 | 0.2+ | 0.3− | 2002 09 30 | 608 | 0.3− | 0.2− | 2002 11 11 | 704 | 0.7+ | 0.6+ |
| 2002 09 07 | 704 | 0.1− | 0.2− | 2002 09 30 | 608 | 0.4− | 0.3− | 2002 11 11 | 704 | 0.0 | 0.1− |
| 2002 09 07 | 704 | 0.1+ | 0.0 | 2002 10 01 | 699 | 0.0 | 0.2− | 2002 11 11 | 704 | 0.6+ | 0.1+ |
| 2002 09 07 | 704 | 0.0 | 0.6− | 2002 10 01 | 699 | 0.4− | 0.1+ | 2002 11 20 | 644 | 0.2+ | 0.7+ |
| 2002 09 14 | 644 | 0.2− | 0.1− | 2002 10 01 | 699 | 0.1− | 0.3− | 2002 11 20 | 644 | 0.5− | 0.0 |
| 2002 09 14 | 644 | 0.1− | 0.2− | 2002 10 01 | 699 | 0.4+ | 0.4− | 2002 11 20 | 644 | 0.6− | 0.2− |
| 2002 09 14 | 644 | 0.1− | 0.2− | 2002 10 02 | 704 | 0.3− | 0.0 | 2002 12 01 | 608 | 0.9− | 0.9− |
| 2002 09 15 | 291 | 0.6− | 0.1− | 2002 10 02 | 704 | 0.9+ | 1.3+ | 2002 12 01 | 608 | 0.5− | 0.9− |
| 2002 09 15 | 291 | 0.5− | 0.3− | 2002 10 02 | 704 | 0.2− | 0.2− | 2008 01 12 | G96 | 0.2− | 0.2+ |
| 2002 09 15 | 291 | 0.5− | 0.3− | 2002 10 02 | 704 | 0.1+ | 0.0 | 2008 01 12 | G96 | 0.4− | 0.1− |
| 2002 09 16 | 683 | 0.3+ | 0.3− | 2002 10 02 | 704 | 0.3− | 0.4+ | 2008 01 12 | G96 | 0.2+ | 0.5+ |
| 2002 09 16 | 683 | 0.0 | 0.4− | 2002 10 03 | 704 | 0.1+ | 0.4+ | 2008 01 12 | G96 | 0.4− | 0.3− |
| 2002 09 16 | 683 | 0.0 | 0.0 | 2002 10 03 | 704 | 0.1− | 0.3+ | 2008 02 09 | G96 | 0.2− | 0.1+ |
| 2002 09 16 | 291 | 0.0 | 0.2+ | 2002 10 03 | 704 | 0.2+ | 0.4+ | 2008 02 09 | G96 | 0.0 | 0.1− |
| 2002 09 16 | 291 | 0.0 | 0.0 | 2002 10 03 | 704 | 0.1− | 0.7+ | 2008 02 09 | G96 | 0.1+ | 0.1+ |
| 2002 09 16 | 291 | 0.0 | 0.0 | 2002 10 03 | 704 | 0.2− | 0.7+ | 2008 02 09 | G96 | 0.3− | 0.3+ |
| 2002 09 17 | 608 | 1.4+ | 1.1+ | 2002 10 11 | 704 | 0.8+ | 0.1− | 2008 02 09 | G96 | 0.0 | 0.2+ |
| 2002 09 17 | 608 | 0.4− | 0.5+ | 2002 10 11 | 704 | 0.7+ | 0.0 | 2008 02 09 | G96 | 0.1− | 0.3+ |
| 2002 09 17 | 608 | 0.3− | 0.2+ | 2002 10 11 | 704 | 0.7+ | 0.4− | 2008 02 09 | G96 | 0.2+ | 0.0 |
| 2002 09 26 | 644 | 0.2− | 0.5− | 2002 10 11 | 704 | 0.9+ | 0.4− | 2008 02 09 | G96 | 1.0+ | 1.4− |
| 2002 09 26 | 644 | 0.1− | 0.4− | 2002 10 11 | 704 | 1.1+ | 0.3− | | | | |

**2002 RG$_{86}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 182.86337 | | (2000.0) | | | |
| $n$ | 0.21012886 | $\omega$ | 215.67573 | | +0.84527239 | −0.53425560 |
| $a$ | 2.8020695 | $\Omega$ | 176.57803 | | +0.51912801 | +0.81699192 |
| $e$ | 0.2976534 | $i$ | 8.91414 | | +0.12657292 | +0.21701418 |
| $P$ | 4.69 | $H$ | 16.8 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 09 05 | 704 | 0.0 | 0.5+ | 2002 09 26 | 644 | 0.1− | 0.1+ | 2002 10 06 | 644 | 0.0 | 0.2+ |
| 2002 09 05 | 704 | 0.0 | 0.6− | 2002 09 30 | 704 | 0.4+ | 0.3+ | 2002 10 06 | 644 | 0.1− | 0.1+ |
| 2002 09 05 | 704 | 0.1− | 0.1+ | 2002 09 30 | 704 | 0.0 | 0.1− | 2002 10 06 | 644 | 0.2− | 0.0 |
| 2002 09 05 | 704 | 0.7+ | 0.3+ | 2002 09 30 | 704 | 0.3+ | 0.0 | 2002 10 11 | 704 | 0.9− | 0.1− |
| 2002 09 05 | 704 | 0.6− | 0.5+ | 2002 09 30 | 704 | 0.3+ | 0.1+ | 2002 10 11 | 704 | 1.2− | 0.5− |
| 2002 09 07 | 704 | (1.6− | 0.4−) | 2002 09 30 | 704 | 0.4− | 0.2− | 2002 10 11 | 704 | 0.0 | 0.6− |
| 2002 09 07 | 704 | 0.7+ | 0.2− | 2002 09 30 | 608 | 0.3+ | 0.4− | 2002 10 11 | 704 | 0.4− | 0.7− |
| 2002 09 07 | 704 | 1.0− | 0.0 | 2002 09 30 | 608 | 0.4+ | 0.5− | 2002 10 11 | 704 | 0.6− | 0.3− |
| 2002 09 07 | 704 | 0.3− | 0.1− | 2002 09 30 | 608 | 0.3− | 0.1− | 2002 11 06 | 644 | 0.4− | 0.6+ |
| 2002 09 12 | 683 | 0.4− | 0.4+ | 2002 10 02 | 704 | 0.6− | 0.3+ | 2002 11 06 | 644 | 0.0 | 0.6+ |
| 2002 09 12 | 683 | 0.0 | 0.2+ | 2002 10 02 | 704 | 0.0 | 0.5+ | 2002 11 06 | 644 | 0.3+ | 0.4+ |
| 2002 09 12 | 683 | 0.3− | 1.0− | 2002 10 02 | 704 | 0.2− | 0.0 | 2007 11 08 | 703 | 1.3+ | 0.1+ |
| 2002 09 14 | 683 | (0.2− | 2.1+) | 2002 10 02 | 704 | 0.2− | 0.2− | 2007 11 08 | 703 | 0.2− | 0.0 |
| 2002 09 14 | 683 | 0.1+ | 0.6+ | 2002 10 03 | 704 | 0.3+ | 0.8+ | 2007 11 08 | 703 | 0.5− | 0.2+ |
| 2002 09 14 | 683 | 0.6+ | 0.8+ | 2002 10 03 | 704 | 0.2+ | 0.4− | 2007 11 08 | 703 | 0.4− | 0.9+ |
| 2002 09 14 | 608 | 0.0 | 1.3− | 2002 10 03 | 704 | 0.4+ | 0.6+ | 2007 12 05 | 703 | 0.5+ | 0.7− |
| 2002 09 14 | 608 | (0.3+ | 1.8−) | 2002 10 03 | 704 | 0.1+ | 1.3+ | 2007 12 05 | 703 | 0.3− | 0.2− |
| 2002 09 14 | 608 | (0.0 | 1.8−) | 2002 10 03 | 704 | 0.2− | 0.6+ | 2007 12 05 | 703 | 0.3− | 0.4− |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 09 26 | 644 | 0.2− | 0.0 | 2002 10 05 | 645 | 0.2+ | 0.1− | 2007 12 05 | 703 | 0.2− | 0.1+ |
| 2002 09 26 | 644 | 0.2− | 0.1+ | 2002 10 05 | 645 | 0.0 | 0.0 | | | | |

**2002 RP$_{132}$ = 2008 UN$_{365}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 85.99328 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17297009 | $\omega$ | 122.93898 | | +0.89390064 | −0.41701340 | |
| $a$ | 3.1902304 | $\Omega$ | 262.17916 | | +0.33549972 | +0.86567939 | |
| $e$ | 0.2713250 | $i$ | 9.55457 | | +0.29729040 | +0.27694588 | |
| $P$ | 5.70 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 09 11 | 644 | 0.0 | 0.2− | 2002 10 03 | 644 | 0.4− | 0.1+ | 2008 10 31 | 703 | 0.9+ | 0.2+ |
| 2002 09 11 | 644 | 0.1+ | 0.0 | 2002 10 03 | 644 | 0.2− | 0.6+ | 2008 11 03 | G96 | 0.1− | 0.5− |
| 2002 09 11 | 644 | 0.0 | 0.1+ | 2002 10 06 | 704 | 0.3− | 0.3+ | 2008 11 03 | G96 | 0.1+ | 0.2− |
| 2002 09 12 | 644 | 0.3+ | 0.9− | 2002 10 06 | 704 | 0.0 | 0.7+ | 2008 11 03 | G96 | 0.3+ | 1.1+ |
| 2002 09 12 | 644 | 0.2+ | 1.0− | 2002 10 06 | 704 | 0.1+ | 0.9+ | 2008 11 03 | G96 | 0.1+ | 0.3− |
| 2002 09 12 | 644 | 0.2+ | 0.7− | 2002 10 06 | 704 | 0.6− | 0.6+ | 2008 11 18 | 703 | 0.2− | 0.8− |
| 2002 09 14 | 699 | 0.2+ | 0.1− | 2004 01 28 | 645 | 0.0 | 0.0 | 2008 11 18 | 703 | 0.1− | 0.7+ |
| 2002 09 14 | 699 | 0.5+ | 0.5+ | 2004 01 28 | 645 | 0.0 | 0.0 | 2008 11 18 | 703 | 0.5+ | 0.0 |
| 2002 09 14 | 699 | 0.2+ | 0.5− | 2008 10 31 | 703 | 2.3− | 0.3− | 2008 11 18 | 703 | 0.5+ | 0.5− |
| 2002 09 14 | 699 | (1.9+ | 0.1+) | 2008 10 31 | 703 | 0.2+ | 0.0 | | | | |
| 2002 10 03 | 644 | 0.4− | 0.2− | 2008 10 31 | 703 | 0.3+ | 0.0 | | | | |

**2002 RP$_{148}$ = 2009 WD$_{156}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 62.92246 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.29401898 | $\omega$ | 168.28400 | | +0.99875017 | +0.04978089 | |
| $a$ | 2.2398511 | $\Omega$ | 188.86623 | | −0.04787902 | +0.92726518 | |
| $e$ | 0.1854310 | $i$ | 1.66116 | | −0.01434222 | +0.37108107 | |
| $P$ | 3.35 | $H$ | 18.7 | $G$ | 0.15 | $U$ | 5 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 09 11 | 644 | 0.1− | 0.1− | 2009 11 20 | 691 | 0.4− | 0.4− | 2009 12 13 | 300 | 0.2− | 0.4+ |
| 2002 09 11 | 644 | 0.5− | 0.1+ | 2009 11 20 | 691 | 0.1+ | 0.1+ | 2009 12 13 | 300 | 0.9+ | 0.7+ |
| 2002 09 11 | 644 | 0.6− | 0.1− | 2009 11 20 | 691 | 0.1− | 0.2+ | 2009 12 13 | 300 | 0.4− | 1.1+ |
| 2002 09 13 | 644 | 0.9+ | 0.6+ | 2009 11 26 | 691 | 0.0 | 0.0 | 2009 12 17 | G96 | 0.1+ | 0.2− |
| 2002 09 13 | 644 | 0.3+ | 0.3+ | 2009 11 26 | 691 | 0.1− | 0.2− | 2009 12 17 | G96 | 0.2+ | 0.1− |
| 2002 09 13 | 644 | 0.2+ | 0.5+ | 2009 11 26 | 691 | 0.6+ | 0.0 | 2009 12 17 | G96 | 0.5− | 0.3− |
| 2002 09 14 | 644 | 0.2− | 0.4− | 2009 12 12 | 300 | (3.2− | 0.1−) | 2009 12 17 | G96 | 0.6− | 0.1− |
| 2002 09 14 | 644 | 0.1+ | 0.5− | 2009 12 12 | 300 | (3.9− | 0.2+) | | | | |
| 2002 09 14 | 644 | 0.2− | 0.4− | 2009 12 12 | 300 | (1.9− | 1.4−) | | | | |

**2002 RC$_{151}$ = 2002 TF$_{317}$ = 2002 TL$_{372}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 98.89222 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17557806 | $\omega$ | 73.82647 | | +0.98807561 | +0.07531583 | |
| $a$ | 3.1585606 | $\Omega$ | 281.70607 | | −0.12554824 | +0.89900909 | |
| $e$ | 0.0682913 | $i$ | 7.88259 | | +0.08913035 | +0.43140490 | |
| $P$ | 5.61 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 28 | 644 | 0.4+ | 0.7+ | 2002 10 11 | 645 | 0.0 | 0.1− | 2008 10 07 | 703 | 0.1− | 0.2− |
| 2002 08 28 | 644 | 0.5+ | 0.8+ | 2002 10 11 | 645 | 0.0 | 0.2− | 2008 10 07 | 703 | 0.3− | 0.8− |
| 2002 08 28 | 644 | 0.4+ | 0.9+ | 2002 11 08 | 645 | 0.0 | 0.1− | 2008 10 24 | 703 | 0.5+ | 0.1+ |
| 2002 09 12 | 644 | 0.7− | 0.3+ | 2002 11 08 | 645 | 0.1− | 0.1− | 2008 10 24 | 703 | 0.7+ | 0.3+ |
| 2002 09 12 | 644 | 0.3− | 0.7+ | 2003 12 29 | 691 | 0.1+ | 0.1− | 2008 10 24 | 703 | 0.5− | 0.4− |
| 2002 09 12 | 644 | 0.6− | 0.6+ | 2003 12 29 | 691 | 0.1+ | 0.1+ | 2008 10 24 | 703 | 0.3− | 0.0 |
| 2002 09 13 | 644 | 0.4− | 0.7+ | 2003 12 29 | 691 | 0.1− | 0.1+ | 2009 12 20 | 691 | 0.1+ | 0.2+ |
| 2002 09 13 | 644 | 0.3− | 1.1+ | 2008 09 22 | 703 | 0.3− | 0.9+ | 2009 12 20 | 691 | 0.5− | 0.5+ |
| 2002 09 13 | 644 | 0.2− | 0.8+ | 2008 09 22 | 703 | 0.3− | 0.8+ | 2009 12 20 | 691 | 0.1− | 0.2− |
| 2002 10 05 | 645 | 0.0 | 0.0 | 2008 09 22 | 703 | (1.7+ | 0.2−) | 2009 12 25 | 691 | 0.2+ | 0.1+ |
| 2002 10 05 | 645 | 0.1+ | 0.1− | 2008 09 22 | 703 | 1.1+ | 1.4+ | 2009 12 25 | 691 | 0.0 | 0.6− |
| 2002 10 10 | 645 | 0.1+ | 0.0 | 2008 10 07 | 703 | 0.9− | 0.7+ | 2009 12 25 | 691 | 0.1+ | 0.1− |
| 2002 10 10 | 645 | 0.0 | 0.0 | 2008 10 07 | 703 | 0.6− | 0.5+ | | | | |

**2002 RT$_{186}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 216.39714 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21261237 | $\omega$ | 52.45445 | | +0.96720267 | +0.22023876 | |
| $a$ | 2.7802063 | $\Omega$ | 294.50578 | | −0.25380312 | +0.85785808 | |
| $e$ | 0.1752666 | $i$ | 7.99426 | | +0.01014764 | +0.46429991 | |
| $P$ | 4.64 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 09 03 | 644 | 0.1− | 0.1+ | 2002 10 05 | 704 | 0.4+ | 0.7− | 2007 12 04 | G96 | 0.1− | 0.0 |
| 2002 09 03 | 644 | 0.2− | 0.3+ | 2002 10 05 | 704 | 1.2+ | 0.4− | 2007 12 04 | G96 | 0.3− | 0.0 |
| 2002 09 03 | 644 | 0.4− | 0.3+ | 2002 10 05 | 704 | 0.2− | 0.9− | 2007 12 04 | G96 | 0.2+ | 0.2− |
| 2002 09 12 | 644 | 0.4− | 0.1− | 2002 10 07 | 699 | 0.5− | 0.1+ | 2007 12 04 | G96 | 0.1− | 0.0 |
| 2002 09 12 | 644 | 0.3− | 0.4+ | 2002 10 07 | 699 | 0.1+ | 1.1+ | 2009 01 20 | G96 | 0.5+ | 0.1− |
| 2002 09 12 | 644 | 0.5− | 0.4+ | 2002 10 07 | 699 | 0.6− | 0.1− | 2009 01 20 | G96 | 0.2− | 0.4+ |
| 2002 09 14 | 699 | 0.2+ | 0.2+ | 2002 10 07 | 699 | 0.6− | 1.9− | 2009 01 20 | G96 | 0.1+ | 0.6+ |
| 2002 09 14 | 699 | 0.0 | 1.3+ | 2002 10 09 | 704 | 0.2− | 0.2− | 2009 01 20 | G96 | 0.4+ | 0.1− |
| 2002 09 14 | 699 | 1.3+ | 0.1− | 2002 10 09 | 704 | 0.2− | 0.3+ | 2009 02 03 | G96 | 0.2− | 0.5+ |
| 2002 09 14 | 699 | 1.1+ | 0.4+ | 2002 10 09 | 704 | 0.2− | 0.2− | 2009 02 03 | G96 | 0.3+ | 0.3− |
| 2002 10 04 | 644 | 0.5− | 0.4+ | 2002 10 09 | 704 | 0.8+ | 0.5+ | 2009 02 03 | G96 | 0.3− | 0.1+ |
| 2002 10 04 | 644 | 0.4− | 0.5+ | 2007 11 15 | G96 | 0.1− | 0.2− | 2009 02 03 | G96 | 0.2+ | 0.1+ |
| 2002 10 04 | 644 | 0.3− | 0.1+ | 2007 11 15 | G96 | 0.3+ | 0.1− | | | | |
| 2002 10 05 | 704 | 0.2− | 0.6− | 2007 11 15 | G96 | 0.2+ | 0.2− | | | | |

**2002 RD$_{219}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 52.97814 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.29251123 | $\omega$ | 357.08727 | | +0.99836316 | +0.05719194 | |
| $a$ | 2.2475414 | $\Omega$ | 359.63374 | | −0.05156517 | +0.89803929 | |
| $e$ | 0.2568521 | $i$ | 2.46591 | | −0.02473918 | +0.43618174 | |
| $P$ | 3.37 | $H$ | 18.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 11 | 608 | 0.5− | 0.1− | 2002 09 15 | 644 | 0.3− | 0.4+ | 2009 11 25 | 703 | (1.0− | 2.0+) |
| 2002 08 11 | 608 | 0.1+ | 0.1− | 2002 09 16 | 644 | 0.4+ | 0.4− | 2009 11 25 | 703 | (1.1+ | 1.8+) |
| 2002 08 11 | 608 | 0.2+ | 0.1+ | 2002 09 16 | 644 | 0.1+ | 0.2− | 2009 11 25 | 703 | (1.7+ | 1.2+) |
| 2002 08 18 | 644 | 0.3+ | 0.1− | 2002 09 16 | 644 | 0.0 | 0.1− | 2009 11 25 | 703 | 0.9+ | 0.4− |
| 2002 08 18 | 644 | 0.0 | 0.5− | 2009 10 22 | G96 | 0.3− | 0.1− | 2009 12 18 | G96 | 0.7+ | 0.2− |
| 2002 08 18 | 644 | 0.0 | 0.1+ | 2009 10 22 | G96 | 0.4+ | 0.2+ | 2009 12 18 | G96 | 0.0 | 0.1− |
| 2002 08 18 | 644 | 1.3+ | 0.2+ | 2009 10 22 | G96 | 0.1+ | 0.0 | 2009 12 18 | G96 | 0.4+ | 0.2− |
| 2002 08 18 | 644 | 0.1− | 0.1+ | 2009 10 22 | G96 | 0.8+ | 0.2− | 2009 12 18 | G96 | 0.2+ | 0.5− |
| 2002 08 18 | 644 | 0.4− | 0.0 | 2009 11 17 | 691 | 0.0 | 0.1+ | 2009 12 18 | G96 | 0.2+ | 0.0 |
| 2002 09 04 | 644 | 0.3− | 0.2− | 2009 11 17 | 691 | 0.2− | 0.2+ | 2009 12 18 | G96 | 0.0 | 0.3− |
| 2002 09 04 | 644 | 0.2− | 0.1− | 2009 11 17 | 691 | 0.4− | 0.1− | 2009 12 18 | G96 | 0.1− | 0.4− |
| 2002 09 04 | 644 | 0.0 | 0.0 | 2009 11 25 | 691 | 0.0 | 0.1+ | 2009 12 18 | G96 | 0.2+ | 0.2− |
| 2002 09 15 | 644 | 0.2− | 0.4+ | 2009 11 25 | 691 | 0.0 | 0.2+ | | | | |
| 2002 09 15 | 644 | 0.4− | 0.2+ | 2009 11 25 | 691 | 0.1− | 0.0 | | | | |

**2002 RF$_{236}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 68.41110 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.29926994 | $\omega$ | 316.66593 | | +0.99426592 | −0.07678179 | |
| $a$ | 2.2135737 | $\Omega$ | 47.89414 | | +0.10245913 | +0.88329413 | |
| $e$ | 0.1753504 | $i$ | 5.75775 | | −0.03061701 | +0.46248897 | |
| $P$ | 3.29 | $H$ | 17.4 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 09 05 | 608 | 0.5− | 0.1− | 2002 09 10 | 608 | 0.4+ | 0.2− | 2009 11 18 | 691 | 0.0 | 0.7+ |
| 2002 09 05 | 608 | 1.0+ | 0.1− | 2002 09 16 | 644 | 0.3− | 0.1+ | 2009 11 18 | 691 | 0.7− | 0.7− |
| 2002 09 05 | 608 | 0.1+ | 0.8+ | 2002 09 16 | 644 | 0.1− | 0.2− | 2009 11 18 | 691 | 0.1− | 0.2− |
| 2002 09 09 | 644 | 0.1+ | 0.7− | 2002 09 16 | 644 | 0.4− | 0.1− | 2009 11 22 | 691 | 0.3+ | 0.1+ |
| 2002 09 09 | 644 | 0.2+ | 0.8− | 2002 10 05 | 704 | 0.7− | 0.4+ | 2009 11 22 | 691 | 0.2+ | 0.1− |
| 2002 09 10 | 608 | 0.6+ | 0.3− | 2002 10 05 | 704 | 0.1− | 0.7+ | 2009 11 22 | 691 | 0.3+ | 0.0 |
| 2002 09 10 | 608 | 0.5+ | 0.3− | 2002 10 05 | 704 | 0.9− | 1.0+ | | | | |

**2002 RD$_{243}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 29.58522 | | (2000.0) | | | |
| $n$ | 0.28629088 | $\omega$ | 48.60112 | | +0.99687950 | +0.01055142 |
| $a$ | 2.2799800 | $\Omega$ | 310.64111 | | −0.04528468 | +0.88817670 |
| $e$ | 0.1441814 | $i$ | 5.91750 | | +0.06465723 | +0.45938091 |
| $P$ | 3.44 | $H$ | 16.7 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 07 30 | 608 | 0.4+ | 0.2− | 2002 09 06 | 704 | 1.3+ | 0.2+ | 2009 09 10 | J75 | 1.1+ | 0.4− |
| 2002 07 30 | 608 | 0.1− | 0.1− | 2002 09 06 | 704 | 0.7+ | 0.1+ | 2009 09 10 | J75 | 0.1+ | 0.1− |
| 2002 08 09 | 608 | 0.2− | 0.1+ | 2002 09 06 | 704 | 0.3+ | 0.9+ | 2009 09 10 | J75 | 0.3− | 0.1+ |
| 2002 08 09 | 608 | 0.3+ | 0.1+ | 2002 09 13 | 644 | 0.0 | 0.4− | 2009 09 28 | 691 | 0.3− | 0.2+ |
| 2002 08 09 | 608 | 0.1− | 0.1− | 2002 09 13 | 644 | 0.5− | 0.5− | 2009 09 28 | 691 | 0.2− | 0.2+ |
| 2002 08 17 | 644 | 0.0 | 0.4− | 2002 09 13 | 644 | 0.1− | 0.1+ | 2009 09 28 | 691 | 0.1− | 0.0 |
| 2002 08 17 | 644 | 0.0 | 0.3− | 2002 09 14 | 644 | 0.2− | 0.3+ | 2009 10 14 | 703 | 0.7+ | 0.3− |
| 2002 08 17 | 644 | 0.2+ | 0.4− | 2002 09 14 | 644 | 0.6− | 0.2+ | 2009 10 14 | 703 | 0.2− | 0.6− |
| 2002 08 28 | 644 | 0.3− | 0.2− | 2002 09 14 | 644 | 0.4− | 0.2+ | 2009 10 14 | 703 | 1.0+ | 0.4+ |
| 2002 08 28 | 644 | 0.5− | 0.2− | 2002 09 22 | 644 | 0.4− | 0.1− | 2009 10 14 | 703 | 0.1+ | 1.3− |
| 2002 08 28 | 644 | 0.2− | 0.3− | 2002 09 22 | 644 | 0.3− | 0.1+ | | | | |
| 2002 09 06 | 704 | 1.0+ | 1.4+ | 2002 09 28 | 608 | 0.5− | 0.3− | | | | |

**2002 RX$_{247}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 147.76011 | | (2000.0) | | | |
| $n$ | 0.18701808 | $\omega$ | 29.75727 | | +0.58865003 | +0.77318006 |
| $a$ | 3.0284029 | $\Omega$ | 277.31234 | | −0.78069623 | +0.46797777 |
| $e$ | 0.0870197 | $i$ | 13.76315 | | −0.20977258 | +0.42800630 |
| $P$ | 5.27 | $H$ | 15.6 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 06 24 | 644 | 0.0 | 0.1+ | 2002 08 15 | 644 | 0.1+ | 0.4− | 2008 11 02 | 703 | 0.6− | 0.9− |
| 2002 06 24 | 644 | 0.0 | 0.1+ | 2002 08 15 | 644 | 0.3− | 0.4− | 2008 12 05 | G96 | 0.4+ | 0.2− |
| 2002 06 24 | 644 | 0.4+ | 0.4+ | 2002 08 15 | 644 | 0.1+ | 0.1+ | 2008 12 05 | G96 | 0.7+ | 0.2+ |
| 2002 07 03 | 644 | 0.3− | 0.1+ | 2002 08 15 | 644 | 0.7− | 0.6− | 2008 12 05 | G96 | 0.1− | 0.2+ |
| 2002 07 03 | 644 | 0.2− | 0.2+ | 2002 08 23 | 644 | 0.1+ | 0.1− | 2008 12 05 | G96 | 0.8+ | 0.0 |
| 2002 07 03 | 644 | 0.3− | 0.1− | 2002 08 23 | 644 | 0.1− | 0.3− | 2009 12 16 | 691 | 0.1− | 0.0 |
| 2002 07 12 | 644 | 0.4+ | 0.1+ | 2002 09 03 | 644 | 0.1+ | 0.1− | 2009 12 16 | 691 | 0.2− | 0.1+ |
| 2002 07 12 | 644 | 0.3+ | 0.2− | 2002 09 03 | 644 | 0.0 | 0.2+ | 2009 12 16 | 691 | 0.2− | 0.5+ |
| 2002 07 12 | 644 | 0.1+ | 0.0 | 2002 09 03 | 644 | 0.1+ | 0.0 | 2009 12 20 | 691 | 0.5+ | 0.1+ |
| 2002 07 21 | 644 | 0.2− | 0.2+ | 2008 06 02 | G96 | 0.5+ | 0.1+ | 2009 12 20 | 691 | 0.4+ | 0.1− |
| 2002 07 21 | 644 | 0.2+ | 0.2+ | 2008 06 02 | G96 | 0.3− | 0.0 | 2009 12 20 | 691 | 0.1+ | 0.1+ |
| 2002 07 21 | 644 | 0.1− | 0.2+ | 2008 06 02 | G96 | 0.1+ | 0.0 | 2009 12 20 | 691 | 0.1− | 0.1− |
| 2002 08 05 | 644 | (0.2+ | 2.1+) | 2008 06 02 | G96 | 0.1− | 0.4− | 2009 12 20 | 691 | 0.2− | 0.3− |
| 2002 08 05 | 644 | (0.2+ | 2.4+) | 2008 11 02 | 703 | 0.1− | 1.5+ | 2009 12 20 | 691 | 0.2− | 0.2− |
| 2002 08 05 | 644 | (0.0 | 2.3+) | 2008 11 02 | 703 | 0.1+ | 0.5− | | | | |
| 2002 08 15 | 644 | 0.4+ | 0.2+ | 2008 11 02 | 703 | 1.0− | 0.2+ | | | | |

**2002 RP$_{252}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 93.31603 | | (2000.0) | | | |
| $n$ | 0.16917735 | $\omega$ | 33.09399 | | +0.99077209 | −0.03101983 |
| $a$ | 3.2377345 | $\Omega$ | 327.88496 | | −0.05150435 | +0.81427137 |
| $e$ | 0.1442513 | $i$ | 14.37021 | | +0.12537131 | +0.57965499 |
| $P$ | 5.83 | $H$ | 15.8 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 09 03 | 644 | 0.3− | 0.2− | 2002 10 04 | 644 | 0.3+ | 0.2− | 2008 09 30 | 703 | 1.2+ | 0.7+ |
| 2002 09 03 | 644 | 0.4− | 0.1− | 2002 10 05 | 704 | 0.3+ | 1.1+ | 2008 09 30 | 703 | 0.7+ | 0.6+ |
| 2002 09 03 | 644 | 0.6− | 0.3− | 2002 10 05 | 704 | 0.0 | 0.3+ | 2008 09 30 | 703 | 0.0 | 0.5− |
| 2002 09 12 | 644 | 0.7+ | 0.6+ | 2002 10 05 | 704 | 1.2− | 0.3− | 2008 09 30 | 703 | 0.0 | 0.6− |
| 2002 09 12 | 644 | 0.6− | 0.1+ | 2002 10 05 | 704 | 0.1+ | 0.1+ | 2008 11 07 | G96 | 0.3− | 0.1− |
| 2002 09 12 | 644 | 0.2+ | 0.1− | 2002 10 31 | 644 | 0.2+ | 0.1− | 2008 11 07 | G96 | 0.9− | 0.1− |
| 2002 10 04 | 644 | 0.2+ | 0.2− | 2002 10 31 | 644 | 0.1+ | 0.4− | 2008 11 07 | G96 | 0.6− | 0.0 |
| 2002 10 04 | 644 | 0.1− | 0.2− | 2002 10 31 | 644 | 1.2+ | 0.1− | 2008 11 07 | G96 | 0.2− | 0.0 |

**2002 SY$_{32}$ = 2009 WK$_{216}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 94.25894 | | (2000.0) | | | |
| $n$ | 0.29107751 | $\omega$ | 330.56450 | | +0.72107991 | +0.69228646 |
| $a$ | 2.2549156 | $\Omega$ | 345.51542 | | −0.61180114 | +0.61724966 |
| $e$ | 0.1609278 | $i$ | 6.42430 | | −0.32518168 | +0.37382124 |
| $P$ | 3.39 | $H$ | 16.8 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 09 28 | 608 | 0.9− | 0.4+ | 2002 10 05 | 704 | 0.0 | 0.1+ | 2004 02 13 | 691 | 0.4+ | 0.2+ |
| 2002 09 28 | 608 | 0.9− | 0.2+ | 2002 10 05 | 704 | 0.0 | 0.1− | 2004 02 13 | 691 | 0.1− | 0.2+ |
| 2002 09 28 | 608 | 0.8− | 1.1+ | 2002 10 05 | 704 | 0.0 | 0.3− | 2009 10 27 | G96 | 0.2+ | 0.7− |
| 2002 10 01 | 699 | 0.3− | 0.0 | 2002 10 09 | 704 | 0.3+ | 0.3+ | 2009 10 27 | G96 | 0.1− | 0.7− |
| 2002 10 01 | 699 | 0.5+ | 0.2− | 2002 10 09 | 704 | 1.1+ | 0.1− | 2009 10 27 | G96 | 0.3+ | 0.4− |
| 2002 10 01 | 699 | 0.7− | 0.6+ | 2002 10 09 | 704 | 1.1+ | 0.2+ | 2009 10 27 | G96 | 0.1+ | 0.5− |
| 2002 10 01 | 699 | 0.6+ | 0.2+ | 2002 10 09 | 704 | 0.1+ | 0.2+ | 2009 11 20 | G96 | 0.4+ | 0.5− |
| 2002 10 04 | 704 | 0.2− | 0.2+ | 2002 10 09 | 704 | 0.1− | 0.0 | 2009 11 20 | G96 | 0.3+ | 0.5− |
| 2002 10 04 | 704 | 0.3− | 0.1− | 2002 10 12 | 704 | 1.1− | 0.5+ | 2009 11 20 | G96 | 0.2+ | 0.6− |
| 2002 10 04 | 704 | 0.1− | 0.0 | 2002 10 12 | 704 | (2.1− | 1.4+) | 2009 11 20 | G96 | 0.1+ | 0.5− |
| 2002 10 04 | 704 | 0.4+ | 0.1+ | 2002 10 12 | 704 | (2.2− | 1.2+) | 2009 11 26 | 703 | 0.6− | 1.0+ |
| 2002 10 04 | 704 | 0.5− | 0.1+ | 2002 10 12 | 704 | (0.9− | 2.0+) | 2009 11 26 | 703 | 0.0 | 0.5− |
| 2002 10 04 | 644 | 0.1+ | 0.0 | 2002 10 12 | 704 | (1.6− | 1.6+) | 2009 11 26 | 703 | 0.2+ | 0.8+ |
| 2002 10 04 | 644 | 0.0 | 0.1− | 2002 11 22 | 644 | 0.0 | 0.1− | 2009 11 26 | 703 | 0.3− | 0.3− |
| 2002 10 04 | 644 | 0.1+ | 0.1− | 2002 11 22 | 644 | 0.1+ | 0.2− | 2009 11 26 | 703 | (2.0− | 0.1+) |
| 2002 10 05 | 704 | 0.6− | 0.1+ | 2002 11 22 | 644 | 0.0 | 0.4+ | | | | |
| 2002 10 05 | 704 | 0.1+ | 0.1+ | 2004 02 13 | 691 | 0.0 | 0.4+ | | | | |

**2002 SM$_{34}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 267.14145 | | (2000.0) | | | |
| $n$ | 0.21997781 | $\omega$ | 157.37445 | | +0.50809480 | +0.85902892 |
| $a$ | 2.7177956 | $\Omega$ | 143.07910 | | −0.80530108 | +0.49955358 |
| $e$ | 0.1955412 | $i$ | 5.97415 | | −0.30549935 | +0.11187288 |
| $P$ | 4.48 | $H$ | 16.0 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 09 04 | 699 | 0.1− | 0.8− | 2002 10 03 | 704 | 0.9+ | 1.2− | 2007 11 18 | G96 | 0.3− | 0.1− |
| 2002 09 04 | 699 | (0.4+ | 1.6−) | 2002 10 03 | 704 | 1.0+ | 0.4− | 2008 12 22 | G96 | 0.0 | 0.0 |
| 2002 09 04 | 699 | 0.3− | 0.5− | 2002 10 03 | 704 | 0.2+ | 0.4+ | 2008 12 22 | G96 | 1.3+ | 0.6+ |
| 2002 09 04 | 699 | 0.5+ | 0.2− | 2002 10 06 | 608 | 0.1+ | 0.3+ | 2008 12 22 | G96 | 0.5+ | 0.1+ |
| 2002 09 13 | 608 | 0.8− | 0.7− | 2002 10 06 | 608 | 0.5− | 0.0 | 2008 12 22 | G96 | 0.3+ | 0.1+ |
| 2002 09 13 | 608 | 1.1− | 0.8− | 2002 10 06 | 608 | 0.2− | 0.8+ | 2008 12 22 | 691 | 0.2− | 0.4+ |
| 2002 09 13 | 608 | 0.7− | 0.2− | 2007 11 02 | G96 | 0.3+ | 0.1− | 2008 12 22 | 691 | 0.1− | 0.5− |
| 2002 09 19 | 644 | 0.4− | 0.1− | 2007 11 02 | G96 | 0.3− | 0.1− | 2008 12 22 | 691 | 0.2− | 0.3− |
| 2002 09 19 | 644 | 0.2− | 0.0 | 2007 11 02 | G96 | 0.3+ | 0.5+ | 2009 01 16 | G96 | 0.2+ | 0.6+ |
| 2002 09 19 | 644 | 0.1− | 0.3+ | 2007 11 02 | G96 | 0.0 | 0.0 | 2009 01 16 | G96 | 0.8+ | 0.3+ |
| 2002 09 29 | 608 | 0.1− | 0.3+ | 2007 11 18 | G96 | 0.1+ | 0.2− | 2009 01 16 | G96 | 0.2− | 0.3+ |
| 2002 09 29 | 608 | 0.3− | 0.4+ | 2007 11 18 | G96 | 0.4+ | 0.4− | 2009 01 16 | G96 | 0.4+ | 0.5+ |
| 2002 09 29 | 608 | 0.1− | 0.8+ | 2007 11 18 | G96 | 0.0 | 0.3− | 2009 02 21 | G96 | 0.4+ | 0.2+ |
| 2002 10 01 | 699 | 0.8+ | 0.5+ | 2007 11 18 | G96 | 0.2+ | 0.3− | 2009 02 21 | G96 | 0.2− | 0.2+ |
| 2002 10 01 | 699 | 0.6− | 0.9+ | 2007 11 18 | G96 | 0.3+ | 0.0 | 2009 02 21 | G96 | 0.3− | 0.3+ |
| 2002 10 01 | 699 | 0.5+ | 1.1+ | 2007 11 18 | G96 | 0.3− | 0.3− | 2009 02 21 | G96 | 0.8− | 0.3− |
| 2002 10 01 | 699 | 1.2+ | 0.3+ | 2007 11 18 | G96 | 0.3− | 0.1− | | | | |

**2002 SX$_{48}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 128.27215 | | (2000.0) | | | |
| $n$ | 0.17225816 | $\omega$ | 163.94204 | | +0.85759412 | +0.51297684 |
| $a$ | 3.1990142 | $\Omega$ | 165.02245 | | −0.48632260 | +0.83233864 |
| $e$ | 0.1977486 | $i$ | 8.28566 | | −0.16739966 | +0.20992176 |
| $P$ | 5.72 | $H$ | 15.2 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 09 30 | 704 | 0.3− | 0.5+ | 2002 10 03 | 704 | 0.1− | 0.2+ | 2002 10 15 | 644 | 0.5− | 0.5+ |
| 2002 09 30 | 704 | 1.3+ | 1.3− | 2002 10 03 | 704 | 0.3+ | 1.2− | 2002 10 15 | 644 | 0.5− | 0.3+ |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 09 30 | 704 | 0.3− | 0.1− | 2002 10 03 | 704 | 0.0 | 0.6+ | 2008 10 25 | 703 | 0.1+ | 0.7+ |
| 2002 09 30 | 704 | 0.0 | 1.1+ | 2002 10 08 | 699 | 0.9− | 0.7+ | 2008 10 25 | 703 | 0.8+ | 0.5+ |
| 2002 10 02 | 704 | 0.1+ | 0.7+ | 2002 10 08 | 699 | 0.3+ | 0.4− | 2008 10 25 | 703 | 0.8− | 0.2+ |
| 2002 10 02 | 704 | 0.2− | 1.1+ | 2002 10 08 | 699 | 0.7− | 0.2+ | 2008 10 25 | 703 | 1.1− | 1.4− |
| 2002 10 02 | 704 | 0.9+ | 0.2+ | 2002 10 08 | 699 | 0.5− | 0.1− | 2008 12 01 | G96 | 0.2+ | 0.0 |
| 2002 10 02 | 704 | 0.2+ | 0.6+ | 2002 10 10 | 645 | 0.0 | 0.1− | 2008 12 01 | G96 | 0.4+ | 0.0 |
| 2002 10 03 | 704 | 0.3− | 0.6− | 2002 10 10 | 645 | 0.0 | 0.1− | 2008 12 01 | G96 | 0.6+ | 0.2+ |
| 2002 10 03 | 704 | 0.1+ | 0.3+ | 2002 10 15 | 644 | 0.4− | 0.5+ | 2008 12 01 | G96 | 0.2− | 0.0 |

**2002 TR$_8$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 87.60891 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.29614911 | $\omega$ | 206.85007 | | +0.95399875 | +0.29876856 | |
| $a$ | 2.2290977 | $\Omega$ | 135.74233 | | −0.26824156 | +0.88778661 | |
| $e$ | 0.2459698 | $i$ | 2.05081 | | −0.13391356 | +0.35010324 | |
| $P$ | 3.33 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 09 07 | 704 | 0.8− | 0.3+ | 2002 10 30 | 644 | 0.3− | 0.3+ | 2006 12 27 | G96 | 0.4+ | 0.3− |
| 2002 09 07 | 704 | 0.7− | 0.7− | 2002 10 30 | 644 | 0.4− | 0.4+ | 2006 12 27 | G96 | 0.6− | 0.2+ |
| 2002 09 07 | 704 | 0.7− | 0.8+ | 2002 10 30 | 644 | 0.1− | 0.3+ | 2007 01 25 | 691 | 0.1− | 0.3+ |
| 2002 09 07 | 704 | 0.0 | 0.3+ | 2002 10 31 | 699 | (2.9+ | 1.3+) | 2007 01 25 | 691 | 0.3− | 0.0 |
| 2002 10 01 | 608 | 0.2+ | 0.2− | 2002 10 31 | 699 | 0.5+ | 0.9+ | 2007 01 25 | 691 | 0.3+ | 0.1+ |
| 2002 10 01 | 608 | 0.6− | 1.4− | 2002 10 31 | 699 | 0.9+ | 0.2− | 2008 04 15 | 691 | 0.1+ | 0.4+ |
| 2002 10 01 | 608 | 0.3− | 0.3− | 2002 10 31 | 699 | 0.4+ | 0.7+ | 2008 04 15 | 691 | 0.0 | 0.0 |
| 2002 10 02 | 704 | 0.3+ | 0.5+ | 2002 11 07 | 704 | 0.3− | 0.0 | 2008 04 15 | 691 | 0.1+ | 0.6+ |
| 2002 10 02 | 704 | 0.8− | 0.1+ | 2002 11 07 | 704 | 0.4− | 0.2+ | 2008 04 30 | G96 | 0.2+ | 0.4+ |
| 2002 10 02 | 704 | 0.2+ | 0.2− | 2002 11 07 | 704 | 0.2− | 0.5+ | 2008 04 30 | G96 | 0.1+ | 0.4+ |
| 2002 10 02 | 704 | 0.4+ | 0.0 | 2002 11 07 | 704 | 0.7− | 0.3− | 2008 04 30 | G96 | 0.0 | 0.3+ |
| 2002 10 02 | 704 | 0.6+ | 0.2− | 2002 11 12 | 704 | 1.2− | 0.0 | 2008 04 30 | G96 | 0.0 | 0.2+ |
| 2002 10 11 | 704 | 0.3+ | 0.1+ | 2002 11 12 | 704 | 0.2+ | 0.4− | 2008 04 30 | G96 | 0.0 | 0.3+ |
| 2002 10 11 | 704 | (1.8+ | 0.2−) | 2002 11 12 | 704 | 0.3− | 0.3+ | 2008 04 30 | G96 | 0.1+ | 0.4+ |
| 2002 10 11 | 704 | 0.8+ | 1.5+ | 2002 11 12 | 704 | 0.1− | 0.5+ | 2008 04 30 | G96 | 0.1+ | 0.1+ |
| 2002 10 11 | 704 | (2.0+ | 0.3+) | 2006 12 27 | G96 | 0.8+ | 0.1− | 2008 04 30 | G96 | 0.2+ | 0.2+ |
| 2002 10 11 | 704 | 0.4+ | 0.8+ | 2006 12 27 | G96 | 0.4+ | 0.2− | | | | |

**2002 TM$_9$ = 2009 WE$_{25}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 52.51020 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28809161 | $\omega$ | 312.16206 | | +0.99353310 | +0.08856953 | |
| $a$ | 2.2704693 | $\Omega$ | 42.90014 | | −0.04547791 | +0.88374726 | |
| $e$ | 0.1855500 | $i$ | 5.99072 | | −0.10403723 | +0.45950649 | |
| $P$ | 3.42 | $H$ | 18.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 09 09 | 599 | 0.0 | 0.0 | 2008 04 27 | G96 | 0.9+ | 0.7+ | 2009 11 08 | G96 | 0.3+ | 0.2− |
| 2002 09 09 | 599 | 0.1− | 0.0 | 2008 04 27 | G96 | 0.1+ | 0.2+ | 2009 11 21 | G98 | 0.2− | 1.1− |
| 2002 09 09 | 599 | 0.1+ | 0.1+ | 2008 04 27 | G96 | 0.2− | 0.1+ | 2009 11 21 | G98 | 0.2− | 0.2+ |
| 2002 10 01 | 699 | 0.2+ | 0.5+ | 2009 10 18 | G96 | 0.7+ | 0.7− | 2009 11 21 | G98 | 0.2+ | 0.1− |
| 2002 10 01 | 699 | 0.1+ | 0.4− | 2009 10 18 | G96 | 0.8+ | 0.5− | 2009 11 21 | G98 | 0.6− | 0.3− |
| 2002 10 01 | 699 | (1.8+ | 0.9−) | 2009 10 18 | G96 | 0.0 | 0.5− | 2009 11 22 | G98 | 0.0 | 0.5− |
| 2002 10 01 | 699 | 0.3− | 0.6+ | 2009 10 18 | G96 | 0.5+ | 0.4− | 2009 11 22 | G98 | 0.4+ | 0.1+ |
| 2002 10 01 | 608 | (1.6− | 0.9−) | 2009 10 23 | 691 | 0.8+ | 0.2− | 2009 11 22 | G98 | 0.3− | 0.6+ |
| 2002 10 01 | 608 | 0.4− | 0.4− | 2009 10 23 | 691 | 0.7− | 0.2+ | 2009 11 22 | G96 | 0.2− | 0.2− |
| 2002 10 01 | 608 | 0.4+ | 0.7− | 2009 10 23 | 691 | 0.5− | 0.1+ | 2009 11 22 | G96 | 0.1+ | 0.0 |
| 2002 10 02 | 608 | 0.4+ | 0.4+ | 2009 10 25 | 703 | 0.0 | 0.3+ | 2009 11 22 | G96 | 0.0 | 0.2+ |
| 2002 10 02 | 608 | 0.3− | 0.2− | 2009 10 25 | 703 | 1.2+ | 0.8− | 2009 11 22 | G96 | 0.3− | 0.1− |
| 2002 10 02 | 608 | 0.3+ | 0.1− | 2009 10 25 | 703 | 1.3− | 1.1+ | 2009 11 24 | G98 | 0.6− | 1.1+ |
| 2002 10 11 | 704 | 0.3− | 0.2+ | 2009 10 25 | 703 | 0.6+ | 0.7+ | 2009 11 24 | G98 | 0.2+ | 0.5+ |
| 2002 10 11 | 704 | 0.0 | 0.0 | 2009 11 08 | G96 | 0.1− | 0.1− | 2009 11 24 | G98 | 0.5+ | 0.2+ |
| 2002 10 11 | 704 | 0.5− | 0.8+ | 2009 11 08 | G96 | 0.2+ | 0.2− | 2009 11 24 | G98 | 0.4− | 0.2+ |
| 2008 04 27 | G96 | 0.3− | 0.0 | 2009 11 08 | G96 | 0.0 | 0.1− | 2009 11 24 | G98 | 0.1− | 0.4+ |

**2002 TZ$_{17}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 37.13323 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28595885 | $\omega$ | 351.33272 | | +0.98739359 | −0.15376673 | |
| $a$ | 2.2817446 | $\Omega$ | 17.64638 | | +0.15163415 | +0.85087896 | |
| $e$ | 0.2492880 | $i$ | 7.11470 | | +0.04539811 | +0.50235525 | |
| $P$ | 3.45 | $H$ | 18.5 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 09 05 | 645 | 0.1+ | 0.0 | 2002 10 03 | 704 | 0.6− | 0.2+ | 2009 09 16 | G96 | 0.0 | 0.2− |
| 2002 09 05 | 645 | 0.1+ | 0.0 | 2002 10 05 | 644 | 0.3− | 0.2− | 2009 09 16 | G96 | 0.0 | 0.5− |
| 2002 09 26 | 644 | 0.6− | 0.4+ | 2002 10 05 | 644 | 0.3− | 0.0 | 2009 09 16 | G96 | 0.0 | 0.3− |
| 2002 09 26 | 644 | 0.6− | 0.2+ | 2002 10 05 | 644 | 0.2− | 0.1+ | 2009 10 22 | 703 | 0.8+ | 0.7+ |
| 2002 09 26 | 644 | 0.8− | 0.3+ | 2002 10 06 | 644 | 0.1− | 0.1− | 2009 10 22 | 703 | 0.2+ | 0.2+ |
| 2002 10 02 | 704 | 0.4− | 0.3+ | 2002 10 06 | 644 | 0.2− | 0.2+ | 2009 10 22 | 703 | 1.5− | 1.1+ |
| 2002 10 02 | 704 | 0.4+ | 0.6− | 2002 10 06 | 644 | 0.2− | 0.2− | 2009 10 22 | 703 | 0.2+ | 0.3+ |
| 2002 10 02 | 704 | 0.5− | 0.7− | 2002 10 11 | 704 | 0.1+ | 0.0 | 2009 11 08 | 703 | 0.7+ | 0.7− |
| 2002 10 03 | 704 | 0.9+ | 0.6+ | 2002 10 11 | 704 | 0.1− | 1.1− | 2009 11 08 | 703 | 0.8+ | 0.0 |
| 2002 10 03 | 704 | 0.6− | 0.0 | 2002 10 11 | 704 | 0.1− | 0.8+ | 2009 11 08 | 703 | 0.4+ | 0.6− |
| 2002 10 03 | 704 | 0.1− | 0.4+ | 2002 10 11 | 704 | 0.4+ | 1.3+ | 2009 11 08 | 703 | 0.7− | 0.8− |
| 2002 10 03 | 704 | 0.1+ | 0.2− | 2009 09 16 | G96 | 0.4− | 0.6− | | | | |

**2002 TW$_{52}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 231.50268 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21845217 | $\omega$ | 329.01976 | | +0.97199242 | −0.22257968 | |
| $a$ | 2.7304347 | $\Omega$ | 44.04768 | | +0.23165685 | +0.85338943 | |
| $e$ | 0.3259548 | $i$ | 6.22805 | | +0.03957075 | +0.47136478 | |
| $P$ | 4.51 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 10 02 | 704 | 0.3+ | 0.0 | 2002 10 11 | 704 | 0.2+ | 0.1+ | 2002 11 24 | 644 | 0.4+ | 0.2− |
| 2002 10 02 | 704 | 0.4+ | 0.1+ | 2002 11 05 | 704 | 0.9− | 0.1− | 2002 12 06 | 704 | 0.0 | 0.1+ |
| 2002 10 02 | 704 | 0.1+ | 0.7− | 2002 11 05 | 704 | 0.3− | 0.2+ | 2002 12 06 | 704 | 0.2+ | 0.1− |
| 2002 10 02 | 704 | 0.1− | 0.3+ | 2002 11 05 | 704 | 0.7− | 0.0 | 2002 12 06 | 704 | 0.4+ | 0.3+ |
| 2002 10 03 | 704 | 0.7+ | 0.1− | 2002 11 05 | 704 | 0.1− | 0.2+ | 2002 12 11 | 704 | 0.3+ | 0.3− |
| 2002 10 03 | 704 | 0.5− | 1.0− | 2002 11 06 | 704 | 0.3− | 0.4− | 2002 12 11 | 704 | 0.3− | 0.3− |
| 2002 10 03 | 704 | 0.3− | 0.8+ | 2002 11 06 | 704 | 0.7− | 0.4+ | 2002 12 11 | 704 | 0.7+ | 0.5− |
| 2002 10 03 | 704 | 1.1− | 0.2+ | 2002 11 06 | 704 | 0.1− | 0.2+ | 2002 12 11 | 704 | 1.4+ | 0.8+ |
| 2002 10 03 | 704 | 0.2+ | 0.1− | 2002 11 06 | 704 | 0.1+ | 0.2+ | 2002 12 11 | 704 | 0.1− | 0.3+ |
| 2002 10 07 | 704 | 0.5− | 0.5+ | 2002 11 06 | 704 | 0.1+ | 0.1+ | 2007 12 19 | G96 | 0.3+ | 0.7− |
| 2002 10 07 | 704 | 0.2+ | 0.0 | 2002 11 07 | 695 | 0.2+ | 0.1− | 2007 12 19 | G96 | 0.4+ | 1.0− |
| 2002 10 07 | 704 | 0.4+ | 0.6− | 2002 11 07 | 695 | 0.4+ | 0.5− | 2007 12 19 | G96 | 0.0 | 0.6− |
| 2002 10 10 | 704 | 0.2− | 0.1− | 2002 11 14 | 704 | 0.4− | 0.0 | 2007 12 19 | G96 | 0.3+ | 0.4− |
| 2002 10 10 | 704 | 0.2− | 0.2− | 2002 11 14 | 704 | 0.8− | 0.0 | 2008 01 30 | 703 | 0.6− | 1.7+ |
| 2002 10 10 | 704 | 0.0 | 0.9+ | 2002 11 14 | 704 | 0.3− | 0.6+ | 2008 01 30 | 703 | 0.2+ | 1.3+ |
| 2002 10 11 | 704 | 1.0+ | 0.9− | 2002 11 14 | 704 | 0.7− | 0.5− | 2008 01 30 | 703 | 0.0 | 0.2− |
| 2002 10 11 | 704 | 0.8+ | 0.7+ | 2002 11 14 | 704 | 0.4− | 0.4− | 2008 01 30 | 703 | 0.5− | 0.4− |
| 2002 10 11 | 704 | 0.3+ | 0.6+ | 2002 11 24 | 644 | 0.2+ | 0.3− | | | | |
| 2002 10 11 | 704 | 0.2+ | 0.1+ | 2002 11 24 | 644 | 0.2+ | 0.0 | | | | |

**2002 TP$_{60}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 229.78833 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22124534 | $\omega$ | 251.67282 | | +0.92526084 | −0.30714954 | |
| $a$ | 2.7074054 | $\Omega$ | 125.62738 | | +0.35685380 | +0.90380438 | |
| $e$ | 0.3398414 | $i$ | 15.89425 | | −0.12863804 | +0.29798794 | |
| $P$ | 4.45 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 09 30 | 608 | 1.0+ | 0.3− | 2002 10 06 | 704 | 0.2+ | 0.1− | 2002 10 28 | 704 | 0.5+ | 1.1+ |
| 2002 09 30 | 608 | 0.7+ | 0.2− | 2002 10 06 | 704 | 0.3+ | 0.2− | 2002 10 28 | 704 | 0.0 | 0.5+ |
| 2002 09 30 | 608 | 1.3+ | 0.2− | 2002 10 06 | 704 | 0.2+ | 0.2− | 2007 12 30 | G96 | 0.6+ | 0.5− |
| 2002 10 05 | 704 | 1.1− | 0.7+ | 2002 10 11 | 704 | 0.1− | 1.4− | 2007 12 30 | G96 | 0.9+ | 0.2− |
| 2002 10 05 | 704 | 1.0− | 0.2+ | 2002 10 11 | 704 | 0.8+ | 0.1+ | 2007 12 30 | G96 | 0.6+ | 0.4− |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 10 05 | 704 | 1.0− | 0.1+ | 2002 10 11 | 704 | 0.0 | 0.0 | 2007 12 30 | G96 | 1.5+ | 0.0 | | |
| 2002 10 05 | 699 | 0.2− | 0.5− | 2002 10 11 | 704 | 0.4+ | 0.6− | 2007 12 30 | 691 | 0.8− | 0.1− | | |
| 2002 10 05 | 704 | 1.2− | 0.5+ | 2002 10 11 | 704 | 0.2− | 0.6− | 2007 12 30 | 691 | 0.8− | 0.2+ | | |
| 2002 10 05 | 699 | 0.2+ | 0.0 | 2002 10 27 | 704 | 0.3− | 0.4− | 2007 12 30 | 691 | 0.3− | 0.3+ | | |
| 2002 10 05 | 704 | 1.1− | 0.5+ | 2002 10 27 | 704 | 0.4+ | 0.1+ | 2008 01 16 | 691 | 0.4+ | 0.6− | | |
| 2002 10 05 | 699 | 0.3− | 0.2+ | 2002 10 27 | 704 | 0.6− | 0.2+ | 2008 01 16 | 691 | 0.5+ | 0.2+ | | |
| 2002 10 05 | 699 | 0.1+ | 0.2− | 2002 10 28 | 704 | 0.4+ | 0.4+ | 2008 01 16 | 691 | 0.1+ | 0.2+ | | |
| 2002 10 06 | 704 | 0.3+ | 0.1− | 2002 10 28 | 704 | 0.1+ | 0.2− | | | | | | |
| 2002 10 06 | 704 | 0.2+ | 0.1+ | 2002 10 28 | 704 | 0.3+ | 0.6+ | | | | | | |

**2002 TS$_{71}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 78.95396 | | (2000.0) | | +0.87724449 | +0.46785397 |
| $n$ | 0.29084225 | $\omega$ | 66.96436 | | −0.47040512 | +0.79315447 |
| $a$ | 2.2561314 | $\Omega$ | 264.99290 | | −0.09571377 | +0.38989570 |
| $e$ | 0.2292499 | $i$ | 6.19456 | | | |
| $P$ | 3.39 | $H$ | 17.1 | $G$ 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 10 03 | 644 | 0.3+ | 0.9+ | 2002 10 05 | 704 | (0.1− | 1.7+) | 2009 11 09 | G96 | 0.1− | 0.1+ | | |
| 2002 10 03 | 644 | 0.2+ | 0.7+ | 2002 10 31 | 644 | 0.7− | 0.8− | 2009 11 09 | G96 | 0.4+ | 0.4− | | |
| 2002 10 03 | 644 | 0.0 | 0.5+ | 2002 10 31 | 644 | 0.6− | 0.7− | 2009 11 09 | G96 | 0.3+ | 0.1+ | | |
| 2002 10 04 | 699 | 0.2− | 1.0+ | 2002 10 31 | 644 | 0.7− | 1.0− | 2009 11 17 | 691 | 0.0 | 0.1− | | |
| 2002 10 04 | 699 | 0.3+ | 0.9+ | 2002 11 06 | 704 | 0.2− | 0.2− | 2009 11 17 | 691 | 0.2− | 0.1+ | | |
| 2002 10 04 | 699 | 0.2− | 0.6+ | 2002 11 06 | 704 | 0.5− | 0.8− | 2009 11 17 | 691 | 0.1− | 0.2+ | | |
| 2002 10 04 | 699 | 0.4− | 0.1+ | 2002 11 06 | 704 | 0.5+ | 1.3− | 2009 12 16 | G96 | 0.3+ | 0.1− | | |
| 2002 10 05 | 704 | 1.4+ | 0.8− | 2006 12 13 | 691 | 0.1− | 0.3− | 2009 12 16 | G96 | 0.4+ | 0.2− | | |
| 2002 10 05 | 704 | 0.9+ | 1.1+ | 2006 12 13 | 691 | 0.0 | 0.2+ | 2009 12 16 | G96 | 0.0 | 0.0 | | |
| 2002 10 05 | 704 | 0.0 | 0.5− | 2006 12 13 | 691 | 0.2+ | 0.4+ | 2009 12 16 | G96 | 0.6+ | 0.1− | | |
| 2002 10 05 | 704 | (0.4+ | 2.1+) | 2009 11 09 | G96 | 0.4− | 0.3− | | | | | | |

**2002 TD$_{75}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 74.92002 | | (2000.0) | | +0.98986138 | −0.10902869 |
| $n$ | 0.29966510 | $\omega$ | 320.88736 | | +0.13942530 | +0.86819271 |
| $a$ | 2.2116273 | $\Omega$ | 45.63232 | | −0.02711156 | +0.48410140 |
| $e$ | 0.2336949 | $i$ | 7.31614 | | | |
| $P$ | 3.29 | $H$ | 16.5 | $G$ 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 09 09 | 608 | (0.5+ | 2.2+) | 2002 10 04 | 704 | 0.2+ | 0.9+ | 2002 10 30 | 704 | 0.7− | 0.5+ | | |
| 2002 09 09 | 608 | 0.4+ | 1.2+ | 2002 10 04 | 704 | 0.5+ | 0.7+ | 2002 10 30 | 704 | 0.1− | 0.1− | | |
| 2002 09 09 | 608 | 0.3+ | 1.1+ | 2002 10 04 | 704 | 0.2+ | 0.8+ | 2002 10 30 | 704 | 1.4− | 0.6+ | | |
| 2002 09 10 | 644 | 0.1− | 0.5+ | 2002 10 04 | 704 | 0.4+ | 0.6+ | 2002 11 06 | 644 | 0.1+ | 0.0 | | |
| 2002 09 10 | 644 | 0.2− | 0.6+ | 2002 10 06 | 704 | 0.2− | 0.6− | 2002 11 06 | 644 | 0.1− | 0.1+ | | |
| 2002 09 10 | 644 | 0.3− | 0.5+ | 2002 10 06 | 704 | 0.4− | 0.9− | 2002 11 06 | 644 | 0.1− | 0.1+ | | |
| 2002 09 14 | 608 | 1.3− | 0.3+ | 2002 10 06 | 704 | 0.6− | 1.5− | 2002 11 11 | 704 | 1.0+ | 0.3− | | |
| 2002 09 14 | 608 | 1.2− | 0.3+ | 2002 10 06 | 704 | 0.6− | 1.5− | 2002 11 11 | 704 | (2.2+ | 0.9−) | | |
| 2002 09 14 | 608 | 1.1− | 0.3+ | 2002 10 06 | 704 | 0.1+ | 0.9− | 2002 11 11 | 704 | 0.6+ | 1.4− | | |
| 2002 09 17 | 644 | 0.1− | 1.5− | 2002 10 07 | 608 | 0.0 | 0.2− | 2002 11 11 | 704 | 1.5+ | 0.1− | | |
| 2002 09 17 | 644 | 0.2− | 1.3− | 2002 10 07 | 608 | 0.3− | 0.2− | 2002 11 11 | 704 | 0.1+ | 1.8− | | |
| 2002 09 17 | 644 | 0.1− | 0.9− | 2002 10 07 | 608 | 0.2− | 0.3− | 2002 12 05 | 704 | 0.5+ | 0.6− | | |
| 2002 09 26 | 608 | 0.4− | 0.3− | 2002 10 08 | 699 | 0.2− | 1.2+ | 2002 12 05 | 704 | 0.4+ | 1.3− | | |
| 2002 09 26 | 608 | 0.8− | 0.1− | 2002 10 08 | 699 | 1.4− | 0.0 | 2002 12 05 | 704 | 1.0+ | 0.6+ | | |
| 2002 09 26 | 608 | 0.6− | 0.4− | 2002 10 08 | 699 | 0.3− | 0.3+ | 2002 12 05 | 704 | 0.9+ | 0.7+ | | |
| 2002 10 01 | 699 | 0.3− | 0.1− | 2002 10 08 | 699 | 1.0− | 0.6+ | 2004 03 15 | 691 | 0.2+ | 0.2+ | | |
| 2002 10 01 | 699 | 0.7+ | 0.6+ | 2002 10 16 | 644 | 0.9+ | 0.5+ | 2004 03 15 | 691 | 0.2+ | 0.3+ | | |
| 2002 10 01 | 699 | 0.3+ | 0.2− | 2002 10 16 | 644 | 0.8+ | 0.4+ | 2004 03 15 | 691 | 0.0 | 0.3+ | | |
| 2002 10 01 | 699 | 0.1+ | 0.3+ | 2002 10 16 | 644 | 0.4+ | 0.4+ | 2009 12 15 | 704 | 0.0 | 0.8− | | |
| 2002 10 01 | 608 | 1.6+ | 0.7− | 2002 10 28 | 644 | 0.2+ | 0.5+ | 2009 12 15 | 704 | 0.5+ | 1.7+ | | |
| 2002 10 01 | 608 | 0.6+ | 1.0+ | 2002 10 28 | 644 | 0.2+ | 0.2+ | 2009 12 15 | 704 | 0.5− | 0.2+ | | |
| 2002 10 01 | 608 | 0.8+ | 1.2+ | 2002 10 28 | 644 | 0.3+ | 0.6+ | 2009 12 15 | 704 | 0.4+ | 0.5+ | | |
| 2002 10 04 | 704 | 0.4+ | 0.7+ | 2002 10 30 | 704 | 0.6− | 0.2− | | | | | | |

**2002 TQ$_{121}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 110.66665 | | (2000.0) | | +0.69715212 | −0.71527001 |
| $n$ | 0.18418317 | $\omega$ | 65.24367 | | +0.59453206 | +0.61473218 |
| $a$ | 3.0593988 | $\Omega$ | 340.30058 | | +0.40063767 | +0.33240511 |
| $e$ | 0.0848869 | $i$ | 8.29982 | | | |
| $P$ | 5.35 | $H$ | 15.6 | $G$ 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 10 03 | 644 | 0.1− | 0.3− | 2002 10 10 | 704 | 0.6− | 0.0 | 2002 11 01 | 644 | 0.0 | 0.4+ | | |
| 2002 10 03 | 644 | 0.1+ | 0.3+ | 2002 10 10 | 704 | 0.3− | 0.8− | 2007 08 23 | 691 | 0.3+ | 0.2− | | |
| 2002 10 03 | 644 | 0.5+ | 0.2− | 2002 10 30 | 608 | 0.4+ | 0.4− | 2007 08 23 | 691 | 0.2+ | 0.2+ | | |
| 2002 10 05 | 704 | 0.0 | 0.2− | 2002 10 30 | 608 | 0.3− | 0.9− | 2007 08 23 | 691 | 0.0 | 0.1+ | | |
| 2002 10 05 | 704 | 0.2+ | 1.7+ | 2002 10 30 | 608 | 0.0 | 1.4− | 2007 10 15 | 691 | 0.3− | 0.1− | | |
| 2002 10 05 | 704 | 0.2− | 1.0+ | 2002 11 01 | 644 | 0.1− | 0.6+ | 2007 10 15 | 691 | 0.1− | 0.4+ | | |
| 2002 10 10 | 704 | 0.6+ | 0.3− | 2002 11 01 | 644 | 0.1+ | 0.2+ | 2007 10 15 | 691 | 0.1− | 0.4− | | |

**2002 TW$_{124}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 226.21270 | | (2000.0) | | +0.77873215 | +0.61120345 |
| $n$ | 0.20987539 | $\omega$ | 37.15959 | | −0.60497517 | +0.67193004 |
| $a$ | 2.8043252 | $\Omega$ | 284.56190 | | −0.16607612 | +0.41825872 |
| $e$ | 0.2147239 | $i$ | 8.40325 | | | |
| $P$ | 4.70 | $H$ | 16.2 | $G$ 0.15 | $U$ | 5 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 09 12 | 644 | 0.2+ | 0.1+ | 2002 10 05 | 704 | 0.2+ | 0.5− | 2009 01 17 | G96 | 0.1+ | 0.4− | | |
| 2002 09 12 | 644 | 0.4− | 0.2− | 2002 10 05 | 704 | 0.2+ | 0.3+ | 2009 01 17 | G96 | 0.6− | 0.3+ | | |
| 2002 09 12 | 644 | 0.4+ | 0.1− | 2002 10 09 | 704 | 0.6+ | 0.3− | 2009 01 17 | G96 | 0.6+ | 0.2− | | |
| 2002 10 04 | 644 | 0.1+ | 0.1+ | 2002 10 09 | 704 | 0.4+ | 0.2+ | 2009 02 03 | G96 | 0.5− | 0.4− | | |
| 2002 10 04 | 644 | 0.0 | 0.0 | 2002 10 09 | 704 | 0.1+ | 1.1− | 2009 02 03 | G96 | 0.4− | 0.7+ | | |
| 2002 10 04 | 644 | 0.0 | 0.1− | 2002 10 09 | 704 | 0.8− | 0.5− | 2009 02 03 | G96 | 0.3− | 0.3− | | |
| 2002 10 05 | 704 | 0.4− | 0.3− | 2002 10 09 | 704 | 0.3− | 1.8+ | 2009 02 03 | G96 | 0.9+ | 0.4+ | | |
| 2002 10 05 | 704 | 0.1− | 0.7+ | 2009 01 17 | G96 | 0.1+ | 0.2− | | | | | | |

**2002 TQ$_{139}$ = 2007 PG$_{48}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 158.28605 | | (2000.0) | | +0.84632886 | +0.53075779 |
| $n$ | 0.17906585 | $\omega$ | 319.48087 | | −0.38034635 | +0.66128717 |
| $a$ | 3.1174120 | $\Omega$ | 8.80901 | | −0.37291301 | +0.53009004 |
| $e$ | 0.2116571 | $i$ | 17.08241 | | | |
| $P$ | 5.50 | $H$ | 14.7 | $G$ 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 10 04 | 699 | 0.2+ | 0.2+ | 2002 10 14 | 704 | (1.1+ | 2.5−) | 2002 11 14 | 704 | 0.4− | 0.0 | | |
| 2002 10 04 | 699 | 0.8+ | 0.0 | 2002 10 14 | 704 | 0.7+ | 0.1+ | 2002 11 14 | 704 | 1.3− | 0.2+ | | |
| 2002 10 04 | 699 | 0.5+ | 0.9+ | 2002 10 14 | 704 | 0.3+ | 0.2+ | 2007 08 13 | E12 | 0.2+ | 0.3+ | | |
| 2002 10 04 | 699 | 0.3+ | 0.5+ | 2002 10 14 | 704 | 0.6− | 0.6+ | 2007 08 13 | E12 | 0.0 | 0.0 | | |
| 2002 10 05 | 704 | 1.1+ | 0.0 | 2002 11 07 | 704 | 0.2− | 0.3+ | 2007 08 13 | E12 | 0.6+ | 0.3+ | | |
| 2002 10 05 | 704 | 1.2+ | 0.3− | 2002 11 07 | 704 | 0.3− | 0.8− | 2007 08 13 | E12 | 0.3− | 0.4+ | | |
| 2002 10 05 | 704 | 0.6+ | 0.3+ | 2002 11 07 | 704 | 0.0 | 0.1− | 2007 09 20 | E12 | 0.1− | 0.0 | | |
| 2002 10 05 | 704 | 0.8+ | 0.6− | 2002 11 07 | 704 | 0.0 | 0.5− | 2007 09 20 | E12 | 0.1− | 0.5+ | | |
| 2002 10 05 | 704 | 1.2+ | 0.4+ | 2002 11 07 | 704 | 0.2− | 0.1− | 2007 09 20 | E12 | 0.4+ | 0.1+ | | |
| 2002 10 10 | 704 | 0.2+ | 0.5+ | 2002 11 14 | 644 | 0.3+ | 0.1+ | 2007 09 20 | E12 | 0.4+ | 0.2− | | |
| 2002 10 10 | 704 | 1.4− | 0.1+ | 2002 11 14 | 644 | 0.5+ | 0.2− | 2007 10 02 | E12 | 0.1− | 0.5− | | |
| 2002 10 10 | 704 | 1.0− | 1.1− | 2002 11 14 | 704 | 1.7− | 0.3− | 2007 10 02 | E12 | 0.4− | 0.3− | | |
| 2002 10 10 | 704 | 0.0 | 0.2− | 2002 11 14 | 644 | 0.4+ | 0.2− | 2007 10 02 | E12 | 0.4− | 0.1+ | | |
| 2002 10 10 | 704 | 0.7− | 0.0 | 2002 11 14 | 704 | 0.8− | 0.2− | 2007 10 02 | E12 | 0.4− | 0.7− | | |

**2002 TO$_{166}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 234.98374 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22673836 | $\omega$ | 4.46648 | | +0.99484290 | −0.10128292 | |
| $a$ | 2.6635001 | $\Omega$ | 1.38199 | | +0.08470228 | +0.80021432 | |
| $e$ | 0.2766365 | $i$ | 12.98516 | | +0.05579535 | +0.59109966 | |
| $P$ | 4.35 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 16 | 608 | 0.4− | 0.5− | 2002 10 03 | 704 | 0.7+ | 0.1− | 2002 10 11 | 704 | 0.2− | 0.6+ | |
| 2002 08 16 | 608 | 0.2− | 0.6− | 2002 10 06 | 704 | 0.3− | 0.2− | 2002 11 08 | 704 | 0.8− | 0.0 | |
| 2002 08 16 | 608 | 0.1+ | 0.7− | 2002 10 06 | 704 | 0.5− | 0.2+ | 2002 11 08 | 704 | 0.1+ | 0.1− | |
| 2002 09 10 | 608 | 0.3− | 1.0+ | 2002 10 06 | 704 | 0.3+ | 0.4− | 2002 11 08 | 704 | 0.1− | 0.9− | |
| 2002 09 10 | 608 | 0.7− | 0.9+ | 2002 10 06 | 704 | 0.1+ | 0.1+ | 2002 11 08 | 704 | 1.0− | 0.7+ | |
| 2002 09 10 | 608 | 0.4− | 0.7+ | 2002 10 07 | 704 | 0.3− | 0.4+ | 2009 03 03 | 691 | 0.1+ | 0.1+ | |
| 2002 09 15 | 644 | 0.2− | 0.2+ | 2002 10 07 | 704 | 0.4− | 0.6+ | 2009 03 03 | 691 | 0.3+ | 0.4+ | |
| 2002 09 15 | 644 | 0.1− | 0.3+ | 2002 10 07 | 704 | 0.0 | 0.2− | 2009 03 03 | 691 | 0.2− | 0.3+ | |
| 2002 09 15 | 644 | 0.1− | 0.2+ | 2002 10 07 | 704 | 0.5+ | 0.0 | 2009 03 18 | G96 | 0.9+ | 0.2+ | |
| 2002 10 03 | 704 | 0.1− | 0.1− | 2002 10 11 | 704 | 0.0 | 0.2+ | 2009 03 18 | G96 | 0.6+ | 0.1+ | |
| 2002 10 03 | 704 | 0.8+ | 0.4− | 2002 10 11 | 704 | 0.2− | 0.6+ | 2009 03 18 | G96 | 0.2+ | 0.1+ | |
| 2002 10 03 | 704 | 0.7+ | 0.0 | 2002 10 11 | 704 | 0.4+ | 0.5+ | 2009 03 18 | G96 | 0.1+ | 0.2+ | |
| 2002 10 03 | 704 | 0.4+ | 0.5− | 2002 10 11 | 704 | 0.2− | 0.4+ | | | | | |

**2002 TR$_{172}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 233.35575 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23372953 | $\omega$ | 107.09049 | | +0.72834865 | −0.65973398 | |
| $a$ | 2.6101191 | $\Omega$ | 294.61715 | | +0.52536673 | +0.71109861 | |
| $e$ | 0.2731518 | $i$ | 11.74740 | | +0.43988413 | +0.24308403 | |
| $P$ | 4.22 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 09 03 | 644 | 0.3− | 0.2+ | 2002 10 06 | 704 | 0.0 | 0.3− | 2008 02 09 | 703 | (1.7− | 0.5+) | |
| 2002 09 03 | 644 | 0.3− | 0.2+ | 2002 10 06 | 704 | 0.4+ | 0.4− | 2008 02 09 | 703 | 0.2− | 0.2+ | |
| 2002 09 03 | 644 | 0.2− | 0.2+ | 2002 10 09 | 704 | 0.1+ | 0.2− | 2008 02 09 | 703 | 0.8+ | 0.7− | |
| 2002 10 04 | 699 | 0.2+ | 0.3− | 2002 10 09 | 704 | 0.9− | 0.0 | 2008 02 09 | 703 | 0.4− | 0.5+ | |
| 2002 10 04 | 699 | 1.0+ | 0.1+ | 2002 10 09 | 704 | 0.0 | 0.5− | 2008 03 05 | G96 | 0.3+ | 0.3− | |
| 2002 10 04 | 699 | 0.4+ | 0.6+ | 2002 10 09 | 704 | 0.1− | 0.3+ | 2008 03 05 | G96 | 0.4+ | 0.0 | |
| 2002 10 04 | 699 | 0.8− | 0.6+ | 2002 10 09 | 704 | 0.0 | 0.5+ | 2008 03 05 | G96 | 0.3+ | 0.1+ | |
| 2002 10 06 | 704 | 0.2− | 0.3− | 2007 11 20 | 291 | 0.4− | 0.2− | 2008 03 05 | G96 | 0.3− | 0.8+ | |
| 2002 10 06 | 704 | 0.2+ | 0.0 | 2007 11 20 | 291 | 0.1− | 0.2+ | | | | | |
| 2002 10 06 | 704 | 0.2+ | 0.2− | 2007 11 20 | 291 | 0.2+ | 0.0 | | | | | |

**2002 TO$_{182}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 109.08064 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18851596 | $\omega$ | 208.17130 | | +0.58274939 | −0.81243801 | |
| $a$ | 3.0123399 | $\Omega$ | 206.19766 | | +0.75330043 | +0.54865364 | |
| $e$ | 0.2620394 | $i$ | 2.42056 | | +0.30486327 | +0.19729083 | |
| $P$ | 5.23 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 09 14 | 644 | 0.3+ | 0.2+ | 2002 10 11 | 291 | 0.5+ | 0.1− | 2008 12 30 | G96 | 0.2− | 0.3− | |
| 2002 09 14 | 644 | 0.1− | 0.1+ | 2002 10 11 | 291 | 0.2+ | 0.1+ | 2008 12 30 | G96 | 0.5+ | 0.3− | |
| 2002 09 14 | 644 | 0.4+ | 0.2+ | 2002 10 11 | 291 | 0.1− | 0.1− | 2008 12 30 | G96 | 0.0 | 0.1− | |
| 2002 09 28 | 644 | 0.4− | 0.3+ | 2004 02 29 | 691 | 0.4+ | 0.4+ | 2009 01 17 | G96 | 0.2+ | 0.2− | |
| 2002 09 28 | 644 | 0.0 | 0.3+ | 2004 02 29 | 691 | 0.0 | 0.5+ | 2009 01 17 | G96 | 0.2− | 0.0 | |
| 2002 09 28 | 644 | 0.8− | 0.3+ | 2004 02 29 | 691 | 0.0 | 0.2+ | 2009 01 17 | G96 | 0.2− | 0.1+ | |
| 2002 10 04 | 644 | 0.4− | 0.0 | 2007 08 23 | 691 | 0.0 | 0.7+ | 2009 01 17 | G96 | 0.2− | 0.2− | |
| 2002 10 04 | 644 | 0.1− | 0.1+ | 2007 08 23 | 691 | 0.2− | 0.2− | 2009 02 04 | G96 | 0.3+ | 0.1+ | |
| 2002 10 04 | 644 | 0.3− | 0.2+ | 2007 08 23 | 691 | 0.1+ | 0.1+ | 2009 02 04 | G96 | 0.4− | 0.2− | |
| 2002 10 07 | 699 | (0.6− | 2.2+) | 2007 09 13 | G96 | 0.2− | 0.1+ | 2009 02 04 | G96 | 0.0 | 0.1− | |
| 2002 10 07 | 699 | 0.5+ | 0.4+ | 2007 09 13 | G96 | 0.1+ | 0.0 | 2009 02 04 | G96 | 0.1− | 0.1− | |
| 2002 10 07 | 699 | 0.6+ | 0.6+ | 2007 09 13 | G96 | 0.1− | 0.0 | 2009 03 21 | G96 | 0.5− | 0.1+ | |
| 2002 10 07 | 699 | 0.1+ | 0.1− | 2008 10 31 | G96 | 0.1+ | 0.2+ | 2009 03 21 | G96 | 0.2− | 0.0 | |
| 2002 10 11 | 704 | 0.5− | 0.5− | 2008 10 31 | G96 | 0.1+ | 0.0 | 2009 03 21 | G96 | 0.0 | 0.1− | |
| 2002 10 11 | 704 | 0.5− | 0.4− | 2008 10 31 | G96 | 0.3+ | 0.1+ | 2009 03 21 | G96 | 0.4+ | 0.1− | |
| 2002 10 11 | 704 | 0.9− | 0.1− | 2008 10 31 | G96 | 0.3+ | 0.1+ | | | | | |
| 2002 10 11 | 704 | 0.5− | 0.6− | 2008 12 30 | G96 | 0.6− | 0.1− | | | | | |

**2002 TT$_{182}$ = 2009 WD$_{36}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 38.52423 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28990548 | $\omega$ | 113.50317 | | +0.91276058 | −0.39874718 | |
| $a$ | 2.2609889 | $\Omega$ | 270.09498 | | +0.33492225 | +0.85483247 | |
| $e$ | 0.1669989 | $i$ | 5.08919 | | +0.23387008 | +0.33205742 | |
| $P$ | 3.40 | $H$ | 17.9 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 08 29 | 691 | 0.1+ | 0.1− | 2002 10 09 | 704 | 0.1+ | 0.2− | 2009 11 21 | 691 | 0.1− | 0.3− | |
| 1995 08 29 | 691 | 0.1− | 0.1− | 2002 10 09 | 704 | (1.7+ | 0.8−) | 2009 11 24 | D29 | 0.6+ | 0.1+ | |
| 1995 08 29 | 691 | 0.1+ | 0.2+ | 2007 02 10 | G96 | 0.1+ | 0.2− | 2009 11 24 | D29 | 0.4+ | 0.1+ | |
| 2002 10 04 | 644 | 0.2− | 0.1− | 2007 02 10 | G96 | 0.1+ | 0.4+ | 2009 11 24 | D29 | 0.1+ | 0.2+ | |
| 2002 10 04 | 644 | 0.1+ | 0.4+ | 2007 02 10 | G96 | 0.6− | 0.0 | 2009 11 24 | D29 | 0.6+ | 0.3+ | |
| 2002 10 04 | 644 | 0.1− | 0.1− | 2007 02 10 | G96 | 0.4+ | 0.1+ | 2009 12 17 | G96 | 0.4+ | 0.2− | |
| 2002 10 07 | 699 | (2.4− | 0.2+) | 2009 11 17 | 691 | 0.0 | 0.0 | 2009 12 17 | G96 | 0.0 | 0.1− | |
| 2002 10 07 | 699 | 0.5+ | 0.3− | 2009 11 17 | 691 | 0.1+ | 0.0 | 2009 12 17 | G96 | 0.0 | 0.1− | |
| 2002 10 07 | 699 | 0.5+ | 0.9+ | 2009 11 17 | 691 | 0.1+ | 0.0 | 2009 12 17 | G96 | 0.0 | 0.3− | |
| 2002 10 07 | 699 | 0.9− | 0.9+ | 2009 11 21 | 691 | 0.1+ | 0.0 | | | | | |
| 2002 10 09 | 704 | 0.2− | 1.4− | 2009 11 21 | 691 | 0.8− | 0.2+ | | | | | |

**2002 TO$_{199}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 280.48751 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21371598 | $\omega$ | 31.40767 | | +0.17351352 | +0.96483024 | |
| $a$ | 2.7706269 | $\Omega$ | 249.22460 | | −0.94168580 | +0.10384211 | |
| $e$ | 0.1444911 | $i$ | 12.19305 | | −0.28830696 | +0.24149416 | |
| $P$ | 4.61 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 09 03 | 644 | 0.1− | 0.3+ | 2002 10 06 | 699 | 0.7− | 0.2+ | 2007 10 09 | 691 | 0.7− | 0.1+ | |
| 2002 09 03 | 644 | 0.1− | 0.2+ | 2002 10 06 | 699 | 0.9− | 1.3− | 2007 10 09 | 691 | 0.3+ | 0.3− | |
| 2002 09 03 | 644 | 0.3+ | 0.2+ | 2002 10 06 | 699 | 1.0+ | 0.6+ | 2007 11 01 | 691 | 0.3+ | 0.2+ | |
| 2002 10 03 | 644 | 0.1+ | 0.1+ | 2002 10 15 | 644 | 0.5+ | 0.1+ | 2007 11 01 | 691 | 0.3− | 0.2+ | |
| 2002 10 03 | 644 | 0.5− | 0.1− | 2002 10 15 | 644 | 0.4+ | 0.1− | 2007 11 01 | 691 | 0.2+ | 0.2− | |
| 2002 10 03 | 644 | 0.4− | 0.1+ | 2002 10 15 | 644 | 0.5+ | 0.0 | | | | | |
| 2002 10 06 | 699 | 0.0 | 0.1− | 2007 10 09 | 691 | 0.2+ | 0.1+ | | | | | |

**2002 TH$_{205}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 21.19661 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.29070111 | $\omega$ | 288.12389 | | +0.51714065 | −0.85261643 | |
| $a$ | 2.2568616 | $\Omega$ | 130.49988 | | +0.81780117 | +0.46640458 | |
| $e$ | 0.1923983 | $i$ | 5.65318 | | +0.25252089 | +0.23560982 | |
| $P$ | 3.39 | $H$ | 17.5 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 09 29 | 608 | 0.4− | 0.0 | 2002 10 08 | 699 | 0.2+ | 1.5+ | 2009 12 09 | J75 | 0.8− | 0.4+ | |
| 2002 09 29 | 608 | 0.2− | 0.0 | 2002 10 08 | 699 | 0.0 | 0.2+ | 2009 12 12 | 106 | 0.2+ | 0.4− | |
| 2002 09 29 | 608 | 0.6− | 0.1+ | 2002 10 15 | 644 | 0.0 | 0.3+ | 2009 12 12 | 106 | 0.3+ | 0.1+ | |
| 2002 10 04 | 704 | 0.4+ | 1.4− | 2002 10 15 | 644 | 0.3− | 0.3+ | 2009 12 12 | 106 | 1.2+ | 0.6− | |
| 2002 10 04 | 704 | 0.2+ | 1.4− | 2002 10 15 | 644 | 0.2− | 0.2+ | 2009 12 12 | 106 | 0.3− | 0.1+ | |
| 2002 10 04 | 704 | (0.3− | 2.4−) | 2002 11 06 | 644 | 0.2− | 0.6+ | 2009 12 17 | G96 | 0.1+ | 0.1− | |
| 2002 10 04 | 645 | 0.1+ | 0.0 | 2002 11 06 | 644 | 0.1+ | 0.5+ | 2009 12 17 | G96 | 0.2+ | 0.0 | |
| 2002 10 04 | 645 | 0.0 | 0.1− | 2002 11 06 | 644 | 0.2− | 0.3+ | 2009 12 17 | G96 | 0.2− | 0.2− | |
| 2002 10 08 | 699 | (0.1− | 2.4+) | 2009 12 08 | J75 | 0.2− | 0.1+ | 2009 12 17 | G96 | 0.2+ | 0.1− | |
| 2002 10 08 | 699 | 0.2− | 1.4+ | 2009 12 09 | J75 | 0.7− | 0.2+ | | | | | |

**2002 TG$_{258}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 44.61543 | | (2000.0) | | | |
| $n$ | 0.29269941 | $\omega$ | 346.79673 | | +0.70112170 | −0.71256506 |
| $a$ | 2.2465779 | $\Omega$ | 58.67891 | | +0.65694382 | +0.63131759 |
| $e$ | 0.2055580 | $i$ | 1.74848 | | +0.27722406 | +0.30608683 |
| $P$ | 3.37 | $H$ | 18.0 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 02 06 | 695 | 0.7+ | 0.1+ | 2002 11 06 | 704 | 0.1− | 0.5+ | 2002 12 09 | 291 | 0.6− | 0.2− |
| 2000 02 06 | 695 | 0.2+ | 0.2+ | 2002 11 06 | 704 | 0.1+ | 0.6+ | 2002 12 09 | 291 | 0.6− | 0.3+ |
| 2002 10 09 | 704 | 0.3+ | 1.3+ | 2002 11 06 | 704 | 0.4+ | 0.9+ | 2002 12 10 | 644 | 0.5− | 0.3− |
| 2002 10 09 | 704 | 0.1− | 0.0 | 2002 11 07 | 704 | 0.7+ | 0.2− | 2002 12 10 | 644 | 0.2+ | 0.2− |
| 2002 10 09 | 704 | 0.2− | 0.0 | 2002 11 07 | 704 | 0.3− | 0.0 | 2002 12 10 | 644 | 0.1+ | 0.3− |
| 2002 10 11 | 704 | 0.5+ | 1.4− | 2002 11 07 | 704 | 0.3− | 0.1+ | 2007 02 21 | 691 | 0.2− | 0.2− |
| 2002 10 11 | 704 | 0.5− | 0.8− | 2002 11 07 | 704 | (1.6+ | 0.2+) | 2007 02 21 | 691 | 0.1− | 0.2+ |
| 2002 10 11 | 704 | 0.4− | 0.5− | 2002 11 07 | 704 | 0.7+ | 0.0 | 2007 02 21 | 691 | 0.1+ | 0.2+ |
| 2002 10 30 | 291 | 0.1− | 0.0 | 2002 11 08 | 704 | 0.6− | 0.4− | 2007 03 10 | G96 | 0.1− | 0.1− |
| 2002 10 30 | 291 | 0.0 | 0.0 | 2002 11 08 | 704 | 0.4+ | 1.0− | 2007 03 10 | G96 | 0.1− | 0.3+ |
| 2002 10 30 | 291 | 0.2− | 0.3+ | 2002 11 08 | 704 | 0.0 | 1.0− | 2007 03 10 | G96 | 0.2+ | 0.1+ |
| 2002 11 02 | 608 | 1.2+ | 0.8+ | 2002 11 08 | 704 | 0.4+ | 0.4− | 2007 03 10 | G96 | 0.1+ | 0.1+ |
| 2002 11 02 | 608 | 1.3+ | 0.5+ | 2002 11 10 | 704 | (1.7+ | 1.8−) | 2009 11 11 | G96 | 0.0 | 0.8− |
| 2002 11 02 | 608 | 0.8+ | 0.3+ | 2002 11 10 | 704 | 0.7− | 0.6+ | 2009 11 11 | G96 | 0.0 | 0.4− |
| 2002 11 04 | 699 | (1.4+ | 1.6+) | 2002 11 10 | 704 | (0.6+ | 2.7−) | 2009 11 11 | G96 | 0.1− | 0.4− |
| 2002 11 04 | 699 | 0.4+ | 1.0+ | 2002 11 10 | 704 | 0.8+ | 1.4− | 2009 11 11 | G96 | 0.4+ | 0.7− |
| 2002 11 04 | 699 | 1.1+ | 0.5+ | 2002 11 12 | 644 | 0.1+ | 0.3− | 2009 12 15 | G96 | 0.1− | 0.7− |
| 2002 11 04 | 699 | (1.8+ | 0.3+) | 2002 11 12 | 644 | 0.5− | 0.6− | 2009 12 15 | G96 | 0.0 | 0.6+ |
| 2002 11 04 | 291 | 0.2+ | 0.1+ | 2002 11 12 | 644 | 0.3+ | 0.5− | 2009 12 15 | G96 | 0.7+ | 0.4− |
| 2002 11 04 | 291 | 0.1+ | 0.1+ | 2002 12 05 | 704 | 0.1+ | 0.2− | 2009 12 15 | G96 | 0.3+ | 0.3− |
| 2002 11 04 | 291 | 0.3+ | 0.1+ | 2002 12 05 | 704 | 0.9− | 0.1+ | 2009 12 18 | 691 | 0.0 | 0.0 |
| 2002 11 06 | 704 | 0.2+ | 0.3+ | 2002 12 05 | 704 | 0.8− | 0.2+ | 2009 12 18 | 691 | 0.0 | 0.0 |
| 2002 11 06 | 704 | 0.2+ | 0.0 | 2002 12 09 | 291 | 0.9− | 0.1+ | 2009 12 18 | 691 | 0.3− | 0.0 |

**2002 TR$_{259}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 193.05740 | | (2000.0) | | | |
| $n$ | 0.21885368 | $\omega$ | 249.99171 | | +0.06042475 | −0.99610799 |
| $a$ | 2.7270942 | $\Omega$ | 196.93010 | | +0.97824837 | +0.07187667 |
| $e$ | 0.4149969 | $i$ | 12.73010 | | +0.19844139 | −0.05101585 |
| $P$ | 4.50 | $H$ | 17.3 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 10 02 | 608 | 0.5+ | 0.3− | 2002 10 31 | 704 | 0.0 | 0.8− | 2002 11 21 | 644 | 0.2+ | 0.1− |
| 2002 10 02 | 608 | 0.2− | 0.6− | 2002 10 31 | 608 | 0.9− | 1.3+ | 2002 12 07 | 644 | 0.0 | 0.1− |
| 2002 10 02 | 608 | (1.1− | 2.1−) | 2002 10 31 | 608 | 0.4− | 1.0+ | 2002 12 07 | 644 | 0.1+ | 0.4− |
| 2002 10 09 | 704 | 0.8+ | 0.2+ | 2002 10 31 | 608 | 0.4− | 0.7+ | 2003 01 25 | 644 | 0.4− | 0.0 |
| 2002 10 09 | 704 | 0.2+ | 0.8+ | 2002 11 03 | 644 | 0.8+ | 0.1+ | 2003 01 25 | 644 | 0.1− | 1.0− |
| 2002 10 09 | 704 | 0.3− | 0.4− | 2002 11 03 | 644 | 0.5+ | 0.3− | 2003 01 28 | 644 | 0.1+ | 0.1− |
| 2002 10 11 | 704 | 0.5− | 0.4− | 2002 11 03 | 644 | 0.5+ | 0.0 | 2003 01 28 | 644 | 0.0 | 0.4− |
| 2002 10 11 | 704 | 0.1+ | 0.3+ | 2002 11 05 | 704 | 0.0 | 0.6+ | 2008 03 08 | 691 | 0.5+ | 0.1+ |
| 2002 10 11 | 704 | 0.2− | 0.5− | 2002 11 05 | 704 | 0.5+ | 0.8− | 2008 03 08 | 691 | 0.3− | 0.3+ |
| 2002 10 29 | 644 | 0.3− | 0.6+ | 2002 11 05 | 704 | 0.4− | 0.3+ | 2008 03 08 | 691 | 0.2− | 0.2+ |
| 2002 10 29 | 644 | 0.0 | 1.3+ | 2002 11 05 | 704 | 0.8− | 0.5− | 2008 03 27 | G96 | 0.2− | 0.1+ |
| 2002 10 29 | 644 | 0.0 | 0.7+ | 2002 11 06 | 699 | 0.5+ | 0.5+ | 2008 03 27 | G96 | 0.2+ | 0.3− |
| 2002 10 31 | 704 | 0.1+ | 0.1− | 2002 11 06 | 699 | 0.2+ | 0.1+ | 2008 03 27 | G96 | 0.2− | 0.4− |
| 2002 10 31 | 704 | 0.3+ | 0.1+ | 2002 11 06 | 699 | 0.2+ | 0.4+ | 2008 03 27 | G96 | 0.3+ | 0.1+ |
| 2002 10 31 | 704 | 0.2− | 0.8− | 2002 11 06 | 699 | 0.5− | 0.6− | | | | |
| 2002 10 31 | 704 | 0.7− | 0.5− | 2002 11 21 | 644 | 0.6+ | 0.3− | | | | |

**2002 TV$_{267}$ = 2009 WS$_{242}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 101.66187 | | (2000.0) | | | |
| $n$ | 0.29517570 | $\omega$ | 349.93856 | | +0.68864195 | +0.72426488 |
| $a$ | 2.2339956 | $\Omega$ | 323.57004 | | −0.66112613 | +0.60743486 |
| $e$ | 0.2085164 | $i$ | 3.36179 | | −0.29779944 | +0.32628710 |
| $P$ | 3.34 | $H$ | 17.9 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 09 28 | 608 | (1.9− | 1.3−) | 2002 10 09 | 704 | 0.8− | 1.0+ | 2009 11 19 | 691 | 0.1− | 0.1− |
| 2002 09 28 | 608 | (2.1− | 1.5−) | 2002 10 09 | 704 | 0.2− | 0.4+ | 2009 11 19 | 691 | 0.3+ | 0.4+ |
| 2002 09 28 | 608 | (1.7− | 0.9−) | 2002 10 09 | 704 | 0.1+ | 1.1+ | 2009 11 27 | 691 | 0.1− | 0.1− |
| 2002 10 04 | 704 | 0.2− | 0.1+ | 2002 10 12 | 704 | 0.7− | 0.9− | 2009 11 27 | 691 | 0.1− | 0.3− |
| 2002 10 04 | 704 | 0.3+ | 1.4− | 2002 10 12 | 704 | 1.0+ | 0.7− | 2009 11 27 | 691 | 0.4− | 0.1+ |
| 2002 10 04 | 644 | 0.0 | 0.5+ | 2002 10 12 | 704 | 0.4+ | 0.1+ | 2009 12 19 | G96 | 0.2− | 0.2− |
| 2002 10 04 | 704 | 0.3− | 0.7− | 2008 04 15 | G96 | 0.0 | 0.1− | 2009 12 19 | G96 | 0.3+ | 0.2− |
| 2002 10 04 | 644 | 0.1− | 0.1− | 2008 04 15 | G96 | 0.2+ | 0.1+ | 2009 12 19 | G96 | 0.9+ | 0.1+ |
| 2002 10 04 | 644 | 0.3+ | 0.4+ | 2008 04 15 | G96 | 0.2− | 0.3− | 2009 12 19 | G96 | 0.0 | 0.4+ |
| 2002 10 04 | 704 | 0.1− | 0.3− | 2008 04 15 | G96 | 0.0 | 0.1+ | | | | |
| 2002 10 09 | 704 | 0.2+ | 0.5+ | 2009 11 19 | 691 | 0.1+ | 0.1− | | | | |

**2002 TL$_{276}$ = 2009 VA$_{101}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 66.70017 | | (2000.0) | | | |
| $n$ | 0.29003142 | $\omega$ | 20.09416 | | +0.98905045 | +0.14566342 |
| $a$ | 2.2603343 | $\Omega$ | 331.49813 | | −0.14127790 | +0.88813945 |
| $e$ | 0.1998083 | $i$ | 2.84602 | | −0.04265862 | +0.43587898 |
| $P$ | 3.40 | $H$ | 17.6 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 10 04 | 704 | 0.4− | 0.1+ | 2002 10 12 | 704 | 0.2− | 0.5− | 2007 01 24 | G96 | 0.7+ | 0.7+ |
| 2002 10 04 | 704 | (0.7− | 2.1+) | 2002 10 12 | 704 | 0.3− | 0.7− | 2008 05 03 | G96 | 0.3+ | 0.2+ |
| 2002 10 04 | 704 | 0.2− | 0.2− | 2002 10 18 | 644 | 0.1− | 0.6+ | 2008 05 03 | G96 | 0.1+ | 0.3+ |
| 2002 10 04 | 704 | 1.3+ | 0.0 | 2002 10 18 | 644 | 0.4+ | 0.2+ | 2008 05 03 | G96 | 0.2− | 0.2+ |
| 2002 10 04 | 704 | 0.9+ | 1.2+ | 2002 10 18 | 644 | 0.1+ | 0.1+ | 2008 05 03 | G96 | 0.1+ | 0.1− |
| 2002 10 09 | 704 | 0.4− | 0.4− | 2002 10 31 | 699 | (0.2+ | 1.7+) | 2009 11 10 | 691 | 0.5+ | 0.1+ |
| 2002 10 09 | 704 | 0.7− | 0.8− | 2002 10 31 | 699 | (1.6− | 2.1+) | 2009 11 10 | 691 | 0.0 | 0.1+ |
| 2002 10 09 | 704 | 0.3+ | 0.7+ | 2002 10 31 | 699 | 1.0− | 1.4+ | 2009 11 10 | 691 | 0.1− | 0.0 |
| 2002 10 09 | 704 | 0.3− | 0.5+ | 2002 10 31 | 699 | (0.7− | 1.8+) | 2009 11 18 | 691 | 0.1− | 0.7− |
| 2002 10 09 | 704 | 0.5+ | 1.1− | 2007 01 24 | G96 | 0.4− | 0.5− | 2009 11 18 | 691 | 0.0 | 0.4+ |
| 2002 10 12 | 704 | 0.0 | 0.5+ | 2007 01 24 | G96 | 0.1− | 0.1+ | 2009 11 18 | 691 | 0.3− | 0.0 |
| 2002 10 12 | 704 | 0.4− | 0.6− | 2007 01 24 | G96 | 0.0 | 0.1− | | | | |

**2002 TT$_{298}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 127.14209 | | (2000.0) | | | |
| $n$ | 0.18272786 | $\omega$ | 153.56775 | | +0.90917880 | −0.39861340 |
| $a$ | 3.0756213 | $\Omega$ | 230.45411 | | +0.34903215 | +0.88722636 |
| $e$ | 0.2383104 | $i$ | 8.98437 | | +0.22709130 | +0.23224286 |
| $P$ | 5.39 | $H$ | 16.1 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 10 12 | 704 | 0.4− | 0.7+ | 2002 10 31 | 644 | 0.1+ | 0.0 | 2002 12 10 | 644 | 0.1− | 0.4− |
| 2002 10 12 | 704 | 0.2− | 0.7+ | 2002 10 31 | 644 | 0.0 | 0.3+ | 2002 12 10 | 644 | 0.3− | 0.2− |
| 2002 10 12 | 704 | 0.2+ | 1.4+ | 2002 11 04 | 699 | 0.0 | 1.3− | 2007 09 11 | 703 | 0.7+ | 0.3+ |
| 2002 10 16 | 644 | 0.1+ | 0.5− | 2002 11 04 | 699 | 1.1+ | 0.0 | 2007 09 11 | 703 | 1.0− | 0.2− |
| 2002 10 16 | 644 | 0.4+ | 0.2− | 2002 11 04 | 699 | 0.9+ | 0.7− | 2007 09 11 | 703 | (3.0− | 1.6−) |
| 2002 10 16 | 644 | (2.2+ | 1.4−) | 2002 11 04 | 699 | 0.9− | 1.2− | 2007 09 20 | G96 | 0.0 | 0.1− |
| 2002 10 31 | 699 | 0.1+ | 0.5+ | 2002 11 06 | 704 | 0.0 | 0.2− | 2007 09 20 | G96 | 0.1− | 0.0 |
| 2002 10 31 | 699 | 0.7− | 0.0 | 2002 11 06 | 704 | 0.9+ | 0.4+ | 2007 09 20 | G96 | 0.3+ | 0.0 |
| 2002 10 31 | 699 | 0.5+ | 1.6− | 2002 11 06 | 704 | 1.2− | 1.6+ | 2007 09 20 | G96 | 0.2+ | 0.3− |
| 2002 10 31 | 644 | 0.1+ | 0.0 | 2002 11 06 | 704 | 0.3− | 1.5+ | | | | |
| 2002 10 31 | 699 | 0.3+ | 0.3− | 2002 12 10 | 644 | 0.8− | 0.3− | | | | |

**2002 TU$_{304}$ = 2009 WJ$_{219}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 354.29254 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.29354217 | $\omega$ | 11.71600 | | +0.05230233 | −0.99394539 | |
| $a$ | 2.2422759 | $\Omega$ | 75.34229 | | +0.90796981 | +0.00704664 | |
| $e$ | 0.0788695 | $i$ | 5.73220 | | +0.41575868 | +0.10964901 | |
| $P$ | 3.36 | $H$ | 19.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 10 04 | 645 | 0.0 | 0.0 | 2007 03 10 | G96 | 0.5+ | 0.3− | 2009 11 16 | 691 | 0.6− | 0.8+ |
| 2002 10 04 | 645 | 0.1+ | 0.0 | 2007 03 10 | G96 | 0.6− | 0.3+ | 2009 11 20 | 691 | 0.2+ | 0.2− |
| 2002 10 05 | 645 | 0.0 | 0.1+ | 2007 03 10 | G96 | 0.3+ | 0.1− | 2009 11 20 | 691 | 0.0 | 0.1− |
| 2002 10 05 | 645 | 0.0 | 0.0 | 2007 03 10 | G96 | 0.3− | 0.0 | 2009 11 20 | 691 | 0.0 | 0.1− |
| 2002 10 11 | 645 | 0.0 | 0.0 | 2009 11 16 | 691 | 0.4+ | 0.8− | | | | |
| 2002 10 11 | 645 | 0.1− | 0.0 | 2009 11 16 | 691 | 0.1+ | 0.4+ | | | | |

**2002 TE$_{350}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 105.74771 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17331627 | $\omega$ | 64.74104 | | +0.90419954 | +0.39229633 | |
| $a$ | 3.1859809 | $\Omega$ | 271.77891 | | −0.42671229 | +0.81265681 | |
| $e$ | 0.1151940 | $i$ | 9.72853 | | −0.01843382 | +0.43092053 | |
| $P$ | 5.69 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 07 21 | 644 | 0.7+ | 0.6− | 2002 09 12 | 644 | 0.6− | 0.3+ | 2002 10 10 | 645 | 0.2− | 0.2− |
| 2002 07 21 | 644 | 0.1+ | 0.1+ | 2002 09 12 | 644 | 0.2− | 0.1− | 2002 10 11 | 645 | 0.1+ | 0.0 |
| 2002 08 15 | 644 | 0.4+ | 0.6+ | 2002 09 12 | 644 | 0.2− | 0.1− | 2002 10 11 | 645 | 0.1+ | 0.1+ |
| 2002 08 15 | 644 | 0.1+ | 0.3+ | 2002 09 26 | 644 | 0.1− | 0.2+ | 2008 09 06 | G96 | 0.1+ | 0.3− |
| 2002 08 26 | 644 | 0.3− | 0.5+ | 2002 09 26 | 644 | 0.4− | 0.0 | 2008 09 06 | G96 | 0.2+ | 0.2− |
| 2002 08 26 | 644 | 0.1+ | 0.0 | 2002 09 26 | 644 | 0.1− | 0.2+ | 2008 09 06 | G96 | 0.1+ | 0.2+ |
| 2002 08 26 | 644 | 0.3− | 0.2− | 2002 09 27 | 644 | 0.1+ | 0.5+ | 2008 09 06 | G96 | 0.5− | 0.2+ |
| 2002 08 27 | 644 | 0.2+ | 0.2+ | 2002 09 27 | 644 | 0.4− | 0.4+ | 2008 10 09 | G96 | 0.3− | 0.1+ |
| 2002 08 27 | 644 | 0.2+ | 0.4+ | 2002 09 27 | 644 | 0.5− | 0.0 | 2008 10 09 | G96 | 0.1+ | 0.1+ |
| 2002 08 27 | 644 | 0.3+ | 0.1− | 2002 09 28 | 644 | 0.6− | 0.0 | 2008 10 09 | G96 | 0.1+ | 0.3+ |
| 2002 09 04 | 644 | 0.3− | 0.3+ | 2002 09 28 | 644 | 0.4− | 0.4− | 2008 10 09 | G96 | 0.1− | 0.0 |
| 2002 09 04 | 644 | 0.1+ | 0.3+ | 2002 09 28 | 644 | 0.2+ | 0.3− | | | | |
| 2002 09 04 | 644 | 0.4+ | 0.3+ | 2002 10 10 | 645 | 0.0 | 0.0 | | | | |

**2002 TS$_{385}$ = 2005 QC$_{148}$ = 2009 WY$_{48}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 160.49346 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28368866 | $\omega$ | 229.41854 | | −0.32660840 | +0.94314205 | |
| $a$ | 2.2939013 | $\Omega$ | 21.75652 | | −0.80905987 | −0.24521934 | |
| $e$ | 0.1422101 | $i$ | 9.58595 | | −0.48861956 | −0.22438927 | |
| $P$ | 3.47 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 10 15 | 644 | 0.1+ | 0.0 | 2005 08 28 | E12 | 0.4+ | 0.6− | 2009 11 19 | G96 | 0.1− | 0.1+ |
| 2002 10 15 | 644 | 0.2− | 0.1− | 2005 08 28 | E12 | 0.1− | 0.2+ | 2009 11 19 | G96 | 0.2− | 0.2− |
| 2002 10 15 | 644 | 0.2− | 0.1− | 2005 08 28 | E12 | 0.3+ | 0.3+ | 2009 11 19 | G96 | 0.3+ | 0.1− |
| 2002 10 31 | 644 | 0.8+ | 0.3+ | 2005 08 28 | E12 | 0.7− | 0.7− | 2009 11 21 | G96 | 0.0 | 0.5− |
| 2002 10 31 | 644 | 0.1+ | 0.4− | 2005 09 01 | 644 | 0.0 | 0.4+ | 2009 11 21 | G96 | 0.1− | 0.0 |
| 2002 10 31 | 644 | 0.4+ | 0.2+ | 2005 09 01 | 644 | 0.3+ | 0.4+ | 2009 11 21 | G96 | 0.3+ | 0.0 |
| 2002 11 23 | 644 | 0.9− | 0.4+ | 2005 09 01 | 644 | 0.1− | 0.0 | 2009 11 21 | G96 | 0.0 | 0.4− |
| 2002 11 23 | 644 | 0.7− | 0.6+ | 2009 11 19 | G96 | 0.4+ | 0.0 | | | | |

**2002 UH$_3$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 87.51721 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17452577 | $\omega$ | 276.21762 | | +0.49539265 | −0.85597365 | |
| $a$ | 3.1712441 | $\Omega$ | 142.87162 | | +0.86192093 | +0.46316902 | |
| $e$ | 0.3014604 | $i$ | 14.19041 | | +0.10806677 | +0.22974673 | |
| $P$ | 5.65 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 09 05 | 645 | 0.0 | 0.1− | 2002 10 28 | 644 | 0.3− | 0.3+ | 2002 11 06 | 644 | 0.2− | 0.2+ |
| 2002 09 05 | 645 | 0.0 | 0.1− | 2002 10 28 | 644 | 0.1− | 0.4+ | 2007 09 10 | G96 | 0.1+ | 0.0 |
| 2002 10 06 | 704 | 1.1+ | 1.2+ | 2002 10 29 | 704 | 0.2+ | 0.0 | 2007 09 10 | G96 | 0.0 | 0.3+ |
| 2002 10 06 | 704 | 0.8+ | 0.2− | 2002 10 29 | 704 | 1.1− | 0.9− | 2007 09 10 | G96 | 0.0 | 0.2+ |
| 2002 10 06 | 704 | 0.0 | 0.4+ | 2002 10 29 | 704 | (2.9− | 0.7−) | 2007 09 10 | G96 | 0.6− | 0.1+ |
| 2002 10 10 | 644 | 0.0 | 0.1+ | 2002 10 29 | 704 | 1.3+ | 0.1− | 2007 10 10 | G96 | 0.2+ | 0.0 |
| 2002 10 10 | 644 | 0.1+ | 0.3+ | 2002 10 29 | 704 | (0.7+ | 2.4+) | 2007 10 10 | G96 | 0.4+ | 0.0 |
| 2002 10 10 | 644 | 0.1+ | 0.3+ | 2002 11 06 | 644 | 0.4− | 0.2+ | 2007 10 10 | G96 | 0.4+ | 0.1+ |
| 2002 10 28 | 644 | 0.1− | 0.1− | 2002 11 06 | 644 | 0.2− | 0.3+ | 2007 10 10 | G96 | 0.5− | 0.2− |

**2002 UT$_4$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 7.98691 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28300455 | $\omega$ | 64.69927 | | +0.42521525 | −0.90509167 | |
| $a$ | 2.2975966 | $\Omega$ | 0.14875 | | +0.61841212 | +0.28969700 | |
| $e$ | 0.2247516 | $i$ | 23.48982 | | +0.66087702 | +0.31126311 | |
| $P$ | 3.48 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 10 01 | 704 | 0.2+ | 0.3+ | 2002 10 29 | 704 | 1.1+ | 0.9− | 2002 11 13 | 704 | 0.3− | 0.1+ |
| 2002 10 01 | 704 | 0.5− | 0.2+ | 2002 10 29 | 704 | 1.3+ | 0.5− | 2002 11 13 | 704 | 0.8− | 0.3+ |
| 2002 10 01 | 704 | 0.3− | 0.2+ | 2002 10 29 | 704 | 0.1− | 0.1− | 2007 03 15 | 703 | 1.3− | 0.2− |
| 2002 10 01 | 704 | 0.1+ | 0.3+ | 2002 10 30 | 704 | 0.1− | 0.2− | 2007 03 15 | 703 | 0.2+ | 1.3− |
| 2002 10 13 | 644 | 0.3− | 0.7+ | 2002 10 30 | 704 | 0.2+ | 0.2+ | 2007 03 15 | 703 | 1.0+ | 0.7+ |
| 2002 10 13 | 644 | 0.5− | 0.8+ | 2002 10 30 | 704 | 0.2+ | 0.2− | 2007 03 15 | 703 | 0.6− | 0.6+ |
| 2002 10 13 | 644 | 0.3− | 0.4+ | 2002 10 30 | 704 | 0.4− | 0.9− | 2007 05 11 | G96 | 0.5+ | 0.2+ |
| 2002 10 19 | 644 | 0.2+ | 0.6− | 2002 10 30 | 704 | 0.5− | 0.1− | 2007 05 11 | G96 | 0.2+ | 0.5+ |
| 2002 10 19 | 644 | 0.2− | 0.1− | 2002 11 13 | 704 | 0.5+ | 0.7+ | 2007 05 11 | G96 | 0.4+ | 0.1− |
| 2002 10 19 | 644 | 0.0 | 0.2− | 2002 11 13 | 704 | 0.2+ | 0.3+ | 2007 05 11 | G96 | 0.6+ | 0.1+ |
| 2002 10 29 | 704 | 0.8+ | 0.5− | 2002 11 13 | 704 | 0.7− | 0.6+ | | | | |

**2002 UY$_{13}$ = 2009 VT$_{107}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 15.45796 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28212321 | $\omega$ | 340.93057 | | +0.73214990 | −0.66439808 | |
| $a$ | 2.3023791 | $\Omega$ | 61.64690 | | +0.64500879 | +0.60544090 | |
| $e$ | 0.2837312 | $i$ | 9.82081 | | +0.21890681 | +0.43819688 | |
| $P$ | 3.49 | $H$ | 18.9 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 05 23 | 807 | 0.1+ | 0.2+ | 2002 10 31 | 704 | 1.3+ | 1.2+ | 2009 11 08 | 703 | 2.5+ | 1.4+ |
| 2001 05 23 | 807 | 0.1+ | 0.2+ | 2002 10 31 | 704 | 0.6− | 0.0 | 2009 11 20 | G96 | 0.0 | 0.1− |
| 2002 10 11 | 645 | 0.0 | 0.1− | 2002 10 31 | 704 | 0.1+ | 0.9+ | 2009 11 20 | G96 | 0.1+ | 0.4− |
| 2002 10 11 | 645 | 0.0 | 0.1− | 2002 10 31 | 704 | 0.7+ | 1.2+ | 2009 11 20 | G96 | 0.6− | 0.2− |
| 2002 10 29 | 645 | 0.0 | 0.0 | 2009 10 01 | G96 | 0.3− | 0.1− | 2009 11 20 | G96 | 0.3− | 0.4− |
| 2002 10 29 | 645 | 0.0 | 0.1− | 2009 10 01 | G96 | 0.5− | 0.5− | 2009 12 19 | G96 | 0.7− | 0.9− |
| 2002 10 29 | 644 | 0.3+ | 0.4+ | 2009 10 01 | G96 | 0.6− | 0.3− | 2009 12 19 | G96 | 0.0 | 0.2− |
| 2002 10 29 | 644 | 0.1+ | 0.5+ | 2009 10 01 | G96 | 0.7− | 0.1+ | 2009 12 19 | G96 | 0.5− | 0.4− |
| 2002 10 29 | 644 | 0.3+ | 0.7+ | 2009 11 08 | 703 | 0.0 | 0.3+ | 2009 12 19 | G96 | 0.2+ | 0.2− |
| 2002 10 30 | 645 | 0.0 | 0.1− | 2009 11 08 | 703 | 0.0 | 0.9+ | | | | |
| 2002 10 30 | 645 | 0.1− | 0.0 | 2009 11 08 | 703 | 0.3+ | 1.5+ | | | | |

**2002 UO$_{46}$ = 2002 UB$_{70}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 245.02708 | | (2000.0) | | | |
| $n$ | 0.21597074 | $\omega$ | 338.19456 | | +0.94505505 | +0.32682178 |
| $a$ | 2.7513094 | $\Omega$ | 2.76381 | | −0.27158942 | +0.79793375 |
| $e$ | 0.1652136 | $i$ | 9.12593 | | −0.18196194 | +0.50644768 |
| $P$ | 4.56 | $H$ | 16.0 | $G$ 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 10 16 | 735 | 0.3+ | 0.2+ | 2002 11 06 | 735 | 0.4− | 0.3+ | 2002 11 21 | 644 | (1.7+ | 0.1−) |
| 2002 10 16 | 735 | 0.2+ | 0.1+ | 2002 11 06 | 735 | 0.3− | 0.1− | 2002 11 21 | 644 | 0.5+ | 0.4+ |
| 2002 10 16 | 735 | 0.3+ | 0.0 | 2002 11 06 | 704 | 0.4− | 0.7− | 2002 11 21 | 644 | 0.2+ | 0.4− |
| 2002 10 30 | 608 | 0.2− | 0.7+ | 2002 11 06 | 735 | 0.5− | 0.9+ | 2006 07 31 | E12 | 0.6+ | 0.1+ |
| 2002 10 30 | 608 | 0.4+ | 0.5+ | 2002 11 06 | 704 | 0.4− | 0.3+ | 2006 07 31 | E12 | 0.1− | 0.3− |
| 2002 10 30 | 608 | 0.1+ | 0.1− | 2002 11 06 | 704 | 0.3− | 0.3− | 2006 07 31 | E12 | 0.6− | 0.3+ |
| 2002 10 31 | 735 | 0.1+ | 0.6− | 2002 11 13 | 644 | 0.4− | 0.1+ | 2006 08 14 | 644 | 0.1+ | 0.1− |
| 2002 10 31 | 735 | 0.1+ | 0.6− | 2002 11 13 | 644 | 0.3+ | 0.0 | 2006 08 14 | 644 | 0.1+ | 0.1+ |
| 2002 10 31 | 735 | 0.2− | 0.0 | 2002 11 13 | 644 | 0.4+ | 0.1− | 2006 08 14 | 644 | 0.1− | 0.0 |
| 2002 11 01 | 644 | 0.1− | 0.6− | 2002 11 20 | 644 | 0.1+ | 1.1− | 2009 03 02 | 691 | 0.0 | 0.1− |
| 2002 11 01 | 644 | 0.4+ | 0.8+ | 2002 11 20 | 644 | 1.0− | 0.3− | 2009 03 02 | 691 | 0.1− | 0.2+ |
| 2002 11 01 | 644 | 0.4+ | 0.7+ | 2002 11 20 | 644 | 0.7+ | 0.1+ | 2009 03 02 | 691 | 0.1+ | 0.1− |

**2002 UN$_{61}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 150.60502 | | (2000.0) | | | |
| $n$ | 0.18333605 | $\omega$ | 93.66592 | | +0.50950359 | +0.85074077 |
| $a$ | 3.0688157 | $\Omega$ | 208.16682 | | −0.85724905 | +0.48890021 |
| $e$ | 0.3033109 | $i$ | 15.86220 | | −0.07436507 | +0.19291638 |
| $P$ | 5.38 | $H$ | 17.1 | $G$ 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 14 | 644 | 0.2+ | 0.5+ | 2002 10 30 | 645 | 0.2− | 0.1+ | 2008 10 06 | G96 | 0.1+ | 0.3+ |
| 2002 08 14 | 644 | 0.1+ | 0.2+ | 2002 10 31 | 645 | 0.0 | 0.0 | 2008 10 06 | G96 | 0.4− | 0.2+ |
| 2002 08 14 | 644 | 0.3+ | 0.4+ | 2002 10 31 | 645 | 0.1− | 0.0 | 2008 11 03 | G96 | 0.1− | 0.1+ |
| 2002 09 03 | 644 | 0.0 | 0.6− | 2002 11 08 | 645 | 0.1+ | 0.0 | 2008 11 03 | G96 | 0.4− | 0.1− |
| 2002 09 03 | 644 | 0.4− | 0.7− | 2002 11 08 | 645 | 0.1+ | 0.0 | 2008 11 03 | G96 | 0.3+ | 0.1− |
| 2002 09 03 | 644 | 0.2+ | 0.7− | 2008 10 06 | G96 | 0.1+ | 0.2− | 2008 11 03 | G96 | 0.3+ | 0.1+ |
| 2002 10 30 | 645 | 0.1− | 0.0 | 2008 10 06 | G96 | 0.0 | 0.5− | | | | |

**2002 VT$_3$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 56.33018 | | (2000.0) | | | |
| $n$ | 0.28984931 | $\omega$ | 34.87492 | | +0.95209222 | −0.30546695 |
| $a$ | 2.2612810 | $\Omega$ | 342.89368 | | +0.26816655 | +0.85674925 |
| $e$ | 0.2296231 | $i$ | 2.82627 | | +0.14699359 | +0.41553659 |
| $P$ | 3.40 | $H$ | 17.1 | $G$ 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 10 10 | 704 | 0.9+ | 0.0 | 2002 11 08 | 704 | 0.3− | 0.3− | 2002 12 02 | 704 | 0.8− | 0.7+ |
| 2002 10 10 | 704 | (2.6+ | 0.6+) | 2002 11 12 | 704 | 0.6− | 0.5+ | 2002 12 05 | 695 | 0.0 | 0.2+ |
| 2002 10 10 | 704 | 1.0− | 1.1− | 2002 11 12 | 704 | 0.3− | 0.0 | 2002 12 05 | 695 | 0.1− | 0.1+ |
| 2002 10 10 | 704 | 0.1− | 1.3− | 2002 11 12 | 704 | 0.4+ | 0.4− | 2002 12 06 | 704 | 0.1+ | 1.0− |
| 2002 10 12 | 704 | 0.7+ | 1.5− | 2002 11 12 | 704 | 0.1− | 0.3+ | 2002 12 06 | 704 | 0.1+ | 0.1+ |
| 2002 10 12 | 704 | 0.3+ | 0.0 | 2002 11 12 | 704 | 0.4− | 0.1+ | 2002 12 06 | 704 | 0.1− | 0.3− |
| 2002 10 12 | 704 | 0.1− | 0.2− | 2002 11 14 | 704 | (1.7+ | 0.3+) | 2002 12 06 | 704 | 0.6+ | 0.6− |
| 2002 10 12 | 704 | 0.2− | 0.0 | 2002 11 14 | 704 | (2.2+ | 0.2−) | 2002 12 06 | 704 | 0.6+ | 0.2+ |
| 2002 11 01 | 644 | 0.3+ | 0.6− | 2002 11 14 | 704 | 0.8+ | 0.1+ | 2002 12 11 | 644 | 0.4− | 0.0 |
| 2002 11 01 | 644 | 0.1+ | 0.5− | 2002 11 14 | 704 | 0.7+ | 0.0 | 2002 12 11 | 644 | 0.0 | 0.2− |
| 2002 11 01 | 644 | 0.0 | 0.5− | 2002 11 14 | 704 | 1.0+ | 0.2− | 2002 12 11 | 644 | 0.3+ | 0.0 |
| 2002 11 04 | 644 | 0.2+ | 0.1− | 2002 11 27 | 699 | 0.2− | 0.6+ | 2002 12 27 | 644 | 0.5− | 0.2+ |
| 2002 11 04 | 644 | 0.1+ | 0.1+ | 2002 11 27 | 699 | 0.0 | 0.6+ | 2002 12 27 | 644 | 0.1+ | 0.0 |
| 2002 11 04 | 644 | 0.4+ | 0.2+ | 2002 11 27 | 699 | 0.1+ | 0.9+ | 2002 12 27 | 644 | 0.5− | 0.3− |
| 2002 11 05 | 704 | 0.9− | 0.3+ | 2002 11 27 | 699 | 0.7+ | 1.2+ | 2007 03 09 | G96 | 0.2− | 0.4− |
| 2002 11 05 | 704 | 0.4− | 0.2− | 2002 11 28 | 699 | 0.3+ | 0.3+ | 2007 03 09 | G96 | 0.5− | 0.2− |
| 2002 11 05 | 704 | 0.5− | 0.5+ | 2002 11 28 | 699 | 0.6− | 0.2+ | 2007 03 09 | G96 | 0.3− | 0.1− |
| 2002 11 05 | 704 | 0.4− | 0.0 | 2002 11 28 | 699 | 1.3+ | 0.7+ | 2007 03 09 | G96 | 0.5+ | 0.1− |
| 2002 11 05 | 699 | (0.2− | 2.2−) | 2002 11 28 | 699 | (1.6+ | 0.2−) | 2009 12 10 | 704 | 0.6+ | 0.9− |
| 2002 11 05 | 704 | 0.7− | 0.2+ | 2002 12 01 | 608 | 0.7− | 0.4− | 2009 12 10 | 704 | 0.0 | 1.1+ |
| 2002 11 05 | 699 | 0.0 | 0.0 | 2002 12 01 | 608 | 0.4− | 0.3− | 2009 12 10 | 704 | 0.0 | 0.9+ |
| 2002 11 05 | 699 | 0.3+ | 0.2+ | 2002 12 01 | 608 | 0.2− | 0.7− | 2009 12 10 | 704 | 0.6+ | 0.6+ |
| 2002 11 05 | 699 | 0.4+ | 0.2+ | 2002 12 02 | 704 | 0.0 | 0.1+ | 2009 12 19 | 691 | 0.0 | 0.1− |
| 2002 11 08 | 704 | 0.2− | 0.1+ | 2002 12 02 | 704 | 0.1− | 0.4+ | 2009 12 19 | 691 | 0.4− | 0.4− |
| 2002 11 08 | 704 | 0.0 | 1.0+ | 2002 12 02 | 704 | 0.3− | 0.1− | 2009 12 19 | 691 | 0.0 | 0.2− |
| 2002 11 08 | 704 | 0.1+ | 0.3− | 2002 12 02 | 704 | 0.4− | 0.9+ | | | | |

**2002 VR$_5$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 48.11234 | | (2000.0) | | | |
| $n$ | 0.28590472 | $\omega$ | 308.41442 | | +0.96817279 | −0.24588181 |
| $a$ | 2.2820325 | $\Omega$ | 65.86351 | | +0.24261966 | +0.87618018 |
| $e$ | 0.2070575 | $i$ | 2.93515 | | +0.06145852 | +0.41454847 |
| $P$ | 3.45 | $H$ | 17.6 | $G$ 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 10 26 | 691 | 0.1+ | 0.0 | 2002 12 09 | 291 | 0.1+ | 0.4− | 2009 10 16 | G96 | 0.1+ | 0.2− |
| 1995 10 26 | 691 | 0.4− | 0.3+ | 2002 12 09 | 291 | 0.1− | 0.3− | 2009 11 08 | 691 | 0.2− | 0.3+ |
| 1995 10 26 | 691 | 0.4− | 0.0 | 2002 12 09 | 291 | 0.2+ | 1.0− | 2009 11 08 | 691 | 0.1− | 0.2− |
| 2002 11 02 | 950 | (2.1+ | 0.7+) | 2002 12 10 | 644 | 0.0 | 0.0 | 2009 11 08 | 691 | 0.5+ | 0.0 |
| 2002 11 02 | 950 | (2.2+ | 0.7+) | 2002 12 10 | 644 | 0.2+ | 0.0 | 2009 11 16 | 691 | 0.3+ | 0.1− |
| 2002 11 02 | 950 | (2.1+ | 0.8+) | 2002 12 10 | 644 | 0.3+ | 0.2+ | 2009 11 16 | 691 | 0.0 | 0.2− |
| 2002 11 05 | 950 | 0.2+ | 0.9+ | 2007 01 15 | 291 | 0.9− | 0.0 | 2009 11 16 | 691 | 0.4− | 0.0 |
| 2002 11 05 | 950 | 0.2+ | 0.8+ | 2007 01 15 | 291 | 0.1+ | 0.3− | 2009 12 09 | J75 | 0.5+ | 0.4+ |
| 2002 11 05 | 950 | 0.0 | 1.0+ | 2007 01 15 | 291 | 0.1+ | 0.2+ | 2009 12 09 | J75 | 0.0 | 0.2− |
| 2002 11 06 | 704 | 0.8+ | 0.6− | 2007 01 26 | 691 | 0.4+ | 0.4+ | 2009 12 09 | J75 | 1.0+ | 0.0 |
| 2002 11 06 | 704 | 0.2+ | 0.3− | 2007 01 26 | 691 | 0.6+ | 0.4− | 2009 12 15 | G96 | 0.4+ | 0.0 |
| 2002 11 06 | 704 | 0.8+ | 0.6− | 2007 01 26 | 691 | 0.2+ | 0.3+ | 2009 12 15 | G96 | 0.2+ | 0.4− |
| 2002 11 06 | 704 | 0.5+ | 0.0 | 2009 09 22 | G96 | 0.6+ | 0.0 | 2009 12 15 | G96 | 1.0+ | 0.3− |
| 2002 11 10 | 704 | 0.2− | 1.1+ | 2009 09 22 | G96 | 0.7+ | 0.4− | 2009 12 15 | G96 | 0.4+ | 0.1− |
| 2002 11 10 | 704 | 0.4+ | 0.7+ | 2009 09 22 | G96 | 0.8+ | 0.3+ | 2009 12 16 | 291 | 0.8− | 0.2+ |
| 2002 11 10 | 704 | 0.7− | 0.7+ | 2009 09 22 | G96 | 0.4+ | 0.0 | 2009 12 16 | 291 | 1.2− | 0.2+ |
| 2002 11 12 | 644 | 0.4+ | 0.5+ | 2009 10 16 | G96 | 0.3+ | 0.1− | 2009 12 16 | 291 | 0.5− | 0.1+ |
| 2002 11 12 | 644 | 0.1+ | 0.4+ | 2009 10 16 | G96 | 0.4+ | 0.2− | | | | |
| 2002 11 12 | 644 | 0.3+ | 0.3+ | 2009 10 16 | G96 | 0.5+ | 0.1− | | | | |

**2002 VO$_{14}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 359.19028 | | (2000.0) | | | |
| $n$ | 0.27213288 | $\omega$ | 163.13937 | | +0.68211599 | −0.60501920 |
| $a$ | 2.3583886 | $\Omega$ | 241.49005 | | +0.60535244 | +0.78226804 |
| $e$ | 0.3520845 | $i$ | 27.86371 | | +0.41020262 | −0.14835253 |
| $P$ | 3.62 | $H$ | 17.1 | $G$ 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 11 06 | 704 | 0.3+ | 0.1− | 2002 11 07 | 734 | 1.4+ | 0.6− | 2002 12 15 | 608 | 0.4− | 0.0 |
| 2002 11 06 | 704 | 0.2+ | 0.3− | 2002 11 07 | 734 | 0.4+ | 0.2− | 2002 12 15 | 608 | 0.7− | 0.1− |
| 2002 11 06 | 704 | 0.2+ | 0.2− | 2002 11 07 | 704 | 1.0+ | 0.0 | 2003 01 02 | 704 | 0.5− | 1.1− |
| 2002 11 06 | 704 | 0.0 | 0.3− | 2002 11 07 | 734 | 0.4− | 0.1− | 2003 01 02 | 704 | 0.2+ | 0.6− |
| 2002 11 06 | 704 | 0.5+ | 0.0 | 2002 11 07 | 704 | 0.4− | 0.6− | 2003 01 02 | 704 | 0.4+ | 0.8− |
| 2002 11 07 | 557 | 0.1+ | 0.2+ | 2002 11 07 | 704 | 1.5+ | 1.1+ | 2003 01 02 | 704 | 1.1+ | 1.1− |
| 2002 11 07 | 557 | 0.1+ | 0.3+ | 2002 11 07 | 704 | 0.4− | 0.5− | 2003 01 02 | 704 | 0.3+ | 0.4− |
| 2002 11 07 | J95 | (2.0+ | 2.3+) | 2002 11 07 | 926 | 0.1+ | 0.8− | 2003 01 08 | 699 | 0.3− | 0.4+ |
| 2002 11 07 | J95 | 0.2− | 0.1− | 2002 11 07 | 926 | 0.5+ | 0.5− | 2003 01 08 | 699 | 0.8− | 0.1− |
| 2002 11 07 | 246 | 0.6+ | 0.3− | 2002 11 10 | 704 | 0.2− | 0.7+ | 2003 01 08 | 699 | 1.1− | 0.8+ |
| 2002 11 07 | 246 | 0.5+ | 0.0 | 2002 11 10 | 704 | 0.8+ | 1.0+ | 2003 01 08 | 699 | 1.0− | 0.9+ |
| 2002 11 07 | 246 | 0.2+ | 0.0 | 2002 11 10 | 704 | 0.4+ | 0.1− | 2003 01 24 | 644 | 0.1− | 0.4+ |
| 2002 11 07 | 246 | 0.5− | 0.6− | 2002 11 11 | 704 | 0.7− | 0.5+ | 2003 01 24 | 644 | 0.0 | 0.4+ |
| 2002 11 07 | 246 | 0.5− | 0.3− | 2002 11 11 | 704 | 0.2− | 0.7+ | 2003 02 09 | 644 | 0.4− | 0.4− |
| 2002 11 07 | 246 | 0.0 | 0.3+ | 2002 11 11 | 704 | 0.7− | 0.6+ | 2003 02 09 | 644 | 0.2− | 0.3+ |
| 2002 11 07 | 854 | 1.2− | 1.0+ | 2002 11 11 | 704 | 0.8− | 0.6+ | 2003 02 09 | 644 | 0.1− | 0.2− |
| 2002 11 07 | 854 | 0.7− | 0.0 | 2002 11 11 | 704 | 1.0− | 1.1+ | 2009 05 01 | G96 | 0.1− | 0.3− |
| 2002 11 07 | 854 | (2.9− | 0.2−) | 2002 11 14 | 704 | 0.5+ | 0.0 | 2009 05 01 | G96 | 0.0 | 0.4− |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 11 07 | 854 | (1.0+ | 2.3+) | 2002 11 14 | 704 | 0.3+ | 0.5− | 2009 05 01 | G96 | 0.5+ | 0.4− | | |
| 2002 11 07 | 704 | 0.5+ | 0.5+ | 2002 11 14 | 704 | 0.4+ | 0.3− | 2009 05 01 | G96 | 0.6+ | 0.0 | | |
| 2002 11 07 | 704 | 0.7− | 0.4− | 2002 11 14 | 704 | 0.0 | 0.4− | 2009 12 19 | 703 | 0.3− | 0.6− | | |
| 2002 11 07 | 704 | 0.4+ | 0.3+ | 2002 12 01 | 704 | 0.4+ | 0.7+ | 2009 12 19 | 703 | 0.0 | 0.5− | | |
| 2002 11 07 | 704 | 0.9− | 0.6− | 2002 12 01 | 704 | 0.6+ | 0.2+ | 2009 12 19 | 703 | 0.4+ | 0.7− | | |
| 2002 11 07 | 704 | 1.0+ | 0.1+ | 2002 12 01 | 704 | 0.7+ | 0.3− | 2009 12 19 | 703 | 0.2− | 0.3+ | | |
| 2002 11 07 | 704 | 0.3+ | 0.1− | 2002 12 15 | 608 | 0.7− | 0.0 | | | | | | |

**2002 VF$_{39}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 63.06695 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28976159 | $\omega$ | 283.23047 | | +0.98755129 | +0.02448735 | |
| $a$ | 2.2617374 | $\Omega$ | 75.53095 | | +0.04519685 | +0.90197887 | |
| $e$ | 0.2807305 | $i$ | 9.23413 | | −0.15066420 | +0.43108524 | |
| $P$ | 3.40 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 09 16 | 608 | 0.3+ | 0.2− | 2002 11 06 | 699 | 0.3− | 0.1− | 2002 11 30 | 608 | 0.3− | 0.6− | | |
| 2002 09 16 | 608 | 0.1− | 0.1− | 2002 11 06 | 699 | 0.5− | 0.2+ | 2002 11 30 | 608 | 0.0 | 0.9− | | |
| 2002 09 16 | 608 | 0.5+ | 0.2− | 2002 11 06 | 699 | 0.7− | 0.0 | 2002 11 30 | 608 | 0.1− | 1.1− | | |
| 2002 10 07 | 608 | 0.5− | 0.5− | 2002 11 07 | 608 | 0.4+ | 0.1− | 2002 12 01 | 704 | 0.0 | 0.0 | | |
| 2002 10 07 | 608 | 0.1− | 0.4− | 2002 11 07 | 608 | 0.1+ | 0.2+ | 2002 12 01 | 704 | 0.0 | 0.6+ | | |
| 2002 10 07 | 608 | 0.2− | 0.6− | 2002 11 07 | 608 | 0.1− | 0.2+ | 2002 12 01 | 704 | 0.3+ | 0.7+ | | |
| 2002 10 31 | 704 | 0.2− | 0.3− | 2002 11 11 | 644 | 0.3− | 0.4+ | 2002 12 01 | 704 | (0.8+ | 2.2+) | | |
| 2002 10 31 | 704 | 1.0− | 1.0+ | 2002 11 11 | 644 | 0.3− | 0.1− | 2002 12 01 | 704 | 0.3− | 0.1− | | |
| 2002 10 31 | 704 | 0.2− | 0.2+ | 2002 11 11 | 644 | 0.3− | 0.1− | 2009 11 16 | 691 | 0.1− | 0.4+ | | |
| 2002 10 31 | 704 | 0.4− | 0.1+ | 2002 11 12 | 704 | 0.3+ | 0.7+ | 2009 11 16 | 691 | 0.3− | 0.1− | | |
| 2002 10 31 | 704 | 0.2+ | 0.8+ | 2002 11 12 | 704 | 0.5+ | 0.7− | 2009 11 16 | 691 | 0.2− | 0.1− | | |
| 2002 11 05 | 704 | 1.3+ | 0.1− | 2002 11 12 | 704 | 0.2+ | 0.1+ | 2009 11 23 | 114 | 0.3+ | 0.3− | | |
| 2002 11 05 | 704 | 0.9+ | 0.1− | 2002 11 12 | 704 | 0.1+ | 0.0 | 2009 11 23 | 114 | 0.4+ | 0.2− | | |
| 2002 11 05 | 704 | 0.1+ | 0.7+ | 2002 11 12 | 673 | 0.7− | 0.0 | 2009 11 23 | 114 | 0.6+ | 0.0 | | |
| 2002 11 05 | 704 | 0.8+ | 0.2+ | 2002 11 12 | 673 | 0.1+ | 0.2− | 2009 11 23 | 114 | 0.3+ | 0.5− | | |
| 2002 11 06 | 699 | 0.5+ | 0.3+ | 2002 11 12 | 673 | 0.2− | 0.2− | 2009 11 23 | 114 | 0.5+ | 0.1+ | | |

**2002 VZ$_{51}$ = 2009 VV$_{111}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 77.15960 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28201228 | $\omega$ | 249.24547 | | +0.78123488 | +0.60663717 | |
| $a$ | 2.3029828 | $\Omega$ | 73.11638 | | −0.50010216 | +0.74934389 | |
| $e$ | 0.1608407 | $i$ | 8.84807 | | −0.37359054 | +0.26547144 | |
| $P$ | 3.49 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 10 31 | 704 | 0.4− | 0.9− | 2002 11 21 | 644 | 0.4− | 0.3+ | 2008 04 05 | G96 | 0.2+ | 0.1+ | | |
| 2002 10 31 | 704 | 0.1+ | 0.4+ | 2006 10 23 | G96 | 0.1+ | 0.6− | 2008 04 05 | G96 | 0.1+ | 0.4+ | | |
| 2002 10 31 | 704 | 0.0 | 0.0 | 2006 10 23 | G96 | 0.2− | 0.6− | 2008 05 01 | 703 | 0.1− | 0.8+ | | |
| 2002 10 31 | 704 | 0.4− | 0.2− | 2006 10 23 | G96 | 0.2+ | 0.4+ | 2008 05 01 | 703 | 0.7+ | 2.4+ | | |
| 2002 10 31 | 704 | 0.1− | 0.1+ | 2006 10 23 | G96 | 0.4+ | 0.6− | 2008 05 01 | 703 | 0.4+ | 0.6+ | | |
| 2002 11 06 | 699 | 0.5+ | 0.8+ | 2008 01 19 | G96 | 0.8+ | 0.2+ | 2008 05 01 | 703 | 0.9− | 0.2+ | | |
| 2002 11 06 | 699 | 0.2− | 0.5+ | 2008 01 19 | G96 | 0.2− | 0.7− | 2009 11 06 | 703 | 0.9− | 0.7− | | |
| 2002 11 06 | 699 | 0.5+ | 0.5+ | 2008 01 19 | G96 | 1.2− | 1.1− | 2009 11 06 | 703 | 1.4+ | 0.9− | | |
| 2002 11 06 | 699 | 0.8− | 0.8+ | 2008 01 19 | G96 | 0.2+ | 0.2+ | 2009 11 06 | 703 | 1.1+ | 0.2− | | |
| 2002 11 07 | 704 | 0.8− | 0.8+ | 2008 03 07 | G96 | 1.2+ | 0.5− | 2009 11 06 | 703 | (0.1+ | 1.5−) | | |
| 2002 11 07 | 704 | 1.0− | 0.2+ | 2008 03 07 | G96 | 0.3+ | 0.4− | 2009 11 12 | J75 | (1.2+ | 1.7−) | | |
| 2002 11 07 | 704 | 0.1− | 0.8+ | 2008 03 07 | G96 | 0.4+ | 0.6+ | 2009 11 12 | J75 | 0.1− | 0.4− | | |
| 2002 11 07 | 704 | 0.3+ | 1.0+ | 2008 03 07 | G96 | 0.0 | 0.1− | 2009 11 12 | J75 | 0.7+ | 0.3+ | | |
| 2002 11 11 | 704 | 1.0+ | 0.7+ | 2008 04 05 | G96 | 0.1+ | 0.1+ | 2009 11 20 | G96 | 0.5− | 0.3− | | |
| 2002 11 11 | 704 | 0.0 | 1.0+ | 2008 04 05 | G96 | 0.1− | 0.2+ | 2009 11 20 | G96 | 0.2− | 0.5− | | |
| 2002 11 11 | 704 | 1.1− | 0.7+ | 2008 04 05 | G96 | 0.1+ | 0.5+ | 2009 11 20 | G96 | 0.2− | 0.5− | | |
| 2002 11 21 | 644 | 0.5− | 0.5+ | 2008 04 05 | G96 | 0.0 | 0.1− | 2009 11 20 | G96 | 0.2+ | 0.4− | | |
| 2002 11 21 | 644 | 0.4− | 0.2− | 2008 04 05 | G96 | 0.2− | 0.2+ | | | | | | |

**2002 VB$_{58}$ = 2009 WV$_{246}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 26.96220 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28514252 | $\omega$ | 213.48155 | | +0.76061632 | −0.64910262 | |
| $a$ | 2.2860974 | $\Omega$ | 187.02553 | | +0.61412447 | +0.72507340 | |
| $e$ | 0.2572111 | $i$ | 5.31969 | | +0.21050877 | +0.23007466 | |
| $P$ | 3.46 | $H$ | 18.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 10 16 | 644 | 0.3− | 0.1− | 2002 11 07 | 704 | 0.7− | 0.5+ | 2009 11 17 | 703 | 0.1+ | 0.5− | | |
| 2002 10 16 | 644 | 0.0 | 0.9+ | 2002 11 07 | 704 | 0.6− | 0.1− | 2009 11 17 | 703 | 0.5+ | 0.9− | | |
| 2002 10 16 | 644 | 0.4− | 0.1+ | 2002 11 11 | 704 | 0.7+ | 0.2+ | 2009 11 24 | D29 | 0.3− | 0.7− | | |
| 2002 10 16 | 644 | 0.0 | 1.1+ | 2002 11 11 | 704 | 0.8+ | 0.0 | 2009 11 24 | D29 | 0.0 | 0.1− | | |
| 2002 10 16 | 644 | 0.5− | 0.3+ | 2002 11 11 | 704 | 0.5+ | 0.3− | 2009 11 24 | D29 | 0.4+ | 1.6− | | |
| 2002 10 16 | 644 | 0.3+ | 1.0+ | 2007 03 12 | G96 | 0.4+ | 0.4+ | 2009 11 24 | D29 | (1.9+ | 0.5+) | | |
| 2002 11 06 | 699 | 0.3− | 0.4+ | 2007 03 12 | G96 | 0.0 | 0.2− | 2009 11 26 | G96 | 0.3+ | 0.3− | | |
| 2002 11 06 | 699 | 0.5− | 0.6− | 2007 03 12 | G96 | 0.2+ | 0.1+ | 2009 11 26 | G96 | 0.3+ | 0.1− | | |
| 2002 11 06 | 699 | 1.1− | 0.2− | 2007 03 12 | G96 | 0.1− | 0.8+ | 2009 11 26 | G96 | 0.2− | 0.0 | | |
| 2002 11 06 | 699 | 0.2+ | 0.1+ | 2009 10 12 | G96 | 0.3+ | 0.4− | 2009 11 26 | G96 | 0.1− | 0.1− | | |
| 2002 11 06 | 608 | 0.1+ | 0.1+ | 2009 10 12 | G96 | 0.4+ | 0.7− | 2009 11 26 | G96 | 0.2− | 0.2− | | |
| 2002 11 06 | 608 | 0.3− | 0.2− | 2009 10 12 | G96 | 0.1+ | 0.3− | 2009 12 13 | 704 | 0.9− | 0.5+ | | |
| 2002 11 06 | 608 | 0.6+ | 0.2− | 2009 10 12 | G96 | 0.2+ | 0.3− | 2009 12 13 | 704 | 0.2− | 1.4+ | | |
| 2002 11 07 | 704 | 1.4+ | 0.3− | 2009 11 17 | 703 | 0.1+ | 0.1+ | 2009 12 13 | 704 | 0.2+ | 0.8+ | | |
| 2002 11 07 | 704 | 0.6− | 0.1+ | 2009 11 17 | 703 | 0.5− | 0.3− | 2009 12 13 | 704 | 0.0 | 0.6+ | | |

**2002 VW$_{92}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 99.10913 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17562379 | $\omega$ | 202.29001 | | +0.61200194 | −0.78788807 | |
| $a$ | 3.1580123 | $\Omega$ | 210.10445 | | +0.74463154 | +0.60322703 | |
| $e$ | 0.1944310 | $i$ | 7.84411 | | +0.26641601 | +0.12389329 | |
| $P$ | 5.61 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 10 30 | 608 | 0.3− | 0.4+ | 2002 11 13 | 704 | 0.4+ | 0.4− | 2002 12 10 | 644 | 0.1+ | 0.1+ | | |
| 2002 10 30 | 608 | 0.8− | 0.6+ | 2002 11 13 | 704 | 0.3+ | 0.1+ | 2007 09 11 | 703 | 0.2+ | 0.8− | | |
| 2002 10 30 | 608 | 0.2− | 0.7+ | 2002 11 13 | 704 | 0.8+ | 0.9− | 2007 09 11 | 703 | 0.5− | 0.5+ | | |
| 2002 11 11 | 704 | 0.7− | 0.2− | 2002 11 13 | 704 | 1.1+ | 1.0+ | 2007 09 11 | 703 | 0.2− | 0.1+ | | |
| 2002 11 11 | 704 | 0.2+ | 0.8− | 2002 11 23 | 644 | 0.1− | 0.2+ | 2007 09 11 | 703 | 0.1+ | 0.1− | | |
| 2002 11 11 | 704 | 0.4− | 0.9− | 2002 11 23 | 644 | 0.3+ | 0.1+ | 2007 10 13 | G96 | 0.1+ | 0.0 | | |
| 2002 11 11 | 704 | 1.1− | 0.9− | 2002 11 23 | 644 | 0.0 | 0.4+ | 2007 10 13 | G96 | 0.3+ | 0.1+ | | |
| 2002 11 11 | 704 | 0.5− | 0.1− | 2002 12 10 | 644 | 0.1+ | 0.1+ | 2007 10 13 | G96 | 0.1− | 0.1+ | | |
| 2002 11 13 | 704 | 0.9+ | 0.1+ | 2002 12 10 | 644 | 0.2− | 0.3+ | 2007 10 13 | G96 | 0.1+ | 0.1+ | | |

**2002 VK$_{95}$ = 2009 YZ$_{4}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 74.51032 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.29779428 | $\omega$ | 291.73117 | | +0.94242097 | −0.31619138 | |
| $a$ | 2.2208803 | $\Omega$ | 86.83490 | | +0.33271724 | +0.85355424 | |
| $e$ | 0.1749934 | $i$ | 6.26323 | | +0.03379283 | +0.41408715 | |
| $P$ | 3.31 | $H$ | 17.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 10 26 | 608 | 0.2− | 0.1− | 2002 11 11 | 704 | 0.0 | 0.1− | 2009 11 21 | G96 | 0.1+ | 0.5− | | |
| 2002 10 26 | 608 | 0.2− | 0.6− | 2002 11 11 | 704 | 0.1− | 1.3− | 2009 11 21 | G96 | 0.1− | 0.0 | | |
| 2002 10 26 | 608 | 0.1− | 0.4− | 2002 11 13 | 644 | 0.4− | 0.2+ | 2009 11 21 | G96 | 0.2+ | 0.1− | | |
| 2002 10 31 | 704 | 0.4+ | 1.0+ | 2002 11 13 | 644 | 0.4− | 0.3+ | 2009 11 21 | G96 | 0.2+ | 0.2− | | |
| 2002 10 31 | 704 | 0.5+ | 0.1+ | 2002 11 13 | 644 | 0.5− | 0.3+ | 2009 12 17 | G96 | 0.2+ | 0.5− | | |
| 2002 10 31 | 704 | 0.3− | 1.3− | 2002 11 21 | 644 | 0.2− | 0.6+ | 2009 12 17 | G96 | 0.2− | 0.2+ | | |
| 2002 10 31 | 704 | 0.7+ | 0.9+ | 2002 11 21 | 644 | 0.3− | 0.3+ | 2009 12 17 | G96 | 0.4+ | 0.2+ | | |
| 2002 10 31 | 704 | 0.3+ | 0.3− | 2002 11 21 | 644 | 0.2− | 0.2+ | 2009 12 17 | G96 | 0.6+ | 0.1+ | | |
| 2002 11 07 | 704 | 0.9+ | 0.4+ | 2004 03 21 | 691 | 0.5− | 0.0 | 2009 12 18 | 691 | 0.4+ | 0.0 | | |
| 2002 11 07 | 704 | 0.8+ | 0.4− | 2004 03 21 | 691 | 0.4− | 0.1− | 2009 12 18 | 691 | 0.1+ | 0.0 | | |
| 2002 11 07 | 704 | 0.0 | 0.6− | 2004 03 21 | 691 | 1.0+ | 0.2+ | 2009 12 18 | 691 | 0.2− | 0.2+ | | |
| 2002 11 07 | 704 | 0.2− | 0.7+ | 2009 11 11 | G96 | 0.6+ | 0.1− | 2009 12 26 | 691 | 0.2− | 0.2− | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 11 07 | 704 | 0.8− | 1.3+ | 2009 11 11 | G96 | 0.1+ | 0.3− | 2009 12 26 | 691 | 0.3− | 0.4+ | | |
| 2002 11 11 | 704 | 0.2− | 0.8− | 2009 11 11 | G96 | 0.4− | 0.1+ | 2009 12 26 | 691 | 0.1− | 0.3− | | |
| 2002 11 11 | 704 | 0.4+ | 0.0 | 2009 11 11 | G96 | 0.1+ | 0.1+ | | | | | | |

**2002 VG$_{112}$ = 2009 VE$_{110}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| $M$ | 38.29612 | | (2000.0) | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $n$ | 0.28151128 | $\omega$ | 57.41621 | | +0.92902980 | −0.36961626 |
| $a$ | 2.3057144 | $\Omega$ | 324.26757 | | +0.32899974 | +0.84617044 |
| $e$ | 0.2444293 | $i$ | 1.66361 | | +0.16930092 | +0.38390027 |
| $P$ | 3.50 | $H$ | 17.4 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 11 12 | 704 | 1.4− | 0.4+ | 2002 12 08 | 333 | 0.3− | 0.1+ | 2009 11 17 | 691 | 0.6− | 0.4− | | |
| 2002 11 12 | 704 | 0.5− | 0.2+ | 2002 12 09 | 333 | 0.9+ | 0.0 | 2009 11 17 | 691 | 1.6+ | 0.6+ | | |
| 2002 11 12 | 704 | (1.8+ | 0.5+) | 2002 12 09 | 333 | (2.6+ | 2.2−) | 2009 11 17 | 691 | 2.0+ | 0.7+ | | |
| 2002 11 13 | 704 | 0.7+ | 1.1+ | 2002 12 09 | 333 | 0.5+ | 0.4− | 2009 11 24 | J75 | 0.7− | 0.6− | | |
| 2002 11 13 | 704 | 1.1+ | 0.5+ | 2002 12 11 | 704 | 0.7− | 0.2− | 2009 11 24 | J75 | 0.2− | 0.5− | | |
| 2002 11 13 | 704 | 0.6− | 0.2+ | 2002 12 11 | 704 | 0.8+ | 0.2− | 2009 11 25 | J75 | 0.3− | 0.6− | | |
| 2002 11 13 | 704 | 0.5− | 0.0 | 2002 12 11 | 704 | 0.9+ | 0.5− | 2009 11 25 | 691 | 0.8− | 0.2− | | |
| 2002 11 14 | 704 | 0.2+ | 0.9+ | 2002 12 11 | 704 | 0.5+ | 0.8− | 2009 11 25 | 691 | 0.6− | 0.0 | | |
| 2002 11 14 | 704 | 0.5+ | 0.3+ | 2002 12 11 | 704 | 0.9− | 0.0 | 2009 11 25 | 691 | 0.7− | 0.3− | | |
| 2002 11 14 | 704 | 0.6− | 0.7+ | 2007 02 22 | 691 | 0.3+ | 0.0 | 2009 12 16 | 704 | 0.1− | 0.6+ | | |
| 2002 11 14 | 704 | 0.4− | 1.4+ | 2007 02 22 | 691 | 0.0 | 0.0 | 2009 12 16 | 704 | 0.5− | 0.4+ | | |
| 2002 12 05 | 695 | 0.1− | 0.4− | 2007 02 22 | 691 | 0.2− | 0.2+ | 2009 12 16 | 704 | 0.0 | 0.0 | | |
| 2002 12 05 | 695 | 0.2+ | 0.4− | 2009 10 17 | G96 | 0.3− | 0.2− | 2009 12 16 | 704 | 0.4+ | 0.5+ | | |
| 2002 12 06 | 704 | 0.3+ | 0.4− | 2009 10 17 | G96 | 0.4− | 0.4− | 2009 12 16 | 704 | 0.3− | 0.9+ | | |
| 2002 12 06 | 704 | 0.6− | 0.7− | 2009 10 17 | G96 | 0.2+ | 0.3− | 2009 12 16 | G96 | 0.3− | 0.3− | | |
| 2002 12 06 | 704 | 0.1− | 0.4+ | 2009 10 17 | G96 | 0.1+ | 0.5− | 2009 12 16 | G96 | 0.0 | 0.3− | | |
| 2002 12 06 | 704 | 0.1+ | 0.3− | 2009 11 09 | G96 | 0.2− | 0.6− | 2009 12 16 | G96 | 0.3− | 0.0 | | |
| 2002 12 06 | 704 | 0.5− | 0.3− | 2009 11 09 | G96 | 0.4− | 0.4− | 2009 12 16 | G96 | 0.5− | 0.6− | | |
| 2002 12 08 | 333 | 0.4+ | 0.2+ | 2009 11 09 | G96 | 0.0 | 0.6− | | | | | | |
| 2002 12 08 | 333 | 0.1+ | 0.3− | 2009 11 09 | G96 | 0.2− | 0.3− | | | | | | |

**2002 WA$_3$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| $M$ | 114.06256 | | (2000.0) | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $n$ | 0.17781866 | $\omega$ | 322.32293 | | +0.83087668 | −0.50603370 |
| $a$ | 3.1319717 | $\Omega$ | 69.61544 | | +0.55143601 | +0.69302083 |
| $e$ | 0.3258853 | $i$ | 14.29554 | | +0.07458063 | +0.51347057 |
| $P$ | 5.54 | $H$ | 16.0 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 10 30 | 608 | 0.9− | 0.6− | 2002 11 25 | 644 | 0.1+ | 0.3+ | 2002 12 10 | 704 | 0.0 | 0.1− | | |
| 2002 10 30 | 608 | 1.2− | 0.8− | 2002 12 02 | 704 | (0.1− | 2.1−) | 2002 12 10 | 644 | 0.5+ | 1.6+ | | |
| 2002 10 30 | 608 | 0.6− | 0.2− | 2002 12 02 | 704 | 0.3− | 1.2− | 2002 12 10 | 644 | 1.2+ | 1.1+ | | |
| 2002 11 07 | 704 | 2.0+ | 0.4− | 2002 12 02 | 704 | 0.3+ | 1.4− | 2002 12 31 | 704 | 0.5+ | 0.9− | | |
| 2002 11 07 | 704 | 0.4+ | 1.0+ | 2002 12 02 | 704 | 0.3+ | 1.9− | 2002 12 31 | 704 | 1.2− | 0.9− | | |
| 2002 11 07 | 704 | 1.0− | 0.6+ | 2002 12 02 | 704 | 1.4+ | 1.8− | 2002 12 31 | 704 | 0.4− | 0.4+ | | |
| 2002 11 11 | 704 | 0.2− | 0.3+ | 2002 12 05 | 704 | 0.1+ | 0.1+ | 2008 12 01 | G96 | 0.0 | 0.0 | | |
| 2002 11 11 | 704 | 0.6− | 0.8+ | 2002 12 05 | 704 | 0.7− | 0.2+ | 2008 12 01 | G96 | 0.0 | 0.1+ | | |
| 2002 11 11 | 704 | 0.4− | 0.3+ | 2002 12 05 | 704 | 0.1− | 0.2+ | 2008 12 01 | G96 | 0.3+ | 0.2+ | | |
| 2002 11 11 | 704 | 0.6− | 0.0 | 2002 12 05 | 704 | 0.3+ | 0.2− | 2008 12 01 | G96 | 0.7+ | 0.4+ | | |
| 2002 11 11 | 704 | 0.8+ | 0.1+ | 2002 12 05 | 704 | 0.4+ | 0.5+ | 2009 01 20 | 703 | 0.1− | 0.1− | | |
| 2002 11 24 | 644 | 0.2− | 0.2+ | 2002 12 10 | 704 | 0.1+ | 0.1+ | 2009 01 20 | 703 | 1.0− | 0.5− | | |
| 2002 11 24 | 644 | 0.1− | 0.3+ | 2002 12 10 | 704 | 0.2+ | 0.7+ | 2009 01 20 | 703 | 0.3− | 0.1+ | | |
| 2002 11 24 | 644 | 0.0 | 0.1+ | 2002 12 10 | 704 | 0.8+ | 0.0 | 2009 01 20 | 703 | 0.6+ | 0.3+ | | |
| 2002 11 25 | 644 | 1.7− | 0.9− | 2002 12 10 | 644 | 0.5+ | 1.2+ | | | | | | |
| 2002 11 25 | 644 | 0.0 | 0.4+ | 2002 12 10 | 704 | 0.1− | 0.8+ | | | | | | |

**2002 WE$_{10}$ = 2009 VB$_{51}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| $M$ | 343.18099 | | (2000.0) | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $n$ | 0.27969971 | $\omega$ | 9.24112 | | −0.11884817 | −0.99120102 |
| $a$ | 2.3156595 | $\Omega$ | 87.60028 | | +0.90721319 | −0.13225481 |
| $e$ | 0.1681662 | $i$ | 3.34358 | | +0.40353357 | +0.00540447 |
| $P$ | 3.52 | $H$ | 17.6 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 11 24 | 644 | 0.7+ | 0.4+ | 2007 03 15 | G96 | 0.3+ | 0.1− | 2009 11 20 | 704 | (1.6+ | 1.4+) | | |
| 2002 11 24 | 644 | 0.6+ | 0.4+ | 2009 10 22 | G96 | 0.6+ | 0.5− | 2009 11 22 | 703 | 0.3− | 0.5− | | |
| 2002 11 24 | 644 | 0.5+ | 0.2+ | 2009 10 22 | G96 | 0.1− | 0.2− | 2009 11 22 | 703 | 0.8+ | 1.4− | | |
| 2002 11 28 | 699 | 1.0− | 1.2+ | 2009 10 22 | G96 | 0.2+ | 0.2+ | 2009 11 22 | 703 | 1.1− | 0.7− | | |
| 2002 11 28 | 699 | 1.3− | 0.4+ | 2009 10 22 | G96 | 0.1− | 0.1+ | 2009 11 22 | 703 | 0.9− | 0.9+ | | |
| 2002 11 28 | 699 | 0.2+ | 0.0 | 2009 11 15 | 703 | 0.7+ | 0.1+ | 2009 11 23 | G96 | 0.1+ | 0.1− | | |
| 2002 11 28 | 699 | 0.3− | 0.9− | 2009 11 15 | 703 | 0.5− | 1.3+ | 2009 11 23 | G96 | 0.1− | 0.2− | | |
| 2002 12 05 | 704 | 0.7− | 0.2+ | 2009 11 15 | 703 | (1.4+ | 2.0+) | 2009 11 23 | G96 | 0.3+ | 0.2− | | |
| 2002 12 05 | 704 | 0.1− | 0.1− | 2009 11 15 | 703 | 0.3− | 1.0+ | 2009 11 23 | G96 | 0.2+ | 0.3− | | |
| 2002 12 05 | 704 | 0.3+ | 0.1+ | 2009 11 16 | G96 | 0.2+ | 0.1− | 2009 12 11 | G96 | 0.5+ | 0.6+ | | |
| 2002 12 05 | 704 | 0.3+ | 0.4+ | 2009 11 16 | G96 | 0.2+ | 0.3− | 2009 12 11 | G96 | 0.0 | 0.4− | | |
| 2002 12 05 | 704 | 0.3+ | 0.4+ | 2009 11 16 | G96 | 0.4+ | 0.3− | 2009 12 11 | G96 | 0.1+ | 0.5− | | |
| 2007 03 15 | G96 | 0.2− | 0.2− | 2009 11 16 | G96 | 0.3+ | 0.2− | 2009 12 11 | G96 | 0.1+ | 0.5− | | |
| 2007 03 15 | G96 | 0.2+ | 0.0 | 2009 11 20 | 704 | 0.5− | 0.3− | | | | | | |
| 2007 03 15 | G96 | 0.4− | 0.2− | 2009 11 20 | 704 | 0.0 | 0.2− | | | | | | |

**2002 XQ$_{13}$ = 2007 RT$_{310}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| $M$ | 149.14232 | | (2000.0) | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $n$ | 0.18348813 | $\omega$ | 258.95765 | | +0.93988866 | −0.29973448 |
| $a$ | 3.0671197 | $\Omega$ | 118.30769 | | +0.33741984 | +0.88884762 |
| $e$ | 0.2161685 | $i$ | 10.70977 | | −0.05250858 | +0.34656767 |
| $P$ | 5.37 | $H$ | 16.0 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 12 03 | 644 | 0.4− | 0.1+ | 2007 09 12 | 703 | 0.7+ | 0.2+ | 2007 11 02 | 703 | 0.1+ | 0.4− | | |
| 2002 12 03 | 644 | 0.2− | 0.3+ | 2007 10 11 | 703 | 1.1+ | 0.0 | 2008 11 08 | 691 | 0.1+ | 0.2− | | |
| 2002 12 03 | 644 | 0.0 | 0.2+ | 2007 10 11 | 703 | 1.0− | 0.4− | 2008 11 08 | 691 | 0.1− | 0.1+ | | |
| 2002 12 05 | 608 | 0.1+ | 0.4− | 2007 10 11 | 703 | 0.1+ | 0.1+ | 2008 11 08 | 691 | 0.0 | 0.0 | | |
| 2002 12 05 | 608 | 0.5+ | 0.4− | 2007 10 11 | 703 | 0.3+ | 0.3+ | 2008 12 21 | 691 | 0.1+ | 0.0 | | |
| 2002 12 05 | 608 | 0.1+ | 0.2+ | 2007 10 19 | 703 | 1.4+ | 0.1+ | 2008 12 21 | 691 | 0.1+ | 0.1− | | |
| 2002 12 10 | 644 | 0.0 | 0.1+ | 2007 10 19 | 703 | 1.1+ | 0.8− | 2008 12 21 | 691 | 0.2− | 0.2− | | |
| 2002 12 10 | 644 | 0.1+ | 0.1+ | 2007 10 19 | 703 | 0.8+ | 0.6− | 2009 01 08 | 691 | 0.2− | 0.1− | | |
| 2002 12 10 | 644 | 0.2− | 0.0 | 2007 10 19 | 703 | 0.1− | 0.0 | 2009 01 08 | 691 | 0.3− | 0.1− | | |
| 2007 09 12 | 703 | 0.1− | 2.1+ | 2007 11 02 | 703 | 1.6− | 0.3+ | 2009 01 08 | 691 | 0.5+ | 0.7+ | | |
| 2007 09 12 | 703 | 1.5− | 0.9+ | 2007 11 02 | 703 | 0.3− | 0.9− | | | | | | |
| 2007 09 12 | 703 | 1.2− | 0.4+ | 2007 11 02 | 703 | 0.2− | 1.1− | | | | | | |

**2002 XA$_{32}$ = 2009 WG$_{256}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| $M$ | 19.16166 | | (2000.0) | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $n$ | 0.28684761 | $\omega$ | 163.42083 | | +0.22074068 | −0.95941658 |
| $a$ | 2.2770290 | $\Omega$ | 273.56588 | | +0.87370955 | +0.27447783 |
| $e$ | 0.2066443 | $i$ | 10.12643 | | +0.43348031 | −0.06466647 |
| $P$ | 3.44 | $H$ | 17.4 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 12 06 | 704 | 0.2− | 0.1− | 2002 12 10 | 704 | (1.7+ | 0.5+) | 2002 12 31 | 704 | 0.2− | 0.4− | | |
| 2002 12 06 | 704 | 0.1+ | 0.3+ | 2002 12 10 | 704 | 0.1− | 0.8− | 2009 11 23 | G96 | 0.1− | 0.4− | | |
| 2002 12 06 | 704 | 0.1+ | 0.1+ | 2002 12 10 | 704 | 0.8+ | 0.3− | 2009 11 23 | G96 | 0.2− | 0.4− | | |
| 2002 12 06 | 704 | 0.3− | 0.8+ | 2002 12 11 | 704 | 0.1+ | 0.2− | 2009 11 23 | G96 | 0.4− | 0.4− | | |
| 2002 12 06 | 704 | 0.1+ | 0.1+ | 2002 12 11 | 704 | 0.4− | 0.4+ | 2009 11 23 | G96 | 0.4− | 0.4− | | |
| 2002 12 07 | 704 | 0.2+ | 0.3− | 2002 12 11 | 704 | 0.3+ | 0.1+ | 2009 12 09 | J75 | 0.3− | 0.2− | | |
| 2002 12 07 | 704 | 0.8− | 0.6+ | 2002 12 11 | 704 | 0.1+ | 0.7+ | 2009 12 09 | J75 | 0.1− | 0.0 | | |
| 2002 12 07 | 704 | 0.5− | 0.2− | 2002 12 11 | 704 | 0.6+ | 0.9+ | 2009 12 10 | J75 | 0.6+ | 0.2+ | | |
| 2002 12 07 | 704 | 0.6− | 0.1− | 2002 12 14 | 704 | 0.2− | 1.2− | 2009 12 17 | 704 | 1.2+ | 0.8+ | | |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 12 10 | 704 | 0.6− | 0.1+ | 2002 12 14 | 704 | (0.2− | 1.8−) | 2009 12 17 | 704 | 1.0+ | 0.8+ |
| 2002 12 10 | 704 | 0.2+ | 0.4+ | 2002 12 14 | 704 | 0.1+ | 0.3− | 2009 12 17 | 704 | 0.4+ | 0.3+ |
| 2002 12 10 | 704 | 0.0 | 1.1+ | 2002 12 14 | 704 | 0.5+ | 0.3− | 2009 12 26 | 691 | 0.1− | 0.3− |
| 2002 12 10 | 704 | 0.2+ | 0.4− | 2002 12 31 | 704 | 0.0 | 0.1+ | 2009 12 26 | 691 | 0.2− | 0.3+ |
| 2002 12 10 | 704 | 0.3+ | 0.0 | 2002 12 31 | 704 | 0.3− | 0.8− | 2009 12 26 | 691 | 0.2− | 0.1− |
| 2002 12 10 | 704 | 1.0+ | 0.5− | 2002 12 31 | 704 | 0.5− | 0.0 | | | | |

**2002 XY$_{38}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 197.76102 | | (2000.0) | | **P** | **Q** | |
| $n$ | 1.13622368 | $\omega$ | 119.43083 | | +0.15734247 | +0.98746181 | |
| $a$ | 0.9095505 | $\Omega$ | 159.61006 | | −0.91825851 | +0.15104126 | |
| $e$ | 0.2177176 | $i$ | 2.09692 | | −0.36337950 | +0.04588801 | |
| $P$ | 0.87 | $H$ | 22.8 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 12 07 | 644 | 0.3+ | 0.1− | 2002 12 13 | 715 | 0.4+ | 0.2− | 2002 12 31 | 950 | 0.3− | 0.5+ |
| 2002 12 07 | 644 | 0.2− | 0.1− | 2002 12 13 | 715 | 0.4+ | 0.1− | 2003 01 23 | 950 | 0.0 | 0.3− |
| 2002 12 07 | 644 | 0.3+ | 0.2+ | 2002 12 13 | 715 | 0.2− | 0.2+ | 2003 01 23 | 950 | 0.6+ | 0.5+ |
| 2002 12 10 | 644 | 0.1+ | 0.0 | 2002 12 13 | 413 | 0.2+ | 0.2+ | 2003 01 23 | 950 | 0.4+ | 0.4+ |
| 2002 12 10 | 644 | 0.0 | 0.1− | 2002 12 13 | 413 | 0.1+ | 0.4− | 2003 01 23 | 950 | 0.1− | 0.2+ |
| 2002 12 10 | 644 | 0.4− | 0.0 | 2002 12 23 | 950 | 0.3− | 0.3− | 2003 01 29 | 809 | 0.2+ | 0.1+ |
| 2002 12 10 | 557 | 1.0+ | 1.4+ | 2002 12 23 | 950 | 0.3− | 0.2− | 2003 01 29 | 809 | 0.1− | 0.0 |
| 2002 12 10 | 557 | 0.1− | 0.7+ | 2002 12 23 | 950 | 0.2− | 0.3− | 2003 01 29 | 809 | 0.3− | 0.0 |
| 2002 12 10 | 557 | 0.7− | 0.5+ | 2002 12 23 | 950 | 0.1− | 0.3− | 2009 10 18 | 568 | 0.1+ | 0.0 |
| 2002 12 11 | 673 | (2.6− | 1.4+) | 2002 12 24 | 413 | 0.7− | 0.2− | 2009 10 18 | 568 | 0.1− | 0.0 |
| 2002 12 11 | 673 | 0.4− | 0.3− | 2002 12 27 | 413 | 0.1+ | 0.1− | 2009 12 09 | 568 | 0.1+ | 0.0 |
| 2002 12 11 | 673 | 0.3+ | 0.2+ | 2002 12 27 | 413 | 0.4+ | 0.2− | 2009 12 09 | 568 | 0.0 | 0.0 |
| 2002 12 12 | 246 | 0.2− | 0.4− | 2002 12 31 | 696 | 0.5− | 0.0 | 2009 12 09 | 568 | 0.1+ | 0.1− |
| 2002 12 12 | 246 | 0.5− | 0.2+ | 2002 12 31 | 696 | 0.0 | 0.5− | 2009 12 20 | 291 | 0.2− | 0.1+ |
| 2002 12 12 | 246 | 0.4+ | 0.3− | 2002 12 31 | 696 | 0.5− | 0.3− | 2009 12 20 | 291 | 0.4− | 0.6+ |
| 2002 12 12 | 246 | 0.2+ | 0.6− | 2002 12 31 | 950 | 0.3− | 0.5+ | 2009 12 20 | 291 | 0.7− | 0.2+ |
| 2002 12 12 | 246 | 0.3+ | 0.7− | 2002 12 31 | 950 | 0.3− | 0.4+ | | | | |
| 2002 12 12 | 246 | 0.1− | 0.1+ | 2002 12 31 | 950 | 0.3− | 0.3+ | | | | |

**2002 XD$_{62}$ = 2009 XE$_{7}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 47.51808 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28396205 | $\omega$ | 46.88774 | | +0.95282999 | −0.30214652 | |
| $a$ | 2.2924287 | $\Omega$ | 330.66433 | | +0.25868744 | +0.85791600 | |
| $e$ | 0.2463382 | $i$ | 3.35591 | | +0.15873194 | +0.41555700 | |
| $P$ | 3.47 | $H$ | 17.5 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1993 01 29 | 691 | 0.2+ | 0.4+ | 2002 12 06 | 704 | 0.3− | 0.0 | 2007 03 09 | G96 | 0.5− | 0.0 |
| 1993 01 29 | 691 | 0.0 | 1.1+ | 2002 12 11 | 704 | 0.4− | 0.9− | 2007 03 09 | G96 | 0.1+ | 0.1− |
| 1993 01 29 | 691 | 0.1− | 1.1+ | 2002 12 11 | 704 | 0.3− | 1.0+ | 2007 03 09 | G96 | 0.5− | 0.3+ |
| 2000 02 14 | 691 | 0.6+ | 0.6− | 2002 12 11 | 704 | 0.3− | 0.7+ | 2007 03 09 | G96 | 0.3− | 0.1+ |
| 2000 02 14 | 691 | 0.7+ | 0.6− | 2002 12 11 | 704 | 0.1− | 0.2+ | 2009 12 10 | 704 | 0.7+ | 0.7− |
| 2000 02 14 | 691 | 0.3+ | 0.2− | 2002 12 11 | 704 | 0.2− | 0.3− | 2009 12 10 | 704 | (1.8+ | 0.4+) |
| 2002 10 10 | 621 | 0.3+ | 0.7+ | 2002 12 13 | 704 | 0.2+ | 1.1+ | 2009 12 10 | 704 | 0.0 | 0.3− |
| 2002 10 10 | 621 | 0.4− | 0.5− | 2002 12 13 | 704 | 0.5+ | 1.3− | 2009 12 10 | 704 | 0.1− | 0.1− |
| 2002 10 10 | 621 | 0.0 | 0.3+ | 2002 12 13 | 704 | 0.1+ | 0.5− | 2009 12 15 | 704 | 0.0 | 0.2− |
| 2002 12 06 | 704 | 0.1+ | 0.1− | 2002 12 13 | 704 | 1.1+ | 1.3− | 2009 12 15 | 704 | 0.3+ | 0.1− |
| 2002 12 06 | 704 | 0.3+ | 0.2+ | 2007 02 22 | 691 | 0.4− | 0.4− | 2009 12 15 | 704 | 0.1− | 0.3− |
| 2002 12 06 | 704 | 0.5− | 0.7+ | 2007 02 22 | 691 | 0.6− | 0.4− | 2009 12 15 | 704 | 0.6− | 0.4− |
| 2002 12 06 | 704 | 0.0 | 0.0 | 2007 02 22 | 691 | 0.4− | 0.1− | | | | |

**2002 XX$_{78}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 352.54857 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27551688 | $\omega$ | 155.45160 | | +0.02114872 | −0.99307210 | |
| $a$ | 2.3390378 | $\Omega$ | 293.16289 | | +0.89524716 | +0.07027797 | |
| $e$ | 0.1558463 | $i$ | 7.22246 | | +0.44506770 | −0.09417432 | |
| $P$ | 3.58 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 12 06 | 704 | 0.6− | 0.3− | 2003 01 04 | 704 | 0.0 | 0.3− | 2009 11 19 | 703 | 0.9+ | 0.4+ |
| 2002 12 06 | 704 | 0.2− | 0.3− | 2003 01 04 | 704 | 0.4− | 0.2+ | 2009 11 26 | 703 | 0.1− | 0.3+ |
| 2002 12 06 | 704 | 0.1+ | 0.6− | 2003 01 04 | 704 | 0.1− | 0.2− | 2009 11 26 | 703 | 1.2− | 0.3− |
| 2002 12 06 | 704 | 0.8− | 1.1+ | 2003 01 08 | 704 | 0.5− | 0.9− | 2009 11 26 | 703 | 0.4− | 0.5− |
| 2002 12 11 | 704 | 0.4+ | 0.2+ | 2003 01 08 | 704 | 0.5− | 0.2+ | 2009 11 26 | 703 | 1.0− | 0.1− |
| 2002 12 11 | 704 | (0.6+ | 2.6−) | 2003 01 08 | 704 | 0.1− | 0.3− | 2009 11 26 | 703 | 1.2− | 0.2− |
| 2002 12 11 | 704 | 0.2− | 0.7+ | 2003 01 08 | 704 | (1.9− | 0.4−) | 2009 12 10 | 704 | 0.6+ | 0.1+ |
| 2002 12 11 | 704 | 0.5+ | 0.1− | 2003 01 08 | 704 | 1.2− | 0.0 | 2009 12 10 | 704 | 0.0 | 1.1+ |
| 2002 12 11 | 704 | 0.1− | 0.4+ | 2009 11 08 | 703 | 0.4+ | 1.1− | 2009 12 10 | 704 | 0.1− | 0.0 |
| 2002 12 14 | 704 | 0.9+ | 0.3+ | 2009 11 08 | 703 | 0.1+ | 0.1− | 2009 12 10 | 704 | 0.3+ | 0.5+ |
| 2002 12 14 | 704 | 0.3+ | 0.2+ | 2009 11 08 | 703 | 0.8+ | 0.1+ | 2009 12 10 | 704 | 0.7+ | 0.0 |
| 2002 12 14 | 704 | 0.6+ | 0.5+ | 2009 11 08 | 703 | 1.3− | 0.6− | 2009 12 15 | 704 | 0.2+ | 0.7− |
| 2002 12 14 | 704 | 1.0+ | 0.0 | 2009 11 19 | 703 | 0.2+ | 0.8− | 2009 12 15 | 704 | 0.1+ | 0.6+ |
| 2002 12 14 | 704 | 1.2+ | 0.3− | 2009 11 19 | 703 | 0.6+ | 0.3− | 2009 12 15 | 704 | 0.1− | 1.2+ |
| 2003 01 04 | 704 | 0.1− | 1.1− | 2009 11 19 | 703 | 0.4− | 0.4− | 2009 12 15 | 704 | 0.8+ | 1.2+ |

**2002 XT$_{89}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 193.02225 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21237288 | $\omega$ | 302.81678 | | +0.40936525 | −0.89662162 | |
| $a$ | 2.7822960 | $\Omega$ | 122.11841 | | +0.88948032 | +0.35102573 | |
| $e$ | 0.2732335 | $i$ | 11.49546 | | +0.20308828 | +0.26990851 | |
| $P$ | 4.64 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 11 30 | 704 | 0.4− | 0.1− | 2002 12 14 | 608 | 0.6− | 0.6+ | 2007 12 14 | G96 | 0.5+ | 0.2− |
| 2002 11 30 | 704 | 0.4+ | 0.3+ | 2002 12 14 | 608 | 0.3− | 0.0 | 2007 12 14 | G96 | 0.3+ | 0.1− |
| 2002 11 30 | 704 | 0.0 | 0.4− | 2002 12 16 | 608 | 0.0 | 0.0 | 2007 12 14 | G96 | 0.1+ | 0.3− |
| 2002 12 14 | 704 | 0.1− | 0.0 | 2002 12 16 | 608 | 0.9− | 0.6+ | 2007 12 14 | G96 | 0.6− | 0.2− |
| 2002 12 14 | 704 | 1.2+ | 0.6− | 2002 12 16 | 608 | 0.5− | 0.8+ | 2008 02 06 | 703 | 0.3+ | 0.2+ |
| 2002 12 14 | 704 | 0.3− | 0.4− | 2003 01 05 | 704 | 0.3+ | 0.8− | 2008 02 06 | 703 | 0.2+ | 0.2− |
| 2002 12 14 | 704 | 1.5+ | 0.4+ | 2003 01 05 | 704 | 0.8+ | 0.3− | 2008 02 06 | 703 | 0.1+ | 0.2+ |
| 2002 12 14 | 704 | 0.4− | 0.1− | 2003 01 05 | 704 | 0.6− | 0.2+ | 2008 02 06 | 703 | 0.9− | 0.4+ |
| 2002 12 14 | 608 | 0.4− | 0.2+ | 2003 01 05 | 704 | 0.4+ | 0.3− | | | | |

**2002 XC$_{91}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 44.94210 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.54922231 | $\omega$ | 225.52432 | | +0.83611934 | +0.51717776 | |
| $a$ | 1.4767396 | $\Omega$ | 102.51877 | | −0.43495648 | +0.82816534 | |
| $e$ | 0.5899953 | $i$ | 10.79503 | | −0.33424138 | +0.21603085 | |
| $P$ | 1.79 | $H$ | 19.7 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 12 13 | 291 | 0.4− | 0.3− | 2003 01 12 | 291 | 0.0 | 0.2− | 2009 12 17 | 703 | 0.7− | 0.7− |
| 2002 12 13 | 291 | 0.4+ | 0.4+ | 2003 01 12 | 291 | 0.5+ | 0.0 | 2009 12 17 | 703 | 0.4− | 0.1− |
| 2002 12 13 | 291 | 0.4− | 0.2− | 2009 12 17 | 703 | 0.3− | 0.4− | 2009 12 17 | 854 | 0.7+ | 0.3+ |
| 2002 12 14 | 291 | 0.3+ | 0.2+ | 2009 12 17 | 703 | 0.5+ | 0.3+ | 2009 12 17 | 854 | 1.0− | 0.7+ |
| 2002 12 14 | 291 | 0.2+ | 0.2− | 2009 12 17 | 703 | 0.8− | 1.1− | 2009 12 17 | 900 | 0.2− | 0.1+ |
| 2002 12 14 | 291 | 0.1+ | 0.3− | 2009 12 17 | 703 | 0.4− | 0.1− | 2009 12 17 | 900 | 0.3+ | 0.2− |
| 2002 12 31 | 291 | 0.5− | 0.9+ | 2009 12 17 | H01 | 0.1+ | 0.1+ | 2009 12 17 | D90 | 0.6+ | 0.1+ |
| 2002 12 31 | 291 | 0.7− | 0.2− | 2009 12 17 | H01 | 0.2+ | 0.7+ | 2009 12 17 | D90 | 0.2+ | 0.0 |
| 2002 12 31 | 291 | 0.3− | 0.3− | 2009 12 17 | H01 | 0.1− | 0.4+ | 2009 12 17 | D90 | 0.4+ | 0.7+ |
| 2003 01 10 | 291 | 0.2− | 0.5+ | 2009 12 17 | H01 | 0.1+ | 0.5+ | 2009 12 17 | D90 | 0.3+ | 0.3− |
| 2003 01 10 | 291 | 0.5+ | 0.3+ | 2009 12 17 | H01 | 0.0 | 0.0 | 2009 12 20 | 448 | 0.7+ | 0.3− |
| 2003 01 10 | 291 | 0.1+ | 0.1− | 2009 12 17 | 703 | 0.5− | 0.2+ | 2009 12 20 | 448 | 0.6+ | 0.3− |
| 2003 01 12 | 291 | 0.4+ | 0.4− | 2009 12 17 | 703 | 0.4− | 0.5− | 2009 12 20 | 448 | 0.3+ | 0.0 |

**2002 XQ$_{97}$ = 2009 VC$_{97}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 35.73685 | | (2000.0) | | | |
| $n$ | 0.28278214 | $\omega$ | 157.55515 | | +0.73900621 | −0.66623593 |
| $a$ | 2.2988011 | $\Omega$ | 244.61747 | | +0.60008007 | +0.71842773 |
| $e$ | 0.0927448 | $i$ | 6.35464 | | +0.30622498 | +0.19997823 |
| $P$ | 3.49 | $H$ | 16.8 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 08 30 | 327 | 0.2− | 0.5+ | 2002 12 10 | 704 | 0.8− | 0.3− | 2009 11 24 | 691 | 0.0 | 0.1− |
| 1998 08 30 | 327 | 0.0 | 0.3+ | 2002 12 10 | 704 | 0.0 | 0.7+ | 2009 11 24 | 691 | 0.1− | 0.1− |
| 1998 08 30 | 327 | 0.0 | 0.6− | 2002 12 11 | 704 | (2.0+ | 2.0−) | 2009 12 08 | J75 | 0.4− | 0.1+ |
| 2002 11 28 | 608 | 0.1− | 0.0 | 2002 12 11 | 704 | 0.2− | 0.5+ | 2009 12 08 | J75 | 0.1+ | 0.1+ |
| 2002 11 28 | 608 | 0.1− | 0.4+ | 2002 12 11 | 704 | 0.2− | 0.0 | 2009 12 08 | J75 | 1.2+ | 0.2− |
| 2002 11 28 | 608 | 0.1+ | 0.2+ | 2002 12 11 | 704 | 0.2− | 0.1+ | 2009 12 11 | G96 | 0.0 | 0.2− |
| 2002 12 05 | 704 | 0.0 | 1.1+ | 2009 11 08 | 691 | 0.0 | 0.1− | 2009 12 11 | G96 | 0.2+ | 0.3− |
| 2002 12 05 | 704 | 0.3+ | 0.5+ | 2009 11 08 | 691 | 0.2− | 0.3− | 2009 12 11 | G96 | 0.6+ | 0.2− |
| 2002 12 05 | 704 | 0.2− | 0.1+ | 2009 11 08 | 691 | 0.4− | 0.1− | 2009 12 11 | G96 | 0.3+ | 0.2− |
| 2002 12 05 | 704 | 0.4+ | 0.0 | 2009 11 16 | 691 | 0.0 | 0.2− | 2009 12 11 | G96 | 0.5+ | 0.1− |
| 2002 12 05 | 704 | 1.1+ | 0.5+ | 2009 11 16 | 691 | 0.1+ | 0.1− | 2009 12 11 | G96 | 0.1+ | 0.2− |
| 2002 12 10 | 704 | 0.1+ | 1.2+ | 2009 11 16 | 691 | (1.7− | 0.0 ) | 2009 12 11 | G96 | 0.4+ | 0.1− |
| 2002 12 10 | 704 | 0.3− | 0.9+ | 2009 11 24 | 691 | 0.2− | 0.1− | | | | |

**2002 YR$_8$ = 2009 WH$_{217}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 16.81613 | | (2000.0) | | | |
| $n$ | 0.27475077 | $\omega$ | 296.89120 | | +0.72398397 | −0.67203572 |
| $a$ | 2.3433839 | $\Omega$ | 105.77797 | | +0.67627527 | +0.64699780 |
| $e$ | 0.2386115 | $i$ | 9.30587 | | +0.13601089 | +0.36022471 |
| $P$ | 3.59 | $H$ | 17.2 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 12 20 | 691 | 0.1+ | 0.3+ | 2003 01 08 | 704 | 0.3− | 0.2− | 2009 10 15 | J75 | 1.0+ | 0.2− |
| 1995 12 20 | 691 | 0.2− | 0.5− | 2003 01 08 | 704 | 0.6+ | 0.0 | 2009 10 16 | J75 | 0.1+ | 0.5− |
| 1995 12 20 | 691 | 0.2− | 0.8− | 2003 01 08 | 704 | 0.6− | 0.5+ | 2009 10 16 | J75 | 0.3+ | 0.1+ |
| 2002 12 31 | 704 | 0.6+ | 0.9+ | 2003 01 08 | 704 | 0.4− | 0.2+ | 2009 11 17 | 703 | 0.3+ | 0.0 |
| 2002 12 31 | 704 | 1.0+ | 0.7+ | 2009 10 02 | G96 | 0.0 | 0.1− | 2009 11 17 | 703 | 1.6+ | 0.0 |
| 2002 12 31 | 704 | 1.1− | 0.3− | 2009 10 02 | G96 | 0.1− | 0.1− | 2009 11 17 | 703 | 0.7+ | 1.2+ |
| 2002 12 31 | 704 | 0.2+ | 0.5+ | 2009 10 02 | G96 | 0.0 | 0.1− | 2009 11 17 | 703 | 0.7− | 1.7+ |
| 2002 12 31 | 704 | 0.1− | 0.8− | 2009 10 02 | G96 | 0.1+ | 0.3− | 2009 11 27 | 703 | 1.2− | 1.2− |
| 2003 01 01 | 704 | 0.6+ | 0.4+ | 2009 10 15 | 703 | 0.7+ | 0.6− | 2009 11 27 | 703 | 0.5− | 0.9− |
| 2003 01 01 | 704 | 0.7− | 0.7+ | 2009 10 15 | 703 | 0.2− | 0.5+ | 2009 11 27 | 703 | 1.8− | 0.1+ |
| 2003 01 01 | 704 | 0.3+ | 1.5+ | 2009 10 15 | 703 | 0.5+ | 0.3+ | 2009 11 27 | 703 | 0.6− | 1.7− |
| 2003 01 08 | 704 | 0.3− | 0.2+ | 2009 10 15 | 703 | 0.3− | 0.2+ | | | | |

**2003 AH$_9$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 346.87362 | | (2000.0) | | | |
| $n$ | 0.27607635 | $\omega$ | 7.82155 | | −0.37173411 | −0.82280406 |
| $a$ | 2.3358767 | $\Omega$ | 104.85074 | | +0.82584701 | −0.50460872 |
| $e$ | 0.2839909 | $i$ | 26.40723 | | +0.42401705 | +0.26146419 |
| $P$ | 3.57 | $H$ | 16.7 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 12 10 | 644 | 0.1+ | 0.1− | 2003 01 09 | 704 | 0.2+ | 0.5− | 2003 02 07 | 699 | 0.3+ | 0.4+ |
| 2002 12 10 | 644 | 0.3+ | 0.2− | 2003 01 09 | 704 | 0.0 | 0.2+ | 2003 02 23 | 704 | 0.1− | 0.5− |
| 2002 12 10 | 644 | 1.2+ | 0.1− | 2003 01 10 | 704 | 0.5− | 0.5− | 2003 02 23 | 704 | 0.1+ | 0.2+ |
| 2002 12 19 | 644 | 0.3− | 0.4+ | 2003 01 10 | 704 | 0.3− | 0.2− | 2003 02 23 | 704 | 0.4− | 0.3− |
| 2002 12 19 | 644 | 0.1+ | 0.3− | 2003 01 10 | 704 | 0.5− | 0.2− | 2003 02 23 | 704 | 1.1+ | 1.5− |
| 2002 12 19 | 644 | 0.0 | 0.0 | 2003 01 10 | 704 | 0.1+ | 0.1+ | 2003 03 10 | 644 | 0.3− | 0.0 |
| 2003 01 04 | 704 | 0.8+ | 0.1− | 2003 01 10 | 704 | 0.4− | 0.1− | 2003 03 10 | 644 | 0.1− | 0.2+ |
| 2003 01 04 | 704 | 0.3− | 0.8+ | 2003 01 13 | 704 | 0.1+ | 0.2− | 2003 03 10 | 644 | 0.2+ | 0.1+ |
| 2003 01 04 | 704 | 0.4− | 0.3− | 2003 01 13 | 704 | 0.1− | 0.0 | 2003 03 10 | 644 | 0.0 | 0.5+ |
| 2003 01 05 | 704 | 0.3− | 0.2− | 2003 01 13 | 704 | 0.1− | 0.2+ | 2003 03 10 | 644 | 0.2− | 0.3+ |
| 2003 01 05 | 704 | 0.9− | 0.1− | 2003 01 13 | 704 | 0.0 | 0.3+ | 2003 03 10 | 644 | 0.1+ | 0.6+ |
| 2003 01 05 | 704 | 0.1+ | 0.2− | 2003 01 13 | 704 | 0.1− | 0.2+ | 2009 11 20 | 703 | 0.4+ | 0.4− |
| 2003 01 05 | 704 | 0.2+ | 0.1− | 2003 01 25 | 704 | 0.6+ | 0.5+ | 2009 11 20 | 703 | 1.0+ | 0.7+ |
| 2003 01 05 | 704 | 0.2− | 0.1− | 2003 01 25 | 704 | 0.0 | 0.2+ | 2009 11 20 | 703 | 0.5+ | 0.7− |
| 2003 01 08 | 704 | 0.4+ | 0.1+ | 2003 01 25 | 704 | 0.3+ | 0.5+ | 2009 11 20 | 703 | 0.5− | 0.3− |
| 2003 01 08 | 704 | 0.2+ | 0.1− | 2003 01 25 | 704 | 0.2− | 0.1+ | 2009 12 16 | 703 | 0.3− | 0.1− |
| 2003 01 08 | 704 | 0.3+ | 0.2− | 2003 01 25 | 704 | 0.4− | 0.1− | 2009 12 16 | 703 | 0.2− | 0.9+ |
| 2003 01 08 | 704 | 0.1− | 0.5− | 2003 02 07 | 699 | 0.3− | 0.3− | 2009 12 16 | 703 | 0.1− | 0.0 |
| 2003 01 08 | 704 | 0.3+ | 0.3− | 2003 02 07 | 699 | 0.4+ | 0.0 | 2009 12 16 | 703 | 0.9− | 0.4+ |
| 2003 01 09 | 704 | 0.2+ | 0.5+ | 2003 02 07 | 699 | 0.3− | 0.3+ | | | | |

**2003 AG$_{33}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 80.28073 | | (2000.0) | | | |
| $n$ | 0.17293903 | $\omega$ | 178.84293 | | −0.48538423 | −0.79909011 |
| $a$ | 3.1906123 | $\Omega$ | 300.09409 | | +0.79882590 | −0.24040898 |
| $e$ | 0.1852216 | $i$ | 24.20703 | | +0.35535804 | −0.55105219 |
| $P$ | 5.70 | $H$ | 15.0 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 03 | 645 | 0.2− | 0.1+ | 2003 01 25 | 699 | 0.1+ | 0.4− | 2008 10 06 | G96 | 0.4− | 0.1− |
| 2000 09 03 | 645 | 0.0 | 0.1+ | 2003 01 29 | 644 | 0.0 | 0.1− | 2008 10 06 | G96 | 0.2− | 0.0 |
| 2002 12 11 | 704 | 0.5− | 0.6+ | 2003 01 29 | 644 | 0.0 | 0.2− | 2008 10 06 | G96 | 1.1− | 0.2− |
| 2002 12 11 | 704 | 0.1+ | 0.2− | 2003 01 29 | 644 | 0.7+ | 1.1− | 2008 10 06 | G96 | 0.3− | 0.3− |
| 2002 12 11 | 704 | 0.5+ | 0.1+ | 2003 02 03 | 704 | 0.5− | 0.1− | 2009 01 18 | 703 | 0.9− | 0.5+ |
| 2002 12 11 | 704 | 0.7− | 0.6+ | 2003 02 03 | 704 | 0.7− | 0.9+ | 2009 01 18 | 703 | 1.3+ | 0.1+ |
| 2002 12 11 | 644 | 0.8− | 0.5+ | 2003 02 03 | 704 | 0.3− | 0.4− | 2009 01 18 | 703 | 0.2+ | 0.7− |
| 2002 12 11 | 644 | 0.0 | 0.9+ | 2003 02 03 | 704 | 0.0 | 0.7+ | 2009 01 18 | 703 | 0.2+ | 0.7− |
| 2002 12 11 | 644 | 0.5+ | 0.4+ | 2003 02 04 | 644 | 0.7+ | 0.2+ | 2009 02 01 | 703 | 1.9+ | 0.2− |
| 2002 12 31 | 704 | 0.2− | 0.1− | 2003 02 04 | 644 | 0.6+ | 0.6+ | 2009 02 01 | 703 | 0.1+ | 0.2+ |
| 2002 12 31 | 704 | 0.8− | 0.0 | 2003 02 04 | 644 | 0.4+ | 0.1+ | 2009 02 01 | 703 | 0.7+ | 0.2+ |
| 2002 12 31 | 704 | 0.3− | 0.2+ | 2003 02 06 | 608 | 0.0 | 1.0− | 2009 02 01 | 703 | 1.2+ | 0.2− |
| 2002 12 31 | 704 | 1.1− | 0.6+ | 2003 02 06 | 608 | 0.0 | 0.7− | 2009 02 01 | 703 | 0.8− | 0.3+ |
| 2003 01 05 | 704 | 0.7− | 0.1− | 2003 02 06 | 608 | 0.3+ | 0.7− | 2009 02 01 | 703 | 1.4− | 0.8− |
| 2003 01 05 | 704 | 0.3− | 0.1+ | 2003 02 08 | 704 | 0.2− | 0.7+ | 2009 02 01 | 703 | 0.1+ | 1.4+ |
| 2003 01 05 | 704 | 0.7− | 0.0 | 2003 02 08 | 704 | 0.8+ | 0.1− | 2009 02 01 | 703 | 0.6− | 0.7+ |
| 2003 01 05 | 704 | 1.0− | 0.4+ | 2003 02 08 | 704 | 0.3+ | 0.3+ | 2009 02 20 | 703 | 0.2− | 1.4+ |
| 2003 01 08 | 704 | 0.8− | 0.1+ | 2003 02 28 | 704 | 1.0+ | 0.4+ | 2009 02 20 | 703 | 0.2+ | 0.3− |
| 2003 01 08 | 704 | 0.1+ | 0.1− | 2003 02 28 | 704 | 1.1+ | 1.1+ | 2009 02 20 | 703 | 0.9− | 0.5+ |
| 2003 01 08 | 704 | 0.9+ | 0.2− | 2003 02 28 | 704 | 0.2+ | 0.5+ | 2009 02 20 | 703 | 0.4− | 0.2− |
| 2003 01 08 | 704 | 0.5+ | 0.2+ | 2003 02 28 | 704 | 0.3+ | 0.7− | 2009 03 19 | 703 | 0.4+ | 0.5− |
| 2003 01 08 | 704 | 0.8+ | 0.2− | 2003 03 06 | 704 | 0.1+ | 0.3− | 2009 03 19 | 703 | 0.3+ | 0.0 |
| 2003 01 25 | 699 | 0.1− | 0.8+ | 2003 03 06 | 704 | 1.3+ | 0.7+ | 2009 03 19 | 703 | 0.9+ | 1.1− |
| 2003 01 25 | 699 | 0.7+ | 0.0 | 2003 03 06 | 704 | 0.3− | 0.0 | 2009 03 19 | 703 | 0.2− | 0.6+ |
| 2003 01 25 | 699 | 0.1+ | 0.8− | 2003 03 06 | 704 | 0.5+ | 0.6− | | | | |

**2003 AA$_{34}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 316.81506 | | (2000.0) | | | |
| $n$ | 0.27434686 | $\omega$ | 211.78189 | | −0.87098546 | −0.34963248 |
| $a$ | 2.3456833 | $\Omega$ | 303.79633 | | +0.49063503 | −0.65575412 |
| $e$ | 0.1871002 | $i$ | 24.54170 | | −0.02572142 | −0.66913651 |
| $P$ | 3.59 | $H$ | 15.9 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 11 22 | 644 | 0.0 | 0.1+ | 2003 01 27 | 704 | (0.0 | 3.1+) | 2003 02 02 | 704 | 0.2− | 0.1− |
| 2002 11 22 | 644 | 0.0 | 0.0 | 2003 01 27 | 704 | (2.5+ | 0.6−) | 2003 02 02 | 704 | 1.1− | 0.9+ |
| 2002 11 22 | 644 | 0.5+ | 0.0 | 2003 01 27 | 704 | (0.4− | 2.7+) | 2003 02 02 | 704 | 0.7− | 0.5+ |
| 2002 12 31 | 704 | 0.1+ | 0.3+ | 2003 01 27 | 704 | (2.6+ | 0.6−) | 2003 02 02 | 704 | 0.2+ | 0.1+ |
| 2002 12 31 | 704 | 0.6− | 1.0+ | 2003 01 27 | 644 | 0.1− | 0.0 | 2003 02 03 | 644 | 0.1− | 0.0 |
| 2002 12 31 | 704 | 0.0 | 0.2+ | 2003 01 27 | 704 | (2.7+ | 0.9−) | 2003 02 03 | 644 | 0.0 | 0.0 |
| 2002 12 31 | 704 | 0.2− | 0.1+ | 2003 01 27 | 644 | 0.1+ | 0.6− | 2003 02 03 | 644 | 0.2− | 0.0 |
| 2002 12 31 | 704 | 0.2− | 0.4+ | 2003 01 27 | 644 | 0.1+ | 0.2+ | 2003 02 07 | 608 | 0.4+ | 0.5+ |
| 2003 01 05 | 704 | 0.4− | 0.4+ | 2003 01 28 | 704 | 0.2+ | 0.2− | 2003 02 07 | 608 | 0.3− | 0.5+ |
| 2003 01 05 | 704 | 0.4+ | 0.2+ | 2003 01 28 | 704 | 0.4+ | 0.2− | 2003 02 07 | 608 | 0.5+ | 0.3+ |
| 2003 01 05 | 704 | 0.3− | 0.4− | 2003 01 28 | 704 | 0.3+ | 0.0 | 2003 03 09 | 704 | 0.6− | 0.4− |
| 2003 01 05 | 704 | 0.2+ | 1.1− | 2003 01 28 | 704 | 0.3+ | 0.4− | 2003 03 09 | 704 | 0.1+ | 0.1− |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 01 05 | 704 | 0.0 | 0.4− | 2003 01 28 | 704 | 0.1+ | 0.4− | 2003 03 09 | 704 | 0.0 | 0.0 | |
| 2003 01 08 | 704 | 0.6+ | 0.4− | 2003 01 30 | 699 | 0.3+ | 0.1− | 2003 03 09 | 704 | 0.1+ | 0.2− | |
| 2003 01 08 | 704 | 0.2− | 0.3+ | 2003 01 30 | 699 | 0.5+ | 0.2+ | 2003 03 09 | 704 | 0.2+ | 0.4+ | |
| 2003 01 08 | 704 | 0.8− | 0.5− | 2003 01 30 | 699 | 0.4+ | 0.3+ | 2009 12 17 | G89 | 0.0 | 0.1+ | |
| 2003 01 26 | 699 | 0.5− | 0.4+ | 2003 01 30 | 699 | 0.1+ | 0.2+ | 2009 12 17 | G89 | 0.1− | 0.1+ | |
| 2003 01 26 | 699 | 0.0 | 0.2− | 2003 02 02 | 608 | 0.2+ | 0.9− | 2009 12 17 | G89 | 0.1− | 0.0 | |
| 2003 01 26 | 699 | 0.1− | 0.0 | 2003 02 02 | 608 | 0.1+ | 0.7− | 2009 12 18 | G89 | 0.1+ | 0.1− | |
| 2003 01 26 | 699 | 0.2− | 0.2+ | 2003 02 02 | 608 | 0.1− | 0.5− | 2009 12 18 | G89 | 0.0 | 0.1− | |
| 2003 01 27 | 704 | (0.2− | 3.2+) | 2003 02 02 | 704 | 0.2+ | 0.3+ | 2009 12 18 | G89 | 0.1+ | 0.1− | |

### 2003 $AF_{72}$ = 2009 $XB_{22}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 355.07428 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.28236082 | $\omega$ | 32.63710 | | −0.42044679 | | −0.79451348 |
| $a$ | 2.3010873 | $\Omega$ | 85.73128 | | +0.70930094 | | −0.58895357 |
| $e$ | 0.2505165 | $i$ | 26.06343 | | +0.56578853 | | +0.14792572 |
| $P$ | 3.49 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 12 31 | 699 | 0.5− | 0.7+ | 2003 01 12 | 699 | 0.7− | 0.3+ | 2003 01 14 | 704 | 0.1− | 0.5+ | |
| 2002 12 31 | 699 | 0.5− | 0.7+ | 2003 01 12 | 699 | 0.4+ | 0.9+ | 2003 01 31 | 644 | 0.2− | 0.2+ | |
| 2002 12 31 | 699 | 0.3− | 0.5+ | 2003 01 13 | 704 | 0.0 | 0.9− | 2003 01 31 | 644 | 0.3− | 0.1+ | |
| 2002 12 31 | 699 | 0.2+ | 0.3− | 2003 01 13 | 704 | 0.2+ | 0.2− | 2003 01 31 | 644 | 0.0 | 0.2+ | |
| 2003 01 11 | 704 | 0.4+ | 0.2+ | 2003 01 13 | 704 | 0.2+ | 0.7− | 2009 12 09 | J75 | 0.3− | 0.3+ | |
| 2003 01 11 | 704 | 0.9+ | 0.0 | 2003 01 13 | 704 | 0.0 | 0.2− | 2009 12 09 | J75 | 0.3+ | 0.3+ | |
| 2003 01 11 | 704 | 0.2− | 0.3− | 2003 01 13 | 704 | 0.0 | 0.0 | 2009 12 09 | J75 | 0.5+ | 0.7− | |
| 2003 01 11 | 704 | 0.5− | 0.0 | 2003 01 14 | 704 | 1.2+ | 0.5+ | 2009 12 16 | 703 | 0.1− | 0.5− | |
| 2003 01 11 | 704 | 0.2− | 0.3− | 2003 01 14 | 704 | 0.0 | 1.4− | 2009 12 16 | 703 | 0.1+ | 0.7+ | |
| 2003 01 12 | 699 | 1.1− | 0.9+ | 2003 01 14 | 704 | 0.4− | 0.1− | 2009 12 16 | 703 | 0.1− | 0.8− | |
| 2003 01 12 | 699 | 1.4+ | 0.3− | 2003 01 14 | 704 | 0.1+ | 0.7− | 2009 12 16 | 703 | 0.3− | 0.0 | |

### 2003 $BF_2$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 203.38498 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22878313 | $\omega$ | 249.33739 | | −0.64283393 | | −0.66504879 |
| $a$ | 2.6476061 | $\Omega$ | 246.70683 | | +0.76041808 | | −0.61386402 |
| $e$ | 0.3593106 | $i$ | 24.44552 | | −0.09235192 | | −0.42530116 |
| $P$ | 4.31 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 11 06 | 704 | 0.2− | 0.0 | 2003 01 08 | 699 | 0.8− | 0.0 | 2003 01 28 | 704 | 0.2+ | 0.2+ | |
| 2002 11 06 | 704 | 0.0 | 0.1+ | 2003 01 08 | 699 | 0.3+ | 0.3+ | 2003 01 28 | 704 | 0.1− | 0.1− | |
| 2002 11 06 | 704 | 0.4− | 0.3+ | 2003 01 08 | 699 | 0.1− | 0.2− | 2003 01 28 | 704 | 0.4− | 0.4+ | |
| 2002 11 06 | 704 | 0.5− | 0.6+ | 2003 01 08 | 699 | 0.8+ | 1.0− | 2006 10 31 | 703 | 0.7+ | 0.4+ | |
| 2002 11 06 | 704 | 0.0 | 0.8+ | 2003 01 25 | 644 | 0.2+ | 0.1+ | 2006 10 31 | 703 | 0.3− | 0.2+ | |
| 2002 11 14 | 704 | 0.1− | 0.0 | 2003 01 25 | 644 | 0.2− | 0.2− | 2006 10 31 | 703 | 0.1+ | 0.4+ | |
| 2002 11 14 | 704 | 0.1+ | 0.6− | 2003 01 25 | 644 | 0.1− | 0.1− | 2006 10 31 | 703 | (0.0 | 3.2−) | |
| 2002 11 14 | 704 | 0.3− | 0.2− | 2003 01 26 | 699 | 0.8− | 0.4− | 2006 11 22 | 703 | 0.3+ | 0.5− | |
| 2002 11 14 | 704 | 0.3+ | 0.0 | 2003 01 26 | 699 | 1.5− | 0.2+ | 2006 11 22 | 703 | 1.3− | 0.2− | |
| 2003 01 01 | 704 | 1.2+ | 0.3− | 2003 01 26 | 699 | 0.2− | 0.9+ | 2006 11 22 | 703 | 0.6− | 1.3− | |
| 2003 01 01 | 704 | 0.8+ | 0.2− | 2003 01 26 | 699 | 0.1− | 0.2+ | 2006 11 22 | 703 | 1.1+ | 0.5+ | |
| 2003 01 01 | 704 | 1.3+ | 0.0 | 2003 01 28 | 704 | 0.1+ | 0.3+ | | | | | |
| | | | | 2003 01 28 | 704 | 0.4− | 0.0 | | | | | |

### 2003 $BE_7$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 345.45185 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.26570089 | $\omega$ | 133.13669 | | +0.08676001 | | −0.99332002 |
| $a$ | 2.3962974 | $\Omega$ | 311.72289 | | +0.88188367 | | +0.11210121 |
| $e$ | 0.1191556 | $i$ | 5.85043 | | +0.46341547 | | −0.02736155 |
| $P$ | 3.71 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 01 08 | 704 | 0.2− | 0.2− | 2003 01 27 | 699 | 0.6− | 1.0+ | 2009 10 26 | G96 | 0.2+ | 0.2− | |
| 2003 01 08 | 704 | 1.2+ | 1.1+ | 2003 01 27 | 699 | 0.5− | 0.2+ | 2009 11 08 | G96 | 0.0 | 0.0 | |
| 2003 01 08 | 704 | 0.1− | 1.1− | 2003 01 27 | 608 | 0.6+ | 0.2+ | 2009 11 08 | G96 | 0.2+ | 0.1+ | |
| 2003 01 08 | 704 | 0.2− | 0.0 | 2003 01 27 | 608 | 0.2+ | 0.0 | 2009 11 08 | G96 | 0.0 | 0.0 | |
| 2003 01 08 | 704 | 0.1− | 0.6+ | 2003 01 27 | 608 | 0.8+ | 0.2+ | 2009 11 08 | G96 | 0.2− | 0.0 | |
| 2003 01 14 | 608 | 0.4+ | 0.9− | 2003 01 31 | 704 | 0.4− | 0.6− | 2009 11 26 | G96 | 0.1− | 0.2− | |
| 2003 01 14 | 608 | 0.5+ | 0.5− | 2003 01 31 | 704 | 0.0 | 0.5+ | 2009 11 26 | G96 | 0.4− | 0.2− | |
| 2003 01 14 | 608 | 0.0 | 0.3− | 2003 01 31 | 704 | 0.8+ | 0.2− | 2009 11 26 | G96 | 0.1− | 0.1− | |
| 2003 01 25 | 699 | 0.3+ | 0.7− | 2003 01 31 | 704 | 0.2+ | 0.8+ | 2009 11 26 | G96 | 0.1+ | 0.2− | |
| 2003 01 25 | 699 | (2.0− | 1.2+) | 2003 02 07 | 699 | 1.0− | 1.0− | 2009 11 26 | G96 | 0.3− | 0.2− | |
| 2003 01 25 | 699 | 0.4− | 0.4+ | 2003 02 07 | 699 | 1.1+ | 0.7− | 2009 12 11 | J75 | 0.8− | 0.7+ | |
| 2003 01 25 | 699 | 1.3− | 0.2+ | 2009 10 26 | G96 | 0.4+ | 0.0 | 2009 12 11 | J75 | 1.2+ | 0.8+ | |
| 2003 01 27 | 699 | 0.5− | 0.1+ | 2009 10 26 | G96 | 0.1+ | 0.3− | 2009 12 11 | J75 | 0.2− | 0.3− | |
| 2003 01 27 | 699 | 1.0− | 1.0+ | 2009 10 26 | G96 | 0.0 | 0.1+ | | | | | |

### 2003 $BP_{10}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 300.84330 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.26136412 | $\omega$ | 159.81455 | | −0.68802833 | | −0.71990210 |
| $a$ | 2.4227322 | $\Omega$ | 333.40323 | | +0.63462813 | | −0.53580534 |
| $e$ | 0.2451628 | $i$ | 11.78266 | | +0.35194338 | | −0.44119566 |
| $P$ | 3.77 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 01 10 | 704 | 0.5+ | 0.8− | 2003 02 04 | 704 | 0.3+ | 0.2+ | 2003 03 06 | 704 | 0.3− | 0.4− | |
| 2003 01 10 | 704 | 0.3− | 1.1− | 2003 02 04 | 704 | 0.5+ | 0.0 | 2003 03 06 | 704 | 0.3− | 0.8− | |
| 2003 01 10 | 704 | 0.5+ | 0.4+ | 2003 02 04 | 704 | 0.6+ | 0.0 | 2003 03 06 | 704 | 0.2+ | 0.7− | |
| 2003 01 10 | 704 | 0.5− | 0.2− | 2003 02 04 | 704 | 0.9+ | 0.9+ | 2003 03 06 | 704 | 0.4+ | 0.7− | |
| 2003 01 26 | 699 | 0.9− | 0.2− | 2003 02 04 | 608 | 0.3− | 1.2− | 2003 03 06 | 704 | 0.3+ | 0.2− | |
| 2003 01 26 | 699 | 0.1− | 0.3− | 2003 02 04 | 608 | 0.3− | 0.7− | 2003 03 06 | 644 | 0.3+ | 0.8− | |
| 2003 01 26 | 699 | 0.1− | 0.5− | 2003 02 04 | 608 | 0.8− | 1.1− | 2003 03 06 | 644 | 0.1+ | 1.0− | |
| 2003 01 26 | 699 | 0.6− | 0.0 | 2003 02 07 | 704 | 0.6+ | 0.0 | 2003 03 06 | 644 | 0.2+ | 0.9− | |
| 2003 01 27 | 699 | 0.2− | 0.5+ | 2003 02 07 | 704 | 0.2+ | 0.2− | 2003 03 08 | 704 | (0.6+ | 2.2+) | |
| 2003 01 27 | 699 | 0.6− | 0.0 | 2003 02 07 | 704 | 0.1+ | 0.1+ | 2003 03 08 | 704 | 1.4+ | 1.6+ | |
| 2003 01 27 | 699 | 0.1− | 0.2+ | 2003 02 07 | 704 | 0.3+ | 0.1− | 2003 03 08 | 704 | (1.2+ | 2.7+) | |
| 2003 01 27 | 699 | 0.5− | 0.5+ | 2003 02 19 | 644 | 0.0 | 0.4+ | 2003 03 08 | 704 | 1.6+ | 1.9+ | |
| 2003 02 01 | 704 | 0.1+ | 0.6+ | 2003 02 19 | 644 | 0.1− | 0.5+ | 2003 03 08 | 704 | 1.6+ | 1.6+ | |
| 2003 02 01 | 704 | 0.2+ | 0.9+ | 2003 02 19 | 644 | 0.2− | 0.4+ | 2003 03 12 | 644 | 0.3− | 0.7− | |
| 2003 02 01 | 704 | 0.2+ | 0.3+ | 2003 02 21 | 699 | 0.5− | 0.1+ | 2003 03 12 | 644 | 0.2+ | 0.6− | |
| 2003 02 01 | 704 | 0.4+ | 0.9+ | 2003 02 21 | 699 | 0.3− | 0.6+ | 2003 03 12 | 644 | 0.2− | 0.4− | |
| 2003 02 02 | 644 | 0.2+ | 0.2− | 2003 02 21 | 699 | 1.1− | 0.4+ | 2006 12 24 | G96 | 0.4− | 0.3− | |
| 2003 02 02 | 644 | 0.1+ | 0.2− | 2003 02 21 | 699 | 0.5+ | 0.4+ | 2006 12 24 | G96 | 0.7− | 0.6− | |
| 2003 02 02 | 644 | 0.1− | 0.2− | 2003 02 21 | 049 | 0.9− | 0.1+ | 2006 12 24 | G96 | 0.5− | 0.5− | |
| 2003 02 04 | 699 | 0.1+ | 0.3− | 2003 02 21 | 049 | 0.9− | 0.8+ | 2006 12 24 | G96 | 0.2− | 0.4− | |
| 2003 02 04 | 699 | 0.1− | 0.2+ | 2003 02 21 | 049 | 1.6− | 0.5+ | 2007 03 11 | E12 | 0.2+ | 0.2+ | |
| 2003 02 04 | 699 | 0.0 | 0.4+ | 2003 03 05 | 704 | 0.4− | 1.0+ | 2007 03 11 | E12 | 0.9− | 0.4− | |
| 2003 02 04 | 704 | 0.4+ | 0.2− | 2003 03 05 | 704 | 0.5+ | 0.5− | 2007 03 11 | E12 | 0.1+ | 1.3− | |
| 2003 02 04 | 699 | 0.2− | 0.3+ | 2003 03 05 | 704 | 0.3+ | 0.7− | 2007 03 11 | E12 | 0.6+ | 1.2+ | |

### 2003 $BS_{19}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 318.52877 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.12387221 | $\omega$ | 143.76507 | | −0.66754710 | | −0.74277832 |
| $a$ | 3.9855364 | $\Omega$ | 347.82227 | | +0.61262889 | | −0.50855989 |
| $e$ | 0.2073349 | $i$ | 14.15540 | | +0.42316274 | | −0.43548501 |
| $P$ | 7.96 | $H$ | 14.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 01 10 | 704 | 0.2+ | 0.2+ | 2003 01 28 | 644 | 0.4+ | 0.3+ | 2008 10 01 | G96 | 0.5+ | 0.2− | |
| 2003 01 10 | 704 | 0.0 | 0.3+ | 2003 02 02 | 644 | 0.5− | 0.1− | 2008 10 01 | G96 | 0.1− | 0.1− | |
| 2003 01 10 | 704 | 0.8− | 0.2+ | 2003 02 02 | 644 | 0.1+ | 0.1− | 2008 10 01 | G96 | 0.3+ | 0.0 | |
| 2003 01 10 | 704 | 0.8− | 0.2− | 2003 02 02 | 644 | 0.6− | 0.2+ | 2008 10 01 | G96 | 0.1+ | 0.1− | |
| 2003 01 26 | 699 | 0.5+ | 0.5− | 2003 02 09 | 644 | 0.3+ | 0.5− | 2008 10 01 | G96 | 0.4+ | 0.3− | |
| 2003 01 26 | 699 | 0.3− | 0.0 | 2003 02 09 | 644 | 0.1+ | 0.1− | 2008 10 01 | G96 | 0.3− | 0.3− | |
| 2003 01 26 | 699 | 0.1− | 0.8+ | 2003 02 09 | 644 | 0.0 | 0.0 | 2008 10 01 | G96 | 0.3+ | 0.2− | |
| 2003 01 26 | 699 | 0.3+ | 0.7+ | 2003 03 07 | 644 | 0.0 | 0.4+ | 2008 10 01 | G96 | 0.2+ | 0.1− | |
| 2003 01 26 | 608 | 0.2+ | 0.8− | 2003 03 07 | 644 | 0.2− | 0.1+ | 2008 10 29 | G96 | 0.2− | 0.3− | |
| 2003 01 26 | 608 | 0.4+ | 0.8− | 2003 03 07 | 644 | 0.0 | 0.4+ | 2008 10 29 | G96 | 0.1+ | 0.3− | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 01 26 | 608 | 0.5+ | 1.0− | 2008 09 05 | 691 | 0.5− | 0.8+ | 2008 10 29 | G96 | 0.2− | 0.2+ | | |
| 2003 01 28 | 644 | 0.4+ | 0.2+ | 2008 09 05 | 691 | 0.2+ | 0.2− | 2008 10 29 | G96 | 0.9− | 0.0 | | |
| 2003 01 28 | 644 | 0.2+ | 0.4+ | 2008 09 05 | 691 | 0.2+ | 0.1− | | | | | | |

**2003 BE$_{37}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 41.37747 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18639426 | $\omega$ | 84.02121 | | −0.41921239 | +0.90418090 | |
| $a$ | 3.0351560 | $\Omega$ | 160.54922 | | −0.89949513 | −0.40139375 | |
| $e$ | 0.1172685 | $i$ | 14.24899 | | −0.12316448 | −0.14608204 | |
| $P$ | 5.29 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 10 02 | 645 | 0.0 | 0.2+ | 2003 03 31 | 691 | 0.3+ | 0.1+ | 2009 05 15 | G96 | 0.5− | 0.2+ | | |
| 2000 10 02 | 645 | 0.0 | 0.0 | 2003 03 31 | 691 | 0.1− | 0.0 | 2009 05 15 | G96 | 0.0 | 0.2+ | | |
| 2003 01 28 | 291 | 0.4− | 0.5− | 2003 03 31 | 691 | 0.1+ | 0.1− | 2009 05 15 | G96 | 1.6+ | 0.1− | | |
| 2003 01 28 | 291 | 0.3+ | 0.3+ | 2008 02 12 | G96 | 0.3− | 0.0 | 2009 05 15 | G96 | 0.5+ | 0.1− | | |
| 2003 01 28 | 291 | 0.3+ | 0.1+ | 2008 02 12 | G96 | 0.3− | 0.2− | 2009 05 31 | 703 | 0.9+ | 0.2− | | |
| 2003 01 30 | 291 | 0.3− | 0.3+ | 2008 02 12 | G96 | 0.2+ | 0.2− | 2009 05 31 | 703 | 1.0− | 0.7− | | |
| 2003 01 30 | 291 | 0.3− | 0.4+ | 2008 02 12 | G96 | 0.3− | 0.4− | 2009 05 31 | 703 | 0.7− | 1.2+ | | |
| 2003 01 30 | 291 | 0.7− | 0.1− | 2008 02 24 | G96 | 0.3+ | 0.2− | 2009 05 31 | 703 | 0.6− | 0.3− | | |
| 2003 02 01 | 291 | 0.6+ | 0.1− | 2008 02 24 | G96 | 0.2+ | 0.6− | 2009 06 22 | G96 | 0.4+ | 0.1+ | | |
| 2003 02 01 | 291 | 0.2+ | 0.0 | 2008 02 24 | G96 | 0.0 | 0.5− | 2009 06 22 | G96 | 0.2− | 0.0 | | |
| 2003 02 01 | 291 | 0.5+ | 0.2+ | 2008 02 24 | G96 | 0.0 | 1.1− | 2009 06 22 | G96 | 0.2+ | 0.0 | | |
| 2003 03 08 | 615 | 0.4− | 0.8+ | 2009 03 02 | 691 | 0.2+ | 0.3+ | 2009 06 22 | G96 | 0.1+ | 0.1+ | | |
| 2003 03 08 | 615 | 0.5− | 1.0+ | 2009 03 02 | 691 | 0.3− | 0.5+ | | | | | | |
| 2003 03 08 | 615 | 0.4− | 0.8+ | 2009 03 02 | 691 | 0.1− | 0.4− | | | | | | |

**2003 BJ$_{73}$ = 2002 XT$_{26}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 192.28289 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22218727 | $\omega$ | 145.64802 | | −0.47810656 | −0.87528271 | |
| $a$ | 2.6997483 | $\Omega$ | 332.70019 | | +0.76602091 | −0.37502396 | |
| $e$ | 0.4106019 | $i$ | 9.12825 | | +0.42968138 | −0.30534768 | |
| $P$ | 4.44 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 10 05 | 704 | 0.0 | 0.3+ | 2002 11 15 | 704 | 0.0 | 0.5− | 2003 01 22 | 644 | 0.1− | 0.3+ | | |
| 2002 10 05 | 704 | 0.1+ | 0.8+ | 2002 11 15 | 704 | 0.4− | 0.2+ | 2003 01 22 | 644 | 0.3− | 0.4+ | | |
| 2002 10 05 | 704 | 0.1− | 0.2+ | 2002 11 15 | 704 | 0.5− | 0.1+ | 2003 01 22 | 644 | 0.4− | 0.5+ | | |
| 2002 10 05 | 704 | 0.9+ | 0.5+ | 2002 11 15 | 704 | 0.2− | 0.5− | 2003 01 29 | 644 | 0.6+ | 0.1+ | | |
| 2002 10 20 | 644 | 0.1− | 0.4− | 2002 11 15 | 704 | 0.1+ | 0.1+ | 2003 01 29 | 644 | 0.2+ | 0.0 | | |
| 2002 10 20 | 644 | 0.3− | 0.2− | 2002 12 03 | 644 | 0.2+ | 0.3+ | 2003 01 29 | 644 | 0.0 | 0.2− | | |
| 2002 10 20 | 644 | 0.2− | 0.2− | 2002 12 03 | 644 | 0.1+ | 0.4+ | 2003 02 01 | 644 | 0.8+ | 1.2+ | | |
| 2002 10 31 | 704 | 0.4− | 1.3− | 2002 12 03 | 644 | 0.1+ | 0.5+ | 2003 02 01 | 644 | 0.2+ | 0.0 | | |
| 2002 10 31 | 704 | 0.3− | 1.4− | 2002 12 07 | 704 | 0.6+ | 0.3+ | 2003 02 01 | 644 | 0.2− | 0.1+ | | |
| 2002 10 31 | 704 | (1.1− | 2.3−) | 2002 12 07 | 704 | 1.5+ | 0.6− | 2006 09 20 | 691 | 0.0 | 0.1− | | |
| 2002 10 31 | 704 | 0.0 | 1.1− | 2002 12 07 | 704 | 0.9+ | 0.2− | 2006 09 20 | 691 | 0.4+ | 0.0 | | |
| 2002 11 08 | 704 | 1.0+ | 0.4+ | 2002 12 07 | 704 | 1.1+ | 1.2+ | 2006 09 20 | 691 | 0.1+ | 0.1− | | |
| 2002 11 08 | 704 | 0.2− | 0.3− | 2003 01 07 | 704 | 1.1− | 1.2− | 2006 10 22 | 691 | 0.1− | 0.1+ | | |
| 2002 11 08 | 704 | 0.2− | 0.2− | 2003 01 07 | 704 | 1.9− | 1.7+ | 2006 10 22 | 691 | 0.2− | 0.5+ | | |
| 2002 11 15 | 644 | 0.4− | 0.3− | 2003 01 07 | 704 | 1.8− | 0.1+ | 2006 10 22 | 691 | 0.6− | 0.2+ | | |
| 2002 11 15 | 644 | 0.2− | 0.4− | 2003 01 07 | 704 | 0.6+ | 0.7− | | | | | | |
| 2002 11 15 | 644 | 0.0 | 0.3− | 2003 01 07 | 704 | 0.0 | 0.1− | | | | | | |

**2003 DA$_{10}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 57.43098 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17858299 | $\omega$ | 194.69472 | | −0.97164354 | +0.23610307 | |
| $a$ | 3.1230288 | $\Omega$ | 358.72951 | | −0.11190484 | −0.50691048 | |
| $e$ | 0.2842996 | $i$ | 35.30216 | | −0.20829342 | −0.82903384 | |
| $P$ | 5.52 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 12 31 | 645 | 0.0 | 0.0 | 2003 02 26 | 704 | 0.2+ | 0.1+ | 2009 03 06 | E12 | 0.1− | 0.6+ | | |
| 2002 12 31 | 645 | 0.1− | 0.0 | 2003 02 26 | 704 | 0.3− | 0.6− | 2009 03 06 | E12 | 0.1+ | 0.1− | | |
| 2003 02 23 | 704 | 0.1+ | 0.3+ | 2003 02 26 | 704 | 0.0 | 0.5− | 2009 03 06 | E12 | 0.1− | 0.2− | | |
| 2003 02 23 | 704 | 1.0− | 0.1+ | 2003 02 26 | 704 | 0.6+ | 0.8− | 2009 03 06 | E12 | 0.0 | 0.1− | | |
| 2003 02 23 | 704 | 0.2− | 0.2+ | 2003 03 10 | 644 | 0.4+ | 0.0 | 2009 03 18 | E12 | 0.3− | 0.8+ | | |
| 2003 02 23 | 704 | 0.0 | 1.0+ | 2003 03 10 | 644 | 0.3+ | 0.0 | 2009 03 18 | E12 | 0.3+ | 1.0− | | |
| 2003 02 26 | 704 | 0.1+ | 0.1+ | 2003 03 10 | 644 | 0.3+ | 0.1+ | 2009 03 18 | E12 | 0.1+ | 0.2− | | |

**2003 EO$_{31}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 69.45998 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.16952492 | $\omega$ | 266.88009 | | −0.82134771 | −0.56420284 | |
| $a$ | 3.2333075 | $\Omega$ | 238.75732 | | +0.55459412 | −0.75536244 | |
| $e$ | 0.2287196 | $i$ | 5.64114 | | +0.13346644 | −0.33332079 | |
| $P$ | 5.81 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 10 02 | 645 | 0.0 | 0.0 | 2003 03 07 | 704 | (1.9− | 0.0 ) | 2007 11 18 | 691 | 0.2− | 0.1+ | | |
| 2000 10 02 | 645 | 0.0 | 0.1+ | 2003 03 07 | 704 | 0.2+ | 0.2+ | 2007 12 04 | G96 | 0.4+ | 0.2+ | | |
| 2003 02 12 | 608 | 0.2+ | 0.8− | 2003 03 07 | 704 | 1.0− | 0.1− | 2007 12 04 | G96 | 0.2+ | 0.0 | | |
| 2003 02 12 | 608 | 0.4+ | 0.6− | 2003 03 09 | 704 | 0.4+ | 0.2+ | 2007 12 04 | G96 | 0.3+ | 0.0 | | |
| 2003 02 12 | 608 | 0.1− | 0.6− | 2003 03 09 | 704 | 0.1+ | 0.1+ | 2007 12 04 | G96 | 0.4+ | 0.4− | | |
| 2003 03 07 | 704 | 0.3+ | 0.0 | 2003 03 09 | 704 | 0.8+ | 1.2+ | 2007 12 15 | G96 | 0.1+ | 0.5+ | | |
| 2003 03 07 | 704 | 0.6− | 1.0− | 2003 03 09 | 704 | 0.1− | 0.2− | 2007 12 15 | G96 | 0.1− | 0.6+ | | |
| 2003 03 07 | 704 | 0.4− | 0.4− | 2007 08 24 | 691 | 0.7+ | 0.3− | 2007 12 15 | G96 | 0.2+ | 0.1+ | | |
| 2003 03 07 | 704 | 0.9+ | 1.2+ | 2007 08 24 | 691 | 0.4− | 0.5− | 2007 12 15 | G96 | 0.1− | 0.3+ | | |
| 2003 03 07 | 704 | 0.9− | 0.4− | 2007 08 24 | 691 | 0.2− | 0.3− | 2008 03 01 | G96 | 0.4+ | 0.4− | | |
| 2003 03 07 | 704 | 0.2+ | 0.1− | 2007 11 07 | 691 | 0.1+ | 0.0 | 2008 03 01 | G96 | 0.2− | 0.2− | | |
| 2003 03 07 | 704 | 1.2− | 0.3+ | 2007 11 07 | 691 | 0.1− | 0.0 | 2008 03 01 | G96 | 0.1− | 0.2− | | |
| 2003 03 07 | 704 | 0.0 | 0.4− | 2007 11 07 | 691 | 0.2+ | 0.1+ | 2008 03 01 | G96 | 0.5− | 0.0 | | |
| 2003 03 07 | 704 | 0.4+ | 0.2+ | 2007 11 18 | 691 | 0.2− | 0.2+ | | | | | | |
| 2003 03 07 | 704 | 0.4+ | 1.2+ | 2007 11 18 | 691 | 0.3− | 0.1+ | | | | | | |

**2003 EN$_{39}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 343.52624 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27211513 | $\omega$ | 36.55423 | | −0.65800578 | −0.72724768 | |
| $a$ | 2.3584912 | $\Omega$ | 95.47637 | | +0.63602876 | −0.67560077 | |
| $e$ | 0.1796813 | $i$ | 11.31414 | | +0.40310768 | −0.12113800 | |
| $P$ | 3.62 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 03 08 | 704 | 0.7+ | 0.1+ | 2003 03 22 | 644 | 0.0 | 0.2+ | 2007 05 10 | 691 | 0.2− | 0.1+ | | |
| 2003 03 08 | 704 | 0.0 | 0.2+ | 2003 03 26 | 704 | 0.4− | 0.5− | 2009 11 23 | G96 | 0.3+ | 0.1− | | |
| 2003 03 08 | 704 | 1.0+ | 1.2− | 2003 03 26 | 704 | 0.7− | 0.3− | 2009 11 23 | G96 | 0.6+ | 0.0 | | |
| 2003 03 08 | 704 | 0.4+ | 0.6+ | 2003 03 26 | 704 | 0.1− | 1.2+ | 2009 11 23 | G96 | 0.1− | 0.0 | | |
| 2003 03 09 | 644 | 0.2− | 0.0 | 2007 04 25 | 691 | 0.1− | 0.1− | 2009 12 17 | 691 | 0.0 | 0.0 | | |
| 2003 03 09 | 644 | 0.3− | 0.1+ | 2007 04 25 | 691 | 0.0 | 0.3− | 2009 12 17 | 691 | 0.3− | 0.0 | | |
| 2003 03 09 | 644 | 0.1+ | 0.1+ | 2007 04 25 | 691 | 0.1+ | 0.1+ | 2009 12 17 | 691 | 0.2+ | 0.1− | | |
| 2003 03 22 | 644 | 0.1− | 0.0 | 2007 05 10 | 691 | 0.2+ | 0.0 | | | | | | |
| 2003 03 22 | 644 | 0.3− | 0.3− | 2007 05 10 | 691 | 0.0 | 0.1+ | | | | | | |

**2003 FF$_1$ = 2009 WV$_{250}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 327.03312 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26388970 | $\omega$ | 359.49517 | | −0.59143431 | −0.80162410 | |
| $a$ | 2.4072494 | $\Omega$ | 126.76070 | | +0.74019554 | −0.58262497 | |
| $e$ | 0.1835758 | $i$ | 6.24889 | | +0.31986875 | −0.13396621 | |
| $P$ | 3.73 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 02 09 | 291 | 0.2− | 0.2+ | 2003 04 04 | 691 | 0.4+ | 0.3+ | 2009 11 25 | G96 | 0.1− | 0.2+ | | |
| 2003 02 09 | 291 | 0.7− | 0.2− | 2003 04 04 | 691 | 0.6+ | 0.2+ | 2009 11 25 | G96 | 0.1+ | 0.1− | | |
| 2003 02 09 | 291 | 0.0 | 0.7− | 2003 04 04 | 691 | 0.3+ | 0.3+ | 2009 12 10 | 703 | 1.4− | 1.1+ | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 03 22 | 557 | 0.0 | 0.3+ | 2005 11 01 | 644 | 0.1+ | 0.3+ | 2009 12 10 | 703 | 0.2+ | 0.4+ | | |
| 2003 03 22 | 557 | 0.2− | 0.2+ | 2005 11 01 | 644 | 0.4− | 0.1+ | 2009 12 10 | 703 | 0.6− | 0.8− | | |
| 2003 03 23 | 557 | 0.2− | 0.1− | 2005 11 01 | 644 | 0.0 | 0.1− | 2009 12 10 | 703 | 0.0 | 0.7− | | |
| 2003 03 23 | 557 | 0.1− | 0.3− | 2007 05 22 | G96 | 0.2− | 0.4− | 2009 12 18 | F84 | 0.2+ | 0.2− | | |
| 2003 03 25 | 644 | 0.4+ | 0.4+ | 2007 05 22 | G96 | 0.1− | 0.0 | 2009 12 18 | F84 | 0.0 | 0.2+ | | |
| 2003 03 25 | 644 | 0.2+ | 0.3+ | 2007 05 22 | G96 | 0.1− | 0.1− | 2009 12 18 | F84 | 0.1− | 0.7+ | | |
| 2003 03 25 | 644 | 0.3− | 0.4+ | 2007 05 22 | G96 | 0.1− | 0.1+ | 2009 12 19 | F84 | 0.3+ | 0.3− | | |
| 2003 03 26 | 557 | 0.7− | 0.0 | 2009 11 25 | G96 | 0.5+ | 0.1+ | 2009 12 19 | F84 | 0.2+ | 0.3+ | | |
| 2003 03 26 | 557 | 0.4− | 0.9− | 2009 11 25 | G96 | 0.2+ | 0.1− | 2009 12 19 | F84 | 0.5+ | 0.1+ | | |

**2003 FP$_2$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 46.15823 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17816857 | $\omega$ | 252.56168 | | +0.07753764 | +0.98340712 | |
| $a$ | 3.1278696 | $\Omega$ | 23.79804 | | −0.68845367 | +0.17179764 | |
| $e$ | 0.4951165 | $i$ | 23.98185 | | −0.72112375 | −0.05827522 | |
| $P$ | 5.53 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 03 23 | 734 | 0.3+ | 0.4+ | 2003 04 01 | 704 | 0.3− | 0.1+ | 2003 04 30 | 608 | 0.6+ | 1.1− | | |
| 2003 03 23 | 734 | 1.6+ | 0.5+ | 2003 04 01 | 704 | 0.5− | 0.6− | 2003 04 30 | 608 | 0.3+ | 1.3− | | |
| 2003 03 23 | 734 | 1.0− | 0.0 | 2003 04 09 | 691 | 0.5− | 0.1+ | 2003 04 30 | 608 | 0.8+ | 1.4− | | |
| 2003 03 25 | 460 | 0.3+ | 0.9− | 2003 04 09 | 691 | 0.1− | 0.5− | 2003 05 01 | 704 | 1.2+ | 0.4+ | | |
| 2003 03 25 | 460 | 0.2+ | 0.4− | 2003 04 09 | 691 | 0.0 | 0.1+ | 2003 05 01 | 704 | 0.1− | 0.2− | | |
| 2003 03 26 | 644 | 0.2+ | 0.1− | 2003 04 09 | 734 | 0.8+ | 0.3− | 2003 05 01 | 704 | 0.7+ | 0.4− | | |
| 2003 03 26 | 644 | 0.1+ | 0.1− | 2003 04 09 | 734 | 0.1− | 0.8− | 2003 05 01 | 704 | 0.7+ | 1.0+ | | |
| 2003 03 26 | 644 | 0.1+ | 0.2− | 2003 04 09 | 734 | 0.2+ | 0.3− | 2003 05 21 | 734 | 0.3+ | 1.8− | | |
| 2003 03 27 | 691 | 0.4− | 0.0 | 2003 04 09 | 608 | 1.0+ | 0.4− | 2003 05 21 | 734 | 0.5− | 1.9− | | |
| 2003 03 27 | 691 | 0.2− | 0.2− | 2003 04 09 | 608 | 0.8+ | 0.5− | 2003 05 21 | 734 | 0.2− | 1.6− | | |
| 2003 03 27 | 691 | 0.2− | 0.0 | 2003 04 09 | 608 | 1.0+ | 0.2+ | 2003 06 01 | 460 | 1.1− | 0.5− | | |
| 2003 03 29 | 734 | 0.7+ | 0.5− | 2003 04 19 | 734 | 0.9+ | 1.0+ | 2003 06 01 | 460 | 0.6+ | 0.3+ | | |
| 2003 03 29 | 734 | 0.0 | 0.0 | 2003 04 19 | 734 | (3.8− | 2.3−) | 2009 08 20 | E12 | 0.3+ | 0.6+ | | |
| 2003 03 31 | 699 | 0.4+ | 0.4− | 2003 04 19 | 734 | 0.4− | 1.4− | 2009 08 20 | E12 | 0.8+ | 0.0 | | |
| 2003 03 31 | 699 | 0.3+ | 1.8− | 2003 04 22 | 734 | 0.0 | 0.8− | 2009 08 20 | E12 | 0.3+ | 0.5+ | | |
| 2003 03 31 | 699 | 0.2+ | 0.3− | 2003 04 22 | 734 | 1.3+ | 0.3− | 2009 10 09 | E12 | 0.1+ | 0.5− | | |
| 2003 03 31 | 699 | 0.1− | 0.5− | 2003 04 25 | 691 | 0.0 | 1.6+ | 2009 10 09 | E12 | 0.4+ | 1.0− | | |
| 2003 04 01 | 704 | 0.7− | 0.6− | 2003 04 25 | 691 | 0.5− | 1.2+ | 2009 10 09 | E12 | 0.9− | 0.1− | | |
| 2003 04 01 | 704 | 1.8− | 0.1− | 2003 04 25 | 691 | 0.5− | 1.7+ | 2009 10 09 | E12 | 0.7− | 0.0 | | |

**2003 FW$_7$ = 2007 NK$_7$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 264.60615 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28210040 | $\omega$ | 247.88839 | | +0.34336381 | +0.93354337 | |
| $a$ | 2.3025032 | $\Omega$ | 42.63892 | | −0.79595558 | +0.34742516 | |
| $e$ | 0.2928450 | $i$ | 8.74163 | | −0.49855392 | +0.08827535 | |
| $P$ | 3.49 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 03 26 | 644 | 0.5− | 0.6− | 2003 03 31 | 704 | 0.1− | 0.5+ | 2007 07 15 | E12 | 0.2+ | 0.2− | | |
| 2003 03 26 | 644 | 0.5− | 0.9− | 2003 03 31 | 704 | 0.4− | 0.0 | 2007 07 15 | E12 | 0.1+ | 0.0 | | |
| 2003 03 26 | 644 | 0.4− | 0.7− | 2003 04 01 | 704 | 0.7+ | 0.6− | 2007 07 15 | E12 | 0.3− | 0.4+ | | |
| 2003 03 27 | 644 | 0.1− | 0.5− | 2003 04 01 | 704 | 0.4+ | 0.1− | 2007 07 15 | E12 | 0.5− | 0.3+ | | |
| 2003 03 27 | 644 | 0.2− | 0.4− | 2003 04 01 | 704 | 0.4+ | 0.0 | 2007 09 08 | E12 | 0.0 | 0.2+ | | |
| 2003 03 27 | 644 | 0.2− | 0.6− | 2003 04 01 | 704 | 0.4+ | 0.1− | 2007 09 08 | E12 | 0.5+ | 0.7− | | |
| 2003 03 30 | 704 | 0.5+ | 0.7+ | 2003 04 24 | 608 | 0.7− | 0.5+ | 2007 09 08 | E12 | 0.0 | 0.2− | | |
| 2003 03 30 | 704 | 1.1+ | 1.1+ | 2003 04 24 | 608 | 0.2+ | 0.1+ | 2007 09 08 | E12 | 0.5+ | 0.5− | | |
| 2003 03 30 | 704 | 1.0+ | 1.1+ | 2003 04 24 | 608 | 0.4− | 0.2+ | 2007 09 20 | E12 | 0.2− | 0.5− | | |
| 2003 03 31 | 699 | 0.4− | 0.1+ | 2003 04 26 | 704 | 0.5− | 0.4+ | 2007 09 20 | E12 | 0.1+ | 0.2+ | | |
| 2003 03 31 | 699 | 0.7+ | 0.7− | 2003 04 26 | 704 | 0.0 | 0.4+ | 2007 09 20 | E12 | 0.6+ | 0.2+ | | |
| 2003 03 31 | 699 | 0.3− | 0.3− | 2003 04 26 | 704 | 0.6+ | 0.2+ | 2007 09 20 | E12 | 0.4+ | 0.6− | | |
| 2003 03 31 | 704 | 1.0+ | 1.5+ | 2003 05 01 | 704 | 0.1− | 1.0− | 2007 10 16 | 703 | 0.9− | 0.3+ | | |
| 2003 03 31 | 704 | 0.5− | 0.3+ | 2003 05 01 | 704 | 0.2+ | 0.5+ | 2007 10 16 | 703 | 0.3− | 0.2− | | |
| 2003 03 31 | 699 | 0.8− | 0.1+ | 2003 05 01 | 704 | 0.7− | 0.4− | 2007 10 16 | 703 | 0.3− | 1.0+ | | |
| 2003 03 31 | 704 | 0.2− | 0.0 | 2003 05 01 | 704 | 0.5− | 0.1− | 2007 10 16 | 703 | 0.6− | 0.9+ | | |

**2003 FF$_8$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 118.24725 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24565389 | $\omega$ | 121.30137 | | +0.83975366 | +0.53140530 | |
| $a$ | 2.5249549 | $\Omega$ | 207.08367 | | −0.54291711 | +0.81899628 | |
| $e$ | 0.1183093 | $i$ | 14.16997 | | −0.00740307 | +0.21645667 | |
| $P$ | 4.01 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 10 02 | 645 | 0.0 | 0.0 | 2003 03 30 | 461 | 0.4− | 0.3+ | 2003 04 26 | 691 | 0.1− | 0.1− | | |
| 2000 10 02 | 645 | 0.0 | 0.0 | 2003 03 30 | 461 | 0.4− | 1.1+ | 2003 04 26 | 691 | 0.2+ | 0.2− | | |
| 2003 03 29 | 461 | 0.2− | 0.2− | 2003 03 31 | 461 | 0.3− | 0.5− | 2003 04 26 | 691 | 0.0 | 0.1− | | |
| 2003 03 29 | 461 | 1.5− | 0.3+ | 2003 03 31 | 461 | 0.1− | 0.5− | 2007 03 16 | 691 | 0.2− | 0.5− | | |
| 2003 03 29 | 461 | 1.7− | 0.1− | 2003 03 31 | 461 | 0.6− | 1.1+ | 2007 03 16 | 691 | 0.1+ | 0.1− | | |
| 2003 03 30 | 691 | 0.7+ | 0.4+ | 2003 04 01 | 461 | 0.5+ | 0.8− | 2007 03 16 | 691 | 0.2− | 0.2+ | | |
| 2003 03 30 | 691 | 0.5+ | 0.7+ | 2003 04 01 | 461 | 0.2+ | 0.0 | 2008 10 01 | G96 | 0.1+ | 0.3+ | | |
| 2003 03 30 | 691 | 0.7+ | 0.0 | 2003 04 02 | 461 | 0.3− | 0.9+ | 2008 10 01 | G96 | 0.1− | 0.2+ | | |
| 2003 03 30 | 461 | 0.8− | 0.3+ | 2003 04 02 | 461 | 0.2− | 1.0− | 2008 10 01 | G96 | 0.2+ | 0.1+ | | |
| 2003 03 30 | 461 | 0.4+ | 0.8− | 2003 04 02 | 461 | 0.1− | 0.7− | 2008 10 01 | G96 | 0.0 | 0.0 | | |
| 2003 03 30 | 461 | 0.6+ | 0.3+ | 2003 04 02 | 461 | 1.5− | 1.0− | | | | | | |

**2003 FQ$_{76}$ = 2009 WB$_1$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 276.45648 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.25330746 | $\omega$ | 197.23919 | | −0.99469494 | −0.09244587 | |
| $a$ | 2.4738350 | $\Omega$ | 337.31094 | | +0.10264899 | −0.86334688 | |
| $e$ | 0.1275764 | $i$ | 6.71732 | | +0.00672032 | −0.49607049 | |
| $P$ | 3.89 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 03 27 | 644 | 0.5+ | 0.5+ | 2003 04 01 | 644 | 0.5+ | 0.4+ | 2009 11 18 | J47 | 0.2− | 0.1− | | |
| 2003 03 27 | 644 | 0.0 | 0.2+ | 2003 04 01 | 644 | 0.2+ | 0.2+ | 2009 11 18 | J47 | 0.1+ | 0.2+ | | |
| 2003 03 27 | 644 | 0.3+ | 0.4+ | 2003 04 01 | 644 | 0.1− | 0.4+ | 2009 11 19 | J47 | 0.1− | 0.9− | | |
| 2003 03 30 | 699 | 1.4− | 1.1− | 2007 03 16 | 691 | 0.3− | 0.6− | 2009 11 19 | J47 | 0.2− | 0.3− | | |
| 2003 03 30 | 699 | 1.0− | 0.8− | 2007 03 16 | 691 | 0.1− | 0.1− | 2009 11 19 | J47 | 0.1− | 0.1+ | | |
| 2003 03 30 | 699 | 0.2− | 0.1+ | 2007 03 16 | 691 | 0.2+ | 0.3+ | 2009 11 19 | J47 | 0.5− | 0.5+ | | |
| 2003 03 30 | 699 | 0.9− | 0.9− | 2009 11 16 | J47 | 0.7+ | 0.3− | 2009 11 23 | J47 | 0.6+ | 0.7+ | | |
| 2003 03 31 | 704 | 0.9+ | 0.4+ | 2009 11 16 | J47 | 0.4+ | 0.3− | 2009 11 23 | J47 | 0.7+ | 0.5+ | | |
| 2003 03 31 | 704 | 0.3+ | 0.7+ | 2009 11 16 | J47 | 0.2+ | 0.1− | 2009 11 24 | J47 | 0.4− | 0.0 | | |
| 2003 03 31 | 704 | 0.0 | 0.1− | 2009 11 16 | J47 | 0.1+ | 0.0 | 2009 12 08 | J47 | 0.1+ | 0.1− | | |
| 2003 03 31 | 704 | (1.7+ | 1.1+) | 2009 11 16 | J47 | 0.0 | 0.2+ | 2009 12 08 | J47 | 0.5− | 0.2+ | | |
| 2003 04 01 | 644 | 0.4+ | 0.4+ | 2009 11 18 | J47 | 0.1− | 0.1− | 2009 12 08 | J47 | 0.2− | 0.0 | | |
| 2003 04 01 | 644 | 0.5+ | 0.6+ | 2009 11 18 | J47 | 0.4− | 0.3− | | | | | | |
| 2003 04 01 | 644 | 0.5+ | 0.0 | 2009 11 18 | J47 | 0.1− | 0.2− | | | | | | |

**2003 FS$_{131}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 95.41745 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.20511555 | $\omega$ | 232.87487 | | +0.41365327 | +0.90140958 | |
| $a$ | 2.8475432 | $\Omega$ | 62.02751 | | −0.78264424 | +0.42382554 | |
| $e$ | 0.2809985 | $i$ | 8.32508 | | −0.46514403 | +0.08850246 | |
| $P$ | 4.81 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 03 31 | 691 | 0.2− | 0.1+ | 2003 05 11 | 691 | 0.6+ | 0.5+ | 2009 11 17 | G96 | 0.2− | 0.1+ | | |
| 2003 03 31 | 691 | 0.0 | 0.5− | 2003 05 11 | 691 | 0.1+ | 0.0 | 2009 11 17 | G96 | 0.1+ | 0.1− | | |
| 2003 03 31 | 691 | 0.4+ | 0.2− | 2003 05 24 | 691 | 0.4− | 0.1− | 2009 11 17 | G96 | 0.2− | 0.1+ | | |
| 2003 04 30 | 691 | 0.3− | 0.1− | 2003 05 24 | 691 | 0.6− | 0.3+ | 2009 11 17 | G96 | 0.3+ | 0.0 | | |
| 2003 04 30 | 691 | 0.2+ | 0.4+ | 2003 05 24 | 691 | 0.3− | 0.2+ | 2009 11 17 | G96 | 0.4+ | 0.3+ | | |
| 2003 04 30 | 691 | 0.2+ | 0.0 | 2003 06 01 | 691 | 0.1− | 0.3+ | 2009 11 17 | G96 | 0.1− | 0.5+ | | |
| 2003 05 05 | 704 | 0.3+ | 0.3+ | 2003 06 01 | 691 | 0.1+ | 0.1− | 2009 12 10 | G96 | 0.8+ | 0.4+ | | |
| 2003 05 05 | 704 | 0.2+ | 0.5− | 2003 06 01 | 691 | 0.4+ | 0.0 | 2009 12 10 | G96 | 0.2+ | 0.1+ | | |
| 2003 05 05 | 704 | 0.1+ | 0.4− | 2009 10 27 | 691 | 0.3− | 0.4+ | 2009 12 10 | G96 | 0.3+ | 0.0 | | |
| 2003 05 05 | 704 | 0.1− | 0.4− | 2009 10 27 | 691 | 0.1− | 0.4+ | 2009 12 10 | G96 | 0.2− | 0.4+ | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 2003 05 05 | 704 | 0.2+ | 0.4+ | 2009 10 27 | 691 | 0.4− | 0.0 | |
| 2003 05 11 | 691 | 0.4+ | 0.3+ | 2009 11 17 | G96 | 0.2+ | 0.1+ | |

**2003 GY$_{24}$ = 2009 UE$_{96}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 17.18126 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.08290030 | $\omega$ | 330.70915 | | +0.88008636 | −0.45359563 | |
| $a$ | 5.2091314 | $\Omega$ | 56.93115 | | +0.46169090 | +0.74850637 | |
| $e$ | 0.0483859 | $i$ | 9.64149 | | +0.11085808 | +0.48372432 | |
| $P$ | 11.89 | $H$ | 13.7 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 04 07 | 691 | 0.2+ | 0.4+ | 2004 04 24 | 291 | 0.5+ | 0.4+ | 2009 11 11 | 291 | (0.8+ | 2.0+) |
| 2003 04 07 | 691 | 0.6+ | 0.5+ | 2004 06 13 | 691 | 0.2− | 0.2+ | 2009 11 11 | 291 | 0.1− | 0.9+ |
| 2003 04 07 | 691 | 0.6+ | 0.5+ | 2004 06 13 | 691 | 0.3− | 0.4+ | 2009 11 11 | 291 | 0.0 | 1.1+ |
| 2003 04 08 | 291 | 0.5− | 0.3+ | 2004 06 13 | 691 | 0.1− | 0.3+ | 2009 11 18 | G96 | 0.3− | 0.1+ |
| 2003 04 08 | 291 | 0.1− | 0.3− | 2009 10 22 | G96 | 0.4+ | 0.0 | 2009 11 18 | G96 | 0.5− | 0.0 |
| 2003 04 08 | 291 | 0.4− | 0.3− | 2009 10 22 | G96 | 0.4+ | 0.1+ | 2009 11 18 | G96 | 0.2− | 0.0 |
| 2003 04 25 | 291 | 0.0 | 0.2− | 2009 10 22 | G96 | 0.5+ | 0.2+ | 2009 11 18 | G96 | 0.6− | 0.1− |
| 2003 04 25 | 291 | 0.3+ | 0.1− | 2009 10 22 | G96 | 0.5+ | 0.2+ | 2009 12 17 | G96 | 0.6− | 0.1− |
| 2003 04 25 | 291 | 0.1+ | 0.3+ | 2009 10 26 | 691 | 0.5− | 0.4+ | 2009 12 17 | G96 | 0.9− | 0.1− |
| 2004 04 24 | 291 | 0.6+ | 0.6+ | 2009 10 26 | 691 | 0.3− | 0.0 | 2009 12 17 | G96 | 0.5− | 0.1− |
| 2004 04 24 | 291 | 0.6+ | 0.8+ | 2009 10 26 | 691 | 0.4− | 1.1+ | 2009 12 17 | G96 | 0.2− | 0.1− |

**2003 GB$_{44}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 159.56136 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22680058 | $\omega$ | 133.04269 | | +0.05728231 | +0.98649461 | |
| $a$ | 2.6630129 | $\Omega$ | 139.47060 | | −0.97083450 | +0.09088320 | |
| $e$ | 0.2463231 | $i$ | 13.65864 | | −0.23280704 | −0.13626674 | |
| $P$ | 4.35 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 04 02 | 608 | 0.1− | 0.4− | 2003 05 07 | 703 | 1.0+ | 0.1− | 2003 06 21 | 699 | 0.4− | 0.2+ |
| 2003 04 02 | 608 | 0.2+ | 0.2− | 2003 05 07 | 703 | 0.4+ | 1.3+ | 2003 06 21 | 699 | 0.7− | 1.1− |
| 2003 04 02 | 608 | 0.3+ | 0.6− | 2003 05 07 | 703 | 0.8+ | 0.1− | 2007 03 16 | 703 | 0.3+ | 0.4+ |
| 2003 04 09 | 704 | 0.0 | 0.0 | 2003 05 08 | 608 | 1.2− | 0.7+ | 2007 03 16 | 703 | 0.6− | 0.3− |
| 2003 04 09 | 704 | 0.2− | 0.6+ | 2003 05 08 | 608 | 0.9− | 0.5+ | 2007 03 16 | 703 | 0.0 | 1.1− |
| 2003 04 09 | 704 | 0.5+ | 0.7+ | 2003 05 08 | 608 | 1.0− | 0.3+ | 2007 03 16 | 703 | 0.0 | 0.5− |
| 2003 04 09 | 704 | 0.2− | 1.0+ | 2003 06 01 | 608 | 0.2− | 0.5− | 2008 09 01 | J75 | 0.4− | 0.4+ |
| 2003 04 09 | 704 | 0.4+ | 0.5+ | 2003 06 01 | 608 | 0.2− | 0.7− | 2008 09 01 | J75 | 0.6+ | 0.3− |
| 2003 04 10 | 704 | 0.2+ | 0.6+ | 2003 06 01 | 608 | 0.1− | 0.4− | 2008 09 01 | J75 | 0.1− | 0.6− |
| 2003 04 10 | 704 | 0.5+ | 0.5+ | 2003 06 04 | 704 | (0.4− | 2.5−) | 2008 09 06 | 703 | 0.5− | 0.3+ |
| 2003 04 10 | 704 | 1.0+ | 0.2+ | 2003 06 04 | 704 | (1.4− | 1.8−) | 2008 09 06 | 703 | 0.4− | 0.1+ |
| 2003 04 10 | 704 | 0.8+ | 0.6− | 2003 06 04 | 704 | 0.3− | 1.4− | 2008 09 06 | 703 | (0.2+ | 1.7+) |
| 2003 04 10 | 704 | 0.6+ | 0.1− | 2003 06 04 | 704 | (0.6+ | 1.7−) | 2008 09 06 | 703 | 0.7+ | 0.8+ |
| 2003 04 10 | 704 | 0.1+ | 0.9+ | 2003 06 21 | 699 | 0.8− | 0.0 | | | | |
| 2003 05 07 | 703 | 0.0 | 0.2+ | 2003 06 21 | 699 | 0.1− | 1.3− | | | | |

**2003 HK$_{14}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 301.73568 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27037372 | $\omega$ | 40.56932 | | −0.81069980 | +0.58514372 | |
| $a$ | 2.3686073 | $\Omega$ | 175.12468 | | −0.57853244 | −0.79561049 | |
| $e$ | 0.1545191 | $i$ | 13.12896 | | −0.08981120 | −0.15687822 | |
| $P$ | 3.65 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1993 09 20 | 691 | 0.1+ | 0.1+ | 2003 04 08 | 704 | 0.2+ | 0.1− | 2003 04 28 | 683 | 0.5+ | 1.2− |
| 1993 09 20 | 691 | 0.1− | 0.3− | 2003 04 26 | 704 | 0.1− | 0.5+ | 2003 04 30 | 683 | 0.4+ | 1.6− |
| 1993 09 20 | 691 | 0.0 | 0.1+ | 2003 04 26 | 704 | 0.1− | 1.0+ | 2003 04 30 | 683 | 1.0− | 0.6− |
| 2000 09 27 | 645 | 0.0 | 0.0 | 2003 04 26 | 704 | 0.9+ | 0.7+ | 2003 04 30 | 683 | (2.5− | 0.5−) |
| 2000 09 27 | 645 | 0.0 | 0.0 | 2003 04 26 | 704 | 0.9+ | 0.7− | 2003 05 02 | 703 | 0.3− | 0.4+ |
| 2003 03 27 | 644 | 0.2+ | 0.4− | 2003 04 26 | 704 | 0.1+ | 0.1− | 2003 05 02 | 703 | 0.5− | 0.2− |
| 2003 03 27 | 644 | 0.3+ | 0.7− | 2003 04 26 | 704 | 0.2− | 0.0 | 2003 05 02 | 703 | 0.0 | 0.1− |
| 2003 03 27 | 644 | 0.7+ | 0.6− | 2003 04 26 | 704 | 0.2+ | 0.1+ | 2003 05 02 | 703 | 0.3− | 0.2− |
| 2003 04 03 | 704 | 0.9+ | 0.1+ | 2003 04 26 | 704 | 0.1+ | 1.0+ | 2003 05 02 | 608 | 1.1− | 1.2+ |
| 2003 04 03 | 704 | 0.1+ | 0.1− | 2003 04 26 | 704 | 0.6+ | 0.7+ | 2003 05 02 | 608 | 1.0− | 1.1+ |
| 2003 04 03 | 704 | 0.3+ | 0.0 | 2003 04 27 | 699 | 0.3− | 0.5− | 2003 05 02 | 608 | 0.7− | 1.0+ |
| 2003 04 03 | 704 | 0.4+ | 0.0 | 2003 04 27 | 699 | 0.1+ | 0.3− | 2003 06 21 | 699 | 0.5− | 0.1− |
| 2003 04 08 | 704 | 0.1+ | 1.3− | 2003 04 27 | 699 | 0.0 | 0.2+ | 2003 06 21 | 699 | 0.2+ | 0.9− |
| 2003 04 08 | 704 | 0.2+ | 0.6− | 2003 04 27 | 699 | 0.2− | 0.4− | 2003 06 21 | 699 | 0.3+ | 0.1+ |
| 2003 04 08 | 704 | 0.0 | 0.6− | 2003 04 28 | 683 | 1.4− | 1.5+ | 2003 06 21 | 699 | 0.3+ | 0.6+ |
| 2003 04 08 | 704 | 0.4+ | 0.6− | 2003 04 28 | 683 | 0.4− | 0.8+ | | | | |

**2003 HA$_{58}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 289.56971 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27422820 | $\omega$ | 161.89615 | | −0.17944151 | +0.96468318 | |
| $a$ | 2.3463600 | $\Omega$ | 97.42381 | | −0.92492314 | −0.09865676 | |
| $e$ | 0.2005577 | $i$ | 11.21375 | | −0.33513867 | −0.24424004 | |
| $P$ | 3.59 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 04 25 | 699 | 0.3− | 0.0 | 2003 05 09 | 703 | 0.6− | 0.1− | 2003 07 04 | 691 | 0.1− | 0.3+ |
| 2003 04 25 | 699 | 1.0− | 0.6− | 2003 05 09 | 703 | (1.9− | 1.1+) | 2003 07 04 | 691 | 0.0 | 0.2+ |
| 2003 04 25 | 699 | 1.4− | 0.1− | 2003 05 09 | 703 | 0.6− | 0.6+ | 2003 07 04 | 691 | 0.1− | 0.2+ |
| 2003 04 25 | 699 | 0.8− | 0.7+ | 2003 05 20 | 608 | 0.7− | 1.3− | 2006 02 28 | 703 | 0.2+ | 0.0 |
| 2003 05 02 | 704 | 0.1+ | 0.5+ | 2003 05 20 | 608 | 0.4− | 1.0− | 2006 02 28 | 703 | 0.6+ | 0.2− |
| 2003 05 02 | 704 | 0.4+ | 0.4− | 2003 05 20 | 608 | 0.7− | 1.3− | 2006 02 28 | 703 | 0.1+ | 0.9− |
| 2003 05 02 | 704 | 0.3+ | 0.4+ | 2003 05 26 | 691 | 0.4+ | 0.2+ | 2006 02 28 | 703 | 0.9− | 0.8+ |
| 2003 05 02 | 704 | 0.5− | 0.9+ | 2003 05 26 | 691 | 0.2+ | 0.2+ | 2008 12 31 | G96 | 0.0 | 0.1+ |
| 2003 05 02 | 704 | 1.1+ | 0.8+ | 2003 05 26 | 691 | 0.3+ | 0.0 | 2008 12 31 | G96 | 0.3+ | 0.1+ |
| 2003 05 02 | 704 | 0.0 | 0.3+ | 2003 06 03 | 704 | 0.2− | 0.2+ | 2008 12 31 | G96 | 0.5− | 0.0 |
| 2003 05 02 | 704 | 0.5+ | 0.2− | 2003 06 03 | 704 | 0.4− | 1.1+ | 2008 12 31 | G96 | 0.2− | 0.0 |
| 2003 05 09 | 704 | (1.8− | 1.3+) | 2003 06 03 | 704 | 0.1− | 0.0 | 2009 01 30 | G96 | 0.4− | 0.5+ |
| 2003 05 09 | 704 | 0.3− | 0.4− | 2003 06 03 | 691 | 0.1+ | 0.1− | 2009 01 30 | G96 | 0.5+ | 0.7+ |
| 2003 05 09 | 704 | 0.1− | 0.3− | 2003 06 03 | 704 | 0.3− | 0.1− | 2009 01 30 | G96 | 0.1− | 0.6+ |
| 2003 05 09 | 704 | 0.1− | 0.3+ | 2003 06 03 | 704 | 0.2+ | 0.2− | 2009 01 30 | G96 | 0.2− | 0.2+ |
| 2003 05 09 | 704 | 0.2+ | 0.0 | 2003 06 03 | 691 | 0.4+ | 0.4− | | | | |
| 2003 05 09 | 703 | 1.0− | 0.9+ | 2003 06 03 | 691 | 0.4+ | 0.4− | | | | |

**2003 JG$_{8}$ = 1997 WP$_{58}$ = 2009 UQ$_{144}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 259.58217 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.08149333 | $\omega$ | 93.20804 | | −0.81833172 | −0.49887473 | |
| $a$ | 5.2689166 | $\Omega$ | 57.05129 | | +0.29036192 | −0.78739521 | |
| $e$ | 0.0346669 | $i$ | 19.88366 | | +0.49600722 | −0.36212261 | |
| $P$ | 12.09 | $H$ | 12.1 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 11 30 | 809 | 0.9− | 0.3− | 2003 05 05 | 704 | 0.6− | 0.8− | 2009 10 18 | J75 | 1.0+ | 0.3− |
| 1997 12 02 | 809 | 1.2+ | 0.1− | 2003 05 06 | 691 | 0.1− | 0.2− | 2009 10 18 | J75 | 0.4+ | 0.3+ |
| 1997 12 02 | 809 | 0.2+ | 0.1− | 2003 05 06 | 691 | 0.3+ | 0.2− | 2009 10 19 | J75 | 0.1− | 0.8+ |
| 2003 05 02 | 704 | 0.4− | 0.0 | 2003 05 06 | 691 | 0.1+ | 0.1− | 2009 11 09 | 703 | 0.5+ | 0.4− |
| 2003 05 02 | 704 | 0.4− | 0.8+ | 2003 05 12 | 608 | 0.4− | 0.3− | 2009 11 09 | 703 | 0.2+ | 1.8+ |
| 2003 05 02 | 704 | 0.2+ | 0.6+ | 2003 05 12 | 608 | 0.1+ | 0.1− | 2009 11 09 | 703 | 0.2− | 0.9− |
| 2003 05 02 | 704 | 0.3− | 0.6+ | 2003 05 12 | 608 | 0.7− | 0.5− | 2009 11 09 | 703 | 0.1+ | 0.3+ |
| 2003 05 05 | 704 | 0.4+ | 0.8+ | 2009 10 18 | 703 | 0.7+ | 0.4+ | 2009 12 10 | 703 | 0.4+ | 0.6− |
| 2003 05 05 | 704 | 0.6+ | 0.1+ | 2009 10 18 | 703 | 0.6− | 0.0 | 2009 12 10 | 703 | 0.1− | 0.4+ |
| 2003 05 05 | 704 | 0.2− | 0.4− | 2009 10 18 | 703 | 0.2+ | 0.4− | 2009 12 10 | 703 | 1.4− | 0.7− |
| 2003 05 05 | 704 | 0.3+ | 1.1+ | 2009 10 18 | 703 | 0.8− | 0.1− | 2009 12 10 | 703 | 0.8− | 0.2− |

**2003 KL$_{11}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 158.24974 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22238503 | $\omega$ | 65.71089 | | +0.65083365 | +0.73292355 | |
| $a$ | 2.6981474 | $\Omega$ | 246.40109 | | −0.75107979 | +0.58344943 | |
| $e$ | 0.2150456 | $i$ | 12.48390 | | −0.11088148 | +0.34987115 | |
| $P$ | 4.43 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 05 26 | 691 | 1.1− | 0.1− | 2003 06 29 | 704 | 0.1+ | 0.3+ | 2008 10 31 | G96 | 0.4+ | 0.1− |
| 2003 05 26 | 691 | 0.1+ | 0.0 | 2003 06 29 | 704 | 0.4+ | 0.2− | 2008 10 31 | G96 | 0.0 | 0.1− |
| 2003 05 26 | 691 | 0.2+ | 0.2+ | 2003 06 29 | 704 | 0.0 | 0.3+ | 2008 10 31 | G96 | 0.1+ | 0.1+ |
| 2003 05 28 | 926 | 0.7+ | 0.1− | 2003 06 29 | 704 | 0.1− | 0.3− | 2008 10 31 | G96 | 0.0 | 0.2− |
| 2003 05 28 | 926 | 0.3+ | 0.5+ | 2003 08 01 | 704 | 0.3− | 0.0 | 2008 10 31 | 703 | 0.2+ | 0.8− |
| 2003 05 28 | 926 | 1.2+ | 0.1− | 2003 08 01 | 704 | 0.0 | 0.3− | 2008 10 31 | 703 | 0.6− | 0.4+ |
| 2003 06 26 | 608 | 0.4+ | 0.3− | 2003 08 01 | 704 | 0.6− | 0.4+ | 2008 10 31 | 703 | 0.8− | 0.1+ |
| 2003 06 26 | 608 | 0.9+ | 0.8− | 2008 10 05 | J75 | 0.0 | 0.1+ | 2008 10 31 | 703 | 0.4+ | 0.5+ |
| 2003 06 26 | 608 | 0.3+ | 0.4− | 2008 10 05 | J75 | 0.6+ | 0.2+ | | | | |
| 2003 06 29 | 704 | 0.5− | 0.5+ | 2008 10 05 | J75 | 0.2− | 0.2− | | | | |

**2003 LD$_4$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 280.71051 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.26789097 | $\omega$ | 153.47881 | | −0.21103276 | | +0.95261465 |
| $a$ | 2.3832193 | $\Omega$ | 103.68267 | | −0.93209691 | | −0.12862086 |
| $e$ | 0.2317210 | $i$ | 13.03028 | | −0.29438160 | | −0.27564834 |
| $P$ | 3.68 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 27 | 645 | 0.0 | 0.0 | 2003 05 14 | 608 | 0.0 | 1.5− | 2003 07 08 | 691 | 0.1+ | 0.1− |
| 2000 09 27 | 645 | 0.0 | 0.0 | 2003 05 27 | 608 | 0.4+ | 0.1− | 2003 07 08 | 691 | 0.1+ | 0.3− |
| 2003 03 10 | 704 | 0.8+ | 0.2− | 2003 05 27 | 608 | 0.3− | 0.1− | 2003 07 08 | 691 | 0.1+ | 0.3− |
| 2003 03 10 | 704 | 0.8+ | 0.0 | 2003 05 27 | 608 | 0.0 | 0.5+ | 2003 07 08 | 644 | 0.2− | 0.0 |
| 2003 03 10 | 704 | 1.1+ | 0.3+ | 2003 06 03 | 704 | 0.1+ | 0.4− | 2003 07 08 | 644 | 0.1+ | 0.1+ |
| 2003 05 09 | 704 | 0.4− | 0.6+ | 2003 06 03 | 704 | 0.8+ | 0.7− | 2003 07 08 | 644 | 0.3− | 0.1− |
| 2003 05 09 | 704 | 0.2+ | 0.0 | 2003 06 03 | 704 | 0.4+ | 0.2− | 2003 07 23 | 608 | 0.3+ | 1.1+ |
| 2003 05 09 | 704 | 0.8− | 0.8+ | 2003 06 03 | 704 | 0.2− | 1.2− | 2003 07 23 | 608 | 0.2+ | 1.9+ |
| 2003 05 09 | 704 | 0.4− | 1.2+ | 2003 06 03 | 704 | 0.3+ | 0.6− | 2003 07 23 | 608 | 0.7+ | 1.4+ |
| 2003 05 09 | 704 | 1.0− | 0.5+ | 2003 06 06 | 704 | 0.1+ | 0.5− | 2003 07 24 | 673 | 0.2− | 0.7+ |
| 2003 05 09 | 704 | 1.0− | 1.6+ | 2003 06 06 | 704 | 0.3− | 0.0 | 2003 07 24 | 673 | 0.4+ | 0.2− |
| 2003 05 09 | 704 | 1.0− | 0.8+ | 2003 06 06 | 704 | 0.0 | 0.4− | 2003 07 24 | 673 | 0.6+ | 0.4− |
| 2003 05 09 | 704 | 0.2− | 1.0+ | 2003 06 06 | 704 | 0.7+ | 0.3− | 2009 01 01 | G96 | 0.2− | 0.4+ |
| 2003 05 09 | 704 | 0.8− | 1.0+ | 2003 06 06 | 704 | 0.2− | 0.1+ | 2009 01 01 | G96 | 0.0 | 0.3+ |
| 2003 05 09 | 704 | 0.5− | 1.4+ | 2003 06 25 | 644 | 0.2+ | 0.1− | 2009 01 01 | G96 | 0.2+ | 0.2+ |
| 2003 05 14 | 608 | 0.1+ | 1.7− | 2003 06 25 | 644 | 0.3+ | 0.0 | 2009 01 01 | G96 | 0.3− | 0.3+ |
| 2003 05 14 | 608 | 0.2+ | 1.6− | 2003 06 25 | 644 | 0.1− | 0.0 | | | | |

**2003 NH$_6$ = 2009 WP$_{249}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 52.35743 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17845798 | $\omega$ | 152.25019 | | +0.70686714 | | +0.69779842 |
| $a$ | 3.1244870 | $\Omega$ | 161.89208 | | −0.69816978 | | +0.71457022 |
| $e$ | 0.3899344 | $i$ | 21.88031 | | −0.11356852 | | −0.04966658 |
| $P$ | 5.52 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 07 05 | 704 | 0.1− | 0.4− | 2003 08 01 | 704 | 0.9− | 0.2+ | 2009 10 21 | 703 | 0.0 | 0.7− |
| 2003 07 05 | 704 | 0.3+ | 1.2− | 2003 08 01 | 704 | 0.6− | 0.6− | 2009 10 21 | 703 | 0.6+ | 0.5+ |
| 2003 07 05 | 704 | 1.1+ | 0.2− | 2003 08 01 | 704 | 0.5− | 0.2+ | 2009 10 21 | 703 | 0.1+ | 0.7− |
| 2003 07 05 | 704 | 0.4+ | 0.2− | 2003 08 01 | 704 | 0.7− | 0.1− | 2009 11 16 | 703 | 0.3− | 1.3+ |
| 2003 07 05 | 704 | 1.4+ | 0.8+ | 2007 03 10 | G96 | 0.0 | 1.1+ | 2009 11 16 | 703 | 0.7− | 0.1− |
| 2003 07 09 | 704 | 0.4− | 0.2+ | 2007 03 10 | G96 | 0.3− | 0.7+ | 2009 11 16 | 703 | (1.9− | 0.5−) |
| 2003 07 09 | 704 | 0.2− | 0.1+ | 2007 03 10 | G96 | (0.2− | 2.1+) | 2009 11 16 | 703 | 0.7− | 0.6− |
| 2003 07 09 | 704 | 0.2− | 0.1+ | 2007 03 10 | G96 | 0.6+ | 0.8+ | 2009 11 25 | 703 | 0.2− | 0.1+ |
| 2003 07 09 | 704 | 0.3− | 1.2+ | 2009 08 26 | 703 | 0.2− | 0.4+ | 2009 11 25 | 703 | 0.5+ | 0.9+ |
| 2003 07 30 | 704 | 0.5+ | 0.7+ | 2009 08 26 | 703 | 0.9+ | 0.2+ | 2009 11 25 | 703 | 0.7− | 0.3+ |
| 2003 07 30 | 704 | 0.3+ | 0.7+ | 2009 08 26 | 703 | 0.6− | 0.1+ | 2009 11 25 | 703 | (1.1− | 1.8−) |
| 2003 07 30 | 704 | 0.4+ | 0.3+ | 2009 08 26 | 703 | 1.2+ | 0.2+ | | | | |
| 2003 08 01 | 704 | 0.3− | 0.1− | 2009 10 21 | 703 | (1.4+ | 2.3−) | | | | |

**2003 OY$_1$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 60.53509 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18158643 | $\omega$ | 213.52408 | | +0.80141943 | | +0.53989148 |
| $a$ | 3.0884966 | $\Omega$ | 111.71137 | | −0.46962945 | | +0.83450533 |
| $e$ | 0.2868407 | $i$ | 16.08315 | | −0.37037154 | | +0.11008200 |
| $P$ | 5.43 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 07 08 | 644 | 0.4− | 0.1− | 2003 07 23 | 704 | 1.2+ | 0.9− | 2008 06 03 | G96 | 0.0 | 0.0 |
| 2003 07 08 | 644 | 0.1− | 0.4− | 2003 07 23 | 704 | 0.7+ | 0.5+ | 2008 06 03 | G96 | 0.3+ | 0.0 |
| 2003 07 08 | 644 | 0.1− | 0.4− | 2003 07 23 | 704 | 0.3+ | 0.3+ | 2008 06 03 | G96 | 0.3+ | 0.2+ |
| 2003 07 22 | 608 | 0.5− | 0.6− | 2003 07 24 | 673 | 0.4− | 0.0 | 2008 06 03 | G96 | 0.5+ | 0.1+ |
| 2003 07 22 | 608 | 0.1− | 0.8− | 2003 07 24 | 673 | 0.3− | 0.1+ | 2008 07 02 | 703 | 0.5+ | 0.2− |
| 2003 07 22 | 608 | 0.7− | 0.4− | 2003 07 24 | 673 | 0.1− | 0.1+ | 2008 07 02 | 703 | 1.0− | 0.3− |
| 2003 07 23 | 704 | 0.2+ | 0.6+ | 2003 08 02 | 428 | 0.3− | 0.1+ | 2008 07 02 | 703 | 0.9− | 0.1− |
| 2003 07 23 | 704 | 0.6+ | 1.5+ | 2003 08 02 | 428 | 0.2− | 0.3+ | 2008 07 02 | 703 | 0.2+ | 0.5+ |

**2003 OR$_8$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 185.43994 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23304572 | $\omega$ | 205.65507 | | +0.72572032 | | +0.65100844 |
| $a$ | 2.6152224 | $\Omega$ | 111.85882 | | −0.58269991 | | +0.75357794 |
| $e$ | 0.2511893 | $i$ | 13.87264 | | −0.36577429 | | +0.09114981 |
| $P$ | 4.23 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 06 25 | 699 | 0.0 | 1.6− | 2003 07 23 | 704 | 0.2− | 0.2+ | 2009 01 01 | G96 | 0.4+ | 0.3− |
| 2003 06 25 | 699 | 0.5− | 0.3+ | 2003 07 23 | 704 | 0.1− | 0.2+ | 2009 01 01 | G96 | 0.4− | 1.2+ |
| 2003 06 25 | 699 | 0.1+ | 0.8− | 2003 07 26 | 428 | 0.1− | 0.0 | 2009 01 01 | G96 | 0.3+ | 0.8− |
| 2003 06 25 | 699 | 0.8− | 1.2+ | 2003 07 26 | 428 | 0.4+ | 0.4+ | 2009 01 01 | G96 | 0.1+ | 0.6− |
| 2003 07 08 | 644 | 0.1+ | 0.3+ | 2003 07 27 | 428 | 0.1− | 0.0 | 2009 03 01 | G96 | 0.0 | 0.1− |
| 2003 07 08 | 644 | 0.0 | 0.1+ | 2003 07 27 | 428 | 0.2+ | 0.3− | 2009 03 01 | G96 | 0.6− | 0.1− |
| 2003 07 08 | 644 | 0.1+ | 0.1+ | 2003 08 02 | 428 | 0.1− | 0.1− | 2009 03 01 | G96 | 0.2+ | 0.4+ |
| 2003 07 23 | 704 | 0.3+ | 0.7+ | 2003 08 02 | 428 | 0.1− | 0.2− | 2009 03 01 | G96 | 0.1− | 0.3+ |
| 2003 07 23 | 704 | 1.0+ | 0.9− | 2003 09 03 | 428 | 0.6− | 0.2+ | | | | |

**2003 OJ$_{12}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 275.10908 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.27228822 | $\omega$ | 159.78875 | | +0.91567147 | | +0.40098510 |
| $a$ | 2.3574915 | $\Omega$ | 176.21824 | | −0.40156568 | | +0.91560549 |
| $e$ | 0.2245679 | $i$ | 24.64952 | | −0.01705158 | | −0.02962315 |
| $P$ | 3.62 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 07 22 | 644 | 0.3+ | 0.0 | 2003 09 22 | 699 | 0.4− | 0.5+ | 2003 09 29 | 704 | 0.7+ | 0.4+ |
| 2003 07 22 | 644 | 0.2+ | 0.1+ | 2003 09 22 | 699 | 0.6+ | 0.6+ | 2003 09 29 | 704 | 0.3+ | 0.3+ |
| 2003 07 22 | 644 | 0.2+ | 0.1+ | 2003 09 22 | 699 | 0.3− | 0.3+ | 2003 09 29 | 704 | 0.3+ | 0.8+ |
| 2003 07 28 | 644 | 0.1− | 0.2+ | 2003 09 22 | 699 | 0.1+ | 0.3+ | 2003 09 29 | 704 | 0.7+ | 0.4+ |
| 2003 07 28 | 644 | 0.1+ | 0.1+ | 2003 09 23 | 608 | 0.3− | 0.0 | 2003 10 27 | 699 | 0.0 | 1.0− |
| 2003 07 28 | 644 | 0.1+ | 0.0 | 2003 09 23 | 608 | 0.4− | 0.1− | 2003 10 27 | 699 | 0.1− | 0.3− |
| 2003 09 03 | 704 | 0.5− | 0.0 | 2003 09 23 | 608 | 0.4− | 0.2− | 2003 10 27 | 699 | 0.4− | 0.6− |
| 2003 09 03 | 704 | 0.1+ | 0.2− | 2003 09 24 | 608 | 0.1− | 0.2− | 2003 10 27 | 699 | 0.5− | 0.6+ |
| 2003 09 03 | 704 | 0.5− | 0.3− | 2003 09 24 | 608 | 0.2+ | 0.6− | 2009 03 01 | G96 | 0.0 | 0.2+ |
| 2003 09 03 | 704 | 0.8− | 0.2− | 2003 09 24 | 608 | 0.0 | 1.4− | 2009 03 01 | G96 | 0.2+ | 0.2+ |
| 2003 09 18 | 704 | 0.4+ | 0.2− | 2003 09 26 | 704 | 0.1+ | 0.4+ | 2009 03 01 | G96 | 0.4− | 0.4+ |
| 2003 09 18 | 704 | 0.4+ | 0.6+ | 2003 09 26 | 704 | 0.2+ | 0.7+ | 2009 03 01 | G96 | 0.3+ | 0.6+ |
| 2003 09 18 | 704 | 0.5+ | 0.5+ | 2003 09 26 | 704 | 0.3+ | 0.4+ | 2009 04 01 | G96 | 0.3− | 0.2+ |
| 2003 09 18 | 704 | 0.3− | 0.4+ | 2003 09 29 | 699 | (2.3+ | 0.4+) | 2009 04 01 | G96 | 0.1+ | 0.4+ |
| 2003 09 18 | 704 | 0.6+ | 0.1+ | 2003 09 29 | 699 | 0.1− | 0.5+ | 2009 04 01 | G96 | 0.3+ | 0.4+ |
| 2003 09 18 | 608 | 0.6− | 0.1− | 2003 09 29 | 699 | 0.6+ | 1.1− | 2009 04 01 | G96 | 0.3− | 0.2+ |
| 2003 09 18 | 608 | 0.4− | 0.4− | 2003 09 29 | 699 | 0.0 | 0.6+ | | | | |
| 2003 09 18 | 608 | 0.6− | 0.2− | 2003 09 29 | 704 | 0.5− | 0.1+ | | | | |

**2003 PT$_6$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 49.96315 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17569778 | $\omega$ | 177.38555 | | +0.92700863 | +0.36288765 | |
| $a$ | 3.1571257 | $\Omega$ | 160.49233 | | −0.34903322 | +0.92715954 | |
| $e$ | 0.2759471 | $i$ | 16.47407 | | −0.13722543 | +0.09320801 | |
| $P$ | 5.61 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 08 01 | 704 | 0.1− | 0.5+ | 2003 09 01 | 704 | 0.1+ | 0.2+ | 2003 09 24 | 608 | 0.1− | 1.0+ |
| 2003 08 01 | 704 | 0.1+ | 0.4− | 2003 09 01 | 704 | 0.3+ | 0.2− | 2003 09 24 | 608 | 0.1+ | 0.7+ |
| 2003 08 01 | 704 | 0.4− | 0.2+ | 2003 09 04 | 291 | 0.3− | 0.1+ | 2003 09 28 | 704 | 0.3+ | 0.8− |
| 2003 08 01 | 704 | 1.0− | 0.2+ | 2003 09 04 | 291 | 0.3− | 0.1+ | 2003 09 28 | 704 | 0.1− | 0.6− |
| 2003 08 05 | 704 | 0.5+ | 0.5+ | 2003 09 04 | 291 | 0.3− | 0.0 | 2003 09 28 | 704 | 0.5+ | 0.3− |
| 2003 08 05 | 704 | 0.5+ | 0.3− | 2003 09 13 | 608 | 0.1+ | 0.3+ | 2003 09 28 | 704 | 0.2+ | 1.1− |
| 2003 08 05 | 704 | 0.6+ | 0.1− | 2003 09 13 | 608 | 0.0 | 0.3+ | 2003 09 29 | 699 | 0.4− | 0.9− |
| 2003 08 05 | 704 | 0.1+ | 0.6− | 2003 09 13 | 608 | 0.1+ | 0.0 | 2003 09 29 | 699 | 0.4− | 0.1+ |
| 2003 08 05 | 704 | 0.5+ | 0.1− | 2003 09 17 | 699 | (0.6+ | 1.7+) | 2003 09 29 | 699 | 0.2+ | 0.5− |
| 2003 08 22 | 704 | (2.3+ | 0.8+) | 2003 09 17 | 699 | 0.3+ | 0.8− | 2003 09 29 | 699 | 0.6+ | 0.0 |
| 2003 08 22 | 704 | 0.0 | 0.7+ | 2003 09 17 | 699 | 0.5+ | 0.5+ | 2009 09 17 | 703 | (3.4− | 0.4+) |
| 2003 08 22 | 704 | 0.7+ | 0.1+ | 2003 09 17 | 704 | 0.2+ | 0.1+ | 2009 09 17 | 703 | 0.2+ | 1.0+ |
| 2003 08 22 | 704 | 0.8+ | 0.2− | 2003 09 17 | 699 | 0.4− | 0.6− | 2009 09 17 | 703 | 0.7+ | 0.2+ |
| 2003 08 22 | 704 | 0.0 | 0.6+ | 2003 09 17 | 704 | 0.1+ | 0.6− | 2009 09 17 | 703 | (2.2+ | 1.0+) |
| 2003 08 25 | 704 | 0.2+ | 0.1− | 2003 09 17 | 704 | 0.2+ | 0.9+ | 2009 10 02 | G96 | 0.3− | 0.2− |
| 2003 08 25 | 704 | 0.4− | 1.0− | 2003 09 17 | 704 | 1.0− | 1.2+ | 2009 10 02 | G96 | 0.1− | 0.3− |
| 2003 08 25 | 704 | 0.2− | 0.6− | 2003 09 17 | 704 | 0.6+ | 0.0 | 2009 10 02 | G96 | 0.4− | 0.2− |
| 2003 08 25 | 704 | 0.1+ | 1.0− | 2003 09 18 | 699 | (0.4+ | 1.7+) | 2009 10 02 | G96 | 0.2− | 0.5− |
| 2003 08 25 | 704 | 0.1− | 0.6− | 2003 09 18 | 699 | 0.5+ | 0.8+ | 2009 11 18 | 703 | 0.4− | 0.7− |
| 2003 09 01 | 704 | 0.4− | 0.6+ | 2003 09 18 | 699 | 0.1+ | 0.4+ | 2009 11 18 | 703 | 0.2− | 0.5+ |
| 2003 09 01 | 704 | 0.2− | 0.2− | 2003 09 18 | 699 | 0.7+ | 0.1+ | 2009 11 18 | 703 | 0.3+ | 0.9+ |
| 2003 09 01 | 704 | 0.7− | 0.1− | 2003 09 24 | 608 | 0.1+ | 1.0+ | 2009 11 18 | 703 | 0.5+ | 0.6− |

**2003 QA**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 299.35864 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27549186 | $\omega$ | 0.34498 | | −0.59539679 | +0.79086448 | |
| $a$ | 2.3391794 | $\Omega$ | 233.11951 | | −0.73755745 | −0.60789585 | |
| $e$ | 0.7082495 | $i$ | 10.19276 | | −0.31860897 | −0.07068245 | |
| $P$ | 3.58 | $H$ | 18.3 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 08 16 | 620 | 0.3− | 0.1− | 2003 08 20 | 859 | 1.2+ | 1.5− | 2003 08 26 | 620 | 0.1− | 0.1+ |
| 2003 08 16 | 620 | 0.3− | 0.4− | 2003 08 20 | 859 | 0.7− | 0.6− | 2003 08 26 | 461 | 0.1+ | 0.1+ |
| 2003 08 16 | 620 | 0.1− | 1.2+ | 2003 08 20 | 859 | 0.5+ | 0.7+ | 2003 08 26 | 461 | 0.2− | 0.0 |
| 2003 08 16 | 620 | 0.1+ | 0.4− | 2003 08 20 | 204 | 0.2+ | 0.2− | 2003 08 26 | 461 | 0.2− | 0.0 |
| 2003 08 16 | 620 | 0.6+ | 0.2− | 2003 08 20 | 204 | 0.4− | 0.9+ | 2003 08 27 | 941 | 0.6+ | 0.4− |
| 2003 08 16 | 620 | 0.3− | 0.7+ | 2003 08 20 | 204 | 0.2− | 0.3+ | 2003 08 27 | 941 | 0.5+ | 0.1− |
| 2003 08 16 | 620 | 0.3+ | 0.1+ | 2003 08 20 | 642 | 0.0 | 0.2− | 2003 08 27 | 941 | 0.6+ | 0.3+ |
| 2003 08 16 | 620 | 0.4+ | 0.6+ | 2003 08 20 | 642 | 0.2+ | 0.2− | 2003 08 27 | 941 | 0.6+ | 0.9+ |
| 2003 08 16 | 620 | 0.2− | 0.3+ | 2003 08 20 | 642 | 0.3+ | 0.7− | 2003 08 27 | 620 | 0.1+ | 0.0 |
| 2003 08 16 | 620 | 0.2+ | 0.1− | 2003 08 20 | 113 | 0.1+ | 0.3− | 2003 08 27 | 620 | 0.3+ | 0.0 |
| 2003 08 16 | 620 | 0.4+ | 0.5+ | 2003 08 20 | 113 | 0.2+ | 0.5+ | 2003 08 27 | 620 | 0.1+ | 0.1+ |
| 2003 08 16 | 620 | 0.1+ | 1.0+ | 2003 08 20 | 113 | 0.1+ | 0.2+ | 2003 08 29 | 620 | 0.3+ | 0.1− |
| 2003 08 16 | 620 | 0.7+ | 0.4− | 2003 08 21 | 704 | 0.7+ | 0.4− | 2003 08 29 | 620 | 0.3− | 0.2+ |
| 2003 08 16 | 620 | 0.7+ | 0.4+ | 2003 08 21 | 704 | 0.3+ | 0.1− | 2003 08 29 | 620 | 0.1− | 0.1− |
| 2003 08 16 | 620 | 0.4+ | 0.1− | 2003 08 21 | 704 | 0.5+ | 0.1+ | 2003 08 30 | J95 | 0.1+ | 0.1+ |
| 2003 08 16 | 620 | 0.7+ | 1.2− | 2003 08 21 | 704 | 0.3+ | 0.5+ | 2003 08 30 | J95 | 0.1− | 0.0 |
| 2003 08 16 | 620 | 0.6+ | 0.5+ | 2003 08 21 | 704 | 0.1− | 0.2+ | 2003 08 30 | J95 | 0.2− | 0.2+ |
| 2003 08 16 | 620 | 0.2+ | 0.1− | 2003 08 21 | 672 | 0.1+ | 0.9− | 2003 08 31 | 151 | 0.3+ | 0.3− |
| 2003 08 16 | 620 | 0.3− | 0.4+ | 2003 08 21 | 071 | 1.4+ | 0.6− | 2003 08 31 | 151 | 0.0 | 0.1+ |
| 2003 08 16 | 620 | 0.2− | 0.7+ | 2003 08 21 | 587 | 0.2− | 0.1+ | 2003 08 31 | 151 | 0.1− | 0.1− |
| 2003 08 16 | 620 | 0.1+ | 0.8+ | 2003 08 21 | 587 | 1.0− | 0.9+ | 2003 08 31 | 151 | 0.1− | 0.3− |
| 2003 08 16 | 620 | 0.1+ | 0.0 | 2003 08 21 | 071 | 1.5+ | 0.1− | 2003 08 31 | 151 | 0.2+ | 0.7+ |
| 2003 08 16 | 620 | 0.1+ | 0.4+ | 2003 08 21 | 587 | 0.3− | 0.6+ | 2003 08 31 | 151 | 0.3− | 0.1− |
| 2003 08 16 | 620 | 0.8+ | 0.1− | 2003 08 21 | 071 | 0.6+ | 0.9− | 2003 08 31 | 151 | 0.5− | 0.9+ |
| 2003 08 17 | 620 | 0.3− | 0.3+ | 2003 08 22 | 151 | 0.2− | 0.1− | 2003 08 31 | 151 | 0.1− | 0.3+ |
| 2003 08 17 | 620 | 0.8− | 0.3− | 2003 08 22 | 151 | 0.3− | 0.1− | 2003 08 31 | 151 | 0.3− | 0.2− |
| 2003 08 17 | 620 | 0.0 | 0.3− | 2003 08 22 | 461 | 0.0 | 0.1− | 2003 08 31 | 151 | 0.5− | 0.3− |
| 2003 08 17 | 620 | 0.0 | 0.4+ | 2003 08 22 | 151 | 0.0 | 0.3− | 2003 08 31 | 118 | 0.3− | 0.5+ |
| 2003 08 17 | 620 | 0.0 | 0.2− | 2003 08 22 | 151 | 0.1− | 0.3− | 2003 08 31 | 118 | 0.5+ | 0.4+ |
| 2003 08 17 | 620 | 0.1− | 0.2+ | 2003 08 22 | 151 | 0.1− | 0.4− | 2003 08 31 | 118 | 1.5+ | 1.1+ |
| 2003 08 17 | 120 | 0.2− | 0.1− | 2003 08 22 | 151 | 0.1+ | 0.5− | 2003 08 31 | 118 | 0.4+ | 0.2− |
| 2003 08 17 | 620 | 0.0 | 0.2− | 2003 08 22 | 151 | 0.2+ | 0.5− | 2003 09 01 | 170 | 0.3+ | 0.0 |
| 2003 08 17 | 620 | 0.1− | 0.1− | 2003 08 22 | 151 | 0.1+ | 0.0 | 2003 09 01 | 170 | 0.1+ | 0.1− |
| 2003 08 17 | 120 | 0.4+ | 0.0 | 2003 08 22 | 461 | 0.1− | 0.0 | 2003 09 01 | 170 | 0.1+ | 0.0 |
| 2003 08 17 | 120 | 0.2− | 0.2− | 2003 08 22 | 461 | 0.1− | 0.1− | 2003 09 03 | 118 | 0.3+ | 1.0− |
| 2003 08 17 | 620 | 0.1− | 0.1− | 2003 08 22 | 461 | 0.0 | 0.0 | 2003 09 03 | 118 | 0.5− | 1.0+ |
| 2003 08 17 | 620 | 0.3− | 0.1+ | 2003 08 22 | 246 | 0.1+ | 0.5+ | 2003 09 03 | 118 | 0.4− | 0.6− |
| 2003 08 17 | 620 | 0.1− | 0.1− | 2003 08 22 | 246 | 0.3+ | 0.1+ | 2003 09 03 | 215 | 0.1− | 0.3− |
| 2003 08 17 | 952 | 0.3− | 0.7− | 2003 08 22 | 246 | 0.3+ | 0.2+ | 2003 09 04 | 151 | 0.7− | 0.6− |
| 2003 08 17 | 952 | 0.7− | 0.2− | 2003 08 22 | 246 | 0.2+ | 0.3+ | 2003 09 04 | 151 | 0.5− | 0.2− |
| 2003 08 17 | 952 | 0.2+ | 0.5− | 2003 08 22 | 246 | 0.1+ | 0.1+ | 2003 09 04 | 151 | 1.2− | 0.5− |
| 2003 08 17 | 952 | 0.1− | 0.1− | 2003 08 22 | 246 | 0.1+ | 0.2+ | 2003 09 04 | 151 | 1.3− | 0.1− |
| 2003 08 17 | 952 | 0.8− | 0.2− | 2003 08 22 | 246 | 0.1+ | 0.1− | 2003 09 04 | 151 | 0.1+ | 0.3− |
| 2003 08 17 | 952 | 0.3− | 0.7+ | 2003 08 22 | 246 | 0.0 | 0.1+ | 2003 09 04 | 151 | 0.2+ | 0.2− |
| 2003 08 17 | 952 | 0.0 | 0.2+ | 2003 08 22 | J95 | 0.1+ | 0.1+ | 2003 09 04 | 151 | 0.2− | 0.8+ |
| 2003 08 17 | 952 | 0.7− | 0.2− | 2003 08 22 | 246 | 0.2+ | 0.3+ | 2003 09 04 | 151 | 0.7+ | 0.7− |
| 2003 08 17 | J95 | 1.6− | 0.1− | 2003 08 22 | 461 | 0.1+ | 0.3− | 2003 09 04 | 151 | 0.2+ | 1.0− |
| 2003 08 17 | J95 | 0.1+ | 0.9+ | 2003 08 22 | J95 | 0.3+ | 0.0 | 2003 09 04 | 151 | 1.0+ | 0.0 |
| 2003 08 18 | J95 | 0.3− | 0.2+ | 2003 08 22 | J95 | 0.7+ | 0.2− | 2003 09 04 | 151 | 0.3− | 0.3− |
| 2003 08 18 | J95 | 0.1+ | 0.1− | 2003 08 22 | 461 | 0.0 | 0.1− | 2003 09 04 | 151 | 0.2+ | 0.2− |
| 2003 08 18 | J95 | 0.1− | 0.1− | 2003 08 22 | 461 | 0.2+ | 0.0 | 2003 09 04 | 461 | 0.3+ | 0.4+ |
| 2003 08 18 | 672 | (0.4+ | 3.7−) | 2003 08 23 | 670 | 0.5+ | 0.1− | 2003 09 04 | 461 | 0.1+ | 0.1+ |
| 2003 08 18 | 672 | (0.1+ | 2.5−) | 2003 08 23 | 715 | 0.3− | 0.3− | 2003 09 04 | 461 | 0.1+ | 0.0 |
| 2003 08 18 | 941 | 0.2− | 0.7+ | 2003 08 23 | 715 | 0.2− | 0.2− | 2003 09 05 | 413 | 0.0 | 0.2− |
| 2003 08 18 | 941 | 0.1− | 0.3+ | 2003 08 23 | 715 | 0.3− | 0.4− | 2003 09 05 | 413 | 0.1− | 0.1− |
| 2003 08 18 | 941 | 0.0 | 0.2+ | 2003 08 23 | 715 | 0.6+ | 0.1− | 2003 09 05 | 413 | 0.2+ | 0.1− |
| 2003 08 18 | 941 | 0.1− | 0.2− | 2003 08 23 | 715 | 0.0 | 0.0 | 2003 09 05 | 941 | 0.6+ | 0.2− |
| 2003 08 18 | 941 | 0.1+ | 0.2− | 2003 08 23 | 670 | 0.1+ | 0.2+ | 2003 09 05 | 941 | 0.4+ | 0.3− |
| 2003 08 18 | 941 | 0.4+ | 0.1− | 2003 08 23 | 670 | 0.1+ | 0.1+ | 2003 09 05 | 941 | 0.1+ | 0.4− |
| 2003 08 18 | 941 | 0.4+ | 0.0 | 2003 08 23 | 170 | 0.5− | 0.5− | 2003 09 05 | 941 | 0.2+ | 0.4− |
| 2003 08 18 | 938 | 1.3− | 0.2− | 2003 08 23 | 170 | 0.2− | 0.3− | 2003 09 05 | 941 | 0.3− | 0.2− |
| 2003 08 18 | 938 | 0.5− | 0.0 | 2003 08 23 | 170 | 0.9− | 0.8− | 2003 09 05 | 941 | 0.2− | 0.1+ |
| 2003 08 18 | 938 | 0.1+ | 0.3+ | 2003 08 23 | 170 | 0.4− | 0.3− | 2003 09 13 | 240 | 0.8+ | 0.5+ |
| 2003 08 18 | 938 | 0.0 | 0.3− | 2003 08 23 | 132 | 0.1+ | 0.2− | 2003 09 13 | 240 | 0.2− | 0.5− |
| 2003 08 18 | J95 | 0.0 | 0.1− | 2003 08 23 | 132 | 0.1− | 0.3+ | 2003 09 13 | 240 | 1.1− | 0.6− |
| 2003 08 18 | J95 | 0.1− | 0.1+ | 2003 08 23 | 132 | 0.1− | 0.1− | 2003 09 13 | 240 | 1.3− | 1.1− |
| 2003 08 18 | 938 | 0.0 | 0.2+ | 2003 08 24 | 163 | 0.4+ | 0.3+ | 2003 09 13 | 240 | 1.5− | 0.8− |
| 2003 08 18 | J95 | 0.2− | 0.2− | 2003 08 24 | 163 | 0.5+ | 0.4+ | 2003 09 15 | 413 | 0.0 | 0.1+ |
| 2003 08 18 | 938 | 0.4− | 0.3− | 2003 08 24 | 163 | 0.1− | 0.1+ | 2003 09 15 | 413 | 0.0 | 0.0 |
| 2003 08 18 | 938 | 0.1+ | 0.4+ | 2003 08 24 | 649 | 0.2− | 0.0 | 2003 09 15 | 413 | 0.0 | 0.0 |
| 2003 08 18 | 938 | 0.3+ | 0.6− | 2003 08 24 | 649 | 1.8− | 0.7− | 2003 09 15 | 413 | 0.3+ | 0.1− |
| 2003 08 18 | 938 | 0.5− | 0.2+ | 2003 08 24 | 649 | 0.2− | 0.2+ | 2003 09 15 | 151 | 0.1− | 0.0 |
| 2003 08 18 | 938 | 0.2− | 0.5− | 2003 08 24 | 461 | 0.1− | 0.0 | 2003 09 15 | 151 | 0.2+ | 0.2− |
| 2003 08 18 | 938 | 0.6− | 0.3− | 2003 08 24 | 461 | 0.2− | 0.1− | 2003 09 15 | 151 | 0.2+ | 0.5− |
| 2003 08 19 | H59 | 0.2− | 0.2+ | 2003 08 24 | 198 | 0.1− | 0.1+ | 2003 09 15 | 151 | 0.1− | 0.4− |
| 2003 08 19 | H59 | 0.2− | 0.5+ | 2003 08 24 | 461 | 0.1− | 0.1+ | 2003 09 16 | 620 | 0.1− | 0.1+ |
| 2003 08 19 | 642 | 0.4− | 0.0 | 2003 08 24 | 198 | 0.2+ | 0.2− | 2003 09 16 | 620 | 0.7+ | 0.4+ |
| 2003 08 19 | 642 | 0.3− | 0.1− | 2003 08 24 | 198 | 0.4+ | 0.2− | 2003 09 17 | 644 | 0.4+ | 0.6+ |
| 2003 08 19 | 642 | 0.0 | 0.3− | 2003 08 24 | 461 | 0.2+ | 0.1− | 2003 09 17 | 644 | 0.4+ | 0.4+ |
| 2003 08 19 | H59 | 0.1− | 0.3+ | 2003 08 24 | 198 | 0.6+ | 0.1− | 2003 09 17 | 644 | 0.4+ | 0.5+ |
| 2003 08 19 | 785 | 0.1+ | 0.7+ | 2003 08 24 | 461 | 0.1− | 0.0 | 2003 09 17 | 246 | 0.4+ | 0.3+ |
| 2003 08 19 | 785 | 0.8− | 0.6− | 2003 08 24 | J87 | 0.2+ | 0.4+ | 2003 09 17 | 246 | 0.3+ | 0.7+ |
| 2003 08 19 | 785 | 0.2+ | 0.0 | 2003 08 24 | 461 | 0.0 | 0.1+ | 2003 09 17 | 246 | 0.1+ | 0.3+ |
| 2003 08 19 | 151 | 0.3− | 0.1− | 2003 08 24 | J87 | 0.3− | 0.4− | 2003 09 17 | 246 | 0.4+ | 0.4+ |
| 2003 08 19 | 151 | 0.1− | 0.4− | 2003 08 24 | J87 | 0.0 | 0.0 | 2003 09 18 | 246 | 0.3− | 1.1+ |
| 2003 08 19 | 151 | 0.1+ | 0.2− | 2003 08 24 | 461 | 0.2− | 0.2+ | 2003 09 18 | 246 | 0.4+ | 0.2+ |
| 2003 08 19 | 151 | 0.2− | 0.2+ | 2003 08 24 | 461 | 0.1− | 0.1+ | 2003 09 18 | 246 | 0.1− | 0.2+ |
| 2003 08 19 | 151 | 0.1− | 0.3+ | 2003 08 24 | 461 | 0.1− | 0.0 | 2003 09 18 | 246 | 0.3+ | 0.8+ |
| 2003 08 19 | 151 | 0.0 | 0.3− | 2003 08 24 | J95 | 0.1+ | 0.3− | 2003 09 18 | 246 | 0.8+ | 0.4+ |
| 2003 08 19 | 938 | 0.1− | 0.1+ | 2003 08 24 | J95 | 0.0 | 0.0 | 2003 09 18 | 246 | 0.4+ | 0.6+ |
| 2003 08 19 | 938 | 0.0 | 0.1− | 2003 08 24 | J95 | 0.1− | 0.1− | 2003 09 19 | 113 | 0.4+ | 0.3− |
| 2003 08 19 | 938 | 0.3+ | 0.4− | 2003 08 25 | 046 | 0.1+ | 0.1+ | 2003 09 19 | 113 | 0.3− | 0.0 |
| 2003 08 19 | 938 | 0.8+ | 0.6− | 2003 08 25 | 046 | 0.0 | 0.2+ | 2003 09 19 | 113 | 0.0 | 0.5+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 08 19 | 938 | 0.1− | 0.1+ | 2003 08 25 | 046 | 0.1+ | 0.4+ | 2003 09 20 | 704 | 1.3+ | 0.5+ | | |
| 2003 08 19 | 938 | 1.1+ | 0.2− | 2003 08 25 | 046 | 0.1+ | 0.4+ | 2003 09 20 | 704 | 0.3+ | 0.4+ | | |
| 2003 08 19 | 938 | 0.4+ | 0.5− | 2003 08 25 | 046 | 0.0 | 0.3+ | 2003 09 20 | 704 | 0.0 | 0.8+ | | |
| 2003 08 19 | 938 | 0.5+ | 0.6+ | 2003 08 26 | 785 | 0.9+ | 1.8− | 2003 09 20 | 704 | 0.1+ | 0.9+ | | |
| 2003 08 19 | 938 | 1.9+ | 1.5− | 2003 08 26 | 785 | (1.2+ | 2.6−) | 2003 09 22 | 644 | 0.4− | 0.1+ | | |
| 2003 08 19 | 952 | 0.6− | 0.2+ | 2003 08 26 | 785 | (0.5− | 2.0+) | 2003 09 22 | 644 | 0.4+ | 1.2+ | | |
| 2003 08 19 | 952 | 0.1+ | 0.0 | 2003 08 26 | 461 | 0.1− | 0.1− | 2003 09 22 | 644 | 0.4+ | 0.5+ | | |
| 2003 08 19 | 952 | 0.6+ | 0.8+ | 2003 08 26 | 461 | 0.0 | 0.0 | 2003 10 17 | 540 | 0.7− | 0.3+ | | |
| 2003 08 19 | 952 | 0.2− | 1.1+ | 2003 08 26 | 046 | 0.6− | 0.7+ | 2003 10 17 | 540 | 0.7+ | 0.1+ | | |
| 2003 08 19 | 952 | 0.9− | 0.2+ | 2003 08 26 | 046 | 0.2+ | 0.2− | 2003 10 20 | J86 | 0.0 | 0.3+ | | |
| 2003 08 19 | 952 | 0.5− | 0.0 | 2003 08 26 | 461 | 0.0 | 0.1− | 2003 10 20 | J86 | 0.1+ | 0.5+ | | |
| 2003 08 19 | 938 | 0.0 | 0.7− | 2003 08 26 | 461 | 0.1− | 0.0 | 2003 10 23 | 645 | 0.2− | 0.0 | | |
| 2003 08 19 | 938 | 0.0 | 0.5+ | 2003 08 26 | 461 | 0.1− | 0.1− | 2003 10 23 | 645 | 0.1− | 0.0 | | |
| 2003 08 19 | 938 | 1.2+ | 1.5− | 2003 08 26 | 461 | 0.2+ | 0.0 | 2009 12 20 | 291 | 0.7− | 0.0 | | |
| 2003 08 20 | J95 | 0.0 | 0.1− | 2003 08 26 | 620 | 0.1− | 0.0 | 2009 12 20 | 291 | 0.2+ | 0.3+ | | |
| 2003 08 20 | J95 | 0.1+ | 0.2− | 2003 08 26 | 620 | 0.3+ | 0.1+ | 2009 12 20 | 291 | 0.4+ | 0.8− | | |
| 2003 08 20 | J95 | 0.1+ | 0.0 | 2003 08 26 | 461 | 0.1− | 0.0 | | | | | | |

**2003 QC$_{41}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 272.89818 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.27021780 | $\omega$ | 344.47134 | | +0.90299052 | | +0.42916713 |
| $a$ | 2.3695184 | $\Omega$ | 350.03880 | | −0.38044875 | | +0.77638463 |
| $e$ | 0.2633005 | $i$ | 6.83401 | | −0.19966688 | | +0.46156525 |
| $P$ | 3.65 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 08 22 | 704 | 0.6+ | 0.6− | 2003 09 18 | 704 | 0.1− | 0.0 | 2003 09 29 | 704 | 0.2+ | 0.0 | | |
| 2003 08 22 | 704 | 0.6− | 0.0 | 2003 09 18 | 704 | 0.1− | 0.4+ | 2003 09 29 | 704 | 0.1+ | 0.5+ | | |
| 2003 08 22 | 704 | 0.2− | 0.7− | 2003 09 18 | 704 | 0.5− | 0.0 | 2003 09 29 | 704 | 0.2− | 0.3+ | | |
| 2003 08 22 | 704 | 0.3− | 0.6− | 2003 09 18 | 704 | 0.3+ | 0.1+ | 2003 09 29 | 645 | 0.0 | 0.2− | | |
| 2003 08 22 | 704 | 0.6− | 0.6+ | 2003 09 18 | 704 | 0.2− | 0.3− | 2003 09 29 | 645 | 0.0 | 0.3− | | |
| 2003 08 22 | 644 | 0.5− | 0.0 | 2003 09 18 | 644 | 0.1− | 0.2− | 2003 10 17 | 691 | 0.1+ | 0.2+ | | |
| 2003 08 22 | 644 | 0.2− | 0.1− | 2003 09 18 | 644 | 0.2+ | 0.1+ | 2003 10 17 | 691 | 0.1− | 0.3+ | | |
| 2003 08 22 | 644 | 0.3− | 0.0 | 2003 09 18 | 644 | 0.6+ | 0.2+ | 2003 10 17 | 691 | 0.1+ | 0.2+ | | |
| 2003 08 25 | 704 | 0.1+ | 0.2+ | 2003 09 23 | 644 | 0.2+ | 0.4+ | 2003 10 18 | 645 | 0.0 | 0.1− | | |
| 2003 08 25 | 704 | 0.3+ | 0.0 | 2003 09 23 | 644 | 0.2+ | 0.3+ | 2003 10 18 | 645 | 0.0 | 0.0 | | |
| 2003 08 25 | 704 | 0.3+ | 0.1+ | 2003 09 23 | 644 | 0.2+ | 0.0 | 2003 10 23 | 645 | 0.0 | 0.0 | | |
| 2003 08 25 | 704 | 0.1+ | 0.3+ | 2003 09 26 | 704 | 0.9− | 0.6+ | 2003 10 23 | 645 | 0.0 | 0.0 | | |
| 2003 08 25 | 704 | 0.2− | 0.1− | 2003 09 26 | 704 | 1.1− | 0.8+ | 2009 02 05 | 691 | 0.3+ | 0.0 | | |
| 2003 09 02 | 704 | 0.3+ | 0.5+ | 2003 09 26 | 704 | 0.5− | 0.8+ | 2009 02 05 | 691 | 0.2− | 0.1+ | | |
| 2003 09 02 | 704 | 0.9+ | 0.7+ | 2003 09 26 | 704 | 0.3− | 1.0+ | 2009 02 05 | 691 | 0.1+ | 0.2+ | | |
| 2003 09 02 | 704 | 0.1+ | 0.8+ | 2003 09 26 | 704 | 0.9− | 1.4+ | 2009 03 03 | G96 | 0.0 | 0.6+ | | |
| 2003 09 02 | 704 | 0.1+ | 0.7+ | 2003 09 27 | 691 | 0.0 | 0.2+ | 2009 03 03 | G96 | 0.1+ | 0.5+ | | |
| 2003 09 15 | 699 | 0.3− | 0.4+ | 2003 09 27 | 691 | 0.0 | 0.1+ | 2009 03 03 | G96 | 0.2+ | 0.5+ | | |
| 2003 09 15 | 699 | 0.0 | 0.3+ | 2003 09 27 | 691 | 0.0 | 0.2+ | 2009 03 03 | G96 | 0.2+ | 0.1− | | |
| 2003 09 15 | 699 | 0.0 | 0.1+ | 2003 09 29 | 704 | 0.1+ | 0.6+ | | | | | | |
| 2003 09 15 | 699 | 0.2− | 0.1− | 2003 09 29 | 704 | 0.3− | 0.2+ | | | | | | |

**2003 QM$_{56}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 256.54373 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.27920203 | $\omega$ | 19.16879 | | +0.91883754 | | −0.39453117 |
| $a$ | 2.3184105 | $\Omega$ | 4.10215 | | +0.34343175 | | +0.78805123 |
| $e$ | 0.1165031 | $i$ | 7.30515 | | +0.19440219 | | +0.47256789 |
| $P$ | 3.53 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 08 23 | 704 | 0.6− | 0.2− | 2003 09 17 | 699 | 1.2+ | 0.5+ | 2003 09 28 | 704 | (0.5+ | 1.9+) | | |
| 2003 08 23 | 704 | 0.0 | 0.3− | 2003 09 17 | 699 | 1.1+ | 0.1+ | 2003 10 21 | 699 | 0.1+ | 0.4+ | | |
| 2003 08 23 | 704 | 0.2− | 0.0 | 2003 09 17 | 699 | 0.4+ | 0.5+ | 2003 10 21 | 699 | 0.1+ | 0.6− | | |
| 2003 08 26 | 704 | 0.6+ | 0.4+ | 2003 09 18 | 704 | (2.0+ | 0.8+) | 2003 10 21 | 699 | 0.7− | 0.2− | | |
| 2003 08 26 | 704 | 0.4+ | 0.1− | 2003 09 18 | 704 | 0.5+ | 0.4+ | 2003 10 21 | 699 | 0.4+ | 0.2+ | | |
| 2003 08 26 | 704 | 0.5+ | 0.1− | 2003 09 18 | 704 | 0.4+ | 0.5+ | 2003 10 23 | 704 | 0.0 | 0.2− | | |
| 2003 08 26 | 704 | 0.1− | 0.1+ | 2003 09 24 | 644 | 0.0 | 0.1− | 2003 10 23 | 704 | 0.2+ | 0.1+ | | |
| 2003 09 01 | 704 | 0.4− | 0.4− | 2003 09 24 | 644 | 0.0 | 0.0 | 2003 10 23 | 704 | 1.0− | 0.2+ | | |
| 2003 09 01 | 704 | 0.9− | 0.4− | 2003 09 24 | 644 | 0.3+ | 0.2+ | 2003 10 23 | 704 | 0.6− | 0.4− | | |
| 2003 09 01 | 704 | 0.2+ | 0.7− | 2003 09 25 | 608 | 0.2+ | 1.1− | 2009 01 30 | G96 | 0.8− | 0.3+ | | |
| 2003 09 01 | 704 | 0.6− | 0.5− | 2003 09 25 | 608 | 0.5− | 0.9− | 2009 01 30 | G96 | 0.0 | 0.4− | | |
| 2003 09 01 | 704 | 1.1− | 0.4− | 2003 09 25 | 608 | 0.4− | 0.7− | 2009 01 30 | G96 | 0.0 | 0.3− | | |
| 2003 09 14 | 608 | 0.5− | 0.1− | 2003 09 26 | 704 | 0.0 | 1.3+ | 2009 01 30 | G96 | 0.3+ | 0.7+ | | |
| 2003 09 14 | 608 | 0.4− | 0.1− | 2003 09 26 | 704 | 0.1− | 0.3+ | 2009 03 17 | 691 | 0.2− | 0.3− | | |
| 2003 09 14 | 608 | 0.6− | 0.7+ | 2003 09 26 | 704 | 0.2+ | 0.2+ | 2009 03 17 | 691 | 0.1+ | 0.3+ | | |
| 2003 09 16 | 691 | 0.1− | 0.2+ | 2003 09 28 | 704 | 0.1+ | 0.5− | 2009 03 17 | 691 | 0.0 | 0.3− | | |
| 2003 09 16 | 691 | 0.1− | 0.1− | 2003 09 28 | 704 | (1.0+ | 1.7+) | 2009 04 02 | 291 | 0.1+ | 0.1+ | | |
| 2003 09 16 | 691 | 0.1+ | 0.0 | 2003 09 28 | 704 | 0.9+ | 1.3+ | 2009 04 02 | 291 | 0.1+ | 0.2+ | | |
| 2003 09 17 | 699 | 0.9+ | 0.7− | 2003 09 28 | 704 | 0.2+ | 1.3+ | 2009 04 02 | 291 | 0.0 | 0.0 | | |

**2003 QB$_{69}$ = 2007 PD$_{48}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 208.18191 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.24192162 | $\omega$ | 252.01695 | | +0.78178287 | | +0.61004412 |
| $a$ | 2.5508579 | $\Omega$ | 70.19147 | | −0.50751990 | | +0.74279246 |
| $e$ | 0.2643597 | $i$ | 7.88575 | | −0.36226936 | | +0.27587231 |
| $P$ | 4.07 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 08 26 | 428 | 0.3− | 0.0 | 2003 09 19 | 699 | 0.0 | 0.6+ | 2007 09 17 | E12 | 0.1− | 0.3+ | | |
| 2003 08 26 | 428 | 1.3+ | 0.2+ | 2003 09 19 | 428 | 0.7− | 0.6− | 2007 10 04 | E12 | 0.5− | 0.4+ | | |
| 2003 08 27 | 428 | 0.2+ | 0.2− | 2003 09 19 | 428 | 0.4− | 0.5+ | 2007 10 04 | E12 | 0.1− | 0.5+ | | |
| 2003 08 27 | 428 | 1.1+ | 0.3+ | 2007 06 13 | E12 | 1.0+ | 0.3+ | 2007 10 04 | E12 | 0.2+ | 0.3+ | | |
| 2003 08 30 | 428 | 0.9− | 0.3− | 2007 06 13 | E12 | 0.2+ | 0.6+ | 2007 10 04 | E12 | 0.3− | 0.0 | | |
| 2003 08 30 | 428 | 0.5+ | 0.4+ | 2007 06 13 | E12 | 0.5− | 0.1+ | 2007 10 16 | E12 | 0.9+ | 0.5− | | |
| 2003 09 03 | 428 | 0.9+ | 0.3− | 2007 06 13 | E12 | 0.1− | 0.3− | 2007 10 16 | E12 | 0.7+ | 0.2+ | | |
| 2003 09 03 | 428 | 0.2− | 0.0 | 2007 06 23 | E12 | 0.5− | 0.6− | 2007 10 16 | E12 | 0.3− | 0.8− | | |
| 2003 09 04 | 428 | 0.5− | 1.0− | 2007 06 23 | E12 | 0.1− | 0.4− | 2007 10 16 | E12 | 0.5− | 0.7− | | |
| 2003 09 04 | 428 | 0.5− | 0.5− | 2007 06 23 | E12 | 0.1+ | 0.8+ | 2008 11 01 | G96 | 0.8+ | 0.4− | | |
| 2003 09 16 | 704 | 0.2+ | 0.6− | 2007 06 23 | E12 | 0.1− | 0.6− | 2008 11 01 | G96 | 0.6+ | 0.1− | | |
| 2003 09 16 | 704 | 0.2− | 0.3+ | 2007 08 08 | E12 | 0.0 | 0.1+ | 2008 11 01 | G96 | 0.6+ | 0.2+ | | |
| 2003 09 16 | 704 | 0.3+ | 0.0 | 2007 08 08 | E12 | 0.2+ | 0.0 | 2008 11 01 | G96 | 0.1+ | 0.0 | | |
| 2003 09 16 | 704 | 0.4− | 0.2− | 2007 09 01 | E12 | 0.1− | 0.2+ | 2008 11 01 | G96 | 0.6+ | 0.1− | | |
| 2003 09 19 | 644 | 0.1− | 0.1+ | 2007 09 01 | E12 | 0.1+ | 0.0 | 2008 11 01 | G96 | 0.5+ | 0.5− | | |
| 2003 09 19 | 644 | 0.1− | 0.0 | 2007 09 01 | E12 | 0.2+ | 0.4+ | 2008 11 01 | G96 | 0.4+ | 0.2+ | | |
| 2003 09 19 | 644 | 0.0 | 0.2− | 2007 09 01 | E12 | 0.1− | 0.5− | 2008 11 01 | G96 | 0.3− | 0.6− | | |
| 2003 09 19 | 699 | 0.1− | 0.7+ | 2007 09 17 | E12 | 0.3− | 0.0 | 2008 12 31 | 691 | 0.6− | 0.1+ | | |
| 2003 09 19 | 699 | 0.1+ | 0.8+ | 2007 09 17 | E12 | 0.5+ | 0.0 | 2008 12 31 | 691 | 0.0 | 0.1− | | |
| 2003 09 19 | 699 | 0.2− | 0.2+ | 2007 09 17 | E12 | 0.1− | 0.2+ | 2008 12 31 | 691 | 0.1− | 0.2+ | | |

**2003 QM$_{78}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 142.59147 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22525109 | $\omega$ | 50.87363 | | +0.67860269 | | −0.73371796 |
| $a$ | 2.6752115 | $\Omega$ | 355.87284 | | +0.43818959 | | +0.44156078 |
| $e$ | 0.3791573 | $i$ | 28.19603 | | +0.58948136 | | +0.51641267 |
| $P$ | 4.38 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 08 24 | 704 | 1.3+ | 0.6+ | 2003 09 30 | 699 | 0.2− | 0.2− | 2003 11 04 | 704 | 0.1+ | 1.1+ | | |
| 2003 08 24 | 704 | 0.0 | 0.2+ | 2003 10 05 | 704 | 0.2− | 0.4+ | 2003 11 04 | 704 | 0.5+ | 0.6− | | |
| 2003 08 24 | 704 | 0.1− | 0.0 | 2003 10 05 | 704 | 0.2− | 0.3+ | 2003 11 04 | 704 | 1.9+ | 0.3− | | |
| 2003 08 24 | 704 | 0.3− | 0.2− | 2003 10 05 | 704 | 0.4− | 0.3+ | 2003 11 04 | 704 | 0.2+ | 0.1+ | | |
| 2003 08 28 | 704 | 0.5− | 0.5+ | 2003 10 16 | 704 | 0.8+ | 0.1− | 2003 12 05 | 704 | 0.8− | 0.6+ | | |
| 2003 08 28 | 704 | 0.8+ | 0.1− | 2003 10 16 | 704 | 0.5+ | 0.5+ | 2003 12 05 | 704 | 0.3+ | 0.2+ | | |
| 2003 08 28 | 704 | 0.2− | 0.1+ | 2003 10 16 | 704 | 0.6+ | 1.8+ | 2003 12 05 | 704 | 0.4− | 0.2+ | | |
| 2003 08 28 | 704 | 0.2− | 0.4+ | 2003 10 16 | 704 | 0.4+ | 0.1− | 2003 12 05 | 704 | 0.6− | 0.2− | | |
| 2003 09 17 | 644 | 0.1− | 0.3− | 2003 10 16 | 704 | 0.3− | 0.0 | 2003 12 05 | 704 | 0.2+ | 0.5− | | |
| 2003 09 17 | 644 | 0.2+ | 0.2− | 2003 10 17 | 704 | 0.4− | 0.7− | 2009 02 02 | G96 | 0.3− | 0.3− | | |
| 2003 09 17 | 644 | 0.1+ | 0.2− | 2003 10 17 | 704 | 0.1− | 0.8− | 2009 02 02 | G96 | 0.1+ | 0.5− | | |
| 2003 09 19 | 644 | 0.2+ | 0.4− | 2003 10 17 | 704 | 0.2− | 0.1− | 2009 02 02 | G96 | 0.7− | 0.2− | | |
| 2003 09 19 | 644 | 0.2+ | 0.4− | 2003 10 17 | 704 | 0.9− | 0.7− | 2009 02 02 | G96 | 0.1+ | 0.1− | | |
| 2003 09 19 | 644 | 0.1+ | 0.3− | 2003 10 17 | 704 | 1.0− | 0.3+ | 2009 03 02 | G96 | 0.4+ | 0.3+ | | |
| 2003 09 30 | 699 | 0.0 | 0.2− | 2003 10 17 | 644 | 0.3− | 0.2− | 2009 03 02 | G96 | 0.2− | 0.1+ | | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 30 | 699 | 0.3− | 0.3− | 2003 10 17 | 644 | 0.2− | 0.1+ | 2009 03 02 | G96 | 0.1+ | 0.2+ |
| 2003 09 30 | 699 | 0.2+ | 0.5− | 2003 10 17 | 644 | 0.3− | 0.1+ | 2009 03 02 | G96 | 0.0 | 0.3+ |

**2003 QZ$_{81}$ = 2009 VO$_{106}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 33.57544 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17936840 | $\omega$ | 225.14055 | | +0.96982045 | −0.20093086 | |
| $a$ | 3.1139055 | $\Omega$ | 145.74188 | | +0.22596475 | +0.95347381 | |
| $e$ | 0.1513301 | $i$ | 14.20248 | | −0.09158722 | +0.22475427 | |
| $P$ | 5.49 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 08 23 | 644 | 0.6− | 0.7+ | 2006 01 31 | 691 | 0.2+ | 0.2− | 2009 10 01 | G96 | 0.0 | 0.3− |
| 2003 08 23 | 644 | 0.4+ | 0.4+ | 2006 03 04 | 691 | 0.3− | 0.3+ | 2009 10 01 | G96 | 0.9+ | 0.2− |
| 2003 08 23 | 644 | 0.1+ | 0.2+ | 2006 03 04 | 691 | 0.3+ | 0.4+ | 2009 10 15 | 703 | 0.3− | 0.4+ |
| 2003 08 23 | 644 | 0.3+ | 0.5+ | 2006 03 04 | 691 | 0.3− | 0.8+ | 2009 10 15 | 703 | 0.5− | 0.4+ |
| 2003 08 23 | 644 | 0.3+ | 0.4+ | 2007 03 25 | G96 | 0.0 | 0.3+ | 2009 10 15 | 703 | 0.5+ | 0.7− |
| 2003 08 23 | 644 | 0.2+ | 0.6+ | 2007 03 25 | G96 | 0.1+ | 0.2− | 2009 10 15 | 703 | 1.1− | 0.2− |
| 2003 08 26 | 807 | 0.2+ | 0.2+ | 2007 03 25 | G96 | 0.2+ | 0.0 | 2009 11 11 | 703 | (0.6+ | 1.8+) |
| 2003 08 26 | 807 | 0.3+ | 0.5+ | 2007 03 25 | G96 | (2.0− | 0.1−) | 2009 11 11 | 703 | 0.7+ | 0.3+ |
| 2003 08 31 | 704 | (1.7+ | 0.6−) | 2007 04 26 | G96 | 0.3− | 0.4+ | 2009 11 11 | 703 | 0.3− | 0.3+ |
| 2003 08 31 | 704 | 0.6− | 0.3− | 2007 04 26 | G96 | 0.4+ | 0.0 | 2009 11 11 | 703 | 0.9− | 0.1+ |
| 2003 08 31 | 704 | 0.9− | 0.9+ | 2007 04 26 | G96 | 0.3− | 0.9+ | 2009 11 18 | 703 | 0.2− | 0.4+ |
| 2003 08 31 | 704 | 0.2− | 0.3− | 2007 04 26 | G96 | (1.6+ | 0.3+) | 2009 11 18 | 703 | 1.1+ | 1.3+ |
| 2006 01 31 | 691 | 0.3+ | 0.1− | 2009 10 01 | G96 | 0.2+ | 0.4− | 2009 11 18 | 703 | 0.3− | 0.1− |
| 2006 01 31 | 691 | 0.0 | 0.2− | 2009 10 01 | G96 | 0.2− | 0.1+ | 2009 11 18 | 703 | (1.6+ | 0.7+) |

**2003 QM$_{87}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 70.21322 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18518251 | $\omega$ | 258.31575 | | +0.90016925 | +0.38550860 | |
| $a$ | 3.0483822 | $\Omega$ | 78.74244 | | −0.27334570 | +0.86234080 | |
| $e$ | 0.2814652 | $i$ | 11.92636 | | −0.33908325 | +0.32825518 | |
| $P$ | 5.32 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 08 25 | 644 | 0.1− | 0.4+ | 2003 09 26 | 644 | 0.1+ | 0.0 | 2009 11 20 | 691 | 0.5− | 0.0 |
| 2003 08 25 | 644 | 0.1+ | 0.3+ | 2003 09 27 | 699 | 0.8+ | 0.2− | 2009 11 20 | 691 | 0.5− | 0.2+ |
| 2003 08 25 | 644 | 0.2+ | 0.0 | 2003 09 27 | 699 | 0.1+ | 0.6− | 2009 11 20 | 691 | 1.1+ | 0.0 |
| 2003 08 28 | 644 | 0.0 | 0.1− | 2003 09 27 | 699 | 0.1+ | 0.4− | 2009 12 10 | G96 | 0.2+ | 0.4− |
| 2003 08 28 | 644 | 0.1− | 0.1+ | 2003 09 27 | 699 | 1.1− | 0.6+ | 2009 12 10 | G96 | 0.3− | 0.0 |
| 2003 08 28 | 644 | 0.3− | 0.2− | 2003 10 22 | 644 | 0.1− | 0.1− | 2009 12 10 | G96 | 0.1+ | 0.1+ |
| 2003 09 26 | 644 | 0.0 | 0.1+ | 2003 10 22 | 644 | 0.2+ | 0.1− | 2009 12 10 | G96 | 0.5− | 0.2− |
| 2003 09 26 | 644 | 0.0 | 0.0 | 2003 10 22 | 644 | 0.1+ | 0.0 | | | | |

**2003 QJ$_{96}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 142.59813 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21254964 | $\omega$ | 202.54479 | | +0.78724534 | +0.60528676 | |
| $a$ | 2.7807534 | $\Omega$ | 119.67066 | | −0.54306934 | +0.77103334 | |
| $e$ | 0.2241090 | $i$ | 7.79076 | | −0.29209667 | +0.19782702 | |
| $P$ | 4.64 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 08 23 | 704 | (2.2− | 0.9+) | 2003 09 14 | 644 | 0.6− | 0.1+ | 2008 10 08 | 703 | 1.0− | 0.6+ |
| 2003 08 23 | 704 | (2.3− | 0.7+) | 2003 09 14 | 644 | 0.4− | 0.1− | 2008 10 08 | 703 | 0.1− | 0.6+ |
| 2003 08 23 | 704 | (1.6− | 0.5+) | 2003 09 14 | 644 | 0.5− | 0.2− | 2008 10 08 | 703 | 0.4+ | 0.4− |
| 2003 08 23 | 704 | (2.6− | 1.0+) | 2003 09 19 | 699 | 0.0 | 0.2+ | 2008 10 08 | 703 | 0.9− | 0.5+ |
| 2003 08 30 | 735 | 0.2− | 0.2+ | 2003 09 19 | 699 | 0.5− | 0.5+ | 2008 10 26 | G96 | 0.5+ | 0.1− |
| 2003 08 30 | 735 | 0.4− | 0.2− | 2003 09 19 | 699 | 1.3+ | 0.5− | 2008 10 26 | G96 | 0.3+ | 0.1+ |
| 2003 08 30 | 735 | 0.1+ | 0.2− | 2003 09 19 | 699 | (1.9− | 0.7+) | 2008 10 26 | G96 | 0.3+ | 0.2+ |
| 2003 08 31 | 704 | 0.7− | 0.4+ | 2003 09 25 | 644 | 0.3+ | 0.1+ | 2008 10 26 | G96 | 0.5+ | 0.2+ |
| 2003 08 31 | 704 | 0.1+ | 0.8− | 2003 09 25 | 644 | 0.1+ | 0.2+ | 2008 11 17 | 703 | 0.1+ | 0.2+ |
| 2003 08 31 | 704 | 0.1− | 0.1− | 2003 09 25 | 644 | 0.2+ | 0.1+ | 2008 11 17 | 703 | 0.4− | 0.9− |
| 2003 08 31 | 704 | 0.5− | 0.2− | 2006 02 01 | 691 | 0.2+ | 0.8+ | 2008 11 17 | 703 | 0.2+ | 1.2+ |
| 2003 08 31 | 608 | 0.7+ | 0.6+ | 2006 02 01 | 691 | 0.1− | 0.0 | 2008 11 17 | 703 | 0.7+ | 0.9− |
| 2003 08 31 | 608 | 0.3+ | 0.9+ | 2006 02 01 | 691 | 0.1− | 0.1− | 2009 12 15 | G96 | 1.0− | 0.0 |
| 2003 08 31 | 608 | 0.5+ | 0.7+ | 2008 09 29 | 703 | 0.1− | 1.0− | 2009 12 15 | G96 | 1.0+ | 0.4− |
| 2003 09 05 | 608 | (2.7+ | 0.6+) | 2008 09 29 | 703 | 0.4− | 0.4+ | 2009 12 15 | G96 | 0.3+ | 0.2+ |
| 2003 09 05 | 608 | (2.6+ | 0.3+) | 2008 09 29 | 703 | 0.8− | 0.2+ | 2009 12 15 | G96 | 0.7+ | 0.4− |
| 2003 09 05 | 608 | (2.0+ | 0.0 ) | 2008 09 29 | 703 | 0.3+ | 0.8− | | | | |

**2003 QC$_{111}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 52.81754 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17802055 | $\omega$ | 230.04163 | | +0.93306706 | +0.30901732 | |
| $a$ | 3.1296033 | $\Omega$ | 111.24638 | | −0.23913285 | +0.91524160 | |
| $e$ | 0.2266138 | $i$ | 11.39253 | | −0.26870307 | +0.25853649 | |
| $P$ | 5.54 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 08 23 | 644 | 0.2− | 0.7+ | 2003 09 24 | 608 | 0.1− | 1.4− | 2004 12 12 | 691 | 0.1+ | 0.1− |
| 2003 08 23 | 644 | 0.1− | 0.6+ | 2003 09 24 | 608 | 0.1+ | 0.4− | 2009 11 08 | 703 | 0.1+ | 0.6+ |
| 2003 08 23 | 644 | 0.2− | 0.5+ | 2003 09 25 | 644 | 0.9− | 0.4+ | 2009 11 08 | 703 | 0.9+ | 0.4− |
| 2003 08 31 | 704 | 0.6+ | 0.5+ | 2003 09 25 | 644 | 0.2− | 0.1+ | 2009 11 08 | 703 | (1.9+ | 0.1−) |
| 2003 08 31 | 704 | 0.4+ | 0.0 | 2003 09 25 | 644 | 0.4− | 0.3+ | 2009 11 08 | 703 | 0.1+ | 0.6+ |
| 2003 08 31 | 704 | 0.1− | 0.6+ | 2003 09 27 | 699 | 0.2− | 0.1+ | 2009 11 21 | 703 | 1.1− | 1.0− |
| 2003 08 31 | 704 | 0.0 | 0.5+ | 2003 09 27 | 699 | 0.4− | 0.7− | 2009 11 21 | 703 | 0.3+ | 0.4− |
| 2003 09 07 | 608 | 0.5+ | 1.1− | 2003 09 27 | 699 | 0.3+ | 0.5− | 2009 11 21 | 703 | 0.4− | 1.0+ |
| 2003 09 07 | 608 | 1.3+ | 0.6− | 2003 09 27 | 699 | 0.1− | 0.5+ | 2009 11 21 | 703 | (0.6− | 2.4+) |
| 2003 09 07 | 608 | (0.9+ | 1.7−) | 2004 12 12 | 691 | 0.1+ | 0.0 | | | | |
| 2003 09 24 | 608 | 0.5− | 0.3− | 2004 12 12 | 691 | 0.1− | 0.1+ | | | | |

**2003 QZ$_{112}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 20.73172 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17037749 | $\omega$ | 254.79962 | | +0.76224615 | −0.57452985 | |
| $a$ | 3.2225123 | $\Omega$ | 138.96314 | | +0.61138120 | +0.79031867 | |
| $e$ | 0.2643358 | $i$ | 27.00880 | | −0.21258841 | +0.21286581 | |
| $P$ | 5.78 | $H$ | 14.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 08 31 | 704 | 0.1+ | 0.5+ | 2003 09 27 | 699 | 0.5+ | 0.2+ | 2009 09 29 | 703 | 0.7+ | 0.1+ |
| 2003 08 31 | 704 | 0.3− | 0.5− | 2003 09 27 | 699 | 0.2− | 0.1− | 2009 09 29 | 703 | 0.1+ | 0.5− |
| 2003 08 31 | 704 | 1.2− | 0.4− | 2003 09 27 | 699 | 1.9+ | 0.8+ | 2009 09 29 | 703 | 0.0 | 0.8− |
| 2003 08 31 | 704 | 0.0 | 0.3− | 2003 09 27 | 699 | 0.5− | 1.0+ | 2009 11 17 | E12 | 0.3+ | 0.0 |
| 2003 09 16 | 704 | 0.2+ | 0.0 | 2003 09 27 | 699 | 0.8+ | 0.3− | 2009 11 17 | E12 | 0.5+ | 1.3+ |
| 2003 09 16 | 704 | 0.0 | 0.2− | 2003 09 27 | 699 | 0.4+ | 0.4− | 2009 11 17 | E12 | 0.3− | 0.5− |
| 2003 09 16 | 704 | 0.5− | 0.7− | 2003 09 27 | 699 | 1.1− | 0.9+ | 2009 11 17 | E12 | 0.8− | 0.5− |
| 2003 09 27 | 699 | 0.4− | 0.2− | 2009 09 29 | 703 | 0.2− | 0.2+ | | | | |

**2003 RP$_{7}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 151.15729 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21097103 | $\omega$ | 20.43390 | | +0.74665191 | +0.65932276 | |
| $a$ | 2.7946076 | $\Omega$ | 298.00069 | | −0.62337578 | +0.64713831 | |
| $e$ | 0.1295428 | $i$ | 5.74233 | | −0.23219292 | +0.38276038 | |
| $P$ | 4.67 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 04 | 461 | 0.7− | 0.1− | 2003 09 18 | 644 | 0.2+ | 0.1+ | 2004 12 14 | 691 | 0.2+ | 0.3+ |
| 2003 09 04 | 461 | 0.2+ | 0.0 | 2003 09 18 | 644 | 0.1+ | 0.3+ | 2004 12 14 | 691 | 0.1+ | 0.0 |
| 2003 09 04 | 461 | 0.5+ | 0.2+ | 2003 09 18 | 644 | 0.3+ | 0.5+ | 2008 09 28 | G96 | 0.1− | 0.1+ |
| 2003 09 04 | 461 | 0.7− | 0.0 | 2003 09 20 | 691 | 0.2− | 0.1+ | 2008 09 28 | G96 | 0.3+ | 0.1+ |
| 2003 09 07 | 461 | 0.0 | 0.1− | 2003 09 20 | 691 | 0.1+ | 0.0 | 2008 09 28 | G96 | 0.1+ | 0.0 |
| 2003 09 07 | 461 | 0.0 | 0.1− | 2003 09 20 | 691 | 0.1+ | 0.2+ | 2008 09 28 | G96 | 0.1+ | 0.3+ |
| 2003 09 07 | 461 | 0.4− | 0.2+ | 2003 09 23 | 644 | 0.1− | 0.3− | 2008 10 29 | G96 | 0.2− | 0.0 |
| 2003 09 07 | 461 | 0.2− | 0.1+ | 2003 09 23 | 644 | 0.2+ | 0.1+ | 2008 10 29 | G96 | 0.1− | 0.0 |
| 2003 09 07 | 461 | 0.0 | 0.0 | 2003 09 23 | 644 | 0.1+ | 0.3+ | 2008 10 29 | G96 | 0.2+ | 0.1− |
| 2003 09 08 | 461 | 0.1+ | 0.3+ | 2003 10 19 | 645 | 0.1+ | 0.0 | 2008 10 29 | G96 | 0.3− | 0.1− |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 2003 09 08 | 461 | 0.2− | 0.2+ | 2003 10 19 | 645 | 0.0 | 0.1− | |
| 2003 09 08 | 461 | 0.3− | 0.7− | 2004 12 14 | 691 | 0.3− | 0.2− | |

**2003 RQ$_7$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 152.32870 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21392301 | $\omega$ | 319.43464 | | +0.76061458 | | +0.64920367 |
| $a$ | 2.7688391 | $\Omega$ | 0.08490 | | −0.54551852 | | +0.63933731 |
| $e$ | 0.2621322 | $i$ | 9.37390 | | −0.35195881 | | +0.41204659 |
| $P$ | 4.61 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 02 | 704 | 0.5+ | 0.7+ | 2003 09 18 | 704 | 1.0+ | 0.3+ | 2003 09 29 | 704 | (1.5− | 0.6+) |
| 2003 09 02 | 704 | 0.1− | 0.2− | 2003 09 18 | 704 | 0.6− | 0.7+ | 2003 10 17 | 691 | 0.1− | 0.1+ |
| 2003 09 02 | 704 | 0.3+ | 0.4− | 2003 09 18 | 704 | 0.2+ | 0.2− | 2003 10 17 | 691 | 0.1+ | 0.1+ |
| 2003 09 02 | 704 | 0.5− | 0.9− | 2003 09 18 | 704 | 1.2+ | 0.0 | 2003 10 17 | 691 | 0.1+ | 0.1− |
| 2003 09 02 | 704 | 0.5− | 0.3+ | 2003 09 22 | 699 | (1.6+ | 0.5−) | 2008 10 22 | 691 | 0.5− | 0.2− |
| 2003 09 05 | 461 | 0.7+ | 0.6− | 2003 09 22 | 699 | 0.0 | 0.1+ | 2008 10 22 | 691 | 0.0 | 0.0 |
| 2003 09 05 | 461 | 0.1− | 0.4− | 2003 09 22 | 699 | 0.7+ | 0.7+ | 2008 10 22 | 691 | 0.0 | 0.3+ |
| 2003 09 05 | 461 | 0.2+ | 0.2− | 2003 09 22 | 699 | 1.2+ | 0.5+ | 2008 11 24 | G96 | 0.1+ | 0.1+ |
| 2003 09 07 | 461 | 0.1+ | 0.0 | 2003 09 28 | 691 | 0.2− | 0.2− | 2008 11 24 | G96 | 0.4+ | 0.1− |
| 2003 09 07 | 461 | 0.1+ | 0.4+ | 2003 09 28 | 691 | 0.2− | 0.0 | 2008 11 24 | G96 | 0.2+ | 0.1+ |
| 2003 09 07 | 461 | 0.3− | 0.2− | 2003 09 28 | 691 | 0.1− | 0.1− | 2008 11 24 | G96 | 0.5+ | 0.3− |
| 2003 09 16 | 691 | 0.1− | 0.1+ | 2003 09 29 | 704 | 0.5− | 0.4− | 2008 12 06 | G96 | 0.1+ | 0.0 |
| 2003 09 16 | 691 | 0.1− | 0.1+ | 2003 09 29 | 704 | 1.1− | 0.3− | 2008 12 06 | G96 | 0.1+ | 0.4− |
| 2003 09 16 | 691 | 0.1− | 0.1+ | 2003 09 29 | 704 | 0.1− | 0.1+ | 2008 12 06 | G96 | 0.5+ | 0.0 |
| 2003 09 18 | 704 | 0.7+ | 0.5− | 2003 09 29 | 704 | 0.0 | 0.1+ | 2008 12 06 | G96 | 0.1+ | 0.0 |

**2003 RK$_{18}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 134.19942 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21720058 | $\omega$ | 176.22833 | | +0.95960187 | | +0.27886382 |
| $a$ | 2.7409139 | $\Omega$ | 167.38701 | | −0.26241923 | | +0.93500931 |
| $e$ | 0.2061464 | $i$ | 9.86351 | | −0.10149089 | | +0.21907204 |
| $P$ | 4.54 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 07 23 | 644 | 0.0 | 0.4− | 2003 09 01 | 704 | 0.8− | 1.1− | 2008 09 05 | J75 | 0.4− | 0.5+ |
| 2003 07 23 | 644 | 0.2− | 0.3− | 2003 09 01 | 704 | (0.6− | 1.7−) | 2008 09 05 | J75 | 0.3− | 0.2− |
| 2003 07 23 | 644 | 0.1− | 0.0 | 2003 09 14 | 699 | 0.7+ | 0.2+ | 2008 09 05 | J75 | 0.5+ | 1.3− |
| 2003 08 05 | 704 | 0.2+ | 1.3− | 2003 09 14 | 699 | 0.3− | 0.2− | 2008 10 07 | 703 | 0.9+ | 0.6− |
| 2003 08 05 | 704 | 0.3− | 0.9− | 2003 09 14 | 699 | 1.0− | 0.1+ | 2008 10 07 | 703 | 0.4+ | 0.8− |
| 2003 08 05 | 704 | 0.4+ | 0.4+ | 2003 09 14 | 699 | 0.5− | 0.1− | 2008 10 07 | 703 | 0.8− | 0.7+ |
| 2003 08 05 | 704 | 0.3− | 0.4− | 2003 09 15 | 699 | 0.4+ | 0.1+ | 2008 10 07 | 703 | 0.1− | 0.1− |
| 2003 08 24 | 704 | 0.2− | 0.1+ | 2003 09 15 | 699 | 0.5− | 0.7+ | 2008 10 27 | G96 | 0.1− | 0.2+ |
| 2003 08 24 | 704 | 0.8− | 0.1− | 2003 09 15 | 699 | 0.3+ | 0.9+ | 2008 10 27 | G96 | 0.1− | 0.0 |
| 2003 08 24 | 704 | 0.8+ | 0.5− | 2003 09 15 | 699 | 0.4− | 0.8+ | 2008 10 27 | G96 | 0.1+ | 0.1+ |
| 2003 08 24 | 704 | 0.1− | 0.6+ | 2003 09 29 | 291 | 0.4+ | 0.2+ | 2008 10 27 | G96 | 0.1+ | 0.0 |
| 2003 08 24 | 704 | 0.1+ | 0.4+ | 2003 09 29 | 291 | 0.3+ | 0.1+ | 2008 12 01 | 703 | 1.2+ | 0.3− |
| 2003 09 01 | 704 | 0.3− | 0.1− | 2003 09 29 | 291 | 0.2+ | 0.2+ | 2008 12 01 | 703 | 1.1− | 0.6+ |

**2003 RN$_{20}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 85.35589 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.19800263 | $\omega$ | 208.88421 | | +0.97156628 | | −0.23251894 |
| $a$ | 2.9153369 | $\Omega$ | 164.36910 | | +0.23628014 | | +0.94006914 |
| $e$ | 0.1978267 | $i$ | 9.53943 | | +0.01518749 | | +0.24940922 |
| $P$ | 4.98 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 09 24 | 699 | 0.7− | 1.1+ | 2003 09 21 | 608 | 0.1+ | 0.1+ | 2003 10 16 | 699 | 0.3− | 1.0− |
| 1998 09 24 | 699 | 0.3+ | 0.9+ | 2003 09 21 | 608 | 0.5− | 0.1− | 2003 10 16 | 699 | 0.0 | 0.9− |
| 1998 09 24 | 699 | 0.3+ | 0.9− | 2003 09 21 | 608 | 0.2+ | 0.6− | 2008 08 23 | 691 | 0.2+ | 0.1+ |
| 2003 09 15 | 699 | (0.2+ | 2.3−) | 2003 09 28 | 704 | 0.8+ | 0.7+ | 2008 08 23 | 691 | 0.3− | 0.0 |
| 2003 09 15 | 699 | 0.1+ | 0.0 | 2003 09 28 | 704 | (0.5− | 1.6+) | 2008 08 23 | 691 | 0.1− | 0.0 |
| 2003 09 15 | 699 | 0.8+ | 0.3− | 2003 09 28 | 704 | 0.1− | 0.0 | 2008 09 03 | 691 | 0.1+ | 0.2− |
| 2003 09 15 | 699 | 0.0 | 0.6+ | 2003 09 28 | 704 | 0.5+ | 1.1+ | 2008 09 03 | 691 | 0.0 | 0.2− |
| 2003 09 17 | 608 | 0.4− | 0.4− | 2003 09 28 | 704 | 0.8+ | 0.7+ | 2008 09 03 | 691 | 0.3− | 0.1− |
| 2003 09 17 | 608 | 0.2+ | 1.1− | 2003 10 03 | 608 | 0.6− | 0.9− | 2008 10 01 | 703 | 0.8+ | 0.3− |
| 2003 09 17 | 608 | 0.3− | 0.9− | 2003 10 03 | 608 | 0.7− | 0.4− | 2008 10 01 | 703 | 0.4+ | 0.3+ |
| 2003 09 18 | 704 | (0.7+ | 1.7+) | 2003 10 03 | 608 | 0.7− | 0.2− | 2008 10 01 | 703 | 0.1− | 0.7+ |
| 2003 09 18 | 704 | 0.4− | 1.3+ | 2003 10 16 | 699 | 0.6+ | 0.7+ | 2008 10 01 | 703 | 0.0 | 1.0+ |
| 2003 09 18 | 704 | (0.4− | 1.6+) | 2003 10 16 | 699 | 0.1− | 0.1+ | | | | |

**2003 SD$_{29}$ = 2009 VZ$_{106}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 348.27126 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17555732 | $\omega$ | 183.45933 | | +0.34408609 | | −0.92682652 |
| $a$ | 3.1588094 | $\Omega$ | 246.46033 | | +0.86534661 | | +0.37515982 |
| $e$ | 0.1061731 | $i$ | 9.43735 | | +0.36438991 | | −0.01573908 |
| $P$ | 5.61 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 18 | 644 | 0.2− | 0.3+ | 2003 10 19 | 644 | 0.3+ | 0.1+ | 2009 11 08 | 703 | 0.2− | 0.5− |
| 2003 09 18 | 644 | 0.1− | 0.4+ | 2003 10 19 | 644 | 0.2− | 0.0 | 2009 11 08 | 703 | 0.1+ | 0.2+ |
| 2003 09 18 | 644 | 0.1− | 0.2+ | 2003 10 19 | 644 | 0.0 | 0.1+ | 2009 11 08 | 703 | 0.5+ | 0.1+ |
| 2003 09 19 | 691 | 0.1− | 0.0 | 2003 10 19 | 644 | 0.1+ | 0.1− | 2009 11 08 | 703 | 0.8− | 0.2− |
| 2003 09 19 | 691 | 0.1− | 0.1− | 2003 10 19 | 644 | 0.3+ | 0.1+ | 2009 11 19 | G96 | 0.1− | 0.0 |
| 2003 09 19 | 691 | 0.0 | 0.0 | 2003 10 19 | 644 | 0.1− | 0.4+ | 2009 11 19 | G96 | 0.1− | 0.1− |
| 2003 09 22 | 699 | 0.7− | 1.3− | 2009 10 22 | 703 | 0.7+ | 0.4− | 2009 11 19 | G96 | 0.0 | 0.0 |
| 2003 09 22 | 699 | 0.9+ | 1.2+ | 2009 10 22 | 703 | 0.1− | 0.6+ | 2009 11 19 | G96 | 0.4+ | 0.1+ |
| 2003 09 22 | 699 | 0.4+ | 0.2− | 2009 10 22 | 703 | 0.3+ | 0.1− | | | | |
| 2003 09 22 | 699 | 0.1+ | 0.6− | 2009 10 22 | 703 | 0.4− | 0.3+ | | | | |

**2003 SF$_{32}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 111.62580 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21464847 | $\omega$ | 66.49902 | | +0.54980609 | | −0.83382067 |
| $a$ | 2.7625969 | $\Omega$ | 349.70520 | | +0.62881636 | | +0.45222648 |
| $e$ | 0.3202413 | $i$ | 16.10064 | | +0.54982111 | | +0.31659801 |
| $P$ | 4.59 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 17 | 644 | 0.1− | 0.0 | 2003 10 16 | 106 | 0.1+ | 0.2− | 2003 11 03 | 704 | 0.2+ | 0.6+ |
| 2003 09 17 | 644 | 0.1− | 0.0 | 2003 10 16 | 106 | 0.5− | 0.3− | 2003 11 03 | 704 | 0.0 | 0.2+ |
| 2003 09 17 | 644 | 0.0 | 0.1+ | 2003 10 17 | 699 | 0.2− | 0.3− | 2003 11 03 | 704 | 0.1+ | 0.2+ |
| 2003 09 19 | 644 | 0.3− | 0.9− | 2003 10 17 | 699 | 0.4− | 0.4− | 2003 11 03 | 704 | 0.1+ | 0.1+ |
| 2003 09 19 | 644 | 0.4− | 0.0 | 2003 10 17 | 699 | 0.6+ | 0.6− | 2003 11 15 | 644 | 0.3− | 0.1− |
| 2003 09 19 | 644 | 0.4− | 0.1+ | 2003 10 17 | 699 | 0.1+ | 0.1− | 2003 11 15 | 644 | 0.5− | 0.2+ |
| 2003 09 20 | 704 | 0.9+ | 0.8+ | 2003 10 18 | 644 | 0.1+ | 0.1− | 2003 11 15 | 644 | 0.3− | 0.2− |
| 2003 09 20 | 704 | 0.8− | 0.9+ | 2003 10 18 | 644 | 0.2+ | 0.2+ | 2003 11 21 | 704 | 0.2+ | 0.3− |
| 2003 09 20 | 704 | 0.9− | 0.4− | 2003 10 18 | 644 | 0.2+ | 0.1+ | 2003 11 21 | 704 | 1.2− | 0.8− |
| 2003 09 20 | 704 | 0.9− | 0.7+ | 2003 10 19 | 644 | 0.5− | 0.1+ | 2003 11 21 | 704 | 0.2+ | 0.4+ |
| 2003 09 20 | 704 | 0.5− | 0.1− | 2003 10 19 | 644 | 0.5− | 0.1+ | 2003 11 21 | 704 | 0.8− | 0.3+ |
| 2003 09 29 | 699 | 0.4− | 0.3+ | 2003 10 19 | 644 | 0.5− | 0.2+ | 2003 12 18 | 704 | 0.4+ | 0.1+ |
| 2003 09 29 | 699 | 0.2+ | 0.0 | 2003 10 22 | 704 | 0.3+ | 0.7+ | 2003 12 18 | 704 | 1.2+ | 0.9− |
| 2003 09 29 | 699 | 0.5− | 0.0 | 2003 10 22 | 704 | 0.6+ | 1.3+ | 2003 12 18 | 704 | 0.2− | 1.0− |
| 2003 09 29 | 699 | 0.5+ | 0.1− | 2003 10 22 | 704 | 1.0+ | 0.8+ | 2003 12 18 | 704 | 0.8+ | 0.2− |
| 2003 10 05 | 691 | 0.1+ | 0.2− | 2003 10 22 | 704 | 0.6+ | 0.4+ | 2009 01 30 | 703 | 0.2+ | 1.1+ |
| 2003 10 05 | 691 | 0.0 | 0.3− | 2003 10 22 | 704 | 0.3+ | 0.6+ | 2009 01 30 | 703 | 0.1+ | 0.8− |
| 2003 10 05 | 691 | 0.1− | 0.2− | 2003 10 23 | 704 | 0.3+ | 0.5− | 2009 01 30 | 703 | 0.1− | 0.3− |
| 2003 10 05 | 704 | 0.2− | 0.1+ | 2003 10 23 | 704 | 0.2+ | 0.1− | 2009 01 30 | 703 | 0.7+ | 0.1− |
| 2003 10 05 | 704 | 0.1+ | 0.1+ | 2003 10 23 | 704 | 0.2− | 0.0 | 2009 02 14 | 703 | 0.3− | 0.2+ |
| 2003 10 05 | 704 | 0.2+ | 0.3+ | 2003 10 23 | 704 | 0.1− | 0.2− | 2009 02 14 | 703 | 0.6+ | 0.4− |
| 2003 10 05 | 704 | 0.2− | 0.4+ | 2003 10 23 | 704 | 1.5+ | 0.3− | 2009 02 14 | 703 | 0.6− | 0.8+ |
| 2003 10 16 | 106 | 0.1− | 0.1− | 2003 11 03 | 704 | 0.7+ | 0.4+ | 2009 02 14 | 703 | 0.2− | 0.6+ |

**2003 SO$_{32}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 46.07997 | | (2000.0) | | | |
| $n$ | 0.18057342 | $\omega$ | 96.90571 | | +0.96794105 | −0.05163568 |
| $a$ | 3.1000367 | $\Omega$ | 266.26626 | | −0.04468107 | +0.92763657 |
| $e$ | 0.2426674 | $i$ | 14.26077 | | +0.24717144 | +0.36989749 |
| $P$ | 5.46 | $H$ | 15.6 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 02 08 | 645 | 0.0 | 0.0 | 2003 09 18 | 106 | 0.3− | 0.4− | 2009 11 27 | 691 | 0.6− | 0.2+ |
| 2000 02 08 | 645 | 0.1+ | 0.0 | 2003 09 18 | 106 | 0.2− | 0.4− | 2009 11 27 | 691 | 1.4+ | 0.7− |
| 2003 07 29 | 704 | (1.7+ | 0.7+) | 2003 09 18 | 106 | 1.0+ | 0.3− | 2009 12 09 | J75 | 0.4− | 0.5+ |
| 2003 07 29 | 704 | 0.7+ | 1.3+ | 2003 09 20 | 106 | 0.0 | 0.5− | 2009 12 09 | J75 | 0.5− | 0.2+ |
| 2003 07 29 | 704 | (0.5+ | 2.3+) | 2003 09 20 | 106 | 0.4+ | 0.0 | 2009 12 09 | J75 | 0.2− | 0.5− |
| 2003 08 27 | 608 | 0.4− | 0.5− | 2003 09 20 | 106 | 0.4− | 0.7− | 2009 12 10 | J75 | 0.3− | 0.1+ |
| 2003 08 27 | 608 | 0.2− | 0.4− | 2003 09 21 | 704 | (0.4− | 1.6+) | 2009 12 10 | J75 | 0.5− | 0.2− |
| 2003 08 27 | 608 | 0.8− | 0.3− | 2003 09 21 | 704 | 0.8+ | 0.7+ | 2009 12 10 | J75 | 0.2− | 0.3+ |
| 2003 09 16 | 644 | 0.4− | 0.1+ | 2003 09 21 | 704 | 0.5+ | 0.7+ | 2009 12 15 | 704 | 0.1− | 0.6+ |
| 2003 09 16 | 644 | 0.2− | 0.2+ | 2003 09 21 | 704 | 0.2+ | 0.7+ | 2009 12 15 | 704 | 1.5+ | 0.6+ |
| 2003 09 16 | 644 | 0.1− | 0.3+ | 2003 09 25 | 113 | 0.0 | 0.2− | 2009 12 15 | 704 | 0.0 | 0.7+ |
| 2003 09 16 | 644 | 0.2− | 0.2+ | 2003 09 25 | 113 | 0.2− | 0.3− | 2009 12 15 | 704 | 0.4+ | 0.6− |
| 2003 09 16 | 644 | 0.2− | 0.4+ | 2003 09 25 | 113 | 0.1+ | 0.4− | | | | |
| 2003 09 16 | 644 | 0.2− | 0.2+ | 2009 11 27 | 691 | 0.7− | 0.1+ | | | | |

**2003 SG$_{33}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 87.92713 | | (2000.0) | | | |
| $n$ | 0.19954511 | $\omega$ | 356.53325 | | +0.98550615 | −0.16772813 |
| $a$ | 2.9002938 | $\Omega$ | 13.20466 | | +0.15819314 | +0.85459578 |
| $e$ | 0.1226433 | $i$ | 6.38282 | | +0.06125808 | +0.49146041 |
| $P$ | 4.94 | $H$ | 16.7 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 08 26 | 807 | 0.1+ | 0.6− | 2003 09 21 | 691 | 0.0 | 0.1− | 2003 09 27 | 691 | 0.1+ | 0.0 |
| 2003 08 26 | 807 | 0.3+ | 0.3− | 2003 09 21 | 691 | 0.0 | 0.1− | 2003 09 27 | 691 | 0.1− | 0.2+ |
| 2003 09 18 | 461 | 0.6− | 0.8+ | 2003 09 21 | 691 | 0.0 | 0.2− | 2003 09 27 | 691 | 0.1+ | 0.2+ |
| 2003 09 18 | 461 | 1.3− | 0.6+ | 2003 09 22 | 461 | 0.1− | 0.1− | 2006 03 02 | 691 | 0.2− | 0.4− |
| 2003 09 18 | 461 | 0.7− | 0.6+ | 2003 09 22 | 461 | 0.1+ | 0.2− | 2006 03 02 | 691 | 0.5+ | 0.0 |
| 2003 09 18 | 461 | 0.5− | 0.6+ | 2003 09 22 | 461 | 0.2+ | 0.2− | 2006 03 02 | 691 | 0.1+ | 0.3+ |
| 2003 09 19 | 461 | 0.1+ | 0.2− | 2003 09 22 | 461 | 0.3+ | 0.1− | 2006 03 24 | G96 | 1.2− | 0.4+ |
| 2003 09 19 | 461 | 0.2− | 0.1+ | 2003 09 22 | 461 | 0.3− | 0.2+ | 2006 03 24 | G96 | 0.1+ | 0.7+ |
| 2003 09 19 | 461 | 0.2+ | 0.0 | 2003 09 22 | 461 | 0.2− | 0.2+ | 2006 03 24 | G96 | 0.0 | 0.2− |
| 2003 09 19 | 461 | 0.1− | 0.1+ | 2003 09 22 | 461 | 0.1− | 0.0 | 2006 03 24 | G96 | 0.1+ | 0.1+ |
| 2003 09 20 | 461 | 0.3+ | 0.0 | 2003 09 22 | 461 | 0.0 | 0.0 | 2008 09 19 | 691 | 0.1+ | 0.0 |
| 2003 09 20 | 461 | 0.1− | 0.2− | 2003 09 23 | 461 | 1.1+ | 0.7− | 2008 09 19 | 691 | 0.0 | 0.0 |
| 2003 09 20 | 461 | 0.2+ | 0.0 | 2003 09 23 | 461 | 0.2− | 0.0 | 2008 09 19 | 691 | 0.1− | 0.1− |
| 2003 09 20 | 461 | 0.2+ | 0.2+ | 2003 09 23 | 461 | 0.5+ | 0.1− | | | | |

**2003 SK$_{34}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 61.83093 | | (2000.0) | | | |
| $n$ | 0.17087544 | $\omega$ | 321.94587 | | +0.85124019 | +0.52438661 |
| $a$ | 3.2162486 | $\Omega$ | 6.52322 | | −0.42719511 | +0.71481684 |
| $e$ | 0.0487863 | $i$ | 10.25206 | | −0.30478596 | +0.46266139 |
| $P$ | 5.77 | $H$ | 16.0 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 18 | 691 | 0.1+ | 0.2+ | 2003 10 18 | 645 | 0.1− | 0.0 | 2009 09 23 | 691 | 0.0 | 0.4− |
| 2003 09 18 | 691 | 0.2+ | 0.1+ | 2003 10 22 | 645 | 0.0 | 0.0 | 2009 10 27 | G96 | 0.1− | 0.4− |
| 2003 09 18 | 691 | 0.2+ | 0.2+ | 2003 10 22 | 645 | 0.1− | 0.0 | 2009 10 27 | G96 | 0.2+ | 0.5− |
| 2003 09 19 | 599 | (0.8− | 1.7+) | 2003 10 23 | 645 | 0.1+ | 0.0 | 2009 10 27 | G96 | 0.2+ | 0.2− |
| 2003 09 19 | 599 | 0.0 | 0.5+ | 2003 10 23 | 645 | 0.1− | 0.0 | 2009 10 27 | G96 | 0.4+ | 0.3− |
| 2003 09 19 | 599 | 0.3− | 0.3+ | 2003 10 24 | 645 | 0.1+ | 0.0 | 2009 12 18 | G96 | 0.8+ | 0.6+ |
| 2003 09 29 | 645 | 0.1+ | 0.1− | 2003 10 24 | 645 | 0.1+ | 0.1− | 2009 12 18 | G96 | 0.8+ | 0.3− |
| 2003 09 29 | 645 | 0.0 | 0.0 | 2009 09 23 | 691 | 0.9− | 1.2+ | 2009 12 18 | G96 | 0.5+ | 0.2− |
| 2003 10 18 | 645 | 0.0 | 0.0 | 2009 09 23 | 691 | 0.1− | 0.1− | 2009 12 18 | G96 | 0.4+ | 0.0 |

**2003 SL$_{54}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 293.44385 | | (2000.0) | | | |
| $n$ | 0.28574087 | $\omega$ | 103.48607 | | +0.99669391 | −0.00642786 |
| $a$ | 2.2829048 | $\Omega$ | 256.92729 | | −0.02484455 | +0.92500386 |
| $e$ | 0.1921851 | $i$ | 4.76955 | | +0.07735629 | +0.37990332 |
| $P$ | 3.45 | $H$ | 16.8 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 12 21 | 691 | 1.3+ | 1.4− | 2003 09 20 | 704 | 0.5+ | 0.2+ | 2003 09 30 | 704 | 0.1− | 0.5+ |
| 2000 12 21 | 691 | 0.8− | 0.6+ | 2003 09 20 | 704 | 1.2− | 1.1+ | 2003 09 30 | 704 | 0.0 | 0.7+ |
| 2000 12 21 | 691 | 0.5− | 0.5+ | 2003 09 20 | 704 | 0.5+ | 0.7− | 2003 10 11 | 599 | 0.2− | 0.1+ |
| 2003 08 05 | 704 | 0.1+ | 0.2− | 2003 09 20 | 704 | 0.2− | 0.3− | 2003 10 11 | 599 | 0.3− | 0.2− |
| 2003 08 05 | 704 | 1.2− | 0.6− | 2003 09 20 | 704 | 1.3+ | 0.3+ | 2003 10 11 | 599 | 0.1+ | 0.3+ |
| 2003 08 05 | 704 | 0.3+ | 0.2− | 2003 09 21 | 644 | 0.1+ | 0.0 | 2003 10 17 | 699 | 0.1− | 0.0 |
| 2003 08 05 | 704 | 0.2− | 0.0 | 2003 09 21 | 644 | 0.0 | 0.1+ | 2003 10 17 | 699 | 0.1+ | 0.1− |
| 2003 08 05 | 704 | 0.3− | 0.1− | 2003 09 21 | 644 | 0.2+ | 0.0 | 2003 10 17 | 699 | 0.3− | 0.0 |
| 2003 09 04 | 704 | 0.1+ | 0.2− | 2003 09 25 | 608 | 1.2+ | 0.6+ | 2003 10 17 | 699 | 1.2− | 0.1+ |
| 2003 09 04 | 704 | 0.5− | 0.5− | 2003 09 25 | 608 | 0.8+ | 1.0+ | 2003 10 20 | 704 | 0.5− | 0.4+ |
| 2003 09 04 | 704 | 0.5− | 0.5− | 2003 09 25 | 608 | 0.8+ | 0.6+ | 2003 10 20 | 704 | 1.0+ | 0.4− |
| 2003 09 04 | 704 | 0.3+ | 0.7− | 2003 09 30 | 691 | 0.1− | 0.1− | 2003 10 20 | 704 | 0.7− | 0.3+ |
| 2003 09 04 | 704 | 0.6+ | 0.5− | 2003 09 30 | 691 | 0.1− | 0.1− | 2003 10 20 | 704 | 0.2− | 0.2− |
| 2003 09 16 | 699 | 0.3+ | 0.6− | 2003 09 30 | 704 | 0.0 | 0.1+ | 2007 12 15 | 703 | 0.9+ | 0.0 |
| 2003 09 16 | 699 | 0.2+ | 0.4− | 2003 09 30 | 691 | 0.1− | 0.1+ | 2007 12 15 | 703 | 0.0 | 0.3− |
| 2003 09 16 | 699 | 0.2− | 1.4− | 2003 09 30 | 704 | 0.2+ | 0.8+ | 2007 12 15 | 703 | 0.3+ | 0.9+ |
| 2003 09 16 | 699 | 0.1− | 0.2+ | 2003 09 30 | 704 | 0.2− | 0.7+ | 2007 12 15 | 703 | 1.1− | 0.1− |

**2003 SJ$_{102}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 85.18143 | | (2000.0) | | | |
| $n$ | 0.18673109 | $\omega$ | 12.80208 | | +0.94140669 | +0.30579270 |
| $a$ | 3.0315050 | $\Omega$ | 328.23842 | | −0.32834861 | +0.73454466 |
| $e$ | 0.1118341 | $i$ | 15.68215 | | −0.07707546 | +0.60575157 |
| $P$ | 5.28 | $H$ | 15.3 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 04 | 704 | 0.5− | 1.0+ | 2003 09 21 | 704 | 0.1− | 0.5+ | 2003 10 19 | 691 | 0.2− | 0.1− |
| 2003 09 04 | 704 | 0.4− | 0.0 | 2003 09 21 | 704 | 0.3+ | 0.1+ | 2003 10 25 | 691 | 0.1− | 0.1− |
| 2003 09 04 | 704 | 0.2− | 1.1− | 2003 09 21 | 644 | 0.3+ | 0.1+ | 2003 10 25 | 691 | 0.1+ | 0.0 |
| 2003 09 04 | 704 | 1.0− | 0.3− | 2003 09 21 | 704 | 0.8+ | 0.4− | 2003 10 25 | 691 | 0.2+ | 0.2+ |
| 2003 09 17 | 644 | 0.0 | 0.2+ | 2003 09 21 | 704 | 0.6+ | 0.2− | 2008 08 14 | H55 | 0.1+ | 0.1+ |
| 2003 09 17 | 644 | 0.3+ | 0.2+ | 2003 09 21 | 644 | 0.3+ | 0.1+ | 2008 08 14 | H55 | 0.1− | 0.4− |
| 2003 09 17 | 644 | 0.6+ | 0.1+ | 2003 09 21 | 644 | 0.4+ | 0.0 | 2008 08 14 | H55 | 0.2− | 0.1+ |
| 2003 09 20 | 704 | 0.2− | 0.6+ | 2003 09 29 | 049 | 0.3− | 0.0 | 2008 09 07 | G96 | 0.2− | 0.3− |
| 2003 09 20 | 704 | 0.5− | 0.4− | 2003 09 29 | 049 | 0.3+ | 0.5+ | 2008 09 07 | G96 | 0.2+ | 0.7− |
| 2003 09 20 | 704 | 1.3− | 0.0 | 2003 09 29 | 049 | 0.6− | 0.0 | 2008 09 07 | G96 | 0.0 | 0.5− |
| 2003 09 20 | 704 | 0.5+ | 0.8− | 2003 09 30 | 704 | 0.5− | 0.3+ | 2008 09 07 | G96 | 0.1− | 0.3− |
| 2003 09 20 | 704 | 0.7+ | 0.2− | 2003 09 30 | 704 | 0.0 | 0.5− | 2008 09 07 | 703 | 0.2+ | 0.5+ |
| 2003 09 21 | 699 | 0.0 | 0.3− | 2003 09 30 | 704 | 0.8− | 0.3+ | 2008 09 07 | 703 | 0.0 | 0.4+ |
| 2003 09 21 | 699 | 0.4+ | 0.2+ | 2003 09 30 | 704 | 0.4− | 0.0 | 2008 09 07 | 703 | 0.0 | 0.7+ |
| 2003 09 21 | 699 | 0.7+ | 0.3− | 2003 09 30 | 704 | 0.6− | 1.3+ | 2008 09 07 | 703 | 0.3+ | 0.3+ |
| 2003 09 21 | 699 | 0.2− | 0.2− | 2003 10 19 | 691 | 0.1+ | 0.1− | | | | |
| 2003 09 21 | 704 | 0.2− | 0.3+ | 2003 10 19 | 691 | 0.2+ | 0.1− | | | | |

**2003 SB$_{106}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 63.51893 | | (2000.0) | | | |
| $n$ | 0.18598369 | $\omega$ | 76.73380 | | +0.98109296 | −0.13645088 |
| $a$ | 3.0396213 | $\Omega$ | 290.97414 | | +0.06267490 | +0.89495642 |
| $e$ | 0.1069041 | $i$ | 8.45253 | | +0.18310781 | +0.42477543 |
| $P$ | 5.30 | $H$ | 15.1 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 20 | 644 | 0.2− | 0.3+ | 2003 09 30 | 704 | 0.7− | 0.2− | 2008 10 30 | G96 | 0.1+ | 0.4− |
| 2003 09 20 | 644 | 0.2− | 0.5+ | 2003 10 21 | 691 | 0.0 | 0.1− | 2008 10 30 | G96 | 0.2+ | 0.4− |
| 2003 09 20 | 644 | 0.4− | 0.3+ | 2003 10 21 | 691 | 0.1+ | 0.1− | 2008 10 30 | G96 | 0.3+ | 0.0 |
| 2003 09 21 | 704 | 0.2− | 0.8+ | 2003 10 21 | 691 | 0.1− | 0.0 | 2008 10 30 | G96 | 0.2− | 0.0 |
| 2003 09 21 | 704 | 0.9+ | 0.2+ | 2003 10 21 | 644 | 0.2− | 0.0 | 2009 12 10 | 704 | 0.3+ | 0.5− |
| 2003 09 21 | 704 | 0.4+ | 0.7− | 2003 10 21 | 644 | 0.1− | 0.2− | 2009 12 10 | 704 | 0.1+ | 0.4− |
| 2003 09 21 | 704 | 0.9+ | 0.0 | 2003 10 21 | 644 | 0.2− | 0.1− | 2009 12 10 | 704 | 0.6− | 0.6− |
| 2003 09 21 | 704 | 0.7− | 0.8+ | 2003 10 21 | 704 | (1.9+ | 2.1+) | 2009 12 10 | 704 | 0.1+ | 0.5− |
| 2003 09 21 | 704 | 0.0 | 1.0+ | 2003 10 21 | 704 | (1.9+ | 0.1−) | 2009 12 15 | 704 | 0.1+ | 0.5− |
| 2003 09 21 | 704 | 0.2+ | 0.3+ | 2003 10 21 | 704 | 0.6− | 0.6+ | 2009 12 15 | 704 | 0.0 | 0.4+ |
| 2003 09 21 | 704 | 0.3+ | 0.8+ | 2003 10 21 | 704 | 1.0+ | 0.1+ | 2009 12 15 | 704 | 0.2+ | 0.4− |
| 2003 09 22 | 608 | 0.3− | 0.1− | 2003 10 21 | 704 | 0.1− | 0.1+ | 2009 12 15 | 704 | 1.1+ | 0.2+ |
| 2003 09 22 | 608 | 0.0 | 0.1− | 2003 10 29 | 691 | 0.1− | 0.1− | 2009 12 18 | G96 | 0.4− | 0.3− |
| 2003 09 22 | 608 | 0.1+ | 0.1− | 2003 10 29 | 691 | 0.2− | 0.0 | 2009 12 18 | G96 | 0.2− | 0.2− |
| 2003 09 30 | 704 | 0.3− | 0.4− | 2003 10 29 | 691 | 0.1− | 0.0 | 2009 12 18 | G96 | 0.7− | 0.4− |
| 2003 09 30 | 704 | 0.1+ | 0.4− | 2004 12 15 | 691 | 0.0 | 0.3+ | 2009 12 18 | G96 | 0.1− | 0.4− |
| 2003 09 30 | 704 | 0.3+ | 0.8− | 2004 12 15 | 691 | 0.2+ | 0.3+ | | | | |
| 2003 09 30 | 704 | 0.4+ | 0.2+ | 2004 12 15 | 691 | 0.0 | 0.2+ | | | | |

**2003 SS$_{118}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 71.20716 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17763932 | $\omega$ | 177.40108 | | +0.90231604 | +0.43092854 | |
| $a$ | 3.1340792 | $\Omega$ | 157.06213 | | −0.39602212 | +0.83896223 | |
| $e$ | 0.1781525 | $i$ | 1.65282 | | −0.17027110 | +0.33232962 | |
| $P$ | 5.55 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 16 | 291 | 0.1− | 0.1+ | 2003 10 20 | 691 | 0.0 | 0.1+ | 2009 11 23 | G96 | 0.7+ | 0.0 |
| 2003 09 16 | 291 | 0.1− | 0.1+ | 2003 10 20 | 691 | 0.1− | 0.0 | 2009 11 23 | G96 | 0.1− | 0.1− |
| 2003 09 16 | 291 | 0.1+ | 0.1+ | 2008 07 30 | G96 | 0.2− | 0.0 | 2009 11 23 | G96 | 0.3+ | 0.1+ |
| 2003 09 21 | 691 | 0.2+ | 0.3− | 2008 07 30 | G96 | 0.2− | 0.1− | 2009 11 23 | G96 | 0.1− | 0.3− |
| 2003 09 21 | 691 | 0.0 | 0.1− | 2008 07 30 | G96 | 0.4+ | 0.1+ | 2009 12 11 | G96 | 1.0+ | 0.0 |
| 2003 09 21 | 691 | 0.1− | 0.2− | 2008 07 30 | G96 | 0.0 | 0.4+ | 2009 12 11 | G96 | 0.7+ | 0.1− |
| 2003 09 27 | 691 | 0.1− | 0.2− | 2009 10 23 | G96 | 0.5+ | 0.1+ | 2009 12 11 | G96 | 0.4− | 0.1+ |
| 2003 09 27 | 691 | 0.1+ | 0.4− | 2009 10 23 | G96 | 0.2+ | 0.3+ | 2009 12 11 | G96 | 0.0 | 0.2+ |
| 2003 09 27 | 691 | 0.1+ | 0.2− | 2009 10 23 | G96 | 0.9+ | 0.1− | 2009 12 19 | G96 | 0.6− | 0.4+ |
| 2003 10 16 | 291 | 0.1+ | 0.2+ | 2009 10 23 | G96 | 0.1+ | 0.3− | 2009 12 19 | G96 | 0.1− | 0.3+ |
| 2003 10 16 | 291 | 0.2+ | 0.1+ | 2009 11 08 | 691 | 0.4− | 0.2− | 2009 12 19 | G96 | 0.1− | 0.5+ |
| 2003 10 16 | 291 | 0.0 | 0.4+ | 2009 11 08 | 691 | 0.1− | 0.2+ | 2009 12 19 | G96 | 0.1− | 0.2+ |
| 2003 10 20 | 691 | 0.0 | 0.2+ | 2009 11 08 | 691 | 0.2− | 0.2− | | | | |

**2003 SM$_{131}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 323.01851 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.29112344 | $\omega$ | 339.85666 | | +0.99200882 | +0.12565672 | |
| $a$ | 2.2546784 | $\Omega$ | 12.94027 | | −0.10769900 | +0.89022870 | |
| $e$ | 0.1778337 | $i$ | 2.90603 | | −0.06572237 | +0.43783930 | |
| $P$ | 3.39 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 20 | 704 | 1.1− | 1.1+ | 2003 10 21 | 699 | 0.0 | 0.1− | 2003 10 26 | 291 | 0.0 | 0.0 |
| 2003 09 20 | 704 | (0.3− | 1.6+) | 2003 10 21 | 699 | 0.3+ | 0.5− | 2003 10 26 | 691 | 0.1+ | 0.0 |
| 2003 09 20 | 704 | 0.8+ | 0.6+ | 2003 10 21 | 699 | 0.5+ | 0.4+ | 2003 10 26 | 291 | 0.1+ | 0.3− |
| 2003 09 20 | 699 | 0.2− | 0.2+ | 2003 10 21 | 704 | 0.1+ | 0.4+ | 2003 10 26 | 691 | 0.2+ | 0.1− |
| 2003 09 20 | 699 | 0.0 | 0.2− | 2003 10 21 | 704 | 0.3− | 0.1+ | 2003 10 26 | 291 | 0.0 | 0.2− |
| 2003 09 20 | 699 | 0.1+ | 0.5− | 2003 10 21 | 704 | 0.5− | 0.1+ | 2003 10 26 | 691 | 0.2+ | 0.0 |
| 2003 09 20 | 699 | 0.4+ | 0.3+ | 2003 10 21 | 704 | 0.1− | 0.1+ | 2003 10 27 | 106 | 0.2+ | 0.3− |
| 2003 09 21 | 699 | 0.2− | 0.1+ | 2003 10 21 | 291 | 0.1− | 0.1− | 2003 10 27 | 106 | 0.2+ | 0.2− |
| 2003 09 21 | 699 | 0.5+ | 0.3+ | 2003 10 21 | 291 | 0.2− | 0.1− | 2003 10 27 | 106 | 0.7+ | 0.0 |
| 2003 09 21 | 699 | 0.5+ | 0.6− | 2003 10 21 | 291 | 0.3− | 0.1− | 2003 10 29 | 704 | 0.4+ | 0.5+ |
| 2003 09 21 | 699 | 0.3− | 0.2+ | 2003 10 22 | 704 | 0.1− | 0.3+ | 2003 10 29 | 704 | 0.5+ | 0.5+ |
| 2003 09 26 | 704 | 0.0 | 0.1+ | 2003 10 22 | 704 | 0.2− | 0.5+ | 2003 10 29 | 704 | 0.7+ | 0.1+ |
| 2003 09 26 | 704 | 0.2+ | 0.1− | 2003 10 22 | 704 | 0.3− | 0.4+ | 2003 10 29 | 704 | 0.2+ | 0.3+ |
| 2003 09 26 | 704 | 0.2− | 0.1+ | 2003 10 22 | 704 | 0.8− | 0.4+ | 2003 11 01 | 704 | 0.4− | 0.0 |
| 2003 09 26 | 704 | 0.3− | 0.3+ | 2003 10 22 | 704 | 0.1− | 0.0 | 2003 11 01 | 704 | 0.3− | 0.6− |
| 2003 09 26 | 704 | 0.1− | 0.0 | 2003 10 22 | 704 | 1.0− | 0.1+ | 2003 11 01 | 704 | 0.3+ | 0.6+ |
| 2003 09 29 | 704 | 1.2− | 1.0− | 2003 10 22 | 704 | 0.1+ | 0.4+ | 2003 11 20 | 704 | (1.7+ | 0.5−) |
| 2003 09 29 | 704 | 0.3− | 0.0 | 2003 10 22 | 704 | 0.6− | 0.2+ | 2003 11 20 | 704 | 0.6+ | 1.0− |
| 2003 09 29 | 704 | 0.2+ | 0.5+ | 2003 10 22 | 704 | 0.5− | 0.4+ | 2003 11 20 | 704 | 0.0 | 0.9− |
| 2003 09 29 | 704 | 0.2− | 0.5− | 2003 10 22 | 608 | 0.3− | 0.1− | 2008 01 16 | 691 | 0.4− | 0.2− |
| 2003 09 29 | 704 | 1.0− | 0.3+ | 2003 10 22 | 608 | 0.5− | 0.4− | 2008 01 16 | 691 | 0.0 | 0.0 |
| 2003 09 29 | 691 | 0.2+ | 0.2− | 2003 10 22 | 608 | 0.4− | 0.5− | 2008 01 16 | 691 | 0.4+ | 0.2+ |
| 2003 09 29 | 691 | 0.3+ | 0.3− | 2003 10 24 | 704 | 0.4− | 0.0 | 2008 03 03 | G96 | 0.2− | 0.3− |
| 2003 09 29 | 691 | 0.2+ | 0.3− | 2003 10 24 | 704 | 0.7− | 0.4+ | 2008 03 03 | G96 | 0.3− | 0.4− |
| 2003 10 20 | 704 | 0.9+ | 0.2+ | 2003 10 24 | 704 | 0.9− | 0.4+ | 2008 03 03 | G96 | 0.0 | 0.4+ |
| 2003 10 20 | 704 | 0.8+ | 0.7+ | 2003 10 24 | 704 | 0.4− | 0.3+ | 2008 03 03 | G96 | 0.3+ | 0.7− |
| 2003 10 20 | 704 | 0.4+ | 1.0+ | 2003 10 24 | 704 | 0.7− | 0.2+ | 2008 04 03 | G96 | 0.2+ | 0.1− |
| 2003 10 20 | 704 | 0.9+ | 0.7+ | 2003 10 25 | 106 | 0.5+ | 0.3− | 2008 04 03 | G96 | 0.5+ | 0.1+ |
| 2003 10 20 | 704 | 0.7+ | 0.7+ | 2003 10 25 | 106 | 0.6+ | 0.4− | 2008 04 03 | G96 | 0.7− | 0.7+ |
| 2003 10 21 | 699 | 0.4+ | 0.5+ | 2003 10 25 | 106 | 0.2− | 0.2− | 2008 04 03 | G96 | 0.1+ | 0.1+ |

**2003 SM$_{134}$ = 2008 UJ$_{365}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 70.95239 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21127599 | $\omega$ | 90.29820 | | +0.48979566 | −0.85992423 | |
| $a$ | 2.7919178 | $\Omega$ | 329.02182 | | +0.64681408 | +0.46887858 | |
| $e$ | 0.1363407 | $i$ | 16.20387 | | +0.58457828 | +0.20170076 | |
| $P$ | 4.67 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 03 | 704 | 0.7− | 0.5− | 2004 12 21 | 703 | 0.0 | 0.4− | 2008 10 25 | 703 | 0.1+ | 0.5+ |
| 2003 09 03 | 704 | 0.3− | 0.3+ | 2004 12 21 | 703 | 0.3+ | 1.0− | 2008 11 08 | 703 | (0.1− | 1.8+) |
| 2003 09 03 | 704 | 1.0− | 0.7+ | 2004 12 21 | 703 | 0.1− | 1.1+ | 2008 11 08 | 703 | 1.0− | 1.1+ |
| 2003 09 18 | 644 | 0.1+ | 0.1+ | 2008 09 21 | G96 | 0.2+ | 0.5− | 2008 11 08 | 703 | 0.8− | 0.1+ |
| 2003 09 18 | 644 | 0.0 | 0.5+ | 2008 09 21 | G96 | 0.2+ | 0.3− | 2008 11 08 | 703 | 0.6− | 0.4− |
| 2003 09 18 | 644 | 0.0 | 0.2+ | 2008 09 21 | G96 | 0.2− | 0.3− | 2008 11 18 | 703 | (1.8− | 0.3−) |
| 2003 09 22 | 691 | 0.0 | 0.1− | 2008 09 21 | G96 | 0.0 | 0.3− | 2008 11 18 | 703 | 0.6+ | 0.6+ |
| 2003 09 22 | 691 | 0.3+ | 0.0 | 2008 10 25 | 703 | 0.3+ | 0.1− | 2008 11 18 | 703 | 0.7− | 0.1+ |
| 2003 09 22 | 691 | 0.2+ | 0.2− | 2008 10 25 | 703 | 0.1+ | 0.4+ | 2008 11 18 | 703 | 1.2+ | 1.1− |
| 2004 12 21 | 703 | 0.4− | 0.0 | 2008 10 25 | 703 | 0.3+ | 0.4+ | | | | |

**2003 SX$_{141}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 82.97738 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19790429 | $\omega$ | 130.86452 | | +0.98037475 | −0.11648706 | |
| $a$ | 2.9163025 | $\Omega$ | 236.40368 | | +0.06569841 | +0.95369243 | |
| $e$ | 0.0705077 | $i$ | 11.00784 | | +0.18587381 | +0.27731121 | |
| $P$ | 4.98 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 04 | 704 | 0.7+ | 1.1− | 2003 09 22 | 644 | 0.1− | 0.3− | 2008 09 22 | 703 | 0.6+ | 0.7+ |
| 2003 09 04 | 704 | 0.6+ | 0.2+ | 2003 09 22 | 644 | 0.3+ | 0.2+ | 2008 09 22 | 703 | 0.5− | 1.0− |
| 2003 09 04 | 704 | 0.9− | 1.2+ | 2003 10 05 | 691 | 0.1− | 0.1+ | 2008 10 31 | G96 | 0.2+ | 0.1+ |
| 2003 09 20 | 704 | 0.5− | 0.1− | 2003 10 05 | 691 | 0.3− | 0.2+ | 2008 10 31 | G96 | 0.1− | 0.1+ |
| 2003 09 20 | 704 | 0.7+ | 0.6+ | 2003 10 05 | 691 | 0.1− | 0.2+ | 2008 10 31 | G96 | 0.2+ | 0.1− |
| 2003 09 20 | 704 | 0.3− | 0.2− | 2008 09 22 | 703 | 0.4+ | 0.7− | 2008 10 31 | G96 | 0.4+ | 0.1− |
| 2003 09 22 | 644 | 0.5+ | 0.0 | 2008 09 22 | 703 | 0.3− | 1.3− | | | | |

**2003 SU$_{146}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 338.36675 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.29184683 | $\omega$ | 92.15402 | | +0.91584027 | +0.39581505 | |
| $a$ | 2.2509511 | $\Omega$ | 244.53510 | | −0.39171335 | +0.84366667 | |
| $e$ | 0.1678554 | $i$ | 4.29271 | | −0.08830210 | +0.36270785 | |
| $P$ | 3.38 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 20 | 644 | 0.0 | 0.2+ | 2003 10 17 | 691 | 0.1− | 0.2− | 2003 10 30 | 704 | 0.1+ | 0.1+ |
| 2003 09 20 | 644 | 0.1− | 0.2+ | 2003 10 21 | 699 | 0.5+ | 0.6− | 2003 10 30 | 704 | 0.1+ | 1.2+ |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 20 | 644 | 0.0 | 0.3+ | 2003 10 21 | 699 | 0.2+ | 0.8− | 2003 10 30 | 704 | 0.3+ | 0.1− |
| 2003 09 21 | 699 | 0.6+ | 1.5+ | 2003 10 21 | 699 | 0.9+ | 0.8− | 2003 10 30 | 704 | 0.2− | 0.2+ |
| 2003 09 21 | 699 | 0.5− | 0.6− | 2003 10 21 | 699 | 0.4− | 0.5+ | 2003 10 30 | 704 | 0.4− | 0.3− |
| 2003 09 21 | 699 | 0.7− | 0.5+ | 2003 10 21 | 704 | 1.2+ | 0.2+ | 2003 11 02 | 691 | 0.1+ | 0.1− |
| 2003 09 21 | 699 | (3.0− | 1.8−) | 2003 10 21 | 704 | 0.8+ | 0.9+ | 2003 11 02 | 691 | 0.1+ | 0.1− |
| 2003 09 22 | 704 | 0.0 | 0.1+ | 2003 10 21 | 704 | 0.0 | 0.1− | 2003 11 02 | 691 | 0.0 | 0.1− |
| 2003 09 22 | 704 | 0.4+ | 0.1+ | 2003 10 21 | 704 | 0.0 | 0.0 | 2003 11 20 | 704 | 0.5− | 0.1+ |
| 2003 09 22 | 704 | 1.1− | 0.6+ | 2003 10 21 | 704 | 0.6+ | 0.0 | 2003 11 20 | 704 | 0.6− | 0.2+ |
| 2003 09 22 | 704 | 0.1− | 0.1+ | 2003 10 25 | 704 | 0.8+ | 0.4− | 2003 11 20 | 704 | 0.5− | 0.3− |
| 2003 09 22 | 704 | 1.0− | 0.9+ | 2003 10 25 | 704 | 0.2+ | 0.3− | 2003 11 20 | 704 | 0.6− | 0.1− |
| 2003 09 24 | 608 | 0.0 | 1.4− | 2003 10 25 | 704 | 0.6+ | 0.1− | 2003 11 20 | 704 | 0.5− | 0.5− |
| 2003 09 24 | 608 | 0.1+ | 1.3− | 2003 10 25 | 704 | 1.0+ | 0.6− | 2008 01 13 | G96 | 0.1− | 0.2+ |
| 2003 09 24 | 608 | 0.1− | 1.3− | 2003 10 25 | 704 | 0.2− | 0.4− | 2008 01 13 | G96 | 0.4+ | 0.1− |
| 2003 09 27 | 704 | 0.6+ | 0.7+ | 2003 10 28 | 704 | 0.3− | 0.5+ | 2008 01 13 | G96 | 0.1− | 0.1+ |
| 2003 09 27 | 704 | 0.3+ | 0.9+ | 2003 10 28 | 704 | 0.4− | 0.2+ | 2008 01 13 | G96 | 0.1+ | 0.4+ |
| 2003 09 27 | 704 | 0.1+ | 0.7+ | 2003 10 28 | 704 | 0.1− | 0.5+ | 2008 02 11 | G96 | 0.1− | 0.1+ |
| 2003 09 27 | 704 | 0.3− | 0.5+ | 2003 10 28 | 704 | 0.1− | 0.7+ | 2008 02 11 | G96 | 0.2+ | 0.1+ |
| 2003 09 27 | 704 | 0.9− | 1.0+ | 2003 10 30 | 704 | 0.1− | 0.3+ | 2008 02 11 | G96 | 0.1− | 0.1− |
| 2003 10 17 | 691 | 0.1− | 0.2− | 2003 10 30 | 704 | 0.2+ | 0.1+ | 2008 02 11 | G96 | 0.2− | 0.0 |
| 2003 10 17 | 691 | 0.0 | 0.4− | 2003 10 30 | 704 | 0.3+ | 0.4+ | | | | |

**2003 SM**$_{150}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| $M$ | 169.74269 | | (2000.0) | | **P** | | **Q** |
|---|---|---|---|---|---|---|---|
| $n$ | 0.22092297 | $\omega$ | 243.72742 | | +0.78687058 | | +0.60416419 |
| $a$ | 2.7100385 | $\Omega$ | 78.84575 | | −0.51055702 | | +0.75182107 |
| $e$ | 0.2606077 | $i$ | 7.36562 | | −0.34664998 | | +0.26410358 |
| $P$ | 4.46 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 08 22 | 644 | 0.0 | 0.3+ | 2003 09 17 | 704 | 0.3− | 0.3+ | 2003 10 18 | 704 | 0.1− | 0.4+ |
| 2003 08 22 | 644 | 0.1− | 0.3− | 2003 09 19 | 699 | 0.2− | 0.5− | 2003 10 18 | 704 | 0.3+ | 0.4− |
| 2003 08 22 | 644 | 0.3+ | 0.5− | 2003 09 19 | 699 | 0.2− | 0.0 | 2008 11 21 | 691 | 0.1− | 0.0 |
| 2003 09 01 | 704 | 0.9− | 1.1+ | 2003 09 19 | 699 | 0.0 | 1.0− | 2008 11 21 | 691 | 0.2− | 0.1− |
| 2003 09 01 | 704 | 0.6+ | 0.7+ | 2003 09 19 | 699 | 0.3− | 0.9− | 2008 11 21 | 691 | 0.0 | 0.0 |
| 2003 09 01 | 704 | 0.1+ | 0.6+ | 2003 10 18 | 699 | 0.4− | 0.3− | 2008 12 21 | G96 | 0.3+ | 0.0 |
| 2003 09 01 | 704 | 0.6− | 0.8− | 2003 10 18 | 699 | 0.4− | 0.4− | 2008 12 21 | G96 | 0.8+ | 0.1− |
| 2003 09 17 | 704 | 0.7+ | 0.4+ | 2003 10 18 | 704 | 0.3+ | 0.6+ | 2008 12 21 | G96 | 0.0 | 0.2+ |
| 2003 09 17 | 704 | 0.5+ | 0.5+ | 2003 10 18 | 699 | 0.4+ | 0.4+ | 2008 12 21 | G96 | 0.0 | 0.0 |
| 2003 09 17 | 704 | 0.2+ | 0.2− | 2003 10 18 | 704 | 0.3+ | 1.3+ | | | | |
| 2003 09 17 | 704 | 0.4+ | 0.2− | 2003 10 18 | 699 | 0.6− | 1.0− | | | | |

**2003 SE**$_{161}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| $M$ | 31.90892 | | (2000.0) | | **P** | | **Q** |
|---|---|---|---|---|---|---|---|
| $n$ | 0.18080279 | $\omega$ | 41.76077 | | +0.60812561 | | −0.79192727 |
| $a$ | 3.0974143 | $\Omega$ | 11.16863 | | +0.63195562 | | +0.44095003 |
| $e$ | 0.2117964 | $i$ | 16.52245 | | +0.48043245 | | +0.42239113 |
| $P$ | 5.45 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 17 | 644 | 0.3− | 0.0 | 2003 10 15 | 699 | 0.7+ | 0.5− | 2003 10 27 | 691 | 0.2− | 0.2− |
| 2003 09 17 | 644 | 0.2+ | 0.2+ | 2003 10 15 | 699 | 0.2+ | 0.1+ | 2003 10 27 | 691 | 0.3− | 0.2+ |
| 2003 09 17 | 644 | 0.1− | 0.2+ | 2003 10 20 | 446 | 0.2− | 0.4− | 2003 10 27 | 691 | 0.3− | 0.1+ |
| 2003 09 20 | 699 | 0.9+ | 1.8− | 2003 10 20 | 446 | 0.3− | 0.5− | 2003 10 29 | 699 | 0.4− | 0.5+ |
| 2003 09 20 | 699 | 0.6+ | 1.1− | 2003 10 20 | 446 | 1.4+ | 0.0 | 2003 10 29 | 699 | 0.6− | 0.8+ |
| 2003 09 20 | 699 | 0.5− | 0.5+ | 2003 10 20 | 446 | 1.6+ | 0.3− | 2003 10 29 | 699 | 0.5− | 0.4+ |
| 2003 09 20 | 699 | 0.7− | 1.4+ | 2003 10 20 | 644 | 0.3− | 0.1− | 2003 10 29 | 699 | 0.5− | 0.1− |
| 2003 09 21 | 704 | 0.1+ | 0.6− | 2003 10 20 | 644 | 0.3− | 0.0 | 2003 11 01 | 704 | 1.6+ | 0.4+ |
| 2003 09 21 | 704 | 1.7− | 1.8+ | 2003 10 20 | 644 | 0.3− | 0.0 | 2003 11 01 | 704 | 1.7+ | 0.0 |
| 2003 09 21 | 704 | 0.6− | 0.3− | 2003 10 21 | 446 | 0.3+ | 0.5− | 2003 11 01 | 704 | 0.2+ | 0.4+ |
| 2003 09 21 | 704 | 1.1+ | 0.3+ | 2003 10 21 | 446 | 0.2+ | 0.2− | 2003 11 01 | 704 | 0.2− | 0.3+ |
| 2003 09 27 | 704 | 0.3+ | 0.1+ | 2003 10 21 | 704 | 0.1− | 0.7+ | 2003 11 19 | 704 | 0.9− | 0.6− |
| 2003 09 27 | 704 | 0.2− | 0.2− | 2003 10 21 | 704 | 1.0− | 0.4− | 2003 11 19 | 704 | 0.3+ | 0.8− |
| 2003 09 27 | 704 | 0.3− | 0.2+ | 2003 10 21 | 704 | 0.2− | 0.6+ | 2003 11 19 | 704 | 0.5+ | 1.0− |
| 2003 09 27 | 704 | 0.4+ | 0.5+ | 2003 10 22 | 446 | 0.0 | 0.3− | 2003 11 19 | 704 | 0.5− | 0.5+ |
| 2003 09 27 | 704 | 0.0 | 0.2− | 2003 10 22 | 446 | 0.1− | 0.4− | 2009 12 20 | 703 | 0.9+ | 0.2− |
| 2003 10 01 | 691 | 0.2+ | 0.1− | 2003 10 25 | 704 | 0.0 | 0.2− | 2009 12 20 | 703 | 0.3+ | 0.9− |
| 2003 10 01 | 691 | 0.1− | 0.3− | 2003 10 25 | 704 | 0.4+ | 0.5+ | 2009 12 20 | 703 | 0.8− | 0.1− |
| 2003 10 01 | 691 | 0.4+ | 0.1− | 2003 10 25 | 704 | 0.0 | 0.2+ | 2009 12 20 | 703 | 0.4− | 1.2+ |
| 2003 10 15 | 699 | 0.7− | 0.3− | 2003 10 25 | 704 | 0.0 | 0.1+ | | | | |
| 2003 10 15 | 699 | 0.0 | 1.2+ | 2003 10 25 | 704 | 0.2+ | 0.2+ | | | | |

**2003 SY**$_{161}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| $M$ | 123.43222 | | (2000.0) | | **P** | | **Q** |
|---|---|---|---|---|---|---|---|
| $n$ | 0.17865504 | $\omega$ | 282.71730 | | +0.46473243 | | +0.88391946 |
| $a$ | 3.1221890 | $\Omega$ | 15.30339 | | −0.71643859 | | +0.40992472 |
| $e$ | 0.0894648 | $i$ | 11.37596 | | −0.52032636 | | +0.22505135 |
| $P$ | 5.52 | $H$ | 15.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 18 | 691 | 0.2− | 0.1− | 2003 10 21 | 699 | (1.7− | 0.4−) | 2003 11 02 | 691 | 0.2+ | 0.0 |
| 2003 09 18 | 691 | 0.0 | 0.1− | 2003 10 21 | 699 | 0.4− | 0.1+ | 2008 08 06 | E12 | 0.5− | 0.2− |
| 2003 09 18 | 691 | 0.0 | 0.2− | 2003 10 21 | 699 | 0.4− | 0.7+ | 2008 08 06 | E12 | 0.5+ | 0.3+ |
| 2003 09 20 | 699 | 0.4+ | 0.1− | 2003 10 21 | 699 | 0.1+ | 0.8− | 2008 08 06 | E12 | 0.0 | 0.2+ |
| 2003 09 20 | 699 | 0.4− | 0.4− | 2003 10 24 | 704 | 0.3− | 0.4+ | 2008 08 06 | E12 | 0.6− | 0.1+ |
| 2003 09 20 | 699 | 0.3− | 0.5+ | 2003 10 24 | 704 | 0.1− | 0.1+ | 2008 09 06 | 703 | 0.3− | 0.6− |
| 2003 09 20 | 699 | 0.8+ | 0.7+ | 2003 10 24 | 704 | 0.4+ | 0.3+ | 2008 09 06 | 703 | 0.5− | 0.2− |
| 2003 09 29 | 704 | 0.5− | 0.2− | 2003 10 24 | 704 | 0.1− | 0.6+ | 2008 09 06 | 703 | 0.8+ | 0.9+ |
| 2003 09 29 | 704 | 0.2+ | 0.8+ | 2003 10 24 | 704 | 0.4− | 0.2+ | 2008 09 06 | 703 | 0.5+ | 0.5− |
| 2003 09 29 | 704 | 0.6− | 0.0 | 2003 10 29 | 704 | 0.9− | 0.5+ | 2008 12 04 | G96 | 0.6+ | 0.2− |
| 2003 09 29 | 704 | (2.5+ | 0.6+) | 2003 10 29 | 704 | 1.2− | 0.9− | 2008 12 04 | G96 | 0.4− | 0.0 |
| 2003 10 18 | 691 | 0.4+ | 0.1+ | 2003 10 29 | 704 | 0.6− | 0.2+ | 2008 12 04 | G96 | 0.0 | 0.0 |
| 2003 10 18 | 691 | 0.3+ | 0.0 | 2003 11 02 | 691 | 0.1+ | 0.1− | 2008 12 04 | G96 | 0.0 | 0.1+ |
| 2003 10 18 | 691 | 0.1+ | 0.1− | 2003 11 02 | 691 | 0.1+ | 0.2− | | | | |

**2003 SW**$_{162}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| $M$ | 72.99428 | | (2000.0) | | **P** | | **Q** |
|---|---|---|---|---|---|---|---|
| $n$ | 0.17318934 | $\omega$ | 139.92239 | | +0.87961723 | | +0.47515064 |
| $a$ | 3.1875373 | $\Omega$ | 191.77034 | | −0.45977132 | | +0.83712422 |
| $e$ | 0.1660468 | $i$ | 6.32727 | | −0.12199947 | | +0.27102567 |
| $P$ | 5.69 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 19 | 691 | 0.1+ | 0.1+ | 2003 10 18 | 691 | 0.2+ | 0.2− | 2009 11 09 | 703 | (2.5− | 0.4−) |
| 2003 09 19 | 691 | 0.0 | 0.0 | 2003 10 18 | 691 | 0.2+ | 0.3− | 2009 11 17 | G96 | 0.2+ | 0.0 |
| 2003 09 19 | 691 | 0.0 | 0.0 | 2003 10 18 | 691 | 0.3+ | 0.1− | 2009 11 17 | G96 | 0.4+ | 0.9− |
| 2003 09 20 | 699 | 0.7+ | 0.6+ | 2003 10 21 | 699 | 1.0+ | 0.3− | 2009 11 17 | G96 | 0.5+ | 0.1− |
| 2003 09 20 | 699 | 0.5+ | 0.1− | 2003 10 21 | 699 | 0.8− | 0.9+ | 2009 11 17 | G96 | 0.1+ | 0.2− |
| 2003 09 20 | 699 | 1.0− | 0.2+ | 2003 10 21 | 699 | 0.2− | 0.1− | 2009 11 25 | G96 | 0.3+ | 0.1+ |
| 2003 09 20 | 699 | 1.2+ | 1.1+ | 2003 10 21 | 699 | 1.4− | 1.1+ | 2009 11 25 | G96 | 0.0 | 0.1− |
| 2003 09 29 | 691 | 0.4− | 0.1− | 2009 11 09 | 703 | 1.4− | 0.6+ | 2009 11 25 | G96 | 0.3+ | 0.0 |
| 2003 09 29 | 691 | 0.1− | 0.2− | 2009 11 09 | 703 | 0.4− | 0.7+ | 2009 11 25 | G96 | 0.0 | 0.1+ |
| 2003 09 29 | 691 | 0.3− | 0.1− | 2009 11 09 | 703 | (2.5− | 0.9+) | | | | |

**2003 SM**$_{165}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| $M$ | 256.55564 | | (2000.0) | | **P** | | **Q** |
|---|---|---|---|---|---|---|---|
| $n$ | 0.27180247 | $\omega$ | 209.88846 | | +0.82906892 | | −0.55907707 |
| $a$ | 2.3602995 | $\Omega$ | 184.13587 | | +0.53416333 | | +0.79658243 |
| $e$ | 0.2629730 | $i$ | 7.01348 | | +0.16527027 | | +0.22997666 |
| $P$ | 3.63 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 20 | 699 | 0.1− | 0.7− | 2003 10 21 | 704 | 0.1+ | 0.1− | 2003 11 19 | 644 | 0.0 | 0.0 |
| 2003 09 20 | 699 | 0.5+ | 0.2− | 2003 10 21 | 704 | 0.3− | 0.0 | 2003 11 21 | 699 | 0.3+ | 0.2+ |
| 2003 09 20 | 699 | 0.1− | 0.1+ | 2003 10 21 | 644 | 0.0 | 0.4− | 2003 11 21 | 699 | 0.9+ | 0.7− |
| 2003 09 20 | 699 | 0.4− | 0.4+ | 2003 10 21 | 644 | 0.2− | 0.2− | 2003 11 21 | 699 | 0.4− | 0.1− |
| 2003 09 21 | 704 | 0.2− | 0.1+ | 2003 10 21 | 644 | 0.0 | 0.2− | 2003 11 21 | 699 | 0.3− | 0.5− |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 21 | 704 | 0.1+ | 0.0 | 2003 10 22 | 608 | 1.2+ | 0.2− | 2003 11 23 | 699 | 0.0 | 0.4+ | | |
| 2003 09 21 | 704 | 0.6+ | 1.1+ | 2003 10 22 | 608 | 1.0+ | 1.2− | 2003 11 23 | 699 | 0.1+ | 0.3+ | | |
| 2003 09 28 | 704 | 0.4− | 0.5− | 2003 10 22 | 608 | 0.7+ | 0.8− | 2003 11 23 | 699 | 0.1− | 0.1+ | | |
| 2003 09 28 | 704 | 0.3+ | 0.3+ | 2003 10 26 | 608 | 0.9+ | 0.8+ | 2003 11 23 | 699 | 0.2+ | 0.1+ | | |
| 2003 09 28 | 704 | 0.0 | 0.5+ | 2003 10 26 | 608 | 0.8+ | 0.8+ | 2003 12 01 | 703 | 1.5− | 0.2+ | | |
| 2003 09 28 | 704 | 0.3− | 0.2+ | 2003 10 26 | 608 | 0.9+ | 0.8+ | 2003 12 01 | 703 | 0.1− | 1.5+ | | |
| 2003 09 28 | 704 | 0.2− | 0.1− | 2003 10 27 | 704 | 0.8− | 0.1+ | 2003 12 01 | 703 | 0.4− | 0.6+ | | |
| 2003 09 29 | 699 | 1.1− | 0.6− | 2003 10 27 | 704 | 0.0 | 0.2+ | 2003 12 01 | 703 | 1.5− | 0.6− | | |
| 2003 09 29 | 699 | 0.1− | 0.2+ | 2003 10 27 | 704 | 0.6− | 0.1− | 2007 12 31 | 703 | 0.1− | 0.1+ | | |
| 2003 09 29 | 699 | 0.0 | 1.0− | 2003 10 27 | 704 | 0.8− | 0.2− | 2007 12 31 | 703 | 1.1+ | 0.1− | | |
| 2003 09 29 | 699 | 1.4− | 1.0+ | 2003 10 27 | 704 | 0.4− | 0.1+ | 2007 12 31 | 703 | 1.1− | 0.2+ | | |
| 2003 10 16 | 608 | 0.2− | 0.4+ | 2003 11 01 | 413 | 0.1+ | 0.5− | 2007 12 31 | 703 | 0.7+ | 1.3− | | |
| 2003 10 16 | 608 | 0.2− | 0.0 | 2003 11 12 | 608 | 0.9+ | 0.2+ | 2008 02 29 | G96 | 0.5− | 0.2+ | | |
| 2003 10 16 | 608 | 0.4− | 0.2− | 2003 11 12 | 608 | 0.8+ | 0.2+ | 2008 02 29 | G96 | 0.3− | 0.1+ | | |
| 2003 10 21 | 704 | 0.4− | 0.3+ | 2003 11 12 | 608 | 0.3+ | 0.2− | 2008 02 29 | G96 | 0.0 | 0.2+ | | |
| 2003 10 21 | 704 | 0.9+ | 0.8− | 2003 11 19 | 644 | 0.2− | 0.0 | 2008 02 29 | G96 | 0.0 | 0.0 | | |
| 2003 10 21 | 704 | 0.7+ | 0.5− | 2003 11 19 | 644 | 0.0 | 0.0 | | | | | | |

**2003 SS$_{172}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 179.51716 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21527285 | $\omega$ | 292.12210 | | +0.45099945 | +0.89237734 | |
| $a$ | 2.7572525 | $\Omega$ | 4.78021 | | −0.73045162 | +0.37946684 | |
| $e$ | 0.1730517 | $i$ | 11.20381 | | −0.51287417 | +0.24426950 | |
| $P$ | 4.58 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 02 | 704 | 0.6− | 0.2+ | 2003 09 18 | 644 | 0.1+ | 0.1− | 2003 09 29 | 691 | 0.4− | 0.2+ | | |
| 2003 09 02 | 704 | 0.9+ | 0.6− | 2003 09 18 | 644 | 0.1− | 0.2+ | 2003 09 29 | 704 | 0.5− | 0.4− | | |
| 2003 09 02 | 704 | 1.0− | 0.9− | 2003 09 22 | 699 | 0.3+ | 0.6+ | 2003 09 29 | 691 | 0.4− | 0.0 | | |
| 2003 09 02 | 704 | 1.9+ | 1.1− | 2003 09 22 | 699 | 0.3− | 0.1+ | 2003 10 23 | 704 | 0.1+ | 1.1+ | | |
| 2003 09 02 | 704 | 1.2+ | 0.0 | 2003 09 22 | 699 | 0.4− | 0.5+ | 2003 10 23 | 704 | 1.0+ | 1.1+ | | |
| 2003 09 18 | 704 | 0.3+ | 0.2+ | 2003 09 22 | 699 | 0.1− | 0.1+ | 2003 10 23 | 704 | 0.8+ | 0.3+ | | |
| 2003 09 18 | 704 | 0.9+ | 0.5− | 2003 09 26 | 704 | 0.6+ | 1.2+ | 2003 11 16 | 645 | 0.0 | 0.1− | | |
| 2003 09 18 | 704 | 0.2− | 0.7+ | 2003 09 26 | 704 | 0.2− | 0.8+ | 2003 11 16 | 645 | 0.1− | 0.0 | | |
| 2003 09 18 | 704 | 1.1+ | 1.1− | 2003 09 26 | 704 | 0.2− | 0.4+ | 2008 09 29 | G96 | 0.1− | 0.4− | | |
| 2003 09 18 | 704 | 1.0− | 1.5− | 2003 09 26 | 704 | 0.0 | 0.2− | 2008 09 29 | G96 | 0.2− | 0.5− | | |
| 2003 09 18 | 704 | 0.8+ | 0.1− | 2003 09 26 | 704 | 0.1+ | 0.1− | 2008 09 29 | G96 | 0.3− | 0.7− | | |
| 2003 09 18 | 704 | 0.0 | 1.1+ | 2003 09 29 | 691 | 0.3− | 0.1+ | 2008 09 29 | G96 | 0.2− | 0.5− | | |
| 2003 09 18 | 704 | 0.6+ | 0.7− | 2003 09 29 | 704 | 0.5− | 0.9− | 2008 10 31 | G96 | 0.4+ | 0.6+ | | |
| 2003 09 18 | 704 | 0.4+ | 0.6+ | 2003 09 29 | 704 | 0.6− | 1.4+ | 2008 10 31 | G96 | 0.2+ | 0.4+ | | |
| 2003 09 18 | 644 | 0.1+ | 0.2− | 2003 09 29 | 704 | 0.2− | 0.9− | 2008 10 31 | G96 | 0.3+ | 0.3+ | | |

**2003 SC$_{175}$ = 2009 YJ$_7$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 37.10805 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18297158 | $\omega$ | 272.37404 | | +0.77804645 | −0.62816513 | |
| $a$ | 3.0728896 | $\Omega$ | 126.54094 | | +0.57988649 | +0.71372611 | |
| $e$ | 0.2666392 | $i$ | 0.51570 | | +0.24160997 | +0.30984450 | |
| $P$ | 5.39 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 18 | 691 | 0.3+ | 0.1+ | 2003 09 29 | 704 | 0.6− | 0.4+ | 2008 07 30 | G96 | 0.6+ | 0.0 | | |
| 2003 09 18 | 691 | 0.0 | 0.2+ | 2003 09 29 | 691 | 0.1+ | 0.3+ | 2008 07 30 | G96 | 0.7+ | 0.2− | | |
| 2003 09 18 | 691 | 0.3+ | 0.1+ | 2003 09 29 | 704 | (0.6− | 1.8+) | 2008 07 30 | G96 | 0.5+ | 0.2− | | |
| 2003 09 22 | 699 | 1.4− | 0.4+ | 2003 09 29 | 691 | 0.1+ | 0.5+ | 2009 12 16 | 691 | 0.3− | 0.3− | | |
| 2003 09 22 | 699 | 0.2+ | 0.7+ | 2003 10 24 | 691 | 0.2− | 0.2+ | 2009 12 16 | 691 | 0.5+ | 0.2+ | | |
| 2003 09 22 | 699 | (1.6+ | 0.8+) | 2003 10 24 | 691 | 0.2− | 0.1+ | 2009 12 16 | 691 | 0.5− | 0.1− | | |
| 2003 09 22 | 699 | (0.3− | 1.9+) | 2003 10 24 | 691 | 0.2+ | 0.3− | 2009 12 20 | 691 | 0.1+ | 0.0 | | |
| 2003 09 28 | 645 | 0.0 | 0.2− | 2008 07 02 | 691 | 0.2− | 0.3+ | 2009 12 20 | 691 | 0.0 | 0.1+ | | |
| 2003 09 28 | 645 | 0.0 | 0.2− | 2008 07 02 | 691 | 0.5− | 0.6+ | 2009 12 20 | 691 | 0.3+ | 0.4+ | | |
| 2003 09 29 | 691 | 0.1+ | 0.4+ | 2008 07 02 | 691 | 0.1− | 0.4− | | | | | | |
| 2003 09 29 | 704 | 0.4− | 1.0+ | 2008 07 30 | G96 | 0.2+ | 0.1+ | | | | | | |

**2003 SV$_{181}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 172.88318 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.39359078 | $\omega$ | 28.41364 | | +0.95396436 | −0.29152735 | |
| $a$ | 1.8440503 | $\Omega$ | 347.89470 | | +0.16923436 | +0.71716620 | |
| $e$ | 0.0506874 | $i$ | 19.63105 | | +0.24761205 | +0.63299641 | |
| $P$ | 2.50 | $H$ | 18.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 20 | 644 | 0.2+ | 0.3+ | 2003 09 29 | 699 | 0.2+ | 0.4− | 2008 09 24 | 703 | 0.2+ | 0.1+ | | |
| 2003 09 20 | 644 | 0.3+ | 0.5+ | 2003 09 29 | 699 | 0.1− | 0.6+ | 2008 09 24 | 703 | 0.8+ | 0.2+ | | |
| 2003 09 20 | 644 | 0.3+ | 0.1+ | 2003 10 21 | 691 | 0.0 | 0.1− | 2008 09 24 | 703 | 0.2− | 0.2− | | |
| 2003 09 22 | 699 | 0.9− | 0.5+ | 2003 10 21 | 691 | 0.1− | 0.1− | 2008 10 06 | 703 | 1.0+ | 0.6+ | | |
| 2003 09 22 | 699 | (1.8− | 1.5+) | 2003 10 21 | 691 | 0.1+ | 0.2+ | 2008 10 06 | 703 | 0.7+ | 0.0 | | |
| 2003 09 22 | 699 | 0.7− | 0.7+ | 2008 09 05 | 691 | 0.0 | 0.1− | 2008 10 06 | 703 | 1.1− | 0.5− | | |
| 2003 09 22 | 699 | 1.4− | 0.5+ | 2008 09 05 | 691 | 0.1+ | 0.3− | 2008 10 06 | 703 | 0.4+ | 0.6− | | |
| 2003 09 29 | 699 | 0.2+ | 1.0− | 2008 09 05 | 691 | 0.2− | 0.1+ | | | | | | |
| 2003 09 29 | 699 | 0.2− | 0.6+ | 2008 09 24 | 703 | 0.6+ | 1.0− | | | | | | |

**2003 SH$_{182}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 69.81767 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18866118 | $\omega$ | 111.79133 | | +0.98244106 | −0.14080755 | |
| $a$ | 3.0107938 | $\Omega$ | 256.46948 | | +0.08690825 | +0.92591937 | |
| $e$ | 0.0476365 | $i$ | 7.23264 | | +0.16509546 | +0.35049473 | |
| $P$ | 5.22 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 18 | 644 | 0.5+ | 0.1+ | 2003 09 30 | 704 | 0.3− | 0.3+ | 2009 11 09 | 691 | 0.1+ | 0.2− | | |
| 2003 09 18 | 644 | 0.5+ | 0.3+ | 2003 10 16 | 644 | 0.1− | 0.1− | 2009 11 09 | 691 | 0.3+ | 0.2− | | |
| 2003 09 18 | 644 | 0.6+ | 0.2+ | 2003 10 16 | 644 | 0.1− | 0.0 | 2009 11 17 | 691 | 0.1− | 0.0 | | |
| 2003 09 20 | 691 | 0.1+ | 0.1+ | 2003 10 16 | 644 | 0.2− | 0.1+ | 2009 11 17 | 691 | 0.1− | 0.1− | | |
| 2003 09 20 | 691 | 0.3− | 0.1+ | 2003 10 18 | 644 | 0.1+ | 0.3+ | 2009 11 17 | 691 | 0.2− | 0.2+ | | |
| 2003 09 20 | 691 | 0.5+ | 0.0 | 2003 10 18 | 644 | 0.1+ | 0.1+ | 2009 11 25 | 691 | 0.2− | 0.2− | | |
| 2003 09 22 | 699 | 0.1− | 0.1+ | 2003 10 18 | 644 | 0.0 | 0.7+ | 2009 11 25 | 691 | 0.1− | 0.1+ | | |
| 2003 09 22 | 699 | 0.1+ | 1.4− | 2008 10 01 | G96 | 0.1+ | 0.0 | 2009 11 25 | 691 | 0.0 | 0.0 | | |
| 2003 09 22 | 699 | 1.4− | 0.8− | 2008 10 01 | G96 | 0.1− | 0.2− | 2009 12 18 | 291 | 0.1+ | 0.0 | | |
| 2003 09 22 | 699 | 0.8− | 0.0 | 2008 10 01 | G96 | 0.2+ | 0.2+ | 2009 12 18 | 291 | 0.1+ | 0.1+ | | |
| 2003 09 30 | 704 | 0.3+ | 0.5− | 2008 10 01 | G96 | 0.2− | 0.1− | 2009 12 18 | 291 | 0.2+ | 0.0 | | |
| 2003 09 30 | 704 | 0.5− | 0.0 | 2009 11 09 | 691 | 0.2− | 0.3+ | | | | | | |

**2003 SS$_{183}$ = 2009 VW$_{112}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 26.40286 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18191100 | $\omega$ | 165.77192 | | +0.63596002 | −0.76332178 | |
| $a$ | 3.0848218 | $\Omega$ | 244.60598 | | +0.69518422 | +0.63053949 | |
| $e$ | 0.1408427 | $i$ | 7.22118 | | +0.33507276 | +0.14056958 | |
| $P$ | 5.42 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 21 | 704 | 0.6− | 0.4− | 2003 09 30 | 704 | 0.0 | 0.5− | 2003 10 26 | 691 | 0.1+ | 0.3+ | | |
| 2003 09 21 | 704 | 0.4− | 0.0 | 2003 09 30 | 704 | 0.2+ | 0.1+ | 2003 10 26 | 691 | 0.1+ | 0.2+ | | |
| 2003 09 21 | 704 | 0.1+ | 0.5− | 2003 09 30 | 704 | 0.5+ | 0.4+ | 2009 11 08 | 691 | 0.1− | 0.0 | | |
| 2003 09 21 | 704 | 1.3− | 0.5− | 2003 09 30 | 704 | 1.5+ | 1.8− | 2009 11 08 | 691 | 0.5− | 0.0 | | |
| 2003 09 22 | 699 | 1.0− | 0.9+ | 2003 10 01 | 691 | 0.1+ | 0.1− | 2009 11 08 | 691 | 0.6+ | 0.0 | | |
| 2003 09 22 | 699 | 1.1+ | 0.7− | 2003 10 01 | 691 | 0.1+ | 0.0 | 2009 11 24 | 691 | 0.1− | 0.0 | | |
| 2003 09 22 | 699 | 0.3− | 0.0 | 2003 10 01 | 691 | 0.0 | 0.0 | 2009 11 24 | 691 | 0.1− | 0.1+ | | |
| 2003 09 22 | 699 | 0.9− | 0.3+ | 2003 10 17 | 699 | 0.1+ | 0.7− | 2009 11 24 | 691 | 0.2+ | 0.0 | | |
| 2003 09 25 | 644 | 0.1− | 0.0 | 2003 10 17 | 699 | 0.3+ | 0.2− | 2009 12 11 | G96 | 0.0 | 0.1+ | | |
| 2003 09 25 | 644 | 0.1− | 0.1+ | 2003 10 17 | 699 | 1.9− | 0.9+ | 2009 12 11 | G96 | 0.0 | 0.0 | | |
| 2003 09 25 | 644 | 0.3− | 0.0 | 2003 10 17 | 699 | 0.6+ | 0.3− | 2009 12 11 | G96 | 0.1+ | 0.1− | | |
| 2003 09 30 | 704 | 0.6+ | 0.8+ | 2003 10 26 | 691 | 0.1+ | 0.1+ | | | | | | |

**2003 SF$_{184}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 69.14888 | | | (2000.0) | | |
| $n$ | 0.18191693 | $\omega$ | 337.60086 | | +0.98015002 | +0.19822784 |
| $a$ | 3.0847548 | $\Omega$ | 10.96744 | | −0.17906910 | +0.89254687 |
| $e$ | 0.2404038 | $i$ | 1.02827 | | −0.08508931 | +0.40505038 |
| $P$ | 5.42 | $H$ | 16.3 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 21 | 699 | 0.2+ | 1.0− | 2003 10 01 | 699 | 0.5− | 0.2+ | 2008 06 02 | G96 | 0.0 | 0.4+ |
| 2003 09 21 | 699 | 0.6+ | 0.1− | 2003 10 01 | 699 | 0.1+ | 0.6− | 2008 06 02 | G96 | 0.3− | 0.2− |
| 2003 09 21 | 699 | 0.2+ | 0.6− | 2003 10 01 | 699 | 0.4+ | 0.1− | 2008 06 02 | G96 | 0.1− | 0.1− |
| 2003 09 21 | 699 | 0.7− | 0.4− | 2003 10 06 | 699 | 0.5+ | 1.0+ | 2008 06 02 | G96 | 0.6+ | 0.6− |
| 2003 09 21 | 691 | 0.3+ | 0.3− | 2003 10 06 | 699 | 0.6+ | 1.3+ | 2009 11 09 | 691 | 0.1− | 0.1+ |
| 2003 09 21 | 691 | 0.1+ | 0.2− | 2003 10 06 | 699 | 0.2− | 0.5− | 2009 11 09 | 691 | 0.2+ | 0.2− |
| 2003 09 21 | 691 | 0.1+ | 0.1− | 2003 10 06 | 699 | 0.6+ | 0.8+ | 2009 11 09 | 691 | 0.3− | 0.2+ |
| 2003 09 22 | 699 | 0.2+ | 0.9− | 2003 10 20 | 691 | 0.1+ | 0.2+ | 2009 11 19 | 291 | 0.1+ | 0.0 |
| 2003 09 22 | 699 | 0.4+ | 0.1+ | 2003 10 20 | 691 | 0.0 | 0.0 | 2009 11 19 | 291 | 0.1+ | 0.1+ |
| 2003 09 22 | 699 | 0.3+ | 0.9− | 2003 10 20 | 691 | 0.1− | 0.1+ | 2009 11 19 | 291 | 0.2− | 0.0 |
| 2003 09 22 | 699 | 0.9+ | 0.2− | 2003 10 21 | 644 | 0.0 | 0.4+ | 2009 12 10 | G96 | 0.3+ | 0.1− |
| 2003 09 27 | 691 | 0.3− | 0.1− | 2003 10 21 | 644 | 0.1− | 0.5+ | 2009 12 10 | G96 | 0.4+ | 0.4− |
| 2003 09 27 | 691 | 0.2− | 0.2− | 2003 10 21 | 644 | 0.3− | 0.6+ | 2009 12 10 | G96 | 0.0 | 0.1− |
| 2003 09 27 | 691 | 0.3− | 0.0 | 2003 10 23 | 704 | 1.1+ | 0.0 | 2009 12 19 | G96 | 0.2+ | 0.2− |
| 2003 09 29 | 704 | 0.6− | 1.3+ | 2003 10 23 | 704 | 0.1− | 0.3+ | 2009 12 19 | G96 | 0.6− | 0.4− |
| 2003 09 29 | 704 | 0.1− | 0.3+ | 2003 10 23 | 704 | 0.3+ | 1.1+ | 2009 12 19 | G96 | 0.1+ | 0.5− |
| 2003 09 29 | 704 | 1.0− | 1.3+ | 2003 10 23 | 704 | 1.0− | 0.5+ | | | | |
| 2003 10 01 | 699 | 0.5− | 0.6− | 2003 10 23 | 704 | 0.6− | 0.4− | | | | |

**2003 SQ$_{190}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 329.36409 | | | (2000.0) | | |
| $n$ | 0.28097849 | $\omega$ | 316.09170 | | +0.60815285 | +0.79360214 |
| $a$ | 2.3086282 | $\Omega$ | 351.30691 | | −0.69015788 | +0.51701770 |
| $e$ | 0.1439662 | $i$ | 7.06689 | | −0.39221450 | +0.32076212 |
| $P$ | 3.51 | $H$ | 16.9 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 08 30 | 691 | 0.0 | 0.1− | 2003 09 24 | 608 | 0.4− | 1.3− | 2003 10 25 | 704 | 0.4+ | 0.3+ |
| 2003 08 30 | 691 | 0.0 | 0.0 | 2003 09 24 | 608 | 0.1− | 1.4− | 2003 10 25 | 704 | 0.3+ | 0.3+ |
| 2003 08 30 | 691 | 0.1+ | 0.1+ | 2003 09 24 | 608 | 0.2+ | 1.0− | 2003 10 25 | 704 | 0.3+ | 0.1+ |
| 2003 09 17 | 691 | 0.2+ | 0.1− | 2003 09 27 | 704 | 0.8− | 0.2+ | 2003 10 30 | 704 | 0.6+ | 0.3+ |
| 2003 09 17 | 691 | 0.2+ | 0.1− | 2003 09 27 | 704 | 0.1− | 0.2− | 2003 10 30 | 704 | 0.2+ | 0.4+ |
| 2003 09 17 | 691 | 0.4− | 0.0 | 2003 09 27 | 704 | 0.2+ | 0.1+ | 2003 10 30 | 704 | 0.7+ | 0.7+ |
| 2003 09 21 | 699 | 1.4− | 0.7+ | 2003 09 27 | 704 | 0.6− | 0.3+ | 2003 10 30 | 704 | 0.2+ | 0.4+ |
| 2003 09 21 | 699 | 0.5− | 1.5+ | 2003 09 27 | 704 | 0.6− | 0.1+ | 2009 01 03 | 691 | 0.5+ | 0.0 |
| 2003 09 21 | 699 | 0.4− | 0.2− | 2003 09 29 | 691 | 0.1+ | 0.1+ | 2009 01 03 | 691 | 0.9− | 0.5+ |
| 2003 09 21 | 699 | 1.1− | 0.3− | 2003 09 29 | 691 | 0.1+ | 0.0 | 2009 01 03 | 691 | 0.1− | 0.3− |
| 2003 09 21 | 644 | 0.2− | 0.2+ | 2003 09 29 | 691 | 0.0 | 0.2+ | 2009 03 29 | G96 | 0.8+ | 0.1+ |
| 2003 09 21 | 644 | 0.3+ | 0.1+ | 2003 10 18 | 691 | 0.2+ | 0.0 | 2009 03 29 | G96 | 0.5+ | 0.1+ |
| 2003 09 21 | 644 | 0.1+ | 0.3+ | 2003 10 18 | 691 | 0.0 | 0.1− | 2009 03 29 | G96 | 0.4+ | 0.1+ |
| 2003 09 23 | 608 | 0.0 | 1.0− | 2003 10 18 | 691 | 0.1+ | 0.1− | 2009 03 29 | G96 | 0.2+ | 0.1+ |
| 2003 09 23 | 608 | 0.2+ | 1.1− | 2003 10 25 | 704 | 0.1+ | 0.1− | | | | |
| 2003 09 23 | 608 | 0.2− | 1.9+ | 2003 10 25 | 704 | 0.1− | 0.1+ | | | | |

**2003 SF$_{202}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 46.24627 | | | (2000.0) | | |
| $n$ | 0.18277631 | $\omega$ | 130.48872 | | +0.94839064 | −0.31589986 |
| $a$ | 3.0750779 | $\Omega$ | 247.94256 | | +0.28118061 | +0.87801417 |
| $e$ | 0.1972231 | $i$ | 1.70730 | | +0.14660376 | +0.35958087 |
| $P$ | 5.39 | $H$ | 16.6 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 17 | 691 | 0.2+ | 0.7+ | 2003 09 26 | 645 | 0.1− | 0.0 | 2003 11 16 | 645 | 0.0 | 0.0 |
| 2003 09 17 | 691 | 0.2+ | 0.4+ | 2003 09 28 | 645 | 0.0 | 0.1− | 2003 11 16 | 645 | 0.0 | 0.0 |
| 2003 09 17 | 691 | 0.2− | 0.5+ | 2003 09 28 | 645 | 0.0 | 0.1− | 2003 11 20 | 645 | 0.0 | 0.0 |
| 2003 09 22 | 699 | 0.4+ | 1.6+ | 2003 09 29 | 645 | 0.0 | 0.1− | 2003 11 20 | 645 | 0.0 | 0.0 |
| 2003 09 22 | 699 | 1.3+ | 0.6+ | 2003 09 29 | 645 | 0.0 | 0.0 | 2008 07 02 | 691 | 0.1+ | 0.0 |
| 2003 09 22 | 699 | 0.1− | 0.1− | 2003 10 18 | 645 | 0.0 | 0.0 | 2008 07 02 | 691 | 0.2− | 0.1+ |
| 2003 09 22 | 699 | 0.1+ | 0.6+ | 2003 10 18 | 645 | 0.0 | 0.0 | 2008 07 02 | 691 | 0.1− | 0.3− |
| 2003 09 26 | 704 | (0.5+ | 2.6+) | 2003 10 19 | 645 | 0.0 | 0.0 | 2008 07 29 | G96 | 0.3+ | 0.1− |
| 2003 09 26 | 704 | 0.3+ | 0.5+ | 2003 10 19 | 645 | 0.0 | 0.0 | 2008 07 29 | G96 | 0.2+ | 0.2+ |
| 2003 09 26 | 704 | 0.4+ | 1.3+ | 2003 10 24 | 645 | 0.0 | 0.0 | 2008 07 29 | G96 | 0.2+ | 0.1− |
| 2003 09 26 | 645 | 0.1− | 0.1− | 2003 10 24 | 645 | 0.1+ | 0.1− | 2008 07 29 | G96 | 0.3+ | 0.1− |

**2003 SU$_{207}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 94.74793 | | | (2000.0) | | |
| $n$ | 0.18042600 | $\omega$ | 300.70777 | | +0.88601544 | +0.44607112 |
| $a$ | 3.1017251 | $\Omega$ | 33.28233 | | −0.30576057 | +0.76719551 |
| $e$ | 0.1071967 | $i$ | 13.32540 | | −0.34855002 | +0.46090303 |
| $P$ | 5.46 | $H$ | 15.1 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 26 | 704 | 0.6+ | 0.4− | 2003 10 21 | 704 | 0.4− | 0.5+ | 2003 10 28 | 704 | 0.5+ | 0.2− |
| 2003 09 26 | 704 | 0.8− | 0.3+ | 2003 10 21 | 704 | 0.0 | 0.8+ | 2003 10 28 | 704 | 0.1+ | 1.0− |
| 2003 09 26 | 704 | 0.4+ | 0.5+ | 2003 10 21 | 704 | 0.3− | 0.0 | 2003 10 28 | 704 | 0.1+ | 0.2− |
| 2003 09 27 | 691 | 0.0 | 0.0 | 2003 10 23 | 704 | 0.3+ | 0.3+ | 2003 10 28 | 608 | 1.1+ | 0.6− |
| 2003 09 27 | 691 | 0.2− | 0.0 | 2003 10 23 | 704 | 0.5+ | 0.4+ | 2003 10 28 | 608 | 0.7+ | 0.4− |
| 2003 09 27 | 691 | 0.1− | 0.1− | 2003 10 23 | 704 | 0.2+ | 0.3+ | 2003 10 28 | 608 | 0.3+ | 0.7− |
| 2003 10 14 | 699 | 0.5− | 0.9+ | 2003 10 23 | 704 | 0.6+ | 0.2− | 2003 11 16 | 291 | 0.2− | 0.2− |
| 2003 10 14 | 699 | 0.1+ | 1.6− | 2003 10 23 | 704 | 0.3+ | 0.0 | 2003 11 16 | 291 | 0.5− | 0.2− |
| 2003 10 14 | 699 | 0.5+ | 0.6− | 2003 10 23 | 608 | 0.1− | 1.2+ | 2003 11 16 | 291 | 0.5− | 0.2− |
| 2003 10 14 | 699 | 0.8− | 0.9+ | 2003 10 23 | 608 | 0.0 | 1.6+ | 2008 08 23 | E12 | 0.5+ | 0.0 |
| 2003 10 16 | 691 | 0.0 | 0.1− | 2003 10 23 | 608 | 0.2− | 1.6+ | 2008 08 23 | E12 | 0.6+ | 1.1− |
| 2003 10 16 | 691 | 0.1+ | 0.3− | 2003 10 24 | 704 | 0.6+ | 0.3− | 2008 08 23 | E12 | 0.7− | 0.5+ |
| 2003 10 16 | 691 | 0.0 | 0.3− | 2003 10 24 | 704 | 0.0 | 0.4+ | 2008 08 23 | E12 | 0.6− | 0.5− |
| 2003 10 21 | 699 | 0.4+ | 0.3− | 2003 10 24 | 704 | 0.5+ | 0.2+ | 2008 09 09 | E12 | 0.5+ | 0.7− |
| 2003 10 21 | 699 | 0.2− | 0.4+ | 2003 10 24 | 704 | 0.3+ | 0.6+ | 2008 09 09 | E12 | 0.4− | 0.6+ |
| 2003 10 21 | 699 | 0.1− | 0.2+ | 2003 10 24 | 704 | 0.9+ | 0.3− | 2008 09 09 | E12 | 0.2− | 0.0 |
| 2003 10 21 | 699 | 0.4− | 0.3− | 2003 10 28 | 704 | 0.2+ | 0.8+ | 2008 09 09 | E12 | 0.3+ | 1.3+ |

**2003 SY$_{207}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 244.00017 | | | (2000.0) | | |
| $n$ | 0.26161997 | $\omega$ | 179.61199 | | +0.97774339 | −0.20860083 |
| $a$ | 2.4211523 | $\Omega$ | 192.49674 | | +0.19221129 | +0.93349013 |
| $e$ | 0.1536545 | $i$ | 5.95256 | | +0.08409924 | +0.29168797 |
| $P$ | 3.77 | $H$ | 16.8 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 20 | 699 | 1.2− | 1.0+ | 2003 10 21 | 644 | 0.2+ | 0.2+ | 2003 11 24 | 691 | 0.1− | 0.0 |
| 2003 09 20 | 699 | (1.6− | 0.0 ) | 2003 10 21 | 704 | 0.1+ | 0.6+ | 2003 11 24 | 691 | 0.0 | 0.2+ |
| 2003 09 20 | 699 | 0.1− | 0.3+ | 2003 10 21 | 704 | 0.5− | 0.7+ | 2007 12 15 | 703 | 1.2− | 2.0+ |
| 2003 09 20 | 699 | 0.2+ | 0.1− | 2003 10 21 | 644 | 0.2+ | 0.1− | 2007 12 15 | 703 | 0.7− | 0.3− |
| 2003 09 26 | 704 | 0.4+ | 1.1+ | 2003 10 22 | 704 | 0.2− | 0.6+ | 2007 12 15 | 703 | 0.0 | 0.6− |
| 2003 09 26 | 704 | 0.6+ | 0.1− | 2003 10 22 | 704 | 0.0 | 0.0 | 2007 12 15 | 703 | 0.5− | 1.5− |
| 2003 09 26 | 704 | 0.4− | 0.5− | 2003 10 22 | 704 | 0.1− | 0.4+ | 2007 12 19 | G96 | 0.1− | 0.7− |
| 2003 09 26 | 704 | 0.2− | 0.6− | 2003 10 22 | 704 | 0.3+ | 0.1+ | 2007 12 19 | G96 | 0.5+ | 0.6− |
| 2003 09 27 | 691 | 0.2− | 0.0 | 2003 10 22 | 704 | 0.3+ | 0.7+ | 2007 12 19 | G96 | 0.4+ | 0.4− |
| 2003 09 27 | 691 | 0.1+ | 0.0 | 2003 10 24 | 704 | 1.1− | 0.0 | 2007 12 19 | G96 | 0.4+ | 0.4− |
| 2003 09 27 | 691 | 0.1− | 0.2+ | 2003 10 24 | 704 | 0.4− | 0.6+ | 2007 12 31 | 703 | 0.4+ | 0.1+ |
| 2003 09 28 | 333 | 0.7+ | 0.6− | 2003 10 24 | 704 | 1.1+ | 0.2− | 2007 12 31 | 703 | 0.6+ | 0.6+ |
| 2003 09 28 | 333 | 0.0 | 0.5− | 2003 10 24 | 704 | 0.4+ | 0.9− | 2007 12 31 | 703 | 1.3+ | 0.8− |
| 2003 09 28 | 333 | 1.0+ | 0.2− | 2003 10 24 | 704 | 0.5+ | 0.1− | 2007 12 31 | 703 | 0.6− | 1.3+ |
| 2003 09 29 | 704 | 0.2+ | 0.2− | 2003 11 16 | 703 | (0.5+ | 2.1+) | 2009 04 03 | G96 | 0.0 | 0.1+ |
| 2003 09 29 | 704 | 0.4+ | 0.4− | 2003 11 16 | 703 | 0.6− | 0.5+ | 2009 04 03 | G96 | 0.1+ | 0.3+ |
| 2003 09 29 | 704 | 0.8− | 1.1− | 2003 11 16 | 703 | 1.0− | 1.2− | 2009 04 03 | G96 | 0.2+ | 1.2+ |
| 2003 09 29 | 704 | 0.0 | 1.3− | 2003 11 16 | 703 | 0.0 | 0.1− | 2009 04 03 | G96 | 0.1+ | 0.5+ |
| 2003 10 21 | 644 | 0.0 | 0.0 | 2003 11 19 | 644 | 0.1− | 0.1− | 2009 04 28 | G96 | 0.3+ | 0.0 |
| 2003 10 21 | 704 | 0.4− | 0.3+ | 2003 11 19 | 644 | 0.1− | 0.2− | 2009 04 28 | G96 | 0.4− | 0.0 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 21 | 704 | 0.3+ | 0.8+ | 2003 11 19 | 644 | 0.2+ | 0.2+ | 2009 04 28 | G96 | 0.2+ | 0.3− |
| 2003 10 21 | 704 | 0.1+ | 0.5+ | 2003 11 24 | 691 | 0.1+ | 0.1+ | 2009 04 28 | G96 | 0.1+ | 0.1+ |

**2003 SX$_{217}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 305.20537 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28907482 | $\omega$ | 331.91430 | | +0.97030599 | −0.00032312 | |
| $a$ | 2.2653182 | $\Omega$ | 31.14126 | | +0.17942567 | +0.67158870 | |
| $e$ | 0.2126302 | $i$ | 27.88629 | | −0.16221193 | +0.74092410 | |
| $P$ | 3.41 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 17 | 704 | 0.4+ | 0.3− | 2003 10 19 | 704 | 0.2+ | 0.6+ | 2003 10 30 | 608 | 0.1+ | 1.6− |
| 2003 09 17 | 704 | 0.2− | 0.1+ | 2003 10 19 | 704 | 0.1− | 0.2+ | 2003 10 30 | 608 | 0.4− | 1.1− |
| 2003 09 17 | 704 | 0.1+ | 0.9+ | 2003 10 19 | 704 | 0.3− | 0.3− | 2003 11 21 | 704 | 0.2− | 1.3+ |
| 2003 09 17 | 704 | 0.3− | 0.6+ | 2003 10 19 | 704 | 0.9− | 0.3+ | 2003 11 21 | 704 | 0.1+ | 0.8− |
| 2003 09 28 | 608 | 0.4− | 1.0− | 2003 10 27 | 704 | 0.5+ | 0.1− | 2003 11 21 | 704 | 0.1+ | 0.2+ |
| 2003 09 28 | 608 | 0.7− | 1.0− | 2003 10 27 | 704 | 0.9+ | 1.3+ | 2003 11 21 | 704 | 0.7+ | 0.8+ |
| 2003 09 28 | 608 | 1.1− | 0.9− | 2003 10 27 | 704 | 0.2+ | 0.4+ | 2009 04 02 | 691 | 0.1+ | 0.1− |
| 2003 09 29 | 673 | 1.1+ | 0.5− | 2003 10 27 | 704 | 0.2− | 0.7+ | 2009 04 02 | 691 | 0.2+ | 0.4+ |
| 2003 09 29 | 673 | 0.3+ | 1.1+ | 2003 10 27 | 704 | 0.2+ | 0.3+ | 2009 04 02 | 691 | 0.4− | 0.0 |
| 2003 09 29 | 673 | 0.6+ | 1.1+ | 2003 10 29 | 699 | 0.0 | 0.9− | 2009 04 21 | G96 | 0.1+ | 0.4− |
| 2003 10 16 | 644 | 0.2+ | 0.0 | 2003 10 29 | 699 | 0.6− | 1.1+ | 2009 04 21 | G96 | 0.2+ | 0.4− |
| 2003 10 16 | 644 | 0.4+ | 0.1− | 2003 10 29 | 699 | 0.0 | 0.3− | 2009 04 21 | G96 | 0.1− | 0.3− |
| 2003 10 16 | 644 | 0.2+ | 0.0 | 2003 10 29 | 699 | 0.7− | 0.0 | 2009 04 21 | G96 | 0.0 | 0.1− |
| 2003 10 19 | 704 | 0.4+ | 0.2− | 2003 10 30 | 608 | 0.4− | 1.7− | | | | |

**2003 ST$_{219}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 274.34838 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27424113 | $\omega$ | 338.88283 | | +0.95675494 | −0.28159832 | |
| $a$ | 2.3462862 | $\Omega$ | 37.71612 | | +0.28105440 | +0.83016537 | |
| $e$ | 0.0967405 | $i$ | 6.84915 | | +0.07502275 | +0.48117340 | |
| $P$ | 3.59 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 26 | 704 | 0.3− | 0.3− | 2003 10 26 | 703 | 1.0− | 1.1+ | 2003 11 02 | 704 | 0.1+ | 0.4+ |
| 2003 09 26 | 704 | 1.0+ | 0.2− | 2003 10 26 | 703 | 0.9− | 1.6+ | 2003 11 02 | 704 | (2.1− | 0.2+) |
| 2003 09 26 | 704 | 0.2+ | 0.2+ | 2003 10 26 | 703 | 0.8− | 0.3+ | 2003 11 02 | 704 | 0.6+ | 0.1− |
| 2003 09 26 | 704 | 0.7+ | 0.2+ | 2003 10 28 | 704 | 0.0 | 0.6+ | 2003 11 18 | 644 | 0.5+ | 0.3+ |
| 2003 09 26 | 704 | 0.2− | 0.4+ | 2003 10 28 | 704 | 0.1− | 0.8+ | 2003 11 18 | 644 | 0.0 | 0.3+ |
| 2003 09 28 | 333 | 1.1− | 0.1− | 2003 10 28 | 704 | 0.3− | 0.5+ | 2003 11 18 | 644 | 0.2+ | 0.3+ |
| 2003 09 28 | 333 | 0.3− | 0.1+ | 2003 10 28 | 704 | 0.2− | 0.5+ | 2003 11 21 | 704 | 0.0 | 0.3+ |
| 2003 09 28 | 333 | 0.8− | 0.5+ | 2003 10 28 | 704 | 0.7− | 0.3+ | 2003 11 21 | 704 | 0.1− | 0.3+ |
| 2003 09 29 | 333 | 0.2+ | 0.5− | 2003 10 30 | 704 | 0.0 | 0.0 | 2003 11 21 | 704 | 0.8+ | 0.8+ |
| 2003 09 29 | 333 | 0.1− | 0.1+ | 2003 10 30 | 704 | 0.3− | 0.1− | 2003 11 21 | 704 | 0.2− | 0.3+ |
| 2003 09 29 | 333 | 0.1− | 0.2− | 2003 10 30 | 704 | 0.3− | 0.2− | 2003 11 21 | 704 | 0.2− | 0.3− |
| 2003 10 18 | 291 | 0.7− | 0.2− | 2003 10 30 | 704 | 0.0 | 0.6+ | 2003 11 28 | 691 | 0.0 | 0.1− |
| 2003 10 18 | 291 | 0.4− | 0.2− | 2003 11 01 | 704 | 0.8+ | 0.1+ | 2003 11 28 | 691 | 0.1+ | 0.1− |
| 2003 10 18 | 291 | 0.0 | 0.1+ | 2003 11 01 | 704 | 0.0 | 0.2− | 2003 11 28 | 691 | 0.2+ | 0.0 |
| 2003 10 21 | 704 | 0.4− | 0.2+ | 2003 11 01 | 704 | 1.0+ | 0.1+ | 2003 12 01 | 291 | 0.2− | 0.2+ |
| 2003 10 21 | 704 | 0.4+ | 1.0+ | 2003 11 01 | 704 | 0.1+ | 1.1− | 2003 12 01 | 291 | 0.0 | 0.1+ |
| 2003 10 21 | 704 | 0.3+ | 0.4+ | 2003 11 01 | 704 | 1.0+ | 0.6− | 2003 12 01 | 291 | 0.7+ | 0.1+ |
| 2003 10 21 | 704 | 0.3+ | 0.6− | 2003 11 01 | 704 | 0.0 | 0.6− | 2009 03 31 | 691 | 0.4+ | 0.9+ |
| 2003 10 23 | 699 | 0.5+ | 0.2+ | 2003 11 01 | 704 | 0.2+ | 0.6+ | 2009 03 31 | 691 | 0.2+ | 0.6+ |
| 2003 10 23 | 699 | 0.5− | 0.8+ | 2003 11 01 | 704 | 0.4+ | 0.6− | 2009 03 31 | 691 | 0.1+ | 0.3+ |
| 2003 10 23 | 699 | 0.4− | 0.0 | 2003 11 01 | 704 | 0.9+ | 0.8− | 2009 04 28 | G96 | 0.4+ | 0.2+ |
| 2003 10 23 | 699 | 0.1− | 0.3+ | 2003 11 01 | 704 | 0.8− | 0.0 | 2009 04 28 | G96 | 0.4+ | 0.1+ |
| 2003 10 26 | 703 | 0.7− | 0.8+ | 2003 11 02 | 704 | 0.9− | 1.6− | 2009 04 28 | G96 | 0.2− | 0.1+ |

**2003 SR$_{228}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 30.99108 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17073781 | $\omega$ | 9.34747 | | +0.99971684 | −0.01763418 | |
| $a$ | 3.2179769 | $\Omega$ | 351.61331 | | +0.00741997 | +0.86896837 | |
| $e$ | 0.0964872 | $i$ | 6.28895 | | +0.02260923 | +0.49455335 | |
| $P$ | 5.77 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 19 | 704 | 0.4− | 0.6− | 2003 09 28 | 291 | 0.1+ | 0.0 | 2009 09 22 | 691 | 0.1− | 0.1+ |
| 2003 09 19 | 704 | 0.3+ | 0.8− | 2003 10 23 | 645 | 0.0 | 0.0 | 2009 10 27 | G96 | 0.3+ | 0.2− |
| 2003 09 19 | 704 | 1.3− | 0.2+ | 2003 10 23 | 645 | 0.1− | 0.0 | 2009 10 27 | G96 | 0.7+ | 0.2+ |
| 2003 09 26 | 704 | 0.7− | 1.3+ | 2003 10 24 | 691 | 0.2+ | 0.3+ | 2009 10 27 | G96 | 0.2+ | 0.2− |
| 2003 09 26 | 704 | 0.9− | 0.3+ | 2003 10 24 | 691 | 0.3+ | 0.4− | 2009 10 27 | G96 | 0.3+ | 0.1− |
| 2003 09 26 | 704 | 1.1+ | 1.5+ | 2003 10 24 | 691 | 0.3+ | 0.2+ | 2009 12 18 | G96 | 0.2+ | 0.0 |
| 2003 09 26 | 645 | 0.0 | 0.1− | 2009 09 18 | 691 | 0.0 | 0.1+ | 2009 12 18 | G96 | 0.2+ | 0.1− |
| 2003 09 26 | 704 | 0.3− | 0.4− | 2009 09 18 | 691 | 0.3− | 0.4+ | 2009 12 18 | G96 | 0.3+ | 0.1+ |
| 2003 09 26 | 645 | 0.0 | 0.0 | 2009 09 18 | 691 | 0.5− | 0.3+ | 2009 12 18 | G96 | 0.2+ | 0.2− |
| 2003 09 28 | 291 | 0.1+ | 0.0 | 2009 09 22 | 691 | 0.3+ | 0.9− | | | | |
| 2003 09 28 | 291 | 0.1− | 0.1+ | 2009 09 22 | 691 | 0.1− | 0.4+ | | | | |

**2003 SN$_{238}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 68.48816 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17536090 | $\omega$ | 35.82741 | | +0.79315481 | +0.60668924 | |
| $a$ | 3.1611677 | $\Omega$ | 286.73552 | | −0.57090951 | +0.71024212 | |
| $e$ | 0.1795016 | $i$ | 3.18650 | | −0.21205608 | +0.35704944 | |
| $P$ | 5.62 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 08 23 | 599 | 0.1+ | 0.3− | 2003 09 27 | 704 | 1.6− | 0.4− | 2003 10 24 | 691 | 0.4+ | 0.1− |
| 2003 08 23 | 599 | 0.1+ | 0.5− | 2003 09 27 | 704 | 0.6− | 0.3− | 2009 10 22 | G96 | 0.5+ | 0.2+ |
| 2003 08 23 | 599 | 0.4+ | 0.4− | 2003 09 27 | 704 | 1.0− | 0.9− | 2009 10 22 | G96 | 0.1− | 0.2− |
| 2003 08 23 | 599 | 0.1+ | 0.3− | 2003 09 29 | 691 | 0.2+ | 0.2− | 2009 10 22 | G96 | 0.2− | 0.1+ |
| 2003 09 19 | 691 | 0.3− | 0.1+ | 2003 09 29 | 691 | 0.1+ | 0.0 | 2009 10 22 | G96 | 0.3+ | 0.1+ |
| 2003 09 19 | 691 | 0.1− | 0.2+ | 2003 09 29 | 691 | 0.2+ | 0.2− | 2009 11 20 | G96 | 0.4− | 0.2− |
| 2003 09 19 | 691 | 0.2− | 0.3+ | 2003 10 03 | 691 | 0.3+ | 0.3+ | 2009 11 20 | G96 | 0.0 | 0.0 |
| 2003 09 21 | 644 | 0.1+ | 0.1+ | 2003 10 03 | 691 | 0.1+ | 0.4+ | 2009 11 20 | G96 | 0.3− | 0.0 |
| 2003 09 21 | 644 | 0.2+ | 0.3+ | 2003 10 03 | 691 | 0.1+ | 0.3+ | 2009 11 20 | G96 | 0.1+ | 0.1+ |
| 2003 09 21 | 644 | 0.2+ | 0.2− | 2003 10 24 | 691 | 0.2+ | 0.1− | | | | |
| 2003 09 27 | 704 | 0.1+ | 0.3− | 2003 10 24 | 691 | 0.7− | 0.4− | | | | |

**2003 ST$_{292}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 297.81082 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28945230 | $\omega$ | 147.18692 | | +0.94935043 | −0.29223574 | |
| $a$ | 2.2633483 | $\Omega$ | 230.24454 | | +0.24607720 | +0.91996447 | |
| $e$ | 0.1336101 | $i$ | 8.63803 | | +0.19539644 | +0.26127313 | |
| $P$ | 3.41 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 21 | 704 | 0.5− | 0.5+ | 2003 10 17 | 699 | 0.2+ | 0.4+ | 2003 11 01 | 704 | 0.1− | 0.1− |
| 2003 09 21 | 704 | 0.1+ | 0.0 | 2003 10 17 | 699 | 0.1− | 0.2− | 2003 11 01 | 704 | 0.1− | 0.3+ |
| 2003 09 21 | 704 | 0.3+ | 0.3+ | 2003 10 17 | 699 | 0.5− | 0.4+ | 2003 11 20 | 704 | 1.2− | 0.2+ |
| 2003 09 25 | 608 | 0.1+ | 0.5− | 2003 10 17 | 699 | 0.4− | 0.0 | 2003 11 20 | 704 | 0.3+ | 0.4+ |
| 2003 09 25 | 608 | 0.0 | 0.3− | 2003 10 21 | 704 | 0.8− | 0.4+ | 2003 11 20 | 704 | 0.8− | 1.1+ |
| 2003 09 25 | 608 | 0.2− | 0.5− | 2003 10 21 | 704 | 0.5− | 0.3− | 2003 11 20 | 704 | (2.1− | 0.4+) |
| 2003 09 29 | 699 | 0.2− | 0.2+ | 2003 10 21 | 704 | 0.1− | 0.3− | 2003 12 25 | 291 | 0.3+ | 0.2− |
| 2003 09 29 | 699 | 0.1− | 0.2− | 2003 10 21 | 704 | 0.1+ | 0.2− | 2003 12 25 | 291 | 1.9+ | 0.2− |
| 2003 09 29 | 699 | 0.1+ | 0.3− | 2003 10 26 | 691 | 0.1− | 0.3− | 2003 12 25 | 291 | 1.3+ | 0.4− |
| 2003 09 29 | 699 | 0.7− | 0.5+ | 2003 10 26 | 691 | 0.1− | 0.2− | 2007 12 16 | 291 | 0.1− | 0.2+ |
| 2003 09 30 | 704 | 0.7+ | 0.6+ | 2003 10 26 | 691 | 0.1− | 0.0 | 2007 12 16 | 291 | 0.2− | 0.3+ |
| 2003 09 30 | 704 | 0.2+ | 0.1+ | 2003 10 30 | 704 | 0.5− | 0.3+ | 2007 12 16 | 291 | 0.1− | 0.0 |
| 2003 09 30 | 704 | 0.2+ | 0.3− | 2003 10 30 | 704 | 0.0 | 0.4+ | 2009 05 30 | G96 | 0.1− | 0.3− |
| 2003 10 14 | 644 | 0.2− | 0.0 | 2003 10 30 | 704 | 0.4+ | 0.3+ | 2009 05 30 | G96 | 0.6+ | 0.1− |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 14 | 644 | 0.1+ | 0.3+ | 2003 11 01 | 704 | 0.9− | 0.3− | 2009 05 30 | G96 | 0.6+ | 0.4− | | |
| 2003 10 14 | 644 | 0.1− | 0.1+ | 2003 11 01 | 704 | 1.8− | 0.5+ | | | | | | |

**2003 SR$_{296}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 69.60005 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18018225 | $\omega$ | 16.08043 | | +0.98874357 | +0.09638789 | |
| $a$ | 3.1045218 | $\Omega$ | 337.42229 | | −0.14732408 | +0.76066762 | |
| $e$ | 0.2097371 | $i$ | 17.34108 | | +0.02611086 | +0.64194559 | |
| $P$ | 5.47 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 19 | 644 | 0.1− | 0.3− | 2003 10 17 | 699 | 0.4+ | 0.9+ | 2008 08 04 | E12 | 0.4+ | 0.0 |
| 2003 09 19 | 644 | 0.1+ | 0.1+ | 2003 10 17 | 699 | 0.1− | 0.3− | 2008 08 23 | E12 | 0.1− | 0.5− |
| 2003 09 19 | 644 | 0.1− | 0.2+ | 2003 10 17 | 699 | 0.0 | 0.5− | 2008 08 23 | E12 | 0.4+ | 0.6+ |
| 2003 09 29 | 699 | 0.1− | 0.3− | 2003 10 22 | 704 | 0.9− | 0.1− | 2008 08 23 | E12 | 0.3+ | 0.8− |
| 2003 09 29 | 699 | 0.4+ | 1.2− | 2003 10 22 | 704 | 0.1+ | 0.3+ | 2008 08 23 | E12 | 0.1+ | 0.5+ |
| 2003 09 29 | 699 | 0.4− | 0.5− | 2003 10 22 | 704 | 0.3+ | 0.0 | 2008 10 21 | G96 | 0.7+ | 0.0 |
| 2003 09 29 | 699 | 0.3− | 0.5+ | 2003 10 22 | 704 | 0.8+ | 0.7+ | 2008 10 21 | G96 | 0.3− | 0.4+ |
| 2003 10 02 | 691 | 0.0 | 0.2+ | 2003 10 22 | 704 | 1.1+ | 0.3+ | 2008 10 21 | G96 | 0.3+ | 0.1− |
| 2003 10 02 | 691 | 0.0 | 0.2+ | 2008 08 04 | E12 | 0.8− | 0.2− | 2008 10 21 | G96 | 0.1− | 0.5− |
| 2003 10 02 | 691 | 0.1+ | 0.0 | 2008 08 04 | E12 | 0.5− | 0.3+ | | | | |
| 2003 10 17 | 699 | 1.5− | 1.4− | 2008 08 04 | E12 | 0.2− | 0.1+ | | | | |

**2003 SO$_{299}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 152.49239 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22539518 | $\omega$ | 80.18101 | | +0.84900028 | −0.50725593 | |
| $a$ | 2.6740712 | $\Omega$ | 310.13648 | | +0.37626756 | +0.77697399 | |
| $e$ | 0.3290772 | $i$ | 11.15861 | | +0.37097338 | +0.37283084 | |
| $P$ | 4.37 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 29 | 704 | 0.2+ | 0.0 | 2003 11 20 | 644 | 0.0 | 0.1− | 2003 12 17 | 704 | 1.4+ | 0.4− |
| 2003 09 29 | 704 | 1.1− | 0.3+ | 2003 11 20 | 644 | 0.1+ | 0.2− | 2003 12 17 | 704 | 0.4− | 0.0 |
| 2003 09 29 | 704 | 0.8− | 0.7+ | 2003 11 21 | 704 | 0.2− | 0.1+ | 2003 12 17 | 704 | 1.3− | 0.6+ |
| 2003 09 29 | 704 | 0.1− | 0.2+ | 2003 11 21 | 704 | 0.2+ | 0.3+ | 2003 12 17 | 704 | 0.6− | 1.1+ |
| 2003 09 29 | 704 | 0.7− | 0.3+ | 2003 11 21 | 704 | 0.1+ | 0.7− | 2009 01 20 | 691 | 0.0 | 0.2+ |
| 2003 10 02 | 704 | 0.0 | 0.7+ | 2003 11 21 | 704 | 0.3− | 0.3− | 2009 01 20 | 691 | 0.0 | 0.1− |
| 2003 10 02 | 704 | 0.2+ | 0.3+ | 2003 11 21 | 704 | 0.0 | 0.3+ | 2009 01 20 | 691 | 0.5+ | 0.1− |
| 2003 10 02 | 704 | 0.4+ | 0.6− | 2003 11 24 | 704 | 0.4+ | 0.2− | 2009 02 03 | 691 | 0.4− | 0.1+ |
| 2003 11 04 | 704 | 0.7+ | 1.0− | 2003 11 24 | 704 | 0.0 | 0.3− | 2009 02 03 | 691 | 0.3− | 0.1− |
| 2003 11 04 | 704 | 0.1+ | 0.6− | 2003 11 24 | 704 | 0.3+ | 0.0 | 2009 02 03 | 691 | 0.2+ | 0.2+ |
| 2003 11 04 | 704 | 1.1+ | 0.3− | 2003 11 24 | 704 | 0.1− | 0.2− | | | | |
| 2003 11 20 | 644 | 0.2+ | 0.3− | 2003 11 24 | 704 | 0.0 | 0.7+ | | | | |

**2003 SG$_{304}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 153.57681 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23160980 | $\omega$ | 346.10177 | | +0.74845470 | −0.65899169 | |
| $a$ | 2.6260204 | $\Omega$ | 55.37141 | | +0.61678107 | +0.65041619 | |
| $e$ | 0.2320557 | $i$ | 5.19237 | | +0.24371432 | +0.37774162 | |
| $P$ | 4.26 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 17 | 644 | 0.2− | 0.5+ | 2003 10 05 | 691 | 0.2+ | 0.5− | 2003 10 25 | 704 | 0.1+ | 0.3+ |
| 2003 09 17 | 644 | 0.4− | 0.5+ | 2003 10 15 | 699 | 0.4− | 0.2− | 2003 11 16 | 703 | 0.0 | 1.2+ |
| 2003 09 17 | 644 | 0.2− | 0.5+ | 2003 10 15 | 699 | 0.3− | 0.5− | 2003 11 16 | 703 | 0.6+ | 0.0 |
| 2003 09 17 | 644 | 0.0 | 0.4+ | 2003 10 15 | 699 | 0.6− | 0.0 | 2003 11 16 | 703 | 0.1+ | 1.2− |
| 2003 09 17 | 644 | 0.1− | 0.5+ | 2003 10 15 | 699 | 0.1− | 0.4− | 2003 11 16 | 703 | 1.1− | 0.4+ |
| 2003 09 17 | 644 | 0.1− | 0.7+ | 2003 10 20 | 704 | 0.7+ | 1.7+ | 2003 11 21 | 704 | 0.0 | 0.5− |
| 2003 09 20 | 699 | 0.2− | 0.2− | 2003 10 20 | 704 | 0.5+ | 0.2− | 2003 11 21 | 704 | 0.8+ | 0.1− |
| 2003 09 20 | 699 | 0.5+ | 0.0 | 2003 10 20 | 704 | 1.3− | 1.2+ | 2003 11 21 | 704 | 0.4+ | 0.8+ |
| 2003 09 20 | 699 | 0.2+ | 0.3− | 2003 10 20 | 704 | 1.0− | 1.3+ | 2003 11 21 | 704 | 0.8+ | 0.5+ |
| 2003 09 20 | 699 | 0.2− | 0.6+ | 2003 10 20 | 704 | 1.0− | 0.9− | 2003 11 21 | 704 | 0.3+ | 0.1− |
| 2003 09 28 | 704 | 0.4− | 0.5+ | 2003 10 23 | 691 | 0.1− | 0.3− | 2009 01 31 | G96 | 0.5+ | 0.0 |
| 2003 09 28 | 704 | 0.1− | 0.3+ | 2003 10 23 | 691 | 0.0 | 0.3− | 2009 01 31 | G96 | 0.3− | 0.4+ |
| 2003 09 28 | 704 | 0.5− | 0.7+ | 2003 10 23 | 691 | 0.1− | 0.3− | 2009 01 31 | G96 | 0.2− | 0.4+ |
| 2003 09 28 | 704 | 0.5+ | 1.0+ | 2003 10 25 | 704 | 0.3− | 0.2− | 2009 02 14 | J75 | 0.5+ | 0.7− |
| 2003 09 28 | 704 | 0.6+ | 0.5+ | 2003 10 25 | 704 | 0.4+ | 0.2+ | 2009 02 14 | J75 | 0.4− | 0.5+ |
| 2003 10 05 | 691 | 0.3+ | 0.5− | 2003 10 25 | 704 | 0.4+ | 0.3− | 2009 02 14 | J75 | 0.2+ | 0.1− |
| 2003 10 05 | 691 | 0.2+ | 0.4− | 2003 10 25 | 704 | 0.1− | 0.0 | | | | |

**2003 SE$_{308}$ = 2009 YE$_9$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 80.53634 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18749647 | $\omega$ | 80.66404 | | +0.89741103 | +0.41447361 | |
| $a$ | 3.0232494 | $\Omega$ | 254.72794 | | −0.44062383 | +0.82452426 | |
| $e$ | 0.1095124 | $i$ | 9.01815 | | −0.02245164 | +0.38519006 | |
| $P$ | 5.26 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 03 | 704 | 0.6+ | 1.2+ | 2004 12 14 | 691 | 0.0 | 0.1− | 2009 11 09 | 691 | 0.2+ | 0.1− |
| 2003 09 03 | 704 | 0.1+ | 0.8+ | 2008 07 01 | 691 | 0.5− | 0.3− | 2009 11 25 | 691 | 0.1+ | 0.2− |
| 2003 09 03 | 704 | 0.4− | 0.8+ | 2008 07 01 | 691 | 0.0 | 0.0 | 2009 11 25 | 691 | 0.1− | 0.1+ |
| 2003 09 18 | 699 | (0.2+ | 2.6+) | 2008 07 01 | 691 | 0.1+ | 0.9+ | 2009 11 25 | 691 | 0.1+ | 0.2− |
| 2003 09 18 | 699 | 0.3− | 1.1− | 2008 11 01 | G96 | 0.4+ | 0.9− | 2009 12 17 | G96 | 0.5+ | 0.2+ |
| 2003 09 18 | 699 | 0.7+ | 0.1− | 2008 11 01 | G96 | 0.6+ | 0.1− | 2009 12 17 | G96 | 0.9+ | 0.2− |
| 2003 09 18 | 699 | (0.3+ | 1.8−) | 2008 11 01 | G96 | 0.0 | 0.9− | 2009 12 17 | G96 | 0.5+ | 0.0 |
| 2003 09 28 | 691 | 0.1− | 0.2− | 2008 11 01 | G96 | 0.6+ | 0.1− | 2009 12 17 | G96 | 0.1+ | 0.0 |
| 2003 09 28 | 691 | 0.2− | 0.3− | 2009 08 20 | 291 | 0.1+ | 0.4+ | 2009 12 19 | 691 | 0.1+ | 0.4+ |
| 2003 09 28 | 691 | 0.1+ | 0.2− | 2009 08 20 | 291 | 0.3− | 0.0 | 2009 12 19 | 691 | 0.1− | 0.2+ |
| 2003 09 30 | 699 | 0.2− | 0.3− | 2009 08 20 | 291 | 0.5− | 0.3+ | 2009 12 19 | 691 | 1.2− | 0.0 |
| 2003 09 30 | 699 | 0.1− | 0.8+ | 2009 10 26 | 691 | 0.1+ | 0.1+ | 2009 12 19 | G96 | 0.7+ | 0.1+ |
| 2003 09 30 | 699 | 1.0+ | 0.3+ | 2009 10 26 | 691 | 0.1+ | 0.2+ | 2009 12 19 | G96 | 0.3+ | 0.1− |
| 2003 09 30 | 699 | 0.1+ | 0.3− | 2009 10 26 | 691 | 0.0 | 0.0 | 2009 12 19 | G96 | 0.3+ | 0.2− |
| 2004 12 14 | 691 | 0.0 | 0.1+ | 2009 11 09 | 691 | 0.4+ | 0.4− | 2009 12 19 | G96 | 0.2+ | 0.1− |
| 2004 12 14 | 691 | 0.0 | 0.2+ | 2009 11 09 | 691 | 0.0 | 0.1− | | | | |

**2003 ST$_{324}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 69.29737 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17245771 | $\omega$ | 320.19124 | | +0.65480278 | +0.75571708 | |
| $a$ | 3.1965461 | $\Omega$ | 350.69467 | | −0.67463152 | +0.57774725 | |
| $e$ | 0.1830952 | $i$ | 3.96523 | | −0.34074277 | +0.30838258 | |
| $P$ | 5.72 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 17 | 691 | 0.2+ | 0.6+ | 2003 09 28 | 645 | 0.0 | 0.2− | 2007 04 16 | G96 | 0.1+ | 0.2+ |
| 2003 09 17 | 691 | 0.3+ | 0.5+ | 2003 09 29 | 691 | 0.1− | 0.1+ | 2007 04 16 | G96 | 0.6− | 0.2− |
| 2003 09 17 | 691 | 0.2+ | 0.2+ | 2003 09 29 | 691 | 0.0 | 0.3+ | 2009 09 20 | 691 | 0.0 | 0.1− |
| 2003 09 22 | 699 | (0.2+ | 1.9+) | 2003 09 29 | 691 | 0.1− | 0.2+ | 2009 09 20 | 691 | 0.1− | 0.3+ |
| 2003 09 22 | 699 | 1.1− | 0.3+ | 2003 11 16 | 645 | 0.1+ | 0.1− | 2009 09 20 | 691 | 0.2− | 0.0 |
| 2003 09 22 | 699 | 0.4+ | 0.8− | 2003 11 16 | 645 | 0.1+ | 0.0 | 2009 09 28 | 691 | 0.1+ | 0.3+ |
| 2003 09 22 | 699 | 0.1+ | 0.1+ | 2007 03 26 | G96 | 0.1+ | 0.0 | 2009 09 28 | 691 | 0.7− | 0.1− |
| 2003 09 25 | 568 | 0.4− | 0.4+ | 2007 03 26 | G96 | 0.1− | 0.1− | 2009 09 28 | 691 | 0.2+ | 0.3+ |
| 2003 09 27 | 568 | 0.3− | 0.6− | 2007 03 26 | G96 | 0.3− | 0.4+ | 2009 10 14 | G96 | 0.7+ | 0.2+ |
| 2003 09 27 | 568 | 0.3− | 0.6− | 2007 03 26 | G96 | 0.0 | 0.4− | 2009 10 14 | G96 | 0.4+ | 0.2− |
| 2003 09 27 | 568 | 0.3− | 0.4− | 2007 04 16 | G96 | 1.1+ | 0.5+ | 2009 10 14 | G96 | 0.2+ | 0.5− |
| 2003 09 28 | 645 | 0.1− | 0.1− | 2007 04 16 | G96 | 0.1− | 0.0 | 2009 10 14 | G96 | 0.6+ | 0.1+ |

**2003 SY$_{335}$ = 2009 XW$_1$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 35.61740 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18035281 | $\omega$ | 310.38013 | | +0.66952386 | −0.72424816 | |
| $a$ | 3.1025642 | $\Omega$ | 96.77384 | | +0.72186548 | +0.58208762 | |
| $e$ | 0.1743202 | $i$ | 9.56061 | | +0.17506577 | +0.36964658 | |
| $P$ | 5.46 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 26 | 645 | 0.0 | 0.0 | 2003 10 27 | 699 | 0.1+ | 0.1+ | 2009 12 11 | J47 | 0.3− | 0.8− |
| 2003 09 26 | 645 | 0.0 | 0.0 | 2003 10 27 | 699 | 0.4− | 0.5− | 2009 12 11 | J47 | 0.1− | 0.1− |
| 2003 09 27 | 645 | 0.0 | 0.0 | 2003 10 27 | 699 | 0.0 | 0.7+ | 2009 12 17 | J47 | 0.4+ | 1.1+ |
| 2003 09 27 | 645 | 0.0 | 0.0 | 2003 10 27 | 699 | 0.6+ | 0.5+ | 2009 12 17 | J47 | 0.2+ | 0.5+ |
| 2003 09 30 | 645 | 0.0 | 0.0 | 2009 12 09 | J47 | 0.5− | 0.5− | 2009 12 17 | J47 | 0.3+ | 0.7− |
| 2003 09 30 | 645 | 0.0 | 0.0 | 2009 12 09 | J47 | 0.4− | 0.8+ | 2009 12 19 | J47 | 0.1+ | 0.4− |
| 2003 10 22 | 645 | 0.0 | 0.0 | 2009 12 09 | J47 | 0.7+ | 0.4+ | 2009 12 19 | J47 | 0.0 | 0.5− |
| 2003 10 22 | 645 | 0.0 | 0.0 | 2009 12 11 | J47 | 0.5− | 0.1+ | 2009 12 19 | J47 | 0.1+ | 0.2+ |

**2003 SC$_{338}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 117.17549 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21151540 | $\omega$ | 354.18871 | | +0.97748429 | −0.19438445 | |
| $a$ | 2.7898106 | $\Omega$ | 17.67786 | | +0.20284855 | +0.75851117 | |
| $e$ | 0.2232477 | $i$ | 15.68441 | | +0.05811134 | +0.62199316 | |
| $P$ | 4.66 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 08 22 | 644 | 0.0 | 0.5+ | 2003 09 24 | 644 | 0.3+ | 0.5− | 2008 10 07 | 703 | 0.4− | 0.3+ |
| 2003 08 22 | 644 | 0.2− | 0.4+ | 2003 09 28 | 608 | 0.1+ | 0.4+ | 2008 10 07 | 703 | 1.1+ | 0.3− |
| 2003 08 22 | 644 | 0.1− | 0.4+ | 2003 09 28 | 608 | 0.3− | 0.1+ | 2008 10 07 | 703 | 0.7+ | 0.5+ |
| 2003 09 17 | 704 | 0.6− | 0.7− | 2003 09 28 | 608 | 0.0 | 0.0 | 2008 10 07 | 703 | 1.0− | 0.6− |
| 2003 09 17 | 704 | 0.0 | 0.3+ | 2003 10 16 | 699 | 0.1+ | 0.2+ | 2008 10 30 | 703 | 0.4− | 0.6+ |
| 2003 09 17 | 704 | 0.8− | 0.8− | 2003 10 16 | 699 | 1.5+ | 0.2+ | 2008 10 30 | 703 | 0.4− | 0.2− |
| 2003 09 24 | 644 | 0.0 | 0.6− | 2003 10 16 | 699 | 1.3+ | 0.4− | 2008 10 30 | 703 | 0.3− | 0.4− |
| 2003 09 24 | 644 | 0.0 | 0.4− | 2003 10 16 | 699 | 1.2− | 1.0+ | 2008 10 30 | 703 | 0.6+ | 0.4+ |

**2003 SY$_{399}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 128.91381 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18354251 | $\omega$ | 228.37802 | | +0.62269464 | +0.75079149 | |
| $a$ | 3.0665139 | $\Omega$ | 81.50939 | | −0.63518904 | +0.64949503 | |
| $e$ | 0.0774855 | $i$ | 12.87433 | | −0.45693136 | +0.12028439 | |
| $P$ | 5.37 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 26 | 645 | 0.0 | 0.0 | 2003 10 24 | 645 | 0.0 | 0.0 | 2009 11 24 | 691 | 0.3− | 0.2+ |
| 2003 09 26 | 645 | 0.0 | 0.0 | 2003 11 20 | 645 | 0.0 | 0.0 | 2009 11 24 | 691 | 0.3+ | 0.1+ |
| 2003 09 28 | 645 | 0.0 | 0.0 | 2003 11 20 | 645 | 0.0 | 0.0 | 2009 12 10 | G96 | 0.2+ | 0.7− |
| 2003 09 28 | 645 | 0.1− | 0.1− | 2004 12 19 | 691 | 0.1− | 0.0 | 2009 12 10 | G96 | 0.3+ | 0.0 |
| 2003 10 22 | 645 | 0.0 | 0.0 | 2004 12 19 | 691 | 0.1− | 0.5+ | 2009 12 10 | G96 | 0.2+ | 0.7− |
| 2003 10 22 | 645 | 0.1+ | 0.0 | 2004 12 19 | 691 | 0.2+ | 0.4− | | | | |
| 2003 10 24 | 645 | 0.1+ | 0.1+ | 2009 11 24 | 691 | 0.2− | 0.1− | | | | |

**2003 SB$_{430}$ = 2003 SY$_{9}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 24.47914 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17091587 | $\omega$ | 13.94469 | | +0.96404523 | −0.26554826 | |
| $a$ | 3.2157414 | $\Omega$ | 1.56528 | | +0.19460009 | +0.67972312 | |
| $e$ | 0.0379488 | $i$ | 21.57706 | | +0.18096296 | +0.68371091 | |
| $P$ | 5.77 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 17 | 691 | 0.2+ | 0.0 | 2003 09 18 | 644 | 0.1+ | 0.3+ | 2003 10 19 | 644 | 0.2+ | 0.3+ |
| 2003 09 17 | 691 | 0.0 | 0.1+ | 2003 09 18 | 644 | 0.1+ | 0.2+ | 2009 09 30 | G96 | 0.2+ | 0.1− |
| 2003 09 17 | 691 | 0.1+ | 0.3− | 2003 09 29 | 691 | 0.1− | 0.1− | 2009 09 30 | G96 | 0.4+ | 0.1+ |
| 2003 09 17 | 691 | 0.1− | 0.1− | 2003 09 29 | 691 | 0.3− | 0.0 | 2009 09 30 | G96 | 0.1+ | 0.3− |
| 2003 09 17 | 691 | 0.1+ | 0.6+ | 2003 09 29 | 691 | 0.3− | 0.2− | 2009 09 30 | G96 | 0.2+ | 0.1− |
| 2003 09 17 | 691 | 0.4+ | 0.1− | 2003 10 18 | 691 | 0.4+ | 0.2− | 2009 10 16 | 703 | 0.2− | 0.4− |
| 2003 09 18 | 291 | 0.2− | 0.1+ | 2003 10 18 | 691 | 0.1− | 0.0 | 2009 10 16 | 703 | 0.6− | 1.9− |
| 2003 09 18 | 291 | 0.0 | 0.0 | 2003 10 18 | 691 | 0.2− | 0.1− | 2009 10 16 | 703 | 0.3− | 1.9+ |
| 2003 09 18 | 644 | 0.0 | 0.1+ | 2003 10 19 | 644 | 0.1+ | 0.1+ | 2009 10 16 | 703 | 0.2+ | 0.8+ |
| 2003 09 18 | 291 | 0.0 | 0.1− | 2003 10 19 | 644 | 0.0 | 0.2+ | | | | |

**2003 SK$_{433}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 241.10013 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17416595 | $\omega$ | 141.43022 | | −0.97400354 | −0.15571536 | |
| $a$ | 3.1756104 | $\Omega$ | 30.83940 | | +0.01783322 | −0.77674469 | |
| $e$ | 0.0406634 | $i$ | 18.72032 | | +0.22582977 | −0.61026258 | |
| $P$ | 5.66 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 28 | 645 | 0.0 | 0.0 | 2003 10 24 | 645 | 0.1+ | 0.0 | 2009 09 21 | G96 | 1.0+ | 0.1+ |
| 2003 09 28 | 645 | 0.0 | 0.0 | 2003 11 20 | 645 | 0.0 | 0.0 | 2009 09 21 | G96 | 0.1+ | 0.2+ |
| 2003 10 22 | 645 | 0.0 | 0.0 | 2003 11 20 | 645 | 0.0 | 0.0 | 2009 10 25 | 691 | 0.1+ | 0.1− |
| 2003 10 22 | 645 | 0.0 | 0.0 | 2009 09 21 | G96 | 0.7+ | 0.1− | 2009 10 25 | 691 | 0.2− | 0.1− |
| 2003 10 24 | 645 | 0.0 | 0.0 | 2009 09 21 | G96 | 0.3+ | 0.0 | 2009 10 25 | 691 | 0.4− | 0.1+ |

**2003 SO$_{433}$ = 2009 WM$_{207}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 94.11315 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18629280 | $\omega$ | 69.65135 | | +0.78599926 | +0.60417548 | |
| $a$ | 3.0362580 | $\Omega$ | 252.95311 | | −0.60594513 | +0.71082597 | |
| $e$ | 0.1415280 | $i$ | 7.87917 | | −0.12261996 | +0.36013669 | |
| $P$ | 5.29 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 06 18 | 291 | 0.0 | 0.2+ | 2003 10 22 | 691 | 0.4+ | 0.2− | 2009 11 09 | G96 | 0.4+ | 0.5− |
| 2002 06 18 | 291 | 0.2+ | 0.2− | 2009 10 17 | G96 | 0.3+ | 0.4− | 2009 11 17 | 691 | 0.4− | 0.0 |
| 2002 06 18 | 291 | 0.2− | 0.1− | 2009 10 17 | G96 | 0.3+ | 0.3− | 2009 11 17 | 691 | 0.1+ | 0.2+ |
| 2003 09 30 | 691 | 0.2+ | 0.4− | 2009 10 17 | G96 | 0.9+ | 0.4− | 2009 11 17 | 691 | 0.6− | 0.3− |
| 2003 09 30 | 691 | 0.3+ | 0.3− | 2009 10 17 | G96 | 0.9+ | 0.9− | 2009 11 25 | 691 | 0.1+ | 0.1− |
| 2003 09 30 | 691 | 0.2+ | 0.4− | 2009 11 09 | 691 | 0.1+ | 0.5+ | 2009 11 25 | 691 | 1.0− | 0.2− |
| 2003 10 02 | 291 | 0.2− | 0.8+ | 2009 11 09 | 691 | 0.3+ | 0.0 | 2009 11 25 | 691 | 0.1+ | 0.1+ |
| 2003 10 02 | 291 | 0.2− | 0.6+ | 2009 11 09 | 691 | 0.3− | 0.4+ | 2009 12 16 | G96 | 0.5+ | 0.3+ |
| 2003 10 02 | 291 | 0.4− | 0.5+ | 2009 11 09 | G96 | 0.8+ | 0.6− | 2009 12 16 | G96 | 0.2+ | 0.5− |
| 2003 10 22 | 691 | 0.2− | 0.3− | 2009 11 09 | G96 | 0.5+ | 0.3+ | 2009 12 16 | G96 | 0.5+ | 0.1− |
| 2003 10 22 | 691 | 0.1− | 0.2− | 2009 11 09 | G96 | 0.7+ | 0.3+ | 2009 12 16 | G96 | 0.7+ | 0.1+ |

**2003 TB$_{3}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 48.37266 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17309183 | $\omega$ | 140.32062 | | +0.95908817 | −0.20210743 | |
| $a$ | 3.1887343 | $\Omega$ | 232.47564 | | +0.15104948 | +0.95756699 | |
| $e$ | 0.2119610 | $i$ | 14.47564 | | +0.23944504 | +0.20547031 | |
| $P$ | 5.69 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 01 | 291 | 0.3− | 0.2− | 2003 10 30 | 704 | 0.5− | 0.7+ | 2003 11 20 | 704 | (0.2− | 2.1+) |
| 2003 10 01 | 291 | 0.2+ | 0.1− | 2003 10 30 | 704 | 0.4− | 0.2− | 2003 11 20 | 704 | 0.0 | 2.0+ |
| 2003 10 01 | 291 | 0.1− | 0.1− | 2003 10 30 | 704 | 0.3− | 0.7+ | 2003 11 20 | 704 | 0.7+ | 1.6+ |
| 2003 10 02 | 291 | 0.2+ | 0.2+ | 2003 11 02 | 704 | 0.1+ | 0.6− | 2003 11 21 | 704 | 0.4− | 0.4+ |
| 2003 10 02 | 291 | 0.1+ | 0.1+ | 2003 11 02 | 704 | 0.4− | 0.2− | 2003 11 21 | 704 | 0.4+ | 0.6+ |
| 2003 10 02 | 291 | 0.0 | 0.1+ | 2003 11 02 | 704 | 1.0+ | 0.4+ | 2003 11 21 | 691 | 0.2+ | 0.0 |
| 2003 10 02 | 291 | 0.1+ | 0.1+ | 2003 11 02 | 704 | 0.4− | 0.1+ | 2003 11 21 | 704 | 0.3+ | 0.0 |
| 2003 10 02 | 291 | 0.1− | 0.2+ | 2003 11 02 | 704 | 0.8− | 0.0 | 2003 11 21 | 704 | 0.5− | 0.1+ |
| 2003 10 02 | 291 | 0.1+ | 0.1+ | 2003 11 18 | 644 | 0.1+ | 0.1+ | 2003 11 21 | 691 | 0.2+ | 0.1− |
| 2003 10 23 | 699 | 0.0 | 0.4+ | 2003 11 18 | 644 | 0.1− | 0.1− | 2003 11 21 | 704 | 0.2+ | 0.5+ |
| 2003 10 23 | 699 | 0.2− | 0.1− | 2003 11 18 | 644 | 0.1+ | 0.1− | 2003 11 21 | 691 | 0.1+ | 0.1− |
| 2003 10 23 | 699 | 0.1− | 0.3− | 2003 11 19 | 699 | 0.4− | 0.3− | 2003 11 30 | 691 | 0.1− | 0.2− |
| 2003 10 23 | 699 | 0.4− | 0.7− | 2003 11 19 | 699 | 0.8+ | 0.1+ | 2003 11 30 | 691 | 0.0 | 0.3− |
| 2003 10 25 | 704 | 0.0 | 1.4− | 2003 11 19 | 699 | 1.1− | 0.2− | 2003 11 30 | 691 | 0.1− | 0.2− |
| 2003 10 25 | 704 | 0.3− | 1.2− | 2003 11 19 | 699 | 0.9+ | 0.0 | 2009 11 27 | G96 | 0.0 | 0.1− |
| 2003 10 25 | 704 | 0.5− | 0.6− | 2003 11 19 | 699 | 0.1− | 0.3+ | 2009 11 27 | G96 | 0.1− | 0.1− |
| 2003 10 25 | 704 | 0.3− | 1.4− | 2003 11 19 | 699 | 0.2+ | 0.3+ | 2009 11 27 | G96 | 0.0 | 0.2+ |
| 2003 10 25 | 704 | 0.2− | 1.4− | 2003 11 19 | 699 | 0.4+ | 0.1+ | 2009 11 27 | G96 | 0.1+ | 0.0 |
| 2003 10 30 | 704 | 0.5+ | 1.1+ | 2003 11 19 | 699 | 0.1− | 0.5+ | 2009 11 27 | G96 | 0.0 | 0.1+ |

**2003 UT$_4$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 284.96504 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28315862 | $\omega$ | 331.86597 | | +0.97984644 | −0.02767095 | |
| $a$ | 2.2967631 | $\Omega$ | 31.67648 | | +0.15447531 | +0.73285376 | |
| $e$ | 0.2686793 | $i$ | 22.13093 | | −0.12664251 | +0.67982327 | |
| $P$ | 3.48 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 27 | 645 | 0.0 | 0.0 | 2003 10 17 | 704 | 0.3− | 0.8− | 2003 11 22 | 608 | 0.0 | 0.1+ |
| 2000 11 27 | 645 | 0.0 | 0.0 | 2003 10 18 | 704 | 0.3+ | 0.3− | 2003 11 22 | 608 | 0.1+ | 0.1+ |
| 2003 09 26 | 644 | 0.1+ | 0.4+ | 2003 10 18 | 704 | 0.2− | 0.1− | 2003 11 22 | 608 | 0.4+ | 0.0 |
| 2003 09 26 | 644 | 0.1− | 0.3+ | 2003 10 18 | 704 | 0.1+ | 0.2+ | 2003 12 27 | 704 | 0.3− | 1.1+ |
| 2003 09 26 | 644 | 0.0 | 0.5+ | 2003 10 18 | 704 | 0.0 | 0.1− | 2003 12 27 | 704 | 0.1− | 0.1− |
| 2003 09 28 | 699 | 0.0 | 0.2+ | 2003 10 18 | 704 | 0.3+ | 0.4+ | 2003 12 27 | 704 | 0.9− | 0.4+ |
| 2003 09 28 | 699 | 0.3− | 0.2− | 2003 11 18 | 699 | 0.7− | 1.0− | 2003 12 27 | 704 | 0.3− | 0.1− |
| 2003 09 28 | 699 | 0.5− | 0.5+ | 2003 11 18 | 699 | 0.3− | 0.6+ | 2009 05 15 | G96 | 0.2+ | 0.5+ |
| 2003 09 28 | 699 | 0.3+ | 0.0 | 2003 11 18 | 699 | 0.5+ | 0.6− | 2009 05 15 | G96 | 0.2− | 0.1+ |
| 2003 10 17 | 704 | 0.4− | 0.3− | 2003 11 18 | 699 | 0.3− | 0.0 | 2009 05 15 | G96 | 0.5+ | 0.5− |
| 2003 10 17 | 704 | 0.0 | 0.6− | 2003 11 22 | 704 | 0.1+ | 0.5+ | 2009 05 15 | G96 | 0.5− | 0.0 |
| 2003 10 17 | 704 | 0.1+ | 0.5− | 2003 11 22 | 704 | 1.2+ | 1.0+ | | | | |
| 2003 10 17 | 704 | 0.2+ | 0.1− | 2003 11 22 | 704 | 0.3+ | 0.6− | | | | |

**2003 UW$_{16}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 85.92536 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18986869 | $\omega$ | 85.86388 | | +0.98563988 | +0.01450121 | |
| $a$ | 2.9980151 | $\Omega$ | 273.24623 | | −0.08184423 | +0.91248331 | |
| $e$ | 0.1730150 | $i$ | 9.70106 | | +0.14770089 | +0.40885685 | |
| $P$ | 5.19 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 16 | 644 | 0.2− | 0.2− | 2003 10 16 | 599 | 0.4+ | 0.5+ | 2008 09 09 | 703 | 0.7− | 0.5+ |
| 2003 09 16 | 644 | 0.2− | 0.1− | 2003 10 16 | 599 | 1.3− | 0.2+ | 2008 09 09 | 703 | 0.5+ | 0.6+ |
| 2003 09 16 | 644 | 0.1− | 0.1+ | 2003 10 16 | 599 | 1.2+ | 0.8− | 2008 09 09 | 703 | 0.3+ | 0.2− |
| 2003 09 21 | 644 | 0.0 | 0.1− | 2003 10 17 | 699 | 0.1− | 0.2+ | 2008 09 09 | 703 | 0.8+ | 0.2+ |
| 2003 09 21 | 644 | 0.1− | 0.1− | 2003 10 17 | 699 | 0.5+ | 0.5+ | 2008 10 06 | 703 | 0.0 | 0.4+ |
| 2003 09 21 | 644 | 0.0 | 0.2− | 2003 10 17 | 699 | 1.5− | 0.5+ | 2008 10 06 | 703 | 0.6+ | 0.1+ |
| 2003 09 29 | 699 | 1.0+ | 0.7− | 2003 10 17 | 699 | 0.5− | 0.2+ | 2008 10 06 | 703 | 0.0 | 0.3− |
| 2003 09 29 | 699 | 0.1+ | 0.3+ | 2008 08 26 | J75 | 0.2+ | 0.1+ | 2008 10 06 | 703 | 0.7− | 0.3− |
| 2003 09 29 | 699 | 0.7+ | 0.5− | 2008 08 26 | J75 | 0.4− | 0.3− | | | | |
| 2003 09 29 | 699 | 0.0 | 0.2− | 2008 08 26 | J75 | 0.8− | 0.5− | | | | |

**2003 UH$_{25}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 63.14783 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17896431 | $\omega$ | 14.06418 | | +0.98174780 | +0.12733534 | |
| $a$ | 3.1185910 | $\Omega$ | 337.12800 | | −0.18966867 | +0.71033680 | |
| $e$ | 0.2400520 | $i$ | 21.31312 | | +0.01403751 | +0.69224803 | |
| $P$ | 5.51 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 19 | 644 | 0.0 | 0.1− | 2003 10 19 | 644 | 0.0 | 0.2+ | 2003 10 24 | 446 | 0.1− | 0.2− |
| 2003 09 19 | 644 | 0.0 | 0.2− | 2003 10 19 | 644 | 0.0 | 0.1+ | 2003 10 28 | 446 | 0.2+ | 0.7− |
| 2003 09 19 | 644 | 0.1+ | 0.1− | 2003 10 19 | 699 | 0.6− | 0.1− | 2003 10 28 | 446 | 0.2+ | 0.7− |
| 2003 09 29 | 699 | 0.4− | 0.0 | 2003 10 19 | 699 | 0.5+ | 0.1+ | 2003 10 28 | 446 | 0.1+ | 0.2− |
| 2003 09 29 | 699 | 0.4+ | 1.3− | 2003 10 19 | 699 | 0.2+ | 0.7− | 2003 10 29 | 446 | 0.4− | 0.7− |
| 2003 09 29 | 699 | 0.2− | 0.3+ | 2003 10 19 | 699 | 0.7− | 0.0 | 2003 11 20 | 446 | 0.5− | 1.2+ |
| 2003 09 29 | 699 | 0.6− | 0.6+ | 2003 10 22 | 446 | 0.7− | 0.3− | 2003 11 20 | 446 | 0.0 | 0.4− |
| 2003 10 05 | 704 | 0.5+ | 0.7+ | 2003 10 22 | 446 | 0.2− | 0.5− | 2008 08 03 | E12 | 0.3+ | 0.2+ |
| 2003 10 05 | 704 | 1.4+ | 0.8+ | 2003 10 22 | 699 | 0.5− | 0.3+ | 2008 08 03 | E12 | 0.1+ | 0.1+ |
| 2003 10 05 | 704 | 1.5+ | 0.5+ | 2003 10 22 | 446 | 0.1− | 0.1+ | 2008 08 03 | E12 | 0.5+ | 0.4− |
| 2003 10 05 | 704 | 0.6+ | 0.2+ | 2003 10 22 | 699 | 0.1− | 0.4− | 2008 08 03 | E12 | 0.3− | 0.0 |
| 2003 10 18 | 644 | 0.0 | 0.2+ | 2003 10 22 | 699 | 0.1− | 0.4+ | 2008 08 26 | E12 | 0.3− | 0.2− |
| 2003 10 18 | 644 | 0.0 | 0.1+ | 2003 10 22 | 699 | 0.2+ | 0.4+ | 2008 08 26 | E12 | 0.7− | 0.3+ |
| 2003 10 18 | 644 | 0.1− | 0.3+ | 2003 10 24 | 446 | 0.4− | 0.6− | 2008 08 26 | E12 | 0.3+ | 0.2− |
| 2003 10 19 | 644 | 0.1+ | 0.2+ | 2003 10 24 | 446 | 0.1− | 0.0 | 2008 08 26 | E12 | 0.1− | 0.3+ |

**2003 UF$_{49}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 47.47249 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17831534 | $\omega$ | 311.56217 | | +0.84551073 | −0.53106411 | |
| $a$ | 3.1261532 | $\Omega$ | 80.58538 | | +0.50512171 | +0.76180469 | |
| $e$ | 0.2169846 | $i$ | 3.22622 | | +0.17310015 | +0.37097779 | |
| $P$ | 5.53 | $H$ | 15.3 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 16 | 699 | 0.1+ | 1.4− | 2003 10 28 | 704 | 0.3− | 0.1+ | 2003 11 21 | 699 | 0.3− | 0.2− |
| 2003 10 16 | 699 | 0.3+ | 0.2+ | 2003 10 28 | 704 | 0.3− | 0.1+ | 2003 11 21 | 699 | 0.5+ | 1.1− |
| 2003 10 16 | 699 | 0.4+ | 0.2− | 2003 11 01 | 704 | 0.4− | 0.9+ | 2003 11 30 | 703 | 1.1+ | 0.4− |
| 2003 10 16 | 699 | 0.5− | 0.5+ | 2003 11 01 | 704 | 0.6+ | 0.5+ | 2003 11 30 | 703 | 0.3− | 1.9− |
| 2003 10 19 | 608 | 0.7− | 1.0− | 2003 11 01 | 704 | 0.4+ | 0.8+ | 2003 11 30 | 703 | 0.2+ | 0.9+ |
| 2003 10 19 | 608 | 0.8− | 1.1− | 2003 11 01 | 704 | 0.1− | 0.6+ | 2003 11 30 | 703 | 1.5− | 0.5+ |
| 2003 10 19 | 608 | 0.6− | 0.9− | 2003 11 01 | 704 | 0.1− | 0.3+ | 2003 12 01 | 704 | 0.1+ | 0.2− |
| 2003 10 21 | 704 | 0.6+ | 0.5− | 2003 11 18 | 703 | 0.8+ | 0.6− | 2003 12 01 | 704 | 0.4+ | 0.1+ |
| 2003 10 21 | 704 | 0.1+ | 0.4− | 2003 11 18 | 703 | 0.1+ | 0.8+ | 2003 12 01 | 704 | 0.1+ | 0.3+ |
| 2003 10 21 | 704 | 0.0 | 0.1− | 2003 11 18 | 703 | 0.6− | 0.4− | 2003 12 01 | 704 | 0.1+ | 0.3− |
| 2003 10 21 | 704 | 0.3− | 0.2+ | 2003 11 18 | 703 | 0.3− | 0.7− | 2003 12 01 | 704 | 0.3− | 0.7− |
| 2003 10 22 | 691 | 0.2− | 0.1− | 2003 11 20 | 691 | 0.1− | 0.0 | 2008 08 19 | E12 | 1.0− | 0.0 |
| 2003 10 22 | 691 | 0.1− | 0.1− | 2003 11 20 | 691 | 0.1+ | 0.1+ | 2008 08 19 | E12 | 0.2− | 0.1− |
| 2003 10 22 | 691 | 0.2− | 0.0 | 2003 11 20 | 691 | 0.0 | 0.0 | 2008 08 19 | E12 | 0.5+ | 0.0 |
| 2003 10 24 | 704 | 1.4+ | 0.2+ | 2003 11 21 | 704 | 0.2+ | 0.2+ | 2008 08 19 | E12 | 0.1+ | 0.3+ |
| 2003 10 24 | 704 | 0.8+ | 0.5+ | 2003 11 21 | 704 | 0.4− | 0.5+ | 2008 09 06 | 703 | 0.1+ | 0.0 |
| 2003 10 24 | 704 | 1.1+ | 0.5+ | 2003 11 21 | 704 | 0.7− | 0.9+ | 2008 09 06 | 703 | 0.7+ | 1.1+ |
| 2003 10 24 | 704 | 0.8+ | 0.1+ | 2003 11 21 | 704 | 0.5− | 0.8+ | 2008 09 06 | 703 | 0.2− | 0.4− |
| 2003 10 24 | 704 | 1.0+ | 0.5+ | 2003 11 21 | 704 | 0.5− | 0.5+ | 2008 09 06 | 703 | 0.1− | 0.7− |
| 2003 10 28 | 704 | 0.3+ | 0.5+ | 2003 11 21 | 699 | 0.0 | 0.1− | | | | |
| 2003 10 28 | 704 | 0.5− | 0.2+ | 2003 11 21 | 699 | 0.1+ | 0.3+ | | | | |

**2003 US$_{51}$ = 2009 WU$_{34}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 18.09850 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17636384 | $\omega$ | 158.92836 | | +0.46206194 | −0.83826080 | |
| $a$ | 3.1491718 | $\Omega$ | 262.54309 | | +0.76618845 | +0.54172204 | |
| $e$ | 0.2796691 | $i$ | 16.97666 | | +0.44660277 | −0.06209716 | |
| $P$ | 5.59 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 18 | 644 | 0.1+ | 0.0 | 2003 10 22 | 699 | 0.2− | 0.6+ | 2009 11 16 | 691 | 0.1− | 0.0 |
| 2003 10 18 | 644 | 0.0 | 0.1+ | 2003 11 03 | 704 | 0.9− | 1.7+ | 2009 11 16 | 691 | 0.3− | 0.1− |
| 2003 10 18 | 644 | 0.2+ | 0.2− | 2003 11 03 | 704 | 0.2− | 0.5− | 2009 11 20 | 691 | 0.0 | 0.1+ |
| 2003 10 19 | 644 | 0.2+ | 0.1− | 2003 11 03 | 704 | 0.3− | 1.1+ | 2009 11 20 | 691 | 0.2+ | 0.1− |
| 2003 10 19 | 644 | 0.2+ | 0.2+ | 2003 11 20 | 704 | 0.1− | 1.0− | 2009 11 20 | 691 | 0.0 | 0.0 |
| 2003 10 19 | 644 | 0.0 | 0.1+ | 2003 11 20 | 704 | 0.4− | 0.3− | 2009 11 24 | 691 | 0.1− | 0.1+ |
| 2003 10 19 | 644 | 0.3+ | 0.3+ | 2003 11 20 | 704 | 0.6+ | 1.0− | 2009 11 24 | 691 | 0.2+ | 0.1+ |
| 2003 10 19 | 644 | 0.1+ | 0.2+ | 2003 11 20 | 704 | 0.5− | 0.6− | 2009 11 24 | 691 | 0.6− | 0.4− |
| 2003 10 19 | 644 | 0.2+ | 0.1− | 2003 11 21 | 644 | 0.4− | 0.1− | 2009 12 17 | 704 | 1.3+ | 0.7+ |
| 2003 10 22 | 699 | 0.8+ | 0.2+ | 2003 11 21 | 644 | 0.1+ | 0.0 | 2009 12 17 | 704 | 0.5+ | 0.7+ |
| 2003 10 22 | 699 | 0.1− | 0.2− | 2003 11 21 | 644 | 0.0 | 0.0 | 2009 12 17 | 704 | 0.2+ | 0.3− |
| 2003 10 22 | 699 | 0.1+ | 0.3− | 2009 11 16 | 691 | 0.0 | 0.0 | 2009 12 17 | 704 | 0.7+ | 0.3+ |

**2003 UH$_{55}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 160.83003 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22987500 | $\omega$ | 116.11231 | | +0.76594233 | −0.62671231 | |
| $a$ | 2.6392157 | $\Omega$ | 283.03992 | | +0.52468221 | +0.73824388 | |
| $e$ | 0.2899544 | $i$ | 8.46455 | | +0.37153860 | +0.24945473 | |
| $P$ | 4.29 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 18 | 644 | 0.6− | 0.2− | 2003 11 20 | 704 | 0.1− | 0.1+ | 2003 12 23 | 704 | 0.3+ | 0.5+ |
| 2003 10 18 | 644 | 0.3− | 0.3− | 2003 11 20 | 704 | 0.0 | 0.4− | 2003 12 23 | 704 | 0.0 | 0.8+ |
| 2003 10 18 | 644 | 0.5− | 0.3− | 2003 11 20 | 704 | 1.6− | 0.6− | 2003 12 23 | 704 | 0.4+ | 0.6+ |
| 2003 10 19 | 644 | 0.3− | 0.2− | 2003 11 20 | 704 | 0.1+ | 0.3− | 2003 12 23 | 704 | (1.5+ | 2.4−) |
| 2003 10 19 | 644 | 0.3− | 0.3− | 2003 11 24 | 703 | 0.5− | 0.0 | 2003 12 23 | 704 | 0.2− | 0.2+ |
| 2003 10 19 | 644 | 0.3− | 0.3− | 2003 11 24 | 703 | 0.4+ | 0.3− | 2003 12 28 | 704 | 0.4+ | 0.3+ |
| 2003 11 03 | 704 | 0.9+ | 0.2+ | 2003 11 24 | 703 | 0.4− | 0.7− | 2003 12 28 | 704 | 0.2+ | 0.1+ |
| 2003 11 03 | 704 | 1.4+ | 0.5− | 2003 11 24 | 703 | 0.5− | 0.1+ | 2003 12 28 | 704 | 0.6+ | 0.9+ |
| 2003 11 03 | 704 | 1.1+ | 0.4+ | 2003 12 17 | 644 | 0.2+ | 0.2+ | 2003 12 28 | 704 | 0.3− | 0.3− |
| 2003 11 03 | 704 | 1.6+ | 1.0+ | 2003 12 17 | 644 | 0.0 | 0.1+ | 2007 09 11 | 703 | 0.8+ | 0.4− |
| 2003 11 05 | 699 | 0.7+ | 0.1− | 2003 12 17 | 644 | 0.5+ | 0.1+ | 2007 09 11 | 703 | 0.5− | 1.2+ |
| 2003 11 05 | 699 | 0.3− | 1.0+ | 2003 12 18 | 704 | 1.6− | 0.5− | 2007 09 11 | 703 | 0.2− | 0.9+ |
| 2003 11 05 | 699 | 1.0− | 0.8− | 2003 12 18 | 704 | 0.2+ | 0.2− | 2007 09 11 | 703 | 0.9− | 0.4+ |
| 2003 11 05 | 699 | 0.3− | 0.3+ | 2003 12 18 | 704 | 0.4+ | 0.3+ | 2007 10 25 | G96 | 0.0 | 0.3− |
| 2003 11 14 | 644 | 0.0 | 0.1+ | 2003 12 18 | 704 | 0.5− | 1.0+ | 2007 10 25 | G96 | 0.3+ | 0.5− |
| 2003 11 14 | 644 | 0.2+ | 0.0 | 2003 12 22 | 333 | 0.1− | 0.2− | 2007 10 25 | G96 | 0.1− | 0.6− |
| 2003 11 14 | 644 | 0.2+ | 0.0 | 2003 12 22 | 333 | 0.1− | 0.4− | 2007 10 25 | G96 | 0.6+ | 0.6− |
| 2003 11 20 | 704 | 0.3− | 0.0 | 2003 12 22 | 333 | 0.2+ | 0.6− | | | | |

**2003 UP$_{55}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 64.32637 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17673838 | $\omega$ | 342.09662 | | +0.99110529 | −0.09762868 | |
| $a$ | 3.1447211 | $\Omega$ | 24.06268 | | +0.13197697 | +0.80837269 | |
| $e$ | 0.2687713 | $i$ | 12.81502 | | −0.01709897 | +0.58051894 | |
| $P$ | 5.58 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 18 | 644 | 0.4− | 0.1+ | 2003 11 03 | 704 | 1.0+ | 0.6+ | 2003 11 19 | 704 | 0.0 | 0.6+ |
| 2003 10 18 | 644 | 0.4− | 0.1+ | 2003 11 04 | 704 | 0.9+ | 0.6+ | 2003 11 24 | 703 | 0.4− | 0.6+ |
| 2003 10 18 | 644 | 0.4− | 0.0 | 2003 11 04 | 704 | 0.3+ | 0.4+ | 2003 11 24 | 703 | 1.2− | 1.3− |
| 2003 10 19 | 644 | 0.3− | 0.2− | 2003 11 04 | 704 | 1.0+ | 0.1− | 2003 11 24 | 703 | 0.3− | 0.7− |
| 2003 10 19 | 644 | 0.1− | 0.0 | 2003 11 05 | 699 | 0.5+ | 0.2+ | 2003 11 24 | 703 | 0.1+ | 0.3+ |
| 2003 10 19 | 644 | 0.4− | 0.1− | 2003 11 05 | 699 | 1.0− | 0.7+ | 2003 12 04 | 704 | 0.8− | 0.6− |
| 2003 10 22 | 704 | 0.1+ | 0.5− | 2003 11 05 | 699 | 0.2+ | 0.4− | 2003 12 04 | 704 | 0.6+ | 0.5− |
| 2003 10 22 | 704 | 0.9+ | 0.1+ | 2003 11 05 | 699 | 0.8+ | 0.5− | 2003 12 04 | 704 | 0.4+ | 0.1− |
| 2003 10 22 | 704 | 0.2− | 0.3− | 2003 11 14 | 644 | 0.3− | 0.2− | 2003 12 04 | 704 | 0.3− | 0.0 |
| 2003 10 22 | 704 | 0.1+ | 0.0 | 2003 11 14 | 644 | 0.2− | 0.0 | 2008 08 02 | E12 | 0.1− | 0.3+ |
| 2003 10 22 | 704 | 0.2+ | 0.1+ | 2003 11 14 | 644 | 0.3− | 0.1+ | 2008 08 02 | E12 | 0.1− | 0.0 |
| 2003 10 27 | 691 | 0.1− | 0.0 | 2003 11 16 | 691 | 0.1− | 0.1− | 2008 08 02 | E12 | 0.3− | 0.2− |
| 2003 10 27 | 691 | 0.1− | 0.1− | 2003 11 16 | 691 | 0.1+ | 0.3− | 2008 08 02 | E12 | 0.1− | 0.0 |
| 2003 10 27 | 691 | 0.2− | 0.1− | 2003 11 16 | 691 | 0.2+ | 0.2− | 2008 09 24 | E12 | 0.6+ | 0.1+ |
| 2003 11 03 | 704 | 0.2+ | 0.8+ | 2003 11 19 | 704 | 0.0 | 0.8+ | 2008 09 24 | E12 | 0.5− | 0.8+ |
| 2003 11 03 | 704 | 1.5+ | 0.0 | 2003 11 19 | 704 | 0.2+ | 1.1+ | 2008 09 24 | E12 | 0.3+ | 0.4− |
| 2003 11 03 | 704 | 0.8− | 0.3+ | 2003 11 19 | 704 | 0.2− | 0.8+ | 2008 09 24 | E12 | 0.2+ | 0.8− |
| 2003 11 03 | 704 | 0.1− | 0.2− | 2003 11 19 | 704 | 0.2+ | 0.7+ | | | | |

**2003 UM$_{64}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 54.74126 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18109245 | $\omega$ | 306.35048 | | +0.94388792 | −0.28890905 | |
| $a$ | 3.0941105 | $\Omega$ | 70.92686 | | +0.33022070 | +0.83359771 | |
| $e$ | 0.2804937 | $i$ | 9.74814 | | −0.00546620 | +0.47079339 | |
| $P$ | 5.44 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 24 | 608 | 0.0 | 1.0+ | 2003 10 18 | 699 | 0.1+ | 0.5− | 2003 11 16 | 703 | 0.8− | 0.2+ |
| 2003 09 24 | 608 | 0.2+ | 0.9+ | 2003 10 18 | 699 | 0.8− | 1.0− | 2003 11 16 | 703 | 0.7− | 0.7− |
| 2003 09 24 | 608 | 0.1+ | 0.9+ | 2003 10 19 | 704 | 0.0 | 0.3+ | 2003 11 16 | 703 | 1.0− | 0.4− |
| 2003 10 16 | 699 | 0.3− | 0.4− | 2003 10 19 | 704 | 0.5− | 0.5+ | 2003 11 28 | 645 | 0.1+ | 0.0 |
| 2003 10 16 | 699 | 0.3+ | 0.5− | 2003 10 19 | 704 | 0.1− | 0.2+ | 2003 11 28 | 645 | 0.1+ | 0.0 |
| 2003 10 16 | 699 | 0.2− | 0.4+ | 2003 10 19 | 704 | 0.3− | 0.4− | 2008 08 04 | E12 | 0.0 | 1.0− |
| 2003 10 16 | 699 | 0.2+ | 0.6− | 2003 10 19 | 704 | 0.1− | 0.5+ | 2008 08 04 | E12 | 0.7+ | 0.5− |
| 2003 10 16 | 644 | 0.0 | 0.1− | 2003 10 27 | 699 | 0.0 | 0.5− | 2008 08 04 | E12 | 0.1− | 0.0 |
| 2003 10 16 | 644 | 0.1− | 0.0 | 2003 10 27 | 699 | 0.6+ | 0.3− | 2008 08 26 | E12 | 0.0 | 0.0 |
| 2003 10 16 | 644 | 0.1+ | 0.0 | 2003 10 27 | 699 | 0.2+ | 0.1+ | 2008 08 26 | E12 | 0.3− | 0.7+ |
| 2003 10 18 | 699 | 0.5+ | 0.6− | 2003 10 27 | 699 | 0.3− | 0.2− | 2008 08 26 | E12 | 0.1− | 0.4+ |
| 2003 10 18 | 699 | 0.7+ | 0.2+ | 2003 11 16 | 703 | 0.3− | 0.0 | 2008 08 26 | E12 | 0.1− | 0.2+ |

**2003 UJ$_{82}$ = 2009 WU$_{196}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 18.88120 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17465841 | $\omega$ | 5.63848 | | +0.69135568 | −0.71898526 | |
| $a$ | 3.1696383 | $\Omega$ | 40.65450 | | +0.65854192 | +0.58645094 | |
| $e$ | 0.2445572 | $i$ | 6.28544 | | +0.29723705 | +0.37300871 | |
| $P$ | 5.64 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 19 | 691 | 0.1+ | 0.1+ | 2009 09 21 | G96 | 0.2+ | 0.0 | 2009 11 24 | J75 | 0.3+ | 0.0 |
| 2003 10 19 | 691 | 0.1+ | 0.1+ | 2009 09 21 | G96 | 0.2− | 0.2− | 2009 11 24 | J75 | 0.1− | 0.8− |
| 2003 10 19 | 691 | 0.0 | 0.1+ | 2009 10 17 | G96 | 0.1+ | 0.2− | 2009 11 25 | J75 | 0.3+ | 0.5+ |
| 2003 10 20 | 704 | 0.2+ | 1.1− | 2009 10 17 | G96 | 0.2+ | 0.4− | 2009 11 25 | 703 | 1.3+ | 0.3− |
| 2003 10 20 | 704 | 0.4− | 0.1− | 2009 10 17 | G96 | 0.1− | 0.3− | 2009 11 25 | 703 | 0.1− | 0.3+ |
| 2003 10 20 | 704 | 0.3− | 0.2− | 2009 11 09 | G96 | 0.0 | 0.4− | 2009 11 25 | 703 | 1.8+ | 1.1− |
| 2003 10 20 | 704 | 0.7+ | 0.2+ | 2009 11 09 | G96 | 0.1+ | 0.3− | 2009 11 25 | 703 | 0.1− | 0.8− |
| 2003 10 21 | 644 | 0.3− | 0.1+ | 2009 11 09 | G96 | 0.1− | 0.4− | 2009 11 27 | 691 | 0.2− | 0.5+ |
| 2003 10 21 | 644 | 0.4− | 0.1+ | 2009 11 09 | G96 | 0.3+ | 0.2− | 2009 11 27 | 691 | 0.2+ | 0.1+ |
| 2003 10 21 | 644 | 0.4− | 0.0 | 2009 11 17 | 691 | 0.1− | 0.1+ | 2009 11 27 | 691 | 0.1− | 0.1− |
| 2009 09 21 | G96 | 0.2+ | 0.2− | 2009 11 17 | 691 | 0.0 | 0.0 | | | | |
| 2009 09 21 | G96 | 0.3+ | 0.0 | 2009 11 17 | 691 | 0.9− | 0.4+ | | | | |

**2003 UB$_{85}$ = 2009 VV$_{95}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 20.00785 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17437172 | $\omega$ | 7.60186 | | +0.61880618 | −0.77576671 | |
| $a$ | 3.1731116 | $\Omega$ | 44.27539 | | +0.71108914 | +0.48634745 | |
| $e$ | 0.0777517 | $i$ | 10.19392 | | +0.33381304 | +0.40205990 | |
| $P$ | 5.65 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 18 | 291 | 0.2− | 0.1+ | 2003 10 28 | 704 | 0.0 | 0.2− | 2009 10 17 | G96 | 0.6+ | 0.1− |
| 2003 10 18 | 291 | 0.2− | 0.3+ | 2003 10 28 | 704 | 0.5− | 0.1+ | 2009 11 11 | 691 | 0.0 | 0.1− |
| 2003 10 18 | 291 | 0.5− | 0.1− | 2003 10 28 | 704 | 0.1+ | 0.6+ | 2009 11 11 | 691 | 0.0 | 0.3− |
| 2003 10 21 | 691 | 0.2+ | 0.0 | 2003 11 19 | 691 | 0.3− | 0.0 | 2009 11 11 | 691 | 0.3− | 0.1− |
| 2003 10 21 | 691 | 0.2+ | 0.2− | 2003 11 19 | 691 | 0.2− | 0.2− | 2009 11 19 | 691 | 0.4− | 0.0 |
| 2003 10 21 | 691 | 0.0 | 0.1+ | 2003 11 19 | 691 | 0.0 | 0.1+ | 2009 11 19 | 691 | 0.3+ | 0.9+ |
| 2003 10 24 | 704 | 1.5+ | 1.1− | 2003 11 20 | 695 | 0.1+ | 0.3− | 2009 11 19 | 691 | 0.0 | 0.1− |
| 2003 10 24 | 704 | 0.8+ | 0.5+ | 2003 11 20 | 695 | 0.2+ | 0.2− | 2009 11 27 | 691 | 0.2− | 0.2+ |
| 2003 10 24 | 704 | 0.5+ | 0.1+ | 2009 10 17 | G96 | 0.7+ | 0.3− | 2009 11 27 | 691 | 0.5+ | 0.0 |
| 2003 10 28 | 704 | 0.8+ | 0.2+ | 2009 10 17 | G96 | 0.8+ | 0.1− | 2009 11 27 | 691 | 0.4− | 0.4− |
| 2003 10 28 | 704 | 0.3+ | 0.0 | 2009 10 17 | G96 | 0.0 | 0.6− | | | | |

**2003 UA$_{86}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 315.92479 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28163066 | $\omega$ | 320.36556 | | +0.94922654 | +0.24400762 | |
| $a$ | 2.3050628 | $\Omega$ | 27.54139 | | −0.03296175 | +0.70485618 | |
| $e$ | 0.2154579 | $i$ | 25.43197 | | −0.31286178 | +0.66606160 | |
| $P$ | 3.50 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 27 | 704 | 0.0 | 0.2− | 2003 11 03 | 704 | (6.8+ | 2.9−) | 2003 11 21 | 704 | 0.7− | 0.3− |
| 2003 09 27 | 704 | 0.7+ | 0.3+ | 2003 11 03 | 704 | (6.9+ | 2.3−) | 2003 12 17 | 704 | 0.2− | 0.2− |
| 2003 09 27 | 704 | 0.9− | 0.6− | 2003 11 03 | 704 | 0.5+ | 0.4− | 2003 12 17 | 704 | 0.7− | 0.6− |
| 2003 09 27 | 704 | 0.2− | 0.8+ | 2003 11 03 | 704 | (0.8+ | 1.8−) | 2003 12 17 | 704 | 0.3− | 0.0 |
| 2003 09 27 | 704 | 1.5− | 0.6− | 2003 11 04 | J95 | 0.2+ | 0.5+ | 2003 12 17 | 704 | 0.4− | 0.7− |
| 2003 10 05 | 704 | 0.4− | 0.9− | 2003 11 04 | 557 | 0.3− | 0.3+ | 2003 12 17 | 704 | 0.9− | 0.1+ |
| 2003 10 05 | 704 | 0.7+ | 0.7− | 2003 11 04 | 557 | 0.1− | 0.3− | 2009 03 02 | G96 | 0.5− | 0.5+ |
| 2003 10 05 | 704 | 0.2− | 0.3+ | 2003 11 04 | J95 | 0.0 | 0.3+ | 2009 03 02 | G96 | 0.8− | 0.2+ |
| 2003 10 05 | 704 | 0.7− | 0.1− | 2003 11 04 | J95 | 0.3+ | 1.0− | 2009 03 02 | G96 | 0.5− | 0.2+ |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 05 | 704 | (2.2+ | 2.9+) | 2003 11 04 | J95 | 0.9+ | 0.3+ | | 2009 03 02 | G96 | 0.8− | 1.4− | | |
| 2003 10 18 | 644 | 0.1+ | 0.2+ | 2003 11 04 | 557 | 0.3+ | 0.2+ | | 2009 04 01 | 291 | 0.2+ | 0.3+ | | |
| 2003 10 18 | 644 | 0.1+ | 0.3+ | 2003 11 04 | 926 | 0.6+ | 0.3− | | 2009 04 01 | 291 | 0.2+ | 0.1− | | |
| 2003 10 18 | 644 | 0.1+ | 0.3+ | 2003 11 04 | 926 | 0.2+ | 0.3+ | | 2009 04 01 | 291 | 0.2+ | 0.0 | | |
| 2003 10 19 | 644 | 0.1− | 0.2+ | 2003 11 04 | 926 | 0.7− | 0.3+ | | 2009 04 19 | G96 | 0.0 | 0.2− | | |
| 2003 10 19 | 644 | 0.2− | 0.2+ | 2003 11 05 | 026 | 0.4− | 0.1+ | | 2009 04 19 | G96 | 0.0 | 0.0 | | |
| 2003 10 19 | 644 | 0.0 | 0.4+ | 2003 11 05 | 026 | 0.4− | 0.2+ | | 2009 04 19 | G96 | 0.0 | 0.2− | | |
| 2003 10 19 | 644 | 0.1− | 0.3+ | 2003 11 21 | 704 | 0.3− | 0.1+ | | 2009 04 19 | G96 | 0.1+ | 0.0 | | |
| 2003 10 19 | 644 | 0.1+ | 0.5+ | 2003 11 21 | 704 | 0.6− | 0.1− | | | | | | | |
| 2003 10 19 | 644 | 0.1+ | 0.2+ | 2003 11 21 | 704 | 1.1− | 0.2− | | | | | | | |

**2003 UF$_{91}$ = 2008 TY$_{178}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 98.05732 | | (2000.0) | | | |
| $n$ | 0.19191889 | $\omega$ | 306.51461 | | +0.98683753 | −0.02265915 |
| $a$ | 2.9766257 | $\Omega$ | 55.32056 | | +0.09965971 | +0.86498077 |
| $e$ | 0.1044970 | $i$ | 11.22779 | | −0.12735629 | +0.50129316 |
| $P$ | 5.14 | $H$ | 15.9 | $G$ 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 12 17 | 691 | 0.1+ | 0.3+ | 2003 10 25 | 704 | 0.6− | 0.1+ | | 2008 10 01 | 703 | 0.9+ | 0.7+ | | |
| 1998 12 17 | 691 | 0.3+ | 0.3− | 2003 10 25 | 704 | 0.1+ | 0.0 | | 2008 10 08 | 703 | 0.0 | 0.0 | | |
| 1998 12 17 | 691 | 0.2+ | 0.1+ | 2006 02 10 | 809 | 0.4+ | 0.4+ | | 2008 10 08 | 703 | 1.2+ | 0.1− | | |
| 2003 10 20 | 704 | 0.9− | 0.3− | 2006 02 10 | 809 | 0.3+ | 0.5+ | | 2008 10 08 | 703 | 0.5− | 0.0 | | |
| 2003 10 20 | 704 | 1.0− | 0.2− | 2006 02 10 | 809 | 0.4+ | 0.4+ | | 2008 10 08 | 703 | 0.5− | 1.1+ | | |
| 2003 10 20 | 704 | 0.8− | 0.1− | 2006 02 10 | 809 | 0.4+ | 0.5+ | | 2008 10 27 | G96 | 0.2− | 0.2− | | |
| 2003 10 20 | 704 | 0.9− | 0.3+ | 2006 02 10 | 809 | 0.5+ | 0.4+ | | 2008 10 27 | G96 | 0.7− | 0.4− | | |
| 2003 10 20 | 704 | 0.4+ | 0.7+ | 2006 04 09 | G96 | 0.4+ | 0.5+ | | 2008 10 27 | G96 | 0.5− | 0.1− | | |
| 2003 10 21 | 691 | 0.0 | 0.2− | 2006 04 09 | G96 | 0.2− | 0.3+ | | 2008 10 27 | G96 | 0.3+ | 0.3− | | |
| 2003 10 21 | 691 | 0.2+ | 0.1− | 2006 04 09 | G96 | 0.2+ | 0.1− | | 2009 10 27 | G96 | 0.0 | 0.3− | | |
| 2003 10 21 | 691 | 0.2+ | 0.2− | 2006 04 09 | G96 | 0.5− | 0.6+ | | 2009 10 27 | G96 | 0.1− | 0.3− | | |
| 2003 10 25 | 704 | 1.0− | 0.7+ | 2008 10 01 | 703 | 0.1− | 0.4+ | | 2009 10 27 | G96 | 0.3+ | 0.2+ | | |
| 2003 10 25 | 704 | 0.1+ | 0.0 | 2008 10 01 | 703 | 0.7+ | 0.9+ | | 2009 10 27 | G96 | 0.3+ | 0.2+ | | |
| 2003 10 25 | 704 | 0.5− | 0.1− | 2008 10 01 | 703 | 0.9− | 1.2+ | | | | | | | |

**2003 UZ$_{95}$ = 2008 RM$_{134}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 101.97109 | | (2000.0) | | | |
| $n$ | 0.18498796 | $\omega$ | 300.89078 | | +0.83895607 | +0.53008771 |
| $a$ | 3.0505191 | $\Omega$ | 27.67256 | | −0.36306901 | +0.71374196 |
| $e$ | 0.1631188 | $i$ | 15.37387 | | −0.40538081 | +0.45779847 |
| $P$ | 5.33 | $H$ | 15.8 | $G$ 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 04 16 | 645 | 0.1+ | 0.1+ | 2003 10 18 | 691 | 0.0 | 0.2+ | | 2003 10 28 | 704 | 0.4− | 0.7− | | |
| 2001 04 16 | 645 | 0.0 | 0.0 | 2003 10 18 | 691 | 0.1− | 0.2+ | | 2008 08 23 | E12 | 0.6− | 0.2+ | | |
| 2003 09 19 | 691 | 0.3+ | 0.1− | 2003 10 18 | 691 | 0.0 | 0.1− | | 2008 08 23 | E12 | 0.8− | 0.1+ | | |
| 2003 09 19 | 691 | 0.1+ | 0.1− | 2003 10 21 | 704 | 0.1+ | 1.0+ | | 2008 08 23 | E12 | 1.0− | 0.3+ | | |
| 2003 09 19 | 691 | 0.2+ | 0.1− | 2003 10 21 | 704 | 0.8+ | 1.2+ | | 2008 08 23 | E12 | 0.6− | 0.5+ | | |
| 2003 09 22 | 644 | 0.2+ | 0.2+ | 2003 10 21 | 704 | 0.4+ | 0.3+ | | 2008 09 06 | 703 | 0.3− | 0.4+ | | |
| 2003 09 22 | 644 | 0.1− | 0.2+ | 2003 10 21 | 704 | 0.9+ | 0.5+ | | 2008 09 06 | 703 | 0.1+ | 0.3− | | |
| 2003 09 22 | 644 | 0.3− | 0.1− | 2003 10 21 | 704 | 0.4+ | 0.9+ | | 2008 09 06 | 703 | 0.3+ | 0.4+ | | |
| 2003 09 29 | 691 | 0.3+ | 0.1− | 2003 10 26 | 691 | 0.1− | 0.1− | | 2008 09 06 | 703 | 0.6+ | 0.0 | | |
| 2003 09 29 | 691 | 0.1+ | 0.2− | 2003 10 26 | 691 | 0.0 | 0.0 | | 2008 10 02 | 703 | 0.3− | 1.5− | | |
| 2003 09 29 | 691 | 0.1− | 0.0 | 2003 10 26 | 691 | 0.5− | 0.2− | | 2008 10 02 | 703 | 0.4− | 0.6− | | |
| 2003 10 14 | 699 | 1.0− | 1.0− | 2003 10 28 | 704 | 1.3− | 0.3+ | | 2008 10 02 | 703 | 0.4+ | 0.7+ | | |
| 2003 10 14 | 699 | 1.1− | 1.0+ | 2003 10 28 | 704 | 0.1− | 0.5− | | 2008 10 02 | 703 | 2.0+ | 0.6+ | | |
| 2003 10 14 | 699 | (2.3− | 2.1−) | 2003 10 28 | 704 | 0.1+ | 0.1− | | | | | | | |
| 2003 10 14 | 699 | 0.4+ | 0.3− | 2003 10 28 | 704 | 0.5− | 0.0 | | | | | | | |

**2003 UC$_{97}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 256.69577 | | (2000.0) | | | |
| $n$ | 0.26567121 | $\omega$ | 123.61804 | | +0.99452162 | −0.10340957 |
| $a$ | 2.3964758 | $\Omega$ | 242.32171 | | +0.08928401 | +0.91631896 |
| $e$ | 0.2342156 | $i$ | 0.98806 | | +0.05436088 | +0.38686693 |
| $P$ | 3.71 | $H$ | 16.9 | $G$ 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 29 | 704 | 0.4+ | 0.7+ | 2003 10 24 | 704 | 0.2− | 0.6+ | | 2003 11 18 | 644 | 0.1+ | 0.1− | | |
| 2003 09 29 | 704 | 0.3− | 0.4+ | 2003 10 24 | 704 | 0.1− | 0.8+ | | 2003 11 18 | 644 | 0.1+ | 0.2− | | |
| 2003 09 29 | 704 | 0.0 | 0.0 | 2003 10 24 | 704 | 0.2− | 0.5+ | | 2003 11 18 | 644 | 0.0 | 0.2− | | |
| 2003 09 29 | 704 | 0.1+ | 1.0+ | 2003 10 25 | 291 | 0.5− | 0.0 | | 2003 11 21 | 704 | 0.5+ | 0.5+ | | |
| 2003 09 29 | 704 | 0.9− | 0.5− | 2003 10 25 | 291 | 0.2− | 0.1+ | | 2003 11 21 | 704 | 0.0 | 0.9+ | | |
| 2003 10 14 | 699 | 0.1+ | 0.0 | 2003 10 25 | 291 | 0.5− | 0.0 | | 2003 11 21 | 704 | 0.8+ | 0.0 | | |
| 2003 10 14 | 699 | 1.1+ | 0.2− | 2003 10 26 | 703 | 0.6+ | 0.1+ | | 2003 11 21 | 704 | 0.8+ | 0.1+ | | |
| 2003 10 14 | 699 | 1.2+ | 0.5+ | 2003 10 26 | 703 | 0.0 | 0.4+ | | 2003 11 21 | 704 | 0.0 | 0.4− | | |
| 2003 10 14 | 699 | 0.6+ | 0.7− | 2003 10 26 | 703 | 0.3+ | 0.3− | | 2003 11 28 | 691 | 0.0 | 0.2− | | |
| 2003 10 19 | 691 | 0.1+ | 0.1− | 2003 10 26 | 703 | 0.1− | 0.1+ | | 2003 11 28 | 691 | 0.3− | 0.1− | | |
| 2003 10 19 | 691 | 0.1− | 0.1− | 2003 10 29 | 704 | 0.2− | 0.4+ | | 2003 11 28 | 691 | 0.1− | 0.3− | | |
| 2003 10 19 | 691 | 0.1− | 0.1− | 2003 10 29 | 704 | 0.1− | 0.6+ | | 2009 02 27 | 691 | 0.6− | 0.4+ | | |
| 2003 10 21 | 704 | 0.5− | 0.1+ | 2003 10 29 | 704 | 0.1− | 0.5− | | 2009 02 27 | 691 | 1.2+ | 0.0 | | |
| 2003 10 21 | 704 | 0.1+ | 0.3− | 2003 10 29 | 704 | (0.6− | 1.5+) | | 2009 02 27 | 691 | 0.7− | 0.4+ | | |
| 2003 10 21 | 704 | 0.4+ | 0.1+ | 2003 11 01 | 704 | 0.5+ | 0.0 | | 2009 03 22 | G96 | 0.6+ | 0.3− | | |
| 2003 10 21 | 704 | 0.1+ | 0.2− | 2003 11 01 | 704 | 0.5+ | 0.4+ | | 2009 03 22 | G96 | 0.0 | 0.1− | | |
| 2003 10 21 | 704 | 0.1− | 0.0 | 2003 11 01 | 704 | 0.5− | 0.3− | | 2009 03 22 | G96 | 0.1− | 0.2− | | |
| 2003 10 21 | 644 | 0.0 | 0.2− | 2003 11 01 | 704 | 0.0 | 0.1+ | | 2009 03 22 | G96 | 0.0 | 0.3− | | |
| 2003 10 21 | 644 | 0.1+ | 0.1− | 2003 11 01 | 704 | 0.2+ | 0.3− | | 2009 04 21 | G96 | 0.3+ | 0.3− | | |
| 2003 10 21 | 644 | 0.2+ | 0.2− | 2003 11 03 | 608 | 0.2+ | 0.4− | | 2009 04 21 | G96 | 0.9+ | 0.1+ | | |
| 2003 10 24 | 704 | 0.1− | 0.4+ | 2003 11 03 | 608 | 0.4+ | 0.8+ | | 2009 04 21 | G96 | 0.6− | 0.0 | | |
| 2003 10 24 | 704 | 0.0 | 0.1− | 2003 11 03 | 608 | 0.4+ | 0.7− | | 2009 04 21 | G96 | 0.0 | 0.0 | | |

**2003 UT$_{106}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 124.00719 | | (2000.0) | | | |
| $n$ | 0.22649784 | $\omega$ | 184.75852 | | +0.23313194 | −0.95208367 |
| $a$ | 2.6653853 | $\Omega$ | 251.86182 | | +0.89893378 | +0.28863765 |
| $e$ | 0.1461687 | $i$ | 12.02310 | | +0.37090100 | −0.10111869 |
| $P$ | 4.35 | $H$ | 16.5 | $G$ 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 18 | 644 | 0.3+ | 0.0 | 2003 11 19 | 704 | 0.2− | 0.6− | | 2003 11 24 | 691 | 0.1− | 0.0 | | |
| 2003 10 18 | 644 | 0.4+ | 0.0 | 2003 11 21 | 644 | 0.2− | 0.4+ | | 2003 12 22 | 704 | 0.3− | 1.4− | | |
| 2003 10 18 | 644 | 0.3+ | 0.1− | 2003 11 21 | 644 | 0.2− | 0.3+ | | 2003 12 22 | 704 | 0.6− | 0.6− | | |
| 2003 10 21 | 644 | 0.1+ | 0.3− | 2003 11 21 | 644 | 0.1− | 0.2+ | | 2003 12 22 | 704 | 0.5+ | 0.2− | | |
| 2003 10 21 | 644 | 0.4+ | 0.0 | 2003 11 23 | 691 | 0.4− | 0.1− | | 2003 12 22 | 704 | 1.0+ | 0.8+ | | |
| 2003 10 21 | 644 | 0.2+ | 0.2+ | 2003 11 23 | 691 | 0.2+ | 0.2+ | | 2009 02 01 | 703 | 1.4+ | 1.7− | | |
| 2003 10 23 | 691 | 0.1+ | 0.4+ | 2003 11 23 | 691 | 0.3− | 0.1− | | 2009 02 01 | 703 | 0.8− | 1.3+ | | |
| 2003 10 23 | 691 | 0.2+ | 0.1− | 2003 11 24 | 699 | 1.1+ | 0.9− | | 2009 02 01 | 703 | 0.2+ | 1.1+ | | |
| 2003 10 23 | 691 | 0.2+ | 0.1− | 2003 11 24 | 691 | 0.0 | 0.0 | | 2009 02 01 | 703 | 1.9− | 0.5+ | | |
| 2003 11 19 | 704 | 0.5+ | 0.4+ | 2003 11 24 | 699 | 1.1− | 0.4− | | 2009 02 19 | 703 | 1.1+ | 0.8− | | |
| 2003 11 19 | 704 | 0.1+ | 0.1+ | 2003 11 24 | 699 | 0.7− | 0.6+ | | 2009 02 19 | 703 | 0.3+ | 0.6+ | | |
| 2003 11 19 | 704 | 0.5+ | 0.0 | 2003 11 24 | 691 | 0.1− | 0.1+ | | 2009 02 19 | 703 | 0.0 | 0.6− | | |
| 2003 11 19 | 704 | 0.2− | 0.6+ | 2003 11 24 | 699 | 0.2+ | 1.1− | | 2009 02 19 | 703 | 0.3− | 0.0 | | |

**2003 UX$_{108}$ = 2009 WS$_{241}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 39.87745 | | (2000.0) | | | |
| $n$ | 0.17245591 | $\omega$ | 166.55656 | | +0.87759544 | −0.45789610 |
| $a$ | 3.1965683 | $\Omega$ | 221.66063 | | +0.41772462 | +0.87569882 |
| $e$ | 0.1045000 | $i$ | 12.33280 | | +0.23522835 | +0.15324079 |
| $P$ | 5.72 | $H$ | 16.0 | $G$ 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 19 | 291 | 0.4− | 0.6− | 2003 11 18 | 644 | 0.2+ | 0.1− | 2009 11 18 | G96 | 0.5− | 0.3− |
| 2003 10 19 | 291 | 0.5− | 0.1− | 2003 11 20 | 691 | 0.1+ | 0.1− | 2009 11 18 | G96 | 0.1− | 0.1− |
| 2003 10 19 | 291 | 0.4− | 0.2+ | 2003 11 20 | 691 | 0.2+ | 0.1+ | 2009 11 18 | G96 | 0.3+ | 0.2− |
| 2003 10 22 | 691 | 0.3+ | 0.0 | 2003 11 20 | 691 | 0.2+ | 0.3+ | 2009 11 18 | G96 | 0.4− | 0.1− |
| 2003 10 22 | 691 | 0.2+ | 0.0 | 2008 09 27 | G96 | 0.1− | 0.3− | 2009 11 26 | G96 | 0.1+ | 0.0 |
| 2003 10 22 | 691 | 0.1+ | 0.0 | 2008 09 27 | G96 | 0.3+ | 0.5− | 2009 11 26 | G96 | 0.1+ | 0.1+ |
| 2003 10 28 | 704 | (3.4− | 0.6+) | 2008 09 27 | G96 | 0.2+ | 0.0 | 2009 11 26 | G96 | 0.4+ | 0.1+ |
| 2003 10 28 | 704 | 0.4− | 0.9+ | 2008 09 27 | G96 | 0.1− | 0.2− | 2009 11 26 | 291 | 0.5− | 0.1− |
| 2003 10 28 | 704 | 1.3+ | 1.1+ | 2009 10 12 | G96 | 0.3+ | 0.6− | 2009 11 26 | 291 | 0.1− | 0.2+ |
| 2003 10 28 | 704 | 0.6− | 1.2+ | 2009 10 12 | G96 | 0.2+ | 0.5− | 2009 11 26 | 291 | 0.4+ | 0.3− |
| 2003 11 18 | 644 | 0.0 | 0.2− | 2009 10 12 | G96 | 0.1+ | 0.2− | | | | |
| 2003 11 18 | 644 | 0.1− | 0.3+ | 2009 10 12 | G96 | 0.4+ | 0.4− | | | | |

**2003 UV$_{115}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 54.60813 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17756870 | $\omega$ | 146.28420 | | +0.96190810 | −0.23097067 | |
| $a$ | 3.1349103 | $\Omega$ | 227.78531 | | +0.18617953 | +0.94519431 | |
| $e$ | 0.2747976 | $i$ | 11.38784 | | +0.20017488 | +0.23078185 | |
| $P$ | 5.55 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 15 | 699 | 1.5+ | 0.2− | 2003 10 25 | 704 | 0.1− | 0.9+ | 2003 11 19 | 644 | 0.3− | 0.0 |
| 2003 10 15 | 699 | 0.4+ | 0.1− | 2003 10 25 | 704 | 0.5− | 0.1+ | 2003 11 19 | 291 | 0.1+ | 0.1+ |
| 2003 10 15 | 699 | 1.1+ | 0.3− | 2003 10 25 | 704 | 0.3− | 0.4+ | 2003 11 19 | 291 | 0.3+ | 0.1+ |
| 2003 10 15 | 699 | 1.1− | 0.5+ | 2003 10 25 | 704 | 0.3− | 0.2+ | 2003 11 19 | 291 | 0.3+ | 0.1+ |
| 2003 10 20 | 644 | 0.3− | 0.1+ | 2003 10 25 | 704 | 0.3− | 0.1− | 2003 11 21 | 704 | 0.2+ | 0.5+ |
| 2003 10 20 | 644 | 0.1− | 0.2+ | 2003 10 30 | 704 | 0.5− | 0.3− | 2003 11 21 | 704 | 0.2+ | 0.3+ |
| 2003 10 20 | 644 | 0.3+ | 0.1− | 2003 10 30 | 704 | 0.6+ | 0.6+ | 2003 11 21 | 704 | 0.3− | 0.4− |
| 2003 10 22 | 704 | 0.1+ | 0.5+ | 2003 10 30 | 704 | 0.5+ | 0.6+ | 2003 11 21 | 704 | 0.3+ | 0.1+ |
| 2003 10 22 | 704 | 0.4+ | 0.7+ | 2003 10 30 | 704 | 0.1+ | 0.3− | 2003 11 21 | 704 | 0.4− | 1.0+ |
| 2003 10 22 | 704 | 0.1− | 0.7+ | 2003 11 02 | 704 | 0.3− | 0.0 | 2003 11 30 | 703 | 0.1+ | 0.9− |
| 2003 10 22 | 704 | 0.3+ | 0.0 | 2003 11 02 | 704 | 0.4− | 0.1+ | 2003 11 30 | 703 | 1.4− | 0.4− |
| 2003 10 22 | 704 | 0.3+ | 0.4+ | 2003 11 02 | 704 | 0.4− | 1.0− | 2003 11 30 | 703 | 1.5− | 1.4− |
| 2003 10 22 | 691 | 0.1+ | 0.7− | 2003 11 02 | 704 | 0.4− | 0.3− | 2003 11 30 | 703 | 0.6− | 0.3− |
| 2003 10 22 | 691 | 0.2− | 0.0 | 2003 11 02 | 704 | 0.9− | 0.0 | 2007 04 21 | 807 | 0.0 | 0.1+ |
| 2003 10 22 | 691 | 0.0 | 0.0 | 2003 11 19 | 691 | 0.1+ | 0.1− | 2007 04 21 | 807 | 0.2+ | 0.2+ |
| 2003 10 23 | 699 | 0.6+ | 0.6− | 2003 11 19 | 691 | 0.2+ | 0.0 | 2007 05 26 | G96 | 0.3− | 0.0 |
| 2003 10 23 | 699 | 0.1+ | 0.4− | 2003 11 19 | 691 | 0.2+ | 0.0 | 2007 05 26 | G96 | 0.1+ | 0.2− |
| 2003 10 23 | 699 | 0.5− | 0.4− | 2003 11 19 | 644 | 0.2+ | 0.4+ | 2007 05 26 | G96 | 0.4+ | 0.2+ |
| 2003 10 23 | 699 | 0.9− | 0.1+ | 2003 11 19 | 644 | 0.2− | 0.2+ | 2007 05 26 | G96 | 0.4− | 1.1− |

**2003 UQ$_{116}$ = 2009 VH$_{92}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 37.89446 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17377255 | $\omega$ | 321.73409 | | +0.89666692 | −0.42233074 | |
| $a$ | 3.1804013 | $\Omega$ | 63.73911 | | +0.43383824 | +0.77854400 | |
| $e$ | 0.1476426 | $i$ | 8.51331 | | +0.08816358 | +0.46422623 | |
| $P$ | 5.67 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 28 | 704 | 0.2+ | 0.2+ | 2003 10 25 | 704 | 0.2+ | 0.6− | 2009 11 16 | 691 | 0.5+ | 0.2− |
| 2003 09 28 | 704 | 1.0+ | 0.2+ | 2003 10 25 | 704 | 0.1− | 0.2+ | 2009 11 24 | J75 | 0.9+ | 0.1+ |
| 2003 09 28 | 704 | 0.2− | 0.8− | 2003 10 25 | 704 | 0.1+ | 0.1− | 2009 11 24 | J75 | 0.1+ | 0.2+ |
| 2003 09 28 | 704 | 0.2+ | 0.9+ | 2003 10 25 | 704 | 0.6+ | 0.5− | 2009 11 24 | J75 | 0.6+ | 0.4+ |
| 2003 09 28 | 704 | 0.5− | 0.8− | 2003 11 19 | 644 | 0.4− | 0.0 | 2009 11 24 | 691 | 0.0 | 0.1− |
| 2003 10 21 | 704 | 0.6+ | 0.7+ | 2003 11 19 | 644 | 0.4− | 0.2+ | 2009 11 24 | 691 | 0.1− | 0.1− |
| 2003 10 21 | 704 | 0.6+ | 0.6+ | 2003 11 19 | 644 | 0.6− | 0.1− | 2009 11 24 | 691 | 0.8− | 0.4+ |
| 2003 10 21 | 704 | 0.5+ | 0.6+ | 2009 11 08 | 691 | 0.1− | 0.1− | 2009 12 15 | G96 | 0.5+ | 0.3− |
| 2003 10 22 | 691 | 0.2− | 0.1− | 2009 11 08 | 691 | 0.1+ | 0.1− | 2009 12 15 | G96 | 0.5+ | 0.1+ |
| 2003 10 22 | 691 | 0.1− | 0.2− | 2009 11 08 | 691 | 0.2− | 0.0 | 2009 12 15 | G96 | 0.8+ | 0.2− |
| 2003 10 22 | 691 | 0.3− | 0.1− | 2009 11 16 | 691 | 0.1− | 0.1+ | | | | |
| 2003 10 25 | 704 | 0.6+ | 0.8+ | 2009 11 16 | 691 | 0.2− | 0.1− | | | | |

**2003 UZ$_{125}$ = 2008 SU$_{291}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 86.15601 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18859938 | $\omega$ | 147.29588 | | +0.98899214 | +0.00168831 | |
| $a$ | 3.0114515 | $\Omega$ | 213.57928 | | −0.02842839 | +0.98347455 | |
| $e$ | 0.1012416 | $i$ | 15.51629 | | +0.14521147 | +0.18103857 | |
| $P$ | 5.23 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 21 | 699 | 1.1+ | 0.9− | 2003 10 24 | 704 | 0.1+ | 0.4− | 2008 09 28 | 703 | 0.4− | 0.9+ |
| 2003 09 21 | 699 | 1.1+ | 0.0 | 2003 10 24 | 704 | 0.3− | 0.7+ | 2008 09 28 | 703 | 0.1+ | 0.1− |
| 2003 09 21 | 699 | 0.4+ | 0.0 | 2003 10 24 | 704 | 0.2− | 0.3− | 2008 09 28 | 703 | 0.1− | 0.2− |
| 2003 09 21 | 699 | 0.8− | 0.3− | 2003 10 24 | 704 | 0.3− | 0.9+ | 2008 10 31 | G96 | 0.1− | 0.4+ |
| 2003 10 20 | 291 | 0.1+ | 0.3− | 2003 10 24 | 704 | 0.4− | 0.2− | 2008 10 31 | G96 | 0.1− | 0.2+ |
| 2003 10 20 | 291 | 0.1+ | 0.3− | 2003 10 24 | 704 | 0.4− | 0.2+ | 2008 10 31 | G96 | 0.7− | 0.0 |
| 2003 10 20 | 291 | 0.2+ | 0.2− | 2003 10 24 | 704 | 0.3− | 0.4− | 2008 10 31 | G96 | 0.4+ | 0.4+ |
| 2003 10 21 | 699 | 0.2− | 0.3− | 2003 10 24 | 704 | 0.7− | 0.6+ | 2008 12 01 | G96 | 0.3− | 0.5− |
| 2003 10 21 | 699 | 0.6− | 1.0+ | 2008 09 22 | 703 | 0.4+ | 0.2+ | 2008 12 01 | G96 | 0.0 | 0.6− |
| 2003 10 21 | 699 | 0.1+ | 1.2+ | 2008 09 22 | 703 | 0.2+ | 0.4+ | 2008 12 01 | G96 | 0.5+ | 1.2− |
| 2003 10 21 | 699 | 0.2+ | 1.2+ | 2008 09 22 | 703 | 1.0+ | 0.2+ | 2008 12 01 | G96 | 0.2− | 1.0− |
| 2003 10 24 | 704 | 0.5− | 0.2− | 2008 09 22 | 703 | (1.4+ | 1.9+) | | | | |
| 2003 10 24 | 704 | 0.1+ | 1.2+ | 2008 09 28 | 703 | 0.7− | 0.5− | | | | |

**2003 UF$_{137}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 54.21389 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17425315 | $\omega$ | 317.33147 | | +0.98294459 | +0.08673572 | |
| $a$ | 3.1745509 | $\Omega$ | 38.59894 | | +0.02166962 | +0.82102081 | |
| $e$ | 0.2851512 | $i$ | 15.06607 | | −0.18262080 | +0.56427098 | |
| $P$ | 5.66 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 22 | 644 | 0.0 | 0.1− | 2003 10 22 | 704 | 0.3− | 0.6+ | 2003 11 21 | 704 | 0.2+ | 0.9+ |
| 2003 09 22 | 644 | 0.2− | 0.1+ | 2003 10 22 | 704 | 0.0 | 0.2+ | 2003 11 21 | 704 | 0.6− | 0.8+ |
| 2003 09 22 | 644 | 0.3+ | 0.2− | 2003 10 24 | 704 | 0.2− | 0.2− | 2003 11 21 | 704 | 0.3− | 1.1+ |
| 2003 10 14 | 699 | 0.2− | 0.4− | 2003 10 24 | 704 | 0.7− | 0.2− | 2003 11 28 | 691 | 0.4+ | 0.2− |
| 2003 10 14 | 699 | 0.1− | 0.6+ | 2003 10 24 | 704 | 0.1− | 0.0 | 2003 11 28 | 691 | 0.2+ | 0.2− |
| 2003 10 14 | 699 | 0.3− | 0.7− | 2003 10 24 | 704 | 0.2+ | 0.5− | 2003 11 28 | 691 | 0.2+ | 0.4− |
| 2003 10 14 | 699 | 0.6+ | 0.3− | 2003 10 24 | 704 | 0.1+ | 0.1+ | 2009 11 22 | 114 | 0.3+ | 0.4+ |
| 2003 10 21 | 704 | 0.1− | 0.5+ | 2003 10 24 | 608 | 0.6+ | 0.3− | 2009 11 22 | 114 | 0.4− | 0.6+ |
| 2003 10 21 | 704 | 0.2+ | 0.6+ | 2003 10 24 | 608 | 0.7+ | 0.1+ | 2009 11 22 | 114 | 0.0 | 0.4− |
| 2003 10 21 | 704 | 0.3+ | 0.3− | 2003 10 24 | 608 | 0.6+ | 0.3− | 2009 11 22 | 114 | 0.3− | 0.5− |
| 2003 10 21 | 704 | 0.0 | 0.1− | 2003 10 28 | 704 | 0.2− | 0.1− | 2009 11 24 | 114 | 0.0 | 0.2− |
| 2003 10 21 | 704 | 0.0 | 0.1− | 2003 10 28 | 704 | 0.1+ | 0.2− | 2009 11 24 | 114 | 0.3+ | 0.4− |
| 2003 10 22 | 704 | 0.7− | 0.3+ | 2003 10 28 | 704 | 0.1+ | 0.2+ | 2009 11 24 | 114 | 0.1+ | 0.2− |
| 2003 10 22 | 704 | 0.3− | 0.1− | 2003 10 28 | 704 | 0.3− | 0.4− | 2009 11 24 | 114 | 0.1− | 0.1+ |
| 2003 10 22 | 704 | 1.2− | 1.0+ | 2003 11 21 | 704 | 0.5− | 0.3+ | 2009 11 24 | 114 | 0.0 | 0.9+ |

**2003 UP$_{141}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 107.04808 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19674940 | $\omega$ | 242.04102 | | +0.97802392 | +0.17592869 | |
| $a$ | 2.9277036 | $\Omega$ | 107.64637 | | −0.12469371 | +0.92365505 | |
| $e$ | 0.0798425 | $i$ | 6.74264 | | −0.16709486 | +0.34045624 | |
| $P$ | 5.01 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 11 30 | 691 | 0.2+ | 0.1+ | 2003 10 18 | 699 | 0.3− | 1.2+ | 2008 10 08 | 703 | 0.7− | 0.2− |
| 1994 11 30 | 691 | 0.1− | 0.2+ | 2003 10 18 | 699 | 0.4+ | 0.1− | 2008 10 08 | 703 | 0.2+ | 0.2+ |
| 1994 11 30 | 691 | (1.7− | 3.5+) | 2003 10 18 | 699 | 0.5+ | 0.6− | 2009 12 10 | G96 | 0.4+ | 0.3− |
| 2003 09 18 | 644 | 0.1− | 0.0 | 2003 10 18 | 699 | (1.6− | 0.1+) | 2009 12 10 | G96 | 0.4+ | 0.0 |
| 2003 09 18 | 644 | 0.1+ | 0.1− | 2003 10 20 | 704 | 0.6− | 0.5+ | 2009 12 10 | G96 | 0.3− | 0.5− |
| 2003 09 18 | 644 | 0.2+ | 0.1+ | 2003 10 20 | 704 | 1.1− | 0.3+ | 2009 12 10 | G96 | 0.2− | 0.5− |
| 2003 09 28 | 699 | (1.6+ | 1.8+) | 2003 10 20 | 704 | 0.5− | 0.9+ | 2009 12 17 | 691 | 0.1+ | 0.2+ |
| 2003 09 28 | 699 | 0.9− | 0.2− | 2008 09 21 | 703 | 0.5+ | 0.8+ | 2009 12 17 | 691 | 0.1− | 0.1− |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 28 | 699 | 0.7+ | 0.8− | 2008 09 21 | 703 | 0.3− | 0.2− | 2009 12 17 | 691 | 0.2− | 0.3− |
| 2003 09 28 | 699 | 0.2− | 1.3− | 2008 09 21 | 703 | 0.7+ | 0.5− | 2009 12 25 | 691 | 0.1+ | 0.3+ |
| 2003 10 02 | 691 | 0.1+ | 0.0 | 2008 09 21 | 703 | 0.5+ | 0.1+ | 2009 12 25 | 691 | 0.1+ | 0.0 |
| 2003 10 02 | 691 | 0.2+ | 0.0 | 2008 10 08 | 703 | (1.1− | 1.6+) | 2009 12 25 | 691 | 0.0 | 0.3− |
| 2003 10 02 | 691 | 0.2+ | 0.1− | 2008 10 08 | 703 | 0.5− | 0.5+ | | | | |

**2003 UB$_{151}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 84.08253 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19192522 | $\omega$ | 335.03540 | | +0.94024727 | −0.31027130 | |
| $a$ | 2.9765603 | $\Omega$ | 43.82599 | | +0.33639223 | +0.78275115 | |
| $e$ | 0.1182177 | $i$ | 11.68430 | | +0.05268155 | +0.53947415 | |
| $P$ | 5.14 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 22 | 644 | 0.3− | 0.1+ | 2003 10 22 | 704 | 1.3+ | 0.8+ | 2003 11 18 | 699 | 0.5− | 0.8+ |
| 2003 09 22 | 644 | 0.0 | 0.3+ | 2003 10 22 | 704 | 1.0+ | 1.2+ | 2003 11 18 | 699 | 1.1− | 1.1− |
| 2003 09 22 | 644 | 0.3− | 0.1+ | 2003 10 22 | 704 | 0.2− | 0.2+ | 2003 11 18 | 699 | 1.3+ | 0.9− |
| 2003 10 21 | 691 | 0.2+ | 0.2+ | 2003 10 22 | 704 | 0.7+ | 0.1− | 2003 11 18 | 699 | 1.1+ | 0.1+ |
| 2003 10 21 | 691 | 0.0 | 0.0 | 2003 10 24 | 704 | 0.1− | 0.4+ | 2008 10 08 | 703 | 0.1− | 0.3+ |
| 2003 10 21 | 704 | 0.2+ | 0.7− | 2003 10 24 | 704 | 0.1− | 0.3− | 2008 10 08 | 703 | 0.6− | 0.7− |
| 2003 10 21 | 704 | 0.0 | 0.5+ | 2003 10 24 | 704 | 0.9− | 1.5− | 2008 10 08 | 703 | 0.1+ | 0.7− |
| 2003 10 21 | 704 | 0.1− | 0.1+ | 2003 10 28 | 704 | 0.5+ | 0.3+ | 2008 10 08 | 703 | 0.9+ | 0.5+ |
| 2003 10 21 | 691 | 0.2− | 0.1+ | 2003 10 28 | 704 | 0.1+ | 0.2− | 2008 12 31 | G96 | 0.1+ | 0.0 |
| 2003 10 21 | 704 | 0.4− | 1.2− | 2003 10 28 | 704 | 0.1+ | 0.2− | 2008 12 31 | G96 | 0.2− | 0.4+ |
| 2003 10 21 | 704 | 0.1− | 0.3− | 2003 10 28 | 704 | 0.6− | 0.0 | 2008 12 31 | G96 | 0.1+ | 0.3+ |
| 2003 10 22 | 704 | 0.7− | 0.0 | 2003 10 28 | 704 | 0.4− | 0.2+ | 2008 12 31 | G96 | 0.6− | 0.2+ |

**2003 UC$_{162}$ = 2008 RJ$_{133}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 109.46646 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18832060 | $\omega$ | 301.21637 | | +0.91653809 | +0.38426707 | |
| $a$ | 3.0144228 | $\Omega$ | 36.52022 | | −0.27316863 | +0.80397793 | |
| $e$ | 0.1032073 | $i$ | 10.73913 | | −0.29212467 | +0.45382629 | |
| $P$ | 5.23 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 27 | 691 | 0.3− | 0.2+ | 2003 10 24 | 704 | 1.5+ | 0.2− | 2008 09 20 | 703 | 0.2+ | 0.0 |
| 2003 09 27 | 691 | 0.4− | 0.5+ | 2003 10 24 | 704 | 1.3+ | 0.6− | 2008 09 20 | 703 | 0.7− | 0.6+ |
| 2003 09 27 | 691 | 0.3− | 0.1+ | 2003 10 24 | 704 | 0.8+ | 0.7+ | 2008 10 01 | 703 | 0.0 | 0.2− |
| 2003 10 16 | 691 | 0.0 | 0.1− | 2003 10 24 | 704 | 0.2+ | 0.0 | 2008 10 01 | 703 | 0.5+ | 0.3− |
| 2003 10 16 | 691 | 0.1+ | 0.3− | 2003 10 24 | 704 | 0.6+ | 0.4+ | 2008 10 01 | 703 | 0.1− | 0.1− |
| 2003 10 16 | 691 | 0.1− | 0.1− | 2003 10 24 | 704 | (1.8+ | 0.2−) | 2008 10 01 | 703 | 0.7− | 0.7− |
| 2003 10 21 | 699 | 0.1− | 0.2− | 2003 10 25 | 691 | 0.2− | 0.2− | 2008 10 08 | 703 | 0.1− | 1.4+ |
| 2003 10 21 | 699 | (1.9+ | 1.1−) | 2003 10 25 | 691 | 0.1− | 0.3− | 2008 10 08 | 703 | 0.9− | 1.4+ |
| 2003 10 21 | 699 | 0.7− | 0.1+ | 2003 10 25 | 691 | 0.0 | 0.2− | 2008 10 08 | 703 | (1.7+ | 0.0 ) |
| 2003 10 21 | 699 | 0.7+ | 0.6− | 2003 10 26 | 703 | (1.9− | 0.2+) | 2008 10 08 | 703 | (2.0+ | 0.9+) |
| 2003 10 21 | 704 | 0.3+ | 0.1+ | 2003 10 26 | 703 | 1.1− | 0.8+ | 2008 12 03 | G96 | 0.8+ | 0.4+ |
| 2003 10 21 | 704 | 0.1+ | 0.4+ | 2003 10 26 | 703 | (1.9− | 0.2−) | 2008 12 03 | G96 | 0.1+ | 0.2− |
| 2003 10 21 | 704 | 0.2− | 0.0 | 2003 10 26 | 703 | 0.0 | 0.1+ | 2008 12 03 | G96 | 0.1+ | 0.3− |
| 2003 10 21 | 644 | 0.3− | 0.3+ | 2003 10 28 | 704 | 0.2− | 0.8+ | 2008 12 03 | G96 | 0.1+ | 0.1− |
| 2003 10 21 | 644 | 0.2− | 0.3+ | 2003 10 28 | 704 | 0.6+ | 1.0+ | 2008 12 31 | G96 | 0.4+ | 0.2− |
| 2003 10 21 | 644 | 0.1− | 0.3+ | 2003 10 28 | 704 | 0.2− | 0.0 | 2008 12 31 | G96 | 0.2− | 0.0 |
| 2003 10 23 | 608 | 0.2+ | 0.8− | 2008 09 06 | 703 | 0.6+ | 0.7+ | 2008 12 31 | G96 | 0.4+ | 0.2− |
| 2003 10 23 | 608 | 0.2− | 0.6− | 2008 09 06 | 703 | 1.0− | 0.5+ | 2008 12 31 | G96 | 0.1− | 0.1− |
| 2003 10 23 | 608 | 0.4− | 1.1− | 2008 09 06 | 703 | 0.5+ | 1.0− | 2009 12 20 | G96 | 0.1+ | 0.3+ |
| 2003 10 24 | 704 | 0.5+ | 0.2+ | 2008 09 06 | 703 | 0.6+ | 1.3− | 2009 12 20 | G96 | 0.1+ | 0.0 |
| 2003 10 24 | 704 | 1.0+ | 0.8+ | 2008 09 20 | 703 | 1.0+ | 0.2− | 2009 12 20 | G96 | 0.2− | 0.0 |
| 2003 10 24 | 704 | 0.7+ | 0.2+ | 2008 09 20 | 703 | 0.5− | 1.0− | 2009 12 20 | G96 | 0.0 | 0.1− |

**2003 UV$_{166}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 353.36817 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18155935 | $\omega$ | 230.72696 | | −0.05064616 | −0.99234663 | |
| $a$ | 3.0888037 | $\Omega$ | 222.59522 | | +0.95989014 | −0.01723048 | |
| $e$ | 0.0564231 | $i$ | 9.57836 | | +0.27576418 | −0.12227541 | |
| $P$ | 5.43 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 22 | 691 | 0.1− | 0.7− | 2003 10 23 | 291 | 0.4− | 0.2+ | 2003 11 28 | 691 | 0.0 | 0.0 |
| 2003 09 22 | 691 | 0.3− | 0.2− | 2003 10 23 | 291 | 0.3− | 0.0 | 2003 11 28 | 691 | 0.5+ | 0.0 |
| 2003 09 22 | 691 | 0.1− | 0.0 | 2003 10 24 | 704 | 0.7− | 1.2+ | 2009 10 15 | G96 | 0.1− | 0.3− |
| 2003 10 16 | 691 | 0.5− | 0.2+ | 2003 10 24 | 704 | 0.1+ | 1.2+ | 2009 10 15 | G96 | 0.0 | 0.2− |
| 2003 10 16 | 691 | 0.3− | 0.2+ | 2003 10 24 | 704 | 1.0− | 0.2+ | 2009 10 15 | G96 | 0.1+ | 0.0 |
| 2003 10 16 | 691 | 0.1− | 0.1+ | 2003 10 24 | 704 | 0.1− | 0.4− | 2009 10 15 | G96 | 0.1+ | 0.1− |
| 2003 10 22 | 291 | 0.7+ | 0.4− | 2003 10 25 | 691 | 0.1− | 0.0 | 2009 12 17 | G96 | 0.1− | 0.0 |
| 2003 10 22 | 291 | 0.9+ | 0.2− | 2003 10 25 | 691 | 0.2− | 0.1+ | 2009 12 17 | G96 | 0.3+ | 0.1+ |
| 2003 10 22 | 291 | 1.1+ | 0.1− | 2003 10 25 | 691 | 0.2− | 0.1− | 2009 12 17 | G96 | 0.3− | 0.1− |
| 2003 10 23 | 291 | 0.2− | 0.3+ | 2003 11 28 | 691 | 0.1− | 0.1+ | 2009 12 17 | G96 | 0.1+ | 0.2+ |

**2003 UX$_{173}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 261.24231 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27258913 | $\omega$ | 343.29844 | | +0.93330058 | +0.35873450 | |
| $a$ | 2.3557563 | $\Omega$ | 355.57893 | | −0.30092903 | +0.75685344 | |
| $e$ | 0.2815764 | $i$ | 12.06441 | | −0.19593813 | +0.54633545 | |
| $P$ | 3.62 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 28 | 704 | 0.3− | 0.4− | 2003 10 24 | 704 | 0.2+ | 0.2+ | 2008 03 03 | G96 | 0.6+ | 0.0 |
| 2003 09 28 | 704 | 0.5+ | 0.7+ | 2003 10 27 | 608 | 0.6− | 0.7+ | 2008 03 03 | G96 | 0.1− | 0.1+ |
| 2003 09 28 | 704 | 0.7− | 0.1− | 2003 10 27 | 608 | 0.1+ | 0.1− | 2008 03 03 | G96 | 0.1− | 0.2− |
| 2003 09 28 | 704 | 0.1+ | 0.1− | 2003 10 27 | 608 | 0.2+ | 0.2+ | 2009 02 01 | G96 | 0.8+ | 0.1− |
| 2003 09 28 | 704 | 0.5− | 0.2+ | 2003 12 13 | 704 | 0.7− | 0.1+ | 2009 02 01 | G96 | 0.5+ | 0.2+ |
| 2003 10 21 | 699 | 0.6− | 0.4− | 2003 12 13 | 704 | 0.1− | 0.4+ | 2009 02 01 | G96 | 0.2− | 0.2+ |
| 2003 10 21 | 699 | (2.0− | 0.6+) | 2003 12 13 | 704 | 0.1+ | 0.4+ | 2009 02 27 | 703 | 0.3− | 0.8+ |
| 2003 10 21 | 699 | 0.2+ | 0.1− | 2006 04 09 | E12 | 0.5+ | 0.1− | 2009 02 27 | 703 | 0.6+ | 0.9− |
| 2003 10 21 | 699 | 0.4+ | 0.0 | 2006 04 09 | E12 | 0.9+ | 0.0 | 2009 02 27 | 703 | 0.7− | 0.1+ |
| 2003 10 24 | 704 | 0.7+ | 0.9− | 2006 04 09 | E12 | 0.6− | 0.2− | 2009 02 27 | 703 | 1.1− | 0.4− |
| 2003 10 24 | 704 | 0.4+ | 0.5− | 2006 04 09 | E12 | 0.3− | 0.5+ | | | | |
| 2003 10 24 | 704 | 0.4+ | 0.0 | 2008 03 03 | G96 | 0.3− | 0.1+ | | | | |

**2003 UK$_{175}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 98.95805 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18768016 | $\omega$ | 319.40451 | | +0.93648241 | +0.34237757 | |
| $a$ | 3.0212765 | $\Omega$ | 20.95170 | | −0.24066323 | +0.78500629 | |
| $e$ | 0.2152794 | $i$ | 12.27369 | | −0.25511155 | +0.51627776 | |
| $P$ | 5.25 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 27 | 691 | 0.1+ | 0.0 | 2003 10 25 | 691 | 0.1+ | 0.2− | 2008 09 20 | 703 | 0.3+ | 0.7+ |
| 2003 09 27 | 691 | 0.0 | 0.2− | 2003 10 25 | 691 | 0.2− | 0.1− | 2008 09 20 | 703 | 0.1+ | 0.1+ |
| 2003 09 27 | 691 | 0.1− | 0.1+ | 2003 10 28 | 704 | 0.0 | 0.4− | 2008 09 20 | 703 | 0.5+ | 0.8+ |
| 2003 10 21 | 699 | 0.7+ | 1.4− | 2003 10 28 | 704 | 0.1+ | 0.0 | 2008 10 07 | G96 | 0.3− | 0.9− |
| 2003 10 21 | 699 | 0.5− | 0.0 | 2003 10 28 | 704 | 0.9− | 0.3− | 2008 10 07 | G96 | 0.5− | 0.3− |
| 2003 10 21 | 699 | 0.7− | 0.6+ | 2003 11 01 | 704 | 0.4− | 0.0 | 2008 10 07 | G96 | 0.4− | 0.6− |
| 2003 10 21 | 699 | 0.6− | 0.1− | 2003 11 01 | 704 | 1.2− | 0.2− | 2008 10 07 | G96 | 0.5+ | 0.4− |
| 2003 10 24 | 704 | 0.8+ | 1.1+ | 2003 11 01 | 704 | 0.0 | 0.1+ | 2008 12 03 | G96 | 0.6+ | 0.2− |
| 2003 10 24 | 704 | 0.9+ | 0.8+ | 2008 09 06 | 703 | 1.0+ | 0.1− | 2008 12 03 | G96 | 0.5+ | 0.1− |
| 2003 10 24 | 704 | 0.7+ | 1.2+ | 2008 09 06 | 703 | 0.7− | 0.7+ | 2008 12 03 | G96 | 0.3+ | 0.1− |
| 2003 10 24 | 704 | 0.8+ | 0.6+ | 2008 09 06 | 703 | 0.0 | 0.4+ | 2008 12 03 | G96 | 0.5+ | 0.3− |
| 2003 10 24 | 704 | 0.7+ | 0.9+ | 2008 09 06 | 703 | 0.0 | 0.0 | | | | |
| 2003 10 25 | 691 | 0.2− | 0.2− | 2008 09 20 | 703 | 1.3− | 0.4− | | | | |

**2003 UM$_{201}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 66.67512 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17581389 | $\omega$ | 148.58054 | | +0.98940457 | +0.03299084 | |
| $a$ | 3.1557355 | $\Omega$ | 210.51119 | | −0.05598956 | +0.98521430 | |
| $e$ | 0.1548953 | $i$ | 16.16958 | | +0.13395436 | +0.16812016 | |
| $P$ | 5.61 | $H$ | 15.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 21 | 699 | 0.4+ | 0.3+ | 2003 10 24 | 704 | 0.3+ | 0.8+ | 2003 11 19 | 644 | 0.4− | 0.0 |
| 2003 09 21 | 699 | 0.3− | 0.5+ | 2003 10 24 | 704 | 0.7− | 0.7− | 2003 11 21 | 699 | 0.3+ | 0.2− |
| 2003 09 21 | 699 | 0.2+ | 0.3− | 2003 10 24 | 704 | 0.8+ | 1.1− | 2003 11 21 | 699 | 0.2+ | 0.1+ |
| 2003 09 21 | 699 | (2.1+ | 2.4−) | 2003 10 24 | 704 | 0.7− | 0.7+ | 2003 11 21 | 699 | 0.4− | 0.0 |
| 2003 10 21 | 704 | 0.3− | 0.6+ | 2003 10 28 | 704 | 0.3+ | 0.1− | 2003 11 21 | 699 | 1.4− | 0.1+ |
| 2003 10 21 | 704 | 0.2+ | 1.0+ | 2003 10 28 | 704 | 1.2+ | 0.1− | 2007 05 12 | G96 | 0.1− | 0.0 |
| 2003 10 21 | 704 | 0.1+ | 0.9+ | 2003 10 28 | 704 | 0.1− | 0.4+ | 2007 05 12 | G96 | 0.0 | 0.2− |
| 2003 10 21 | 704 | 0.1+ | 0.2+ | 2003 10 28 | 704 | 0.2− | 0.3− | 2007 05 12 | G96 | 0.1− | 0.3+ |
| 2003 10 21 | 644 | 0.6− | 0.3− | 2003 11 01 | 704 | 1.6+ | 0.6+ | 2007 05 12 | G96 | 0.0 | 0.0 |
| 2003 10 21 | 691 | 0.2− | 0.2− | 2003 11 01 | 704 | 1.2+ | 0.7+ | 2007 06 20 | 691 | 0.2− | 0.1+ |
| 2003 10 21 | 644 | 0.0 | 0.2+ | 2003 11 01 | 704 | 1.1+ | 0.9− | 2007 06 20 | 691 | 0.2+ | 0.2+ |
| 2003 10 21 | 644 | 0.1− | 0.2+ | 2003 11 01 | 704 | 0.8+ | 0.4− | 2007 06 20 | 691 | 0.0 | 0.3− |
| 2003 10 21 | 691 | 0.3− | 0.3− | 2003 11 19 | 644 | 0.3− | 0.2+ | | | | |
| 2003 10 21 | 691 | 0.2− | 0.3− | 2003 11 19 | 644 | 0.5− | 0.0 | | | | |

**2003 UV$_{228}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 152.02860 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22572316 | $\omega$ | 168.13831 | | +0.77672699 | −0.60425233 | |
| $a$ | 2.6714803 | $\Omega$ | 230.51046 | | +0.55740506 | +0.79083343 | |
| $e$ | 0.2498734 | $i$ | 13.31166 | | +0.29324868 | +0.09727082 | |
| $P$ | 4.37 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 18 | 699 | 0.6+ | 0.4+ | 2003 11 05 | 699 | 0.1− | 0.1− | 2003 11 23 | 291 | 0.4+ | 0.1+ |
| 2003 10 18 | 699 | 0.7+ | 0.7− | 2003 11 05 | 699 | 0.2+ | 0.3− | 2003 11 23 | 291 | 0.4+ | 0.2− |
| 2003 10 18 | 699 | 0.5− | 0.6+ | 2003 11 05 | 699 | 0.2− | 0.5− | 2003 11 24 | 703 | 0.6− | 1.2− |
| 2003 10 18 | 699 | 1.2+ | 0.9− | 2003 11 15 | 644 | 0.0 | 0.1− | 2003 11 24 | 703 | 0.4+ | 0.0 |
| 2003 10 23 | 699 | 0.7− | 0.7− | 2003 11 15 | 644 | 0.1− | 0.1+ | 2003 11 24 | 703 | 0.4+ | 0.1− |
| 2003 10 23 | 699 | 0.4− | 1.4− | 2003 11 15 | 644 | 0.0 | 0.1+ | 2003 11 24 | 703 | 0.9+ | 0.5+ |
| 2003 10 23 | 699 | 0.5− | 0.5− | 2003 11 16 | 691 | 0.1− | 0.2− | 2003 11 30 | 691 | 0.1− | 0.1+ |
| 2003 10 23 | 699 | 0.2− | 1.2− | 2003 11 16 | 691 | 0.1− | 0.1− | 2003 11 30 | 691 | 0.1+ | 0.2− |
| 2003 10 25 | 704 | 0.4− | 0.7+ | 2003 11 16 | 691 | 0.2− | 0.2− | 2003 11 30 | 691 | 0.1+ | 0.0 |
| 2003 10 25 | 704 | 0.5− | 0.9+ | 2003 11 19 | 699 | 0.8− | 0.5+ | 2003 12 22 | 704 | 0.1+ | 0.4+ |
| 2003 10 25 | 704 | 0.8− | 0.8+ | 2003 11 19 | 699 | 0.0 | 0.0 | 2003 12 22 | 704 | 0.2+ | 0.0 |
| 2003 10 25 | 704 | 0.3+ | 0.4+ | 2003 11 19 | 699 | 0.2+ | 0.4− | 2003 12 22 | 704 | 0.7+ | 1.3+ |
| 2003 10 25 | 704 | 0.5− | 0.5+ | 2003 11 19 | 699 | 0.1− | 0.1+ | 2003 12 22 | 704 | 0.1− | 0.2+ |
| 2003 10 29 | 704 | 0.1+ | 0.6− | 2003 11 20 | 291 | 0.1− | 0.0 | 2007 09 05 | 703 | 0.1− | 0.2− |
| 2003 10 29 | 704 | 0.2− | 0.0 | 2003 11 20 | 291 | 0.2− | 0.3+ | 2007 09 05 | 703 | 0.1+ | 0.2+ |
| 2003 10 29 | 704 | 0.1− | 0.2− | 2003 11 20 | 291 | 0.0 | 0.4+ | 2007 09 05 | 703 | 0.4+ | 0.7+ |
| 2003 10 29 | 704 | 0.8− | 0.6− | 2003 11 21 | 704 | 0.2− | 0.2+ | 2007 09 05 | 703 | 0.4− | 0.7+ |
| 2003 10 30 | 704 | 0.6− | 1.9+ | 2003 11 21 | 704 | 0.8+ | 0.8+ | 2007 12 05 | G96 | 0.4+ | 0.3− |
| 2003 10 30 | 704 | 0.3+ | 1.1+ | 2003 11 21 | 704 | 0.3− | 0.9− | 2007 12 05 | G96 | 0.1− | 0.4− |
| 2003 10 30 | 704 | 1.2+ | 0.8− | 2003 11 21 | 704 | 0.0 | 0.3+ | 2007 12 05 | G96 | 0.1− | 0.1− |
| 2003 10 30 | 704 | 0.6− | 0.3+ | 2003 11 21 | 704 | 0.5− | 0.4+ | 2007 12 05 | G96 | 0.5− | 0.7− |
| 2003 11 05 | 699 | 1.2− | 1.5− | 2003 11 23 | 291 | 0.6+ | 0.2+ | | | | |

**2003 UJ$_{252}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 75.32127 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.20202028 | $\omega$ | 37.35439 | | +0.10023293 | −0.97895102 | |
| $a$ | 2.8765554 | $\Omega$ | 47.65084 | | +0.84492680 | −0.01061025 | |
| $e$ | 0.1712756 | $i$ | 13.91963 | | +0.52540656 | +0.20381934 | |
| $P$ | 4.88 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 26 | 691 | 0.2− | 0.3− | 2003 11 24 | 704 | 0.2+ | 0.3− | 2003 12 28 | 699 | 0.7− | 0.4− |
| 2003 10 26 | 691 | 0.1− | 0.2+ | 2003 11 24 | 704 | 0.2+ | 0.4+ | 2003 12 28 | 699 | (1.5+ | 1.8−) |
| 2003 10 26 | 691 | 0.4− | 0.0 | 2003 11 24 | 704 | 0.1+ | 0.4+ | 2008 07 29 | G96 | 0.8+ | 0.4+ |
| 2003 10 27 | 691 | 0.0 | 0.0 | 2003 11 24 | 704 | 0.1+ | 0.4− | 2008 07 29 | G96 | 0.7+ | 0.5+ |
| 2003 10 27 | 691 | 0.1+ | 0.0 | 2003 12 04 | 704 | 1.1− | 0.2− | 2008 07 29 | G96 | 0.4+ | 0.8+ |
| 2003 10 27 | 691 | 0.0 | 0.1− | 2003 12 04 | 704 | (1.9− | 0.7−) | 2008 07 29 | G96 | 0.7+ | 0.3+ |
| 2003 10 29 | 704 | 0.3+ | 1.5+ | 2003 12 04 | 704 | 0.5− | 0.1+ | 2008 09 04 | 691 | 0.3− | 0.7− |
| 2003 10 29 | 704 | 0.1− | 0.3− | 2003 12 17 | 644 | 0.1− | 0.1+ | 2008 09 04 | 691 | 0.2+ | 0.6− |
| 2003 10 29 | 704 | 0.4− | 0.1− | 2003 12 17 | 644 | 0.4− | 0.1+ | 2008 09 04 | 691 | 0.3− | 0.5− |
| 2003 10 29 | 704 | 0.0 | 0.4+ | 2003 12 17 | 644 | 0.3+ | 0.2+ | 2008 12 03 | 703 | 1.0− | 0.4− |
| 2003 11 20 | 704 | 0.6+ | 0.5+ | 2003 12 23 | 704 | 1.4+ | 1.2+ | 2008 12 03 | 703 | 0.2− | 0.9− |
| 2003 11 20 | 704 | 0.3+ | 0.5+ | 2003 12 23 | 704 | 0.3+ | 0.2− | 2008 12 03 | 703 | 0.3− | 0.2− |
| 2003 11 20 | 704 | 0.2+ | 0.4+ | 2003 12 23 | 704 | 0.2+ | 0.1+ | 2008 12 03 | 703 | 0.7+ | 0.5+ |
| 2003 11 20 | 704 | 1.2+ | 1.0− | 2003 12 23 | 704 | 0.6− | 1.0+ | 2008 12 22 | 703 | 0.4+ | 0.9+ |
| 2003 11 21 | 644 | 0.1+ | 0.2+ | 2003 12 28 | 691 | 0.1+ | 0.2− | 2008 12 22 | 703 | 0.8+ | 0.5− |
| 2003 11 21 | 644 | 0.3+ | 0.1+ | 2003 12 28 | 691 | 0.3− | 0.1− | 2008 12 22 | 703 | 0.9+ | 0.4− |
| 2003 11 21 | 644 | 0.1+ | 0.2+ | 2003 12 28 | 691 | 0.0 | 0.0 | 2008 12 22 | 703 | 0.0 | 0.7+ |
| 2003 11 23 | 704 | 1.0+ | 0.2+ | 2003 12 28 | 704 | 0.2+ | 1.3+ | 2009 04 23 | G96 | 0.8− | 0.3− |
| 2003 11 23 | 704 | 0.4− | 0.0 | 2003 12 28 | 704 | 0.0 | 0.1+ | 2009 04 23 | G96 | 0.2+ | 0.5− |
| 2003 11 23 | 704 | 0.1− | 1.3+ | 2003 12 28 | 699 | 0.9− | 0.0 | 2009 04 23 | G96 | 0.4− | 0.1− |
| 2003 11 23 | 704 | 1.1− | 0.6− | 2003 12 28 | 704 | 0.5− | 0.1− | 2009 04 23 | G96 | 0.2+ | 0.4− |
| 2003 11 24 | 704 | 0.3+ | 0.2− | 2003 12 28 | 699 | 0.2− | 0.5− | | | | |

**2003 UJ$_{258}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 35.62682 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18013157 | $\omega$ | 318.27525 | | +0.44742357 | −0.89133964 | |
| $a$ | 3.1051040 | $\Omega$ | 105.02846 | | +0.83923074 | +0.39026368 | |
| $e$ | 0.2710624 | $i$ | 4.33354 | | +0.30903708 | +0.23066838 | |
| $P$ | 5.47 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 25 | 704 | 0.0 | 0.4+ | 2003 11 18 | 691 | 0.1+ | 0.0 | 2004 01 18 | 644 | 0.2− | 0.2+ |
| 2003 10 25 | 704 | 0.3− | 0.6+ | 2003 11 18 | 691 | 0.0 | 0.2+ | 2004 01 18 | 644 | 0.2− | 0.1− |
| 2003 10 25 | 704 | 0.6+ | 0.9− | 2003 11 19 | 699 | 0.6− | 1.1− | 2004 01 18 | 644 | 0.1− | 0.3+ |
| 2003 10 29 | 704 | 0.8+ | 1.1− | 2003 11 19 | 699 | 0.2− | 0.0 | 2009 11 21 | G96 | 0.1+ | 0.3− |
| 2003 10 29 | 704 | 0.2− | 0.0 | 2003 11 19 | 699 | 0.2− | 0.3− | 2009 11 21 | G96 | 0.1+ | 0.2− |
| 2003 10 29 | 704 | 0.3− | 0.9− | 2003 11 19 | 699 | 0.2− | 0.2− | 2009 11 21 | G96 | 0.1− | 0.1− |
| 2003 10 29 | 704 | 0.5− | 0.1+ | 2003 12 01 | 704 | 1.4+ | 0.6+ | 2009 11 21 | G96 | 0.1− | 0.2+ |
| 2003 11 05 | 699 | 0.2+ | 0.1+ | 2003 12 01 | 704 | (2.2+ | 0.7+) | 2009 12 17 | G96 | 0.1+ | 0.2− |
| 2003 11 05 | 699 | 0.5− | 0.6− | 2003 12 01 | 704 | 0.3+ | 0.9+ | 2009 12 17 | G96 | 0.0 | 0.2− |
| 2003 11 05 | 699 | 0.5+ | 0.4+ | 2003 12 22 | 691 | 0.1− | 0.1+ | 2009 12 17 | G96 | 0.5− | 0.2− |
| 2003 11 05 | 699 | 0.2− | 0.1− | 2003 12 22 | 691 | 0.1− | 0.1+ | 2009 12 17 | G96 | 0.0 | 0.1+ |
| 2003 11 18 | 691 | 0.1+ | 0.1+ | 2003 12 22 | 691 | 0.1− | 0.1+ | | | | |

**2003 UK$_{261}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 71.03317 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18037220 | $\omega$ | 325.82246 | | +0.99056714 | +0.09127537 | |
| $a$ | 3.1023418 | $\Omega$ | 29.45154 | | −0.01934134 | +0.83152266 | |
| $e$ | 0.1156331 | $i$ | 11.99713 | | −0.13565635 | +0.54794058 | |
| $P$ | 5.46 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 20 | 699 | 0.3− | 0.7+ | 2003 10 21 | 644 | 0.3+ | 0.1+ | 2003 11 21 | 704 | 0.4− | 0.0 |
| 2003 09 20 | 699 | 1.1+ | 0.3− | 2003 10 21 | 699 | 0.1+ | 0.1− | 2003 11 21 | 704 | 0.0 | 0.4+ |
| 2003 09 20 | 699 | (0.7− | 2.3+) | 2003 10 21 | 644 | 0.0 | 0.1+ | 2003 11 21 | 704 | 0.7− | 0.0 |
| 2003 09 20 | 699 | 0.5− | 0.5− | 2003 10 21 | 644 | 0.4+ | 0.1+ | 2003 11 21 | 704 | 0.9− | 0.1+ |
| 2003 09 29 | 704 | 0.9+ | 0.0 | 2003 10 26 | 691 | 0.4+ | 0.1− | 2008 08 05 | E12 | 0.4+ | 0.1+ |
| 2003 09 29 | 704 | 0.4+ | 0.6+ | 2003 10 26 | 691 | 0.1+ | 0.4+ | 2008 08 05 | E12 | 0.4− | 0.5− |
| 2003 09 29 | 704 | 0.2+ | 1.0+ | 2003 10 26 | 691 | 0.0 | 0.1− | 2008 08 05 | E12 | 0.9+ | 0.2− |
| 2003 09 29 | 704 | (0.7+ | 2.1−) | 2003 10 28 | 704 | 0.0 | 0.7+ | 2008 08 05 | E12 | 0.2+ | 0.1+ |
| 2003 10 16 | 691 | 0.0 | 0.0 | 2003 10 28 | 704 | 1.5− | 0.2− | 2008 08 23 | E12 | 0.0 | 0.3+ |
| 2003 10 16 | 691 | 0.2− | 0.2− | 2003 10 28 | 704 | 0.9− | 0.5− | 2008 08 23 | E12 | 0.8− | 0.2+ |
| 2003 10 16 | 691 | 0.1+ | 0.2− | 2003 11 18 | 185 | 0.0 | 0.2− | 2008 08 23 | E12 | 0.3− | 0.0 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 21 | 699 | 0.4+ | 0.3− | 2003 11 18 | 185 | 0.9− | 0.4+ | 2008 08 23 | E12 | 0.1− | 0.1+ | |
| 2003 10 21 | 699 | 0.2− | 0.1+ | 2003 11 18 | 185 | 0.4+ | 0.4− | | | | | |
| 2003 10 21 | 699 | 0.2− | 0.5− | 2003 11 18 | 185 | 0.5+ | 0.8− | | | | | |

**2003 UW$_{273}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 73.65044 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19254024 | $\omega$ | 327.96422 | | +0.69238594 | −0.69280011 | |
| $a$ | 2.9702184 | $\Omega$ | 77.32313 | | +0.69790120 | +0.57214590 | |
| $e$ | 0.0611414 | $i$ | 11.92344 | | +0.18312734 | +0.43894997 | |
| $P$ | 5.12 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 12 12 | 691 | 0.2+ | 0.4− | 2003 11 19 | 644 | 0.1− | 0.1+ | 2005 01 16 | 703 | 1.2+ | 1.0+ | |
| 1998 12 12 | 691 | 0.2− | 0.0 | 2003 11 19 | 644 | 0.0 | 0.1− | 2008 10 08 | 703 | 0.3− | 0.3+ | |
| 1998 12 12 | 691 | 0.1+ | 0.2− | 2003 11 19 | 644 | 0.2− | 0.1+ | 2008 10 08 | 703 | 0.6− | 0.0 | |
| 2003 10 21 | 704 | 0.4− | 0.8+ | 2003 11 21 | 699 | 0.4− | 0.1− | 2008 10 08 | 703 | 0.0 | 0.2+ | |
| 2003 10 21 | 704 | 0.4+ | 0.5+ | 2003 11 21 | 699 | 0.3+ | 0.1− | 2008 10 08 | 703 | (1.7− | 1.4+) | |
| 2003 10 21 | 704 | 0.3− | 0.9− | 2003 11 21 | 699 | 1.0− | 0.5+ | 2008 10 26 | G96 | 0.2+ | 0.5− | |
| 2003 10 29 | 691 | 0.1− | 0.2+ | 2003 11 21 | 699 | 0.2− | 0.1+ | 2008 10 26 | G96 | 0.1+ | 0.4− | |
| 2003 10 29 | 691 | 0.0 | 0.3+ | 2003 11 29 | 691 | 0.1+ | 0.0 | 2008 10 26 | G96 | 0.1− | 0.4− | |
| 2003 10 29 | 691 | 0.1+ | 0.3+ | 2003 11 29 | 691 | 0.0 | 0.0 | 2008 10 26 | G96 | 0.2+ | 0.2− | |
| 2003 11 01 | 704 | 0.9+ | 0.1+ | 2003 11 29 | 691 | 0.1+ | 0.2+ | 2008 11 17 | 703 | (0.7− | 1.6−) | |
| 2003 11 01 | 704 | 0.4+ | 0.3− | 2005 01 16 | 703 | 1.4− | 0.4+ | 2008 11 17 | 703 | 1.1+ | 1.0− | |
| 2003 11 01 | 704 | 0.2− | 0.5− | 2005 01 16 | 703 | 0.3+ | 1.2− | 2008 11 17 | 703 | 0.4− | 0.3− | |
| 2003 11 01 | 704 | 0.2− | 0.3− | 2005 01 16 | 703 | 0.0 | 0.3+ | 2008 11 17 | 703 | 0.4− | 0.6+ | |

**2003 UB$_{283}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 301.76835 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28461491 | $\omega$ | 273.85459 | | +0.92250141 | −0.36643951 | |
| $a$ | 2.2889218 | $\Omega$ | 107.67370 | | +0.38494376 | +0.85022338 | |
| $e$ | 0.1417566 | $i$ | 7.31399 | | +0.02845065 | +0.37794482 | |
| $P$ | 3.46 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 21 | 704 | 0.4+ | 0.5+ | 2003 11 18 | 691 | 0.1− | 0.1− | 2008 01 13 | 691 | 0.0 | 0.1− | |
| 2003 10 21 | 704 | 0.9− | 0.1+ | 2003 11 18 | 691 | 0.1+ | 0.1− | 2008 01 13 | 691 | 0.3− | 0.1+ | |
| 2003 10 21 | 704 | 0.0 | 0.5− | 2003 11 18 | 691 | 0.1− | 0.2− | 2008 01 13 | 691 | 0.1+ | 0.0 | |
| 2003 10 29 | 699 | 0.4+ | 1.3+ | 2003 11 30 | 703 | 0.0 | 1.5+ | 2008 02 11 | G96 | 0.3+ | 0.1+ | |
| 2003 10 29 | 699 | 0.7+ | 0.2+ | 2003 11 30 | 704 | 0.1+ | 1.0− | 2008 02 11 | G96 | 0.3+ | 0.1− | |
| 2003 10 29 | 699 | 0.0 | 1.1− | 2003 11 30 | 703 | 0.3+ | 0.2+ | 2008 02 11 | G96 | 0.2− | 0.1+ | |
| 2003 10 29 | 699 | 0.7+ | 0.3+ | 2003 11 30 | 704 | 0.4− | 0.0 | 2008 02 11 | G96 | 0.4+ | 0.0 | |
| 2003 11 01 | 704 | 0.4+ | 0.7− | 2003 11 30 | 704 | 0.8− | 0.3+ | 2009 04 30 | G96 | 0.1+ | 0.2+ | |
| 2003 11 01 | 704 | 0.5− | 0.5− | 2003 11 30 | 703 | 0.2+ | 0.6+ | 2009 04 30 | G96 | 0.2− | 0.4− | |
| 2003 11 01 | 704 | 0.2− | 0.9− | 2003 11 30 | 704 | 0.4− | 1.0+ | 2009 04 30 | G96 | 0.1− | 0.0 | |
| 2003 11 01 | 704 | 0.8+ | 0.4− | 2003 11 30 | 703 | 0.6+ | 0.6+ | 2009 04 30 | G96 | 0.1+ | 0.1+ | |
| 2003 11 16 | 703 | 0.8− | 0.1+ | 2003 12 22 | 704 | 0.6+ | 0.5− | 2009 05 28 | G96 | 0.1− | 0.0 | |
| 2003 11 16 | 703 | 0.1− | 1.1+ | 2003 12 22 | 704 | 1.1+ | 0.0 | 2009 05 28 | G96 | 0.0 | 0.2+ | |
| 2003 11 16 | 703 | 0.5− | 0.2− | 2003 12 22 | 704 | 0.4+ | 0.9− | 2009 05 28 | G96 | 0.3+ | 0.0 | |
| 2003 11 16 | 703 | 1.6− | 0.7+ | 2003 12 22 | 704 | 0.3+ | 0.1− | 2009 05 28 | G96 | 0.1− | 0.1+ | |

**2003 UM$_{317}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 87.53447 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17790978 | $\omega$ | 291.64671 | | +0.82347313 | +0.55620330 | |
| $a$ | 3.1309022 | $\Omega$ | 34.84082 | | −0.42055071 | +0.73083088 | |
| $e$ | 0.0635634 | $i$ | 11.29932 | | −0.38082688 | +0.39563128 | |
| $P$ | 5.54 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 25 | 644 | 0.0 | 0.3+ | 2003 10 19 | 645 | 0.0 | 0.0 | 2009 10 24 | 691 | 0.6− | 0.2− | |
| 2003 09 25 | 644 | 0.2− | 0.6+ | 2003 10 23 | 645 | 0.0 | 0.0 | 2009 10 24 | 691 | 0.0 | 0.2− | |
| 2003 09 25 | 644 | 0.2+ | 0.4+ | 2003 10 23 | 645 | 0.1− | 0.0 | 2009 11 18 | 691 | 0.1− | 0.3− | |
| 2003 09 26 | 645 | 0.0 | 0.0 | 2003 11 16 | 645 | 0.0 | 0.0 | 2009 11 18 | 691 | 0.3+ | 0.1+ | |
| 2003 09 26 | 645 | 0.1+ | 0.0 | 2003 11 16 | 645 | 0.0 | 0.0 | 2009 11 18 | 691 | 0.3+ | 0.5+ | |
| 2003 10 19 | 645 | 0.0 | 0.0 | 2009 10 24 | 691 | 0.1+ | 0.2+ | | | | | |

**2003 UD$_{332}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 359.43475 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17866442 | $\omega$ | 76.30587 | | +0.58487438 | −0.80896714 | |
| $a$ | 3.1220798 | $\Omega$ | 337.58305 | | +0.67134597 | +0.52369655 | |
| $e$ | 0.0767768 | $i$ | 8.91724 | | +0.45521044 | +0.26704699 | |
| $P$ | 5.52 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 22 | 699 | 1.1− | 1.5+ | 2003 10 18 | 645 | 0.0 | 0.2− | 2009 10 27 | G96 | 0.1− | 0.5− | |
| 2003 09 22 | 699 | 0.1− | 0.8− | 2003 10 19 | 645 | 0.0 | 0.0 | 2009 10 27 | G96 | 0.1− | 0.3− | |
| 2003 09 22 | 699 | 0.4+ | 1.4+ | 2003 10 19 | 645 | 0.1+ | 0.0 | 2009 10 27 | G96 | 0.2− | 0.5− | |
| 2003 09 22 | 699 | 0.3+ | 0.6+ | 2003 10 20 | 691 | 0.1− | 0.6+ | 2009 10 27 | G96 | 0.2− | 0.2− | |
| 2003 09 27 | 691 | 0.2− | 0.3− | 2003 10 20 | 691 | 0.0 | 0.4+ | 2009 11 19 | 703 | 0.6− | 0.4+ | |
| 2003 09 27 | 691 | 0.0 | 0.1− | 2003 10 20 | 691 | 0.1+ | 0.5+ | 2009 11 19 | 703 | 0.1+ | 0.3+ | |
| 2003 09 27 | 691 | 0.0 | 0.1− | 2003 10 23 | 645 | 0.0 | 0.1+ | 2009 11 19 | 703 | 1.2+ | 0.1+ | |
| 2003 10 18 | 645 | 0.0 | 0.1− | 2003 10 23 | 645 | 0.1− | 0.0 | 2009 11 19 | 703 | 0.1− | 0.8+ | |

**2003 UE$_{373}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 310.08281 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21579366 | $\omega$ | 273.72005 | | −0.97728715 | −0.16826741 | |
| $a$ | 2.7528143 | $\Omega$ | 256.62516 | | +0.20456870 | −0.90778315 | |
| $e$ | 0.0638347 | $i$ | 7.60926 | | −0.05533056 | −0.38420807 | |
| $P$ | 4.57 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 27 | 691 | 0.1+ | 0.3+ | 2003 10 22 | 645 | 0.0 | 0.0 | 2008 10 30 | G96 | 0.2+ | 0.1− | |
| 2003 09 27 | 691 | 0.0 | 0.4+ | 2003 10 24 | 645 | 0.0 | 0.0 | 2008 10 30 | G96 | 0.0 | 0.1− | |
| 2003 09 27 | 691 | 0.0 | 0.5+ | 2003 10 24 | 645 | 0.0 | 0.0 | 2008 10 30 | G96 | 0.3+ | 0.3− | |
| 2003 10 17 | 645 | 0.0 | 0.0 | 2008 10 08 | G96 | 0.1+ | 0.1− | 2009 12 19 | 691 | 0.1+ | 0.2− | |
| 2003 10 17 | 645 | 0.0 | 0.0 | 2008 10 08 | G96 | 0.1− | 0.2− | 2009 12 19 | 691 | 0.2− | 0.5+ | |
| 2003 10 19 | 645 | 0.0 | 0.1− | 2008 10 08 | G96 | 0.1− | 0.2− | 2009 12 19 | 691 | 0.2+ | 0.0 | |
| 2003 10 19 | 645 | 0.0 | 0.1− | 2008 10 08 | G96 | 0.2+ | 0.3− | | | | | |
| 2003 10 22 | 645 | 0.0 | 0.0 | 2008 10 30 | G96 | 0.1− | 0.4− | | | | | |

**2003 VH$_5$ = 2009 XL$_3$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 65.25890 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17391342 | $\omega$ | 124.60891 | | +0.97143148 | −0.19843053 | |
| $a$ | 3.1786838 | $\Omega$ | 247.14329 | | +0.14356341 | +0.92813616 | |
| $e$ | 0.0775961 | $i$ | 8.12136 | | +0.18897204 | +0.31494222 | |
| $P$ | 5.67 | $H$ | 15.3 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 29 | 704 | (3.1+ | 0.2+) | 2003 11 16 | 703 | 0.8− | 1.0− | 2009 11 08 | 691 | 0.1− | 0.0 | |
| 2003 10 29 | 704 | (2.3+ | 0.5+) | 2003 11 16 | 703 | 1.2− | 1.3− | 2009 12 09 | J75 | 0.5− | 0.1− | |
| 2003 10 29 | 704 | (2.3+ | 0.0 ) | 2003 11 20 | 704 | 0.4− | 0.7+ | 2009 12 09 | J75 | 0.1− | 0.4+ | |
| 2003 11 15 | 691 | 0.3+ | 0.2+ | 2003 11 20 | 704 | 0.4− | 0.1− | 2009 12 09 | J75 | 0.7+ | 0.4− | |
| 2003 11 15 | 691 | 0.3+ | 0.1+ | 2003 11 20 | 704 | (1.7+ | 0.6+) | 2009 12 11 | G96 | 0.0 | 0.0 | |
| 2003 11 15 | 691 | 0.2+ | 0.1+ | 2003 11 20 | 704 | 1.3+ | 0.6+ | 2009 12 11 | G96 | 0.0 | 0.3− | |
| 2003 11 16 | 703 | 1.0− | 0.0 | 2009 11 08 | 691 | 0.1− | 0.2− | 2009 12 11 | G96 | 0.2− | 0.2+ | |
| 2003 11 16 | 703 | 0.7− | 0.5− | 2009 11 08 | 691 | 0.2+ | 0.2+ | 2009 12 11 | G96 | 0.1+ | 0.0 | |

**2003 WP**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 37.74710 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18404147 | $\omega$ | 13.03654 | | +0.26935138 | −0.90925367 | |
| $a$ | 3.0609690 | $\Omega$ | 62.12710 | | +0.84823300 | +0.06795562 | |
| $e$ | 0.1675281 | $i$ | 21.03833 | | +0.45601603 | +0.41065777 | |
| $P$ | 5.36 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 25 | 704 | 1.6+ | 0.8+ | 2003 11 19 | 699 | 0.1+ | 0.1− | 2003 12 01 | 704 | 0.9− | 0.6− |
| 2003 10 25 | 704 | 1.9+ | 0.2+ | 2003 11 19 | 699 | 0.1+ | 0.2+ | 2003 12 01 | 704 | 1.3− | 0.2+ |
| 2003 10 25 | 704 | 1.5+ | 0.3+ | 2003 11 21 | 704 | 1.1− | 0.2+ | 2003 12 16 | 291 | 0.3+ | 0.1− |
| 2003 10 25 | 704 | 1.9+ | 0.3− | 2003 11 21 | 704 | 0.8− | 0.1− | 2003 12 16 | 291 | 0.4+ | 0.0 |
| 2003 11 16 | 703 | 0.4+ | 0.2+ | 2003 11 21 | 704 | 0.4− | 0.2− | 2003 12 16 | 291 | 0.7− | 0.1− |
| 2003 11 16 | 703 | 0.9+ | 0.3+ | 2003 11 21 | 704 | 0.2+ | 1.0− | 2008 09 28 | 703 | 0.4− | 1.1− |
| 2003 11 16 | 703 | 0.2+ | 0.6+ | 2003 11 21 | 704 | 0.4− | 0.3− | 2008 09 28 | 703 | 0.8− | 0.9+ |
| 2003 11 16 | 703 | 0.3− | 0.1− | 2003 11 24 | 699 | 0.6− | 0.0 | 2008 09 28 | 703 | 0.4+ | 0.2+ |
| 2003 11 18 | 691 | 0.1− | 0.1− | 2003 11 24 | 699 | 0.5+ | 0.4− | 2008 09 28 | 703 | 0.4− | 0.2+ |
| 2003 11 18 | 691 | 0.1− | 0.0 | 2003 11 24 | 699 | 0.1+ | 0.4+ | 2008 10 22 | E12 | 0.1− | 0.2− |
| 2003 11 18 | 691 | 0.2− | 0.0 | 2003 11 24 | 699 | 0.3+ | 0.3− | 2008 10 22 | E12 | 0.1− | 0.4+ |
| 2003 11 19 | 699 | 0.0 | 0.1+ | 2003 12 01 | 704 | 0.9− | 0.8+ | 2008 10 22 | E12 | 1.0+ | 0.5− |
| 2003 11 19 | 699 | 0.5− | 0.3− | 2003 12 01 | 704 | 0.3− | 0.3− | 2008 10 22 | E12 | 0.0 | 0.6+ |

**2003 WE$_{12}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 79.93033 | | (2000.0) | | | |
| $n$ | 0.17352013 | $\omega$ | 317.51268 | | +0.97426004 | +0.05423601 |
| $a$ | 3.1834850 | $\Omega$ | 40.96781 | | +0.09216047 | +0.78997690 |
| $e$ | 0.1333860 | $i$ | 19.49536 | | −0.20572753 | +0.61073312 |
| $P$ | 5.68 | $H$ | 14.4 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 27 | 704 | 0.1− | 0.3− | 2003 11 18 | 644 | 0.2+ | 0.4+ | 2003 12 18 | 691 | 0.2+ | 0.2+ |
| 2003 09 27 | 704 | 0.0 | 0.3+ | 2003 11 19 | 704 | 1.0− | 0.6− | 2003 12 18 | 691 | 0.2+ | 0.1+ |
| 2003 09 27 | 704 | 0.6+ | 0.2+ | 2003 11 19 | 704 | 0.2+ | 1.0+ | 2008 08 23 | E12 | 0.7− | 0.7− |
| 2003 09 27 | 704 | 0.3− | 0.7+ | 2003 11 19 | 704 | 0.8+ | 1.4+ | 2008 08 23 | E12 | 0.3− | 0.2− |
| 2003 09 27 | 704 | 0.5− | 0.0 | 2003 11 19 | 704 | 0.9+ | 0.5+ | 2008 08 23 | E12 | 0.3− | 0.8+ |
| 2003 10 22 | 704 | 1.1+ | 0.9− | 2003 11 19 | 704 | 0.1+ | 0.8+ | 2008 08 23 | E12 | 0.0 | 1.0+ |
| 2003 10 22 | 704 | 0.4+ | 0.6− | 2003 12 03 | 704 | 0.2− | 0.7− | 2008 09 10 | E12 | 0.2+ | 0.4− |
| 2003 10 22 | 704 | 0.1+ | 0.8+ | 2003 12 03 | 704 | 1.2− | 0.5− | 2008 09 10 | E12 | 0.2− | 0.3− |
| 2003 11 03 | 704 | 0.3+ | 0.1− | 2003 12 03 | 704 | 0.5− | 1.2− | 2008 09 10 | E12 | 0.1− | 0.4− |
| 2003 11 03 | 704 | 0.7− | 0.8− | 2003 12 03 | 704 | 0.6− | 0.2− | 2008 09 10 | E12 | 0.0 | 0.2− |
| 2003 11 03 | 704 | 0.1+ | 0.5− | 2003 12 03 | 704 | 0.0 | 0.1+ | 2008 10 29 | 703 | 0.8+ | 0.3− |
| 2003 11 03 | 704 | 0.1+ | 0.4+ | 2003 12 17 | 704 | 1.2− | 0.2− | 2008 10 29 | 703 | 0.4+ | 0.2− |
| 2003 11 03 | 704 | 0.6− | 0.5− | 2003 12 17 | 704 | 0.2− | 0.1+ | 2008 10 29 | 703 | 0.2− | 0.6+ |
| 2003 11 18 | 644 | 0.2+ | 0.3− | 2003 12 17 | 704 | 0.3− | 0.0 | 2008 10 29 | 703 | 0.4+ | 0.2+ |
| 2003 11 18 | 644 | 0.3+ | 0.2− | 2003 12 18 | 691 | 0.2+ | 0.0 | | | | |

**2003 WD$_{17}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 286.89458 | | (2000.0) | | | |
| $n$ | 0.28004901 | $\omega$ | 24.34677 | | +0.87679397 | −0.48079361 |
| $a$ | 2.3137336 | $\Omega$ | 4.41755 | | +0.42148264 | +0.76003458 |
| $e$ | 0.2088741 | $i$ | 6.22829 | | +0.23148371 | +0.43724700 |
| $P$ | 3.52 | $H$ | 16.7 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 05 | 704 | 0.9+ | 0.2+ | 2003 11 19 | 704 | 1.4− | 0.5− | 2003 12 28 | 691 | 0.1− | 0.2+ |
| 2003 10 05 | 704 | 0.4+ | 0.1+ | 2003 11 19 | 704 | 1.5− | 0.8− | 2003 12 28 | 691 | 0.2+ | 0.1+ |
| 2003 10 05 | 704 | 0.4+ | 0.1+ | 2003 11 20 | 691 | 0.1+ | 0.1− | 2003 12 28 | 691 | 0.1+ | 0.0 |
| 2003 10 05 | 704 | 0.3− | 0.2− | 2003 11 20 | 691 | 0.1+ | 0.2− | 2003 12 28 | 691 | 0.2+ | 0.1− |
| 2003 10 22 | 704 | 0.4− | 0.1− | 2003 11 20 | 691 | 0.2+ | 0.2− | 2008 02 10 | 691 | 0.0 | 0.1+ |
| 2003 10 22 | 704 | 0.7+ | 0.2+ | 2003 12 04 | 704 | 0.1− | 0.4+ | 2008 02 10 | 691 | 0.1− | 0.2− |
| 2003 10 22 | 704 | 0.5− | 0.2− | 2003 12 04 | 704 | 0.4− | 0.1+ | 2008 02 10 | 691 | 0.1+ | 0.2− |
| 2003 10 22 | 704 | 0.5− | 0.2+ | 2003 12 04 | 704 | 0.1+ | 0.3+ | 2008 03 10 | 703 | 0.3+ | 1.4− |
| 2003 11 03 | 704 | 0.4+ | 0.6+ | 2003 12 04 | 704 | 0.6− | 0.7+ | 2008 03 10 | 703 | 0.7+ | 0.1− |
| 2003 11 03 | 704 | 0.3− | 0.6− | 2003 12 04 | 704 | 0.3+ | 0.6+ | 2008 03 10 | 703 | 0.4− | 0.0 |
| 2003 11 03 | 704 | 0.4+ | 0.1− | 2003 12 17 | 704 | 0.3+ | 0.6+ | 2008 03 10 | 703 | 1.4− | 0.9+ |
| 2003 11 18 | 644 | 0.2+ | 0.3− | 2003 12 17 | 704 | 0.2+ | 0.5+ | 2008 04 08 | G96 | 0.2+ | 0.2+ |
| 2003 11 18 | 644 | 0.2− | 0.3− | 2003 12 17 | 704 | 0.1− | 1.0+ | 2008 04 08 | G96 | 0.1− | 0.0 |
| 2003 11 18 | 644 | 0.2+ | 0.5− | 2003 12 17 | 704 | 0.2− | 1.3+ | 2008 04 08 | G96 | 0.2+ | 0.3+ |
| 2003 11 19 | 704 | 0.5+ | 0.8− | 2003 12 17 | 704 | 0.6− | 1.1+ | 2008 04 08 | G96 | 0.1− | 0.1+ |
| 2003 11 19 | 704 | 0.4+ | 0.9− | 2003 12 28 | 691 | 0.3− | 0.1+ | | | | |
| 2003 11 19 | 704 | 0.0 | 1.1− | 2003 12 28 | 691 | 0.0 | 0.0 | | | | |

**2003 WC$_{22}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 30.91751 | | (2000.0) | | | |
| $n$ | 0.18500324 | $\omega$ | 181.00569 | | +0.02169377 | −0.96050478 |
| $a$ | 3.0503510 | $\Omega$ | 267.79076 | | +0.91919352 | +0.12829604 |
| $e$ | 0.0710703 | $i$ | 16.11838 | | +0.39320815 | −0.24692243 |
| $P$ | 5.33 | $H$ | 15.0 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 03 | 644 | 0.2− | 0.1+ | 2003 11 24 | 704 | 0.9+ | 0.3+ | 2003 12 28 | 704 | 0.9− | 0.3− |
| 2002 08 03 | 644 | 0.1− | 0.1+ | 2003 11 24 | 704 | 0.4+ | 0.4+ | 2008 09 21 | G96 | 0.4− | 0.7− |
| 2002 08 03 | 644 | 0.1+ | 0.1+ | 2003 11 24 | 704 | 0.0 | 0.1+ | 2008 09 21 | G96 | 0.4− | 0.4− |
| 2003 11 19 | 704 | 0.1+ | 0.9+ | 2003 11 24 | 704 | 0.4+ | 0.1− | 2008 09 21 | G96 | 0.7+ | 0.0 |
| 2003 11 19 | 704 | 0.2+ | 0.6+ | 2003 11 24 | 704 | 0.1− | 0.4+ | 2008 09 21 | G96 | 0.7+ | 0.4− |
| 2003 11 19 | 704 | 0.7+ | 0.7+ | 2003 12 18 | 691 | 0.9− | 0.5+ | 2008 10 25 | 703 | 0.2− | 0.4+ |
| 2003 11 19 | 704 | 0.1− | 0.5− | 2003 12 18 | 691 | 0.3− | 0.3− | 2008 10 25 | 703 | 0.4+ | 1.3− |
| 2003 11 19 | 704 | 0.0 | 0.1+ | 2003 12 18 | 691 | 0.3− | 0.4− | 2008 10 25 | 703 | 0.2+ | 0.1− |
| 2003 11 21 | 691 | 0.2+ | 0.2− | 2003 12 23 | 704 | 0.7− | 0.7+ | 2008 10 25 | 703 | 0.0 | 0.6− |
| 2003 11 21 | 644 | 0.1+ | 0.3− | 2003 12 23 | 704 | (0.5− | 2.3+) | 2008 11 17 | 703 | 0.1− | 0.9+ |
| 2003 11 21 | 691 | 0.3+ | 0.1− | 2003 12 23 | 704 | (0.0 | 2.0+) | 2008 11 17 | 703 | 0.2+ | 0.6+ |
| 2003 11 21 | 644 | 0.3+ | 0.3− | 2003 12 23 | 704 | 0.6− | 1.2+ | 2008 11 17 | 703 | 1.5− | 0.1+ |
| 2003 11 21 | 691 | 0.2+ | 0.3− | 2003 12 28 | 704 | 0.8+ | 0.5− | 2008 11 17 | 703 | 0.3+ | 1.2+ |
| 2003 11 21 | 644 | 0.6+ | 0.0 | 2003 12 28 | 704 | 0.5+ | 0.3− | | | | |

**2003 WG$_{22}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 32.71497 | | (2000.0) | | | |
| $n$ | 0.18399020 | $\omega$ | 47.35878 | | −0.11721010 | −0.98070792 |
| $a$ | 3.0615375 | $\Omega$ | 50.05741 | | +0.84098461 | −0.18180166 |
| $e$ | 0.2834989 | $i$ | 11.77376 | | +0.52821083 | +0.07183405 |
| $P$ | 5.36 | $H$ | 16.2 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 24 | 704 | 1.3+ | 0.1− | 2003 11 21 | 704 | 0.1− | 0.3− | 2003 12 15 | 703 | 0.6− | 0.7+ |
| 2003 10 24 | 704 | 0.4+ | 0.2− | 2003 11 21 | 704 | 0.4− | 0.3− | 2003 12 15 | 703 | 0.0 | 0.8+ |
| 2003 10 24 | 704 | 1.0+ | 0.4− | 2003 11 21 | 704 | 0.3+ | 0.0 | 2003 12 15 | 703 | (3.6− | 1.5−) |
| 2003 10 24 | 704 | 0.1+ | 0.4− | 2003 11 21 | 704 | 0.2+ | 0.3+ | 2003 12 15 | 703 | (1.7+ | 0.1−) |
| 2003 11 19 | 644 | 0.4− | 0.1+ | 2003 11 21 | 644 | 0.4− | 0.0 | 2003 12 28 | 704 | 0.3+ | 0.3− |
| 2003 11 19 | 644 | 0.4− | 0.0 | 2003 11 21 | 644 | 0.5− | 0.0 | 2003 12 28 | 704 | 0.2− | 0.7− |
| 2003 11 19 | 644 | 0.3− | 0.4− | 2003 11 21 | 644 | 0.0 | 0.7+ | 2003 12 28 | 704 | 1.1− | 0.0 |
| 2003 11 19 | 691 | 0.1+ | 0.3− | 2003 11 23 | 704 | 1.2+ | 0.1− | 2008 10 08 | 703 | 0.8+ | 0.5− |
| 2003 11 19 | 691 | 0.1+ | 0.0 | 2003 11 23 | 704 | 0.4+ | 0.6+ | 2008 10 08 | 703 | 0.3+ | 0.8− |
| 2003 11 19 | 691 | 0.2+ | 0.0 | 2003 11 23 | 704 | 0.2+ | 0.8+ | 2008 10 08 | 703 | 1.8− | 0.3− |
| 2003 11 20 | 704 | 0.3+ | 0.1− | 2003 11 23 | 704 | 0.7+ | 0.2− | 2008 10 08 | 703 | 0.1− | 0.2+ |
| 2003 11 20 | 704 | 0.9+ | 0.2+ | 2003 11 24 | 704 | 1.1− | 0.2+ | 2008 10 27 | G96 | 0.2+ | 0.4+ |
| 2003 11 20 | 704 | 0.9− | 0.1+ | 2003 11 24 | 704 | 0.3+ | 0.1− | 2008 10 27 | G96 | 0.2+ | 0.4+ |
| 2003 11 20 | 704 | 1.1− | 0.3+ | 2003 11 24 | 704 | 0.6− | 0.2− | 2008 10 27 | G96 | 0.1+ | 0.5+ |
| 2003 11 20 | 704 | 0.1+ | 0.2− | 2003 11 24 | 704 | 1.4− | 0.3− | 2008 10 27 | G96 | 0.1+ | 0.6+ |
| 2003 11 21 | 704 | 0.3− | 0.8− | 2003 11 24 | 704 | 0.9− | 0.9+ | 2009 01 02 | G96 | 0.1− | 0.0 |
| 2003 11 21 | 704 | 0.5+ | 0.7− | 2003 11 24 | 704 | 1.0+ | 0.2+ | 2009 01 02 | G96 | 0.1+ | 0.2+ |
| 2003 11 21 | 704 | 0.4− | 0.2+ | 2003 11 24 | 704 | 0.7+ | 0.0 | 2009 01 02 | G96 | 0.1− | 0.1+ |
| 2003 11 21 | 704 | 0.2− | 0.3+ | 2003 11 24 | 704 | 0.0 | 0.3+ | 2009 01 02 | G96 | 0.4− | 0.1+ |
| 2003 11 21 | 704 | 0.7− | 0.4+ | 2003 11 24 | 704 | 0.0 | 0.7− | | | | |
| 2003 11 21 | 704 | 1.0+ | 0.2+ | 2003 11 24 | 704 | 0.3− | 0.1− | | | | |

**2003 WL$_{56}$ = 2009 YT$_{17}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 127.83110 | | (2000.0) | | | |
| $n$ | 0.17239902 | $\omega$ | 53.04841 | | +0.62241479 | +0.75614297 |
| $a$ | 3.1972716 | $\Omega$ | 256.69654 | | −0.76778959 | +0.53971816 |
| $e$ | 0.1098783 | $i$ | 11.98649 | | −0.15198347 | +0.37007043 |
| $P$ | 5.72 | $H$ | 15.5 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 09 11 | 644 | 0.3− | 0.3+ | 2003 11 21 | 691 | 0.5− | 0.1− | 2009 12 10 | G96 | 0.5+ | 0.1+ |
| 2002 09 11 | 644 | 0.2+ | 0.2+ | 2003 11 24 | 704 | 1.4+ | 1.0+ | 2009 12 10 | G96 | 0.3+ | 0.1+ |
| 2002 09 11 | 644 | 0.9+ | 0.5+ | 2003 11 24 | 704 | 1.0+ | 0.2− | 2009 12 10 | G96 | 0.5+ | 0.0 |
| 2002 10 05 | 644 | 0.5− | 0.4− | 2003 11 24 | 704 | 0.7+ | 0.2− | 2009 12 21 | A17 | 0.5+ | 0.7− |
| 2002 10 05 | 644 | 0.2− | 0.7− | 2003 12 01 | 691 | 0.2+ | 0.2+ | 2009 12 21 | A17 | 0.5+ | 0.2− |
| 2002 10 05 | 644 | 0.1− | 0.2− | 2003 12 01 | 691 | 0.2+ | 0.1+ | 2009 12 21 | A17 | 0.7+ | 0.1− |
| 2003 11 20 | 704 | 0.3− | 0.2+ | 2003 12 01 | 691 | 0.2+ | 0.1+ | 2009 12 26 | A17 | 0.3+ | 0.1− |
| 2003 11 20 | 704 | 0.7− | 0.6− | 2009 11 20 | 691 | 0.6− | 0.2+ | 2009 12 26 | A17 | 1.0+ | 0.6+ |
| 2003 11 20 | 704 | 0.0 | 0.6− | 2009 11 20 | 691 | 0.3− | 0.3− | 2009 12 26 | A17 | 0.5+ | 0.0 |
| 2003 11 21 | 691 | 0.3− | 0.0 | 2009 11 20 | 691 | 0.4− | 0.1− | | | | |
| 2003 11 21 | 691 | 0.4− | 0.1+ | 2009 12 10 | G96 | 0.2+ | 0.1+ | | | | |

**2003 WH$_{69}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 346.76605 | | (2000.0) | | | |
| $n$ | 0.17692591 | $\omega$ | 241.01563 | | −0.54746817 | −0.80024881 |
| $a$ | 3.1424986 | $\Omega$ | 244.23176 | | +0.83069911 | −0.48438285 |
| $e$ | 0.1112693 | $i$ | 15.76695 | | +0.10108209 | −0.35351817 |
| $P$ | 5.57 | $H$ | 15.4 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 11 19 | 691 | 0.1+ | 0.1+ | 2003 12 14 | 691 | 0.2+ | 0.1− | 2003 12 27 | 691 | 0.3− | 0.0 |
| 2003 11 19 | 691 | 0.1+ | 0.1+ | 2003 12 14 | 691 | 0.1− | 0.1+ | 2003 12 27 | 691 | 0.2− | 0.2+ |
| 2003 11 19 | 691 | 0.2+ | 0.2− | 2003 12 14 | 691 | 0.1+ | 0.2+ | 2003 12 27 | 691 | 0.1+ | 0.1− |
| 2003 11 21 | 704 | 0.6+ | 1.3+ | 2003 12 17 | 699 | 0.8− | 0.2− | 2008 10 24 | 703 | 0.5− | 0.7+ |
| 2003 11 21 | 704 | 0.4+ | 1.2+ | 2003 12 17 | 699 | 0.6+ | 0.2+ | 2008 10 24 | 703 | 1.2+ | 0.8− |
| 2003 11 21 | 704 | 0.6+ | 0.5+ | 2003 12 17 | 699 | 1.0+ | 0.3+ | 2008 10 24 | 703 | 1.2− | 0.3− |
| 2003 11 21 | 704 | 1.3+ | 0.9− | 2003 12 17 | 699 | 0.5− | 0.8+ | 2008 10 24 | 703 | 0.2− | 0.1− |
| 2003 11 23 | 704 | (3.7+ | 1.1+) | 2003 12 21 | 704 | 0.7+ | 0.1+ | 2008 11 19 | 703 | 0.5− | 1.1− |
| 2003 11 23 | 704 | 0.1+ | 0.1− | 2003 12 21 | 704 | 0.4+ | 0.5− | 2008 11 19 | 703 | 0.4+ | 0.7+ |
| 2003 11 23 | 704 | 0.5− | 0.4− | 2003 12 21 | 704 | 1.1− | 0.8+ | 2008 11 19 | 703 | 0.2− | 0.8+ |
| 2003 11 30 | 291 | 0.3− | 0.3− | 2003 12 21 | 704 | 0.2− | 1.1+ | 2008 11 19 | 703 | 0.7+ | 0.2− |
| 2003 11 30 | 291 | 0.4− | 0.1− | 2003 12 21 | 704 | 0.1− | 0.2+ | 2008 12 04 | 291 | 0.2+ | 0.1+ |
| 2003 11 30 | 291 | 0.4− | 0.0 | 2003 12 23 | 704 | 1.1+ | 0.5− | 2008 12 04 | 291 | 0.1+ | 0.0 |
| 2003 11 30 | 691 | 0.2+ | 0.1− | 2003 12 23 | 704 | 0.4+ | 1.2− | 2008 12 04 | 291 | 0.2− | 0.0 |
| 2003 11 30 | 691 | 0.0 | 0.1− | 2003 12 23 | 704 | 0.3+ | 0.7− | | | | |
| 2003 11 30 | 691 | 0.1− | 0.1− | 2003 12 23 | 704 | 0.8− | 0.5− | | | | |

**2003 WL$_{86}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 3.60709 | | (2000.0) | | | |
| $n$ | 0.17485200 | $\omega$ | 232.87535 | | +0.02775002 | −0.99881704 |
| $a$ | 3.1672983 | $\Omega$ | 215.59715 | | +0.93751161 | +0.03986562 |
| $e$ | 0.1766709 | $i$ | 3.93355 | | +0.34684567 | −0.02784320 |
| $P$ | 5.64 | $H$ | 15.9 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 22 | 695 | 0.2− | 0.1− | 2003 11 21 | 704 | 0.6+ | 0.5+ | 2009 12 23 | D25 | 0.6+ | 0.2+ |
| 2003 10 22 | 695 | 0.1− | 0.0 | 2003 11 21 | 704 | 0.7+ | 0.3+ | 2009 12 23 | D25 | 0.7− | 1.8+ |
| 2003 10 23 | 691 | 0.1+ | 0.1+ | 2003 11 23 | 291 | 0.0 | 0.1− | 2009 12 23 | D25 | 0.8+ | 0.6+ |
| 2003 10 23 | 691 | 0.0 | 0.0 | 2003 11 23 | 291 | 0.1− | 0.2− | 2009 12 23 | D25 | 0.1+ | 0.5+ |
| 2003 10 23 | 691 | 0.1− | 0.1− | 2003 11 23 | 291 | 0.3+ | 0.1− | 2009 12 23 | D25 | 0.4− | 0.4− |
| 2003 11 16 | 691 | 0.0 | 0.1+ | 2003 11 24 | 291 | 0.1− | 0.2− | 2009 12 24 | D25 | 1.1− | 1.4− |
| 2003 11 16 | 691 | 0.0 | 0.3+ | 2003 11 24 | 291 | 0.0 | 0.2− | 2009 12 24 | D25 | 0.1+ | 1.7− |
| 2003 11 16 | 691 | 0.1+ | 0.3− | 2003 11 24 | 291 | 0.4− | 0.0 | 2009 12 24 | D25 | 0.7+ | 0.2− |
| 2003 11 21 | 704 | 0.4− | 0.6− | 2003 11 30 | 691 | 0.0 | 0.3+ | 2009 12 24 | D25 | 0.1− | 0.5+ |
| 2003 11 21 | 704 | 0.5+ | 0.7+ | 2003 11 30 | 691 | 0.1+ | 0.2+ | | | | |
| 2003 11 21 | 704 | 0.6− | 0.1+ | 2003 11 30 | 691 | 0.0 | 0.1+ | | | | |

**2003 WC$_{93}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 327.89081 | | (2000.0) | | | |
| $n$ | 0.28395136 | $\omega$ | 294.75995 | | +0.92999788 | +0.35802022 |
| $a$ | 2.2924863 | $\Omega$ | 44.38900 | | −0.27936872 | +0.83562598 |
| $e$ | 0.2525688 | $i$ | 6.83240 | | −0.23886621 | +0.41659422 |
| $P$ | 3.47 | $H$ | 17.3 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 04 08 | 644 | 0.2+ | 0.0 | 2003 10 26 | 691 | 0.1− | 0.3+ | 2003 11 20 | 704 | 0.2+ | 0.2− |
| 2002 04 08 | 644 | 0.1+ | 0.1+ | 2003 11 19 | 699 | 1.4− | 0.2− | 2003 11 20 | 704 | 0.4+ | 0.5− |
| 2002 04 08 | 644 | 0.1− | 0.0 | 2003 11 19 | 699 | 0.5− | 0.0 | 2003 11 24 | 704 | 0.0 | 0.3+ |
| 2002 04 14 | 644 | 0.1− | 0.0 | 2003 11 19 | 699 | 0.0 | 0.1+ | 2003 11 24 | 704 | 0.2− | 0.3+ |
| 2002 04 14 | 644 | 0.3− | 0.2+ | 2003 11 19 | 699 | 0.1− | 0.4− | 2003 11 24 | 704 | 0.0 | 0.9+ |
| 2002 04 14 | 644 | 0.2+ | 0.5− | 2003 11 20 | 704 | 0.7+ | 0.2− | 2003 12 28 | 691 | 0.1+ | 0.2− |
| 2003 10 26 | 691 | 0.2− | 0.3− | 2003 11 20 | 704 | 0.1+ | 0.0 | 2003 12 28 | 691 | 0.1− | 0.1+ |
| 2003 10 26 | 691 | 0.4+ | 0.0 | 2003 11 20 | 704 | 0.3+ | 0.2− | 2003 12 28 | 691 | 0.0 | 0.0 |

**2003 WC$_{96}$ = 2002 PE$_{183}$ = 2009 YW$_{17}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 22.67656 | | (2000.0) | | | |
| $n$ | 0.17540280 | $\omega$ | 1.99548 | | +0.44758675 | −0.89328383 |
| $a$ | 3.1606643 | $\Omega$ | 61.41773 | | +0.81979598 | +0.39141402 |
| $e$ | 0.1819983 | $i$ | 2.69920 | | +0.35721233 | +0.22099561 |
| $P$ | 5.62 | $H$ | 16.2 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 08 | 644 | 0.0 | 0.2+ | 2003 11 19 | 699 | 0.3+ | 0.6− | 2008 09 19 | 691 | 0.3− | 0.4+ |
| 2002 08 08 | 644 | 0.1+ | 0.3+ | 2003 11 19 | 699 | 0.5− | 0.6− | 2008 09 19 | 691 | 0.1+ | 0.0 |
| 2002 08 08 | 644 | 0.0 | 0.1+ | 2003 11 19 | 699 | 0.7− | 1.1+ | 2008 09 19 | 691 | 0.5− | 0.5+ |
| 2002 08 08 | 644 | 0.4− | 0.3+ | 2003 11 19 | 699 | 0.4− | 0.5+ | 2008 10 02 | 691 | 0.0 | 0.1+ |
| 2002 08 08 | 644 | 0.2+ | 0.4− | 2003 11 21 | 704 | 0.6+ | 0.1+ | 2008 10 02 | 691 | 0.2+ | 0.1+ |
| 2002 08 08 | 644 | 0.9− | 0.8+ | 2003 11 21 | 704 | 0.9+ | 0.4− | 2008 10 02 | 691 | 0.1+ | 0.4− |
| 2002 08 11 | 807 | 0.1+ | 0.1+ | 2003 11 21 | 704 | 0.2+ | 0.3− | 2009 12 19 | 691 | 0.3− | 0.1− |
| 2002 08 11 | 644 | 0.1+ | 0.2+ | 2003 11 24 | 699 | 0.6+ | 1.0+ | 2009 12 19 | 691 | 0.2− | 0.0 |
| 2002 08 11 | 807 | 0.0 | 0.0 | 2003 11 24 | 699 | 0.5− | 0.2+ | 2009 12 19 | 691 | 0.4+ | 0.4+ |
| 2002 08 11 | 644 | 0.3+ | 0.0 | 2003 11 24 | 699 | 0.0 | 0.2+ | 2009 12 26 | 691 | 0.2+ | 0.4+ |
| 2002 08 11 | 644 | 0.1− | 0.1+ | 2003 11 24 | 699 | 0.1+ | 0.2− | 2009 12 26 | 691 | 0.0 | 0.0 |
| 2003 11 16 | 691 | 0.0 | 0.2− | 2008 09 03 | J75 | 0.5− | 0.5− | 2009 12 26 | 691 | 0.2− | 0.1+ |
| 2003 11 16 | 691 | 0.1− | 0.1− | 2008 09 03 | J75 | 0.3+ | 1.2− | | | | |
| 2003 11 16 | 691 | 0.1+ | 0.5− | 2008 09 03 | J75 | 1.2+ | 0.0 | | | | |

**2003 WN$_{108}$ = 2009 VF$_{95}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 339.27666 | | (2000.0) | | | |
| $n$ | 0.17147628 | $\omega$ | 221.25195 | | −0.38379422 | −0.86287680 |
| $a$ | 3.2087313 | $\Omega$ | 253.71514 | | +0.91133559 | −0.29651606 |
| $e$ | 0.1594641 | $i$ | 20.03538 | | +0.14889405 | −0.40929434 |
| $P$ | 5.75 | $H$ | 15.6 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 11 20 | 691 | 0.1+ | 0.0 | 2003 12 17 | 691 | 0.2− | 0.0 | 2009 11 20 | 691 | 0.4+ | 0.7+ |
| 2003 11 20 | 691 | 0.2+ | 0.0 | 2003 12 17 | 691 | 0.3− | 0.2− | 2009 12 11 | G96 | 0.4+ | 0.8− |
| 2003 11 20 | 691 | 0.3+ | 0.0 | 2003 12 17 | 691 | 0.1+ | 0.1− | 2009 12 11 | G96 | 0.6+ | 0.7− |
| 2003 11 24 | 704 | 0.1+ | 0.2− | 2009 11 09 | 691 | 0.1+ | 0.0 | 2009 12 11 | G96 | 0.4+ | 0.7− |
| 2003 11 24 | 704 | 0.2− | 0.2+ | 2009 11 09 | 691 | 0.0 | 0.1− | 2009 12 11 | G96 | 0.3+ | 0.8− |
| 2003 11 24 | 704 | 0.1− | 0.6+ | 2009 11 09 | 691 | 0.0 | 0.3− | 2009 12 17 | 704 | 0.7− | 0.4+ |
| 2003 11 24 | 704 | 0.1− | 0.3− | 2009 11 16 | 691 | 0.4− | 0.0 | 2009 12 17 | 704 | 0.1+ | 1.0+ |
| 2003 11 24 | 704 | 0.5− | 0.3− | 2009 11 16 | 691 | 0.3− | 0.1+ | 2009 12 17 | 704 | 0.8+ | 1.2+ |
| 2003 11 26 | 704 | 0.8− | 0.3− | 2009 11 16 | 691 | 0.4+ | 0.1− | 2009 12 17 | 704 | 0.6+ | 0.0 |
| 2003 11 26 | 704 | 1.1− | 1.1+ | 2009 11 20 | 691 | 1.0− | 0.0 | | | | |
| 2003 11 26 | 704 | 1.3+ | 0.7+ | 2009 11 20 | 691 | 0.1+ | 0.3− | | | | |

**2003 WR$_{109}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 54.71543 | | (2000.0) | | | |
| $n$ | 0.18231780 | $\omega$ | 101.12626 | | +0.75996077 | −0.64935391 |
| $a$ | 3.0802314 | $\Omega$ | 299.37332 | | +0.58295834 | +0.70019897 |
| $e$ | 0.2460441 | $i$ | 1.85895 | | +0.28743557 | +0.29675056 |
| $P$ | 5.41 | $H$ | 16.9 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 20 | 691 | 0.2− | 0.2− | 2003 11 20 | 704 | 1.1+ | 0.1− | 2008 09 07 | G96 | 0.4+ | 0.3+ |
| 2003 10 20 | 691 | 0.1− | 0.0 | 2003 11 20 | 704 | 0.4+ | 0.4+ | 2008 09 07 | G96 | 0.1+ | 0.1− |
| 2003 10 20 | 691 | 0.2− | 0.0 | 2003 11 24 | 704 | 0.8− | 0.5− | 2008 09 07 | G96 | 0.0 | 0.4− |
| 2003 10 29 | 704 | 0.1+ | 0.7− | 2003 11 24 | 704 | 0.9+ | 0.3− | 2008 09 07 | G96 | 0.3+ | 0.0 |
| 2003 10 29 | 704 | 0.2− | 0.3+ | 2003 11 24 | 704 | 1.1+ | 1.2− | 2008 09 21 | G96 | 0.1+ | 0.4− |
| 2003 10 29 | 704 | 0.3+ | 0.9+ | 2003 11 24 | 704 | 0.3+ | 0.4− | 2008 09 21 | G96 | 0.8+ | 0.3− |
| 2003 10 29 | 704 | 0.6− | 0.5− | 2003 11 24 | 704 | 1.2− | 1.3+ | 2008 09 21 | G96 | 0.6− | 0.0 |
| 2003 11 15 | 691 | 0.2+ | 0.0 | 2003 12 22 | 691 | 0.3− | 0.1+ | 2008 09 21 | G96 | 0.3+ | 0.2− |
| 2003 11 15 | 691 | 0.1+ | 0.1− | 2003 12 22 | 691 | 0.1+ | 0.1+ | 2008 11 19 | G96 | 0.2+ | 0.0 |
| 2003 11 15 | 691 | 0.2+ | 0.1− | 2003 12 22 | 691 | 0.3− | 0.7+ | 2008 11 19 | G96 | 0.4− | 0.3− |
| 2003 11 20 | 704 | 0.1− | 0.2+ | 2008 08 21 | 691 | 0.2− | 0.2+ | 2008 11 19 | G96 | 0.4+ | 0.3+ |
| 2003 11 20 | 704 | 0.3+ | 0.4− | 2008 08 21 | 691 | 0.0 | 0.1+ | 2008 11 19 | G96 | 0.3+ | 0.4− |
| 2003 11 20 | 704 | 0.3+ | 0.4− | 2008 08 21 | 691 | 0.3− | 0.2+ | | | | |

**2003 WP$_{127}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 5.23664 | | (2000.0) | | | |
| $n$ | 0.17409449 | $\omega$ | 207.89780 | | −0.44525006 | −0.77153203 |
| $a$ | 3.1764794 | $\Omega$ | 271.86290 | | +0.88261674 | −0.29270394 |
| $e$ | 0.2223287 | $i$ | 27.04260 | | +0.15079813 | −0.56485638 |
| $P$ | 5.66 | $H$ | 14.7 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 11 20 | 704 | 0.0 | 0.4− | 2003 12 18 | 704 | 0.7+ | 1.1− | 2004 01 21 | 704 | 0.0 | 0.1+ |
| 2003 11 20 | 704 | 0.5+ | 0.6− | 2003 12 18 | 704 | 0.6+ | 0.8− | 2004 01 21 | 704 | 0.3− | 0.1− |
| 2003 11 20 | 704 | 0.1− | 0.0 | 2003 12 19 | 704 | 0.6+ | 0.7+ | 2004 01 21 | 704 | 0.1− | 0.3− |
| 2003 11 24 | 704 | 0.3+ | 0.4− | 2003 12 19 | 704 | 0.3− | 0.1− | 2004 01 21 | 704 | 0.1− | 0.3− |
| 2003 11 24 | 704 | 1.3− | 0.4+ | 2003 12 19 | 704 | 0.3+ | 0.4− | 2009 11 22 | 703 | 0.5− | 0.6− |
| 2003 11 24 | 704 | 0.1− | 0.0 | 2003 12 21 | 704 | 0.8− | 0.3− | 2009 11 22 | 703 | 0.3+ | 0.5− |
| 2003 11 24 | 704 | 0.7+ | 0.0 | 2003 12 21 | 704 | 0.8− | 0.5− | 2009 11 22 | 703 | 0.1+ | 0.4+ |
| 2003 12 04 | 704 | 0.1+ | 0.0 | 2003 12 21 | 704 | 1.4− | 0.7+ | 2009 11 22 | 703 | 0.4+ | 0.5+ |
| 2003 12 04 | 704 | 0.1+ | 1.0+ | 2003 12 21 | 704 | 1.4− | 0.2+ | 2009 12 16 | 703 | 0.4+ | 0.1+ |
| 2003 12 04 | 704 | 0.1+ | 0.4+ | 2003 12 21 | 704 | 0.0 | 0.9+ | 2009 12 16 | 703 | 0.4+ | 0.2+ |
| 2003 12 04 | 704 | 0.3+ | 0.1− | 2003 12 21 | 704 | 0.3+ | 0.7+ | 2009 12 16 | 703 | 0.5− | 0.4+ |
| 2003 12 18 | 704 | 0.7+ | 0.6− | 2003 12 21 | 704 | 0.2+ | 0.5+ | 2009 12 16 | 703 | 0.4− | 0.4− |
| 2003 12 18 | 704 | 0.8+ | 0.4− | 2003 12 21 | 704 | 0.3+ | 0.7+ | | | | |

**2003 WH$_{141}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 231.29192 | | (2000.0) | | | |
| $n$ | 0.24631443 | $\omega$ | 305.07597 | | +0.98278452 | −0.17264113 |
| $a$ | 2.5204388 | $\Omega$ | 64.94544 | | +0.18414184 | +0.88629076 |
| $e$ | 0.2868763 | $i$ | 4.16532 | | +0.01504558 | +0.42974844 |
| $P$ | 4.00 | $H$ | 15.9 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 11 21 | 704 | 0.5+ | 0.2+ | 2003 12 18 | 704 | 0.1− | 0.5− | 2006 05 24 | 644 | 0.2+ | 0.7+ |
| 2003 11 21 | 704 | 0.4+ | 0.5− | 2003 12 22 | 704 | 0.5− | 0.1+ | 2006 05 24 | 644 | 0.0 | 0.7+ |
| 2003 11 21 | 704 | 0.4− | 0.1+ | 2003 12 22 | 704 | 0.1− | 0.1− | 2009 03 01 | 691 | 0.0 | 0.3+ |
| 2003 11 21 | 704 | 0.1+ | 0.3− | 2003 12 22 | 704 | 0.3− | 0.0 | 2009 03 01 | 691 | 0.0 | 0.3− |
| 2003 11 21 | 704 | 0.6− | 1.0− | 2003 12 22 | 704 | 0.3− | 0.2− | 2009 03 01 | 691 | 0.6− | 0.2+ |
| 2003 11 23 | 704 | 0.9+ | 0.8+ | 2003 12 22 | 704 | 0.4− | 0.4− | 2009 03 22 | G96 | 0.1− | 0.3− |
| 2003 11 23 | 704 | 0.7+ | 0.2− | 2003 12 27 | 704 | (1.6+ | 1.1+) | 2009 03 22 | G96 | 0.1+ | 0.2+ |
| 2003 11 23 | 704 | 0.2− | 0.1− | 2003 12 27 | 704 | 1.3+ | 1.4+ | 2009 03 22 | G96 | 0.1+ | 0.2− |
| 2003 11 23 | 704 | 0.2+ | 0.5+ | 2003 12 27 | 704 | 1.3+ | 1.2+ | 2009 03 22 | G96 | 0.1+ | 0.1+ |
| 2003 12 04 | 704 | 0.3− | 0.2+ | 2003 12 27 | 704 | 0.5+ | 1.1+ | 2009 04 02 | G96 | 0.5− | 0.5− |
| 2003 12 04 | 704 | 0.1+ | 0.1+ | 2004 01 19 | 691 | 0.2− | 0.1− | 2009 04 02 | G96 | 0.3+ | 0.2− |
| 2003 12 04 | 704 | 0.2− | 0.0 | 2004 01 19 | 691 | 0.0 | 0.4− | 2009 04 02 | G96 | 0.1− | 0.4− |
| 2003 12 04 | 704 | 0.6− | 0.2+ | 2004 01 19 | 691 | 0.2− | 0.1− | 2009 04 02 | G96 | 0.2+ | 0.1− |
| 2003 12 04 | 704 | 0.9− | 0.2+ | 2004 01 22 | 704 | 0.1− | 1.0+ | 2009 05 01 | G96 | 1.0+ | 0.1+ |
| 2003 12 18 | 704 | 0.1− | 0.3− | 2004 01 22 | 704 | 0.2− | 0.8+ | 2009 05 01 | G96 | 0.5+ | 0.2+ |
| 2003 12 18 | 704 | 0.3+ | 0.2− | 2004 01 22 | 704 | (1.8− | 1.6+) | 2009 05 01 | G96 | 0.1+ | 0.2− |
| 2003 12 18 | 704 | 0.3+ | 0.7− | 2006 05 24 | 644 | 0.2+ | 0.2+ | 2009 05 01 | G96 | 0.6+ | 0.1− |

**2003 WY$_{157}$ = 2009 XC$_{17}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 16.57211 | | (2000.0) | | | |
| $n$ | 0.18031159 | $\omega$ | 327.45183 | | −0.01605772 | −0.98089931 |
| $a$ | 3.1030370 | $\Omega$ | 122.76999 | | +0.95961596 | −0.06957718 |
| $e$ | 0.1119699 | $i$ | 13.32905 | | +0.28085469 | +0.18164683 |
| $P$ | 5.47 | $H$ | 15.2 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 30 | 644 | 0.4− | 0.1− | 2003 11 23 | 683 | 0.8+ | 1.1+ | 2008 10 02 | 703 | 0.4+ | 1.2+ |
| 2002 08 30 | 644 | 0.3− | 0.0 | 2003 11 23 | 683 | (5.8+ | 2.8+) | 2008 10 02 | 703 | 0.0 | 0.8+ |
| 2002 08 30 | 644 | 0.4− | 0.1+ | 2003 11 23 | 699 | 0.1+ | 0.9+ | 2008 10 02 | 703 | 1.3+ | 0.8+ |
| 2002 08 30 | 644 | 0.6− | 0.2− | 2003 11 23 | 699 | 0.6− | 0.4− | 2008 10 02 | 703 | 0.0 | 0.0 |
| 2002 08 30 | 644 | 0.3− | 0.3− | 2003 11 23 | 699 | 0.2+ | 0.5+ | 2009 10 26 | G96 | 0.3− | 0.3+ |
| 2002 08 30 | 644 | 0.5− | 0.3− | 2003 11 23 | 699 | 0.6− | 0.7− | 2009 10 26 | G96 | 0.4− | 0.0 |
| 2003 11 04 | 683 | 0.7− | 0.3− | 2003 11 29 | 704 | 0.1+ | 0.1+ | 2009 10 26 | G96 | 0.3− | 0.0 |
| 2003 11 04 | 683 | (0.5+ | 2.0−) | 2003 11 29 | 704 | 0.1− | 0.6+ | 2009 10 26 | G96 | 0.3+ | 0.3+ |
| 2003 11 04 | 683 | 0.4+ | 0.3− | 2003 11 29 | 704 | 0.0 | 0.6+ | 2009 12 15 | 703 | 0.5− | 0.4+ |
| 2003 11 16 | 683 | (0.7+ | 2.4−) | 2003 11 29 | 704 | 0.2− | 0.6+ | 2009 12 15 | 703 | 0.1− | 0.0 |
| 2003 11 16 | 683 | 0.6− | 1.1− | 2003 11 29 | 704 | 0.3− | 0.4− | 2009 12 15 | 703 | 0.6− | 0.7+ |
| 2003 11 16 | 683 | (2.8+ | 0.5+) | 2003 12 01 | 683 | 0.9− | 0.7− | 2009 12 15 | 703 | 0.1− | 0.9− |
| 2003 11 21 | 703 | 0.9− | 0.9− | 2003 12 01 | 683 | 0.9+ | 0.2+ | 2009 12 15 | 703 | 0.2− | 0.8+ |
| 2003 11 21 | 703 | 0.3− | 1.1+ | 2003 12 01 | 683 | 0.1− | 1.0− | 2009 12 18 | G96 | 0.2+ | 0.1− |
| 2003 11 21 | 703 | 0.5− | 0.0 | 2006 02 24 | 691 | 0.7+ | 0.5+ | 2009 12 18 | G96 | 0.2− | 0.2− |
| 2003 11 21 | 644 | 0.2− | 0.3+ | 2006 02 24 | 691 | 0.3+ | 0.3+ | 2009 12 18 | G96 | 0.1− | 0.1− |
| 2003 11 21 | 703 | 0.8− | 0.6− | 2006 02 24 | 691 | 0.5+ | 0.7+ | 2009 12 18 | G96 | 0.1+ | 0.2− |
| 2003 11 21 | 644 | 0.2− | 0.4+ | 2007 06 24 | 691 | 0.2− | 0.8+ | 2009 12 20 | 691 | 0.0 | 0.2+ |
| 2003 11 21 | 644 | 0.0 | 0.6+ | 2007 06 24 | 691 | 0.0 | 0.2− | 2009 12 20 | 691 | 0.1− | 0.0 |
| 2003 11 23 | 683 | 1.1− | 0.2− | 2007 06 24 | 691 | 0.3− | 0.2+ | 2009 12 20 | 691 | 0.0 | 0.3+ |

**2003 WR$_{162}$ = 2009 YR$_{14}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 50.50157 | | (2000.0) | | | |
| $n$ | 0.18032188 | $\omega$ | 324.42847 | | +0.68043393 | −0.72530038 |
| $a$ | 3.1029189 | $\Omega$ | 82.44157 | | +0.69439989 | +0.59254122 |
| $e$ | 0.1351824 | $i$ | 6.05913 | | +0.23413343 | +0.35047720 |
| $P$ | 5.47 | $H$ | 16.2 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 11 30 | 691 | 0.1+ | 0.0 | 2003 12 18 | 333 | 0.2− | 0.4− | 2009 12 18 | G96 | 0.0 | 0.3− |
| 2003 11 30 | 691 | 0.1+ | 0.0 | 2003 12 21 | 691 | 0.1+ | 0.1− | 2009 12 18 | G96 | 0.1+ | 0.2− |
| 2003 11 30 | 691 | 0.1+ | 0.0 | 2003 12 21 | 691 | 0.1− | 0.0 | 2009 12 19 | 691 | 0.2− | 0.0 |
| 2003 12 01 | 704 | 0.1+ | 0.4+ | 2003 12 21 | 691 | 0.0 | 0.0 | 2009 12 19 | 691 | 0.1− | 0.2+ |
| 2003 12 01 | 704 | 0.6− | 0.2+ | 2009 11 11 | G96 | 0.0 | 0.3− | 2009 12 19 | 691 | 0.2− | 0.0 |
| 2003 12 01 | 704 | 0.1− | 0.1+ | 2009 11 11 | G96 | 0.0 | 0.5− | 2009 12 27 | 691 | 0.1+ | 0.1+ |
| 2003 12 01 | 704 | 0.4+ | 1.3− | 2009 11 11 | G96 | 0.3+ | 0.3− | 2009 12 27 | 691 | 0.2+ | 0.0 |
| 2003 12 18 | 333 | 0.2− | 0.8+ | 2009 12 18 | G96 | 0.0 | 0.3− | 2009 12 27 | 691 | 0.1+ | 0.0 |
| 2003 12 18 | 333 | 1.2− | 0.4+ | 2009 12 18 | G96 | 0.1+ | 0.0 | | | | |

**2003 WQ$_{169}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 53.43035 | | (2000.0) | | | |
| $n$ | 0.17382832 | $\omega$ | 274.52968 | | +0.92195862 | −0.33001665 |
| $a$ | 3.1797211 | $\Omega$ | 104.84314 | | +0.38227907 | +0.85935986 |
| $e$ | 0.2354339 | $i$ | 12.10373 | | −0.06208885 | +0.39062724 |
| $P$ | 5.67 | $H$ | 15.6 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 21 | 644 | 0.3+ | 0.1− | 2003 11 23 | 699 | 0.2− | 0.4+ | 2003 12 22 | 691 | 0.1− | 0.1− |
| 2003 10 21 | 644 | 0.2+ | 0.2+ | 2003 11 30 | 704 | (0.5− | 3.1+) | 2003 12 22 | 691 | 0.1− | 0.0 |
| 2003 10 21 | 644 | 0.2− | 0.2+ | 2003 11 30 | 704 | 0.2+ | 1.9+ | 2003 12 22 | 691 | 0.0 | 0.2+ |
| 2003 11 19 | 703 | 0.9− | 0.4− | 2003 11 30 | 704 | (0.2+ | 2.5+) | 2008 08 04 | E12 | 0.5+ | 0.2+ |
| 2003 11 19 | 703 | 0.2+ | 1.2− | 2003 11 30 | 704 | (0.4+ | 2.2+) | 2008 08 04 | E12 | 0.1+ | 0.4+ |
| 2003 11 19 | 703 | 0.2− | 1.1− | 2003 11 30 | 704 | (1.5− | 3.2+) | 2008 08 04 | E12 | 0.5+ | 0.2+ |
| 2003 11 19 | 703 | 0.6+ | 1.0+ | 2003 12 20 | 704 | 0.7− | 0.4+ | 2008 09 24 | E12 | 0.3+ | 0.7+ |
| 2003 11 23 | 699 | 1.4+ | 0.2− | 2003 12 20 | 704 | 1.0− | 1.0− | 2008 09 24 | E12 | 0.6− | 0.2− |
| 2003 11 23 | 699 | 1.3+ | 0.1− | 2003 12 20 | 704 | 0.0 | 0.7− | 2008 09 24 | E12 | 0.4− | 0.5− |
| 2003 11 23 | 699 | 0.4+ | 0.3+ | 2003 12 20 | 704 | 0.8− | 0.0 | 2008 09 24 | E12 | 0.6− | 0.7− |

**2003 WP$_{171}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 70.32027 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18084759 | $\omega$ | 270.42367 | | +0.94948005 | −0.26616922 | |
| $a$ | 3.0969028 | $\Omega$ | 105.01910 | | +0.30922501 | +0.88387802 | |
| $e$ | 0.2334744 | $i$ | 9.91214 | | −0.05354933 | +0.38459536 | |
| $P$ | 5.45 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 05 24 | 645 | 0.1+ | 0.2+ | 2003 11 30 | 704 | 0.1+ | 0.4+ | 2008 10 02 | 703 | 0.6− | 0.4+ |
| 2001 05 24 | 645 | 0.0 | 0.2+ | 2003 11 30 | 704 | 0.4+ | 0.4+ | 2008 10 02 | 703 | 0.1− | 0.5− |
| 2003 10 21 | 644 | 0.0 | 0.2− | 2003 11 30 | 704 | 0.9+ | 1.1+ | 2008 10 02 | 703 | 0.6+ | 0.0 |
| 2003 10 21 | 644 | 0.1− | 0.2+ | 2003 11 30 | 704 | 0.3− | 0.1+ | 2008 10 02 | 703 | 0.3+ | 0.6+ |
| 2003 10 21 | 644 | 0.0 | 0.1+ | 2003 11 30 | 704 | 0.2+ | 0.1+ | 2008 10 02 | 703 | 1.6− | 0.3+ |
| 2003 10 29 | 608 | 0.8+ | 0.3+ | 2003 12 20 | 704 | 0.4+ | 0.2+ | 2009 10 24 | G96 | 0.2− | 0.6+ |
| 2003 10 29 | 608 | 0.2− | 0.6− | 2003 12 20 | 704 | 0.4+ | 0.1+ | 2009 10 24 | G96 | 0.2− | 0.2− |
| 2003 10 29 | 608 | 0.4+ | 0.3− | 2003 12 20 | 704 | 0.3+ | 0.8+ | 2009 10 24 | G96 | 0.6+ | 0.1− |
| 2003 11 16 | 703 | 1.1− | 0.4+ | 2008 08 06 | E12 | 0.4+ | 0.7− | 2009 10 24 | G96 | 0.2+ | 0.3− |
| 2003 11 16 | 703 | 0.7− | 0.3+ | 2008 08 06 | E12 | 0.3− | 0.8− | 2009 11 16 | G96 | 0.4− | 0.1+ |
| 2003 11 16 | 703 | 0.8− | 0.6− | 2008 08 06 | E12 | 0.2+ | 0.4− | 2009 11 16 | G96 | 0.3− | 0.1+ |
| 2003 11 16 | 703 | 1.4− | 0.8+ | 2008 08 06 | E12 | 0.2+ | 0.1− | 2009 11 16 | G96 | 0.3+ | 0.1+ |
| 2003 11 23 | 699 | 0.5+ | 0.4+ | 2008 09 06 | 703 | 0.2+ | 0.5+ | 2009 11 16 | G96 | 0.4+ | 0.4+ |
| 2003 11 23 | 699 | 0.4− | 0.1+ | 2008 09 06 | 703 | 0.1+ | 0.8+ | 2009 12 15 | G96 | 0.1− | 0.5+ |
| 2003 11 23 | 699 | 0.4− | 0.3− | 2008 09 06 | 703 | 0.5+ | 0.9+ | 2009 12 15 | G96 | 0.0 | 0.2+ |
| 2003 11 23 | 699 | 0.3+ | 0.2− | 2008 09 06 | 703 | 0.3+ | 0.1+ | 2009 12 15 | G96 | 0.1+ | 0.3− |
| 2003 11 26 | 691 | 0.1− | 0.0 | 2008 10 02 | 703 | 0.7− | 1.2+ | 2009 12 15 | G96 | 0.2+ | 0.2+ |
| 2003 11 26 | 691 | 0.0 | 0.1+ | 2008 10 02 | 703 | 0.2− | 0.8+ | | | | |
| 2003 11 26 | 691 | 0.1− | 0.1+ | 2008 10 02 | 703 | 0.6− | 0.2+ | | | | |

**2003 XP$_{13}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 84.88897 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18683392 | $\omega$ | 245.32054 | | +0.98413930 | −0.14758666 | |
| $a$ | 3.0303926 | $\Omega$ | 123.02635 | | +0.17247743 | +0.92581793 | |
| $e$ | 0.3868797 | $i$ | 6.74188 | | −0.04148946 | +0.34796457 | |
| $P$ | 5.28 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 21 | 704 | 0.3+ | 0.2+ | 2003 12 16 | 691 | 0.1− | 0.1− | 2008 09 20 | 703 | 0.1− | 0.0 |
| 2003 09 21 | 704 | 0.2+ | 0.7+ | 2003 12 16 | 691 | 0.1+ | 0.1− | 2008 09 20 | 703 | 0.1+ | 0.0 |
| 2003 09 21 | 704 | 0.3+ | 0.3+ | 2003 12 16 | 691 | 0.0 | 0.2− | 2008 09 20 | 703 | 0.4− | 0.0 |
| 2003 09 28 | 704 | 0.2− | 0.1+ | 2003 12 17 | 699 | 1.0+ | 0.4+ | 2008 10 02 | 703 | 0.2+ | 0.1− |
| 2003 09 28 | 704 | 0.7− | 0.5− | 2003 12 17 | 699 | 0.1+ | 0.8− | 2008 10 02 | 703 | 0.4+ | 0.6− |
| 2003 09 28 | 704 | 1.0− | 0.2+ | 2003 12 17 | 699 | 0.1+ | 0.2− | 2008 10 02 | 703 | 0.2+ | 0.1− |
| 2003 09 28 | 704 | 0.1+ | 1.2+ | 2003 12 17 | 699 | 0.1+ | 0.9+ | 2008 10 02 | 703 | 0.1− | 0.1− |
| 2003 12 01 | 704 | 0.5+ | 0.6+ | 2003 12 22 | 704 | 0.1+ | 0.1− | 2008 10 09 | 703 | 0.4+ | 0.2+ |
| 2003 12 01 | 704 | 0.6− | 0.1+ | 2003 12 22 | 704 | 0.3+ | 0.6− | 2008 10 09 | 703 | 0.3− | 0.1+ |
| 2003 12 01 | 704 | 0.0 | 0.1+ | 2003 12 22 | 704 | 0.4+ | 0.3− | 2008 10 09 | 703 | 0.2+ | 0.6− |
| 2003 12 01 | 704 | 0.2+ | 0.1+ | 2003 12 22 | 704 | 0.1+ | 0.0 | 2008 10 09 | 703 | 0.1− | 0.4+ |
| 2003 12 01 | 704 | 0.2− | 0.1− | 2003 12 22 | 704 | 0.1− | 0.1+ | 2008 10 09 | 703 | 0.4− | 0.4+ |
| 2003 12 14 | 644 | 0.3+ | 0.2− | 2003 12 24 | 704 | 0.5− | 0.3+ | 2008 10 09 | 703 | 0.0 | 0.1+ |
| 2003 12 14 | 644 | 0.3+ | 0.2− | 2003 12 24 | 704 | 0.2− | 0.6+ | 2008 10 09 | 703 | 0.3− | 0.1+ |
| 2003 12 14 | 644 | 0.4+ | 0.3− | 2003 12 24 | 704 | 0.0 | 0.3− | 2008 11 28 | J47 | 0.4− | 0.7− |
| 2003 12 16 | 703 | 0.5− | 0.6+ | 2004 01 13 | 644 | 0.4− | 0.1+ | 2008 11 28 | J47 | 0.2+ | 0.0 |
| 2003 12 16 | 703 | 0.1− | 0.8− | 2004 01 13 | 644 | 0.2+ | 0.1+ | 2008 11 28 | J47 | 0.7+ | 0.3− |
| 2003 12 16 | 703 | 0.4− | 0.4+ | 2004 01 13 | 644 | 0.3− | 0.4+ | | | | |
| 2003 12 16 | 703 | 0.5− | 0.5+ | 2008 09 20 | 703 | 0.2+ | 0.0 | | | | |

**2003 XO$_{25}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 55.13884 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17510269 | $\omega$ | 286.20098 | | +0.87580061 | −0.44546315 | |
| $a$ | 3.1642746 | $\Omega$ | 100.56893 | | +0.48253982 | +0.79901441 | |
| $e$ | 0.2165590 | $i$ | 10.89708 | | +0.01134090 | +0.40390414 | |
| $P$ | 5.63 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 11 23 | 691 | 0.2+ | 0.3− | 2003 12 17 | 691 | 0.1− | 0.0 | 2008 09 25 | E12 | 0.9+ | 0.0 |
| 2003 11 23 | 691 | 0.2+ | 0.0 | 2004 01 12 | 644 | 0.3− | 0.2+ | 2008 09 25 | E12 | 0.6+ | 0.7+ |
| 2003 11 23 | 691 | 0.1+ | 0.2− | 2004 01 12 | 644 | 0.2− | 0.3+ | 2009 12 10 | G96 | 0.6+ | 0.2− |
| 2003 12 01 | 704 | 0.0 | 0.3+ | 2004 01 12 | 644 | 0.1− | 0.5+ | 2009 12 10 | G96 | 0.1+ | 0.1− |
| 2003 12 01 | 704 | 0.3+ | 0.4− | 2008 08 06 | E12 | 0.1+ | 0.3+ | 2009 12 10 | G96 | 0.2+ | 0.0 |
| 2003 12 01 | 704 | 0.7+ | 0.1+ | 2008 08 06 | E12 | 0.3+ | 0.1− | 2009 12 10 | G96 | 0.4+ | 0.3− |
| 2003 12 01 | 704 | 0.1+ | 0.3+ | 2008 08 06 | E12 | 1.5− | 0.6− | 2009 12 20 | 691 | 0.1+ | 0.3+ |
| 2003 12 01 | 704 | 0.1− | 0.7+ | 2008 08 06 | E12 | 0.8− | 0.5+ | 2009 12 20 | 691 | 0.2+ | 0.1+ |
| 2003 12 04 | 703 | 0.5+ | 0.5− | 2008 09 08 | E12 | 0.1− | 0.5+ | 2009 12 20 | 691 | 0.4+ | 0.1+ |
| 2003 12 04 | 703 | 0.6− | 0.7− | 2008 09 08 | E12 | 0.5− | 0.0 | 2009 12 25 | 691 | 0.1+ | 0.0 |
| 2003 12 04 | 703 | (1.6− | 1.2−) | 2008 09 08 | E12 | 0.5− | 0.4+ | 2009 12 25 | 691 | 0.9− | 0.1− |
| 2003 12 04 | 703 | (2.2− | 0.2−) | 2008 09 08 | E12 | 0.3− | 0.9− | 2009 12 25 | 691 | 0.1− | 0.2+ |
| 2003 12 17 | 691 | 0.4− | 0.1− | 2008 09 25 | E12 | 0.8+ | 0.6+ | | | | |
| 2003 12 17 | 691 | 0.0 | 0.1+ | 2008 09 25 | E12 | 0.6+ | 0.1+ | | | | |

**2003 YO$_{16}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 21.17138 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17493784 | $\omega$ | 175.58522 | | −0.34301977 | −0.93272415 | |
| $a$ | 3.1662622 | $\Omega$ | 294.44374 | | +0.85803384 | −0.26296012 | |
| $e$ | 0.2293420 | $i$ | 7.01544 | | +0.38225040 | −0.24673392 | |
| $P$ | 5.63 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 12 17 | 691 | 0.0 | 0.0 | 2003 12 22 | 704 | 0.6− | 1.5+ | 2004 01 27 | 691 | 0.1+ | 0.2− |
| 2003 12 17 | 691 | 0.3+ | 0.5− | 2003 12 22 | 704 | 0.4− | 0.7+ | 2004 01 30 | 704 | 0.3+ | 0.2+ |
| 2003 12 17 | 691 | 0.3+ | 0.3− | 2003 12 22 | 704 | 0.8− | 1.1+ | 2004 01 30 | 704 | 0.4− | 0.0 |
| 2003 12 18 | 704 | 0.4+ | 0.5− | 2003 12 22 | 704 | 0.3− | 0.3+ | 2004 01 30 | 704 | 0.1+ | 1.1+ |
| 2003 12 18 | 704 | 0.5− | 0.0 | 2003 12 27 | 704 | 0.2− | 0.9+ | 2004 01 30 | 704 | 0.2− | 0.2+ |
| 2003 12 18 | 704 | 0.6+ | 0.2− | 2003 12 27 | 704 | 0.3+ | 0.4+ | 2008 09 28 | G96 | 0.2+ | 0.0 |
| 2003 12 18 | 704 | 0.5− | 0.1+ | 2003 12 27 | 704 | 0.4+ | 0.7+ | 2008 09 28 | G96 | 0.3+ | 0.1− |
| 2003 12 18 | 704 | 0.9+ | 0.6+ | 2003 12 27 | 704 | 0.5+ | 0.8+ | 2008 09 28 | G96 | 0.5+ | 0.1− |
| 2003 12 18 | 704 | 0.8− | 0.1+ | 2003 12 27 | 704 | 0.1− | 0.3+ | 2008 09 28 | G96 | 1.0− | 0.2+ |
| 2003 12 18 | 704 | 0.1− | 0.8− | 2003 12 29 | 691 | 0.0 | 0.3− | 2008 10 29 | G96 | 0.0 | 0.1+ |
| 2003 12 18 | 704 | 1.4− | 0.4− | 2003 12 29 | 691 | 0.0 | 0.4− | 2008 10 29 | G96 | 0.2− | 0.0 |
| 2003 12 18 | 704 | 0.0 | 0.5+ | 2003 12 29 | 691 | 0.0 | 0.3− | 2008 10 29 | G96 | 0.2+ | 0.0 |
| 2003 12 18 | 704 | 0.6− | 0.0 | 2004 01 27 | 691 | 0.2+ | 0.2− | 2008 10 29 | G96 | 0.1− | 0.0 |
| 2003 12 22 | 704 | 0.6− | 1.2+ | 2004 01 27 | 691 | 0.1+ | 0.1− | | | | |

**2003 YB$_{31}$ = 2008 YE$_{26}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 69.49414 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18389370 | $\omega$ | 334.73040 | | +0.52549085 | −0.82816965 | |
| $a$ | 3.0626084 | $\Omega$ | 83.01101 | | +0.81014054 | +0.41709150 | |
| $e$ | 0.0510274 | $i$ | 11.32539 | | +0.25986857 | +0.37439246 | |
| $P$ | 5.36 | $H$ | 15.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 12 18 | 704 | 0.1+ | 0.2+ | 2005 03 16 | 703 | 0.6+ | 0.7+ | 2008 11 18 | 703 | 0.2− | 0.1− |
| 2003 12 18 | 704 | 0.5+ | 0.1+ | 2005 03 16 | 703 | 0.9+ | 0.2− | 2008 11 18 | 703 | 0.2− | 0.5− |
| 2003 12 18 | 704 | 0.1+ | 0.4+ | 2005 03 16 | 703 | 0.1− | 0.9− | 2008 11 18 | 704 | 0.2+ | 0.5+ |
| 2003 12 18 | 704 | 0.5− | 0.5+ | 2005 03 16 | 703 | 0.5− | 0.6+ | 2008 11 18 | 703 | 0.4+ | 0.4− |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 12 18 | 704 | 0.1+ | 0.5− | 2006 05 06 | G96 | 0.1− | 0.4+ | 2008 11 18 | 704 | 0.3+ | 0.7+ | 2004 01 13 | 699 | 0.2− | 0.3+ |
| 2003 12 19 | 704 | 0.0 | 0.0 | 2006 05 06 | G96 | 0.1+ | 0.4+ | 2008 11 18 | 704 | 1.0− | 0.7+ | 2004 01 13 | 699 | 0.5− | 0.6− |
| 2003 12 19 | 704 | 0.4+ | 0.2+ | 2006 05 06 | G96 | 0.1+ | 0.4+ | 2008 11 23 | 704 | 1.1+ | 0.3+ | 2004 01 13 | 699 | 0.3− | 0.6+ |
| 2003 12 19 | 704 | 0.5+ | 0.5+ | 2006 05 06 | G96 | 0.4− | 0.2+ | 2008 11 23 | 704 | 0.2− | 0.0 | 2004 01 26 | 699 | 0.3− | 0.1+ |
| 2003 12 19 | 704 | 0.0 | 0.3+ | 2007 08 08 | E12 | 0.2− | 0.0 | 2008 11 23 | 704 | 0.2+ | 0.2+ | 2004 01 26 | 699 | 0.2+ | 0.3+ |
| 2003 12 19 | 704 | 0.2+ | 0.1− | 2007 08 08 | E12 | 0.3− | 0.3+ | 2008 11 30 | 704 | 0.0 | 0.4+ | 2004 01 26 | 699 | 0.3− | 0.4− |
| 2003 12 20 | 704 | 0.1+ | 0.2− | 2007 08 08 | E12 | 0.3+ | 0.1+ | 2008 11 30 | 704 | 0.5− | 0.8+ | | | | |
| 2003 12 20 | 704 | 0.4− | 0.8− | 2007 08 08 | E12 | 0.4+ | 0.5+ | 2008 11 30 | 704 | 0.5− | 0.5+ | | | | |
| 2003 12 20 | 704 | 0.1+ | 0.5− | 2008 10 25 | 704 | 1.0− | 0.3− | 2008 11 30 | 704 | 1.3− | 0.7− | | | | |
| 2003 12 20 | 704 | 0.5+ | 0.3− | 2008 10 25 | 704 | 0.1+ | 0.4− | 2008 12 27 | 461 | 0.1− | 0.1− | | | | |
| 2003 12 20 | 704 | 0.3+ | 0.4+ | 2008 10 25 | 704 | 0.1+ | 0.6+ | 2008 12 27 | 461 | 0.2+ | 0.1− | | | | |
| 2003 12 21 | 704 | 0.3− | 0.6− | 2008 10 25 | 704 | 0.4+ | 1.1− | 2008 12 27 | 461 | 0.2+ | 0.1− | | | | |
| 2003 12 21 | 704 | 0.4− | 0.1+ | 2008 10 30 | 704 | 0.4+ | 0.1+ | 2008 12 28 | 461 | 0.1− | 0.1− | | | | |
| 2003 12 21 | 704 | 0.4+ | 0.1− | 2008 10 30 | 704 | 0.4− | 0.1− | 2008 12 28 | 461 | 0.1+ | 0.3+ | | | | |
| 2003 12 24 | 704 | 0.0 | 0.4− | 2008 10 30 | 704 | 0.2+ | 0.5− | 2008 12 28 | 461 | 0.2− | 0.0 | | | | |
| 2003 12 24 | 704 | 0.3− | 0.3+ | 2008 10 30 | 704 | 0.4− | 0.0 | 2008 12 29 | 461 | 0.1− | 0.2+ | | | | |
| 2003 12 24 | 704 | 0.2+ | 0.1+ | 2008 10 30 | 704 | 0.1+ | 0.1+ | 2008 12 29 | 461 | 0.3− | 0.1− | | | | |
| 2003 12 29 | 704 | 0.8− | 0.2+ | 2008 11 03 | G96 | 0.4− | 0.2− | 2008 12 29 | 461 | 0.1+ | 0.1+ | | | | |
| 2003 12 29 | 704 | 0.2+ | 0.3− | 2008 11 03 | G96 | 0.0 | 0.2− | 2009 01 02 | G96 | 0.1− | 0.4− | | | | |
| 2003 12 29 | 704 | 0.2− | 0.5+ | 2008 11 03 | G96 | 0.1− | 0.3− | 2009 01 02 | G96 | 0.1+ | 0.5− | | | | |
| 2003 12 29 | 704 | 0.9− | 0.1− | 2008 11 18 | 704 | 0.7+ | 0.8+ | 2009 01 02 | G96 | 0.1− | 0.5− | | | | |
| 2003 12 29 | 704 | 0.0 | 0.4+ | 2008 11 18 | 703 | 0.9+ | 0.1+ | | | | | | | | |
| 2003 12 29 | 704 | 0.6− | 0.5+ | 2008 11 18 | 704 | 1.3+ | 0.8+ | | | | | | | | |

**2003 YO$_{114}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 50.38428 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17541398 | $\omega$ | 309.68908 | | +0.44327351 | −0.87634799 | |
| $a$ | 3.1605300 | $\Omega$ | 113.03445 | | +0.87229745 | +0.37330138 | |
| $e$ | 0.2748089 | $i$ | 11.81803 | | +0.20641162 | +0.30440151 | |
| $P$ | 5.62 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 12 19 | 704 | 1.1− | 0.4+ | 2004 01 13 | 691 | (1.9+ | 0.0 ) | 2004 01 30 | 704 | 0.4− | 0.5+ | | | | |
| 2003 12 19 | 704 | 0.4− | 0.5− | 2004 01 13 | 691 | 0.9− | 0.1+ | 2004 01 30 | 704 | 0.2+ | 0.3+ | | | | |
| 2003 12 19 | 704 | 0.2− | 1.2+ | 2004 01 13 | 691 | 0.3− | 0.1+ | 2008 09 07 | 703 | 0.5+ | 1.1+ | | | | |
| 2003 12 19 | 704 | 0.1− | 0.1− | 2004 01 21 | 704 | 0.2+ | 0.3+ | 2008 09 07 | 703 | 0.0 | 0.4− | | | | |
| 2003 12 25 | 608 | 0.8+ | 0.3+ | 2004 01 21 | 704 | 0.3+ | 0.2− | 2008 09 07 | 703 | 0.1− | 0.1− | | | | |
| 2003 12 25 | 608 | 0.4+ | 0.3+ | 2004 01 21 | 704 | 0.2+ | 0.1− | 2008 09 07 | 703 | 0.2− | 0.5+ | | | | |
| 2003 12 25 | 608 | 1.0+ | 0.2+ | 2004 01 21 | 704 | 0.7+ | 0.6− | 2008 10 27 | 703 | 0.3− | 0.5− | | | | |
| 2003 12 27 | 703 | 0.7+ | 0.2+ | 2004 01 21 | 704 | 0.2− | 0.1− | 2008 10 27 | 703 | 0.0 | 1.3− | | | | |
| 2003 12 27 | 691 | 0.4+ | 0.1+ | 2004 01 24 | 704 | 0.8− | 0.1+ | 2008 10 27 | 703 | 1.3+ | 0.1− | | | | |
| 2003 12 27 | 703 | 0.6− | 0.1+ | 2004 01 24 | 704 | 0.5+ | 0.2− | 2008 10 27 | 703 | 0.6+ | 0.3+ | | | | |
| 2003 12 27 | 703 | 0.1+ | 0.0 | 2004 01 24 | 704 | 0.1+ | 0.2− | 2008 11 21 | 703 | 0.6− | 0.4− | | | | |
| 2003 12 27 | 691 | 0.2+ | 0.0 | 2004 01 24 | 704 | 1.2− | 1.4− | 2008 11 21 | 703 | 1.0− | 0.3+ | | | | |
| 2003 12 27 | 703 | 0.2+ | 1.0− | 2004 01 30 | 704 | 0.1− | 0.5+ | 2008 11 21 | 703 | 0.1+ | 0.4+ | | | | |
| 2003 12 27 | 691 | 0.3+ | 0.2− | 2004 01 30 | 704 | 0.6+ | 0.0 | 2008 11 21 | 703 | 0.5− | 0.4+ | | | | |

**2003 YF$_{133}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 69.06617 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22096555 | $\omega$ | 230.21251 | | −0.93321897 | +0.34293112 | |
| $a$ | 2.7096904 | $\Omega$ | 329.39777 | | −0.22991858 | −0.79930122 | |
| $e$ | 0.1871910 | $i$ | 12.16093 | | −0.27611555 | −0.49347320 | |
| $P$ | 4.46 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 12 28 | 704 | 0.5+ | 0.6+ | 2004 01 26 | 699 | 0.1+ | 0.6+ | 2004 02 23 | 704 | 0.2− | 0.3+ |
| 2003 12 28 | 704 | 0.0 | 0.2+ | 2004 01 30 | 704 | 0.2− | 0.1+ | 2004 02 23 | 704 | 0.2+ | 0.4+ |
| 2003 12 28 | 704 | 0.4+ | 0.4+ | 2004 01 30 | 704 | 0.1+ | 0.6+ | 2004 02 23 | 704 | 0.4− | 0.2+ |
| 2003 12 28 | 704 | 0.9+ | 0.8+ | 2004 01 30 | 704 | 0.4+ | 0.5+ | 2004 02 23 | 704 | 0.2− | 0.5+ |
| 2003 12 29 | 704 | 0.6+ | 0.2− | 2004 01 30 | 704 | 0.5− | 0.4+ | 2004 02 23 | 704 | 0.6− | 0.1+ |
| 2003 12 29 | 704 | (0.6+ | 2.3−) | 2004 01 30 | 704 | 0.0 | 1.0+ | 2004 03 18 | 704 | 0.7− | 0.3+ |
| 2003 12 29 | 704 | 1.8+ | 0.4− | 2004 02 10 | 703 | 1.7+ | 0.2+ | 2004 03 18 | 704 | 1.0− | 0.5+ |
| 2003 12 29 | 704 | 0.7− | 0.0 | 2004 02 10 | 703 | 0.5− | 0.4− | 2004 03 18 | 704 | 0.2− | 0.1− |
| 2004 01 13 | 699 | 1.9− | 1.0− | 2004 02 10 | 703 | 0.9+ | 0.0 | 2004 03 18 | 704 | 0.6− | 0.1+ |
| 2004 01 13 | 699 | 0.2− | 0.3+ | 2004 02 10 | 703 | 0.9+ | 0.4− | 2009 05 03 | E12 | 1.1− | 0.4+ |
| 2004 01 13 | 699 | 0.5− | 0.6− | 2004 02 15 | 704 | 0.4+ | 1.0− | 2009 05 03 | E12 | 0.1+ | 0.2+ |
| 2004 01 13 | 699 | 0.3− | 0.6+ | 2004 02 15 | 704 | 0.1+ | 1.1− | 2009 05 03 | E12 | 0.1+ | 0.1− |
| 2004 01 26 | 699 | 0.3− | 0.1+ | 2004 02 15 | 704 | 0.5+ | 1.5− | 2009 05 23 | E12 | 0.5+ | 0.2+ |
| 2004 01 26 | 699 | 0.2+ | 0.3+ | 2004 02 15 | 704 | 0.2− | 1.1− | 2009 05 23 | E12 | 0.7+ | 0.2− |
| 2004 01 26 | 699 | 0.3− | 0.4− | 2004 02 15 | 704 | 0.0 | 0.9− | 2009 05 23 | E12 | 0.0 | 0.1− |

**2003 YX$_{134}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 42.05381 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17322074 | $\omega$ | 348.14220 | | +0.29317509 | −0.91173354 | |
| $a$ | 3.1871520 | $\Omega$ | 84.28543 | | +0.89910679 | +0.16060680 | |
| $e$ | 0.2494347 | $i$ | 16.80828 | | +0.32504667 | +0.37808386 | |
| $P$ | 5.69 | $H$ | 15.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 11 20 | 704 | 0.4+ | 0.2− | 2003 12 18 | 704 | 0.6− | 0.9+ | 2004 01 31 | 704 | 0.9+ | 1.2+ |
| 2003 11 20 | 704 | 0.0 | 0.2− | 2003 12 28 | 691 | 0.0 | 0.0 | 2004 01 31 | 704 | 0.0 | 0.1+ |
| 2003 11 20 | 704 | 0.1+ | 0.8+ | 2003 12 28 | 691 | 0.1− | 0.0 | 2004 01 31 | 704 | 1.2− | 0.1− |
| 2003 11 20 | 704 | 0.2+ | 0.0 | 2003 12 28 | 691 | 0.0 | 0.1− | 2008 09 28 | 703 | 0.1+ | 0.4− |
| 2003 11 20 | 704 | 0.1+ | 0.5− | 2003 12 29 | 704 | 0.0 | 0.4− | 2008 09 28 | 703 | 0.5− | 0.2− |
| 2003 12 04 | 704 | 0.6+ | 0.2+ | 2003 12 29 | 704 | 1.3+ | 1.3+ | 2008 09 28 | 703 | (1.1− | 1.8−) |
| 2003 12 04 | 704 | 0.5− | 0.6− | 2003 12 29 | 704 | (1.5+ | 0.2+) | 2008 09 28 | 703 | 0.6− | 0.9− |
| 2003 12 04 | 704 | 1.0+ | 0.1+ | 2003 12 29 | 704 | 0.3− | 0.7− | 2008 10 09 | 703 | 0.9+ | 1.3+ |
| 2003 12 04 | 704 | 0.2+ | 0.1+ | 2003 12 29 | 704 | 0.1+ | 1.3− | 2008 10 09 | 703 | 1.3+ | 0.4+ |
| 2003 12 17 | 703 | (5.4− | 1.6+) | 2004 01 11 | 699 | 0.6+ | 0.8+ | 2008 10 09 | 703 | 0.4+ | 0.1+ |
| 2003 12 17 | 703 | (0.1− | 2.1−) | 2004 01 11 | 699 | 0.5− | 0.1− | 2008 10 09 | 703 | 1.0− | 0.2+ |
| 2003 12 17 | 703 | 1.5− | 0.3+ | 2004 01 11 | 699 | 0.8+ | 0.5+ | 2008 10 27 | 703 | 1.0− | 0.2+ |
| 2003 12 17 | 703 | 1.3− | 0.8− | 2004 01 11 | 699 | 0.1+ | 0.2− | 2008 10 27 | 703 | 0.1− | 0.1+ |
| 2003 12 18 | 704 | 0.0 | 0.1+ | 2004 01 16 | 699 | 0.4− | 0.1− | 2008 10 27 | 703 | 1.0+ | 0.7− |
| 2003 12 18 | 704 | 0.5+ | 0.2− | 2004 01 16 | 699 | 0.2− | 0.9− | 2008 10 27 | 703 | 0.6− | 0.1+ |
| 2003 12 18 | 704 | 0.3− | 0.1+ | 2004 01 16 | 699 | 0.6− | 0.4+ | | | | |
| 2003 12 18 | 704 | 0.3+ | 0.2+ | 2004 01 16 | 699 | 0.3+ | 0.1− | | | | |

**2003 YN$_{148}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 39.15761 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17397623 | $\omega$ | 89.96954 | | +0.37458245 | −0.92358564 | |
| $a$ | 3.1779187 | $\Omega$ | 337.48580 | | +0.74295566 | +0.35171030 | |
| $e$ | 0.2829042 | $i$ | 12.32209 | | +0.55471152 | +0.15260873 | |
| $P$ | 5.67 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 24 | 645 | 0.1− | 0.2− | 2003 12 30 | 704 | 0.7− | 0.5+ | 2008 09 03 | 691 | 0.0 | 0.1+ |
| 2003 10 24 | 645 | 0.0 | 0.2− | 2003 12 30 | 704 | 0.1+ | 1.4+ | 2008 09 03 | 691 | 0.0 | 0.1+ |
| 2003 12 21 | 704 | 0.2+ | 0.1+ | 2003 12 30 | 704 | 0.4+ | 0.0 | 2008 09 03 | 691 | 0.4− | 0.0 |
| 2003 12 21 | 704 | 0.3+ | 0.1− | 2003 12 30 | 704 | 0.3− | 0.8+ | 2008 09 29 | G96 | 0.1− | 0.3+ |
| 2003 12 21 | 704 | 0.6+ | 1.2+ | 2004 01 19 | 704 | 0.9− | 1.4+ | 2008 09 29 | G96 | 0.1− | 0.1+ |
| 2003 12 29 | 704 | 0.0 | 0.1− | 2004 01 19 | 704 | 0.0 | 0.4+ | 2008 09 29 | G96 | 0.1− | 0.4+ |
| 2003 12 29 | 704 | 0.0 | 0.4+ | 2004 01 19 | 704 | 0.0 | 0.4+ | 2008 09 29 | G96 | 0.4+ | 0.2+ |
| 2003 12 29 | 704 | 0.9+ | 0.6− | 2004 01 19 | 704 | 0.1+ | 0.7+ | | | | |

**2003 YZ$_{162}$ = 2008 UL$_{365}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 95.88292 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18133386 | $\omega$ | 297.44018 | | +0.92869861 | −0.23328275 | |
| $a$ | 3.0913638 | $\Omega$ | 77.23643 | | +0.34483729 | +0.82919288 | |
| $e$ | 0.2421549 | $i$ | 17.19177 | | −0.13640431 | +0.50795505 | |
| $P$ | 5.44 | $H$ | 15.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 12 17 | 704 | 0.6+ | 0.2− | 2003 12 28 | 704 | 0.6+ | 0.0 | 2008 11 24 | 683 | 0.9− | 0.2+ |
| 2003 12 17 | 704 | 0.5+ | 0.5− | 2008 10 24 | 703 | 0.4− | 0.0 | 2008 11 24 | 683 | 1.3− | 0.4− |
| 2003 12 17 | 704 | 0.0 | 0.6− | 2008 10 24 | 703 | 0.4+ | 0.4+ | 2009 01 02 | G96 | 0.0 | 0.3− |
| 2003 12 23 | 704 | 1.4− | 1.2+ | 2008 10 24 | 703 | 0.3+ | 0.3− | 2009 01 02 | G96 | 0.6+ | 0.4− |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 12 23 | 704 | 0.3+ | 0.5+ | 2008 10 24 | 703 | 0.7+ | 0.2− | 2009 01 02 | G96 | 0.1+ | 0.3− |
| 2003 12 23 | 704 | 0.6− | 0.7+ | 2008 11 18 | 703 | 0.5+ | 0.1+ | 2009 01 02 | G96 | 0.1− | 0.4− |
| 2003 12 23 | 704 | (1.5− | 4.3−) | 2008 11 18 | 703 | 0.0 | 0.2− | 2009 02 22 | G96 | 0.1− | 0.3+ |
| 2003 12 23 | 704 | 0.7− | 0.1− | 2008 11 18 | 703 | 0.4− | 0.6+ | 2009 02 22 | G96 | 0.1− | 0.1+ |
| 2003 12 28 | 704 | 0.3+ | 0.2− | 2008 11 18 | 703 | 0.2+ | 0.5+ | 2009 02 22 | G96 | 0.1− | 0.1− |
| 2003 12 28 | 704 | 0.4+ | 0.5− | 2008 11 24 | 683 | 0.5+ | 0.0 | 2009 02 22 | G96 | 0.5+ | 0.2+ |

**2004 AB$_{10}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 40.91185 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18003392 | $\omega$ | 356.21843 | | −0.29921186 | | −0.94349754 |
| $a$ | 3.1062268 | $\Omega$ | 111.14853 | | +0.87940668 | | −0.33059769 |
| $e$ | 0.1188119 | $i$ | 8.78398 | | +0.37029198 | | +0.02275007 |
| $P$ | 5.47 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 12 22 | 691 | 0.1+ | 0.0 | 2004 01 22 | 704 | 0.1− | 0.4− | 2008 12 21 | 703 | 0.5− | 0.8+ |
| 2003 12 22 | 691 | 0.2+ | 0.2− | 2004 01 27 | 691 | 0.1+ | 0.1+ | 2008 12 21 | 703 | 0.1− | 0.1+ |
| 2003 12 22 | 691 | 0.2+ | 0.2− | 2004 01 27 | 691 | 0.0 | 0.2+ | 2008 12 21 | 703 | 0.1− | 0.3− |
| 2004 01 15 | 691 | 0.2− | 0.2+ | 2004 01 27 | 691 | 0.1+ | 0.2+ | 2008 12 21 | 703 | 0.7− | 0.4− |
| 2004 01 15 | 691 | 0.2− | 0.3+ | 2008 10 26 | G96 | 0.0 | 0.1− | 2009 01 02 | G96 | 0.2+ | 0.3− |
| 2004 01 15 | 691 | 0.1− | 0.3+ | 2008 10 26 | G96 | 0.1− | 0.0 | 2009 01 02 | G96 | 0.2+ | 0.2− |
| 2004 01 19 | 699 | 0.2+ | 0.2− | 2008 10 26 | G96 | 0.3+ | 0.2+ | 2009 01 02 | G96 | 0.2− | 0.3− |
| 2004 01 19 | 699 | 0.3+ | 0.9− | 2008 10 26 | G96 | 0.2+ | 0.0 | 2009 01 02 | G96 | 0.4+ | 0.4− |
| 2004 01 19 | 699 | 0.2− | 0.5+ | 2008 12 02 | G96 | 0.1+ | 0.1− | 2009 12 17 | 691 | 0.3− | 0.4− |
| 2004 01 19 | 699 | 0.4− | 0.2+ | 2008 12 02 | G96 | 0.1+ | 0.1+ | 2009 12 17 | 691 | 0.0 | 0.3− |
| 2004 01 22 | 704 | 0.3− | 0.7− | 2008 12 02 | G96 | 0.2+ | 0.0 | 2009 12 17 | 691 | 0.2+ | 0.3+ |
| 2004 01 22 | 704 | 0.1− | 0.1− | 2008 12 02 | G96 | 0.3+ | 0.0 | | | | |

**2004 AM$_{14}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 185.20435 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23902716 | $\omega$ | 215.50438 | | −0.11219216 | | −0.97902619 |
| $a$ | 2.5714093 | $\Omega$ | 241.49392 | | +0.95054582 | | −0.05585841 |
| $e$ | 0.1363809 | $i$ | 11.15840 | | +0.28961279 | | −0.19592743 |
| $P$ | 4.12 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 01 14 | 644 | 0.4− | 0.2+ | 2004 02 10 | 644 | 0.2+ | 0.2+ | 2009 05 18 | G96 | 0.0 | 0.2+ |
| 2004 01 14 | 644 | 0.4− | 0.0 | 2004 02 10 | 644 | 0.4+ | 0.1− | 2009 05 18 | G96 | 0.1− | 0.0 |
| 2004 01 14 | 644 | 0.2− | 0.2+ | 2004 02 19 | 704 | 0.1− | 0.2+ | 2009 05 29 | G96 | 0.2+ | 0.2− |
| 2004 01 28 | 704 | 0.1− | 0.0 | 2004 02 19 | 704 | 0.0 | 0.7+ | 2009 05 29 | G96 | 0.2− | 0.1+ |
| 2004 01 28 | 704 | 0.6+ | 0.7− | 2004 02 19 | 704 | 0.1+ | 0.3+ | 2009 05 29 | G96 | 0.4+ | 0.0 |
| 2004 01 28 | 704 | 0.6+ | 0.8− | 2004 02 19 | 704 | 0.4− | 0.4− | 2009 05 29 | G96 | 0.1+ | 0.0 |
| 2004 01 28 | 704 | 0.0 | 0.2+ | 2004 02 19 | 704 | 0.4− | 0.1+ | | | | |
| 2004 02 10 | 644 | 0.1− | 0.1+ | 2009 05 18 | G96 | 0.4− | 0.1− | | | | |

**2004 AZ$_{23}$ = 2003 YP$_{39}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 326.90841 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17399743 | $\omega$ | 222.44339 | | −0.98843283 | | −0.11154367 |
| $a$ | 3.1776604 | $\Omega$ | 310.85387 | | +0.14731009 | | −0.86722806 |
| $e$ | 0.0544536 | $i$ | 7.80781 | | −0.03605936 | | −0.48525612 |
| $P$ | 5.66 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 12 17 | 691 | 0.0 | 0.3− | 2004 01 15 | 691 | 0.1+ | 0.2+ | 2004 01 27 | 691 | 0.1− | 0.3− |
| 2003 12 17 | 691 | 0.1− | 0.2− | 2004 01 22 | 704 | 1.3− | 0.1− | 2008 10 27 | 691 | 0.2− | 0.5− |
| 2003 12 17 | 691 | 0.1+ | 0.1+ | 2004 01 22 | 704 | 0.0 | 0.1− | 2008 10 27 | 691 | 0.0 | 0.0 |
| 2003 12 19 | 691 | 0.3+ | 0.2− | 2004 01 22 | 704 | 0.0 | 0.6+ | 2008 10 27 | 691 | 0.1+ | 0.3+ |
| 2003 12 19 | 691 | 0.2+ | 0.2+ | 2004 01 22 | 704 | 0.1+ | 0.4+ | 2008 12 06 | G96 | 0.3− | 0.1+ |
| 2003 12 19 | 691 | 0.1− | 0.1+ | 2004 01 22 | 704 | 0.2− | 0.9+ | 2008 12 06 | G96 | 0.0 | 0.4+ |
| 2004 01 15 | 691 | 0.1− | 0.1+ | 2004 01 27 | 691 | 0.0 | 0.1− | 2008 12 06 | G96 | 0.4+ | 0.3+ |
| 2004 01 15 | 691 | 0.0 | 0.1+ | 2004 01 27 | 691 | 0.0 | 0.1− | 2008 12 06 | G96 | 0.4+ | 0.1+ |

**2004 BS$_{29}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 31.24687 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18168173 | $\omega$ | 168.70263 | | −0.75091512 | | −0.65500399 |
| $a$ | 3.0874165 | $\Omega$ | 329.84632 | | +0.59208577 | | −0.61124048 |
| $e$ | 0.0675861 | $i$ | 9.65412 | | +0.29250797 | | −0.44424638 |
| $P$ | 5.42 | $H$ | 15.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 01 18 | 644 | 0.0 | 0.3+ | 2004 01 30 | 704 | 0.9+ | 0.6+ | 2004 02 29 | 691 | 0.0 | 0.0 |
| 2004 01 18 | 644 | 0.0 | 0.2− | 2004 02 10 | 644 | 0.3− | 0.0 | 2004 02 29 | 691 | 0.1+ | 0.3− |
| 2004 01 18 | 644 | 0.2+ | 0.2− | 2004 02 10 | 644 | 0.4+ | 0.4+ | 2004 02 29 | 691 | 0.2− | 0.0 |
| 2004 01 22 | 704 | 0.2+ | 0.0 | 2004 02 10 | 644 | 0.8− | 0.2+ | 2007 09 12 | 703 | 0.4+ | 0.2− |
| 2004 01 22 | 704 | 0.0 | 0.1+ | 2004 02 16 | 704 | 0.1− | 0.4− | 2007 09 12 | 703 | 1.1− | 0.4+ |
| 2004 01 22 | 704 | 0.3− | 0.1+ | 2004 02 16 | 704 | 0.3+ | 0.3+ | 2007 09 12 | 703 | 0.0 | 0.8+ |
| 2004 01 22 | 704 | 0.6− | 0.8− | 2004 02 16 | 704 | 0.4+ | 0.7+ | 2007 09 12 | 703 | 1.3+ | 0.9− |
| 2004 01 22 | 704 | 0.3− | 0.1− | 2004 02 23 | 704 | 0.2+ | 0.4− | 2007 10 08 | 703 | (0.7+ | 3.0+) |
| 2004 01 30 | 704 | 0.5− | 0.4− | 2004 02 23 | 704 | 0.5+ | 0.8+ | 2007 10 08 | 703 | 0.0 | 0.6+ |
| 2004 01 30 | 704 | 0.7+ | 0.2+ | 2004 02 23 | 704 | 0.5+ | 0.5+ | 2007 10 08 | 703 | 0.1+ | 0.8− |
| 2004 01 30 | 704 | 0.7− | 0.6+ | 2004 02 23 | 704 | 0.2− | 1.1− | 2007 10 08 | 703 | 0.6− | 0.1+ |

**2004 BA$_{85}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 117.13981 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22645100 | $\omega$ | 277.26288 | | −0.95450396 | | −0.10562463 |
| $a$ | 2.6657529 | $\Omega$ | 256.97081 | | +0.19653942 | | −0.92613952 |
| $e$ | 0.1590282 | $i$ | 16.63262 | | −0.22426425 | | −0.36208980 |
| $P$ | 4.35 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 11 24 | 644 | 0.4+ | 0.4− | 2004 01 28 | 704 | 0.2− | 0.2+ | 2004 03 26 | 704 | 1.3+ | 0.3+ |
| 2002 11 24 | 644 | 0.1− | 0.8− | 2004 01 28 | 704 | 0.1− | 0.7+ | 2004 03 26 | 704 | 0.2− | 0.1− |
| 2002 11 24 | 644 | 0.6+ | 0.6− | 2004 02 24 | 608 | 0.0 | 0.9− | 2004 03 28 | 608 | 0.3− | 0.5− |
| 2002 11 26 | 644 | 0.1+ | 0.2− | 2004 02 24 | 608 | 0.6− | 0.7− | 2004 03 28 | 608 | 0.1− | 0.1− |
| 2002 11 26 | 644 | 1.1− | 1.4+ | 2004 02 24 | 608 | 0.2− | 0.5− | 2004 03 28 | 608 | 0.1+ | 0.3− |
| 2002 11 26 | 644 | 0.1+ | 0.9+ | 2004 03 17 | 704 | 0.2− | 0.2− | 2004 04 17 | 704 | 0.6− | 0.8+ |
| 2004 01 27 | 704 | 0.4− | 0.6− | 2004 03 17 | 704 | 0.3− | 0.7+ | 2004 04 17 | 704 | 0.2+ | 0.4+ |
| 2004 01 27 | 704 | 0.1− | 0.7+ | 2004 03 17 | 704 | 0.1+ | 0.1+ | 2004 04 17 | 704 | 0.0 | 1.0+ |
| 2004 01 27 | 704 | 0.7+ | 0.4− | 2004 03 17 | 704 | 1.0+ | 0.6+ | 2004 07 16 | 413 | 0.6+ | 0.4− |
| 2004 01 27 | 704 | 1.5+ | 0.4− | 2004 03 17 | 704 | 0.1+ | 0.8+ | 2004 07 16 | 413 | 0.4− | 0.0 |
| 2004 01 28 | 704 | 0.1− | 0.4− | 2004 03 26 | 704 | 0.4− | 0.2+ | 2004 07 16 | 413 | 0.1− | 0.0 |
| 2004 01 28 | 704 | 1.0− | 0.5− | 2004 03 26 | 704 | 0.3− | 0.0 | | | | |

**2004 BA$_{99}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 2.81118 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18631455 | $\omega$ | 85.99633 | | −0.86572183 | | +0.49263029 |
| $a$ | 3.0360217 | $\Omega$ | 123.49561 | | −0.49095647 | | −0.80134848 |
| $e$ | 0.0645590 | $i$ | 6.09541 | | −0.09740362 | | −0.33934645 |
| $P$ | 5.29 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 03 21 | 645 | 0.1− | 0.2− | 2004 03 11 | 644 | 0.0 | 0.1− | 2004 04 09 | 644 | 0.2+ | 0.1− |
| 1999 03 21 | 645 | 0.1− | 0.2− | 2004 03 11 | 644 | 0.0 | 0.1+ | 2004 04 09 | 644 | 0.0 | 0.1+ |
| 2004 01 27 | 691 | 0.0 | 0.2+ | 2004 03 15 | 704 | 0.4+ | 0.2− | 2008 11 09 | 691 | 0.1+ | 0.2− |
| 2004 01 27 | 691 | 0.1+ | 0.2− | 2004 03 15 | 704 | 0.6+ | 1.0+ | 2008 11 09 | 691 | 0.1+ | 0.1− |
| 2004 01 27 | 691 | 0.3+ | 0.1− | 2004 03 15 | 704 | 0.4− | 1.3+ | 2008 11 09 | 691 | 0.2− | 0.3− |
| 2004 01 27 | 691 | 0.0 | 0.2+ | 2004 03 18 | 704 | 1.2+ | 1.0+ | 2008 12 07 | G96 | 0.3+ | 0.4− |
| 2004 01 27 | 691 | 0.7− | 0.2+ | 2004 03 18 | 704 | 0.9− | 0.3+ | 2008 12 07 | G96 | 0.1− | 0.2− |
| 2004 01 27 | 691 | 0.1− | 0.2+ | 2004 03 18 | 704 | 0.3+ | 1.2+ | 2008 12 07 | G96 | 0.1− | 0.4− |
| 2004 01 27 | 691 | 0.1− | 0.1+ | 2004 03 18 | 704 | 0.3− | 0.7+ | 2008 12 07 | G96 | 0.5+ | 0.5− |
| 2004 01 27 | 691 | 0.2− | 0.1+ | 2004 03 20 | 704 | 0.5+ | 0.1− | 2009 01 28 | 703 | 0.1− | 0.6+ |
| 2004 01 27 | 691 | 0.0 | 0.1+ | 2004 03 20 | 704 | 0.7+ | 0.8+ | 2009 01 28 | 703 | 0.8− | 1.1− |
| 2004 01 30 | 691 | 0.1+ | 0.1− | 2004 03 20 | 704 | 1.2+ | 1.4+ | 2009 01 28 | 703 | (0.6− | 1.8−) |
| 2004 01 30 | 691 | 0.0 | 0.1+ | 2004 03 20 | 704 | 1.3+ | 0.6+ | 2009 01 28 | 703 | 0.1+ | 0.4− |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 01 30 | 691 | 0.1+ | 0.0 | 2004 03 20 | 704 | 0.9+ | 0.5+ | 2009 02 05 | 703 | 0.8+ | 0.8− |
| 2004 01 30 | 691 | 0.0 | 0.0 | 2004 03 22 | 704 | 0.3+ | 0.3− | 2009 02 05 | 703 | 0.5− | 0.5+ |
| 2004 01 30 | 691 | 0.3+ | 0.0 | 2004 03 22 | 704 | 0.6+ | 0.4+ | 2009 02 05 | 703 | 0.1− | 0.1− |
| 2004 01 30 | 691 | 0.0 | 0.1+ | 2004 03 22 | 704 | 0.4− | 0.5+ | 2009 02 05 | 703 | 0.9− | 0.3− |
| 2004 02 26 | 704 | 0.0 | 0.1+ | 2004 03 22 | 704 | 1.3+ | 0.1− | 2009 02 19 | J75 | 0.1+ | 1.1− |
| 2004 02 26 | 704 | (2.0− | 0.5+) | 2004 03 27 | 691 | 0.2− | 0.1− | 2009 02 19 | J75 | 0.6− | 0.8− |
| 2004 02 26 | 704 | (2.2− | 0.0 ) | 2004 03 27 | 691 | 0.3− | 0.0 | 2009 02 19 | J75 | 0.1− | 0.2− |
| 2004 02 26 | 704 | (1.9− | 0.5−) | 2004 03 27 | 691 | 0.3− | 0.1+ | | | | |
| 2004 03 11 | 644 | 0.3+ | 0.1− | 2004 04 09 | 644 | 0.1+ | 0.2+ | | | | |

**2004 BA$_{100}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 126.45799 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23467437 | $\omega$ | 72.62275 | | −0.96531611 | | −0.14165503 |
| $a$ | 2.6031085 | $\Omega$ | 98.80739 | | +0.05581209 | | −0.93255761 |
| $e$ | 0.2267093 | $i$ | 12.82247 | | +0.25504867 | | −0.33206950 |
| $P$ | 4.20 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 12 28 | 704 | 0.2− | 0.0 | 2004 01 30 | 703 | 0.3− | 0.8− | 2004 02 16 | 703 | 0.8+ | 0.9+ |
| 2003 12 28 | 699 | 0.1− | 0.7− | 2004 01 30 | 703 | 0.1+ | 1.4− | 2004 02 16 | 703 | 0.4+ | 0.9+ |
| 2003 12 28 | 699 | 0.4− | 0.3− | 2004 01 30 | 703 | 0.3− | 0.4− | 2004 02 16 | 703 | (2.4+ | 3.6+) |
| 2003 12 28 | 704 | 0.4+ | 0.2+ | 2004 01 30 | 703 | 1.0− | 0.3− | 2007 11 13 | G96 | 0.1− | 0.2+ |
| 2003 12 28 | 699 | 1.0+ | 0.1− | 2004 01 31 | 704 | 0.1+ | 0.0 | 2007 11 13 | G96 | 0.3+ | 0.1+ |
| 2003 12 28 | 704 | 0.0 | 0.7+ | 2004 01 31 | 704 | 0.5+ | 0.7+ | 2007 11 13 | G96 | 0.0 | 0.0 |
| 2003 12 28 | 699 | 0.5+ | 0.8− | 2004 01 31 | 704 | 0.3− | 0.2+ | 2007 11 13 | G96 | 0.4+ | 0.0 |
| 2004 01 17 | 644 | 0.1− | 0.2− | 2004 01 31 | 704 | 0.1− | 0.1− | 2007 12 04 | G96 | 0.3+ | 0.0 |
| 2004 01 17 | 644 | 0.0 | 0.2− | 2004 01 31 | 704 | 0.7− | 0.2+ | 2007 12 04 | G96 | 0.1+ | 0.2+ |
| 2004 01 17 | 644 | 0.2− | 0.2− | 2004 02 11 | 644 | 0.2− | 0.3− | 2007 12 04 | G96 | 0.3+ | 0.1+ |
| 2004 01 17 | 644 | 0.1− | 0.1− | 2004 02 11 | 644 | 0.1+ | 0.3− | 2007 12 04 | G96 | 0.0 | 0.1+ |
| 2004 01 17 | 644 | 0.1− | 0.0 | 2004 02 11 | 644 | 0.3− | 0.2− | 2007 12 30 | 691 | 0.6− | 0.1− |
| 2004 01 17 | 644 | 0.1+ | 0.2− | 2004 02 14 | 704 | 0.2− | 0.0 | 2007 12 30 | 691 | 0.5− | 0.2+ |
| 2004 01 28 | 703 | 0.3+ | 0.4− | 2004 02 14 | 704 | 0.1− | 0.0 | 2007 12 30 | 691 | 0.6− | 0.4− |
| 2004 01 28 | 703 | 0.5+ | 0.8+ | 2004 02 14 | 704 | 0.5− | 0.0 | 2008 01 13 | 691 | 1.2+ | 0.4− |
| 2004 01 28 | 703 | 0.1− | 0.4+ | 2004 02 14 | 704 | 0.2− | 0.4+ | 2008 01 13 | 691 | 0.2+ | 0.5+ |
| 2004 01 28 | 703 | 0.3− | 0.1+ | 2004 02 16 | 703 | 0.7+ | 0.9+ | 2008 01 13 | 691 | 0.0 | 0.4+ |

**2004 BM$_{115}$ = 2009 WZ$_{235}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 123.40701 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.29634285 | $\omega$ | 328.61522 | | +0.41630416 | | +0.90738533 |
| $a$ | 2.2281260 | $\Omega$ | 325.88822 | | −0.81138581 | | +0.34205987 |
| $e$ | 0.1210283 | $i$ | 5.91738 | | −0.41029735 | | +0.24422717 |
| $P$ | 3.33 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 01 30 | 691 | 0.1+ | 0.1+ | 2004 02 14 | 691 | 0.4+ | 0.0 | 2009 11 20 | G96 | 0.2+ | 0.3− |
| 2004 01 30 | 691 | 0.1+ | 0.3− | 2004 02 14 | 691 | 0.5− | 0.3− | 2009 11 20 | G96 | 0.2+ | 0.4− |
| 2004 01 30 | 691 | 0.1+ | 0.4− | 2005 07 06 | E12 | 1.0+ | 0.2+ | 2009 11 20 | G96 | 0.2+ | 0.1− |
| 2004 01 31 | 291 | 0.3− | 0.2+ | 2005 07 06 | E12 | 1.0− | 0.7+ | 2009 11 20 | G96 | 0.3+ | 0.3− |
| 2004 01 31 | 291 | 0.3− | 0.2+ | 2005 07 06 | E12 | 0.6− | 1.2+ | 2009 11 20 | G96 | 0.0 | 0.3− |
| 2004 01 31 | 291 | 0.3− | 0.1+ | 2008 04 30 | 703 | 1.4+ | 0.5− | 2009 11 20 | G96 | 0.0 | 0.5− |
| 2004 02 11 | 691 | 0.1+ | 0.3+ | 2008 04 30 | 703 | 0.6− | 0.9+ | 2009 11 21 | 291 | 0.9− | 0.5+ |
| 2004 02 11 | 691 | 0.2+ | 0.3+ | 2008 04 30 | 703 | 0.1− | 0.6+ | 2009 11 21 | 291 | 0.0 | 0.2+ |
| 2004 02 11 | 691 | 0.4+ | 0.3+ | 2008 04 30 | 703 | 0.6− | 0.5− | 2009 11 21 | 291 | 0.5+ | 0.3+ |
| 2004 02 14 | 691 | 0.3+ | 0.1− | 2009 11 20 | G96 | 0.2+ | 0.4− | | | | |

**2004 BO$_{120}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 19.23274 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17575644 | $\omega$ | 130.89291 | | −0.67841533 | | −0.73464943 |
| $a$ | 3.1564231 | $\Omega$ | 1.86622 | | +0.59903530 | | −0.55829649 |
| $e$ | 0.1875932 | $i$ | 11.59632 | | +0.42533440 | | −0.38548054 |
| $P$ | 5.61 | $H$ | 15.3 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 01 19 | 704 | 0.6+ | 1.4− | 2004 02 02 | 704 | 1.2+ | 1.3+ | 2007 10 08 | G96 | 0.3− | 0.2+ |
| 2004 01 19 | 704 | 0.3+ | 0.2− | 2004 02 13 | 699 | 1.1− | 0.4+ | 2007 10 08 | G96 | 0.3+ | 0.4+ |
| 2004 01 19 | 704 | 1.1+ | 0.8− | 2004 02 13 | 699 | 0.5− | 0.2+ | 2007 10 08 | G96 | 0.2− | 0.1− |
| 2004 01 19 | 704 | 0.9+ | 0.4− | 2004 02 13 | 699 | 0.2+ | 0.5+ | 2008 12 04 | 703 | 0.6+ | 0.0 |
| 2004 01 19 | 704 | 1.1+ | 1.3− | 2004 02 13 | 699 | 0.1− | 1.0+ | 2008 12 04 | 703 | 0.8− | 0.0 |
| 2004 01 31 | 704 | 0.2+ | 0.6+ | 2004 02 14 | 704 | 0.2− | 0.5− | 2008 12 04 | 703 | 0.4− | 0.3− |
| 2004 01 31 | 704 | 0.7− | 0.3+ | 2004 02 14 | 704 | 0.7− | 0.0 | 2008 12 04 | 703 | 0.5+ | 0.4− |
| 2004 01 31 | 704 | 0.5− | 0.1+ | 2004 02 14 | 704 | 0.6− | 0.2+ | 2009 03 19 | G96 | 0.0 | 0.4+ |
| 2004 01 31 | 704 | 0.2− | 0.2− | 2004 02 14 | 704 | 0.5− | 0.6− | 2009 03 19 | G96 | 0.4+ | 0.5− |
| 2004 01 31 | 704 | 0.8− | 0.3− | 2004 03 23 | 704 | (1.9− | 0.4+) | 2009 03 19 | G96 | 0.2+ | 0.1+ |
| 2004 02 02 | 704 | 0.7+ | 1.3+ | 2004 03 23 | 704 | 0.0 | 0.5− | 2009 12 19 | G96 | 0.1+ | 0.0 |
| 2004 02 02 | 704 | 0.6+ | 0.5+ | 2004 03 23 | 704 | (0.8− | 1.8+) | 2009 12 19 | G96 | 0.3− | 0.6− |
| 2004 02 02 | 704 | (1.3+ | 2.1+) | 2004 03 23 | 704 | 0.8− | 0.5+ | 2009 12 19 | G96 | 0.4− | 0.2− |
| 2004 02 02 | 704 | (2.8+ | 1.5+) | 2007 10 08 | G96 | 0.1− | 0.2+ | | | | |

**2004 BO$_{146}$ = 2004 DG$_{78}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 358.95644 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17159574 | $\omega$ | 186.09769 | | −0.86974186 | | −0.48752649 |
| $a$ | 3.2072419 | $\Omega$ | 324.39343 | | +0.45816107 | | −0.73998325 |
| $e$ | 0.0841141 | $i$ | 7.55976 | | +0.18340539 | | −0.46340340 |
| $P$ | 5.74 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 01 22 | 704 | 1.2+ | 0.1− | 2004 02 11 | 691 | 0.2− | 0.3− | 2007 09 13 | 691 | 0.1− | 0.1− |
| 2004 01 22 | 704 | 0.3− | 0.1− | 2004 02 11 | 691 | 0.4− | 0.1− | 2007 09 13 | 691 | 0.1+ | 0.0 |
| 2004 01 22 | 704 | 0.1+ | 0.5− | 2004 02 26 | 704 | 0.5+ | 1.0+ | 2007 09 20 | 691 | 0.3− | 0.1− |
| 2004 01 22 | 704 | 0.7+ | 1.1+ | 2004 02 26 | 704 | 0.4+ | 0.1+ | 2007 09 20 | 691 | 0.4− | 0.2+ |
| 2004 01 22 | 704 | 0.8+ | 0.7− | 2004 02 26 | 704 | 1.0+ | 0.5+ | 2007 09 20 | 691 | 0.6+ | 0.5+ |
| 2004 01 31 | 691 | 0.0 | 0.0 | 2004 02 29 | 691 | 0.1+ | 0.0 | 2007 10 20 | G96 | 0.1+ | 0.1+ |
| 2004 01 31 | 691 | 0.0 | 0.0 | 2004 02 29 | 691 | 0.2− | 0.1+ | 2007 10 20 | G96 | 0.1+ | 0.1− |
| 2004 01 31 | 691 | 0.1− | 0.3+ | 2004 02 29 | 691 | 0.0 | 0.2− | 2007 10 20 | G96 | 0.2+ | 0.0 |
| 2004 02 11 | 691 | 0.2− | 0.1− | 2007 09 13 | 691 | 0.1− | 0.4− | 2007 10 20 | G96 | 0.2+ | 0.3− |

**2004 CK$_{11}$ = 2009 VM$_{94}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 36.88794 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.30873384 | $\omega$ | 179.40446 | | +0.80279717 | | −0.59569242 |
| $a$ | 2.1681029 | $\Omega$ | 217.19693 | | +0.54687391 | | +0.75288489 |
| $e$ | 0.1432963 | $i$ | 2.44884 | | +0.23758290 | | +0.27984795 |
| $P$ | 3.19 | $H$ | 17.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 01 12 | 691 | 0.3− | 1.1− | 2006 12 16 | G96 | 0.0 | 0.2− | 2009 11 08 | 691 | 0.0 | 0.2+ |
| 1994 01 12 | 691 | 1.1+ | 1.0− | 2006 12 16 | G96 | 0.3− | 0.1+ | 2009 11 08 | 691 | 0.1− | 0.1+ |
| 1994 01 12 | 691 | 0.5− | 0.0 | 2006 12 16 | G96 | 0.5− | 0.3− | 2009 11 16 | 691 | 0.4− | 0.1− |
| 2001 04 16 | 645 | 0.0 | 0.0 | 2006 12 16 | G96 | 0.3− | 0.2+ | 2009 11 16 | 691 | 0.3− | 0.3+ |
| 2001 04 16 | 645 | 0.0 | 0.1+ | 2007 02 10 | G96 | 0.1+ | 0.1− | 2009 11 16 | 691 | 0.5− | 0.0 |
| 2004 02 11 | 644 | 0.4+ | 0.7+ | 2007 02 10 | G96 | 0.0 | 0.2− | 2009 11 24 | 691 | 0.0 | 0.3+ |
| 2004 02 11 | 644 | 0.1+ | 0.0 | 2007 02 10 | G96 | 0.4− | 0.0 | 2009 11 24 | 691 | 0.0 | 0.3+ |
| 2004 02 11 | 644 | 0.3+ | 0.1− | 2007 02 10 | G96 | 0.1− | 0.3− | 2009 11 24 | 691 | 0.3− | 0.4+ |
| 2004 02 12 | 691 | 0.1+ | 0.1− | 2009 09 30 | G96 | 0.4+ | 0.3− | 2009 12 08 | J75 | 1.5+ | 0.1− |
| 2004 02 12 | 691 | 0.1+ | 0.0 | 2009 09 30 | G96 | 0.6+ | 0.3+ | 2009 12 08 | J75 | 0.4+ | 0.0 |
| 2004 02 12 | 691 | 0.1+ | 0.0 | 2009 09 30 | G96 | 0.3+ | 0.1+ | 2009 12 08 | J75 | 0.2− | 0.2+ |
| 2004 02 18 | 691 | 0.3+ | 0.1− | 2009 09 30 | G96 | 0.0 | 0.1+ | 2009 12 11 | G96 | 0.4+ | 0.1+ |
| 2004 02 18 | 691 | 0.2− | 0.2− | 2009 09 30 | G96 | 0.2+ | 0.2− | 2009 12 11 | G96 | 0.8+ | 0.2+ |
| 2004 02 18 | 691 | 0.1− | 0.5+ | 2009 09 30 | G96 | 0.5+ | 0.2+ | 2009 12 11 | G96 | 0.6+ | 0.0 |
| 2004 02 19 | 704 | 0.5+ | 0.0 | 2009 09 30 | G96 | 0.1+ | 0.1+ | 2009 12 11 | G96 | 0.4+ | 0.0 |
| 2004 02 19 | 704 | 0.8+ | 0.1+ | 2009 09 30 | G96 | 0.3+ | 0.1− | 2009 12 11 | 703 | 0.6+ | 0.7+ |
| 2004 02 19 | 704 | 0.5− | 0.1− | 2009 10 16 | G96 | 0.3+ | 0.1− | 2009 12 11 | 703 | 0.1− | 0.3+ |
| 2006 10 29 | G96 | 0.4− | 0.4− | 2009 10 16 | G96 | 0.6+ | 0.1+ | 2009 12 11 | 703 | 0.1− | 0.4+ |
| 2006 10 29 | G96 | 0.2+ | 0.3− | 2009 10 16 | G96 | 0.3+ | 0.1+ | 2009 12 11 | 703 | 0.7− | 0.6+ |
| 2006 10 29 | G96 | 0.0 | 0.7− | 2009 10 16 | G96 | 0.4+ | 0.0 | | | | |
| 2006 10 29 | G96 | 0.0 | 0.8− | 2009 11 08 | 691 | 0.1− | 0.1+ | | | | |

**2004 CD$_{58}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 354.35760 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17542346 | $\omega$ | 100.43677 | | −0.95617119 | +0.15027247 | |
| $a$ | 3.1604162 | $\Omega$ | 88.54313 | | −0.24228643 | −0.88798658 | |
| $e$ | 0.2374568 | $i$ | 14.55964 | | +0.16442004 | −0.43462399 | |
| $P$ | 5.62 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 06 05 | 691 | 0.4− | 0.1+ | 2004 02 17 | 644 | 0.4+ | 0.4+ | 2004 03 24 | 703 | 1.2− | 0.3− |
| 1999 06 05 | 691 | 0.5+ | 0.2− | 2004 02 17 | 644 | 0.3+ | 0.3+ | 2004 03 24 | 703 | 0.0 | 1.1+ |
| 1999 06 05 | 691 | 0.1− | 0.2+ | 2004 02 17 | 644 | 0.8+ | 0.6+ | 2004 04 15 | 645 | 0.0 | 0.1− |
| 2004 02 14 | 704 | 0.1+ | 0.3− | 2004 03 17 | 644 | 0.3+ | 0.6+ | 2004 04 15 | 645 | 0.0 | 0.1− |
| 2004 02 14 | 704 | 0.7− | 0.2− | 2004 03 17 | 644 | 0.3+ | 0.4+ | 2008 12 21 | J75 | 0.4− | 0.2− |
| 2004 02 14 | 704 | 0.3+ | 0.1+ | 2004 03 17 | 644 | 0.4+ | 0.4+ | 2008 12 21 | J75 | 0.1+ | 0.0 |
| 2004 02 14 | 704 | 0.8+ | 0.1− | 2004 03 24 | 703 | 0.3− | 1.0− | 2008 12 21 | J75 | 0.4+ | 0.2− |
| 2004 02 14 | 704 | 0.3+ | 0.0 | 2004 03 24 | 703 | 1.0− | 0.5+ | | | | |

**2004 CP$_{93}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 210.93758 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26191156 | $\omega$ | 229.88703 | | −0.66759603 | −0.73332979 | |
| $a$ | 2.4193550 | $\Omega$ | 262.48979 | | +0.71646055 | −0.58579057 | |
| $e$ | 0.1339671 | $i$ | 7.45412 | | +0.20248411 | −0.34507509 | |
| $P$ | 3.76 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 12 01 | 696 | 0.2+ | 0.3+ | 2004 02 11 | 644 | 0.1+ | 0.1+ | 2008 03 05 | 703 | 0.9− | 0.7+ |
| 2003 12 01 | 696 | 0.5+ | 0.2+ | 2004 02 11 | 644 | 0.1+ | 0.2+ | 2008 04 04 | 703 | 0.2+ | 1.1− |
| 2004 01 14 | 644 | 0.2− | 0.2+ | 2004 02 18 | 704 | 0.4− | 0.1+ | 2008 04 04 | 703 | 0.2− | 0.5+ |
| 2004 01 14 | 644 | 0.1− | 0.2+ | 2004 02 18 | 704 | 0.3− | 0.4+ | 2008 04 04 | 703 | 0.6− | 0.2− |
| 2004 01 14 | 644 | 0.1+ | 0.3+ | 2004 02 18 | 704 | 0.3− | 0.2+ | 2008 04 04 | 703 | (2.2+ | 1.1+) |
| 2004 01 29 | 704 | 0.1− | 0.8+ | 2004 02 18 | 608 | 0.2− | 0.5− | 2008 04 12 | 703 | 0.8+ | 0.4+ |
| 2004 01 29 | 704 | 0.5+ | 0.5− | 2004 02 18 | 608 | 0.5− | 0.7− | 2008 04 12 | 703 | 0.2+ | 0.2− |
| 2004 01 29 | 704 | 0.8+ | 0.2+ | 2004 02 18 | 608 | 0.8− | 0.5− | 2008 04 12 | 703 | 0.2− | 0.7+ |
| 2004 01 29 | 704 | 0.2− | 1.1− | 2008 03 05 | 703 | 0.4− | 0.7− | 2008 04 12 | 703 | 0.8+ | 0.8+ |
| 2004 01 29 | 704 | 1.2+ | 0.0 | 2008 03 05 | 703 | 1.1+ | 0.1− | | | | |
| 2004 02 11 | 644 | 0.1− | 0.2+ | 2008 03 05 | 703 | 0.6− | 0.3− | | | | |

**2004 CR$_{108}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 258.28799 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.29519271 | $\omega$ | 335.79345 | | −0.99123127 | −0.12960029 | |
| $a$ | 2.2339098 | $\Omega$ | 196.82067 | | +0.13103946 | −0.93900057 | |
| $e$ | 0.1041985 | $i$ | 5.11009 | | +0.01700685 | −0.31856192 | |
| $P$ | 3.34 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 10 30 | 645 | 0.0 | 0.1+ | 2004 03 15 | 704 | 0.8+ | 0.8+ | 2005 07 30 | 644 | 0.3− | 0.6+ |
| 2002 10 30 | 645 | 0.0 | 0.0 | 2004 03 15 | 704 | 0.6− | 0.5− | 2005 07 30 | 644 | 0.3− | 0.6+ |
| 2004 02 15 | 703 | 1.0− | 0.5+ | 2004 03 15 | 704 | 0.3+ | 0.0 | 2009 09 22 | G96 | 0.4+ | 0.1− |
| 2004 02 15 | 703 | (1.7− | 0.3+) | 2004 03 15 | 704 | 1.1+ | 0.6+ | 2009 09 22 | G96 | 0.1− | 0.1− |
| 2004 02 15 | 703 | 0.7− | 0.5− | 2004 03 16 | 704 | 0.4+ | 1.2+ | 2009 09 22 | G96 | 0.2− | 0.6− |
| 2004 02 15 | 703 | 0.4− | 0.4+ | 2004 03 16 | 704 | 0.6+ | 0.8− | 2009 09 22 | G96 | 0.3+ | 0.1+ |
| 2004 02 19 | 704 | 0.4− | 0.4+ | 2004 03 16 | 704 | 0.3− | 0.8+ | 2009 10 23 | 691 | 0.3− | 0.1− |
| 2004 02 19 | 704 | 0.2+ | 0.3+ | 2004 03 16 | 704 | 0.1− | 0.2+ | 2009 10 23 | 691 | 0.2− | 0.4+ |
| 2004 02 19 | 704 | 0.3+ | 0.5+ | 2004 03 16 | 704 | 0.7− | 0.4− | 2009 10 23 | 691 | 0.0 | 0.0 |
| 2004 02 19 | 704 | 0.1− | 0.0 | 2004 03 18 | 704 | 0.4− | 0.2+ | 2009 10 23 | 691 | 0.2+ | 0.6− |
| 2004 02 19 | 704 | 0.0 | 0.4+ | 2004 03 18 | 704 | 1.3− | 0.1− | 2009 10 23 | 691 | 0.0 | 0.2+ |
| 2004 02 23 | 704 | 0.6+ | 0.8− | 2004 03 18 | 704 | 0.1+ | 0.2+ | 2009 10 23 | 691 | 0.1− | 0.3+ |
| 2004 02 23 | 704 | 0.2+ | 0.8− | 2004 03 18 | 704 | 0.3+ | 0.4+ | 2009 11 08 | G96 | 0.1+ | 0.4+ |
| 2004 02 23 | 704 | 0.3− | 0.2+ | 2004 03 27 | 704 | 0.3+ | 0.8+ | 2009 11 08 | G96 | 0.2− | 0.3+ |
| 2004 02 23 | 704 | (1.9+ | 1.2+) | 2004 03 27 | 704 | 0.3+ | 1.4+ | 2009 11 08 | G96 | 0.2− | 0.2+ |
| 2004 02 26 | 704 | 0.2− | 0.5− | 2004 03 27 | 704 | 0.5− | 0.9+ | 2009 11 08 | G96 | 0.2− | 0.4+ |
| 2004 02 26 | 704 | 0.2+ | 0.5− | 2005 07 30 | 644 | 0.1− | 1.0+ | 2009 11 20 | G96 | 0.3+ | 0.1+ |
| 2004 02 26 | 704 | 1.3+ | 0.5− | 2005 07 30 | 644 | 0.0 | 0.7+ | 2009 11 20 | G96 | 0.4+ | 0.2− |
| 2004 02 26 | 704 | 1.1+ | 0.6− | 2005 07 30 | 644 | 0.4− | 0.5+ | 2009 11 20 | G96 | 0.6+ | 0.1− |
| 2004 03 15 | 704 | 0.3+ | 0.6+ | 2005 07 30 | 644 | 0.1+ | 0.6+ | 2009 11 20 | G96 | 0.6+ | 0.1− |

**2004 DN$_{13}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 47.07351 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17752949 | $\omega$ | 122.60138 | | −0.32664652 | −0.94439382 | |
| $a$ | 3.1353718 | $\Omega$ | 346.30960 | | +0.80496498 | −0.25706613 | |
| $e$ | 0.1974706 | $i$ | 9.16917 | | +0.49531145 | −0.20503004 | |
| $P$ | 5.55 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 01 18 | 644 | 0.2− | 0.5− | 2004 02 19 | 704 | 0.1+ | 0.7+ | 2007 09 10 | G96 | 0.3+ | 0.4− |
| 2004 01 18 | 644 | 0.3− | 0.4− | 2004 02 19 | 704 | 0.0 | 0.4+ | 2007 09 10 | G96 | 0.7+ | 0.1− |
| 2004 01 18 | 644 | 0.0 | 0.3− | 2004 02 19 | 704 | 0.2+ | 0.2+ | 2007 09 10 | G96 | 0.1− | 0.3+ |
| 2004 02 16 | 704 | 0.2+ | 0.2− | 2004 03 20 | 691 | 0.1− | 0.0 | 2007 09 10 | G96 | 0.4+ | 0.1+ |
| 2004 02 16 | 704 | 0.1− | 0.8+ | 2004 03 20 | 691 | 0.1− | 0.1− | 2007 10 09 | 691 | 0.5− | 0.1− |
| 2004 02 16 | 704 | 0.6+ | 0.5− | 2004 03 20 | 691 | 0.2− | 0.1− | 2007 10 09 | 691 | 0.2+ | 0.2+ |
| 2004 02 16 | 704 | 0.4+ | 1.1− | 2007 08 10 | 691 | 0.3− | 0.1+ | 2007 10 09 | 691 | 0.0 | 0.2− |
| 2004 02 19 | 704 | 0.1+ | 0.6+ | 2007 08 10 | 691 | 0.1+ | 0.1+ | | | | |
| 2004 02 19 | 704 | 0.4+ | 1.0+ | 2007 08 10 | 691 | 0.1− | 0.1+ | | | | |

**2004 DP$_{57}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 245.29292 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.12274584 | $\omega$ | 30.95622 | | −0.97706018 | −0.20601887 | |
| $a$ | 4.0098815 | $\Omega$ | 137.04723 | | +0.17558769 | −0.92264092 | |
| $e$ | 0.0604103 | $i$ | 4.54043 | | +0.12050878 | −0.32602141 | |
| $P$ | 8.03 | $H$ | 14.8 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 11 30 | 691 | 0.1− | 0.4− | 2004 02 23 | 704 | 1.0+ | 0.0 | 2007 09 05 | G96 | 0.1− | 0.4+ |
| 2003 11 30 | 691 | 0.3+ | 0.3+ | 2004 02 23 | 704 | 0.4+ | 1.1+ | 2007 09 05 | G96 | 0.1+ | 0.6+ |
| 2003 11 30 | 691 | 0.1− | 0.3− | 2004 02 29 | 691 | 0.2+ | 0.2+ | 2007 09 05 | G96 | 0.3− | 0.2+ |
| 2004 02 12 | 691 | 0.1− | 0.2+ | 2004 02 29 | 691 | 0.1+ | 0.1+ | 2007 09 05 | G96 | 0.1+ | 0.3+ |
| 2004 02 12 | 691 | 0.2− | 0.1− | 2004 02 29 | 691 | 0.0 | 0.1+ | 2008 09 25 | G96 | 0.4− | 0.2+ |
| 2004 02 12 | 691 | 0.1− | 0.1+ | 2004 03 18 | 691 | 0.1− | 0.2+ | 2008 09 25 | G96 | 0.1− | 0.5+ |
| 2004 02 23 | 704 | 0.4+ | 0.5− | 2004 03 18 | 691 | 0.0 | 0.0 | 2008 09 25 | G96 | 0.2+ | 0.1+ |
| 2004 02 23 | 704 | (2.3+ | 0.3−) | 2004 03 18 | 691 | 0.1− | 0.1− | 2008 09 25 | G96 | 0.2− | 0.4+ |

**2004 DF$_{80}$ = 2006 UL$_{190}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 223.99143 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.25467425 | $\omega$ | 197.59237 | | −0.49455616 | −0.85887332 | |
| $a$ | 2.4649760 | $\Omega$ | 282.23007 | | +0.81291885 | −0.40285563 | |
| $e$ | 0.1297095 | $i$ | 7.83531 | | +0.30753399 | −0.31629727 | |
| $P$ | 3.87 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 03 01 | 703 | 0.3− | 0.2+ | 2004 03 01 | 703 | 1.2+ | 0.8− | 2006 10 19 | 703 | 0.3− | 0.1− |
| 2000 03 01 | 703 | 0.8− | 1.0+ | 2004 03 29 | 703 | 0.5+ | 0.6+ | 2006 10 19 | 703 | 0.0 | 0.4− |
| 2000 03 01 | 703 | 0.1+ | 0.6+ | 2004 03 29 | 703 | 0.3+ | 1.1+ | 2006 10 22 | 644 | 0.5+ | 0.2+ |
| 2000 03 01 | 703 | 0.4+ | 0.5− | 2004 03 29 | 703 | 0.8+ | 1.5+ | 2006 10 22 | 644 | 0.3+ | 0.1+ |
| 2000 05 05 | 645 | 0.1− | 0.2− | 2004 03 29 | 703 | 0.2− | 0.6+ | 2006 10 22 | 644 | 0.4+ | 0.3+ |
| 2000 05 05 | 645 | 0.1− | 0.2− | 2006 10 11 | 644 | 0.2+ | 0.1− | 2006 11 15 | 703 | 1.2− | 0.0 |
| 2004 02 17 | 703 | 0.2− | 0.3+ | 2006 10 11 | 644 | 0.3+ | 0.1+ | 2006 11 15 | 703 | 1.0− | 0.3+ |
| 2004 02 17 | 703 | 0.1+ | 0.9+ | 2006 10 11 | 644 | 0.6+ | 0.1− | 2006 11 15 | 703 | 0.1+ | 0.8− |
| 2004 02 17 | 703 | 0.3+ | 0.3+ | 2006 10 11 | 644 | 0.2+ | 0.0 | 2006 11 15 | 703 | 0.3+ | 0.4+ |
| 2004 02 17 | 703 | 0.8+ | 0.8− | 2006 10 11 | 644 | 0.2+ | 0.1− | 2008 03 29 | 703 | 0.1− | 0.0 |
| 2004 03 01 | 703 | 0.9− | 0.7+ | 2006 10 11 | 644 | 0.1+ | 0.1+ | 2008 03 29 | 703 | 1.3− | 0.1− |
| 2004 03 01 | 703 | 0.4+ | 0.9− | 2006 10 19 | 703 | 0.1+ | 0.1− | 2008 03 29 | 703 | 0.8+ | 0.1+ |
| 2004 03 01 | 703 | (3.5− | 1.8+) | 2006 10 19 | 703 | 0.6− | 0.4− | 2008 03 29 | 703 | 0.3− | 0.1− |

**2004 EY$_5$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 85.00683 | | (2000.0) | | | |
| $n$ | 0.22307174 | $\omega$ | 207.20949 | | −0.79070903 | +0.61009072 |
| $a$ | 2.6926073 | $\Omega$ | 10.83556 | | −0.50113713 | −0.59749842 |
| $e$ | 0.2008076 | $i$ | 15.63998 | | −0.35162594 | −0.52037002 |
| $P$ | 4.42 | $H$ | 15.8 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 02 18 | 704 | 0.6+ | 0.1+ | 2004 03 20 | 704 | 0.5− | 0.2+ | 2004 04 15 | 704 | 0.3+ | 0.1− |
| 2004 02 18 | 704 | 0.6+ | 0.7+ | 2004 03 20 | 704 | 0.2+ | 0.1+ | 2004 04 15 | 704 | 0.1− | 0.6+ |
| 2004 02 18 | 704 | 0.1− | 0.1+ | 2004 03 21 | 699 | 0.5− | 0.3− | 2004 04 15 | 704 | 1.0− | 0.4+ |
| 2004 02 18 | 704 | 0.9+ | 0.2− | 2004 03 21 | 699 | 1.2− | 1.5− | 2004 04 19 | 704 | 0.3− | 0.2− |
| 2004 02 18 | 704 | 0.7+ | 0.3+ | 2004 03 21 | 699 | 0.4− | 0.2+ | 2004 04 19 | 704 | 0.2+ | 0.3− |
| 2004 03 11 | 644 | 0.4− | 0.1+ | 2004 03 21 | 699 | 0.9− | 1.0+ | 2004 04 19 | 704 | 0.1+ | 0.0 |
| 2004 03 11 | 644 | 0.3+ | 0.1+ | 2004 03 26 | 691 | 0.0 | 0.1− | 2004 04 19 | 704 | 0.2+ | 0.1− |
| 2004 03 11 | 644 | 0.0 | 0.3+ | 2004 03 26 | 691 | 0.0 | 0.1− | 2004 04 19 | 704 | 0.0 | 0.2+ |
| 2004 03 11 | 644 | 0.1+ | 0.0 | 2004 03 26 | 691 | 0.1− | 0.0 | 2004 04 21 | 691 | 0.0 | 0.1+ |
| 2004 03 11 | 644 | 0.3− | 0.1+ | 2004 03 28 | 704 | 0.4+ | 0.1− | 2004 04 21 | 691 | 0.0 | 0.1+ |
| 2004 03 11 | 644 | 0.2+ | 0.1+ | 2004 03 28 | 703 | 0.4− | 0.6− | 2004 04 21 | 691 | 0.1+ | 0.2+ |
| 2004 03 15 | 703 | 0.1− | 0.4+ | 2004 03 28 | 704 | 0.3+ | 0.5− | 2004 04 22 | 704 | 1.1+ | 0.7− |
| 2004 03 15 | 704 | 0.2+ | 0.0 | 2004 03 28 | 703 | 0.0 | 0.2+ | 2004 04 22 | 704 | 0.3+ | 0.2+ |
| 2004 03 15 | 703 | 0.5+ | 1.2+ | 2004 03 28 | 704 | 0.3+ | 0.3− | 2004 04 22 | 704 | 0.1+ | 0.2− |
| 2004 03 15 | 704 | 0.2+ | 0.1+ | 2004 03 28 | 704 | 0.5+ | 0.4− | 2004 04 22 | 704 | 0.3− | 0.8+ |
| 2004 03 15 | 703 | 0.3+ | 0.1+ | 2004 03 28 | 703 | 0.1− | 0.2+ | 2004 05 14 | 704 | 0.6+ | 0.4+ |
| 2004 03 15 | 704 | 0.1− | 0.0 | 2004 03 28 | 704 | 0.7+ | 0.2− | 2004 05 14 | 704 | 1.0− | 0.0 |
| 2004 03 15 | 703 | 0.4+ | 0.9+ | 2004 03 28 | 703 | 0.1+ | 0.2− | 2004 05 14 | 704 | 0.2− | 1.1+ |
| 2004 03 15 | 704 | 0.5+ | 0.3− | 2004 04 12 | 699 | 0.4− | 0.5− | 2004 05 14 | 704 | 0.5+ | 0.7+ |
| 2004 03 15 | 704 | 0.8+ | 0.2− | 2004 04 12 | 699 | 1.4− | 0.1− | 2004 05 14 | 704 | 0.5+ | 0.8− |
| 2004 03 18 | 691 | 0.1− | 0.1− | 2004 04 12 | 699 | 0.2− | 0.9+ | 2008 01 01 | 703 | 1.1− | 0.9− |
| 2004 03 18 | 691 | 0.0 | 0.1− | 2004 04 12 | 699 | 0.5+ | 0.2− | 2008 01 01 | 703 | 0.3− | 0.6− |
| 2004 03 18 | 691 | 0.0 | 0.1− | 2004 04 12 | 703 | 0.0 | 0.8− | 2008 01 01 | 703 | 0.5+ | 0.3+ |
| 2004 03 20 | 699 | 0.3− | 0.2− | 2004 04 12 | 703 | 0.7+ | 1.4− | 2008 01 01 | 703 | 0.9+ | 0.4− |
| 2004 03 20 | 699 | 0.6− | 0.3− | 2004 04 12 | 703 | 1.8− | 0.1− | 2008 02 10 | 703 | 0.0 | 0.2+ |
| 2004 03 20 | 699 | 0.1+ | 0.1− | 2004 04 12 | 703 | 0.8− | 0.2− | 2008 02 10 | 703 | 1.0+ | 0.2+ |
| 2004 03 20 | 699 | 0.1− | 0.2− | 2004 04 15 | 644 | 0.2+ | 0.3+ | 2008 02 10 | 703 | 1.0− | 0.4+ |
| 2004 03 20 | 704 | 0.1− | 0.2+ | 2004 04 15 | 644 | 0.2+ | 0.2+ | 2008 02 10 | 703 | 0.2− | 0.5+ |
| 2004 03 20 | 704 | 0.2− | 0.1+ | 2004 04 15 | 644 | 0.0 | 0.0 | | | | |
| 2004 03 20 | 704 | 0.2− | 0.0 | 2004 04 15 | 704 | 0.8+ | 0.3− | | | | |

**2004 EL$_{15}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 26.73366 | | (2000.0) | | | |
| $n$ | 0.18200646 | $\omega$ | 30.09255 | | −0.98763961 | +0.00924821 |
| $a$ | 3.0837430 | $\Omega$ | 149.22231 | | −0.03108431 | −0.98998721 |
| $e$ | 0.2189055 | $i$ | 17.80493 | | +0.15362864 | −0.14085379 |
| $P$ | 5.42 | $H$ | 16.5 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 03 20 | 645 | 0.0 | 0.0 | 2004 03 24 | 703 | (0.4+ | 2.1−) | 2009 01 23 | D29 | 0.7+ | 1.0− |
| 1999 03 20 | 645 | 0.0 | 0.0 | 2004 03 24 | 703 | 0.5+ | 0.5− | 2009 01 23 | D29 | 0.3+ | 0.4+ |
| 2003 12 19 | 691 | 0.4− | 0.2+ | 2004 03 25 | 704 | 0.1− | 0.1− | 2009 01 23 | D29 | 0.5− | 1.5+ |
| 2003 12 19 | 691 | 0.2+ | 0.2+ | 2004 03 25 | 704 | 0.2− | 0.3+ | 2009 01 23 | D29 | 0.5− | 0.5− |
| 2003 12 19 | 691 | 0.2− | 0.1+ | 2004 03 25 | 704 | 0.3+ | 0.6− | 2009 04 19 | G96 | 0.3+ | 0.5− |
| 2004 03 11 | 644 | 0.2− | 0.3+ | 2004 03 25 | 704 | 0.2+ | 0.8− | 2009 04 19 | G96 | 0.3+ | 0.3− |
| 2004 03 11 | 644 | 0.2− | 0.4+ | 2004 04 09 | 644 | 0.3− | 0.3+ | 2009 04 19 | G96 | 0.0 | 0.2+ |
| 2004 03 11 | 644 | 0.1+ | 0.3+ | 2004 04 09 | 644 | 0.2− | 0.4+ | 2009 04 19 | G96 | 0.2− | 0.1− |
| 2004 03 15 | 704 | 0.0 | 0.8+ | 2004 04 09 | 644 | 0.5+ | 0.3− | 2009 04 26 | G96 | 0.6− | 0.5− |
| 2004 03 15 | 704 | 0.6− | 0.7+ | 2004 04 10 | 699 | 0.7+ | 0.4− | 2009 04 26 | G96 | 0.6− | 0.4− |
| 2004 03 15 | 704 | 0.2+ | 0.8+ | 2004 04 10 | 699 | (1.1+ | 2.4−) | 2009 04 26 | G96 | 0.1− | 0.3− |
| 2004 03 24 | 703 | 0.7+ | 0.0 | 2004 04 10 | 699 | 0.2+ | 1.5− | 2009 04 26 | G96 | 0.9+ | 0.4− |
| 2004 03 24 | 703 | 1.4− | 0.4− | 2004 04 10 | 699 | 1.1+ | 0.2− | | | | |

**2004 EB$_{34}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 251.01175 | | (2000.0) | | | |
| $n$ | 0.28089018 | $\omega$ | 167.58375 | | −0.91388795 | −0.40534488 |
| $a$ | 2.3091121 | $\Omega$ | 348.42630 | | +0.36223824 | −0.78922579 |
| $e$ | 0.0708720 | $i$ | 6.42698 | | +0.18328195 | −0.46132221 |
| $P$ | 3.51 | $H$ | 16.7 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 02 19 | 704 | 1.0+ | 0.7+ | 2004 03 18 | 704 | 0.0 | 0.3− | 2004 04 12 | 691 | 0.2− | 0.1− |
| 2004 02 19 | 704 | 0.2+ | 1.3+ | 2004 03 18 | 704 | 0.5+ | 0.1− | 2004 04 12 | 691 | 0.0 | 0.2+ |
| 2004 02 19 | 704 | 0.4+ | 0.3+ | 2004 03 18 | 704 | 0.8+ | 0.3+ | 2004 04 17 | 691 | 0.2− | 0.1+ |
| 2004 02 19 | 704 | 0.5− | 0.2+ | 2004 03 18 | 704 | 0.0 | 0.1+ | 2004 04 17 | 691 | 0.3− | 0.0 |
| 2004 02 26 | 704 | 0.3+ | 0.3+ | 2004 03 18 | 704 | 0.5+ | 0.1− | 2004 04 17 | 691 | 0.0 | 0.1− |
| 2004 02 26 | 704 | 0.3− | 0.1− | 2004 03 27 | 704 | 0.3+ | 0.1− | 2004 04 24 | 691 | 0.0 | 0.1+ |
| 2004 02 26 | 704 | 0.7+ | 1.0+ | 2004 03 27 | 704 | 0.4− | 0.5+ | 2004 04 24 | 691 | 0.2+ | 0.7+ |
| 2004 02 26 | 704 | 0.4− | 0.0 | 2004 03 27 | 704 | 0.0 | 0.3+ | 2004 04 24 | 691 | 0.3+ | 0.3+ |
| 2004 02 26 | 704 | 0.2− | 0.2− | 2004 03 27 | 704 | 0.4− | 0.1− | 2009 09 18 | 691 | 0.3− | 0.2+ |
| 2004 03 12 | 644 | 0.1+ | 0.4− | 2004 03 27 | 704 | 0.1+ | 0.3− | 2009 09 18 | 691 | 0.1− | 0.1+ |
| 2004 03 12 | 644 | 0.1+ | 0.4− | 2004 03 30 | 691 | 0.0 | 0.1+ | 2009 09 18 | 691 | 0.1+ | 0.0 |
| 2004 03 12 | 644 | 0.1+ | 0.4− | 2004 03 30 | 691 | 0.2− | 0.0 | 2009 09 30 | G96 | 0.5+ | 0.5− |
| 2004 03 16 | 704 | 0.4+ | 1.4− | 2004 03 30 | 691 | 0.2− | 0.2− | 2009 09 30 | G96 | 0.1+ | 0.5− |
| 2004 03 16 | 704 | 0.5+ | 0.4+ | 2004 03 31 | 691 | 0.1− | 0.5− | 2009 09 30 | G96 | 0.4+ | 0.2− |
| 2004 03 16 | 704 | 0.2− | 0.2+ | 2004 03 31 | 691 | 0.1+ | 0.0 | 2009 09 30 | G96 | 0.3+ | 0.4− |
| 2004 03 16 | 704 | 0.1+ | 0.9− | 2004 03 31 | 691 | 0.4− | 0.0 | | | | |
| 2004 03 16 | 704 | 0.8+ | 1.1− | 2004 04 12 | 691 | 0.4− | 0.6− | | | | |

**2004 EV$_{36}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 114.37059 | | (2000.0) | | | |
| $n$ | 0.22639806 | $\omega$ | 13.90417 | | −0.97441875 | +0.22470949 |
| $a$ | 2.6661684 | $\Omega$ | 179.05746 | | −0.22166265 | −0.95822391 |
| $e$ | 0.2119222 | $i$ | 13.02714 | | −0.03706446 | −0.17695360 |
| $P$ | 4.35 | $H$ | 16.1 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 02 26 | 704 | 0.5+ | 0.4+ | 2004 03 18 | 704 | 0.4− | 0.4− | 2004 04 20 | 704 | 0.3+ | 0.0 |
| 2004 02 26 | 704 | 0.2− | 0.4− | 2004 03 18 | 704 | 0.4+ | 0.3− | 2004 04 20 | 704 | 0.2+ | 0.5+ |
| 2004 02 26 | 704 | 0.3+ | 0.1+ | 2004 03 22 | 704 | 0.2− | 0.5− | 2004 04 22 | 704 | 0.2+ | 0.1+ |
| 2004 02 26 | 704 | 0.6+ | 0.1+ | 2004 03 22 | 704 | 0.4− | 0.3− | 2004 04 22 | 704 | 0.8+ | 0.0 |
| 2004 02 26 | 704 | 0.1− | 0.3+ | 2004 03 22 | 704 | 0.3− | 0.4− | 2004 04 22 | 704 | 0.1− | 0.5− |
| 2004 03 13 | 644 | 0.1− | 0.0 | 2004 03 22 | 704 | 0.1− | 0.5− | 2004 04 22 | 704 | 1.9+ | 0.7+ |
| 2004 03 13 | 644 | 0.2− | 0.1+ | 2004 03 22 | 704 | 0.6− | 1.1− | 2004 04 22 | 704 | 0.1+ | 0.8− |
| 2004 03 13 | 644 | 0.0 | 0.1+ | 2004 03 28 | 704 | 0.2− | 0.8+ | 2004 04 25 | 699 | 1.1+ | 0.9− |
| 2004 03 16 | 704 | 0.1− | 0.1− | 2004 03 28 | 704 | 0.6− | 0.7+ | 2004 04 25 | 699 | 0.2− | 0.1− |
| 2004 03 16 | 704 | 0.4− | 1.3+ | 2004 03 28 | 704 | 0.2− | 0.7+ | 2004 04 25 | 699 | 0.0 | 0.8+ |
| 2004 03 16 | 704 | 1.1− | 0.9+ | 2004 03 28 | 704 | 0.8+ | 0.4− | 2004 04 25 | 699 | 0.1− | 0.0 |
| 2004 03 16 | 704 | 0.1− | 0.4+ | 2004 04 12 | 699 | 0.6− | 0.8− | 2008 01 12 | 703 | 0.1− | 0.0 |
| 2004 03 18 | 704 | 0.2+ | 0.3+ | 2004 04 12 | 699 | 1.9− | 0.5− | 2008 01 12 | 703 | 0.1+ | 0.6+ |
| 2004 03 18 | 704 | 0.3− | 0.3− | 2004 04 12 | 699 | 0.1− | 0.0 | 2008 01 12 | 703 | 0.3+ | 0.4+ |
| 2004 03 18 | 704 | 1.2+ | 0.0 | 2004 04 12 | 699 | 0.4+ | 0.4− | 2008 01 12 | 703 | 0.7+ | 0.3− |
| 2004 03 18 | 704 | 0.4− | 0.3− | 2004 04 15 | 704 | 0.5− | 0.6+ | 2008 02 09 | 703 | 0.3+ | 1.8− |
| 2004 03 18 | 704 | 0.6+ | 0.3+ | 2004 04 15 | 704 | 0.0 | 0.2− | 2008 02 09 | 703 | 0.3+ | 0.0 |
| 2004 03 18 | 704 | 0.2+ | 0.1+ | 2004 04 15 | 704 | 0.2− | 0.2− | 2008 02 09 | 703 | 0.8− | 0.5+ |
| 2004 03 18 | 704 | 0.4− | 0.1− | 2004 04 15 | 704 | 0.2− | 0.0 | 2008 02 09 | 703 | 0.8− | 0.2+ |
| 2004 03 18 | 704 | 0.8+ | 0.0 | 2004 04 20 | 704 | 0.2+ | 0.5+ | | | | |

**2004 EV$_{43}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 331.97171 | | (2000.0) | | | |
| $n$ | 0.28150779 | $\omega$ | 46.47153 | | +0.46382705 | −0.88545697 |
| $a$ | 2.3057335 | $\Omega$ | 15.96509 | | +0.77961175 | +0.39250022 |
| $e$ | 0.1261904 | $i$ | 6.01393 | | +0.42079686 | +0.24881627 |
| $P$ | 3.50 | $H$ | 17.1 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 01 30 | 691 | 0.2− | 0.0 | 2004 03 17 | 691 | 0.1− | 0.2+ | 2004 03 30 | 691 | 0.1+ | 0.0 | | | |
| 2004 01 30 | 691 | 0.2− | 0.1+ | 2004 03 17 | 691 | 0.0 | 0.0 | 2009 08 17 | 691 | 0.3+ | 0.1+ | | | |
| 2004 01 30 | 691 | 0.1+ | 0.2+ | 2004 03 17 | 691 | 0.0 | 0.2+ | 2009 08 17 | 691 | 0.4− | 0.2+ | | | |
| 2004 01 30 | 691 | 0.2+ | 0.0 | 2004 03 21 | 691 | 0.1+ | 0.7− | 2009 08 17 | 691 | 0.4− | 0.1+ | | | |
| 2004 01 30 | 691 | 0.1− | 0.0 | 2004 03 21 | 691 | 0.2− | 0.2− | 2009 09 27 | E12 | 1.0+ | 0.2− | | | |
| 2004 01 30 | 691 | 0.1+ | 0.1+ | 2004 03 21 | 691 | 0.2− | 0.0 | 2009 09 27 | E12 | 0.5− | 0.4− | | | |
| 2004 02 23 | 704 | 0.5+ | 0.1− | 2004 03 23 | 704 | 0.7+ | 0.0 | 2009 09 27 | E12 | 0.8− | 0.0 | | | |
| 2004 02 23 | 704 | 0.2+ | 0.9+ | 2004 03 23 | 704 | 0.3− | 0.9+ | 2009 09 27 | E12 | 0.3− | 0.6+ | | | |
| 2004 02 23 | 704 | 0.4+ | 0.1− | 2004 03 23 | 704 | 0.6+ | 0.1− | 2009 11 18 | G96 | 0.1+ | 0.3+ | | | |
| 2004 02 23 | 704 | 0.2+ | 0.4+ | 2004 03 23 | 704 | (1.5− | 0.6−) | 2009 11 18 | G96 | 0.3+ | 0.3+ | | | |
| 2004 03 11 | 644 | 0.2+ | 0.8+ | 2004 03 23 | 704 | 0.7− | 0.1− | 2009 11 18 | G96 | 0.7+ | 0.4+ | | | |
| 2004 03 11 | 644 | 0.4− | 0.8+ | 2004 03 30 | 691 | 0.2+ | 0.1+ | 2009 11 18 | G96 | 0.2+ | 0.5+ | | | |
| 2004 03 11 | 644 | 0.2− | 0.3+ | 2004 03 30 | 691 | 0.2+ | 0.1+ | | | | | | | |

**2004 EY$_{47}$ = 2009 TK$_{42}$ = 2009 WS$_{247}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 255.36413 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.28628687 | $\omega$ | 323.18183 | | −0.98021673 | | −0.19738506 |
| $a$ | 2.2800013 | $\Omega$ | 205.44576 | | +0.18874778 | | −0.90993310 |
| $e$ | 0.0910743 | $i$ | 1.95255 | | +0.05957722 | | −0.36477512 |
| $P$ | 3.44 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1992 11 27 | 691 | 0.3− | 0.7− | 2004 03 19 | 704 | 0.4+ | 0.5+ | 2006 12 27 | 691 | 0.3− | 0.0 | | | |
| 1992 11 27 | 691 | 0.2− | 0.9− | 2004 03 19 | 704 | 0.8− | 0.3+ | 2009 10 11 | G96 | 0.3+ | 0.4+ | | | |
| 1992 11 27 | 691 | 0.1+ | 1.1− | 2004 03 19 | 704 | 0.7+ | 0.2+ | 2009 10 11 | G96 | 0.2− | 0.2+ | | | |
| 1992 11 27 | 691 | 1.0+ | 1.3+ | 2004 03 19 | 704 | 0.5+ | 0.1− | 2009 10 11 | G96 | 0.2+ | 0.0 | | | |
| 1992 11 27 | 691 | 0.3− | 0.3+ | 2004 03 19 | 704 | 0.3+ | 0.2− | 2009 10 11 | G96 | 0.1− | 0.1− | | | |
| 1992 11 27 | 691 | 0.1+ | 0.1+ | 2004 03 21 | 291 | 0.1+ | 0.2+ | 2009 10 24 | 691 | 0.1− | 0.2+ | | | |
| 1995 10 15 | 691 | 0.3− | 0.5+ | 2004 03 21 | 291 | 0.1− | 0.1+ | 2009 10 24 | 691 | 0.2− | 0.4+ | | | |
| 1995 10 15 | 691 | 0.0 | 0.4+ | 2004 03 21 | 291 | 0.1− | 0.2+ | 2009 10 24 | 691 | 0.3− | 0.0 | | | |
| 1995 10 15 | 691 | 0.6− | 0.8+ | 2004 03 21 | 699 | 0.3+ | 0.5− | 2009 11 11 | G96 | 0.3+ | 0.0 | | | |
| 2004 03 15 | 703 | 0.8− | 0.2+ | 2004 03 21 | 699 | (1.9+ | 0.9+) | 2009 11 11 | G96 | 0.1+ | 0.1− | | | |
| 2004 03 15 | 703 | 0.1− | 0.9+ | 2004 03 21 | 699 | 0.4− | 0.1+ | 2009 11 11 | G96 | 0.5+ | 0.0 | | | |
| 2004 03 15 | 703 | (1.6+ | 1.0+) | 2004 03 21 | 699 | (2.9+ | 1.3+) | 2009 11 11 | G96 | 0.2− | 0.1− | | | |
| 2004 03 15 | 703 | 0.3− | 0.3− | 2004 03 27 | 704 | 0.6+ | 0.3+ | 2009 11 19 | G96 | 0.2+ | 0.2+ | | | |
| 2004 03 17 | 691 | 0.1+ | 0.1+ | 2004 03 27 | 704 | 0.6+ | 0.3+ | 2009 11 19 | G96 | 0.2+ | 0.0 | | | |
| 2004 03 17 | 691 | 0.1+ | 0.0 | 2004 03 27 | 704 | 0.6+ | 0.7+ | 2009 11 19 | G96 | 0.3+ | 0.0 | | | |
| 2004 03 17 | 691 | 0.0 | 0.1+ | 2004 03 27 | 704 | 0.4+ | 0.6+ | 2009 11 19 | G96 | 0.4+ | 0.2+ | | | |
| 2004 03 18 | 704 | 0.5+ | 0.3− | 2004 03 31 | 691 | 0.0 | 0.3+ | 2009 11 25 | G96 | 0.5+ | 0.0 | | | |
| 2004 03 18 | 704 | 0.9+ | 0.2− | 2004 03 31 | 691 | 0.2− | 0.2+ | 2009 11 25 | G96 | 0.3+ | 0.1+ | | | |
| 2004 03 18 | 704 | (1.8+ | 0.1−) | 2004 03 31 | 691 | 0.1− | 0.0 | 2009 11 25 | G96 | 0.0 | 0.0 | | | |
| 2004 03 18 | 704 | 0.1− | 0.3− | 2006 12 27 | 691 | 0.2+ | 0.3+ | 2009 11 25 | G96 | 0.1+ | 0.1+ | | | |
| 2004 03 18 | 704 | 0.3+ | 0.0 | 2006 12 27 | 691 | 0.2− | 0.1− | | | | | | | |

**2004 EK$_{60}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 45.46956 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17777077 | $\omega$ | 285.50927 | | −0.81749076 | | −0.56559231 |
| $a$ | 3.1325342 | $\Omega$ | 220.21830 | | +0.57154815 | | −0.77341034 |
| $e$ | 0.3037703 | $i$ | 9.69093 | | +0.07100403 | | −0.28625474 |
| $P$ | 5.54 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 03 15 | 644 | 0.2+ | 0.2+ | 2004 03 24 | 699 | 0.9− | 0.5+ | 2004 05 19 | 691 | 0.1− | 0.2+ | | | |
| 2004 03 15 | 644 | 0.0 | 0.1+ | 2004 03 24 | 699 | 0.5+ | 0.4− | 2004 05 19 | 691 | 0.1+ | 0.3+ | | | |
| 2004 03 15 | 644 | 0.0 | 0.1− | 2004 03 24 | 699 | 0.8− | 0.4+ | 2004 05 19 | 691 | 0.0 | 0.1+ | | | |
| 2004 03 17 | 704 | 0.3− | 1.4− | 2004 04 15 | 699 | 0.4− | 0.6+ | 2004 05 28 | 691 | 0.1− | 0.5− | | | |
| 2004 03 17 | 704 | 0.1− | 0.6− | 2004 04 15 | 699 | 0.3− | 0.8+ | 2004 05 28 | 691 | 0.0 | 0.3− | | | |
| 2004 03 17 | 704 | 0.9+ | 1.3− | 2004 04 15 | 699 | 0.7− | 0.7+ | 2004 05 28 | 691 | 0.4+ | 0.4− | | | |
| 2004 03 19 | 704 | 0.7+ | 1.1+ | 2004 04 15 | 699 | 1.0− | 0.7− | 2007 09 24 | 691 | 0.3− | 0.6+ | | | |
| 2004 03 19 | 704 | 0.1+ | 0.2− | 2004 04 17 | 704 | 0.3+ | 0.1+ | 2007 09 24 | 691 | 0.1− | 0.2− | | | |
| 2004 03 19 | 704 | 0.1− | 0.3+ | 2004 04 17 | 704 | 0.3+ | 0.5+ | 2007 09 24 | 691 | 0.2+ | 0.1− | | | |
| 2004 03 19 | 704 | 0.7+ | 0.2+ | 2004 04 17 | 704 | 0.8− | 0.3+ | 2007 11 11 | G96 | 0.0 | 0.7− | | | |
| 2004 03 20 | 699 | 0.5− | 0.0 | 2004 04 20 | 704 | 0.4+ | 0.4− | 2007 11 11 | G96 | 0.4+ | 0.2− | | | |
| 2004 03 20 | 699 | 0.5− | 0.0 | 2004 04 20 | 704 | 1.0+ | 0.7− | 2007 11 11 | G96 | 0.3+ | 0.4− | | | |
| 2004 03 20 | 699 | 0.1− | 0.1− | 2004 04 20 | 704 | 0.5+ | 0.1− | 2007 11 11 | G96 | 0.3+ | 0.5− | | | |
| 2004 03 20 | 699 | 0.1+ | 0.6− | 2004 04 20 | 704 | 0.1+ | 0.2+ | | | | | | | |
| 2004 03 24 | 699 | 0.5− | 1.0+ | 2004 04 20 | 704 | 0.3+ | 0.3+ | | | | | | | |

**2004 EO$_{62}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 34.62885 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17014602 | $\omega$ | 327.84941 | | −0.72487872 | | −0.68860232 |
| $a$ | 3.2254342 | $\Omega$ | 168.56710 | | +0.65096975 | | −0.69394745 |
| $e$ | 0.1627854 | $i$ | 5.62645 | | +0.22536465 | | −0.21038959 |
| $P$ | 5.79 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 09 21 | 691 | 0.1+ | 0.5+ | 2004 03 22 | 704 | 0.5+ | 0.4+ | 2007 10 13 | G96 | 0.5− | 0.3− | | | |
| 1995 09 21 | 691 | 0.4− | 0.8+ | 2004 03 24 | 699 | 0.7− | 0.6− | 2007 10 13 | G96 | 0.5− | 0.2− | | | |
| 1995 09 21 | 691 | 0.5− | 0.8+ | 2004 03 24 | 699 | 0.4− | 0.2− | 2007 10 13 | G96 | 0.1+ | 0.3− | | | |
| 2004 02 26 | 704 | 0.2− | 1.0+ | 2004 03 24 | 699 | 0.6+ | 0.4+ | 2007 10 13 | G96 | 0.0 | 0.3− | | | |
| 2004 02 26 | 704 | 1.4+ | 0.0 | 2004 03 24 | 699 | (0.6− | 2.0+) | 2007 11 02 | G96 | 0.0 | 0.2− | | | |
| 2004 02 26 | 704 | 1.2+ | 0.6+ | 2004 03 28 | 704 | 0.5− | 0.6+ | 2007 11 02 | G96 | 0.4+ | 0.2− | | | |
| 2004 02 26 | 704 | 0.3+ | 0.4+ | 2004 03 28 | 704 | 0.1− | 0.2− | 2007 11 02 | G96 | 0.1+ | 0.1− | | | |
| 2004 03 12 | 644 | 0.1− | 0.3+ | 2004 03 28 | 704 | 0.7+ | 1.1+ | 2007 11 02 | G96 | 0.1− | 0.1+ | | | |
| 2004 03 12 | 644 | 0.1− | 0.0 | 2004 03 28 | 704 | (1.1+ | 1.8+) | 2008 12 04 | 291 | 0.1+ | 0.2− | | | |
| 2004 03 12 | 644 | 0.2− | 0.1+ | 2004 03 28 | 704 | 0.2+ | 0.9+ | 2008 12 04 | 291 | 0.6− | 0.5+ | | | |
| 2004 03 18 | 704 | 0.3+ | 0.2+ | 2004 04 12 | 691 | 0.4− | 0.2+ | 2008 12 04 | 291 | 0.1+ | 0.6+ | | | |
| 2004 03 18 | 704 | 0.3+ | 0.3+ | 2004 04 12 | 691 | 0.1+ | 0.3+ | 2009 03 01 | G96 | 0.7+ | 0.1− | | | |
| 2004 03 18 | 704 | 0.3+ | 0.8− | 2004 04 12 | 691 | 0.1+ | 0.2+ | 2009 03 01 | G96 | 0.4+ | 0.4− | | | |
| 2004 03 18 | 704 | 0.2− | 0.1+ | 2004 04 24 | 926 | 0.5− | 0.7+ | 2009 03 01 | G96 | 0.4+ | 0.6− | | | |
| 2004 03 18 | 704 | 0.7− | 1.0− | 2004 04 24 | 926 | 0.0 | 0.4+ | 2009 03 01 | G96 | 0.3+ | 0.6− | | | |
| 2004 03 22 | 704 | 0.3+ | 0.5+ | 2007 09 12 | G96 | 0.3+ | 0.1− | 2009 12 20 | G96 | 0.3− | 0.0 | | | |
| 2004 03 22 | 704 | 0.0 | 0.0 | 2007 09 12 | G96 | 0.3+ | 0.1+ | 2009 12 20 | G96 | 0.0 | 0.2− | | | |
| 2004 03 22 | 704 | 0.2+ | 0.1− | 2007 09 12 | G96 | 0.2+ | 0.2+ | 2009 12 20 | G96 | 0.1+ | 0.2− | | | |
| 2004 03 22 | 704 | 1.0+ | 0.4− | 2007 09 12 | G96 | 0.8+ | 0.3+ | 2009 12 20 | G96 | 0.7− | 0.0 | | | |

**2004 ED$_{77}$ = 2009 TM$_{43}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 166.66658 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.26978368 | $\omega$ | 203.16157 | | −0.52109822 | | +0.85304941 |
| $a$ | 2.3720596 | $\Omega$ | 35.44987 | | −0.77542615 | | −0.45965896 |
| $e$ | 0.1842024 | $i$ | 2.73043 | | −0.35661034 | | −0.24702297 |
| $P$ | 3.65 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 03 15 | 703 | 0.1+ | 0.4+ | 2004 03 22 | 704 | 2.0+ | 0.5+ | 2004 04 13 | 691 | 0.2+ | 0.2+ | | | |
| 2004 03 15 | 703 | 0.1− | 0.0 | 2004 03 22 | 704 | 0.2+ | 0.5− | 2009 10 11 | G96 | 0.6+ | 0.2− | | | |
| 2004 03 15 | 703 | 0.4+ | 0.0 | 2004 03 23 | 691 | 0.0 | 0.0 | 2009 10 11 | G96 | 0.1− | 0.3− | | | |
| 2004 03 15 | 704 | 0.4+ | 0.5− | 2004 03 23 | 691 | 0.1− | 0.1− | 2009 10 11 | G96 | 0.5+ | 0.0 | | | |
| 2004 03 15 | 704 | 0.5− | 0.5+ | 2004 03 23 | 691 | 0.2− | 0.2− | 2009 10 11 | G96 | 0.1+ | 0.0 | | | |
| 2004 03 15 | 703 | 0.3− | 1.1+ | 2004 03 30 | 291 | 0.2− | 0.0 | 2009 10 24 | 691 | 0.1+ | 0.0 | | | |
| 2004 03 15 | 704 | 0.0 | 0.4− | 2004 03 30 | 291 | 0.1− | 0.0 | 2009 10 24 | 691 | 0.0 | 0.2+ | | | |
| 2004 03 19 | 704 | 0.2+ | 0.5+ | 2004 03 30 | 291 | 0.1− | 0.1+ | 2009 10 24 | 691 | 0.8− | 0.1− | | | |
| 2004 03 19 | 704 | 0.1+ | 0.6− | 2004 03 31 | 691 | 0.0 | 0.4− | 2009 11 11 | G96 | 0.6+ | 0.0 | | | |
| 2004 03 19 | 704 | 0.4− | 0.1− | 2004 03 31 | 691 | 0.3− | 0.1− | 2009 11 11 | G96 | 0.2− | 0.1− | | | |
| 2004 03 19 | 704 | 0.6− | 0.2+ | 2004 03 31 | 691 | 0.2+ | 0.1− | 2009 11 11 | G96 | 0.5+ | 0.1− | | | |
| 2004 03 22 | 704 | 0.1+ | 0.5+ | 2004 04 13 | 691 | 0.1+ | 0.3+ | 2009 11 11 | G96 | 0.8+ | 0.5+ | | | |
| 2004 03 22 | 704 | 0.0 | 0.8− | 2004 04 13 | 691 | 0.3+ | 0.2+ | | | | | | | |

**2004 EN$_{95}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 185.55754 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.26221568 | $\omega$ | 314.21166 | | −0.87858226 | | +0.47415770 |
| $a$ | 2.4174840 | $\Omega$ | 254.17003 | | −0.41949491 | | −0.82337371 |
| $e$ | 0.1814427 | $i$ | 3.40636 | | −0.22829199 | | −0.31181761 |
| $P$ | 3.76 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 03 15 | 644 | 0.1− | 0.1+ | 2004 04 19 | 704 | 0.3+ | 0.4+ | 2004 05 19 | 691 | 0.1+ | 0.2− |
| 2004 03 15 | 644 | 0.5+ | 0.2+ | 2004 04 19 | 704 | 0.5+ | 0.1− | 2004 05 19 | 691 | 0.1− | 0.1+ |
| 2004 03 15 | 644 | 0.5+ | 0.4+ | 2004 04 19 | 704 | 0.3− | 0.0 | 2004 05 28 | 691 | 0.5+ | 0.2− |
| 2004 03 20 | 699 | 0.8− | 0.4+ | 2004 04 19 | 704 | 0.1− | 0.5− | 2004 05 28 | 691 | 0.1+ | 0.5− |
| 2004 03 20 | 699 | 0.3+ | 1.0+ | 2004 04 21 | 704 | 0.1− | 0.4− | 2004 05 28 | 691 | 0.2− | 0.1+ |
| 2004 03 20 | 699 | 0.4+ | 0.7− | 2004 04 21 | 704 | 0.2+ | 0.2+ | 2009 10 15 | G96 | 0.4− | 0.0 |
| 2004 03 20 | 699 | 0.7− | 0.3+ | 2004 04 21 | 704 | 0.2− | 0.3+ | 2009 10 15 | G96 | 0.1+ | 0.1+ |
| 2004 04 12 | 644 | 0.1− | 0.1+ | 2004 04 21 | 704 | 0.6+ | 0.3+ | 2009 10 15 | G96 | 0.1+ | 0.7+ |
| 2004 04 12 | 644 | 0.1− | 0.3+ | 2004 04 21 | 704 | 0.9+ | 0.8+ | 2009 10 24 | 291 | 0.1− | 0.4+ |
| 2004 04 12 | 644 | 0.1− | 0.1+ | 2004 05 10 | 691 | 0.1− | 0.0 | 2009 10 24 | 291 | 0.0 | 0.0 |
| 2004 04 17 | 704 | 0.4− | 0.9+ | 2004 05 10 | 691 | 0.0 | 0.1+ | 2009 10 24 | 291 | 0.4− | 0.7+ |
| 2004 04 17 | 704 | 0.0 | 1.1+ | 2004 05 10 | 691 | 0.1+ | 0.2+ | | | | |
| 2004 04 17 | 704 | 1.1− | 0.1− | 2004 05 19 | 691 | 0.0 | 0.1+ | | | | |

### 2004 FQ$_7$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 49.90600 | | | (2000.0) | | |
| $n$ | 0.17236471 | $\omega$ | 302.98789 | | −0.44685245 | −0.89454790 |
| $a$ | 3.1976959 | $\Omega$ | 173.52849 | | +0.84835775 | −0.42739133 |
| $e$ | 0.1800801 | $i$ | 5.26463 | | +0.28392257 | −0.13084613 |
| $P$ | 5.72 | $H$ | 15.5 | $G$ 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 02 26 | 704 | 0.0 | 0.2+ | 2004 03 18 | 704 | 0.6+ | 0.0 | 2007 09 11 | 691 | 0.7− | 0.8+ |
| 2004 02 26 | 704 | 0.1− | 0.8− | 2004 03 18 | 704 | 0.1+ | 0.5+ | 2007 09 11 | 691 | 0.4− | 0.9+ |
| 2004 02 26 | 704 | 0.5+ | 0.4+ | 2004 03 18 | 704 | 0.3+ | 0.7+ | 2007 09 11 | G96 | 0.3+ | 0.2+ |
| 2004 02 26 | 704 | 0.4+ | 0.2− | 2004 03 18 | 704 | 0.0 | 0.5− | 2007 09 11 | G96 | 0.2+ | 0.0 |
| 2004 02 26 | 704 | 0.7− | 1.1+ | 2004 03 18 | 704 | 0.4− | 0.5+ | 2007 09 11 | G96 | 0.1+ | 0.1+ |
| 2004 03 12 | 644 | 0.5+ | 0.3+ | 2004 03 20 | 699 | 0.0 | 0.6− | 2007 09 11 | G96 | 0.0 | 0.1+ |
| 2004 03 12 | 644 | 0.5+ | 0.5+ | 2004 03 20 | 699 | 0.0 | 0.6+ | 2007 10 08 | G96 | 0.1+ | 0.1− |
| 2004 03 12 | 644 | 0.4+ | 0.3+ | 2004 03 20 | 699 | 0.8− | 0.7− | 2007 10 08 | G96 | 0.1− | 0.1− |
| 2004 03 16 | 704 | 0.0 | 1.1+ | 2004 03 20 | 699 | 0.5− | 0.3− | 2007 10 08 | G96 | 0.2− | 0.2+ |
| 2004 03 16 | 704 | 0.4+ | 0.9− | 2004 03 31 | 691 | 0.4+ | 0.0 | 2007 10 08 | G96 | 0.2+ | 0.2− |
| 2004 03 16 | 704 | (0.8+ | 1.7+) | 2004 03 31 | 691 | 0.1− | 0.3− | 2007 11 07 | G96 | 1.0+ | 0.3− |
| 2004 03 16 | 704 | 0.6+ | 0.8+ | 2004 03 31 | 691 | 0.1+ | 0.1− | 2007 11 07 | G96 | 0.4+ | 0.1+ |
| 2004 03 16 | 704 | 0.6+ | 0.8+ | 2004 04 25 | 691 | 0.1− | 0.4+ | 2007 11 07 | G96 | 0.2− | 0.1+ |
| 2004 03 17 | 691 | 0.1− | 0.2+ | 2004 04 25 | 691 | 0.1− | 0.5+ | 2007 11 07 | G96 | 0.3+ | 0.1− |
| 2004 03 17 | 691 | 0.2− | 0.2+ | 2004 04 25 | 691 | 0.1+ | 0.2+ | | | | |
| 2004 03 17 | 691 | 0.1− | 0.1+ | 2007 09 11 | 691 | 0.1− | 0.4+ | | | | |

### 2004 FM$_{14}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 224.74702 | | | (2000.0) | | |
| $n$ | 0.27587120 | $\omega$ | 181.97001 | | −0.97824562 | +0.20688543 |
| $a$ | 2.3370346 | $\Omega$ | 10.00935 | | −0.18910814 | −0.85901572 |
| $e$ | 0.2035179 | $i$ | 5.04844 | | −0.08528553 | −0.46828455 |
| $P$ | 3.57 | $H$ | 16.9 | $G$ 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 02 26 | 704 | 1.2+ | 0.3+ | 2004 03 31 | 704 | 0.5+ | 0.1− | 2004 04 25 | 691 | 0.1+ | 0.1+ |
| 2004 02 26 | 704 | 0.0 | 1.0− | 2004 04 09 | E12 | 0.3+ | 0.2− | 2004 04 25 | 691 | 0.1+ | 0.0 |
| 2004 02 26 | 704 | 0.2+ | 0.2+ | 2004 04 09 | E12 | 0.7+ | 0.0 | 2004 05 10 | 691 | 0.1+ | 0.2− |
| 2004 02 26 | 704 | 0.3+ | 0.3+ | 2004 04 09 | E12 | 1.0+ | 0.2+ | 2004 05 10 | 691 | 0.1+ | 0.1+ |
| 2004 03 16 | 703 | 1.2+ | 0.6+ | 2004 04 09 | E12 | 0.6+ | 1.0+ | 2004 05 10 | 691 | 0.0 | 0.0 |
| 2004 03 16 | 703 | 1.1− | 1.5+ | 2004 04 12 | 644 | 0.2+ | 0.0 | 2004 05 12 | 699 | 0.7− | 0.1− |
| 2004 03 16 | 703 | 0.6+ | 0.3+ | 2004 04 12 | 644 | 0.1− | 0.2+ | 2004 05 12 | 699 | 0.8− | 0.3+ |
| 2004 03 16 | 703 | 0.1+ | 0.2+ | 2004 04 12 | 644 | 0.0 | 0.0 | 2004 05 12 | 699 | 0.1+ | 0.6− |
| 2004 03 17 | 704 | 0.6+ | 0.0 | 2004 04 13 | 644 | 0.9− | 0.0 | 2004 05 12 | 699 | 0.4− | 0.2− |
| 2004 03 17 | 704 | 0.6− | 0.1+ | 2004 04 13 | 644 | 0.8− | 0.0 | 2004 05 19 | 691 | 0.2+ | 0.1+ |
| 2004 03 17 | 704 | 0.1− | 1.7+ | 2004 04 13 | 644 | 1.4− | 0.2+ | 2004 05 19 | 691 | 0.1+ | 0.1+ |
| 2004 03 17 | 704 | 0.4+ | 0.8+ | 2004 04 19 | 691 | 0.1+ | 0.0 | 2004 05 19 | 691 | 0.1+ | 0.1+ |
| 2004 03 25 | 699 | 0.7− | 0.5− | 2004 04 19 | 691 | 0.1+ | 0.1− | 2004 05 28 | 691 | 0.1− | 0.2+ |
| 2004 03 25 | 699 | 0.2− | 0.9+ | 2004 04 19 | 691 | 0.1+ | 0.0 | 2004 05 28 | 691 | 0.3+ | 0.1+ |
| 2004 03 25 | 699 | 0.7− | 0.7− | 2004 04 20 | 703 | 0.6− | 0.3− | 2004 05 28 | 691 | 0.0 | 0.3+ |
| 2004 03 25 | 699 | 0.3− | 0.1− | 2004 04 20 | 703 | 0.8+ | 0.4+ | 2009 09 22 | 691 | 0.4− | 0.7+ |
| 2004 03 27 | 704 | 0.3− | 0.0 | 2004 04 20 | 703 | 0.6− | 0.4− | 2009 09 22 | 691 | 0.3− | 0.2+ |
| 2004 03 27 | 704 | 0.8− | 0.0 | 2004 04 20 | 703 | 1.3− | 1.6− | 2009 09 22 | 691 | 0.5− | 0.9+ |
| 2004 03 27 | 704 | 1.2− | 0.1− | 2004 04 20 | 704 | 0.2+ | 0.3+ | 2009 10 14 | G96 | 0.3+ | 0.3+ |
| 2004 03 27 | 704 | 0.7− | 0.6− | 2004 04 20 | 704 | 0.5+ | 0.7− | 2009 10 14 | G96 | 0.7+ | 0.6+ |
| 2004 03 31 | 704 | 0.2+ | 0.0 | 2004 04 20 | 704 | 0.2+ | 0.1+ | 2009 10 14 | G96 | 0.6− | 0.8− |
| 2004 03 31 | 704 | 0.0 | 0.2+ | 2004 04 20 | 704 | 1.2+ | 0.4+ | 2009 10 14 | G96 | 0.4+ | 0.5+ |
| 2004 03 31 | 704 | 0.2+ | 0.7+ | 2004 04 20 | 704 | 0.0 | 0.7− | | | | |
| 2004 03 31 | 704 | 0.8+ | 0.1+ | 2004 04 25 | 691 | 0.1+ | 0.0 | | | | |

### 2004 FA$_{25}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 164.90161 | | | (2000.0) | | |
| $n$ | 0.21313978 | $\omega$ | 27.77818 | | −0.03290763 | −0.99712430 |
| $a$ | 2.7756181 | $\Omega$ | 64.17689 | | +0.90235228 | −0.05900941 |
| $e$ | 0.0641145 | $i$ | 4.34942 | | +0.42974115 | +0.04755020 |
| $P$ | 4.62 | $H$ | 16.7 | $G$ 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 01 18 | 691 | 0.3− | 0.1+ | 2004 01 30 | 691 | 0.1− | 0.1− | 2007 12 17 | 691 | 0.1+ | 0.2+ |
| 2004 01 18 | 691 | 0.1+ | 0.4− | 2004 03 17 | 691 | 0.4+ | 0.3+ | 2007 12 17 | 691 | 0.2− | 0.2− |
| 2004 01 18 | 691 | 0.3+ | 0.0 | 2004 03 17 | 691 | 0.3+ | 0.2+ | 2007 12 17 | 691 | 0.1+ | 0.2− |
| 2004 01 27 | 691 | 0.2+ | 0.0 | 2004 03 17 | 691 | 0.3+ | 0.0 | 2009 04 18 | G96 | 0.0 | 0.3− |
| 2004 01 27 | 691 | 0.3− | 0.2− | 2004 03 17 | 291 | 0.1− | 0.1+ | 2009 04 18 | G96 | 0.4− | 0.0 |
| 2004 01 27 | 691 | 0.0 | 0.3− | 2004 03 17 | 291 | 0.2− | 0.2− | 2009 04 18 | G96 | 0.1+ | 0.3− |
| 2004 01 27 | 691 | 0.0 | 0.1+ | 2004 03 17 | 291 | 0.4− | 0.1+ | 2009 04 18 | G96 | 0.4− | 0.1− |
| 2004 01 27 | 691 | 0.1− | 0.0 | 2004 03 18 | 704 | 0.7− | 0.6+ | 2009 05 16 | G96 | 0.0 | 0.1− |
| 2004 01 27 | 691 | 0.1+ | 0.2− | 2004 03 18 | 704 | 0.6+ | 0.7− | 2009 05 16 | G96 | 0.0 | 0.5− |
| 2004 01 30 | 691 | 0.2+ | 0.4+ | 2004 03 18 | 704 | 0.8− | 0.3+ | 2009 05 16 | G96 | 0.0 | 0.3− |
| 2004 01 30 | 691 | 0.2− | 0.3+ | 2004 03 18 | 704 | 0.1+ | 0.0 | 2009 05 16 | G96 | 0.0 | 0.1− |

### 2004 FC$_{26}$ = 2009 WF$_{225}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 182.47570 | | | (2000.0) | | |
| $n$ | 0.28147655 | $\omega$ | 338.78104 | | −0.37556068 | +0.92148639 |
| $a$ | 2.3059041 | $\Omega$ | 269.04983 | | −0.83541693 | −0.38287973 |
| $e$ | 0.0946122 | $i$ | 5.68703 | | −0.40128884 | −0.06531417 |
| $P$ | 3.50 | $H$ | 16.4 | $G$ 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 03 17 | 704 | 0.5+ | 0.2− | 2004 03 19 | 704 | 0.8+ | 0.5− | 2007 01 17 | 644 | 0.1− | 0.1− |
| 2004 03 17 | 704 | 0.3+ | 0.2− | 2004 03 19 | 704 | 0.6+ | 0.0 | 2007 01 17 | 644 | 0.1− | 0.4− |
| 2004 03 17 | 704 | 0.1+ | 0.2− | 2004 03 20 | 704 | 0.3− | 1.0+ | 2007 01 17 | 644 | 0.1− | 0.2+ |
| 2004 03 18 | 704 | 0.4− | 0.2+ | 2004 03 20 | 704 | 0.6− | 0.0 | 2009 11 17 | 691 | 0.0 | 0.1− |
| 2004 03 18 | 704 | 0.3− | 0.1+ | 2004 03 20 | 704 | 0.2− | 0.1+ | 2009 11 17 | 691 | 0.1− | 0.2+ |
| 2004 03 18 | 704 | 0.5− | 0.6+ | 2004 03 26 | 699 | 1.1− | 0.6− | 2009 11 17 | 691 | 0.2− | 0.1+ |
| 2004 03 18 | 704 | 0.9+ | 0.7+ | 2004 03 26 | 699 | 0.5− | 0.4+ | 2009 11 24 | D29 | 0.3+ | 0.5+ |
| 2004 03 18 | 704 | 1.0+ | 1.1+ | 2004 03 26 | 699 | 0.6− | 1.4− | 2009 11 24 | D29 | 0.7+ | 1.0+ |
| 2004 03 18 | 704 | 1.2+ | 1.3− | 2004 03 26 | 699 | 1.0− | 1.3+ | 2009 11 24 | D29 | 0.4+ | 0.1+ |
| 2004 03 18 | 704 | 0.2− | 0.2+ | 2006 12 13 | G96 | 0.5+ | 0.4− | 2009 11 24 | D29 | 0.2− | 1.3+ |
| 2004 03 18 | 704 | 0.0 | 0.0 | 2006 12 13 | G96 | 0.1− | 0.2− | 2009 12 17 | G96 | 0.3+ | 0.5− |
| 2004 03 18 | 704 | 0.1+ | 0.0 | 2006 12 13 | G96 | 0.6− | 0.0 | 2009 12 17 | G96 | 0.2+ | 0.1− |
| 2004 03 18 | 704 | 0.3+ | 0.2+ | 2006 12 13 | G96 | 0.1− | 0.3− | 2009 12 17 | G96 | 0.4− | 0.1− |
| 2004 03 19 | 704 | 0.4+ | 0.1− | 2007 01 17 | 644 | 0.4− | 0.4− | 2009 12 17 | G96 | 0.5− | 0.3− |
| 2004 03 19 | 704 | (1.2− | 1.6+) | 2007 01 17 | 644 | 0.1+ | 0.2− | | | | |
| 2004 03 19 | 704 | 0.5+ | 0.4+ | 2007 01 17 | 644 | 0.0 | 0.2− | | | | |

### 2004 FD$_{32}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 92.73779 | | | (2000.0) | | |
| $n$ | 0.21482437 | $\omega$ | 103.53267 | | −0.92293178 | +0.20605756 |
| $a$ | 2.7610886 | $\Omega$ | 89.10448 | | −0.32725139 | −0.86480307 |
| $e$ | 0.2063236 | $i$ | 18.97844 | | +0.20273986 | −0.45788201 |
| $P$ | 4.59 | $H$ | 16.2 | $G$ 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 03 30 | 704 | 0.9− | 0.1− | 2004 04 14 | 704 | 0.1− | 0.1+ | 2004 04 19 | 704 | 0.2− | 1.2− |
| 2004 03 30 | 704 | 0.2− | 0.2+ | 2004 04 14 | 704 | 0.2+ | 0.9+ | 2004 04 19 | 704 | 0.3+ | 0.4− |
| 2004 03 30 | 704 | 0.1− | 1.0+ | 2004 04 14 | 704 | 0.3− | 0.8+ | 2007 12 05 | 691 | 0.0 | 0.3− |
| 2004 03 30 | 704 | 0.1+ | 1.1− | 2004 04 17 | 704 | 0.3+ | 1.7+ | 2007 12 05 | 691 | 0.6− | 0.3+ |
| 2004 03 31 | 704 | 0.4− | 0.3+ | 2004 04 17 | 704 | 0.5+ | 0.2− | 2007 12 05 | 691 | 0.1− | 0.1+ |
| 2004 03 31 | 704 | 0.6+ | 0.4− | 2004 04 17 | 704 | 0.3+ | 0.5− | 2007 12 30 | G96 | 0.8+ | 0.1− |
| 2004 03 31 | 704 | 0.4+ | 0.5− | 2004 04 19 | 704 | 0.2− | 0.0 | 2007 12 30 | G96 | 1.1+ | 0.2− |
| 2004 03 31 | 704 | 0.3+ | 0.3− | 2004 04 19 | 704 | 0.7− | 0.4− | 2007 12 30 | G96 | 0.7+ | 0.1− |
| 2004 04 14 | 704 | 0.0 | 0.2+ | 2004 04 19 | 704 | 0.3+ | 0.0 | | | | |

**2004 FE$_{32}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 66.89868 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23314700 | $\omega$ | 141.19894 | | +0.37833793 | +0.87750443 | |
| $a$ | 2.6144650 | $\Omega$ | 147.64077 | | −0.92532639 | +0.36716318 | |
| $e$ | 0.2621163 | $i$ | 33.40841 | | −0.02512925 | −0.30850798 | |
| $P$ | 4.23 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 03 18 | 644 | 0.0 | 0.4− | 2004 03 31 | 704 | 0.3− | 0.2− | 2004 04 13 | 645 | 0.2− | 0.2− |
| 2004 03 18 | 644 | 0.2+ | 0.1+ | 2004 04 12 | 704 | 1.2+ | 0.6+ | 2009 08 20 | 703 | 0.5+ | 0.7− |
| 2004 03 18 | 644 | 0.2− | 0.5− | 2004 04 12 | 704 | 0.2+ | 0.5+ | 2009 08 20 | 703 | 0.8+ | 0.5+ |
| 2004 03 30 | 704 | (2.7+ | 1.0−) | 2004 04 12 | 704 | 0.5+ | 0.8+ | 2009 08 20 | 703 | 0.5− | 0.3− |
| 2004 03 30 | 704 | 0.9+ | 0.4+ | 2004 04 12 | 704 | 1.4+ | 1.7+ | 2009 08 20 | 703 | 0.9+ | 0.8+ |
| 2004 03 30 | 704 | 0.2+ | 0.8+ | 2004 04 13 | 704 | 0.4− | 1.1+ | 2009 09 12 | E12 | 0.5− | 0.4+ |
| 2004 03 30 | 704 | 0.5+ | 0.6+ | 2004 04 13 | 704 | 1.8+ | 0.3+ | 2009 09 12 | E12 | 0.0 | 0.5− |
| 2004 03 31 | 704 | 0.1− | 0.4− | 2004 04 13 | 704 | 0.2+ | 0.9+ | 2009 09 12 | E12 | 0.4− | 0.1+ |
| 2004 03 31 | 704 | 0.1+ | 0.0 | 2004 04 13 | 704 | 0.7+ | 0.6+ | 2009 09 12 | E12 | 0.8− | 0.2− |
| 2004 03 31 | 704 | 0.9− | 0.7− | 2004 04 13 | 704 | 0.4+ | 1.2+ | | | | |
| 2004 03 31 | 704 | 0.4+ | 0.9+ | 2004 04 13 | 645 | 0.2− | 0.2− | | | | |

**2004 FD$_{130}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 8.52758 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17995376 | $\omega$ | 174.69131 | | −0.82032546 | +0.54527080 | |
| $a$ | 3.1071492 | $\Omega$ | 39.97209 | | −0.53409061 | −0.62259965 | |
| $e$ | 0.2313100 | $i$ | 15.57334 | | −0.20448316 | −0.56129264 | |
| $P$ | 5.48 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 03 16 | 704 | 0.7+ | 1.7+ | 2004 04 14 | 691 | 0.3− | 0.0 | 2004 04 22 | 704 | 1.1+ | 0.7+ |
| 2004 03 16 | 704 | 1.0+ | 0.5+ | 2004 04 14 | 691 | 0.1− | 0.0 | 2004 04 22 | 704 | 0.5− | 0.8− |
| 2004 03 16 | 704 | 0.1+ | 1.0− | 2004 04 14 | 691 | 0.2− | 0.1+ | 2004 04 22 | 704 | 0.3+ | 0.1− |
| 2004 03 22 | 699 | 0.0 | 0.5+ | 2004 04 20 | 704 | 0.9+ | 0.1− | 2004 05 24 | 691 | 0.1+ | 0.0 |
| 2004 03 22 | 699 | 1.0− | 0.8+ | 2004 04 20 | 704 | 0.4+ | 0.3+ | 2004 05 24 | 691 | 0.1− | 0.1+ |
| 2004 03 22 | 699 | 0.7− | 0.6+ | 2004 04 20 | 703 | 0.4+ | 0.4+ | 2004 05 24 | 691 | 0.1− | 0.2+ |
| 2004 03 22 | 699 | 1.0− | 0.4+ | 2004 04 20 | 704 | 1.4+ | 0.1+ | 2009 02 02 | G96 | 0.2+ | 0.3− |
| 2004 03 23 | 704 | 0.8+ | 0.1+ | 2004 04 20 | 703 | 0.1− | 0.3+ | 2009 02 02 | G96 | 0.3+ | 0.1− |
| 2004 03 23 | 704 | 0.5+ | 0.4− | 2004 04 20 | 704 | 1.1+ | 0.2+ | 2009 02 02 | G96 | 0.1+ | 0.2− |
| 2004 03 23 | 704 | 0.8+ | 0.8− | 2004 04 20 | 703 | (0.5− | 3.4−) | 2009 02 02 | G96 | 0.5+ | 0.1+ |
| 2004 04 09 | E12 | 1.0− | 0.6− | 2004 04 20 | 704 | (2.4+ | 0.3+) | 2009 02 22 | 703 | 1.0− | 0.3− |
| 2004 04 09 | E12 | 1.1− | 0.4− | 2004 04 20 | 703 | 1.3− | 1.7− | 2009 02 22 | 703 | 0.8− | 1.5+ |
| 2004 04 09 | E12 | 0.7− | 0.5− | 2004 04 22 | 704 | 1.7+ | 0.3− | 2009 02 22 | 703 | 0.6+ | 0.2− |
| 2004 04 09 | E12 | 0.3− | 0.5− | 2004 04 22 | 704 | 0.1+ | 0.6− | 2009 02 22 | 703 | 0.0 | 0.6− |

**2004 FO$_{145}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 318.54800 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17754104 | $\omega$ | 231.23665 | | −0.58319334 | +0.81227713 | |
| $a$ | 3.1352358 | $\Omega$ | 3.13420 | | −0.68049592 | −0.48208312 | |
| $e$ | 0.0421548 | $i$ | 10.07015 | | −0.44363367 | −0.32833174 | |
| $P$ | 5.55 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 03 15 | 691 | 0.2− | 0.0 | 2004 03 30 | 691 | 0.0 | 0.3+ | 2004 04 24 | 691 | 0.3− | 0.1− |
| 2004 03 15 | 691 | 0.2− | 0.1+ | 2004 03 31 | 691 | 0.3+ | 0.0 | 2009 01 20 | 703 | 0.4− | 0.9+ |
| 2004 03 15 | 691 | 0.3− | 0.1+ | 2004 03 31 | 691 | 0.0 | 0.2+ | 2009 01 20 | 703 | 0.5− | 1.5+ |
| 2004 03 22 | 735 | 1.0+ | 1.3− | 2004 03 31 | 691 | 0.0 | 0.1− | 2009 01 20 | 703 | 0.9− | 1.2+ |
| 2004 03 22 | 735 | 1.7+ | 1.0− | 2004 04 12 | 691 | 0.2− | 0.1− | 2009 01 20 | 703 | 0.6− | 0.3− |
| 2004 03 22 | 735 | 0.1− | 0.2+ | 2004 04 12 | 691 | 0.0 | 0.2− | 2009 01 26 | D29 | 1.8+ | 2.5− |
| 2004 03 22 | 735 | 0.1+ | 0.2+ | 2004 04 12 | 691 | 0.4+ | 0.0 | 2009 01 26 | D29 | 0.0 | 1.0− |
| 2004 03 30 | 691 | 0.1− | 0.2+ | 2004 04 24 | 691 | 0.2+ | 0.3+ | 2009 01 26 | D29 | 0.4+ | 0.1+ |
| 2004 03 30 | 691 | 0.1− | 0.2+ | 2004 04 24 | 691 | 0.1− | 0.4− | 2009 01 26 | D29 | 0.2+ | 0.1+ |

**2004 GU$_{15}$ = 2009 WU$_{240}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 147.52699 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27399586 | $\omega$ | 209.53780 | | +0.20974450 | +0.90654647 | |
| $a$ | 2.3476862 | $\Omega$ | 74.66625 | | −0.80598328 | +0.37239775 | |
| $e$ | 0.0789403 | $i$ | 22.32303 | | −0.55353247 | −0.19872949 | |
| $P$ | 3.60 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 04 09 | 644 | 0.2+ | 0.1+ | 2004 04 26 | 704 | 0.5+ | 0.1+ | 2009 11 26 | 691 | 0.0 | 0.5− |
| 2004 04 09 | 644 | 0.1+ | 0.0 | 2004 04 26 | 704 | 0.2+ | 0.1− | 2009 12 11 | 703 | 1.0+ | 0.3+ |
| 2004 04 09 | 644 | 0.1+ | 0.1− | 2004 04 26 | 704 | 0.4+ | 0.5− | 2009 12 11 | 703 | 0.3− | 0.2+ |
| 2004 04 15 | 704 | 0.8− | 0.8+ | 2004 04 26 | 704 | 0.1+ | 0.4− | 2009 12 11 | 703 | 0.1− | 0.4+ |
| 2004 04 15 | 704 | 0.7− | 0.7+ | 2004 04 26 | 704 | 0.9+ | 0.2− | 2009 12 11 | 703 | 0.5+ | 0.7+ |
| 2004 04 15 | 704 | 0.4− | 0.3− | 2009 11 18 | 691 | 0.1+ | 0.2− | 2009 12 17 | G96 | 0.4+ | 0.2+ |
| 2004 04 22 | 703 | 0.8+ | 0.2+ | 2009 11 18 | 691 | 0.2− | 0.0 | 2009 12 17 | G96 | 0.2+ | 0.1+ |
| 2004 04 22 | 703 | 0.7− | 0.5− | 2009 11 18 | 691 | 0.4− | 0.5+ | 2009 12 17 | G96 | 0.6+ | 0.0 |
| 2004 04 22 | 703 | 0.2+ | 0.2+ | 2009 11 26 | 691 | 0.0 | 0.1− | 2009 12 17 | G96 | 0.0 | 0.1+ |
| 2004 04 22 | 703 | 0.8− | 0.1− | 2009 11 26 | 691 | 0.0 | 0.1− | | | | |

**2004 GD$_{31}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 151.97126 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26228723 | $\omega$ | 226.03306 | | +0.03004061 | +0.99705290 | |
| $a$ | 2.4170443 | $\Omega$ | 45.83206 | | −0.88658758 | +0.05919219 | |
| $e$ | 0.2149864 | $i$ | 5.64772 | | −0.46158425 | −0.04880362 | |
| $P$ | 3.76 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 04 13 | 644 | 0.2− | 0.0 | 2004 04 26 | 699 | 1.1− | 0.6+ | 2004 05 16 | 704 | 0.5− | 0.8+ |
| 2004 04 13 | 644 | 0.2− | 0.2+ | 2004 05 10 | 608 | 0.5+ | 0.7+ | 2004 05 16 | E25 | 0.1+ | 0.6− |
| 2004 04 13 | 644 | 0.2− | 0.4+ | 2004 05 10 | 608 | (0.1+ | 1.7+) | 2009 10 17 | G96 | 0.2+ | 0.1− |
| 2004 04 13 | 644 | 0.1− | 0.3− | 2004 05 10 | 608 | 0.4+ | 0.4+ | 2009 10 17 | G96 | 0.1− | 0.1− |
| 2004 04 13 | 644 | 0.6− | 0.1+ | 2004 05 11 | 699 | 0.4− | 0.4− | 2009 10 17 | G96 | 0.2+ | 0.0 |
| 2004 04 13 | 644 | 0.1+ | 0.2+ | 2004 05 11 | 699 | 0.3− | 0.5+ | 2009 10 17 | G96 | 0.2− | 0.1− |
| 2004 04 15 | 699 | 0.7− | 0.9− | 2004 05 11 | 699 | 0.2+ | 0.4− | 2009 10 17 | G96 | 0.4− | 0.2− |
| 2004 04 15 | 699 | 0.4+ | 0.0 | 2004 05 11 | 699 | 1.0− | 0.7− | 2009 10 17 | G96 | 0.2− | 0.4+ |
| 2004 04 15 | 699 | 0.4− | 1.1− | 2004 05 12 | E12 | (1.8− | 0.6+) | 2009 10 17 | G96 | 0.0 | 0.1− |
| 2004 04 15 | 699 | 0.5− | 1.1+ | 2004 05 12 | E12 | (1.8− | 0.2−) | 2009 10 17 | G96 | 0.2+ | 0.3− |
| 2004 04 21 | 704 | 0.1+ | 0.2+ | 2004 05 12 | E12 | 0.1+ | 0.2− | 2009 11 17 | 691 | 0.1− | 0.1+ |
| 2004 04 21 | 704 | 0.4+ | 0.5+ | 2004 05 12 | E12 | 0.8− | 0.0 | 2009 11 17 | 691 | 0.0 | 0.6+ |
| 2004 04 21 | 704 | 0.9+ | 0.1+ | 2004 05 15 | 704 | 0.4+ | 0.2+ | 2009 11 17 | 691 | 0.1− | 0.4+ |
| 2004 04 25 | 704 | 0.8− | 0.0 | 2004 05 15 | 704 | 1.3+ | 0.3+ | 2009 11 25 | 691 | 0.3− | 0.1− |
| 2004 04 25 | 704 | 0.1− | 0.2− | 2004 05 15 | 704 | 0.9+ | 0.5+ | 2009 11 25 | 691 | 0.6+ | 0.1− |
| 2004 04 25 | 704 | 0.9− | 0.9− | 2004 05 15 | 704 | 0.1+ | 0.5+ | 2009 11 25 | 691 | 0.6− | 0.1+ |
| 2004 04 25 | 691 | 0.2− | 0.0 | 2004 05 15 | 704 | 0.4+ | 0.4− | 2009 12 16 | G96 | 0.8+ | 0.0 |
| 2004 04 25 | 691 | 0.1− | 0.0 | 2004 05 16 | 691 | 0.1+ | 0.1+ | 2009 12 16 | G96 | 0.2+ | 0.5− |
| 2004 04 25 | 691 | 0.1− | 0.0 | 2004 05 16 | 691 | 0.3+ | 0.2+ | 2009 12 16 | G96 | 0.7+ | 0.0 |
| 2004 04 26 | 699 | 0.0 | 0.3+ | 2004 05 16 | 704 | 0.7+ | 0.9+ | 2009 12 16 | G96 | 0.4− | 0.2− |
| 2004 04 26 | 699 | 0.5+ | 1.3− | 2004 05 16 | 704 | 1.1+ | 0.2+ | | | | |
| 2004 04 26 | 699 | 0.0 | 1.1− | 2004 05 16 | 691 | 0.2+ | 0.0 | | | | |

### 2004 $GO_{51}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 301.36512 | | (2000.0) | | | |
| $n$ | 0.08487393 | $\omega$ | 29.82156 | | +0.26877379 | −0.96007109 |
| $a$ | 5.1280608 | $\Omega$ | 44.71412 | | +0.86046495 | +0.20311279 |
| $e$ | 0.0458264 | $i$ | 6.33357 | | +0.43285185 | +0.19237646 |
| $P$ | 11.61 | $H$ | 13.5 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 04 13 | 691 | 0.3− | 0.0 | 2004 05 19 | 691 | 0.2− | 0.0 | 2009 09 19 | 703 | (1.7+ | 2.5+) |
| 2004 04 13 | 691 | 0.2+ | 0.0 | 2004 05 19 | 691 | 0.1+ | 0.2− | 2009 09 19 | 703 | (0.8+ | 2.1+) |
| 2004 04 13 | 691 | 0.1+ | 0.1− | 2004 05 19 | 691 | 0.1+ | 0.1− | 2009 09 19 | 703 | 0.7− | 0.8+ |
| 2004 04 19 | 691 | 0.1+ | 0.2+ | 2004 05 28 | 691 | 0.0 | 0.2+ | 2009 09 19 | 703 | 1.1− | 1.4+ |
| 2004 04 19 | 691 | 0.0 | 0.2+ | 2004 05 28 | 691 | 0.1+ | 0.3− | 2009 09 22 | G96 | 0.2+ | 0.4− |
| 2004 04 19 | 691 | 0.1− | 0.1+ | 2004 05 28 | 691 | 0.0 | 0.1− | 2009 09 22 | G96 | 0.1+ | 0.6− |
| 2004 04 25 | 691 | 0.2− | 0.0 | 2009 08 18 | 691 | 0.2+ | 0.1− | 2009 09 22 | G96 | 0.4+ | 0.5− |
| 2004 04 25 | 691 | 0.1− | 0.1+ | 2009 08 18 | 691 | 0.0 | 0.1− | 2009 09 22 | G96 | 0.3+ | 0.8− |
| 2004 04 25 | 691 | 0.1+ | 0.1+ | 2009 08 18 | 691 | 0.0 | 0.2+ | | | | |

### 2004 $HN_{45}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 223.68297 | | (2000.0) | | | |
| $n$ | 0.28517483 | $\omega$ | 200.32020 | | −0.66913617 | +0.74170696 |
| $a$ | 2.2859247 | $\Omega$ | 27.74068 | | −0.66739767 | −0.57247798 |
| $e$ | 0.1138880 | $i$ | 5.68703 | | −0.32685950 | −0.34948497 |
| $P$ | 3.46 | $H$ | 17.4 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 09 19 | 645 | 0.1− | 0.2+ | 2004 04 25 | 703 | 0.6+ | 1.4+ | 2009 11 19 | 691 | 0.0 | 0.1+ |
| 1998 09 19 | 645 | 0.1− | 0.1+ | 2004 04 25 | 703 | 0.9+ | 0.2+ | 2009 11 19 | 691 | 0.6+ | 0.2+ |
| 2004 03 30 | 701 | 0.1− | 0.4− | 2004 04 25 | 703 | 0.4− | 0.5+ | 2009 11 19 | 691 | 1.0− | 0.3+ |
| 2004 03 30 | 701 | 0.4+ | 0.4+ | 2004 04 25 | 703 | 0.1+ | 0.5+ | 2009 11 27 | 691 | 0.8− | 0.7+ |
| 2004 04 21 | 704 | 0.1− | 0.1− | 2004 05 16 | 704 | 0.1− | 0.6+ | 2009 11 27 | 691 | 0.5+ | 0.4+ |
| 2004 04 21 | 704 | 1.0+ | 0.1+ | 2004 05 16 | 704 | 0.3+ | 1.3+ | 2009 11 27 | 691 | 0.8− | 0.2+ |
| 2004 04 21 | 704 | 0.3+ | 0.2− | 2004 05 16 | 704 | 0.0 | 0.1− | 2009 12 18 | G96 | 1.1+ | 0.1+ |
| 2004 04 24 | 691 | 0.1+ | 0.4+ | 2007 03 15 | 291 | 0.1+ | 0.0 | 2009 12 18 | G96 | 1.6+ | 0.4+ |
| 2004 04 24 | 691 | 0.2+ | 0.5+ | 2007 03 15 | 291 | 0.1+ | 0.1− | 2009 12 18 | G96 | 1.2+ | 0.1+ |
| 2004 04 24 | 691 | 0.1+ | 0.5+ | 2007 03 15 | 291 | 0.3− | 0.2− | 2009 12 18 | G96 | 1.2+ | 0.3+ |

### 2004 $JW_{31}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 347.24719 | | (2000.0) | | | |
| $n$ | 0.17658839 | $\omega$ | 109.34754 | | +0.02208215 | +0.99508469 |
| $a$ | 3.1465016 | $\Omega$ | 161.12107 | | −0.99212042 | +0.03372214 |
| $e$ | 0.3286654 | $i$ | 17.35801 | | −0.12332658 | −0.09310898 |
| $P$ | 5.58 | $H$ | 16.0 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 04 26 | 704 | 0.2− | 0.0 | 2004 05 18 | 704 | 0.7+ | 0.4− | 2009 03 15 | 691 | 0.5+ | 0.2+ |
| 2004 04 26 | 704 | 0.2+ | 0.1+ | 2004 05 18 | 704 | 1.1− | 0.7+ | 2009 03 15 | 691 | 1.7− | 0.0 |
| 2004 04 26 | 704 | 0.7− | 0.6− | 2004 05 18 | 704 | 0.6− | 1.4− | 2009 04 18 | G96 | 1.2+ | 0.0 |
| 2004 05 13 | 704 | 0.9+ | 0.3− | 2004 05 18 | 704 | 0.4− | 0.2+ | 2009 04 18 | G96 | 0.0 | 0.2+ |
| 2004 05 13 | 704 | 0.2− | 0.5+ | 2004 06 16 | 644 | 0.3− | 0.5+ | 2009 04 18 | G96 | 0.4+ | 0.1− |
| 2004 05 13 | 704 | 0.3+ | 0.4− | 2004 06 16 | 644 | 0.1+ | 0.5+ | 2009 04 18 | G96 | 0.2+ | 0.2+ |
| 2004 05 13 | 704 | 0.3+ | 0.2+ | 2004 06 16 | 644 | 0.1+ | 0.7+ | | | | |
| 2004 05 13 | 704 | 0.6+ | 0.2− | 2009 03 15 | 691 | 0.8+ | 0.1− | | | | |

### 2004 $KH_{16}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 53.38437 | | (2000.0) | | | |
| $n$ | 0.19292022 | $\omega$ | 65.47486 | | −0.73595995 | +0.67314372 |
| $a$ | 2.9663169 | $\Omega$ | 156.62150 | | −0.66822459 | −0.70504471 |
| $e$ | 0.1360852 | $i$ | 10.51168 | | −0.10880650 | −0.22313557 |
| $P$ | 5.11 | $H$ | 15.7 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 05 24 | 704 | 0.2− | 0.0 | 2004 06 19 | 691 | 0.2+ | 0.1− | 2009 04 17 | 691 | 0.1− | 0.1+ |
| 2004 05 24 | 704 | 0.7+ | 0.2+ | 2004 06 19 | 691 | 0.2+ | 0.3− | 2009 04 17 | 691 | 0.2+ | 0.1+ |
| 2004 05 24 | 704 | 0.2− | 0.4+ | 2004 06 19 | 691 | 0.2+ | 0.2− | 2009 04 17 | 691 | 0.0 | 0.2− |
| 2004 05 28 | 291 | 0.0 | 0.2+ | 2004 06 27 | 691 | 0.1+ | 0.0 | 2009 05 24 | 703 | 0.5+ | 0.0 |
| 2004 05 28 | 291 | 0.1− | 0.0 | 2004 06 27 | 691 | 0.2− | 0.2+ | 2009 05 24 | 703 | 0.1− | 0.0 |
| 2004 05 28 | 291 | 0.0 | 0.2+ | 2004 06 27 | 691 | 0.4− | 0.1+ | 2009 05 24 | 703 | 0.3− | 0.3− |
| 2004 06 17 | 644 | 0.3− | 0.1− | 2004 07 09 | 644 | 0.2+ | 0.2− | 2009 05 24 | 703 | 0.4− | 0.1− |
| 2004 06 17 | 644 | 0.2− | 0.1+ | 2004 07 09 | 644 | 0.1+ | 0.2+ | | | | |
| 2004 06 17 | 644 | 0.1+ | 0.1+ | 2004 07 09 | 644 | 0.1+ | 0.3+ | | | | |

### 2004 $LO_{13}$ = 2009 $SS_{20}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 121.67194 | | (2000.0) | | | |
| $n$ | 0.23657175 | $\omega$ | 9.17009 | | −0.24662605 | +0.95091396 |
| $a$ | 2.5891714 | $\Omega$ | 246.73295 | | −0.90154193 | −0.29588035 |
| $e$ | 0.1321741 | $i$ | 11.73964 | | −0.35552460 | +0.09065023 |
| $P$ | 4.17 | $H$ | 15.4 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 02 18 | 566 | 0.1+ | 0.8− | 2005 09 30 | 703 | 0.8− | 0.5+ | 2009 09 22 | 703 | 0.2− | 0.3− |
| 1999 02 18 | 566 | 0.7− | 0.2+ | 2005 09 30 | 703 | 0.0 | 0.8− | 2009 09 22 | 703 | (0.1− | 1.8−) |
| 1999 02 18 | 566 | 0.1− | 0.5− | 2005 09 30 | 703 | 0.9− | 0.5− | 2009 09 22 | 703 | 0.9− | 1.0− |
| 1999 03 22 | 645 | 0.1+ | 0.0 | 2005 10 29 | 703 | 0.9− | 0.2− | 2009 09 22 | 703 | 0.3− | 0.9− |
| 1999 03 22 | 645 | 0.1+ | 0.1+ | 2005 10 29 | 703 | 0.9− | 0.1− | 2009 09 22 | 703 | 1.0+ | 0.9− |
| 2003 01 16 | 644 | 0.0 | 0.2+ | 2005 10 29 | 703 | 0.4− | 0.5+ | 2009 09 22 | 703 | 0.0 | 0.8− |
| 2003 01 16 | 644 | 0.2− | 0.3+ | 2005 10 29 | 703 | 0.4− | 0.2− | 2009 09 22 | 703 | 0.8+ | 0.3− |
| 2003 01 16 | 644 | 0.4− | 0.7+ | 2005 11 22 | 291 | 0.0 | 0.2+ | 2009 09 22 | 703 | 0.7+ | 0.5− |
| 2003 01 26 | 644 | 0.0 | 0.2+ | 2005 11 22 | 291 | 0.5+ | 0.2+ | 2009 09 22 | 106 | 0.4− | 0.4+ |
| 2003 01 26 | 644 | 0.3− | 0.1− | 2005 11 22 | 291 | 0.7+ | 0.5+ | 2009 09 22 | 106 | 0.3− | 0.3+ |
| 2004 06 11 | 704 | 0.6− | 0.3− | 2005 12 08 | 291 | 0.4− | 0.3+ | 2009 09 22 | 106 | 0.1− | 0.5− |
| 2004 06 11 | 704 | 0.2+ | 0.1− | 2005 12 08 | 291 | 0.4− | 0.3+ | 2009 09 22 | 106 | 0.2− | 0.2+ |
| 2004 06 11 | 704 | 0.2− | 0.3− | 2005 12 08 | 291 | 0.3− | 0.4+ | 2009 09 26 | 704 | 0.3+ | 1.0+ |
| 2004 06 11 | 704 | 0.5− | 0.2− | 2008 06 09 | 703 | 0.5− | 0.4− | 2009 09 26 | 704 | 1.0+ | 1.4+ |
| 2004 06 11 | 704 | 0.2− | 0.1− | 2008 06 09 | 703 | 0.4+ | 0.7− | 2009 09 26 | 704 | 0.8+ | 0.6+ |
| 2004 06 15 | 704 | 0.4+ | 0.5+ | 2008 06 09 | 703 | 1.0− | 0.5− | 2009 09 26 | 704 | 0.6+ | 0.6+ |
| 2004 06 15 | 704 | 0.4+ | 0.8+ | 2008 06 09 | 703 | 0.4+ | 0.6+ | 2009 10 20 | 703 | 0.0 | 0.3+ |
| 2004 06 15 | 704 | (0.1− | 1.6+) | 2008 06 24 | E12 | 0.3+ | 0.2+ | 2009 10 20 | 703 | 0.3+ | 0.5+ |
| 2004 06 18 | 704 | 0.4+ | 0.7+ | 2008 06 24 | E12 | 1.0− | 0.8+ | 2009 10 20 | 703 | 1.0− | 0.6− |
| 2004 06 18 | 704 | 0.0 | 0.8+ | 2008 06 24 | E12 | 0.7+ | 0.4+ | 2009 12 20 | G96 | 0.3+ | 0.1+ |
| 2004 06 18 | 704 | 0.1− | 1.0+ | 2009 09 21 | 106 | 0.4− | 0.1− | 2009 12 20 | G96 | 0.4− | 0.0 |
| 2004 06 18 | 704 | 0.2− | 0.7+ | 2009 09 22 | 106 | 0.3+ | 0.8+ | 2009 12 20 | G96 | 0.2+ | 0.1+ |
| 2004 06 18 | 704 | 0.1− | 0.7+ | 2009 09 22 | 106 | 0.1− | 0.3+ | 2009 12 20 | G96 | 0.3+ | 0.1+ |
| 2005 09 30 | 703 | 1.0− | 1.1− | 2009 09 22 | 106 | 0.9+ | 0.2− | | | | |

### 2004 $NC_6$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 72.96880 | | (2000.0) | | | |
| $n$ | 0.21457692 | $\omega$ | 9.44442 | | +0.44066587 | +0.86982997 |
| $a$ | 2.7632109 | $\Omega$ | 286.97543 | | −0.83799560 | +0.31001510 |
| $e$ | 0.2262726 | $i$ | 13.41116 | | −0.32183375 | +0.38377919 |
| $P$ | 4.59 | $H$ | 16.0 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 06 18 | 704 | 1.2− | 0.3− | 2004 07 14 | 704 | 0.3− | 0.1+ | 2004 08 09 | 704 | 0.4+ | 0.7− |
| 2004 06 18 | 704 | 1.0+ | 0.1+ | 2004 07 14 | 704 | 1.1+ | 0.0 | 2004 08 09 | 704 | 0.2+ | 0.4+ |
| 2004 06 18 | 704 | 0.2+ | 0.2+ | 2004 07 14 | 704 | 0.6− | 0.1− | 2009 09 18 | 703 | 1.2+ | 0.1− |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 06 18 | 704 | 0.5− | 0.0 | 2004 07 16 | 704 | 0.2+ | 0.4+ | 2009 09 18 | 703 | 0.7+ | 0.1− |
| 2004 07 09 | 699 | 0.0 | 1.0+ | 2004 07 16 | 704 | 1.1− | 1.1− | 2009 09 18 | 703 | 1.1+ | 0.8+ |
| 2004 07 09 | 699 | 0.2− | 0.2+ | 2004 07 16 | 704 | 0.4− | 0.2+ | 2009 09 18 | 703 | 0.0 | 0.3+ |
| 2004 07 09 | 699 | 0.2+ | 1.2− | 2004 07 16 | 704 | 0.3− | 0.2− | 2009 09 25 | 703 | 0.1+ | 0.4+ |
| 2004 07 09 | 699 | 0.4− | 0.2+ | 2004 07 16 | 704 | 0.3+ | 0.4− | 2009 09 25 | 703 | 1.5− | 0.2− |
| 2004 07 11 | 704 | 0.2− | 0.1+ | 2004 07 18 | 704 | 0.2+ | 0.2+ | 2009 09 25 | 703 | 1.1− | 0.4− |
| 2004 07 11 | 704 | 0.5− | 0.3− | 2004 07 18 | 704 | 0.2+ | 0.2− | 2009 09 25 | 703 | (1.7− | 1.4+) |
| 2004 07 11 | 704 | 0.3− | 0.0 | 2004 07 18 | 704 | 0.6+ | 0.2+ | 2009 10 14 | G96 | 0.1− | 0.1+ |
| 2004 07 11 | 704 | 0.3+ | 0.1− | 2004 07 18 | 704 | (0.3+ | 2.2−) | 2009 10 14 | G96 | 0.1+ | 0.0 |
| 2004 07 11 | 704 | 0.0 | 0.4− | 2004 08 09 | 704 | 0.2− | 0.2+ | 2009 10 14 | G96 | 0.3− | 0.1+ |
| 2004 07 14 | 704 | 0.5+ | 0.7+ | 2004 08 09 | 704 | 0.0 | 0.1+ | 2009 10 14 | G96 | 0.2− | 0.6− |
| 2004 07 14 | 704 | 1.2+ | 1.2+ | 2004 08 09 | 704 | 0.4− | 0.5− | | | | |

### 2004 PO$_3$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 3.41955 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18230741 | $\omega$ | 342.06500 | | +0.65704837 | | +0.74891256 |
| $a$ | 3.0803484 | $\Omega$ | 328.84143 | | −0.66965274 | | +0.52737596 |
| $e$ | 0.1630750 | $i$ | 9.58169 | | −0.34619742 | | +0.40125376 |
| $P$ | 5.41 | $H$ | 15.3 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 06 13 | 644 | 0.1+ | 0.3+ | 2004 08 03 | E12 | 0.3+ | 0.3− | 2004 08 22 | E12 | 0.1− | 0.2+ |
| 2004 06 13 | 644 | 0.2+ | 0.1+ | 2004 08 08 | 704 | 0.8− | 0.2+ | 2004 08 22 | E12 | 0.2+ | 0.2+ |
| 2004 06 13 | 644 | 0.2+ | 0.8+ | 2004 08 08 | 704 | 0.5− | 0.6+ | 2004 08 23 | 699 | 0.1− | 0.3+ |
| 2004 07 11 | 704 | 0.6+ | 0.6− | 2004 08 08 | 704 | 0.3− | 0.1+ | 2004 08 23 | 699 | 1.1− | 0.7+ |
| 2004 07 11 | 704 | 0.7+ | 1.1− | 2004 08 12 | 704 | 0.1+ | 0.4+ | 2004 08 23 | 699 | 0.5− | 0.7+ |
| 2004 07 11 | 704 | 0.2− | 0.0 | 2004 08 12 | 704 | 0.2+ | 0.0 | 2004 08 23 | 699 | 0.6− | 0.4+ |
| 2004 07 11 | 704 | 0.2+ | 0.2− | 2004 08 12 | 704 | (0.5− | 1.5−) | 2007 01 25 | 691 | 0.0 | 0.2+ |
| 2004 07 11 | 704 | 0.0 | 0.2− | 2004 08 12 | 704 | 0.2+ | 0.9− | 2007 01 25 | 691 | 0.3− | 0.4+ |
| 2004 07 11 | 699 | 0.3− | 0.5− | 2004 08 12 | 704 | 0.5+ | 1.0− | 2007 01 25 | 691 | 0.5+ | 0.1− |
| 2004 07 11 | 699 | 0.5+ | 0.4+ | 2004 08 13 | 807 | 0.1+ | 0.4+ | 2008 03 01 | 691 | 0.1+ | 0.2+ |
| 2004 07 11 | 699 | 0.2− | 0.7− | 2004 08 13 | 807 | 0.4+ | 0.4+ | 2008 03 01 | 691 | 0.1− | 0.2+ |
| 2004 07 11 | 699 | 0.7− | 0.2− | 2004 08 22 | E12 | 0.1− | 0.2− | 2008 03 01 | 691 | 0.2− | 0.1− |
| 2004 07 16 | 807 | 0.1− | 0.1+ | 2004 08 22 | E12 | 0.4− | 0.1− | 2008 03 11 | G96 | 0.1+ | 0.0 |
| 2004 07 16 | 807 | 0.1− | 0.2+ | 2004 08 22 | E12 | 0.2− | 0.9+ | 2008 03 11 | G96 | 0.6+ | 0.2+ |
| 2004 08 03 | E12 | 0.2− | 0.8+ | 2004 08 22 | E12 | 0.0 | 0.1+ | 2008 03 11 | G96 | 0.5+ | 0.2− |
| 2004 08 03 | E12 | 0.0 | 0.3+ | 2004 08 22 | E12 | 0.3+ | 0.1− | 2008 03 11 | G96 | 0.3+ | 0.1− |
| 2004 08 03 | E12 | 0.7+ | 0.0 | 2004 08 22 | E12 | (1.6+ | 0.9−) | | | | |

### 2004 PA$_{20}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 343.67507 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18086268 | $\omega$ | 182.63648 | | +0.95052267 | | +0.30867091 |
| $a$ | 3.0967305 | $\Omega$ | 159.27958 | | −0.28317696 | | +0.90731358 |
| $e$ | 0.1823089 | $i$ | 5.68630 | | −0.12773981 | | +0.28548963 |
| $P$ | 5.45 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 08 08 | 246 | 0.4+ | 0.6+ | 2004 08 15 | 246 | 0.5+ | 0.3− | 2004 09 02 | 246 | 0.3− | 0.4− |
| 2004 08 08 | 246 | 0.1+ | 0.1+ | 2004 08 15 | 246 | 0.1+ | 0.8− | 2004 09 07 | 246 | 0.6− | 1.1+ |
| 2004 08 08 | 246 | 0.3− | 0.6+ | 2004 08 15 | 246 | 0.1− | 0.4− | 2004 09 07 | 246 | 1.4− | 0.6− |
| 2004 08 08 | 246 | 0.4+ | 0.1+ | 2004 08 18 | 246 | 0.5+ | 0.1+ | 2004 09 07 | 246 | 0.2− | 0.9− |
| 2004 08 08 | 246 | 0.3+ | 0.1− | 2004 08 18 | 246 | 0.1− | 0.0 | 2004 09 07 | 246 | 0.7− | 0.2− |
| 2004 08 08 | 246 | 0.6+ | 0.8− | 2004 08 18 | 246 | 0.0 | 0.0 | 2008 04 01 | G96 | (0.3+ | 2.7+) |
| 2004 08 09 | 246 | 0.8+ | 1.1+ | 2004 08 18 | 246 | 0.0 | 0.3+ | 2008 04 01 | G96 | 0.6+ | 0.2− |
| 2004 08 09 | 246 | 0.4− | 0.7+ | 2004 08 18 | 246 | 0.3+ | 0.1+ | 2008 04 01 | G96 | 0.9− | 0.3+ |
| 2004 08 09 | 246 | 0.0 | 0.5+ | 2004 08 18 | 246 | 0.1+ | 0.0 | 2008 04 01 | G96 | 0.2− | 0.3− |
| 2004 08 09 | 246 | 0.0 | 0.0 | 2004 08 23 | 246 | 0.5+ | 0.3− | 2008 04 08 | G96 | 0.3− | 0.1+ |
| 2004 08 09 | 246 | 0.0 | 0.4+ | 2004 08 23 | 246 | 0.8+ | 0.0 | 2008 04 08 | G96 | 0.3− | 0.4− |
| 2004 08 11 | 704 | 0.6+ | 0.1+ | 2004 08 23 | 246 | 0.3− | 0.1+ | 2008 04 08 | G96 | 0.0 | 0.2+ |
| 2004 08 11 | 704 | 0.2+ | 0.4+ | 2004 08 23 | 246 | 0.2− | 0.5− | 2008 04 08 | G96 | 0.0 | 0.0 |
| 2004 08 11 | 704 | 0.2− | 1.4+ | 2004 08 23 | 246 | 0.1+ | 0.8− | 2008 04 27 | G96 | 1.2+ | 0.3− |
| 2004 08 15 | 246 | 0.0 | 0.3+ | 2004 08 23 | 246 | 0.4+ | 0.4+ | 2008 04 27 | G96 | 0.1− | 0.1− |
| 2004 08 15 | 246 | 0.4− | 0.6− | 2004 09 02 | 246 | 0.2− | 0.2− | 2008 04 27 | G96 | 0.2− | 0.1− |
| 2004 08 15 | 246 | 0.1+ | 0.5− | 2004 09 02 | 246 | 0.5− | 0.5− | 2008 04 27 | G96 | 0.0 | 0.5+ |
| 2004 08 15 | 246 | 1.1− | 0.3− | 2004 09 02 | 246 | 0.3− | 0.4− | | | | |

### 2004 PZ$_{29}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 21.12977 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.38131392 | $\omega$ | 7.27095 | | +0.96351914 | | +0.23379516 |
| $a$ | 1.8834219 | $\Omega$ | 337.84723 | | −0.25964781 | | +0.69848869 |
| $e$ | 0.0562557 | $i$ | 20.21091 | | −0.06491440 | | +0.67635300 |
| $P$ | 2.58 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 07 27 | 704 | 0.2− | 0.1+ | 2004 09 08 | 704 | 0.3+ | 0.1+ | 2004 10 07 | 704 | 1.1− | 0.3− |
| 2004 07 27 | 704 | 0.2− | 0.6− | 2004 09 08 | 704 | 0.1− | 0.0 | 2004 10 07 | 704 | 0.2− | 0.6− |
| 2004 07 27 | 704 | 0.5+ | 0.8+ | 2004 09 10 | 704 | 0.1+ | 0.3− | 2004 10 08 | 699 | 0.4− | 1.0+ |
| 2004 08 07 | 644 | 0.1− | 0.0 | 2004 09 10 | 704 | 0.3+ | 0.0 | 2004 10 08 | 699 | 0.0 | 0.9+ |
| 2004 08 07 | 644 | 0.1− | 0.1− | 2004 09 10 | 704 | 0.2− | 0.2+ | 2004 10 08 | 699 | 0.4+ | 0.1+ |
| 2004 08 07 | 644 | 0.2+ | 0.2− | 2004 09 10 | 704 | 0.3− | 0.1− | 2004 10 08 | 699 | 1.0+ | 0.3− |
| 2004 08 10 | 704 | 0.2+ | 0.1− | 2004 09 10 | 704 | 0.2− | 0.4+ | 2004 10 10 | 704 | (2.2− | 1.1−) |
| 2004 08 10 | 704 | 0.2− | 0.3+ | 2004 09 13 | 704 | 0.2− | 0.5+ | 2004 10 10 | 704 | 0.7− | 0.7− |
| 2004 08 10 | 704 | 0.2− | 0.4+ | 2004 09 13 | 704 | 0.0 | 0.3+ | 2004 10 10 | 704 | 1.0− | 0.6+ |
| 2004 08 10 | 704 | 0.1− | 0.1− | 2004 09 13 | 704 | 0.4+ | 0.0 | 2004 10 15 | 704 | 0.0 | 0.2− |
| 2004 08 12 | 704 | 0.5− | 0.1+ | 2004 09 13 | 704 | 0.2+ | 0.2+ | 2004 10 15 | 704 | 0.4− | 0.5+ |
| 2004 08 12 | 704 | 0.7− | 0.2+ | 2004 09 13 | 691 | 0.1+ | 0.2− | 2004 10 15 | 704 | 0.1− | 0.0 |
| 2004 08 12 | 704 | 0.1− | 0.3+ | 2004 09 13 | 704 | 0.6+ | 0.4+ | 2004 10 15 | 704 | 0.4− | 0.6+ |
| 2004 08 12 | 704 | 0.3− | 0.5− | 2004 09 13 | 691 | 0.3+ | 0.1− | 2009 08 11 | E12 | 0.5+ | 0.2− |
| 2004 08 12 | 704 | 0.4− | 0.1+ | 2004 09 13 | 691 | 0.0 | 0.0 | 2009 08 11 | E12 | 0.2− | 0.2− |
| 2004 09 05 | 246 | 0.1+ | 0.1− | 2004 09 18 | 704 | 0.7− | 1.0+ | 2009 08 11 | E12 | 0.0 | 0.1+ |
| 2004 09 05 | 246 | 0.4+ | 0.0 | 2004 09 18 | 704 | 0.4+ | 0.2− | 2009 08 11 | E12 | 0.0 | 0.1− |
| 2004 09 05 | 246 | 0.3− | 0.3− | 2004 09 18 | 704 | 1.0+ | 0.4+ | 2009 08 11 | E12 | 0.6− | 0.1+ |
| 2004 09 05 | 246 | 0.3+ | 0.6− | 2004 09 18 | 704 | 0.6+ | 0.1− | 2009 10 22 | G96 | 0.2− | 0.5+ |
| 2004 09 05 | 246 | 0.0 | 0.1− | 2004 10 03 | 683 | 0.2− | 0.7− | 2009 10 22 | G96 | 0.1+ | 0.3− |
| 2004 09 05 | 246 | 0.0 | 0.1− | 2004 10 03 | 683 | 1.0− | 1.7− | 2009 10 22 | G96 | 0.5+ | 0.2+ |
| 2004 09 08 | 704 | 0.4+ | 0.4+ | 2004 10 03 | 683 | 0.1+ | 0.8− | 2009 10 22 | G96 | 0.1− | 0.3+ |
| 2004 09 08 | 704 | 0.1+ | 0.2+ | 2004 10 07 | 704 | (2.1− | 0.0 ) | | | | |
| 2004 09 08 | 704 | 0.1− | 0.0 | 2004 10 07 | 704 | 0.4+ | 0.2+ | | | | |

### 2004 PJ$_{38}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 113.28714 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23150731 | $\omega$ | 170.89884 | | +0.61305528 | | +0.78628489 |
| $a$ | 2.6267954 | $\Omega$ | 136.86212 | | −0.73174336 | | +0.60183363 |
| $e$ | 0.2439246 | $i$ | 6.46066 | | −0.29785044 | | +0.13982970 |
| $P$ | 4.26 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 08 09 | 704 | 0.4− | 0.8+ | 2004 09 06 | 644 | 0.1− | 0.0 | 2004 09 17 | 704 | 0.1− | 0.1− |
| 2004 08 09 | 704 | 0.1− | 0.2+ | 2004 09 06 | 644 | 0.1+ | 0.2− | 2004 09 17 | 704 | 0.0 | 0.0 |
| 2004 08 09 | 704 | 0.1− | 0.1− | 2004 09 07 | 704 | 0.5+ | 0.8+ | 2004 09 17 | 704 | 0.8+ | 0.5− |
| 2004 08 09 | 699 | 0.4− | 0.0 | 2004 09 07 | 704 | 1.2+ | 0.0 | 2004 09 17 | 704 | 0.5+ | 0.4+ |
| 2004 08 09 | 699 | 1.1− | 1.3− | 2004 09 07 | 704 | 0.3+ | 0.8− | 2004 09 17 | 704 | 0.1− | 0.1+ |
| 2004 08 09 | 699 | 0.2− | 0.3+ | 2004 09 07 | 704 | 1.1+ | 0.3+ | 2004 09 21 | 704 | 0.5− | 0.2− |
| 2004 08 09 | 699 | 0.2− | 0.3− | 2004 09 07 | 704 | 0.7+ | 0.3− | 2004 09 21 | 704 | 0.6− | 0.1+ |
| 2004 08 10 | 704 | 1.2+ | 0.2+ | 2004 09 09 | 704 | 0.2− | 0.3+ | 2004 09 21 | 704 | 0.1− | 0.4− |
| 2004 08 10 | 704 | 0.3− | 0.6+ | 2004 09 09 | 704 | 0.3+ | 0.1+ | 2004 09 21 | 704 | 0.8− | 0.1+ |
| 2004 08 10 | 704 | 0.8+ | 0.2− | 2004 09 09 | 704 | 0.1+ | 0.2+ | 2004 09 21 | 704 | 0.4− | 0.3− |
| 2004 08 10 | 704 | 0.5− | 1.0+ | 2004 09 09 | 704 | 0.1− | 0.0 | 2007 01 28 | G96 | 0.5+ | 0.3+ |
| 2004 08 10 | 704 | 0.5+ | 0.5− | 2004 09 09 | 704 | 0.4− | 0.4+ | 2007 01 28 | G96 | 0.4+ | 0.0 |
| 2004 08 12 | 704 | 0.1+ | 0.0 | 2004 09 12 | 704 | 0.5− | 0.3+ | 2007 01 28 | G96 | 0.1+ | 0.5− |
| 2004 08 12 | 704 | 0.4− | 0.2+ | 2004 09 12 | 704 | 0.1− | 0.2+ | 2007 01 28 | G96 | 0.5+ | 0.1− |
| 2004 08 12 | 704 | 0.7− | 0.5+ | 2004 09 12 | 704 | 0.5− | 0.0 | 2007 02 27 | 691 | 0.2− | 0.3+ |
| 2004 08 12 | 704 | 0.1− | 1.0− | 2004 09 12 | 704 | 0.3− | 0.1− | 2007 02 27 | 691 | 0.1+ | 0.2+ |
| 2004 09 06 | 644 | 0.1+ | 0.1− | 2004 09 12 | 704 | 0.1+ | 0.5+ | 2007 02 27 | 691 | 0.2− | 0.0 |

**2004 PZ$_{42}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 50.06147 | | (2000.0) | | | |
| $n$ | 0.21953214 | $\omega$ | 84.04534 | | +0.92133080 | −0.37254015 |
| $a$ | 2.7214727 | $\Omega$ | 297.78209 | | +0.28803658 | +0.84616784 |
| $e$ | 0.3118597 | $i$ | 7.21992 | | +0.26112158 | +0.38106931 |
| $P$ | 4.49 | $H$ | 16.6 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 08 07 | 644 | 0.0 | 0.0 | 2004 09 10 | 704 | 0.1+ | 0.4− | 2004 09 22 | 704 | 0.0 | 0.0 |
| 2004 08 07 | 644 | 0.2+ | 0.1+ | 2004 09 13 | 704 | 0.3− | 0.4− | 2004 09 22 | 704 | 0.4− | 0.2+ |
| 2004 08 07 | 644 | 0.4+ | 0.1− | 2004 09 13 | 704 | 0.1− | 0.1+ | 2004 09 24 | 704 | 0.1+ | 0.4+ |
| 2004 08 12 | 704 | 0.2+ | 0.5− | 2004 09 13 | 704 | 0.5− | 0.2− | 2004 09 24 | 704 | 0.6− | 0.4+ |
| 2004 08 12 | 704 | 0.1+ | 0.3+ | 2004 09 13 | 704 | 0.2− | 0.3− | 2004 09 24 | 704 | 0.3+ | 0.4+ |
| 2004 08 12 | 704 | 0.3− | 0.3+ | 2004 09 13 | 704 | 0.0 | 0.5− | 2004 09 24 | 704 | 0.8+ | 0.4− |
| 2004 08 12 | 704 | 0.7+ | 0.0 | 2004 09 14 | 699 | 0.4− | 0.5+ | 2004 09 24 | 704 | 1.1− | 0.7+ |
| 2004 08 12 | 704 | 0.2+ | 0.5+ | 2004 09 14 | 699 | 0.7+ | 0.3+ | 2004 10 05 | 644 | 0.0 | 0.3− |
| 2004 08 12 | 644 | 0.2− | 0.1+ | 2004 09 14 | 699 | 0.0 | 0.4+ | 2004 10 05 | 644 | 0.0 | 0.1− |
| 2004 08 12 | 644 | 0.0 | 0.1+ | 2004 09 14 | 699 | 0.1+ | 0.1+ | 2004 10 05 | 644 | 0.1− | 0.2− |
| 2004 08 12 | 644 | 0.2+ | 0.0 | 2004 09 16 | 699 | 1.1+ | 0.7− | 2004 10 07 | 704 | 0.3− | 0.7− |
| 2004 08 17 | 704 | 0.3− | 0.2− | 2004 09 16 | 699 | 0.8+ | 0.0 | 2004 10 07 | 704 | 0.6− | 0.2+ |
| 2004 08 17 | 704 | 0.1+ | 0.1+ | 2004 09 16 | 699 | 0.1− | 0.1− | 2004 10 07 | 704 | 0.3+ | 0.4+ |
| 2004 08 17 | 704 | 0.1− | 0.3+ | 2004 09 16 | 699 | 0.2+ | 0.8+ | 2004 10 07 | 704 | 0.7− | 0.5− |
| 2004 08 17 | 704 | 1.0− | 0.0 | 2004 09 18 | 704 | 0.7+ | 0.4+ | 2006 02 02 | 691 | 0.2− | 0.2+ |
| 2004 08 25 | 691 | 0.1− | 0.3− | 2004 09 18 | 704 | 0.5+ | 0.1− | 2006 02 02 | 691 | 0.0 | 0.0 |
| 2004 08 25 | 691 | 0.0 | 0.2− | 2004 09 18 | 704 | 0.3+ | 0.6+ | 2006 02 02 | 691 | 0.3+ | 0.0 |
| 2004 08 25 | 691 | 0.0 | 0.3− | 2004 09 18 | 704 | 0.1− | 0.6+ | 2009 12 18 | G96 | 0.2+ | 0.3− |
| 2004 09 10 | 704 | 0.0 | 0.0 | 2004 09 18 | 704 | 0.3+ | 0.6+ | 2009 12 18 | G96 | 0.2− | 0.2− |
| 2004 09 10 | 704 | 0.1− | 0.3− | 2004 09 22 | 704 | 0.5− | 0.4− | 2009 12 18 | G96 | 0.0 | 0.2− |
| 2004 09 10 | 704 | 0.1+ | 0.3+ | 2004 09 22 | 704 | 0.3− | 0.4+ | 2009 12 18 | G96 | 0.2− | 0.0 |
| 2004 09 10 | 704 | 0.1+ | 0.4+ | 2004 09 22 | 704 | 0.3− | 0.2− | | | | |

**2004 PX$_{43}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 323.21940 | | (2000.0) | | | |
| $n$ | 0.19321752 | $\omega$ | 266.28475 | | +0.70845840 | −0.69335827 |
| $a$ | 2.9632733 | $\Omega$ | 137.54500 | | +0.69983140 | +0.66605780 |
| $e$ | 0.1089724 | $i$ | 11.24975 | | +0.09122888 | +0.27499330 |
| $P$ | 5.10 | $H$ | 14.9 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 08 06 | 644 | 0.0 | 0.0 | 2004 09 09 | 704 | 0.8− | 0.2+ | 2009 06 23 | G96 | 0.8+ | 0.5− |
| 2004 08 06 | 644 | 0.4+ | 0.5+ | 2004 09 09 | 704 | 0.1+ | 0.1+ | 2009 06 23 | G96 | 0.5+ | 0.1− |
| 2004 08 06 | 644 | 0.4+ | 0.7+ | 2004 09 09 | 704 | 0.2+ | 0.0 | 2009 06 23 | G96 | 0.4− | 0.2− |
| 2004 08 11 | 704 | 0.3+ | 0.3− | 2004 09 09 | 704 | 0.9− | 0.2+ | 2009 08 16 | J75 | 0.2− | 0.5+ |
| 2004 08 11 | 704 | 0.3− | 0.3+ | 2004 09 09 | 704 | 0.5− | 0.5− | 2009 08 16 | J75 | 0.0 | 0.2− |
| 2004 08 11 | 704 | 0.4+ | 0.3+ | 2004 09 17 | 704 | 0.5+ | 0.7− | 2009 08 16 | J75 | 0.4+ | 0.3+ |
| 2004 08 15 | 807 | 0.0 | 0.6− | 2004 09 17 | 704 | 0.6+ | 0.1− | 2009 08 16 | J75 | 0.2+ | 0.5− |
| 2004 08 15 | 807 | 0.1− | 0.3− | 2004 09 17 | 704 | 0.1+ | 0.6− | 2009 08 16 | J75 | 0.7+ | 0.2+ |
| 2004 09 07 | 704 | 0.4− | 0.4+ | 2004 09 17 | 704 | 0.3− | 1.0− | 2009 08 16 | J75 | 0.5− | 0.3+ |
| 2004 09 07 | 704 | 0.2− | 0.4+ | 2004 09 21 | 704 | 0.3+ | 1.2+ | 2009 08 27 | 703 | 0.5+ | 0.2− |
| 2004 09 07 | 704 | 0.6− | 0.4− | 2004 09 21 | 704 | 1.0+ | 0.2− | 2009 08 27 | 703 | 0.3+ | 0.1+ |
| 2004 09 07 | 704 | 0.4− | 0.1+ | 2004 09 21 | 704 | 0.6+ | 0.1+ | 2009 08 27 | 703 | 1.3− | 0.6− |
| 2004 09 07 | 704 | 0.4− | 0.6+ | 2009 06 23 | G96 | 0.4− | 0.6+ | 2009 08 27 | 703 | 0.3− | 0.1− |

**2004 PC$_{89}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 71.25610 | | (2000.0) | | | |
| $n$ | 0.22068509 | $\omega$ | 137.48754 | | +0.83932423 | +0.54267994 |
| $a$ | 2.7119857 | $\Omega$ | 189.80008 | | −0.53559764 | +0.81534633 |
| $e$ | 0.1798955 | $i$ | 10.88599 | | −0.09311287 | +0.20176431 |
| $P$ | 4.47 | $H$ | 15.9 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 08 08 | 599 | 0.4− | 0.1− | 2004 09 08 | 704 | 0.1− | 0.5+ | 2004 10 04 | 644 | 0.2− | 0.0 |
| 2004 08 08 | 599 | 0.2− | 0.1− | 2004 09 08 | 704 | 0.8+ | 0.7+ | 2009 10 18 | J75 | 0.6+ | 1.0+ |
| 2004 08 08 | 599 | 0.3− | 0.3− | 2004 09 10 | 704 | 0.1+ | 0.3− | 2009 10 18 | J75 | 0.7+ | 0.5− |
| 2004 08 08 | 599 | 0.3+ | 0.1− | 2004 09 10 | 704 | 0.4+ | 0.3− | 2009 10 18 | J75 | 0.7+ | 0.6+ |
| 2004 08 13 | 644 | 0.2− | 0.1− | 2004 09 10 | 704 | 0.4+ | 0.1+ | 2009 11 21 | 703 | 1.1− | 0.3− |
| 2004 08 13 | 644 | 0.1− | 0.1+ | 2004 09 10 | 704 | 0.2+ | 0.2− | 2009 11 21 | 703 | 1.6− | 0.4− |
| 2004 08 13 | 644 | 0.2− | 0.0 | 2004 10 04 | 644 | 0.2− | 0.1+ | 2009 11 21 | 703 | 0.1+ | 0.9− |
| 2004 09 08 | 704 | 0.1+ | 0.3+ | 2004 10 04 | 644 | 0.4− | 0.3− | 2009 11 21 | 703 | 0.6+ | 0.5+ |

**2004 QH$_{12}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 139.35744 | | (2000.0) | | | |
| $n$ | 0.24385982 | $\omega$ | 193.12034 | | +0.60952459 | +0.75737991 |
| $a$ | 2.5373237 | $\Omega$ | 114.94135 | | −0.70203441 | +0.65291397 |
| $e$ | 0.1798446 | $i$ | 14.96931 | | −0.36827635 | +0.00888899 |
| $P$ | 4.04 | $H$ | 16.2 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 08 21 | E12 | 0.2− | 0.5− | 2004 09 15 | E12 | 0.3− | 0.3− | 2007 04 25 | G96 | 0.2+ | 1.1− |
| 2004 08 21 | E12 | 0.0 | 0.1− | 2004 09 15 | E12 | 0.2+ | 0.5+ | 2008 08 05 | E12 | 0.6− | 0.4+ |
| 2004 08 21 | E12 | 0.2+ | 0.0 | 2004 09 17 | 699 | 0.8+ | 0.2− | 2008 08 05 | E12 | 0.1− | 0.2+ |
| 2004 08 21 | E12 | 0.2− | 0.3+ | 2004 09 17 | 699 | 0.9− | 0.7+ | 2008 08 05 | E12 | 0.6− | 0.5− |
| 2004 08 23 | 699 | 0.6+ | 0.1+ | 2004 09 17 | 699 | 1.0− | 1.0+ | 2008 08 05 | E12 | 0.0 | 0.4+ |
| 2004 08 23 | 699 | 0.4− | 0.1+ | 2004 09 17 | 699 | 0.5− | 1.1− | 2008 08 23 | E12 | 0.2+ | 0.1− |
| 2004 08 23 | 699 | (0.9− | 2.3+) | 2007 03 16 | 703 | 1.0− | 0.9+ | 2008 08 23 | E12 | 0.2+ | 0.4− |
| 2004 08 23 | 699 | 0.9+ | 0.0 | 2007 03 16 | 703 | 0.1− | 1.3+ | 2008 08 23 | E12 | 0.1+ | 0.2+ |
| 2004 09 04 | 644 | 0.2+ | 0.1− | 2007 03 16 | 703 | 0.3+ | 0.3+ | 2008 08 23 | E12 | 0.3− | 0.1− |
| 2004 09 04 | 644 | 0.1− | 0.1− | 2007 03 16 | 703 | 0.3− | 0.0 | 2008 09 20 | E12 | 0.0 | 0.7+ |
| 2004 09 04 | 644 | 0.4+ | 0.1+ | 2007 04 25 | G96 | 0.2+ | 0.6− | 2008 09 20 | E12 | 0.5+ | 0.6+ |
| 2004 09 15 | E12 | 0.1+ | 0.1− | 2007 04 25 | G96 | 0.4+ | 0.7− | 2008 09 20 | E12 | 0.1− | 0.4− |
| 2004 09 15 | E12 | 0.2+ | 1.2− | 2007 04 25 | G96 | 0.5+ | 0.1− | 2008 09 20 | E12 | 0.4+ | 0.2+ |

**2004 QZ$_{28}$ = 2005 WX$_{96}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 342.10366 | | (2000.0) | | | |
| $n$ | 0.18055357 | $\omega$ | 263.77192 | | +0.96484415 | +0.20039200 |
| $a$ | 3.1002639 | $\Omega$ | 84.57535 | | −0.11649774 | +0.90608235 |
| $e$ | 0.1586583 | $i$ | 9.83552 | | −0.23559297 | +0.37263631 |
| $P$ | 5.46 | $H$ | 15.6 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 08 21 | E12 | 0.3+ | 0.4− | 2004 09 15 | E12 | 1.3+ | 0.1+ | 2005 11 30 | 691 | 0.0 | 0.1+ |
| 2004 08 21 | E12 | 0.3− | 0.3− | 2004 09 15 | E12 | 0.9+ | 0.2+ | 2005 11 30 | 691 | 0.0 | 0.6− |
| 2004 08 21 | E12 | 0.4− | 0.9+ | 2004 09 15 | E12 | 0.1− | 0.0 | 2006 01 05 | G96 | 0.2+ | 0.0 |
| 2004 08 21 | E12 | 0.0 | 0.1+ | 2004 09 15 | E12 | 0.8− | 0.2+ | 2006 01 05 | G96 | 0.0 | 0.0 |
| 2004 09 05 | E12 | 0.8− | 0.8− | 2005 11 26 | 691 | 0.0 | 0.1+ | 2006 01 05 | G96 | 0.1− | 0.2+ |
| 2004 09 05 | E12 | 0.9− | 0.2+ | 2005 11 26 | 691 | 0.0 | 0.0 | 2006 01 05 | G96 | 0.4− | 0.2+ |
| 2004 09 05 | E12 | 0.3+ | 0.0 | 2005 11 26 | 691 | 0.3+ | 0.1− | | | | |
| 2004 09 05 | E12 | 0.4+ | 0.2− | 2005 11 30 | 691 | 0.2− | 0.3+ | | | | |

**2004 QA$_{29}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 112.87644 | | (2000.0) | | | |
| $n$ | 0.24486968 | $\omega$ | 282.53990 | | +0.94911494 | +0.28993743 |
| $a$ | 2.5303429 | $\Omega$ | 60.71906 | | −0.20516984 | +0.86544886 |
| $e$ | 0.2158623 | $i$ | 8.10352 | | −0.23892710 | +0.40857626 |
| $P$ | 4.03 | $H$ | 16.8 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 08 05 | 608 | 1.6+ | 1.1− | 2004 09 04 | 644 | 0.3+ | 0.4+ | 2008 07 11 | E12 | 0.2− | 0.2− |
| 2000 08 05 | 608 | 0.4+ | 1.4− | 2004 09 04 | 644 | 0.6+ | 0.2+ | 2008 07 11 | E12 | 0.2− | 0.3− |
| 2000 08 05 | 608 | 0.5+ | 0.9− | 2004 09 15 | E12 | 0.6− | 0.4+ | 2008 07 11 | E12 | 0.3+ | 0.1+ |
| 2004 08 08 | 644 | 0.1− | 0.1+ | 2004 09 15 | E12 | 0.2+ | 0.6− | 2008 08 02 | E12 | 0.2+ | 0.7+ |
| 2004 08 08 | 644 | 0.2− | 0.0 | 2004 09 15 | E12 | 0.2− | 0.2− | 2008 08 02 | E12 | 0.1− | 0.1+ |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 08 08 | 644 | 0.1− | 0.0 | 2004 09 15 | E12 | 0.3− | 0.0 | 2008 08 02 | E12 | 0.3+ | 0.7+ |
| 2004 08 21 | E12 | 0.1+ | 0.1− | 2007 03 19 | G96 | 0.3− | 0.4− | 2008 08 02 | E12 | 0.3− | 0.2− |
| 2004 08 21 | E12 | 0.4+ | 0.1+ | 2007 03 19 | G96 | 0.0 | 0.7+ | 2008 08 23 | E12 | 0.0 | 0.1+ |
| 2004 08 21 | E12 | 0.5− | 0.1+ | 2007 03 19 | G96 | 0.2+ | 0.1+ | 2008 08 23 | E12 | 0.2− | 0.5+ |
| 2004 08 21 | E12 | 0.3− | 0.2+ | 2007 03 19 | G96 | 0.1+ | 0.6− | 2008 08 23 | E12 | 0.0 | 0.4+ |
| 2004 09 04 | 644 | 0.9− | 0.2+ | 2008 07 11 | E12 | 0.7− | 0.2+ | 2008 08 23 | E12 | 0.2+ | 0.5+ |

### 2004 $RS_1$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 71.70438 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21189310 | $\omega$ | 19.68360 | | +0.54757847 | +0.80654272 | |
| $a$ | 2.7864944 | $\Omega$ | 284.11787 | | −0.79519967 | +0.41872293 | |
| $e$ | 0.3060130 | $i$ | 13.28264 | | −0.26041373 | +0.41732475 | |
| $P$ | 4.65 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 07 10 | 644 | 0.2+ | 0.5+ | 2004 09 06 | 185 | 0.4+ | 0.5− | 2004 09 14 | 704 | 0.9+ | 0.0 |
| 2004 07 10 | 644 | 0.3− | 0.7− | 2004 09 07 | 185 | 0.1− | 0.7− | 2004 09 14 | 704 | 1.1+ | 0.6+ |
| 2004 07 10 | 644 | 0.1+ | 0.3+ | 2004 09 07 | 185 | 0.1+ | 0.5− | 2004 09 14 | 704 | 0.2− | 0.2+ |
| 2004 08 20 | 704 | 0.4+ | 1.1+ | 2004 09 07 | 185 | 0.3− | 1.0− | 2004 09 17 | 185 | 0.3− | 1.2− |
| 2004 08 20 | 704 | 0.5− | 0.8− | 2004 09 08 | 185 | 0.8− | 0.6+ | 2004 09 17 | 185 | 0.3+ | 0.7− |
| 2004 08 20 | 704 | 0.4− | 0.5+ | 2004 09 08 | 185 | 0.0 | 0.9− | 2004 09 17 | 185 | 0.0 | 0.8− |
| 2004 08 20 | 703 | 0.0 | 0.2+ | 2004 09 08 | 185 | 0.8+ | 0.5− | 2009 10 30 | G96 | 0.2− | 0.2− |
| 2004 08 20 | 703 | 1.7− | 0.3+ | 2004 09 08 | 185 | 0.4− | 0.5− | 2009 10 30 | G96 | 0.9+ | 0.7+ |
| 2004 08 20 | 703 | 0.9+ | 0.8− | 2004 09 11 | 704 | 0.4− | 1.0+ | 2009 10 30 | G96 | 0.1− | 0.4− |
| 2004 08 20 | 703 | 0.7− | 0.1+ | 2004 09 11 | 704 | 0.0 | 1.1+ | 2009 10 30 | G96 | 0.0 | 0.1− |
| 2004 09 05 | 185 | 0.3+ | 0.4+ | 2004 09 11 | 704 | 0.0 | 0.7+ | 2009 11 26 | G96 | 0.3+ | 0.0 |
| 2004 09 05 | 185 | 0.4+ | 0.6+ | 2004 09 11 | 704 | 0.3− | 1.0+ | 2009 11 26 | G96 | 0.7− | 0.9− |
| 2004 09 05 | 185 | 0.5+ | 0.2+ | 2004 09 11 | 704 | 0.3+ | 0.8+ | 2009 11 26 | G96 | 0.6− | 0.6− |
| 2004 09 06 | 185 | 0.2+ | 0.3− | 2004 09 14 | 704 | 0.2+ | 0.5+ | 2009 11 26 | G96 | 0.1− | 0.2+ |
| 2004 09 06 | 185 | 0.8− | 1.0− | 2004 09 14 | 704 | 0.1+ | 0.1+ | 2009 11 26 | G96 | 0.2+ | 1.6+ |

### 2004 $RD_{19}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 19.85704 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.20613053 | $\omega$ | 28.47477 | | +0.97209691 | −0.22419628 | |
| $a$ | 2.8381881 | $\Omega$ | 344.02669 | | +0.13759578 | +0.78325078 | |
| $e$ | 0.1495453 | $i$ | 14.52520 | | +0.18998686 | +0.57987433 | |
| $P$ | 4.78 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 07 | 691 | 0.2− | 0.0 | 2004 09 09 | 704 | 0.1+ | 0.3− | 2004 09 17 | 704 | 0.1− | 0.1− |
| 2004 09 07 | 691 | 0.0 | 0.0 | 2004 09 09 | 704 | 0.5+ | 0.1− | 2004 10 15 | 691 | 0.2+ | 0.1− |
| 2004 09 07 | 691 | 0.0 | 0.1− | 2004 09 09 | 699 | 0.2+ | 0.3+ | 2004 10 15 | 691 | 0.3+ | 0.0 |
| 2004 09 08 | 704 | 0.2+ | 0.5+ | 2004 09 09 | 704 | 0.6+ | 0.2+ | 2004 10 15 | 691 | 0.3+ | 0.0 |
| 2004 09 08 | 704 | 0.4− | 0.3− | 2004 09 09 | 699 | 0.3− | 0.5+ | 2009 09 22 | 703 | (2.9+ | 2.5−) |
| 2004 09 08 | 704 | 0.7− | 0.3+ | 2004 09 09 | 699 | 0.2+ | 0.3+ | 2009 09 22 | 703 | 0.6+ | 0.0 |
| 2004 09 08 | 704 | 0.0 | 0.2+ | 2004 09 09 | 699 | 0.3− | 0.1+ | 2009 09 22 | 703 | 1.9+ | 0.3− |
| 2004 09 08 | 704 | 0.4− | 0.5+ | 2004 09 14 | 699 | 0.8+ | 1.5− | 2009 09 22 | 703 | 0.4+ | 0.2− |
| 2004 09 09 | 704 | 0.1− | 0.5− | 2004 09 14 | 699 | 0.4+ | 0.7− | 2009 10 24 | 703 | 0.2+ | 0.3− |
| 2004 09 09 | 704 | 0.3+ | 0.2+ | 2004 09 14 | 699 | 0.1− | 0.4+ | 2009 10 24 | 703 | 0.8− | 0.5+ |
| 2004 09 09 | 704 | 0.2+ | 0.4+ | 2004 09 14 | 699 | 0.6− | 0.6+ | 2009 10 24 | 703 | 1.2− | 0.6+ |
| 2004 09 09 | 704 | 0.3+ | 0.2− | 2004 09 17 | 704 | 0.7− | 0.2+ | 2009 10 24 | 703 | 1.3− | 0.3− |
| 2004 09 09 | 704 | 0.2+ | 0.5+ | 2004 09 17 | 704 | 1.5− | 0.2− | | | | |
| 2004 09 09 | 704 | 0.1− | 0.3+ | 2004 09 17 | 704 | 0.7− | 0.9− | | | | |

### 2004 $RO_{21}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 319.77916 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17084177 | $\omega$ | 193.12680 | | +0.99528897 | −0.09597383 | |
| $a$ | 3.2166713 | $\Omega$ | 172.34074 | | +0.09563408 | +0.94853357 | |
| $e$ | 0.1563300 | $i$ | 5.91880 | | +0.01593715 | +0.30178318 | |
| $P$ | 5.77 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 07 | 691 | 0.2+ | 0.3+ | 2004 09 11 | 691 | 0.1+ | 0.3+ | 2004 10 15 | G96 | 0.2− | 0.4− |
| 2004 09 07 | 691 | 0.3+ | 0.1+ | 2004 09 11 | 691 | 0.0 | 0.0 | 2004 10 15 | G96 | 0.2+ | 0.3− |
| 2004 09 07 | 691 | 0.1+ | 0.2+ | 2004 09 11 | 691 | 0.0 | 0.1+ | 2004 10 15 | G96 | 0.3− | 0.2− |
| 2004 09 08 | 704 | 0.7− | 0.1+ | 2004 09 17 | 704 | 0.8− | 0.3− | 2007 02 23 | G96 | 0.4− | 0.5+ |
| 2004 09 08 | 704 | 0.3+ | 0.2− | 2004 09 17 | 704 | 0.6− | 0.1+ | 2007 02 23 | G96 | 0.3+ | 0.2+ |
| 2004 09 08 | 704 | 0.4− | 0.5− | 2004 09 17 | 704 | 0.0 | 1.1− | 2007 02 23 | G96 | 0.4+ | 0.1− |
| 2004 09 08 | 704 | 0.4+ | 0.2− | 2004 09 17 | 704 | 0.1+ | 0.1+ | 2007 02 23 | G96 | 0.1− | 0.1+ |
| 2004 09 08 | 704 | 0.5− | 0.2− | 2004 09 17 | 704 | 0.5+ | 0.4− | 2007 03 10 | G96 | 0.1− | 0.4+ |
| 2004 09 09 | 704 | 0.3+ | 0.6+ | 2004 09 17 | 704 | 0.1+ | 0.8− | 2007 03 10 | G96 | 0.2+ | 0.1+ |
| 2004 09 09 | 704 | 0.1− | 0.0 | 2004 09 17 | 704 | 0.3− | 0.3+ | 2007 03 10 | G96 | 0.2+ | 0.1+ |
| 2004 09 09 | 704 | 0.6+ | 1.0− | 2004 10 09 | 691 | 0.2+ | 0.3+ | 2007 03 10 | G96 | 0.2− | 0.2+ |
| 2004 09 09 | 704 | 0.3− | 0.6− | 2004 10 09 | 691 | 0.1− | 0.2+ | 2008 04 28 | G96 | 0.0 | 0.2+ |
| 2004 09 09 | 704 | 1.4− | 0.2+ | 2004 10 09 | 691 | 0.1− | 0.1+ | 2008 04 28 | G96 | 0.2− | 0.0 |
| 2004 09 09 | 704 | 0.4− | 1.0− | 2004 10 10 | 644 | 0.3− | 0.0 | 2008 04 28 | G96 | 0.0 | 0.0 |
| 2004 09 09 | 704 | 0.5− | 0.2+ | 2004 10 10 | 644 | 0.2+ | 0.0 | 2008 04 28 | G96 | 0.3+ | 0.5+ |
| 2004 09 09 | 704 | 0.3+ | 0.6+ | 2004 10 10 | 644 | 0.4+ | 0.4+ | | | | |
| 2004 09 09 | 704 | 1.0− | 0.1− | 2004 10 15 | G96 | 0.1+ | 0.4− | | | | |

### 2004 $RS_{22}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 340.10077 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18941393 | $\omega$ | 226.68619 | | +0.88389907 | −0.46551749 | |
| $a$ | 3.0028118 | $\Omega$ | 160.92002 | | +0.45892790 | +0.84487207 | |
| $e$ | 0.1850556 | $i$ | 7.89468 | | +0.09004233 | +0.26359943 | |
| $P$ | 5.20 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 08 10 | 599 | 0.2+ | 0.0 | 2004 09 09 | 704 | 0.1− | 0.8+ | 2004 09 21 | 704 | 0.2+ | 0.7+ |
| 2004 08 11 | 599 | 0.6+ | 0.4− | 2004 09 09 | 704 | 0.7+ | 0.7+ | 2004 09 21 | 704 | 0.8+ | 0.6− |
| 2004 08 11 | 599 | 0.3− | 0.0 | 2004 09 09 | 704 | 0.4+ | 0.1− | 2009 07 28 | 691 | (1.7− | 0.6−) |
| 2004 08 11 | 599 | 0.2+ | 0.1+ | 2004 09 09 | 704 | 0.9+ | 0.2− | 2009 07 28 | 691 | 0.0 | 0.2+ |
| 2004 09 07 | 691 | 0.2− | 0.0 | 2004 09 09 | 704 | 0.8+ | 0.3+ | 2009 07 28 | 691 | 0.1− | 0.1− |
| 2004 09 07 | 691 | 0.1− | 0.1− | 2004 09 11 | 691 | 0.1+ | 0.1− | 2009 08 15 | 691 | (1.5+ | 0.7+) |
| 2004 09 07 | 691 | 0.2− | 0.1− | 2004 09 11 | 691 | 0.0 | 0.2− | 2009 08 15 | 691 | 0.2+ | 0.0 |
| 2004 09 08 | 704 | 0.4− | 0.6− | 2004 09 11 | 691 | 0.0 | 0.1− | 2009 08 15 | 691 | 0.0 | 0.1+ |
| 2004 09 08 | 704 | 0.5− | 0.5+ | 2004 09 17 | 704 | 0.7− | 0.7− | 2009 09 22 | G96 | 0.3+ | 0.1− |
| 2004 09 08 | 704 | 0.9− | 0.1− | 2004 09 17 | 704 | 0.4− | 0.4+ | 2009 09 22 | G96 | 0.1− | 0.2− |
| 2004 09 08 | 704 | 0.5+ | 0.5+ | 2004 09 17 | 704 | 0.4− | 0.4+ | 2009 09 22 | G96 | 0.4− | 0.4− |
| 2004 09 08 | 704 | 0.4− | 1.0+ | 2004 09 21 | 704 | 0.5+ | 0.2+ | 2009 09 22 | G96 | 0.2− | 0.1− |

### 2004 $RO_{29}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 82.09725 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22628845 | $\omega$ | 190.81415 | | +0.82265145 | +0.53781915 | |
| $a$ | 2.6670293 | $\Omega$ | 135.00222 | | −0.50023472 | +0.83881427 | |
| $e$ | 0.1609718 | $i$ | 15.11514 | | −0.27020330 | +0.08450556 | |
| $P$ | 4.36 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 07 10 | 644 | 0.9+ | 0.7− | 2004 08 22 | E12 | 0.1+ | 0.2− | 2004 09 12 | 704 | 0.2− | 1.1− |
| 2004 07 10 | 644 | 0.5+ | 0.4− | 2004 08 22 | E12 | 0.6+ | 0.1+ | 2009 10 26 | 114 | 0.5+ | 0.4− |
| 2004 07 10 | 644 | 0.4+ | 0.0 | 2004 09 07 | 704 | 0.3+ | 0.6− | 2009 10 26 | 114 | 0.1− | 0.4− |
| 2004 08 08 | 704 | 0.2− | 0.2− | 2004 09 07 | 704 | 0.0 | 0.1− | 2009 10 26 | 114 | 0.4+ | 0.3− |
| 2004 08 08 | 704 | 0.2− | 0.3+ | 2004 09 07 | 704 | 0.3− | 0.4− | 2009 10 26 | 114 | 0.5− | 0.2+ |
| 2004 08 08 | 704 | 1.0− | 0.9− | 2004 09 07 | 704 | 0.3+ | 0.3− | 2009 10 26 | 114 | 0.3+ | 0.1− |
| 2004 08 12 | 704 | (0.4+ | 2.2+) | 2004 09 08 | 644 | 0.2− | 0.2+ | 2009 11 24 | 703 | 0.7− | 0.8+ |
| 2004 08 12 | 704 | 0.3− | 1.2+ | 2004 09 08 | 644 | 0.0 | 0.2− | 2009 11 24 | 703 | 1.1+ | 0.5− |
| 2004 08 12 | 704 | 0.4+ | 1.3+ | 2004 09 08 | 644 | 0.4− | 0.1− | 2009 11 24 | 703 | 0.3+ | 1.4+ |
| 2004 08 12 | 704 | 0.1− | 1.3+ | 2004 09 12 | 704 | 0.1+ | 1.0+ | 2009 11 24 | 703 | 1.0− | 0.0 |
| 2004 08 12 | 704 | 0.3− | 1.8+ | 2004 09 12 | 704 | 0.4− | 0.5− | 2009 11 24 | 703 | 0.3− | 0.4− |
| 2004 08 22 | E12 | 0.1+ | 0.0 | 2004 09 12 | 704 | 0.1− | 0.4− | | | | |
| 2004 08 22 | E12 | 0.4+ | 0.5− | 2004 09 12 | 704 | 0.3− | 0.7− | | | | |

**2004 RS$_{36}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 10.02952 | | (2000.0) | | | |
| $n$ | 0.19684754 | $\omega$ | 355.60569 | | +0.98601827 | −0.16132046 |
| $a$ | 2.9267304 | $\Omega$ | 13.88977 | | +0.15769843 | +0.82238329 |
| $e$ | 0.2017006 | $i$ | 10.01751 | | +0.05384393 | +0.54558357 |
| $P$ | 5.01 | $H$ | 16.3 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 03 21 | 691 | 0.1+ | 0.3+ | 2004 09 17 | 704 | 0.1− | 0.2+ | 2004 10 12 | 691 | 0.2− | 0.0 |
| 2002 03 21 | 691 | 0.5+ | 0.5+ | 2004 09 17 | 704 | 0.2− | 0.9− | 2004 10 12 | 691 | 0.5− | 0.0 |
| 2002 03 21 | 691 | 0.1+ | 0.3+ | 2004 09 17 | 704 | 0.2− | 0.2+ | 2004 10 12 | 691 | 0.3− | 0.1+ |
| 2004 09 07 | 704 | 0.1− | 0.4+ | 2004 09 17 | 704 | 0.1+ | 0.2− | 2009 08 29 | 703 | (0.8− | 2.0+) |
| 2004 09 07 | 704 | 0.1− | 0.1− | 2004 09 18 | 704 | 0.2+ | 0.2− | 2009 08 29 | 703 | (2.0− | 0.3+) |
| 2004 09 07 | 704 | 0.4− | 0.1+ | 2004 09 18 | 704 | 0.0 | 0.7+ | 2009 08 29 | 703 | (1.0− | 2.4+) |
| 2004 09 07 | 704 | 0.2− | 0.1+ | 2004 09 18 | 704 | 0.7+ | 0.3− | 2009 08 29 | 703 | 0.5+ | 1.5+ |
| 2004 09 07 | 704 | 0.1+ | 0.4+ | 2004 09 18 | 704 | 0.0 | 1.0+ | 2009 09 10 | 703 | 0.0 | 0.7− |
| 2004 09 09 | 704 | 0.2− | 0.2− | 2004 09 18 | 704 | 0.2− | 0.3+ | 2009 09 10 | 703 | 0.5− | 0.1− |
| 2004 09 09 | 704 | 0.7+ | 0.4+ | 2004 09 18 | 704 | 0.6+ | 0.6+ | 2009 09 10 | 703 | 0.1+ | 0.8− |
| 2004 09 09 | 704 | 0.3+ | 0.2+ | 2004 09 18 | 704 | 0.4− | 0.0 | 2009 09 10 | 703 | 1.3− | 0.2+ |
| 2004 09 13 | 699 | 0.2− | 0.4− | 2004 09 18 | 704 | 0.6− | 0.1+ | 2009 09 24 | G96 | 0.3+ | 0.1− |
| 2004 09 13 | 691 | 0.1+ | 0.0 | 2004 09 18 | 704 | 0.8+ | 0.1+ | 2009 09 24 | G96 | 0.4+ | 0.0 |
| 2004 09 13 | 699 | 0.2+ | 0.9− | 2004 09 18 | 704 | 0.1− | 0.2− | 2009 09 24 | G96 | 0.4+ | 0.2− |
| 2004 09 13 | 699 | 0.7+ | 0.4+ | 2004 09 21 | 704 | 0.3+ | 0.3− | 2009 09 24 | G96 | 0.1− | 0.1− |
| 2004 09 13 | 691 | 0.2+ | 0.1− | 2004 09 21 | 704 | 1.2+ | 0.2− | 2009 10 24 | G96 | 0.2− | 0.1+ |
| 2004 09 13 | 699 | 0.5+ | 0.3− | 2004 09 21 | 704 | 0.0 | 0.3− | 2009 10 24 | G96 | 0.2+ | 0.2+ |
| 2004 09 13 | 691 | 0.0 | 0.1− | 2004 09 21 | 704 | 0.4+ | 0.1+ | 2009 10 24 | G96 | 0.0 | 0.1− |
| 2004 09 14 | 699 | 1.2− | 0.5− | 2004 09 21 | 704 | 0.0 | 0.2− | 2009 10 24 | G96 | 0.3− | 0.2+ |
| 2004 09 14 | 699 | 0.1+ | 0.1− | 2004 10 05 | 699 | 0.8− | 0.8+ | 2009 11 11 | G96 | 0.3− | 0.4+ |
| 2004 09 14 | 699 | 0.8− | 0.0 | 2004 10 05 | 699 | 0.7− | 0.2− | 2009 11 11 | G96 | 0.3− | 0.5+ |
| 2004 09 14 | 699 | 0.4− | 1.4+ | 2004 10 05 | 699 | 0.2− | 0.9+ | 2009 11 11 | G96 | 0.3− | 0.5+ |
| 2004 09 17 | 704 | 0.1+ | 0.4+ | 2004 10 05 | 699 | 1.3+ | 0.3− | 2009 11 11 | G96 | 0.1+ | 0.4+ |

**2004 RC$_{47}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 337.37862 | | (2000.0) | | | |
| $n$ | 0.17349536 | $\omega$ | 173.41456 | | +0.98275485 | +0.18477347 |
| $a$ | 3.1837879 | $\Omega$ | 175.91645 | | −0.17392674 | +0.93686639 |
| $e$ | 0.1991141 | $i$ | 5.79355 | | −0.06278850 | +0.29688405 |
| $P$ | 5.68 | $H$ | 15.8 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 08 | 704 | 0.0 | 0.4− | 2004 09 12 | 568 | 0.3− | 0.1+ | 2004 09 23 | 691 | 0.1+ | 0.1− |
| 2004 09 08 | 704 | 0.2+ | 0.3+ | 2004 09 12 | 568 | 0.4− | 0.0 | 2004 10 09 | 704 | 0.3− | 0.9− |
| 2004 09 08 | 704 | 0.1− | 0.3− | 2004 09 13 | 699 | 0.1− | 0.3− | 2004 10 09 | 704 | 0.4− | 0.2− |
| 2004 09 08 | 704 | 0.1+ | 0.3+ | 2004 09 13 | 699 | 0.3+ | 0.4+ | 2004 10 09 | 704 | 0.2+ | 0.4+ |
| 2004 09 09 | 704 | 0.8+ | 0.7− | 2004 09 13 | 699 | 0.2+ | 0.2+ | 2004 10 10 | 691 | 0.1+ | 0.0 |
| 2004 09 09 | 704 | 0.2+ | 0.3+ | 2004 09 13 | 699 | 0.7+ | 0.6+ | 2004 10 10 | 691 | 0.2+ | 0.1− |
| 2004 09 09 | 704 | 0.2+ | 0.3+ | 2004 09 14 | 699 | 0.6+ | 0.3− | 2004 10 10 | 691 | 0.1− | 0.1− |
| 2004 09 09 | 704 | 0.9+ | 0.6− | 2004 09 14 | 699 | 0.3+ | 0.7+ | 2004 10 15 | G96 | 0.3− | 0.2− |
| 2004 09 09 | 704 | 0.4+ | 0.3− | 2004 09 14 | 699 | 0.5− | 0.7+ | 2004 10 15 | G96 | 0.1− | 0.4− |
| 2004 09 09 | 699 | 0.0 | 0.5+ | 2004 09 14 | 699 | 0.1+ | 0.1+ | 2004 10 15 | G96 | 0.4− | 0.1− |
| 2004 09 09 | 699 | 0.2− | 0.1− | 2004 09 17 | 704 | 0.7− | 0.2− | 2004 10 15 | G96 | 0.3− | 0.6− |
| 2004 09 09 | 699 | 0.2+ | 0.1− | 2004 09 17 | 704 | 0.1− | 0.4+ | 2008 04 12 | 291 | 0.3− | 0.4+ |
| 2004 09 09 | 699 | 0.4− | 0.4− | 2004 09 17 | 704 | 1.0+ | 1.0+ | 2008 04 12 | 291 | 0.2+ | 0.0 |
| 2004 09 11 | 691 | 0.1− | 0.1− | 2004 09 17 | 704 | 0.3− | 0.2− | 2008 04 12 | 291 | 0.2+ | 0.2− |
| 2004 09 11 | 691 | 0.1− | 0.0 | 2004 09 17 | 704 | 0.7− | 0.5+ | 2008 04 28 | 691 | 0.3− | 0.1− |
| 2004 09 11 | 691 | 0.0 | 0.1+ | 2004 09 23 | 691 | 0.2− | 0.1− | 2008 04 28 | 691 | 0.1− | 0.4− |
| 2004 09 12 | 568 | 0.3− | 0.0 | 2004 09 23 | 691 | 0.1− | 0.2+ | 2008 04 28 | 691 | 0.2+ | 0.1+ |

**2004 RL$_{80}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 358.20063 | | (2000.0) | | | |
| $n$ | 0.17942429 | $\omega$ | 159.48883 | | +0.80175806 | +0.59200739 |
| $a$ | 3.1132588 | $\Omega$ | 163.40815 | | −0.58050601 | +0.80400486 |
| $e$ | 0.1774958 | $i$ | 16.67191 | | −0.14211539 | +0.05570857 |
| $P$ | 5.49 | $H$ | 15.7 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 08 09 | 704 | 0.4− | 0.3− | 2004 08 27 | 703 | 0.4− | 0.1− | 2004 09 22 | 691 | 0.1+ | 0.2+ |
| 2004 08 09 | 704 | 1.0− | 0.2− | 2004 08 27 | 703 | 0.1− | 0.0 | 2004 09 22 | 691 | 0.2+ | 0.1− |
| 2004 08 09 | 704 | 0.2− | 0.1+ | 2004 08 27 | 703 | 0.3+ | 0.6+ | 2004 09 22 | 691 | 0.1+ | 0.0 |
| 2004 08 09 | 704 | (2.9+ | 0.5−) | 2004 09 08 | 704 | 1.0− | 0.3− | 2008 02 28 | 691 | 0.2− | 0.1− |
| 2004 08 12 | 704 | 0.7+ | 0.3+ | 2004 09 08 | 704 | 0.3+ | 0.2− | 2008 02 28 | 691 | 0.7+ | 0.4− |
| 2004 08 12 | 704 | 0.5+ | 0.8− | 2004 09 08 | 704 | 0.2− | 0.2− | 2008 02 28 | 691 | 0.2+ | 0.1+ |
| 2004 08 12 | 704 | 0.2+ | 0.2+ | 2004 09 10 | 691 | 0.1− | 0.2− | 2008 03 11 | 691 | 0.1+ | 0.3+ |
| 2004 08 12 | 704 | 0.3− | 0.3− | 2004 09 10 | 691 | 0.0 | 0.1+ | 2008 03 11 | 691 | 0.5− | 0.1+ |
| 2004 08 27 | 703 | 0.8+ | 0.8+ | 2004 09 10 | 691 | 0.1− | 0.1+ | 2008 03 11 | 691 | 0.3− | 0.1− |

**2004 RS$_{93}$ = 2009 WE$_{236}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 35.91860 | | (2000.0) | | | |
| $n$ | 0.21882533 | $\omega$ | 124.99297 | | +0.87824522 | −0.46373831 |
| $a$ | 2.7273298 | $\Omega$ | 262.89156 | | +0.39140236 | +0.83734306 |
| $e$ | 0.2103039 | $i$ | 6.75713 | | +0.27475359 | +0.28948813 |
| $P$ | 4.50 | $H$ | 16.5 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 08 21 | 703 | 0.7− | 0.7+ | 2004 09 10 | 704 | 0.0 | 0.4− | 2009 11 21 | 691 | 0.1− | 0.1+ |
| 2004 08 21 | 703 | 0.2− | 0.1− | 2004 09 18 | 704 | 0.1− | 0.6− | 2009 11 21 | 691 | 0.0 | 0.0 |
| 2004 08 21 | 703 | 0.9− | 0.4− | 2004 09 18 | 704 | 0.3− | 0.2− | 2009 11 21 | 691 | 0.2− | 0.1+ |
| 2004 08 21 | 703 | 0.9− | 0.9+ | 2004 09 18 | 704 | 0.1+ | 0.6− | 2009 11 24 | D29 | 0.2+ | 0.1− |
| 2004 09 08 | 704 | 0.5+ | 0.1+ | 2009 11 09 | 691 | 0.1− | 0.0 | 2009 11 24 | D29 | 0.6− | 0.3+ |
| 2004 09 08 | 704 | 0.5+ | 0.7+ | 2009 11 09 | 691 | 0.3− | 0.2− | 2009 11 24 | D29 | 0.8+ | 0.8− |
| 2004 09 08 | 704 | 0.2+ | 0.5− | 2009 11 09 | 691 | 0.2− | 0.0 | 2009 11 24 | D29 | 0.3+ | 0.1− |
| 2004 09 08 | 704 | 0.3+ | 0.3+ | 2009 11 09 | G96 | 0.3+ | 0.0 | 2009 12 15 | G96 | 0.5+ | 0.0 |
| 2004 09 10 | 704 | 0.2+ | 0.5− | 2009 11 09 | G96 | 0.5+ | 0.0 | 2009 12 15 | G96 | 0.1+ | 0.7+ |
| 2004 09 10 | 704 | 0.4+ | 0.0 | 2009 11 09 | G96 | 0.3+ | 0.1− | 2009 12 15 | G96 | 0.2+ | 0.1+ |
| 2004 09 10 | 704 | 0.6+ | 0.6+ | 2009 11 09 | G96 | 0.3+ | 0.1− | 2009 12 15 | G96 | 0.8+ | 0.4+ |

**2004 RJ$_{99}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 332.68688 | | (2000.0) | | | |
| $n$ | 0.17928209 | $\omega$ | 181.83552 | | +0.97343593 | −0.22821509 |
| $a$ | 3.1149049 | $\Omega$ | 191.40722 | | +0.21123690 | +0.92625101 |
| $e$ | 0.1790870 | $i$ | 5.35233 | | +0.08832589 | +0.29996157 |
| $P$ | 5.50 | $H$ | 15.7 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 08 | 704 | 0.8− | 0.2+ | 2004 09 13 | 704 | 0.7+ | 0.3+ | 2004 10 07 | 291 | 0.0 | 0.2+ |
| 2004 09 08 | 704 | 0.5− | 0.4+ | 2004 09 13 | 699 | 0.4+ | 0.1− | 2004 10 07 | 291 | 0.0 | 0.1+ |
| 2004 09 08 | 704 | 0.1+ | 0.4+ | 2004 09 13 | 704 | 0.9− | 0.5+ | 2004 10 10 | 691 | 0.0 | 0.0 |
| 2004 09 08 | 704 | 0.2+ | 0.3+ | 2004 09 13 | 699 | 0.3+ | 0.3− | 2004 10 10 | 691 | 0.1− | 0.1− |
| 2004 09 09 | 699 | 0.7− | 0.4− | 2004 09 13 | 699 | 0.0 | 0.1+ | 2004 10 10 | 691 | 0.1− | 0.0 |
| 2004 09 09 | 699 | 0.5+ | 0.2− | 2004 09 13 | 699 | 0.4− | 0.2+ | 2007 03 20 | G96 | 0.3+ | 0.1− |
| 2004 09 09 | 699 | 0.4− | 0.4− | 2004 09 17 | 704 | 0.5+ | 0.2+ | 2007 03 20 | G96 | 0.5+ | 0.4+ |
| 2004 09 09 | 699 | 0.1+ | 0.5+ | 2004 09 17 | 704 | 0.1− | 0.5− | 2007 03 20 | G96 | 0.4− | 0.1− |
| 2004 09 10 | 704 | 0.5− | 0.1− | 2004 09 17 | 704 | 1.4+ | 0.3− | 2007 03 20 | G96 | 0.5+ | 0.2+ |
| 2004 09 10 | 704 | 0.5− | 0.4+ | 2004 09 17 | 704 | 1.1+ | 0.0 | 2007 03 26 | G96 | 0.0 | 0.7− |
| 2004 09 10 | 704 | 0.6− | 0.3− | 2004 09 17 | 704 | 0.4+ | 0.1+ | 2007 03 26 | G96 | 0.4+ | 0.1− |
| 2004 09 10 | 704 | 0.5+ | 0.2− | 2004 09 23 | 691 | 0.1+ | 0.1− | 2007 03 26 | G96 | 0.3+ | 0.7− |
| 2004 09 13 | 704 | 0.1− | 0.1+ | 2004 09 23 | 691 | 0.0 | 0.3− | 2007 03 26 | G96 | 1.4− | 1.6+ |
| 2004 09 13 | 704 | 0.0 | 0.2+ | 2004 09 23 | 691 | 0.0 | 0.3− | | | | |
| 2004 09 13 | 704 | 0.3− | 0.6+ | 2004 10 07 | 291 | 0.0 | 0.1+ | | | | |

**2004 RH$_{106}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 17.68645 | | (2000.0) | | | |
| $n$ | 0.17671028 | $\omega$ | 104.63729 | | +0.51536861 | +0.85443661 |
| $a$ | 3.1450545 | $\Omega$ | 196.87527 | | −0.84732219 | +0.49656882 |
| $e$ | 0.3308881 | $i$ | 13.10673 | | −0.12821975 | +0.15283157 |
| $P$ | 5.58 | $H$ | 15.8 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 08 | 644 | 0.5− | 0.0 | 2004 10 05 | 691 | 0.1− | 0.1− | 2004 10 12 | 691 | 0.1− | 0.1+ |
| 2004 09 08 | 644 | 0.2− | 0.0 | 2004 10 05 | 691 | 0.1− | 0.1+ | 2004 10 12 | 691 | 0.4− | 0.2+ |
| 2004 09 08 | 644 | 0.1+ | 0.2− | 2004 10 05 | 691 | 0.2− | 0.1− | 2004 10 15 | G96 | 0.1+ | 0.1− |
| 2004 09 10 | 704 | 0.4− | 0.2− | 2004 10 07 | 704 | 1.5+ | 0.0 | 2004 10 15 | G96 | 0.3+ | 0.3− |
| 2004 09 10 | 704 | 0.4+ | 0.4+ | 2004 10 07 | 704 | 0.1− | 0.3− | 2004 10 15 | G96 | 0.1+ | 0.2− |
| 2004 09 10 | 704 | 0.8+ | 0.5− | 2004 10 07 | 704 | 0.6+ | 0.2+ | 2004 10 15 | G96 | 0.3+ | 0.0 |
| 2004 09 10 | 704 | 0.6+ | 1.0+ | 2004 10 08 | 691 | 0.4− | 0.3− | 2004 11 04 | 691 | 0.3+ | 0.1+ |
| 2004 09 10 | 704 | 0.0 | 0.6+ | 2004 10 08 | 691 | 0.3− | 0.1− | 2004 11 04 | 691 | 0.2+ | 0.1− |
| 2004 09 13 | 699 | 0.3+ | 1.5− | 2004 10 08 | 699 | (0.5+ | 2.4−) | 2004 11 04 | 691 | 0.3+ | 0.3+ |
| 2004 09 13 | 699 | 0.1− | 0.5+ | 2004 10 08 | 691 | 0.1− | 0.1− | 2009 06 04 | G96 | 0.1+ | 0.3+ |
| 2004 09 13 | 699 | 0.7+ | 0.1+ | 2004 10 08 | 699 | 0.9+ | 1.2− | 2009 06 04 | G96 | 0.1+ | 0.1− |
| 2004 09 13 | 644 | 0.1− | 0.0 | 2004 10 08 | 699 | 0.3− | 0.2− | 2009 06 04 | G96 | 0.2+ | 0.2+ |
| 2004 09 13 | 699 | 0.6− | 0.2− | 2004 10 08 | 699 | 0.1− | 0.1+ | 2009 06 04 | G96 | 0.1+ | 0.3+ |
| 2004 09 13 | 644 | 0.3− | 0.4+ | 2004 10 09 | 704 | 0.5− | 0.1+ | 2009 06 21 | G96 | 0.1− | 0.1− |
| 2004 09 13 | 644 | 0.3− | 0.3+ | 2004 10 09 | 704 | 0.1− | 0.4+ | 2009 06 21 | G96 | 0.1− | 0.2− |
| 2004 09 15 | 704 | 0.2− | 0.1− | 2004 10 09 | 704 | 0.7+ | 0.5+ | 2009 06 21 | G96 | 0.1+ | 0.2− |
| 2004 09 15 | 704 | 1.4+ | 0.3− | 2004 10 09 | 704 | 1.1− | 0.5+ | 2009 06 21 | G96 | 0.4− | 0.2− |
| 2004 09 15 | 704 | 0.7+ | 0.1+ | 2004 10 12 | 691 | 0.2− | 0.0 | | | | |

**2004 RJ$_{137}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 59.84698 | | (2000.0) | | | |
| $n$ | 0.22223426 | $\omega$ | 154.38536 | | +0.96631277 | +0.25241988 |
| $a$ | 2.6993677 | $\Omega$ | 191.34200 | | −0.25721843 | +0.95387601 |
| $e$ | 0.2084187 | $i$ | 14.80015 | | +0.00884905 | +0.16249545 |
| $P$ | 4.43 | $H$ | 15.8 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 08 12 | 644 | 0.1− | 0.2+ | 2004 09 11 | 704 | 0.9− | 0.1+ | 2004 09 14 | 704 | 0.2− | 0.6+ |
| 2004 08 12 | 644 | 0.2+ | 0.1− | 2004 09 11 | 704 | 0.5+ | 0.2− | 2009 11 21 | 703 | 0.3− | 0.5+ |
| 2004 08 12 | 644 | 0.0 | 0.2+ | 2004 09 11 | 704 | 0.2+ | 0.0 | 2009 11 21 | 703 | 0.3− | 0.4− |
| 2004 08 20 | 704 | 0.3+ | 0.3+ | 2004 09 11 | 704 | 0.7+ | 0.8− | 2009 11 21 | 703 | 0.3+ | 0.3+ |
| 2004 08 20 | 704 | 0.2+ | 0.2+ | 2004 09 11 | 704 | 0.2− | 0.4− | 2009 11 21 | 703 | 0.1+ | 0.1+ |
| 2004 08 20 | 704 | 0.3− | 0.0 | 2004 09 14 | 704 | 0.6− | 0.2+ | 2009 12 13 | 703 | 0.9− | 0.9− |
| 2004 09 08 | 704 | 0.1+ | 1.0− | 2004 09 14 | 704 | 0.0 | 1.3+ | 2009 12 13 | 703 | 0.1− | 0.9+ |
| 2004 09 08 | 704 | 0.2− | 0.2− | 2004 09 14 | 704 | 0.0 | 0.1+ | 2009 12 13 | 703 | 1.3+ | 0.6+ |
| 2004 09 08 | 704 | 0.3− | 0.4− | 2004 09 14 | 704 | 0.7+ | 0.2− | 2009 12 13 | 703 | 0.1− | 1.0− |

**2004 RY$_{143}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 358.27630 | | (2000.0) | | | |
| $n$ | 0.18150467 | $\omega$ | 197.09884 | | +0.99756716 | +0.05209016 |
| $a$ | 3.0894240 | $\Omega$ | 159.74449 | | −0.03714788 | +0.95956763 |
| $e$ | 0.3006262 | $i$ | 7.69031 | | −0.05898974 | +0.27661630 |
| $P$ | 5.43 | $H$ | 16.0 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1993 08 24 | 809 | 0.7− | 2.0+ | 2004 09 16 | 683 | (0.3− | 2.0−) | 2004 10 18 | 704 | 0.6− | 0.1+ |
| 1993 08 24 | 809 | 0.6− | 1.5+ | 2004 09 16 | 683 | (0.1− | 2.0−) | 2004 10 18 | 704 | 0.0 | 0.4− |
| 1993 08 24 | 809 | 0.1+ | 0.9+ | 2004 09 16 | 683 | (1.3+ | 2.8−) | 2004 10 18 | 704 | 0.2+ | 0.3− |
| 2004 08 10 | 704 | 1.1+ | 0.2− | 2004 10 07 | 699 | 0.4+ | 0.8+ | 2009 07 24 | E12 | 0.9− | 0.4− |
| 2004 08 10 | 704 | 0.5− | 0.4− | 2004 10 07 | 704 | 0.0 | 0.3− | 2009 07 24 | E12 | 1.0+ | 0.1− |
| 2004 08 10 | 704 | 0.1+ | 0.3− | 2004 10 07 | 699 | 0.3+ | 0.2+ | 2009 07 24 | E12 | 0.2− | 0.7− |
| 2004 08 10 | 704 | 0.2− | 0.5+ | 2004 10 07 | 704 | 0.3+ | 0.0 | 2009 07 24 | E12 | 0.1+ | 0.1+ |
| 2004 09 08 | 704 | 0.2+ | 0.6− | 2004 10 07 | 699 | 0.5+ | 0.1− | 2009 10 16 | G96 | 0.0 | 0.6− |
| 2004 09 08 | 704 | 0.7− | 0.6− | 2004 10 07 | 704 | 0.1− | 0.2− | 2009 10 16 | G96 | 0.5+ | 0.3− |
| 2004 09 08 | 704 | 0.6+ | 0.3− | 2004 10 07 | 704 | 0.2− | 0.3+ | 2009 10 16 | G96 | 0.0 | 0.0 |
| 2004 09 12 | 704 | 0.7− | 0.0 | 2004 10 07 | 699 | 0.3+ | 0.6+ | 2009 10 16 | G96 | 0.4+ | 0.6− |
| 2004 09 12 | 704 | 0.3− | 0.3− | 2004 10 07 | 704 | 0.0 | 0.2− | 2009 11 20 | G96 | 0.2− | 0.3− |
| 2004 09 12 | 704 | 0.1+ | 0.3+ | 2004 10 09 | 704 | 0.1− | 0.2− | 2009 11 20 | G96 | 0.5− | 0.0 |
| 2004 09 14 | 699 | 0.3+ | 0.0 | 2004 10 09 | 704 | 0.0 | 0.3− | 2009 11 20 | G96 | 0.1+ | 0.1− |
| 2004 09 14 | 699 | 0.6+ | 0.2+ | 2004 10 09 | 704 | 0.4− | 0.5− | 2009 11 20 | G96 | 0.2+ | 0.6− |
| 2004 09 14 | 699 | 0.2− | 0.5− | 2004 10 09 | 704 | 0.7− | 0.7+ | | | | |
| 2004 09 14 | 699 | 0.3+ | 0.4− | 2004 10 09 | 704 | 0.1− | 0.0 | | | | |

**2004 RN$_{144}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 308.33566 | | (2000.0) | | | |
| $n$ | 0.17541064 | $\omega$ | 164.07412 | | +0.60903248 | −0.77788354 |
| $a$ | 3.1605701 | $\Omega$ | 248.14802 | | +0.70827434 | +0.62126327 |
| $e$ | 0.2128733 | $i$ | 9.60362 | | +0.35696906 | +0.09449421 |
| $P$ | 5.62 | $H$ | 15.2 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 08 | 644 | 0.1− | 0.2+ | 2004 09 13 | 704 | 0.1− | 0.8+ | 2004 09 24 | 704 | 0.7+ | 0.2− |
| 2004 09 08 | 644 | 0.0 | 0.1− | 2004 09 13 | 704 | 0.8+ | 0.1+ | 2004 09 24 | 704 | 0.1− | 0.2+ |
| 2004 09 08 | 644 | 0.1+ | 0.2− | 2004 09 13 | 704 | 0.0 | 0.0 | 2004 10 10 | 704 | 0.2+ | 0.4− |
| 2004 09 11 | 704 | 1.0− | 0.1+ | 2004 09 13 | 704 | 0.6+ | 0.8+ | 2004 10 10 | 704 | 0.2− | 0.2+ |
| 2004 09 11 | 704 | 0.2− | 0.3+ | 2004 09 14 | 704 | 0.4− | 0.8− | 2004 10 10 | 704 | 0.9− | 0.9− |
| 2004 09 11 | 704 | 0.5− | 0.1− | 2004 09 14 | 704 | 0.6− | 0.3+ | 2004 10 15 | 704 | 0.3+ | 0.4− |
| 2004 09 11 | 704 | 0.3+ | 0.2− | 2004 09 14 | 704 | 0.2+ | 0.1+ | 2004 10 15 | 704 | 0.2− | 0.2− |
| 2004 09 11 | 704 | 0.2− | 0.1+ | 2004 09 14 | 704 | 0.3+ | 0.7− | 2004 10 15 | 704 | 0.3− | 0.3− |
| 2004 09 11 | 704 | 0.7− | 0.3− | 2004 09 14 | 704 | 1.1+ | 0.0 | 2004 10 15 | 704 | 0.5− | 1.4+ |
| 2004 09 11 | 644 | 0.1− | 0.2+ | 2004 09 14 | 704 | 0.3− | 0.3− | 2009 08 10 | 691 | 0.0 | 0.4+ |
| 2004 09 11 | 704 | 1.7− | 0.2− | 2004 09 14 | 704 | 1.2+ | 0.2− | 2009 08 10 | 691 | 0.2− | 0.1− |
| 2004 09 11 | 704 | 0.2+ | 0.4− | 2004 09 14 | 704 | 0.6− | 0.1+ | 2009 08 10 | 691 | 0.1+ | 0.2− |
| 2004 09 11 | 704 | 0.8− | 0.2− | 2004 09 14 | 704 | 1.1+ | 0.1− | 2009 09 17 | G96 | 0.9+ | 0.2− |
| 2004 09 11 | 644 | 0.1+ | 0.3+ | 2004 09 22 | 704 | 0.4− | 0.2+ | 2009 09 17 | G96 | 0.0 | 0.1− |
| 2004 09 11 | 644 | 0.0 | 0.4+ | 2004 09 22 | 704 | 0.3+ | 0.3+ | 2009 09 17 | G96 | 0.2− | 0.2+ |
| 2004 09 12 | 704 | 0.7− | 0.0 | 2004 09 22 | 704 | 0.4+ | 0.7+ | 2009 09 17 | G96 | 0.0 | 0.3− |
| 2004 09 12 | 704 | 0.2− | 0.4− | 2004 09 22 | 704 | 0.5+ | 0.2+ | | | | |
| 2004 09 12 | 704 | 0.5+ | 0.6− | 2004 09 24 | 704 | 1.8+ | 0.2+ | | | | |

**2004 RO$_{159}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 67.96552 | | (2000.0) | | | |
| $n$ | 0.22047456 | $\omega$ | 85.65562 | | +0.98984986 | −0.01492503 |
| $a$ | 2.7137118 | $\Omega$ | 275.15581 | | −0.04412352 | +0.91305095 |
| $e$ | 0.1657238 | $i$ | 8.15812 | | +0.13509396 | +0.40757233 |
| $P$ | 4.47 | $H$ | 15.8 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 10 | 704 | 0.1− | 0.5+ | 2004 09 15 | 704 | 0.1− | 0.2− | 2004 10 10 | 704 | 0.4− | 0.1− |
| 2004 09 10 | 704 | 0.3− | 0.1+ | 2004 09 15 | 704 | 0.3− | 0.3+ | 2004 10 10 | 704 | 0.2+ | 0.4− |
| 2004 09 10 | 704 | 0.6− | 0.6+ | 2004 09 15 | 699 | 0.0 | 0.2− | 2004 10 10 | 704 | 0.3+ | 0.1− |
| 2004 09 10 | 704 | 0.7− | 0.1+ | 2004 09 15 | 704 | 0.4− | 0.1+ | 2004 10 10 | 704 | 0.0 | 0.3− |
| 2004 09 10 | 704 | 0.5− | 0.6+ | 2004 09 15 | 704 | 0.1− | 0.2− | 2004 10 10 | 704 | 0.1+ | 0.2+ |
| 2004 09 11 | 704 | 0.4− | 0.2− | 2004 09 15 | 704 | 1.1− | 0.3+ | 2004 10 15 | 704 | 0.4− | 1.5+ |
| 2004 09 11 | 704 | 0.5− | 0.2+ | 2004 09 16 | 704 | 0.9+ | 1.0− | 2004 10 15 | 704 | (0.1− | 2.3+) |
| 2004 09 11 | 704 | 0.1+ | 0.5− | 2004 09 16 | 704 | 0.7+ | 0.7− | 2004 10 15 | 704 | (0.3+ | 1.9+) |
| 2004 09 11 | 704 | 0.5− | 0.0 | 2004 09 16 | 704 | 0.5+ | 0.7− | 2004 10 15 | 704 | (0.2− | 1.7+) |
| 2004 09 12 | 704 | 0.2− | 0.1+ | 2004 09 16 | 704 | 1.1+ | 0.6− | 2009 11 18 | 691 | 0.1+ | 0.4+ |
| 2004 09 12 | 704 | 0.7− | 0.3+ | 2004 09 16 | 704 | 0.6+ | 0.8− | 2009 11 18 | 691 | 0.1− | 0.3− |
| 2004 09 12 | 704 | 0.6− | 0.3− | 2004 09 18 | 704 | 0.4+ | 0.2+ | 2009 11 18 | 691 | 0.3− | 0.3− |
| 2004 09 12 | 704 | 0.9− | 0.1+ | 2004 09 18 | 704 | 0.2− | 0.1+ | 2009 12 11 | G96 | 0.0 | 0.2+ |
| 2004 09 14 | 704 | 0.2+ | 0.8+ | 2004 09 18 | 704 | 0.9+ | 0.1+ | 2009 12 11 | G96 | 0.1+ | 0.0 |
| 2004 09 14 | 704 | 0.3− | 0.1− | 2004 09 18 | 704 | 0.5+ | 0.4− | 2009 12 11 | G96 | 0.1− | 0.2+ |
| 2004 09 14 | 704 | 0.4+ | 0.2+ | 2004 09 18 | 704 | 0.5+ | 0.3− | 2009 12 20 | G96 | 0.3+ | 0.2+ |
| 2004 09 14 | 704 | 0.8+ | 0.7+ | 2004 09 23 | 704 | 0.0 | 0.1− | 2009 12 20 | G96 | 0.3+ | 0.2+ |
| 2004 09 14 | 704 | 1.3+ | 0.6− | 2004 09 23 | 704 | 0.9+ | 0.9− | 2009 12 20 | G96 | 0.2+ | 0.1+ |
| 2004 09 15 | 699 | 0.7− | 0.6+ | 2004 09 23 | 704 | 0.0 | 0.2− | 2009 12 20 | G96 | 0.3+ | 0.1+ |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 2004 09 15 | 699 | 0.3+ | 0.5+ | 2004 09 23 | 704 | 0.4− | 0.5+ |
| 2004 09 15 | 699 | 0.4− | 0.7+ | 2004 09 23 | 704 | 0.2− | 0.4− |

**2004 RA$_{164}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 172.70751 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28282383 | $\omega$ | 186.89654 | | +0.85382731 | −0.51945560 | |
| $a$ | 2.2985752 | $\Omega$ | 204.49131 | | +0.48141483 | +0.81268410 | |
| $e$ | 0.2195090 | $i$ | 4.68154 | | +0.19803707 | +0.26402732 | |
| $P$ | 3.48 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 08 26 | 703 | 1.2− | 0.9+ | 2004 10 04 | 699 | 1.7+ | 1.0− | 2004 10 20 | 704 | 0.6+ | 0.0 |
| 2004 08 26 | 703 | 0.9− | 0.0 | 2004 10 07 | 699 | 1.2+ | 0.7− | 2004 11 04 | 699 | 0.6− | 0.1+ |
| 2004 08 26 | 703 | 0.3− | 0.2+ | 2004 10 07 | 699 | 1.0+ | 0.6− | 2004 11 04 | 699 | 0.0 | 0.0 |
| 2004 08 26 | 703 | 0.2− | 0.1− | 2004 10 07 | 699 | 1.1− | 0.0 | 2004 11 04 | 699 | 0.1− | 0.1− |
| 2004 09 10 | 691 | 0.3+ | 0.0 | 2004 10 07 | 699 | 0.2− | 0.3− | 2004 11 04 | 699 | 0.4− | 0.5+ |
| 2004 09 10 | 691 | 0.1+ | 0.1− | 2004 10 09 | 704 | 0.6− | 0.5− | 2004 11 11 | 691 | 0.3− | 0.4− |
| 2004 09 10 | 691 | 0.3+ | 0.2− | 2004 10 09 | 704 | 0.3− | 0.2− | 2004 11 11 | 691 | 0.3− | 0.2− |
| 2004 09 13 | 644 | 0.1+ | 0.1− | 2004 10 09 | 704 | 0.3− | 0.1+ | 2004 11 11 | 691 | 0.1− | 0.2− |
| 2004 09 13 | 644 | 0.4+ | 0.1+ | 2004 10 09 | 704 | 0.1+ | 0.2+ | 2004 12 04 | 699 | 1.4+ | 1.3+ |
| 2004 09 13 | 644 | 0.1+ | 0.1− | 2004 10 09 | 704 | 0.2− | 0.3+ | 2004 12 04 | 699 | 0.5+ | 0.4+ |
| 2004 09 13 | 644 | 0.5+ | 0.3+ | 2004 10 14 | 704 | 0.3− | 0.1− | 2004 12 04 | 699 | (0.4+ | 2.1+) |
| 2004 09 13 | 644 | 0.2+ | 0.5− | 2004 10 14 | 704 | 0.2− | 0.4+ | 2004 12 04 | 699 | (2.8+ | 0.1+) |
| 2004 09 13 | 644 | 0.4+ | 0.2+ | 2004 10 14 | 704 | 0.5+ | 0.6+ | 2008 12 03 | G96 | 0.3+ | 0.0 |
| 2004 09 22 | 704 | 0.3− | 0.7+ | 2004 10 14 | 704 | 0.3+ | 0.3+ | 2008 12 03 | G96 | 0.3− | 0.2− |
| 2004 09 22 | 704 | 0.2− | 0.2− | 2004 10 14 | 704 | 0.4+ | 0.5+ | 2008 12 03 | G96 | 0.3+ | 0.2− |
| 2004 09 22 | 704 | 0.4− | 0.4+ | 2004 10 15 | 691 | 0.0 | 0.0 | 2008 12 03 | G96 | 0.8− | 0.1+ |
| 2004 09 22 | 704 | 0.2+ | 0.7+ | 2004 10 15 | 691 | 0.1+ | 0.1+ | 2009 02 03 | G96 | 0.1+ | 0.0 |
| 2004 09 22 | 704 | 0.2− | 0.2+ | 2004 10 15 | 691 | 0.1+ | 0.0 | 2009 02 03 | G96 | 0.0 | 0.1+ |
| 2004 10 04 | 699 | 1.1− | 0.3− | 2004 10 20 | 704 | 0.1+ | 0.1− | 2009 02 03 | G96 | 0.1+ | 0.2+ |
| 2004 10 04 | 699 | 0.3− | 0.8− | 2004 10 20 | 704 | 0.1+ | 0.0 | 2009 02 03 | G96 | 0.1+ | 0.1− |
| 2004 10 04 | 699 | 0.6− | 1.1+ | 2004 10 20 | 704 | 0.3− | 0.4+ | | | | |

**2004 RV$_{206}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 58.06782 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.20424159 | $\omega$ | 24.12669 | | +0.56652945 | +0.80891424 | |
| $a$ | 2.8556606 | $\Omega$ | 280.74226 | | −0.77966972 | +0.46444114 | |
| $e$ | 0.2724699 | $i$ | 9.20530 | | −0.26675739 | +0.36048881 | |
| $P$ | 4.83 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 08 21 | 703 | 0.1− | 0.4− | 2004 09 11 | 704 | 0.2+ | 0.6+ | 2004 09 18 | 704 | 0.4− | 0.4+ |
| 2004 08 21 | 703 | 0.1+ | 0.4− | 2004 09 11 | 704 | 0.6− | 0.0 | 2004 09 18 | 704 | 0.3+ | 0.2+ |
| 2004 08 21 | 703 | 0.1+ | 0.5− | 2004 09 11 | 704 | 0.3− | 0.2− | 2004 09 18 | 704 | 0.0 | 0.4+ |
| 2004 08 21 | 703 | 0.1+ | 0.3+ | 2004 09 11 | 704 | 0.4− | 0.0 | 2004 09 22 | 704 | 1.1− | 0.3− |
| 2004 09 11 | 704 | 0.2− | 0.0 | 2004 09 14 | 704 | 0.3− | 0.2+ | 2004 09 22 | 704 | 0.1− | 0.4+ |
| 2004 09 11 | 704 | 0.2+ | 0.2+ | 2004 09 14 | 704 | 0.4− | 0.6+ | 2004 09 22 | 704 | 0.2+ | 0.7+ |
| 2004 09 11 | 704 | 0.4+ | 0.4− | 2004 09 14 | 704 | 0.2+ | 0.1− | 2004 09 22 | 704 | 0.4− | 0.6− |
| 2004 09 11 | 704 | 0.0 | 0.2− | 2004 09 14 | 704 | 0.6− | 0.0 | 2004 09 22 | 704 | 0.7− | 0.8− |
| 2004 09 11 | 704 | 0.4+ | 0.1+ | 2004 09 14 | 704 | 0.3+ | 0.2− | 2009 09 22 | 703 | 0.3+ | 0.2− |
| 2004 09 11 | 704 | 0.2+ | 0.0 | 2004 09 16 | 699 | 0.4+ | 0.2+ | 2009 09 22 | 703 | 0.1− | 0.2− |
| 2004 09 11 | 704 | 0.6+ | 0.8+ | 2004 09 16 | 699 | 1.1+ | 0.1− | 2009 09 22 | 703 | 0.1− | 0.8+ |
| 2004 09 11 | 704 | 0.1+ | 0.3+ | 2004 09 16 | 699 | 0.0 | 0.3+ | 2009 09 22 | 703 | 0.1− | 0.1− |
| 2004 09 11 | 704 | 0.3− | 0.1+ | 2004 09 16 | 699 | 0.0 | 0.5− | 2009 10 25 | 703 | 0.5− | 0.4+ |
| 2004 09 11 | 704 | 0.2+ | 0.4− | 2004 09 18 | 704 | 0.2− | 0.8− | 2009 10 25 | 703 | 0.3+ | 1.2− |
| 2004 09 11 | 704 | 0.3+ | 0.3+ | 2004 09 18 | 704 | 0.5+ | 0.1+ | 2009 10 25 | 703 | 0.3+ | 0.2+ |

**2004 RX$_{207}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 71.71247 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23211012 | $\omega$ | 107.55042 | | +0.93273502 | −0.26643810 | |
| $a$ | 2.6222454 | $\Omega$ | 268.43990 | | +0.16128820 | +0.91090726 | |
| $e$ | 0.1471242 | $i$ | 14.06500 | | +0.32247714 | +0.31505348 | |
| $P$ | 4.25 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 08 20 | 703 | 0.1+ | 0.7+ | 2004 09 14 | 704 | 0.0 | 0.1+ | 2009 11 10 | G96 | 0.2− | 0.1− |
| 2004 08 20 | 703 | 0.8− | 0.1+ | 2004 09 14 | 704 | 0.6+ | 0.3+ | 2009 11 10 | G96 | 0.2− | 0.6+ |
| 2004 08 20 | 703 | 0.4+ | 0.4+ | 2004 09 23 | 704 | 0.1− | 0.1− | 2009 11 18 | G96 | 0.4− | 0.1− |
| 2004 08 20 | 703 | 0.1+ | 0.4− | 2004 09 23 | 704 | 1.1− | 0.0 | 2009 11 18 | G96 | 0.1− | 0.1+ |
| 2004 09 11 | 704 | 0.2+ | 0.5+ | 2004 09 23 | 704 | 1.0− | 0.5+ | 2009 11 18 | G96 | 0.2+ | 0.5− |
| 2004 09 11 | 704 | 0.2+ | 0.2+ | 2004 10 12 | 699 | 0.7− | 0.5+ | 2009 11 18 | G96 | 0.4+ | 0.1− |
| 2004 09 11 | 704 | 0.1− | 0.7+ | 2004 10 12 | 699 | 1.4+ | 1.1− | 2009 12 21 | F85 | 0.0 | 0.2+ |
| 2004 09 11 | 704 | 0.3− | 0.7− | 2004 10 12 | 699 | (0.3− | 1.8+) | 2009 12 21 | F85 | 0.2+ | 0.1+ |
| 2004 09 14 | 704 | 0.1+ | 0.3− | 2004 10 12 | 699 | 0.8+ | 0.4− | 2009 12 21 | F85 | 0.4+ | 0.2− |
| 2004 09 14 | 704 | 0.0 | 0.0 | 2009 11 10 | G96 | 0.2+ | 0.3+ | | | | |
| 2004 09 14 | 704 | 0.3+ | 0.9− | 2009 11 10 | G96 | 0.4− | 0.0 | | | | |

**2004 RU$_{219}$ = 2009 VF$_{98}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 112.92593 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21836954 | $\omega$ | 22.29298 | | +0.40782501 | +0.90094363 | |
| $a$ | 2.7311236 | $\Omega$ | 272.03880 | | −0.85850850 | +0.32308759 | |
| $e$ | 0.1864767 | $i$ | 8.53122 | | −0.31087283 | +0.28968085 | |
| $P$ | 4.51 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 03 11 | 291 | 0.1− | 0.2− | 2004 09 15 | 699 | 0.2+ | 0.2+ | 2005 11 30 | 691 | 0.0 | 0.3+ |
| 2002 03 11 | 291 | 0.0 | 0.2+ | 2004 09 15 | 699 | 0.0 | 0.1− | 2005 11 30 | 691 | 0.1+ | 0.1+ |
| 2002 03 11 | 291 | 0.1+ | 0.1+ | 2004 09 15 | 704 | 0.3+ | 0.2− | 2005 11 30 | 691 | 0.1− | 0.1− |
| 2004 09 11 | 704 | 0.9− | 0.0 | 2004 09 15 | 704 | 0.2+ | 0.1+ | 2009 11 09 | G96 | 0.2− | 0.5− |
| 2004 09 11 | 704 | 0.3− | 0.6− | 2004 09 15 | 699 | 0.7− | 0.7− | 2009 11 09 | G96 | 0.3+ | 0.3− |
| 2004 09 11 | 704 | 0.1− | 0.3− | 2004 09 15 | 704 | 0.2− | 0.5+ | 2009 11 09 | G96 | 0.2+ | 0.2− |
| 2004 09 14 | 704 | 0.5− | 0.0 | 2004 09 15 | 704 | 0.2+ | 0.3+ | 2009 11 09 | G96 | 0.1+ | 0.3− |
| 2004 09 14 | 704 | 0.3− | 0.2− | 2004 09 15 | 704 | 0.2+ | 0.5+ | 2009 11 22 | G96 | 0.1− | 0.0 |
| 2004 09 14 | 704 | 0.3+ | 0.6− | 2004 10 10 | 704 | 0.3+ | 0.0 | 2009 11 22 | G96 | 0.1+ | 0.2− |
| 2004 09 14 | 704 | 1.3+ | 1.4+ | 2004 10 10 | 704 | 0.3+ | 0.0 | 2009 11 22 | G96 | 0.0 | 0.2− |
| 2004 09 15 | 699 | 0.4+ | 0.1+ | 2004 10 10 | 704 | 1.1− | 0.6+ | 2009 11 22 | G96 | 0.2− | 0.0 |

**2004 RJ$_{234}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 47.75421 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22720943 | $\omega$ | 18.77060 | | +0.56828336 | −0.82209433 | |
| $a$ | 2.6598174 | $\Omega$ | 36.62163 | | +0.74725831 | +0.49789121 | |
| $e$ | 0.1251034 | $i$ | 3.34978 | | +0.34446920 | +0.27616165 | |
| $P$ | 4.34 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 03 21 | 291 | 0.2− | 0.4+ | 2004 10 04 | 691 | 0.1+ | 0.4− | 2006 02 01 | 691 | 0.3+ | 0.2− |
| 2002 03 21 | 291 | 0.0 | 0.5+ | 2004 10 08 | 691 | 0.1+ | 0.2+ | 2006 02 01 | 691 | 0.1+ | 0.2+ |
| 2002 03 21 | 291 | 0.4+ | 0.4+ | 2004 10 08 | 691 | 0.1+ | 0.2+ | 2009 12 17 | G96 | 0.7+ | 0.3+ |
| 2004 09 09 | 691 | 0.3+ | 0.2+ | 2004 10 08 | 691 | 0.1+ | 0.2+ | 2009 12 17 | G96 | 0.1+ | 0.2− |
| 2004 09 09 | 691 | 0.1+ | 0.4+ | 2004 10 12 | 691 | 0.2+ | 0.2+ | 2009 12 17 | G96 | 0.9− | 0.1− |
| 2004 09 09 | 691 | 0.0 | 0.2+ | 2004 10 12 | 691 | 0.2+ | 0.1− | 2009 12 17 | G96 | 0.0 | 0.2− |
| 2004 09 15 | 691 | 0.1+ | 0.3+ | 2004 10 12 | 691 | 0.2− | 0.5− | 2009 12 20 | 691 | 0.8− | 0.0 |
| 2004 09 15 | 691 | 0.2− | 0.3+ | 2004 10 14 | 691 | 0.7− | 0.3+ | 2009 12 20 | 691 | 0.3+ | 0.2− |
| 2004 09 15 | 691 | 0.3+ | 0.3+ | 2004 10 14 | 691 | 0.3− | 0.1+ | 2009 12 20 | 691 | 0.2+ | 0.2− |
| 2004 10 04 | 691 | 0.1+ | 0.0 | 2004 10 14 | 691 | 0.7− | 0.1+ | | | | |
| 2004 10 04 | 691 | 0.0 | 0.5− | 2006 02 01 | 691 | 0.3+ | 0.2+ | | | | |

**2004 RY$_{240}$ = 2009 WJ$_{232}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 153.16518 | | (2000.0) | | | |
| $n$ | 0.22409758 | $\omega$ | 99.30276 | | +0.00992360 | +0.99989782 |
| $a$ | 2.6843838 | $\Omega$ | 171.24614 | | −0.94193239 | +0.01280142 |
| $e$ | 0.0337854 | $i$ | 3.87673 | | −0.33565591 | −0.00636214 |
| $P$ | 4.40 | $H$ | 16.5 | $G$ 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 02 21 | 691 | 0.0 | 0.9+ | 2004 09 17 | 704 | 0.1− | 0.7+ | 2009 10 12 | G96 | 0.2+ | 0.2+ |
| 2002 02 21 | 691 | 0.3+ | 0.0 | 2004 10 12 | 691 | 0.1+ | 0.2+ | 2009 10 12 | G96 | 0.5+ | 0.2− |
| 2002 02 21 | 691 | 0.2+ | 0.3+ | 2004 10 12 | 691 | 0.5− | 0.3+ | 2009 10 12 | G96 | 0.3− | 0.1− |
| 2003 05 26 | 291 | 0.1+ | 0.4+ | 2004 10 12 | 691 | 0.0 | 0.0 | 2009 10 23 | G96 | 0.3− | 0.2− |
| 2003 05 26 | 291 | 0.2+ | 0.0 | 2007 03 13 | 691 | 0.0 | 0.1− | 2009 10 23 | G96 | 0.4− | 0.0 |
| 2003 05 26 | 291 | 0.3+ | 0.2+ | 2007 03 13 | 691 | 0.1− | 0.4+ | 2009 10 23 | G96 | 0.1+ | 0.1+ |
| 2004 09 10 | 691 | 0.2− | 0.1− | 2007 03 13 | 691 | 0.5− | 0.1+ | 2009 10 23 | G96 | 0.1+ | 0.3− |
| 2004 09 10 | 691 | 0.3− | 0.2+ | 2007 03 26 | 691 | 0.0 | 0.1− | 2009 11 17 | G96 | 0.3+ | 0.2+ |
| 2004 09 10 | 691 | 0.1− | 0.1− | 2007 03 26 | 691 | 0.1+ | 0.3+ | 2009 11 17 | G96 | 0.2+ | 0.1+ |
| 2004 09 15 | 691 | 0.0 | 0.2+ | 2007 03 26 | 691 | 0.0 | 0.1+ | 2009 11 17 | G96 | 0.4+ | 0.2+ |
| 2004 09 15 | 691 | 0.2+ | 0.2+ | 2008 07 30 | G96 | 0.4+ | 0.0 | 2009 11 17 | G96 | 0.2+ | 0.2+ |
| 2004 09 15 | 691 | 0.2− | 0.2+ | 2008 07 30 | G96 | 0.2+ | 0.1− | 2009 11 24 | G96 | 0.1− | 0.2+ |
| 2004 09 17 | 704 | 0.8− | 0.5+ | 2008 07 30 | G96 | 0.5+ | 0.2− | 2009 11 24 | G96 | 0.4+ | 0.0 |
| 2004 09 17 | 704 | 0.4− | 1.2+ | 2008 07 30 | G96 | 0.3+ | 0.1− | 2009 11 24 | G96 | 0.2+ | 0.1− |
| 2004 09 17 | 704 | 0.1− | 0.0 | 2009 10 12 | G96 | 0.2+ | 0.4− | 2009 11 24 | G96 | 0.2− | 0.1− |

**2004 RX$_{252}$ = 2009 YE$_{18}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 53.29465 | | (2000.0) | | | |
| $n$ | 0.23308188 | $\omega$ | 108.71624 | | +0.59910074 | −0.73656386 |
| $a$ | 2.6149519 | $\Omega$ | 300.35615 | | +0.52603740 | +0.65767870 |
| $e$ | 0.1206309 | $i$ | 21.33422 | | +0.60362485 | +0.15790000 |
| $P$ | 4.23 | $H$ | 16.3 | $G$ 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 06 | 704 | 0.4− | 0.7+ | 2004 09 16 | 704 | 0.2− | 0.8+ | 2008 07 30 | 703 | 0.1− | 1.0+ |
| 2004 09 06 | 704 | 0.3− | 0.2− | 2004 09 16 | 704 | 0.9− | 0.6+ | 2008 07 30 | 703 | 0.7+ | 0.0 |
| 2004 09 06 | 704 | 1.1− | 0.8− | 2004 09 16 | 704 | 0.8+ | 0.5− | 2008 07 30 | 703 | 0.0 | 0.1− |
| 2004 09 06 | 704 | 0.8+ | 0.3− | 2004 09 16 | 704 | 1.0+ | 0.3+ | 2009 12 20 | 691 | 0.0 | 0.3− |
| 2004 09 15 | 704 | 0.2− | 0.3− | 2004 10 08 | 704 | 0.1− | 0.4− | 2009 12 20 | 691 | 0.2+ | 0.3+ |
| 2004 09 15 | 704 | 0.0 | 0.6+ | 2004 10 08 | 704 | 0.1+ | 0.6− | 2009 12 20 | 691 | 0.1− | 0.0 |
| 2004 09 15 | 704 | 0.2+ | 0.1− | 2004 10 08 | 704 | 0.1+ | 0.4− | 2009 12 26 | 691 | 0.0 | 0.1− |
| 2004 09 15 | 704 | 0.1+ | 0.1+ | 2004 10 08 | 704 | 0.6+ | 0.3+ | 2009 12 26 | 691 | 0.3− | 0.2+ |
| 2004 09 15 | 704 | 0.6− | 0.7+ | 2008 07 30 | 703 | 0.4− | 1.0− | 2009 12 26 | 691 | 0.2+ | 0.0 |

**2004 RZ$_{252}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 48.97331 | | (2000.0) | | | |
| $n$ | 0.21416761 | $\omega$ | 77.70907 | | +0.76498705 | −0.58233756 |
| $a$ | 2.7667305 | $\Omega$ | 317.04062 | | +0.31023706 | +0.70750373 |
| $e$ | 0.1941741 | $i$ | 23.80809 | | +0.56440038 | +0.40040160 |
| $P$ | 4.60 | $H$ | 15.6 | $G$ 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 15 | 704 | 0.8− | 0.9+ | 2004 10 25 | 704 | (1.2− | 1.5−) | 2008 10 31 | G96 | 0.4+ | 0.4− |
| 2004 09 15 | 704 | 1.2− | 0.8+ | 2004 10 25 | 704 | 1.0− | 1.2− | 2008 10 31 | G96 | 0.0 | 0.0 |
| 2004 09 15 | 704 | 0.2+ | 1.0+ | 2004 12 01 | 704 | 0.2− | 0.3+ | 2008 10 31 | G96 | 0.5+ | 0.2+ |
| 2004 09 15 | 704 | 1.3− | 0.1+ | 2004 12 01 | 704 | 0.0 | 0.6− | 2008 10 31 | G96 | 0.5+ | 0.4+ |
| 2004 09 16 | 704 | 0.2− | 0.2+ | 2004 12 01 | 704 | 0.8+ | 0.0 | 2009 12 13 | 703 | 0.4+ | 0.5− |
| 2004 09 16 | 704 | 0.4+ | 0.4− | 2004 12 01 | 704 | 0.3+ | 0.6+ | 2009 12 13 | 703 | 1.2− | 0.1− |
| 2004 09 16 | 704 | 0.3− | 0.3+ | 2004 12 01 | 704 | 0.2+ | 0.6+ | 2009 12 13 | 703 | 2.1− | 0.1+ |
| 2004 09 17 | 704 | 0.1+ | 0.0 | 2008 07 28 | E12 | 0.0 | 0.0 | 2009 12 13 | 703 | 1.0− | 0.2− |
| 2004 09 17 | 704 | 1.0+ | 0.3+ | 2008 07 28 | E12 | 0.9− | 0.7− | 2009 12 17 | G89 | 0.1+ | 0.0 |
| 2004 09 17 | 704 | 0.4− | 0.3− | 2008 07 28 | E12 | 0.7+ | 1.4+ | 2009 12 17 | G89 | 0.2+ | 0.1− |
| 2004 09 17 | 704 | 0.3+ | 0.2− | 2008 07 28 | E12 | 0.3+ | 0.4+ | 2009 12 17 | G89 | 0.1+ | 0.1− |
| 2004 09 17 | 704 | 0.1+ | 0.3+ | 2008 09 06 | G96 | 0.4− | 0.1− | 2009 12 18 | G89 | 0.2+ | 0.0 |
| 2004 10 12 | 704 | 0.9+ | 0.7+ | 2008 09 06 | G96 | 0.0 | 0.1− | 2009 12 18 | G89 | 0.0 | 0.1+ |
| 2004 10 12 | 704 | 0.2− | 1.0− | 2008 09 06 | G96 | 0.3+ | 0.5− | 2009 12 18 | G89 | 0.0 | 0.1+ |
| 2004 10 12 | 704 | 0.3+ | 0.7− | 2008 09 06 | G96 | 0.0 | 0.3− | 2009 12 20 | 703 | 0.4+ | 1.0− |
| 2004 10 12 | 704 | 0.6+ | 0.0 | 2008 09 22 | 291 | 0.1− | 0.2− | 2009 12 20 | 703 | 0.4+ | 0.4− |
| 2004 10 25 | 704 | 0.1− | 0.1+ | 2008 09 22 | 291 | 0.2+ | 0.3− | 2009 12 20 | 703 | 0.1+ | 0.0 |
| 2004 10 25 | 704 | 0.6− | 0.2+ | 2008 09 22 | 291 | 0.0 | 0.2− | 2009 12 20 | 703 | 0.9+ | 0.3+ |

**2004 RA$_{257}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 329.12814 | | (2000.0) | | | |
| $n$ | 0.19734397 | $\omega$ | 177.33694 | | +0.60348995 | −0.79723880 |
| $a$ | 2.9218201 | $\Omega$ | 235.54238 | | +0.73124789 | +0.56060286 |
| $e$ | 0.0678334 | $i$ | 1.00746 | | +0.31792516 | +0.22390785 |
| $P$ | 4.99 | $H$ | 16.1 | $G$ 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 09 | 704 | 0.5+ | 1.4+ | 2004 09 17 | 704 | (0.4+ | 1.6+) | 2009 08 15 | 691 | 0.5− | 0.6− |
| 2004 09 09 | 704 | 0.6+ | 1.3+ | 2004 09 17 | 704 | (0.2+ | 1.5+) | 2009 08 27 | 691 | 0.0 | 0.1+ |
| 2004 09 09 | 704 | 0.9+ | 0.2− | 2004 09 17 | 704 | 0.5− | 1.0+ | 2009 08 27 | 691 | 0.0 | 0.1− |
| 2004 09 09 | 704 | 0.1− | 0.1− | 2004 09 22 | 691 | 0.4− | 0.1+ | 2009 08 27 | 691 | 0.6− | 0.2− |
| 2004 09 13 | 699 | 0.8+ | 0.5+ | 2004 09 22 | 691 | 1.1− | 0.2+ | 2009 09 18 | G96 | 0.4+ | 0.2− |
| 2004 09 13 | 699 | 0.0 | 0.1− | 2004 09 22 | 691 | 0.2− | 0.2− | 2009 09 18 | G96 | 0.0 | 0.2− |
| 2004 09 13 | 699 | 0.5+ | 0.2− | 2004 09 24 | 291 | 0.1+ | 0.1− | 2009 09 18 | G96 | 0.1+ | 0.2− |
| 2004 09 13 | 699 | 1.0− | 0.4− | 2004 09 24 | 291 | 0.4+ | 0.1− | 2009 10 15 | G96 | 0.6+ | 0.5− |
| 2004 09 16 | 691 | 0.0 | 0.2+ | 2004 09 24 | 291 | 0.1+ | 0.1− | 2009 10 15 | G96 | 0.2+ | 0.2− |
| 2004 09 16 | 691 | 0.1+ | 0.1+ | 2009 08 15 | 691 | 1.3+ | 0.4+ | 2009 10 15 | G96 | 0.2+ | 0.1− |
| 2004 09 16 | 691 | 0.1+ | 0.0 | 2009 08 15 | 691 | 0.3− | 0.3− | 2009 10 15 | G96 | 0.2+ | 0.4− |

**2004 RA$_{271}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 70.61514 | | (2000.0) | | | |
| $n$ | 0.20090487 | $\omega$ | 302.05985 | | +0.55351791 | +0.83283684 |
| $a$ | 2.8871925 | $\Omega$ | 1.54963 | | −0.75311059 | +0.50096630 |
| $e$ | 0.0812116 | $i$ | 1.80368 | | −0.35558733 | +0.23540513 |
| $P$ | 4.91 | $H$ | 16.8 | $G$ 0.15 | $U$ | 5 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 11 | 691 | 0.3− | 0.0 | 2004 10 02 | 735 | 0.5+ | 0.7+ | 2009 09 25 | G96 | 0.1+ | 0.2+ |
| 2004 09 11 | 691 | 0.1+ | 0.2− | 2004 10 02 | 735 | 0.4− | 0.2− | 2009 10 18 | G96 | 0.3− | 0.0 |
| 2004 09 11 | 691 | 0.0 | 0.2− | 2004 10 02 | 735 | 0.2+ | 0.7+ | 2009 10 18 | G96 | 0.3− | 0.5− |
| 2004 09 16 | 691 | 0.1− | 0.0 | 2009 09 25 | G96 | 0.0 | 0.0 | 2009 10 18 | G96 | 0.1− | 0.2− |
| 2004 09 16 | 691 | 0.1− | 0.1− | 2009 09 25 | G96 | 0.4+ | 0.2+ | | | | |
| 2004 09 16 | 691 | 0.3+ | 0.3+ | 2009 09 25 | G96 | 0.3+ | 0.0 | | | | |

**2004 RG$_{308}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 310.20279 | | (2000.0) | | | |
| $n$ | 0.19165003 | $\omega$ | 198.44189 | | +0.28636326 | −0.94586909 |
| $a$ | 2.9794090 | $\Omega$ | 235.18867 | | +0.90080767 | +0.32009750 |
| $e$ | 0.0743386 | $i$ | 10.72096 | | +0.32640714 | −0.05356537 |
| $P$ | 5.14 | $H$ | 14.9 | $G$ 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 10 | 704 | 0.1+ | 0.4− | 2004 09 22 | 704 | 0.1+ | 0.7+ | 2004 10 16 | 704 | 0.2− | 0.4+ |
| 2004 09 10 | 704 | 0.9+ | 0.2+ | 2004 09 22 | 704 | 0.7− | 0.5+ | 2004 10 16 | 704 | 0.0 | 0.5− |
| 2004 09 10 | 704 | 1.1+ | 0.5+ | 2004 10 06 | 644 | 0.1− | 0.3− | 2004 10 16 | 704 | 0.9+ | 0.3+ |
| 2004 09 10 | 704 | 1.4− | 0.2+ | 2004 10 06 | 644 | 0.2+ | 0.3+ | 2004 11 03 | 644 | 0.3− | 0.0 |
| 2004 09 11 | 644 | 0.3− | 0.2− | 2004 10 06 | 644 | 0.0 | 0.2+ | 2004 11 03 | 644 | 0.2− | 0.2− |
| 2004 09 11 | 644 | 0.2− | 0.0 | 2004 10 08 | A50 | 1.2+ | 0.6+ | 2004 11 03 | 644 | 0.4− | 0.5− |
| 2004 09 11 | 644 | 0.2− | 0.1− | 2004 10 08 | A50 | (1.6+ | 0.5+) | 2009 09 13 | D29 | 0.3− | 0.4− |
| 2004 09 13 | 704 | 0.5− | 0.9+ | 2004 10 08 | A50 | 1.4+ | 0.8+ | 2009 09 13 | D29 | 0.1+ | 1.2− |
| 2004 09 13 | 704 | 0.7− | 0.3− | 2004 10 08 | A50 | 0.5+ | 0.2− | 2009 09 13 | D29 | 0.4+ | 0.3− |
| 2004 09 13 | 704 | 1.0− | 0.6− | 2004 10 09 | 699 | 0.4+ | 0.7− | 2009 09 13 | D29 | 0.5+ | 0.2− |
| 2004 09 15 | 699 | 1.0− | 0.1− | 2004 10 09 | 699 | 1.0− | 0.1− | 2009 09 21 | 703 | 0.1+ | 1.0+ |
| 2004 09 15 | 699 | 0.4+ | 0.6− | 2004 10 09 | 699 | 1.2+ | 0.3− | 2009 09 21 | 703 | 1.1− | 0.6+ |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 15 | 699 | 0.2− | 0.2+ | 2004 10 09 | 699 | 0.5+ | 0.3− | 2009 09 21 | 703 | 0.5+ | 0.6+ |
| 2004 09 15 | 699 | 0.1+ | 1.1− | 2004 10 15 | 704 | 0.3− | 0.2+ | 2009 09 21 | 703 | 0.1− | 0.1+ |
| 2004 09 18 | 704 | 0.3− | 0.1+ | 2004 10 15 | 704 | 0.1+ | 0.6+ | 2009 10 24 | 703 | 0.4+ | 0.7− |
| 2004 09 18 | 704 | 0.3− | 0.4− | 2004 10 15 | 704 | 0.5− | 0.1− | 2009 10 24 | 703 | 0.4− | 0.3+ |
| 2004 09 18 | 704 | 0.8+ | 0.0 | 2004 10 15 | 704 | 0.2+ | 0.7+ | 2009 10 24 | 703 | 0.5+ | 0.5− |
| 2004 09 18 | 704 | 0.6− | 0.1− | 2004 10 15 | 704 | 0.3− | 0.5+ | 2009 10 24 | 703 | 0.3− | 0.5+ |
| 2004 09 18 | 704 | 0.1+ | 0.3− | 2004 10 16 | 704 | 0.6+ | 0.6− | | | | |
| 2004 09 22 | 704 | 0.8− | 0.3+ | 2004 10 16 | 704 | 0.8+ | 0.3− | | | | |

**2004 RD$_{309}$ = 2009 VC$_{106}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 20.42248 | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.21287683 | $\omega$ | 255.98364 | | +0.73322800 | | −0.67520705 | |
| $a$ | 2.7779033 | $\Omega$ | 146.37616 | | +0.66639052 | | +0.68998711 | |
| $e$ | 0.2327549 | $i$ | 8.35376 | | +0.13527886 | | +0.26079346 | |
| $P$ | 4.63 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 1 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 10 23 | 327 | 0.3+ | 1.1− | 2006 02 07 | 691 | 0.0 | 0.5+ | 2006 02 25 | G96 | 0.1− | 0.2+ |
| 1995 10 23 | 327 | 0.8− | 0.9− | 2006 02 07 | 691 | 0.3+ | 0.2+ | 2006 02 25 | G96 | 0.5− | 0.4− |
| 1995 10 23 | 327 | 1.1+ | 0.4− | 2006 02 07 | 691 | 0.2+ | 0.2+ | 2006 02 25 | G96 | 0.0 | 0.2+ |
| 2004 09 13 | 691 | 0.2− | 0.1+ | 2006 02 25 | G96 | 0.2− | 0.2− | 2009 11 08 | 703 | 0.4− | 0.3+ |
| 2004 09 13 | 691 | 0.6+ | 0.6+ | 2006 02 25 | G96 | 0.1− | 0.0 | 2009 11 08 | 703 | 0.6+ | 1.1− |
| 2004 09 13 | 691 | 0.1− | 0.2+ | 2006 02 25 | G96 | 0.1− | 0.1− | 2009 11 08 | 703 | 0.0 | 0.2− |
| 2004 09 17 | 704 | 1.1− | 0.7+ | 2006 02 25 | G96 | 0.1− | 0.1+ | 2009 11 08 | 703 | 1.4+ | 0.4− |
| 2004 09 17 | 704 | 0.2+ | 0.2+ | 2006 02 25 | G96 | 0.2+ | 0.1+ | 2009 11 23 | 703 | 0.2− | 0.4+ |
| 2004 09 17 | 704 | 0.5− | 1.2− | 2006 02 25 | G96 | 0.2+ | 0.2+ | 2009 11 23 | 703 | 1.3− | 1.7+ |
| 2004 09 21 | 704 | 0.1− | 0.5+ | 2006 02 25 | G96 | 0.2+ | 0.0 | 2009 11 23 | 703 | 0.2+ | 0.3− |
| 2004 09 21 | 704 | 0.9− | 0.3+ | 2006 02 25 | G96 | 0.3− | 0.1− | 2009 11 23 | 703 | (0.3− | 1.9+) |
| 2004 09 21 | 704 | 0.0 | 0.6+ | 2006 02 25 | G96 | 0.1− | 0.1+ | 2009 11 23 | 703 | 0.4− | 0.2− |

**2004 RF$_{321}$ = 2008 SM$_{295}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 163.06615 | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.24565940 | $\omega$ | 88.03267 | | +0.44817839 | | +0.88744397 | |
| $a$ | 2.5249171 | $\Omega$ | 209.36248 | | −0.88235259 | | +0.41982850 | |
| $e$ | 0.1891121 | $i$ | 12.67717 | | −0.14349227 | | +0.19022942 | |
| $P$ | 4.01 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 3 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 13 | 644 | 0.1− | 0.0 | 2004 10 10 | 704 | (0.9− | 2.2+) | 2008 09 28 | 703 | 0.3+ | 0.3+ |
| 2004 09 13 | 644 | 0.2+ | 0.1− | 2004 10 10 | 704 | (1.5+ | 2.6+) | 2008 09 28 | 703 | 0.3+ | 1.0+ |
| 2004 09 13 | 644 | 0.2+ | 0.0 | 2007 04 14 | G96 | 0.0 | 0.2+ | 2008 09 28 | 703 | 0.7− | 1.2− |
| 2004 09 18 | 704 | (2.4− | 1.2+) | 2007 04 14 | G96 | 0.0 | 0.3+ | 2008 09 28 | 703 | (1.9− | 0.9+) |
| 2004 09 18 | 704 | (2.6− | 0.1+) | 2007 04 14 | G96 | 0.2+ | 0.4− | 2008 10 30 | G96 | 0.2+ | 0.2− |
| 2004 09 18 | 704 | (1.4− | 1.8+) | 2007 04 14 | G96 | 0.3− | 0.1− | 2008 10 30 | G96 | 0.0 | 0.4− |
| 2004 10 05 | 644 | 0.5− | 0.1+ | 2008 09 24 | 703 | 0.6+ | 0.1+ | 2008 10 30 | G96 | 0.0 | 0.3− |
| 2004 10 05 | 644 | 0.0 | 0.2+ | 2008 09 24 | 703 | 0.1+ | 0.2− | 2008 10 30 | G96 | 0.2− | 0.0 |
| 2004 10 05 | 644 | 0.1+ | 0.2+ | 2008 09 24 | 703 | 1.1+ | 0.2− | | | | |
| 2004 10 10 | 704 | 0.1− | 0.8+ | 2008 09 24 | 703 | 1.5− | 0.1− | | | | |

**2004 RE$_{322}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 295.57368 | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.18223236 | $\omega$ | 227.65600 | | +0.23558861 | | −0.96418126 | |
| $a$ | 3.0811941 | $\Omega$ | 209.38669 | | +0.94862600 | | +0.25539493 | |
| $e$ | 0.0605713 | $i$ | 14.38052 | | +0.21120302 | | −0.07160955 | |
| $P$ | 5.41 | $H$ | 14.8 | $G$ | 0.15 | $U$ | 4 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 10 | 704 | 0.4− | 0.6− | 2004 09 18 | 704 | 0.0 | 0.7+ | 2004 11 10 | 691 | 0.1− | 0.1− |
| 2004 09 10 | 704 | 0.2+ | 0.1+ | 2004 09 18 | 704 | 0.1− | 0.2− | 2009 08 17 | 703 | 0.5− | 0.3− |
| 2004 09 10 | 704 | 0.1− | 0.8− | 2004 10 07 | 691 | 0.1+ | 0.2− | 2009 08 17 | 703 | 0.5− | 0.0 |
| 2004 09 10 | 704 | 0.9− | 1.5+ | 2004 10 07 | 691 | 0.2+ | 0.2− | 2009 08 17 | 703 | 0.0 | 0.1+ |
| 2004 09 13 | 704 | 0.3+ | 0.4− | 2004 10 07 | 691 | 0.3+ | 0.2− | 2009 08 17 | 703 | 0.0 | 0.8+ |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 13 | 704 | 0.6+ | 0.2+ | 2004 10 10 | 704 | 0.5+ | 0.3+ | 2009 08 27 | 703 | 0.3− | 0.1− |
| 2004 09 13 | 704 | 0.6+ | 0.5− | 2004 10 10 | 704 | 0.0 | 0.1+ | 2009 08 27 | 703 | 0.1− | 0.5+ |
| 2004 09 13 | 704 | 0.4+ | 0.3+ | 2004 10 10 | 704 | 0.2+ | 0.4− | 2009 08 27 | 703 | 0.1+ | 0.3− |
| 2004 09 13 | 704 | 0.6+ | 0.4− | 2004 10 10 | 704 | 0.2− | 0.7+ | 2009 08 27 | 703 | 0.7+ | 0.5− |
| 2004 09 15 | 699 | 0.6− | 0.5− | 2004 10 21 | 704 | 0.9− | 0.9+ | 2009 09 20 | 703 | 0.4+ | 0.3+ |
| 2004 09 15 | 699 | 0.2+ | 1.3+ | 2004 10 21 | 704 | 1.1− | 0.2+ | 2009 09 20 | 703 | 0.3− | 0.7− |
| 2004 09 15 | 699 | (1.5+ | 2.1+) | 2004 10 21 | 704 | 1.2− | 0.2+ | 2009 09 20 | 703 | 0.3+ | 0.1+ |
| 2004 09 15 | 699 | (1.8+ | 1.3+) | 2004 10 21 | 704 | 1.3− | 0.8+ | 2009 09 20 | 703 | 0.3+ | 0.1+ |
| 2004 09 18 | 704 | 0.8+ | 0.3− | 2004 11 10 | 691 | 0.2+ | 0.1− | | | | |
| 2004 09 18 | 704 | 0.1− | 0.2+ | 2004 11 10 | 691 | 0.1− | 0.1− | | | | |

**2004 RY$_{324}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 74.00627 | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.22793347 | $\omega$ | 47.91362 | | +0.91192831 | | −0.40602092 | |
| $a$ | 2.6541817 | $\Omega$ | 335.85911 | | +0.32033949 | | +0.79492395 | |
| $e$ | 0.1552784 | $i$ | 8.35756 | | +0.25645540 | | +0.45082471 | |
| $P$ | 4.32 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 3 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 13 | 704 | 0.1− | 0.6− | 2004 10 15 | 704 | 0.2− | 1.7+ | 2004 11 13 | 703 | 0.2+ | 0.3− |
| 2004 09 13 | 704 | 0.2+ | 0.2− | 2004 10 15 | 704 | 0.9+ | 0.2+ | 2004 11 13 | 703 | 0.4− | 0.1+ |
| 2004 09 13 | 704 | 1.1− | 0.2− | 2004 10 15 | 704 | 0.7+ | 0.4+ | 2004 11 13 | 703 | 0.4+ | 0.9− |
| 2004 09 18 | 704 | 0.7+ | 0.8+ | 2004 10 15 | 704 | 0.1+ | 0.6+ | 2008 09 24 | 691 | 0.1+ | 0.2− |
| 2004 09 18 | 704 | 1.1+ | 0.5+ | 2004 10 15 | 704 | 0.1+ | 0.2− | 2008 09 24 | 691 | 0.4− | 0.3+ |
| 2004 09 18 | 704 | 0.2+ | 0.4− | 2004 11 04 | 703 | 0.2− | 0.3+ | 2008 09 24 | 691 | 0.2+ | 0.1− |
| 2004 09 22 | 699 | 0.3+ | 0.4− | 2004 11 04 | 703 | 0.2− | 0.2+ | 2008 10 23 | G96 | 0.5+ | 0.5+ |
| 2004 09 22 | 699 | 0.1+ | 0.0 | 2004 11 04 | 703 | 0.7− | 0.2− | 2008 10 23 | G96 | 0.0 | 0.2− |
| 2004 09 22 | 699 | 0.7− | 0.4− | 2004 11 04 | 703 | 0.2+ | 0.1− | 2008 10 23 | G96 | 0.2− | 0.1− |
| 2004 09 22 | 699 | 0.0 | 0.9− | 2004 11 13 | 703 | 1.7− | 0.5− | 2008 10 23 | G96 | 0.1+ | 0.3− |

**2004 RT$_{346}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 29.69504 | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.22569329 | $\omega$ | 148.91178 | | +0.39194264 | | −0.89735136 | |
| $a$ | 2.6717160 | $\Omega$ | 277.33697 | | +0.79649019 | | +0.44131659 | |
| $e$ | 0.1640844 | $i$ | 11.80071 | | +0.46041757 | | +0.00044726 | |
| $P$ | 4.37 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 4 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 11 | 704 | 0.1− | 0.4− | 2004 09 23 | 704 | (0.1− | 1.7+) | 2009 11 11 | G96 | 0.1+ | 0.1+ |
| 2004 09 11 | 704 | 0.0 | 0.2+ | 2004 10 15 | 699 | 0.4− | 0.8+ | 2009 12 10 | G96 | 0.0 | 0.1− |
| 2004 09 11 | 704 | 0.3+ | 0.3+ | 2004 10 15 | 699 | 0.1− | 1.0+ | 2009 12 10 | G96 | 0.1− | 0.2− |
| 2004 09 11 | 704 | (0.1+ | 1.7+) | 2004 10 15 | 699 | 0.3− | 0.1+ | 2009 12 10 | G96 | 0.3− | 0.1− |
| 2004 09 14 | 704 | 0.3+ | 0.7− | 2004 10 15 | 699 | 0.9− | 0.9+ | 2009 12 10 | G96 | 0.1− | 0.3+ |
| 2004 09 14 | 704 | 0.0 | 0.2+ | 2004 11 04 | 703 | 0.5+ | 0.9− | 2009 12 17 | G89 | 0.1+ | 0.1+ |
| 2004 09 14 | 704 | 0.0 | 0.3+ | 2004 11 04 | 703 | 0.7+ | 0.5− | 2009 12 17 | G89 | 0.1+ | 0.1+ |
| 2004 09 14 | 704 | 0.5− | 0.1− | 2004 11 04 | 703 | 0.2− | 0.6− | 2009 12 17 | G89 | 0.1+ | 0.1+ |
| 2004 09 14 | 704 | 0.5− | 0.3− | 2004 11 04 | 703 | 0.9− | 0.2− | 2009 12 18 | G89 | 0.0 | 0.0 |
| 2004 09 23 | 704 | 1.0+ | 1.2− | 2009 11 11 | G96 | 0.0 | 0.4− | 2009 12 18 | G89 | 0.1+ | 0.0 |
| 2004 09 23 | 704 | 0.3− | 0.3+ | 2009 11 11 | G96 | 0.2− | 0.1− | 2009 12 18 | G89 | 0.0 | 0.1+ |
| 2004 09 23 | 704 | 1.4+ | 0.9+ | 2009 11 11 | G96 | 0.0 | 0.0 | | | | |

**2004 SL$_{2}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 42.15562 | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.19707843 | $\omega$ | 315.65661 | | +0.89116285 | | +0.45075625 | |
| $a$ | 2.9244441 | $\Omega$ | 17.75175 | | −0.35501018 | | +0.76345817 | |
| $e$ | 0.0892553 | $i$ | 9.71590 | | −0.28248283 | | +0.46254775 | |
| $P$ | 5.00 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 5 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 09 | 704 | 0.2− | 0.1+ | 2004 09 16 | G92 | 0.2− | 0.7− | 2004 10 07 | 704 | 0.1+ | 0.7− |
| 2004 09 09 | 704 | 0.2+ | 0.5− | 2004 09 16 | G92 | 0.1+ | 0.6− | 2004 10 07 | 704 | (2.3+ | 1.6+) |
| 2004 09 09 | 704 | 0.2− | 0.1+ | 2004 09 17 | 704 | 0.6+ | 0.5+ | 2004 10 07 | 704 | 0.1− | 0.2+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 14 | 699 | 1.1− | 0.5+ | 2004 09 17 | 704 | 0.8− | 0.6+ | 2009 08 18 | 691 | 0.3+ | 0.1+ | | |
| 2004 09 14 | 699 | 1.3− | 1.1+ | 2004 09 17 | 704 | 0.7+ | 0.3− | 2009 08 18 | 691 | 0.2− | 0.2− | | |
| 2004 09 14 | 699 | 0.3+ | 0.2+ | 2004 09 17 | 704 | 0.7− | 0.3− | 2009 08 18 | 691 | 0.1− | 0.0 | | |
| 2004 09 14 | 699 | 0.1+ | 0.5+ | 2004 10 06 | 699 | 0.4+ | 0.1+ | 2009 09 28 | G96 | 0.2− | 0.3+ | | |
| 2004 09 16 | 699 | 0.2+ | 0.2+ | 2004 10 06 | 699 | (0.6− | 2.1−) | 2009 09 28 | G96 | 0.0 | 0.1+ | | |
| 2004 09 16 | 699 | 0.7+ | 0.5− | 2004 10 06 | 699 | 0.4− | 0.9− | 2009 09 28 | G96 | 0.1+ | 0.2+ | | |
| 2004 09 16 | 699 | 0.1− | 1.1+ | 2004 10 06 | 699 | 0.3+ | 0.2− | 2009 09 28 | G96 | 0.1− | 0.1+ | | |
| 2004 09 16 | 699 | 0.3+ | 0.5− | 2004 10 07 | 704 | 0.7+ | 0.7+ | | | | | | |
| 2004 09 16 | G92 | 0.8+ | 1.2− | 2004 10 07 | 704 | 0.2− | 0.2+ | | | | | | |

**2004 SP$_{18}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 11.53320 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.20263387 | $\omega$ | 65.36987 | | +0.93369450 | −0.31068210 | |
| $a$ | 2.8707455 | $\Omega$ | 312.18610 | | +0.17346991 | +0.82739874 | |
| $e$ | 0.1633276 | $i$ | 13.90152 | | +0.31324555 | +0.46785464 | |
| $P$ | 4.86 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 10 | 704 | 0.4− | 0.6+ | 2004 09 21 | 704 | 0.4+ | 0.1+ | 2009 09 21 | 703 | (1.9− | 0.3−) |
| 2004 09 10 | 704 | 0.2+ | 0.5− | 2004 09 21 | 704 | 1.1+ | 0.2+ | 2009 09 21 | 703 | 0.4− | 0.1− |
| 2004 09 10 | 704 | 0.5+ | 0.0 | 2004 09 22 | 704 | 0.3− | 0.1+ | 2009 09 21 | 703 | 0.6− | 0.0 |
| 2004 09 10 | 704 | 0.4+ | 0.4+ | 2004 09 22 | 704 | 0.5− | 0.6− | 2009 09 28 | 703 | 0.1− | 0.8+ |
| 2004 09 10 | 704 | 0.4+ | 0.7− | 2004 09 22 | 704 | 0.5− | 0.8+ | 2009 09 28 | 703 | (1.9+ | 1.1+) |
| 2004 09 18 | 704 | 0.6− | 0.2+ | 2004 09 22 | 704 | 0.2− | 0.6− | 2009 09 28 | 703 | 0.3+ | 0.0 |
| 2004 09 18 | 704 | 0.2+ | 0.0 | 2004 09 22 | 704 | 0.3+ | 0.6+ | 2009 09 28 | 703 | 0.9+ | 0.3− |
| 2004 09 18 | 704 | 0.4− | 0.8+ | 2004 09 22 | 704 | 0.6− | 0.5+ | 2009 10 16 | 703 | 0.1+ | 1.0− |
| 2004 09 18 | 704 | 0.6+ | 0.4+ | 2004 09 22 | 704 | 0.7− | 0.5− | 2009 10 16 | 703 | 0.2− | 0.9− |
| 2004 09 21 | 704 | 0.5+ | 0.6− | 2004 10 10 | 704 | 0.1− | 0.3− | 2009 10 16 | 703 | 0.2+ | 0.9+ |
| 2004 09 21 | 704 | 0.6− | 0.3− | 2004 10 10 | 704 | 0.6+ | 0.1− | 2009 10 16 | 703 | 0.2− | 0.6+ |
| 2004 09 21 | 704 | 0.0 | 1.1− | 2004 10 10 | 704 | 0.1− | 0.4+ | | | | |

**2004 TS$_{7}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 64.11217 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21680318 | $\omega$ | 267.01603 | | +0.96367129 | +0.22604221 | |
| $a$ | 2.7442622 | $\Omega$ | 79.88815 | | −0.14878518 | +0.89670128 | |
| $e$ | 0.2768405 | $i$ | 8.30956 | | −0.22181212 | +0.38056766 | |
| $P$ | 4.55 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 04 24 | 691 | 0.1− | 0.0 | 2004 09 21 | 704 | 0.3− | 0.1+ | 2009 11 20 | 691 | 0.3− | 0.2+ |
| 2003 04 24 | 691 | 0.4+ | 0.0 | 2004 10 05 | 608 | 0.2+ | 0.1+ | 2009 12 10 | G96 | 0.4+ | 0.1+ |
| 2003 04 24 | 691 | 0.0 | 0.5+ | 2004 10 05 | 608 | 0.2+ | 0.4− | 2009 12 10 | G96 | 0.5+ | 0.0 |
| 2004 08 26 | E12 | 0.8− | 0.2+ | 2004 10 05 | 608 | 0.1+ | 0.2+ | 2009 12 10 | G96 | 0.0 | 0.0 |
| 2004 08 26 | E12 | 0.2− | 0.0 | 2004 10 06 | 704 | 1.5+ | 0.4+ | 2009 12 10 | G96 | 0.3+ | 0.2+ |
| 2004 08 26 | E12 | 0.4− | 1.2− | 2004 10 06 | 704 | 1.3+ | 0.8+ | 2009 12 19 | G96 | 0.2+ | 0.0 |
| 2004 08 26 | E12 | 0.5+ | 0.2+ | 2004 10 06 | 704 | 0.3+ | 0.5− | 2009 12 19 | G96 | 0.2+ | 0.2− |
| 2004 09 07 | 704 | 0.5− | 0.7+ | 2004 10 06 | 704 | 0.0 | 0.7+ | 2009 12 19 | G96 | 0.5+ | 0.1+ |
| 2004 09 07 | 704 | 0.0 | 0.2+ | 2004 10 06 | 704 | (0.2+ | 1.8+) | 2009 12 19 | G96 | 0.1+ | 0.2+ |
| 2004 09 07 | 704 | 0.4− | 0.1+ | 2004 10 13 | 704 | 0.5+ | 0.4+ | 2009 12 23 | 114 | 0.1+ | 0.1− |
| 2004 09 07 | 704 | 0.6− | 0.0 | 2004 10 13 | 704 | 0.4− | 0.2− | 2009 12 23 | 114 | 0.5+ | 0.1− |
| 2004 09 07 | 704 | 0.8− | 0.2+ | 2004 10 13 | 704 | 0.2+ | 0.3+ | 2009 12 23 | 114 | 1.1+ | 1.2+ |
| 2004 09 21 | 704 | 0.3− | 0.4− | 2004 10 13 | 704 | 0.3− | 0.3+ | 2009 12 23 | 114 | 0.2+ | 0.6+ |
| 2004 09 21 | 704 | 0.3− | 0.0 | 2004 10 13 | 704 | 0.5+ | 0.0 | 2009 12 23 | 114 | 1.0+ | 0.2+ |
| 2004 09 21 | 704 | 0.4− | 0.7− | 2009 11 20 | 691 | 0.8− | 0.5− | | | | |
| 2004 09 21 | 704 | 0.0 | 0.3− | 2009 11 20 | 691 | 0.3− | 0.3+ | | | | |

**2004 TK$_{20}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 9.56084 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18081282 | $\omega$ | 262.83695 | | +0.89100688 | +0.01033399 | |
| $a$ | 3.0972997 | $\Omega$ | 95.78808 | | +0.14792375 | +0.93857485 | |
| $e$ | 0.2238793 | $i$ | 27.14204 | | −0.42921476 | +0.34492096 | |
| $P$ | 5.45 | $H$ | 15.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 15 | 704 | 0.3+ | 0.7− | 2004 11 11 | 703 | 0.5− | 0.5+ | 2009 08 17 | E12 | 0.1− | 0.2− |
| 2004 10 15 | 704 | 1.0+ | 0.7− | 2004 11 11 | 703 | 0.9+ | 0.6+ | 2009 08 17 | E12 | 0.3+ | 0.2+ |
| 2004 10 15 | 704 | 0.6+ | 0.2+ | 2004 11 11 | 703 | 1.3− | 0.4− | 2009 08 17 | E12 | 0.3+ | 0.0 |
| 2004 10 15 | 704 | 0.4− | 0.3+ | 2004 12 03 | 644 | 0.4+ | 0.2− | 2009 08 17 | E12 | 0.4− | 0.0 |
| 2004 10 15 | 704 | 0.1+ | 0.7+ | 2004 12 03 | 644 | 0.2+ | 0.4− | 2009 09 18 | E12 | 0.0 | 0.5− |
| 2004 10 16 | 704 | 0.1− | 0.5− | 2004 12 03 | 644 | 0.3+ | 0.1+ | 2009 09 18 | E12 | 0.4− | 0.4+ |
| 2004 10 16 | 704 | 0.8+ | 0.0 | 2004 12 10 | 703 | 0.8− | 0.9− | 2009 09 18 | E12 | 0.4+ | 0.5+ |
| 2004 10 16 | 704 | 0.5− | 0.2− | 2004 12 10 | 703 | 1.1− | 1.2+ | 2009 09 18 | E12 | 0.1− | 0.0 |
| 2004 10 16 | 704 | 0.3+ | 0.6+ | 2004 12 10 | 703 | 0.5+ | 0.6− | | | | |
| 2004 11 11 | 703 | 0.1− | 0.4+ | 2004 12 10 | 703 | 0.4− | 0.2+ | | | | |

**2004 TA$_{33}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 11.70526 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18305627 | $\omega$ | 347.78260 | | +0.99896736 | +0.02852328 | |
| $a$ | 3.0719417 | $\Omega$ | 10.77205 | | −0.00376911 | +0.82771776 | |
| $e$ | 0.0685313 | $i$ | 10.90684 | | −0.04527694 | +0.56041924 | |
| $P$ | 5.38 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 09 | 691 | 0.1+ | 0.0 | 2004 10 10 | 691 | 0.3− | 0.0 | 2007 05 10 | G96 | 0.7+ | 0.2− |
| 2004 09 09 | 691 | 0.3+ | 0.2+ | 2004 10 10 | 691 | 0.2− | 0.1+ | 2007 05 10 | G96 | 0.4+ | 0.1− |
| 2004 09 09 | 691 | 0.3− | 0.1− | 2004 10 14 | 691 | 0.0 | 0.1− | 2007 05 10 | G96 | 0.2+ | 0.1+ |
| 2004 09 22 | 691 | 0.1− | 0.0 | 2004 10 14 | 691 | 0.2+ | 0.0 | 2007 05 10 | G96 | 0.5− | 0.1− |
| 2004 09 22 | 691 | 0.1− | 0.1− | 2004 10 14 | 691 | 0.1+ | 0.1+ | 2009 09 26 | G96 | 0.1+ | 0.0 |
| 2004 09 22 | 691 | 0.0 | 0.3− | 2007 03 26 | G96 | 0.4− | 0.5− | 2009 09 26 | G96 | 0.1+ | 0.2+ |
| 2004 10 04 | 691 | 0.0 | 0.1− | 2007 03 26 | G96 | 0.4+ | 0.1+ | 2009 09 26 | G96 | 0.1− | 0.0 |
| 2004 10 04 | 691 | 0.2− | 0.1− | 2007 03 26 | G96 | 0.0 | 0.2+ | 2009 09 26 | G96 | 0.1+ | 0.0 |
| 2004 10 04 | 691 | 0.1+ | 0.1+ | 2007 03 26 | G96 | 0.4− | 0.1− | 2009 11 18 | G96 | 0.1− | 0.3− |
| 2004 10 08 | 691 | 0.3+ | 0.1− | 2007 04 23 | G96 | 0.1+ | 0.3+ | 2009 11 18 | G96 | 0.2+ | 0.4+ |
| 2004 10 08 | 691 | 0.1+ | 0.1+ | 2007 04 23 | G96 | 0.3+ | 0.1+ | 2009 11 18 | G96 | 0.2− | 0.0 |
| 2004 10 08 | 691 | 0.2+ | 0.0 | 2007 04 23 | G96 | 0.2− | 0.1+ | 2009 11 18 | G96 | 0.1− | 0.4− |
| 2004 10 10 | 691 | 0.2− | 0.3+ | 2007 04 23 | G96 | 0.5− | 0.1− | | | | |

**2004 TU$_{33}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 24.26662 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21312527 | $\omega$ | 24.42371 | | +0.50535159 | −0.85869501 | |
| $a$ | 2.7757441 | $\Omega$ | 35.39451 | | +0.76553776 | +0.40055836 | |
| $e$ | 0.2131472 | $i$ | 8.46095 | | +0.39821064 | +0.31968090 | |
| $P$ | 4.62 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 08 12 | 704 | 1.2+ | 0.2− | 2004 10 07 | 699 | 0.4− | 0.1− | 2004 10 20 | 704 | 0.1− | 0.0 |
| 2004 08 12 | 704 | 0.0 | 1.0− | 2004 10 07 | 699 | 0.4+ | 0.2− | 2004 10 20 | 704 | 0.3+ | 0.5+ |
| 2004 08 12 | 704 | 0.4+ | 0.5− | 2004 10 09 | 704 | 0.0 | 0.2+ | 2004 11 04 | 699 | 0.6+ | 0.1+ |
| 2004 08 12 | 704 | 0.4+ | 0.1+ | 2004 10 09 | 704 | 0.3+ | 1.0+ | 2004 11 04 | 699 | 0.3+ | 0.2− |
| 2004 08 20 | 703 | 0.7− | 1.3+ | 2004 10 09 | 704 | 0.2− | 0.5+ | 2004 11 04 | 699 | 0.3+ | 1.3− |
| 2004 08 20 | 703 | 0.8+ | 0.4+ | 2004 10 09 | 691 | 0.1+ | 0.2− | 2004 11 04 | 699 | 0.9+ | 0.9+ |
| 2004 08 20 | 703 | 0.6− | 0.9− | 2004 10 09 | 704 | 0.4+ | 0.3+ | 2004 11 06 | 704 | 0.1− | 1.2− |
| 2004 08 20 | 703 | 1.0− | 0.6+ | 2004 10 09 | 704 | 0.3− | 0.3+ | 2004 11 06 | 704 | 0.1− | 0.5− |
| 2004 09 17 | 704 | 0.0 | 1.0− | 2004 10 09 | 691 | 0.3− | 0.2− | 2004 11 06 | 704 | 0.7+ | 0.7− |
| 2004 09 17 | 704 | 0.0 | 0.3+ | 2004 10 09 | 691 | 0.2− | 0.0 | 2004 11 06 | 704 | 0.6− | 0.4− |
| 2004 09 17 | 704 | (1.5+ | 0.1−) | 2004 10 13 | 691 | 0.2− | 0.1+ | 2004 11 18 | 704 | 0.9− | 0.3+ |
| 2004 09 17 | 704 | 0.2− | 0.0 | 2004 10 13 | 691 | 0.1− | 0.0 | 2004 11 18 | 704 | 1.0− | 0.5+ |
| 2004 09 17 | 704 | 1.2− | 0.2− | 2004 10 13 | 691 | 0.1− | 0.1+ | 2004 11 18 | 704 | 1.3+ | 0.2− |
| 2004 09 22 | 704 | 0.3− | 0.1+ | 2004 10 14 | 704 | 0.6− | 0.3+ | 2004 11 18 | 704 | 0.5+ | 0.6+ |
| 2004 09 22 | 704 | 0.1+ | 1.0+ | 2004 10 14 | 704 | 0.4− | 1.3+ | 2009 08 28 | 691 | 0.1− | 0.2− |
| 2004 09 22 | 704 | 0.1− | 0.7− | 2004 10 14 | 704 | 0.1− | 0.7+ | 2009 08 28 | 691 | 0.2+ | 0.3− |
| 2004 09 22 | 704 | 0.1− | 0.7+ | 2004 10 14 | 704 | 0.3− | 0.5− | 2009 08 28 | 691 | 0.1+ | 0.2+ |
| 2004 09 22 | 704 | 0.4+ | 0.5− | 2004 10 14 | 704 | 0.1− | 0.0 | 2009 12 09 | 704 | 0.8+ | 0.3− |
| 2004 10 04 | 699 | 0.6+ | 0.9− | 2004 10 15 | 608 | 0.5+ | 0.4− | 2009 12 09 | 704 | 0.0 | 0.8− |
| 2004 10 04 | 699 | 0.1+ | 0.6+ | 2004 10 15 | 608 | 0.5+ | 0.4− | 2009 12 09 | 704 | 0.4− | 1.1+ |
| 2004 10 04 | 699 | 0.6− | 0.6+ | 2004 10 15 | 608 | 0.2+ | 0.3− | 2009 12 20 | G96 | 0.0 | 0.0 |
| 2004 10 04 | 699 | 0.0 | 0.1+ | 2004 10 20 | 704 | 0.4+ | 0.4+ | 2009 12 20 | G96 | 0.0 | 0.0 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 07 | 699 | 0.4− | 0.1− | 2004 10 20 | 704 | 0.4+ | 0.3+ | 2009 12 20 | G96 | 0.5− | 0.4+ | | |
| 2004 10 07 | 699 | 1.4+ | 0.1− | 2004 10 20 | 704 | 0.4− | 0.5+ | 2009 12 20 | G96 | 0.0 | 0.2+ | | |

**2004 TD$_{42}$ = 2009 SX$_{251}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 29.68301 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.20884387 | $\omega$ | 171.78403 | | +0.73595088 | −0.66963678 | |
| $a$ | 2.8135516 | $\Omega$ | 230.75016 | | +0.61361064 | +0.72202076 | |
| $e$ | 0.1125657 | $i$ | 7.40565 | | +0.28610888 | +0.17399024 | |
| $P$ | 4.72 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 01 20 | 608 | 0.3+ | 0.7+ | 2004 10 23 | 704 | 0.4+ | 0.2+ | 2009 09 30 | G96 | 0.5+ | 0.7− | | |
| 2001 01 20 | 608 | 0.3+ | 0.3+ | 2004 10 23 | 704 | 1.0+ | 0.0 | 2009 09 30 | G96 | 0.4+ | 0.1+ | | |
| 2001 01 20 | 608 | 0.1− | 0.6+ | 2004 11 03 | 644 | 0.1+ | 0.1− | 2009 10 16 | G96 | 0.2+ | 0.1+ | | |
| 2004 10 04 | 691 | 0.0 | 0.1− | 2004 11 03 | 644 | 0.2+ | 0.0 | 2009 10 16 | G96 | 0.1− | 0.0 | | |
| 2004 10 04 | 691 | 0.0 | 0.0 | 2004 11 03 | 644 | 0.2+ | 0.3+ | 2009 10 16 | G96 | 0.2+ | 0.3− | | |
| 2004 10 04 | 691 | 0.1+ | 0.2− | 2004 11 12 | 703 | 0.5− | 1.4+ | 2009 10 16 | G96 | 0.5+ | 2.2− | | |
| 2004 10 08 | 691 | 0.2− | 0.1+ | 2004 11 12 | 703 | 0.1− | 0.4− | 2009 11 08 | 691 | 0.4− | 0.2+ | | |
| 2004 10 08 | 691 | 0.1− | 0.0 | 2004 11 12 | 703 | 1.1− | 0.5+ | 2009 11 08 | 691 | 0.6− | 0.6− | | |
| 2004 10 08 | 691 | 0.1− | 0.1+ | 2004 11 12 | 703 | 0.7− | 0.0 | 2009 11 08 | 691 | 0.1+ | 0.3+ | | |
| 2004 10 12 | 691 | 0.3− | 0.1+ | 2007 05 13 | G96 | 0.1+ | 0.5+ | 2009 11 26 | G96 | 0.3+ | 0.0 | | |
| 2004 10 12 | 691 | 0.1− | 0.0 | 2007 05 13 | G96 | 0.0 | 0.2+ | 2009 11 26 | G96 | 0.3+ | 0.2− | | |
| 2004 10 12 | 691 | 0.4− | 0.1+ | 2007 05 13 | G96 | 0.0 | 0.1− | 2009 11 26 | G96 | 0.3+ | 0.1+ | | |
| 2004 10 21 | 704 | 0.2+ | 0.2+ | 2007 05 13 | G96 | 0.1+ | 0.1+ | 2009 11 26 | G96 | 0.6+ | 0.0 | | |
| 2004 10 21 | 704 | 1.3+ | 0.1+ | 2009 09 20 | G96 | 0.3+ | 0.3− | 2009 11 26 | G96 | 0.5+ | 0.1− | | |
| 2004 10 21 | 704 | 0.7+ | 0.2− | 2009 09 20 | G96 | 0.3+ | 0.3− | 2009 12 11 | 703 | 0.3− | 0.6+ | | |
| 2004 10 21 | 704 | 0.4+ | 0.1+ | 2009 09 20 | G96 | 0.2+ | 0.3− | 2009 12 11 | 703 | 0.4− | 0.0 | | |
| 2004 10 21 | 704 | 0.1+ | 0.0 | 2009 09 20 | G96 | 0.1+ | 0.2− | 2009 12 11 | 703 | 0.1+ | 1.3− | | |
| 2004 10 23 | 704 | 0.8+ | 0.1+ | 2009 09 30 | G96 | 0.2+ | 0.2+ | 2009 12 11 | 703 | 0.3− | 0.1+ | | |
| 2004 10 23 | 704 | 0.0 | 0.9+ | 2009 09 30 | G96 | 0.7+ | 0.4+ | | | | | | |

**2004 TB$_{48}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 123.92149 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23028892 | $\omega$ | 295.66272 | | +0.83639437 | +0.54090589 | |
| $a$ | 2.6360523 | $\Omega$ | 31.81334 | | −0.42295006 | +0.73979646 | |
| $e$ | 0.1925988 | $i$ | 9.68530 | | −0.34865127 | +0.40015250 | |
| $P$ | 4.28 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1991 10 02 | 691 | 0.6+ | 0.4+ | 2004 10 20 | 704 | (1.7− | 0.2+) | 2007 04 19 | G96 | 0.0 | 0.4+ | | |
| 1991 10 02 | 691 | 0.3− | 0.1+ | 2004 10 20 | 704 | 0.6− | 0.7− | 2007 04 19 | G96 | 0.1− | 0.3+ | | |
| 1991 10 02 | 691 | 0.4+ | 1.4− | 2004 10 20 | 704 | 0.2+ | 0.3− | 2007 04 19 | G96 | 0.5− | 0.5+ | | |
| 2004 10 04 | 691 | 0.2+ | 0.2+ | 2004 10 20 | 704 | 0.6− | 0.3+ | 2007 05 09 | G96 | 0.1+ | 0.3+ | | |
| 2004 10 04 | 691 | 0.1+ | 0.1+ | 2004 11 04 | 699 | 1.3+ | 0.3− | 2007 05 09 | G96 | 0.1+ | 0.2+ | | |
| 2004 10 04 | 691 | 0.5+ | 0.1+ | 2004 11 04 | 699 | 0.7+ | 1.3− | 2007 05 09 | G96 | 0.0 | 0.2+ | | |
| 2004 10 08 | 691 | 0.2+ | 0.2+ | 2004 11 04 | 699 | 0.1+ | 1.0+ | 2007 05 09 | G96 | 0.2+ | 0.2+ | | |
| 2004 10 08 | 691 | 0.1+ | 0.0 | 2004 11 04 | 699 | (0.0 | 1.5+) | 2008 09 06 | 703 | 0.5+ | 0.2− | | |
| 2004 10 08 | 691 | 0.1− | 0.1+ | 2004 11 04 | 703 | 0.1+ | 0.6+ | 2008 09 06 | 703 | 0.1− | 0.5− | | |
| 2004 10 12 | 691 | 0.0 | 0.1+ | 2004 11 04 | 703 | (2.1− | 0.8+) | 2008 09 06 | 703 | 0.7− | 0.3− | | |
| 2004 10 12 | 691 | 0.1+ | 0.1+ | 2004 11 04 | 703 | 0.2− | 1.1− | 2008 09 06 | 703 | 0.2− | 0.0 | | |
| 2004 10 12 | 691 | 0.1− | 0.4+ | 2004 11 04 | 703 | 0.7− | 0.2+ | 2008 10 02 | 703 | 0.4+ | 1.1+ | | |
| 2004 10 15 | 691 | 0.3− | 0.0 | 2007 03 17 | 691 | 0.2+ | 0.0 | 2008 10 02 | 703 | 0.9+ | 1.3+ | | |
| 2004 10 15 | 691 | 0.6− | 0.1− | 2007 03 17 | 691 | 0.2+ | 0.2− | 2008 10 02 | 703 | 1.2− | 0.7+ | | |
| 2004 10 15 | 691 | 0.4− | 0.1− | 2007 03 17 | 691 | 0.1− | 0.1− | 2008 10 02 | 703 | 0.8− | 0.4+ | | |
| 2004 10 15 | 699 | (2.3+ | 1.7+) | 2007 04 19 | G96 | 0.4+ | 0.2+ | | | | | | |

**2004 TD$_{64}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 115.09537 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23465323 | $\omega$ | 310.09896 | | +0.95193710 | +0.30277603 | |
| $a$ | 2.6032648 | $\Omega$ | 32.35426 | | −0.24806758 | +0.85076160 | |
| $e$ | 0.2088474 | $i$ | 4.96182 | | −0.17966143 | +0.42957114 | |
| $P$ | 4.20 | $H$ | 17.4 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 07 | 691 | 0.1− | 0.0 | 2004 10 08 | 691 | 0.1+ | 0.2+ | 2007 04 18 | G96 | 0.3+ | 0.1− | | |
| 2004 09 07 | 691 | 0.4+ | 0.4− | 2004 10 12 | 691 | 0.3+ | 0.1+ | 2008 09 03 | J75 | 0.2− | 0.2+ | | |
| 2004 09 07 | 691 | 0.2− | 0.1− | 2004 10 12 | 691 | 0.2+ | 0.4+ | 2008 09 03 | J75 | 0.2+ | 0.0 | | |
| 2004 09 07 | 691 | 0.2+ | 0.1− | 2004 10 12 | 691 | 0.2− | 0.0 | 2008 09 03 | J75 | 0.0 | 0.0 | | |
| 2004 09 07 | 691 | 0.8− | 0.3− | 2004 10 15 | G96 | 0.0 | 0.4− | 2008 09 20 | 703 | 0.2− | 1.1− | | |
| 2004 09 07 | 691 | 0.1+ | 0.1− | 2004 10 15 | G96 | 0.2− | 0.4− | 2008 09 20 | 703 | 1.4+ | 0.1+ | | |
| 2004 09 17 | 691 | 0.3− | 0.1− | 2004 10 15 | G96 | 0.1− | 0.4− | 2008 09 20 | 703 | 0.8− | 1.3+ | | |
| 2004 09 17 | 691 | 0.4− | 0.1+ | 2004 10 15 | G96 | 0.0 | 0.6− | 2008 09 20 | 703 | 0.4+ | 0.0 | | |
| 2004 09 17 | 691 | 0.8− | 0.1− | 2004 10 20 | 704 | 0.4+ | 0.7− | 2008 12 04 | G96 | 0.4+ | 0.3− | | |
| 2004 10 05 | 691 | 0.3+ | 0.4+ | 2004 10 20 | 704 | 0.4+ | 0.4− | 2008 12 04 | G96 | 0.8− | 0.2− | | |
| 2004 10 05 | 691 | 0.4+ | 0.0 | 2004 10 20 | 704 | 0.1+ | 0.2− | 2008 12 04 | G96 | 0.3− | 0.0 | | |
| 2004 10 05 | 691 | 0.3+ | 0.2+ | 2007 04 18 | G96 | 0.4− | 0.3− | 2008 12 04 | G96 | 0.4− | 0.3− | | |
| 2004 10 08 | 691 | 0.1+ | 0.2+ | 2007 04 18 | G96 | 0.2− | 0.2+ | | | | | | |
| 2004 10 08 | 691 | 0.0 | 0.3+ | 2007 04 18 | G96 | 0.1+ | 0.3+ | | | | | | |

**2004 TC$_{68}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 81.28423 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22532654 | $\omega$ | 298.26041 | | +0.98689130 | −0.08754494 | |
| $a$ | 2.6746142 | $\Omega$ | 67.03536 | | +0.13970825 | +0.88398564 | |
| $e$ | 0.2314534 | $i$ | 8.46749 | | −0.08079088 | +0.45924423 | |
| $P$ | 4.37 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1991 11 04 | 691 | 0.2+ | 0.1+ | 2004 10 18 | 704 | 0.6− | 0.1− | 2004 12 12 | 703 | 0.2− | 0.2+ | | |
| 1991 11 04 | 691 | 0.0 | 0.1+ | 2004 10 18 | 704 | 0.5− | 0.5− | 2004 12 12 | 703 | 1.2− | 0.5− | | |
| 1991 11 04 | 691 | 0.6− | 0.6+ | 2004 10 18 | 704 | 1.0− | 0.3− | 2004 12 12 | 703 | 0.5− | 1.3+ | | |
| 2004 10 05 | 699 | 0.8+ | 0.5+ | 2004 10 18 | 704 | 0.6− | 0.1− | 2004 12 12 | 703 | 0.5− | 0.5+ | | |
| 2004 10 05 | 699 | 0.8− | 0.5+ | 2004 10 18 | 704 | 0.8− | 0.4+ | 2007 04 15 | 691 | 0.7+ | 0.7+ | | |
| 2004 10 05 | 699 | 0.2− | 0.4+ | 2004 11 03 | 699 | 1.3+ | 0.0 | 2007 04 15 | 691 | 0.0 | 0.5+ | | |
| 2004 10 05 | 699 | 0.3+ | 0.1− | 2004 11 03 | 699 | 0.3+ | 0.5− | 2007 04 15 | 691 | 0.4+ | 0.8+ | | |
| 2004 10 07 | 699 | 1.0+ | 0.6− | 2004 11 03 | 699 | 0.1+ | 0.2+ | 2008 08 26 | E12 | 0.7+ | 0.3+ | | |
| 2004 10 07 | 699 | 1.0+ | 0.1+ | 2004 11 03 | 699 | 0.6− | 0.3+ | 2008 08 26 | E12 | 0.0 | 0.2− | | |
| 2004 10 07 | 699 | 0.3+ | 0.0 | 2004 11 12 | 704 | 0.2− | 0.4+ | 2008 08 26 | E12 | 0.6− | 1.2+ | | |
| 2004 10 07 | 699 | 0.9+ | 0.3− | 2004 11 12 | 704 | 0.6− | 0.4− | 2008 08 26 | E12 | 0.4− | 0.3+ | | |
| 2004 10 07 | 704 | 0.3− | 0.5+ | 2004 11 12 | 704 | 0.9− | 1.2− | 2008 08 26 | E12 | 1.0− | 0.5+ | | |
| 2004 10 07 | 704 | 0.0 | 0.6+ | 2004 12 04 | 699 | 0.2− | 0.2− | 2008 08 26 | E12 | 0.1+ | 0.6− | | |
| 2004 10 07 | 704 | 0.9+ | 0.6+ | 2004 12 04 | 699 | 0.6− | 1.6+ | 2008 08 26 | E12 | 0.4+ | 0.0 | | |
| 2004 10 07 | 704 | (2.1+ | 0.3+) | 2004 12 04 | 699 | 0.4+ | 0.0 | 2008 08 26 | E12 | 0.1− | 0.0 | | |
| 2004 10 07 | 704 | 0.5+ | 1.1+ | 2004 12 04 | 699 | 0.7+ | 0.6− | | | | | | |

**2004 TR$_{73}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 303.99511 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18277734 | $\omega$ | 52.33123 | | +0.15903954 | −0.98115588 | |
| $a$ | 3.0750662 | $\Omega$ | 29.09332 | | +0.81980251 | +0.06931564 | |
| $e$ | 0.0743570 | $i$ | 13.04187 | | +0.55011841 | +0.18035652 | |
| $P$ | 5.39 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 06 | 291 | 0.0 | 0.0 | 2004 10 11 | 691 | 0.0 | 0.1− | 2007 04 19 | G96 | 0.0 | 0.8− | | |
| 2004 10 06 | 291 | 0.0 | 0.2− | 2004 10 11 | 691 | 0.1− | 0.0 | 2007 04 19 | G96 | 0.4+ | 0.3− | | |
| 2004 10 06 | 291 | 0.0 | 0.2+ | 2004 11 04 | 291 | 0.3+ | 0.2+ | 2007 05 12 | G96 | 1.1+ | 0.1+ | | |
| 2004 10 08 | 691 | 0.0 | 0.2− | 2004 11 04 | 291 | 0.1+ | 0.1− | 2007 05 12 | G96 | 0.5− | 0.1+ | | |
| 2004 10 08 | 691 | 0.1− | 0.2− | 2004 11 04 | 291 | 0.2+ | 0.2+ | 2007 05 12 | G96 | 1.5− | 0.5+ | | |
| 2004 10 08 | 691 | 0.2− | 0.0 | 2007 04 19 | G96 | 0.6+ | 0.4− | 2007 05 12 | G96 | 1.1− | 0.4+ | | |
| 2004 10 11 | 691 | 0.0 | 0.0 | 2007 04 19 | G96 | 0.5+ | 0.2− | | | | | | |

**2004 TL$_{78}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 64.89627 | | (2000.0) | | | |
| $n$ | 0.21864000 | $\omega$ | 94.80569 | | +0.96365093 | −0.20619832 |
| $a$ | 2.7288708 | $\Omega$ | 277.16585 | | +0.12075852 | +0.90337484 |
| $e$ | 0.2131200 | $i$ | 9.85859 | | +0.23831546 | +0.37602680 |
| $P$ | 4.51 | $H$ | 16.4 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 08 19 | 704 | 0.3+ | 0.3− | 2004 10 08 | 704 | 0.7− | 0.2− | 2009 11 17 | G96 | 0.3− | 0.1+ |
| 2004 08 19 | 704 | 0.8+ | 0.1+ | 2004 10 08 | 704 | 0.1− | 0.2+ | 2009 11 17 | G96 | 0.3− | 0.1− |
| 2004 08 19 | 704 | 0.6− | 0.2+ | 2004 10 08 | 704 | 0.1− | 0.5− | 2009 11 17 | G96 | 0.3+ | 0.3− |
| 2004 09 23 | 704 | 0.1− | 0.1− | 2004 10 08 | 704 | 0.2− | 0.3− | 2009 11 17 | G96 | 0.1− | 0.2− |
| 2004 09 23 | 704 | 0.3− | 0.0 | 2004 10 12 | 699 | 0.6+ | 0.1− | 2009 12 16 | G96 | 0.1− | 0.1+ |
| 2004 09 23 | 704 | 0.3− | 0.3− | 2004 10 12 | 699 | 1.6+ | 0.3− | 2009 12 16 | G96 | 0.2+ | 0.3+ |
| 2004 09 23 | 704 | 1.0− | 0.1+ | 2004 10 12 | 699 | 0.0 | 0.0 | 2009 12 16 | G96 | 0.4− | 0.2+ |
| 2004 09 23 | 704 | 0.3− | 0.3+ | 2004 10 12 | 699 | 0.3− | 0.2+ | 2009 12 16 | G96 | 0.1+ | 0.0 |
| 2004 10 04 | 704 | 0.7+ | 0.4+ | 2004 11 04 | 644 | 0.2− | 0.0 | 2009 12 16 | G96 | 0.5+ | 0.2− |
| 2004 10 04 | 704 | 0.5− | 0.4+ | 2004 11 04 | 644 | 0.2+ | 0.3+ | | | | |
| 2004 10 04 | 704 | 0.2+ | 0.1+ | 2004 11 04 | 644 | 0.3+ | 0.0 | | | | |

**2004 TK$_{88}$ = 2009 WC$_{104}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 354.84465 | | (2000.0) | | | |
| $n$ | 0.21343352 | $\omega$ | 57.75669 | | +0.09950256 | −0.99288482 |
| $a$ | 2.7730708 | $\Omega$ | 26.76534 | | +0.85707451 | +0.05212415 |
| $e$ | 0.1669241 | $i$ | 8.35206 | | +0.50549237 | +0.10706454 |
| $P$ | 4.62 | $H$ | 16.6 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 05 | 691 | 0.1+ | 0.2− | 2009 11 11 | 691 | 0.1− | 0.2− | 2009 11 25 | 703 | 0.0 | 0.2+ |
| 2004 10 05 | 691 | 0.1− | 0.2− | 2009 11 23 | G68 | 0.7− | 0.3+ | 2009 11 25 | 703 | 0.5− | 0.2+ |
| 2004 10 05 | 691 | 0.0 | 0.1− | 2009 11 23 | G68 | 0.1− | 0.0 | 2009 12 10 | 704 | 0.0 | 0.1+ |
| 2004 10 09 | 691 | 0.0 | 0.0 | 2009 11 23 | G68 | 0.8− | 0.3− | 2009 12 10 | 704 | 0.6− | 0.1+ |
| 2004 10 09 | 691 | 0.0 | 0.2+ | 2009 11 23 | G68 | 0.4− | 0.2− | 2009 12 10 | 704 | 0.7− | 0.7+ |
| 2004 10 09 | 691 | 0.2+ | 0.0 | 2009 11 24 | G68 | 0.7+ | 0.0 | 2009 12 15 | 704 | 0.9+ | 0.4+ |
| 2004 10 12 | 691 | 0.1− | 0.0 | 2009 11 24 | G68 | 0.4+ | 0.1+ | 2009 12 15 | 704 | 0.3− | 0.9− |
| 2004 10 12 | 691 | 0.0 | 0.1+ | 2009 11 24 | G68 | 0.2+ | 0.2+ | 2009 12 15 | 704 | 0.6− | 0.2− |
| 2004 10 12 | 691 | 0.0 | 0.2+ | 2009 11 24 | G68 | 0.2+ | 0.4− | 2009 12 15 | 704 | 0.2− | 0.0 |
| 2009 11 11 | 691 | 0.1+ | 0.1+ | 2009 11 25 | 703 | 1.1+ | 0.2+ | | | | |
| 2009 11 11 | 691 | 0.3+ | 0.0 | 2009 11 25 | 703 | 0.6+ | 0.3− | | | | |

**2004 TR$_{97}$ = 2008 QO$_{43}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 132.52416 | | (2000.0) | | | |
| $n$ | 0.23309901 | $\omega$ | 155.96787 | | +0.79572704 | +0.60557642 |
| $a$ | 2.6148238 | $\Omega$ | 166.74807 | | −0.56236170 | +0.74474669 |
| $e$ | 0.1596123 | $i$ | 2.44563 | | −0.22487285 | +0.28040964 |
| $P$ | 4.23 | $H$ | 17.4 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 17 | 691 | 0.5− | 0.3− | 2004 10 13 | 691 | 0.2− | 0.1+ | 2008 09 06 | 703 | 0.1− | 0.0 |
| 2004 09 17 | 691 | 0.3+ | 0.2− | 2004 10 13 | 691 | 0.1+ | 0.1− | 2008 09 06 | G96 | 0.1− | 0.0 |
| 2004 09 17 | 691 | 0.3+ | 0.1+ | 2004 10 13 | 691 | 0.1+ | 0.0 | 2008 09 06 | G96 | 0.1− | 0.1− |
| 2004 10 05 | 691 | 0.0 | 0.0 | 2008 08 26 | J75 | 0.8− | 0.4− | 2008 09 06 | G96 | 0.3+ | 0.1+ |
| 2004 10 05 | 691 | 0.1+ | 0.1+ | 2008 08 26 | J75 | 0.0 | 0.6+ | 2008 09 20 | G96 | 0.2+ | 0.1− |
| 2004 10 05 | 691 | 0.2+ | 0.3+ | 2008 08 26 | J75 | 0.7+ | 0.4+ | 2008 09 20 | G96 | 0.3− | 0.0 |
| 2004 10 09 | 691 | 0.4− | 0.1− | 2008 09 06 | 703 | 0.2+ | 0.7+ | 2008 09 20 | G96 | 0.2+ | 0.1+ |
| 2004 10 09 | 691 | 0.2+ | 0.1+ | 2008 09 06 | 703 | 0.5− | 0.7− | 2008 09 20 | G96 | 0.3+ | 0.2+ |
| 2004 10 09 | 691 | 0.1− | 0.1− | 2008 09 06 | 703 | 0.0 | 0.5− | | | | |

**2004 TA$_{107}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 132.08699 | | (2000.0) | | | |
| $n$ | 0.22813986 | $\omega$ | 281.44778 | | +0.50213883 | +0.86137712 |
| $a$ | 2.6525807 | $\Omega$ | 19.28235 | | −0.67485076 | +0.44578342 |
| $e$ | 0.1817459 | $i$ | 13.43424 | | −0.54077079 | +0.24352948 |
| $P$ | 4.32 | $H$ | 16.1 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 09 | 704 | 1.1− | 1.3+ | 2004 10 07 | 704 | 0.1+ | 0.4+ | 2004 10 13 | 691 | 0.2+ | 0.1− |
| 2004 09 09 | 704 | 0.4− | 0.7+ | 2004 10 07 | 704 | 0.3− | 0.0 | 2004 10 20 | 704 | 0.6− | 0.7+ |
| 2004 09 09 | 704 | 1.0− | 0.1+ | 2004 10 07 | 704 | 0.2+ | 0.0 | 2004 10 20 | 704 | 0.3+ | 0.2+ |
| 2004 09 09 | 704 | 0.8− | 0.1− | 2004 10 07 | 704 | 0.7− | 0.6+ | 2004 10 20 | 704 | 0.2+ | 0.7+ |
| 2004 09 13 | 699 | 1.8+ | 0.6+ | 2004 10 09 | 691 | 0.0 | 0.3− | 2004 11 04 | 691 | 0.4− | 0.1− |
| 2004 09 13 | 699 | 0.6+ | 1.1+ | 2004 10 09 | 704 | 1.0+ | 0.9− | 2004 11 04 | 691 | 0.3− | 0.5+ |
| 2004 09 13 | 699 | 1.4+ | 0.1− | 2004 10 09 | 691 | 0.1+ | 0.3− | 2004 11 04 | 691 | 0.1− | 0.2− |
| 2004 09 13 | 699 | 1.0− | 0.4− | 2004 10 09 | 704 | 0.3+ | 0.0 | 2007 03 11 | 691 | 0.1− | 0.1− |
| 2004 09 22 | 704 | 0.2+ | 0.5− | 2004 10 09 | 704 | 0.1− | 0.3+ | 2007 03 11 | 691 | 0.2− | 0.1− |
| 2004 09 22 | 704 | 0.4+ | 0.2− | 2004 10 09 | 704 | 1.0+ | 0.2+ | 2007 03 11 | 691 | 0.0 | 0.1+ |
| 2004 09 22 | 704 | 0.4− | 0.9− | 2004 10 09 | 691 | 0.2+ | 0.2− | 2007 03 27 | H07 | 0.4+ | 0.0 |
| 2004 09 22 | 704 | 0.4+ | 0.9− | 2004 10 09 | 704 | 0.1− | 0.5+ | 2007 03 27 | H07 | 0.7+ | 0.8+ |
| 2004 09 22 | 704 | 0.1+ | 0.4+ | 2004 10 13 | 691 | 0.1+ | 0.1− | | | | |
| 2004 10 07 | 704 | 0.5− | 0.1+ | 2004 10 13 | 691 | 0.2− | 0.0 | | | | |

**2004 TA$_{113}$ = 2009 WU$_{41}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 82.54046 | | (2000.0) | | | |
| $n$ | 0.21214144 | $\omega$ | 58.01178 | | +0.84684747 | +0.51678690 |
| $a$ | 2.7843194 | $\Omega$ | 270.58997 | | −0.52044059 | +0.75662013 |
| $e$ | 0.2925577 | $i$ | 7.21701 | | −0.10950325 | +0.40057120 |
| $P$ | 4.65 | $H$ | 16.1 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 09 06 | 699 | 0.6− | 0.0 | 2004 10 10 | 704 | 0.3− | 0.2− | 2009 11 17 | G96 | 0.3− | 0.0 |
| 1999 09 06 | 699 | 0.3+ | 0.3− | 2004 10 10 | 704 | 0.2− | 0.5+ | 2009 11 17 | G96 | 0.1+ | 0.7+ |
| 1999 09 06 | 699 | 0.1+ | 0.9+ | 2004 10 10 | 704 | 0.2+ | 0.2− | 2009 11 21 | 691 | 0.2+ | 0.2+ |
| 2004 10 07 | 644 | 0.1+ | 0.0 | 2004 11 02 | 699 | 0.7+ | 0.4+ | 2009 11 21 | 691 | 0.1+ | 0.1+ |
| 2004 10 07 | 644 | 0.2+ | 0.0 | 2004 11 02 | 699 | (2.2+ | 0.7+) | 2009 11 21 | 691 | 0.5− | 0.1− |
| 2004 10 07 | 644 | 0.1+ | 0.2− | 2004 11 02 | 699 | 1.3− | 0.2− | 2009 11 25 | 691 | 0.0 | 0.1+ |
| 2004 10 08 | 699 | 0.5− | 1.0− | 2004 11 02 | 699 | 0.1− | 0.7+ | 2009 11 25 | 691 | 0.1− | 0.0 |
| 2004 10 08 | 699 | 0.7+ | 0.1+ | 2009 11 17 | 691 | 0.1+ | 0.1− | 2009 11 25 | 691 | 0.0 | 0.3+ |
| 2004 10 08 | 699 | 0.1+ | 0.6− | 2009 11 17 | 691 | 0.3+ | 0.0 | 2009 12 19 | G96 | 0.3− | 0.4− |
| 2004 10 08 | 699 | 0.1+ | 0.6− | 2009 11 17 | G96 | 0.3+ | 0.2+ | 2009 12 19 | G96 | 0.1+ | 0.5− |
| 2004 10 10 | 704 | 0.3+ | 0.0 | 2009 11 17 | 691 | 0.1+ | 0.3− | 2009 12 19 | G96 | 0.4− | 0.2− |
| 2004 10 10 | 704 | 0.1+ | 0.2+ | 2009 11 17 | G96 | 0.5+ | 0.2− | 2009 12 19 | G96 | 0.4− | 0.3− |

**2004 TJ$_{115}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 73.95621 | | (2000.0) | | | |
| $n$ | 0.24044757 | $\omega$ | 90.83743 | | +0.30304544 | −0.95282926 |
| $a$ | 2.5612725 | $\Omega$ | 341.49544 | | +0.85203553 | +0.27876763 |
| $e$ | 0.1938506 | $i$ | 3.02149 | | +0.42684766 | +0.12002089 |
| $P$ | 4.10 | $H$ | 17.3 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 04 | 691 | 0.1− | 0.2− | 2004 11 05 | 691 | 0.0 | 0.2+ | 2004 12 10 | 691 | 0.1− | 0.1+ |
| 2004 10 04 | 691 | 0.1+ | 0.4− | 2004 11 05 | 691 | 0.1− | 0.1+ | 2008 09 21 | 691 | 0.2− | 0.2+ |
| 2004 10 04 | 691 | 0.5+ | 0.3− | 2004 11 05 | 691 | 0.0 | 0.1+ | 2008 09 21 | 691 | 0.2− | 0.1+ |
| 2004 10 12 | 152 | 0.0 | 0.3− | 2004 11 09 | 703 | 0.0 | 0.6− | 2008 09 21 | 691 | 0.2− | 0.2+ |
| 2004 10 12 | 152 | 1.0− | 0.2− | 2004 11 09 | 703 | 0.4+ | 0.5− | 2008 10 25 | G96 | 0.9+ | 0.1− |
| 2004 10 12 | 152 | 0.1− | 0.0 | 2004 11 09 | 703 | 0.9− | 0.0 | 2008 10 25 | G96 | 0.4+ | 0.2− |
| 2004 10 21 | 704 | (0.6+ | 2.9+) | 2004 11 09 | 703 | 0.4− | 0.6− | 2008 10 25 | G96 | 0.1− | 0.0 |
| 2004 10 21 | 704 | 0.1− | 1.2+ | 2004 12 10 | 691 | 0.0 | 0.3+ | 2008 10 25 | G96 | 0.4+ | 0.1+ |
| 2004 10 21 | 704 | 1.5+ | 0.3+ | 2004 12 10 | 691 | 0.2− | 0.1− | | | | |

**2004 TW$_{119}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 88.14617 | | (2000.0) | | | |
| $n$ | 0.23099612 | $\omega$ | 118.85957 | | +0.98367887 | −0.10618701 |
| $a$ | 2.6306693 | $\Omega$ | 247.55554 | | +0.05157151 | +0.93981055 |
| $e$ | 0.1395107 | $i$ | 9.04234 | | +0.17238406 | +0.32477754 |
| $P$ | 4.27 | $H$ | 16.1 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 14 | 704 | 0.2− | 0.5− | 2004 10 10 | 704 | 0.4+ | 0.3− | 2004 11 04 | 703 | 0.3− | 0.2− |
| 2004 09 14 | 704 | 0.1+ | 0.0 | 2004 10 10 | 704 | 0.0 | 0.2− | 2004 11 04 | 703 | 0.7− | 0.2− |
| 2004 09 14 | 704 | 0.3+ | 0.7+ | 2004 10 10 | 704 | 0.0 | 0.2− | 2008 07 30 | 703 | 0.0 | 0.9+ |
| 2004 09 14 | 704 | 0.0 | 0.3+ | 2004 10 10 | 704 | 0.3+ | 0.1+ | 2008 07 30 | 703 | 0.5+ | 1.2− |
| 2004 09 14 | 704 | 0.8− | 0.5+ | 2004 10 10 | 704 | 0.3+ | 0.1+ | 2008 07 30 | 703 | 0.2− | 0.4+ |
| 2004 10 06 | 644 | 0.1+ | 0.3− | 2004 10 15 | 704 | 0.3− | 1.1+ | 2008 07 30 | 703 | 0.7− | 0.2+ |
| 2004 10 06 | 644 | 0.1+ | 0.4− | 2004 10 15 | 704 | 0.0 | 0.5+ | 2008 09 27 | 703 | 0.5+ | 0.3− |
| 2004 10 06 | 644 | 0.1+ | 0.2− | 2004 10 15 | 704 | 0.8+ | 0.9+ | 2008 09 27 | 703 | 0.7+ | 0.4+ |
| 2004 10 09 | 699 | 0.1− | 0.2+ | 2004 10 15 | 704 | 0.5+ | 1.2− | 2008 09 27 | 703 | 0.2+ | 0.9− |
| 2004 10 09 | 699 | 0.2− | 0.3− | 2004 10 15 | 704 | 0.6− | 0.4− | 2008 09 27 | 703 | 0.7− | 0.1+ |
| 2004 10 09 | 699 | 0.3+ | 0.4+ | 2004 11 04 | 703 | 0.4− | 0.2− | | | | |
| 2004 10 09 | 699 | 0.1+ | 0.5+ | 2004 11 04 | 703 | 0.0 | 0.4− | | | | |

**2004 TV$_{125}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 68.75288 | | (2000.0) | | | |
| $n$ | 0.21897350 | $\omega$ | 319.38763 | | +0.98999555 | +0.04443590 |
| $a$ | 2.7260993 | $\Omega$ | 38.69718 | | +0.03561872 | +0.83967193 |
| $e$ | 0.1619825 | $i$ | 12.36861 | | −0.13652884 | +0.54127304 |
| $P$ | 4.50 | $H$ | 15.9 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 14 | 699 | 0.8+ | 0.3− | 2004 10 09 | 699 | 0.6− | 0.0 | 2008 07 31 | E12 | 0.5+ | 0.1− |
| 2004 09 14 | 699 | 0.1+ | 0.3+ | 2004 10 09 | 699 | 0.5− | 0.2− | 2008 07 31 | E12 | 0.2+ | 0.2− |
| 2004 09 14 | 699 | 0.3− | 0.1+ | 2004 10 09 | 699 | 0.3+ | 0.8− | 2008 07 31 | E12 | 0.6+ | 0.3− |
| 2004 09 14 | 699 | 0.3− | 0.2− | 2004 10 09 | 699 | 0.5+ | 0.5− | 2008 07 31 | E12 | 0.1− | 0.7− |
| 2004 10 07 | 704 | 0.4− | 0.0 | 2004 10 09 | 699 | 0.6+ | 1.2+ | 2008 07 31 | E12 | 0.5− | 0.1− |
| 2004 10 07 | 704 | 0.1+ | 0.3− | 2004 10 09 | 699 | (1.0− | 1.6−) | 2008 07 31 | E12 | 0.5− | 0.2− |
| 2004 10 07 | 704 | 0.1− | 0.1+ | 2004 10 18 | 704 | 0.7− | 0.2− | 2008 07 31 | E12 | 0.4− | 0.4+ |
| 2004 10 07 | 704 | 1.0− | 0.1− | 2004 10 18 | 704 | 0.0 | 1.2+ | 2008 07 31 | E12 | 0.4+ | 0.4− |
| 2004 10 07 | 704 | 0.2− | 0.2− | 2004 10 18 | 704 | 0.8+ | 0.3− | 2009 08 28 | 691 | 0.1− | 0.1− |
| 2004 10 09 | 704 | 1.4+ | 0.7− | 2004 10 18 | 704 | 0.4− | 0.4+ | 2009 08 28 | 691 | 0.1− | 0.1− |
| 2004 10 09 | 704 | 0.2+ | 0.3− | 2004 11 06 | 704 | (1.0+ | 1.9−) | 2009 08 28 | 691 | 0.1− | 0.0 |
| 2004 10 09 | 704 | 0.1− | 0.3+ | 2004 11 06 | 704 | 0.4− | 0.2+ | 2009 12 10 | 114 | 0.1+ | 0.0 |
| 2004 10 09 | 704 | 0.1− | 0.6+ | 2004 11 12 | 704 | 0.6− | 0.1+ | 2009 12 10 | 114 | 0.2+ | 0.4− |
| 2004 10 09 | 704 | 0.3− | 0.0 | 2004 11 12 | 704 | 0.2+ | 0.3− | 2009 12 10 | 114 | 0.1+ | 0.5− |
| 2004 10 09 | 699 | 0.4+ | 0.3+ | 2004 11 12 | 704 | 0.6− | 1.1+ | 2009 12 10 | 114 | 0.3+ | 0.3− |
| 2004 10 09 | 699 | 0.6+ | 0.4− | 2004 11 12 | 704 | 0.4− | 0.0 | 2009 12 10 | 114 | 0.4+ | 0.4− |

**2004 TQ$_{137}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 79.19239 | | (2000.0) | | | |
| $n$ | 0.22243752 | $\omega$ | 313.98342 | | +0.99844685 | +0.00033984 |
| $a$ | 2.6977230 | $\Omega$ | 46.08295 | | +0.02457044 | +0.89479363 |
| $e$ | 0.3095942 | $i$ | 4.43568 | | −0.05000176 | +0.44647984 |
| $P$ | 4.43 | $H$ | 16.9 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 08 31 | 809 | 0.2+ | 0.1+ | 2004 10 14 | 704 | 0.8+ | 0.5+ | 2004 10 20 | 704 | 0.4+ | 0.2− |
| 1995 09 01 | 809 | 0.1− | 0.2− | 2004 10 14 | 704 | 0.2+ | 0.5− | 2004 10 20 | 704 | 0.1− | 0.4− |
| 2004 10 08 | 699 | 0.1+ | 0.5− | 2004 10 14 | 704 | 0.5− | 0.7+ | 2004 10 20 | 704 | 0.3+ | 0.3− |
| 2004 10 08 | 699 | 0.2− | 0.4− | 2004 10 14 | 704 | 0.5+ | 0.6− | 2004 10 20 | 704 | 0.8− | 0.3− |
| 2004 10 08 | 699 | 0.4− | 0.4− | 2004 10 15 | 699 | 0.4+ | 0.5− | 2004 12 18 | G96 | 0.1− | 0.1+ |
| 2004 10 08 | 699 | 0.3+ | 1.0− | 2004 10 15 | 699 | 0.1+ | 0.4+ | 2004 12 18 | G96 | 0.4+ | 0.1− |
| 2004 10 09 | 704 | 0.6− | 0.1+ | 2004 10 15 | 699 | 0.2− | 0.5− | 2004 12 18 | G96 | 0.1− | 0.3− |
| 2004 10 09 | 704 | 0.2− | 1.9+ | 2004 10 15 | 699 | 0.9+ | 0.3+ | 2004 12 18 | G96 | 0.1− | 0.1+ |
| 2004 10 09 | 704 | 0.5− | 0.9+ | 2004 10 20 | 704 | 0.6− | 1.2+ | | | | |

**2004 TH$_{138}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 27.27365 | | (2000.0) | | | |
| $n$ | 0.18536027 | $\omega$ | 84.24993 | | +0.93313321 | +0.31772242 |
| $a$ | 3.0464329 | $\Omega$ | 257.13623 | | −0.35811111 | +0.86291819 |
| $e$ | 0.0771253 | $i$ | 9.93915 | | +0.03191920 | +0.39296903 |
| $P$ | 5.32 | $H$ | 15.0 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 13 | 704 | 0.6+ | 0.5+ | 2004 10 15 | 704 | 0.6− | 0.3− | 2009 08 28 | 703 | 0.5− | 1.1+ |
| 2004 09 13 | 704 | 0.8− | 1.1+ | 2004 10 15 | 704 | 0.2− | 0.2− | 2009 08 28 | 703 | 0.2− | 0.1+ |
| 2004 09 13 | 704 | 1.0+ | 0.7+ | 2004 11 04 | 703 | 0.1+ | 0.9+ | 2009 09 20 | 703 | 1.0+ | 1.1− |
| 2004 09 13 | 704 | 0.8+ | 0.9− | 2004 11 04 | 703 | 0.8− | 0.3− | 2009 09 20 | 703 | 0.5+ | 0.8− |
| 2004 10 09 | 699 | 0.8+ | 0.0 | 2004 11 04 | 703 | 0.4− | 0.9− | 2009 09 20 | 703 | 0.3− | 0.5− |
| 2004 10 09 | 699 | 0.5+ | 0.7+ | 2004 11 04 | 703 | 0.5− | 1.0− | 2009 09 20 | 703 | 0.9+ | 0.6− |
| 2004 10 09 | 699 | 0.2+ | 0.3+ | 2009 08 17 | 703 | 0.8− | 1.1+ | 2009 10 18 | G96 | 0.2− | 0.0 |
| 2004 10 09 | 699 | 1.0+ | 0.2+ | 2009 08 17 | 703 | 0.7− | 0.0 | 2009 10 18 | G96 | 0.4− | 0.4− |
| 2004 10 10 | 704 | 0.4− | 0.1+ | 2009 08 17 | 703 | 0.1− | 0.4+ | 2009 10 18 | G96 | 0.1− | 0.3− |
| 2004 10 10 | 704 | 0.6− | 0.4+ | 2009 08 17 | 703 | 1.1+ | 0.3+ | 2009 10 18 | G96 | 0.2+ | 0.3− |
| 2004 10 10 | 704 | 0.6− | 0.6+ | 2009 08 28 | 703 | (2.0− | 1.4+) | | | | |
| 2004 10 15 | 704 | 0.2− | 0.9− | 2009 08 28 | 703 | (1.8− | 0.5−) | | | | |

**2004 TX$_{147}$ = 2009 QP$_{57}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 6.41911 | | (2000.0) | | | |
| $n$ | 0.18818967 | $\omega$ | 7.01410 | | +0.97465345 | −0.22294468 |
| $a$ | 3.0158208 | $\Omega$ | 5.96595 | | +0.19557954 | +0.80871603 |
| $e$ | 0.0487232 | $i$ | 10.31422 | | +0.10862454 | +0.54431063 |
| $P$ | 5.24 | $H$ | 15.7 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 10 | 691 | 0.3+ | 0.1− | 2004 10 15 | 691 | 0.1− | 0.0 | 2009 09 26 | G96 | 0.2+ | 0.2− |
| 2004 09 10 | 691 | 0.3+ | 0.3− | 2004 10 15 | 691 | 0.1− | 0.1− | 2009 09 26 | G96 | 0.1+ | 0.3− |
| 2004 09 10 | 691 | 0.3+ | 0.3− | 2004 10 15 | 691 | 0.1+ | 0.1+ | 2009 10 17 | G96 | 0.4+ | 0.6− |
| 2004 09 23 | 691 | 0.0 | 0.0 | 2007 03 09 | 691 | 0.1− | 0.1+ | 2009 10 17 | G96 | 0.1+ | 0.2+ |
| 2004 09 23 | 691 | 0.2+ | 0.0 | 2007 03 09 | 691 | 0.3+ | 0.2+ | 2009 10 17 | G96 | 0.2− | 0.2− |
| 2004 09 23 | 691 | 0.1+ | 0.1+ | 2007 03 09 | 691 | 0.4+ | 0.3+ | 2009 10 17 | G96 | 0.1− | 0.1+ |
| 2004 10 06 | 691 | 0.4+ | 0.1− | 2007 04 16 | G96 | 0.2+ | 0.2+ | 2009 10 25 | G96 | 0.2+ | 0.2+ |
| 2004 10 06 | 691 | 0.3+ | 0.1− | 2007 04 16 | G96 | 0.2− | 0.2+ | 2009 10 25 | G96 | 0.5+ | 0.4+ |
| 2004 10 06 | 691 | 0.3+ | 0.1− | 2007 04 16 | G96 | 0.2− | 0.1+ | 2009 10 25 | G96 | 0.9+ | 0.1− |
| 2004 10 11 | 691 | 0.6− | 0.4+ | 2007 04 16 | G96 | 0.1− | 0.0 | 2009 10 25 | G96 | 0.7+ | 0.1+ |
| 2004 10 11 | 691 | 0.5− | 0.3+ | 2009 08 18 | 691 | 0.1+ | 0.1− | 2009 11 09 | G96 | 0.6+ | 0.0 |
| 2004 10 11 | 691 | 0.9− | 0.2+ | 2009 08 18 | 691 | 0.4− | 0.8+ | 2009 11 09 | G96 | 0.4− | 0.3+ |
| 2004 10 15 | 691 | 0.1− | 0.1+ | 2009 08 18 | 691 | 0.7− | 0.2− | 2009 11 09 | G96 | 0.2+ | 0.2+ |
| 2004 10 15 | 691 | 0.2+ | 0.1+ | 2009 09 26 | G96 | 0.0 | 0.3− | 2009 11 09 | G96 | 0.2− | 0.1− |
| 2004 10 15 | 691 | 0.2− | 0.0 | 2009 09 26 | G96 | 0.1+ | 0.2− | | | | |

**2004 TR$_{148}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 274.22931 | | (2000.0) | | | |
| $n$ | 0.18947281 | $\omega$ | 112.61106 | | −0.52546208 | −0.85003578 |
| $a$ | 3.0021896 | $\Omega$ | 9.34627 | | +0.67468409 | −0.44240267 |
| $e$ | 0.1186345 | $i$ | 12.97110 | | +0.51835411 | −0.28586544 |
| $P$ | 5.20 | $H$ | 15.6 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 09 | 691 | 0.1+ | 0.2+ | 2004 10 21 | 704 | 0.1− | 0.2+ | 2009 10 18 | G96 | 0.2− | 0.1+ |
| 2004 09 09 | 691 | 0.1+ | 0.1+ | 2004 10 21 | 704 | 0.3− | 0.3+ | 2009 10 18 | G96 | 0.4− | 0.1+ |
| 2004 09 09 | 691 | 0.2+ | 0.1+ | 2004 10 21 | 704 | 0.1− | 0.3+ | 2009 10 18 | G96 | 0.1+ | 0.1+ |
| 2004 10 06 | 691 | 0.1− | 0.1+ | 2009 09 23 | G96 | 0.1− | 0.3− | 2009 11 11 | G96 | 0.6+ | 0.0 |
| 2004 10 06 | 691 | 0.0 | 0.0 | 2009 09 23 | G96 | 0.2+ | 0.7− | 2009 11 11 | G96 | 0.1− | 0.3− |
| 2004 10 06 | 691 | 0.1+ | 0.0 | 2009 09 23 | G96 | 0.4+ | 0.0 | 2009 11 11 | G96 | 0.2+ | 0.2+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 10 | 691 | 0.0 | 0.0 | 2009 09 23 | G96 | 0.1+ | 0.2− | 2009 11 11 | G96 | 0.5− | 0.3+ | | |
| 2004 10 10 | 691 | 0.1+ | 0.2− | 2009 09 29 | G96 | 0.1− | 0.2+ | 2009 12 18 | G96 | 0.2− | 0.5− | | |
| 2004 10 10 | 691 | 0.1+ | 0.2− | 2009 09 29 | G96 | 0.1− | 0.3+ | 2009 12 18 | G96 | 0.1− | 0.1− | | |
| 2004 10 15 | 691 | 0.4− | 0.0 | 2009 09 29 | G96 | 0.1+ | 0.2+ | 2009 12 18 | G96 | 0.5+ | 0.0 | | |
| 2004 10 15 | 691 | 0.0 | 0.3− | 2009 09 29 | G96 | 0.3+ | 0.2+ | 2009 12 18 | G96 | 0.3− | 0.6+ | | |
| 2004 10 15 | 691 | 0.1− | 0.0 | 2009 10 18 | G96 | 0.5− | 0.1− | | | | | | |

**2004 TO$_{150}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 36.76806 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17069509 | $\omega$ | 90.98283 | | +0.42142326 | +0.90149378 | |
| $a$ | 3.2185137 | $\Omega$ | 204.68882 | | −0.89722353 | +0.39867134 | |
| $e$ | 0.1305107 | $i$ | 13.64657 | | −0.13188011 | +0.16843432 | |
| $P$ | 5.77 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 02 20 | 645 | 0.0 | 0.0 | 2004 10 11 | 691 | 0.5− | 0.1− | 2008 03 29 | 691 | 0.3− | 0.2+ | | |
| 2001 02 20 | 645 | 0.0 | 0.0 | 2004 10 11 | 691 | 0.3− | 0.1− | 2008 03 29 | 691 | 0.9+ | 0.0 | | |
| 2004 09 10 | 691 | 0.4+ | 0.2+ | 2004 10 15 | 691 | 0.1+ | 0.2+ | 2008 04 15 | G96 | 0.1− | 0.3− | | |
| 2004 09 10 | 691 | 0.2+ | 0.0 | 2004 10 15 | 691 | 0.0 | 0.2+ | 2008 04 15 | G96 | 0.4− | 0.1+ | | |
| 2004 09 10 | 691 | 0.2+ | 0.1+ | 2004 10 15 | 691 | 0.2− | 0.2+ | 2008 04 15 | G96 | 0.0 | 0.3+ | | |
| 2004 10 06 | 691 | 0.1+ | 0.0 | 2004 11 11 | 691 | 0.2+ | 0.2+ | 2008 06 04 | G96 | 0.3− | 0.1− | | |
| 2004 10 06 | 691 | 0.1+ | 0.0 | 2004 11 11 | 691 | 0.0 | 0.2+ | 2008 06 04 | G96 | 0.4+ | 0.0 | | |
| 2004 10 06 | 691 | 0.1+ | 0.1− | 2004 11 11 | 691 | 0.1− | 0.1+ | 2008 06 04 | G96 | 0.0 | 0.3+ | | |
| 2004 10 11 | 691 | 0.2− | 0.3− | 2008 03 29 | 691 | 0.4− | 0.3+ | 2008 06 04 | G96 | 0.4− | 0.2+ | | |

**2004 TF$_{162}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 235.99131 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.12379913 | $\omega$ | 358.09852 | | +0.78772514 | −0.59455992 | |
| $a$ | 3.9871048 | $\Omega$ | 39.86443 | | +0.56846125 | +0.60073998 | |
| $e$ | 0.1870314 | $i$ | 14.56648 | | +0.23736242 | +0.53442491 | |
| $P$ | 7.96 | $H$ | 14.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 06 | 691 | 0.2+ | 0.0 | 2004 10 21 | 704 | 0.7− | 0.6+ | 2004 12 03 | 699 | 0.4+ | 0.1+ | | |
| 2004 10 06 | 691 | 0.1+ | 0.2+ | 2004 10 21 | 704 | 0.2− | 0.3− | 2004 12 03 | 699 | 0.7+ | 0.5+ | | |
| 2004 10 06 | 691 | 0.2− | 0.2+ | 2004 11 04 | 703 | 0.2− | 0.5− | 2004 12 03 | 699 | 1.3+ | 0.7+ | | |
| 2004 10 09 | 704 | 0.1− | 0.2− | 2004 11 04 | 703 | 0.6− | 0.1+ | 2004 12 09 | 703 | 0.6+ | 1.1− | | |
| 2004 10 09 | 704 | 0.1− | 0.2− | 2004 11 04 | 703 | 0.9− | 0.0 | 2004 12 09 | 703 | 0.1+ | 0.2− | | |
| 2004 10 09 | 704 | 1.5− | 0.6+ | 2004 11 04 | 703 | 0.7− | 1.2− | 2004 12 09 | 703 | 0.1− | 0.5+ | | |
| 2004 10 09 | 704 | 0.4− | 0.2+ | 2004 11 10 | 333 | 0.3− | 0.2− | 2004 12 09 | 703 | 0.7− | 0.0 | | |
| 2004 10 10 | 691 | 0.3+ | 0.0 | 2004 11 10 | 333 | 0.0 | 0.1+ | 2008 03 05 | G96 | 0.2+ | 0.4+ | | |
| 2004 10 10 | 691 | 0.0 | 0.0 | 2004 11 10 | 333 | 0.5+ | 0.4− | 2008 03 05 | G96 | 0.5− | 0.1+ | | |
| 2004 10 10 | 691 | 0.2+ | 0.1− | 2004 11 11 | 333 | 1.6− | 0.3+ | 2008 03 05 | G96 | 0.2− | 0.1− | | |
| 2004 10 14 | 691 | 0.1+ | 0.1− | 2004 11 11 | 333 | 0.0 | 0.2− | 2008 03 05 | G96 | 0.3− | 0.5+ | | |
| 2004 10 14 | 691 | 0.4+ | 0.1− | 2004 11 19 | 703 | 0.8− | 0.0 | 2008 04 07 | 691 | 0.2+ | 0.1− | | |
| 2004 10 14 | 691 | 0.0 | 0.3− | 2004 11 19 | 703 | 0.2+ | 0.3− | 2008 04 07 | 691 | 0.3+ | 0.2− | | |
| 2004 10 21 | 704 | 0.0 | 0.1− | 2004 11 19 | 703 | 0.3− | 0.1+ | 2008 04 07 | 691 | 0.3− | 0.2+ | | |
| 2004 10 21 | 704 | 0.1− | 0.9+ | 2004 11 19 | 703 | 0.3+ | 0.1− | | | | | | |
| 2004 10 21 | 704 | 0.3+ | 0.2+ | 2004 12 03 | 699 | 0.3+ | 0.6+ | | | | | | |

**2004 TH$_{168}$ = 2008 WV$_{131}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 110.25018 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.25433156 | $\omega$ | 211.33834 | | +0.73603517 | −0.67561328 | |
| $a$ | 2.4671897 | $\Omega$ | 191.46798 | | +0.65681780 | +0.72791377 | |
| $e$ | 0.1700839 | $i$ | 12.31740 | | +0.16383714 | +0.11699677 | |
| $P$ | 3.88 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 02 19 | 807 | 0.6+ | 0.2+ | 2004 10 07 | 704 | 0.4− | 0.4+ | 2008 11 06 | 703 | 0.4− | 0.3+ | | |
| 2002 02 19 | 807 | 0.4− | 0.4+ | 2004 10 07 | 704 | 1.0− | 0.3+ | 2008 11 06 | 703 | 1.4− | 0.6− | | |
| 2002 02 19 | 807 | 0.6− | 0.6+ | 2004 10 07 | 704 | 0.6− | 0.5+ | 2008 11 06 | 703 | 0.4− | 0.2+ | | |
| 2002 02 19 | 807 | 0.1+ | 0.3+ | 2004 10 07 | 704 | 0.6+ | 0.1+ | 2008 11 06 | 703 | (1.9− | 1.9−) | | |
| 2002 02 19 | 807 | 0.5+ | 0.0 | 2004 10 09 | 704 | 0.8− | 0.3− | 2008 11 19 | 703 | 0.0 | 0.3− | | |
| 2004 09 15 | 691 | 0.3+ | 0.1− | 2004 10 09 | 704 | 0.9− | 0.1+ | 2008 11 19 | 703 | 0.1+ | 0.2+ | | |
| 2004 09 15 | 691 | 0.2+ | 0.1− | 2004 10 09 | 704 | 0.4+ | 0.4− | 2008 11 19 | 703 | 0.4− | 0.8+ | | |
| 2004 09 15 | 691 | 0.4+ | 0.1− | 2004 10 09 | 704 | 0.1− | 0.3+ | 2008 11 19 | 703 | 0.7+ | 0.1− | | |
| 2004 10 07 | 699 | 0.0 | 0.4+ | 2004 10 14 | 691 | 0.3− | 0.2+ | 2008 12 01 | 703 | 0.7+ | 0.3− | | |
| 2004 10 07 | 699 | 0.0 | 0.6− | 2004 10 14 | 691 | 0.2− | 0.1+ | 2008 12 01 | 703 | 0.5+ | 0.3− | | |
| 2004 10 07 | 699 | (1.5+ | 0.6+) | 2004 10 14 | 691 | 0.1+ | 0.2+ | 2008 12 01 | 703 | 0.6+ | 1.1− | | |
| 2004 10 07 | 699 | 0.6+ | 0.7+ | 2008 11 01 | 683 | 1.1− | 0.4− | 2008 12 01 | 703 | 1.5+ | 0.3− | | |
| 2004 10 07 | 704 | 0.0 | 0.1+ | 2008 11 01 | 683 | (2.1+ | 0.5−) | | | | | | |

**2004 TL$_{173}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 31.91569 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21991498 | $\omega$ | 194.06996 | | +0.28977704 | −0.93025418 | |
| $a$ | 2.7183133 | $\Omega$ | 239.52021 | | +0.90143730 | +0.34429500 | |
| $e$ | 0.1194629 | $i$ | 15.13890 | | +0.32162099 | −0.12683891 | |
| $P$ | 4.48 | $H$ | 15.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 05 01 | 644 | (1.4+ | 2.2+) | 2004 10 24 | 704 | 0.7− | 0.4+ | 2004 12 04 | 704 | 0.7− | 0.9− | | |
| 2002 05 01 | 644 | 1.0− | 1.3+ | 2004 10 24 | 704 | 0.2− | 0.1+ | 2004 12 04 | 704 | 0.6− | 1.9− | | |
| 2002 05 01 | 644 | 0.6+ | 0.2+ | 2004 10 24 | 704 | 0.3+ | 0.3+ | 2004 12 04 | 704 | 1.4− | 0.6+ | | |
| 2002 05 17 | 644 | 0.2+ | 0.5+ | 2004 10 24 | 704 | 0.6+ | 0.8− | 2004 12 12 | 691 | 0.2− | 0.0 | | |
| 2002 05 17 | 644 | 0.3− | 0.0 | 2004 11 03 | 699 | 0.1− | 0.0 | 2004 12 12 | 691 | 0.1− | 0.0 | | |
| 2002 05 17 | 644 | 0.6+ | 0.3− | 2004 11 03 | 699 | 0.3+ | 0.0 | 2004 12 12 | 691 | 0.3− | 0.1− | | |
| 2002 06 05 | 644 | 0.5− | 0.6+ | 2004 11 03 | 699 | 0.6+ | 0.1+ | 2004 12 14 | 704 | 0.1+ | 0.0 | | |
| 2002 06 05 | 644 | 0.4+ | 0.6+ | 2004 11 03 | 699 | 0.3− | 0.0 | 2004 12 14 | 704 | 0.0 | 0.1− | | |
| 2002 06 05 | 644 | 0.6+ | 0.5+ | 2004 11 04 | 699 | 0.1+ | 0.5− | 2004 12 14 | 704 | 0.8+ | 0.9+ | | |
| 2004 09 13 | 704 | 0.1− | 0.1− | 2004 11 04 | 699 | 0.2+ | 0.2− | 2004 12 14 | 699 | 0.6− | 0.3− | | |
| 2004 09 13 | 704 | 0.6+ | 0.3+ | 2004 11 04 | 699 | 1.0− | 0.1+ | 2004 12 14 | 699 | 0.1− | 0.2− | | |
| 2004 09 13 | 704 | 0.2− | 0.5+ | 2004 11 04 | 699 | 0.1+ | 0.6− | 2004 12 14 | 699 | 0.8− | 0.5+ | | |
| 2004 09 13 | 704 | 0.1− | 0.6+ | 2004 11 04 | 703 | 0.2− | 1.3− | 2004 12 14 | 699 | 0.6− | 0.8+ | | |
| 2004 09 13 | 704 | 1.3+ | 0.3− | 2004 11 04 | 703 | 0.3− | 1.0− | 2004 12 16 | 704 | 0.4+ | 0.2− | | |
| 2004 10 08 | 704 | 0.4− | 0.9+ | 2004 11 04 | 703 | 0.1+ | 0.4− | 2004 12 16 | 704 | 1.7+ | 1.0+ | | |
| 2004 10 08 | 704 | 1.4− | 0.4− | 2004 11 04 | 703 | 0.2− | 0.5− | 2004 12 16 | 704 | 0.9+ | 0.5+ | | |
| 2004 10 08 | 704 | 1.1− | 0.6+ | 2004 11 19 | 704 | 0.7+ | 0.0 | 2005 01 06 | 704 | 0.3+ | 0.9+ | | |
| 2004 10 08 | 704 | 1.3− | 0.1− | 2004 11 19 | 704 | 0.2− | 0.3+ | 2005 01 06 | 704 | 0.8+ | 0.2+ | | |
| 2004 10 08 | 704 | 0.6− | 0.6+ | 2004 11 19 | 704 | 0.3+ | 0.3+ | 2005 01 06 | 704 | 0.1+ | 0.2− | | |
| 2004 10 10 | 704 | 0.1+ | 0.3+ | 2004 11 19 | 704 | 0.3− | 0.6+ | 2005 01 06 | 704 | 0.2− | 0.6− | | |
| 2004 10 10 | 704 | 0.1+ | 0.2+ | 2004 11 19 | 704 | 1.1+ | 0.2− | 2005 01 11 | 704 | 0.8− | 0.3+ | | |
| 2004 10 10 | 704 | 0.9+ | 0.1− | 2004 11 19 | 106 | 1.0+ | 0.8− | 2005 01 11 | 704 | 0.4− | 0.2− | | |
| 2004 10 10 | 704 | 0.2− | 1.1+ | 2004 11 19 | 106 | 0.3− | 0.3− | 2005 01 11 | 704 | 0.7− | 0.1− | | |
| 2004 10 21 | 704 | 1.1+ | 0.3+ | 2004 11 19 | 106 | 0.2− | 1.1− | 2005 02 02 | 704 | 0.5+ | 1.6− | | |
| 2004 10 21 | 704 | 0.7+ | 1.0+ | 2004 12 03 | 699 | 0.9+ | 0.2+ | 2005 02 02 | 704 | 0.2− | 0.5+ | | |
| 2004 10 21 | 704 | 0.9+ | 0.9+ | 2004 12 03 | 699 | 0.6− | 0.6+ | 2005 02 02 | 704 | 0.5+ | 0.3+ | | |
| 2004 10 21 | 704 | 1.2+ | 0.6+ | 2004 12 03 | 699 | 0.5+ | 0.9− | 2005 02 02 | 704 | 0.4− | 0.9+ | | |
| 2004 10 21 | 704 | 0.9+ | 1.0+ | 2004 12 03 | 699 | 0.9+ | 0.4+ | 2005 02 02 | 704 | 0.8− | 1.3+ | | |
| 2004 10 24 | 704 | 0.1− | 0.1+ | 2004 12 04 | 704 | 1.0− | 0.7− | | | | | | |

**2004 TL$_{194}$ = 2009 WE$_{217}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 4.71497 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.20403958 | $\omega$ | 129.49557 | | +0.38136482 | −0.92364001 | |
| $a$ | 2.8575452 | $\Omega$ | 298.04687 | | +0.83434893 | +0.36164838 | |
| $e$ | 0.2376052 | $i$ | 2.47284 | | +0.39802353 | +0.12688413 | |
| $P$ | 4.83 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 02 10 | 691 | 0.3− | 0.1− | 2006 02 27 | G96 | 0.2+ | 0.4+ | 2009 11 24 | D29 | 0.3+ | 0.5+ | | |
| 1996 02 10 | 691 | 0.0 | 0.1− | 2006 02 27 | G96 | 0.3+ | 0.3+ | 2009 11 24 | D29 | 0.2+ | 0.4+ | | |
| 1996 02 10 | 691 | 0.0 | 0.3− | 2006 02 27 | G96 | 0.1− | 0.1+ | 2009 11 24 | D29 | 0.7+ | 0.7+ | | |
| 2001 02 20 | 645 | 0.0 | 0.1+ | 2006 03 04 | 691 | 0.2− | 0.9+ | 2009 11 24 | J75 | 0.4+ | 0.5+ | | |
| 2001 02 20 | 645 | 0.0 | 0.1− | 2006 03 04 | 691 | 0.1+ | 0.2+ | 2009 11 24 | J75 | 0.7+ | 0.1− | | |
| 2004 10 07 | 691 | 0.1+ | 0.1− | 2006 03 04 | 691 | 0.4+ | 0.1− | 2009 11 24 | J75 | 0.6+ | 1.0− | | |
| 2004 10 07 | 691 | 0.0 | 0.1+ | 2009 10 26 | 691 | 1.0− | 0.3+ | 2009 11 25 | 703 | 1.0− | 0.3− | | |
| 2004 10 07 | 691 | 0.1− | 0.1+ | 2009 10 26 | 691 | 0.2− | 0.4+ | 2009 11 25 | 703 | 0.6+ | 0.7+ | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 11 | 691 | 0.0 | 0.0 | 2009 10 26 | 691 | 0.2− | 0.2+ | 2009 11 25 | 703 | 0.4+ | 0.2− |
| 2004 10 11 | 691 | 0.0 | 0.1+ | 2009 11 09 | 691 | 0.1− | 0.1− | 2009 11 25 | 703 | 0.6+ | 0.4− |
| 2004 10 11 | 691 | 0.0 | 0.1− | 2009 11 09 | 691 | 0.2+ | 0.2− | 2009 11 25 | 703 | 0.1− | 0.8− |
| 2004 10 13 | 152 | 0.4− | 0.6− | 2009 11 09 | 691 | 0.1+ | 0.2+ | 2009 12 18 | G96 | 0.5+ | 0.3− |
| 2004 10 13 | 152 | 0.3− | 0.2− | 2009 11 17 | 691 | 0.1− | 0.1− | 2009 12 18 | G96 | 0.4+ | 0.1− |
| 2004 10 15 | 691 | 0.2+ | 0.1− | 2009 11 17 | 691 | 0.2− | 0.1+ | 2009 12 18 | G96 | 0.2+ | 0.0 |
| 2004 10 15 | 691 | 0.1+ | 0.1+ | 2009 11 17 | 691 | 0.0 | 0.1+ | 2009 12 18 | G96 | 0.6+ | 0.1− |
| 2004 10 15 | 691 | 0.0 | 0.1+ | 2009 11 17 | 691 | 0.1+ | 0.2− | 2009 12 19 | 691 | 0.0 | 0.1− |
| 2004 10 15 | 152 | 0.2− | 1.2+ | 2009 11 17 | 691 | 0.1− | 0.0 | 2009 12 19 | 691 | 0.1+ | 0.1+ |
| 2004 10 15 | 152 | 0.6− | 0.4+ | 2009 11 17 | 691 | 0.0 | 0.0 | 2009 12 19 | 691 | 0.1− | 0.4− |
| 2006 02 27 | G96 | 0.6+ | 0.2+ | 2009 11 24 | D29 | 0.5+ | 0.0 | | | | |

**2004 TW$_{198}$ = 2009 WE$_{246}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 71.36327 | | (2000.0) | | +0.99973307 | +0.00817342 |
| $n$ | 0.21306923 | $\omega$ | 161.87984 | | −0.01493634 | +0.94223389 |
| $a$ | 2.7762308 | $\Omega$ | 197.69374 | | +0.01762633 | +0.33485591 |
| $e$ | 0.0847157 | $i$ | 4.07723 | | | |
| $P$ | 4.63 | $H$ | 17.1 | $G$ 0.15 | $U$ 1 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 07 | 691 | 0.1+ | 0.1− | 2004 10 15 | 691 | 0.2+ | 0.2+ | 2008 07 28 | G96 | 0.5+ | 0.6+ |
| 2004 10 07 | 691 | 0.1− | 0.3− | 2006 02 02 | G96 | 0.1+ | 0.2+ | 2009 11 23 | 691 | 0.9− | 0.4− |
| 2004 10 07 | 691 | 0.3− | 0.2+ | 2006 02 02 | G96 | 0.2− | 0.2+ | 2009 11 23 | 691 | 0.9+ | 0.3+ |
| 2004 10 11 | 691 | 0.1− | 0.0 | 2006 02 02 | G96 | 0.2− | 0.3+ | 2009 11 23 | 691 | 0.3+ | 0.0 |
| 2004 10 11 | 691 | 0.1− | 0.2+ | 2006 02 02 | G96 | 0.5+ | 0.3+ | 2009 11 27 | 691 | 0.0 | 0.9− |
| 2004 10 11 | 691 | 0.1− | 0.2+ | 2008 07 28 | G96 | 0.1− | 0.4− | 2009 11 27 | 691 | 0.1+ | 0.4+ |
| 2004 10 15 | 691 | 0.0 | 0.1− | 2008 07 28 | G96 | 0.2− | 0.6− | 2009 11 27 | 691 | 0.3− | 0.0 |
| 2004 10 15 | 691 | 0.1+ | 0.2+ | 2008 07 28 | G96 | 0.0 | 0.4− | | | | |

**2004 TL$_{199}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 3.98094 | | (2000.0) | | +0.99845150 | −0.03903038 |
| $n$ | 0.18400437 | $\omega$ | 303.71945 | | +0.05208277 | +0.90621694 |
| $a$ | 3.0613804 | $\Omega$ | 58.54672 | | −0.01954441 | +0.42100771 |
| $e$ | 0.3122090 | $i$ | 2.66328 | | | |
| $P$ | 5.36 | $H$ | 16.0 | $G$ 0.15 | $U$ 3 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 08 12 | 704 | 0.3− | 0.5− | 2004 10 12 | 699 | 0.2+ | 0.4+ | 2004 11 04 | 699 | 0.4+ | 0.1+ |
| 2004 08 12 | 704 | 0.2− | 0.0 | 2004 10 12 | 699 | 0.0 | 0.4− | 2004 11 04 | 699 | 0.3+ | 0.0 |
| 2004 08 12 | 704 | 0.6+ | 0.6+ | 2004 10 12 | 699 | 0.4+ | 0.1− | 2004 11 06 | 704 | 0.7+ | 0.2− |
| 2004 08 12 | 704 | 0.0 | 0.1+ | 2004 10 13 | 691 | 0.4− | 0.2+ | 2004 11 06 | 704 | 0.7− | 0.7− |
| 2004 09 22 | 704 | 0.2+ | 0.6+ | 2004 10 13 | 691 | 0.3− | 0.0 | 2004 11 06 | 704 | 0.2+ | 0.7+ |
| 2004 09 22 | 704 | 0.2+ | 0.9+ | 2004 10 13 | 691 | 0.6− | 0.0 | 2004 11 06 | 704 | 0.5+ | 0.5− |
| 2004 09 22 | 704 | 0.3+ | 0.5+ | 2004 10 14 | 704 | 0.1+ | 0.3− | 2009 07 27 | 703 | 0.6− | 1.1− |
| 2004 09 22 | 704 | 0.5− | 0.6+ | 2004 10 14 | 704 | 0.2+ | 0.1+ | 2009 07 27 | 703 | 0.1− | 0.0 |
| 2004 10 07 | 691 | 0.0 | 0.2− | 2004 10 14 | 704 | 0.1+ | 0.2+ | 2009 07 27 | 703 | 0.4+ | 0.1− |
| 2004 10 07 | 691 | 0.1− | 0.3− | 2004 10 14 | 704 | 0.3− | 0.5+ | 2009 07 27 | 703 | 0.5− | 0.2+ |
| 2004 10 07 | 691 | 0.0 | 0.3− | 2004 10 14 | 704 | 0.2+ | 0.1+ | 2009 08 17 | 703 | 0.1− | 0.6+ |
| 2004 10 09 | 704 | 0.8+ | 0.3− | 2004 10 20 | 704 | 0.1+ | 0.3− | 2009 08 17 | 703 | 0.7+ | 0.7+ |
| 2004 10 09 | 704 | 0.2− | 0.8− | 2004 10 20 | 704 | 0.1− | 0.1+ | 2009 08 17 | 703 | 1.1+ | 0.2+ |
| 2004 10 09 | 704 | 0.3− | 0.1− | 2004 10 20 | 704 | 0.1+ | 0.2− | 2009 08 17 | 703 | 0.5− | 0.0 |
| 2004 10 09 | 704 | 0.4− | 0.2+ | 2004 10 20 | 704 | 0.5− | 0.4− | 2009 09 11 | E12 | 0.9+ | 0.4+ |
| 2004 10 09 | 704 | 0.2− | 0.1− | 2004 11 03 | 644 | 0.2+ | 0.3+ | 2009 09 11 | E12 | 0.7− | 0.0 |
| 2004 10 11 | 691 | 0.3+ | 0.2− | 2004 11 03 | 644 | 0.2+ | 0.2+ | 2009 09 11 | E12 | 0.4− | 0.3− |
| 2004 10 11 | 691 | 0.3+ | 0.0 | 2004 11 03 | 644 | 0.3+ | 0.3+ | 2009 09 11 | E12 | 0.1− | 0.8− |
| 2004 10 11 | 691 | 0.2+ | 0.1− | 2004 11 04 | 699 | 0.2− | 0.6+ | | | | |
| 2004 10 12 | 699 | 0.1+ | 0.4+ | 2004 11 04 | 699 | 0.3− | 1.3+ | | | | |

**2004 TY$_{205}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 306.65819 | | (2000.0) | | +0.35463545 | −0.93071674 |
| $n$ | 0.17164206 | $\omega$ | 20.49215 | | +0.84046042 | +0.27539694 |
| $a$ | 3.2066648 | $\Omega$ | 48.85106 | | +0.40970719 | +0.24067170 |
| $e$ | 0.0533241 | $i$ | 6.82180 | | | |
| $P$ | 5.74 | $H$ | 16.0 | $G$ 0.15 | $U$ 3 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 07 | 691 | 0.2− | 0.1− | 2004 10 23 | 691 | 0.1− | 0.1− | 2007 03 13 | G96 | 0.2+ | 0.2− |
| 2004 10 07 | 691 | 0.1− | 0.0 | 2004 10 23 | 691 | 0.2+ | 0.1+ | 2007 03 13 | G96 | 0.0 | 0.4+ |
| 2004 10 07 | 691 | 0.0 | 0.0 | 2004 10 23 | 691 | 0.1− | 0.1− | 2007 03 13 | G96 | 0.5+ | 0.1+ |
| 2004 10 10 | 691 | 0.4+ | 0.1+ | 2004 10 23 | 691 | 0.5− | 0.1+ | 2007 04 18 | 691 | 0.1+ | 0.1+ |
| 2004 10 10 | 691 | 0.1+ | 0.2− | 2004 11 19 | 691 | 0.2+ | 0.1− | 2007 04 18 | 691 | 0.4− | 0.4− |
| 2004 10 10 | 691 | 0.2+ | 0.3− | 2004 11 19 | 691 | 0.0 | 0.1+ | 2007 04 18 | 691 | 0.2+ | 0.1− |
| 2004 10 23 | 691 | 0.0 | 0.3+ | 2004 11 19 | 691 | 0.0 | 0.1+ | | | | |
| 2004 10 23 | 691 | 0.2− | 0.1− | 2007 03 13 | G96 | 0.1− | 0.5+ | | | | |

**2004 TW$_{210}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 47.58573 | | (2000.0) | | +0.94609152 | −0.32315682 |
| $n$ | 0.21163326 | $\omega$ | 180.92337 | | +0.29762531 | +0.89405382 |
| $a$ | 2.7887748 | $\Omega$ | 197.97776 | | +0.12778892 | +0.31022160 |
| $e$ | 0.0849202 | $i$ | 4.07261 | | | |
| $P$ | 4.66 | $H$ | 16.5 | $G$ 0.15 | $U$ 4 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 08 | 691 | 0.3+ | 0.0 | 2004 10 12 | 691 | 0.1− | 0.3− | 2009 11 10 | 691 | 0.2+ | 0.1+ |
| 2004 10 08 | 691 | 0.0 | 0.0 | 2004 10 21 | 704 | 0.8− | 0.1+ | 2009 11 18 | 691 | 0.1− | 0.1+ |
| 2004 10 08 | 691 | 0.5+ | 0.1− | 2004 10 21 | 704 | 0.2− | 0.5+ | 2009 11 18 | 691 | 0.3+ | 0.0 |
| 2004 10 10 | 704 | 0.7− | 1.3+ | 2004 10 21 | 704 | 0.8− | 1.1− | 2009 11 18 | 691 | 0.2+ | 0.2+ |
| 2004 10 10 | 704 | 0.5− | 0.9+ | 2004 11 10 | 695 | 0.1+ | 0.1− | 2009 11 26 | 691 | 1.0− | 0.0 |
| 2004 10 10 | 704 | 0.5− | 0.7+ | 2004 11 10 | 695 | 0.4+ | 0.0 | 2009 11 26 | 691 | 0.4+ | 0.0 |
| 2004 10 12 | 691 | 0.0 | 0.1+ | 2009 11 10 | 691 | 0.8− | 0.4− | 2009 11 26 | 691 | 0.6+ | 0.1− |
| 2004 10 12 | 691 | 0.1+ | 0.2− | 2009 11 10 | 691 | 0.1+ | 0.0 | | | | |

**2004 TT$_{214}$ = 2004 TR$_{357}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 347.43417 | | (2000.0) | | +0.84042716 | −0.53342729 |
| $n$ | 0.18097648 | $\omega$ | 165.91271 | | +0.48363267 | +0.81784978 |
| $a$ | 3.0954321 | $\Omega$ | 226.73953 | | +0.24450282 | +0.21581721 |
| $e$ | 0.1802887 | $i$ | 7.54247 | | | |
| $P$ | 5.45 | $H$ | 15.4 | $G$ 0.15 | $U$ 4 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 06 | 644 | 0.3− | 0.1− | 2004 10 20 | 704 | 0.1− | 0.9+ | 2004 11 18 | 704 | 1.1− | 0.3− |
| 2004 10 06 | 644 | 0.2+ | 0.1+ | 2004 10 20 | 704 | 0.7+ | 0.1+ | 2004 11 19 | 703 | 0.5+ | 0.2+ |
| 2004 10 06 | 644 | 0.3− | 0.5+ | 2004 10 20 | 704 | 0.6+ | 0.3+ | 2004 11 19 | 703 | 0.1− | 0.1− |
| 2004 10 07 | 699 | 0.1− | 0.2+ | 2004 10 20 | 704 | 1.2+ | 0.9− | 2004 11 19 | 703 | 0.2− | 0.2− |
| 2004 10 07 | 699 | 0.5+ | 0.3− | 2004 11 04 | 703 | 0.9+ | 1.6− | 2004 11 19 | 703 | 0.1− | 0.1+ |
| 2004 10 07 | 699 | 1.0+ | 0.2+ | 2004 11 04 | 703 | (2.5+ | 1.1+) | 2009 08 16 | 703 | 0.2+ | 0.5+ |
| 2004 10 07 | 699 | 0.3+ | 1.0+ | 2004 11 04 | 703 | 0.2− | 0.7+ | 2009 08 16 | 703 | 0.3+ | 1.3− |
| 2004 10 09 | 691 | 0.1− | 0.2− | 2004 11 04 | 703 | 0.7− | 0.1+ | 2009 08 16 | 703 | 0.5− | 0.1+ |
| 2004 10 09 | 691 | 0.0 | 0.2− | 2004 11 07 | 704 | 0.3− | 0.5+ | 2009 08 16 | 703 | 1.0− | 0.1− |
| 2004 10 09 | 691 | 0.2− | 0.1− | 2004 11 07 | 704 | 0.2− | 0.6+ | 2009 09 20 | 703 | 0.6+ | 0.0 |
| 2004 10 10 | 704 | 0.1+ | 0.5− | 2004 11 07 | 704 | 0.3+ | 0.5+ | 2009 09 20 | 703 | 0.3+ | 0.8+ |
| 2004 10 10 | 704 | 0.5− | 0.3+ | 2004 11 18 | 704 | 0.1+ | 0.3+ | 2009 09 20 | 703 | 0.1+ | 0.6+ |
| 2004 10 10 | 704 | 1.2− | 0.1− | 2004 11 18 | 704 | 0.5+ | 0.6− | 2009 09 20 | 703 | 0.2− | 0.5− |
| 2004 10 10 | 704 | 0.7− | 0.2− | 2004 11 18 | 704 | 0.3+ | 0.0 | | | | |

**2004 TX$_{218}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 351.44031 | | (2000.0) | | | |
| $n$ | 0.18443009 | $\omega$ | 19.77522 | | +0.88458108 | −0.46574574 |
| $a$ | 3.0566675 | $\Omega$ | 8.11325 | | +0.40120800 | +0.73319696 |
| $e$ | 0.1584217 | $i$ | 9.97155 | | +0.23779918 | +0.49548272 |
| $P$ | 5.34 | $H$ | 16.2 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 07 | 691 | 1.0− | 0.5− | 2004 10 12 | 691 | 0.0 | 0.2− | 2004 11 04 | 703 | 0.9+ | 0.9− |
| 2004 09 07 | 691 | 0.2− | 0.4+ | 2004 10 12 | 691 | 0.0 | 0.5− | 2009 09 24 | G96 | 0.4+ | 0.3− |
| 2004 09 07 | 691 | 0.0 | 0.3+ | 2004 10 12 | 691 | 0.3+ | 0.2− | 2009 09 24 | G96 | 0.3− | 0.0 |
| 2004 09 17 | 691 | 0.2+ | 0.1− | 2004 10 21 | 704 | 0.5− | 0.3− | 2009 09 24 | G96 | 0.2+ | 0.5− |
| 2004 09 17 | 691 | 0.1+ | 0.2+ | 2004 10 21 | 704 | 0.5+ | 0.5+ | 2009 09 24 | G96 | 0.0 | 0.1− |
| 2004 09 17 | 691 | 0.3+ | 0.0 | 2004 10 21 | 704 | 1.3+ | 0.9+ | 2009 11 18 | G96 | 0.1− | 0.2− |
| 2004 10 05 | 691 | 0.1+ | 0.2+ | 2004 11 04 | 703 | 0.3− | 0.7− | 2009 11 18 | G96 | 0.1− | 0.2+ |
| 2004 10 05 | 691 | 0.2− | 0.1+ | 2004 11 04 | 703 | 0.5− | 0.5+ | 2009 11 18 | G96 | 0.1− | 0.2+ |
| 2004 10 05 | 691 | 0.1+ | 0.2+ | 2004 11 04 | 703 | 0.6− | 0.2+ | 2009 11 18 | G96 | 0.4+ | 0.2+ |

**2004 TL$_{227}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 353.13322 | | (2000.0) | | | |
| $n$ | 0.18105428 | $\omega$ | 26.83273 | | +0.96194838 | −0.27276762 |
| $a$ | 3.0945454 | $\Omega$ | 348.96111 | | +0.23339175 | +0.85057140 |
| $e$ | 0.1620530 | $i$ | 4.76647 | | +0.14206904 | +0.44958439 |
| $P$ | 5.44 | $H$ | 16.1 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 07 | 691 | 0.2− | 0.0 | 2004 10 12 | 691 | 0.1+ | 0.0 | 2009 08 19 | J75 | 0.4+ | 0.1− |
| 2004 09 07 | 691 | 0.4− | 0.1+ | 2004 10 21 | 704 | 0.8+ | 0.7− | 2009 08 19 | J75 | 0.3+ | 0.3− |
| 2004 09 07 | 691 | 0.4− | 0.2− | 2004 10 21 | 704 | 0.0 | 0.7− | 2009 08 26 | 703 | 0.6− | 0.5− |
| 2004 09 17 | 691 | 0.5+ | 0.3+ | 2004 10 21 | 704 | 0.6+ | 0.4+ | 2009 08 26 | 703 | 0.3+ | 0.8+ |
| 2004 09 17 | 691 | 0.1+ | 0.4+ | 2004 10 21 | 704 | (1.9+ | 0.6−) | 2009 08 26 | 703 | 0.6+ | 0.5+ |
| 2004 09 17 | 691 | 0.1+ | 0.3+ | 2004 10 21 | 704 | (1.2+ | 1.6−) | 2009 08 26 | 703 | (1.2− | 1.9+) |
| 2004 10 08 | 691 | 0.0 | 0.0 | 2004 11 04 | 703 | 0.1− | 1.0− | 2009 08 27 | 703 | 0.3− | 0.5− |
| 2004 10 08 | 691 | 0.1− | 0.1+ | 2004 11 04 | 703 | (1.6− | 1.8−) | 2009 08 27 | 703 | 0.4+ | 0.5+ |
| 2004 10 08 | 691 | 0.0 | 0.1+ | 2004 11 04 | 703 | (1.7− | 0.6−) | 2009 08 27 | 703 | 0.4− | 1.2+ |
| 2004 10 12 | 691 | 0.0 | 0.0 | 2004 11 04 | 703 | 0.9− | 0.4− | 2009 08 27 | 703 | 0.7− | 0.8− |
| 2004 10 12 | 691 | 0.1+ | 0.2− | 2009 08 19 | J75 | 0.4+ | 1.3− | | | | |

**2004 TE$_{243}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 75.61005 | | (2000.0) | | | |
| $n$ | 0.22118414 | $\omega$ | 264.83578 | | +0.93865345 | −0.23255496 |
| $a$ | 2.7079048 | $\Omega$ | 108.42722 | | +0.30622648 | +0.90166272 |
| $e$ | 0.1678696 | $i$ | 15.56999 | | −0.15860340 | +0.36458542 |
| $P$ | 4.46 | $H$ | 15.6 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 21 | 699 | 0.5+ | 0.3+ | 2004 12 03 | 644 | 0.4− | 0.3+ | 2008 08 28 | E12 | 0.3− | 0.3+ |
| 2004 09 21 | 699 | 0.4− | 0.2+ | 2004 12 10 | 703 | 0.3− | 0.1+ | 2008 08 28 | E12 | 0.3+ | 0.0 |
| 2004 09 21 | 699 | 0.6− | 0.3+ | 2004 12 10 | 703 | 0.4− | 0.0 | 2008 08 28 | E12 | 0.1− | 0.3+ |
| 2004 09 21 | 699 | 1.3− | 0.1+ | 2004 12 10 | 703 | 0.9− | 0.4+ | 2008 09 09 | E12 | 0.1+ | 0.1+ |
| 2004 10 06 | 704 | 0.2+ | 0.4− | 2004 12 10 | 703 | 0.2− | 0.9− | 2008 09 09 | E12 | 0.8+ | 0.2+ |
| 2004 10 06 | 704 | 1.1+ | 0.3− | 2004 12 10 | 699 | 0.2+ | 0.4− | 2008 09 09 | E12 | 0.3+ | 0.5− |
| 2004 10 06 | 704 | 1.2+ | 0.4+ | 2004 12 10 | 699 | (1.6− | 0.1+) | 2008 09 09 | E12 | 0.2+ | 0.1− |
| 2004 10 06 | 704 | 0.4− | 1.1− | 2004 12 10 | 699 | 0.0 | 0.1− | 2009 12 18 | 691 | 0.1+ | 0.0 |
| 2004 10 13 | 699 | 0.8+ | 0.5+ | 2004 12 10 | 699 | 0.4+ | 0.4− | 2009 12 18 | 691 | 0.3+ | 0.1+ |
| 2004 10 13 | 699 | 0.2+ | 0.0 | 2008 08 04 | E12 | 0.0 | 0.9+ | 2009 12 18 | 691 | 0.2+ | 0.1+ |
| 2004 10 13 | 699 | 0.9+ | 0.8− | 2008 08 04 | E12 | 0.4− | 0.9+ | 2009 12 25 | 691 | 0.2− | 0.1+ |
| 2004 10 13 | 699 | 0.5+ | 0.4+ | 2008 08 04 | E12 | 0.2− | 0.4+ | 2009 12 25 | 691 | 0.3− | 0.2+ |
| 2004 12 03 | 644 | 0.4− | 0.2− | 2008 08 04 | E12 | 1.2− | 0.5+ | 2009 12 25 | 691 | 0.1− | 0.2+ |
| 2004 12 03 | 644 | 0.4− | 0.1− | 2008 08 28 | E12 | 0.2+ | 0.1− | | | | |

**2004 TS$_{272}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 322.30961 | | (2000.0) | | | |
| $n$ | 0.17387869 | $\omega$ | 173.40984 | | +0.57713411 | −0.80659505 |
| $a$ | 3.1791070 | $\Omega$ | 241.26557 | | +0.74245297 | +0.58339060 |
| $e$ | 0.0721597 | $i$ | 8.37743 | | +0.34011734 | +0.09518312 |
| $P$ | 5.67 | $H$ | 16.0 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 09 | 691 | 0.1− | 0.0 | 2004 10 23 | 691 | 0.1+ | 0.4+ | 2009 09 15 | G96 | 0.1+ | 0.2− |
| 2004 10 09 | 691 | 0.2− | 0.1+ | 2004 10 23 | 691 | 0.1+ | 0.2+ | 2009 09 15 | G96 | 0.1− | 0.4− |
| 2004 10 09 | 691 | 0.1− | 0.1+ | 2004 11 09 | 703 | 0.4− | 0.5+ | 2009 09 15 | G96 | 0.0 | 0.1− |
| 2004 10 13 | 691 | 0.2+ | 0.3− | 2004 11 09 | 703 | 0.6− | 0.1+ | 2009 09 18 | 291 | 0.2− | 0.0 |
| 2004 10 13 | 691 | 0.1+ | 0.4− | 2004 11 09 | 703 | 0.3+ | 0.9− | 2009 09 18 | 291 | 0.4− | 0.1− |
| 2004 10 13 | 691 | 0.0 | 0.0 | 2004 11 09 | 703 | 0.2− | 0.0 | 2009 09 18 | 291 | 0.5+ | 0.3+ |
| 2004 10 23 | 691 | 0.1+ | 0.0 | 2009 09 15 | G96 | 0.2+ | 0.5− | | | | |

**2004 TB$_{273}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 64.34744 | | (2000.0) | | | |
| $n$ | 0.23727386 | $\omega$ | 208.24952 | | +0.20632508 | −0.96831492 |
| $a$ | 2.5840611 | $\Omega$ | 230.20326 | | +0.92868952 | +0.23907669 |
| $e$ | 0.1452643 | $i$ | 10.55186 | | +0.30816512 | −0.07217030 |
| $P$ | 4.15 | $H$ | 16.8 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 09 | 691 | 0.0 | 0.0 | 2004 11 04 | 703 | 0.3− | 0.8− | 2008 10 24 | 703 | 0.5+ | 0.2− |
| 2004 10 09 | 691 | 0.1+ | 0.1− | 2004 11 04 | 703 | 0.9− | 0.6+ | 2008 10 24 | 703 | 0.2− | 0.1− |
| 2004 10 09 | 691 | 0.0 | 0.0 | 2004 11 10 | 691 | 0.1− | 0.0 | 2008 11 02 | 703 | 0.0 | 0.0 |
| 2004 10 13 | 691 | 0.1+ | 0.2+ | 2004 11 10 | 691 | 0.1+ | 0.1− | 2008 11 02 | 703 | 0.6− | 0.2+ |
| 2004 10 13 | 691 | 0.2+ | 0.1+ | 2004 11 10 | 691 | 0.1+ | 0.0 | 2008 11 02 | 703 | 0.8− | 0.1+ |
| 2004 10 13 | 691 | 0.1+ | 0.1+ | 2008 10 06 | 703 | 0.9+ | 1.2− | 2008 11 02 | 703 | 1.0− | 0.4− |
| 2004 10 23 | 691 | 0.1+ | 0.0 | 2008 10 06 | 703 | 0.1+ | 0.2− | 2008 12 31 | G96 | 0.7+ | 0.0 |
| 2004 10 23 | 691 | 0.1+ | 0.1− | 2008 10 06 | 703 | 0.5+ | 0.2− | 2008 12 31 | G96 | 0.3− | 0.7− |
| 2004 10 23 | 691 | 0.0 | 0.1+ | 2008 10 06 | 703 | 1.2− | 0.3− | 2008 12 31 | G96 | 0.1− | 0.3− |
| 2004 11 04 | 703 | 0.9− | 0.1− | 2008 10 24 | 703 | 0.8+ | 1.6+ | 2008 12 31 | G96 | 0.1+ | 0.1− |
| 2004 11 04 | 703 | 1.1− | 0.1− | 2008 10 24 | 703 | 0.7+ | 0.7+ | | | | |

**2004 TD$_{287}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 77.54213 | | (2000.0) | | | |
| $n$ | 0.22678631 | $\omega$ | 330.86718 | | +0.92267319 | −0.37989542 |
| $a$ | 2.6631247 | $\Omega$ | 51.61063 | | +0.36806342 | +0.81676289 |
| $e$ | 0.1910088 | $i$ | 4.82896 | | +0.11490649 | +0.43425551 |
| $P$ | 4.35 | $H$ | 16.2 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 09 | 704 | 0.5+ | 0.4− | 2004 11 03 | 644 | 0.3− | 0.1+ | 2008 08 05 | E12 | 0.4− | 0.0 |
| 2004 10 09 | 704 | 0.2+ | 0.2+ | 2004 11 03 | 644 | 0.1− | 0.1+ | 2008 08 05 | E12 | 0.4− | 0.4+ |
| 2004 10 09 | 704 | 0.4− | 0.5− | 2004 11 03 | 644 | 0.0 | 0.0 | 2008 08 05 | E12 | 0.1+ | 0.4+ |
| 2004 10 09 | 704 | 0.8+ | 0.2− | 2004 11 04 | 699 | 0.7+ | 0.6− | 2008 08 05 | E12 | 0.4− | 0.5− |
| 2004 10 14 | 704 | 0.0 | 0.9− | 2004 11 04 | 699 | 0.1− | 0.2+ | 2008 08 23 | E12 | 0.1+ | 0.5− |
| 2004 10 14 | 704 | 0.2− | 0.8− | 2004 11 04 | 699 | 1.3− | 0.2+ | 2008 08 23 | E12 | 0.2+ | 0.0 |
| 2004 10 14 | 704 | 0.1− | 0.1+ | 2004 11 04 | 699 | 0.5+ | 0.7+ | 2008 08 23 | E12 | 0.3+ | 0.3− |
| 2004 10 20 | 704 | 0.1− | 1.0+ | 2004 12 18 | G96 | 0.2+ | 0.2− | 2008 08 23 | E12 | 0.5+ | 0.3+ |
| 2004 10 20 | 704 | 0.6− | 0.2+ | 2004 12 18 | G96 | 0.1− | 0.1− | 2009 12 20 | G96 | 0.4+ | 0.2− |
| 2004 10 20 | 704 | 0.6+ | 0.8+ | 2004 12 18 | G96 | 0.8− | 0.1− | 2009 12 20 | G96 | 0.0 | 0.1+ |
| 2004 10 20 | 704 | 0.4+ | 0.3+ | 2004 12 18 | G96 | 0.1− | 0.3− | 2009 12 20 | G96 | 0.3− | 0.1− |

**2004 TP$_{294}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 39.50979 | | (2000.0) | | | |
| $n$ | 0.21346118 | $\omega$ | 347.13021 | | +0.68781814 | −0.72132172 |
| $a$ | 2.7728313 | $\Omega$ | 59.34450 | | +0.67407286 | +0.59318310 |
| $e$ | 0.2054180 | $i$ | 5.41947 | | +0.26931764 | +0.35753151 |
| $P$ | 4.62 | $H$ | 16.9 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 10 | 691 | 0.1− | 0.1− | 2004 11 04 | 703 | 0.1+ | 0.8− | 2004 12 20 | 691 | 0.1− | 0.1+ |
| 2004 10 10 | 691 | 0.0 | 0.1− | 2004 11 07 | 704 | 0.2+ | 0.2+ | 2004 12 20 | 691 | 0.1− | 0.1− |
| 2004 10 10 | 691 | 0.0 | 0.1− | 2004 11 07 | 704 | 0.3+ | 0.4− | 2009 11 20 | G96 | 0.3+ | 0.4− |
| 2004 10 14 | 691 | 0.2+ | 0.1+ | 2004 11 07 | 704 | 0.3− | 0.8+ | 2009 11 20 | G96 | 0.1+ | 0.0 |
| 2004 10 14 | 691 | 0.5− | 0.0 | 2004 11 19 | 703 | 0.3+ | 0.2− | 2009 11 20 | G96 | 0.1− | 0.0 |
| 2004 10 14 | 691 | 0.1+ | 0.0 | 2004 11 19 | 703 | 0.5+ | 0.2+ | 2009 11 20 | G96 | 0.1+ | 0.0 |
| 2004 11 04 | 703 | 0.8+ | 0.6+ | 2004 11 19 | 703 | 1.1+ | 0.1− | 2009 12 18 | 691 | 0.1+ | 0.0 |
| 2004 11 04 | 703 | 0.6− | 0.3+ | 2004 11 19 | 703 | 0.0 | 0.7− | 2009 12 18 | 691 | 0.1− | 0.0 |
| 2004 11 04 | 703 | 0.4− | 0.2+ | 2004 12 20 | 691 | 0.2− | 0.3+ | 2009 12 18 | 691 | 0.1− | 0.0 |

**2004 TQ$_{296}$ = 2009 YO$_{13}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 65.05220 | | (2000.0) | | | |
| $n$ | 0.21679123 | $\omega$ | 171.99221 | | +0.91175202 | −0.40974212 |
| $a$ | 2.7443632 | $\Omega$ | 212.24424 | | +0.37381165 | +0.85664416 |
| $e$ | 0.1918258 | $i$ | 3.07602 | | +0.17021488 | +0.31348394 |
| $P$ | 4.55 | $H$ | 17.0 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 10 | 691 | 0.0 | 0.1+ | 2004 10 15 | G96 | 0.0 | 0.2− | 2004 11 07 | 704 | 0.1+ | 0.7− |
| 2004 10 10 | 691 | 0.1+ | 0.0 | 2004 10 23 | 691 | 0.1− | 0.1+ | 2009 12 18 | G96 | 0.3+ | 0.4+ |
| 2004 10 10 | 691 | 0.2− | 0.3+ | 2004 10 23 | 691 | 0.3− | 0.0 | 2009 12 18 | G96 | 0.5+ | 0.2+ |
| 2004 10 14 | 691 | 0.2+ | 0.2− | 2004 10 23 | 691 | 0.1− | 0.2+ | 2009 12 18 | G96 | 0.4+ | 0.3+ |
| 2004 10 14 | 691 | 0.0 | 0.1− | 2004 11 04 | 691 | 0.0 | 0.1− | 2009 12 18 | G96 | 0.1+ | 0.1+ |
| 2004 10 14 | 691 | 0.1− | 0.0 | 2004 11 04 | 691 | 0.0 | 0.1− | 2009 12 20 | 691 | 0.0 | 0.0 |
| 2004 10 15 | G96 | 0.1+ | 0.5− | 2004 11 04 | 691 | 0.1− | 0.1− | 2009 12 20 | 691 | 0.2− | 0.1− |
| 2004 10 15 | G96 | 0.3+ | 0.4− | 2004 11 07 | 704 | 0.1+ | 0.9+ | 2009 12 20 | 691 | 0.1− | 0.2− |
| 2004 10 15 | G96 | 0.3+ | 0.3− | 2004 11 07 | 704 | 1.1+ | 0.9+ | | | | |

**2004 TZ$_{297}$ = 2009 XA$_{7}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 27.54432 | | (2000.0) | | | |
| $n$ | 0.21521555 | $\omega$ | 147.75668 | | +0.57172007 | −0.79556747 |
| $a$ | 2.7577419 | $\Omega$ | 266.61143 | | +0.70366858 | +0.60114817 |
| $e$ | 0.1688659 | $i$ | 11.58795 | | +0.42188469 | +0.07545383 |
| $P$ | 4.58 | $H$ | 16.1 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 23 | 704 | 0.3+ | 0.9− | 2004 11 09 | 703 | 0.5+ | 0.3− | 2009 12 13 | H10 | 0.8− | 0.3+ |
| 2004 09 23 | 704 | 0.1+ | 0.6− | 2004 11 10 | 291 | 0.2− | 0.0 | 2009 12 13 | H10 | 0.5− | 1.1− |
| 2004 09 23 | 704 | 0.0 | 0.4− | 2004 11 10 | 291 | 0.4− | 0.0 | 2009 12 13 | H10 | 0.4+ | 0.3− |
| 2004 09 23 | 704 | 0.4− | 0.5− | 2004 11 10 | 291 | 0.3− | 0.1+ | 2009 12 15 | H10 | 1.5− | 0.9− |
| 2004 10 12 | 699 | 0.4− | 0.1+ | 2004 11 10 | 291 | 0.1− | 0.1+ | 2009 12 15 | H10 | 1.1− | 0.9− |
| 2004 10 12 | 699 | 0.3− | 0.8+ | 2004 11 10 | 291 | 0.0 | 0.2+ | 2009 12 15 | H10 | 1.4− | 1.0− |
| 2004 10 12 | 699 | 0.2− | 0.1+ | 2004 11 10 | 291 | 0.0 | 0.1− | 2009 12 15 | H10 | 0.3− | 0.3− |
| 2004 10 12 | 699 | 0.2+ | 0.4+ | 2008 07 29 | G96 | 1.4+ | 1.2− | 2009 12 15 | H10 | 0.4+ | 0.4− |
| 2004 10 14 | 644 | 0.5+ | 0.6+ | 2008 07 29 | G96 | 0.0 | 0.6− | 2009 12 15 | H10 | 0.0 | 0.1− |
| 2004 10 14 | 644 | 0.7+ | 0.5+ | 2008 07 29 | G96 | 0.2− | 0.8− | 2009 12 17 | 704 | 0.9+ | 0.9+ |
| 2004 10 14 | 644 | 0.5+ | 0.4+ | 2009 11 16 | 691 | 0.8+ | 1.0− | 2009 12 17 | 704 | 0.1− | 0.5+ |
| 2004 11 09 | 703 | 0.5+ | 0.2+ | 2009 11 16 | 691 | 0.0 | 0.2+ | 2009 12 17 | 704 | 1.3+ | 0.6+ |
| 2004 11 09 | 703 | 0.2+ | 0.7+ | 2009 11 16 | 691 | 0.1− | 0.3+ | 2009 12 17 | 704 | 0.4+ | 1.1+ |
| 2004 11 09 | 703 | 0.9+ | 0.2+ | 2009 12 13 | H10 | 1.4− | 0.4− | 2009 12 17 | 704 | 0.4+ | 0.4+ |

**2004 TJ$_{323}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 103.55060 | | (2000.0) | | | |
| $n$ | 0.22092835 | $\omega$ | 132.49673 | | +0.99631286 | −0.03882390 |
| $a$ | 2.7099946 | $\Omega$ | 229.87692 | | +0.01084144 | +0.94157682 |
| $e$ | 0.0446586 | $i$ | 5.74228 | | +0.08510667 | +0.33455314 |
| $P$ | 4.46 | $H$ | 16.2 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 07 05 | 691 | 0.0 | 0.2+ | 2004 11 10 | 691 | 0.1+ | 0.2+ | 2008 10 06 | G96 | 0.1− | 0.2− |
| 2003 07 05 | 691 | 0.0 | 0.2+ | 2004 11 10 | 691 | 0.2+ | 0.1+ | 2008 10 06 | G96 | 0.6+ | 0.4− |
| 2003 07 05 | 691 | 0.1− | 0.1+ | 2004 11 10 | 691 | 0.4+ | 0.2+ | 2008 10 06 | G96 | 0.9+ | 0.5− |
| 2004 10 11 | 695 | 0.2− | 0.1− | 2004 11 19 | 691 | 0.0 | 0.1− | 2008 10 30 | G96 | 0.1+ | 0.3− |
| 2004 10 11 | 691 | 0.4− | 0.5+ | 2004 11 19 | 691 | 0.1− | 0.0 | 2008 10 30 | G96 | 0.3− | 0.2− |
| 2004 10 11 | 695 | 0.2− | 0.1− | 2004 11 19 | 691 | 0.0 | 0.0 | 2008 10 30 | G96 | 0.2− | 0.4− |
| 2004 10 11 | 691 | 0.0 | 0.2+ | 2004 11 19 | 703 | 0.9− | 0.3− | 2008 10 30 | G96 | 0.1− | 0.3− |
| 2004 10 11 | 691 | 0.4+ | 0.0 | 2004 11 19 | 703 | (1.7+ | 0.1+) | 2008 12 03 | G96 | 0.1− | 0.5− |
| 2004 10 15 | 691 | 0.1− | 0.1− | 2004 11 19 | 703 | 0.8− | 0.3+ | 2008 12 03 | G96 | 0.3− | 0.2− |
| 2004 10 15 | 691 | 0.0 | 0.1+ | 2004 11 19 | 703 | 0.3− | 0.7− | 2008 12 03 | G96 | 0.2+ | 0.3− |
| 2004 10 15 | 691 | 0.1+ | 0.0 | 2008 10 06 | G96 | 0.2+ | 0.1− | 2008 12 03 | G96 | 0.0 | 0.0 |

**2004 TB$_{328}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 48.83533 | | (2000.0) | | | |
| $n$ | 0.20988949 | $\omega$ | 298.84632 | | +0.98241796 | −0.06308537 |
| $a$ | 2.8041996 | $\Omega$ | 65.24609 | | +0.13925224 | +0.87450637 |
| $e$ | 0.2928327 | $i$ | 11.15667 | | −0.12435338 | +0.48089380 |
| $P$ | 4.70 | $H$ | 16.2 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 21 | 699 | 1.3− | 0.4+ | 2004 10 14 | 699 | 0.4+ | 1.5− | 2004 11 12 | 704 | 0.2+ | 0.4+ |
| 2004 09 21 | 699 | (2.1− | 0.2+) | 2004 10 18 | 704 | 0.2− | 0.1+ | 2004 11 12 | 704 | 0.5+ | 0.3+ |
| 2004 09 21 | 704 | 0.3− | 0.5+ | 2004 10 18 | 704 | 0.0 | 0.0 | 2009 11 17 | 691 | 0.8− | 0.1+ |
| 2004 09 21 | 699 | 0.1+ | 0.4+ | 2004 10 18 | 704 | 0.2+ | 0.4− | 2009 11 17 | 691 | 0.9− | 0.3+ |
| 2004 09 21 | 704 | 0.5− | 0.3+ | 2004 10 18 | 704 | 1.1− | 0.1− | 2009 11 17 | 691 | 0.6+ | 0.1+ |
| 2004 09 21 | 699 | 0.9+ | 0.3− | 2004 10 18 | 704 | 0.1− | 0.4− | 2009 11 25 | 691 | 0.6+ | 0.0 |
| 2004 09 21 | 704 | 0.2− | 0.0 | 2004 10 20 | 703 | 0.2− | 0.3− | 2009 11 25 | 691 | 0.2− | 0.3+ |
| 2004 09 21 | 704 | 0.2− | 0.2+ | 2004 10 20 | 703 | 0.3+ | 0.4− | 2009 11 25 | 691 | 0.6+ | 0.0 |
| 2004 09 21 | 704 | 0.9+ | 0.4+ | 2004 10 20 | 703 | 0.2+ | 0.6− | 2009 12 10 | 704 | 1.5− | 0.7− |
| 2004 10 04 | 644 | 0.2− | 0.2− | 2004 10 20 | 703 | 0.6+ | 0.0 | 2009 12 10 | 704 | 1.2− | 0.1+ |
| 2004 10 04 | 644 | 0.2− | 0.2− | 2004 10 31 | 699 | 1.1+ | 0.4+ | 2009 12 10 | 704 | 1.0− | 0.3− |
| 2004 10 04 | 644 | 0.1+ | 0.0 | 2004 10 31 | 699 | 0.1− | 0.1− | 2009 12 10 | 704 | 0.6− | 0.8− |
| 2004 10 06 | 704 | 0.6− | 0.7+ | 2004 10 31 | 699 | 0.2+ | 0.5+ | 2009 12 10 | 704 | 0.4− | 0.4− |
| 2004 10 06 | 704 | 0.2+ | 0.5+ | 2004 10 31 | 699 | 0.6+ | 0.4− | 2009 12 10 | J75 | 1.0+ | 0.3+ |
| 2004 10 06 | 704 | 1.2− | 0.7+ | 2004 11 03 | 699 | 0.7+ | 0.1+ | 2009 12 10 | J75 | 0.2+ | 0.1+ |
| 2004 10 06 | 704 | 0.1− | 1.1− | 2004 11 03 | 699 | 0.4+ | 0.6+ | 2009 12 10 | J75 | 0.9+ | 0.0 |
| 2004 10 06 | 704 | 0.5− | 0.1− | 2004 11 03 | 699 | 0.0 | 0.7− | 2009 12 11 | G96 | 0.7+ | 0.1− |
| 2004 10 14 | 699 | 0.4+ | 0.3− | 2004 11 03 | 699 | 0.2+ | 0.1− | 2009 12 11 | G96 | 0.2+ | 0.2− |
| 2004 10 14 | 699 | 0.4− | 0.3+ | 2004 11 12 | 704 | 0.1− | 0.5− | 2009 12 11 | G96 | 0.8+ | 0.0 |
| 2004 10 14 | 699 | 0.4− | 0.2+ | 2004 11 12 | 704 | 0.0 | 0.2+ | 2009 12 11 | G96 | 0.9+ | 0.0 |

**2004 TH$_{328}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 74.56116 | | (2000.0) | | | |
| $n$ | 0.19355889 | $\omega$ | 179.43110 | | +0.65488266 | +0.74170697 |
| $a$ | 2.9597882 | $\Omega$ | 131.46900 | | −0.69413082 | +0.66616817 |
| $e$ | 0.0447574 | $i$ | 11.15085 | | −0.29884964 | +0.07804318 |
| $P$ | 5.09 | $H$ | 15.7 | $G$ | 0.15 | $U$ 5 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 04 | 644 | 0.5+ | 0.1+ | 2004 11 03 | 291 | 0.1+ | 0.3− | 2009 09 24 | 703 | 0.8− | 0.8− |
| 2004 10 04 | 644 | 0.4+ | 0.0 | 2004 11 03 | 291 | 0.3+ | 0.1+ | 2009 09 24 | 703 | 0.8− | 0.5− |
| 2004 10 04 | 644 | 0.5+ | 0.1+ | 2004 11 04 | 291 | 0.7− | 0.1+ | 2009 10 16 | 703 | 0.4− | 0.6+ |
| 2004 10 07 | 704 | 0.6− | 1.9+ | 2004 11 04 | 291 | 0.2− | 0.1− | 2009 10 16 | 703 | 1.5− | 1.1− |
| 2004 10 07 | 704 | 0.4− | 0.6− | 2004 11 04 | 291 | 0.3+ | 0.1+ | 2009 10 16 | 703 | 1.2+ | 1.0+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 07 | 704 | 0.5+ | 0.3+ | 2009 09 24 | 703 | 0.6+ | 1.3+ | 2009 10 16 | 703 | 0.1+ | 0.4− | | |
| 2004 11 03 | 291 | 0.0 | 0.2− | 2009 09 24 | 703 | 1.6+ | 0.5− | | | | | | |

**2004 TE$_{342}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 117.60328 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.24363086 | $\omega$ | 263.71671 | | +0.93469608 | | −0.27688319 |
| $a$ | 2.5389132 | $\Omega$ | 112.17998 | | +0.33634897 | | +0.89175914 |
| $e$ | 0.1884857 | $i$ | 13.92779 | | −0.11494608 | | +0.35791247 |
| $P$ | 4.05 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 07 | 704 | 1.2+ | 0.2− | 2004 10 18 | 704 | 1.0+ | 0.8+ | 2008 10 09 | 703 | 0.4+ | 0.1− | | |
| 2004 10 07 | 704 | 0.0 | 1.1+ | 2004 10 18 | 704 | 0.3− | 0.0 | 2008 10 09 | 703 | 1.1+ | 0.3+ | | |
| 2004 10 07 | 704 | 0.7− | 0.5− | 2004 12 07 | 704 | 0.4− | 0.2− | 2008 10 09 | 703 | 0.3− | 0.2+ | | |
| 2004 10 07 | 704 | 1.1+ | 1.0− | 2004 12 07 | 704 | (0.1+ | 2.1+) | 2008 10 09 | 703 | 0.3− | 0.2− | | |
| 2004 10 07 | 704 | 0.7− | 0.1− | 2004 12 07 | 704 | (2.4− | 0.2−) | 2008 10 09 | 703 | 0.5+ | 0.1− | | |
| 2004 10 13 | 699 | 0.3− | 0.7− | 2004 12 07 | 704 | (1.4+ | 2.6+) | 2008 10 09 | 703 | 1.3− | 0.0 | | |
| 2004 10 13 | 699 | 0.3− | 0.6− | 2004 12 12 | 704 | 0.3− | 0.4+ | 2008 10 09 | 703 | 0.0 | 0.4+ | | |
| 2004 10 13 | 699 | 0.2+ | 1.4− | 2004 12 12 | 704 | 0.9+ | 0.7+ | 2008 11 06 | 703 | 0.6− | 0.6+ | | |
| 2004 10 13 | 699 | 1.1− | 0.7− | 2004 12 12 | 704 | 1.0+ | 0.5+ | 2008 11 06 | 703 | 0.9− | 0.3+ | | |
| 2004 10 14 | 699 | (0.3+ | 3.1−) | 2004 12 12 | 704 | 0.0 | 0.5− | 2008 11 06 | 703 | 0.2− | 0.1+ | | |
| 2004 10 14 | 699 | 0.3− | 0.4+ | 2004 12 12 | 704 | 0.0 | 0.6− | 2008 11 06 | 703 | 0.1− | 0.4− | | |
| 2004 10 14 | 699 | 0.6− | 0.8+ | 2008 09 27 | 703 | (2.4+ | 1.2−) | 2008 12 30 | 703 | 0.0 | 1.1+ | | |
| 2004 10 14 | 699 | 0.4− | 0.2− | 2008 09 27 | 703 | 1.2+ | 0.1− | 2008 12 30 | 703 | 0.8− | 0.8− | | |
| 2004 10 18 | 704 | 0.1+ | 0.4+ | 2008 09 27 | 703 | (2.1+ | 1.0+) | 2008 12 30 | 703 | 0.0 | 0.1− | | |
| 2004 10 18 | 704 | 0.4+ | 0.4+ | 2008 09 27 | 703 | (0.3+ | 2.4+) | 2008 12 30 | 703 | 0.7+ | 0.5− | | |
| 2004 10 18 | 704 | 0.4+ | 0.2− | 2008 10 09 | 703 | 0.1+ | 0.8+ | | | | | | |

**2004 TM$_{357}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 170.73575 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.28171343 | $\omega$ | 235.60410 | | +0.60321200 | | −0.79732944 |
| $a$ | 2.3046113 | $\Omega$ | 177.05440 | | +0.79756704 | | +0.60315932 |
| $e$ | 0.2302612 | $i$ | 22.93610 | | −0.00469996 | | +0.02155454 |
| $P$ | 3.50 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 12 | 683 | 1.9− | 1.8− | 2004 11 05 | 704 | 0.1− | 1.5+ | 2004 11 11 | 704 | 0.1+ | 0.2− | | |
| 2004 09 12 | 683 | 1.6+ | 0.1+ | 2004 11 10 | 704 | 0.3+ | 0.9− | 2004 11 12 | 704 | 0.1+ | 0.5− | | |
| 2004 09 12 | 683 | 1.2− | 0.4− | 2004 11 10 | 704 | 0.1− | 0.2+ | 2004 11 12 | 704 | 0.6− | 0.2− | | |
| 2004 10 07 | 704 | 0.5− | 0.1+ | 2004 11 10 | 704 | 0.4− | 0.1+ | 2004 11 12 | 704 | 0.2+ | 1.2− | | |
| 2004 10 07 | 704 | 0.8− | 0.4+ | 2004 11 10 | 704 | 0.6+ | 0.5− | 2004 12 13 | 699 | 0.6+ | 1.1− | | |
| 2004 10 07 | 704 | 0.4+ | 0.5+ | 2004 11 10 | 704 | 0.6+ | 0.5+ | 2004 12 13 | 699 | 0.7+ | 0.1− | | |
| 2004 10 07 | 704 | 1.0+ | 0.4+ | 2004 11 11 | 704 | 0.4+ | 0.2− | 2004 12 13 | 699 | 0.2+ | 0.4+ | | |
| 2004 10 07 | 704 | 1.2+ | 0.1+ | 2004 11 11 | 704 | 0.2+ | 0.7+ | 2004 12 13 | 699 | 0.2− | 0.1+ | | |
| 2004 10 14 | 699 | 0.0 | 1.5+ | 2004 11 11 | 704 | 0.9− | 0.4+ | 2009 03 17 | 703 | 0.5+ | 0.2+ | | |
| 2004 10 14 | 699 | 0.1+ | 1.1− | 2004 11 11 | 704 | 0.1+ | 1.4+ | 2009 03 17 | 703 | 0.2− | 0.8− | | |
| 2004 10 14 | 699 | 1.0+ | 0.4+ | 2004 11 11 | 704 | 0.4− | 0.0 | 2009 03 17 | 703 | 0.2− | 0.8+ | | |
| 2004 10 14 | 699 | 0.9+ | 0.7− | 2004 11 11 | 704 | 0.3+ | 0.1− | 2009 03 17 | 703 | 0.8+ | 0.2− | | |
| 2004 11 05 | 704 | 0.9− | 1.0− | 2004 11 11 | 704 | 0.5− | 0.2+ | 2009 04 18 | G96 | 0.9− | 0.0 | | |
| 2004 11 05 | 704 | 0.3− | 0.4+ | 2004 11 11 | 704 | 0.4− | 0.0 | 2009 04 18 | G96 | 0.1− | 0.3− | | |
| 2004 11 05 | 704 | 0.8− | 0.3+ | 2004 11 11 | 704 | 0.6− | 0.4− | 2009 04 18 | G96 | 0.2− | 0.1− | | |

**2004 TH$_{367}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 45.17353 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23701092 | $\omega$ | 158.36690 | | −0.12119233 | | −0.97136086 |
| $a$ | 2.5859720 | $\Omega$ | 298.08360 | | +0.87337170 | | −0.00649757 |
| $e$ | 0.2083148 | $i$ | 13.39439 | | +0.47173540 | | −0.23752022 |
| $P$ | 4.16 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 08 | 704 | 0.1− | 0.6− | 2004 10 23 | 704 | 0.2− | 0.7+ | 2008 09 24 | 703 | 0.2− | 0.2− | | |
| 2004 10 08 | 704 | 0.5+ | 0.3+ | 2004 10 23 | 704 | 0.4+ | 0.8+ | 2008 09 24 | 703 | 0.3− | 0.1− | | |
| 2004 10 08 | 704 | 0.0 | 0.5+ | 2004 10 24 | 704 | 0.8+ | 0.3+ | 2008 09 24 | 703 | 0.1− | 0.8− | | |
| 2004 10 08 | 704 | 0.3+ | 0.6+ | 2004 10 24 | 704 | 0.2+ | 0.1− | 2008 09 24 | 703 | 1.2− | 0.1− | | |
| 2004 10 16 | 704 | 0.1+ | 0.7+ | 2004 10 24 | 704 | 0.3+ | 0.4− | 2008 10 06 | 703 | 0.9+ | 0.4+ | | |
| 2004 10 16 | 704 | 0.1− | 0.8+ | 2004 10 24 | 704 | 1.0− | 1.8− | 2008 10 06 | 703 | 1.6+ | 0.3− | | |
| 2004 10 16 | 704 | 0.7+ | 1.7− | 2004 12 16 | 703 | 1.1+ | 0.4+ | 2008 10 06 | 703 | 0.6− | 0.3+ | | |
| 2004 10 16 | 704 | 1.0− | 0.4+ | 2004 12 16 | 703 | 0.5− | 0.4− | 2008 10 06 | 703 | 0.1+ | 0.4+ | | |
| 2004 10 23 | 704 | 0.3− | 0.3− | 2004 12 16 | 703 | 0.1− | 0.0 | | | | | | |
| 2004 10 23 | 704 | 0.7− | 0.8+ | 2004 12 16 | 703 | 0.5− | 0.6− | | | | | | |

**2004 TY$_{368}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 290.27424 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18946651 | $\omega$ | 280.91728 | | −0.67235763 | | −0.73615359 |
| $a$ | 3.0022562 | $\Omega$ | 211.76991 | | +0.72358212 | | −0.63153304 |
| $e$ | 0.1308803 | $i$ | 8.46933 | | +0.15609016 | | −0.24340073 |
| $P$ | 5.20 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 07 | 691 | 0.1− | 0.1− | 2004 11 03 | 691 | 0.1+ | 0.3− | 2009 09 20 | G96 | 0.1− | 0.2− | | |
| 2004 10 07 | 691 | 0.0 | 0.1− | 2004 11 19 | 703 | 0.1− | 0.3− | 2009 10 14 | D29 | 0.4+ | 0.1− | | |
| 2004 10 07 | 691 | 0.1− | 0.1+ | 2004 11 19 | 703 | 0.0 | 0.4+ | 2009 10 14 | D29 | 0.6− | 0.8+ | | |
| 2004 10 15 | 691 | 0.0 | 0.2− | 2004 11 19 | 703 | (1.8− | 1.1−) | 2009 11 19 | G96 | 0.3− | 0.2− | | |
| 2004 10 15 | 691 | 0.2− | 0.1− | 2004 11 19 | 703 | 0.5+ | 1.1+ | 2009 11 19 | G96 | 0.1− | 0.0 | | |
| 2004 10 15 | 691 | 0.2+ | 0.2+ | 2009 09 20 | G96 | 0.5− | 0.1+ | 2009 11 19 | G96 | 0.2+ | 0.2+ | | |
| 2004 11 03 | 691 | 0.0 | 0.3+ | 2009 09 20 | G96 | 0.4+ | 0.2− | 2009 11 19 | G96 | 0.3+ | 0.0 | | |
| 2004 11 03 | 691 | 0.0 | 0.3− | 2009 09 20 | G96 | 0.2+ | 0.2− | | | | | | |

**2004 VX$_7$ = 2008 TG$_{178}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 78.76413 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23242340 | $\omega$ | 346.89342 | | +0.69946701 | | −0.70306081 |
| $a$ | 2.6198886 | $\Omega$ | 58.54575 | | +0.66850795 | | +0.58021472 |
| $e$ | 0.0971544 | $i$ | 8.64761 | | +0.25267176 | | +0.41116465 |
| $P$ | 4.24 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 11 03 | 691 | 0.2+ | 0.2+ | 2004 11 12 | 703 | 0.6− | 0.4+ | 2008 10 08 | 703 | (1.8+ | 0.4+) | | |
| 2004 11 03 | 691 | 0.1− | 0.0 | 2004 11 12 | 703 | 0.1− | 0.4+ | 2008 10 08 | 703 | 0.5+ | 0.0 | | |
| 2004 11 03 | 691 | 0.3+ | 0.1− | 2004 11 12 | 703 | 0.4− | 0.3− | 2008 10 08 | 703 | 1.4+ | 1.3+ | | |
| 2004 11 04 | 703 | 0.4− | 0.2− | 2008 10 01 | 703 | 0.0 | 0.6− | 2008 10 27 | G96 | 0.4+ | 0.0 | | |
| 2004 11 04 | 703 | 0.1− | 0.2− | 2008 10 01 | 703 | 0.9− | 0.3+ | 2008 10 27 | G96 | 0.1− | 0.1− | | |
| 2004 11 04 | 703 | 0.2+ | 0.2+ | 2008 10 01 | 703 | 0.8− | 0.6− | 2008 10 27 | G96 | 0.0 | 0.1− | | |
| 2004 11 04 | 703 | 0.4− | 0.0 | 2008 10 01 | 703 | 0.6− | 0.0 | 2008 10 27 | G96 | 0.0 | 0.2− | | |
| 2004 11 12 | 703 | 0.4− | 0.1− | 2008 10 08 | 703 | 0.1+ | 0.1− | | | | | | |

**2004 VZ$_7$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 46.59305 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21670377 | $\omega$ | 258.63882 | | +0.65962725 | | −0.75130588 |
| $a$ | 2.7451015 | $\Omega$ | 150.05741 | | +0.70478404 | | +0.60871000 |
| $e$ | 0.1892460 | $i$ | 2.38483 | | +0.26109643 | | +0.25497374 |
| $P$ | 4.55 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 09 | 691 | 0.0 | 0.1+ | 2004 11 04 | 703 | 0.1− | 0.4− | 2004 12 13 | 691 | 0.5+ | 0.2− | | |
| 2004 10 09 | 691 | 0.3− | 0.2− | 2004 11 04 | 703 | 0.4+ | 0.2− | 2008 07 30 | G96 | 0.0 | 0.4+ | | |
| 2004 10 09 | 691 | 0.0 | 0.0 | 2004 11 19 | 703 | 1.1− | 0.2− | 2008 07 30 | G96 | 0.4− | 0.2+ | | |
| 2004 11 03 | 691 | 0.1+ | 0.0 | 2004 11 19 | 703 | 1.2+ | 0.0 | 2008 07 30 | G96 | 0.3+ | 0.4+ | | |
| 2004 11 03 | 691 | 0.0 | 0.0 | 2004 11 19 | 703 | 1.2− | 0.8− | 2008 07 30 | G96 | 0.2− | 0.0 | | |
| 2004 11 03 | 691 | 0.1+ | 0.0 | 2004 11 19 | 703 | 0.6− | 0.2+ | 2009 12 17 | 691 | 0.4+ | 0.0 | | |
| 2004 11 04 | 703 | 0.3+ | 0.2+ | 2004 12 13 | 691 | 0.0 | 0.1− | 2009 12 17 | 691 | 0.3− | 0.2+ | | |
| 2004 11 04 | 703 | 0.1+ | 1.5+ | 2004 12 13 | 691 | 0.0 | 0.0 | 2009 12 17 | 691 | 0.0 | 0.3+ | | |

**2004 VW$_8$ = 2009 YX$_{17}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 68.99483 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21485681 | $\omega$ | 85.53321 | | +0.98022793 | −0.00638848 | |
| $a$ | 2.7608107 | $\Omega$ | 274.74438 | | −0.07575814 | +0.91120594 | |
| $e$ | 0.2298988 | $i$ | 11.44625 | | +0.18279471 | +0.41190159 | |
| $P$ | 4.59 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 14 | 704 | 0.1− | 0.5− | 2004 11 03 | 703 | 0.6− | 0.5− | 2004 12 11 | 703 | 0.3− | 1.8− |
| 2004 09 14 | 704 | 0.1− | 0.1− | 2004 11 03 | 703 | 1.4− | 0.5+ | 2004 12 11 | 703 | 0.5− | 1.1− |
| 2004 09 14 | 704 | 0.1− | 0.6+ | 2004 11 03 | 703 | 0.1− | 0.6+ | 2004 12 11 | 703 | 1.0− | 0.5− |
| 2004 09 14 | 704 | 0.2+ | 0.5+ | 2004 11 04 | 704 | 1.0+ | 0.5+ | 2004 12 11 | 703 | 0.4+ | 0.4− |
| 2004 10 04 | 704 | 0.4+ | 1.1− | 2004 11 04 | 704 | 0.7+ | 0.1+ | 2009 12 19 | 691 | 0.2+ | 0.0 |
| 2004 10 04 | 704 | 0.0 | 0.3− | 2004 11 04 | 704 | 0.2+ | 0.2− | 2009 12 19 | 691 | 0.2+ | 0.2− |
| 2004 10 04 | 704 | 1.1− | 0.1− | 2004 11 04 | 704 | 0.5+ | 0.1− | 2009 12 19 | 691 | 0.1− | 0.2+ |
| 2004 10 24 | 699 | 0.5+ | 0.0 | 2004 11 04 | 704 | 0.1− | 1.2+ | 2009 12 26 | 691 | 0.2− | 0.1+ |
| 2004 10 24 | 699 | 1.0+ | 1.7+ | 2004 11 10 | 704 | 0.2+ | 0.5− | 2009 12 26 | 691 | 0.4+ | 0.0 |
| 2004 10 24 | 699 | 0.6+ | 0.2− | 2004 11 10 | 704 | 0.6− | 0.4+ | 2009 12 26 | 691 | 0.4− | 0.1+ |
| 2004 10 24 | 699 | 1.0− | 0.2+ | 2004 11 10 | 704 | 0.9+ | 0.7+ | | | | |
| 2004 11 03 | 703 | 0.2− | 0.0 | 2004 11 10 | 704 | 0.4+ | 0.4− | | | | |

**2004 VY$_{10}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 357.74459 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17712622 | $\omega$ | 9.56866 | | +0.98542716 | −0.17009350 | |
| $a$ | 3.1401290 | $\Omega$ | 0.23547 | | +0.12933881 | +0.74456609 | |
| $e$ | 0.2167945 | $i$ | 17.47288 | | +0.11047531 | +0.64551494 | |
| $P$ | 5.56 | $H$ | 15.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 18 | 704 | 0.1− | 0.2− | 2004 11 03 | 703 | 0.4− | 0.6− | 2004 12 01 | 703 | 0.1+ | 0.2+ |
| 2004 09 18 | 704 | 0.5+ | 0.0 | 2004 11 03 | 703 | 0.1+ | 0.1− | 2004 12 01 | 703 | 1.7+ | 0.5+ |
| 2004 09 18 | 704 | 0.6+ | 0.2+ | 2004 11 03 | 703 | 0.4+ | 0.7− | 2004 12 01 | 703 | 0.4− | 0.3+ |
| 2004 10 08 | 704 | 0.1+ | 0.3− | 2004 11 04 | 704 | 0.1+ | 0.2− | 2004 12 01 | 703 | 0.3+ | 0.2− |
| 2004 10 08 | 704 | 0.6− | 0.0 | 2004 11 04 | 704 | 0.1− | 0.1+ | 2009 08 19 | 703 | 0.4− | 0.8− |
| 2004 10 08 | 704 | 0.6− | 0.4+ | 2004 11 04 | 704 | 0.2− | 0.5+ | 2009 08 19 | 703 | 0.1− | 0.3+ |
| 2004 10 08 | 704 | 0.7− | 0.2− | 2004 11 04 | 704 | 0.7− | 0.0 | 2009 08 19 | 703 | 0.5+ | 0.3− |
| 2004 10 24 | 704 | 0.0 | 0.2− | 2004 11 04 | 704 | 0.1− | 0.3− | 2009 08 19 | 703 | 0.1+ | 0.4+ |
| 2004 10 24 | 704 | 0.2− | 0.2+ | 2004 11 10 | 704 | 0.7+ | 0.5+ | 2009 09 16 | 703 | 0.6+ | 0.2− |
| 2004 10 24 | 704 | 0.8− | 0.3− | 2004 11 10 | 704 | 0.1+ | 0.3+ | 2009 09 16 | 703 | 0.7− | 0.2+ |
| 2004 10 24 | 704 | 0.2+ | 0.4+ | 2004 11 10 | 704 | 0.3+ | 0.8+ | 2009 09 16 | 703 | 0.4+ | 0.5+ |
| 2004 11 03 | 703 | 0.2− | 0.4− | 2004 11 10 | 704 | 0.0 | 0.5− | 2009 09 16 | 703 | 0.4− | 0.3− |

**2004 VE$_{15}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 341.63621 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17212205 | $\omega$ | 291.29801 | | +0.79138151 | −0.52389959 | |
| $a$ | 3.2007006 | $\Omega$ | 101.57641 | | +0.60807554 | +0.72764978 | |
| $e$ | 0.1667907 | $i$ | 18.75805 | | −0.06292408 | +0.44278100 | |
| $P$ | 5.73 | $H$ | 15.3 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 11 05 | 644 | 0.0 | 0.1− | 2004 11 17 | 683 | 0.4− | 0.5+ | 2009 08 02 | E12 | 0.3− | 0.3− |
| 2004 11 05 | 644 | 0.0 | 0.2+ | 2004 11 19 | 683 | (0.4+ | 1.9+) | 2009 08 02 | E12 | 0.6− | 0.1− |
| 2004 11 05 | 644 | 0.2+ | 0.2+ | 2004 11 19 | 683 | (0.8+ | 2.7+) | 2009 08 02 | E12 | 0.1− | 0.5+ |
| 2004 11 06 | 704 | (1.7+ | 1.3−) | 2004 11 19 | 683 | (1.7− | 1.0+) | 2009 08 02 | E12 | 0.4− | 0.6− |
| 2004 11 06 | 704 | (0.4+ | 1.5−) | 2004 11 20 | 683 | 0.6+ | 1.5+ | 2009 09 15 | E12 | 0.1− | 0.3− |
| 2004 11 06 | 704 | (1.6+ | 0.5−) | 2004 11 20 | 683 | (0.4− | 1.8+) | 2009 09 15 | E12 | 0.1+ | 0.2+ |
| 2004 11 06 | 704 | 0.2− | 0.4− | 2004 11 20 | 683 | (1.6− | 0.5+) | 2009 09 15 | E12 | 1.2+ | 0.7+ |
| 2004 11 06 | 644 | 0.3− | 0.1− | 2004 12 03 | 699 | 0.4− | 0.1+ | 2009 09 15 | E12 | 0.4− | 0.5− |
| 2004 11 06 | 644 | 0.0 | 0.0 | 2004 12 03 | 699 | 0.4+ | 0.5− | 2009 09 24 | E12 | 0.0 | 0.4+ |
| 2004 11 06 | 644 | 0.1− | 0.3+ | 2004 12 03 | 699 | 1.3+ | 0.9− | 2009 09 24 | E12 | 0.5− | 0.4− |
| 2004 11 11 | 699 | 0.2− | 0.3+ | 2004 12 03 | 699 | 0.1− | 0.5+ | 2009 09 24 | E12 | 1.3+ | 0.3+ |
| 2004 11 11 | 699 | 0.0 | 0.3+ | 2004 12 19 | 703 | 0.1+ | 0.0 | 2009 09 24 | E12 | (1.1− | 2.0+) |
| 2004 11 11 | 699 | 0.1− | 0.1+ | 2004 12 19 | 703 | 0.5− | 0.5+ | 2009 09 24 | E12 | 0.0 | 0.4+ |
| 2004 11 11 | 699 | 0.3− | 1.1− | 2004 12 19 | 703 | (1.7− | 0.2−) | 2009 09 24 | E12 | 0.2− | 0.1− |
| 2004 11 17 | 683 | 0.3+ | 1.1− | 2004 12 19 | 703 | 0.2− | 0.0 | 2009 09 24 | E12 | 0.2− | 0.2− |

**2004 VK$_{15}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 6.69519 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17464075 | $\omega$ | 278.38559 | | +0.99215631 | +0.06467626 | |
| $a$ | 3.1698521 | $\Omega$ | 77.95527 | | −0.01437435 | +0.90909911 | |
| $e$ | 0.1604861 | $i$ | 6.27953 | | −0.12417424 | +0.41152859 | |
| $P$ | 5.64 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 09 | 291 | 0.3− | 0.2+ | 2004 11 06 | 735 | 0.6+ | 0.6− | 2009 08 26 | 703 | 0.6− | 0.7+ |
| 2004 10 09 | 291 | 0.1+ | 0.0 | 2004 11 06 | 735 | 0.1+ | 0.2− | 2009 08 26 | 703 | 1.2− | 1.0+ |
| 2004 10 09 | 291 | 0.0 | 0.2+ | 2004 11 11 | 735 | 0.5+ | 0.5− | 2009 08 26 | 703 | (2.8− | 0.5+) |
| 2004 11 05 | 735 | 0.7− | 0.6+ | 2004 11 11 | 735 | 0.3− | 0.4− | 2009 09 14 | 735 | 0.1− | 0.8− |
| 2004 11 05 | 735 | 0.2+ | 0.6− | 2004 12 13 | 691 | 0.1− | 0.1+ | 2009 09 14 | 735 | 1.6+ | 0.6− |
| 2004 11 05 | 735 | 1.0+ | 0.7− | 2004 12 13 | 691 | 0.1− | 0.1+ | 2009 09 14 | 735 | 0.2− | 0.4− |
| 2004 11 05 | 735 | 0.1+ | 0.4+ | 2004 12 13 | 691 | 0.1+ | 0.0 | | | | |
| 2004 11 06 | 735 | 0.5− | 0.4− | 2009 08 26 | 703 | 0.5+ | 0.1− | | | | |

**2004 VU$_{18}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 113.56134 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26345399 | $\omega$ | 52.58048 | | +0.24345608 | −0.96984755 | |
| $a$ | 2.4099028 | $\Omega$ | 23.33631 | | +0.88072763 | +0.21622966 | |
| $e$ | 0.1630075 | $i$ | 1.61647 | | +0.40626097 | +0.11242981 | |
| $P$ | 3.74 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 08 | 691 | 0.2+ | 0.1+ | 2004 11 04 | 703 | 0.2− | 0.7− | 2004 12 10 | 691 | 0.1+ | 0.4+ |
| 2004 10 08 | 691 | 0.2+ | 0.2+ | 2004 11 07 | 704 | 0.0 | 0.4− | 2004 12 10 | 691 | 0.1+ | 0.1+ |
| 2004 10 08 | 691 | 0.1− | 0.1+ | 2004 11 07 | 704 | 0.3+ | 0.3+ | 2008 12 06 | 691 | 0.1+ | 0.8− |
| 2004 11 04 | 691 | 0.0 | 0.1− | 2004 11 07 | 704 | 0.0 | 0.5+ | 2008 12 06 | 691 | 0.1− | 0.9− |
| 2004 11 04 | 691 | 0.2− | 0.1− | 2004 11 19 | 703 | 0.6− | 0.8+ | 2008 12 06 | 691 | 0.2− | 0.8− |
| 2004 11 04 | 691 | 0.1− | 0.2− | 2004 11 19 | 703 | 0.9− | 0.0 | 2008 12 30 | 691 | 0.1− | 0.5+ |
| 2004 11 04 | 703 | 0.4+ | 0.1− | 2004 11 19 | 703 | 0.0 | 0.2− | 2008 12 30 | 691 | 0.3+ | 1.6+ |
| 2004 11 04 | 703 | 0.2+ | 0.3− | 2004 11 19 | 703 | (5.1− | 2.3−) | 2008 12 30 | 691 | (0.7+ | 3.6+) |
| 2004 11 04 | 703 | 0.3− | 0.0 | 2004 12 10 | 691 | 0.1+ | 0.1+ | | | | |

**2004 VR$_{20}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 84.66711 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22706345 | $\omega$ | 325.43698 | | +0.95510577 | −0.28633903 | |
| $a$ | 2.6609572 | $\Omega$ | 51.38468 | | +0.28901852 | +0.84410366 | |
| $e$ | 0.2320317 | $i$ | 5.58518 | | +0.06512503 | +0.45331993 | |
| $P$ | 4.34 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 09 | 704 | 0.6+ | 0.3+ | 2004 11 04 | 703 | 0.6− | 0.1− | 2004 12 20 | 691 | 0.1− | 0.5− |
| 2004 10 09 | 704 | 0.1− | 0.2− | 2004 11 07 | 704 | 0.2− | 0.3+ | 2004 12 20 | 691 | 0.2− | 0.0 |
| 2004 10 09 | 704 | 0.9− | 0.1− | 2004 11 07 | 704 | 0.2+ | 0.4+ | 2004 12 20 | 691 | 0.1+ | 0.1− |
| 2004 10 09 | 704 | 0.0 | 0.3+ | 2004 11 07 | 704 | 0.6− | 0.2− | 2008 08 05 | E12 | 0.1+ | 0.1− |
| 2004 10 20 | 704 | 0.6+ | 0.7− | 2004 11 07 | 704 | 0.0 | 0.5− | 2008 08 05 | E12 | 0.1+ | 0.6− |
| 2004 10 20 | 704 | 0.3+ | 0.5− | 2004 11 18 | 704 | 0.0 | 0.0 | 2008 08 05 | E12 | 0.1+ | 0.3+ |
| 2004 10 20 | 704 | 0.4− | 0.3− | 2004 11 18 | 704 | 1.0+ | 0.5+ | 2008 08 23 | E12 | 0.1− | 0.1+ |
| 2004 10 20 | 704 | 0.1+ | 0.2+ | 2004 11 18 | 704 | 0.3− | 0.9+ | 2008 08 23 | E12 | 0.1− | 0.1− |
| 2004 10 20 | 704 | 0.6− | 1.5+ | 2004 11 18 | 704 | 0.2+ | 0.5− | 2008 08 23 | E12 | 0.1− | 0.2+ |
| 2004 11 04 | 703 | 0.1− | 1.0− | 2004 12 10 | 691 | 0.2+ | 0.5+ | 2008 08 23 | E12 | 0.1+ | 0.1+ |
| 2004 11 04 | 703 | 0.4+ | 0.5− | 2004 12 10 | 691 | 0.2+ | 0.0 | | | | |
| 2004 11 04 | 703 | 0.0 | 0.0 | 2004 12 10 | 691 | 0.1− | 0.1+ | | | | |

**2004 VL$_{22}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 349.72192 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17504606 | $\omega$ | 334.01183 | | +0.87885653 | −0.44596567 | |
| $a$ | 3.1649570 | $\Omega$ | 53.51767 | | +0.46617750 | +0.72720969 | |
| $e$ | 0.2526820 | $i$ | 12.16889 | | +0.10143833 | +0.52180522 | |
| $P$ | 5.63 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 11 04 | 691 | 0.0 | 0.1− | 2004 12 02 | 703 | 0.6− | 1.1− | 2004 12 15 | 704 | 1.1+ | 0.3− |
| 2004 11 04 | 691 | 0.1+ | 0.2− | 2004 12 07 | 704 | 1.6+ | 0.6+ | 2004 12 15 | 704 | 1.1+ | 0.7+ |
| 2004 11 04 | 691 | 0.3+ | 0.1− | 2004 12 07 | 704 | 1.2+ | 1.8− | 2004 12 15 | 704 | 0.3+ | 0.8− |
| 2004 11 07 | 704 | 0.2+ | 0.8+ | 2004 12 07 | 704 | 0.9− | 0.4− | 2004 12 17 | 704 | 0.7− | 0.6+ |
| 2004 11 07 | 704 | 0.9− | 0.4+ | 2004 12 07 | 704 | (1.0− | 2.6+) | 2004 12 17 | 704 | 0.0 | 0.9+ |
| 2004 11 07 | 704 | 0.9− | 0.2+ | 2004 12 11 | 704 | 0.0 | 0.0 | 2004 12 17 | 704 | 0.7− | 0.2− |
| 2004 11 07 | 704 | 0.3+ | 0.4+ | 2004 12 11 | 704 | 0.4− | 0.8+ | 2009 07 31 | E12 | 1.3+ | 0.4+ |
| 2004 12 02 | 704 | 0.7+ | 0.0 | 2004 12 11 | 704 | 0.5− | 0.4− | 2009 07 31 | E12 | 0.3+ | 0.6− |
| 2004 12 02 | 704 | 0.2− | 0.0 | 2004 12 11 | 704 | 0.2− | 0.3− | 2009 07 31 | E12 | 0.3+ | 0.1+ |
| 2004 12 02 | 704 | 1.0+ | 0.8+ | 2004 12 14 | 703 | 1.0− | 1.0− | 2009 07 31 | E12 | 1.6− | 0.2− |
| 2004 12 02 | 704 | 1.2+ | 0.0 | 2004 12 14 | 703 | 1.1− | 0.8− | 2009 09 15 | E12 | 0.7+ | 0.2+ |
| 2004 12 02 | 703 | 1.4− | 0.5− | 2004 12 14 | 703 | 1.1− | 0.7+ | 2009 09 15 | E12 | 0.3− | 0.4− |
| 2004 12 02 | 704 | 0.1− | 0.1− | 2004 12 14 | 703 | 0.7− | 1.9+ | 2009 09 15 | E12 | 0.5− | 0.8+ |
| 2004 12 02 | 703 | 0.3+ | 0.1+ | 2004 12 15 | 704 | 1.1+ | 0.2+ | 2009 09 15 | E12 | 0.2− | 0.3− |
| 2004 12 02 | 703 | (2.3− | 0.0 ) | 2004 12 15 | 704 | 0.1− | 0.3− | | | | |

**2004 VG$_{26}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 60.99917 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21738324 | $\omega$ | 152.49564 | | +0.82048292 | −0.53788084 | |
| $a$ | 2.7393783 | $\Omega$ | 241.35728 | | +0.47557077 | +0.83017074 | |
| $e$ | 0.1932689 | $i$ | 12.74590 | | +0.31723845 | +0.14663135 | |
| $P$ | 4.53 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 21 | 704 | 0.0 | 1.6− | 2004 12 02 | 699 | 0.3− | 0.5+ | 2004 12 14 | 699 | 0.3− | 0.6− |
| 2004 10 21 | 704 | 0.6− | 0.3+ | 2004 12 02 | 699 | 0.1+ | 0.1+ | 2008 07 28 | G96 | 0.3+ | 0.1− |
| 2004 10 21 | 704 | 0.0 | 1.0+ | 2004 12 02 | 699 | 1.5+ | 0.3+ | 2008 07 28 | G96 | 0.1+ | 0.2− |
| 2004 11 04 | 703 | 0.4+ | 0.2− | 2004 12 02 | 699 | 0.6− | 0.3+ | 2008 07 28 | G96 | 0.0 | 0.5− |
| 2004 11 04 | 703 | 0.3− | 0.5+ | 2004 12 14 | 699 | (2.2+ | 0.0 ) | 2008 07 28 | G96 | 0.1− | 0.0 |
| 2004 11 04 | 703 | 0.3− | 0.2+ | 2004 12 14 | 699 | 0.1− | 0.5− | 2008 09 27 | 703 | 0.6− | 0.5+ |
| 2004 11 04 | 703 | 0.4− | 0.1− | 2004 12 14 | 703 | 0.4+ | 0.1+ | 2008 09 27 | 703 | 0.1− | 1.0+ |
| 2004 11 09 | 703 | 0.2− | 0.7− | 2004 12 14 | 703 | 0.7+ | 0.8− | 2008 09 27 | 703 | 0.1− | 0.5− |
| 2004 11 09 | 703 | 0.7− | 0.9− | 2004 12 14 | 703 | 0.2+ | 0.2+ | 2008 09 27 | 703 | 0.4+ | 0.1+ |
| 2004 11 09 | 703 | 0.4− | 0.2+ | 2004 12 14 | 703 | 0.6+ | 1.5+ | | | | |
| 2004 11 09 | 703 | 0.4+ | 0.5− | 2004 12 14 | 699 | 0.1− | 0.5+ | | | | |

**2004 VO$_{27}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 64.52720 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22870866 | $\omega$ | 85.13638 | | +0.76020096 | −0.63380087 | |
| $a$ | 2.6481809 | $\Omega$ | 314.10472 | | +0.48885982 | +0.70279364 | |
| $e$ | 0.1818803 | $i$ | 11.47044 | | +0.42791422 | +0.32307517 | |
| $P$ | 4.31 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 11 | 704 | 0.3+ | 0.5+ | 2004 10 12 | 699 | 1.1+ | 1.0+ | 2008 07 30 | 691 | 0.1− | 0.1− |
| 2004 09 11 | 704 | 1.1− | 0.1− | 2004 10 12 | 699 | 0.3+ | 0.4− | 2008 07 30 | 691 | 0.0 | 0.1+ |
| 2004 09 11 | 704 | 0.3− | 0.5− | 2004 10 12 | 699 | 0.0 | 0.6− | 2008 07 30 | 691 | 0.1+ | 0.1− |
| 2004 09 11 | 704 | 0.3− | 0.8+ | 2004 10 12 | 699 | 0.1− | 0.0 | 2008 10 30 | G96 | 0.1− | 0.1− |
| 2004 09 11 | 704 | 0.3− | 0.8+ | 2004 11 05 | 644 | 0.4+ | 0.1+ | 2008 10 30 | G96 | 0.0 | 0.1+ |
| 2004 09 23 | 704 | 1.2− | 0.5+ | 2004 11 05 | 644 | 0.4+ | 0.5+ | 2008 10 30 | G96 | 0.1− | 0.2− |
| 2004 09 23 | 704 | 0.1+ | 0.3− | 2004 11 05 | 644 | 0.0 | 0.2+ | 2008 10 30 | G96 | 0.4+ | 0.3− |
| 2004 09 23 | 704 | 0.4+ | 0.2+ | 2004 11 09 | 703 | 0.0 | 0.1+ | 2009 01 01 | G96 | 0.2+ | 0.5− |
| 2004 10 04 | 644 | 0.1− | 0.1− | 2004 11 09 | 703 | 0.2+ | 0.1+ | 2009 01 01 | G96 | 0.3+ | 0.2− |
| 2004 10 04 | 644 | 0.1− | 0.3+ | 2004 11 09 | 703 | 0.7− | 1.2− | 2009 01 01 | G96 | 0.1+ | 0.6− |
| 2004 10 04 | 644 | 0.0 | 0.1+ | 2004 11 09 | 703 | 0.2+ | 0.6− | 2009 01 01 | G96 | 0.3+ | 0.3− |

**2004 VR$_{46}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 120.83872 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22033352 | $\omega$ | 252.62990 | | +0.77747483 | +0.58576597 | |
| $a$ | 2.7148698 | $\Omega$ | 70.91664 | | −0.44464653 | +0.76940248 | |
| $e$ | 0.2328566 | $i$ | 14.01924 | | −0.44477224 | +0.25475095 | |
| $P$ | 4.47 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 09 | 291 | 0.1− | 0.5+ | 2004 11 19 | 703 | 0.3+ | 1.4− | 2008 08 23 | E12 | 0.3− | 0.2− |
| 2004 10 09 | 291 | 0.2+ | 0.4+ | 2004 12 09 | 703 | 0.2− | 1.2− | 2008 09 21 | E12 | 0.2+ | 0.0 |
| 2004 10 09 | 291 | 0.2− | 0.0 | 2004 12 09 | 703 | 0.3+ | 0.2− | 2008 09 21 | E12 | 0.1− | 0.1− |
| 2004 11 04 | 691 | 0.0 | 0.2− | 2004 12 09 | 703 | 0.2− | 0.0 | 2008 09 21 | E12 | 0.0 | 0.4+ |
| 2004 11 04 | 691 | 0.1+ | 0.1− | 2004 12 09 | 703 | 0.4− | 0.3+ | 2008 09 21 | E12 | 0.0 | 0.0 |
| 2004 11 04 | 691 | 0.1+ | 0.0 | 2008 06 29 | E12 | 0.1− | 0.4+ | 2008 11 24 | 703 | 0.3+ | 0.6+ |
| 2004 11 10 | 691 | 0.0 | 0.2+ | 2008 06 29 | E12 | 0.2+ | 0.3− | 2008 11 24 | 703 | 1.2− | 0.3− |
| 2004 11 10 | 691 | 0.2+ | 0.2+ | 2008 06 29 | E12 | 0.3+ | 0.1+ | 2008 11 24 | 703 | 0.7− | 0.6− |
| 2004 11 10 | 691 | 0.2+ | 0.1+ | 2008 06 29 | E12 | 0.1− | 0.4− | 2008 11 24 | 703 | 0.9+ | 0.4+ |
| 2004 11 19 | 703 | 0.5− | 0.4+ | 2008 08 23 | E12 | 0.0 | 0.4+ | 2009 12 20 | G96 | 0.0 | 0.1+ |
| 2004 11 19 | 703 | 0.8− | 1.0− | 2008 08 23 | E12 | 0.2+ | 0.2− | 2009 12 20 | G96 | 0.2+ | 0.0 |
| 2004 11 19 | 703 | 0.5− | 1.5− | 2008 08 23 | E12 | 0.5+ | 0.4− | | | | |

**2004 VT$_{53}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 109.81992 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21705769 | $\omega$ | 281.51238 | | +0.87001742 | +0.45825010 | |
| $a$ | 2.7421167 | $\Omega$ | 51.48873 | | −0.31058848 | +0.79591625 | |
| $e$ | 0.1454875 | $i$ | 13.43991 | | −0.38288964 | +0.39563135 | |
| $P$ | 4.54 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 10 | 691 | 0.0 | 0.0 | 2004 11 10 | 691 | 0.1− | 0.1− | 2008 08 02 | E12 | 0.0 | 1.0− |
| 2004 10 10 | 691 | 0.0 | 0.0 | 2004 11 10 | 691 | 0.1− | 0.0 | 2008 08 02 | E12 | 0.4− | 1.4+ |
| 2004 10 10 | 691 | 0.0 | 0.0 | 2004 11 10 | 691 | 0.0 | 0.1+ | 2008 08 02 | E12 | 0.3− | 0.7− |
| 2004 10 23 | 691 | 0.6− | 0.0 | 2004 11 10 | 691 | 0.1+ | 0.1+ | 2008 09 02 | E12 | 0.3+ | 0.2− |
| 2004 10 23 | 691 | 0.4+ | 0.2− | 2004 11 10 | 691 | 0.1+ | 0.1+ | 2008 09 02 | E12 | 0.2− | 0.1+ |
| 2004 10 23 | 691 | 0.1+ | 0.0 | 2004 11 19 | 703 | 0.4− | 0.4− | 2008 09 02 | E12 | 0.3− | 0.3+ |
| 2004 11 07 | 704 | (1.7− | 0.5+) | 2004 11 19 | 703 | 0.3+ | 0.2+ | 2009 12 20 | G96 | 0.0 | 0.2− |
| 2004 11 07 | 704 | 0.7− | 0.5− | 2004 11 19 | 703 | (1.1− | 2.2+) | 2009 12 20 | G96 | 0.1+ | 0.1+ |
| 2004 11 07 | 704 | 0.0 | 0.0 | 2004 11 19 | 703 | 0.3+ | 0.3+ | 2009 12 20 | G96 | 0.2+ | 0.1− |
| 2004 11 10 | 691 | 0.2+ | 0.1+ | 2008 08 02 | E12 | 1.0+ | 0.2+ | 2009 12 20 | G96 | 0.1− | 0.0 |

**2004 VW$_{53}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 79.56975 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21667991 | $\omega$ | 296.86702 | | +0.96185183 | −0.22618959 | |
| $a$ | 2.7453030 | $\Omega$ | 76.53172 | | +0.27115350 | +0.86284804 | |
| $e$ | 0.2115676 | $i$ | 9.10431 | | −0.03628824 | +0.45203045 | |
| $P$ | 4.55 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 11 07 | 704 | 0.6+ | 0.1+ | 2004 12 10 | 704 | 0.0 | 0.2− | 2008 08 23 | E12 | 0.5− | 1.0+ |
| 2004 11 07 | 704 | 0.2− | 0.6− | 2004 12 10 | 704 | 0.4+ | 0.1− | 2008 08 23 | E12 | 0.3+ | 0.6+ |
| 2004 11 07 | 704 | 0.5− | 0.7+ | 2004 12 14 | 704 | 0.2+ | 0.6− | 2008 08 23 | E12 | 0.7+ | 0.6− |
| 2004 11 10 | 691 | 0.0 | 0.2− | 2004 12 14 | 704 | 0.4− | 0.7+ | 2008 09 20 | E12 | 0.0 | 0.5− |
| 2004 11 10 | 691 | 0.1− | 0.1− | 2004 12 14 | 704 | 0.2+ | 0.1+ | 2008 09 20 | E12 | 0.1− | 0.5+ |
| 2004 11 10 | 691 | 0.1+ | 0.0 | 2004 12 14 | 704 | 0.1− | 0.1+ | 2008 09 20 | E12 | 0.8+ | 0.6− |
| 2004 11 13 | 703 | 0.6− | 0.4− | 2004 12 14 | 704 | 1.0− | 0.7+ | 2008 09 20 | E12 | 0.7− | 0.0 |
| 2004 11 13 | 703 | 0.3+ | 1.1− | 2004 12 16 | 704 | (0.1− | 1.7+) | 2008 11 02 | 703 | 0.4− | 0.5− |
| 2004 11 13 | 703 | 0.2− | 0.8+ | 2004 12 16 | 704 | 0.4+ | 0.8+ | 2008 11 02 | 703 | 1.1+ | 0.8+ |
| 2004 11 13 | 703 | 0.1− | 0.2+ | 2004 12 16 | 704 | 0.2+ | 0.7+ | 2008 11 02 | 703 | 0.5− | 0.8+ |
| 2004 12 02 | 699 | 0.5− | 0.2− | 2004 12 16 | 704 | 0.1+ | 0.5+ | 2008 11 02 | 703 | 0.5+ | 0.4− |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 02 | 699 | 0.4− | 0.2+ | 2004 12 20 | G96 | 0.7+ | 0.4+ | 2009 11 26 | G96 | 0.3+ | 0.1− |
| 2004 12 02 | 699 | 0.4− | 1.4− | 2004 12 20 | G96 | 0.6+ | 0.2− | 2009 11 26 | G96 | 0.4+ | 0.2− |
| 2004 12 02 | 699 | 0.8− | 0.7− | 2004 12 20 | G96 | 0.2+ | 0.2− | 2009 11 26 | G96 | 0.5+ | 0.1− |
| 2004 12 02 | 644 | 0.2+ | 0.2+ | 2004 12 20 | G96 | 0.2+ | 0.7− | 2009 11 26 | G96 | 0.2+ | 0.2− |
| 2004 12 02 | 644 | 0.2+ | 0.1+ | 2008 08 05 | E12 | 0.1+ | 0.3+ | 2009 11 26 | G96 | 0.1− | 0.1+ |
| 2004 12 02 | 644 | 0.2+ | 0.5+ | 2008 08 05 | E12 | 0.9− | 0.0 | 2009 12 20 | 691 | 0.1+ | 0.2+ |
| 2004 12 10 | 704 | (1.7+ | 0.8+) | 2008 08 05 | E12 | 0.8− | 0.3− | 2009 12 20 | 691 | 0.0 | 0.3+ |
| 2004 12 10 | 704 | 0.6+ | 0.1+ | 2008 08 05 | E12 | 0.2− | 0.1+ | 2009 12 20 | 691 | 0.3− | 0.2+ |
| 2004 12 10 | 704 | 0.5+ | 0.5− | 2008 08 23 | E12 | 0.1+ | 0.4+ | | | | |

**2004 VV$_{59}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 77.40712 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.22638085 | $\omega$ | 145.83789 | | | +0.77131236 | | −0.60944051 | |
| $a$ | 2.6663035 | $\Omega$ | 252.78243 | | | +0.53258943 | | +0.77586302 | |
| $e$ | 0.1012462 | $i$ | 11.07376 | | | +0.34846197 | | +0.16315282 | |
| $P$ | 4.35 | $H$ | 16.0 | $G$ | 0.15 | | $U$ | 4 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 21 | 704 | 0.1+ | 0.5+ | 2004 11 19 | 704 | 0.2− | 0.5− | 2008 09 22 | 703 | 0.0 | 0.7+ |
| 2004 10 21 | 704 | 1.5+ | 0.0 | 2004 11 19 | 704 | 0.5− | 0.4+ | 2008 09 22 | 703 | 1.1+ | 0.5− |
| 2004 10 21 | 704 | 0.3− | 0.5− | 2004 11 19 | 704 | 0.6− | 0.2− | 2008 09 22 | 703 | 2.0+ | 1.6+ |
| 2004 10 21 | 704 | 0.1+ | 0.4+ | 2004 11 19 | 704 | 0.4− | 0.2+ | 2008 10 06 | 703 | 1.5+ | 0.3− |
| 2004 11 09 | 703 | 0.6− | 1.1− | 2004 11 20 | 691 | 0.2− | 0.0 | 2008 10 06 | 703 | 0.5− | 0.4− |
| 2004 11 09 | 703 | 0.3+ | 0.4+ | 2004 11 20 | 691 | 0.1− | 0.1− | 2008 10 06 | 703 | 0.6− | 0.8+ |
| 2004 11 09 | 703 | 0.8− | 1.5− | 2004 11 20 | 691 | 0.2− | 0.0 | 2008 10 06 | 703 | 0.5− | 0.7− |
| 2004 11 09 | 703 | 1.0− | 0.5+ | 2004 12 11 | 703 | 0.0 | 0.7+ | 2008 10 25 | 703 | 0.1+ | 1.9− |
| 2004 11 11 | 691 | 0.4+ | 0.1+ | 2004 12 11 | 703 | 0.4+ | 0.8+ | 2008 10 25 | 703 | 0.7− | 0.4− |
| 2004 11 11 | 691 | 0.5+ | 0.1+ | 2004 12 11 | 703 | 0.0 | 0.3− | 2008 10 25 | 703 | 2.0− | 0.9− |
| 2004 11 11 | 691 | 0.2+ | 0.1+ | 2004 12 11 | 703 | 0.2+ | 0.8− | 2008 10 25 | 703 | 0.4+ | 0.3+ |
| 2004 11 19 | 704 | 0.6− | 0.5+ | 2008 09 22 | 703 | 1.0− | 1.1+ | | | | |

**2004 VU$_{63}$ = 2008 TP$_{179}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 83.16682 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.23177312 | $\omega$ | 343.02640 | | | +0.66162438 | | −0.72283831 | |
| $a$ | 2.6247866 | $\Omega$ | 65.05269 | | | +0.71097143 | | +0.52024710 | |
| $e$ | 0.1740928 | $i$ | 12.70391 | | | +0.23827044 | | +0.45480516 | |
| $P$ | 4.25 | $H$ | 16.7 | $G$ | 0.15 | | $U$ | 3 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 03 13 | 691 | 0.4+ | 0.4− | 2004 12 02 | 644 | 0.1− | 0.6− | 2008 10 01 | 703 | 0.1+ | 0.6− |
| 2002 03 13 | 691 | 0.3− | 0.0 | 2004 12 02 | 644 | 0.1+ | 0.5− | 2008 10 08 | 703 | 1.0+ | 0.2− |
| 2002 03 13 | 691 | 0.1− | 0.5+ | 2004 12 02 | 644 | 0.3+ | 0.2− | 2008 10 08 | 703 | 0.1− | 0.2+ |
| 2004 11 10 | 691 | 0.0 | 0.3− | 2004 12 10 | 704 | 1.0+ | 0.2+ | 2008 10 08 | 703 | 1.0− | 0.3− |
| 2004 11 10 | 691 | 0.1− | 0.3− | 2004 12 10 | 704 | 0.2+ | 0.6− | 2008 10 08 | 703 | 0.4− | 1.1+ |
| 2004 11 10 | 691 | 0.0 | 0.1− | 2004 12 10 | 704 | (2.8+ | 0.6−) | 2008 10 26 | 703 | 0.0 | 0.6+ |
| 2004 11 12 | 703 | 0.1+ | 0.1+ | 2004 12 10 | 704 | 0.5+ | 0.8+ | 2008 10 26 | 703 | 0.0 | 0.4− |
| 2004 11 12 | 703 | 0.3+ | 0.4+ | 2004 12 19 | 704 | 0.8− | 0.7+ | 2008 10 26 | 703 | 1.0− | 0.0 |
| 2004 11 12 | 703 | 0.2− | 0.6+ | 2004 12 19 | 704 | 0.6− | 0.4− | 2008 10 26 | 703 | 0.2+ | 0.6− |
| 2004 11 12 | 703 | 0.2− | 0.8+ | 2004 12 19 | 704 | 1.5− | 0.2+ | 2008 11 20 | 703 | 1.0− | 0.2+ |
| 2004 11 13 | 703 | 0.5+ | 0.2− | 2004 12 19 | 704 | 1.3− | 0.1− | 2008 11 20 | 703 | 0.4− | 0.2− |
| 2004 11 13 | 703 | 0.1+ | 0.9+ | 2008 10 01 | 703 | 0.2+ | 0.2+ | 2008 11 20 | 703 | 0.7+ | 0.5+ |
| 2004 11 13 | 703 | 0.8+ | 1.3+ | 2008 10 01 | 703 | 0.6− | 0.9− | 2008 11 20 | 703 | 1.9+ | 0.3+ |
| 2004 11 13 | 703 | 1.4+ | 0.7− | 2008 10 01 | 703 | 0.3+ | 0.8+ | | | | |

**2004 VM$_{75}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 52.85727 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.38165678 | $\omega$ | 104.06343 | | | +0.93456956 | | +0.18090841 | |
| $a$ | 1.8822937 | $\Omega$ | 246.26027 | | | −0.26268552 | | +0.93160219 | |
| $e$ | 0.0578380 | $i$ | 19.55255 | | | +0.23995012 | | +0.31526101 | |
| $P$ | 2.58 | $H$ | 17.9 | $G$ | 0.15 | | $U$ | 3 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 11 03 | 703 | 1.0− | 0.4− | 2004 11 20 | 691 | 0.2+ | 0.2− | 2009 09 27 | G96 | 0.1+ | 0.1− |
| 2004 11 03 | 703 | 0.7− | 0.6− | 2004 12 02 | 699 | 0.2+ | 0.1+ | 2009 09 27 | G96 | 0.3+ | 0.5− |
| 2004 11 03 | 703 | 0.7+ | 0.5+ | 2004 12 02 | 699 | 0.1+ | 0.9+ | 2009 09 27 | G96 | 0.0 | 0.0 |
| 2004 11 03 | 703 | 0.5− | 0.7+ | 2004 12 02 | 699 | 0.5+ | 0.5+ | 2009 10 15 | 703 | 0.0 | 0.2+ |
| 2004 11 19 | 704 | 0.0 | 0.3− | 2004 12 02 | 699 | 0.5+ | 0.3− | 2009 10 15 | 703 | 0.5− | 0.2− |
| 2004 11 19 | 704 | 0.5− | 0.6+ | 2004 12 16 | 691 | 0.2+ | 0.1+ | 2009 10 15 | 703 | 0.1− | 0.7+ |
| 2004 11 19 | 704 | 0.0 | 0.1− | 2004 12 16 | 691 | 0.1− | 0.0 | 2009 10 15 | 703 | 0.0 | 0.2+ |
| 2004 11 20 | 691 | 0.2− | 0.1− | 2004 12 16 | 691 | 0.0 | 0.0 | | | | |
| 2004 11 20 | 691 | 0.2+ | 0.2− | 2009 09 27 | G96 | 0.0 | 0.0 | | | | |

**2004 WF$_4$ = 2008 TX$_{178}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 76.36527 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.23002653 | $\omega$ | 331.91252 | | | +0.65596429 | | −0.75158203 | |
| $a$ | 2.6380565 | $\Omega$ | 77.00582 | | | +0.70518668 | | +0.57740082 | |
| $e$ | 0.1789215 | $i$ | 4.09232 | | | +0.26911447 | | +0.31895572 | |
| $P$ | 4.28 | $H$ | 17.3 | $G$ | 0.15 | | $U$ | 5 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 11 17 | 599 | 0.3− | 0.5+ | 2004 11 20 | 599 | 0.2+ | 0.2+ | 2008 10 01 | 703 | 0.5+ | 0.9− |
| 2004 11 17 | 599 | 0.4+ | 0.1+ | 2004 11 20 | 599 | 0.2+ | 0.1+ | 2008 10 01 | 703 | 0.2− | 0.9+ |
| 2004 11 17 | 599 | 0.0 | 0.3− | 2004 11 20 | 599 | 0.1− | 0.0 | 2008 10 08 | 703 | 0.6+ | 0.9− |
| 2004 11 17 | 599 | 0.3− | 1.1+ | 2004 12 03 | G92 | 0.4+ | 0.1+ | 2008 10 08 | 703 | 0.1− | 0.4− |
| 2004 11 19 | 703 | 0.6− | 0.1− | 2004 12 03 | G92 | 0.3+ | 0.3− | 2008 10 08 | 703 | 1.0− | 0.4+ |
| 2004 11 19 | 703 | 1.0− | 0.1− | 2004 12 03 | G92 | 0.5+ | 0.4− | 2008 10 08 | 703 | 0.9+ | 0.2− |
| 2004 11 19 | 703 | 0.6+ | 0.1− | 2008 10 01 | 703 | 1.0− | 0.0 | | | | |
| 2004 11 19 | 703 | 0.5− | 0.6− | 2008 10 01 | 703 | 0.5+ | 0.9+ | | | | |

**2004 XE$_6$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 337.44191 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.38780326 | $\omega$ | 45.37806 | | | −0.51691542 | | −0.68495836 | |
| $a$ | 1.8623519 | $\Omega$ | 82.85220 | | | +0.56247796 | | −0.72391671 | |
| $e$ | 0.3520023 | $i$ | 31.16277 | | | +0.64530380 | | +0.08232038 | |
| $P$ | 2.54 | $H$ | 19.5 | $G$ | 0.15 | | $U$ | 2 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 09 | 704 | 0.7+ | 0.8+ | 2004 12 12 | 704 | 0.1+ | 0.2− | 2004 12 16 | 240 | 0.3− | 0.5− |
| 2004 12 09 | 704 | 0.2+ | 0.7+ | 2004 12 12 | 046 | 0.6− | 0.5− | 2004 12 16 | 246 | 0.2− | 0.3− |
| 2004 12 09 | 704 | 0.5+ | 0.0 | 2004 12 12 | 046 | 0.6− | 0.0 | 2004 12 16 | 246 | 0.3+ | 0.6− |
| 2004 12 09 | 704 | 0.5+ | 0.6+ | 2004 12 12 | 046 | 0.5− | 0.5+ | 2004 12 16 | 246 | 0.2− | 0.3− |
| 2004 12 10 | 246 | 0.1− | 0.0 | 2004 12 12 | 046 | 0.1− | 0.3− | 2004 12 16 | 246 | 0.0 | 0.1− |
| 2004 12 10 | 246 | 0.1+ | 0.1+ | 2004 12 12 | 046 | 0.4+ | 0.2+ | 2004 12 16 | 240 | 0.4− | 0.1− |
| 2004 12 10 | 246 | 0.0 | 0.2− | 2004 12 12 | 046 | 0.1+ | 0.3− | 2004 12 16 | H41 | 0.6+ | 1.0− |
| 2004 12 10 | 246 | 0.2− | 0.5− | 2004 12 12 | 046 | 0.5+ | 0.0 | 2004 12 16 | H41 | 0.5− | 0.2− |
| 2004 12 10 | 246 | 0.4− | 0.1− | 2004 12 12 | 046 | 0.7+ | 0.1+ | 2004 12 16 | H41 | 0.1+ | 0.9− |
| 2004 12 10 | 246 | 0.0 | 0.1+ | 2004 12 13 | H41 | 0.2− | 0.1− | 2004 12 16 | H41 | 0.5+ | 1.4− |
| 2004 12 10 | 704 | 0.1− | 0.4+ | 2004 12 13 | H41 | 0.1− | 0.3+ | 2004 12 17 | 699 | 0.4− | 0.5+ |
| 2004 12 10 | 649 | 0.1+ | 0.5− | 2004 12 13 | H41 | 0.6− | 0.2− | 2004 12 17 | 699 | 0.1− | 0.5+ |
| 2004 12 10 | 854 | 0.1− | 0.3− | 2004 12 13 | H41 | 0.6− | 0.4− | 2004 12 17 | 699 | 0.2− | 0.2+ |
| 2004 12 10 | 649 | 0.3+ | 0.4− | 2004 12 14 | 246 | 0.1− | 0.6− | 2004 12 17 | 699 | 0.0 | 0.3+ |
| 2004 12 10 | 854 | 0.0 | 0.8− | 2004 12 14 | 246 | 0.1+ | 0.0 | 2004 12 17 | H41 | 0.1− | 0.6+ |
| 2004 12 10 | 854 | 0.2− | 0.2+ | 2004 12 14 | 246 | 0.0 | 0.7− | 2004 12 17 | H41 | 0.0 | 0.4+ |
| 2004 12 10 | 649 | 0.2− | 0.2+ | 2004 12 14 | 246 | 0.0 | 0.0 | 2004 12 17 | H41 | 0.2− | 0.1− |
| 2004 12 10 | H06 | 0.2− | 0.2+ | 2004 12 14 | 246 | 0.0 | 0.2− | 2004 12 18 | H41 | 0.5+ | 0.1− |
| 2004 12 10 | H06 | 0.1− | 0.2− | 2004 12 14 | 246 | 0.0 | 0.0 | 2004 12 18 | H41 | 0.4+ | 0.6− |
| 2004 12 10 | 704 | 0.0 | 0.6+ | 2004 12 14 | H41 | 0.6− | 1.1− | 2004 12 18 | H41 | 1.5+ | 0.1− |
| 2004 12 10 | H06 | 0.1+ | 0.4− | 2004 12 14 | H41 | 1.1− | 0.0 | 2004 12 18 | H41 | 0.1+ | 0.7+ |
| 2004 12 10 | H36 | (0.1+ | 2.1−) | 2004 12 14 | H41 | 1.0− | 0.3+ | 2004 12 18 | 941 | 0.3− | 0.4− |
| 2004 12 10 | 704 | 0.3− | 1.0+ | 2004 12 14 | H41 | 1.2− | 0.0 | 2004 12 18 | 941 | 0.1− | 0.4− |
| 2004 12 10 | H36 | 0.2+ | 1.3− | 2004 12 14 | 012 | 0.2− | 1.0+ | 2004 12 18 | 941 | 0.1− | 0.5− |
| 2004 12 10 | 704 | 0.3− | 0.7+ | 2004 12 14 | 012 | 0.5− | 0.0 | 2004 12 18 | 941 | 0.4− | 0.1+ |
| 2004 12 10 | 704 | 0.2− | 0.6+ | 2004 12 14 | 012 | 0.5+ | 0.1− | 2004 12 19 | H41 | 1.2+ | 0.3+ |
| 2004 12 11 | 704 | 1.2− | 1.3+ | 2004 12 14 | 012 | 0.5− | 0.2+ | 2004 12 19 | H41 | 1.1+ | 0.6+ |
| 2004 12 11 | 704 | 0.1+ | 0.1+ | 2004 12 14 | 012 | 0.1+ | 1.0− | 2004 12 19 | H41 | 1.8+ | 1.3+ |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 11 | 704 | (0.1− | 2.4+) | 2004 12 14 | 012 | 0.2− | 0.1− | 2004 12 19 | H41 | 0.8+ | 0.4− |
| 2004 12 11 | 704 | 0.6− | 0.7+ | 2004 12 15 | 246 | 0.1+ | 0.1− | 2004 12 20 | H41 | 0.3+ | 0.3+ |
| 2004 12 11 | 704 | 0.2+ | 0.6− | 2004 12 15 | 246 | 0.1+ | 0.3− | 2004 12 20 | H41 | 0.4+ | 0.1+ |
| 2004 12 11 | 704 | 0.4− | 0.5− | 2004 12 15 | 246 | 0.2− | 0.2− | 2004 12 20 | H41 | 0.6+ | 0.5+ |
| 2004 12 11 | 704 | 0.6− | 1.3+ | 2004 12 15 | 246 | 0.1− | 0.4+ | 2004 12 20 | H41 | 1.1+ | 0.0 |
| 2004 12 11 | 704 | 0.7− | 0.1− | 2004 12 15 | 246 | 0.1+ | 0.0 | 2004 12 31 | 461 | 0.4− | 0.1− |
| 2004 12 11 | 704 | 0.2− | 0.7+ | 2004 12 15 | 704 | 0.7+ | 1.0+ | 2004 12 31 | 461 | 0.6− | 0.2− |
| 2004 12 11 | 704 | 0.4− | 0.2+ | 2004 12 15 | 704 | 0.5+ | 1.9+ | 2004 12 31 | 461 | 0.3− | 0.8+ |
| 2004 12 12 | A56 | (0.8− | 3.1+) | 2004 12 15 | H36 | 0.4+ | 0.1− | 2004 12 31 | 461 | 0.1− | 0.6− |
| 2004 12 12 | A56 | 0.4+ | 0.4+ | 2004 12 15 | H36 | (2.5+ | 0.5+) | 2005 01 19 | 696 | 0.3− | 0.0 |
| 2004 12 12 | A56 | 0.4+ | 0.3− | 2004 12 15 | H36 | 0.9− | 0.8+ | 2005 01 19 | 696 | 0.3+ | 0.0 |
| 2004 12 12 | A56 | 0.1− | 0.4− | 2004 12 15 | 704 | 0.8+ | 1.2+ | 2009 12 04 | 926 | 1.1− | 0.3− |
| 2004 12 12 | A56 | 0.6+ | 0.2+ | 2004 12 15 | 704 | 0.6+ | 1.1− | 2009 12 04 | 926 | 0.2+ | 1.1− |
| 2004 12 12 | A56 | 0.1− | 0.2− | 2004 12 16 | 240 | 0.0 | 0.8− | 2009 12 05 | 926 | 0.2+ | 0.0 |
| 2004 12 12 | 704 | 0.0 | 0.6+ | 2004 12 16 | 240 | 0.2− | 0.4− | 2009 12 05 | 926 | 0.5+ | 0.3+ |
| 2004 12 12 | 704 | 0.0 | 0.2− | 2004 12 16 | 240 | 0.2− | 0.6− | 2009 12 05 | 926 | 0.6+ | 0.3+ |
| 2004 12 12 | 704 | 0.2− | 0.3− | 2004 12 16 | 240 | 0.2− | 0.3− | | | | |
| 2004 12 12 | 704 | 0.2+ | 0.1− | 2004 12 16 | 240 | 0.2− | 0.2− | | | | |

### 2004 XB$_7$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 323.87352 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18214143 | $\omega$ | 180.25705 | | −0.10264072 | | −0.95704833 |
| $a$ | 3.0822194 | $\Omega$ | 275.64394 | | +0.91312193 | | +0.01747036 |
| $e$ | 0.3063130 | $i$ | 15.81147 | | +0.39455446 | | −0.28940160 |
| $P$ | 5.41 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 02 | 704 | 0.1− | 0.3− | 2004 12 15 | 704 | 0.1+ | 0.1+ | 2004 12 19 | 691 | 0.2+ | 0.2− |
| 2004 12 02 | 704 | 0.7− | 0.6− | 2004 12 16 | 704 | 0.5+ | 0.2− | 2004 12 19 | 691 | 0.1+ | 0.1− |
| 2004 12 02 | 704 | 0.8− | 0.1+ | 2004 12 16 | 704 | 0.2+ | 0.0 | 2005 01 06 | 704 | 0.7− | 0.8− |
| 2004 12 02 | 704 | 1.2− | 0.7− | 2004 12 16 | 704 | 0.4+ | 0.2− | 2005 01 06 | 704 | 0.3− | 0.5− |
| 2004 12 02 | 704 | 1.1− | 0.4− | 2004 12 16 | 704 | 0.9+ | 0.6− | 2005 01 06 | 704 | 0.5− | 0.4− |
| 2004 12 09 | 704 | 0.3+ | 0.1+ | 2004 12 17 | 704 | 0.1+ | 0.2+ | 2005 01 06 | 704 | 0.5− | 0.3− |
| 2004 12 09 | 704 | 0.0 | 0.1− | 2004 12 17 | 704 | 0.4− | 0.8− | 2005 01 11 | 704 | 0.3+ | 0.6+ |
| 2004 12 09 | 704 | 0.6+ | 0.6+ | 2004 12 17 | 704 | 0.1− | 0.4+ | 2005 01 11 | 704 | 0.1− | 0.5+ |
| 2004 12 11 | 704 | 0.4− | 0.7+ | 2004 12 17 | 704 | 1.5+ | 1.7+ | 2005 01 11 | 704 | 0.2+ | 0.2+ |
| 2004 12 11 | 704 | 0.1+ | 1.0+ | 2004 12 17 | 704 | 0.1− | 0.6− | 2009 09 26 | 703 | 0.3+ | 1.3+ |
| 2004 12 11 | 704 | 0.6− | 0.4+ | 2004 12 17 | 704 | 0.3+ | 0.6− | 2009 09 26 | 703 | 1.4− | 0.9− |
| 2004 12 11 | 704 | 0.2− | 0.3+ | 2004 12 17 | 704 | 0.5+ | 0.3+ | 2009 09 26 | 703 | 0.1− | 0.2− |
| 2004 12 11 | 704 | 0.2− | 0.7+ | 2004 12 17 | 704 | 0.3+ | 0.2− | 2009 09 26 | 703 | 0.7− | 1.6− |
| 2004 12 15 | 704 | 0.1− | 0.2+ | 2004 12 17 | 704 | 0.2− | 0.0 | 2009 10 15 | 703 | 0.9+ | 0.7+ |
| 2004 12 15 | 704 | 0.0 | 0.2− | 2004 12 17 | 704 | 0.1− | 0.1− | 2009 10 15 | 703 | 1.2+ | 0.9+ |
| 2004 12 15 | 704 | 0.7− | 0.6+ | 2004 12 19 | 691 | 0.2+ | 0.0 | 2009 10 15 | 703 | 0.2− | 0.2− |

### 2004 XU$_{20}$ = 2007 RR$_{310}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 135.89714 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.28199933 | $\omega$ | 195.64433 | | −0.37472675 | | −0.92024553 |
| $a$ | 2.3030533 | $\Omega$ | 276.47022 | | +0.86234526 | | −0.30125985 |
| $e$ | 0.0479730 | $i$ | 6.51952 | | +0.34050040 | | −0.24978125 |
| $P$ | 3.50 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 5 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 08 | 704 | 0.2− | 0.9− | 2004 12 14 | 704 | 0.9− | 0.5+ | 2007 10 08 | 703 | 0.9+ | 0.5+ |
| 2004 12 08 | 704 | 0.6+ | 0.5− | 2004 12 14 | 704 | 1.3− | 0.4+ | 2007 10 08 | 703 | 0.8− | 0.8− |
| 2004 12 08 | 704 | 0.4+ | 0.2+ | 2004 12 14 | 704 | 0.7− | 0.0 | 2007 10 08 | 703 | 0.4+ | 0.2− |
| 2004 12 08 | 704 | 0.2− | 0.2− | 2004 12 16 | 704 | 0.2+ | 0.4+ | 2007 10 08 | 703 | 1.3− | 0.3− |
| 2004 12 10 | 704 | 0.5+ | 0.4+ | 2004 12 16 | 704 | 0.1+ | 0.0 | 2007 10 13 | 703 | 0.7+ | 0.9+ |
| 2004 12 10 | 704 | 0.4+ | 0.2+ | 2004 12 16 | 704 | 0.8+ | 0.1− | 2007 10 13 | 703 | 1.2− | 0.5+ |
| 2004 12 10 | 704 | 0.1− | 0.1− | 2004 12 16 | 704 | 0.5− | 0.4+ | 2007 10 13 | 703 | 0.9− | 0.0 |
| 2004 12 10 | 704 | 0.1+ | 0.2+ | 2004 12 16 | 704 | 0.4+ | 0.2+ | 2007 10 13 | 703 | 0.7− | 0.3+ |
| 2004 12 11 | 691 | 0.0 | 0.0 | 2007 09 12 | 703 | 0.4− | 0.1+ | 2007 10 20 | 703 | 0.6+ | 0.2− |
| 2004 12 11 | 691 | 0.1+ | 0.0 | 2007 09 12 | 703 | 1.1+ | 0.6− | 2007 10 20 | 703 | 0.6− | 0.4+ |
| 2004 12 11 | 691 | 0.2+ | 0.0 | 2007 09 12 | 703 | 1.0+ | 0.9− | 2007 10 20 | 703 | 1.1+ | 0.4− |
| 2004 12 14 | 704 | 0.8− | 1.0− | 2007 09 12 | 703 | 0.4+ | 1.0+ | 2007 10 20 | 703 | 0.1− | 0.2− |

### 2004 XX$_{22}$ = 2009 VV$_{91}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 340.08881 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.19340066 | $\omega$ | 196.84051 | | −0.12122485 | | −0.98035844 |
| $a$ | 2.9614023 | $\Omega$ | 260.32890 | | +0.92793537 | | −0.05627153 |
| $e$ | 0.0756491 | $i$ | 9.07994 | | +0.35247765 | | −0.18902607 |
| $P$ | 5.10 | $H$ | 15.2 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 08 | 704 | 0.3+ | 0.4− | 2004 12 16 | 704 | 0.5− | 0.4+ | 2009 11 25 | 703 | 0.9− | 0.9− |
| 2004 12 08 | 704 | 0.7+ | 0.6+ | 2004 12 16 | 704 | 0.3− | 0.6+ | 2009 11 25 | 703 | 0.8− | 0.7− |
| 2004 12 08 | 704 | 0.3− | 0.5+ | 2005 01 06 | 704 | 0.4+ | 0.0 | 2009 11 25 | 703 | 0.1+ | 1.0− |
| 2004 12 10 | 704 | 0.3− | 0.0 | 2005 01 06 | 704 | 0.2+ | 0.7− | 2009 11 25 | 703 | 0.2− | 0.4− |
| 2004 12 10 | 704 | 0.6+ | 0.3− | 2005 01 06 | 704 | 1.3− | 0.4− | 2009 11 25 | 703 | 0.1+ | 0.3+ |
| 2004 12 10 | 704 | 0.5− | 0.5+ | 2009 11 08 | 703 | 0.3− | 0.5+ | 2009 12 16 | 704 | 0.2+ | 1.3+ |
| 2004 12 10 | 704 | 0.2+ | 0.1+ | 2009 11 08 | 703 | 1.0+ | 0.6+ | 2009 12 16 | 704 | 0.7+ | 0.1− |
| 2004 12 14 | 704 | 0.4+ | 0.2− | 2009 11 08 | 703 | (2.0− | 0.4+) | 2009 12 16 | 704 | 0.9+ | 0.7+ |
| 2004 12 14 | 704 | 0.9+ | 0.4− | 2009 11 08 | 703 | (1.6− | 1.4+) | 2009 12 16 | 704 | 0.6+ | 0.4+ |
| 2004 12 14 | 704 | 0.6+ | 0.1+ | 2009 11 24 | J75 | 0.0 | 0.2+ | 2009 12 16 | G96 | 0.2− | 0.3− |
| 2004 12 14 | 704 | (0.1− | 1.8+) | 2009 11 24 | J75 | 0.3− | 0.2+ | 2009 12 16 | G96 | 0.2− | 0.2− |
| 2004 12 14 | 704 | 0.6− | 0.2+ | 2009 11 24 | J75 | 0.1− | 0.1+ | 2009 12 16 | 704 | 0.2− | 1.0+ |
| 2004 12 16 | 704 | 0.2− | 0.2− | 2009 11 24 | J75 | 0.2+ | 0.2− | 2009 12 16 | G96 | 0.0 | 0.4− |
| 2004 12 16 | 704 | 0.3+ | 0.0 | 2009 11 24 | J75 | 0.1− | 0.1− | 2009 12 16 | G96 | 0.2− | 0.5− |
| 2004 12 16 | 704 | 0.6− | 0.3− | 2009 11 24 | J75 | 0.3− | 0.3− | | | | |

### 2004 XF$_{26}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 150.12812 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.24533345 | $\omega$ | 305.96042 | | +0.96704777 | | −0.22931681 |
| $a$ | 2.5271530 | $\Omega$ | 67.52616 | | +0.25455036 | | +0.86274372 |
| $e$ | 0.2164061 | $i$ | 6.87422 | | +0.00476774 | | +0.45065184 |
| $P$ | 4.02 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 09 | 691 | 0.1− | 0.1− | 2004 12 13 | 691 | 0.1− | 0.1− | 2004 12 18 | 691 | 0.1− | 0.0 |
| 2004 12 09 | 691 | 0.0 | 0.1− | 2004 12 15 | 704 | 0.7+ | 0.7+ | 2005 01 07 | 704 | 0.2− | 0.6+ |
| 2004 12 09 | 691 | 0.1− | 0.2− | 2004 12 15 | 704 | 0.3+ | 0.7+ | 2005 01 07 | 704 | 0.2+ | 0.1− |
| 2004 12 11 | 704 | 0.3− | 0.1+ | 2004 12 15 | 704 | 1.1+ | 0.2− | 2005 01 07 | 704 | 0.6+ | 0.4− |
| 2004 12 11 | 704 | 0.0 | 0.2+ | 2004 12 15 | 704 | 0.2− | 0.1+ | 2008 12 06 | 691 | 0.3+ | 0.2+ |
| 2004 12 11 | 704 | 0.9− | 0.4− | 2004 12 17 | 704 | 0.7− | 1.7+ | 2008 12 06 | 691 | 0.0 | 0.1+ |
| 2004 12 11 | 704 | 0.4+ | 0.7− | 2004 12 17 | 704 | 0.3+ | 0.8+ | 2008 12 06 | 691 | 0.1− | 0.1− |
| 2004 12 11 | 704 | 0.5− | 0.3− | 2004 12 17 | 704 | 0.2+ | 1.9+ | 2009 01 01 | 691 | 0.1+ | 0.3+ |
| 2004 12 13 | 691 | 0.2+ | 0.2− | 2004 12 18 | 691 | 0.0 | 0.1− | 2009 01 01 | 691 | 0.2− | 0.6− |
| 2004 12 13 | 691 | 0.1− | 0.2− | 2004 12 18 | 691 | 0.1− | 0.1− | 2009 01 01 | 691 | 0.1− | 0.0 |

### 2004 XO$_{31}$ = 2009 TP$_{44}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 343.62797 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17615822 | $\omega$ | 330.00246 | | +0.27830200 | | −0.93983566 |
| $a$ | 3.1516218 | $\Omega$ | 103.22998 | | +0.91675389 | | +0.19837392 |
| $e$ | 0.1861890 | $i$ | 11.74379 | | +0.28654896 | | +0.27813077 |
| $P$ | 5.60 | $H$ | 15.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 09 | 703 | 0.2− | 0.1+ | 2005 01 15 | 704 | 0.3+ | 0.1− | 2009 10 02 | G96 | 0.3+ | 0.5− |
| 2004 12 09 | 703 | 0.0 | 1.0− | 2005 01 15 | 704 | 0.7− | 0.2− | 2009 10 02 | G96 | 0.4+ | 0.5− |
| 2004 12 09 | 703 | 1.0− | 1.2− | 2005 01 15 | 704 | 0.3− | 0.0 | 2009 10 02 | G96 | 0.4+ | 0.2− |
| 2004 12 09 | 703 | 0.9− | 0.5− | 2005 01 15 | 704 | 0.3− | 0.2− | 2009 10 15 | 703 | 0.2+ | 0.1+ |
| 2004 12 12 | 691 | 0.0 | 0.0 | 2005 01 17 | 691 | 0.1− | 0.0 | 2009 10 15 | 703 | 0.2+ | 0.9+ |
| 2004 12 12 | 691 | 0.1+ | 0.2− | 2005 01 17 | 691 | 0.3− | 0.0 | 2009 10 15 | 703 | 0.3− | 0.4− |
| 2004 12 12 | 691 | 0.2+ | 0.9+ | 2005 01 17 | 691 | 0.1− | 0.1− | 2009 10 15 | 703 | 1.5− | 0.3− |
| 2004 12 16 | 691 | 0.2+ | 0.0 | 2005 01 17 | 704 | 0.1+ | 0.4+ | 2009 10 26 | J75 | 1.0− | 1.3+ |
| 2004 12 16 | 691 | 0.1+ | 0.2− | 2005 01 17 | 704 | 0.1+ | 0.4− | 2009 10 26 | J75 | 0.1+ | 0.1− |
| 2004 12 16 | 691 | 0.0 | 0.7+ | 2005 01 17 | 704 | 0.6− | 0.5+ | 2009 10 26 | J75 | 1.1+ | 0.4− |
| 2005 01 01 | 703 | 0.3− | 0.5+ | 2005 01 17 | 704 | 0.8+ | 0.3− | 2009 10 27 | 703 | 0.7+ | 0.7− |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 01 01 | 703 | 0.2+ | 0.3+ | 2005 01 17 | 704 | 0.8+ | 0.0 | 2009 10 27 | 703 | 0.7+ | 0.7+ | | |
| 2005 01 01 | 703 | 0.1− | 1.1− | 2005 02 02 | 704 | 0.5+ | 0.4− | 2009 10 27 | 703 | 0.7+ | 0.5+ | | |
| 2005 01 01 | 703 | 0.6− | 1.1− | 2005 02 02 | 704 | 0.0 | 0.3− | 2009 10 27 | 703 | 0.5− | 0.4− | | |
| 2005 01 06 | 704 | 0.4+ | 0.5− | 2005 02 02 | 704 | 0.5+ | 0.4+ | 2009 11 17 | 703 | 0.3− | 0.7+ | | |
| 2005 01 06 | 704 | 0.1− | 0.5− | 2005 02 02 | 704 | (2.7+ | 0.4−) | 2009 11 17 | 703 | 0.6− | 0.5− | | |
| 2005 01 06 | 704 | 0.7+ | 0.5− | 2005 02 03 | 704 | 0.4− | 0.4+ | 2009 11 17 | 703 | 0.5− | 0.3+ | | |
| 2005 01 06 | 704 | 0.9+ | 0.4− | 2005 02 03 | 704 | 0.0 | 0.3+ | 2009 11 17 | 703 | 0.3− | 0.7− | | |
| 2005 01 11 | 704 | 0.1+ | 0.2+ | 2005 02 03 | 704 | 0.3− | 0.2+ | 2009 12 15 | 703 | 1.3+ | 0.2+ | | |
| 2005 01 11 | 704 | 0.0 | 0.1+ | 2005 02 03 | 704 | 0.3+ | 0.4+ | 2009 12 15 | 703 | 0.0 | 1.0+ | | |
| 2005 01 11 | 704 | 0.7− | 0.1+ | 2005 02 03 | 704 | 0.3+ | 0.2− | 2009 12 15 | 703 | 0.6− | 0.0 | | |
| 2005 01 11 | 704 | 0.3− | 0.4+ | 2009 10 02 | G96 | 0.3+ | 0.1− | 2009 12 15 | 703 | 0.8− | 1.1− | | |

**2004 XY$_{38}$ = 2009 SO$_{239}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 359.63724 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17708595 | $\omega$ | 257.11643 | | +0.84972077 | −0.47888828 | |
| $a$ | 3.1406049 | $\Omega$ | 131.01792 | | +0.52033921 | +0.82913791 | |
| $e$ | 0.2534224 | $i$ | 16.99607 | | −0.08498072 | +0.28843776 | |
| $P$ | 5.57 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 02 06 | 695 | 0.0 | 0.4+ | 2004 12 12 | 704 | 0.3+ | 0.8+ | 2009 08 20 | 703 | 0.1− | 0.3− | | |
| 2000 02 06 | 695 | 0.3+ | 0.1+ | 2004 12 14 | 291 | 0.2+ | 0.0 | 2009 08 20 | 703 | 0.2− | 0.4+ | | |
| 2004 12 07 | 704 | (0.5− | 2.4−) | 2004 12 14 | 291 | 0.2+ | 0.0 | 2009 09 17 | 703 | 0.3+ | 0.2− | | |
| 2004 12 07 | 704 | (1.1− | 2.2−) | 2004 12 14 | 291 | 0.0 | 0.0 | 2009 09 17 | 703 | 1.1− | 0.3− | | |
| 2004 12 07 | 704 | 1.1+ | 1.4− | 2005 01 13 | 703 | 0.8+ | 0.1− | 2009 09 17 | 703 | 0.5+ | 0.2− | | |
| 2004 12 10 | 291 | 0.1− | 0.2+ | 2005 01 13 | 703 | 1.0− | 0.2+ | 2009 09 17 | 703 | 0.2+ | 0.2+ | | |
| 2004 12 10 | 291 | 0.0 | 0.3+ | 2005 01 13 | 703 | 0.8− | 0.7− | 2009 09 24 | 703 | 0.4− | 0.3− | | |
| 2004 12 10 | 291 | 0.2− | 0.1+ | 2005 01 13 | 703 | 0.4+ | 0.8− | 2009 09 24 | 703 | 0.3− | 0.0 | | |
| 2004 12 12 | 683 | 0.1− | 0.7− | 2009 08 02 | E12 | 0.1− | 0.2+ | 2009 09 24 | 703 | 0.2+ | 0.6− | | |
| 2004 12 12 | 683 | (3.3− | 0.2+) | 2009 08 02 | E12 | 0.0 | 0.9− | 2009 09 24 | 703 | 0.9+ | 0.2− | | |
| 2004 12 12 | 704 | 0.9− | 0.0 | 2009 08 02 | E12 | 1.0− | 0.1+ | 2009 10 22 | E12 | 0.8+ | 0.3+ | | |
| 2004 12 12 | 683 | (2.9− | 1.0−) | 2009 08 02 | E12 | 0.1− | 0.0 | 2009 10 22 | E12 | 0.1− | 0.2+ | | |
| 2004 12 12 | 704 | 0.1− | 0.2− | 2009 08 20 | 703 | 0.7− | 0.8+ | 2009 10 22 | E12 | 1.0+ | 0.1+ | | |
| 2004 12 12 | 704 | 0.2− | 0.7+ | 2009 08 20 | 703 | 0.2+ | 1.1+ | | | | | | |

**2004 XU$_{40}$ = 2003 SY$_{99}$ = 2009 VW$_{1}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 65.05889 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18221146 | $\omega$ | 57.33761 | | +0.84044837 | +0.40931799 | |
| $a$ | 3.0814297 | $\Omega$ | 276.25705 | | −0.53320751 | +0.74150938 | |
| $e$ | 0.1306035 | $i$ | 20.93087 | | +0.09662442 | +0.53162263 | |
| $P$ | 5.41 | $H$ | 14.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 20 | 644 | 0.1+ | 0.2+ | 2004 12 12 | 644 | 0.3− | 0.3+ | 2009 11 09 | 704 | 0.3− | 0.3+ | | |
| 2003 09 20 | 644 | 0.1+ | 0.1+ | 2004 12 12 | 644 | 0.2− | 0.4+ | 2009 11 09 | 704 | 0.4− | 1.2+ | | |
| 2003 09 20 | 644 | 0.0 | 0.0 | 2004 12 15 | 704 | 0.2+ | 0.6+ | 2009 11 09 | 704 | 1.1+ | 0.3+ | | |
| 2003 09 21 | 704 | 0.0 | 0.3+ | 2004 12 15 | 704 | 0.4− | 0.6+ | 2009 11 10 | 704 | 0.4+ | 0.7− | | |
| 2003 09 21 | 704 | 0.2+ | 0.2− | 2004 12 15 | 704 | 0.1+ | 0.3+ | 2009 11 10 | 704 | 0.2+ | 0.4− | | |
| 2003 09 21 | 704 | 0.5− | 0.3− | 2004 12 15 | 703 | 0.2+ | 0.5− | 2009 11 10 | 704 | 0.1− | 0.2− | | |
| 2003 09 21 | 704 | 0.3+ | 0.4− | 2004 12 15 | 703 | 0.4− | 0.1− | 2009 11 10 | 704 | 0.1− | 0.2+ | | |
| 2003 09 21 | 704 | 0.0 | 0.3+ | 2004 12 15 | 703 | 0.3− | 0.2− | 2009 11 21 | 703 | 0.2+ | 1.9− | | |
| 2004 12 11 | 704 | 0.2+ | 0.4− | 2004 12 15 | 703 | 0.2+ | 0.1− | 2009 11 21 | 703 | 1.1+ | 0.0 | | |
| 2004 12 11 | 704 | 0.2+ | 0.5+ | 2009 10 17 | 703 | 0.0 | 0.9+ | 2009 11 21 | 703 | 0.4− | 1.1− | | |
| 2004 12 11 | 704 | 0.1+ | 1.2− | 2009 10 17 | 703 | 0.1+ | 0.2+ | 2009 11 21 | 703 | 0.1− | 1.3− | | |
| 2004 12 11 | 704 | 0.1− | 0.0 | 2009 10 17 | 703 | 0.3− | 1.1+ | 2009 11 21 | 703 | 0.6+ | 0.2− | | |
| 2004 12 11 | 704 | 0.9+ | 0.0 | 2009 10 17 | 703 | 1.5− | 1.0+ | | | | | | |
| 2004 12 12 | 644 | 0.3− | 0.4+ | 2009 11 09 | 704 | 0.1+ | 0.3+ | | | | | | |

**2004 XM$_{65}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 1.98014 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18450638 | $\omega$ | 147.06417 | | +0.72904990 | −0.66778404 | |
| $a$ | 3.0558248 | $\Omega$ | 255.59329 | | +0.58966776 | +0.72417699 | |
| $e$ | 0.0813390 | $i$ | 8.91938 | | +0.34753155 | +0.17213995 | |
| $P$ | 5.34 | $H$ | 14.9 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 11 10 | 695 | 0.1+ | 0.0 | 2004 12 10 | 704 | 0.2+ | 0.0 | 2004 12 19 | 704 | 0.8− | 0.1+ | | |
| 2004 11 10 | 695 | 0.3+ | 0.2+ | 2004 12 10 | 704 | 0.3− | 0.6− | 2009 09 17 | J75 | 0.7+ | 0.5+ | | |
| 2004 12 02 | 699 | 0.4− | 0.3+ | 2004 12 10 | 704 | 0.4+ | 0.8− | 2009 09 17 | J75 | 0.5+ | 0.2+ | | |
| 2004 12 02 | 699 | 0.1− | 1.1+ | 2004 12 10 | 704 | 0.1+ | 0.2− | 2009 09 17 | J75 | 0.0 | 0.1+ | | |
| 2004 12 02 | 699 | 1.1− | 0.9− | 2004 12 14 | 704 | 1.5+ | 0.1+ | 2009 10 16 | 703 | 0.1− | 0.5− | | |
| 2004 12 02 | 699 | 0.3− | 1.3+ | 2004 12 14 | 704 | 0.5− | 0.0 | 2009 10 16 | 703 | 0.4− | 0.5+ | | |
| 2004 12 02 | 644 | 0.0 | 0.2− | 2004 12 14 | 704 | 0.5+ | 0.1− | 2009 10 16 | 703 | 0.6− | 0.4− | | |
| 2004 12 02 | 644 | 0.1+ | 0.0 | 2004 12 14 | 704 | 0.1+ | 0.3− | 2009 10 16 | 703 | 0.1+ | 0.6− | | |
| 2004 12 02 | 644 | 0.1+ | 0.1− | 2004 12 19 | 704 | (0.1+ | 2.9+) | | | | | | |
| 2004 12 10 | 704 | 0.4− | 0.2+ | 2004 12 19 | 704 | 0.3+ | 0.1+ | | | | | | |

**2004 XY$_{73}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 44.56069 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21203193 | $\omega$ | 144.47967 | | +0.64149121 | −0.75489968 | |
| $a$ | 2.7852779 | $\Omega$ | 265.20877 | | +0.66839187 | +0.63729926 | |
| $e$ | 0.2041134 | $i$ | 7.86949 | | +0.37648551 | +0.15484226 | |
| $P$ | 4.65 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 02 22 | 645 | 0.0 | 0.1+ | 2004 12 15 | 704 | 0.3+ | 0.3− | 2008 10 30 | G96 | 0.2+ | 0.2+ | | |
| 2001 02 22 | 645 | 0.0 | 0.1+ | 2004 12 15 | 704 | 0.3+ | 0.5− | 2008 10 30 | G96 | 0.6− | 0.2+ | | |
| 2004 11 11 | 691 | 0.2+ | 0.2− | 2004 12 15 | 704 | 0.7+ | 0.2− | 2008 10 30 | G96 | 0.3− | 0.0 | | |
| 2004 11 11 | 691 | 0.2+ | 0.1− | 2004 12 15 | 704 | 1.0+ | 1.2− | 2008 10 30 | G96 | 1.2− | 0.1− | | |
| 2004 11 11 | 691 | 0.0 | 0.1− | 2004 12 15 | 704 | (2.1+ | 1.1−) | 2009 09 16 | 691 | 0.7− | 0.0 | | |
| 2004 12 02 | 703 | 0.9+ | 1.2+ | 2004 12 17 | 704 | 0.6− | 0.3− | 2009 09 16 | 691 | 0.3− | 0.1+ | | |
| 2004 12 02 | 703 | 0.8− | 0.3+ | 2004 12 17 | 704 | 0.1+ | 0.0 | 2009 09 16 | 691 | 0.3− | 0.2+ | | |
| 2004 12 02 | 703 | 0.7− | 0.2+ | 2004 12 17 | 704 | 0.1+ | 1.0− | 2009 10 18 | G96 | 0.4− | 0.3− | | |
| 2004 12 02 | 703 | 0.9− | 0.4− | 2008 08 08 | J75 | 0.0 | 0.4+ | 2009 10 18 | G96 | 0.1+ | 0.4− | | |
| 2004 12 07 | 704 | 0.4+ | 0.0 | 2008 08 08 | J75 | 0.2+ | 0.1+ | 2009 10 18 | G96 | 0.0 | 0.3− | | |
| 2004 12 07 | 704 | 0.2+ | 0.6+ | 2008 08 08 | J75 | 0.2− | 0.0 | 2009 10 18 | G96 | 0.1− | 0.1− | | |
| 2004 12 07 | 704 | 0.2− | 0.4− | 2008 08 20 | 691 | 0.1− | 0.0 | 2009 12 19 | 691 | 0.1+ | 0.2− | | |
| 2004 12 07 | 704 | 0.3− | 1.1+ | 2008 08 20 | 691 | 0.3− | 0.1+ | 2009 12 19 | 691 | 0.1+ | 0.1+ | | |
| 2004 12 14 | 704 | 0.1+ | 1.0+ | 2008 08 20 | 691 | 0.0 | 0.2+ | 2009 12 19 | 691 | 0.1− | 0.0 | | |
| 2004 12 14 | 704 | 0.1− | 0.6+ | 2008 09 07 | 703 | 1.4+ | 0.4− | 2009 12 27 | 691 | 0.3+ | 0.1− | | |
| 2004 12 14 | 704 | 0.4− | 0.2+ | 2008 09 07 | 703 | 0.1+ | 1.0+ | 2009 12 27 | 691 | 0.1+ | 0.0 | | |
| 2004 12 14 | 704 | 0.2− | 0.3+ | 2008 09 07 | 703 | 1.1+ | 0.4− | 2009 12 27 | 691 | 0.1+ | 0.0 | | |
| 2004 12 14 | 704 | 0.4− | 1.1+ | 2008 09 07 | 703 | 0.7− | 0.0 | | | | | | |

**2004 XD$_{78}$ = 2008 SR$_{295}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 103.08915 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22429589 | $\omega$ | 100.09051 | | +0.96707128 | +0.03330885 | |
| $a$ | 2.6828013 | $\Omega$ | 258.33272 | | −0.11997703 | +0.93399268 | |
| $e$ | 0.3007636 | $i$ | 14.93006 | | +0.22445188 | +0.35573612 | |
| $P$ | 4.39 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 10 | 704 | 0.6+ | 0.0 | 2004 12 16 | 704 | 0.3− | 0.1− | 2008 09 28 | 703 | 0.6− | 0.5+ | | |
| 2004 12 10 | 704 | 0.3− | 0.1− | 2008 09 09 | 703 | 1.3+ | 0.9+ | 2008 09 28 | 703 | 0.2− | 0.4− | | |
| 2004 12 10 | 704 | 0.5− | 0.1+ | 2008 09 09 | 703 | 0.3− | 0.1− | 2008 09 28 | 703 | (1.8− | 2.5−) | | |
| 2004 12 10 | 704 | 1.1+ | 0.6+ | 2008 09 09 | 703 | 0.3− | 0.0 | 2008 10 06 | 703 | 0.7+ | 0.7+ | | |
| 2004 12 14 | 704 | 0.0 | 0.2+ | 2008 09 09 | 703 | 0.5− | 0.1− | 2008 10 06 | 703 | 0.0 | 0.1− | | |
| 2004 12 14 | 704 | 0.0 | 0.2+ | 2008 09 23 | 703 | 0.2− | 0.2− | 2008 10 06 | 703 | 0.3+ | 0.5+ | | |
| 2004 12 14 | 704 | 0.4− | 0.7− | 2008 09 23 | 703 | 0.2− | 0.4− | 2008 10 26 | 703 | 0.0 | 0.2− | | |
| 2004 12 16 | 704 | 0.8− | 0.2− | 2008 09 23 | 703 | 0.3+ | 0.5− | 2008 10 26 | 703 | 0.3− | 0.2+ | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 16 | 704 | 0.6+ | 0.2+ | 2008 09 23 | 703 | 0.2+ | 0.4− | 2008 10 26 | 703 | 0.6+ | 0.1− | | |
| 2004 12 16 | 704 | 0.1− | 0.2− | 2008 09 28 | 703 | 0.5− | 0.2+ | 2008 10 26 | 703 | 0.4− | 0.3− | | |

**2004 XB$_{79}$ = 2009 VK$_{76}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 307.39254 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18558742 | $\omega$ | 61.92122 | | −0.70187483 | −0.65003973 | |
| $a$ | 3.0439465 | $\Omega$ | 75.92636 | | +0.50126868 | −0.74124704 | |
| $e$ | 0.1666499 | $i$ | 17.47269 | | +0.50606465 | −0.16733553 | |
| $P$ | 5.31 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 10 | 691 | 0.1+ | 0.2− | 2004 12 15 | 704 | 0.2− | 0.2+ | 2009 11 25 | G96 | 0.0 | 0.2+ | | |
| 2004 12 10 | 691 | 0.3− | 0.0 | 2004 12 15 | 704 | 0.1− | 1.0+ | 2009 11 25 | G96 | 0.0 | 0.1+ | | |
| 2004 12 10 | 691 | 0.1+ | 0.1− | 2009 11 15 | 703 | 0.6− | 0.1− | 2009 11 25 | G96 | 0.2+ | 0.2+ | | |
| 2004 12 10 | 691 | 0.2+ | 0.0 | 2009 11 15 | 703 | 0.3− | 0.4+ | 2009 11 25 | G96 | 0.2+ | 0.1+ | | |
| 2004 12 10 | 691 | 0.2− | 0.0 | 2009 11 15 | 703 | (0.4+ | 1.7+) | 2009 12 18 | 691 | 0.1− | 0.2− | | |
| 2004 12 10 | 691 | 0.0 | 0.1− | 2009 11 15 | 703 | 0.3− | 0.3+ | 2009 12 18 | 691 | 0.0 | 0.2+ | | |
| 2004 12 14 | 704 | 0.1+ | 0.2+ | 2009 11 19 | J75 | 0.1+ | 0.0 | 2009 12 18 | 691 | 0.3− | 0.2+ | | |
| 2004 12 14 | 704 | 0.4− | 0.6+ | 2009 11 20 | J75 | 0.1− | 0.5− | 2009 12 19 | G96 | 0.7+ | 0.0 | | |
| 2004 12 14 | 704 | 0.3+ | 0.2− | 2009 11 20 | J75 | 0.2− | 0.2− | 2009 12 19 | G96 | 0.7+ | 0.4− | | |
| 2004 12 14 | 704 | 1.1+ | 0.3+ | 2009 11 23 | G96 | 0.1+ | 0.2+ | 2009 12 19 | G96 | 0.3+ | 0.0 | | |
| 2004 12 14 | 704 | 0.2− | 1.0− | 2009 11 23 | G96 | 0.4− | 0.7− | 2009 12 19 | G96 | 0.5+ | 0.0 | | |
| 2004 12 15 | 704 | (0.3+ | 1.7+) | 2009 11 23 | G96 | 0.1+ | 0.6− | | | | | | |
| 2004 12 15 | 704 | 0.3− | 0.9+ | 2009 11 23 | G96 | 0.6+ | 0.3+ | | | | | | |

**2004 XK$_{85}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 52.03729 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22953260 | $\omega$ | 21.61061 | | −0.47225751 | −0.84538122 | |
| $a$ | 2.6418397 | $\Omega$ | 97.33731 | | +0.76737152 | −0.53363920 | |
| $e$ | 0.2026885 | $i$ | 14.57620 | | +0.43372088 | +0.02366012 | |
| $P$ | 4.29 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 12 | 691 | 0.2+ | 0.0 | 2005 01 06 | 703 | 0.5− | 0.7− | 2005 01 19 | 704 | 0.3+ | 1.5+ | | |
| 2004 12 12 | 691 | 0.3+ | 0.0 | 2005 01 06 | 703 | 0.6− | 0.0 | 2005 01 19 | 704 | 0.0 | 0.9+ | | |
| 2004 12 12 | 691 | 0.1+ | 0.0 | 2005 01 07 | 704 | 0.7+ | 0.0 | 2005 01 19 | 704 | 0.1− | 0.7+ | | |
| 2004 12 14 | 704 | 0.4− | 0.8− | 2005 01 07 | 704 | (1.6+ | 0.6−) | 2008 12 01 | 703 | 1.1− | 0.3− | | |
| 2004 12 14 | 704 | 0.1− | 0.2+ | 2005 01 07 | 704 | (2.5+ | 1.9+) | 2008 12 01 | 703 | 0.0 | 0.5+ | | |
| 2004 12 14 | 704 | 0.1− | 0.0 | 2005 01 07 | 704 | 0.9+ | 0.2+ | 2008 12 01 | 703 | 0.4− | 0.5+ | | |
| 2004 12 16 | 691 | 0.1− | 0.1+ | 2005 01 07 | 704 | 1.3+ | 0.1− | 2008 12 01 | 703 | 0.5− | 0.6− | | |
| 2004 12 16 | 691 | 0.1+ | 0.1+ | 2005 01 12 | 704 | 0.5− | 0.4+ | 2008 12 22 | 703 | 0.3+ | 0.5+ | | |
| 2004 12 16 | 691 | 0.0 | 0.0 | 2005 01 12 | 704 | 0.1− | 0.0 | 2008 12 22 | 703 | 1.4+ | 0.4+ | | |
| 2004 12 20 | G96 | 0.1− | 0.5− | 2005 01 12 | 704 | 0.1+ | 0.4− | 2008 12 22 | 703 | 0.2− | 0.1+ | | |
| 2004 12 20 | G96 | 0.0 | 0.4− | 2005 01 16 | 704 | 1.2− | 0.4− | 2008 12 22 | 703 | 0.3+ | 0.2− | | |
| 2004 12 20 | G96 | 0.1− | 0.4− | 2005 01 16 | 704 | 1.0− | 0.5− | 2009 03 16 | G96 | 0.2+ | 0.7− | | |
| 2004 12 20 | G96 | 0.1− | 0.5− | 2005 01 16 | 704 | 1.0− | 0.4− | 2009 03 16 | G96 | 0.6+ | 0.5− | | |
| 2005 01 06 | 703 | 0.7− | 0.6− | 2005 01 16 | 704 | (1.5− | 0.3−) | 2009 03 16 | G96 | 0.1− | 0.4− | | |
| 2005 01 06 | 703 | 0.3− | 0.2− | 2005 01 19 | 704 | 0.9+ | 1.4+ | | | | | | |

**2004 XD$_{90}$ = 2009 XL$_{1}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 28.40231 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19581894 | $\omega$ | 17.36033 | | +0.63341887 | −0.77345439 | |
| $a$ | 2.9369705 | $\Omega$ | 33.34789 | | +0.70480198 | +0.56416936 | |
| $e$ | 0.0859592 | $i$ | 2.44250 | | +0.31942873 | +0.28893119 | |
| $P$ | 5.03 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 08 25 | 807 | 0.1+ | 0.1+ | 2004 12 15 | 691 | 0.5− | 0.0 | 2009 12 09 | 104 | 0.3+ | 0.3− | | |
| 2003 08 25 | 807 | 0.1− | 0.1− | 2004 12 20 | 691 | 0.3+ | 0.3+ | 2009 12 09 | 104 | 1.3+ | 0.6− | | |
| 2004 12 11 | 691 | 0.0 | 0.0 | 2004 12 20 | 691 | 0.3+ | 0.1− | 2009 12 09 | 104 | 0.7+ | 1.3− | | |
| 2004 12 11 | 691 | 0.2− | 0.0 | 2004 12 20 | 691 | 0.1+ | 0.1+ | 2009 12 10 | 104 | 0.2− | 0.1+ | | |
| 2004 12 11 | 691 | 0.2+ | 0.2− | 2009 11 25 | 691 | 0.6+ | 0.1+ | 2009 12 10 | 104 | 1.1− | 0.0 | | |
| 2004 12 15 | 691 | 0.2− | 0.1+ | 2009 11 25 | 691 | 0.3− | 0.1+ | 2009 12 10 | 104 | 0.9+ | 0.2− | | |
| 2004 12 15 | 691 | 0.1+ | 0.0 | 2009 11 25 | 691 | 0.8− | 0.3+ | | | | | | |

**2004 XM$_{103}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 319.69491 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17865470 | $\omega$ | 22.98183 | | −0.15470056 | −0.93426050 | |
| $a$ | 3.1221930 | $\Omega$ | 77.15290 | | +0.84753782 | −0.29261144 | |
| $e$ | 0.2863709 | $i$ | 19.24061 | | +0.50768827 | +0.20380348 | |
| $P$ | 5.52 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 11 18 | 704 | 0.7+ | 0.8− | 2004 12 11 | 704 | 0.3− | 0.4+ | 2005 01 07 | 704 | 0.2+ | 0.4+ | | |
| 2004 11 18 | 704 | 0.3− | 0.1− | 2004 12 11 | 704 | 0.2+ | 0.2− | 2005 01 07 | 704 | 0.2− | 0.7− | | |
| 2004 11 18 | 704 | 0.2+ | 0.0 | 2004 12 15 | 704 | 0.2− | 0.3+ | 2005 01 07 | 704 | 0.2− | 0.0 | | |
| 2004 12 09 | 704 | 0.7− | 0.3− | 2004 12 15 | 704 | 0.3− | 0.6− | 2009 10 18 | E12 | 0.6+ | 0.1+ | | |
| 2004 12 09 | 704 | 1.0+ | 1.3+ | 2004 12 15 | 704 | 0.6+ | 0.2− | 2009 10 18 | E12 | 0.2− | 0.3+ | | |
| 2004 12 09 | 704 | 0.3− | 0.1− | 2004 12 17 | 704 | 0.8− | 0.4+ | 2009 11 10 | 703 | 0.3+ | 0.7+ | | |
| 2004 12 09 | 704 | 0.6− | 0.1− | 2004 12 17 | 704 | 0.1− | 0.4− | 2009 11 10 | 703 | 1.0+ | 1.0− | | |
| 2004 12 09 | 704 | 1.2+ | 0.5+ | 2004 12 17 | 704 | 0.6− | 0.0 | 2009 11 10 | 703 | 1.0− | 0.0 | | |
| 2004 12 11 | 704 | 0.7+ | 0.7+ | 2004 12 17 | 704 | 0.4− | 0.6− | 2009 11 10 | 703 | 0.8− | 0.0 | | |

**2004 XH$_{105}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 353.10272 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.20064372 | $\omega$ | 186.71194 | | −0.08190846 | −0.97465407 | |
| $a$ | 2.8896972 | $\Omega$ | 268.13365 | | +0.92381021 | +0.00413557 | |
| $e$ | 0.2655070 | $i$ | 12.02240 | | +0.37398624 | −0.22367908 | |
| $P$ | 4.91 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 11 04 | 704 | 0.4− | 0.3+ | 2004 12 02 | 703 | 0.3+ | 0.3+ | 2004 12 17 | 704 | 0.3− | 0.3+ | | |
| 2004 11 04 | 704 | 0.2− | 0.4− | 2004 12 02 | 703 | 0.8− | 0.1− | 2004 12 17 | 704 | 0.3− | 0.0 | | |
| 2004 11 04 | 704 | 0.5+ | 0.2+ | 2004 12 11 | 704 | 0.1− | 0.2+ | 2004 12 17 | 704 | 0.9− | 0.1− | | |
| 2004 11 04 | 704 | 0.1− | 1.3+ | 2004 12 11 | 704 | 0.9+ | 0.5+ | 2009 12 10 | J75 | 0.3− | 0.2+ | | |
| 2004 11 19 | 704 | 1.6+ | 0.5− | 2004 12 11 | 704 | 0.5+ | 0.9+ | 2009 12 10 | J75 | 0.0 | 0.4− | | |
| 2004 11 19 | 704 | 0.6+ | 0.5− | 2004 12 11 | 704 | 0.5+ | 0.4− | 2009 12 10 | J75 | 0.4− | 0.2+ | | |
| 2004 11 19 | 704 | 0.3− | 1.2+ | 2004 12 15 | 704 | 0.3+ | 0.2− | 2009 12 18 | G96 | 0.0 | 0.1+ | | |
| 2004 11 19 | 704 | 0.3− | 0.3+ | 2004 12 15 | 704 | 0.5− | 0.1− | 2009 12 18 | G96 | 0.2+ | 0.3+ | | |
| 2004 11 19 | 704 | 0.1+ | 0.9− | 2004 12 15 | 704 | 0.1− | 0.1− | 2009 12 18 | G96 | 0.4+ | 0.2+ | | |
| 2004 12 02 | 703 | 0.2+ | 1.3− | 2004 12 15 | 704 | 0.2+ | 0.5− | 2009 12 18 | G96 | 0.1+ | 0.2+ | | |
| 2004 12 02 | 703 | 1.4− | 1.3− | 2004 12 17 | 704 | 0.2+ | 0.3+ | | | | | | |

**2004 XF$_{107}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 22.66077 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21038148 | $\omega$ | 149.03398 | | +0.37756836 | −0.91635111 | |
| $a$ | 2.7998261 | $\Omega$ | 278.49570 | | +0.81962462 | +0.39766189 | |
| $e$ | 0.1362584 | $i$ | 7.74011 | | +0.43088006 | +0.04653664 | |
| $P$ | 4.68 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 10 09 | 703 | 1.4+ | 1.1+ | 2004 11 19 | 704 | 0.2− | 0.5− | 2008 07 28 | G96 | 0.1− | 0.1+ | | |
| 1999 10 09 | 703 | 0.5+ | 0.6+ | 2004 11 19 | 704 | 0.3− | 0.2− | 2008 07 28 | G96 | 0.6− | 0.3− | | |
| 1999 10 09 | 703 | 0.6− | 0.5+ | 2004 12 11 | 703 | 0.8+ | 0.2− | 2009 12 10 | 704 | 0.6− | 0.1+ | | |
| 1999 10 09 | 703 | 1.0− | 1.2+ | 2004 12 11 | 703 | 1.0− | 0.4− | 2009 12 10 | 704 | 0.3+ | 1.1− | | |
| 1999 10 14 | 645 | 0.0 | 0.1− | 2004 12 11 | 703 | 0.1+ | 0.2− | 2009 12 10 | 704 | 0.2+ | 0.2+ | | |
| 1999 10 14 | 645 | 0.0 | 0.1− | 2004 12 11 | 703 | 0.1+ | 0.1+ | 2009 12 10 | 704 | 0.0 | 0.3+ | | |
| 2004 11 03 | 703 | 0.7+ | 1.0− | 2004 12 15 | 704 | 0.6− | 0.2+ | 2009 12 10 | 704 | 0.5+ | 0.0 | | |
| 2004 11 03 | 703 | 0.8− | 1.1− | 2004 12 15 | 704 | 0.4− | 0.9+ | 2009 12 16 | 704 | 0.6+ | 0.1+ | | |
| 2004 11 03 | 703 | 0.5− | 0.3+ | 2004 12 15 | 704 | 0.4+ | 1.0+ | 2009 12 16 | 704 | 0.5+ | 0.8+ | | |
| 2004 11 03 | 703 | 0.4+ | 0.7+ | 2004 12 15 | 704 | 0.3− | 0.6− | 2009 12 16 | 704 | 0.6+ | 0.4+ | | |
| 2004 11 09 | 703 | 0.8+ | 0.4+ | 2004 12 15 | 704 | 0.5− | 0.1− | 2009 12 16 | 704 | 0.7+ | 0.4+ | | |
| 2004 11 09 | 703 | 0.6+ | 0.3+ | 2005 01 07 | 704 | 0.4− | 1.6+ | 2009 12 19 | 691 | 0.0 | 0.2− | | |
| 2004 11 09 | 703 | 0.9+ | 1.0+ | 2005 01 07 | 704 | 0.2+ | 0.4+ | 2009 12 19 | 691 | 0.2− | 0.1+ | | |

2004 11 09 703 (1.1− 2.8+) 2005 01 07 704 0.1+ 0.9+ 2009 12 19 691 0.5− 0.4−
2004 11 19 704 0.5− 1.0− 2008 07 28 G96 0.1+ 0.6+
2004 11 19 704 0.0 0.8− 2008 07 28 G96 0.2+ 0.4+

**2004 XJ$_{119}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 12.31579 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17551638 | $\omega$ | 304.51168 | | +0.65980910 | −0.69710588 | |
| $a$ | 3.1593006 | $\Omega$ | 101.57157 | | +0.74841321 | +0.57620914 | |
| $e$ | 0.0973766 | $i$ | 16.63938 | | +0.06730240 | +0.42664553 | |
| $P$ | 5.62 | $H$ | 15.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

2004 12 12 691 0.0 0.3+ 2005 01 07 704 0.3− 0.3− 2009 10 27 J75 0.3+ 0.3+
2004 12 12 691 0.0 0.0 2005 01 07 704 0.2+ 0.5− 2009 10 27 J75 0.1+ 0.1−
2004 12 12 691 0.1− 0.1− 2005 01 07 704 0.1− 0.3− 2009 10 27 J75 0.2+ 0.2−
2004 12 16 691 0.3+ 0.1+ 2005 01 08 704 0.8− 0.4− 2009 12 17 G89 0.1− 0.0
2004 12 16 691 0.2− 0.2+ 2005 01 08 704 0.3+ 0.9− 2009 12 17 G89 0.1− 0.0
2004 12 16 691 0.1+ 0.2+ 2005 01 08 704 0.3+ 0.6+ 2009 12 17 G89 0.0 0.0
2004 12 20 G96 0.3− 0.2− 2005 02 03 704 0.4+ 0.3+ 2009 12 19 G89 0.2− 0.0
2004 12 20 G96 0.3− 0.5− 2005 02 03 704 0.7+ 0.8+ 2009 12 19 G89 0.2− 0.0
2004 12 20 G96 0.6− 0.6− 2005 02 03 704 0.4− 0.5− 2009 12 19 G89 0.1− 0.0
2004 12 20 G96 0.1− 0.8− 2005 02 03 704 0.7− 0.3−
2005 01 07 704 0.4+ 0.6+ 2005 02 03 704 0.5+ 0.5+

**2004 XP$_{124}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 307.49000 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17263182 | $\omega$ | 69.57109 | | −0.64100228 | −0.64761519 | |
| $a$ | 3.1943965 | $\Omega$ | 67.47134 | | +0.42439832 | −0.74626894 | |
| $e$ | 0.2454626 | $i$ | 26.48697 | | +0.63953275 | −0.15387410 | |
| $P$ | 5.71 | $H$ | 15.1 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

2004 12 10 704 1.0+ 0.5+ 2004 12 19 704 1.0+ 0.7+ 2005 03 13 704 1.0+ 0.2+
2004 12 10 704 0.3+ 0.3− 2004 12 19 704 0.3− 0.9− 2009 08 17 291 0.0 0.2+
2004 12 10 704 0.3− 0.6+ 2004 12 21 704 0.7− 0.7+ 2009 08 17 291 0.1− 0.0
2004 12 16 703 0.5− 0.9− 2004 12 21 704 0.8− 0.1+ 2009 08 17 291 0.4− 0.3+
2004 12 16 704 0.5+ 0.6− 2004 12 21 704 0.4− 0.1− 2009 09 29 G96 0.7+ 0.2−
2004 12 16 703 0.1− 0.6+ 2004 12 21 704 0.5− 1.3+ 2009 09 29 G96 0.2+ 0.2−
2004 12 16 703 0.5− 0.8− 2005 01 20 704 1.1− 0.3− 2009 09 29 G96 0.6+ 0.5−
2004 12 16 703 1.0− 0.7− 2005 01 20 704 0.2− 0.5− 2009 09 29 G96 0.5+ 0.1−
2004 12 16 704 0.7+ 0.0 2005 01 20 704 0.3− 0.2− 2009 11 21 703 1.4− 0.1+
2004 12 16 704 1.1+ 0.7+ 2005 01 20 704 0.8− 1.1− 2009 11 21 703 (1.7− 1.1−)
2004 12 16 704 (1.9+ 0.4+) 2005 01 20 704 0.9+ 0.4+ 2009 11 21 703 0.3+ 0.3−
2004 12 19 704 0.6+ 0.0 2005 03 13 704 0.3+ 0.4+ 2009 11 21 703 0.6+ 0.0
2004 12 19 704 0.2− 0.2− 2005 03 13 704 0.1− 0.5+
2004 12 19 704 0.4+ 0.6+ 2005 03 13 704 (0.2+ 1.7−)

**2004 XY$_{124}$ = 2009 WV$_{217}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 22.61637 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18489298 | $\omega$ | 315.26538 | | +0.66159955 | −0.72575584 | |
| $a$ | 3.0515637 | $\Omega$ | 92.33952 | | +0.72994013 | +0.56574733 | |
| $e$ | 0.0529481 | $i$ | 10.87943 | | +0.17167830 | +0.39141848 | |
| $P$ | 5.33 | $H$ | 15.2 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

2004 12 11 691 0.1− 0.1− 2009 11 17 703 0.8− 0.0 2009 12 10 703 0.2+ 0.4+
2004 12 11 691 0.2− 0.0 2009 11 17 703 0.0 0.5+ 2009 12 11 703 1.1− 0.2−
2004 12 11 691 0.1+ 0.1+ 2009 11 17 703 0.2− 0.5+ 2009 12 11 703 0.5− 0.9−
2004 12 16 704 1.1+ 0.5− 2009 11 25 G96 0.4+ 0.4− 2009 12 11 703 0.3+ 1.0−
2004 12 16 704 0.4+ 0.7− 2009 11 25 G96 0.5+ 0.3− 2009 12 11 703 0.2− 0.9−
2004 12 16 704 0.9+ 0.0 2009 11 25 G96 0.1+ 0.4− 2009 12 12 704 0.6+ 1.3+
2004 12 16 704 0.3+ 1.2+ 2009 11 25 G96 0.1+ 0.4− 2009 12 12 704 1.0+ 0.5+
2004 12 20 691 0.2− 0.1− 2009 12 10 703 0.5− 1.0+ 2009 12 12 704 0.1+ 0.3+
2004 12 20 691 0.1− 0.1+ 2009 12 10 703 1.1− 0.2+ 2009 12 12 704 0.7+ 0.0
2004 12 20 691 0.3− 0.0 2009 12 10 703 0.3+ 0.2−

**2004 XQ$_{129}$ = 2003 UH$_{372}$ = 2009 WE$_{174}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 46.53522 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19529546 | $\omega$ | 113.92291 | | +0.84969308 | −0.49870127 | |
| $a$ | 2.9422165 | $\Omega$ | 276.39038 | | +0.39903463 | +0.82045363 | |
| $e$ | 0.1024836 | $i$ | 9.92144 | | +0.34466366 | +0.27955836 | |
| $P$ | 5.05 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

2003 08 23 644 0.5+ 0.3+ 2004 12 20 691 0.1+ 0.1+ 2009 11 26 691 0.0 0.0
2003 08 23 644 0.3+ 0.5+ 2004 12 20 691 0.1+ 0.0 2009 12 10 704 0.2− 0.6+
2003 08 23 644 0.2+ 1.2+ 2006 02 06 G96 0.1+ 0.4+ 2009 12 10 704 0.1+ 1.0−
2003 10 22 645 0.0 0.1+ 2006 02 06 G96 0.8+ 0.1+ 2009 12 10 704 0.6+ 0.6−
2003 10 22 645 0.0 0.0 2006 02 06 G96 0.2+ 0.1− 2009 12 10 704 0.9+ 0.2+
2003 10 24 645 0.0 0.0 2006 02 06 G96 0.2+ 0.7+ 2009 12 11 G96 0.1− 0.1−
2003 10 24 645 0.0 0.0 2008 07 31 691 0.4− 0.1+ 2009 12 11 G96 0.2− 0.2−
2004 12 15 691 0.1− 0.1+ 2008 07 31 691 0.3+ 0.2+ 2009 12 11 G96 0.3− 0.0
2004 12 15 691 0.5− 0.4+ 2008 07 31 691 0.7− 0.3− 2009 12 11 G96 0.3− 0.1+
2004 12 15 691 0.1− 0.2+ 2009 11 22 691 0.5− 0.1− 2009 12 16 704 2.1+ 1.3+
2004 12 16 704 0.2+ 0.2+ 2009 11 22 691 0.5+ 1.1− 2009 12 16 704 0.2+ 1.5+
2004 12 16 704 0.5+ 1.0+ 2009 11 22 691 0.3− 0.0 2009 12 16 704 1.1+ 1.1−
2004 12 16 704 0.5− 0.9+ 2009 11 26 691 0.3− 0.0 2009 12 16 704 0.8+ 0.4+
2004 12 20 691 0.0 0.1+ 2009 11 26 691 0.1− 0.1−

**2004 XX$_{132}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 49.85815 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21479592 | $\omega$ | 105.52019 | | +0.63245821 | −0.76673969 | |
| $a$ | 2.7613324 | $\Omega$ | 304.71882 | | +0.64944765 | +0.60231562 | |
| $e$ | 0.2334423 | $i$ | 7.69299 | | +0.42215443 | +0.22209490 | |
| $P$ | 4.59 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

2004 11 04 704 0.2− 0.7+ 2004 12 14 703 0.3− 0.3− 2009 09 28 G96 0.3+ 0.5−
2004 11 04 704 1.0− 1.1− 2004 12 17 704 0.6− 0.2− 2009 09 28 G96 0.4− 0.1+
2004 11 04 704 0.1− 0.2− 2004 12 17 704 0.3− 0.1+ 2009 09 28 G96 0.3+ 0.2−
2004 11 04 704 0.4+ 1.2+ 2004 12 17 704 0.6+ 0.2+ 2009 09 28 G96 0.1+ 0.3+
2004 11 19 704 0.1+ 0.3+ 2005 01 07 704 0.2− 1.0− 2009 11 21 G96 0.3− 0.5+
2004 11 19 704 0.1− 0.1+ 2005 01 07 704 1.0+ 0.1+ 2009 11 21 G96 0.2+ 0.2+
2004 11 19 704 0.2− 0.2+ 2005 01 07 704 1.1+ 0.1+ 2009 11 21 G96 0.4− 0.3+
2004 11 19 704 0.1− 0.0 2005 01 07 704 0.2− 0.4− 2009 11 21 G96 0.4− 0.0
2004 12 02 704 0.6+ 0.9− 2005 01 12 704 0.8− 0.3+ 2009 12 17 G96 0.2+ 0.3+
2004 12 02 704 0.1+ 0.5− 2005 01 12 704 0.0 0.2+ 2009 12 17 G96 0.2+ 0.2−
2004 12 02 704 1.1+ 0.1+ 2005 01 12 704 1.1− 1.0+ 2009 12 17 G96 0.6+ 0.3−
2004 12 14 703 0.1+ 0.1− 2008 09 05 691 0.3− 0.0 2009 12 17 G96 0.1− 0.0
2004 12 14 703 0.1+ 0.0 2008 09 05 691 0.3+ 0.0
2004 12 14 703 0.1− 0.1− 2008 09 05 691 0.0 0.0

**2004 XR$_{133}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 1.04366 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18326439 | $\omega$ | 111.20108 | | +0.88932775 | −0.39044165 | |
| $a$ | 3.0696156 | $\Omega$ | 272.42989 | | +0.27837481 | +0.87522276 | |
| $e$ | 0.3468949 | $i$ | 13.78209 | | +0.36277213 | +0.28555287 | |
| $P$ | 5.38 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

2004 11 19 704 0.9− 0.8− 2004 12 15 704 0.6+ 0.1− 2009 07 27 106 0.8+ 0.3−
2004 11 19 704 0.7− 0.1+ 2004 12 15 704 0.9+ 0.8+ 2009 07 27 106 0.3+ 0.2−
2004 11 19 704 0.3− 0.4− 2004 12 17 704 0.5+ 0.1+ 2009 07 27 106 0.6− 0.4−
2004 11 19 704 0.0 1.0− 2004 12 17 704 0.0 0.9− 2009 08 16 703 0.3− 0.2−

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 11 19 | 704 | 1.3− | 0.7− | 2004 12 17 | 704 | 0.0 | 0.3− | 2009 08 16 | 703 | 0.2− | 0.4− | | |
| 2004 12 02 | 704 | 0.6+ | 0.0 | 2004 12 17 | 704 | 1.2− | 1.2− | 2009 08 16 | 703 | 0.3+ | 0.3− | | |
| 2004 12 02 | 704 | (1.7− | 0.4+) | 2004 12 17 | 699 | 0.4− | 0.0 | 2009 08 16 | 703 | 0.0 | 1.4+ | | |
| 2004 12 02 | 704 | 0.0 | 0.7+ | 2004 12 17 | 704 | 0.6+ | 0.2− | 2009 08 25 | D29 | 0.3+ | 0.0 | | |
| 2004 12 02 | 704 | 0.2+ | 0.6+ | 2004 12 17 | 699 | 0.1− | 0.5+ | 2009 08 25 | D29 | 0.4+ | 0.3+ | | |
| 2004 12 11 | 704 | 0.4+ | 1.1+ | 2004 12 17 | 699 | 0.9− | 0.2+ | 2009 08 25 | D29 | 0.1− | 0.2+ | | |
| 2004 12 11 | 704 | 0.8+ | 0.5+ | 2004 12 17 | 699 | 1.0− | 0.7− | 2009 08 25 | D29 | 0.2+ | 1.1+ | | |
| 2004 12 11 | 704 | 1.3+ | 0.9+ | 2005 01 07 | 704 | 0.1− | 0.9− | 2009 09 17 | 703 | 0.9− | 0.3− | | |
| 2004 12 11 | 704 | (2.7+ | 1.0+) | 2005 01 07 | 704 | 0.3− | 0.6+ | 2009 09 17 | 703 | 0.2− | 0.2− | | |
| 2004 12 15 | 704 | 0.7+ | 0.6+ | 2005 01 07 | 704 | 0.9+ | 1.1+ | 2009 09 17 | 703 | 0.0 | 0.1− | | |
| 2004 12 15 | 704 | 0.4− | 0.2+ | 2005 01 07 | 704 | 0.2− | 0.3− | 2009 09 17 | 703 | 0.2− | 0.1− | | |
| 2004 12 15 | 704 | 0.4+ | 0.3− | 2009 07 27 | 106 | 0.1+ | 0.2− | | | | | | |

### 2004 $XR_{134}$ = 2009 $VE_{43}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 64.93209 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18717153 | $\omega$ | 275.23430 | | +0.94250318 | | +0.25919216 |
| $a$ | 3.0267475 | $\Omega$ | 69.87346 | | −0.13875315 | | +0.87777460 |
| $e$ | 0.1534683 | $i$ | 12.98452 | | −0.30403179 | | +0.40290342 |
| $P$ | 5.27 | $H$ | 14.8 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 07 07 | 644 | 0.1− | 0.3+ | 2008 08 26 | E12 | 0.2− | 0.2− | 2009 11 20 | 704 | 0.2− | 0.8+ | | |
| 2003 07 07 | 644 | 0.2+ | 0.1+ | 2008 08 26 | E12 | 0.1− | 0.6− | 2009 11 20 | 704 | 0.6+ | 0.5− | | |
| 2003 07 07 | 644 | 0.1+ | 1.6+ | 2009 10 12 | G96 | 0.1− | 0.3− | 2009 11 20 | 704 | (0.3− | 1.6+) | | |
| 2003 08 25 | 644 | 0.4− | 0.2+ | 2009 10 12 | G96 | 0.3+ | 0.0 | 2009 11 20 | 704 | 0.0 | 0.2+ | | |
| 2003 08 25 | 644 | 0.1+ | 0.0 | 2009 10 12 | G96 | 0.1+ | 0.3− | 2009 11 20 | 704 | 0.1− | 1.0+ | | |
| 2003 08 25 | 644 | 0.1− | 0.0 | 2009 10 12 | G96 | 0.2− | 0.3− | 2009 11 22 | 703 | 0.2+ | 0.0 | | |
| 2003 08 25 | 644 | 0.0 | 0.1+ | 2009 11 09 | G96 | 0.5− | 0.3− | 2009 11 22 | 703 | 0.3− | 0.8− | | |
| 2003 08 25 | 644 | 0.1− | 0.2− | 2009 11 09 | G96 | 0.3− | 0.3− | 2009 11 22 | 703 | 0.7− | 0.3− | | |
| 2003 08 25 | 644 | 0.1+ | 0.2+ | 2009 11 09 | G96 | 0.0 | 0.3− | 2009 11 23 | G96 | 0.1+ | 0.2− | | |
| 2003 09 26 | 644 | 0.6+ | 0.4− | 2009 11 09 | G96 | 0.0 | 0.4− | 2009 11 23 | G96 | 0.1− | 0.3− | | |
| 2003 09 26 | 644 | 0.2+ | 0.3− | 2009 11 09 | J75 | 0.3+ | 0.0 | 2009 11 23 | G96 | 0.2− | 0.4− | | |
| 2003 09 26 | 644 | 0.0 | 0.6− | 2009 11 09 | J75 | 0.1− | 0.2+ | 2009 11 23 | G96 | 0.4− | 0.2− | | |
| 2003 10 22 | 644 | 0.1− | 0.0 | 2009 11 09 | J75 | 0.1− | 0.1+ | 2009 12 09 | J75 | 0.1+ | 0.4− | | |
| 2003 10 22 | 644 | 0.9− | 0.1+ | 2009 11 15 | 703 | (2.0− | 0.8+) | 2009 12 09 | J75 | 0.2+ | 0.2− | | |
| 2003 10 22 | 644 | 0.1− | 0.1+ | 2009 11 15 | 703 | 0.6− | 0.8+ | 2009 12 09 | J75 | 0.1− | 0.6− | | |
| 2004 12 15 | 704 | 0.4− | 0.9− | 2009 11 15 | 703 | 0.4− | 0.1+ | 2009 12 11 | 703 | 1.5− | 0.6+ | | |
| 2004 12 15 | 704 | 0.3+ | 0.3− | 2009 11 15 | 703 | 0.0 | 0.9+ | 2009 12 11 | 703 | 0.7− | 0.2− | | |
| 2004 12 15 | 704 | 0.1− | 0.2+ | 2009 11 16 | G96 | 0.2− | 0.3− | 2009 12 11 | 703 | 0.4− | 0.1+ | | |
| 2004 12 17 | 704 | 0.1+ | 0.6− | 2009 11 16 | G96 | 0.1+ | 0.2− | 2009 12 11 | 703 | 0.5+ | 0.5− | | |
| 2004 12 17 | 704 | 0.2+ | 0.2− | 2009 11 16 | G96 | 0.2+ | 0.3− | 2009 12 11 | 703 | 0.8+ | 0.2+ | | |
| 2004 12 17 | 704 | 0.1− | 0.7− | 2009 11 16 | G96 | 0.1+ | 0.3− | 2009 12 11 | 703 | 0.8− | 0.1+ | | |
| 2004 12 17 | 704 | 0.5+ | 0.6+ | 2009 11 18 | 704 | 0.6+ | 0.7+ | 2009 12 11 | 703 | 0.5+ | 0.1+ | | |
| 2004 12 18 | 704 | 0.4− | 0.8− | 2009 11 18 | 704 | 0.7+ | 0.9+ | 2009 12 11 | 703 | 1.1− | 0.4− | | |
| 2004 12 18 | 704 | 0.5− | 0.4− | 2009 11 18 | 704 | 1.0+ | 1.3+ | 2009 12 12 | 704 | 1.0+ | 0.1− | | |
| 2004 12 18 | 704 | 0.1+ | 1.1− | 2009 11 18 | 704 | 0.7+ | 0.5+ | 2009 12 12 | 704 | 0.1− | 1.0+ | | |
| 2004 12 20 | 691 | 0.6+ | 0.1+ | 2009 11 18 | 704 | 0.3+ | 1.4+ | 2009 12 12 | 704 | 0.2− | 1.3+ | | |
| 2004 12 20 | 691 | 0.4− | 0.0 | 2009 11 19 | J75 | 0.3− | 0.9− | 2009 12 12 | 704 | 0.3+ | 1.7+ | | |
| 2004 12 20 | 691 | (3.3− | 0.1−) | 2009 11 19 | J75 | 0.0 | 0.4− | 2009 12 12 | 704 | 1.3+ | 1.2+ | | |
| 2007 04 11 | 291 | 0.2+ | 0.6+ | 2009 11 19 | J75 | 0.8− | 0.8− | 2009 12 17 | 704 | 0.1− | 0.2+ | | |
| 2007 04 11 | 291 | 0.2+ | 0.2+ | 2009 11 20 | H10 | (2.5− | 0.2+) | 2009 12 17 | 704 | 1.7− | 0.5+ | | |
| 2007 04 11 | 291 | 0.2+ | 0.2+ | 2009 11 20 | H10 | (1.8− | 0.0 ) | 2009 12 17 | 704 | 0.1− | 0.8+ | | |
| 2008 08 26 | E12 | 0.3− | 0.4+ | 2009 11 20 | H10 | (2.2− | 0.3−) | 2009 12 17 | 704 | 0.7− | 0.6+ | | |
| 2008 08 26 | E12 | 0.1+ | 0.5+ | 2009 11 20 | H10 | (1.8− | 0.3+) | | | | | | |

### 2004 $XM_{140}$ = 2009 $TA_{42}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 321.59776 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17370209 | $\omega$ | 352.03593 | | −0.21374245 | | −0.93882963 |
| $a$ | 3.1812614 | $\Omega$ | 109.98400 | | +0.91136986 | | −0.29116212 |
| $e$ | 0.1253796 | $i$ | 16.69785 | | +0.35173732 | | +0.18391178 |
| $P$ | 5.67 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 13 | 691 | 0.1− | 0.0 | 2005 01 15 | 704 | 0.0 | 0.0 | 2009 10 02 | G96 | 0.0 | 0.3+ | | |
| 2004 12 13 | 691 | 0.1+ | 0.0 | 2005 01 15 | 704 | 0.0 | 0.8− | 2009 10 15 | 703 | 0.2+ | 0.8− | | |
| 2004 12 13 | 691 | 0.0 | 0.2+ | 2005 01 15 | 704 | 0.6− | 0.1− | 2009 10 15 | 703 | 0.1+ | 0.3+ | | |
| 2004 12 18 | 691 | 0.2− | 0.0 | 2005 01 17 | 691 | 0.0 | 0.2+ | 2009 10 15 | 703 | 0.8− | 1.3− | | |
| 2004 12 18 | 691 | 0.0 | 0.1+ | 2005 01 17 | 691 | 0.1− | 0.1+ | 2009 10 15 | 703 | 0.3+ | 0.3− | | |
| 2004 12 18 | 691 | 0.0 | 0.1+ | 2005 01 17 | 691 | 0.0 | 0.2+ | 2009 11 11 | 703 | 0.4− | 0.5− | | |
| 2004 12 20 | G96 | 0.6− | 0.5− | 2005 01 17 | 704 | 0.4− | 0.2− | 2009 11 11 | 703 | 0.5− | 1.0+ | | |
| 2004 12 20 | G96 | 0.6− | 0.5− | 2005 01 17 | 704 | 0.3− | 0.0 | 2009 11 11 | 703 | 0.6+ | 0.2− | | |
| 2004 12 20 | G96 | 0.4− | 0.2− | 2005 01 17 | 704 | 0.3− | 0.4− | 2009 11 11 | 703 | 1.1+ | 0.6− | | |
| 2004 12 20 | G96 | 0.4− | 0.4− | 2005 01 17 | 704 | 0.9+ | 0.6+ | 2009 11 18 | 703 | (2.1− | 0.2+) | | |
| 2005 01 11 | 704 | 1.1+ | 0.9+ | 2005 01 17 | 704 | 1.2+ | 0.7− | 2009 11 18 | 703 | 1.2− | 0.2− | | |
| 2005 01 11 | 704 | 0.6+ | 0.5− | 2009 10 02 | G96 | 0.4− | 0.3+ | 2009 11 18 | 703 | 0.8+ | 1.4+ | | |
| 2005 01 11 | 704 | (2.2− | 0.8+) | 2009 10 02 | G96 | 0.3+ | 0.2+ | 2009 11 18 | 703 | 0.1+ | 0.5+ | | |
| 2005 01 11 | 704 | 0.7+ | 1.0− | 2009 10 02 | G96 | 0.2− | 0.1+ | | | | | | |

### 2004 $XH_{146}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 16.72886 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.19091620 | $\omega$ | 321.60695 | | +0.47677023 | | −0.85588188 |
| $a$ | 2.9870387 | $\Omega$ | 99.08330 | | +0.84829293 | | +0.38822986 |
| $e$ | 0.2665803 | $i$ | 11.70866 | | +0.23041104 | | +0.34167789 |
| $P$ | 5.16 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 14 | 704 | 1.0− | 0.6+ | 2005 01 12 | 704 | 0.0 | 1.4+ | 2005 02 04 | G96 | 0.8− | 0.9− | | |
| 2004 12 14 | 704 | 0.0 | 0.1+ | 2005 01 12 | 704 | 0.4− | 0.4+ | 2005 02 04 | G96 | 0.2− | 0.6− | | |
| 2004 12 14 | 704 | 0.5+ | 0.6+ | 2005 01 12 | 704 | 0.4+ | 0.4+ | 2005 02 04 | 699 | 0.7− | 0.3− | | |
| 2004 12 14 | 704 | 0.2− | 0.5+ | 2005 01 16 | 704 | 0.0 | 0.6+ | 2005 02 04 | 699 | 0.4− | 0.0 | | |
| 2004 12 14 | 704 | (0.7+ | 1.7+) | 2005 01 16 | 704 | 0.4+ | 0.1+ | 2005 02 04 | 699 | 0.1+ | 1.0− | | |
| 2004 12 18 | G96 | 0.2− | 0.2− | 2005 01 16 | 704 | 0.1− | 0.5+ | 2005 02 14 | 704 | 0.1− | 0.7− | | |
| 2004 12 18 | G96 | 0.2− | 0.1− | 2005 01 19 | 704 | 0.6+ | 1.1− | 2005 02 14 | 704 | 0.7+ | 0.0 | | |
| 2004 12 18 | G96 | 0.2− | 0.7− | 2005 01 19 | 704 | 0.8+ | 1.4− | 2005 02 14 | 704 | 0.5− | 0.6− | | |
| 2004 12 18 | G96 | 0.1− | 0.3− | 2005 01 19 | 704 | 1.1+ | 0.6− | 2005 02 14 | 704 | 0.2− | 0.6+ | | |
| 2004 12 19 | G96 | 0.1− | 0.4− | 2005 01 19 | 704 | (1.7+ | 1.8−) | 2005 02 14 | 704 | (0.3− | 1.6−) | | |
| 2004 12 19 | G96 | 0.1− | 0.3− | 2005 01 19 | 704 | 0.0 | 0.1+ | 2005 02 14 | 704 | 0.3− | 0.5+ | | |
| 2004 12 19 | G96 | 0.2− | 0.3− | 2005 02 01 | 703 | 0.3− | 0.4+ | 2005 02 14 | 704 | 0.0 | 0.0 | | |
| 2004 12 19 | G96 | 0.1− | 0.3− | 2005 02 01 | 703 | 0.3+ | 0.2+ | 2009 11 25 | D25 | 0.8− | 0.5− | | |
| 2004 12 20 | 699 | 0.2+ | 0.3+ | 2005 02 01 | 703 | 0.3+ | 0.0 | 2009 11 25 | D25 | 0.7− | 0.2− | | |
| 2004 12 20 | 699 | 0.6− | 0.6+ | 2005 02 01 | 703 | 0.4− | 0.9+ | 2009 11 25 | D25 | 0.9− | 0.4− | | |
| 2004 12 20 | 699 | 0.6+ | 0.1− | 2005 02 03 | 704 | 0.6+ | 0.1+ | 2009 12 12 | 704 | 0.1− | 0.0 | | |
| 2004 12 20 | 699 | 1.0+ | 0.1− | 2005 02 03 | 704 | 0.2+ | 0.5+ | 2009 12 12 | 704 | 0.1+ | 0.3− | | |
| 2005 01 07 | 704 | 0.1+ | 1.0+ | 2005 02 03 | 704 | 0.5+ | 0.3− | 2009 12 12 | 704 | 0.4+ | 0.4+ | | |
| 2005 01 07 | 704 | 0.2− | 0.0 | 2005 02 03 | 704 | 0.0 | 0.6+ | 2009 12 12 | 704 | 1.2+ | 0.7− | | |
| 2005 01 07 | 704 | 0.1+ | 0.6+ | 2005 02 03 | 704 | 0.5+ | 0.4+ | 2009 12 17 | 704 | 1.0+ | 0.2+ | | |
| 2005 01 07 | 704 | 0.5− | 0.2+ | 2005 02 04 | G96 | 0.0 | 0.7− | 2009 12 17 | 704 | 0.1− | 0.4+ | | |
| 2005 01 07 | 704 | 0.0 | 0.2+ | 2005 02 04 | 699 | 0.2− | 0.2− | 2009 12 17 | 704 | 0.1+ | 0.1+ | | |
| 2005 01 12 | 704 | 0.4− | 0.5− | 2005 02 04 | G96 | 0.3− | 0.6− | 2009 12 17 | 704 | 0.1− | 0.6+ | | |

### 2004 $XN_{157}$ = 2009 $VR_{112}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 35.50874 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.37707109 | $\omega$ | 294.83236 | | +0.77863328 | | −0.47256216 |
| $a$ | 1.8975238 | $\Omega$ | 95.84691 | | +0.61028496 | | +0.72328551 |
| $e$ | 0.0771872 | $i$ | 24.51759 | | −0.14588516 | | +0.50353061 |
| $P$ | 2.61 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 14 | 704 | 0.3+ | 0.8+ | 2005 01 08 | 704 | 0.1− | 0.2+ | 2009 11 11 | 703 | 0.5− | 0.1− | | |
| 2004 12 14 | 704 | 0.5− | 0.3+ | 2005 01 08 | 704 | 0.2+ | 0.2+ | 2009 11 11 | 703 | 1.0+ | 0.0 | | |
| 2004 12 14 | 704 | 0.2− | 0.4+ | 2006 07 29 | E12 | 0.3+ | 0.4+ | 2009 11 18 | 703 | 1.1− | 0.8− | | |
| 2004 12 14 | 704 | 0.1− | 0.2− | 2006 07 29 | E12 | 0.7− | 0.4+ | 2009 11 18 | 703 | 0.4+ | 1.1− | | |
| 2004 12 14 | 704 | 0.1+ | 0.1− | 2006 07 29 | E12 | 0.2+ | 0.6+ | 2009 11 18 | 703 | 0.1− | 1.4− | | |
| 2004 12 20 | 699 | 0.4− | 0.9− | 2006 07 29 | E12 | 0.7+ | 0.9+ | 2009 11 18 | 703 | 0.6− | 0.8+ | | |
| 2004 12 20 | 699 | 0.5+ | 0.2− | 2008 03 12 | 703 | 0.3− | 0.1− | 2009 12 17 | 703 | 0.1− | 0.8+ | | |
| 2004 12 20 | 699 | 0.4+ | 0.0 | 2008 03 12 | 703 | 0.1− | 1.0+ | 2009 12 17 | 703 | 0.5− | 0.6− | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 20 | 699 | 0.8− | 0.2+ | 2008 03 12 | 703 | 0.2+ | 0.1+ | 2009 12 17 | 703 | 0.3− | 0.5+ |
| 2005 01 07 | 704 | 0.2+ | 0.2− | 2008 03 12 | 703 | 0.3+ | 0.1− | 2009 12 17 | 703 | 1.0+ | 0.4− |
| 2005 01 07 | 704 | 0.2− | 0.2− | 2009 10 23 | 703 | 0.4− | 1.0− | 2009 12 20 | 704 | 1.0+ | 0.4+ |
| 2005 01 07 | 704 | 0.6+ | 0.1− | 2009 10 23 | 703 | 0.1− | 0.3− | 2009 12 20 | 704 | 0.1− | 1.2+ |
| 2005 01 07 | 704 | 0.0 | 0.4+ | 2009 10 23 | 703 | 0.3+ | 0.9+ | 2009 12 20 | 704 | 0.5− | 0.3+ |
| 2005 01 08 | 704 | 0.1− | 0.3+ | 2009 10 23 | 703 | 0.8− | 0.4+ | 2009 12 20 | 704 | 0.2+ | 0.1+ |
| 2005 01 08 | 704 | 0.0 | 0.2− | 2009 11 11 | 703 | 0.7+ | 0.7+ | 2009 12 20 | 704 | 0.2+ | 0.1+ |
| 2005 01 08 | 704 | 0.4− | 0.7+ | 2009 11 11 | 703 | 0.5+ | 0.0 | | | | |

### 2004 XC$_{167}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 74.69921 | | (2000.0) | | **P** | **Q** |
| $n$ | 0.23314775 | $\omega$ | 180.88312 | | +0.62093719 | −0.76364918 |
| $a$ | 2.6144594 | $\Omega$ | 230.75533 | | +0.72057056 | +0.64489966 |
| $e$ | 0.2460159 | $i$ | 13.20047 | | +0.30856940 | +0.03073040 |
| $P$ | 4.23 | $H$ | 17.2 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 18 | 704 | 0.7+ | 0.1+ | 2004 11 18 | 704 | 1.2+ | 0.5− | 2004 12 12 | 691 | 0.1+ | 0.1− |
| 2004 09 18 | 704 | 0.9+ | 0.6− | 2004 11 18 | 704 | 0.4− | 1.1+ | 2008 09 28 | 703 | 0.1− | 0.1− |
| 2004 09 18 | 704 | 0.3− | 0.1− | 2004 11 18 | 704 | (0.4− | 2.1+) | 2008 09 28 | 703 | 0.7− | 0.2− |
| 2004 10 21 | 704 | (2.2− | 0.5+) | 2004 11 18 | 704 | 0.5− | 0.8− | 2008 09 28 | 703 | 0.3+ | 0.3− |
| 2004 10 21 | 704 | 0.5− | 1.1+ | 2004 12 03 | 699 | 0.5− | 0.4+ | 2008 09 28 | 703 | 0.3+ | 0.3− |
| 2004 10 21 | 704 | 1.1− | 1.2+ | 2004 12 03 | 699 | 0.6+ | 0.7− | 2008 11 24 | 291 | 0.2− | 0.0 |
| 2004 11 04 | 703 | 0.6+ | 0.1+ | 2004 12 03 | 699 | 0.9+ | 1.0+ | 2008 11 24 | 291 | 0.0 | 0.0 |
| 2004 11 04 | 703 | 0.9+ | 0.0 | 2004 12 03 | 699 | 1.0− | 0.4− | 2008 11 24 | 291 | 0.4+ | 0.0 |
| 2004 11 04 | 703 | 0.5+ | 0.2+ | 2004 12 12 | 691 | 0.1+ | 0.3− | | | | |
| 2004 11 04 | 703 | 0.4− | 0.0 | 2004 12 12 | 691 | 0.6− | 0.1− | | | | |

### 2004 YE$_6$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 125.11930 | | (2000.0) | | **P** | **Q** |
| $n$ | 0.26521928 | $\omega$ | 184.29227 | | −0.30570416 | −0.94811219 |
| $a$ | 2.3991974 | $\Omega$ | 283.52597 | | +0.87621165 | −0.24425022 |
| $e$ | 0.1322421 | $i$ | 5.15391 | | +0.37255619 | −0.20353158 |
| $P$ | 3.72 | $H$ | 17.3 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 16 | 691 | 0.3+ | 0.3− | 2005 01 11 | 704 | 0.2+ | 0.3+ | 2005 03 17 | G96 | 0.3+ | 0.4− |
| 2004 12 16 | 691 | 0.0 | 0.0 | 2005 01 11 | 704 | 0.3− | 0.9+ | 2009 03 01 | G96 | 0.2− | 0.1+ |
| 2004 12 16 | 691 | 0.1+ | 0.5+ | 2005 01 11 | 704 | 1.7+ | 0.9+ | 2009 03 01 | G96 | 0.4− | 0.3+ |
| 2004 12 18 | G96 | 0.1− | 0.5− | 2005 01 11 | 704 | 1.3+ | 1.4+ | 2009 03 01 | G96 | 0.1+ | 0.3+ |
| 2004 12 18 | G96 | 0.1− | 0.3− | 2005 01 16 | 691 | 0.1− | 0.2− | 2009 03 01 | G96 | 0.1− | 0.2+ |
| 2004 12 18 | G96 | 0.2+ | 0.2+ | 2005 01 16 | 691 | 0.2− | 0.2− | 2009 04 03 | G96 | 0.7+ | 0.1+ |
| 2004 12 18 | G96 | 0.4− | 0.2− | 2005 01 16 | 691 | 0.5− | 0.2− | 2009 04 03 | G96 | 0.4+ | 0.1− |
| 2005 01 06 | 704 | 0.8− | 0.6− | 2005 03 17 | G96 | 0.8− | 0.2+ | 2009 04 03 | G96 | 0.1+ | 0.0 |
| 2005 01 06 | 704 | 0.2+ | 0.5− | 2005 03 17 | G96 | 0.0 | 0.5− | 2009 04 03 | G96 | 0.3− | 0.3− |
| 2005 01 06 | 704 | 0.7+ | 0.4+ | 2005 03 17 | G96 | 0.1+ | 0.7− | | | | |

### 2004 YL$_{19}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 342.88144 | | (2000.0) | | **P** | **Q** |
| $n$ | 0.18352834 | $\omega$ | 350.30059 | | −0.20470811 | −0.94232461 |
| $a$ | 3.0666717 | $\Omega$ | 111.13360 | | +0.91600554 | −0.27978039 |
| $e$ | 0.2021208 | $i$ | 16.49274 | | +0.34500498 | +0.18370430 |
| $P$ | 5.37 | $H$ | 16.0 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 18 | G96 | 0.1− | 0.0 | 2005 01 06 | 704 | 0.8+ | 1.2− | 2005 02 14 | 704 | 0.4− | 1.4+ |
| 2004 12 18 | G96 | 0.2− | 0.0 | 2005 01 11 | 185 | 0.1+ | 0.5− | 2005 02 14 | 704 | 0.4+ | 1.1− |
| 2004 12 18 | G96 | 0.2− | 0.0 | 2005 01 11 | 185 | 0.1− | 0.7− | 2009 11 23 | 703 | 0.9− | 0.8− |
| 2004 12 18 | G96 | 0.1− | 0.2+ | 2005 01 11 | 185 | 0.1+ | 0.4− | 2009 11 23 | 703 | 0.1+ | 0.6+ |
| 2004 12 19 | G96 | 0.1− | 0.0 | 2005 01 16 | 704 | 0.2+ | 0.2+ | 2009 11 23 | 703 | 0.6+ | 0.3− |
| 2004 12 19 | G96 | 0.1− | 0.1− | 2005 01 16 | 704 | 0.5+ | 0.1+ | 2009 11 23 | 703 | 1.7+ | 0.5+ |
| 2004 12 19 | G96 | 0.2− | 0.2− | 2005 01 16 | 704 | 0.3+ | 0.1+ | 2009 11 23 | 703 | 0.6+ | 0.1+ |
| 2004 12 19 | G96 | 0.2− | 0.2− | 2005 01 16 | 704 | 0.1+ | 0.2+ | 2009 12 15 | 703 | 0.2− | 0.1+ |
| 2004 12 21 | G92 | 1.1+ | 0.2+ | 2005 01 16 | 704 | 0.3− | 0.1+ | 2009 12 15 | 703 | 0.8− | 0.1+ |
| 2004 12 21 | G92 | 0.6− | 0.7+ | 2005 01 17 | 691 | 0.2− | 0.2+ | 2009 12 15 | 703 | 0.2+ | 0.3− |
| 2004 12 21 | G92 | 0.0 | 0.2+ | 2005 01 17 | 691 | 0.2− | 0.1+ | 2009 12 15 | 703 | 0.9− | 0.5− |
| 2005 01 01 | 703 | 0.5− | 0.0 | 2005 01 17 | 691 | 0.4− | 0.2+ | 2009 12 17 | G89 | 0.1− | 0.1+ |
| 2005 01 01 | 703 | 0.9− | 0.4+ | 2005 01 31 | 699 | 0.4+ | 0.3+ | 2009 12 17 | G89 | 0.1− | 0.1+ |
| 2005 01 01 | 703 | 0.9− | 0.3+ | 2005 01 31 | 699 | 0.2− | 0.0 | 2009 12 17 | G89 | 0.0 | 0.1+ |
| 2005 01 01 | 703 | 0.0 | 0.2+ | 2005 01 31 | 699 | (1.7+ | 1.0−) | 2009 12 19 | G89 | 0.0 | 0.1+ |
| 2005 01 06 | 704 | 0.8+ | 0.5− | 2005 01 31 | 699 | (1.2− | 2.3+) | 2009 12 19 | G89 | 0.0 | 0.0 |
| 2005 01 06 | 704 | 1.4+ | 0.2+ | 2005 02 14 | 704 | 1.2+ | 0.5− | 2009 12 19 | G89 | 0.0 | 0.0 |
| 2005 01 06 | 704 | 0.7+ | 0.4− | 2005 02 14 | 704 | 0.6+ | 1.1− | | | | |

### 2004 YT$_{22}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 314.59568 | | (2000.0) | | **P** | **Q** |
| $n$ | 0.17090555 | $\omega$ | 357.68280 | | −0.49248370 | −0.86340648 |
| $a$ | 3.2158709 | $\Omega$ | 121.80230 | | +0.80056227 | −0.49876226 |
| $e$ | 0.1162434 | $i$ | 7.40237 | | +0.34140864 | −0.07593061 |
| $P$ | 5.77 | $H$ | 15.6 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 18 | G96 | 0.3+ | 0.1+ | 2004 12 20 | G96 | 0.3− | 0.3+ | 2005 02 02 | 704 | 0.1− | 0.9− |
| 2004 12 18 | G96 | 0.0 | 0.2− | 2004 12 20 | G96 | 0.3− | 0.5+ | 2005 02 02 | 704 | 0.2− | 0.4− |
| 2004 12 18 | G96 | 0.7+ | 0.0 | 2005 01 19 | 691 | 0.1+ | 0.4− | 2009 10 14 | G96 | 0.1− | 0.2− |
| 2004 12 18 | G96 | 0.4+ | 0.2+ | 2005 01 19 | 691 | 0.1− | 0.1− | 2009 10 14 | G96 | 0.2− | 0.2− |
| 2004 12 19 | G96 | 0.1+ | 0.1+ | 2005 01 19 | 691 | 0.1+ | 0.0 | 2009 10 14 | G96 | 0.2+ | 0.1− |
| 2004 12 19 | G96 | 0.1− | 0.0 | 2005 02 01 | 703 | 0.1− | 1.3+ | 2009 10 14 | G96 | 0.1+ | 0.3+ |
| 2004 12 19 | G96 | 0.2− | 0.1− | 2005 02 01 | 703 | 1.3+ | 0.5+ | 2009 11 18 | G96 | 0.1+ | 0.1+ |
| 2004 12 19 | G96 | 0.2− | 0.3− | 2005 02 01 | 703 | 0.5− | 0.6+ | 2009 11 18 | G96 | 0.1+ | 0.1− |
| 2004 12 20 | G96 | 0.3− | 0.1+ | 2005 02 01 | 703 | (2.5+ | 1.5+) | 2009 11 18 | G96 | 0.2+ | 0.0 |
| 2004 12 20 | G96 | 0.3− | 0.1− | 2005 02 02 | 704 | 0.8− | 0.2+ | 2009 11 18 | G96 | 0.3− | 0.1+ |

### 2005 AF

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 189.44614 | | (2000.0) | | **P** | **Q** |
| $n$ | 0.27765062 | $\omega$ | 185.21855 | | +0.77487650 | −0.63165485 |
| $a$ | 2.3270388 | $\Omega$ | 213.99188 | | +0.58149750 | +0.72723348 |
| $e$ | 0.2373691 | $i$ | 2.46583 | | +0.24784486 | +0.26859563 |
| $P$ | 3.55 | $H$ | 18.3 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 03 | 691 | 0.0 | 0.1+ | 2005 01 05 | 461 | 0.1+ | 0.8− | 2007 08 10 | 691 | 0.5+ | 0.2+ |
| 2004 12 03 | 691 | 0.1+ | 0.2− | 2005 01 05 | 461 | 0.0 | 0.1+ | 2007 08 10 | 691 | 0.1− | 0.1+ |
| 2004 12 03 | 691 | 0.1− | 0.1+ | 2005 01 11 | 561 | 1.1+ | 0.7− | 2007 08 10 | 691 | 0.5− | 0.1+ |
| 2005 01 03 | 461 | 0.3+ | 0.2− | 2005 01 11 | 561 | 0.8− | 0.2+ | 2007 10 11 | G96 | 0.5+ | 0.3− |
| 2005 01 03 | 461 | 0.2− | 0.1+ | 2005 01 11 | 561 | 0.3− | 0.3+ | 2007 10 11 | G96 | 0.0 | 0.1− |
| 2005 01 03 | 461 | 1.0− | 0.7+ | 2005 01 11 | 561 | 0.6+ | 0.1+ | 2007 10 11 | G96 | 0.1+ | 0.6− |
| 2005 01 03 | 461 | 0.5− | 0.3+ | 2005 01 11 | 561 | (1.6− | 2.0−) | 2007 10 11 | G96 | 0.5− | 0.7− |
| 2005 01 05 | 461 | 1.3+ | 0.8+ | 2005 01 11 | 561 | 0.1− | 0.4+ | | | | |

### 2005 AX$_3$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 16.35686 | | (2000.0) | | **P** | **Q** |
| $n$ | 0.18824518 | $\omega$ | 329.55153 | | +0.37244681 | −0.90663381 |
| $a$ | 3.0152278 | $\Omega$ | 97.95340 | | +0.88672000 | +0.28460720 |
| $e$ | 0.0788528 | $i$ | 11.54654 | | +0.27388138 | +0.31147052 |
| $P$ | 5.24 | $H$ | 15.3 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 16 | 691 | 0.2− | 0.0 | 2005 01 07 | 704 | 0.6− | 0.6+ | 2009 11 27 | 691 | 0.1− | 0.1− |
| 2004 12 16 | 691 | 0.2+ | 0.0 | 2005 01 07 | 704 | 0.1− | 0.7+ | 2009 11 27 | 691 | 0.2+ | 0.1+ |
| 2004 12 16 | 691 | 0.1+ | 0.1+ | 2005 01 07 | 704 | 0.2+ | 0.8+ | 2009 11 27 | 691 | 0.1− | 0.0 |
| 2004 12 21 | 703 | 0.2+ | 0.7+ | 2005 01 11 | 704 | 0.1+ | 0.2− | 2009 12 09 | J75 | 0.1− | 0.2+ |
| 2004 12 21 | 703 | (1.6+ | 0.4+) | 2005 01 11 | 704 | 0.9+ | 0.8+ | 2009 12 09 | J75 | 0.1− | 0.4− |
| 2004 12 21 | 703 | 0.6+ | 1.3− | 2005 01 11 | 704 | 0.5+ | 0.1+ | 2009 12 09 | J75 | 1.1− | 0.3− |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 21 | 703 | 0.4+ | 0.6+ | 2005 01 11 | 704 | 0.1− | 0.3− | 2009 12 13 | G96 | 0.5+ | 0.0 |
| 2005 01 01 | 703 | 0.5− | 0.5+ | 2005 01 16 | 704 | 1.4− | 0.8+ | 2009 12 13 | G96 | 0.3− | 0.1− |
| 2005 01 01 | 703 | 1.3− | 1.3− | 2005 01 16 | 704 | 0.8+ | 0.0 | 2009 12 13 | G96 | 0.1− | 0.2− |
| 2005 01 01 | 703 | 0.3− | 0.2− | 2005 01 16 | 704 | 0.2− | 0.1− | 2009 12 13 | G96 | 0.3+ | 0.2− |
| 2005 01 01 | 703 | 0.8− | 0.4− | 2005 01 16 | 704 | 0.2− | 0.4+ | 2009 12 13 | G96 | 0.1+ | 0.1− |
| 2005 01 06 | 704 | (1.7+ | 1.6+) | 2005 01 18 | 691 | 0.1− | 0.1− | 2009 12 17 | 704 | 0.3+ | 0.3− |
| 2005 01 06 | 704 | 0.5+ | 0.3− | 2005 01 18 | 691 | 0.4+ | 0.3− | 2009 12 17 | 704 | 1.2+ | 0.4+ |
| 2005 01 06 | 704 | 0.6+ | 0.7− | 2005 01 18 | 691 | 0.0 | 0.1− | 2009 12 17 | 704 | 0.4+ | 1.2+ |
| 2005 01 06 | 704 | 0.1+ | 0.1+ | 2009 11 19 | 691 | 0.0 | 0.0 | 2009 12 17 | 704 | 0.1+ | 0.0 |
| 2005 01 06 | 704 | 0.1− | 0.0 | 2009 11 19 | 691 | 0.1− | 0.0 | | | | |
| 2005 01 07 | 704 | 0.7− | 0.0 | 2009 11 19 | 691 | 0.2− | 0.1− | | | | |

**2005 AT$_5$ = 2009 VD$_{44}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 10.73941 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18760441 | $\omega$ | 324.74173 | | +0.58420264 | −0.80059895 | |
| $a$ | 3.0220897 | $\Omega$ | 89.14745 | | +0.77187890 | +0.49734071 | |
| $e$ | 0.3429101 | $i$ | 7.65678 | | +0.25081914 | +0.33420583 | |
| $P$ | 5.25 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 01 06 | 703 | 0.5− | 0.3+ | 2005 02 04 | G96 | 0.2− | 0.3− | 2009 11 20 | 704 | 0.2− | 0.1+ |
| 2005 01 06 | 703 | 0.4− | 0.5+ | 2009 09 20 | 703 | (0.8− | 1.6−) | 2009 11 20 | 704 | 0.0 | 0.3+ |
| 2005 01 06 | 703 | 0.4+ | 0.4− | 2009 09 20 | 703 | 0.2+ | 1.0− | 2009 11 20 | 704 | 0.3+ | 0.2+ |
| 2005 01 06 | 703 | 1.2− | 0.8− | 2009 09 20 | 703 | 0.2− | 0.6− | 2009 11 20 | 704 | 0.0 | 0.5+ |
| 2005 01 07 | 704 | 0.3− | 0.6− | 2009 09 20 | 703 | 0.3+ | 1.2+ | 2009 11 23 | G96 | 0.1+ | 0.3− |
| 2005 01 07 | 704 | 0.7− | 0.1+ | 2009 09 28 | G96 | 0.0 | 0.3− | 2009 11 23 | G96 | 0.2+ | 0.3− |
| 2005 01 07 | 704 | 0.3+ | 0.6+ | 2009 09 28 | G96 | 0.1+ | 0.3− | 2009 11 23 | G96 | 0.1+ | 0.3− |
| 2005 01 07 | 704 | 0.2− | 1.2+ | 2009 09 28 | G96 | 0.0 | 0.5− | 2009 11 23 | G96 | 0.0 | 0.3− |
| 2005 01 08 | 704 | 0.2− | 0.4+ | 2009 09 28 | G96 | 0.1+ | 0.2− | 2009 12 10 | 703 | 0.4− | 0.3+ |
| 2005 01 08 | 704 | 0.1+ | 0.4+ | 2009 10 24 | 703 | 0.0 | 0.3+ | 2009 12 10 | 703 | 0.3− | 0.2+ |
| 2005 01 08 | 704 | 0.2+ | 0.3− | 2009 10 24 | 703 | 0.5+ | 0.5− | 2009 12 10 | 703 | 0.2− | 0.0 |
| 2005 01 08 | 704 | 1.1− | 0.7− | 2009 10 24 | 703 | 0.2− | 0.4+ | 2009 12 10 | 703 | 0.0 | 0.2− |
| 2005 01 12 | 704 | 0.7+ | 0.7+ | 2009 10 24 | 703 | 0.4+ | 0.2+ | 2009 12 11 | 703 | 0.4+ | 0.3− |
| 2005 01 12 | 704 | 0.6− | 0.3− | 2009 11 12 | J75 | 0.8+ | 0.1+ | 2009 12 11 | 703 | 1.2− | 0.7− |
| 2005 01 12 | 704 | (0.9− | 1.8+) | 2009 11 12 | J75 | 0.1+ | 0.6+ | 2009 12 11 | 703 | 0.7− | 0.7− |
| 2005 01 12 | 704 | (2.5− | 1.0+) | 2009 11 13 | J75 | 0.7+ | 0.9− | 2009 12 11 | 703 | 0.3− | 1.0− |
| 2005 01 16 | 704 | 0.1+ | 0.1+ | 2009 11 15 | 703 | 0.4+ | 0.6− | 2009 12 12 | 704 | 0.0 | 0.8+ |
| 2005 01 16 | 704 | 0.1− | 0.7− | 2009 11 15 | 703 | 0.1+ | 0.2− | 2009 12 12 | 704 | 0.1− | 0.3+ |
| 2005 01 16 | 704 | 0.2+ | 0.2+ | 2009 11 15 | 703 | 0.2+ | 0.2+ | 2009 12 12 | 704 | 0.1+ | 0.8+ |
| 2005 01 18 | 691 | 0.5+ | 0.6− | 2009 11 15 | 703 | 0.1− | 0.2− | 2009 12 12 | 704 | 0.2+ | 0.4+ |
| 2005 01 18 | 691 | 0.1− | 0.1− | 2009 11 19 | 704 | (0.5− | 1.7−) | 2009 12 17 | 704 | 0.0 | 2.1+ |
| 2005 01 18 | 691 | 0.1− | 0.1− | 2009 11 19 | 704 | 0.5− | 0.2− | 2009 12 17 | 704 | 0.0 | 1.0+ |
| 2005 02 03 | 704 | 0.8+ | 1.0− | 2009 11 19 | 704 | 0.1− | 0.2+ | 2009 12 17 | 704 | 0.2+ | 1.2+ |
| 2005 02 03 | 704 | 0.8+ | 0.4+ | 2009 11 19 | 704 | 0.1− | 0.5+ | 2009 12 17 | 704 | 0.5+ | 0.5+ |
| 2005 02 03 | 704 | 0.0 | 0.2+ | 2009 11 19 | 704 | 0.4− | 0.0 | 2009 12 18 | 691 | 0.2− | 0.1− |
| 2005 02 03 | 704 | 0.4+ | 0.7+ | 2009 11 19 | J75 | 0.1− | 0.1− | 2009 12 18 | 691 | 0.2− | 0.2− |
| 2005 02 04 | G96 | 1.2+ | 1.1+ | 2009 11 20 | J75 | 0.3+ | 0.2− | 2009 12 18 | 691 | 0.1− | 0.1− |
| 2005 02 04 | G96 | 0.3− | 0.1− | 2009 11 20 | J75 | 0.4+ | 0.2− | | | | |
| 2005 02 04 | G96 | 0.2− | 0.1− | 2009 11 20 | 704 | 0.1− | 0.2+ | | | | |

**2005 AG$_{12}$ = 2009 XN$_9$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 46.22276 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17796845 | $\omega$ | 276.85316 | | +0.86380256 | −0.44931572 | |
| $a$ | 3.1302140 | $\Omega$ | 110.06171 | | +0.50181265 | +0.80770462 | |
| $e$ | 0.1218486 | $i$ | 14.04436 | | −0.04504670 | +0.38174420 | |
| $P$ | 5.54 | $H$ | 15.0 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 05 23 | 645 | 0.0 | 0.1+ | 2005 02 03 | 704 | 0.4+ | 0.8+ | 2009 11 23 | 703 | 0.6+ | 0.4+ |
| 2001 05 23 | 645 | 0.1− | 0.0 | 2005 02 03 | 704 | 0.6+ | 0.2+ | 2009 11 23 | 703 | 0.3− | 0.1+ |
| 2003 10 24 | 699 | 0.1+ | 0.5+ | 2005 02 03 | 704 | 0.2+ | 0.1+ | 2009 11 23 | 703 | 0.1− | 0.5− |
| 2003 10 24 | 699 | 1.1− | 0.3+ | 2005 02 03 | 704 | 0.5+ | 0.4+ | 2009 12 09 | J75 | 0.1− | 0.7+ |
| 2003 10 24 | 699 | 0.2+ | 1.2+ | 2008 08 05 | E12 | 0.9− | 0.3+ | 2009 12 09 | J75 | 0.1− | 0.1+ |
| 2003 10 24 | 699 | 0.7− | 0.2− | 2008 08 05 | E12 | 0.1− | 0.0 | 2009 12 09 | J75 | 0.2+ | 0.3+ |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 01 06 | 703 | 0.2− | 1.3− | 2008 08 05 | E12 | 0.0 | 1.2+ | 2009 12 12 | D25 | 0.1− | 1.0− |
| 2005 01 06 | 703 | 0.6− | 0.2+ | 2008 08 05 | E12 | 0.8+ | 0.2+ | 2009 12 12 | D25 | 0.1+ | 0.8− |
| 2005 01 06 | 703 | 0.8+ | 0.7− | 2008 08 23 | E12 | 0.5− | 0.3+ | 2009 12 12 | D25 | 0.8− | 1.0− |
| 2005 01 06 | 703 | (1.9− | 0.1−) | 2008 08 23 | E12 | 0.4+ | 0.1− | 2009 12 12 | D25 | 0.1+ | 0.7− |
| 2005 01 07 | 704 | 0.4+ | 0.8+ | 2008 08 23 | E12 | 0.7+ | 0.6− | 2009 12 12 | D25 | 0.6− | 0.4− |
| 2005 01 07 | 704 | 0.3− | 0.4− | 2008 08 23 | E12 | 0.5− | 0.4+ | 2009 12 16 | D25 | 0.3− | 0.0 |
| 2005 01 07 | 704 | 0.2− | 0.6+ | 2008 09 08 | E12 | 0.8+ | 0.1+ | 2009 12 16 | D25 | 0.1+ | 0.2+ |
| 2005 01 07 | 704 | 0.2+ | 0.6+ | 2008 09 08 | E12 | 0.8+ | 0.9+ | 2009 12 16 | D25 | 0.8+ | 0.3+ |
| 2005 01 18 | 691 | 0.1+ | 0.2+ | 2008 09 08 | E12 | 0.2+ | 0.0 | 2009 12 16 | D25 | 0.4− | 0.1− |
| 2005 01 18 | 691 | 0.2+ | 0.3+ | 2008 09 08 | E12 | 0.3− | 0.3− | 2009 12 16 | D25 | 0.4+ | 0.3− |
| 2005 01 18 | 691 | 0.2+ | 0.2+ | 2009 11 23 | 703 | 0.0 | 0.5− | | | | |
| 2005 02 03 | 704 | (0.1+ | 1.5−) | 2009 11 23 | 703 | 1.2− | 0.2− | | | | |

**2005 AU$_{12}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 142.02532 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27467125 | $\omega$ | 358.58287 | | −0.33983474 | −0.93826116 | |
| $a$ | 2.3438361 | $\Omega$ | 111.28055 | | +0.86355926 | −0.33852482 | |
| $e$ | 0.2083746 | $i$ | 3.97781 | | +0.37252887 | −0.07118240 | |
| $P$ | 3.59 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 18 | G96 | 0.3− | 0.3− | 2005 01 15 | 704 | 0.1− | 0.1+ | 2005 03 14 | G96 | 0.4− | 0.1− |
| 2004 12 18 | G96 | 0.3− | 0.1− | 2005 01 15 | 704 | 0.1− | 0.3− | 2005 03 14 | G96 | 0.1− | 0.4− |
| 2004 12 18 | G96 | 0.2− | 0.3− | 2005 01 15 | 704 | 0.4+ | 0.3− | 2005 03 14 | G96 | 0.3− | 0.3− |
| 2004 12 18 | G96 | 0.3− | 0.4− | 2005 01 15 | 704 | 0.1− | 0.1+ | 2005 03 14 | G96 | 0.1− | 0.3− |
| 2005 01 06 | 704 | 0.5+ | 1.3− | 2005 01 16 | 691 | 0.1− | 0.1+ | 2007 10 16 | G96 | 0.4+ | 0.1+ |
| 2005 01 06 | 704 | 1.7+ | 0.4− | 2005 01 16 | 691 | 0.3− | 0.1+ | 2007 10 16 | G96 | 0.5+ | 0.1+ |
| 2005 01 06 | 704 | 1.4+ | 0.2+ | 2005 01 16 | 691 | 0.1− | 0.1+ | 2007 10 16 | G96 | 0.1+ | 0.3− |
| 2005 01 08 | 599 | 0.3− | 0.0 | 2005 01 17 | 691 | 0.1+ | 0.1− | 2007 10 16 | G96 | 0.2− | 0.2+ |
| 2005 01 08 | 599 | 0.5− | 0.2+ | 2005 01 17 | 691 | 0.2− | 0.1+ | 2007 11 03 | G96 | 0.1− | 0.1+ |
| 2005 01 08 | 599 | 0.3− | 0.1+ | 2005 01 17 | 691 | 0.7− | 0.3+ | 2007 11 03 | G96 | 0.1− | 0.2− |
| 2005 01 08 | 599 | 0.4− | 0.1+ | 2005 01 17 | 704 | 0.3− | 0.2+ | 2007 11 03 | G96 | 0.1− | 0.3− |
| 2005 01 11 | 704 | 0.2+ | 0.2− | 2005 01 17 | 704 | 0.2− | 0.2+ | 2007 11 03 | G96 | 0.2− | 0.4− |
| 2005 01 11 | 704 | 0.6+ | 0.7− | 2005 01 17 | 704 | 0.3− | 0.2− | 2009 04 01 | 691 | 0.1− | 0.4+ |
| 2005 01 11 | 704 | 0.2+ | 0.5− | 2005 01 17 | 704 | 0.0 | 0.3− | 2009 04 01 | 691 | 0.2− | 0.3− |
| 2005 01 11 | 704 | 0.0 | 0.5− | 2005 01 17 | 704 | 0.3+ | 0.1+ | 2009 04 01 | 691 | 0.2+ | 0.1− |
| 2005 01 13 | 699 | 0.4− | 0.8+ | 2005 02 02 | 704 | 1.2+ | 0.1− | 2009 04 30 | G96 | 0.1+ | 0.2+ |
| 2005 01 13 | 699 | 0.9− | 1.1+ | 2005 02 02 | 704 | 2.0+ | 0.1+ | 2009 04 30 | G96 | 0.2+ | 0.2− |
| 2005 01 13 | 699 | 0.3− | 0.2+ | 2005 02 02 | 704 | 1.0+ | 0.1− | 2009 04 30 | G96 | 0.1− | 0.2− |
| 2005 01 13 | 699 | 0.2+ | 1.0+ | 2005 02 02 | 704 | 0.5+ | 0.4− | 2009 04 30 | G96 | 0.1+ | 0.2− |
| 2005 01 15 | 704 | 0.4− | 0.6− | 2005 02 02 | 704 | 0.8+ | 0.3+ | | | | |

**2005 AA$_{15}$ = 2009 VT$_{91}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 342.34144 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17205721 | $\omega$ | 332.78228 | | +0.02188442 | −0.96931413 | |
| $a$ | 3.2015047 | $\Omega$ | 115.07959 | | +0.95940342 | −0.04851998 | |
| $e$ | 0.0909871 | $i$ | 15.68430 | | +0.28118702 | +0.24098947 | |
| $P$ | 5.73 | $H$ | 15.1 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 01 06 | 704 | 1.1+ | 0.3+ | 2005 01 16 | 704 | 0.7− | 0.4+ | 2009 11 08 | 703 | 0.2+ | 0.8+ |
| 2005 01 06 | 704 | 0.5+ | 0.2− | 2005 01 16 | 704 | 0.1− | 0.7− | 2009 11 22 | 703 | 0.2− | 0.5+ |
| 2005 01 06 | 704 | 1.4− | 1.6− | 2005 01 18 | 691 | 0.0 | 0.1+ | 2009 11 22 | 703 | 0.5− | 0.1− |
| 2005 01 07 | 691 | 0.1− | 0.1+ | 2005 01 18 | 691 | 0.2− | 0.1− | 2009 11 22 | 703 | 0.3− | 1.0− |
| 2005 01 07 | 691 | 0.2− | 0.2+ | 2005 01 18 | 691 | 0.3+ | 0.0 | 2009 11 22 | 703 | 0.1+ | 0.2+ |
| 2005 01 07 | 691 | 0.1− | 0.1+ | 2009 11 08 | 703 | 0.3+ | 0.2− | 2009 11 22 | 703 | 0.2− | 0.2+ |
| 2005 01 16 | 704 | 0.5+ | 0.1+ | 2009 11 08 | 703 | 1.1− | 1.9− | | | | |
| 2005 01 16 | 704 | 1.0+ | 0.3− | 2009 11 08 | 703 | 1.6+ | 1.5+ | | | | |

**2005 AA$_{20}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 35.81522 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17925973 | $\omega$ | 112.70220 | | +0.82642583 | −0.52397599 | |
| $a$ | 3.1151638 | $\Omega$ | 279.46401 | | +0.40870837 | +0.81001402 | |
| $e$ | 0.0661846 | $i$ | 12.05936 | | +0.38726969 | +0.26329916 | |
| $P$ | 5.50 | $H$ | 14.7 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 14 | 704 | (0.3+ | 2.8−) | 2005 01 06 | 704 | 0.2− | 0.1+ | 2009 11 08 | 703 | 0.2− | 0.1− |
| 2004 12 14 | 704 | 0.8+ | 0.3+ | 2005 01 06 | 704 | 0.4− | 0.5− | 2009 11 08 | 703 | 0.0 | 0.4+ |
| 2004 12 14 | 704 | 0.5+ | 0.3− | 2005 01 13 | 704 | 0.0 | 0.5+ | 2009 11 08 | 703 | 0.7− | 0.0 |
| 2004 12 14 | 704 | 0.7+ | 0.5+ | 2005 01 13 | 704 | 0.1− | 0.7+ | 2009 12 10 | 704 | 0.2− | 1.1− |
| 2004 12 14 | 703 | 0.0 | 1.1+ | 2005 01 13 | 704 | 0.0 | 0.4+ | 2009 12 10 | 704 | 0.5− | 0.9+ |
| 2004 12 14 | 703 | 0.0 | 0.2+ | 2005 01 13 | 185 | 1.0− | 0.2+ | 2009 12 10 | 704 | 0.4− | 0.8+ |
| 2004 12 14 | 703 | (1.8+ | 0.1+) | 2005 01 13 | 185 | 0.8+ | 0.1+ | 2009 12 10 | 704 | 0.3− | 0.7+ |
| 2004 12 14 | 703 | 0.1− | 0.3+ | 2005 01 13 | 185 | 0.2+ | 0.3− | 2009 12 10 | 704 | 0.0 | 0.6+ |
| 2004 12 18 | 691 | 0.2− | 0.0 | 2005 01 13 | 185 | 0.1+ | 0.2− | 2009 12 15 | 704 | 0.3− | 0.0 |
| 2004 12 18 | 691 | 0.2− | 0.2− | 2005 01 15 | 704 | 0.4+ | 0.7− | 2009 12 15 | 704 | 1.2+ | 0.4− |
| 2004 12 18 | 691 | 0.1+ | 0.2− | 2005 01 15 | 704 | 0.2+ | 0.6− | 2009 12 15 | 704 | 0.3+ | 1.4− |
| 2005 01 06 | 704 | 0.4− | 0.3− | 2005 01 15 | 704 | 0.2− | 1.0+ | 2009 12 15 | 704 | 0.3+ | 0.4+ |
| 2005 01 06 | 704 | 0.3− | 0.3− | 2009 11 08 | 703 | 0.6+ | 0.9− | | | | |

**2005 AK$_{26}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 63.49360 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22187891 | $\omega$ | 346.26469 | | +0.06044815 | −0.98140505 | |
| $a$ | 2.7022490 | $\Omega$ | 100.03805 | | +0.93239097 | −0.00964437 | |
| $e$ | 0.2077422 | $i$ | 10.66194 | | +0.35636091 | +0.19170579 | |
| $P$ | 4.44 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 19 | G96 | 0.2+ | 0.1+ | 2005 01 15 | 704 | 0.4+ | 0.0 | 2005 02 03 | 704 | 0.5+ | 0.7+ |
| 2004 12 19 | G96 | 0.1+ | 0.0 | 2005 01 15 | 704 | 0.3+ | 0.1+ | 2005 02 03 | 704 | 0.1− | 0.4− |
| 2004 12 19 | G96 | 0.3+ | 0.0 | 2005 01 16 | 704 | 0.0 | 0.6+ | 2005 02 03 | 704 | 0.0 | 1.1+ |
| 2004 12 19 | G96 | 0.2− | 0.1− | 2005 01 16 | 704 | 0.3+ | 0.2+ | 2005 02 04 | 699 | 0.0 | 1.0− |
| 2005 01 07 | 704 | 0.8− | 0.9+ | 2005 01 16 | 704 | 0.8+ | 0.7− | 2005 02 04 | 699 | 0.1+ | 0.1+ |
| 2005 01 07 | 704 | 1.0− | 0.4− | 2005 01 16 | 704 | 0.6+ | 0.1+ | 2005 02 04 | 699 | 0.8− | 0.8− |
| 2005 01 07 | 704 | 0.6− | 1.7+ | 2005 01 16 | 704 | 0.3+ | 0.4+ | 2005 02 04 | 699 | 0.3− | 0.0 |
| 2005 01 07 | 704 | 0.2− | 2.0− | 2005 01 17 | 691 | 0.2− | 0.2− | 2008 11 03 | 703 | 0.8+ | 0.3+ |
| 2005 01 12 | 704 | 0.3− | 0.1− | 2005 01 17 | 691 | 0.1− | 0.1− | 2008 11 03 | 703 | 0.1− | 0.5− |
| 2005 01 12 | 704 | 0.0 | 0.4− | 2005 01 17 | 691 | 0.2− | 0.1− | 2008 11 03 | 703 | 0.2+ | 0.2− |
| 2005 01 12 | 704 | 0.3+ | 0.6+ | 2005 01 19 | 704 | 0.3+ | 0.4+ | 2008 11 03 | 703 | 0.1− | 0.3+ |
| 2005 01 12 | 704 | 0.5+ | 0.7− | 2005 01 19 | 704 | 0.0 | 0.6− | 2008 11 17 | 703 | 0.2− | 0.1− |
| 2005 01 13 | 704 | 0.1− | 0.0 | 2005 01 19 | 704 | 0.2+ | 0.2+ | 2008 11 17 | 703 | 0.3− | 0.4− |
| 2005 01 13 | 704 | 0.6− | 0.1− | 2005 01 19 | 704 | 0.2+ | 0.2+ | 2008 11 17 | 703 | 1.2+ | 0.1− |
| 2005 01 13 | 704 | 0.8+ | 0.2− | 2005 01 19 | 704 | 0.0 | 0.8+ | 2008 11 17 | 703 | 0.4− | 0.4+ |
| 2005 01 13 | 704 | 0.1+ | 0.8− | 2005 01 20 | 699 | (0.0 | 2.4−) | 2008 12 01 | 703 | 0.1− | 0.2+ |
| 2005 01 13 | 704 | 0.3+ | 0.4+ | 2005 01 20 | 699 | 0.8− | 0.6− | 2008 12 01 | 703 | 0.4+ | 1.2+ |
| 2005 01 15 | 704 | 0.9+ | 0.1+ | 2005 01 20 | 699 | 0.1+ | 0.6+ | 2008 12 01 | 703 | 1.3− | 0.1− |
| 2005 01 15 | 704 | 0.2+ | 0.4+ | 2005 01 20 | 699 | 0.4− | 0.4+ | 2008 12 01 | 703 | 0.4− | 0.9− |
| 2005 01 15 | 704 | 0.4+ | 0.4+ | 2005 02 03 | 704 | 0.1− | 0.2− | | | | |

**2005 AK$_{34}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 298.84575 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18467670 | $\omega$ | 235.52924 | | −0.96427695 | −0.23102940 | |
| $a$ | 3.0539457 | $\Omega$ | 290.81199 | | +0.26471435 | −0.85853960 | |
| $e$ | 0.1561315 | $i$ | 7.96935 | | −0.00981197 | −0.45775013 | |
| $P$ | 5.34 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 19 | G96 | 0.2− | 0.5− | 2005 01 17 | 704 | 0.9+ | 1.2− | 2005 03 17 | G96 | 0.3+ | 0.1− |
| 2004 12 19 | G96 | 0.3− | 0.1− | 2005 01 17 | 704 | 0.0 | 0.2+ | 2008 09 29 | G96 | 0.1− | 0.0 |
| 2004 12 19 | G96 | 0.3− | 0.2− | 2005 01 17 | 704 | 0.1− | 0.2− | 2008 09 29 | G96 | 0.2− | 0.1− |
| 2004 12 19 | G96 | 0.0 | 0.3− | 2005 02 01 | 703 | 0.1− | 0.3− | 2008 09 29 | G96 | 0.1+ | 0.4+ |
| 2005 01 13 | 691 | 0.2+ | 0.1+ | 2005 02 01 | 703 | 0.6+ | 0.1+ | 2008 09 29 | G96 | 0.2− | 0.1+ |
| 2005 01 13 | 691 | 0.5− | 0.1+ | 2005 02 01 | 703 | 0.4− | 0.6+ | 2008 10 29 | G96 | 0.4− | 0.0 |
| 2005 01 13 | 691 | 0.1− | 0.2+ | 2005 02 01 | 703 | 0.9− | 0.9− | 2008 10 29 | G96 | 0.1+ | 0.0 |
| 2005 01 15 | 704 | 1.1+ | 0.6− | 2005 03 17 | G96 | 0.0 | 0.1+ | 2008 10 29 | G96 | 0.2− | 0.4− |
| 2005 01 15 | 704 | 1.2+ | 0.7+ | 2005 03 17 | G96 | 0.2+ | 0.0 | 2008 10 29 | G96 | 0.7+ | 0.2+ |
| 2005 01 15 | 704 | 0.1− | 0.9+ | 2005 03 17 | G96 | 0.0 | 0.0 | | | | |

**2005 AQ$_{41}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 3.69838 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23789918 | $\omega$ | 261.68195 | | −0.94060862 | +0.28870747 | |
| $a$ | 2.5795310 | $\Omega$ | 294.94488 | | −0.17748878 | −0.86668801 | |
| $e$ | 0.1048021 | $i$ | 11.36111 | | −0.28940138 | −0.40681678 | |
| $P$ | 4.14 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 19 | G96 | 0.3− | 0.2+ | 2005 01 17 | 704 | 0.5+ | 0.5− | 2005 03 17 | G96 | (1.7− | 0.1+) |
| 2004 12 19 | G96 | 0.5− | 0.2+ | 2005 01 17 | 704 | (0.4− | 1.5+) | 2005 03 17 | G96 | (2.2− | 0.4+) |
| 2004 12 19 | G96 | 0.0 | 0.1− | 2005 01 17 | 704 | 0.6+ | 0.1+ | 2005 03 17 | G96 | 0.8− | 0.2− |
| 2004 12 19 | G96 | 0.2− | 0.2+ | 2005 01 17 | 704 | 0.0 | 0.5− | 2005 03 17 | G96 | 0.5− | 0.1+ |
| 2005 01 15 | 704 | 1.1− | 0.2+ | 2005 01 17 | 704 | 0.6+ | 1.1− | 2008 12 02 | 691 | 0.5− | 0.4+ |
| 2005 01 15 | 704 | 0.3+ | 1.2+ | 2005 01 17 | 704 | (1.4+ | 2.7+) | 2008 12 02 | 691 | 0.2− | 0.6+ |
| 2005 01 15 | 704 | 0.4+ | 0.5+ | 2005 01 17 | 704 | 0.3− | 0.3− | 2008 12 02 | 691 | 0.4− | 0.2+ |
| 2005 01 15 | 704 | 0.6− | 0.1− | 2005 01 17 | 704 | 0.5+ | 0.2+ | 2009 01 07 | 691 | 0.6+ | 1.0− |
| 2005 01 15 | 704 | 0.3− | 0.5− | 2005 01 17 | 704 | 0.1+ | 0.3− | 2009 01 07 | 691 | 0.3+ | 0.9− |
| 2005 01 16 | 704 | 0.2+ | 0.3− | 2005 01 17 | 704 | 1.3− | 0.0 | 2009 01 07 | 691 | 1.3+ | 0.7− |
| 2005 01 16 | 704 | 0.2+ | 0.1+ | 2005 02 02 | 704 | 0.7− | 0.3+ | 2009 01 18 | 691 | 0.4− | 0.3+ |
| 2005 01 16 | 704 | 0.0 | 0.5− | 2005 02 02 | 704 | 1.1+ | 0.7+ | 2009 01 18 | 691 | 0.5− | 0.7+ |
| 2005 01 17 | 704 | 0.6− | 1.0− | 2005 02 02 | 704 | 0.5+ | 0.1+ | 2009 01 18 | 691 | 0.3− | 0.5+ |
| 2005 01 17 | 704 | 0.6+ | 0.1− | 2005 02 02 | 704 | 0.9+ | 0.5+ | | | | |
| 2005 01 17 | 704 | 0.1− | 0.9+ | 2005 02 02 | 704 | 0.6+ | 0.4+ | | | | |

**2005 AN$_{47}$ = 2009 TX$_{24}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 344.35817 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18070372 | $\omega$ | 248.51327 | | +0.15598774 | −0.98769085 | |
| $a$ | 3.0985463 | $\Omega$ | 192.52940 | | +0.92489554 | +0.15017366 | |
| $e$ | 0.2482015 | $i$ | 3.06573 | | +0.34675073 | +0.04375684 | |
| $P$ | 5.45 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 04 | 691 | 0.3− | 0.1+ | 2005 01 19 | 691 | 0.0 | 0.1+ | 2009 10 18 | J75 | 0.1− | 0.6+ |
| 2003 09 04 | 691 | 0.4+ | 0.1+ | 2005 01 19 | 691 | 0.0 | 0.0 | 2009 10 18 | J75 | 0.3+ | 0.7− |
| 2003 09 04 | 691 | 0.2− | 0.0 | 2009 09 22 | G96 | 0.3+ | 0.1+ | 2009 11 19 | G96 | 0.3− | 0.2− |
| 2005 01 13 | 691 | 0.2+ | 0.1+ | 2009 09 22 | G96 | 0.4+ | 0.0 | 2009 11 19 | G96 | 0.2− | 0.1− |
| 2005 01 13 | 691 | 0.2+ | 0.0 | 2009 09 22 | G96 | 0.1+ | 0.3+ | 2009 11 19 | G96 | 0.0 | 0.1− |
| 2005 01 13 | 691 | 0.2− | 0.3− | 2009 09 22 | G96 | 0.2− | 0.4+ | 2009 11 19 | G96 | 0.1+ | 0.1− |
| 2005 01 18 | 703 | 1.0− | 0.4− | 2009 10 14 | 703 | 0.4+ | 0.7+ | 2009 11 19 | 621 | 0.3− | 0.2− |
| 2005 01 18 | 703 | 0.6+ | 0.1+ | 2009 10 14 | 703 | 0.2+ | 0.0 | 2009 11 19 | 621 | 0.1− | 0.4− |
| 2005 01 18 | 703 | (1.9− | 0.1−) | 2009 10 14 | 703 | 0.6+ | 0.2− | 2009 11 19 | 621 | 0.3− | 0.2+ |
| 2005 01 18 | 703 | 0.8− | 0.6+ | 2009 10 14 | 703 | 0.1− | 0.2+ | 2009 11 19 | 621 | 0.1+ | 0.6− |
| 2005 01 19 | 691 | 0.1+ | 0.2+ | 2009 10 18 | J75 | 0.5− | 0.4− | | | | |

**2005 AR$_{49}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 7.11477 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19636101 | $\omega$ | 187.43646 | | −0.28442998 | −0.94438834 | |
| $a$ | 2.9315629 | $\Omega$ | 279.19579 | | +0.88796923 | −0.19462820 | |
| $e$ | 0.0975122 | $i$ | 9.62299 | | +0.36140037 | −0.26504817 | |
| $P$ | 5.02 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 20 | G96 | 0.4+ | 0.2− | 2005 02 01 | 703 | 0.2− | 0.8+ | 2009 10 30 | G96 | 0.0 | 0.3− |
| 2004 12 20 | G96 | 0.3+ | 0.0 | 2005 02 27 | 240 | (0.4− | 2.6+) | 2009 10 30 | G96 | 0.1− | 0.2+ |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 20 | G96 | 0.4+ | 0.2− | 2005 02 27 | 240 | (0.5− | 2.1+) | 2009 10 30 | G96 | 0.1+ | 0.1+ | | | |
| 2004 12 20 | G96 | 0.7+ | 0.2− | 2008 09 06 | 291 | 0.1− | 0.0 | 2009 11 16 | G96 | 0.2+ | 0.4− | | | |
| 2005 01 13 | 704 | 0.1− | 0.4+ | 2008 09 06 | 291 | 0.1− | 0.1+ | 2009 11 16 | G96 | 0.2+ | 0.4− | | | |
| 2005 01 13 | 704 | 0.6+ | 1.2+ | 2008 09 06 | 291 | 0.3− | 0.0 | 2009 11 16 | G96 | 0.1− | 0.0 | | | |
| 2005 01 13 | 703 | 1.4+ | 0.5+ | 2008 10 09 | G96 | 0.1− | 0.1− | 2009 11 16 | G96 | 0.2− | 0.4+ | | | |
| 2005 01 13 | 703 | (0.5− | 1.7−) | 2008 10 09 | G96 | 0.1+ | 0.2+ | 2009 12 15 | G96 | 0.4+ | 0.1− | | | |
| 2005 01 13 | 704 | 0.1+ | 0.9+ | 2008 10 09 | G96 | 0.3+ | 0.3+ | 2009 12 15 | G96 | 0.2+ | 0.1+ | | | |
| 2005 01 13 | 703 | 1.3− | 1.2− | 2008 10 09 | G96 | 0.2− | 0.3+ | 2009 12 15 | G96 | 0.4+ | 0.2− | | | |
| 2005 01 13 | 703 | 0.8+ | 0.8− | 2008 10 31 | G96 | 0.2+ | 0.1− | 2009 12 15 | G96 | 0.1+ | 0.1− | | | |
| 2005 01 18 | 703 | 0.7− | 0.4− | 2008 10 31 | G96 | 0.5+ | 0.1− | 2009 12 19 | 691 | 0.1+ | 0.1− | | | |
| 2005 01 18 | 703 | 0.4+ | 0.2− | 2008 10 31 | G96 | 0.5+ | 0.1+ | 2009 12 19 | 691 | 0.2− | 0.2− | | | |
| 2005 01 18 | 703 | 0.2− | 0.3− | 2008 10 31 | G96 | 0.6+ | 0.1− | 2009 12 19 | 691 | 0.0 | 0.0 | | | |
| 2005 01 18 | 703 | 0.8− | 0.3− | 2009 09 27 | 691 | 0.2+ | 0.7− | 2009 12 27 | 691 | 0.2+ | 0.1− | | | |
| 2005 02 01 | 703 | 0.3− | 0.2+ | 2009 09 27 | 691 | 0.3− | 0.1+ | 2009 12 27 | 691 | 0.3− | 0.2+ | | | |
| 2005 02 01 | 703 | (3.1+ | 0.8−) | 2009 09 27 | 691 | 0.3− | 0.2+ | 2009 12 27 | 691 | 0.2+ | 0.3+ | | | |
| 2005 02 01 | 703 | 0.8− | 0.8+ | 2009 10 30 | G96 | 0.4− | 0.2+ | | | | | | | |

## 2005 $BJ_2$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 301.86798 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17594225 | $\omega$ | 76.88707 | | −0.81127840 | | −0.39108584 |
| $a$ | 3.1542005 | $\Omega$ | 78.64821 | | +0.19000923 | | −0.87935525 |
| $e$ | 0.1912065 | $i$ | 26.31297 | | +0.55292300 | | −0.27163617 |
| $P$ | 5.60 | $H$ | 14.8 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 16 | 704 | 0.2+ | 0.4+ | 2006 05 25 | 644 | 0.0 | 0.1− | 2009 12 11 | G96 | 0.2+ | 0.1+ | | | |
| 2004 12 16 | 704 | 1.0+ | 0.1− | 2006 05 25 | 644 | 0.0 | 0.1− | 2009 12 11 | G96 | 0.3+ | 0.0 | | | |
| 2004 12 16 | 704 | 0.6− | 0.0 | 2006 05 25 | 644 | 0.2+ | 0.5+ | 2009 12 11 | G96 | 0.1− | 0.0 | | | |
| 2005 01 16 | 704 | 0.2− | 0.5+ | 2009 11 17 | 703 | 0.5+ | 0.3− | 2009 12 11 | 703 | 0.6− | 0.2+ | | | |
| 2005 01 16 | 704 | 0.1+ | 0.3+ | 2009 11 17 | 703 | 1.1− | 0.2− | 2009 12 11 | 703 | 0.0 | 0.9− | | | |
| 2005 01 16 | 704 | 0.3+ | 0.2− | 2009 11 17 | 703 | 0.0 | 0.2− | 2009 12 11 | 703 | 1.0− | 0.1− | | | |
| 2005 01 16 | 704 | 0.1− | 0.3+ | 2009 11 17 | 703 | 0.0 | 0.1+ | 2009 12 11 | 703 | 0.5− | 0.1+ | | | |
| 2005 01 16 | 704 | 0.2+ | 0.2+ | 2009 11 27 | G96 | 0.1+ | 0.3− | 2009 12 17 | 704 | 0.2− | 0.9+ | | | |
| 2005 01 19 | 704 | 0.8− | 0.6− | 2009 11 27 | G96 | 0.4+ | 0.2− | 2009 12 17 | 704 | 0.4+ | 0.6− | | | |
| 2005 01 19 | 704 | 0.2+ | 0.4− | 2009 11 27 | G96 | 0.2− | 0.1− | 2009 12 17 | 704 | 0.5+ | 1.0+ | | | |
| 2005 01 19 | 704 | 0.2− | 0.3− | 2009 11 27 | G96 | 0.1+ | 0.1− | 2009 12 17 | 704 | 1.1+ | 1.0+ | | | |
| 2005 01 19 | 704 | 0.4+ | 0.2+ | 2009 11 27 | G96 | 0.3− | 0.1− | | | | | | | |
| 2005 01 19 | 704 | 0.4− | 0.3− | 2009 12 11 | G96 | 0.1− | 0.0 | | | | | | | |

## 2005 $BT_4$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 96.71271 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22555537 | $\omega$ | 100.22264 | | +0.64487242 | | −0.75191809 |
| $a$ | 2.6728049 | $\Omega$ | 308.72139 | | +0.61435241 | | +0.61657310 |
| $e$ | 0.1886954 | $i$ | 10.11059 | | +0.45465447 | | +0.23335979 |
| $P$ | 4.37 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 07 24 | 644 | 0.6− | 0.8+ | 2005 01 16 | 704 | 0.1− | 0.0 | 2005 02 02 | 704 | 0.6− | 0.8+ | | | |
| 2003 07 24 | 644 | 0.6− | 1.1+ | 2005 01 16 | 704 | 0.3+ | 0.7+ | 2005 02 02 | 704 | 0.0 | 1.4+ | | | |
| 2003 07 24 | 644 | 0.4− | 1.0+ | 2005 01 16 | 704 | 0.0 | 0.0 | 2008 10 31 | 703 | 0.4− | 0.1+ | | | |
| 2004 12 15 | 704 | 0.8+ | 0.9+ | 2005 01 17 | 691 | 0.1− | 0.1+ | 2008 10 31 | 703 | 0.4+ | 0.5− | | | |
| 2004 12 15 | 704 | 0.2− | 1.4− | 2005 01 17 | 691 | 0.0 | 0.1− | 2008 10 31 | 703 | 0.1− | 0.7− | | | |
| 2004 12 15 | 704 | 0.1+ | 0.3+ | 2005 01 17 | 691 | 0.1+ | 0.1− | 2008 10 31 | 703 | 0.0 | 0.1− | | | |
| 2004 12 15 | 704 | 0.2− | 0.5+ | 2005 01 19 | 704 | 0.3+ | 0.2− | 2008 11 17 | 703 | 0.2+ | 0.2+ | | | |
| 2005 01 07 | 704 | 0.4− | 0.2− | 2005 01 19 | 704 | 0.5+ | 0.3+ | 2008 11 17 | 703 | 0.9+ | 0.0 | | | |
| 2005 01 07 | 704 | 0.1+ | 0.6− | 2005 01 19 | 704 | 0.0 | 0.0 | 2008 11 17 | 703 | 0.3+ | 0.0 | | | |
| 2005 01 07 | 704 | 0.5+ | 0.5+ | 2005 01 19 | 704 | 0.2− | 0.2− | 2008 11 17 | 703 | 1.2− | 0.2+ | | | |
| 2005 01 07 | 704 | 0.3+ | 0.1− | 2005 02 02 | 704 | 0.2+ | 1.0+ | | | | | | | |

## 2005 $BT_7$ = 2009 $VS_{80}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 341.77352 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18201887 | $\omega$ | 118.09079 | | −0.10342288 | | −0.99437828 |
| $a$ | 3.0836029 | $\Omega$ | 337.81080 | | +0.89016588 | | −0.08235127 |
| $e$ | 0.2611998 | $i$ | 3.44678 | | +0.44374363 | | −0.06655909 |
| $P$ | 5.41 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 03 03 | 645 | 0.0 | 0.1− | 2005 01 18 | 691 | 0.1+ | 0.0 | 2009 11 12 | J75 | 0.9+ | 0.4+ | | | |
| 2000 03 03 | 645 | 0.1− | 0.0 | 2005 01 18 | 691 | 0.1− | 0.0 | 2009 11 20 | J75 | 0.4− | 0.3− | | | |
| 2000 04 10 | 695 | 0.1+ | 0.5+ | 2005 01 18 | 691 | 0.1− | 0.0 | 2009 11 20 | J75 | 0.2+ | 0.1+ | | | |
| 2000 04 10 | 695 | 0.3+ | 0.4+ | 2009 11 08 | 691 | 0.1+ | 0.1− | 2009 11 20 | J75 | 0.6+ | 0.1− | | | |
| 2005 01 07 | 704 | 0.2− | 0.1− | 2009 11 08 | 691 | 0.5− | 0.3+ | 2009 11 21 | 691 | 0.0 | 0.1− | | | |
| 2005 01 07 | 704 | 0.2+ | 0.3+ | 2009 11 08 | 691 | 0.1+ | 0.3− | 2009 11 21 | 691 | 0.2− | 0.1− | | | |
| 2005 01 07 | 704 | 0.8− | 1.0− | 2009 11 08 | 703 | (1.5+ | 1.7−) | 2009 11 21 | 691 | 0.1− | 0.1− | | | |
| 2005 01 16 | 704 | 0.1− | 0.3− | 2009 11 08 | 703 | 0.2+ | 0.2− | 2009 11 23 | 691 | 0.1+ | 0.0 | | | |
| 2005 01 16 | 704 | 0.1+ | 0.6+ | 2009 11 08 | 703 | 0.3+ | 1.1− | 2009 11 23 | 691 | 0.1− | 0.5+ | | | |
| 2005 01 16 | 704 | 0.4+ | 0.4+ | 2009 11 08 | 703 | 0.9+ | 0.0 | 2009 11 23 | 691 | 0.0 | 0.1− | | | |
| 2005 01 16 | 704 | 0.2+ | 0.4+ | 2009 11 12 | J75 | (2.2+ | 0.0 ) | | | | | | | |
| 2005 01 16 | 704 | 0.6+ | 0.2+ | 2009 11 12 | J75 | 0.0 | 0.6+ | | | | | | | |

## 2005 $BO_{23}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 1.21913 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17387937 | $\omega$ | 324.57103 | | +0.10660589 | | −0.98091587 |
| $a$ | 3.1790987 | $\Omega$ | 118.80068 | | +0.94968657 | | +0.05201497 |
| $e$ | 0.0586662 | $i$ | 10.69346 | | +0.29450059 | | +0.18734593 |
| $P$ | 5.67 | $H$ | 15.3 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 20 | G96 | 0.1− | 0.2+ | 2005 01 19 | 691 | 0.1+ | 0.0 | 2009 12 15 | 703 | 1.1− | 0.3− | | | |
| 2004 12 20 | G96 | 0.2− | 0.0 | 2005 01 19 | 691 | 0.1+ | 0.1− | 2009 12 15 | 703 | 0.6+ | 1.0− | | | |
| 2004 12 20 | G96 | 0.1− | 0.1+ | 2005 02 03 | 704 | 0.6− | 0.4+ | 2009 12 15 | 703 | (3.4+ | 1.1−) | | | |
| 2004 12 20 | G96 | 0.1+ | 0.3+ | 2005 02 03 | 704 | 0.5− | 0.3+ | 2009 12 17 | G96 | 0.0 | 0.5+ | | | |
| 2005 01 16 | 691 | 0.2− | 0.0 | 2005 02 03 | 704 | 0.4+ | 1.2+ | 2009 12 17 | G96 | 0.1− | 0.3+ | | | |
| 2005 01 16 | 691 | 0.3+ | 0.1− | 2005 02 03 | 704 | 0.1− | 1.0− | 2009 12 17 | G96 | 0.3+ | 0.1+ | | | |
| 2005 01 16 | 691 | 0.1+ | 0.1+ | 2005 02 03 | 704 | 0.3+ | 0.7− | 2009 12 17 | G96 | 0.3+ | 0.3+ | | | |
| 2005 01 19 | 691 | 0.1− | 0.1− | 2009 12 15 | 703 | (1.7− | 3.2+) | | | | | | | |

## 2005 CJ

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 63.52799 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.42599179 | $\omega$ | 81.59994 | | +0.17730220 | | −0.98415627 |
| $a$ | 1.7493172 | $\Omega$ | 358.18707 | | +0.89532921 | | +0.16155214 |
| $e$ | 0.5255325 | $i$ | 1.08524 | | +0.40859459 | | +0.07305708 |
| $P$ | 2.31 | $H$ | 20.3 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 08 19 | 568 | 0.2− | 0.7+ | 2005 02 10 | F65 | 0.2− | 0.0 | 2005 03 07 | 683 | 0.5− | 1.2+ | | | |
| 2004 08 19 | 568 | 0.1− | 0.8+ | 2005 02 10 | F65 | 0.3− | 0.2+ | 2005 03 07 | 170 | 0.1− | 0.0 | | | |
| 2004 08 20 | 568 | 0.3− | 0.1+ | 2005 02 11 | 649 | 0.5− | 0.1− | 2005 03 07 | 170 | 0.5− | 0.4− | | | |
| 2005 02 01 | 691 | 0.0 | 0.4+ | 2005 02 11 | 649 | 0.2− | 0.2+ | 2005 03 07 | 170 | 0.4− | 0.6− | | | |
| 2005 02 01 | 691 | 0.2− | 0.3+ | 2005 02 11 | 649 | 0.2− | 0.6− | 2005 03 08 | 699 | 1.0+ | 0.5+ | | | |
| 2005 02 01 | 691 | 0.0 | 0.2+ | 2005 02 11 | 649 | 0.2− | 0.5+ | 2005 03 08 | 699 | 0.6+ | 0.3− | | | |
| 2005 02 02 | 691 | 0.5+ | 0.2+ | 2005 02 15 | H41 | 0.4+ | 0.9− | 2005 03 08 | 699 | 0.5+ | 0.6+ | | | |
| 2005 02 02 | 691 | 0.2− | 0.3+ | 2005 02 15 | H41 | 0.4+ | 0.6− | 2005 03 08 | 699 | 0.5+ | 1.0+ | | | |
| 2005 02 02 | 691 | 0.3+ | 0.1+ | 2005 02 15 | H41 | 0.3+ | 0.9− | 2005 03 08 | 704 | 0.3− | 0.5+ | | | |
| 2005 02 03 | H06 | 0.2− | 0.8− | 2005 02 15 | H41 | 0.0 | 0.4− | 2005 03 08 | 704 | 0.3+ | 0.7+ | | | |
| 2005 02 03 | H06 | 0.4+ | 0.4− | 2005 02 15 | H41 | 0.3+ | 0.4− | 2005 03 08 | 704 | 0.3− | 0.1− | | | |
| 2005 02 03 | H06 | 0.4+ | 0.1− | 2005 02 16 | I77 | 0.4− | 0.6− | 2005 03 08 | 704 | 0.2− | 0.1+ | | | |
| 2005 02 03 | H06 | 0.3+ | 0.5+ | 2005 02 16 | I77 | 0.2− | 0.2− | 2005 03 08 | 704 | 0.5+ | 0.6+ | | | |
| 2005 02 03 | 704 | 0.3− | 0.1+ | 2005 02 16 | I77 | 0.3− | 0.1+ | 2005 03 09 | 699 | 0.0 | 0.0 | | | |
| 2005 02 03 | H06 | 0.1− | 0.9− | 2005 02 18 | H41 | 0.7− | 0.4− | 2005 03 09 | 699 | 0.4− | 0.2+ | | | |
| 2005 02 03 | 704 | 0.3− | 0.3+ | 2005 02 18 | F65 | 0.2− | 0.3− | 2005 03 09 | 699 | 0.1− | 0.1− | | | |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 02 03 | H06 | 0.1− | 0.9− | 2005 02 18 | F65 | 0.0 | 0.2− | 2005 03 09 | 699 | 0.3− | 0.2− | 2005 04 05 | G96 | 0.2− | 0.2− | 2008 10 18 | 691 | 0.2− | 0.2+ |
| 2005 02 03 | 704 | 0.1− | 0.2− | 2005 02 18 | F65 | 0.0 | 0.2− | 2005 03 10 | 683 | 0.3+ | 0.5+ | 2005 04 05 | G96 | 0.2+ | 0.0 | 2008 10 26 | G96 | 0.2− | 0.0 |
| 2005 02 03 | 673 | 1.4− | 0.6+ | 2005 02 18 | F65 | 0.1− | 0.0 | 2005 03 10 | 683 | 0.6− | 0.0 | 2005 04 06 | G96 | 0.1− | 0.5− | 2008 10 26 | G96 | 0.3+ | 0.0 |
| 2005 02 03 | 673 | 0.2+ | 0.1− | 2005 02 18 | F65 | 0.2− | 0.1− | 2005 03 10 | 683 | 0.1+ | 0.8+ | 2005 04 06 | G96 | 0.1+ | 0.2− | 2008 10 26 | G96 | 0.3+ | 0.2− |
| 2005 02 03 | 673 | 0.9− | 0.5+ | 2005 02 18 | F65 | 0.2− | 0.1− | 2005 03 11 | 704 | 1.2+ | 0.1+ | 2005 04 06 | G96 | 0.0 | 0.1− | 2008 10 26 | G96 | 0.7+ | 0.3− |
| 2005 02 03 | 673 | 1.2+ | 0.5+ | 2005 02 19 | 176 | 0.2− | 0.1− | 2005 03 11 | 704 | 1.1+ | 0.0 | 2005 04 06 | G96 | 0.2+ | 0.2− | 2009 12 19 | 691 | 0.1+ | 0.4− |
| 2005 02 03 | 704 | 0.1− | 0.1− | 2005 02 19 | 176 | 0.0 | 0.2− | 2005 03 11 | 704 | 1.0+ | 0.1− | 2008 09 22 | 291 | 0.2− | 0.6+ | 2009 12 19 | 691 | 0.0 | 0.5− |
| 2005 02 03 | 474 | 0.8− | 0.3− | 2005 02 19 | 176 | 0.1− | 0.2− | 2005 03 11 | 704 | 0.8+ | 0.2− | 2008 09 22 | 291 | 0.1+ | 0.4+ | 2009 12 19 | 691 | 0.2− | 0.3− |
| 2005 02 03 | 474 | (2.1+ | 0.2−) | 2005 02 19 | 176 | 0.1− | 0.4− | 2005 03 11 | 704 | 0.9+ | 0.1− | 2008 09 22 | 291 | 0.0 | 0.0 | | | | |
| 2005 02 03 | 474 | 0.1+ | 0.0 | 2005 02 19 | 176 | 0.1− | 0.3− | 2005 03 14 | 704 | 0.1− | 0.3+ | 2008 09 22 | 291 | 0.5− | 0.1− | | | | |
| 2005 02 03 | 474 | 0.1+ | 0.6− | 2005 02 19 | F65 | 0.2− | 0.1− | 2005 03 14 | 704 | 0.5− | 0.9+ | | | | | | | | |
| 2005 02 03 | 474 | 0.8+ | 0.7− | 2005 02 19 | F65 | 0.2− | 0.2− | 2005 03 14 | 704 | 0.2+ | 1.1+ | | | | | | | | |
| 2005 02 04 | 704 | 0.2− | 0.8+ | 2005 02 19 | F65 | 0.2− | 0.2− | 2005 03 14 | 704 | 0.5− | 0.3+ | | | | | | | | |
| 2005 02 04 | 704 | 0.7+ | 0.7+ | 2005 02 20 | J95 | 0.8+ | 0.3− | 2005 03 14 | 704 | 0.6− | 0.4+ | | | | | | | | |
| 2005 02 04 | 704 | 0.4+ | 0.3+ | 2005 02 20 | J95 | 0.4− | 0.6− | 2005 03 17 | 704 | 0.5− | 0.8+ | | | | | | | | |
| 2005 02 04 | 704 | 0.5+ | 0.1+ | 2005 02 20 | J95 | 0.2− | 0.4− | 2005 03 17 | 704 | (0.2+ | 1.6+) | | | | | | | | |
| 2005 02 06 | A56 | 1.4+ | 0.2− | 2005 03 01 | 587 | (3.0+ | 1.8−) | 2005 03 17 | 704 | 0.4+ | 1.3+ | | | | | | | | |
| 2005 02 06 | A56 | 1.0+ | 0.1+ | 2005 03 01 | 587 | (1.4+ | 1.7−) | 2005 03 17 | 704 | 0.2+ | 0.6+ | | | | | | | | |
| 2005 02 06 | A56 | 0.7+ | 0.4+ | 2005 03 03 | 704 | 0.2− | 0.0 | 2005 03 18 | 941 | 0.5+ | 0.2− | | | | | | | | |
| 2005 02 07 | 118 | 0.0 | 0.1− | 2005 03 03 | 703 | 0.2− | 0.0 | 2005 03 18 | 941 | 0.3+ | 0.1− | | | | | | | | |
| 2005 02 07 | 118 | 0.2− | 0.1− | 2005 03 03 | 704 | 0.1+ | 0.2− | 2005 03 18 | 941 | 0.1+ | 0.2+ | | | | | | | | |
| 2005 02 07 | 118 | 0.2− | 0.1+ | 2005 03 03 | 703 | 0.3− | 0.1− | 2005 03 18 | 941 | 0.1− | 0.4+ | | | | | | | | |
| 2005 02 07 | 118 | 0.3− | 0.1− | 2005 03 03 | 704 | 0.6− | 0.2+ | 2005 04 02 | G96 | 0.7− | 0.1− | | | | | | | | |
| 2005 02 07 | 118 | 0.3− | 0.0 | 2005 03 03 | 703 | 1.2− | 0.1+ | 2005 04 02 | G96 | 0.4− | 0.1− | | | | | | | | |
| 2005 02 07 | I77 | 0.1+ | 0.1− | 2005 03 03 | 703 | 0.0 | 0.4− | 2005 04 02 | G96 | 0.3− | 0.0 | | | | | | | | |
| 2005 02 07 | I77 | 0.1+ | 0.1− | 2005 03 03 | F65 | 0.2− | 0.2+ | 2005 04 02 | G96 | 0.3− | 0.1+ | | | | | | | | |
| 2005 02 07 | I77 | 0.1− | 0.2− | 2005 03 03 | F65 | 0.2− | 0.0 | 2005 04 06 | G96 | 0.2+ | 0.0 | | | | | | | | |
| 2005 02 10 | 734 | 0.2+ | 0.7+ | 2005 03 03 | F65 | 0.4− | 0.1+ | 2005 04 06 | G96 | 0.4+ | 0.7− | | | | | | | | |
| 2005 02 10 | 734 | 1.1− | 0.6+ | 2005 03 07 | A41 | 0.1− | 0.2+ | 2005 04 06 | G96 | 0.3− | 0.2− | | | | | | | | |
| 2005 02 10 | 734 | 1.3− | 0.2+ | 2005 03 07 | A41 | 1.2+ | 0.1− | 2005 04 06 | G96 | 0.0 | 0.9− | | | | | | | | |
| 2005 02 10 | F65 | 0.1− | 0.2− | 2005 03 07 | A41 | 1.0+ | 0.1+ | | | | | | | | | | | | |
| 2005 02 10 | F65 | 0.0 | 0.2− | 2005 03 07 | 683 | 0.2− | 1.5+ | | | | | | | | | | | | |

### 2005 $CV_3$ = 2009 $XU_{19}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 317.95081 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18545831 | $\omega$ | 58.93172 | | −0.97237512 | −0.20844436 | |
| $a$ | 3.0453591 | $\Omega$ | 108.86016 | | +0.15775765 | −0.91857780 | |
| $e$ | 0.1302619 | $i$ | 6.37415 | | +0.17204403 | −0.33580615 | |
| $P$ | 5.31 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 02 01 | 691 | 0.1+ | 0.1+ | 2005 02 09 | 691 | 0.1+ | 0.1− | 2009 12 18 | 291 | 0.3− | 0.0 | | | |
| 2005 02 01 | 691 | 0.0 | 0.1+ | 2005 02 09 | 691 | 0.0 | 0.1− | 2009 12 18 | 291 | 0.5− | 0.1+ | | | |
| 2005 02 01 | 691 | 0.0 | 0.0 | 2009 12 15 | G96 | 0.3+ | 0.0 | 2009 12 26 | 691 | 0.4+ | 0.2+ | | | |
| 2005 02 02 | 691 | 0.1− | 0.2+ | 2009 12 15 | G96 | 1.0+ | 0.2− | 2009 12 26 | 691 | 0.1+ | 0.4− | | | |
| 2005 02 02 | 691 | 0.2− | 0.1− | 2009 12 15 | G96 | 0.0 | 0.2− | 2009 12 26 | 691 | 0.0 | 0.0 | | | |
| 2005 02 02 | 691 | 0.2+ | 0.1− | 2009 12 15 | G96 | 0.6+ | 0.1− | | | | | | | |
| 2005 02 09 | 691 | 0.0 | 0.1− | 2009 12 18 | 291 | 0.2− | 0.2+ | | | | | | | |

### 2005 $CH_{16}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 323.75322 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18458909 | $\omega$ | 217.41011 | | −0.83466360 | −0.54869616 | |
| $a$ | 3.0549119 | $\Omega$ | 289.24679 | | +0.51672232 | −0.75021116 | |
| $e$ | 0.1851830 | $i$ | 2.89216 | | +0.19061667 | −0.36893867 | |
| $P$ | 5.34 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 19 | 691 | 0.0 | 0.3− | 2005 03 02 | 703 | 0.2− | 1.0+ | 2008 09 22 | 291 | 0.1+ | 0.2+ | | | |
| 2003 10 19 | 691 | 0.2+ | 0.3− | 2005 03 09 | G96 | 0.2− | 0.2− | 2008 09 22 | 291 | 0.2+ | 0.3+ | | | |
| 2003 10 19 | 691 | 0.0 | 0.0 | 2005 03 09 | G96 | 0.0 | 0.2− | 2008 09 22 | 291 | 0.0 | 0.2+ | | | |
| 2005 02 02 | 704 | 0.8+ | 0.0 | 2005 03 09 | G96 | 0.1+ | 0.1− | 2008 09 22 | 291 | 0.6− | 0.1+ | | | |
| 2005 02 02 | 704 | 0.8+ | 0.7+ | 2005 03 09 | G96 | 0.2+ | 0.1+ | 2008 09 22 | 291 | 0.3− | 0.2+ | | | |
| 2005 02 02 | 704 | 0.4+ | 0.0 | 2005 04 05 | G96 | 0.2+ | 0.1+ | 2008 10 18 | 691 | 0.1− | 0.2− | | | |
| 2005 02 02 | 704 | 0.5+ | 1.1+ | 2005 04 05 | G96 | 0.4+ | 0.2− | 2008 10 18 | 691 | 0.3+ | 0.1− | | | |
| 2005 02 04 | 691 | 0.3+ | 0.3+ | 2005 04 05 | G96 | 0.2− | 0.2− | 2008 10 18 | 691 | 0.2− | 0.2+ | | | |
| 2005 02 04 | 691 | 0.2+ | 0.3+ | 2005 04 05 | G96 | 0.2+ | 0.0 | 2008 10 26 | G96 | 0.2− | 0.0 | | | |
| 2005 02 04 | 691 | 0.0 | 0.4+ | 2005 04 06 | G96 | 0.1− | 0.5− | 2008 10 26 | G96 | 0.3+ | 0.0 | | | |
| 2005 02 04 | 699 | 0.6− | 0.2+ | 2005 04 06 | G96 | 0.1+ | 0.2− | 2008 10 26 | G96 | 0.3+ | 0.2− | | | |
| 2005 02 04 | 699 | 0.9− | 0.2+ | 2005 04 06 | G96 | 0.0 | 0.1− | 2008 10 26 | G96 | 0.7+ | 0.3− | | | |
| 2005 02 04 | 699 | 0.1− | 0.5+ | 2005 04 06 | G96 | 0.2+ | 0.2− | 2009 12 19 | 691 | 0.1+ | 0.4− | | | |
| 2005 02 04 | 699 | 0.7+ | 0.0 | 2008 09 22 | 291 | 0.2− | 0.6+ | 2009 12 19 | 691 | 0.0 | 0.5− | | | |
| 2005 03 02 | 703 | 0.6− | 0.5+ | 2008 09 22 | 291 | 0.1+ | 0.4+ | 2009 12 19 | 691 | 0.2− | 0.3− | | | |
| 2005 03 02 | 703 | 0.1− | 0.2− | 2008 09 22 | 291 | 0.0 | 0.0 | | | | | | | |
| 2005 03 02 | 703 | 0.7− | 0.4+ | 2008 09 22 | 291 | 0.5− | 0.1− | | | | | | | |

### 2005 $CM_{27}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 339.47190 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17416570 | $\omega$ | 305.44753 | | +0.00626442 | −0.98404700 | |
| $a$ | 3.1756134 | $\Omega$ | 142.94123 | | +0.98617442 | −0.02336369 | |
| $e$ | 0.2058995 | $i$ | 17.15967 | | +0.16559220 | +0.17636792 | |
| $P$ | 5.66 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 01 07 | 703 | 0.4+ | 0.2− | 2005 02 03 | 704 | 0.5+ | 1.7+ | 2009 10 01 | G96 | 0.1− | 0.0 | | | |
| 2005 01 07 | 703 | 1.1− | 0.0 | 2005 02 03 | 704 | 0.7+ | 0.8+ | 2009 10 01 | G96 | 0.7+ | 0.2− | | | |
| 2005 01 07 | 703 | 1.1− | 0.3− | 2005 03 09 | G96 | 0.1− | 0.6− | 2009 11 18 | 703 | 1.0− | 0.3+ | | | |
| 2005 01 07 | 703 | 0.3+ | 0.5− | 2005 03 09 | G96 | 0.3+ | 0.4− | 2009 11 18 | 703 | 0.6+ | 0.5− | | | |
| 2005 02 02 | 704 | 0.0 | 0.1− | 2005 03 09 | G96 | 0.2+ | 0.4− | 2009 11 18 | 703 | 0.6+ | 0.2− | | | |
| 2005 02 02 | 704 | 0.7+ | 0.3− | 2005 03 09 | G96 | 0.3+ | 0.4− | 2009 11 18 | 703 | 1.1− | 0.4− | | | |
| 2005 02 02 | 704 | 0.4+ | 0.4+ | 2009 10 01 | G96 | 0.3+ | 0.5+ | | | | | | | |
| 2005 02 03 | 704 | 1.3− | 0.2+ | 2009 10 01 | G96 | 0.1+ | 0.4+ | | | | | | | |

### 2005 $CV_{27}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 337.21970 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17196249 | $\omega$ | 127.83855 | | −0.34754170 | −0.93397849 | |
| $a$ | 3.2026802 | $\Omega$ | 341.95212 | | +0.75385077 | −0.22563618 | |
| $e$ | 0.2113104 | $i$ | 15.55112 | | +0.55760541 | −0.27707849 | |
| $P$ | 5.73 | $H$ | 15.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 02 02 | 703 | 0.6+ | 1.2− | 2005 03 08 | 699 | 0.1+ | 0.3+ | 2005 03 17 | 703 | 0.4− | 0.4− | | | |
| 2005 02 02 | 703 | 0.1+ | 1.0− | 2005 03 08 | 699 | 0.1+ | 0.3− | 2005 03 17 | 703 | 0.4− | 1.1+ | | | |
| 2005 02 02 | 703 | 1.2+ | 0.1+ | 2005 03 08 | 699 | 0.1− | 0.7− | 2005 03 30 | 703 | 0.7+ | 1.5− | | | |
| 2005 02 02 | 703 | 1.6− | 0.5+ | 2005 03 08 | 699 | 0.3− | 0.4− | 2005 03 30 | 703 | 0.4+ | 0.7+ | | | |
| 2005 02 03 | 704 | 0.5+ | 1.3+ | 2005 03 08 | 704 | 0.7+ | 0.1+ | 2005 03 30 | 703 | (2.1− | 0.8+) | | | |
| 2005 02 03 | 704 | 0.9+ | 0.0 | 2005 03 08 | 704 | 1.5+ | 1.1+ | 2005 03 30 | 644 | 0.2+ | 0.5+ | | | |
| 2005 02 03 | 704 | 0.2+ | 0.6+ | 2005 03 08 | 704 | 0.3+ | 0.7+ | 2005 03 30 | 703 | 0.6+ | 0.0 | | | |
| 2005 02 03 | 704 | 0.3+ | 0.1− | 2005 03 08 | 704 | 0.9+ | 0.2+ | 2005 03 30 | 644 | 0.3+ | 0.5+ | | | |
| 2005 02 03 | 704 | 1.0+ | 0.6+ | 2005 03 08 | 704 | 0.4+ | 0.7+ | 2005 03 30 | 644 | 0.2+ | 0.3+ | | | |
| 2005 02 14 | 704 | 0.6+ | 1.1+ | 2005 03 09 | 704 | 0.1+ | 1.1+ | 2005 04 12 | G96 | 0.1+ | 0.3+ | | | |
| 2005 02 14 | 704 | 0.0 | 0.5+ | 2005 03 09 | 704 | 0.7+ | 0.2− | 2005 04 12 | G96 | 0.0 | 0.3+ | | | |
| 2005 02 14 | 704 | 0.2− | 0.3+ | 2005 03 09 | 704 | 0.5+ | 0.8+ | 2005 04 12 | G96 | 0.3+ | 0.4+ | | | |
| 2005 03 03 | 703 | 0.7− | 0.3− | 2005 03 09 | 704 | 0.2+ | 0.3+ | 2005 04 12 | G96 | 0.2+ | 0.3+ | | | |
| 2005 03 03 | 703 | 0.5− | 0.6+ | 2005 03 17 | 704 | 0.8+ | 0.6+ | 2008 08 07 | 691 | 0.0 | 0.4+ | | | |
| 2005 03 03 | 703 | 0.4− | 0.2− | 2005 03 17 | 704 | 0.4+ | 0.4+ | 2008 08 07 | 691 | 0.4− | 0.6+ | | | |
| 2005 03 03 | 703 | 0.4− | 0.2+ | 2005 03 17 | 704 | 0.2+ | 0.2+ | 2008 08 07 | 691 | 0.3− | 0.8+ | | | |
| 2005 03 04 | G96 | 0.5− | 0.1− | 2005 03 17 | 704 | 0.1+ | 0.2− | 2008 09 19 | 691 | 0.3− | 0.3+ | | | |
| 2005 03 04 | G96 | 0.7− | 0.2− | 2005 03 17 | 704 | 0.8+ | 1.1− | 2008 09 19 | 691 | 0.4− | 0.2+ | | | |
| 2005 03 04 | G96 | 0.4− | 0.2− | 2005 03 17 | 703 | 1.4− | 0.3− | 2008 09 19 | 691 | 0.4− | 0.1+ | | | |
| 2005 03 04 | G96 | 0.4− | 0.0 | 2005 03 17 | 703 | 1.0− | 0.2+ | | | | | | | |

**2005 CC$_{30}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 87.54587 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.12400823 | $\omega$ | 219.31520 | | +0.39878913 | | +0.91479141 |
| $a$ | 3.9826215 | $\Omega$ | 74.27223 | | −0.82366189 | | +0.38808879 |
| $e$ | 0.1542564 | $i$ | 3.82535 | | −0.40317282 | | +0.11199894 |
| $P$ | 7.95 | $H$ | 14.8 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 02 01 | 691 | 0.4+ | 0.7+ | 2005 02 04 | G96 | 0.7− | 0.2− | 2009 09 15 | 691 | 0.4− | 0.4− |
| 2005 02 01 | 691 | 0.6− | 0.2− | 2005 02 09 | 691 | 0.1− | 0.1+ | 2009 09 15 | 691 | 0.1− | 0.1− |
| 2005 02 01 | 691 | 0.2+ | 0.3− | 2005 02 09 | 691 | 0.1− | 0.2+ | 2009 09 15 | 691 | 0.1+ | 0.1− |
| 2005 02 04 | G96 | 0.1− | 0.6− | 2005 02 09 | 691 | 0.2+ | 0.1− | 2009 09 27 | 691 | 0.0 | 0.3+ |
| 2005 02 04 | G96 | 0.2+ | 0.8− | 2005 03 11 | 695 | 0.1+ | 0.1+ | 2009 09 27 | 691 | 0.5+ | 0.0 |
| 2005 02 04 | G96 | 0.2+ | 0.3− | 2005 03 11 | 695 | 0.0 | 0.2+ | 2009 09 27 | 691 | 0.1− | 0.3+ |

**2005 CG$_{43}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 342.65282 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17604284 | $\omega$ | 321.97432 | | −0.13349419 | | −0.96675378 |
| $a$ | 3.1529988 | $\Omega$ | 134.48259 | | +0.96761022 | | −0.17472032 |
| $e$ | 0.1879623 | $i$ | 17.79957 | | +0.21426566 | | +0.18670817 |
| $P$ | 5.60 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 10 | 807 | 0.0 | 0.8+ | 2005 02 02 | 704 | 0.2+ | 0.2+ | 2005 02 14 | 704 | (2.6+ | 2.8+) |
| 2002 08 10 | 807 | 0.1+ | 0.8+ | 2005 02 02 | 703 | 0.8− | 0.0 | 2005 02 14 | 704 | 0.1+ | 0.5− |
| 2005 01 06 | 704 | 0.4− | 0.3− | 2005 02 02 | 703 | 1.2− | 0.1+ | 2005 02 14 | 704 | 1.0+ | 0.2− |
| 2005 01 06 | 704 | 0.5− | 0.4+ | 2005 02 02 | 704 | 0.2− | 0.3− | 2005 03 16 | 691 | 0.2+ | 0.0 |
| 2005 01 06 | 704 | 0.6− | 0.4+ | 2005 02 02 | 703 | 0.4− | 0.5+ | 2005 03 16 | 691 | 0.0 | 0.0 |
| 2005 01 17 | 691 | 0.1+ | 0.0 | 2005 02 02 | 703 | 0.9− | 0.1+ | 2005 03 16 | 691 | 0.0 | 0.1− |
| 2005 01 17 | 691 | 0.0 | 0.1+ | 2005 02 09 | 704 | 0.0 | 0.0 | 2009 11 17 | 703 | 0.3+ | 0.7+ |
| 2005 01 17 | 691 | 0.1+ | 0.1− | 2005 02 09 | 704 | 1.3+ | 0.1− | 2009 11 17 | 703 | 0.2− | 0.4− |
| 2005 02 02 | 704 | 1.0+ | 0.4+ | 2005 02 09 | 704 | 0.4− | 0.3+ | 2009 11 17 | 703 | 0.1− | 1.2− |
| 2005 02 02 | 704 | 0.0 | 0.1+ | 2005 02 09 | 704 | 0.1+ | 0.6+ | 2009 11 17 | 703 | 0.1+ | 0.9+ |

**2005 CT$_{45}$ = 2005 EB$_{62}$ = 2007 PM$_{48}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 242.59527 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18050460 | $\omega$ | 262.11163 | | −0.55847306 | | +0.82192358 |
| $a$ | 3.1008246 | $\Omega$ | 332.97304 | | −0.63021293 | | −0.50821446 |
| $e$ | 0.0348858 | $i$ | 14.27212 | | −0.53938808 | | −0.25721527 |
| $P$ | 5.46 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 02 02 | 691 | 0.1+ | 0.5− | 2005 03 04 | G96 | 0.3− | 0.2− | 2005 03 08 | G96 | 0.1− | 0.1+ |
| 2005 02 02 | 691 | 0.2+ | 0.1+ | 2005 03 04 | G96 | 0.1+ | 0.2+ | 2007 08 15 | F85 | 0.2+ | 0.1+ |
| 2005 02 02 | 691 | 0.2− | 0.4+ | 2005 03 04 | G96 | 0.2− | 0.1+ | 2007 08 15 | F85 | 0.7+ | 0.1+ |
| 2005 02 09 | G96 | 0.1+ | 0.1− | 2005 03 04 | G96 | 0.0 | 0.2+ | 2007 08 15 | F85 | 0.7+ | 0.4− |
| 2005 02 09 | G96 | 0.4− | 0.1− | 2005 03 08 | G96 | 0.4+ | 0.0 | 2007 08 16 | F85 | 0.3− | 0.1− |
| 2005 02 09 | G96 | 0.2− | 0.1+ | 2005 03 08 | G96 | 0.1+ | 0.1+ | 2007 08 16 | F85 | 0.0 | 0.6− |
| 2005 02 09 | G96 | 0.2− | 0.1+ | 2005 03 08 | G96 | 0.2+ | 0.4− | 2007 08 16 | F85 | 1.4− | 0.8+ |

**2005 CO$_{49}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 277.94918 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.16903974 | $\omega$ | 0.96163 | | −0.97762495 | | +0.21032023 |
| $a$ | 3.2394915 | $\Omega$ | 191.18173 | | −0.19312984 | | −0.90467847 |
| $e$ | 0.2919436 | $i$ | 1.13864 | | −0.08336854 | | −0.37057019 |
| $P$ | 5.83 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 01 14 | 691 | 0.1− | 0.3− | 2005 03 02 | 703 | 0.4− | 0.0 | 2005 03 17 | 704 | 1.4− | 1.4− |
| 1999 01 14 | 691 | 0.0 | 0.5− | 2005 03 02 | 703 | 0.6− | 0.3+ | 2005 03 17 | 704 | 0.3+ | 0.7+ |
| 1999 01 14 | 691 | 0.3− | 0.3− | 2005 03 02 | 703 | 0.3+ | 0.9+ | 2005 03 17 | 704 | 1.1− | 0.8− |
| 2003 11 19 | 691 | 0.1+ | 0.2+ | 2005 03 02 | 703 | 0.5− | 0.4− | 2005 03 17 | 704 | 0.5− | 0.6+ |
| 2003 11 19 | 691 | 0.2− | 0.4+ | 2005 03 08 | 704 | 0.8+ | 0.3− | 2007 09 10 | G96 | 0.1− | 0.4− |
| 2003 11 19 | 691 | 0.0 | 0.2+ | 2005 03 08 | 704 | 0.7+ | 0.0 | 2007 09 10 | G96 | 0.6+ | 0.5− |
| 2005 02 02 | 703 | 1.2− | 0.2+ | 2005 03 08 | 704 | 0.7+ | 0.3− | 2007 09 10 | G96 | 0.3− | 0.3− |
| 2005 02 02 | 704 | 0.5− | 0.4+ | 2005 03 08 | 704 | 0.2+ | 0.4+ | 2007 09 10 | G96 | 0.3− | 0.6− |
| 2005 02 02 | 703 | 1.0− | 0.1+ | 2005 03 08 | G96 | 0.3− | 0.2− | 2008 10 20 | G96 | 0.8+ | 0.6+ |
| 2005 02 02 | 703 | 0.0 | 0.8− | 2005 03 08 | 704 | 0.3− | 0.5+ | 2008 10 20 | G96 | 0.3+ | 0.2+ |
| 2005 02 02 | 704 | 0.1− | 0.3− | 2005 03 08 | G96 | 0.4− | 0.0 | 2008 10 20 | G96 | 0.3− | 0.2+ |
| 2005 02 02 | 703 | 1.1− | 0.8+ | 2005 03 08 | G96 | 0.2− | 0.0 | 2008 10 20 | G96 | 0.2+ | 0.3+ |
| 2005 02 02 | 704 | 0.2+ | 0.3+ | 2005 03 08 | G96 | 0.1− | 0.2− | 2009 11 27 | G96 | 0.7− | 0.3+ |
| 2005 02 02 | 704 | 1.0− | 0.4− | 2005 03 09 | 704 | 0.1+ | 0.2+ | 2009 11 27 | G96 | 0.1− | 0.3− |
| 2005 02 09 | 699 | 1.2+ | 0.2− | 2005 03 09 | 704 | 1.1+ | 0.3+ | 2009 11 27 | G96 | 0.2− | 0.1+ |
| 2005 02 09 | 699 | 0.2+ | 0.7+ | 2005 03 09 | 704 | 0.0 | 0.3− | 2009 11 27 | G96 | 0.1+ | 0.1− |
| 2005 02 09 | 699 | 1.4+ | 0.3+ | 2005 03 09 | 704 | 0.7− | 0.4+ | 2009 11 27 | G96 | 0.5− | 0.0 |
| 2005 02 09 | 704 | 0.7+ | 0.9+ | 2005 03 09 | 704 | 0.5+ | 0.8+ | 2009 12 15 | G96 | 0.2− | 0.4− |
| 2005 02 09 | 704 | 1.2+ | 0.2+ | 2005 03 11 | 704 | 0.2+ | 0.6− | 2009 12 15 | G96 | 0.9+ | 0.8− |
| 2005 02 09 | 699 | (2.0+ | 0.1−) | 2005 03 11 | 704 | 0.3+ | 0.4− | 2009 12 15 | G96 | 0.3− | 0.2+ |
| 2005 02 09 | 704 | (0.5+ | 1.6+) | 2005 03 11 | 704 | 0.3− | 0.8+ | 2009 12 15 | G96 | 0.3+ | 0.2− |
| 2005 02 09 | 704 | 1.3+ | 0.9+ | 2005 03 11 | 704 | 0.6− | 0.5− | | | | |
| 2005 02 09 | 704 | 0.9+ | 0.5− | 2005 03 11 | 704 | 1.0+ | 0.2− | | | | |

**2005 CV$_{53}$ = 2009 WQ$_{81}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 359.98171 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18452092 | $\omega$ | 279.13688 | | +0.20000045 | | −0.97841610 |
| $a$ | 3.0556644 | $\Omega$ | 159.10618 | | +0.94643629 | | +0.17919382 |
| $e$ | 0.3486023 | $i$ | 8.38046 | | +0.25349196 | | +0.10291502 |
| $P$ | 5.34 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 02 12 | 645 | 0.0 | 0.2− | 2005 02 09 | 699 | 1.3+ | 0.6+ | 2009 11 08 | 703 | 0.6+ | 0.3− |
| 2000 02 12 | 645 | 0.0 | 0.2− | 2005 02 09 | 704 | 0.3+ | 0.4− | 2009 11 18 | J75 | 0.3− | 0.0 |
| 2003 10 01 | 691 | 0.5− | 0.7+ | 2005 02 09 | 704 | 0.5+ | 0.4+ | 2009 11 18 | J75 | 0.5+ | 0.0 |
| 2003 10 01 | 691 | 0.2+ | 0.5+ | 2005 02 09 | 704 | 0.6+ | 1.1+ | 2009 11 18 | J75 | 0.3+ | 0.1− |
| 2003 10 01 | 691 | 0.1− | 0.5+ | 2005 02 09 | 704 | 0.7+ | 0.6− | 2009 11 22 | 703 | 0.2− | 0.3− |
| 2005 01 13 | 704 | 1.0− | 0.9+ | 2005 02 09 | 704 | 0.6− | 0.3+ | 2009 11 22 | 703 | 0.0 | 0.0 |
| 2005 01 13 | 704 | 0.2+ | 0.9+ | 2005 03 08 | 704 | 0.1+ | 0.0 | 2009 11 22 | 703 | 0.7− | 0.3− |
| 2005 01 13 | 704 | 0.3+ | 1.3+ | 2005 03 08 | 704 | 1.3− | 1.2− | 2009 11 22 | 703 | 0.6− | 0.1+ |
| 2005 01 13 | 704 | 0.4− | 0.4+ | 2005 03 08 | 704 | 1.0+ | 0.2+ | 2009 11 22 | 703 | 0.3+ | 0.4− |
| 2005 02 02 | 704 | 0.1− | 0.1+ | 2005 03 08 | 704 | 1.0+ | 1.2+ | 2009 11 23 | 703 | 0.7− | 0.3− |
| 2005 02 02 | 704 | 0.6+ | 0.2+ | 2005 03 08 | 704 | 0.1+ | 0.6+ | 2009 11 23 | 703 | 1.1− | 1.2− |
| 2005 02 02 | 704 | 0.8+ | 0.2− | 2005 03 11 | G96 | 0.5− | 0.2− | 2009 11 23 | 703 | 0.5− | 0.8− |
| 2005 02 02 | 704 | 0.0 | 0.4+ | 2005 03 11 | G96 | 0.4− | 0.2− | 2009 11 23 | 703 | 0.2+ | 0.4− |
| 2005 02 02 | 704 | 1.0− | 0.6+ | 2005 03 11 | G96 | 0.6− | 0.2− | 2009 11 23 | 703 | 0.4+ | 0.3− |
| 2005 02 04 | 704 | 1.0− | 0.6+ | 2005 03 11 | G96 | 0.7− | 0.1− | 2009 12 10 | J75 | 0.7+ | 0.1+ |
| 2005 02 04 | 704 | 0.4− | 1.0+ | 2009 09 20 | 703 | 0.6+ | 1.1+ | 2009 12 10 | J75 | 0.1+ | 0.3− |
| 2005 02 04 | 704 | 0.7+ | 1.3+ | 2009 09 20 | 703 | 0.8+ | 0.3+ | 2009 12 10 | J75 | 0.5+ | 0.5− |
| 2005 02 04 | 704 | 0.4+ | 0.9+ | 2009 09 20 | 703 | 1.1+ | 0.9+ | 2009 12 14 | 704 | (1.9+ | 0.5−) |
| 2005 02 04 | 704 | 1.0+ | 0.5+ | 2009 09 20 | 703 | 0.8− | 0.1+ | 2009 12 14 | 704 | 0.1+ | 0.4− |
| 2005 02 09 | 699 | (3.0+ | 0.2+) | 2009 11 08 | 703 | 0.0 | 0.1− | 2009 12 14 | 704 | 0.2− | 0.1− |
| 2005 02 09 | 699 | 0.3− | 0.7+ | 2009 11 08 | 703 | 0.9+ | 0.2− | 2009 12 14 | 704 | 0.5− | 0.3+ |
| 2005 02 09 | 699 | 0.2+ | 0.1+ | 2009 11 08 | 703 | 0.1+ | 0.6− | 2009 12 14 | 704 | (0.2− | 1.7+) |

**2005 CM$_{62}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 117.25748 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.26795675 | $\omega$ | 39.82405 | | −0.79935304 | | −0.59050237 |
| $a$ | 2.3828292 | $\Omega$ | 103.63514 | | +0.51805077 | | −0.77096951 |
| $e$ | 0.1586433 | $i$ | 6.56411 | | +0.30439798 | | −0.23856438 |
| $P$ | 3.68 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 20 | G96 | 0.2− | 0.1+ | 2005 02 14 | 704 | 0.6+ | 0.5+ | 2009 03 31 | 703 | (1.7− | 0.3−) |
| 2004 12 20 | G96 | 0.2− | 0.0 | 2005 02 14 | 704 | 0.7+ | 0.3− | 2009 03 31 | 703 | (1.5− | 1.8−) |
| 2004 12 20 | G96 | 0.2− | 0.2+ | 2005 02 14 | 704 | 0.7+ | 0.9+ | 2009 04 17 | 703 | (1.9+ | 1.0−) |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 20 | G96 | 0.0 | 0.0 | 2005 03 01 | 703 | 0.3− | 0.6+ | 2009 04 17 | 703 | 0.1+ | 0.7+ | | |
| 2005 01 19 | 691 | 0.0 | 0.1− | 2005 03 01 | 703 | 1.3− | 0.4− | 2009 04 17 | 703 | 1.0− | 0.3+ | | |
| 2005 01 19 | 691 | 0.1− | 0.1− | 2005 03 01 | 703 | 1.5− | 0.9− | 2009 04 17 | 703 | 0.5− | 0.4+ | | |
| 2005 01 19 | 691 | 0.0 | 0.3− | 2005 03 01 | 703 | 0.5− | 0.9− | 2009 04 28 | 703 | 0.2− | 0.5+ | | |
| 2005 02 09 | 699 | 1.5+ | 1.3+ | 2009 03 23 | D29 | 0.1+ | 0.0 | 2009 04 28 | 703 | 0.8+ | 0.9− | | |
| 2005 02 09 | 699 | 0.9+ | 0.0 | 2009 03 23 | D29 | 0.2− | 0.3− | 2009 04 28 | 703 | 0.5− | 0.1− | | |
| 2005 02 09 | 699 | 0.3− | 0.6+ | 2009 03 23 | D29 | 0.5− | 0.1+ | 2009 04 28 | 703 | 0.8+ | 0.3+ | | |
| 2005 02 09 | 699 | 0.4+ | 0.1+ | 2009 03 23 | D29 | 1.1+ | 1.0− | | | | | | |
| 2005 02 14 | 704 | 0.1− | 0.2+ | 2009 03 31 | 703 | (2.7− | 0.8−) | | | | | | |

### 2005 $CZ_{63}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 288.93583 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17619580 | $\omega$ | 200.03233 | | −0.99341039 | +0.08765145 | |
| $a$ | 3.1511737 | $\Omega$ | 344.43648 | | −0.02229252 | −0.77976941 | |
| $e$ | 0.1475510 | $i$ | 15.97540 | | −0.11242258 | −0.61990071 | |
| $P$ | 5.59 | $H$ | 15.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 02 01 | 691 | 0.1+ | 0.1− | 2005 03 02 | 703 | 0.3+ | 0.3− | 2005 03 16 | 704 | 0.5− | 1.3+ | | |
| 2005 02 01 | 691 | 0.2− | 0.1− | 2005 03 02 | 703 | 0.1− | 0.4+ | 2005 03 16 | 703 | 0.8− | 0.2− | | |
| 2005 02 01 | 691 | 0.1− | 0.1− | 2005 03 04 | 704 | 1.5+ | 0.2+ | 2005 03 16 | 704 | 0.3+ | 1.2+ | | |
| 2005 02 02 | 703 | 0.6+ | 1.8+ | 2005 03 04 | 704 | 0.4+ | 0.2+ | 2005 03 16 | 703 | 0.1+ | 0.3+ | | |
| 2005 02 02 | 703 | (2.3− | 1.2−) | 2005 03 04 | 704 | 1.9+ | 1.3+ | 2005 03 16 | 703 | 0.0 | 0.3+ | | |
| 2005 02 02 | 703 | 0.0 | 1.2− | 2005 03 04 | 704 | 0.2− | 1.0+ | 2005 03 16 | 703 | 1.2− | 1.0− | | |
| 2005 02 02 | 703 | (2.0− | 2.1−) | 2005 03 04 | 704 | 1.2+ | 0.8+ | 2005 03 16 | 704 | 0.1− | 0.9− | | |
| 2005 02 09 | 699 | 0.6− | 0.1+ | 2005 03 09 | 704 | 0.9− | 0.3+ | 2005 04 04 | G96 | 0.3− | 0.0 | | |
| 2005 02 09 | 699 | 0.3+ | 0.1− | 2005 03 09 | 704 | 0.1+ | 0.6− | 2005 04 04 | G96 | 0.5− | 0.1− | | |
| 2005 02 09 | 699 | 0.1− | 0.2− | 2005 03 09 | 704 | 0.1+ | 0.4− | 2005 04 04 | G96 | 0.3− | 0.0 | | |
| 2005 02 09 | 699 | 0.3− | 0.1+ | 2005 03 09 | 704 | 0.3+ | 0.5− | 2005 04 04 | G96 | 0.3− | 0.0 | | |
| 2005 02 14 | 704 | 0.3− | 0.6− | 2005 03 09 | 704 | 0.6+ | 0.2+ | 2008 10 10 | G96 | 0.0 | 0.1+ | | |
| 2005 02 14 | 704 | 0.6+ | 0.7− | 2005 03 10 | 699 | 0.0 | 0.4+ | 2008 10 10 | G96 | 0.5+ | 0.1+ | | |
| 2005 02 14 | 704 | 0.8+ | 0.3− | 2005 03 10 | 699 | 1.2− | 0.4− | 2008 10 10 | G96 | 0.0 | 0.3+ | | |
| 2005 02 14 | 704 | 0.1+ | 0.4− | 2005 03 10 | 699 | 1.7− | 0.2− | 2008 10 10 | G96 | 0.1+ | 0.2+ | | |
| 2005 02 14 | 704 | 0.9+ | 0.2+ | 2005 03 10 | 699 | 0.1− | 0.1+ | 2008 11 01 | G96 | 0.3− | 0.3− | | |
| 2005 03 01 | 185 | 0.5+ | 0.3+ | 2005 03 12 | 704 | 0.2+ | 0.2− | 2008 11 01 | G96 | 0.2+ | 0.1− | | |
| 2005 03 01 | 185 | 1.0+ | 0.3− | 2005 03 12 | 704 | 0.0 | 0.2+ | 2008 11 01 | G96 | 0.3− | 0.1+ | | |
| 2005 03 01 | 185 | 0.8− | 0.4− | 2005 03 12 | 704 | 0.5− | 0.5+ | 2008 11 01 | G96 | 0.2− | 0.4− | | |
| 2005 03 02 | 703 | 0.0 | 0.2− | 2005 03 12 | 704 | 0.1− | 0.3− | | | | | | |
| 2005 03 02 | 703 | 0.7− | 0.4− | 2005 03 12 | 704 | 0.1− | 0.3− | | | | | | |

### 2005 $CJ_{65}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 265.63618 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17600679 | $\omega$ | 231.01691 | | −0.83001845 | +0.53465624 | |
| $a$ | 3.1534293 | $\Omega$ | 339.67911 | | −0.25298255 | −0.61462830 | |
| $e$ | 0.0872563 | $i$ | 27.20802 | | −0.49706056 | −0.57997824 | |
| $P$ | 5.60 | $H$ | 15.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 02 03 | 704 | 0.0 | 0.6+ | 2005 02 14 | 704 | 0.2+ | 0.7− | 2005 04 12 | G96 | 0.2− | 0.2− | | |
| 2005 02 03 | 704 | 0.4+ | 0.8+ | 2005 02 14 | 704 | 1.7+ | 1.1− | 2007 09 13 | G96 | 0.4+ | 0.0 | | |
| 2005 02 03 | 704 | 0.5+ | 0.1− | 2005 03 17 | 703 | 0.9− | 1.4+ | 2007 09 13 | G96 | 0.1− | 0.1− | | |
| 2005 02 03 | 704 | 1.4− | 0.5− | 2005 03 17 | 703 | 0.7− | 1.2+ | 2007 09 13 | G96 | 0.0 | 0.1− | | |
| 2005 02 09 | 691 | 0.1− | 0.1− | 2005 03 17 | 703 | 0.7− | 0.5− | 2007 09 13 | G96 | 0.1+ | 0.3− | | |
| 2005 02 09 | 691 | 0.1+ | 0.2− | 2005 03 17 | 703 | 0.6− | 1.0+ | 2007 10 10 | G96 | 0.7+ | 0.3− | | |
| 2005 02 09 | 691 | 0.1− | 0.2− | 2005 04 12 | G96 | 0.0 | 0.3− | 2007 10 10 | G96 | 0.1− | 0.1− | | |
| 2005 02 14 | 704 | 0.7+ | 0.8− | 2005 04 12 | G96 | 0.2− | 0.1+ | 2007 10 10 | G96 | 0.1− | 0.2+ | | |
| 2005 02 14 | 704 | 1.2+ | 0.0 | 2005 04 12 | G96 | 0.3− | 0.1+ | 2007 10 10 | G96 | 0.1+ | 0.2− | | |

### 2005 $CO_{67}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 328.55846 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18216211 | $\omega$ | 23.61865 | | −0.47290660 | −0.86236957 | |
| $a$ | 3.0819862 | $\Omega$ | 95.03627 | | +0.77672730 | −0.50487619 | |
| $e$ | 0.0806597 | $i$ | 10.45548 | | +0.41599766 | −0.03766641 | |
| $P$ | 5.41 | $H$ | 15.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 11 | 644 | 0.2+ | 0.0 | 2005 01 19 | 704 | 0.0 | 0.8+ | 2009 11 24 | J75 | 0.1− | 0.2+ | | |
| 2002 08 11 | 644 | 0.3− | 0.2− | 2005 01 19 | 704 | 0.1+ | 1.2− | 2009 11 24 | J75 | 0.0 | 0.0 | | |
| 2002 08 11 | 644 | 0.1+ | 0.2− | 2005 01 19 | 704 | 0.5+ | 0.4− | 2009 11 24 | J75 | (0.4+ | 1.6−) | | |
| 2004 12 09 | 703 | 0.4− | 1.4− | 2005 01 19 | 704 | 0.3+ | 0.3+ | 2009 12 08 | J75 | 0.0 | 0.7− | | |
| 2004 12 09 | 703 | 0.7− | 1.0− | 2005 02 01 | 703 | 0.4+ | 1.4+ | 2009 12 09 | J75 | 1.1+ | 0.4− | | |
| 2004 12 09 | 703 | 1.4− | 0.7+ | 2005 02 01 | 703 | 0.4+ | 0.6+ | 2009 12 09 | J75 | 0.2− | 0.5− | | |
| 2004 12 09 | 703 | 0.1+ | 0.1− | 2005 02 01 | 703 | 0.1− | 0.1− | 2009 12 11 | G96 | 0.5+ | 0.1− | | |
| 2004 12 21 | 703 | 0.5− | 1.0+ | 2005 02 01 | 703 | 0.3+ | 0.7+ | 2009 12 11 | G96 | 0.5+ | 0.4− | | |
| 2004 12 21 | 703 | 0.7− | 0.5+ | 2005 02 03 | 699 | 0.1− | 0.8− | 2009 12 11 | G96 | 0.1+ | 0.4− | | |
| 2004 12 21 | 703 | 0.1− | 0.6+ | 2005 02 03 | 699 | 0.7+ | 0.2+ | 2009 12 11 | G96 | 0.3+ | 0.2− | | |
| 2004 12 21 | 703 | 0.5− | 0.2+ | 2005 02 03 | 699 | 1.3+ | 0.6− | 2009 12 12 | 704 | 1.8+ | 0.0 | | |
| 2005 01 06 | 703 | 0.3− | 0.1− | 2005 02 03 | 699 | 0.5− | 0.0 | 2009 12 12 | 704 | 2.1+ | 0.1− | | |
| 2005 01 06 | 703 | 0.5− | 0.3− | 2009 11 10 | 691 | 0.3− | 0.3+ | 2009 12 12 | 704 | 1.1+ | 1.2+ | | |
| 2005 01 06 | 703 | (1.0− | 1.9+) | 2009 11 10 | 691 | 0.3− | 0.1− | 2009 12 17 | 704 | 0.2− | 0.4+ | | |
| 2005 01 06 | 703 | (0.5+ | 2.6+) | 2009 11 10 | 691 | 0.3− | 0.1+ | 2009 12 17 | 704 | 0.2+ | 0.5− | | |
| 2005 01 12 | 704 | 0.4− | 0.3− | 2009 11 22 | 691 | 0.8− | 0.0 | 2009 12 17 | 704 | 0.1+ | 0.4− | | |
| 2005 01 12 | 704 | 1.3+ | 0.6− | 2009 11 22 | 691 | 0.3− | 0.2+ | 2009 12 17 | 704 | 0.6+ | 0.4+ | | |
| 2005 01 12 | 704 | 0.3+ | 0.1+ | 2009 11 22 | 691 | 0.3− | 0.0 | 2009 12 17 | 704 | 1.1+ | 0.2− | | |

### 2005 $EC_{5}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 289.54856 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17297415 | $\omega$ | 33.04497 | | −0.96804014 | +0.23596336 | |
| $a$ | 3.1901804 | $\Omega$ | 160.07220 | | −0.24743999 | −0.95383870 | |
| $e$ | 0.1181395 | $i$ | 14.43570 | | +0.04088685 | −0.18577683 | |
| $P$ | 5.70 | $H$ | 14.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 03 01 | 691 | 0.4− | 0.3− | 2005 03 09 | 704 | 0.6+ | 0.2− | 2005 03 30 | 703 | 1.0− | 0.2+ | | |
| 2005 03 01 | 691 | 0.8− | 0.5+ | 2005 03 09 | 704 | 0.8+ | 0.3− | 2005 04 11 | 699 | 0.1− | 0.2+ | | |
| 2005 03 01 | 691 | 0.3− | 0.0 | 2005 03 09 | 704 | 1.5+ | 0.6− | 2005 04 11 | 699 | 0.3+ | 0.1− | | |
| 2005 03 04 | 704 | 0.2+ | 0.3− | 2005 03 09 | 704 | 0.5− | 0.3+ | 2005 04 11 | 699 | 0.1+ | 0.0 | | |
| 2005 03 04 | 704 | 0.2+ | 0.1− | 2005 03 12 | 704 | 0.1+ | 0.8− | 2005 04 11 | 699 | 0.1− | 0.1− | | |
| 2005 03 04 | 704 | 0.3− | 0.3+ | 2005 03 12 | 704 | 0.4+ | 0.4− | 2005 04 18 | 691 | 0.1+ | 0.2− | | |
| 2005 03 04 | 704 | 0.1+ | 0.3− | 2005 03 12 | 704 | 0.7+ | 0.4− | 2005 04 18 | 691 | 0.0 | 0.0 | | |
| 2005 03 04 | 704 | 0.2+ | 0.0 | 2005 03 12 | 704 | 0.2− | 0.2− | 2005 04 18 | 691 | 0.1+ | 0.1+ | | |
| 2005 03 08 | 699 | 0.3+ | 1.0+ | 2005 03 12 | 704 | 0.5+ | 0.0 | 2007 08 10 | 691 | 0.2− | 0.0 | | |
| 2005 03 08 | 699 | 1.3+ | 0.7− | 2005 03 16 | 704 | 0.1− | 0.4+ | 2007 08 10 | 691 | 0.1+ | 0.2+ | | |
| 2005 03 08 | 699 | 0.8+ | 0.0 | 2005 03 16 | 704 | 0.1− | 0.8+ | 2007 08 10 | 691 | 0.1+ | 0.1− | | |
| 2005 03 08 | 699 | 0.4+ | 0.2+ | 2005 03 16 | 704 | 0.6+ | 0.8+ | 2007 09 10 | G96 | 0.5− | 0.1− | | |
| 2005 03 09 | 699 | 0.2+ | 0.2− | 2005 03 16 | 704 | 0.0 | 0.5+ | 2007 09 10 | G96 | 0.3+ | 0.4− | | |
| 2005 03 09 | 699 | 0.3− | 1.2− | 2005 03 16 | 704 | 0.1− | 0.8+ | 2007 09 10 | G96 | 0.0 | 0.1− | | |
| 2005 03 09 | 699 | 1.0− | 0.8− | 2005 03 30 | 703 | 1.2− | 0.4− | 2007 09 10 | G96 | 0.2+ | 0.1− | | |
| 2005 03 09 | 699 | 0.2− | 1.2+ | 2005 03 30 | 703 | 0.3− | 0.1− | | | | | | |
| 2005 03 09 | 704 | 1.4+ | 0.1− | 2005 03 30 | 703 | 0.6− | 0.0 | | | | | | |

### 2005 $EA_{15}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 71.58434 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23795658 | $\omega$ | 351.47820 | | −0.89802314 | −0.42440221 | |
| $a$ | 2.5791162 | $\Omega$ | 161.98932 | | +0.42251222 | −0.90539979 | |
| $e$ | 0.0171659 | $i$ | 22.01854 | | +0.12262897 | +0.01157529 | |
| $P$ | 4.14 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 03 03 | 691 | 0.3+ | 0.2− | 2005 03 08 | 704 | 0.2− | 0.7+ | 2005 03 12 | 704 | 0.5+ | 0.8+ |
| 2005 03 03 | 691 | 0.4+ | 0.3− | 2005 03 08 | 704 | 0.3− | 0.5+ | 2005 03 12 | 704 | 0.6− | 0.3+ |
| 2005 03 03 | 691 | 0.2+ | 0.0 | 2005 03 08 | 704 | 0.1+ | 0.6+ | 2005 04 09 | 691 | 0.1− | 0.1− |
| 2005 03 04 | G96 | 0.7− | 0.3− | 2005 03 08 | 704 | 0.3− | 0.1− | 2005 04 09 | 691 | 0.3− | 0.3+ |
| 2005 03 04 | G96 | 0.7− | 0.3− | 2005 03 08 | 704 | 0.5− | 0.7+ | 2005 04 09 | 691 | 0.0 | 0.3− |
| 2005 03 04 | G96 | 0.6− | 0.2− | 2005 03 09 | 704 | 0.2+ | 0.1− | 2009 02 14 | 703 | 1.2+ | 1.3− |
| 2005 03 04 | G96 | 0.8− | 0.2− | 2005 03 09 | 704 | 0.3+ | 0.6+ | 2009 02 14 | 703 | 1.0+ | 0.1− |
| 2005 03 08 | 699 | 0.4− | 0.6+ | 2005 03 09 | 704 | 0.0 | 1.0− | 2009 02 14 | 703 | 1.6− | 0.0 |
| 2005 03 08 | 699 | 0.1− | 1.7− | 2005 03 09 | 704 | 1.1+ | 0.0 | 2009 02 14 | 703 | 1.9− | 1.0+ |
| 2005 03 08 | 699 | 0.7+ | 0.5+ | 2005 03 09 | 704 | 0.8+ | 0.8+ | 2009 02 27 | 703 | 1.1+ | 0.2− |
| 2005 03 08 | 699 | 0.2− | 0.6− | 2005 03 12 | 704 | 0.5− | 0.0 | 2009 02 27 | 703 | 0.2+ | 0.9+ |

**2005 EN$_{20}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 219.45096 | | (2000.0) | | | |
| $n$ | 0.17260410 | $\omega$ | 265.97235 | | −0.21317617 | +0.97636947 |
| $a$ | 3.1947385 | $\Omega$ | 351.46722 | | −0.77439854 | −0.19099540 |
| $e$ | 0.0940631 | $i$ | 13.83342 | | −0.59570364 | −0.10111092 |
| $P$ | 5.71 | $H$ | 15.4 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 02 09 | 691 | 0.3+ | 0.3+ | 2005 03 04 | G96 | 0.1− | 0.2− | 2005 04 02 | 691 | 0.2+ | 0.2+ |
| 2005 02 09 | 691 | 0.2+ | 0.2+ | 2005 03 04 | G96 | 0.1− | 0.4+ | 2005 04 02 | 691 | 0.4+ | 0.4+ |
| 2005 02 09 | 691 | 0.2+ | 0.3+ | 2005 03 04 | G96 | 0.3+ | 0.0 | 2007 09 11 | 691 | 0.8− | 0.7+ |
| 2005 03 03 | 703 | 0.1− | 1.0+ | 2005 03 16 | G96 | 0.1− | 0.4− | 2007 09 11 | 691 | 0.4− | 0.4+ |
| 2005 03 03 | 703 | 0.0 | 0.8− | 2005 03 16 | G96 | 0.0 | 0.2− | 2007 09 11 | 691 | 0.1− | 0.4+ |
| 2005 03 03 | 703 | 0.8− | 0.4+ | 2005 03 16 | G96 | 0.1+ | 0.1+ | 2007 10 09 | 691 | 0.1+ | 0.4+ |
| 2005 03 03 | 703 | 0.5− | 0.2+ | 2005 03 16 | G96 | 0.3− | 0.0 | 2007 10 09 | 691 | 0.3− | 0.3− |
| 2005 03 04 | G96 | 0.1+ | 0.1− | 2005 04 02 | 691 | 0.4+ | 0.4+ | 2007 10 09 | 691 | 0.3+ | 0.2+ |

**2005 ED$_{21}$ = 2008 WG$_{103}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 204.94596 | | (2000.0) | | | |
| $n$ | 0.18039111 | $\omega$ | 131.33448 | | +0.19412483 | +0.97584482 |
| $a$ | 3.1021250 | $\Omega$ | 149.42228 | | −0.94857593 | +0.21276909 |
| $e$ | 0.0188480 | $i$ | 11.36121 | | −0.25003852 | −0.04956007 |
| $P$ | 5.46 | $H$ | 14.9 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 03 03 | 703 | 0.0 | 0.5+ | 2005 03 12 | 704 | (2.0+ | 0.1−) | 2008 11 03 | 703 | 1.0+ | 0.0 |
| 2005 03 03 | 703 | 0.3− | 0.5+ | 2007 08 22 | 699 | 0.8− | 0.3− | 2008 11 03 | 703 | 1.3+ | 0.1+ |
| 2005 03 03 | 703 | (2.0− | 0.1−) | 2007 08 22 | 699 | 0.7− | 1.4+ | 2008 11 03 | 703 | 0.5− | 0.7− |
| 2005 03 03 | 703 | 1.1− | 0.3− | 2007 08 22 | 699 | 0.7+ | 0.2+ | 2008 11 03 | 703 | 1.1− | 0.9− |
| 2005 03 04 | 704 | 0.4− | 0.7+ | 2007 08 22 | 699 | 0.1− | 0.4− | 2008 11 03 | 703 | 0.5− | 0.5+ |
| 2005 03 04 | 704 | 0.1+ | 0.2+ | 2007 09 13 | G96 | 0.6− | 0.0 | 2008 11 03 | 703 | 0.6− | 0.3+ |
| 2005 03 04 | 704 | 0.4− | 1.0+ | 2007 09 13 | G96 | 0.4− | 0.1+ | 2008 11 03 | 703 | 0.2− | 0.4+ |
| 2005 03 04 | 704 | 0.4+ | 1.1+ | 2007 09 13 | G96 | 0.6− | 0.3+ | 2008 11 03 | 703 | 0.1+ | 0.6+ |
| 2005 03 09 | 704 | 0.9+ | 1.1+ | 2007 09 13 | G96 | 0.2− | 1.1+ | 2008 11 27 | J75 | 0.1+ | 0.3− |
| 2005 03 09 | 704 | 0.8+ | 0.0 | 2007 11 15 | 291 | 0.3+ | 0.3+ | 2008 11 27 | J75 | 0.3− | 0.1+ |
| 2005 03 09 | 704 | 0.6+ | 0.9+ | 2007 11 15 | 291 | 0.0 | 0.2+ | 2008 11 28 | J75 | 0.2− | 0.1− |
| 2005 03 09 | 704 | 0.6+ | 0.5+ | 2007 11 15 | 291 | 0.3+ | 0.9+ | 2008 12 01 | 703 | 0.9− | 0.2+ |
| 2005 03 12 | 704 | (1.8+ | 0.3+) | 2008 10 24 | 703 | 0.2+ | 0.0 | 2008 12 01 | 703 | 0.4+ | 1.0− |
| 2005 03 12 | 704 | 0.2+ | 0.5+ | 2008 10 24 | 703 | 0.2+ | 0.1− | 2008 12 01 | 703 | 0.7+ | 0.5+ |
| 2005 03 12 | 704 | (1.4+ | 2.2+) | 2008 10 24 | 703 | 0.5+ | 0.2− | 2008 12 01 | 703 | 0.7− | 0.4+ |
| 2005 03 12 | 704 | (0.0 | 1.9+) | 2008 10 24 | 703 | 0.3+ | 0.8+ | | | | |

**2005 EL$_{26}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 22.22505 | | (2000.0) | | | |
| $n$ | 0.18153052 | $\omega$ | 109.75194 | | −0.18596744 | −0.98176482 |
| $a$ | 3.0891307 | $\Omega$ | 350.69786 | | +0.78523485 | −0.12438492 |
| $e$ | 0.0540052 | $i$ | 14.11541 | | +0.59061183 | −0.14375756 |
| $P$ | 5.43 | $H$ | 15.5 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 03 03 | 703 | 1.1− | 0.2+ | 2005 03 09 | 699 | 1.2+ | 0.9+ | 2005 04 10 | 691 | 0.1+ | 0.0 |
| 2005 03 03 | 703 | (2.8− | 1.3−) | 2005 03 09 | 699 | 1.1+ | 0.0 | 2005 05 14 | G96 | 0.3− | 0.1− |
| 2005 03 03 | 703 | 0.3− | 0.1+ | 2005 03 09 | 699 | 0.9+ | 1.2− | 2005 05 14 | G96 | 0.6− | 0.0 |
| 2005 03 03 | 703 | 1.7− | 0.6− | 2005 03 17 | 704 | 0.3+ | 0.6+ | 2005 05 14 | G96 | 0.7− | 0.0 |
| 2005 03 04 | 691 | 0.0 | 0.1− | 2005 03 17 | 704 | 0.7− | 0.7+ | 2005 05 14 | G96 | 0.2+ | 0.0 |
| 2005 03 04 | 691 | 0.1+ | 0.2− | 2005 03 17 | 704 | 0.4+ | 0.1+ | 2008 10 04 | J75 | 0.4+ | 0.0 |
| 2005 03 04 | 691 | 0.2− | 0.3− | 2005 03 17 | 704 | 0.5+ | 0.3− | 2008 10 04 | J75 | 0.4− | 0.6+ |
| 2005 03 08 | 704 | 1.6+ | 1.1+ | 2005 04 02 | G96 | 0.3− | 0.4− | 2008 10 04 | J75 | 0.8− | 1.4− |
| 2005 03 08 | 704 | 0.7+ | 0.8+ | 2005 04 02 | G96 | 0.3− | 0.3− | 2008 10 31 | 703 | 1.5+ | 0.3− |
| 2005 03 08 | 704 | 0.7+ | 0.6− | 2005 04 02 | G96 | 0.6− | 0.5− | 2008 10 31 | 703 | 0.5+ | 0.6+ |
| 2005 03 08 | 704 | 0.3+ | 0.4+ | 2005 04 02 | G96 | 0.6− | 0.1− | 2008 10 31 | 703 | 0.8− | 0.2+ |
| 2005 03 08 | 704 | 0.6+ | 0.8+ | 2005 04 10 | 691 | 0.1+ | 0.1+ | 2008 10 31 | 703 | 0.4− | 0.0 |
| 2005 03 09 | 699 | 1.3− | 0.4− | 2005 04 10 | 691 | 0.2− | 0.0 | | | | |

**2005 EX$_{30}$ = 2009 YK$_{17}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 359.49534 | | (2000.0) | | | |
| $n$ | 0.18069020 | $\omega$ | 6.68985 | | −0.26793823 | −0.95974294 |
| $a$ | 3.0987008 | $\Omega$ | 98.87672 | | +0.87993567 | −0.27939970 |
| $e$ | 0.2448151 | $i$ | 4.89319 | | +0.39232935 | −0.02879740 |
| $P$ | 5.45 | $H$ | 16.3 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 21 | 691 | 0.1− | 0.1− | 2005 03 05 | 049 | 0.1+ | 0.3− | 2005 04 16 | 691 | 0.0 | 0.0 |
| 2003 10 21 | 691 | 0.0 | 0.1+ | 2005 03 05 | 049 | 0.1+ | 0.2− | 2005 04 16 | 691 | 0.1− | 0.1− |
| 2003 10 21 | 691 | 0.1+ | 0.1− | 2005 03 12 | 704 | 0.8+ | 0.3+ | 2009 12 20 | 691 | 0.0 | 0.1+ |
| 2005 03 03 | 703 | 0.9− | 0.7+ | 2005 03 12 | 704 | 0.8+ | 0.5− | 2009 12 20 | 691 | 0.3− | 0.1+ |
| 2005 03 03 | 703 | 1.0− | 0.7− | 2005 03 12 | 704 | 0.8+ | 0.2+ | 2009 12 20 | 691 | 0.1+ | 0.1− |
| 2005 03 03 | 703 | 0.5− | 0.4+ | 2005 03 12 | 704 | 0.9+ | 0.2− | 2009 12 25 | 691 | 0.3− | 0.0 |
| 2005 03 03 | 703 | 1.0− | 0.1+ | 2005 03 12 | 704 | 0.5− | 0.7+ | 2009 12 25 | 691 | 0.3− | 0.1− |
| 2005 03 05 | 049 | 0.1+ | 0.7− | 2005 04 16 | 691 | 0.2+ | 0.1+ | 2009 12 25 | 691 | 0.7+ | 0.1− |

**2005 EN$_{36}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 6.20988 | | (2000.0) | | | |
| $n$ | 0.19507861 | $\omega$ | 190.93920 | | +0.01736153 | −0.99263836 |
| $a$ | 2.9443964 | $\Omega$ | 258.14613 | | +0.92634109 | +0.06108624 |
| $e$ | 0.5036447 | $i$ | 7.03508 | | +0.37628549 | −0.10458277 |
| $P$ | 5.05 | $H$ | 16.9 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 15 | 703 | 0.5− | 0.3− | 2005 03 17 | 703 | 1.0− | 1.1+ | 2009 12 10 | J75 | 0.1− | 0.2− |
| 2004 12 15 | 703 | 0.7− | 0.1− | 2005 03 17 | 703 | (2.4− | 1.0−) | 2009 12 11 | 703 | 0.2− | 0.5+ |
| 2004 12 15 | 703 | 0.9+ | 0.3− | 2005 03 17 | 703 | 0.6− | 0.0 | 2009 12 11 | 703 | 0.3− | 0.4− |
| 2004 12 15 | 703 | 0.2− | 0.2+ | 2005 03 17 | 703 | 1.1− | 0.6− | 2009 12 11 | 703 | 0.6− | 0.1− |
| 2005 03 04 | 703 | 0.4+ | 0.3+ | 2009 11 11 | 703 | 0.1− | 0.4− | 2009 12 11 | 703 | 0.3− | 0.1− |
| 2005 03 04 | 703 | 0.6+ | 0.8− | 2009 11 11 | G96 | 0.1− | 0.2+ | 2009 12 16 | H45 | 0.2+ | 0.0 |
| 2005 03 04 | 703 | 0.2+ | 0.4+ | 2009 11 11 | 703 | 0.7+ | 0.3+ | 2009 12 16 | H45 | 0.3− | 0.2− |
| 2005 03 04 | 703 | 0.1+ | 0.6− | 2009 11 11 | G96 | 0.2+ | 0.1+ | 2009 12 16 | H45 | 0.0 | 0.1− |
| 2005 03 07 | 704 | 0.4+ | 0.1− | 2009 11 11 | 703 | 0.5− | 0.0 | 2009 12 16 | H45 | 0.3− | 0.4− |
| 2005 03 07 | 704 | 0.1+ | 0.1+ | 2009 11 11 | G96 | 0.4+ | 0.0 | 2009 12 16 | H45 | 0.2+ | 0.0 |
| 2005 03 07 | 704 | 0.1+ | 0.1− | 2009 11 11 | G96 | 0.0 | 0.0 | 2009 12 18 | 704 | 0.2+ | 0.5+ |
| 2005 03 07 | 704 | 0.7+ | 0.2− | 2009 11 26 | 703 | 0.2− | 0.1+ | 2009 12 18 | 704 | 0.5+ | 0.4+ |
| 2005 03 13 | 703 | 0.3− | 0.2+ | 2009 11 26 | 703 | 0.6− | 0.1+ | 2009 12 18 | 704 | 0.2+ | 0.1− |
| 2005 03 13 | 703 | 0.2+ | 0.6+ | 2009 11 26 | 703 | 0.2+ | 0.5+ | 2009 12 18 | 704 | 0.6+ | 0.1+ |
| 2005 03 13 | 703 | 0.6+ | 0.1+ | 2009 12 10 | J75 | 0.1+ | 0.2− | 2009 12 18 | 704 | 0.1+ | 0.0 |
| 2005 03 13 | 703 | 0.3− | 0.0 | 2009 12 10 | J75 | 0.0 | 0.1− | | | | |

**2005 ET$_{36}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 351.61268 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19087141 | $\omega$ | 61.99954 | | −0.73790473 | −0.67324469 | |
| $a$ | 2.9875060 | $\Omega$ | 75.64041 | | +0.60079643 | −0.68719805 | |
| $e$ | 0.2211781 | $i$ | 2.79917 | | +0.30747399 | −0.27294766 | |
| $P$ | 5.16 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 02 09 | 691 | 0.1− | 0.3− | 2005 03 08 | 699 | 0.6− | 0.2+ | 2005 03 12 | 704 | 1.1+ | 1.5+ |
| 2005 02 09 | 691 | 0.0 | 0.1− | 2005 03 08 | 699 | 0.1− | 0.1− | 2005 03 12 | 704 | 0.4+ | 1.2+ |
| 2005 02 09 | 691 | 0.1+ | 0.2− | 2005 03 08 | 704 | 0.2+ | 1.0+ | 2005 03 12 | 704 | 0.4− | 0.3− |
| 2005 02 14 | 704 | 0.9− | 0.6+ | 2005 03 08 | 704 | 0.4− | 0.6− | 2005 03 16 | 703 | 0.8− | 0.0 |
| 2005 02 14 | 704 | 0.4+ | 0.1+ | 2005 03 08 | 704 | 1.0− | 0.6− | 2005 03 16 | 703 | 0.5+ | 0.6− |
| 2005 02 14 | 704 | 0.1− | 1.6+ | 2005 03 08 | 704 | 0.7+ | 0.6− | 2005 03 16 | 703 | (1.6− | 2.1+) |
| 2005 02 14 | 704 | (2.5− | 0.9−) | 2005 03 09 | 699 | 0.3− | 0.9+ | 2005 03 16 | 703 | 1.6− | 0.6− |
| 2005 03 04 | 704 | 1.2+ | 0.6+ | 2005 03 09 | 699 | 0.4− | 0.5+ | 2005 04 02 | 691 | 0.0 | 0.0 |
| 2005 03 04 | 704 | 0.7+ | 0.7− | 2005 03 09 | 699 | (2.9− | 1.8+) | 2005 04 02 | 691 | 0.1− | 0.1− |
| 2005 03 04 | 704 | 0.1− | 0.4− | 2005 03 09 | 699 | 0.9− | 0.7− | 2005 04 02 | 691 | 0.0 | 0.2− |
| 2005 03 04 | 704 | 0.3+ | 0.1+ | 2005 03 09 | 704 | 1.9+ | 0.0 | 2008 09 24 | 691 | 0.2− | 0.9+ |
| 2005 03 07 | 704 | 0.0 | 0.2− | 2005 03 09 | 704 | 0.8− | 0.5+ | 2008 09 24 | 691 | 0.1+ | 0.2+ |
| 2005 03 07 | 704 | 0.1− | 0.0 | 2005 03 09 | 704 | 0.2+ | 0.3− | 2008 09 24 | 691 | 0.4− | 0.3− |
| 2005 03 07 | 704 | 0.7+ | 0.9− | 2005 03 09 | 704 | 0.5+ | 0.2+ | 2008 10 02 | 691 | 0.3− | 0.1− |
| 2005 03 07 | 704 | 0.8+ | 0.9+ | 2005 03 09 | 704 | 0.4+ | 0.3+ | 2008 10 02 | 691 | 0.2+ | 0.8− |
| 2005 03 07 | 704 | 1.0+ | 0.2− | 2005 03 09 | 704 | 1.0− | 0.9− | 2008 10 02 | 691 | 0.5+ | 0.1+ |
| 2005 03 08 | 699 | 0.6− | 0.2+ | 2005 03 09 | 704 | 0.1− | 0.1+ | | | | |
| 2005 03 08 | 699 | 0.4+ | 0.4+ | 2005 03 09 | 704 | 0.6− | 0.3+ | | | | |

**2005 EG$_{45}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 318.14840 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17668039 | $\omega$ | 346.60487 | | −0.83328466 | −0.55211040 | |
| $a$ | 3.1454092 | $\Omega$ | 159.80455 | | +0.51452228 | −0.79333606 | |
| $e$ | 0.2148485 | $i$ | 4.73119 | | +0.20224614 | −0.25649954 | |
| $P$ | 5.58 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 01 20 | 699 | 1.5− | 1.0+ | 2005 03 03 | 703 | 0.2− | 0.8+ | 2008 09 19 | 691 | 0.2− | 0.4+ |
| 2005 01 20 | 699 | 0.8− | 0.2+ | 2005 03 03 | 703 | 0.3− | 0.6+ | 2008 09 19 | 691 | 0.2− | 0.0 |
| 2005 01 20 | 699 | 0.5+ | 0.3− | 2005 03 08 | 704 | 0.6+ | 0.5− | 2008 11 02 | G96 | 0.6+ | 0.3− |
| 2005 01 20 | 699 | 1.1− | 1.1− | 2005 03 08 | 704 | 0.3+ | 0.5− | 2008 11 02 | G96 | 0.1+ | 0.4+ |
| 2005 02 09 | 699 | 0.3+ | 0.4− | 2005 03 08 | 704 | 0.0 | 0.0 | 2008 11 02 | G96 | 0.7+ | 0.7+ |
| 2005 02 09 | 699 | 0.6+ | 0.6+ | 2005 03 08 | G96 | 0.1− | 0.0 | 2008 11 02 | G96 | 0.2+ | 0.2− |
| 2005 02 09 | 699 | 0.1+ | 0.2+ | 2005 03 08 | 704 | 0.5+ | 0.1− | 2009 11 27 | G96 | 0.1− | 0.3− |
| 2005 02 09 | 704 | 0.5+ | 0.0 | 2005 03 08 | G96 | 0.0 | 0.0 | 2009 11 27 | G96 | 0.0 | 0.3− |
| 2005 02 09 | 704 | 0.8+ | 0.4+ | 2005 03 08 | G96 | 0.1− | 0.0 | 2009 11 27 | G96 | 0.5+ | 0.3− |
| 2005 02 09 | 699 | 0.4− | 0.8+ | 2005 03 08 | G96 | 0.1− | 0.1+ | 2009 11 27 | G96 | 0.1− | 0.3− |
| 2005 02 09 | 704 | 0.7+ | 0.0 | 2005 04 02 | G96 | 0.3− | 0.1− | 2009 11 27 | G96 | 0.4+ | 0.1− |
| 2005 02 09 | 704 | 0.7+ | 0.2+ | 2005 04 02 | G96 | 0.6− | 0.2+ | 2009 12 15 | 703 | 0.6+ | 0.2+ |
| 2005 02 09 | 704 | 1.4+ | 0.7+ | 2005 04 02 | G96 | 0.3− | 0.1− | 2009 12 15 | 703 | 1.5+ | 1.3− |
| 2005 03 03 | 703 | 0.3− | 0.8+ | 2005 04 02 | G96 | 0.4− | 0.0 | 2009 12 15 | 703 | 1.4− | 0.0 |
| 2005 03 03 | 703 | 0.0 | 0.1+ | 2008 09 19 | 691 | 0.3− | 0.5+ | 2009 12 15 | 703 | 1.2− | 0.2+ |

**2005 EK$_{45}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 26.89619 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22895615 | $\omega$ | 217.24187 | | −0.99845894 | +0.02434659 | |
| $a$ | 2.6462721 | $\Omega$ | 324.05640 | | +0.00128963 | −0.88820513 | |
| $e$ | 0.1513200 | $i$ | 4.87364 | | −0.05548047 | −0.45880158 | |
| $P$ | 4.30 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 02 02 | 704 | 0.4+ | 0.3+ | 2005 03 08 | 704 | 0.5+ | 0.2+ | 2008 12 05 | G96 | 0.2− | 0.5− |
| 2005 02 02 | 704 | 1.0+ | 0.3− | 2005 03 08 | 704 | 0.6+ | 0.1− | 2008 12 31 | 691 | 0.0 | 0.1+ |
| 2005 02 02 | 704 | 0.9+ | 0.2− | 2005 03 11 | 704 | 0.0 | 1.1− | 2008 12 31 | 691 | 0.2− | 0.1− |
| 2005 02 02 | 704 | 0.3+ | 0.0 | 2005 03 11 | 704 | (1.9+ | 0.4+) | 2008 12 31 | 691 | 0.0 | 0.1+ |
| 2005 02 09 | 704 | 1.4+ | 0.1− | 2005 03 11 | G96 | 0.4− | 0.0 | 2009 01 20 | G96 | 0.3+ | 0.0 |
| 2005 02 09 | 704 | 0.4+ | 0.6+ | 2005 03 11 | 704 | 1.1− | 0.6− | 2009 01 20 | G96 | 0.2+ | 0.0 |
| 2005 02 09 | 704 | 0.1+ | 0.8+ | 2005 03 11 | G96 | 0.3− | 0.3− | 2009 01 20 | G96 | 0.5+ | 0.0 |
| 2005 02 09 | 704 | 0.4− | 0.3+ | 2005 03 11 | G96 | 0.6− | 0.0 | 2009 02 21 | G96 | 0.3+ | 0.4+ |
| 2005 03 03 | 703 | 0.4− | 0.5+ | 2005 03 11 | 704 | (1.7+ | 0.6−) | 2009 02 21 | G96 | 0.2+ | 0.2+ |
| 2005 03 03 | 703 | 0.6− | 0.0 | 2005 03 11 | G96 | 0.4− | 0.1+ | 2009 02 21 | G96 | 0.8+ | 0.4+ |
| 2005 03 03 | 703 | 1.1− | 0.3+ | 2008 12 05 | G96 | 0.5− | 0.1− | 2009 02 21 | G96 | 0.2− | 0.1+ |
| 2005 03 03 | 703 | 0.1− | 0.6− | 2008 12 05 | G96 | 0.5− | 0.8− | | | | |
| 2005 03 08 | 704 | 0.1− | 0.0 | 2008 12 05 | G96 | 0.1+ | 0.0 | | | | |

**2005 EK$_{60}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 23.95903 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22886942 | $\omega$ | 5.74253 | | −0.95439538 | +0.29775286 | |
| $a$ | 2.6469407 | $\Omega$ | 191.65026 | | −0.27801699 | −0.91294756 | |
| $e$ | 0.1776305 | $i$ | 6.18072 | | −0.10879345 | −0.27905193 | |
| $P$ | 4.31 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 04 18 | 691 | 0.0 | 0.1+ | 2005 03 09 | 691 | 0.0 | 0.2+ | 2005 05 04 | G96 | 0.2+ | 0.2− |
| 2001 04 18 | 691 | 0.2− | 0.1+ | 2005 03 10 | 703 | 0.9− | 0.8+ | 2005 05 04 | G96 | 0.4+ | 0.1− |
| 2001 04 18 | 691 | 0.2+ | 0.0 | 2005 03 10 | 703 | 0.6− | 0.1− | 2005 05 04 | G96 | 0.1+ | 0.4− |
| 2005 03 04 | 703 | 1.1− | 0.2+ | 2005 03 10 | 703 | 1.7− | 0.5+ | 2005 05 04 | G96 | 0.2− | 0.2− |
| 2005 03 04 | 703 | 1.1− | 1.1− | 2005 03 10 | 703 | 0.7+ | 0.5− | 2005 05 13 | G96 | 0.0 | 0.0 |
| 2005 03 04 | 703 | 1.3− | 1.4+ | 2005 03 17 | 703 | 1.8+ | 1.6− | 2005 05 13 | G96 | 0.1− | 0.0 |
| 2005 03 04 | 703 | 0.4− | 0.5− | 2005 03 17 | 703 | 0.7− | 0.5− | 2005 05 13 | G96 | 0.1− | 0.1− |
| 2005 03 08 | 699 | 0.7+ | 0.4+ | 2005 03 17 | 703 | 0.2− | 0.3− | 2005 05 13 | G96 | 0.1+ | 0.1− |
| 2005 03 08 | 699 | 1.3+ | 0.5− | 2005 03 17 | 703 | 0.8− | 0.6− | 2009 02 03 | G96 | 0.3+ | 0.0 |
| 2005 03 08 | 699 | 1.4+ | 0.6+ | 2005 04 09 | G96 | 0.1− | 0.3− | 2009 02 03 | G96 | 0.1− | 0.1− |
| 2005 03 08 | 699 | 1.0+ | 0.5+ | 2005 04 09 | G96 | 0.0 | 0.1− | 2009 02 03 | G96 | 0.0 | 0.1− |
| 2005 03 09 | 691 | 0.4+ | 0.3+ | 2005 04 09 | G96 | 0.1+ | 0.1− | 2009 02 03 | G96 | 0.2− | 0.0 |
| 2005 03 09 | 691 | 0.1+ | 0.1+ | 2005 04 09 | G96 | 0.1− | 0.0 | | | | |

**2005 EF$_{61}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 308.94172 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17516410 | $\omega$ | 324.78028 | | −0.98057003 | −0.18683257 | |
| $a$ | 3.1635350 | $\Omega$ | 204.65693 | | +0.19610356 | −0.94148107 | |
| $e$ | 0.1670417 | $i$ | 8.24124 | | −0.00508066 | −0.28054763 | |
| $P$ | 5.63 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 03 04 | 703 | 0.9− | 0.6− | 2005 03 10 | 699 | 0.6+ | 0.2− | 2008 10 08 | 691 | 0.2− | 0.4+ |
| 2005 03 04 | 703 | 0.1− | 0.2− | 2005 05 14 | G96 | 0.3+ | 0.2− | 2008 10 08 | 691 | 0.1− | 0.2− |
| 2005 03 04 | 703 | 1.0− | 0.4+ | 2005 05 14 | G96 | 0.4− | 0.0 | 2008 10 20 | G96 | 1.1+ | 0.3− |
| 2005 03 04 | 703 | 0.5+ | 0.4+ | 2005 05 14 | G96 | 0.0 | 0.1− | 2008 10 20 | G96 | 0.6+ | 0.2− |
| 2005 03 08 | 691 | 0.1+ | 0.1− | 2005 05 14 | G96 | 0.3− | 0.0 | 2008 10 20 | G96 | 0.1+ | 0.5− |
| 2005 03 08 | 691 | 0.1+ | 0.0 | 2005 05 14 | G96 | 0.3+ | 0.3+ | 2008 10 20 | G96 | 0.1+ | 0.2− |
| 2005 03 08 | 691 | 0.1+ | 0.0 | 2005 05 14 | G96 | 0.2+ | 0.4+ | 2008 11 24 | G96 | 0.0 | 0.2− |
| 2005 03 10 | 699 | 0.2− | 0.3+ | 2005 05 14 | G96 | 0.1+ | 0.3+ | 2008 11 24 | G96 | 0.1+ | 0.0 |
| 2005 03 10 | 699 | 0.1+ | 0.3− | 2005 05 14 | G96 | 0.2− | 0.0 | 2008 11 24 | G96 | 0.3+ | 0.2+ |
| 2005 03 10 | 699 | 0.3− | 0.4+ | 2008 10 08 | 691 | 0.2− | 0.2+ | 2008 11 24 | G96 | 0.2− | 0.2− |

**2005 EF$_{75}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 180.85144 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.12587542 | $\omega$ | 234.83872 | | −0.63970789 | +0.76860104 | |
| $a$ | 3.9431390 | $\Omega$ | 355.38129 | | −0.68288531 | −0.57140065 | |
| $e$ | 0.1437762 | $i$ | 3.64802 | | −0.35276261 | −0.28766949 | |
| $P$ | 7.83 | $H$ | 15.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 01 16 | 691 | 0.1− | 0.3+ | 2005 03 12 | 691 | 0.1+ | 0.1+ | 2008 09 02 | 691 | 0.3− | 0.0 |
| 2004 01 16 | 691 | 0.0 | 0.3− | 2005 04 02 | G96 | 0.4− | 0.0 | 2008 09 02 | 691 | 0.1− | 0.4+ |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 01 16 | 691 | 0.0 | 0.1− | 2005 04 02 | G96 | 0.3− | 0.2− | 2008 09 20 | G96 | 0.4− | 0.7+ |
| 2005 03 03 | 691 | 0.1+ | 0.4+ | 2005 04 02 | G96 | 0.3− | 0.4− | 2008 09 20 | G96 | 0.3+ | 0.1− |
| 2005 03 03 | 691 | 0.2+ | 0.3+ | 2005 04 02 | G96 | 0.2− | 0.1− | 2008 09 20 | G96 | 0.5+ | 0.0 |
| 2005 03 03 | 691 | 0.7+ | 0.0 | 2005 04 16 | 926 | 1.0+ | 0.3+ | 2008 09 20 | G96 | 0.0 | 0.5+ |
| 2005 03 09 | G96 | 0.2− | 0.3− | 2005 04 16 | 926 | 0.5+ | 0.4+ | 2008 10 01 | G96 | 0.1− | 0.3+ |
| 2005 03 09 | G96 | 0.3− | 0.5− | 2005 05 04 | G96 | 0.5− | 0.1+ | 2008 10 01 | G96 | 0.1− | 0.2+ |
| 2005 03 09 | G96 | 0.2− | 0.5− | 2005 05 04 | G96 | 0.0 | 0.0 | 2008 10 01 | G96 | 0.0 | 0.3+ |
| 2005 03 09 | G96 | 0.3− | 0.4− | 2005 05 04 | G96 | 0.9− | 0.0 | 2008 10 01 | G96 | 0.0 | 0.2− |
| 2005 03 12 | 691 | 0.0 | 0.2+ | 2005 05 04 | G96 | 0.6− | 0.0 | | | | |
| 2005 03 12 | 691 | 0.1+ | 0.3+ | 2008 09 02 | 691 | 0.1− | 0.1+ | | | | |

**2005 EP$_{75}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 314.25585 | | (2000.0) | | | |
| $n$ | 0.17016858 | $\omega$ | 148.35638 | | −0.94266116 | −0.33374897 |
| $a$ | 3.2251492 | $\Omega$ | 12.14733 | | +0.30495971 | −0.86285444 |
| $e$ | 0.0747139 | $i$ | 0.33985 | | +0.13560793 | −0.37959694 |
| $P$ | 5.79 | $H$ | 16.2 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 03 03 | 691 | 0.4+ | 0.2+ | 2005 03 12 | 691 | 0.1− | 0.2+ | 2008 10 03 | 691 | 0.0 | 0.7− |
| 2005 03 03 | 691 | 0.0 | 0.0 | 2005 03 16 | 691 | 0.0 | 0.1− | 2008 10 03 | 691 | 0.1+ | 0.2+ |
| 2005 03 03 | 691 | 0.2− | 0.0 | 2005 03 16 | 691 | 0.0 | 0.0 | 2008 10 25 | 691 | 0.3− | 0.5+ |
| 2005 03 09 | G96 | 0.7− | 0.6− | 2005 03 16 | 691 | 0.3+ | 0.2+ | 2008 10 25 | 691 | 0.2+ | 0.1+ |
| 2005 03 09 | G96 | 0.6− | 0.3− | 2005 04 02 | G96 | 0.2− | 0.1− | 2008 10 25 | 691 | 0.2− | 0.4− |
| 2005 03 09 | G96 | 0.0 | 0.3− | 2005 04 02 | G96 | 0.5+ | 0.3− | 2008 12 04 | G96 | 0.2+ | 0.1− |
| 2005 03 09 | G96 | 0.6− | 0.5− | 2005 04 02 | G96 | 0.6− | 0.1− | 2008 12 04 | G96 | 0.2+ | 0.6− |
| 2005 03 12 | 691 | 0.5+ | 0.1− | 2005 04 02 | G96 | 0.4− | 0.1− | 2008 12 04 | G96 | 0.6+ | 0.2− |
| 2005 03 12 | 691 | 0.1− | 0.1+ | 2008 10 03 | 691 | 0.0 | 0.4+ | 2008 12 04 | G96 | 0.4− | 0.1− |

**2005 EO$_{79}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 199.25301 | | (2000.0) | | | |
| $n$ | 0.12664158 | $\omega$ | 158.97630 | | −0.85002587 | +0.50449452 |
| $a$ | 3.9272193 | $\Omega$ | 52.23299 | | −0.50648527 | −0.70384455 |
| $e$ | 0.1662857 | $i$ | 11.04636 | | −0.14466749 | −0.50008812 |
| $P$ | 7.78 | $H$ | 14.3 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 03 03 | 703 | 0.7+ | 0.5− | 2005 03 16 | 703 | 0.2− | 0.1+ | 2009 09 17 | G96 | 0.2− | 0.0 |
| 2005 03 03 | 703 | 0.0 | 0.4+ | 2005 03 16 | 703 | 0.3+ | 0.6+ | 2009 10 22 | G96 | 0.0 | 0.3− |
| 2005 03 03 | 703 | 0.5− | 0.8− | 2005 03 16 | 703 | 0.2− | 0.9+ | 2009 10 22 | G96 | 0.4+ | 1.1− |
| 2005 03 03 | 703 | 0.4− | 0.0 | 2005 04 06 | 703 | 0.4− | 0.6− | 2009 10 22 | G96 | 0.2+ | 0.1+ |
| 2005 03 09 | 704 | 0.7+ | 0.7− | 2005 04 06 | 703 | 0.7− | 0.0 | 2009 10 22 | G96 | 0.2− | 0.3− |
| 2005 03 09 | 704 | 0.1+ | 0.6− | 2005 04 06 | 703 | 0.1+ | 0.7− | 2009 11 16 | G96 | 0.3− | 0.1− |
| 2005 03 09 | 704 | 0.8+ | 0.3+ | 2005 04 06 | 703 | 0.6− | 0.0 | 2009 11 16 | G96 | 0.3− | 0.4− |
| 2005 03 09 | 704 | 0.1− | 0.2+ | 2005 05 22 | 644 | 0.0 | 0.4+ | 2009 11 16 | G96 | 0.3+ | 0.2− |
| 2005 03 10 | 699 | 0.2− | 0.1+ | 2005 05 22 | 644 | 0.3− | 0.1+ | 2009 11 16 | G96 | 0.5+ | 0.3+ |
| 2005 03 10 | 699 | 0.9+ | 0.8− | 2005 05 22 | 644 | 0.4+ | 0.1+ | 2009 11 16 | G96 | 0.2+ | 0.4+ |
| 2005 03 10 | 699 | 0.3− | 0.3+ | 2009 09 17 | G96 | 0.1− | 0.2+ | 2009 11 16 | G96 | 0.1− | 0.1+ |
| 2005 03 10 | 699 | 1.2+ | 0.5+ | 2009 09 17 | G96 | 0.2− | 0.0 | 2009 11 16 | G96 | 0.2+ | 1.1+ |
| 2005 03 16 | 703 | 1.2− | 0.7+ | 2009 09 17 | G96 | 0.2− | 0.1− | 2009 11 16 | G96 | 0.2− | 0.2+ |

**2005 EQ$_{82}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 78.43632 | | (2000.0) | | | |
| $n$ | 0.21745791 | $\omega$ | 279.57930 | | −0.21880753 | −0.97569869 |
| $a$ | 2.7387512 | $\Omega$ | 183.13225 | | +0.95779305 | −0.21248361 |
| $e$ | 0.1462866 | $i$ | 12.29305 | | +0.18642893 | −0.05350505 |
| $P$ | 4.53 | $H$ | 16.4 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 06 15 | 645 | 0.0 | 0.0 | 2005 03 13 | 691 | 0.0 | 0.1+ | 2005 05 06 | G96 | 0.2+ | 0.2+ |
| 2001 06 15 | 645 | 0.0 | 0.0 | 2005 03 13 | 691 | 0.1+ | 0.2+ | 2005 05 06 | G96 | 0.0 | 0.3+ |
| 2005 03 04 | 691 | 0.1+ | 0.2− | 2005 03 13 | 691 | 0.1+ | 0.1+ | 2005 05 06 | G96 | 0.1− | 0.2− |
| 2005 03 04 | 691 | 0.2− | 0.1− | 2005 04 06 | G96 | 0.4− | 0.3− | 2007 10 09 | G96 | 0.2− | 0.2+ |
| 2005 03 04 | 691 | 0.1+ | 0.1− | 2005 04 06 | G96 | 0.3− | 0.1+ | 2007 10 09 | G96 | 0.0 | 0.1− |
| 2005 03 09 | 691 | 0.0 | 0.0 | 2005 04 06 | G96 | 0.6− | 0.2− | 2007 10 09 | G96 | 0.2+ | 0.1+ |
| 2005 03 09 | 691 | 0.2+ | 0.1+ | 2005 04 06 | G96 | 0.5− | 0.1− | 2007 10 09 | G96 | 0.1− | 0.2+ |
| 2005 03 09 | 691 | 0.1+ | 0.1− | 2005 05 06 | G96 | 0.3− | 0.7+ | | | | |

**2005 EO$_{93}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 305.58506 | | (2000.0) | | | |
| $n$ | 0.17118052 | $\omega$ | 63.34524 | | −0.94479678 | −0.22236907 |
| $a$ | 3.2124262 | $\Omega$ | 103.00944 | | +0.13435804 | −0.93278961 |
| $e$ | 0.0999207 | $i$ | 14.29926 | | +0.29884269 | −0.28364687 |
| $P$ | 5.76 | $H$ | 15.4 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 06 25 | 691 | 0.1− | 0.1+ | 2005 03 16 | 703 | 0.2− | 0.0 | 2009 12 16 | 691 | 0.0 | 0.1+ |
| 2000 06 25 | 691 | 0.0 | 0.1+ | 2005 04 01 | 703 | 0.7− | 0.6+ | 2009 12 16 | 691 | 0.0 | 0.0 |
| 2000 06 25 | 691 | 0.1+ | 0.1− | 2005 04 01 | 703 | 0.3− | 0.5+ | 2009 12 16 | 691 | 0.2+ | 0.2+ |
| 2005 03 08 | 704 | 0.4+ | 0.2− | 2005 04 01 | 703 | 0.7− | 0.2+ | 2009 12 16 | G96 | 0.1− | 0.0 |
| 2005 03 08 | 704 | 0.7+ | 0.4+ | 2005 04 01 | 703 | 0.1+ | 0.5− | 2009 12 16 | G96 | 0.3+ | 0.1− |
| 2005 03 08 | 704 | 0.8+ | 0.2− | 2005 04 02 | 699 | 0.5+ | 1.2+ | 2009 12 16 | G96 | 0.3+ | 0.2− |
| 2005 03 09 | 703 | 0.6− | 0.2− | 2005 04 02 | 699 | 0.9+ | 0.9− | 2009 12 16 | G96 | 0.2+ | 0.2− |
| 2005 03 09 | 703 | 0.0 | 0.3− | 2005 04 02 | 699 | 0.3− | 0.2− | 2009 12 16 | G96 | 0.0 | 0.1− |
| 2005 03 09 | 703 | 0.2− | 1.0+ | 2005 04 02 | 699 | 0.5+ | 0.3− | 2009 12 25 | 691 | 0.0 | 0.1− |
| 2005 03 09 | 703 | 0.7− | 0.0 | 2005 05 11 | G96 | 0.2− | 0.5− | 2009 12 25 | 691 | 0.5− | 0.2+ |
| 2005 03 16 | 703 | 0.3+ | 0.9− | 2005 05 11 | G96 | 0.1− | 0.1+ | 2009 12 25 | 691 | 0.0 | 0.1− |
| 2005 03 16 | 703 | 0.2− | 0.2+ | 2005 05 11 | G96 | 0.2+ | 0.3− | | | | |
| 2005 03 16 | 703 | (2.3+ | 0.6−) | 2005 05 11 | G96 | 0.1− | 0.2− | | | | |

**2005 EE$_{103}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 63.04508 | | (2000.0) | | | |
| $n$ | 0.25933381 | $\omega$ | 200.08871 | | −0.84633286 | +0.53257456 |
| $a$ | 2.4353607 | $\Omega$ | 12.10376 | | −0.48249633 | −0.75918868 |
| $e$ | 0.1300222 | $i$ | 2.52033 | | −0.22565012 | −0.37416157 |
| $P$ | 3.80 | $H$ | 17.3 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 03 04 | 691 | 0.2+ | 0.2+ | 2005 04 11 | G96 | 0.3− | 0.4− | 2005 05 13 | G96 | 0.1− | 0.2+ |
| 2005 03 04 | 691 | 0.0 | 0.3+ | 2005 04 11 | G96 | 0.3− | 0.2− | 2005 05 13 | G96 | 0.3− | 0.0 |
| 2005 03 04 | 691 | 0.2+ | 0.2+ | 2005 04 11 | G96 | 0.6− | 0.0 | 2009 03 16 | 691 | 0.0 | 0.3+ |
| 2005 03 10 | G96 | 0.6− | 0.6− | 2005 04 11 | G96 | 0.5− | 0.1− | 2009 03 16 | 691 | 0.2− | 0.2+ |
| 2005 03 10 | G96 | 0.3− | 0.4− | 2005 05 04 | G96 | 0.1− | 0.6− | 2009 03 16 | 691 | 0.5+ | 0.1− |
| 2005 03 10 | G96 | 0.6− | 0.5− | 2005 05 04 | G96 | 0.4− | 0.6− | 2009 04 16 | 703 | 1.1− | 0.6− |
| 2005 03 10 | G96 | 0.2− | 0.5− | 2005 05 04 | G96 | 0.1− | 0.4− | 2009 04 16 | 703 | 0.6− | 0.5− |
| 2005 04 11 | 691 | 0.1− | 0.1− | 2005 05 04 | G96 | 0.0 | 0.2− | 2009 04 16 | 703 | 0.2− | 0.6+ |
| 2005 04 11 | 691 | 0.3+ | 0.2+ | 2005 05 13 | G96 | 0.0 | 0.3+ | 2009 04 16 | 703 | 1.3+ | 0.3+ |
| 2005 04 11 | 691 | 0.1+ | 0.1− | 2005 05 13 | G96 | 0.3+ | 0.1+ | | | | |

**2005 ET$_{104}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 221.07749 | | (2000.0) | | | |
| $n$ | 0.28375918 | $\omega$ | 267.04848 | | +0.67445915 | −0.73738308 |
| $a$ | 2.2935212 | $\Omega$ | 140.45578 | | +0.69839216 | +0.62092110 |
| $e$ | 0.1334208 | $i$ | 3.33409 | | +0.23948539 | +0.26593830 |
| $P$ | 3.47 | $H$ | 17.1 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 01 17 | 691 | 0.0 | 0.1− | 2005 03 11 | 691 | 0.0 | 0.2+ | 2007 10 30 | 703 | 0.2+ | 0.2+ |
| 2005 01 17 | 691 | 0.3+ | 0.4− | 2005 03 11 | 691 | 0.1+ | 0.1− | 2007 10 30 | 703 | 0.8− | 0.7+ |
| 2005 01 17 | 691 | 0.1− | 0.4− | 2005 03 11 | 691 | 0.1+ | 0.3− | 2007 10 30 | 703 | 0.1− | 0.3+ |
| 2005 02 02 | 704 | 0.7− | 1.3+ | 2005 04 09 | G96 | 0.1+ | 0.3− | 2007 10 30 | 703 | 0.9− | 0.3+ |
| 2005 02 02 | 704 | 0.8− | 0.4+ | 2005 04 09 | G96 | 0.4− | 0.4− | 2009 03 02 | G96 | 0.2+ | 0.1− |
| 2005 02 02 | 704 | 0.6+ | 0.2+ | 2005 04 09 | G96 | 0.8− | 0.5+ | 2009 03 02 | G96 | 0.3− | 0.4+ |
| 2005 02 02 | 704 | 0.2+ | 1.4+ | 2005 04 09 | G96 | 0.7− | 0.4− | 2009 03 02 | G96 | 0.4− | 0.2+ |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 03 04 | G96 | 0.2− | 0.2− | 2007 10 08 | G96 | 0.4+ | 0.6− | 2009 03 02 | G96 | 0.5− | 0.1+ | |
| 2005 03 04 | G96 | 0.2− | 0.4− | 2007 10 08 | G96 | 0.5+ | 0.4− | 2009 03 18 | 691 | 0.2+ | 0.1+ | |
| 2005 03 04 | G96 | 0.1− | 0.9+ | 2007 10 08 | G96 | 0.7+ | 0.6− | 2009 03 18 | 691 | 0.2− | 0.0 | |
| 2005 03 04 | G96 | 0.6+ | 0.3+ | 2007 10 08 | G96 | 0.3+ | 0.4− | 2009 03 18 | 691 | 0.2+ | 0.4− | |

**2005 EX$_{110}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 82.32586 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27249002 | $\omega$ | 307.98429 | | −0.80354323 | +0.59470284 | |
| $a$ | 2.3563275 | $\Omega$ | 268.52136 | | −0.53784170 | −0.74369396 | |
| $e$ | 0.1601891 | $i$ | 1.45781 | | −0.25503840 | −0.30536507 | |
| $P$ | 3.62 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 03 04 | 704 | 0.8+ | 0.6− | 2005 03 17 | G96 | 0.3− | 0.3+ | 2005 05 14 | G96 | 0.0 | 0.2+ | |
| 2005 03 04 | 704 | 1.4+ | 0.2− | 2005 03 17 | G96 | 0.6− | 0.1+ | 2005 05 14 | G96 | 0.2+ | 0.0 | |
| 2005 03 04 | 704 | 0.1− | 0.1+ | 2005 03 17 | G96 | 0.2− | 0.1− | 2005 05 14 | G96 | 0.1+ | 0.2− | |
| 2005 03 11 | G96 | 0.2− | 0.2+ | 2005 03 17 | 703 | 0.2− | 0.5− | 2006 08 27 | 691 | 0.1− | 0.0 | |
| 2005 03 11 | G96 | 0.2+ | 0.2+ | 2005 03 17 | 703 | 1.6− | 0.9+ | 2006 08 27 | 691 | 0.2+ | 0.4+ | |
| 2005 03 11 | G96 | 0.8− | 0.5+ | 2005 03 17 | 703 | 0.5+ | 0.6− | 2006 08 27 | 691 | 0.2− | 0.0 | |
| 2005 03 11 | G96 | 0.0 | 0.1+ | 2005 03 17 | 703 | (0.4− | 2.3+) | 2009 05 28 | G96 | 0.2− | 0.1− | |
| 2005 03 12 | 704 | 0.9+ | 0.3− | 2005 04 09 | G96 | 0.1+ | 0.2+ | 2009 05 28 | G96 | 0.2+ | 0.0 | |
| 2005 03 12 | 704 | 0.2+ | 0.3+ | 2005 04 09 | G96 | 0.2+ | 0.2− | 2009 05 28 | G96 | 0.1+ | 0.1− | |
| 2005 03 12 | 704 | 0.5+ | 0.9+ | 2005 04 09 | G96 | 0.0 | 0.2+ | 2009 05 28 | G96 | 0.2− | 0.0 | |
| 2005 03 12 | 704 | 0.5− | 0.0 | 2005 04 09 | G96 | 0.5+ | 0.4+ | | | | | |
| 2005 03 17 | G96 | 0.2− | 0.0 | 2005 05 14 | G96 | 0.2− | 0.3− | | | | | |

**2005 EA$_{121}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 125.27332 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28301662 | $\omega$ | 239.92474 | | −0.99315866 | −0.06949683 | |
| $a$ | 2.2975312 | $\Omega$ | 295.94883 | | +0.10384057 | −0.89320149 | |
| $e$ | 0.1158579 | $i$ | 5.99040 | | −0.05341356 | −0.44425363 | |
| $P$ | 3.48 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 18 | 691 | 0.3− | 0.0 | 2005 02 14 | 809 | 0.4− | 0.2+ | 2005 03 10 | 703 | 0.1− | 0.8− | |
| 2003 10 18 | 691 | 0.0 | 0.1+ | 2005 03 07 | 704 | 1.2− | 0.3+ | 2005 03 11 | 699 | 0.3+ | 0.6− | |
| 2003 10 18 | 691 | 0.1+ | 0.2+ | 2005 03 07 | 704 | 0.1+ | 0.2− | 2005 03 11 | 699 | 0.7− | 0.0 | |
| 2004 12 20 | G96 | 0.5− | 0.1− | 2005 03 07 | 704 | 0.6+ | 1.1+ | 2005 03 11 | 699 | 0.2− | 0.2− | |
| 2004 12 20 | G96 | 0.2− | 0.1− | 2005 03 07 | 704 | 1.2+ | 0.3− | 2005 03 11 | 699 | 0.5− | 0.1− | |
| 2004 12 20 | G96 | 0.4− | 0.3+ | 2005 03 08 | 704 | 0.2+ | 1.0+ | 2007 12 16 | G96 | 0.1− | 0.1+ | |
| 2004 12 20 | G96 | 0.0 | 0.0 | 2005 03 08 | 704 | 0.4− | 0.1− | 2007 12 16 | G96 | 0.2+ | 0.1+ | |
| 2005 02 09 | 699 | 0.7+ | 1.2− | 2005 03 08 | 704 | 0.8− | 0.1− | 2007 12 16 | G96 | 0.1+ | 0.1+ | |
| 2005 02 09 | 699 | 0.6+ | 1.0+ | 2005 03 08 | 704 | 0.3+ | 0.2+ | 2007 12 16 | G96 | 0.2− | 0.1− | |
| 2005 02 09 | 699 | 1.4+ | 0.4+ | 2005 03 08 | 704 | 0.5− | 0.8+ | 2008 02 12 | G96 | 0.3− | 0.2− | |
| 2005 02 09 | 699 | 0.9+ | 1.1− | 2005 03 10 | 703 | 0.2+ | 0.6+ | 2008 02 12 | G96 | 0.1+ | 0.3− | |
| 2005 02 14 | 809 | 0.5− | 0.1+ | 2005 03 10 | 703 | 0.3− | 0.2− | 2008 02 12 | G96 | 0.1− | 0.2− | |
| 2005 02 14 | 809 | 0.3− | 0.1+ | 2005 03 10 | 703 | 0.7+ | 0.1− | 2008 02 12 | G96 | 0.3+ | 0.5− | |

**2005 EF$_{126}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 322.85263 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17521587 | $\omega$ | 109.65062 | | −0.91081792 | −0.34997713 | |
| $a$ | 3.1629118 | $\Omega$ | 50.51412 | | +0.18248793 | −0.81704755 | |
| $e$ | 0.1925187 | $i$ | 16.47863 | | +0.37028215 | −0.45820226 | |
| $P$ | 5.63 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 03 08 | 703 | 0.8− | 0.7− | 2005 03 15 | 703 | 0.1+ | 0.4− | 2005 04 12 | 699 | 0.4+ | 0.8− | |
| 2005 03 08 | 703 | 0.3− | 0.9− | 2005 03 15 | 703 | 0.6− | 0.2− | 2005 04 12 | 699 | 1.3+ | 0.6+ | |
| 2005 03 08 | 703 | 0.6− | 0.3− | 2005 03 15 | 703 | 0.5+ | 0.2− | 2005 04 12 | 699 | 0.8+ | 0.1+ | |
| 2005 03 08 | 703 | 0.6− | 0.7+ | 2005 03 15 | 703 | 0.9− | 0.7− | 2008 09 24 | G96 | 0.1+ | 0.1− | |
| 2005 03 08 | 704 | 0.2+ | 0.2+ | 2005 04 02 | 703 | 1.5− | 0.6− | 2008 09 24 | G96 | 0.2+ | 0.1+ | |
| 2005 03 08 | 704 | 0.2− | 0.4− | 2005 04 02 | 703 | 0.3− | 0.4− | 2008 09 24 | G96 | 0.3− | 0.3+ | |
| 2005 03 08 | 704 | 0.6+ | 0.1− | 2005 04 02 | 703 | 1.7− | 1.4− | 2008 09 24 | G96 | 0.4+ | 0.1+ | |
| 2005 03 08 | 704 | 0.5+ | 0.7+ | 2005 04 02 | 703 | 1.3− | 0.5− | 2008 10 22 | G96 | 0.3− | 0.2− | |
| 2005 03 08 | 704 | 0.3+ | 0.1+ | 2005 04 09 | 703 | 0.2+ | 0.6+ | 2008 10 22 | G96 | 0.4− | 0.1− | |
| 2005 03 10 | 703 | 0.3+ | 1.4+ | 2005 04 09 | 703 | 0.6− | 0.1+ | 2008 10 22 | G96 | 0.2+ | 0.0 | |
| 2005 03 10 | 703 | 0.9+ | 0.7+ | 2005 04 09 | 703 | 0.7+ | 0.9+ | 2008 10 22 | G96 | 0.2+ | 0.1− | |
| 2005 03 10 | 703 | 0.2+ | 0.4− | 2005 04 09 | 703 | 0.9+ | 0.4+ | | | | | |
| 2005 03 10 | 703 | 1.2+ | 1.3+ | 2005 04 12 | 699 | 0.4+ | 0.1+ | | | | | |

**2005 EK$_{128}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 190.73781 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18723475 | $\omega$ | 89.58389 | | +0.73273991 | +0.67966947 | |
| $a$ | 3.0260661 | $\Omega$ | 227.59785 | | −0.64114220 | +0.67285782 | |
| $e$ | 0.1192092 | $i$ | 2.62258 | | −0.22809847 | +0.29208176 | |
| $P$ | 5.26 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 12 29 | 691 | 0.2+ | 0.1− | 2005 03 13 | 691 | 0.2+ | 0.1+ | 2007 09 13 | 703 | 0.3− | 0.3+ | |
| 2003 12 29 | 691 | 0.2− | 0.1+ | 2005 03 13 | 691 | 0.3+ | 0.2− | 2007 09 13 | G96 | 0.1− | 0.3− | |
| 2003 12 29 | 691 | 0.0 | 0.0 | 2005 03 13 | 691 | 0.2+ | 0.1− | 2007 09 13 | G96 | 0.3− | 0.3− | |
| 2005 03 09 | 691 | 0.7− | 0.1+ | 2005 04 09 | G96 | 0.5− | 0.5− | 2007 09 13 | G96 | 0.1+ | 0.0 | |
| 2005 03 09 | 691 | 0.4+ | 0.2+ | 2005 04 09 | G96 | 0.0 | 0.1+ | 2007 09 13 | G96 | 0.1− | 0.1− | |
| 2005 03 09 | 691 | 0.0 | 0.2+ | 2005 04 09 | G96 | 0.2− | 0.1− | 2007 10 11 | G96 | 0.2+ | 0.3− | |
| 2005 03 11 | G96 | 0.2− | 0.3− | 2005 04 09 | G96 | 0.2− | 0.3− | 2007 10 11 | G96 | 0.3− | 0.3− | |
| 2005 03 11 | G96 | 0.1− | 0.1− | 2007 09 13 | 703 | 0.4− | 0.4+ | 2007 10 11 | G96 | 0.1− | 0.2− | |
| 2005 03 11 | G96 | 0.1− | 0.1− | 2007 09 13 | 703 | 0.5+ | 0.1− | 2007 10 11 | G96 | 0.0 | 0.4− | |
| 2005 03 11 | G96 | 0.1− | 0.3− | 2007 09 13 | 703 | 1.1+ | 0.6+ | | | | | |

**2005 EN$_{144}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 330.34772 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18562180 | $\omega$ | 167.11016 | | −0.99270701 | −0.11931423 | |
| $a$ | 3.0435707 | $\Omega$ | 6.11620 | | +0.09118439 | −0.83666110 | |
| $e$ | 0.0895668 | $i$ | 9.30714 | | +0.07885561 | −0.53456741 | |
| $P$ | 5.31 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 03 03 | 691 | 0.1+ | 0.3− | 2005 03 16 | 691 | 0.0 | 0.1+ | 2005 04 04 | G96 | 0.1− | 0.3− | |
| 2005 03 03 | 691 | 0.2− | 0.0 | 2005 03 16 | 691 | 0.0 | 0.0 | 2008 11 03 | 691 | 0.2− | 0.1− | |
| 2005 03 03 | 691 | 0.1− | 0.1− | 2005 03 16 | 691 | 0.1− | 0.1+ | 2008 11 03 | 691 | 0.1− | 0.1+ | |
| 2005 03 10 | G96 | 0.4− | 0.7− | 2005 03 17 | 703 | 0.3− | 0.3− | 2008 11 03 | 691 | 0.2+ | 0.0 | |
| 2005 03 10 | G96 | 0.5− | 0.5− | 2005 03 17 | 703 | 0.7+ | 0.1− | 2008 12 03 | G96 | 0.2+ | 0.1− | |
| 2005 03 10 | G96 | 0.3− | 0.5− | 2005 03 17 | 703 | 0.4− | 1.8− | 2008 12 03 | G96 | 0.2+ | 0.2+ | |
| 2005 03 10 | G96 | 0.3− | 0.5− | 2005 03 17 | 703 | 0.6− | 0.2+ | 2008 12 03 | G96 | 0.3− | 0.1− | |
| 2005 03 11 | 691 | 0.6+ | 0.9+ | 2005 04 04 | G96 | 0.2− | 0.5+ | 2008 12 03 | G96 | 0.2+ | 0.0 | |
| 2005 03 11 | 691 | 0.2+ | 0.1+ | 2005 04 04 | G96 | 0.2− | 0.1+ | | | | | |
| 2005 03 11 | 691 | 0.1+ | 0.2+ | 2005 04 04 | G96 | 0.1− | 0.1− | | | | | |

**2005 EP$_{155}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 338.86209 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17694024 | $\omega$ | 321.46377 | | −0.85222717 | −0.52051642 | |
| $a$ | 3.1423289 | $\Omega$ | 187.73084 | | +0.52167294 | −0.85308397 | |
| $e$ | 0.1957838 | $i$ | 23.03896 | | −0.03957517 | −0.03619936 | |
| $P$ | 5.57 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 03 08 | G96 | 0.5− | 0.0 | 2005 04 01 | 691 | 0.3+ | 0.1+ | 2005 05 04 | 691 | 0.1+ | 0.0 | |
| 2005 03 08 | G96 | 0.3− | 0.1+ | 2005 04 01 | 691 | 0.2+ | 0.2+ | 2005 05 04 | 691 | 0.2+ | 0.4− | |
| 2005 03 08 | G96 | 0.5− | 0.1− | 2005 04 01 | 691 | 0.3+ | 0.2+ | 2005 05 04 | 691 | 0.0 | 0.1− | |
| 2005 03 08 | G96 | 0.3− | 0.0 | 2005 04 04 | 703 | 1.0− | 0.3+ | 2008 10 06 | G96 | 0.2− | 0.1+ | |
| 2005 03 12 | 691 | 0.3+ | 0.0 | 2005 04 04 | 703 | 0.2+ | 0.0 | 2008 10 06 | G96 | 0.0 | 0.0 | |
| 2005 03 12 | 691 | 0.2+ | 0.3− | 2005 04 04 | 703 | 1.0− | 0.7− | 2008 10 06 | G96 | 0.4+ | 0.0 | |
| 2005 03 12 | 691 | 0.2+ | 0.1− | 2005 04 04 | 703 | 0.2+ | 0.9− | 2008 10 06 | G96 | 0.2+ | 0.1− | |
| 2005 03 18 | 703 | 0.4− | 0.3− | 2005 04 09 | 699 | 0.1− | 1.6+ | 2008 10 22 | G96 | 0.6− | 0.0 | |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 03 18 | 703 | 0.9− | 0.4+ | 2005 04 09 | 699 | 0.1− | 0.3+ | 2008 10 22 | G96 | 0.8+ | 0.1+ |
| 2005 03 18 | 703 | 0.4− | 0.6− | 2005 04 09 | 699 | 0.5+ | 0.1+ | 2008 10 22 | G96 | 1.1− | 0.0 |
| 2005 03 18 | 703 | 1.6− | 0.5+ | 2005 04 09 | 699 | 1.0− | 0.1− | 2008 10 22 | G96 | 0.6+ | 0.5− |

**2005 EB$_{176}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 266.14685 | | (2000.0) | | | |
| $n$ | 0.17258358 | $\omega$ | 44.58782 | | −0.65515689 | +0.75442763 |
| $a$ | 3.1949916 | $\Omega$ | 184.99913 | | −0.75508664 | −0.65214085 |
| $e$ | 0.1745231 | $i$ | 27.40204 | | +0.02477111 | +0.07450685 |
| $P$ | 5.71 | $H$ | 16.1 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 03 08 | 691 | 0.1+ | 0.1− | 2005 05 10 | G96 | 0.5− | 0.1+ | 2007 09 12 | 691 | 0.3+ | 0.3+ |
| 2005 03 08 | 691 | 0.2+ | 0.1+ | 2005 05 10 | G96 | 0.5− | 0.2+ | 2007 09 12 | 691 | 0.5− | 0.3+ |
| 2005 03 08 | 691 | 0.1+ | 0.1+ | 2005 05 10 | G96 | 0.6− | 0.6+ | 2007 09 12 | 691 | 0.2− | 0.2− |
| 2005 03 13 | 691 | 0.0 | 0.0 | 2005 05 11 | G96 | 0.1− | 0.1− | 2007 10 16 | G96 | 1.4+ | 0.4− |
| 2005 03 13 | 691 | 0.1+ | 0.0 | 2005 05 11 | G96 | 0.6− | 0.4+ | 2007 10 16 | G96 | 1.1+ | 0.7+ |
| 2005 03 13 | 691 | 0.0 | 0.1+ | 2005 05 11 | G96 | 0.3− | 0.1− | 2007 10 16 | G96 | 0.3+ | 0.1+ |
| 2005 05 10 | G96 | 0.1− | 0.5+ | 2005 05 11 | G96 | 0.2− | 0.2+ | 2007 10 16 | G96 | 0.7− | 0.8+ |

**2005 ED$_{177}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 4.35612 | | (2000.0) | | | |
| $n$ | 0.17773618 | $\omega$ | 298.52240 | | −0.66999214 | −0.74071355 |
| $a$ | 3.1329406 | $\Omega$ | 193.89528 | | +0.73259320 | −0.64890344 |
| $e$ | 0.1163012 | $i$ | 11.90439 | | +0.12007388 | −0.17397635 |
| $P$ | 5.55 | $H$ | 15.8 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 03 08 | G96 | 0.7− | 0.1+ | 2005 04 11 | 691 | 0.0 | 0.0 | 2005 05 11 | G96 | 0.3− | 0.4− |
| 2005 03 08 | G96 | 0.6− | 0.2− | 2005 04 11 | 691 | 0.1− | 0.3− | 2008 09 07 | G96 | 0.5− | 0.0 |
| 2005 03 08 | G96 | 0.6− | 0.2− | 2005 04 12 | 691 | 0.1− | 0.2− | 2008 09 07 | G96 | 0.3− | 0.2− |
| 2005 03 08 | G96 | 0.7− | 0.1+ | 2005 04 12 | 691 | 0.1− | 0.4− | 2008 09 07 | G96 | 0.1− | 0.6+ |
| 2005 03 13 | 691 | 0.1− | 0.1− | 2005 04 12 | 691 | 0.0 | 0.1− | 2008 09 07 | G96 | 0.3− | 0.1+ |
| 2005 03 13 | 691 | 0.0 | 0.1− | 2005 04 19 | 691 | 0.2+ | 0.1+ | 2008 10 07 | G96 | 0.0 | 0.2+ |
| 2005 03 13 | 691 | 0.5− | 0.2+ | 2005 04 19 | 691 | 0.1+ | 0.5+ | 2008 10 07 | G96 | 0.3− | 0.2− |
| 2005 03 17 | 691 | 0.4+ | 0.3+ | 2005 04 19 | 691 | 0.2+ | 0.4+ | 2008 10 07 | G96 | 0.1− | 0.4− |
| 2005 03 17 | 691 | 0.3+ | 0.0 | 2005 05 08 | 691 | 0.1+ | 0.2+ | 2008 10 07 | G96 | 0.2+ | 0.0 |
| 2005 03 17 | 691 | 0.1+ | 0.1+ | 2005 05 08 | 691 | 0.3+ | 0.2+ | 2008 11 08 | G96 | 0.4+ | 0.1+ |
| 2005 04 02 | 691 | 0.1+ | 0.3− | 2005 05 08 | 691 | 0.0 | 0.1+ | 2008 11 08 | G96 | 0.0 | 0.2− |
| 2005 04 02 | 691 | 0.0 | 0.1− | 2005 05 11 | G96 | 0.4− | 0.3− | 2008 11 08 | G96 | 0.4+ | 0.2− |
| 2005 04 02 | 691 | 0.0 | 0.0 | 2005 05 11 | G96 | 0.3− | 0.6− | 2008 11 08 | G96 | 0.4+ | 0.6+ |
| 2005 04 11 | 691 | 0.1+ | 0.0 | 2005 05 11 | G96 | 0.5− | 0.5− | | | | |

**2005 EB$_{179}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 142.59928 | | (2000.0) | | | |
| $n$ | 0.27636249 | $\omega$ | 185.29086 | | −0.90345456 | −0.42741988 |
| $a$ | 2.3342640 | $\Omega$ | 329.33817 | | +0.39563790 | −0.80180751 |
| $e$ | 0.0257308 | $i$ | 3.69840 | | +0.16504698 | −0.41763258 |
| $P$ | 3.57 | $H$ | 17.6 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 08 21 | 691 | 0.4− | 0.3+ | 2005 03 09 | 691 | 0.1− | 0.2+ | 2005 04 12 | G96 | 0.3− | 0.0 |
| 1999 08 21 | 691 | 0.1− | 0.2+ | 2005 03 09 | 691 | 0.1+ | 0.3+ | 2005 04 12 | G96 | 0.2− | 0.2− |
| 1999 08 21 | 691 | 0.2+ | 0.1+ | 2005 03 13 | 691 | 0.0 | 0.3+ | 2005 05 14 | G96 | 0.1− | 0.3− |
| 2003 09 30 | 691 | 0.2− | 0.3+ | 2005 03 13 | 691 | 0.3+ | 0.2+ | 2005 05 14 | G96 | 0.0 | 0.5− |
| 2003 09 30 | 691 | 0.0 | 0.1+ | 2005 03 13 | 691 | 0.2+ | 0.1+ | 2005 05 14 | G96 | 0.3− | 0.3− |
| 2003 09 30 | 691 | 0.1+ | 0.2− | 2005 04 12 | G96 | 0.2− | 0.2− | 2005 05 14 | G96 | 0.1− | 0.7− |
| 2005 03 09 | 691 | 0.1+ | 0.2+ | 2005 04 12 | G96 | 0.1+ | 0.3− | | | | |

**2005 EL$_{185}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 293.93845 | | (2000.0) | | | |
| $n$ | 0.17480378 | $\omega$ | 330.72353 | | −0.86460470 | +0.48525353 |
| $a$ | 3.1678808 | $\Omega$ | 238.87760 | | −0.42628570 | −0.84574125 |
| $e$ | 0.1987394 | $i$ | 8.75741 | | −0.26596846 | −0.22192512 |
| $P$ | 5.64 | $H$ | 15.3 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 03 09 | E12 | 0.1− | 1.1+ | 2005 03 18 | 599 | 0.2+ | 0.6+ | 2008 11 30 | G96 | 0.0 | 0.2+ |
| 2005 03 09 | E12 | 0.1− | 0.8− | 2005 03 18 | 599 | 0.5+ | 0.1+ | 2008 11 30 | G96 | 0.1+ | 0.1+ |
| 2005 03 09 | E12 | 1.3− | 0.3− | 2005 04 05 | 699 | 0.4+ | 0.0 | 2008 11 30 | G96 | 0.1+ | 0.4− |
| 2005 03 09 | E12 | 1.0− | 0.8− | 2005 04 05 | 699 | 0.2+ | 0.3+ | 2008 12 21 | G96 | 0.4− | 0.0 |
| 2005 03 13 | 699 | 0.8+ | 0.2− | 2005 04 05 | 699 | 0.4+ | 0.4+ | 2008 12 21 | G96 | 0.1+ | 0.1− |
| 2005 03 13 | 699 | 0.6− | 0.2− | 2005 04 14 | 703 | 1.0− | 0.1− | 2008 12 21 | G96 | 0.5− | 0.2+ |
| 2005 03 13 | 699 | 1.2− | 0.1− | 2005 04 14 | 703 | 0.4+ | 0.2− | 2008 12 21 | G96 | 0.1− | 0.2+ |
| 2005 03 13 | 691 | 0.3+ | 0.1+ | 2005 04 14 | 703 | 0.5− | 1.2− | 2009 11 27 | G96 | 0.1+ | 0.0 |
| 2005 03 13 | 691 | 0.2+ | 0.0 | 2005 04 14 | 703 | 0.1− | 0.1− | 2009 11 27 | G96 | 0.0 | 0.1+ |
| 2005 03 13 | 699 | 0.5− | 0.5+ | 2005 05 01 | 644 | 0.0 | 0.2+ | 2009 11 27 | G96 | 0.0 | 0.4− |
| 2005 03 13 | 691 | 0.3+ | 0.0 | 2005 05 01 | 644 | 0.0 | 0.1+ | 2009 11 27 | G96 | 0.1− | 0.2+ |
| 2005 03 18 | 599 | 0.2+ | 0.0 | 2005 05 01 | 644 | 0.0 | 0.3+ | 2009 11 27 | G96 | 0.0 | 0.1− |
| 2005 03 18 | 599 | 0.2+ | 0.1+ | 2008 11 30 | G96 | 0.4+ | 0.1− | | | | |

**2005 EJ$_{208}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 280.09100 | | (2000.0) | | | |
| $n$ | 0.17048717 | $\omega$ | 204.77642 | | −0.98682333 | +0.15528964 |
| $a$ | 3.2211299 | $\Omega$ | 343.95912 | | −0.10689758 | −0.83654769 |
| $e$ | 0.0060793 | $i$ | 9.46513 | | −0.12146038 | −0.52542657 |
| $P$ | 5.78 | $H$ | 15.5 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 03 04 | 691 | 0.4+ | 0.0 | 2005 04 09 | G96 | 0.3− | 0.2− | 2008 09 29 | G96 | 0.0 | 0.1− |
| 2005 03 04 | 691 | 0.4+ | 0.2+ | 2005 04 10 | 691 | 0.1+ | 0.1+ | 2008 09 29 | G96 | 0.0 | 0.0 |
| 2005 03 08 | G96 | 0.4− | 0.2− | 2005 04 10 | 691 | 0.1+ | 0.1+ | 2008 09 29 | G96 | 0.1− | 0.2+ |
| 2005 03 08 | G96 | 0.3− | 0.2− | 2005 04 10 | 691 | 0.1− | 0.1− | 2008 10 30 | G96 | 0.2+ | 0.1− |
| 2005 03 08 | G96 | 0.4− | 0.2− | 2005 05 14 | G96 | 0.4− | 0.1− | 2008 10 30 | G96 | 0.1+ | 0.0 |
| 2005 03 08 | G96 | 0.7− | 0.1− | 2005 05 14 | G96 | 0.5− | 0.1+ | 2008 10 30 | G96 | 0.2+ | 0.1+ |
| 2005 04 09 | G96 | 0.4+ | 0.3− | 2005 05 14 | G96 | 0.4− | 0.0 | 2008 10 30 | G96 | 0.4− | 0.1− |
| 2005 04 09 | G96 | 0.5− | 0.2+ | 2005 05 14 | G96 | 0.3− | 0.2− | | | | |
| 2005 04 09 | G96 | 0.2+ | 0.5− | 2008 09 29 | G96 | 0.0 | 0.2− | | | | |

**2005 EY$_{238}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 221.84749 | | (2000.0) | | | |
| $n$ | 0.17342761 | $\omega$ | 249.56511 | | −0.03792670 | +0.99853205 |
| $a$ | 3.1846171 | $\Omega$ | 18.38914 | | −0.86505503 | −0.01343586 |
| $e$ | 0.0520128 | $i$ | 7.04086 | | −0.50024130 | −0.05247121 |
| $P$ | 5.68 | $H$ | 15.8 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 03 11 | 691 | 0.3+ | 0.5+ | 2005 05 06 | G96 | 0.3− | 0.4+ | 2008 10 21 | 691 | 1.1− | 0.1+ |
| 2005 03 11 | 691 | 0.2+ | 0.0 | 2005 05 06 | G96 | 0.1+ | 0.3+ | 2008 10 21 | 691 | 0.4+ | 0.4+ |
| 2005 03 11 | 691 | 0.2+ | 0.3− | 2005 05 06 | G96 | 0.1− | 0.3+ | 2008 10 21 | 691 | 0.2− | 0.0 |
| 2005 03 16 | G96 | 0.6− | 0.2− | 2005 05 06 | G96 | 0.0 | 0.4+ | 2008 10 29 | 691 | 0.4− | 0.1− |
| 2005 03 16 | G96 | 0.3− | 1.0+ | 2007 09 12 | 691 | 0.2− | 0.0 | 2008 10 29 | 691 | 0.4+ | 0.1− |
| 2005 03 16 | G96 | 0.1− | 0.3− | 2007 09 12 | 691 | 0.2− | 0.3+ | 2008 10 29 | 691 | 0.2+ | 0.0 |
| 2005 03 16 | G96 | 0.0 | 0.3+ | 2007 09 12 | 691 | 0.4− | 0.5+ | 2008 12 04 | G96 | 0.5+ | 0.1− |
| 2005 04 11 | G96 | 0.1− | 0.1+ | 2007 10 08 | G96 | 0.3+ | 0.1+ | 2008 12 04 | G96 | 1.0+ | 0.0 |
| 2005 04 11 | G96 | 0.2+ | 0.3+ | 2007 10 08 | G96 | 0.8+ | 0.2+ | 2008 12 04 | G96 | 0.7+ | 0.2+ |
| 2005 04 11 | G96 | 0.1− | 0.1+ | 2007 10 08 | G96 | 0.1+ | 0.1− | 2008 12 04 | G96 | 0.2+ | 0.0 |
| 2005 04 11 | G96 | 0.1+ | 0.1− | 2007 10 08 | G96 | 0.4+ | 0.4− | | | | |

**2005 EL$_{252}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 323.68544 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17784999 | $\omega$ | 343.55673 | | −0.99954564 | −0.01479348 | |
| $a$ | 3.1316039 | $\Omega$ | 195.66599 | | +0.02221150 | −0.95048445 | |
| $e$ | 0.0984945 | $i$ | 5.58107 | | −0.02037542 | −0.31041980 | |
| $P$ | 5.54 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 03 10 | G96 | 0.3− | 0.3+ | 2005 04 02 | 691 | 0.0 | 0.0 | 2008 11 01 | G96 | 0.1+ | 0.0 | |
| 2005 03 10 | G96 | 0.2− | 0.1− | 2005 04 09 | G96 | 0.5− | 0.4+ | 2008 11 01 | G96 | 0.1− | 0.3+ | |
| 2005 03 10 | G96 | 0.2− | 0.1− | 2005 04 09 | G96 | 0.3− | 0.5+ | 2008 11 01 | G96 | 0.1+ | 0.1− | |
| 2005 03 10 | G96 | 0.1− | 0.1+ | 2005 04 09 | G96 | 0.5− | 0.4+ | 2008 11 01 | G96 | 0.2− | 0.1+ | |
| 2005 03 17 | 691 | 0.1+ | 0.0 | 2005 04 09 | G96 | 0.3− | 0.1+ | 2009 01 01 | G96 | 0.1+ | 0.4− | |
| 2005 03 17 | 691 | 0.1+ | 0.0 | 2005 05 06 | G96 | 0.2− | 0.0 | 2009 01 01 | G96 | 0.2− | 0.2+ | |
| 2005 03 17 | 691 | 0.0 | 0.1− | 2005 05 06 | G96 | 1.0+ | 0.1+ | 2009 01 01 | G96 | 0.3− | 0.1+ | |
| 2005 04 02 | 691 | 0.1+ | 0.1− | 2005 05 06 | G96 | 0.4− | 0.2− | 2009 01 01 | G96 | 0.6+ | 0.1− | |
| 2005 04 02 | 691 | 0.3+ | 0.1− | 2005 05 06 | G96 | 0.2− | 0.3− | | | | | |

**2005 EA$_{255}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 50.03304 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19185367 | $\omega$ | 117.70367 | | −0.02394240 | −0.99691649 | |
| $a$ | 2.9773003 | $\Omega$ | 333.35019 | | +0.84850583 | +0.01926293 | |
| $e$ | 0.0174820 | $i$ | 9.59043 | | +0.52864413 | −0.07606872 | |
| $P$ | 5.14 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 03 03 | 703 | 0.1+ | 0.2+ | 2005 03 17 | G96 | 0.2− | 0.4− | 2007 08 09 | 691 | 0.2+ | 0.1+ | |
| 2005 03 03 | 703 | 0.8+ | 0.4− | 2005 03 17 | G96 | 0.3− | 0.4− | 2007 08 09 | 691 | 0.1− | 0.1+ | |
| 2005 03 03 | 703 | 0.6− | 0.3− | 2005 03 17 | G96 | 0.3− | 0.3− | 2007 08 09 | 691 | 0.1− | 0.1− | |
| 2005 03 03 | 703 | 0.0 | 0.3− | 2005 04 04 | 691 | 0.4− | 0.4+ | 2007 09 04 | G96 | 0.3+ | 0.5− | |
| 2005 03 11 | G96 | 0.0 | 0.3− | 2005 04 04 | 691 | 0.3+ | 0.4+ | 2007 09 04 | G96 | 0.0 | 0.4− | |
| 2005 03 11 | G96 | 0.0 | 0.6− | 2005 04 04 | 691 | 0.4+ | 0.0 | 2007 09 04 | G96 | 0.3+ | 0.3− | |
| 2005 03 11 | G96 | 0.1− | 0.2− | 2005 04 12 | 691 | 0.0 | 0.1+ | 2007 09 04 | G96 | 0.1+ | 0.4− | |
| 2005 03 11 | G96 | 0.1− | 0.2− | 2005 04 12 | 691 | 0.2− | 0.2− | | | | | |
| 2005 03 17 | G96 | 0.0 | 0.3− | 2005 04 12 | 691 | 0.0 | 0.1− | | | | | |

**2005 EN$_{279}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 37.36334 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21361088 | $\omega$ | 180.68459 | | −0.55054890 | −0.82488822 | |
| $a$ | 2.7715357 | $\Omega$ | 302.72816 | | +0.76663959 | −0.43877487 | |
| $e$ | 0.2576048 | $i$ | 8.77104 | | +0.33039317 | −0.35642116 | |
| $P$ | 4.61 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 08 | 704 | 1.2+ | 0.2− | 2005 02 09 | 699 | 0.5+ | 0.2+ | 2008 10 25 | 703 | 0.8− | 0.8− | |
| 2004 12 08 | 704 | 0.7+ | 0.8+ | 2005 02 09 | 699 | 0.4+ | 0.4− | 2008 10 25 | 703 | 1.3+ | 0.0 | |
| 2004 12 08 | 704 | 0.7− | 0.7+ | 2005 02 09 | 699 | 0.9+ | 0.5− | 2008 10 25 | 703 | 1.4− | 0.8+ | |
| 2004 12 20 | G96 | 0.6− | 0.2− | 2005 02 09 | 699 | 0.2+ | 0.1+ | 2008 10 25 | 703 | 0.6+ | 0.7− | |
| 2004 12 20 | G96 | 0.9− | 0.9− | 2005 03 10 | 703 | 0.5+ | 0.5+ | 2008 11 07 | 703 | 0.1− | 0.1+ | |
| 2004 12 20 | G96 | 1.3− | 0.7− | 2005 03 10 | 703 | 0.7+ | 0.3+ | 2008 11 07 | 703 | 0.9+ | 0.6− | |
| 2004 12 20 | G96 | 1.3− | 0.6− | 2005 03 10 | 703 | 0.3+ | 0.1+ | 2008 11 07 | 703 | 0.2− | 0.1+ | |
| 2005 01 06 | 704 | 0.2+ | 0.2− | 2005 03 10 | 703 | 0.0 | 0.2+ | 2008 11 07 | 703 | 0.3+ | 0.3+ | |
| 2005 01 06 | 704 | 0.9+ | 0.1+ | 2005 03 17 | 703 | 0.7− | 0.2+ | 2008 12 01 | G92 | 0.5− | 0.2− | |
| 2005 01 06 | 704 | 0.6+ | 0.3+ | 2005 03 17 | 703 | 0.0 | 0.0 | 2008 12 01 | G92 | 0.4− | 0.4+ | |
| 2005 01 06 | 704 | 0.2− | 0.1− | 2005 03 17 | 703 | 0.8− | 0.3+ | 2008 12 01 | G92 | 0.1− | 1.1+ | |
| 2005 01 06 | 704 | 0.1− | 0.1− | 2005 03 17 | 703 | 1.1− | 0.2− | | | | | |

**2005 EB$_{286}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 66.00195 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22728355 | $\omega$ | 51.33287 | | −0.71234110 | −0.63410863 | |
| $a$ | 2.6592390 | $\Omega$ | 87.13184 | | +0.51316345 | −0.76296016 | |
| $e$ | 0.1321493 | $i$ | 17.52790 | | +0.47878328 | −0.12569022 | |
| $P$ | 4.34 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 03 19 | 645 | 0.0 | 0.0 | 2005 03 09 | 703 | 0.3− | 0.3− | 2008 12 30 | 703 | 0.5− | 0.4− | |
| 2001 03 19 | 645 | 0.1+ | 0.1+ | 2005 03 09 | 703 | 0.3− | 0.1− | 2008 12 30 | 703 | 0.3+ | 0.2− | |
| 2005 03 01 | 703 | 0.7+ | 0.0 | 2005 03 09 | 703 | 0.6+ | 0.0 | 2008 12 30 | 703 | 0.5+ | 0.1− | |
| 2005 03 01 | 703 | 0.0 | 0.9+ | 2005 04 01 | 703 | 0.6+ | 1.4− | 2009 01 20 | 703 | 0.2+ | 0.5+ | |
| 2005 03 01 | 703 | 0.2− | 0.8+ | 2005 04 01 | 703 | 0.6− | 0.9+ | 2009 01 20 | 703 | 0.1+ | 0.0 | |
| 2005 03 01 | 703 | 0.3− | 0.9+ | 2005 04 01 | 703 | 0.2− | 0.7− | 2009 01 20 | 703 | 1.0− | 0.2+ | |
| 2005 03 09 | 703 | 0.1+ | 0.5− | 2005 04 01 | 703 | 0.8− | 0.6+ | 2009 01 20 | 703 | 0.6− | 0.2+ | |
| 2005 03 09 | 703 | 0.5− | 0.2− | 2005 04 05 | 644 | 0.7+ | 0.3− | 2009 01 30 | 703 | 0.6+ | 0.3− | |
| 2005 03 09 | 703 | 0.2− | 0.1− | 2005 04 05 | 644 | 0.2+ | 0.0 | 2009 01 30 | 703 | 0.3+ | 0.1+ | |
| 2005 03 09 | 703 | 0.2+ | 1.3− | 2005 04 05 | 644 | 0.7+ | 0.3+ | 2009 01 30 | 703 | 0.0 | 0.2+ | |
| 2005 03 09 | 703 | 0.3− | 0.1− | 2008 12 30 | 703 | 0.6+ | 0.0 | 2009 01 30 | 703 | 0.6− | 0.0 | |

**2005 EC$_{312}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 26.08989 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26382314 | $\omega$ | 231.19979 | | −0.17362821 | +0.98446865 | |
| $a$ | 2.4076543 | $\Omega$ | 28.83311 | | −0.88602827 | −0.14464411 | |
| $e$ | 0.1411443 | $i$ | 3.08755 | | −0.42989202 | −0.09949653 | |
| $P$ | 3.74 | $H$ | 17.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 03 10 | 695 | 0.6+ | 0.0 | 2005 05 13 | G96 | 0.3+ | 0.2+ | 2009 03 31 | G96 | 0.4+ | 0.1− | |
| 2005 03 10 | 695 | 0.1+ | 0.1+ | 2005 05 13 | G96 | 0.1+ | 0.5+ | 2009 03 31 | G96 | 0.0 | 0.2− | |
| 2005 03 16 | G96 | 0.4− | 0.3+ | 2005 05 13 | G96 | 0.7+ | 0.5+ | 2009 03 31 | G96 | 0.6+ | 0.1+ | |
| 2005 03 16 | G96 | 0.1− | 0.3+ | 2005 05 13 | G96 | 0.1+ | 0.6+ | 2009 03 31 | G96 | 0.1+ | 0.0 | |
| 2005 03 16 | G96 | 0.1− | 0.2− | 2009 03 16 | 691 | 0.5− | 0.1− | 2009 05 14 | G96 | 0.4− | 0.3+ | |
| 2005 03 16 | G96 | 0.3− | 0.1− | 2009 03 16 | 691 | 0.0 | 0.0 | 2009 05 14 | G96 | 0.2− | 0.1− | |
| 2005 04 11 | G96 | 0.2− | 0.2− | 2009 03 16 | 691 | 0.3− | 0.0 | 2009 05 14 | G96 | 0.2− | 0.2+ | |
| 2005 04 11 | G96 | 0.1− | 0.1+ | 2009 03 31 | G96 | 1.4+ | 0.7− | 2009 05 14 | G96 | 0.4+ | 0.4+ | |
| 2005 04 11 | G96 | 0.2+ | 0.4− | 2009 03 31 | G96 | 0.5+ | 0.1− | | | | | |
| 2005 04 11 | G96 | 0.1+ | 0.2− | 2009 03 31 | G96 | 0.1− | 0.3− | | | | | |

**2005 EN$_{316}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 291.36658 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19908814 | $\omega$ | 62.51640 | | −0.56478753 | +0.82522656 | |
| $a$ | 2.9047301 | $\Omega$ | 173.09192 | | −0.76844766 | −0.52413914 | |
| $e$ | 0.0141681 | $i$ | 1.91580 | | −0.30083756 | −0.21042641 | |
| $P$ | 4.95 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 03 11 | 695 | 0.1− | 0.2+ | 2005 04 02 | G96 | 0.3− | 0.0 | 2008 12 01 | 691 | 0.1− | 0.2+ | |
| 2005 03 11 | 695 | 0.1− | 0.0 | 2005 04 02 | G96 | 0.1− | 0.2+ | 2008 12 01 | 691 | 0.1− | 0.2− | |
| 2005 03 16 | 691 | 0.2+ | 0.0 | 2005 04 04 | G96 | 0.3− | 0.2− | 2008 12 29 | 691 | 0.1− | 0.0 | |
| 2005 03 16 | 691 | 0.2+ | 0.2+ | 2005 04 04 | G96 | 0.2− | 0.2− | 2008 12 29 | 691 | 0.2+ | 0.1− | |
| 2005 03 16 | 691 | 0.1+ | 0.1− | 2005 04 04 | G96 | 0.1− | 0.0 | 2008 12 29 | 691 | 0.0 | 0.2+ | |
| 2005 04 02 | G96 | 0.2− | 0.1− | 2005 04 04 | G96 | 0.3− | 0.3− | | | | | |
| 2005 04 02 | G96 | 0.3− | 0.2− | 2008 12 01 | 691 | 0.1+ | 0.2− | | | | | |

**2005 EP$_{317}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 27.81667 | | (2000.0) | | | |
| $n$ | 0.18910391 | $\omega$ | 96.74375 | | −0.36595522 | −0.92926283 |
| $a$ | 3.0060928 | $\Omega$ | 15.02622 | | +0.75831031 | −0.32919261 |
| $e$ | 0.1555181 | $i$ | 11.22572 | | +0.53948332 | −0.16763898 |
| $P$ | 5.21 | $H$ | 15.9 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 03 12 | 695 | 0.2+ | 0.2+ | 2005 04 04 | G96 | 0.1− | 0.1− | 2008 10 09 | 691 | 0.8+ | 0.2+ |
| 2005 03 12 | 695 | 0.2+ | 0.2+ | 2005 04 04 | G96 | 0.0 | 0.4− | 2008 10 09 | 691 | 0.1+ | 0.2+ |
| 2005 03 14 | G96 | 0.5− | 0.2− | 2005 04 04 | G96 | 0.0 | 0.3− | 2008 10 09 | 691 | 0.6− | 0.5− |
| 2005 03 14 | G96 | 0.3− | 0.1+ | 2005 05 06 | G96 | 0.1− | 0.2+ | 2008 10 31 | G96 | 0.1− | 0.1+ |
| 2005 03 14 | G96 | 0.6− | 0.2+ | 2005 05 06 | G96 | 0.3+ | 0.1− | 2008 10 31 | G96 | 0.2− | 0.1+ |
| 2005 03 14 | G96 | 0.1+ | 0.2+ | 2005 05 06 | G96 | 0.3+ | 0.2− | 2008 10 31 | G96 | 0.4− | 0.1+ |
| 2005 04 04 | G96 | 0.3+ | 0.1− | 2005 05 06 | G96 | 0.3+ | 0.0 | 2008 10 31 | G96 | 0.3− | 0.0 |

**2005 EG$_{330}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 331.13692 | | (2000.0) | | | |
| $n$ | 0.18290264 | $\omega$ | 53.14717 | | −0.92019616 | −0.34791651 |
| $a$ | 3.0736617 | $\Omega$ | 105.87283 | | +0.27264824 | −0.89851876 |
| $e$ | 0.1140167 | $i$ | 10.75075 | | +0.28089493 | −0.26761566 |
| $P$ | 5.39 | $H$ | 15.3 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 03 02 | 703 | 0.5− | 0.1+ | 2005 03 11 | 703 | 0.9+ | 0.2− | 2009 10 18 | G96 | 0.2− | 0.1− |
| 2005 03 02 | 703 | 0.3+ | 0.2+ | 2005 04 02 | 703 | 0.4+ | 1.1+ | 2009 11 21 | G96 | 0.2+ | 0.1+ |
| 2005 03 02 | 703 | 0.9+ | 0.3+ | 2005 04 02 | 703 | 0.0 | 0.7+ | 2009 11 21 | G96 | 0.1+ | 0.4+ |
| 2005 03 02 | 703 | 0.9− | 0.9+ | 2005 04 02 | 703 | (1.7+ | 0.9+) | 2009 11 21 | G96 | 0.2+ | 0.2+ |
| 2005 03 11 | 703 | (0.2− | 1.6−) | 2005 04 02 | 703 | (1.6+ | 2.9+) | 2009 11 21 | G96 | 0.2+ | 0.3+ |
| 2005 03 11 | 703 | 0.9− | 0.3+ | 2005 04 09 | 703 | 0.1− | 0.9− | 2009 12 20 | G96 | 0.2− | 0.3− |
| 2005 03 11 | 703 | 0.2− | 0.2+ | 2005 04 09 | 703 | 0.2− | 0.2− | 2009 12 20 | G96 | 0.0 | 0.3− |
| 2005 03 11 | 703 | 0.1− | 0.1− | 2005 04 09 | 703 | 0.8+ | 1.2− | 2009 12 20 | G96 | 0.2+ | 0.1− |
| 2005 03 11 | 703 | 0.1+ | 0.1− | 2005 04 09 | 703 | 0.1+ | 0.8− | 2009 12 20 | G96 | 0.4− | 0.3− |
| 2005 03 11 | 703 | 0.3− | 0.1+ | 2009 10 18 | G96 | 0.0 | 0.0 | | | | |
| 2005 03 11 | 703 | 0.1− | 0.2− | 2009 10 18 | G96 | 0.1+ | 0.1+ | | | | |

**2005 EJ$_{330}$ = 2003 YE$_{59}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 291.81316 | | (2000.0) | | | |
| $n$ | 0.19020809 | $\omega$ | 126.81845 | | −0.78085379 | +0.59368435 |
| $a$ | 2.9944476 | $\Omega$ | 90.41918 | | −0.61700390 | −0.68416271 |
| $e$ | 0.0520315 | $i$ | 11.21222 | | −0.09784449 | −0.42362754 |
| $P$ | 5.18 | $H$ | 15.0 | $G$ | 0.15 | $U$ 5 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 12 19 | 704 | 0.3+ | 0.1− | 2005 03 02 | 703 | 0.3− | 0.2− | 2005 04 02 | 703 | 0.1− | 0.1+ |
| 2003 12 19 | 704 | 0.1+ | 0.6− | 2005 03 02 | 703 | 0.1+ | 0.0 | 2005 04 09 | 703 | 1.8+ | 1.8+ |
| 2003 12 19 | 704 | 0.6+ | 0.5− | 2005 03 02 | 703 | 0.3+ | 0.3− | 2005 04 09 | 703 | 1.3− | 0.6+ |
| 2003 12 21 | 704 | 0.0 | 0.1− | 2005 03 02 | 703 | 0.2− | 0.1− | 2005 04 09 | 703 | 0.1+ | 0.8− |
| 2003 12 21 | 704 | 0.0 | 0.1+ | 2005 04 02 | 703 | 0.4+ | 0.0 | 2005 04 09 | 703 | 0.9+ | 0.2+ |
| 2003 12 21 | 704 | 0.5− | 1.0+ | 2005 04 02 | 703 | 0.3− | 0.3+ | | | | |
| 2003 12 21 | 704 | 0.5− | 0.2+ | 2005 04 02 | 703 | 1.3− | 1.5− | | | | |

**2005 EK$_{330}$ = 1994 WC$_5$ = 2007 UB$_{69}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 20.24192 | | (2000.0) | | | |
| $n$ | 0.22719122 | $\omega$ | 156.21487 | | −0.92892666 | +0.36353009 |
| $a$ | 2.6599595 | $\Omega$ | 45.29851 | | −0.35359915 | −0.81467062 |
| $e$ | 0.0846858 | $i$ | 5.67559 | | −0.10983129 | −0.45183808 |
| $P$ | 4.34 | $H$ | 16.4 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 11 28 | 691 | 0.1− | 0.1+ | 2005 03 18 | 703 | 0.4+ | 0.2+ | 2007 11 02 | G96 | 0.1+ | 0.0 |
| 1994 11 28 | 691 | 0.7− | 0.1− | 2005 03 18 | 703 | 0.6+ | 0.4− | 2007 11 02 | G96 | 0.7+ | 0.3+ |
| 1994 11 28 | 691 | 0.7− | 0.1− | 2005 03 18 | 703 | 0.9+ | 0.7+ | 2007 12 05 | G96 | 0.1− | 0.0 |
| 1994 12 01 | 691 | 0.1+ | 0.5− | 2005 03 18 | 703 | 0.4+ | 1.4+ | 2007 12 05 | G96 | 0.4+ | 0.5− |
| 1994 12 01 | 691 | 0.3− | 0.3− | 2005 04 16 | 703 | 0.3− | 0.1− | 2007 12 05 | G96 | 0.2− | 0.6− |
| 1994 12 01 | 691 | 0.1− | 0.7− | 2005 04 16 | 703 | (2.9− | 2.5−) | 2007 12 05 | G96 | 0.3+ | 0.6− |
| 1994 12 03 | 691 | 0.2+ | 0.3− | 2005 04 16 | 703 | 0.4− | 0.7− | 2008 12 01 | G96 | 0.2+ | 0.4− |
| 1994 12 03 | 691 | 0.4+ | 0.3− | 2005 04 16 | 703 | (1.2+ | 2.5−) | 2008 12 01 | G96 | 0.7+ | 0.2− |
| 1998 09 25 | 645 | 0.4+ | 0.1− | 2007 10 04 | 691 | 0.7− | 0.3+ | 2008 12 01 | G96 | 0.7+ | 0.0 |
| 1998 09 25 | 645 | 0.3+ | 0.1+ | 2007 10 04 | 691 | 0.5− | 0.6+ | 2008 12 01 | G96 | 0.3+ | 0.2− |
| 2001 04 24 | 291 | 0.4− | 0.2+ | 2007 10 04 | 691 | 0.5− | 0.1+ | 2009 02 14 | 703 | 1.1+ | 0.1− |
| 2001 04 24 | 291 | 0.1− | 0.1+ | 2007 10 30 | G96 | 0.0 | 0.2+ | 2009 02 14 | 703 | 0.9− | 0.4− |
| 2001 04 24 | 291 | 0.2− | 0.0 | 2007 10 30 | G96 | 0.2− | 0.1− | 2009 02 14 | 703 | 0.3+ | 0.7− |
| 2003 12 14 | 691 | 0.7+ | 0.1+ | 2007 10 30 | G96 | 0.0 | 0.1+ | 2009 02 14 | 703 | 0.2− | 0.7− |
| 2003 12 14 | 691 | 0.2+ | 0.2+ | 2007 10 30 | G96 | 0.2+ | 0.1− | 2009 02 20 | 703 | 1.5− | 0.1− |
| 2003 12 14 | 691 | 0.4+ | 0.2+ | 2007 11 02 | 291 | 0.6− | 0.3+ | 2009 02 20 | 703 | 0.2− | 0.7+ |
| 2005 03 03 | 703 | 0.5− | 0.1− | 2007 11 02 | 291 | 0.6− | 0.3+ | 2009 02 20 | 703 | 0.3− | 0.6+ |
| 2005 03 03 | 703 | 0.6+ | 0.6− | 2007 11 02 | 291 | 0.6− | 0.3+ | 2009 02 20 | 703 | (2.0− | 0.1+) |
| 2005 03 03 | 703 | 0.6+ | 0.5− | 2007 11 02 | G96 | 0.5+ | 0.4− | | | | |
| 2005 03 03 | 703 | 0.0 | 1.0− | 2007 11 02 | G96 | 0.2+ | 0.1+ | | | | |

**2005 EL$_{330}$ = 2003 WE$_{56}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 336.28596 | | (2000.0) | | | |
| $n$ | 0.18015698 | $\omega$ | 100.16405 | | −0.84803522 | −0.47803809 |
| $a$ | 3.1048120 | $\Omega$ | 51.67026 | | +0.29457487 | −0.78400955 |
| $e$ | 0.1885405 | $i$ | 16.95222 | | +0.44052459 | −0.39599066 |
| $P$ | 5.47 | $H$ | 15.7 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 11 20 | 704 | 0.6− | 1.4− | 2005 03 04 | 703 | 1.0+ | 0.6− | 2005 04 09 | 703 | 0.7− | 0.3− |
| 2003 11 20 | 704 | 0.9− | 1.0− | 2005 03 04 | 703 | 0.6− | 0.2− | 2005 04 09 | 703 | 0.0 | 0.3+ |
| 2003 11 20 | 704 | (0.1− | 1.8−) | 2005 03 04 | 703 | 0.9+ | 0.8− | 2008 09 24 | G96 | 0.1− | 0.0 |
| 2003 11 20 | 704 | 0.0 | 0.5− | 2005 03 04 | 703 | 0.2− | 0.5+ | 2008 09 24 | G96 | 0.1− | 0.1− |
| 2003 11 21 | 691 | 0.3+ | 0.1− | 2005 03 15 | 703 | 1.1− | 1.2+ | 2008 09 24 | G96 | 0.1− | 0.1− |
| 2003 11 21 | 691 | 0.3+ | 0.0 | 2005 03 15 | 703 | 0.3+ | 0.2− | 2008 09 24 | G96 | 0.3− | 0.1− |
| 2003 11 21 | 691 | 0.1+ | 0.0 | 2005 03 15 | 703 | 0.1− | 0.2+ | 2008 10 22 | G96 | 0.1+ | 0.3+ |
| 2003 12 18 | 691 | 0.2− | 0.3+ | 2005 03 15 | 703 | 0.0 | 0.5+ | 2008 10 22 | G96 | 0.0 | 0.2+ |
| 2003 12 18 | 691 | 0.0 | 0.2+ | 2005 04 09 | 703 | 0.8+ | 0.2− | 2008 10 22 | G96 | 0.1− | 0.8+ |
| 2003 12 18 | 691 | 0.2− | 0.0 | 2005 04 09 | 703 | 0.0 | 0.1− | 2008 10 22 | G96 | 0.2− | 0.0 |

**2005 EO$_{330}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 279.77017 | | (2000.0) | | | |
| $n$ | 0.18417482 | $\omega$ | 133.55213 | | −0.52460307 | +0.83039186 |
| $a$ | 3.0594912 | $\Omega$ | 103.90812 | | −0.82619059 | −0.44336334 |
| $e$ | 0.1216869 | $i$ | 11.15102 | | −0.20542815 | −0.33745860 |
| $P$ | 5.35 | $H$ | 15.2 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 04 04 | 699 | 0.6− | 0.4+ | 2005 04 02 | 703 | (0.9+ | 1.8+) | 2006 06 03 | G96 | 0.1− | 0.1− |
| 2000 04 04 | 699 | 0.2+ | 0.1− | 2005 04 02 | 703 | (3.4+ | 0.5+) | 2006 06 03 | G96 | 0.1+ | 0.1− |
| 2000 04 04 | 699 | 0.3− | 0.8+ | 2005 04 02 | 703 | 0.0 | 1.1− | 2006 06 21 | 691 | 0.1+ | 0.2− |
| 2000 04 04 | 699 | 0.4+ | 0.5+ | 2005 04 16 | 703 | 0.6+ | 0.9− | 2006 06 21 | 691 | 0.2+ | 0.2− |
| 2000 04 28 | 699 | 1.0+ | 1.1+ | 2005 04 16 | 703 | 1.0− | 1.1+ | 2006 06 21 | 691 | 0.0 | 0.1− |
| 2000 04 28 | 699 | 0.6+ | 0.2− | 2005 04 16 | 703 | 0.3− | 1.2− | 2007 09 12 | 703 | 2.1− | 0.8+ |
| 2000 04 28 | 699 | 0.2+ | 0.3+ | 2005 04 16 | 703 | 1.1− | 0.5− | 2007 09 12 | 703 | 0.4− | 0.5− |
| 2000 04 28 | 699 | 0.4+ | 0.8+ | 2006 05 23 | G96 | 0.3+ | 0.1− | 2007 09 12 | 703 | 0.2+ | 0.0 |
| 2005 03 15 | 703 | 0.6+ | 0.1− | 2006 05 23 | G96 | 0.0 | 0.1− | 2007 09 12 | 703 | 0.5− | 0.8+ |
| 2005 03 15 | 703 | 0.8− | 1.1+ | 2006 05 23 | G96 | 0.3+ | 0.1− | 2008 12 31 | G96 | 0.7+ | 0.3+ |
| 2005 03 15 | 703 | 0.3+ | 0.3− | 2006 05 23 | G96 | 0.1+ | 0.1− | 2008 12 31 | G96 | 0.4+ | 0.2− |
| 2005 03 15 | 703 | 0.1− | 0.0 | 2006 06 03 | G96 | 0.3− | 0.2+ | 2008 12 31 | G96 | 0.4+ | 0.1+ |
| 2005 04 02 | 703 | 0.0 | 0.3+ | 2006 06 03 | G96 | 0.7− | 0.2+ | 2008 12 31 | G96 | 0.6+ | 0.0 |

**2005 GX$_1$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 30.59721 | | (2000.0) | | | |
| $n$ | 0.23677318 | $\omega$ | 191.23293 | | −0.77031566 | +0.63406508 |
| $a$ | 2.5877027 | $\Omega$ | 28.46918 | | −0.57349909 | −0.64252159 |
| $e$ | 0.0867457 | $i$ | 8.15768 | | −0.27876975 | −0.43026443 |
| $P$ | 4.16 | $H$ | 17.0 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 03 10 | 691 | 0.0 | 0.2− | 2005 04 02 | 644 | 0.3+ | 0.1+ | 2009 03 21 | 703 | (2.3− | 1.4−) |
| 2005 03 10 | 691 | 0.3− | 0.3− | 2005 04 11 | G96 | 0.3− | 0.2− | 2009 03 21 | 703 | 0.4− | 0.7− |
| 2005 03 10 | 691 | 0.2− | 0.2− | 2005 04 11 | G96 | 0.2− | 0.1− | 2009 03 21 | 703 | 0.1− | 1.8− |
| 2005 04 01 | 691 | 0.1− | 0.1+ | 2005 04 11 | G96 | 0.2− | 0.1+ | 2009 03 21 | 703 | 0.8+ | 1.5− |
| 2005 04 01 | 691 | 0.0 | 0.2+ | 2005 04 11 | G96 | 0.4− | 0.4− | 2009 03 29 | G96 | 0.1+ | 1.4+ |
| 2005 04 01 | 691 | 0.0 | 0.2+ | 2005 05 13 | 691 | 0.1− | 0.0 | 2009 03 29 | G96 | 0.1− | 1.8+ |
| 2005 04 02 | 644 | 0.5+ | 0.3+ | 2005 05 13 | 691 | 0.2+ | 0.1− | 2009 03 29 | G96 | 0.2+ | 1.0+ |
| 2005 04 02 | 644 | 0.0 | 1.0+ | 2005 05 13 | 691 | 0.3+ | 0.2− | 2009 03 29 | G96 | 0.1+ | 0.9+ |

**2005 GK$_2$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 140.47057 | | (2000.0) | | | |
| $n$ | 0.17975000 | $\omega$ | 340.28026 | | +0.97752361 | −0.18991968 |
| $a$ | 3.1094968 | $\Omega$ | 31.11703 | | +0.20926709 | +0.82137824 |
| $e$ | 0.0742237 | $i$ | 10.20189 | | +0.02559055 | +0.53783668 |
| $P$ | 5.48 | $H$ | 15.9 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 03 09 | G96 | 0.7− | 0.4− | 2005 04 02 | 691 | 0.1+ | 0.1+ | 2007 10 04 | 703 | 0.4+ | 1.0− |
| 2005 03 09 | G96 | 0.1− | 0.4+ | 2005 04 10 | G96 | 0.0 | 0.1− | 2007 10 04 | 703 | 0.4+ | 0.1+ |
| 2005 03 09 | G96 | 0.3− | 0.1+ | 2005 04 10 | G96 | 0.2− | 0.1+ | 2007 10 04 | 703 | 0.5+ | 0.0 |
| 2005 03 09 | G96 | 0.8− | 0.1+ | 2005 04 10 | G96 | 0.1− | 0.0 | 2007 10 04 | 703 | 1.1+ | 0.2+ |
| 2005 04 01 | 691 | 0.5+ | 0.0 | 2005 04 10 | G96 | 0.1− | 0.1− | 2007 10 13 | 703 | 1.1− | 0.2− |
| 2005 04 01 | 691 | 0.3+ | 0.1+ | 2005 05 06 | G96 | 0.1− | 0.2− | 2007 10 13 | 703 | 0.0 | 1.6+ |
| 2005 04 01 | 691 | 0.2+ | 0.2+ | 2005 05 06 | G96 | 0.4− | 0.0 | 2007 10 13 | 703 | 1.1− | 0.7+ |
| 2005 04 02 | 691 | 0.2− | 0.3− | 2005 05 06 | G96 | 0.5+ | 0.4+ | 2007 10 13 | 703 | 0.6− | 1.2− |
| 2005 04 02 | 691 | 0.2− | 0.2+ | 2005 05 06 | G96 | 0.3− | 0.5− | | | | |

**2005 GH$_{19}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 14.19445 | | (2000.0) | | | |
| $n$ | 0.17523708 | $\omega$ | 100.69866 | | −0.54832381 | −0.83029474 |
| $a$ | 3.1626567 | $\Omega$ | 23.41442 | | +0.63499830 | −0.49100641 |
| $e$ | 0.0605341 | $i$ | 14.53905 | | +0.54416739 | −0.26367281 |
| $P$ | 5.62 | $H$ | 15.4 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 03 17 | 691 | 0.1− | 0.0 | 2005 04 04 | 691 | 0.1− | 0.2− | 2005 05 12 | G96 | 0.5− | 0.0 |
| 2005 03 17 | 691 | 0.2− | 0.2+ | 2005 04 11 | 691 | 0.5+ | 0.1+ | 2005 05 12 | G96 | 0.8− | 0.1+ |
| 2005 03 17 | 691 | 0.1− | 0.1+ | 2005 04 11 | 691 | 0.2+ | 0.1+ | 2008 10 22 | 691 | 0.1+ | 0.1− |
| 2005 04 02 | G96 | 0.5− | 0.1+ | 2005 04 11 | 691 | 0.2+ | 0.1− | 2008 10 22 | 691 | 0.0 | 0.2+ |
| 2005 04 02 | G96 | 0.3− | 0.1+ | 2005 04 18 | 691 | 0.2− | 0.1+ | 2008 10 22 | 691 | 0.1+ | 0.2− |
| 2005 04 02 | G96 | 0.5− | 0.1+ | 2005 04 18 | 691 | 0.3+ | 0.2− | 2008 11 07 | 691 | 0.2− | 0.1− |
| 2005 04 02 | G96 | 0.5− | 0.0 | 2005 04 18 | 691 | 0.1+ | 0.1− | 2008 11 07 | 691 | 0.1− | 0.2+ |
| 2005 04 04 | 691 | 0.2+ | 0.1− | 2005 05 12 | G96 | 0.3− | 0.4+ | 2008 11 07 | 691 | 0.0 | 0.0 |
| 2005 04 04 | 691 | 0.2+ | 0.1− | 2005 05 12 | G96 | 0.5− | 0.1+ | | | | |

**2005 GZ$_{19}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 314.19125 | | (2000.0) | | | |
| $n$ | 0.18381568 | $\omega$ | 10.04344 | | −0.82170178 | +0.56697258 |
| $a$ | 3.0634750 | $\Omega$ | 204.77137 | | −0.53200230 | −0.79948607 |
| $e$ | 0.0302057 | $i$ | 7.93801 | | −0.20440092 | −0.19840393 |
| $P$ | 5.36 | $H$ | 16.2 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 03 11 | G96 | 0.0 | 0.3− | 2005 04 04 | G96 | 0.2− | 0.2+ | 2007 09 14 | G96 | 0.4− | 0.2+ |
| 2005 03 11 | G96 | 0.2− | 0.0 | 2005 04 04 | G96 | 0.0 | 0.1− | 2007 09 14 | G96 | 0.3+ | 0.0 |
| 2005 03 11 | G96 | 0.0 | 0.4+ | 2005 04 04 | G96 | 0.0 | 0.3− | 2007 09 14 | G96 | 0.1− | 0.1− |
| 2005 03 11 | G96 | 0.1+ | 0.2+ | 2005 04 04 | G96 | 0.1− | 0.1+ | 2007 09 14 | G96 | 0.1− | 0.2+ |
| 2005 04 02 | G96 | 0.7+ | 0.2+ | 2005 04 11 | 695 | 0.1+ | 0.1− | 2007 10 30 | G96 | 0.1+ | 0.4− |
| 2005 04 02 | G96 | 0.4− | 0.1+ | 2005 04 11 | 695 | 0.1+ | 0.1− | 2007 10 30 | G96 | 0.4− | 0.2− |
| 2005 04 02 | G96 | 0.0 | 0.5− | 2005 05 11 | 807 | 0.1+ | 0.1+ | 2007 10 30 | G96 | 0.1+ | 0.3− |
| 2005 04 02 | G96 | 0.3− | 0.5− | 2005 05 11 | 807 | 0.1+ | 0.1+ | 2007 10 30 | G96 | 0.5+ | 0.2+ |

**2005 GC$_{30}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 26.78341 | | (2000.0) | | | |
| $n$ | 0.21752386 | $\omega$ | 130.29725 | | −0.99101745 | +0.04362323 |
| $a$ | 2.7381976 | $\Omega$ | 52.57862 | | −0.09974616 | −0.87077822 |
| $e$ | 0.1970337 | $i$ | 9.15922 | | +0.08907924 | −0.48973698 |
| $P$ | 4.53 | $H$ | 16.5 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 03 10 | 703 | 0.5− | 0.4− | 2005 04 13 | 704 | (1.0− | 2.2−) | 2005 05 15 | 644 | 0.1+ | 0.5− |
| 2005 03 10 | 703 | 0.3− | 0.2− | 2005 04 13 | 704 | 0.5− | 0.1− | 2005 05 15 | 644 | 0.1+ | 0.2− |
| 2005 03 10 | 703 | 0.8− | 0.9− | 2005 04 13 | 704 | 1.4+ | 0.5− | 2005 05 15 | 644 | 0.2+ | 0.5− |
| 2005 03 10 | 703 | 0.6− | 0.2− | 2005 04 14 | 704 | 0.4+ | 0.1− | 2008 12 31 | 703 | 0.6− | 0.1− |
| 2005 04 04 | 703 | 0.3− | 0.4+ | 2005 04 14 | 704 | 0.3+ | 0.7+ | 2008 12 31 | 703 | 0.9+ | 0.6− |
| 2005 04 04 | 703 | 1.0− | 0.1− | 2005 04 14 | 704 | 0.3+ | 0.4+ | 2008 12 31 | 703 | 0.5− | 0.3− |
| 2005 04 04 | 703 | 0.5+ | 1.4− | 2005 04 14 | 704 | 0.2+ | 0.4+ | 2008 12 31 | 703 | 0.2− | 0.7+ |
| 2005 04 04 | 703 | 0.7− | 0.5− | 2005 04 14 | 704 | 0.1− | 0.7+ | 2009 02 17 | G96 | 0.0 | 0.1+ |
| 2005 04 05 | 699 | 1.6+ | 1.5+ | 2005 04 18 | 703 | 0.2+ | 1.0+ | 2009 02 17 | G96 | 0.5+ | 0.3+ |
| 2005 04 05 | 699 | 0.8+ | 0.3− | 2005 04 18 | 703 | 0.7− | 0.0 | 2009 02 17 | G96 | 0.0 | 0.0 |
| 2005 04 05 | 699 | 0.1− | 1.2− | 2005 04 18 | 703 | 1.3− | 0.2+ | 2009 02 17 | G96 | 0.1− | 0.3+ |
| 2005 04 05 | 699 | 0.4+ | 0.8+ | 2005 04 18 | 703 | 0.4+ | 0.5+ | | | | |

**2005 GG$_{47}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 300.92033 | | (2000.0) | | | |
| $n$ | 0.17839268 | $\omega$ | 9.11840 | | −0.93374893 | +0.35516136 |
| $a$ | 3.1252495 | $\Omega$ | 191.97634 | | −0.34040956 | −0.91953278 |
| $e$ | 0.0613475 | $i$ | 12.36131 | | −0.11060864 | −0.16828511 |
| $P$ | 5.52 | $H$ | 15.9 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 03 11 | G96 | 0.2+ | 0.0 | 2005 04 06 | G96 | 0.7+ | 0.6− | 2005 05 06 | G96 | 0.3+ | 0.1+ |
| 2005 03 11 | G96 | 0.0 | 0.2+ | 2005 04 06 | G96 | 0.4− | 0.1+ | 2005 05 09 | G96 | 0.4− | 0.4− |
| 2005 03 11 | G96 | 0.4− | 0.2+ | 2005 04 06 | G96 | 0.2+ | 0.2− | 2005 05 09 | G96 | 0.2− | 0.3− |
| 2005 03 11 | G96 | 0.0 | 0.3− | 2005 04 07 | G96 | 0.2− | 0.0 | 2005 05 09 | G96 | 0.4− | 0.2− |
| 2005 04 05 | G96 | 0.1− | 0.1+ | 2005 04 07 | G96 | 0.0 | 0.1+ | 2005 05 09 | G96 | 0.2− | 0.5− |
| 2005 04 05 | G96 | 0.3− | 0.2− | 2005 04 07 | G96 | 0.3+ | 0.2+ | 2008 11 09 | G96 | 0.3− | 0.2− |
| 2005 04 05 | G96 | 0.3− | 0.0 | 2005 04 07 | G96 | 0.1− | 0.2− | 2008 11 09 | G96 | 0.4+ | 0.3− |
| 2005 04 05 | G96 | 0.2+ | 0.2+ | 2005 04 30 | 691 | 0.1+ | 0.2+ | 2008 11 09 | G96 | 0.6+ | 0.1− |
| 2005 04 06 | G96 | 0.3− | 0.3− | 2005 04 30 | 691 | 0.2+ | 0.1+ | 2008 11 09 | G96 | 0.3− | 0.7+ |
| 2005 04 06 | G96 | 0.2− | 0.1− | 2005 04 30 | 691 | 0.4+ | 0.3+ | 2008 12 03 | G96 | 0.2+ | 0.1− |
| 2005 04 06 | G96 | 0.3− | 0.1+ | 2005 05 06 | G96 | 0.2− | 0.1− | 2008 12 03 | G96 | 0.4− | 0.2+ |
| 2005 04 06 | G96 | 0.3− | 0.2+ | 2005 05 06 | G96 | 0.1− | 0.0 | 2008 12 03 | G96 | 0.1+ | 0.1− |
| 2005 04 06 | G96 | 0.0 | 0.1+ | 2005 05 06 | G96 | 0.4− | 0.2− | 2008 12 03 | G96 | 0.4− | 0.0 |

**2005 GC$_{52}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 330.39334 | | (2000.0) | | | |
| $n$ | 0.17963772 | $\omega$ | 339.94678 | | −0.97055885 | +0.21898960 |
| $a$ | 3.1107923 | $\Omega$ | 213.21423 | | −0.18837593 | −0.94961019 |
| $e$ | 0.0875226 | $i$ | 10.55017 | | −0.15010002 | −0.22424105 |
| $P$ | 5.49 | $H$ | 15.8 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 10 15 | 645 | 0.0 | 0.0 | 2005 04 02 | G96 | 0.4− | 0.0 | 2005 05 17 | G96 | 1.7+ | 1.2+ |
| 2001 10 15 | 645 | 0.0 | 0.0 | 2005 04 07 | 691 | 0.1+ | 0.2+ | 2005 05 19 | G96 | 0.3− | 0.4− |
| 2005 03 11 | G96 | 0.4− | 0.0 | 2005 04 07 | 691 | 0.0 | 0.2+ | 2005 05 19 | G96 | 0.5− | 0.5− |
| 2005 03 11 | G96 | 0.7− | 0.1+ | 2005 04 07 | 691 | 0.1+ | 0.1+ | 2005 05 19 | G96 | 0.5− | 0.6− |
| 2005 03 11 | G96 | 0.0 | 0.2+ | 2005 04 16 | 691 | 0.3+ | 0.1− | 2005 05 19 | G96 | 0.5− | 0.5− |
| 2005 03 11 | G96 | 0.5− | 0.1+ | 2005 04 16 | 691 | 0.2+ | 0.0 | 2007 11 07 | G96 | 0.2− | 0.5− |
| 2005 04 02 | G96 | 0.5− | 0.4− | 2005 04 16 | 691 | 0.3+ | 0.1+ | 2007 11 07 | G96 | 0.3+ | 0.1− |
| 2005 04 02 | G96 | 0.6− | 0.5− | 2005 05 17 | G96 | 0.1− | 0.1− | 2007 11 07 | G96 | 0.2+ | 0.2+ |
| 2005 04 02 | G96 | 0.2− | 0.3− | 2005 05 17 | G96 | 0.4− | 0.3− | 2007 11 07 | G96 | 0.2− | 0.1+ |

**2005 GA$_{89}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 114.21510 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.29164057 | $\omega$ | 17.19229 | | −0.39994943 | +0.91444625 | |
| $a$ | 2.2520123 | $\Omega$ | 229.27943 | | −0.85021376 | −0.39537514 | |
| $e$ | 0.1660916 | $i$ | 4.68284 | | −0.34231130 | −0.08640927 | |
| $P$ | 3.38 | $H$ | 17.9 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 06 24 | 644 | 0.5− | 0.4+ | 2005 04 05 | 644 | 0.6+ | 0.1+ | 2005 04 15 | 691 | 0.1+ | 0.1+ |
| 2002 06 24 | 644 | 0.7− | 0.3− | 2005 04 05 | 644 | 0.0 | 0.4+ | 2005 04 18 | 703 | (3.8− | 0.3−) |
| 2002 06 24 | 644 | 0.0 | 0.1+ | 2005 04 06 | 691 | 0.1− | 0.2+ | 2005 04 18 | 703 | 0.7− | 0.2+ |
| 2002 07 03 | 644 | 0.2− | 0.4+ | 2005 04 06 | 691 | 0.2− | 0.4+ | 2005 04 18 | 703 | 0.9− | 0.3− |
| 2002 07 03 | 644 | 0.0 | 0.8+ | 2005 04 06 | 691 | 0.3− | 0.1− | 2005 04 18 | 703 | 0.5− | 0.5− |
| 2002 07 03 | 644 | 0.0 | 0.1+ | 2005 04 11 | 691 | 0.0 | 0.2+ | 2005 05 08 | 703 | 1.6+ | 1.7− |
| 2002 07 21 | 644 | 0.5+ | 0.1− | 2005 04 11 | 691 | 0.2+ | 0.1+ | 2005 05 08 | 703 | 0.4+ | 0.9− |
| 2002 07 21 | 644 | 0.5+ | 0.1− | 2005 04 11 | 691 | 0.1+ | 0.1+ | 2005 05 08 | 703 | 0.2− | 1.0− |
| 2002 07 21 | 644 | 0.4+ | 0.4− | 2005 04 15 | 691 | 0.0 | 0.0 | 2005 05 08 | 703 | 0.3+ | 1.2− |
| 2002 07 29 | 644 | 0.4− | 0.3− | 2005 04 15 | 691 | 0.0 | 0.0 | 2005 05 08 | 703 | 0.7+ | 0.2+ |
| 2002 07 29 | 644 | 0.0 | 0.2+ | 2005 04 15 | 691 | 0.1+ | 0.0 | 2005 05 08 | 703 | 0.1+ | 0.2+ |
| 2002 07 29 | 644 | 0.0 | 0.1− | 2005 04 15 | 691 | 0.1− | 0.1− | 2005 05 08 | 703 | 1.0− | 0.5+ |
| 2005 04 05 | 644 | 0.1+ | 0.2+ | 2005 04 15 | 691 | 0.1+ | 0.1+ | 2005 05 08 | 703 | (2.2− | 2.5+) |

**2005 GA$_{94}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 335.39035 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17475728 | $\omega$ | 46.43382 | | −0.89698008 | −0.36296633 | |
| $a$ | 3.1684428 | $\Omega$ | 110.80532 | | +0.28592052 | −0.91170404 | |
| $e$ | 0.2273381 | $i$ | 15.66167 | | +0.33715899 | −0.19248686 | |
| $P$ | 5.64 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 01 13 | 097 | 0.0 | 0.6+ | 2005 04 11 | 704 | 0.4+ | 1.2+ | 2005 05 09 | 703 | 0.0 | 0.5− |
| 2005 01 13 | 097 | 0.1− | 0.3+ | 2005 04 11 | 704 | 0.9− | 0.4− | 2009 09 30 | G96 | 0.2− | 0.4+ |
| 2005 01 13 | 097 | 0.2+ | 0.2+ | 2005 04 12 | 699 | 0.1− | 0.0 | 2009 09 30 | G96 | 0.1+ | 0.1− |
| 2005 04 06 | 703 | 0.7− | 0.3− | 2005 04 12 | 699 | 0.1+ | 0.4− | 2009 09 30 | G96 | 0.2+ | 0.1+ |
| 2005 04 06 | 703 | 0.8− | 0.0 | 2005 04 12 | 699 | 0.8+ | 0.3− | 2009 09 30 | G96 | 0.0 | 0.1− |
| 2005 04 06 | 703 | 0.4− | 0.4+ | 2005 04 12 | 699 | 0.9+ | 0.7− | 2009 11 21 | G96 | 0.1− | 0.3− |
| 2005 04 06 | 703 | 1.1+ | 0.6− | 2005 04 16 | 703 | 0.3+ | 0.2+ | 2009 11 21 | G96 | 0.2+ | 0.1− |
| 2005 04 06 | G96 | 0.3− | 0.2− | 2005 04 16 | 703 | (2.0− | 1.4−) | 2009 11 21 | G96 | 0.3− | 0.3− |
| 2005 04 06 | G96 | 0.1+ | 0.2− | 2005 04 16 | 703 | 1.3− | 0.8+ | 2009 11 21 | G96 | 0.2− | 0.1− |
| 2005 04 06 | G96 | 0.1− | 0.6− | 2005 04 16 | 703 | 0.4− | 0.6+ | 2009 12 17 | 691 | 0.2− | 0.1+ |
| 2005 04 06 | G96 | 0.3− | 0.3− | 2005 05 09 | 703 | 0.7+ | 0.3+ | 2009 12 17 | 691 | 0.1+ | 0.1− |
| 2005 04 11 | 704 | 0.3+ | 0.1+ | 2005 05 09 | 703 | 0.1+ | 0.3− | 2009 12 17 | 691 | 0.2+ | 0.0 |
| 2005 04 11 | 704 | 0.2+ | 0.6+ | 2005 05 09 | 703 | (1.7+ | 2.4−) | | | | |

**2005 GE$_{119}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 126.38284 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26700035 | $\omega$ | 113.43278 | | −0.97741548 | −0.20606475 | |
| $a$ | 2.3885160 | $\Omega$ | 54.70674 | | +0.16681122 | −0.88846432 | |
| $e$ | 0.1607804 | $i$ | 3.29160 | | +0.12974201 | −0.41008350 | |
| $P$ | 3.69 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 03 09 | G96 | 0.1− | 0.0 | 2005 04 11 | 699 | 0.4+ | 0.1+ | 2005 05 08 | 703 | (1.7− | 0.4+) |
| 2005 03 09 | G96 | 0.4− | 0.1− | 2005 04 12 | 691 | 0.2+ | 0.1+ | 2005 05 08 | 703 | (1.7− | 0.4−) |
| 2005 03 09 | G96 | 0.3− | 0.0 | 2005 04 12 | 691 | 0.2+ | 0.1− | 2005 05 08 | 703 | 0.2− | 0.4+ |
| 2005 03 09 | G96 | 0.4− | 0.5− | 2005 04 12 | 691 | 0.1+ | 0.1+ | 2005 05 08 | 703 | 0.7− | 0.9− |
| 2005 04 01 | 699 | 0.1− | 0.7+ | 2005 04 12 | 704 | 0.3− | 0.1− | 2005 05 10 | G96 | 0.1− | 0.2− |
| 2005 04 01 | 699 | 1.0+ | 0.5− | 2005 04 12 | 704 | 0.6+ | 0.3− | 2005 05 10 | G96 | 0.0 | 0.2− |
| 2005 04 01 | 699 | (0.5− | 1.7+) | 2005 04 12 | 704 | 0.7− | 0.5+ | 2005 05 10 | G96 | 0.3− | 0.3− |
| 2005 04 01 | 699 | 0.1− | 0.1+ | 2005 04 12 | 704 | 0.4− | 0.1+ | 2005 05 10 | G96 | 0.1+ | 0.1+ |
| 2005 04 05 | 704 | (0.0 | 2.1+) | 2005 04 12 | 704 | 1.4− | 0.6− | 2007 11 13 | 691 | 1.0+ | 0.0 |
| 2005 04 05 | 704 | 1.4+ | 0.6− | 2005 04 15 | 699 | (1.6+ | 0.6+) | 2007 11 13 | 691 | 0.5− | 0.2− |
| 2005 04 05 | 704 | 0.3− | 0.7+ | 2005 04 15 | 699 | (1.6+ | 0.1−) | 2007 11 13 | 691 | 0.6− | 0.1+ |
| 2005 04 05 | 704 | (1.6− | 0.4+) | 2005 04 15 | 699 | 0.8− | 0.6+ | 2007 12 15 | G96 | 0.2− | 0.4+ |
| 2005 04 09 | 704 | 1.3+ | 0.2+ | 2005 04 15 | 699 | 0.1+ | 0.9+ | 2007 12 15 | G96 | 0.1+ | 0.1− |
| 2005 04 09 | 704 | 0.4− | 0.0 | 2005 04 19 | 691 | 0.1+ | 0.1− | 2007 12 15 | G96 | 0.2+ | 0.2+ |
| 2005 04 09 | 704 | 0.4− | 1.0+ | 2005 04 19 | 691 | 0.1+ | 0.1+ | 2007 12 15 | G96 | 0.1+ | 0.1+ |
| 2005 04 09 | 704 | (0.7+ | 3.1−) | 2005 04 19 | 691 | 0.0 | 0.0 | 2008 02 12 | G96 | 0.1− | 0.2− |
| 2005 04 11 | 699 | 0.1− | 0.2− | 2005 05 07 | 691 | 0.1− | 0.0 | 2008 02 12 | G96 | 0.4− | 0.2− |
| 2005 04 11 | 699 | 0.4+ | 0.3+ | 2005 05 07 | 691 | 0.0 | 0.0 | 2008 02 12 | G96 | 0.6+ | 0.0 |
| 2005 04 11 | 699 | 0.0 | 1.3− | 2005 05 07 | 691 | 0.0 | 0.0 | 2008 02 12 | G96 | 0.2+ | 0.1− |

**2005 GL$_{121}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 259.36316 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17578838 | $\omega$ | 168.49374 | | +0.07567293 | +0.99613974 | |
| $a$ | 3.1560408 | $\Omega$ | 105.83435 | | −0.91848145 | +0.08700259 | |
| $e$ | 0.1505526 | $i$ | 2.65049 | | −0.38815645 | −0.01166913 | |
| $P$ | 5.61 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 04 05 | 691 | 0.3− | 0.4− | 2005 04 12 | 695 | 0.2− | 0.2+ | 2007 10 21 | 691 | 0.1− | 0.2+ |
| 2005 04 05 | 691 | 0.4+ | 0.1− | 2005 04 30 | 691 | 0.3+ | 0.5+ | 2007 10 21 | 691 | 0.3− | 0.2− |
| 2005 04 05 | 691 | 0.5+ | 0.2− | 2005 04 30 | 691 | 0.2+ | 0.5+ | 2007 11 03 | 691 | 0.0 | 0.5+ |
| 2005 04 12 | G96 | 0.2− | 0.0 | 2005 04 30 | 691 | 0.0 | 0.4+ | 2007 11 03 | 691 | 0.3− | 0.2+ |
| 2005 04 12 | G96 | 0.4− | 0.1− | 2005 05 01 | 644 | 0.3− | 0.0 | 2007 11 03 | 691 | 0.3− | 0.1+ |
| 2005 04 12 | G96 | 0.4− | 0.2− | 2005 05 01 | 644 | 0.0 | 0.4+ | 2008 01 12 | G96 | 0.5+ | 0.5− |
| 2005 04 12 | G96 | 0.4− | 0.1+ | 2005 05 01 | 644 | 0.2+ | 0.0 | 2008 01 12 | G96 | 0.5+ | 0.7+ |
| 2005 04 12 | 695 | 0.2− | 0.3+ | 2005 05 19 | G96 | 0.2− | 0.1+ | 2008 01 12 | G96 | 0.5+ | 0.6+ |
| 2005 04 12 | G96 | 0.2− | 0.0 | 2005 05 19 | G96 | 0.3− | 0.0 | 2008 01 12 | G96 | 1.0+ | 1.2+ |
| 2005 04 12 | G96 | 0.2− | 0.2− | 2005 05 19 | G96 | 0.2− | 0.1+ | 2009 01 07 | 691 | 0.4− | 0.2+ |
| 2005 04 12 | G96 | 0.0 | 0.0 | 2005 05 19 | G96 | 0.4− | 0.2+ | 2009 01 07 | 691 | 0.1+ | 0.5− |
| 2005 04 12 | G96 | 0.1− | 0.0 | 2007 10 21 | 691 | 0.1+ | 0.1− | 2009 01 07 | 691 | 0.3+ | 0.2+ |

**2005 GR$_{128}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 278.72353 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17577763 | $\omega$ | 152.90416 | | −0.83199858 | +0.52509838 | |
| $a$ | 3.1561694 | $\Omega$ | 59.89996 | | −0.53909058 | −0.68902525 | |
| $e$ | 0.1709542 | $i$ | 11.94247 | | −0.13099505 | −0.49951566 | |
| $P$ | 5.61 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 03 16 | 703 | (0.1+ | 1.7+) | 2005 04 06 | A55 | 0.1+ | 0.5− | 2008 11 21 | G96 | 0.5+ | 0.1+ |
| 2005 03 16 | 703 | 0.2+ | 0.5− | 2005 04 06 | A55 | 0.1− | 0.1+ | 2008 11 21 | G96 | 0.0 | 0.3+ |
| 2005 03 16 | 703 | 0.2+ | 0.1− | 2005 04 13 | A55 | (18.3+ | 8.1+) | 2008 11 21 | G96 | 0.4+ | 0.0 |
| 2005 03 16 | 703 | 0.1− | 0.2− | 2005 04 13 | A55 | (18.3+ | 7.9+) | 2008 11 30 | G96 | 0.2+ | 0.3− |
| 2005 04 04 | A55 | 0.3+ | 0.1+ | 2005 05 02 | A55 | 0.5− | 0.4− | 2008 11 30 | G96 | 0.1+ | 0.4− |
| 2005 04 04 | A55 | 0.4− | 0.2+ | 2005 05 02 | A55 | 0.4+ | 0.0 | 2008 11 30 | G96 | 0.2+ | 0.4− |
| 2005 04 04 | A55 | 0.0 | 0.5+ | 2005 05 02 | A55 | 0.4+ | 0.3+ | 2008 11 30 | G96 | 0.2+ | 0.3− |
| 2005 04 04 | A55 | 0.3− | 0.7− | 2008 10 27 | 691 | 0.4− | 0.0 | 2008 12 21 | G96 | 0.1+ | 0.2+ |
| 2005 04 05 | A55 | 0.2− | 0.9+ | 2008 10 27 | 691 | 0.2+ | 0.1− | 2008 12 21 | G96 | 0.3− | 0.4+ |
| 2005 04 05 | A55 | 0.1− | 0.2+ | 2008 10 27 | 691 | 0.0 | 0.1+ | 2008 12 21 | G96 | 0.2− | 0.2+ |
| 2005 04 05 | A55 | 0.0 | 0.2+ | 2008 11 21 | G96 | 0.1+ | 0.1− | 2008 12 21 | G96 | 0.6− | 0.2+ |

**2005 GM$_{149}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 343.19953 | | (2000.0) | | | |
| $n$ | 0.17919444 | $\omega$ | 341.35103 | | −0.98879180 | −0.14618986 |
| $a$ | 3.1159205 | $\Omega$ | 190.38372 | | +0.14917848 | −0.95916811 |
| $e$ | 0.1802273 | $i$ | 9.68441 | | +0.00604680 | −0.24212614 |
| $P$ | 5.50 | $H$ | 15.4 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 03 13 | G96 | 0.2− | 0.5− | 2005 04 30 | 691 | 0.1+ | 0.0 | 2005 05 14 | 704 | 0.0 | 0.0 |
| 2005 03 13 | G96 | 0.7− | 0.4+ | 2005 04 30 | 691 | 0.0 | 0.0 | 2005 05 14 | 704 | 0.2− | 0.1− |
| 2005 03 13 | G96 | 0.5− | 0.3− | 2005 05 07 | 703 | 0.2− | 0.2− | 2008 10 10 | G96 | 0.1+ | 0.1+ |
| 2005 03 13 | G96 | 0.0 | 0.3− | 2005 05 07 | 703 | 0.3− | 1.4− | 2008 10 10 | G96 | 0.1− | 0.1+ |
| 2005 04 11 | 691 | 0.0 | 0.1− | 2005 05 07 | 703 | 0.3+ | 0.4+ | 2008 10 10 | G96 | 0.4− | 0.0 |
| 2005 04 11 | 691 | 0.2+ | 0.2− | 2005 05 07 | 703 | 0.5− | 0.5− | 2008 10 10 | G96 | 0.2− | 0.0 |
| 2005 04 11 | 691 | 0.0 | 0.0 | 2005 05 08 | 699 | 0.6+ | 0.3− | 2008 11 03 | G96 | 0.3+ | 0.2− |
| 2005 04 15 | 691 | 0.1+ | 0.4+ | 2005 05 08 | 699 | 0.9+ | 0.3− | 2008 11 03 | G96 | 0.2+ | 0.2− |
| 2005 04 15 | 691 | 0.1+ | 0.2+ | 2005 05 08 | 699 | 1.0− | 0.3+ | 2008 11 03 | G96 | 0.0 | 0.2− |
| 2005 04 15 | 691 | 0.0 | 0.4+ | 2005 05 08 | 699 | 1.1− | 0.6+ | 2008 11 03 | G96 | 0.0 | 0.1+ |
| 2005 04 30 | 691 | 0.1+ | 0.2− | 2005 05 14 | 704 | 0.4+ | 0.4− | | | | |

**2005 GD$_{162}$ = 2005 GW$_{51}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 354.35266 | | (2000.0) | | | |
| $n$ | 0.17707237 | $\omega$ | 114.04780 | | −0.90691726 | −0.42094133 |
| $a$ | 3.1407655 | $\Omega$ | 41.06423 | | +0.37616341 | −0.82783568 |
| $e$ | 0.1323951 | $i$ | 1.53459 | | +0.18974239 | −0.37080518 |
| $P$ | 5.57 | $H$ | 16.4 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 04 02 | G96 | 0.8− | 1.0− | 2005 05 10 | G96 | 0.5− | 0.1− | 2007 10 13 | G96 | 0.7− | 0.6− |
| 2005 04 02 | G96 | 0.9− | 0.1+ | 2005 05 10 | G96 | 0.4− | 0.2− | 2007 10 13 | G96 | 0.0 | 0.2− |
| 2005 04 02 | G96 | 0.5− | 0.3+ | 2005 05 10 | G96 | 0.5− | 0.1+ | 2008 10 28 | 691 | 0.1− | 0.4− |
| 2005 04 02 | G96 | 0.4+ | 0.3− | 2005 05 10 | G96 | 0.2− | 0.3+ | 2008 10 28 | 691 | 0.1+ | 0.1+ |
| 2005 04 14 | 691 | 0.3+ | 0.1+ | 2005 06 01 | G96 | 0.8− | 0.5− | 2008 10 28 | 691 | 0.2+ | 0.0 |
| 2005 04 14 | 691 | 0.2+ | 0.2+ | 2005 06 01 | G96 | 0.6− | 0.1− | 2008 11 18 | 691 | 0.3− | 0.0 |
| 2005 04 14 | 691 | 0.2+ | 0.1− | 2005 06 01 | G96 | 0.3− | 0.0 | 2008 11 18 | 691 | 0.4− | 0.4+ |
| 2005 04 16 | 691 | 0.6+ | 0.3+ | 2005 06 01 | G96 | 0.3− | 0.4− | 2008 11 18 | 691 | 0.3− | 0.0 |
| 2005 04 16 | 691 | 0.3+ | 0.2+ | 2007 09 14 | G96 | 0.1+ | 0.2+ | 2008 12 21 | G96 | 0.6+ | 0.6+ |
| 2005 04 16 | 691 | 0.1+ | 0.0 | 2007 09 14 | G96 | 0.0 | 0.9+ | 2008 12 21 | G96 | 0.9+ | 0.2− |
| 2005 05 07 | G96 | 0.2− | 0.0 | 2007 09 14 | G96 | 0.3+ | 0.6+ | 2008 12 21 | G96 | 0.7+ | 0.1− |
| 2005 05 07 | G96 | 0.0 | 0.1− | 2007 09 14 | G96 | 0.9− | 0.3− | 2008 12 21 | G96 | 0.8+ | 0.1+ |
| 2005 05 07 | G96 | 0.3− | 0.2+ | 2007 10 13 | G96 | 0.1+ | 0.0 | | | | |
| 2005 05 07 | G96 | 0.5− | 0.2+ | 2007 10 13 | G96 | 0.8+ | 0.2+ | | | | |

**2005 GM$_{168}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 61.13041 | | (2000.0) | | | |
| $n$ | 0.17855513 | $\omega$ | 43.59665 | | +0.10145739 | −0.98724387 |
| $a$ | 3.1233536 | $\Omega$ | 41.03946 | | +0.85379603 | +0.02310159 |
| $e$ | 0.0659624 | $i$ | 10.77087 | | +0.51062582 | +0.15753050 |
| $P$ | 5.52 | $H$ | 15.6 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 04 12 | 691 | 0.1− | 0.0 | 2005 05 04 | 691 | 0.2+ | 0.1− | 2008 12 02 | G96 | 0.6+ | 0.0 |
| 2005 04 12 | 691 | 0.1− | 0.0 | 2005 05 10 | G96 | 0.9+ | 0.3+ | 2008 12 02 | G96 | 0.4+ | 0.0 |
| 2005 04 12 | 691 | 0.1− | 0.1+ | 2005 05 10 | G96 | 0.3− | 0.1− | 2008 12 02 | G96 | 0.5+ | 0.1+ |
| 2005 04 18 | 691 | 0.2+ | 0.1+ | 2005 05 10 | G96 | 0.4− | 0.0 | 2008 12 22 | 703 | 0.4− | 1.1− |
| 2005 04 18 | 691 | 0.0 | 0.0 | 2005 05 10 | G96 | 0.4− | 0.4+ | 2008 12 22 | 703 | 0.7+ | 0.1− |
| 2005 04 18 | 691 | 0.2+ | 0.3− | 2008 09 09 | 691 | 0.2− | 0.0 | 2008 12 22 | 703 | 0.4− | 0.3− |
| 2005 05 04 | 691 | 0.1− | 0.2+ | 2008 09 09 | 691 | 0.0 | 0.3+ | 2008 12 22 | 703 | 0.7− | 0.7+ |
| 2005 05 04 | 691 | 0.2− | 0.0 | 2008 09 09 | 691 | 0.1− | 0.0 | | | | |

**2005 GO$_{170}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 355.18593 | | (2000.0) | | | |
| $n$ | 0.22273362 | $\omega$ | 225.42726 | | −0.24210885 | +0.96249989 |
| $a$ | 2.6953316 | $\Omega$ | 31.17814 | | −0.80969089 | −0.13093324 |
| $e$ | 0.2262965 | $i$ | 13.67384 | | −0.53458766 | −0.23759302 |
| $P$ | 4.43 | $H$ | 16.0 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 03 14 | G96 | 0.4− | 0.1+ | 2005 04 18 | 704 | 0.1− | 0.7− | 2005 05 12 | 699 | 0.1− | 0.2+ |
| 2005 03 14 | G96 | 0.2− | 0.3− | 2005 04 18 | 703 | 0.7− | 0.5+ | 2005 05 12 | 699 | 0.1− | 0.9+ |
| 2005 03 14 | G96 | 0.3− | 0.1+ | 2005 04 18 | 703 | 0.3− | 0.1+ | 2009 02 04 | 703 | 1.0− | 0.3+ |
| 2005 03 14 | G96 | 0.1− | 0.2+ | 2005 04 18 | 704 | 0.6+ | 1.2− | 2009 02 04 | 703 | 1.0+ | 1.0− |
| 2005 04 12 | 704 | 0.0 | 0.2+ | 2005 04 18 | 704 | 0.2− | 0.4− | 2009 02 04 | 703 | 0.9+ | 0.1+ |
| 2005 04 12 | 704 | 0.3− | 0.1+ | 2005 05 01 | 644 | 0.4+ | 0.1− | 2009 02 04 | 703 | 0.2− | 0.5− |
| 2005 04 12 | 704 | (0.1− | 1.7−) | 2005 05 01 | 644 | 0.5+ | 0.0 | 2009 02 21 | 703 | 0.2− | 0.2− |
| 2005 04 12 | 704 | 0.2+ | 1.3− | 2005 05 01 | 644 | 0.4+ | 0.1− | 2009 02 21 | 703 | 0.0 | 0.9+ |
| 2005 04 17 | 691 | 0.1+ | 0.1+ | 2005 05 09 | 699 | 1.1− | 0.1+ | 2009 02 21 | 703 | (0.6+ | 1.7+) |
| 2005 04 17 | 691 | 0.1+ | 0.1+ | 2005 05 09 | 699 | 0.1− | 1.3+ | 2009 02 21 | 703 | 0.6− | 0.5+ |
| 2005 04 17 | 691 | 0.3+ | 0.1+ | 2005 05 09 | 699 | 0.2+ | 0.3− | 2009 03 17 | 703 | 0.3+ | 0.8+ |
| 2005 04 18 | 703 | 0.7− | 0.0 | 2005 05 09 | 699 | 0.7+ | 0.5− | 2009 03 17 | 703 | 0.8− | 0.6− |
| 2005 04 18 | 704 | 0.1− | 0.5− | 2005 05 12 | 699 | 0.1− | 0.1− | 2009 03 17 | 703 | 1.2+ | 0.3+ |
| 2005 04 18 | 703 | 0.7− | 1.4+ | 2005 05 12 | 699 | 0.2+ | 1.2− | 2009 03 17 | 703 | 0.5− | 0.6− |

**2005 GG$_{179}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 320.19819 | | (2000.0) | | | |
| $n$ | 0.17494025 | $\omega$ | 78.71547 | | −0.96656659 | +0.08087893 |
| $a$ | 3.1662331 | $\Omega$ | 105.57232 | | −0.15929914 | −0.93301281 |
| $e$ | 0.3094372 | $i$ | 14.63133 | | +0.20092988 | −0.35063613 |
| $P$ | 5.63 | $H$ | 15.6 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 03 11 | 703 | 0.0 | 0.7− | 2005 05 06 | 704 | 0.7+ | 0.1− | 2005 06 06 | 704 | 0.0 | 0.4+ |
| 2005 03 11 | 703 | 0.1− | 0.2− | 2005 05 06 | 704 | 0.2+ | 0.3+ | 2005 06 06 | 704 | 0.1− | 2.0− |
| 2005 03 11 | 703 | 0.3+ | 1.1− | 2005 05 11 | 703 | 0.6− | 0.5− | 2005 06 06 | 704 | 1.3+ | 0.1+ |
| 2005 03 11 | 703 | 0.7− | 0.2− | 2005 05 11 | 703 | 0.2− | 0.2+ | 2005 06 11 | H06 | 1.0− | 0.7− |
| 2005 04 13 | 703 | 0.3− | 1.2− | 2005 05 11 | 703 | 0.6− | 0.3− | 2005 06 11 | H06 | 1.0+ | 1.3− |
| 2005 04 13 | 703 | 0.4− | 0.5− | 2005 05 11 | 703 | 0.5− | 0.5− | 2005 06 25 | 644 | 0.2+ | 0.2+ |
| 2005 04 13 | 703 | 0.0 | 0.4− | 2005 05 13 | 704 | 1.1+ | 0.2+ | 2005 06 25 | 644 | 0.2− | 0.4+ |
| 2005 04 13 | 703 | 0.0 | 0.6− | 2005 05 13 | 704 | 0.8+ | 0.3+ | 2005 06 25 | 644 | 0.1+ | 0.4+ |
| 2005 04 18 | 704 | 0.7+ | 1.9+ | 2005 05 13 | 704 | 1.9+ | 0.1− | 2009 11 16 | G96 | 0.2+ | 0.0 |
| 2005 04 18 | 704 | 0.3− | 1.3+ | 2005 05 13 | 704 | 0.1+ | 0.0 | 2009 11 16 | G96 | 0.2+ | 0.1+ |
| 2005 04 18 | 704 | 1.7+ | 1.1+ | 2005 05 31 | 703 | 0.6− | 0.9+ | 2009 11 16 | G96 | 0.3− | 0.1+ |
| 2005 04 18 | 704 | 0.6+ | 0.1− | 2005 05 31 | 703 | 1.4− | 0.1− | 2009 11 16 | G96 | 0.2+ | 0.1+ |
| 2005 05 04 | 703 | 0.5− | 0.8− | 2005 05 31 | 703 | 0.0 | 0.4+ | 2009 12 15 | G96 | 0.0 | 0.1+ |
| 2005 05 04 | 703 | 0.7− | 0.3− | 2005 05 31 | 703 | 1.2− | 0.2+ | 2009 12 15 | G96 | 0.1+ | 0.1+ |
| 2005 05 04 | 703 | 0.7− | 0.6+ | 2005 06 01 | 683 | 0.8− | 0.6− | 2009 12 15 | G96 | 0.3− | 0.0 |
| 2005 05 04 | 703 | 0.3+ | 1.3+ | 2005 06 01 | 683 | 0.9− | 0.2+ | 2009 12 15 | G96 | 0.2− | 0.2− |
| 2005 05 06 | 704 | 0.6+ | 0.0 | 2005 06 01 | 683 | 0.4− | 1.3+ | | | | |
| 2005 05 06 | 704 | 0.6+ | 0.2+ | 2005 06 06 | 704 | 0.1− | 0.0 | | | | |

**2005 GG$_{181}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 65.50348 | | (2000.0) | | | |
| $n$ | 0.23163048 | $\omega$ | 113.70141 | | −0.97206304 | −0.22330727 |
| $a$ | 2.6258641 | $\Omega$ | 53.47223 | | +0.16887956 | −0.87931176 |
| $e$ | 0.1604933 | $i$ | 5.16210 | | +0.16301269 | −0.42064794 |
| $P$ | 4.26 | $H$ | 17.3 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 03 09 | G96 | 0.2− | 0.1+ | 2005 04 19 | 691 | 0.1+ | 0.1+ | 2007 11 07 | G96 | 0.3+ | 0.1+ |
| 2005 03 09 | G96 | 0.1+ | 0.3− | 2005 04 19 | 691 | 0.0 | 0.1+ | 2007 11 07 | G96 | 0.5− | 0.1+ |
| 2005 03 09 | G96 | 0.3− | 0.4+ | 2005 04 19 | 691 | 0.4− | 0.1+ | 2007 11 07 | G96 | 0.2− | 0.0 |
| 2005 03 09 | G96 | 0.2− | 0.1− | 2005 05 07 | 691 | 0.1− | 0.1− | 2007 11 07 | G96 | 0.2+ | 0.2+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 04 01 | 691 | 0.1+ | 0.1+ | 2005 05 07 | 691 | 0.0 | 0.0 | 2009 02 01 | 703 | 0.5+ | 0.6+ | | |
| 2005 04 01 | 691 | 0.4+ | 0.1+ | 2005 05 07 | 691 | 0.2− | 0.2+ | 2009 02 01 | 703 | 0.1− | 0.3− | | |
| 2005 04 01 | 691 | 0.2+ | 0.2+ | 2005 05 11 | G96 | 0.3− | 0.3− | 2009 02 01 | 703 | 1.6− | 0.5− | | |
| 2005 04 12 | 691 | 0.1+ | 0.2− | 2005 05 11 | G96 | 0.1− | 0.0 | 2009 02 01 | 703 | 0.9+ | 0.3− | | |
| 2005 04 12 | 691 | 0.0 | 0.1− | 2005 05 11 | G96 | 0.7− | 0.3− | | | | | | |
| 2005 04 12 | 691 | 0.2+ | 0.3− | 2005 05 11 | G96 | 0.4− | 0.3− | | | | | | |

**2005 GK$_{215}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| $M$ | 318.47801 | | (2000.0) | | **P** | | **Q** | |
|---|---|---|---|---|---|---|---|---|
| $n$ | 0.17837468 | $\omega$ | 88.95878 | | −0.94837036 | | +0.26740915 | |
| $a$ | 3.1254597 | $\Omega$ | 106.53485 | | −0.31167763 | | −0.88535115 | |
| $e$ | 0.1796518 | $i$ | 10.24764 | | +0.05874277 | | −0.38032315 | |
| $P$ | 5.53 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 4 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 04 11 | 683 | (1.1− | 4.3+) | 2005 05 04 | 703 | 1.2− | 1.6− | 2008 11 04 | H55 | 0.1+ | 0.1+ | | |
| 2005 04 11 | 683 | 0.4+ | 1.1+ | 2005 05 04 | 703 | 1.6− | 0.9− | 2008 11 04 | H55 | 0.2− | 0.6+ | | |
| 2005 04 11 | 683 | 0.9+ | 1.1+ | 2005 05 11 | 703 | 0.5− | 1.7+ | 2008 11 04 | H55 | 0.2− | 0.3− | | |
| 2005 04 13 | 703 | 0.4− | 0.1− | 2005 05 11 | 703 | 1.0+ | 1.5+ | 2008 12 02 | G96 | 0.4+ | 0.1− | | |
| 2005 04 13 | 703 | 0.5− | 0.2− | 2005 05 11 | 703 | 0.2+ | 1.1− | 2008 12 02 | G96 | 0.1+ | 0.1− | | |
| 2005 04 13 | 703 | 0.4− | 0.4+ | 2005 05 11 | 703 | 1.5+ | 0.9− | 2008 12 02 | G96 | 0.2+ | 0.2− | | |
| 2005 04 13 | 703 | 0.1+ | 0.4+ | 2005 05 15 | 644 | 0.0 | 0.1− | 2008 12 02 | G96 | 0.1− | 0.3− | | |
| 2005 05 04 | 703 | 0.1+ | 1.5− | 2005 05 15 | 644 | 0.1+ | 0.0 | | | | | | |
| 2005 05 04 | 703 | (0.5− | 2.5−) | 2005 05 15 | 644 | 0.2+ | 0.0 | | | | | | |

**2005 GO$_{227}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| $M$ | 344.92264 | | (2000.0) | | **P** | | **Q** | |
|---|---|---|---|---|---|---|---|---|
| $n$ | 0.20508465 | $\omega$ | 306.65127 | | −0.76448516 | | +0.63690106 | |
| $a$ | 2.8478293 | $\Omega$ | 273.13112 | | −0.55504024 | | −0.72890057 | |
| $e$ | 0.2209288 | $i$ | 5.72452 | | −0.32786092 | | −0.25111948 | |
| $P$ | 4.81 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 3 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 04 06 | 699 | 0.1+ | 0.0 | 2005 05 09 | 703 | 0.4+ | 0.3− | 2008 12 21 | 691 | 0.1− | 0.0 | | |
| 2005 04 06 | 699 | 0.4+ | 0.0 | 2005 05 09 | 703 | 1.0− | 0.2− | 2008 12 21 | 691 | 0.3− | 0.0 | | |
| 2005 04 06 | 699 | 0.2− | 0.3+ | 2007 11 04 | 691 | 0.6+ | 0.1+ | 2008 12 21 | G96 | 0.4+ | 0.2− | | |
| 2005 04 06 | 699 | 0.4+ | 0.5+ | 2007 11 04 | 691 | 0.1− | 0.0 | 2008 12 21 | G96 | 0.2+ | 0.1− | | |
| 2005 05 01 | 644 | 0.1− | 0.1− | 2007 11 04 | 691 | 0.1+ | 0.0 | 2008 12 21 | G96 | 0.1+ | 0.7− | | |
| 2005 05 01 | 644 | 0.0 | 0.0 | 2007 11 18 | 691 | 0.9− | 0.2− | 2008 12 21 | G96 | 0.4+ | 0.1− | | |
| 2005 05 01 | 644 | 0.1+ | 0.2− | 2007 11 18 | 691 | 0.2+ | 0.1+ | 2009 01 02 | 691 | 0.2+ | 0.2+ | | |
| 2005 05 09 | 703 | 0.1+ | 0.7− | 2007 11 18 | 691 | 0.1+ | 0.1− | 2009 01 02 | 691 | 0.3− | 0.1+ | | |
| 2005 05 09 | 703 | 0.3− | 0.4+ | 2008 12 21 | 691 | 0.3+ | 0.0 | 2009 01 02 | 691 | 0.1− | 0.1− | | |

**2005 JS$_{14}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| $M$ | 347.19802 | | (2000.0) | | **P** | | **Q** | |
|---|---|---|---|---|---|---|---|---|
| $n$ | 0.17527077 | $\omega$ | 315.70414 | | −0.81750283 | | −0.57582840 | |
| $a$ | 3.1622513 | $\Omega$ | 189.15567 | | +0.54507308 | | −0.76767997 | |
| $e$ | 0.0603150 | $i$ | 3.79269 | | +0.18596898 | | −0.28122787 | |
| $P$ | 5.62 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 3 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 03 12 | 691 | 0.2− | 0.1+ | 2005 05 06 | G96 | 0.2− | 0.2+ | 2008 11 08 | G96 | 0.1+ | 0.3− | | |
| 2005 03 12 | 691 | 0.1+ | 0.1− | 2005 05 06 | G96 | 0.1+ | 0.0 | 2008 11 08 | G96 | 0.0 | 0.1+ | | |
| 2005 03 12 | 691 | 0.1+ | 0.0 | 2005 05 06 | G96 | 0.1− | 0.4− | 2008 11 30 | G96 | 0.1− | 0.4− | | |
| 2005 04 04 | G96 | 0.2− | 0.3− | 2005 05 06 | G96 | 0.1+ | 0.3− | 2008 11 30 | G96 | 0.3− | 0.1+ | | |
| 2005 04 04 | G96 | 0.0 | 0.3− | 2005 05 13 | G96 | 0.0 | 0.1− | 2008 11 30 | G96 | 0.2− | 0.3− | | |
| 2005 04 04 | G96 | 0.3− | 0.1− | 2005 05 13 | G96 | 0.4− | 0.1+ | 2008 11 30 | G96 | 0.1+ | 0.2+ | | |
| 2005 04 04 | G96 | 0.3− | 0.2− | 2005 05 13 | G96 | 0.7− | 0.1+ | 2008 11 30 | G96 | 0.1+ | 0.1− | | |
| 2005 05 02 | 691 | 0.2+ | 0.3+ | 2005 05 13 | G96 | 1.0− | 0.5− | 2008 11 30 | G96 | 0.2− | 0.4+ | | |
| 2005 05 02 | 691 | 0.5+ | 0.1− | 2008 11 08 | G96 | 0.7+ | 0.0 | 2008 11 30 | G96 | 0.1− | 0.4+ | | |
| 2005 05 02 | 691 | 0.1+ | 0.3+ | 2008 11 08 | G96 | 0.1+ | 0.3− | 2008 11 30 | G96 | 0.3− | 0.4+ | | |

**2005 JA$_{34}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| $M$ | 58.67484 | | (2000.0) | | **P** | | **Q** | |
|---|---|---|---|---|---|---|---|---|
| $n$ | 0.23723402 | $\omega$ | 330.20333 | | −0.88075320 | | +0.43873227 | |
| $a$ | 2.5843505 | $\Omega$ | 236.88671 | | −0.38144505 | | −0.88033629 | |
| $e$ | 0.1304824 | $i$ | 12.29011 | | −0.28066614 | | −0.18033858 | |
| $P$ | 4.15 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 3 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 05 04 | 644 | 0.3+ | 0.3+ | 2005 05 19 | 644 | 0.1− | 0.1+ | 2005 06 12 | G96 | 0.2+ | 0.1− | | |
| 2005 05 04 | 644 | 0.1− | 0.0 | 2005 05 19 | 644 | 0.1+ | 0.2+ | 2009 03 29 | E12 | 0.4+ | 0.3− | | |
| 2005 05 04 | 644 | 0.2+ | 0.1+ | 2005 05 19 | 644 | 0.2− | 0.1+ | 2009 03 29 | E12 | 0.9+ | 0.2+ | | |
| 2005 05 08 | 699 | 1.0+ | 0.2− | 2005 06 04 | 703 | 1.1+ | 0.7+ | 2009 03 29 | E12 | 0.4+ | 0.4+ | | |
| 2005 05 08 | 699 | 0.1+ | 1.3+ | 2005 06 04 | 703 | 0.0 | 0.0 | 2009 03 29 | E12 | 0.1− | 0.0 | | |
| 2005 05 08 | 699 | 0.4− | 0.3− | 2005 06 04 | 703 | 0.9+ | 0.8− | 2009 04 18 | 703 | 0.6− | 0.0 | | |
| 2005 05 08 | 699 | 0.1+ | 0.3+ | 2005 06 04 | 703 | 1.1− | 0.1+ | 2009 04 18 | 703 | 0.9− | 0.3− | | |
| 2005 05 11 | 691 | 0.4− | 0.1− | 2005 06 12 | G96 | 0.4+ | 0.3− | 2009 04 18 | 703 | 0.0 | 0.5− | | |
| 2005 05 11 | 691 | 0.2− | 0.2− | 2005 06 12 | G96 | 0.2+ | 0.2− | 2009 04 18 | 703 | 0.2− | 0.2+ | | |
| 2005 05 11 | 691 | 0.0 | 0.0 | 2005 06 12 | G96 | 0.1− | 0.0 | | | | | | |

**2005 JW$_{96}$ = 2009 VX$_{91}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| $M$ | 58.57459 | | (2000.0) | | **P** | | **Q** | |
|---|---|---|---|---|---|---|---|---|
| $n$ | 0.29905854 | $\omega$ | 247.74526 | | +0.95205992 | | +0.28752425 | |
| $a$ | 2.2146167 | $\Omega$ | 95.42040 | | −0.22752168 | | +0.89379044 | |
| $e$ | 0.2054300 | $i$ | 6.02304 | | −0.20448912 | | +0.34419246 | |
| $P$ | 3.30 | $H$ | 17.4 | $G$ | 0.15 | $U$ | 4 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 05 08 | 691 | 0.3+ | 0.3+ | 2005 05 14 | 644 | 0.4− | 0.1+ | 2009 11 09 | 703 | 0.2+ | 0.2− | | |
| 2005 05 08 | 691 | 0.1− | 0.1− | 2009 10 18 | 703 | 0.2− | 0.1− | 2009 11 23 | 703 | 0.4+ | 0.9+ | | |
| 2005 05 08 | 691 | 0.2+ | 0.1+ | 2009 10 18 | 703 | 0.7− | 0.5− | 2009 11 23 | 703 | 0.5+ | 0.4− | | |
| 2005 05 13 | 691 | 0.1+ | 0.0 | 2009 10 18 | 703 | 0.2− | 0.4+ | 2009 11 23 | 703 | 0.9− | 0.2− | | |
| 2005 05 13 | 691 | 0.2− | 0.0 | 2009 10 18 | 703 | 0.1+ | 0.1+ | 2009 11 23 | 703 | 0.4+ | 0.0 | | |
| 2005 05 13 | 691 | 0.2− | 0.2− | 2009 11 09 | 703 | 0.1− | 0.2+ | 2009 11 23 | 703 | 0.1− | 0.4+ | | |
| 2005 05 14 | 644 | 0.1− | 0.3− | 2009 11 09 | 703 | 0.0 | 0.1+ | | | | | | |
| 2005 05 14 | 644 | 0.1+ | 0.1− | 2009 11 09 | 703 | 0.2+ | 0.2− | | | | | | |

**2005 JN$_{111}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| $M$ | 199.45392 | | (2000.0) | | **P** | | **Q** | |
|---|---|---|---|---|---|---|---|---|
| $n$ | 0.19013514 | $\omega$ | 269.15248 | | +0.97085803 | | −0.14320085 | |
| $a$ | 2.9952136 | $\Omega$ | 99.06446 | | +0.20576297 | | +0.90916728 | |
| $e$ | 0.1192581 | $i$ | 11.22120 | | −0.12286691 | | +0.39103500 | |
| $P$ | 5.18 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 3 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 05 09 | 691 | 0.1− | 0.0 | 2005 05 20 | G96 | 0.6− | 0.0 | 2009 02 04 | G96 | 0.2+ | 0.3+ | | |
| 2005 05 09 | 691 | 0.3− | 0.2+ | 2005 06 05 | 691 | 0.3+ | 0.1+ | 2009 02 04 | G96 | 0.2− | 0.1− | | |
| 2005 05 09 | 691 | 0.1+ | 0.3+ | 2005 06 05 | 691 | 0.0 | 0.3− | 2009 02 04 | G96 | 0.2− | 0.1− | | |
| 2005 05 16 | 691 | 0.2+ | 0.3− | 2005 06 05 | 691 | 0.1− | 0.3− | 2009 03 02 | G96 | 0.2− | 0.0 | | |
| 2005 05 16 | 691 | 0.1+ | 0.1+ | 2005 06 13 | 691 | 0.2− | 0.1+ | 2009 03 02 | G96 | 0.3− | 0.1− | | |
| 2005 05 16 | 691 | 0.2+ | 0.1+ | 2005 06 13 | 691 | 0.2+ | 0.1− | 2009 03 02 | G96 | 0.3+ | 0.2+ | | |
| 2005 05 20 | G96 | 0.6− | 0.2− | 2005 06 13 | 691 | 0.1+ | 0.1+ | 2009 03 02 | G96 | 0.3+ | 0.1− | | |
| 2005 05 20 | G96 | 0.9− | 0.2− | 2009 02 04 | G96 | 0.2+ | 0.1− | | | | | | |

**2005 JC$_{126}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| $M$ | 353.37586 | | (2000.0) | | **P** | | **Q** | |
|---|---|---|---|---|---|---|---|---|
| $n$ | 0.18448306 | $\omega$ | 149.88275 | | −0.83761927 | | −0.54594935 | |
| $a$ | 3.0560823 | $\Omega$ | 356.84328 | | +0.41120925 | | −0.60819160 | |
| $e$ | 0.2737598 | $i$ | 19.36050 | | +0.35958436 | | −0.57623111 | |
| $P$ | 5.34 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 4 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 04 02 | E12 | 0.8− | 1.1+ | 2005 04 15 | 703 | 0.1+ | 1.0− | 2008 10 10 | G96 | 0.2− | 0.2+ | 2005 05 07 | G96 | 0.1+ | 0.4+ |
| 2005 04 02 | E12 | 0.1− | 0.1+ | 2005 04 15 | 703 | 1.5− | 1.1+ | 2008 10 10 | G96 | 0.1− | 0.0 | 2005 05 07 | G96 | 0.1+ | 0.1− |
| 2005 04 02 | E12 | 0.4+ | 0.4+ | 2005 04 15 | 703 | 0.2− | 0.2+ | 2008 10 10 | G96 | 0.2− | 0.4− | 2005 05 07 | G96 | 0.1− | 0.0 |
| 2005 04 02 | E12 | 0.0 | 0.4+ | 2005 05 12 | 644 | 0.0 | 0.0 | 2008 10 10 | G96 | 0.4+ | 0.4− | | | | |
| 2005 04 06 | 699 | 1.2− | 0.2− | 2005 05 12 | 644 | 0.1− | 0.0 | 2008 10 28 | G96 | 0.3− | 0.1− | | | | |
| 2005 04 06 | 699 | 0.2+ | 0.3− | 2005 05 12 | 644 | 0.2− | 0.2+ | 2008 10 28 | G96 | 0.3− | 0.4+ | | | | |
| 2005 04 06 | 699 | 1.1+ | 0.2+ | 2005 05 16 | 644 | 0.1+ | 0.2+ | 2008 10 28 | G96 | 0.3+ | 0.4+ | | | | |
| 2005 04 06 | 699 | 0.1+ | 1.2− | 2005 05 16 | 644 | 0.1+ | 0.1+ | 2008 10 28 | G96 | 0.4+ | 0.2− | | | | |
| 2005 04 15 | 703 | 1.8+ | 1.0− | 2005 05 16 | 644 | 0.1+ | 0.1− | | | | | | | | |

**2005 JE$_{133}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 5.93383 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18797598 | $\omega$ | 338.28935 | | −0.98965738 | −0.13989873 | |
| $a$ | 3.0181060 | $\Omega$ | 193.78273 | | +0.14320554 | −0.95055472 | |
| $e$ | 0.2055123 | $i$ | 7.65299 | | +0.00839317 | −0.27726175 | |
| $P$ | 5.24 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 05 03 | 703 | 0.0 | 1.2− | 2005 05 17 | G96 | 0.9− | 0.2− | 2005 06 14 | 691 | 0.1− | 0.1− | | | | |
| 2005 05 03 | 703 | (2.5− | 1.6−) | 2005 05 17 | G96 | 0.4− | 0.0 | 2005 06 14 | 691 | 0.3+ | 0.3+ | | | | |
| 2005 05 03 | 703 | (0.2− | 3.2−) | 2005 05 17 | G96 | 0.5− | 0.2− | 2007 09 13 | 691 | 0.5− | 0.0 | | | | |
| 2005 05 03 | 703 | 0.7+ | 0.2+ | 2005 05 17 | G96 | 0.1+ | 0.4− | 2007 09 13 | 691 | 0.2+ | 0.5+ | | | | |
| 2005 05 14 | 691 | 0.1+ | 0.0 | 2005 06 04 | 691 | 0.0 | 0.3+ | 2007 09 13 | 691 | 0.1− | 0.0 | | | | |
| 2005 05 14 | 691 | 0.2+ | 0.3− | 2005 06 04 | 691 | 0.1− | 0.4− | 2007 10 08 | G96 | 0.1+ | 0.5− | | | | |
| 2005 05 14 | 691 | 0.2+ | 0.2+ | 2005 06 04 | 691 | 0.2− | 0.1− | 2007 10 08 | G96 | 0.4+ | 0.5− | | | | |
| 2005 05 16 | G96 | 0.3− | 0.2− | 2005 06 09 | 691 | 0.2+ | 0.1− | 2007 10 08 | G96 | 0.0 | 1.1− | | | | |
| 2005 05 16 | G96 | 0.3− | 0.0 | 2005 06 09 | 691 | 0.1+ | 0.1+ | 2007 10 08 | G96 | 1.2+ | 0.3− | | | | |
| 2005 05 16 | G96 | 0.4− | 0.1− | 2005 06 09 | 691 | 0.2+ | 0.2+ | | | | | | | | |
| 2005 05 16 | G96 | 0.5− | 0.2− | 2005 06 14 | 691 | 0.2− | 0.2+ | | | | | | | | |

**2005 JL$_{149}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 19.32113 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21369591 | $\omega$ | 353.39943 | | −0.86668906 | +0.48861871 | |
| $a$ | 2.7708004 | $\Omega$ | 216.41108 | | −0.44959411 | −0.85239196 | |
| $e$ | 0.0473009 | $i$ | 9.74866 | | −0.21613702 | −0.18622487 | |
| $P$ | 4.61 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 03 11 | G96 | 0.3− | 0.0 | 2005 04 17 | 691 | 0.0 | 0.2+ | 2005 05 13 | 691 | 0.1+ | 0.1− | | | | |
| 2005 03 11 | G96 | 0.6+ | 0.1− | 2005 04 17 | 691 | 0.1+ | 0.3+ | 2005 05 13 | 691 | 0.2+ | 0.3− | | | | |
| 2005 03 11 | G96 | 0.0 | 0.6+ | 2005 05 03 | 691 | 0.1− | 0.2− | 2009 01 07 | 291 | 0.0 | 0.1+ | | | | |
| 2005 03 11 | G96 | 0.1+ | 0.0 | 2005 05 03 | 691 | 0.1+ | 0.1+ | 2009 01 07 | 291 | 0.1− | 0.3+ | | | | |
| 2005 04 02 | G96 | 1.3− | 0.2− | 2005 05 03 | 691 | 0.1− | 0.0 | 2009 01 07 | 291 | 0.1− | 0.1− | | | | |
| 2005 04 02 | G96 | 0.8− | 0.7− | 2005 05 08 | 691 | 0.0 | 0.1− | 2009 04 03 | G96 | 0.1+ | 0.5− | | | | |
| 2005 04 02 | G96 | 0.7− | 0.2− | 2005 05 08 | 691 | 0.0 | 0.1− | 2009 04 03 | G96 | 0.2+ | 0.3− | | | | |
| 2005 04 02 | G96 | 0.3− | 0.3− | 2005 05 08 | 691 | (3.9+ | 0.2−) | 2009 04 03 | G96 | 0.4+ | 0.2− | | | | |
| 2005 04 17 | 691 | 0.1− | 0.3+ | 2005 05 13 | 691 | 0.3+ | 0.0 | 2009 04 03 | G96 | 0.1+ | 0.3− | | | | |

**2005 JT$_{159}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 79.59972 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17768816 | $\omega$ | 47.85708 | | +0.15883560 | −0.98696562 | |
| $a$ | 3.1335049 | $\Omega$ | 33.03006 | | +0.89125121 | +0.13205257 | |
| $e$ | 0.0725977 | $i$ | 2.72207 | | +0.42478528 | +0.09198357 | |
| $P$ | 5.55 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 04 11 | G96 | 0.3− | 0.1− | 2005 05 14 | G96 | 0.2− | 0.2− | 2007 10 09 | G96 | 0.1+ | 0.2+ | | | | |
| 2005 04 11 | G96 | 0.4+ | 0.8− | 2005 05 14 | G96 | 0.0 | 0.2+ | 2007 10 09 | G96 | 0.0 | 0.1− | | | | |
| 2005 04 11 | G96 | 0.1+ | 0.2+ | 2005 05 14 | G96 | 0.3− | 0.2− | 2007 10 09 | G96 | 0.0 | 0.2+ | | | | |
| 2005 04 11 | G96 | 0.2− | 0.0 | 2005 05 14 | G96 | 0.3− | 0.0 | 2007 10 09 | G96 | 0.1− | 0.2− | | | | |
| 2005 05 07 | G96 | 0.0 | 0.0 | 2005 06 01 | G96 | 0.6+ | 0.1+ | 2007 11 05 | G96 | 0.2+ | 0.1+ | | | | |
| 2005 05 07 | G96 | 0.1+ | 0.4+ | 2005 06 01 | G96 | 0.3− | 0.3− | 2007 11 05 | G96 | 0.3− | 0.2− | | | | |
| 2005 05 07 | G96 | 0.1+ | 0.1− | 2005 06 01 | G96 | 0.2+ | 0.3+ | 2007 11 05 | G96 | 0.3+ | 0.1+ | | | | |
| 2005 05 07 | G96 | 0.1− | 0.0 | 2005 06 01 | G96 | 0.2+ | 0.3+ | 2007 11 05 | G96 | 0.1− | 0.2− | | | | |

**2005 JU$_{185}$ = 2006 VX$_{111}$ = 2009 WJ$_{171}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 173.64375 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.32188086 | $\omega$ | 316.05554 | | −0.25840254 | +0.96443563 | |
| $a$ | 2.1086570 | $\Omega$ | 298.89640 | | −0.86786641 | −0.25704037 | |
| $e$ | 0.0869157 | $i$ | 3.64153 | | −0.42430652 | −0.06159677 | |
| $P$ | 3.06 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 02 14 | 809 | 0.3+ | 0.6+ | 2006 11 13 | 691 | 0.2− | 0.4+ | 2008 07 04 | E12 | 0.1− | 0.7+ | | | | |
| 2005 02 14 | 809 | 0.5+ | 0.5+ | 2006 11 13 | 691 | 0.1− | 0.7+ | 2008 07 04 | E12 | 0.5− | 0.9+ | | | | |
| 2005 02 14 | 809 | 0.2+ | 0.5+ | 2006 11 13 | 691 | 0.0 | 0.5+ | 2008 07 04 | E12 | 0.2− | 0.9+ | | | | |
| 2005 05 11 | 644 | 0.3+ | 0.6+ | 2006 11 13 | G96 | 0.1− | 0.6− | 2009 11 22 | 703 | 0.9+ | 1.2+ | | | | |
| 2005 05 11 | 644 | 0.3+ | 0.6+ | 2006 11 13 | G96 | 0.2+ | 0.1− | 2009 11 22 | 703 | 0.5+ | 0.2+ | | | | |
| 2005 05 11 | 644 | 0.2+ | 0.6+ | 2006 11 13 | G96 | 0.1+ | 0.2− | 2009 11 22 | 703 | (1.6− | 0.3+) | | | | |
| 2005 05 13 | E12 | 0.0 | 0.6+ | 2006 11 13 | G96 | 0.2− | 0.3− | 2009 11 22 | 703 | 0.1− | 0.4+ | | | | |
| 2005 05 13 | E12 | 0.4+ | 0.0 | 2006 11 17 | 691 | 0.1+ | 0.3+ | 2009 11 22 | G96 | 0.3+ | 0.1− | | | | |
| 2005 05 13 | E12 | 0.1+ | 0.3+ | 2006 11 17 | 691 | 0.2− | 0.3+ | 2009 11 22 | G96 | 0.6+ | 0.2− | | | | |
| 2005 05 13 | E12 | (1.5− | 3.3+) | 2006 11 17 | 691 | 0.2− | 0.4+ | 2009 11 22 | G96 | 0.1+ | 0.1+ | | | | |
| 2005 05 30 | E12 | 0.0 | 0.2− | 2006 11 25 | 691 | 0.4− | 0.7− | 2009 11 22 | G96 | 0.3+ | 0.1− | | | | |
| 2005 05 30 | E12 | 0.1+ | 0.6+ | 2006 11 25 | 691 | 0.2+ | 0.1− | 2009 11 26 | 691 | 0.3+ | 0.2+ | | | | |
| 2005 05 30 | E12 | 0.1− | 0.5+ | 2006 11 25 | 691 | 0.1+ | 0.3+ | 2009 11 26 | 691 | 0.1− | 0.0 | | | | |
| 2005 05 30 | E12 | 0.4+ | 1.0+ | 2008 07 04 | E12 | 0.3− | 0.4+ | 2009 11 26 | 691 | 0.5− | 0.1+ | | | | |

**2005 LH$_{52}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 324.01013 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17527065 | $\omega$ | 309.74685 | | −0.40078676 | +0.82481856 | |
| $a$ | 3.1622528 | $\Omega$ | 292.20504 | | −0.65198477 | −0.56258964 | |
| $e$ | 0.2499049 | $i$ | 25.51511 | | −0.64365040 | +0.05627826 | |
| $P$ | 5.62 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 06 15 | G96 | 0.1− | 0.1− | 2005 06 29 | 691 | 0.4− | 1.7− | 2005 07 31 | 599 | 0.2+ | 0.5+ | | | | |
| 2005 06 15 | G96 | 0.3− | 0.1+ | 2005 06 29 | 291 | 0.0 | 0.4+ | 2005 07 31 | 599 | 0.2+ | 0.3+ | | | | |
| 2005 06 15 | G96 | 0.1+ | 0.0 | 2005 06 29 | 291 | 0.0 | 0.2+ | 2009 01 18 | G96 | 0.0 | 0.3− | | | | |
| 2005 06 15 | G96 | 0.1+ | 0.4− | 2005 06 29 | 291 | 0.1− | 0.3+ | 2009 01 18 | G96 | 0.1− | 0.2− | | | | |
| 2005 06 27 | 644 | 0.2+ | 0.2+ | 2005 07 05 | 644 | 0.3− | 0.1+ | 2009 01 18 | G96 | 0.7− | 1.3+ | | | | |
| 2005 06 27 | 644 | 0.1− | 0.1+ | 2005 07 05 | 644 | 0.0 | 0.2− | 2009 01 18 | G96 | 0.6+ | 0.3− | | | | |
| 2005 06 27 | 644 | 0.1+ | 0.2+ | 2005 07 05 | 644 | 0.6− | 0.1+ | 2009 02 02 | G96 | 0.1+ | 0.3− | | | | |
| 2005 06 28 | 691 | 0.3+ | 0.1− | 2005 07 12 | G96 | 0.1− | 0.3− | 2009 02 02 | G96 | 0.2− | 0.1− | | | | |
| 2005 06 28 | 691 | 0.2+ | 0.2+ | 2005 07 12 | G96 | 0.1+ | 0.5− | 2009 02 02 | G96 | 0.5+ | 0.0 | | | | |
| 2005 06 28 | 691 | 0.2− | 0.4+ | 2005 07 12 | G96 | 0.2+ | 0.6− | 2009 02 02 | G96 | 0.3− | 0.3− | | | | |
| 2005 06 29 | 691 | 0.1+ | 0.6+ | 2005 07 12 | G96 | 0.1− | 0.5− | | | | | | | | |
| 2005 06 29 | 691 | 0.2+ | 0.1− | 2005 07 31 | 599 | 0.2+ | 0.2+ | | | | | | | | |

**2005 LD$_{53}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 297.16065 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17924694 | $\omega$ | 9.89360 | | +0.67003136 | +0.73305137 | |
| $a$ | 3.1153120 | $\Omega$ | 302.28390 | | −0.69018764 | +0.55713708 | |
| $e$ | 0.2600328 | $i$ | 7.95629 | | −0.27331117 | +0.39017171 | |
| $P$ | 5.50 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 06 07 | E12 | 0.0 | 0.3− | 2005 08 16 | E12 | 0.4+ | 0.3− | 2005 10 30 | 699 | 1.0− | 0.7+ | | | | |
| 2005 06 07 | E12 | 0.3− | 0.5+ | 2005 08 16 | E12 | (2.0+ | 1.3−) | 2005 10 30 | 699 | (1.3+ | 2.4+) | | | | |
| 2005 06 07 | E12 | 0.9− | 0.2− | 2005 08 16 | E12 | 1.0− | 1.1− | 2008 01 30 | G96 | 0.6− | 0.3− | | | | |
| 2005 06 07 | E12 | 0.2+ | 0.0 | 2005 09 01 | 608 | 0.2− | 0.1+ | 2008 01 30 | G96 | 0.3− | 0.3− | | | | |
| 2005 07 07 | 699 | 1.4+ | 1.3− | 2005 09 01 | 608 | 0.2+ | 0.1+ | 2008 01 30 | G96 | 0.7− | 0.2− | | | | |
| 2005 07 07 | 699 | 0.1+ | 0.8− | 2005 09 01 | 608 | 0.2− | 0.1+ | 2008 01 30 | G96 | 0.4+ | 0.1+ | | | | |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 07 07 | 699 | 0.5+ | 1.3+ | 2005 09 06 | 704 | 0.4+ | 1.0+ | 2008 02 13 | G96 | 0.1+ | 0.3+ |
| 2005 07 07 | 699 | 0.3− | 0.4+ | 2005 09 06 | 704 | 0.0 | 0.7+ | 2008 02 13 | G96 | 0.3+ | 0.4− |
| 2005 07 30 | 644 | 0.0 | 0.2− | 2005 09 06 | 704 | 1.2− | 1.2− | 2008 02 13 | G96 | 0.4+ | 0.0 |
| 2005 07 30 | 644 | 0.2+ | 0.1− | 2005 09 11 | 699 | 0.1− | 0.7+ | 2008 02 13 | G96 | 0.1+ | 0.1+ |
| 2005 07 30 | 644 | 0.3+ | 0.1− | 2005 09 11 | 699 | 1.2+ | 0.1− | 2009 03 28 | G96 | 0.1+ | 0.4+ |
| 2005 08 06 | 644 | 0.4+ | 0.1+ | 2005 09 11 | 699 | 0.2+ | 0.5− | 2009 03 28 | G96 | 0.1− | 0.5+ |
| 2005 08 06 | 644 | 0.1+ | 0.1+ | 2005 09 11 | 699 | 0.7− | 1.4+ | 2009 03 28 | G96 | 0.6+ | 0.5+ |
| 2005 08 06 | 644 | 0.0 | 0.1− | 2005 10 30 | 699 | 0.3− | 0.8− | 2009 03 28 | G96 | 0.4+ | 0.3+ |
| 2005 08 16 | E12 | 0.7+ | 0.0 | 2005 10 30 | 699 | 1.2− | 0.6+ | | | | |

**2005 LT$_{53}$ = 2009 WX$_{218}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 45.28496 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.08354488 | $\omega$ | 138.54403 | | +0.97414555 | +0.10443943 | |
| $a$ | 5.1823032 | $\Omega$ | 216.94325 | | −0.13220437 | +0.98257916 | |
| $e$ | 0.0559941 | $i$ | 19.47027 | | +0.18320059 | +0.15372250 | |
| $P$ | 11.80 | $H$ | 13.4 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 04 17 | 645 | 0.0 | 0.0 | 2008 09 28 | 703 | 0.2− | 0.9+ | 2009 10 11 | G96 | 0.2+ | 0.1− |
| 2001 04 17 | 645 | 0.0 | 0.1+ | 2008 09 28 | 703 | 0.6+ | 0.0 | 2009 10 11 | G96 | 0.4+ | 0.1+ |
| 2004 05 09 | 691 | 0.2+ | 0.0 | 2008 09 28 | 703 | 0.6− | 1.3+ | 2009 10 24 | 691 | 0.3− | 0.0 |
| 2004 05 09 | 691 | 0.4+ | 0.1+ | 2008 09 28 | 703 | 0.4+ | 1.3+ | 2009 10 24 | 691 | 0.2− | 0.2− |
| 2004 05 09 | 691 | 0.3+ | 0.4+ | 2008 12 01 | G96 | 0.8+ | 0.3+ | 2009 10 24 | 691 | 0.1− | 0.2+ |
| 2005 06 11 | 691 | 0.0 | 0.1− | 2008 12 01 | G96 | 0.4+ | 0.0 | 2009 11 16 | G96 | 0.0 | 0.0 |
| 2005 06 11 | 691 | 0.0 | 0.1+ | 2008 12 01 | G96 | 0.4+ | 0.1− | 2009 11 16 | G96 | 0.4+ | 0.3+ |
| 2005 06 11 | 691 | 0.0 | 0.2− | 2008 12 01 | G96 | 0.4+ | 0.1+ | 2009 11 16 | G96 | 0.2+ | 0.1− |
| 2005 06 29 | 691 | 0.0 | 0.3+ | 2009 09 21 | G96 | 0.2+ | 0.1+ | 2009 11 16 | G96 | 0.0 | 0.1+ |
| 2005 06 29 | 691 | 0.2− | 0.3+ | 2009 09 21 | G96 | 0.0 | 0.0 | 2009 11 23 | 703 | 0.1− | 0.1− |
| 2005 06 29 | 691 | 0.2− | 0.1+ | 2009 09 21 | G96 | 0.2+ | 0.0 | 2009 11 23 | 703 | (0.4+ | 1.6+) |
| 2005 07 03 | 691 | 0.0 | 0.3+ | 2009 09 21 | G96 | 0.4+ | 0.1+ | 2009 11 23 | 703 | 0.4− | 0.2− |
| 2005 07 03 | 691 | 0.3− | 0.3+ | 2009 10 11 | G96 | 0.2+ | 0.1+ | 2009 11 23 | 703 | 1.0− | 0.0 |
| 2005 07 03 | 691 | 0.3− | 1.2− | 2009 10 11 | G96 | 0.0 | 0.2− | | | | |

**2005 MH$_4$ = 2009 WN$_{223}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 98.60059 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28867563 | $\omega$ | 213.82030 | | +0.46727533 | +0.87617735 | |
| $a$ | 2.2674060 | $\Omega$ | 84.29162 | | −0.78259027 | +0.47210017 | |
| $e$ | 0.2952895 | $i$ | 6.82119 | | −0.41134686 | +0.09713227 | |
| $P$ | 3.41 | $H$ | 17.8 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 06 16 | G96 | 0.1− | 0.0 | 2005 06 26 | G96 | 0.3+ | 0.0 | 2009 11 16 | G96 | 0.5+ | 0.4+ |
| 2005 06 16 | G96 | 0.2+ | 0.1+ | 2005 06 26 | G96 | 0.4− | 0.0 | 2009 11 16 | G96 | 0.3− | 0.0 |
| 2005 06 16 | G96 | 0.0 | 0.1+ | 2005 06 26 | G96 | 0.0 | 0.0 | 2009 11 24 | G96 | 0.1+ | 0.0 |
| 2005 06 23 | 644 | 0.1+ | 0.0 | 2005 06 26 | G96 | 0.2− | 0.1+ | 2009 11 24 | G96 | 0.1+ | 0.1+ |
| 2005 06 23 | 644 | 0.0 | 0.0 | 2009 11 16 | G96 | 0.1+ | 0.3− | 2009 11 24 | G96 | 0.1+ | 0.3− |
| 2005 06 23 | 644 | 0.2+ | 0.2− | 2009 11 16 | G96 | 0.5− | 0.1+ | 2009 11 24 | G96 | 0.2− | 0.1+ |

**2005 MS$_{20}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 87.82309 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27813325 | $\omega$ | 12.27847 | | +0.64268130 | +0.76464428 | |
| $a$ | 2.3243460 | $\Omega$ | 297.73408 | | −0.70739844 | +0.56832513 | |
| $e$ | 0.0973375 | $i$ | 3.09235 | | −0.29419075 | +0.30385138 | |
| $P$ | 3.54 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 06 30 | 691 | 0.1− | 0.2+ | 2005 09 30 | G96 | 0.8+ | 0.5− | 2009 09 16 | 691 | 0.2+ | 0.3+ |
| 2005 06 30 | 691 | 0.2− | 0.0 | 2005 09 30 | G96 | 0.5+ | 0.1− | 2009 09 16 | 691 | 0.0 | 0.2+ |
| 2005 06 30 | 691 | 0.2+ | 0.0 | 2005 10 01 | G96 | 0.0 | 0.7− | 2009 09 16 | 691 | 0.2− | 0.1− |
| 2005 07 03 | G96 | 0.4− | 0.4+ | 2005 10 01 | G96 | 0.3+ | 0.2+ | 2009 09 16 | 691 | 0.2+ | 0.0 |
| 2005 07 03 | G96 | 0.2− | 0.1+ | 2005 10 01 | G96 | 0.0 | 0.2− | 2009 09 28 | 691 | 0.1− | 0.8− |
| 2005 07 03 | G96 | 0.3− | 0.4+ | 2005 10 01 | G96 | 0.7+ | 1.4− | 2009 09 28 | 691 | 0.0 | 0.2+ |
| 2005 07 03 | G96 | 0.6− | 0.3+ | 2008 04 29 | G96 | 0.2− | 0.4− | 2009 09 28 | 691 | 0.1− | 0.3+ |
| 2005 07 04 | 644 | 0.3− | 0.2− | 2008 04 29 | G96 | 0.1− | 0.3− | 2009 10 21 | G96 | 0.4+ | 0.1− |
| 2005 07 04 | 644 | 0.2− | 0.3+ | 2008 04 29 | G96 | 0.2− | 0.4− | 2009 10 21 | G96 | 0.2+ | 0.3+ |
| 2005 07 04 | 644 | 0.4− | 0.2+ | 2008 04 29 | G96 | 0.0 | 0.3− | 2009 10 21 | G96 | 0.3+ | 0.1+ |
| 2005 09 30 | G96 | 0.7+ | 0.3− | 2009 09 16 | 691 | 0.1− | 0.0 | 2009 10 21 | G96 | 0.2+ | 0.1+ |
| 2005 09 30 | G96 | 0.5+ | 0.6− | 2009 09 16 | 691 | 0.1− | 0.1+ | | | | |

**2005 MW$_{36}$ = 2009 YO$_5$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 81.88897 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.30631913 | $\omega$ | 274.57849 | | +0.96448873 | −0.25913529 | |
| $a$ | 2.1794821 | $\Omega$ | 100.44656 | | +0.25822517 | +0.88448401 | |
| $e$ | 0.1436545 | $i$ | 2.97804 | | +0.05550912 | +0.38799090 | |
| $P$ | 3.22 | $H$ | 18.3 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 03 15 | 691 | 0.4+ | 0.6+ | 2005 07 05 | 691 | 0.2− | 0.1+ | 2009 12 17 | G96 | 0.5+ | 0.3+ |
| 2004 03 15 | 691 | 0.2− | 0.2− | 2005 07 05 | 691 | 0.0 | 0.3+ | 2009 12 17 | G96 | 0.2+ | 0.5− |
| 2004 03 15 | 691 | 0.2− | 0.3− | 2005 07 16 | 691 | 0.2+ | 0.0 | 2009 12 18 | 291 | 0.2− | 0.3+ |
| 2005 06 30 | 691 | 0.0 | 0.5− | 2005 07 16 | 691 | 0.1+ | 0.1− | 2009 12 18 | 291 | 0.2− | 0.3+ |
| 2005 06 30 | 691 | 0.1+ | 0.4+ | 2005 07 16 | 691 | 0.1− | 0.3+ | 2009 12 18 | 291 | 0.2− | 0.3+ |
| 2005 06 30 | 691 | 0.0 | 0.1+ | 2007 02 17 | 691 | 0.1+ | 0.0 | 2009 12 20 | 291 | 0.4+ | 0.1+ |
| 2005 07 04 | 644 | 0.4− | 0.1− | 2007 02 17 | 691 | 0.1+ | 0.0 | 2009 12 20 | 291 | 0.2+ | 0.2+ |
| 2005 07 04 | 644 | 0.3− | 0.4+ | 2007 02 17 | 691 | 0.2− | 0.1+ | 2009 12 20 | 291 | 0.1− | 0.4− |
| 2005 07 04 | 644 | 0.2− | 0.1+ | 2009 12 17 | G96 | 0.3+ | 0.2− | | | | |
| 2005 07 05 | 691 | 0.1+ | 0.1+ | 2009 12 17 | G96 | 0.1− | 0.3− | | | | |

**2005 MB$_{50}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 62.07336 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22540929 | $\omega$ | 295.84833 | | −0.38316450 | +0.90759568 | |
| $a$ | 2.6739596 | $\Omega$ | 310.52170 | | −0.74587917 | −0.41361908 | |
| $e$ | 0.0428789 | $i$ | 13.04843 | | −0.54483872 | −0.07203708 | |
| $P$ | 4.37 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 06 30 | 691 | 0.6+ | 0.1+ | 2005 07 16 | 691 | 0.5+ | 0.2− | 2008 02 11 | G96 | 0.0 | 0.1+ |
| 2005 06 30 | 691 | 0.5− | 0.3− | 2005 07 30 | E12 | 0.9+ | 0.0 | 2008 02 11 | G96 | 0.1− | 0.1+ |
| 2005 06 30 | 691 | 0.1− | 0.0 | 2005 07 30 | E12 | 0.2+ | 0.3+ | 2008 02 11 | G96 | 0.1+ | 0.1+ |
| 2005 07 09 | 691 | 0.0 | 0.1+ | 2005 07 30 | E12 | 0.0 | 0.4+ | 2008 02 11 | G96 | 0.5+ | 0.3+ |
| 2005 07 09 | 691 | 0.2− | 0.1+ | 2005 07 30 | E12 | 0.7− | 0.3− | 2008 02 24 | G96 | 0.2− | 0.2− |
| 2005 07 09 | 691 | 0.1− | 0.0 | 2005 10 01 | G96 | 0.3+ | 0.4+ | 2008 02 24 | G96 | 0.2+ | 0.1− |
| 2005 07 16 | 691 | 0.2− | 0.0 | 2005 10 01 | G96 | 0.1+ | 0.2− | 2008 02 24 | G96 | 0.2− | 0.2− |
| 2005 07 16 | 691 | 0.1− | 0.0 | 2005 10 01 | G96 | 0.3+ | 0.4− | 2008 02 24 | G96 | 0.4− | 0.3− |

**2005 MW$_{50}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 269.48746 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19663988 | $\omega$ | 54.36284 | | +0.98655257 | −0.07476252 | |
| $a$ | 2.9287905 | $\Omega$ | 309.46274 | | −0.00812103 | +0.86573080 | |
| $e$ | 0.0391411 | $i$ | 10.85119 | | +0.16324238 | +0.49489468 | |
| $P$ | 5.01 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 06 30 | 691 | 0.0 | 0.1− | 2005 07 15 | G96 | 0.2− | 0.4− | 2008 02 11 | 291 | 0.0 | 0.3+ |
| 2005 06 30 | 691 | 0.1+ | 0.2+ | 2005 07 15 | G96 | 0.0 | 0.0 | 2008 02 11 | 291 | 0.0 | 0.2+ |
| 2005 06 30 | 691 | 0.3− | 0.1+ | 2005 08 31 | 691 | 0.2− | 0.2+ | 2008 02 11 | 291 | 0.0 | 0.2+ |
| 2005 07 11 | 691 | 0.1− | 0.3− | 2005 08 31 | 691 | 0.1− | 0.3+ | 2008 03 10 | G96 | 0.7− | 0.1− |
| 2005 07 11 | 691 | 0.1− | 0.4+ | 2005 08 31 | 691 | 0.7+ | 0.2− | 2008 03 10 | G96 | 0.1+ | 0.5− |
| 2005 07 11 | 691 | 0.0 | 0.0 | 2008 01 12 | 691 | 0.1− | 0.0 | 2008 03 10 | G96 | 0.1− | 0.0 |
| 2005 07 15 | G96 | 0.1+ | 0.3− | 2008 01 12 | 691 | 0.2+ | 0.1+ | 2008 03 10 | G96 | 0.3− | 0.6− |
| 2005 07 15 | G96 | 0.0 | 0.4− | 2008 01 12 | 691 | 0.3+ | 0.5− | | | | |

**2005 NV**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 346.55580 | | (2000.0) | | | |
| $n$ | 0.18869148 | $\omega$ | 323.66660 | | −0.17831210 | +0.96377152 |
| $a$ | 3.0104715 | $\Omega$ | 295.30095 | | −0.84315439 | −0.25358051 |
| $e$ | 0.0652440 | $i$ | 12.67459 | | −0.50724300 | +0.08271262 |
| $P$ | 5.22 | $H$ | 16.1 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 06 13 | G96 | 0.4− | 0.1− | 2005 07 03 | G96 | 0.5− | 0.1+ | 2005 07 15 | G96 | 0.4+ | 0.5− |
| 2005 06 13 | G96 | 0.0 | 0.5− | 2005 07 04 | 644 | 0.0 | 0.0 | 2007 12 05 | 691 | 0.3+ | 0.3+ |
| 2005 06 13 | G96 | 0.4+ | 0.3+ | 2005 07 04 | 644 | 0.3+ | 0.1− | 2007 12 05 | 691 | 0.1+ | 0.1− |
| 2005 06 13 | G96 | 0.2+ | 0.0 | 2005 07 04 | 644 | 0.1+ | 0.3− | 2007 12 05 | 691 | 0.4− | 0.0 |
| 2005 07 02 | 691 | 0.2+ | 0.7− | 2005 07 10 | 691 | 0.1+ | 0.2+ | 2007 12 30 | 691 | 0.3− | 0.1+ |
| 2005 07 02 | 691 | 0.1+ | 0.0 | 2005 07 10 | 691 | 0.0 | 0.0 | 2007 12 30 | 691 | 0.3+ | 0.7− |
| 2005 07 02 | 691 | 0.1+ | 0.4+ | 2005 07 10 | 691 | 0.1− | 0.3+ | 2007 12 30 | 691 | 0.1+ | 0.2+ |
| 2005 07 03 | G96 | 1.1− | 0.1− | 2005 07 15 | G96 | 0.0 | 0.6− | 2008 01 13 | 691 | 0.1− | 0.2+ |
| 2005 07 03 | G96 | 0.9− | 0.0 | 2005 07 15 | G96 | 1.2+ | 0.6+ | 2008 01 13 | 691 | 0.1− | 0.0 |
| 2005 07 03 | G96 | 1.2− | 0.0 | 2005 07 15 | G96 | 0.2+ | 0.4− | 2008 01 13 | 691 | 0.0 | 0.0 |

**2005 ND$_9$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 70.32760 | | (2000.0) | | | |
| $n$ | 0.26954632 | $\omega$ | 32.99499 | | +0.76872326 | +0.63097147 |
| $a$ | 2.3734520 | $\Omega$ | 287.52589 | | −0.60799930 | +0.67017324 |
| $e$ | 0.1329717 | $i$ | 6.29708 | | −0.19849787 | +0.39082328 |
| $P$ | 3.66 | $H$ | 17.2 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 06 18 | G96 | 0.7+ | 0.1− | 2005 07 12 | 703 | 1.1− | 0.7− | 2005 08 08 | 185 | 0.1− | 0.3+ |
| 2005 06 18 | G96 | 0.2+ | 0.2− | 2005 07 12 | 703 | 1.3+ | 1.2− | 2005 08 08 | 185 | 0.2+ | 0.0 |
| 2005 06 18 | G96 | 0.3+ | 0.2− | 2005 07 12 | 703 | 0.2− | 0.9− | 2005 09 01 | 691 | 0.0 | 0.0 |
| 2005 06 18 | G96 | 0.5+ | 0.2− | 2005 07 12 | 703 | 0.5− | 0.6− | 2005 09 01 | 691 | 0.2+ | 0.1+ |
| 2005 07 01 | 691 | 0.2− | 0.1+ | 2005 07 18 | 644 | 0.2− | 0.2+ | 2005 09 01 | 691 | 0.0 | 0.2+ |
| 2005 07 01 | 691 | 0.1+ | 0.0 | 2005 07 18 | 644 | 0.2− | 0.0 | 2009 09 21 | 703 | 0.7− | 0.8+ |
| 2005 07 01 | 691 | 0.0 | 0.0 | 2005 07 18 | 644 | 0.4− | 0.1+ | 2009 09 21 | 703 | 0.2− | 0.2+ |
| 2005 07 05 | 644 | 0.1+ | 0.1+ | 2005 07 28 | 644 | 0.0 | 0.2− | 2009 09 21 | 703 | 0.6− | 0.4− |
| 2005 07 05 | 644 | 0.1− | 0.2− | 2005 07 28 | 644 | 0.1− | 0.1− | 2009 09 21 | 703 | 0.6− | 0.2+ |
| 2005 07 05 | 644 | 0.0 | 0.2− | 2005 07 28 | 644 | 0.4− | 0.1− | 2009 10 16 | 703 | 0.6+ | 0.1− |
| 2005 07 06 | 691 | 0.1+ | 0.1+ | 2005 08 06 | 644 | 0.2− | 0.2+ | 2009 10 16 | 703 | 1.3+ | 0.4− |
| 2005 07 06 | 691 | 0.0 | 0.3+ | 2005 08 06 | 644 | 0.1+ | 0.0 | 2009 10 16 | 703 | 0.2− | 0.4− |
| 2005 07 06 | 691 | 0.0 | 0.2+ | 2005 08 06 | 644 | 0.2− | 0.2− | 2009 10 16 | 703 | 0.4+ | 0.0 |

**2005 NH$_{17}$ = 2009 UE$_{144}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 62.92557 | | (2000.0) | | | |
| $n$ | 0.27277495 | $\omega$ | 209.59221 | | +0.92904544 | +0.36756022 |
| $a$ | 2.3546863 | $\Omega$ | 128.78155 | | −0.32793946 | +0.87085750 |
| $e$ | 0.2210538 | $i$ | 3.09728 | | −0.17126087 | +0.32635364 |
| $P$ | 3.61 | $H$ | 18.3 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 07 03 | G96 | 0.2− | 0.3− | 2005 07 12 | 701 | 0.0 | 0.5− | 2009 10 26 | 691 | 0.1+ | 0.4+ |
| 2005 07 03 | G96 | 0.2+ | 0.3+ | 2005 07 27 | 644 | 0.2− | 0.2− | 2009 10 26 | 691 | 0.5− | 0.1− |
| 2005 07 03 | G96 | 1.0− | 0.2+ | 2005 07 27 | 644 | 0.2+ | 0.5− | 2009 10 26 | 691 | 0.6− | 0.2− |
| 2005 07 03 | G96 | 0.2− | 0.3− | 2005 07 27 | 644 | 0.1− | 0.0 | 2009 11 19 | G96 | 0.5+ | 0.0 |
| 2005 07 07 | 691 | 0.2+ | 0.5+ | 2009 10 23 | G96 | 0.6+ | 0.2+ | 2009 11 19 | G96 | 0.6+ | 0.2− |
| 2005 07 07 | 691 | 0.1+ | 0.1+ | 2009 10 23 | G96 | 0.4+ | 0.0 | 2009 11 19 | G96 | 0.1+ | 0.3− |
| 2005 07 07 | 691 | 0.0 | 0.2− | 2009 10 23 | G96 | 0.7+ | 0.1− | 2009 11 19 | G96 | 0.1+ | 0.2− |
| 2005 07 12 | 701 | 0.1+ | 0.8− | 2009 10 23 | G96 | 1.1+ | 0.1+ | | | | |

**2005 NK$_{20}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 83.06536 | | (2000.0) | | | |
| $n$ | 0.28165066 | $\omega$ | 73.22105 | | +0.91695290 | +0.17100937 |
| $a$ | 2.3049537 | $\Omega$ | 275.79545 | | −0.31882726 | +0.85725040 |
| $e$ | 0.3108676 | $i$ | 21.24411 | | +0.23988865 | +0.48567226 |
| $P$ | 3.50 | $H$ | 16.3 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 11 07 | 645 | 0.1− | 0.1− | 2005 07 30 | 704 | 0.6+ | 0.1+ | 2005 09 16 | 704 | 0.2+ | 0.6− |
| 2002 11 07 | 645 | 0.0 | 0.1− | 2005 07 31 | 704 | 0.1+ | 0.4− | 2005 09 16 | 704 | 0.1− | 0.9− |
| 2005 07 03 | 703 | 0.1− | 0.5− | 2005 07 31 | 704 | 0.1+ | 0.1− | 2005 11 06 | 703 | 0.0 | 1.0+ |
| 2005 07 03 | 703 | 0.4− | 0.7− | 2005 07 31 | 704 | 0.1+ | 0.1− | 2005 11 06 | 703 | (1.8+ | 0.4−) |
| 2005 07 03 | 703 | 0.3− | 0.4− | 2005 07 31 | 704 | 0.2+ | 0.5− | 2005 11 06 | 703 | 0.0 | 0.1− |
| 2005 07 03 | 703 | 0.6− | 0.8− | 2005 07 31 | 704 | 0.0 | 0.1− | 2005 11 06 | 703 | 1.1− | 0.2+ |
| 2005 07 03 | 608 | 0.7− | 0.4+ | 2005 08 23 | 704 | 0.2− | 1.1+ | 2005 11 28 | 704 | (0.4− | 2.0+) |
| 2005 07 03 | 608 | 0.6− | 0.6+ | 2005 08 23 | 704 | 0.6− | 0.8+ | 2005 11 28 | 704 | 0.7− | 0.1+ |
| 2005 07 03 | 608 | 0.2− | 0.1− | 2005 08 23 | 704 | 0.5− | 0.9+ | 2005 11 28 | 704 | 1.3− | 0.0 |
| 2005 07 08 | 699 | 0.0 | 0.0 | 2005 08 23 | 704 | 0.3− | 0.5+ | 2005 11 28 | 704 | (0.3+ | 2.3−) |
| 2005 07 08 | 699 | 0.4− | 0.0 | 2005 08 23 | 704 | 0.2− | 0.9+ | 2005 11 28 | 704 | 0.2+ | 0.4+ |
| 2005 07 08 | 699 | 0.5− | 0.6− | 2005 08 29 | A35 | 0.1− | 0.4− | 2005 12 05 | 703 | 0.7− | 0.2− |
| 2005 07 08 | 699 | 0.8− | 0.6− | 2005 08 29 | A35 | 0.0 | 0.4− | 2005 12 05 | 703 | 0.7− | 0.1+ |
| 2005 07 08 | 699 | 0.7− | 0.4+ | 2005 08 29 | A35 | 0.1+ | 0.5− | 2005 12 05 | 703 | 0.2+ | 0.2+ |
| 2005 07 08 | 699 | 0.2+ | 0.0 | 2005 08 29 | A35 | 0.0 | 0.6− | 2005 12 05 | 703 | 0.1+ | 0.9+ |
| 2005 07 08 | 699 | 0.9+ | 0.6− | 2005 09 15 | 704 | (1.7+ | 0.5−) | 2009 11 11 | G96 | 0.6− | 0.4− |
| 2005 07 08 | 699 | 0.0 | 0.4+ | 2005 09 15 | 704 | 1.0+ | 0.2− | 2009 11 11 | G96 | 0.4− | 0.1− |
| 2005 07 30 | 704 | 0.0 | 0.5+ | 2005 09 15 | 704 | 1.1+ | 0.2+ | 2009 11 11 | G96 | 0.1− | 0.2− |
| 2005 07 30 | 704 | 0.7+ | 0.3+ | 2005 09 15 | 704 | 1.1+ | 0.2− | 2009 12 18 | 691 | 0.2− | 0.0 |
| 2005 07 30 | 704 | 1.4+ | 0.6+ | 2005 09 15 | 704 | 0.1+ | 0.3+ | 2009 12 18 | 691 | 0.2+ | 1.2+ |
| 2005 07 30 | 704 | 1.3+ | 0.2− | 2005 09 16 | 704 | 0.0 | 0.9− | 2009 12 18 | 691 | 0.4+ | 0.7− |

**2005 NQ$_{22}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 185.35104 | | (2000.0) | | | |
| $n$ | 0.31146465 | $\omega$ | 74.43708 | | −0.16012714 | +0.98709262 |
| $a$ | 2.1554116 | $\Omega$ | 186.35053 | | −0.91483987 | −0.14944398 |
| $e$ | 0.1137668 | $i$ | 1.41455 | | −0.37071190 | −0.05757305 |
| $P$ | 3.16 | $H$ | 17.6 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 06 18 | G96 | 0.0 | 0.1+ | 2005 07 09 | 691 | 0.2− | 0.0 | 2009 11 24 | 691 | 0.2− | 0.1+ |
| 2005 06 18 | G96 | 0.0 | 0.1+ | 2005 07 09 | 691 | 0.1+ | 0.2− | 2009 11 24 | 691 | 0.2− | 0.0 |
| 2005 06 18 | G96 | 0.0 | 0.3+ | 2005 07 09 | 691 | 0.1+ | 0.1+ | 2009 12 10 | G96 | 0.4+ | 0.2+ |
| 2005 06 18 | G96 | 0.0 | 0.3+ | 2005 07 18 | 644 | 0.1− | 0.0 | 2009 12 10 | G96 | 0.8+ | 0.3− |
| 2005 07 01 | 691 | 0.0 | 0.1+ | 2005 07 18 | 644 | 0.1− | 0.2− | 2009 12 10 | G96 | 0.0 | 0.0 |
| 2005 07 01 | 691 | 0.2− | 0.2+ | 2005 07 18 | 644 | 0.0 | 0.2− | 2009 12 10 | G96 | 0.2− | 0.0 |
| 2005 07 01 | 691 | 0.1− | 0.1+ | 2005 07 18 | 644 | 0.4+ | 0.3− | 2009 12 10 | G96 | 0.1− | 0.2+ |
| 2005 07 05 | 644 | 0.1− | 0.1− | 2005 07 18 | 644 | 0.1− | 0.1− | 2009 12 10 | G96 | 0.1+ | 0.4+ |
| 2005 07 05 | 644 | 0.2+ | 0.2+ | 2005 07 18 | 644 | 0.2+ | 0.2− | 2009 12 10 | G96 | 0.2+ | 0.0 |
| 2005 07 05 | 644 | 0.2+ | 0.4− | 2009 11 24 | 691 | 0.0 | 0.1− | 2009 12 10 | G96 | 0.1+ | 0.0 |

**2005 NO$_{31}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 267.25379 | | (2000.0) | | | |
| $n$ | 0.17498461 | $\omega$ | 205.41617 | | +0.80021351 | +0.53787740 |
| $a$ | 3.1656979 | $\Omega$ | 119.46637 | | −0.48498472 | +0.84055003 |
| $e$ | 0.1019900 | $i$ | 17.73620 | | −0.35277211 | +0.06452562 |
| $P$ | 5.63 | $H$ | 15.8 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 06 15 | G96 | 0.1+ | 0.0 | 2005 07 09 | 691 | 0.0 | 0.1− | 2005 07 30 | E12 | 0.4− | 0.8− |
| 2005 06 15 | G96 | 0.3+ | 0.1+ | 2005 07 12 | G96 | 0.4+ | 0.2− | 2005 07 30 | E12 | 0.5+ | 0.5+ |
| 2005 06 15 | G96 | 0.3+ | 0.1+ | 2005 07 12 | G96 | 0.1− | 0.2− | 2005 07 30 | E12 | 0.0 | 0.1− |
| 2005 06 15 | G96 | 0.1− | 0.1− | 2005 07 12 | G96 | 0.5+ | 0.4− | 2008 01 30 | 691 | 0.4+ | 0.1+ |
| 2005 07 04 | 644 | 0.1+ | 0.3+ | 2005 07 12 | G96 | 0.3+ | 0.3− | 2008 01 30 | 691 | 0.2− | 0.2− |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 07 04 | 644 | 0.1− | 0.4− | 2005 07 16 | 691 | 0.2− | 0.0 | 2008 01 30 | 691 | 0.1− | 0.4+ |
| 2005 07 04 | 644 | 0.1+ | 0.1+ | 2005 07 16 | 691 | 0.2− | 0.1+ | 2008 02 11 | 691 | 0.4− | 0.2+ |
| 2005 07 09 | 691 | 0.1+ | 0.2+ | 2005 07 16 | 691 | 0.2− | 0.0 | 2008 02 11 | 691 | 0.1+ | 0.2− |
| 2005 07 09 | 691 | 0.1+ | 0.1+ | 2005 07 30 | E12 | 0.3+ | 0.5+ | 2008 02 11 | 691 | 0.1+ | 0.3− |

### 2005 NK$_{36}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 288.56021 | | (2000.0) | | | |
| $n$ | 0.18473047 | $\omega$ | 189.44034 | | +0.84077598 | +0.52212401 |
| $a$ | 3.0533531 | $\Omega$ | 138.05186 | | −0.48169471 | +0.84213113 |
| $e$ | 0.1109538 | $i$ | 12.36269 | | −0.24711527 | +0.13491363 |
| $P$ | 5.34 | $H$ | 16.0 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 07 05 | 644 | 0.3+ | 0.1− | 2005 07 18 | 644 | 0.0 | 0.1− | 2008 02 13 | G96 | 0.0 | 0.2+ |
| 2005 07 05 | 644 | 0.1− | 0.1+ | 2005 08 06 | 644 | 0.1− | 0.3− | 2008 02 13 | G96 | 0.0 | 0.0 |
| 2005 07 05 | 644 | 0.4+ | 0.0 | 2005 08 06 | 644 | 0.1− | 0.1− | 2008 02 13 | G96 | 0.4+ | 0.1+ |
| 2005 07 09 | 691 | 0.1− | 0.0 | 2005 08 06 | 644 | 0.0 | 0.1+ | 2008 02 13 | G96 | 0.1− | 0.1− |
| 2005 07 09 | 691 | 0.0 | 0.1− | 2008 01 30 | G96 | 0.0 | 0.1+ | 2008 02 26 | G96 | 0.0 | 0.3− |
| 2005 07 09 | 691 | 0.0 | 0.0 | 2008 01 30 | G96 | 0.1+ | 0.0 | 2008 02 26 | G96 | 0.3+ | 0.3+ |
| 2005 07 18 | 644 | 0.2− | 0.3+ | 2008 01 30 | G96 | 0.1+ | 0.0 | 2008 02 26 | G96 | 0.6− | 0.3+ |
| 2005 07 18 | 644 | 0.0 | 0.2+ | 2008 01 30 | G96 | 0.4− | 0.0 | 2008 02 26 | G96 | 0.2+ | 0.7− |

### 2005 NS$_{47}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 300.91397 | | (2000.0) | | | |
| $n$ | 0.18546826 | $\omega$ | 355.64776 | | +0.56614023 | +0.80956397 |
| $a$ | 3.0452502 | $\Omega$ | 308.75149 | | −0.75015381 | +0.42794142 |
| $e$ | 0.2226361 | $i$ | 11.48001 | | −0.34169358 | +0.40183618 |
| $P$ | 5.31 | $H$ | 16.0 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 07 07 | 691 | 0.0 | 0.1− | 2005 07 16 | 691 | 0.2+ | 0.1− | 2005 08 06 | 704 | 0.1− | 0.6− |
| 2005 07 07 | 691 | 0.2− | 0.1− | 2005 07 30 | E12 | 0.6− | 0.4+ | 2008 01 11 | 691 | 0.1− | 0.4+ |
| 2005 07 07 | 691 | 0.0 | 0.3+ | 2005 07 30 | E12 | 0.0 | 0.4+ | 2008 01 11 | 691 | 0.1+ | 0.5+ |
| 2005 07 11 | 691 | 0.2+ | 0.0 | 2005 07 30 | E12 | 0.6+ | 0.1+ | 2008 01 11 | 691 | 0.2− | 0.8− |
| 2005 07 11 | 691 | 0.0 | 0.1+ | 2005 07 30 | E12 | 0.7+ | 0.4+ | 2008 02 09 | G96 | 0.1+ | 0.5− |
| 2005 07 11 | 691 | 0.1− | 0.1− | 2005 08 06 | 704 | 0.8− | 0.5− | 2008 02 09 | G96 | 0.1+ | 0.2− |
| 2005 07 16 | 691 | 0.1+ | 0.0 | 2005 08 06 | 704 | 0.4− | 0.5+ | 2008 02 09 | G96 | 0.3+ | 0.0 |
| 2005 07 16 | 691 | 0.1+ | 0.1− | 2005 08 06 | 704 | 0.5− | 0.4− | 2008 02 09 | G96 | 0.2+ | 0.1+ |

### 2005 NA$_{68}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 50.61255 | | (2000.0) | | | |
| $n$ | 0.24337113 | $\omega$ | 244.30610 | | +0.24194125 | +0.96886835 |
| $a$ | 2.5407193 | $\Omega$ | 39.80989 | | −0.85823217 | +0.23893858 |
| $e$ | 0.2052477 | $i$ | 4.70552 | | −0.45266099 | +0.06482654 |
| $P$ | 4.05 | $H$ | 17.5 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 07 03 | 644 | 0.1+ | 0.3+ | 2005 07 17 | 644 | 0.1− | 0.4+ | 2008 02 09 | G96 | 0.1+ | 0.1− |
| 2005 07 03 | 644 | 0.3+ | 0.2+ | 2005 07 17 | 644 | 0.1− | 0.1+ | 2008 02 09 | G96 | 0.3+ | 0.9+ |
| 2005 07 03 | 644 | 0.2− | 0.4+ | 2005 07 26 | 644 | 0.2+ | 0.4+ | 2008 02 09 | G96 | 0.2+ | 0.1+ |
| 2005 07 10 | E12 | 0.1+ | 0.8− | 2005 07 26 | 644 | 0.5+ | 0.7+ | 2008 03 06 | G96 | 0.4− | 0.5− |
| 2005 07 10 | E12 | 1.1− | 0.2− | 2005 07 26 | 644 | 0.3+ | 0.4+ | 2008 03 06 | G96 | 0.3+ | 0.4− |
| 2005 07 10 | E12 | 0.6+ | 1.1− | 2005 11 03 | 695 | 0.1− | 0.0 | 2008 03 06 | G96 | 0.1− | 0.1+ |
| 2005 07 10 | E12 | 0.7− | 0.6− | 2005 11 03 | 695 | 0.1+ | 0.1− | 2008 03 06 | G96 | 0.4− | 0.2+ |
| 2005 07 17 | 644 | 0.2+ | 0.0 | 2008 02 09 | G96 | 0.2+ | 0.1+ | | | | |

### 2005 NA$_{123}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 291.54196 | | (2000.0) | | | |
| $n$ | 0.17833969 | $\omega$ | 221.85204 | | +0.94641873 | +0.30992712 |
| $a$ | 3.1258685 | $\Omega$ | 119.87920 | | −0.26150325 | +0.90038047 |
| $e$ | 0.1907482 | $i$ | 6.00813 | | −0.18949308 | +0.30538531 |
| $P$ | 5.53 | $H$ | 16.3 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 04 01 | 645 | 0.0 | 0.0 | 2005 09 13 | 703 | 0.2+ | 0.5+ | 2005 10 05 | 703 | 1.5+ | 0.1+ |
| 2003 04 01 | 645 | 0.1+ | 0.2+ | 2005 09 13 | 703 | 0.7− | 0.9+ | 2005 10 05 | 703 | 0.8− | 0.6− |
| 2005 07 05 | 291 | 0.0 | 0.1+ | 2005 09 13 | 703 | 0.0 | 0.6− | 2005 10 05 | 703 | 0.9+ | 0.1+ |
| 2005 07 05 | 291 | 0.1− | 0.2+ | 2005 09 13 | 703 | 0.9− | 1.2+ | 2009 04 29 | G96 | 0.7− | 0.3− |
| 2005 07 05 | 291 | 0.3− | 0.1− | 2005 09 28 | 644 | 0.1− | 0.1+ | 2009 04 29 | G96 | 0.3− | 0.3− |
| 2005 08 31 | 644 | 0.2+ | 0.1+ | 2005 09 28 | 644 | 0.0 | 0.1+ | 2009 04 29 | G96 | 0.2+ | 0.6− |
| 2005 08 31 | 644 | 0.1+ | 0.3+ | 2005 09 28 | 644 | 0.1− | 0.7+ | 2009 04 29 | G96 | 0.2+ | 0.4− |
| 2005 08 31 | 644 | 0.1+ | 0.4+ | 2005 10 05 | 703 | 0.6− | 0.1− | | | | |

### 2005 NP$_{123}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 82.29956 | | (2000.0) | | | |
| $n$ | 0.28201500 | $\omega$ | 259.83674 | | +0.87721805 | +0.46666922 |
| $a$ | 2.3029680 | $\Omega$ | 72.26841 | | −0.38097157 | +0.81953135 |
| $e$ | 0.2509909 | $i$ | 6.79711 | | −0.29214578 | +0.33254806 |
| $P$ | 3.49 | $H$ | 17.8 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 05 24 | 645 | 0.0 | 0.0 | 2005 07 17 | 644 | 0.2+ | 0.3+ | 2005 08 24 | E12 | 0.2− | 0.1+ |
| 2001 05 24 | 645 | 0.0 | 0.0 | 2005 07 29 | E12 | 0.1− | 0.4− | 2008 04 28 | G96 | 0.1+ | 0.0 |
| 2005 07 10 | E12 | 0.0 | 0.3+ | 2005 07 29 | E12 | 0.8− | 0.8− | 2008 04 28 | G96 | 0.1− | 0.2+ |
| 2005 07 10 | E12 | 0.3− | 0.4+ | 2005 07 29 | E12 | 0.3+ | 0.4+ | 2008 04 28 | G96 | 0.3+ | 0.9+ |
| 2005 07 10 | E12 | 0.9+ | 0.1+ | 2005 07 29 | E12 | 0.0 | 0.0 | 2008 04 28 | G96 | 0.2+ | 0.0 |
| 2005 07 10 | E12 | 0.3− | 0.2+ | 2005 08 10 | E12 | 0.3+ | 0.3− | 2009 11 24 | 691 | 0.2− | 0.0 |
| 2005 07 10 | E12 | 0.7− | 0.2+ | 2005 08 10 | E12 | 0.3+ | 0.6+ | 2009 11 24 | 691 | 0.2+ | 0.1+ |
| 2005 07 10 | E12 | 0.1+ | 0.0 | 2005 08 10 | E12 | 0.3+ | 0.0 | 2009 11 24 | 691 | 0.6− | 0.1+ |
| 2005 07 10 | E12 | 0.3− | 0.9− | 2005 08 10 | E12 | 0.3+ | 0.5− | 2009 12 10 | G96 | 0.8+ | 0.2+ |
| 2005 07 10 | E12 | 0.2− | 0.3− | 2005 08 24 | E12 | 0.1− | 0.4+ | 2009 12 10 | G96 | 0.8+ | 0.1− |
| 2005 07 17 | 644 | 0.1+ | 0.4+ | 2005 08 24 | E12 | 0.2− | 0.2− | 2009 12 10 | G96 | 0.2+ | 0.2+ |
| 2005 07 17 | 644 | 0.2+ | 0.2+ | 2005 08 24 | E12 | 0.0 | 0.4+ | 2009 12 10 | G96 | 0.5+ | 0.1+ |

### 2005 NQ$_{123}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 353.72480 | | (2000.0) | | | |
| $n$ | 0.22914625 | $\omega$ | 5.26010 | | +0.91027504 | +0.39385712 |
| $a$ | 2.6448084 | $\Omega$ | 330.49748 | | −0.38866291 | +0.70681546 |
| $e$ | 0.2151850 | $i$ | 15.01428 | | −0.14262009 | +0.58761252 |
| $P$ | 4.30 | $H$ | 16.9 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 29 | 644 | 0.0 | 0.1− | 2005 07 17 | 644 | 0.3− | 0.2+ | 2005 08 10 | E12 | 0.5− | 0.1+ |
| 2001 09 29 | 644 | 0.1+ | 0.2− | 2005 07 17 | 644 | 0.1− | 0.4+ | 2005 08 10 | E12 | 0.2− | 0.6− |
| 2001 09 29 | 644 | 0.2+ | 0.0 | 2005 07 26 | 644 | 0.2+ | 0.4+ | 2005 08 10 | E12 | 0.3+ | 0.4+ |
| 2003 01 25 | 645 | 0.0 | 0.0 | 2005 07 26 | 644 | 0.0 | 0.4+ | 2005 08 10 | E12 | 0.5− | 0.3− |
| 2003 01 25 | 645 | 0.1+ | 0.1+ | 2005 07 26 | 644 | 0.2+ | 0.4+ | 2005 09 29 | G96 | 0.0 | 0.2+ |
| 2003 01 25 | 645 | 0.0 | 0.1+ | 2005 07 26 | 644 | 0.1+ | 0.4+ | 2005 09 29 | G96 | 0.3+ | 0.5+ |
| 2003 01 25 | 645 | 0.0 | 0.0 | 2005 07 26 | 644 | 0.1+ | 0.2+ | 2005 09 29 | G96 | 0.0 | 0.3+ |
| 2005 07 10 | E12 | 0.9− | 0.2+ | 2005 07 26 | 644 | 0.2+ | 0.4+ | 2005 09 29 | G96 | 0.1− | 0.2+ |
| 2005 07 10 | E12 | 0.1− | 0.1− | 2005 07 29 | E12 | 0.7+ | 0.2− | 2005 10 27 | G96 | 0.1+ | 0.2− |
| 2005 07 10 | E12 | 0.4− | 0.1+ | 2005 07 29 | E12 | 0.5− | 0.5− | 2005 10 27 | G96 | 0.6+ | 0.1+ |
| 2005 07 10 | E12 | 0.1− | 0.4+ | 2005 07 29 | E12 | 0.8− | 0.2− | 2005 10 27 | G96 | 0.2+ | 0.1+ |
| 2005 07 17 | 644 | 0.1− | 0.4+ | 2005 07 29 | E12 | 0.1− | 0.1− | 2005 10 27 | G96 | 0.1+ | 0.7+ |

**2005 NU$_{123}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 292.68418 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17433281 | $\omega$ | 144.22453 | | +0.47028299 | +0.87381034 | |
| $a$ | 3.1735837 | $\Omega$ | 153.17460 | | −0.85996061 | +0.48521750 | |
| $e$ | 0.1608359 | $i$ | 15.90262 | | −0.19824648 | −0.03192894 | |
| $P$ | 5.65 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 03 30 | 691 | 0.1+ | 0.5− | 2005 08 06 | 644 | 0.3− | 0.0 | 2009 02 05 | 691 | 0.1+ | 0.5+ | |
| 2004 03 30 | 691 | 0.2− | 0.1− | 2005 08 06 | 644 | 0.3− | 0.2− | 2009 02 20 | 691 | 0.2+ | 0.2− | |
| 2004 03 30 | 691 | 0.0 | 0.4− | 2005 08 25 | 644 | 0.1+ | 0.0 | 2009 02 20 | 691 | 0.2+ | 0.3+ | |
| 2005 07 15 | 691 | 1.5+ | 0.9+ | 2005 08 25 | 644 | 0.4− | 0.2+ | 2009 02 20 | 691 | 0.5+ | 0.1− | |
| 2005 07 15 | 691 | 0.2− | 0.0 | 2005 08 25 | 644 | 0.3+ | 0.2+ | 2009 03 29 | 691 | 0.5− | 0.6+ | |
| 2005 07 15 | 691 | 0.3− | 0.1+ | 2005 09 01 | 691 | 0.5− | 0.4+ | 2009 03 29 | 691 | 0.3+ | 0.2− | |
| 2005 07 29 | 644 | 0.1+ | 0.2− | 2005 09 01 | 691 | 0.0 | 0.1+ | 2009 03 29 | 691 | 0.3− | 0.5+ | |
| 2005 07 29 | 644 | 0.2− | 0.4− | 2005 09 01 | 691 | 0.2− | 0.0 | 2009 03 29 | 691 | 0.2+ | 0.0 | |
| 2005 07 29 | 644 | 0.1− | 0.2− | 2009 02 05 | 691 | 0.4− | 0.2+ | 2009 03 29 | 691 | 0.1− | 0.4+ | |
| 2005 08 06 | 644 | 0.2− | 0.2− | 2009 02 05 | 691 | 0.1− | 0.0 | 2009 03 29 | 691 | 0.0 | 0.0 | |

**2005 OP$_6$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 81.13426 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28413162 | $\omega$ | 287.34131 | | +0.99604225 | +0.07761147 | |
| $a$ | 2.2915166 | $\Omega$ | 68.22471 | | −0.05286637 | +0.90909541 | |
| $e$ | 0.2567670 | $i$ | 2.67350 | | −0.07144912 | +0.40929451 | |
| $P$ | 3.47 | $H$ | 17.6 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 05 24 | 291 | 0.2− | 0.1+ | 2005 07 28 | 644 | 0.0 | 0.1+ | 2005 12 01 | G96 | 0.3− | 0.6+ | |
| 2001 05 24 | 291 | 0.2+ | 0.3+ | 2005 07 28 | 644 | 0.1+ | 0.2− | 2005 12 01 | G96 | 0.1+ | 0.1+ | |
| 2001 05 24 | 291 | 0.2+ | 0.2+ | 2005 07 29 | 644 | 0.1+ | 0.1− | 2005 12 01 | G96 | 0.3− | 0.5+ | |
| 2005 07 10 | 703 | 0.0 | 0.9− | 2005 07 29 | 644 | 0.1+ | 0.1− | 2005 12 01 | G96 | 0.4− | 0.5+ | |
| 2005 07 10 | 703 | 1.0− | 0.6+ | 2005 07 29 | 644 | 0.2+ | 0.2− | 2009 12 18 | G96 | 0.1− | 0.6+ | |
| 2005 07 10 | 703 | 0.8+ | 0.5+ | 2005 09 22 | 644 | 0.0 | 0.2+ | 2009 12 18 | G96 | 0.2− | 0.4+ | |
| 2005 07 10 | 703 | 0.6− | 0.3+ | 2005 09 22 | 644 | 0.0 | 0.2+ | 2009 12 18 | G96 | 0.3+ | 0.4+ | |
| 2005 07 28 | 644 | 0.1− | 0.0 | 2005 09 22 | 644 | 0.1− | 0.0 | 2009 12 18 | G96 | 0.2+ | 0.4+ | |

**2005 OD$_{19}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 59.79673 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28696115 | $\omega$ | 113.05259 | | +0.87331626 | −0.48297630 | |
| $a$ | 2.2764283 | $\Omega$ | 275.87964 | | +0.42025375 | +0.81301702 | |
| $e$ | 0.1860719 | $i$ | 3.66925 | | +0.24638486 | +0.32517258 | |
| $P$ | 3.43 | $H$ | 17.4 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 01 05 | 291 | 0.2− | 0.1+ | 2005 08 06 | 644 | 0.1− | 0.2− | 2005 10 05 | 691 | 0.2+ | 0.2+ | |
| 2003 01 05 | 291 | 0.1+ | 0.3+ | 2005 08 06 | 644 | 0.4− | 0.0 | 2005 10 05 | 691 | 0.1− | 0.2− | |
| 2003 01 05 | 291 | 0.1+ | 0.3+ | 2005 08 06 | 644 | 0.1− | 0.2+ | 2005 10 05 | 691 | 0.2+ | 0.1− | |
| 2005 07 31 | 644 | 0.0 | 0.2− | 2005 08 24 | 644 | 0.1− | 0.2− | 2009 12 12 | A77 | 1.1− | 0.9+ | |
| 2005 07 31 | 644 | 0.1− | 0.0 | 2005 08 24 | 644 | 0.2− | 0.3− | 2009 12 12 | A77 | 0.6− | 1.5+ | |
| 2005 07 31 | 644 | 0.0 | 0.1+ | 2005 08 24 | 644 | 0.1− | 0.1+ | 2009 12 12 | A77 | 0.4+ | 0.2+ | |
| 2005 08 01 | 599 | 0.4+ | 0.0 | 2005 09 06 | 704 | 0.5+ | 0.1+ | 2009 12 15 | G96 | 0.1+ | 0.5− | |
| 2005 08 02 | 599 | 0.5+ | 0.1+ | 2005 09 06 | 704 | 1.3+ | 0.2− | 2009 12 15 | G96 | 0.2+ | 0.5− | |
| 2005 08 02 | 599 | 0.4+ | 0.2− | 2005 09 06 | 704 | 0.5− | 0.1− | 2009 12 15 | G96 | 0.6+ | 0.9− | |
| 2005 08 02 | 599 | 0.1+ | 0.1− | 2005 09 23 | 703 | 0.1− | 0.4+ | 2009 12 15 | G96 | 0.3+ | 1.2− | |
| 2005 08 06 | 644 | 0.1− | 0.1+ | 2005 09 23 | 703 | 0.6− | 0.3+ | 2009 12 17 | 691 | 0.1− | 0.4− | |
| 2005 08 06 | 644 | 0.3− | 0.4+ | 2005 09 23 | 703 | 1.4− | 0.1− | 2009 12 17 | 691 | 0.0 | 0.1− | |
| 2005 08 06 | 644 | 0.5− | 0.0 | 2005 09 23 | 703 | 0.7+ | 0.3− | 2009 12 17 | 691 | 0.1− | 0.2− | |

**2005 OP$_{21}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 55.44226 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27114068 | $\omega$ | 25.59397 | | +0.99951014 | −0.01026555 | |
| $a$ | 2.3641386 | $\Omega$ | 334.94082 | | −0.00430670 | +0.89057245 | |
| $e$ | 0.2459524 | $i$ | 4.00263 | | +0.03099881 | +0.45472556 | |
| $P$ | 3.64 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 07 28 | 644 | 0.2− | 0.4+ | 2005 08 30 | 568 | 0.3+ | 0.5− | 2005 09 23 | 691 | 0.1+ | 0.0 | |
| 2005 07 28 | 644 | 0.1− | 0.3+ | 2005 08 30 | 568 | 0.2+ | 0.4− | 2005 09 23 | 691 | 0.0 | 0.1+ | |
| 2005 07 28 | 644 | 0.0 | 0.4+ | 2005 08 30 | 568 | 0.3+ | 0.5− | 2005 09 23 | 699 | 0.4+ | 0.1+ | |
| 2005 08 04 | 644 | 0.1+ | 0.2+ | 2005 08 31 | 701 | 0.1+ | 0.4− | 2005 09 23 | 699 | 0.1− | 0.9+ | |
| 2005 08 04 | 644 | 0.0 | 0.2+ | 2005 08 31 | 701 | 0.1+ | 0.3− | 2005 09 23 | 699 | 0.1+ | 0.5+ | |
| 2005 08 04 | 644 | 0.0 | 0.2+ | 2005 08 31 | 701 | 0.2+ | 0.0 | 2005 09 23 | 699 | (2.2+ | 0.9+) | |
| 2005 08 06 | 644 | 0.3− | 0.4+ | 2005 09 02 | 608 | 0.4− | 0.6− | 2005 10 05 | 691 | 0.5+ | 0.0 | |
| 2005 08 06 | 644 | 0.4− | 0.3+ | 2005 09 02 | 608 | 0.7− | 0.5− | 2005 10 05 | 691 | 0.1+ | 0.0 | |
| 2005 08 06 | 644 | 0.2− | 0.4+ | 2005 09 02 | 608 | 0.1− | 1.0− | 2005 10 05 | 691 | 0.1+ | 0.1+ | |
| 2005 08 06 | 644 | 0.2− | 0.3+ | 2005 09 05 | 703 | 0.4− | 0.2− | 2005 10 30 | G96 | 0.8+ | 0.6− | |
| 2005 08 06 | 644 | 0.1− | 0.3+ | 2005 09 05 | 703 | 0.0 | 0.5+ | 2005 10 30 | G96 | 0.7− | 1.3− | |
| 2005 08 06 | 644 | 0.1− | 0.3+ | 2005 09 05 | 703 | 0.1− | 0.4− | 2005 10 30 | G96 | 0.2− | 0.3− | |
| 2005 08 26 | 608 | 0.2− | 0.9− | 2005 09 05 | 703 | 0.2− | 0.2− | 2005 10 30 | G96 | 0.3+ | 0.6− | |
| 2005 08 26 | 608 | 0.4− | 0.6− | 2005 09 07 | 699 | 0.7+ | 0.2− | 2005 10 31 | G96 | 0.3+ | 0.0 | |
| 2005 08 26 | 608 | 0.4− | 1.0− | 2005 09 07 | 699 | 0.2+ | 0.1− | 2005 10 31 | G96 | 0.7+ | 0.2− | |
| 2005 08 27 | 644 | 0.1− | 0.0 | 2005 09 07 | 699 | 0.3+ | 0.3+ | 2005 10 31 | G96 | 0.9+ | 0.3− | |
| 2005 08 27 | 644 | 0.2− | 0.0 | 2005 09 07 | 699 | 0.7+ | 0.3+ | 2005 10 31 | G96 | 0.7+ | 0.1+ | |
| 2005 08 27 | 644 | 0.2− | 0.0 | 2005 09 08 | 704 | 0.4− | 0.7+ | 2005 11 01 | G96 | 0.1+ | 0.3− | |
| 2005 08 28 | 113 | 0.0 | 0.4+ | 2005 09 08 | 704 | 0.2− | 0.7+ | 2005 11 01 | G96 | 0.3− | 0.4− | |
| 2005 08 28 | 113 | 0.1− | 0.2+ | 2005 09 08 | 704 | 0.4− | 0.5− | 2005 11 01 | G96 | 0.0 | 0.4− | |
| 2005 08 28 | 113 | 0.1+ | 0.3+ | 2005 09 08 | 704 | 0.5− | 0.3+ | 2005 11 01 | G96 | 0.4− | 0.5− | |
| 2005 08 28 | 113 | 0.7+ | 0.3+ | 2005 09 08 | 704 | 0.1− | 0.2+ | 2009 11 16 | 704 | 0.1− | 0.3+ | |
| 2005 08 28 | 113 | 0.0 | 0.8+ | 2005 09 11 | 701 | 0.2− | 0.6− | 2009 11 16 | 704 | 0.0 | 0.1− | |
| 2005 08 29 | 704 | 0.1+ | 0.4+ | 2005 09 11 | 701 | 0.4− | 0.8− | 2009 11 16 | 704 | 0.2+ | 1.9+ | |
| 2005 08 29 | 704 | 0.1− | 0.4+ | 2005 09 11 | 701 | 0.0 | 0.6− | 2009 11 16 | 704 | 0.3+ | 0.1+ | |
| 2005 08 29 | 704 | 0.0 | 0.3+ | 2005 09 12 | 701 | 0.2− | 0.5− | 2009 11 16 | 704 | 0.4− | 0.5+ | |
| 2005 08 29 | 704 | 0.1− | 0.9+ | 2005 09 12 | 701 | 0.1− | 0.6− | 2009 12 10 | 704 | 0.5− | 0.2+ | |
| 2005 08 29 | 704 | 0.2+ | 0.3+ | 2005 09 12 | 701 | 0.3− | 0.1− | 2009 12 10 | 704 | 0.7+ | 0.1− | |
| 2005 08 29 | 699 | 0.5− | 0.3+ | 2005 09 22 | 644 | 0.0 | 0.2− | 2009 12 10 | 704 | 0.5− | 0.4+ | |
| 2005 08 29 | 699 | 0.5− | 0.7+ | 2005 09 22 | 644 | 0.0 | 0.0 | 2009 12 10 | 704 | 0.2+ | 0.1+ | |
| 2005 08 29 | 699 | 0.0 | 0.8+ | 2005 09 22 | 644 | 0.2− | 0.3− | | | | | |
| 2005 08 29 | 699 | 0.2− | 0.1+ | 2005 09 23 | 691 | 0.2+ | 0.0 | | | | | |

**2005 PK$_1$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 269.65096 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17656519 | $\omega$ | 16.18037 | | +0.95561325 | +0.26560336 | |
| $a$ | 3.1467771 | $\Omega$ | 327.53795 | | −0.28973283 | +0.76865112 | |
| $e$ | 0.1886016 | $i$ | 13.74250 | | −0.05346208 | +0.58191951 | |
| $P$ | 5.58 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 07 28 | 644 | 0.1+ | 0.1− | 2005 08 04 | 644 | 0.1+ | 0.1+ | 2008 01 10 | G96 | 0.1− | 0.6− | |
| 2005 07 28 | 644 | 0.2− | 0.4− | 2005 08 15 | E12 | 0.8+ | 0.7− | 2008 01 10 | G96 | 0.1− | 0.5+ | |
| 2005 07 28 | 644 | 0.1− | 0.1− | 2005 08 15 | E12 | 0.6+ | 0.6+ | 2008 01 10 | G96 | 0.6+ | 0.2− | |
| 2005 08 01 | E12 | 0.6− | 0.6+ | 2005 08 15 | E12 | 0.5+ | 0.1+ | 2008 03 14 | G96 | 0.2+ | 0.0 | |
| 2005 08 01 | E12 | 0.4− | 0.5− | 2005 08 15 | E12 | 0.8− | 0.1+ | 2008 03 14 | G96 | 0.2− | 0.3+ | |
| 2005 08 01 | E12 | 0.4+ | 0.2− | 2005 08 27 | 644 | 0.1+ | 0.1− | 2008 03 14 | G96 | 0.3+ | 0.2− | |
| 2005 08 01 | E12 | 0.1− | 0.2+ | 2005 08 27 | 644 | 0.2− | 0.0 | 2008 03 14 | G96 | 0.4− | 0.1− | |
| 2005 08 04 | 644 | 0.3− | 0.1+ | 2005 08 27 | 644 | 0.1− | 0.0 | | | | | |
| 2005 08 04 | 644 | 0.1+ | 0.1+ | 2008 01 10 | G96 | 0.2− | 0.3+ | | | | | |

**2005 PB$_{20}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 307.39729 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17615099 | $\omega$ | 327.70370 | | +0.33102277 | +0.93202221 | |
| $a$ | 3.1517081 | $\Omega$ | 321.05864 | | −0.80820015 | +0.19934313 | |
| $e$ | 0.1636608 | $i$ | 13.57328 | | −0.48706923 | +0.30264984 | |
| $P$ | 5.60 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 07 12 | G96 | 0.2− | 0.1+ | 2005 08 06 | 644 | 0.1− | 0.5+ | 2009 02 03 | G96 | 0.3+ | 0.4+ |
| 2005 07 12 | G96 | 0.2− | 0.1− | 2005 08 06 | 644 | 0.0 | 0.0 | 2009 02 03 | G96 | 0.0 | 0.6+ |
| 2005 07 12 | G96 | 0.1+ | 0.2− | 2005 08 06 | 644 | 0.7− | 0.5− | 2009 03 01 | G96 | 0.0 | 0.5− |
| 2005 07 12 | G96 | 0.2− | 0.1− | 2005 08 10 | 599 | 0.1+ | 0.1− | 2009 03 01 | G96 | 0.0 | 0.3− |
| 2005 07 28 | 644 | 0.1+ | 0.1+ | 2005 08 10 | 599 | 0.7+ | 0.0 | 2009 03 01 | G96 | 1.2− | 0.3+ |
| 2005 07 28 | 644 | 0.1+ | 0.1+ | 2005 08 10 | 599 | 0.2+ | 0.2+ | 2009 03 01 | G96 | 0.8+ | 0.3+ |
| 2005 07 28 | 644 | 0.0 | 0.0 | 2009 02 03 | G96 | 0.1+ | 0.8− | | | | |

**2005 PW$_{21}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 269.46245 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17489267 | $\omega$ | 29.80135 | | +0.96160909 | +0.26841290 | |
| $a$ | 3.1668074 | $\Omega$ | 314.51052 | | −0.26494952 | +0.85386374 | |
| $e$ | 0.1779429 | $i$ | 4.59407 | | −0.07148225 | +0.44594981 | |
| $P$ | 5.64 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 06 17 | G96 | 0.1− | 0.0 | 2005 08 06 | 644 | 0.2+ | 0.1+ | 2005 08 29 | 699 | 0.3− | 0.2− |
| 2005 06 17 | G96 | 0.2+ | 0.1+ | 2005 08 06 | 644 | 0.3− | 0.3− | 2005 08 29 | 699 | 1.1− | 0.5+ |
| 2005 06 17 | G96 | 0.1+ | 0.1+ | 2005 08 06 | 644 | 0.0 | 0.2+ | 2008 01 30 | G96 | 0.4+ | 0.4+ |
| 2005 06 17 | G96 | 0.6− | 1.1+ | 2005 08 10 | 807 | 0.1− | 0.3− | 2008 01 30 | G96 | 0.2+ | 0.5+ |
| 2005 07 29 | 644 | 0.1+ | 0.1+ | 2005 08 10 | 807 | 0.1+ | 0.1− | 2008 01 30 | G96 | 0.1+ | 0.2− |
| 2005 07 29 | 644 | 0.3+ | 0.2− | 2005 08 24 | 644 | 0.4+ | 0.2− | 2008 01 30 | G96 | 0.1− | 0.3− |
| 2005 07 29 | 644 | 0.1+ | 0.0 | 2005 08 24 | 644 | 0.6+ | 0.1− | 2008 03 28 | G96 | 0.3+ | 0.5+ |
| 2005 08 06 | 644 | 0.1− | 0.1− | 2005 08 24 | 644 | 0.1+ | 0.1+ | 2008 03 28 | G96 | 0.1+ | 0.6+ |
| 2005 08 06 | 644 | 0.0 | 0.1+ | 2005 08 29 | 699 | 0.3+ | 1.5+ | 2008 03 28 | G96 | 0.4+ | 0.6+ |
| 2005 08 06 | 644 | 0.0 | 0.0 | 2005 08 29 | 699 | 0.9− | 0.3− | 2008 03 28 | G96 | 0.4− | 0.3+ |

**2005 PC$_{22}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 2.57370 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19178011 | $\omega$ | 298.49159 | | −0.09575376 | +0.98966589 | |
| $a$ | 2.9780615 | $\Omega$ | 325.50010 | | −0.83465515 | −0.13825533 | |
| $e$ | 0.1150740 | $i$ | 10.86207 | | −0.54238546 | +0.03803805 | |
| $P$ | 5.14 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 08 06 | 644 | 0.1+ | 0.3+ | 2005 10 30 | G96 | 0.4+ | 0.1− | 2007 12 16 | G96 | 0.1+ | 0.2− |
| 2005 08 06 | 644 | 0.0 | 0.0 | 2005 10 30 | G96 | 0.5− | 0.4+ | 2008 02 09 | G96 | 0.3− | 0.1+ |
| 2005 08 06 | 644 | 0.0 | 0.2+ | 2005 10 30 | G96 | 0.2− | 0.0 | 2008 02 09 | G96 | 0.0 | 0.3+ |
| 2005 08 09 | 807 | 0.0 | 0.0 | 2005 11 01 | G96 | 0.4− | 0.3− | 2008 02 09 | G96 | 0.1− | 0.3+ |
| 2005 08 10 | 807 | 0.2− | 0.0 | 2005 11 01 | G96 | 0.2− | 0.1− | 2008 02 09 | G96 | 0.2+ | 0.1+ |
| 2005 08 10 | 807 | 0.0 | 0.0 | 2005 11 01 | G96 | 0.5+ | 0.4− | 2008 03 12 | G96 | 0.1+ | 0.3+ |
| 2005 08 24 | 644 | 0.2+ | 0.3+ | 2005 11 01 | G96 | 0.1+ | 0.1− | 2008 03 12 | G96 | 0.1− | 0.4+ |
| 2005 08 24 | 644 | 0.1− | 0.1+ | 2007 12 16 | G96 | 0.4− | 0.5− | 2008 03 12 | G96 | 0.1+ | 0.3+ |
| 2005 08 24 | 644 | 0.3− | 0.2+ | 2007 12 16 | G96 | 0.5+ | 0.2− | 2008 03 12 | G96 | 0.1− | 0.2+ |
| 2005 10 30 | G96 | 0.2+ | 0.0 | 2007 12 16 | G96 | 0.3+ | 0.4− | | | | |

**2005 QV$_{5}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 27.96541 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26473434 | $\omega$ | 221.21103 | | +0.91209010 | −0.40862726 | |
| $a$ | 2.4021265 | $\Omega$ | 162.81819 | | +0.39952724 | +0.86757507 | |
| $e$ | 0.1628590 | $i$ | 6.49161 | | +0.09203065 | +0.28343827 | |
| $P$ | 3.72 | $H$ | 17.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 07 12 | 291 | 0.0 | 0.7− | 2005 09 11 | 691 | 0.2− | 0.0 | 2009 09 17 | G96 | 0.6+ | 0.2+ |
| 2005 07 12 | 291 | 0.3− | 0.5− | 2005 09 11 | 691 | 0.2− | 0.0 | 2009 09 17 | G96 | 0.4+ | 0.1+ |
| 2005 07 12 | 291 | 0.0 | 0.4− | 2005 09 11 | 691 | 0.1− | 0.1+ | 2009 09 17 | G96 | 0.3+ | 0.0 |
| 2005 08 24 | 644 | 0.6+ | 0.3+ | 2005 09 23 | 699 | (2.3+ | 1.7−) | 2009 11 08 | 703 | (1.7+ | 0.5+) |
| 2005 08 24 | 644 | 0.0 | 0.2+ | 2005 09 23 | 699 | (0.2+ | 1.6+) | 2009 11 08 | 703 | 0.4+ | 0.3− |
| 2005 08 24 | 644 | 0.3+ | 0.0 | 2005 09 23 | 699 | (0.9+ | 2.0+) | 2009 11 08 | 703 | 0.7+ | 0.5+ |
| 2005 08 25 | 644 | 0.1+ | 0.1+ | 2005 09 23 | 699 | 1.2+ | 1.0+ | 2009 11 08 | 703 | 0.5+ | 0.8+ |
| 2005 08 25 | 644 | 0.3+ | 0.2+ | 2005 10 06 | G96 | 0.2+ | 0.2− | 2009 11 23 | 703 | 0.3− | 0.6− |
| 2005 08 25 | 644 | 0.3+ | 0.1+ | 2005 10 06 | G96 | 0.3− | 0.1+ | 2009 11 23 | 703 | 1.2− | 0.3− |
| 2005 09 01 | 691 | 0.1+ | 0.3+ | 2005 10 06 | G96 | 0.1− | 0.1+ | 2009 11 23 | 703 | 0.5− | 0.5− |
| 2005 09 01 | 691 | 0.1+ | 0.3+ | 2005 10 06 | G96 | 0.5− | 0.2− | 2009 11 23 | 703 | 0.4− | 1.4− |
| 2005 09 01 | 691 | 0.1− | 0.1+ | 2009 09 17 | G96 | 0.1+ | 0.0 | 2009 11 23 | 703 | (1.8− | 1.6−) |

**2005 QY$_{11}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 281.32944 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18241460 | $\omega$ | 23.26723 | | +0.94891789 | +0.24827151 | |
| $a$ | 3.0791415 | $\Omega$ | 320.68483 | | −0.31549157 | +0.73786143 | |
| $e$ | 0.1602510 | $i$ | 17.89846 | | −0.00446157 | +0.62763187 | |
| $P$ | 5.40 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 07 29 | 644 | 0.2+ | 0.0 | 2005 08 24 | 644 | 0.0 | 0.2+ | 2008 02 07 | G96 | 0.7+ | 0.3+ |
| 2005 07 29 | 644 | 0.2− | 0.1+ | 2005 08 27 | 699 | 0.2+ | 0.0 | 2008 02 07 | G96 | 0.9+ | 0.5− |
| 2005 07 29 | 644 | 0.1+ | 0.1+ | 2005 08 27 | 699 | 0.2− | 0.2+ | 2008 02 07 | G96 | 0.2+ | 0.6− |
| 2005 08 06 | 644 | 0.2+ | 0.2− | 2005 08 27 | 699 | 0.2− | 0.6+ | 2008 02 07 | G96 | 0.0 | 0.1+ |
| 2005 08 06 | 644 | 0.2+ | 0.1− | 2005 08 27 | 699 | 0.0 | 1.3− | 2008 02 28 | G96 | 0.4+ | 0.0 |
| 2005 08 06 | 644 | 0.1+ | 0.0 | 2008 01 10 | 691 | 0.4− | 0.4+ | 2008 02 28 | G96 | 0.2+ | 0.5− |
| 2005 08 24 | 644 | 0.2− | 0.1+ | 2008 01 10 | 691 | 0.4+ | 0.1− | 2008 02 28 | G96 | 0.8− | 0.1+ |
| 2005 08 24 | 644 | 0.1− | 0.3+ | 2008 01 10 | 691 | 0.3− | 0.1− | 2008 02 28 | G96 | 0.4− | 0.4+ |

**2005 QV$_{16}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 358.99146 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21810811 | $\omega$ | 170.90281 | | +0.87914240 | +0.47398603 | |
| $a$ | 2.7333055 | $\Omega$ | 160.56610 | | −0.44605092 | +0.85495312 | |
| $e$ | 0.1795262 | $i$ | 8.54821 | | −0.16777134 | +0.21069505 | |
| $P$ | 4.52 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 08 25 | 644 | 0.1− | 0.1− | 2005 09 09 | 704 | 0.9− | 0.0 | 2005 10 01 | 703 | 1.4+ | 1.1− |
| 2005 08 25 | 644 | 0.2− | 0.0 | 2005 09 09 | 704 | 0.6+ | 1.0+ | 2005 10 05 | 704 | 0.4− | 1.5+ |
| 2005 08 25 | 644 | 0.3− | 0.1− | 2005 09 09 | 704 | 0.3− | 0.7+ | 2005 10 05 | 704 | 0.5− | 0.3+ |
| 2005 08 27 | 699 | 1.8+ | 0.3+ | 2005 09 09 | 704 | 0.6− | 0.4+ | 2005 10 05 | 704 | 0.4− | 0.0 |
| 2005 08 27 | 699 | 0.1+ | 0.5+ | 2005 09 11 | 704 | (2.1− | 1.2+) | 2005 10 07 | 699 | 1.5+ | 0.4+ |
| 2005 08 27 | 699 | 0.2− | 1.0+ | 2005 09 11 | 704 | 1.2− | 1.3− | 2005 10 07 | 699 | 0.5+ | 0.3+ |
| 2005 08 27 | 699 | (0.5+ | 2.1+) | 2005 09 11 | 704 | 0.4− | 1.0− | 2005 10 07 | 699 | 1.0+ | 0.8+ |
| 2005 08 28 | 691 | 0.2+ | 0.0 | 2005 09 11 | 704 | 0.7− | 0.7− | 2005 10 07 | 699 | (4.7+ | 0.8+) |
| 2005 08 28 | 691 | 0.2− | 0.1− | 2005 09 13 | 691 | 0.2− | 0.0 | 2005 10 12 | 691 | 0.1− | 0.2− |
| 2005 08 28 | 691 | 0.0 | 0.2+ | 2005 09 13 | 691 | 0.2− | 0.1+ | 2005 10 12 | 691 | 0.3+ | 0.1− |
| 2005 08 29 | 704 | 0.5− | 0.1− | 2005 09 13 | 691 | 0.2− | 0.0 | 2005 10 12 | 691 | 0.0 | 0.0 |
| 2005 08 29 | 704 | 0.3+ | 0.4− | 2005 09 23 | 703 | 0.2− | 0.3− | 2008 02 28 | G96 | 0.3+ | 0.1+ |
| 2005 08 29 | 704 | 0.8+ | 0.0 | 2005 09 23 | 703 | 0.4− | 0.3+ | 2008 02 28 | G96 | 0.1− | 0.2+ |
| 2005 09 01 | 691 | 0.0 | 0.2− | 2005 09 23 | 703 | 0.2+ | 0.2+ | 2008 02 28 | G96 | 0.3− | 0.4− |
| 2005 09 01 | 691 | 0.2+ | 0.2− | 2005 09 23 | 703 | 0.6− | 0.4− | 2008 02 28 | G96 | 0.1+ | 0.1+ |
| 2005 09 01 | 691 | 0.2+ | 0.2− | 2005 09 24 | 644 | 0.4+ | 0.2+ | 2008 04 05 | G96 | 0.1+ | 0.1− |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 06 | 699 | 0.0 | 0.8+ | 2005 09 24 | 644 | 0.0 | 0.1+ | 2008 04 05 | G96 | 0.3+ | 0.2+ |
| 2005 09 06 | 699 | 0.4− | 0.1+ | 2005 09 24 | 644 | 0.0 | 0.3− | 2008 04 05 | G96 | 0.2− | 0.3+ |
| 2005 09 06 | 699 | 0.8+ | 1.1− | 2005 10 01 | 703 | 0.3− | 0.7+ | 2008 04 05 | G96 | 0.1− | 0.2+ |
| 2005 09 06 | 699 | 0.3− | 0.3− | 2005 10 01 | 703 | 0.3− | 0.6− | | | | |
| 2005 09 09 | 704 | 0.2− | 1.0+ | 2005 10 01 | 703 | (0.1− | 2.6−) | | | | |

**2005 QW$_{16}$ = 2009 WF$_{24}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 4.21063 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27012128 | $\omega$ | 334.24073 | | +0.13476963 | −0.99054335 | |
| $a$ | 2.3700828 | $\Omega$ | 108.00523 | | +0.91372132 | +0.11419572 | |
| $e$ | 0.2487131 | $i$ | 1.54913 | | +0.38334122 | +0.07604739 | |
| $P$ | 3.65 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1992 02 26 | 691 | 0.2− | 0.5− | 2005 12 01 | G96 | 0.0 | 0.2+ | 2009 11 20 | 291 | 0.3− | 0.1+ |
| 1992 02 26 | 691 | 0.5− | 0.1− | 2005 12 01 | G96 | 0.3+ | 0.2− | 2009 11 21 | 704 | 0.7+ | 0.3+ |
| 1992 02 26 | 691 | 0.3+ | 0.2− | 2005 12 01 | G96 | 1.0+ | 0.1+ | 2009 11 21 | 704 | 0.0 | 0.3+ |
| 1998 11 25 | 699 | 1.0− | 1.3− | 2007 04 11 | 691 | 1.2+ | 0.4− | 2009 11 21 | 704 | 0.4+ | 0.5+ |
| 1998 11 25 | 699 | 0.5+ | 0.3− | 2007 04 11 | 691 | 0.1− | 0.2+ | 2009 11 21 | 704 | 0.1+ | 0.6+ |
| 1998 11 25 | 699 | 0.5+ | 0.8− | 2007 04 11 | 691 | 0.5− | 0.0 | 2009 11 21 | 704 | 0.4+ | 0.1− |
| 1998 12 23 | 691 | 0.0 | 0.1− | 2007 05 07 | 691 | 0.2− | 0.4− | 2009 11 24 | 691 | 0.2− | 0.0 |
| 1998 12 23 | 691 | 0.7+ | 0.2+ | 2007 05 07 | 691 | 0.5− | 0.3+ | 2009 11 24 | 691 | 0.3− | 0.1− |
| 1998 12 23 | 691 | 1.0+ | 0.3− | 2007 05 07 | 691 | 0.2− | 0.2+ | 2009 11 24 | 691 | 0.1− | 0.1+ |
| 1999 01 09 | 691 | 0.7− | 0.1− | 2009 09 30 | G96 | 0.7+ | 0.1− | 2009 12 06 | J75 | 0.2+ | 0.1+ |
| 1999 01 09 | 691 | 0.5− | 0.2− | 2009 09 30 | G96 | 0.4+ | 0.2− | 2009 12 06 | J75 | 0.2− | 0.0 |
| 1999 01 09 | 691 | 0.5− | 0.3− | 2009 09 30 | G96 | 0.0 | 0.2− | 2009 12 06 | J75 | 0.3+ | 0.0 |
| 2003 02 22 | 644 | 0.5+ | 0.6+ | 2009 09 30 | G96 | 0.3− | 0.2− | 2009 12 08 | J75 | 0.3+ | 0.1− |
| 2003 02 22 | 644 | 0.5+ | 0.3+ | 2009 10 16 | G96 | 0.2+ | 0.2− | 2009 12 08 | J75 | 0.4+ | 0.4− |
| 2003 02 22 | 644 | 0.8+ | 0.2+ | 2009 10 16 | G96 | 0.3+ | 0.0 | 2009 12 08 | J75 | 0.4+ | 0.1− |
| 2003 03 30 | 645 | 0.0 | 0.1+ | 2009 10 16 | G96 | 0.1− | 0.1− | 2009 12 10 | G96 | 0.4+ | 0.1− |
| 2003 03 30 | 645 | 0.0 | 0.1+ | 2009 10 16 | G96 | 0.0 | 0.2− | 2009 12 10 | G96 | 0.4+ | 0.2− |
| 2005 08 25 | 644 | 0.1− | 0.1− | 2009 11 16 | 691 | 0.3− | 0.0 | 2009 12 10 | G96 | 0.5+ | 0.2− |
| 2005 08 25 | 644 | 0.2+ | 0.1+ | 2009 11 16 | 691 | 0.5− | 0.0 | 2009 12 10 | G96 | 0.1+ | 0.4− |
| 2005 08 25 | 644 | 0.3− | 0.5+ | 2009 11 16 | 691 | 0.6− | 0.2+ | 2009 12 11 | 704 | 0.3+ | 0.9+ |
| 2005 08 28 | 691 | 0.1+ | 0.2− | 2009 11 18 | 704 | 0.3− | 0.7− | 2009 12 11 | 704 | 0.1− | 0.1− |
| 2005 08 28 | 691 | 0.1− | 0.2− | 2009 11 18 | 704 | 0.1+ | 1.2− | 2009 12 11 | 704 | 0.2+ | 1.0+ |
| 2005 08 28 | 691 | 0.0 | 0.2− | 2009 11 18 | 704 | 0.1+ | 0.2− | 2009 12 11 | 704 | 0.1+ | 0.5+ |
| 2005 09 01 | 691 | 0.0 | 0.1− | 2009 11 18 | 704 | 1.1+ | 0.0 | 2009 12 17 | 704 | 0.7+ | 1.1+ |
| 2005 09 01 | 691 | 0.1− | 0.0 | 2009 11 18 | 704 | 0.8+ | 0.3− | 2009 12 17 | 704 | 1.3+ | 1.2+ |
| 2005 09 01 | 691 | 0.1+ | 0.1− | 2009 11 20 | 691 | 0.2− | 0.0 | 2009 12 17 | 704 | 0.5+ | 1.6+ |
| 2005 10 11 | 691 | 0.3− | 0.4+ | 2009 11 20 | 691 | 0.1− | 0.1− | 2009 12 17 | 704 | 0.5+ | 0.4+ |
| 2005 10 11 | 691 | 0.2− | 0.7+ | 2009 11 20 | 691 | 0.1− | 0.1− | 2009 12 17 | 704 | 1.0+ | 0.0 |
| 2005 10 11 | 691 | 0.0 | 0.3+ | 2009 11 20 | 291 | 0.2− | 0.1+ | | | | |
| 2005 12 01 | G96 | 0.3+ | 0.2+ | 2009 11 20 | 291 | 0.3− | 0.1+ | | | | |

**2005 QX$_{35}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 14.69211 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22963499 | $\omega$ | 332.99888 | | +0.84939073 | +0.52741737 | |
| $a$ | 2.6410544 | $\Omega$ | 355.04100 | | −0.43536579 | +0.67972403 | |
| $e$ | 0.2989615 | $i$ | 12.79166 | | −0.29831529 | +0.50971184 | |
| $P$ | 4.29 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 08 25 | 644 | 0.1− | 0.1− | 2005 09 11 | 691 | 0.3− | 0.0 | 2005 10 01 | 703 | 0.5− | 0.3− |
| 2005 08 25 | 644 | 0.2+ | 0.1− | 2005 09 11 | 691 | 0.3− | 0.0 | 2005 10 02 | 704 | 0.2− | 0.7+ |
| 2005 08 25 | 644 | 0.1− | 0.1− | 2005 09 11 | 608 | 1.1− | 0.9− | 2005 10 02 | 704 | 0.3− | 0.2− |
| 2005 08 29 | 704 | 0.0 | 0.6+ | 2005 09 11 | 608 | 0.9− | 1.0− | 2005 10 02 | 704 | 0.6+ | 0.2+ |
| 2005 08 29 | 704 | 0.1− | 1.1+ | 2005 09 11 | 608 | 0.5− | 1.5− | 2005 10 07 | 704 | 0.4+ | 0.1− |
| 2005 08 29 | 704 | 0.2+ | 0.7+ | 2005 09 22 | 644 | 0.1+ | 0.2− | 2005 10 07 | 704 | 0.6+ | 0.2+ |
| 2005 08 29 | 704 | 0.3− | 0.6+ | 2005 09 22 | 644 | 0.1+ | 0.2− | 2005 10 07 | 704 | 0.1− | 0.1− |
| 2005 08 29 | 704 | 0.2− | 1.0+ | 2005 09 22 | 644 | 0.0 | 0.3− | 2005 10 11 | 691 | 0.1+ | 0.2+ |
| 2005 08 30 | 691 | 0.1+ | 0.1+ | 2005 09 23 | 703 | 0.2− | 0.4− | 2005 10 11 | 691 | 0.3+ | 0.0 |
| 2005 08 30 | 691 | 0.0 | 0.1+ | 2005 09 23 | 703 | 0.0 | 0.2− | 2005 10 11 | 691 | 0.3+ | 0.1+ |
| 2005 08 30 | 691 | 0.1− | 0.2+ | 2005 09 23 | 703 | 0.7+ | 0.5− | 2005 10 25 | 699 | 0.1+ | 0.4− |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 06 | 699 | 0.6+ | 0.3− | 2005 09 23 | 703 | 0.3+ | 0.2− | 2005 10 25 | 699 | 0.4+ | 0.4− |
| 2005 09 06 | 699 | 0.4+ | 0.2− | 2005 09 23 | 699 | 0.1+ | 0.7+ | 2005 10 25 | 699 | 1.7− | 0.9+ |
| 2005 09 06 | 699 | 0.5+ | 0.4− | 2005 09 23 | 699 | 0.2− | 0.1+ | 2005 10 25 | 699 | 0.3+ | 0.6+ |
| 2005 09 06 | 699 | 0.1− | 0.3− | 2005 09 23 | 699 | 1.2− | 0.0 | 2005 10 27 | 644 | 0.0 | 0.2+ |
| 2005 09 06 | 704 | (0.9+ | 2.0+) | 2005 09 23 | 699 | 0.6− | 0.6+ | 2005 10 27 | 644 | 0.0 | 0.2− |
| 2005 09 06 | 704 | 0.9+ | 0.2+ | 2005 09 29 | 699 | 0.5− | 0.3− | 2005 10 27 | 644 | 0.3+ | 0.0 |
| 2005 09 06 | 704 | 0.5+ | 0.6+ | 2005 09 29 | 644 | 0.5+ | 0.1− | 2008 03 08 | G96 | 0.0 | 0.7+ |
| 2005 09 06 | 704 | 0.1+ | 0.5+ | 2005 09 29 | 699 | 0.0 | 1.0+ | 2008 03 08 | G96 | 0.2− | 0.5+ |
| 2005 09 06 | 704 | 0.9+ | 0.2− | 2005 09 29 | 644 | 0.1− | 0.1− | 2008 03 08 | G96 | 0.8+ | 0.5− |
| 2005 09 08 | 704 | 0.3− | 0.2+ | 2005 09 29 | 699 | 0.2− | 0.4+ | 2008 03 08 | G96 | 0.6+ | 0.1− |
| 2005 09 08 | 704 | 1.8+ | 1.6− | 2005 09 29 | 644 | 0.1+ | 0.1+ | 2008 03 27 | G96 | 0.3+ | 0.0 |
| 2005 09 08 | 704 | 0.7+ | 0.7− | 2005 09 29 | 699 | 0.5− | 0.4− | 2008 03 27 | G96 | 0.0 | 0.4+ |
| 2005 09 08 | 704 | (0.1+ | 2.0−) | 2005 10 01 | 703 | 0.8− | 0.1+ | 2008 03 27 | G96 | 0.1− | 0.4+ |
| 2005 09 08 | 704 | 0.1+ | 1.0− | 2005 10 01 | 703 | 0.3− | 0.1− | 2008 03 27 | G96 | 0.3− | 0.1+ |
| 2005 09 11 | 691 | 0.4− | 0.0 | 2005 10 01 | 703 | 0.5− | 0.1+ | | | | |

**2005 QN$_{40}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 293.58170 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17796107 | $\omega$ | 144.71552 | | +0.75024993 | +0.66040055 | |
| $a$ | 3.1303006 | $\Omega$ | 173.66621 | | −0.65307827 | +0.74767929 | |
| $e$ | 0.2211804 | $i$ | 16.62417 | | −0.10302336 | +0.06961885 | |
| $P$ | 5.54 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 08 26 | 644 | 0.3− | 0.1+ | 2005 09 06 | 704 | 0.9+ | 0.1+ | 2005 10 25 | G96 | 0.1+ | 0.4− |
| 2005 08 26 | 644 | 0.0 | 0.0 | 2005 09 06 | 704 | 0.4+ | 0.3+ | 2005 10 25 | G96 | 0.4− | 0.2− |
| 2005 08 26 | 644 | 0.0 | 0.1− | 2005 09 06 | 704 | 1.5+ | 1.5+ | 2005 10 25 | G96 | 0.2− | 0.0 |
| 2005 08 26 | 644 | 0.2− | 0.2+ | 2005 09 22 | 644 | 0.0 | 0.4− | 2009 03 03 | 691 | 0.2− | 0.0 |
| 2005 08 26 | 644 | 0.2− | 0.2+ | 2005 09 22 | 644 | 0.1+ | 0.2− | 2009 03 03 | 691 | 0.4+ | 0.0 |
| 2005 08 26 | 644 | 0.2− | 0.1+ | 2005 09 22 | 644 | 0.0 | 0.1− | 2009 03 03 | 691 | 0.1+ | 0.4+ |
| 2005 08 27 | 699 | 1.2+ | 0.5+ | 2005 10 06 | 691 | 0.0 | 0.1− | 2009 03 17 | 691 | 0.4− | 0.4− |
| 2005 08 27 | 699 | 0.3+ | 0.1− | 2005 10 06 | 691 | 0.3− | 0.2− | 2009 03 17 | 691 | 0.2+ | 0.2+ |
| 2005 08 27 | 699 | 0.1− | 0.8− | 2005 10 06 | 691 | 0.6− | 0.2− | 2009 03 17 | 691 | 0.1− | 0.5− |
| 2005 08 27 | 699 | 0.0 | 0.0 | 2005 10 25 | G96 | 0.1− | 0.6− | | | | |

**2005 QM$_{47}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 34.94940 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26799938 | $\omega$ | 20.40815 | | +0.83746086 | −0.54586810 | |
| $a$ | 2.3825765 | $\Omega$ | 12.77586 | | +0.48352051 | +0.71774402 | |
| $e$ | 0.2378561 | $i$ | 6.80867 | | +0.25469044 | +0.43228641 | |
| $P$ | 3.68 | $H$ | 17.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 08 26 | 644 | 0.1+ | 0.4− | 2005 09 23 | 644 | 0.0 | 0.1− | 2005 11 29 | G96 | 0.1− | 0.3− |
| 2005 08 26 | 644 | 0.2+ | 0.5− | 2005 09 23 | 703 | 1.0− | 0.8+ | 2005 11 29 | G96 | 0.7− | 0.3− |
| 2005 08 26 | 644 | 0.0 | 0.3− | 2005 09 23 | 703 | 0.4− | 0.3+ | 2005 11 29 | G96 | 0.3− | 0.4− |
| 2005 08 28 | 699 | 0.6+ | 0.2− | 2005 09 23 | 703 | 0.7+ | 0.3− | 2005 11 30 | G96 | 0.1+ | 0.0 |
| 2005 08 28 | 691 | 0.1+ | 0.0 | 2005 09 23 | 644 | 0.0 | 0.2+ | 2005 11 30 | G96 | 0.2+ | 0.5− |
| 2005 08 28 | 699 | 1.5− | 1.5+ | 2005 09 23 | 703 | 0.8− | 0.5+ | 2005 11 30 | G96 | 0.3+ | 0.4− |
| 2005 08 28 | 691 | 0.3+ | 0.0 | 2005 09 23 | 644 | 0.0 | 0.1+ | 2005 11 30 | G96 | 0.6+ | 0.3+ |
| 2005 08 28 | 691 | 0.2+ | 0.1+ | 2005 10 07 | 699 | 0.2+ | 0.3− | 2005 12 04 | G96 | 0.6+ | 0.4+ |
| 2005 08 28 | 699 | 1.1− | 0.2+ | 2005 10 07 | 699 | 1.1− | 0.1+ | 2005 12 04 | G96 | 0.6+ | 0.6− |
| 2005 08 28 | 699 | 0.8+ | 0.6+ | 2005 10 07 | 699 | 1.2− | 0.7− | 2005 12 04 | G96 | 0.0 | 0.6+ |
| 2005 09 01 | 691 | 0.1+ | 0.0 | 2005 10 07 | 699 | 0.3+ | 0.8+ | 2005 12 04 | G96 | 0.1+ | 0.1− |
| 2005 09 01 | 691 | 0.0 | 0.0 | 2005 10 28 | G96 | 0.2− | 0.0 | 2009 12 10 | 114 | 0.2− | 0.1− |
| 2005 09 01 | 691 | 0.1+ | 0.1− | 2005 10 28 | G96 | 0.4+ | 0.1+ | 2009 12 10 | 114 | 0.1+ | 0.0 |
| 2005 09 11 | 691 | 0.1− | 0.2− | 2005 10 28 | G96 | 0.6+ | 0.1− | 2009 12 10 | 114 | 0.1+ | 0.3+ |
| 2005 09 11 | 691 | 0.1+ | 0.1− | 2005 10 28 | G96 | 0.1+ | 0.1+ | | | | |
| 2005 09 11 | 691 | 0.1+ | 0.1− | 2005 11 29 | G96 | 0.7− | 0.5+ | | | | |

**2005 QM$_{52}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 52.06133 | | (2000.0) | | | |
| $n$ | 0.28071445 | $\omega$ | 302.77826 | | +0.85630472 | −0.51057261 |
| $a$ | 2.3100757 | $\Omega$ | 88.03328 | | +0.49607478 | +0.77116268 |
| $e$ | 0.2350544 | $i$ | 4.46660 | | +0.14370815 | +0.38029426 |
| $P$ | 3.51 | $H$ | 17.6 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 08 27 | 735 | 0.2+ | 0.4− | 2005 08 31 | 644 | 0.4− | 0.2+ | 2009 11 10 | G96 | 0.1+ | 0.1− |
| 2005 08 27 | 735 | 0.4+ | 0.0 | 2005 09 28 | 735 | 0.6+ | 0.4− | 2009 11 10 | G96 | 0.3− | 0.1− |
| 2005 08 27 | 735 | 0.7− | 0.1− | 2005 09 28 | 735 | 0.1+ | 0.4− | 2009 11 10 | G96 | 0.4+ | 0.1− |
| 2005 08 28 | E12 | 0.4− | 0.4+ | 2005 09 28 | 735 | 0.7+ | 0.3+ | 2009 12 15 | G96 | 0.1+ | 0.1− |
| 2005 08 28 | E12 | 0.2+ | 0.3+ | 2007 03 14 | G96 | 0.1+ | 0.6+ | 2009 12 15 | G96 | 0.1+ | 0.2+ |
| 2005 08 28 | E12 | 0.3− | 0.1+ | 2007 03 14 | G96 | 0.1+ | 0.1− | 2009 12 15 | G96 | 0.2+ | 0.0 |
| 2005 08 28 | E12 | 0.0 | 0.5− | 2007 03 14 | G96 | 0.4+ | 0.5+ | 2009 12 17 | 691 | 0.1− | 0.4+ |
| 2005 08 29 | 735 | 0.4− | 0.0 | 2007 03 14 | G96 | 0.0 | 0.2+ | 2009 12 17 | 691 | 0.3+ | 0.0 |
| 2005 08 29 | 735 | 0.3+ | 0.8+ | 2009 10 18 | G96 | 0.2+ | 0.2− | 2009 12 17 | 691 | 0.0 | 0.1− |
| 2005 08 29 | 735 | 0.6− | 0.1+ | 2009 10 18 | G96 | 0.0 | 0.0 | 2009 12 27 | 691 | 0.2+ | 0.3+ |
| 2005 08 29 | 735 | 0.3+ | 0.2+ | 2009 10 18 | G96 | 0.3+ | 0.0 | 2009 12 27 | 691 | 0.3− | 0.4− |
| 2005 08 31 | 644 | 0.2− | 0.4+ | 2009 10 18 | G96 | 0.4− | 0.0 | 2009 12 27 | 691 | 0.3− | 0.0 |
| 2005 08 31 | 644 | 0.2− | 0.2+ | 2009 11 10 | G96 | 0.2+ | 0.1+ | | | | |

**2005 QO$_{56}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 26.77445 | | (2000.0) | | | |
| $n$ | 0.23494224 | $\omega$ | 151.63695 | | +0.72018026 | +0.67398335 |
| $a$ | 2.6011295 | $\Omega$ | 162.53619 | | −0.69358485 | +0.70514536 |
| $e$ | 0.2078520 | $i$ | 33.25826 | | −0.01674638 | −0.22026454 |
| $P$ | 4.20 | $H$ | 16.1 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 08 23 | 608 | 0.5− | 0.2− | 2005 09 05 | 703 | 0.3+ | 0.3+ | 2005 10 22 | E12 | 0.5+ | 0.2+ |
| 2005 08 23 | 608 | 0.3− | 0.1− | 2005 09 05 | 703 | 0.1− | 1.0− | 2005 10 22 | E12 | 1.5− | 0.4+ |
| 2005 08 23 | 608 | 0.5− | 0.3− | 2005 09 08 | 704 | 0.4+ | 0.1+ | 2005 10 22 | E12 | 0.2+ | 0.8+ |
| 2005 08 26 | 644 | 0.0 | 0.0 | 2005 09 08 | 704 | 1.0+ | 0.7+ | 2005 10 22 | E12 | 0.8+ | 0.2− |
| 2005 08 26 | 644 | 0.1− | 0.0 | 2005 09 08 | 704 | 1.9+ | 1.5+ | 2008 03 11 | 691 | 0.2+ | 0.8− |
| 2005 08 26 | 644 | 0.1− | 0.0 | 2005 09 26 | 703 | 0.4− | 1.4− | 2008 03 11 | 691 | 0.2− | 0.6+ |
| 2005 08 30 | 704 | 0.1− | 0.4+ | 2005 09 26 | 703 | 0.4− | 0.1− | 2008 03 11 | 691 | 0.0 | 0.3+ |
| 2005 08 30 | 704 | 0.2− | 0.1+ | 2005 09 26 | 703 | 1.3− | 0.5− | 2008 04 05 | G96 | 0.2+ | 0.1− |
| 2005 08 30 | 704 | 0.2− | 0.3+ | 2005 09 26 | 703 | (2.4− | 0.6−) | 2008 04 05 | G96 | 0.5− | 0.2− |
| 2005 08 30 | 704 | 0.5− | 0.1+ | 2005 09 27 | 704 | 0.4+ | 0.1− | 2008 04 05 | G96 | 0.1− | 0.1+ |
| 2005 08 30 | 704 | 0.2+ | 0.3+ | 2005 09 27 | 704 | 0.2− | 0.1+ | 2008 04 05 | G96 | 0.1+ | 0.0 |
| 2005 09 05 | 703 | 0.3+ | 0.3− | 2005 09 27 | 704 | 0.0 | 0.1+ | | | | |
| 2005 09 05 | 703 | 0.3+ | 0.4− | 2005 09 27 | 704 | 0.1+ | 0.5− | | | | |

**2005 QO$_{58}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 304.02096 | | (2000.0) | | | |
| $n$ | 0.18283002 | $\omega$ | 311.78966 | | +0.87551056 | +0.48240984 |
| $a$ | 3.0744756 | $\Omega$ | 19.41746 | | −0.41504644 | +0.78004902 |
| $e$ | 0.1493909 | $i$ | 4.76294 | | −0.24742212 | +0.39850254 |
| $P$ | 5.39 | $H$ | 15.9 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 08 25 | 644 | 0.1+ | 0.2+ | 2005 09 26 | A50 | 0.0 | 0.2− | 2005 12 01 | G96 | 0.4+ | 0.2− |
| 2005 08 25 | 644 | 0.0 | 0.1+ | 2005 09 28 | 644 | 0.4− | 0.3+ | 2005 12 01 | G96 | 0.3− | 0.2− |
| 2005 08 25 | 644 | 0.2+ | 0.1+ | 2005 09 28 | 644 | 0.0 | 0.5+ | 2008 02 07 | 691 | 0.2+ | 0.3+ |
| 2005 08 30 | 691 | 0.1− | 0.2+ | 2005 09 28 | 644 | 0.4− | 0.1+ | 2008 02 07 | 691 | 0.4+ | 0.2+ |
| 2005 08 30 | 691 | 0.1+ | 0.1+ | 2005 10 01 | 704 | 0.4+ | 0.3+ | 2008 02 07 | 691 | 0.3− | 0.1+ |
| 2005 08 30 | 691 | 0.0 | 0.2+ | 2005 10 01 | 703 | 0.6+ | 0.2− | 2008 04 05 | G96 | 0.1− | 0.4− |
| 2005 09 13 | 691 | 0.1− | 0.2+ | 2005 10 01 | 704 | 0.3− | 1.3− | 2008 04 05 | G96 | 0.4+ | 0.1+ |
| 2005 09 13 | 691 | 0.1− | 0.2+ | 2005 10 01 | 703 | 0.5+ | 0.5+ | 2008 04 05 | G96 | 0.1+ | 0.1+ |
| 2005 09 13 | 691 | 0.1+ | 0.2+ | 2005 10 01 | 704 | (0.2− | 2.2−) | 2008 04 05 | G96 | 0.5− | 0.6− |
| 2005 09 23 | 703 | (2.1+ | 1.1−) | 2005 10 01 | 703 | 1.4− | 0.8− | 2009 03 21 | 691 | 0.0 | 0.1+ |
| 2005 09 23 | 703 | 0.8− | 0.3+ | 2005 10 01 | 703 | (2.8+ | 0.5−) | 2009 03 21 | 691 | 0.4− | 0.1+ |
| 2005 09 23 | 703 | 0.6+ | 0.2− | 2005 10 06 | G96 | 0.1+ | 0.2− | 2009 03 21 | 691 | 0.5+ | 0.4− |
| 2005 09 23 | 703 | 0.1+ | 1.7− | 2005 10 06 | G96 | 0.2+ | 0.1− | 2009 04 19 | G96 | 0.2+ | 0.1+ |
| 2005 09 24 | 644 | 0.4− | 0.1− | 2005 10 06 | G96 | 0.2+ | 0.1+ | 2009 04 19 | G96 | 0.0 | 0.9+ |
| 2005 09 24 | 644 | 0.3− | 0.1+ | 2005 10 06 | G96 | 0.1− | 0.0 | 2009 04 19 | G96 | 0.3+ | 0.4+ |
| 2005 09 24 | 644 | 0.0 | 0.1+ | 2005 12 01 | G96 | 0.6+ | 0.2+ | 2009 04 19 | G96 | 0.6− | 0.2+ |
| 2005 09 26 | A50 | 0.0 | 0.2− | 2005 12 01 | G96 | 0.4+ | 0.1+ | | | | |

**2005 QY$_{61}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 265.77189 | | (2000.0) | | | |
| $n$ | 0.18851669 | $\omega$ | 240.24951 | | +0.84895082 | −0.52792948 |
| $a$ | 3.0123320 | $\Omega$ | 151.59599 | | +0.50058184 | +0.78880240 |
| $e$ | 0.2056861 | $i$ | 2.88436 | | +0.16941169 | +0.31477173 |
| $P$ | 5.23 | $H$ | 17.0 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 10 25 | 691 | 0.2− | 0.3+ | 2005 08 30 | 691 | 0.5− | 0.3+ | 2005 11 03 | G96 | 0.0 | 0.2− |
| 1995 10 25 | 691 | 0.3+ | 0.5− | 2005 08 30 | 691 | 0.4− | 0.2+ | 2005 11 03 | G96 | 0.3− | 0.0 |
| 1995 10 25 | 691 | 0.0 | 0.5− | 2005 08 30 | 691 | 0.3− | 0.2+ | 2005 11 03 | G96 | 0.0 | 0.4− |
| 2002 02 10 | 691 | 0.4− | 0.7+ | 2005 09 14 | 691 | 0.1− | 0.2+ | 2005 11 03 | G96 | 0.4− | 0.2− |
| 2002 02 10 | 691 | 0.3+ | 1.0+ | 2005 09 14 | 691 | 0.1+ | 0.1− | 2005 12 01 | G96 | 0.3− | 0.8− |
| 2002 02 10 | 691 | 0.6+ | 0.2− | 2005 09 14 | 691 | 0.2+ | 0.1+ | 2005 12 01 | G96 | 0.0 | 0.1− |
| 2005 08 26 | 644 | 0.3− | 0.0 | 2005 09 27 | 691 | 0.3+ | 0.3+ | 2005 12 01 | G96 | 0.6+ | 0.2− |
| 2005 08 26 | 644 | 0.2− | 0.1− | 2005 09 27 | 691 | 0.1+ | 0.3+ | 2005 12 01 | G96 | 0.1− | 0.5+ |
| 2005 08 26 | 644 | 0.1− | 0.2− | 2005 09 27 | 691 | 0.3+ | 0.2+ | | | | |

**2005 QO$_{62}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 342.41167 | | (2000.0) | | | |
| $n$ | 0.20301988 | $\omega$ | 310.25704 | | +0.69842255 | +0.71566673 |
| $a$ | 2.8671055 | $\Omega$ | 4.05525 | | −0.63226792 | +0.62040722 |
| $e$ | 0.1565744 | $i$ | 4.21968 | | −0.33532554 | +0.32080525 |
| $P$ | 4.85 | $H$ | 16.7 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 08 26 | 644 | 0.0 | 0.4+ | 2005 09 14 | 691 | 0.2− | 0.3+ | 2008 02 28 | G96 | 0.7+ | 0.2+ |
| 2005 08 26 | 644 | 0.1+ | 0.0 | 2005 09 27 | 691 | 0.1+ | 0.4− | 2008 02 28 | G96 | 0.1+ | 0.2+ |
| 2005 08 26 | 644 | 0.2− | 0.1+ | 2005 09 27 | 691 | 0.1+ | 0.2+ | 2008 02 28 | G96 | 0.1+ | 0.3+ |
| 2005 08 30 | 691 | 0.1+ | 0.0 | 2005 09 27 | 691 | 0.0 | 0.0 | 2008 02 28 | G96 | 0.1+ | 0.5+ |
| 2005 08 30 | 691 | 0.1− | 0.1− | 2005 10 29 | G96 | 0.6+ | 0.3− | 2008 04 05 | G96 | 0.2+ | 0.3+ |
| 2005 08 30 | 691 | 0.1− | 0.0 | 2005 10 29 | G96 | 0.5+ | 0.1+ | 2008 04 05 | G96 | 0.9− | 0.1− |
| 2005 09 14 | 691 | 0.0 | 0.1+ | 2005 10 29 | G96 | 0.2+ | 0.3− | 2008 04 05 | G96 | 0.2+ | 0.1+ |
| 2005 09 14 | 691 | 0.4− | 0.3+ | 2005 10 29 | G96 | 0.0 | 0.2− | 2008 04 05 | G96 | 0.3+ | 0.4+ |

**2005 QV$_{68}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 290.42763 | | (2000.0) | | | |
| $n$ | 0.17630650 | $\omega$ | 308.38839 | | +0.71219610 | +0.70129749 |
| $a$ | 3.1498546 | $\Omega$ | 7.27200 | | −0.54330941 | +0.57860764 |
| $e$ | 0.2073485 | $i$ | 14.15776 | | −0.44451278 | +0.41640729 |
| $P$ | 5.59 | $H$ | 15.1 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 08 28 | E12 | 0.3+ | 0.4− | 2005 09 08 | E12 | 0.0 | 0.5− | 2009 03 03 | G96 | 0.0 | 0.0 |
| 2005 08 28 | E12 | 0.1− | 0.2− | 2005 09 24 | 644 | 0.5− | 0.0 | 2009 03 03 | G96 | 0.1+ | 0.2+ |
| 2005 08 30 | 699 | 0.2+ | 0.5− | 2005 09 24 | 644 | 0.0 | 0.2+ | 2009 03 03 | G96 | 0.2− | 0.1− |
| 2005 08 30 | 699 | 0.0 | 0.4+ | 2005 09 24 | 644 | 0.2− | 0.3+ | 2009 03 28 | G96 | 0.2+ | 0.4+ |
| 2005 08 30 | 699 | 1.1− | 0.6− | 2005 09 26 | 703 | 0.7− | 0.3+ | 2009 03 28 | G96 | 0.2+ | 0.1− |
| 2005 08 30 | 699 | 0.4+ | 0.0 | 2005 09 26 | 703 | 0.0 | 0.4+ | 2009 03 28 | G96 | 0.1− | 0.2+ |
| 2005 09 01 | 644 | 0.0 | 0.1+ | 2005 09 26 | 703 | 1.2+ | 0.5− | 2009 03 28 | G96 | 0.1+ | 0.0 |
| 2005 09 01 | 644 | 0.0 | 0.2+ | 2005 09 26 | 703 | (0.2− | 2.1+) | 2009 04 29 | G96 | 0.3− | 0.1− |
| 2005 09 01 | 644 | 0.1+ | 0.3+ | 2005 10 04 | 644 | 0.0 | 0.4− | 2009 04 29 | G96 | 0.1+ | 0.2− |
| 2005 09 08 | E12 | 0.1− | 0.9+ | 2005 10 04 | 644 | 0.2+ | 0.1− | 2009 04 29 | G96 | 0.1− | 0.0 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 08 | E12 | 0.0 | 0.0 | 2005 10 04 | 644 | 0.2+ | 0.1− | 2009 04 29 | G96 | 0.2+ | 0.3− |
| 2005 09 08 | E12 | 0.1+ | 0.2+ | 2009 03 03 | G96 | 0.3− | 0.1+ | | | | |

**2005 QE$_{70}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 272.67710 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18238050 | $\omega$ | 203.78297 | | +0.99486745 | −0.06315532 | |
| $a$ | 3.0795254 | $\Omega$ | 159.36619 | | +0.07756393 | +0.97772977 | |
| $e$ | 0.2459983 | $i$ | 12.96439 | | −0.06498155 | +0.20013969 | |
| $P$ | 5.40 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 07 30 | 644 | 0.3− | 0.2+ | 2005 09 07 | 699 | 0.5+ | 0.2+ | 2005 10 01 | 704 | 0.5+ | 0.1+ |
| 2005 07 30 | 644 | 0.1− | 0.3+ | 2005 09 07 | 699 | 0.5− | 0.5+ | 2005 10 01 | 704 | 0.6− | 0.6+ |
| 2005 07 30 | 644 | 0.2− | 0.2+ | 2005 09 07 | 699 | 1.1+ | 0.9+ | 2005 10 01 | 704 | 1.3+ | 0.2+ |
| 2005 08 06 | 644 | 0.2+ | 0.4+ | 2005 09 22 | 644 | 0.0 | 0.2− | 2005 10 01 | 704 | 0.3+ | 0.1+ |
| 2005 08 06 | 644 | 0.0 | 0.3+ | 2005 09 22 | 644 | 0.1+ | 0.0 | 2005 10 01 | 704 | 1.2+ | 0.7− |
| 2005 08 06 | 644 | 0.1− | 0.2+ | 2005 09 22 | 644 | 0.0 | 0.2− | 2005 10 05 | 704 | 0.6+ | 1.8+ |
| 2005 08 29 | 699 | 0.3− | 0.1− | 2005 09 23 | 699 | 0.1− | 0.0 | 2005 10 05 | 704 | 1.3+ | 0.6+ |
| 2005 08 29 | 699 | 0.3− | 0.5+ | 2005 09 23 | 699 | 0.3− | 0.3− | 2005 10 05 | 704 | 0.6+ | 0.6− |
| 2005 08 29 | 699 | 0.7+ | 0.0 | 2005 09 23 | 699 | 0.0 | 0.2− | 2005 10 05 | 704 | 1.0+ | 0.7+ |
| 2005 08 29 | 699 | 0.2+ | 0.1+ | 2005 09 23 | 699 | 1.0− | 0.6+ | 2005 10 06 | G96 | 0.2+ | 0.6− |
| 2005 08 30 | 704 | 0.3− | 0.1− | 2005 09 26 | 703 | 1.4− | 0.6+ | 2005 10 06 | G96 | 0.3+ | 0.6− |
| 2005 08 30 | 704 | 0.0 | 0.4− | 2005 09 26 | 703 | 0.5− | 0.9+ | 2005 10 06 | G96 | 0.4+ | 0.7− |
| 2005 08 30 | 704 | 0.6− | 0.2− | 2005 09 26 | 703 | 0.1− | 0.7+ | 2005 10 06 | G96 | 0.1+ | 0.7− |
| 2005 08 30 | 704 | 0.3− | 0.1+ | 2005 09 26 | 703 | 1.2− | 0.5+ | 2008 02 28 | G96 | 0.2− | 0.1+ |
| 2005 08 30 | 568 | 0.8+ | 0.8− | 2005 09 27 | 704 | 1.1− | 0.1− | 2008 02 28 | G96 | 0.0 | 0.5+ |
| 2005 08 30 | 568 | 0.7+ | 0.7− | 2005 09 27 | 704 | 0.4− | 0.1− | 2008 02 28 | G96 | 0.2− | 0.4+ |
| 2005 08 30 | 568 | 0.8+ | 0.8− | 2005 09 27 | 704 | 0.0 | 0.1+ | 2008 02 28 | G96 | 0.1+ | 0.4+ |
| 2005 09 02 | 608 | 0.7− | 0.8− | 2005 09 30 | 699 | (2.1+ | 0.2+) | 2008 03 14 | G96 | 0.5+ | 1.2+ |
| 2005 09 02 | 608 | 0.6− | 0.8− | 2005 09 30 | 699 | 0.2− | 0.8− | 2008 03 14 | G96 | 0.3+ | 0.0 |
| 2005 09 02 | 608 | 0.9− | 0.8− | 2005 09 30 | 699 | 0.0 | 0.4+ | 2008 03 14 | G96 | 0.7− | 0.2− |
| 2005 09 07 | 699 | 0.7+ | 0.1− | 2005 09 30 | 699 | 1.2− | 2.0+ | 2008 03 14 | G96 | 0.7+ | 0.1− |

**2005 QW$_{81}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 53.61030 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26437235 | $\omega$ | 347.51516 | | +0.97873150 | +0.20514462 | |
| $a$ | 2.4043186 | $\Omega$ | 0.64771 | | −0.18357537 | +0.87706956 | |
| $e$ | 0.2177552 | $i$ | 2.91402 | | −0.09156816 | +0.43435546 | |
| $P$ | 3.73 | $H$ | 17.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 08 29 | 704 | 0.2+ | 0.1+ | 2005 09 11 | 691 | 0.1− | 0.3+ | 2009 11 08 | G96 | 0.4− | 0.2− |
| 2005 08 29 | 699 | (1.7+ | 0.5−) | 2005 09 11 | 691 | 0.1− | 0.3+ | 2009 11 08 | G96 | 0.1− | 0.3− |
| 2005 08 29 | 704 | (1.4+ | 1.6−) | 2005 10 01 | G96 | 0.0 | 0.3− | 2009 11 08 | G96 | 0.2− | 0.1− |
| 2005 08 29 | 704 | 0.2+ | 0.7− | 2005 10 01 | G96 | 0.7+ | 0.5+ | 2009 11 08 | G96 | 0.0 | 0.2− |
| 2005 08 29 | 699 | (2.2− | 1.2+) | 2005 10 01 | G96 | 0.4− | 0.3− | 2009 11 11 | J75 | 0.4− | 0.6+ |
| 2005 08 29 | 704 | 0.3+ | 1.3− | 2005 10 27 | G96 | 0.3− | 0.6− | 2009 11 11 | J75 | 0.2− | 0.3− |
| 2005 08 29 | 699 | 0.7− | 0.8− | 2005 10 27 | G96 | 0.2+ | 0.2− | 2009 11 11 | J75 | 1.3+ | 0.1− |
| 2005 08 29 | 704 | 0.7+ | 0.8− | 2005 10 27 | G96 | 0.2+ | 0.3+ | 2009 11 22 | G96 | 0.7− | 0.4+ |
| 2005 08 29 | 699 | 0.5− | 1.1+ | 2005 10 27 | G96 | 0.0 | 0.1− | 2009 11 22 | G96 | 0.2+ | 0.4+ |
| 2005 08 31 | 691 | 0.0 | 0.1− | 2005 10 29 | G96 | 0.0 | 0.3− | 2009 11 22 | G96 | 0.3+ | 0.1+ |
| 2005 08 31 | 691 | 0.0 | 0.0 | 2005 10 29 | G96 | 0.2+ | 0.2− | 2009 11 22 | G96 | 0.1+ | 0.1− |
| 2005 08 31 | 691 | 0.0 | 0.0 | 2005 10 29 | G96 | 0.1− | 0.3− | | | | |
| 2005 09 11 | 691 | 0.1− | 0.3+ | 2005 10 29 | G96 | 0.2+ | 0.2− | | | | |

**2005 QZ$_{81}$ = 2009 WU$_{184}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 40.75745 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27149061 | $\omega$ | 270.30484 | | +0.91867235 | −0.39218872 | |
| $a$ | 2.3621067 | $\Omega$ | 112.78631 | | +0.37973573 | +0.84386937 | |
| $e$ | 0.2035912 | $i$ | 2.93541 | | +0.10882039 | +0.36615912 | |
| $P$ | 3.63 | $H$ | 17.7 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 01 04 | 291 | 0.5+ | 0.6+ | 2005 08 29 | 699 | 0.0 | 0.5− | 2009 11 26 | G96 | 0.4− | 0.0 |
| 2003 01 04 | 291 | 0.1− | 0.5+ | 2005 08 31 | 691 | 0.0 | 0.1+ | 2009 11 26 | G96 | 0.1− | 0.2− |
| 2003 01 04 | 291 | 0.0 | 0.6+ | 2005 08 31 | 691 | 0.0 | 0.0 | 2009 11 26 | G96 | 1.3− | 0.8− |
| 2003 01 25 | 645 | 0.0 | 0.0 | 2005 08 31 | 691 | 0.0 | 0.1+ | 2009 11 26 | G96 | 1.2+ | 0.8− |
| 2003 01 25 | 645 | 0.0 | 0.1− | 2009 08 17 | 291 | 0.1− | 0.1+ | 2009 11 26 | G96 | 0.0 | 0.1− |
| 2005 08 27 | 644 | 0.3− | 0.0 | 2009 08 17 | 291 | 0.1+ | 0.3+ | 2009 12 12 | 300 | 0.6+ | 0.1+ |
| 2005 08 27 | 644 | 0.2− | 0.1− | 2009 08 17 | 291 | 0.1+ | 0.4+ | 2009 12 12 | 300 | 0.2+ | 0.3− |
| 2005 08 27 | 644 | 0.2− | 0.1+ | 2009 10 12 | G96 | 0.0 | 0.1+ | 2009 12 12 | 300 | 1.1+ | 0.1− |
| 2005 08 29 | 704 | 0.9− | 1.3+ | 2009 10 12 | G96 | 0.8+ | 1.3− | 2009 12 17 | 300 | 0.3− | 0.1+ |
| 2005 08 29 | 699 | 0.3+ | 1.1+ | 2009 10 12 | G96 | 0.3+ | 0.7− | 2009 12 17 | 300 | 0.5+ | 0.2− |
| 2005 08 29 | 704 | 0.4− | 0.5− | 2009 10 12 | G96 | 0.4− | 0.9− | 2009 12 17 | 300 | 0.5+ | 0.1+ |
| 2005 08 29 | 699 | 0.4+ | 0.2+ | 2009 11 23 | J75 | 0.4− | 0.6+ | 2009 12 17 | 300 | 0.1− | 0.3− |
| 2005 08 29 | 704 | 0.0 | 0.4+ | 2009 11 24 | J75 | 0.2− | 0.7− | | | | |
| 2005 08 29 | 699 | (2.3− | 0.5+) | 2009 11 24 | J75 | 1.3− | 0.3− | | | | |

**2005 QQ$_{95}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 316.25355 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17363445 | $\omega$ | 152.97383 | | +0.24377596 | +0.96700530 | |
| $a$ | 3.1820876 | $\Omega$ | 131.03805 | | −0.90659254 | +0.25431306 | |
| $e$ | 0.1369625 | $i$ | 5.62920 | | −0.34447532 | +0.01502088 | |
| $P$ | 5.68 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 08 06 | 644 | 0.3− | 0.2+ | 2005 08 29 | 704 | 0.8− | 1.2− | 2009 03 02 | 691 | 0.4− | 0.9− |
| 2005 08 06 | 644 | 0.4+ | 0.2− | 2005 08 29 | 704 | 0.6+ | 1.4+ | 2009 03 02 | 691 | 0.2− | 0.1+ |
| 2005 08 06 | 644 | 0.5− | 0.5− | 2005 08 29 | 704 | 0.5+ | 0.9+ | 2009 03 02 | 691 | 0.1+ | 0.2+ |
| 2005 08 06 | 644 | 0.3+ | 0.1− | 2005 08 31 | 691 | 0.1+ | 0.2+ | 2009 03 16 | D29 | 0.7− | 0.3+ |
| 2005 08 06 | 644 | 0.1− | 0.2− | 2005 08 31 | 691 | 0.0 | 0.2+ | 2009 03 16 | D29 | 1.4+ | 1.0+ |
| 2005 08 06 | 644 | 0.2+ | 0.3− | 2005 08 31 | 691 | 0.0 | 0.1+ | 2009 03 16 | D29 | 0.9+ | 0.3+ |
| 2005 08 27 | 644 | 0.0 | 0.2− | 2005 09 14 | 691 | 0.0 | 0.1− | 2009 03 16 | D29 | 0.2+ | 0.3+ |
| 2005 08 27 | 644 | 0.0 | 0.1− | 2005 09 14 | 691 | 0.2− | 0.3− | | | | |
| 2005 08 27 | 644 | 0.0 | 0.3− | 2005 09 14 | 691 | 0.1+ | 0.1− | | | | |

**2005 QU$_{103}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 72.60333 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.29293816 | $\omega$ | 80.39283 | | +0.90532642 | −0.41859065 | |
| $a$ | 2.2453571 | $\Omega$ | 304.31983 | | +0.34750341 | +0.82735047 | |
| $e$ | 0.1206207 | $i$ | 4.99250 | | +0.24418326 | +0.37453045 | |
| $P$ | 3.36 | $H$ | 17.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 08 27 | 644 | 0.2+ | 0.0 | 2005 09 12 | 691 | 0.2+ | 0.1− | 2009 11 11 | G96 | 0.0 | 0.1+ |
| 2005 08 27 | 644 | 0.1− | 0.0 | 2005 09 26 | A50 | 0.0 | 0.2− | 2009 11 21 | G96 | 0.4− | 0.5− |
| 2005 08 27 | 644 | 0.2+ | 0.3+ | 2005 09 27 | 691 | 0.1− | 0.0 | 2009 11 21 | G96 | 0.0 | 0.1− |
| 2005 08 29 | 691 | 0.1− | 0.0 | 2005 09 27 | 691 | 0.1+ | 0.0 | 2009 11 21 | G96 | 0.1− | 0.2− |
| 2005 08 29 | 691 | 0.2− | 0.1+ | 2005 09 27 | 691 | 0.2+ | 0.0 | 2009 11 21 | G96 | 0.1− | 0.2− |
| 2005 08 29 | 691 | 0.3− | 0.2+ | 2009 11 11 | G96 | (1.9+ | 0.5+) | 2009 12 18 | 691 | 0.1+ | 0.2+ |
| 2005 09 12 | 691 | 0.0 | 0.1− | 2009 11 11 | G96 | 0.1− | 0.1− | 2009 12 18 | 691 | 0.0 | 0.2+ |
| 2005 09 12 | 691 | 0.0 | 0.0 | 2009 11 11 | G96 | 0.0 | 0.3− | 2009 12 18 | 691 | 0.1+ | 0.1− |

**2005 QQ$_{104}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 326.76075 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17837384 | $\omega$ | 100.11092 | | +0.26953132 | +0.96280635 | |
| $a$ | 3.1254695 | $\Omega$ | 185.63295 | | −0.94162050 | +0.25938963 | |
| $e$ | 0.1790801 | $i$ | 11.09523 | | −0.20175158 | +0.07563694 | |
| $P$ | 5.53 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 08 27 | 644 | 0.1− | 0.1+ | 2005 09 30 | 691 | 0.1− | 0.3− | 2009 03 19 | 691 | 0.2− | 0.1− |
| 2005 08 27 | 644 | 0.2− | 0.1− | 2005 09 30 | 703 | 0.8+ | 0.1− | 2009 04 03 | G96 | 0.2− | 0.2− |
| 2005 08 27 | 644 | 0.0 | 0.0 | 2005 09 30 | 703 | (2.6− | 0.1−) | 2009 04 03 | G96 | 0.7+ | 0.2+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 08 29 | 691 | 0.2+ | 0.1+ | 2005 09 30 | 703 | (1.5+ | 1.0−) | 2009 04 03 | G96 | 0.5+ | 0.3+ | | |
| 2005 08 29 | 691 | 0.3+ | 0.1− | 2005 09 30 | 703 | (1.8− | 0.8−) | 2009 04 03 | G96 | 0.3+ | 0.1+ | | |
| 2005 08 29 | 691 | 0.2+ | 0.1+ | 2005 10 27 | G96 | 0.0 | 0.3+ | 2009 04 26 | G96 | 0.2+ | 0.0 | | |
| 2005 09 12 | 691 | 0.0 | 0.1+ | 2005 10 27 | G96 | 0.1− | 0.1− | 2009 04 26 | G96 | 0.2+ | 0.6− | | |
| 2005 09 12 | 691 | 0.3− | 0.1− | 2005 10 27 | G96 | 0.2− | 0.2− | 2009 04 26 | G96 | 0.1+ | 0.1− | | |
| 2005 09 12 | 691 | 0.1− | 0.1+ | 2005 10 27 | G96 | 0.2+ | 0.1+ | 2009 04 26 | G96 | 0.1+ | 0.1+ | | |
| 2005 09 30 | 691 | 0.0 | 0.0 | 2009 03 19 | 691 | 0.1− | 0.2+ | | | | | | |
| 2005 09 30 | 691 | 0.2− | 0.1+ | 2009 03 19 | 691 | 0.2− | 0.2− | | | | | | |

**2005 QF$_{111}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 280.83713 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18093794 | $\omega$ | 10.72441 | | +0.99951087 | | +0.01340271 |
| $a$ | 3.0958717 | $\Omega$ | 348.39536 | | −0.02615009 | | +0.85372056 |
| $e$ | 0.0979681 | $i$ | 8.07483 | | +0.01715217 | | +0.52055890 |
| $P$ | 5.45 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 08 27 | 644 | 0.2− | 0.2+ | 2005 09 14 | 691 | 0.1− | 0.1− | 2008 02 08 | 691 | 0.0 | 0.0 |
| 2005 08 27 | 644 | 0.1− | 0.0 | 2005 09 14 | 691 | 0.1+ | 0.1− | 2008 02 08 | 691 | 0.1− | 0.1− |
| 2005 08 27 | 644 | 0.0 | 0.2− | 2005 10 30 | G96 | 0.2− | 0.0 | 2008 03 26 | 691 | 0.2+ | 0.0 |
| 2005 08 30 | 691 | 0.3+ | 0.1+ | 2005 10 30 | G96 | 0.7− | 0.4− | 2008 03 26 | 691 | 0.6+ | 0.6− |
| 2005 08 30 | 691 | 0.2− | 0.2− | 2005 10 30 | G96 | 0.5− | 0.3+ | 2008 03 26 | 691 | 0.6− | 0.5+ |
| 2005 08 30 | 691 | 0.3+ | 0.1+ | 2005 10 30 | G96 | 0.3− | 0.0 | | | | |
| 2005 09 14 | 691 | 0.1+ | 0.2+ | 2008 02 08 | 691 | 0.2− | 0.1+ | | | | |

**2005 QL$_{117}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 321.34718 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21775948 | $\omega$ | 22.43966 | | +0.98345213 | | −0.17979889 |
| $a$ | 2.7362220 | $\Omega$ | 347.85498 | | +0.14600160 | | +0.85921925 |
| $e$ | 0.0724496 | $i$ | 6.06589 | | +0.10726340 | | +0.47897249 |
| $P$ | 4.53 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 07 30 | 644 | 0.1+ | 0.4− | 2005 09 01 | 691 | 0.3+ | 0.2+ | 2005 09 29 | G96 | 0.1− | 0.2− |
| 2005 07 30 | 644 | 0.5− | 0.2+ | 2005 09 01 | 691 | 0.1+ | 0.2+ | 2008 03 10 | 691 | 0.2− | 0.0 |
| 2005 07 30 | 644 | 0.0 | 0.1− | 2005 09 01 | 691 | 0.0 | 0.0 | 2008 03 10 | 691 | 0.0 | 0.2+ |
| 2005 08 08 | 807 | 0.0 | 0.1− | 2005 09 11 | 691 | 0.1− | 0.1+ | 2008 03 10 | 691 | 0.4+ | 0.1+ |
| 2005 08 08 | 807 | 0.1+ | 0.2− | 2005 09 11 | 691 | 0.0 | 0.2+ | 2008 04 15 | G96 | 0.3− | 0.4− |
| 2005 08 09 | 807 | 0.5+ | 0.3− | 2005 09 11 | 691 | 0.0 | 0.2− | 2008 04 15 | G96 | 0.5+ | 0.9− |
| 2005 08 28 | 691 | 0.3− | 0.3− | 2005 09 29 | G96 | 0.3+ | 0.1+ | 2008 04 15 | G96 | 0.2− | 0.2− |
| 2005 08 28 | 691 | 0.5− | 0.1+ | 2005 09 29 | G96 | 0.2+ | 0.4− | 2008 04 15 | G96 | 0.5− | 0.2+ |
| 2005 08 28 | 691 | 0.0 | 0.1− | 2005 09 29 | G96 | 1.2+ | 0.3+ | | | | |

**2005 QL$_{130}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 15.92484 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23228575 | $\omega$ | 330.24022 | | +0.91667741 | | +0.39915103 |
| $a$ | 2.6209235 | $\Omega$ | 6.32912 | | −0.32271649 | | +0.76817997 |
| $e$ | 0.1903007 | $i$ | 10.19845 | | −0.23570447 | | +0.50057766 |
| $P$ | 4.24 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 08 28 | 691 | 0.0 | 0.0 | 2005 09 23 | 703 | 0.3+ | 0.4− | 2005 10 27 | G96 | 0.1+ | 0.2+ |
| 2005 08 28 | 691 | 0.1− | 0.0 | 2005 09 23 | 703 | 1.4− | 0.1+ | 2005 10 27 | G96 | 0.1− | 0.0 |
| 2005 08 28 | 691 | 0.0 | 0.1+ | 2005 09 23 | 703 | 0.2− | 1.3− | 2005 10 27 | G96 | 0.2+ | 0.1+ |
| 2005 09 01 | 691 | 0.2+ | 0.0 | 2005 09 23 | 703 | 0.3+ | 1.1− | 2008 03 05 | 691 | 0.5− | 0.1+ |
| 2005 09 01 | 691 | 0.1+ | 0.0 | 2005 09 24 | 644 | 0.1+ | 0.1+ | 2008 03 05 | 691 | 0.3− | 0.1− |
| 2005 09 01 | 691 | 0.2+ | 0.2+ | 2005 09 24 | 644 | 0.1− | 0.0 | 2008 03 05 | 691 | 0.5+ | 0.3+ |
| 2005 09 12 | 691 | 0.0 | 0.2+ | 2005 09 24 | 644 | 0.2+ | 0.3− | 2008 03 27 | G96 | 0.1+ | 0.2+ |
| 2005 09 12 | 691 | 0.1− | 0.1+ | 2005 10 01 | 704 | 0.7+ | 0.0 | 2008 03 27 | G96 | 0.4+ | 0.3− |
| 2005 09 12 | 691 | 0.2− | 0.2+ | 2005 10 01 | 704 | 0.4− | 0.0 | 2008 03 27 | G96 | 0.3+ | 0.1− |
| 2005 09 22 | 644 | 0.2− | 0.2− | 2005 10 01 | 704 | 0.4+ | 0.3+ | 2008 03 27 | G96 | 0.2+ | 0.7− |
| 2005 09 22 | 644 | 0.1− | 0.3− | 2005 10 01 | 704 | 0.5− | 0.3+ | | | | |
| 2005 09 22 | 644 | 0.0 | 0.0 | 2005 10 27 | G96 | 0.2+ | 0.3+ | | | | |

**2005 QJ$_{132}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 281.53162 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18254715 | $\omega$ | 223.66886 | | +0.99347083 | | +0.07722263 |
| $a$ | 3.0776508 | $\Omega$ | 131.70521 | | −0.04577469 | | +0.94405624 |
| $e$ | 0.1340592 | $i$ | 6.45855 | | −0.10450063 | | +0.32061578 |
| $P$ | 5.40 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 07 29 | 644 | 0.6− | 0.5+ | 2005 09 11 | 691 | 0.2+ | 0.2+ | 2008 02 07 | 691 | 0.3− | 0.1+ |
| 2005 07 29 | 644 | 0.7− | 0.3+ | 2005 09 11 | 691 | 0.2+ | 0.0 | 2008 02 07 | 691 | 0.5+ | 0.2+ |
| 2005 07 29 | 644 | 0.6− | 0.5+ | 2005 09 11 | 691 | 0.2+ | 0.0 | 2008 02 28 | G96 | 0.2+ | 0.5− |
| 2005 08 28 | 691 | 0.0 | 0.2− | 2005 09 22 | 644 | 0.1− | 0.1− | 2008 02 28 | G96 | 0.3+ | 0.5− |
| 2005 08 28 | 691 | 0.2− | 0.0 | 2005 09 22 | 644 | 0.4− | 0.1− | 2008 02 28 | G96 | 0.2+ | 0.2− |
| 2005 08 28 | 691 | 0.1− | 0.1− | 2005 09 22 | 644 | 0.1− | 0.1− | 2008 02 28 | G96 | 0.3+ | 0.4− |
| 2005 09 01 | 691 | 0.2+ | 0.1+ | 2005 09 25 | 703 | (1.8− | 0.1+) | 2008 03 28 | 691 | 0.2+ | 0.2− |
| 2005 09 01 | 691 | 0.2+ | 0.0 | 2005 09 25 | 703 | 0.7− | 0.6− | 2008 03 28 | 691 | 0.3+ | 0.0 |
| 2005 09 01 | 691 | 0.0 | 0.0 | 2005 09 25 | 703 | 0.6− | 1.2+ | 2008 03 28 | 691 | 0.4− | 0.8+ |
| 2005 09 07 | A50 | 0.2− | 0.2− | 2005 09 25 | 703 | (3.2− | 0.3−) | | | | |
| 2005 09 07 | A50 | 0.0 | 0.1+ | 2008 02 07 | 691 | 0.4− | 0.1+ | | | | |

**2005 QS$_{148}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 25.16247 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.25186766 | $\omega$ | 313.43958 | | +0.99613205 | | +0.01005038 |
| $a$ | 2.4832538 | $\Omega$ | 46.19332 | | +0.03244308 | | +0.88117429 |
| $e$ | 0.2417233 | $i$ | 6.94734 | | −0.08166018 | | +0.47268473 |
| $P$ | 3.91 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 10 | 644 | 0.2− | 0.0 | 2005 09 01 | 644 | 0.3− | 0.1+ | 2009 10 20 | 703 | 0.8+ | 0.4+ |
| 2001 08 10 | 644 | 0.4− | 0.1− | 2005 09 08 | E12 | 0.4− | 0.3+ | 2009 10 20 | 703 | 0.6− | 0.9− |
| 2001 08 10 | 644 | 0.1+ | 0.0 | 2005 09 08 | E12 | (0.5− | 1.6−) | 2009 10 20 | 703 | 0.0 | 0.0 |
| 2005 07 04 | 644 | 0.6+ | 0.0 | 2005 09 08 | E12 | 0.2− | 0.0 | 2009 10 20 | 703 | 0.6+ | 0.4+ |
| 2005 07 04 | 644 | 0.3+ | 0.0 | 2005 09 08 | E12 | 0.6+ | 0.5+ | 2009 11 16 | G96 | 0.0 | 0.3+ |
| 2005 07 04 | 644 | 0.3+ | 0.3− | 2005 09 26 | 703 | 0.3+ | 1.0+ | 2009 11 16 | G96 | 0.7− | 0.8− |
| 2005 08 30 | 699 | 0.1− | 0.4+ | 2005 09 26 | 703 | 0.4+ | 0.8+ | 2009 11 16 | G96 | 0.2− | 0.0 |
| 2005 08 30 | 699 | 0.6− | 0.2− | 2005 09 26 | 703 | 0.5− | 1.2+ | 2009 12 19 | G96 | 0.1+ | 0.1+ |
| 2005 08 30 | 699 | 1.1+ | 0.7− | 2005 09 26 | 703 | (0.9− | 1.6+) | 2009 12 19 | G96 | 0.1− | 0.6+ |
| 2005 08 30 | 699 | 0.7− | 0.4− | 2009 09 19 | 703 | 0.2+ | 0.5− | 2009 12 19 | G96 | 0.2+ | 0.2+ |
| 2005 09 01 | 644 | 0.3− | 0.1+ | 2009 09 19 | 703 | 0.9+ | 1.5− | 2009 12 19 | G96 | 0.1− | 0.3+ |
| 2005 09 01 | 644 | 0.2− | 0.0 | 2009 09 19 | 703 | 0.3− | 0.5− | | | | |

**2005 QJ$_{151}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 304.94426 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.19773843 | $\omega$ | 214.71991 | | +0.98735057 | | −0.15705944 |
| $a$ | 2.9179331 | $\Omega$ | 154.29043 | | +0.15443615 | | +0.92166915 |
| $e$ | 0.0699881 | $i$ | 2.86814 | | +0.03589331 | | +0.35476516 |
| $P$ | 4.98 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 08 30 | 691 | 0.9− | 0.7− | 2005 09 25 | A50 | 0.3+ | 0.3+ | 2005 10 29 | G96 | 0.5− | 0.0 |
| 2005 08 30 | 691 | 0.0 | 0.1+ | 2005 09 25 | A50 | 0.3+ | 0.0 | 2005 10 29 | G96 | 0.0 | 0.4− |
| 2005 08 30 | 691 | 0.2+ | 0.5+ | 2005 09 26 | 705 | 0.2+ | 0.1+ | 2005 10 29 | G96 | 0.5− | 0.3− |
| 2005 09 03 | 644 | 0.3+ | 0.2+ | 2005 09 26 | 705 | 0.2+ | 0.1+ | 2008 03 09 | 691 | 0.1− | 0.2− |
| 2005 09 03 | 644 | 0.0 | 0.1+ | 2005 10 01 | 705 | 0.0 | 0.2+ | 2008 03 09 | 691 | 0.4+ | 0.1+ |
| 2005 09 03 | 644 | 0.5+ | 0.3− | 2005 10 01 | 705 | 0.2+ | 0.2+ | 2008 03 09 | 691 | 0.4− | 0.1− |
| 2005 09 13 | 691 | 0.2+ | 0.0 | 2005 10 06 | G96 | 0.3− | 0.1+ | 2008 04 03 | G96 | 0.2+ | 0.2− |
| 2005 09 13 | 691 | 0.2+ | 0.1+ | 2005 10 06 | G96 | 0.0 | 0.0 | 2008 04 03 | G96 | 0.4− | 0.3+ |
| 2005 09 13 | 691 | 0.1+ | 0.2− | 2005 10 06 | G96 | 0.0 | 0.2− | 2008 04 03 | G96 | 0.3+ | 0.2− |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 22 | 705 | 0.2+ | 0.0 | 2005 10 06 | G96 | 0.1+ | 0.1+ | 2008 04 03 | G96 | 0.1+ | 0.2+ | | |
| 2005 09 22 | 705 | 0.2+ | 0.0 | 2005 10 29 | G96 | 0.5− | 0.1+ | | | | | | |

**2005 QA$_{158}$ = 2009 UH$_{141}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 53.00418 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26060212 | $\omega$ | 219.93837 | | +0.98844026 | +0.13568663 | |
| $a$ | 2.4274525 | $\Omega$ | 132.12624 | | −0.10502244 | +0.93454471 | |
| $e$ | 0.1501577 | $i$ | 5.23253 | | −0.10934414 | +0.32896098 | |
| $P$ | 3.78 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 08 26 | 644 | 0.0 | 0.1+ | 2005 09 26 | 703 | 0.2+ | 0.5− | 2009 10 27 | G96 | 0.5+ | 0.0 |
| 2005 08 26 | 644 | 0.0 | 0.0 | 2005 09 26 | 703 | 0.6− | 0.8− | 2009 10 27 | G96 | 0.1− | 0.0 |
| 2005 08 26 | 644 | 0.2− | 0.3+ | 2005 09 26 | 703 | 0.9+ | 0.3+ | 2009 10 27 | G96 | 0.5+ | 0.1− |
| 2005 08 31 | 644 | 0.4+ | 0.1+ | 2005 09 30 | 699 | 0.7+ | 0.7− | 2009 10 27 | G96 | 0.4+ | 0.0 |
| 2005 08 31 | 644 | 0.1+ | 0.3+ | 2005 09 30 | 699 | 1.0− | 0.6+ | 2009 11 09 | 703 | 0.1+ | 1.1− |
| 2005 08 31 | 644 | 0.0 | 0.1+ | 2005 09 30 | 699 | 1.0+ | 0.5+ | 2009 11 09 | 703 | 0.4− | 0.0 |
| 2005 09 13 | 703 | (1.8− | 0.5+) | 2005 09 30 | 699 | 0.5− | 0.1+ | 2009 11 09 | 703 | 0.5− | 0.1+ |
| 2005 09 13 | 703 | 0.6+ | 0.5− | 2007 03 11 | G96 | 0.6+ | 0.9+ | 2009 11 09 | 703 | 0.0 | 0.1+ |
| 2005 09 13 | 703 | 1.1− | 0.7+ | 2007 03 11 | G96 | 0.8− | 0.0 | 2009 11 23 | 703 | 0.5+ | 0.2+ |
| 2005 09 13 | 703 | 0.1− | 0.5− | 2007 03 11 | G96 | 0.6+ | 0.4+ | 2009 11 23 | 703 | 0.5− | 0.3+ |
| 2005 09 22 | 644 | 0.1− | 0.4+ | 2007 03 11 | G96 | 0.2− | 0.0 | 2009 11 23 | 703 | 0.7+ | 0.4− |
| 2005 09 22 | 644 | 0.1+ | 0.1+ | 2008 05 08 | 691 | 0.0 | 0.1+ | 2009 11 23 | 703 | 0.6− | 1.1− |
| 2005 09 22 | 644 | 0.0 | 0.3+ | 2008 05 08 | 691 | 0.0 | 0.4− | | | | |
| 2005 09 26 | 703 | 0.9− | 0.3+ | 2008 05 08 | 691 | 0.1− | 0.0 | | | | |

**2005 QK$_{167}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 37.71433 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27032297 | $\omega$ | 168.43650 | | +0.87336228 | −0.46916374 | |
| $a$ | 2.3689038 | $\Omega$ | 220.39543 | | +0.42923289 | +0.86833818 | |
| $e$ | 0.2596799 | $i$ | 11.64939 | | +0.23021175 | +0.16085457 | |
| $P$ | 3.65 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 11 23 | 699 | 0.3− | 0.3+ | 2005 10 27 | 704 | 0.6− | 0.4− | 2009 11 10 | J75 | 0.7− | 1.0+ |
| 1998 11 23 | 699 | 0.3+ | 0.6+ | 2005 10 27 | 704 | 0.4− | 0.1− | 2009 11 23 | 703 | 0.2− | 0.6+ |
| 1998 11 23 | 699 | 0.0 | 0.0 | 2005 10 30 | 704 | 0.2+ | 0.0 | 2009 11 23 | 703 | 0.6− | 0.9− |
| 2005 08 27 | 699 | 0.5+ | 0.5− | 2005 10 30 | 704 | 0.0 | 0.7+ | 2009 11 23 | 703 | 0.5− | 0.1− |
| 2005 08 27 | 699 | 0.1− | 0.2+ | 2005 10 30 | 704 | 0.7+ | 1.1+ | 2009 11 23 | 703 | 0.6− | 0.4− |
| 2005 08 27 | 699 | 0.1+ | 0.2− | 2005 10 30 | 704 | 0.6+ | 0.4+ | 2009 11 23 | 703 | 0.0 | 0.3− |
| 2005 08 27 | 699 | 0.3+ | 0.3− | 2008 05 28 | G96 | 0.2+ | 0.5+ | 2009 12 13 | 704 | 1.1+ | 0.1+ |
| 2005 08 29 | 644 | 0.5− | 0.2− | 2008 05 28 | G96 | 0.4+ | 0.2+ | 2009 12 13 | 704 | 0.4+ | 0.3− |
| 2005 08 29 | 644 | 0.1− | 0.3− | 2008 05 28 | G96 | 0.9− | 0.4+ | 2009 12 13 | 704 | 0.3+ | 0.0 |
| 2005 08 29 | 644 | 0.2− | 0.2− | 2009 11 10 | J75 | 0.1− | 0.6+ | 2009 12 13 | 704 | 0.4+ | 0.1+ |
| 2005 10 27 | 704 | 0.2− | 0.1− | 2009 11 10 | J75 | 0.3− | 0.0 | 2009 12 13 | 704 | 0.5+ | 0.9− |

**2005 QR$_{172}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 297.71984 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17504264 | $\omega$ | 30.39034 | | +0.88138766 | +0.46687019 | |
| $a$ | 3.1649983 | $\Omega$ | 301.60767 | | −0.44865028 | +0.77956839 | |
| $e$ | 0.1620576 | $i$ | 4.85152 | | −0.14788075 | +0.41749892 | |
| $P$ | 5.63 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 08 29 | 644 | 0.8+ | 0.2− | 2005 10 01 | 703 | 1.1− | 0.5+ | 2005 10 04 | 644 | 0.1− | 0.4+ |
| 2005 08 29 | 644 | 0.2+ | 0.3+ | 2005 10 01 | 703 | 0.2+ | 0.4− | 2008 02 08 | 691 | 0.3− | 0.2− |
| 2005 08 29 | 644 | 0.0 | 0.3+ | 2005 10 01 | 703 | 0.1+ | 0.4− | 2008 02 08 | 691 | 0.1+ | 0.2+ |
| 2005 09 01 | 691 | 0.3+ | 0.1+ | 2005 10 01 | 703 | 0.0 | 1.3− | 2008 02 08 | 691 | 0.0 | 0.1− |
| 2005 09 01 | 691 | 0.0 | 0.3+ | 2005 10 01 | 703 | 0.4+ | 0.3+ | 2008 03 10 | G96 | 0.1+ | 0.6+ |
| 2005 09 01 | 691 | 0.5− | 0.1+ | 2005 10 01 | 703 | 0.1+ | 0.7− | 2008 03 10 | G96 | 0.0 | 0.4+ |
| 2005 09 29 | 699 | 0.5+ | 0.8+ | 2005 10 01 | 703 | 0.4+ | 0.8− | 2008 03 10 | G96 | 0.6+ | 0.1− |
| 2005 09 29 | 699 | 0.0 | 0.0 | 2005 10 01 | 703 | 0.0 | 0.0 | 2008 03 10 | G96 | 0.1+ | 0.2+ |
| 2005 09 29 | 699 | 0.7− | 0.2− | 2005 10 04 | 644 | 0.4+ | 0.3+ | | | | |
| 2005 09 29 | 699 | 0.1− | 0.6− | 2005 10 04 | 644 | 0.0 | 0.3+ | | | | |

**2005 QK$_{176}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 78.88705 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27042805 | $\omega$ | 144.42203 | | +0.92446897 | +0.38118733 | |
| $a$ | 2.3682901 | $\Omega$ | 193.17662 | | −0.35679300 | +0.85823820 | |
| $e$ | 0.2259186 | $i$ | 1.83596 | | −0.13437215 | +0.34369087 | |
| $P$ | 3.64 | $H$ | 17.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 08 31 | 691 | 0.1+ | 0.1− | 2005 09 30 | G96 | 0.1+ | 0.3− | 2005 11 01 | 705 | 0.3+ | 0.1− |
| 2005 08 31 | 691 | 0.2+ | 0.1− | 2005 10 04 | 644 | 0.5+ | 0.2+ | 2005 11 03 | 705 | 0.3+ | 0.1− |
| 2005 08 31 | 691 | 0.1+ | 0.2− | 2005 10 04 | 644 | 0.4+ | 0.0 | 2005 11 03 | 705 | 0.2+ | 0.1− |
| 2005 09 08 | 704 | 0.5− | 0.5+ | 2005 10 04 | 644 | 0.7+ | 0.2+ | 2005 11 06 | 705 | 0.3+ | 0.2− |
| 2005 09 08 | 704 | 0.0 | 0.3+ | 2005 10 06 | 699 | 0.9− | 0.6+ | 2005 11 06 | 705 | 0.2+ | 0.0 |
| 2005 09 08 | 704 | 0.3+ | 0.1− | 2005 10 06 | 699 | 0.7− | 3.0+ | 2005 11 09 | 705 | 0.2+ | 0.2− |
| 2005 09 08 | 704 | 0.5+ | 0.1− | 2005 10 06 | 699 | 0.1+ | 0.4+ | 2005 11 09 | 705 | 0.2+ | 0.2− |
| 2005 09 22 | 644 | 0.1+ | 0.0 | 2005 10 06 | 699 | 1.5− | 2.1+ | 2005 11 26 | 705 | 0.1+ | 0.3− |
| 2005 09 22 | 644 | 0.3+ | 0.1− | 2005 10 07 | 704 | 2.3− | 1.0− | 2005 11 26 | 705 | 0.1+ | 0.3− |
| 2005 09 22 | 644 | 0.2+ | 0.0 | 2005 10 07 | 704 | 1.9− | 0.6+ | 2005 11 29 | G96 | 0.1+ | 0.8− |
| 2005 09 24 | A50 | 0.1+ | 0.2+ | 2005 10 07 | 704 | 1.7− | 0.8− | 2005 11 29 | G96 | 0.3+ | 0.5− |
| 2005 09 24 | A50 | 0.4+ | 0.3+ | 2005 10 07 | 704 | 1.3− | 1.2+ | 2005 11 29 | G96 | 0.1− | 0.2− |
| 2005 09 25 | 644 | 0.3+ | 0.2− | 2005 10 07 | 703 | 1.7− | 0.2+ | 2005 11 29 | G96 | 0.2+ | 0.0 |
| 2005 09 25 | 644 | 0.4+ | 0.0 | 2005 10 07 | 703 | 0.9− | 1.1+ | 2005 11 30 | 705 | 0.2+ | 0.1− |
| 2005 09 25 | 644 | 0.3+ | 0.0 | 2005 10 07 | 703 | 1.2− | 1.3− | 2005 11 30 | 705 | 0.1+ | 0.2− |
| 2005 09 26 | 644 | 0.2+ | 0.0 | 2005 10 07 | 703 | 0.9− | 1.5− | 2005 12 01 | 705 | 0.2+ | 0.3− |
| 2005 09 26 | 644 | 0.5+ | 0.1+ | 2005 10 21 | 705 | 0.3+ | 0.2− | 2005 12 01 | 705 | 0.0 | 0.3− |
| 2005 09 26 | 644 | 0.3+ | 0.0 | 2005 10 21 | 705 | 0.4+ | 0.2− | 2009 11 08 | 691 | 0.6− | 0.4− |
| 2005 09 29 | 699 | 0.4− | 0.1+ | 2005 10 25 | 705 | 0.5+ | 0.2− | 2009 11 08 | 691 | 0.2+ | 0.1+ |
| 2005 09 29 | 699 | 0.5+ | 0.2+ | 2005 10 25 | 705 | 0.4+ | 0.1− | 2009 11 08 | 691 | 0.0 | 0.2+ |
| 2005 09 29 | 699 | 0.9+ | 0.0 | 2005 10 26 | 705 | 0.4+ | 0.1− | 2009 12 11 | G96 | 0.4+ | 0.3+ |
| 2005 09 29 | 699 | 0.5+ | 0.1+ | 2005 10 26 | 705 | 0.5+ | 0.1− | 2009 12 11 | G96 | 0.4+ | 0.1+ |
| 2005 09 30 | G96 | 0.5+ | 0.2− | 2005 10 28 | 705 | 0.5+ | 0.0 | 2009 12 11 | G96 | 0.4+ | 0.2+ |
| 2005 09 30 | G96 | 0.3+ | 0.3− | 2005 10 28 | 705 | 0.3+ | 0.2− | 2009 12 11 | G96 | 0.5+ | 0.4+ |
| 2005 09 30 | G96 | 0.5+ | 0.2− | 2005 11 01 | 705 | 0.4+ | 0.1− | | | | |

**2005 QO$_{190}$ = 2008 GP$_{117}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 76.24339 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27726335 | $\omega$ | 244.53949 | | +0.93948000 | +0.32812446 | |
| $a$ | 2.3292051 | $\Omega$ | 96.17781 | | −0.26781874 | +0.88275306 | |
| $e$ | 0.2544353 | $i$ | 5.68869 | | −0.21365965 | +0.33627574 | |
| $P$ | 3.55 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 10 18 | 699 | 0.8+ | 0.7− | 2005 08 30 | 699 | 0.6− | 0.2+ | 2008 04 25 | 691 | 0.0 | 0.2+ |
| 1998 10 18 | 699 | 0.1− | 0.0 | 2005 08 30 | 699 | 0.3− | 0.7+ | 2008 04 25 | 691 | 0.7+ | 0.8− |
| 1998 10 18 | 699 | 0.4− | 0.0 | 2005 09 08 | E12 | 0.1− | 0.0 | 2008 04 25 | 691 | 0.3+ | 0.5− |
| 2005 07 04 | 644 | 0.2− | 0.1+ | 2005 09 08 | E12 | 0.1− | 0.5+ | 2008 06 03 | G96 | 0.4+ | 0.2− |
| 2005 07 04 | 644 | 0.2+ | 0.3+ | 2005 09 08 | E12 | 0.4+ | 0.0 | 2008 06 03 | G96 | 0.6+ | 0.0 |
| 2005 07 04 | 644 | 0.3− | 0.0 | 2005 09 08 | E12 | 0.3− | 0.2+ | 2008 06 03 | G96 | 0.1+ | 0.2− |
| 2005 08 28 | E12 | 0.4+ | 0.4− | 2008 04 11 | 691 | 0.2− | 0.1+ | 2008 06 03 | G96 | 0.2+ | 0.3− |
| 2005 08 28 | E12 | 0.1− | 0.2+ | 2008 04 11 | 691 | 0.3− | 0.5+ | 2009 12 11 | G96 | 0.0 | 0.3+ |
| 2005 08 28 | E12 | 0.4− | 0.3− | 2008 04 11 | 691 | 0.3+ | 0.0 | 2009 12 11 | G96 | 0.1+ | 0.2+ |
| 2005 08 28 | E12 | 0.1+ | 0.3− | 2008 04 15 | 691 | 0.3− | 0.2+ | 2009 12 11 | G96 | 0.1− | 0.3+ |
| 2005 08 30 | 699 | 0.2+ | 0.6− | 2008 04 15 | 691 | 0.7− | 0.2+ | 2009 12 11 | G96 | 0.1− | 0.2+ |
| 2005 08 30 | 699 | 0.6+ | 0.8+ | 2008 04 15 | 691 | 0.1− | 0.3+ | | | | |

**2005 RS$_6$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 288.86886 | | (2000.0) | | | |
| $n$ | 0.17831126 | $\omega$ | 311.85666 | | +0.95958542 | +0.26565772 |
| $a$ | 3.1262008 | $\Omega$ | 33.05281 | | −0.18006175 | +0.83316531 |
| $e$ | 0.2731694 | $i$ | 9.80206 | | −0.21627201 | +0.48503767 |
| $P$ | 5.53 | $H$ | 15.8 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 03 | 644 | 0.5− | 0.4− | 2005 09 24 | 703 | 0.3+ | 0.6− | 2005 10 27 | 704 | 0.6− | 0.2− |
| 2005 09 03 | 644 | 0.4− | 0.5− | 2005 09 30 | 699 | 0.1− | 0.2− | 2005 10 27 | 704 | 0.7− | 0.5+ |
| 2005 09 03 | 644 | 0.4− | 0.5− | 2005 09 30 | 699 | 0.8+ | 0.5+ | 2005 10 27 | 704 | 0.2+ | 0.2− |
| 2005 09 09 | 704 | 0.6+ | 0.6+ | 2005 09 30 | 699 | 0.7+ | 0.1+ | 2005 10 27 | 704 | 0.4− | 0.4− |
| 2005 09 09 | 704 | 0.1+ | 0.4+ | 2005 10 05 | 703 | 0.3− | 0.4− | 2005 12 01 | 705 | 0.2+ | 0.1+ |
| 2005 09 09 | 704 | 0.2+ | 1.3+ | 2005 10 05 | 703 | 0.2− | 0.8− | 2005 12 01 | 705 | 0.2+ | 0.1+ |
| 2005 09 09 | 704 | 0.4+ | 0.5+ | 2005 10 05 | 703 | 0.7− | 1.0− | 2008 02 28 | G96 | 0.0 | 0.2+ |
| 2005 09 09 | 704 | 0.5− | 1.1+ | 2005 10 05 | 703 | 0.1− | 1.2− | 2008 02 28 | G96 | 0.4− | 0.2− |
| 2005 09 14 | 703 | 0.6+ | 1.0− | 2005 10 20 | 644 | 0.2− | 0.0 | 2008 02 28 | G96 | 0.1− | 0.1+ |
| 2005 09 14 | 703 | 0.2− | 0.6+ | 2005 10 20 | 644 | 0.2+ | 0.1+ | 2008 02 28 | G96 | 0.5+ | 0.2− |
| 2005 09 14 | 703 | 0.4− | 0.2+ | 2005 10 20 | 644 | 0.1+ | 0.2+ | 2009 04 18 | G96 | 0.4+ | 0.2+ |
| 2005 09 14 | 703 | 0.9+ | 0.5+ | 2005 10 26 | 644 | 0.1+ | 0.0 | 2009 04 18 | G96 | 0.2+ | 0.2− |
| 2005 09 24 | 703 | 0.3+ | 0.5+ | 2005 10 26 | 644 | 0.5− | 0.5+ | 2009 04 18 | G96 | 0.2− | 0.1+ |
| 2005 09 24 | 703 | 0.5+ | 0.0 | 2005 10 26 | 644 | 0.0 | 0.0 | 2009 04 18 | G96 | 0.8− | 0.6− |
| 2005 09 24 | 703 | 0.0 | 0.7− | 2005 10 27 | 704 | 0.1+ | 0.1− | | | | |

**2005 RA$_{11}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 50.19065 | | (2000.0) | | | |
| $n$ | 0.26740132 | $\omega$ | 172.03416 | | +0.96334862 | −0.26226967 |
| $a$ | 2.3861277 | $\Omega$ | 203.40686 | | +0.23763767 | +0.93180557 |
| $e$ | 0.2280261 | $i$ | 8.15313 | | +0.12444987 | +0.25090437 |
| $P$ | 3.69 | $H$ | 16.9 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 10 14 | 381 | 0.4+ | 0.4− | 2005 10 06 | 699 | 0.1+ | 0.1+ | 2005 11 01 | 704 | 1.1− | 0.1− |
| 1994 10 14 | 381 | 0.1− | 0.9− | 2005 10 06 | 699 | 0.5+ | 0.6− | 2005 11 01 | 704 | 0.4− | 0.2− |
| 2005 09 10 | 699 | 0.4− | 0.5− | 2005 10 06 | 699 | 0.4− | 0.3+ | 2005 11 17 | 644 | 0.3+ | 0.0 |
| 2005 09 10 | 699 | 0.2+ | 0.4+ | 2005 10 06 | 699 | 1.0− | 0.4+ | 2005 11 17 | 644 | 0.0 | 0.1− |
| 2005 09 10 | 699 | 0.2+ | 1.2− | 2005 10 07 | 703 | 0.9+ | 0.2+ | 2005 11 17 | 644 | 0.3− | 0.6− |
| 2005 09 10 | 699 | 0.7− | 0.8+ | 2005 10 07 | 703 | 0.0 | 0.4− | 2005 11 19 | 705 | 0.1− | 0.3− |
| 2005 09 11 | 704 | 0.0 | 0.1+ | 2005 10 07 | 703 | 0.1+ | 0.5+ | 2005 11 19 | 705 | 0.2− | 0.3− |
| 2005 09 11 | 704 | 0.1+ | 0.0 | 2005 10 07 | 703 | 0.2− | 0.6+ | 2005 11 30 | G96 | 0.3+ | 0.4− |
| 2005 09 11 | 704 | 0.6+ | 0.4+ | 2005 10 10 | 704 | 0.5− | 1.1+ | 2005 11 30 | G96 | 0.3+ | 0.1− |
| 2005 09 11 | 704 | 0.3+ | 0.2− | 2005 10 10 | 704 | 0.7− | 1.1+ | 2005 11 30 | G96 | 0.1+ | 0.1− |
| 2005 09 11 | 704 | 0.1− | 0.2− | 2005 10 10 | 704 | 0.7− | 1.3+ | 2005 11 30 | G96 | 0.0 | 0.1+ |
| 2005 09 26 | 644 | 0.2+ | 0.1− | 2005 10 27 | 644 | 0.1+ | 0.1− | 2009 12 15 | 703 | 0.2+ | 0.8− |
| 2005 09 26 | 644 | 0.1+ | 0.1− | 2005 10 27 | 644 | 0.2+ | 0.1+ | 2009 12 15 | 703 | 0.5− | 0.3− |
| 2005 09 26 | 644 | 0.3+ | 0.2− | 2005 10 27 | 644 | 0.2+ | 0.2+ | 2009 12 15 | 703 | 0.2− | 0.8+ |
| 2005 10 01 | 703 | 0.5− | 0.6− | 2005 10 31 | 644 | 0.1+ | 0.1− | 2009 12 15 | 703 | 0.6+ | 0.1+ |
| 2005 10 01 | 703 | 0.6+ | 0.1− | 2005 10 31 | 644 | 0.3+ | 0.1+ | 2009 12 15 | 703 | 0.1− | 0.6+ |
| 2005 10 01 | 703 | 0.1+ | 0.8− | 2005 10 31 | 644 | 0.1+ | 0.1+ | | | | |
| 2005 10 01 | 703 | 0.2+ | 0.4− | 2005 11 01 | 704 | 0.4+ | 0.5+ | | | | |

**2005 RA$_{19}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 310.27780 | | (2000.0) | | | |
| $n$ | 0.18700643 | $\omega$ | 175.23436 | | +0.89510622 | +0.44528883 |
| $a$ | 3.0285287 | $\Omega$ | 158.28046 | | −0.41103825 | +0.84364852 |
| $e$ | 0.1706091 | $i$ | 3.47351 | | −0.17272058 | +0.29995840 |
| $P$ | 5.27 | $H$ | 16.2 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 01 | 691 | 0.1+ | 0.4+ | 2005 09 29 | G96 | 0.0 | 0.2− | 2008 01 30 | G96 | 0.1+ | 0.2+ |
| 2005 09 01 | 691 | 0.3+ | 0.0 | 2005 09 29 | G96 | 0.1+ | 0.3− | 2008 01 30 | G96 | 0.1− | 0.3+ |
| 2005 09 01 | 691 | 0.2+ | 0.0 | 2005 09 29 | G96 | 0.2+ | 0.4− | 2008 02 08 | 691 | (0.3− | 1.9−) |
| 2005 09 03 | 705 | 0.3+ | 0.1+ | 2005 09 29 | G96 | 0.3+ | 0.1− | 2008 02 08 | 691 | (1.9− | 0.3+) |
| 2005 09 03 | 705 | 0.5+ | 0.1+ | 2005 10 01 | 704 | 0.1− | 0.6+ | 2008 02 08 | 691 | 0.3− | 0.2+ |
| 2005 09 11 | 691 | 0.2− | 0.0 | 2005 10 01 | 704 | 0.0 | 0.4+ | 2008 03 07 | G96 | 0.4+ | 0.3+ |
| 2005 09 11 | 691 | 0.0 | 0.1− | 2005 10 01 | 704 | 0.6− | 0.3− | 2008 03 07 | G96 | 0.5+ | 0.0 |
| 2005 09 11 | 691 | 0.1+ | 0.0 | 2005 10 01 | 704 | 0.1− | 0.5+ | 2008 03 07 | G96 | 0.0 | 0.4− |
| 2005 09 23 | 703 | 1.1− | 0.1− | 2005 10 01 | 704 | 0.3− | 0.2+ | 2008 03 07 | G96 | 0.2+ | 0.2+ |
| 2005 09 23 | 703 | 0.7− | 0.0 | 2005 10 02 | 644 | 0.7+ | 0.1+ | 2009 04 22 | G96 | 0.2+ | 0.1+ |
| 2005 09 23 | 703 | 0.9− | 0.1− | 2005 10 02 | 644 | 0.3− | 0.2− | 2009 04 22 | G96 | 0.4− | 0.1+ |
| 2005 09 23 | 703 | 0.2+ | 0.2+ | 2005 10 02 | 644 | 0.1+ | 0.1+ | 2009 04 22 | G96 | 0.1+ | 0.1+ |
| 2005 09 24 | 644 | 0.0 | 0.1+ | 2005 10 06 | G96 | 0.1+ | 0.2− | 2009 04 22 | G96 | 0.5− | 0.3− |
| 2005 09 24 | 644 | 0.1+ | 0.2− | 2005 10 06 | G96 | 0.0 | 0.0 | 2009 05 25 | G96 | 0.3+ | 0.1+ |
| 2005 09 24 | 644 | 0.1− | 0.2− | 2005 10 06 | G96 | 0.1+ | 0.1− | 2009 05 25 | G96 | 0.1+ | 0.1+ |
| 2005 09 28 | 644 | 0.3− | 0.1+ | 2005 10 06 | G96 | 0.0 | 0.0 | 2009 05 25 | G96 | 0.2+ | 0.1+ |
| 2005 09 28 | 644 | 0.4− | 0.2+ | 2008 01 30 | G96 | 0.1+ | 0.1+ | 2009 05 25 | G96 | 0.1+ | 0.3+ |
| 2005 09 28 | 644 | 0.6− | 0.7− | 2008 01 30 | G96 | 0.5+ | 0.0 | | | | |

**2005 RL$_{19}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 61.20286 | | (2000.0) | | | |
| $n$ | 0.26619341 | $\omega$ | 333.49988 | | +0.99160375 | +0.12856823 |
| $a$ | 2.3933407 | $\Omega$ | 19.12843 | | −0.10986242 | +0.89414276 |
| $e$ | 0.2326936 | $i$ | 2.42486 | | −0.06820743 | +0.42892766 |
| $P$ | 3.70 | $H$ | 18.0 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 01 | 691 | 0.1+ | 0.1− | 2005 09 25 | 705 | 0.3+ | 0.4− | 2009 11 09 | 691 | 0.1− | 0.1− |
| 2005 09 01 | 691 | 0.0 | 0.0 | 2005 10 01 | 704 | 0.2− | 0.6+ | 2009 11 09 | 691 | 0.6− | 0.1+ |
| 2005 09 01 | 691 | 0.2+ | 0.1− | 2005 10 01 | 704 | 0.5− | 0.7− | 2009 11 17 | 691 | 0.1− | 0.1− |
| 2005 09 11 | 691 | 0.0 | 0.1− | 2005 10 01 | 704 | 0.4− | 0.7− | 2009 11 17 | 691 | 0.1− | 0.1+ |
| 2005 09 11 | 691 | 0.1− | 0.2− | 2005 10 01 | 704 | 0.5+ | 0.4− | 2009 11 17 | 691 | 0.2− | 0.1− |
| 2005 09 11 | 691 | 0.2+ | 0.0 | 2005 10 05 | 704 | 0.3+ | 0.6+ | 2009 11 25 | 691 | 0.5+ | 0.1− |
| 2005 09 14 | 705 | 0.3+ | 0.4− | 2005 10 05 | 704 | 0.4− | 0.4− | 2009 11 25 | 691 | 0.0 | 0.1+ |
| 2005 09 14 | 705 | 0.3+ | 0.4− | 2005 10 05 | 704 | 0.9+ | 0.8+ | 2009 11 25 | 691 | 0.1+ | 0.0 |
| 2005 09 22 | 705 | 0.2+ | 0.4− | 2005 10 05 | 704 | 0.1+ | 0.2− | 2009 11 25 | 691 | 0.0 | 0.1− |
| 2005 09 22 | 705 | 0.3+ | 0.5− | 2005 10 07 | 703 | 0.5− | 0.4− | 2009 11 25 | 691 | 0.3+ | 0.0 |
| 2005 09 23 | 703 | 0.2− | 0.5− | 2005 10 07 | 703 | 1.2− | 0.6− | 2009 11 25 | 691 | 0.2− | 0.1− |
| 2005 09 23 | 703 | 0.3+ | 1.1+ | 2005 10 07 | 703 | (1.5− | 0.6−) | 2009 12 16 | G96 | 0.1− | 0.3− |
| 2005 09 23 | 705 | 0.2+ | 0.4− | 2005 10 07 | 703 | 1.4− | 0.8− | 2009 12 16 | G96 | 0.7+ | 0.3− |
| 2005 09 23 | 705 | 0.2+ | 0.4− | 2005 10 13 | 291 | 0.2+ | 0.4+ | 2009 12 16 | G96 | 0.3− | 0.2+ |
| 2005 09 23 | 703 | 0.2− | 0.9+ | 2005 10 13 | 291 | 0.1− | 0.4+ | 2009 12 16 | G96 | 0.2+ | 0.0 |
| 2005 09 23 | 703 | 0.9− | 0.7+ | 2005 10 13 | 291 | 0.2− | 0.5+ | | | | |
| 2005 09 25 | 705 | 0.2+ | 0.5− | 2009 11 09 | 691 | 0.4+ | 0.1+ | | | | |

**2005 RT$_{20}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 296.87134 | | (2000.0) | | | |
| $n$ | 0.17997189 | $\omega$ | 125.27656 | | +0.96214469 | +0.20814581 |
| $a$ | 3.1069404 | $\Omega$ | 223.48237 | | −0.24381387 | +0.94583671 |
| $e$ | 0.1165427 | $i$ | 14.81328 | | +0.12178829 | +0.24913497 |
| $P$ | 5.48 | $H$ | 15.2 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 01 | 644 | 0.0 | 0.3− | 2005 10 22 | 644 | 0.1+ | 0.1− | 2005 10 30 | 704 | 0.1− | 0.1+ |
| 2005 09 01 | 644 | 0.1+ | 0.1− | 2005 10 22 | 644 | 0.2− | 0.0 | 2005 11 02 | 704 | 0.9+ | 0.3− |
| 2005 09 01 | 644 | 0.2+ | 0.2− | 2005 10 27 | 699 | (1.8+ | 2.1+) | 2005 11 02 | 704 | 0.7+ | 0.8+ |
| 2005 09 10 | 699 | 0.2+ | 0.2− | 2005 10 27 | 699 | 1.0+ | 0.2+ | 2005 11 02 | 704 | 1.1+ | 0.3− |
| 2005 09 10 | 699 | 0.3− | 0.4− | 2005 10 27 | 699 | 0.6− | 0.3+ | 2005 11 02 | 704 | 0.8− | 1.4+ |
| 2005 09 10 | 699 | 0.4+ | 0.8+ | 2005 10 27 | 699 | (0.5− | 2.1+) | 2005 11 02 | 704 | (1.7+ | 0.5−) |
| 2005 09 10 | 699 | 0.5− | 0.4+ | 2005 10 28 | 683 | 0.4− | 0.9− | 2009 05 17 | J75 | 0.1+ | 0.6− |
| 2005 10 05 | 703 | 1.3− | 1.1+ | 2005 10 28 | 683 | 0.3+ | 0.1+ | 2009 05 18 | J75 | 0.0 | 0.2− |
| 2005 10 05 | 703 | 1.0− | 0.6− | 2005 10 28 | 683 | (3.4− | 2.9+) | 2009 05 18 | J75 | 0.4+ | 0.3+ |
| 2005 10 05 | 703 | 0.3+ | 0.6− | 2005 10 30 | 704 | 0.2+ | 0.6− | 2009 05 29 | 691 | 0.0 | 0.1+ |
| 2005 10 05 | 703 | 0.0 | 0.6− | 2005 10 30 | 704 | 0.1− | 0.1+ | 2009 05 29 | 691 | 0.2+ | 0.1+ |
| 2005 10 22 | 644 | 0.2− | 0.1− | 2005 10 30 | 704 | (1.5− | 0.8+) | 2009 05 29 | 691 | 0.4− | 0.0 |

**2005 RN$_{24}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 318.72033 | | | (2000.0) | | |
| $n$ | 0.18112165 | $\omega$ | 326.65540 | | +0.87354687 | +0.48650153 |
| $a$ | 3.0937779 | $\Omega$ | 4.31898 | | −0.39052929 | +0.71921820 |
| $e$ | 0.2173727 | $i$ | 11.67210 | | −0.29052150 | +0.49602565 |
| $P$ | 5.44 | $H$ | 15.0 | $G$ 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 08 31 | 699 | 0.7− | 0.6+ | 2005 10 10 | 699 | 0.3+ | 0.2− | 2005 11 05 | 704 | 0.3+ | 0.5+ |
| 2005 08 31 | 699 | 0.8+ | 0.5+ | 2005 10 10 | 691 | 0.1− | 0.3− | 2005 11 05 | 704 | 0.4− | 0.0 |
| 2005 08 31 | 699 | 0.7+ | 1.6+ | 2005 10 10 | 691 | 0.1− | 0.2− | 2005 11 05 | 704 | 0.3− | 1.0+ |
| 2005 08 31 | 699 | 1.1+ | 0.8+ | 2005 10 10 | 699 | 0.3− | 1.4+ | 2005 11 05 | 704 | 0.3− | 0.2+ |
| 2005 09 11 | 699 | 0.4+ | 0.8+ | 2005 10 10 | 691 | 0.1− | 0.2− | 2005 11 05 | 704 | 0.1+ | 0.5+ |
| 2005 09 11 | 699 | 0.2+ | 0.7− | 2005 10 13 | 704 | 1.7− | 1.2− | 2005 11 06 | 704 | 0.5− | 0.1− |
| 2005 09 11 | 699 | 0.0 | 0.1− | 2005 10 13 | 704 | 0.8+ | 1.1+ | 2005 11 06 | 704 | 0.4− | 0.3− |
| 2005 09 11 | 699 | 0.5− | 0.2+ | 2005 10 13 | 704 | 0.4+ | 0.7− | 2005 11 06 | 704 | 0.1− | 0.2+ |
| 2005 09 12 | 699 | 0.6+ | 0.6+ | 2005 10 13 | 704 | 0.7+ | 0.4− | 2005 11 06 | 704 | 0.0 | 0.2+ |
| 2005 09 12 | 699 | 0.5+ | 0.2− | 2005 10 29 | 703 | 0.2− | 0.3− | 2005 11 07 | 704 | 0.6− | 0.1+ |
| 2005 09 12 | 699 | 0.5− | 0.5+ | 2005 10 29 | 703 | 1.3+ | 0.1− | 2005 11 07 | 704 | 0.1− | 0.0 |
| 2005 09 12 | 699 | 0.3+ | 0.4+ | 2005 10 29 | 703 | 0.4− | 0.0 | 2005 11 07 | 704 | 0.4+ | 0.3+ |
| 2005 09 24 | 703 | 1.0− | 1.7− | 2005 10 29 | 703 | 1.1+ | 0.2+ | 2005 11 07 | 704 | 0.0 | 0.3− |
| 2005 09 24 | 703 | 1.2− | 1.1− | 2005 10 30 | 704 | 0.5− | 0.2− | 2005 11 07 | 704 | 0.4+ | 0.1− |
| 2005 09 24 | 703 | 0.6− | 1.2− | 2005 10 30 | 704 | 0.1− | 0.2+ | 2005 11 07 | 704 | 0.6− | 0.7− |
| 2005 09 24 | 703 | 0.8− | 1.8− | 2005 10 30 | 704 | 0.3+ | 0.8+ | 2005 11 07 | 704 | 0.2− | 0.2− |
| 2005 09 30 | 703 | 1.7+ | 1.1− | 2005 10 30 | 704 | 0.5− | 0.2− | 2005 11 07 | 704 | 0.1+ | 0.0 |
| 2005 09 30 | 703 | 0.6+ | 0.7− | 2005 10 30 | 704 | 0.1− | 0.3+ | 2005 11 07 | 704 | 1.1− | 0.8+ |
| 2005 09 30 | 703 | 0.4− | 0.2− | 2005 11 02 | 704 | 0.4− | 0.3− | 2005 11 07 | 704 | 0.5− | 0.4+ |
| 2005 09 30 | 703 | 0.5+ | 0.2− | 2005 11 02 | 704 | 0.4+ | 0.9+ | 2005 11 19 | 699 | 1.2+ | 0.3+ |
| 2005 10 03 | 704 | 0.4− | 1.2− | 2005 11 02 | 704 | 0.0 | 1.4+ | 2005 11 19 | 699 | 0.3+ | 1.1+ |
| 2005 10 03 | 704 | 0.1− | 1.4+ | 2005 11 02 | 704 | 0.3− | 0.7+ | 2005 11 19 | 699 | 1.4+ | 0.8− |
| 2005 10 03 | 704 | 1.2+ | 0.4− | 2005 11 03 | 704 | 0.3− | 0.3− | 2005 11 19 | 699 | 0.9− | 0.7+ |
| 2005 10 03 | 704 | 0.2+ | 0.1− | 2005 11 03 | 704 | 0.4− | 0.6− | 2008 02 07 | G96 | 0.1+ | 0.3+ |
| 2005 10 08 | 704 | 0.1− | 0.2+ | 2005 11 03 | 704 | 0.1− | 0.5− | 2008 02 07 | G96 | 0.4+ | 0.4− |
| 2005 10 08 | 704 | 0.2+ | 0.8− | 2005 11 03 | 704 | 1.5+ | 1.2+ | 2008 02 07 | G96 | 0.4− | 0.3− |
| 2005 10 08 | 704 | 0.2− | 0.8+ | 2005 11 04 | 704 | 0.6+ | 0.5− | 2008 02 07 | G96 | 0.4− | 0.3+ |
| 2005 10 08 | 704 | 0.2− | 0.2+ | 2005 11 04 | 704 | 0.2− | 0.0 | 2008 03 28 | 691 | 0.2+ | 0.1− |
| 2005 10 08 | 704 | 0.1+ | 0.4+ | 2005 11 04 | 704 | 0.5+ | 0.8− | 2008 03 28 | 691 | 0.0 | 0.0 |
| 2005 10 10 | 699 | 0.3− | 0.2− | 2005 11 04 | 704 | 0.9− | 0.4+ | 2008 03 28 | 691 | 0.3− | 0.1− |
| 2005 10 10 | 699 | 0.5− | 0.5− | 2005 11 04 | 704 | 0.1+ | 0.2− | | | | |

**2005 RZ$_{44}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 5.36496 | | | (2000.0) | | |
| $n$ | 0.21233499 | $\omega$ | 346.10816 | | +0.80224470 | +0.57797291 |
| $a$ | 2.7826271 | $\Omega$ | 336.56977 | | −0.50552796 | +0.52447627 |
| $e$ | 0.2452786 | $i$ | 22.08490 | | −0.31756090 | +0.62519753 |
| $P$ | 4.64 | $H$ | 15.8 | $G$ 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 03 | 644 | 0.0 | 0.1− | 2005 10 03 | 644 | 0.1− | 0.1+ | 2008 02 13 | 691 | 0.2− | 0.4− |
| 2005 09 03 | 644 | 0.1− | 0.1− | 2005 10 11 | 699 | 1.8+ | 0.8− | 2008 02 13 | 691 | 0.0 | 0.0 |
| 2005 09 03 | 644 | 0.0 | 0.2− | 2005 10 11 | 699 | 0.1+ | 1.2− | 2008 02 13 | 691 | 0.0 | 0.5+ |
| 2005 09 14 | 704 | (1.6− | 3.7+) | 2005 10 11 | 699 | 0.4+ | 0.1+ | 2008 03 11 | G96 | 0.0 | 0.3− |
| 2005 09 14 | 704 | 0.1− | 0.6+ | 2005 10 11 | 699 | 0.6− | 0.3+ | 2008 03 11 | G96 | 0.2− | 0.3− |
| 2005 09 14 | 704 | 0.4+ | 0.5− | 2005 10 29 | 644 | 0.4− | 0.5+ | 2008 03 11 | G96 | 0.2+ | 0.1− |
| 2005 10 03 | 644 | 0.2− | 0.0 | 2005 10 29 | 644 | 0.5− | 0.3+ | 2008 03 11 | G96 | 0.1+ | 0.3− |
| 2005 10 03 | 644 | 0.4− | 0.3+ | 2005 10 29 | 644 | 0.2− | 0.2+ | | | | |

**2005 RF$_{48}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 276.36585 | | | (2000.0) | | |
| $n$ | 0.18829833 | $\omega$ | 334.32299 | | +0.77249834 | −0.61430049 |
| $a$ | 3.0146605 | $\Omega$ | 64.52990 | | +0.60900674 | +0.64492392 |
| $e$ | 0.0850969 | $i$ | 10.26466 | | +0.17988081 | +0.45465156 |
| $P$ | 5.23 | $H$ | 16.5 | $G$ 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 14 | 705 | 0.0 | 0.2− | 2005 11 23 | 705 | 0.1− | 0.1− | 2008 04 09 | G96 | 0.6+ | 0.5+ |
| 2005 09 14 | 705 | 0.0 | 0.0 | 2005 11 24 | 705 | 0.1+ | 0.2− | 2008 04 09 | G96 | 0.1+ | 0.1+ |
| 2005 09 15 | 705 | 0.0 | 0.0 | 2005 11 24 | 705 | 0.2+ | 0.2− | 2008 04 09 | G96 | 0.7− | 0.4− |
| 2005 09 15 | 705 | 0.1− | 0.0 | 2005 11 25 | 705 | 0.1− | 0.0 | 2008 04 09 | G96 | 0.2− | 0.0 |
| 2005 09 24 | 705 | 0.1+ | 0.1+ | 2005 11 25 | 705 | 0.0 | 0.0 | 2008 04 09 | G96 | 0.1− | 0.7+ |
| 2005 09 24 | 705 | 0.1+ | 0.0 | 2005 11 30 | 705 | 0.1− | 0.1+ | 2008 04 28 | G96 | 0.1− | 0.1+ |
| 2005 09 27 | 705 | 0.1+ | 0.1+ | 2005 11 30 | 705 | 0.0 | 0.1− | 2008 04 28 | G96 | 0.1+ | 0.6− |
| 2005 09 27 | 705 | 0.2+ | 0.0 | 2008 04 09 | G96 | 0.3+ | 0.2+ | 2008 04 28 | G96 | 0.4+ | 0.6− |
| 2005 11 23 | 705 | 0.0 | 0.1− | 2008 04 09 | G96 | 0.3+ | 0.3+ | 2008 04 28 | G96 | 0.8− | 0.8− |

**2005 RX$_{51}$ = 2006 XW$_{37}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 27.24966 | | | (2000.0) | | |
| $n$ | 0.22750747 | $\omega$ | 212.75626 | | +0.72577272 | +0.67969542 |
| $a$ | 2.6574939 | $\Omega$ | 104.04004 | | −0.60527616 | +0.70425465 |
| $e$ | 0.1578835 | $i$ | 6.28189 | | −0.32694758 | +0.20503544 |
| $P$ | 4.33 | $H$ | 16.3 | $G$ 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 08 26 | 644 | 0.3− | 0.4+ | 2006 12 11 | 691 | 0.4+ | 0.6+ | 2009 05 27 | G96 | 0.1− | 0.5+ |
| 2005 08 26 | 644 | 0.0 | 0.6+ | 2006 12 15 | 691 | 0.1+ | 0.0 | 2009 05 27 | G96 | 0.9+ | 0.4+ |
| 2005 08 26 | 644 | 0.2− | 0.6+ | 2006 12 15 | 691 | 0.3+ | 0.3+ | 2009 05 27 | G96 | 0.3+ | 0.4+ |
| 2005 09 03 | 703 | 0.9− | 1.3− | 2006 12 15 | 691 | 0.2+ | 0.2− | 2009 05 27 | G96 | 0.3− | 0.1− |
| 2005 09 03 | 703 | 0.6− | 0.4− | 2007 01 10 | 691 | 0.1− | 0.2− | 2009 07 28 | 703 | (3.7− | 0.2−) |
| 2005 09 03 | 703 | 0.3− | 1.1+ | 2007 01 10 | 691 | 0.2− | 0.1− | 2009 07 28 | 703 | 1.1− | 0.3+ |
| 2005 09 03 | 703 | 1.2+ | 0.8− | 2007 01 10 | 691 | 0.0 | 0.3− | 2009 07 28 | 703 | 0.0 | 0.3− |
| 2005 09 23 | 703 | 0.2+ | 0.3+ | 2007 01 28 | 691 | 0.2− | 0.2− | 2009 07 28 | 703 | 0.9− | 0.7+ |
| 2005 09 23 | 703 | 0.2− | 0.8− | 2007 01 28 | 691 | 0.4− | 0.2+ | 2009 08 02 | E12 | 0.6− | 0.3− |
| 2005 09 23 | 703 | 0.2− | 0.8− | 2007 01 28 | 691 | 0.6− | 0.3− | 2009 08 02 | E12 | 0.6+ | 0.2+ |
| 2005 09 23 | 703 | 0.1− | 0.5+ | 2008 04 06 | 291 | 0.3− | 0.1− | 2009 08 02 | E12 | 0.1+ | 0.3− |
| 2005 10 07 | 699 | 0.8+ | 1.0+ | 2008 04 06 | 291 | 0.1+ | 0.1+ | 2009 08 02 | E12 | 0.3+ | 0.3− |
| 2005 10 07 | 699 | 0.4+ | 0.1− | 2008 04 06 | 291 | 0.1+ | 0.1+ | 2009 08 17 | E12 | 0.3+ | 0.7+ |
| 2005 10 07 | 699 | 0.1− | 0.4+ | 2008 04 13 | G96 | 0.0 | 0.0 | 2009 08 17 | E12 | 0.1− | 0.3+ |
| 2005 10 07 | 699 | 0.4+ | 1.0− | 2008 04 13 | G96 | 0.9+ | 0.2+ | 2009 08 17 | E12 | 0.3+ | 1.2+ |
| 2006 12 11 | 691 | 0.1− | 0.1+ | 2008 04 13 | G96 | 0.2+ | 0.1+ | 2009 08 17 | E12 | 0.4+ | 0.2− |
| 2006 12 11 | 691 | 0.6+ | 0.8+ | 2008 04 13 | G96 | 0.1− | 0.1+ | | | | |

**2005 RY$_{51}$ = 2007 DV$_{86}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 331.43725 | | | (2000.0) | | |
| $n$ | 0.22853935 | $\omega$ | 251.40330 | | +0.77598961 | −0.61838733 |
| $a$ | 2.6494886 | $\Omega$ | 146.46683 | | +0.62944065 | +0.74654640 |
| $e$ | 0.1663889 | $i$ | 12.99779 | | +0.04055349 | +0.24549049 |
| $P$ | 4.31 | $H$ | 16.5 | $G$ 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 11 17 | 699 | 0.1+ | 0.5+ | 2005 09 13 | 703 | 1.5− | 0.0 | 2007 02 27 | 691 | 0.4− | 0.0 |
| 2001 11 17 | 699 | 0.3− | 0.3+ | 2005 09 13 | 703 | 0.4+ | 0.7− | 2007 02 27 | 691 | 0.7+ | 0.1+ |
| 2001 11 17 | 699 | 1.8− | 1.2+ | 2005 10 05 | 703 | 0.0 | 0.3+ | 2007 03 13 | G96 | 0.0 | 0.0 |
| 2001 11 17 | 699 | 0.8− | 1.1+ | 2005 10 05 | 703 | 1.8− | 0.8− | 2007 03 13 | G96 | 0.1− | 0.2+ |
| 2002 01 13 | 645 | 0.1+ | 0.0 | 2005 10 05 | 703 | 0.6+ | 0.6− | 2007 03 13 | G96 | 0.4+ | 0.0 |
| 2002 01 13 | 645 | 0.0 | 0.0 | 2005 10 05 | 703 | 0.8− | 0.5+ | 2007 03 13 | G96 | 0.4+ | 0.3− |
| 2004 05 28 | 691 | 0.3+ | 0.2+ | 2007 02 07 | G96 | 0.0 | 0.3− | 2008 05 03 | 691 | 0.2− | 0.2+ |
| 2004 05 28 | 691 | 0.1+ | 0.6+ | 2007 02 07 | G96 | 0.2− | 0.5+ | 2008 05 03 | 691 | 0.0 | 0.3+ |
| 2004 05 28 | 691 | 0.5+ | 0.3+ | 2007 02 07 | G96 | 0.2− | 0.2− | 2008 05 03 | 691 | 0.3− | 0.3− |
| 2005 09 03 | 703 | 0.6+ | 0.1− | 2007 02 07 | G96 | 0.5+ | 0.2− | 2008 06 04 | G96 | 0.0 | 0.3− |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 03 | 703 | 1.3+ | 0.9− | 2007 02 23 | G96 | 0.0 | 0.3− | 2008 06 04 | G96 | 0.6− | 0.1+ |
| 2005 09 03 | 703 | 1.5+ | 0.0 | 2007 02 23 | G96 | 0.1− | 0.1− | 2008 06 04 | G96 | 1.1− | 0.6− |
| 2005 09 03 | 703 | 1.2+ | 0.9− | 2007 02 23 | G96 | 0.1− | 0.3− | 2008 06 04 | G96 | 0.4− | 0.5− |
| 2005 09 13 | 703 | 0.4− | 1.6+ | 2007 02 23 | G96 | 0.4+ | 0.3− | | | | |
| 2005 09 13 | 703 | 0.1− | 0.2− | 2007 02 27 | 691 | 0.0 | 0.1− | | | | |

**2005 SJ$_1$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 296.27727 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17809109 | $\omega$ | 160.96100 | | +0.93842546 | | +0.34531569 |
| $a$ | 3.1287769 | $\Omega$ | 178.68478 | | −0.34509694 | | +0.93546660 |
| $e$ | 0.1477649 | $i$ | 27.81742 | | +0.01630199 | | −0.07522839 |
| $P$ | 5.53 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 08 27 | 644 | 0.2− | 0.1− | 2005 09 23 | 691 | 0.2+ | 0.2− | 2005 10 07 | 703 | 1.1+ | 0.2+ |
| 2005 08 27 | 644 | 0.1− | 0.1− | 2005 09 24 | 644 | 0.1− | 0.1+ | 2005 10 07 | 703 | 0.0 | 0.1+ |
| 2005 08 27 | 644 | 0.3+ | 0.2+ | 2005 09 24 | 644 | 0.3− | 0.0 | 2005 10 07 | 703 | 0.5+ | 0.1− |
| 2005 09 09 | 704 | 1.4− | 0.8− | 2005 09 24 | 644 | 0.1+ | 0.5− | 2005 10 07 | 703 | 0.3− | 0.6− |
| 2005 09 09 | 704 | 0.2+ | 0.2+ | 2005 09 28 | 644 | 0.2+ | 0.0 | 2009 04 28 | G96 | 0.4+ | 0.2− |
| 2005 09 09 | 704 | 0.4+ | 0.4+ | 2005 09 28 | 644 | 0.4+ | 0.4+ | 2009 04 28 | G96 | 0.2+ | 0.1+ |
| 2005 09 09 | 704 | 0.0 | 0.1+ | 2005 09 28 | 644 | 0.3+ | 0.0 | 2009 04 28 | G96 | 0.0 | 0.1+ |
| 2005 09 13 | 691 | 0.0 | 0.0 | 2005 10 01 | 704 | 0.7+ | 0.2+ | 2009 04 28 | G96 | 0.1+ | 0.0 |
| 2005 09 13 | 691 | 0.0 | 0.0 | 2005 10 01 | 704 | 0.1− | 0.2+ | 2009 05 14 | 691 | 0.3− | 0.1+ |
| 2005 09 13 | 691 | 0.0 | 0.1+ | 2005 10 01 | 704 | 1.3− | 0.3+ | 2009 05 14 | 691 | 0.4+ | 0.0 |
| 2005 09 23 | 691 | 0.0 | 0.0 | 2005 10 01 | 704 | 0.9− | 0.4+ | 2009 05 14 | 691 | 0.3− | 0.1− |
| 2005 09 23 | 691 | 0.1+ | 0.1− | 2005 10 01 | 704 | 0.7− | 0.2+ | | | | |

**2005 SM$_2$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 280.91458 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17722386 | $\omega$ | 341.12566 | | +0.99520424 | | +0.05096216 |
| $a$ | 3.1389755 | $\Omega$ | 16.62889 | | +0.01397014 | | +0.77076733 |
| $e$ | 0.2100360 | $i$ | 16.96363 | | −0.09681605 | | +0.63507525 |
| $P$ | 5.56 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 08 31 | 644 | 0.2+ | 0.2− | 2005 09 28 | 644 | 0.2+ | 0.1+ | 2005 10 28 | 705 | 0.3+ | 0.0 |
| 2005 08 31 | 644 | 0.3+ | 0.1− | 2005 09 28 | 644 | 0.2+ | 0.0 | 2005 10 28 | 705 | 0.3+ | 0.1+ |
| 2005 08 31 | 644 | 0.2+ | 0.0 | 2005 09 28 | 644 | 0.3+ | 0.1− | 2005 11 01 | 705 | 0.2+ | 0.0 |
| 2005 09 22 | 644 | 0.2− | 0.3+ | 2005 10 01 | 704 | 0.6+ | 0.2+ | 2005 11 01 | 705 | 0.2+ | 0.1− |
| 2005 09 22 | 644 | 0.0 | 0.1+ | 2005 10 01 | 704 | 0.1+ | 0.2+ | 2005 11 02 | 705 | 0.1+ | 0.0 |
| 2005 09 22 | 644 | 0.2+ | 0.0 | 2005 10 01 | 704 | 0.5+ | 0.7+ | 2005 11 02 | 705 | 0.2+ | 0.0 |
| 2005 09 22 | 644 | 0.1+ | 0.2− | 2005 10 01 | 704 | 1.1+ | 0.2− | 2005 11 06 | 705 | 0.2+ | 0.0 |
| 2005 09 22 | 644 | 0.4+ | 0.1− | 2005 10 01 | 704 | 0.3− | 0.1− | 2005 11 06 | 705 | 0.0 | 0.1− |
| 2005 09 22 | 644 | 0.3+ | 0.1+ | 2005 10 09 | 691 | 0.4− | 0.2+ | 2005 11 07 | 705 | 0.3+ | 0.1− |
| 2005 09 23 | 691 | 0.0 | 0.2− | 2005 10 09 | 691 | 0.3− | 0.0 | 2005 11 07 | 705 | 0.1+ | 0.1− |
| 2005 09 23 | 691 | 0.2− | 0.2− | 2005 10 09 | 691 | 0.2− | 0.0 | 2005 11 09 | 705 | 0.1+ | 0.1− |
| 2005 09 23 | 691 | 0.0 | 0.0 | 2005 10 20 | 644 | 0.3+ | 0.5+ | 2005 11 09 | 705 | 0.1+ | 0.0 |
| 2005 09 23 | 703 | 1.5− | 1.9− | 2005 10 20 | 644 | 0.1+ | 0.2+ | 2008 03 06 | G96 | 0.0 | 0.0 |
| 2005 09 23 | 703 | (1.9− | 2.5−) | 2005 10 20 | 644 | 0.2− | 0.5+ | 2008 03 06 | G96 | 0.1+ | 0.3+ |
| 2005 09 23 | 703 | 1.2− | 0.1− | 2005 10 23 | 705 | 0.2+ | 0.0 | 2008 03 06 | G96 | 0.2+ | 0.5− |
| 2005 09 23 | 703 | 0.1− | 0.6+ | 2005 10 23 | 705 | 0.2+ | 0.1− | 2008 03 06 | G96 | 0.4+ | 0.1+ |
| 2005 09 24 | 699 | 0.1+ | 1.0+ | 2005 10 25 | 705 | 0.1+ | 0.1− | 2008 04 05 | G96 | 0.3− | 0.2+ |
| 2005 09 24 | 699 | 0.1− | 0.1− | 2005 10 25 | 705 | 0.2+ | 0.2− | 2008 04 05 | G96 | 0.2+ | 0.0 |
| 2005 09 24 | 699 | 0.0 | 0.5+ | 2005 10 27 | 705 | 0.2+ | 0.1− | 2008 04 05 | G96 | 0.3− | 0.1− |
| 2005 09 24 | 699 | 0.6− | 0.0 | 2005 10 27 | 705 | 0.2+ | 0.1− | 2008 04 05 | G96 | 0.2− | 0.4+ |

**2005 SY$_6$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 303.97535 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17293661 | $\omega$ | 120.07889 | | +0.90256930 | | +0.42519839 |
| $a$ | 3.1906420 | $\Omega$ | 214.88517 | | −0.42440339 | | +0.85220788 |
| $e$ | 0.1880795 | $i$ | 6.79188 | | −0.07245979 | | +0.30487383 |
| $P$ | 5.70 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 23 | 291 | 0.3+ | 0.1+ | 2005 10 04 | G96 | 0.2+ | 0.2− | 2005 11 25 | G96 | 0.0 | 0.3− |
| 2005 09 23 | 291 | 0.6+ | 0.0 | 2005 10 06 | G96 | 0.1− | 0.1− | 2005 11 25 | G96 | 0.1+ | 0.0 |
| 2005 09 23 | 291 | 0.5+ | 0.4+ | 2005 10 06 | G96 | 0.3+ | 0.1+ | 2005 11 25 | G96 | 0.4+ | 0.2− |
| 2005 09 26 | 691 | 0.3− | 0.0 | 2005 10 06 | G96 | 0.3− | 0.0 | 2005 11 25 | G96 | 0.7+ | 0.2+ |
| 2005 09 26 | 691 | 0.4− | 0.1− | 2005 10 06 | G96 | 0.1+ | 0.1+ | 2005 12 02 | G96 | 0.1+ | 0.1+ |
| 2005 09 26 | 691 | 0.3− | 0.1+ | 2005 10 07 | G96 | 0.1− | 0.1− | 2005 12 02 | G96 | 0.0 | 0.2+ |
| 2005 10 02 | G96 | 0.2− | 0.3− | 2005 10 07 | G96 | 0.2− | 0.0 | 2005 12 02 | G96 | 0.1+ | 0.3+ |
| 2005 10 02 | G96 | 0.3− | 0.4− | 2005 10 07 | G96 | 0.2+ | 0.1− | 2005 12 02 | G96 | 0.1+ | 0.1+ |
| 2005 10 02 | G96 | 0.8− | 0.0 | 2005 10 07 | G96 | 0.1+ | 0.1− | 2009 04 21 | G96 | 0.2− | 0.1+ |
| 2005 10 04 | G96 | 0.1+ | 0.2− | 2005 10 29 | 703 | 0.7− | 0.7+ | 2009 04 21 | G96 | 0.0 | 0.1+ |
| 2005 10 04 | G96 | 0.0 | 0.2− | 2005 10 29 | 703 | 0.6− | 0.2+ | 2009 04 21 | G96 | 0.4− | 0.2− |
| 2005 10 04 | G96 | 0.1− | 0.1+ | 2005 10 29 | 703 | 0.9− | 0.5+ | 2009 04 21 | G96 | 0.1+ | 0.3+ |
| 2005 10 04 | G96 | 0.4+ | 0.3− | 2005 10 29 | 703 | 0.3+ | 0.9− | 2009 05 25 | G96 | 0.3+ | 0.7− |
| 2005 10 04 | G96 | 0.0 | 0.3− | 2005 10 30 | 291 | 0.1+ | 0.0 | 2009 05 25 | G96 | 0.2− | 0.1− |
| 2005 10 04 | G96 | 0.1+ | 0.1− | 2005 10 30 | 291 | 0.0 | 0.0 | 2009 05 25 | G96 | 0.7+ | 0.3+ |
| 2005 10 04 | G96 | 0.3+ | 0.3− | 2005 10 30 | 291 | 0.2− | 0.1+ | 2009 05 25 | G96 | 0.2− | 0.4+ |

**2005 SB$_{11}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 9.38570 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23392895 | $\omega$ | 167.59813 | | +0.99859914 | | +0.03350388 |
| $a$ | 2.6086355 | $\Omega$ | 190.73701 | | −0.04069983 | | +0.98096137 |
| $e$ | 0.1879927 | $i$ | 12.69890 | | +0.03381239 | | +0.19129109 |
| $P$ | 4.21 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 03 20 | 645 | 0.0 | 0.1+ | 2005 09 29 | 699 | 0.3+ | 0.3+ | 2005 10 20 | 644 | 0.2+ | 0.0 |
| 1999 03 20 | 645 | 0.0 | 0.1+ | 2005 09 29 | 644 | 0.5− | 0.1+ | 2005 10 28 | G96 | 0.2+ | 0.0 |
| 2005 09 01 | 691 | 0.2+ | 0.2+ | 2005 09 29 | 699 | 0.0 | 0.7+ | 2005 10 28 | G96 | 0.1− | 0.0 |
| 2005 09 01 | 691 | 0.0 | 0.2+ | 2005 09 29 | 699 | 0.3+ | 0.4+ | 2005 10 28 | G96 | 0.2− | 0.1+ |
| 2005 09 01 | 691 | 0.1+ | 0.1+ | 2005 09 29 | 699 | 0.8− | 0.7+ | 2005 10 28 | G96 | 0.3+ | 0.1+ |
| 2005 09 09 | A50 | 0.1− | 0.1− | 2005 10 01 | 703 | 0.5− | 0.4+ | 2005 10 31 | 644 | 0.6− | 0.1+ |
| 2005 09 09 | A50 | 0.3− | 0.2+ | 2005 10 01 | 703 | 0.3− | 0.1− | 2005 10 31 | 644 | 0.0 | 0.2+ |
| 2005 09 23 | 703 | 0.6− | 0.9+ | 2005 10 01 | 703 | 0.7− | 0.7− | 2005 10 31 | 644 | 0.3+ | 0.3+ |
| 2005 09 23 | 703 | 0.2+ | 0.0 | 2005 10 01 | 703 | 0.1+ | 0.4− | 2008 04 13 | 691 | 0.4+ | 0.0 |
| 2005 09 23 | 703 | 0.6− | 0.5+ | 2005 10 01 | 703 | 0.5− | 0.5− | 2008 04 13 | 691 | 0.4− | 0.3+ |
| 2005 09 23 | 703 | 0.3+ | 0.2− | 2005 10 01 | 703 | 0.3+ | 0.4− | 2008 04 13 | 691 | 0.5+ | 0.1− |
| 2005 09 25 | 644 | 0.0 | 0.1+ | 2005 10 01 | 703 | 0.2− | 0.8+ | 2008 04 28 | G96 | 0.9− | 0.0 |
| 2005 09 25 | 644 | 0.3+ | 0.1+ | 2005 10 01 | 703 | 0.6+ | 0.1− | 2008 04 28 | G96 | 0.6− | 0.5+ |
| 2005 09 25 | 644 | 0.1+ | 0.1+ | 2005 10 05 | G96 | 0.0 | 0.0 | 2008 04 28 | G96 | 0.3− | 0.7+ |
| 2005 09 25 | 703 | 0.0 | 0.7− | 2005 10 05 | G96 | 0.1+ | 0.1− | 2008 04 28 | G96 | 0.0 | 0.3+ |
| 2005 09 25 | 703 | 0.1− | 0.6− | 2005 10 05 | G96 | 0.1− | 0.1− | 2009 07 31 | 691 | 0.1+ | 0.1− |
| 2005 09 25 | 703 | 0.8− | 0.4− | 2005 10 05 | G96 | 0.1− | 0.1− | 2009 07 31 | 691 | 0.1+ | 0.0 |
| 2005 09 25 | 703 | (2.0− | 0.4−) | 2005 10 06 | 699 | 0.8+ | 1.0+ | 2009 07 31 | 691 | 0.1− | 0.1+ |
| 2005 09 26 | 644 | 0.1+ | 0.1− | 2005 10 06 | 699 | (2.5+ | 0.0 ) | 2009 11 17 | G96 | 0.5− | 0.1+ |
| 2005 09 26 | 644 | 0.1− | 0.1+ | 2005 10 06 | 699 | 0.3− | 0.3− | 2009 11 17 | G96 | 0.1− | 0.1− |
| 2005 09 26 | 644 | 0.2− | 0.0 | 2005 10 06 | 699 | 0.5+ | 0.2+ | 2009 11 17 | G96 | 0.4+ | 0.2+ |
| 2005 09 29 | 644 | 0.4+ | 0.2− | 2005 10 20 | 644 | 0.2+ | 0.3+ | 2009 11 17 | G96 | 0.2− | 0.2− |
| 2005 09 29 | 644 | 0.1− | 0.0 | 2005 10 20 | 644 | 0.2+ | 0.2+ | | | | |

**2005 SO$_{14}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 274.99366 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17664078 | $\omega$ | 319.62488 | | +0.97728545 | | −0.20932534 |
| $a$ | 3.1458793 | $\Omega$ | 52.48880 | | +0.20360516 | | +0.88403423 |
| $e$ | 0.1767129 | $i$ | 2.39202 | | +0.05880557 | | +0.41793109 |
| $P$ | 5.58 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 25 | 691 | 0.2+ | 0.2− | 2005 10 07 | 703 | 0.8+ | 0.2− | 2005 11 01 | G96 | 0.0 | 0.2− |
| 2005 09 25 | 691 | 0.2+ | 0.0 | 2005 10 07 | 703 | 0.1− | 0.8− | 2005 11 04 | 691 | 0.4− | 0.5+ |
| 2005 09 25 | 691 | 0.1+ | 0.1− | 2005 10 07 | 703 | 0.5− | 0.0 | 2005 11 04 | 691 | 0.2+ | 0.2+ |
| 2005 09 26 | 644 | 0.1− | 0.7+ | 2005 10 10 | 691 | 0.2− | 0.4+ | 2005 11 04 | 691 | 0.0 | 0.5+ |
| 2005 09 26 | 644 | 0.5+ | 0.2+ | 2005 10 10 | 691 | 0.3+ | 0.0 | 2005 11 29 | G96 | 0.2+ | 0.2− |
| 2005 09 26 | 644 | 0.6+ | 0.7+ | 2005 10 10 | 691 | 0.1+ | 0.1+ | 2005 11 29 | G96 | 0.3− | 0.1− |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 30 | 691 | 0.2− | 0.1− | 2005 10 29 | G96 | 0.2− | 0.0 | 2005 11 29 | G96 | 0.1+ | 0.2− |
| 2005 09 30 | 691 | 0.1− | 0.0 | 2005 10 29 | G96 | 0.7+ | 0.1+ | 2005 11 29 | G96 | 0.5− | 0.2− |
| 2005 09 30 | 691 | 0.1− | 0.1− | 2005 10 29 | G96 | 0.3+ | 0.1− | 2005 12 04 | G96 | 0.2+ | 0.1− |
| 2005 10 01 | 691 | 0.1+ | 0.3− | 2005 10 29 | G96 | 0.1− | 0.0 | 2005 12 04 | G96 | 0.3− | 1.0− |
| 2005 10 01 | 691 | 0.1+ | 0.3− | 2005 10 30 | G96 | 0.1− | 0.4− | 2005 12 04 | G96 | 0.3+ | 0.0 |
| 2005 10 01 | 691 | 0.0 | 0.2− | 2005 10 30 | G96 | 0.1− | 0.2− | 2005 12 04 | G96 | 0.2+ | 0.4+ |
| 2005 10 01 | 704 | 1.1− | 0.7+ | 2005 10 30 | G96 | 0.2+ | 0.1− | 2008 03 13 | 809 | 0.1+ | 0.1+ |
| 2005 10 01 | 704 | 0.0 | 0.1− | 2005 10 30 | G96 | 0.2+ | 0.2− | 2008 03 13 | 809 | 0.2+ | 0.0 |
| 2005 10 01 | 704 | 0.6− | 0.1− | 2005 10 30 | G96 | 0.1+ | 0.3− | 2008 03 13 | 809 | 0.0 | 0.0 |
| 2005 10 01 | 704 | 0.2+ | 0.4+ | 2005 10 30 | G96 | 0.4+ | 0.3− | 2008 03 13 | 809 | 0.1+ | 0.1+ |
| 2005 10 01 | 704 | 0.3− | 0.1− | 2005 10 30 | G96 | 0.0 | 0.1− | 2008 03 13 | 809 | 0.2+ | 0.0 |
| 2005 10 05 | 704 | 0.6+ | 0.6+ | 2005 10 30 | G96 | 0.3− | 0.0 | 2008 03 13 | 809 | 0.0 | 0.1− |
| 2005 10 05 | 704 | 0.7− | 0.0 | 2005 10 31 | G96 | 0.1− | 0.1− | 2008 03 13 | 809 | 0.2+ | 0.1− |
| 2005 10 05 | 704 | 0.6− | 0.4+ | 2005 10 31 | G96 | 0.1− | 0.1− | 2008 03 28 | G96 | 0.2+ | 0.2+ |
| 2005 10 05 | 691 | 0.1+ | 0.0 | 2005 10 31 | G96 | 0.2+ | 0.1− | 2008 03 28 | G96 | 1.0− | 0.9− |
| 2005 10 05 | 704 | 0.5− | 0.5+ | 2005 10 31 | G96 | 0.0 | 0.1+ | 2008 03 28 | G96 | 0.1+ | 0.1+ |
| 2005 10 05 | 691 | 0.0 | 0.1− | 2005 11 01 | G96 | 0.2+ | 0.0 | 2008 03 28 | G96 | 0.4− | 0.1+ |
| 2005 10 05 | 691 | 0.0 | 0.1− | 2005 11 01 | G96 | 0.4+ | 0.2− | | | | |
| 2005 10 07 | 703 | 1.1− | 0.2− | 2005 11 01 | G96 | 0.1− | 0.0 | | | | |

**2005 SE$_{19}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| $M$ | 283.43333 | | (2000.0) | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $n$ | 0.18308103 | $\omega$ | 219.63147 | | +0.99727479 | +0.05921648 |
| $a$ | 3.0716648 | $\Omega$ | 136.91098 | | −0.03987654 | +0.93447427 |
| $e$ | 0.1510152 | $i$ | 3.69331 | | −0.06207138 | +0.35107158 |
| $P$ | 5.38 | $H$ | 16.0 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 08 24 | 644 | 0.0 | 0.1+ | 2005 09 28 | A55 | 0.3− | 0.5− | 2008 02 08 | 691 | 0.2+ | 0.0 |
| 2005 08 24 | 644 | 0.0 | 0.0 | 2005 09 28 | A55 | 0.6+ | 0.4− | 2008 03 28 | 691 | 0.1− | 0.0 |
| 2005 08 24 | 644 | 0.7− | 0.2− | 2005 09 30 | A55 | 0.2− | 0.8+ | 2008 03 28 | 691 | 0.2+ | 0.1+ |
| 2005 09 06 | 699 | 0.7+ | 1.4+ | 2005 09 30 | A55 | 0.4− | 0.2+ | 2008 03 28 | 691 | 0.5− | 0.5− |
| 2005 09 06 | 699 | 0.8+ | 0.1+ | 2005 10 01 | 704 | 1.0− | 0.0 | 2008 04 06 | G96 | 0.1+ | 0.1+ |
| 2005 09 06 | 699 | 0.4+ | 0.6− | 2005 10 01 | 704 | 1.3− | 0.1− | 2008 04 06 | G96 | 0.3+ | 0.3+ |
| 2005 09 06 | 699 | 0.0 | 0.2+ | 2005 10 01 | 704 | 0.1− | 0.0 | 2008 04 06 | G96 | (1.0+ | 3.2+) |
| 2005 09 12 | 691 | 0.3− | 0.0 | 2005 10 01 | A55 | 0.1+ | 0.0 | 2008 04 06 | G96 | (2.9+ | 2.9+) |
| 2005 09 12 | 691 | 0.2− | 0.1+ | 2005 10 01 | A55 | 0.2+ | 0.2− | 2009 05 04 | G96 | 0.1− | 0.3− |
| 2005 09 12 | 691 | 0.0 | 0.1+ | 2005 10 01 | A55 | 0.2− | 0.1+ | 2009 05 04 | G96 | 0.5+ | 0.1− |
| 2005 09 26 | A55 | 0.3+ | 0.0 | 2005 10 01 | A55 | 0.2+ | 0.4− | 2009 05 04 | G96 | 0.0 | 0.1+ |
| 2005 09 26 | A55 | 0.5+ | 0.3− | 2005 10 01 | A55 | 0.6+ | 0.1+ | 2009 05 04 | G96 | 0.0 | 0.2− |
| 2005 09 26 | A55 | 0.6+ | 0.4+ | 2005 10 01 | A55 | 1.2− | 0.8− | 2009 05 16 | G96 | 0.3− | 0.2+ |
| 2005 09 26 | A55 | 0.7+ | 0.1+ | 2005 10 03 | A55 | 0.1− | 0.2+ | 2009 05 16 | G96 | 0.6+ | 0.5+ |
| 2005 09 27 | A55 | 0.1+ | 0.4− | 2005 10 03 | A55 | 0.6+ | 0.8+ | 2009 05 16 | G96 | 0.4− | 0.3+ |
| 2005 09 27 | A55 | 0.4+ | 0.0 | 2005 10 03 | A55 | 0.5+ | 0.3+ | 2009 05 16 | G96 | 0.1− | 0.0 |
| 2005 09 28 | A55 | 0.1− | 0.3+ | 2008 02 08 | 691 | 0.0 | 0.4+ | | | | |
| 2005 09 28 | A55 | 0.1− | 0.2− | 2008 02 08 | 691 | 0.3+ | 0.3+ | | | | |

**2005 SO$_{22}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| $M$ | 40.57104 | | (2000.0) | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $n$ | 0.26895714 | $\omega$ | 283.56180 | | +0.82384026 | −0.56507885 |
| $a$ | 2.3769169 | $\Omega$ | 110.86317 | | +0.53669963 | +0.75245343 |
| $e$ | 0.1872235 | $i$ | 2.72467 | | +0.18232041 | +0.33837809 |
| $P$ | 3.66 | $H$ | 17.6 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 08 31 | 644 | 0.1+ | 0.2+ | 2005 09 25 | 705 | 0.3+ | 0.1− | 2005 10 09 | 691 | 0.2− | 0.0 |
| 2005 08 31 | 644 | 0.1− | 0.0 | 2005 09 25 | 705 | 0.4+ | 0.1− | 2005 10 09 | 691 | 0.2− | 0.0 |
| 2005 08 31 | 644 | 0.1− | 0.1+ | 2005 09 28 | 644 | 0.1+ | 0.2− | 2005 12 01 | G96 | 0.1+ | 0.1+ |
| 2005 09 13 | 705 | 0.1+ | 0.1− | 2005 09 28 | 644 | 0.0 | 0.3− | 2005 12 01 | G96 | 0.3+ | 0.0 |
| 2005 09 13 | 705 | 0.1+ | 0.1− | 2005 09 28 | 644 | 0.1+ | 0.5− | 2005 12 01 | G96 | 0.5+ | 0.2− |
| 2005 09 15 | 705 | 0.2+ | 0.1− | 2005 10 01 | 704 | 1.2− | 0.2+ | 2005 12 01 | G96 | 0.2+ | 0.5− |
| 2005 09 15 | 705 | 0.3+ | 0.1− | 2005 10 01 | 704 | 0.0 | 0.1− | 2007 03 12 | G96 | 0.3− | 0.1− |
| 2005 09 22 | 705 | 0.3+ | 0.2− | 2005 10 01 | 704 | 0.9+ | 1.9− | 2007 03 12 | G96 | 0.3+ | 0.2+ |
| 2005 09 22 | 705 | 0.3+ | 0.2− | 2005 10 01 | 704 | 0.5− | 0.1+ | 2007 03 12 | G96 | 0.3− | 0.2+ |
| 2005 09 22 | 644 | 0.2− | 0.0 | 2005 10 01 | 704 | 0.1− | 0.0 | 2007 03 12 | G96 | 0.3+ | 0.1− |
| 2005 09 22 | 644 | 0.1− | 0.0 | 2005 10 05 | 704 | 0.2+ | 0.6+ | 2009 12 16 | G96 | 0.6− | 0.3+ |
| 2005 09 22 | 644 | 0.2− | 0.2+ | 2005 10 05 | 704 | 0.1− | 0.5+ | 2009 12 16 | G96 | 0.0 | 0.0 |
| 2005 09 23 | 691 | 0.2+ | 0.0 | 2005 10 05 | 704 | 0.9− | 1.1+ | 2009 12 16 | G96 | 0.1+ | 0.1− |
| 2005 09 23 | 691 | 0.2+ | 0.2+ | 2005 10 05 | 704 | 0.2− | 0.6+ | 2009 12 16 | G96 | 0.4+ | 0.3− |
| 2005 09 23 | 691 | 0.2+ | 0.1− | 2005 10 09 | 691 | 0.3− | 0.2+ | | | | |

**2005 SK$_{23}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| $M$ | 319.48341 | | (2000.0) | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $n$ | 0.19332694 | $\omega$ | 219.96113 | | +0.90204207 | +0.43016802 |
| $a$ | 2.9621551 | $\Omega$ | 114.52653 | | −0.38532374 | +0.83976476 |
| $e$ | 0.1952035 | $i$ | 2.24986 | | −0.19453974 | +0.33128630 |
| $P$ | 5.10 | $H$ | 16.1 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 08 28 | 691 | 0.2− | 0.1− | 2005 09 30 | 699 | 0.7− | 0.2+ | 2008 02 12 | 691 | 0.4+ | 0.2+ |
| 2005 08 28 | 691 | 0.5− | 0.0 | 2005 09 30 | 699 | 0.4− | 1.4+ | 2008 02 26 | G96 | 0.6+ | 0.2− |
| 2005 08 28 | 691 | 0.1− | 0.1+ | 2005 09 30 | 699 | 1.3+ | 0.9+ | 2008 02 26 | G96 | 0.3+ | 0.2− |
| 2005 09 23 | 703 | 0.0 | 0.2+ | 2005 10 01 | 704 | 0.2+ | 0.3+ | 2008 02 26 | G96 | 0.1− | 0.0 |
| 2005 09 23 | 703 | 0.4− | 0.2− | 2005 10 01 | 704 | 0.4− | 0.9− | 2008 02 26 | G96 | 0.1+ | 0.2+ |
| 2005 09 23 | 703 | 0.7− | 0.3+ | 2005 10 01 | 704 | (1.6− | 0.1+) | 2008 04 06 | G96 | 0.5− | 0.3− |
| 2005 09 23 | 703 | 0.4+ | 0.6+ | 2005 10 01 | 704 | (0.5+ | 1.6−) | 2008 04 06 | G96 | 0.2+ | 0.2+ |
| 2005 09 24 | 644 | 0.2+ | 0.1+ | 2005 10 01 | 704 | 0.5+ | 0.7− | 2008 04 06 | G96 | 0.1− | 0.3+ |
| 2005 09 24 | 644 | 0.0 | 0.1+ | 2005 10 01 | 704 | 0.2+ | 0.1− | 2008 04 06 | G96 | 0.5− | 0.6+ |
| 2005 09 24 | 644 | 0.1+ | 0.2+ | 2005 10 01 | 704 | 0.8+ | 0.1+ | 2009 05 04 | G96 | 0.1− | 0.1+ |
| 2005 09 25 | 644 | 0.5+ | 0.0 | 2005 10 01 | 704 | 0.6− | 0.1+ | 2009 05 04 | G96 | 0.4+ | 0.2+ |
| 2005 09 25 | 644 | 0.3− | 0.1− | 2005 10 06 | G96 | 0.3− | 0.1− | 2009 05 04 | G96 | 0.7+ | 0.1+ |
| 2005 09 25 | 644 | 0.2+ | 0.0 | 2005 10 06 | G96 | 0.1+ | 0.1− | 2009 05 04 | G96 | 0.4− | 0.1− |
| 2005 09 28 | 644 | 0.1+ | 0.1+ | 2005 10 06 | G96 | 0.3+ | 0.2− | 2009 05 30 | G96 | 0.2− | 0.0 |
| 2005 09 28 | 644 | 0.4+ | 0.0 | 2005 10 06 | G96 | 0.0 | 0.0 | 2009 05 30 | G96 | 0.1+ | 0.1− |
| 2005 09 28 | 644 | 0.0 | 0.1− | 2008 02 12 | 691 | 0.5− | 0.3+ | 2009 05 30 | G96 | 0.2− | 0.5+ |
| 2005 09 30 | 699 | 0.7+ | 0.3− | 2008 02 12 | 691 | 0.3+ | 0.2− | 2009 05 30 | G96 | 0.1− | 0.1+ |

**2005 SS$_{28}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| $M$ | 237.19137 | | (2000.0) | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $n$ | 0.17511034 | $\omega$ | 200.40903 | | +0.52233634 | −0.84727478 |
| $a$ | 3.1641824 | $\Omega$ | 218.27847 | | +0.80237030 | +0.52660506 |
| $e$ | 0.0917496 | $i$ | 8.95103 | | +0.28873284 | +0.06937259 |
| $P$ | 5.63 | $H$ | 16.0 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 08 | A50 | 0.2− | 0.6− | 2005 09 29 | 691 | 0.3− | 0.2+ | 2005 11 06 | G96 | 0.3+ | 0.0 |
| 2005 09 23 | 691 | 0.0 | 0.1+ | 2005 09 29 | 691 | 0.1+ | 0.1+ | 2008 03 08 | 691 | 0.0 | 0.2− |
| 2005 09 23 | 691 | 0.4+ | 0.1− | 2005 10 03 | 691 | 0.1− | 0.0 | 2008 03 08 | 691 | 0.0 | 0.0 |
| 2005 09 23 | 691 | 0.1+ | 0.0 | 2005 10 03 | 691 | 0.4− | 0.3− | 2008 03 08 | 691 | 0.2− | 0.1+ |
| 2005 09 25 | 291 | 0.2+ | 0.0 | 2005 10 03 | 691 | 0.4− | 0.1+ | 2008 04 15 | G96 | 0.6+ | 0.0 |
| 2005 09 25 | 291 | 0.1+ | 0.2+ | 2005 11 06 | G96 | 0.0 | 0.0 | 2008 04 15 | G96 | 0.2− | 0.2− |
| 2005 09 25 | 291 | 0.2+ | 0.1− | 2005 11 06 | G96 | 0.3+ | 0.1+ | 2008 04 15 | G96 | 0.1+ | 0.9+ |
| 2005 09 29 | 691 | 0.1− | 0.1+ | 2005 11 06 | G96 | 0.0 | 0.0 | 2008 04 15 | G96 | 0.2+ | 0.2− |

**2005 SF$_{29}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| $M$ | 57.61117 | | (2000.0) | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $n$ | 0.27998222 | $\omega$ | 127.98771 | | +0.78433045 | −0.61925827 |
| $a$ | 2.3141016 | $\Omega$ | 270.30450 | | +0.55703821 | +0.72907639 |
| $e$ | 0.1671731 | $i$ | 2.10173 | | +0.27300948 | +0.29149067 |
| $P$ | 3.52 | $H$ | 18.0 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 23 | 691 | 0.0 | 0.0 | 2005 10 07 | 691 | 0.3− | 0.1− | 2009 11 16 | G96 | 0.3+ | 0.1− |
| 2005 09 23 | 691 | 0.3− | 0.2− | 2005 10 07 | 704 | (1.7+ | 0.3+) | 2009 11 16 | G96 | 0.4− | 0.0 |
| 2005 09 23 | 691 | 0.1− | 0.1− | 2005 10 07 | 704 | 0.1− | 0.2+ | 2009 11 16 | G96 | 0.0 | 0.2+ |
| 2005 09 29 | 691 | 0.3− | 0.1+ | 2005 10 07 | 691 | 0.1− | 0.2− | 2009 11 16 | G96 | 0.2+ | 0.2+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 29 | 691 | 0.3− | 0.2+ | 2005 10 07 | 704 | 0.3+ | 0.2− | 2009 12 15 | G96 | 0.1− | 0.2− |
| 2005 09 29 | 691 | 0.6+ | 0.8+ | 2005 10 07 | 691 | 0.2− | 0.2− | 2009 12 15 | G96 | 0.3+ | 0.7− |
| 2005 09 30 | 644 | 0.2− | 0.5+ | 2005 10 07 | 704 | 1.0+ | 0.6+ | 2009 12 15 | G96 | 0.1+ | 0.7+ |
| 2005 09 30 | 644 | 0.1+ | 0.0 | 2005 10 09 | 691 | 0.4+ | 0.0 | 2009 12 15 | G96 | 0.3+ | 0.3+ |
| 2005 09 30 | 644 | 0.2− | 0.3+ | 2005 10 09 | 691 | 0.0 | 0.0 | 2009 12 17 | 691 | 0.2− | 0.3− |
| 2005 10 03 | 691 | 0.2− | 0.0 | 2005 10 09 | 691 | 0.1+ | 0.1+ | 2009 12 17 | 691 | 0.2− | 0.2− |
| 2005 10 03 | 691 | 0.1− | 0.0 | 2005 10 13 | 691 | 0.1+ | 0.2− | 2009 12 17 | 691 | 0.1− | 0.1+ |
| 2005 10 03 | 691 | 0.0 | 0.1− | 2005 10 13 | 691 | 0.2+ | 0.2− | 2009 12 25 | 691 | 0.2− | 0.7+ |
| 2005 10 03 | 703 | 1.0+ | 0.1− | 2005 10 13 | 691 | 0.2− | 0.4− | 2009 12 25 | 691 | 0.0 | 0.3+ |
| 2005 10 03 | 703 | 0.4+ | 0.2− | 2005 10 28 | 691 | 0.3+ | 0.0 | 2009 12 25 | 691 | 0.5+ | 0.6− |
| 2005 10 03 | 703 | 0.6+ | 0.8+ | 2005 10 28 | 691 | 0.1− | 0.2+ | | | | |
| 2005 10 03 | 703 | 0.2+ | 0.9+ | 2005 10 28 | 691 | 0.4− | 0.3− | | | | |

**2005 SM$_{31}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 308.13374 | | (2000.0) | | | |
| $n$ | 0.20923863 | $\omega$ | 11.61875 | | +0.73406837 | −0.67119727 |
| $a$ | 2.8100118 | $\Omega$ | 31.32799 | | +0.60606869 | +0.57903941 |
| $e$ | 0.1470184 | $i$ | 11.44168 | | +0.30630763 | +0.46282565 |
| $P$ | 4.71 | $H$ | 16.4 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 01 09 | 645 | 0.0 | 0.0 | 2005 10 05 | 704 | 1.0+ | 0.5− | 2005 10 28 | G96 | 0.3+ | 0.2− |
| 2002 01 09 | 645 | 0.0 | 0.0 | 2005 10 05 | 704 | 0.9+ | 0.6+ | 2005 10 28 | G96 | 0.2− | 0.2− |
| 2005 09 23 | 691 | 0.5+ | 0.1− | 2005 10 08 | 691 | 0.0 | 0.0 | 2005 10 28 | G96 | 0.2+ | 0.3− |
| 2005 09 23 | 691 | 0.1− | 0.2− | 2005 10 08 | 691 | 0.0 | 0.0 | 2005 10 28 | 599 | 0.1− | 0.1+ |
| 2005 09 23 | 691 | 0.1+ | 0.1+ | 2005 10 08 | 691 | 0.0 | 0.0 | 2005 10 28 | 599 | 0.0 | 0.2+ |
| 2005 09 29 | 691 | 0.3+ | 0.0 | 2005 10 22 | 703 | 1.0− | 1.5− | 2005 10 28 | 599 | 0.2+ | 0.2+ |
| 2005 09 29 | 691 | 0.1+ | 0.0 | 2005 10 22 | 703 | 0.9− | 0.9− | 2005 10 28 | 599 | 0.1+ | 0.0 |
| 2005 09 29 | 691 | 0.3+ | 0.0 | 2005 10 27 | 557 | 0.3− | 0.4+ | 2005 11 26 | G96 | 0.3− | 0.0 |
| 2005 10 01 | 704 | 0.8− | 0.3− | 2005 10 27 | 557 | 1.5− | 0.1+ | 2005 11 26 | G96 | 0.0 | 0.2− |
| 2005 10 01 | 704 | 0.3+ | 1.1− | 2005 10 27 | 557 | 0.2+ | 1.1− | 2005 11 26 | G96 | 0.3+ | 0.3− |
| 2005 10 01 | 704 | 1.1− | 0.3− | 2005 10 27 | 557 | 0.9− | 0.3+ | 2005 11 26 | G96 | 0.0 | 0.1− |
| 2005 10 01 | 704 | 0.8− | 0.4+ | 2005 10 27 | 557 | 0.2− | 0.2− | 2008 04 01 | 691 | 0.2+ | 0.4− |
| 2005 10 05 | 704 | 0.2+ | 1.1+ | 2005 10 27 | 557 | 1.7+ | 1.1+ | 2008 04 01 | 691 | 0.2− | 0.0 |
| 2005 10 05 | 704 | 0.4− | 0.7+ | 2005 10 27 | 557 | (0.6+ | 2.4+) | 2008 04 01 | 691 | 0.1− | 0.0 |
| 2005 10 05 | 704 | 0.8− | 0.8+ | 2005 10 28 | G96 | 0.3+ | 0.2− | | | | |

**2005 SC$_{36}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 281.10500 | | (2000.0) | | | |
| $n$ | 0.18830932 | $\omega$ | 23.71011 | | +0.74330250 | −0.66711678 |
| $a$ | 3.0145432 | $\Omega$ | 18.41099 | | +0.58591646 | +0.61349213 |
| $e$ | 0.0818355 | $i$ | 9.02888 | | +0.32280536 | +0.42259035 |
| $P$ | 5.23 | $H$ | 16.0 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 23 | 291 | 0.1− | 0.2− | 2005 10 09 | 691 | 0.3+ | 0.1− | 2005 10 28 | 703 | 0.3− | 0.3+ |
| 2005 09 23 | 291 | 0.3− | 0.2− | 2005 10 09 | 691 | 0.0 | 0.0 | 2005 10 28 | 703 | 0.7− | 0.7− |
| 2005 09 23 | 291 | 0.3− | 0.0 | 2005 10 10 | 699 | (1.2+ | 2.5+) | 2005 11 02 | 704 | 0.2− | 0.8+ |
| 2005 09 29 | 691 | 0.1− | 0.4+ | 2005 10 10 | 699 | 0.6− | 0.2− | 2005 11 02 | 704 | 0.1− | 0.8+ |
| 2005 09 29 | 691 | 0.2+ | 0.1+ | 2005 10 10 | 699 | 1.0− | 1.2+ | 2005 11 02 | 704 | 0.2+ | 0.2+ |
| 2005 09 29 | 691 | 0.1+ | 0.3+ | 2005 10 10 | 699 | 0.7+ | 0.7+ | 2008 04 11 | G96 | 0.6+ | 0.4+ |
| 2005 10 02 | G96 | 0.1+ | 0.3− | 2005 10 13 | 691 | 0.0 | 0.3− | 2008 04 11 | G96 | 0.1+ | 0.4+ |
| 2005 10 02 | G96 | 0.3+ | 0.2− | 2005 10 13 | 691 | 0.1− | 0.2− | 2008 04 11 | G96 | 0.2+ | 0.2+ |
| 2005 10 02 | G96 | 0.7+ | 0.2− | 2005 10 13 | 691 | 0.2+ | 0.3− | 2008 04 11 | G96 | 0.8+ | 0.6+ |
| 2005 10 02 | G96 | 0.4+ | 0.1− | 2005 10 22 | 703 | 0.3+ | 0.0 | 2008 04 30 | G96 | 0.2− | 0.2+ |
| 2005 10 03 | 703 | 0.5+ | 1.3+ | 2005 10 22 | 703 | 0.8− | 0.2− | 2008 04 30 | G96 | 0.2+ | 0.2+ |
| 2005 10 03 | 703 | 0.8+ | 0.1− | 2005 10 22 | 703 | 0.2− | 0.4− | 2008 04 30 | G96 | 0.0 | 0.2+ |
| 2005 10 03 | 703 | 0.5− | 1.1+ | 2005 10 22 | 703 | 0.1+ | 0.1+ | 2008 04 30 | G96 | 0.3− | 0.2+ |
| 2005 10 03 | 703 | 0.5− | 0.8+ | 2005 10 28 | 703 | 0.8+ | 0.0 | | | | |
| 2005 10 09 | 691 | 0.2+ | 0.0 | 2005 10 28 | 703 | 1.1− | 1.0− | | | | |

**2005 SV$_{36}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 102.38107 | | (2000.0) | | | |
| $n$ | 0.27521930 | $\omega$ | 312.37928 | | +0.81020358 | +0.58559958 |
| $a$ | 2.3407236 | $\Omega$ | 11.85024 | | −0.49493423 | +0.70666383 |
| $e$ | 0.1398412 | $i$ | 7.09471 | | −0.31402273 | +0.39711380 |
| $P$ | 3.58 | $H$ | 16.8 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 03 27 | 291 | 0.0 | 0.6+ | 2005 10 01 | 704 | 0.6+ | 0.3+ | 2005 10 07 | 703 | 0.1− | 0.1− |
| 2004 03 27 | 291 | 0.3+ | 0.6+ | 2005 10 01 | G96 | 0.1+ | 0.3− | 2005 10 10 | 704 | 0.9− | 0.7+ |
| 2004 03 27 | 291 | 0.7+ | 0.7+ | 2005 10 02 | 644 | 0.1− | 0.2+ | 2005 10 10 | 704 | 0.1− | 0.5− |
| 2005 09 22 | 644 | 0.1+ | 0.1− | 2005 10 02 | 644 | 0.1− | 0.1− | 2005 10 10 | 704 | 0.4− | 0.2− |
| 2005 09 22 | 644 | 0.1+ | 0.0 | 2005 10 02 | 644 | 0.1− | 0.0 | 2005 10 10 | 704 | 0.2+ | 0.3− |
| 2005 09 22 | 644 | 0.1+ | 0.0 | 2005 10 03 | 644 | 0.2− | 0.1+ | 2005 10 20 | 644 | 0.2+ | 0.5+ |
| 2005 09 24 | 691 | 0.1+ | 0.3− | 2005 10 03 | 644 | 0.1+ | 0.3− | 2005 10 20 | 644 | 0.1− | 0.1+ |
| 2005 09 24 | 691 | 0.1+ | 0.3− | 2005 10 03 | 644 | 0.4+ | 0.2+ | 2005 10 20 | 644 | 0.1+ | 0.2+ |
| 2005 09 24 | 691 | 0.4− | 0.1+ | 2005 10 05 | 704 | 0.2+ | 0.6+ | 2005 10 27 | 644 | 0.2+ | 0.3+ |
| 2005 09 29 | 699 | 0.6− | 0.1+ | 2005 10 05 | 704 | 0.8− | 0.6+ | 2005 10 27 | 644 | 0.2+ | 0.4+ |
| 2005 09 29 | 699 | 0.8− | 0.6+ | 2005 10 05 | 704 | 0.5− | 0.5+ | 2005 10 27 | 644 | 0.2+ | 0.3+ |
| 2005 09 29 | 644 | 0.3+ | 0.0 | 2005 10 05 | 704 | 0.0 | 0.3+ | 2005 10 27 | G96 | 0.1− | 0.3− |
| 2005 09 29 | 699 | 0.6+ | 0.6+ | 2005 10 05 | 704 | 0.2− | 0.0 | 2005 10 27 | G96 | 0.1− | 0.2− |
| 2005 09 29 | 644 | 0.1− | 0.1+ | 2005 10 06 | 699 | 0.6+ | 0.5+ | 2005 10 27 | G96 | 0.0 | 0.4− |
| 2005 09 29 | 699 | 0.6+ | 0.2− | 2005 10 06 | 699 | 0.4− | 0.8+ | 2005 10 27 | G96 | 0.1+ | 0.1− |
| 2005 09 29 | 644 | 0.0 | 0.1+ | 2005 10 06 | 699 | 0.9− | 0.6+ | 2005 11 28 | G96 | 0.6+ | 0.9− |
| 2005 10 01 | 704 | 0.3+ | 0.9+ | 2005 10 06 | 699 | 0.3− | 0.2+ | 2005 11 28 | G96 | 0.5+ | 0.1− |
| 2005 10 01 | 704 | 0.4+ | 1.1+ | 2005 10 07 | 704 | 0.2+ | 0.4+ | 2005 11 28 | G96 | 0.3+ | 0.3− |
| 2005 10 01 | 704 | 0.2− | 0.2+ | 2005 10 07 | 704 | 0.2− | 0.2− | 2005 11 28 | G96 | 0.1+ | 0.3− |
| 2005 10 01 | G96 | 0.2− | 0.3− | 2005 10 07 | 704 | 0.4− | 1.3+ | 2009 12 15 | 704 | 0.3− | 0.1+ |
| 2005 10 01 | 704 | 0.9+ | 0.6+ | 2005 10 07 | 703 | 1.0− | 1.1− | 2009 12 15 | 704 | 0.6− | 0.8+ |
| 2005 10 01 | G96 | 0.1+ | 0.3− | 2005 10 07 | 703 | 0.2− | 0.0 | 2009 12 15 | 704 | 0.7+ | 0.1+ |
| 2005 10 01 | G96 | 0.2− | 0.3− | 2005 10 07 | 703 | 1.0− | 1.0+ | | | | |

**2005 SC$_{38}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 311.93743 | | (2000.0) | | | |
| $n$ | 0.18483944 | $\omega$ | 316.82883 | | +0.87191263 | +0.48744437 |
| $a$ | 3.0521529 | $\Omega$ | 14.21129 | | −0.38160870 | +0.73599400 |
| $e$ | 0.2141718 | $i$ | 10.92884 | | −0.30682757 | +0.46979870 |
| $P$ | 5.33 | $H$ | 15.9 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 01 14 | 645 | 0.0 | 0.0 | 2005 10 01 | G96 | 0.1− | 0.4− | 2005 10 27 | G96 | 0.1+ | 0.7− |
| 2002 01 14 | 645 | 0.0 | 0.0 | 2005 10 01 | 704 | 0.4− | 0.7+ | 2005 10 27 | G96 | 0.0 | 0.6− |
| 2005 08 31 | 699 | (2.3− | 0.2+) | 2005 10 01 | G96 | 0.3+ | 0.3− | 2005 10 27 | G96 | 0.0 | 0.7− |
| 2005 08 31 | 699 | 0.2+ | 0.9+ | 2005 10 01 | G96 | 0.2+ | 0.3− | 2005 11 03 | 691 | 0.1+ | 0.1+ |
| 2005 08 31 | 699 | 0.4− | 0.1− | 2005 10 01 | 704 | 0.0 | 1.1+ | 2005 11 03 | 691 | 0.3− | 0.0 |
| 2005 08 31 | 699 | (0.8− | 2.0−) | 2005 10 01 | G96 | 0.1+ | 0.3− | 2005 11 03 | 691 | 0.1− | 0.1+ |
| 2005 09 22 | 644 | 0.0 | 0.2+ | 2005 10 05 | 704 | 1.4+ | 0.4− | 2005 11 28 | G96 | 0.5+ | 1.3− |
| 2005 09 22 | 644 | 0.1− | 0.4+ | 2005 10 05 | 704 | 0.1− | 1.1+ | 2005 11 28 | G96 | 0.4+ | 0.4− |
| 2005 09 22 | 644 | 0.4− | 0.1+ | 2005 10 05 | 704 | 0.0 | 0.1+ | 2005 11 28 | G96 | 0.2+ | 0.0 |
| 2005 09 23 | 703 | 0.3− | 1.5− | 2005 10 05 | 704 | 0.5+ | 0.6+ | 2005 11 28 | G96 | 0.6− | 0.3− |
| 2005 09 23 | 703 | 1.0+ | 0.3+ | 2005 10 05 | 704 | 0.5+ | 0.2+ | 2008 02 09 | G96 | 0.0 | 0.1+ |
| 2005 09 23 | 703 | 1.0− | 0.3+ | 2005 10 06 | 691 | 0.0 | 0.1+ | 2008 02 09 | G96 | 0.2+ | 0.1− |
| 2005 09 23 | 703 | 1.3+ | 0.5− | 2005 10 06 | 691 | 0.1− | 0.2+ | 2008 02 09 | G96 | 0.2+ | 0.1+ |
| 2005 09 24 | 691 | 0.1− | 0.4− | 2005 10 06 | 691 | 0.2+ | 0.1+ | 2008 02 09 | G96 | 0.2− | 0.1+ |
| 2005 09 24 | 691 | 0.0 | 0.4− | 2005 10 06 | 699 | 0.6+ | 0.7+ | 2008 02 28 | G96 | 0.4+ | 0.3+ |
| 2005 09 24 | 691 | 0.1+ | 0.4− | 2005 10 06 | 699 | 0.2− | 0.7+ | 2008 02 28 | G96 | 0.3− | 0.3+ |
| 2005 09 29 | 644 | 0.3− | 0.2+ | 2005 10 06 | 699 | 0.5− | 0.2− | 2008 02 28 | G96 | 0.1− | 0.1− |
| 2005 09 29 | 644 | 0.5− | 0.2+ | 2005 10 06 | 699 | 0.1− | 0.2+ | 2008 02 28 | G96 | 0.7+ | 0.2+ |
| 2005 09 29 | 644 | 0.1− | 0.4− | 2005 10 12 | 691 | 0.1− | 0.0 | 2009 04 20 | G96 | 0.3− | 0.1+ |
| 2005 10 01 | 704 | 0.3+ | 0.8− | 2005 10 12 | 691 | 0.2− | 0.3+ | 2009 04 20 | G96 | 0.1− | 0.1+ |
| 2005 10 01 | 704 | 0.2+ | 1.9+ | 2005 10 12 | 691 | 0.2− | 0.3+ | 2009 04 20 | G96 | 0.5+ | 0.3+ |
| 2005 10 01 | 704 | 0.2− | 0.6+ | 2005 10 27 | G96 | 0.4− | 0.4− | 2009 04 20 | G96 | 0.2+ | 0.2+ |

**2005 SY$_{40}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 11.01943 | | (2000.0) | | | |
| $n$ | 0.26783143 | $\omega$ | 266.04794 | | +0.29364042 | −0.95590275 |
| $a$ | 2.3835724 | $\Omega$ | 166.87271 | | +0.88557936 | +0.27005200 |
| $e$ | 0.1701983 | $i$ | 1.26740 | | +0.35989512 | +0.11542031 |
| $P$ | 3.68 | $H$ | 18.1 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 20 | 807 | 0.3− | 0.1+ | 2005 10 10 | 691 | 0.1− | 0.1− | 2005 10 28 | G96 | 0.2+ | 0.3− | 2005 10 03 | 703 | 0.3− | 0.1− |
| 2001 08 20 | 807 | 0.2+ | 0.1+ | 2005 10 10 | 691 | 0.3+ | 0.1− | 2005 10 28 | G96 | 0.4+ | 0.2− | 2005 10 03 | 703 | 0.4− | 0.0 |
| 2005 09 24 | 691 | 0.4+ | 0.1− | 2005 10 10 | 691 | 0.1− | 0.3− | 2005 11 19 | 705 | 0.3+ | 0.3− | 2005 10 03 | 691 | 0.1− | 0.3+ |
| 2005 09 24 | 691 | 0.1+ | 0.0 | 2005 10 25 | G96 | 0.4− | 0.1− | 2005 11 19 | 705 | 0.3+ | 0.1− | 2005 10 03 | 691 | 0.2+ | 0.0 |
| 2005 09 24 | 691 | 0.0 | 0.0 | 2005 10 25 | G96 | 0.6− | 0.2+ | 2009 11 24 | 691 | 0.1+ | 0.0 | 2005 10 06 | 699 | 0.8− | 0.5+ |
| 2005 09 29 | G96 | 0.2+ | 0.0 | 2005 10 25 | G96 | 0.1− | 0.3+ | 2009 11 24 | 691 | 0.0 | 0.1+ | 2005 10 06 | 699 | 0.7− | 0.2+ |
| 2005 09 29 | G96 | 0.1+ | 0.3+ | 2005 10 25 | G96 | 0.1− | 0.0 | 2009 11 24 | 691 | 0.1− | 0.1+ | 2005 10 06 | 699 | (1.6+ | 0.1+) |
| 2005 09 29 | G96 | 0.5− | 0.2+ | 2005 10 27 | 691 | 0.1+ | 0.1− | 2009 12 11 | G96 | 0.1+ | 0.2− | 2005 10 06 | 699 | 0.3+ | 0.5− |
| 2005 09 29 | G96 | 0.2+ | 0.0 | 2005 10 27 | 691 | 0.2+ | 0.4+ | 2009 12 11 | G96 | 0.0 | 0.1− | 2005 10 07 | 704 | 0.1+ | 0.3− |
| 2005 09 30 | 691 | 0.2− | 0.0 | 2005 10 27 | 691 | 0.5− | 0.3+ | 2009 12 11 | G96 | 0.1− | 0.3− | 2005 10 07 | 704 | 1.0+ | 0.4+ |
| 2005 09 30 | 691 | 0.2− | 0.1+ | 2005 10 28 | G96 | 0.1− | 0.1− | 2009 12 11 | G96 | 0.1+ | 0.1− | 2005 10 07 | 704 | 0.1+ | 0.4+ |
| 2005 09 30 | 691 | 0.0 | 0.2− | 2005 10 28 | G96 | 0.1+ | 0.4− | | | | | 2005 10 09 | 691 | 0.1− | 0.0 |
| | | | | | | | | | | | | 2005 10 09 | 691 | 0.2− | 0.0 |
| | | | | | | | | | | | | 2005 10 09 | 691 | 0.1+ | 0.2− |

**2005 SC$_{44}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 2.81456 | | (2000.0) | | | |
| $n$ | 0.22542026 | $\omega$ | 144.79689 | | +0.99424312 | −0.08848680 |
| $a$ | 2.6738729 | $\Omega$ | 220.41232 | | +0.06368142 | +0.94150136 |
| $e$ | 0.0731465 | $i$ | 5.34782 | | +0.08617019 | +0.32518499 |
| $P$ | 4.37 | $H$ | 16.9 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 24 | 691 | 0.2+ | 0.0 | 2005 10 09 | 691 | 0.1− | 0.3+ | 2005 11 06 | G96 | 0.4+ | 0.0 | 2005 10 03 | 691 | 0.1+ | 0.1− |
| 2005 09 24 | 691 | 0.0 | 0.1+ | 2005 10 09 | 691 | 0.1− | 0.2+ | 2005 11 26 | G96 | 0.2− | 0.2+ | 2005 10 07 | G96 | 0.2+ | 0.2+ |
| 2005 09 24 | 691 | 0.1− | 0.2+ | 2005 10 09 | 691 | 0.0 | 0.5+ | 2005 11 26 | G96 | 0.2+ | 0.3− | 2005 10 07 | G96 | 0.3+ | 0.2+ |
| 2005 09 29 | 691 | 0.1+ | 0.1− | 2005 10 13 | 691 | 0.1− | 0.2− | 2005 11 26 | G96 | 0.4− | 0.2− | 2005 10 07 | G96 | 0.3+ | 0.2+ |
| 2005 09 29 | 691 | 0.2− | 0.1+ | 2005 10 13 | 691 | 0.0 | 0.2− | 2005 11 26 | G96 | 0.0 | 0.0 | 2005 10 07 | G96 | 0.4+ | 0.1+ |
| 2005 09 29 | 691 | 0.2+ | 0.1+ | 2005 10 13 | 691 | 0.1+ | 0.1− | 2008 04 01 | 691 | 0.2− | 0.5− | | | | |
| 2005 10 03 | 691 | 0.1− | 0.1− | 2005 10 27 | 691 | 0.2+ | 0.0 | 2008 04 01 | 691 | 0.1+ | 0.2+ | | | | |
| 2005 10 03 | 691 | 0.0 | 0.2− | 2005 10 27 | 691 | 0.1+ | 0.1− | 2008 04 01 | 691 | 0.1+ | 0.1− | | | | |
| 2005 10 03 | 691 | 0.3− | 0.2− | 2005 10 27 | 691 | 0.2+ | 0.0 | 2008 04 26 | G96 | 0.5− | 0.0 | | | | |
| 2005 10 07 | 152 | 1.0− | 0.1− | 2005 11 06 | G96 | 0.4+ | 0.3− | 2008 04 26 | G96 | 0.1+ | 0.1+ | | | | |
| 2005 10 07 | 152 | 0.1− | 0.9− | 2005 11 06 | G96 | 0.1+ | 0.0 | 2008 04 26 | G96 | 0.1+ | 0.1− | | | | |
| 2005 10 07 | 152 | 0.4+ | 0.8− | 2005 11 06 | G96 | 0.2+ | 0.0 | 2008 04 26 | G96 | 0.2+ | 0.5+ | | | | |

**2005 SR$_{44}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 54.28829 | | (2000.0) | | | |
| $n$ | 0.27007451 | $\omega$ | 69.07840 | | +0.89047164 | −0.45470078 |
| $a$ | 2.3703564 | $\Omega$ | 317.96201 | | +0.40715688 | +0.81338558 |
| $e$ | 0.2263742 | $i$ | 1.50052 | | +0.20318351 | +0.36283756 |
| $P$ | 3.65 | $H$ | 17.7 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 10 11 | 691 | 0.2+ | 0.2+ | 2005 10 11 | 704 | (0.6− | 1.5−) | 2005 11 04 | 704 | 0.5− | 1.1+ | 2005 10 22 | 644 | 0.3− | 0.0 |
| 1994 10 11 | 691 | 0.2− | 0.4+ | 2005 10 11 | 704 | (1.8− | 0.1+) | 2005 11 04 | 704 | (1.1− | 1.9+) | 2005 10 22 | 644 | 0.2− | 0.1+ |
| 1994 10 11 | 691 | 0.2− | 0.2− | 2005 10 11 | 704 | 0.6+ | 1.3− | 2005 11 04 | 704 | 0.8− | 0.9+ | 2005 10 22 | 644 | 0.2− | 0.2+ |
| 2005 09 24 | 691 | 0.1+ | 0.0 | 2005 10 11 | 704 | 1.0− | 0.3− | 2005 11 05 | 704 | (0.8− | 2.0+) | 2005 10 24 | 699 | 0.8+ | 1.2− |
| 2005 09 24 | 691 | 0.3− | 0.0 | 2005 10 11 | 704 | 0.2− | 0.2− | 2005 11 05 | 704 | (0.2− | 1.6+) | 2005 10 24 | 699 | (1.2− | 1.6−) |
| 2005 09 24 | 691 | 0.1+ | 0.2+ | 2005 10 22 | 683 | (1.0+ | 2.2+) | 2005 11 05 | 704 | (0.1− | 2.2+) | 2005 10 24 | 699 | 1.4+ | 0.6+ |
| 2005 09 29 | 691 | 0.1+ | 0.1+ | 2005 10 22 | 683 | 1.2− | 1.5+ | 2005 11 05 | 704 | 0.7+ | 0.2+ | 2005 10 24 | 699 | 0.4+ | 0.1+ |
| 2005 09 29 | 691 | 0.0 | 0.0 | 2005 10 22 | 703 | 1.1− | 0.2+ | 2005 12 02 | 703 | 0.4− | 0.9− | 2005 10 26 | 691 | 0.2+ | 0.2− |
| 2005 09 29 | 691 | 0.1+ | 0.1+ | 2005 10 22 | 703 | 0.2+ | 0.6− | 2005 12 02 | 703 | 0.2− | 1.2+ | 2005 10 26 | 691 | 0.2+ | 0.3− |
| 2005 10 03 | 703 | 0.1+ | 0.3− | 2005 10 22 | 683 | 0.7+ | 1.1+ | 2005 12 02 | 703 | 1.5− | 1.3+ | 2005 10 26 | 691 | 0.1+ | 0.0 |
| 2005 10 03 | 703 | 0.9− | 0.1− | 2005 10 22 | 703 | 1.1− | 0.3− | 2005 12 02 | 703 | 0.8+ | 0.4− | 2005 10 28 | 703 | 0.6− | 0.9− |
| 2005 10 03 | 691 | 0.1+ | 0.2− | 2005 10 22 | 703 | 0.2+ | 0.4+ | 2007 03 20 | G96 | 0.4+ | 0.1− | 2005 10 28 | 703 | 1.1+ | 1.2− |
| | | | | | | | | | | | | 2005 10 28 | 703 | 0.2+ | 0.3− |
| | | | | | | | | | | | | 2005 10 28 | 703 | 0.4+ | 0.3− |
| | | | | | | | | | | | | 2005 11 04 | 704 | (0.9− | 2.2+) |

**2005 SO$_{46}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 243.49510 | | (2000.0) | | | |
| $n$ | 0.17897678 | $\omega$ | 213.12842 | | +0.51090558 | −0.85614772 |
| $a$ | 3.1184462 | $\Omega$ | 206.39426 | | +0.82169507 | +0.51281866 |
| $e$ | 0.0820485 | $i$ | 10.02335 | | +0.25257217 | +0.06346733 |
| $P$ | 5.51 | $H$ | 15.9 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 24 | 691 | 0.1+ | 0.1+ | 2005 10 09 | 691 | 0.1+ | 0.0 | 2005 11 29 | G96 | 0.5− | 0.3+ | 2005 10 03 | 691 | 0.1+ | 0.1− |
| 2005 09 24 | 691 | 0.0 | 0.3+ | 2005 10 09 | 691 | 0.1− | 0.1+ | 2005 11 29 | G96 | 0.3− | 0.3+ | 2005 10 07 | G96 | 0.2+ | 0.2+ |
| 2005 09 24 | 691 | 0.3+ | 0.1+ | 2005 10 09 | 691 | 0.2+ | 0.0 | 2005 11 29 | G96 | 0.0 | 0.4+ | 2005 10 07 | G96 | 0.3+ | 0.2+ |
| 2005 09 29 | 691 | 0.3− | 0.2+ | 2005 10 11 | 691 | 0.2+ | 0.5− | 2005 11 29 | G96 | 0.2+ | 0.1+ | 2005 10 07 | G96 | 0.4+ | 0.1+ |
| 2005 09 29 | 691 | 0.2− | 0.1+ | 2005 10 11 | 691 | 0.0 | 0.3− | 2008 02 28 | 691 | 0.2− | 0.1+ | | | | |
| 2005 09 29 | 691 | 0.3− | 0.1+ | 2005 10 11 | 691 | 0.4+ | 0.3− | 2008 02 28 | 691 | 0.2+ | 0.2+ | | | | |
| 2005 10 03 | 691 | 0.2− | 0.0 | 2005 10 13 | 691 | 0.2− | 0.0 | 2008 02 28 | 691 | 0.1− | 0.3− | | | | |
| 2005 10 03 | 691 | 0.1− | 0.2+ | 2005 10 13 | 691 | 0.6− | 0.1− | 2008 04 13 | G96 | 0.2+ | 0.1+ | | | | |
| 2005 10 03 | 691 | 0.1+ | 0.1− | 2005 10 13 | 691 | 0.0 | 0.2− | 2008 04 13 | G96 | 0.4+ | 0.0 | | | | |
| 2005 10 07 | G96 | 0.2+ | 0.2+ | 2005 10 27 | G96 | 0.5+ | 0.1+ | 2008 04 13 | G96 | 0.1+ | 0.2+ | | | | |
| 2005 10 07 | G96 | 0.3+ | 0.2+ | 2005 10 27 | G96 | 0.0 | 0.0 | 2008 04 13 | G96 | 0.1− | 0.2+ | | | | |
| 2005 10 07 | G96 | 0.3+ | 0.2+ | 2005 10 27 | G96 | 0.4+ | 0.0 | | | | | | | | |
| 2005 10 07 | G96 | 0.4+ | 0.1+ | 2005 10 27 | G96 | 0.4+ | 0.2+ | | | | | | | | |

**2005 SQ$_{49}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 77.16350 | | (2000.0) | | | |
| $n$ | 0.26681182 | $\omega$ | 167.85569 | | +0.97834870 | +0.20696333 |
| $a$ | 2.3896410 | $\Omega$ | 180.19990 | | −0.19174145 | +0.90624769 |
| $e$ | 0.1956087 | $i$ | 1.30598 | | −0.07790405 | +0.36862081 |
| $P$ | 3.69 | $H$ | 17.6 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 24 | 691 | 0.1− | 0.3+ | 2005 10 07 | 703 | 0.5− | 0.8+ | 2005 10 28 | G96 | 0.2+ | 0.1− | 2007 03 20 | G96 | 0.1+ | 0.1− |
| 2005 09 24 | 691 | 0.0 | 0.1+ | 2005 10 07 | 691 | 0.2− | 0.2− | 2005 10 28 | G96 | 0.4+ | 0.0 | 2007 03 20 | G96 | 0.1− | 0.6+ |
| 2005 09 24 | 691 | 0.2− | 0.2+ | 2005 10 07 | 691 | 0.1− | 0.2− | 2005 10 29 | 291 | 0.2+ | 0.3+ | 2007 03 20 | G96 | 0.0 | 0.4+ |
| 2005 09 29 | G96 | 0.0 | 0.1− | 2005 10 07 | 691 | 0.1− | 0.1− | 2005 10 29 | 291 | 0.1+ | 0.2+ | 2009 11 11 | G96 | 0.2+ | 0.7− |
| 2005 09 29 | G96 | 0.4+ | 0.0 | 2005 10 21 | 644 | 0.2+ | 0.2− | 2005 10 29 | 291 | 0.2+ | 0.2+ | 2009 11 11 | G96 | 0.0 | 0.1− |
| 2005 09 29 | G96 | 0.2+ | 0.0 | 2005 10 21 | 644 | 0.0 | 0.3+ | 2005 10 29 | G96 | 0.1+ | 0.1− | 2009 11 11 | G96 | 0.2+ | 0.7− |
| 2005 09 29 | G96 | 0.5+ | 0.1+ | 2005 10 21 | 644 | 0.0 | 0.0 | 2005 10 29 | G96 | 0.1− | 0.2− | 2009 11 11 | G96 | 0.1− | 0.2− |
| 2005 09 29 | G96 | 0.3+ | 0.1− | 2005 10 28 | G96 | 0.1+ | 0.4− | 2005 10 29 | G96 | 0.6+ | 0.2− | 2009 12 17 | 691 | 0.4− | 0.3+ |
| 2005 09 29 | G96 | 0.7+ | 0.0 | 2005 10 28 | G96 | 0.1− | 0.1− | 2005 10 29 | G96 | 0.3+ | 0.3− | 2009 12 17 | 691 | 0.4+ | 0.2− |
| 2005 09 29 | G96 | 0.0 | 0.4− | 2005 10 28 | 703 | 1.3− | 0.3+ | 2009 11 24 | 691 | 0.2− | 0.0 | 2009 12 17 | 691 | 0.2− | 0.2+ |
| 2005 09 29 | G96 | 0.8+ | 0.2+ | 2005 10 28 | G96 | 0.1+ | 0.6− | 2009 11 24 | 691 | 0.2+ | 0.1+ | 2009 12 18 | G96 | 0.2+ | 0.4− |
| 2005 09 30 | 691 | 0.0 | 0.2+ | 2005 10 28 | 703 | 1.3− | 0.4− | 2009 11 24 | 691 | 0.2− | 0.1+ | 2009 12 18 | G96 | 0.3+ | 0.1+ |
| 2005 09 30 | 691 | 0.0 | 0.2− | 2005 10 28 | G96 | 0.2+ | 0.1− | 2009 12 10 | G96 | 0.5− | 0.2− | 2009 12 18 | G96 | 0.1− | 0.0 |
| 2005 09 30 | 691 | 0.3− | 0.1− | 2005 10 28 | 703 | 0.3+ | 0.3− | 2009 12 10 | G96 | 0.9+ | 0.0 | 2009 12 18 | G96 | 0.1− | 0.1− |
| 2005 10 07 | 703 | 0.5+ | 0.8− | 2005 10 28 | 703 | 0.7− | 1.8− | 2009 12 10 | G96 | 0.3+ | 0.1+ | | | | |
| 2005 10 07 | 703 | 0.6+ | 0.3+ | 2005 10 28 | G96 | 0.1− | 0.3− | 2009 12 10 | G96 | 0.2+ | 0.0 | | | | |
| 2005 10 07 | 703 | 0.3+ | 1.3+ | 2005 10 28 | G96 | 0.0 | 0.1− | | | | | | | | |

**2005 SS$_{49}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 59.08115 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27087817 | $\omega$ | 201.18910 | | +0.91359394 | −0.40662285 | |
| $a$ | 2.3656658 | $\Omega$ | 182.80614 | | +0.37867913 | +0.85257466 | |
| $e$ | 0.2166828 | $i$ | 2.33173 | | +0.14814934 | +0.32828996 | |
| $P$ | 3.64 | $H$ | 17.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 09 28 | 691 | 0.0 | 0.0 | 2005 10 07 | 703 | 0.6− | 0.3+ | 2005 10 29 | G96 | 0.1− | 0.4− | | | | |
| 1994 09 28 | 691 | 0.1+ | 0.1− | 2005 10 07 | 703 | 1.1+ | 0.2+ | 2005 10 29 | G96 | 0.1+ | 0.3− | | | | |
| 1994 09 28 | 691 | 0.1− | 0.1− | 2005 10 07 | 691 | 0.1− | 0.1− | 2005 10 29 | G96 | 0.3− | 0.3− | | | | |
| 2005 08 30 | 644 | 0.2− | 0.8+ | 2005 10 07 | 691 | 0.1+ | 0.0 | 2005 10 29 | G96 | 0.2− | 0.1− | | | | |
| 2005 08 30 | 644 | 0.3+ | 0.4+ | 2005 10 07 | 691 | 0.1+ | 0.0 | 2005 10 30 | G96 | 0.0 | 0.4− | | | | |
| 2005 08 30 | 644 | 0.2− | 0.1+ | 2005 10 22 | 703 | 0.2+ | 0.8− | 2005 10 30 | G96 | 0.2− | 0.3− | | | | |
| 2005 09 24 | 691 | 0.1− | 0.1+ | 2005 10 22 | 703 | 0.5− | 0.4− | 2005 10 30 | G96 | 0.2− | 0.3− | | | | |
| 2005 09 24 | 691 | 0.0 | 0.1+ | 2005 10 22 | 703 | 0.2− | 0.2+ | 2005 10 30 | G96 | 0.5− | 0.8− | | | | |
| 2005 09 24 | 691 | 0.1− | 0.0 | 2005 10 22 | 703 | 1.1+ | 0.6− | 2005 10 31 | 704 | 0.0 | 0.3+ | | | | |
| 2005 09 29 | G96 | 0.0 | 0.4− | 2005 10 22 | 703 | 1.3− | 0.6− | 2005 10 31 | 704 | 1.0+ | 0.1+ | | | | |
| 2005 09 29 | G96 | 0.1+ | 0.4− | 2005 10 22 | 703 | 0.9− | 0.8+ | 2005 10 31 | 704 | 0.0 | 0.6+ | | | | |
| 2005 09 29 | G96 | 0.1− | 0.5− | 2005 10 22 | 703 | 1.1− | 0.3− | 2005 10 31 | 704 | 0.6+ | 1.5+ | | | | |
| 2005 09 29 | G96 | 0.0 | 0.4− | 2005 10 22 | 703 | 1.4− | 0.6− | 2005 10 31 | 704 | 0.4+ | 0.9+ | | | | |
| 2005 09 30 | 644 | 0.1− | 0.2+ | 2005 10 24 | 699 | 0.1− | 0.1− | 2009 12 17 | G96 | 0.2+ | 0.3− | | | | |
| 2005 09 30 | 644 | 0.1+ | 0.1+ | 2005 10 24 | 699 | (1.8+ | 2.2+) | 2009 12 17 | G96 | 0.2+ | 0.3− | | | | |
| 2005 09 30 | 644 | 0.2− | 0.3+ | 2005 10 24 | 699 | 0.7+ | 0.4+ | 2009 12 17 | G96 | 0.3+ | 0.5− | | | | |
| 2005 10 01 | 704 | 0.5− | 0.9+ | 2005 10 24 | A50 | 0.5+ | 0.3+ | 2009 12 17 | G96 | 0.4+ | 0.3− | | | | |
| 2005 10 01 | 704 | 0.9+ | 0.8+ | 2005 10 24 | A50 | (0.7− | 2.8−) | 2009 12 17 | G96 | 0.0 | 0.5− | | | | |
| 2005 10 01 | 704 | 0.5+ | 1.0+ | 2005 10 28 | 704 | 0.5+ | 0.3− | 2009 12 18 | 691 | 0.5− | 1.7+ | | | | |
| 2005 10 01 | 704 | 0.6− | 0.0 | 2005 10 28 | 704 | 0.3+ | 0.1+ | 2009 12 18 | 691 | 0.2+ | 0.3+ | | | | |
| 2005 10 06 | 699 | 1.0+ | 1.1+ | 2005 10 28 | 704 | 0.3− | 0.3− | 2009 12 18 | 691 | 0.2+ | 0.0 | | | | |
| 2005 10 06 | 699 | 0.3+ | 0.8− | 2005 10 28 | 704 | (0.4− | 1.5+) | 2009 12 18 | 691 | 0.1+ | 0.5− | | | | |
| 2005 10 06 | 699 | 0.3+ | 0.2− | 2005 10 29 | G96 | 0.1− | 0.4− | 2009 12 18 | 691 | 0.6+ | 0.4− | | | | |
| 2005 10 06 | 699 | 0.9+ | 0.7+ | 2005 10 29 | G96 | 0.2− | 0.5− | 2009 12 18 | 691 | 0.8− | 0.4− | | | | |
| 2005 10 07 | 703 | (1.8+ | 3.5−) | 2005 10 29 | G96 | 0.1+ | 0.5− | | | | | | | | |
| 2005 10 07 | 703 | 0.2− | 0.5+ | 2005 10 29 | G96 | 0.1− | 0.5− | | | | | | | | |

**2005 SU$_{57}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 56.81197 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.25988769 | $\omega$ | 347.67880 | | +0.99624065 | +0.08541698 | |
| $a$ | 2.4318992 | $\Omega$ | 7.46641 | | −0.06701258 | +0.86550234 | |
| $e$ | 0.1072667 | $i$ | 6.38003 | | −0.05489884 | +0.49356827 | |
| $P$ | 3.79 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 10 | 699 | 0.4+ | 0.2+ | 2005 10 02 | G96 | 0.1− | 0.0 | 2005 10 10 | 691 | 0.1+ | 0.1+ | | | | |
| 2001 09 10 | 699 | 0.7− | 0.6− | 2005 10 02 | G96 | 0.4+ | 0.0 | 2005 10 10 | 691 | 0.3− | 0.2+ | | | | |
| 2001 09 10 | 699 | 0.2− | 0.4+ | 2005 10 02 | G96 | 0.2+ | 0.1+ | 2005 10 25 | 691 | 1.1+ | 0.4− | | | | |
| 2001 09 10 | 699 | 0.4+ | 0.3+ | 2005 10 05 | 691 | 0.1− | 0.2+ | 2005 10 25 | 691 | 0.1+ | 0.0 | | | | |
| 2005 09 22 | 644 | 0.1+ | 0.0 | 2005 10 05 | 691 | 0.2− | 0.2+ | 2005 10 25 | 691 | 0.1− | 0.2+ | | | | |
| 2005 09 22 | 644 | 0.4+ | 0.1+ | 2005 10 05 | 691 | 0.2− | 0.2+ | 2005 10 27 | 703 | 0.3+ | 0.4+ | | | | |
| 2005 09 22 | 644 | 0.5− | 0.3+ | 2005 10 06 | 699 | 1.0+ | 0.5− | 2005 10 27 | 703 | 0.5− | 0.2− | | | | |
| 2005 09 26 | 691 | 0.1− | 0.2− | 2005 10 06 | 699 | 0.5+ | 1.3+ | 2005 10 27 | 703 | (1.8− | 0.5+) | | | | |
| 2005 09 26 | 691 | 0.0 | 0.2− | 2005 10 06 | 699 | 0.6− | 0.2+ | 2005 10 27 | 703 | 0.5− | 0.5− | | | | |
| 2005 09 26 | 691 | 0.0 | 0.3− | 2005 10 06 | 699 | 0.3− | 0.9+ | 2005 11 03 | G96 | 0.2− | 0.4− | | | | |
| 2005 09 29 | 699 | 0.2+ | 0.2+ | 2005 10 07 | 704 | 0.6+ | 0.0 | 2005 11 03 | G96 | 0.0 | 0.2− | | | | |
| 2005 09 29 | 699 | 0.9− | 0.0 | 2005 10 07 | 704 | 0.3+ | 0.0 | 2005 11 03 | G96 | 0.2− | 0.1− | | | | |
| 2005 09 29 | 699 | 0.1− | 0.6− | 2005 10 07 | 704 | 0.3− | 0.1− | 2005 11 03 | G96 | 0.0 | 0.2− | | | | |
| 2005 09 29 | 699 | 0.5− | 1.5+ | 2005 10 07 | 704 | 0.0 | 1.3− | 2009 11 08 | 703 | 1.3− | 0.7+ | | | | |
| 2005 09 30 | 691 | 0.1− | 0.1− | 2005 10 07 | 703 | (1.7+ | 1.5+) | 2009 11 08 | 703 | 0.7− | 0.1+ | | | | |
| 2005 09 30 | 691 | 0.0 | 0.2+ | 2005 10 07 | 703 | 0.2+ | 0.2− | 2009 11 08 | 703 | 0.7+ | 0.1+ | | | | |
| 2005 09 30 | 691 | 0.2− | 0.1+ | 2005 10 07 | 703 | 1.4+ | 1.3+ | 2009 11 08 | 703 | 0.3+ | 0.4− | | | | |
| 2005 09 30 | G96 | 0.2− | 0.3− | 2005 10 07 | 703 | 0.7− | 0.5+ | 2009 11 21 | G96 | 0.2+ | 0.0 | | | | |
| 2005 09 30 | G96 | 0.0 | 0.3− | 2005 10 08 | 291 | 0.0 | 0.6− | 2009 11 21 | G96 | 0.4+ | 0.3+ | | | | |
| 2005 09 30 | G96 | 0.1− | 0.3− | 2005 10 08 | 291 | 0.0 | 0.1− | 2009 11 21 | G96 | 0.1+ | 0.2− | | | | |
| 2005 09 30 | G96 | 0.2+ | 0.1− | 2005 10 08 | 291 | 0.2+ | 0.1− | 2009 11 21 | G96 | 0.1− | 0.1+ | | | | |
| 2005 10 02 | G96 | 0.1+ | 0.1− | 2005 10 10 | 691 | 0.1+ | 0.0 | | | | | | | | |

**2005 SZ$_{53}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 47.15882 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27259575 | $\omega$ | 218.86334 | | +0.74535721 | −0.66666433 | |
| $a$ | 2.3557181 | $\Omega$ | 182.94756 | | +0.61706297 | +0.69054730 | |
| $e$ | 0.1811507 | $i$ | 1.27258 | | +0.25234089 | +0.28054072 | |
| $P$ | 3.62 | $H$ | 17.8 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 25 | 691 | 0.0 | 0.3− | 2005 10 22 | 703 | 0.5− | 0.3+ | 2007 03 26 | G96 | 0.1+ | 0.7+ | | | | |
| 2005 09 25 | 691 | 0.1+ | 0.3− | 2005 10 22 | 703 | 0.7− | 0.8− | 2007 03 26 | G96 | 0.4+ | 0.0 | | | | |
| 2005 09 25 | 691 | 0.1+ | 0.3− | 2005 10 22 | 703 | (0.3− | 2.2−) | 2007 03 26 | G96 | 0.1− | 0.0 | | | | |
| 2005 09 29 | G96 | 0.3+ | 0.4− | 2005 10 22 | 703 | 0.0 | 1.0+ | 2007 03 26 | G96 | 0.0 | 0.0 | | | | |
| 2005 09 29 | G96 | 0.2− | 0.0 | 2005 10 26 | 691 | 0.2− | 0.0 | 2009 12 17 | G96 | 0.2+ | 0.0 | | | | |
| 2005 09 29 | G96 | 0.3+ | 0.4− | 2005 10 26 | 691 | 0.2+ | 0.1+ | 2009 12 17 | G96 | 0.6+ | 0.0 | | | | |
| 2005 09 29 | G96 | 0.3+ | 0.1− | 2005 10 26 | 691 | 0.1+ | 0.0 | 2009 12 17 | G96 | 0.1− | 0.2+ | | | | |
| 2005 10 01 | 691 | 0.8− | 0.2+ | 2005 10 28 | 704 | 0.5+ | 0.1+ | 2009 12 17 | G96 | 0.2− | 0.4+ | | | | |
| 2005 10 01 | 691 | 0.2− | 0.3− | 2005 10 28 | 704 | (1.8+ | 0.4+) | 2009 12 17 | G96 | 0.6+ | 0.1− | | | | |
| 2005 10 01 | 691 | 0.0 | 0.2− | 2005 10 28 | 704 | 1.5+ | 0.5+ | 2009 12 18 | 691 | 0.2+ | 0.0 | | | | |
| 2005 10 07 | 704 | 0.2− | 0.7− | 2005 10 28 | 704 | (2.6+ | 0.5+) | 2009 12 18 | 691 | 0.1− | 0.1− | | | | |
| 2005 10 07 | 704 | 0.2+ | 0.7+ | 2005 10 28 | 704 | 1.1+ | 0.9+ | 2009 12 18 | 691 | 0.2+ | 0.0 | | | | |
| 2005 10 07 | 704 | 0.1− | 0.7+ | 2005 12 04 | G96 | 0.2− | 0.0 | 2009 12 26 | 691 | 0.3− | 0.1+ | | | | |
| 2005 10 10 | 691 | 0.1− | 0.2+ | 2005 12 04 | G96 | 0.5− | 0.0 | 2009 12 26 | 691 | 0.2− | 0.1− | | | | |
| 2005 10 10 | 691 | 0.1− | 0.3+ | 2005 12 04 | G96 | 0.2− | 0.1− | 2009 12 26 | 691 | 0.1− | 0.2− | | | | |
| 2005 10 10 | 691 | 0.2+ | 0.4+ | 2005 12 04 | G96 | 0.3− | 0.4− | | | | | | | | |

**2005 SY$_{67}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 203.84579 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17471568 | $\omega$ | 255.18888 | | +0.08792433 | −0.99558191 | |
| $a$ | 3.1689457 | $\Omega$ | 189.94338 | | +0.97150641 | +0.09301398 | |
| $e$ | 0.0715702 | $i$ | 11.00211 | | +0.22010134 | −0.01284772 | |
| $P$ | 5.64 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 27 | 691 | 0.2− | 0.2+ | 2005 10 26 | G96 | 0.5+ | 0.7+ | 2005 11 24 | 705 | 0.3− | 0.0 | | | | |
| 2005 09 27 | 691 | 0.3− | 0.2+ | 2005 10 26 | G96 | 0.2+ | 0.4+ | 2005 11 24 | 705 | 0.2− | 0.1+ | | | | |
| 2005 09 27 | 691 | 0.1+ | 0.2+ | 2005 10 28 | 705 | 0.1− | 0.0 | 2005 11 25 | 705 | 0.1+ | 0.0 | | | | |
| 2005 09 29 | G96 | 0.1− | 0.2+ | 2005 10 28 | 705 | 0.1+ | 0.1− | 2005 11 25 | 705 | 0.1+ | 0.0 | | | | |
| 2005 09 29 | G96 | 0.2− | 0.1+ | 2005 10 30 | 705 | 0.1+ | 0.0 | 2005 11 30 | 705 | 0.1+ | 0.0 | | | | |
| 2005 09 29 | G96 | 0.2+ | 0.2+ | 2005 10 30 | 705 | 0.1+ | 0.1− | 2005 11 30 | 705 | 0.1− | 0.1+ | | | | |
| 2005 09 29 | G96 | 0.2+ | 0.2− | 2005 10 31 | 705 | 0.2+ | 0.1− | 2008 03 02 | 691 | 0.5+ | 0.1− | | | | |
| 2005 10 01 | 691 | 0.6− | 0.0 | 2005 10 31 | 705 | 0.1+ | 0.1− | 2008 03 02 | 691 | 0.6− | 0.1− | | | | |
| 2005 10 01 | 691 | 0.3+ | 0.5− | 2005 11 03 | 705 | 0.0 | 0.1− | 2008 03 02 | 691 | 0.1− | 0.2+ | | | | |
| 2005 10 01 | 691 | 0.1+ | 0.3+ | 2005 11 03 | 705 | 0.1+ | 0.1− | 2008 03 26 | G96 | 0.1+ | 0.3+ | | | | |
| 2005 10 25 | G96 | 0.2− | 0.2− | 2005 11 05 | 705 | 0.2+ | 0.1− | 2008 03 26 | G96 | 0.1+ | 0.3+ | | | | |
| 2005 10 25 | G96 | 0.2− | 0.2− | 2005 11 05 | 705 | 0.1+ | 0.1− | 2008 03 26 | G96 | 0.0 | 0.2+ | | | | |
| 2005 10 25 | G96 | 0.1− | 0.6− | 2005 11 07 | 705 | 0.1+ | 0.1− | 2008 03 26 | G96 | 0.5+ | 0.1+ | | | | |
| 2005 10 25 | 705 | 0.1+ | 0.1− | 2005 11 07 | 705 | 0.1+ | 0.1− | 2008 04 24 | G96 | 0.4− | 0.2+ | | | | |
| 2005 10 25 | 705 | 0.4+ | 0.0 | 2005 11 09 | 705 | 0.0 | 0.0 | 2008 04 24 | G96 | 0.2+ | 0.7+ | | | | |
| 2005 10 25 | G96 | 0.6+ | 0.1− | 2005 11 09 | 705 | 0.0 | 0.1− | 2008 04 24 | G96 | 0.5+ | 0.2+ | | | | |
| 2005 10 26 | G96 | 0.0 | 0.4+ | 2005 11 23 | 705 | 0.0 | 0.0 | 2008 04 24 | G96 | 0.1+ | 0.1+ | | | | |
| 2005 10 26 | G96 | 0.3− | 0.4+ | 2005 11 23 | 705 | 0.0 | 0.0 | | | | | | | | |

**2005 SY$_{72}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 17.39732 | | (2000.0) | | | |
| $n$ | 0.23083194 | $\omega$ | 353.91558 | | +0.92087849 | +0.38718849 |
| $a$ | 2.6319166 | $\Omega$ | 343.08364 | | −0.35076800 | +0.77200226 |
| $e$ | 0.2265202 | $i$ | 8.99108 | | −0.17013115 | +0.50408094 |
| $P$ | 4.27 | $H$ | 16.7 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 08 25 | 644 | 0.2− | 0.4− | 2005 09 26 | 644 | 0.3+ | 0.0 | 2005 10 08 | 704 | 0.3− | 0.5+ |
| 2005 08 25 | 644 | 0.3− | 0.3− | 2005 09 26 | 644 | 0.2+ | 0.0 | 2005 10 08 | 704 | 0.4+ | 0.9+ |
| 2005 08 25 | 644 | 0.1− | 0.5− | 2005 09 26 | 644 | 0.4+ | 0.2− | 2005 10 08 | 704 | 0.8− | 0.5− |
| 2005 08 30 | 704 | 0.4+ | 0.5+ | 2005 09 30 | 644 | 0.3+ | 0.2− | 2005 10 08 | 704 | 1.1− | 0.8− |
| 2005 08 30 | 704 | 1.8− | 0.7+ | 2005 09 30 | 644 | 0.2+ | 0.1− | 2005 10 30 | 699 | 1.0+ | 0.4+ |
| 2005 08 30 | 704 | 0.3− | 0.3+ | 2005 09 30 | 644 | 0.3+ | 0.0 | 2005 10 30 | 699 | 0.2− | 0.0 |
| 2005 08 30 | 704 | 0.3+ | 0.1− | 2005 10 01 | 703 | 0.2− | 0.2+ | 2005 10 30 | 699 | 0.7− | 0.9− |
| 2005 09 15 | 703 | 0.8+ | 0.1− | 2005 10 01 | 703 | 0.8− | 0.2+ | 2005 10 30 | 699 | 1.0− | 0.1+ |
| 2005 09 15 | 703 | 0.3+ | 0.3+ | 2005 10 01 | 703 | 0.3− | 0.2+ | 2009 08 18 | E12 | 0.5− | 0.1+ |
| 2005 09 15 | 703 | 0.3− | 0.3+ | 2005 10 01 | 703 | 0.8+ | 0.2− | 2009 08 18 | E12 | 0.3− | 0.7− |
| 2005 09 15 | 703 | 0.2− | 0.3+ | 2005 10 06 | 703 | 0.2+ | 0.1+ | 2009 08 18 | E12 | 0.9+ | 0.3+ |
| 2005 09 23 | 703 | 0.0 | 0.9− | 2005 10 06 | 703 | 0.5− | 0.1− | 2009 10 22 | G96 | 0.2− | 0.3+ |
| 2005 09 23 | 703 | 0.7+ | 1.3+ | 2005 10 06 | 703 | 1.0+ | 0.3− | 2009 10 22 | G96 | 0.4− | 0.3+ |
| 2005 09 23 | 703 | 0.3+ | 0.8− | 2005 10 06 | 703 | 0.4− | 0.2− | 2009 10 22 | G96 | 0.3− | 0.4− |
| 2005 09 23 | 703 | 1.1+ | 0.0 | 2005 10 08 | 704 | 0.3+ | 0.0 | 2009 10 22 | G96 | 0.7+ | 0.4+ |

**2005 SE$_{81}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 325.20484 | | (2000.0) | | | |
| $n$ | 0.17898526 | $\omega$ | 280.03902 | | +0.51820119 | +0.85500504 |
| $a$ | 3.1183476 | $\Omega$ | 21.21225 | | −0.76040961 | +0.47174327 |
| $e$ | 0.1810898 | $i$ | 3.30034 | | −0.39146488 | +0.21546383 |
| $P$ | 5.51 | $H$ | 16.8 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 10 02 | 691 | 0.2+ | 0.2− | 2005 09 30 | 691 | 0.3− | 0.3+ | 2005 11 01 | 705 | 0.2− | 0.2+ |
| 1994 10 02 | 691 | 0.7+ | 0.3− | 2005 09 30 | 691 | 0.3− | 0.1− | 2005 11 01 | 705 | 0.0 | 0.0 |
| 1994 10 02 | 691 | 0.3− | 0.6− | 2005 10 06 | 691 | 0.2− | 0.1+ | 2005 11 02 | 705 | 0.0 | 0.0 |
| 2005 08 30 | 691 | 0.1+ | 0.1− | 2005 10 06 | 691 | 0.1− | 0.2+ | 2005 11 02 | 705 | 0.0 | 0.1+ |
| 2005 08 30 | 691 | 0.2− | 0.0 | 2005 10 06 | 691 | 0.0 | 0.5+ | 2005 11 05 | 705 | 0.0 | 0.2+ |
| 2005 08 30 | 691 | 0.3− | 0.2− | 2005 10 12 | 705 | 0.3+ | 0.1− | 2005 11 05 | 705 | 0.1+ | 0.1+ |
| 2005 09 13 | 691 | 0.2+ | 0.2− | 2005 10 12 | 705 | 0.3+ | 0.1− | 2005 11 26 | 705 | 0.2− | 0.2+ |
| 2005 09 13 | 691 | 0.3+ | 0.1+ | 2005 10 21 | 705 | 0.1+ | 0.1+ | 2005 11 26 | 705 | 0.2− | 0.1+ |
| 2005 09 13 | 691 | 0.2+ | 0.1− | 2005 10 21 | 705 | 0.1+ | 0.0 | 2005 11 30 | 705 | 0.2− | 0.1+ |
| 2005 09 24 | 691 | 0.1− | 0.1− | 2005 10 23 | 705 | 0.2+ | 0.1+ | 2005 11 30 | 705 | 0.3− | 0.1− |
| 2005 09 24 | 691 | 0.2+ | 0.0 | 2005 10 23 | 705 | 0.1+ | 0.1+ | 2005 12 01 | 705 | 0.2− | 0.4+ |
| 2005 09 24 | 705 | 0.3+ | 0.1− | 2005 10 25 | 705 | 0.0 | 0.1− | 2005 12 01 | 705 | 0.4− | 0.2+ |
| 2005 09 24 | 691 | 0.1− | 0.1+ | 2005 10 25 | 705 | 0.3+ | 0.3+ | 2009 04 28 | G96 | 0.2+ | 0.4− |
| 2005 09 24 | 705 | 0.4+ | 0.1− | 2005 10 27 | 705 | 0.0 | 0.0 | 2009 04 28 | G96 | 0.4− | 0.1+ |
| 2005 09 27 | 705 | 0.3+ | 0.2− | 2005 10 27 | 705 | 0.1+ | 0.1+ | 2009 04 28 | G96 | 0.2+ | 0.9+ |
| 2005 09 27 | 705 | 0.4+ | 0.1− | 2005 10 30 | 705 | 0.1+ | 0.0 | 2009 04 28 | G96 | 0.3+ | 0.0 |
| 2005 09 30 | 691 | 0.4− | 0.3+ | 2005 10 30 | 705 | 0.1+ | 0.0 | | | | |

**2005 SN$_{84}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 319.03179 | | (2000.0) | | | |
| $n$ | 0.19089139 | $\omega$ | 159.48968 | | +0.97766436 | +0.20850960 |
| $a$ | 2.9872976 | $\Omega$ | 188.60394 | | −0.20888663 | +0.95013174 |
| $e$ | 0.0703397 | $i$ | 10.15809 | | −0.02321169 | +0.23189097 |
| $P$ | 5.16 | $H$ | 16.5 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 24 | 691 | 0.4+ | 0.2− | 2005 10 29 | G96 | 0.2+ | 0.1− | 2005 11 01 | G96 | 0.1+ | 0.1+ |
| 2005 09 24 | 691 | 0.5+ | 0.1− | 2005 10 29 | G96 | 0.1− | 0.3− | 2005 11 01 | G96 | 0.0 | 0.1− |
| 2005 09 24 | 691 | 0.1− | 0.3+ | 2005 10 30 | G96 | 0.4− | 0.1− | 2005 11 06 | 705 | 0.1− | 0.2+ |
| 2005 09 24 | 691 | 0.1+ | 0.2+ | 2005 10 30 | G96 | 0.3− | 0.3− | 2005 11 06 | 705 | 0.1− | 0.1+ |
| 2005 09 24 | 691 | 0.2− | 0.2− | 2005 10 30 | G96 | 0.1− | 0.4− | 2005 11 19 | 705 | 0.1− | 0.1+ |
| 2005 09 24 | 691 | 0.5− | 0.2− | 2005 10 30 | G96 | 0.0 | 0.4− | 2005 11 19 | 705 | 0.0 | 0.3+ |
| 2005 09 30 | 691 | 0.1− | 0.2+ | 2005 10 30 | G96 | 0.5+ | 0.0 | 2005 11 23 | 705 | 0.1− | 0.1+ |
| 2005 09 30 | 691 | 0.0 | 0.2+ | 2005 10 30 | G96 | 0.1− | 0.7+ | 2005 11 23 | 705 | 0.1− | 0.3+ |
| 2005 09 30 | 691 | 0.1− | 0.4+ | 2005 10 30 | G96 | 0.2− | 0.3− | 2005 12 01 | 705 | 0.3− | 0.1+ |
| 2005 10 01 | G96 | 0.1− | 0.1+ | 2005 10 30 | G96 | 0.2+ | 0.1− | 2005 12 01 | 705 | 0.4− | 0.0 |
| 2005 10 01 | G96 | 0.0 | 0.0 | 2005 10 31 | G96 | 0.1+ | 0.1− | 2008 03 10 | 691 | 0.2− | 0.1− |
| 2005 10 01 | G96 | 0.1+ | 0.1+ | 2005 10 31 | G96 | 0.2+ | 0.0 | 2008 03 10 | 691 | 0.1− | 0.1+ |
| 2005 10 01 | G96 | 0.1+ | 0.2+ | 2005 10 31 | G96 | 0.4+ | 0.1+ | 2008 03 10 | 691 | 0.1+ | 0.0 |
| 2005 10 10 | 691 | 0.0 | 0.1− | 2005 10 31 | G96 | 0.0 | 0.1− | 2008 03 29 | G96 | 0.0 | 0.3− |
| 2005 10 10 | 691 | 0.0 | 0.1− | 2005 11 01 | G96 | 0.2+ | 0.2− | 2008 03 29 | G96 | 0.3+ | 0.2− |
| 2005 10 10 | 691 | 0.0 | 0.0 | 2005 11 01 | 705 | 0.2+ | 0.1+ | 2008 03 29 | G96 | 0.3+ | 0.5+ |
| 2005 10 29 | G96 | 0.3+ | 0.2− | 2005 11 01 | 705 | 0.1+ | 0.1+ | 2008 03 29 | G96 | 0.2+ | 0.2+ |
| 2005 10 29 | G96 | 0.0 | 0.1− | 2005 11 01 | G96 | 0.1+ | 0.4− | | | | |

**2005 SJ$_{89}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 36.43949 | | (2000.0) | | | |
| $n$ | 0.22405257 | $\omega$ | 93.75971 | | +0.81693085 | +0.57537374 |
| $a$ | 2.6847432 | $\Omega$ | 231.11912 | | −0.54728711 | +0.75172095 |
| $e$ | 0.1046969 | $i$ | 2.91673 | | −0.18193626 | +0.32227421 |
| $P$ | 4.40 | $H$ | 16.9 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 24 | 691 | 0.1− | 0.2− | 2005 10 24 | 691 | 0.8+ | 0.0 | 2005 11 26 | G96 | 0.0 | 0.4− |
| 2005 09 24 | 691 | 0.2− | 0.4− | 2005 10 24 | 691 | 0.2+ | 0.1+ | 2005 11 26 | G96 | 0.4− | 0.5− |
| 2005 09 24 | 691 | 0.1− | 0.1+ | 2005 10 24 | 691 | 0.5+ | 0.0 | 2005 11 26 | G96 | 0.1− | 0.5− |
| 2005 09 30 | 691 | 0.4+ | 0.1+ | 2005 10 31 | 691 | 0.0 | 0.1+ | 2005 11 26 | G96 | 0.1+ | 0.6− |
| 2005 09 30 | 691 | 0.1− | 0.0 | 2005 10 31 | 691 | 0.2− | 0.1+ | 2008 04 14 | G96 | 0.2− | 0.0 |
| 2005 09 30 | 691 | 0.2+ | 0.0 | 2005 10 31 | 691 | 0.0 | 0.4+ | 2008 04 14 | G96 | 0.1+ | 0.5+ |
| 2005 10 03 | G96 | 0.3+ | 0.2− | 2005 11 01 | 691 | 0.7− | 0.3+ | 2008 04 14 | G96 | 0.3+ | 0.4+ |
| 2005 10 03 | G96 | 0.3− | 0.3− | 2005 11 01 | 691 | 0.1− | 0.6+ | 2008 04 14 | G96 | 0.0 | 0.3+ |
| 2005 10 03 | G96 | 0.0 | 0.1− | 2005 11 01 | 691 | 0.4− | 0.2+ | 2008 04 30 | G96 | 0.2+ | 0.2+ |
| 2005 10 03 | G96 | 0.2− | 0.5− | 2005 11 06 | G96 | 0.0 | 0.4− | 2008 04 30 | G96 | 0.2+ | 0.2+ |
| 2005 10 11 | 691 | 0.1+ | 0.1+ | 2005 11 06 | G96 | 0.0 | 0.3− | 2008 04 30 | G96 | 0.3+ | 0.3+ |
| 2005 10 11 | 691 | 0.2− | 0.2+ | 2005 11 06 | G96 | 0.1+ | 0.4− | 2008 04 30 | G96 | 0.2− | 0.0 |
| 2005 10 11 | 691 | 0.1− | 0.2+ | 2005 11 06 | G96 | 0.3− | 1.8− | | | | |

**2005 SX$_{92}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 340.74332 | | (2000.0) | | | |
| $n$ | 0.20964926 | $\omega$ | 346.01012 | | +0.99914912 | +0.01168065 |
| $a$ | 2.8063414 | $\Omega$ | 13.50818 | | +0.01168536 | +0.83958652 |
| $e$ | 0.1705952 | $i$ | 9.74941 | | −0.03955360 | +0.54310040 |
| $P$ | 4.70 | $H$ | 16.9 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 08 30 | 699 | 0.7− | 0.5+ | 2005 10 03 | 703 | 0.0 | 0.3+ | 2005 10 22 | 644 | 0.2+ | 0.3+ |
| 2005 08 30 | 699 | 0.0 | 0.5+ | 2005 10 07 | 704 | 0.1+ | 0.0 | 2005 10 22 | 644 | 0.1− | 0.0 |
| 2005 08 30 | 699 | 0.4+ | 0.2− | 2005 10 07 | 704 | 0.3− | 0.5+ | 2005 10 22 | 644 | 0.0 | 0.1− |
| 2005 08 30 | 699 | 0.3− | 0.3+ | 2005 10 07 | 704 | 0.5− | 0.7− | 2005 10 27 | 683 | 0.9+ | 0.9− |
| 2005 09 24 | 691 | 0.1+ | 0.2+ | 2005 10 07 | 704 | 1.0− | 0.3− | 2005 10 27 | 683 | 0.8− | 0.5− |
| 2005 09 24 | 691 | 0.2+ | 0.1+ | 2005 10 09 | 691 | 0.2− | 0.0 | 2005 10 27 | 683 | (3.1− | 1.6−) |
| 2005 09 24 | 691 | 0.0 | 0.1+ | 2005 10 09 | 691 | 0.3− | 0.0 | 2005 10 30 | 683 | 0.9− | 1.1+ |
| 2005 09 30 | 683 | 0.5+ | 0.6− | 2005 10 09 | 691 | 0.0 | 0.0 | 2005 10 30 | 683 | 0.5+ | 1.1+ |
| 2005 09 30 | 683 | (1.5− | 2.8−) | 2005 10 13 | 691 | 0.4+ | 1.7− | 2005 10 30 | 683 | 0.3− | 0.5+ |
| 2005 09 30 | 683 | 0.3+ | 0.8− | 2005 10 13 | 691 | 0.2− | 0.2+ | 2008 04 15 | G96 | 0.6+ | 0.2+ |
| 2005 09 30 | 691 | 0.3+ | 0.0 | 2005 10 13 | 691 | 0.3− | 0.4+ | 2008 04 15 | G96 | 0.1+ | 0.4+ |
| 2005 09 30 | 691 | 0.1+ | 0.1− | 2005 10 22 | 683 | 0.1− | 0.7+ | 2008 04 15 | G96 | 0.0 | 0.3+ |
| 2005 09 30 | 691 | 0.0 | 0.0 | 2005 10 22 | 683 | (0.2+ | 2.1+) | 2008 04 15 | G96 | 0.0 | 0.1− |
| 2005 10 01 | 683 | 0.7+ | 0.0 | 2005 10 22 | 703 | 0.9− | 0.8+ | 2008 04 30 | G96 | 0.0 | 0.3+ |
| 2005 10 01 | 683 | 0.2− | 0.6+ | 2005 10 22 | 683 | 0.6+ | 1.2+ | 2008 04 30 | G96 | 0.5+ | 0.0 |
| 2005 10 03 | 703 | 0.1+ | 0.3+ | 2005 10 22 | 703 | 1.4− | 0.5− | 2008 04 30 | G96 | 0.3+ | 0.2+ |
| 2005 10 03 | 703 | 0.8+ | 1.1+ | 2005 10 22 | 703 | (2.8− | 0.4−) | 2008 04 30 | G96 | 0.3− | 0.5+ |
| 2005 10 03 | 703 | 0.2− | 0.5+ | 2005 10 22 | 703 | 1.0+ | 0.1− | | | | |

**2005 SN$_{95}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 236.70751 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18444705 | $\omega$ | 249.53544 | | +0.33219226 | −0.94320725 | |
| $a$ | 3.0564801 | $\Omega$ | 181.07544 | | +0.91263246 | +0.32219590 | |
| $e$ | 0.0820905 | $i$ | 8.86982 | | +0.23822319 | +0.08093133 | |
| $P$ | 5.34 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 25 | 691 | 0.3− | 0.3− | 2005 10 28 | 705 | 0.2+ | 0.1− | 2005 11 03 | 705 | 0.2+ | 0.1− | |
| 2005 09 25 | 691 | 0.7+ | 0.1+ | 2005 10 28 | 705 | 0.1+ | 0.0 | 2005 11 07 | 705 | 0.2+ | 0.0 | |
| 2005 09 25 | 691 | 0.2− | 0.1− | 2005 10 30 | 705 | 0.2+ | 0.0 | 2005 11 07 | 705 | 0.2+ | 0.1− | |
| 2005 09 30 | G96 | 0.1+ | 0.0 | 2005 10 30 | 705 | 0.3+ | 0.0 | 2005 11 09 | 705 | 0.3+ | 0.1− | |
| 2005 09 30 | G96 | 0.3+ | 0.1− | 2005 11 01 | G96 | 0.0 | 0.3− | 2005 11 09 | 705 | 0.2+ | 0.0 | |
| 2005 09 30 | G96 | 0.2− | 0.0 | 2005 11 01 | G96 | 0.5+ | 0.1+ | 2008 04 05 | G96 | 0.2+ | 0.1− | |
| 2005 09 30 | G96 | 0.4+ | 0.0 | 2005 11 01 | G96 | 0.0 | 0.1− | 2008 04 05 | G96 | 0.5+ | 0.2+ | |
| 2005 10 01 | 691 | 0.1− | 0.0 | 2005 11 01 | G96 | 0.1− | 0.1+ | 2008 04 05 | G96 | 0.1+ | 0.3+ | |
| 2005 10 01 | 691 | 0.0 | 0.2+ | 2005 11 01 | G96 | 0.5− | 0.3+ | 2008 04 05 | G96 | 0.2− | 0.1+ | |
| 2005 10 01 | 691 | 0.2− | 0.0 | 2005 11 01 | G96 | 0.1+ | 0.1+ | 2008 04 27 | G96 | 0.6− | 0.2− | |
| 2005 10 06 | 691 | 0.2+ | 0.1+ | 2005 11 01 | G96 | 1.9− | 0.1− | 2008 04 27 | G96 | 0.1+ | 0.1− | |
| 2005 10 06 | 691 | 0.3− | 0.1− | 2005 11 01 | G96 | 0.7− | 0.1− | 2008 04 27 | G96 | 0.1+ | 0.0 | |
| 2005 10 06 | 691 | 0.0 | 0.3+ | 2005 11 02 | 705 | 0.2+ | 0.0 | 2008 04 27 | G96 | 0.2− | 0.1+ | |
| 2005 10 25 | 705 | 0.3+ | 0.1+ | 2005 11 02 | 705 | 0.3+ | 0.0 | | | | | |
| 2005 10 25 | 705 | 0.3+ | 0.1− | 2005 11 03 | 705 | 0.2+ | 0.0 | | | | | |

**2005 SJ$_{98}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 8.41744 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26863783 | $\omega$ | 198.75885 | | +0.06934535 | −0.99362149 | |
| $a$ | 2.3788000 | $\Omega$ | 247.34407 | | +0.92715807 | +0.09709262 | |
| $e$ | 0.1983624 | $i$ | 5.52961 | | +0.36819713 | −0.05735292 | |
| $P$ | 3.67 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 03 30 | 291 | 0.1+ | 0.4+ | 2005 10 08 | 703 | 0.2− | 0.0 | 2005 10 28 | 703 | 0.4+ | 1.2+ | |
| 2003 03 30 | 291 | 0.2+ | 0.5+ | 2005 10 08 | 704 | 0.1− | 0.1− | 2005 11 02 | 704 | 0.6+ | 0.2+ | |
| 2003 03 30 | 291 | 0.1+ | 0.1+ | 2005 10 08 | 703 | 0.1− | 0.0 | 2005 11 02 | 704 | (0.0 | 1.5+) | |
| 2005 09 25 | 691 | 0.2+ | 0.0 | 2005 10 10 | 691 | 0.2+ | 0.1+ | 2005 11 02 | 704 | 0.1− | 0.1+ | |
| 2005 09 25 | 691 | 0.2+ | 0.1+ | 2005 10 10 | 691 | 0.1+ | 0.1+ | 2005 11 02 | 704 | 0.6+ | 0.8+ | |
| 2005 09 25 | 691 | 0.2+ | 0.0 | 2005 10 10 | 691 | 0.2− | 0.3+ | 2005 12 06 | G96 | 0.5− | 0.2− | |
| 2005 09 30 | 691 | 0.3+ | 0.3+ | 2005 10 10 | 699 | 0.2+ | 0.8− | 2005 12 06 | G96 | 0.3− | 0.2− | |
| 2005 09 30 | 691 | 0.1+ | 0.2+ | 2005 10 10 | 699 | 1.2− | 0.1+ | 2005 12 06 | G96 | 0.8− | 0.0 | |
| 2005 09 30 | 691 | 0.2+ | 0.1+ | 2005 10 10 | 699 | (1.6− | 0.8−) | 2005 12 06 | G96 | 0.6− | 0.3− | |
| 2005 10 01 | 703 | 1.2+ | 0.6+ | 2005 10 10 | 699 | 1.0− | 0.4+ | 2009 12 17 | 704 | 0.4+ | 0.2+ | |
| 2005 10 01 | 703 | (0.1+ | 1.7+) | 2005 10 10 | 699 | 1.1+ | 0.7− | 2009 12 17 | 704 | 0.9+ | 0.7+ | |
| 2005 10 01 | 703 | 0.5− | 0.5+ | 2005 10 10 | 699 | 0.8+ | 0.2− | 2009 12 17 | 704 | 0.2+ | 0.8+ | |
| 2005 10 01 | 703 | 0.4+ | 0.2− | 2005 10 10 | 699 | (1.4+ | 3.4−) | 2009 12 17 | 704 | 0.3+ | 0.6+ | |
| 2005 10 06 | 691 | 0.0 | 0.0 | 2005 10 10 | 699 | (1.5+ | 0.4−) | 2009 12 18 | 691 | 0.2+ | 0.0 | |
| 2005 10 06 | 691 | 0.1− | 0.1− | 2005 10 22 | 703 | 0.8− | 0.2+ | 2009 12 18 | 691 | 0.2− | 0.4− | |
| 2005 10 06 | 691 | 0.2− | 0.1− | 2005 10 22 | 703 | 0.7− | 0.4− | 2009 12 18 | 691 | 0.1− | 0.3− | |
| 2005 10 08 | 704 | 0.7− | 0.7− | 2005 10 22 | 703 | 0.8− | 0.3− | 2009 12 20 | 691 | 0.2− | 0.2− | |
| 2005 10 08 | 704 | 0.1− | 0.2− | 2005 10 22 | 703 | 0.4− | 0.6− | 2009 12 20 | 691 | 0.5− | 0.2− | |
| 2005 10 08 | 703 | 0.5− | 0.0 | 2005 10 28 | 703 | 0.1+ | 0.1− | 2009 12 20 | 691 | 0.3+ | 0.1+ | |
| 2005 10 08 | 703 | 1.1− | 0.0 | 2005 10 28 | 703 | 0.2− | 0.6+ | | | | | |
| 2005 10 08 | 704 | (2.2− | 0.1+) | 2005 10 28 | 703 | 0.4− | 0.6− | | | | | |

**2005 SE$_{108}$ = 2009 WH$_{229}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 137.73642 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26407610 | $\omega$ | 78.24271 | | +0.15693349 | +0.98714232 | |
| $a$ | 2.4061165 | $\Omega$ | 200.85991 | | −0.93607739 | +0.13887344 | |
| $e$ | 0.0866949 | $i$ | 4.89151 | | −0.31485076 | +0.07914672 | |
| $P$ | 3.73 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 04 22 | 691 | 0.1− | 0.3+ | 2005 10 07 | 691 | 0.0 | 0.2+ | 2009 10 23 | G96 | 0.4− | 0.2− | |
| 2004 04 22 | 691 | 0.2+ | 0.2+ | 2005 10 07 | 691 | 0.1− | 0.2+ | 2009 10 23 | G96 | 0.0 | 0.1+ | |
| 2004 04 22 | 691 | 0.0 | 0.0 | 2005 10 11 | 691 | 0.3+ | 0.2+ | 2009 11 17 | G96 | 0.0 | 0.0 | |
| 2005 09 26 | 691 | 0.1− | 0.1− | 2005 10 11 | 691 | 0.2+ | 0.1+ | 2009 11 17 | G96 | 0.1− | 0.1− | |
| 2005 09 26 | 691 | 0.1− | 0.2− | 2005 10 11 | 691 | 0.0 | 0.4+ | 2009 11 17 | G96 | 0.1− | 0.2+ | |
| 2005 09 26 | 691 | 0.3− | 0.4− | 2007 02 10 | G96 | 0.1+ | 0.2+ | 2009 11 17 | G96 | 0.2+ | 0.0 | |
| 2005 09 30 | G96 | 0.1+ | 0.2− | 2007 02 10 | G96 | 0.2+ | 0.3+ | 2009 11 24 | G96 | 0.3− | 0.0 | |
| 2005 09 30 | G96 | 0.5+ | 0.0 | 2007 02 10 | G96 | 0.1− | 0.0 | 2009 11 24 | G96 | 0.4− | 0.2− | |
| 2005 09 30 | G96 | 0.2+ | 0.2− | 2007 02 10 | G96 | 0.0 | 0.1+ | 2009 11 24 | G96 | 0.2+ | 0.4− | |
| 2005 09 30 | G96 | 0.0 | 0.1− | 2009 10 23 | G96 | 0.9+ | 0.7+ | 2009 11 24 | G96 | 0.2− | 0.0 | |
| 2005 10 07 | 691 | 0.0 | 0.1+ | 2009 10 23 | G96 | 0.1+ | 0.0 | | | | | |

**2005 SY$_{108}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 289.91093 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17600404 | $\omega$ | 149.32643 | | +0.98484547 | +0.16364819 | |
| $a$ | 3.1534621 | $\Omega$ | 201.48117 | | −0.17300446 | +0.95027018 | |
| $e$ | 0.2344790 | $i$ | 9.02353 | | +0.01220091 | +0.26496388 | |
| $P$ | 5.60 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 08 30 | 644 | 0.1+ | 0.3+ | 2005 10 07 | 691 | 0.2− | 0.3− | 2005 10 22 | 703 | (2.1− | 0.2+) | |
| 2005 08 30 | 644 | 0.2− | 0.1+ | 2005 10 07 | 704 | 0.1− | 1.3− | 2005 10 22 | 703 | 0.2− | 0.0 | |
| 2005 08 30 | 644 | 0.4+ | 0.0 | 2005 10 07 | 691 | 0.1− | 0.1− | 2005 10 22 | 703 | 0.0 | 0.1+ | |
| 2005 09 13 | 683 | 0.1− | 1.4− | 2005 10 07 | 704 | 0.6− | 0.8+ | 2005 10 24 | 699 | 1.0+ | 0.6− | |
| 2005 09 13 | 683 | 0.9+ | 0.9− | 2005 10 07 | 691 | 0.2− | 0.3− | 2005 10 24 | 699 | 0.5− | 0.2− | |
| 2005 09 13 | 683 | 0.8+ | 0.5+ | 2005 10 11 | 704 | 0.2− | 0.8+ | 2005 10 24 | 699 | 0.6+ | 0.9− | |
| 2005 09 25 | 644 | 0.3+ | 0.1+ | 2005 10 11 | 691 | 0.0 | 0.3+ | 2005 10 24 | 699 | 1.2+ | 0.1− | |
| 2005 09 25 | 644 | 0.4+ | 0.0 | 2005 10 11 | 704 | 0.7− | 0.7+ | 2005 10 27 | 691 | 0.0 | 0.1+ | |
| 2005 09 25 | 644 | 0.4+ | 0.1− | 2005 10 11 | 691 | 0.2− | 0.7+ | 2005 10 27 | 691 | 0.1− | 0.0 | |
| 2005 09 26 | 691 | 0.1− | 0.1+ | 2005 10 11 | 704 | 0.7+ | 0.8+ | 2005 10 27 | 691 | 0.0 | 0.0 | |
| 2005 09 26 | 691 | 0.0 | 0.4− | 2005 10 11 | 704 | 0.7− | 0.6+ | 2005 11 01 | 703 | 1.6+ | 1.2− | |
| 2005 09 26 | 691 | 0.2− | 0.1+ | 2005 10 11 | 691 | 0.1+ | 0.4+ | 2005 11 01 | 703 | 0.0 | 0.2− | |
| 2005 09 30 | 644 | 0.0 | 0.0 | 2005 10 14 | 704 | 0.2− | 0.2− | 2005 11 01 | 703 | 0.5+ | 1.2− | |
| 2005 09 30 | 644 | 0.2+ | 0.2+ | 2005 10 14 | 704 | 0.4+ | 0.5+ | 2005 11 01 | 703 | 0.7− | 0.6− | |
| 2005 09 30 | 644 | 0.1+ | 0.2+ | 2005 10 14 | 704 | 0.2+ | 0.2+ | 2009 03 26 | 691 | 0.7− | 0.1− | |
| 2005 10 06 | 699 | 0.1− | 0.1+ | 2005 10 14 | 704 | 0.4− | 0.0 | 2009 03 26 | 691 | 0.8+ | 0.4− | |
| 2005 10 06 | 699 | 0.9− | 0.2− | 2005 10 14 | 704 | 0.8+ | 0.5+ | 2009 03 26 | 691 | 0.1− | 0.3+ | |
| 2005 10 06 | 699 | 0.9− | 0.6− | 2005 10 21 | 644 | 0.0 | 0.2+ | 2009 04 27 | G96 | 0.2− | 0.0 | |
| 2005 10 06 | 699 | 0.8− | 0.8− | 2005 10 21 | 644 | 0.0 | 0.1+ | 2009 04 27 | G96 | 0.1− | 0.1+ | |
| 2005 10 07 | 704 | 0.2+ | 0.8+ | 2005 10 21 | 644 | 0.0 | 0.1+ | 2009 04 27 | G96 | 0.3− | 0.1+ | |
| 2005 10 07 | 704 | 0.2+ | 0.6− | 2005 10 22 | 703 | 0.2− | 0.4+ | 2009 04 27 | G96 | 0.3+ | 0.0 | |

**2005 SZ$_{114}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 81.50949 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26761673 | $\omega$ | 111.55526 | | +0.90210191 | +0.43113360 | |
| $a$ | 2.3848471 | $\Omega$ | 222.91097 | | −0.40520730 | +0.83171773 | |
| $e$ | 0.2255313 | $i$ | 1.54265 | | −0.14838865 | +0.34981345 | |
| $P$ | 3.68 | $H$ | 18.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 06 18 | 691 | 0.1+ | 0.1− | 2005 10 03 | 703 | 0.3+ | 1.1− | 2005 10 23 | 701 | 0.6− | 0.3+ | |
| 2001 06 18 | 691 | 0.1+ | 0.2− | 2005 10 03 | 703 | 0.2+ | 0.6+ | 2005 10 23 | 701 | 0.4− | 0.3+ | |
| 2001 06 18 | 691 | 0.1− | 0.1− | 2005 10 03 | 703 | 0.2+ | 0.2− | 2005 10 25 | G96 | 0.5+ | 0.0 | |
| 2005 09 25 | 644 | 0.0 | 0.2+ | 2005 10 07 | 691 | 0.1+ | 0.1− | 2005 10 25 | G96 | 0.1+ | 0.1− | |
| 2005 09 25 | 644 | 0.0 | 0.6+ | 2005 10 07 | 704 | 1.5+ | 1.6− | 2005 10 25 | G96 | 0.2+ | 0.4− | |
| 2005 09 25 | 644 | 0.0 | 0.4+ | 2005 10 07 | 704 | 0.3+ | 0.7+ | 2005 10 25 | G96 | 0.3+ | 0.1− | |
| 2005 09 27 | 691 | 0.0 | 0.1− | 2005 10 07 | 691 | 0.4+ | 0.1− | 2005 11 26 | G96 | 0.0 | 0.4− | |
| 2005 09 27 | 691 | 0.1− | 0.0 | 2005 10 07 | 704 | 0.9+ | 0.4+ | 2005 11 26 | G96 | 0.1− | 0.4− | |
| 2005 09 27 | 691 | 1.1− | 0.1+ | 2005 10 07 | 704 | 0.1+ | 0.0 | 2005 11 26 | G96 | 0.1− | 0.4− | |
| 2005 09 30 | 644 | 0.2− | 0.3+ | 2005 10 07 | 691 | 0.3+ | 0.1− | 2005 11 26 | G96 | 0.1− | 0.4− | |
| 2005 09 30 | 644 | 0.3+ | 0.4+ | 2005 10 11 | 691 | 0.2− | 0.0 | 2009 12 10 | G96 | 0.1− | 0.4− | |
| 2005 09 30 | 644 | 0.2− | 0.5+ | 2005 10 11 | 691 | 0.3− | 0.0 | 2009 12 10 | G96 | 0.1+ | 0.5− | |
| 2005 10 01 | 291 | 0.0 | 0.1+ | 2005 10 11 | 691 | 0.3− | 0.0 | 2009 12 10 | G96 | 0.3+ | 0.1− | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 01 | 291 | 0.2+ | 0.1+ | 2005 10 22 | 701 | 0.1− | 0.3− | 2009 12 10 | G96 | 0.1− | 0.1− | | |
| 2005 10 01 | 291 | 0.2+ | 0.2+ | 2005 10 22 | 701 | 0.5+ | 0.0 | | | | | | |
| 2005 10 03 | 703 | 0.7− | 0.1+ | 2005 10 22 | 701 | 0.6+ | 0.1+ | | | | | | |

**2005 SG$_{116}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 218.80453 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.19118533 | $\omega$ | 264.55943 | | −0.22438866 | | −0.97301255 |
| $a$ | 2.9842349 | $\Omega$ | 198.67426 | | +0.94736545 | | −0.20486643 |
| $e$ | 0.0772532 | $i$ | 9.67626 | | +0.22836033 | | −0.10619006 |
| $P$ | 5.16 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 27 | 691 | 0.1− | 0.0 | 2005 10 07 | 691 | 0.1+ | 0.3+ | 2008 03 28 | G96 | 0.2− | 0.1+ | | |
| 2005 09 27 | 691 | 0.3− | 0.1− | 2005 10 07 | 691 | 0.3+ | 0.2+ | 2008 03 28 | G96 | 0.1+ | 0.3+ | | |
| 2005 09 27 | 691 | 0.0 | 0.1+ | 2005 10 11 | 691 | 0.0 | 0.1+ | 2008 03 28 | G96 | 0.5+ | 0.7+ | | |
| 2005 09 30 | G96 | 0.5+ | 0.1− | 2005 10 11 | 691 | 0.1+ | 0.1+ | 2008 03 28 | G96 | 0.1− | 0.3+ | | |
| 2005 09 30 | G96 | 0.1+ | 0.1+ | 2005 10 11 | 691 | 0.2+ | 0.0 | 2008 04 15 | G96 | 0.1− | 0.0 | | |
| 2005 09 30 | G96 | 0.2+ | 0.2− | 2005 10 20 | G96 | 0.1− | 0.1+ | 2008 04 15 | G96 | 0.0 | 0.0 | | |
| 2005 09 30 | G96 | 0.2+ | 0.4− | 2005 10 20 | G96 | 0.3− | 0.6− | 2008 04 15 | G96 | 0.5− | 0.1+ | | |
| 2005 10 01 | G96 | 0.1+ | 0.2− | 2005 10 20 | G96 | 0.1− | 0.4− | 2008 04 15 | G96 | 0.2+ | 0.2+ | | |
| 2005 10 01 | G96 | 0.1− | 0.1− | 2005 10 20 | G96 | 0.1+ | 0.3− | 2008 04 28 | G96 | 0.3+ | 0.0 | | |
| 2005 10 01 | G96 | 0.3+ | 0.3− | 2005 11 04 | 691 | 0.3− | 0.0 | 2008 04 28 | G96 | 0.1+ | 0.5− | | |
| 2005 10 01 | G96 | 0.2+ | 0.1− | 2005 11 04 | 691 | 0.3− | 0.2+ | 2008 04 28 | G96 | 0.1− | 0.2− | | |
| 2005 10 07 | 691 | 0.2+ | 0.0 | 2005 11 04 | 691 | 0.3− | 0.1− | 2008 04 28 | G96 | 0.1− | 0.1− | | |

**2005 SJ$_{116}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 237.33758 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.12662964 | $\omega$ | 335.99986 | | +0.71604026 | | +0.69750180 |
| $a$ | 3.9274663 | $\Omega$ | 339.69121 | | −0.62675577 | | +0.62479904 |
| $e$ | 0.1844712 | $i$ | 4.60823 | | −0.30734922 | | +0.35088088 |
| $P$ | 7.78 | $H$ | 14.4 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 23 | 703 | (0.0 | 1.6−) | 2005 10 07 | 704 | 0.6− | 0.6− | 2007 12 31 | 691 | 0.4− | 0.2− | | |
| 2005 09 23 | 703 | 0.4− | 0.5+ | 2005 10 07 | 691 | 0.4− | 0.3+ | 2008 02 01 | 691 | 0.2+ | 0.0 | | |
| 2005 09 23 | 703 | 0.8− | 0.0 | 2005 10 07 | 704 | 0.0 | 0.2− | 2008 02 01 | 691 | 0.2− | 0.2+ | | |
| 2005 09 23 | 703 | 1.1+ | 0.5+ | 2005 10 07 | 691 | 0.1+ | 0.1− | 2008 02 01 | 691 | 0.3+ | 0.2− | | |
| 2005 09 27 | 691 | 0.2+ | 0.2+ | 2005 10 07 | 704 | 0.3− | 0.8− | 2008 02 09 | 691 | 0.2− | 0.6− | | |
| 2005 09 27 | 691 | 0.0 | 0.1+ | 2005 10 07 | 691 | 0.1− | 0.0 | 2008 02 09 | 691 | 0.6+ | 0.7+ | | |
| 2005 09 27 | 691 | 0.0 | 0.2+ | 2005 10 07 | 703 | (0.4− | 1.7−) | 2008 02 09 | 691 | 0.1− | 0.1+ | | |
| 2005 09 30 | 644 | 0.1+ | 0.4− | 2005 10 07 | 703 | 0.3+ | 1.1+ | 2008 12 31 | G96 | 0.2+ | 0.0 | | |
| 2005 09 30 | 644 | 0.3+ | 0.0 | 2005 10 07 | 703 | 0.1− | 0.4− | 2008 12 31 | G96 | 0.5+ | 0.4+ | | |
| 2005 09 30 | 644 | 0.0 | 0.1+ | 2005 10 07 | 703 | 0.7− | 0.7− | 2008 12 31 | G96 | 0.4+ | 0.2+ | | |
| 2005 10 01 | 703 | 0.6+ | 0.1+ | 2005 10 27 | 691 | 0.1− | 0.3+ | 2008 12 31 | G96 | 0.3+ | 0.1+ | | |
| 2005 10 01 | 703 | 0.1− | 0.3− | 2005 10 27 | 691 | 0.1+ | 0.1+ | 2009 01 17 | 691 | 0.1+ | 0.2− | | |
| 2005 10 01 | 703 | 1.0− | 0.4− | 2005 10 27 | 691 | 0.3+ | 0.0 | 2009 01 17 | 691 | 0.0 | 0.3+ | | |
| 2005 10 01 | 703 | (1.7− | 0.3−) | 2007 12 17 | 691 | 0.1+ | 0.1− | 2009 01 17 | 691 | 0.1+ | 0.4+ | | |
| 2005 10 06 | 699 | 0.3− | 0.0 | 2007 12 17 | 691 | 0.1− | 0.5− | 2009 03 21 | G96 | 0.2+ | 0.2+ | | |
| 2005 10 06 | 699 | (2.0+ | 0.4−) | 2007 12 17 | 691 | 0.1+ | 0.2− | 2009 03 21 | G96 | 0.0 | 0.1+ | | |
| 2005 10 06 | 699 | 0.2− | 0.4− | 2007 12 31 | 691 | 0.1+ | 0.2− | 2009 03 21 | G96 | 0.1− | 0.5+ | | |
| 2005 10 06 | 699 | 0.6+ | 0.2+ | 2007 12 31 | 691 | 0.5− | 0.4+ | 2009 03 21 | G96 | 0.2+ | 0.1− | | |

**2005 SX$_{117}$ = 2005 SS$_{281}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 274.42934 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18824368 | $\omega$ | 243.59238 | | +0.85888139 | | −0.50308729 |
| $a$ | 3.0152439 | $\Omega$ | 146.36495 | | +0.50956465 | | +0.82043545 |
| $e$ | 0.0829959 | $i$ | 9.98613 | | +0.05163949 | | +0.27164104 |
| $P$ | 5.24 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 04 10 | 691 | 0.1+ | 0.0 | 2005 09 25 | 703 | 1.3− | 1.4− | 2009 06 03 | G96 | 0.2+ | 0.2− | | |
| 2003 04 10 | 691 | 0.1+ | 0.0 | 2005 09 28 | 644 | 0.3+ | 0.1+ | 2009 06 03 | G96 | 0.1+ | 0.3+ | | |
| 2003 04 10 | 691 | 0.1− | 0.0 | 2005 09 28 | 644 | 0.3+ | 0.1− | 2009 06 03 | G96 | 0.0 | 0.1− | | |
| 2005 09 03 | 644 | 0.1+ | 0.2+ | 2005 09 28 | 644 | 0.3+ | 0.3+ | 2009 06 17 | G96 | 0.4− | 0.1− | | |
| 2005 09 03 | 644 | 0.0 | 0.3+ | 2005 09 30 | 699 | 0.5+ | 0.3+ | 2009 06 17 | G96 | 0.3+ | 0.1− | | |
| 2005 09 03 | 644 | 0.0 | 0.2+ | 2005 09 30 | 699 | 0.3− | 0.7+ | 2009 06 17 | G96 | 0.4+ | 0.1− | | |
| 2005 09 25 | 703 | 0.9+ | 0.1− | 2005 09 30 | 699 | 0.4− | 0.1− | 2009 06 17 | G96 | 0.0 | 0.1+ | | |
| 2005 09 25 | 703 | 0.4+ | 0.4− | 2005 09 30 | 699 | 0.2− | 0.3− | | | | | | |
| 2005 09 25 | 703 | 0.7− | 0.5+ | 2009 06 03 | G96 | 0.6− | 0.1+ | | | | | | |

**2005 SQ$_{121}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 11.61493 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22347814 | $\omega$ | 120.46772 | | +0.95542134 | | +0.28860110 |
| $a$ | 2.6893419 | $\Omega$ | 222.84477 | | −0.29242231 | | +0.89588260 |
| $e$ | 0.0424519 | $i$ | 5.25532 | | −0.04073385 | | +0.33779251 |
| $P$ | 4.41 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 01 | 691 | 0.2+ | 0.2− | 2005 10 01 | 703 | 0.1+ | 0.7+ | 2005 11 28 | G96 | 0.4− | 0.4− | | |
| 2005 09 01 | 691 | 0.3+ | 0.2− | 2005 10 01 | 703 | 0.2+ | 0.8+ | 2005 11 28 | G96 | 0.1+ | 0.4+ | | |
| 2005 09 01 | 691 | 0.1− | 0.3− | 2005 10 03 | 691 | 0.2+ | 0.0 | 2005 11 28 | G96 | 0.4+ | 0.1− | | |
| 2005 09 29 | 691 | 0.1− | 0.1− | 2005 10 03 | 691 | 0.3+ | 0.1− | 2005 11 28 | G96 | 0.3+ | 0.6− | | |
| 2005 09 29 | 691 | 0.1− | 0.2+ | 2005 10 03 | 691 | 0.1+ | 0.2+ | 2008 04 14 | 691 | 0.0 | 0.3+ | | |
| 2005 09 29 | 691 | 0.1− | 0.1+ | 2005 10 07 | 691 | 0.0 | 0.1+ | 2008 04 14 | 691 | 0.0 | 0.1− | | |
| 2005 09 30 | 644 | 0.2− | 0.1+ | 2005 10 07 | 691 | 0.2− | 0.2+ | 2008 04 14 | 691 | 0.1+ | 0.0 | | |
| 2005 09 30 | 644 | 0.4− | 0.1− | 2005 10 07 | 691 | 0.2− | 0.0 | 2008 04 14 | G96 | 0.4− | 0.1+ | | |
| 2005 09 30 | 644 | 0.1− | 0.2+ | 2005 10 24 | 691 | 0.1+ | 0.1+ | 2008 04 14 | G96 | 0.2+ | 0.0 | | |
| 2005 10 01 | 703 | 0.5− | 0.7− | 2005 10 24 | 691 | 0.1+ | 0.3− | 2008 04 14 | G96 | 0.2− | 0.1− | | |
| 2005 10 01 | 703 | 0.5− | 0.1− | 2005 10 24 | 691 | 0.3− | 0.1+ | 2008 04 14 | G96 | 0.0 | 0.2− | | |

**2005 SH$_{124}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 267.83802 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.16853547 | $\omega$ | 345.42865 | | +0.99885961 | | −0.00279783 |
| $a$ | 3.2459502 | $\Omega$ | 14.97747 | | +0.02878413 | | +0.83174591 |
| $e$ | 0.0681298 | $i$ | 10.62744 | | −0.03809144 | | +0.55514944 |
| $P$ | 5.85 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 15 | 705 | 0.1+ | 0.5− | 2005 10 24 | 691 | 0.2− | 0.3+ | 2005 11 19 | 705 | 0.0 | 0.1− | | |
| 2005 09 15 | 705 | 0.3+ | 0.5− | 2005 10 24 | 691 | 0.0 | 0.2+ | 2005 11 19 | 705 | 0.1− | 0.2− | | |
| 2005 09 22 | 705 | 0.3+ | 0.4− | 2005 10 24 | 691 | 0.1− | 0.2+ | 2005 11 23 | 705 | 0.0 | 0.1− | | |
| 2005 09 22 | 705 | 0.3+ | 0.5− | 2005 10 25 | G96 | 0.1− | 0.1− | 2005 11 23 | 705 | 0.2− | 0.0 | | |
| 2005 09 29 | 699 | 0.7+ | 0.4− | 2005 10 25 | 705 | 0.1+ | 0.2− | 2005 11 26 | 705 | 0.0 | 0.0 | | |
| 2005 09 29 | 699 | 0.5− | 1.2+ | 2005 10 25 | 705 | 0.1+ | 0.2− | 2005 11 26 | 705 | 0.1− | 0.1− | | |
| 2005 09 29 | 699 | 0.3− | 0.0 | 2005 10 25 | G96 | 0.3− | 0.2− | 2008 02 14 | G96 | 0.6− | 0.1− | | |
| 2005 09 29 | 699 | 0.3− | 0.8+ | 2005 10 25 | G96 | 0.0 | 0.4− | 2008 02 14 | G96 | 0.1+ | 0.4− | | |
| 2005 09 30 | 691 | 0.1+ | 0.1+ | 2005 10 27 | 705 | 0.1+ | 0.3− | 2008 02 14 | G96 | 0.7− | 0.2+ | | |
| 2005 09 30 | 691 | 0.3− | 0.1+ | 2005 10 27 | 705 | 0.1+ | 0.3− | 2008 02 14 | G96 | 0.6+ | 0.2− | | |
| 2005 09 30 | 691 | 0.4+ | 0.3+ | 2005 10 30 | 705 | 0.1+ | 0.0 | 2008 02 28 | G96 | 0.1+ | 0.2+ | | |
| 2005 10 03 | G96 | 0.2− | 0.3− | 2005 10 30 | 705 | 0.0 | 0.1− | 2008 02 28 | G96 | 0.2+ | 0.2+ | | |
| 2005 10 03 | G96 | 0.1+ | 0.4− | 2005 11 01 | 705 | 0.0 | 0.1− | 2008 02 28 | G96 | 0.1+ | 0.1+ | | |
| 2005 10 03 | G96 | 0.1+ | 0.2− | 2005 11 01 | 705 | 0.0 | 0.1− | 2008 02 28 | G96 | 0.2− | 0.0 | | |
| 2005 10 03 | G96 | 0.1− | 0.4− | 2005 11 03 | 705 | 0.0 | 0.0 | 2008 04 04 | G96 | 0.1+ | 0.1+ | | |
| 2005 10 06 | 691 | 0.1− | 0.1− | 2005 11 03 | 705 | 0.1− | 0.1− | 2008 04 04 | G96 | 0.2+ | 0.4+ | | |
| 2005 10 06 | 691 | 0.1+ | 0.0 | 2005 11 06 | 705 | 0.1+ | 0.1− | 2008 04 04 | G96 | 0.2+ | 0.7− | | |
| 2005 10 06 | 691 | 0.1− | 0.1+ | 2005 11 06 | 705 | 0.1+ | 0.1− | 2008 04 04 | G96 | 0.2+ | 0.2+ | | |
| 2005 10 20 | 705 | 0.1+ | 0.3− | 2005 11 09 | 705 | 0.0 | 0.1− | | | | | | |
| 2005 10 20 | 705 | 0.1+ | 0.3− | 2005 11 09 | 705 | 0.1+ | 0.0 | | | | | | |

**2005 SQ$_{137}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 2.20968 | | (2000.0) | | | |
| $n$ | 0.20656173 | $\omega$ | 330.54728 | | +0.93648942 | +0.35065631 |
| $a$ | 2.8342368 | $\Omega$ | 8.93001 | | −0.31475913 | +0.84705032 |
| $e$ | 0.0667688 | $i$ | 1.94373 | | −0.15464237 | +0.39943198 |
| $P$ | 4.77 | $H$ | 16.7 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 10 21 | 691 | 0.0 | 1.5− | 2005 10 01 | G96 | 0.0 | 0.1− | 2005 10 07 | G96 | 0.1− | 0.0 |
| 2000 10 21 | 691 | 0.1+ | 0.5+ | 2005 10 01 | G96 | 0.2− | 0.2− | 2005 10 07 | G96 | 0.2− | 0.1+ |
| 2000 10 21 | 691 | 0.0 | 0.7+ | 2005 10 04 | G96 | 0.0 | 0.1+ | 2005 10 07 | G96 | 0.1− | 0.1+ |
| 2005 09 24 | 691 | 0.2− | 0.1+ | 2005 10 04 | G96 | 0.1+ | 0.1+ | 2005 10 07 | G96 | 0.0 | 0.0 |
| 2005 09 24 | 691 | 0.1− | 0.2+ | 2005 10 04 | G96 | 0.3+ | 0.0 | 2005 10 11 | 691 | 0.0 | 0.2+ |
| 2005 09 24 | 691 | 0.2− | 0.1− | 2005 10 04 | G96 | 0.0 | 0.4+ | 2005 10 11 | 691 | 0.1− | 0.2+ |
| 2005 09 30 | G96 | 0.1− | 0.1+ | 2005 10 06 | G96 | 0.1+ | 0.1+ | 2005 10 11 | 691 | 0.2+ | 0.1+ |
| 2005 09 30 | G96 | 0.3− | 0.1− | 2005 10 06 | G96 | 0.2− | 0.1+ | 2005 11 26 | G96 | 0.3+ | 0.3− |
| 2005 09 30 | G96 | 0.2− | 0.2− | 2005 10 06 | G96 | 0.2+ | 0.0 | 2005 11 26 | G96 | 0.3+ | 0.6− |
| 2005 09 30 | G96 | 0.1+ | 0.0 | 2005 10 07 | G96 | 0.3+ | 0.1+ | 2005 11 26 | G96 | 0.2− | 0.5− |
| 2005 09 30 | G96 | 0.0 | 0.1− | 2005 10 07 | G96 | 0.1+ | 0.1− | 2005 11 26 | G96 | 0.3+ | 0.5− |
| 2005 09 30 | G96 | 0.6− | 0.1− | 2005 10 07 | G96 | 0.3+ | 0.1+ | 2008 04 11 | G96 | 0.4+ | 0.5+ |
| 2005 09 30 | G96 | 0.5− | 0.3− | 2005 10 07 | G96 | 0.0 | 0.1+ | 2008 04 11 | G96 | 0.3+ | 0.2+ |
| 2005 09 30 | G96 | 0.1+ | 0.1− | 2005 10 07 | 691 | 0.2+ | 0.1+ | 2008 04 11 | G96 | 0.3− | 0.1+ |
| 2005 10 01 | G96 | 0.1− | 0.1− | 2005 10 07 | 691 | 0.0 | 0.0 | 2008 04 11 | G96 | 0.1+ | 0.3+ |
| 2005 10 01 | G96 | 0.3− | 0.2− | 2005 10 07 | 691 | 0.1+ | 0.3+ | | | | |

**2005 SZ$_{144}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 245.02910 | | (2000.0) | | | |
| $n$ | 0.17576723 | $\omega$ | 10.88860 | | +0.64369922 | −0.76333156 |
| $a$ | 3.1562940 | $\Omega$ | 39.07663 | | +0.69546608 | +0.55374208 |
| $e$ | 0.1606109 | $i$ | 4.96492 | | +0.31934034 | +0.33270804 |
| $P$ | 5.61 | $H$ | 16.9 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 11 01 | 691 | 0.1− | 0.1− | 2005 10 20 | 705 | 0.2+ | 0.2− | 2005 11 03 | 705 | 0.1+ | 0.1− |
| 1994 11 01 | 691 | 0.1− | 0.3+ | 2005 10 20 | 705 | 0.3+ | 0.2− | 2005 11 03 | 705 | 0.2+ | 0.1− |
| 1994 11 01 | 691 | 0.1+ | 0.1− | 2005 10 26 | 705 | 0.1+ | 0.2− | 2005 11 06 | 705 | 0.0 | 0.1− |
| 2005 09 25 | 691 | 0.3+ | 0.1− | 2005 10 26 | 705 | 0.1+ | 0.1− | 2005 11 06 | 705 | 0.0 | 0.1− |
| 2005 09 25 | 691 | 0.4+ | 0.2+ | 2005 10 28 | 705 | 0.2+ | 0.1− | 2005 11 09 | 705 | 0.1+ | 0.0 |
| 2005 09 25 | 691 | 0.1+ | 0.1− | 2005 10 28 | 705 | 0.1+ | 0.0 | 2005 11 09 | 705 | 0.1+ | 0.0 |
| 2005 10 01 | 691 | 1.0− | 0.2+ | 2005 10 29 | G96 | 0.3− | 0.3− | 2005 11 24 | 705 | 0.3+ | 0.0 |
| 2005 10 01 | 691 | 0.1+ | 0.1+ | 2005 10 29 | G96 | 0.3+ | 0.2− | 2005 11 24 | 705 | 0.2+ | 0.1+ |
| 2005 10 01 | 691 | 0.2+ | 0.2+ | 2005 10 29 | G96 | 0.2− | 0.0 | 2005 11 25 | 705 | 0.1+ | 0.0 |
| 2005 10 06 | 691 | 0.2− | 0.1+ | 2005 10 29 | G96 | 0.2− | 0.1− | 2005 11 25 | 705 | 0.1+ | 0.0 |
| 2005 10 06 | 691 | 0.0 | 0.3− | 2005 10 30 | 705 | 0.3+ | 0.1− | 2008 03 31 | G96 | 0.2+ | 0.9− |
| 2005 10 06 | 691 | 0.3− | 0.1+ | 2005 10 30 | 705 | 0.2+ | 0.2− | 2008 03 31 | G96 | 0.2− | 0.1+ |
| 2005 10 11 | 705 | 0.1+ | 0.2− | 2005 11 01 | 705 | 0.2+ | 0.1+ | 2008 03 31 | G96 | 0.3− | 0.5+ |
| 2005 10 11 | 705 | 0.2+ | 0.2− | 2005 11 01 | 705 | 0.1+ | 0.0 | 2008 03 31 | G96 | 0.3+ | 0.2+ |

**2005 SJ$_{145}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 9.94326 | | (2000.0) | | | |
| $n$ | 0.19859481 | $\omega$ | 181.90629 | | +0.50101830 | +0.86417090 |
| $a$ | 2.9095386 | $\Omega$ | 118.16384 | | −0.79331871 | +0.48020317 |
| $e$ | 0.0979593 | $i$ | 3.04235 | | −0.34587004 | +0.15037810 |
| $P$ | 4.96 | $H$ | 16.6 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 25 | 691 | 0.1+ | 0.0 | 2005 10 21 | 705 | 0.1+ | 0.2− | 2005 12 01 | G96 | 0.3+ | 0.1− |
| 2005 09 25 | 691 | 0.1+ | 0.0 | 2005 10 21 | 705 | 0.2+ | 0.2− | 2005 12 01 | G96 | 0.6+ | 0.2− |
| 2005 09 25 | 691 | 0.2+ | 0.1+ | 2005 10 23 | 705 | 0.1− | 0.3− | 2005 12 01 | G96 | 0.1+ | 0.2− |
| 2005 10 01 | 691 | 0.2− | 0.2+ | 2005 10 23 | 705 | 0.0 | 0.2− | 2005 12 01 | 705 | 0.2+ | 0.3− |
| 2005 10 01 | 691 | 0.1− | 0.2+ | 2005 10 25 | 705 | 0.0 | 0.2− | 2005 12 01 | 705 | 0.4+ | 0.1− |
| 2005 10 01 | 691 | 0.1− | 0.0 | 2005 10 25 | 705 | 0.0 | 0.2− | 2008 03 12 | 691 | 0.2− | 0.4+ |
| 2005 10 01 | 705 | 0.1+ | 0.2− | 2005 10 28 | 705 | 0.1− | 0.3− | 2008 03 12 | 691 | 0.2− | 0.1+ |
| 2005 10 01 | 705 | 0.2+ | 0.1− | 2005 10 28 | 705 | 0.2− | 0.1− | 2008 03 12 | 691 | 0.3+ | 0.1− |
| 2005 10 06 | 691 | 0.2− | 0.1− | 2005 10 31 | 705 | 0.1− | 0.2− | 2008 04 11 | 291 | 0.0 | 0.3− |
| 2005 10 06 | 691 | 0.2− | 0.1+ | 2005 10 31 | 705 | 0.0 | 0.1− | 2008 04 11 | 291 | 0.1+ | 0.2+ |
| 2005 10 06 | 691 | 0.0 | 0.3+ | 2005 12 01 | G96 | 0.3− | 0.2− | 2008 04 11 | 291 | 0.1+ | 0.1+ |

**2005 SZ$_{149}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 335.95861 | | (2000.0) | | | |
| $n$ | 0.18760672 | $\omega$ | 295.97582 | | +0.83782320 | +0.53702261 |
| $a$ | 3.0220649 | $\Omega$ | 31.81749 | | −0.41004958 | +0.73784701 |
| $e$ | 0.1135959 | $i$ | 10.74357 | | −0.36043255 | +0.40888690 |
| $P$ | 5.25 | $H$ | 16.1 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 25 | 691 | 0.3+ | 0.1− | 2005 10 24 | 691 | 0.4+ | 0.2+ | 2005 11 26 | G96 | 0.1− | 0.1− |
| 2005 09 25 | 691 | 0.1− | 0.4− | 2005 10 24 | 691 | 0.0 | 0.1− | 2005 11 26 | G96 | 0.9− | 0.5− |
| 2005 09 25 | 691 | 0.1− | 0.1+ | 2005 10 24 | 691 | 0.2+ | 0.1− | 2005 11 26 | G96 | 0.1− | 0.3− |
| 2005 10 01 | 691 | 0.0 | 0.0 | 2005 10 28 | G96 | 0.1− | 0.3− | 2005 11 26 | G96 | 0.3− | 0.4− |
| 2005 10 01 | 691 | 0.4− | 0.1+ | 2005 10 28 | G96 | 0.0 | 0.4− | 2008 03 08 | G96 | 0.5− | 0.1− |
| 2005 10 01 | 691 | 0.4− | 0.0 | 2005 10 28 | G96 | 0.3− | 0.1− | 2008 03 08 | G96 | 0.2− | 0.4− |
| 2005 10 02 | G96 | 0.8+ | 0.1+ | 2005 10 28 | G96 | 0.2− | 0.1− | 2008 03 08 | G96 | 0.2− | 0.3− |
| 2005 10 02 | G96 | 1.0+ | 0.1+ | 2005 10 31 | 691 | 0.1− | 0.1− | 2008 03 08 | G96 | 0.3+ | 0.1+ |
| 2005 10 02 | G96 | 0.8+ | 0.1+ | 2005 10 31 | 691 | 0.1− | 0.2− | 2008 04 13 | G96 | 0.5− | 0.3+ |
| 2005 10 02 | G96 | 0.5+ | 0.5− | 2005 10 31 | 691 | 0.2+ | 0.1− | 2008 04 13 | G96 | 0.7+ | 0.1+ |
| 2005 10 06 | 691 | 0.1− | 0.1+ | 2005 11 01 | 691 | 0.2− | 0.3+ | 2008 04 13 | G96 | 0.2+ | 0.4+ |
| 2005 10 06 | 691 | 0.2− | 0.4+ | 2005 11 01 | 691 | 0.1− | 0.2+ | 2008 04 13 | G96 | 0.3+ | 0.1+ |
| 2005 10 06 | 691 | 0.2+ | 0.1+ | 2005 11 01 | 691 | 0.1+ | 0.4+ | | | | |

**2005 SZ$_{160}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 321.15867 | | (2000.0) | | | |
| $n$ | 0.18254213 | $\omega$ | 324.29227 | | +0.82674792 | +0.56255567 |
| $a$ | 3.0777073 | $\Omega$ | 1.49563 | | −0.46956540 | +0.69431308 |
| $e$ | 0.0771459 | $i$ | 9.61481 | | −0.30983256 | +0.44884348 |
| $P$ | 5.40 | $H$ | 16.1 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 08 31 | 691 | 0.3− | 0.1− | 2005 10 06 | G96 | 0.2+ | 0.1+ | 2008 02 28 | G96 | 0.1+ | 0.1− |
| 2005 08 31 | 691 | 0.1+ | 0.1+ | 2005 10 06 | G96 | 0.1− | 0.0 | 2008 02 28 | G96 | 0.1− | 0.2+ |
| 2005 08 31 | 691 | 0.1− | 0.2− | 2005 10 06 | G96 | 0.3+ | 0.1+ | 2008 04 06 | G96 | 0.5− | 0.0 |
| 2005 09 27 | 691 | 0.3+ | 0.0 | 2005 10 06 | G96 | 0.1− | 0.1+ | 2008 04 06 | G96 | 0.1+ | 0.1− |
| 2005 09 27 | 691 | 0.1− | 0.1− | 2005 10 06 | G96 | 0.8− | 0.4− | 2008 04 06 | G96 | 0.2+ | 0.2+ |
| 2005 09 27 | 691 | 0.1+ | 0.1+ | 2005 10 06 | G96 | 0.1− | 0.1+ | 2008 04 06 | G96 | 0.2− | 0.3− |
| 2005 10 01 | G96 | 0.4+ | 0.1+ | 2005 10 07 | G96 | 0.0 | 0.0 | 2008 04 06 | G96 | 0.1− | 0.0 |
| 2005 10 01 | G96 | 0.5+ | 0.0 | 2005 10 07 | G96 | 0.3− | 0.2− | 2008 04 06 | G96 | 0.1+ | 0.1− |
| 2005 10 01 | G96 | 0.1+ | 0.2+ | 2005 10 07 | G96 | 0.2+ | 0.1− | 2008 04 06 | G96 | 0.2− | 0.2+ |
| 2005 10 01 | G96 | 0.4+ | 0.1+ | 2005 10 07 | G96 | 0.1− | 0.1− | 2008 04 06 | G96 | 0.1− | 0.0 |
| 2005 10 06 | G96 | 0.3− | 0.1+ | 2008 02 28 | G96 | 0.4+ | 0.0 | | | | |
| 2005 10 06 | G96 | 0.2− | 0.0 | 2008 02 28 | G96 | 0.2+ | 0.0 | | | | |

**2005 ST$_{164}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 70.90024 | | (2000.0) | | | |
| $n$ | 0.27153217 | $\omega$ | 215.25815 | | +0.98515008 | −0.16448942 |
| $a$ | 2.3618656 | $\Omega$ | 154.07760 | | +0.17165804 | +0.93761576 |
| $e$ | 0.3019187 | $i$ | 6.46468 | | +0.00358302 | +0.30630037 |
| $P$ | 3.63 | $H$ | 16.5 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 01 28 | 645 | 0.0 | 0.1+ | 2005 10 22 | 644 | 0.1− | 0.1+ | 2005 11 09 | 703 | 0.4− | 0.5+ |
| 2003 01 28 | 645 | 0.0 | 0.0 | 2005 10 22 | 644 | 0.5+ | 0.2− | 2005 11 22 | 703 | 0.4+ | 0.5+ |
| 2005 09 11 | 704 | 0.1− | 0.2− | 2005 10 27 | 699 | 0.5+ | 0.2− | 2005 11 22 | 703 | 0.7+ | 0.3+ |
| 2005 09 11 | 704 | 0.8− | 1.0+ | 2005 10 27 | 699 | 0.4+ | 0.3− | 2005 11 22 | 703 | 0.0 | 0.1+ |
| 2005 09 11 | 704 | 0.3− | 0.2− | 2005 10 27 | 699 | 0.4+ | 0.2− | 2005 11 22 | 703 | 0.3+ | 0.3+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 27 | 644 | 0.1− | 0.3+ | 2005 10 27 | 699 | 0.4+ | 0.0 | 2005 11 22 | 703 | 0.4− | 0.0 | | |
| 2005 09 27 | 644 | 0.2− | 0.4+ | 2005 10 28 | 703 | 0.4− | 0.4− | 2005 11 22 | 703 | 0.1− | 0.5− | | |
| 2005 09 27 | 644 | 0.1+ | 0.2+ | 2005 10 28 | 703 | 0.1+ | 0.4− | 2005 11 22 | 703 | 0.6− | 0.2− | | |
| 2005 10 01 | 703 | 0.3− | 0.2− | 2005 10 28 | 703 | 0.5− | 0.8− | 2005 11 22 | 703 | 0.4− | 0.6+ | | |
| 2005 10 01 | 703 | 0.3− | 0.1− | 2005 10 28 | 703 | 0.1− | 0.2− | 2005 11 29 | 703 | 0.1− | 0.4− | | |
| 2005 10 01 | 703 | 0.4− | 0.4− | 2005 10 31 | G96 | 0.1+ | 0.2− | 2005 11 29 | 703 | 0.1− | 0.2− | | |
| 2005 10 01 | 703 | 0.3− | 0.2+ | 2005 10 31 | G96 | 0.1+ | 0.2− | 2005 11 29 | 703 | 0.4+ | 0.5− | | |
| 2005 10 07 | 699 | 0.3− | 0.1− | 2005 10 31 | G96 | 0.1− | 0.3− | 2005 11 29 | 703 | 0.2+ | 0.2− | | |
| 2005 10 07 | 699 | 0.9+ | 0.4− | 2005 10 31 | G96 | 0.3+ | 0.1− | 2005 12 06 | 704 | 0.2+ | 0.1+ | | |
| 2005 10 07 | 699 | 1.0+ | 0.4+ | 2005 11 03 | 703 | 0.4− | 0.0 | 2005 12 06 | 704 | 0.6+ | 0.2+ | | |
| 2005 10 07 | 699 | 0.4+ | 0.4+ | 2005 11 03 | 703 | 0.1+ | 0.2− | 2005 12 06 | 704 | 0.1− | 1.1+ | | |
| 2005 10 10 | 704 | 0.1− | 0.4+ | 2005 11 03 | 703 | 0.2+ | 0.5− | 2005 12 06 | 704 | 0.8+ | 0.5+ | | |
| 2005 10 10 | 704 | 0.2− | 0.5+ | 2005 11 03 | 703 | 0.5− | 0.2− | 2005 12 06 | 704 | 0.1− | 1.3+ | | |
| 2005 10 10 | 704 | 0.4+ | 0.1+ | 2005 11 04 | 704 | 0.2+ | 0.7+ | 2006 01 23 | 703 | 0.7− | 0.1− | | |
| 2005 10 10 | 704 | 0.1+ | 0.1+ | 2005 11 04 | 704 | 0.7− | 0.0 | 2006 01 23 | 703 | (1.1+ | 3.6−) | | |
| 2005 10 22 | 703 | 1.4− | 1.5− | 2005 11 04 | 704 | 0.3− | 0.5+ | 2006 01 23 | 703 | 0.1+ | 0.2+ | | |
| 2005 10 22 | 703 | 1.0− | 0.7− | 2005 11 04 | 704 | 0.3− | 0.5+ | 2006 01 23 | 703 | (2.0− | 0.7−) | | |
| 2005 10 22 | 703 | 0.4+ | 0.3+ | 2005 11 04 | 704 | 0.2− | 0.2+ | 2008 07 01 | 691 | 0.0 | 0.3+ | | |
| 2005 10 22 | 703 | 1.4+ | 1.3+ | 2005 11 09 | 703 | 0.5− | 0.1+ | 2008 07 01 | 691 | 0.1+ | 0.4+ | | |
| 2005 10 22 | 644 | 0.1+ | 0.1+ | 2005 11 09 | 703 | 0.1− | 0.4+ | 2008 07 01 | 691 | 0.1+ | 0.4+ | | |

**2005 SN$_{170}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 306.16539 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17935609 | $\omega$ | 130.52646 | | +0.93573171 | +0.34230981 | |
| $a$ | 3.1140480 | $\Omega$ | 209.74647 | | −0.35254513 | +0.90027472 | |
| $e$ | 0.0875377 | $i$ | 9.86782 | | −0.01086734 | +0.26894131 | |
| $P$ | 5.50 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 01 | 599 | (3.1− | 2.8−) | 2005 10 07 | 703 | 1.1− | 0.5− | 2008 03 15 | G96 | 0.3− | 0.1− | | |
| 2005 09 01 | 599 | (4.1− | 1.7−) | 2005 10 07 | 703 | 0.8+ | 0.7− | 2008 03 15 | G96 | 0.4− | 0.1+ | | |
| 2005 09 01 | 599 | (2.8− | 1.9−) | 2005 10 07 | 703 | 0.3− | 0.0 | 2008 03 15 | G96 | 0.2+ | 0.0 | | |
| 2005 09 29 | 691 | 0.0 | 0.0 | 2005 10 07 | 703 | 1.2− | 0.7− | 2008 03 15 | G96 | 0.1+ | 0.1− | | |
| 2005 09 29 | 691 | 0.0 | 0.2+ | 2005 10 07 | 703 | 0.3+ | 0.2+ | 2008 03 15 | G96 | 0.1+ | 0.4+ | | |
| 2005 09 29 | 691 | 0.4+ | 0.0 | 2005 10 07 | 703 | 1.4− | 0.9− | 2008 03 15 | G96 | 0.1+ | 0.2− | | |
| 2005 10 01 | 703 | 0.8− | 0.4+ | 2005 10 11 | 691 | 0.4+ | 0.2+ | 2008 03 15 | G96 | 0.1+ | 0.1+ | | |
| 2005 10 01 | 703 | 0.1+ | 0.5+ | 2005 10 11 | 691 | 0.2+ | 0.5+ | 2009 04 18 | G96 | 0.3+ | 0.0 | | |
| 2005 10 01 | 703 | 0.1+ | 1.1+ | 2005 10 11 | 691 | 0.2+ | 0.1+ | 2009 04 18 | G96 | 0.7+ | 0.1− | | |
| 2005 10 01 | 703 | 1.1− | 1.2− | 2005 10 30 | G96 | 0.1+ | 0.1+ | 2009 04 18 | G96 | 0.5+ | 0.2+ | | |
| 2005 10 03 | 691 | 0.4− | 0.0 | 2005 10 30 | G96 | 0.3+ | 0.2− | 2009 04 18 | G96 | 0.5+ | 0.1− | | |
| 2005 10 03 | 691 | 0.2+ | 0.1− | 2005 10 30 | G96 | 0.1+ | 0.0 | 2009 05 14 | 691 | 0.3− | 0.3+ | | |
| 2005 10 03 | 691 | 0.3+ | 0.3− | 2005 10 30 | G96 | 0.1− | 0.0 | 2009 05 14 | 691 | 0.2− | 0.3− | | |
| 2005 10 07 | 704 | 0.4+ | 0.3+ | 2008 03 15 | G96 | 0.1+ | 0.1+ | 2009 05 14 | 691 | 0.0 | 0.1− | | |
| 2005 10 07 | 704 | 0.5− | 0.5+ | 2008 03 15 | G96 | 0.2− | 0.1− | 2009 05 30 | 691 | 0.0 | 0.2− | | |
| 2005 10 07 | 704 | 0.3+ | 0.2+ | 2008 03 15 | G96 | 0.3− | 0.3− | 2009 05 30 | 691 | 0.4− | 0.3+ | | |
| 2005 10 07 | 703 | 0.9− | 0.4− | 2008 03 15 | G96 | 0.6+ | 0.1− | 2009 05 30 | 691 | 0.4+ | 0.1− | | |
| 2005 10 07 | 703 | 0.0 | 1.4− | 2008 03 15 | G96 | 0.3− | 0.2− | | | | | | |

**2005 SS$_{171}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 39.64459 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23739914 | $\omega$ | 28.15978 | | +0.86564059 | +0.49907097 | |
| $a$ | 2.5831519 | $\Omega$ | 301.84691 | | −0.46772541 | +0.77765894 | |
| $e$ | 0.1398594 | $i$ | 2.69437 | | −0.17860378 | +0.38232805 | |
| $P$ | 4.15 | $H$ | 17.4 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 01 | 691 | 0.2+ | 0.3− | 2005 10 07 | 691 | 1.3+ | 1.1− | 2005 11 03 | G96 | 0.0 | 0.1− | | |
| 2005 09 01 | 691 | 0.0 | 0.0 | 2005 10 07 | 691 | 0.0 | 0.1+ | 2009 08 30 | J75 | 0.5− | 0.3− | | |
| 2005 09 01 | 691 | 0.2+ | 0.3− | 2005 10 11 | 691 | 0.2+ | 0.3+ | 2009 08 30 | J75 | 0.5− | 0.5− | | |
| 2005 09 29 | 691 | 0.3− | 0.0 | 2005 10 11 | 691 | 0.1+ | 0.1− | 2009 08 30 | J75 | 0.1+ | 0.5− | | |
| 2005 09 29 | 691 | 0.2− | 0.1− | 2005 10 11 | 691 | 0.3− | 0.0 | 2009 09 21 | 703 | 1.1+ | 0.6+ | | |
| 2005 09 29 | 691 | 0.1− | 0.3− | 2005 10 24 | 691 | 0.3+ | 0.2− | 2009 09 21 | 703 | 0.2− | 0.6+ | | |
| 2005 10 01 | 703 | 0.4+ | 0.4+ | 2005 10 24 | 691 | 0.1+ | 0.2+ | 2009 09 21 | 703 | 0.6+ | 1.3+ | | |
| 2005 10 01 | 703 | (0.8+ | 1.5+) | 2005 10 24 | 691 | 0.3− | 0.1+ | 2009 09 21 | 703 | 1.2− | 0.8+ | | |
| 2005 10 01 | 703 | (1.8+ | 0.4+) | 2005 11 03 | 691 | 0.1+ | 0.2− | 2009 11 17 | G96 | 0.1− | 0.1− | | |
| 2005 10 01 | 703 | (1.8+ | 1.1+) | 2005 11 03 | 691 | 0.2− | 0.1+ | 2009 11 17 | G96 | 0.2− | 0.2+ | | |
| 2005 10 03 | 691 | 0.6− | 0.6+ | 2005 11 03 | 691 | 0.1− | 0.3+ | 2009 11 17 | G96 | 0.4+ | 0.3− | | |
| 2005 10 03 | 691 | 0.1+ | 0.1+ | 2005 11 03 | G96 | 0.5− | 0.0 | 2009 11 17 | G96 | 0.2− | 0.1− | | |
| 2005 10 03 | 691 | 0.2− | 0.1+ | 2005 11 03 | G96 | 0.0 | 0.0 | | | | | | |
| 2005 10 07 | 691 | 0.0 | 0.1+ | 2005 11 03 | G96 | 0.3− | 0.1+ | | | | | | |

**2005 SE$_{172}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 52.80840 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27825898 | $\omega$ | 66.35921 | | +0.78295777 | −0.62159477 | |
| $a$ | 2.3236458 | $\Omega$ | 332.05479 | | +0.55005735 | +0.71012630 | |
| $e$ | 0.1727674 | $i$ | 2.98886 | | +0.29054094 | +0.33066687 | |
| $P$ | 3.54 | $H$ | 18.3 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 29 | 691 | 0.3− | 0.6+ | 2005 10 24 | 691 | 0.3+ | 0.0 | 2009 11 11 | G96 | 0.0 | 0.3+ | | |
| 2005 09 29 | 691 | 0.1− | 0.0 | 2005 10 24 | 691 | 0.0 | 0.1− | 2009 11 11 | G96 | 0.2+ | 0.1+ | | |
| 2005 09 29 | 691 | 0.1− | 0.1− | 2005 10 24 | 691 | 0.0 | 0.3− | 2009 11 11 | G96 | 0.4− | 0.2− | | |
| 2005 10 01 | 703 | 0.4− | 0.2+ | 2005 10 31 | 691 | 0.1− | 0.7− | 2009 11 11 | G96 | 0.1+ | 0.1− | | |
| 2005 10 01 | 703 | (1.6− | 0.1+) | 2005 10 31 | 691 | 0.0 | 0.2+ | 2009 12 18 | G96 | 0.0 | 0.2− | | |
| 2005 10 01 | 703 | 0.0 | 0.9− | 2005 10 31 | 691 | 0.1+ | 0.1+ | 2009 12 18 | G96 | 0.1+ | 0.3− | | |
| 2005 10 01 | 703 | 0.2− | 0.9− | 2005 11 03 | 691 | 0.3+ | 0.1− | 2009 12 18 | G96 | 0.0 | 0.2+ | | |
| 2005 10 03 | 691 | 0.6− | 0.5+ | 2005 11 03 | 691 | 0.3+ | 0.2− | 2009 12 18 | G96 | 0.1+ | 0.2− | | |
| 2005 10 03 | 691 | 0.0 | 0.2+ | 2005 11 03 | 691 | 0.0 | 0.1+ | 2009 12 19 | 691 | 0.1+ | 0.0 | | |
| 2005 10 03 | 691 | 0.1− | 0.2+ | 2005 11 03 | G96 | 0.0 | 0.3− | 2009 12 19 | 691 | 0.2+ | 0.2+ | | |
| 2005 10 07 | 691 | 0.3+ | 0.1+ | 2005 11 03 | G96 | 0.1− | 0.2− | 2009 12 19 | 691 | 0.2− | 0.1+ | | |
| 2005 10 07 | 691 | 0.2+ | 0.2+ | 2005 11 03 | G96 | 0.3− | 0.4− | | | | | | |
| 2005 10 07 | 691 | 0.1− | 0.0 | 2005 11 03 | G96 | 0.0 | 0.5− | | | | | | |

**2005 SS$_{180}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 353.40729 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21749395 | $\omega$ | 342.31208 | | +0.97182397 | +0.23557869 | |
| $a$ | 2.7384486 | $\Omega$ | 4.08624 | | −0.20086207 | +0.84501996 | |
| $e$ | 0.0496659 | $i$ | 6.28530 | | −0.12333941 | +0.48004578 | |
| $P$ | 4.53 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 14 | 705 | 0.3+ | 0.4− | 2005 10 01 | 704 | 0.3− | 0.4+ | 2005 10 13 | 691 | 0.3− | 0.0 | | |
| 2005 09 14 | 705 | 0.2+ | 0.4− | 2005 10 01 | 704 | 0.1+ | 0.9+ | 2005 10 13 | 691 | 0.2+ | 0.2− | | |
| 2005 09 14 | 691 | 0.1+ | 0.2− | 2005 10 01 | 704 | 1.1+ | 0.4− | 2008 04 04 | 703 | (2.2− | 0.7−) | | |
| 2005 09 14 | 691 | 0.2− | 0.1+ | 2005 10 02 | 644 | 0.7+ | 0.2+ | 2008 04 04 | 703 | 0.0 | 0.1− | | |
| 2005 09 14 | 691 | 0.2+ | 0.0 | 2005 10 02 | 644 | 0.1+ | 0.1− | 2008 04 04 | 703 | 0.9− | 0.4+ | | |
| 2005 09 23 | 703 | 0.2+ | 0.2− | 2005 10 02 | 644 | 0.6+ | 0.0 | 2008 04 04 | 703 | 0.2− | 0.3− | | |
| 2005 09 23 | 703 | (1.8− | 0.7+) | 2005 10 02 | 644 | 0.1− | 0.1− | 2008 04 13 | G96 | 0.7+ | 0.1− | | |
| 2005 09 23 | 703 | 0.5− | 1.2+ | 2005 10 02 | 644 | 0.3− | 0.4− | 2008 04 13 | G96 | 0.3+ | 0.3+ | | |
| 2005 09 23 | 703 | (2.0− | 1.0+) | 2005 10 02 | 644 | 0.3− | 0.0 | 2008 04 13 | G96 | 0.2− | 0.3− | | |
| 2005 09 29 | G96 | 0.1+ | 0.4+ | 2005 10 07 | 703 | 0.1− | 0.8− | 2008 04 13 | G96 | 0.1+ | 0.1− | | |
| 2005 09 29 | G96 | 0.5− | 0.6+ | 2005 10 07 | 703 | (2.5− | 1.2−) | 2008 04 30 | G96 | 0.3+ | 0.1− | | |
| 2005 09 29 | G96 | 0.0 | 0.3+ | 2005 10 07 | 703 | 1.3− | 0.9− | 2008 04 30 | G96 | 0.1− | 0.0 | | |
| 2005 09 29 | G96 | 0.1+ | 0.3+ | 2005 10 07 | 703 | 0.5− | 0.5+ | 2008 04 30 | G96 | 0.2+ | 0.2+ | | |
| 2005 10 01 | 704 | 0.2− | 0.8+ | 2005 10 13 | 691 | 0.1+ | 0.2− | 2008 04 30 | G96 | 0.2− | 0.0 | | |

**2005 SS$_{194}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 232.83401 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17896068 | $\omega$ | 56.17289 | | +0.66981257 | −0.74209645 | |
| $a$ | 3.1186333 | $\Omega$ | 351.63144 | | +0.61055367 | +0.56988902 | |
| $e$ | 0.1124608 | $i$ | 10.04158 | | +0.42258175 | +0.35287301 | |
| $P$ | 5.51 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 08 28 | 691 | 0.1− | 0.0 | 2005 10 01 | G96 | 0.1+ | 0.1+ | 2008 02 26 | G96 | 0.6− | 0.1− | | |
| 2005 08 28 | 691 | 0.3− | 0.1− | 2005 10 01 | G96 | 0.4− | 0.1+ | 2008 02 26 | G96 | 0.9+ | 0.3− | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 08 28 | 691 | 0.1+ | 0.1+ | 2005 10 01 | G96 | 0.1+ | 0.0 | 2008 02 26 | G96 | 0.1− | 0.5− |
| 2005 09 11 | 691 | 0.1− | 0.1+ | 2005 10 01 | G96 | 0.1− | 0.1− | 2008 02 26 | G96 | 0.1− | 0.1+ |
| 2005 09 11 | 691 | 0.1− | 0.2+ | 2005 10 01 | G96 | 0.4− | 0.0 | 2008 03 08 | G96 | 0.2+ | 0.0 |
| 2005 09 11 | 691 | 0.1+ | 0.2− | 2005 10 01 | G96 | 0.5− | 0.3− | 2008 03 08 | G96 | 0.3+ | 0.0 |
| 2005 09 22 | 644 | 0.3− | 0.1− | 2005 10 27 | G96 | 0.2+ | 0.3− | 2008 03 08 | G96 | 0.0 | 0.1− |
| 2005 09 22 | 644 | 0.1+ | 0.1− | 2005 10 27 | G96 | 0.0 | 0.1+ | 2008 03 08 | G96 | 0.2+ | 0.2− |
| 2005 09 22 | 644 | 0.3+ | 0.0 | 2005 10 27 | G96 | 0.1− | 0.3+ | 2008 04 26 | G96 | 0.1− | 0.2+ |
| 2005 09 30 | 691 | 0.0 | 0.4+ | 2005 10 27 | G96 | 0.4+ | 0.3+ | 2008 04 26 | G96 | 0.3− | 0.1+ |
| 2005 09 30 | 691 | 0.2+ | 0.1+ | 2008 02 12 | 691 | (1.9− | 1.0+) | 2008 04 26 | G96 | 0.4+ | 0.1+ |
| 2005 09 30 | 691 | 0.1− | 0.2+ | 2008 02 12 | 691 | 0.2+ | 0.5+ | 2008 04 26 | G96 | 0.7+ | 0.1+ |
| 2005 10 01 | G96 | 0.3− | 0.2− | 2008 02 12 | 691 | 0.1− | 0.5+ | | | | |

**2005 SZ$_{209}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 298.59501 | | (2000.0) | **P** | | **Q** | |
| $n$ | 0.18667232 | $\omega$ | 7.18700 | +0.99288584 | | +0.10507221 | |
| $a$ | 3.0321413 | $\Omega$ | 346.39475 | −0.11762040 | | +0.79230721 | |
| $e$ | 0.1614039 | $i$ | 13.77573 | −0.01852428 | | +0.60100675 | |
| $P$ | 5.28 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 08 25 | 644 | 0.0 | 0.4+ | 2005 09 30 | 644 | 0.1+ | 0.5− | 2008 03 08 | G96 | 0.8+ | 0.3− |
| 2005 08 25 | 644 | 0.1+ | 0.2+ | 2005 10 02 | 699 | 0.7− | 0.6+ | 2008 03 08 | G96 | 0.1+ | 0.3− |
| 2005 08 25 | 644 | 0.4− | 0.1+ | 2005 10 02 | 699 | 0.5+ | 0.4− | 2008 03 08 | G96 | 0.1+ | 0.4− |
| 2005 09 23 | 703 | 0.1− | 1.0+ | 2005 10 02 | 699 | 0.4+ | 0.5+ | 2008 03 08 | G96 | 0.1− | 0.2− |
| 2005 09 23 | 703 | 0.3+ | 0.7− | 2005 10 02 | 699 | 0.4+ | 0.0 | 2008 04 07 | 691 | 0.2− | 0.5+ |
| 2005 09 23 | 703 | 1.5− | 0.9− | 2005 10 06 | 703 | 0.9− | 0.1+ | 2008 04 07 | 691 | 0.0 | 0.4+ |
| 2005 09 23 | 703 | 0.0 | 0.3+ | 2005 10 06 | 703 | 0.5+ | 0.2+ | 2008 04 07 | 691 | 0.1+ | 0.4− |
| 2005 09 30 | 644 | 1.4+ | 0.8+ | 2005 10 06 | 703 | 0.1+ | 0.4− | | | | |
| 2005 09 30 | 644 | 0.2+ | 0.3− | 2005 10 06 | 703 | 0.8− | 0.3− | | | | |

**2005 SJ$_{212}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 205.49758 | | (2000.0) | **P** | | **Q** | |
| $n$ | 0.17068423 | $\omega$ | 254.52739 | −0.26125823 | | −0.96432871 | |
| $a$ | 3.2186502 | $\Omega$ | 210.71914 | +0.91450814 | | −0.23315708 | |
| $e$ | 0.1672681 | $i$ | 4.78302 | +0.30889966 | | −0.12533122 | |
| $P$ | 5.77 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 30 | G96 | 0.2− | 0.3− | 2005 10 06 | G96 | 0.2+ | 0.3+ | 2005 12 04 | G96 | 0.6− | 0.3− |
| 2005 09 30 | G96 | 0.0 | 0.2− | 2005 10 06 | G96 | 0.7− | 0.1+ | 2005 12 04 | G96 | 0.1+ | 0.4+ |
| 2005 09 30 | G96 | 0.0 | 0.3− | 2005 10 06 | G96 | 0.1+ | 0.1+ | 2008 05 02 | 926 | 0.6− | 0.6− |
| 2005 09 30 | G96 | 0.4− | 0.3− | 2005 10 06 | G96 | 0.1+ | 0.3+ | 2008 05 02 | 926 | 0.4+ | 0.2− |
| 2005 10 01 | G96 | 0.0 | 0.4− | 2005 10 06 | G96 | 0.3+ | 0.2+ | 2008 05 02 | 926 | 0.5+ | 0.6− |
| 2005 10 01 | G96 | 0.1− | 0.1− | 2005 11 25 | G96 | 0.1− | 0.2− | 2008 05 02 | G96 | 0.2− | 0.3+ |
| 2005 10 01 | G96 | 0.1− | 0.3+ | 2005 11 25 | G96 | 0.1+ | 0.0 | 2008 05 02 | 926 | 0.5+ | 0.6+ |
| 2005 10 01 | G96 | 0.1− | 0.3− | 2005 11 25 | G96 | 0.4+ | 0.4− | 2008 05 02 | G96 | 0.3− | 0.2+ |
| 2005 10 06 | G96 | 0.4+ | 0.4+ | 2005 11 25 | G96 | 0.1+ | 0.4+ | 2008 05 02 | G96 | 0.3− | 0.1− |
| 2005 10 06 | G96 | 0.1+ | 0.0 | 2005 12 04 | G96 | 0.4− | 0.0 | 2008 05 02 | G96 | 0.0 | 0.3+ |
| 2005 10 06 | G96 | 0.4+ | 0.4+ | 2005 12 04 | G96 | 0.2+ | 0.4− | | | | |

**2005 SW$_{226}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 191.04835 | | (2000.0) | **P** | | **Q** | |
| $n$ | 0.24204557 | $\omega$ | 158.80274 | −0.94995864 | | +0.30956509 | |
| $a$ | 2.5499870 | $\Omega$ | 39.30789 | −0.29525407 | | −0.84610851 | |
| $e$ | 0.0398720 | $i$ | 3.78421 | −0.10199811 | | −0.43390074 | |
| $P$ | 4.07 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 30 | 691 | 0.1+ | 0.1+ | 2005 10 29 | G96 | 0.4− | 0.4− | 2005 11 01 | G96 | 0.4+ | 0.3− |
| 2005 09 30 | 691 | 0.1+ | 0.1− | 2005 10 30 | G96 | 0.1+ | 0.4− | 2005 11 29 | G96 | 0.8− | 0.4+ |
| 2005 09 30 | 691 | 0.3+ | 0.4− | 2005 10 30 | G96 | 1.3− | 0.7− | 2005 11 29 | G96 | 1.1− | 0.0 |
| 2005 10 05 | 691 | 0.1− | 0.3− | 2005 10 30 | G96 | 0.6− | 0.1− | 2005 11 29 | G96 | 0.3+ | 0.6+ |
| 2005 10 05 | 691 | 0.3+ | 0.0 | 2005 10 30 | G96 | 0.4− | 0.5− | 2005 11 29 | G96 | 0.0 | 1.0+ |
| 2005 10 05 | 691 | 0.3+ | 0.3− | 2005 10 31 | G96 | 0.5+ | 0.1− | 2007 01 28 | 691 | 0.0 | 0.1+ |
| 2005 10 10 | 691 | 0.2− | 0.5+ | 2005 10 31 | G96 | 0.1+ | 0.2+ | 2007 01 28 | 691 | 0.0 | 0.0 |
| 2005 10 10 | 691 | 0.4− | 0.9+ | 2005 10 31 | G96 | 0.2+ | 0.2− | 2007 01 28 | 691 | 0.0 | 0.2− |
| 2005 10 10 | 691 | 0.2− | 0.1+ | 2005 10 31 | G96 | 0.2+ | 0.1− | 2009 09 23 | G96 | 0.0 | 0.1+ |
| 2005 10 29 | G96 | 0.2+ | 0.1+ | 2005 11 01 | G96 | 0.3+ | 0.4− | 2009 09 23 | G96 | 0.1− | 0.3+ |
| 2005 10 29 | G96 | 0.4+ | 0.2− | 2005 11 01 | G96 | 0.2+ | 0.3− | 2009 09 23 | G96 | 0.3+ | 0.0 |
| 2005 10 29 | G96 | 0.0 | 0.3− | 2005 11 01 | G96 | 0.5+ | 0.2− | 2009 09 23 | G96 | 0.2− | 0.4− |

**2005 SU$_{230}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 180.34952 | | (2000.0) | **P** | | **Q** | |
| $n$ | 0.18597854 | $\omega$ | 290.34222 | −0.58428205 | | −0.80992164 | |
| $a$ | 3.0396774 | $\Omega$ | 195.73605 | +0.79719671 | | −0.56093754 | |
| $e$ | 0.0330301 | $i$ | 10.92388 | +0.15196018 | | −0.17139434 | |
| $P$ | 5.30 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 30 | G96 | 0.4+ | 0.6− | 2005 10 10 | 691 | 0.3+ | 0.0 | 2008 03 27 | G96 | 0.0 | 0.1− |
| 2005 09 30 | G96 | 0.1− | 0.3+ | 2005 10 10 | 691 | 0.2− | 0.7+ | 2008 03 27 | G96 | 0.7+ | 0.2− |
| 2005 09 30 | G96 | 0.0 | 0.2+ | 2005 10 25 | G96 | 0.3+ | 0.2− | 2008 03 27 | G96 | 0.1− | 0.0 |
| 2005 09 30 | G96 | 0.2+ | 0.1+ | 2005 10 25 | G96 | 0.5+ | 0.4− | 2008 03 27 | G96 | 0.1+ | 0.1− |
| 2005 10 05 | 691 | 0.0 | 0.4+ | 2005 10 25 | G96 | 0.3+ | 0.2− | 2008 04 11 | G96 | 1.0− | 0.0 |
| 2005 10 05 | 691 | 0.1− | 0.1− | 2005 10 25 | G96 | 0.5+ | 0.5− | 2008 04 11 | G96 | 0.0 | 0.5− |
| 2005 10 05 | 691 | 0.2− | 0.4− | 2005 11 30 | 705 | 0.0 | 0.4+ | 2008 04 11 | G96 | 0.5+ | 0.2+ |
| 2005 10 10 | 691 | 0.3− | 0.4− | 2005 11 30 | 705 | 0.0 | 0.2+ | 2008 04 11 | G96 | 0.2− | 0.4+ |

**2005 SA$_{239}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 159.37564 | | (2000.0) | **P** | | **Q** | |
| $n$ | 0.29934524 | $\omega$ | 92.81345 | +0.21087648 | | +0.97745856 | |
| $a$ | 2.2132025 | $\Omega$ | 189.37931 | −0.92006719 | | +0.19491748 | |
| $e$ | 0.1218763 | $i$ | 3.62003 | −0.33016282 | | +0.08112919 | |
| $P$ | 3.29 | $H$ | 17.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 10 10 | 291 | 0.1− | 0.3− | 2005 08 27 | 699 | 0.6+ | 0.2− | 2005 10 06 | 691 | 0.1+ | 0.0 |
| 2002 10 10 | 291 | 0.0 | 0.0 | 2005 08 27 | 699 | (0.6+ | 1.9−) | 2009 12 11 | G96 | 0.2+ | 0.1+ |
| 2002 10 10 | 291 | 0.3+ | 0.3− | 2005 09 23 | 691 | 0.7− | 0.2+ | 2009 12 11 | G96 | 0.1+ | 0.4− |
| 2005 07 30 | 644 | 0.1+ | 0.1+ | 2005 09 23 | 691 | 0.0 | 0.1+ | 2009 12 11 | G96 | 0.1+ | 0.2+ |
| 2005 07 30 | 644 | 0.0 | 0.1− | 2005 09 23 | 691 | 0.3− | 0.1− | 2009 12 11 | G96 | 0.4− | 0.1− |
| 2005 07 30 | 644 | 0.5+ | 0.0 | 2005 09 30 | G96 | 0.1+ | 0.0 | 2009 12 17 | G96 | 0.1+ | 0.5+ |
| 2005 08 06 | 644 | 0.4+ | 0.1− | 2005 09 30 | G96 | 0.5− | 0.0 | 2009 12 17 | G96 | 0.2− | 0.3+ |
| 2005 08 06 | 644 | 0.3+ | 0.0 | 2005 09 30 | G96 | 0.5− | 0.0 | 2009 12 17 | G96 | 0.0 | 0.7+ |
| 2005 08 06 | 644 | 0.2+ | 0.0 | 2005 09 30 | G96 | 0.2− | 0.1− | 2009 12 17 | G96 | 0.0 | 0.0 |
| 2005 08 27 | 699 | 0.7+ | 0.4+ | 2005 10 06 | 691 | 0.3+ | 0.1+ | | | | |
| 2005 08 27 | 699 | 0.4− | 0.1+ | 2005 10 06 | 691 | 0.2+ | 0.2+ | | | | |

**2005 SS$_{244}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 0.49252 | | (2000.0) | **P** | | **Q** | |
| $n$ | 0.21468384 | $\omega$ | 147.00561 | +0.96791504 | | +0.24872383 | |
| $a$ | 2.7622934 | $\Omega$ | 198.69152 | −0.24786372 | | +0.92169830 | |
| $e$ | 0.0766982 | $i$ | 6.40206 | −0.04128021 | | +0.29767214 | |
| $P$ | 4.59 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 30 | G96 | 0.0 | 0.1− | 2005 10 11 | 691 | 0.2+ | 0.2+ | 2008 04 06 | G96 | 0.2+ | 0.0 |
| 2005 09 30 | G96 | 0.3− | 0.1+ | 2005 10 28 | G96 | 0.4− | 0.5− | 2008 04 06 | G96 | 0.1+ | 0.2+ |
| 2005 09 30 | G96 | 0.2− | 0.3− | 2005 10 28 | G96 | 0.4− | 0.5− | 2008 04 06 | G96 | 0.1+ | 0.3− |
| 2005 09 30 | G96 | 0.0 | 0.3− | 2005 10 28 | G96 | 0.2+ | 1.5+ | 2008 04 27 | G96 | 0.5− | 0.2+ |
| 2005 10 07 | 691 | 0.1− | 0.1− | 2005 10 28 | G96 | 0.2− | 0.0 | 2008 04 27 | G96 | 0.5− | 0.1− |
| 2005 10 07 | 691 | 0.0 | 0.0 | 2005 12 01 | 695 | 0.0 | 0.1− | 2008 04 27 | G96 | 0.2+ | 0.2+ |
| 2005 10 07 | 691 | 0.2− | 0.2+ | 2005 12 01 | 695 | 0.0 | 0.1− | 2008 04 27 | G96 | 0.7+ | 0.1− |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 11 | 691 | 0.1+ | 0.4− | 2005 12 02 | 695 | 0.2+ | 0.0 | | | | | | | |
| 2005 10 11 | 691 | 0.3+ | 0.1+ | 2008 04 06 | G96 | 0.2− | 0.1+ | | | | | | | |

**2005 SH$_{245}$ = 2005 SG$_{109}$ = 2009 VN$_{113}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 16.27906 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.25577625 | $\omega$ | 173.90874 | | +0.67276382 | −0.73976616 | |
| $a$ | 2.4578907 | $\Omega$ | 233.80983 | | +0.67819699 | +0.62289267 | |
| $e$ | 0.1780957 | $i$ | 0.82450 | | +0.29569863 | +0.25446170 | |
| $P$ | 3.85 | $H$ | 18.3 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 26 | 691 | 0.2+ | 0.1+ | 2005 10 11 | 691 | 0.0 | 0.1− | 2009 11 11 | G96 | 0.1− | 0.0 | | | |
| 2005 09 26 | 691 | 0.3+ | 0.0 | 2005 10 11 | 691 | 0.2− | 0.1− | 2009 11 23 | G96 | 0.2+ | 0.1− | | | |
| 2005 09 26 | 691 | 0.0 | 0.1+ | 2005 10 11 | 691 | 0.4− | 0.1+ | 2009 11 23 | G96 | 0.8+ | 0.0 | | | |
| 2005 09 30 | G96 | 0.3+ | 0.2+ | 2005 10 27 | G96 | 0.4+ | 0.0 | 2009 11 23 | G96 | 0.2− | 0.3+ | | | |
| 2005 09 30 | G96 | 0.0 | 0.1− | 2005 10 27 | G96 | 0.1+ | 0.0 | 2009 11 23 | G96 | 0.1− | 0.2− | | | |
| 2005 09 30 | G96 | 0.1+ | 0.0 | 2005 10 27 | G96 | 0.3+ | 0.1− | 2009 12 11 | G96 | 0.1+ | 0.1− | | | |
| 2005 09 30 | G96 | 0.3+ | 0.3− | 2005 10 27 | G96 | 0.3+ | 0.1− | 2009 12 11 | G96 | 0.0 | 0.2+ | | | |
| 2005 10 07 | 691 | 0.2− | 0.2+ | 2009 11 11 | G96 | 0.2− | 0.0 | 2009 12 11 | G96 | 0.2+ | 0.3+ | | | |
| 2005 10 07 | 691 | 0.2+ | 0.3− | 2009 11 11 | G96 | 0.3− | 0.1− | 2009 12 11 | G96 | 0.1+ | 0.1+ | | | |
| 2005 10 07 | 691 | 0.3− | 0.2+ | 2009 11 11 | G96 | 0.4− | 0.2− | | | | | | | |

**2005 SN$_{246}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 260.22874 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24340198 | $\omega$ | 297.54472 | | −0.86154026 | −0.50041545 | |
| $a$ | 2.5405045 | $\Omega$ | 212.63695 | | +0.50352865 | −0.82068786 | |
| $e$ | 0.1080075 | $i$ | 9.13601 | | +0.06486354 | −0.27578218 | |
| $P$ | 4.05 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 10 23 | 691 | 0.2− | 0.1− | 2005 10 25 | 691 | 0.5− | 0.0 | 2009 09 18 | 691 | 0.3− | 0.7− | | | |
| 1997 10 23 | 691 | 0.1− | 0.3− | 2005 11 25 | G96 | 0.1− | 0.0 | 2009 09 26 | 691 | 0.1− | 0.0 | | | |
| 1997 10 23 | 691 | 0.3− | 0.0 | 2005 11 25 | G96 | 0.0 | 0.7− | 2009 09 26 | 691 | 0.3− | 0.0 | | | |
| 2005 09 30 | 691 | 0.4+ | 0.1+ | 2005 11 25 | G96 | 0.0 | 0.6+ | 2009 09 26 | 691 | 0.3− | 0.2+ | | | |
| 2005 09 30 | 691 | 0.2+ | 0.1+ | 2005 11 25 | G96 | 0.0 | 0.1− | 2009 10 27 | G96 | 0.3− | 0.5− | | | |
| 2005 09 30 | 691 | 0.8+ | 0.1− | 2005 12 02 | G96 | 0.5+ | 0.0 | 2009 10 27 | G96 | 0.0 | 0.5− | | | |
| 2005 10 07 | 691 | 0.4+ | 0.2+ | 2005 12 02 | G96 | 0.2+ | 0.2+ | 2009 10 27 | G96 | 0.6+ | 0.2− | | | |
| 2005 10 07 | 691 | 0.4+ | 0.1− | 2005 12 02 | G96 | 0.1− | 0.1+ | 2009 10 27 | G96 | 0.2− | 0.1− | | | |
| 2005 10 07 | 691 | 0.2+ | 0.0 | 2005 12 02 | G96 | 0.1+ | 0.3− | 2009 11 20 | G96 | 0.1+ | 0.1+ | | | |
| 2005 10 11 | 691 | 0.5+ | 0.2+ | 2005 12 21 | 291 | 0.1− | 0.0 | 2009 11 20 | G96 | 0.3+ | 0.3+ | | | |
| 2005 10 11 | 691 | 0.0 | 0.2+ | 2005 12 21 | 291 | 0.2+ | 0.3− | 2009 11 20 | G96 | 0.2− | 0.1+ | | | |
| 2005 10 11 | 691 | 0.1− | 0.2− | 2005 12 21 | 291 | 0.2− | 0.4+ | 2009 11 20 | G96 | 0.0 | 0.4+ | | | |
| 2005 10 25 | 691 | 0.2− | 0.3+ | 2009 09 18 | 691 | 0.1− | 0.1+ | | | | | | | |
| 2005 10 25 | 691 | (1.5− | 0.6+) | 2009 09 18 | 691 | 0.5− | 0.2+ | | | | | | | |

**2005 SA$_{250}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 66.89012 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27304636 | $\omega$ | 305.33412 | | +0.99917480 | +0.02371960 | |
| $a$ | 2.3531257 | $\Omega$ | 53.32919 | | −0.00768532 | +0.90750777 | |
| $e$ | 0.1960375 | $i$ | 2.35593 | | −0.03988302 | +0.41936503 | |
| $P$ | 3.61 | $H$ | 17.8 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 11 26 | 691 | 0.2+ | 0.1− | 2005 09 13 | 691 | 0.0 | 0.2+ | 2005 10 01 | 703 | 0.9+ | 0.9+ | | | |
| 1998 11 26 | 691 | 0.2− | 0.0 | 2005 09 13 | 691 | 0.1− | 0.1− | 2005 10 01 | 703 | 1.4+ | 0.1− | | | |
| 1998 11 26 | 691 | 0.1+ | 0.2− | 2005 09 23 | 703 | 0.4− | 0.2− | 2005 10 29 | G96 | 0.3− | 0.4− | | | |
| 2005 07 11 | G96 | 0.1+ | 0.4− | 2005 09 23 | 703 | 0.6+ | 1.3− | 2005 10 29 | G96 | 0.2+ | 0.4− | | | |
| 2005 07 11 | G96 | 0.0 | 0.2− | 2005 09 23 | 703 | 1.5− | 0.5+ | 2005 10 29 | G96 | 0.2− | 0.3− | | | |
| 2005 07 11 | G96 | 0.3+ | 0.2− | 2005 09 23 | 703 | 0.1+ | 1.1− | 2005 10 29 | G96 | 0.3+ | 0.3− | | | |
| 2005 07 11 | G96 | 0.4− | 0.3− | 2005 09 24 | 644 | 0.1− | 0.0 | 2009 12 11 | G96 | 0.1− | 0.2+ | | | |
| 2005 08 30 | 691 | 0.0 | 0.1+ | 2005 09 24 | 644 | 0.1+ | 0.2+ | 2009 12 11 | G96 | 0.1− | 0.0 | | | |
| 2005 08 30 | 691 | 0.1− | 0.2+ | 2005 09 24 | 644 | 0.1− | 0.1+ | 2009 12 11 | G96 | 0.2− | 0.5+ | | | |
| 2005 08 30 | 691 | 0.1+ | 0.1+ | 2005 10 01 | 703 | 0.1− | 0.6+ | 2009 12 11 | G96 | 0.2+ | 0.4+ | | | |
| 2005 09 13 | 691 | 0.0 | 0.0 | 2005 10 01 | 703 | 0.6− | 0.7+ | | | | | | | |

**2005 SN$_{259}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 49.78908 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28130093 | $\omega$ | 304.26057 | | +0.74141158 | −0.66595522 | |
| $a$ | 2.3068637 | $\Omega$ | 97.64411 | | +0.63980804 | +0.66443252 | |
| $e$ | 0.2545153 | $i$ | 4.77701 | | +0.20237227 | +0.33916527 | |
| $P$ | 3.50 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 12 26 | 691 | 0.6+ | 0.1− | 2005 08 27 | 644 | 0.2+ | 0.2− | 2005 09 27 | 704 | 0.1− | 0.3− | | | |
| 1995 12 26 | 691 | 0.6+ | 0.0 | 2005 08 28 | 699 | 1.1+ | 0.7+ | 2005 09 27 | 704 | 0.6− | 0.3+ | | | |
| 1995 12 26 | 691 | 0.7+ | 0.2− | 2005 08 28 | 699 | 0.9− | 0.4+ | 2005 10 10 | 703 | 0.0 | 1.2− | | | |
| 1996 02 10 | 691 | 0.6− | 0.4+ | 2005 08 28 | 699 | 0.4− | 0.7+ | 2005 10 10 | 703 | 0.6− | 1.1− | | | |
| 1996 02 10 | 691 | 1.0− | 0.3+ | 2005 08 28 | 699 | 0.3− | 0.5+ | 2005 10 10 | 703 | 0.9+ | 0.8− | | | |
| 1996 02 10 | 691 | 0.2− | 0.0 | 2005 09 13 | 703 | 0.7+ | 0.6+ | 2005 10 10 | 703 | 0.6− | 1.0− | | | |
| 1998 09 22 | 699 | 0.4+ | 0.5+ | 2005 09 13 | 703 | 0.1− | 0.4+ | 2009 10 18 | G96 | 0.0 | 0.3− | | | |
| 1998 09 22 | 699 | 0.9+ | 0.5+ | 2005 09 13 | 703 | 0.3+ | 0.9+ | 2009 10 18 | G96 | 0.1− | 0.3− | | | |
| 1998 09 22 | 699 | 1.1− | 0.2+ | 2005 09 13 | 703 | 0.1− | 0.2+ | 2009 10 18 | G96 | 0.0 | 0.2+ | | | |
| 2005 08 06 | E12 | 0.3+ | 0.5+ | 2005 09 25 | 703 | 0.7− | 0.7− | 2009 10 18 | G96 | 0.3− | 0.1+ | | | |
| 2005 08 06 | E12 | 0.2+ | 0.3− | 2005 09 25 | 703 | 0.4− | 0.6+ | 2009 11 17 | G96 | 0.1+ | 0.2− | | | |
| 2005 08 06 | E12 | 0.8+ | 0.3− | 2005 09 25 | 703 | 0.0 | 0.6+ | 2009 11 17 | G96 | 0.2+ | 0.4− | | | |
| 2005 08 06 | E12 | 0.9+ | 0.4− | 2005 09 25 | 703 | 0.6− | 0.4− | 2009 11 17 | G96 | 0.5+ | 0.4− | | | |
| 2005 08 27 | 644 | 0.1+ | 0.1− | 2005 09 27 | 704 | (0.1− | 1.6+) | 2009 11 17 | G96 | 0.1+ | 0.1− | | | |
| 2005 08 27 | 644 | 0.0 | 0.1− | 2005 09 27 | 704 | 0.5− | 0.1− | | | | | | | |

**2005 SX$_{277}$ = 2009 XH$_{7}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 358.69401 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21914431 | $\omega$ | 159.57252 | | −0.00871485 | −0.99135993 | |
| $a$ | 2.7246826 | $\Omega$ | 290.74275 | | +0.89692213 | +0.05011715 | |
| $e$ | 0.1180974 | $i$ | 8.04504 | | +0.44210263 | −0.12121784 | |
| $P$ | 4.50 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 30 | 568 | 0.2+ | 0.2+ | 2005 10 24 | 568 | 0.1− | 0.0 | 2009 12 10 | 704 | 0.0 | 0.7+ | | | |
| 2005 09 30 | 568 | 0.1+ | 0.0 | 2005 11 07 | 568 | 0.3+ | 0.3+ | 2009 12 10 | 704 | 0.8− | 0.9+ | | | |
| 2005 09 30 | 568 | 0.2+ | 0.0 | 2005 11 07 | 568 | 0.2+ | 0.4+ | 2009 12 10 | 704 | 0.3+ | 0.3+ | | | |
| 2005 10 07 | 568 | 0.0 | 0.1+ | 2005 11 07 | 568 | 0.2+ | 0.4+ | 2009 12 15 | 704 | 0.7− | 0.2− | | | |
| 2005 10 07 | 568 | 0.0 | 0.1+ | 2008 07 29 | 691 | 0.1+ | 0.1− | 2009 12 15 | 704 | 1.2+ | 0.1− | | | |
| 2005 10 07 | 568 | 0.0 | 0.0 | 2008 07 29 | 691 | 0.2− | 0.1+ | 2009 12 15 | 704 | 0.1− | 0.9− | | | |
| 2005 10 24 | 568 | 0.2− | 0.1+ | 2008 07 29 | 691 | 0.0 | 0.1+ | 2009 12 15 | 704 | 0.3+ | 0.8− | | | |
| 2005 10 24 | 568 | 0.1− | 0.1+ | 2009 12 10 | 704 | 0.1− | 0.3− | | | | | | | |

**2005 SQ$_{279}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 275.18628 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17581904 | $\omega$ | 267.43844 | | +0.97403291 | −0.22312970 | |
| $a$ | 3.1556739 | $\Omega$ | 105.45248 | | +0.22031591 | +0.89505762 | |
| $e$ | 0.1938343 | $i$ | 2.28209 | | +0.05216120 | +0.38611527 | |
| $P$ | 5.61 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 09 16 | 691 | 0.2− | 0.1− | 2005 10 07 | 703 | 1.2− | 1.5− | 2005 11 30 | G96 | (6.7− | 3.1−) | | | |
| 1999 09 16 | 691 | 0.2+ | 0.5+ | 2005 10 07 | 703 | 0.3+ | 1.0+ | 2005 11 30 | G96 | (6.3− | 3.5−) | | | |
| 1999 09 16 | 691 | 0.0 | 0.5− | 2005 10 12 | 691 | 0.1− | 0.1+ | 2007 01 24 | G96 | 0.3+ | 1.5+ | | | |
| 2005 09 23 | 691 | 0.3+ | 0.3+ | 2005 10 12 | 691 | 0.2− | 0.2+ | 2007 01 24 | G96 | 0.5+ | 1.3+ | | | |
| 2005 09 23 | 691 | 0.2+ | 0.1+ | 2005 10 12 | 691 | 0.3+ | 0.6+ | 2007 01 24 | G96 | 0.3+ | 0.9+ | | | |
| 2005 09 23 | 691 | 0.5+ | 0.3+ | 2005 10 30 | G96 | 1.5− | 0.8− | 2007 01 24 | G96 | 0.1− | 1.2+ | | | |
| 2005 10 01 | 691 | 0.1− | 0.4+ | 2005 10 30 | G96 | 1.8− | 0.9− | 2009 05 29 | 691 | 0.7+ | 0.9+ | | | |
| 2005 10 01 | 691 | 0.0 | 0.2+ | 2005 10 30 | G96 | 1.5− | 1.0− | 2009 05 29 | 691 | 0.2− | 1.1+ | | | |
| 2005 10 01 | 691 | 0.1− | 0.0 | 2005 10 30 | G96 | 1.6− | 1.1− | 2009 05 29 | 691 | 0.1+ | 0.0 | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 2005 10 07 | 703 | 0.8+ | 0.7+ | 2005 11 30 | G96 | (6.6− | 3.7−) | |
| 2005 10 07 | 703 | 0.3− | 0.7+ | 2005 11 30 | G96 | (6.1− | 3.2−) | |

**2005 SU$_{279}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 304.86178 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18240578 | $\omega$ | 291.38869 | | +0.96036356 | | +0.27488451 |
| $a$ | 3.0792408 | $\Omega$ | 52.68544 | | −0.22932896 | | +0.87348484 |
| $e$ | 0.1854903 | $i$ | 3.33478 | | −0.15846154 | | +0.40182426 |
| $P$ | 5.40 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 28 | 691 | 0.0 | 0.1+ | 2005 10 01 | 691 | 0.2− | 0.1+ | 2005 12 01 | 695 | 0.1− | 0.1+ |
| 2000 11 28 | 691 | 0.1− | 0.1+ | 2005 10 12 | 691 | 0.2+ | 0.0 | 2005 12 01 | 695 | 0.4− | 0.1+ |
| 2000 11 28 | 691 | 0.1+ | 0.3− | 2005 10 12 | 691 | 0.0 | 0.2+ | 2009 04 27 | G96 | 0.4− | 0.0 |
| 2005 09 23 | 691 | 0.1− | 0.2− | 2005 10 12 | 691 | 0.0 | 0.1+ | 2009 04 27 | G96 | 0.0 | 0.2− |
| 2005 09 23 | 691 | 0.0 | 0.1− | 2005 10 29 | G96 | 0.4+ | 0.1− | 2009 04 27 | G96 | 0.6+ | 0.2− |
| 2005 09 23 | 691 | 0.1+ | 0.3− | 2005 10 29 | G96 | 0.4+ | 0.3+ | 2009 04 27 | G96 | 0.3− | 0.1− |
| 2005 10 01 | 691 | 0.0 | 0.0 | 2005 10 29 | G96 | 0.4+ | 0.3− | | | | |
| 2005 10 01 | 691 | 0.2− | 0.1+ | 2005 10 29 | G96 | 0.3+ | 0.2− | | | | |

**2005 SY$_{289}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 37.47204 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.25851544 | $\omega$ | 26.93032 | | +0.92523093 | | −0.37939490 |
| $a$ | 2.4404976 | $\Omega$ | 355.36341 | | +0.34182448 | | +0.83664360 |
| $e$ | 0.2026909 | $i$ | 1.90771 | | +0.16463220 | | +0.39507847 |
| $P$ | 3.81 | $H$ | 18.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 26 | 691 | 0.1+ | 0.7− | 2005 10 27 | G96 | 0.0 | 0.2− | 2009 11 17 | 691 | 0.7+ | 0.2+ |
| 2005 09 26 | 691 | 0.1− | 0.1− | 2005 10 27 | G96 | 0.3+ | 0.2− | 2009 11 17 | 691 | 0.0 | 0.1− |
| 2005 09 26 | 691 | 0.2− | 0.1− | 2005 11 06 | G96 | 0.1+ | 0.2− | 2009 11 17 | 691 | 0.2− | 0.0 |
| 2005 10 07 | 691 | 0.2+ | 0.0 | 2005 11 06 | G96 | 0.3+ | 0.1− | 2009 11 25 | 691 | 0.1− | 0.0 |
| 2005 10 07 | 691 | 0.1− | 0.1+ | 2005 11 06 | G96 | 0.0 | 0.3− | 2009 11 25 | 691 | 0.3− | 0.1− |
| 2005 10 07 | 691 | 0.1− | 0.1+ | 2005 11 06 | G96 | 0.3− | 0.2− | 2009 11 25 | 691 | 0.1− | 0.1+ |
| 2005 10 11 | 691 | 0.1+ | 0.1− | 2005 11 06 | G96 | 0.3− | 0.0 | 2009 12 18 | G96 | 0.2+ | 0.0 |
| 2005 10 11 | 691 | 0.1+ | 0.3− | 2005 11 06 | G96 | 0.1+ | 0.0 | 2009 12 18 | G96 | 0.1− | 0.4− |
| 2005 10 11 | 691 | 0.2+ | 1.4+ | 2005 11 06 | G96 | 1.3− | 0.2− | 2009 12 18 | G96 | 0.4+ | 0.1− |
| 2005 10 27 | G96 | 0.3+ | 0.0 | 2005 11 06 | G96 | 0.0 | 0.2+ | 2009 12 18 | G96 | 0.2− | 0.1− |

**2005 SD$_{293}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 339.89928 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23147165 | $\omega$ | 72.08039 | | +0.85212540 | | −0.48971204 |
| $a$ | 2.6270651 | $\Omega$ | 316.73066 | | +0.31676400 | | +0.76336274 |
| $e$ | 0.1450625 | $i$ | 15.62084 | | +0.41658476 | | +0.42125936 |
| $P$ | 4.26 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 26 | 703 | 0.3− | 0.4+ | 2005 10 06 | 703 | 0.5− | 0.1− | 2007 02 06 | G96 | 0.4− | 0.1− |
| 2005 09 26 | 703 | 0.4+ | 0.1− | 2005 10 06 | 703 | 1.1+ | 0.6− | 2007 02 06 | G96 | 0.4− | 0.2+ |
| 2005 09 26 | 703 | 0.2− | 0.1+ | 2005 10 06 | 703 | (1.6+ | 0.1−) | 2007 03 16 | G96 | 0.3+ | 0.1+ |
| 2005 09 26 | 703 | 0.3− | 0.3+ | 2007 01 24 | 703 | (2.0+ | 0.1−) | 2007 03 16 | G96 | 0.0 | 0.2+ |
| 2005 10 02 | 699 | 0.3− | 0.7+ | 2007 01 24 | 703 | 0.5+ | 0.4+ | 2007 03 16 | G96 | 0.2+ | 0.2− |
| 2005 10 02 | 699 | 0.1+ | 0.0 | 2007 01 24 | 703 | (0.2+ | 3.0+) | 2007 03 16 | G96 | 0.3− | 0.1+ |
| 2005 10 02 | 699 | 0.5+ | 0.2− | 2007 01 24 | 703 | 0.8+ | 0.5− | 2009 08 22 | J75 | 0.5+ | 0.3+ |
| 2005 10 02 | 699 | (1.8+ | 1.1−) | 2007 02 06 | G96 | 0.3− | 0.0 | 2009 08 22 | J75 | 0.4− | 0.3+ |
| 2005 10 06 | 703 | 0.5− | 0.5− | 2007 02 06 | G96 | 0.2− | 0.2+ | 2009 08 22 | J75 | 0.2− | 0.4− |

**2005 TJ$_3$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 299.08004 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17847345 | $\omega$ | 306.92254 | | +0.99316620 | | −0.01897360 |
| $a$ | 3.1243065 | $\Omega$ | 54.44663 | | +0.07122751 | | +0.88017055 |
| $e$ | 0.2037466 | $i$ | 8.13716 | | −0.09245296 | | +0.47427820 |
| $P$ | 5.52 | $H$ | 15.2 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 01 | 704 | 0.1− | 0.4− | 2005 11 01 | 691 | 1.5+ | 0.8− | 2005 11 11 | 703 | 0.0 | 1.2− |
| 2005 10 01 | 704 | 0.2+ | 0.3+ | 2005 11 01 | 691 | 0.2+ | 0.1+ | 2005 12 01 | 704 | 0.1− | 0.8+ |
| 2005 10 01 | 704 | 0.0 | 0.1− | 2005 11 01 | 691 | 0.2+ | 0.2+ | 2005 12 01 | 704 | 0.6− | 0.2+ |
| 2005 10 01 | 704 | 0.4− | 0.1+ | 2005 11 03 | 704 | 0.2− | 0.4+ | 2005 12 01 | 704 | 0.7− | 0.5− |
| 2005 10 02 | 699 | 0.2− | 0.3+ | 2005 11 03 | 704 | 0.6+ | 0.3+ | 2005 12 01 | 704 | 0.4− | 0.9+ |
| 2005 10 02 | 699 | (1.1− | 1.5+) | 2005 11 03 | 704 | 0.7− | 0.7− | 2005 12 01 | 704 | 0.5− | 0.0 |
| 2005 10 02 | 699 | 0.1+ | 0.7+ | 2005 11 03 | 704 | 0.1− | 0.6− | 2006 01 23 | G96 | 0.4+ | 0.3− |
| 2005 10 02 | 699 | (0.2− | 2.2+) | 2005 11 03 | 704 | 0.0 | 0.1+ | 2006 01 23 | G96 | 0.4+ | 0.4− |
| 2005 10 22 | 703 | 0.4− | 0.8+ | 2005 11 03 | 704 | 0.0 | 0.2− | 2006 01 23 | G96 | 0.5− | 0.3+ |
| 2005 10 22 | 703 | (1.7+ | 1.1−) | 2005 11 03 | 704 | 0.4− | 0.4+ | 2006 01 23 | G96 | 0.1+ | 0.4− |
| 2005 10 22 | 703 | 0.4+ | 0.2− | 2005 11 05 | 704 | 1.2− | 0.2+ | 2006 01 27 | G96 | 0.2+ | 0.5− |
| 2005 10 22 | 703 | 0.4+ | 1.0− | 2005 11 05 | 704 | 1.2− | 1.0− | 2006 01 27 | G96 | 0.1+ | 0.3− |
| 2005 10 24 | A50 | 0.4+ | 0.1+ | 2005 11 05 | 704 | 0.5− | 0.6+ | 2006 01 27 | G96 | 0.5+ | 0.5− |
| 2005 10 24 | A50 | 0.1− | 0.5+ | 2005 11 05 | 704 | 0.5− | 0.1+ | 2006 01 27 | G96 | 0.4+ | 0.2− |
| 2005 10 25 | 691 | 0.0 | 0.2+ | 2005 11 08 | 704 | 0.6− | 0.2− | 2008 03 12 | G96 | 0.1− | 0.0 |
| 2005 10 25 | 691 | 0.1+ | 0.3+ | 2005 11 08 | 704 | 1.0− | 0.0 | 2008 03 12 | G96 | 0.1− | 0.1+ |
| 2005 10 25 | 691 | 0.0 | 0.2+ | 2005 11 08 | 704 | 0.9− | 0.5+ | 2008 03 12 | G96 | 0.0 | 0.1− |
| 2005 10 28 | 703 | 0.5− | 0.7− | 2005 11 08 | 704 | 0.5− | 0.4+ | 2008 03 12 | G96 | 0.2− | 0.2− |
| 2005 10 28 | 703 | 0.3− | 0.5+ | 2005 11 08 | 704 | 0.4− | 0.1+ | 2008 03 30 | 291 | 0.0 | 0.1+ |
| 2005 10 28 | 704 | 0.8+ | 0.1− | 2005 11 09 | 106 | 0.2− | 0.3− | 2008 03 30 | 291 | 0.2+ | 0.1+ |
| 2005 10 28 | 703 | 0.8− | 0.8+ | 2005 11 09 | 106 | 0.7− | 0.1+ | 2008 03 30 | 291 | 0.1+ | 0.2+ |
| 2005 10 28 | 703 | 0.2− | 0.2+ | 2005 11 09 | 106 | 0.7+ | 0.8− | 2008 04 13 | G96 | 0.3+ | 0.4+ |
| 2005 10 28 | 704 | 0.7+ | 1.0+ | 2005 11 09 | 106 | 0.2+ | 0.8− | 2008 04 13 | G96 | 0.2− | 0.2− |
| 2005 10 28 | 704 | 0.0 | 0.2− | 2005 11 10 | 703 | 0.1− | 0.1− | 2008 04 13 | G96 | 0.3+ | 0.1− |
| 2005 10 28 | 704 | 0.6+ | 0.4− | 2005 11 10 | 703 | 0.7− | 0.1− | 2008 04 13 | G96 | 0.4− | 0.4− |
| 2005 10 28 | 704 | 0.7+ | 0.6+ | 2005 11 10 | 703 | 0.8− | 0.0 | 2009 04 20 | G96 | 0.9+ | 0.1− |
| 2005 10 29 | G96 | 0.5+ | 0.2− | 2005 11 10 | 703 | 0.7+ | 0.3− | 2009 04 20 | G96 | 0.6+ | 0.1+ |
| 2005 10 29 | G96 | 0.0 | 0.1− | 2005 11 10 | 703 | 0.7− | 0.6+ | 2009 04 20 | G96 | 0.3− | 0.4+ |
| 2005 10 29 | G96 | 0.1− | 0.1− | 2005 11 10 | 703 | 0.4− | 0.2+ | 2009 05 29 | G96 | 0.4− | 0.3+ |
| 2005 10 29 | G96 | 0.1+ | 0.4− | 2005 11 10 | 703 | 0.1− | 0.3+ | 2009 05 29 | G96 | 0.3− | 0.4+ |
| 2005 10 31 | 704 | (0.1+ | 1.6+) | 2005 11 10 | 703 | 0.4− | 0.6+ | 2009 05 29 | G96 | 0.2− | 0.3+ |
| 2005 10 31 | 704 | 0.3− | 1.3+ | 2005 11 11 | 703 | 0.7− | 1.3− | 2009 05 29 | G96 | 0.2+ | 0.0 |
| 2005 10 31 | 704 | 0.1+ | 0.5+ | 2005 11 11 | 703 | 0.1− | 0.5+ | | | | |
| 2005 10 31 | 704 | 0.5+ | 0.1− | 2005 11 11 | 703 | 0.8+ | 0.0 | | | | |

**2005 TU$_{14}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 67.08103 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.27925457 | $\omega$ | 310.85057 | | +0.98516580 | | −0.13496318 |
| $a$ | 2.3181197 | $\Omega$ | 57.15985 | | +0.16881653 | | +0.87310901 |
| $e$ | 0.1225435 | $i$ | 7.24701 | | −0.03081110 | | +0.46847155 |
| $P$ | 3.53 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 07 06 | 291 | 0.9− | 1.3+ | 2005 09 26 | 703 | 1.3− | 1.8− | 2005 10 07 | 699 | 0.1− | 0.4+ |
| 2005 07 06 | 291 | 0.0 | 0.2− | 2005 09 26 | 703 | 0.9+ | 0.1+ | 2005 10 07 | 699 | 0.8+ | 0.0 |
| 2005 07 06 | 291 | 0.4+ | 0.1− | 2005 09 26 | 703 | 1.1− | 0.2− | 2005 10 07 | 699 | 0.2− | 0.3− |
| 2005 08 30 | 644 | 0.6+ | 0.3− | 2005 09 26 | 703 | 1.0− | 0.2− | 2005 10 07 | 699 | 0.2+ | 0.5− |
| 2005 08 30 | 644 | 0.5+ | 0.5− | 2005 09 27 | 704 | 0.6− | 0.0 | 2005 10 22 | 703 | 0.5− | 0.5− |
| 2005 08 30 | 644 | 0.5+ | 0.6− | 2005 09 27 | 704 | 0.9− | 0.4+ | 2005 10 22 | 703 | 0.4− | 1.2− |
| 2005 09 03 | 703 | 0.6+ | 2.0− | 2005 09 27 | 704 | 0.1− | 1.0+ | 2005 10 22 | 703 | 0.6− | 0.2+ |
| 2005 09 03 | 703 | 0.4+ | 0.7− | 2005 09 27 | 704 | 0.4+ | 0.6+ | 2005 10 22 | 703 | (0.6− | 2.3+) |
| 2005 09 03 | 703 | 0.8+ | 0.1− | 2005 09 27 | 704 | 0.6+ | 1.1+ | 2009 11 18 | 691 | 0.0 | 0.3+ |
| 2005 09 03 | 703 | 0.7+ | 0.4+ | 2005 10 03 | 703 | 1.6− | 1.4+ | 2009 11 18 | 691 | 0.6− | 0.7+ |
| 2005 09 24 | 644 | 0.1+ | 0.2− | 2005 10 03 | 703 | 0.8+ | 1.0+ | 2009 11 18 | 691 | 0.2+ | 0.0 |
| 2005 09 24 | 644 | 0.0 | 0.1+ | 2005 10 03 | 703 | 1.7+ | 1.1+ | 2009 11 26 | 691 | 0.0 | 0.2− |
| 2005 09 24 | 644 | 0.1+ | 0.4− | 2005 10 03 | 703 | 0.5− | 0.4+ | 2009 11 26 | 691 | 0.2+ | 0.4− |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 24 | 644 | 0.3+ | 0.3− | 2005 10 04 | 644 | 0.2− | 0.3− | 2009 11 26 | 691 | 0.1+ | 0.1− | | |
| 2005 09 24 | 644 | 0.2+ | 0.4− | 2005 10 04 | 644 | 0.1+ | 0.0 | | | | | | |
| 2005 09 24 | 644 | 0.2+ | 0.0 | 2005 10 04 | 644 | 0.2+ | 0.4− | | | | | | |

**2005 TU$_{23}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 39.20005 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.26706167 | $\omega$ | 331.51797 | | +0.88850802 | | −0.45658861 |
| $a$ | 2.3881504 | $\Omega$ | 55.72056 | | +0.43077436 | | +0.79574955 |
| $e$ | 0.2084385 | $i$ | 3.16427 | | +0.15807264 | | +0.39788126 |
| $P$ | 3.69 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 13 | 691 | 0.0 | 0.0 | 2005 10 05 | 704 | 0.4− | 1.2− | 2009 09 30 | G96 | 0.3+ | 0.2− | | |
| 2005 09 13 | 691 | 0.0 | 0.2+ | 2005 10 05 | 704 | (2.0+ | 0.2+) | 2009 09 30 | G96 | 0.6+ | 0.2+ | | |
| 2005 09 13 | 691 | 0.0 | 0.2+ | 2005 10 05 | 704 | 0.8+ | 0.3− | 2009 09 30 | G96 | 0.3+ | 0.2− | | |
| 2005 09 14 | 703 | (0.9+ | 1.7−) | 2005 10 13 | 691 | 0.2+ | 0.2+ | 2009 10 16 | G96 | 0.2+ | 0.1+ | | |
| 2005 09 14 | 703 | (1.7+ | 1.4+) | 2005 10 13 | 691 | 0.1− | 0.1− | 2009 10 16 | G96 | 0.0 | 0.2+ | | |
| 2005 09 14 | 703 | 0.8− | 0.1+ | 2005 10 13 | 691 | 0.2− | 0.1+ | 2009 10 16 | G96 | 0.2− | 0.2− | | |
| 2005 09 14 | 703 | (0.7− | 2.0−) | 2005 12 01 | G96 | 0.0 | 0.5− | 2009 10 16 | G96 | 0.5+ | 0.0 | | |
| 2005 09 24 | 644 | 0.3− | 0.2+ | 2005 12 01 | G96 | 0.3+ | 0.0 | 2009 11 09 | 691 | 0.1+ | 0.0 | | |
| 2005 09 24 | 644 | 0.3− | 0.3− | 2005 12 01 | G96 | 0.7+ | 0.0 | 2009 11 09 | 691 | 0.2− | 0.1+ | | |
| 2005 09 24 | 644 | 0.1+ | 0.4+ | 2005 12 01 | G96 | 0.4+ | 0.0 | 2009 11 09 | 691 | 0.3− | 0.2− | | |
| 2005 10 01 | 703 | 0.6− | 0.1+ | 2007 03 19 | G96 | 0.3+ | 0.4+ | 2009 11 25 | 691 | 0.3− | 0.2+ | | |
| 2005 10 01 | 703 | 0.2+ | 0.3− | 2007 03 19 | G96 | 0.1+ | 0.2+ | 2009 11 25 | 691 | 0.1+ | 0.1+ | | |
| 2005 10 01 | 703 | 0.0 | 0.1− | 2007 03 19 | G96 | 0.4+ | 0.7+ | 2009 11 25 | 691 | 0.2− | 0.0 | | |
| 2005 10 01 | 703 | 0.3+ | 0.5− | 2007 03 19 | G96 | 0.2+ | 0.2+ | 2009 12 10 | G96 | 0.5+ | 0.1− | | |
| 2005 10 01 | 703 | 1.0− | 0.3+ | 2009 09 20 | G96 | 0.1+ | 0.1− | 2009 12 10 | G96 | 0.0 | 0.1− | | |
| 2005 10 01 | 703 | (1.9− | 3.4−) | 2009 09 20 | G96 | 0.6+ | 0.1− | 2009 12 10 | G96 | 0.0 | 0.1+ | | |
| 2005 10 01 | 703 | (1.6+ | 2.5−) | 2009 09 20 | G96 | 0.3+ | 0.0 | 2009 12 10 | G96 | 0.4+ | 0.1− | | |
| 2005 10 01 | 703 | 0.3− | 0.3+ | 2009 09 20 | G96 | 0.1+ | 0.1− | | | | | | |
| 2005 10 05 | 704 | 1.2+ | 0.5+ | 2009 09 30 | G96 | 0.2+ | 0.5+ | | | | | | |

**2005 TA$_{28}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 63.28780 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.26997559 | $\omega$ | 340.16552 | | +0.94813969 | | −0.30775684 |
| $a$ | 2.3709354 | $\Omega$ | 38.05032 | | +0.30625324 | | +0.81757853 |
| $e$ | 0.1187311 | $i$ | 7.40891 | | +0.08508866 | | +0.48667349 |
| $P$ | 3.65 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 01 29 | 644 | 0.0 | 0.5+ | 2005 10 22 | 703 | 0.2+ | 0.3− | 2005 10 31 | G96 | 0.1− | 0.2− | | |
| 2003 01 29 | 644 | 0.2− | 0.2+ | 2005 10 22 | 703 | 1.0− | 0.5− | 2005 10 31 | 704 | 0.1+ | 0.7+ | | |
| 2003 01 29 | 644 | 0.4+ | 0.1− | 2005 10 22 | 703 | 0.7− | 0.4− | 2005 11 03 | 704 | 0.5− | 0.5− | | |
| 2005 09 23 | 691 | 0.3+ | 0.2− | 2005 10 22 | 703 | 0.3− | 0.5− | 2005 11 03 | 704 | 0.1+ | 0.1− | | |
| 2005 09 23 | 691 | 0.4+ | 0.2− | 2005 10 24 | 699 | 0.7+ | 0.9+ | 2005 11 03 | 704 | 0.0 | 0.9− | | |
| 2005 09 23 | 691 | 0.2+ | 0.1− | 2005 10 24 | 699 | 0.2− | 0.3+ | 2005 11 05 | 704 | 0.5− | 0.7+ | | |
| 2005 10 01 | 704 | 0.8+ | 0.8+ | 2005 10 24 | 699 | 0.1+ | 1.3− | 2005 11 05 | 704 | 0.7− | 0.5+ | | |
| 2005 10 01 | 704 | 0.0 | 0.6+ | 2005 10 24 | 699 | 0.4− | 0.0 | 2005 11 05 | 704 | 0.5+ | 1.6+ | | |
| 2005 10 01 | 704 | 0.1− | 0.1+ | 2005 10 24 | A50 | 1.5+ | 0.3− | 2005 11 05 | 704 | (2.1− | 0.6+) | | |
| 2005 10 01 | 704 | 0.4− | 1.6+ | 2005 10 24 | A50 | 0.0 | 0.1+ | 2005 11 26 | G96 | 0.3+ | 0.4− | | |
| 2005 10 01 | 704 | 0.5− | 0.4− | 2005 10 28 | 704 | 0.4− | 0.2+ | 2005 11 26 | G96 | 0.4+ | 0.5− | | |
| 2005 10 01 | 691 | 0.1− | 0.1− | 2005 10 28 | 704 | 0.2− | 0.3− | 2005 11 26 | G96 | 0.4+ | 0.5− | | |
| 2005 10 01 | 691 | 0.2− | 0.0 | 2005 10 28 | 703 | 0.3− | 0.5− | 2005 12 05 | G96 | 0.4+ | 0.4− | | |
| 2005 10 01 | 691 | 0.3− | 0.2− | 2005 10 28 | 703 | 1.8− | 0.6− | 2005 12 05 | G96 | 0.8+ | 0.1− | | |
| 2005 10 05 | 704 | 0.0 | 1.3+ | 2005 10 28 | 704 | 0.5− | 0.2+ | 2005 12 05 | G96 | 0.1+ | 0.0 | | |
| 2005 10 05 | 704 | 0.0 | 0.9+ | 2005 10 28 | 703 | 0.5− | 0.7− | 2005 12 05 | G96 | 0.0 | 0.3− | | |
| 2005 10 05 | 704 | 0.3− | 0.9+ | 2005 10 28 | 703 | 1.1+ | 0.6− | 2005 12 28 | G96 | 0.1+ | 0.3− | | |
| 2005 10 05 | 704 | 0.4+ | 1.4+ | 2005 10 28 | 704 | 1.3− | 0.1− | 2005 12 28 | G96 | 0.5+ | 0.1+ | | |
| 2005 10 05 | 704 | 0.1+ | 2.0+ | 2005 10 28 | 704 | 0.4− | 0.2− | 2005 12 28 | G96 | 0.9+ | 0.3+ | | |
| 2005 10 07 | 699 | 0.3− | 0.3− | 2005 10 31 | 704 | 0.5− | 0.4− | 2005 12 28 | G96 | 0.5+ | 0.3− | | |
| 2005 10 07 | 699 | 0.3− | 0.8+ | 2005 10 31 | 704 | 0.0 | 0.2+ | 2009 12 15 | 704 | 0.7− | 0.2+ | | |
| 2005 10 07 | 699 | 0.1+ | 0.6− | 2005 10 31 | 704 | 0.3+ | 0.0 | 2009 12 15 | 704 | 0.3− | 0.3+ | | |
| 2005 10 07 | 699 | 0.2+ | 0.1+ | 2005 10 31 | G96 | 0.0 | 0.1+ | 2009 12 15 | 704 | 0.0 | 0.0 | | |
| 2005 10 12 | 691 | 0.1+ | 0.2− | 2005 10 31 | G96 | 0.4+ | 0.0 | 2009 12 15 | 704 | 1.0+ | 0.0 | | |
| 2005 10 12 | 691 | 0.2+ | 0.0 | 2005 10 31 | G96 | 0.1+ | 0.0 | | | | | | |
| 2005 10 12 | 691 | 0.1+ | 0.2− | 2005 10 31 | 704 | 0.4− | 0.7+ | | | | | | |

**2005 TU$_{34}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 304.75705 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18119534 | $\omega$ | 228.15053 | | +0.91422596 | | +0.40306455 |
| $a$ | 3.0929390 | $\Omega$ | 108.04155 | | −0.35760312 | | +0.85083512 |
| $e$ | 0.1822524 | $i$ | 2.50705 | | −0.19055421 | | +0.33707352 |
| $P$ | 5.44 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 20 | 691 | 0.1+ | 0.0 | 2005 10 06 | 691 | 0.1+ | 0.2+ | 2005 10 27 | 691 | 0.1+ | 0.3− | | |
| 2000 11 20 | 691 | 0.1+ | 0.1− | 2005 10 12 | 691 | 0.1− | 0.1− | 2005 10 28 | 705 | 0.1+ | 0.1− | | |
| 2000 11 20 | 691 | 0.1− | 0.0 | 2005 10 12 | 691 | 0.2− | 0.1− | 2005 10 28 | 705 | 0.2+ | 0.1− | | |
| 2005 09 22 | 705 | 0.3+ | 0.2− | 2005 10 12 | 691 | 0.1+ | 0.1− | 2005 11 23 | 705 | 0.1− | 0.2− | | |
| 2005 09 22 | 705 | 0.2+ | 0.1− | 2005 10 12 | 705 | 0.1− | 0.0 | 2005 11 23 | 705 | 0.1+ | 0.2− | | |
| 2005 09 24 | 705 | 0.2+ | 0.2− | 2005 10 12 | 705 | 0.2+ | 0.1− | 2005 11 26 | 705 | 0.2+ | 0.3− | | |
| 2005 09 24 | 705 | 0.1+ | 0.3− | 2005 10 20 | 705 | 0.1+ | 0.1− | 2005 11 26 | 705 | 0.1− | 0.2− | | |
| 2005 09 25 | 705 | 0.2+ | 0.1− | 2005 10 20 | 705 | 0.2+ | 0.1− | 2005 11 30 | 705 | 0.1− | 0.2− | | |
| 2005 09 25 | 705 | 0.2+ | 0.2− | 2005 10 23 | 705 | 0.2+ | 0.1− | 2005 11 30 | 705 | 0.1− | 0.1− | | |
| 2005 10 01 | 691 | 0.0 | 0.1− | 2005 10 23 | 705 | 0.2+ | 0.1− | 2009 04 27 | G96 | 0.0 | 0.7− | | |
| 2005 10 01 | 691 | 0.3− | 0.1+ | 2005 10 26 | 705 | 0.1+ | 0.2− | 2009 04 27 | G96 | 0.3+ | 0.3+ | | |
| 2005 10 01 | 691 | 0.0 | 0.2− | 2005 10 26 | 705 | 0.2+ | 0.1− | 2009 04 27 | G96 | 0.4− | 0.5− | | |
| 2005 10 06 | 691 | 0.3− | 0.1+ | 2005 10 27 | 691 | 0.1+ | 0.4+ | 2009 04 27 | G96 | 0.2− | 0.3− | | |
| 2005 10 06 | 691 | 0.1− | 0.2+ | 2005 10 27 | 691 | 0.1− | 0.3+ | | | | | | |

**2005 TO$_{45}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 7.89814 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23929668 | $\omega$ | 6.10742 | | +0.92875838 | | −0.36197524 |
| $a$ | 2.5694782 | $\Omega$ | 15.84612 | | +0.32651477 | | +0.69683888 |
| $e$ | 0.5185755 | $i$ | 17.01156 | | +0.17548782 | | +0.61918455 |
| $P$ | 4.12 | $H$ | 19.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 07 | 699 | 0.4− | 0.2− | 2005 10 08 | E12 | 0.1+ | 0.3− | 2005 10 23 | 448 | 0.3+ | 0.1− | | |
| 2005 10 07 | 699 | 0.0 | 0.2− | 2005 10 08 | E12 | 0.2+ | 0.1− | 2005 10 23 | 448 | 0.2− | 0.1+ | | |
| 2005 10 07 | 699 | 0.0 | 0.2+ | 2005 10 08 | E12 | 0.8+ | 0.1− | 2005 10 27 | 703 | 0.4− | 0.3− | | |
| 2005 10 07 | 699 | 0.5− | 1.3− | 2005 10 08 | E12 | 0.9+ | 0.2− | 2005 10 27 | 703 | 0.5− | 0.0 | | |
| 2005 10 07 | 699 | 0.1+ | 0.7− | 2005 10 10 | I77 | 0.4+ | 0.4− | 2005 10 27 | 703 | 0.6− | 0.4− | | |
| 2005 10 07 | 699 | 1.1− | 0.2+ | 2005 10 10 | I77 | 0.3+ | 0.1+ | 2005 10 27 | 703 | 0.3− | 0.2− | | |
| 2005 10 07 | 699 | 1.3+ | 1.5+ | 2005 10 12 | I77 | 0.0 | 0.4− | 2005 10 27 | 151 | 0.7− | 0.4− | | |
| 2005 10 07 | 699 | 0.5− | 0.2+ | 2005 10 12 | I77 | 0.0 | 0.4− | 2005 10 27 | 151 | 0.3− | 0.1− | | |
| 2005 10 07 | A50 | 0.0 | 0.3+ | 2005 10 12 | I77 | 0.1+ | 0.1− | 2005 10 27 | 151 | 0.2− | 0.2− | | |
| 2005 10 07 | A50 | 0.2− | 0.2+ | 2005 10 12 | 448 | 0.4+ | 0.2− | 2005 10 27 | 151 | 0.1+ | 0.3+ | | |
| 2005 10 07 | A50 | 0.1+ | 0.6+ | 2005 10 12 | 448 | 0.2+ | 0.0 | 2005 10 31 | 170 | 0.4+ | 0.1+ | | |
| 2005 10 07 | A50 | 0.2+ | 0.5+ | 2005 10 12 | 448 | 0.4+ | 0.0 | 2005 10 31 | 170 | 0.4+ | 0.1+ | | |
| 2005 10 08 | I77 | 0.5+ | 0.2+ | 2005 10 12 | 448 | 0.2+ | 0.4+ | 2005 10 31 | 170 | 0.5+ | 0.0 | | |
| 2005 10 08 | I77 | 0.2− | 0.3− | 2005 10 12 | 926 | 0.1− | 0.1− | 2005 11 07 | A13 | 0.1− | 0.5+ | | |
| 2005 10 08 | I77 | 0.0 | 0.1− | 2005 10 12 | 926 | 0.2− | 0.1− | 2005 11 07 | A13 | 0.1− | 0.3+ | | |
| 2005 10 08 | 682 | (1.0− | 3.1+) | 2005 10 12 | 926 | 0.4− | 0.1+ | 2005 11 08 | A13 | 0.6− | 0.5+ | | |
| 2005 10 08 | H06 | 0.4+ | 0.2− | 2005 10 18 | F65 | 0.3− | 0.2− | 2005 11 08 | A13 | 0.0 | 1.0+ | | |
| 2005 10 08 | H06 | 0.8− | 0.6− | 2005 10 18 | F65 | 0.1− | 0.1+ | 2005 11 08 | A13 | 0.2+ | 0.6+ | | |
| 2005 10 08 | H06 | 1.3+ | 0.3+ | 2005 10 18 | F65 | 0.2− | 0.3+ | 2005 11 08 | A13 | 0.2− | 0.1+ | | |
| 2005 10 08 | 682 | (1.1− | 3.3+) | 2005 10 23 | G88 | 0.1− | 0.2+ | 2005 11 08 | A13 | 0.3+ | 1.3+ | | |
| 2005 10 08 | 682 | (1.0− | 3.6+) | 2005 10 23 | G88 | 0.1− | 0.1− | 2005 11 20 | 448 | 0.2− | 1.0− | | |
| 2005 10 08 | 699 | 0.2+ | 0.4− | 2005 10 23 | G88 | 0.7− | 0.4− | 2005 11 20 | 448 | 0.1− | 0.8− | | |
| 2005 10 08 | 699 | 0.4+ | 0.3+ | 2005 10 23 | G88 | 0.3− | 0.0 | 2005 11 20 | 448 | 0.6− | 0.3− | | |
| 2005 10 08 | 699 | 0.1− | 0.4− | 2005 10 23 | G88 | 0.7− | 0.3− | 2005 12 31 | 696 | 0.3+ | 0.7− | | |
| 2005 10 08 | 699 | 0.1− | 0.1+ | 2005 10 23 | G88 | 0.3+ | 0.4+ | 2005 12 31 | 696 | 0.6+ | 0.1− | | |
| 2005 10 08 | 651 | (2.3− | 1.2+) | 2005 10 23 | G88 | 0.6− | 0.4+ | 2009 12 20 | 291 | 0.6− | 1.2− | | |
| 2005 10 08 | 651 | (2.1− | 2.0+) | 2005 10 23 | G88 | 0.2− | 1.0+ | 2009 12 20 | 291 | 1.8+ | 0.4+ | | |
| 2005 10 08 | 651 | 0.9− | 1.7+ | 2005 10 23 | 448 | 0.2− | 0.2− | 2009 12 20 | 291 | 0.6+ | 0.7− | | |
| 2005 10 08 | E12 | 1.0+ | 0.9− | 2005 10 23 | 448 | 0.3− | 0.0 | | | | | | |

**2005 TS$_{49}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 49.63508 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26730949 | $\omega$ | 132.67110 | | +0.83991971 | −0.52830660 | |
| $a$ | 2.3866741 | $\Omega$ | 259.58088 | | +0.45365012 | +0.80907112 | |
| $e$ | 0.2291543 | $i$ | 7.25514 | | +0.29788665 | +0.25748020 | |
| $P$ | 3.69 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 07 | A50 | 0.7+ | 0.0 | | 2005 10 23 | 703 | 0.5+ | 0.4− | | 2005 11 25 | 703 | 0.2+ | 0.2− | |
| 2005 10 07 | A50 | 0.8+ | 0.1+ | | 2005 10 23 | 703 | 0.1− | 0.5− | | 2005 12 02 | 703 | 0.8− | 0.9− | |
| 2005 10 07 | A50 | 1.7+ | 0.3+ | | 2005 10 23 | 703 | 0.2− | 0.1+ | | 2005 12 02 | 703 | 1.7− | 0.2+ | |
| 2005 10 07 | A50 | 1.2+ | 0.1+ | | 2005 10 23 | 703 | 0.2+ | 0.5− | | 2005 12 02 | 703 | 0.7− | 0.2− | |
| 2005 10 08 | A50 | 0.4+ | 1.0+ | | 2005 10 30 | 644 | 0.0 | 0.1+ | | 2005 12 02 | 703 | 0.2− | 0.3− | |
| 2005 10 08 | A50 | 0.3+ | 0.1− | | 2005 10 30 | 644 | 0.3− | 0.2+ | | 2006 01 27 | G96 | 0.6+ | 0.2− | |
| 2005 10 08 | A50 | 0.3+ | 0.3− | | 2005 10 30 | 644 | 0.1+ | 0.2+ | | 2006 01 27 | G96 | 0.1+ | 0.6− | |
| 2005 10 08 | A50 | 0.3+ | 0.1+ | | 2005 11 03 | 704 | 0.8+ | 0.3− | | 2006 01 27 | G96 | 0.3+ | 0.2− | |
| 2005 10 10 | 703 | 0.1+ | 0.1+ | | 2005 11 03 | 704 | 0.1− | 0.5+ | | 2006 01 27 | G96 | 0.4+ | 0.5− | |
| 2005 10 10 | 703 | 0.3− | 1.1+ | | 2005 11 03 | 704 | 0.8+ | 0.5+ | | 2009 11 19 | G96 | 0.0 | 0.4+ | |
| 2005 10 10 | 703 | 0.4+ | 0.8+ | | 2005 11 03 | 704 | 0.4+ | 0.4− | | 2009 11 19 | G96 | 0.1+ | 0.1+ | |
| 2005 10 10 | 703 | 2.0− | 0.9− | | 2005 11 03 | 704 | 0.4+ | 0.0 | | 2009 11 19 | G96 | 0.7+ | 0.2− | |
| 2005 10 10 | A50 | 0.3− | 0.1− | | 2005 11 07 | 704 | 0.3− | 0.0 | | 2009 11 19 | G96 | 0.3+ | 0.4− | |
| 2005 10 10 | A50 | 0.4− | 0.0 | | 2005 11 07 | 704 | 0.3+ | 0.2+ | | 2009 12 17 | G96 | 0.0 | 0.2+ | |
| 2005 10 10 | A50 | 0.5− | 0.4− | | 2005 11 07 | 704 | 0.4+ | 0.0 | | 2009 12 17 | G96 | 0.1+ | 0.0 | |
| 2005 10 10 | A50 | 0.3− | 0.1+ | | 2005 11 07 | 704 | 0.5+ | 0.4+ | | 2009 12 17 | G96 | 0.3− | 0.6+ | |
| 2005 10 10 | A50 | 0.7− | 0.5+ | | 2005 11 07 | 704 | 0.3+ | 0.4− | | 2009 12 17 | G96 | 0.0 | 0.1+ | |
| 2005 10 13 | 704 | 0.7− | 0.1+ | | 2005 11 25 | 703 | 0.8− | 0.9− | | 2009 12 17 | G96 | 0.3− | 0.5+ | |
| 2005 10 13 | 704 | 0.8− | 0.3− | | 2005 11 25 | 703 | 0.1− | 0.1− | | | | | | |
| 2005 10 13 | 704 | 0.5− | 0.5+ | | 2005 11 25 | 703 | 0.5− | 0.1− | | | | | | |

**2005 TE$_{52}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 349.21372 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.25333181 | $\omega$ | 329.55860 | | +0.35923200 | −0.92423181 | |
| $a$ | 2.4736765 | $\Omega$ | 99.12317 | | +0.88048380 | +0.28968035 | |
| $e$ | 0.0813520 | $i$ | 7.53154 | | +0.30935521 | +0.24875863 | |
| $P$ | 3.89 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 5 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 08 31 | 644 | 0.1+ | 0.1+ | | 2005 10 05 | 703 | 0.0 | 0.0 | | 2005 11 01 | 703 | 0.3− | 0.1− | |
| 2005 08 31 | 644 | 0.0 | 0.0 | | 2005 10 05 | 703 | 0.2+ | 0.1− | | 2005 11 01 | 703 | 0.9− | 0.4+ | |
| 2005 08 31 | 644 | 0.1+ | 0.3+ | | 2005 10 09 | 152 | 0.1+ | 1.3− | | 2009 10 16 | 703 | 0.3− | 0.8− | |
| 2005 09 09 | 705 | 0.0 | 0.1+ | | 2005 10 10 | 152 | 0.8+ | 0.4+ | | 2009 10 16 | 703 | 0.1+ | 0.1− | |
| 2005 09 09 | 705 | 0.2+ | 0.0 | | 2005 10 31 | 699 | 0.6− | 0.1− | | 2009 10 16 | 703 | 0.4+ | 0.0 | |
| 2005 09 28 | 644 | 0.1− | 0.3− | | 2005 10 31 | 699 | 0.8+ | 0.8− | | 2009 10 16 | 703 | 0.6+ | 1.1− | |
| 2005 09 28 | 644 | 0.5+ | 0.1+ | | 2005 10 31 | 699 | (1.3+ | 2.3−) | | 2009 11 08 | 703 | 0.9− | 0.5+ | |
| 2005 09 28 | 644 | 0.2+ | 0.2− | | 2005 10 31 | 699 | 1.4+ | 1.2+ | | 2009 11 08 | 703 | 1.5− | 0.1+ | |
| 2005 10 05 | 703 | 1.6− | 0.9+ | | 2005 11 01 | 703 | 1.6− | 0.7+ | | 2009 11 08 | 703 | 1.1+ | 0.6+ | |
| 2005 10 05 | 703 | 0.2− | 0.1− | | 2005 11 01 | 703 | 0.7+ | 0.1− | | 2009 11 08 | 703 | 0.9+ | 0.1− | |

**2005 TF$_{55}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 223.34584 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17884477 | $\omega$ | 252.18788 | | +0.22780070 | −0.97359313 | |
| $a$ | 3.1199805 | $\Omega$ | 184.72110 | | +0.94792345 | +0.22525025 | |
| $e$ | 0.0751139 | $i$ | 10.45939 | | +0.22259374 | +0.03713133 | |
| $P$ | 5.51 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 24 | 691 | 0.0 | 0.0 | | 2005 10 28 | 703 | 0.2− | 0.5+ | | 2005 11 23 | 705 | 0.1− | 0.2− | |
| 2005 09 24 | 691 | 0.2+ | 0.2+ | | 2005 10 28 | 703 | 1.2+ | 0.5+ | | 2005 11 23 | 705 | 0.2− | 0.2− | |
| 2005 09 24 | 691 | 0.5+ | 0.2+ | | 2005 10 28 | 703 | 1.1− | 0.0 | | 2005 11 26 | 705 | 0.1− | 0.1+ | |
| 2005 10 05 | 691 | 0.0 | 0.2− | | 2005 11 01 | 705 | 0.1+ | 0.1− | | 2005 11 26 | 705 | 0.2− | 0.1− | |
| 2005 10 05 | 691 | 0.1− | 0.2− | | 2005 11 01 | 705 | 0.1+ | 0.0 | | 2005 12 01 | 705 | 0.0 | 0.0 | |
| 2005 10 05 | 691 | 0.2− | 0.2− | | 2005 11 02 | 705 | 0.1+ | 0.1− | | 2005 12 01 | 705 | 0.1− | 0.1− | |
| 2005 10 07 | 703 | 0.7− | 0.3− | | 2005 11 02 | 705 | 0.1+ | 0.1− | | 2008 03 01 | 691 | 0.4+ | 0.3+ | |
| 2005 10 07 | 703 | 0.9− | 0.5− | | 2005 11 06 | 705 | 0.1+ | 0.0 | | 2008 03 01 | 691 | 0.0 | 0.3+ | |
| 2005 10 07 | 703 | 0.3− | 0.5+ | | 2005 11 06 | 705 | 0.1+ | 0.0 | | 2008 03 01 | 691 | 0.2− | 0.2− | |
| 2005 10 07 | 703 | 1.2− | 0.6− | | 2005 11 07 | 705 | 0.1+ | 0.1− | | 2008 03 12 | 691 | 0.2− | 0.7− | |
| 2005 10 27 | 705 | 0.1+ | 0.1− | | 2005 11 07 | 705 | 0.1+ | 0.2− | | 2008 03 12 | 691 | 0.2+ | 0.1+ | |
| 2005 10 27 | 705 | 0.3+ | 0.1− | | 2005 11 19 | 705 | 0.0 | 0.0 | | 2008 03 12 | 691 | 0.1− | 0.1+ | |
| 2005 10 28 | 703 | 1.0+ | 1.1+ | | 2005 11 19 | 705 | 0.1− | 0.1+ | | | | | | |

**2005 TY$_{69}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 290.58715 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17445732 | $\omega$ | 140.20126 | | +0.98355405 | +0.08204382 | |
| $a$ | 3.1720736 | $\Omega$ | 216.08172 | | −0.11098532 | +0.97737427 | |
| $e$ | 0.1116857 | $i$ | 15.85543 | | +0.14249102 | +0.19495730 | |
| $P$ | 5.65 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 30 | 691 | 0.2+ | 0.3+ | | 2005 10 10 | 691 | 0.4− | 0.2− | | 2005 11 28 | G96 | 0.2− | 0.1+ | |
| 2005 09 30 | 691 | (1.7+ | 0.4−) | | 2005 10 10 | 691 | 0.1− | 0.3− | | 2009 04 30 | 691 | 0.2+ | 0.1+ | |
| 2005 09 30 | 691 | 0.1+ | 0.1− | | 2005 10 22 | 644 | 0.3+ | 0.3+ | | 2009 04 30 | 691 | 0.3+ | 0.1− | |
| 2005 10 06 | 691 | 0.1− | 0.0 | | 2005 10 22 | 644 | 1.0− | 0.9+ | | 2009 04 30 | 691 | 0.2− | 0.2+ | |
| 2005 10 06 | 691 | 0.1+ | 0.3+ | | 2005 10 22 | 644 | 0.3− | 0.1+ | | 2009 05 15 | 691 | 0.0 | 0.1− | |
| 2005 10 06 | 691 | 0.0 | 0.1+ | | 2005 10 22 | 644 | 0.3− | 0.1+ | | 2009 05 15 | 691 | 0.3− | 0.0 | |
| 2005 10 07 | G96 | 0.1− | 0.7− | | 2005 10 22 | 644 | 0.3− | 0.5+ | | 2009 05 15 | 691 | 0.2− | 0.2− | |
| 2005 10 07 | G96 | 0.7− | 0.6− | | 2005 10 22 | 644 | 0.0 | 0.1+ | | 2009 05 26 | 691 | 0.3+ | 0.0 | |
| 2005 10 07 | G96 | 0.3− | 0.5− | | 2005 11 28 | G96 | 0.4− | 0.6− | | 2009 05 26 | 691 | 0.0 | 0.2− | |
| 2005 10 07 | G96 | 0.4− | 0.7− | | 2005 11 28 | G96 | 0.3+ | 0.7− | | 2009 05 26 | 691 | 0.0 | 0.3+ | |
| 2005 10 10 | 691 | 1.1+ | 0.2+ | | 2005 11 28 | G96 | 0.5− | 0.3+ | | | | | | |

**2005 TV$_{74}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 54.58526 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27318559 | $\omega$ | 103.65583 | | +0.86366938 | −0.49255932 | |
| $a$ | 2.3523261 | $\Omega$ | 285.94607 | | +0.40865061 | +0.80855682 | |
| $e$ | 0.1165344 | $i$ | 6.39245 | | +0.29509300 | +0.32190246 | |
| $P$ | 3.61 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 02 | 644 | 0.1+ | 0.5+ | | 2005 10 08 | 704 | 0.6+ | 0.3− | | 2005 11 03 | 704 | 0.8+ | 0.6+ | |
| 2005 09 02 | 644 | 0.4+ | 0.3+ | | 2005 10 08 | 704 | 0.4+ | 0.1+ | | 2005 11 03 | 704 | 0.8+ | 1.7+ | |
| 2005 09 02 | 644 | 0.3+ | 0.3+ | | 2005 10 08 | 704 | 0.2− | 0.1− | | 2005 11 03 | 704 | 0.2− | 0.2+ | |
| 2005 09 23 | 703 | 0.9− | 0.7− | | 2005 10 08 | 704 | 0.1− | 0.1− | | 2005 11 06 | 704 | 0.7− | 0.4+ | |
| 2005 09 23 | 703 | 0.1− | 0.2+ | | 2005 10 08 | 704 | 0.4+ | 0.7+ | | 2005 11 06 | 704 | 0.1+ | 0.1− | |
| 2005 09 23 | 703 | 0.3− | 0.0 | | 2005 10 23 | 644 | 0.0 | 0.2− | | 2005 11 06 | 704 | 0.2− | 0.1+ | |
| 2005 09 23 | 703 | 0.7− | 0.7+ | | 2005 10 23 | 644 | 0.0 | 0.4+ | | 2005 11 06 | 704 | 0.2− | 0.5+ | |
| 2005 10 01 | 703 | 0.2− | 1.4− | | 2005 10 23 | 644 | 0.0 | 0.0 | | 2005 11 06 | 704 | 1.0+ | 0.2+ | |
| 2005 10 01 | 703 | 0.5+ | 1.0− | | 2005 10 23 | 703 | 0.8− | 0.5− | | 2009 12 16 | 691 | 0.3+ | 0.1− | |
| 2005 10 01 | 703 | 0.3− | 0.2− | | 2005 10 23 | 703 | 0.1− | 0.9− | | 2009 12 16 | 691 | 0.7− | 0.1− | |
| 2005 10 01 | 703 | 0.7+ | 0.3− | | 2005 10 23 | 703 | 0.5+ | 0.0 | | 2009 12 16 | 691 | 0.1+ | 0.1+ | |
| 2005 10 07 | 704 | 0.1− | 0.3− | | 2005 10 23 | 703 | 0.2− | 0.6− | | 2009 12 19 | 691 | 0.2+ | 0.1+ | |
| 2005 10 07 | 704 | 0.4− | 0.3− | | 2005 11 01 | 699 | 0.8− | 0.2− | | 2009 12 19 | 691 | 0.3+ | 0.0 | |
| 2005 10 07 | 704 | 0.4− | 0.1+ | | 2005 11 01 | 699 | 0.1+ | 0.4+ | | 2009 12 19 | 691 | 0.2− | 0.1− | |
| 2005 10 07 | 704 | 0.4+ | 0.2− | | 2005 11 01 | 699 | 0.1− | 0.1+ | | | | | | |
| 2005 10 07 | 704 | 0.2− | 0.4+ | | 2005 11 01 | 699 | 0.2+ | 0.1− | | | | | | |

**2005 TG$_{78}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 290.98323 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.16123409 | $\omega$ | 68.38112 | | +0.78469120 | +0.60785111 | |
| $a$ | 3.3432189 | $\Omega$ | 253.97913 | | −0.60517980 | +0.70873729 | |
| $e$ | 0.1268507 | $i$ | 7.26575 | | −0.13422789 | +0.35806212 | |
| $P$ | 6.11 | $H$ | 15.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 01 | 644 | 0.0 | 0.2− | 2005 10 07 | G96 | 0.0 | 0.2− | 2005 11 03 | G96 | 0.2+ | 0.1− |
| 2005 09 01 | 644 | 0.3− | 0.1− | 2005 10 08 | 703 | 0.0 | 0.3+ | 2005 11 03 | G96 | 0.1+ | 0.0 |
| 2005 09 01 | 644 | 0.5− | 0.2− | 2005 10 08 | 703 | 0.8+ | 0.8+ | 2005 11 03 | G96 | 0.0 | 0.0 |
| 2005 09 23 | 703 | 0.7+ | 0.2− | 2005 10 08 | 704 | 0.3+ | 0.1− | 2005 11 03 | G96 | 0.3+ | 0.2− |
| 2005 09 23 | 703 | 0.5− | 0.5+ | 2005 10 08 | 703 | 0.5− | 0.5+ | 2008 01 12 | G96 | 0.4+ | 0.0 |
| 2005 09 23 | 703 | 0.2− | 0.1− | 2005 10 08 | 703 | 0.6− | 0.3− | 2008 01 12 | G96 | 0.0 | 0.0 |
| 2005 09 23 | 703 | (2.3+ | 0.8−) | 2005 10 08 | 704 | 1.0+ | 1.1+ | 2008 01 12 | G96 | 0.3− | 0.1+ |
| 2005 09 26 | 644 | 0.1− | 0.2− | 2005 10 08 | 704 | 0.6+ | 1.2− | 2008 01 12 | G96 | 0.1− | 0.0 |
| 2005 09 26 | 644 | 0.1+ | 0.0 | 2005 10 08 | 704 | 0.9+ | 0.8+ | 2009 04 03 | G96 | 0.5+ | 0.2+ |
| 2005 09 26 | 644 | 0.3− | 0.0 | 2005 11 02 | 704 | 0.1− | 0.2− | 2009 04 03 | G96 | 0.5− | 0.5− |
| 2005 10 07 | G96 | 0.1− | 0.2− | 2005 11 02 | 704 | 0.6− | 0.1+ | 2009 04 03 | G96 | 0.1+ | 0.1− |
| 2005 10 07 | G96 | 0.1+ | 0.1− | 2005 11 02 | 704 | 0.6− | 0.4− | 2009 04 03 | G96 | 0.2− | 0.4+ |
| 2005 10 07 | G96 | 0.2− | 0.1− | 2005 11 02 | 704 | 0.6− | 0.1− | | | | |

**2005 TN$_{101}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 65.74584 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27492495 | $\omega$ | 329.03434 | | +0.91306953 | −0.39470258 | |
| $a$ | 2.3423940 | $\Omega$ | 54.55994 | | +0.39516393 | +0.79422845 | |
| $e$ | 0.1352849 | $i$ | 7.23016 | | +0.10074472 | +0.46196433 | |
| $P$ | 3.59 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 11 25 | 699 | 0.3+ | 1.1− | 2005 10 10 | 704 | 1.4+ | 0.5+ | 2005 11 01 | 704 | 0.4− | 0.6− |
| 1998 11 25 | 699 | 0.4− | 0.4− | 2005 10 10 | 704 | 0.5− | 0.7− | 2005 11 01 | 704 | 0.6− | 0.1+ |
| 1998 11 25 | 699 | 0.1+ | 1.4+ | 2005 10 10 | 704 | 0.4− | 0.1+ | 2005 11 01 | 704 | 0.1− | 0.6+ |
| 2000 05 04 | 645 | 0.1+ | 0.1+ | 2005 10 10 | 704 | 0.7− | 0.5− | 2005 11 01 | 704 | 0.3− | 0.7+ |
| 2000 05 04 | 645 | 0.0 | 0.1+ | 2005 10 22 | 703 | 0.5− | 0.6− | 2005 11 01 | 704 | 0.1+ | 0.3− |
| 2005 09 27 | 644 | 0.1− | 0.2− | 2005 10 22 | 703 | 0.5+ | 0.2− | 2005 11 03 | 704 | 0.6− | 0.2− |
| 2005 09 27 | 644 | 0.1+ | 0.2− | 2005 10 22 | 703 | 0.2− | 0.5+ | 2005 11 03 | 704 | 0.3− | 0.8− |
| 2005 09 27 | 644 | 0.0 | 0.2− | 2005 10 22 | 703 | 0.8− | 0.4+ | 2005 11 03 | 704 | 0.3+ | 0.3+ |
| 2005 10 01 | 703 | 0.5− | 0.5+ | 2005 10 24 | 699 | 1.0+ | 0.3+ | 2005 11 03 | 704 | 0.5+ | 1.6+ |
| 2005 10 01 | 703 | 0.2− | 0.1+ | 2005 10 24 | 699 | 0.2+ | 0.6− | 2005 11 04 | 704 | 0.4− | 0.1− |
| 2005 10 01 | 703 | 0.3+ | 1.0+ | 2005 10 24 | 699 | 0.1+ | 0.4+ | 2005 11 04 | 704 | 0.2− | 0.7− |
| 2005 10 01 | 703 | 0.3− | 0.2+ | 2005 10 28 | 704 | 0.5− | 0.2+ | 2005 11 04 | 704 | 1.0− | 0.6− |
| 2005 10 01 | 703 | 0.8+ | 2.0+ | 2005 10 28 | 704 | 0.7+ | 1.0− | 2005 11 19 | 644 | 0.2− | 0.1+ |
| 2005 10 01 | 703 | 0.5− | 0.2+ | 2005 10 28 | 704 | 0.1− | 1.0− | 2005 11 19 | 644 | 0.3+ | 0.2+ |
| 2005 10 01 | 703 | 0.0 | 0.8+ | 2005 10 28 | 704 | 0.4− | 0.3+ | 2005 11 19 | 644 | 0.1+ | 0.7− |
| 2005 10 01 | 703 | 0.3+ | 0.4− | 2005 10 28 | 704 | 0.6− | 0.1+ | 2005 12 04 | G96 | 0.1+ | 0.1− |
| 2005 10 07 | 703 | 0.5− | 0.4+ | 2005 10 28 | 703 | 0.5+ | 0.3+ | 2005 12 04 | G96 | 0.4+ | 0.0 |
| 2005 10 07 | 699 | 0.3− | 0.3− | 2005 10 28 | 703 | 0.3+ | 0.0 | 2005 12 04 | G96 | 0.1+ | 0.3− |
| 2005 10 07 | 703 | 0.9− | 0.2− | 2005 10 28 | 703 | 0.6+ | 0.3+ | 2005 12 04 | G96 | 0.0 | 0.2− |
| 2005 10 07 | 703 | 0.5+ | 0.9− | 2005 10 28 | 703 | 0.4+ | 0.7+ | 2006 01 04 | G96 | 0.4+ | 0.3+ |
| 2005 10 07 | 703 | 0.4− | 0.2+ | 2005 10 31 | 704 | 0.6− | 0.7+ | 2006 01 04 | G96 | 0.6+ | 0.5− |
| 2005 10 07 | 699 | 0.7+ | 0.6− | 2005 10 31 | 704 | 0.3− | 0.5+ | 2006 01 04 | G96 | 0.3+ | 0.1+ |
| 2005 10 07 | 699 | 0.4+ | 0.1− | 2005 10 31 | 704 | 0.2+ | 0.3+ | 2006 01 04 | G96 | 0.6+ | 0.1+ |
| 2005 10 07 | 699 | 0.1+ | 0.7− | 2005 10 31 | 704 | 0.4− | 0.5+ | | | | |
| 2005 10 10 | 704 | 0.2+ | 0.3+ | 2005 10 31 | 704 | 0.2− | 0.8+ | | | | |

**2005 TE$_{102}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 24.01842 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26165959 | $\omega$ | 147.96205 | | +0.50883798 | −0.86029218 | |
| $a$ | 2.4209080 | $\Omega$ | 271.43416 | | +0.78306635 | +0.47766422 | |
| $e$ | 0.2551747 | $i$ | 1.79566 | | +0.35761852 | +0.17814109 | |
| $P$ | 3.77 | $H$ | 18.7 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 01 08 | 691 | 0.0 | 0.2+ | 2005 10 09 | 691 | 0.1+ | 0.4+ | 2005 11 04 | 703 | 0.2+ | 0.2− |
| 1995 01 08 | 691 | 0.1+ | 0.2+ | 2005 10 09 | 691 | 0.3+ | 0.5+ | 2005 11 04 | 703 | 0.2− | 0.2− |
| 1995 01 08 | 691 | 0.1+ | 0.4+ | 2005 10 13 | 691 | 0.1− | 0.4+ | 2005 12 05 | G96 | 0.1− | 0.4− |
| 2001 09 19 | 645 | 0.0 | 0.1− | 2005 10 13 | 691 | 0.6− | 0.5− | 2005 12 05 | G96 | 0.2+ | 0.2− |
| 2001 09 19 | 645 | 0.0 | 0.1− | 2005 10 13 | 691 | 0.3− | 0.2+ | 2005 12 05 | G96 | 0.0 | 0.2+ |
| 2005 09 26 | 691 | 0.1− | 0.0 | 2005 10 22 | 691 | 0.4+ | 0.2+ | 2005 12 05 | G96 | 0.3− | 0.5− |
| 2005 09 26 | 691 | 0.0 | 0.1+ | 2005 10 22 | 691 | 0.5− | 0.1+ | 2009 12 16 | 691 | 0.0 | 0.2− |
| 2005 09 26 | 691 | 0.0 | 0.1+ | 2005 10 22 | 691 | 0.0 | 0.1+ | 2009 12 16 | 691 | 0.1− | 0.3− |
| 2005 10 07 | G96 | 0.2+ | 0.3− | 2005 10 30 | 691 | 0.1− | 0.1+ | 2009 12 16 | 691 | 0.2− | 0.5+ |
| 2005 10 07 | G96 | 0.0 | 0.3− | 2005 10 30 | 691 | 0.5+ | 0.2− | 2009 12 20 | 691 | 0.2+ | 0.4− |
| 2005 10 07 | G96 | 0.6+ | 0.1− | 2005 10 30 | 691 | 0.1+ | 0.2− | 2009 12 20 | 691 | 0.1− | 0.4− |
| 2005 10 07 | G96 | 0.1+ | 0.4− | 2005 11 04 | 703 | 0.8− | 0.4− | 2009 12 20 | 691 | 0.1+ | 0.4− |
| 2005 10 09 | 691 | 0.0 | 0.2+ | 2005 11 04 | 703 | 0.5+ | 0.1− | | | | |

**2005 TK$_{116}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 95.48622 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27395627 | $\omega$ | 32.14272 | | +0.83339523 | +0.55215496 | |
| $a$ | 2.3479124 | $\Omega$ | 294.32387 | | −0.51248843 | +0.75578779 | |
| $e$ | 0.2148756 | $i$ | 1.51092 | | −0.20690094 | +0.35200812 | |
| $P$ | 3.60 | $H$ | 18.0 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 27 | 691 | 0.0 | 0.1− | 2005 10 07 | 703 | 0.5+ | 1.2+ | 2005 11 03 | 691 | 0.1− | 0.1− |
| 2005 09 27 | 691 | 0.0 | 0.2− | 2005 10 07 | 703 | 0.5+ | 0.8+ | 2008 06 03 | 691 | 0.1− | 0.1+ |
| 2005 09 27 | 691 | 0.1+ | 0.2+ | 2005 10 07 | 703 | 0.6+ | 0.3− | 2008 06 03 | 691 | 0.8+ | 0.3+ |
| 2005 10 07 | 691 | 0.2− | 0.1− | 2005 10 11 | 691 | 0.1+ | 0.0 | 2008 06 03 | 691 | 0.6− | 0.0 |
| 2005 10 07 | 691 | 0.1− | 0.2+ | 2005 10 11 | 691 | 0.3− | 0.6− | 2009 11 19 | 291 | 0.2− | 0.2+ |
| 2005 10 07 | 691 | 0.2− | 0.1+ | 2005 10 11 | 691 | 0.2+ | 0.1+ | 2009 11 19 | 291 | 0.6− | 0.5− |
| 2005 10 07 | 703 | 0.4+ | 0.6− | 2005 10 27 | 691 | 0.1− | 0.3− | 2009 11 19 | 291 | 0.2+ | 0.1− |
| 2005 10 07 | 703 | 0.5+ | 1.3+ | 2005 10 27 | 691 | 0.1+ | 0.3− | 2009 11 25 | 691 | 0.5+ | 0.5+ |
| 2005 10 07 | 703 | 0.6− | 1.2+ | 2005 10 27 | 691 | 0.3+ | 0.2− | 2009 11 25 | 691 | 0.1+ | 0.1+ |
| 2005 10 07 | 703 | 0.6− | 1.4+ | 2005 11 03 | 691 | 0.0 | 0.0 | 2009 11 25 | 691 | 0.1+ | 0.2+ |
| 2005 10 07 | 703 | 0.1− | 0.4+ | 2005 11 03 | 691 | 0.0 | 0.1− | | | | |

**2005 TO$_{117}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 185.57357 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24000063 | $\omega$ | 196.44232 | | −0.92919229 | +0.36942147 | |
| $a$ | 2.5644513 | $\Omega$ | 5.27939 | | −0.32365130 | −0.79843106 | |
| $e$ | 0.2587191 | $i$ | 7.10337 | | −0.17846995 | −0.47543202 | |
| $P$ | 4.11 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 10 26 | 691 | 0.2− | 0.1+ | 2005 10 11 | 691 | 0.3+ | 0.1− | 2005 11 06 | G96 | 0.1+ | 0.1+ |
| 2001 10 26 | 691 | 0.3− | 0.3+ | 2005 10 11 | 691 | 0.2+ | 0.3− | 2009 09 12 | 691 | 0.2− | 0.2+ |
| 2001 10 26 | 691 | 0.5− | 0.5+ | 2005 10 11 | 691 | 0.2+ | 0.2− | 2009 09 12 | 691 | 0.1− | 0.1− |
| 2005 09 26 | 691 | 0.2+ | 0.1− | 2005 10 11 | 691 | 0.4+ | 0.3− | 2009 09 12 | 691 | 0.3− | 0.4+ |
| 2005 09 26 | 691 | 0.1+ | 0.3+ | 2005 10 27 | G96 | 0.2+ | 0.2+ | 2009 09 28 | 691 | 0.1+ | 0.1+ |
| 2005 09 26 | 691 | 0.1+ | 0.1+ | 2005 10 27 | G96 | 0.7− | 0.4+ | 2009 09 28 | 691 | 0.2− | 0.1+ |
| 2005 10 07 | 691 | 0.2+ | 0.5− | 2005 10 27 | G96 | 0.0 | 0.3+ | 2009 09 28 | 691 | 0.3− | 0.2+ |
| 2005 10 07 | 691 | 0.3+ | 0.4− | 2005 10 27 | G96 | 0.3+ | 0.2+ | 2009 10 21 | G96 | 0.0 | 0.6− |
| 2005 10 07 | 691 | 0.2+ | 0.4− | 2005 11 06 | G96 | 0.4− | 0.3+ | 2009 10 21 | G96 | 0.4+ | 0.1− |
| 2005 10 11 | 691 | 0.1− | 0.1− | 2005 11 06 | G96 | 0.0 | 0.2+ | 2009 10 21 | G96 | 0.7− | 0.1+ |
| 2005 10 11 | 691 | 0.1− | 0.0 | 2005 11 06 | G96 | 0.3+ | 0.1+ | 2009 10 21 | G96 | 0.1+ | 0.3+ |

**2005 TR$_{129}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 54.14094 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26936907 | $\omega$ | 175.05673 | | +0.86773337 | −0.49694748 | |
| $a$ | 2.3744930 | $\Omega$ | 214.74625 | | +0.45546975 | +0.80233747 | |
| $e$ | 0.1749896 | $i$ | 0.91042 | | +0.19896260 | +0.33060215 | |
| $P$ | 3.66 | $H$ | 17.9 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 30 | G96 | 0.1+ | 0.3− | 2005 10 25 | G96 | 0.4− | 0.4+ | 2005 12 26 | G96 | 0.8+ | 0.6− |
| 2005 09 30 | G96 | 0.3+ | 0.2− | 2005 10 25 | G96 | 0.1− | 0.4+ | 2007 03 20 | G96 | 0.6+ | 0.6+ |
| 2005 09 30 | G96 | 0.6+ | 0.2− | 2005 10 25 | G96 | 0.4− | 0.4+ | 2007 03 20 | G96 | 0.2+ | 0.1+ |
| 2005 09 30 | G96 | 0.3+ | 0.1− | 2005 10 30 | 703 | (0.0 | 1.7−) | 2007 03 20 | G96 | 0.3− | 0.2+ |
| 2005 10 03 | 703 | 0.7− | 1.3+ | 2005 10 30 | 703 | 0.4− | 1.0+ | 2007 03 20 | G96 | 0.1− | 0.0 |
| 2005 10 03 | 703 | 0.6− | 0.6− | 2005 10 30 | 703 | (1.5− | 1.2−) | 2009 12 16 | G96 | 0.5+ | 0.5− |
| 2005 10 03 | 703 | 0.1− | 0.7+ | 2005 10 30 | 703 | 0.9− | 0.5− | 2009 12 16 | G96 | 0.2+ | 0.0 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 03 | 703 | 0.0 | 1.5− | 2005 11 25 | G96 | 0.2− | 0.0 | 2009 12 16 | G96 | 0.2− | 0.6− |
| 2005 10 07 | 691 | 0.0 | 0.1+ | 2005 11 25 | G96 | 0.2+ | 0.0 | 2009 12 16 | G96 | 0.6+ | 0.5− |
| 2005 10 07 | 691 | 0.2+ | 0.1+ | 2005 11 25 | G96 | 0.3+ | 0.3− | 2009 12 16 | G96 | 0.1− | 0.1− |
| 2005 10 07 | 691 | 0.1+ | 0.0 | 2005 11 25 | G96 | 0.4− | 0.6− | 2009 12 25 | 691 | 0.3+ | 0.4+ |
| 2005 10 11 | 691 | 0.0 | 0.2+ | 2005 12 26 | G96 | 0.3− | 0.2− | 2009 12 25 | 691 | 0.5− | 0.0 |
| 2005 10 11 | 691 | 0.1+ | 0.0 | 2005 12 26 | G96 | 0.4+ | 0.2− | 2009 12 25 | 691 | 0.0 | 0.1+ |
| 2005 10 11 | 691 | 0.0 | 0.0 | 2005 12 26 | G96 | 0.0 | 0.2− | | | | |

**2005 TU$_{135}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 46.65110 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22045226 | $\omega$ | 255.29260 | | +0.33889064 | | +0.93921940 |
| $a$ | 2.7138948 | $\Omega$ | 34.67350 | | −0.82175773 | | +0.32393837 |
| $e$ | 0.1415610 | $i$ | 5.54335 | | −0.45811283 | | +0.11371390 |
| $P$ | 4.47 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 04 25 | 691 | 0.1+ | 0.3+ | 2005 10 26 | 705 | 0.3+ | 0.1− | 2005 11 11 | 705 | 0.2+ | 0.0 |
| 2004 04 25 | 691 | 0.1+ | 0.0 | 2005 10 28 | G96 | 0.2+ | 0.2− | 2005 11 19 | 705 | 0.0 | 0.2− |
| 2004 04 25 | 691 | 0.1− | 0.1+ | 2005 10 28 | G96 | 0.1+ | 0.0 | 2005 11 19 | 705 | 0.1+ | 0.4− |
| 2005 09 15 | 705 | 0.3+ | 0.2− | 2005 10 28 | G96 | 0.6+ | 0.0 | 2005 11 23 | 705 | 0.0 | 0.1− |
| 2005 09 15 | 705 | 0.3+ | 0.3− | 2005 10 28 | G96 | 0.0 | 0.1− | 2005 11 23 | 705 | 0.1+ | 0.1− |
| 2005 10 06 | 691 | 0.2+ | 0.2+ | 2005 10 30 | 705 | 0.2+ | 0.2− | 2005 12 01 | 705 | 0.0 | 0.2− |
| 2005 10 06 | 691 | 0.1+ | 0.2− | 2005 10 30 | 705 | 0.3+ | 0.1− | 2005 12 01 | 705 | 0.1− | 0.3− |
| 2005 10 06 | 691 | 0.0 | 0.2− | 2005 11 01 | 705 | 0.3+ | 0.0 | 2008 02 07 | G96 | 0.3+ | 0.3+ |
| 2005 10 12 | 691 | 0.5− | 0.1− | 2005 11 01 | 705 | 0.4+ | 0.1− | 2008 02 07 | G96 | 0.8+ | 0.0 |
| 2005 10 12 | 691 | 0.6− | 0.3+ | 2005 11 03 | 691 | 0.3− | 0.5+ | 2008 02 07 | G96 | 0.3− | 0.2+ |
| 2005 10 12 | 691 | 0.1+ | 0.4− | 2005 11 03 | 691 | 0.5− | 0.9+ | 2008 02 07 | G96 | 0.2+ | 0.5+ |
| 2005 10 21 | 705 | 0.4+ | 0.1− | 2005 11 03 | 691 | 0.3− | 0.4+ | 2008 04 05 | G96 | 0.5+ | 0.1+ |
| 2005 10 21 | 705 | 0.4+ | 0.2− | 2005 11 03 | 705 | 0.3+ | 0.2− | 2008 04 05 | G96 | 0.2− | 0.2+ |
| 2005 10 25 | 691 | 0.3+ | 0.3+ | 2005 11 03 | 705 | 0.3+ | 0.0 | 2008 04 05 | G96 | 0.4− | 0.1− |
| 2005 10 25 | 691 | 0.1− | 0.3− | 2005 11 06 | 705 | 0.4+ | 0.1− | 2008 04 05 | G96 | 0.1− | 0.5+ |
| 2005 10 25 | 691 | 0.1− | 0.3+ | 2005 11 06 | 705 | 0.2+ | 0.1− | | | | |
| 2005 10 26 | 705 | 0.2+ | 0.2− | 2005 11 11 | 705 | 0.3+ | 0.2− | | | | |

**2005 TF$_{138}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 266.61509 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17855996 | $\omega$ | 204.21569 | | +0.74653143 | | −0.65626569 |
| $a$ | 3.1232973 | $\Omega$ | 198.19031 | | +0.65325253 | | +0.75421161 |
| $e$ | 0.1670452 | $i$ | 20.54839 | | +0.12630102 | | −0.02191340 |
| $P$ | 5.52 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 01 | 691 | 0.1− | 0.1+ | 2005 10 22 | 703 | 0.8− | 0.9+ | 2005 11 26 | 705 | 0.0 | 0.1+ |
| 2005 10 01 | 691 | 0.1+ | 0.0 | 2005 10 22 | 703 | 0.7+ | 0.3− | 2005 11 26 | 705 | 0.1− | 0.1− |
| 2005 10 01 | 691 | 0.2+ | 0.0 | 2005 10 22 | 703 | 0.5− | 0.1+ | 2005 12 01 | 705 | 0.0 | 0.2− |
| 2005 10 07 | 703 | 0.2− | 0.2− | 2005 11 03 | 703 | 0.3− | 0.3+ | 2005 12 01 | 705 | 0.0 | 0.2− |
| 2005 10 07 | 703 | 0.5− | 0.2+ | 2005 11 03 | 703 | 0.2+ | 0.3+ | 2008 03 13 | 691 | 0.1− | 0.5− |
| 2005 10 07 | 703 | 1.4+ | 0.5+ | 2005 11 03 | 703 | 0.5+ | 0.1+ | 2008 03 13 | 691 | 0.1+ | 0.5+ |
| 2005 10 07 | 703 | 0.6+ | 0.3− | 2005 11 03 | 703 | 0.2− | 0.6+ | 2008 03 13 | 691 | 0.3− | 0.1− |
| 2005 10 12 | 691 | 0.0 | 0.2− | 2005 11 23 | 705 | 0.1+ | 0.1− | 2008 04 06 | G96 | 0.3+ | 0.2+ |
| 2005 10 12 | 691 | 0.2− | 0.1− | 2005 11 23 | 705 | 0.1+ | 0.1− | 2008 04 06 | G96 | 0.6+ | 0.1− |
| 2005 10 12 | 691 | 0.0 | 0.1+ | 2005 11 24 | 705 | 0.0 | 0.1− | 2008 04 06 | G96 | 0.3− | 0.3+ |
| 2005 10 22 | 703 | 0.7− | 0.9− | 2005 11 24 | 705 | 0.1+ | 0.0 | 2008 04 06 | G96 | 0.5+ | 0.2+ |

**2005 TJ$_{142}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 220.20118 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17422161 | $\omega$ | 30.70791 | | +0.24088174 | | −0.96296356 |
| $a$ | 3.1749340 | $\Omega$ | 45.66485 | | +0.85251768 | | +0.15027014 |
| $e$ | 0.0389348 | $i$ | 9.75161 | | +0.46388532 | | +0.22387513 |
| $P$ | 5.66 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 29 | 691 | 0.1− | 0.1− | 2005 10 24 | 691 | 0.4+ | 0.5− | 2008 03 10 | G96 | 0.2+ | 0.4− |
| 2005 09 29 | 691 | 0.1+ | 0.1+ | 2005 10 24 | 691 | 0.2+ | 0.1+ | 2008 04 06 | 703 | 1.0− | 0.1+ |
| 2005 09 29 | 691 | 0.4+ | 0.2− | 2005 10 24 | 691 | 0.0 | 0.2+ | 2008 04 06 | 703 | 0.9− | 0.5+ |
| 2005 10 08 | 691 | 0.1+ | 0.2− | 2005 11 01 | 691 | 0.2− | 0.1− | 2008 04 06 | 703 | 1.4+ | 0.9+ |
| 2005 10 08 | 691 | 0.1− | 0.0 | 2005 11 01 | 691 | 0.2+ | 0.1− | 2008 04 06 | 703 | 0.4+ | 1.1+ |
| 2005 10 08 | 691 | 0.0 | 0.1− | 2005 11 01 | 691 | 0.1+ | 0.3+ | 2008 04 13 | G96 | 0.5− | 0.6− |
| 2005 10 12 | 691 | 0.2− | 0.2+ | 2008 03 10 | G96 | 0.0 | 0.0 | 2008 04 13 | G96 | 0.0 | 0.5− |
| 2005 10 12 | 691 | 0.4− | 0.2+ | 2008 03 10 | G96 | 0.3+ | 0.2− | 2008 04 13 | G96 | 0.2+ | 0.0 |
| 2005 10 12 | 691 | 0.4− | 0.1+ | 2008 03 10 | G96 | 0.1− | 0.3− | 2008 04 13 | G96 | 0.1+ | 0.6− |

**2005 TW$_{146}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 124.96312 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17337965 | $\omega$ | 122.65346 | | −0.96846608 | | −0.21494996 |
| $a$ | 3.1852043 | $\Omega$ | 45.28996 | | +0.12366851 | | −0.85368420 |
| $e$ | 0.0245173 | $i$ | 10.21034 | | +0.21628582 | | −0.47436252 |
| $P$ | 5.68 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 29 | 691 | 0.1+ | 0.1− | 2005 10 28 | 701 | 0.4+ | 0.3− | 2008 03 02 | G96 | 0.0 | 0.2− |
| 2005 09 29 | 691 | 0.3+ | 0.0 | 2005 10 28 | 701 | 0.2+ | 0.2+ | 2008 03 02 | G96 | 0.4− | 0.1− |
| 2005 09 29 | 691 | 0.0 | 0.0 | 2005 10 28 | 701 | 0.2+ | 0.1− | 2008 03 02 | G96 | 0.2+ | 0.1− |
| 2005 10 08 | 691 | 0.1− | 0.1+ | 2005 10 29 | 701 | 0.0 | 0.1− | 2008 03 02 | G96 | 0.4+ | 0.2− |
| 2005 10 08 | 691 | 0.2− | 0.1+ | 2005 10 29 | 701 | 1.3+ | 0.2− | 2008 04 13 | G96 | 0.3− | 0.3+ |
| 2005 10 08 | 691 | 0.2− | 0.1+ | 2005 10 29 | 701 | 0.1− | 0.3+ | 2008 04 13 | G96 | 0.0 | 0.0 |
| 2005 10 12 | 691 | 0.0 | 0.2− | 2005 10 29 | 701 | 0.7− | 0.0 | 2008 04 13 | G96 | 0.2+ | 0.1+ |
| 2005 10 12 | 691 | 0.2− | 0.0 | 2005 10 29 | 701 | 0.1− | 0.6+ | 2008 04 13 | G96 | 0.1− | 0.3+ |
| 2005 10 12 | 691 | 0.2− | 0.1− | 2005 10 29 | 701 | 0.5+ | 0.0 | | | | |

**2005 TV$_{152}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 275.78164 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17980446 | $\omega$ | 130.53539 | | +0.94907116 | | −0.27673127 |
| $a$ | 3.1088689 | $\Omega$ | 246.01478 | | +0.21539203 | | +0.91877161 |
| $e$ | 0.1416360 | $i$ | 9.48826 | | +0.22993523 | | +0.28156443 |
| $P$ | 5.48 | $H$ | 14.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 01 | 644 | 0.0 | 0.4− | 2005 10 05 | 703 | 0.1− | 0.1+ | 2005 11 04 | 683 | 1.1+ | 0.4− |
| 2005 09 01 | 644 | 0.0 | 0.4− | 2005 10 12 | 704 | 0.3+ | 1.0+ | 2005 11 05 | 683 | (1.9+ | 0.0 ) |
| 2005 09 01 | 644 | 0.2− | 0.5− | 2005 10 12 | 704 | 0.3− | 0.3+ | 2005 11 05 | 683 | 0.7+ | 0.5+ |
| 2005 09 12 | 704 | 0.1− | 0.5− | 2005 10 12 | 704 | 0.1− | 0.9+ | 2005 11 05 | 683 | 0.2+ | 0.9− |
| 2005 09 12 | 704 | 0.1− | 0.2− | 2005 10 12 | 704 | 0.4− | 0.3+ | 2005 11 05 | 704 | (1.8− | 1.9+) |
| 2005 09 12 | 704 | 0.7+ | 0.3+ | 2005 10 12 | 704 | 0.2− | 0.6+ | 2005 11 05 | 704 | 0.1− | 0.4+ |
| 2005 09 12 | 704 | 0.1− | 0.1− | 2005 10 30 | 704 | 0.2− | 0.6+ | 2005 11 05 | 704 | 0.6− | 1.0+ |
| 2005 09 12 | 704 | 0.5+ | 0.2− | 2005 10 30 | 704 | 0.0 | 0.1+ | 2005 11 05 | 704 | 1.0+ | 0.2+ |
| 2005 09 12 | 704 | 0.1+ | 0.6+ | 2005 10 30 | 704 | 0.2− | 0.2+ | 2009 04 23 | G96 | 0.3+ | 0.1− |
| 2005 09 12 | 704 | 0.6+ | 0.1+ | 2005 10 30 | 704 | 0.0 | 0.2+ | 2009 04 23 | G96 | 0.2+ | 0.2+ |
| 2005 09 26 | 644 | 0.1− | 0.6− | 2005 10 30 | 704 | 0.2− | 0.3+ | 2009 04 23 | G96 | 0.1+ | 0.3− |
| 2005 09 26 | 644 | 0.0 | 0.3− | 2005 11 01 | 644 | 0.2− | 0.2− | 2009 04 23 | G96 | 0.1− | 0.2− |
| 2005 09 26 | 644 | 0.1− | 0.4− | 2005 11 01 | 644 | 0.0 | 0.0 | 2009 05 18 | G96 | 0.1+ | 0.1+ |
| 2005 09 26 | 644 | 0.2− | 0.6− | 2005 11 01 | 644 | 0.2− | 0.2− | 2009 05 18 | G96 | 0.2− | 0.0 |
| 2005 09 26 | 644 | 0.1− | 0.6− | 2005 11 01 | 644 | 0.1− | 0.1− | 2009 05 18 | G96 | 0.2− | 0.1+ |
| 2005 09 26 | 644 | 0.3− | 0.5− | 2005 11 01 | 644 | 0.1− | 0.1− | 2009 05 18 | G96 | 0.2+ | 0.0 |
| 2005 10 05 | 703 | 0.7− | 0.4+ | 2005 11 01 | 644 | 0.0 | 0.0 | 2009 06 23 | G96 | 0.0 | 0.2+ |
| 2005 10 05 | 703 | 0.2− | 0.1− | 2005 11 04 | 683 | 1.5+ | 0.4− | 2009 06 23 | G96 | 0.2− | 0.3+ |
| 2005 10 05 | 703 | 1.2− | 0.2− | 2005 11 04 | 683 | (1.5+ | 1.7−) | 2009 06 23 | G96 | 0.2− | 0.2+ |

**2005 UO$_1$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 304.65967 | | (2000.0) | | | |
| $n$ | 0.19303859 | $\omega$ | 15.30078 | | +0.90115685 | −0.43319338 |
| $a$ | 2.9651041 | $\Omega$ | 10.41378 | | +0.38777514 | +0.78893841 |
| $e$ | 0.1302988 | $i$ | 5.11620 | | +0.19376987 | +0.43579776 |
| $P$ | 5.11 | $H$ | 16.1 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 21 | 941 | 0.0 | 0.2− | 2005 10 29 | 941 | 1.0+ | 0.8− | 2005 11 06 | 704 | 0.5− | 0.2− |
| 2005 10 21 | 941 | 0.2− | 0.0 | 2005 10 29 | 941 | 0.7+ | 0.9− | 2005 11 06 | 704 | 0.6− | 0.0 |
| 2005 10 21 | 941 | 0.6− | 0.1− | 2005 10 29 | 941 | 0.3+ | 1.1− | 2005 11 06 | 704 | 0.4+ | 0.3− |
| 2005 10 21 | 941 | 0.9− | 0.0 | 2005 10 29 | A50 | 1.3+ | 0.1− | 2005 11 06 | 704 | 0.1+ | 0.8+ |
| 2005 10 21 | 941 | 0.7− | 0.2+ | 2005 11 01 | 704 | 0.9+ | 0.1+ | 2005 11 06 | 704 | 0.7− | 1.1− |
| 2005 10 21 | 941 | 0.2− | 0.1+ | 2005 11 01 | 704 | 0.1− | 0.6− | 2005 11 06 | 704 | 0.1− | 0.3+ |
| 2005 10 23 | 691 | 0.0 | 0.1+ | 2005 11 01 | 704 | 0.3− | 0.7+ | 2005 11 07 | 704 | 0.4− | 0.4+ |
| 2005 10 23 | 691 | 0.1− | 0.2+ | 2005 11 01 | 704 | 0.3+ | 0.5− | 2005 11 07 | 704 | 0.2− | 0.5− |
| 2005 10 23 | 691 | 0.2− | 0.3+ | 2005 11 01 | 704 | 0.1− | 0.1− | 2005 11 07 | 704 | 0.0 | 0.3− |
| 2005 10 23 | 703 | 0.1− | 0.3+ | 2005 11 04 | G96 | 0.0 | 0.0 | 2005 11 07 | 704 | 0.2− | 0.4+ |
| 2005 10 23 | 703 | 0.1− | 0.4+ | 2005 11 04 | 703 | 1.1− | 0.5− | 2005 11 07 | 704 | 0.2− | 0.3− |
| 2005 10 23 | 703 | 0.5+ | 0.3− | 2005 11 04 | G96 | 0.1− | 0.1− | 2005 11 26 | 941 | 0.1− | 0.3− |
| 2005 10 23 | 703 | 0.6− | 0.2− | 2005 11 04 | 703 | 1.2− | 0.4+ | 2005 11 26 | 941 | 0.0 | 0.2− |
| 2005 10 23 | 941 | 0.0 | 0.4− | 2005 11 04 | G96 | 0.6− | 0.5+ | 2005 11 26 | 941 | 0.2+ | 0.1− |
| 2005 10 23 | 941 | 0.1+ | 0.4− | 2005 11 04 | 703 | 0.2− | 0.7+ | 2005 11 26 | 941 | 0.3+ | 0.1− |
| 2005 10 23 | 941 | 0.1+ | 0.4− | 2005 11 04 | 703 | 0.8+ | 0.9+ | 2005 12 01 | 691 | 0.0 | 0.2+ |
| 2005 10 23 | 941 | 0.1+ | 0.2− | 2005 11 04 | G96 | 0.0 | 0.0 | 2005 12 01 | 691 | 0.2+ | 0.1+ |
| 2005 10 23 | 941 | 0.4+ | 0.2− | 2005 11 05 | 699 | 0.7+ | 0.0 | 2005 12 01 | 691 | 0.3− | 0.3− |
| 2005 10 23 | 941 | 0.3+ | 0.1− | 2005 11 05 | 699 | 1.4− | 1.0− | 2008 04 14 | G96 | 0.1− | 0.1+ |
| 2005 10 23 | 941 | 0.3+ | 0.2− | 2005 11 05 | 699 | 0.2− | 0.3− | 2008 04 14 | G96 | 0.5+ | 0.0 |
| 2005 10 24 | 691 | 0.1+ | 0.4+ | 2005 11 05 | 699 | 0.6+ | 0.1− | 2008 04 14 | G96 | 0.1+ | 0.1− |
| 2005 10 24 | 691 | 0.1− | 0.3+ | 2005 11 06 | 691 | 0.2− | 0.3− | 2008 04 14 | G96 | 0.7+ | 0.0 |
| 2005 10 24 | 691 | 0.1− | 0.3+ | 2005 11 06 | 691 | 1.7+ | 0.3+ | 2008 04 30 | G96 | 0.0 | 0.6+ |
| 2005 10 29 | 703 | 0.1+ | 0.5− | 2005 11 06 | 691 | 0.1− | 0.1− | 2008 04 30 | G96 | 0.3− | 0.4+ |
| 2005 10 29 | 703 | 0.6+ | 0.6− | 2005 11 06 | 704 | 0.2− | 0.9+ | 2008 04 30 | G96 | 0.0 | 0.0 |
| 2005 10 29 | 703 | 0.6− | 0.4− | 2005 11 06 | 704 | 0.2− | 1.7+ | 2008 04 30 | G96 | 0.4− | 0.1+ |
| 2005 10 29 | 703 | 0.3− | 0.2− | 2005 11 06 | 704 | 0.7− | 0.2− | | | | |

**2005 UE$_{10}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 313.96079 | | (2000.0) | | | |
| $n$ | 0.17900771 | $\omega$ | 281.05244 | | +0.81121759 | +0.55773943 |
| $a$ | 3.1180870 | $\Omega$ | 45.33898 | | −0.39182906 | +0.74145359 |
| $e$ | 0.2557134 | $i$ | 14.29706 | | −0.43404610 | +0.37305939 |
| $P$ | 5.51 | $H$ | 15.9 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 07 | 703 | 0.2− | 0.7− | 2005 10 28 | 704 | 0.2− | 0.8+ | 2005 12 01 | G96 | 0.2+ | 0.3− |
| 2005 10 07 | 703 | 1.3− | 1.2− | 2005 10 28 | 703 | 0.5− | 0.3− | 2005 12 01 | G96 | 0.1+ | 0.1− |
| 2005 10 07 | 703 | 0.1− | 0.6− | 2005 10 28 | 704 | 0.7− | 1.0+ | 2005 12 01 | G96 | 0.1+ | 0.0 |
| 2005 10 07 | 703 | 0.3− | 0.1− | 2005 10 28 | 703 | 0.5− | 0.2− | 2005 12 01 | G96 | 0.0 | 0.1− |
| 2005 10 21 | 644 | 0.5+ | 0.9+ | 2005 10 28 | 703 | 0.0 | 0.1− | 2005 12 04 | G96 | 0.1+ | 0.1+ |
| 2005 10 21 | 644 | 0.2+ | 0.6+ | 2005 10 28 | 704 | 0.1− | 1.1+ | 2005 12 04 | G96 | 0.4+ | 0.6− |
| 2005 10 21 | 644 | 0.2+ | 0.2+ | 2005 10 28 | 703 | 0.5+ | 0.6− | 2005 12 04 | G96 | 0.1− | 0.2− |
| 2005 10 22 | 703 | 1.0+ | 0.1+ | 2005 10 31 | G96 | 0.4+ | 0.3+ | 2005 12 04 | G96 | 0.4− | 0.5− |
| 2005 10 22 | 703 | 0.0 | 0.5+ | 2005 10 31 | G96 | 0.3− | 0.3+ | 2009 04 29 | G96 | 0.1− | 0.3+ |
| 2005 10 22 | 703 | 0.5+ | 0.6− | 2005 10 31 | G96 | 0.3+ | 0.1+ | 2009 04 29 | G96 | 0.3− | 0.3− |
| 2005 10 22 | 703 | 0.5+ | 0.4− | 2005 10 31 | G96 | 0.4+ | 0.1+ | 2009 04 29 | G96 | 0.1+ | 0.0 |
| 2005 10 24 | A50 | 1.7+ | 0.5− | 2005 11 09 | 703 | 0.4− | 0.7+ | 2009 05 13 | G96 | 0.2− | 0.1+ |
| 2005 10 24 | A50 | 0.8+ | 0.4− | 2005 11 09 | 703 | 1.0− | 0.7− | 2009 05 13 | G96 | 0.2+ | 0.2− |
| 2005 10 24 | A50 | 0.3− | 0.3+ | 2005 11 09 | 703 | 0.3− | 0.0 | 2009 05 13 | G96 | 0.1− | 0.0 |
| 2005 10 28 | 704 | 0.7− | 0.2+ | 2005 11 09 | 703 | 0.4− | 0.1− | 2009 05 13 | G96 | 0.0 | 0.3− |

**2005 UY$_{17}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 39.71004 | | (2000.0) | | | |
| $n$ | 0.26803085 | $\omega$ | 178.20648 | | +0.69212883 | −0.72146125 |
| $a$ | 2.3823900 | $\Omega$ | 227.99390 | | +0.66185824 | +0.64614074 |
| $e$ | 0.2120247 | $i$ | 1.63834 | | +0.28792596 | +0.24898956 |
| $P$ | 3.68 | $H$ | 18.3 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 24 | 691 | 0.0 | 0.0 | 2005 10 23 | 703 | 0.1+ | 0.5− | 2006 01 04 | G96 | 0.2− | 0.3− |
| 2005 09 24 | 691 | 0.1− | 0.0 | 2005 10 24 | 691 | 0.3+ | 0.0 | 2006 01 04 | G96 | 0.2+ | 0.7− |
| 2005 09 24 | 691 | 0.2− | 0.0 | 2005 10 24 | 691 | 0.2+ | 0.0 | 2009 11 18 | G96 | 0.3+ | 0.1+ |
| 2005 10 11 | 691 | 0.2+ | 0.1+ | 2005 10 24 | 691 | 0.1+ | 0.0 | 2009 11 18 | G96 | 0.1− | 0.1− |
| 2005 10 11 | 691 | 0.2+ | 0.1+ | 2005 11 01 | 691 | 0.2− | 0.2+ | 2009 11 18 | G96 | 0.4− | 0.1− |
| 2005 10 11 | 691 | 0.2+ | 0.1+ | 2005 11 01 | 691 | 0.1− | 0.2+ | 2009 11 18 | G96 | 0.3+ | 0.1+ |
| 2005 10 22 | 703 | 0.3− | 0.2+ | 2005 11 01 | 691 | 0.1− | 0.2− | 2009 12 18 | 691 | 0.2− | 0.0 |
| 2005 10 22 | 703 | (1.4− | 2.4−) | 2005 11 06 | G96 | 0.3+ | 0.1− | 2009 12 18 | 691 | 0.3+ | 0.5+ |
| 2005 10 22 | 703 | 0.3+ | 1.3+ | 2005 11 06 | G96 | 0.0 | 0.1− | 2009 12 18 | 691 | 0.2+ | 0.0 |
| 2005 10 22 | 703 | 0.3− | 0.2− | 2005 11 06 | G96 | 0.1− | 0.2− | 2009 12 26 | 691 | 0.3+ | 0.1+ |
| 2005 10 23 | 703 | 0.3− | 0.1− | 2005 11 06 | G96 | 0.4− | 0.9− | 2009 12 26 | 691 | 0.3− | 0.2− |
| 2005 10 23 | 703 | 0.4− | 0.6− | 2006 01 04 | G96 | 0.2+ | 0.3+ | 2009 12 26 | 691 | 0.3− | 0.3− |
| 2005 10 23 | 703 | 1.0− | 0.2+ | 2006 01 04 | G96 | 0.0 | 0.3− | | | | |

**2005 UF$_{24}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 174.08470 | | (2000.0) | | | |
| $n$ | 0.17611484 | $\omega$ | 278.20981 | | −0.78805279 | −0.60349228 |
| $a$ | 3.1521393 | $\Omega$ | 224.77809 | | +0.61057143 | −0.74102293 |
| $e$ | 0.0699442 | $i$ | 9.93558 | | +0.07858325 | −0.29441823 |
| $P$ | 5.60 | $H$ | 16.0 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 23 | 691 | 0.3+ | 0.2− | 2005 11 05 | 691 | 0.1− | 0.3+ | 2005 11 29 | G96 | 0.4− | 0.2+ |
| 2005 10 23 | 691 | 0.8+ | 0.1+ | 2005 11 05 | 691 | 0.1− | 0.2− | 2008 03 31 | G96 | 0.2+ | 0.1− |
| 2005 10 23 | 691 | 0.6− | 0.1+ | 2005 11 05 | 691 | 0.2− | 0.6+ | 2008 03 31 | G96 | 0.2+ | 0.3− |
| 2005 10 24 | 691 | 0.3+ | 0.3− | 2005 11 12 | 691 | 0.0 | 0.1+ | 2008 03 31 | G96 | 0.8− | 0.1+ |
| 2005 10 24 | 691 | 0.0 | 0.1− | 2005 11 12 | 691 | 0.2+ | 0.2− | 2008 03 31 | G96 | 0.2− | 0.1+ |
| 2005 10 24 | 691 | 0.1− | 0.1+ | 2005 11 12 | 691 | 0.1− | 0.5− | 2008 04 14 | G96 | 0.4+ | 0.3+ |
| 2005 10 27 | G96 | 0.1− | 0.7− | 2005 11 28 | G96 | 0.1+ | 0.4+ | 2008 04 14 | G96 | 0.4+ | 0.1− |
| 2005 10 27 | G96 | 0.2− | 0.7− | 2005 11 28 | G96 | 0.2+ | 0.0 | 2008 04 14 | G96 | 0.1− | 0.2− |
| 2005 10 27 | G96 | 0.7− | 0.4− | 2005 11 28 | G96 | 0.3+ | 0.1− | 2008 04 14 | G96 | 0.0 | 0.1− |
| 2005 10 27 | G96 | 0.6+ | 0.8− | 2005 11 28 | G96 | 0.1− | 0.0 | 2008 04 25 | G96 | 0.0 | 0.7+ |
| 2005 10 28 | 691 | 0.0 | 0.3+ | 2005 11 29 | G96 | 0.3− | 0.2+ | 2008 04 25 | G96 | 0.1− | 0.1− |
| 2005 10 28 | 691 | 0.2− | 0.6+ | 2005 11 29 | G96 | 0.7+ | 0.1− | 2008 04 25 | G96 | 0.1+ | 0.2+ |
| 2005 10 28 | 691 | 0.3− | 0.1− | 2005 11 29 | G96 | 0.6+ | 0.2− | 2008 04 25 | G96 | 0.0 | 0.0 |

**2005 UO$_{27}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 326.24061 | | (2000.0) | | | |
| $n$ | 0.17715197 | $\omega$ | 106.83572 | | +0.79428751 | +0.58377329 |
| $a$ | 3.1398247 | $\Omega$ | 217.92643 | | −0.60712961 | +0.77289880 |
| $e$ | 0.1577570 | $i$ | 15.88886 | | +0.02238284 | +0.24866884 |
| $P$ | 5.56 | $H$ | 16.0 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 09 | 691 | 0.4− | 0.1− | 2005 10 31 | 701 | 0.4+ | 0.2− | 2005 11 30 | 691 | 0.1− | 0.2+ |
| 2005 10 09 | 691 | 0.0 | 0.3+ | 2005 10 31 | 701 | 0.1+ | 0.2− | 2005 11 30 | 691 | 0.3− | 0.3+ |
| 2005 10 09 | 691 | 0.4+ | 0.6+ | 2005 10 31 | 701 | 0.1+ | 0.3− | 2005 12 02 | 691 | 0.1+ | 0.1+ |
| 2005 10 23 | 703 | 0.2+ | 0.2− | 2005 10 31 | 701 | 0.6+ | 0.0 | 2005 12 02 | 691 | 0.4+ | 0.2+ |
| 2005 10 23 | 703 | (2.2− | 0.1+) | 2005 10 31 | 701 | 0.4+ | 0.2− | 2005 12 02 | 691 | 0.3+ | 0.3+ |
| 2005 10 23 | 703 | 1.1− | 1.1+ | 2005 10 31 | 701 | 0.1+ | 0.5− | 2005 12 04 | G96 | 0.4− | 0.2− |
| 2005 10 23 | 703 | 0.4− | 0.3− | 2005 10 31 | 701 | 0.6+ | 0.7− | 2005 12 04 | G96 | 0.3+ | 0.0 |
| 2005 10 24 | 691 | 0.1+ | 0.0 | 2005 11 01 | 701 | 0.3+ | 0.1− | 2005 12 04 | G96 | 0.5− | 0.3− |
| 2005 10 24 | 691 | 0.1+ | 0.2− | 2005 11 01 | 701 | 0.1− | 0.5+ | 2005 12 04 | G96 | 0.3+ | 0.1− |
| 2005 10 24 | 691 | 0.1− | 0.0 | 2005 11 04 | 691 | 0.0 | 0.4+ | 2009 04 18 | 691 | 0.1− | 0.0 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 25 | 568 | 1.0+ | 1.1− | 2005 11 04 | 691 | 0.0 | 0.0 | 2009 04 18 | 691 | 0.1− | 0.6+ | | |
| 2005 10 25 | 568 | 1.0+ | 1.0− | 2005 11 04 | 691 | 0.2− | 0.2+ | 2009 04 18 | 691 | 0.2− | 0.4− | | |
| 2005 10 25 | 568 | 1.0+ | 1.1− | 2005 11 28 | G96 | 0.6− | 0.2− | 2009 04 18 | G96 | 0.8+ | 0.2+ | | |
| 2005 10 28 | 691 | 0.0 | 0.0 | 2005 11 28 | G96 | 0.0 | 0.9− | 2009 04 18 | G96 | 0.1− | 0.1+ | | |
| 2005 10 28 | 691 | 0.6− | 0.2− | 2005 11 28 | G96 | 0.0 | 0.5− | 2009 04 18 | G96 | 0.2+ | 0.0 | | |
| 2005 10 28 | 691 | 0.1− | 0.0 | 2005 11 28 | G96 | 0.5− | 0.5− | 2009 04 18 | G96 | 0.3+ | 0.0 | | |
| 2005 10 29 | 701 | 0.0 | 1.1+ | 2005 11 29 | G96 | 0.4− | 0.2− | 2009 05 17 | G96 | 0.2+ | 0.1+ | | |
| 2005 10 29 | 701 | 0.4− | 0.6− | 2005 11 29 | G96 | (1.5+ | 0.1−) | 2009 05 17 | G96 | 0.0 | 0.2− | | |
| 2005 10 29 | 701 | 0.3− | 0.1− | 2005 11 29 | G96 | 1.4− | 0.0 | 2009 05 17 | G96 | 0.4+ | 0.3− | | |
| 2005 10 31 | 701 | 0.6+ | 0.3− | 2005 11 29 | G96 | 0.4+ | 0.2− | 2009 05 17 | G96 | 0.2− | 0.1− | | |
| 2005 10 31 | 701 | 0.5+ | 0.0 | 2005 11 30 | 691 | 0.1− | 0.0 | | | | | | |

### 2005 UQ$_{29}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 284.54683 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17970817 | $\omega$ | 172.53616 | | +0.81434848 | −0.57291428 | |
| $a$ | 3.1099793 | $\Omega$ | 222.85926 | | +0.52518955 | +0.79546699 | |
| $e$ | 0.1206730 | $i$ | 7.83857 | | +0.24700707 | +0.19748794 | |
| $P$ | 5.48 | $H$ | 15.3 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 23 | 703 | 1.4− | 0.1− | 2005 11 06 | 691 | 0.1− | 0.1− | 2005 12 04 | 704 | 0.1+ | 0.3− | | |
| 2005 10 23 | 703 | (2.2− | 0.1−) | 2005 11 06 | 691 | 0.1+ | 0.1− | 2005 12 04 | 704 | 0.6− | 0.5+ | | |
| 2005 10 23 | 703 | 0.2+ | 1.9+ | 2005 11 06 | 691 | 0.2− | 0.1+ | 2005 12 04 | 704 | 0.0 | 0.5+ | | |
| 2005 10 23 | 703 | 0.0 | 0.3− | 2005 11 06 | 704 | 0.1− | 0.2+ | 2005 12 04 | 704 | 0.1+ | 0.9+ | | |
| 2005 10 25 | G96 | 0.2− | 0.1− | 2005 11 06 | 704 | 0.3− | 0.1− | 2006 01 21 | 291 | 0.1+ | 0.0 | | |
| 2005 10 25 | G96 | 0.2− | 0.2+ | 2005 11 06 | 704 | 0.4− | 0.3+ | 2006 01 21 | 291 | 0.0 | 0.1+ | | |
| 2005 10 25 | G96 | 0.3− | 0.1+ | 2005 11 06 | 704 | 0.0 | 0.0 | 2006 01 21 | 291 | 0.1− | 0.2+ | | |
| 2005 10 25 | G96 | 0.1+ | 0.2+ | 2005 11 06 | 704 | 0.9− | 0.1+ | 2006 01 28 | G96 | 0.3− | 0.9− | | |
| 2005 10 29 | 691 | 0.0 | 0.4− | 2005 11 06 | 704 | 1.3+ | 0.3+ | 2006 01 28 | G96 | 0.3+ | 0.6− | | |
| 2005 10 29 | 691 | 0.4+ | 0.4− | 2005 11 06 | 704 | 1.2+ | 0.3+ | 2006 01 28 | G96 | 0.1+ | 1.1− | | |
| 2005 10 29 | 691 | 0.1− | 0.0 | 2005 11 06 | 704 | 0.5− | 0.2− | 2006 01 28 | G96 | 0.1+ | 0.4− | | |
| 2005 10 30 | 704 | 1.3+ | 0.3+ | 2005 11 06 | 704 | 0.2− | 0.4+ | 2008 03 30 | 691 | 0.1− | 0.0 | | |
| 2005 10 30 | 704 | 0.0 | 0.6+ | 2005 11 06 | 704 | 1.9+ | 0.4− | 2008 03 30 | 691 | 0.4− | 0.1+ | | |
| 2005 10 30 | 704 | 0.5+ | 0.6− | 2005 11 26 | 703 | 1.7− | 0.4+ | 2008 03 30 | 691 | 0.0 | 0.0 | | |
| 2005 10 30 | 704 | 1.6+ | 0.4+ | 2005 11 26 | 703 | 1.2− | 1.3+ | 2008 04 30 | G96 | 0.0 | 0.1+ | | |
| 2005 10 31 | 704 | 0.2− | 1.6− | 2005 11 26 | 703 | 0.3− | 1.1− | 2008 04 30 | G96 | 0.4+ | 0.2+ | | |
| 2005 10 31 | 704 | 0.2+ | 0.8+ | 2005 11 26 | 703 | 0.2+ | 0.9− | 2008 04 30 | G96 | 0.1+ | 0.1− | | |
| 2005 10 31 | 704 | 0.3− | 0.2+ | 2005 12 01 | 704 | 0.4+ | 0.2+ | 2008 04 30 | G96 | 0.4+ | 0.0 | | |
| 2005 10 31 | 704 | 0.1− | 0.6− | 2005 12 01 | 704 | 0.4− | 0.2− | 2008 04 30 | G96 | 0.3+ | 0.1+ | | |
| 2005 11 03 | 704 | 0.1− | 0.7+ | 2005 12 01 | 704 | 0.6+ | 0.1+ | 2008 04 30 | G96 | 0.1− | 0.1− | | |
| 2005 11 03 | 704 | 0.8+ | 1.2+ | 2005 12 01 | G96 | 0.1− | 0.3− | 2008 04 30 | G96 | 0.6+ | 0.2+ | | |
| 2005 11 03 | 704 | (1.8− | 2.3−) | 2005 12 01 | G96 | 0.0 | 0.1− | 2008 04 30 | G96 | 0.3+ | 0.2− | | |
| 2005 11 03 | 704 | 0.5− | 0.5− | 2005 12 01 | 704 | 1.0− | 0.7+ | | | | | | |
| 2005 11 03 | 704 | 0.2− | 0.3− | 2005 12 01 | G96 | 0.3+ | 0.1− | | | | | | |

### 2005 UB$_{39}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 328.34890 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19385862 | $\omega$ | 311.39596 | | +0.97353115 | −0.21395344 | |
| $a$ | 2.9567366 | $\Omega$ | 61.10163 | | +0.22734338 | +0.87035407 | |
| $e$ | 0.1341736 | $i$ | 5.26793 | | +0.02349649 | +0.44351744 | |
| $P$ | 5.08 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 24 | 691 | 0.1+ | 0.2+ | 2005 11 22 | 691 | 0.3− | 0.1+ | 2008 04 27 | G96 | 0.4+ | 0.0 | | |
| 2005 10 24 | 691 | 0.2+ | 0.3+ | 2005 11 25 | G96 | 0.3+ | 0.1− | 2008 04 27 | G96 | 0.0 | 0.1+ | | |
| 2005 10 24 | 691 | 0.1+ | 0.1− | 2005 11 25 | G96 | 0.2+ | 0.0 | 2008 04 27 | G96 | 0.2+ | 0.0 | | |
| 2005 10 25 | G96 | 0.1+ | 0.0 | 2005 11 25 | G96 | 0.1− | 0.1− | 2008 04 27 | G96 | 0.1− | 0.5− | | |
| 2005 10 25 | G96 | 0.1− | 0.1+ | 2005 11 25 | G96 | 0.3+ | 0.1+ | 2008 04 27 | G96 | 0.6− | 0.3+ | | |
| 2005 10 25 | G96 | 0.2+ | 0.0 | 2005 12 02 | G96 | 0.1+ | 0.3− | 2008 04 27 | G96 | 1.0− | 0.5+ | | |
| 2005 10 25 | G96 | 0.1− | 0.0 | 2005 12 02 | G96 | 0.2− | 0.2− | 2008 04 27 | G96 | 0.2+ | 0.1+ | | |
| 2005 10 25 | G96 | 0.2− | 0.5− | 2005 12 02 | G96 | 0.0 | 0.3− | 2008 04 27 | G96 | 0.4+ | 0.1− | | |
| 2005 10 25 | G96 | 0.0 | 0.5− | 2005 12 02 | G96 | 0.1− | 0.4− | 2008 06 01 | G96 | 0.4+ | 0.0 | | |
| 2005 10 25 | G96 | 0.4− | 0.1+ | 2006 01 23 | G96 | 0.1− | 0.5− | 2008 06 01 | G96 | 0.0 | 0.1− | | |
| 2005 10 25 | G96 | 0.2− | 0.3− | 2006 01 23 | G96 | 0.3+ | 0.3+ | 2008 06 01 | G96 | 0.2+ | 0.0 | | |
| 2005 11 22 | 691 | 0.1− | 0.1+ | 2006 01 23 | G96 | 0.1+ | 0.4+ | 2008 06 01 | G96 | 0.0 | 0.1− | | |
| 2005 11 22 | 691 | 0.1+ | 0.1+ | 2006 01 23 | G96 | 0.0 | 0.3− | | | | | | |

### 2005 UH$_{47}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 47.70165 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26176268 | $\omega$ | 322.95015 | | +0.94006877 | −0.33765022 | |
| $a$ | 2.4202723 | $\Omega$ | 56.84935 | | +0.32488446 | +0.84455848 | |
| $e$ | 0.2099985 | $i$ | 3.25728 | | +0.10354127 | +0.41558791 | |
| $P$ | 3.77 | $H$ | 17.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 23 | 691 | 0.1+ | 0.2− | 2005 10 22 | 703 | 1.6− | 1.4− | 2005 10 31 | 704 | 0.7− | 1.4+ | | |
| 2005 09 23 | 691 | 0.0 | 0.2+ | 2005 10 24 | 699 | 0.1+ | 0.7+ | 2005 10 31 | 704 | 0.5− | 0.8+ | | |
| 2005 09 23 | 691 | 0.2− | 0.1+ | 2005 10 24 | 699 | 0.1+ | 0.7− | 2005 11 28 | G96 | 0.3+ | 0.2− | | |
| 2005 10 01 | 704 | 0.4− | 1.1− | 2005 10 24 | 699 | 0.2− | 0.2− | 2005 11 28 | G96 | 0.2+ | 0.6− | | |
| 2005 10 01 | 704 | 0.9+ | 0.9+ | 2005 10 24 | 699 | 0.3− | 0.0 | 2005 11 28 | G96 | 0.3+ | 0.2− | | |
| 2005 10 01 | 704 | 1.1+ | 1.5+ | 2005 10 24 | A50 | 0.1− | 0.5− | 2005 11 28 | G96 | 0.3− | 0.2− | | |
| 2005 10 01 | 704 | 0.1− | 0.2+ | 2005 10 24 | A50 | 1.1+ | 0.2+ | 2005 12 04 | G96 | 0.6+ | 0.1− | | |
| 2005 10 06 | 699 | 2.0+ | 1.0− | 2005 10 28 | 703 | 0.4− | 0.7+ | 2005 12 04 | G96 | 0.3+ | 0.1− | | |
| 2005 10 06 | 699 | 0.7− | 0.1+ | 2005 10 28 | 703 | 0.2+ | 0.1+ | 2005 12 04 | G96 | 0.5+ | 0.3− | | |
| 2005 10 06 | 699 | 1.5+ | 0.1+ | 2005 10 28 | 703 | 0.6− | 0.4+ | 2005 12 04 | G96 | 0.8+ | 0.1− | | |
| 2005 10 06 | 699 | 0.8+ | 1.2− | 2005 10 28 | 703 | 0.2+ | 0.3+ | 2006 01 04 | G96 | 0.2− | 0.6− | | |
| 2005 10 07 | 703 | 1.2− | 1.3− | 2005 10 29 | G96 | 0.3+ | 0.2− | 2006 01 04 | G96 | 0.2+ | 0.3− | | |
| 2005 10 07 | 703 | 0.7− | 0.4+ | 2005 10 29 | G96 | 0.2− | 0.1− | 2006 01 04 | G96 | 0.1+ | 0.1+ | | |
| 2005 10 07 | 703 | 0.1+ | 0.7+ | 2005 10 29 | G96 | 0.2− | 0.3− | 2006 01 04 | G96 | 0.0 | 0.5− | | |
| 2005 10 07 | 703 | (1.4− | 3.2−) | 2005 10 29 | G96 | 0.2− | 0.3− | 2007 03 14 | G96 | 0.2+ | 0.1− | | |
| 2005 10 12 | 691 | 0.3− | 0.0 | 2005 10 29 | G96 | 0.0 | 0.1− | 2007 03 14 | G96 | 0.1− | 0.0 | | |
| 2005 10 12 | 691 | 0.1+ | 0.2+ | 2005 10 29 | G96 | 0.4+ | 0.4− | 2007 03 14 | G96 | 0.3− | 0.1− | | |
| 2005 10 12 | 691 | 0.2− | 0.2+ | 2005 10 29 | G96 | 0.1+ | 0.2− | 2007 03 14 | G96 | 0.3+ | 0.5+ | | |
| 2005 10 22 | 703 | 1.4+ | 0.9+ | 2005 10 30 | G96 | 0.3+ | 0.1− | 2009 12 11 | G96 | 0.3− | 0.1− | | |
| 2005 10 22 | 703 | 1.0+ | 0.7+ | 2005 10 30 | G96 | 0.1− | 0.3− | 2009 12 11 | G96 | 0.1− | 0.1+ | | |
| 2005 10 22 | 703 | 0.8+ | 0.6+ | 2005 10 30 | G96 | 0.6+ | 0.8− | 2009 12 11 | G96 | 0.2+ | 0.1+ | | |
| 2005 10 22 | 703 | 0.1− | 0.7+ | 2005 10 30 | G96 | 0.2+ | 0.1− | 2009 12 11 | G96 | 0.1+ | 0.5+ | | |
| 2005 10 22 | 703 | 0.4− | 0.6+ | 2005 10 31 | 704 | 0.4− | 0.6+ | | | | | | |
| 2005 10 22 | 703 | 1.0− | 1.5− | 2005 10 31 | 704 | 1.5− | 2.0+ | | | | | | |

### 2005 UU$_{48}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 55.92914 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27088755 | $\omega$ | 92.72387 | | +0.82938600 | −0.55817042 | |
| $a$ | 2.3656111 | $\Omega$ | 301.20658 | | +0.50090390 | +0.76178323 | |
| $e$ | 0.2024967 | $i$ | 1.59200 | | +0.24741492 | +0.32883443 | |
| $P$ | 3.64 | $H$ | 17.4 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 07 | 704 | 0.0 | 0.0 | 2005 11 01 | 691 | 0.0 | 0.1− | 2005 11 05 | 691 | 0.4+ | 0.4− | | |
| 2005 10 07 | 704 | 0.7+ | 1.3+ | 2005 11 01 | 691 | 0.2+ | 0.1− | 2005 11 06 | 704 | (0.4− | 1.8+) | | |
| 2005 10 07 | 704 | 0.2+ | 0.6− | 2005 11 01 | 691 | 0.0 | 0.1− | 2005 11 06 | 704 | 1.0− | 0.8+ | | |
| 2005 10 07 | 704 | 0.1− | 0.5+ | 2005 11 01 | 704 | 0.5+ | 0.1+ | 2005 11 06 | 704 | 0.2− | 0.1+ | | |
| 2005 10 23 | 691 | 0.1− | 0.1+ | 2005 11 01 | 704 | 0.5+ | 0.1+ | 2005 11 06 | 704 | 0.4− | 0.2− | | |
| 2005 10 23 | 691 | 0.2− | 0.1+ | 2005 11 01 | 704 | 0.3− | 0.2+ | 2005 11 09 | 703 | 0.2+ | 0.4+ | | |
| 2005 10 23 | 691 | 0.4− | 0.1+ | 2005 11 01 | 704 | 0.3+ | 0.4+ | 2005 11 09 | 703 | 0.3+ | 0.6+ | | |
| 2005 10 23 | 703 | 0.1+ | 0.2+ | 2005 11 01 | 704 | 0.5− | 0.4+ | 2005 11 09 | 703 | 0.2+ | 0.8+ | | |
| 2005 10 23 | 703 | 0.3− | 0.2− | 2005 11 03 | 704 | 0.4+ | 0.0 | 2005 11 09 | 703 | 1.0− | 0.4+ | | |
| 2005 10 23 | 703 | 0.2+ | 0.6+ | 2005 11 03 | G96 | 0.2+ | 0.3− | 2005 11 30 | 691 | 0.1+ | 0.3+ | | |
| 2005 10 23 | 703 | 0.7− | 0.7− | 2005 11 03 | 704 | 0.4+ | 0.1+ | 2005 11 30 | 691 | 0.0 | 0.1+ | | |
| 2005 10 24 | 699 | 0.5+ | 0.4+ | 2005 11 03 | G96 | 0.1− | 0.3− | 2005 11 30 | 691 | 0.2+ | 0.2+ | | |
| 2005 10 24 | 699 | 0.0 | 0.1+ | 2005 11 03 | G96 | 0.2+ | 0.3− | 2005 12 01 | 691 | 0.2− | 0.1− | | |
| 2005 10 24 | 699 | 0.9+ | 0.6− | 2005 11 03 | 704 | 0.3+ | 0.1− | 2005 12 01 | 691 | 0.1− | 0.0 | | |
| 2005 10 24 | 699 | 0.3+ | 0.5+ | 2005 11 03 | G96 | 0.1+ | 0.3− | 2005 12 01 | 691 | 0.1+ | 0.2− | | |
| 2005 10 25 | 699 | 0.3− | 0.5− | 2005 11 03 | 704 | (0.1+ | 2.1−) | 2007 03 26 | G96 | 0.1+ | 0.2− | | |
| 2005 10 25 | 699 | 0.1+ | 0.1+ | 2005 11 04 | 704 | (1.8− | 0.7+) | 2007 03 26 | G96 | 0.2− | 0.0 | | |
| 2005 10 25 | 699 | 0.4− | 1.4+ | 2005 11 04 | 704 | 0.4+ | 1.2− | 2007 03 26 | G96 | 0.0 | 0.4− | | |
| 2005 10 25 | 699 | 0.3− | 0.1+ | 2005 11 04 | 704 | 0.3− | 0.4− | 2007 03 26 | G96 | 0.2− | 0.0 | | |
| 2005 10 28 | 691 | 0.1− | 0.3+ | 2005 11 04 | 704 | 0.7+ | 1.4− | 2009 12 15 | G96 | 0.4+ | 0.9− | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 28 | 691 | 0.1− | 0.2+ | 2005 11 04 | 703 | 0.0 | 0.4− | 2009 12 15 | G96 | 0.4− | 0.1− |
| 2005 10 28 | 691 | 0.0 | 0.2+ | 2005 11 04 | 703 | 0.1− | 0.0 | 2009 12 15 | G96 | 0.3− | 0.4+ |
| 2005 10 29 | 703 | 0.4− | 0.7− | 2005 11 04 | 704 | 0.9− | 0.6+ | 2009 12 15 | G96 | 0.1+ | 0.2+ |
| 2005 10 29 | 703 | 0.3− | 1.0− | 2005 11 04 | 703 | 0.5− | 0.4+ | 2009 12 18 | 691 | 0.1− | 0.0 |
| 2005 10 29 | 703 | 0.2− | 0.0 | 2005 11 04 | 704 | 0.9+ | 1.3− | 2009 12 18 | 691 | 0.7+ | 0.1+ |
| 2005 10 29 | 703 | 0.2− | 0.3− | 2005 11 04 | 703 | 0.0 | 0.8− | 2009 12 18 | 691 | 0.3+ | 0.1+ |
| 2005 10 29 | A50 | 0.2+ | 0.4+ | 2005 11 04 | 704 | 0.0 | 0.4+ | 2009 12 26 | 691 | 0.3− | 0.1+ |
| 2005 10 29 | A50 | 0.4− | 1.0− | 2005 11 04 | 704 | 0.0 | 0.4− | 2009 12 26 | 691 | 0.5− | 0.2− |
| 2005 10 31 | A50 | 1.0+ | 0.7+ | 2005 11 05 | 691 | 0.2+ | 0.2− | 2009 12 26 | 691 | 0.1+ | 0.2+ |
| 2005 10 31 | A50 | 0.3− | 0.7− | 2005 11 05 | 691 | 0.1+ | 0.0 | | | | |

**2005 UN$_{52}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 90.96199 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.27299529 | $\omega$ | 79.89404 | | +0.95713981 | | +0.27893412 |
| $a$ | 2.3534191 | $\Omega$ | 263.87731 | | −0.28682149 | | +0.87550371 |
| $e$ | 0.2436855 | $i$ | 4.49753 | | −0.04020958 | | +0.39457446 |
| $P$ | 3.61 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 03 03 | 645 | 0.0 | 0.0 | 2005 10 30 | 704 | 0.2− | 0.0 | 2005 11 07 | 704 | 0.4+ | 0.3− |
| 2000 03 03 | 645 | 0.0 | 0.0 | 2005 10 30 | 704 | 0.1− | 0.4− | 2005 11 07 | 704 | 0.1+ | 0.8− |
| 2005 09 11 | 699 | 0.0 | 0.8− | 2005 10 30 | 644 | 0.2+ | 0.1+ | 2005 11 07 | 704 | 0.1− | 0.4− |
| 2005 09 11 | 699 | 0.8− | 0.0 | 2005 10 30 | 704 | 0.0 | 0.2− | 2005 11 25 | 703 | 0.6− | 0.8− |
| 2005 09 11 | 699 | 0.6− | 0.1− | 2005 10 30 | 704 | 0.0 | 0.3− | 2005 11 25 | 703 | 0.2− | 0.4− |
| 2005 09 11 | 699 | 0.2+ | 1.2− | 2005 10 30 | 704 | 0.2+ | 0.3− | 2005 11 25 | 703 | 0.6− | 0.5− |
| 2005 10 03 | 704 | 0.3+ | 0.4+ | 2005 10 31 | 704 | 0.4− | 0.3+ | 2005 11 25 | 703 | 0.4+ | 0.0 |
| 2005 10 03 | 704 | 0.1+ | 0.2+ | 2005 10 31 | 704 | 0.0 | 0.1+ | 2005 11 30 | 691 | 0.1+ | 0.1+ |
| 2005 10 03 | 704 | 0.6− | 0.6− | 2005 10 31 | 704 | 0.2− | 0.2− | 2005 11 30 | 691 | 0.1+ | 0.0 |
| 2005 10 03 | 704 | 0.8− | 0.2+ | 2005 10 31 | 704 | 0.0 | 0.2− | 2005 11 30 | 691 | 0.2+ | 0.2+ |
| 2005 10 08 | 704 | 1.2− | 0.9+ | 2005 10 31 | 704 | 0.1+ | 0.6+ | 2005 12 01 | 691 | 0.2+ | 0.1− |
| 2005 10 08 | 704 | 0.4+ | 0.1− | 2005 11 02 | 704 | 0.3− | 0.2+ | 2005 12 01 | 691 | 0.0 | 0.1+ |
| 2005 10 08 | 704 | 0.2− | 0.4+ | 2005 11 02 | 704 | 0.4− | 0.3+ | 2005 12 01 | 691 | 0.1+ | 0.0 |
| 2005 10 08 | 704 | 0.3− | 0.4− | 2005 11 02 | 704 | 0.1+ | 0.4+ | 2005 12 02 | 691 | 0.7− | 1.2+ |
| 2005 10 10 | 699 | 0.2− | 0.6− | 2005 11 02 | 704 | 0.6− | 0.1− | 2005 12 02 | 691 | 0.0 | 0.2+ |
| 2005 10 10 | 699 | 0.2− | 0.2+ | 2005 11 02 | 704 | 0.1− | 0.1+ | 2005 12 02 | 691 | 0.0 | 0.0 |
| 2005 10 10 | 699 | 0.1+ | 0.7− | 2005 11 02 | G96 | 0.5+ | 1.2− | 2005 12 02 | 704 | 1.2− | 0.0 |
| 2005 10 10 | 699 | 0.3− | 0.4+ | 2005 11 02 | G96 | 0.0 | 0.5− | 2005 12 02 | 704 | (2.0− | 0.6+) |
| 2005 10 13 | 704 | 0.2− | 0.3+ | 2005 11 02 | G96 | 0.1+ | 0.4− | 2005 12 02 | 704 | 1.3− | 0.5+ |
| 2005 10 13 | 704 | 1.0− | 1.4+ | 2005 11 02 | G96 | 0.1+ | 0.3− | 2005 12 02 | 704 | (1.6− | 1.1+) |
| 2005 10 13 | 704 | 0.4− | 0.3+ | 2005 11 02 | G96 | 0.2− | 0.3− | 2005 12 02 | 703 | 1.0− | 0.1+ |
| 2005 10 13 | 704 | 0.4+ | 0.2+ | 2005 11 02 | G96 | 0.2+ | 0.4− | 2005 12 02 | 703 | 0.3− | 0.8+ |
| 2005 10 13 | 704 | 0.3+ | 0.3− | 2005 11 02 | G96 | 0.2+ | 0.3− | 2005 12 02 | 703 | (2.6− | 1.5−) |
| 2005 10 23 | 703 | 0.3− | 0.2+ | 2005 11 02 | G96 | 0.1+ | 0.4− | 2005 12 02 | 703 | 1.4− | 0.1− |
| 2005 10 23 | 703 | 0.1− | 0.2+ | 2005 11 05 | 691 | 0.1+ | 0.1+ | 2005 12 05 | 691 | 0.1+ | 0.2+ |
| 2005 10 23 | 703 | 1.0− | 0.2+ | 2005 11 05 | 691 | 0.1+ | 0.1+ | 2005 12 05 | 691 | 0.1+ | 0.2+ |
| 2005 10 24 | 699 | 0.7+ | 0.5+ | 2005 11 05 | 691 | 0.2+ | 0.0 | 2005 12 05 | 691 | 0.3+ | 0.0 |
| 2005 10 24 | 699 | 0.5+ | 0.4− | 2005 11 05 | 699 | 0.1− | 0.6− | 2009 11 18 | G96 | 0.0 | 0.3− |
| 2005 10 24 | 699 | 0.0 | 0.2− | 2005 11 05 | 699 | 0.1− | 0.4+ | 2009 11 18 | G96 | 0.1− | 0.5− |
| 2005 10 24 | 699 | 0.1− | 0.2− | 2005 11 05 | 699 | 0.1− | 0.4− | 2009 11 18 | G96 | 0.1− | 0.1+ |
| 2005 10 29 | 691 | 0.2+ | 0.1− | 2005 11 05 | 699 | 0.5+ | 0.3+ | 2009 11 18 | G96 | 0.3+ | 0.5+ |
| 2005 10 29 | 691 | 0.1+ | 0.1+ | 2005 11 06 | 691 | 0.1+ | 0.1+ | 2009 12 16 | G96 | 0.1+ | 0.4− |
| 2005 10 29 | 691 | 0.1+ | 0.2− | 2005 11 06 | 691 | 0.3+ | 0.1+ | 2009 12 16 | G96 | 0.4+ | 0.5− |
| 2005 10 29 | 703 | 0.6+ | 0.3+ | 2005 11 06 | 691 | 0.1+ | 0.1− | 2009 12 16 | G96 | 0.3+ | 0.3− |
| 2005 10 29 | 703 | 0.5− | 0.2− | 2005 11 06 | 691 | 0.4+ | 0.1− | 2009 12 16 | G96 | 0.1+ | 0.4− |
| 2005 10 29 | 703 | 0.5− | 0.3− | 2005 11 06 | 691 | 0.0 | 0.2− | 2009 12 16 | G96 | 0.1− | 0.2− |
| 2005 10 29 | 703 | 0.3+ | 0.3− | 2005 11 06 | 691 | 0.2+ | 0.1+ | 2009 12 25 | 691 | 0.3− | 0.3− |
| 2005 10 30 | 644 | 0.1− | 0.0 | 2005 11 07 | 704 | 0.2+ | 0.1+ | 2009 12 25 | 691 | 0.1+ | 0.1+ |
| 2005 10 30 | 644 | 0.0 | 0.1− | 2005 11 07 | 704 | 0.3+ | 0.6+ | 2009 12 25 | 691 | 0.2− | 0.0 |

**2005 UE$_{55}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 298.88269 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17497868 | $\omega$ | 125.22493 | | +0.98853800 | | −0.08864818 |
| $a$ | 3.1657695 | $\Omega$ | 240.14805 | | +0.04384925 | | +0.94315027 |
| $e$ | 0.1056258 | $i$ | 8.09997 | | +0.14446405 | | +0.32032650 |
| $P$ | 5.63 | $H$ | 15.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 23 | 703 | 1.0− | 0.2− | 2005 11 02 | 704 | 1.6− | 0.5− | 2005 11 10 | 691 | 0.2− | 0.1− |
| 2005 10 23 | 703 | 0.5− | 0.7− | 2005 11 02 | 704 | 0.1− | 1.7+ | 2005 11 25 | 703 | 0.1− | 1.2− |
| 2005 10 23 | 703 | 0.5− | 0.7+ | 2005 11 02 | 704 | 1.0− | 1.1+ | 2005 11 25 | 703 | 0.6+ | 1.0− |
| 2005 10 23 | 703 | 1.4− | 0.9− | 2005 11 02 | 704 | 0.1− | 0.4+ | 2005 11 25 | 703 | 0.5+ | 1.1+ |
| 2005 10 26 | 691 | 0.0 | 0.1+ | 2005 11 02 | 704 | 0.6+ | 0.7+ | 2005 11 25 | 703 | 0.7+ | 0.2− |
| 2005 10 26 | 691 | 0.2+ | 0.2+ | 2005 11 04 | 704 | 0.1− | 0.7+ | 2006 01 21 | G96 | 0.1+ | 0.4− |
| 2005 10 26 | 691 | 0.2+ | 0.1+ | 2005 11 04 | 704 | 0.6− | 0.1+ | 2006 01 21 | G96 | 0.0 | 0.4− |
| 2005 10 29 | 703 | 0.8+ | 1.5− | 2005 11 04 | 704 | 0.7− | 0.4+ | 2006 01 21 | G96 | 1.1− | 0.6− |
| 2005 10 29 | 703 | 0.2+ | 0.2− | 2005 11 04 | 704 | 1.4+ | 0.3− | 2006 01 21 | G96 | 0.2− | 0.4− |
| 2005 10 29 | 703 | 0.8− | 0.4+ | 2005 11 07 | 704 | 0.0 | 0.1− | 2008 02 29 | 691 | 0.0 | 0.0 |
| 2005 10 29 | 703 | 1.2+ | 0.4− | 2005 11 07 | 704 | 0.3+ | 0.1+ | 2008 02 29 | 691 | 0.2+ | 0.3+ |
| 2005 10 31 | 704 | 0.3+ | 0.7+ | 2005 11 07 | 704 | 0.2+ | 0.7+ | 2008 02 29 | 691 | 0.1+ | 0.0 |
| 2005 10 31 | 704 | 0.2− | 0.2− | 2005 11 07 | 704 | 0.1+ | 0.7− | 2008 03 08 | 691 | 0.1− | 0.0 |
| 2005 10 31 | 704 | 1.1+ | 0.4− | 2005 11 07 | 704 | 0.6+ | 0.1+ | 2008 03 08 | 691 | 0.0 | 0.2+ |
| 2005 10 31 | 704 | 0.2+ | 0.1+ | 2005 11 10 | 691 | 0.1− | 0.0 | 2008 03 08 | 691 | 0.1− | 0.3− |
| 2005 10 31 | 704 | 0.1− | 1.0+ | 2005 11 10 | 691 | 0.1− | 0.2− | | | | |

**2005 UR$_{60}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 278.82577 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17548231 | $\omega$ | 346.03589 | | +0.78046304 | | −0.59911239 |
| $a$ | 3.1597094 | $\Omega$ | 52.20604 | | +0.59313147 | | +0.61914989 |
| $e$ | 0.0699231 | $i$ | 13.07159 | | +0.19766766 | | +0.50765910 |
| $P$ | 5.62 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 26 | 645 | 0.1+ | 0.1− | 2005 10 30 | 691 | 0.0 | 0.1+ | 2008 03 28 | 691 | 0.1− | 0.3+ |
| 2000 11 26 | 645 | 0.0 | 0.2− | 2005 10 30 | 691 | 0.0 | 0.2+ | 2008 03 28 | 691 | 0.1− | 0.6+ |
| 2002 03 12 | 645 | 0.0 | 0.1+ | 2005 11 05 | 691 | 0.2− | 0.2+ | 2008 03 28 | 691 | 0.4+ | 0.7− |
| 2002 03 12 | 645 | 0.0 | 0.1+ | 2005 11 05 | 691 | 0.5− | 0.1− | 2008 04 14 | 691 | 0.2+ | 0.2+ |
| 2005 10 25 | G96 | 0.1+ | 0.0 | 2005 11 05 | 691 | 0.2− | 0.2− | 2008 04 14 | 691 | 0.3− | 0.2+ |
| 2005 10 25 | G96 | 0.0 | 0.1+ | 2005 11 25 | 691 | 0.2+ | 0.1+ | 2008 04 14 | 691 | 0.1+ | 0.1− |
| 2005 10 25 | G96 | 0.2− | 0.1− | 2005 11 25 | 691 | 0.0 | 0.2+ | 2008 04 28 | G96 | 0.2+ | 0.2+ |
| 2005 10 25 | G96 | 0.3− | 0.1+ | 2005 11 25 | 691 | 0.2− | 0.3+ | 2008 04 28 | G96 | 0.1− | 0.0 |
| 2005 10 26 | 691 | 0.0 | 0.2+ | 2005 12 06 | G96 | 0.1+ | 0.0 | 2008 04 28 | G96 | 0.2+ | 0.1− |
| 2005 10 26 | 691 | 0.1+ | 0.4+ | 2005 12 06 | G96 | 0.2+ | 0.4− | 2008 04 28 | G96 | 0.5+ | 0.0 |
| 2005 10 26 | 691 | 0.1− | 0.1+ | 2005 12 06 | G96 | 0.2− | 0.0 | | | | |
| 2005 10 30 | 691 | 0.2+ | 0.2+ | 2005 12 06 | G96 | 0.0 | 0.1− | | | | |

**2005 UY$_{80}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 5.20129 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22412403 | $\omega$ | 325.28124 | | +0.89671387 | | −0.38093279 |
| $a$ | 2.6841726 | $\Omega$ | 58.66097 | | +0.44174229 | | +0.73836069 |
| $e$ | 0.1280407 | $i$ | 15.30007 | | +0.02771256 | | +0.55651927 |
| $P$ | 4.40 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 25 | G96 | 0.1− | 0.1− | 2005 11 21 | 699 | 0.5− | 0.2+ | 2005 12 01 | 704 | 0.4− | 0.0 |
| 2005 10 25 | G96 | 0.2− | 0.1− | 2005 11 21 | 699 | 0.1+ | 0.0 | 2005 12 01 | 704 | 0.2+ | 0.1− |
| 2005 10 25 | G96 | 0.3+ | 0.2− | 2005 11 21 | 703 | 0.6+ | 0.2− | 2005 12 01 | 704 | 0.2+ | 0.6− |
| 2005 10 25 | G96 | 0.3− | 0.0 | 2005 11 21 | 703 | 0.5+ | 0.1+ | 2005 12 04 | 704 | 1.5− | 0.3+ |
| 2005 10 26 | 699 | 0.2− | 0.7− | 2005 11 21 | 703 | 0.0 | 0.1+ | 2005 12 04 | 704 | 0.4+ | 0.9+ |
| 2005 10 26 | 699 | 0.5− | 1.0− | 2005 11 21 | 703 | 0.0 | 0.4− | 2005 12 04 | 704 | 0.8+ | 1.0− |
| 2005 10 26 | 699 | 0.7− | 0.3− | 2005 11 26 | G96 | 0.6+ | 0.3− | 2005 12 04 | 704 | 0.4+ | 0.8− |
| 2005 10 26 | 699 | 0.9− | 1.8+ | 2005 11 26 | G96 | 0.3+ | 0.2− | 2009 09 25 | 703 | (2.5+ | 1.5−) |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 30 | 644 | 0.1+ | 0.2+ | 2005 11 26 | G96 | 0.2+ | 0.2− | 2009 09 25 | 703 | 1.2+ | 0.1− |
| 2005 10 30 | 644 | 0.7+ | 0.0 | 2005 11 26 | G96 | 0.1− | 0.1− | 2009 09 25 | 703 | 1.4+ | 0.1− |
| 2005 10 30 | 644 | 0.2+ | 0.2+ | 2005 11 29 | 704 | 1.0+ | 0.2+ | 2009 09 25 | 703 | 0.7− | 0.5− |
| 2005 11 03 | 704 | 0.1+ | 0.2+ | 2005 11 29 | 704 | 0.1+ | 0.5+ | 2009 10 15 | 703 | 0.5+ | 0.3+ |
| 2005 11 03 | 704 | 0.4− | 0.6+ | 2005 11 29 | 704 | 0.3− | 0.4+ | 2009 10 15 | 703 | 1.0− | 0.2− |
| 2005 11 03 | 704 | 0.0 | 0.4− | 2005 11 29 | 704 | 0.3+ | 0.7+ | 2009 10 15 | 703 | 0.4− | 0.2+ |
| 2005 11 03 | 704 | 0.5− | 0.3− | 2005 11 29 | 704 | 0.2+ | 0.2+ | 2009 10 15 | 703 | 0.9− | 0.4+ |
| 2005 11 21 | 699 | 0.7− | 0.6+ | 2005 12 01 | 704 | 0.4− | 0.3− | | | | |
| 2005 11 21 | 699 | 0.0 | 0.3+ | 2005 12 01 | 704 | 0.3+ | 0.1+ | | | | |

### 2005 UQ$_{81}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 306.99000 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17613095 | $\omega$ | 297.51794 | | +0.87229594 | +0.47254786 | |
| $a$ | 3.1519472 | $\Omega$ | 34.70339 | | −0.33321098 | +0.76257337 | |
| $e$ | 0.1581434 | $i$ | 12.75434 | | −0.35786902 | +0.44179224 | |
| $P$ | 5.60 | $H$ | 15.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 03 | 644 | 0.0 | 0.1+ | 2005 10 13 | 704 | 1.4+ | 1.1+ | 2005 11 29 | G96 | 0.2− | 0.1− |
| 2005 09 03 | 644 | 0.0 | 0.0 | 2005 10 13 | 704 | 0.3+ | 0.4+ | 2005 11 29 | G96 | 0.6− | 0.3+ |
| 2005 09 03 | 644 | 0.1− | 0.0 | 2005 10 13 | 704 | 0.5+ | 0.1− | 2005 11 29 | G96 | 0.5+ | 0.5− |
| 2005 10 01 | 704 | 0.5+ | 0.7+ | 2005 10 21 | 644 | 0.2+ | 0.4+ | 2005 11 29 | G96 | 0.7− | 0.0 |
| 2005 10 01 | 704 | 1.6+ | 0.1− | 2005 10 21 | 644 | 0.1+ | 0.1+ | 2009 03 17 | 691 | 0.2− | 0.1− |
| 2005 10 01 | 704 | 0.9+ | 1.6− | 2005 10 21 | 644 | 0.1− | 0.1− | 2009 03 17 | 691 | 0.2+ | 0.3+ |
| 2005 10 01 | 704 | 0.6+ | 0.0 | 2005 10 27 | 691 | 0.1− | 0.2+ | 2009 03 17 | 691 | 0.1− | 0.1− |
| 2005 10 01 | 704 | 1.3− | 0.3− | 2005 10 27 | 691 | 0.3− | 0.1+ | 2009 05 31 | G96 | 0.3+ | 0.7− |
| 2005 10 05 | 704 | 0.4− | 0.0 | 2005 10 27 | 691 | 0.1− | 0.2+ | 2009 05 31 | G96 | 0.6+ | 0.4− |
| 2005 10 05 | 704 | 0.4+ | 0.1− | 2005 10 29 | G96 | 0.2− | 0.4− | 2009 05 31 | G96 | 1.2+ | 0.0 |
| 2005 10 05 | 704 | 0.8− | 0.2− | 2005 10 29 | G96 | 0.2+ | 0.5− | 2009 05 31 | G96 | 1.2− | 1.0+ |
| 2005 10 05 | 704 | 0.1− | 1.0− | 2005 10 29 | G96 | 0.1− | 0.6− | | | | |
| 2005 10 05 | 704 | 0.9− | 1.1+ | 2005 10 29 | G96 | 0.1+ | 0.3− | | | | |

### 2005 UJ$_{82}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 342.18155 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18325333 | $\omega$ | 267.22643 | | +0.69849209 | +0.71537874 | |
| $a$ | 3.0697390 | $\Omega$ | 47.09839 | | −0.64612735 | +0.64156357 | |
| $e$ | 0.1713198 | $i$ | 1.44676 | | −0.30761705 | +0.27682024 | |
| $P$ | 5.38 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 29 | G96 | 0.7+ | 0.4− | 2005 10 31 | 691 | 0.3+ | 0.0 | 2005 12 02 | G96 | 0.3+ | 0.2− |
| 2005 09 29 | G96 | 0.2− | 0.0 | 2005 10 31 | 691 | 0.2+ | 0.3+ | 2009 04 27 | G96 | 0.4+ | 0.0 |
| 2005 09 29 | G96 | 0.4+ | 0.1+ | 2005 10 31 | 691 | 0.2+ | 0.1+ | 2009 04 27 | G96 | 0.0 | 0.3− |
| 2005 09 29 | G96 | 0.0 | 0.2+ | 2005 11 25 | G96 | 0.1+ | 0.1+ | 2009 04 27 | G96 | 0.3+ | 0.3+ |
| 2005 10 22 | 691 | 0.1− | 0.2+ | 2005 11 25 | G96 | 0.0 | 0.5− | 2009 04 27 | G96 | 1.0+ | 0.2+ |
| 2005 10 22 | 691 | 0.2− | 0.2+ | 2005 11 25 | G96 | 0.1− | 0.2− | 2009 05 13 | 691 | 0.0 | 0.2− |
| 2005 10 22 | 691 | 0.1− | 0.2− | 2005 11 25 | G96 | 0.3+ | 0.1+ | 2009 05 13 | 691 | 0.0 | 0.1+ |
| 2005 10 27 | 691 | 0.6− | 0.4− | 2005 12 02 | G96 | 0.2+ | 0.2− | 2009 05 13 | 691 | 0.4− | 0.0 |
| 2005 10 27 | 691 | 0.1− | 0.1− | 2005 12 02 | G96 | 0.5+ | 0.0 | | | | |
| 2005 10 27 | 691 | 0.1− | 0.1+ | 2005 12 02 | G96 | 0.1+ | 0.0 | | | | |

### 2005 US$_{88}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 20.64331 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27551617 | $\omega$ | 265.80402 | | −0.03919089 | −0.99922618 | |
| $a$ | 2.3390418 | $\Omega$ | 186.44486 | | +0.92815830 | −0.03516716 | |
| $e$ | 0.1854065 | $i$ | 1.70219 | | +0.37011653 | −0.01761573 | |
| $P$ | 3.58 | $H$ | 17.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 09 11 | 691 | 0.2− | 0.5+ | 2005 10 27 | 691 | 0.1− | 0.1+ | 2005 12 31 | G96 | 0.5− | 0.5− |
| 1994 09 11 | 691 | 0.3+ | 0.1− | 2005 10 27 | 691 | 0.2− | 0.0 | 2005 12 31 | G96 | 0.3+ | 0.1+ |
| 1994 09 11 | 691 | 0.0 | 0.5− | 2005 10 27 | 691 | 0.1− | 0.1− | 2005 12 31 | G96 | 0.3− | 0.8− |
| 2005 09 29 | G96 | 0.2+ | 0.0 | 2005 10 31 | 691 | 0.1− | 0.1+ | 2005 12 31 | G96 | 0.5+ | 0.2+ |
| 2005 09 29 | G96 | 0.0 | 0.5− | 2005 10 31 | 691 | 0.3− | 0.2− | 2009 12 18 | G96 | 0.2− | 0.0 |
| 2005 09 29 | G96 | 0.4+ | 0.1− | 2005 10 31 | 691 | 0.1+ | 0.2+ | 2009 12 18 | G96 | 0.3+ | 0.2− |
| 2005 09 29 | G96 | 0.4− | 0.2− | 2005 12 04 | G96 | 0.3+ | 0.2− | 2009 12 18 | G96 | 0.0 | 0.0 |
| 2005 10 22 | 691 | 0.3+ | 0.2+ | 2005 12 04 | G96 | 0.2+ | 0.1+ | 2009 12 18 | G96 | 0.1− | 0.1+ |
| 2005 10 22 | 691 | 0.2− | 0.1+ | 2005 12 04 | G96 | 0.2+ | 0.3− | | | | |
| 2005 10 22 | 691 | 0.2+ | 0.1+ | 2005 12 04 | G96 | 0.3+ | 0.1+ | | | | |

### 2005 UA$_{93}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 39.61977 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21860140 | $\omega$ | 74.40475 | | +0.88347048 | +0.45842060 | |
| $a$ | 2.7291920 | $\Omega$ | 258.22719 | | −0.45869486 | +0.80448386 | |
| $e$ | 0.0565094 | $i$ | 5.66259 | | −0.09528350 | +0.37769866 | |
| $P$ | 4.51 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 22 | 691 | 0.3+ | 0.0 | 2005 10 29 | 703 | 0.0 | 0.3+ | 2006 01 23 | G96 | 0.3+ | 0.2+ |
| 2005 10 22 | 691 | 0.2+ | 0.2− | 2005 10 31 | 691 | 0.3+ | 0.2+ | 2006 01 23 | G96 | 0.5− | 0.1− |
| 2005 10 22 | 691 | 0.1+ | 0.2− | 2005 10 31 | 691 | 0.1+ | 0.0 | 2009 08 18 | 691 | 0.3+ | 0.4− |
| 2005 10 27 | 691 | 0.0 | 0.0 | 2005 10 31 | 691 | 0.2+ | 0.1+ | 2009 08 18 | 691 | 0.2− | 0.1+ |
| 2005 10 27 | 691 | 0.1− | 0.1− | 2005 11 10 | 691 | 0.0 | 0.1+ | 2009 08 18 | 691 | 0.0 | 0.1+ |
| 2005 10 27 | 691 | 0.5− | 0.1+ | 2005 11 10 | 691 | 0.3− | 0.1− | 2009 09 15 | G96 | 0.0 | 0.2+ |
| 2005 10 29 | 703 | 0.2+ | 1.9+ | 2005 11 10 | 691 | 0.1− | 0.0 | 2009 09 15 | G96 | 0.2− | 0.3+ |
| 2005 10 29 | 703 | 0.2+ | 0.4+ | 2006 01 23 | G96 | 0.1− | 0.5− | 2009 09 15 | G96 | 0.2+ | 0.0 |
| 2005 10 29 | 703 | 0.9− | 1.3− | 2006 01 23 | G96 | 0.1+ | 0.7− | | | | |

### 2005 UO$_{126}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 326.90747 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17082847 | $\omega$ | 111.44752 | | +0.92870857 | +0.35873002 | |
| $a$ | 3.2168382 | $\Omega$ | 227.66453 | | −0.36948236 | +0.87382670 | |
| $e$ | 0.0335618 | $i$ | 7.29613 | | −0.03135565 | +0.32823723 | |
| $P$ | 5.77 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 24 | 691 | 0.0 | 0.1− | 2005 11 10 | 691 | 0.0 | 0.0 | 2005 12 04 | G96 | 0.2− | 0.4+ |
| 2005 10 24 | 691 | 0.1+ | 0.2+ | 2005 11 10 | 691 | 0.2− | 0.2− | 2005 12 04 | G96 | 0.0 | 0.3+ |
| 2005 10 24 | 691 | 0.3+ | 0.1+ | 2005 11 25 | G96 | 0.3+ | 0.3− | 2005 12 04 | G96 | 0.0 | 0.4+ |
| 2005 10 27 | G96 | 0.2+ | 0.3− | 2005 11 25 | G96 | 0.2− | 0.3+ | 2008 03 11 | 691 | 0.0 | 0.1− |
| 2005 10 27 | G96 | 0.1+ | 0.3− | 2005 11 25 | G96 | 0.1− | 0.2+ | 2008 03 11 | 691 | 0.0 | 0.2+ |
| 2005 10 27 | G96 | 0.4− | 0.3− | 2005 11 25 | G96 | 0.3+ | 0.1− | 2008 03 11 | 691 | 0.2− | 0.2− |
| 2005 10 27 | G96 | 0.2− | 0.5− | 2005 11 29 | G96 | 0.4+ | 0.5− | 2008 04 15 | G96 | 0.0 | 0.1− |
| 2005 11 01 | 691 | 0.2− | 0.0 | 2005 11 29 | G96 | 1.3+ | 0.9− | 2008 04 15 | G96 | 0.1+ | 0.1+ |
| 2005 11 01 | 691 | 0.1+ | 0.0 | 2005 11 29 | G96 | 0.5− | 0.0 | 2008 04 15 | G96 | 0.3+ | 0.5+ |
| 2005 11 01 | 691 | 0.0 | 0.4+ | 2005 11 29 | G96 | 0.5− | 0.4− | 2008 04 15 | G96 | 0.5+ | 0.1+ |
| 2005 11 10 | 691 | 0.2− | 0.1+ | 2005 12 04 | G96 | 0.2− | 0.4+ | | | | |

### 2005 UX$_{131}$ = 2008 RO$_{132}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 143.26928 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.30308821 | $\omega$ | 224.06213 | | +0.99456702 | +0.03611123 | |
| $a$ | 2.1949435 | $\Omega$ | 133.59599 | | −0.00421356 | +0.95110004 | |
| $e$ | 0.1033221 | $i$ | 7.74779 | | −0.10401293 | +0.30676487 | |
| $P$ | 3.25 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 24 | 644 | 0.3− | 0.0 | 2005 11 01 | 703 | 1.3− | 1.1+ | 2008 09 06 | 703 | 0.1− | 0.5− |
| 2005 10 24 | 644 | 0.1+ | 0.0 | 2005 11 01 | 703 | 0.7+ | 0.2+ | 2008 09 06 | 703 | 0.3+ | 0.2− |
| 2005 10 24 | 644 | 0.0 | 0.2+ | 2005 11 12 | 703 | (0.7+ | 1.8−) | 2008 09 06 | 703 | 0.2− | 0.5+ |
| 2005 10 27 | 699 | 0.9− | 0.6− | 2005 11 12 | 703 | 0.5+ | 0.9− | 2008 09 06 | 703 | 0.2− | 0.5− |
| 2005 10 27 | 699 | 1.1+ | 0.2+ | 2005 11 12 | 703 | 0.7− | 0.5− | 2008 09 20 | 703 | 0.5− | 0.0 |
| 2005 10 27 | 699 | 0.6− | 0.4+ | 2005 11 12 | 703 | 0.3+ | 0.6− | 2008 09 20 | 703 | 0.2− | 0.6+ |
| 2005 10 27 | 703 | 0.7− | 1.2+ | 2005 11 29 | 703 | 0.6+ | 0.1− | 2008 09 20 | 703 | 0.1+ | 0.2− |
| 2005 10 27 | 703 | 1.0+ | 0.5+ | 2005 11 29 | 703 | 0.7+ | 0.2− | 2008 09 20 | 703 | 0.1− | 0.3+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 27 | 703 | 0.4+ | 0.1+ | 2005 11 29 | 703 | 0.4− | 1.0− | 2008 10 02 | 703 | (1.6− | 0.1+) | | |
| 2005 10 27 | 703 | 0.4+ | 0.3− | 2005 11 29 | 703 | 0.3+ | 0.0 | 2008 10 02 | 703 | (1.6+ | 0.5+) | | |
| 2005 10 27 | 699 | 0.9− | 0.7+ | 2005 11 29 | 644 | 0.1+ | 0.1− | 2008 10 02 | 703 | 1.1+ | 0.9− | | |
| 2005 11 01 | 703 | 0.4− | 0.2+ | 2005 11 29 | 644 | 0.1+ | 0.0 | | | | | | |
| 2005 11 01 | 703 | 0.4− | 0.1+ | 2005 11 29 | 644 | 0.3+ | 0.1− | | | | | | |

**2005 UC$_{133}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 38.91275 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23104308 | $\omega$ | 103.37121 | | +0.76910603 | +0.63825492 | |
| $a$ | 2.6303128 | $\Omega$ | 216.98281 | | −0.60570072 | +0.71128998 | |
| $e$ | 0.2282746 | $i$ | 3.16989 | | −0.20396702 | +0.29444392 | |
| $P$ | 4.27 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 24 | 691 | 0.0 | 0.0 | 2005 10 25 | 691 | 0.0 | 0.0 | 2005 11 25 | G96 | 0.3+ | 0.0 |
| 2005 09 24 | 691 | 0.0 | 0.2+ | 2005 10 25 | 691 | 0.0 | 0.2+ | 2005 11 25 | G96 | 0.1+ | 0.2− |
| 2005 09 24 | 691 | 0.2+ | 0.1− | 2005 10 27 | G96 | 0.1+ | 0.2− | 2005 11 25 | G96 | 0.3+ | 0.0 |
| 2005 10 07 | 691 | 0.0 | 0.1+ | 2005 10 27 | G96 | 0.4+ | 0.3− | 2009 08 27 | 703 | 1.1+ | 0.2+ |
| 2005 10 07 | 691 | 0.1+ | 0.1− | 2005 10 27 | G96 | 0.3+ | 0.2− | 2009 08 27 | 703 | 0.3+ | 0.3+ |
| 2005 10 07 | 691 | 0.1+ | 0.2− | 2005 10 27 | G96 | 0.2+ | 0.0 | 2009 08 27 | 703 | 0.2− | 0.2+ |
| 2005 10 22 | 703 | 1.5− | 0.4− | 2005 10 27 | G96 | 0.2+ | 0.3− | 2009 08 27 | 703 | 0.2− | 1.2− |
| 2005 10 22 | 703 | 1.4− | 1.3+ | 2005 10 27 | G96 | 0.1− | 0.1+ | 2009 09 10 | 703 | 0.4− | 0.5− |
| 2005 10 22 | 703 | 0.9− | 0.3+ | 2005 10 27 | G96 | 0.4+ | 0.3− | 2009 09 10 | 703 | 0.2+ | 0.2− |
| 2005 10 22 | 703 | 0.7+ | 0.2+ | 2005 10 27 | G96 | 0.0 | 0.2− | 2009 09 10 | 703 | 0.7− | 1.5+ |
| 2005 10 25 | 691 | 0.1− | 0.0 | 2005 11 25 | G96 | 0.1− | 0.3− | 2009 09 10 | 703 | 0.1− | 0.3− |

**2005 UC$_{136}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 58.90709 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27151302 | $\omega$ | 211.48522 | | +0.93080322 | −0.36549689 | |
| $a$ | 2.3619767 | $\Omega$ | 169.95033 | | +0.34012656 | +0.86190339 | |
| $e$ | 0.1933158 | $i$ | 1.36898 | | +0.13386293 | +0.35147484 | |
| $P$ | 3.63 | $H$ | 18.4 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 01 | G96 | 0.1+ | 0.2− | 2005 10 25 | G96 | 0.1+ | 0.3− | 2007 03 16 | G96 | 0.6− | 0.4− |
| 2005 10 01 | G96 | 0.2+ | 0.1− | 2005 10 25 | G96 | 0.1+ | 0.3− | 2009 12 16 | 691 | 0.4− | 0.5+ |
| 2005 10 01 | G96 | 0.5− | 0.1− | 2005 10 27 | 691 | 0.1− | 0.0 | 2009 12 16 | 691 | 0.1+ | 0.3− |
| 2005 10 01 | G96 | 0.1+ | 0.2− | 2005 10 27 | 691 | 0.2− | 0.0 | 2009 12 16 | 691 | 0.1+ | 0.6+ |
| 2005 10 07 | 691 | 0.2+ | 0.1+ | 2005 10 27 | 691 | 0.2+ | 0.0 | 2009 12 16 | G96 | 0.2+ | 0.5− |
| 2005 10 07 | 691 | 0.2+ | 0.1+ | 2005 12 04 | G96 | 0.5+ | 0.5− | 2009 12 16 | G96 | 0.2+ | 0.7− |
| 2005 10 07 | 691 | 0.1− | 0.0 | 2005 12 04 | G96 | 0.0 | 0.0 | 2009 12 16 | G96 | 0.3− | 0.2− |
| 2005 10 11 | 691 | 0.0 | 0.0 | 2005 12 04 | G96 | 0.0 | 0.1− | 2009 12 16 | G96 | 0.1+ | 0.3− |
| 2005 10 11 | 691 | 0.0 | 0.0 | 2005 12 04 | G96 | 0.1− | 0.1− | 2009 12 16 | G96 | 0.3− | 0.1− |
| 2005 10 11 | 691 | 0.1− | 0.2− | 2007 03 16 | G96 | 0.3+ | 0.7− | 2009 12 20 | 691 | 0.2+ | 0.3+ |
| 2005 10 25 | G96 | 0.7− | 0.1+ | 2007 03 16 | G96 | 0.1− | 0.1− | 2009 12 20 | 691 | 0.3− | 0.2+ |
| 2005 10 25 | G96 | 0.0 | 0.0 | 2007 03 16 | G96 | 0.2− | 0.3− | 2009 12 20 | 691 | 0.2+ | 0.6− |

**2005 UH$_{155}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 108.28996 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23747278 | $\omega$ | 239.67319 | | +0.31166716 | +0.93729661 | |
| $a$ | 2.5826179 | $\Omega$ | 49.33269 | | −0.78581306 | +0.34655715 | |
| $e$ | 0.1488362 | $i$ | 11.86922 | | −0.53419231 | +0.03705676 | |
| $P$ | 4.15 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 26 | 691 | 0.1+ | 0.0 | 2005 11 29 | 691 | 0.2+ | 0.2+ | 2009 10 26 | 691 | 0.2+ | 0.2+ |
| 2005 10 26 | 691 | 0.2+ | 0.2+ | 2005 11 29 | 691 | 0.0 | 0.1− | 2009 10 26 | 691 | 0.5− | 0.3+ |
| 2005 10 26 | 691 | 0.2+ | 0.6− | 2005 12 07 | 691 | 0.1+ | 0.0 | 2009 11 19 | G96 | 0.1− | 0.1+ |
| 2005 10 27 | G96 | 0.3+ | 0.6− | 2005 12 07 | 691 | 0.1+ | 0.6+ | 2009 11 19 | G96 | 0.3+ | 0.1+ |
| 2005 10 27 | G96 | 0.1+ | 0.5− | 2005 12 07 | 691 | 0.0 | 0.2− | 2009 11 19 | G96 | 0.2+ | 0.1− |
| 2005 10 27 | G96 | 0.1− | 0.5− | 2009 09 17 | G96 | 0.7+ | 0.1+ | 2009 11 19 | G96 | 0.2+ | 0.1− |
| 2005 11 05 | 691 | 0.5− | 0.0 | 2009 09 17 | G96 | 0.1+ | 0.0 | 2009 12 10 | G96 | 0.2+ | 0.4− |
| 2005 11 05 | 691 | 0.4− | 0.1+ | 2009 09 17 | G96 | 0.5+ | 0.1+ | 2009 12 10 | G96 | 0.0 | 0.4− |
| 2005 11 05 | 691 | 0.1− | 0.2+ | 2009 09 17 | G96 | 0.3− | 0.9− | 2009 12 10 | G96 | 0.2+ | 0.0 |
| 2005 11 29 | 691 | 0.1− | 0.1− | 2009 10 26 | 691 | 0.2− | 0.0 | 2009 12 10 | G96 | 0.0 | 0.6− |

**2005 UX$_{160}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 84.73186 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27638287 | $\omega$ | 290.97748 | | +0.99711623 | −0.01432860 | |
| $a$ | 2.3341493 | $\Omega$ | 69.90427 | | +0.04452106 | +0.90571688 | |
| $e$ | 0.2643305 | $i$ | 4.55154 | | −0.06145815 | +0.42364092 | |
| $P$ | 3.57 | $H$ | 17.4 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 05 | 704 | 0.3− | 0.8− | 2005 10 31 | 704 | (0.6− | 1.5+) | 2005 11 25 | 703 | 0.5+ | 0.0 |
| 2005 10 05 | 704 | 1.0+ | 0.5− | 2005 10 31 | 704 | 0.0 | 0.4+ | 2005 11 25 | 703 | 0.7− | 1.3− |
| 2005 10 05 | 704 | 0.6+ | 0.3− | 2005 10 31 | 704 | 0.3− | 0.3+ | 2005 12 31 | G96 | 0.0 | 0.1+ |
| 2005 10 05 | 704 | (1.5− | 0.4−) | 2005 10 31 | 704 | 0.5− | 0.3+ | 2005 12 31 | G96 | 0.0 | 0.2+ |
| 2005 10 10 | 703 | 0.4− | 1.0+ | 2005 11 01 | 691 | 0.0 | 0.1+ | 2005 12 31 | G96 | 0.1+ | 0.2+ |
| 2005 10 10 | 703 | 0.7− | 0.5− | 2005 11 01 | 691 | 0.1+ | 0.0 | 2005 12 31 | G96 | 0.0 | 0.1+ |
| 2005 10 10 | 703 | 0.1− | 0.8+ | 2005 11 01 | 691 | 0.1+ | 0.0 | 2006 01 23 | G96 | 0.3− | 0.3+ |
| 2005 10 10 | 703 | 1.0− | 0.4+ | 2005 11 10 | 703 | 0.5+ | 0.4− | 2006 01 23 | G96 | 0.1+ | 0.1+ |
| 2005 10 22 | 703 | 0.6+ | 0.6+ | 2005 11 10 | 703 | 0.2− | 0.3− | 2006 01 23 | G96 | 0.0 | 0.3− |
| 2005 10 22 | 703 | 0.2+ | 0.5+ | 2005 11 10 | 703 | 0.3− | 0.5− | 2006 01 23 | G96 | 0.3+ | 0.0 |
| 2005 10 22 | 703 | 0.3+ | 0.2+ | 2005 11 10 | 703 | 0.5− | 0.5− | 2006 01 27 | G96 | 0.1+ | 0.0 |
| 2005 10 22 | 703 | 0.6+ | 0.2− | 2005 11 11 | 703 | 0.2+ | 0.6− | 2006 01 27 | G96 | 0.0 | 0.3+ |
| 2005 10 22 | 644 | 0.1+ | 0.1+ | 2005 11 11 | 703 | 0.2+ | 1.2− | 2006 01 27 | G96 | 0.4− | 0.1− |
| 2005 10 22 | 644 | 0.3+ | 0.0 | 2005 11 11 | 703 | 0.6− | 0.3− | 2006 01 27 | G96 | 0.6+ | 0.2+ |
| 2005 10 22 | 644 | 0.1+ | 0.0 | 2005 11 11 | 703 | 0.5+ | 0.1− | 2007 03 19 | G96 | 0.8− | 0.4+ |
| 2005 10 28 | 703 | 0.7− | 0.4+ | 2005 11 20 | 699 | 0.8− | 0.8+ | 2007 03 19 | G96 | 0.6+ | 0.3+ |
| 2005 10 28 | 703 | 1.1− | 0.6− | 2005 11 20 | 699 | 0.2− | 0.4+ | 2007 03 19 | G96 | 0.4+ | 0.1+ |
| 2005 10 28 | 704 | 0.6+ | 1.0+ | 2005 11 20 | 699 | (0.1+ | 1.7−) | 2007 03 19 | G96 | 0.3+ | 0.3+ |
| 2005 10 28 | 703 | 0.2+ | 0.4− | 2005 11 20 | 699 | 0.0 | 0.4− | 2009 12 18 | 691 | 0.1+ | 0.0 |
| 2005 10 28 | 703 | 0.8− | 0.3− | 2005 11 25 | 703 | 0.5+ | 1.0− | 2009 12 18 | 691 | 1.0+ | 0.1+ |
| 2005 10 28 | 704 | 0.3+ | 0.4+ | 2005 11 25 | 703 | (1.9− | 1.1−) | 2009 12 18 | 691 | 0.8+ | 0.3+ |
| 2005 10 28 | 704 | 0.2+ | 0.2+ | 2005 11 25 | 703 | 0.5+ | 0.1− | 2009 12 26 | 691 | 0.9− | 0.2− |
| 2005 10 28 | 704 | 0.3+ | 0.7+ | 2005 11 25 | 703 | 0.8− | 0.4− | 2009 12 26 | 691 | 0.3− | 0.3− |
| 2005 10 28 | 704 | 1.1+ | 0.6+ | 2005 11 25 | 703 | (1.5+ | 0.3−) | 2009 12 26 | 691 | 0.7− | 0.1+ |
| 2005 10 31 | 704 | 0.8− | 0.4+ | 2005 11 25 | 703 | (1.8− | 1.6−) | | | | |

**2005 UA$_{162}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 83.26945 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27703956 | $\omega$ | 232.82107 | | +0.99764231 | +0.02697108 | |
| $a$ | 2.3304593 | $\Omega$ | 125.54851 | | −0.00280305 | +0.93478382 | |
| $e$ | 0.2271406 | $i$ | 4.44843 | | −0.06857089 | +0.35419172 | |
| $P$ | 3.56 | $H$ | 17.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 24 | 644 | 0.1− | 0.0 | 2005 10 27 | 644 | 0.0 | 0.0 | 2005 11 03 | 703 | 1.1+ | 0.2+ |
| 2005 09 24 | 644 | 0.1+ | 0.2+ | 2005 10 27 | 704 | 0.0 | 0.1+ | 2005 11 03 | 703 | 0.7+ | 0.0 |
| 2005 09 24 | 644 | 0.5− | 0.2+ | 2005 10 27 | 704 | 0.2+ | 0.5+ | 2005 11 03 | 705 | 0.4+ | 0.1− |
| 2005 10 05 | 703 | 0.1− | 0.6+ | 2005 10 27 | 644 | 0.2− | 0.0 | 2005 11 03 | 705 | 0.3+ | 0.0 |
| 2005 10 05 | 703 | 0.0 | 0.2+ | 2005 10 27 | 644 | 0.1+ | 0.0 | 2005 11 05 | 705 | 0.3+ | 0.2− |
| 2005 10 05 | 703 | 0.2− | 0.8+ | 2005 10 27 | 704 | 0.9− | 0.5+ | 2005 11 05 | 705 | 0.2+ | 0.1− |
| 2005 10 10 | 704 | 0.9+ | 1.2+ | 2005 10 27 | 704 | 0.4− | 0.4+ | 2005 11 07 | 705 | 0.2+ | 0.1− |
| 2005 10 10 | 704 | 1.3− | 0.3− | 2005 10 27 | 704 | 0.2+ | 0.1+ | 2005 11 07 | 705 | 0.2+ | 0.1− |
| 2005 10 10 | 704 | 1.1+ | 0.6− | 2005 10 28 | 703 | 0.3− | 1.0− | 2005 11 19 | 705 | 0.1+ | 0.2− |
| 2005 10 10 | 704 | 0.1+ | 0.6+ | 2005 10 28 | 703 | 0.6− | 0.8− | 2005 11 19 | 705 | 0.3+ | 0.2− |
| 2005 10 22 | 644 | 0.2− | 0.2+ | 2005 10 28 | 703 | 0.3− | 0.3− | 2005 11 24 | 705 | 0.1+ | 0.2− |
| 2005 10 22 | 703 | 0.4+ | 0.1− | 2005 10 28 | 703 | 0.0 | 0.8− | 2005 11 24 | 705 | 0.0 | 0.2− |
| 2005 10 22 | 644 | 0.1+ | 0.1+ | 2005 10 31 | 699 | 0.0 | 0.4+ | 2005 11 26 | 705 | 0.0 | 0.2− |
| 2005 10 22 | 703 | 0.3− | 0.0 | 2005 10 31 | 699 | 1.0− | 0.3+ | 2005 11 26 | 705 | 0.1+ | 0.2− |
| 2005 10 22 | 703 | 0.4− | 0.0 | 2005 10 31 | 699 | 0.9− | 0.1− | 2005 11 30 | 705 | 0.1+ | 0.2− |
| 2005 10 22 | 644 | 0.0 | 0.1+ | 2005 10 31 | 699 | 0.4− | 0.6+ | 2005 11 30 | 705 | 0.0 | 0.2− |
| 2005 10 22 | 644 | 0.1+ | 0.2+ | 2005 11 01 | 644 | 0.0 | 0.0 | 2007 02 23 | 691 | 0.7+ | 0.1+ |
| 2005 10 22 | 703 | 0.5− | 0.5− | 2005 11 01 | 705 | 0.3+ | 0.1− | 2007 02 23 | 691 | 0.2+ | 0.2− |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 22 | 644 | 0.1− | 0.1+ | 2005 11 01 | 705 | 0.3+ | 0.1− | 2007 02 23 | 691 | 0.9− | 0.2+ | | |
| 2005 10 22 | 644 | 0.0 | 0.1− | 2005 11 01 | 644 | 0.1+ | 0.2+ | 2009 12 18 | 691 | 0.6+ | 0.1+ | | |
| 2005 10 27 | 644 | 0.0 | 0.2+ | 2005 11 01 | 644 | 0.0 | 0.0 | 2009 12 18 | 691 | 0.7− | 0.1− | | |
| 2005 10 27 | 644 | 0.2− | 0.0 | 2005 11 03 | 703 | 0.2+ | 1.3− | 2009 12 18 | 691 | 0.1+ | 0.3+ | | |
| 2005 10 27 | 644 | 0.0 | 0.0 | 2005 11 03 | 703 | 0.4+ | 0.5− | | | | | | |

**2005 UJ$_{167}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 257.97207 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18598096 | $\omega$ | 36.43488 | | +0.35061895 | −0.93122503 | |
| $a$ | 3.0396510 | $\Omega$ | 33.36885 | | +0.81086740 | +0.24874086 | |
| $e$ | 0.0726151 | $i$ | 10.41478 | | +0.46857275 | +0.26636053 | |
| $P$ | 5.30 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 01 | G96 | 0.3+ | 0.4− | 2005 10 28 | 691 | 0.2− | 0.1+ | 2005 11 12 | 691 | 0.2− | 0.1+ | | |
| 2005 10 01 | G96 | 0.5+ | 0.2− | 2005 10 28 | 691 | 0.0 | 0.1+ | 2005 12 05 | 691 | 0.4+ | 0.4− | | |
| 2005 10 01 | G96 | 0.5+ | 0.4− | 2005 11 01 | 691 | 0.0 | 0.2+ | 2005 12 05 | 691 | 0.8− | 0.6− | | |
| 2005 10 01 | G96 | 0.0 | 0.3− | 2005 11 01 | 691 | 0.1− | 0.4+ | 2005 12 05 | 691 | 0.8+ | 0.4+ | | |
| 2005 10 12 | 691 | 0.2− | 0.1− | 2005 11 01 | 691 | 0.0 | 0.3+ | 2008 04 12 | 691 | 0.0 | 0.3− | | |
| 2005 10 12 | 691 | 0.3− | 0.1− | 2005 11 06 | 704 | 0.4+ | 0.6+ | 2008 04 12 | 691 | 0.1+ | 0.4+ | | |
| 2005 10 12 | 691 | 0.0 | 0.2− | 2005 11 06 | 704 | 0.1− | 0.3+ | 2008 04 12 | 691 | 0.3+ | 0.2− | | |
| 2005 10 24 | 691 | 0.1+ | 0.2+ | 2005 11 06 | 704 | 0.2− | 0.1+ | 2008 04 25 | G96 | 0.5− | 0.3+ | | |
| 2005 10 24 | 691 | 0.1+ | 0.2− | 2005 11 06 | 704 | 0.1+ | 0.3+ | 2008 04 25 | G96 | 0.1− | 0.6+ | | |
| 2005 10 24 | 691 | 0.1+ | 0.2− | 2005 11 12 | 691 | 0.1+ | 0.0 | 2008 04 25 | G96 | 0.0 | 0.3+ | | |
| 2005 10 28 | 691 | 0.0 | 0.2+ | 2005 11 12 | 691 | 0.0 | 0.2− | 2008 04 25 | G96 | 0.6− | 0.3− | | |

**2005 UE$_{174}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 263.06759 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22253592 | $\omega$ | 253.00148 | | −0.67774749 | −0.69300460 | |
| $a$ | 2.6969277 | $\Omega$ | 242.31622 | | +0.73471276 | −0.62496570 | |
| $e$ | 0.0639019 | $i$ | 16.11354 | | +0.02924901 | −0.35939184 | |
| $P$ | 4.43 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 24 | 691 | 0.1+ | 0.1+ | 2005 11 29 | 704 | (0.7+ | 1.6+) | 2009 09 18 | 703 | 1.2− | 0.8− | | |
| 2005 10 24 | 691 | 0.1− | 0.1+ | 2005 12 01 | 704 | 0.6+ | 1.1+ | 2009 09 18 | 703 | 0.7+ | 0.0 | | |
| 2005 10 24 | 691 | 0.1+ | 0.5− | 2005 12 01 | 704 | 0.1+ | 0.6+ | 2009 09 18 | 703 | 1.2+ | 0.6+ | | |
| 2005 10 28 | 691 | 0.2− | 0.1− | 2005 12 01 | 704 | 0.2− | 0.6− | 2009 09 18 | 703 | 0.8− | 2.5+ | | |
| 2005 10 28 | 691 | 0.1+ | 0.2− | 2005 12 01 | 704 | 0.8− | 0.6+ | 2009 10 14 | G96 | 0.2+ | 0.5− | | |
| 2005 10 28 | 691 | 0.2− | 0.1− | 2005 12 04 | 704 | 0.2+ | 0.7− | 2009 10 14 | G96 | 0.3+ | 0.5− | | |
| 2005 11 01 | 691 | 0.1+ | 0.2+ | 2005 12 04 | 704 | 0.1− | 0.2+ | 2009 10 14 | G96 | 0.4+ | 0.4− | | |
| 2005 11 01 | 691 | 0.2− | 0.1+ | 2005 12 04 | 704 | 0.3− | 0.2+ | 2009 10 14 | G96 | 0.1− | 0.4− | | |
| 2005 11 01 | 691 | 0.0 | 0.2+ | 2005 12 04 | 704 | 0.0 | 0.0 | 2009 12 20 | G96 | 0.1+ | 0.1− | | |
| 2005 11 29 | 704 | 0.0 | 1.1+ | 2005 12 10 | 691 | 0.2+ | 0.0 | 2009 12 20 | G96 | 0.9− | 0.4− | | |
| 2005 11 29 | 704 | (2.0+ | 0.2+) | 2005 12 10 | 691 | 0.2+ | 0.2− | 2009 12 20 | G96 | 0.5− | 0.2− | | |
| 2005 11 29 | 704 | 0.3− | 0.9+ | 2005 12 10 | 691 | 0.0 | 0.3− | 2009 12 20 | G96 | 0.6+ | 0.4− | | |

**2005 UR$_{175}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 352.67487 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17420418 | $\omega$ | 70.29409 | | +0.75782377 | +0.63775532 | |
| $a$ | 3.1751457 | $\Omega$ | 249.82594 | | −0.63999892 | +0.68553918 | |
| $e$ | 0.0752650 | $i$ | 8.43798 | | −0.12690358 | +0.35114697 | |
| $P$ | 5.66 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 24 | 691 | 0.2+ | 0.3− | 2005 10 30 | G96 | 0.3+ | 0.2− | 2005 12 31 | G96 | 0.7− | 0.0 | | |
| 2005 10 24 | 691 | 0.0 | 0.1− | 2005 11 01 | 691 | 0.0 | 0.3+ | 2005 12 31 | G96 | 0.2+ | 0.5− | | |
| 2005 10 24 | 691 | 0.3+ | 0.2− | 2005 11 01 | 691 | 0.1− | 0.1+ | 2005 12 31 | G96 | 0.1− | 0.2− | | |
| 2005 10 28 | 691 | 0.3− | 0.4+ | 2005 11 01 | 691 | 0.2− | 0.1+ | 2008 03 01 | 691 | 0.3+ | 0.1+ | | |
| 2005 10 28 | 691 | 0.2+ | 0.0 | 2005 12 05 | G96 | 0.1+ | 0.4+ | 2008 03 01 | 691 | 0.0 | 0.4− | | |
| 2005 10 28 | 691 | 0.3− | 0.1− | 2005 12 05 | G96 | 0.5− | 0.3− | 2008 03 01 | 691 | 0.1+ | 0.3+ | | |
| 2005 10 30 | G96 | 0.1+ | 0.1− | 2005 12 05 | G96 | 0.5+ | 0.1+ | 2008 03 13 | 691 | 0.5− | 0.4+ | | |
| 2005 10 30 | G96 | 0.2+ | 0.2− | 2005 12 05 | G96 | 0.5+ | 0.2+ | 2008 03 13 | 691 | 0.3− | 0.4+ | | |
| 2005 10 30 | G96 | 0.3− | 0.1− | 2005 12 31 | G96 | 0.4+ | 0.2+ | 2008 03 13 | 691 | 0.4+ | 0.8− | | |

**2005 UE$_{195}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 320.78629 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18404473 | $\omega$ | 307.33213 | | +0.98529649 | −0.05271768 | |
| $a$ | 3.0609328 | $\Omega$ | 56.24795 | | +0.12693070 | +0.86257842 | |
| $e$ | 0.1019998 | $i$ | 11.27171 | | −0.11436535 | +0.50316928 | |
| $P$ | 5.36 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 22 | 691 | 0.2+ | 0.0 | 2005 11 19 | 143 | 0.9− | 0.1+ | 2005 12 08 | 691 | 0.1− | 0.1+ | | |
| 2005 10 22 | 691 | 0.2+ | 0.1+ | 2005 11 19 | 143 | 0.2− | 0.6+ | 2005 12 08 | 691 | 0.0 | 0.2+ | | |
| 2005 10 22 | 691 | 0.1+ | 0.1+ | 2005 11 20 | 143 | 0.2+ | 0.3− | 2005 12 08 | 691 | 0.1− | 0.1− | | |
| 2005 10 28 | G96 | 0.1+ | 0.2− | 2005 11 20 | 143 | 0.5+ | 0.1− | 2005 12 10 | 691 | 0.2− | 0.1− | | |
| 2005 10 28 | G96 | 0.2+ | 0.3− | 2005 11 20 | 143 | 0.1+ | 0.7− | 2005 12 10 | 691 | 0.1− | 0.1+ | | |
| 2005 10 28 | G96 | 0.3− | 0.2− | 2005 11 20 | 143 | 0.3+ | 0.3− | 2005 12 10 | 691 | 0.1+ | 0.3− | | |
| 2005 10 28 | G96 | 0.7− | 0.5− | 2005 11 26 | G96 | 0.3− | 0.4− | 2008 04 07 | 691 | 0.5− | 0.1− | | |
| 2005 11 03 | 691 | 0.1+ | 0.1+ | 2005 11 26 | G96 | 0.1+ | 0.4− | 2008 04 07 | 691 | 0.0 | 0.2+ | | |
| 2005 11 03 | 691 | 0.1+ | 0.2+ | 2005 11 26 | G96 | 0.1− | 0.4− | 2008 04 07 | 691 | 0.2+ | 0.1− | | |
| 2005 11 03 | 691 | 0.0 | 0.1− | 2005 11 26 | G96 | 0.2− | 0.2− | 2008 04 29 | G96 | 0.0 | 0.0 | | |
| 2005 11 05 | 691 | 0.2− | 0.1+ | 2005 12 01 | 704 | 1.1+ | 0.4− | 2008 04 29 | G96 | 0.5+ | 0.2+ | | |
| 2005 11 05 | 691 | 0.2− | 0.2− | 2005 12 01 | 704 | 0.4+ | 1.0+ | 2008 04 29 | G96 | 0.5+ | 0.1+ | | |
| 2005 11 05 | 691 | 0.2− | 0.2+ | 2005 12 01 | 704 | 0.5+ | 1.0+ | 2008 04 29 | G96 | 0.5+ | 0.1+ | | |
| 2005 11 19 | 143 | 0.1− | 0.1− | 2005 12 01 | 704 | (1.2− | 2.6+) | | | | | | |

**2005 UL$_{195}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 347.37733 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19131343 | $\omega$ | 290.20901 | | +0.79298363 | +0.60309053 | |
| $a$ | 2.9829026 | $\Omega$ | 32.87082 | | −0.48251955 | +0.70824532 | |
| $e$ | 0.0658286 | $i$ | 9.15607 | | −0.37195678 | +0.36697463 | |
| $P$ | 5.15 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 23 | 691 | 0.3− | 0.3+ | 2005 10 22 | 703 | 0.7+ | 0.6+ | 2008 02 18 | G96 | 0.0 | 0.8− | | |
| 2005 09 23 | 691 | 0.0 | 0.0 | 2005 10 22 | 703 | 0.8− | 0.3+ | 2008 02 29 | 691 | 0.0 | 0.1+ | | |
| 2005 09 23 | 691 | 0.2+ | 0.1+ | 2005 10 22 | 703 | 0.0 | 0.1− | 2008 02 29 | 691 | 0.1− | 0.1− | | |
| 2005 10 01 | 691 | 0.1+ | 0.1− | 2005 10 28 | G96 | 0.3− | 0.1− | 2008 02 29 | 691 | 0.3− | 0.1− | | |
| 2005 10 01 | 691 | 0.3+ | 0.0 | 2005 10 28 | G96 | 0.5− | 0.2− | 2008 02 29 | 691 | 0.5− | 0.0 | | |
| 2005 10 01 | 691 | 0.1+ | 0.2− | 2005 10 28 | G96 | 0.1− | 0.1− | 2008 02 29 | 691 | 0.1− | 0.4− | | |
| 2005 10 12 | 691 | 0.0 | 0.1+ | 2005 10 28 | G96 | 0.4− | 0.1− | 2008 02 29 | 691 | 0.0 | 0.0 | | |
| 2005 10 12 | 691 | 0.2− | 0.0 | 2008 02 18 | G96 | 0.5+ | 0.2+ | 2008 03 13 | 691 | 0.6+ | 0.4+ | | |
| 2005 10 12 | 691 | 0.2− | 0.1+ | 2008 02 18 | G96 | 0.0 | 0.2− | 2008 03 13 | 691 | 0.2+ | 0.2+ | | |
| 2005 10 22 | 703 | 1.0+ | 0.9− | 2008 02 18 | G96 | 0.1− | 0.3+ | 2008 03 13 | 691 | 0.2+ | 0.2+ | | |

**2005 UL$_{212}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 118.12114 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24519288 | $\omega$ | 228.26875 | | +0.24663569 | +0.94790908 | |
| $a$ | 2.5281188 | $\Omega$ | 57.09613 | | −0.80253169 | +0.31638106 | |
| $e$ | 0.2097850 | $i$ | 13.89299 | | −0.54324370 | −0.03703239 | |
| $P$ | 4.02 | $H$ | 17.4 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 11 20 | 691 | 0.2+ | 0.1− | 2005 10 31 | 691 | 0.4− | 0.2+ | 2009 10 22 | G96 | 0.1− | 0.2− | | |
| 2001 11 20 | 691 | 0.2− | 0.1− | 2005 10 31 | 691 | 0.7+ | 0.2+ | 2009 10 22 | G96 | 0.3+ | 0.3− | | |
| 2001 11 20 | 691 | 0.0 | 0.0 | 2005 11 25 | G96 | 0.1+ | 0.3− | 2009 10 22 | G96 | 0.4+ | 0.7− | | |
| 2005 10 27 | 691 | 0.2+ | 0.2+ | 2005 11 25 | G96 | 0.3− | 0.1− | 2009 11 23 | G96 | 0.0 | 0.2+ | | |
| 2005 10 27 | 691 | 0.6− | 0.0 | 2005 11 25 | G96 | 0.0 | 0.0 | 2009 11 23 | G96 | 0.2− | 0.2+ | | |
| 2005 10 27 | 691 | 0.3− | 0.1+ | 2005 11 25 | G96 | 0.2+ | 0.1+ | 2009 11 23 | G96 | 0.0 | 0.0 | | |
| 2005 10 28 | G96 | 0.4+ | 0.6− | 2005 12 02 | G96 | 0.0 | 0.0 | 2009 11 23 | G96 | 0.3+ | 0.1+ | | |
| 2005 10 28 | G96 | 0.3− | 0.3− | 2005 12 02 | G96 | 0.1+ | 0.1+ | 2009 12 10 | G96 | 0.0 | 0.2+ | | |
| 2005 10 28 | G96 | 0.3− | 0.0 | 2005 12 02 | G96 | 0.1+ | 0.3− | 2009 12 10 | G96 | 0.0 | 0.2+ | | |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 28 | G96 | 0.4− | 0.0 | 2005 12 02 | G96 | 0.3− | 0.1− | 2009 12 10 | G96 | 0.2+ | 0.7− |
| 2005 10 31 | 691 | 0.5+ | 0.1+ | 2009 10 22 | G96 | 0.2− | 0.2− | 2009 12 10 | G96 | 0.6− | 0.4+ |

**2005 UY$_{222}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 48.86049 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26731535 | $\omega$ | 72.85886 | | +0.78534134 | −0.61886897 | |
| $a$ | 2.3866393 | $\Omega$ | 325.37018 | | +0.55710965 | +0.71744197 | |
| $e$ | 0.1733319 | $i$ | 1.56273 | | +0.26994040 | +0.31980965 | |
| $P$ | 3.69 | $H$ | 17.7 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 23 | 703 | 0.1+ | 0.9+ | 2005 11 04 | 704 | 0.0 | 0.0 | 2005 12 05 | G96 | 0.4+ | 0.4− |
| 2005 10 23 | 703 | (2.4+ | 0.4−) | 2005 11 04 | 704 | 0.0 | 0.1− | 2005 12 05 | G96 | 0.2+ | 0.2− |
| 2005 10 23 | 703 | 0.5− | 0.1+ | 2005 11 04 | 704 | 0.1+ | 0.8+ | 2005 12 05 | G96 | 0.1+ | 0.3− |
| 2005 10 23 | 703 | (2.0− | 1.2−) | 2005 11 04 | 704 | 0.5− | 0.5− | 2006 01 27 | G96 | 0.6+ | 0.6− |
| 2005 10 25 | 691 | 0.1− | 0.1+ | 2005 11 05 | 699 | 0.2− | 0.6− | 2006 01 27 | G96 | 0.1+ | 0.3+ |
| 2005 10 25 | 691 | 0.1− | 0.1− | 2005 11 05 | 699 | 0.1+ | 0.4+ | 2006 01 27 | G96 | 0.3− | 0.1+ |
| 2005 10 25 | 691 | 0.0 | 0.0 | 2005 11 05 | 699 | 0.7− | 0.1− | 2006 01 27 | G96 | 0.1− | 0.7− |
| 2005 10 29 | 691 | 0.0 | 0.1+ | 2005 11 05 | 699 | 0.4− | 0.3+ | 2007 03 26 | G96 | 0.1− | 0.4+ |
| 2005 10 29 | 691 | 0.5+ | 0.2+ | 2005 11 06 | 691 | 0.0 | 0.1+ | 2007 03 26 | G96 | 0.0 | 0.1− |
| 2005 10 29 | 691 | 0.1+ | 0.0 | 2005 11 06 | 691 | 0.1+ | 0.0 | 2007 03 26 | G96 | 0.1+ | 0.1− |
| 2005 10 29 | 703 | 0.0 | 0.2− | 2005 11 06 | 691 | 0.2− | 0.0 | 2007 03 26 | G96 | 0.4+ | 0.6+ |
| 2005 10 29 | 703 | 0.1− | 0.2− | 2005 11 07 | 704 | 0.0 | 0.4+ | 2009 12 17 | 691 | 0.1+ | 0.1− |
| 2005 10 29 | 703 | 0.8+ | 0.2− | 2005 11 07 | 704 | 0.2− | 0.1+ | 2009 12 17 | 691 | 0.0 | 0.0 |
| 2005 10 29 | 703 | 0.4− | 0.5− | 2005 11 07 | 704 | 0.2− | 0.9+ | 2009 12 17 | 691 | 0.0 | 0.0 |
| 2005 11 03 | G96 | 0.1+ | 0.4− | 2005 11 07 | 704 | 0.8− | 0.2+ | 2009 12 26 | 691 | 0.0 | 0.2− |
| 2005 11 03 | G96 | 0.0 | 0.2− | 2005 11 12 | 691 | 0.0 | 0.1− | 2009 12 26 | 691 | 0.5− | 0.5+ |
| 2005 11 03 | G96 | 0.1+ | 0.3− | 2005 11 12 | 691 | 0.1+ | 0.1+ | 2009 12 26 | 691 | 0.2+ | 0.1− |
| 2005 11 03 | G96 | 0.2+ | 0.2− | 2005 11 12 | 691 | 0.2+ | 0.1+ | | | | |
| 2005 11 04 | 704 | 0.4− | 0.7− | 2005 12 05 | G96 | 0.5− | 0.7− | | | | |

**2005 UW$_{234}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 356.90597 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22384561 | $\omega$ | 324.35739 | | +0.90062965 | −0.37901208 | |
| $a$ | 2.6863979 | $\Omega$ | 59.26608 | | +0.43349334 | +0.74878159 | |
| $e$ | 0.2077483 | $i$ | 14.32289 | | +0.03081811 | +0.54376095 | |
| $P$ | 4.40 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 11 21 | 645 | 0.0 | 0.0 | 2005 10 29 | 691 | 0.1+ | 0.1+ | 2005 11 06 | 704 | 0.5− | 0.7− |
| 2001 11 21 | 645 | 0.0 | 0.1− | 2005 10 31 | 704 | 0.6+ | 0.1+ | 2005 11 26 | 703 | 0.3− | 0.5− |
| 2003 04 01 | 645 | 0.0 | 0.0 | 2005 10 31 | 704 | 0.2+ | 0.4− | 2005 11 26 | 703 | 0.0 | 1.2+ |
| 2003 04 01 | 645 | 0.0 | 0.0 | 2005 10 31 | 704 | 0.1− | 0.8+ | 2005 11 26 | 703 | 0.3− | 0.1− |
| 2005 10 25 | 703 | 0.0 | 0.2− | 2005 10 31 | 704 | 0.8+ | 0.4− | 2005 11 26 | 703 | 1.1− | 0.1+ |
| 2005 10 25 | 703 | 0.1− | 0.4− | 2005 11 03 | 704 | 0.1+ | 0.1− | 2005 12 02 | G96 | 0.1− | 0.1+ |
| 2005 10 25 | 703 | 0.8+ | 0.2+ | 2005 11 03 | 704 | 1.0+ | 0.5+ | 2005 12 02 | G96 | 0.3− | 0.2+ |
| 2005 10 25 | 691 | 0.0 | 0.0 | 2005 11 03 | 704 | 0.4− | 0.5− | 2005 12 02 | G96 | 0.4+ | 0.4+ |
| 2005 10 25 | 703 | 0.5− | 1.5+ | 2005 11 03 | 704 | 0.9+ | 0.6+ | 2005 12 02 | G96 | 0.1− | 0.2+ |
| 2005 10 25 | 691 | 0.1− | 0.1− | 2005 11 06 | 704 | 0.2− | 0.3− | 2005 12 30 | G96 | 0.3+ | 0.2− |
| 2005 10 25 | 691 | 0.0 | 0.1+ | 2005 11 06 | 704 | 0.2− | 0.2− | 2005 12 30 | G96 | 0.6+ | 0.2+ |
| 2005 10 29 | 691 | 0.0 | 0.1+ | 2005 11 06 | 704 | 0.4− | 0.4− | 2005 12 30 | G96 | 0.4− | 0.2+ |
| 2005 10 29 | 691 | 0.1− | 0.1+ | 2005 11 06 | 704 | 0.8− | 1.0− | 2005 12 30 | G96 | 0.4− | 0.1+ |

**2005 UU$_{237}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 255.53059 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.15716763 | $\omega$ | 317.62520 | | +0.82086311 | −0.53967186 | |
| $a$ | 3.4006399 | $\Omega$ | 75.95480 | | +0.56192731 | +0.70466545 | |
| $e$ | 0.0978908 | $i$ | 11.10907 | | +0.10208551 | +0.46065267 | |
| $P$ | 6.27 | $H$ | 14.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 25 | 691 | 0.1− | 0.2− | 2005 11 10 | 691 | 0.0 | 0.0 | 2005 12 29 | G96 | 0.0 | 0.1− |
| 2005 10 25 | 691 | 0.1− | 0.0 | 2005 11 26 | 703 | 0.4+ | 1.4+ | 2005 12 29 | G96 | 0.3− | 0.3− |
| 2005 10 25 | 691 | 0.1− | 0.2− | 2005 11 26 | 703 | 0.1− | 1.1+ | 2009 05 28 | G96 | 0.2+ | 0.6+ |
| 2005 10 29 | 691 | 0.1+ | 0.1+ | 2005 11 26 | 703 | 0.6+ | 0.5+ | 2009 05 28 | G96 | 0.0 | 0.4+ |
| 2005 10 29 | 691 | 0.0 | 0.1− | 2005 11 26 | 703 | (1.2+ | 2.7+) | 2009 05 28 | G96 | 0.3+ | 0.3+ |
| 2005 10 29 | 691 | 0.1− | 0.2− | 2005 11 30 | 704 | 0.2− | 0.4+ | 2009 05 28 | G96 | 0.0 | 0.0 |
| 2005 11 06 | 691 | 0.0 | 0.1+ | 2005 11 30 | 704 | 0.7− | 0.2− | 2009 06 19 | G96 | 0.8− | 1.0− |
| 2005 11 06 | 691 | 0.2+ | 0.1+ | 2005 11 30 | 704 | 0.3+ | 0.2− | 2009 06 19 | G96 | 0.3− | 0.7− |
| 2005 11 06 | 691 | 0.1+ | 0.1+ | 2005 11 30 | 704 | 0.4− | 0.0 | 2009 06 19 | G96 | 0.3+ | 0.8+ |
| 2005 11 10 | 691 | 0.0 | 0.1− | 2005 12 29 | G96 | 0.2+ | 0.3− | 2009 06 19 | G96 | 0.7+ | 0.4+ |
| 2005 11 10 | 691 | 0.1− | 0.1+ | 2005 12 29 | G96 | 0.4+ | 0.2− | | | | |

**2005 UX$_{237}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 222.66640 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28412347 | $\omega$ | 172.99708 | | −0.21689258 | +0.96846874 | |
| $a$ | 2.2915604 | $\Omega$ | 84.42210 | | −0.90150892 | −0.15054268 | |
| $e$ | 0.0786695 | $i$ | 7.07470 | | −0.37448535 | −0.19850741 | |
| $P$ | 3.47 | $H$ | 17.4 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 12 06 | 645 | 0.0 | 0.0 | 2005 11 06 | 691 | 0.1+ | 0.2+ | 2005 12 29 | G96 | 0.8+ | 0.2− |
| 2002 12 06 | 645 | 0.0 | 0.0 | 2005 11 10 | 691 | 0.1− | 0.4+ | 2005 12 29 | G96 | 0.3+ | 0.0 |
| 2005 10 25 | 691 | 0.5− | 0.2− | 2005 11 10 | 691 | 0.1− | 0.1+ | 2009 11 21 | G96 | 0.0 | 0.1+ |
| 2005 10 25 | 691 | 0.3− | 0.1− | 2005 11 10 | 691 | 0.1+ | 0.1+ | 2009 11 21 | G96 | 0.5+ | 0.1− |
| 2005 10 25 | 691 | 0.2− | 0.2− | 2005 12 08 | G96 | 0.1+ | 0.7− | 2009 11 21 | G96 | 0.2− | 0.1− |
| 2005 10 29 | 691 | 0.5+ | 0.0 | 2005 12 08 | G96 | 0.0 | 0.0 | 2009 11 21 | G96 | 0.4+ | 0.2− |
| 2005 10 29 | 691 | 0.0 | 0.0 | 2005 12 08 | G96 | 0.0 | 0.2− | 2009 12 17 | G96 | 0.3+ | 0.5+ |
| 2005 10 29 | 691 | 0.2− | 0.0 | 2005 12 08 | G96 | 0.3+ | 0.4− | 2009 12 17 | G96 | 0.1− | 0.3+ |
| 2005 11 06 | 691 | 0.2+ | 0.0 | 2005 12 29 | G96 | 0.2+ | 0.0 | 2009 12 17 | G96 | 0.4− | 0.1+ |
| 2005 11 06 | 691 | 0.1− | 0.1+ | 2005 12 29 | G96 | 0.5+ | 0.9− | 2009 12 17 | G96 | 0.2− | 0.1+ |

**2005 UJ$_{250}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 57.26857 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26733926 | $\omega$ | 2.74495 | | +0.90519523 | −0.42471906 | |
| $a$ | 2.3864970 | $\Omega$ | 22.40745 | | +0.38915560 | +0.81381172 | |
| $e$ | 0.2571241 | $i$ | 2.30630 | | +0.17082011 | +0.39664116 | |
| $P$ | 3.69 | $H$ | 17.8 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 23 | 644 | 0.2− | 0.2+ | 2005 11 01 | 704 | 1.2− | 0.0 | 2005 11 06 | 703 | 0.1+ | 0.6+ |
| 2005 10 23 | 644 | 0.0 | 0.2+ | 2005 11 01 | 704 | 0.4− | 0.2− | 2005 11 06 | 703 | 0.2+ | 0.4+ |
| 2005 10 23 | 644 | 0.2+ | 0.0 | 2005 11 03 | G96 | 0.0 | 0.3− | 2005 11 25 | 703 | 0.4− | 0.0 |
| 2005 10 23 | 703 | 0.1− | 0.8+ | 2005 11 03 | G96 | 0.4+ | 0.1− | 2005 11 25 | 703 | 0.4+ | 0.3− |
| 2005 10 23 | 703 | 1.1+ | 0.6+ | 2005 11 03 | G96 | 0.4+ | 0.4− | 2005 11 25 | 703 | 1.6+ | 0.0 |
| 2005 10 23 | 703 | 0.7− | 0.2+ | 2005 11 03 | G96 | 0.4+ | 0.2− | 2005 11 25 | 703 | 0.3+ | 0.9− |
| 2005 10 23 | 703 | 0.0 | 0.9− | 2005 11 04 | 704 | 0.3− | 1.7+ | 2005 12 02 | 703 | 0.1+ | 0.1− |
| 2005 10 27 | G96 | 0.5+ | 0.4− | 2005 11 04 | 704 | 0.1− | 0.5− | 2005 12 02 | 703 | 0.1+ | 0.1− |
| 2005 10 27 | G96 | 0.1+ | 0.4− | 2005 11 04 | 704 | 1.0+ | 0.8− | 2005 12 02 | 703 | 0.7− | 0.9− |
| 2005 10 27 | G96 | 0.4+ | 0.6− | 2005 11 04 | 704 | 0.1− | 0.2− | 2005 12 02 | 703 | 0.4+ | 0.7− |
| 2005 10 27 | G96 | 0.2+ | 0.5− | 2005 11 04 | 704 | 0.5+ | 0.1− | 2009 11 11 | G96 | 0.0 | 0.1+ |
| 2005 10 29 | 703 | 1.1− | 0.2− | 2005 11 06 | 704 | 0.1− | 0.7+ | 2009 11 11 | G96 | 0.4+ | 0.1− |
| 2005 10 29 | 703 | 0.2+ | 0.0 | 2005 11 06 | 704 | 0.5− | 0.3+ | 2009 11 11 | G96 | 0.3− | 0.3+ |
| 2005 10 29 | 703 | 0.3− | 0.0 | 2005 11 06 | 704 | 0.4− | 0.4+ | 2009 11 11 | G96 | 0.1+ | 0.6+ |
| 2005 10 29 | 703 | 0.4+ | 0.1− | 2005 11 06 | 704 | 0.1− | 0.5+ | 2009 11 21 | G96 | 0.0 | 0.2+ |
| 2005 11 01 | 704 | 0.9− | 0.6+ | 2005 11 06 | 703 | 0.3+ | 0.8+ | 2009 11 21 | G96 | 0.6+ | 0.0 |
| 2005 11 01 | 704 | 0.2− | 0.4− | 2005 11 06 | 703 | 0.1− | 0.5+ | 2009 11 21 | G96 | 0.1− | 0.2− |
| 2005 11 01 | 704 | 1.0− | 0.2− | 2005 11 06 | 704 | 0.1+ | 0.3+ | 2009 11 21 | G96 | 0.5− | 0.2+ |

**2005 UJ$_{251}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 4.48981 | | (2000.0) | | | |
| $n$ | 0.21930104 | $\omega$ | 7.61690 | | +0.99818974 | +0.05163570 |
| $a$ | 2.7233843 | $\Omega$ | 349.27692 | | −0.06010633 | +0.83842987 |
| $e$ | 0.1947280 | $i$ | 9.54030 | | −0.00211460 | +0.54255793 |
| $P$ | 4.49 | $H$ | 16.2 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 29 | 703 | 1.1− | 0.2− | 2005 10 29 | 703 | 0.6− | 0.4− | 2005 11 21 | 703 | 0.6+ | 0.1+ |
| 2005 09 29 | 703 | 0.3− | 0.7+ | 2005 11 01 | 699 | 0.8− | 0.5− | 2005 11 21 | 703 | 0.8− | 0.4− |
| 2005 09 29 | 703 | (1.9− | 1.6−) | 2005 11 01 | 699 | 0.4+ | 0.0 | 2005 11 21 | 703 | 0.5− | 0.0 |
| 2005 09 29 | 703 | 0.9+ | 1.2− | 2005 11 01 | 699 | 0.1+ | 0.9+ | 2005 11 21 | 703 | 0.1− | 0.4− |
| 2005 10 03 | 644 | 0.1− | 0.4+ | 2005 11 01 | 699 | 0.1+ | 0.1+ | 2009 07 28 | 703 | 0.5− | 0.9− |
| 2005 10 03 | 644 | 0.0 | 0.3+ | 2005 11 03 | 704 | 1.4− | 0.7+ | 2009 07 28 | 703 | 0.1+ | 0.4+ |
| 2005 10 03 | 644 | 0.3+ | 0.4+ | 2005 11 03 | 704 | 0.6+ | 0.3− | 2009 07 28 | 703 | 0.7− | 0.4− |
| 2005 10 10 | 703 | 0.5− | 0.5− | 2005 11 03 | 704 | 0.5+ | 1.2− | 2009 07 28 | 703 | 0.0 | 0.3+ |
| 2005 10 10 | 703 | 0.4+ | 0.2+ | 2005 11 03 | 704 | 0.1− | 0.5− | 2009 08 17 | 703 | 0.5− | 0.2+ |
| 2005 10 10 | 703 | 0.6− | 0.3− | 2005 11 06 | 704 | 1.1+ | 0.2+ | 2009 08 17 | 703 | 0.2+ | 0.2− |
| 2005 10 10 | 703 | (0.8+ | 1.9−) | 2005 11 06 | 704 | 0.3+ | 0.9+ | 2009 08 17 | 703 | 0.3+ | 0.4+ |
| 2005 10 23 | 703 | 0.3− | 0.7− | 2005 11 06 | 704 | (1.1+ | 1.7+) | 2009 08 17 | 703 | 0.9+ | 0.6+ |
| 2005 10 23 | 703 | 0.8+ | 0.1+ | 2005 11 06 | 704 | 0.5+ | 0.7+ | 2009 11 21 | G96 | 0.6+ | 0.7− |
| 2005 10 23 | 703 | 0.6+ | 0.0 | 2005 11 08 | 704 | 1.2+ | 0.0 | 2009 11 21 | G96 | 0.2− | 0.1− |
| 2005 10 23 | 703 | 0.7+ | 0.3+ | 2005 11 08 | 704 | 0.2− | 0.3− | 2009 11 21 | G96 | 0.0 | 0.0 |
| 2005 10 29 | 703 | 0.8− | 0.1+ | 2005 11 08 | 704 | 0.2− | 0.1+ | 2009 11 21 | G96 | 0.2+ | 0.0 |
| 2005 10 29 | 703 | 0.8− | 0.2− | 2005 11 08 | 704 | 0.7+ | 0.2+ | | | | |
| 2005 10 29 | 703 | 0.9− | 0.6+ | 2005 11 08 | 704 | 0.0 | 0.5+ | | | | |

**2005 UX$_{253}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 285.90410 | | (2000.0) | | | |
| $n$ | 0.18251429 | $\omega$ | 345.90396 | | +0.92861406 | −0.36643630 |
| $a$ | 3.0780202 | $\Omega$ | 35.76631 | | +0.34936361 | +0.81054539 |
| $e$ | 0.1702330 | $i$ | 5.72582 | | +0.12498395 | +0.45688138 |
| $P$ | 5.40 | $H$ | 16.2 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 01 | G96 | 0.1+ | 0.1− | 2005 10 22 | 703 | 0.3− | 0.0 | 2005 11 26 | G96 | 0.4+ | 0.4+ |
| 2005 10 01 | G96 | 0.2+ | 0.2− | 2005 10 22 | 703 | 0.4− | 0.2+ | 2005 11 26 | G96 | 0.3+ | 0.1− |
| 2005 10 01 | G96 | 0.4− | 0.0 | 2005 10 22 | 703 | 1.4− | 0.4+ | 2005 11 26 | G96 | 0.1+ | 0.3− |
| 2005 10 01 | G96 | 0.2+ | 0.0 | 2005 10 28 | 703 | (2.4− | 0.9+) | 2005 12 28 | G96 | 0.4− | 0.2− |
| 2005 10 01 | 703 | 0.4− | 0.7+ | 2005 10 28 | 703 | 0.4− | 0.2+ | 2005 12 28 | G96 | 0.2− | 0.0 |
| 2005 10 01 | 703 | 0.3+ | 0.1− | 2005 10 28 | 703 | 0.6− | 0.1+ | 2005 12 28 | G96 | 0.3− | 0.2− |
| 2005 10 01 | 703 | 0.4+ | 0.6+ | 2005 10 28 | 703 | 0.1− | 0.7+ | 2005 12 28 | G96 | 0.5+ | 0.1− |
| 2005 10 01 | 703 | 0.9+ | 0.5− | 2005 10 29 | 703 | 0.0 | 0.6− | 2007 01 27 | 691 | 0.1− | 0.3− |
| 2005 10 11 | 691 | 0.1+ | 0.1+ | 2005 10 29 | 703 | 1.6− | 0.6− | 2007 01 27 | 691 | 0.2+ | 0.2+ |
| 2005 10 11 | 691 | 0.0 | 0.0 | 2005 10 29 | 703 | 0.4+ | 0.7− | 2007 01 27 | 691 | 0.1− | 0.1+ |
| 2005 10 11 | 691 | 0.1+ | 0.1+ | 2005 10 29 | 703 | 0.4+ | 1.6− | 2008 03 31 | G96 | 0.3+ | 0.1+ |
| 2005 10 22 | 703 | 0.2− | 0.7+ | 2005 10 31 | G96 | 0.4+ | 0.0 | 2008 03 31 | G96 | 0.4+ | 0.2+ |
| 2005 10 22 | 703 | 0.3+ | 1.3+ | 2005 10 31 | G96 | 0.0 | 0.1− | 2008 03 31 | G96 | 0.1− | 0.4+ |
| 2005 10 22 | 703 | (3.9− | 1.5+) | 2005 10 31 | G96 | 0.1+ | 0.2− | 2008 03 31 | G96 | 0.1− | 0.4+ |
| 2005 10 22 | 703 | 0.4+ | 0.0 | 2005 10 31 | G96 | 0.3+ | 0.2− | | | | |
| 2005 10 22 | 703 | 0.3+ | 0.8+ | 2005 11 26 | G96 | 0.0 | 0.3− | | | | |

**2005 UM$_{254}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 51.92107 | | (2000.0) | | | |
| $n$ | 0.26454430 | $\omega$ | 283.04114 | | +0.82011062 | −0.57109493 |
| $a$ | 2.4032767 | $\Omega$ | 111.79624 | | +0.53873481 | +0.74966061 |
| $e$ | 0.1904542 | $i$ | 2.19886 | | +0.19282990 | +0.33445409 |
| $P$ | 3.73 | $H$ | 18.1 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 22 | 691 | 0.1− | 0.0 | 2005 11 10 | 691 | 0.2+ | 0.3− | 2005 12 29 | G96 | 0.1+ | 0.3− |
| 2005 10 22 | 691 | 0.2− | 0.3+ | 2005 11 10 | 691 | 0.1+ | 0.1− | 2009 11 18 | G96 | 0.0 | 0.5− |
| 2005 10 22 | 691 | 0.2− | 0.1+ | 2005 11 10 | 691 | 0.1− | 0.2− | 2009 11 18 | G96 | 0.1+ | 0.2− |
| 2005 10 27 | 691 | 0.1− | 0.2+ | 2005 11 25 | 291 | 0.0 | 0.3+ | 2009 11 18 | G96 | 0.1− | 0.1− |
| 2005 10 27 | 691 | 0.0 | 0.2+ | 2005 11 25 | 291 | 0.1− | 0.1− | 2009 11 18 | G96 | 0.0 | 0.1− |
| 2005 10 27 | 691 | 0.1− | 0.1+ | 2005 11 25 | 291 | 0.5+ | 0.3+ | 2009 12 10 | G96 | 0.8+ | 0.1− |
| 2005 10 29 | G96 | 0.2− | 0.3− | 2005 12 01 | G96 | 0.0 | 0.2− | 2009 12 10 | G96 | 0.7+ | 0.3− |
| 2005 10 29 | G96 | 0.2− | 0.4− | 2005 12 01 | G96 | 0.4+ | 0.1− | 2009 12 10 | G96 | 0.2+ | 0.3− |
| 2005 10 29 | G96 | 0.1+ | 0.5− | 2005 12 01 | G96 | 1.4− | 0.6− | 2009 12 10 | G96 | (1.6+ | 0.5−) |
| 2005 10 29 | G96 | 0.2+ | 0.4− | 2005 12 01 | G96 | 0.6+ | 0.5− | 2009 12 25 | 691 | 0.4+ | 0.0 |
| 2005 10 31 | 691 | 0.1+ | 0.1− | 2005 12 29 | G96 | 0.3+ | 0.2− | 2009 12 25 | 691 | 1.1− | 0.1+ |
| 2005 10 31 | 691 | 0.2− | 0.1+ | 2005 12 29 | G96 | 0.3− | 0.4− | 2009 12 25 | 691 | 0.3+ | 0.4+ |
| 2005 10 31 | 691 | 0.2+ | 0.1+ | 2005 12 29 | G96 | 0.3− | 0.5− | | | | |

**2005 UD$_{270}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 63.75673 | | (2000.0) | | | |
| $n$ | 0.22018655 | $\omega$ | 247.22030 | | +0.23495929 | +0.95952112 |
| $a$ | 2.7160778 | $\Omega$ | 37.46687 | | −0.77163559 | +0.28127749 |
| $e$ | 0.1802270 | $i$ | 14.78991 | | −0.59107753 | +0.01421927 |
| $P$ | 4.48 | $H$ | 16.1 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 01 | 691 | 0.1+ | 0.1− | 2005 10 28 | 703 | 0.3+ | 0.9+ | 2005 11 26 | G96 | 0.1− | 0.6− |
| 2005 10 01 | 691 | 0.0 | 0.1− | 2005 10 28 | 703 | 1.1− | 0.0 | 2005 11 26 | G96 | 0.1+ | 0.1+ |
| 2005 10 01 | 691 | 0.0 | 0.1+ | 2005 10 28 | G96 | 0.4+ | 0.3− | 2005 11 26 | G96 | 0.7+ | 0.0 |
| 2005 10 07 | 703 | 0.4+ | 0.7+ | 2005 10 28 | 703 | 0.2+ | 1.1+ | 2008 03 10 | G96 | 0.1+ | 0.2− |
| 2005 10 07 | 703 | 1.4+ | 0.0 | 2005 10 28 | G96 | 0.4+ | 0.2− | 2008 03 10 | G96 | 0.0 | 0.4− |
| 2005 10 07 | 703 | 0.2+ | 0.4− | 2005 10 28 | G96 | 0.3+ | 0.3− | 2008 03 10 | G96 | 0.0 | 0.1+ |
| 2005 10 07 | 703 | 0.8− | 0.2− | 2005 10 29 | G96 | 0.1+ | 0.0 | 2008 03 10 | G96 | 0.1− | 0.2− |
| 2005 10 12 | 691 | 0.1− | 0.1+ | 2005 10 29 | G96 | 0.0 | 0.2+ | 2008 03 29 | 703 | 0.6− | 0.3− |
| 2005 10 12 | 691 | 0.1− | 0.3− | 2005 10 29 | G96 | 0.3+ | 0.1− | 2008 03 29 | 703 | 0.5+ | 0.6+ |
| 2005 10 12 | 691 | 0.3− | 0.1+ | 2005 10 29 | G96 | 0.1+ | 0.0 | 2008 03 29 | 703 | 0.0 | 0.2+ |
| 2005 10 22 | 703 | (1.7− | 1.4−) | 2005 10 29 | G96 | 0.1− | 0.1+ | 2008 03 29 | 703 | 0.1+ | 0.1+ |
| 2005 10 22 | 703 | 0.6− | 0.1− | 2005 10 29 | G96 | 0.1+ | 0.0 | 2008 04 14 | G96 | 0.1+ | 0.1+ |
| 2005 10 22 | 703 | 1.2− | 0.8− | 2005 10 29 | G96 | 0.1− | 0.0 | 2008 04 14 | G96 | 0.4+ | 0.1− |
| 2005 10 22 | 703 | (2.1+ | 0.0 ) | 2005 10 29 | G96 | 0.2+ | 0.1+ | 2008 04 14 | G96 | 0.1+ | 0.1+ |
| 2005 10 28 | 703 | 1.0+ | 0.0 | 2005 11 26 | G96 | 0.7− | 0.1+ | 2008 04 14 | G96 | 0.7− | 0.1+ |

**2005 UH$_{279}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 223.91418 | | (2000.0) | | | |
| $n$ | 0.17547679 | $\omega$ | 42.77482 | | −0.04627412 | −0.99039621 |
| $a$ | 3.1597758 | $\Omega$ | 50.31025 | | +0.86467137 | −0.10502110 |
| $e$ | 0.0427982 | $i$ | 9.74756 | | +0.50020209 | +0.08992172 |
| $P$ | 5.62 | $H$ | 15.6 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 24 | 691 | 0.2− | 0.2+ | 2005 11 12 | 691 | 0.2+ | 0.1+ | 2008 04 28 | G96 | 0.6− | 0.7+ |
| 2005 10 24 | 691 | 0.1+ | 0.1+ | 2005 11 12 | 691 | 0.1+ | 0.1+ | 2008 04 28 | G96 | 0.3+ | 0.4+ |
| 2005 10 24 | 691 | 0.1− | 0.1+ | 2005 11 12 | 691 | 0.1+ | 0.2+ | 2008 04 28 | G96 | 0.5+ | 0.1+ |
| 2005 10 30 | 691 | 0.1− | 0.1− | 2005 12 02 | G96 | 0.5− | 0.0 | 2008 04 28 | G96 | 0.3+ | 0.1+ |
| 2005 10 30 | 691 | 0.2+ | 0.1+ | 2005 12 02 | G96 | 0.2− | 0.2− | 2008 04 28 | G96 | 0.1− | 0.4+ |
| 2005 10 30 | 691 | 0.1− | 0.0 | 2005 12 02 | G96 | 0.0 | 0.2− | 2008 04 28 | G96 | 0.0 | 0.1+ |
| 2005 11 06 | G96 | 0.2+ | 0.4− | 2005 12 02 | G96 | 0.4− | 0.1+ | 2008 04 28 | G96 | 0.0 | 0.4+ |
| 2005 11 06 | G96 | 0.2+ | 0.9− | 2008 03 29 | 691 | 0.0 | 0.0 | 2008 04 28 | G96 | 0.0 | 0.2+ |
| 2005 11 06 | G96 | 0.4− | 0.4− | 2008 03 29 | 691 | 0.1+ | 0.2− | | | | |
| 2005 11 06 | G96 | 0.3− | 0.2− | 2008 03 29 | 691 | 0.1− | 0.2− | | | | |

**2005 UG$_{283}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 317.22248 | | (2000.0) | | | |
| $n$ | 0.17308632 | $\omega$ | 272.41975 | | +0.74895635 | +0.63326669 |
| $a$ | 3.1888020 | $\Omega$ | 48.36959 | | −0.45521141 | +0.70561616 |
| $e$ | 0.2155993 | $i$ | 15.12537 | | −0.48150489 | +0.31792944 |
| $P$ | 5.69 | $H$ | 16.0 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 26 | 691 | 0.3− | 0.7+ | 2005 11 29 | G96 | 0.5+ | 0.2− | 2005 12 04 | 691 | 0.0 | 0.2+ |
| 2005 10 26 | 691 | 0.1− | 0.2+ | 2005 11 29 | G96 | 0.0 | 0.2− | 2005 12 04 | 691 | 0.6− | 0.4+ |
| 2005 10 26 | 691 | 0.0 | 0.0 | 2005 11 29 | G96 | 0.4+ | 0.4− | 2005 12 04 | 691 | 0.3+ | 0.7+ |
| 2005 10 30 | 691 | 0.1− | 0.3− | 2005 11 29 | G96 | 1.3− | 0.0 | 2005 12 04 | G96 | 0.3− | 0.3− |
| 2005 10 30 | 691 | 0.1+ | 0.0 | 2005 11 30 | 691 | 0.1+ | 0.0 | 2005 12 04 | G96 | 0.3− | 0.4− |
| 2005 10 30 | 691 | 0.1+ | 0.1+ | 2005 11 30 | 691 | 0.2− | 0.0 | 2005 12 04 | G96 | 0.6+ | 0.2− |
| 2005 11 03 | 691 | 0.2+ | 0.3− | 2005 11 30 | 691 | 0.1− | 0.0 | 2005 12 04 | G96 | 0.0 | 0.6− |
| 2005 11 03 | 691 | 0.3+ | 0.2− | 2005 11 30 | 691 | 0.3− | 0.1− | 2009 03 19 | 691 | 0.2+ | 0.3− |
| 2005 11 03 | 691 | 0.2+ | 0.1− | 2005 11 30 | 691 | 0.2− | 0.4− | 2009 03 19 | 691 | 0.3+ | 0.0 |
| 2005 11 21 | 691 | 0.5+ | 0.1− | 2005 11 30 | 691 | 0.3+ | 0.7− | 2009 03 19 | 691 | 0.6− | 0.2+ |
| 2005 11 21 | 691 | 0.3− | 0.0 | 2005 12 02 | 691 | 0.1+ | 0.5+ | 2009 04 21 | G96 | 0.1+ | 0.0 |
| 2005 11 21 | 691 | 0.2− | 0.0 | 2005 12 02 | 691 | 0.1− | 0.1− | 2009 04 21 | G96 | 0.0 | 0.1− |
| 2005 11 28 | G96 | 0.3− | 0.4− | 2005 12 02 | 691 | 0.1+ | 0.0 | 2009 04 21 | G96 | 0.6+ | 0.0 |
| 2005 11 28 | G96 | 0.4+ | 0.3− | 2005 12 02 | 691 | 0.0 | 0.1+ | 2009 04 21 | G96 | 0.0 | 0.2+ |
| 2005 11 28 | G96 | 0.3+ | 0.3− | 2005 12 02 | 691 | 0.1+ | 0.1+ | | | | |
| 2005 11 28 | G96 | 0.7− | 0.6− | 2005 12 02 | 691 | 0.0 | 0.2+ | | | | |

## 2005 UG$_{287}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 219.08392 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17923363 | $\omega$ | 39.26152 | | −0.15778758 | −0.97959900 | |
| $a$ | 3.1154663 | $\Omega$ | 60.14673 | | +0.86602619 | −0.19783306 | |
| $e$ | 0.0701728 | $i$ | 8.25018 | | +0.47444886 | +0.03532533 | |
| $P$ | 5.50 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 26 | 691 | 0.0 | 0.2+ | 2005 11 28 | 691 | 0.6+ | 0.0 | 2005 11 30 | G96 | 0.3+ | 0.3− |
| 2005 10 26 | 691 | 0.1− | 0.1+ | 2005 11 28 | 691 | 0.6− | 0.6+ | 2008 04 09 | 691 | 0.1− | 0.4− |
| 2005 10 26 | 691 | 0.2+ | 0.2+ | 2005 11 28 | 691 | 0.1− | 0.1− | 2008 04 09 | 691 | 0.2+ | 0.3+ |
| 2005 10 30 | 691 | 0.3+ | 0.3− | 2005 11 30 | 691 | 0.0 | 0.0 | 2008 04 09 | 691 | 0.0 | 0.0 |
| 2005 10 30 | 691 | 0.4− | 0.4− | 2005 11 30 | 691 | 0.3+ | 0.1− | 2008 04 28 | G96 | 0.1+ | 0.3+ |
| 2005 10 30 | 691 | 0.4+ | 0.0 | 2005 11 30 | 691 | 0.1+ | 0.2− | 2008 04 28 | G96 | 0.4− | 0.2− |
| 2005 11 03 | 691 | 1.1− | 0.4+ | 2005 11 30 | G96 | 0.6− | 0.5+ | 2008 04 28 | G96 | 0.2+ | 0.2+ |
| 2005 11 03 | 691 | 0.1+ | 0.2− | 2005 11 30 | G96 | 0.6+ | 0.2+ | 2008 04 28 | G96 | 0.3− | 0.0 |
| 2005 11 03 | 691 | 0.3+ | 0.1− | 2005 11 30 | G96 | 0.2− | 0.4− | | | | |

## 2005 UR$_{288}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 13.64326 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17555016 | $\omega$ | 208.13535 | | +0.18020845 | +0.97942810 | |
| $a$ | 3.1588953 | $\Omega$ | 72.36567 | | −0.88364698 | +0.20175158 | |
| $e$ | 0.0938187 | $i$ | 5.46756 | | −0.43207978 | −0.00411023 | |
| $P$ | 5.61 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 26 | 691 | 0.0 | 0.3+ | 2005 11 03 | 691 | 0.2− | 0.1+ | 2008 02 13 | 291 | 0.1+ | 0.1− |
| 2005 10 26 | 691 | 0.1− | 0.4− | 2005 11 03 | 691 | 0.1− | 0.2+ | 2008 03 12 | G96 | 0.7+ | 0.1+ |
| 2005 10 26 | 691 | 0.4− | 0.1− | 2005 12 01 | G96 | 0.2− | 0.3− | 2008 03 12 | G96 | 0.2+ | 0.0 |
| 2005 10 30 | 691 | 0.3+ | 0.1− | 2005 12 01 | G96 | 0.2− | 0.3+ | 2008 03 12 | G96 | 0.7+ | 0.0 |
| 2005 10 30 | 691 | 0.3+ | 0.2+ | 2005 12 01 | G96 | 0.2− | 0.1− | 2008 03 12 | G96 | 0.7+ | 0.0 |
| 2005 10 30 | 691 | 0.2− | 0.2− | 2005 12 01 | G96 | 0.2− | 0.2+ | 2008 04 04 | G96 | 0.0 | 0.1+ |
| 2005 10 31 | G96 | 0.0 | 0.1− | 2006 12 25 | 691 | 0.1+ | 0.4− | 2008 04 04 | G96 | 0.5− | 0.1+ |
| 2005 10 31 | G96 | 0.2+ | 0.2+ | 2006 12 25 | 691 | 0.2+ | 0.3+ | 2008 04 04 | G96 | 0.2+ | 0.0 |
| 2005 10 31 | G96 | 0.4+ | 0.2+ | 2006 12 25 | 691 | 0.3− | 0.2− | 2008 04 04 | G96 | 0.2− | 0.3+ |
| 2005 10 31 | G96 | 0.0 | 0.0 | 2008 02 13 | 291 | 0.3− | 0.1+ | | | | |
| 2005 11 03 | 691 | 0.3+ | 0.2+ | 2008 02 13 | 291 | 0.1− | 0.1+ | | | | |

## 2005 UL$_{305}$ = 2009 YS$_{11}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 354.73994 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26878368 | $\omega$ | 109.54541 | | −0.38955691 | −0.92099909 | |
| $a$ | 2.3779394 | $\Omega$ | 3.38455 | | +0.82855492 | −0.35162351 | |
| $e$ | 0.1661787 | $i$ | 2.39650 | | +0.40217180 | −0.16769491 | |
| $P$ | 3.67 | $H$ | 17.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 03 23 | 691 | 0.2+ | 0.6+ | 2005 10 29 | 703 | 0.5− | 0.0 | 2009 11 20 | G96 | 0.2+ | 0.2− |
| 2003 03 23 | 691 | 0.6+ | 0.6+ | 2005 10 30 | 703 | (0.8− | 1.7+) | 2009 11 20 | G96 | 0.1+ | 0.9− |
| 2003 03 23 | 691 | 0.2+ | 0.5+ | 2005 10 30 | 703 | (1.3+ | 2.0+) | 2009 11 20 | G96 | 0.1− | 0.6− |
| 2003 04 06 | 691 | 0.0 | 0.3− | 2005 10 30 | 703 | 0.3+ | 0.4+ | 2009 11 20 | G96 | 0.2− | 0.3− |
| 2003 04 06 | 691 | 1.1− | 0.4− | 2005 10 30 | 703 | 1.2− | 0.2− | 2009 12 18 | G96 | 0.5+ | 0.7− |
| 2003 04 06 | 691 | 0.3+ | 0.5− | 2005 10 30 | 291 | 0.0 | 0.2+ | 2009 12 18 | G96 | 0.6+ | 0.4− |
| 2005 10 27 | 691 | 0.3− | 0.1− | 2005 10 30 | 291 | 0.2+ | 0.3+ | 2009 12 18 | G96 | 0.8+ | 0.4− |
| 2005 10 27 | 691 | 0.1− | 0.1− | 2005 10 30 | 291 | 0.1+ | 0.2+ | 2009 12 18 | G96 | 0.4+ | 0.5− |
| 2005 10 27 | 691 | 0.9+ | 0.4+ | 2005 11 03 | G96 | 0.5− | 0.3− | 2009 12 19 | 691 | 0.6− | 0.7+ |
| 2005 10 29 | 703 | 0.2+ | 0.4+ | 2005 11 03 | G96 | 0.6− | 0.2− | 2009 12 19 | 691 | 0.2+ | 0.3+ |
| 2005 10 29 | 703 | 0.4− | 0.7− | 2005 11 03 | G96 | 0.6− | 0.3− | 2009 12 19 | 691 | 0.2− | 0.6− |
| 2005 10 29 | 703 | 0.4− | 0.4− | 2005 11 03 | G96 | 0.1− | 0.3− | | | | |

## 2005 UD$_{307}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 250.10179 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17476575 | $\omega$ | 22.78694 | | +0.33014361 | −0.92188111 | |
| $a$ | 3.1683404 | $\Omega$ | 48.59128 | | +0.81902729 | +0.17294428 | |
| $e$ | 0.0843304 | $i$ | 15.69031 | | +0.46925418 | +0.34673548 | |
| $P$ | 5.64 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 27 | G96 | 0.3+ | 0.6− | 2005 11 05 | 691 | 0.5− | 0.0 | 2005 11 29 | 691 | 0.1− | 0.2− |
| 2005 10 27 | G96 | 0.3+ | 0.7− | 2005 11 11 | 691 | 0.1+ | 0.2− | 2008 04 14 | 691 | 0.4+ | 0.1− |
| 2005 10 27 | G96 | 0.0 | 0.5− | 2005 11 11 | 691 | 0.0 | 0.1− | 2008 04 14 | 691 | 0.5+ | 0.0 |
| 2005 10 27 | G96 | 0.3− | 0.4− | 2005 11 11 | 691 | 0.2− | 0.2+ | 2008 04 14 | 691 | 1.0− | 0.4+ |
| 2005 10 30 | 691 | 0.1+ | 0.2+ | 2005 11 25 | 691 | 1.0+ | 0.5+ | 2008 04 28 | G96 | 0.8+ | 0.6− |
| 2005 10 30 | 691 | 0.3+ | 0.2+ | 2005 11 25 | 691 | 0.0 | 0.1+ | 2008 04 28 | G96 | 1.0− | 0.1− |
| 2005 10 30 | 691 | 0.0 | 0.2+ | 2005 11 25 | 691 | 0.1− | 0.1− | 2008 04 28 | G96 | 0.4+ | 0.4− |
| 2005 11 05 | 691 | 0.2− | 0.1+ | 2005 11 29 | 691 | 0.4− | 0.2− | 2008 04 28 | G96 | 0.1+ | 0.0 |
| 2005 11 05 | 691 | 0.0 | 0.2− | 2005 11 29 | 691 | 0.1− | 0.0 | | | | |

## 2005 UW$_{321}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 59.64412 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27877201 | $\omega$ | 170.13722 | | +0.48979928 | −0.86647029 | |
| $a$ | 2.3207940 | $\Omega$ | 250.47954 | | +0.79275001 | +0.48872585 | |
| $e$ | 0.1071101 | $i$ | 5.88084 | | +0.36282792 | +0.10186400 | |
| $P$ | 3.54 | $H$ | 17.5 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 20 | 645 | 0.0 | 0.0 | 2005 11 21 | 703 | 0.6− | 1.1− | 2005 12 04 | H06 | 0.5− | 0.2+ |
| 2001 09 20 | 645 | 0.0 | 0.0 | 2005 11 21 | 703 | 0.2− | 0.5+ | 2005 12 04 | H06 | 0.2− | 0.4− |
| 2001 09 20 | 645 | 0.0 | 0.0 | 2005 11 22 | 691 | 0.1+ | 0.2− | 2005 12 04 | H06 | 0.2+ | 1.5− |
| 2001 09 20 | 645 | 0.0 | 0.0 | 2005 11 22 | 691 | 0.2+ | 0.1− | 2005 12 04 | G96 | 0.2− | 0.2− |
| 2005 10 27 | 691 | 0.1+ | 0.1+ | 2005 11 22 | 691 | 0.0 | 0.2− | 2005 12 04 | G96 | 0.2− | 0.1+ |
| 2005 10 27 | 691 | 0.1+ | 0.1+ | 2005 11 28 | G96 | 0.4− | 0.1− | 2005 12 04 | G96 | 0.2+ | 0.2− |
| 2005 10 27 | 691 | 0.1+ | 0.0 | 2005 11 28 | G96 | 0.1+ | 0.1− | 2005 12 04 | G96 | 0.1+ | 0.1− |
| 2005 10 30 | G96 | 0.2− | 0.5− | 2005 11 28 | G96 | 0.1− | 0.0 | 2005 12 25 | G96 | 0.5+ | 0.2− |
| 2005 10 30 | G96 | 0.1+ | 0.6− | 2005 11 28 | G96 | 0.2+ | 0.3− | 2005 12 25 | G96 | 0.0 | 0.0 |
| 2005 10 30 | G96 | 0.1− | 0.4− | 2005 11 29 | 704 | 0.6− | 0.9+ | 2005 12 25 | G96 | 0.0 | 0.1− |
| 2005 10 30 | G96 | 0.2− | 0.5− | 2005 11 29 | 704 | 0.9− | 0.9+ | 2005 12 25 | G96 | 0.2+ | 1.4− |
| 2005 10 31 | 691 | 0.0 | 0.0 | 2005 11 29 | 704 | 0.6+ | 1.3+ | 2006 01 22 | G96 | 0.3+ | 0.2− |
| 2005 10 31 | 691 | 0.2+ | 0.1+ | 2005 11 29 | 704 | 1.0− | 1.3+ | 2006 01 22 | G96 | 0.0 | 0.0 |
| 2005 10 31 | 691 | 0.2− | 0.1+ | 2005 12 02 | H06 | 0.5− | 1.5+ | 2006 01 22 | G96 | 0.1+ | 0.1+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 11 21 | 703 | 0.2+ | 0.8+ | 2005 12 02 | H06 | (0.9− | 2.9+) | 2006 01 22 | G96 | 0.2− | 0.2+ | | |
| 2005 11 21 | 703 | 0.6+ | 1.0+ | 2005 12 02 | H06 | 0.2+ | 0.2− | | | | | | |

**2005 UH$_{342}$ = 2009 WK$_{245}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 256.23513 | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.26139346 | $\omega$ | 282.14371 | | −0.98298980 | | +0.14551180 | |
| $a$ | 2.4225508 | $\Omega$ | 266.30011 | | −0.09142043 | | −0.91685461 | |
| $e$ | 0.0365934 | $i$ | 6.44755 | | −0.15929015 | | −0.37175791 | |
| $P$ | 3.77 | $H$ | 17.6 | $G$ | 0.15 | $U$ | 5 | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 27 | 691 | 0.4− | 0.0 | 2005 10 31 | G96 | 0.4+ | 0.2− | 2009 11 25 | 691 | 0.3− | 0.3− | |
| 2005 10 27 | 691 | 0.3− | 0.1+ | 2005 11 04 | 691 | 0.2+ | 0.1+ | 2009 12 10 | G96 | 0.1+ | 0.0 | |
| 2005 10 27 | 691 | 0.1+ | 0.1+ | 2005 11 04 | 691 | 0.4− | 0.2− | 2009 12 10 | G96 | 0.5+ | 0.1+ | |
| 2005 10 31 | 691 | 0.3+ | 0.1− | 2005 11 04 | 691 | 0.2+ | 0.4+ | 2009 12 10 | G96 | 0.3+ | 0.0 | |
| 2005 10 31 | 691 | 0.4+ | 0.0 | 2009 11 21 | 691 | 0.2− | 0.4+ | 2009 12 10 | G96 | 0.3+ | 0.1+ | |
| 2005 10 31 | 691 | 0.1− | 0.2− | 2009 11 21 | 691 | 0.2+ | 0.4+ | 2009 12 15 | G96 | 0.2− | 0.1− | |
| 2005 10 31 | G96 | 0.1− | 0.1− | 2009 11 21 | 691 | 1.0+ | 0.2− | 2009 12 15 | G96 | 0.4− | 0.3− | |
| 2005 10 31 | G96 | 0.0 | 0.5− | 2009 11 25 | 691 | 0.3+ | 0.2− | 2009 12 15 | G96 | 0.9− | 0.1− | |
| 2005 10 31 | G96 | 0.2− | 0.4− | 2009 11 25 | 691 | 1.0− | 0.1− | 2009 12 15 | G96 | 0.4+ | 0.5+ | |

**2005 UY$_{383}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 316.18713 | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.22977578 | $\omega$ | 309.00808 | | −0.04311125 | | −0.99081185 | |
| $a$ | 2.6399754 | $\Omega$ | 142.84960 | | +0.96966200 | | −0.07239921 | |
| $e$ | 0.1563161 | $i$ | 12.25547 | | +0.24061800 | | +0.11423760 | |
| $P$ | 4.29 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 4 | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 24 | 644 | 0.0 | 0.1+ | 2005 10 27 | 703 | 1.0+ | 0.3− | 2005 12 25 | 703 | 0.4+ | 0.0 | |
| 2005 10 24 | 644 | 0.0 | 0.2+ | 2005 10 31 | 699 | 0.5− | 0.9+ | 2005 12 25 | 703 | 0.1− | 1.2+ | |
| 2005 10 24 | 644 | 0.1+ | 0.0 | 2005 10 31 | 699 | 0.4+ | 0.3+ | 2005 12 25 | 703 | 0.0 | 0.5− | |
| 2005 10 25 | 705 | 0.3+ | 0.0 | 2005 10 31 | 699 | 0.6− | 0.2− | 2009 09 16 | 703 | 0.1+ | 0.1+ | |
| 2005 10 25 | 705 | 0.3+ | 0.0 | 2005 10 31 | 699 | (1.5+ | 1.2+) | 2009 09 16 | 703 | 0.4+ | 0.5+ | |
| 2005 10 26 | 705 | 0.3+ | 0.1− | 2005 11 01 | 703 | 0.5− | 0.0 | 2009 09 16 | 703 | (2.5− | 0.7+) | |
| 2005 10 26 | 705 | 0.2+ | 0.0 | 2005 11 01 | 703 | 0.2+ | 0.1− | 2009 10 09 | 703 | (0.5+ | 2.0+) | |
| 2005 10 27 | 704 | 0.2+ | 0.3− | 2005 11 01 | 703 | 0.2− | 0.6+ | 2009 10 09 | 703 | 0.9+ | 0.7+ | |
| 2005 10 27 | 704 | 0.4+ | 0.4+ | 2005 11 01 | 703 | 0.5− | 0.8− | 2009 10 09 | 703 | 0.2− | 0.6− | |
| 2005 10 27 | 704 | (1.6+ | 0.1−) | 2005 11 30 | 703 | (0.2+ | 2.2+) | 2009 10 09 | 703 | 0.2− | 0.4+ | |
| 2005 10 27 | 704 | 0.3+ | 0.2− | 2005 11 30 | 703 | 0.4+ | 0.8+ | 2009 10 23 | 703 | (1.0+ | 1.7−) | |
| 2005 10 27 | 703 | 0.3+ | 0.1− | 2005 11 30 | 703 | 1.0− | 0.7+ | 2009 10 23 | 703 | 0.9− | 0.1+ | |
| 2005 10 27 | 703 | 1.0− | 0.6− | 2005 11 30 | 703 | (1.8− | 1.2+) | 2009 10 23 | 703 | 0.5+ | 0.3+ | |
| 2005 10 27 | 703 | 0.0 | 1.3− | 2005 12 25 | 703 | 0.1− | 1.0− | 2009 10 23 | 703 | 0.8− | 1.2− | |

**2005 UO$_{396}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 30.67557 | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.26864979 | $\omega$ | 333.22653 | | +0.45695807 | | −0.88110870 | |
| $a$ | 2.3787295 | $\Omega$ | 89.36620 | | +0.83636225 | | +0.37900086 | |
| $e$ | 0.2226721 | $i$ | 6.99679 | | +0.30279945 | | +0.28285296 | |
| $P$ | 3.67 | $H$ | 17.6 | $G$ | 0.15 | $U$ | 2 | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 26 | 705 | 0.3+ | 0.1+ | 2005 10 27 | 703 | 0.4− | 0.6+ | 2005 12 23 | 291 | 0.8− | 0.1+ | |
| 2005 09 26 | 705 | 0.3+ | 0.1+ | 2005 10 27 | 703 | 0.3− | 1.2− | 2005 12 23 | 291 | 0.3− | 0.2+ | |
| 2005 10 01 | 705 | 0.4+ | 0.1+ | 2005 10 27 | 703 | 0.4+ | 0.4− | 2009 11 10 | G96 | 0.0 | 0.2+ | |
| 2005 10 01 | 705 | 0.3+ | 0.1+ | 2005 11 01 | 703 | 0.8− | 0.1− | 2009 11 10 | G96 | 0.4+ | 0.3− | |
| 2005 10 05 | 703 | 1.1− | 0.5− | 2005 11 01 | 703 | 1.0− | 0.1− | 2009 11 10 | G96 | 0.3− | 0.2− | |
| 2005 10 05 | 703 | 0.1− | 0.0 | 2005 11 01 | 703 | 0.3− | 0.2− | 2009 11 10 | G96 | 0.2− | 0.2− | |
| 2005 10 05 | 703 | 0.0 | 0.9− | 2005 11 01 | 703 | 0.5− | 0.8+ | 2009 12 18 | 691 | 0.1− | 0.1− | |
| 2005 10 05 | 703 | 0.6+ | 1.1− | 2005 11 30 | 705 | 0.1+ | 0.4− | 2009 12 18 | G96 | 0.4+ | 0.0 | |
| 2005 10 22 | 644 | 0.0 | 0.1− | 2005 11 30 | 705 | 0.1+ | 0.2− | 2009 12 18 | G96 | 0.3+ | 0.1− | |
| 2005 10 22 | 644 | 0.1+ | 0.2+ | 2005 12 01 | 705 | 0.2+ | 0.4− | 2009 12 18 | G96 | 0.3+ | 0.2+ | |
| 2005 10 22 | 644 | 0.1− | 0.2− | 2005 12 01 | 705 | 0.2+ | 0.4− | 2009 12 18 | 691 | 0.1− | 0.1− | |
| 2005 10 27 | 644 | 0.3+ | 0.2+ | 2005 12 22 | 291 | 0.2+ | 0.2+ | 2009 12 18 | G96 | 0.4+ | 0.1+ | |
| 2005 10 27 | 644 | 0.1+ | 0.1+ | 2005 12 22 | 291 | 0.2+ | 0.0 | 2009 12 18 | 691 | 0.0 | 0.1− | |
| 2005 10 27 | 704 | 0.0 | 0.6+ | 2005 12 22 | 291 | 0.2+ | 0.0 | 2009 12 27 | 691 | 0.0 | 0.0 | |
| 2005 10 27 | 644 | 0.1+ | 0.4+ | 2005 12 22 | 291 | 0.3+ | 0.1+ | 2009 12 27 | 691 | 0.0 | 0.1+ | |
| 2005 10 27 | 704 | 0.2+ | 1.2+ | 2005 12 22 | 291 | 0.5+ | 0.0 | 2009 12 27 | 691 | 0.1− | 0.1+ | |
| 2005 10 27 | 704 | 0.2+ | 1.4+ | 2005 12 22 | 291 | 0.4+ | 0.2− | | | | | |
| 2005 10 27 | 703 | 0.9+ | 0.5− | 2005 12 23 | 291 | 0.8− | 0.0 | | | | | |

**2005 UR$_{399}$ = 2005 VV$_{37}$**

Id. Minor Planet Center (d, *MPO* 98190)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 316.21142 | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.23284813 | $\omega$ | 267.74064 | | −0.63279381 | | −0.70346716 | |
| $a$ | 2.6167017 | $\Omega$ | 227.31450 | | +0.75963833 | | −0.64498257 | |
| $e$ | 0.4108664 | $i$ | 26.11647 | | −0.15007199 | | −0.29854888 | |
| $P$ | 4.23 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 3 | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 25 | G96 | 0.1+ | 0.5+ | 2005 11 05 | G96 | 0.1+ | 0.1− | 2005 12 05 | 703 | 0.2+ | 0.9− | |
| 2005 10 25 | G96 | 0.1+ | 0.1+ | 2005 11 10 | 703 | 1.0− | 0.7− | 2005 12 05 | 703 | 0.1+ | 0.7− | |
| 2005 10 25 | G96 | 0.1+ | 0.1+ | 2005 11 10 | 703 | (2.4− | 0.6−) | 2005 12 05 | 703 | 0.1+ | 1.3− | |
| 2005 10 25 | G96 | 0.1+ | 0.2+ | 2005 11 10 | 703 | 0.0 | 0.6+ | 2005 12 25 | 703 | 1.1+ | 0.1− | |
| 2005 11 01 | G96 | 0.1+ | 0.0 | 2005 11 10 | 703 | 0.4− | 0.2+ | 2005 12 25 | 703 | 0.6+ | 0.9+ | |
| 2005 11 01 | G96 | 0.1+ | 0.1+ | 2005 11 21 | 699 | 0.1+ | 0.0 | 2005 12 25 | 703 | 0.4− | 1.2+ | |
| 2005 11 01 | G96 | 0.3+ | 0.2+ | 2005 11 21 | 699 | 1.2+ | 0.8+ | 2005 12 25 | 703 | 1.5− | 0.0 | |
| 2005 11 03 | G96 | 0.2− | 0.1+ | 2005 11 21 | 699 | 0.2− | 1.2+ | 2005 12 30 | 644 | 0.2+ | 0.5− | |
| 2005 11 03 | G96 | 0.2− | 0.0 | 2005 11 21 | 699 | 0.3+ | 0.3− | 2005 12 30 | 644 | 0.7+ | 0.1− | |
| 2005 11 03 | G96 | 0.2+ | 0.2+ | 2005 11 26 | 703 | 0.3+ | 0.3− | 2005 12 30 | 644 | 0.1+ | 0.1− | |
| 2005 11 03 | G96 | 0.2+ | 0.0 | 2005 11 26 | 703 | 0.4− | 0.6− | 2009 09 30 | G96 | 0.1+ | 0.2− | |
| 2005 11 03 | G96 | 0.3+ | 0.4− | 2005 11 26 | 703 | 0.4− | 0.2− | 2009 09 30 | G96 | 0.1− | 0.1+ | |
| 2005 11 03 | G96 | 0.1− | 0.0 | 2005 11 26 | 703 | 0.0 | 0.1+ | 2009 09 30 | G96 | 0.2+ | 0.3+ | |
| 2005 11 03 | G96 | 0.3+ | 0.2− | 2005 11 29 | 703 | 0.5+ | 0.3+ | 2009 09 30 | G96 | 0.1− | 0.2− | |
| 2005 11 03 | G96 | 0.4+ | 0.1− | 2005 11 29 | 703 | 2.0− | 0.6+ | 2009 12 17 | G96 | 0.3+ | 0.2− | |
| 2005 11 04 | 703 | 0.3+ | 0.3− | 2005 11 29 | 703 | 0.3+ | 0.4+ | 2009 12 17 | G96 | 0.2− | 0.1− | |
| 2005 11 04 | 703 | 0.8+ | 0.5+ | 2005 11 29 | 703 | 1.0− | 0.3+ | 2009 12 17 | G96 | 0.8− | 0.2+ | |
| 2005 11 04 | 703 | (2.2− | 0.3−) | 2005 11 30 | 699 | 1.1− | 0.6+ | 2009 12 17 | G96 | 0.2− | 0.3− | |
| 2005 11 04 | 703 | 1.1+ | 0.7− | 2005 11 30 | 699 | 0.4− | 0.9+ | 2009 12 17 | G96 | 1.5+ | 0.0 | |
| 2005 11 05 | G96 | 0.1− | 0.0 | 2005 11 30 | 699 | 0.1− | 0.3− | 2009 12 17 | G96 | 0.4− | 0.3− | |
| 2005 11 05 | G96 | 0.1+ | 0.1− | 2005 11 30 | 699 | 0.5+ | 1.5− | 2009 12 17 | G96 | 0.1+ | 0.1+ | |
| 2005 11 05 | G96 | 0.1+ | 0.0 | 2005 12 05 | 703 | 0.9− | 0.0 | 2009 12 17 | G96 | 0.4− | 0.0 | |

**2005 UH$_{431}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 31.38705 | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.26804601 | $\omega$ | 334.26100 | | +0.27619703 | | −0.96042401 | |
| $a$ | 2.3823002 | $\Omega$ | 99.68855 | | +0.88799315 | | +0.24065133 | |
| $e$ | 0.1536576 | $i$ | 2.09693 | | +0.36767291 | | +0.14025924 | |
| $P$ | 3.68 | $H$ | 17.7 | $G$ | 0.15 | $U$ | 2 | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 03 23 | 691 | 0.2+ | 0.3+ | 2005 11 01 | 691 | 0.0 | 0.3+ | 2005 12 04 | G96 | 0.5+ | 0.0 | |
| 2003 03 23 | 691 | 0.3+ | 0.1+ | 2005 11 22 | 691 | 0.2− | 0.1+ | 2005 12 04 | G96 | 0.4+ | 0.0 | |
| 2003 03 23 | 691 | 0.1− | 0.4+ | 2005 11 22 | 691 | 0.0 | 0.1+ | 2005 12 04 | G96 | 0.0 | 0.1+ | |
| 2005 10 28 | 691 | 0.1− | 0.1+ | 2005 11 22 | 691 | 0.0 | 0.1+ | 2005 12 04 | G96 | 0.5− | 0.3− | |
| 2005 10 28 | G96 | 0.1− | 0.2− | 2005 11 26 | 703 | 0.7+ | 1.0− | 2006 01 21 | G96 | 0.3+ | 0.0 | |
| 2005 10 28 | G96 | 0.4− | 0.2− | 2005 11 26 | 703 | 1.8− | 1.6+ | 2006 01 21 | G96 | 0.3+ | 0.3− | |
| 2005 10 28 | 691 | 0.2+ | 0.1− | 2005 11 26 | 703 | 1.2− | 0.1+ | 2006 01 21 | G96 | 0.1+ | 0.2− | |
| 2005 10 28 | G96 | 0.1− | 0.0 | 2005 11 26 | 703 | 0.5+ | 1.0+ | 2006 01 21 | G96 | 0.5+ | 0.0 | |
| 2005 10 28 | G96 | 0.0 | 0.3− | 2005 12 01 | G96 | 0.2+ | 0.2− | 2009 12 17 | 691 | 0.1+ | 0.1− | |
| 2005 10 28 | 691 | 0.1+ | 0.0 | 2005 12 01 | G96 | 0.1+ | 0.2− | 2009 12 17 | 691 | 0.3− | 0.2− | |
| 2005 11 01 | 691 | 0.1+ | 0.1− | 2005 12 01 | G96 | 0.2+ | 0.4− | 2009 12 17 | 691 | 0.1− | 0.6− | |
| 2005 11 01 | 691 | 0.2− | 0.3+ | 2005 12 01 | G96 | 0.1+ | 0.3− | | | | | |

**2005 UP$_{432}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 96.82112 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17349656 | $\omega$ | 8.94547 | | −0.66242336 | +0.74692181 | |
| $a$ | 3.1837733 | $\Omega$ | 219.60044 | | −0.69276945 | −0.63997544 | |
| $e$ | 0.1296267 | $i$ | 5.17299 | | −0.28507153 | −0.18038637 | |
| $P$ | 5.68 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 25 | G96 | 1.3+ | 0.4− | 2005 11 01 | 691 | 0.2+ | 0.4− | 2005 12 29 | G96 | 0.0 | 0.4− |
| 2005 10 25 | G96 | 0.4− | 0.0 | 2005 11 01 | 691 | 0.2− | 0.6+ | 2005 12 29 | G96 | 0.4+ | 0.0 |
| 2005 10 25 | G96 | 0.5+ | 0.4− | 2005 11 12 | 691 | 0.1− | 0.2+ | 2005 12 29 | G96 | 0.3+ | 0.2− |
| 2005 10 25 | G96 | 0.1− | 0.1− | 2005 11 12 | 691 | 0.2− | 0.6− | 2005 12 29 | G96 | 0.3+ | 0.0 |
| 2005 10 28 | 691 | 0.2+ | 0.1− | 2005 11 12 | 691 | 0.1− | 0.7+ | 2008 03 27 | 691 | 0.0 | 0.1+ |
| 2005 10 28 | G96 | 0.8− | 0.8− | 2005 11 22 | 691 | 0.5+ | 0.1− | 2008 03 27 | 691 | 0.0 | 0.1− |
| 2005 10 28 | G96 | 0.2+ | 0.4− | 2005 11 22 | 691 | 0.2− | 0.2− | 2008 03 27 | 691 | 0.1− | 0.1+ |
| 2005 10 28 | G96 | 0.1+ | 0.0 | 2005 11 22 | 691 | 0.3− | 0.7+ | 2008 04 25 | G96 | 0.1+ | 0.2− |
| 2005 10 28 | 691 | 0.3+ | 0.2+ | 2005 11 30 | G96 | 0.3− | 0.1− | 2008 04 25 | G96 | 0.1− | 0.1− |
| 2005 10 28 | G96 | 0.6+ | 0.2− | 2005 11 30 | G96 | 0.2− | 0.0 | 2008 04 25 | G96 | 0.2+ | 0.1− |
| 2005 10 28 | 691 | 0.1− | 0.1+ | 2005 11 30 | G96 | 0.3− | 0.3− | 2008 04 25 | G96 | 0.0 | 0.1− |
| 2005 11 01 | 691 | 0.3− | 0.3− | 2005 11 30 | G96 | 0.1+ | 0.4− | | | | |

**2005 UB$_{436}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 27.63214 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26171921 | $\omega$ | 10.70170 | | +0.71093619 | −0.70062869 | |
| $a$ | 2.4205403 | $\Omega$ | 34.03714 | | +0.63694487 | +0.60488287 | |
| $e$ | 0.0886794 | $i$ | 6.22967 | | +0.29811235 | +0.37846553 | |
| $P$ | 3.77 | $H$ | 17.8 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 04 13 | 691 | 0.3+ | 0.7+ | 2005 10 22 | 691 | 0.1+ | 0.4+ | 2007 03 14 | G96 | 0.2− | 0.3− |
| 1996 04 13 | 691 | 0.7+ | 1.5+ | 2005 10 22 | 691 | 0.1− | 0.6+ | 2007 03 14 | G96 | 0.2+ | 0.1− |
| 1996 04 13 | 691 | 0.6+ | 0.7+ | 2005 10 30 | 691 | 0.0 | 0.3+ | 2009 10 17 | G96 | 0.3− | 0.1− |
| 2005 10 01 | G96 | 0.0 | 0.1− | 2005 10 30 | 691 | 0.1− | 0.2+ | 2009 10 17 | G96 | 0.6+ | 0.1− |
| 2005 10 01 | G96 | 0.1+ | 0.2− | 2005 10 30 | 691 | 0.1− | 0.3+ | 2009 10 17 | G96 | 0.7+ | 0.3− |
| 2005 10 01 | 691 | 0.1− | 0.2+ | 2005 11 01 | 691 | 0.1− | 0.2− | 2009 11 19 | 691 | 0.0 | 0.1− |
| 2005 10 01 | G96 | 0.1+ | 0.1− | 2005 11 01 | 691 | 0.0 | 0.2+ | 2009 11 19 | 691 | 0.2+ | 0.8+ |
| 2005 10 01 | G96 | 0.2+ | 0.0 | 2005 11 01 | 691 | 0.1− | 0.2− | 2009 11 19 | 691 | 0.3− | 0.0 |
| 2005 10 01 | 691 | 0.4− | 0.0 | 2005 11 26 | G96 | 0.2− | 0.2+ | 2009 11 25 | 703 | 0.3+ | 0.9− |
| 2005 10 01 | 691 | 0.0 | 0.1− | 2005 11 26 | G96 | 0.0 | 0.1− | 2009 11 25 | 703 | 0.2+ | 0.8− |
| 2005 10 10 | 691 | 0.3− | 0.2+ | 2005 11 26 | G96 | 0.2+ | 0.6− | 2009 11 25 | 703 | 1.2+ | 0.5− |
| 2005 10 10 | 691 | 0.3− | 0.3+ | 2005 11 26 | G96 | 0.1− | 0.1− | 2009 11 25 | 703 | 1.3− | 0.1− |
| 2005 10 10 | 691 | 0.1+ | 0.0 | 2007 03 14 | G96 | 0.1− | 0.0 | | | | |
| 2005 10 22 | 691 | 0.2− | 0.6+ | 2007 03 14 | G96 | 0.5− | 0.1− | | | | |

**2005 UG$_{439}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 22.58455 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26835591 | $\omega$ | 139.67374 | | +0.51208201 | −0.84277116 | |
| $a$ | 2.3804658 | $\Omega$ | 278.91641 | | +0.73851231 | +0.53060262 | |
| $e$ | 0.1551356 | $i$ | 9.66496 | | +0.43860184 | +0.09054085 | |
| $P$ | 3.67 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 01 | 644 | 0.2+ | 0.2+ | 2005 10 13 | 704 | 0.5− | 0.6− | 2005 11 01 | 699 | 0.2− | 1.4− |
| 2005 09 01 | 644 | 0.1− | 0.1+ | 2005 10 13 | 704 | 0.8+ | 0.5− | 2005 11 06 | 704 | 0.3− | 0.2− |
| 2005 09 01 | 644 | 0.0 | 0.0 | 2005 10 13 | 704 | 0.4+ | 0.4− | 2005 11 06 | 704 | 0.3+ | 0.7− |
| 2005 09 25 | 644 | 0.0 | 0.1+ | 2005 10 13 | 704 | 0.8+ | 1.2− | 2005 11 06 | 704 | 1.6+ | 1.1+ |
| 2005 09 25 | 644 | 0.1− | 0.1− | 2005 10 23 | 644 | 0.2− | 0.3− | 2005 11 06 | 704 | 0.1− | 0.4− |
| 2005 09 25 | 644 | 0.2− | 0.0 | 2005 10 23 | 644 | 0.4− | 0.3− | 2005 11 06 | 704 | 0.5+ | 0.5+ |
| 2005 09 30 | 699 | 0.2− | 0.8+ | 2005 10 23 | 644 | 0.0 | 0.3− | 2009 12 10 | 704 | 1.1+ | 0.2+ |
| 2005 09 30 | 699 | 0.4+ | 0.6+ | 2005 10 29 | 703 | 0.8− | 0.3+ | 2009 12 10 | 704 | 0.5− | 0.2+ |
| 2005 09 30 | 699 | 0.2+ | 0.9+ | 2005 10 29 | 703 | 1.0+ | 0.0 | 2009 12 10 | 704 | 0.4+ | 1.5+ |
| 2005 09 30 | 699 | 0.7− | 0.2− | 2005 10 29 | 703 | 1.4− | 0.5+ | 2009 12 10 | 704 | 0.1+ | 0.7+ |
| 2005 10 05 | 703 | 0.0 | 0.6− | 2005 10 29 | 703 | 0.2− | 0.7+ | 2009 12 16 | 704 | 1.4− | 1.9− |
| 2005 10 05 | 703 | 0.1− | 1.0+ | 2005 11 01 | 699 | 0.4− | 0.7+ | 2009 12 16 | 704 | 0.2+ | 0.5− |
| 2005 10 05 | 703 | 0.6+ | 0.2− | 2005 11 01 | 699 | (2.1− | 0.2+) | 2009 12 16 | 704 | 0.1+ | 0.0 |
| 2005 10 05 | 703 | 0.5− | 0.3− | 2005 11 01 | 699 | (1.3− | 2.8−) | | | | |

**2005 UH$_{439}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 329.71432 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22932575 | $\omega$ | 83.15606 | | +0.51897319 | −0.85045819 | |
| $a$ | 2.6434281 | $\Omega$ | 334.99106 | | +0.68177663 | +0.47248534 | |
| $e$ | 0.2584506 | $i$ | 11.73064 | | +0.51560397 | +0.23125411 | |
| $P$ | 4.30 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 08 30 | 644 | 0.3+ | 0.2+ | 2005 10 05 | 703 | 0.3− | 0.5− | 2005 10 29 | 703 | 0.1− | 0.2+ |
| 2005 08 30 | 644 | 0.0 | 0.0 | 2005 10 05 | 703 | 1.3+ | 0.4− | 2005 10 29 | 703 | 0.6− | 0.2− |
| 2005 08 30 | 644 | 0.2+ | 0.3+ | 2005 10 23 | 644 | 0.2+ | 0.2+ | 2005 10 29 | 703 | 0.3+ | 0.5− |
| 2005 09 10 | 699 | 0.3− | 1.1+ | 2005 10 23 | 644 | 0.0 | 0.1+ | 2005 10 29 | 703 | 0.7− | 0.1− |
| 2005 09 10 | 699 | 0.3+ | 1.3+ | 2005 10 23 | 644 | 0.2− | 0.4+ | 2005 11 01 | 699 | 0.5+ | 0.2+ |
| 2005 09 10 | 699 | 1.3− | 0.7+ | 2005 10 23 | 703 | 0.1+ | 0.6− | 2005 11 01 | 699 | 0.4+ | 0.1+ |
| 2005 09 10 | 699 | 1.4− | 1.2− | 2005 10 23 | 703 | 0.9+ | 0.1− | 2005 11 01 | 699 | 0.4+ | 0.5− |
| 2005 09 23 | 703 | 1.0− | 1.4− | 2005 10 23 | 703 | (2.9− | 0.3+) | 2005 11 01 | 699 | 0.4− | 0.3− |
| 2005 09 23 | 703 | 0.5− | 1.2− | 2005 10 23 | 703 | 0.6− | 0.3− | 2009 09 21 | G96 | 0.2+ | 0.0 |
| 2005 09 23 | 703 | 0.1− | 1.1− | 2005 10 28 | 703 | 0.2+ | 0.6+ | 2009 09 21 | G96 | 0.0 | 0.1+ |
| 2005 09 23 | 703 | 0.3+ | 0.1+ | 2005 10 28 | 703 | 0.1+ | 0.8+ | 2009 09 21 | G96 | 0.3− | 0.0 |
| 2005 09 30 | 699 | 1.6+ | 0.8+ | 2005 10 28 | 703 | 0.1− | 0.3+ | 2009 09 21 | G96 | 0.2− | 0.1− |
| 2005 09 30 | 699 | 0.1+ | 0.5+ | 2005 10 28 | 703 | 0.7− | 0.2+ | 2009 10 18 | G96 | 0.7− | 0.1+ |
| 2005 09 30 | 699 | 0.8+ | 0.2− | 2005 10 28 | 703 | 0.4− | 0.7+ | 2009 10 18 | G96 | 0.9+ | 0.2+ |
| 2005 09 30 | 699 | 0.0 | 0.2+ | 2005 10 28 | 703 | 0.3− | 0.1+ | 2009 10 18 | G96 | 0.4+ | 0.3− |
| 2005 10 05 | 703 | 0.1+ | 0.1+ | 2005 10 28 | 703 | 0.4+ | 0.3− | 2009 10 18 | G96 | 0.2− | 0.1− |
| 2005 10 05 | 703 | 0.1+ | 0.1− | 2005 10 28 | 703 | 0.1− | 0.3+ | | | | |

**2005 UG$_{443}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 249.10366 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17126823 | $\omega$ | 32.97232 | | +0.51332459 | −0.83979573 | |
| $a$ | 3.2113294 | $\Omega$ | 27.41555 | | +0.68058845 | +0.27290189 | |
| $e$ | 0.1177197 | $i$ | 22.57386 | | +0.52277837 | +0.46932685 | |
| $P$ | 5.75 | $H$ | 15.3 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 03 | 644 | 0.2+ | 0.1− | 2005 11 01 | 699 | 0.0 | 0.4− | 2005 11 21 | 703 | 0.4− | 0.8− |
| 2005 10 03 | 644 | 0.1− | 0.2− | 2005 11 02 | 704 | 0.6− | 0.1+ | 2005 11 21 | 703 | 1.1+ | 0.3− |
| 2005 10 03 | 644 | 0.2− | 0.6− | 2005 11 02 | 704 | 0.1+ | 0.1− | 2008 03 29 | 691 | 0.2− | 0.5+ |
| 2005 10 30 | 704 | 0.9+ | 0.3+ | 2005 11 02 | 704 | (2.1+ | 0.4−) | 2008 03 29 | 691 | 0.3+ | 0.2+ |
| 2005 10 30 | 704 | 0.3+ | 1.2+ | 2005 11 02 | 704 | 0.6− | 0.1− | 2008 03 29 | 691 | 0.2− | 0.4− |
| 2005 10 30 | 704 | 0.8+ | 0.2+ | 2005 11 08 | 704 | 0.2− | 0.2− | 2008 04 14 | G96 | 0.2+ | 0.0 |
| 2005 10 30 | 704 | 0.2+ | 0.1− | 2005 11 08 | 704 | 0.7− | 0.8− | 2008 04 14 | G96 | 0.2+ | 0.4− |
| 2005 11 01 | 699 | 0.1− | 0.9+ | 2005 11 08 | 704 | 0.3− | 1.0− | 2008 04 14 | G96 | 0.2+ | 0.2− |
| 2005 11 01 | 699 | 0.7− | 0.3− | 2005 11 21 | 703 | 0.1+ | 0.8+ | 2008 04 14 | G96 | 0.3− | 0.1− |
| 2005 11 01 | 699 | 0.2− | 1.2+ | 2005 11 21 | 703 | 0.3+ | 0.3+ | | | | |

**2005 UK$_{461}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 343.66495 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26382940 | $\omega$ | 94.47052 | | −0.67294659 | −0.73882280 | |
| $a$ | 2.4076162 | $\Omega$ | 37.90518 | | +0.65342542 | −0.61646862 | |
| $e$ | 0.1338650 | $i$ | 3.34342 | | +0.34666715 | −0.27222658 | |
| $P$ | 3.74 | $H$ | 17.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 28 | G96 | 0.2+ | 0.5− | 2005 12 10 | 691 | 0.7− | 0.3+ | 2009 11 21 | G96 | 0.3+ | 0.2− |
| 2005 10 28 | G96 | 0.1− | 0.6− | 2005 12 10 | 691 | 0.4− | 0.1+ | 2009 11 21 | G96 | 0.2+ | 0.3− |
| 2005 10 28 | G96 | 0.6+ | 0.1− | 2005 12 23 | 691 | 0.1+ | 0.0 | 2009 11 21 | G96 | 0.1+ | 0.3− |
| 2005 10 28 | G96 | 0.1− | 0.2− | 2005 12 23 | 691 | 0.3+ | 0.2− | 2009 12 19 | G96 | 0.3+ | 0.4− |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 11 03 | 691 | 0.0 | 0.2− | 2005 12 23 | 691 | 0.3− | 0.1+ | 2009 12 19 | G96 | 0.4+ | 0.3− |
| 2005 11 03 | 691 | 0.3+ | 0.2− | 2006 01 02 | G96 | 0.6− | 0.7− | 2009 12 19 | G96 | 0.7+ | 0.2+ |
| 2005 11 03 | 691 | 0.2− | 0.0 | 2006 01 02 | G96 | 0.8+ | 0.3− | 2009 12 19 | G96 | 0.3+ | 0.1− |
| 2005 11 21 | 691 | 0.0 | 0.3+ | 2006 01 02 | G96 | 0.4+ | 0.3− | 2009 12 19 | 691 | 0.1− | 0.2+ |
| 2005 11 21 | 691 | 0.2+ | 0.1+ | 2006 01 02 | G96 | 0.2− | 0.3− | 2009 12 19 | 691 | 0.3+ | 0.3− |
| 2005 11 21 | 691 | 0.2+ | 0.0 | 2009 11 11 | G96 | 0.4− | 0.6− | 2009 12 19 | 691 | 0.5+ | 0.0 |
| 2005 11 25 | 691 | 0.0 | 0.1+ | 2009 11 11 | G96 | 0.1− | 0.1− | 2009 12 27 | 691 | 0.3− | 0.5+ |
| 2005 11 25 | 691 | 0.2+ | 0.1+ | 2009 11 11 | G96 | 0.7− | 0.3+ | 2009 12 27 | 691 | 0.5− | 0.2− |
| 2005 11 25 | 691 | 0.1+ | 0.1+ | 2009 11 11 | G96 | 0.2+ | 0.0 | 2009 12 27 | 691 | 0.2− | 0.0 |
| 2005 12 10 | 691 | 0.1+ | 0.3+ | 2009 11 21 | G96 | 0.2− | 0.5− | | | | |

**2005 UJ$_{476}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 37.30620 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27057896 | $\omega$ | 83.93902 | | +0.53554360 | −0.84443043 | |
| $a$ | 2.3674094 | $\Omega$ | 333.67028 | | +0.76428410 | +0.49037596 | |
| $e$ | 0.2115040 | $i$ | 1.47481 | | +0.35925321 | +0.21556595 | |
| $P$ | 3.64 | $H$ | 18.1 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 26 | 691 | 0.2− | 0.1+ | 2005 10 27 | G96 | 0.2+ | 0.4− | 2009 11 11 | G96 | 0.2− | 0.1− |
| 2005 09 26 | 691 | 0.1− | 0.2+ | 2005 10 27 | G96 | 0.5+ | 0.5− | 2009 11 11 | G96 | 0.0 | 0.2− |
| 2005 09 26 | 691 | 0.1− | 0.1− | 2005 10 27 | G96 | 0.1+ | 0.4− | 2009 12 17 | G96 | 0.1+ | 0.3− |
| 2005 10 02 | G96 | 0.7+ | 0.0 | 2005 10 30 | 703 | 0.7− | 0.9+ | 2009 12 17 | G96 | 0.0 | 0.3− |
| 2005 10 02 | G96 | 0.2+ | 0.2− | 2005 10 30 | 703 | 0.0 | 0.2+ | 2009 12 17 | G96 | 0.4+ | 0.0 |
| 2005 10 02 | G96 | 0.1+ | 0.6− | 2005 10 30 | 703 | 1.0− | 0.3+ | 2009 12 17 | G96 | 0.2− | 0.7− |
| 2005 10 02 | G96 | 0.6+ | 0.1− | 2005 10 30 | 703 | 0.9− | 0.9+ | 2009 12 18 | 691 | 0.0 | 0.1+ |
| 2005 10 24 | 699 | 0.0 | 1.1− | 2005 12 22 | 291 | 0.1+ | 0.1+ | 2009 12 18 | 691 | 0.3+ | 0.1+ |
| 2005 10 24 | 699 | 0.5+ | 0.2− | 2005 12 22 | 291 | 0.1− | 0.0 | 2009 12 18 | 691 | 0.2+ | 0.0 |
| 2005 10 24 | 699 | 0.1− | 1.0+ | 2005 12 22 | 291 | 0.1− | 0.1+ | 2009 12 26 | 691 | 0.2− | 0.1− |
| 2005 10 24 | 699 | 0.8+ | 0.3− | 2009 11 11 | G96 | 0.3− | 0.4− | 2009 12 26 | 691 | 0.1+ | 0.0 |
| 2005 10 27 | G96 | 0.5+ | 0.4− | 2009 11 11 | G96 | 0.0 | 0.0 | 2009 12 26 | 691 | 0.4− | 0.3+ |

**2005 UP$_{482}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 55.46777 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27472013 | $\omega$ | 75.29405 | | +0.77847333 | −0.62735888 | |
| $a$ | 2.3435581 | $\Omega$ | 323.55519 | | +0.56215201 | +0.71102783 | |
| $e$ | 0.1714261 | $i$ | 1.92964 | | +0.27922105 | +0.31758504 | |
| $P$ | 3.59 | $H$ | 18.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 26 | 691 | 0.2+ | 0.0 | 2005 10 28 | 703 | 1.2− | 0.8− | 2005 11 12 | 691 | 0.4− | 0.2+ |
| 2005 09 26 | 691 | 0.1− | 0.3+ | 2005 10 28 | 703 | 0.9− | 1.1+ | 2009 12 17 | G96 | 0.3+ | 0.3− |
| 2005 09 26 | 691 | 0.3− | 0.1+ | 2005 10 29 | 703 | 1.2− | 0.6+ | 2009 12 17 | G96 | 0.0 | 0.2+ |
| 2005 10 22 | 644 | 0.1+ | 0.5+ | 2005 10 29 | 703 | 0.7+ | 0.4− | 2009 12 17 | G96 | 0.3+ | 0.3+ |
| 2005 10 22 | 644 | 0.1+ | 0.3+ | 2005 10 29 | 703 | 1.9+ | 0.7− | 2009 12 17 | G96 | 0.2+ | 0.0 |
| 2005 10 22 | 644 | 0.3+ | 0.1+ | 2005 10 29 | 703 | 1.9+ | 0.3− | 2009 12 18 | 691 | 0.1− | 0.1− |
| 2005 10 28 | 703 | 1.4− | 0.8− | 2005 11 12 | 691 | 0.7+ | 0.5− | 2009 12 18 | 691 | 0.1+ | 0.0 |
| 2005 10 28 | 703 | 0.5− | 1.0+ | 2005 11 12 | 691 | 0.0 | 0.4− | 2009 12 18 | 691 | 0.2− | 0.2+ |

**2005 UP$_{483}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 346.25759 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22159001 | $\omega$ | 334.93855 | | +0.95468600 | −0.25406801 | |
| $a$ | 2.7045973 | $\Omega$ | 40.78330 | | +0.29699433 | +0.77968250 | |
| $e$ | 0.1418044 | $i$ | 13.72658 | | +0.01920951 | +0.57231517 | |
| $P$ | 4.45 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 14 | 705 | 0.4− | 0.1+ | 2005 10 01 | 699 | 0.7− | 0.5+ | 2005 10 22 | 703 | 1.9+ | 0.4+ |
| 2005 09 14 | 705 | 0.4− | 0.1+ | 2005 10 01 | 699 | 0.5+ | 0.5− | 2005 10 22 | 703 | 0.6− | 0.2+ |
| 2005 09 21 | 705 | 0.3− | 0.1+ | 2005 10 01 | 699 | 0.3+ | 0.6+ | 2005 10 28 | 704 | 0.9− | 0.5− |
| 2005 09 21 | 705 | 0.4− | 0.1+ | 2005 10 01 | 699 | 0.6− | 0.2− | 2005 10 28 | 704 | 0.7+ | 0.3+ |
| 2005 09 25 | 703 | (2.5+ | 1.0+) | 2005 10 05 | 703 | 0.4− | 0.4− | 2005 10 28 | 704 | 0.3− | 0.4+ |
| 2005 09 25 | 703 | 1.3+ | 1.1+ | 2005 10 05 | 703 | 0.7− | 0.2− | 2005 11 29 | 703 | 1.4+ | 0.5− |
| 2005 09 25 | 703 | 1.8+ | 0.3+ | 2005 10 05 | 703 | 1.0− | 1.4− | 2005 11 29 | 703 | 0.4− | 0.9− |
| 2005 09 25 | 703 | 0.6+ | 0.7− | 2005 10 05 | 703 | 0.1− | 0.5− | 2005 11 29 | 703 | 0.5− | 0.8+ |
| 2005 09 25 | 705 | 0.1− | 0.0 | 2005 10 08 | 703 | 0.5+ | 1.9− | 2005 11 29 | 703 | 1.2− | 0.8+ |
| 2005 09 25 | 705 | 0.1− | 0.0 | 2005 10 08 | 703 | 0.2+ | 0.3− | 2008 04 05 | 691 | 0.1− | 0.1− |
| 2005 09 26 | 703 | 1.2+ | 0.2− | 2005 10 08 | 703 | 0.3+ | 0.4− | 2008 04 05 | 691 | 0.0 | 0.0 |
| 2005 09 26 | 703 | 0.1− | 0.4+ | 2005 10 08 | 703 | 0.1+ | 1.1+ | 2008 04 05 | 691 | 0.2− | 0.0 |
| 2005 09 26 | 703 | 0.3− | 0.8+ | 2005 10 14 | 705 | 0.4+ | 0.2− | 2008 04 25 | G96 | 0.4+ | 0.5+ |
| 2005 09 26 | 703 | 0.4− | 0.7+ | 2005 10 14 | 705 | 0.6+ | 0.1− | 2008 04 25 | G96 | 0.2− | 0.2− |
| 2005 09 27 | 705 | 0.1− | 0.1+ | 2005 10 22 | 703 | 1.2− | 0.1− | 2008 04 25 | G96 | 0.7+ | 0.3+ |
| 2005 09 27 | 705 | 0.1− | 0.1+ | 2005 10 22 | 703 | 0.5− | 0.2+ | | | | |

**2005 UN$_{485}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 110.18543 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28437784 | $\omega$ | 270.42177 | | +0.99317200 | +0.05404874 | |
| $a$ | 2.2901937 | $\Omega$ | 86.48223 | | −0.00804968 | +0.91583742 | |
| $e$ | 0.0828924 | $i$ | 5.94527 | | −0.11638115 | +0.39789515 | |
| $P$ | 3.47 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 10 | 703 | 0.0 | 0.4+ | 2005 11 05 | 699 | 0.6+ | 0.3+ | 2006 02 25 | G96 | 0.3+ | 0.3+ |
| 2005 10 10 | 703 | 0.5+ | 0.4+ | 2005 11 05 | 699 | 1.0+ | 0.5− | 2006 02 25 | G96 | 0.2− | 0.1− |
| 2005 10 10 | 703 | 0.5+ | 1.4+ | 2005 11 05 | 703 | 1.1+ | 0.7− | 2006 02 25 | G96 | 0.9+ | 0.2− |
| 2005 10 10 | 703 | 1.2− | 0.9+ | 2005 11 05 | 703 | 0.6+ | 1.2− | 2008 08 04 | E12 | 0.0 | 0.2+ |
| 2005 10 22 | 703 | 1.3− | 0.4− | 2005 11 05 | 703 | (0.1− | 2.2−) | 2008 08 04 | E12 | 0.5− | 0.7− |
| 2005 10 22 | 703 | 0.8+ | 0.4− | 2005 11 05 | 703 | 1.2− | 0.7+ | 2008 08 04 | E12 | 0.4− | 0.0 |
| 2005 10 22 | 703 | 0.2+ | 0.6− | 2005 11 05 | 703 | 1.0+ | 1.4− | 2008 08 23 | E12 | 0.6+ | 0.2− |
| 2005 10 22 | 703 | 0.8− | 0.2+ | 2005 11 05 | 703 | 0.1− | 0.5− | 2008 08 23 | E12 | 0.7+ | 0.4+ |
| 2005 10 29 | 703 | 0.3− | 0.9+ | 2005 11 05 | 703 | 0.6− | 0.2− | 2008 08 23 | E12 | 0.2− | 0.3− |
| 2005 10 29 | 703 | 0.3− | 0.2+ | 2005 11 05 | 703 | 0.3+ | 0.5+ | 2008 08 23 | E12 | 0.1− | 0.3+ |
| 2005 10 29 | 703 | 0.2− | 0.1− | 2005 11 05 | 699 | 0.5− | 0.1+ | | | | |
| 2005 10 29 | 703 | 0.1− | 0.1+ | 2006 02 25 | G96 | 1.1− | 0.4+ | | | | |

**2005 UE$_{507}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 46.95837 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26082169 | $\omega$ | 278.89633 | | +0.97210023 | −0.23025699 | |
| $a$ | 2.4260900 | $\Omega$ | 94.42502 | | +0.22896904 | +0.89004523 | |
| $e$ | 0.1920151 | $i$ | 2.57271 | | +0.05093452 | +0.39344784 | |
| $P$ | 3.78 | $H$ | 17.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 01 | 691 | 0.0 | 0.2+ | 2005 11 01 | G96 | 0.4+ | 0.5− | 2009 11 10 | 691 | 0.2− | 0.2+ |
| 2005 10 01 | 691 | 0.0 | 0.2+ | 2005 11 01 | G96 | 0.1+ | 0.3− | 2009 12 11 | 703 | (1.8+ | 2.0−) |
| 2005 10 01 | 691 | 0.1− | 0.2+ | 2005 11 01 | G96 | 0.0 | 0.4− | 2009 12 11 | 703 | 0.1+ | 0.7+ |
| 2005 10 20 | 644 | 0.2+ | 0.2+ | 2005 11 01 | G96 | 0.2+ | 0.5− | 2009 12 11 | 703 | 0.1+ | 0.3+ |
| 2005 10 20 | 644 | 0.1+ | 0.2− | 2005 11 30 | G96 | 0.2+ | 0.4− | 2009 12 11 | 703 | 0.1− | 0.8+ |
| 2005 10 20 | 644 | 0.2+ | 0.1+ | 2005 11 30 | G96 | 0.3+ | 0.3− | 2009 12 17 | G96 | 0.3− | 0.2− |
| 2005 10 22 | 703 | 0.7− | 0.3+ | 2005 11 30 | G96 | 0.3+ | 0.3− | 2009 12 17 | G96 | 0.6+ | 0.7− |
| 2005 10 22 | 703 | (0.8+ | 1.9+) | 2005 11 30 | G96 | 0.4+ | 0.4− | 2009 12 17 | G96 | 0.0 | 0.1− |
| 2005 10 22 | 703 | 0.3− | 0.3+ | 2009 11 10 | 691 | 0.1− | 0.1+ | 2009 12 17 | G96 | 0.1− | 0.5− |
| 2005 10 22 | 703 | 0.4− | 1.3− | 2009 11 10 | 691 | 0.1+ | 0.0 | | | | |

**2005 UQ$_{516}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 13.05696 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18481115 | $\omega$ | 110.60923 | | +0.20025164 | +0.97957479 | |
| $a$ | 3.0524644 | $\Omega$ | 170.88481 | | −0.93630292 | +0.19682014 | |
| $e$ | 0.0530492 | $i$ | 6.60978 | | −0.28850672 | +0.04117125 | |
| $P$ | 5.33 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 04 04 | 691 | 0.0 | 0.2+ | 2005 10 26 | 705 | 0.2+ | 0.2+ | 2005 11 07 | 705 | 0.2+ | 0.2+ |
| 2003 04 04 | 691 | 0.0 | 0.2− | 2005 10 26 | 705 | 0.2+ | 0.2+ | 2005 11 07 | 705 | 0.2+ | 0.2+ |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 04 04 | 691 | 0.0 | 0.1− | 2005 10 30 | 705 | 0.1+ | 0.4+ | 2005 11 23 | 705 | 0.3+ | 0.2+ | 2005 11 05 | 691 | 0.1− | 0.0 | 2005 12 06 | G96 | 0.3− | 0.5− | 2009 11 17 | G96 | 0.1− | 0.0 |
| 2005 09 25 | 691 | 0.4− | 0.0 | 2005 10 30 | 705 | 0.2+ | 0.4+ | 2005 11 23 | 705 | 0.1+ | 0.1+ | 2005 11 05 | 691 | 0.5+ | 0.0 | 2005 12 06 | G96 | 0.3− | 0.3− | 2009 11 17 | G96 | 0.4+ | 0.1− |
| 2005 09 25 | 691 | 0.6− | 1.5− | 2005 10 31 | 705 | 0.1+ | 0.2+ | 2005 11 26 | 705 | 0.6+ | 0.0 | 2005 12 01 | G96 | 0.2− | 0.4− | 2007 03 12 | G96 | 0.2− | 0.2− | 2009 11 17 | G96 | 0.2− | 0.0 |
| 2005 09 25 | 691 | 0.1− | 0.2+ | 2005 10 31 | 705 | 0.2+ | 0.3+ | 2005 11 26 | 705 | 0.3+ | 0.3− | 2005 12 01 | G96 | 0.1− | 0.4− | 2007 03 12 | G96 | 0.5− | 0.1− | 2009 11 24 | G96 | 0.3− | 0.0 |
| 2005 10 20 | 705 | 0.1+ | 0.2+ | 2005 11 02 | 705 | 0.1+ | 0.4+ | 2005 12 01 | 705 | 0.2+ | 0.3+ | 2005 12 01 | G96 | 0.4+ | 0.3− | 2007 03 12 | G96 | 0.4+ | 0.2− | 2009 11 24 | G96 | 0.2+ | 0.0 |
| 2005 10 20 | 705 | 0.2+ | 0.2+ | 2005 11 02 | 705 | 0.1+ | 0.2+ | 2005 12 01 | 705 | 0.0 | 0.0 | 2005 12 01 | G96 | 0.1− | 0.3− | 2007 03 12 | G96 | 0.1+ | 0.1− | 2009 11 24 | G96 | 0.2− | 0.0 |
| 2005 10 23 | 705 | 0.1+ | 0.1+ | 2005 11 03 | 705 | 0.2+ | 0.3+ | 2008 03 05 | G96 | 0.2+ | 0.2− | 2005 12 06 | 291 | 0.0 | 0.3+ | 2009 10 23 | G96 | 0.4+ | 0.3− | 2009 11 24 | G96 | 0.0 | 0.4+ |
| 2005 10 23 | 705 | 0.1+ | 0.2+ | 2005 11 03 | 705 | 0.2+ | 0.3+ | 2008 03 05 | G96 | 0.2+ | 0.2− | 2005 12 06 | 291 | 0.1− | 0.3+ | 2009 10 23 | G96 | 0.6+ | 0.0 | 2009 12 19 | G96 | 0.9+ | 0.4− |
| 2005 10 25 | 705 | 0.2+ | 0.0 | 2005 11 06 | 705 | 0.1+ | 0.3+ | 2008 03 05 | G96 | 0.1− | 0.0 | 2005 12 06 | 291 | 0.0 | 0.4+ | 2009 10 23 | G96 | 0.5− | 0.5− | 2009 12 19 | G96 | 0.5− | 0.2− |
| 2005 10 25 | 705 | 0.4+ | 0.2+ | 2005 11 06 | 705 | 0.1+ | 0.2+ | 2008 03 05 | G96 | 0.5− | 0.4− | 2005 12 06 | G96 | 0.0 | 0.2− | 2009 10 23 | G96 | 0.1+ | 0.3+ | 2009 12 19 | G96 | 0.3− | 0.3− |
| | | | | | | | | | | | | 2005 12 06 | G96 | 0.0 | 0.2− | 2009 10 23 | G96 | 0.1+ | 0.2− | 2009 12 19 | G96 | 0.2− | 0.5− |

**2005 VJ$_{18}$ = 2009 TL$_{42}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 59.14125 | | (2000.0) | | **P** | | **Q** | | |
| $n$ | 0.24664076 | $\omega$ | 108.92206 | | +0.86611723 | | +0.49579640 | | |
| $a$ | 2.5182150 | $\Omega$ | 221.42090 | | −0.48706801 | | +0.80863836 | | |
| $e$ | 0.2735846 | $i$ | 5.50413 | | −0.11227509 | | +0.31668586 | | |
| $P$ | 4.00 | $H$ | 18.7 | $G$ | 0.15 | $U$ | 3 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 11 12 | 691 | 0.0 | 0.1− | 2005 11 05 | 691 | 0.1− | 0.0 | 2009 11 08 | G96 | 0.1+ | 0.1+ | 2005 08 31 | 291 | 0.1+ | 0.2− | 2005 11 05 | 691 | 0.0 | 0.2+ | 2006 01 27 | G96 | 0.4+ | 0.6− |
| 2001 11 12 | 691 | 0.3+ | 0.1+ | 2009 10 11 | G96 | 0.9+ | 0.5− | 2009 11 08 | G96 | 0.2− | 0.1− | 2005 08 31 | 291 | 0.2+ | 0.0 | 2005 11 06 | 691 | 0.1+ | 0.1+ | 2006 01 27 | G96 | 0.7+ | 0.5− |
| 2001 11 12 | 691 | 0.3− | 0.2− | 2009 10 11 | G96 | 0.3+ | 1.1− | 2009 11 08 | G96 | 0.3− | 0.7+ | 2005 08 31 | 291 | 0.1+ | 0.3− | 2005 11 06 | 691 | 0.5+ | 0.2+ | 2009 08 20 | 691 | 0.0 | 0.1− |
| 2005 10 25 | 568 | 1.0+ | 0.4+ | 2009 10 11 | G96 | 0.0 | 0.4− | 2009 11 08 | G96 | 0.4+ | 0.0 | 2005 10 27 | G96 | 0.1− | 0.4− | 2005 11 06 | 691 | 0.3− | 0.1+ | 2009 08 20 | 691 | 0.1− | 0.1+ |
| 2005 10 25 | 568 | 0.9+ | 0.1+ | 2009 10 11 | G96 | 1.0+ | 0.2− | 2009 11 08 | G96 | 0.7− | 0.3− | 2005 10 27 | G96 | 0.1− | 0.3− | 2005 11 12 | 691 | 0.2− | 0.3+ | 2009 08 20 | 691 | 0.1+ | 0.0 |
| 2005 10 25 | 568 | 0.9+ | 0.2+ | 2009 10 24 | 691 | 0.5− | 0.3+ | 2009 11 08 | G96 | 0.0 | 0.1− | 2005 10 27 | G96 | 0.1+ | 0.5− | 2005 11 12 | 691 | 0.2− | 0.1+ | 2009 08 27 | 703 | 0.5+ | 0.0 |
| 2005 10 26 | 568 | 0.6+ | 0.4+ | 2009 10 24 | 691 | 0.4− | 0.3+ | 2009 11 08 | G96 | 0.1+ | 0.2− | 2005 10 27 | G96 | 0.3− | 0.5− | 2005 11 12 | 691 | 0.0 | 0.1+ | 2009 08 27 | 703 | 1.3− | 0.3− |
| 2005 11 01 | 691 | 0.1− | 0.3+ | 2009 10 24 | 691 | 0.5− | 0.2+ | 2009 11 08 | G96 | 0.1+ | 0.1− | 2005 11 05 | 691 | 0.1+ | 0.0 | 2006 01 27 | G96 | 0.3− | 0.5− | 2009 08 27 | 703 | 1.1+ | 0.0 |
| 2005 11 01 | 691 | 0.0 | 0.2− | 2009 11 08 | G96 | 0.4+ | 0.3+ | 2009 11 18 | G96 | 0.5+ | 0.3− | 2005 11 05 | 691 | 0.3− | 0.0 | 2006 01 27 | G96 | 0.1+ | 0.7− | 2009 08 27 | 703 | 0.3− | 0.3+ |
| 2005 11 01 | 691 | 0.4− | 0.3− | 2009 11 08 | G96 | 0.3+ | 0.3+ | 2009 11 18 | G96 | 0.4+ | 0.5− | | | | | | | | | | | | |
| 2005 11 05 | 691 | 0.1− | 0.2− | 2009 11 08 | G96 | 0.2+ | 0.1+ | 2009 11 18 | G96 | 0.1+ | 0.1+ | | | | | | | | | | | | |
| 2005 11 05 | 691 | 0.0 | 0.2− | 2009 11 08 | G96 | 0.8+ | 0.1+ | 2009 11 18 | G96 | 0.5+ | 0.3+ | | | | | | | | | | | | |

**2005 VH$_{29}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 37.22915 | | (2000.0) | | **P** | | **Q** | | |
| $n$ | 0.26401493 | $\omega$ | 300.13261 | | +0.63915158 | | −0.76810254 | | |
| $a$ | 2.4064881 | $\Omega$ | 110.08718 | | +0.71906145 | | +0.57893557 | | |
| $e$ | 0.1751122 | $i$ | 2.36640 | | +0.27282941 | | +0.27359112 | | |
| $P$ | 3.73 | $H$ | 18.4 | $G$ | 0.15 | $U$ | 3 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 05 22 | 807 | 0.5+ | 0.7− | 2005 11 04 | G96 | 0.2+ | 0.2− | 2005 12 04 | G96 | 0.2+ | 0.5− | 2001 10 18 | 691 | 0.1+ | 0.0 | 2005 10 01 | 703 | 0.9− | 0.3− | 2005 11 03 | G96 | 0.3+ | 0.0 |
| 2001 05 22 | 807 | 0.4+ | 2.0− | 2005 11 04 | G96 | 0.1+ | 0.1− | 2005 12 29 | G96 | 0.2+ | 0.2− | 2001 10 18 | 691 | 0.0 | 0.2− | 2005 10 01 | 703 | 0.0 | 0.9+ | 2005 11 03 | G96 | 0.1− | 0.0 |
| 2005 10 25 | 691 | 0.2− | 0.0 | 2005 11 04 | G96 | 0.2+ | 0.3− | 2005 12 29 | G96 | 0.0 | 0.1+ | 2001 10 18 | 691 | 0.0 | 0.2− | 2005 10 01 | 703 | 0.6− | 0.9+ | 2005 11 03 | G96 | 0.1+ | 0.1+ |
| 2005 10 25 | 691 | 0.0 | 0.0 | 2005 11 05 | 691 | 0.3+ | 0.0 | 2005 12 29 | G96 | 0.1− | 0.6− | 2005 08 31 | 691 | 0.1+ | 0.1+ | 2005 10 01 | 703 | 0.8+ | 1.2+ | 2009 07 27 | 691 | 0.0 | 0.2+ |
| 2005 10 25 | 691 | 0.3− | 0.1+ | 2005 11 05 | 691 | 0.4+ | 0.1− | 2005 12 29 | G96 | 0.2+ | 0.3− | 2005 08 31 | 691 | 0.2+ | 0.3− | 2005 10 01 | 703 | 0.7+ | 1.3+ | 2009 07 27 | 691 | 0.3− | 0.1+ |
| 2005 11 01 | 691 | 0.6− | 0.1+ | 2005 11 05 | 691 | 0.1+ | 0.2+ | 2009 12 16 | 691 | 0.2− | 0.1+ | 2005 08 31 | 691 | 0.1+ | 0.3− | 2005 10 01 | 703 | 0.5− | 0.7− | 2009 07 27 | 691 | 0.3+ | 0.2− |
| 2005 11 01 | 691 | 0.3− | 0.2+ | 2005 12 04 | G96 | 0.3+ | 0.4− | 2009 12 16 | 691 | 0.2+ | 0.2− | 2005 09 26 | 644 | 0.1+ | 0.1− | 2005 11 01 | G96 | 0.2− | 0.4− | 2009 08 10 | 691 | 0.1− | 0.1− |
| 2005 11 01 | 691 | 0.4+ | 0.3+ | 2005 12 04 | G96 | 0.1− | 0.1− | 2009 12 16 | 691 | 0.0 | 0.2− | 2005 09 26 | 644 | 0.2− | 0.3− | 2005 11 01 | G96 | 0.0 | 0.2+ | 2009 08 10 | 691 | 0.4+ | 0.1+ |
| 2005 11 04 | G96 | 0.3+ | 0.2− | 2005 12 04 | G96 | 0.0 | 0.3− | | | | | 2005 09 26 | 644 | 0.2− | 0.2− | 2005 11 01 | G96 | 0.5− | 0.5− | 2009 08 10 | 691 | 0.2− | 0.2− |
| | | | | | | | | | | | | 2005 10 01 | 703 | 1.2− | 1.0+ | 2005 11 01 | G96 | 0.1− | 0.2− | | | | |
| | | | | | | | | | | | | 2005 10 01 | 703 | 0.3+ | 0.4+ | 2005 11 03 | G96 | 0.1+ | 0.1+ | | | | |

**2005 VC$_{30}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 36.70522 | | (2000.0) | | **P** | | **Q** | | |
| $n$ | 0.24038490 | $\omega$ | 288.07241 | | +0.92894324 | | −0.36340803 | | |
| $a$ | 2.5617177 | $\Omega$ | 93.28507 | | +0.36078930 | | +0.84577709 | | |
| $e$ | 0.1006192 | $i$ | 4.06111 | | +0.08303942 | | +0.39063503 | | |
| $P$ | 4.10 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 3 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 11 04 | 691 | 0.1+ | 0.0 | 2005 12 06 | G96 | 0.4− | 0.4− | 2009 10 23 | G96 | 0.3− | 0.3− | 2005 11 05 | 691 | 0.1− | 0.0 | 2005 12 06 | G96 | 0.3− | 0.5− | 2009 11 17 | G96 | 0.1− | 0.0 |
| 2005 11 04 | 691 | 0.2− | 0.1+ | 2005 12 06 | G96 | 0.0 | 0.5− | 2009 10 23 | G96 | 0.3+ | 0.4− | 2005 11 05 | 691 | 0.5+ | 0.0 | 2005 12 06 | G96 | 0.3− | 0.3− | 2009 11 17 | G96 | 0.4+ | 0.1− |
| 2005 11 04 | 691 | 0.0 | 0.2+ | 2005 12 06 | G96 | 1.2+ | 0.2+ | 2009 10 23 | G96 | 0.3+ | 0.1+ | 2005 12 01 | G96 | 0.2− | 0.4− | 2007 03 12 | G96 | 0.2− | 0.2− | 2009 11 17 | G96 | 0.2− | 0.0 |
| 2005 11 05 | 691 | 0.3− | 0.1+ | 2005 12 06 | G96 | 0.3− | 0.2− | 2009 11 17 | G96 | 0.1+ | 0.1− | 2005 12 01 | G96 | 0.1− | 0.4− | 2007 03 12 | G96 | 0.5− | 0.1− | 2009 11 24 | G96 | 0.3− | 0.0 |
| | | | | | | | | | | | | 2005 12 01 | G96 | 0.4+ | 0.3− | 2007 03 12 | G96 | 0.4+ | 0.2− | 2009 11 24 | G96 | 0.2+ | 0.0 |
| | | | | | | | | | | | | 2005 12 01 | G96 | 0.1− | 0.3− | 2007 03 12 | G96 | 0.1+ | 0.1− | 2009 11 24 | G96 | 0.2− | 0.0 |
| | | | | | | | | | | | | 2005 12 06 | 291 | 0.0 | 0.3+ | 2009 10 23 | G96 | 0.4+ | 0.3− | 2009 11 24 | G96 | 0.0 | 0.4+ |
| | | | | | | | | | | | | 2005 12 06 | 291 | 0.1− | 0.3+ | 2009 10 23 | G96 | 0.6+ | 0.0 | 2009 12 19 | G96 | 0.9+ | 0.4− |
| | | | | | | | | | | | | 2005 12 06 | 291 | 0.0 | 0.4+ | 2009 10 23 | G96 | 0.5− | 0.5− | 2009 12 19 | G96 | 0.5− | 0.2− |
| | | | | | | | | | | | | 2005 12 06 | G96 | 0.0 | 0.2− | 2009 10 23 | G96 | 0.1+ | 0.3+ | 2009 12 19 | G96 | 0.3− | 0.3− |
| | | | | | | | | | | | | 2005 12 06 | G96 | 0.0 | 0.2− | 2009 10 23 | G96 | 0.1+ | 0.2− | 2009 12 19 | G96 | 0.2− | 0.5− |

**2005 VW$_{58}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 3.76115 | | (2000.0) | | **P** | | **Q** | | |
| $n$ | 0.21740749 | $\omega$ | 98.54784 | | +0.99329956 | | −0.07282519 | | |
| $a$ | 2.7391746 | $\Omega$ | 265.66298 | | +0.03224630 | | +0.92028433 | | |
| $e$ | 0.0717963 | $i$ | 5.16322 | | +0.11097824 | | +0.38441286 | | |
| $P$ | 4.53 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 3 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 08 31 | 291 | 0.1+ | 0.2− | 2005 11 05 | 691 | 0.0 | 0.2+ | 2006 01 27 | G96 | 0.4+ | 0.6− | 2005 11 05 | 691 | 0.1− | 0.0 | 2005 12 06 | G96 | 0.3− | 0.5− | 2009 11 17 | G96 | 0.1− | 0.0 |
| 2005 08 31 | 291 | 0.2+ | 0.0 | 2005 11 06 | 691 | 0.1+ | 0.1+ | 2006 01 27 | G96 | 0.7+ | 0.5− | 2005 11 05 | 691 | 0.5+ | 0.0 | 2005 12 06 | G96 | 0.3− | 0.3− | 2009 11 17 | G96 | 0.4+ | 0.1− |
| 2005 08 31 | 291 | 0.1+ | 0.3− | 2005 11 06 | 691 | 0.5+ | 0.2+ | 2009 08 20 | 691 | 0.0 | 0.1− | 2005 12 01 | G96 | 0.2− | 0.4− | 2007 03 12 | G96 | 0.2− | 0.2− | 2009 11 17 | G96 | 0.2− | 0.0 |
| 2005 10 27 | G96 | 0.1− | 0.4− | 2005 11 06 | 691 | 0.3− | 0.1+ | 2009 08 20 | 691 | 0.1− | 0.1+ | 2005 12 01 | G96 | 0.1− | 0.4− | 2007 03 12 | G96 | 0.5− | 0.1− | 2009 11 24 | G96 | 0.3− | 0.0 |
| 2005 10 27 | G96 | 0.1− | 0.3− | 2005 11 12 | 691 | 0.2− | 0.3+ | 2009 08 20 | 691 | 0.1+ | 0.0 | 2005 12 01 | G96 | 0.4+ | 0.3− | 2007 03 12 | G96 | 0.4+ | 0.2− | 2009 11 24 | G96 | 0.2+ | 0.0 |
| 2005 10 27 | G96 | 0.1+ | 0.5− | 2005 11 12 | 691 | 0.2− | 0.1+ | 2009 08 27 | 703 | 0.5+ | 0.0 | 2005 12 01 | G96 | 0.1− | 0.3− | 2007 03 12 | G96 | 0.1+ | 0.1− | 2009 11 24 | G96 | 0.2− | 0.0 |
| 2005 10 27 | G96 | 0.3− | 0.5− | 2005 11 12 | 691 | 0.0 | 0.1+ | 2009 08 27 | 703 | 1.3− | 0.3− | 2005 12 06 | 291 | 0.0 | 0.3+ | 2009 10 23 | G96 | 0.4+ | 0.3− | 2009 11 24 | G96 | 0.0 | 0.4+ |
| 2005 11 05 | 691 | 0.1+ | 0.0 | 2006 01 27 | G96 | 0.3− | 0.5− | 2009 08 27 | 703 | 1.1+ | 0.0 | 2005 12 06 | 291 | 0.1− | 0.3+ | 2009 10 23 | G96 | 0.6+ | 0.0 | 2009 12 19 | G96 | 0.9+ | 0.4− |
| 2005 11 05 | 691 | 0.3− | 0.0 | 2006 01 27 | G96 | 0.1+ | 0.7− | 2009 08 27 | 703 | 0.3− | 0.3+ | 2005 12 06 | 291 | 0.0 | 0.4+ | 2009 10 23 | G96 | 0.5− | 0.5− | 2009 12 19 | G96 | 0.5− | 0.2− |
| | | | | | | | | | | | | 2005 12 06 | G96 | 0.0 | 0.2− | 2009 10 23 | G96 | 0.1+ | 0.3+ | 2009 12 19 | G96 | 0.3− | 0.3− |
| | | | | | | | | | | | | 2005 12 06 | G96 | 0.0 | 0.2− | 2009 10 23 | G96 | 0.1+ | 0.2− | 2009 12 19 | G96 | 0.2− | 0.5− |

**2005 VC$_{63}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 9.82581 | | (2000.0) | | **P** | | **Q** | | |
| $n$ | 0.23203870 | $\omega$ | 24.68011 | | +0.99543980 | | +0.09193527 | | |
| $a$ | 2.6227834 | $\Omega$ | 330.01105 | | −0.09377531 | | +0.89420923 | | |
| $e$ | 0.1573363 | $i$ | 2.91818 | | −0.01748722 | | +0.43810702 | | |
| $P$ | 4.25 | $H$ | 17.6 | $G$ | 0.15 | $U$ | 3 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 10 18 | 691 | 0.1+ | 0.0 | 2005 10 01 | 703 | 0.9− | 0.3− | 2005 11 03 | G96 | 0.3+ | 0.0 | 2005 08 31 | 691 | 0.1+ | 0.1+ | 2005 10 01 | 703 | 0.8+ | 1.2+ | 2009 07 27 | 691 | 0.0 | 0.2+ |
| 2001 10 18 | 691 | 0.0 | 0.2− | 2005 10 01 | 703 | 0.0 | 0.9+ | 2005 11 03 | G96 | 0.1− | 0.0 | 2005 08 31 | 691 | 0.2+ | 0.3− | 2005 10 01 | 703 | 0.7+ | 1.3+ | 2009 07 27 | 691 | 0.3− | 0.1+ |
| 2001 10 18 | 691 | 0.0 | 0.2− | 2005 10 01 | 703 | 0.6− | 0.9+ | 2005 11 03 | G96 | 0.1+ | 0.1+ | 2005 08 31 | 691 | 0.1+ | 0.3− | 2005 10 01 | 703 | 0.5− | 0.7− | 2009 07 27 | 691 | 0.3+ | 0.2− |
| 2005 08 31 | 691 | 0.1+ | 0.1+ | 2005 10 01 | 703 | 0.8+ | 1.2+ | 2009 07 27 | 691 | 0.0 | 0.2+ | 2005 09 26 | 644 | 0.1+ | 0.1− | 2005 11 01 | G96 | 0.2− | 0.4− | 2009 08 10 | 691 | 0.1− | 0.1− |
| 2005 08 31 | 691 | 0.2+ | 0.3− | 2005 10 01 | 703 | 0.7+ | 1.3+ | 2009 07 27 | 691 | 0.3− | 0.1+ | 2005 09 26 | 644 | 0.2− | 0.3− | 2005 11 01 | G96 | 0.0 | 0.2+ | 2009 08 10 | 691 | 0.4+ | 0.1+ |
| 2005 08 31 | 691 | 0.1+ | 0.3− | 2005 10 01 | 703 | 0.5− | 0.7− | 2009 07 27 | 691 | 0.3+ | 0.2− | 2005 09 26 | 644 | 0.2− | 0.2− | 2005 11 01 | G96 | 0.5− | 0.5− | 2009 08 10 | 691 | 0.2− | 0.2− |
| 2005 09 26 | 644 | 0.1+ | 0.1− | 2005 11 01 | G96 | 0.2− | 0.4− | 2009 08 10 | 691 | 0.1− | 0.1− | 2005 10 01 | 703 | 1.2− | 1.0+ | 2005 11 01 | G96 | 0.1− | 0.2− | | | | |
| 2005 09 26 | 644 | 0.2− | 0.3− | 2005 11 01 | G96 | 0.0 | 0.2+ | 2009 08 10 | 691 | 0.4+ | 0.1+ | 2005 10 01 | 703 | 0.3+ | 0.4+ | 2005 11 03 | G96 | 0.1+ | 0.1+ | | | | |

**2005 VF$_{88}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 157.30181 | | (2000.0) | | **P** | | **Q** | | |
| $n$ | 0.12544991 | $\omega$ | 21.93766 | | −0.10571884 | | −0.97408214 | | |
| $a$ | 3.9520506 | $\Omega$ | 74.58248 | | +0.87873933 | | −0.18564119 | | |
| $e$ | 0.1405389 | $i$ | 11.97199 | | +0.46544679 | | +0.12923364 | | |
| $P$ | 7.86 | $H$ | 15.2 | $G$ | 0.15 | $U$ | 3 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 25 | 691 | 0.3+ | 0.2− | 2005 11 06 | 691 | 0.2+ | 0.2− | 2007 01 17 | 703 | 0.8− | 0.5− | 2005 10 25 | 691 | 0.3+ | 0.2− | 2005 11 06 | 691 | 0.2+ | 0.2− | 2007 01 17 | 703 | 0.8− | 0.5− |
| 2005 10 25 | 691 | 0.3− | 0.4− | 2005 11 10 | 691 | 0.3− | 0.5+ | 2007 01 17 | 703 | 0.3+ | 0.6+ | 2005 10 25 | 691 | 0.3− | 0.4− | 2005 11 10 | 691 | 0.3− | 0.5+ | 2007 01 17 | 703 | 0.3+ | 0.6+ |
| 2005 10 25 | 691 | 0.2+ | 0.3− | 2005 11 10 | 691 | 0.4− | 1.2+ | 2007 01 17 | 703 | 1.4+ | 1.5+ | 2005 10 25 | 691 | 0.2+ | 0.3− | 2005 11 10 | 691 | 0.4− | 1.2+ | 2007 01 17 | 703 | 1.4+ | 1.5+ |
| 2005 10 29 | 691 | 0.1− | 0.0 | 2005 11 10 | 691 | 0.0 | 0.8+ | 2007 01 17 | 703 | 0.3− | 0.2− | 2005 10 29 | 691 | 0.1− | 0.0 | 2005 11 10 | 691 | 0.0 | 0.8+ | 2007 01 17 | 703 | 0.3− | 0.2− |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 29 | 691 | 0.0 | 0.3− | 2006 01 22 | G96 | 0.5+ | 0.7− | 2007 01 25 | 703 | (0.2+ | 3.5−) |
| 2005 10 29 | 691 | 0.2+ | 0.3− | 2006 01 22 | G96 | 0.0 | 0.2− | 2007 01 25 | 703 | 0.5− | 1.4− |
| 2005 11 06 | 691 | 0.2+ | 0.2− | 2006 01 22 | G96 | 0.0 | 0.5− | 2007 01 25 | 703 | (3.0+ | 0.1−) |
| 2005 11 06 | 691 | 0.0 | 0.3− | 2006 01 22 | G96 | 0.1− | 0.3− | | | | |

**2005 VW$_{91}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 321.86404 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.19112058 | $\omega$ | 145.56390 | | +0.97729570 | | −0.17712942 |
| $a$ | 2.9849088 | $\Omega$ | 225.10033 | | +0.13782856 | | +0.94824096 |
| $e$ | 0.1121474 | $i$ | 9.44733 | | +0.16092359 | | +0.26356072 |
| $P$ | 5.16 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 24 | 691 | 0.0 | 0.0 | 2005 11 06 | 704 | 0.8− | 0.1− | 2008 04 14 | G96 | 0.2− | 0.2− |
| 2005 10 24 | 691 | 0.1− | 0.1+ | 2005 11 06 | G96 | 0.2− | 0.1− | 2008 04 14 | G96 | 0.0 | 0.1− |
| 2005 10 24 | 691 | 0.0 | 0.1+ | 2005 11 06 | 704 | 0.2+ | 0.6+ | 2008 04 14 | G96 | 0.1− | 0.2+ |
| 2005 11 06 | 691 | 0.2− | 0.1− | 2005 11 10 | 691 | 1.0+ | 0.0 | 2008 04 14 | G96 | 0.5− | 0.1− |
| 2005 11 06 | 691 | 0.2− | 0.2− | 2005 11 10 | 691 | 0.2− | 0.1+ | 2008 04 30 | G96 | 0.1+ | 0.2+ |
| 2005 11 06 | 691 | 0.3− | 0.2− | 2005 11 10 | 691 | 0.2− | 0.0 | 2008 04 30 | G96 | 0.1+ | 0.3+ |
| 2005 11 06 | G96 | 0.1− | 0.1− | 2005 12 01 | G96 | 0.2− | 0.1+ | 2008 04 30 | G96 | 0.3+ | 0.1+ |
| 2005 11 06 | 704 | 1.8+ | 0.1+ | 2005 12 01 | G96 | 0.1− | 0.2+ | 2008 04 30 | G96 | 0.2+ | 0.2− |
| 2005 11 06 | G96 | 0.1− | 0.1− | 2005 12 01 | G96 | 0.5− | 0.1+ | | | | |
| 2005 11 06 | 704 | 0.4+ | 0.0 | 2005 12 01 | G96 | 0.2− | 0.2− | | | | |

**2005 VA$_{101}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 85.79810 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17235824 | $\omega$ | 181.40452 | | −0.80587109 | | +0.56579370 |
| $a$ | 3.1977758 | $\Omega$ | 34.96551 | | −0.54022100 | | −0.58198692 |
| $e$ | 0.0942585 | $i$ | 17.72739 | | −0.24234904 | | −0.58409649 |
| $P$ | 5.72 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 30 | G96 | 0.1+ | 0.1+ | 2005 11 01 | 691 | 0.1+ | 0.5+ | 2005 12 01 | 691 | 0.0 | 0.2+ |
| 2005 09 30 | G96 | 0.5+ | 0.1− | 2005 11 01 | 691 | 0.1+ | 0.0 | 2008 03 29 | 703 | 0.5+ | 0.9+ |
| 2005 09 30 | G96 | 0.2+ | 0.1+ | 2005 11 03 | G96 | 0.5− | 0.2− | 2008 03 29 | 703 | 0.7− | 0.7+ |
| 2005 09 30 | G96 | 0.1− | 0.1+ | 2005 11 03 | G96 | 0.1+ | 0.0 | 2008 03 29 | 703 | 0.3+ | 0.2− |
| 2005 10 12 | 691 | 0.0 | 0.1− | 2005 11 03 | G96 | 0.2− | 0.1− | 2008 03 29 | 703 | 0.7− | 0.6+ |
| 2005 10 12 | 691 | 0.2− | 0.4− | 2005 11 03 | G96 | 0.2− | 0.4− | 2008 04 14 | G96 | 0.3+ | 0.4− |
| 2005 10 12 | 691 | 0.1− | 0.3− | 2005 11 05 | 691 | 0.4+ | 0.1+ | 2008 04 14 | G96 | 0.0 | 0.6− |
| 2005 10 24 | 691 | 0.2+ | 0.1+ | 2005 11 05 | 691 | 0.2− | 0.1+ | 2008 04 14 | G96 | 0.3+ | 0.6− |
| 2005 10 24 | 691 | 0.0 | 0.1+ | 2005 11 05 | 691 | 0.0 | 0.0 | 2008 04 14 | G96 | 0.0 | 0.6− |
| 2005 10 24 | 691 | 0.1− | 0.2+ | 2005 12 01 | 691 | 0.1− | 0.1− | | | | |
| 2005 11 01 | 691 | 0.1− | 0.0 | 2005 12 01 | 691 | 0.1+ | 0.3− | | | | |

**2005 VS$_{101}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 153.64425 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22302038 | $\omega$ | 168.88559 | | −0.44425614 | | +0.86149234 |
| $a$ | 2.6930207 | $\Omega$ | 74.34437 | | −0.84031211 | | −0.30551109 |
| $e$ | 0.0645689 | $i$ | 14.79583 | | −0.31066388 | | −0.40557850 |
| $P$ | 4.42 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 11 02 | G96 | 0.1+ | 0.0 | 2005 11 25 | 703 | 0.3+ | 0.5+ | 2009 10 15 | 703 | (1.0+ | 2.7+) |
| 2005 11 02 | G96 | 0.2− | 0.0 | 2005 11 25 | 703 | 0.0 | 0.8+ | 2009 10 15 | 703 | 0.8+ | 0.0 |
| 2005 11 02 | G96 | 0.1+ | 0.1− | 2005 11 28 | 703 | 0.4+ | 0.9− | 2009 10 15 | 703 | 0.5− | 0.4+ |
| 2005 11 02 | G96 | 0.3− | 0.2− | 2005 11 28 | 703 | 1.0+ | 1.0+ | 2009 10 15 | 703 | 0.5+ | 0.1+ |
| 2005 11 03 | G96 | 0.1− | 0.2− | 2005 11 28 | 703 | 0.9− | 0.6− | 2009 11 11 | 703 | 1.1− | 0.5− |
| 2005 11 03 | G96 | 0.0 | 0.3− | 2005 11 28 | 703 | 0.8− | 0.4− | 2009 11 11 | 703 | 0.4+ | 0.1− |
| 2005 11 03 | G96 | 0.4− | 0.2− | 2006 01 06 | G96 | 0.3+ | 0.3+ | 2009 11 11 | 703 | (1.2− | 3.0−) |
| 2005 11 03 | G96 | 0.3− | 0.3− | 2006 01 06 | G96 | 0.5+ | 0.3− | 2009 11 11 | 703 | (0.6− | 2.9−) |
| 2005 11 25 | 703 | 0.6− | 1.0+ | 2006 01 06 | G96 | 0.3− | 0.1+ | | | | |
| 2005 11 25 | 703 | 0.7+ | 0.3+ | 2006 01 06 | G96 | 0.5+ | 0.3− | | | | |

**2005 VD$_{120}$ = 2009 UZ$_{145}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 16.66872 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23084159 | $\omega$ | 131.17471 | | +0.64237283 | | −0.73793621 |
| $a$ | 2.6318432 | $\Omega$ | 277.61627 | | +0.62571684 | | +0.66087293 |
| $e$ | 0.1717776 | $i$ | 12.04857 | | +0.44253314 | | +0.13673745 |
| $P$ | 4.27 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 11 10 | G96 | 0.3− | 0.2− | 2005 12 25 | 691 | 0.1+ | 0.1− | 2009 10 27 | 703 | 0.6− | 0.2+ |
| 2005 11 10 | G96 | 0.5− | 0.2+ | 2005 12 31 | 704 | 0.3+ | 0.0 | 2009 10 27 | 703 | 1.1− | 0.3− |
| 2005 11 10 | G96 | 0.2− | 0.2− | 2005 12 31 | 704 | 0.3+ | 0.2− | 2009 11 10 | 703 | 0.6− | 0.9+ |
| 2005 11 10 | G96 | 0.0 | 0.0 | 2005 12 31 | 704 | 0.3+ | 0.3− | 2009 11 10 | 703 | 0.1− | 0.5− |
| 2005 11 26 | G96 | 0.3− | 0.1− | 2005 12 31 | 704 | 0.0 | 0.6+ | 2009 11 10 | 703 | 0.1− | 0.5− |
| 2005 11 26 | G96 | 0.0 | 0.3− | 2005 12 31 | 704 | 0.7+ | 0.1+ | 2009 11 10 | 703 | 1.0− | 0.9− |
| 2005 11 26 | G96 | 0.2− | 0.3− | 2006 01 06 | 691 | 0.4− | 0.2+ | 2009 12 06 | J75 | 0.1+ | 0.7+ |
| 2005 11 26 | G96 | 0.1+ | 0.3− | 2006 01 06 | 691 | 0.2+ | 0.3− | 2009 12 06 | J75 | 0.5+ | 0.3+ |
| 2005 12 02 | G96 | 0.2+ | 0.1− | 2006 01 06 | 691 | 0.4− | 0.0 | 2009 12 06 | J75 | 0.1− | 0.9− |
| 2005 12 02 | G96 | 0.6− | 0.4− | 2009 10 27 | J75 | 0.3+ | 0.3− | 2009 12 15 | 704 | 0.4+ | 1.1+ |
| 2005 12 02 | G96 | 0.2− | 0.2− | 2009 10 27 | J75 | 0.6+ | 0.0 | 2009 12 15 | 704 | 1.0+ | 0.0 |
| 2005 12 02 | G96 | 0.5− | 0.1− | 2009 10 27 | J75 | 0.7+ | 1.1+ | 2009 12 15 | 704 | 0.1+ | 0.0 |
| 2005 12 25 | 691 | 0.1+ | 0.1− | 2009 10 27 | 703 | 0.7+ | 0.1+ | 2009 12 15 | 704 | 0.1+ | 0.1+ |
| 2005 12 25 | 691 | 0.4+ | 0.7+ | 2009 10 27 | 703 | 0.6− | 0.3− | | | | |

**2005 VS$_{126}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 357.69462 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18909073 | $\omega$ | 274.57713 | | +0.42187469 | | +0.90482568 |
| $a$ | 3.0062325 | $\Omega$ | 20.67372 | | −0.75373247 | | +0.38529056 |
| $e$ | 0.0943969 | $i$ | 9.38200 | | −0.50389395 | | +0.18122274 |
| $P$ | 5.21 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 24 | 691 | 0.1− | 0.3+ | 2005 11 03 | 705 | 0.0 | 0.1− | 2008 02 14 | G96 | 0.4+ | 0.2− |
| 2005 09 24 | 691 | 0.1− | 0.1+ | 2005 11 05 | 691 | 0.2− | 0.1+ | 2008 02 14 | G96 | 0.3− | 0.7− |
| 2005 09 24 | 691 | 0.0 | 0.2− | 2005 11 05 | 691 | 0.3+ | 0.3+ | 2008 02 28 | G96 | 0.3− | 0.0 |
| 2005 10 01 | 705 | 0.0 | 0.3− | 2005 11 05 | 691 | 0.5− | 0.0 | 2008 02 28 | G96 | 0.2+ | 0.2− |
| 2005 10 01 | 705 | 0.1+ | 0.4− | 2005 11 05 | 705 | 0.0 | 0.0 | 2008 02 28 | G96 | 0.3+ | 0.3+ |
| 2005 10 21 | 705 | 0.1+ | 0.2− | 2005 11 05 | 705 | 0.0 | 0.0 | 2008 02 28 | G96 | (0.2+ | 1.7+) |
| 2005 10 21 | 705 | 0.2+ | 0.2− | 2005 11 07 | 705 | 0.2+ | 0.0 | 2008 03 10 | G96 | 0.1+ | 0.0 |
| 2005 10 28 | 705 | 0.1+ | 0.1− | 2005 11 07 | 705 | 0.0 | 0.1− | 2008 03 10 | G96 | 0.3+ | 0.1+ |
| 2005 10 28 | 705 | 0.3+ | 0.1− | 2005 11 11 | 705 | 0.1− | 0.0 | 2008 03 10 | G96 | 0.1− | 0.2− |
| 2005 10 30 | 705 | 0.0 | 0.1− | 2005 11 11 | 705 | 0.1+ | 0.1− | 2008 03 10 | G96 | 0.3− | 0.1− |
| 2005 10 30 | 705 | 0.0 | 0.1− | 2005 11 19 | 705 | 0.2+ | 0.0 | 2008 04 06 | G96 | 0.2− | 0.3+ |
| 2005 11 01 | 705 | 0.1+ | 0.1− | 2005 11 19 | 705 | 0.3+ | 0.0 | 2008 04 06 | G96 | 0.2+ | 0.1+ |
| 2005 11 01 | 705 | 0.0 | 0.2− | 2005 11 23 | 705 | 0.2+ | 0.1− | 2008 04 06 | G96 | 0.0 | 0.1− |
| 2005 11 02 | 705 | 0.2+ | 0.2− | 2005 11 23 | 705 | 0.1+ | 0.1+ | 2008 04 06 | G96 | 0.2− | 0.0 |
| 2005 11 02 | 705 | 0.1+ | 0.1− | 2008 02 14 | G96 | 0.1+ | 0.2+ | | | | |
| 2005 11 03 | 705 | 0.1+ | 0.0 | 2008 02 14 | G96 | 0.0 | 0.6+ | | | | |

**2005 VP$_{127}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 68.57205 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22749260 | $\omega$ | 148.14874 | | +0.21161990 | | +0.97648255 |
| $a$ | 2.6576097 | $\Omega$ | 134.03198 | | −0.90830746 | | +0.21206453 |
| $e$ | 0.1388949 | $i$ | 3.28653 | | −0.36082486 | | +0.03886469 |
| $P$ | 4.33 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 01 | 691 | 0.1− | 0.2+ | 2005 11 01 | 705 | 0.0 | 0.0 | 2005 11 26 | 705 | 0.4+ | 0.0 |
| 2005 10 01 | 691 | 0.3− | 0.4+ | 2005 11 02 | 705 | 0.0 | 0.2− | 2005 12 01 | 705 | 0.2+ | 0.1+ |
| 2005 10 01 | 691 | 0.3− | 0.2+ | 2005 11 02 | 705 | 0.1+ | 0.2− | 2005 12 01 | 705 | 0.2+ | 0.0 |
| 2005 10 23 | 705 | 0.2+ | 0.0 | 2005 11 05 | 705 | 0.1+ | 0.2− | 2008 03 15 | 691 | 0.3+ | 0.2+ |
| 2005 10 23 | 705 | 0.2+ | 0.1− | 2005 11 05 | 705 | 0.2+ | 0.2− | 2008 03 15 | 691 | 0.0 | 0.2+ |
| 2005 10 26 | 705 | 0.0 | 0.1− | 2005 11 07 | 705 | 0.0 | 0.2− | 2008 03 15 | 691 | 0.2+ | 0.1+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 26 | 705 | 0.1+ | 0.2− | 2005 11 07 | 705 | 0.0 | 0.2− | 2008 04 08 | G96 | 0.3− | 0.4− | | |
| 2005 10 28 | 705 | 0.0 | 0.1− | 2005 11 24 | 705 | 0.2+ | 0.1+ | 2008 04 08 | G96 | 0.4− | 0.2+ | | |
| 2005 10 28 | 705 | 0.2+ | 0.2− | 2005 11 24 | 705 | 0.1− | 0.0 | 2008 04 08 | G96 | 0.4− | 0.1+ | | |
| 2005 10 30 | 705 | 0.0 | 0.0 | 2005 11 25 | 705 | 0.2+ | 0.1− | 2008 04 08 | G96 | 0.3− | 0.2− | | |
| 2005 10 30 | 705 | 0.0 | 0.0 | 2005 11 25 | 705 | 0.1+ | 0.1− | | | | | | |
| 2005 11 01 | 705 | 0.0 | 0.0 | 2005 11 26 | 705 | 0.1+ | 0.1− | | | | | | |

**2005 VG$_{129}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 14.05494 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17242524 | $\omega$ | 186.00633 | | −0.19436768 | | +0.97590382 |
| $a$ | 3.1969474 | $\Omega$ | 72.81742 | | −0.89560919 | | −0.13531749 |
| $e$ | 0.1045175 | $i$ | 5.95767 | | −0.40013171 | | −0.17117507 |
| $P$ | 5.72 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 28 | 705 | 0.0 | 0.0 | 2005 11 01 | 705 | 0.1+ | 0.0 | 2005 11 30 | 705 | 0.2− | 0.0 | | |
| 2005 09 28 | 705 | 0.1+ | 0.1− | 2005 11 01 | 705 | 0.1+ | 0.0 | 2006 12 12 | G96 | 0.1+ | 0.3+ | | |
| 2005 10 11 | 705 | 0.1+ | 0.1− | 2005 11 02 | 705 | 0.0 | 0.0 | 2006 12 12 | G96 | 0.1− | 0.0 | | |
| 2005 10 11 | 705 | 0.0 | 0.1− | 2005 11 02 | 705 | 0.1− | 0.0 | 2006 12 12 | G96 | 0.3− | 0.1− | | |
| 2005 10 20 | 705 | 0.2+ | 0.0 | 2005 11 05 | 705 | 0.0 | 0.0 | 2006 12 12 | G96 | 0.1+ | 0.4+ | | |
| 2005 10 20 | 705 | 0.2+ | 0.0 | 2005 11 05 | 705 | 0.0 | 0.2− | 2008 01 16 | 691 | 0.1+ | 0.0 | | |
| 2005 10 26 | 705 | 0.1− | 0.0 | 2005 11 07 | 705 | 0.2− | 0.1− | 2008 01 16 | 691 | 0.3− | 0.1− | | |
| 2005 10 26 | 705 | 0.0 | 0.1− | 2005 11 07 | 705 | 0.1− | 0.3− | 2008 01 16 | 691 | 0.2+ | 0.0 | | |
| 2005 10 27 | 691 | 0.4+ | 0.2+ | 2005 11 23 | 705 | 0.2− | 0.2− | 2009 05 04 | G96 | 0.2− | 0.2− | | |
| 2005 10 27 | 691 | 0.2− | 0.1+ | 2005 11 23 | 705 | 0.3− | 0.1− | 2009 05 04 | G96 | 0.0 | 0.2+ | | |
| 2005 10 27 | 691 | 0.1+ | 0.2− | 2005 11 26 | 705 | 0.0 | 0.0 | 2009 05 04 | G96 | 0.2+ | 0.1− | | |
| 2005 10 30 | 705 | 0.0 | 0.1+ | 2005 11 26 | 705 | 0.1− | 0.1− | 2009 05 04 | G96 | 0.1− | 0.2− | | |
| 2005 10 30 | 705 | 0.1− | 0.0 | 2005 11 30 | 705 | 0.0 | 0.2+ | | | | | | |

**2005 VA$_{135}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 263.85719 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.24133576 | $\omega$ | 133.40015 | | −0.98773577 | | −0.15162994 |
| $a$ | 2.5549844 | $\Omega$ | 37.92341 | | +0.11993090 | | −0.88951121 |
| $e$ | 0.0762625 | $i$ | 3.47327 | | +0.09997317 | | −0.43101992 |
| $P$ | 4.08 | $H$ | 17.4 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 04 06 | 807 | 1.5+ | 0.1+ | 2005 11 25 | 691 | 0.5+ | 0.2− | 2009 10 14 | 291 | 0.1− | 0.0 | | |
| 2003 04 06 | 807 | 0.7+ | 0.4+ | 2005 12 05 | G96 | 0.6− | 0.2− | 2009 10 14 | 291 | 0.5+ | 0.3+ | | |
| 2003 04 06 | 807 | 0.6− | 0.6+ | 2005 12 05 | G96 | 0.5− | 0.2− | 2009 10 14 | 291 | 0.0 | 0.1− | | |
| 2003 04 06 | 807 | 0.5− | 0.6+ | 2005 12 05 | G96 | 0.2+ | 0.0 | 2009 10 24 | 691 | 0.2+ | 0.2+ | | |
| 2003 04 06 | 807 | 0.3− | 0.6+ | 2005 12 05 | G96 | 0.1− | 0.3− | 2009 10 24 | 691 | 0.8− | 0.2+ | | |
| 2005 11 03 | 691 | 0.1− | 0.6− | 2005 12 31 | G96 | 0.0 | 0.1+ | 2009 10 24 | 691 | 0.2− | 0.2+ | | |
| 2005 11 03 | 691 | 0.3− | 0.3− | 2005 12 31 | G96 | 1.0+ | 0.4− | 2009 11 09 | 691 | 0.1+ | 0.2+ | | |
| 2005 11 03 | 691 | 0.1+ | 0.3+ | 2005 12 31 | G96 | 0.1− | 0.1− | 2009 11 09 | 691 | 0.5− | 0.3+ | | |
| 2005 11 12 | 691 | 0.0 | 0.1+ | 2005 12 31 | G96 | 0.7− | 0.6− | 2009 11 09 | 691 | 0.3− | 0.2+ | | |
| 2005 11 12 | 691 | 0.2− | 0.0 | 2007 04 19 | G96 | 0.3+ | 0.4− | 2009 11 24 | G96 | 0.5+ | 0.1− | | |
| 2005 11 12 | 691 | 0.2− | 0.0 | 2007 04 19 | G96 | 0.0 | 0.2− | 2009 11 24 | G96 | 0.5+ | 0.2+ | | |
| 2005 11 25 | 691 | 0.7+ | 0.2− | 2007 04 19 | G96 | 0.1+ | 0.2− | 2009 11 24 | G96 | 0.3+ | 0.2+ | | |
| 2005 11 25 | 691 | 0.0 | 0.3+ | 2007 04 19 | G96 | 0.4− | 0.5+ | 2009 11 24 | G96 | 0.9+ | 0.1− | | |

**2005 WE**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 196.88137 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.79769672 | $\omega$ | 22.62391 | | +0.66887110 | | +0.71563845 |
| $a$ | 1.1514476 | $\Omega$ | 290.00542 | | −0.71059822 | | +0.53603929 |
| $e$ | 0.2515251 | $i$ | 12.36260 | | −0.21831541 | | +0.44779849 |
| $P$ | 1.24 | $H$ | 19.8 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 11 20 | 704 | 0.1+ | 0.3+ | 2005 11 21 | J77 | 0.3+ | 0.5+ | 2005 11 23 | 118 | 0.2− | 0.2+ | | |
| 2005 11 20 | 704 | 0.8− | 0.8− | 2005 11 21 | 704 | 0.7− | 1.2− | 2005 11 27 | G88 | 0.2+ | 0.1− | | |
| 2005 11 20 | 704 | 0.3+ | 1.4− | 2005 11 21 | 673 | 0.0 | 0.5+ | 2005 11 27 | G88 | 0.0 | 0.2+ | | |
| 2005 11 20 | 704 | 0.2+ | 0.2− | 2005 11 21 | 673 | 0.6+ | 0.6− | 2005 12 01 | 448 | 0.2+ | 0.3+ | | |
| 2005 11 20 | J95 | 0.2− | 0.1+ | 2005 11 21 | 704 | 0.3− | 0.5− | 2005 12 01 | 448 | 0.3+ | 0.1+ | | |
| 2005 11 20 | J95 | 0.2+ | 0.3+ | 2005 11 21 | 673 | 0.3+ | 0.7− | 2005 12 01 | 448 | 0.3+ | 0.2+ | | |
| 2005 11 20 | J95 | 0.2− | 0.0 | 2005 11 21 | 673 | 0.1+ | 0.3− | 2005 12 09 | 448 | 0.8− | 1.0− | | |
| 2005 11 21 | 734 | 0.4− | 0.3− | 2005 11 21 | 704 | 0.7− | 0.3− | 2005 12 09 | 448 | (1.6− | 0.1+) | | |
| 2005 11 21 | 734 | 0.1+ | 0.2+ | 2005 11 22 | 704 | 0.1− | 0.6+ | 2005 12 09 | 448 | 1.1− | 1.2+ | | |
| 2005 11 21 | 734 | 0.3− | 0.1+ | 2005 11 22 | 704 | 0.6+ | 0.8+ | 2005 12 25 | 715 | 0.0 | 0.3− | | |
| 2005 11 21 | 734 | 0.1− | 0.0 | 2005 11 22 | 704 | 0.1− | 0.4− | 2005 12 25 | 715 | 0.1+ | 0.0 | | |
| 2005 11 21 | 734 | 0.1− | 0.1+ | 2005 11 22 | 704 | 0.2+ | 0.9+ | 2005 12 25 | 715 | 0.4− | 0.2− | | |
| 2005 11 21 | J77 | 0.2+ | 0.1+ | 2005 11 22 | 704 | 0.7+ | 1.5+ | 2006 01 21 | 291 | 0.6− | 0.0 | | |
| 2005 11 21 | J77 | 0.5+ | 0.1+ | 2005 11 23 | 704 | 0.1− | 0.9− | 2006 01 21 | 291 | 0.1− | 1.1− | | |
| 2005 11 21 | 651 | 0.0 | 0.1+ | 2005 11 23 | 704 | 0.4− | 0.5− | 2006 01 21 | 291 | (1.4− | 3.3+) | | |
| 2005 11 21 | 651 | 0.1+ | 0.5+ | 2005 11 23 | 704 | 0.1+ | 0.1+ | 2009 12 27 | 291 | 0.8+ | 0.0 | | |
| 2005 11 21 | J77 | 0.6+ | 0.5+ | 2005 11 23 | 118 | 0.2+ | 0.1+ | 2009 12 27 | 291 | 0.4− | 0.8+ | | |
| 2005 11 21 | 651 | 0.2+ | 0.1+ | 2005 11 23 | 118 | 0.2+ | 0.1+ | 2009 12 27 | 291 | (1.0+ | 2.8−) | | |
| 2005 11 21 | 704 | 0.2+ | 0.9− | 2005 11 23 | 118 | 0.5+ | 0.4+ | | | | | | |

**2005 WG$_{5}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 10.94660 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22387749 | $\omega$ | 287.42434 | | +0.91559547 | | −0.33969423 |
| $a$ | 2.6861428 | $\Omega$ | 92.86227 | | +0.39883928 | | +0.83523274 |
| $e$ | 0.1082009 | $i$ | 12.44054 | | −0.05110937 | | +0.43242814 |
| $P$ | 4.40 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 31 | 703 | 0.3− | 0.2+ | 2005 11 20 | 644 | 0.6+ | 0.1− | 2005 12 07 | 704 | 0.4+ | 1.7− | | |
| 2005 10 31 | 703 | 0.3− | 0.2+ | 2005 11 20 | 644 | 0.6+ | 0.5− | 2009 09 24 | 703 | 0.1+ | 0.3− | | |
| 2005 10 31 | 703 | 0.3+ | 0.9− | 2005 11 25 | 703 | 0.9+ | 0.2+ | 2009 09 24 | 703 | 0.4− | 0.1− | | |
| 2005 10 31 | 703 | 0.9+ | 0.6+ | 2005 11 25 | 703 | 0.1− | 1.0+ | 2009 09 24 | 703 | 0.7+ | 0.3− | | |
| 2005 11 10 | 703 | 0.5+ | 0.8− | 2005 11 25 | 703 | 0.2+ | 0.9− | 2009 09 24 | 703 | 1.3+ | 0.4+ | | |
| 2005 11 10 | 703 | 0.7− | 0.2+ | 2005 11 25 | 703 | 1.2+ | 0.4+ | 2009 10 15 | 703 | 0.4− | 0.7+ | | |
| 2005 11 10 | 703 | 1.0− | 0.6+ | 2005 12 07 | 704 | 1.4− | 0.6+ | 2009 10 15 | 703 | 0.7− | 1.2+ | | |
| 2005 11 10 | 703 | 0.1− | 0.1+ | 2005 12 07 | 704 | 0.7− | 0.2− | 2009 10 15 | 703 | 0.6− | 0.2− | | |
| 2005 11 20 | 644 | 0.2+ | 0.2+ | 2005 12 07 | 704 | 1.2− | 0.6+ | 2009 10 15 | 703 | 0.0 | 1.1− | | |

**2005 WQ$_{6}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 288.93828 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17871958 | $\omega$ | 148.04077 | | +0.84194862 | | −0.51914450 |
| $a$ | 3.1214373 | $\Omega$ | 243.92553 | | +0.45415225 | | +0.82897581 |
| $e$ | 0.2244454 | $i$ | 9.41974 | | +0.29132156 | | +0.20805794 |
| $P$ | 5.51 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 11 04 | 704 | 1.5− | 0.7+ | 2005 11 29 | 704 | 0.2+ | 0.6+ | 2005 12 05 | 703 | 0.0 | 0.4+ | | |
| 2005 11 04 | 704 | 0.1− | 0.1+ | 2005 11 29 | 704 | 0.1+ | 0.7+ | 2005 12 05 | 703 | 0.3− | 0.0 | | |
| 2005 11 04 | 704 | 0.5− | 1.0− | 2005 11 29 | 704 | 0.2+ | 0.7+ | 2005 12 05 | 703 | 0.2− | 0.5+ | | |
| 2005 11 12 | 691 | 0.0 | 0.1− | 2005 11 29 | 704 | 0.4+ | 0.5+ | 2005 12 06 | 704 | 1.5+ | 0.5− | | |
| 2005 11 12 | 691 | 0.1+ | 0.1+ | 2005 12 01 | 704 | 0.1− | 0.5+ | 2005 12 06 | 704 | 0.6+ | 1.0− | | |
| 2005 11 12 | 691 | 0.1+ | 0.0 | 2005 12 01 | 704 | 0.2− | 0.4+ | 2005 12 06 | 704 | 1.0− | 0.1− | | |
| 2005 11 21 | 703 | 0.3− | 0.5− | 2005 12 01 | 704 | 0.2+ | 0.5+ | 2006 01 28 | G96 | 0.1+ | 0.3− | | |
| 2005 11 21 | 703 | 0.0 | 0.3+ | 2005 12 01 | 704 | 0.3+ | 0.1− | 2006 01 28 | G96 | 0.4− | 0.3− | | |
| 2005 11 21 | 703 | 0.2+ | 0.0 | 2005 12 01 | 704 | 0.1− | 0.9+ | 2006 01 28 | G96 | 0.4− | 0.4− | | |
| 2005 11 21 | 703 | 0.5+ | 0.1− | 2005 12 04 | 704 | 0.1− | 0.5− | 2006 01 28 | G96 | 0.4− | 0.5− | | |
| 2005 11 22 | 691 | 0.2+ | 0.2+ | 2005 12 04 | G96 | 0.2− | 0.4− | 2008 04 29 | G96 | 0.0 | 0.0 | | |
| 2005 11 22 | 691 | 0.1+ | 0.2+ | 2005 12 04 | G96 | 0.0 | 0.5− | 2008 04 29 | G96 | 0.5+ | 0.0 | | |
| 2005 11 22 | 691 | 0.1+ | 0.1+ | 2005 12 04 | 704 | 0.1− | 0.0 | 2008 04 29 | G96 | 0.2+ | 0.2+ | | |
| 2005 11 25 | G96 | 0.0 | 0.2− | 2005 12 04 | G96 | 0.1+ | 0.4− | 2008 04 29 | G96 | 0.1+ | 0.2+ | | |
| 2005 11 25 | G96 | 0.5+ | 0.1− | 2005 12 04 | G96 | 0.3+ | 0.2− | 2008 04 29 | G96 | 0.0 | 0.2+ | | |
| 2005 11 25 | G96 | 0.3+ | 0.3− | 2005 12 04 | 704 | 0.3− | 0.5− | 2008 04 29 | G96 | 0.0 | 0.5+ | | |
| 2005 11 25 | G96 | 0.1+ | 0.2− | 2005 12 04 | 704 | 0.7− | 0.5− | 2008 04 29 | G96 | 0.4− | 0.1− | | |
| 2005 11 29 | 704 | 0.6− | 0.3+ | 2005 12 05 | 703 | 0.6− | 0.4− | 2008 04 29 | G96 | 0.3− | 0.2− | | |

**2005 WF$_{16}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 275.97452 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18459019 | $\omega$ | 185.11483 | | +0.30498987 | −0.94809942 | |
| $a$ | 3.0548998 | $\Omega$ | 247.15121 | | +0.87719369 | +0.31643544 | |
| $e$ | 0.1859173 | $i$ | 5.60070 | | +0.37082666 | +0.03124249 | |
| $P$ | 5.34 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 10 13 | 645 | 0.1+ | 0.1− | 2005 11 09 | 291 | 0.1− | 0.3+ | 2005 11 30 | 691 | 0.1− | 0.2− |
| 1999 10 13 | 645 | 0.1+ | 0.0 | 2005 11 22 | 691 | 0.1+ | 0.1− | 2005 12 01 | G96 | 0.4+ | 0.2− |
| 1999 10 16 | 645 | 0.1− | 0.1+ | 2005 11 22 | 691 | 0.1− | 0.1+ | 2005 12 01 | G96 | 0.0 | 0.2− |
| 1999 10 16 | 645 | 0.1− | 0.1− | 2005 11 22 | 691 | 0.2− | 0.0 | 2005 12 01 | G96 | 0.7+ | 0.3− |
| 2005 10 27 | G96 | 0.2− | 0.4− | 2005 11 25 | G96 | 0.0 | 0.1− | 2005 12 01 | G96 | 0.2+ | 0.1− |
| 2005 10 27 | G96 | 0.2+ | 0.4− | 2005 11 25 | G96 | 0.2+ | 0.1− | 2005 12 04 | 704 | 1.1+ | 0.1− |
| 2005 10 27 | G96 | 0.4+ | 0.3− | 2005 11 25 | G96 | 0.1− | 0.2− | 2005 12 04 | 704 | 0.1− | 1.7+ |
| 2005 10 27 | G96 | 0.3+ | 0.4− | 2005 11 25 | G96 | 0.1+ | 0.2− | 2005 12 04 | 704 | 0.0 | 0.0 |
| 2005 11 05 | 691 | 0.1+ | 0.3− | 2005 11 26 | 691 | 0.0 | 0.2+ | 2006 01 25 | G96 | 0.3− | 0.5− |
| 2005 11 05 | 691 | 0.3+ | 0.0 | 2005 11 26 | 691 | 0.1+ | 0.2+ | 2006 01 25 | G96 | 0.4+ | 0.1− |
| 2005 11 05 | 691 | 0.3+ | 0.3− | 2005 11 26 | 691 | 0.3− | 0.3+ | 2006 01 25 | G96 | 0.1− | 0.3+ |
| 2005 11 09 | 291 | 0.2− | 0.3+ | 2005 11 30 | 691 | 0.1− | 0.2− | 2006 01 25 | G96 | 0.5+ | 0.1+ |
| 2005 11 09 | 291 | 0.4− | 0.4+ | 2005 11 30 | 691 | 0.2− | 0.3− | | | | |

**2005 WJ$_{20}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 347.18518 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24506547 | $\omega$ | 198.03348 | | −0.08687029 | −0.98341476 | |
| $a$ | 2.5289950 | $\Omega$ | 257.18314 | | +0.93294301 | −0.02425687 | |
| $e$ | 0.1994414 | $i$ | 9.39744 | | +0.34938646 | −0.17974151 | |
| $P$ | 4.02 | $H$ | 17.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 12 09 | 644 | 0.2− | 0.7+ | 2005 11 21 | 691 | 0.2+ | 0.1− | 2009 11 17 | 691 | 0.4− | 0.2− |
| 2001 12 09 | 644 | 0.2− | 0.8+ | 2005 11 21 | 691 | 0.2+ | 0.1− | 2009 11 17 | 691 | 0.4− | 0.2− |
| 2001 12 09 | 644 | 0.4− | 0.9+ | 2005 11 25 | 691 | 0.3− | 0.0 | 2009 12 17 | G96 | 0.5+ | 0.4− |
| 2005 10 29 | 691 | 0.5+ | 0.2− | 2005 11 25 | 691 | 0.2− | 0.0 | 2009 12 17 | G96 | 0.1+ | 0.3− |
| 2005 10 29 | 691 | 0.2− | 0.1+ | 2005 11 25 | 691 | 0.0 | 0.1+ | 2009 12 17 | G96 | 0.2− | 0.6− |
| 2005 10 29 | 691 | 0.2+ | 0.3− | 2005 12 05 | G96 | (1.3+ | 1.6−) | 2009 12 17 | G96 | 0.2+ | 0.7− |
| 2005 11 10 | 691 | 0.3+ | 0.4+ | 2005 12 05 | G96 | (3.3+ | 0.2−) | 2009 12 19 | 691 | 0.3+ | 0.2− |
| 2005 11 10 | 691 | 0.1− | 0.0 | 2005 12 05 | G96 | 0.3+ | 0.6− | 2009 12 19 | 691 | 0.3− | 0.2+ |
| 2005 11 10 | 691 | 0.0 | 0.2+ | 2005 12 05 | G96 | 0.2+ | 0.5− | 2009 12 19 | 691 | 0.2− | 0.1− |
| 2005 11 21 | 691 | 0.1− | 0.3− | 2009 11 17 | 691 | 0.6+ | 0.8+ | | | | |

**2005 WN$_{21}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 68.03685 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17390681 | $\omega$ | 205.55208 | | −0.18526475 | +0.97243523 | |
| $a$ | 3.1787643 | $\Omega$ | 54.08485 | | −0.86894594 | −0.09482506 | |
| $e$ | 0.0378261 | $i$ | 10.06832 | | −0.45892258 | −0.21302094 | |
| $P$ | 5.67 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 28 | G96 | 0.8+ | 0.2− | 2005 11 25 | 691 | 0.5+ | 0.1− | 2008 03 28 | 691 | 0.1− | 0.4− |
| 2005 10 28 | G96 | 0.0 | 0.2+ | 2005 11 25 | 691 | 0.1− | 0.3+ | 2008 03 28 | 691 | 0.1+ | 0.1+ |
| 2005 10 28 | G96 | 0.1+ | 0.2− | 2005 11 25 | 691 | 0.1− | 0.1− | 2008 03 28 | 691 | 0.1+ | 0.2+ |
| 2005 10 28 | G96 | 0.1+ | 0.4− | 2005 12 10 | 691 | 0.2− | 0.2− | 2008 04 14 | 691 | 0.2− | 0.1+ |
| 2005 11 12 | 691 | 0.4− | 0.4− | 2005 12 10 | 691 | 0.4− | 0.1+ | 2008 04 14 | 691 | 0.1+ | 0.1− |
| 2005 11 12 | 691 | 0.1+ | 0.3+ | 2005 12 10 | 691 | 0.7+ | 0.0 | 2008 04 14 | 691 | 0.1+ | 0.0 |
| 2005 11 12 | 691 | 0.0 | 0.4+ | 2006 02 01 | G96 | 0.0 | 0.4− | 2008 04 28 | G96 | 0.3− | 0.1+ |
| 2005 11 21 | 691 | 0.2− | 0.4− | 2006 02 01 | G96 | 0.1− | 0.2+ | 2008 04 28 | G96 | 0.5+ | 0.1+ |
| 2005 11 21 | 691 | 0.0 | 0.1+ | 2006 02 01 | G96 | 0.4+ | 0.1− | 2008 04 28 | G96 | 0.4− | 0.1− |
| 2005 11 21 | 691 | 0.1− | 0.1+ | 2006 02 01 | G96 | 0.2− | 0.3+ | 2008 04 28 | G96 | 0.1− | 0.0 |

**2005 WH$_{24}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 24.39210 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26285921 | $\omega$ | 69.48675 | | +0.17915523 | −0.98379207 | |
| $a$ | 2.4135368 | $\Omega$ | 10.20141 | | +0.88607857 | +0.15802940 | |
| $e$ | 0.1606687 | $i$ | 2.43393 | | +0.42751394 | +0.08473416 | |
| $P$ | 3.75 | $H$ | 18.4 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 30 | G96 | 0.4+ | 0.2− | 2005 11 21 | 691 | 0.2+ | 0.2− | 2009 12 17 | G96 | 0.1− | 0.1− |
| 2005 10 30 | G96 | 0.2+ | 0.4− | 2005 11 21 | 691 | 0.0 | 0.0 | 2009 12 17 | G96 | 0.4+ | 0.2− |
| 2005 10 30 | G96 | 0.5+ | 1.2− | 2005 11 25 | 691 | 0.2+ | 0.0 | 2009 12 17 | G96 | 0.0 | 0.4− |
| 2005 10 30 | G96 | 0.1− | 0.0 | 2005 11 25 | 691 | 0.1+ | 0.0 | 2009 12 17 | G96 | 0.5+ | 0.0 |
| 2005 11 12 | 691 | 0.0 | 0.2+ | 2005 11 25 | 691 | 0.1− | 0.0 | 2009 12 18 | 691 | 0.8− | 0.6− |
| 2005 11 12 | 691 | 0.4− | 0.3+ | 2005 12 23 | 691 | 0.2+ | 0.1− | 2009 12 18 | 691 | 0.1+ | 0.3+ |
| 2005 11 12 | 691 | 0.4− | 0.3+ | 2005 12 23 | 691 | 0.0 | 0.5− | 2009 12 18 | 691 | 0.6+ | 0.7+ |
| 2005 11 21 | 691 | 0.0 | 0.3+ | 2005 12 23 | 691 | 0.0 | 0.2− | | | | |

**2005 WT$_{25}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 24.41245 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26021241 | $\omega$ | 153.35190 | | +0.23636968 | −0.97026418 | |
| $a$ | 2.4298756 | $\Omega$ | 282.93884 | | +0.88167052 | +0.23671543 | |
| $e$ | 0.1819536 | $i$ | 3.06569 | | +0.40839500 | +0.05052954 | |
| $P$ | 3.79 | $H$ | 17.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 11 06 | G96 | 0.2+ | 0.7− | 2005 11 28 | 704 | 1.4+ | 0.9+ | 2006 01 23 | G96 | 0.3− | 0.5− |
| 2005 11 06 | G96 | 0.2− | 0.5− | 2005 11 29 | 691 | (3.4− | 0.1−) | 2006 01 23 | G96 | 0.0 | 0.6− |
| 2005 11 06 | G96 | 0.2− | 0.7− | 2005 11 29 | 691 | 1.7− | 0.5+ | 2006 01 23 | G96 | 0.1+ | 0.4− |
| 2005 11 06 | G96 | 0.1− | 0.3− | 2005 11 29 | 691 | 0.8− | 0.2+ | 2009 12 15 | G96 | 0.6+ | 0.2+ |
| 2005 11 21 | 691 | 0.6+ | 0.2+ | 2005 12 28 | G96 | 0.3+ | 0.3− | 2009 12 15 | G96 | 0.0 | 0.1− |
| 2005 11 21 | 691 | 0.2+ | 0.0 | 2005 12 28 | 644 | 0.6+ | 0.1− | 2009 12 15 | G96 | 0.1− | 0.3− |
| 2005 11 21 | 691 | 0.2− | 0.1+ | 2005 12 28 | G96 | 0.1− | 0.5− | 2009 12 15 | G96 | 0.9+ | 0.2− |
| 2005 11 25 | 691 | 0.5+ | 0.1− | 2005 12 28 | G96 | 0.2+ | 0.3− | 2009 12 17 | 691 | 0.1− | 0.3+ |
| 2005 11 25 | 691 | 0.6+ | 0.2− | 2005 12 28 | G96 | 0.3+ | 0.4− | 2009 12 17 | 691 | 0.5− | 0.2+ |
| 2005 11 25 | 691 | 0.6+ | 0.0 | 2005 12 28 | 644 | 0.0 | 0.0 | 2009 12 17 | 691 | 0.3+ | 0.2− |
| 2005 11 28 | 704 | 0.7− | 0.3− | 2005 12 28 | 644 | 0.4+ | 0.1+ | | | | |
| 2005 11 28 | 704 | 0.4− | 0.2+ | 2006 01 23 | G96 | 0.1− | 0.2− | | | | |

**2005 WO$_{33}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 5.99584 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22855503 | $\omega$ | 145.53092 | | +0.70198416 | −0.67957617 | |
| $a$ | 2.6493675 | $\Omega$ | 258.80644 | | +0.59472216 | +0.72393797 | |
| $e$ | 0.1395225 | $i$ | 12.54412 | | +0.39182112 | +0.11870149 | |
| $P$ | 4.31 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 11 21 | 691 | 0.1− | 0.1+ | 2005 11 29 | 704 | (2.0+ | 1.1−) | 2005 12 26 | G96 | 0.1− | 0.2− |
| 2005 11 21 | 691 | 0.1− | 0.1+ | 2005 11 29 | 704 | 0.2+ | 0.7− | 2005 12 26 | G96 | 0.3+ | 0.1− |
| 2005 11 21 | 691 | 0.0 | 0.1+ | 2005 11 30 | 704 | 0.3− | 0.2− | 2005 12 26 | G96 | 0.3+ | 0.3− |
| 2005 11 25 | 691 | 0.1− | 0.0 | 2005 11 30 | 704 | 0.2− | 0.4− | 2005 12 26 | G96 | 0.4+ | 0.1− |
| 2005 11 25 | 691 | 0.1+ | 0.2− | 2005 11 30 | 704 | 0.9− | 0.6− | 2005 12 31 | 704 | 0.1− | 1.3+ |
| 2005 11 25 | 691 | 0.1− | 0.1− | 2005 12 01 | 704 | 0.7− | 0.0 | 2005 12 31 | 704 | 1.2− | 0.3+ |
| 2005 11 26 | G96 | 0.1− | 0.1− | 2005 12 01 | 704 | 1.0− | 0.1− | 2005 12 31 | 704 | (1.7− | 1.1+) |
| 2005 11 26 | G96 | 0.1− | 0.2− | 2005 12 01 | 704 | 0.5− | 0.6+ | 2006 01 31 | G96 | 0.1+ | 0.2− |
| 2005 11 26 | G96 | 0.2− | 0.1− | 2005 12 01 | 704 | 0.1+ | 0.1− | 2006 01 31 | G96 | 0.3+ | 0.4− |
| 2005 11 26 | G96 | 0.1+ | 0.0 | 2005 12 04 | 704 | 0.2− | 0.0 | 2006 01 31 | G96 | 0.0 | 0.4− |
| 2005 11 28 | 704 | 0.8+ | 0.7− | 2005 12 04 | 704 | 0.0 | 0.5+ | 2006 01 31 | G96 | 0.3+ | 0.1− |
| 2005 11 28 | 704 | 0.5+ | 1.4− | 2005 12 04 | 704 | 0.6+ | 0.0 | 2009 10 26 | 703 | 0.7− | 0.1+ |
| 2005 11 28 | 704 | 0.3+ | 0.4+ | 2005 12 04 | 704 | 0.6+ | 0.2+ | 2009 10 26 | 703 | 0.4+ | 0.2− |
| 2005 11 28 | 704 | (1.3+ | 1.9+) | 2005 12 06 | 704 | 1.0+ | 0.0 | 2009 10 26 | 703 | 0.5+ | 0.1+ |
| 2005 11 29 | 691 | 0.0 | 0.1+ | 2005 12 06 | 704 | 0.7+ | 1.4+ | 2009 10 26 | 703 | (0.7− | 1.7−) |
| 2005 11 29 | 691 | 0.3+ | 0.1− | 2005 12 06 | 704 | 0.4− | 0.8+ | 2009 11 19 | 703 | 0.6− | 0.1− |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 11 29 | 691 | 0.0 | 0.0 | 2005 12 06 | 704 | (2.9+ | 1.1+) | 2009 11 19 | 703 | 0.5+ | 0.1+ | | | |
| 2005 11 29 | 704 | 0.8− | 0.5− | 2005 12 06 | 704 | 0.7+ | 0.1+ | 2009 11 19 | 703 | 0.4− | 0.2− | | | |
| 2005 11 29 | 704 | 0.0 | 0.0 | 2005 12 10 | 704 | 1.1− | 0.4− | 2009 11 19 | 703 | 0.3− | 0.4− | | | |
| 2005 11 29 | 704 | 0.7− | 0.2+ | 2005 12 10 | 704 | 0.4+ | 0.6+ | 2009 12 11 | 703 | (0.8+ | 1.7+) | | | |
| 2005 11 29 | 704 | 0.8+ | 0.0 | 2005 12 10 | 704 | 0.5− | 0.6+ | 2009 12 11 | 703 | 0.1+ | 0.5+ | | | |
| 2005 11 29 | 704 | 0.1+ | 0.1+ | 2005 12 10 | 704 | 1.1− | 0.1+ | 2009 12 11 | 703 | 0.4+ | 0.2+ | | | |
| 2005 11 29 | 704 | 1.2+ | 0.3− | 2005 12 10 | 704 | 0.1− | 0.3+ | 2009 12 11 | 703 | 0.1+ | 0.2+ | | | |

**2005 WW$_{48}$ = 2009 XT$_{11}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 4.90249 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23928560 | $\omega$ | 12.40387 | | +0.42227002 | −0.90594019 | |
| $a$ | 2.5695575 | $\Omega$ | 52.62635 | | +0.82830255 | +0.37174242 | |
| $e$ | 0.1619273 | $i$ | 2.23491 | | +0.36824301 | +0.20268189 | |
| $P$ | 4.12 | $H$ | 18.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 11 25 | 691 | 0.0 | 0.0 | 2005 12 10 | 691 | 0.3− | 0.1+ | 2009 11 27 | 691 | 0.3− | 0.7+ | | | |
| 2005 11 25 | 691 | 0.1− | 0.2+ | 2005 12 10 | 691 | 0.0 | 0.2+ | 2009 11 27 | 691 | 0.3− | 0.1+ | | | |
| 2005 11 25 | 691 | 0.3+ | 0.0 | 2005 12 10 | 691 | 0.2+ | 0.1− | 2009 11 27 | 691 | 0.4+ | 0.4− | | | |
| 2005 11 26 | G96 | 0.2+ | 0.0 | 2005 12 27 | G96 | 0.1− | 0.2+ | 2009 12 11 | G96 | 0.1+ | 0.4− | | | |
| 2005 11 26 | G96 | 0.3− | 0.2− | 2005 12 27 | G96 | 0.2+ | 0.3− | 2009 12 11 | G96 | 0.0 | 0.1+ | | | |
| 2005 11 26 | G96 | 0.1− | 0.1− | 2005 12 27 | G96 | 0.6+ | 0.1− | 2009 12 11 | G96 | 0.4+ | 0.2− | | | |
| 2005 11 26 | G96 | 0.3− | 0.1+ | 2005 12 27 | G96 | 0.8+ | 0.4− | 2009 12 11 | G96 | 0.2− | 0.5− | | | |
| 2005 12 02 | G96 | 0.1+ | 0.1− | 2009 10 18 | G96 | 0.1+ | 0.2− | 2009 12 17 | G96 | 0.2+ | 0.3+ | | | |
| 2005 12 02 | G96 | 1.0− | 0.2− | 2009 10 18 | G96 | 0.5+ | 0.1− | 2009 12 17 | G96 | 0.2+ | 0.2− | | | |
| 2005 12 02 | G96 | (0.5− | 2.6−) | 2009 10 18 | G96 | 0.2− | 0.2− | 2009 12 17 | G96 | 0.1+ | 0.2− | | | |
| 2005 12 02 | G96 | (3.4− | 2.1−) | 2009 10 18 | G96 | 0.2+ | 0.1− | 2009 12 17 | G96 | 0.4− | 0.4− | | | |

**2005 WE$_{54}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 282.46549 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24294031 | $\omega$ | 94.94539 | | −0.93046099 | +0.27284591 | |
| $a$ | 2.5437221 | $\Omega$ | 101.04726 | | −0.34599379 | −0.87390707 | |
| $e$ | 0.1149307 | $i$ | 14.42734 | | +0.12054314 | −0.40229533 | |
| $P$ | 4.06 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 11 25 | G96 | 0.2+ | 0.5− | 2005 12 24 | 691 | 0.0 | 0.1+ | 2009 12 10 | G96 | 0.4+ | 0.1+ | | | |
| 2005 11 25 | G96 | 0.4− | 0.0 | 2005 12 24 | 691 | 0.2+ | 0.0 | 2009 12 10 | G96 | 0.3+ | 0.3+ | | | |
| 2005 11 25 | G96 | 0.1+ | 0.5+ | 2005 12 24 | 691 | 0.1+ | 0.1+ | 2009 12 10 | G96 | 0.1+ | 0.2+ | | | |
| 2005 11 25 | G96 | 0.5+ | 0.2− | 2005 12 26 | 691 | 0.0 | 0.1+ | 2009 12 10 | G96 | 0.5+ | 0.3− | | | |
| 2005 11 26 | G96 | 0.5− | 0.1+ | 2005 12 26 | 691 | 0.2− | 0.0 | 2009 12 20 | 691 | 0.3+ | 0.1+ | | | |
| 2005 11 26 | G96 | 0.0 | 0.3− | 2005 12 26 | 691 | 0.0 | 0.3− | 2009 12 20 | 691 | 0.1+ | 0.0 | | | |
| 2005 11 26 | G96 | 0.1+ | 0.2+ | 2005 12 28 | G96 | 0.0 | 0.5− | 2009 12 20 | 691 | 0.2+ | 0.1+ | | | |
| 2005 11 26 | G96 | 0.1+ | 0.6− | 2005 12 28 | G96 | 0.1− | 0.5− | 2009 12 25 | 691 | 0.1− | 0.2− | | | |
| 2005 12 02 | G96 | 0.2− | 0.2+ | 2005 12 28 | G96 | 0.0 | 0.5− | 2009 12 25 | 691 | 0.0 | 0.3− | | | |
| 2005 12 02 | G96 | 0.2+ | 0.1− | 2005 12 30 | 691 | 0.0 | 0.2+ | 2009 12 25 | 691 | 0.7− | 0.3+ | | | |
| 2005 12 02 | G96 | 0.4− | 0.0 | 2005 12 30 | 691 | 0.1− | 0.1+ | | | | | | | |
| 2005 12 02 | G96 | 0.0 | 0.0 | 2005 12 30 | 691 | 0.1+ | 0.1− | | | | | | | |

**2005 WY$_{65}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 335.27922 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17602884 | $\omega$ | 86.41208 | | +0.85767414 | +0.43544610 | |
| $a$ | 3.1531660 | $\Omega$ | 247.60937 | | −0.50370052 | +0.81839400 | |
| $e$ | 0.1897679 | $i$ | 17.20314 | | +0.10334824 | +0.37499061 | |
| $P$ | 5.60 | $H$ | 15.3 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 11 12 | 691 | 0.3− | 0.1− | 2005 12 01 | 704 | 0.3− | 0.3+ | 2005 12 23 | 691 | 0.0 | 0.2+ | | | |
| 2005 11 12 | 691 | 0.3+ | 0.2+ | 2005 12 01 | 704 | 0.8+ | 0.3+ | 2005 12 25 | 691 | 0.1− | 0.2− | | | |
| 2005 11 12 | 691 | 0.0 | 0.1+ | 2005 12 02 | G96 | 0.1− | 0.4− | 2005 12 25 | 691 | 0.1+ | 0.1+ | | | |
| 2005 11 12 | 691 | 0.1− | 0.1− | 2005 12 02 | G96 | 0.5+ | 0.1− | 2005 12 25 | 691 | 0.2+ | 0.0 | | | |
| 2005 11 12 | 691 | 0.2− | 0.4+ | 2005 12 02 | G96 | 0.4+ | 0.4− | 2005 12 29 | G96 | 0.3+ | 0.3− | | | |
| 2005 11 12 | 691 | 0.2+ | 0.2− | 2005 12 02 | G96 | 0.5+ | 0.4− | 2005 12 29 | G96 | 0.4+ | 0.6− | | | |
| 2005 11 22 | 691 | 0.1+ | 0.0 | 2005 12 04 | 704 | 0.3− | 0.4+ | 2005 12 29 | G96 | 0.3− | 0.3− | | | |
| 2005 11 22 | 691 | 0.4+ | 0.1− | 2005 12 04 | 704 | 0.8− | 0.7+ | 2005 12 29 | G96 | 0.3+ | 0.4− | | | |
| 2005 11 22 | 691 | 0.0 | 0.1− | 2005 12 04 | 704 | 0.5+ | 0.6− | 2009 05 28 | G96 | 0.1+ | 0.9+ | | | |
| 2005 11 28 | G96 | 0.3+ | 0.2− | 2005 12 21 | 699 | 0.8− | 1.0+ | 2009 05 28 | G96 | 0.2− | 0.3+ | | | |
| 2005 11 28 | G96 | 0.3+ | 0.2− | 2005 12 21 | 699 | (0.1− | 2.1+) | 2009 05 28 | G96 | 0.2− | 0.1+ | | | |
| 2005 11 28 | G96 | 0.3+ | 0.4− | 2005 12 21 | 699 | 0.4− | 1.4+ | 2009 06 19 | G96 | 0.1+ | 0.1− | | | |
| 2005 11 28 | G96 | 0.2+ | 0.4− | 2005 12 21 | 699 | 0.2+ | 0.2− | 2009 06 19 | G96 | 0.1− | 0.2+ | | | |
| 2005 12 01 | 704 | 1.7− | 0.2− | 2005 12 23 | 691 | 0.4− | 0.1+ | 2009 06 19 | G96 | 0.0 | 0.3− | | | |
| 2005 12 01 | 704 | 0.1− | 1.1+ | 2005 12 23 | 691 | 0.1− | 0.0 | | | | | | | |

**2005 WM$_{67}$ = 2005 VZ$_{80}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 43.24160 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27497491 | $\omega$ | 202.84642 | | +0.17396742 | −0.98272088 | |
| $a$ | 2.3421103 | $\Omega$ | 237.18877 | | +0.91470917 | +0.18503441 | |
| $e$ | 0.2015264 | $i$ | 4.31295 | | +0.36474987 | +0.00468470 | |
| $P$ | 3.58 | $H$ | 17.5 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 20 | 645 | 0.0 | 0.0 | 2005 11 28 | 703 | 0.4− | 0.4+ | 2005 12 04 | G96 | 0.0 | 0.1− | | | |
| 2001 09 20 | 645 | 0.0 | 0.0 | 2005 11 28 | 703 | 0.7− | 0.5− | 2005 12 04 | 704 | 0.6+ | 0.5+ | | | |
| 2001 09 20 | 645 | 0.0 | 0.0 | 2005 11 28 | 703 | 0.5− | 0.1+ | 2005 12 04 | G96 | 0.2− | 0.0 | | | |
| 2001 09 20 | 645 | 0.0 | 0.1− | 2005 11 29 | 704 | 0.2− | 0.5+ | 2005 12 09 | 704 | 0.9− | 0.0 | | | |
| 2005 10 27 | G96 | 0.0 | 0.4− | 2005 11 29 | 704 | 0.0 | 0.4+ | 2005 12 09 | 704 | 0.2− | 0.3+ | | | |
| 2005 10 27 | G96 | 0.3− | 0.4− | 2005 11 29 | 704 | 0.1− | 0.0 | 2005 12 09 | 704 | 1.8− | 0.4− | | | |
| 2005 10 27 | G96 | 0.1− | 0.3− | 2005 11 29 | 704 | 0.1− | 0.7− | 2005 12 09 | 704 | 1.0− | 0.2− | | | |
| 2005 10 27 | G96 | 0.6+ | 0.1− | 2005 11 29 | 704 | 0.2− | 0.2− | 2005 12 23 | 691 | 0.2+ | 0.1− | | | |
| 2005 11 05 | 691 | 0.2+ | 0.2+ | 2005 11 29 | G96 | 0.1+ | 0.2− | 2005 12 23 | 691 | 0.1+ | 0.2− | | | |
| 2005 11 05 | 691 | 0.1+ | 0.2− | 2005 11 29 | G96 | 0.1− | 0.3− | 2005 12 23 | 691 | 0.1− | 0.0 | | | |
| 2005 11 05 | 691 | 0.7+ | 0.7+ | 2005 11 29 | G96 | 0.2+ | 0.3− | 2005 12 25 | 691 | 0.1+ | 0.0 | | | |
| 2005 11 10 | G96 | 0.1+ | 0.5− | 2005 11 29 | G96 | 0.2− | 0.4− | 2005 12 25 | 691 | 0.0 | 0.1+ | | | |
| 2005 11 10 | G96 | 0.0 | 0.3− | 2005 12 01 | 704 | 1.5− | 0.0 | 2005 12 25 | 691 | 0.2− | 0.1− | | | |
| 2005 11 10 | G96 | 0.2− | 0.4− | 2005 12 01 | 704 | 0.2− | 0.3+ | 2005 12 29 | G96 | 0.2+ | 0.2− | | | |
| 2005 11 10 | G96 | 0.0 | 0.4− | 2005 12 01 | 704 | 0.1+ | 0.2+ | 2005 12 29 | G96 | 0.4− | 0.1+ | | | |
| 2005 11 22 | 691 | 0.2− | 0.8+ | 2005 12 01 | 704 | 0.0 | 0.2+ | 2005 12 29 | G96 | 0.3+ | 0.2− | | | |
| 2005 11 22 | 691 | 0.1− | 0.0 | 2005 12 01 | 704 | 0.2− | 0.3+ | 2005 12 29 | G96 | 0.4+ | 0.5− | | | |
| 2005 11 22 | 691 | 0.0 | 0.1− | 2005 12 04 | 704 | 1.6+ | 0.8+ | 2006 01 28 | G96 | 0.1+ | 0.1− | | | |
| 2005 11 28 | G96 | 0.3− | 0.5− | 2005 12 04 | 704 | 1.2+ | 0.8+ | 2006 01 28 | G96 | 0.7+ | 0.1− | | | |
| 2005 11 28 | G96 | 0.3− | 0.4− | 2005 12 04 | 704 | (2.2+ | 0.0 ) | 2006 01 28 | G96 | 0.2− | 0.2− | | | |
| 2005 11 28 | G96 | 0.1− | 0.5− | 2005 12 04 | 704 | 1.9+ | 0.6+ | 2006 01 28 | G96 | 0.3+ | 0.2+ | | | |
| 2005 11 28 | G96 | 0.2− | 0.6− | 2005 12 04 | G96 | 0.1+ | 0.2− | | | | | | | |
| 2005 11 28 | 703 | 0.2− | 0.3− | 2005 12 04 | G96 | 0.2− | 0.1− | | | | | | | |

**2005 WT$_{67}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 15.47369 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24672066 | $\omega$ | 174.61684 | | +0.42240648 | −0.88392594 | |
| $a$ | 2.5176713 | $\Omega$ | 250.26822 | | +0.82345572 | +0.46673152 | |
| $e$ | 0.1517387 | $i$ | 12.30600 | | +0.37880529 | −0.02892434 | |
| $P$ | 3.99 | $H$ | 17.4 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 11 22 | 691 | 0.5+ | 0.3+ | 2005 11 30 | 691 | 0.0 | 0.3+ | 2009 11 09 | 691 | 0.5+ | 0.3− | | | |
| 2005 11 22 | 691 | 0.1− | 0.2+ | 2005 12 04 | G96 | 0.0 | 0.4− | 2009 11 09 | 691 | 0.1− | 0.1+ | | | |
| 2005 11 22 | 691 | 0.1− | 0.1− | 2005 12 04 | G96 | 0.0 | 0.3− | 2009 11 09 | 691 | 0.3− | 0.1+ | | | |
| 2005 11 28 | G96 | 0.0 | 0.4− | 2005 12 04 | G96 | 0.0 | 0.3− | 2009 11 24 | 691 | 0.0 | 0.4+ | | | |
| 2005 11 28 | G96 | 0.0 | 0.2− | 2005 12 04 | G96 | 0.1− | 0.2− | 2009 11 24 | 691 | 0.6− | 1.0− | | | |
| 2005 11 28 | G96 | 0.1+ | 0.4− | 2005 12 22 | 703 | 0.2− | 0.7+ | 2009 11 24 | 691 | 0.1+ | 0.1+ | | | |
| 2005 11 28 | G96 | 0.7− | 0.2+ | 2005 12 22 | 703 | 0.0 | 0.2− | 2009 12 11 | G96 | 0.4+ | 0.1− | | | |
| 2005 11 30 | 691 | 0.0 | 0.2+ | 2005 12 22 | 703 | 0.0 | 0.1− | 2009 12 11 | G96 | 0.5+ | 0.2− | | | |
| 2005 11 30 | 691 | 0.1+ | 0.3+ | 2005 12 22 | 703 | (1.1+ | 1.9+) | 2009 12 11 | G96 | 0.5+ | 0.2− | | | |

**2005 WU$_{84}$ = 2007 CF$_{79}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 156.29045 | | (2000.0) | | | |
| $n$ | 0.23138763 | $\omega$ | 191.56730 | | −0.30683196 | +0.92168545 |
| $a$ | 2.6277011 | $\Omega$ | 60.96031 | | −0.85013968 | −0.15327078 |
| $e$ | 0.1015986 | $i$ | 15.75448 | | −0.42792134 | −0.35637620 |
| $P$ | 4.26 | $H$ | 15.9 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 07 15 | E12 | 0.3− | 0.5+ | 2005 11 29 | G96 | 0.4+ | 0.3− | 2007 02 21 | 703 | 0.2+ | 1.2+ |
| 2004 07 15 | E12 | 0.1+ | 0.5+ | 2005 11 29 | G96 | 0.1+ | 0.2− | 2007 02 21 | 703 | 0.9+ | 0.6− |
| 2004 07 15 | E12 | 0.4− | 0.5+ | 2005 11 29 | G96 | 0.0 | 0.2− | 2007 02 21 | 703 | 0.8+ | 1.3− |
| 2004 07 15 | E12 | 0.2− | 0.4+ | 2005 11 29 | G96 | 0.5+ | 0.3− | 2007 02 27 | 703 | 0.6− | 0.5+ |
| 2004 08 16 | E12 | 0.3+ | 0.3− | 2005 12 01 | 704 | 0.2− | 0.6+ | 2007 02 27 | 703 | 0.4− | 0.3− |
| 2004 08 16 | E12 | 0.5− | 0.8+ | 2005 12 01 | 704 | 0.6− | 0.6+ | 2007 02 27 | 703 | 0.3+ | 0.4− |
| 2004 08 16 | E12 | 0.6− | 0.6+ | 2005 12 01 | 704 | 0.7− | 0.0 | 2007 02 27 | 703 | 0.4− | 1.0+ |
| 2004 08 16 | E12 | 0.0 | 0.1+ | 2005 12 02 | 704 | 0.5+ | 0.6+ | 2007 03 17 | 703 | 0.7− | 0.6+ |
| 2005 11 22 | 691 | 0.3+ | 0.2+ | 2005 12 02 | 704 | 0.3− | 0.5+ | 2007 03 17 | 703 | 0.3− | 0.3+ |
| 2005 11 22 | 691 | 0.1− | 0.0 | 2005 12 02 | 704 | 1.4− | 0.8+ | 2007 03 17 | 703 | 1.4+ | 0.7+ |
| 2005 11 22 | 691 | 0.1− | 0.0 | 2007 02 08 | G96 | 0.1− | 0.3− | 2007 03 17 | 703 | 0.4+ | 0.8+ |
| 2005 11 26 | G96 | 0.5+ | 0.1+ | 2007 02 08 | G96 | 0.1− | 0.1− | 2009 11 20 | G96 | 0.2+ | 0.3− |
| 2005 11 26 | G96 | 0.0 | 0.1− | 2007 02 08 | G96 | 0.2− | 0.1+ | 2009 11 20 | G96 | 0.3+ | 0.3− |
| 2005 11 26 | G96 | 0.1+ | 0.2− | 2007 02 08 | G96 | 0.3− | 0.2− | 2009 11 20 | G96 | 0.3+ | 0.6− |
| 2005 11 26 | G96 | 0.2+ | 0.2− | 2007 02 21 | 703 | 0.1− | 0.8+ | 2009 11 20 | G96 | 0.1− | 0.0 |

**2005 WB$_{99}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 261.61703 | | (2000.0) | | | |
| $n$ | 0.23954035 | $\omega$ | 293.49903 | | −0.97284118 | +0.08734430 |
| $a$ | 2.5677354 | $\Omega$ | 252.07307 | | −0.01355767 | −0.94598587 |
| $e$ | 0.1376939 | $i$ | 13.02053 | | −0.23107626 | −0.31222060 |
| $P$ | 4.11 | $H$ | 16.2 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 11 28 | G96 | 0.1+ | 0.3− | 2005 12 02 | G96 | 0.0 | 0.4− | 2005 12 27 | G96 | 0.2+ | 0.1+ |
| 2005 11 28 | G96 | 0.2+ | 0.5− | 2005 12 05 | G96 | 0.4+ | 0.4− | 2005 12 27 | G96 | 0.1− | 0.4− |
| 2005 11 28 | G96 | 0.5+ | 0.0 | 2005 12 05 | G96 | 0.2+ | 0.5− | 2009 10 23 | 291 | 0.2− | 0.1− |
| 2005 11 28 | G96 | 0.2+ | 0.1− | 2005 12 05 | G96 | 0.0 | 0.1− | 2009 10 23 | 291 | 0.1− | 0.1+ |
| 2005 11 30 | 691 | 0.1− | 0.0 | 2005 12 05 | G96 | 0.1+ | 0.1− | 2009 10 23 | 291 | 0.0 | 0.3+ |
| 2005 11 30 | 691 | 0.0 | 0.2+ | 2005 12 21 | 291 | 0.2− | 0.2+ | 2009 11 17 | 691 | 0.0 | 0.4− |
| 2005 11 30 | 691 | 0.1− | 0.0 | 2005 12 21 | 291 | 0.2− | 0.4+ | 2009 11 17 | 691 | 0.0 | 0.0 |
| 2005 12 02 | G96 | 0.6+ | 0.3− | 2005 12 21 | 291 | 0.2− | 0.3+ | 2009 11 17 | 691 | 0.3+ | 0.1+ |
| 2005 12 02 | G96 | 0.2+ | 0.3− | 2005 12 27 | G96 | 0.2− | 0.6− | | | | |
| 2005 12 02 | G96 | 0.5+ | 0.2− | 2005 12 27 | G96 | 0.5+ | 0.6− | | | | |

**2005 WL$_{103}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 67.18205 | | (2000.0) | | | |
| $n$ | 0.26711544 | $\omega$ | 278.41618 | | +0.95752827 | −0.26730889 |
| $a$ | 2.3878299 | $\Omega$ | 97.13942 | | +0.28824173 | +0.87763196 |
| $e$ | 0.1870410 | $i$ | 6.25447 | | +0.00750394 | +0.39787950 |
| $P$ | 3.69 | $H$ | 17.3 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 12 01 | 691 | 0.1+ | 0.4− | 2005 11 10 | 703 | 1.0+ | 0.4− | 2006 01 27 | 291 | 0.1− | 0.1+ |
| 1994 12 01 | 691 | 0.0 | 0.4− | 2005 11 10 | 703 | 1.0− | 0.4+ | 2006 01 27 | G96 | 0.2− | 0.0 |
| 1994 12 01 | 691 | 0.2+ | 0.0 | 2005 11 26 | 703 | 0.2− | 0.5+ | 2006 01 27 | 291 | 0.1− | 0.2+ |
| 2005 10 25 | 703 | 0.2− | 0.4− | 2005 11 26 | 703 | 0.5+ | 0.7+ | 2006 01 27 | 291 | 0.1− | 0.3+ |
| 2005 10 25 | 703 | 0.6− | 0.2+ | 2005 11 26 | 703 | 0.2− | 0.3+ | 2009 12 10 | G96 | 0.5+ | 1.0− |
| 2005 10 25 | 703 | 0.7− | 0.0 | 2005 11 26 | 703 | 1.0+ | 0.3− | 2009 12 10 | G96 | 0.3+ | 0.3− |
| 2005 10 25 | 703 | 0.1− | 0.6+ | 2005 11 30 | 699 | (0.6+ | 2.1+) | 2009 12 10 | G96 | 0.1− | 0.4− |
| 2005 10 25 | 703 | 0.0 | 0.0 | 2005 11 30 | 699 | 0.2+ | 0.9− | 2009 12 16 | 691 | 0.1+ | 0.2− |
| 2005 10 25 | 703 | 0.3+ | 0.4− | 2005 11 30 | 699 | 0.7+ | 0.3− | 2009 12 16 | 691 | 0.5+ | 0.2+ |
| 2005 10 25 | 703 | 0.8− | 0.8+ | 2005 11 30 | 699 | 0.1− | 0.4+ | 2009 12 16 | 691 | 0.1− | 0.3+ |
| 2005 10 25 | 703 | 0.2+ | 0.1− | 2006 01 27 | G96 | 0.5+ | 0.6− | 2009 12 20 | 691 | 0.2+ | 0.2− |
| 2005 11 10 | 703 | 0.8− | 0.3+ | 2006 01 27 | G96 | 0.2+ | 0.3− | 2009 12 20 | 691 | 0.7− | 0.1− |
| 2005 11 10 | 703 | 0.4+ | 0.2+ | 2006 01 27 | G96 | 0.4+ | 0.0 | 2009 12 20 | 691 | 0.2− | 0.6+ |

**2005 WO$_{105}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 43.83877 | | (2000.0) | | | |
| $n$ | 0.26665132 | $\omega$ | 354.29571 | | +0.35454565 | −0.93089729 |
| $a$ | 2.3905999 | $\Omega$ | 74.91427 | | +0.86144067 | +0.28863203 |
| $e$ | 0.2253608 | $i$ | 5.22370 | | +0.36361704 | +0.22387898 |
| $P$ | 3.70 | $H$ | 17.1 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 11 29 | 691 | 0.3− | 0.1+ | 2005 12 07 | 691 | 0.1+ | 0.0 | 2005 12 29 | 704 | 0.4+ | 1.3− |
| 2005 11 29 | 691 | 0.4− | 0.0 | 2005 12 07 | 691 | 0.2+ | 0.1− | 2005 12 29 | 704 | 1.7+ | 1.3− |
| 2005 11 29 | 691 | 0.5+ | 0.5+ | 2005 12 07 | 691 | 0.0 | 0.1+ | 2006 01 06 | 704 | 0.2+ | 0.4+ |
| 2005 11 29 | 704 | 0.5− | 0.2+ | 2005 12 27 | G96 | 0.1− | 0.1+ | 2006 01 06 | 704 | 0.9+ | 0.1+ |
| 2005 11 29 | 704 | 0.1+ | 0.5− | 2005 12 27 | G96 | 0.1+ | 0.2− | 2006 01 06 | 704 | 0.1− | 0.5+ |
| 2005 11 29 | 704 | 0.5− | 0.6− | 2005 12 27 | G96 | 0.0 | 0.0 | 2006 01 06 | 704 | 0.3+ | 0.6+ |
| 2005 11 30 | 704 | 0.3+ | 0.2− | 2005 12 27 | G96 | 0.4− | 0.1− | 2006 02 01 | G96 | 0.2− | 0.1− |
| 2005 11 30 | 704 | 0.2+ | 0.3+ | 2005 12 28 | 704 | 0.5− | 1.2− | 2006 02 01 | G96 | 0.3− | 0.0 |
| 2005 11 30 | 704 | 0.1+ | 0.1+ | 2005 12 28 | 704 | 0.1− | 0.5+ | 2006 02 01 | G96 | (1.6− | 3.5+) |
| 2005 12 03 | 691 | 0.1− | 0.2+ | 2005 12 28 | 704 | 0.4− | 0.1+ | 2006 02 01 | G96 | 0.4− | 0.2+ |
| 2005 12 03 | 691 | 0.2− | 0.1+ | 2005 12 29 | G96 | 0.1+ | 0.0 | 2007 04 22 | 691 | 0.0 | 0.1+ |
| 2005 12 03 | 691 | 0.1− | 0.0 | 2005 12 29 | 704 | (2.1+ | 0.7+) | 2007 04 22 | 691 | 0.2+ | 0.2+ |
| 2005 12 06 | 704 | 0.2− | 0.1+ | 2005 12 29 | G96 | 0.1− | 0.0 | 2007 04 22 | 691 | 0.1− | 0.0 |
| 2005 12 06 | 704 | 0.0 | 0.2− | 2005 12 29 | G96 | 0.1− | 0.2− | 2009 11 20 | 691 | 0.4− | 0.2− |
| 2005 12 06 | 704 | 0.6− | 0.1+ | 2005 12 29 | 704 | 1.7+ | 0.4+ | 2009 11 20 | 691 | 0.1− | 0.0 |
| 2005 12 06 | 704 | 0.5− | 0.2+ | 2005 12 29 | G96 | 0.0 | 0.1− | 2009 11 20 | 691 | 0.4+ | 0.0 |

**2005 WU$_{107}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 19.94205 | | (2000.0) | | | |
| $n$ | 0.22009705 | $\omega$ | 301.90618 | | +0.85077706 | −0.50977022 |
| $a$ | 2.7168140 | $\Omega$ | 89.03110 | | +0.51491984 | +0.76002967 |
| $e$ | 0.1504968 | $i$ | 7.33898 | | +0.10505212 | +0.40309952 |
| $P$ | 4.48 | $H$ | 16.5 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 28 | G96 | 0.1− | 0.5− | 2005 12 24 | 691 | 0.0 | 0.0 | 2005 12 29 | G96 | 0.3− | 0.4− |
| 2005 10 28 | G96 | 0.5+ | 0.9− | 2005 12 24 | 691 | 0.0 | 0.1+ | 2009 10 12 | J75 | 0.6+ | 0.4− |
| 2005 10 28 | G96 | 0.1− | 0.3− | 2005 12 24 | 691 | 0.0 | 0.1+ | 2009 10 12 | J75 | 0.1− | 1.3+ |
| 2005 10 28 | G96 | 0.9+ | 0.4− | 2005 12 25 | 291 | 0.2+ | 0.2+ | 2009 10 12 | J75 | 0.6+ | 0.3− |
| 2005 11 26 | G96 | 0.1− | 0.4− | 2005 12 25 | 291 | 0.0 | 0.2+ | 2009 11 08 | 703 | 0.4+ | 0.0 |
| 2005 11 26 | G96 | 0.1− | 0.3− | 2005 12 25 | 291 | 0.2− | 0.0 | 2009 11 08 | 703 | 0.4− | 0.8+ |
| 2005 11 26 | G96 | 0.3− | 0.4− | 2005 12 28 | 691 | 0.2+ | 0.0 | 2009 11 08 | 703 | 0.4+ | 0.7− |
| 2005 11 26 | G96 | 0.2− | 0.0 | 2005 12 28 | 691 | 0.1+ | 0.1− | 2009 11 08 | 703 | 1.0− | 0.5− |
| 2005 12 01 | G96 | 0.1− | 0.2− | 2005 12 28 | 691 | 0.0 | 0.6+ | 2009 11 23 | 703 | 0.6− | 0.5+ |
| 2005 12 01 | G96 | 0.3− | 0.2− | 2005 12 29 | G96 | 0.4− | 0.3− | 2009 11 23 | 703 | 1.0− | 0.6− |
| 2005 12 01 | G96 | 0.0 | 0.3− | 2005 12 29 | G96 | 0.1− | 0.2− | 2009 11 23 | 703 | 0.1+ | 0.3+ |
| 2005 12 01 | G96 | 0.0 | 0.1+ | 2005 12 29 | G96 | 0.1+ | 0.3− | 2009 11 23 | 703 | 0.7+ | 0.3+ |

**2005 WV$_{118}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 14.04325 | | (2000.0) | | | |
| $n$ | 0.23792757 | $\omega$ | 152.11165 | | +0.69020457 | −0.68788881 |
| $a$ | 2.5793258 | $\Omega$ | 253.24471 | | +0.61259649 | +0.72064148 |
| $e$ | 0.1489325 | $i$ | 13.56304 | | +0.38515346 | +0.08651502 |
| $P$ | 4.14 | $H$ | 16.9 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 11 06 | 691 | 0.0 | 0.0 | 2005 12 02 | 704 | 0.6− | 0.5+ | 2009 10 21 | G96 | 0.2− | 0.1− |
| 2005 11 06 | 691 | 0.2− | 0.2+ | 2005 12 02 | 704 | 0.2+ | 0.3− | 2009 10 21 | G96 | 0.1− | 0.3− |
| 2005 11 06 | 691 | 0.0 | 0.1+ | 2005 12 04 | 691 | 0.2− | 0.2− | 2009 10 21 | G96 | 0.3− | 0.1− |
| 2005 11 06 | G96 | 0.2+ | 0.4− | 2005 12 04 | 691 | 0.1− | 0.0 | 2009 10 21 | G96 | 0.2− | 0.1+ |
| 2005 11 06 | G96 | 0.2+ | 0.3− | 2005 12 04 | 691 | 0.1− | 0.1− | 2009 10 21 | G96 | 0.4− | 0.0 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 11 06 | G96 | 0.1+ | 0.4− | 2005 12 04 | 704 | (1.9+ | 1.2+) | 2009 11 19 | 703 | 0.2+ | 0.7+ |
| 2005 11 06 | G96 | 0.1− | 0.5− | 2005 12 04 | 704 | 0.7− | 0.8− | 2009 11 19 | 703 | 0.5− | 0.6+ |
| 2005 11 25 | 691 | 0.2− | 0.1+ | 2005 12 04 | 704 | 0.3+ | 0.7+ | 2009 11 19 | 703 | 0.0 | 0.9+ |
| 2005 11 25 | 691 | 0.1+ | 0.1− | 2005 12 04 | 704 | 0.1− | 0.2+ | 2009 11 19 | 703 | (0.9+ | 1.7−) |
| 2005 11 25 | 691 | 0.0 | 0.1+ | 2005 12 04 | G96 | 0.1+ | 0.1− | 2009 11 26 | G96 | 0.5+ | 0.4− |
| 2005 12 01 | 704 | 0.8+ | 0.2− | 2005 12 04 | G96 | 0.0 | 0.2− | 2009 11 26 | G96 | 0.2+ | 0.4− |
| 2005 12 01 | 704 | 0.2+ | 0.6+ | 2005 12 04 | G96 | 0.1− | 0.2− | 2009 11 26 | G96 | 0.3+ | 0.4− |
| 2005 12 01 | 704 | 0.2+ | 0.5− | 2005 12 04 | G96 | 0.3+ | 0.1− | 2009 11 26 | G96 | 0.5+ | 0.4− |
| 2005 12 01 | 704 | 0.4+ | 0.6+ | 2005 12 29 | G96 | 0.2+ | 0.2+ | 2009 11 26 | G96 | 0.3+ | 0.5− |
| 2005 12 02 | 704 | 0.5+ | 0.1− | 2005 12 29 | G96 | 0.0 | 0.1− | 2009 12 13 | 703 | 0.4− | 0.4+ |
| 2005 12 02 | 704 | 0.3− | 0.0 | 2005 12 29 | G96 | 0.0 | 0.2+ | 2009 12 13 | 703 | 0.3+ | 0.4+ |
| 2005 12 02 | 704 | 0.6− | 0.2+ | 2005 12 29 | G96 | 0.0 | 0.0 | 2009 12 13 | 703 | 0.6− | 0.2+ |
| 2005 12 02 | 704 | 0.3− | 0.9− | 2009 10 21 | G96 | 0.2− | 0.0 | 2009 12 13 | 703 | 0.7+ | 0.4+ |
| 2005 12 02 | 704 | 0.5+ | 0.3+ | 2009 10 21 | G96 | 0.0 | 0.2− | | | | |
| 2005 12 02 | 704 | 1.3+ | 0.1+ | 2009 10 21 | G96 | 0.1+ | 0.2− | | | | |

**2005 WZ$_{121}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 287.16897 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21278117 | $\omega$ | 26.17770 | | −0.54133970 | | −0.82884780 |
| $a$ | 2.7787358 | $\Omega$ | 96.90150 | | +0.74429411 | | −0.55055777 |
| $e$ | 0.1966126 | $i$ | 8.18214 | | +0.39112351 | | −0.09948601 |
| $P$ | 4.63 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 05 31 | 807 | 0.1− | 0.3+ | 2005 12 08 | 704 | 0.9− | 0.0 | 2006 02 05 | G96 | 0.0 | 0.5− |
| 2003 05 31 | 807 | 0.1+ | 0.1+ | 2005 12 08 | 704 | 0.8+ | 0.2+ | 2006 02 05 | G96 | 0.4− | 0.3− |
| 2005 11 30 | 704 | 0.2+ | 1.0+ | 2005 12 08 | 704 | 0.6− | 0.1+ | 2006 02 23 | G96 | 0.1+ | 0.1+ |
| 2005 11 30 | 704 | 0.2− | 0.3− | 2005 12 09 | 704 | 0.2+ | 0.1− | 2006 02 23 | G96 | 0.1− | 0.4+ |
| 2005 11 30 | 704 | 0.9+ | 0.5+ | 2005 12 09 | 704 | 0.1+ | 0.1− | 2006 02 23 | G96 | 0.2+ | 0.2+ |
| 2005 12 01 | 704 | 0.3− | 0.1− | 2005 12 09 | 704 | 0.0 | 0.2+ | 2006 02 23 | G96 | 0.9+ | 0.6+ |
| 2005 12 01 | 704 | 0.2+ | 0.5− | 2006 01 22 | G96 | 0.2+ | 0.4− | 2007 05 14 | G96 | 0.1+ | 0.0 |
| 2005 12 01 | 704 | 0.2− | 0.1− | 2006 01 22 | G96 | 0.3− | 0.5− | 2007 05 14 | G96 | 0.4− | 0.2+ |
| 2005 12 01 | 704 | 1.2− | 0.9− | 2006 01 22 | G96 | 0.1− | 0.4− | 2007 05 14 | G96 | 0.4+ | 0.0 |
| 2005 12 08 | 704 | 0.1+ | 0.4+ | 2006 02 05 | G96 | 0.3− | 0.1− | 2007 05 14 | G96 | 0.0 | 0.1+ |
| 2005 12 08 | 704 | 1.0+ | 1.3+ | 2006 02 05 | G96 | 0.1− | 0.1+ | | | | |

**2005 WE$_{123}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 236.16837 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18801183 | $\omega$ | 234.56907 | | −0.00001105 | | −0.99568107 |
| $a$ | 3.0177222 | $\Omega$ | 215.77790 | | +0.96123788 | | +0.02558722 |
| $e$ | 0.0713918 | $i$ | 9.13706 | | +0.27572038 | | −0.08924406 |
| $P$ | 5.24 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 26 | 691 | 0.0 | 0.1− | 2005 10 29 | 703 | 0.4+ | 0.6+ | 2005 12 02 | G96 | 0.0 | 0.0 |
| 2005 09 26 | 691 | 0.1+ | 0.1− | 2005 10 30 | 703 | 1.5− | 0.7+ | 2005 12 02 | G96 | 0.1− | 0.1+ |
| 2005 09 26 | 691 | 0.1− | 0.1+ | 2005 10 30 | 703 | 0.7− | 0.6− | 2005 12 02 | G96 | 0.2− | 0.1− |
| 2005 10 22 | 703 | 1.4− | 0.7+ | 2005 10 30 | 703 | 0.8+ | 0.8− | 2008 04 14 | 691 | 0.4− | 0.1+ |
| 2005 10 22 | 703 | 1.3+ | 0.2− | 2005 10 30 | 703 | 1.2+ | 0.1+ | 2008 04 14 | 691 | 0.1− | 0.1+ |
| 2005 10 22 | 703 | 1.1+ | 0.1− | 2005 11 25 | G96 | 0.3− | 0.0 | 2008 04 14 | 691 | 0.2+ | 0.1− |
| 2005 10 22 | 703 | 0.3− | 0.2+ | 2005 11 25 | G96 | 0.2+ | 0.2− | 2008 04 25 | G96 | 0.1+ | 0.4− |
| 2005 10 29 | 703 | 0.0 | 0.0 | 2005 11 25 | G96 | 0.3− | 0.2− | 2008 04 25 | G96 | 0.5+ | 0.2+ |
| 2005 10 29 | 703 | 0.3− | 0.1− | 2005 11 25 | G96 | 0.3− | 0.3− | 2008 04 25 | G96 | 0.3+ | 0.3− |
| 2005 10 29 | 703 | 0.0 | 0.4+ | 2005 12 02 | G96 | 0.2+ | 0.1− | 2008 04 25 | G96 | 0.2+ | 0.0 |

**2005 WR$_{134}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 56.06586 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22715803 | $\omega$ | 262.93963 | | +0.98825855 | | −0.04845647 |
| $a$ | 2.6602186 | $\Omega$ | 99.76229 | | +0.09961476 | | +0.92344311 |
| $e$ | 0.1567009 | $i$ | 8.45499 | | −0.11585306 | | +0.38066363 |
| $P$ | 4.34 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 04 24 | 691 | 0.2+ | 0.4− | 2005 12 02 | G96 | 0.3− | 0.0 | 2006 01 05 | 691 | 0.1+ | 0.1+ |
| 2003 04 24 | 691 | 0.3− | 0.3+ | 2005 12 02 | G96 | 0.6− | 0.0 | 2006 01 05 | 691 | 0.2+ | 0.2− |
| 2003 04 24 | 691 | 0.2+ | 0.4+ | 2005 12 02 | G96 | 0.2+ | 0.2− | 2009 11 17 | 703 | 0.0 | 0.1+ |
| 2004 08 22 | E12 | 0.3+ | 0.2− | 2005 12 02 | G96 | 0.1− | 0.2− | 2009 11 17 | 703 | 0.5− | 1.6− |
| 2004 08 22 | E12 | 1.0+ | 1.2+ | 2005 12 25 | 691 | 0.3− | 0.1+ | 2009 11 17 | 703 | 0.0 | 0.3− |
| 2004 08 22 | E12 | 0.5− | 0.4+ | 2005 12 25 | 691 | 0.2− | 0.0 | 2009 11 17 | 703 | 0.6+ | 0.9+ |
| 2004 08 22 | E12 | 1.1− | 0.9+ | 2005 12 25 | 691 | 0.1+ | 0.1+ | 2009 11 25 | G96 | 0.1+ | 0.1+ |
| 2005 11 25 | G96 | 0.4− | 0.2− | 2005 12 29 | 691 | 0.2+ | 0.4+ | 2009 11 25 | G96 | 0.2− | 0.2+ |
| 2005 11 25 | G96 | 0.0 | 0.0 | 2005 12 29 | 691 | 0.3+ | 0.1+ | 2009 11 25 | G96 | 0.0 | 0.1− |
| 2005 11 25 | G96 | 0.1− | 0.1+ | 2005 12 29 | 691 | 0.1+ | 0.1− | 2009 11 25 | G96 | 0.1+ | 0.0 |
| 2005 11 25 | G96 | 0.2− | 0.0 | 2006 01 05 | 691 | 0.1− | 0.5+ | | | | |

**2005 WS$_{134}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 344.75561 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23658129 | $\omega$ | 14.91108 | | −0.27421207 | | −0.95806947 |
| $a$ | 2.5891017 | $\Omega$ | 91.05706 | | +0.87358559 | | −0.28430458 |
| $e$ | 0.1773754 | $i$ | 4.76933 | | +0.40206462 | | −0.03569035 |
| $P$ | 4.17 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 29 | G96 | 0.5+ | 0.1− | 2005 12 24 | 691 | 0.2− | 0.1− | 2006 01 07 | G96 | 0.5− | 0.4− |
| 2005 10 29 | G96 | 0.3+ | 0.2− | 2005 12 28 | G96 | 0.1− | 0.4− | 2006 01 09 | 291 | 0.2+ | 0.8+ |
| 2005 10 29 | G96 | 0.5+ | 0.0 | 2005 12 28 | G96 | 0.5− | 0.3− | 2006 01 09 | 291 | 0.1+ | 0.0 |
| 2005 10 29 | G96 | 0.1+ | 0.0 | 2005 12 28 | G96 | 0.1− | 0.2− | 2006 01 09 | 691 | 0.1− | 0.0 |
| 2005 11 25 | G96 | 0.7− | 0.4− | 2005 12 28 | 691 | 0.1+ | 0.0 | 2006 01 09 | 291 | 0.0 | 0.1+ |
| 2005 11 25 | G96 | 0.3− | 0.7− | 2005 12 28 | G96 | 0.3− | 0.4− | 2006 01 09 | 691 | 0.0 | 0.1+ |
| 2005 11 25 | G96 | 0.3− | 0.4− | 2005 12 28 | 691 | 0.2− | 0.1+ | 2006 01 09 | 691 | 0.1+ | 0.2+ |
| 2005 11 25 | G96 | 0.1+ | 0.2− | 2005 12 28 | 691 | 0.0 | 0.0 | 2009 11 19 | 691 | 0.7− | 0.7+ |
| 2005 12 02 | G96 | 0.2− | 0.1− | 2006 01 05 | 691 | 0.3+ | 0.3+ | 2009 11 19 | 691 | 0.5+ | 0.0 |
| 2005 12 02 | G96 | 0.1+ | 0.0 | 2006 01 05 | 691 | 0.0 | 0.1− | 2009 11 19 | 691 | 0.8− | 0.1− |
| 2005 12 02 | G96 | 0.3− | 0.2− | 2006 01 05 | 691 | 0.1+ | 0.1− | 2009 12 11 | G96 | 1.0+ | 0.4− |
| 2005 12 02 | G96 | 0.1+ | 0.2− | 2006 01 07 | G96 | 0.0 | 0.0 | 2009 12 11 | G96 | 1.5+ | 0.4− |
| 2005 12 24 | 691 | 0.3− | 0.4− | 2006 01 07 | G96 | 1.0+ | 0.4− | 2009 12 11 | G96 | 0.7+ | 0.4− |
| 2005 12 24 | 691 | 0.0 | 0.1+ | 2006 01 07 | G96 | 0.0 | 0.6− | 2009 12 11 | G96 | 0.9+ | 0.5− |

**2005 WF$_{135}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 36.36191 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.24231570 | $\omega$ | 127.65807 | | +0.74937357 | | −0.65680498 |
| $a$ | 2.5480915 | $\Omega$ | 273.56295 | | +0.57794343 | | +0.71066832 |
| $e$ | 0.2779549 | $i$ | 4.82461 | | +0.32314185 | | +0.25210664 |
| $P$ | 4.07 | $H$ | 17.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 27 | G96 | 0.6− | 0.1− | 2005 12 28 | 691 | 0.1− | 0.2+ | 2006 02 04 | G96 | 0.1− | 0.4− |
| 2005 10 27 | G96 | 0.2+ | 0.1+ | 2005 12 28 | 691 | 0.2− | 0.6+ | 2006 02 04 | G96 | 0.6− | 0.4− |
| 2005 10 27 | G96 | 0.2+ | 0.5− | 2005 12 28 | 691 | 0.1+ | 0.1+ | 2006 02 04 | G96 | 0.0 | 0.5− |
| 2005 10 27 | G96 | 0.0 | 0.1− | 2006 01 05 | 691 | 0.2− | 0.1− | 2006 02 04 | G96 | 0.1− | 0.4− |
| 2005 11 25 | G96 | 0.1− | 0.3− | 2006 01 05 | 691 | 0.1− | 0.1+ | 2009 12 12 | A77 | 0.7− | 0.2+ |
| 2005 11 25 | G96 | 0.3+ | 0.2+ | 2006 01 05 | 691 | 0.2− | 0.1− | 2009 12 12 | A77 | 0.3− | 1.2− |
| 2005 11 25 | G96 | 0.2− | 0.0 | 2006 01 09 | 691 | 0.4+ | 0.2+ | 2009 12 12 | A77 | 0.6− | 0.3+ |
| 2005 11 25 | G96 | 0.3− | 0.3− | 2006 01 09 | 691 | 0.4+ | 0.1+ | 2009 12 15 | A77 | 0.1+ | 0.7− |
| 2005 12 02 | G96 | 0.1+ | 0.5+ | 2006 01 09 | 691 | 0.5+ | 0.1+ | 2009 12 16 | A77 | 1.0+ | 1.0− |
| 2005 12 02 | G96 | 0.2+ | 0.0 | 2006 01 23 | G96 | 0.1− | 0.6− | 2009 12 16 | A77 | 1.2+ | 0.8− |
| 2005 12 02 | G96 | 0.2+ | 0.3+ | 2006 01 23 | G96 | 0.2− | 0.5− | 2009 12 16 | G96 | 0.1− | 0.1+ |
| 2005 12 02 | G96 | 0.2+ | 0.4− | 2006 01 23 | G96 | 0.1+ | 0.5− | 2009 12 16 | G96 | 0.0 | 0.3− |
| 2005 12 24 | 691 | 0.4+ | 0.3+ | 2006 01 23 | G96 | 0.5− | 0.3− | 2009 12 16 | G96 | 0.2+ | 0.2+ |
| 2005 12 24 | 691 | 0.1− | 0.1+ | 2006 02 01 | 691 | 0.2+ | 0.3− | 2009 12 16 | G96 | 0.2− | 0.3− |
| 2005 12 24 | 691 | 0.3+ | 0.1+ | 2006 02 01 | 691 | 0.3+ | 0.1+ | 2009 12 20 | 691 | 0.1+ | 0.1+ |
| 2005 12 27 | G96 | 0.5− | 0.2− | 2006 02 01 | 691 | 0.2− | 0.0 | 2009 12 20 | 691 | 0.3− | 0.2+ |
| 2005 12 27 | G96 | 0.3+ | 0.7− | 2006 02 04 | 691 | 0.2− | 0.0 | 2009 12 20 | 691 | 0.1− | 0.2+ |
| 2005 12 27 | G96 | 0.7− | 0.2+ | 2006 02 04 | 691 | 0.1− | 0.5− | | | | |
| 2005 12 27 | G96 | 0.5− | 0.5− | 2006 02 04 | 691 | 0.4− | 0.6+ | | | | |

**2005 WM$_{141}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 216.66423 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22258252 | $\omega$ | 310.61311 | | −0.91792276 | +0.35535866 | |
| $a$ | 2.6965513 | $\Omega$ | 250.86717 | | −0.28358224 | −0.89867495 | |
| $e$ | 0.1167152 | $i$ | 10.76475 | | −0.27748679 | −0.25710611 | |
| $P$ | 4.43 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 11 01 | G96 | 0.0 | 0.0 | 2005 12 02 | G96 | 0.4+ | 0.4− | 2009 10 27 | G96 | 0.5+ | 0.4− |
| 2005 11 01 | G96 | 0.2+ | 0.1− | 2005 12 02 | G96 | 0.1+ | 0.1+ | 2009 10 27 | G96 | 0.8− | 0.0 |
| 2005 11 01 | G96 | 0.1− | 0.2− | 2005 12 02 | G96 | 0.2+ | 0.2− | 2009 10 27 | G96 | 0.4− | 0.3+ |
| 2005 11 01 | G96 | 0.3+ | 0.6+ | 2005 12 04 | 691 | 0.0 | 1.0+ | 2009 10 27 | G96 | 0.0 | 0.2− |
| 2005 11 28 | G96 | 0.5− | 0.7− | 2005 12 04 | 691 | 0.2− | 0.2+ | 2009 11 21 | G96 | 0.5+ | 0.2− |
| 2005 11 28 | G96 | 0.2+ | 1.0− | 2005 12 04 | 691 | 0.1− | 0.1− | 2009 11 21 | G96 | 0.1+ | 0.4+ |
| 2005 11 28 | G96 | 0.2+ | 0.2− | 2005 12 22 | 291 | 0.0 | 0.2− | 2009 11 21 | G96 | 0.2+ | 0.3− |
| 2005 11 28 | G96 | 0.4− | 0.2− | 2005 12 22 | 291 | 0.1− | 0.1− | 2009 11 21 | G96 | 0.1− | 0.4+ |
| 2005 12 02 | G96 | 0.1+ | 0.2− | 2005 12 22 | 291 | 0.2+ | 0.1− | | | | |

**2005 WP$_{163}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 3.78484 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.16932916 | $\omega$ | 268.55289 | | +0.77441879 | +0.62885122 | |
| $a$ | 3.2357991 | $\Omega$ | 52.47603 | | −0.54006941 | +0.71424247 | |
| $e$ | 0.0494671 | $i$ | 5.02286 | | −0.32954601 | +0.30725206 | |
| $P$ | 5.82 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 03 19 | 691 | 0.3− | 0.7− | 2005 12 05 | G96 | 1.2− | 0.6− | 2005 12 28 | G96 | 0.9+ | 0.1+ |
| 1996 03 19 | 691 | 0.1+ | 0.2− | 2005 12 07 | 691 | 0.2+ | 0.1− | 2008 04 01 | 691 | 0.0 | 0.2− |
| 1996 03 19 | 691 | 0.4− | 0.2− | 2005 12 07 | 691 | 0.1+ | 0.1+ | 2008 04 01 | 691 | 0.0 | 0.6+ |
| 2002 04 08 | 644 | 0.4+ | 0.8+ | 2005 12 07 | 691 | 0.1+ | 0.0 | 2008 04 01 | 691 | 0.2+ | 0.2+ |
| 2002 04 08 | 644 | 0.5+ | 0.8+ | 2005 12 10 | 691 | 0.1+ | 0.2+ | 2008 04 09 | 691 | 0.1− | 0.2+ |
| 2002 04 08 | 644 | 0.3+ | 0.9+ | 2005 12 10 | 691 | 0.2+ | 0.4+ | 2008 04 09 | 691 | 0.3− | 0.2+ |
| 2005 11 29 | 691 | 0.7− | 0.3− | 2005 12 10 | 691 | 0.0 | 0.3+ | 2008 04 09 | 691 | 0.6+ | 0.4− |
| 2005 11 29 | 691 | 0.0 | 0.0 | 2005 12 21 | 461 | 0.6+ | 0.1+ | 2008 06 01 | G96 | 0.3+ | 0.0 |
| 2005 11 29 | 691 | 0.3+ | 0.1− | 2005 12 21 | 461 | 0.1− | 1.0+ | 2008 06 01 | G96 | 0.4− | 0.1+ |
| 2005 12 05 | G96 | 0.4− | 0.1− | 2005 12 28 | G96 | 0.1− | 0.1+ | 2008 06 01 | G96 | 0.5− | 0.1− |
| 2005 12 05 | G96 | 0.4− | 0.1− | 2005 12 28 | G96 | 0.3− | 0.3− | 2008 06 01 | G96 | 0.1+ | 0.0 |
| 2005 12 05 | G96 | 0.3− | 0.0 | 2005 12 28 | G96 | 0.1+ | 0.3− | | | | |

**2005 WZ$_{163}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 55.43732 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.25922273 | $\omega$ | 134.10968 | | +0.77690323 | −0.61174567 | |
| $a$ | 2.4360563 | $\Omega$ | 264.17373 | | +0.52641698 | +0.76090779 | |
| $e$ | 0.1569782 | $i$ | 8.61139 | | +0.34540778 | +0.21630203 | |
| $P$ | 3.80 | $H$ | 17.4 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 11 21 | 691 | 0.1− | 0.1+ | 2005 12 05 | G96 | 0.2− | 0.1+ | 2006 01 05 | 691 | 0.1− | 0.0 |
| 2005 11 21 | 691 | 0.4+ | 0.2− | 2005 12 05 | G96 | 0.2+ | 0.4+ | 2009 12 18 | G96 | 0.3+ | 0.2− |
| 2005 11 21 | 691 | 0.0 | 0.5− | 2005 12 25 | G96 | 0.2+ | 0.3+ | 2009 12 18 | G96 | 0.1− | 0.4− |
| 2005 11 29 | 691 | 0.1− | 0.2+ | 2005 12 25 | G96 | 0.1+ | 0.1− | 2009 12 18 | G96 | 0.1+ | 0.3− |
| 2005 11 29 | 691 | 0.3− | 0.1+ | 2005 12 25 | G96 | 0.0 | 0.1+ | 2009 12 18 | G96 | 0.3+ | 0.1− |
| 2005 11 29 | 691 | 0.1− | 0.2+ | 2005 12 25 | G96 | 0.5+ | 0.3− | 2009 12 20 | 691 | 0.2+ | 0.4− |
| 2005 12 05 | G96 | 0.1+ | 0.1+ | 2006 01 05 | 691 | 0.1− | 0.1− | 2009 12 20 | 691 | 0.1− | 0.6+ |
| 2005 12 05 | G96 | 0.0 | 0.3+ | 2006 01 05 | 691 | 0.2+ | 0.0 | 2009 12 20 | 691 | 0.2− | 0.1+ |

**2005 WG$_{168}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 32.42082 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.25298686 | $\omega$ | 330.31336 | | +0.61572762 | −0.78741249 | |
| $a$ | 2.4759246 | $\Omega$ | 81.66615 | | +0.72865521 | +0.55481744 | |
| $e$ | 0.2216798 | $i$ | 1.69948 | | +0.29990178 | +0.26862463 | |
| $P$ | 3.90 | $H$ | 18.5 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 11 30 | 691 | 0.0 | 0.2+ | 2005 12 25 | G96 | 0.6+ | 0.1− | 2009 12 16 | G96 | 0.6+ | 0.2− |
| 2005 11 30 | 691 | 0.1− | 0.3+ | 2005 12 25 | G96 | 0.0 | 0.1− | 2009 12 16 | G96 | 0.5+ | 0.0 |
| 2005 11 30 | 691 | 0.2− | 0.2− | 2005 12 25 | G96 | 0.0 | 0.3− | 2009 12 16 | G96 | 0.3+ | 0.2− |
| 2005 12 04 | 691 | 0.1+ | 0.3+ | 2005 12 25 | G96 | 0.5+ | 0.3− | 2009 12 16 | G96 | 0.3+ | 1.0− |
| 2005 12 04 | 691 | 0.4+ | 0.1− | 2006 01 07 | G96 | 0.3+ | 0.2− | 2009 12 17 | 691 | 0.4− | 0.2+ |
| 2005 12 04 | 691 | 0.3+ | 0.1− | 2006 01 07 | G96 | 0.6− | 0.5− | 2009 12 17 | 691 | 0.2+ | 0.1− |
| 2005 12 08 | 691 | 0.3+ | 0.1− | 2006 01 07 | G96 | 0.3− | 0.2+ | 2009 12 17 | 691 | 0.3− | 0.4+ |
| 2005 12 08 | 691 | 0.3+ | 0.1+ | 2006 01 07 | G96 | 0.5+ | 0.2+ | | | | |
| 2005 12 08 | 691 | 1.3− | 0.4− | 2009 12 16 | G96 | 0.2+ | 0.0 | | | | |

**2005 WC$_{172}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 118.78269 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23965234 | $\omega$ | 217.47303 | | +0.29388790 | +0.92716384 | |
| $a$ | 2.5669353 | $\Omega$ | 70.68059 | | −0.80653750 | +0.37100899 | |
| $e$ | 0.1942078 | $i$ | 14.25505 | | −0.51295922 | −0.05214924 | |
| $P$ | 4.11 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 11 04 | 691 | 0.0 | 0.3+ | 2005 12 05 | G96 | 0.1+ | 0.1− | 2009 11 17 | G96 | 0.1+ | 0.2+ |
| 2005 11 04 | 691 | 0.0 | 0.2− | 2005 12 05 | G96 | 0.3+ | 0.1+ | 2009 11 17 | G96 | 0.3− | 0.1+ |
| 2005 11 04 | 691 | 0.1+ | 0.3− | 2005 12 05 | G96 | 0.1+ | 0.3+ | 2009 11 17 | G96 | 0.1− | 0.1− |
| 2005 11 30 | G96 | 0.0 | 0.2− | 2005 12 05 | G96 | 0.3− | 0.2+ | 2009 11 24 | G96 | 0.3+ | 0.1− |
| 2005 11 30 | G96 | 0.1+ | 0.0 | 2005 12 05 | G96 | 0.4+ | 0.2+ | 2009 11 24 | G96 | 0.1+ | 0.5+ |
| 2005 11 30 | G96 | 0.0 | 0.2− | 2005 12 05 | G96 | 0.2+ | 0.0 | 2009 11 24 | G96 | 0.0 | 0.1+ |
| 2005 11 30 | G96 | 0.7− | 0.1+ | 2005 12 05 | G96 | 0.1− | 0.1+ | 2009 11 24 | G96 | 0.1+ | 0.2+ |
| 2005 12 04 | G96 | 0.1+ | 0.4− | 2009 10 12 | G96 | 0.6− | 0.1− | 2009 12 19 | G96 | 0.2− | 0.1+ |
| 2005 12 04 | G96 | 0.3− | 0.0 | 2009 10 12 | G96 | 0.1+ | 0.5− | 2009 12 19 | G96 | 0.4− | 0.6− |
| 2005 12 04 | G96 | 0.2+ | 0.2+ | 2009 10 12 | G96 | 0.5+ | 0.2+ | 2009 12 19 | G96 | 0.6− | 0.4− |
| 2005 12 04 | G96 | 0.2− | 0.0 | 2009 10 12 | G96 | 0.2+ | 0.6+ | 2009 12 19 | G96 | 0.3+ | 0.3+ |
| 2005 12 05 | G96 | 0.3+ | 0.2+ | 2009 11 17 | G96 | 0.3+ | 0.2− | | | | |

**2005 WP$_{172}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 39.13984 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19701381 | $\omega$ | 244.75493 | | +0.71023797 | +0.67019167 | |
| $a$ | 2.9250835 | $\Omega$ | 72.34572 | | −0.53669115 | +0.71352573 | |
| $e$ | 0.0482950 | $i$ | 13.06553 | | −0.45554871 | +0.20426492 | |
| $P$ | 5.00 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 29 | G96 | 0.1− | 0.1− | 2005 12 02 | 695 | 0.2− | 0.2+ | 2005 12 25 | G96 | 0.2− | 0.2− |
| 2005 10 29 | G96 | 0.4− | 0.3− | 2005 12 02 | 695 | 0.2− | 0.2+ | 2005 12 25 | G96 | 0.6− | 0.4− |
| 2005 10 29 | G96 | 0.1+ | 0.1− | 2005 12 04 | G96 | 0.2− | 0.2+ | 2008 04 04 | 691 | 0.1− | 0.0 |
| 2005 10 29 | G96 | 0.5+ | 0.1− | 2005 12 04 | G96 | 0.0 | 0.0 | 2008 04 04 | 691 | 0.6+ | 0.2+ |
| 2005 11 04 | 691 | 0.1− | 0.2+ | 2005 12 04 | G96 | 0.3− | 0.2+ | 2008 04 04 | 691 | 0.7− | 0.0 |
| 2005 11 04 | 691 | 0.1+ | 0.2+ | 2005 12 04 | G96 | 0.1− | 0.0 | 2008 05 02 | 691 | 0.1+ | 0.2− |
| 2005 11 04 | 691 | 0.0 | 0.1− | 2005 12 04 | G96 | 0.1+ | 0.1+ | 2008 05 02 | 691 | 0.3− | 0.3− |
| 2005 11 30 | G96 | 0.2+ | 0.3+ | 2005 12 04 | G96 | 0.0 | 0.1+ | 2008 05 02 | 691 | 0.7+ | 0.4− |
| 2005 11 30 | G96 | 0.1− | 0.2+ | 2005 12 04 | G96 | 0.0 | 0.2+ | 2008 06 01 | 691 | 0.5+ | 0.2+ |
| 2005 11 30 | G96 | 0.1+ | 0.2+ | 2005 12 04 | G96 | 0.0 | 0.2+ | 2008 06 01 | 691 | 0.4+ | 0.3+ |
| 2005 11 30 | G96 | 0.3+ | 0.1+ | 2005 12 25 | G96 | 0.6+ | 0.4− | 2008 06 01 | 691 | 1.1− | 0.6+ |
| 2005 12 02 | 695 | 0.2− | 0.1+ | 2005 12 25 | G96 | 0.2+ | 0.4− | | | | |

**2005 WG$_{180}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 275.58414 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18512609 | $\omega$ | 19.84440 | | +0.42136388 | −0.89777234 | |
| $a$ | 3.0490014 | $\Omega$ | 45.48416 | | +0.80587427 | +0.30578291 | |
| $e$ | 0.0796032 | $i$ | 10.36452 | | +0.41595570 | +0.31701995 | |
| $P$ | 5.32 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 11 08 | 704 | 0.1+ | 1.3+ | 2005 12 02 | G96 | 0.1+ | 0.2− | 2007 02 22 | 703 | 1.2− | 0.6+ |
| 2005 11 08 | 704 | 0.6+ | 0.4− | 2005 12 02 | 704 | 0.3− | 0.5+ | 2007 02 22 | 703 | 0.7− | 0.7− |
| 2005 11 08 | 704 | 0.8+ | 0.1− | 2005 12 02 | G96 | 0.1− | 0.1− | 2007 02 22 | 703 | 1.3+ | 0.7+ |
| 2005 11 08 | 704 | 1.0− | 1.1+ | 2005 12 02 | 704 | 0.2+ | 0.4− | 2007 02 23 | G96 | 0.2+ | 0.2+ |
| 2005 11 21 | 703 | 0.2− | 0.1− | 2005 12 02 | 704 | 0.7− | 0.5+ | 2007 02 23 | G96 | 0.1+ | 0.3− |
| 2005 11 21 | 703 | 0.8− | 0.4− | 2005 12 02 | 704 | 0.6+ | 0.0 | 2007 02 23 | G96 | 0.1+ | 0.2− |
| 2005 11 21 | 703 | 0.5− | 0.4− | 2006 01 23 | G96 | 0.5+ | 0.3− | 2007 02 23 | G96 | 0.3+ | 0.3− |
| 2005 11 21 | 703 | 0.3− | 0.1+ | 2006 01 23 | G96 | 0.3+ | 0.9− | 2008 02 12 | G96 | 0.2− | 0.1+ |
| 2005 12 02 | G96 | 0.1+ | 0.1− | 2006 01 23 | G96 | 0.7+ | 0.1+ | 2008 02 12 | G96 | 0.1− | 0.4− |
| 2005 12 02 | 704 | 0.3+ | 0.3+ | 2006 01 23 | G96 | 0.1+ | 0.1− | 2008 02 12 | G96 | 0.6+ | 0.7+ |
| 2005 12 02 | G96 | 0.2− | 0.1− | 2007 02 22 | 703 | (1.0+ | 1.7−) | 2008 02 12 | G96 | 0.2+ | 0.6+ |

**2005 WU$_{186}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 332.36181 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17353633 | $\omega$ | 290.70175 | | +0.89329281 | +0.42787140 | |
| $a$ | 3.1832868 | $\Omega$ | 44.27255 | | −0.30266360 | +0.79905383 | |
| $e$ | 0.0886248 | $i$ | 11.37442 | | −0.33229911 | +0.42242045 | |
| $P$ | 5.68 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 09 15 | 691 | 0.7− | 0.1+ | 2005 11 29 | 691 | 0.3+ | 0.1− | 2008 03 10 | G96 | 0.1+ | 0.3− |
| 1999 09 15 | 691 | 0.1− | 0.2− | 2005 11 29 | 691 | 0.1− | 0.1+ | 2008 03 10 | G96 | 0.4− | 0.8− |
| 1999 09 15 | 691 | 0.8+ | 0.0 | 2005 11 29 | 691 | 0.0 | 0.0 | 2008 03 10 | G96 | 0.4− | 0.6− |
| 2005 10 28 | 691 | 0.1− | 0.2+ | 2005 12 06 | 691 | 0.3− | 0.4− | 2008 03 10 | G96 | 0.3− | 0.4− |
| 2005 10 28 | 691 | 0.0 | 0.3+ | 2005 12 06 | 691 | 0.1− | 0.3− | 2008 04 29 | 291 | 0.0 | 0.2+ |
| 2005 10 28 | 691 | 0.0 | 0.1− | 2005 12 06 | 691 | 0.0 | 0.2− | 2008 04 29 | 291 | 0.2+ | 0.2+ |
| 2005 11 12 | 691 | 0.1+ | 0.2+ | 2005 12 08 | 691 | 0.1+ | 0.1− | 2008 04 29 | 291 | 0.1+ | 0.3+ |
| 2005 11 12 | 691 | 0.0 | 0.5+ | 2005 12 08 | 691 | 0.2− | 0.1− | | | | |
| 2005 11 12 | 691 | 0.2+ | 0.4+ | 2005 12 08 | 691 | 0.0 | 0.2− | | | | |

**2005 WR$_{187}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 67.88043 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23475648 | $\omega$ | 230.99557 | | +0.88391263 | +0.38352211 | |
| $a$ | 2.6025015 | $\Omega$ | 104.96823 | | −0.29528554 | +0.90143695 | |
| $e$ | 0.1080441 | $i$ | 16.08111 | | −0.36263607 | +0.20080393 | |
| $P$ | 4.20 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 11 22 | 703 | (2.6− | 0.4−) | 2005 12 06 | 704 | 0.6+ | 0.5− | 2009 11 11 | 703 | 0.1+ | 0.9+ |
| 2005 11 22 | 703 | (3.6− | 2.9−) | 2005 12 06 | 704 | 0.6− | 1.2− | 2009 11 11 | 703 | 0.1− | 0.3+ |
| 2005 11 22 | 703 | (0.7− | 2.8−) | 2005 12 06 | 704 | 0.4+ | 0.6+ | 2009 11 11 | 703 | 1.0+ | 0.5− |
| 2005 11 22 | 703 | 1.1− | 0.9− | 2005 12 06 | 704 | 0.8− | 0.3− | 2009 11 18 | 703 | 0.7− | 0.1− |
| 2005 11 29 | 703 | 0.6− | 0.1+ | 2005 12 30 | 644 | 0.3+ | 0.1− | 2009 11 18 | 703 | 0.7+ | 0.1− |
| 2005 11 29 | 703 | 0.6− | 0.8+ | 2005 12 30 | 644 | 0.4− | 0.1+ | 2009 11 18 | 703 | 0.1− | 0.3+ |
| 2005 11 29 | 703 | 1.0+ | 0.9+ | 2005 12 30 | 644 | 0.2+ | 0.2+ | 2009 11 18 | 703 | 1.7+ | 0.1+ |
| 2005 11 29 | 703 | 0.1− | 0.3− | 2007 03 15 | 703 | 0.2+ | 0.4+ | 2009 12 15 | 703 | 0.8− | 0.1− |
| 2005 12 05 | 703 | 1.2+ | 0.6+ | 2007 03 15 | 703 | 0.3+ | 0.7+ | 2009 12 15 | 703 | 0.8+ | 1.0− |
| 2005 12 05 | 703 | 0.2+ | 0.7+ | 2007 03 15 | 703 | 0.3− | 0.6− | 2009 12 15 | 703 | 0.1+ | 0.1− |
| 2005 12 05 | 703 | (1.7+ | 0.5+) | 2007 03 15 | 703 | 0.2− | 0.8− | 2009 12 15 | 703 | 1.3− | 0.5+ |
| 2005 12 05 | 703 | 0.1+ | 0.1− | 2009 11 11 | 703 | 1.1− | 0.9− | | | | |

**2005 WM$_{191}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 312.20136 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17353308 | $\omega$ | 254.43667 | | +0.84095490 | +0.47884804 | |
| $a$ | 3.1833267 | $\Omega$ | 76.36948 | | −0.34103344 | +0.83059555 | |
| $e$ | 0.2305678 | $i$ | 15.02816 | | −0.42010837 | +0.28428083 | |
| $P$ | 5.68 | $H$ | 15.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 25 | 644 | 0.0 | 0.0 | 2005 11 03 | 703 | 0.1+ | 0.2+ | 2005 11 29 | 703 | 0.7− | 1.0+ |
| 2005 09 25 | 644 | 0.1− | 0.2+ | 2005 11 03 | 703 | 0.0 | 0.3− | 2005 11 29 | 703 | 0.3− | 0.5+ |
| 2005 09 25 | 644 | 0.1− | 0.4− | 2005 11 03 | 703 | 0.5+ | 0.4− | 2005 11 29 | 703 | 0.0 | 0.3− |
| 2005 09 30 | 644 | 0.1− | 0.2+ | 2005 11 19 | 644 | 0.1− | 0.2− | 2009 03 24 | G96 | 0.2+ | 0.1− |
| 2005 09 30 | 644 | 0.5− | 0.1− | 2005 11 19 | 644 | 0.2− | 0.2+ | 2009 03 24 | G96 | 0.5− | 0.6+ |
| 2005 09 30 | 644 | 0.1+ | 0.2− | 2005 11 19 | 644 | 0.2+ | 0.6− | 2009 03 24 | G96 | 0.1− | 0.1− |
| 2005 10 27 | 699 | 0.3+ | 1.3+ | 2005 11 22 | 703 | 0.3− | 1.1− | 2009 03 24 | G96 | 0.3+ | 0.0 |
| 2005 10 27 | 699 | 0.1− | 0.4+ | 2005 11 22 | 703 | 0.5− | 0.1− | 2009 04 29 | G96 | 0.1+ | 0.1− |
| 2005 10 27 | 699 | 1.0+ | 0.2− | 2005 11 22 | 703 | 0.8+ | 0.2+ | 2009 04 29 | G96 | 0.1− | 0.2− |
| 2005 10 27 | 699 | 0.3+ | 0.0 | 2005 11 22 | 703 | 0.8+ | 0.6− | 2009 04 29 | G96 | 0.3+ | 0.3+ |
| 2005 11 03 | 703 | 0.8− | 0.0 | 2005 11 29 | 703 | 0.5− | 0.1+ | 2009 04 29 | G96 | 0.3− | 0.3− |

**2005 WJ$_{193}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 300.88150 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22997588 | $\omega$ | 184.47916 | | −0.00620389 | −0.93244898 | |
| $a$ | 2.6384438 | $\Omega$ | 266.17921 | | +0.92834475 | +0.12889935 | |
| $e$ | 0.0313429 | $i$ | 21.22634 | | +0.37166859 | −0.33752608 | |
| $P$ | 4.29 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 31 | 703 | 1.1+ | 0.7+ | 2005 11 10 | 703 | 1.4+ | 0.3− | 2009 10 15 | 703 | 0.0 | 0.4+ |
| 2005 10 31 | 703 | 0.0 | 0.2+ | 2005 11 10 | 703 | 0.3− | 0.8− | 2009 10 15 | 703 | 0.6+ | 0.2+ |
| 2005 10 31 | 703 | 0.4− | 0.6+ | 2005 11 28 | 703 | 0.2− | 0.6− | 2009 10 15 | 703 | 1.1− | 0.4− |
| 2005 10 31 | 703 | 0.1+ | 1.1− | 2005 11 28 | 703 | 0.4− | 1.1+ | 2009 10 15 | 703 | 0.5− | 0.4+ |
| 2005 11 04 | 699 | 0.7+ | 0.6− | 2005 11 28 | 703 | 1.3+ | 0.2+ | 2009 11 10 | G96 | 0.2+ | 0.5− |
| 2005 11 04 | 699 | 1.0+ | 0.2+ | 2005 11 28 | 703 | 0.2− | 0.4− | 2009 11 10 | G96 | 0.1+ | 0.2− |
| 2005 11 04 | 699 | (2.6+ | 0.4−) | 2005 12 04 | 703 | 0.0 | 0.2− | 2009 11 10 | G96 | 0.3+ | 0.1− |
| 2005 11 04 | 699 | 0.4+ | 1.2+ | 2005 12 04 | 703 | 1.0− | 0.8− | 2009 11 10 | G96 | 0.6+ | 0.1− |
| 2005 11 10 | 703 | 0.3+ | 0.9+ | 2005 12 04 | 703 | 1.8− | 0.8+ | | | | |
| 2005 11 10 | 703 | 1.6− | 0.2− | 2005 12 04 | 703 | 0.9− | 0.7− | | | | |

**2005 WM$_{194}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 100.47942 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24361932 | $\omega$ | 198.01582 | | +0.71146434 | +0.67532152 | |
| $a$ | 2.5389934 | $\Omega$ | 117.88633 | | −0.61466335 | +0.73207038 | |
| $e$ | 0.0882786 | $i$ | 12.70004 | | −0.34059867 | +0.08951986 | |
| $P$ | 4.05 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 5 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 11 01 | 703 | 0.7+ | 0.1+ | 2005 11 22 | 703 | 1.2− | 0.7+ | 2009 11 21 | 703 | 0.3+ | 0.2+ |
| 2005 11 01 | 703 | 0.5− | 0.0 | 2005 11 22 | 703 | 0.0 | 0.4− | 2009 11 21 | 703 | 0.1− | 0.0 |
| 2005 11 01 | 703 | 0.0 | 0.8− | 2005 11 29 | 703 | (2.6+ | 0.3−) | 2009 11 21 | 703 | 0.3− | 0.4+ |
| 2005 11 01 | 703 | (1.8− | 2.3−) | 2005 11 29 | 703 | (2.2+ | 0.8+) | 2009 11 21 | 703 | 0.4+ | 0.3+ |
| 2005 11 09 | 703 | 0.7− | 0.2+ | 2005 11 29 | 703 | 0.2+ | 0.6− | 2009 12 13 | 703 | 0.6+ | 0.1+ |
| 2005 11 09 | 703 | 0.3+ | 0.2+ | 2005 11 29 | 703 | (1.9+ | 0.4−) | 2009 12 13 | 703 | 0.4− | 0.2+ |
| 2005 11 09 | 703 | 1.2+ | 0.2+ | 2005 12 05 | 703 | 0.6− | 0.1+ | 2009 12 13 | 703 | 0.8− | 0.7− |
| 2005 11 09 | 703 | 0.4− | 0.2− | 2005 12 05 | 703 | 0.5+ | 0.2+ | 2009 12 13 | 703 | 0.1− | 0.1+ |
| 2005 11 22 | 703 | (0.2− | 1.9+) | 2005 12 05 | 703 | 0.2− | 0.4+ | | | | |
| 2005 11 22 | 703 | 0.4+ | 0.7− | 2005 12 05 | 703 | 0.4+ | 0.0 | | | | |

**2005 WW$_{195}$ = 2009 XA$_8$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 354.09766 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22768481 | $\omega$ | 162.13592 | | −0.19750928 | −0.97660399 | |
| $a$ | 2.6561138 | $\Omega$ | 299.18097 | | +0.88710298 | −0.14113335 | |
| $e$ | 0.1311439 | $i$ | 5.59071 | | +0.41717908 | −0.16225295 | |
| $P$ | 4.33 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 11 25 | G96 | 0.0 | 0.0 | 2006 01 23 | G96 | 0.2+ | 0.1+ | 2009 11 18 | 691 | 0.2− | 0.1+ |
| 2005 11 25 | G96 | 0.4+ | 0.4− | 2006 01 23 | G96 | 0.3+ | 0.1+ | 2009 11 18 | 691 | 0.6− | 0.0 |
| 2005 11 25 | G96 | 0.3− | 0.2− | 2006 01 23 | G96 | 0.3+ | 0.1+ | 2009 12 15 | H06 | 0.5+ | 0.2− |
| 2005 11 25 | G96 | 0.0 | 0.1− | 2006 01 23 | G96 | 0.0 | 0.1+ | 2009 12 15 | H06 | 0.0 | 0.2+ |
| 2005 12 06 | G96 | 0.3+ | 0.2+ | 2006 02 01 | G96 | 0.4+ | 0.1+ | 2009 12 15 | H06 | 0.8+ | 0.2− |
| 2005 12 06 | G96 | 0.0 | 0.5+ | 2006 02 01 | G96 | 0.6+ | 0.3+ | 2009 12 16 | H06 | 0.1+ | 0.1+ |
| 2005 12 06 | G96 | 0.1+ | 0.3− | 2006 02 01 | G96 | 0.4+ | 0.2+ | 2009 12 16 | H06 | 0.6+ | 0.5− |
| 2005 12 06 | G96 | 0.3− | 0.3+ | 2006 02 01 | G96 | 1.7− | 0.2+ | 2009 12 16 | H06 | 0.3+ | 0.0 |
| 2006 01 05 | G96 | 0.3+ | 0.2+ | 2008 09 19 | 691 | 0.1− | 0.5+ | 2009 12 17 | H06 | 0.2+ | 0.5− |
| 2006 01 05 | G96 | 0.4− | 0.1+ | 2008 09 19 | 691 | 0.2− | 0.2− | 2009 12 17 | H06 | 1.0+ | 0.3+ |
| 2006 01 05 | G96 | 0.0 | 0.3+ | 2008 09 19 | 691 | 0.1+ | 0.1+ | 2009 12 17 | H06 | 0.1− | 0.2+ |
| 2006 01 05 | G96 | 0.5+ | 0.2+ | 2009 11 18 | 691 | 0.2− | 0.1− | | | | |

**2005 WK$_{196}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 306.49362 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22015977 | $\omega$ | 22.37818 | | −0.82047024 | −0.53447293 | |
| $a$ | 2.7162980 | $\Omega$ | 123.72435 | | +0.48060265 | −0.83704311 | |
| $e$ | 0.1119688 | $i$ | 14.11976 | | +0.30959598 | −0.11703640 | |
| $P$ | 4.48 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 04 11 | 644 | 0.0 | 0.2− | 2006 01 23 | 691 | 0.1+ | 0.3+ | 2006 02 04 | 704 | 0.6− | 0.3− |
| 2002 04 11 | 644 | 0.1+ | 0.4+ | 2006 01 23 | 691 | 0.1− | 0.3+ | 2006 02 20 | 704 | 0.4− | 1.0− |
| 2002 04 11 | 644 | 0.0 | 0.1+ | 2006 01 23 | 691 | 0.1+ | 0.2+ | 2006 02 20 | 704 | 0.4+ | 0.0 |
| 2005 11 30 | G96 | 0.2+ | 0.0 | 2006 01 26 | 703 | 0.4− | 0.2+ | 2006 02 20 | 704 | 0.2− | 0.7+ |
| 2005 11 30 | G96 | 0.2− | 0.3− | 2006 01 26 | 703 | 0.3− | 0.1− | 2006 02 20 | 704 | 0.6+ | 0.3− |
| 2005 11 30 | G96 | 0.7− | 0.1− | 2006 01 26 | 703 | 0.4+ | 0.4− | 2006 02 20 | 704 | 0.7+ | 0.2+ |
| 2005 11 30 | G96 | 0.4+ | 0.2− | 2006 01 26 | 703 | 0.4− | 0.4+ | 2006 02 21 | 699 | 0.1+ | 0.9+ |
| 2005 12 06 | G96 | 0.3+ | 0.2− | 2006 01 27 | 699 | 0.2+ | 0.4− | 2006 02 21 | 699 | 0.2− | 0.2+ |
| 2005 12 06 | G96 | 0.1− | 0.2+ | 2006 01 27 | 699 | 0.5+ | 0.4− | 2006 02 21 | 699 | 0.3− | 0.1− |
| 2005 12 06 | G96 | 0.1+ | 0.1− | 2006 01 27 | 699 | 0.3+ | 0.7+ | 2006 02 21 | 699 | 0.6− | 0.6+ |
| 2005 12 06 | G96 | 0.2+ | 0.0 | 2006 01 27 | 699 | 0.8+ | 0.2− | 2006 02 28 | 703 | 0.6− | 0.0 |
| 2005 12 26 | G96 | 0.0 | 0.4− | 2006 01 31 | 691 | 0.3+ | 0.2− | 2006 02 28 | 703 | 0.3− | 0.9− |
| 2005 12 26 | G96 | 0.5− | 0.2− | 2006 01 31 | 691 | 0.3+ | 0.2− | 2006 02 28 | 703 | 0.8− | 0.2− |
| 2005 12 26 | G96 | 0.2+ | 0.5− | 2006 01 31 | 691 | 0.2+ | 0.2− | 2006 02 28 | 703 | 0.6+ | 1.0− |
| 2005 12 26 | G96 | 0.3+ | 0.3− | 2006 02 04 | 704 | 0.5− | 1.0+ | 2009 12 15 | 703 | 0.3− | 1.1− |
| 2006 01 20 | 691 | 0.2− | 0.4− | 2006 02 04 | 704 | 0.1− | 0.3+ | 2009 12 15 | 703 | 0.1+ | 0.2− |
| 2006 01 20 | 691 | 0.1+ | 0.3+ | 2006 02 04 | 704 | 0.7− | 0.5+ | 2009 12 15 | 703 | 0.3− | 1.7+ |
| 2006 01 20 | 691 | 0.1+ | 0.0 | 2006 02 04 | 704 | 1.1− | 0.3+ | 2009 12 15 | 703 | 0.4+ | 0.1+ |

**2005 WH$_{205}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 289.53778 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23169317 | $\omega$ | 230.76794 | | −0.72865265 | −0.68457401 | |
| $a$ | 2.6253904 | $\Omega$ | 266.01938 | | +0.63455493 | −0.66349404 | |
| $e$ | 0.1447860 | $i$ | 1.18236 | | +0.25769236 | −0.30188423 | |
| $P$ | 4.25 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 11 03 | 691 | 0.1+ | 0.3− | 2006 01 05 | G96 | 0.4− | 0.2− | 2009 09 21 | G96 | 0.2− | 0.1− |
| 2005 11 03 | 691 | 0.3+ | 0.2+ | 2006 01 05 | G96 | 0.2+ | 0.0 | 2009 09 21 | G96 | 0.5+ | 0.0 |
| 2005 11 03 | 691 | 0.2+ | 0.1− | 2006 01 05 | G96 | 0.2− | 0.1− | 2009 10 25 | 691 | 0.1− | 0.2+ |
| 2005 11 26 | G96 | 0.6− | 0.1+ | 2006 01 05 | G96 | 0.2− | 0.3+ | 2009 10 25 | 691 | 0.3− | 0.0 |
| 2005 11 26 | G96 | 0.0 | 0.1+ | 2006 01 23 | G96 | 0.1− | 0.0 | 2009 10 25 | 691 | 0.1+ | 0.2+ |
| 2005 11 26 | G96 | 0.6− | 0.2+ | 2006 01 23 | G96 | 0.8+ | 0.0 | 2009 11 24 | G96 | 0.1− | 0.4− |
| 2005 11 26 | G96 | 0.0 | 0.2− | 2006 01 23 | G96 | 0.5− | 0.2− | 2009 11 24 | G96 | 0.2+ | 0.4− |
| 2005 12 02 | 695 | 0.3− | 0.2+ | 2006 01 23 | G96 | 0.4+ | 0.2+ | 2009 11 24 | G96 | 0.5+ | 0.2− |
| 2005 12 02 | 695 | 0.5− | 0.0 | 2009 09 21 | G96 | 0.3+ | 0.3− | 2009 11 24 | G96 | 0.3+ | 0.7− |
| 2005 12 02 | 695 | 0.3− | 0.1+ | 2009 09 21 | G96 | 0.0 | 0.2+ | | | | |

**2005 WH$_{208}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 180.32575 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21511917 | $\omega$ | 333.09459 | | −0.08373925 | +0.99589262 | |
| $a$ | 2.7585656 | $\Omega$ | 292.08522 | | −0.90744062 | −0.09048868 | |
| $e$ | 0.0489613 | $i$ | 2.12958 | | −0.41175146 | −0.00311403 | |
| $P$ | 4.58 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 11 25 | G96 | 0.2− | 0.2− | 2006 01 22 | G96 | 0.0 | 0.0 | 2008 09 07 | G96 | 0.1+ | 0.1+ |
| 2005 11 25 | G96 | 0.7− | 0.1− | 2006 02 02 | 691 | 0.3+ | 0.4+ | 2009 12 10 | G96 | 0.2− | 0.1+ |
| 2005 11 25 | G96 | 0.2+ | 0.1+ | 2006 02 02 | 691 | 0.1+ | 0.0 | 2009 12 10 | G96 | 0.6+ | 0.7+ |
| 2005 11 25 | G96 | 0.3+ | 0.0 | 2006 02 02 | 691 | 0.2+ | 0.0 | 2009 12 10 | G96 | 0.2− | 0.2− |
| 2006 01 05 | G96 | 0.0 | 0.5− | 2006 02 23 | G96 | 0.1+ | 0.1− | 2009 12 10 | G96 | 0.0 | 0.1+ |
| 2006 01 05 | G96 | 0.0 | 0.2− | 2006 02 23 | G96 | 0.1− | 0.6+ | 2009 12 19 | G96 | 0.3− | 0.1− |
| 2006 01 05 | G96 | 0.1+ | 0.4− | 2006 02 23 | G96 | 0.4− | 0.0 | 2009 12 19 | G96 | 0.1+ | 0.1− |
| 2006 01 05 | G96 | 0.5− | 0.2− | 2006 02 23 | G96 | 0.1− | 0.4+ | 2009 12 19 | G96 | 0.0 | 0.0 |
| 2006 01 22 | G96 | 0.7− | 0.1− | 2008 09 07 | G96 | 0.2− | 0.3+ | 2009 12 19 | G96 | 0.0 | 0.4− |
| 2006 01 22 | G96 | 0.4− | 0.3− | 2008 09 07 | G96 | 0.1− | 0.0 | | | | |
| 2006 01 22 | G96 | 0.3+ | 0.5− | 2008 09 07 | G96 | 0.1+ | 0.0 | | | | |

**2005 XX$_{24}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 2.86244 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17568211 | $\omega$ | 62.34085 | | +0.97108072 | +0.04756668 | |
| $a$ | 3.1573133 | $\Omega$ | 294.12038 | | −0.15804391 | +0.86258171 | |
| $e$ | 0.1192970 | $i$ | 14.85342 | | +0.17895349 | +0.50367669 | |
| $P$ | 5.61 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 02 | G96 | 0.1− | 0.4− | 2006 01 05 | 691 | 0.5+ | 0.3+ | 2006 01 22 | G96 | 0.5− | 0.3− |
| 2005 12 02 | G96 | 0.3+ | 0.2− | 2006 01 05 | 691 | 0.2− | 0.4+ | 2006 01 22 | G96 | 0.0 | 0.6− |
| 2005 12 02 | G96 | 0.2− | 0.1− | 2006 01 05 | 691 | 0.1+ | 0.4+ | 2006 01 22 | G96 | 0.4− | 0.3− |
| 2005 12 02 | G96 | 0.4+ | 0.3− | 2006 01 05 | 691 | 0.2+ | 0.3+ | 2006 02 04 | G96 | 0.3− | 0.0 |
| 2005 12 04 | G96 | 0.1− | 0.0 | 2006 01 05 | 691 | 0.0 | 0.4+ | 2006 02 04 | G96 | 0.1− | 0.4− |
| 2005 12 04 | G96 | 0.6− | 0.1− | 2006 01 09 | 691 | 0.2− | 0.4+ | 2006 02 04 | G96 | 0.1+ | 0.3− |
| 2005 12 04 | G96 | 0.6− | 0.6− | 2006 01 09 | 691 | 0.1− | 0.4+ | 2006 02 04 | G96 | 0.7− | 0.3− |
| 2005 12 04 | G96 | 0.5− | 0.0 | 2006 01 09 | 691 | 0.2− | 0.1− | 2009 06 16 | G96 | 0.2− | 0.0 |
| 2005 12 26 | G96 | 0.2− | 0.4− | 2006 01 09 | 691 | 0.2+ | 0.1− | 2009 06 16 | G96 | 0.1+ | 0.3− |
| 2005 12 26 | G96 | 0.3+ | 0.3− | 2006 01 09 | 691 | 0.2+ | 0.3+ | 2009 06 16 | G96 | 0.2− | 0.4+ |
| 2005 12 26 | G96 | 0.1− | 0.2− | 2006 01 09 | 691 | 0.2+ | 0.5− | 2009 06 16 | G96 | 0.1+ | 0.1+ |
| 2005 12 26 | G96 | 0.3+ | 0.2− | 2006 01 10 | G96 | 0.2− | 0.2− | 2009 07 27 | 691 | 0.1− | 0.0 |
| 2005 12 28 | 691 | 0.1− | 0.2− | 2006 01 10 | G96 | 0.1− | 0.3− | 2009 07 27 | 691 | 0.1+ | 0.0 |
| 2005 12 28 | 691 | 0.2+ | 0.6− | 2006 01 10 | G96 | 0.1+ | 0.2− | 2009 07 27 | 691 | 0.0 | 0.0 |
| 2005 12 28 | 691 | 0.0 | 0.1− | 2006 01 10 | G96 | 0.1− | 0.2− | | | | |
| 2006 01 05 | 691 | 0.2+ | 0.2+ | 2006 01 22 | G96 | 0.5− | 0.2− | | | | |

**2005 XE$_{28}$ = 2009 WJ$_{217}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 351.28448 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23817020 | $\omega$ | 178.76694 | | +0.01709182 | −0.97386545 | |
| $a$ | 2.5775738 | $\Omega$ | 270.22168 | | +0.91539848 | +0.10635574 | |
| $e$ | 0.2228736 | $i$ | 13.09012 | | +0.40218590 | −0.20068519 | |
| $P$ | 4.14 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 01 | 704 | 0.9+ | 0.9− | 2005 12 28 | 691 | 0.2− | 0.2− | 2009 11 26 | 703 | 0.5+ | 0.5− |
| 2005 12 01 | 704 | 0.6+ | 0.3− | 2005 12 28 | 691 | 0.1− | 0.2− | 2009 11 26 | 703 | 0.3− | 0.9− |
| 2005 12 01 | 704 | 0.6+ | 0.5− | 2009 10 27 | 703 | 0.1− | 1.2− | 2009 11 26 | 703 | (0.3+ | 1.7−) |
| 2005 12 01 | 704 | 0.3+ | 0.8− | 2009 10 27 | 703 | 0.6+ | 0.6+ | 2009 12 10 | 704 | 0.1+ | 0.5− |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 04 | 704 | 1.4− | 0.7+ | 2009 10 27 | 703 | 0.8− | 0.7+ | 2009 12 10 | 704 | 0.3− | 0.3+ | | |
| 2005 12 04 | 704 | (1.7− | 0.9−) | 2009 10 27 | 703 | 0.5− | 0.4− | 2009 12 10 | 704 | 0.7− | 0.0 | | |
| 2005 12 04 | 704 | (2.6− | 0.4−) | 2009 11 19 | 703 | 0.1− | 0.0 | 2009 12 10 | 704 | 0.2− | 0.8+ | | |
| 2005 12 04 | 704 | (3.3− | 0.2−) | 2009 11 19 | 703 | 0.4+ | 0.5+ | 2009 12 15 | 704 | 0.1+ | 0.2+ | | |
| 2005 12 10 | 704 | 0.1+ | 0.8+ | 2009 11 19 | 703 | 0.6+ | 0.1+ | 2009 12 15 | 704 | 0.1+ | 0.2− | | |
| 2005 12 10 | 704 | 0.3− | 1.2+ | 2009 11 19 | 703 | 1.4+ | 0.0 | 2009 12 15 | 704 | 0.9+ | 0.4− | | |
| 2005 12 10 | 704 | 0.5+ | 1.2+ | 2009 11 26 | 703 | 1.1− | 0.2+ | 2009 12 15 | 704 | 0.1− | 0.2+ | | |
| 2005 12 28 | 691 | 0.0 | 0.0 | 2009 11 26 | 703 | 0.5− | 0.2+ | | | | | | |

### 2005 XV$_{31}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 194.98790 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.25365350 | $\omega$ | 185.91388 | | +0.16461185 | | +0.94920150 |
| $a$ | 2.4715846 | $\Omega$ | 93.78061 | | −0.89359437 | | +0.25862378 |
| $e$ | 0.1039708 | $i$ | 15.59067 | | −0.41760272 | | −0.17924916 |
| $P$ | 3.89 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 05 30 | 645 | 0.0 | 0.0 | 2005 12 24 | 691 | 0.1+ | 0.1+ | 2007 04 22 | 703 | 0.0 | 1.1− | | |
| 2003 05 30 | 645 | 0.0 | 0.0 | 2005 12 24 | 691 | 0.2+ | 0.1+ | 2007 04 22 | 703 | 0.9− | 0.1+ | | |
| 2005 12 02 | G96 | 0.2− | 0.5− | 2005 12 24 | 691 | 0.0 | 0.0 | 2007 04 22 | 703 | 1.3+ | 1.1+ | | |
| 2005 12 02 | G96 | 0.5− | 0.4− | 2005 12 24 | 691 | 0.1+ | 0.2+ | 2009 12 18 | G96 | 0.7+ | 0.1+ | | |
| 2005 12 02 | G96 | 0.2− | 0.2− | 2005 12 28 | 691 | 0.1+ | 0.1− | 2009 12 18 | G96 | 0.8+ | 0.3+ | | |
| 2005 12 02 | G96 | 0.4− | 0.3− | 2005 12 28 | 691 | 0.7+ | 0.0 | 2009 12 18 | G96 | 0.7+ | 0.3+ | | |
| 2005 12 08 | 691 | 0.1+ | 0.2+ | 2005 12 28 | 691 | 0.0 | 0.7− | 2009 12 18 | G96 | 0.4+ | 0.2+ | | |
| 2005 12 08 | 691 | 0.0 | 0.0 | 2006 01 05 | 691 | 0.3− | 0.3− | 2009 12 19 | 691 | 0.3− | 0.1+ | | |
| 2005 12 08 | 691 | 0.7− | 0.5+ | 2006 01 05 | 691 | 0.2− | 0.1− | 2009 12 19 | 691 | 0.4− | 0.1− | | |
| 2005 12 24 | 691 | 0.0 | 0.1+ | 2006 01 05 | 691 | 0.1− | 0.2− | 2009 12 19 | 691 | 0.0 | 0.1+ | | |
| 2005 12 24 | 691 | 0.3+ | 0.1+ | 2007 04 22 | 703 | 0.7− | 0.4− | | | | | | |

### 2005 XG$_{44}$ = 2009 WT$_{232}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 13.85341 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23928239 | $\omega$ | 343.50439 | | +0.60968713 | | −0.75160341 |
| $a$ | 2.5695805 | $\Omega$ | 68.21149 | | +0.75441792 | | +0.45280461 |
| $e$ | 0.0828766 | $i$ | 15.73031 | | +0.24317729 | | +0.47964601 |
| $P$ | 4.12 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 11 22 | 691 | 0.1+ | 0.1− | 2005 12 02 | 691 | 0.0 | 0.0 | 2009 11 17 | G96 | 0.2− | 0.1− | | |
| 2005 11 22 | 691 | 0.0 | 0.4+ | 2005 12 06 | 691 | 0.3+ | 0.1+ | 2009 11 17 | G96 | 0.1+ | 0.2+ | | |
| 2005 11 22 | 691 | 0.3− | 0.1− | 2005 12 06 | 691 | 0.2+ | 0.1+ | 2009 11 17 | G96 | 0.1+ | 0.0 | | |
| 2005 11 26 | G96 | 0.2+ | 0.1− | 2005 12 06 | 691 | 0.1− | 0.1+ | 2009 11 17 | G96 | 0.3− | 0.3+ | | |
| 2005 11 26 | G96 | 0.4+ | 0.1− | 2009 10 14 | G96 | 0.4− | 0.0 | 2009 11 24 | G96 | 0.2+ | 0.1− | | |
| 2005 11 26 | G96 | 0.0 | 0.1+ | 2009 10 14 | G96 | 0.2− | 0.1+ | 2009 11 24 | G96 | 0.1+ | 0.1− | | |
| 2005 12 02 | 691 | 0.7− | 0.4− | 2009 10 14 | G96 | 0.6+ | 0.2− | 2009 11 24 | G96 | 0.2− | 0.0 | | |
| 2005 12 02 | 691 | 0.3+ | 0.1− | 2009 10 14 | G96 | 0.1− | 0.1− | 2009 11 24 | G96 | 0.3+ | 0.2− | | |

### 2005 XP$_{47}$ = 2009 WX$_{254}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 22.98665 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.24514665 | $\omega$ | 48.84798 | | +0.42956616 | | −0.90281472 |
| $a$ | 2.5284366 | $\Omega$ | 15.74711 | | +0.80492817 | | +0.37278325 |
| $e$ | 0.0813582 | $i$ | 4.21824 | | +0.40934527 | | +0.21437871 |
| $P$ | 4.02 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 5 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 02 | 691 | 0.0 | 0.3− | 2005 12 06 | 691 | 0.0 | 0.1− | 2009 11 18 | 691 | 0.4− | 0.3+ | | |
| 2005 12 02 | 691 | 0.2+ | 0.1− | 2005 12 10 | 691 | 0.0 | 0.2− | 2009 11 18 | 691 | 0.0 | 0.3− | | |
| 2005 12 02 | 691 | 0.0 | 0.2− | 2005 12 10 | 691 | 0.2+ | 0.6+ | 2009 11 26 | 691 | 0.3− | 0.1+ | | |
| 2005 12 06 | 691 | 0.2− | 0.2− | 2005 12 10 | 691 | 0.0 | 0.2+ | 2009 11 26 | 691 | 0.5+ | 0.1− | | |
| 2005 12 06 | 691 | 0.2− | 0.0 | 2009 11 18 | 691 | 0.4+ | 0.2+ | 2009 11 26 | 691 | 0.2− | 0.1− | | |

### 2005 XO$_{48}$ = 2009 YX$_{10}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 24.55641 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.24212407 | $\omega$ | 136.66014 | | +0.79609462 | | −0.57167527 |
| $a$ | 2.5494357 | $\Omega$ | 259.24316 | | +0.48528052 | | +0.79906499 |
| $e$ | 0.2571421 | $i$ | 11.65966 | | +0.36157457 | | +0.18623248 |
| $P$ | 4.07 | $H$ | 18.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 11 21 | 691 | 0.2− | 0.2+ | 2005 12 02 | G96 | 0.3+ | 0.5− | 2009 12 18 | G96 | 0.3+ | 0.3+ | | |
| 2005 11 21 | 691 | 0.1+ | 0.0 | 2005 12 06 | 691 | 0.1+ | 0.1+ | 2009 12 18 | G96 | 0.7+ | 0.1− | | |
| 2005 11 21 | 691 | 0.1+ | 0.2− | 2005 12 06 | 691 | 0.3− | 0.1− | 2009 12 19 | 691 | 0.2− | 0.3− | | |
| 2005 12 02 | G96 | 0.2− | 0.1− | 2005 12 06 | 691 | 0.1+ | 0.3+ | 2009 12 19 | 691 | 0.5− | 0.1+ | | |
| 2005 12 02 | G96 | 0.1+ | 0.4− | 2009 12 18 | G96 | 0.6+ | 0.1+ | 2009 12 19 | 691 | 0.1+ | 0.0 | | |
| 2005 12 02 | G96 | 0.1− | 0.2− | 2009 12 18 | G96 | 1.0+ | 0.4+ | | | | | | |

### 2005 XX$_{49}$ = 2009 VD$_{96}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 354.96277 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23711274 | $\omega$ | 18.43432 | | +0.12508018 | | −0.98506160 |
| $a$ | 2.5852316 | $\Omega$ | 64.52257 | | +0.89299044 | | +0.05979072 |
| $e$ | 0.2106388 | $i$ | 7.53359 | | +0.43234595 | | +0.16148906 |
| $P$ | 4.16 | $H$ | 18.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 02 08 | 645 | 0.0 | 0.1+ | 2005 12 10 | 691 | 0.0 | 0.2+ | 2009 11 20 | G96 | 0.6+ | 0.2− | | |
| 2002 02 08 | 645 | 0.0 | 0.0 | 2005 12 10 | 691 | 0.1− | 0.2− | 2009 11 20 | G96 | 0.1+ | 0.4− | | |
| 2005 12 02 | 691 | 0.2+ | 0.1+ | 2005 12 10 | 691 | 0.2− | 0.1+ | 2009 11 20 | G96 | 0.0 | 0.2− | | |
| 2005 12 02 | 691 | 0.0 | 0.2+ | 2009 10 23 | G96 | 0.5+ | 0.2− | 2009 12 11 | G96 | 0.2− | 0.2− | | |
| 2005 12 02 | 691 | 0.1− | 0.5− | 2009 10 23 | G96 | 0.2− | 0.3− | 2009 12 11 | G96 | 0.4+ | 0.1+ | | |
| 2005 12 06 | 691 | 0.1+ | 0.2− | 2009 10 23 | G96 | 0.1+ | 0.0 | 2009 12 11 | G96 | 0.4+ | 0.0 | | |
| 2005 12 06 | 691 | 0.1− | 0.0 | 2009 10 23 | G96 | 0.3+ | 0.3+ | 2009 12 11 | G96 | 0.0 | 0.1− | | |
| 2005 12 06 | 691 | 0.0 | 0.2+ | 2009 11 08 | 691 | 0.4− | 0.2+ | 2009 12 17 | G96 | 0.2+ | 0.3− | | |
| 2005 12 08 | 691 | 0.0 | 0.3− | 2009 11 08 | 691 | 0.2+ | 0.5+ | 2009 12 17 | G96 | 0.3+ | 0.1− | | |
| 2005 12 08 | 691 | 0.3+ | 0.1− | 2009 11 08 | 691 | 0.5− | 0.4+ | 2009 12 17 | G96 | 0.2− | 0.1− | | |
| 2005 12 08 | 691 | 0.1+ | 0.3− | 2009 11 20 | G96 | 0.5− | 0.1− | 2009 12 17 | G96 | 0.1+ | 0.2− | | |

### 2005 XZ$_{52}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 59.32530 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.24012651 | $\omega$ | 287.16340 | | +0.95203219 | | −0.08560497 |
| $a$ | 2.5635550 | $\Omega$ | 78.51275 | | +0.21271057 | | +0.87531391 |
| $e$ | 0.2068371 | $i$ | 17.44467 | | −0.21997482 | | +0.47591738 |
| $P$ | 4.10 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 11 06 | G96 | 0.5+ | 0.1− | 2009 12 08 | 104 | 0.5+ | 0.1− | 2009 12 10 | G96 | 0.2− | 0.2− | | |
| 2005 11 06 | G96 | 0.2+ | 0.2− | 2009 12 09 | 104 | (1.7+ | 3.6−) | 2009 12 10 | G96 | 0.2− | 0.2− | | |
| 2005 11 06 | G96 | 0.4+ | 0.2− | 2009 12 09 | 104 | 0.2+ | 0.8− | 2009 12 10 | G96 | 0.2− | 0.3− | | |
| 2005 11 06 | G96 | 0.7+ | 0.1− | 2009 12 09 | 104 | 0.1− | 0.2− | 2009 12 10 | G96 | 0.1+ | 0.2− | | |
| 2005 12 02 | 691 | 0.0 | 0.2+ | 2009 12 09 | 104 | 0.4− | 0.5+ | 2009 12 10 | 104 | 1.2− | 0.3− | | |
| 2005 12 02 | 691 | 0.3+ | 0.3− | 2009 12 09 | 104 | 0.4+ | 0.4− | 2009 12 10 | 104 | 1.3+ | 0.8+ | | |
| 2005 12 02 | 691 | 0.0 | 0.1+ | 2009 12 09 | 104 | 0.5+ | 0.1+ | 2009 12 10 | 104 | 0.1− | 0.6+ | | |
| 2005 12 06 | 691 | 0.1− | 0.1− | 2009 12 09 | 104 | 0.5− | 0.3+ | 2009 12 10 | 104 | 0.7+ | 0.6+ | | |
| 2005 12 06 | 691 | 0.3− | 0.0 | 2009 12 09 | 104 | 0.4+ | 0.2− | 2009 12 10 | 104 | 0.4− | 0.2− | | |
| 2005 12 06 | 691 | 0.3− | 0.0 | 2009 12 09 | 104 | 0.2− | 0.1− | 2009 12 10 | 104 | 0.6+ | 0.0 | | |
| 2009 11 08 | 691 | 0.0 | 0.1− | 2009 12 10 | 704 | 0.4+ | 0.2+ | 2009 12 20 | G96 | 0.3− | 0.0 | | |
| 2009 11 08 | 691 | 0.3− | 0.2+ | 2009 12 10 | 704 | 0.2− | 0.6− | 2009 12 20 | G96 | 0.4− | 0.0 | | |
| 2009 11 08 | 691 | 0.3− | 0.1− | 2009 12 10 | 704 | 0.6+ | 0.0 | 2009 12 20 | G96 | 0.3− | 0.3− | | |
| 2009 12 08 | 104 | 0.9+ | 0.7+ | 2009 12 10 | 704 | 0.2+ | 0.0 | 2009 12 20 | G96 | 0.3− | 0.5+ | | |
| 2009 12 08 | 104 | 0.5+ | 0.1− | 2009 12 10 | 704 | 0.1+ | 0.2− | | | | | | |

**2005 XA$_{63}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 44.24907 | | (2000.0) | | | |
| $n$ | 0.24136134 | $\omega$ | 329.75677 | | +0.95468883 | −0.29502190 |
| $a$ | 2.5548039 | $\Omega$ | 47.45596 | | +0.28258396 | +0.85738203 |
| $e$ | 0.1726805 | $i$ | 3.04464 | | +0.09335710 | +0.42173231 |
| $P$ | 4.08 | $H$ | 17.2 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 11 21 | 691 | 0.3+ | 0.0 | 2005 12 28 | G96 | 0.4− | 0.1+ | 2006 02 03 | G96 | 0.3− | 0.2− |
| 2005 11 21 | 691 | 0.2+ | 0.0 | 2005 12 28 | G96 | 0.4− | 0.2+ | 2006 02 03 | G96 | 0.3+ | 0.3+ |
| 2005 11 21 | 691 | 0.3− | 0.1− | 2005 12 28 | G96 | 0.1− | 0.1− | 2006 02 03 | G96 | 0.2− | 0.3− |
| 2005 12 05 | G96 | 0.0 | 0.4− | 2005 12 28 | G96 | 0.1− | 0.1− | 2006 02 03 | G96 | 0.0 | 0.2+ |
| 2005 12 05 | G96 | 0.2− | 1.0− | 2005 12 29 | G96 | 0.0 | 0.1− | 2006 02 03 | G96 | 0.0 | 0.1+ |
| 2005 12 05 | G96 | 0.3+ | 0.4− | 2005 12 29 | G96 | 0.2− | 0.0 | 2006 02 03 | G96 | 0.1+ | 0.2− |
| 2005 12 05 | G96 | 0.9− | 0.3+ | 2005 12 29 | G96 | 0.2− | 0.3− | 2009 11 17 | 691 | 0.1− | 0.1+ |
| 2005 12 07 | 691 | 0.1− | 0.1− | 2005 12 29 | G96 | 0.2+ | 0.2− | 2009 11 17 | 691 | 0.3− | 0.0 |
| 2005 12 07 | 691 | 0.4+ | 0.1+ | 2006 02 02 | G96 | 0.2− | 0.2+ | 2009 11 17 | 691 | 0.0 | 0.1+ |
| 2005 12 07 | 691 | 0.1+ | 0.1+ | 2006 02 02 | G96 | 0.4− | 0.5+ | 2009 12 16 | G96 | 0.1+ | 0.1− |
| 2005 12 27 | G96 | 0.0 | 0.1− | 2006 02 02 | G96 | 0.4+ | 0.2+ | 2009 12 16 | G96 | 0.4+ | 0.2− |
| 2005 12 27 | G96 | 0.1+ | 0.1− | 2006 02 02 | G96 | 0.2+ | 0.4+ | 2009 12 16 | G96 | 0.6+ | 0.1− |
| 2005 12 27 | G96 | 0.1+ | 1.0+ | 2006 02 03 | G96 | 0.4− | 0.2− | 2009 12 16 | G96 | 0.4+ | 0.1− |
| 2005 12 27 | G96 | 0.3− | 0.0 | 2006 02 03 | G96 | 0.2+ | 0.1− | | | | |

**2005 XR$_{77}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 304.26427 | | (2000.0) | | | |
| $n$ | 0.18553140 | $\omega$ | 350.15948 | | +0.75719379 | −0.64341003 |
| $a$ | 3.0445593 | $\Omega$ | 50.49909 | | +0.60877478 | +0.63265260 |
| $e$ | 0.0602163 | $i$ | 8.39179 | | +0.23675057 | +0.43101534 |
| $P$ | 5.31 | $H$ | 15.9 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 30 | G96 | 0.2+ | 0.4− | 2005 11 25 | 691 | 0.4− | 0.3− | 2005 12 25 | 691 | 0.1+ | 0.1− |
| 2005 10 30 | G96 | 0.4+ | 0.3− | 2005 11 25 | 691 | 0.4− | 0.0 | 2005 12 25 | 691 | 0.3+ | 0.2+ |
| 2005 10 30 | G96 | 0.2+ | 0.2− | 2005 12 05 | 704 | 0.5− | 0.2− | 2005 12 25 | 691 | 0.2+ | 0.0 |
| 2005 10 30 | G96 | 0.0 | 0.4− | 2005 12 05 | 704 | 0.7+ | 0.3+ | 2008 04 30 | G96 | 0.8+ | 0.2− |
| 2005 11 12 | 691 | 0.1+ | 0.2+ | 2005 12 05 | 704 | 0.3+ | 1.3+ | 2008 04 30 | G96 | 0.3− | 0.0 |
| 2005 11 12 | 691 | 0.3+ | 0.1+ | 2005 12 09 | 704 | 0.7− | 0.1+ | 2008 04 30 | G96 | 0.3− | 0.3− |
| 2005 11 12 | 691 | 0.4+ | 0.3+ | 2005 12 09 | 704 | 0.7+ | 0.1+ | 2008 04 30 | G96 | 0.2+ | 0.3+ |
| 2005 11 21 | 691 | 0.1− | 0.0 | 2005 12 09 | 704 | 0.6+ | 0.1+ | 2008 06 03 | 691 | 0.1+ | 0.3+ |
| 2005 11 21 | 691 | 0.3+ | 0.1− | 2005 12 10 | 691 | 0.1+ | 0.1+ | 2008 06 03 | 691 | 0.2− | 0.2+ |
| 2005 11 21 | 691 | 0.2+ | 0.3+ | 2005 12 10 | 691 | 0.1+ | 0.1− | 2008 06 03 | 691 | 0.1− | 0.6− |
| 2005 11 25 | 691 | 1.7− | 0.6− | 2005 12 10 | 691 | 0.0 | 0.0 | | | | |

**2005 XQ$_{79}$ = 2006 DM$_{67}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 57.38748 | | (2000.0) | | | |
| $n$ | 0.27587305 | $\omega$ | 345.05671 | | −0.66261080 | −0.74798182 |
| $a$ | 2.3370242 | $\Omega$ | 146.41634 | | +0.69407508 | −0.63248227 |
| $e$ | 0.1729553 | $i$ | 3.97468 | | +0.28143687 | −0.20121973 |
| $P$ | 3.57 | $H$ | 17.3 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 04 | 691 | 0.3+ | 0.2+ | 2006 02 25 | 704 | 0.3− | 0.2+ | 2006 03 24 | 699 | 0.2+ | 1.1+ |
| 2005 12 04 | 691 | 0.3+ | 0.4+ | 2006 02 25 | 704 | 0.4+ | 0.7+ | 2006 03 24 | 699 | 0.3+ | 0.6+ |
| 2005 12 04 | 691 | 0.4+ | 0.6− | 2006 03 03 | 691 | 0.4+ | 0.3− | 2008 11 02 | G96 | 0.1− | 0.2− |
| 2005 12 06 | 291 | 0.2− | 0.5+ | 2006 03 03 | 691 | 0.2− | 0.3− | 2008 11 02 | G96 | 0.1− | 0.1− |
| 2005 12 06 | 291 | 0.2− | 0.4+ | 2006 03 03 | 691 | 0.0 | 0.1− | 2008 11 02 | G96 | 0.1+ | 0.0 |
| 2005 12 06 | 291 | 0.4− | 0.1+ | 2006 03 04 | G96 | 0.1+ | 0.3− | 2008 11 02 | G96 | 0.1+ | 0.1− |
| 2006 02 22 | 699 | 1.9+ | 1.0− | 2006 03 04 | G96 | 0.0 | 0.0 | 2008 11 21 | G96 | 0.1+ | 0.1− |
| 2006 02 22 | 699 | 1.9− | 0.7− | 2006 03 04 | G96 | 0.3− | 0.2− | 2008 11 21 | G96 | 0.1+ | 0.3− |
| 2006 02 22 | 699 | 0.2− | 0.7+ | 2006 03 04 | G96 | 0.1+ | 0.2− | 2008 11 21 | G96 | 0.2+ | 0.3− |
| 2006 02 22 | 699 | 1.2− | 0.0 | 2006 03 24 | 699 | 0.4+ | 1.3− | 2008 11 21 | G96 | 0.0 | 0.3− |
| 2006 02 25 | 704 | 0.2+ | 0.7+ | 2006 03 24 | 699 | 0.7− | 0.2− | | | | |

**2005 XW$_{101}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 127.68961 | | (2000.0) | | | |
| $n$ | 0.20280471 | $\omega$ | 347.27692 | | +0.43044730 | +0.90028577 |
| $a$ | 2.8691331 | $\Omega$ | 308.18162 | | −0.82074275 | +0.36051060 |
| $e$ | 0.0527728 | $i$ | 4.72956 | | −0.37562810 | +0.24396237 |
| $P$ | 4.86 | $H$ | 16.6 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 01 | 695 | 0.1− | 0.0 | 2006 01 27 | 691 | 0.0 | 0.1+ | 2006 02 05 | G96 | 0.3− | 0.2− |
| 2005 12 01 | 695 | 0.1+ | 0.1+ | 2006 01 27 | G96 | 0.2− | 0.4− | 2009 10 26 | 691 | 0.5+ | 0.0 |
| 2005 12 02 | 695 | 0.4+ | 0.2+ | 2006 01 27 | G96 | 0.1+ | 0.4− | 2009 10 26 | 691 | 0.1− | 0.1− |
| 2006 01 10 | 691 | 0.1− | 0.1− | 2006 01 27 | G96 | 0.2− | 0.4− | 2009 10 26 | 691 | 0.1+ | 0.4− |
| 2006 01 10 | 691 | 0.3− | 0.3+ | 2006 01 27 | G96 | 0.0 | 0.3− | 2009 11 11 | 691 | 0.3− | 0.3+ |
| 2006 01 10 | 691 | 0.1+ | 0.0 | 2006 02 05 | G96 | 0.6+ | 0.9− | 2009 11 11 | 691 | 0.2− | 0.3+ |
| 2006 01 27 | 691 | 0.2+ | 0.4+ | 2006 02 05 | G96 | 0.1+ | 0.3− | 2009 11 11 | 691 | 0.0 | 0.0 |
| 2006 01 27 | 691 | 0.1+ | 0.0 | 2006 02 05 | G96 | 0.6− | 0.1− | | | | |

**2005 XA$_{105}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 254.04445 | | (2000.0) | | | |
| $n$ | 0.17806636 | $\omega$ | 21.05204 | | −0.68404593 | −0.72281811 |
| $a$ | 3.1290666 | $\Omega$ | 112.25574 | | +0.65319664 | −0.66682286 |
| $e$ | 0.0781149 | $i$ | 6.08189 | | +0.32467724 | −0.18133189 |
| $P$ | 5.54 | $H$ | 16.6 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 01 | 695 | 0.1− | 0.0 | 2006 01 23 | 408 | 1.5− | 1.1− | 2006 02 07 | 691 | 0.1− | 0.1− |
| 2005 12 02 | 695 | 0.1− | 0.1− | 2006 01 23 | 408 | 1.1− | 1.6− | 2006 02 07 | 691 | 0.3− | 0.4− |
| 2005 12 02 | 695 | 0.1− | 0.0 | 2006 01 24 | 408 | 0.8+ | 1.4+ | 2006 02 07 | 691 | 0.1+ | 0.3+ |
| 2005 12 06 | G96 | 0.1+ | 0.4− | 2006 01 24 | 408 | 0.9+ | 0.9+ | 2009 08 18 | 691 | 0.0 | 0.1− |
| 2005 12 06 | G96 | 0.5− | 0.1+ | 2006 01 31 | 691 | 0.1+ | 0.1+ | 2009 08 18 | 691 | 0.0 | 0.3+ |
| 2005 12 06 | G96 | 0.7− | 0.3+ | 2006 01 31 | 691 | 0.2+ | 0.2− | 2009 08 18 | 691 | 0.5− | 0.1+ |
| 2005 12 06 | G96 | 0.7+ | 0.5− | 2006 01 31 | 691 | 0.1− | 0.2+ | 2009 09 26 | G96 | 0.8+ | 0.1− |
| 2006 01 23 | 691 | 0.0 | 0.5+ | 2006 02 03 | 691 | 0.3− | 0.3− | 2009 09 26 | G96 | 0.4+ | 0.1− |
| 2006 01 23 | 691 | 0.1+ | 0.4+ | 2006 02 03 | 691 | 0.0 | 0.3− | 2009 09 26 | G96 | 0.2+ | 0.3− |
| 2006 01 23 | 691 | 0.2+ | 0.2+ | 2006 02 03 | 691 | 0.3+ | 0.1− | 2009 09 26 | G96 | 0.6+ | 0.3− |

**2005 XV$_{109}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 17.89601 | | (2000.0) | | | |
| $n$ | 0.24031504 | $\omega$ | 146.77074 | | +0.15105052 | −0.96845004 |
| $a$ | 2.5622141 | $\Omega$ | 293.85040 | | +0.85314582 | +0.22899990 |
| $e$ | 0.2202355 | $i$ | 12.51643 | | +0.49932550 | −0.09830347 |
| $P$ | 4.10 | $H$ | 17.4 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 01 | 695 | 0.0 | 0.4+ | 2006 02 01 | G96 | 0.1− | 0.2− | 2006 02 03 | G96 | 0.4+ | 0.1− |
| 2005 12 01 | 695 | 0.2− | 0.4+ | 2006 02 01 | G96 | 0.3+ | 0.1− | 2008 07 29 | G96 | 0.5− | 2.0+ |
| 2005 12 06 | G96 | 0.3− | 0.8− | 2006 02 01 | G96 | 0.5− | 0.5+ | 2008 07 29 | G96 | 0.4+ | 0.0 |
| 2005 12 06 | G96 | 0.8− | 0.7− | 2006 02 01 | G96 | 0.0 | 0.2+ | 2008 07 29 | G96 | 1.3− | 0.6+ |
| 2005 12 06 | G96 | 0.2− | 0.2− | 2006 02 01 | G96 | 0.1− | 0.1+ | 2008 07 29 | G96 | 0.3− | 0.6+ |
| 2005 12 06 | G96 | 0.2− | 0.5+ | 2006 02 01 | G96 | 0.0 | 0.2+ | 2009 12 18 | G96 | 0.0 | 0.0 |
| 2006 01 09 | 691 | 0.3+ | 0.1+ | 2006 02 01 | G96 | 0.0 | 0.1+ | 2009 12 18 | G96 | 0.0 | 0.0 |
| 2006 01 09 | 691 | 0.5+ | 0.1+ | 2006 02 02 | G96 | 0.4− | 0.3− | 2009 12 18 | G96 | 0.2− | 0.1+ |
| 2006 01 09 | 691 | 0.0 | 0.3+ | 2006 02 02 | G96 | 0.1− | 0.1− | 2009 12 18 | G96 | 0.7− | 0.3− |
| 2006 01 30 | 703 | 0.3− | 0.4+ | 2006 02 02 | G96 | 0.4+ | 0.1− | 2009 12 19 | 691 | 0.1− | 0.1+ |
| 2006 01 30 | 703 | 0.9− | 0.2+ | 2006 02 02 | G96 | 0.3+ | 0.1− | 2009 12 19 | 691 | 0.2+ | 0.1− |
| 2006 01 30 | 703 | 0.2+ | 0.6+ | 2006 02 03 | G96 | 0.2+ | 0.1− | 2009 12 19 | 691 | 0.2+ | 0.0 |
| 2006 01 30 | 703 | 0.2+ | 0.4+ | 2006 02 03 | G96 | 0.2− | 0.2− | | | | |
| 2006 02 01 | G96 | 0.3+ | 0.4− | 2006 02 03 | G96 | 0.1− | 0.1+ | | | | |

**2005 XL$_{111}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 207.64385 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24524366 | $\omega$ | 332.42392 | | +0.72228691 | +0.69118552 | |
| $a$ | 2.5277698 | $\Omega$ | 343.78091 | | −0.61783626 | +0.62944228 | |
| $e$ | 0.0881628 | $i$ | 4.87838 | | −0.31077320 | +0.35505633 | |
| $P$ | 4.02 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 03 23 | 691 | 0.5+ | 1.3+ | 2006 02 24 | G96 | 0.4− | 0.4− | 2006 02 28 | G96 | 0.2− | 1.0− |
| 2002 03 23 | 691 | 0.8+ | 1.4+ | 2006 02 24 | G96 | 0.4− | 0.5− | 2006 03 04 | 691 | 0.1− | 0.4− |
| 2002 03 23 | 691 | 0.7+ | 1.0+ | 2006 02 24 | G96 | 0.6− | 0.5− | 2006 03 04 | 691 | 0.3− | 0.6− |
| 2005 12 01 | 695 | 0.7− | 0.3+ | 2006 02 25 | 691 | 0.0 | 0.1+ | 2006 03 04 | 691 | 0.1+ | 0.6− |
| 2005 12 01 | 695 | 0.7− | 0.1+ | 2006 02 25 | 691 | 0.0 | 0.5− | 2008 10 10 | G96 | 0.2− | 0.6+ |
| 2005 12 03 | 568 | 0.0 | 0.1+ | 2006 02 25 | 691 | 0.4− | 0.3− | 2008 10 10 | G96 | 0.9+ | 0.2+ |
| 2005 12 03 | 568 | 0.0 | 0.1+ | 2006 02 28 | G96 | 0.8− | 0.9− | 2008 10 10 | G96 | 0.4− | 0.6+ |
| 2005 12 03 | 568 | 0.1+ | 0.2+ | 2006 02 28 | G96 | 0.8− | 1.0− | 2008 10 10 | G96 | 0.2− | 0.9+ |
| 2006 02 24 | G96 | 0.2− | 0.6− | 2006 02 28 | G96 | 0.8− | 0.8− | | | | |

**2005 YW$_6$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 333.05057 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23811628 | $\omega$ | 30.07350 | | −0.45379090 | −0.88675109 | |
| $a$ | 2.5779628 | $\Omega$ | 87.03894 | | +0.79900396 | −0.44862844 | |
| $e$ | 0.1735532 | $i$ | 5.05608 | | +0.39454593 | −0.11137787 | |
| $P$ | 4.14 | $H$ | 17.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 21 | 691 | 0.3+ | 0.1− | 2006 01 25 | 691 | 0.3− | 0.3− | 2009 11 10 | 691 | 0.1+ | 0.1− |
| 2005 12 21 | 691 | 0.2+ | 0.1− | 2006 01 25 | 691 | 0.3+ | 0.5+ | 2009 11 18 | 691 | 0.1+ | 0.0 |
| 2005 12 21 | 691 | 0.0 | 0.1− | 2006 01 25 | 691 | 0.0 | 0.0 | 2009 11 18 | 691 | 0.1+ | 0.1− |
| 2005 12 24 | 691 | 0.0 | 0.0 | 2006 01 27 | G96 | 0.1− | 0.1+ | 2009 11 18 | 691 | 0.4− | 0.2− |
| 2005 12 24 | 691 | 0.0 | 0.1+ | 2006 01 27 | G96 | 0.8+ | 0.2− | 2009 12 17 | G96 | 0.5+ | 0.2− |
| 2005 12 24 | 691 | 0.1− | 0.0 | 2006 01 27 | G96 | 0.4− | 0.2− | 2009 12 17 | G96 | 0.0 | 0.2− |
| 2006 01 05 | 691 | 0.2− | 0.2− | 2006 01 27 | G96 | 0.1− | 0.1− | 2009 12 17 | G96 | 0.3+ | 0.4+ |
| 2006 01 05 | 691 | 0.1− | 0.0 | 2009 11 10 | 691 | 0.2+ | 0.3+ | 2009 12 17 | G96 | 0.1− | 0.1− |
| 2006 01 05 | 691 | 0.0 | 0.2+ | 2009 11 10 | 691 | 0.3− | 0.1+ | | | | |

**2005 YV$_{12}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 156.74639 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17842797 | $\omega$ | 121.41207 | | −0.73111946 | +0.64959984 | |
| $a$ | 3.1248375 | $\Omega$ | 99.98227 | | −0.67547585 | −0.64625653 | |
| $e$ | 0.0284211 | $i$ | 12.22401 | | −0.09589943 | −0.40046541 | |
| $P$ | 5.52 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 05 | G96 | 0.1− | 0.3− | 2005 12 30 | G96 | 0.2− | 0.5− | 2007 04 15 | G96 | 0.2+ | 0.3− |
| 2005 12 05 | G96 | 0.1+ | 0.7− | 2005 12 30 | G96 | 0.0 | 0.3− | 2007 04 15 | G96 | 0.1− | 0.2− |
| 2005 12 05 | G96 | 0.3− | 0.5− | 2005 12 30 | G96 | 0.0 | 0.4− | 2007 04 15 | G96 | 0.0 | 0.0 |
| 2005 12 05 | G96 | 0.1− | 0.3− | 2005 12 30 | G96 | 0.1+ | 0.1+ | 2007 04 15 | G96 | 0.4− | 0.1− |
| 2005 12 22 | 691 | 0.1+ | 0.2+ | 2006 01 06 | 691 | 0.1− | 0.0 | 2007 04 22 | 703 | 0.3+ | 0.1− |
| 2005 12 22 | 691 | 0.1− | 0.2+ | 2006 01 06 | 691 | 0.0 | 0.0 | 2007 04 22 | 703 | (2.3+ | 0.1+) |
| 2005 12 22 | 691 | 0.2+ | 0.3+ | 2006 01 06 | 691 | 0.2− | 0.2− | 2007 04 22 | 703 | (2.6− | 1.5+) |
| 2005 12 25 | 691 | 0.2+ | 0.1+ | 2006 01 10 | 691 | 0.1− | 0.2+ | 2007 04 22 | 703 | 0.0 | 0.7+ |
| 2005 12 25 | 691 | 0.1− | 0.1+ | 2006 01 10 | 691 | 0.1+ | 0.2− | | | | |
| 2005 12 25 | 691 | 0.1− | 0.2+ | 2006 01 10 | 691 | 0.2+ | 0.1− | | | | |

**2005 YM$_{15}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 13.53506 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23856639 | $\omega$ | 140.54682 | | +0.35006420 | −0.91966816 | |
| $a$ | 2.5747192 | $\Omega$ | 288.30654 | | +0.80507638 | +0.39249976 | |
| $e$ | 0.2882645 | $i$ | 10.80309 | | +0.47886018 | +0.01242662 | |
| $P$ | 4.13 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 02 07 | 644 | 0.4+ | 0.1+ | 2006 01 05 | 691 | 0.1+ | 0.1+ | 2006 01 29 | 703 | 0.3+ | 0.4− |
| 2002 02 07 | 644 | 0.4+ | 0.3+ | 2006 01 05 | 691 | 0.1+ | 0.1+ | 2006 01 29 | 703 | (2.3− | 0.3−) |
| 2002 02 07 | 644 | 0.3+ | 0.1+ | 2006 01 09 | 703 | 0.5− | 0.6− | 2006 01 29 | 703 | 1.4− | 0.6− |
| 2005 12 04 | 704 | 1.3+ | 0.6+ | 2006 01 09 | 691 | 0.0 | 0.1− | 2006 02 03 | 699 | 1.6− | 0.6− |
| 2005 12 04 | 704 | 0.5+ | 0.3+ | 2006 01 09 | 703 | 0.8− | 0.6+ | 2006 02 03 | 699 | 0.7+ | 1.0− |
| 2005 12 04 | 704 | 1.0+ | 0.3− | 2006 01 09 | 703 | 0.5− | 0.6+ | 2006 02 03 | 699 | 1.1+ | 0.6+ |
| 2005 12 04 | 704 | 0.7+ | 0.1− | 2006 01 09 | 691 | 0.1− | 0.1+ | 2006 02 03 | G96 | 0.0 | 0.3− |
| 2005 12 04 | 704 | 0.4+ | 0.1+ | 2006 01 09 | 703 | 1.1− | 0.6+ | 2006 02 03 | G96 | 0.4− | 0.2− |
| 2005 12 22 | 703 | 0.3− | 0.3− | 2006 01 09 | 691 | 0.1− | 0.1+ | 2006 02 03 | G96 | 0.1− | 0.1− |
| 2005 12 22 | 703 | 0.1+ | 0.1+ | 2006 01 18 | 703 | 0.3+ | 0.4− | 2006 02 03 | 699 | 0.8− | 0.7− |
| 2005 12 22 | 703 | 0.9− | 0.3+ | 2006 01 18 | 703 | 0.4+ | 1.1− | 2006 02 03 | G96 | 0.0 | 0.2− |
| 2005 12 22 | 703 | 0.5− | 0.8+ | 2006 01 18 | 703 | 0.1− | 0.1− | 2006 02 03 | 704 | 1.1− | 1.6+ |
| 2005 12 22 | 691 | 0.1+ | 0.2+ | 2006 01 18 | 703 | 0.9− | 0.1− | 2006 02 03 | 704 | 0.9+ | 1.0− |
| 2005 12 22 | 691 | 0.1+ | 0.0 | 2006 01 21 | 699 | 0.2+ | 0.0 | 2006 02 03 | 704 | 0.1+ | 0.6− |
| 2005 12 22 | 691 | 0.1− | 0.1+ | 2006 01 21 | 699 | 0.1+ | 0.3+ | 2006 02 03 | 704 | 0.1− | 1.1+ |
| 2005 12 22 | 691 | 0.2+ | 0.3+ | 2006 01 21 | 699 | 0.1− | 0.6− | 2009 12 16 | B74 | 0.1− | 0.1+ |
| 2005 12 22 | 691 | 0.3+ | 0.2+ | 2006 01 21 | 699 | 0.2+ | 0.6+ | 2009 12 16 | B74 | 0.4+ | 1.2− |
| 2005 12 22 | 691 | 0.1+ | 0.0 | 2006 01 23 | 704 | 0.0 | 0.8+ | 2009 12 16 | B74 | 0.4− | 1.7− |
| 2005 12 25 | G96 | 0.3− | 0.1− | 2006 01 23 | 704 | 0.5+ | 0.4− | 2009 12 18 | B74 | 0.6− | 0.3− |
| 2005 12 25 | G96 | 0.0 | 0.2− | 2006 01 23 | 704 | 0.0 | 0.0 | 2009 12 18 | B74 | 0.6− | 0.4− |
| 2005 12 25 | G96 | 0.2− | 0.2− | 2006 01 23 | 704 | 0.3+ | 0.9+ | 2009 12 18 | B74 | 0.9− | 0.9− |
| 2005 12 26 | G96 | 0.1+ | 0.3− | 2006 01 23 | 185 | 0.3− | 0.3+ | 2009 12 18 | B82 | 0.4+ | 0.2+ |
| 2005 12 26 | G96 | 0.1− | 0.4− | 2006 01 23 | 185 | 0.4− | 0.2− | 2009 12 18 | B82 | 0.2+ | 0.1+ |
| 2005 12 26 | G96 | 0.3− | 0.3− | 2006 01 23 | 185 | 0.7− | 0.3− | 2009 12 18 | B82 | 0.6+ | 0.3+ |
| 2005 12 26 | G96 | 0.0 | 0.5− | 2006 01 28 | 699 | 0.3+ | 0.4+ | 2009 12 19 | B74 | 0.4+ | 0.3+ |
| 2005 12 27 | 691 | 0.1+ | 0.2+ | 2006 01 28 | 699 | 0.0 | 0.3− | 2009 12 19 | B74 | 0.6+ | 0.9+ |
| 2005 12 27 | 691 | 0.1+ | 0.1+ | 2006 01 28 | 699 | 0.4− | 1.4− | 2009 12 19 | B74 | 0.1+ | 0.1+ |
| 2005 12 27 | 691 | 0.3+ | 0.1+ | 2006 01 28 | 699 | 0.4− | 0.6− | | | | |
| 2006 01 05 | 691 | 0.1+ | 0.1+ | 2006 01 29 | 703 | 0.6− | 0.2− | | | | |

**2005 YP$_{15}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 251.41703 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18017807 | $\omega$ | 200.46216 | | −0.66175980 | −0.74723524 | |
| $a$ | 3.1045698 | $\Omega$ | 291.02528 | | +0.69661050 | −0.58280329 | |
| $e$ | 0.1129987 | $i$ | 3.74320 | | +0.27714214 | −0.31934280 | |
| $P$ | 5.47 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 22 | 691 | 0.3− | 0.3− | 2006 01 04 | G96 | 0.1− | 0.1+ | 2006 02 24 | G96 | 0.3− | 0.2− |
| 2005 12 22 | 691 | 0.1− | 0.2− | 2006 01 04 | 691 | 0.3+ | 0.3+ | 2006 02 24 | G96 | 0.1− | 0.4+ |
| 2005 12 22 | 691 | 0.3− | 0.1− | 2006 01 04 | G96 | 0.1− | 0.1+ | 2006 02 24 | G96 | 0.1+ | 0.0 |
| 2005 12 25 | G96 | 0.0 | 0.2− | 2006 01 04 | G96 | 0.2− | 0.2− | 2009 09 17 | G96 | 0.1− | 0.4+ |
| 2005 12 25 | G96 | 0.2− | 0.5− | 2006 01 22 | G96 | 0.2+ | 0.0 | 2009 09 17 | G96 | 0.0 | 0.2+ |
| 2005 12 25 | G96 | 0.5− | 0.4− | 2006 01 22 | G96 | 0.3+ | 0.3− | 2009 09 17 | G96 | 0.5+ | 0.1− |
| 2005 12 25 | G96 | 0.9− | 0.7− | 2006 01 22 | G96 | 0.3+ | 0.2− | 2009 09 17 | G96 | 0.4+ | 0.3+ |
| 2005 12 27 | 691 | 0.1+ | 0.1+ | 2006 01 22 | G96 | 0.3+ | 0.1− | 2009 10 23 | G96 | 0.1+ | 0.1− |
| 2005 12 27 | 691 | 0.1+ | 0.5+ | 2006 02 24 | G96 | 0.0 | 0.2+ | 2009 10 23 | G96 | 0.1+ | 0.2− |
| 2005 12 27 | 691 | 0.2− | 0.5− | 2006 02 24 | G96 | 0.2− | 0.1+ | 2009 10 23 | G96 | 0.9− | 0.0 |
| 2006 01 04 | 691 | 0.1+ | 0.4+ | 2006 02 24 | G96 | 0.3− | 0.4+ | 2009 10 23 | G96 | 0.3− | 0.1− |
| 2006 01 04 | 691 | 0.6+ | 0.4+ | 2006 02 24 | G96 | 0.0 | 0.0 | | | | |
| 2006 01 04 | G96 | 0.1− | 0.4− | 2006 02 24 | G96 | 0.1+ | 0.2− | | | | |

**2005 YW$_{20}$ = 2009 WN$_{225}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 24.49382 | | (2000.0) | | | |
| $n$ | 0.23072500 | $\omega$ | 120.64172 | | +0.63374187 | −0.77223884 |
| $a$ | 2.6327297 | $\Omega$ | 289.96305 | | +0.69235114 | +0.59216780 |
| $e$ | 0.0971728 | $i$ | 2.73971 | | +0.34499441 | +0.23018357 |
| $P$ | 4.27 | $H$ | 17.8 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 08 22 | 691 | 0.3+ | 0.1− | 2005 12 25 | G96 | 0.0 | 0.1− | 2006 01 09 | 691 | 0.1− | 0.2− |
| 2004 08 22 | 691 | 0.3− | 0.1+ | 2005 12 28 | 691 | 0.2− | 0.2+ | 2009 11 17 | 691 | 0.0 | 0.2− |
| 2004 08 22 | 691 | 0.1− | 0.1+ | 2005 12 28 | 691 | 0.1+ | 0.0 | 2009 11 17 | 691 | 0.3− | 0.0 |
| 2005 12 24 | 691 | 0.1+ | 0.2+ | 2005 12 28 | 691 | 0.3− | 0.2+ | 2009 11 17 | 691 | 0.1− | 0.1− |
| 2005 12 24 | 691 | 0.5+ | 0.0 | 2006 01 05 | 691 | 0.0 | 0.0 | 2009 11 21 | 291 | 0.2+ | 0.1+ |
| 2005 12 24 | 691 | 0.1− | 0.3+ | 2006 01 05 | 691 | 0.0 | 0.0 | 2009 11 21 | 291 | 0.3+ | 0.2− |
| 2005 12 25 | G96 | 0.2+ | 0.1− | 2006 01 05 | 691 | 0.4+ | 0.1+ | 2009 11 21 | 291 | 0.1− | 0.1+ |
| 2005 12 25 | G96 | 0.2− | 0.4− | 2006 01 09 | 691 | 0.2− | 0.4− | | | | |
| 2005 12 25 | G96 | 0.1− | 0.4− | 2006 01 09 | 691 | 0.1− | 0.1+ | | | | |

**2005 YX$_{26}$ = 2008 TD$_{179}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 148.81982 | | (2000.0) | | | |
| $n$ | 0.26686751 | $\omega$ | 239.55480 | | +0.88914113 | +0.44026315 |
| $a$ | 2.3893086 | $\Omega$ | 94.07046 | | −0.36508901 | +0.84695508 |
| $e$ | 0.2165835 | $i$ | 7.19239 | | −0.27593129 | +0.29805276 |
| $P$ | 3.69 | $H$ | 17.2 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 06 01 | 691 | 0.1+ | 0.3+ | 2005 12 26 | 691 | 0.4+ | 0.2+ | 2008 10 01 | 703 | 0.3+ | 0.8+ |
| 2000 06 01 | 691 | 0.2+ | 0.1+ | 2005 12 28 | G96 | 0.7− | 0.5+ | 2008 10 01 | 703 | 0.2+ | 0.3− |
| 2000 06 01 | 691 | 0.2− | 0.7+ | 2005 12 28 | G96 | 0.5+ | 0.1− | 2008 10 01 | 703 | 0.1+ | 0.2− |
| 2004 08 07 | E12 | 0.2+ | 0.2+ | 2005 12 28 | G96 | 0.0 | 0.4− | 2008 10 01 | 703 | 0.6− | 0.7− |
| 2004 08 07 | E12 | 0.4+ | 0.5+ | 2005 12 28 | G96 | 0.6− | 0.3− | 2008 10 08 | 703 | (0.8+ | 1.9+) |
| 2004 08 07 | E12 | 0.2+ | 0.6− | 2006 01 07 | 691 | 0.2+ | 0.1+ | 2008 10 08 | 703 | (0.4+ | 2.3+) |
| 2004 08 07 | E12 | 0.2+ | 0.0 | 2006 01 07 | 691 | 0.3− | 0.0 | 2008 10 08 | 703 | (0.7+ | 2.6+) |
| 2005 12 22 | 691 | 0.1+ | 0.2+ | 2006 01 07 | 691 | 0.0 | 0.2− | 2008 10 08 | 703 | (0.6+ | 2.3+) |
| 2005 12 22 | 691 | 0.1+ | 0.6+ | 2008 09 21 | 703 | 0.2− | 0.1+ | 2008 12 01 | 703 | 0.8− | 1.2+ |
| 2005 12 22 | 691 | 0.4+ | 0.6− | 2008 09 21 | 703 | 0.2− | 0.1+ | 2008 12 01 | 703 | 0.8− | 0.1− |
| 2005 12 26 | 691 | 0.3− | 0.1− | 2008 09 21 | 703 | (0.8+ | 1.8+) | 2008 12 01 | 703 | 0.7+ | 1.2+ |
| 2005 12 26 | 691 | 0.1− | 0.5+ | 2008 09 21 | 703 | 0.8− | 0.9+ | 2008 12 01 | 703 | (0.9− | 3.5+) |

**2005 YR$_{27}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 195.06863 | | (2000.0) | | | |
| $n$ | 0.17333285 | $\omega$ | 229.33841 | | −0.99755774 | +0.04528862 |
| $a$ | 3.1857776 | $\Omega$ | 313.18477 | | −0.01711774 | −0.89660166 |
| $e$ | 0.1114758 | $i$ | 4.18207 | | −0.06771653 | −0.44051606 |
| $P$ | 5.69 | $H$ | 15.5 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 22 | 691 | 0.1+ | 0.6+ | 2005 12 29 | 704 | 0.1+ | 0.0 | 2009 08 16 | 691 | 0.0 | 0.3− |
| 2005 12 22 | 691 | 0.2− | 0.1− | 2005 12 29 | 704 | 0.7+ | 0.8− | 2009 08 16 | 691 | 0.3− | 0.1+ |
| 2005 12 22 | 691 | 0.0 | 0.0 | 2006 01 07 | G96 | 0.3+ | 0.1− | 2009 08 29 | 691 | 0.0 | 0.0 |
| 2005 12 26 | 691 | 0.1− | 0.0 | 2006 01 07 | G96 | 0.2− | 0.0 | 2009 08 29 | 691 | 0.0 | 0.0 |
| 2005 12 26 | 691 | 0.1− | 0.1+ | 2006 01 07 | G96 | 0.1+ | 0.1+ | 2009 08 29 | 691 | 0.2+ | 0.1+ |
| 2005 12 26 | 691 | 0.1− | 0.1+ | 2006 01 07 | G96 | 0.1+ | 0.0 | 2009 09 16 | G96 | 0.0 | 0.3+ |
| 2005 12 28 | G96 | 0.2− | 0.0 | 2006 01 23 | G96 | 0.2− | 0.1− | 2009 09 16 | G96 | 0.1− | 0.5+ |
| 2005 12 28 | G96 | 0.2+ | 0.1− | 2006 01 23 | G96 | 0.0 | 0.1− | 2009 09 16 | G96 | 0.2+ | 0.2+ |
| 2005 12 28 | G96 | 0.1+ | 0.4− | 2006 01 23 | G96 | 0.3+ | 0.0 | 2009 09 16 | G96 | 0.0 | 0.1+ |
| 2005 12 28 | G96 | 0.2+ | 0.0 | 2006 01 23 | G96 | 0.0 | 0.0 | | | | |
| 2005 12 29 | 704 | 0.4+ | 1.4− | 2009 08 16 | 691 | 0.1+ | 0.2− | | | | |

**2005 YL$_{29}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 334.66970 | | (2000.0) | | | |
| $n$ | 0.24294864 | $\omega$ | 32.50664 | | −0.69474667 | −0.70307368 |
| $a$ | 2.5436639 | $\Omega$ | 102.00929 | | +0.62230238 | −0.69333465 |
| $e$ | 0.0857181 | $i$ | 8.92258 | | +0.36064777 | −0.15803311 |
| $P$ | 4.06 | $H$ | 17.2 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 11 25 | G96 | 0.6− | 0.0 | 2006 01 05 | 691 | 0.2− | 0.0 | 2006 02 07 | 691 | 0.2− | 0.0 |
| 2005 11 25 | G96 | 0.2− | 0.2− | 2006 01 05 | 691 | 0.3+ | 0.0 | 2006 02 07 | 691 | 0.6+ | 0.7− |
| 2005 11 25 | G96 | 0.4− | 0.0 | 2006 01 05 | 691 | 0.1+ | 0.0 | 2009 11 18 | G96 | 0.2+ | 0.1− |
| 2005 11 25 | G96 | 0.5− | 0.1+ | 2006 01 08 | 691 | 0.1− | 0.4+ | 2009 11 18 | G96 | 0.4+ | 0.1− |
| 2005 12 24 | 691 | 0.2− | 0.5+ | 2006 01 08 | 691 | 0.1+ | 0.5+ | 2009 11 18 | G96 | 0.1+ | 0.2+ |
| 2005 12 24 | 691 | 0.1− | 0.1− | 2006 01 08 | 691 | 0.0 | 0.1− | 2009 11 18 | G96 | 0.5+ | 0.2+ |
| 2005 12 24 | 691 | 0.1+ | 0.2− | 2006 01 26 | G96 | 0.0 | 0.5− | 2009 12 10 | G96 | 0.5+ | 0.3− |
| 2005 12 26 | 691 | 0.2− | 0.0 | 2006 01 26 | G96 | 0.1+ | 0.3− | 2009 12 10 | G96 | 0.4+ | 0.2− |
| 2005 12 26 | 691 | 0.2+ | 0.0 | 2006 01 26 | G96 | 0.1− | 0.5− | 2009 12 10 | G96 | 0.4+ | 0.2− |
| 2005 12 26 | 691 | 0.1− | 0.2− | 2006 01 31 | 691 | 0.3− | 0.1+ | 2009 12 10 | G96 | 0.4+ | 0.1+ |
| 2005 12 30 | 691 | 0.0 | 0.0 | 2006 01 31 | 691 | 0.2− | 0.1+ | 2009 12 25 | 691 | 0.1+ | 0.1− |
| 2005 12 30 | 691 | 0.2+ | 0.0 | 2006 01 31 | 691 | 0.0 | 0.0 | 2009 12 25 | 691 | 0.3− | 0.1− |
| 2005 12 30 | 691 | 0.3+ | 0.2− | 2006 02 07 | 691 | 0.1+ | 0.5+ | 2009 12 25 | 691 | 0.5− | 0.1+ |

**2005 YD$_{34}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 336.30093 | | (2000.0) | | | |
| $n$ | 0.21771309 | $\omega$ | 334.78306 | | +0.06583984 | −0.99500293 |
| $a$ | 2.7366107 | $\Omega$ | 111.36774 | | +0.92860881 | +0.03356896 |
| $e$ | 0.1689002 | $i$ | 4.62319 | | +0.36517227 | +0.09403343 |
| $P$ | 4.53 | $H$ | 17.0 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 11 28 | G96 | 0.1+ | 0.2− | 2006 01 07 | G96 | 0.5− | 0.3− | 2006 02 02 | 703 | 0.2− | 0.2− |
| 2005 11 28 | G96 | 0.0 | 0.4− | 2006 01 07 | G96 | 0.0 | 0.3− | 2006 02 02 | 703 | 0.7− | 0.8− |
| 2005 11 28 | G96 | 0.6− | 0.3− | 2006 01 07 | G96 | 0.0 | 0.0 | 2006 02 02 | 703 | (1.8− | 2.1−) |
| 2005 11 28 | G96 | 0.0 | 0.2− | 2006 01 07 | G96 | 0.1+ | 0.4− | 2006 02 02 | 703 | 1.4− | 0.7− |
| 2005 12 24 | 691 | 0.0 | 0.0 | 2006 01 07 | G96 | 0.1+ | 0.6− | 2006 02 06 | G96 | 0.1− | 0.2+ |
| 2005 12 24 | 691 | 0.1+ | 0.2− | 2006 01 07 | G96 | 0.0 | 0.8− | 2006 02 06 | G96 | 0.6− | 0.2+ |
| 2005 12 24 | 691 | 0.0 | 0.1− | 2006 01 07 | G96 | 0.0 | 0.6− | 2006 02 06 | G96 | 0.0 | 0.0 |
| 2005 12 26 | G96 | 0.5− | 0.1− | 2006 01 11 | 291 | 0.2+ | 0.3+ | 2006 02 06 | G96 | 0.1− | 0.1+ |
| 2005 12 26 | G96 | 0.6− | 0.4− | 2006 01 11 | 291 | 0.2+ | 0.3+ | 2009 09 17 | 691 | 0.1+ | 0.2− |
| 2005 12 26 | G96 | 0.1− | 0.4− | 2006 01 11 | 291 | 0.3+ | 0.2+ | 2009 09 17 | 691 | 0.0 | 0.2+ |
| 2005 12 26 | G96 | 0.1− | 0.3− | 2006 01 24 | 704 | 0.2+ | 1.2− | 2009 09 17 | 691 | 0.0 | 0.2+ |
| 2006 01 04 | G96 | 0.5+ | 0.4− | 2006 01 24 | 704 | 0.1+ | 0.4− | 2009 10 26 | G96 | 0.3− | 0.4− |
| 2006 01 04 | G96 | 0.2− | 0.3− | 2006 01 24 | 704 | 0.1− | 0.2− | 2009 10 26 | G96 | 0.6− | 0.4− |
| 2006 01 04 | G96 | 0.5− | 0.2− | 2006 01 24 | 704 | 0.0 | 0.1+ | 2009 10 26 | G96 | 0.2− | 0.4− |
| 2006 01 04 | G96 | 0.2− | 0.1− | 2006 01 24 | 704 | 0.1+ | 0.1+ | 2009 10 26 | G96 | 0.5− | 0.0 |
| 2006 01 05 | 691 | 0.1− | 0.9+ | 2006 01 27 | 699 | 0.6− | 0.7+ | 2009 11 09 | 703 | 0.1− | 0.3+ |
| 2006 01 05 | 691 | 0.2+ | 0.2+ | 2006 01 27 | 699 | (1.4+ | 1.7+) | 2009 11 09 | 703 | 0.0 | 0.6+ |
| 2006 01 05 | 691 | 0.2+ | 0.6+ | 2006 01 27 | 699 | 0.7+ | 0.3− | 2009 11 09 | 703 | 0.1+ | 0.6+ |
| 2006 01 07 | G96 | 0.4+ | 0.5− | 2006 01 27 | 699 | 0.2− | 0.2+ | 2009 11 09 | 703 | 1.2+ | 0.7− |

**2005 YB$_{40}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 31.14966 | | (2000.0) | | | |
| $n$ | 0.22063051 | $\omega$ | 293.32895 | | +0.64630693 | −0.72702981 |
| $a$ | 2.7124329 | $\Omega$ | 114.30845 | | +0.75941035 | +0.58307521 |
| $e$ | 0.0209103 | $i$ | 14.73280 | | +0.07472124 | +0.36256165 |
| $P$ | 4.47 | $H$ | 15.9 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 22 | 691 | 0.1− | 0.1+ | 2006 01 08 | 691 | 0.2− | 0.1− | 2006 01 28 | G96 | 0.3+ | 0.2− |
| 2005 12 22 | 691 | 0.8+ | 1.3+ | 2006 01 18 | 703 | 1.0− | 0.6+ | 2006 01 28 | G96 | 0.0 | 0.1− |
| 2005 12 22 | 691 | 0.2− | 0.1− | 2006 01 18 | 703 | 0.3+ | 0.9+ | 2006 01 28 | G96 | 0.3+ | 0.4− |
| 2005 12 27 | 691 | 0.1+ | 0.0 | 2006 01 18 | 703 | 0.6+ | 0.8+ | 2006 02 06 | 691 | 0.1− | 0.1+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 27 | 691 | 0.1+ | 0.0 | 2006 01 18 | 703 | 0.3+ | 1.8− | 2006 02 06 | 691 | 0.0 | 0.1+ | | |
| 2005 12 27 | 691 | 0.0 | 0.1− | 2006 01 20 | 291 | 0.1− | 0.3− | 2006 02 06 | 691 | 0.0 | 0.6+ | | |
| 2005 12 30 | 699 | 0.6+ | 1.1− | 2006 01 20 | 291 | 0.0 | 0.2− | 2008 08 04 | E12 | 0.5− | 0.1+ | | |
| 2005 12 30 | 699 | 0.3− | 0.0 | 2006 01 20 | 291 | 0.3− | 0.1− | 2008 08 04 | E12 | 0.1+ | 0.2− | | |
| 2005 12 30 | 699 | 1.3− | 0.8− | 2006 01 20 | 291 | 0.1+ | 0.0 | 2008 08 04 | E12 | 0.6+ | 0.0 | | |
| 2005 12 30 | 699 | 1.1− | 0.9− | 2006 01 20 | 291 | 0.1− | 0.1− | 2008 08 04 | E12 | 0.8+ | 0.2+ | | |
| 2006 01 04 | 691 | 0.0 | 0.1− | 2006 01 20 | 291 | 0.1+ | 0.2+ | 2008 08 23 | E12 | 0.2+ | 0.4+ | | |
| 2006 01 04 | 691 | 0.1+ | 0.1− | 2006 01 22 | 691 | 0.3+ | 0.0 | 2008 08 23 | E12 | 1.5− | 0.1− | | |
| 2006 01 04 | 691 | 0.2− | 0.2− | 2006 01 22 | 691 | 0.2+ | 0.1+ | 2008 08 23 | E12 | 0.3+ | 0.7+ | | |
| 2006 01 08 | 691 | 0.2+ | 0.0 | 2006 01 22 | 691 | (0.8− | 3.3−) | 2008 08 23 | E12 | 0.0 | 1.1− | | |
| 2006 01 08 | 691 | 0.2− | 0.3− | 2006 01 28 | G96 | 0.1− | 0.1− | | | | | | |

**2005 YH$_{54}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 22.54718 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22616467 | $\omega$ | 281.75568 | | +0.78135825 | −0.62106404 | |
| $a$ | 2.6680024 | $\Omega$ | 116.66956 | | +0.59597692 | +0.71341105 | |
| $e$ | 0.1467417 | $i$ | 3.93403 | | +0.18517774 | +0.32453679 | |
| $P$ | 4.36 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 10 07 | 691 | 0.1+ | 0.1− | 2005 12 25 | 691 | 0.1− | 0.1+ | 2009 11 09 | 703 | 0.6+ | 0.0 | | |
| 2000 10 07 | 691 | 0.0 | 0.1− | 2005 12 26 | G96 | 0.2− | 0.4− | 2009 11 09 | 703 | 0.8− | 1.5+ | | |
| 2000 10 07 | 691 | 0.1+ | 0.1− | 2005 12 26 | G96 | 0.3− | 0.3− | 2009 11 09 | 703 | 0.1− | 0.5− | | |
| 2002 02 08 | 691 | 0.1− | 0.8− | 2005 12 26 | G96 | 0.4− | 0.0 | 2009 11 17 | G96 | 0.0 | 0.2− | | |
| 2002 02 08 | 691 | 0.0 | 0.4− | 2005 12 26 | G96 | 0.9+ | 0.1+ | 2009 11 17 | G96 | 0.1+ | 0.3− | | |
| 2002 02 08 | 691 | 0.1− | 0.0 | 2005 12 29 | 691 | 0.0 | 0.3+ | 2009 11 17 | G96 | 0.0 | 0.3− | | |
| 2005 11 30 | G96 | 0.1− | 0.1− | 2005 12 29 | 691 | 0.1+ | 0.3+ | 2009 11 17 | G96 | 0.1− | 0.2− | | |
| 2005 11 30 | G96 | 0.4+ | 0.7− | 2005 12 29 | 691 | 0.2+ | 0.2+ | 2009 11 26 | G96 | 0.5+ | 0.4− | | |
| 2005 11 30 | G96 | 0.9+ | 0.1− | 2006 01 06 | 691 | 0.6− | 0.2+ | 2009 11 26 | G96 | 0.0 | 0.5− | | |
| 2005 11 30 | G96 | 0.3+ | 0.1+ | 2006 01 06 | 691 | 0.0 | 0.1+ | 2009 11 26 | G96 | 0.1+ | 0.4− | | |
| 2005 12 25 | 691 | 0.1− | 0.3+ | 2006 01 06 | 691 | 0.1+ | 0.0 | 2009 11 26 | G96 | 0.1+ | 0.3− | | |
| 2005 12 25 | 691 | 0.1− | 0.1+ | 2009 11 09 | 703 | 0.4+ | 0.3+ | 2009 11 26 | G96 | 0.0 | 0.5− | | |

**2005 YY$_{58}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 0.52596 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19542156 | $\omega$ | 284.19931 | | +0.91524916 | −0.39913388 | |
| $a$ | 2.9409506 | $\Omega$ | 99.34814 | | +0.38776370 | +0.83571320 | |
| $e$ | 0.0982158 | $i$ | 3.18799 | | +0.10935398 | +0.37719438 | |
| $P$ | 5.04 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 27 | G96 | 0.1− | 0.6− | 2006 01 05 | 691 | 0.0 | 0.3+ | 2006 01 30 | 691 | 0.1− | 0.0 | | |
| 2005 10 27 | G96 | 0.4− | 0.4− | 2006 01 09 | 691 | 0.2+ | 0.4+ | 2006 01 30 | 691 | 0.2+ | 0.1− | | |
| 2005 10 27 | G96 | 0.1+ | 0.3− | 2006 01 09 | 691 | 0.3− | 0.1− | 2006 02 07 | 691 | 0.5+ | 0.2+ | | |
| 2005 10 27 | G96 | 0.4+ | 0.2− | 2006 01 09 | 691 | 0.0 | 0.3+ | 2006 02 07 | 691 | 0.0 | 0.6− | | |
| 2005 12 25 | G96 | 0.1+ | 0.4− | 2006 01 10 | G96 | 0.4− | 0.0 | 2006 02 07 | 691 | 0.2− | 0.3+ | | |
| 2005 12 25 | G96 | 0.3+ | 0.1− | 2006 01 10 | G96 | 0.2− | 0.2+ | 2009 08 18 | 691 | 0.2+ | 0.2+ | | |
| 2005 12 25 | G96 | 0.2+ | 0.4− | 2006 01 10 | G96 | 0.0 | 0.1+ | 2009 08 18 | 691 | 0.2− | 0.1− | | |
| 2005 12 25 | G96 | 0.0 | 0.3− | 2006 01 10 | G96 | 0.2− | 0.1+ | 2009 08 18 | 691 | 0.2− | 0.2+ | | |
| 2005 12 28 | 691 | 0.5− | 0.3− | 2006 01 23 | G96 | 0.1+ | 0.1+ | 2009 09 28 | G96 | 0.1+ | 0.3− | | |
| 2005 12 28 | 691 | 0.0 | 0.1+ | 2006 01 23 | G96 | 0.0 | 0.2− | 2009 09 28 | G96 | 0.2+ | 0.3− | | |
| 2005 12 28 | 691 | 0.3+ | 0.0 | 2006 01 23 | G96 | 0.5+ | 0.1+ | 2009 09 28 | G96 | 0.0 | 0.0 | | |
| 2006 01 05 | 691 | 0.1− | 0.1+ | 2006 01 23 | G96 | 0.5+ | 0.1+ | 2009 09 28 | G96 | 0.2+ | 0.2− | | |
| 2006 01 05 | 691 | 0.1− | 0.0 | 2006 01 30 | 691 | 0.1− | 0.1− | | | | | | |

**2005 YT$_{66}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 306.95305 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23758127 | $\omega$ | 55.80667 | | −0.98395310 | −0.14509559 | |
| $a$ | 2.5818316 | $\Omega$ | 115.65516 | | +0.10050116 | −0.93158016 | |
| $e$ | 0.1254993 | $i$ | 6.61521 | | +0.14743069 | −0.33332519 | |
| $P$ | 4.15 | $H$ | 17.4 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 03 11 | 644 | 0.4+ | 0.1+ | 2005 12 30 | 691 | 0.1+ | 0.1+ | 2006 01 26 | G96 | 0.5− | 0.1− | | |
| 2002 03 11 | 644 | 0.1− | 0.0 | 2006 01 04 | 691 | 0.7+ | 0.2+ | 2006 01 30 | 691 | 0.0 | 0.0 | | |
| 2002 03 11 | 644 | 0.3− | 0.4+ | 2006 01 04 | 691 | 0.1+ | 0.3+ | 2006 01 30 | 691 | 0.2− | 0.1− | | |
| 2005 12 25 | G96 | 0.4− | 0.7− | 2006 01 04 | 691 | 0.1+ | 0.1− | 2006 01 30 | 691 | 0.0 | 0.2+ | | |
| 2005 12 25 | G96 | 0.2+ | 0.8− | 2006 01 07 | G96 | 0.6− | 0.4− | 2006 03 04 | G96 | 0.1+ | 0.1+ | | |
| 2005 12 25 | G96 | 0.8− | 0.2− | 2006 01 07 | G96 | 0.2− | 0.4− | 2006 03 04 | G96 | 0.0 | 0.2− | | |
| 2005 12 25 | G96 | 0.2+ | 0.4− | 2006 01 07 | G96 | 0.1+ | 0.4− | 2006 03 04 | G96 | 0.2+ | 0.0 | | |
| 2005 12 28 | G96 | 0.7− | 0.5− | 2006 01 07 | G96 | 0.5− | 0.4− | 2006 03 04 | G96 | 0.3− | 0.0 | | |
| 2005 12 28 | G96 | 0.2+ | 0.5− | 2006 01 08 | 691 | 0.0 | 0.4− | 2009 12 18 | 691 | 0.0 | 0.1+ | | |
| 2005 12 28 | G96 | 0.0 | 0.0 | 2006 01 08 | 691 | 0.3+ | 0.2+ | 2009 12 18 | 691 | 0.0 | 0.0 | | |
| 2005 12 28 | G96 | 0.6− | 0.1− | 2006 01 08 | 691 | 0.1− | 0.2+ | 2009 12 18 | 691 | 0.0 | 0.2+ | | |
| 2005 12 30 | 691 | 0.1− | 0.2+ | 2006 01 26 | G96 | 0.2− | 0.1− | | | | | | |
| 2005 12 30 | 691 | 0.2+ | 0.2+ | 2006 01 26 | G96 | 0.1− | 0.1− | | | | | | |

**2005 YX$_{69}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 202.65659 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17786850 | $\omega$ | 232.38589 | | −0.99686062 | −0.00414659 | |
| $a$ | 3.1313866 | $\Omega$ | 307.23888 | | +0.03947707 | −0.89167502 | |
| $e$ | 0.0952842 | $i$ | 5.69981 | | −0.06863284 | −0.45265711 | |
| $P$ | 5.54 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 05 | G96 | 0.1+ | 0.2+ | 2006 01 07 | G96 | 0.4+ | 0.1− | 2006 02 05 | G96 | 0.3− | 0.2+ | | |
| 2005 12 05 | G96 | 0.0 | 0.5− | 2006 01 07 | G96 | 0.0 | 0.1+ | 2006 02 05 | G96 | 0.7− | 0.0 | | |
| 2005 12 05 | G96 | 0.0 | 0.2+ | 2006 01 07 | G96 | 0.0 | 0.0 | 2009 09 17 | G96 | 0.1+ | 0.8+ | | |
| 2005 12 05 | G96 | 0.6− | 0.1− | 2006 01 23 | G96 | 0.0 | 0.0 | 2009 09 17 | G96 | 0.5− | 0.1+ | | |
| 2005 12 26 | 691 | 0.1+ | 0.1+ | 2006 01 23 | G96 | 0.2− | 0.2− | 2009 09 17 | G96 | 0.4+ | 0.4+ | | |
| 2005 12 26 | 691 | 0.1− | 0.1− | 2006 01 23 | G96 | 0.2+ | 0.2− | 2009 09 17 | G96 | 0.4+ | 0.1− | | |
| 2005 12 26 | 691 | 0.1+ | 0.1+ | 2006 01 23 | G96 | 0.0 | 0.3− | 2009 09 25 | G96 | 0.1− | 0.2− | | |
| 2005 12 28 | G96 | 0.3− | 0.0 | 2006 01 24 | 704 | 0.3+ | 0.6+ | 2009 09 25 | G96 | 0.0 | 0.2− | | |
| 2005 12 28 | G96 | 0.2+ | 0.2− | 2006 01 24 | 704 | 0.1− | 0.0 | 2009 09 25 | G96 | 0.2− | 0.5− | | |
| 2005 12 28 | G96 | 0.3+ | 0.1− | 2006 01 24 | 704 | 0.4+ | 0.1+ | 2009 09 25 | G96 | 0.2− | 0.3− | | |
| 2005 12 28 | G96 | 0.2− | 0.2− | 2006 02 05 | G96 | 0.2+ | 0.7+ | | | | | | |
| 2006 01 07 | G96 | 0.2− | 0.1− | 2006 02 05 | G96 | 0.1+ | 0.3− | | | | | | |

**2005 YT$_{79}$ = 2009 WL$_{257}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 39.22442 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23481000 | $\omega$ | 71.05107 | | +0.83054575 | −0.55665236 | |
| $a$ | 2.6021061 | $\Omega$ | 322.76739 | | +0.49899529 | +0.75825200 | |
| $e$ | 0.1757621 | $i$ | 1.72547 | | +0.24738122 | +0.33939956 | |
| $P$ | 4.20 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 24 | 691 | 0.0 | 0.0 | 2006 01 07 | G96 | 0.5− | 0.4− | 2009 11 25 | 691 | 0.3+ | 0.1− | | |
| 2005 12 24 | 691 | 0.2+ | 0.8+ | 2006 01 09 | 691 | 0.5− | 0.4− | 2009 12 11 | G96 | 0.1− | 0.2+ | | |
| 2005 12 24 | 691 | 0.1− | 0.2− | 2006 01 09 | 691 | 0.4+ | 0.2− | 2009 12 11 | G96 | 0.1+ | 0.1+ | | |
| 2005 12 28 | 691 | 0.2+ | 0.0 | 2006 01 09 | 691 | 0.1+ | 0.3+ | 2009 12 11 | G96 | 0.1− | 0.2− | | |
| 2005 12 28 | 691 | 0.0 | 0.1− | 2009 11 25 | 691 | 0.2+ | 0.0 | 2009 12 11 | G96 | 0.4− | 0.1+ | | |
| 2005 12 28 | 691 | 0.2− | 0.1+ | 2009 11 25 | 691 | 0.1+ | 0.0 | 2009 12 20 | G96 | 0.1− | 0.1+ | | |
| 2006 01 07 | G96 | 0.2− | 0.2− | 2009 11 25 | 691 | 0.2− | 0.1− | 2009 12 20 | G96 | 0.1+ | 0.2+ | | |
| 2006 01 07 | G96 | 0.4− | 0.4− | 2009 11 25 | 691 | 0.1− | 0.0 | 2009 12 20 | G96 | 0.0 | 0.1+ | | |
| 2006 01 07 | G96 | 0.3+ | 0.3− | 2009 11 25 | 691 | 0.2− | 0.0 | | | | | | |

**2005 YG$_{87}$ = 2005 XT$_{24}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 28.54244 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22191990 | $\omega$ | 289.15987 | | +0.83828257 | −0.53960599 | |
| $a$ | 2.7019162 | $\Omega$ | 103.56726 | | +0.52557617 | +0.76156912 | |
| $e$ | 0.1038471 | $i$ | 4.61128 | | +0.14509315 | +0.35893990 | |
| $P$ | 4.44 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 02 | G96 | 0.1− | 0.0 | 2005 12 28 | 691 | 0.4− | 0.3+ | 2009 10 12 | G96 | 0.2− | 0.2+ | | | | |
| 2005 12 02 | G96 | 0.2− | 0.1− | 2005 12 28 | 691 | 0.3+ | 0.3− | 2009 10 12 | G96 | 0.1− | 0.2+ | | | | |
| 2005 12 02 | G96 | 0.2− | 0.3− | 2006 01 04 | G96 | 0.4− | 0.5− | 2009 10 12 | G96 | 0.4+ | 0.1− | | | | |
| 2005 12 02 | G96 | 0.3− | 0.3− | 2006 01 04 | G96 | 0.3+ | 0.4− | 2009 10 12 | G96 | 0.4+ | 0.3+ | | | | |
| 2005 12 04 | G96 | 1.4+ | 0.5+ | 2006 01 04 | G96 | 0.5+ | 0.3− | 2009 11 17 | G96 | 0.1+ | 0.1− | | | | |
| 2005 12 04 | G96 | 0.2− | 0.9− | 2006 01 04 | G96 | 0.3+ | 0.6− | 2009 11 17 | G96 | 0.2+ | 0.3− | | | | |
| 2005 12 04 | G96 | 0.3− | 0.6− | 2006 01 09 | 691 | 0.3− | 0.2− | 2009 11 17 | G96 | 0.2+ | 0.1− | | | | |
| 2005 12 04 | G96 | 0.1+ | 0.0 | 2006 01 09 | 691 | 0.3− | 0.7+ | 2009 11 17 | G96 | 0.3− | 0.1+ | | | | |
| 2005 12 25 | G96 | 0.1+ | 0.2− | 2006 01 09 | 691 | 0.1− | 0.4+ | 2009 11 24 | G96 | 0.4− | 0.0 | | | | |
| 2005 12 25 | G96 | 0.1− | 0.2+ | 2006 01 22 | G96 | 0.2+ | 0.3− | 2009 11 24 | G96 | 0.2− | 0.0 | | | | |
| 2005 12 25 | G96 | 0.8+ | 0.2+ | 2006 01 22 | G96 | 0.6+ | 0.5− | 2009 11 24 | G96 | 0.1− | 0.0 | | | | |
| 2005 12 25 | G96 | 0.1+ | 0.3− | 2006 01 22 | G96 | 0.1+ | 0.2− | 2009 11 24 | G96 | 0.1+ | 0.0 | | | | |
| 2005 12 28 | 691 | 0.1− | 0.1+ | 2006 01 22 | G96 | 0.8+ | 0.2− | | | | | | | | |

**2005 YU$_{91}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 46.56445 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24374146 | $\omega$ | 293.81555 | | +0.68998616 | −0.72138097 | |
| $a$ | 2.5381451 | $\Omega$ | 112.41693 | | +0.68528419 | +0.62462442 | |
| $e$ | 0.1302907 | $i$ | 3.68424 | | +0.23303363 | +0.29908835 | |
| $P$ | 4.04 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 01 12 | 691 | 1.7− | 0.4− | 2006 01 04 | G96 | 0.1+ | 0.0 | 2006 01 31 | 691 | 0.2− | 0.1− | | | | |
| 1994 01 12 | 691 | 1.6+ | 0.0 | 2006 01 04 | G96 | 0.1− | 0.2− | 2006 01 31 | 691 | 0.5+ | 0.4− | | | | |
| 1994 01 12 | 691 | 0.1+ | 0.2− | 2006 01 04 | 691 | 0.0 | 0.0 | 2006 02 02 | 691 | 0.1+ | 0.2− | | | | |
| 2005 12 04 | G96 | 0.0 | 0.2− | 2006 01 04 | G96 | 0.2− | 0.6− | 2006 02 02 | 691 | 0.1+ | 0.0 | | | | |
| 2005 12 04 | G96 | 0.7− | 0.5− | 2006 01 04 | G96 | 0.4− | 0.6− | 2006 02 02 | 691 | (2.1+ | 1.0−) | | | | |
| 2005 12 04 | G96 | 0.3− | 0.3− | 2006 01 04 | 691 | 0.0 | 0.1− | 2006 02 04 | 691 | 0.3− | 0.0 | | | | |
| 2005 12 04 | G96 | 0.6− | 0.1− | 2006 01 05 | 691 | 0.3− | 0.1− | 2006 02 04 | 691 | 0.3+ | 0.1− | | | | |
| 2005 12 26 | G96 | 0.0 | 0.4− | 2006 01 05 | 691 | 0.3− | 0.1+ | 2006 02 04 | 691 | 0.4+ | 0.3+ | | | | |
| 2005 12 26 | G96 | 0.1+ | 0.3− | 2006 01 05 | 691 | 0.2− | 0.2+ | 2006 02 06 | G96 | 0.2+ | 0.1+ | | | | |
| 2005 12 26 | G96 | 0.4− | 0.5− | 2006 01 09 | 691 | 0.7− | 0.6+ | 2006 02 06 | G96 | 0.4+ | 0.1+ | | | | |
| 2005 12 26 | G96 | 0.4− | 0.5− | 2006 01 09 | 691 | 0.5− | 0.4+ | 2006 02 06 | G96 | 0.0 | 0.3− | | | | |
| 2005 12 26 | 691 | 0.4+ | 0.4+ | 2006 01 09 | 691 | 0.0 | 0.3+ | 2006 02 06 | G96 | 0.1+ | 0.2− | | | | |
| 2005 12 26 | 691 | 0.5+ | 0.2+ | 2006 01 10 | G96 | 0.2− | 0.2− | 2009 12 10 | G96 | 0.2− | 0.7− | | | | |
| 2005 12 26 | 691 | 0.7+ | 0.0 | 2006 01 10 | G96 | 0.1+ | 0.1− | 2009 12 10 | G96 | 0.5+ | 0.4− | | | | |
| 2005 12 28 | 691 | 0.2+ | 0.4+ | 2006 01 10 | G96 | 0.0 | 0.1− | 2009 12 10 | G96 | 0.1+ | 0.4− | | | | |
| 2005 12 28 | 691 | 0.2− | 0.3+ | 2006 01 10 | G96 | 0.2− | 0.0 | 2009 12 10 | G96 | 0.2− | 0.6− | | | | |
| 2005 12 28 | 691 | 0.2+ | 0.2+ | 2006 01 22 | G96 | 0.3− | 0.5− | 2009 12 17 | 691 | 0.2+ | 0.0 | | | | |
| 2005 12 30 | 691 | 0.1+ | 0.1+ | 2006 01 22 | G96 | 0.1+ | 0.3− | 2009 12 17 | 691 | 0.1+ | 0.3− | | | | |
| 2005 12 30 | 691 | 0.1− | 0.2+ | 2006 01 22 | G96 | (1.0+ | 1.9−) | 2009 12 17 | 691 | 0.2− | 0.2− | | | | |
| 2005 12 30 | 691 | 0.6+ | 0.0 | 2006 01 22 | G96 | 0.1− | 0.5− | | | | | | | | |
| 2006 01 04 | 691 | 0.4− | 0.3+ | 2006 01 31 | 691 | 0.2− | 0.2− | | | | | | | | |

**2005 YF$_{110}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 261.72161 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22525510 | $\omega$ | 287.46086 | | −0.90537154 | +0.37924043 | |
| $a$ | 2.6751797 | $\Omega$ | 275.16967 | | −0.27880278 | −0.87019052 | |
| $e$ | 0.2183048 | $i$ | 11.05639 | | −0.32026768 | −0.31455548 | |
| $P$ | 4.38 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 27 | G96 | 0.6− | 0.6− | 2005 12 29 | 691 | 0.2+ | 0.3+ | 2006 01 09 | G96 | 0.4+ | 0.7− | | | | |
| 2005 10 27 | G96 | 0.4− | 0.5− | 2005 12 29 | 691 | 0.2+ | 0.3+ | 2006 02 01 | G96 | 0.0 | 0.1− | | | | |
| 2005 10 27 | G96 | 1.1− | 0.3− | 2006 01 02 | G96 | 0.4− | 0.3− | 2006 02 01 | G96 | 0.0 | 0.2− | | | | |
| 2005 10 27 | G96 | 0.0 | 0.6− | 2006 01 02 | G96 | 0.7− | 0.3− | 2006 02 01 | G96 | 0.0 | 0.3− | | | | |
| 2005 11 28 | G96 | 0.0 | 0.7− | 2006 01 02 | G96 | 0.5− | 0.1− | 2006 02 01 | G96 | 0.0 | 0.3− | | | | |
| 2005 11 28 | G96 | 0.3+ | 0.6− | 2006 01 02 | G96 | 0.4− | 0.6− | 2009 11 19 | 691 | 0.6− | 0.1− | | | | |
| 2005 11 28 | G96 | 0.1+ | 0.2− | 2006 01 04 | 691 | 0.3+ | 0.2+ | 2009 11 19 | 691 | 0.2− | 0.1− | | | | |
| 2005 11 28 | G96 | 0.0 | 0.5− | 2006 01 04 | 691 | 0.3+ | 0.2+ | 2009 11 19 | 691 | 0.2+ | 0.4+ | | | | |
| 2005 12 25 | 691 | 0.1+ | 0.0 | 2006 01 04 | 691 | 0.0 | 0.2+ | 2009 12 13 | G96 | 0.9+ | 0.1+ | | | | |
| 2005 12 25 | 691 | 0.3+ | 0.2+ | 2006 01 09 | G96 | 0.4− | 0.4− | 2009 12 13 | G96 | 0.6+ | 0.2− | | | | |
| 2005 12 25 | 691 | 0.4− | 0.2+ | 2006 01 09 | G96 | 0.3− | 0.4− | 2009 12 13 | G96 | 0.8+ | 0.2+ | | | | |
| 2005 12 29 | 691 | 0.0 | 0.1+ | 2006 01 09 | G96 | 0.7− | 0.5− | 2009 12 13 | G96 | 0.5+ | 0.1− | | | | |

**2005 YY$_{112}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 325.74125 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22743107 | $\omega$ | 4.96673 | | −0.39593642 | −0.91007798 | |
| $a$ | 2.6580890 | $\Omega$ | 108.40052 | | +0.83799720 | −0.41261930 | |
| $e$ | 0.1620819 | $i$ | 7.41418 | | +0.37549308 | −0.03877356 | |
| $P$ | 4.33 | $H$ | 17.4 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 11 30 | G96 | 0.0 | 0.1− | 2005 12 25 | G96 | 0.2+ | 0.2− | 2006 01 06 | 691 | 1.0+ | 0.2− | | | | |
| 2005 11 30 | G96 | 0.2− | 0.3− | 2005 12 29 | 691 | 0.1+ | 0.0 | 2009 10 14 | G96 | 0.0 | 0.2− | | | | |
| 2005 11 30 | G96 | 0.0 | 0.0 | 2005 12 29 | 691 | 0.7− | 0.7+ | 2009 10 14 | G96 | 0.2+ | 0.2+ | | | | |
| 2005 11 30 | G96 | 0.2+ | 0.1− | 2005 12 29 | 691 | 0.2− | 0.2− | 2009 10 14 | G96 | 0.2+ | 0.1+ | | | | |
| 2005 12 25 | 691 | 0.0 | 0.2+ | 2006 01 04 | G96 | 0.4− | 0.7− | 2009 10 14 | G96 | 0.3− | 0.3− | | | | |
| 2005 12 25 | 691 | 0.0 | 0.3+ | 2006 01 04 | G96 | 0.6− | 0.7− | 2009 10 24 | G96 | 0.4+ | 0.1− | | | | |
| 2005 12 25 | 691 | 0.0 | 0.1+ | 2006 01 04 | G96 | 0.8− | 0.7− | 2009 10 24 | G96 | 0.2− | 0.0 | | | | |
| 2005 12 25 | G96 | 0.0 | 0.3− | 2006 01 04 | G96 | 0.5− | 0.6− | 2009 10 24 | G96 | 0.0 | 0.2+ | | | | |
| 2005 12 25 | G96 | 0.4+ | 0.2− | 2006 01 06 | 691 | 0.0 | 0.1+ | 2009 10 24 | G96 | 0.1− | 0.1+ | | | | |
| 2005 12 25 | G96 | 0.2− | 0.4− | 2006 01 06 | 691 | 0.3+ | 0.1+ | | | | | | | | |

**2005 YZ$_{115}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 119.80195 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.29531144 | $\omega$ | 98.48298 | | +0.66370749 | −0.74161536 | |
| $a$ | 2.2333110 | $\Omega$ | 309.46410 | | +0.62697279 | +0.62264078 | |
| $e$ | 0.1845074 | $i$ | 7.25258 | | +0.40791848 | +0.24964998 | |
| $P$ | 3.34 | $H$ | 18.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 25 | 691 | 0.0 | 0.0 | 2006 01 24 | G96 | 0.2+ | 0.1− | 2006 02 20 | G96 | 1.2− | 0.9− | | | | |
| 2005 12 25 | 691 | 0.6+ | 0.0 | 2006 01 24 | G96 | 0.1+ | 0.0 | 2006 02 20 | G96 | 0.7− | 0.7− | | | | |
| 2005 12 25 | 691 | 0.3+ | 0.1− | 2006 01 24 | G96 | 0.0 | 0.1+ | 2008 10 10 | 703 | (0.6− | 2.3+) | | | | |
| 2005 12 29 | 691 | 0.3− | 0.2− | 2006 01 25 | 291 | 0.0 | 0.2+ | 2008 10 10 | 703 | (0.8+ | 2.6+) | | | | |
| 2005 12 29 | 691 | 0.3+ | 0.0 | 2006 01 25 | 291 | 0.1− | 0.3+ | 2008 10 10 | 703 | 0.4+ | 1.2− | | | | |
| 2005 12 29 | 691 | 0.1− | 0.2+ | 2006 01 25 | 734 | (1.6− | 0.5+) | 2008 10 10 | 703 | 0.4+ | 0.6− | | | | |
| 2005 12 30 | G96 | 0.4+ | 0.4− | 2006 01 25 | 291 | 0.1− | 0.1+ | 2008 10 31 | 703 | 0.5− | 0.3− | | | | |
| 2005 12 30 | G96 | 0.1+ | 0.1− | 2006 01 25 | 734 | 0.6+ | 0.0 | 2008 10 31 | 703 | 0.7+ | 0.1+ | | | | |
| 2005 12 30 | G96 | 0.6− | 0.6− | 2006 01 25 | 734 | 0.3+ | 1.0− | 2008 10 31 | 703 | 1.0+ | 1.1+ | | | | |
| 2005 12 30 | G96 | 0.2+ | 0.2− | 2006 01 26 | 291 | 0.2− | 0.1+ | 2008 10 31 | 703 | 0.4+ | 0.7− | | | | |
| 2006 01 24 | 291 | 0.1− | 0.2+ | 2006 01 26 | 291 | 0.1+ | 0.1− | 2008 11 17 | 703 | 0.7+ | 0.3+ | | | | |
| 2006 01 24 | 291 | 0.0 | 0.1+ | 2006 01 26 | 291 | 0.2− | 0.0 | 2008 11 17 | 703 | 0.9− | 0.0 | | | | |
| 2006 01 24 | 291 | 0.2− | 0.1+ | 2006 02 20 | G96 | 0.2+ | 0.3− | 2008 11 17 | 703 | 1.1− | 0.1+ | | | | |
| 2006 01 24 | G96 | (0.3+ | 1.6−) | 2006 02 20 | G96 | 0.2+ | 0.5− | 2008 11 17 | 703 | 1.2− | 0.9+ | | | | |

**2005 YX$_{118}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 18.48128 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23896690 | $\omega$ | 156.72527 | | +0.45072555 | −0.89136600 | |
| $a$ | 2.5718416 | $\Omega$ | 266.45508 | | +0.81124160 | +0.43150034 | |
| $e$ | 0.1845941 | $i$ | 2.76200 | | +0.37246952 | +0.13883125 | |
| $P$ | 4.12 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 01 18 | 644 | 0.5− | 0.1− | 2005 12 02 | G96 | 0.2+ | 0.5− | 2009 12 10 | G96 | 0.3− | 0.0 | | | | |
| 2002 01 18 | 644 | 0.2+ | 0.6− | 2005 12 02 | G96 | 0.1− | 0.3− | 2009 12 10 | G96 | 0.0 | 0.1+ | | | | |
| 2002 01 18 | 644 | 0.2+ | 0.4− | 2005 12 02 | G96 | 0.0 | 0.4− | 2009 12 10 | G96 | 0.3− | 0.0 | | | | |
| 2002 01 26 | 644 | 0.5+ | 0.2+ | 2005 12 25 | 691 | 0.0 | 0.2+ | 2009 12 18 | H10 | 0.0 | 0.1− | | | | |
| 2002 01 26 | 644 | 0.3+ | 0.1− | 2005 12 25 | 691 | 0.0 | 0.2+ | 2009 12 18 | H10 | 0.3+ | 0.1− | | | | |
| 2002 01 26 | 644 | 0.5+ | 0.2− | 2005 12 25 | 691 | (3.6+ | 1.7−) | 2009 12 18 | H10 | 0.4+ | 0.1+ | | | | |
| 2002 02 05 | 644 | 0.4− | 0.3− | 2005 12 26 | G96 | 0.1+ | 0.4− | 2009 12 18 | H10 | 0.3− | 0.7− | | | | |
| 2002 02 05 | 644 | 0.4− | 0.1− | 2005 12 26 | G96 | 0.1− | 0.4− | 2009 12 18 | H10 | 0.5+ | 0.0 | | | | |
| 2002 02 05 | 644 | 0.9− | 0.1− | 2005 12 26 | G96 | 0.3− | 0.4− | 2009 12 19 | G68 | 0.6− | 0.5+ | | | | |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 27 | G96 | 0.3− | 0.7− | 2005 12 26 | G96 | 0.0 | 0.5− | 2009 12 19 | G68 | 0.4+ | 0.3+ |
| 2005 10 27 | G96 | 0.2− | 0.4− | 2005 12 29 | 691 | 0.1+ | 0.3+ | 2009 12 20 | H11 | 0.2− | 0.1+ |
| 2005 10 27 | G96 | 0.1− | 0.6− | 2005 12 29 | 691 | 0.3+ | 0.3+ | 2009 12 20 | H11 | 0.1+ | 0.2+ |
| 2005 10 27 | G96 | 0.1− | 0.1− | 2005 12 29 | 691 | 0.2− | 0.4+ | 2009 12 20 | H11 | 0.1− | 0.2+ |
| 2005 12 02 | G96 | 0.1+ | 0.5− | 2009 12 10 | G96 | 0.0 | 0.1− | | | | |

**2005 YW$_{121}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 5.70666 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.23675301 | $\omega$ | 16.67581 | | +0.14981346 | | −0.98736132 | | |
| $a$ | 2.5878496 | $\Omega$ | 64.73267 | | +0.90047629 | | +0.11466086 | | |
| $e$ | 0.1790683 | $i$ | 3.27777 | | +0.40828713 | | +0.10940985 | | |
| $P$ | 4.16 | $H$ | 17.5 | $G$ | 0.15 | $U$ | 3 | | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 30 | G96 | 0.4− | 0.4− | 2005 12 28 | G96 | 0.1+ | 0.4− | 2006 01 10 | 691 | 0.1− | 0.0 |
| 2005 10 30 | G96 | 0.1+ | 0.3− | 2005 12 29 | 691 | 1.1− | 1.0+ | 2006 01 10 | 691 | 0.3+ | 0.4− |
| 2005 10 30 | G96 | 0.5+ | 0.4− | 2005 12 29 | 691 | 0.1+ | 0.4+ | 2006 01 10 | 691 | 0.4+ | 0.1− |
| 2005 10 30 | G96 | 0.6+ | 1.0− | 2005 12 29 | 691 | 0.0 | 0.0 | 2009 11 25 | 691 | 0.2− | 0.1− |
| 2005 11 28 | G96 | 0.1+ | 0.2+ | 2006 01 05 | 703 | (1.8+ | 1.7−) | 2009 11 25 | 691 | 0.2− | 0.4+ |
| 2005 11 28 | G96 | 0.3− | 0.3− | 2006 01 05 | 703 | 0.8− | 0.5− | 2009 11 25 | 691 | 0.2− | 0.1− |
| 2005 11 28 | G96 | 0.1− | 0.6− | 2006 01 05 | 703 | 0.6− | 0.4+ | 2009 12 11 | G96 | 0.1+ | 0.0 |
| 2005 11 28 | G96 | 0.5− | 0.2+ | 2006 01 05 | 703 | 1.1− | 1.2+ | 2009 12 11 | G96 | 0.2+ | 0.0 |
| 2005 12 05 | G96 | 0.2− | 0.5− | 2006 01 06 | 691 | 0.5+ | 0.2+ | 2009 12 11 | G96 | 0.3+ | 0.1+ |
| 2005 12 05 | G96 | 0.5− | 0.5− | 2006 01 06 | 691 | 0.2+ | 0.0 | 2009 12 11 | G96 | 0.0 | 0.3+ |
| 2005 12 05 | G96 | 0.3+ | 0.2− | 2006 01 06 | 691 | 0.1+ | 0.1+ | 2009 12 20 | G96 | 0.3+ | 0.2+ |
| 2005 12 05 | G96 | 0.0 | 0.3− | 2006 01 10 | G96 | 0.1+ | 0.0 | 2009 12 20 | G96 | 0.4+ | 0.0 |
| 2005 12 28 | G96 | 0.0 | 0.6− | 2006 01 10 | G96 | 0.2+ | 0.3− | 2009 12 20 | G96 | 0.3+ | 0.2+ |
| 2005 12 28 | G96 | 0.2− | 0.8− | 2006 01 10 | G96 | 0.4+ | 0.3− | 2009 12 20 | G96 | 0.5+ | 0.2+ |
| 2005 12 28 | G96 | 0.3+ | 0.8− | 2006 01 10 | G96 | 0.0 | 0.2− | | | | |

**2005 YW$_{131}$ = 2009 XM$_3$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 22.39423 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.22758309 | $\omega$ | 294.00390 | | +0.54685572 | | −0.83636440 | | |
| $a$ | 2.6569052 | $\Omega$ | 122.79081 | | +0.78362850 | | +0.49534371 | | |
| $e$ | 0.1388294 | $i$ | 2.59030 | | +0.29474600 | | +0.23479609 | | |
| $P$ | 4.33 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 1 | | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 03 12 | 645 | 0.0 | 0.1− | 2006 01 05 | G96 | 0.8− | 0.0 | 2009 11 24 | 691 | 0.2− | 0.0 |
| 2002 03 12 | 645 | 0.1− | 0.1− | 2006 01 05 | G96 | 0.0 | 0.4− | 2009 11 24 | 691 | 0.4− | 0.1+ |
| 2004 09 06 | 644 | 0.1− | 0.5+ | 2006 01 05 | G96 | 0.2+ | 0.4− | 2009 12 09 | J75 | 0.1+ | 0.2+ |
| 2004 09 06 | 644 | 0.1+ | 0.6+ | 2006 01 05 | G96 | 0.7− | 0.2− | 2009 12 09 | J75 | 0.3− | 0.0 |
| 2004 09 06 | 644 | 0.5− | 0.7+ | 2006 01 08 | 691 | 0.2+ | 0.0 | 2009 12 09 | J75 | 0.4− | 0.3− |
| 2005 12 25 | G96 | 0.1− | 0.1− | 2006 01 08 | 691 | 0.2− | 0.1+ | 2009 12 11 | G96 | 0.3+ | 0.1− |
| 2005 12 25 | G96 | 0.3− | 0.4− | 2006 01 08 | 691 | 0.4+ | 0.4+ | 2009 12 11 | G96 | 0.2− | 0.1− |
| 2005 12 25 | G96 | 0.5− | 0.0 | 2007 04 20 | 691 | 0.1+ | 0.1− | 2009 12 11 | G96 | 0.1− | 0.1+ |
| 2005 12 25 | G96 | 0.1− | 0.4− | 2007 04 20 | 691 | 0.3+ | 0.1− | 2009 12 11 | G96 | 0.0 | 0.1+ |
| 2005 12 30 | 691 | 0.4+ | 0.3+ | 2007 04 20 | 691 | 0.1− | 1.1+ | 2009 12 17 | 704 | 0.1− | 0.7− |
| 2005 12 30 | 691 | 0.4+ | 0.6+ | 2007 05 12 | G96 | 0.0 | 0.1− | 2009 12 17 | 704 | 1.6+ | 0.6− |
| 2005 12 30 | 691 | 0.3+ | 0.3+ | 2007 05 12 | G96 | 0.2− | 0.4+ | 2009 12 17 | 704 | 0.7+ | 0.3− |
| 2006 01 04 | 691 | 0.6− | 0.1− | 2007 05 12 | G96 | 0.1− | 0.3− | 2009 12 17 | 704 | 0.3+ | 0.0 |
| 2006 01 04 | 691 | 0.0 | 0.1+ | 2007 05 12 | G96 | 0.3+ | 0.2− | 2009 12 17 | 704 | 1.0+ | 0.4− |
| 2006 01 04 | 691 | 0.3+ | 0.2+ | 2009 11 24 | 691 | 0.3− | 0.1+ | | | | |

**2005 YK$_{132}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 64.35742 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.18569183 | $\omega$ | 202.07321 | | +0.81377345 | | +0.57063744 | | |
| $a$ | 3.0428055 | $\Omega$ | 122.66234 | | −0.51174225 | | +0.79342740 | | |
| $e$ | 0.0783601 | $i$ | 7.52210 | | −0.27548619 | | +0.21176842 | | |
| $P$ | 5.31 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 1 | | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 05 07 | 644 | 0.1+ | 1.0+ | 2006 01 04 | 691 | 0.4− | 0.0 | 2006 03 04 | G96 | 0.5− | 0.1+ |
| 2002 05 07 | 644 | 0.4+ | 1.0+ | 2006 01 04 | 691 | 0.1+ | 0.0 | 2006 03 04 | G96 | 0.3− | 0.3− |
| 2002 05 07 | 644 | 0.5+ | 1.3+ | 2006 01 04 | 691 | 0.0 | 0.2+ | 2006 03 04 | G96 | 0.1+ | 0.0 |
| 2005 12 25 | G96 | 0.2+ | 0.7− | 2006 01 08 | 691 | 0.0 | 0.1+ | 2007 03 19 | G96 | 0.4− | 0.6− |
| 2005 12 25 | G96 | 0.3+ | 0.5− | 2006 01 08 | 691 | 0.2− | 0.1− | 2007 03 19 | G96 | 0.1− | 0.2− |
| 2005 12 25 | G96 | 0.4+ | 0.5− | 2006 01 08 | 691 | 0.2− | 0.1+ | 2007 03 19 | G96 | 0.5− | 0.5− |
| 2005 12 25 | G96 | 0.2− | 0.7− | 2006 01 23 | 691 | 0.2+ | 0.0 | 2007 03 19 | G96 | 0.2+ | 0.7− |
| 2005 12 30 | 691 | 0.0 | 0.0 | 2006 01 23 | 691 | 0.2+ | 0.1+ | 2009 10 14 | J75 | 0.4+ | 1.6+ |
| 2005 12 30 | 691 | 0.2+ | 0.0 | 2006 01 23 | 691 | 0.3− | 0.2+ | 2009 10 14 | J75 | 0.1− | 0.0 |
| 2005 12 30 | 691 | 0.4+ | 0.5+ | 2006 03 04 | G96 | 0.3+ | 0.5− | 2009 10 14 | J75 | 0.9− | 0.3− |

**2005 YE$_{146}$ = 2008 TC$_{180}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 142.35738 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.26324694 | $\omega$ | 252.10713 | | +0.90166876 | | +0.41748130 | | |
| $a$ | 2.4111663 | $\Omega$ | 83.09279 | | −0.34118636 | | +0.84696306 | | |
| $e$ | 0.1821503 | $i$ | 6.51889 | | −0.26567899 | | +0.32918527 | | |
| $P$ | 3.74 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 3 | | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 05 15 | 691 | 0.6+ | 0.6− | 2005 12 30 | 691 | 0.1+ | 0.3+ | 2008 10 02 | 703 | 0.0 | 0.9− |
| 1996 05 15 | 691 | 1.9− | 1.5+ | 2005 12 30 | 691 | 0.3+ | 0.0 | 2008 10 02 | 703 | 0.8+ | 0.2+ |
| 1996 05 15 | 691 | 1.4+ | 0.6− | 2006 01 28 | 691 | 0.1+ | 0.4+ | 2008 10 02 | 703 | 1.0+ | 0.2− |
| 2004 08 19 | E12 | 0.1− | 0.4− | 2006 01 28 | 691 | 0.3+ | 0.2− | 2008 10 02 | 703 | 0.2+ | 0.2+ |
| 2004 08 19 | E12 | 0.0 | 0.1− | 2006 01 28 | 691 | 0.4− | 0.4+ | 2008 10 09 | 703 | 0.6− | 0.7+ |
| 2004 08 19 | E12 | 0.4− | 0.6+ | 2006 02 04 | 691 | 0.2− | 0.1+ | 2008 10 09 | 703 | 1.2− | 0.7+ |
| 2004 08 19 | E12 | 0.3+ | 0.1+ | 2006 02 04 | 691 | 0.4− | 0.4− | 2008 10 09 | 703 | 0.2+ | 0.8+ |
| 2005 12 29 | G96 | 0.2− | 0.2− | 2006 02 04 | 691 | 0.3+ | 0.3− | 2008 10 09 | 703 | 0.6+ | 0.5− |
| 2005 12 29 | G96 | 0.3− | 0.4− | 2008 09 06 | 703 | 0.2+ | 0.4− | 2008 10 27 | 703 | 0.1− | 0.2+ |
| 2005 12 29 | G96 | 0.1+ | 0.2− | 2008 09 06 | 703 | 0.1+ | 0.1− | 2008 10 27 | 703 | 0.3+ | 0.9+ |
| 2005 12 29 | G96 | 0.7− | 0.5− | 2008 09 06 | 703 | (1.6+ | 0.4−) | 2008 10 27 | 703 | 0.1− | 0.6− |
| 2005 12 30 | 691 | 0.2+ | 0.1+ | 2008 09 06 | 703 | 0.6− | 0.4− | 2008 10 27 | 703 | 1.3− | 0.5+ |

**2005 YJ$_{146}$ = 2009 WS$_{37}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 6.53057 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.23430174 | $\omega$ | 59.89340 | | +0.30413317 | | −0.95258565 | | |
| $a$ | 2.6058678 | $\Omega$ | 12.41071 | | +0.85872932 | | +0.26998739 | | |
| $e$ | 0.1730653 | $i$ | 2.43812 | | +0.41241601 | | +0.14031174 | | |
| $P$ | 4.21 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 3 | | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 29 | G96 | 0.5− | 0.2− | 2006 01 06 | 704 | 0.2− | 1.0+ | 2009 11 17 | 691 | 0.4− | 0.0 |
| 2005 12 29 | G96 | 0.0 | 0.3− | 2006 01 06 | 704 | 0.2− | 0.2+ | 2009 11 21 | 691 | 0.2− | 0.0 |
| 2005 12 29 | G96 | 0.3− | 0.4− | 2006 01 06 | 704 | 0.3+ | 0.1+ | 2009 11 21 | 691 | 0.1+ | 0.1+ |
| 2005 12 29 | G96 | 0.4− | 0.4− | 2006 01 07 | 691 | 0.2+ | 0.0 | 2009 11 21 | 691 | 0.5+ | 0.1+ |
| 2005 12 30 | 691 | 0.0 | 0.1+ | 2006 01 07 | 691 | 0.0 | 0.1+ | 2009 11 25 | 691 | 0.0 | 0.0 |
| 2005 12 30 | 691 | 0.1− | 0.2+ | 2006 01 07 | 691 | 0.1+ | 0.3− | 2009 11 25 | 691 | 0.0 | 0.0 |
| 2005 12 30 | 691 | 0.1+ | 0.1− | 2009 11 09 | G96 | 0.3+ | 0.1− | 2009 11 25 | 691 | 0.2− | 0.0 |
| 2005 12 30 | G96 | 0.0 | 0.1+ | 2009 11 09 | G96 | 0.2+ | 0.2+ | 2009 12 16 | G96 | 0.3+ | 0.2− |
| 2005 12 30 | G96 | 0.1+ | 0.1+ | 2009 11 09 | G96 | 0.1+ | 0.2+ | 2009 12 16 | G96 | 0.4+ | 0.0 |
| 2005 12 30 | G96 | 0.3+ | 0.2+ | 2009 11 09 | G96 | 0.5+ | 0.1+ | 2009 12 16 | G96 | 0.1+ | 0.4− |
| 2005 12 30 | G96 | 0.3+ | 0.1+ | 2009 11 17 | 691 | 0.2− | 0.1− | 2009 12 16 | G96 | 0.2+ | 0.2− |
| 2006 01 06 | 704 | 0.7− | 0.0 | 2009 11 17 | 691 | 0.0 | 0.0 | | | | |

**2005 YC$_{162}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 6.52661 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.22883694 | $\omega$ | 288.64987 | | +0.55876711 | | −0.80608890 | | |
| $a$ | 2.6471911 | $\Omega$ | 125.80841 | | +0.82222984 | | +0.50778530 | | |
| $e$ | 0.2665759 | $i$ | 13.90846 | | +0.10824697 | | +0.30393219 | | |
| $P$ | 4.31 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 2 | | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 07 16 | 807 | 0.0 | 0.2+ | 2006 01 04 | G96 | 0.3− | 0.3− | 2006 02 20 | G96 | 0.0 | 0.0 |
| 2004 07 16 | 807 | 0.0 | 0.0 | 2006 01 04 | G96 | 0.5− | 0.6− | 2006 02 20 | G96 | 0.1+ | 0.0 |
| 2005 12 27 | 704 | 0.1− | 0.3+ | 2006 01 04 | G96 | 0.3− | 0.5− | 2006 02 20 | G96 | 0.1+ | 0.2− |
| 2005 12 27 | 704 | 0.8− | 0.0 | 2006 01 23 | 704 | 0.3+ | 0.9+ | 2006 02 20 | G96 | 0.2+ | 0.0 |
| 2005 12 27 | 704 | 0.1− | 0.6+ | 2006 01 23 | 704 | 0.4+ | 0.6+ | 2009 08 26 | 703 | 0.4− | 0.8− |
| 2005 12 27 | 704 | 0.1− | 0.5+ | 2006 01 23 | 704 | 0.2− | 1.0+ | 2009 08 26 | 703 | 0.5− | 0.2+ |
| 2005 12 27 | 704 | 0.1+ | 0.0 | 2006 01 23 | 704 | 0.6− | 0.6+ | 2009 08 26 | 703 | 0.1+ | 0.9+ |
| 2005 12 30 | 704 | 0.0 | 0.5− | 2006 01 23 | 704 | 0.1− | 0.4− | 2009 08 26 | 703 | 0.1+ | 0.4− |
| 2005 12 30 | 704 | 0.1+ | 0.4+ | 2006 01 25 | G96 | 0.1+ | 0.4− | 2009 09 17 | 703 | 0.5− | 0.1+ |
| 2005 12 30 | 704 | 0.4+ | 0.1+ | 2006 01 25 | G96 | 0.1− | 0.3− | 2009 09 17 | 703 | 1.2+ | 0.2+ |
| 2005 12 30 | 704 | 0.2+ | 0.2− | 2006 01 25 | G96 | 0.3− | 0.3− | 2009 09 17 | 703 | 0.6+ | 0.7+ |
| 2005 12 30 | 704 | 0.2− | 0.1− | 2006 01 25 | G96 | 0.3− | 0.4− | 2009 09 17 | 703 | 0.4− | 1.1− |
| 2006 01 03 | 704 | 0.1− | 0.4+ | 2006 02 04 | 704 | 0.4+ | 0.7− | 2009 10 01 | G96 | 0.3− | 0.2− |
| 2006 01 03 | 704 | 0.2− | 0.1− | 2006 02 04 | 704 | 1.0+ | 0.6+ | 2009 10 01 | G96 | 0.2− | 0.4− |
| 2006 01 03 | 704 | 0.1− | 0.2+ | 2006 02 04 | 704 | 0.2+ | 0.3− | 2009 10 01 | G96 | 0.0 | 0.1− |
| 2006 01 03 | 704 | 0.1+ | 0.4− | 2006 02 04 | 704 | 1.4+ | 1.0− | 2009 11 18 | 703 | 0.6− | 0.3+ |
| 2006 01 03 | 704 | 0.1− | 0.4+ | 2006 02 04 | 704 | 0.7+ | 0.5− | 2009 11 18 | 703 | 0.2+ | 0.4− |
| 2006 01 04 | 691 | 0.5− | 0.2+ | 2006 02 07 | 691 | 0.2+ | 0.1− | 2009 11 18 | 703 | 0.5+ | 0.2+ |
| 2006 01 04 | 691 | 0.2− | 0.1+ | 2006 02 07 | 691 | 0.2+ | 0.0 | 2009 11 18 | 703 | 0.3+ | 0.3+ |
| 2006 01 04 | 691 | (2.5+ | 3.4−) | 2006 02 07 | 691 | 0.0 | 0.0 | | | | |

**2005 YN$_{174}$ = 2009 SV$_{251}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 23.48138 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23704584 | $\omega$ | 353.62280 | | +0.70456915 | | −0.70182845 |
| $a$ | 2.5857180 | $\Omega$ | 51.51901 | | +0.65685895 | | +0.58901558 |
| $e$ | 0.2748016 | $i$ | 7.70633 | | +0.26854913 | | +0.40062137 |
| $P$ | 4.16 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 29 | 644 | 0.7+ | 0.1+ | 2009 09 20 | G96 | 0.0 | 0.2− | 2009 10 26 | G96 | 0.2− | 0.0 |
| 2005 12 29 | 644 | 0.5+ | 0.4+ | 2009 09 20 | G96 | 0.3+ | 0.0 | 2009 10 26 | G96 | 0.3+ | 0.1− |
| 2005 12 29 | 644 | 0.2+ | 0.5+ | 2009 09 20 | G96 | 0.7+ | 0.1+ | 2009 11 09 | 691 | 0.2− | 0.2+ |
| 2006 01 02 | 703 | 0.7− | 0.3+ | 2009 09 20 | G96 | 0.1+ | 0.2− | 2009 11 09 | 691 | 0.0 | 0.3− |
| 2006 01 02 | 703 | 0.7+ | 0.3+ | 2009 09 30 | G96 | 0.2+ | 0.2− | 2009 11 09 | 691 | 0.3− | 0.0 |
| 2006 01 02 | 703 | 1.0− | 0.1− | 2009 09 30 | G96 | 0.1− | 0.5− | 2009 12 15 | 704 | 0.3− | 1.1+ |
| 2006 01 02 | 703 | 0.5+ | 0.5− | 2009 09 30 | G96 | 0.6+ | 0.4− | 2009 12 15 | 704 | 0.1− | 0.8+ |
| 2006 01 05 | 703 | 0.4− | 0.2− | 2009 09 30 | G96 | 0.2+ | 0.3− | 2009 12 15 | 704 | 0.3− | 0.4+ |
| 2006 01 05 | 703 | 0.3− | 0.3+ | 2009 10 16 | G96 | 0.2+ | 0.4− | 2009 12 15 | 704 | 0.2− | 0.9+ |
| 2006 01 05 | 703 | 0.8− | 0.1+ | 2009 10 16 | G96 | 0.4+ | 0.3− | 2009 12 15 | 704 | 0.5− | 0.6+ |
| 2006 01 05 | 703 | 0.7+ | 0.3− | 2009 10 16 | G96 | 0.3+ | 0.1− | 2009 12 19 | D25 | 0.2+ | 0.5− |
| 2009 08 17 | 291 | 0.0 | 0.3+ | 2009 10 16 | G96 | 0.0 | 0.1+ | 2009 12 19 | D25 | 0.9+ | 1.1− |
| 2009 08 17 | 291 | 0.3− | 0.4+ | 2009 10 26 | G96 | 0.1+ | 0.4− | 2009 12 19 | D25 | 0.6+ | 1.6− |
| 2009 08 17 | 291 | 0.2− | 0.1+ | 2009 10 26 | G96 | 0.0 | 0.1− | | | | |

**2005 YV$_{186}$ = 2009 XA**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 17.21973 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22868889 | $\omega$ | 98.51131 | | +0.84739362 | | −0.52592646 |
| $a$ | 2.6483335 | $\Omega$ | 293.24827 | | +0.45054552 | | +0.78494747 |
| $e$ | 0.2981274 | $i$ | 4.55548 | | +0.28094978 | | +0.32750394 |
| $P$ | 4.31 | $H$ | 17.5 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 11 10 | G96 | 0.0 | 0.1+ | 2009 10 26 | G96 | 0.1− | 0.4− | 2009 12 07 | 941 | 0.7+ | 0.2+ |
| 2005 11 10 | G96 | 0.1− | 0.2+ | 2009 10 26 | D29 | 0.1− | 0.1− | 2009 12 07 | 941 | 0.6+ | 0.1+ |
| 2005 11 10 | G96 | 0.0 | 0.2− | 2009 10 26 | D29 | 0.1+ | 0.8+ | 2009 12 07 | 941 | 0.6+ | 0.3+ |
| 2005 11 10 | G96 | 0.0 | 0.1− | 2009 10 26 | D29 | 0.3− | 0.4− | 2009 12 11 | 941 | 0.2+ | 1.1+ |
| 2005 12 28 | G96 | 0.2− | 0.2− | 2009 10 26 | D29 | 0.2− | 0.7+ | 2009 12 11 | 941 | 0.1+ | 0.8+ |
| 2005 12 28 | G96 | 0.2− | 0.4− | 2009 11 16 | J75 | 0.1− | 0.5+ | 2009 12 11 | 941 | 0.0 | 0.2+ |
| 2005 12 28 | G96 | 0.0 | 0.1− | 2009 11 16 | J75 | 0.0 | 0.6+ | 2009 12 11 | 941 | 0.5− | 0.5− |
| 2005 12 28 | G96 | 0.2− | 0.2− | 2009 11 16 | J75 | 0.2− | 0.1+ | 2009 12 13 | 703 | (1.6− | 0.1−) |
| 2006 01 04 | 691 | 0.1+ | 0.1+ | 2009 12 05 | 941 | 0.0 | 0.0 | 2009 12 13 | 703 | 1.0− | 0.5+ |
| 2006 01 04 | 691 | 0.1− | 0.0 | 2009 12 05 | 941 | 0.1− | 0.2− | 2009 12 13 | 703 | 1.3− | 1.0+ |
| 2006 01 04 | 691 | 0.5− | 0.2+ | 2009 12 05 | 941 | 0.1+ | 0.4− | 2009 12 13 | 703 | 1.2− | 1.0− |
| 2006 01 06 | 691 | 0.5+ | 0.1− | 2009 12 05 | 941 | 0.2+ | 0.4− | 2009 12 19 | 941 | 0.1+ | 0.6− |
| 2006 01 06 | 691 | 0.1− | 0.0 | 2009 12 06 | 941 | 0.1+ | 0.1− | 2009 12 19 | 941 | 0.3+ | 0.3− |
| 2006 01 06 | 691 | 0.3+ | 0.1+ | 2009 12 06 | 941 | 0.0 | 0.3− | 2009 12 19 | 941 | 0.0 | 0.4− |
| 2009 10 26 | G96 | 0.2+ | 0.2− | 2009 12 06 | 941 | 0.3+ | 0.2− | 2009 12 19 | 941 | 0.2+ | 0.3− |
| 2009 10 26 | G96 | 0.1− | 0.4− | 2009 12 06 | 941 | 0.4+ | 0.4− | | | | |
| 2009 10 26 | G96 | 0.2+ | 0.3− | 2009 12 07 | 941 | 0.9+ | 0.1− | | | | |

**2005 YV$_{197}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 94.35303 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17903329 | $\omega$ | 348.80296 | | +0.11294154 | | +0.98087673 |
| $a$ | 3.1177900 | $\Omega$ | 287.53342 | | −0.89829043 | | +0.03262118 |
| $e$ | 0.1746905 | $i$ | 9.56880 | | −0.42463927 | | +0.19187680 |
| $P$ | 5.51 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 01 | G96 | 0.6− | 0.6+ | 2006 01 04 | 691 | 0.2+ | 0.2− | 2009 09 22 | 703 | 0.8+ | 0.1+ |
| 2005 12 01 | G96 | 0.9+ | 0.0 | 2006 01 04 | 691 | 0.2+ | 0.2− | 2009 09 22 | 703 | 0.3+ | 0.3− |
| 2005 12 01 | G96 | 0.0 | 0.3+ | 2006 01 04 | 691 | 0.5− | 0.2+ | 2009 09 22 | 703 | 0.1+ | 0.8− |
| 2005 12 01 | G96 | 0.5− | 0.3− | 2006 01 06 | 691 | 0.0 | 0.3+ | 2009 10 16 | 703 | 0.1− | 0.8+ |
| 2005 12 25 | 691 | 0.2− | 0.1+ | 2006 01 06 | 691 | 0.1+ | 0.1− | 2009 10 16 | 703 | 0.1− | 0.1− |
| 2005 12 25 | 691 | 0.1+ | 0.0 | 2006 01 06 | 691 | 0.3+ | 0.2− | 2009 10 16 | 703 | 0.7− | 0.6+ |
| 2005 12 25 | 691 | 0.2− | 0.0 | 2009 09 22 | 703 | (1.0+ | 2.4−) | 2009 10 16 | 703 | 0.2− | 0.3− |

**2005 YL$_{199}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 329.06587 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22633987 | $\omega$ | 191.59829 | | −0.42155339 | | −0.90530460 |
| $a$ | 2.6666253 | $\Omega$ | 283.35215 | | +0.83620118 | | −0.36585499 |
| $e$ | 0.1831663 | $i$ | 3.07059 | | +0.35079955 | | −0.21580941 |
| $P$ | 4.35 | $H$ | 17.4 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 08 25 | 691 | 0.1+ | 0.2+ | 2005 12 25 | G96 | 0.5− | 0.3+ | 2006 01 22 | G96 | 0.6+ | 0.0 |
| 2004 08 25 | 691 | 0.0 | 0.1+ | 2006 01 04 | G96 | 0.2+ | 0.1− | 2006 01 22 | G96 | 0.4− | 0.5− |
| 2004 08 25 | 691 | 0.2− | 0.1− | 2006 01 04 | G96 | 0.5+ | 0.2− | 2006 02 04 | G96 | 0.0 | 0.0 |
| 2005 11 25 | G96 | 0.1− | 0.2− | 2006 01 04 | G96 | 0.2− | 0.2− | 2006 02 04 | G96 | 0.3− | 0.2+ |
| 2005 11 25 | G96 | 0.4+ | 0.2− | 2006 01 04 | G96 | 0.1+ | 0.1− | 2006 02 04 | G96 | 0.2+ | 0.1+ |
| 2005 11 25 | G96 | 0.5− | 0.1+ | 2006 01 08 | 691 | 0.2+ | 0.1+ | 2006 02 04 | G96 | 0.0 | 0.1− |
| 2005 11 25 | G96 | 0.0 | 0.1+ | 2006 01 08 | 691 | 0.2+ | 0.1+ | 2009 12 17 | G96 | 0.4− | 0.3− |
| 2005 12 25 | G96 | 0.2− | 0.0 | 2006 01 08 | 691 | 0.2− | 0.1+ | 2009 12 17 | G96 | 0.0 | 0.2− |
| 2005 12 25 | G96 | 0.2+ | 0.1+ | 2006 01 22 | G96 | 0.1− | 0.1+ | 2009 12 17 | G96 | 0.4+ | 0.1− |
| 2005 12 25 | G96 | 0.1− | 0.0 | 2006 01 22 | G96 | 0.5− | 0.2+ | 2009 12 17 | G96 | 0.2+ | 0.1− |

**2005 YA$_{202}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 7.75952 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21338289 | $\omega$ | 239.75135 | | +0.62602489 | | −0.77978256 |
| $a$ | 2.7735095 | $\Omega$ | 171.48434 | | +0.72794008 | | +0.58177286 |
| $e$ | 0.0741116 | $i$ | 2.18912 | | +0.27963560 | | +0.23125634 |
| $P$ | 4.62 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 24 | 691 | 0.1+ | 0.1+ | 2006 01 23 | G96 | 0.1+ | 0.2− | 2009 11 09 | 703 | 1.4+ | 0.3+ |
| 2005 12 24 | 691 | 0.3− | 0.1− | 2006 01 23 | G96 | 0.2− | 0.4− | 2009 11 09 | 703 | 0.0 | 0.9+ |
| 2005 12 24 | 691 | 0.2+ | 0.5+ | 2006 01 23 | G96 | 1.0− | 0.5+ | 2009 11 09 | 703 | 0.6+ | 1.2+ |
| 2006 01 02 | G96 | 0.4− | 0.5− | 2006 02 24 | G96 | 0.3− | 0.0 | 2009 11 17 | G96 | 0.1− | 0.0 |
| 2006 01 02 | G96 | 0.6− | 0.7− | 2006 02 24 | G96 | 0.1− | 0.1+ | 2009 11 17 | G96 | 0.2− | 0.0 |
| 2006 01 02 | G96 | 0.8+ | 0.4− | 2006 02 24 | G96 | 0.0 | 0.1+ | 2009 11 17 | G96 | 0.0 | 0.1− |
| 2006 01 02 | G96 | 0.2+ | 0.2− | 2006 02 24 | G96 | 0.2− | 0.0 | 2009 11 17 | G96 | 0.0 | 0.2− |
| 2006 01 09 | G96 | 1.0+ | 0.1+ | 2009 10 23 | G96 | 0.3− | 0.4− | 2009 11 23 | 703 | (1.7+ | 0.9+) |
| 2006 01 09 | G96 | 0.5+ | 0.1+ | 2009 10 23 | G96 | 0.3− | 1.0− | 2009 11 23 | 703 | 0.5− | 0.6− |
| 2006 01 09 | G96 | 0.0 | 0.0 | 2009 10 23 | G96 | 0.3− | 0.1− | 2009 11 23 | 703 | (2.5+ | 1.1−) |
| 2006 01 09 | G96 | 0.5− | 0.0 | 2009 10 23 | G96 | 0.5− | 0.5− | 2009 11 23 | 703 | 0.1− | 0.1− |
| 2006 01 23 | G96 | 0.3+ | 0.5− | 2009 11 09 | 703 | 0.2+ | 0.3+ | | | | |

**2005 YG$_{205}$ = 2009 WO$_{241}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 30.83047 | | (2000.0) | | | |
| $n$ | 0.22393374 | $\omega$ | 303.61926 | | +0.73724038 | −0.66462794 |
| $a$ | 2.6856930 | $\Omega$ | 98.35292 | | +0.65340063 | +0.65564679 |
| $e$ | 0.0694530 | $i$ | 7.05006 | | +0.17188441 | +0.35832526 |
| $P$ | 4.40 | $H$ | 17.0 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 26 | 691 | 0.1− | 0.2− | 2006 01 10 | G96 | 0.4+ | 0.0 | 2009 11 26 | 691 | 0.2− | 0.3+ |
| 2005 12 26 | 691 | 0.2− | 0.1− | 2006 01 10 | G96 | 0.3+ | 0.1− | 2009 11 26 | 691 | 0.2− | 0.1+ |
| 2005 12 26 | 691 | 0.1− | 0.2− | 2007 04 15 | 691 | 0.3+ | 0.1− | 2009 11 26 | 691 | 0.2+ | 0.1− |
| 2006 01 04 | 691 | 0.3+ | 0.3+ | 2007 04 15 | 691 | 0.4− | 0.1+ | 2009 12 17 | G96 | 0.1− | 0.3− |
| 2006 01 04 | 691 | 0.4− | 0.6+ | 2007 04 15 | 691 | 0.0 | 0.2− | 2009 12 17 | G96 | 0.2+ | 0.3− |
| 2006 01 04 | 691 | 0.1+ | 0.1− | 2009 11 18 | G96 | 0.2+ | 0.1− | 2009 12 17 | G96 | 0.3+ | 0.7− |
| 2006 01 10 | G96 | 0.3+ | 0.5− | 2009 11 18 | G96 | 0.1+ | 0.1+ | 2009 12 17 | G96 | 0.1+ | 0.4− |
| 2006 01 10 | G96 | 0.6+ | 0.4− | 2009 11 18 | G96 | 0.3+ | 0.2− | | | | |

**2005 YC$_{211}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 332.85633 | | (2000.0) | | | |
| $n$ | 0.23200935 | $\omega$ | 196.61174 | | −0.67952627 | −0.70451372 |
| $a$ | 2.6230046 | $\Omega$ | 296.72803 | | +0.69648555 | −0.53179987 |
| $e$ | 0.0995403 | $i$ | 13.24968 | | +0.23054699 | −0.46994608 |
| $P$ | 4.25 | $H$ | 15.8 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 03 09 | 644 | 0.7+ | 0.4+ | 2006 01 08 | 703 | 0.1+ | 0.5− | 2006 01 30 | 703 | 0.2+ | 0.3− |
| 2002 03 09 | 644 | 0.7+ | 1.0+ | 2006 01 08 | 703 | 0.7+ | 0.1+ | 2006 01 30 | 703 | 0.2− | 0.0 |
| 2002 03 09 | 644 | 0.6+ | 1.1+ | 2006 01 20 | 703 | 1.3+ | 0.7+ | 2006 01 30 | 703 | 0.1− | 0.8− |
| 2005 11 26 | G96 | 0.3− | 0.0 | 2006 01 20 | 703 | 1.0− | 1.5− | 2006 01 30 | 703 | 0.6+ | 1.1− |
| 2005 11 26 | G96 | 0.2− | 0.6− | 2006 01 20 | 703 | 0.1− | 1.9− | 2006 02 23 | 699 | 0.9− | 0.9+ |
| 2005 11 26 | G96 | 0.2+ | 0.1+ | 2006 01 20 | 703 | 0.1− | 0.2− | 2006 02 23 | 699 | 0.7− | 0.6+ |
| 2005 11 26 | G96 | 0.1+ | 0.1− | 2006 01 23 | 704 | 1.0− | 1.1+ | 2006 02 23 | 699 | 0.1− | 1.0− |
| 2005 12 06 | G96 | 0.0 | 0.2− | 2006 01 23 | 704 | 0.0 | 0.0 | 2006 02 23 | 699 | 0.6− | 0.4− |
| 2005 12 06 | G96 | 0.1− | 0.3− | 2006 01 23 | 704 | 0.2− | 0.9+ | 2006 02 26 | 704 | (2.1+ | 0.4−) |
| 2005 12 06 | G96 | 0.3+ | 0.2− | 2006 01 23 | 704 | 0.5− | 0.7− | 2006 02 26 | 704 | 0.2− | 1.2− |
| 2005 12 06 | G96 | 0.0 | 0.5− | 2006 01 24 | 704 | 0.3+ | 0.5+ | 2006 02 26 | 704 | 0.5+ | 0.2+ |
| 2005 12 25 | 699 | 0.5− | 1.1+ | 2006 01 24 | 704 | 0.0 | 0.8+ | 2006 02 26 | 704 | 0.7− | 0.4− |
| 2005 12 25 | 699 | 1.1− | 0.3+ | 2006 01 24 | 704 | (2.1+ | 0.8+) | 2009 12 15 | 704 | 0.2− | 0.7+ |
| 2005 12 25 | 699 | 1.0+ | 0.1+ | 2006 01 24 | 704 | 0.3+ | 0.7− | 2009 12 15 | 704 | 0.2+ | 0.4+ |
| 2005 12 25 | 699 | 0.3− | 0.8− | 2006 01 28 | 699 | 0.1+ | 0.3− | 2009 12 15 | 704 | 0.8+ | 0.1− |
| 2006 01 08 | 703 | 0.8− | 0.6+ | 2006 01 28 | 699 | 0.2+ | 0.3+ | 2009 12 15 | 704 | 0.5+ | 1.7+ |
| 2006 01 08 | 703 | 0.6− | 1.0+ | 2006 01 28 | 699 | 0.7+ | 0.1+ | | | | |

**2005 YA$_{212}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 338.07102 | | (2000.0) | | | |
| $n$ | 0.23169258 | $\omega$ | 34.86415 | | −0.46040262 | −0.85565440 |
| $a$ | 2.6253949 | $\Omega$ | 83.60657 | | +0.75075658 | −0.51741782 |
| $e$ | 0.2040272 | $i$ | 13.76142 | | +0.47370242 | −0.01159102 |
| $P$ | 4.25 | $H$ | 16.8 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 28 | 703 | 1.3− | 0.2+ | 2006 02 02 | 703 | 0.9− | 1.2− | 2009 11 27 | 691 | 0.3− | 0.2+ |
| 2005 12 28 | 703 | 0.1+ | 0.9+ | 2006 02 02 | 703 | 0.4+ | 0.1+ | 2009 11 27 | 691 | 0.3− | 0.0 |
| 2005 12 28 | 703 | (0.5+ | 2.3−) | 2006 02 02 | 703 | 0.4− | 0.0 | 2009 12 11 | G96 | 0.3+ | 0.1− |
| 2005 12 28 | 703 | 0.5+ | 0.5+ | 2006 02 18 | 699 | 0.8+ | 0.7+ | 2009 12 11 | G96 | 0.5+ | 0.2− |
| 2006 01 07 | 704 | 0.6+ | 0.3− | 2006 02 18 | 699 | (2.6− | 1.1−) | 2009 12 11 | G96 | 0.2+ | 0.0 |
| 2006 01 07 | 704 | 0.5− | 0.5− | 2006 02 18 | 699 | 0.3− | 0.1− | 2009 12 11 | G96 | 0.1− | 0.1− |
| 2006 01 07 | 704 | (1.7+ | 0.9−) | 2006 02 18 | 699 | 0.1− | 0.1+ | 2009 12 19 | G96 | 0.3+ | 0.1+ |
| 2006 01 24 | 699 | 1.0+ | 0.4− | 2009 11 20 | G96 | 0.3+ | 0.3− | 2009 12 19 | G96 | 0.2+ | 0.0 |
| 2006 01 24 | 699 | 0.2− | 0.2− | 2009 11 20 | G96 | 0.6+ | 0.2− | 2009 12 19 | G96 | 0.2+ | 0.0 |
| 2006 01 24 | 699 | 0.1− | 0.1− | 2009 11 20 | G96 | 0.3+ | 0.0 | 2009 12 19 | G96 | 0.4+ | 0.2+ |
| 2006 01 24 | 699 | 0.0 | 0.0 | 2009 11 20 | G96 | 0.2+ | 0.1− | | | | |
| 2006 02 02 | 703 | 0.3+ | 0.6+ | 2009 11 27 | 691 | 0.2− | 0.1− | | | | |

**2005 YX$_{244}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 213.00306 | | (2000.0) | | | |
| $n$ | 0.18146349 | $\omega$ | 239.44142 | | −0.97545388 | +0.04743961 |
| $a$ | 3.0898914 | $\Omega$ | 302.46539 | | +0.07077524 | −0.85716210 |
| $e$ | 0.1632408 | $i$ | 14.76554 | | −0.20852000 | −0.51285731 |
| $P$ | 5.43 | $H$ | 15.7 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 28 | G96 | (0.6+ | 2.3+) | 2006 01 23 | G96 | 0.1+ | 0.1− | 2009 10 14 | G96 | 0.6+ | 0.2+ |
| 2005 12 28 | G96 | 0.3− | 0.2− | 2006 01 23 | G96 | 0.0 | 0.1− | 2009 10 14 | G96 | 0.5+ | 0.4+ |
| 2005 12 28 | G96 | 0.5− | 0.4− | 2006 01 23 | G96 | 0.2+ | 0.0 | 2009 10 14 | G96 | 0.1− | 0.0 |
| 2005 12 28 | G96 | 0.5− | 0.4− | 2006 01 24 | 704 | 1.1+ | 0.6+ | 2009 10 14 | G96 | 0.2+ | 0.1− |
| 2005 12 30 | 691 | 0.0 | 0.1+ | 2006 01 24 | 704 | 0.8− | 1.1− | 2009 10 14 | G96 | 0.4+ | 0.1+ |
| 2005 12 30 | 691 | 0.1+ | 0.2+ | 2006 01 24 | 704 | 0.0 | 0.3− | 2009 10 14 | G96 | 0.0 | 0.1+ |
| 2005 12 30 | 691 | 0.4+ | 0.5+ | 2006 01 24 | 704 | 0.5+ | 0.3− | 2009 10 14 | G96 | 0.2+ | 0.2− |
| 2006 01 08 | 691 | 0.1− | 0.2− | 2006 02 20 | G96 | 0.2+ | 0.2+ | 2009 10 14 | G96 | 0.3+ | 0.2+ |
| 2006 01 08 | 691 | 0.3− | 0.1− | 2006 02 20 | G96 | 0.1− | 0.1+ | 2009 10 15 | 291 | 0.3− | 0.3− |
| 2006 01 08 | 691 | 0.1+ | 0.1− | 2006 02 20 | G96 | 0.5− | 0.3+ | 2009 10 15 | 291 | 0.1− | 0.3− |
| 2006 01 23 | G96 | 0.2− | 0.0 | 2006 02 20 | G96 | 0.0 | 0.2+ | 2009 10 15 | 291 | 0.1− | 0.4+ |

**2005 YR$_{245}$ = 2009 XN$_{17}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 268.31751 | | (2000.0) | | | |
| $n$ | 0.24135372 | $\omega$ | 285.88886 | | −0.67887039 | +0.55286999 |
| $a$ | 2.5548577 | $\Omega$ | 290.23622 | | −0.30029851 | −0.80956651 |
| $e$ | 0.1069156 | $i$ | 30.99573 | | −0.67004164 | −0.19732422 |
| $P$ | 4.08 | $H$ | 15.8 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 25 | 699 | 1.1− | 1.2+ | 2006 01 18 | 703 | 1.0− | 0.8− | 2009 12 15 | G96 | 0.2+ | 0.4− |
| 2005 12 25 | 699 | 1.2+ | 1.3+ | 2006 01 18 | 703 | 0.5− | 0.4− | 2009 12 15 | G96 | 0.1+ | 0.5− |
| 2005 12 25 | 699 | 0.5+ | 0.3− | 2006 01 18 | 703 | 0.7− | 0.3− | 2009 12 15 | G96 | 0.5+ | 0.1− |
| 2005 12 25 | 699 | 0.9+ | 0.1+ | 2006 01 21 | 699 | 0.7− | 0.5+ | 2009 12 15 | G96 | 0.1+ | 0.2− |
| 2005 12 30 | 691 | 0.3+ | 0.1− | 2006 01 21 | 699 | 0.4+ | 0.3+ | 2009 12 18 | 691 | 0.3+ | 0.2− |
| 2005 12 30 | 691 | 0.3+ | 0.2− | 2006 01 21 | 699 | 0.1− | 0.7+ | 2009 12 18 | 691 | 0.2+ | 0.0 |
| 2005 12 30 | 691 | 0.1+ | 0.3− | 2006 01 21 | 699 | 1.4+ | 0.9+ | 2009 12 18 | 691 | 0.1− | 0.1+ |
| 2006 01 10 | 691 | 0.0 | 0.0 | 2006 01 22 | 699 | 0.0 | 0.3− | 2009 12 25 | 691 | 0.3− | 0.1− |
| 2006 01 10 | 691 | 0.1− | 0.1− | 2006 01 22 | 699 | (2.2− | 2.4+) | 2009 12 25 | 691 | 0.3− | 0.1− |
| 2006 01 10 | 691 | 0.1− | 0.0 | 2006 01 22 | 699 | 0.7− | 0.4+ | 2009 12 25 | 691 | 0.2− | 0.3+ |
| 2006 01 18 | 703 | 0.7− | 0.2− | 2006 01 22 | 699 | 0.2+ | 0.2+ | | | | |

**2005 YG$_{257}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 39.74433 | | (2000.0) | | | |
| $n$ | 0.23918349 | $\omega$ | 240.51093 | | +0.76531050 | −0.64280201 |
| $a$ | 2.5702888 | $\Omega$ | 159.43212 | | +0.61845911 | +0.72005098 |
| $e$ | 0.2717173 | $i$ | 5.43047 | | +0.17834845 | +0.26140422 |
| $P$ | 4.12 | $H$ | 17.2 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 30 | 691 | 0.4+ | 0.2− | 2006 01 24 | 704 | 0.6+ | 0.6− | 2006 03 03 | G96 | 0.4+ | 0.1+ |
| 2005 12 30 | 691 | 0.4− | 1.4+ | 2006 01 24 | 704 | 0.5− | 0.4− | 2009 12 16 | G84 | 0.1− | 0.1+ |
| 2005 12 30 | 691 | 0.4+ | 0.3− | 2006 02 03 | G96 | 0.4− | 0.1− | 2009 12 16 | G84 | 0.1+ | 0.2− |
| 2006 01 10 | 691 | 0.2− | 0.2− | 2006 02 03 | G96 | 0.5− | 0.0 | 2009 12 16 | G84 | 0.7+ | 0.0 |
| 2006 01 10 | 691 | 0.4− | 0.0 | 2006 02 03 | G96 | 0.2− | 0.3− | 2009 12 16 | G84 | 0.3+ | 0.2+ |
| 2006 01 10 | 691 | 0.2+ | 0.2− | 2006 02 03 | G96 | 0.2+ | 0.1+ | 2009 12 20 | 691 | 0.2+ | 0.0 |
| 2006 01 24 | 704 | 0.6+ | 0.8+ | 2006 03 03 | G96 | 0.6+ | 0.0 | 2009 12 20 | 691 | 0.1+ | 0.1+ |
| 2006 01 24 | 704 | 1.0− | 0.7− | 2006 03 03 | G96 | 0.1− | 0.0 | 2009 12 20 | 691 | 0.5− | 0.3− |
| 2006 01 24 | 704 | 0.7+ | 0.4− | 2006 03 03 | G96 | 0.1+ | 0.4+ | | | | |

**2006 AP**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 76.38249 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.29915402 | $\omega$ | 16.27663 | | −0.62971984 | −0.68514863 | |
| $a$ | 2.2141455 | $\Omega$ | 114.35885 | | +0.66038602 | −0.72032902 | |
| $e$ | 0.2671166 | $i$ | 23.69497 | | +0.40907608 | +0.10815476 | |
| $P$ | 3.29 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 01 01 | 703 | 0.3+ | 0.1− | 2006 01 13 | 699 | 0.6− | 0.1− | 2006 03 05 | 703 | 0.1− | 0.5+ | |
| 2006 01 01 | 703 | 1.5+ | 0.1+ | 2006 01 25 | 644 | 0.2− | 0.1− | 2006 03 05 | 703 | 0.1+ | 0.2+ | |
| 2006 01 01 | 703 | 0.0 | 0.5− | 2006 01 25 | 644 | 0.3− | 0.3− | 2006 03 05 | 703 | 0.1− | 0.3+ | |
| 2006 01 04 | 704 | 0.3− | 0.2+ | 2006 01 25 | 644 | 0.2− | 0.2+ | 2006 03 05 | 703 | 0.1+ | 0.0 | |
| 2006 01 04 | 704 | 0.3+ | 0.2+ | 2006 02 01 | 703 | 0.8− | 0.2− | 2006 03 08 | 704 | 0.7+ | 0.1+ | |
| 2006 01 04 | 704 | 0.5+ | 1.1+ | 2006 02 01 | 703 | 0.3− | 0.4− | 2006 03 08 | 704 | 0.6+ | 0.2− | |
| 2006 01 04 | 704 | 0.1+ | 0.5+ | 2006 02 01 | 703 | 0.4− | 0.2+ | 2006 03 08 | 704 | 0.6+ | 0.9+ | |
| 2006 01 11 | 699 | 0.6+ | 0.2+ | 2006 02 01 | 703 | 0.7− | 0.0 | 2009 01 29 | 703 | 0.1− | 0.7− | |
| 2006 01 11 | 699 | 0.9+ | 0.7− | 2006 02 04 | 703 | 0.6− | 0.2− | 2009 01 29 | 703 | 0.3+ | 1.1+ | |
| 2006 01 11 | 699 | 0.5+ | 0.2+ | 2006 02 04 | 703 | 0.5− | 0.3− | 2009 01 29 | 703 | 0.1+ | 0.3− | |
| 2006 01 11 | 699 | 0.2− | 0.4+ | 2006 02 04 | 703 | 0.4− | 0.2− | 2009 01 29 | 703 | 0.4+ | 0.6− | |
| 2006 01 12 | 644 | 0.0 | 0.1− | 2006 02 04 | 703 | 0.5− | 0.5− | 2009 02 14 | 703 | 0.4− | 0.4+ | |
| 2006 01 12 | 644 | 0.1+ | 0.4− | 2006 02 06 | 704 | 0.1− | 0.1+ | 2009 02 14 | 703 | 1.5− | 0.3+ | |
| 2006 01 12 | 644 | 0.2− | 0.2− | 2006 02 06 | 704 | 0.3+ | 0.4+ | 2009 02 14 | 703 | 0.1− | 0.5− | |
| 2006 01 13 | 699 | 0.3+ | 1.1− | 2006 02 06 | 704 | 0.2+ | 0.4+ | 2009 02 14 | 703 | 0.4+ | 1.5+ | |
| 2006 01 13 | 699 | 0.1− | 0.2− | 2006 02 06 | 704 | 1.0− | 0.1+ | | | | | |
| 2006 01 13 | 699 | 0.1− | 0.5− | 2006 02 06 | 704 | 0.4+ | 0.0 | | | | | |

**2006 AS$_1$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 344.58709 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18816276 | $\omega$ | 127.37167 | | +0.77294383 | −0.61575125 | |
| $a$ | 3.0161083 | $\Omega$ | 271.15648 | | +0.52294998 | +0.75482854 | |
| $e$ | 0.0381127 | $i$ | 8.80248 | | +0.35927865 | +0.22601832 | |
| $P$ | 5.24 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 01 | G96 | 0.3− | 0.7− | 2006 01 04 | 691 | 0.3+ | 0.3+ | 2009 09 21 | 703 | 0.5− | 0.0 | |
| 2005 12 01 | G96 | 0.6− | 0.3− | 2006 01 04 | 691 | 0.8+ | 0.2+ | 2009 09 21 | 703 | 1.4+ | 1.3+ | |
| 2005 12 01 | G96 | 0.8− | 0.6− | 2006 01 04 | 691 | 0.1− | 0.2+ | 2009 09 21 | 703 | 1.2+ | 0.8− | |
| 2005 12 01 | G96 | 0.4− | 0.0 | 2006 02 01 | G96 | 0.0 | 0.1− | 2009 10 14 | 703 | 1.0− | 0.2+ | |
| 2006 01 02 | G96 | 0.7− | 0.0 | 2006 02 01 | G96 | 0.1− | 0.1− | 2009 10 14 | 703 | 1.0− | 0.1− | |
| 2006 01 02 | G96 | 0.5− | 0.2− | 2006 02 01 | G96 | 0.3− | 0.1− | 2009 10 14 | 703 | 0.6− | 0.3− | |
| 2006 01 02 | G96 | 1.0− | 0.2− | 2006 02 01 | G96 | 0.4− | 0.3− | 2009 10 14 | 703 | 0.0 | 0.6− | |
| 2006 01 02 | G96 | 0.2+ | 0.2− | 2009 09 21 | 703 | 0.3+ | 0.6+ | | | | | |

**2006 AZ$_4$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 60.77677 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24002087 | $\omega$ | 105.12065 | | +0.90288428 | −0.35640065 | |
| $a$ | 2.5643072 | $\Omega$ | 276.23127 | | +0.23834561 | +0.88036792 | |
| $e$ | 0.1770774 | $i$ | 13.99282 | | +0.35775878 | +0.31293912 | |
| $P$ | 4.11 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 27 | G96 | 0.2− | 0.2− | 2005 12 27 | 691 | 0.1+ | 0.2+ | 2009 11 17 | G96 | 0.2− | 0.2− | |
| 2005 10 27 | G96 | 0.2− | 0.0 | 2005 12 27 | 691 | 0.2+ | 0.2− | 2009 11 17 | G96 | 0.2+ | 0.1+ | |
| 2005 10 27 | G96 | 0.2− | 0.2− | 2005 12 27 | 691 | 0.2− | 0.2+ | 2009 11 17 | G96 | 0.2+ | 0.0 | |
| 2005 10 27 | G96 | 0.2− | 0.0 | 2006 01 07 | 701 | 0.1− | 0.6+ | 2009 11 17 | G96 | 0.0 | 0.1+ | |
| 2005 10 30 | G96 | 0.4+ | 0.1+ | 2006 01 07 | 701 | 0.5+ | 0.1+ | 2009 12 16 | G96 | 0.1− | 0.5− | |
| 2005 10 30 | G96 | 0.0 | 0.0 | 2006 01 09 | 701 | 0.4− | 0.2+ | 2009 12 16 | G96 | 0.1+ | 0.2− | |
| 2005 10 30 | G96 | 0.4− | 0.1− | 2006 01 09 | 701 | 0.2− | 0.2+ | 2009 12 16 | G96 | 0.1− | 0.3− | |
| 2005 10 30 | G96 | 0.6+ | 0.3− | 2006 01 09 | 701 | 0.2− | 0.6+ | 2009 12 16 | G96 | 0.2+ | 0.2− | |
| 2005 11 28 | G96 | 0.8+ | 0.3− | 2006 02 04 | G96 | 0.1+ | 0.3− | 2009 12 16 | G96 | 0.1− | 0.1− | |
| 2005 11 28 | G96 | 0.3+ | 0.1− | 2006 02 04 | G96 | 0.1− | 0.7− | 2009 12 20 | 691 | 0.1+ | 0.5+ | |
| 2005 11 28 | G96 | 0.2− | 0.3+ | 2006 02 04 | G96 | 0.2+ | 0.7− | 2009 12 20 | 691 | 0.1− | 0.1− | |
| 2005 11 28 | G96 | 0.1− | 0.0 | 2006 02 04 | G96 | 0.4− | 0.5− | 2009 12 20 | 691 | 0.1− | 0.2− | |

**2006 AP$_8$ = 2009 SY$_{348}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 359.35775 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24340914 | $\omega$ | 235.09151 | | +0.08745201 | −0.99403656 | |
| $a$ | 2.5404547 | $\Omega$ | 210.09187 | | +0.95110570 | +0.10276276 | |
| $e$ | 0.2390357 | $i$ | 7.46515 | | +0.29622644 | −0.03648475 | |
| $P$ | 4.05 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 01 02 | 704 | 1.1− | 0.1− | 2006 01 07 | 704 | 0.3+ | 0.2− | 2009 11 09 | 703 | 0.3+ | 0.8+ | |
| 2006 01 02 | 704 | (2.0− | 0.3−) | 2006 01 07 | 704 | 0.2− | 0.4− | 2009 11 09 | 703 | 0.9+ | 0.8+ | |
| 2006 01 02 | 704 | 0.2− | 0.6+ | 2006 01 07 | 704 | 0.9+ | 0.1− | 2009 11 17 | 703 | 0.4− | 0.6− | |
| 2006 01 02 | 704 | 1.0− | 0.2+ | 2009 09 22 | G96 | 0.7+ | 0.2+ | 2009 11 17 | 703 | 0.2− | 0.0 | |
| 2006 01 02 | 704 | 0.3+ | 0.4+ | 2009 09 22 | G96 | 0.1+ | 1.0+ | 2009 11 17 | 703 | 0.6− | 0.2+ | |
| 2006 01 05 | 704 | 0.4− | 0.2− | 2009 09 22 | G96 | 0.5− | 0.3− | 2009 11 17 | 703 | 0.5+ | 0.7+ | |
| 2006 01 05 | 704 | (1.8+ | 0.2+) | 2009 09 22 | G96 | 0.6− | 0.0 | 2009 11 26 | G96 | 0.4+ | 0.1− | |
| 2006 01 05 | 704 | 0.1+ | 0.5− | 2009 09 22 | G96 | 0.1− | 0.3− | 2009 11 26 | G96 | 0.6+ | 0.2− | |
| 2006 01 05 | 704 | 0.4+ | 0.3− | 2009 09 22 | G96 | 0.1− | 0.3− | 2009 11 26 | G96 | 0.3+ | 0.4− | |
| 2006 01 05 | 704 | 0.2+ | 0.4− | 2009 09 22 | G96 | 0.1− | 0.7− | 2009 11 26 | G96 | 0.5+ | 0.1− | |
| 2006 01 06 | 704 | 0.0 | 0.8+ | 2009 09 22 | G96 | 0.1− | 0.0 | 2009 11 26 | G96 | 0.7+ | 0.0 | |
| 2006 01 06 | 704 | 0.2+ | 0.7+ | 2009 10 12 | G96 | 0.3+ | 0.1− | 2009 12 11 | 703 | 0.6− | 0.2+ | |
| 2006 01 06 | 704 | 0.0 | 1.2− | 2009 10 12 | G96 | 0.4+ | 0.8+ | 2009 12 11 | 703 | 0.3− | 0.6+ | |
| 2006 01 06 | 704 | 0.1+ | 0.3+ | 2009 10 12 | G96 | 0.0 | 0.2− | 2009 12 11 | 703 | 0.5− | 0.5− | |
| 2006 01 06 | 704 | 0.2+ | 0.4+ | 2009 10 12 | G96 | 0.1− | 0.2− | 2009 12 11 | 703 | 1.3− | 0.4− | |
| 2006 01 07 | 704 | 0.1− | 0.5− | 2009 11 09 | 703 | 0.8− | 0.7− | | | | | |
| 2006 01 07 | 704 | 0.6+ | 0.5+ | 2009 11 09 | 703 | 0.5+ | 0.5− | | | | | |

**2006 AA$_{11}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 32.94150 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23527921 | $\omega$ | 14.16753 | | +0.78198700 | −0.62136520 | |
| $a$ | 2.5986453 | $\Omega$ | 24.45505 | | +0.55971829 | +0.66545539 | |
| $e$ | 0.3751012 | $i$ | 6.79854 | | +0.27424763 | +0.41361143 | |
| $P$ | 4.19 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 03 11 | 644 | 0.4+ | 0.9+ | 2006 01 06 | 699 | 0.4− | 0.4+ | 2006 02 28 | 703 | 0.7− | 0.5+ | |
| 2002 03 11 | 644 | 0.5+ | 0.7+ | 2006 01 06 | 699 | 0.1+ | 0.3− | 2006 02 28 | 703 | 1.2− | 0.5+ | |
| 2002 03 11 | 644 | 0.4+ | 0.1+ | 2006 01 27 | 699 | 0.9+ | 0.2− | 2006 02 28 | 703 | 0.7− | 0.3+ | |
| 2005 12 05 | 703 | (0.6+ | 1.7−) | 2006 01 27 | 699 | 1.1+ | 0.8+ | 2006 02 28 | 703 | 1.2− | 1.1+ | |
| 2005 12 05 | 703 | 1.2− | 0.9− | 2006 01 27 | 699 | 1.0− | 0.3+ | 2009 08 28 | 691 | 0.2− | 0.3+ | |
| 2005 12 05 | 703 | 0.4+ | 0.8+ | 2006 01 27 | 699 | 0.5− | 0.1+ | 2009 08 28 | 691 | 0.1− | 0.2+ | |
| 2005 12 05 | 703 | 0.7+ | 0.2+ | 2006 02 03 | 699 | 0.3− | 1.4− | 2009 08 28 | 691 | 0.1+ | 0.2+ | |
| 2006 01 04 | 703 | 0.1− | 0.6− | 2006 02 03 | 699 | 1.2− | 0.8+ | 2009 12 16 | 703 | 0.6− | 0.5− | |
| 2006 01 04 | 703 | 0.5− | 1.0− | 2006 02 03 | 699 | 0.0 | 0.5+ | 2009 12 16 | 703 | 0.4+ | 0.1− | |
| 2006 01 04 | 703 | 1.0+ | 1.1− | 2006 02 03 | 699 | 0.4+ | 0.9− | 2009 12 16 | 703 | 0.4− | 0.5− | |
| 2006 01 04 | 703 | 0.5− | 0.0 | 2006 02 20 | 704 | 0.3+ | 0.1+ | 2009 12 16 | 703 | 0.4− | 0.2+ | |
| 2006 01 05 | 704 | 0.3+ | 0.6− | 2006 02 20 | 704 | 0.2+ | 0.4+ | 2009 12 26 | G92 | 0.1+ | 0.5+ | |
| 2006 01 05 | 704 | 0.1+ | 0.4+ | 2006 02 20 | 704 | 1.1+ | 0.7− | 2009 12 26 | G92 | 0.3+ | 0.1+ | |
| 2006 01 05 | 704 | 0.2+ | 0.1− | 2006 02 20 | 704 | 0.6+ | 0.1− | 2009 12 26 | G92 | 0.0 | 0.5+ | |
| 2006 01 05 | 704 | 0.7+ | 0.0 | 2006 02 22 | 699 | (1.9+ | 0.4−) | 2009 12 27 | D29 | 0.2+ | 0.3− | |
| 2006 01 05 | 704 | 0.5− | 0.2− | 2006 02 22 | 699 | 1.0+ | 1.1+ | 2009 12 27 | D29 | 0.4+ | 0.2− | |
| 2006 01 06 | 699 | 0.3− | 0.4− | 2006 02 22 | 699 | 0.6− | 0.2− | 2009 12 27 | D29 | 0.2− | 0.4− | |
| 2006 01 06 | 699 | 0.2+ | 0.5− | 2006 02 22 | 699 | 0.1− | 0.3− | 2009 12 27 | D29 | 0.5+ | 0.2+ | |

**2006 AR$_{13}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 312.37834 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21101202 | $\omega$ | 351.27359 | | −0.43720133 | −0.89000130 | |
| $a$ | 2.7942456 | $\Omega$ | 124.55299 | | +0.83434414 | −0.45509723 | |
| $e$ | 0.1730305 | $i$ | 9.04173 | | +0.33574524 | −0.02800350 | |
| $P$ | 4.67 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 11 30 | G96 | 0.0 | 0.0 | 2006 01 24 | 691 | 0.1+ | 0.4− | 2006 02 02 | 703 | 0.2− | 0.1+ | | | |
| 2005 11 30 | G96 | 0.3+ | 0.0 | 2006 01 24 | 704 | 0.4+ | 0.2+ | 2006 02 03 | 691 | 0.1− | 0.4+ | | | |
| 2005 11 30 | G96 | 0.0 | 0.5− | 2006 01 24 | 704 | 1.2+ | 0.0 | 2006 02 03 | 691 | 0.2− | 0.0 | | | |
| 2005 11 30 | G96 | 0.4+ | 0.2+ | 2006 01 24 | 704 | 0.4+ | 0.3− | 2006 02 03 | 691 | 0.0 | 0.0 | | | |
| 2005 12 26 | G96 | 0.7+ | 0.0 | 2006 01 24 | 704 | 0.6+ | 0.1+ | 2006 02 03 | 699 | 0.1− | 0.7− | | | |
| 2005 12 26 | G96 | 0.2− | 0.4− | 2006 01 24 | 704 | 0.4+ | 0.6− | 2006 02 03 | 699 | 0.4+ | 0.0 | | | |
| 2005 12 26 | G96 | 0.0 | 0.2− | 2006 01 27 | 704 | 0.1+ | 0.4+ | 2006 02 03 | 699 | 1.5− | 0.5− | | | |
| 2005 12 26 | G96 | 0.3− | 0.3− | 2006 01 27 | 704 | 0.5− | 0.6− | 2006 02 03 | 699 | 0.0 | 0.5+ | | | |
| 2006 01 05 | G96 | 0.1+ | 0.2− | 2006 01 27 | 704 | 0.2+ | 0.3− | 2006 02 04 | 704 | 0.1+ | 0.6+ | | | |
| 2006 01 05 | G96 | 0.2− | 0.3− | 2006 01 27 | 699 | 0.7− | 0.8+ | 2006 02 04 | 704 | 0.3− | 0.3+ | | | |
| 2006 01 05 | G96 | 0.1− | 0.2− | 2006 01 27 | 704 | 0.3+ | 0.8+ | 2006 02 04 | 704 | 1.1+ | 1.5− | | | |
| 2006 01 05 | G96 | 0.0 | 0.4− | 2006 01 27 | 704 | 0.8+ | 0.0 | 2006 02 04 | 704 | 0.1− | 1.0+ | | | |
| 2006 01 06 | 691 | 0.3− | 0.3+ | 2006 01 27 | 699 | 0.2+ | 0.7− | 2006 02 04 | 704 | 0.5− | 1.2+ | | | |
| 2006 01 06 | 691 | 0.1− | 0.1+ | 2006 01 27 | 699 | 0.8+ | 0.1− | 2006 02 07 | 691 | 0.0 | 0.2+ | | | |
| 2006 01 06 | 691 | 0.0 | 0.1+ | 2006 01 27 | 699 | 0.6− | 0.2+ | 2006 02 07 | 691 | 0.0 | 0.1+ | | | |
| 2006 01 20 | 691 | 0.2− | 0.3+ | 2006 01 30 | 691 | 0.1− | 0.1+ | 2006 02 07 | 691 | 0.1− | 0.1+ | | | |
| 2006 01 20 | 691 | 0.2− | 0.1− | 2006 01 30 | 691 | 0.6− | 0.9− | 2009 10 01 | G96 | 0.2− | 0.2+ | | | |
| 2006 01 20 | 691 | 0.1+ | 0.2+ | 2006 01 30 | 691 | 0.1− | 0.1+ | 2009 10 01 | G96 | 0.6+ | 0.2+ | | | |
| 2006 01 23 | G96 | 0.0 | 0.3− | 2006 01 31 | 691 | 0.1+ | 0.1+ | 2009 10 01 | G96 | 0.1+ | 0.3+ | | | |
| 2006 01 23 | G96 | 0.3+ | 0.3− | 2006 01 31 | 691 | 0.1+ | 0.2+ | 2009 10 01 | G96 | 0.2+ | 0.0 | | | |
| 2006 01 23 | G96 | 0.0 | 0.2− | 2006 01 31 | 691 | 0.1+ | 0.1+ | 2009 11 17 | 703 | 0.6− | 0.1− | | | |
| 2006 01 23 | G96 | 0.2− | 0.3− | 2006 02 02 | 703 | 0.8− | 0.7− | 2009 11 17 | 703 | 0.6+ | 0.7+ | | | |
| 2006 01 24 | 691 | 0.2+ | 0.0 | 2006 02 02 | 703 | 0.3+ | 1.7− | 2009 11 17 | 703 | 0.7+ | 0.4− | | | |
| 2006 01 24 | 691 | 0.3+ | 0.2+ | 2006 02 02 | 703 | 0.8+ | 0.5+ | 2009 11 17 | 703 | 1.4− | 0.7− | | | |

### 2006 AG$_{26}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 323.48161 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23474589 | $\omega$ | 33.25847 | | −0.69344735 | | −0.70597704 |
| $a$ | 2.6025798 | $\Omega$ | 101.11007 | | +0.62491100 | | −0.68877092 |
| $e$ | 0.1447516 | $i$ | 8.43684 | | +0.35863213 | | −0.16489705 |
| $P$ | 4.20 | $H$ | 17.4 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 11 01 | G96 | 0.0 | 0.6− | 2005 12 25 | G96 | 0.4+ | 0.2− | 2006 01 07 | G96 | 0.1+ | 0.3− | | | |
| 2005 11 01 | G96 | 0.2+ | 0.1− | 2005 12 25 | G96 | 0.3− | 0.3− | 2009 11 26 | 691 | 0.1− | 0.0 | | | |
| 2005 11 01 | G96 | 0.1− | 0.4+ | 2005 12 28 | 408 | 2.0− | 0.1− | 2009 11 26 | 691 | 0.3+ | 0.1+ | | | |
| 2005 11 01 | G96 | 0.1+ | 0.1− | 2005 12 28 | 408 | (2.4− | 3.4−) | 2009 11 26 | 691 | 0.6− | 0.2+ | | | |
| 2005 12 02 | G96 | 0.4− | 0.1− | 2006 01 05 | 691 | 0.3+ | 0.2+ | 2009 12 11 | G96 | 0.5+ | 0.4− | | | |
| 2005 12 02 | G96 | 0.2+ | 0.0 | 2006 01 05 | 691 | 0.3+ | 0.1+ | 2009 12 11 | G96 | 0.3+ | 0.0 | | | |
| 2005 12 02 | G96 | 0.4+ | 0.2− | 2006 01 05 | 691 | 0.1+ | 0.3+ | 2009 12 11 | G96 | 0.2+ | 0.2− | | | |
| 2005 12 02 | G96 | 0.1+ | 0.1+ | 2006 01 07 | G96 | 0.2− | 0.3− | 2009 12 11 | G96 | 0.4+ | 0.0 | | | |
| 2005 12 25 | G96 | 0.5− | 0.4− | 2006 01 07 | G96 | 0.1− | 0.4− | | | | | | | |
| 2005 12 25 | G96 | 0.2+ | 0.4− | 2006 01 07 | G96 | 0.6− | 0.0 | | | | | | | |

### 2006 AU$_{26}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 31.50701 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23658924 | $\omega$ | 286.04104 | | +0.75277179 | | −0.65436913 |
| $a$ | 2.5890438 | $\Omega$ | 114.89018 | | +0.63013228 | | +0.68480453 |
| $e$ | 0.2263994 | $i$ | 4.53118 | | +0.19044144 | | +0.32069268 |
| $P$ | 4.17 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 04 | G96 | 0.1− | 0.1− | 2006 01 09 | 691 | 0.2− | 0.2− | 2006 02 04 | 691 | 0.1+ | 0.1− | | | |
| 2005 12 04 | G96 | 0.2+ | 0.0 | 2006 01 09 | 691 | 0.1− | 0.2+ | 2006 02 04 | 691 | 0.1+ | 0.3− | | | |
| 2005 12 04 | G96 | 0.1− | 0.1+ | 2006 01 09 | 691 | 0.1− | 0.4+ | 2006 02 04 | 691 | 0.2+ | 0.1− | | | |
| 2005 12 04 | G96 | 0.4− | 0.1+ | 2006 01 10 | G96 | 0.2− | 0.2− | 2006 02 07 | 691 | 0.1− | 0.1+ | | | |
| 2005 12 25 | 691 | 0.1+ | 0.3+ | 2006 01 10 | G96 | 0.4− | 0.2− | 2006 02 07 | 691 | 0.0 | 0.2− | | | |
| 2005 12 25 | 691 | 0.1+ | 0.2+ | 2006 01 10 | G96 | 0.5− | 0.3− | 2006 02 07 | 691 | 0.2+ | 0.0 | | | |
| 2005 12 25 | 691 | 0.0 | 0.1+ | 2006 01 10 | G96 | 0.0 | 0.2− | 2009 11 19 | 691 | 0.1− | 0.2− | | | |
| 2006 01 05 | 691 | 0.1− | 0.4+ | 2006 01 22 | G96 | 0.1− | 0.4− | 2009 11 19 | 691 | 0.1− | 0.0 | | | |
| 2006 01 05 | 691 | 0.0 | 0.3+ | 2006 01 22 | G96 | 0.0 | 0.4− | 2009 11 19 | 691 | 0.3− | 0.2− | | | |
| 2006 01 05 | 691 | 0.4+ | 0.6+ | 2006 01 22 | G96 | 0.1− | 0.4− | 2009 12 17 | 704 | 1.5+ | 0.1− | | | |
| 2006 01 07 | G96 | 0.1+ | 0.4− | 2006 02 02 | 691 | 0.1− | 0.4− | 2009 12 17 | 704 | 0.8+ | 0.1+ | | | |
| 2006 01 07 | G96 | 0.2+ | 0.2− | 2006 02 02 | 691 | 0.2− | 0.2− | 2009 12 17 | 704 | 0.2− | 0.0 | | | |
| 2006 01 07 | G96 | 0.1+ | 0.2− | 2006 02 02 | 691 | 0.0 | 0.2− | | | | | | | |

### 2006 AX$_{34}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 17.72975 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18795758 | $\omega$ | 66.61719 | | +0.98668315 | | −0.06022383 |
| $a$ | 3.0183029 | $\Omega$ | 296.54274 | | −0.01649693 | | +0.88708652 |
| $e$ | 0.0877839 | $i$ | 9.72361 | | +0.16181536 | | +0.45765773 |
| $P$ | 5.24 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 26 | G96 | 0.3− | 0.3− | 2006 01 10 | G96 | 0.2+ | 0.1− | 2006 02 20 | G96 | 0.2− | 0.5− | | | |
| 2005 12 26 | G96 | 0.5− | 0.5− | 2006 01 10 | G96 | 0.2− | 0.5− | 2006 02 20 | G96 | 0.2− | 0.3− | | | |
| 2005 12 26 | G96 | 0.3+ | 0.2− | 2006 01 10 | G96 | 0.5+ | 1.5− | 2009 09 21 | 703 | 0.1+ | 0.4− | | | |
| 2005 12 26 | G96 | 0.1+ | 0.1− | 2006 01 22 | G96 | 0.1+ | 0.4− | 2009 09 21 | 703 | 0.2+ | 0.7+ | | | |
| 2006 01 04 | G96 | 0.5− | 0.1− | 2006 01 22 | G96 | 0.3− | 0.2− | 2009 09 21 | 703 | 0.3− | 1.2+ | | | |
| 2006 01 04 | G96 | 0.1− | 0.0 | 2006 01 22 | G96 | 0.1− | 0.2− | 2009 09 21 | 703 | 0.7− | 0.7+ | | | |
| 2006 01 04 | G96 | 0.2− | 0.5− | 2006 01 22 | G96 | 0.0 | 0.4− | 2009 09 28 | 703 | 0.5− | 0.0 | | | |
| 2006 01 04 | G96 | 0.2+ | 0.1− | 2006 01 24 | 704 | 0.7− | 1.2+ | 2009 09 28 | 703 | 0.7− | 0.4+ | | | |
| 2006 01 08 | 691 | 0.2+ | 0.0 | 2006 01 24 | 704 | 0.1+ | 1.4+ | 2009 09 28 | 703 | 1.6+ | 0.7− | | | |
| 2006 01 08 | 691 | 0.0 | 0.5+ | 2006 01 24 | 704 | 0.4+ | 0.2− | 2009 09 28 | 703 | 0.3+ | 2.0− | | | |
| 2006 01 08 | 691 | 0.1+ | 0.3+ | 2006 02 20 | G96 | 0.1− | 0.1+ | | | | | | | |
| 2006 01 10 | G96 | 0.5+ | 0.2− | 2006 02 20 | G96 | 0.0 | 0.2+ | | | | | | | |

### 2006 AN$_{37}$ = 2009 YF$_2$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 199.85007 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23166457 | $\omega$ | 151.17341 | | +0.03943379 | | +0.98303454 |
| $a$ | 2.6256065 | $\Omega$ | 120.56580 | | −0.95203776 | | +0.09140131 |
| $e$ | 0.1195251 | $i$ | 12.00748 | | −0.30342887 | | −0.15902482 |
| $P$ | 4.25 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 5 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 01 04 | 691 | 0.1− | 0.2− | 2006 01 25 | 691 | 0.1+ | 0.0 | 2009 12 17 | G96 | 0.3+ | 0.3− | | | |
| 2006 01 04 | 691 | 0.3+ | 0.0 | 2006 01 25 | 691 | 0.0 | 0.1+ | 2009 12 17 | G96 | 0.2+ | 0.2− | | | |
| 2006 01 04 | 691 | 0.2− | 0.3+ | 2006 01 30 | 691 | 0.0 | 0.1− | 2009 12 17 | G96 | 0.5+ | 0.0 | | | |
| 2006 01 08 | 691 | 0.1+ | 0.5− | 2006 01 30 | 691 | 0.0 | 0.0 | 2009 12 18 | 691 | 0.1− | 0.1− | | | |
| 2006 01 08 | 691 | 0.4+ | 0.1+ | 2006 01 30 | 691 | 0.3− | 0.1− | 2009 12 18 | 691 | 0.3− | 0.1+ | | | |
| 2006 01 08 | 691 | 0.3− | 0.3+ | 2009 12 17 | G96 | 0.1− | 0.0 | 2009 12 18 | 691 | 0.1+ | 0.1+ | | | |
| 2006 01 25 | 691 | 0.1+ | 0.1+ | 2009 12 17 | G96 | 0.1+ | 0.0 | | | | | | | |

### 2006 AH$_{43}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 1.08288 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23753915 | $\omega$ | 170.10095 | | −0.23945626 | | −0.95084431 |
| $a$ | 2.5821369 | $\Omega$ | 293.53777 | | +0.87550310 | | −0.12403945 |
| $e$ | 0.1117333 | $i$ | 12.36721 | | +0.41970826 | | −0.28374162 |
| $P$ | 4.15 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 02 | 695 | 0.0 | 0.1+ | 2006 01 08 | G96 | 0.0 | 0.5− | 2008 10 01 | G96 | 0.2+ | 0.4+ | | | |
| 2005 12 02 | 695 | 0.1− | 0.3+ | 2006 01 08 | G96 | 0.2+ | 0.5− | 2008 10 01 | G96 | 0.4− | 0.0 | | | |
| 2005 12 06 | G96 | 0.0 | 0.0 | 2006 01 08 | G96 | 0.0 | 0.5− | 2009 12 18 | G96 | 0.1+ | 0.2− | | | |
| 2005 12 06 | G96 | 0.4− | 0.1+ | 2006 01 08 | G96 | 0.2+ | 0.6− | 2009 12 18 | G96 | 0.1+ | 0.4− | | | |
| 2005 12 06 | G96 | 0.3− | 0.2− | 2006 01 10 | 691 | 0.3+ | 0.1+ | 2009 12 18 | G96 | 0.1+ | 0.1− | | | |
| 2005 12 06 | G96 | 0.3− | 0.0 | 2006 01 10 | 691 | 0.2− | 0.1+ | 2009 12 18 | G96 | 0.2+ | 0.2− | | | |
| 2006 01 06 | 691 | 0.1+ | 0.2+ | 2006 01 10 | 691 | 0.1+ | 0.0 | 2009 12 19 | 691 | 0.0 | 0.3+ | | | |
| 2006 01 06 | 691 | 0.1+ | 0.2+ | 2008 10 01 | G96 | 0.4− | 0.3+ | 2009 12 19 | 691 | 0.0 | 0.2− | | | |
| 2006 01 06 | 691 | 0.2− | 0.3+ | 2008 10 01 | G96 | 0.1+ | 0.0 | 2009 12 19 | 691 | 0.3− | 0.2− | | | |

**2006 AE$_{44}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 334.33489 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19927591 | $\omega$ | 295.98555 | | +0.30947177 | −0.94141108 | |
| $a$ | 2.9029052 | $\Omega$ | 135.28745 | | +0.92630474 | +0.26659067 | |
| $e$ | 0.0579065 | $i$ | 10.98486 | | +0.21491103 | +0.20657830 | |
| $P$ | 4.95 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 01 07 | G96 | 0.1− | 0.5− | 2006 01 24 | 704 | 0.2− | 0.9+ | 2006 03 24 | G96 | 0.1− | 0.1+ |
| 2006 01 07 | G96 | 0.7+ | 0.4− | 2006 01 24 | 704 | 0.1+ | 0.9+ | 2006 03 24 | G96 | 0.2− | 0.2− |
| 2006 01 07 | G96 | 0.0 | 0.4− | 2006 01 24 | 704 | 0.4− | 0.2− | 2006 03 24 | G96 | 0.5− | 0.0 |
| 2006 01 08 | G96 | 0.3+ | 0.2− | 2006 01 24 | 704 | 0.3− | 1.2+ | 2006 03 24 | G96 | 0.3+ | 0.2− |
| 2006 01 08 | G96 | 0.2+ | 0.4− | 2006 02 04 | 704 | 0.2+ | 0.2− | 2007 03 25 | G96 | 0.3+ | 0.6+ |
| 2006 01 08 | G96 | 0.1− | 0.2− | 2006 02 04 | 704 | 0.3− | 0.2− | 2007 03 25 | G96 | 0.5− | 0.4+ |
| 2006 01 08 | G96 | 0.2− | 0.3− | 2006 02 04 | 704 | 0.0 | 0.3+ | 2007 03 25 | G96 | 0.0 | 0.1− |
| 2006 01 09 | 691 | 0.0 | 0.1− | 2006 02 04 | 704 | 0.1+ | 1.1+ | 2007 03 25 | G96 | 0.3+ | 0.0 |
| 2006 01 09 | 691 | 0.0 | 0.1− | 2006 02 04 | 704 | 0.0 | 0.7+ | 2009 10 15 | 703 | 0.6− | 0.4+ |
| 2006 01 09 | 691 | 0.1− | 0.2− | 2006 02 04 | G96 | 0.4− | 0.2− | 2009 10 15 | 703 | 0.7+ | 0.1− |
| 2006 01 10 | G96 | 0.3− | 0.0 | 2006 02 04 | G96 | 0.7− | 0.3− | 2009 10 15 | 703 | 0.9+ | 1.3+ |
| 2006 01 10 | G96 | 0.1+ | 0.1− | 2006 02 04 | G96 | 0.1− | 0.4− | 2009 11 11 | 703 | 1.2− | 0.6− |
| 2006 01 10 | G96 | 0.4− | 0.2− | 2006 02 04 | G96 | 0.2− | 0.4− | 2009 11 11 | 703 | (1.9− | 0.1−) |
| 2006 01 23 | 291 | 0.1− | 0.1+ | 2006 02 20 | 291 | 0.2+ | 0.2+ | 2009 11 11 | 703 | 0.3− | 1.0− |
| 2006 01 23 | 291 | 0.1+ | 0.0 | 2006 02 20 | 291 | 0.3+ | 0.3+ | 2009 11 11 | 703 | 0.1+ | 1.0+ |
| 2006 01 23 | 291 | 0.0 | 0.1− | 2006 02 20 | 291 | 0.2+ | 0.0 | | | | |

**2006 AJ$_{55}$ = 2009 WR$_{239}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 178.70108 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22324202 | $\omega$ | 2.30571 | | −0.04232957 | +0.99364643 | |
| $a$ | 2.6912379 | $\Omega$ | 265.28088 | | −0.91832612 | −0.07980952 | |
| $e$ | 0.0606032 | $i$ | 6.00631 | | −0.39355475 | +0.07935501 | |
| $P$ | 4.41 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 27 | 691 | 0.4− | 0.2+ | 2006 01 09 | 691 | 0.1+ | 0.0 | 2009 11 17 | 691 | 0.0 | 0.2− |
| 2005 12 27 | 691 | 0.3+ | 0.4+ | 2006 01 09 | 691 | 0.1− | 0.0 | 2009 11 17 | 691 | 0.1− | 0.1− |
| 2005 12 27 | 691 | 0.0 | 0.3− | 2008 10 01 | G96 | 0.0 | 0.0 | 2009 11 25 | 691 | 0.4− | 0.0 |
| 2006 01 05 | 691 | 0.1− | 0.2− | 2008 10 01 | G96 | 0.1− | 0.2+ | 2009 11 25 | 691 | 0.0 | 0.1+ |
| 2006 01 05 | 691 | 0.2+ | 0.1− | 2008 10 01 | G96 | 0.1− | 0.2− | 2009 11 25 | 691 | 0.1+ | 0.2+ |
| 2006 01 05 | 691 | 0.1− | 0.3+ | 2008 10 01 | G96 | 0.3+ | 0.0 | | | | |
| 2006 01 09 | 691 | 0.2+ | 0.3− | 2009 11 17 | 691 | 0.3+ | 0.1− | | | | |

**2006 AW$_{56}$ = 2009 WE$_{228}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 351.28224 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22354497 | $\omega$ | 351.89557 | | +0.22959885 | −0.97195765 | |
| $a$ | 2.6888059 | $\Omega$ | 84.82020 | | +0.89580902 | +0.19061853 | |
| $e$ | 0.1281794 | $i$ | 2.92499 | | +0.38053983 | +0.13770584 | |
| $P$ | 4.41 | $H$ | 17.8 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 03 05 | 291 | 0.1− | 0.1− | 2006 02 01 | 691 | 0.6+ | 0.4+ | 2009 11 17 | G96 | 0.1+ | 0.2+ |
| 2002 03 05 | 291 | 0.1− | 0.0 | 2006 02 01 | 691 | 0.6− | 0.2− | 2009 11 17 | G96 | 0.2+ | 0.1+ |
| 2002 03 05 | 291 | 0.2+ | 0.2+ | 2006 02 05 | 691 | 0.2− | 0.4+ | 2009 11 23 | G96 | 0.1− | 0.7− |
| 2006 01 07 | G96 | 0.0 | 0.2− | 2006 02 05 | 691 | 0.9+ | 0.2− | 2009 11 23 | G96 | 0.1+ | 0.2+ |
| 2006 01 07 | G96 | 0.1+ | 0.3− | 2006 02 05 | 691 | 0.2− | 0.4− | 2009 11 23 | G96 | 0.3+ | 0.1− |
| 2006 01 07 | G96 | 0.2+ | 0.2− | 2009 10 23 | G96 | 0.8− | 0.2− | 2009 12 10 | G96 | 0.4+ | 0.0 |
| 2006 01 07 | G96 | 0.2− | 0.4− | 2009 10 23 | G96 | 0.2+ | 0.7+ | 2009 12 10 | G96 | 0.1− | 0.1+ |
| 2006 01 09 | 691 | 0.1+ | 0.0 | 2009 10 23 | G96 | 0.5− | 0.2− | 2009 12 10 | G96 | 0.1+ | 0.2+ |
| 2006 01 09 | 691 | 0.0 | 0.1− | 2009 10 23 | G96 | 0.5− | 0.1+ | 2009 12 10 | G96 | 0.2+ | 0.2− |
| 2006 01 09 | 691 | 0.3+ | 0.1+ | 2009 11 17 | G96 | 0.2+ | 0.4+ | | | | |
| 2006 02 01 | 691 | 0.9− | 0.1+ | 2009 11 17 | G96 | 0.1− | 0.2− | | | | |

**2006 AE$_{59}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 40.35769 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23274875 | $\omega$ | 265.19672 | | +0.89826412 | −0.43102226 | |
| $a$ | 2.6174464 | $\Omega$ | 120.31308 | | +0.43219059 | +0.83115269 | |
| $e$ | 0.2632916 | $i$ | 5.69607 | | +0.07957931 | +0.35129050 | |
| $P$ | 4.23 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 11 03 | G96 | 0.2+ | 0.2− | 2006 01 04 | 691 | 0.6+ | 0.5+ | 2009 10 14 | G96 | 0.3+ | 0.1− |
| 2005 11 03 | G96 | 0.1− | 0.3+ | 2006 01 10 | G96 | 0.2+ | 0.4− | 2009 10 14 | G96 | 0.1− | 0.1+ |
| 2005 11 03 | G96 | 0.1− | 0.4− | 2006 01 10 | G96 | 0.7− | 0.3− | 2009 10 14 | G96 | 0.3− | 0.3+ |
| 2005 11 03 | G96 | 0.0 | 0.3− | 2006 01 10 | G96 | 0.1− | 0.6− | 2009 10 14 | G96 | 0.3+ | 0.0 |
| 2005 12 22 | 691 | 1.3− | 0.5− | 2006 01 10 | G96 | 1.0− | 0.3+ | 2009 11 27 | 691 | 0.4− | 0.3− |
| 2005 12 22 | 691 | 0.6+ | 0.2− | 2006 01 22 | G96 | 0.1− | 0.3− | 2009 11 27 | 691 | 0.2− | 0.0 |
| 2005 12 22 | 691 | 0.2+ | 0.3− | 2006 01 22 | G96 | 0.4− | 0.4− | 2009 11 27 | 691 | 0.5+ | 0.3+ |
| 2006 01 04 | 691 | 0.4+ | 0.7+ | 2006 01 22 | G96 | 0.0 | 0.2− | | | | |
| 2006 01 04 | 691 | 0.0 | 0.3+ | 2006 01 22 | G96 | 0.4− | 0.3− | | | | |

**2006 AW$_{61}$ = 2009 WZ$_{244}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 1.86026 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22788124 | $\omega$ | 290.57203 | | +0.24520520 | −0.96853740 | |
| $a$ | 2.6545873 | $\Omega$ | 145.14626 | | +0.91489320 | +0.21666275 | |
| $e$ | 0.1710287 | $i$ | 4.26900 | | +0.32069431 | +0.12244413 | |
| $P$ | 4.33 | $H$ | 18.0 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 10 02 | 645 | 0.0 | 0.0 | 2006 01 10 | G96 | 0.1− | 0.2− | 2006 01 24 | 691 | 0.4− | 0.5+ |
| 2000 10 02 | 645 | 0.0 | 0.0 | 2006 01 10 | G96 | 0.2+ | 0.0 | 2009 11 20 | G96 | 0.4− | 0.1+ |
| 2002 03 12 | 645 | 0.1− | 0.1+ | 2006 01 10 | G96 | 0.4− | 0.4− | 2009 11 20 | G96 | 0.1− | 0.1− |
| 2002 03 12 | 645 | 0.1+ | 0.1− | 2006 01 10 | G96 | 0.0 | 0.2+ | 2009 11 20 | G96 | 0.2+ | 0.1− |
| 2005 12 28 | 691 | 0.2+ | 0.4− | 2006 01 23 | G96 | 0.0 | 0.5+ | 2009 11 20 | G96 | 0.1− | 0.1+ |
| 2005 12 28 | 691 | 0.0 | 0.1− | 2006 01 23 | G96 | 0.2− | 0.0 | 2009 11 25 | G96 | 0.3− | 0.3+ |
| 2005 12 28 | 691 | 0.1− | 0.0 | 2006 01 23 | G96 | 0.4− | 0.0 | 2009 11 25 | G96 | 0.5+ | 0.2− |
| 2006 01 05 | 691 | 0.4+ | 0.1− | 2006 01 23 | G96 | 0.5− | 0.0 | 2009 11 25 | G96 | 0.1+ | 0.1− |
| 2006 01 05 | 691 | 0.1− | 0.4+ | 2006 01 24 | 691 | 0.4+ | 0.2− | | | | |
| 2006 01 05 | 691 | 0.2− | 0.1− | 2006 01 24 | 691 | 0.1+ | 0.0 | | | | |

**2006 AK$_{66}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 16.06397 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24452099 | $\omega$ | 151.59019 | | +0.11871210 | −0.98834344 | |
| $a$ | 2.5327479 | $\Omega$ | 291.45767 | | +0.89051505 | +0.14843552 | |
| $e$ | 0.1910588 | $i$ | 5.87808 | | +0.43919287 | −0.03382509 | |
| $P$ | 4.03 | $H$ | 18.1 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 26 | G96 | 0.1− | 0.6− | 2006 01 10 | G96 | 0.0 | 0.1− | 2009 12 15 | G96 | 0.1+ | 0.4+ |
| 2005 12 26 | G96 | 0.2− | 0.0 | 2006 01 10 | G96 | 0.0 | 0.1+ | 2009 12 15 | G96 | 0.4+ | 0.2+ |
| 2005 12 26 | G96 | 0.7− | 0.7− | 2006 01 21 | G96 | 0.0 | 0.2+ | 2009 12 15 | G96 | 0.5+ | 0.3+ |
| 2005 12 26 | G96 | 1.2− | 0.4− | 2006 01 21 | G96 | 0.4+ | 0.5+ | 2009 12 15 | G96 | 0.3+ | 0.3+ |
| 2006 01 04 | G96 | (0.1+ | 1.7+) | 2006 01 21 | G96 | 0.2+ | 0.2+ | 2009 12 18 | G96 | 0.7+ | 0.2− |
| 2006 01 04 | G96 | 0.1− | 0.1+ | 2006 02 06 | G96 | 0.0 | 0.4− | 2009 12 18 | G96 | 0.8+ | 0.0 |
| 2006 01 04 | G96 | 0.3+ | 0.2+ | 2006 02 06 | G96 | 0.6+ | 0.3− | 2009 12 18 | G96 | 0.4+ | 0.4+ |
| 2006 01 04 | G96 | 0.5− | 0.1− | 2006 02 06 | G96 | 0.2+ | 0.5− | 2009 12 18 | G96 | 0.6+ | 0.2+ |
| 2006 01 09 | 691 | 0.2− | 0.1− | 2006 02 06 | G96 | 0.7+ | 0.5− | 2009 12 25 | 691 | 0.0 | 0.1− |
| 2006 01 09 | 691 | 0.1+ | 0.6+ | 2009 11 21 | G96 | 0.1+ | 0.1− | 2009 12 25 | 691 | 0.4− | 0.0 |
| 2006 01 09 | 691 | 0.2+ | 0.2+ | 2009 11 21 | G96 | 0.0 | 0.2+ | 2009 12 25 | 691 | 0.7− | 0.6− |
| 2006 01 10 | G96 | 0.1+ | 0.2− | 2009 11 21 | G96 | 0.0 | 0.2+ | | | | |
| 2006 01 10 | G96 | 0.1+ | 0.3+ | 2009 11 21 | G96 | 0.7+ | 0.0 | | | | |

**2006 AZ$_{66}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 273.42528 | | (2000.0) | | | |
| $n$ | 0.18360877 | $\omega$ | 205.50059 | | −0.35108672 | −0.93213692 |
| $a$ | 3.0657761 | $\Omega$ | 265.15734 | | +0.87359465 | −0.29201197 |
| $e$ | 0.1092456 | $i$ | 5.10423 | | +0.33700224 | −0.21412559 |
| $P$ | 5.37 | $H$ | 16.1 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 02 22 | 645 | 0.0 | 0.0 | 2005 12 28 | 691 | 0.1+ | 0.3− | 2006 01 10 | G96 | 0.1− | 0.5− |
| 2001 02 22 | 645 | 0.0 | 0.1+ | 2005 12 28 | 691 | 0.3+ | 0.1+ | 2006 02 03 | G96 | 0.3− | 0.5− |
| 2005 10 11 | 691 | 0.1+ | 0.1− | 2005 12 28 | 691 | 0.0 | 0.0 | 2006 02 03 | G96 | 0.4− | 0.0 |
| 2005 10 11 | 691 | 0.2+ | 0.2+ | 2006 01 09 | 691 | 0.1+ | 0.1+ | 2006 02 03 | G96 | 0.6− | 0.5− |
| 2005 10 11 | 691 | 0.1− | 0.4+ | 2006 01 09 | 691 | 0.0 | 0.3+ | 2006 02 03 | G96 | 0.2− | 0.3− |
| 2005 11 03 | G96 | 0.4− | 0.6− | 2006 01 09 | 691 | 0.2+ | 0.2+ | 2009 08 18 | 691 | 0.2+ | 0.1− |
| 2005 11 03 | G96 | 0.3+ | 0.6− | 2006 01 10 | G96 | 0.4− | 0.4− | 2009 08 18 | 691 | 0.1+ | 0.0 |
| 2005 11 03 | G96 | 0.2− | 0.1− | 2006 01 10 | G96 | 0.3− | 0.2− | 2009 08 18 | 691 | 0.4− | 0.4+ |
| 2005 11 03 | G96 | 0.6− | 0.2− | 2006 01 10 | G96 | 0.3− | 0.3− | | | | |

**2006 AG$_{67}$ = 2009 WC$_{251}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 12.13274 | | (2000.0) | | | |
| $n$ | 0.22809259 | $\omega$ | 279.94474 | | +0.44441231 | −0.89380578 |
| $a$ | 2.6529472 | $\Omega$ | 143.47785 | | +0.85637236 | +0.40420346 |
| $e$ | 0.1738602 | $i$ | 5.79345 | | +0.26291459 | +0.19424415 |
| $P$ | 4.32 | $H$ | 17.2 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 28 | 691 | 0.1+ | 0.1+ | 2006 01 24 | 704 | 0.3− | 0.3+ | 2009 11 26 | G96 | 0.5+ | 0.2+ |
| 2005 12 28 | 691 | 0.1+ | 0.1− | 2006 01 24 | 704 | 0.1+ | 0.8+ | 2009 11 26 | G96 | 0.1+ | 0.2+ |
| 2005 12 28 | 691 | 0.1+ | 0.0 | 2006 01 24 | 704 | 0.4+ | 0.3+ | 2009 11 26 | G96 | 0.2+ | 0.0 |
| 2006 01 09 | 691 | 1.0− | 0.3− | 2006 02 04 | G96 | 0.2+ | 0.4− | 2009 11 26 | G96 | 0.3+ | 0.3+ |
| 2006 01 09 | 691 | 0.3+ | 0.2+ | 2006 02 04 | G96 | 0.4+ | 0.5− | 2009 12 11 | 703 | 1.0− | 0.7− |
| 2006 01 09 | 691 | 0.4+ | 0.4+ | 2006 02 04 | G96 | 0.0 | 0.5− | 2009 12 11 | 703 | 0.3− | 0.9− |
| 2006 01 10 | G96 | 0.2− | 0.3− | 2006 02 24 | G96 | 0.4− | 0.2+ | 2009 12 11 | 703 | 0.9+ | 1.3− |
| 2006 01 10 | G96 | 0.2+ | 0.5− | 2006 02 24 | G96 | 0.1+ | 0.1+ | 2009 12 11 | 703 | 0.0 | 0.0 |
| 2006 01 10 | G96 | 0.0 | 0.2− | 2006 02 24 | G96 | 0.1− | 0.1+ | 2009 12 19 | 291 | 0.1− | 0.0 |
| 2006 01 10 | G96 | 0.1− | 0.1− | 2006 02 24 | G96 | 0.9+ | 0.1− | 2009 12 19 | 291 | 0.0 | 0.2+ |
| 2006 01 24 | 704 | 0.7− | 0.3− | 2009 11 26 | G96 | 0.0 | 0.1− | 2009 12 19 | 291 | 0.1− | 0.5+ |

**2006 AF$_{78}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 230.57775 | | (2000.0) | | | |
| $n$ | 0.17649257 | $\omega$ | 324.74111 | | −0.94956780 | +0.31225598 |
| $a$ | 3.1476403 | $\Omega$ | 233.47918 | | −0.27890165 | −0.88275244 |
| $e$ | 0.2104367 | $i$ | 2.03852 | | −0.14329990 | −0.35106172 |
| $P$ | 5.58 | $H$ | 16.1 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 07 | 691 | 0.0 | 0.1+ | 2006 02 27 | G96 | 0.2− | 0.2− | 2006 03 24 | 699 | 0.7− | 0.7+ |
| 2005 12 07 | 691 | 0.3+ | 0.3− | 2006 02 27 | G96 | 0.3− | 0.1− | 2006 03 24 | 699 | 0.4+ | 0.3+ |
| 2005 12 07 | 691 | 0.0 | 0.3+ | 2006 02 27 | G96 | 0.2− | 0.3− | 2006 03 24 | 699 | 0.1− | 0.6+ |
| 2006 01 08 | G96 | 0.4− | 0.4− | 2006 02 27 | G96 | 0.1− | 0.0 | 2008 09 25 | G96 | 0.5+ | 0.2+ |
| 2006 01 08 | G96 | 0.9− | 0.4− | 2006 03 05 | 691 | 0.0 | 0.1− | 2008 09 25 | G96 | 0.2− | 0.7+ |
| 2006 01 08 | G96 | 0.4− | 0.3− | 2006 03 05 | 691 | 0.0 | 0.1− | 2008 09 25 | G96 | 0.6− | 0.0 |
| 2006 01 08 | G96 | 0.3− | 0.1− | 2006 03 05 | 691 | 0.1+ | 0.2− | 2008 09 25 | G96 | 0.1− | 0.1− |
| 2006 01 10 | G96 | 0.3− | 0.3+ | 2006 03 09 | 691 | 0.2+ | 0.2+ | 2009 11 08 | G96 | 0.4− | 0.0 |
| 2006 01 10 | G96 | 0.0 | 0.3+ | 2006 03 09 | 691 | 0.3+ | 0.1+ | 2009 11 08 | G96 | 0.0 | 0.0 |
| 2006 01 10 | G96 | 0.1− | 0.1+ | 2006 03 09 | 691 | 0.1+ | 0.1− | 2009 11 08 | G96 | 0.3− | 0.2+ |
| 2006 01 10 | G96 | 0.1− | 0.1− | 2006 03 24 | 699 | 0.7− | 0.7+ | 2009 11 08 | G96 | 0.6+ | 0.1+ |

**2006 AG$_{82}$ = 2009 XN$_{11}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 48.00998 | | (2000.0) | | | |
| $n$ | 0.23914659 | $\omega$ | 252.96463 | | +0.95334334 | −0.20986360 |
| $a$ | 2.5705532 | $\Omega$ | 118.68207 | | +0.26621192 | +0.92340909 |
| $e$ | 0.1856425 | $i$ | 14.32154 | | −0.14236460 | +0.32136106 |
| $P$ | 4.12 | $H$ | 16.2 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1993 12 17 | 691 | 0.3− | 0.3+ | 2006 01 03 | 704 | 0.1− | 0.1+ | 2009 11 23 | 703 | 1.4+ | 0.4− |
| 1993 12 17 | 691 | 0.0 | 0.2+ | 2006 01 03 | 704 | 0.6+ | 0.0 | 2009 11 23 | 703 | 0.7+ | 0.2+ |
| 1993 12 17 | 691 | 1.7− | 0.0 | 2006 01 05 | 683 | 1.2+ | 0.4− | 2009 12 10 | J75 | 0.8− | 0.3− |
| 1994 01 11 | 691 | 0.1− | 0.7− | 2006 01 05 | 683 | 1.4− | 0.4+ | 2009 12 10 | J75 | 0.0 | 0.4− |
| 1994 01 11 | 691 | 0.6+ | 0.3+ | 2006 01 09 | G96 | 0.2+ | 0.1+ | 2009 12 10 | J75 | 0.3− | 0.1− |
| 1994 01 11 | 691 | 1.1+ | 0.2− | 2006 01 09 | G96 | 1.0+ | 0.4− | 2009 12 15 | 703 | 0.6− | 0.0 |
| 1998 01 29 | 691 | 0.1− | 0.2+ | 2006 01 09 | G96 | 0.1+ | 0.3− | 2009 12 15 | 703 | 1.2− | 0.9− |
| 1998 01 29 | 691 | 0.3− | 0.1− | 2006 01 09 | G96 | 0.2+ | 0.3− | 2009 12 15 | 703 | 0.4− | 0.4− |
| 1998 01 29 | 691 | 0.2+ | 0.1+ | 2009 11 23 | 703 | 0.1− | 1.2+ | 2009 12 15 | 703 | 0.5− | 0.4− |
| 2006 01 03 | 704 | (0.1− | 1.9+) | 2009 11 23 | 703 | 1.0+ | 0.2+ | | | | |
| 2006 01 03 | 704 | 0.1− | 1.2+ | 2009 11 23 | 703 | 0.4− | 0.3+ | | | | |

**2006 AJ$_{85}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 324.53687 | | (2000.0) | | | |
| $n$ | 0.24002977 | $\omega$ | 243.37970 | | −0.92691288 | −0.07075234 |
| $a$ | 2.5642437 | $\Omega$ | 290.61429 | | +0.25935300 | −0.83057183 |
| $e$ | 0.2818372 | $i$ | 23.18855 | | −0.27123522 | −0.55239890 |
| $P$ | 4.11 | $H$ | 16.8 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 01 14 | 699 | 0.5+ | 0.6+ | 2006 01 25 | 644 | 0.0 | 0.1− | 2006 02 25 | 703 | 1.2− | 0.2− |
| 2002 01 14 | 699 | 0.3+ | 0.3+ | 2006 01 25 | 644 | 0.2+ | 0.0 | 2006 02 25 | 703 | 0.2− | 0.6+ |
| 2002 01 14 | 699 | 0.4+ | 1.0+ | 2006 01 25 | 644 | 0.1− | 0.3+ | 2007 06 20 | 691 | 0.3+ | 0.1+ |
| 2002 01 14 | 699 | 1.5+ | 0.0 | 2006 01 25 | 644 | 0.4+ | 0.3+ | 2007 06 20 | 691 | 0.3− | 0.0 |
| 2006 01 07 | 703 | 0.2+ | 0.7− | 2006 01 25 | 644 | 0.4+ | 0.3+ | 2007 06 20 | 691 | 0.5− | 0.5+ |
| 2006 01 07 | 703 | 0.8− | 1.0− | 2006 01 25 | 644 | 0.1− | 0.2+ | 2009 12 17 | G96 | 0.2− | 0.4− |
| 2006 01 07 | 703 | 0.7− | 0.4+ | 2006 01 25 | 644 | 0.2+ | 0.1+ | 2009 12 17 | G96 | 0.9+ | 0.6− |
| 2006 01 07 | 703 | 0.1− | 1.1− | 2006 01 28 | 703 | 1.0− | 0.1+ | 2009 12 17 | G96 | 0.3+ | 0.0 |
| 2006 01 21 | 644 | 0.2− | 0.2+ | 2006 01 28 | 703 | 0.1+ | 1.1− | 2009 12 17 | G96 | 0.1− | 0.0 |
| 2006 01 21 | 644 | 0.2+ | 0.3+ | 2006 01 28 | 703 | 0.4− | 0.4− | 2009 12 18 | 691 | 0.1+ | 0.5+ |
| 2006 01 21 | 644 | 0.0 | 0.5+ | 2006 01 28 | 703 | 0.3− | 0.2− | 2009 12 18 | 691 | 0.2+ | 0.0 |
| 2006 01 25 | 644 | 0.0 | 0.2+ | 2006 02 25 | 703 | 0.1− | 0.1− | 2009 12 18 | 691 | 0.1+ | 0.1+ |
| 2006 01 25 | 644 | 0.1+ | 0.2+ | 2006 02 25 | 703 | 0.4+ | 0.3+ | | | | |

**2006 AC$_{91}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 260.69603 | | (2000.0) | | | |
| $n$ | 0.17537587 | $\omega$ | 336.79209 | | −0.52450402 | −0.84850092 |
| $a$ | 3.1609878 | $\Omega$ | 144.72895 | | +0.79899324 | −0.51905599 |
| $e$ | 0.0903034 | $i$ | 6.99245 | | +0.29411790 | −0.10308765 |
| $P$ | 5.62 | $H$ | 15.6 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 01 06 | G96 | 0.1− | 0.6− | 2006 02 03 | 704 | 0.3− | 0.5+ | 2006 05 03 | G96 | 0.2− | 0.0 |
| 2006 01 06 | G96 | 0.1− | 1.1− | 2006 02 03 | 704 | 0.5+ | 0.1− | 2006 05 03 | G96 | 0.0 | 0.1− |
| 2006 01 06 | G96 | 0.0 | 0.6− | 2006 02 04 | 691 | 0.0 | 0.2+ | 2006 05 03 | G96 | 0.3− | 0.2− |
| 2006 01 06 | G96 | 1.2− | 0.4− | 2006 02 04 | 691 | 0.1− | 0.2+ | 2009 08 18 | 691 | 0.1+ | 0.1− |
| 2006 01 22 | G96 | 0.2+ | 0.1− | 2006 02 04 | 691 | 0.0 | 0.4+ | 2009 08 18 | 691 | 0.3+ | 0.4− |
| 2006 01 22 | G96 | 0.3+ | 0.1− | 2006 02 07 | G96 | 0.4+ | 0.2− | 2009 08 18 | 691 | 0.0 | 0.4+ |
| 2006 01 22 | G96 | 0.3+ | 0.0 | 2006 02 07 | G96 | 0.2− | 0.2− | 2009 08 29 | 691 | 0.5− | 0.1+ |
| 2006 01 22 | G96 | 0.2− | 0.1− | 2006 02 07 | G96 | 0.2− | 0.3− | 2009 08 29 | 691 | 0.2− | 0.0 |
| 2006 02 02 | 699 | 0.0 | 0.5+ | 2006 02 07 | G96 | 0.3− | 0.3− | 2009 08 29 | 691 | 0.2− | 0.2+ |
| 2006 02 02 | 699 | (2.1+ | 2.0+) | 2006 02 20 | 703 | 0.0 | 0.5− | 2009 09 20 | G96 | 0.5+ | 0.3− |
| 2006 02 02 | 699 | 0.2+ | 0.2+ | 2006 02 20 | 703 | 0.0 | 1.1− | 2009 09 20 | G96 | 0.5+ | 0.2− |
| 2006 02 02 | 699 | 1.0+ | 0.9+ | 2006 02 20 | 703 | 0.4+ | 0.2+ | 2009 09 20 | G96 | 0.2+ | 0.3− |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 02 03 | 704 | 0.5+ | 0.4+ | 2006 02 20 | 703 | 0.3− | 0.7+ | 2009 09 20 | G96 | 0.6+ | 0.2− | | |
| 2006 02 03 | 704 | 0.5− | 0.7− | 2006 05 03 | G96 | 0.1+ | 0.1− | | | | | | |

**2006 AB$_{105}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 236.84254 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18295217 | $\omega$ | 37.23546 | | −0.97824554 | +0.19243119 | |
| $a$ | 3.0731069 | $\Omega$ | 153.54367 | | −0.20588187 | −0.94641232 | |
| $e$ | 0.0564190 | $i$ | 10.01760 | | +0.02546217 | −0.25937223 | |
| $P$ | 5.39 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 02 04 | 691 | 0.2+ | 0.4− | 2006 01 26 | G96 | 0.6− | 0.1− | 2006 03 09 | G96 | 0.3− | 0.0 |
| 2005 02 04 | 691 | 0.2− | 0.2+ | 2006 01 26 | G96 | 0.3− | 0.3− | 2006 03 09 | G96 | 0.3− | 0.3− |
| 2005 02 04 | 691 | 0.0 | 0.3+ | 2006 02 27 | 691 | 0.0 | 0.1+ | 2006 03 09 | G96 | 0.3− | 0.2+ |
| 2006 01 07 | G96 | 0.1+ | 0.1+ | 2006 02 27 | 691 | 0.5+ | 0.2+ | 2006 03 09 | G96 | 0.8− | 0.0 |
| 2006 01 07 | G96 | 0.2+ | 0.3− | 2006 02 27 | 691 | 0.3+ | 0.1+ | 2009 10 24 | G96 | 0.1+ | 0.2+ |
| 2006 01 07 | G96 | 0.4+ | 0.3− | 2006 02 27 | G96 | 0.8− | 0.3+ | 2009 10 24 | G96 | 0.4+ | 0.2− |
| 2006 01 07 | G96 | 0.2− | 0.1+ | 2006 02 27 | G96 | 0.1+ | 0.9− | 2009 10 24 | G96 | 0.1− | 0.1+ |
| 2006 01 26 | G96 | 0.3− | 0.1+ | 2006 02 27 | G96 | 0.2− | 0.2− | 2009 10 24 | G96 | 0.4− | 0.2− |
| 2006 01 26 | G96 | 0.1+ | 0.2− | 2006 02 27 | G96 | 0.1+ | 0.2− | | | | |

**2006 BT$_{8}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 279.82156 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.20636699 | $\omega$ | 129.38750 | | −0.20227751 | −0.97731492 | |
| $a$ | 2.8360196 | $\Omega$ | 332.09160 | | +0.85224582 | −0.14409446 | |
| $e$ | 0.1758740 | $i$ | 7.70627 | | +0.48245298 | −0.15521706 | |
| $P$ | 4.78 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 02 20 | 691 | 0.2+ | 0.2− | 2005 11 21 | 703 | 0.1+ | 0.9− | 2006 01 25 | 461 | 0.2− | 0.2− |
| 2002 02 20 | 691 | 0.1+ | 0.0 | 2005 11 21 | 703 | 0.4+ | 0.2− | 2006 01 25 | 461 | 0.1+ | 0.0 |
| 2002 02 20 | 691 | 0.1+ | 0.2− | 2005 11 21 | 703 | 0.3− | 0.3− | 2006 01 25 | 461 | 0.1− | 0.0 |
| 2002 02 25 | 644 | 0.2− | 0.2− | 2005 11 21 | 703 | 0.5+ | 0.0 | 2007 03 16 | 691 | 0.1− | 0.0 |
| 2002 02 25 | 644 | 0.4− | 0.1− | 2006 01 19 | 461 | 0.1− | 0.3+ | 2007 03 16 | 691 | 0.2− | 0.2+ |
| 2002 02 25 | 644 | 0.3− | 0.4− | 2006 01 19 | 461 | 0.0 | 0.2+ | 2007 03 16 | 691 | 0.6+ | 0.2+ |
| 2002 04 04 | 644 | 0.3− | 0.5+ | 2006 01 19 | 461 | 0.2+ | 0.4+ | 2009 09 22 | G96 | 0.2+ | 0.0 |
| 2002 04 04 | 644 | 0.2− | 0.5+ | 2006 01 23 | 461 | 0.8− | 0.4+ | 2009 09 22 | G96 | 0.3− | 0.1+ |
| 2002 04 04 | 644 | 0.1+ | 0.5+ | 2006 01 23 | 461 | 0.2− | 0.3+ | 2009 09 22 | G96 | 0.0 | 0.0 |
| 2002 04 05 | 644 | 0.3+ | 0.4− | 2006 01 24 | 461 | 0.2− | 0.4+ | 2009 09 22 | G96 | 0.3− | 0.6+ |
| 2002 04 05 | 644 | 0.5− | 0.2+ | 2006 01 24 | 461 | 0.5+ | 0.4+ | | | | |
| 2002 04 05 | 644 | 0.4− | 0.1+ | 2006 01 24 | 461 | 0.4− | 0.4+ | | | | |

**2006 BQ$_{11}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 250.65412 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23784732 | $\omega$ | 112.43368 | | −0.61722073 | +0.76238865 | |
| $a$ | 2.5799060 | $\Omega$ | 117.97931 | | −0.77824980 | −0.55527549 | |
| $e$ | 0.1290536 | $i$ | 12.71847 | | −0.11561061 | −0.33231411 | |
| $P$ | 4.14 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 01 21 | 691 | 0.1− | 0.2− | 2006 01 27 | G96 | 0.2− | 0.6− | 2006 02 20 | 691 | 0.1+ | 0.0 |
| 2006 01 21 | 691 | 0.0 | 0.2− | 2006 01 27 | 699 | 0.6+ | 1.0− | 2006 02 20 | 691 | 0.3− | 0.2− |
| 2006 01 21 | 691 | 0.2+ | 1.6+ | 2006 01 27 | 699 | 0.0 | 0.0 | 2006 02 25 | 691 | 0.2+ | 0.2+ |
| 2006 01 24 | 704 | 0.1+ | 0.1+ | 2006 01 27 | 699 | 0.3+ | 0.2− | 2006 02 25 | 691 | 0.0 | 0.1+ |
| 2006 01 24 | 704 | 0.4+ | 0.5+ | 2006 01 27 | 699 | 0.3− | 0.5− | 2006 02 25 | 691 | 0.0 | 0.4+ |
| 2006 01 24 | 704 | 1.1− | 0.0 | 2006 02 06 | 691 | 0.2+ | 0.1+ | 2009 12 17 | G96 | 0.3+ | 0.3− |
| 2006 01 26 | G96 | 0.1+ | 0.5− | 2006 02 06 | 691 | 0.1− | 0.1− | 2009 12 17 | G96 | 0.0 | 0.3+ |
| 2006 01 26 | G96 | 0.4+ | 0.2− | 2006 02 06 | 691 | 0.4− | 0.2− | 2009 12 17 | G96 | 0.1− | 0.3+ |
| 2006 01 26 | G96 | 0.3+ | 0.1+ | 2006 02 07 | G96 | 0.1− | 0.7− | 2009 12 17 | G96 | 0.1+ | 0.1+ |
| 2006 01 26 | G96 | 0.2+ | 0.3− | 2006 02 07 | G96 | 0.1+ | 0.9− | 2009 12 17 | G96 | 0.4− | 0.2+ |
| 2006 01 27 | G96 | 0.6− | 0.6− | 2006 02 07 | G96 | 0.6− | 0.2− | 2009 12 18 | 691 | 0.2+ | 0.9− |
| 2006 01 27 | G96 | 0.1− | 0.5− | 2006 02 07 | G96 | 0.4− | 0.3− | 2009 12 18 | 691 | 0.0 | 0.6+ |
| 2006 01 27 | G96 | 0.1+ | 0.4− | 2006 02 20 | 691 | 0.2+ | 0.1+ | 2009 12 18 | 691 | 0.2− | 0.1+ |

**2006 BE$_{20}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 281.97058 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21186538 | $\omega$ | 215.74742 | | −0.97052927 | −0.21766602 | |
| $a$ | 2.7867375 | $\Omega$ | 311.33943 | | +0.24041578 | −0.84512478 | |
| $e$ | 0.2188124 | $i$ | 7.91689 | | +0.01652832 | −0.48824748 | |
| $P$ | 4.65 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 01 07 | G96 | 0.3− | 0.3− | 2006 01 27 | 699 | 1.2− | 0.2− | 2006 02 05 | G96 | 0.2+ | 0.4− |
| 2006 01 07 | G96 | 0.2+ | 0.6− | 2006 01 27 | 704 | 0.5− | 1.4+ | 2006 02 05 | G96 | 0.2− | 0.4− |
| 2006 01 07 | G96 | 0.1− | 0.7− | 2006 01 27 | 704 | 1.5− | 0.2+ | 2006 02 20 | 703 | 0.7− | 1.2− |
| 2006 01 07 | G96 | 0.1− | 0.5− | 2006 01 27 | 699 | 0.3− | 0.3+ | 2006 02 20 | 703 | 0.4+ | 1.1− |
| 2006 01 22 | 699 | 0.2+ | 0.4− | 2006 01 27 | 704 | 1.3− | 0.1+ | 2006 02 20 | 703 | 0.2− | 1.2− |
| 2006 01 22 | 699 | 0.5+ | 0.2− | 2006 01 27 | 699 | 0.5− | 1.2− | 2006 02 20 | 703 | 0.7− | 0.8− |
| 2006 01 22 | 699 | 0.3+ | 0.3− | 2006 01 27 | 699 | (2.6− | 0.1−) | 2006 02 21 | 699 | 0.5− | 0.3− |
| 2006 01 22 | G96 | 0.1+ | 0.3− | 2006 02 02 | 691 | 0.1− | 0.1+ | 2006 02 21 | 699 | 0.0 | 1.2+ |
| 2006 01 22 | G96 | 0.4+ | 0.1− | 2006 02 02 | 691 | 0.2− | 0.0 | 2006 02 21 | 699 | 0.3+ | 0.6+ |
| 2006 01 22 | G96 | 0.1− | 0.3− | 2006 02 02 | 691 | 0.2− | 0.1+ | 2006 02 21 | 699 | 0.2− | 0.7+ |
| 2006 01 22 | G96 | 0.0 | 0.2− | 2006 02 03 | 699 | (4.1− | 0.3+) | 2006 02 24 | G96 | 0.3− | 0.3− |
| 2006 01 24 | 691 | 0.5+ | 0.1− | 2006 02 03 | 699 | 0.6+ | 0.1− | 2006 02 24 | G96 | 0.2− | 0.3− |
| 2006 01 24 | 691 | 0.3+ | 0.1− | 2006 02 03 | 699 | 1.0+ | 0.4+ | 2006 02 24 | G96 | 0.3− | 0.1− |
| 2006 01 24 | 691 | 0.4+ | 0.2− | 2006 02 03 | 699 | 0.6+ | 0.3− | 2006 02 24 | G96 | 0.0 | 0.3− |
| 2006 01 24 | 704 | 0.3+ | 0.4+ | 2006 02 04 | 704 | 0.5+ | 0.7+ | 2008 09 05 | 691 | 0.1− | 0.1− |
| 2006 01 24 | 704 | 0.0 | 0.5+ | 2006 02 04 | 704 | 0.5+ | 1.0+ | 2008 09 05 | 691 | 0.0 | 0.0 |
| 2006 01 24 | 704 | 0.5+ | 0.2− | 2006 02 04 | 704 | 0.4+ | 1.0+ | 2008 09 05 | 691 | 0.2− | 0.5+ |
| 2006 01 24 | 704 | 0.3− | 0.7+ | 2006 02 04 | 704 | 0.3− | 0.7+ | 2008 09 26 | G96 | 0.1+ | 0.1− |
| 2006 01 24 | 704 | 0.6+ | 0.4+ | 2006 02 04 | 704 | 0.0 | 1.3+ | 2008 09 26 | G96 | 0.0 | 0.3− |
| 2006 01 27 | 704 | 0.3− | 0.9+ | 2006 02 05 | G96 | 0.1+ | 0.3− | 2008 09 26 | G96 | 0.5+ | 1.1− |
| 2006 01 27 | 704 | 0.3− | 1.2+ | 2006 02 05 | G96 | 0.1− | 0.4− | 2008 09 26 | G96 | 0.4+ | 0.2− |

**2006 BR$_{20}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 0.88093 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23071496 | $\omega$ | 137.38956 | | +0.04045462 | −0.99912400 | |
| $a$ | 2.6328061 | $\Omega$ | 310.28901 | | +0.91290928 | +0.04131557 | |
| $e$ | 0.1893141 | $i$ | 0.80431 | | +0.40615276 | +0.00665221 | |
| $P$ | 4.27 | $H$ | 17.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 01 07 | G96 | 0.5− | 0.2− | 2006 01 23 | G96 | 0.1+ | 0.2− | 2009 11 21 | 691 | 0.5+ | 0.1+ |
| 2006 01 07 | G96 | 0.6− | 0.5− | 2006 02 01 | G96 | 0.2+ | 0.3+ | 2009 12 09 | J75 | (0.4− | 1.6−) |
| 2006 01 07 | G96 | 0.9+ | 1.1− | 2006 02 01 | G96 | 0.3+ | 0.4+ | 2009 12 09 | J75 | 0.3− | 0.5− |
| 2006 01 07 | G96 | 0.6− | 0.3− | 2006 02 01 | G96 | 0.1− | 0.3+ | 2009 12 09 | J75 | (1.4+ | 1.7−) |
| 2006 01 22 | G96 | 0.5− | 0.3+ | 2006 02 01 | G96 | 0.1− | 0.4+ | 2009 12 10 | G96 | 0.4+ | 0.5− |
| 2006 01 22 | G96 | 0.5+ | 0.6+ | 2006 02 05 | G96 | 0.1+ | 0.2− | 2009 12 10 | G96 | 0.3+ | 0.1− |
| 2006 01 22 | G96 | 0.4− | 0.1− | 2006 02 05 | G96 | 0.4+ | 0.3− | 2009 12 10 | G96 | 0.5+ | 0.2− |
| 2006 01 22 | G96 | 0.2+ | 0.1+ | 2006 02 05 | G96 | 0.2+ | 0.1− | 2009 12 10 | G96 | 0.3+ | 0.3− |
| 2006 01 23 | G96 | 0.2− | 0.0 | 2006 02 05 | G96 | 0.2− | 0.0 | 2009 12 19 | G96 | 0.3+ | 0.1+ |
| 2006 01 23 | G96 | 0.5− | 0.2+ | 2006 03 05 | G96 | 0.3+ | 0.1+ | 2009 12 19 | G96 | 0.3+ | 0.1− |
| 2006 01 23 | G96 | 0.6+ | 0.0 | 2006 03 05 | G96 | 0.0 | 0.3+ | 2009 12 19 | G96 | 0.2+ | 0.1+ |
| 2006 01 23 | G96 | 0.1+ | 0.0 | 2006 03 05 | G96 | 0.2− | 0.3+ | 2009 12 19 | G96 | 0.4+ | 0.1− |
| 2006 01 23 | G96 | 0.1− | 0.3− | 2006 03 05 | G96 | 0.1+ | 0.3+ | 2009 12 25 | 291 | 0.1− | 0.0 |
| 2006 01 23 | G96 | 0.1+ | 0.1+ | 2009 11 21 | 691 | 0.8− | 0.8+ | 2009 12 25 | 291 | 0.2− | 0.2− |
| 2006 01 23 | G96 | 0.1− | 0.2− | 2009 11 21 | 691 | 0.1+ | 0.1− | 2009 12 25 | 291 | 0.1− | 0.1− |

**2006 BX$_{24}$ = 2009 UO$_{144}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 12.94539 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21425195 | $\omega$ | 103.32850 | | +0.77315280 | −0.62114229 | |
| $a$ | 2.7660044 | $\Omega$ | 295.22497 | | +0.51315862 | +0.73139242 | |
| $e$ | 0.1850432 | $i$ | 8.14247 | | +0.37269690 | +0.28150910 | |
| $P$ | 4.60 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 01 04 | G96 | 0.1+ | 0.1+ | 2006 02 04 | G96 | 0.1− | 0.1− | 2009 10 16 | 703 | 1.4− | 0.5+ |
| 2006 01 04 | G96 | 0.0 | 0.1− | 2006 02 04 | G96 | 0.2+ | 0.0 | 2009 10 26 | G96 | 0.2+ | 0.5− |
| 2006 01 04 | G96 | 0.2− | 0.1− | 2006 02 04 | G96 | 0.2+ | 0.2− | 2009 10 26 | G96 | 0.5+ | 0.7− |
| 2006 01 04 | G96 | 0.2+ | 0.1+ | 2006 02 04 | G96 | 0.3+ | 0.0 | 2009 10 26 | G96 | 0.1+ | 0.6− |
| 2006 01 23 | G96 | 0.5− | 0.2− | 2006 03 03 | G96 | 0.3+ | 0.2− | 2009 10 26 | G96 | 0.4+ | 0.5− |
| 2006 01 23 | G96 | 0.7− | 0.1− | 2006 03 03 | G96 | 0.1+ | 0.2+ | 2009 11 19 | 703 | 0.3− | 0.1+ |
| 2006 01 23 | G96 | 0.4− | 0.1− | 2006 03 03 | G96 | 0.1− | 0.0 | 2009 11 19 | 703 | 0.1− | 0.6+ |
| 2006 01 23 | G96 | 0.7− | 0.3− | 2006 03 03 | G96 | 0.2− | 0.2− | 2009 11 19 | 703 | 0.2+ | 0.6+ |
| 2006 01 24 | 691 | 0.3+ | 0.1+ | 2009 10 16 | 703 | 0.2+ | 0.5− | 2009 11 19 | 703 | 0.5+ | 0.2− |
| 2006 01 24 | 691 | 0.2+ | 0.3+ | 2009 10 16 | 703 | 0.0 | 0.8+ | | | | |
| 2006 01 24 | 691 | 0.1− | 0.1− | 2009 10 16 | 703 | 0.2− | 0.5+ | | | | |

**2006 BE$_{27}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 312.95135 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18421952 | $\omega$ | 321.08670 | | +0.19471259 | −0.97893524 | |
| $a$ | 3.0589963 | $\Omega$ | 117.60715 | | +0.91635385 | +0.15921566 | |
| $e$ | 0.1366342 | $i$ | 3.97464 | | +0.34983229 | +0.12781304 | |
| $P$ | 5.35 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 30 | 568 | 0.2− | 0.0 | 2006 01 31 | 691 | 0.1− | 0.2+ | 2006 03 04 | 691 | 0.1− | 0.0 |
| 2005 09 30 | 568 | 0.3− | 0.1− | 2006 01 31 | 691 | 0.0 | 0.0 | 2006 03 04 | 691 | 0.2− | 0.2− |
| 2005 09 30 | 568 | 0.3− | 0.0 | 2006 02 02 | G96 | 0.2− | 0.4− | 2006 03 08 | 691 | 0.2+ | 0.3− |
| 2005 10 07 | 568 | 0.0 | 0.1+ | 2006 02 02 | G96 | 0.6− | 0.4− | 2006 03 08 | 691 | 0.1− | 0.1+ |
| 2005 10 07 | 568 | 0.2− | 0.2+ | 2006 02 02 | G96 | 0.1− | 0.6− | 2006 03 08 | 691 | 0.2+ | 0.2− |
| 2005 10 07 | 568 | 0.0 | 0.1+ | 2006 02 02 | G96 | 0.1− | 0.4− | 2007 04 20 | 691 | 0.1+ | 0.2+ |
| 2006 01 20 | 691 | 0.1+ | 0.1− | 2006 02 04 | 691 | 0.0 | 0.0 | 2007 04 20 | 691 | 0.5+ | 0.4+ |
| 2006 01 20 | 691 | 0.5+ | 0.1+ | 2006 02 04 | 691 | 0.2+ | 0.0 | 2007 04 20 | 691 | 0.3− | 0.5+ |
| 2006 01 20 | 691 | 0.4+ | 0.5+ | 2006 02 04 | 691 | 0.2+ | 0.2− | 2009 08 29 | 691 | 0.2− | 0.4+ |
| 2006 01 25 | 691 | 0.3+ | 0.2+ | 2006 02 09 | 644 | 0.1+ | 0.1+ | 2009 08 29 | 691 | 0.2− | 0.5+ |
| 2006 01 25 | 691 | 0.7− | 0.9+ | 2006 02 09 | 644 | 0.2− | 0.2+ | 2009 08 29 | 691 | 0.3− | 0.4+ |
| 2006 01 25 | 691 | 0.2+ | 0.5+ | 2006 02 09 | 644 | 0.3− | 0.4+ | 2009 09 20 | G96 | 0.3+ | 0.2+ |
| 2006 01 27 | G96 | 0.0 | 0.4− | 2006 02 20 | 703 | 0.3+ | 0.2− | 2009 09 20 | G96 | 0.0 | 0.3+ |
| 2006 01 27 | G96 | 0.1+ | 0.4− | 2006 02 20 | 703 | (1.0− | 1.7+) | 2009 09 20 | G96 | 0.2− | 0.5+ |
| 2006 01 27 | G96 | 0.3− | 0.5− | 2006 02 20 | 703 | 0.3+ | 0.4+ | 2009 09 20 | G96 | 0.0 | 0.5+ |
| 2006 01 27 | G96 | 0.2− | 0.2− | 2006 02 20 | 703 | 1.0− | 0.8+ | | | | |
| 2006 01 31 | 691 | 0.1− | 0.3+ | 2006 03 04 | 691 | 0.1+ | 0.3− | | | | |

**2006 BD$_{34}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 296.13181 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18721102 | $\omega$ | 318.69744 | | −0.31873757 | −0.94637686 | |
| $a$ | 3.0263219 | $\Omega$ | 149.77882 | | +0.89480300 | −0.31877406 | |
| $e$ | 0.2033962 | $i$ | 6.00982 | | +0.31262431 | −0.05247793 | |
| $P$ | 5.26 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 25 | G96 | 0.5+ | 0.5− | 2006 02 07 | G96 | 0.4− | 0.4− | 2006 03 05 | 691 | 0.4+ | 0.0 |
| 2005 12 25 | G96 | 0.5− | 0.2− | 2006 02 07 | G96 | 0.4− | 0.4− | 2006 03 05 | 704 | 0.2+ | 0.7− |
| 2005 12 25 | G96 | 0.2− | 0.5− | 2006 02 07 | G96 | 0.6− | 0.4− | 2006 03 05 | 704 | 0.6+ | 0.3− |
| 2005 12 25 | G96 | 0.1− | 0.4− | 2006 02 07 | G96 | 0.2− | 0.3− | 2006 03 05 | 704 | 0.3+ | 0.2+ |
| 2006 01 21 | 691 | 0.1− | 0.1+ | 2006 02 20 | 691 | 0.0 | 0.4+ | 2006 03 05 | 704 | 0.2+ | 1.0− |
| 2006 01 21 | 691 | 0.1+ | 0.1− | 2006 02 20 | 691 | 0.0 | 0.3+ | 2006 03 08 | 691 | 0.0 | 0.0 |
| 2006 01 21 | 691 | 0.2+ | 0.2+ | 2006 02 20 | 691 | 0.2+ | 0.2+ | 2006 03 08 | 691 | 0.0 | 0.0 |
| 2006 01 25 | 691 | 0.0 | 0.1− | 2006 02 21 | 699 | 0.2+ | 0.2− | 2006 03 08 | 691 | 0.4− | 0.3− |
| 2006 01 25 | 691 | 0.0 | 0.2+ | 2006 02 21 | 699 | 0.3− | 0.3+ | 2006 03 09 | 691 | 0.1+ | 0.2− |
| 2006 01 25 | 691 | 0.2+ | 0.1+ | 2006 02 21 | 699 | 1.2+ | 0.2− | 2006 03 09 | 691 | 0.2− | 0.4− |
| 2006 01 26 | 291 | 0.1− | 0.2+ | 2006 02 21 | 699 | 0.9+ | 0.9+ | 2006 03 09 | 691 | 0.1+ | 0.3− |
| 2006 01 26 | 291 | 0.2− | 0.3+ | 2006 02 25 | G96 | 0.2− | 0.4− | 2009 08 16 | 691 | 0.8− | 0.1+ |
| 2006 01 26 | G96 | 0.2− | 0.3− | 2006 02 25 | G96 | 0.4− | 0.2− | 2009 08 16 | 691 | 0.2− | 0.0 |
| 2006 01 26 | 291 | 0.0 | 0.3+ | 2006 02 25 | G96 | 0.9− | 0.0 | 2009 08 16 | 691 | 0.3− | 0.4+ |
| 2006 01 26 | G96 | 0.2+ | 0.5− | 2006 02 27 | 704 | 0.3+ | 1.4+ | 2009 08 28 | 691 | 1.2+ | 0.1− |
| 2006 01 26 | G96 | 0.3− | 0.4− | 2006 02 27 | 704 | 0.1+ | 0.7+ | 2009 08 28 | 691 | 0.0 | 0.4+ |
| 2006 01 26 | G96 | 0.4− | 0.5− | 2006 02 27 | 704 | 0.3+ | 0.7+ | 2009 08 28 | 691 | 0.3− | 0.0 |
| 2006 01 31 | 691 | 0.0 | 0.0 | 2006 02 27 | 704 | 0.5+ | 0.2+ | 2009 09 19 | G96 | 0.6+ | 1.3− |
| 2006 01 31 | 691 | 0.1− | 0.2− | 2006 03 04 | 691 | 0.1− | 0.1+ | 2009 09 19 | G96 | 0.1− | 0.2+ |
| 2006 01 31 | 691 | 0.1− | 0.3− | 2006 03 04 | 691 | 0.2+ | 0.1+ | 2009 09 19 | G96 | 0.5+ | 0.1− |
| 2006 02 04 | 691 | 0.0 | 0.1+ | 2006 03 04 | 691 | 0.2− | 0.1+ | 2009 09 19 | G96 | 0.2− | 0.1− |
| 2006 02 04 | 691 | 0.1− | 0.0 | 2006 03 05 | 691 | 0.2+ | 0.3+ | | | | |
| 2006 02 04 | 691 | 0.0 | 0.1− | 2006 03 05 | 691 | 0.2+ | 0.2+ | | | | |

**2006 BT$_{38}$ = 2008 UH$_{307}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 142.24984 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.30402063 | $\omega$ | 258.46685 | | +0.92965304 | −0.35033863 | |
| $a$ | 2.1904534 | $\Omega$ | 121.94703 | | +0.36808672 | +0.86967077 | |
| $e$ | 0.1872252 | $i$ | 7.72457 | | +0.01604308 | +0.34775797 | |
| $P$ | 3.24 | $H$ | 17.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 01 24 | 691 | 0.2+ | 0.1+ | 2008 09 29 | 703 | 0.8− | 0.6− | 2008 11 03 | 703 | 0.7− | 0.8− |
| 2006 01 24 | 691 | 0.4+ | 0.3− | 2008 09 29 | 703 | 0.5+ | 0.3+ | 2008 11 03 | 703 | 0.9− | 0.2− |
| 2006 01 24 | 691 | 0.2− | 0.1− | 2008 10 08 | 703 | 0.7+ | 0.8+ | 2008 11 03 | 703 | 0.0 | 1.4− |
| 2006 01 25 | 691 | 0.1+ | 0.3+ | 2008 10 08 | 703 | (2.9+ | 0.6+) | 2008 11 17 | 703 | (1.7+ | 1.2−) |
| 2006 01 25 | 691 | 0.3− | 0.2+ | 2008 10 08 | 703 | (1.1+ | 2.5+) | 2008 11 17 | 703 | 0.8− | 0.7− |
| 2006 01 25 | 691 | 0.3− | 0.1− | 2008 10 08 | 703 | 0.4+ | 0.7+ | 2008 11 17 | 703 | 0.5+ | 0.7− |
| 2006 01 30 | 691 | 0.2+ | 0.1− | 2008 10 30 | 703 | 0.4+ | 0.1− | 2008 11 17 | 703 | (0.8+ | 1.6+) |
| 2006 01 30 | 691 | 0.0 | 0.1− | 2008 10 30 | 703 | 0.5+ | 0.1− | 2008 12 01 | 703 | 0.0 | 0.6+ |
| 2006 01 30 | 691 | 0.1− | 0.0 | 2008 10 30 | 703 | 1.2+ | 0.2− | 2008 12 01 | 703 | 0.3− | 0.8+ |
| 2008 09 29 | 703 | 0.7− | 0.7+ | 2008 10 30 | 703 | 0.1+ | 0.3− | 2008 12 01 | 703 | 0.5+ | 0.9+ |
| 2008 09 29 | 703 | 0.6+ | 0.9+ | 2008 11 03 | 703 | 0.5− | 0.8− | 2008 12 01 | 703 | 0.8− | 0.6+ |

**2006 BM$_{40}$ = 2009 WT$_{215}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 336.93622 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21102293 | $\omega$ | 131.00937 | | −0.21485296 | −0.97483853 | |
| $a$ | 2.7941494 | $\Omega$ | 331.23468 | | +0.85492229 | −0.15832363 | |
| $e$ | 0.1976117 | $i$ | 7.09009 | | +0.47217166 | −0.15691866 | |
| $P$ | 4.67 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 01 21 | 691 | 0.3+ | 0.1+ | 2006 02 07 | 691 | 0.2+ | 0.1+ | 2006 03 02 | G96 | 0.1− | 0.4+ |
| 2006 01 21 | 691 | 0.1− | 0.1− | 2006 02 07 | 691 | 0.3− | 0.1− | 2009 10 27 | G96 | 0.2+ | 0.2− |
| 2006 01 21 | 691 | 0.5− | 0.1− | 2006 02 07 | 691 | 0.0 | 0.2− | 2009 10 27 | G96 | 0.1− | 0.3− |
| 2006 01 26 | 691 | 0.0 | 0.1+ | 2006 02 23 | G96 | 0.3+ | 0.1+ | 2009 10 27 | G96 | 0.0 | 0.3− |
| 2006 01 26 | G96 | 0.5− | 0.3+ | 2006 02 23 | G96 | 0.2− | 0.0 | 2009 10 27 | G96 | 0.4+ | 0.1+ |
| 2006 01 26 | G96 | 0.0 | 0.2− | 2006 02 23 | G96 | 0.2− | 0.5− | 2009 11 19 | 703 | 0.0 | 0.9− |
| 2006 01 26 | G96 | 0.6+ | 0.2− | 2006 02 23 | G96 | 0.3+ | 0.8+ | 2009 11 19 | 703 | 0.4− | 0.7− |
| 2006 01 26 | 691 | 0.3+ | 0.2+ | 2006 02 27 | G96 | 0.0 | 0.2− | 2009 11 19 | 703 | 0.2− | 0.2+ |
| 2006 01 26 | G96 | 0.5+ | 0.0 | 2006 02 27 | G96 | 0.1+ | 0.1− | 2009 11 19 | 703 | 0.1+ | 1.0+ |
| 2006 01 26 | 691 | 0.0 | 0.1− | 2006 02 27 | G96 | 0.1+ | 0.0 | 2009 11 26 | 703 | 0.4+ | 0.1− |
| 2006 02 06 | G96 | 0.3− | 0.3− | 2006 02 27 | G96 | 0.2+ | 0.0 | 2009 11 26 | 703 | 0.6− | 0.2− |
| 2006 02 06 | G96 | 0.1− | 0.4− | 2006 03 02 | G96 | 0.1+ | 0.1+ | 2009 11 26 | 703 | 0.4+ | 1.4+ |
| 2006 02 06 | G96 | 0.3− | 0.3− | 2006 03 02 | G96 | 0.3+ | 0.2+ | 2009 11 26 | 703 | 0.2− | 0.0 |
| 2006 02 06 | G96 | 0.1− | 0.2+ | 2006 03 02 | G96 | 0.2− | 0.1+ | | | | |

**2006 BP$_{44}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 273.43641 | | (2000.0) | | | |
| $n$ | 0.18271971 | $\omega$ | 342.99203 | | −0.80248760 | −0.59444823 |
| $a$ | 3.0757128 | $\Omega$ | 160.26576 | | +0.56362643 | −0.78351163 |
| $e$ | 0.2153266 | $i$ | 8.76090 | | +0.19580321 | −0.18094427 |
| $P$ | 5.39 | $H$ | 16.6 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 09 19 | 645 | 0.0 | 0.0 | 2006 01 26 | G96 | 0.4− | 0.4− | 2006 02 27 | 691 | 0.2+ | 0.2+ |
| 1998 09 19 | 645 | 0.1− | 0.2+ | 2006 01 26 | G96 | 0.1+ | 0.5− | 2006 02 27 | 691 | 0.3+ | 0.1+ |
| 2005 12 07 | 691 | 0.0 | 0.4+ | 2006 01 26 | G96 | 0.5− | 0.7− | 2006 03 03 | G96 | 0.2− | 0.1− |
| 2005 12 07 | 691 | 0.3− | 0.2− | 2006 02 20 | 691 | 0.0 | 0.0 | 2006 03 03 | G96 | 0.4− | 0.3+ |
| 2005 12 07 | 691 | 0.3+ | 0.2− | 2006 02 20 | 691 | 0.1+ | 0.5+ | 2006 03 03 | G96 | 0.7− | 0.1− |
| 2006 01 23 | G96 | 0.1+ | 0.0 | 2006 02 20 | 691 | 0.1− | 0.3+ | 2006 03 03 | G96 | 0.0 | 0.1− |
| 2006 01 23 | G96 | 0.6− | 0.1+ | 2006 02 24 | 691 | 0.0 | 0.2− | 2009 09 28 | G96 | 0.7+ | 1.4− |
| 2006 01 23 | G96 | 0.2− | 0.3+ | 2006 02 24 | 691 | 0.0 | 0.0 | 2009 09 28 | G96 | 0.3+ | 0.2− |
| 2006 01 23 | G96 | 0.7+ | 0.5+ | 2006 02 24 | 691 | 0.0 | 0.3− | 2009 09 28 | G96 | 0.3− | 0.1− |
| 2006 01 26 | G96 | 0.3− | 0.4− | 2006 02 27 | 691 | 0.2+ | 0.1− | 2009 09 28 | G96 | 0.1− | 0.5− |

**2006 BZ$_{61}$ = 2009 XQ$_{8}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 5.43655 | | (2000.0) | | | |
| $n$ | 0.23254149 | $\omega$ | 1.33237 | | +0.11646393 | −0.99226515 |
| $a$ | 2.6190015 | $\Omega$ | 81.98081 | | +0.91083673 | +0.08945837 |
| $e$ | 0.2314526 | $i$ | 2.48683 | | +0.39599570 | +0.08606439 |
| $P$ | 4.24 | $H$ | 17.2 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 02 20 | 291 | 0.1+ | 0.1− | 2006 01 26 | 703 | 0.6− | 0.2+ | 2009 12 10 | H10 | 0.4− | 0.0 |
| 2002 02 20 | 291 | 0.2+ | 0.2− | 2006 01 26 | 703 | 0.3+ | 0.9− | 2009 12 10 | H10 | 0.1− | 0.5− |
| 2002 02 20 | 291 | 0.0 | 0.1− | 2006 01 26 | 703 | 0.6+ | 0.2− | 2009 12 10 | H10 | 0.6− | 0.8+ |
| 2002 03 09 | 691 | 0.3− | 0.0 | 2006 01 26 | 703 | (1.6− | 0.9−) | 2009 12 10 | 114 | 0.7+ | 0.0 |
| 2002 03 09 | 691 | 0.2− | 0.1+ | 2006 01 31 | 691 | 0.1+ | 0.1+ | 2009 12 10 | 114 | 0.6+ | 0.2− |
| 2002 03 09 | 691 | 0.2+ | 0.1+ | 2006 01 31 | 691 | 0.1− | 0.1+ | 2009 12 10 | 114 | 0.1+ | 0.0 |
| 2005 11 06 | G96 | 0.3− | 0.2+ | 2006 01 31 | 691 | 0.0 | 0.1+ | 2009 12 10 | 114 | 0.2+ | 0.0 |
| 2005 11 06 | G96 | 0.4+ | 0.3− | 2006 02 04 | 704 | 1.0+ | 0.0 | 2009 12 10 | 114 | 0.2+ | 0.1− |
| 2005 11 06 | G96 | 0.0 | 0.5− | 2006 02 04 | 704 | (2.3+ | 2.1−) | 2009 12 12 | H10 | 0.0 | 0.1+ |
| 2005 11 06 | G96 | 0.3− | 0.6+ | 2006 02 04 | 691 | 0.1− | 0.3+ | 2009 12 12 | H10 | 0.8+ | 0.2+ |
| 2005 12 05 | G96 | 0.1− | 0.1− | 2006 02 04 | 704 | 0.5+ | 0.5+ | 2009 12 12 | H10 | 0.4+ | 0.2− |
| 2005 12 05 | G96 | 0.0 | 0.2− | 2006 02 04 | 691 | 0.2− | 0.2+ | 2009 12 14 | H10 | 0.4− | 0.1− |
| 2005 12 05 | G96 | 0.2+ | 0.2− | 2006 02 04 | 704 | 0.3+ | 0.0 | 2009 12 14 | H10 | 0.5+ | 0.4− |
| 2005 12 05 | G96 | 0.5+ | 0.1− | 2006 02 04 | 704 | 0.3− | 0.6− | 2009 12 16 | H10 | 0.6− | 0.6− |
| 2006 01 22 | 699 | 0.4+ | 0.9− | 2006 02 04 | 691 | 0.2− | 0.2+ | 2009 12 16 | H10 | 0.3− | 0.3+ |
| 2006 01 22 | 699 | (2.1+ | 0.9+) | 2009 11 21 | 691 | 0.0 | 0.2+ | 2009 12 16 | H10 | 0.3− | 0.2− |
| 2006 01 22 | 699 | 0.7− | 1.0− | 2009 11 21 | 691 | 0.1− | 0.0 | 2009 12 16 | H10 | 0.0 | 0.8− |
| 2006 01 22 | 699 | (1.9+ | 2.1+) | 2009 11 21 | 691 | 0.0 | 0.0 | 2009 12 16 | H10 | 0.3− | 0.8+ |

**2006 BB$_{75}$ = 2009 WG$_{252}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 263.52419 | | (2000.0) | | | |
| $n$ | 0.21578884 | $\omega$ | 143.97275 | | −0.99825632 | +0.04823253 |
| $a$ | 2.7528553 | $\Omega$ | 38.83470 | | −0.05825336 | −0.89807225 |
| $e$ | 0.0192812 | $i$ | 3.11070 | | +0.00953189 | −0.43719543 |
| $P$ | 4.57 | $H$ | 16.8 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 09 | 691 | 0.3− | 0.0 | 2006 01 27 | 691 | 0.1+ | 0.1− | 2009 11 25 | 691 | 0.1− | 0.0 |
| 2004 10 09 | 691 | 0.4+ | 0.0 | 2006 01 31 | 691 | 0.1+ | 0.2+ | 2009 11 25 | 691 | 0.2+ | 0.0 |
| 2004 10 09 | 691 | 0.1− | 0.0 | 2006 01 31 | 691 | 0.2+ | 0.1+ | 2009 12 11 | G96 | 0.1+ | 0.5− |
| 2006 01 23 | 691 | 0.2+ | 0.0 | 2006 01 31 | 691 | 0.0 | 0.1− | 2009 12 11 | G96 | 0.3+ | 0.2+ |
| 2006 01 23 | 691 | 0.1+ | 0.6− | 2006 02 04 | 691 | 0.5− | 0.5+ | 2009 12 11 | G96 | 0.3+ | 0.3+ |
| 2006 01 23 | 691 | 0.3+ | 0.5− | 2006 02 04 | 691 | 0.2− | 0.0 | 2009 12 11 | G96 | 0.4− | 0.2+ |
| 2006 01 27 | 691 | 0.0 | 0.2+ | 2006 02 04 | 691 | 0.1− | 0.1− | | | | |
| 2006 01 27 | 691 | 0.2− | 0.3+ | 2009 11 25 | 691 | 0.2− | 0.1+ | | | | |

**2006 BQ$_{75}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 334.52593 | | (2000.0) | | | |
| $n$ | 0.23428037 | $\omega$ | 45.81385 | | −0.73128621 | −0.67919773 |
| $a$ | 2.6060263 | $\Omega$ | 91.29855 | | +0.60659034 | −0.68954449 |
| $e$ | 0.1574019 | $i$ | 3.58639 | | +0.31187920 | −0.25143357 |
| $P$ | 4.21 | $H$ | 17.5 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 03 11 | 644 | 0.1− | 0.7+ | 2006 01 27 | 691 | 0.1+ | 0.4+ | 2009 12 16 | 691 | 0.0 | 0.1− |
| 2002 03 11 | 644 | 0.2+ | 0.2− | 2006 01 27 | 691 | 0.1− | 0.2+ | 2009 12 16 | 691 | 0.1− | 0.1+ |
| 2002 03 11 | 644 | 0.2+ | 0.1+ | 2006 01 31 | 691 | 0.2− | 0.1− | 2009 12 16 | 691 | 0.1+ | 0.4+ |
| 2006 01 23 | 691 | 0.0 | 0.1+ | 2006 01 31 | 691 | 0.0 | 0.1− | 2009 12 16 | G96 | 0.4+ | 0.4+ |
| 2006 01 23 | 691 | 0.3− | 0.3− | 2006 01 31 | 691 | 0.3+ | 0.0 | 2009 12 16 | G96 | 0.2+ | 0.2− |
| 2006 01 23 | 691 | 0.1+ | 0.0 | 2006 02 04 | 691 | 0.0 | 0.4− | 2009 12 16 | G96 | 0.1− | 0.1− |
| 2006 01 26 | 703 | 0.7+ | 0.4+ | 2006 02 04 | 691 | 0.1− | 0.1− | 2009 12 16 | G96 | 0.2+ | 0.2− |
| 2006 01 26 | 703 | 1.0− | 0.5+ | 2006 02 04 | 691 | 0.1− | 0.1− | 2009 12 16 | G96 | 0.4+ | 0.4− |
| 2006 01 26 | 703 | (1.9− | 0.3−) | 2006 03 03 | 291 | 0.2− | 0.1+ | 2009 12 20 | 691 | 0.1− | 0.1− |
| 2006 01 26 | 703 | (1.6− | 0.4−) | 2006 03 03 | 291 | 0.0 | 0.2+ | 2009 12 20 | 691 | 0.1− | 0.1− |
| 2006 01 27 | 691 | 0.0 | 0.1+ | 2006 03 03 | 291 | 0.3+ | 0.1− | 2009 12 20 | 691 | 0.2− | 0.1+ |

**2006 BE$_{82}$ = 2009 VT$_{103}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 26.23046 | | (2000.0) | | | |
| $n$ | 0.22823945 | $\omega$ | 13.28600 | | +0.14519553 | −0.98793997 |
| $a$ | 2.6518090 | $\Omega$ | 68.38612 | | +0.90238893 | +0.10993832 |
| $e$ | 0.1188724 | $i$ | 3.31660 | | +0.40572463 | +0.10903292 |
| $P$ | 4.32 | $H$ | 16.3 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 01 23 | 691 | 0.4+ | 0.2− | 2006 02 21 | 703 | 0.9− | 0.2− | 2009 11 21 | G96 | 0.2+ | 0.0 |
| 2006 01 23 | 691 | 1.1− | 0.5+ | 2006 02 21 | 703 | 1.2− | 0.5− | 2009 11 21 | G96 | 0.2− | 0.1− |
| 2006 01 23 | 691 | 0.2+ | 0.5− | 2006 02 21 | 703 | 0.2− | 0.8− | 2009 11 21 | G96 | 0.3− | 0.0 |
| 2006 01 28 | 691 | 0.2+ | 0.1+ | 2006 03 04 | 691 | 0.1− | 0.1+ | 2009 12 17 | G96 | 0.0 | 0.1− |
| 2006 01 28 | 691 | 0.0 | 0.2+ | 2006 03 04 | 691 | 0.1+ | 0.3+ | 2009 12 17 | G96 | 0.0 | 0.1+ |
| 2006 01 28 | 691 | 0.1+ | 0.2− | 2006 03 04 | 691 | 0.1+ | 0.2+ | 2009 12 17 | G96 | 0.2+ | 0.1− |
| 2006 02 01 | 691 | 0.3+ | 0.1+ | 2006 03 08 | 691 | 0.1+ | 0.3+ | 2009 12 17 | G96 | 0.2+ | 0.2− |
| 2006 02 01 | 691 | 0.0 | 0.1− | 2006 03 08 | 691 | 0.4+ | 0.0 | 2009 12 18 | 691 | 0.0 | 0.0 |
| 2006 02 01 | 691 | 0.3+ | 0.1− | 2006 03 08 | 691 | 0.0 | 0.3− | 2009 12 18 | 691 | 0.0 | 0.2+ |
| 2006 02 06 | 703 | (2.5+ | 0.1−) | 2009 11 11 | G96 | 0.4− | 0.2− | 2009 12 18 | 691 | 0.1− | 0.1− |
| 2006 02 06 | 703 | 0.4− | 0.2+ | 2009 11 11 | G96 | 0.2+ | 0.1− | 2009 12 26 | 691 | 0.2− | 0.1− |
| 2006 02 06 | 703 | 0.8+ | 0.1− | 2009 11 11 | G96 | 0.2+ | 0.1− | 2009 12 26 | 691 | 0.0 | 0.0 |
| 2006 02 06 | 703 | 0.7− | 1.2− | 2009 11 11 | G96 | 0.3+ | 0.3+ | 2009 12 26 | 691 | 0.2+ | 0.1+ |
| 2006 02 21 | 703 | 1.3− | 0.0 | 2009 11 21 | G96 | 0.2− | 0.0 | | | | |

**2006 BF$_{82}$ = 2009 TL$_{44}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 10.01550 | | (2000.0) | | | |
| $n$ | 0.18789163 | $\omega$ | 49.82913 | | +0.71387787 | −0.70009387 |
| $a$ | 3.0190091 | $\Omega$ | 354.53784 | | +0.58179313 | +0.60543903 |
| $e$ | 0.0924281 | $i$ | 9.50274 | | +0.38973728 | +0.37856591 |
| $P$ | 5.25 | $H$ | 15.7 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 01 | 644 | 0.1− | 0.3+ | 2006 03 03 | 699 | (0.2− | 1.8−) | 2009 10 14 | 703 | (1.8− | 1.8+) |
| 2004 12 01 | 644 | 0.2− | 0.0 | 2006 03 03 | 699 | 0.6+ | 0.5+ | 2009 10 14 | 703 | 1.1− | 0.9+ |
| 2004 12 01 | 644 | 0.2+ | 0.4+ | 2006 03 03 | 699 | 1.0− | 0.4− | 2009 10 14 | 703 | 0.2− | 0.5+ |
| 2006 01 23 | 691 | 0.1− | 0.0 | 2006 03 04 | 691 | 0.3− | 0.3+ | 2009 10 14 | 703 | 0.8− | 0.2+ |
| 2006 01 23 | 691 | 0.1+ | 0.4− | 2006 03 04 | 691 | 0.1− | 0.1+ | 2009 10 27 | G96 | 0.1− | 0.1− |
| 2006 01 23 | 691 | 0.1+ | 0.0 | 2006 03 04 | 691 | 0.3− | 0.2+ | 2009 10 27 | G96 | 0.3+ | 0.1− |
| 2006 01 28 | 691 | 0.1+ | 0.1− | 2006 03 04 | G96 | 0.4− | 0.1− | 2009 10 27 | G96 | 0.3+ | 0.1− |
| 2006 01 28 | 691 | 0.1− | 0.1+ | 2006 03 04 | G96 | 0.1− | 0.2− | 2009 10 27 | G96 | 0.0 | 0.0 |
| 2006 01 28 | 691 | 0.4+ | 0.0 | 2006 03 04 | G96 | 0.2− | 0.1− | 2009 11 08 | 703 | 0.0 | 0.7− |
| 2006 02 01 | 691 | 0.1+ | 0.2− | 2006 03 04 | G96 | 0.4− | 0.2+ | 2009 11 08 | 703 | 0.1− | 0.2− |
| 2006 02 01 | 691 | 0.1+ | 0.1+ | 2006 03 04 | G96 | 0.5− | 0.1+ | 2009 11 08 | 703 | 0.3+ | 0.3− |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 02 01 | 691 | 0.2+ | 0.0 | 2006 03 04 | G96 | 0.1− | 0.2+ | 2009 11 08 | 703 | 0.6+ | 0.7+ |
| 2006 03 02 | 691 | 0.2+ | 0.1+ | 2006 03 04 | G96 | 0.8− | 0.0 | 2009 11 25 | 703 | 0.4+ | 0.9− |
| 2006 03 02 | 691 | 0.2− | 0.1− | 2006 03 08 | 691 | 0.1+ | 0.0 | 2009 11 25 | 703 | 0.4− | 0.3− |
| 2006 03 02 | 691 | 0.0 | 0.1+ | 2006 03 08 | 691 | 0.1− | 0.1+ | 2009 11 25 | 703 | 0.7+ | 0.2− |
| 2006 03 03 | 699 | 0.0 | 0.8− | 2006 03 08 | 691 | 0.5+ | 0.0 | 2009 11 25 | 703 | 0.1+ | 0.2+ |

**2006 BB$_{92}$ = 2009 WF$_{157}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 301.27344 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.21586538 | $\omega$ | 24.55031 | | | −0.70403146 | | −0.70274382 | |
| $a$ | 2.7522046 | $\Omega$ | 110.38950 | | | +0.63217469 | | −0.68587094 | |
| $e$ | 0.0303831 | $i$ | 6.27329 | | | +0.32356587 | | −0.18902955 | |
| $P$ | 4.57 | $H$ | 16.0 | $G$ | 0.15 | | $U$ | 1 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 04 13 | 644 | 0.0 | 0.5+ | 2006 02 02 | 703 | 1.0− | 0.2+ | 2009 11 20 | G96 | 0.2+ | 0.3+ |
| 2002 04 13 | 644 | 0.3+ | 0.4+ | 2006 02 02 | 703 | 1.1− | 0.5− | 2009 11 20 | G96 | 0.6+ | 0.4+ |
| 2002 04 13 | 644 | 0.3+ | 0.3+ | 2006 02 02 | 703 | 0.9− | 1.0+ | 2009 11 25 | G96 | 0.2+ | 0.0 |
| 2005 10 29 | G96 | 0.2+ | 0.4− | 2006 02 07 | G96 | 0.1+ | 0.4− | 2009 11 25 | G96 | 0.0 | 0.2− |
| 2005 10 29 | G96 | 0.6− | 0.1− | 2006 02 07 | G96 | 0.4+ | 0.2− | 2009 11 25 | G96 | 0.3+ | 0.1+ |
| 2005 10 29 | G96 | 0.0 | 0.2− | 2006 02 07 | G96 | 0.1− | 0.9− | 2009 11 25 | G96 | 0.1+ | 0.2+ |
| 2005 10 29 | G96 | 0.6+ | 0.6− | 2006 02 07 | G96 | 0.3+ | 0.4− | 2009 12 11 | 703 | 0.9− | 1.5− |
| 2006 01 26 | G96 | 0.7+ | 0.1+ | 2007 04 20 | 691 | 0.0 | 0.1+ | 2009 12 11 | 703 | (0.5+ | 2.0−) |
| 2006 01 26 | G96 | 0.3+ | 0.0 | 2007 04 20 | 691 | 0.0 | 0.1− | 2009 12 11 | 703 | 0.5+ | 0.3− |
| 2006 01 26 | G96 | 0.2+ | 0.1− | 2007 04 20 | 691 | 0.1− | 0.2− | 2009 12 11 | 703 | 0.3− | 1.4− |
| 2006 01 26 | G96 | 0.3+ | 0.2− | 2007 04 24 | 691 | 0.0 | 0.1− | 2009 12 11 | 703 | 0.3+ | 0.2+ |
| 2006 01 27 | 704 | 0.1− | 0.9+ | 2007 04 24 | 691 | 0.1− | 0.3− | 2009 12 11 | 703 | 0.2+ | 0.0 |
| 2006 01 27 | 704 | (0.2+ | 1.5+) | 2007 04 24 | 691 | 0.0 | 0.2− | 2009 12 11 | 703 | (1.6− | 0.6−) |
| 2006 01 27 | 704 | 0.8− | 0.6+ | 2009 11 20 | G96 | 0.5+ | 0.1+ | 2009 12 11 | 703 | 1.3− | 0.8− |
| 2006 02 02 | 703 | 1.3+ | 0.7+ | 2009 11 20 | G96 | 0.4+ | 0.4+ | | | | |

**2006 BA$_{94}$ = 2006 BG$_{97}$**

Id. Minor Planet Center (d, *MPO* 102380)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 27.60156 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.22166000 | $\omega$ | 123.03117 | | | +0.25241135 | | −0.96647038 | |
| $a$ | 2.7040278 | $\Omega$ | 312.27391 | | | +0.86516756 | | +0.24724133 | |
| $e$ | 0.0533495 | $i$ | 3.65378 | | | +0.43332852 | | +0.06933057 | |
| $P$ | 4.45 | $H$ | 17.1 | $G$ | 0.15 | | $U$ | 2 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 01 26 | 691 | 0.0 | 0.1− | 2006 02 07 | G96 | 0.6− | 0.3− | 2008 09 07 | G96 | 0.1− | 0.1+ |
| 2006 01 26 | 691 | 0.3+ | 0.3− | 2006 02 07 | G96 | 0.2− | 0.3− | 2008 10 01 | G96 | 0.2− | 0.1− |
| 2006 01 26 | 691 | 0.2+ | 0.1+ | 2006 02 25 | 691 | 0.1+ | 0.1− | 2008 10 01 | G96 | 0.2− | 0.3+ |
| 2006 01 26 | 291 | 0.0 | 0.2+ | 2006 02 25 | 691 | 0.4− | 0.1+ | 2008 10 01 | G96 | 0.3+ | 0.3+ |
| 2006 01 26 | 291 | 0.1+ | 0.1+ | 2006 02 25 | 691 | 0.2− | 0.1− | 2008 10 01 | G96 | 0.3− | 0.3+ |
| 2006 01 26 | 291 | 0.2+ | 0.4+ | 2006 03 03 | G96 | 0.3− | 0.4− | 2009 12 18 | G96 | 0.2+ | 0.1+ |
| 2006 01 28 | G96 | 0.4+ | 0.3− | 2006 03 03 | G96 | 0.6− | 0.2− | 2009 12 18 | G96 | 0.1+ | 0.0 |
| 2006 01 28 | G96 | 0.4− | 0.6− | 2006 03 03 | G96 | 0.3− | 0.3+ | 2009 12 18 | G96 | 0.0 | 0.1− |
| 2006 01 28 | G96 | 0.1− | 0.3− | 2006 03 03 | G96 | 0.3+ | 0.5+ | 2009 12 18 | G96 | 0.1− | 0.2− |
| 2006 01 28 | G96 | 0.2+ | 0.0 | 2006 03 05 | 691 | 0.0 | 0.0 | 2009 12 19 | 691 | 0.1− | 0.1+ |
| 2006 01 30 | 691 | 0.5+ | 0.1− | 2006 03 05 | 691 | 0.1− | 0.0 | 2009 12 19 | 691 | 0.6+ | 0.3− |
| 2006 01 30 | 691 | 0.2+ | 0.4+ | 2006 03 05 | 691 | 0.0 | 0.1− | 2009 12 19 | 691 | 0.3− | 0.3− |
| 2006 01 30 | 691 | 0.2+ | 0.0 | 2008 09 07 | G96 | 0.0 | 0.0 | 2009 12 27 | 691 | 0.1− | 0.2+ |
| 2006 02 07 | G96 | 0.0 | 0.3+ | 2008 09 07 | G96 | 0.0 | 0.0 | 2009 12 27 | 691 | 0.0 | 0.0 |
| 2006 02 07 | G96 | 1.1− | 0.1+ | 2008 09 07 | G96 | 0.1+ | 0.0 | 2009 12 27 | 691 | 0.3− | 0.1+ |

**2006 BA$_{96}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 275.31564 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.18697891 | $\omega$ | 180.63387 | | | −0.84689315 | | −0.52873363 | |
| $a$ | 3.0288258 | $\Omega$ | 327.24502 | | | +0.48834295 | | −0.73112476 | |
| $e$ | 0.0577127 | $i$ | 6.01343 | | | +0.21045938 | | −0.43115813 | |
| $P$ | 5.27 | $H$ | 16.5 | $G$ | 0.15 | | $U$ | 3 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 01 26 | 691 | 0.5− | 0.2+ | 2006 01 30 | 691 | 0.0 | 0.2+ | 2008 07 30 | G96 | 1.3+ | 0.3− |
| 2006 01 26 | 691 | 0.1− | 0.0 | 2006 01 30 | 691 | 0.2+ | 0.0 | 2008 07 30 | G96 | 0.3− | 0.2+ |
| 2006 01 26 | 691 | 0.1− | 0.3− | 2006 02 07 | 691 | 0.1− | 0.3+ | 2008 07 30 | G96 | 0.4− | 0.2+ |
| 2006 01 28 | G96 | 0.3− | 0.0 | 2006 02 07 | 691 | 0.3+ | 0.1+ | 2008 07 30 | G96 | 0.5− | 0.1+ |
| 2006 01 28 | G96 | 0.1+ | 0.5− | 2006 02 07 | 691 | 0.2+ | 0.5− | 2008 09 06 | G96 | 0.6+ | 0.4− |
| 2006 01 28 | G96 | 0.1+ | 0.5− | 2006 03 29 | 691 | 0.2+ | 0.0 | 2008 09 06 | G96 | 0.7− | 0.4− |
| 2006 01 28 | G96 | 0.0 | 0.3− | 2006 03 29 | 691 | 0.0 | 0.1+ | 2008 09 06 | G96 | 0.0 | 0.3+ |
| 2006 01 30 | 691 | 0.1+ | 0.0 | 2006 03 29 | 691 | 0.3− | 0.0 | 2008 09 06 | G96 | 0.3+ | 0.5− |

**2006 BK$_{97}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 317.21652 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.18013250 | $\omega$ | 75.64439 | | | +0.13634418 | | −0.99065160 | |
| $a$ | 3.1050934 | $\Omega$ | 6.52410 | | | +0.89320726 | | +0.12099376 | |
| $e$ | 0.1134237 | $i$ | 2.23739 | | | +0.42847526 | | +0.06300732 | |
| $P$ | 5.47 | $H$ | 16.3 | $G$ | 0.15 | | $U$ | 3 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 01 26 | G96 | 0.1+ | 0.4− | 2006 02 20 | 691 | 0.1+ | 0.0 | 2006 05 03 | G96 | 0.1− | 0.0 |
| 2006 01 26 | G96 | 0.5− | 0.0 | 2006 02 20 | 691 | 0.2− | 0.1+ | 2009 09 15 | 691 | 0.2− | 0.8+ |
| 2006 01 26 | G96 | 0.5− | 0.6− | 2006 03 03 | 691 | 0.2+ | 0.0 | 2009 09 15 | 691 | 0.6− | 0.4+ |
| 2006 01 26 | G96 | 0.5− | 0.1− | 2006 03 03 | 691 | 0.1+ | 0.4+ | 2009 09 15 | 691 | 0.3− | 0.4− |
| 2006 01 27 | 291 | 0.1+ | 0.2+ | 2006 03 03 | 691 | 0.0 | 0.2+ | 2009 09 28 | 691 | 0.0 | 0.1+ |
| 2006 01 27 | 291 | 0.1+ | 0.2+ | 2006 03 05 | 691 | 0.0 | 0.3+ | 2009 09 28 | 691 | 0.0 | 0.2− |
| 2006 01 27 | 291 | 0.1− | 0.4+ | 2006 03 05 | 691 | 0.0 | 0.4+ | 2009 09 28 | 691 | 0.1+ | 0.1+ |
| 2006 01 30 | 691 | 0.1+ | 0.4− | 2006 03 05 | 691 | 0.1− | 0.0 | 2009 10 16 | G96 | 0.2− | 0.5− |
| 2006 01 30 | 691 | 0.2− | 0.3− | 2006 04 27 | 807 | 0.1− | 0.1− | 2009 10 16 | G96 | 0.8+ | 0.1+ |
| 2006 01 30 | 691 | 0.4+ | 0.6− | 2006 04 28 | 807 | 0.3− | 0.1− | 2009 10 16 | G96 | 0.6+ | 0.2− |
| 2006 01 31 | 691 | 0.0 | 0.3− | 2006 04 28 | 807 | 0.1− | 0.1− | 2009 10 16 | G96 | 0.4+ | 0.3− |
| 2006 01 31 | 691 | 0.4+ | 0.2− | 2006 05 03 | G96 | 0.2− | 0.0 | 2009 10 16 | G96 | 0.6+ | 0.2− |
| 2006 01 31 | 691 | 0.1+ | 0.1− | 2006 05 03 | G96 | 0.2+ | 0.7− | 2009 10 16 | G96 | 0.6+ | 0.2− |
| 2006 02 20 | 691 | 0.3− | 0.2+ | 2006 05 03 | G96 | 0.0 | 0.2+ | 2009 10 16 | G96 | 0.3+ | 0.6− |

**2006 BC$_{104}$ = 2009 YB**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 31.92732 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.23530290 | $\omega$ | 303.55979 | | | +0.75936084 | | −0.64530427 | |
| $a$ | 2.5984709 | $\Omega$ | 96.77429 | | | +0.62135045 | | +0.68112746 | |
| $e$ | 0.1058577 | $i$ | 4.81703 | | | +0.19311845 | | +0.34590140 | |
| $P$ | 4.19 | $H$ | 17.8 | $G$ | 0.15 | | $U$ | 3 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 04 29 | 691 | 0.0 | 0.0 | 2006 01 30 | 691 | 0.3− | 0.5+ | 2009 12 16 | 300 | 0.7− | 0.2− |
| 2003 04 29 | 691 | 0.1+ | 0.0 | 2006 01 30 | 691 | 0.3− | 0.5+ | 2009 12 16 | 300 | 0.6+ | 1.1+ |
| 2003 04 29 | 691 | 0.1− | 0.1+ | 2006 01 30 | 691 | 0.0 | 0.6− | 2009 12 16 | 300 | 0.8− | 0.4+ |
| 2006 01 24 | 691 | 0.1− | 0.2− | 2006 02 03 | 691 | 0.6+ | 0.1+ | 2009 12 17 | 300 | 0.1− | 0.1− |
| 2006 01 24 | 691 | 0.1+ | 0.3− | 2006 02 03 | 691 | 0.1+ | 0.0 | 2009 12 17 | 300 | 0.2− | 0.9− |
| 2006 01 24 | 691 | 0.1+ | 0.2− | 2006 02 03 | 691 | 0.2− | 0.1+ | 2009 12 17 | 300 | 1.1+ | 0.2+ |

**2006 BV$_{114}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 315.20318 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.15774258 | $\omega$ | 249.87876 | | | +0.71300004 | | −0.69412643 | |
| $a$ | 3.3923717 | $\Omega$ | 153.77158 | | | +0.69736637 | | +0.68733155 | |
| $e$ | 0.0776597 | $i$ | 12.95687 | | | +0.07287728 | | +0.21392485 | |
| $P$ | 6.25 | $H$ | 15.3 | $G$ | 0.15 | | $U$ | 3 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 01 26 | 691 | 0.2+ | 0.1− | 2006 02 04 | G96 | 1.0− | 0.8+ | 2006 03 23 | G96 | 0.6+ | 0.1− |
| 2006 01 26 | 691 | 0.0 | 0.1− | 2006 02 04 | G96 | 0.9+ | 0.3− | 2009 07 28 | 691 | 0.2+ | 0.0 |
| 2006 01 26 | 691 | 0.1− | 0.4− | 2006 02 07 | 691 | 0.1− | 0.2+ | 2009 07 28 | 691 | 0.1− | 0.0 |
| 2006 01 30 | 691 | 0.2+ | 0.1+ | 2006 02 07 | 691 | 0.2+ | 0.0 | 2009 07 28 | 691 | 0.1− | 0.0 |
| 2006 01 30 | 691 | 0.1− | 0.1+ | 2006 02 07 | 691 | 0.1+ | 0.1− | 2009 08 01 | 691 | 0.0 | 0.1− |
| 2006 01 30 | 691 | 0.0 | 0.1− | 2006 03 05 | 691 | 0.1+ | 0.2+ | 2009 08 01 | 691 | 0.5− | 0.2+ |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 02 02 | 691 | 0.1+ | 0.0 | 2006 03 05 | 691 | 0.1+ | 0.0 | 2009 08 01 | 691 | 0.1+ | 0.1+ | | | |
| 2006 02 02 | 691 | 0.4− | 0.0 | 2006 03 05 | 691 | 0.1+ | 0.3+ | 2009 09 21 | G96 | 0.5− | 0.0 | | | |
| 2006 02 02 | 691 | 0.1− | 0.4+ | 2006 03 23 | G96 | 0.1+ | 0.1+ | 2009 09 21 | G96 | 0.8+ | 0.3+ | | | |
| 2006 02 04 | G96 | 0.3− | 0.1+ | 2006 03 23 | G96 | 0.4− | 0.0 | 2009 09 21 | G96 | 0.4+ | 0.4+ | | | |
| 2006 02 04 | G96 | 0.5− | 0.1− | 2006 03 23 | G96 | 0.4− | 0.4+ | 2009 09 21 | G96 | 0.6+ | 0.3+ | | | |

**2006 BZ$_{120}$ = 2009 XX$_{19}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 12.75633 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23328468 | $\omega$ | 168.28963 | | −0.11696316 | −0.99094116 | |
| $a$ | 2.6134362 | $\Omega$ | 288.40033 | | +0.90547755 | −0.07910742 | |
| $e$ | 0.1270174 | $i$ | 3.98815 | | +0.40795836 | −0.10852484 | |
| $P$ | 4.22 | $H$ | 17.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 01 26 | 691 | 0.1− | 0.1+ | 2006 02 02 | 691 | 0.2− | 0.0 | 2008 09 22 | G96 | 0.0 | 0.0 |
| 2006 01 26 | 691 | 0.2+ | 0.0 | 2006 02 02 | G96 | 0.3− | 0.3− | 2008 09 22 | G96 | 0.1+ | 0.2− |
| 2006 01 26 | 691 | 0.4+ | 0.2− | 2006 02 02 | G96 | 0.2− | 0.1− | 2008 09 22 | G96 | 0.2+ | 0.6− |
| 2006 01 30 | 691 | 0.0 | 0.4+ | 2006 02 02 | G96 | 0.6− | 0.2− | 2009 12 15 | G96 | 0.7+ | 0.4− |
| 2006 01 30 | 691 | 0.1+ | 0.2+ | 2006 02 02 | G96 | 0.5− | 0.2− | 2009 12 15 | G96 | 0.2+ | 0.2+ |
| 2006 01 30 | 691 | 0.0 | 0.0 | 2006 02 07 | 691 | 0.2− | 0.4+ | 2009 12 15 | G96 | 0.5+ | 0.3− |
| 2006 01 31 | G96 | 0.6+ | 0.1− | 2006 02 07 | 691 | 0.2+ | 0.1− | 2009 12 15 | G96 | 0.1− | 0.2− |
| 2006 01 31 | G96 | 0.2− | 0.4− | 2006 02 07 | 691 | 0.0 | 0.3− | 2009 12 17 | 691 | 0.2+ | 0.3+ |
| 2006 01 31 | G96 | 0.0 | 0.4− | 2008 09 04 | 691 | 0.2− | 0.1− | 2009 12 17 | 691 | 0.4− | 0.1+ |
| 2006 01 31 | G96 | 0.2+ | 0.0 | 2008 09 04 | 691 | 0.0 | 0.3+ | 2009 12 17 | 691 | 0.1− | 0.2− |
| 2006 02 02 | 691 | 0.1+ | 0.0 | 2008 09 04 | 691 | 0.0 | 0.0 | | | | |
| 2006 02 02 | 691 | 0.1− | 0.1− | 2008 09 22 | G96 | 0.5+ | 0.1− | | | | |

**2006 BE$_{129}$ = 2009 YR$_{4}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 343.82044 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23880026 | $\omega$ | 174.06082 | | −0.75016742 | −0.65983024 | |
| $a$ | 2.5730379 | $\Omega$ | 324.52958 | | +0.60357221 | −0.65653537 | |
| $e$ | 0.2091113 | $i$ | 4.27704 | | +0.27009153 | −0.36549331 | |
| $P$ | 4.13 | $H$ | 18.5 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 03 10 | 691 | 0.0 | 0.3+ | 2006 02 20 | G96 | 0.4− | 0.2− | 2009 11 21 | G96 | 0.1− | 0.4+ |
| 2002 03 10 | 691 | 0.2+ | 0.1+ | 2006 02 20 | G96 | 0.2+ | 0.3− | 2009 11 21 | G96 | 0.2+ | 0.5+ |
| 2002 03 10 | 691 | 0.1+ | 0.1+ | 2006 02 20 | G96 | 0.6− | 0.1+ | 2009 11 21 | G96 | 0.0 | 0.1+ |
| 2006 01 26 | G96 | 0.3− | 0.2− | 2006 02 20 | G96 | 0.1+ | 0.2− | 2009 12 17 | G96 | 0.1+ | 0.0 |
| 2006 01 26 | G96 | 0.1− | 0.3− | 2006 02 20 | G96 | 0.0 | 0.4− | 2009 12 17 | G96 | 0.9+ | 0.2+ |
| 2006 01 26 | G96 | 0.5− | 0.2− | 2006 02 20 | G96 | 0.1+ | 0.1− | 2009 12 17 | G96 | 0.4+ | 0.1+ |
| 2006 01 26 | G96 | 0.3− | 0.3− | 2006 02 20 | G96 | 0.1+ | 0.0 | 2009 12 17 | G96 | 0.3− | 0.0 |
| 2006 01 30 | 691 | 0.1+ | 0.1− | 2006 02 20 | G96 | 0.1− | 0.4− | 2009 12 18 | 691 | 0.0 | 0.4+ |
| 2006 01 30 | 691 | 0.3+ | 0.2+ | 2006 02 24 | G96 | 0.1+ | 0.1+ | 2009 12 18 | 691 | 0.2+ | 0.1+ |
| 2006 01 30 | 691 | 0.2+ | 0.1+ | 2006 02 24 | G96 | 0.7− | 0.1+ | 2009 12 18 | 691 | 0.0 | 0.0 |
| 2006 02 07 | 691 | 0.2+ | 0.1− | 2006 02 24 | G96 | 0.1+ | 0.3− | 2009 12 26 | 691 | 0.3− | 0.3− |
| 2006 02 07 | 691 | 0.1− | 0.0 | 2006 02 24 | G96 | 0.1− | 0.2+ | 2009 12 26 | 691 | 0.1− | 0.2− |
| 2006 02 07 | 691 | 0.3− | 0.1+ | 2009 11 21 | G96 | 0.0 | 0.6+ | 2009 12 26 | 691 | 0.1+ | 0.1− |

**2006 BN$_{136}$ = 2009 WL$_{89}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 39.84848 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21462290 | $\omega$ | 282.71053 | | +0.84643525 | −0.52732979 | |
| $a$ | 2.7628163 | $\Omega$ | 109.15772 | | +0.51388212 | +0.77253525 | |
| $e$ | 0.0989781 | $i$ | 4.49087 | | +0.13954402 | +0.35371256 | |
| $P$ | 4.59 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 01 28 | G96 | 0.2+ | 0.2+ | 2006 02 07 | G96 | 0.4− | 0.7− | 2009 11 26 | G96 | 0.1+ | 0.0 |
| 2006 01 28 | G96 | 0.6+ | 0.6− | 2009 11 19 | 691 | 0.0 | 0.1+ | 2009 11 26 | G96 | 0.4+ | 0.0 |
| 2006 01 28 | G96 | 0.3− | 0.5− | 2009 11 19 | 691 | 0.4− | 0.5+ | 2009 11 27 | 691 | 0.2+ | 0.0 |
| 2006 01 28 | G96 | 0.7+ | 0.4− | 2009 11 19 | 691 | 0.1− | 0.2− | 2009 11 27 | 691 | 0.1− | 0.5+ |
| 2006 01 30 | 691 | 0.5− | 0.0 | 2009 11 23 | 691 | 0.1− | 0.0 | 2009 11 27 | 691 | 0.2− | 0.1+ |
| 2006 01 30 | 691 | 0.3+ | 0.4+ | 2009 11 23 | 691 | 0.6+ | 0.6− | 2009 12 11 | G96 | 0.1− | 0.1− |
| 2006 01 30 | 691 | 0.2+ | 0.4+ | 2009 11 23 | 691 | 0.1− | 0.2− | 2009 12 11 | G96 | 0.2+ | 0.2+ |
| 2006 02 07 | G96 | 0.5− | 0.2+ | 2009 11 26 | G96 | 0.0 | 0.1− | 2009 12 11 | G96 | 0.3+ | 0.0 |
| 2006 02 07 | G96 | 0.5+ | 1.1− | 2009 11 26 | G96 | 0.4− | 0.0 | 2009 12 11 | G96 | 0.5+ | 0.2− |
| 2006 02 07 | G96 | 0.7− | 0.1− | 2009 11 26 | G96 | 0.3+ | 0.2− | | | | |

**2006 BS$_{141}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 148.31753 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21149954 | $\omega$ | 176.00576 | | +0.26479567 | +0.96127216 | |
| $a$ | 2.7899501 | $\Omega$ | 109.33622 | | −0.88696080 | +0.27388642 | |
| $e$ | 0.0632572 | $i$ | 4.64501 | | −0.37839634 | +0.03069318 | |
| $P$ | 4.66 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 28 | G96 | 0.3− | 0.8− | 2006 01 08 | 691 | 0.2+ | 0.1− | 2009 11 26 | G96 | 0.1− | 0.0 |
| 2005 12 28 | G96 | 0.3+ | 0.3− | 2006 01 25 | 291 | 0.1− | 0.0 | 2009 11 26 | G96 | 0.1+ | 0.0 |
| 2005 12 28 | G96 | 0.6− | 0.2− | 2006 01 25 | 291 | 0.1− | 0.2− | 2009 11 26 | G96 | 0.2+ | 0.2+ |
| 2005 12 28 | G96 | (2.2− | 0.0 ) | 2006 01 25 | 291 | 0.1− | 0.1− | 2009 12 11 | G96 | 0.2− | 0.1+ |
| 2005 12 30 | 691 | 0.1+ | 0.1+ | 2006 01 30 | 691 | 0.3+ | 0.1− | 2009 12 11 | G96 | 0.2− | 0.2− |
| 2005 12 30 | 691 | 0.1− | 0.1− | 2006 01 30 | 691 | 0.1+ | 0.0 | 2009 12 11 | G96 | 0.0 | 0.1− |
| 2005 12 30 | 691 | 0.0 | 0.2− | 2006 01 30 | 691 | 0.2− | 0.2+ | 2009 12 11 | G96 | 0.0 | 0.1− |
| 2006 01 08 | 691 | 0.1+ | 0.5+ | 2009 11 26 | G96 | 0.2+ | 0.0 | | | | |
| 2006 01 08 | 691 | 0.1− | 0.5+ | 2009 11 26 | G96 | 0.2− | 0.0 | | | | |

**2006 BV$_{180}$ = 2009 VN$_{51}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 38.21622 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17894475 | $\omega$ | 25.86491 | | +0.99603246 | +0.04076129 | |
| $a$ | 3.1188183 | $\Omega$ | 331.45869 | | −0.07642546 | +0.84721047 | |
| $e$ | 0.0424979 | $i$ | 9.53018 | | +0.04559048 | +0.52969137 | |
| $P$ | 5.51 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 04 | 691 | 0.2− | 0.3+ | 2006 02 02 | G96 | 0.2+ | 0.1− | 2009 11 16 | 926 | 0.2+ | 0.3− |
| 2003 09 04 | 691 | 0.2− | 0.2+ | 2006 02 02 | G96 | 0.5+ | 0.1− | 2009 11 16 | 926 | 0.3+ | 0.0 |
| 2003 09 04 | 691 | 0.1− | 0.1+ | 2006 02 23 | G96 | 0.3+ | 0.3+ | 2009 11 16 | 926 | 0.2+ | 0.6+ |
| 2006 01 27 | G96 | 0.2− | 0.7− | 2006 02 23 | G96 | 0.1+ | 0.2+ | 2009 11 17 | G68 | 0.5+ | 0.1− |
| 2006 01 27 | G96 | 0.2− | 0.4− | 2006 02 23 | G96 | 0.1− | 0.4+ | 2009 11 17 | G68 | 0.5+ | 0.2+ |
| 2006 01 27 | G96 | 0.1+ | 0.4− | 2006 02 23 | G96 | 0.2+ | 0.5+ | 2009 11 17 | G68 | 0.4− | 0.1+ |
| 2006 01 27 | G96 | 0.1+ | 0.1− | 2006 03 05 | G96 | 0.1+ | 0.5+ | 2009 11 21 | 926 | 0.7+ | 0.4− |
| 2006 01 31 | 691 | 0.2− | 0.2− | 2006 03 05 | G96 | 0.5− | 0.4+ | 2009 11 21 | 926 | 0.1+ | 0.2− |
| 2006 01 31 | 691 | 0.2+ | 0.4+ | 2006 03 05 | G96 | 0.5+ | 0.4+ | 2009 11 21 | 926 | 0.5+ | 0.5+ |
| 2006 01 31 | 691 | 0.1− | 0.3+ | 2006 03 05 | G96 | 0.0 | 0.3+ | 2009 12 10 | H36 | 0.5+ | 1.0− |
| 2006 02 02 | G96 | 0.6+ | 0.1− | 2009 11 11 | 185 | 0.6− | 0.0 | 2009 12 10 | H36 | 0.2− | 0.4− |
| 2006 02 02 | G96 | 0.4+ | 0.3− | 2009 11 12 | 185 | 0.7− | 0.0 | 2009 12 10 | H36 | 1.1− | 0.1+ |

**2006 BE$_{189}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 266.98929 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17961648 | $\omega$ | 122.52937 | | −0.80302955 | −0.59496973 | |
| $a$ | 3.1110376 | $\Omega$ | 21.02196 | | +0.51006513 | −0.71568173 | |
| $e$ | 0.0987716 | $i$ | 5.43525 | | +0.30818355 | −0.36580142 | |
| $P$ | 5.49 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 01 28 | 691 | 0.3+ | 0.0 | 2006 03 04 | 691 | 0.1− | 0.0 | 2009 10 14 | G96 | 0.3+ | 0.2− |
| 2006 01 28 | 691 | 0.1+ | 0.4+ | 2006 03 04 | 691 | 0.1− | 0.0 | 2009 10 14 | G96 | 0.4+ | 0.2− |
| 2006 01 28 | 691 | 0.2+ | 0.0 | 2006 03 04 | 691 | 0.1+ | 0.1+ | 2009 10 14 | G96 | 0.1+ | 0.2− |
| 2006 02 01 | 691 | 0.1− | 0.3− | 2006 03 08 | 691 | 0.1+ | 0.4− | 2009 10 14 | G96 | 0.2+ | 0.1− |
| 2006 02 01 | 691 | 0.3− | 0.2− | 2006 03 08 | 691 | 0.3+ | 0.2− | 2009 10 27 | G96 | 0.1− | 0.1− |
| 2006 02 01 | 691 | 0.3+ | 0.5− | 2006 03 08 | 691 | 0.0 | 0.0 | 2009 10 27 | G96 | 0.2− | 0.0 |
| 2006 02 21 | 703 | (0.3− | 1.8+) | 2006 05 28 | G96 | 0.1+ | 0.3+ | 2009 10 27 | G96 | 0.2− | 0.1− |
| 2006 02 21 | 703 | 0.5− | 0.5+ | 2006 05 28 | G96 | 0.3+ | 0.1+ | 2009 10 27 | G96 | 0.0 | 0.0 |
| 2006 02 21 | 703 | (1.7− | 0.8+) | 2006 05 28 | G96 | 0.3− | 0.7+ | 2009 11 25 | G96 | 0.1+ | 0.1− |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 02 21 | 703 | 0.3− | 1.2+ | 2006 05 28 | G96 | 0.2+ | 0.4− | 2009 11 25 | G96 | 0.0 | 0.2− |
| 2006 02 25 | 691 | 0.3− | 0.0 | 2009 09 15 | 691 | 0.1+ | 0.1+ | 2009 11 25 | G96 | 0.5+ | 0.7− |
| 2006 02 25 | 691 | 0.2− | 0.2+ | 2009 09 15 | 691 | 0.0 | 0.2+ | 2009 11 25 | G96 | 0.7− | 0.2− |
| 2006 02 25 | 691 | 0.1− | 0.3+ | 2009 09 15 | 691 | 0.2− | 0.3+ | | | | |

**2006 BB$_{191}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 335.27550 | | (2000.0) | | | |
| $n$ | 0.19229894 | $\omega$ | 108.25759 | | −0.16928755 | −0.98504479 |
| $a$ | 2.9727026 | $\Omega$ | 351.29903 | | +0.80509159 | −0.11944560 |
| $e$ | 0.1656660 | $i$ | 12.23931 | | +0.56847977 | −0.12417535 |
| $P$ | 5.13 | $H$ | 15.7 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 01 05 | G96 | 0.7− | 0.2+ | 2006 02 02 | G96 | 0.0 | 0.6− | 2009 10 29 | 703 | 0.5− | 0.1+ |
| 2006 01 05 | G96 | 0.7− | 0.2+ | 2006 02 02 | G96 | 0.0 | 0.6− | 2009 10 29 | 703 | 0.7− | 0.2− |
| 2006 01 05 | G96 | 0.2− | 0.2− | 2006 02 02 | G96 | 0.0 | 0.2− | 2009 10 29 | 703 | 0.5+ | 0.1− |
| 2006 01 05 | G96 | 0.2− | 0.5− | 2006 02 25 | 691 | 0.4+ | 0.1+ | 2009 10 29 | 703 | 0.3− | 0.4+ |
| 2006 01 28 | G96 | 0.1− | 0.2+ | 2006 02 25 | 691 | 0.1− | 0.1− | 2009 11 19 | 703 | 0.4+ | 0.6+ |
| 2006 01 28 | G96 | 0.1− | 0.5− | 2006 02 25 | 691 | 0.0 | 0.1+ | 2009 11 19 | 703 | 0.1+ | 0.1+ |
| 2006 01 28 | G96 | 0.2− | 0.3+ | 2006 03 05 | 691 | 0.1+ | 0.1+ | 2009 11 19 | 703 | 1.0+ | 0.3+ |
| 2006 01 28 | G96 | 0.1− | 0.3− | 2006 03 05 | 691 | 0.0 | 0.2+ | 2009 11 19 | 703 | 0.8− | 0.9− |
| 2006 02 02 | G96 | 0.0 | 0.1− | 2006 03 05 | 691 | 0.1+ | 0.1+ | | | | |

**2006 BV$_{193}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 254.43151 | | (2000.0) | | | |
| $n$ | 0.18052483 | $\omega$ | 199.54920 | | −0.81400571 | −0.56907838 |
| $a$ | 3.1005929 | $\Omega$ | 305.21590 | | +0.55008900 | −0.69091135 |
| $e$ | 0.0416593 | $i$ | 8.18974 | | +0.18653901 | −0.44586018 |
| $P$ | 5.46 | $H$ | 15.9 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 07 | 568 | 0.2− | 0.0 | 2006 02 01 | G96 | 0.4− | 0.2− | 2008 07 30 | G96 | 0.4− | 0.2− |
| 2005 10 07 | 568 | 0.1− | 0.0 | 2006 02 01 | G96 | 0.4− | 0.3− | 2008 07 30 | G96 | 0.2− | 0.3+ |
| 2005 10 07 | 568 | 0.1− | 0.1+ | 2006 02 01 | G96 | 0.8− | 0.3− | 2008 07 30 | G96 | 0.6+ | 0.3+ |
| 2006 01 08 | G96 | 0.9− | 0.8− | 2006 02 01 | G96 | 0.8− | 0.4− | 2008 07 30 | G96 | 0.2− | 0.1+ |
| 2006 01 08 | G96 | 0.1− | 0.4− | 2006 02 02 | 691 | 0.2− | 0.2− | 2009 09 30 | G96 | 0.3− | 0.2− |
| 2006 01 08 | G96 | 0.2+ | 0.5− | 2006 02 02 | 691 | 0.4+ | 0.1− | 2009 09 30 | G96 | 0.2+ | 0.6+ |
| 2006 01 08 | G96 | 0.7− | 0.6− | 2006 02 02 | 691 | 0.2− | 0.1+ | 2009 09 30 | G96 | 0.1− | 0.0 |
| 2006 01 30 | 691 | 0.1+ | 0.2+ | 2006 02 07 | 691 | 0.0 | 0.1− | 2009 09 30 | G96 | 0.1− | 0.0 |
| 2006 01 30 | 691 | 0.1+ | 0.4− | 2006 02 07 | 691 | 0.1+ | 0.1+ | | | | |
| 2006 01 30 | 691 | 0.3+ | 0.0 | 2006 02 07 | 691 | 0.4+ | 1.3+ | | | | |

**2006 BA$_{200}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 220.41834 | | (2000.0) | | | |
| $n$ | 0.17651640 | $\omega$ | 37.69362 | | −0.93369950 | +0.34520523 |
| $a$ | 3.1473571 | $\Omega$ | 161.78688 | | −0.35469816 | −0.92802552 |
| $e$ | 0.1586950 | $i$ | 17.70870 | | +0.04893317 | −0.14000712 |
| $P$ | 5.58 | $H$ | 16.0 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 01 30 | 691 | 0.1− | 0.0 | 2006 02 21 | 185 | 0.6+ | 0.4+ | 2006 03 29 | 691 | 0.3+ | 0.0 |
| 2006 01 30 | 691 | 0.2+ | 0.2+ | 2006 03 05 | 704 | 1.6− | 1.2+ | 2008 07 30 | G96 | 0.1+ | 0.4+ |
| 2006 01 30 | 691 | 0.1− | 0.0 | 2006 03 05 | 704 | 0.3− | 1.3+ | 2008 07 30 | G96 | 0.2+ | 0.3+ |
| 2006 02 02 | 691 | 0.0 | 0.2+ | 2006 03 05 | 704 | 0.4+ | 0.9+ | 2008 07 30 | G96 | 0.5− | 0.2+ |
| 2006 02 02 | 691 | 0.0 | 0.4− | 2006 03 05 | 704 | 0.5+ | 0.1+ | 2008 07 30 | G96 | 0.6− | 0.9+ |
| 2006 02 02 | 691 | 0.3− | 0.2− | 2006 03 05 | 704 | 0.2+ | 0.6− | 2008 09 23 | G96 | 0.8+ | 0.4+ |
| 2006 02 07 | 691 | 0.1+ | 0.1+ | 2006 03 26 | 691 | 0.3− | 0.1− | 2008 09 23 | G96 | 0.4− | 0.2+ |
| 2006 02 07 | 691 | 0.1+ | 0.1− | 2006 03 26 | 691 | 0.0 | 0.2+ | 2008 09 23 | G96 | 0.2+ | 0.2+ |
| 2006 02 07 | 691 | 0.1− | 0.2− | 2006 03 26 | 691 | 0.1+ | 0.0 | 2008 09 23 | G96 | 0.1− | 0.1− |
| 2006 02 21 | 185 | 0.1− | 0.8+ | 2006 03 29 | 691 | 0.2+ | 0.3− | | | | |
| 2006 02 21 | 185 | 0.4− | 0.2+ | 2006 03 29 | 691 | 0.2+ | 0.1− | | | | |

**2006 BS$_{207}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 331.02639 | | (2000.0) | | | |
| $n$ | 0.23282831 | $\omega$ | 36.93912 | | −0.88321619 | −0.45852432 |
| $a$ | 2.6168502 | $\Omega$ | 115.49133 | | +0.39998580 | −0.84608277 |
| $e$ | 0.1619449 | $i$ | 6.25905 | | +0.24482752 | −0.27184445 |
| $P$ | 4.23 | $H$ | 17.1 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 04 13 | 644 | 0.4+ | 0.4+ | 2006 02 20 | 703 | (2.2− | 0.9−) | 2009 11 16 | G96 | 0.1− | 0.2+ |
| 2002 04 13 | 644 | 0.1+ | 0.7+ | 2006 02 20 | 703 | 1.2− | 0.8− | 2009 11 16 | G96 | 0.4+ | 0.0 |
| 2002 04 13 | 644 | 0.1− | 0.6+ | 2006 02 22 | 699 | 0.8+ | 0.3+ | 2009 11 16 | G96 | 0.2− | 0.3+ |
| 2006 01 23 | 691 | 0.0 | 0.1− | 2006 02 22 | 699 | 0.7+ | 1.2+ | 2009 11 16 | G96 | 0.4+ | 0.1+ |
| 2006 01 23 | 691 | 0.1+ | 0.1+ | 2006 02 22 | 699 | 0.9+ | 1.3+ | 2009 12 15 | G96 | 0.2− | 0.0 |
| 2006 01 23 | 691 | 0.1+ | 0.0 | 2006 02 22 | 704 | (2.6+ | 0.2+) | 2009 12 15 | G96 | 0.3+ | 0.1+ |
| 2006 01 31 | 683 | (1.6− | 0.1+) | 2006 02 22 | 699 | 1.4+ | 0.6+ | 2009 12 15 | G96 | 0.7+ | 0.2+ |
| 2006 01 31 | 683 | 1.4− | 1.1− | 2006 02 22 | 704 | (2.7+ | 0.0 ) | 2009 12 15 | G96 | 0.4− | 0.5+ |
| 2006 02 01 | 691 | 0.1− | 0.2− | 2006 02 22 | 704 | (2.7+ | 0.6+) | 2009 12 17 | 691 | 0.0 | 0.4+ |
| 2006 02 01 | 691 | 0.2− | 0.2− | 2006 03 03 | 699 | 0.1+ | 0.2+ | 2009 12 17 | 691 | 0.0 | 0.1+ |
| 2006 02 01 | 691 | 0.0 | 0.2− | 2006 03 03 | 699 | 0.7+ | 0.7− | 2009 12 17 | 691 | 0.2− | 0.2− |
| 2006 02 20 | 703 | 0.9− | 0.9− | 2006 03 03 | 699 | 0.1+ | 0.3+ | | | | |
| 2006 02 20 | 703 | 1.0− | 0.6− | 2006 03 03 | 699 | 0.1− | 0.0 | | | | |

**2006 BJ$_{233}$ = 2009 YY$_5$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 84.05712 | | (2000.0) | | | |
| $n$ | 0.23655219 | $\omega$ | 319.96904 | | +0.95509133 | −0.29453042 |
| $a$ | 2.5893141 | $\Omega$ | 57.18910 | | +0.28078005 | +0.86460896 |
| $e$ | 0.1085253 | $i$ | 2.21207 | | +0.09467372 | +0.40706654 |
| $P$ | 4.17 | $H$ | 17.7 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 11 08 | 691 | 0.1+ | 0.2− | 2006 01 28 | G96 | 0.1− | 0.1+ | 2006 02 07 | 691 | 0.0 | 0.4− |
| 1996 11 08 | 691 | 0.5− | 0.4+ | 2006 01 31 | 691 | 0.1− | 0.0 | 2009 12 17 | G96 | 0.3+ | 0.1− |
| 1996 11 08 | 691 | 0.4+ | 0.2− | 2006 01 31 | 691 | 0.1+ | 0.0 | 2009 12 17 | G96 | 0.0 | 0.4− |
| 2006 01 23 | 691 | 0.2− | 0.9+ | 2006 01 31 | 691 | 0.1− | 0.5+ | 2009 12 17 | G96 | 0.6+ | 0.4− |
| 2006 01 23 | 691 | 0.2+ | 0.5+ | 2006 02 03 | 691 | 0.1− | 0.1− | 2009 12 17 | G96 | 0.2+ | 0.1− |
| 2006 01 23 | 691 | 0.1+ | 0.0 | 2006 02 03 | 691 | 0.0 | 0.1− | 2009 12 18 | 691 | 0.3− | 0.1− |
| 2006 01 28 | G96 | 0.4+ | 1.4− | 2006 02 03 | 691 | 0.2+ | 0.3− | 2009 12 18 | 691 | 0.1− | 0.0 |
| 2006 01 28 | G96 | 0.1− | 0.5− | 2006 02 07 | 691 | 0.1+ | 0.1− | 2009 12 18 | 691 | 0.1+ | 0.2+ |
| 2006 01 28 | G96 | 0.1− | 0.3− | 2006 02 07 | 691 | 0.3− | 0.1− | | | | |

**2006 BL$_{254}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 115.00704 | | (2000.0) | | | |
| $n$ | 0.17918404 | $\omega$ | 342.08229 | | +0.41475058 | +0.90845311 |
| $a$ | 3.1160411 | $\Omega$ | 312.38594 | | −0.82601246 | +0.35195438 |
| $e$ | 0.1175962 | $i$ | 4.03023 | | −0.38168752 | +0.22547961 |
| $P$ | 5.50 | $H$ | 15.9 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 01 23 | G96 | 0.6− | 0.2+ | 2006 02 04 | 691 | 0.0 | 0.3− | 2009 11 26 | 691 | 0.3− | 0.2+ |
| 2006 01 23 | G96 | 0.2+ | 0.0 | 2006 02 24 | G96 | 0.1− | 0.5+ | 2009 11 26 | 691 | 0.0 | 0.0 |
| 2006 01 23 | G96 | 0.0 | 0.4+ | 2006 02 24 | G96 | 0.1− | 0.4+ | 2009 11 26 | 691 | 0.1− | 0.4+ |
| 2006 01 23 | G96 | 0.4− | 0.2+ | 2006 02 24 | G96 | 0.7− | 0.3+ | 2009 12 18 | G96 | 0.4− | 0.0 |
| 2006 01 31 | 691 | 0.0 | 0.1− | 2006 02 24 | G96 | 0.1+ | 0.3+ | 2009 12 18 | G96 | 0.5+ | 0.3− |
| 2006 01 31 | 691 | 0.1− | 0.2− | 2009 10 30 | G96 | 0.3− | 0.5− | 2009 12 18 | G96 | 0.4+ | 0.2− |
| 2006 01 31 | 691 | 0.1− | 0.3+ | 2009 10 30 | G96 | 0.2− | 0.4+ | 2009 12 18 | G96 | 0.9+ | 0.4− |
| 2006 02 04 | 691 | 0.4+ | 0.1− | 2009 10 30 | G96 | 0.4+ | 0.7− | | | | |
| 2006 02 04 | 691 | 0.2+ | 0.2− | 2009 10 30 | G96 | 0.1+ | 0.5− | | | | |

**2006 BE$_{257}$ = 2009 XR$_{13}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 336.00280 | | (2000.0) | | | |
| $n$ | 0.22644541 | $\omega$ | 5.88516 | | −0.60912358 | −0.78893215 |
| $a$ | 2.6657967 | $\Omega$ | 121.66960 | | +0.72369757 | −0.59468937 |
| $e$ | 0.2285043 | $i$ | 5.45852 | | +0.32439217 | −0.15469523 |
| $P$ | 4.35 | $H$ | 17.5 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 01 20 | 691 | 0.0 | 0.1+ | 2006 02 04 | 691 | 0.2+ | 0.1+ | 2009 12 13 | G96 | 0.2+ | 0.1− |
| 2006 01 20 | 691 | 0.1− | 0.1− | 2006 02 04 | 691 | 0.1+ | 0.2− | 2009 12 13 | G96 | 0.0 | 0.2− |
| 2006 01 20 | 691 | 0.3+ | 0.4− | 2009 11 27 | 691 | 0.1− | 0.2+ | 2009 12 17 | G96 | 0.3+ | 0.3− |
| 2006 01 31 | 691 | 0.2− | 0.0 | 2009 11 27 | 691 | 0.1+ | 0.2+ | 2009 12 17 | G96 | 0.1− | 0.1− |
| 2006 01 31 | 691 | 0.1+ | 0.3+ | 2009 11 27 | 691 | 0.2− | 0.0 | 2009 12 17 | G96 | 0.0 | 0.3− |
| 2006 01 31 | 691 | 0.3− | 0.1− | 2009 12 13 | G96 | (1.7− | 0.5+) | 2009 12 17 | G96 | 0.1+ | 0.0 |
| 2006 02 04 | 691 | 0.1+ | 0.3+ | 2009 12 13 | G96 | 0.2+ | 0.1− | 2009 12 17 | G96 | 0.2+ | 0.2− |

**2006 BS$_{276}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 0.02116 | | (2000.0) | | | |
| $n$ | 0.17861422 | $\omega$ | 43.99167 | | +0.93586944 | −0.33300427 |
| $a$ | 3.1226647 | $\Omega$ | 334.76839 | | +0.19902061 | +0.76925121 |
| $e$ | 0.1581336 | $i$ | 15.67011 | | +0.29075623 | +0.54530793 |
| $P$ | 5.52 | $H$ | 15.6 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 11 05 | 644 | 0.0 | 0.2− | 2006 02 24 | 691 | 0.5− | 0.3+ | 2009 09 10 | 703 | 0.7− | 0.6+ |
| 2004 11 05 | 644 | 0.3+ | 0.6− | 2006 02 24 | 691 | 0.4− | 0.1− | 2009 09 10 | 703 | 0.4+ | 1.9+ |
| 2004 11 05 | 644 | 0.0 | 0.2− | 2006 02 24 | 691 | 0.1− | 0.2− | 2009 09 10 | 703 | 0.2− | 0.6− |
| 2006 01 23 | 691 | 0.0 | 0.1− | 2006 03 05 | 691 | 0.1+ | 0.5+ | 2009 09 10 | 703 | 0.2− | 1.2+ |
| 2006 01 23 | 691 | 0.3+ | 0.2− | 2006 03 05 | 691 | 0.2+ | 0.2+ | 2009 09 17 | G96 | 0.4+ | 0.6− |
| 2006 01 23 | 691 | 0.2− | 0.1− | 2006 03 05 | 691 | 0.1+ | 0.3+ | 2009 09 17 | G96 | 0.3+ | 0.0 |
| 2006 02 01 | 691 | 0.4+ | 0.0 | 2009 08 16 | 691 | 0.2− | 0.2− | 2009 09 17 | G96 | 0.5+ | 0.1+ |
| 2006 02 01 | 691 | 0.1+ | 0.1− | 2009 08 16 | 691 | 0.2− | 0.0 | 2009 09 17 | G96 | 0.0 | 0.1+ |
| 2006 02 01 | 691 | 0.2+ | 0.1+ | 2009 08 16 | 691 | 0.2− | 0.1+ | | | | |

**2006 BT$_{278}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 340.17691 | | (2000.0) | | | |
| $n$ | 0.20323079 | $\omega$ | 334.57315 | | −0.17680837 | −0.98328324 |
| $a$ | 2.8651215 | $\Omega$ | 125.58165 | | +0.91191790 | −0.18028739 |
| $e$ | 0.0233127 | $i$ | 3.06652 | | +0.37033032 | −0.02550535 |
| $P$ | 4.85 | $H$ | 16.5 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 01 27 | G96 | 0.0 | 0.1+ | 2006 02 04 | 691 | 0.0 | 0.1+ | 2009 09 30 | G96 | 0.5− | 0.2− |
| 2006 01 27 | G96 | 0.3− | 0.1− | 2006 02 04 | 691 | 0.1+ | 0.2− | 2009 11 19 | 691 | 0.0 | 0.0 |
| 2006 01 27 | G96 | 0.6+ | 0.3+ | 2006 02 27 | G96 | 0.4− | 0.1+ | 2009 11 19 | 691 | 0.2+ | 0.2− |
| 2006 01 27 | G96 | 0.9− | 0.0 | 2006 02 27 | G96 | 0.1− | 0.1− | 2009 11 19 | 691 | 0.3+ | 0.0 |
| 2006 01 31 | 691 | 0.2+ | 0.1+ | 2006 02 27 | G96 | 0.1− | 0.1− | 2009 11 27 | 691 | 0.1− | 0.1+ |
| 2006 01 31 | 691 | 0.3− | 0.1− | 2009 09 30 | G96 | 0.4+ | 0.4− | 2009 11 27 | 691 | 0.2− | 0.0 |
| 2006 01 31 | 691 | 0.1− | 0.0 | 2009 09 30 | G96 | 0.0 | 0.8− | 2009 11 27 | 691 | 0.3− | 0.3+ |
| 2006 02 04 | 691 | 0.4+ | 0.1− | 2009 09 30 | G96 | 0.3+ | 0.2− | | | | |

**2006 BQ$_{282}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 350.44251 | | (2000.0) | | | |
| $n$ | 0.24060446 | $\omega$ | 137.86015 | | −0.61027238 | −0.79213815 |
| $a$ | 2.5601590 | $\Omega$ | 349.73750 | | +0.71233210 | −0.54362917 |
| $e$ | 0.1781301 | $i$ | 2.96243 | | +0.34662746 | −0.27746078 |
| $P$ | 4.10 | $H$ | 18.5 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 02 13 | 691 | 0.1− | 0.1− | 2006 02 07 | 691 | 0.1+ | 0.5+ | 2009 12 18 | 691 | 0.4− | 0.1+ |
| 2002 02 13 | 691 | 0.1− | 0.2− | 2006 02 07 | G96 | 0.2− | 0.4− | 2009 12 18 | 691 | 0.4+ | 0.1− |
| 2002 02 13 | 691 | 0.1− | 0.3− | 2006 02 07 | G96 | 0.1− | 0.2− | 2009 12 18 | 691 | 0.1− | 0.2+ |
| 2006 01 25 | 691 | 0.3+ | 0.0 | 2006 02 07 | G96 | 0.4− | 0.4− | 2009 12 20 | 691 | 0.2− | 0.0 |
| 2006 01 25 | 691 | 0.1− | 0.1− | 2006 02 07 | G96 | 0.4− | 0.1− | 2009 12 20 | 691 | 0.2+ | 0.5− |
| 2006 01 25 | 691 | 0.2− | 0.1+ | 2006 02 24 | 691 | 0.0 | 0.1+ | 2009 12 20 | 691 | 0.0 | 0.1+ |
| 2006 02 07 | 691 | 0.3+ | 0.3+ | 2006 02 24 | 691 | 0.1− | 0.0 | | | | |
| 2006 02 07 | 691 | 0.2+ | 0.1+ | 2006 02 24 | 691 | 0.2+ | 0.0 | | | | |

**2006 BX$_{283}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 282.26390 | | (2000.0) | | | |
| $n$ | 0.20375817 | $\omega$ | 91.54131 | | −0.87271541 | −0.48738017 |
| $a$ | 2.8601756 | $\Omega$ | 59.29101 | | +0.43357711 | −0.80077746 |
| $e$ | 0.1630175 | $i$ | 1.91837 | | +0.22445198 | −0.34816092 |
| $P$ | 4.84 | $H$ | 17.1 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 08 26 | 807 | 0.1− | 0.3+ | 2006 02 03 | 691 | 0.1− | 0.1− | 2009 11 08 | G96 | 0.3+ | 0.6+ |
| 2003 08 26 | 807 | 0.0 | 0.1+ | 2006 03 04 | 691 | 0.2+ | 0.1+ | 2009 11 18 | G96 | 0.1+ | 0.2− |
| 2006 01 25 | 691 | 0.1+ | 0.0 | 2006 03 04 | 691 | 0.1+ | 0.2+ | 2009 11 18 | G96 | 0.1+ | 0.0 |
| 2006 01 25 | 691 | 0.0 | 0.1+ | 2006 03 04 | 691 | 0.3− | 0.1+ | 2009 11 18 | G96 | 0.2+ | 0.1+ |
| 2006 01 25 | 691 | 0.0 | 0.2− | 2009 11 08 | G96 | 0.4− | 0.2− | 2009 11 18 | G96 | 0.2+ | 0.5− |
| 2006 02 03 | 691 | 0.1+ | 0.4+ | 2009 11 08 | G96 | 0.2− | 0.3+ | | | | |
| 2006 02 03 | 691 | 0.2− | 0.5− | 2009 11 08 | G96 | 0.5− | 0.0 | | | | |

**2006 CO$_{10}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 258.63414 | | (2000.0) | | | |
| $n$ | 0.17690847 | $\omega$ | 137.98983 | | −0.87763877 | −0.47747594 |
| $a$ | 3.1427051 | $\Omega$ | 13.67189 | | +0.37865178 | −0.74440974 |
| $e$ | 0.1612233 | $i$ | 10.24404 | | +0.29389289 | −0.46676640 |
| $P$ | 5.57 | $H$ | 16.4 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 02 04 | 673 | 0.2+ | 0.1+ | 2006 02 21 | 703 | 0.8+ | 0.5− | 2006 05 05 | G96 | 0.0 | 0.1− |
| 2006 02 04 | 673 | 0.1+ | 0.2+ | 2006 02 21 | 703 | (2.3− | 1.1+) | 2006 05 05 | G96 | 0.1− | 0.5− |
| 2006 02 04 | 673 | 0.1+ | 0.2+ | 2006 02 21 | 703 | 0.4− | 0.8− | 2009 09 27 | 691 | 0.2− | 0.0 |
| 2006 02 08 | 673 | 0.3+ | 0.2− | 2006 02 21 | 703 | 1.8− | 0.0 | 2009 09 27 | 691 | 0.1+ | 0.3+ |
| 2006 02 08 | 673 | 0.0 | 0.3− | 2006 03 24 | 699 | 0.2− | 0.4+ | 2009 09 27 | 691 | 0.5+ | 0.1− |
| 2006 02 08 | 673 | 0.4− | 0.4− | 2006 03 24 | 699 | 0.1− | 0.8+ | 2009 10 17 | 291 | 0.1− | 0.3− |
| 2006 02 11 | 673 | 0.1+ | 0.1− | 2006 03 24 | 699 | 1.5+ | 0.1+ | 2009 10 17 | 291 | 0.2− | 0.1+ |
| 2006 02 11 | 673 | 0.0 | 0.1− | 2006 03 24 | 699 | 1.1+ | 1.7+ | 2009 10 17 | 291 | 0.2− | 0.1+ |
| 2006 02 11 | 673 | 0.7− | 0.1+ | 2006 05 05 | G96 | 0.3+ | 0.4− | | | | |
| 2006 02 11 | 673 | 0.5− | 0.3+ | 2006 05 05 | G96 | 0.2− | 0.4− | | | | |

**2006 CE$_{25}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 303.26619 | | (2000.0) | | | |
| $n$ | 0.18391148 | $\omega$ | 125.63042 | | +0.06173046 | −0.98997029 |
| $a$ | 3.0624111 | $\Omega$ | 320.23534 | | +0.83943702 | +0.12037089 |
| $e$ | 0.0825557 | $i$ | 11.45911 | | +0.53993967 | −0.07395727 |
| $P$ | 5.36 | $H$ | 15.5 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 01 05 | 699 | 0.1+ | 0.9+ | 2006 02 04 | 704 | 0.1+ | 0.4+ | 2006 03 05 | G96 | 0.2+ | 0.3+ |
| 2006 01 05 | 699 | (1.4− | 3.3+) | 2006 02 04 | 704 | 0.4+ | 1.0+ | 2006 03 05 | G96 | 0.2− | 0.7+ |
| 2006 01 05 | 699 | 0.4− | 1.4+ | 2006 02 04 | 704 | 0.4− | 0.4+ | 2006 03 05 | G96 | 0.6− | 0.0 |
| 2006 01 05 | 699 | 0.0 | 0.5+ | 2006 02 04 | 704 | 1.0− | 0.2+ | 2006 03 05 | G96 | (0.2+ | 2.3+) |
| 2006 01 23 | G96 | 0.3+ | 0.3− | 2006 02 05 | G96 | 0.2− | 0.0 | 2006 03 23 | G96 | 0.5− | 0.1+ |
| 2006 01 23 | G96 | 0.1+ | 0.3− | 2006 02 05 | G96 | 0.2+ | 0.3− | 2006 03 23 | G96 | 0.3+ | 0.0 |
| 2006 01 23 | G96 | 0.0 | 0.3− | 2006 02 05 | G96 | 0.0 | 0.3− | 2006 03 23 | G96 | 0.5− | 0.1+ |
| 2006 01 23 | G96 | 0.0 | 0.5− | 2006 02 05 | G96 | 0.1− | 0.2− | 2006 03 23 | G96 | 0.2− | 0.0 |
| 2006 02 02 | 691 | 0.5− | 0.7− | 2006 02 06 | 704 | 0.1+ | 1.1− | 2009 09 25 | 703 | 0.3+ | 0.1+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 02 02 | 691 | 0.0 | 0.1− | 2006 02 06 | 704 | 0.9+ | 0.3− | 2009 09 25 | 703 | 0.0 | 0.2− | | |
| 2006 02 02 | 691 | 0.7+ | 0.3− | 2006 02 06 | 704 | 0.5+ | 0.0 | 2009 09 25 | 703 | 0.2− | 0.5+ | | |
| 2006 02 02 | 703 | 0.4+ | 0.7+ | 2006 02 06 | 704 | 0.6+ | 0.8+ | 2009 09 25 | 703 | 0.2− | 0.0 | | |
| 2006 02 02 | 703 | 0.4− | 0.5− | 2006 02 25 | G96 | 0.2− | 0.3+ | 2009 10 14 | 703 | 0.2+ | 1.3− | | |
| 2006 02 02 | 703 | 0.4− | 0.3− | 2006 02 25 | G96 | 0.7− | 0.1+ | 2009 10 14 | 703 | 0.4− | 0.0 | | |
| 2006 02 02 | 703 | 0.3+ | 0.2+ | 2006 02 25 | G96 | 0.1− | 0.4+ | 2009 10 14 | 703 | 0.1− | 0.2+ | | |
| 2006 02 04 | 704 | 0.2− | 0.1− | 2006 02 25 | G96 | 0.1+ | 0.5+ | 2009 10 14 | 703 | 0.4+ | 0.6+ | | |

**2006 CP$_{50}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 320.02596 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21651109 | $\omega$ | 164.95137 | | −0.82400717 | −0.56400094 | |
| $a$ | 2.7467299 | $\Omega$ | 340.42180 | | +0.50176670 | −0.68216738 | |
| $e$ | 0.1571669 | $i$ | 9.27222 | | +0.26313944 | −0.46534999 | |
| $P$ | 4.55 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 01 26 | G96 | 0.1+ | 0.4+ | 2006 02 20 | 703 | 0.1− | 0.5− | 2006 03 23 | 704 | 0.9− | 1.3+ | | |
| 2006 01 26 | G96 | 0.0 | 0.2+ | 2006 02 20 | 703 | 0.1+ | 0.5− | 2006 03 23 | 704 | (1.7+ | 0.5+) | | |
| 2006 01 26 | G96 | 0.3− | 0.1+ | 2006 02 24 | 691 | 0.0 | 0.2− | 2006 03 25 | 691 | 0.1− | 0.1− | | |
| 2006 01 26 | G96 | 0.2+ | 0.1− | 2006 02 24 | 691 | 0.1− | 0.1− | 2006 03 25 | 691 | 0.1− | 0.1− | | |
| 2006 02 03 | G96 | 0.1+ | 0.1+ | 2006 02 24 | 691 | 0.0 | 0.0 | 2006 03 25 | 691 | 0.0 | 0.1− | | |
| 2006 02 03 | G96 | 0.3− | 0.5− | 2006 02 24 | 704 | 0.8+ | 1.3+ | 2008 09 07 | G96 | 0.2− | 0.3+ | | |
| 2006 02 03 | G96 | 0.3− | 0.2− | 2006 02 24 | 704 | 0.4+ | 0.0 | 2008 09 07 | G96 | 0.1− | 0.2− | | |
| 2006 02 03 | G96 | 0.2− | 0.1− | 2006 02 24 | 704 | (1.7+ | 0.0 ) | 2008 09 07 | G96 | 0.2− | 0.2+ | | |
| 2006 02 07 | G96 | 0.2− | 0.1− | 2006 02 24 | 704 | 0.1+ | 0.4+ | 2008 09 07 | G96 | 0.2− | 0.2+ | | |
| 2006 02 07 | G96 | 0.2− | 0.5− | 2006 02 24 | G96 | 0.1+ | 0.4− | 2008 09 25 | G96 | 0.1− | 0.1− | | |
| 2006 02 07 | 703 | 1.4+ | 1.1+ | 2006 02 24 | G96 | 0.3− | 0.3− | 2008 09 25 | G96 | 0.2− | 0.1− | | |
| 2006 02 07 | G96 | 0.1+ | 0.3− | 2006 02 24 | G96 | 0.0 | 0.1− | 2008 09 25 | G96 | 0.2+ | 0.1− | | |
| 2006 02 07 | 703 | 0.5− | 0.1− | 2006 02 24 | G96 | 0.4− | 0.2− | 2008 09 25 | G96 | 0.1+ | 0.1− | | |
| 2006 02 07 | G96 | 0.6− | 0.3− | 2006 02 27 | 704 | 0.2+ | 0.6+ | 2008 10 08 | G96 | 0.5+ | 0.1+ | | |
| 2006 02 07 | 703 | 0.3− | 0.2− | 2006 02 27 | 704 | 0.7+ | 0.3+ | 2008 10 08 | G96 | 0.3− | 0.1+ | | |
| 2006 02 07 | 703 | 0.6− | 0.1− | 2006 02 27 | 704 | 0.8+ | 1.0+ | 2008 10 08 | G96 | 0.0 | 0.1− | | |
| 2006 02 20 | 703 | 1.3+ | 0.1− | 2006 02 27 | 704 | 0.2− | 0.3+ | 2008 10 08 | G96 | 0.3+ | 0.3+ | | |
| 2006 02 20 | 703 | 0.2+ | 0.2− | 2006 03 23 | 704 | (2.2− | 0.5−) | | | | | | |

**2006 CU$_{65}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 260.78959 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19112905 | $\omega$ | 130.38522 | | −0.77848737 | +0.62424119 | |
| $a$ | 2.9848207 | $\Omega$ | 88.34322 | | −0.59387871 | −0.69884043 | |
| $e$ | 0.1721435 | $i$ | 3.75279 | | −0.20313908 | −0.34920623 | |
| $P$ | 5.16 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 02 01 | 691 | 0.3+ | 0.3− | 2006 05 05 | 691 | 0.2+ | 0.2+ | 2008 10 24 | G96 | 0.2+ | 0.4+ | | |
| 2006 02 01 | 691 | 0.5− | 0.2+ | 2006 05 05 | 691 | 0.0 | 0.1+ | 2008 10 24 | G96 | 0.4+ | 0.4+ | | |
| 2006 02 01 | 691 | 0.3+ | 0.2− | 2006 05 23 | G96 | 0.6− | 0.2+ | 2008 10 24 | G96 | 0.4+ | 0.5+ | | |
| 2006 04 08 | 691 | 0.0 | 0.1+ | 2006 05 23 | G96 | 0.3− | 0.1+ | 2009 12 16 | G96 | 0.3− | 0.5− | | |
| 2006 04 08 | 691 | 0.1+ | 0.1+ | 2006 05 23 | G96 | 0.1− | 0.5− | 2009 12 16 | G96 | 0.5+ | 0.1+ | | |
| 2006 04 08 | 691 | 0.1− | 0.0 | 2006 05 23 | G96 | 0.0 | 0.3− | 2009 12 16 | G96 | 0.2+ | 0.1+ | | |
| 2006 04 24 | 691 | 0.1+ | 0.2+ | 2008 10 21 | 691 | 0.5+ | 0.3+ | 2009 12 16 | G96 | 0.6+ | 0.0 | | |
| 2006 04 24 | 691 | 0.1+ | 0.2+ | 2008 10 21 | 691 | 0.5− | 0.7+ | 2009 12 26 | 691 | 0.0 | 0.2− | | |
| 2006 04 24 | 691 | 0.0 | 0.3+ | 2008 10 21 | 691 | 0.6− | 0.3− | 2009 12 26 | 691 | 0.1− | 0.2+ | | |
| 2006 05 05 | 691 | 0.0 | 0.1+ | 2008 10 24 | G96 | 0.2− | 0.2+ | 2009 12 26 | 691 | 0.1− | 0.2+ | | |

**2006 CA$_{66}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 319.35163 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23023667 | $\omega$ | 261.36426 | | −0.98979449 | +0.12698530 | |
| $a$ | 2.6364511 | $\Omega$ | 285.91228 | | −0.08920003 | −0.90599138 | |
| $e$ | 0.3069158 | $i$ | 3.85558 | | −0.11113153 | −0.40379990 | |
| $P$ | 4.28 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 02 06 | 291 | 0.1+ | 0.1− | 2006 03 25 | 644 | 0.2− | 0.2+ | 2008 10 31 | G96 | 0.1− | 0.2− | | |
| 2006 02 06 | 291 | 0.0 | 0.1+ | 2006 04 08 | E12 | 0.2− | 1.1− | 2008 10 31 | G96 | 0.0 | 0.4+ | | |
| 2006 02 06 | 291 | 0.2+ | 0.1+ | 2006 04 08 | E12 | 0.2− | 0.3− | 2008 10 31 | G96 | 0.2+ | 0.3+ | | |
| 2006 03 04 | 703 | 0.0 | 0.1− | 2006 04 08 | E12 | 0.2+ | 0.2− | 2008 10 31 | G96 | 0.2− | 0.0 | | |
| 2006 03 04 | 703 | 0.5− | 0.2+ | 2006 04 08 | E12 | 0.3− | 0.2+ | 2009 12 17 | 691 | 0.1+ | 0.1− | | |
| 2006 03 04 | 703 | 0.8− | 0.1+ | 2006 04 21 | 704 | 0.3+ | 0.1− | 2009 12 17 | 691 | 0.3+ | 0.0 | | |
| 2006 03 04 | 703 | 0.1− | 0.1− | 2006 04 21 | 704 | 0.3+ | 0.2− | 2009 12 17 | 691 | 0.4− | 0.2+ | | |
| 2006 03 25 | 644 | 0.2− | 0.1+ | 2006 04 21 | 704 | 0.5+ | 0.6+ | | | | | | |
| 2006 03 25 | 644 | 0.3− | 0.0 | 2006 04 21 | 704 | 0.8+ | 1.0+ | | | | | | |

**2006 CC$_{68}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 341.99342 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17848851 | $\omega$ | 258.55737 | | +0.68790299 | −0.68158346 | |
| $a$ | 3.1241308 | $\Omega$ | 143.56267 | | +0.71218746 | +0.70013678 | |
| $e$ | 0.0852999 | $i$ | 24.83567 | | −0.13992314 | +0.21272632 | |
| $P$ | 5.52 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 02 01 | G96 | 0.5− | 0.1+ | 2006 02 20 | G96 | 0.3+ | 0.0 | 2009 09 17 | 703 | 1.7+ | 0.4− | | |
| 2006 02 01 | G96 | 0.5+ | 0.1− | 2006 02 20 | G96 | 0.3+ | 0.5− | 2009 09 17 | 703 | 0.9+ | 1.1− | | |
| 2006 02 01 | G96 | 0.4− | 0.1+ | 2006 02 20 | G96 | 0.0 | 0.1+ | 2009 09 17 | 703 | 0.2+ | 1.1+ | | |
| 2006 02 01 | G96 | 0.1+ | 0.1+ | 2006 02 20 | G96 | 0.1+ | 0.0 | 2009 09 17 | 703 | 0.7− | 0.7+ | | |
| 2006 02 01 | G96 | 0.7− | 0.1+ | 2006 03 05 | G96 | 0.1+ | 0.0 | 2009 10 14 | E12 | 0.4− | 0.4− | | |
| 2006 02 01 | G96 | 0.4+ | 0.3− | 2006 03 05 | G96 | 0.3+ | 0.1− | 2009 10 14 | E12 | 1.7− | 0.1+ | | |
| 2006 02 01 | G96 | 0.4− | 0.3+ | 2006 03 05 | G96 | 0.1− | 0.0 | | | | | | |
| 2006 02 01 | G96 | 0.0 | 0.1+ | 2006 03 05 | G96 | 0.0 | 0.0 | | | | | | |

**2006 CY$_{68}$ = 2009 YK$_{12}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 35.26599 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22307027 | $\omega$ | 26.39855 | | +0.37167200 | −0.92748729 | |
| $a$ | 2.6926191 | $\Omega$ | 41.81619 | | +0.84069963 | +0.31782543 | |
| $e$ | 0.0232154 | $i$ | 3.46862 | | +0.39380714 | +0.19686118 | |
| $P$ | 4.42 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 02 02 | 691 | 0.1− | 0.2− | 2006 02 01 | 691 | 0.3− | 0.5+ | 2006 02 22 | 291 | 0.1− | 0.2+ | | |
| 1997 02 02 | 691 | 0.1− | 0.0 | 2006 02 01 | 691 | 0.2− | 0.1− | 2006 02 22 | 291 | 0.2+ | 0.3+ | | |
| 1997 02 02 | 691 | 0.0 | 0.5− | 2006 02 01 | 691 | 0.0 | 0.2+ | 2009 12 18 | G96 | 0.2+ | 0.3− | | |
| 2004 11 03 | 691 | 0.0 | 0.0 | 2006 02 01 | 691 | 0.1+ | 0.2− | 2009 12 18 | G96 | 0.1+ | 0.4− | | |
| 2004 11 03 | 691 | 0.0 | 0.2+ | 2006 02 20 | 691 | 0.3+ | 0.1− | 2009 12 18 | G96 | 0.2− | 0.6− | | |
| 2004 11 03 | 691 | 0.2− | 0.4+ | 2006 02 20 | 691 | 0.2+ | 0.2+ | 2009 12 19 | 691 | 0.6+ | 0.2+ | | |
| 2006 02 01 | 691 | 0.1− | 0.1+ | 2006 02 20 | 691 | 0.2+ | 0.0 | 2009 12 19 | 691 | 0.5− | 0.5− | | |
| 2006 02 01 | 691 | 0.0 | 0.3+ | 2006 02 22 | 291 | 0.1+ | 0.0 | 2009 12 19 | 691 | 0.1− | 0.1− | | |

**2006 DF$_3$ = 2009 WO$_{51}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 51.35403 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.20302891 | $\omega$ | 67.54045 | | +0.90138565 | −0.43283281 | |
| $a$ | 2.8670205 | $\Omega$ | 318.10412 | | +0.39000541 | +0.82418430 | |
| $e$ | 0.0757737 | $i$ | 1.08424 | | +0.18814806 | +0.36520679 | |
| $P$ | 4.85 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 01 30 | 691 | 0.1+ | 0.2+ | 2008 07 30 | G96 | 0.5− | 0.3+ | 2009 11 21 | 691 | 0.3− | 0.3+ | | |
| 2006 01 30 | 691 | 0.4+ | 0.0 | 2008 07 30 | G96 | 0.5− | 0.0 | 2009 11 21 | 691 | 0.3− | 0.1− | | |
| 2006 01 30 | 691 | 0.2+ | 0.3+ | 2008 07 30 | G96 | 0.2− | 0.2+ | 2009 11 21 | 691 | 0.2+ | 0.1+ | | |
| 2006 02 20 | 691 | 0.5+ | 0.6− | 2008 09 06 | G96 | 0.5− | 0.9+ | 2009 11 25 | 691 | 0.6− | 0.0 | | |
| 2006 02 20 | 691 | 0.3+ | 0.2+ | 2008 09 06 | G96 | 0.2+ | 0.8+ | 2009 11 25 | 691 | 0.4+ | 0.2− | | |
| 2006 02 20 | 691 | 0.4− | 0.3− | 2008 09 06 | G96 | 0.2− | 0.3− | 2009 11 25 | 691 | 0.4− | 0.3+ | | |
| 2006 02 21 | G96 | 0.0 | 0.1− | 2008 09 06 | G96 | 0.0 | 0.2− | 2009 12 10 | G96 | 0.5+ | 0.1+ | | |
| 2006 02 21 | G96 | 0.5− | 0.2+ | 2008 09 20 | G96 | 1.0+ | 0.1+ | 2009 12 10 | G96 | 0.6+ | 0.0 | | |
| 2006 02 21 | G96 | 1.0− | 0.2+ | 2008 09 20 | G96 | 0.1+ | 0.2− | 2009 12 10 | G96 | 0.4+ | 0.4− | | |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 02 21 | G96 | 0.4− | 0.3− | 2008 09 20 | G96 | 0.2− | 0.2+ | 2009 12 10 | G96 | 0.6+ | 0.5− |
| 2006 03 03 | 691 | 0.5+ | 0.6+ | 2008 09 20 | G96 | 0.0 | 0.0 | 2009 12 19 | G96 | 0.2+ | 0.0 |
| 2006 03 03 | 691 | 0.3− | 0.2+ | 2009 11 20 | G96 | 0.4+ | 0.2− | 2009 12 19 | G96 | 0.1− | 0.1+ |
| 2006 03 03 | 691 | 0.5− | 0.0 | 2009 11 20 | G96 | 0.4+ | 0.1− | 2009 12 19 | G96 | 0.4+ | 0.1+ |
| 2008 07 30 | G96 | 0.1+ | 0.1+ | 2009 11 20 | G96 | 0.5+ | 0.1+ | 2009 12 19 | G96 | 0.2+ | 0.7− |

### 2006 DV$_8$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 300.45426 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21426007 | $\omega$ | 96.15498 | | −0.93019857 | −0.33871058 | |
| $a$ | 2.7659345 | $\Omega$ | 64.11971 | | +0.24253589 | −0.85640695 | |
| $e$ | 0.1956156 | $i$ | 9.04490 | | +0.27551217 | −0.38966944 | |
| $P$ | 4.60 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 01 12 | 644 | 0.0 | 0.3− | 2006 02 22 | 699 | 1.4+ | 0.2+ | 2006 03 31 | 699 | 0.3− | 1.2− |
| 2006 01 12 | 644 | 0.2− | 0.3− | 2006 02 22 | 699 | 0.9− | 0.1+ | 2009 11 17 | 691 | 0.2+ | 0.1− |
| 2006 01 12 | 644 | 0.0 | 0.3+ | 2006 03 24 | 703 | 1.0+ | 0.4− | 2009 11 17 | 691 | 0.5− | 0.1+ |
| 2006 02 21 | 703 | 1.2− | 0.4− | 2006 03 24 | 703 | 0.1+ | 0.2− | 2009 11 17 | 691 | 0.2− | 0.1− |
| 2006 02 21 | 703 | 0.7− | 1.0− | 2006 03 24 | 703 | 0.9− | 0.6+ | 2009 12 15 | G96 | 0.7+ | 0.0 |
| 2006 02 21 | 703 | 0.9+ | 0.0 | 2006 03 24 | 703 | 1.3− | 0.1− | 2009 12 15 | G96 | 0.6+ | 0.4+ |
| 2006 02 21 | 703 | 0.4− | 0.6+ | 2006 03 31 | 699 | 0.4+ | 0.0 | 2009 12 15 | G96 | 0.6+ | 0.2+ |
| 2006 02 22 | 699 | 0.0 | 0.3+ | 2006 03 31 | 699 | 1.8+ | 0.4− | 2009 12 15 | G96 | 0.4− | 0.1+ |
| 2006 02 22 | 699 | 0.7+ | 0.4+ | 2006 03 31 | 699 | 0.5− | 1.8+ | | | | |

### 2006 DF$_{23}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 247.98664 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18824828 | $\omega$ | 41.23077 | | −0.99514493 | +0.07417714 | |
| $a$ | 3.0151947 | $\Omega$ | 142.87298 | | −0.09097793 | −0.94402161 | |
| $e$ | 0.0553649 | $i$ | 6.15223 | | +0.03754445 | −0.32143577 | |
| $P$ | 5.24 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 01 07 | G96 | 0.1+ | 0.4− | 2006 03 05 | J95 | 0.1− | 0.0 | 2008 09 23 | G96 | 0.0 | 0.4+ |
| 2006 01 07 | G96 | 0.5− | 0.1− | 2006 03 05 | G96 | 0.1− | 0.2− | 2008 09 23 | G96 | 0.5+ | 0.2+ |
| 2006 01 07 | G96 | 0.1+ | 0.6− | 2006 03 05 | G96 | 0.2− | 0.1− | 2008 09 23 | G96 | 0.4+ | 0.1+ |
| 2006 01 07 | G96 | 0.1− | 0.3− | 2006 03 05 | G96 | 0.3− | 0.1+ | 2008 09 23 | G96 | 0.8+ | 0.3+ |
| 2006 02 20 | 691 | 0.2+ | 0.1+ | 2006 03 08 | G96 | 0.2− | 0.2− | 2009 11 16 | 291 | 0.0 | 0.1+ |
| 2006 02 20 | 691 | 0.1+ | 0.4+ | 2006 03 08 | G96 | 0.4− | 0.3− | 2009 11 16 | 291 | 0.0 | 0.0 |
| 2006 02 20 | 691 | 0.1− | 0.4+ | 2006 03 08 | G96 | 0.3− | 0.1− | 2009 11 16 | 291 | 0.1− | 0.2− |
| 2006 02 24 | 691 | 0.1+ | 0.4+ | 2006 03 08 | G96 | 0.5− | 0.1− | 2009 11 25 | G96 | 0.4+ | 0.1− |
| 2006 02 24 | 691 | 0.3+ | 0.0 | 2008 08 07 | 691 | 0.4− | 0.3+ | 2009 11 25 | G96 | 0.1+ | 0.2+ |
| 2006 02 24 | 691 | 0.5+ | 0.1+ | 2008 08 07 | 691 | 0.0 | 0.2+ | 2009 11 25 | G96 | 0.0 | 0.4+ |
| 2006 03 05 | J95 | 0.0 | 0.1− | 2008 08 07 | 691 | 0.3− | 0.1− | 2009 11 25 | G96 | 0.3− | 0.3+ |

### 2006 DK$_{28}$ = 2009 YP$_{13}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 2.53786 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21594165 | $\omega$ | 315.61937 | | −0.31547681 | −0.94815171 | |
| $a$ | 2.7515565 | $\Omega$ | 152.70185 | | +0.89231959 | −0.31021726 | |
| $e$ | 0.0464764 | $i$ | 4.81626 | | +0.32286240 | −0.06909116 | |
| $P$ | 4.56 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 01 07 | G96 | 0.2− | 0.1− | 2006 03 03 | G96 | 0.4− | 0.2+ | 2008 12 03 | G96 | 0.0 | 0.3+ |
| 2006 01 07 | G96 | 0.5+ | 0.3− | 2006 03 03 | G96 | 0.0 | 0.2+ | 2008 12 03 | G96 | 0.1+ | 0.4+ |
| 2006 01 07 | G96 | 1.0+ | 0.1− | 2006 03 03 | G96 | 0.1− | 0.2+ | 2008 12 03 | G96 | 0.7+ | 0.4+ |
| 2006 01 07 | G96 | 0.1− | 0.1− | 2008 09 19 | 691 | 0.2− | 0.1+ | 2009 09 18 | 691 | 0.6− | 0.2− |
| 2006 02 20 | 691 | 0.0 | 0.6+ | 2008 09 19 | 691 | 0.1+ | 0.4+ | 2009 09 18 | 691 | 0.4+ | 0.3− |
| 2006 02 20 | 691 | 0.2+ | 0.2+ | 2008 09 19 | 691 | 0.3− | 0.1− | 2009 09 18 | 691 | 0.3+ | 0.0 |
| 2006 02 20 | 691 | 0.0 | 0.6+ | 2008 10 02 | G96 | 0.7+ | 0.0 | 2009 12 18 | G96 | 0.3+ | 0.5− |
| 2006 02 24 | 691 | 0.2− | 0.2+ | 2008 10 02 | G96 | 0.7+ | 0.1+ | 2009 12 18 | G96 | 0.2+ | 0.7− |
| 2006 02 24 | 691 | 0.3+ | 0.6+ | 2008 10 02 | G96 | 0.7+ | 0.3+ | 2009 12 18 | G96 | 0.1+ | 0.4− |
| 2006 02 24 | 691 | 0.2− | 0.3+ | 2008 10 02 | G96 | 0.7+ | 0.0 | 2009 12 18 | G96 | 0.1+ | 0.5− |
| 2006 03 02 | 691 | 0.2+ | 0.1+ | 2008 10 17 | 691 | 0.4− | 0.4+ | 2009 12 20 | 691 | 0.2− | 0.1− |
| 2006 03 02 | 691 | 0.3+ | 0.1+ | 2008 10 17 | 691 | 0.5− | 0.9+ | 2009 12 20 | 691 | 0.1− | 0.2− |
| 2006 03 02 | 691 | 0.5+ | 0.4+ | 2008 10 17 | 691 | 0.4− | 0.9+ | 2009 12 20 | 691 | 0.1− | 0.0 |
| 2006 03 03 | G96 | 0.1− | 0.4+ | 2008 12 03 | G96 | 0.6− | 1.4+ | | | | |

### 2006 DK$_{32}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 331.15429 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21549682 | $\omega$ | 320.35187 | | −0.62313974 | −0.78191680 | |
| $a$ | 2.7553417 | $\Omega$ | 168.15935 | | +0.73738274 | −0.59477619 | |
| $e$ | 0.1810359 | $i$ | 4.86629 | | +0.26069823 | −0.18667460 | |
| $P$ | 4.57 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 09 05 | 691 | 1.0− | 1.8+ | 2006 02 24 | 691 | 0.7+ | 0.1+ | 2006 03 24 | 699 | 0.4+ | 1.4+ |
| 1999 09 05 | 691 | 0.0 | 0.0 | 2006 02 24 | 691 | 0.2+ | 0.0 | 2006 03 24 | 699 | 0.1+ | 0.4+ |
| 1999 09 05 | 691 | 0.4+ | 0.1− | 2006 03 02 | 691 | 0.1− | 0.3+ | 2009 12 08 | J75 | 0.5− | 0.7− |
| 2005 12 07 | 691 | 0.2+ | 0.3+ | 2006 03 02 | 691 | 0.0 | 0.4+ | 2009 12 08 | J75 | 0.8+ | 0.2− |
| 2005 12 07 | 691 | 0.3− | 0.1+ | 2006 03 02 | 691 | 0.1+ | 0.3+ | 2009 12 09 | J75 | 0.1+ | 0.2− |
| 2005 12 07 | 691 | 0.0 | 0.9− | 2006 03 24 | 699 | 0.7+ | 0.0 | 2009 12 15 | 703 | 0.7+ | 0.0 |
| 2006 02 20 | G96 | 0.2− | 0.0 | 2006 03 24 | G96 | 0.0 | 0.0 | 2009 12 15 | 703 | 1.0− | 0.2+ |
| 2006 02 20 | G96 | 0.5− | 0.1+ | 2006 03 24 | 699 | 0.2− | 0.6+ | 2009 12 15 | 703 | 0.7− | 1.4+ |
| 2006 02 20 | G96 | 0.7− | 0.0 | 2006 03 24 | G96 | 0.4− | 0.2− | 2009 12 15 | 703 | 0.5+ | 0.0 |
| 2006 02 20 | G96 | 0.4− | 0.3− | 2006 03 24 | G96 | 0.4− | 0.1− | | | | |
| 2006 02 24 | 691 | 0.0 | 0.2+ | 2006 03 24 | G96 | 0.2+ | 0.1− | | | | |

### 2006 DB$_{35}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 274.61757 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18105164 | $\omega$ | 131.80985 | | −0.85151044 | −0.52421077 | |
| $a$ | 3.0945755 | $\Omega$ | 16.58547 | | +0.46829518 | −0.77021035 | |
| $e$ | 0.1852146 | $i$ | 2.31591 | | +0.23585928 | −0.36328926 | |
| $P$ | 5.44 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 02 | 568(11.0− | 3.8−) | | 2006 03 23 | G96 | 0.2− | 0.3− | 2006 04 21 | 691 | 0.3+ | 0.0 |
| 2005 12 02 | 568(11.0− | 3.3−) | | 2006 03 23 | G96 | 0.0 | 0.2+ | 2006 04 21 | 691 | 0.2− | 0.2+ |
| 2005 12 02 | 568(10.5− | 4.1−) | | 2006 03 23 | G96 | 0.3− | 0.4− | 2009 09 18 | 691 | 0.0 | 0.2+ |
| 2006 02 20 | 691 | 0.1− | 0.2+ | 2006 03 24 | G96 | 0.1+ | 0.7+ | 2009 09 18 | 691 | 0.1+ | 0.1− |
| 2006 02 20 | 691 | 0.0 | 0.3− | 2006 03 24 | G96 | 0.4+ | 0.6+ | 2009 09 18 | 691 | 0.5− | 0.1+ |
| 2006 02 20 | 691 | 0.1− | 0.5− | 2006 03 24 | G96 | 0.4− | 0.2+ | 2009 10 22 | G96 | 0.5+ | 0.4− |
| 2006 02 24 | 691 | 0.2− | 0.1− | 2006 03 24 | G96 | 0.1− | 0.1+ | 2009 10 22 | G96 | 0.1+ | 0.4− |
| 2006 02 24 | 691 | 0.0 | 0.0 | 2006 04 07 | G96 | 0.3− | 0.3− | 2009 10 22 | G96 | 0.1− | 0.2+ |
| 2006 02 24 | 691 | 0.3+ | 0.3+ | 2006 04 07 | G96 | 0.2− | 0.1+ | 2009 10 22 | G96 | 0.6+ | 0.0 |
| 2006 03 02 | 691 | 0.2+ | 0.0 | 2006 04 07 | G96 | 0.2− | 0.2− | 2009 10 22 | G96 | 0.4+ | 0.2− |
| 2006 03 02 | 691 | 0.1+ | 0.1+ | 2006 04 07 | G96 | 0.7− | 0.2− | 2009 10 22 | G96 | 0.5+ | 0.1− |
| 2006 03 02 | 691 | 0.1+ | 0.1+ | 2006 04 19 | G96 | 0.2− | 0.1− | 2009 10 22 | G96 | 0.3+ | 0.3− |
| 2006 03 06 | 691 | 0.0 | 0.2− | 2006 04 19 | G96 | 0.2− | 0.8− | 2009 10 22 | G96 | 0.1− | 0.2− |
| 2006 03 06 | 691 | 0.2− | 0.2+ | 2006 04 19 | G96 | 0.3− | 0.0 | 2009 11 17 | 691 | 0.1+ | 0.4+ |
| 2006 03 06 | 691 | 0.1+ | 0.1+ | 2006 04 19 | G96 | 0.4− | 0.1+ | 2009 11 17 | 691 | 0.2− | 0.0 |
| 2006 03 23 | G96 | 0.3− | 0.0 | 2006 04 21 | 691 | 0.6+ | 0.0 | 2009 11 17 | 691 | 0.1− | 0.1− |

### 2006 DB$_{39}$ = 2006 GJ$_4$

Id. Minor Planet Center (d, *MPO* 104420)

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 339.12935 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22763857 | $\omega$ | 246.67522 | | −0.78617217 | −0.61796398 | |
| $a$ | 2.6564735 | $\Omega$ | 255.15637 | | +0.56974727 | −0.72012956 | |
| $e$ | 0.1411967 | $i$ | 0.43490 | | +0.23941880 | −0.31549000 | |
| $P$ | 4.33 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 02 21 | G96 | 0.6− | 0.2+ | 2006 03 25 | 691 | 0.2+ | 0.3+ | 2006 05 03 | G96 | 0.3− | 0.3− |
| 2006 02 21 | G96 | 0.1+ | 0.4− | 2006 03 25 | 691 | 0.4+ | 0.3+ | 2008 10 20 | G96 | 0.1− | 0.2+ |
| 2006 02 21 | G96 | 0.3− | 0.2− | 2006 03 25 | G96 | 0.1+ | 0.0 | 2008 10 20 | G96 | 0.4+ | 0.6+ |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 02 21 | G96 | 0.3− | 0.5− | 2006 03 25 | G96 | 0.4+ | 0.4− | 2008 10 20 | G96 | 0.2− | 0.5+ |
| 2006 02 24 | G96 | 0.1+ | 0.0 | 2006 03 25 | G96 | 0.0 | 0.6− | 2008 10 20 | G96 | 0.9− | 0.6+ |
| 2006 02 24 | G96 | 0.0 | 0.1− | 2006 03 25 | G96 | 0.4− | 0.1+ | 2009 12 17 | 691 | 0.2+ | 0.1− |
| 2006 02 24 | G96 | 0.1− | 0.1− | 2006 04 02 | 691 | 0.3+ | 0.0 | 2009 12 17 | 691 | 0.7+ | 0.1+ |
| 2006 02 24 | G96 | 0.2− | 0.3− | 2006 04 02 | 691 | 0.1+ | 0.3− | 2009 12 17 | 691 | 0.3+ | 0.2− |
| 2006 03 02 | 691 | 0.2− | 0.2+ | 2006 04 02 | 691 | 0.3− | 0.3+ | 2009 12 25 | 691 | 0.3− | 0.2− |
| 2006 03 02 | 691 | 0.1− | 0.0 | 2006 05 03 | G96 | 0.4+ | 0.2− | 2009 12 25 | 691 | 0.3− | 0.6+ |
| 2006 03 02 | 691 | 0.2− | 0.0 | 2006 05 03 | G96 | 0.3+ | 0.0 | 2009 12 25 | 691 | 0.6− | 0.2− |
| 2006 03 25 | 691 | 0.1+ | 0.1+ | 2006 05 03 | G96 | 0.2− | 0.2− | | | | |

### 2006 DZ$_{41}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 9.78415 | | (2000.0) | | | |
| $n$ | 0.23440611 | $\omega$ | 88.65060 | | −0.02736781 | −0.99922974 |
| $a$ | 2.6050942 | $\Omega$ | 3.33335 | | +0.61035843 | −0.03898441 |
| $e$ | 0.2950693 | $i$ | 28.92566 | | +0.79165244 | −0.00448715 |
| $P$ | 4.20 | $H$ | 16.2 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 26 | 645 | 0.0 | 0.1+ | 2006 02 24 | 704 | 0.0 | 1.4− | 2006 03 09 | 703 | 0.5− | 0.7− |
| 2000 09 26 | 645 | 0.1− | 0.0 | 2006 02 25 | 704 | 0.3+ | 0.1+ | 2006 03 09 | 703 | 0.2− | 0.9− |
| 2002 03 14 | 644 | 0.0 | 0.6+ | 2006 02 25 | 704 | 0.2− | 0.2+ | 2006 03 09 | 703 | 0.9− | 0.6− |
| 2002 03 14 | 644 | 0.2+ | 0.6+ | 2006 02 25 | 704 | 0.3+ | 0.3− | 2006 03 19 | 699 | 0.8+ | 0.0 |
| 2002 03 14 | 644 | 1.0+ | 0.3− | 2006 02 25 | 704 | 0.7+ | 0.3− | 2006 03 19 | 699 | 0.6+ | 0.6+ |
| 2006 02 01 | 703 | 0.3− | 0.4+ | 2006 02 25 | 704 | 0.1− | 0.7+ | 2006 03 19 | 699 | 0.6+ | 0.5+ |
| 2006 02 01 | 703 | 0.8− | 0.1− | 2006 02 26 | 699 | 0.1+ | 0.1+ | 2006 03 19 | 699 | (2.8+ | 0.7−) |
| 2006 02 01 | 703 | 1.3− | 0.4− | 2006 02 26 | 699 | 1.3+ | 0.1− | 2006 04 02 | 703 | 0.1− | 0.2+ |
| 2006 02 01 | 703 | 1.3+ | 0.1− | 2006 02 26 | 699 | 1.0− | 0.7+ | 2006 04 02 | 703 | 0.4− | 0.4− |
| 2006 02 22 | 703 | 0.9− | 0.9+ | 2006 02 26 | 704 | 0.6+ | 0.6+ | 2006 04 02 | 703 | 0.4− | 0.6+ |
| 2006 02 22 | 703 | 1.0− | 0.3+ | 2006 02 26 | 704 | 0.1+ | 0.7+ | 2006 04 02 | 703 | 0.2+ | 1.6+ |
| 2006 02 22 | 703 | 0.1+ | 0.1+ | 2006 02 26 | 704 | 0.1− | 0.1+ | 2006 05 05 | G96 | 0.6− | 0.4− |
| 2006 02 22 | 703 | 0.5− | 0.4− | 2006 02 26 | 704 | 0.8+ | 0.9+ | 2006 05 05 | G96 | 0.1+ | 0.0 |
| 2006 02 22 | 704 | (0.4+ | 2.8−) | 2006 02 27 | 704 | 0.5+ | 0.6+ | 2006 05 05 | G96 | 0.3− | 0.0 |
| 2006 02 22 | 704 | 0.7− | 0.9− | 2006 02 27 | 704 | 1.2+ | 0.2+ | 2006 05 05 | G96 | 0.2− | 0.3− |
| 2006 02 22 | 704 | 1.6+ | 1.1− | 2006 02 27 | 704 | 1.2+ | 0.7+ | 2006 05 26 | G96 | 0.0 | 0.2+ |
| 2006 02 22 | 704 | 0.1− | 1.3− | 2006 02 28 | 703 | 0.8− | 0.6+ | 2006 05 26 | G96 | 0.5− | 0.1− |
| 2006 02 24 | 704 | 0.2− | 1.3− | 2006 02 28 | 703 | 0.9− | 0.2+ | 2006 05 26 | G96 | 0.4− | 0.2+ |
| 2006 02 24 | 704 | 0.7− | 0.0 | 2006 02 28 | 703 | 0.8+ | 0.8+ | 2006 05 26 | G96 | 0.2+ | 0.1− |
| 2006 02 24 | 704 | 1.1+ | 0.3− | 2006 02 28 | 703 | 0.3− | 0.0 | | | | |
| 2006 02 24 | 704 | 0.4+ | 0.3− | 2006 03 09 | 703 | 0.3− | 0.1− | | | | |

### 2006 DQ$_{55}$ = 2009 WO$_{245}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 91.18659 | | (2000.0) | | | |
| $n$ | 0.21979340 | $\omega$ | 257.07516 | | +0.96187356 | −0.25738577 |
| $a$ | 2.7193157 | $\Omega$ | 117.77558 | | +0.27339176 | +0.89561066 |
| $e$ | 0.1248169 | $i$ | 5.99944 | | +0.00749693 | +0.36281414 |
| $P$ | 4.48 | $H$ | 16.8 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 01 15 | 691 | (6.0+ | 0.9−) | 2006 02 25 | 691 | 0.4+ | 0.2+ | 2007 06 10 | 691 | 0.2− | 0.1− |
| 1996 01 15 | 691 | (4.1+ | 6.2−) | 2006 02 25 | 691 | 0.1+ | 0.3+ | 2007 06 10 | 691 | 0.0 | 0.1− |
| 2000 12 22 | 691 | 0.0 | 0.3− | 2006 03 04 | 691 | 0.1+ | 0.1+ | 2008 10 02 | 703 | 0.9− | 1.2+ |
| 2000 12 22 | 691 | 0.5− | 0.2+ | 2006 03 04 | 691 | 0.1+ | 0.0 | 2008 10 02 | 703 | 0.8+ | 0.3− |
| 2000 12 22 | 691 | 0.0 | 0.2+ | 2006 03 04 | 691 | 0.0 | 0.2+ | 2009 11 21 | G96 | 0.1+ | 0.7+ |
| 2001 02 22 | 691 | 0.1+ | 0.2− | 2006 03 08 | 691 | 0.4− | 0.5+ | 2009 11 21 | G96 | 0.6+ | 0.1+ |
| 2001 02 22 | 691 | 0.4+ | 0.5− | 2006 03 08 | 691 | 0.2− | 0.5− | 2009 11 21 | G96 | 0.1+ | 0.1+ |
| 2001 02 22 | 691 | 0.2− | 0.4− | 2006 03 08 | 691 | 0.1+ | 0.2− | 2009 11 21 | G96 | 0.3− | 0.3+ |
| 2006 02 24 | G96 | 0.1− | 0.1− | 2007 05 12 | G96 | 0.5+ | 0.3+ | 2009 11 26 | G96 | 0.5− | 0.1+ |
| 2006 02 24 | G96 | 0.1+ | 0.2− | 2007 05 12 | G96 | 0.8+ | 0.2+ | 2009 11 26 | G96 | 0.7− | 0.0 |
| 2006 02 24 | G96 | 0.2− | 0.1− | 2007 05 12 | G96 | 0.3+ | 0.2+ | 2009 11 26 | G96 | 0.3+ | 0.4− |
| 2006 02 24 | G96 | 0.1− | 0.1− | 2007 05 12 | G96 | 0.3− | 0.3+ | 2009 11 26 | G96 | 0.2+ | 0.6+ |
| 2006 02 25 | 691 | 0.4+ | 0.3+ | 2007 06 10 | 691 | 0.3− | 0.2− | 2009 11 26 | G96 | 0.0 | 0.1+ |

### 2006 DT$_{55}$ = 2009 WG$_{172}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 87.51337 | | (2000.0) | | | |
| $n$ | 0.17860191 | $\omega$ | 308.29170 | | +0.85525251 | +0.51576379 |
| $a$ | 3.1228082 | $\Omega$ | 20.80804 | | −0.42017151 | +0.74699393 |
| $e$ | 0.0663534 | $i$ | 8.14140 | | −0.30331344 | +0.41950898 |
| $P$ | 5.52 | $H$ | 16.0 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 30 | 691 | 0.3+ | 0.1− | 2006 02 24 | G96 | 0.2+ | 0.2+ | 2009 10 26 | 691 | 0.2+ | 0.0 |
| 2003 09 30 | 691 | 0.3+ | 0.2+ | 2006 02 24 | G96 | 0.4− | 0.5+ | 2009 11 11 | 691 | 0.2+ | 0.1+ |
| 2003 09 30 | 691 | 0.2+ | 0.3+ | 2006 02 24 | G96 | 0.9− | 1.4− | 2009 11 11 | 691 | 0.2+ | 0.2− |
| 2003 10 19 | 691 | 0.3− | 0.1− | 2006 02 24 | G96 | 0.4− | 0.1+ | 2009 11 11 | 691 | 0.0 | 0.1+ |
| 2003 10 19 | 691 | 0.3− | 0.1− | 2006 02 24 | G96 | 0.2+ | 0.5+ | 2009 11 22 | G96 | 0.4+ | 0.3− |
| 2003 10 19 | 691 | 0.4− | 0.0 | 2006 02 25 | 691 | 0.2+ | 0.0 | 2009 11 22 | G96 | 0.4+ | 0.2− |
| 2006 02 24 | G96 | 0.0 | 0.6− | 2006 02 25 | 691 | 0.4+ | 0.1− | 2009 11 22 | G96 | 0.0 | 0.2− |
| 2006 02 24 | G96 | 0.5− | 0.1+ | 2006 02 25 | 691 | 0.1+ | 0.2+ | 2009 11 22 | G96 | 0.6+ | 0.5− |
| 2006 02 24 | G96 | 0.5− | 0.3+ | 2006 03 04 | 691 | 0.2+ | 0.0 | 2009 11 26 | 691 | 0.0 | 0.1+ |
| 2006 02 24 | G96 | 0.1+ | 0.8− | 2006 03 04 | 691 | 0.0 | 0.3+ | 2009 11 26 | 691 | 0.2− | 0.2+ |
| 2006 02 24 | G96 | 0.5− | 0.2+ | 2006 03 04 | 691 | 0.1+ | 0.1+ | 2009 11 26 | 691 | 0.5− | 0.3+ |
| 2006 02 24 | G96 | 0.1+ | 0.4+ | 2009 10 26 | 691 | 0.1+ | 0.2− | | | | |
| 2006 02 24 | G96 | 0.9− | 1.0− | 2009 10 26 | 691 | 0.3− | 0.2− | | | | |

### 2006 DD$_{62}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 241.14631 | | (2000.0) | | | |
| $n$ | 0.17722913 | $\omega$ | 113.69585 | | −0.93427379 | −0.34817157 |
| $a$ | 3.1389132 | $\Omega$ | 46.02972 | | +0.27568232 | −0.84209947 |
| $e$ | 0.1393717 | $i$ | 6.13139 | | +0.22612329 | −0.41187988 |
| $P$ | 5.56 | $H$ | 15.4 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 01 26 | 703 | 1.0+ | 0.7− | 2006 02 26 | 704 | 0.0 | 0.2+ | 2009 09 17 | 691 | 0.1+ | 0.2− |
| 2006 01 26 | 703 | 0.0 | 0.6− | 2006 02 26 | 704 | 1.4+ | 0.7+ | 2009 09 17 | 691 | 0.4− | 0.2+ |
| 2006 01 26 | 703 | 0.4+ | 0.5− | 2006 02 26 | 704 | 0.1− | 0.3− | 2009 09 17 | 691 | 0.1+ | 0.2− |
| 2006 01 26 | 703 | (1.8− | 0.6+) | 2006 02 26 | 704 | 0.2− | 0.2− | 2009 10 16 | G96 | 0.2− | 0.3+ |
| 2006 02 22 | 703 | 0.4− | 0.2− | 2006 02 26 | 704 | 0.3− | 0.6− | 2009 10 16 | G96 | 0.1+ | 0.0 |
| 2006 02 22 | 703 | 0.4+ | 0.5+ | 2006 02 28 | 703 | 1.2− | 0.1− | 2009 10 16 | G96 | 0.4+ | 0.0 |
| 2006 02 22 | 699 | 0.6+ | 0.3+ | 2006 02 28 | 703 | 0.7− | 0.9+ | 2009 10 16 | G96 | 0.1+ | 0.4+ |
| 2006 02 22 | 703 | 0.1− | 1.1− | 2006 02 28 | 703 | 0.4− | 1.0+ | 2009 10 24 | G96 | 0.0 | 0.1− |
| 2006 02 22 | 703 | 0.0 | 0.1+ | 2006 02 28 | 703 | 0.0 | 0.6− | 2009 10 24 | G96 | 0.2+ | 0.1+ |
| 2006 02 22 | 699 | 0.5+ | 0.1− | 2006 03 09 | 644 | 0.1+ | 0.2+ | 2009 10 24 | G96 | 0.1+ | 0.0 |
| 2006 02 22 | 699 | 0.8− | 0.9+ | 2006 03 09 | 644 | 0.1− | 0.2− | 2009 10 24 | G96 | 0.0 | 0.2+ |
| 2006 02 22 | 699 | 0.4− | 0.4+ | 2006 03 09 | 644 | 0.5+ | 0.3− | | | | |

### 2006 DZ$_{69}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 245.41211 | | (2000.0) | | | |
| $n$ | 0.19088339 | $\omega$ | 136.09584 | | −0.90285377 | +0.42937843 |
| $a$ | 2.9873810 | $\Omega$ | 69.34423 | | −0.40070285 | −0.82167873 |
| $e$ | 0.1097157 | $i$ | 1.35448 | | −0.15585984 | −0.37480426 |
| $P$ | 5.16 | $H$ | 16.4 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 02 | 568 | 0.0 | 0.2+ | 2006 03 06 | 691 | 0.2− | 0.0 | 2006 04 21 | 691 | 0.7− | 0.1− |
| 2005 12 02 | 568 | 0.2+ | 0.2+ | 2006 03 06 | 691 | 0.4+ | 0.1− | 2006 04 21 | 691 | 0.1+ | 0.4+ |
| 2005 12 02 | 568 | 0.1+ | 0.2+ | 2006 03 26 | G96 | 0.1− | 0.0 | 2008 09 29 | G96 | 0.4− | 0.2− |
| 2006 02 20 | 691 | 0.3+ | 0.2− | 2006 03 26 | G96 | 0.1+ | 0.1− | 2008 09 29 | G96 | 0.4+ | 0.4+ |
| 2006 02 20 | 691 | 0.1+ | 0.1− | 2006 03 26 | G96 | 0.1+ | 0.1− | 2008 09 29 | G96 | 0.6− | 0.7+ |
| 2006 02 20 | 691 | 0.1− | 0.4+ | 2006 04 07 | G96 | 0.5− | 0.0 | 2008 09 29 | G96 | 0.1+ | 0.4+ |
| 2006 02 27 | 691 | 0.1− | 0.1− | 2006 04 07 | G96 | 0.0 | 0.6+ | 2009 12 10 | G96 | 0.3+ | 0.0 |
| 2006 02 27 | 691 | 0.0 | 0.2− | 2006 04 07 | G96 | 0.2− | 0.1− | 2009 12 10 | G96 | 0.2− | 0.0 |
| 2006 02 27 | 691 | 0.1+ | 0.0 | 2006 04 07 | G96 | 0.2− | 0.2− | 2009 12 10 | G96 | 0.2+ | 0.1− |
| 2006 03 06 | 691 | 0.1+ | 0.1+ | 2006 04 21 | 691 | 0.1+ | 0.1+ | 2009 12 10 | G96 | 0.3− | 0.3− |

**2006 DA$_{87}$ = 2009 WD$_{170}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 330.21916 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19744314 | $\omega$ | 98.14994 | | −0.39553071 | −0.91813055 | |
| $a$ | 2.9208417 | $\Omega$ | 15.21891 | | +0.80196191 | −0.35815261 | |
| $e$ | 0.0740102 | $i$ | 5.31707 | | +0.44767461 | −0.16959656 | |
| $P$ | 4.99 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 03 26 | 691 | 0.0 | 0.0 | 2006 02 24 | 691 | 0.3− | 0.4+ | 2009 11 26 | 691 | 0.6− | 0.3− |
| 2001 03 26 | 691 | 0.4+ | 0.8+ | 2006 02 24 | 691 | 0.1− | 0.2+ | 2009 11 26 | 691 | 0.2− | 0.2+ |
| 2001 03 26 | 691 | 0.3+ | 0.1+ | 2006 02 24 | 691 | 0.4− | 0.0 | 2009 11 26 | 691 | 0.1− | 0.2+ |
| 2004 11 11 | 691 | 0.2+ | 0.5− | 2006 03 02 | 691 | 0.0 | 0.5− | 2009 11 26 | 691 | 0.2− | 0.0 |
| 2004 11 11 | 691 | 0.3+ | 0.3− | 2006 03 02 | 691 | 0.1+ | 0.3− | 2009 11 26 | 691 | 0.1− | 0.1− |
| 2004 11 11 | 691 | 0.0 | 0.4− | 2006 03 02 | 691 | 0.0 | 0.5− | 2009 12 10 | 704 | 1.1+ | 0.0 |
| 2004 12 02 | 703 | 0.9− | 0.2− | 2006 03 03 | G96 | 0.0 | 0.1− | 2009 12 10 | 704 | 0.5+ | 0.7+ |
| 2004 12 02 | 703 | (1.6− | 1.5−) | 2006 03 03 | G96 | 0.7− | 0.4− | 2009 12 10 | 704 | 0.7+ | 0.3+ |
| 2004 12 02 | 703 | 0.2− | 0.4+ | 2006 03 03 | G96 | 0.0 | 0.2− | 2009 12 10 | 704 | 0.8+ | 0.9+ |
| 2004 12 02 | 703 | 0.0 | 0.4+ | 2006 03 03 | G96 | 0.1+ | 0.4− | 2009 12 15 | 704 | 0.7+ | 0.8+ |
| 2004 12 14 | 703 | 1.0− | 0.4+ | 2009 11 22 | 691 | 0.1− | 0.2+ | 2009 12 15 | 704 | 0.3+ | 0.7+ |
| 2004 12 14 | 703 | 0.1− | 0.2− | 2009 11 22 | 691 | 0.3− | 0.0 | 2009 12 15 | 704 | 1.4+ | 0.1+ |
| 2004 12 14 | 703 | 0.6+ | 0.6+ | 2009 11 22 | 691 | 0.1+ | 0.1− | 2009 12 15 | 704 | 0.9+ | 0.5+ |
| 2004 12 14 | 703 | 0.5− | 0.7− | 2009 11 26 | 691 | 0.1− | 0.1− | 2009 12 15 | 704 | 0.2+ | 0.4+ |

**2006 DY$_{110}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 268.38383 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17916488 | $\omega$ | 120.76123 | | −0.79181875 | −0.57612218 | |
| $a$ | 3.1162632 | $\Omega$ | 25.83534 | | +0.26460178 | −0.62278119 | |
| $e$ | 0.2463036 | $i$ | 27.72601 | | +0.55046250 | −0.52936455 | |
| $P$ | 5.50 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 02 25 | G96 | 0.1− | 0.0 | 2006 03 25 | 703 | 0.2+ | 0.3+ | 2009 09 28 | G96 | 0.0 | 0.3− |
| 2006 02 25 | G96 | 0.2+ | 0.1− | 2006 04 02 | 703 | (1.6− | 0.9−) | 2009 09 28 | G96 | 0.5− | 0.2+ |
| 2006 02 25 | G96 | 0.0 | 0.2− | 2006 04 02 | 703 | 0.9− | 1.2− | 2009 10 17 | G96 | 0.1+ | 0.0 |
| 2006 02 25 | G96 | 0.1− | 0.2− | 2006 04 02 | 703 | 0.6− | 0.3− | 2009 10 17 | G96 | 0.2− | 0.3+ |
| 2006 02 28 | 703 | 0.0 | 1.1+ | 2006 04 02 | 703 | 0.1− | 0.3− | 2009 10 17 | G96 | 0.1+ | 0.2− |
| 2006 02 28 | 703 | 0.2− | 0.2+ | 2006 04 23 | 699 | (1.5+ | 0.2−) | 2009 10 17 | G96 | 0.4+ | 0.1+ |
| 2006 02 28 | 703 | 0.1+ | 0.6+ | 2006 04 23 | 699 | (0.7+ | 2.7+) | 2009 10 24 | G96 | 0.7+ | 0.1+ |
| 2006 02 28 | 703 | (0.1− | 1.9+) | 2006 04 23 | 699 | 0.9+ | 0.7+ | 2009 10 24 | G96 | 0.1+ | 0.1+ |
| 2006 03 25 | 703 | 0.1− | 0.2− | 2006 04 23 | 699 | 1.2− | 0.8+ | 2009 10 24 | G96 | 0.5− | 0.1− |
| 2006 03 25 | 703 | 1.4+ | 0.7− | 2009 09 28 | G96 | 0.3+ | 0.4− | | | | |
| 2006 03 25 | 703 | 0.3+ | 0.5− | 2009 09 28 | G96 | 0.3− | 0.1− | | | | |

**2006 DP$_{118}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 285.61310 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17316963 | $\omega$ | 117.15838 | | −0.40250982 | −0.91523972 | |
| $a$ | 3.1877792 | $\Omega$ | 356.42973 | | +0.70425061 | −0.29707547 | |
| $e$ | 0.1905077 | $i$ | 16.75046 | | +0.58482213 | −0.27218087 | |
| $P$ | 5.69 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 02 21 | G96 | 0.0 | 0.3− | 2006 03 06 | 691 | 0.3+ | 0.0 | 2006 04 02 | G96 | 0.3− | 0.1+ |
| 2006 02 21 | G96 | 0.4− | 0.3− | 2006 03 06 | 691 | 0.1+ | 0.1+ | 2006 04 02 | G96 | 0.1− | 0.1+ |
| 2006 02 21 | G96 | 0.3− | 0.2− | 2006 03 08 | 691 | 0.2+ | 0.3+ | 2009 08 15 | 691 | 0.3+ | 0.1+ |
| 2006 02 21 | G96 | 0.3− | 0.3− | 2006 03 08 | 691 | 0.1+ | 0.2+ | 2009 08 15 | 691 | 0.0 | 0.1+ |
| 2006 02 28 | G96 | 0.7− | 0.0 | 2006 03 08 | 691 | 0.0 | 0.4+ | 2009 08 15 | 691 | 0.3− | 0.1+ |
| 2006 02 28 | G96 | 0.6− | 0.0 | 2006 03 21 | G96 | 0.0 | 0.0 | 2009 08 20 | 691 | 0.2+ | 0.1+ |
| 2006 02 28 | G96 | 0.5− | 0.3− | 2006 03 21 | G96 | 0.1− | 0.0 | 2009 08 20 | 691 | 0.0 | 0.0 |
| 2006 02 28 | G96 | 0.5− | 0.3− | 2006 03 21 | G96 | 0.1− | 0.1+ | 2009 08 20 | 691 | 0.2− | 0.1− |
| 2006 03 02 | 691 | 0.1+ | 0.2+ | 2006 03 21 | G96 | 0.3+ | 0.0 | 2009 08 27 | 691 | 0.1− | 0.1− |
| 2006 03 02 | 691 | 0.0 | 0.1+ | 2006 03 24 | 699 | 0.8+ | 0.2− | 2009 08 27 | 691 | 0.1− | 0.2+ |
| 2006 03 02 | 691 | 0.4+ | 0.4− | 2006 03 24 | 699 | 0.9− | 0.7+ | 2009 08 27 | 691 | 0.0 | 0.1+ |
| 2006 03 04 | 691 | 0.0 | 0.1+ | 2006 03 24 | 699 | 0.6+ | 0.2− | 2009 09 28 | G96 | 0.6− | 0.4+ |
| 2006 03 04 | 691 | 0.1− | 0.0 | 2006 03 24 | 699 | 1.2+ | 0.6+ | 2009 09 28 | G96 | 0.0 | 0.5+ |
| 2006 03 04 | 691 | 0.1+ | 0.0 | 2006 04 02 | G96 | 0.6− | 0.0 | 2009 09 28 | G96 | 0.6− | 0.7+ |
| 2006 03 06 | 691 | 0.1+ | 0.1+ | 2006 04 02 | G96 | 0.1− | 0.1+ | 2009 09 28 | G96 | 0.6− | 0.6+ |

**2006 DR$_{145}$ = 2009 WG$_{258}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 8.52409 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21126361 | $\omega$ | 286.79353 | | +0.32834776 | −0.94284646 | |
| $a$ | 2.7920268 | $\Omega$ | 143.87849 | | +0.89917308 | +0.29358368 | |
| $e$ | 0.1457506 | $i$ | 5.53096 | | +0.28926720 | +0.15763620 | |
| $P$ | 4.67 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 01 26 | G96 | 0.5+ | 0.4− | 2006 02 25 | G96 | 0.1+ | 0.2− | 2006 03 04 | G96 | 0.0 | 0.2+ |
| 2006 01 26 | G96 | 0.7− | 0.3− | 2006 03 03 | 691 | 0.3+ | 0.3− | 2009 11 27 | G96 | 0.6+ | 0.1− |
| 2006 01 26 | G96 | 0.1− | 0.3+ | 2006 03 03 | 691 | 0.0 | 0.2− | 2009 11 27 | G96 | 0.1+ | 0.2− |
| 2006 01 26 | G96 | 0.2− | 0.1+ | 2006 03 03 | 691 | 0.0 | 0.3− | 2009 11 27 | G96 | 0.3+ | 0.3− |
| 2006 02 20 | 691 | 0.0 | 0.2+ | 2006 03 04 | 691 | 0.2+ | 0.3+ | 2009 11 27 | G96 | 0.3+ | 0.2− |
| 2006 02 20 | 691 | 0.3+ | 0.0 | 2006 03 04 | 691 | 0.7− | 0.4+ | 2009 11 27 | G96 | 0.3+ | 0.3− |
| 2006 02 20 | 691 | 0.1+ | 0.2+ | 2006 03 04 | 691 | 0.1+ | 0.1− | 2009 12 11 | 703 | 0.0 | 0.1− |
| 2006 02 25 | G96 | 0.1− | 0.1− | 2006 03 04 | G96 | 0.5− | 0.2− | 2009 12 11 | 703 | 0.9− | 0.6− |
| 2006 02 25 | G96 | 0.0 | 0.3− | 2006 03 04 | G96 | 0.2− | 0.1− | 2009 12 11 | 703 | 0.1+ | 1.0+ |
| 2006 02 25 | G96 | 0.0 | 0.1− | 2006 03 04 | G96 | 0.1+ | 0.1− | 2009 12 11 | 703 | 0.7− | 0.7+ |

**2006 DX$_{159}$ = 2009 WU$_{228}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 216.10326 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17763272 | $\omega$ | 57.55020 | | −0.87803533 | +0.47790703 | |
| $a$ | 3.1341569 | $\Omega$ | 150.97482 | | −0.45494613 | −0.81679579 | |
| $e$ | 0.1096177 | $i$ | 3.03245 | | −0.14858659 | −0.32318648 | |
| $P$ | 5.55 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 16 | 291 | 0.9− | 0.1− | 2006 03 05 | G96 | 0.3− | 0.0 | 2009 10 23 | G96 | 0.8− | 0.6+ |
| 2002 08 16 | 291 | 0.2+ | 1.3+ | 2006 03 05 | G96 | 0.1+ | 0.3− | 2009 10 23 | G96 | 0.3− | 1.1+ |
| 2002 08 16 | 291 | 0.2+ | 0.9+ | 2006 03 09 | 291 | 0.5+ | 0.3+ | 2009 11 17 | G96 | 0.5− | 0.4+ |
| 2006 02 27 | 691 | 0.2− | 0.5+ | 2006 03 09 | 291 | 0.5+ | 0.1− | 2009 11 17 | G96 | 0.1+ | 0.7+ |
| 2006 02 27 | 691 | 0.5+ | 0.1+ | 2006 03 09 | 291 | 0.0 | 0.3+ | 2009 11 17 | G96 | 0.2− | 0.6+ |
| 2006 02 27 | 691 | 0.4− | 0.4+ | 2008 09 06 | G96 | 0.0 | 0.0 | 2009 11 17 | G96 | 0.1− | 0.2+ |
| 2006 03 03 | 691 | 0.1+ | 0.5+ | 2008 09 06 | G96 | 0.4+ | 0.1+ | 2009 11 24 | G96 | 0.2+ | 0.3+ |
| 2006 03 03 | 691 | 0.0 | 0.3+ | 2008 09 06 | G96 | 0.6− | 0.4+ | 2009 11 24 | G96 | 0.3+ | 0.4+ |
| 2006 03 03 | 691 | 0.0 | 0.2+ | 2008 09 06 | G96 | 0.0 | 0.1− | 2009 11 24 | G96 | 0.2− | 0.3+ |
| 2006 03 05 | G96 | 0.0 | 0.1− | 2009 10 23 | G96 | 0.4− | 0.0 | 2009 11 24 | G96 | 0.4+ | 0.6+ |
| 2006 03 05 | G96 | 0.1− | 0.0 | 2009 10 23 | G96 | 0.2+ | 0.0 | | | | |

**2006 DH$_{188}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 254.37290 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18591529 | $\omega$ | 117.24038 | | −0.99587381 | +0.08613773 | |
| $a$ | 3.0403667 | $\Omega$ | 67.71268 | | −0.09027829 | −0.90836034 | |
| $e$ | 0.1027727 | $i$ | 1.76874 | | −0.00922996 | −0.40922095 | |
| $P$ | 5.30 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 02 06 | 691 | 0.0 | 1.1− | 2006 02 27 | 691 | 0.2+ | 0.4+ | 2006 03 26 | G96 | 0.3+ | 0.1+ |
| 1995 02 06 | 691 | 0.3− | 0.0 | 2006 03 04 | G96 | 0.0 | 0.2− | 2006 03 26 | G96 | 0.1− | 0.1− |
| 1995 02 06 | 691 | 0.1− | 0.0 | 2006 03 04 | G96 | 0.0 | 0.0 | 2006 03 26 | G96 | 0.1− | 0.3+ |
| 2005 12 02 | 568 | 0.2+ | 0.4+ | 2006 03 04 | G96 | 0.0 | 0.0 | 2009 12 11 | G96 | 0.3− | 0.7+ |
| 2005 12 02 | 568 | 0.3+ | 0.4+ | 2006 03 04 | G96 | 0.5− | 0.1+ | 2009 12 11 | G96 | 0.1− | 0.6+ |
| 2005 12 02 | 568 | 0.2+ | 0.4+ | 2006 03 24 | 621 | 0.9+ | 0.1+ | 2009 12 11 | G96 | 0.1− | 0.6+ |
| 2006 02 27 | 691 | 0.0 | 0.3+ | 2006 03 24 | 621 | 0.2+ | 0.3− | 2009 12 11 | G96 | 0.2− | 0.8+ |
| 2006 02 27 | 691 | 0.1+ | 0.2+ | 2006 03 24 | 621 | 0.3− | 0.1+ | | | | |

**2006 DY$_{189}$ = 2009 YK$_1$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 9.49115 | | (2000.0) | | −0.09500932 | −0.99466889 |
| $n$ | 0.20964645 | $\omega$ | 137.09166 | | −0.89623131 | −0.06793988 |
| $a$ | 2.8063664 | $\Omega$ | 318.31281 | | +0.43329283 | −0.07757564 |
| $e$ | 0.0281153 | $i$ | 3.45570 | | | |
| $P$ | 4.70 | $H$ | 16.9 | $G$ 0.15 | $U$ 0 | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 01 26 | 691 | 0.1− | 0.1− | 2006 02 27 | G96 | 0.0 | 0.2+ | 2008 09 23 | G96 | 0.6− | 0.2+ |
| 2001 01 26 | 691 | 0.1+ | 0.0 | 2006 02 27 | G96 | 0.1+ | 0.1+ | 2009 12 17 | 691 | 0.3+ | 0.2− |
| 2001 01 26 | 691 | 0.4− | 0.4+ | 2006 02 27 | G96 | 0.1+ | 0.1+ | 2009 12 17 | 691 | 0.1+ | 0.0 |
| 2004 11 20 | 691 | 0.5+ | 0.1+ | 2006 02 27 | G96 | 0.2+ | 0.2+ | 2009 12 17 | 691 | 0.1− | 0.1− |
| 2004 11 20 | 691 | 0.1+ | 0.3+ | 2006 03 04 | 691 | 0.1+ | 0.1− | 2009 12 18 | G96 | 0.8+ | 0.0 |
| 2004 11 20 | 691 | 0.2+ | 0.2+ | 2006 03 04 | 691 | 0.0 | 0.1− | 2009 12 18 | G96 | 0.6+ | 0.3− |
| 2004 12 09 | 691 | 0.4− | 0.2+ | 2006 03 04 | 691 | 0.2+ | 0.2− | 2009 12 18 | G96 | 0.7+ | 0.3− |
| 2004 12 09 | 691 | 0.4+ | 0.1+ | 2006 03 08 | 691 | 0.2+ | 0.3− | 2009 12 18 | G96 | 0.6+ | 0.2− |
| 2004 12 09 | 691 | 0.1− | 0.2+ | 2006 03 08 | 691 | 0.0 | 0.3+ | 2009 12 26 | 691 | 0.5− | 0.1+ |
| 2006 02 27 | G96 | 0.2− | 0.3+ | 2006 03 08 | 691 | 0.4+ | 0.4+ | 2009 12 26 | 691 | 0.3− | 0.5− |
| 2006 02 27 | G96 | 0.0 | 0.1+ | 2008 09 23 | G96 | 0.2− | 0.0 | 2009 12 26 | 691 | 0.8− | 0.0 |
| 2006 02 27 | G96 | 0.0 | 0.0 | 2008 09 23 | G96 | 0.1− | 0.0 | | | | |
| 2006 02 27 | G96 | 0.4− | 0.2+ | 2008 09 23 | G96 | 0.3− | 0.2+ | | | | |

**2006 DO$_{195}$ = 2009 XW$_{17}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 351.27277 | | (2000.0) | | −0.54637015 | −0.83605986 |
| $n$ | 0.23143091 | $\omega$ | 167.14377 | | +0.76194855 | −0.47147136 |
| $a$ | 2.6273735 | $\Omega$ | 315.94735 | | +0.34772700 | −0.28056845 |
| $e$ | 0.1190174 | $i$ | 4.11007 | | | |
| $P$ | 4.26 | $H$ | 16.9 | $G$ 0.15 | $U$ 3 | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 01 04 | G96 | 0.4− | 0.2− | 2006 02 20 | 703 | 0.7− | 0.4+ | 2008 09 25 | G96 | 0.0 | 0.1+ |
| 2006 01 04 | G96 | 0.7− | 0.1− | 2006 02 20 | 703 | 0.4− | 0.2+ | 2009 11 11 | G96 | 0.2+ | 0.1− |
| 2006 01 04 | G96 | 0.2− | 0.2+ | 2006 03 03 | 699 | 0.4+ | 0.5− | 2009 11 11 | G96 | 0.1+ | 0.1+ |
| 2006 01 04 | G96 | 0.1+ | 0.4− | 2006 03 03 | G96 | 0.1+ | 0.3− | 2009 11 11 | G96 | 0.1+ | 0.2− |
| 2006 01 30 | 691 | 0.0 | 0.1+ | 2006 03 03 | G96 | 0.1− | 0.2− | 2009 11 11 | G96 | 0.0 | 0.2+ |
| 2006 01 30 | 691 | 0.4+ | 0.1+ | 2006 03 03 | G96 | 0.1+ | 0.4− | 2009 12 15 | G96 | 0.1− | 0.1− |
| 2006 01 30 | 691 | 0.3+ | 0.1+ | 2006 03 03 | 699 | 0.8+ | 0.5+ | 2009 12 15 | G96 | 0.3+ | 0.5− |
| 2006 02 07 | G96 | 0.1− | 0.2+ | 2006 03 03 | G96 | 0.2− | 0.3− | 2009 12 15 | G96 | 0.3+ | 0.4− |
| 2006 02 07 | G96 | 0.2+ | 0.5− | 2006 03 03 | 699 | 0.8− | 0.7− | 2009 12 15 | G96 | 0.3+ | 0.4− |
| 2006 02 07 | G96 | 0.0 | 0.4− | 2006 03 03 | 699 | 0.7− | 0.5+ | 2009 12 18 | 691 | 0.3− | 0.0 |
| 2006 02 07 | G96 | 0.2+ | 0.2− | 2008 09 25 | G96 | 0.2− | 0.1+ | 2009 12 18 | 691 | 0.2+ | 0.3+ |
| 2006 02 20 | 703 | 0.6− | 0.4+ | 2008 09 25 | G96 | 0.4+ | 0.1+ | 2009 12 18 | 691 | 0.2− | 0.1+ |
| 2006 02 20 | 703 | 0.1+ | 0.5+ | 2008 09 25 | G96 | 0.2− | 0.5− | | | | |

**2006 DU$_{197}$ = 2009 YF$_6$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 341.56227 | | (2000.0) | | −0.99747280 | −0.03904995 |
| $n$ | 0.24284003 | $\omega$ | 191.92240 | | −0.06679898 | −0.80004583 |
| $a$ | 2.5444223 | $\Omega$ | 345.44080 | | −0.02420543 | −0.59866666 |
| $e$ | 0.1129227 | $i$ | 13.65762 | | | |
| $P$ | 4.06 | $H$ | 15.9 | $G$ 0.15 | $U$ 2 | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 11 05 | 644 | 0.1+ | 0.2+ | 2006 02 24 | 644 | 0.0 | 0.2+ | 2006 03 05 | 691 | 0.1− | 0.1− |
| 2004 11 05 | 644 | 0.2− | 0.1+ | 2006 02 24 | 644 | 0.0 | 0.1− | 2009 11 21 | 691 | 0.4− | 0.3− |
| 2004 11 05 | 644 | 0.2− | 0.5+ | 2006 03 04 | 703 | (1.3+ | 2.2−) | 2009 11 21 | 691 | 0.2− | 0.1− |
| 2006 01 07 | G96 | 0.2− | 0.3− | 2006 03 04 | 703 | 1.1+ | 0.1− | 2009 11 21 | 691 | 0.0 | 0.2− |
| 2006 01 07 | G96 | 0.4− | 0.2− | 2006 03 04 | 703 | 0.4− | 0.5+ | 2009 12 17 | 691 | 0.3+ | 0.0 |
| 2006 01 07 | G96 | 0.2− | 0.3− | 2006 03 04 | 703 | 0.8+ | 0.5+ | 2009 12 17 | 691 | 0.1+ | 0.1+ |
| 2006 01 07 | G96 | 0.0 | 0.4− | 2006 03 05 | 699 | (0.5+ | 1.7+) | 2009 12 17 | 691 | 0.1+ | 0.2− |
| 2006 01 28 | G96 | 0.4− | 0.0 | 2006 03 05 | 699 | 1.1+ | 0.3+ | 2009 12 18 | 691 | 0.0 | 0.1+ |
| 2006 01 28 | G96 | 0.4− | 0.0 | 2006 03 05 | 699 | (1.6+ | 0.2−) | 2009 12 18 | 691 | 0.1+ | 0.1− |
| 2006 01 28 | G96 | 0.4− | 0.1− | 2006 03 05 | 691 | 0.1− | 0.1− | 2009 12 18 | 691 | 0.1+ | 0.8+ |
| 2006 01 28 | G96 | 0.2− | 0.0 | 2006 03 05 | 699 | 0.2+ | 0.6+ | | | | |
| 2006 02 24 | 644 | 0.2− | 0.1+ | 2006 03 05 | 691 | 0.0 | 0.1− | | | | |

**2006 DE$_{200}$ = 1989 ET$_7$ = 2009 XF$_{21}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 344.97806 | | (2000.0) | | −0.70708628 | −0.70243344 |
| $n$ | 0.23389099 | $\omega$ | 241.99269 | | +0.67494889 | −0.63612462 |
| $a$ | 2.6089178 | $\Omega$ | 253.25377 | | +0.21088622 | −0.31926905 |
| $e$ | 0.3014232 | $i$ | 4.87273 | | | |
| $P$ | 4.21 | $H$ | 17.0 | $G$ 0.15 | $U$ 1 | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1989 03 02 | 809 | 1.1+ | 0.7+ | 2006 02 24 | 644 | 0.0 | 0.0 | 2009 11 18 | G96 | 0.0 | 0.0 |
| 1989 03 02 | 809 | 0.0 | 1.0+ | 2006 03 03 | 704 | 0.8+ | 0.6− | 2009 11 18 | G96 | 0.2+ | 0.0 |
| 1989 03 02 | 809 | 0.1− | 1.6+ | 2006 03 03 | 704 | 0.0 | 0.1− | 2009 12 09 | J75 | 0.2+ | 0.1− |
| 2002 04 08 | 644 | 0.0 | 0.1− | 2006 03 03 | 704 | 0.0 | 0.2+ | 2009 12 09 | J75 | 0.0 | 0.2− |
| 2002 04 08 | 644 | 0.2− | 0.1− | 2006 03 03 | 704 | (1.5+ | 1.9−) | 2009 12 09 | J75 | 0.1+ | 0.0 |
| 2002 04 08 | 644 | 0.4+ | 0.0 | 2006 03 21 | 704 | 0.7− | 0.5+ | 2009 12 18 | 691 | 0.2+ | 0.4+ |
| 2005 10 07 | G96 | 0.6+ | 0.1+ | 2006 03 21 | 704 | 0.8− | 0.6+ | 2009 12 18 | 691 | 0.2− | 0.0 |
| 2005 10 07 | G96 | 1.1+ | 0.4− | 2006 03 21 | 704 | 0.5− | 0.1+ | 2009 12 18 | 691 | 0.1− | 0.0 |
| 2005 10 07 | G96 | 0.3− | 0.2− | 2006 03 25 | 644 | 0.4− | 0.1+ | 2009 12 19 | 691 | 0.2+ | 0.2− |
| 2005 10 07 | G96 | 0.7+ | 0.1+ | 2006 03 25 | 644 | 0.1− | 0.2− | 2009 12 19 | 691 | 0.3− | 0.1− |
| 2006 02 24 | 644 | 0.0 | 0.0 | 2006 03 25 | 644 | 0.2− | 0.1− | 2009 12 19 | 691 | 0.1− | 0.2− |
| 2006 02 24 | 703 | 1.4+ | 1.4− | 2006 04 19 | 644 | 0.1+ | 0.3− | 2009 12 26 | 691 | 0.1− | 0.2− |
| 2006 02 24 | 703 | 0.9+ | 0.2+ | 2006 04 19 | 644 | 0.4− | 0.2− | 2009 12 26 | 691 | 0.1+ | 0.3− |
| 2006 02 24 | 703 | 0.5− | 0.3− | 2006 04 19 | 644 | 0.3− | 0.0 | 2009 12 26 | 691 | 0.2− | 0.0 |
| 2006 02 24 | 703 | 0.4− | 0.6− | 2009 11 18 | G96 | 0.6+ | 0.2+ | | | | |
| 2006 02 24 | 644 | 0.0 | 0.0 | 2009 11 18 | G96 | 0.0 | 0.7+ | | | | |

**2006 DB$_{218}$ = 2009 WW$_{234}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 185.21492 | | (2000.0) | | −0.46180144 | +0.88595683 |
| $n$ | 0.17470572 | $\omega$ | 227.58458 | | −0.75802163 | −0.36922645 |
| $a$ | 3.1690661 | $\Omega$ | 15.07982 | | −0.46058945 | −0.28062844 |
| $e$ | 0.0558243 | $i$ | 9.43773 | | | |
| $P$ | 5.64 | $H$ | 16.7 | $G$ 0.15 | $U$ 2 | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 02 27 | 691 | 0.3− | 0.2− | 2006 03 29 | 291 | 0.1− | 0.1+ | 2009 11 19 | G96 | 0.1+ | 0.8+ |
| 2006 02 27 | 691 | 0.0 | 0.0 | 2006 03 29 | 291 | 0.0 | 0.2+ | 2009 11 19 | G96 | 0.2− | 0.1+ |
| 2006 02 27 | 691 | 0.4+ | 0.0 | 2006 03 29 | 291 | 0.1+ | 0.3+ | 2009 11 19 | G96 | 0.4+ | 0.2+ |
| 2006 03 26 | G96 | 0.1+ | 0.0 | 2008 09 25 | G96 | 0.7+ | 0.5+ | 2009 11 19 | G96 | 0.4− | 0.5+ |
| 2006 03 26 | G96 | 0.5+ | 0.5− | 2008 09 25 | G96 | 0.4− | 0.5+ | 2009 11 23 | 691 | 0.2− | 0.3+ |
| 2006 03 26 | G96 | 0.3+ | 0.1− | 2008 09 25 | G96 | 0.5− | 0.6− | 2009 11 23 | 691 | 0.3− | 0.2+ |
| 2006 03 26 | G96 | 0.7− | 0.8− | 2008 09 25 | G96 | 0.1+ | 0.3− | 2009 11 23 | 691 | 0.5+ | 0.9− |

**2006 EP$_7$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 351.14450 | | (2000.0) | | −0.49404300 | −0.86855195 |
| $n$ | 0.22967772 | $\omega$ | 159.41564 | | +0.78888406 | −0.42884524 |
| $a$ | 2.6407268 | $\Omega$ | 320.16317 | | +0.36549071 | −0.24841352 |
| $e$ | 0.2531730 | $i$ | 3.51099 | | | |
| $P$ | 4.29 | $H$ | 16.8 | $G$ 0.15 | $U$ 2 | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 01 04 | G96 | 0.9− | 0.4− | 2006 03 05 | 691 | 0.1+ | 0.0 | 2008 08 07 | 691 | 0.1− | 0.5+ |
| 2006 01 04 | G96 | 0.4− | 0.3− | 2006 03 05 | 691 | 0.1+ | 0.1+ | 2008 08 07 | 691 | 0.3− | 0.9+ |
| 2006 01 04 | G96 | 0.5− | 0.5− | 2006 03 09 | 691 | 0.1+ | 0.0 | 2008 08 07 | 691 | 0.5− | 0.4+ |
| 2006 01 04 | G96 | 0.0 | 0.3− | 2006 03 09 | 691 | 0.2+ | 0.1+ | 2009 10 14 | G96 | 0.2− | 0.1− |
| 2006 02 24 | 691 | (2.0+ | 1.5−) | 2006 03 09 | 691 | 0.1+ | 0.1− | 2009 10 14 | G96 | 0.2− | 0.3+ |
| 2006 02 24 | 691 | 0.2+ | 0.2+ | 2006 03 23 | 704 | 0.7− | 0.7− | 2009 10 14 | G96 | 0.2+ | 0.0 |
| 2006 02 24 | 691 | 0.3+ | 0.0 | 2006 03 23 | 704 | 0.4− | 0.2− | 2009 10 14 | G96 | 0.0 | 0.1+ |
| 2006 02 26 | 704 | 1.0+ | 1.3+ | 2006 03 23 | 704 | 0.1− | 0.5+ | 2009 11 21 | G96 | 0.2+ | 0.1− |
| 2006 02 26 | 704 | 0.0 | 0.2+ | 2006 03 24 | 699 | 0.8− | 0.2− | 2009 11 21 | G96 | 0.3+ | 0.3− |
| 2006 02 26 | 704 | 1.2+ | 0.3+ | 2006 03 24 | 699 | 0.4− | 0.3− | 2009 11 21 | G96 | 0.2− | 0.2− |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 02 26 | 704 | 0.3− | 0.2− | 2006 03 24 | 699 | (0.8+ | 2.4+) | 2009 11 21 | G96 | 0.1− | 0.4− | | |
| 2006 03 02 | 691 | 0.0 | 0.1− | 2006 03 24 | 699 | 0.9− | 0.4− | 2009 12 17 | 691 | 0.1+ | 0.6+ | | |
| 2006 03 02 | 691 | 0.1+ | 0.1+ | 2006 04 02 | 691 | 0.1+ | 0.3+ | 2009 12 17 | 691 | 0.1+ | 0.0 | | |
| 2006 03 02 | 691 | 0.0 | 0.1+ | 2006 04 02 | 691 | 0.1+ | 0.4+ | 2009 12 17 | 691 | 0.2− | 0.1+ | | |
| 2006 03 05 | 691 | 0.0 | 0.0 | 2006 04 02 | 691 | 0.1+ | 0.3+ | | | | | | |

**2006 ET$_{12}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 273.26264 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17411698 | $\omega$ | 328.08030 | | −0.73571138 | −0.67620766 | |
| $a$ | 3.1762058 | $\Omega$ | 169.11126 | | +0.65626134 | −0.72572613 | |
| $e$ | 0.1018271 | $i$ | 11.71830 | | +0.16748079 | −0.12674688 | |
| $P$ | 5.66 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 01 26 | G96 | 0.6− | 0.2+ | 2006 02 20 | 691 | 0.1+ | 0.1+ | 2006 03 26 | G96 | 0.3− | 0.9− | | |
| 2006 01 26 | G96 | 0.0 | 0.0 | 2006 03 02 | 691 | 0.1+ | 0.0 | 2009 09 28 | G96 | 0.1+ | 0.1+ | | |
| 2006 01 26 | G96 | 0.5− | 0.1− | 2006 03 02 | 691 | 0.2+ | 0.1+ | 2009 09 28 | G96 | 0.1− | 0.2+ | | |
| 2006 01 26 | G96 | 0.3− | 0.1− | 2006 03 02 | 691 | 0.0 | 0.0 | 2009 09 28 | G96 | 0.3+ | 0.0 | | |
| 2006 02 07 | G96 | 0.4− | 1.7− | 2006 03 06 | 691 | 0.0 | 0.4+ | 2009 09 28 | G96 | 0.4− | 0.2+ | | |
| 2006 02 07 | G96 | 0.2− | 0.2− | 2006 03 06 | 691 | 0.1− | 0.1+ | 2009 10 16 | G96 | 0.0 | 0.5− | | |
| 2006 02 07 | G96 | 0.0 | 0.3− | 2006 03 06 | 691 | 0.0 | 0.3+ | 2009 10 16 | G96 | 0.4+ | 0.1− | | |
| 2006 02 07 | G96 | 0.0 | 0.3− | 2006 03 26 | G96 | 0.1+ | 0.7− | 2009 10 16 | G96 | 0.4− | 0.1− | | |
| 2006 02 20 | 691 | 0.3+ | 0.1+ | 2006 03 26 | G96 | 0.3− | 0.7− | 2009 10 16 | G96 | 0.1+ | 0.1+ | | |
| 2006 02 20 | 691 | 0.1+ | 0.3+ | 2006 03 26 | G96 | 0.0 | 0.7− | | | | | | |

**2006 ED$_{14}$ = 2008 UG$_{362}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 116.76901 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21903242 | $\omega$ | 6.48158 | | +0.99790120 | −0.06287616 | |
| $a$ | 2.7256105 | $\Omega$ | 356.99014 | | +0.03771725 | +0.75875507 | |
| $e$ | 0.1711711 | $i$ | 17.15182 | | +0.05263649 | +0.64833427 | |
| $P$ | 4.50 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 03 02 | 691 | 0.4+ | 0.0 | 2006 03 06 | 691 | 0.3+ | 0.4− | 2008 10 24 | 703 | 0.8− | 0.7+ | | |
| 2006 03 02 | 691 | 0.5+ | 0.3+ | 2006 03 06 | 691 | 0.1+ | 0.1+ | 2008 10 24 | 703 | 1.7− | 0.2+ | | |
| 2006 03 02 | 691 | 0.7− | 0.7− | 2006 03 25 | G96 | 0.2+ | 0.4+ | 2008 10 24 | 703 | 0.0 | 0.9+ | | |
| 2006 03 04 | 691 | 0.3− | 0.4+ | 2006 03 25 | G96 | 0.6− | 0.6+ | 2008 10 31 | 703 | 0.1+ | 1.5− | | |
| 2006 03 04 | 691 | 0.2+ | 0.1− | 2006 03 25 | G96 | 0.3− | 0.5+ | 2008 10 31 | 703 | 0.6+ | 0.4+ | | |
| 2006 03 04 | 691 | 0.0 | 0.1+ | 2006 03 25 | G96 | 0.4− | 0.6+ | 2008 10 31 | 703 | 1.3+ | 0.1+ | | |
| 2006 03 06 | 691 | 0.3− | 0.2− | 2008 10 24 | 703 | 0.3+ | 0.1+ | 2008 10 31 | 703 | 0.2+ | 0.8− | | |

**2006 EF$_{17}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 268.78661 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21756192 | $\omega$ | 223.15893 | | −0.71903142 | +0.69497708 | |
| $a$ | 2.7378782 | $\Omega$ | 0.86776 | | −0.62195520 | −0.64295359 | |
| $e$ | 0.1367820 | $i$ | 3.11054 | | −0.31010571 | −0.32189677 | |
| $P$ | 4.53 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 18 | 645 | 0.1− | 0.1+ | 2006 02 20 | 691 | 0.1+ | 0.3− | 2006 03 24 | 691 | 0.1+ | 0.4+ | | |
| 2003 10 18 | 645 | 0.1− | 0.2+ | 2006 02 20 | G96 | 0.4+ | 0.6− | 2009 11 21 | G96 | 0.2− | 0.4− | | |
| 2005 12 03 | 568 | 0.2+ | 0.5+ | 2006 03 02 | 691 | 0.1+ | 0.0 | 2009 11 21 | G96 | 0.4− | 0.0 | | |
| 2005 12 03 | 568 | 0.2+ | 0.6+ | 2006 03 02 | 691 | 0.1+ | 0.3+ | 2009 11 21 | G96 | 0.1− | 0.1− | | |
| 2005 12 03 | 568 | 0.2+ | 0.5+ | 2006 03 02 | 691 | 0.1+ | 0.0 | 2009 11 21 | G96 | 0.3− | 0.1− | | |
| 2006 02 20 | 691 | 0.3+ | 0.0 | 2006 03 06 | 691 | 0.2− | 0.1− | 2009 12 18 | 691 | 0.1+ | 0.0 | | |
| 2006 02 20 | G96 | 0.1+ | 0.6+ | 2006 03 06 | 691 | 0.2− | 0.2+ | 2009 12 18 | 691 | 0.1+ | 0.1− | | |
| 2006 02 20 | 691 | 0.2− | 0.0 | 2006 03 06 | 691 | 0.1+ | 0.1− | 2009 12 18 | 691 | 0.1− | 0.2− | | |
| 2006 02 20 | G96 | 0.4+ | 0.0 | 2006 03 24 | 691 | 0.3+ | 0.5+ | | | | | | |
| 2006 02 20 | G96 | 0.1+ | 0.3+ | 2006 03 24 | 691 | 0.2− | 0.2+ | | | | | | |

**2006 EO$_{26}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 211.70901 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18995752 | $\omega$ | 313.23599 | | −0.57104458 | +0.82071875 | |
| $a$ | 2.9970803 | $\Omega$ | 281.93236 | | −0.74770552 | −0.52910796 | |
| $e$ | 0.1633083 | $i$ | 1.06198 | | −0.33888721 | −0.21555860 | |
| $P$ | 5.19 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 03 27 | 691 | 0.3+ | 0.1− | 2006 02 07 | 691 | 0.1+ | 0.2+ | 2006 03 05 | 291 | 0.1+ | 0.1− | | |
| 2001 03 27 | 691 | 0.8− | 0.1− | 2006 02 07 | 691 | 0.2+ | 0.2− | 2006 03 05 | 291 | 0.0 | 0.1− | | |
| 2001 03 27 | 691 | 0.4+ | 0.1− | 2006 02 21 | G96 | 0.3− | 0.1+ | 2006 03 25 | G96 | 0.0 | 0.0 | | |
| 2005 12 01 | 695 | 0.2+ | 0.1+ | 2006 02 21 | G96 | 0.6− | 0.1− | 2006 03 25 | G96 | 0.2− | 0.0 | | |
| 2005 12 01 | 695 | 0.2− | 0.0 | 2006 02 21 | G96 | 0.4− | 0.1+ | 2006 03 25 | G96 | 0.2+ | 0.2− | | |
| 2006 01 28 | G96 | 0.0 | 0.3+ | 2006 02 21 | G96 | 0.6− | 0.1− | 2006 03 25 | G96 | 0.2− | 0.2− | | |
| 2006 01 28 | G96 | 0.5+ | 0.1+ | 2006 03 03 | 691 | 0.1− | 0.3+ | 2009 12 10 | G96 | 0.0 | 0.1+ | | |
| 2006 01 28 | G96 | 0.1+ | 0.2− | 2006 03 03 | 691 | 0.0 | 0.2− | 2009 12 10 | G96 | 0.2+ | 0.4− | | |
| 2006 01 28 | G96 | 0.2+ | 0.1− | 2006 03 03 | 691 | 0.0 | 0.3+ | 2009 12 10 | G96 | 1.1− | 0.1+ | | |
| 2006 02 07 | 691 | 0.0 | 0.0 | 2006 03 05 | 291 | 0.2+ | 0.1− | 2009 12 10 | G96 | 0.9+ | 0.4− | | |

**2006 EC$_{35}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 265.49734 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17596076 | $\omega$ | 131.50267 | | −0.89062223 | −0.45289311 | |
| $a$ | 3.1539793 | $\Omega$ | 21.66502 | | +0.37711278 | −0.78594157 | |
| $e$ | 0.1312678 | $i$ | 6.37411 | | +0.25412202 | −0.42093190 | |
| $P$ | 5.60 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 03 03 | 691 | 0.4+ | 0.0 | 2006 03 24 | 691 | 0.0 | 0.2+ | 2009 09 22 | 691 | 0.4− | 0.2− | | |
| 2006 03 03 | 691 | 0.1− | 0.1− | 2006 03 24 | 691 | 0.1− | 0.2+ | 2009 09 22 | 691 | 0.0 | 0.2+ | | |
| 2006 03 03 | 691 | 0.4+ | 0.2− | 2006 03 24 | 691 | 0.4− | 0.4+ | 2009 09 22 | 691 | 0.4− | 0.4+ | | |
| 2006 03 04 | G96 | 0.2+ | 0.2− | 2006 03 26 | G96 | 0.1− | 0.2+ | 2009 10 21 | G96 | 0.0 | 0.2− | | |
| 2006 03 04 | G96 | 0.2− | 0.3− | 2006 03 26 | G96 | 0.3− | 0.1− | 2009 10 21 | G96 | 0.7+ | 0.2+ | | |
| 2006 03 04 | G96 | 0.3+ | 0.4− | 2006 03 26 | G96 | 1.2− | 0.2+ | 2009 10 21 | G96 | 0.7+ | 0.5− | | |
| 2006 03 04 | G96 | 0.1− | 0.4− | 2006 03 26 | G96 | 0.6+ | 0.5− | 2009 10 21 | G96 | 1.2+ | 0.2− | | |

**2006 EC$_{47}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 180.69296 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17542827 | $\omega$ | 221.19110 | | −0.61630572 | +0.78719036 | |
| $a$ | 3.1603583 | $\Omega$ | 10.82584 | | −0.68780004 | −0.52424890 | |
| $e$ | 0.0580615 | $i$ | 6.82776 | | −0.38353406 | −0.32479907 | |
| $P$ | 5.62 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 02 01 | 691 | 0.2+ | 0.0 | 2006 03 08 | 691 | 0.1+ | 0.1− | 2009 11 10 | G96 | 0.1− | 0.1+ | | |
| 2006 02 01 | 691 | 0.1− | 0.1− | 2006 03 08 | 691 | 0.3− | 0.2+ | 2009 11 19 | G96 | 0.1+ | 0.1+ | | |
| 2006 02 01 | 691 | 0.1− | 0.0 | 2006 03 08 | 691 | 0.1+ | 0.0 | 2009 11 19 | G96 | 0.1+ | 0.0 | | |
| 2006 03 04 | 691 | 0.0 | 0.2+ | 2009 11 10 | G96 | 0.1+ | 0.1− | 2009 11 19 | G96 | 0.4+ | 0.3− | | |
| 2006 03 04 | 691 | 0.0 | 0.3− | 2009 11 10 | G96 | 0.2− | 0.1+ | 2009 11 19 | G96 | 0.4− | 0.1+ | | |
| 2006 03 04 | 691 | 0.1+ | 0.1+ | 2009 11 10 | G96 | 0.0 | 0.0 | | | | | | |

**2006 FN$_{7}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 143.07963 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19296781 | $\omega$ | 133.10006 | | +0.84834587 | +0.52760720 | |
| $a$ | 2.9658292 | $\Omega$ | 195.22726 | | −0.52129043 | +0.81784586 | |
| $e$ | 0.0237973 | $i$ | 9.65380 | | −0.09255042 | +0.22969280 | |
| $P$ | 5.11 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 03 23 | 691 | 0.2+ | 0.2+ | 2006 04 02 | 691 | 0.0 | 0.0 | 2008 09 24 | 691 | 0.7− | 0.7+ | | |
| 2006 03 23 | 691 | 0.0 | 0.1+ | 2006 04 07 | 691 | 0.1+ | 0.3+ | 2008 09 24 | 691 | 0.4− | 0.2+ | | |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 03 23 | 691 | 0.0 | 0.1− | 2006 04 07 | 691 | 0.1+ | 0.4+ | 2008 10 08 | 691 | 0.3+ | 0.2+ |
| 2006 03 24 | G96 | 0.2− | 0.1+ | 2006 04 07 | 691 | 0.1+ | 0.3+ | 2008 10 08 | 691 | 0.1+ | 0.2+ |
| 2006 03 24 | G96 | 0.5− | 0.2+ | 2006 05 07 | G96 | 0.1+ | 0.7+ | 2008 10 08 | 691 | 0.2+ | 0.4+ |
| 2006 03 24 | G96 | 0.1− | 0.3+ | 2006 05 07 | G96 | 0.2+ | 0.6+ | 2008 10 20 | G96 | 0.9+ | 0.8+ |
| 2006 03 24 | G96 | 0.2− | 0.2+ | 2006 05 07 | G96 | 0.5+ | 0.5+ | 2008 10 20 | G96 | 0.3+ | 0.8+ |
| 2006 04 02 | 691 | 0.0 | 0.4+ | 2006 05 07 | G96 | 0.0 | 0.5+ | 2008 10 20 | G96 | 0.1+ | 0.5+ |
| 2006 04 02 | 691 | 0.1+ | 0.2+ | 2008 09 24 | 691 | 0.6− | 0.1+ | 2008 10 20 | G96 | 0.5+ | 0.7+ |

### 2006 FJ$_{12}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 98.09086 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.12489524 | $\omega$ | 127.90165 | | +0.33604509 | +0.94167493 | |
| $a$ | 3.9637428 | $\Omega$ | 161.70980 | | −0.88108185 | +0.32104043 | |
| $e$ | 0.1678825 | $i$ | 3.27796 | | −0.33281898 | +0.10090272 | |
| $P$ | 7.89 | $H$ | 15.2 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 03 23 | 691 | 0.4+ | 0.3+ | 2006 05 19 | G96 | 0.2− | 0.4+ | 2008 09 06 | G96 | 0.7+ | 0.1− |
| 2006 03 23 | 691 | 0.5+ | 0.2− | 2006 05 19 | G96 | 0.1− | 0.2+ | 2009 11 16 | G96 | 0.2+ | 0.0 |
| 2006 03 23 | 691 | 0.2− | 0.0 | 2006 05 19 | G96 | 0.6− | 0.1+ | 2009 11 16 | G96 | 0.1− | 0.2+ |
| 2006 03 26 | G96 | 0.2− | 0.7+ | 2006 05 19 | G96 | 0.3− | 0.4+ | 2009 11 16 | 291 | 0.1− | 0.2+ |
| 2006 03 26 | G96 | 0.2− | 0.2+ | 2008 07 29 | 691 | 0.5− | 0.4+ | 2009 11 16 | G96 | 0.3+ | 0.7+ |
| 2006 03 26 | G96 | 0.3− | 0.3+ | 2008 07 29 | 691 | 0.5− | 0.1+ | 2009 11 16 | 291 | 0.3− | 0.6+ |
| 2006 03 26 | G96 | 0.3− | 0.3+ | 2008 07 29 | 691 | 0.4− | 0.2+ | 2009 11 16 | 291 | 0.2− | 0.3+ |
| 2006 04 30 | 691 | 0.0 | 0.0 | 2008 08 07 | 691 | 0.1+ | 0.0 | 2009 11 16 | G96 | 0.2+ | 0.2+ |
| 2006 04 30 | 691 | 0.5+ | 0.2+ | 2008 08 07 | 691 | 0.8+ | 0.1− | 2009 11 23 | G96 | 0.1+ | 0.4− |
| 2006 04 30 | 691 | 0.1+ | 0.4− | 2008 08 07 | 691 | 0.1− | 0.1− | 2009 11 23 | G96 | 0.7− | 0.5− |
| 2006 05 03 | 691 | 0.5− | 0.5+ | 2008 09 06 | G96 | 0.2+ | 0.2+ | 2009 11 23 | G96 | 0.2+ | 0.1+ |
| 2006 05 03 | 691 | 0.4+ | 0.2+ | 2008 09 06 | G96 | 0.8+ | 0.1+ | 2009 11 23 | G96 | 0.5+ | 0.3− |
| 2006 05 03 | 691 | 0.2− | 0.2+ | 2008 09 06 | G96 | 0.2+ | 0.0 | | | | |

### 2006 FJ$_{13}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 148.07580 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.12476964 | $\omega$ | 65.24822 | | −0.63077975 | +0.77584259 | |
| $a$ | 3.9664025 | $\Omega$ | 165.61909 | | −0.73025864 | −0.58760631 | |
| $e$ | 0.1532366 | $i$ | 3.14093 | | −0.26237231 | −0.22975445 | |
| $P$ | 7.90 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 03 23 | 691 | 0.2+ | 0.1− | 2006 04 29 | 691 | 0.0 | 0.1+ | 2008 09 06 | G96 | 0.5− | 0.1+ |
| 2006 03 23 | 691 | 0.3− | 0.2+ | 2006 04 29 | 691 | 0.2+ | 0.3− | 2008 09 06 | G96 | 0.2− | 0.0 |
| 2006 03 23 | 691 | 0.0 | 0.2− | 2006 04 29 | 691 | 0.1− | 0.0 | 2008 09 06 | G96 | 0.0 | 0.4− |
| 2006 03 26 | G96 | 0.1− | 0.0 | 2006 05 19 | G96 | 0.0 | 0.0 | 2008 09 06 | G96 | 0.2− | 0.2− |
| 2006 03 26 | G96 | 0.2+ | 0.1+ | 2006 05 19 | G96 | 0.2+ | 0.1+ | 2008 10 02 | G96 | 0.0 | 0.4+ |
| 2006 03 26 | G96 | 0.1− | 0.1+ | 2006 05 19 | G96 | 0.1− | 0.0 | 2008 10 02 | G96 | 0.0 | 0.2− |
| 2006 03 26 | G96 | 0.3− | 0.0 | 2006 05 19 | G96 | 0.1+ | 0.3− | 2008 10 02 | G96 | 0.2− | 0.0 |
| 2006 04 24 | 691 | 0.1− | 0.1− | 2008 07 29 | 691 | 0.0 | 0.1− | 2008 10 02 | G96 | 0.4+ | 0.2+ |
| 2006 04 24 | 691 | 0.3+ | 0.2+ | 2008 07 29 | 691 | 0.1+ | 0.0 | | | | |
| 2006 04 24 | 691 | 0.3− | 0.1+ | 2008 07 29 | 691 | 0.1+ | 0.1+ | | | | |

### 2006 FO$_{17}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 224.89224 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.20517553 | $\omega$ | 230.05864 | | +0.08224445 | +0.99364270 | |
| $a$ | 2.8469882 | $\Omega$ | 44.84423 | | −0.87790475 | +0.10874361 | |
| $e$ | 0.1015045 | $i$ | 6.25865 | | −0.47171931 | −0.02913796 | |
| $P$ | 4.80 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 03 23 | 691 | 0.5+ | 0.0 | 2006 05 02 | G96 | 0.4− | 0.2+ | 2006 05 22 | G96 | 0.1+ | 0.2− |
| 2006 03 23 | 691 | 0.3+ | 0.6− | 2006 05 02 | G96 | 0.1+ | 0.7− | 2008 12 01 | 691 | 0.4− | 0.6+ |
| 2006 03 23 | 691 | 0.1− | 0.3+ | 2006 05 02 | G96 | 0.1− | 0.4+ | 2008 12 01 | 691 | 0.2− | 0.1− |
| 2006 03 26 | G96 | 0.4+ | 0.5+ | 2006 05 03 | G96 | 0.0 | 0.3− | 2008 12 01 | 691 | 0.4+ | 0.1− |
| 2006 03 26 | G96 | 0.8− | 0.4+ | 2006 05 03 | G96 | 0.4− | 0.1− | 2008 12 31 | G96 | 0.3− | 0.8− |
| 2006 03 26 | G96 | 0.8− | 0.4+ | 2006 05 03 | G96 | 0.2+ | 0.0 | 2008 12 31 | G96 | 1.4+ | 0.3− |
| 2006 03 26 | G96 | 0.3− | 0.4+ | 2006 05 03 | G96 | 0.8+ | 0.6+ | 2008 12 31 | G96 | 0.5+ | 0.3− |
| 2006 04 26 | 807 | 0.0 | 0.1− | 2006 05 22 | G96 | 0.6− | 0.6+ | 2008 12 31 | G96 | 0.4− | 0.4− |
| 2006 04 26 | 807 | 0.1+ | 0.0 | 2006 05 22 | G96 | 0.2+ | 0.1− | | | | |
| 2006 05 02 | G96 | 0.8− | 0.5− | 2006 05 22 | G96 | 0.1− | 0.2+ | | | | |

### 2006 FP$_{33}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 170.27660 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19056188 | $\omega$ | 284.21303 | | +0.70160435 | +0.70573978 | |
| $a$ | 2.9907403 | $\Omega$ | 31.08524 | | −0.55792165 | +0.62997679 | |
| $e$ | 0.0952918 | $i$ | 10.98685 | | −0.44325475 | +0.32413055 | |
| $P$ | 5.17 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 03 25 | G96 | 0.5+ | 0.8− | 2006 04 09 | 691 | 0.1− | 0.3+ | 2008 10 29 | 691 | 0.0 | 0.0 |
| 2006 03 25 | G96 | 0.3− | 0.3− | 2006 04 09 | 691 | 0.2− | 0.1+ | 2008 11 06 | 691 | 0.2− | 0.1+ |
| 2006 03 25 | G96 | 0.5− | 0.5− | 2006 05 04 | G96 | 0.3− | 0.2− | 2008 11 06 | 691 | 0.4− | 0.2− |
| 2006 03 25 | G96 | 0.7− | 0.0 | 2006 05 04 | G96 | 1.0− | 0.5+ | 2008 11 06 | 691 | 0.1+ | 0.1+ |
| 2006 03 26 | 691 | 0.0 | 0.1+ | 2006 05 04 | G96 | 0.1− | 0.1− | 2008 12 03 | G96 | 0.4+ | 0.0 |
| 2006 03 26 | 691 | 0.6+ | 0.1− | 2006 05 04 | G96 | 0.3− | 0.3+ | 2008 12 03 | G96 | 0.3+ | 0.1− |
| 2006 03 26 | 691 | 0.2+ | 0.2− | 2008 10 29 | 691 | 0.0 | 0.0 | 2008 12 03 | G96 | 0.6+ | 0.1+ |
| 2006 04 09 | 691 | 0.2+ | 0.1+ | 2008 10 29 | 691 | 0.0 | 0.2+ | 2008 12 03 | G96 | 0.5+ | 0.1− |

### 2006 FQ$_{37}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 254.46159 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18460520 | $\omega$ | 137.91095 | | −0.96813611 | −0.02266026 | |
| $a$ | 3.0547342 | $\Omega$ | 42.80703 | | −0.14083635 | −0.77421211 | |
| $e$ | 0.2458268 | $i$ | 21.53156 | | +0.20706908 | −0.63252046 | |
| $P$ | 5.34 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 02 27 | 703 | 0.4+ | 0.4− | 2006 03 29 | 704 | 0.6+ | 0.1+ | 2009 10 23 | 691 | 0.4+ | 0.3− |
| 2006 02 27 | 703 | 0.4+ | 0.1− | 2006 03 31 | 699 | (0.4− | 2.6−) | 2009 10 23 | 691 | 1.0− | 0.4+ |
| 2006 02 27 | 703 | 0.2+ | 0.5+ | 2006 03 31 | 699 | 0.7+ | 0.6− | 2009 11 08 | G96 | 0.1− | 0.1− |
| 2006 02 27 | 703 | 0.8− | 0.8+ | 2006 03 31 | 699 | 0.0 | 0.2+ | 2009 11 08 | G96 | 0.0 | 0.3+ |
| 2006 03 25 | 703 | 0.2− | 0.8− | 2006 03 31 | 699 | 0.3+ | 0.2+ | 2009 11 08 | G96 | 0.2+ | 0.0 |
| 2006 03 25 | 703 | 0.2+ | 0.5− | 2006 04 25 | 703 | 0.9− | 0.5+ | 2009 11 08 | G96 | 0.2+ | 0.1− |
| 2006 03 25 | 703 | 0.1+ | 0.4− | 2006 04 25 | 703 | 0.7+ | 0.6− | 2009 11 08 | G96 | 0.2+ | 0.3+ |
| 2006 03 25 | 703 | 0.4− | 0.5+ | 2006 04 25 | 703 | 0.8− | 0.2+ | 2009 11 08 | G96 | 0.4+ | 0.5+ |
| 2006 03 29 | 704 | 0.4− | 0.3+ | 2006 04 25 | 703 | 0.8+ | 0.2+ | 2009 11 08 | G96 | 0.5+ | 0.1− |
| 2006 03 29 | 704 | 0.6− | 0.0 | 2009 10 23 | 691 | 0.4+ | 0.4− | 2009 11 08 | G96 | 0.4− | 0.1+ |

### 2006 FV$_{54}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 288.10035 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23262580 | $\omega$ | 48.87841 | | −0.38354591 | +0.91962699 | |
| $a$ | 2.6183687 | $\Omega$ | 199.08897 | | −0.90581094 | −0.39248508 | |
| $e$ | 0.0796509 | $i$ | 15.01528 | | −0.17999744 | +0.01554525 | |
| $P$ | 4.24 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 06 05 | 291 | 0.2− | 0.2− | 2006 03 25 | 691 | 0.0 | 0.1− | 2006 05 07 | G96 | 0.7− | 0.3− |
| 2002 06 05 | 291 | 0.1− | 0.1+ | 2006 03 25 | 691 | 0.1− | 0.2+ | 2006 05 07 | G96 | 0.2− | 0.2− |
| 2002 06 05 | 291 | 0.3+ | 0.1− | 2006 04 02 | 691 | 0.4+ | 0.1+ | 2006 05 26 | 703 | 0.9+ | 0.4+ |
| 2003 10 19 | 691 | 0.0 | 0.2+ | 2006 04 02 | 691 | 0.2+ | 0.0 | 2006 05 26 | 703 | 0.4+ | 0.1+ |
| 2003 10 19 | 691 | 0.0 | 0.0 | 2006 04 02 | 691 | 0.2+ | 0.2+ | 2006 05 26 | 703 | 0.8− | 0.6+ |
| 2003 10 19 | 691 | 0.1− | 0.0 | 2006 05 07 | G96 | 0.2− | 0.3− | 2006 05 26 | 703 | 0.8− | 1.1+ |
| 2006 03 25 | 691 | 0.2− | 0.2− | 2006 05 07 | G96 | 0.4− | 0.3− | | | | |

**2006 GY$_{12}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 279.89961 | | (2000.0) | | −0.11531058 | +0.99207860 |
| $n$ | 0.23764866 | $\omega$ | 138.29131 | | −0.92671126 | −0.08937835 |
| $a$ | 2.5813435 | $\Omega$ | 125.02889 | | −0.35764468 | −0.08826985 |
| $e$ | 0.1763807 | $i$ | 3.48911 | | | |
| $P$ | 4.15 | $H$ | 17.6 | $G$ 0.15 | $U$ 2 | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 05 09 | 644 | 0.5+ | 0.1− | 2006 04 02 | 691 | 0.3− | 0.3+ | 2006 05 07 | G96 | 0.2− | 0.0 |
| 2002 05 09 | 644 | 0.3+ | 0.5− | 2006 04 02 | 691 | 0.1− | 0.6+ | 2006 05 07 | G96 | 0.1− | 0.1− |
| 2002 05 19 | 644 | 0.5− | 0.8+ | 2006 04 07 | 691 | 0.0 | 0.4+ | 2006 05 09 | G96 | 0.2+ | 0.7+ |
| 2002 05 19 | 644 | 0.3+ | 0.6+ | 2006 04 07 | 691 | 0.2− | 0.2− | 2006 05 09 | G96 | 0.1− | 0.2+ |
| 2002 06 11 | 644 | 0.4− | 0.4− | 2006 04 07 | 691 | 0.5+ | 0.4+ | 2006 05 09 | G96 | 0.1− | 0.2+ |
| 2002 06 11 | 644 | 0.3− | 0.4− | 2006 05 07 | G96 | 1.0− | 0.3− | 2006 05 09 | G96 | 0.5− | 0.2− |
| 2002 06 11 | 644 | 0.3− | 0.7− | 2006 05 07 | G96 | 0.0 | 0.3− | 2007 09 19 | 691 | 0.1− | 0.1− |
| 2006 03 23 | 691 | 0.4+ | 0.5− | 2006 05 07 | G96 | 0.2− | 0.3+ | 2007 09 19 | 691 | 0.2− | 0.4+ |
| 2006 03 23 | 691 | 0.0 | 0.1+ | 2006 05 07 | G96 | 0.4− | 0.3− | 2007 09 19 | 691 | 0.1+ | 0.3+ |
| 2006 03 23 | 691 | 0.1+ | 0.3− | 2006 05 07 | G96 | 0.6− | 0.4− | | | | |
| 2006 04 02 | 691 | 0.7+ | 0.0 | 2006 05 07 | G96 | 0.6− | 0.2− | | | | |

**2006 GV$_{41}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 264.49849 | | (2000.0) | | −0.95442351 | −0.14951439 |
| $n$ | 0.17613160 | $\omega$ | 109.67863 | | −0.00111538 | −0.86367745 |
| $a$ | 3.1519395 | $\Omega$ | 62.47221 | | +0.29845355 | −0.48135924 |
| $e$ | 0.1889004 | $i$ | 16.93469 | | | |
| $P$ | 5.60 | $H$ | 15.4 | $G$ 0.15 | $U$ 3 | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 03 26 | 699 | (0.2+ | 1.6−) | 2006 04 25 | 703 | 0.2− | 0.0 | 2009 10 14 | G96 | 0.6+ | 0.2+ |
| 2006 03 26 | 699 | 0.0 | 0.8− | 2006 04 25 | 703 | 0.1− | 1.1+ | 2009 10 14 | G96 | 0.0 | 0.4+ |
| 2006 03 26 | 699 | (1.5− | 1.2+) | 2006 04 25 | 703 | 0.3− | 0.5+ | 2009 10 14 | G96 | 0.0 | 0.1+ |
| 2006 03 26 | 699 | (2.0+ | 0.1+) | 2006 04 25 | 703 | 1.0+ | 1.2+ | 2009 10 14 | G96 | 0.0 | 0.4+ |
| 2006 04 07 | 699 | 0.1− | 0.8− | 2006 04 26 | 699 | 0.1− | 0.5+ | 2009 11 19 | G96 | 0.1− | 0.0 |
| 2006 04 07 | 699 | 0.6− | 0.0 | 2006 04 26 | 699 | 0.0 | 0.4− | 2009 11 19 | G96 | 0.1− | 0.3− |
| 2006 04 07 | 699 | 0.6− | 0.3+ | 2006 04 26 | 699 | 1.5+ | 0.1+ | 2009 11 19 | G96 | 0.3+ | 0.1+ |
| 2006 04 07 | 699 | 1.3+ | 1.1− | 2006 04 26 | 699 | 0.7+ | 0.6− | 2009 11 19 | G96 | 0.3− | 0.0 |
| 2006 04 18 | 703 | 0.4+ | 0.0 | 2006 05 26 | 703 | 0.2− | 0.2− | 2009 12 19 | G96 | 0.3− | 0.3− |
| 2006 04 18 | 703 | 0.9− | 0.3− | 2006 05 26 | 703 | 1.0− | 0.0 | 2009 12 19 | G96 | 0.3− | 0.4− |
| 2006 04 18 | 703 | 0.9− | 0.1− | 2006 05 26 | 703 | 0.3+ | 0.0 | 2009 12 19 | G96 | 0.3− | 0.1+ |
| 2006 04 18 | 703 | 0.0 | 0.7+ | 2006 05 26 | 703 | (0.5+ | 2.0−) | 2009 12 19 | G96 | 0.2+ | 0.1+ |

**2006 HX$_{19}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 206.19136 | | (2000.0) | | −0.58387949 | +0.80923723 |
| $n$ | 0.17407238 | $\omega$ | 32.23125 | | −0.77649243 | −0.58002034 |
| $a$ | 3.1767483 | $\Omega$ | 202.25585 | | −0.23694778 | −0.09333543 |
| $e$ | 0.0534713 | $i$ | 9.87594 | | | |
| $P$ | 5.66 | $H$ | 15.6 | $G$ 0.15 | $U$ 3 | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 04 19 | G96 | 0.1− | 0.1− | 2006 05 03 | 691 | 0.3− | 0.3+ | 2008 08 24 | 691 | 0.1− | 0.1+ |
| 2006 04 19 | G96 | 0.7− | 0.1+ | 2006 05 03 | 691 | 0.4+ | 0.3+ | 2008 08 24 | 691 | 0.1+ | 0.0 |
| 2006 04 19 | G96 | 0.5− | 0.0 | 2006 05 03 | 691 | 0.3+ | 0.1+ | 2008 09 23 | G96 | 0.2+ | 0.1− |
| 2006 04 24 | 691 | 0.1+ | 0.2− | 2006 05 19 | G96 | 0.4− | 0.1− | 2008 09 23 | G96 | 0.2− | 0.1+ |
| 2006 04 24 | 691 | 0.1+ | 0.2− | 2006 05 19 | G96 | 0.0 | 0.0 | 2008 09 23 | G96 | 0.5− | 0.6− |
| 2006 04 24 | 691 | 0.0 | 0.1+ | 2006 05 19 | G96 | 0.6− | 0.1+ | 2008 09 23 | G96 | 0.8+ | 0.1+ |
| 2006 04 29 | 947 | 0.0 | 1.3− | 2006 05 19 | G96 | 0.3+ | 0.0 | | | | |
| 2006 04 29 | 947 | 0.9− | 0.1+ | 2008 08 24 | 691 | 0.0 | 0.0 | | | | |

**2006 HL$_{28}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 225.92839 | | (2000.0) | | −0.24097457 | +0.96847280 |
| $n$ | 0.17581614 | $\omega$ | 88.61117 | | −0.96383271 | −0.23116845 |
| $a$ | 3.1557086 | $\Omega$ | 166.91338 | | −0.11383218 | −0.09285249 |
| $e$ | 0.2027061 | $i$ | 16.20254 | | | |
| $P$ | 5.61 | $H$ | 16.0 | $G$ 0.15 | $U$ 3 | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 04 20 | 691 | 0.1+ | 0.3+ | 2006 05 20 | 703 | 0.5+ | 0.2− | 2006 05 27 | 703 | 0.3− | 0.3+ |
| 2006 04 20 | 691 | 0.0 | 0.0 | 2006 05 20 | 703 | 0.0 | 0.3+ | 2006 05 27 | 703 | 0.4− | 0.1− |
| 2006 04 20 | 691 | 0.2− | 0.1− | 2006 05 20 | 703 | 0.7+ | 0.8− | 2006 06 19 | A50 | 1.7− | 0.9− |
| 2006 04 24 | 691 | 0.2− | 0.2+ | 2006 05 20 | 703 | 1.8− | 0.4− | 2006 06 19 | A50 | 2.0− | 0.9− |
| 2006 04 24 | 691 | 0.0 | 0.2+ | 2006 05 21 | 691 | 0.2+ | 0.3+ | 2007 10 16 | G96 | 0.1+ | 0.1+ |
| 2006 04 24 | 691 | 0.1− | 0.0 | 2006 05 21 | 691 | 0.1+ | 0.1+ | 2007 10 16 | G96 | 0.2+ | 0.4+ |
| 2006 05 02 | 691 | 0.2− | 0.1+ | 2006 05 21 | 691 | 1.6+ | 0.7− | 2007 10 16 | G96 | 0.3− | 0.1+ |
| 2006 05 02 | 691 | 0.5− | 0.4+ | 2006 05 25 | 691 | 0.1+ | 0.0 | 2007 10 16 | G96 | 0.2− | 0.1− |
| 2006 05 02 | 691 | 0.1+ | 0.3+ | 2006 05 25 | 691 | 0.3+ | 0.0 | 2007 11 03 | G96 | 0.5− | 0.4+ |
| 2006 05 06 | 691 | 0.0 | 0.1+ | 2006 05 25 | 691 | 0.0 | 0.1+ | 2007 11 03 | G96 | 0.1− | 0.0 |
| 2006 05 06 | 691 | 0.1+ | 0.1− | 2006 05 27 | 703 | 0.9− | 0.6+ | 2007 11 03 | G96 | 0.8+ | 0.2+ |
| 2006 05 06 | 691 | 0.0 | 0.2− | 2006 05 27 | 703 | 0.4− | 0.0 | 2007 11 03 | G96 | 0.0 | 0.1− |

**2006 HW$_{44}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 243.69908 | | (2000.0) | | −0.85620290 | +0.51661439 |
| $n$ | 0.18682803 | $\omega$ | 27.62783 | | −0.48815613 | −0.81220080 |
| $a$ | 3.0304563 | $\Omega$ | 183.49035 | | −0.16917502 | −0.27099712 |
| $e$ | 0.1520546 | $i$ | 4.81967 | | | |
| $P$ | 5.28 | $H$ | 16.6 | $G$ 0.15 | $U$ 2 | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1993 12 14 | 691 | 0.3+ | 0.0 | 2006 03 24 | G96 | 0.5− | 0.1− | 2006 04 26 | G96 | 0.2+ | 0.3− |
| 1993 12 14 | 691 | 0.3− | 0.6− | 2006 03 24 | G96 | 0.4− | 0.1+ | 2006 04 26 | G96 | 0.5− | 0.0 |
| 1993 12 14 | 691 | 0.1+ | 0.5+ | 2006 03 24 | G96 | 0.1− | 0.0 | 2006 04 26 | G96 | 0.5− | 0.5− |
| 2001 05 16 | 691 | 0.3+ | 0.1− | 2006 04 08 | 691 | 0.1+ | 0.2+ | 2006 04 26 | G96 | 0.7− | 0.6− |
| 2001 05 16 | 691 | 0.1− | 0.0 | 2006 04 08 | 691 | 0.1+ | 0.1+ | 2006 04 27 | 691 | 0.3+ | 0.0 |
| 2001 05 16 | 691 | 0.2− | 0.0 | 2006 04 08 | 691 | 0.0 | 0.1+ | 2006 04 27 | 691 | 0.1− | 0.4− |
| 2006 02 24 | 691 | 0.2+ | 0.2+ | 2006 04 25 | 691 | 0.1+ | 0.2+ | 2006 04 27 | 691 | 0.2+ | 0.0 |
| 2006 02 24 | 691 | 0.2− | 0.2+ | 2006 04 25 | 691 | 0.1+ | 0.1+ | 2006 05 02 | 695 | 0.2− | 0.0 |
| 2006 02 24 | 691 | 0.3− | 0.2− | 2006 04 25 | 691 | 0.3+ | 0.2− | 2006 05 02 | 695 | 0.1− | 0.1− |

**2006 HA$_{51}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 133.07930 | | (2000.0) | | −0.36885127 | +0.92688095 |
| $n$ | 0.12523994 | $\omega$ | 50.19094 | | −0.90561161 | −0.37522473 |
| $a$ | 3.9564665 | $\Omega$ | 198.52888 | | −0.20932356 | −0.00990495 |
| $e$ | 0.1524593 | $i$ | 12.64641 | | | |
| $P$ | 7.87 | $H$ | 14.8 | $G$ 0.15 | $U$ 4 | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 04 19 | 947 | 0.4− | 0.7− | 2006 04 26 | 947 | 0.5− | 0.4+ | 2006 05 19 | G96 | 0.5− | 0.1− |
| 2006 04 19 | 947 | 1.9− | 0.3− | 2006 04 27 | 947 | 0.9− | 0.6− | 2006 05 19 | G96 | 0.0 | 0.1− |
| 2006 04 19 | 947 | 0.8− | 1.8− | 2006 04 27 | 947 | 0.2+ | 0.3− | 2009 09 15 | 691 | 0.0 | 0.0 |
| 2006 04 21 | 703 | 1.3+ | 0.9+ | 2006 04 27 | 947 | 0.3− | 0.5− | 2009 09 15 | 691 | 0.1+ | 0.2+ |
| 2006 04 21 | 703 | 0.9− | 1.1+ | 2006 05 03 | 691 | 0.6+ | 0.1− | 2009 09 15 | 691 | 0.1+ | 0.0 |
| 2006 04 21 | 703 | 0.0 | 1.8+ | 2006 05 03 | 691 | 0.6+ | 0.2+ | 2009 09 27 | 691 | 0.1+ | 0.4+ |
| 2006 04 21 | 703 | 0.5− | 0.4+ | 2006 05 03 | 691 | 0.5+ | 0.3+ | 2009 09 27 | 691 | 0.0 | 0.6− |
| 2006 04 26 | 947 | 0.1+ | 0.4− | 2006 05 19 | G96 | 0.1− | 0.1− | 2009 09 27 | 691 | 0.3− | 0.2+ |
| 2006 04 26 | 947 | 1.1− | 0.7− | 2006 05 19 | G96 | 0.3− | 0.2− | | | | |

**2006 HP$_{64}$ = 2007 PJ$_{48}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 157.81641 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18353653 | $\omega$ | 224.82324 | | +0.83896865 | | +0.54140836 |
| $a$ | 3.0665805 | $\Omega$ | 102.32268 | | −0.48221006 | | +0.78635662 |
| $e$ | 0.1101571 | $i$ | 3.21851 | | −0.25220043 | | +0.29752355 |
| $P$ | 5.37 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 5 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 04 24 | 691 | 0.7− | 0.6+ | 2006 05 05 | 691 | 0.2+ | 0.0 | 2007 08 15 | F85 | 0.2+ | 0.2+ |
| 2006 04 24 | 691 | 0.3+ | 0.4− | 2006 05 05 | 691 | 0.7− | 0.3− | 2007 08 15 | F85 | 0.6+ | 0.3+ |
| 2006 04 24 | 691 | 0.2+ | 0.2− | 2006 05 05 | 691 | 0.2+ | 0.0 | 2007 08 16 | F85 | 0.4− | 0.5− |
| 2006 05 01 | 691 | 0.3+ | 0.0 | 2007 08 11 | F85 | 0.3− | 0.4+ | 2007 08 16 | F85 | 0.3+ | 0.1− |
| 2006 05 01 | 691 | 0.2+ | 0.0 | 2007 08 11 | F85 | 0.3+ | 0.0 | 2007 08 16 | F85 | 0.6− | 0.4− |
| 2006 05 01 | 691 | 0.0 | 0.3+ | 2007 08 15 | F85 | 0.2− | 0.1+ | | | | |

**2006 HO$_{72}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 154.10626 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17550520 | $\omega$ | 178.59324 | | +0.86084155 | | +0.50628554 |
| $a$ | 3.1594348 | $\Omega$ | 150.81050 | | −0.46790219 | | +0.82710159 |
| $e$ | 0.1485170 | $i$ | 6.03232 | | −0.20004842 | | +0.24408585 |
| $P$ | 5.62 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 04 25 | 691 | 0.6+ | 0.2+ | 2006 06 16 | 691 | 0.1+ | 0.2− | 2008 12 01 | G96 | 0.2+ | 0.4− |
| 2006 04 25 | 691 | 0.0 | 0.1− | 2006 06 19 | 691 | 0.0 | 0.2+ | 2008 12 01 | G96 | 0.5− | 0.1− |
| 2006 04 25 | 691 | 0.3− | 0.2− | 2006 06 19 | 691 | 0.4− | 0.1+ | 2008 12 01 | G96 | 0.0 | 0.3− |
| 2006 04 29 | 691 | 0.0 | 0.0 | 2006 06 19 | 691 | 0.1− | 0.2− | 2009 01 02 | G96 | 0.5+ | 0.2+ |
| 2006 04 29 | 691 | 0.1− | 0.1− | 2008 11 07 | G96 | 0.1− | 0.2+ | 2009 01 02 | G96 | 0.3+ | 0.0 |
| 2006 04 29 | 691 | 0.4+ | 0.0 | 2008 11 07 | G96 | 0.5− | 0.0 | 2009 01 02 | G96 | 0.6+ | 0.5+ |
| 2006 06 16 | 691 | 0.0 | 0.2− | 2008 11 07 | G96 | 0.5− | 0.0 | 2009 01 02 | G96 | 0.3+ | 0.2+ |
| 2006 06 16 | 691 | 0.2− | 0.3+ | 2008 12 01 | G96 | 0.2− | 0.3− | | | | |

**2006 HC$_{102}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 84.08211 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.12480676 | $\omega$ | 201.83215 | | +0.80022081 | | +0.59667890 |
| $a$ | 3.9656159 | $\Omega$ | 121.39456 | | −0.53926482 | | +0.75983906 |
| $e$ | 0.0401274 | $i$ | 4.04240 | | −0.26237399 | | +0.25810636 |
| $P$ | 7.90 | $H$ | 15.0 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 02 12 | 691 | 0.3− | 0.0 | 2006 05 04 | 691 | 0.6+ | 0.1− | 2006 06 02 | 691 | 0.0 | 0.1+ |
| 2004 02 12 | 691 | 0.1+ | 0.0 | 2006 05 04 | 691 | 0.0 | 0.4− | 2009 10 26 | 691 | 0.1− | 0.1− |
| 2004 02 12 | 691 | 0.1+ | 0.0 | 2006 05 21 | 691 | 0.2+ | 0.1+ | 2009 10 26 | 691 | 0.2− | 0.1+ |
| 2006 04 26 | 691 | 0.3− | 0.3+ | 2006 05 21 | 691 | 0.5− | 0.3− | 2009 10 26 | 691 | 0.2+ | 0.3+ |
| 2006 04 26 | 691 | 0.4− | 0.3+ | 2006 05 21 | 691 | 0.0 | 0.0 | 2009 11 08 | G96 | 0.2+ | 0.3− |
| 2006 04 26 | 691 | 0.2+ | 0.4+ | 2006 05 25 | 691 | 0.0 | 0.0 | 2009 11 08 | G96 | 0.0 | 0.2− |
| 2006 04 30 | 691 | 0.2+ | 1.0− | 2006 05 25 | 691 | 0.0 | 0.1+ | 2009 11 08 | G96 | 0.1+ | 0.3− |
| 2006 04 30 | 691 | 0.6− | 0.3+ | 2006 05 25 | 691 | 0.0 | 0.1− | 2009 11 08 | G96 | 0.3+ | 0.2− |
| 2006 04 30 | 691 | 0.1+ | 0.1− | 2006 06 02 | 691 | 0.2− | 0.4+ | | | | |
| 2006 05 04 | 691 | 0.4+ | 0.1− | 2006 06 02 | 691 | 0.2+ | 0.1+ | | | | |

**2006 HP$_{113}$ = 2009 WU$_{252}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 344.65467 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17770863 | $\omega$ | 22.23634 | | −0.24998247 | | −0.91762259 |
| $a$ | 3.1332643 | $\Omega$ | 83.34662 | | +0.83493335 | | −0.36589019 |
| $e$ | 0.1749385 | $i$ | 18.12490 | | +0.49030099 | | +0.15521968 |
| $P$ | 5.55 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 04 21 | 691 | 0.5+ | 0.2+ | 2006 05 03 | 691 | 0.1+ | 0.3+ | 2009 11 26 | 691 | 0.4− | 0.1+ |
| 2006 04 21 | 691 | 0.1− | 0.2− | 2006 05 03 | 691 | 0.2− | 0.2+ | 2009 12 11 | G96 | 0.6+ | 0.1+ |
| 2006 04 21 | 691 | 0.3+ | 0.1− | 2009 11 10 | 691 | 0.1− | 0.2− | 2009 12 11 | G96 | 0.1+ | 0.0 |
| 2006 04 25 | 691 | 0.0 | 0.4+ | 2009 11 10 | 691 | 0.1+ | 0.0 | 2009 12 11 | G96 | 0.3+ | 0.1+ |
| 2006 04 25 | 691 | 0.1+ | 0.3− | 2009 11 10 | 691 | 0.3− | 0.2+ | 2009 12 11 | G96 | 0.4+ | 0.1+ |
| 2006 04 25 | 691 | 0.6− | 0.4− | 2009 11 26 | 691 | 0.3− | 0.0 | | | | |
| 2006 05 03 | 691 | 0.0 | 0.0 | 2009 11 26 | 691 | 0.7+ | 0.1− | | | | |

**2006 HC$_{121}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 184.91783 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18098613 | $\omega$ | 87.71261 | | +0.56972642 | | +0.80990603 |
| $a$ | 3.0953221 | $\Omega$ | 218.13834 | | −0.81480879 | | +0.53450783 |
| $e$ | 0.1237531 | $i$ | 13.05640 | | −0.10723075 | | +0.24156492 |
| $P$ | 5.45 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 04 30 | 691 | 0.5− | 0.1+ | 2006 05 22 | 691 | 0.4− | 0.2− | 2008 11 07 | G96 | 0.4+ | 0.0 |
| 2006 04 30 | 691 | 0.1+ | 0.1− | 2006 05 22 | 691 | 0.5+ | 0.1− | 2008 11 07 | G96 | 0.5− | 0.2− |
| 2006 04 30 | 691 | 0.0 | 0.0 | 2006 05 24 | G96 | 0.0 | 0.1+ | 2008 12 01 | G96 | 0.9− | 0.4− |
| 2006 05 08 | 691 | 0.1+ | 0.4+ | 2006 05 24 | G96 | 0.3− | 0.0 | 2008 12 01 | G96 | 0.5+ | 0.7+ |
| 2006 05 08 | 691 | 0.1− | 0.2− | 2006 05 24 | G96 | 0.3− | 0.3+ | 2008 12 01 | G96 | 0.7− | 0.1− |
| 2006 05 08 | 691 | 0.3+ | 0.1− | 2008 11 07 | G96 | 0.2+ | 0.0 | | | | |
| 2006 05 22 | 691 | 0.1+ | 0.2+ | 2008 11 07 | G96 | 1.0+ | 0.1− | | | | |

**2006 HW$_{135}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 3.01115 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18279462 | $\omega$ | 45.45940 | | +0.31794763 | | −0.94515298 |
| $a$ | 3.0748725 | $\Omega$ | 26.27570 | | +0.81492064 | | +0.23210852 |
| $e$ | 0.1164746 | $i$ | 9.72784 | | +0.48457574 | | +0.22980748 |
| $P$ | 5.39 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 03 02 | G96 | 0.5− | 0.1− | 2006 05 01 | 691 | 0.2+ | 0.2+ | 2009 12 10 | 213 | 0.4− | 0.2− |
| 2006 03 02 | G96 | 0.8− | 0.1− | 2006 05 01 | 691 | 0.1− | 0.5− | 2009 12 10 | 213 | 0.0 | 0.1+ |
| 2006 03 02 | G96 | 0.1+ | 0.7+ | 2006 05 01 | 691 | 0.1+ | 0.0 | 2009 12 10 | J47 | 0.0 | 0.3− |
| 2006 03 02 | G96 | 0.1− | 0.6+ | 2006 05 19 | G96 | 0.4− | 0.9+ | 2009 12 10 | J47 | 0.1+ | 0.1− |
| 2006 03 23 | 691 | 0.1+ | 0.2− | 2006 05 19 | G96 | 0.1+ | 0.2− | 2009 12 10 | J47 | 0.3+ | 0.2− |
| 2006 03 23 | 691 | 0.3+ | 0.1− | 2006 05 19 | G96 | 0.2− | 0.3+ | 2009 12 11 | 213 | 0.9+ | 0.5+ |
| 2006 03 23 | 691 | 0.2+ | 0.2− | 2006 05 19 | G96 | 0.4− | 0.1− | 2009 12 11 | 213 | 0.0 | 0.0 |
| 2006 04 26 | 807 | 0.2− | 0.2+ | 2009 12 09 | 213 | 0.2− | 0.2+ | 2009 12 11 | 213 | 0.2− | 0.5+ |
| 2006 04 26 | 807 | 0.3− | 0.3+ | 2009 12 09 | 213 | 0.3− | 0.5+ | 2009 12 14 | J47 | 0.1− | 0.3− |
| 2006 04 27 | 807 | 0.3− | 0.3+ | 2009 12 09 | 213 | 0.2+ | 0.4+ | 2009 12 14 | J47 | 0.3+ | 0.2− |
| 2006 04 27 | 807 | 0.2− | 0.4+ | 2009 12 10 | 213 | 0.8− | 0.5− | 2009 12 14 | J47 | 0.2+ | 0.2− |

**2006 JY$_{11}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 177.04245 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17740613 | $\omega$ | 184.45323 | | +0.69635240 | | +0.71250900 |
| $a$ | 3.1368251 | $\Omega$ | 129.71187 | | −0.65496913 | | +0.67997776 |
| $e$ | 0.1854041 | $i$ | 6.43109 | | −0.29344297 | | +0.17309296 |
| $P$ | 5.56 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 05 01 | 691 | 0.1+ | 0.1+ | 2006 05 26 | 691 | 0.1− | 0.2− | 2007 09 12 | 703 | 0.3+ | 1.1− |
| 2006 05 01 | 691 | 0.0 | 0.1+ | 2006 05 26 | 691 | 0.2− | 0.1− | 2007 09 12 | 703 | 1.3+ | 0.9− |
| 2006 05 01 | 691 | 0.1+ | 0.5+ | 2007 09 05 | 703 | 0.1− | 0.4− | 2007 09 12 | 703 | 0.1+ | 0.1+ |
| 2006 05 05 | 691 | 0.2+ | 0.0 | 2007 09 05 | 703 | 0.3− | 1.0+ | 2007 10 20 | G96 | 0.1− | 0.2+ |
| 2006 05 05 | 691 | 0.3− | 0.1+ | 2007 09 05 | 703 | 1.3− | 0.1− | 2007 10 20 | G96 | 0.1+ | 0.2+ |
| 2006 05 05 | 691 | 0.2+ | 0.0 | 2007 09 05 | 703 | 0.8− | 0.7+ | 2007 10 20 | G96 | 0.1+ | 0.1+ |
| 2006 05 26 | 691 | 0.1− | 0.3− | 2007 09 12 | 703 | 0.5+ | 0.3+ | 2007 10 20 | G96 | 0.2+ | 0.2+ |

**2006 JP$_{20}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 252.60324 | | (2000.0) | | | |
| $n$ | 0.19169888 | $\omega$ | 131.46110 | | −0.51139230 | +0.84239118 |
| $a$ | 2.9789028 | $\Omega$ | 107.01930 | | −0.83187311 | −0.43569123 |
| $e$ | 0.1607168 | $i$ | 10.23276 | | −0.21555750 | −0.31709659 |
| $P$ | 5.14 | $H$ | 16.1 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 04 24 | 691 | 0.2− | 0.0 | 2006 05 23 | 691 | 0.1+ | 0.0 | 2008 11 08 | G96 | 0.4+ | 0.1+ |
| 2006 04 24 | 691 | 0.3+ | 0.0 | 2006 05 24 | 699 | (0.5+ | 1.6−) | 2008 11 08 | G96 | 0.3+ | 0.1− |
| 2006 04 24 | 691 | 0.0 | 0.0 | 2006 05 24 | 699 | 0.2+ | 0.6+ | 2009 12 15 | G96 | 0.5+ | 0.0 |
| 2006 05 02 | 691 | 0.0 | 0.1− | 2006 05 24 | 699 | 0.2− | 0.1− | 2009 12 15 | G96 | 0.1+ | 0.5− |
| 2006 05 02 | 691 | 0.1+ | 0.0 | 2006 05 24 | 699 | 0.5− | 0.3+ | 2009 12 15 | G96 | 0.6+ | 0.2+ |
| 2006 05 02 | 691 | 0.1− | 0.1− | 2006 05 30 | 699 | 0.0 | 0.5+ | 2009 12 15 | G96 | 0.3− | 0.2+ |
| 2006 05 06 | 691 | 0.1− | 0.1+ | 2006 05 30 | 699 | (1.6− | 0.5+) | 2009 12 18 | 691 | 0.2+ | 0.0 |
| 2006 05 06 | 691 | 0.3− | 0.0 | 2006 05 30 | 699 | 0.3− | 0.5− | 2009 12 18 | 691 | 0.3− | 0.1+ |
| 2006 05 06 | 691 | 0.0 | 0.1− | 2006 05 30 | 699 | 0.3+ | 0.3− | 2009 12 18 | 691 | 0.3− | 0.1+ |
| 2006 05 20 | 644 | 0.1+ | 0.1− | 2006 06 18 | 644 | 0.5− | 0.0 | 2009 12 26 | 691 | 0.0 | 0.0 |
| 2006 05 20 | 644 | 0.3+ | 0.2− | 2006 06 18 | 644 | 0.5− | 0.0 | 2009 12 26 | 691 | 0.1− | 0.0 |
| 2006 05 20 | 644 | 0.1− | 0.0 | 2006 06 18 | 644 | 0.5− | 0.3+ | 2009 12 26 | 691 | 0.3+ | 0.1− |
| 2006 05 23 | 691 | 0.3+ | 0.1+ | 2008 11 08 | G96 | 0.2+ | 0.2+ | | | | |
| 2006 05 23 | 691 | 0.2+ | 0.0 | 2008 11 08 | G96 | 1.0− | 0.2+ | | | | |

**2006 JE$_{31}$ = 2009 VD$_{97}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 307.55596 | | (2000.0) | | | |
| $n$ | 0.18195628 | $\omega$ | 74.63460 | | −0.86258271 | −0.46125035 |
| $a$ | 3.0843100 | $\Omega$ | 77.51398 | | +0.34259373 | −0.83484517 |
| $e$ | 0.1194622 | $i$ | 12.29112 | | +0.37226414 | −0.30046906 |
| $P$ | 5.42 | $H$ | 15.7 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 23 | 691 | 0.1+ | 0.2+ | 2006 05 22 | 691 | 0.3− | 0.1+ | 2009 12 11 | G96 | 0.4+ | 0.1+ |
| 2003 10 23 | 691 | 0.0 | 0.0 | 2006 05 22 | 691 | 0.1+ | 0.1+ | 2009 12 11 | G96 | 0.2+ | 0.1− |
| 2003 10 23 | 691 | 0.1− | 0.1− | 2006 05 22 | 691 | 0.2+ | 0.1+ | 2009 12 11 | G96 | 0.5+ | 0.2− |
| 2006 05 03 | 691 | 0.1+ | 0.3− | 2009 11 08 | 691 | 0.6− | 0.1− | 2009 12 11 | G96 | 0.8+ | 0.1+ |
| 2006 05 03 | 691 | 0.2+ | 0.3+ | 2009 11 08 | 691 | 0.4+ | 0.0 | 2009 12 20 | G96 | 0.8+ | 0.3+ |
| 2006 05 03 | 691 | 0.0 | 0.1− | 2009 11 08 | 691 | 0.1− | 0.2− | 2009 12 20 | G96 | 0.6+ | 0.3+ |
| 2006 05 07 | 691 | 0.1+ | 0.0 | 2009 11 17 | 691 | 0.0 | 0.1+ | 2009 12 20 | G96 | 0.5+ | 0.0 |
| 2006 05 07 | 691 | 0.2− | 0.0 | 2009 11 17 | 691 | 0.5− | 0.2+ | 2009 12 20 | G96 | 0.8+ | 0.2+ |
| 2006 05 07 | 691 | 0.1− | 0.0 | 2009 11 17 | 691 | 0.5− | 0.0 | | | | |

**2006 JJ$_{33}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 176.02598 | | (2000.0) | | | |
| $n$ | 0.17425723 | $\omega$ | 175.73301 | | +0.42079335 | +0.89320236 |
| $a$ | 3.1745013 | $\Omega$ | 119.08358 | | −0.83757561 | +0.44964961 |
| $e$ | 0.0694704 | $i$ | 10.44953 | | −0.34842511 | −0.00218679 |
| $P$ | 5.66 | $H$ | 15.5 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 10 16 | 644 | 0.3− | 0.1+ | 2006 05 07 | 691 | 0.1− | 0.2+ | 2008 10 27 | G96 | 0.2− | 0.1− |
| 2002 10 16 | 644 | 0.2− | 0.2− | 2006 05 07 | 691 | 0.4− | 0.1− | 2008 10 27 | G96 | 0.1+ | 0.2+ |
| 2002 10 16 | 644 | 0.8+ | 0.2− | 2006 05 20 | 703 | (1.8− | 5.0+) | 2008 11 19 | 703 | 0.2− | 0.9+ |
| 2002 10 25 | 644 | 0.3+ | 0.0 | 2006 05 20 | 703 | (1.4+ | 4.5+) | 2008 11 19 | 703 | (0.4− | 2.7+) |
| 2002 11 06 | 644 | 0.2− | 0.3+ | 2006 05 20 | 703 | 1.4− | 0.1+ | 2008 11 19 | 703 | 1.2− | 1.1+ |
| 2002 11 06 | 644 | 0.0 | 0.4+ | 2006 05 20 | 703 | 1.0− | 0.7+ | 2008 11 19 | 703 | 0.2+ | 0.8+ |
| 2002 11 06 | 644 | 0.5− | 0.0 | 2006 06 18 | 691 | 0.0 | 0.1+ | 2008 11 27 | J75 | (1.6+ | 0.0 ) |
| 2006 04 21 | 691 | 0.1+ | 0.0 | 2006 06 18 | 691 | 0.2− | 0.2− | 2008 11 27 | J75 | 0.7− | 0.4− |
| 2006 04 21 | 691 | 0.2+ | 0.1+ | 2006 06 18 | 691 | 0.2− | 0.2+ | 2008 11 27 | J75 | 0.8+ | 0.1− |
| 2006 04 21 | 691 | 0.2+ | 0.1+ | 2006 06 23 | 691 | 0.1+ | 0.1+ | 2009 12 18 | G96 | 0.2− | 0.2+ |
| 2006 05 03 | 691 | 0.0 | 0.0 | 2006 06 23 | 691 | 0.1− | 0.1− | 2009 12 18 | G96 | 0.3+ | 0.5+ |
| 2006 05 03 | 691 | 0.1+ | 0.1− | 2006 06 23 | 691 | 1.3+ | 0.3+ | 2009 12 18 | G96 | 0.2+ | 0.3+ |
| 2006 05 03 | 691 | 0.2+ | 0.0 | 2008 10 27 | G96 | 0.1+ | 0.0 | 2009 12 18 | G96 | 0.1+ | 0.1− |
| 2006 05 07 | 691 | 0.4− | 0.1+ | 2008 10 27 | G96 | 0.1− | 0.0 | | | | |

**2006 JH$_{50}$ = 2002 GH$_{187}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 74.81852 | | (2000.0) | | | |
| $n$ | 0.25650924 | $\omega$ | 88.11029 | | −0.56552688 | −0.82043047 |
| $a$ | 2.4532061 | $\Omega$ | 36.74216 | | +0.68971936 | −0.52639384 |
| $e$ | 0.0521954 | $i$ | 8.08191 | | +0.45217977 | −0.22316669 |
| $P$ | 3.84 | $H$ | 16.6 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 04 08 | 644 | 0.1+ | 0.1+ | 2002 04 22 | 644 | 0.1+ | 0.0 | 2006 05 06 | 691 | 0.0 | 0.2+ |
| 2002 04 08 | 644 | 0.4− | 0.1+ | 2002 04 22 | 644 | 0.1− | 0.4+ | 2006 05 06 | 691 | 0.1− | 0.2+ |
| 2002 04 08 | 644 | 0.4+ | 0.1− | 2006 04 19 | 691 | 0.4+ | 0.3− | 2006 05 31 | G96 | 0.2+ | 0.2− |
| 2002 04 14 | 644 | 0.2+ | 0.1+ | 2006 04 19 | 691 | 0.2+ | 0.1+ | 2006 05 31 | G96 | 0.0 | 0.1− |
| 2002 04 14 | 644 | 0.1− | 0.0 | 2006 04 19 | 691 | 0.3+ | 0.1+ | 2006 05 31 | G96 | 0.3− | 0.2− |
| 2002 04 14 | 644 | 0.3+ | 0.0 | 2006 05 02 | G96 | 0.5− | 0.2− | 2006 05 31 | G96 | 0.1+ | 0.0 |
| 2002 04 15 | 644 | 0.1− | 0.3− | 2006 05 02 | G96 | 0.3− | 0.2− | 2006 06 01 | G96 | 0.2− | 0.2− |
| 2002 04 15 | 644 | 0.9− | 0.1− | 2006 05 02 | G96 | 0.3− | 0.0 | 2006 06 01 | G96 | 0.4− | 0.3− |
| 2002 04 15 | 644 | 0.4− | 0.8− | 2006 05 02 | G96 | 0.6− | 0.1− | 2006 06 01 | G96 | 0.5− | 0.1− |
| 2002 04 22 | 644 | 0.6+ | 0.1− | 2006 05 06 | 691 | 0.0 | 0.2+ | 2006 06 01 | G96 | 0.2− | 0.0 |

**2006 JN$_{66}$ = 2009 WJ$_{220}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 1.30856 | | (2000.0) | | | |
| $n$ | 0.17942457 | $\omega$ | 312.39642 | | +0.45184291 | −0.89125866 |
| $a$ | 3.1132556 | $\Omega$ | 110.70364 | | +0.83015019 | +0.40419709 |
| $e$ | 0.1482410 | $i$ | 2.36975 | | +0.32663228 | +0.20562761 |
| $P$ | 5.49 | $H$ | 17.1 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 11 14 | 691 | 0.0 | 0.2+ | 2006 05 02 | 695 | 0.4+ | 0.1+ | 2009 11 16 | G96 | 0.1− | 0.1− |
| 1998 11 14 | 691 | 0.1+ | 0.2− | 2006 05 02 | 695 | 0.1− | 0.3+ | 2009 11 16 | G96 | 0.0 | 0.4+ |
| 1998 11 14 | 691 | 0.0 | 0.3− | 2009 10 22 | G96 | 0.1− | 0.2− | 2009 11 16 | G96 | 0.0 | 0.0 |
| 2003 09 29 | 691 | 0.4− | 0.3+ | 2009 10 22 | G96 | 0.3− | 0.2+ | 2009 11 16 | G96 | 0.2+ | 0.2+ |
| 2003 09 29 | 691 | 0.2− | 0.2− | 2009 10 22 | G96 | 0.5− | 0.3+ | 2009 11 16 | G96 | 0.6+ | 0.2+ |
| 2003 09 29 | 691 | 0.5+ | 0.2+ | 2009 10 22 | G96 | 0.3+ | 0.2− | 2009 11 24 | G96 | 0.0 | 0.1− |
| 2006 04 28 | 807 | 0.2+ | 0.5+ | 2009 11 16 | G96 | 0.3− | 0.1+ | 2009 11 24 | G96 | 0.1+ | 0.0 |
| 2006 04 28 | 807 | 0.1+ | 0.5+ | 2009 11 16 | G96 | 0.2+ | 0.5+ | 2009 11 24 | G96 | 0.1− | 0.3+ |
| 2006 05 01 | 695 | 0.1+ | 0.3+ | 2009 11 16 | G96 | 0.3− | 0.0 | 2009 11 24 | G96 | 0.1− | 0.0 |

**2006 KG$_{12}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 182.21144 | | (2000.0) | | | |
| $n$ | 0.17437559 | $\omega$ | 206.32309 | | +0.49821223 | +0.82314684 |
| $a$ | 3.1730647 | $\Omega$ | 94.67717 | | −0.73948435 | +0.56743978 |
| $e$ | 0.2694458 | $i$ | 15.86266 | | −0.45271125 | −0.02100902 |
| $P$ | 5.65 | $H$ | 15.7 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 05 01 | 703 | 1.4− | 0.4+ | 2006 05 24 | 691 | 0.2+ | 0.1+ | 2006 05 31 | 691 | 0.4− | 0.2− |
| 2006 05 01 | 703 | 0.5− | 0.3− | 2006 05 24 | 691 | 0.0 | 0.1− | 2006 05 31 | 691 | 0.1− | 0.0 |
| 2006 05 01 | 703 | 0.6+ | 0.8+ | 2006 05 24 | 691 | 0.3− | 0.2+ | 2007 09 15 | 703 | 1.5+ | 1.0+ |
| 2006 05 01 | 703 | 0.6− | 1.3− | 2006 05 26 | 691 | 0.0 | 0.1− | 2007 09 15 | 703 | 0.2− | 0.1+ |
| 2006 05 20 | 691 | 0.1+ | 0.1+ | 2006 05 26 | 691 | 0.2+ | 0.1− | 2007 09 15 | 703 | 0.1+ | 0.8− |
| 2006 05 20 | 691 | 0.1+ | 0.1− | 2006 05 26 | 691 | 0.1+ | 0.1+ | 2007 09 15 | 703 | 0.6− | 0.5+ |
| 2006 05 20 | 691 | 0.1− | 0.4+ | 2006 05 28 | 691 | 0.1− | 0.0 | 2007 10 05 | E12 | 0.5− | 0.5− |
| 2006 05 22 | 691 | 0.4+ | 0.1− | 2006 05 28 | 691 | 0.2+ | 0.2+ | 2007 10 05 | E12 | 0.0 | 0.3− |
| 2006 05 22 | 691 | 0.1− | 0.4− | 2006 05 28 | 691 | 0.2+ | 0.0 | 2007 10 05 | E12 | 0.5− | 0.1− |
| 2006 05 22 | 691 | 0.3+ | 0.0 | 2006 05 31 | 691 | 0.2− | 0.1− | 2007 10 05 | E12 | 0.1+ | 0.1− |

**2006 KN$_{12}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 272.05572 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21802745 | $\omega$ | 102.06954 | | −0.32985230 | +0.93927619 | |
| $a$ | 2.7339796 | $\Omega$ | 148.16182 | | −0.92083266 | −0.29803526 | |
| $e$ | 0.1521967 | $i$ | 10.33566 | | −0.20800161 | −0.17010357 | |
| $P$ | 4.52 | $H$ | 17.5 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 07 03 | 644 | 0.1+ | 0.3− | 2002 07 21 | 644 | 0.7− | 0.4+ | 2006 05 20 | 691 | 0.2− | 0.3− |
| 2002 07 03 | 644 | 0.4− | 0.2− | 2002 07 21 | 644 | 0.1− | 0.2− | 2006 05 20 | 691 | 0.9− | 0.3+ |
| 2002 07 03 | 644 | 0.1− | 0.2+ | 2002 07 29 | 644 | 0.3− | 0.5+ | 2006 05 22 | 691 | 0.4+ | 0.3− |
| 2002 07 08 | 644 | 0.0 | 0.4− | 2002 07 29 | 644 | 0.3+ | 0.1− | 2006 05 22 | 691 | 0.1− | 0.1+ |
| 2002 07 08 | 644 | 0.4− | 0.2− | 2002 07 29 | 644 | 0.2− | 0.1+ | 2006 05 22 | 691 | 0.0 | 0.2− |
| 2002 07 08 | 644 | 0.1− | 0.5− | 2002 08 07 | 644 | 0.1+ | 0.3− | 2006 05 24 | 691 | 0.5+ | 0.1+ |
| 2002 07 11 | 644 | 0.6+ | 0.2+ | 2002 08 07 | 644 | 0.4+ | 0.2+ | 2006 05 24 | 691 | 0.0 | 0.3+ |
| 2002 07 11 | 644 | 0.3− | 0.2+ | 2002 08 07 | 644 | 1.0+ | 0.2− | 2006 05 24 | 691 | 0.1+ | 0.3− |
| 2002 07 11 | 644 | 0.1+ | 0.3+ | 2006 05 20 | 691 | 0.2+ | 0.3+ | | | | |

**2006 KQ$_{21}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 318.47268 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28079953 | $\omega$ | 163.95679 | | +0.95846350 | +0.28521340 | |
| $a$ | 2.3096090 | $\Omega$ | 179.46841 | | −0.27222617 | +0.91586922 | |
| $e$ | 0.4648550 | $i$ | 6.27678 | | −0.08509186 | +0.28255422 | |
| $P$ | 3.51 | $H$ | 18.7 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 05 23 | 691 | 0.2+ | 0.1− | 2006 05 24 | G96 | 0.8− | 0.1− | 2006 06 05 | F65 | 0.3− | 0.7− |
| 2006 05 23 | 691 | 0.3+ | 0.2− | 2006 05 24 | G96 | 0.1− | 0.2− | 2006 06 05 | F65 | 0.3− | 0.7− |
| 2006 05 23 | 691 | 0.6+ | 0.1+ | 2006 05 25 | 291 | 0.1+ | 0.6+ | 2006 06 05 | F65 | 0.6− | 0.8− |
| 2006 05 23 | 291 | 0.1+ | 0.4− | 2006 05 25 | 291 | 0.2− | 0.4+ | 2006 06 17 | 291 | 0.2+ | 0.4+ |
| 2006 05 23 | 291 | 0.2+ | 0.3− | 2006 05 25 | 291 | 0.2− | 0.3+ | 2006 06 17 | 291 | 0.1+ | 0.2+ |
| 2006 05 23 | 291 | 0.1+ | 0.2− | 2006 05 26 | 291 | 0.2− | 0.3+ | 2006 06 17 | 291 | 0.2+ | 0.1+ |
| 2006 05 24 | 291 | 0.5+ | 0.5+ | 2006 05 26 | 291 | 0.4− | 0.0 | 2009 03 22 | G96 | 0.6− | 0.0 |
| 2006 05 24 | 291 | 0.2+ | 0.4+ | 2006 05 26 | 291 | 0.2− | 0.1+ | 2009 03 22 | G96 | 0.3+ | 0.4+ |
| 2006 05 24 | 291 | 0.2+ | 0.5+ | 2006 05 30 | 291 | 0.2− | 0.6− | 2009 03 22 | G96 | 0.2+ | 0.3+ |
| 2006 05 24 | G96 | 0.7− | 0.2− | 2006 05 30 | 291 | 0.5− | 1.0− | 2009 03 22 | G96 | 0.1+ | 0.7− |
| 2006 05 24 | G96 | 0.2− | 0.3− | 2006 05 30 | 291 | 0.3− | 0.2− | | | | |

**2006 KK$_{36}$ = 2009 YW$_{9}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 99.36678 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18262481 | $\omega$ | 239.10824 | | +0.98271473 | −0.10057174 | |
| $a$ | 3.0767783 | $\Omega$ | 126.21719 | | +0.14220000 | +0.94765210 | |
| $e$ | 0.0218017 | $i$ | 11.10738 | | −0.11853655 | +0.30305250 | |
| $P$ | 5.40 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 05 21 | 691 | 0.2+ | 0.2− | 2006 06 01 | 691 | 0.1+ | 0.1+ | 2009 12 17 | G96 | 0.1+ | 0.5− |
| 2006 05 21 | 691 | 0.1− | 0.3+ | 2006 06 01 | 691 | 0.1+ | 0.0 | 2009 12 17 | G96 | 0.1+ | 0.3− |
| 2006 05 21 | 691 | 0.2+ | 0.2− | 2006 06 01 | 691 | 0.2+ | 0.1− | 2009 12 20 | 691 | 0.3− | 0.4+ |
| 2006 05 24 | 691 | 0.1− | 0.1+ | 2009 12 17 | G96 | 0.1+ | 0.0 | 2009 12 20 | 691 | 0.1+ | 0.1− |
| 2006 05 24 | 691 | 0.1− | 0.2+ | 2009 12 17 | G96 | 0.7+ | 0.4− | 2009 12 20 | 691 | 0.1− | 0.1+ |
| 2006 05 24 | 691 | 0.5− | 0.1− | 2009 12 17 | G96 | 0.1+ | 0.3− | | | | |

**2006 KQ$_{41}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 300.64603 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23583652 | $\omega$ | 151.77227 | | −0.10486204 | +0.99030104 | |
| $a$ | 2.5945498 | $\Omega$ | 112.08605 | | −0.92993114 | −0.06515896 | |
| $e$ | 0.1651071 | $i$ | 5.64503 | | −0.35246564 | −0.12271166 | |
| $P$ | 4.18 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 05 19 | 644 | 0.4− | 0.1+ | 2006 06 04 | G96 | 0.4− | 0.1− | 2007 11 01 | G96 | 0.1− | 0.4+ |
| 2006 05 19 | 644 | 0.1− | 0.2+ | 2006 06 04 | G96 | 0.6− | 0.1− | 2008 10 31 | G96 | 0.7+ | 0.4+ |
| 2006 05 19 | 644 | 0.5− | 0.4− | 2006 06 04 | G96 | 0.3− | 0.1− | 2008 10 31 | G96 | 0.5− | 0.1+ |
| 2006 05 25 | 644 | 0.0 | 0.2+ | 2006 06 04 | G96 | 0.1− | 0.1− | 2008 10 31 | G96 | 0.1+ | 0.1− |
| 2006 05 25 | 644 | 0.1+ | 0.2+ | 2006 06 20 | 644 | 0.1− | 0.1+ | 2008 10 31 | G96 | 0.1+ | 0.1+ |
| 2006 05 25 | 644 | 0.3+ | 0.4+ | 2006 06 20 | 644 | 0.3− | 0.0 | 2008 12 21 | G96 | 0.3+ | 0.3+ |
| 2006 05 26 | 704 | (1.6+ | 0.3−) | 2006 06 20 | 644 | 0.0 | 0.1+ | 2008 12 21 | G96 | 0.4+ | 0.3+ |
| 2006 05 26 | 704 | 0.0 | 0.5+ | 2006 06 22 | 644 | 0.2+ | 0.1− | 2008 12 21 | G96 | 0.0 | 0.3+ |
| 2006 05 26 | 704 | 0.1− | 0.0 | 2006 06 22 | 644 | 0.1+ | 0.0 | 2008 12 21 | G96 | 0.1+ | 0.1+ |
| 2006 05 26 | 704 | (2.2+ | 0.3+) | 2006 06 22 | 644 | 0.0 | 0.0 | 2009 01 02 | 691 | 0.4− | 0.1+ |
| 2006 05 28 | 704 | 1.3+ | 0.5− | 2007 10 20 | G96 | 0.0 | 0.0 | 2009 01 02 | 691 | 0.1+ | 0.1+ |
| 2006 05 28 | 704 | 0.6− | 0.6+ | 2007 10 20 | G96 | 0.4− | 0.1− | 2009 01 02 | 691 | 0.0 | 0.1+ |
| 2006 05 28 | 704 | (1.9− | 0.1+) | 2007 10 20 | G96 | 0.0 | 0.1− | 2009 01 02 | G96 | 0.5+ | 0.4− |
| 2006 05 29 | 704 | 0.8+ | 0.3− | 2007 10 20 | G96 | 0.4− | 0.0 | 2009 01 02 | G96 | 0.2+ | 0.7− |
| 2006 05 29 | 704 | 0.9+ | 0.2− | 2007 11 01 | G96 | 0.6+ | 0.2+ | 2009 01 02 | G96 | 0.2− | 0.4− |
| 2006 05 29 | 704 | 0.4+ | 0.5− | 2007 11 01 | G96 | 0.1− | 0.0 | 2009 01 02 | G96 | 0.2− | 0.5− |
| 2006 05 29 | 704 | 0.4− | 0.3+ | 2007 11 01 | G96 | 0.2+ | 0.2− | | | | |

**2006 KL$_{42}$ = 2002 GZ$_{186}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 323.49898 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.25665829 | $\omega$ | 206.95298 | | −0.15824110 | +0.98646506 | |
| $a$ | 2.4522563 | $\Omega$ | 53.97225 | | −0.89607311 | −0.12518953 | |
| $e$ | 0.1325383 | $i$ | 3.04572 | | −0.41474418 | −0.10589743 | |
| $P$ | 3.84 | $H$ | 17.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 03 25 | 691 | 0.3− | 0.2− | 2003 10 19 | 691 | 0.1+ | 0.2− | 2006 05 24 | 644 | 0.2+ | 0.0 |
| 1998 03 25 | 691 | 0.1+ | 0.4+ | 2003 10 19 | 691 | 0.1+ | 0.1− | 2006 05 24 | 644 | 0.0 | 0.0 |
| 1998 03 25 | 691 | 0.4− | 1.4− | 2006 05 07 | G96 | 0.1− | 0.4− | 2007 11 05 | G96 | 0.2− | 0.3− |
| 2002 04 08 | 644 | 0.1− | 0.1+ | 2006 05 07 | G96 | 0.0 | 0.1− | 2007 11 05 | G96 | 0.0 | 0.0 |
| 2002 04 08 | 644 | 0.4+ | 0.6+ | 2006 05 07 | G96 | 0.0 | 0.3+ | 2007 11 05 | G96 | 0.2− | 0.5− |
| 2002 04 08 | 644 | 0.2− | 0.3− | 2006 05 07 | G96 | 0.1+ | 0.3− | 2007 11 05 | G96 | 0.5− | 0.3− |
| 2002 04 09 | 644 | 0.2+ | 0.1+ | 2006 05 20 | G96 | 0.1− | 0.2+ | 2008 12 31 | G96 | 0.1+ | 0.6+ |
| 2002 04 09 | 644 | 0.0 | 0.1− | 2006 05 20 | G96 | 0.2+ | 0.0 | 2008 12 31 | G96 | 0.7+ | 0.4+ |
| 2002 04 14 | 644 | 0.2+ | 0.6+ | 2006 05 20 | G96 | 0.2− | 0.2+ | 2008 12 31 | G96 | 0.5+ | 0.3+ |
| 2002 04 14 | 644 | 0.3+ | 0.8+ | 2006 05 20 | G96 | 0.2+ | 0.1+ | 2008 12 31 | G96 | 0.4− | 0.7+ |
| 2003 10 19 | 691 | 0.2+ | 0.1− | 2006 05 24 | 644 | 0.1− | 0.2+ | | | | |

**2006 KX$_{53}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 199.70454 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.20599635 | $\omega$ | 250.94919 | | +0.85468688 | +0.48040849 | |
| $a$ | 2.8394204 | $\Omega$ | 79.91430 | | −0.36850616 | +0.82839283 | |
| $e$ | 0.1436969 | $i$ | 11.52862 | | −0.36566863 | +0.28805034 | |
| $P$ | 4.78 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 05 07 | G96 | 0.0 | 0.0 | 2006 05 24 | 644 | 0.6− | 0.4− | 2007 10 11 | 703 | 1.2− | 0.6− |
| 2006 05 07 | G96 | 0.1+ | 0.1+ | 2006 05 24 | 644 | 0.6− | 0.0 | 2007 10 11 | 703 | 0.1− | 0.6+ |
| 2006 05 07 | G96 | 0.5− | 0.1+ | 2006 05 24 | 644 | 0.4− | 0.3− | 2007 10 11 | 703 | (2.9− | 0.1−) |
| 2006 05 07 | G96 | 0.1− | 0.0 | 2006 05 29 | 691 | 0.1− | 0.1− | 2007 10 15 | 699 | 0.4− | 0.1+ |
| 2006 05 21 | 691 | 0.3+ | 0.1− | 2006 05 29 | 691 | 0.0 | 0.1+ | 2007 10 15 | 699 | 0.5+ | 0.2− |
| 2006 05 21 | 691 | 0.1+ | 0.1+ | 2006 05 29 | 691 | 0.0 | 0.1+ | 2007 10 15 | 699 | 0.2− | 0.5− |
| 2006 05 21 | 691 | 0.2+ | 0.0 | 2007 10 11 | 703 | 1.0+ | 0.2+ | 2007 10 15 | 699 | 0.3+ | 0.3+ |

**2006 KB$_{61}$ = 2009 YK$_{15}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 351.41972 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22958365 | $\omega$ | 63.08820 | | −0.96932765 | −0.20291602 | |
| $a$ | 2.6414481 | $\Omega$ | 104.93923 | | +0.14160266 | −0.92225527 | |
| $e$ | 0.2673920 | $i$ | 8.25156 | | +0.20087953 | −0.32904453 | |
| $P$ | 4.29 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 05 22 | 691 | 0.2+ | 0.1+ | 2006 05 26 | 691 | 0.1− | 0.2+ | 2009 12 18 | 691 | 0.3− | 0.0 |
| 2006 05 22 | 691 | 0.1− | 0.1− | 2006 05 26 | 691 | 0.1− | 0.1+ | 2009 12 18 | 691 | 0.3+ | 0.1− |
| 2006 05 22 | 691 | 0.3+ | 0.0 | 2006 05 26 | 691 | 0.0 | 0.1− | 2009 12 18 | 691 | 0.1+ | 0.1+ |
| 2006 05 25 | G96 | 0.5− | 0.3− | 2006 05 30 | 691 | 0.1− | 0.2+ | 2009 12 19 | 691 | 0.2+ | 0.4− |
| 2006 05 25 | G96 | 0.4− | 0.2− | 2006 05 30 | 691 | 0.4+ | 0.3− | 2009 12 19 | 691 | 0.3− | 0.5+ |
| 2006 05 25 | G96 | 0.5− | 0.3− | 2006 05 30 | 691 | 0.1− | 0.0 | 2009 12 19 | 691 | 0.0 | 0.2− |

**2006 KY$_{72}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 225.31890 | | (2000.0) | | | |
| $n$ | 0.18527171 | $\omega$ | 164.06585 | | −0.00844954 | +0.97859357 |
| $a$ | 3.0474036 | $\Omega$ | 105.10156 | | −0.93913799 | +0.06285947 |
| $e$ | 0.1822880 | $i$ | 12.29729 | | −0.34343624 | −0.19596761 |
| $P$ | 5.32 | $H$ | 15.9 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 05 09 | G96 | 0.4− | 0.1+ | 2006 05 27 | 703 | 0.3− | 1.1+ | 2006 06 20 | 691 | 0.1+ | 0.0 |
| 2006 05 09 | G96 | 0.0 | 0.1+ | 2006 05 27 | 703 | (1.2+ | 2.7+) | 2006 06 20 | 691 | 0.2− | 0.4+ |
| 2006 05 09 | G96 | 0.1− | 0.1− | 2006 05 31 | 691 | 0.1+ | 0.1− | 2008 12 01 | G96 | 0.1− | 0.1+ |
| 2006 05 09 | G96 | 0.0 | 0.1+ | 2006 05 31 | 691 | 0.7+ | 0.2+ | 2008 12 01 | G96 | 0.4+ | 0.7+ |
| 2006 05 23 | 691 | 0.1+ | 0.2+ | 2006 05 31 | 691 | 0.2+ | 0.0 | 2008 12 01 | G96 | 0.2− | 0.0 |
| 2006 05 23 | 691 | 0.2+ | 0.1− | 2006 06 04 | 691 | 0.1+ | 0.1− | 2008 12 01 | G96 | 0.2+ | 0.0 |
| 2006 05 23 | 691 | 0.0 | 0.1+ | 2006 06 04 | 691 | 0.3− | 0.1+ | 2009 01 02 | G96 | 0.7− | 0.1− |
| 2006 05 27 | 691 | 0.1+ | 0.2− | 2006 06 04 | 691 | 0.2− | 0.2− | 2009 01 02 | G96 | 0.5+ | 0.2− |
| 2006 05 27 | 691 | 0.6− | 0.1− | 2006 06 16 | 691 | 0.1− | 0.0 | 2009 01 02 | G96 | 0.4− | 0.5+ |
| 2006 05 27 | 691 | 0.1+ | 0.2− | 2006 06 16 | 691 | 0.3+ | 0.1+ | 2009 01 02 | G96 | 0.0 | 0.4− |
| 2006 05 27 | 703 | (4.5− | 1.8−) | 2006 06 16 | 691 | 0.1− | 0.0 | | | | |
| 2006 05 27 | 703 | 0.3+ | 0.4− | 2006 06 20 | 691 | 0.4− | 0.0 | | | | |

**2006 KB$_{74}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 210.83305 | | (2000.0) | | | |
| $n$ | 0.18378597 | $\omega$ | 164.01209 | | +0.25540839 | +0.95476473 |
| $a$ | 3.0638051 | $\Omega$ | 120.56426 | | −0.90530242 | +0.29146158 |
| $e$ | 0.1110231 | $i$ | 10.18682 | | −0.33940254 | −0.05894462 |
| $P$ | 5.36 | $H$ | 15.6 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 05 09 | G96 | 0.3− | 0.2+ | 2006 05 27 | 691 | 0.0 | 0.6− | 2006 06 15 | 691 | 0.3− | 0.1+ |
| 2006 05 09 | G96 | 0.0 | 0.1− | 2006 05 31 | 691 | 0.1+ | 0.1+ | 2008 12 01 | G96 | 0.5− | 0.1− |
| 2006 05 09 | G96 | 0.3− | 0.2− | 2006 05 31 | 691 | 0.1+ | 0.2+ | 2008 12 01 | G96 | 0.4+ | 0.0 |
| 2006 05 09 | G96 | 0.5− | 0.2− | 2006 05 31 | 691 | 0.3+ | 0.1+ | 2008 12 01 | G96 | 0.1− | 0.1+ |
| 2006 05 23 | 691 | 0.1− | 0.0 | 2006 06 04 | 691 | 0.1+ | 0.1− | 2008 12 01 | G96 | 0.2− | 0.4− |
| 2006 05 23 | 691 | 0.1− | 0.0 | 2006 06 04 | 691 | 0.0 | 0.2− | 2009 01 02 | G96 | 0.3+ | 0.3+ |
| 2006 05 23 | 691 | 0.5+ | 0.1− | 2006 06 04 | 691 | 0.1+ | 0.2+ | 2009 01 02 | G96 | 0.4+ | 0.1+ |
| 2006 05 27 | 691 | 0.1+ | 0.1+ | 2006 06 15 | 691 | 0.3− | 0.1+ | 2009 01 02 | G96 | 0.1− | 0.4+ |
| 2006 05 27 | 691 | 0.0 | 0.0 | 2006 06 15 | 691 | 0.3− | 0.1+ | 2009 01 02 | G96 | 0.1− | 0.2+ |

**2006 KA$_{76}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 273.60224 | | (2000.0) | | | |
| $n$ | 0.17559170 | $\omega$ | 294.18485 | | −0.97340003 | −0.04881031 |
| $a$ | 3.1583971 | $\Omega$ | 243.68471 | | +0.11296989 | −0.95226515 |
| $e$ | 0.2102615 | $i$ | 14.46170 | | −0.19932433 | −0.30134471 |
| $P$ | 5.61 | $H$ | 16.1 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 05 24 | 644 | 0.1+ | 0.1− | 2006 06 15 | 691 | 0.1+ | 0.0 | 2009 12 11 | G96 | 0.3+ | 0.1− |
| 2006 05 24 | 644 | 0.4− | 0.1+ | 2006 06 15 | 691 | 0.3− | 0.5+ | 2009 12 11 | G96 | 0.0 | 0.4− |
| 2006 05 24 | 644 | 0.2− | 0.2+ | 2006 06 15 | 691 | 0.4+ | 0.5− | 2009 12 11 | G96 | 0.2+ | 0.5− |
| 2006 05 26 | G96 | 0.6− | 0.3+ | 2009 11 24 | 691 | 0.2− | 0.2− | 2009 12 11 | G96 | 0.0 | 0.2+ |
| 2006 05 26 | G96 | 0.2+ | 0.0 | 2009 11 24 | 691 | 0.1− | 0.3+ | | | | |
| 2006 05 26 | G96 | 0.1− | 0.0 | 2009 11 24 | 691 | 0.2+ | 0.2+ | | | | |

**2006 KH$_{90}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 297.08940 | | (2000.0) | | | |
| $n$ | 0.17761713 | $\omega$ | 49.10340 | | −0.84777351 | −0.44268316 |
| $a$ | 3.1343403 | $\Omega$ | 102.73329 | | +0.35001669 | −0.88076507 |
| $e$ | 0.0604650 | $i$ | 17.42433 | | +0.39845752 | −0.16817999 |
| $P$ | 5.55 | $H$ | 14.8 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 05 24 | 691 | 0.2+ | 0.1− | 2009 12 09 | J75 | 0.5+ | 0.5+ | 2009 12 17 | H10 | 0.2+ | 0.1+ |
| 2006 05 24 | 691 | 0.1+ | 0.0 | 2009 12 09 | J75 | 0.1− | 0.4+ | 2009 12 17 | H10 | 1.1+ | 0.9+ |
| 2006 05 24 | 691 | 0.2− | 0.0 | 2009 12 09 | J75 | 0.7+ | 0.3+ | 2009 12 17 | H10 | 0.1+ | 0.3+ |
| 2006 05 29 | 691 | 0.3+ | 0.0 | 2009 12 15 | 703 | 0.2− | 0.8− | 2009 12 18 | H10 | 0.0 | 0.1+ |
| 2006 05 29 | 691 | 0.0 | 0.0 | 2009 12 15 | 703 | 1.5− | 1.1− | 2009 12 18 | H10 | 0.2+ | 0.2+ |
| 2006 05 29 | 691 | 0.0 | 0.0 | 2009 12 15 | 703 | 1.1− | 0.2− | 2009 12 18 | H10 | 0.3− | 0.5+ |
| 2006 05 31 | 691 | 0.2− | 0.2+ | 2009 12 15 | 703 | 0.7− | 0.3− | 2009 12 18 | H10 | 0.3+ | 0.2− |
| 2006 05 31 | 691 | 0.1− | 0.2− | 2009 12 15 | 703 | 1.2+ | 0.4− | | | | |
| 2006 05 31 | 691 | 0.2− | 0.0 | 2009 12 17 | H10 | 0.4− | 0.3− | | | | |

**2006 KU$_{130}$ = 2009 XC$_8$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 22.01946 | | (2000.0) | | | |
| $n$ | 0.17562149 | $\omega$ | 201.80093 | | +0.01331288 | −0.90678683 |
| $a$ | 3.1580399 | $\Omega$ | 249.56614 | | +0.97094444 | +0.11242310 |
| $e$ | 0.1401747 | $i$ | 26.72281 | | +0.23893442 | −0.40632338 |
| $P$ | 5.61 | $H$ | 15.1 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 02 11 | 644 | 0.2+ | 0.4+ | 2008 10 06 | 703 | 0.3− | 0.5+ | 2008 11 21 | 703 | 0.1− | 0.3− |
| 2004 02 11 | 644 | 0.1+ | 0.3+ | 2008 10 06 | 703 | 0.2− | 0.3+ | 2008 11 21 | 703 | 0.1− | 0.2− |
| 2004 02 11 | 644 | 0.1+ | 0.4+ | 2008 10 06 | 703 | 1.1+ | 1.0+ | 2008 11 21 | 703 | 0.1− | 0.3+ |
| 2006 05 25 | 568 | 0.7− | 0.6+ | 2008 10 28 | 703 | 0.4− | 0.1− | 2009 12 15 | H06 | 0.1− | 0.3− |
| 2006 05 25 | 568 | 0.7− | 0.6+ | 2008 10 28 | 703 | 0.5− | 0.5+ | 2009 12 15 | H06 | 0.3+ | 0.2+ |
| 2006 05 25 | 568 | 0.9− | 0.6+ | 2008 10 28 | 703 | 0.2+ | 0.5+ | 2009 12 15 | H06 | 0.0 | 0.3− |
| 2006 05 26 | 568 | 0.1+ | 0.3+ | 2008 10 28 | 703 | 0.9+ | 0.4− | 2009 12 16 | H06 | 0.3+ | 0.6+ |
| 2006 06 04 | G96 | 0.6+ | 0.0 | 2008 11 08 | 703 | 0.1− | 0.3+ | 2009 12 16 | H06 | 0.2+ | 0.3+ |
| 2006 06 04 | G96 | 0.5+ | 0.0 | 2008 11 08 | 703 | 0.4+ | 0.3− | 2009 12 16 | H06 | 0.0 | 0.6+ |
| 2006 06 04 | G96 | 0.2+ | 0.3+ | 2008 11 08 | 703 | 1.0+ | 0.3− | 2009 12 17 | H06 | 0.7− | 0.6− |
| 2006 06 04 | G96 | 0.0 | 0.4+ | 2008 11 08 | 703 | 0.8− | 0.0 | 2009 12 17 | H06 | 0.7+ | 0.7+ |
| 2008 10 06 | 703 | 1.2− | 0.4− | 2008 11 21 | 703 | 0.2− | 0.6+ | 2009 12 17 | H06 | 0.0 | 0.1− |

**2006 MA$_6$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 337.94590 | | (2000.0) | | | |
| $n$ | 0.27596287 | $\omega$ | 62.58830 | | +0.66956993 | +0.74246562 |
| $a$ | 2.3365170 | $\Omega$ | 249.46098 | | −0.68896161 | +0.61052488 |
| $e$ | 0.2030876 | $i$ | 1.25539 | | −0.27750318 | +0.27568854 |
| $P$ | 3.57 | $H$ | 17.1 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 11 16 | 291 | 0.1− | 0.1+ | 2006 06 03 | G96 | 0.2− | 0.2+ | 2006 07 18 | 704 | 1.3− | 0.7+ |
| 2003 11 16 | 291 | 0.0 | 0.3+ | 2006 06 18 | 644 | 0.5+ | 0.5+ | 2006 10 21 | G96 | 0.6+ | 0.3− |
| 2003 11 16 | 291 | 0.0 | 0.2− | 2006 06 18 | 644 | 0.4+ | 0.3+ | 2006 10 21 | G96 | 0.3+ | 0.2+ |
| 2006 05 22 | G96 | 0.3+ | 0.2+ | 2006 06 18 | 644 | 0.1− | 0.2− | 2006 10 21 | G96 | 0.5+ | 0.1− |
| 2006 05 22 | G96 | 0.2+ | 0.2+ | 2006 06 21 | 691 | 0.2+ | 0.0 | 2006 10 21 | G96 | 0.2− | 0.2− |
| 2006 05 22 | G96 | 0.1+ | 0.1+ | 2006 06 21 | 691 | 0.2+ | 0.3+ | 2007 12 16 | 691 | 0.1+ | 0.4+ |
| 2006 05 22 | G96 | 0.0 | 0.2+ | 2006 06 21 | 691 | 0.2+ | 0.0 | 2007 12 16 | 691 | 0.2− | 0.2+ |
| 2006 06 03 | G96 | 0.1− | 0.2+ | 2006 07 18 | 704 | 1.0− | 1.0− | 2007 12 16 | 691 | 0.2+ | 0.1− |
| 2006 06 03 | G96 | 0.2+ | 0.5+ | 2006 07 18 | 704 | 0.2− | 0.7− | | | | |
| 2006 06 03 | G96 | 0.0 | 0.3+ | 2006 07 18 | 704 | 1.6− | 0.6− | | | | |

**2006 MU$_{11}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 136.90068 | | (2000.0) | | | |
| $n$ | 0.17228681 | $\omega$ | 249.47878 | | +0.82962633 | +0.47922417 |
| $a$ | 3.1986596 | $\Omega$ | 80.91006 | | −0.33942299 | +0.84029696 |
| $e$ | 0.0630149 | $i$ | 16.86467 | | −0.44329694 | +0.25346640 |
| $P$ | 5.72 | $H$ | 15.4 | $G$ 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 05 23 | 691 | 0.4+ | 0.1+ | 2006 06 19 | 691 | 0.1− | 0.1− | 2008 11 03 | 703 | 0.0 | 0.0 |
| 2006 05 23 | 691 | 0.1− | 0.1− | 2006 06 23 | 691 | 0.1+ | 0.0 | 2008 11 03 | 703 | 0.7− | 0.1− |
| 2006 05 23 | 691 | 0.0 | 0.0 | 2006 06 23 | 691 | 0.1+ | 0.0 | 2008 11 03 | 703 | 0.7+ | 0.5− |
| 2006 05 26 | 703 | 1.1− | 0.2− | 2006 06 23 | 691 | 0.1− | 0.2+ | 2008 11 03 | 703 | 0.6− | 0.6+ |
| 2006 05 26 | 703 | 0.5+ | 0.6+ | 2008 10 26 | G96 | 0.0 | 0.6− | 2008 11 03 | 703 | 0.8+ | 0.4+ |
| 2006 05 26 | 703 | 0.2− | 0.0 | 2008 10 26 | G96 | 0.1− | 0.5− | 2008 11 03 | 703 | 0.4− | 0.6+ |
| 2006 06 19 | 691 | 0.0 | 0.2− | 2008 10 26 | G96 | 0.1− | 0.5− | 2008 11 03 | 703 | 0.4− | 0.2+ |
| 2006 06 19 | 691 | 0.1− | 0.1+ | 2008 10 26 | G96 | 0.0 | 0.7− | 2008 11 03 | 703 | 0.7+ | 1.2+ |

**2006 OC$_2$ = 2008 TJ$_{65}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 13.89143 | | (2000.0) | | | |
| $n$ | 0.08149829 | $\omega$ | 102.88365 | | +0.74091321 | −0.66680285 |
| $a$ | 5.2687031 | $\Omega$ | 299.00023 | | +0.57518053 | +0.69160832 |
| $e$ | 0.0727170 | $i$ | 5.25696 | | +0.34672031 | +0.27758223 |
| $P$ | 12.09 | $H$ | 13.7 | $G$ 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 07 18 | D35 | 0.0 | 0.1+ | 2006 07 20 | D35 | 0.0 | 0.1+ | 2008 09 05 | 691 | 0.0 | 0.2+ |
| 2006 07 18 | D35 | 0.1+ | 0.6+ | 2006 07 22 | D35 | 0.6− | 0.6− | 2008 10 02 | 703 | 0.6+ | 0.4+ |
| 2006 07 18 | D35 | 0.1− | 0.2+ | 2006 07 22 | D35 | 0.1− | 0.1− | 2008 10 02 | 703 | 0.3+ | 0.4− |
| 2006 07 20 | D35 | 0.1− | 0.2+ | 2006 07 30 | D35 | 0.3+ | 0.0 | 2008 10 02 | 703 | 0.5+ | 0.3+ |
| 2006 07 20 | D35 | 0.1+ | 0.1+ | 2006 07 30 | D35 | 0.3− | 0.3− | 2008 10 02 | 703 | 0.8− | 0.6− |
| 2006 07 20 | D35 | 0.5− | 0.3− | 2006 07 30 | D35 | 1.1+ | 0.0 | 2008 10 08 | 691 | 0.1+ | 0.2− |
| 2006 07 20 | D35 | 0.3+ | 0.2− | 2008 09 05 | 691 | 0.0 | 0.2+ | 2008 10 08 | 691 | 0.0 | 0.1− |
| 2006 07 20 | D35 | 0.2− | 0.1+ | 2008 09 05 | 691 | 0.1− | 0.1+ | 2008 10 08 | 691 | 0.2− | 0.1− |

**2006 OP$_9$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 203.86690 | | (2000.0) | | | |
| $n$ | 0.17419310 | $\omega$ | 209.47467 | | +0.93197904 | +0.15183456 |
| $a$ | 3.1752804 | $\Omega$ | 137.44662 | | −0.15440262 | +0.98783493 |
| $e$ | 0.1965222 | $i$ | 29.12769 | | −0.32798613 | −0.03359189 |
| $P$ | 5.66 | $H$ | 15.8 | $G$ 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 07 24 | F84 | 0.9− | 0.5+ | 2006 07 26 | F84 | 0.3− | 0.2− | 2006 08 17 | F84 | 0.2+ | 0.5− |
| 2006 07 24 | F84 | 0.8− | 0.2+ | 2006 07 26 | F84 | 0.0 | 1.3+ | 2006 08 17 | F84 | 0.1− | 0.3− |
| 2006 07 24 | F84 | 0.5+ | 0.1− | 2006 08 01 | F84 | 1.0+ | 0.8− | 2009 01 20 | 691 | 0.3− | 0.1+ |
| 2006 07 25 | F84 | 0.0 | 0.7− | 2006 08 01 | F84 | 0.1+ | 0.4+ | 2009 01 20 | 691 | 0.1+ | 0.0 |
| 2006 07 25 | F84 | 0.3− | 0.2+ | 2006 08 01 | F84 | 0.0 | 0.7+ | 2009 01 20 | 691 | 0.0 | 0.3− |
| 2006 07 25 | F84 | 0.1+ | 0.1+ | 2006 08 17 | 644 | 0.0 | 0.2+ | 2009 02 03 | 691 | 0.4+ | 0.0 |
| 2006 07 25 | F84 | 1.4+ | 1.1− | 2006 08 17 | 644 | 0.1− | 0.4+ | 2009 02 03 | 691 | 0.1− | 0.3+ |
| 2006 07 26 | F84 | 0.7− | 0.4− | 2006 08 17 | 644 | 0.1− | 0.2+ | 2009 02 03 | 691 | 0.0 | 0.1− |

**2006 OF$_{21}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 315.93941 | | (2000.0) | | | |
| $n$ | 0.24070891 | $\omega$ | 332.98518 | | +0.94573789 | +0.32464393 |
| $a$ | 2.5594183 | $\Omega$ | 8.10652 | | −0.27789641 | +0.82988813 |
| $e$ | 0.2370928 | $i$ | 5.55247 | | −0.16838476 | +0.45375325 |
| $P$ | 4.09 | $H$ | 16.8 | $G$ 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 11 24 | 644 | 0.0 | 0.7− | 2006 10 02 | G96 | 0.4+ | 0.0 | 2006 11 09 | 644 | 0.1− | 0.2− |
| 2002 11 24 | 644 | 0.5+ | 0.3− | 2006 10 02 | G96 | 0.2+ | 0.1− | 2006 11 09 | 644 | 0.2+ | 0.0 |
| 2002 11 24 | 644 | 0.2− | 0.2+ | 2006 10 02 | G96 | 0.1+ | 0.2− | 2006 11 18 | G96 | 0.4+ | 0.4− |
| 2006 07 21 | G96 | 0.3− | 0.1− | 2006 10 02 | G96 | 0.3+ | 0.2− | 2006 11 18 | G96 | 0.1+ | 0.7− |
| 2006 07 21 | G96 | 0.4+ | 0.2+ | 2006 10 21 | 691 | 0.3− | 0.2+ | 2006 11 18 | G96 | 0.3+ | 0.3− |
| 2006 07 21 | G96 | 0.1+ | 0.4− | 2006 10 21 | 691 | 0.2− | 0.2+ | 2006 11 18 | G96 | 0.2+ | 0.0 |
| 2006 07 21 | G96 | 0.2+ | 0.1− | 2006 10 21 | 691 | 0.4− | 0.4+ | 2009 03 31 | 691 | 0.1− | 0.1+ |
| 2006 10 02 | G96 | 0.3− | 0.1− | 2006 10 31 | 691 | 0.0 | 0.2+ | 2009 03 31 | 691 | 0.0 | 0.3+ |
| 2006 10 02 | G96 | 0.0 | 0.1− | 2006 10 31 | 691 | 0.1− | 0.2+ | 2009 03 31 | 691 | 0.3+ | 0.2+ |
| 2006 10 02 | G96 | 0.1− | 0.1− | 2006 10 31 | 691 | 0.2+ | 0.0 | | | | |
| 2006 10 02 | G96 | 0.2+ | 0.0 | 2006 11 09 | 644 | 0.5+ | 0.1− | | | | |

**2006 OV$_{21}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 259.41880 | | (2000.0) | | | |
| $n$ | 0.21639654 | $\omega$ | 294.85527 | | +0.89274136 | +0.44009992 |
| $a$ | 2.7476992 | $\Omega$ | 39.23318 | | −0.33825762 | +0.79621793 |
| $e$ | 0.2890543 | $i$ | 8.78217 | | −0.29764852 | +0.41514945 |
| $P$ | 4.55 | $H$ | 16.7 | $G$ 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 07 18 | E12 | 0.0 | 0.3− | 2006 08 25 | E12 | (0.2− | 1.9+) | 2007 12 30 | G96 | 0.1− | 0.1+ |
| 2006 07 18 | E12 | 0.3− | 0.4− | 2006 08 25 | E12 | 0.3− | 0.3− | 2007 12 30 | G96 | 0.0 | 0.2− |
| 2006 07 18 | E12 | 0.2− | 0.1+ | 2006 08 25 | E12 | 0.5+ | 0.0 | 2007 12 30 | G96 | 0.6+ | 0.1− |
| 2006 07 18 | E12 | 0.3− | 0.0 | 2006 08 25 | E12 | 0.3+ | 0.1− | 2007 12 30 | G96 | 0.1+ | 0.1− |
| 2006 08 13 | E12 | 0.0 | 0.1+ | 2007 12 20 | G96 | 0.0 | 0.0 | 2009 03 29 | 691 | 0.2+ | 0.5+ |
| 2006 08 13 | E12 | 0.7+ | 0.5+ | 2007 12 20 | G96 | 0.1− | 0.1− | 2009 03 29 | 691 | 0.1− | 0.2− |
| 2006 08 13 | E12 | 0.4− | 0.1+ | 2007 12 20 | G96 | 0.1− | 0.4+ | 2009 03 29 | 691 | 0.0 | 0.2− |
| 2006 08 13 | E12 | 0.2− | 0.3+ | 2007 12 20 | G96 | 0.5− | 0.0 | | | | |

**2006 OZ$_{21}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 176.14794 | | (2000.0) | | | |
| $n$ | 0.17637011 | $\omega$ | 71.77253 | | +0.12089598 | −0.98813909 |
| $a$ | 3.1490971 | $\Omega$ | 12.47999 | | +0.66130335 | +0.00903611 |
| $e$ | 0.2540231 | $i$ | 25.98638 | | +0.74031212 | +0.15329539 |
| $P$ | 5.59 | $H$ | 15.9 | $G$ 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 07 21 | G96 | 0.0 | 0.1+ | 2006 10 19 | 703 | 0.7+ | 0.6+ | 2008 03 04 | D29 | 0.3+ | 1.5+ |
| 2006 07 21 | G96 | 0.5− | 0.1+ | 2006 10 19 | 703 | 0.5− | 0.3− | 2008 03 04 | D29 | 0.6+ | 0.2+ |
| 2006 07 21 | G96 | 0.1+ | 0.5+ | 2006 10 19 | 703 | 0.4− | 0.2+ | 2008 03 04 | D29 | 0.6+ | 0.3+ |
| 2006 07 21 | G96 | 0.2+ | 0.0 | 2006 10 19 | 703 | 0.1− | 0.5− | 2008 03 04 | D29 | 0.4− | 0.9+ |
| 2006 09 17 | 703 | 0.2− | 1.8− | 2006 10 27 | 703 | 0.2− | 0.7+ | 2008 03 10 | 703 | 0.4− | 0.6− |
| 2006 09 17 | 703 | 0.3+ | 0.1+ | 2006 10 27 | 703 | 0.1− | 0.6+ | 2008 03 10 | 703 | 0.4− | 1.0− |
| 2006 09 17 | 703 | 0.3+ | 0.1+ | 2006 10 27 | 703 | 0.4+ | 0.7− | 2008 03 10 | 703 | 0.0 | 0.6− |
| 2006 09 17 | 703 | 0.0 | 0.1+ | 2006 10 27 | 703 | 0.4− | 0.3+ | 2008 03 10 | 703 | 0.7− | 0.2+ |
| 2006 10 19 | 703 | 1.0− | 0.4+ | 2006 11 22 | 703 | 0.7− | 0.2+ | 2008 04 14 | G96 | 0.0 | 0.4− |
| 2006 10 19 | 703 | 1.8+ | 0.7− | 2006 11 22 | 703 | 0.9+ | 0.1− | 2008 04 14 | G96 | 0.0 | 0.3− |
| 2006 10 19 | 703 | 1.1− | 0.3+ | 2006 11 22 | 703 | 0.2+ | 0.7− | 2008 04 14 | G96 | 0.1+ | 0.1− |
| 2006 10 19 | 703 | 0.3+ | 0.4− | 2006 11 22 | 703 | 0.1− | 1.1+ | 2008 04 14 | G96 | 0.2+ | 0.2− |

**2006 PN$_{19}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 182.30968 | | (2000.0) | | | |
| $n$ | 0.17642744 | $\omega$ | 51.67637 | | +0.94872699 | −0.30328296 |
| $a$ | 3.1484149 | $\Omega$ | 325.71440 | | +0.21738713 | +0.83061788 |
| $e$ | 0.1818229 | $i$ | 9.09938 | | +0.22947754 | +0.46700469 |
| $P$ | 5.59 | $H$ | 15.7 | $G$ 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 11 11 | 699 | 0.1+ | 0.0 | 2006 08 22 | 644 | 0.1− | 0.2+ | 2006 09 14 | 644 | 0.1+ | 0.4− |
| 2001 11 11 | 699 | 0.7− | 0.4− | 2006 08 22 | 644 | 0.2− | 0.2− | 2006 09 14 | 644 | 0.1+ | 0.1− |
| 2001 11 11 | 699 | 1.3+ | 0.0 | 2006 08 28 | 691 | 0.2+ | 0.0 | 2006 09 18 | 699 | (2.6+ | 0.1−) |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 11 11 | 699 | 0.5− | 0.0 | 2006 08 28 | 699 | 0.5− | 0.2+ | 2006 09 18 | 699 | 0.8− | 1.6+ |
| 2006 08 13 | 644 | 0.2− | 0.4+ | 2006 08 28 | 691 | 0.1+ | 0.1− | 2006 09 18 | 699 | 0.9+ | 0.8− |
| 2006 08 13 | 644 | 0.7− | 0.0 | 2006 08 28 | 691 | 0.0 | 0.0 | 2006 09 18 | 699 | 0.9+ | 0.6− |
| 2006 08 13 | 644 | 0.1+ | 0.0 | 2006 08 28 | 699 | 0.2− | 0.7+ | 2006 09 27 | G96 | 0.1+ | 0.2− |
| 2006 08 13 | 644 | 0.0 | 0.0 | 2006 08 28 | 703 | 1.5+ | 0.1+ | 2006 09 27 | G96 | 0.0 | 0.5− |
| 2006 08 13 | 644 | 0.0 | 0.4+ | 2006 08 28 | 703 | 0.1− | 0.2− | 2006 09 27 | G96 | 0.1+ | 0.5− |
| 2006 08 13 | 644 | 0.2+ | 0.0 | 2006 08 28 | 699 | 1.9− | 0.6− | 2006 09 27 | G96 | 0.4− | 0.6− |
| 2006 08 20 | 644 | 0.4+ | 0.2+ | 2006 08 28 | 703 | 1.0+ | 0.0 | 2006 11 15 | 291 | 0.5− | 0.4+ |
| 2006 08 20 | 644 | 0.0 | 0.1+ | 2006 08 28 | 703 | 0.0 | 0.0 | 2006 11 15 | 291 | 0.1+ | 0.6+ |
| 2006 08 20 | 644 | 0.1− | 0.2− | 2006 08 28 | 699 | 0.6− | 0.1− | 2006 11 15 | 291 | 0.6− | 0.2+ |
| 2006 08 20 | 644 | 0.2− | 0.1− | 2006 08 29 | 704 | 0.0 | 1.1+ | 2009 03 01 | 691 | 0.1+ | 0.8+ |
| 2006 08 20 | 644 | 0.1− | 0.3+ | 2006 08 29 | 704 | 0.0 | 1.2+ | 2009 03 01 | 691 | 0.5+ | 0.0 |
| 2006 08 20 | 644 | 0.2+ | 0.5+ | 2006 08 29 | 704 | 0.3− | 0.6− | 2009 03 01 | 691 | 0.1+ | 0.4+ |
| 2006 08 22 | 644 | 0.2− | 0.1− | 2006 09 14 | 644 | 0.1+ | 0.2− | | | | |

**2006 PW$_{21}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 249.90721 | | | (2000.0) | | |
| $n$ | 0.18137808 | $\omega$ | 11.95898 | | +0.43533562 | +0.89669535 |
| $a$ | 3.0908613 | $\Omega$ | 283.89137 | | −0.83263425 | +0.36718665 |
| $e$ | 0.1293817 | $i$ | 4.73465 | | −0.34234938 | +0.24720723 |
| $P$ | 5.43 | $H$ | 15.7 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 08 15 | 644 | 0.2− | 0.0 | 2006 09 14 | 703 | 0.7− | 0.8− | 2007 11 18 | 691 | 0.1+ | 0.3− |
| 2006 08 15 | 644 | 0.3− | 0.1− | 2006 09 17 | 691 | 0.1+ | 0.2+ | 2008 12 22 | G96 | 0.2− | 0.1− |
| 2006 08 15 | 644 | 0.1− | 0.2− | 2006 09 17 | 691 | 0.0 | 0.1+ | 2008 12 22 | G96 | 0.3+ | 0.1+ |
| 2006 08 19 | 699 | (0.2− | 1.8+) | 2006 09 17 | 691 | 0.2+ | 0.2+ | 2008 12 22 | G96 | 0.1− | 0.1− |
| 2006 08 19 | 699 | 1.0− | 0.4+ | 2006 09 26 | 691 | 0.1− | 0.2+ | 2008 12 22 | G96 | 0.1− | 0.3+ |
| 2006 08 19 | 699 | 0.7− | 0.5+ | 2006 09 26 | 691 | 0.3+ | 0.2+ | 2009 01 20 | 691 | 0.6+ | 0.0 |
| 2006 08 19 | 699 | 0.4− | 0.2+ | 2006 09 26 | 691 | 0.0 | 0.2+ | 2009 01 20 | 691 | 0.5− | 0.0 |
| 2006 08 25 | 704 | (1.7− | 0.4−) | 2007 10 21 | G96 | 0.4+ | 0.4− | 2009 01 20 | 691 | 0.1− | 0.3+ |
| 2006 08 25 | 704 | (1.7− | 0.2+) | 2007 10 21 | G96 | 0.1+ | 0.5− | 2009 02 20 | 291 | 0.2+ | 0.4+ |
| 2006 08 25 | 704 | 0.5+ | 0.7+ | 2007 10 21 | G96 | 0.2+ | 0.3− | 2009 02 20 | 291 | 0.2+ | 0.0 |
| 2006 09 14 | 703 | 0.0 | 0.0 | 2007 10 21 | G96 | 0.5+ | 0.5− | 2009 02 20 | 291 | 0.1+ | 0.7+ |
| 2006 09 14 | 703 | (1.0− | 1.6−) | 2007 11 18 | 691 | 0.2− | 0.0 | | | | |
| 2006 09 14 | 703 | 1.3− | 0.3− | 2007 11 18 | 691 | 0.2− | 0.1− | | | | |

**2006 PA$_{25}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 349.34211 | | | (2000.0) | | |
| $n$ | 0.27652964 | $\omega$ | 166.22566 | | +0.66180424 | +0.74927844 |
| $a$ | 2.3333233 | $\Omega$ | 145.20244 | | −0.69180622 | +0.62294880 |
| $e$ | 0.2251124 | $i$ | 2.45379 | | −0.28882399 | +0.22475902 |
| $P$ | 3.56 | $H$ | 17.3 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 07 25 | G96 | 0.7− | 0.7− | 2006 08 28 | 699 | 0.0 | 0.4− | 2006 09 13 | 644 | 0.2− | 0.5+ |
| 2006 07 25 | G96 | 0.1+ | 0.1− | 2006 08 28 | 703 | 0.4+ | 0.5+ | 2006 09 30 | G96 | 0.1+ | 0.2− |
| 2006 07 25 | G96 | 1.1+ | 0.0 | 2006 08 28 | 703 | 0.1− | 0.8+ | 2006 09 30 | G96 | 0.0 | 0.2− |
| 2006 08 13 | 644 | 0.1− | 0.2+ | 2006 08 28 | 699 | 0.1− | 0.2+ | 2006 09 30 | G96 | 0.1+ | 0.0 |
| 2006 08 13 | 644 | 0.1− | 0.0 | 2006 08 28 | 703 | 0.0 | 0.2− | 2006 09 30 | G96 | 0.0 | 0.1− |
| 2006 08 13 | 644 | 0.2− | 0.0 | 2006 08 28 | 703 | 0.2+ | 0.2+ | 2009 03 31 | 691 | 0.3− | 0.0 |
| 2006 08 16 | 644 | 0.1− | 0.1− | 2006 08 28 | 699 | 0.9+ | 0.0 | 2009 03 31 | 691 | 0.1+ | 0.0 |
| 2006 08 16 | 644 | 0.1− | 0.4− | 2006 08 29 | 704 | 0.2− | 0.0 | 2009 03 31 | 691 | 0.1+ | 0.1+ |
| 2006 08 16 | 644 | 0.6− | 0.1+ | 2006 08 29 | 704 | 0.5− | 0.3− | 2009 04 30 | G96 | 0.3− | 0.0 |
| 2006 08 19 | 699 | 0.4− | 0.2− | 2006 08 29 | 704 | 0.1− | 0.1− | 2009 04 30 | G96 | 0.6+ | 0.0 |
| 2006 08 19 | 699 | 0.2− | 0.5+ | 2006 08 29 | 704 | 0.9+ | 0.2+ | 2009 04 30 | G96 | 0.2+ | 0.2+ |
| 2006 08 19 | 699 | 0.2− | 0.7− | 2006 09 13 | 644 | 0.1+ | 0.4+ | | | | |
| 2006 08 28 | 699 | 0.2+ | 0.1− | 2006 09 13 | 644 | 0.3− | 0.5+ | | | | |

**2006 PD$_{30}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 244.80828 | | | (2000.0) | | |
| $n$ | 0.21075768 | $\omega$ | 73.92986 | | +0.85114596 | +0.39338366 |
| $a$ | 2.7964933 | $\Omega$ | 261.81310 | | −0.50315338 | +0.80011775 |
| $e$ | 0.3053897 | $i$ | 20.55714 | | +0.14962361 | +0.45283649 |
| $P$ | 4.68 | $H$ | 16.5 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 12 11 | 644 | 0.5− | 0.8+ | 2006 08 14 | 147 | 0.2+ | 0.5− | 2006 08 22 | 204 | 0.6− | 0.2− |
| 2002 12 27 | 644 | 0.2+ | 0.5− | 2006 08 15 | 147 | 0.1+ | 0.1+ | 2006 08 27 | 147 | 0.0 | 0.4+ |
| 2002 12 27 | 644 | 0.4+ | 0.2+ | 2006 08 20 | 147 | 0.0 | 0.4+ | 2006 08 27 | 147 | 0.5− | 0.1− |
| 2006 08 14 | 147 | 0.1+ | 0.4+ | 2006 08 20 | 147 | 0.6+ | 0.1+ | 2006 10 13 | 147 | 0.6+ | 0.8− |
| 2006 08 14 | 147 | 0.4− | 0.4+ | 2006 08 20 | 147 | 0.5+ | 0.1− | 2006 10 13 | 147 | 0.2− | 0.8− |
| 2006 08 14 | 147 | 0.4− | 0.1− | 2006 08 22 | 204 | 0.1+ | 0.7+ | | | | |

**2006 PY$_{43}$ = 2000 GO$_{121}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 256.07841 | | | (2000.0) | | |
| $n$ | 0.20227454 | $\omega$ | 125.29556 | | +0.65879069 | +0.75220388 |
| $a$ | 2.8741443 | $\Omega$ | 185.96746 | | −0.72566666 | +0.63058313 |
| $e$ | 0.1351551 | $i$ | 7.49994 | | −0.19850117 | +0.19119160 |
| $P$ | 4.87 | $H$ | 16.4 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 04 03 | 691 | 0.6− | 0.0 | 2005 04 12 | 691 | 0.4− | 0.1− | 2006 08 29 | 703 | 0.3− | 0.7+ |
| 2000 04 03 | 691 | 0.1− | 0.1+ | 2005 04 12 | 691 | 0.1+ | 0.0 | 2006 08 29 | 703 | 0.9− | 1.9− |
| 2000 04 03 | 691 | 0.4− | 0.1− | 2005 04 12 | 691 | 0.1+ | 0.1− | 2006 08 29 | 703 | 1.6− | 0.8− |
| 2000 04 05 | 704 | 1.4+ | 0.8+ | 2005 05 07 | 691 | 0.1− | 0.2+ | 2006 09 28 | G96 | 0.1− | 0.0 |
| 2000 04 05 | 704 | 1.6+ | 0.3+ | 2005 05 07 | 691 | 0.1+ | 0.4+ | 2006 09 28 | G96 | 0.0 | 0.2− |
| 2000 04 05 | 704 | 0.5+ | 0.9+ | 2005 05 07 | 691 | 0.1− | 0.6+ | 2006 09 28 | G96 | 0.1+ | 0.0 |
| 2000 04 06 | 691 | 0.1− | 0.4− | 2006 08 14 | E12 | 0.4− | 0.1+ | 2006 09 28 | G96 | 0.3− | 0.3+ |
| 2000 04 06 | 691 | 0.1+ | 0.4− | 2006 08 14 | E12 | 0.4+ | 0.3+ | 2006 11 18 | G96 | 0.7+ | 0.2+ |
| 2000 04 06 | 691 | 0.2− | 0.4− | 2006 08 14 | E12 | 2.1+ | 1.2− | 2006 11 18 | G96 | 0.1+ | 0.1+ |
| 2000 04 08 | 691 | 0.1− | 0.4− | 2006 08 14 | E12 | 0.0 | 0.1+ | 2006 11 18 | G96 | 0.4− | 0.0 |
| 2000 04 08 | 691 | 0.0 | 0.6− | 2006 08 14 | E12 | 0.7+ | 0.1− | 2006 11 18 | G96 | 0.3+ | 0.4+ |
| 2000 04 08 | 691 | 0.1+ | 0.4− | 2006 08 18 | 644 | 0.2+ | 0.2+ | 2009 02 03 | G96 | 0.4− | 0.3+ |
| 2005 04 01 | 691 | 0.5+ | 0.1+ | 2006 08 18 | 644 | 0.1+ | 0.1+ | 2009 02 03 | G96 | 0.3+ | 0.1+ |
| 2005 04 01 | 691 | 0.2+ | 0.3+ | 2006 08 18 | 644 | 0.4− | 0.2+ | 2009 02 03 | G96 | 0.2+ | 0.3− |
| 2005 04 01 | 691 | 0.0 | 0.6+ | 2006 08 29 | 703 | 0.4+ | 0.1− | 2009 02 03 | G96 | 0.2− | 0.4− |

**2006 QZ$_{7}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 1.33452 | | | (2000.0) | | |
| $n$ | 0.28730457 | $\omega$ | 161.38963 | | +0.76898378 | +0.63882744 |
| $a$ | 2.2746139 | $\Omega$ | 158.85074 | | −0.59455238 | +0.72834448 |
| $e$ | 0.2464798 | $i$ | 3.77223 | | −0.23488596 | +0.24781813 |
| $P$ | 3.43 | $H$ | 17.8 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 04 08 | 644 | 0.1+ | 0.3+ | 2006 08 21 | 644 | 0.0 | 0.2− | 2006 09 17 | 704 | 0.7+ | 0.4+ |
| 2002 04 08 | 644 | 0.0 | 0.0 | 2006 08 21 | 644 | 0.4− | 0.4− | 2006 09 17 | 704 | 1.7− | 0.1+ |
| 2002 04 08 | 644 | 0.1+ | 0.2+ | 2006 08 21 | 644 | 0.3+ | 0.3− | 2006 09 17 | 704 | 0.2+ | 0.4− |
| 2006 08 14 | 644 | 0.0 | 0.4− | 2006 08 27 | 691 | 0.1+ | 0.0 | 2006 09 17 | 704 | 0.4− | 0.2− |
| 2006 08 14 | 644 | 0.4− | 0.3− | 2006 08 27 | 691 | 0.2− | 0.1+ | 2006 09 20 | 644 | 0.2− | 0.2− |
| 2006 08 14 | 644 | 0.6− | 0.3− | 2006 08 27 | 691 | 0.0 | 0.2+ | 2006 09 20 | 644 | 0.2+ | 0.0 |
| 2006 08 16 | 644 | 0.4+ | 0.4− | 2006 08 28 | 703 | 0.2− | 0.3− | 2006 09 20 | 644 | 0.1+ | 0.3− |
| 2006 08 16 | 644 | 0.6+ | 0.6− | 2006 08 28 | 703 | 0.5− | 0.7− | 2006 09 25 | 699 | 0.2− | 1.5− |
| 2006 08 16 | 644 | 0.3+ | 0.3− | 2006 08 28 | 703 | 0.1− | 0.5− | 2006 09 25 | 699 | 0.5+ | 0.3+ |
| 2006 08 18 | 704 | 0.1− | 1.2+ | 2006 08 28 | 699 | 0.6− | 0.4− | 2006 09 25 | 699 | 0.2− | 1.7+ |
| 2006 08 18 | 699 | 0.8− | 1.2+ | 2006 08 28 | 703 | 0.3+ | 0.5− | 2006 09 25 | 699 | 1.0+ | 0.6+ |
| 2006 08 18 | 704 | 0.6− | 1.3+ | 2006 08 28 | 699 | 0.5− | 0.0 | 2006 09 30 | G96 | 0.2+ | 0.3− |
| 2006 08 18 | 699 | 0.1− | 0.9+ | 2006 08 28 | 699 | 0.1− | 0.1+ | 2006 09 30 | G96 | 0.0 | 0.3− |
| 2006 08 18 | 704 | 0.4+ | 0.6+ | 2006 08 28 | 699 | 0.1− | 0.8− | 2006 09 30 | G96 | 0.1+ | 0.3− |
| 2006 08 18 | 704 | 0.0 | 0.9− | 2006 08 31 | 704 | 0.1− | 0.0 | 2006 09 30 | G96 | 0.5+ | 0.2− |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 08 18 | 699 | 0.3+ | 0.6+ | 2006 08 31 | 704 | 0.3+ | 0.0 | 2006 10 22 | G96 | 0.3+ | 0.1+ | | |
| 2006 08 18 | 699 | 0.0 | 0.5− | 2006 08 31 | 704 | 0.1+ | 0.6− | 2006 10 22 | G96 | 0.3+ | 0.6− | | |
| 2006 08 19 | 691 | 0.3+ | 0.1+ | 2006 08 31 | 704 | 0.3− | 0.4− | 2006 10 22 | G96 | 0.1+ | 0.0 | | |
| 2006 08 19 | 691 | 0.2+ | 0.1+ | 2006 09 14 | 644 | 0.2+ | 0.3+ | 2006 10 22 | G96 | 0.1− | 0.3− | | |
| 2006 08 19 | 691 | 0.1+ | 0.2+ | 2006 09 14 | 703 | 0.8− | 0.4+ | 2009 05 16 | G96 | 0.0 | 0.0 | | |
| 2006 08 21 | 704 | 0.1− | 0.4+ | 2006 09 14 | 703 | 0.4− | 0.3− | 2009 05 16 | G96 | 0.0 | 0.5− | | |
| 2006 08 21 | 704 | (2.7+ | 0.7−) | 2006 09 14 | 644 | 0.2+ | 0.0 | 2009 05 16 | G96 | 0.0 | 0.2− | | |
| 2006 08 21 | 704 | 0.9+ | 0.9+ | 2006 09 14 | 703 | 1.0− | 0.4+ | 2009 05 16 | G96 | 0.2− | 0.5− | | |
| 2006 08 21 | 704 | 0.7+ | 0.1+ | 2006 09 14 | 703 | 0.6− | 0.1− | | | | | | |
| 2006 08 21 | 704 | 0.4+ | 0.2− | 2006 09 14 | 644 | 0.2+ | 0.4− | | | | | | |

### 2006 QL$_{10}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 310.03536 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26282621 | $\omega$ | 326.78842 | | +0.99451621 | +0.05954404 | |
| $a$ | 2.4137388 | $\Omega$ | 30.15384 | | −0.00523728 | +0.84941956 | |
| $e$ | 0.2470764 | $i$ | 9.85518 | | −0.10445136 | +0.52434809 | |
| $P$ | 3.75 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 04 01 | 691 | 0.2+ | 0.4+ | 2006 08 28 | E12 | 0.3− | 0.3+ | 2006 10 12 | 644 | 0.0 | 0.2− | | |
| 2005 04 01 | 691 | 0.3+ | 0.2+ | 2006 08 28 | E12 | 0.2− | 0.3− | 2006 11 25 | G96 | 0.1− | 0.1− | | |
| 2005 04 01 | 691 | 0.1+ | 0.3+ | 2006 08 28 | E12 | 0.6+ | 0.0 | 2006 11 25 | G96 | 0.3+ | 0.4− | | |
| 2006 08 14 | 644 | 0.1− | 0.2+ | 2006 08 28 | E12 | 0.4+ | 0.0 | 2006 11 25 | G96 | 0.0 | 0.0 | | |
| 2006 08 14 | 644 | 0.2− | 0.3+ | 2006 08 28 | E12 | 0.2− | 0.0 | 2006 11 25 | G96 | 0.2+ | 0.2− | | |
| 2006 08 14 | 644 | 0.0 | 0.2+ | 2006 09 17 | 699 | 0.5+ | 0.2− | 2006 12 24 | G96 | 0.1− | 0.2− | | |
| 2006 08 18 | 644 | 0.1− | 0.2+ | 2006 09 17 | 699 | 0.3− | 0.0 | 2006 12 24 | G96 | 0.2+ | 0.2+ | | |
| 2006 08 18 | 644 | 0.1− | 0.2+ | 2006 09 17 | 699 | 0.1+ | 0.3− | 2006 12 24 | G96 | 0.4+ | 0.5− | | |
| 2006 08 18 | 644 | 0.2− | 0.1+ | 2006 09 17 | 699 | 0.5+ | 0.3+ | 2006 12 24 | G96 | 0.7+ | 0.6+ | | |
| 2006 08 19 | 428 | 0.6+ | 0.1− | 2006 09 20 | 703 | 0.6− | 0.3− | 2007 01 09 | G96 | 0.5+ | 0.0 | | |
| 2006 08 19 | 428 | 1.2+ | 0.3− | 2006 09 20 | 703 | 1.0+ | 0.1+ | 2007 01 09 | G96 | 0.5+ | 0.3− | | |
| 2006 08 20 | 644 | 0.0 | 0.3+ | 2006 09 20 | 703 | 0.1+ | 0.4+ | 2007 01 09 | G96 | 0.2− | 0.6− | | |
| 2006 08 20 | 644 | 0.1− | 0.0 | 2006 09 20 | 703 | 0.2+ | 0.2+ | 2007 01 09 | G96 | 0.2− | 0.3− | | |
| 2006 08 20 | 644 | 0.0 | 0.2+ | 2006 09 26 | 703 | 0.7− | 0.2+ | 2009 04 02 | 691 | 0.3− | 0.0 | | |
| 2006 08 21 | 428 | 0.1+ | 0.1− | 2006 09 26 | 703 | 0.6− | 0.2− | 2009 04 02 | 691 | 0.2− | 0.5− | | |
| 2006 08 21 | 428 | 0.5− | 0.5− | 2006 09 26 | 703 | 0.0 | 0.1− | 2009 04 02 | 691 | 0.0 | 0.1+ | | |
| 2006 08 28 | E12 | 0.9− | 0.2− | 2006 09 26 | 703 | 0.9− | 0.3+ | 2009 04 02 | 691 | 0.1− | 0.3− | | |
| 2006 08 28 | E12 | 0.1+ | 0.3− | 2006 10 12 | 644 | 0.2− | 0.1+ | 2009 04 02 | 691 | 0.1− | 0.0 | | |
| 2006 08 28 | E12 | 0.1− | 0.4+ | 2006 10 12 | 644 | 0.1− | 0.1+ | 2009 04 02 | 691 | 0.2+ | 0.2− | | |

### 2006 QA$_{16}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 174.44288 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18269379 | $\omega$ | 55.62974 | | +0.90987787 | −0.40368627 | |
| $a$ | 3.0760038 | $\Omega$ | 327.87248 | | +0.29631943 | +0.79379751 | |
| $e$ | 0.0932326 | $i$ | 10.36769 | | +0.29037399 | +0.45488780 | |
| $P$ | 5.39 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 08 16 | 644 | 0.1− | 0.1− | 2006 09 26 | G96 | 0.8− | 1.0− | 2009 02 02 | 691 | 0.2− | 0.2+ | | |
| 2006 08 16 | 644 | 0.1+ | 0.1+ | 2006 09 26 | G96 | 0.2− | 1.1− | 2009 02 02 | 691 | 0.2+ | 0.3+ | | |
| 2006 08 16 | 644 | 0.0 | 0.3+ | 2006 09 26 | G96 | 0.1+ | 0.3− | 2009 02 28 | G96 | 0.2+ | 0.0 | | |
| 2006 08 17 | 644 | 0.2+ | 0.0 | 2006 09 26 | G96 | 0.3+ | 0.2− | 2009 02 28 | G96 | 0.0 | 0.1− | | |
| 2006 08 17 | 644 | 0.4+ | 0.1+ | 2006 11 18 | G96 | 0.8+ | 0.4− | 2009 02 28 | G96 | 0.3+ | 0.4− | | |
| 2006 08 17 | 644 | 0.1+ | 0.1+ | 2006 11 18 | G96 | 0.3+ | 0.0 | 2009 02 28 | G96 | 0.0 | 0.0 | | |
| 2006 08 18 | 644 | 0.0 | 0.3+ | 2006 11 18 | G96 | 0.4+ | 0.1+ | 2009 03 31 | G96 | 0.2− | 0.9− | | |
| 2006 08 18 | 644 | 0.2− | 0.0 | 2006 11 18 | G96 | 1.1− | 1.3+ | 2009 03 31 | G96 | 0.4+ | 0.3+ | | |
| 2006 08 18 | 644 | 0.3− | 0.4+ | 2009 01 17 | 691 | 0.2+ | 0.2+ | 2009 03 31 | G96 | 0.3+ | 0.3− | | |
| 2006 08 20 | 644 | 0.1− | 0.1+ | 2009 01 17 | 691 | 0.2+ | 0.0 | 2009 03 31 | G96 | 0.2− | 0.3− | | |
| 2006 08 20 | 644 | 0.0 | 0.3+ | 2009 01 17 | 691 | 0.7− | 0.2− | | | | | | |
| 2006 08 20 | 644 | 0.0 | 0.3+ | 2009 02 02 | 691 | 0.2+ | 0.0 | | | | | | |

### 2006 QW$_{23}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 334.29961 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26662580 | $\omega$ | 4.10628 | | +0.76340925 | +0.64556002 | |
| $a$ | 2.3907524 | $\Omega$ | 315.66148 | | −0.59348485 | +0.68797183 | |
| $e$ | 0.1999685 | $i$ | 1.75583 | | −0.25491579 | +0.33158259 | |
| $P$ | 3.70 | $H$ | 17.4 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 09 01 | 809 | 0.6+ | 1.9− | 2006 08 17 | A50 | 1.2− | 1.1+ | 2006 09 17 | 291 | 0.1− | 0.3− | | |
| 1995 09 17 | 809 | 0.8− | 1.5− | 2006 08 17 | A50 | 1.5− | 1.2+ | 2006 09 17 | 291 | 0.1− | 0.2− | | |
| 1995 09 29 | 691 | 0.1− | 0.4+ | 2006 08 17 | A50 | 0.9− | 0.9+ | 2006 09 17 | 291 | 0.2− | 0.3− | | |
| 1995 09 29 | 691 | 0.1+ | 0.0 | 2006 08 17 | A50 | 0.7− | 1.2+ | 2006 10 19 | G96 | 0.1− | 0.5− | | |
| 1995 09 29 | 691 | 0.2+ | 0.0 | 2006 08 17 | A50 | 0.9− | 1.2+ | 2006 10 19 | G96 | 0.3− | 0.9− | | |
| 2006 08 13 | 644 | 0.4− | 0.2− | 2006 08 23 | A50 | 0.5+ | 0.7− | 2006 10 19 | G96 | 0.4− | 0.5− | | |
| 2006 08 13 | 644 | 0.5− | 0.6− | 2006 08 23 | A50 | 0.5+ | 0.2− | 2006 10 19 | G96 | 0.1− | 0.4− | | |
| 2006 08 13 | 644 | 0.4− | 0.5− | 2006 08 23 | A50 | 0.6+ | 0.2− | 2008 01 11 | 691 | 0.2+ | 0.3+ | | |
| 2006 08 16 | A50 | 0.7+ | 1.5+ | 2006 08 23 | A50 | 0.6+ | 0.1− | 2008 01 11 | 691 | 0.3+ | 0.4+ | | |
| 2006 08 16 | A50 | 0.7+ | 1.3+ | 2006 08 23 | A50 | 0.7+ | 0.1− | 2008 01 11 | 691 | 0.1− | 0.7+ | | |
| 2006 08 16 | A50 | 0.8+ | 1.4+ | 2006 08 29 | 704 | 0.6− | 0.5+ | 2009 04 21 | G96 | 0.3+ | 0.6+ | | |
| 2006 08 17 | A50 | 1.0+ | 1.0+ | 2006 08 29 | 704 | 0.1− | 0.5− | 2009 04 21 | G96 | 0.1− | 0.2+ | | |
| 2006 08 17 | A50 | 0.8+ | 1.1+ | 2006 08 29 | 704 | 0.9− | 0.1+ | 2009 04 21 | G96 | 0.1− | 0.1+ | | |
| 2006 08 17 | A50 | 1.0+ | 1.3+ | 2006 08 29 | 704 | 0.1− | 0.5− | 2009 04 21 | G96 | 0.1+ | 0.3+ | | |

### 2006 QV$_{32}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 343.37608 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.25907753 | $\omega$ | 128.02296 | | +0.43407317 | +0.89988680 | |
| $a$ | 2.4369665 | $\Omega$ | 167.49512 | | −0.87555427 | +0.43244651 | |
| $e$ | 0.2589870 | $i$ | 11.24963 | | −0.21209714 | +0.05651338 | |
| $P$ | 3.80 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 07 26 | A50 | 1.5− | 1.1− | 2006 08 27 | 699 | 0.0 | 1.0+ | 2006 09 17 | 704 | 0.2+ | 0.3− | | |
| 2006 07 26 | A50 | 1.3− | 1.2− | 2006 08 27 | 699 | 0.2− | 0.2+ | 2006 09 26 | G96 | 0.2− | 0.6− | | |
| 2006 07 27 | A50 | 0.7− | 1.0− | 2006 08 29 | 704 | 0.8− | 0.2− | 2006 09 26 | G96 | 0.0 | 0.7− | | |
| 2006 07 27 | A50 | 0.8− | 0.8− | 2006 08 29 | 704 | 0.3+ | 0.3− | 2006 09 26 | G96 | 0.3− | 0.6− | | |
| 2006 08 22 | 644 | 0.8+ | 0.5+ | 2006 08 29 | 704 | 0.2+ | 0.5− | 2006 09 26 | G96 | 0.0 | 0.5− | | |
| 2006 08 22 | 644 | 0.9+ | 0.6+ | 2006 09 01 | 704 | 0.5+ | 0.1− | 2006 09 30 | G96 | 0.5− | 0.4− | | |
| 2006 08 22 | 644 | 0.6+ | 0.3+ | 2006 09 01 | 704 | 0.1− | 0.9− | 2006 09 30 | G96 | 0.2− | 0.5− | | |
| 2006 08 24 | 704 | 1.2+ | 0.6+ | 2006 09 01 | 704 | 0.1− | 0.3+ | 2006 09 30 | G96 | 0.2− | 0.5− | | |
| 2006 08 24 | 704 | 0.3+ | 0.2+ | 2006 09 01 | 704 | 1.9+ | 0.5+ | 2006 09 30 | G96 | 0.5− | 0.4− | | |
| 2006 08 24 | 704 | (2.8+ | 0.9−) | 2006 09 01 | 704 | 0.5− | 0.7+ | 2009 03 03 | 691 | 0.3+ | 0.2− | | |
| 2006 08 24 | 704 | 1.6+ | 0.7+ | 2006 09 14 | 703 | 0.5− | 0.1+ | 2009 03 03 | 691 | 0.2− | 0.1− | | |
| 2006 08 24 | 704 | 0.7+ | 0.6+ | 2006 09 14 | 703 | 1.2− | 0.6− | 2009 03 03 | 691 | 0.1− | 0.4− | | |
| 2006 08 24 | 644 | 1.0+ | 0.2+ | 2006 09 14 | 703 | 0.2− | 0.4+ | 2009 03 16 | G96 | 0.2− | 0.6+ | | |
| 2006 08 24 | 644 | 0.6+ | 0.5+ | 2006 09 14 | 703 | 2.0− | 0.6+ | 2009 03 16 | G96 | 0.1− | 0.5+ | | |
| 2006 08 24 | 644 | 0.9+ | 0.4+ | 2006 09 17 | 704 | 0.2− | 0.3− | 2009 03 16 | G96 | 0.1+ | 0.6+ | | |
| 2006 08 27 | 699 | 0.4+ | 0.4+ | 2006 09 17 | 704 | 1.6− | 0.1− | 2009 03 16 | G96 | 0.1− | 0.6+ | | |
| 2006 08 27 | 699 | 0.4+ | 0.5+ | 2006 09 17 | 704 | 0.3+ | 1.0+ | | | | | | |

### 2006 QE$_{38}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 270.60879 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22544749 | $\omega$ | 322.91508 | | +0.95857351 | +0.28058659 | |
| $a$ | 2.6736575 | $\Omega$ | 20.95075 | | −0.21715075 | +0.83132962 | |
| $e$ | 0.2671958 | $i$ | 7.88802 | | −0.18434312 | +0.47975225 | |
| $P$ | 4.37 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 11 15 | 644 | 0.2+ | 0.3+ | 2006 08 17 | 644 | 0.0 | 0.0 | 2006 11 27 | G96 | 0.3+ | 0.1− | | |
| 2002 11 15 | 644 | 0.1+ | 0.1+ | 2006 08 28 | E12 | 0.2+ | 0.5− | 2006 11 27 | G96 | 0.5+ | 0.2− | | |
| 2002 11 15 | 644 | 0.2− | 0.5− | 2006 08 28 | E12 | 0.5− | 0.2+ | 2006 11 27 | G96 | 0.1− | 0.1+ | | |
| 2006 08 16 | E12 | 0.2− | 0.3+ | 2006 08 28 | E12 | 0.1− | 0.2+ | 2006 11 27 | G96 | 0.3− | 0.4− | | |
| 2006 08 16 | E12 | 0.0 | 0.1− | 2006 08 28 | E12 | 0.1+ | 0.2− | 2009 04 02 | G96 | 0.1+ | 0.9− | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 08 16 | E12 | 1.3− | 1.2+ | 2006 09 17 | 699 | 0.7− | 0.1+ | 2009 04 02 | G96 | 0.3+ | 0.1+ | | |
| 2006 08 16 | E12 | 1.3+ | 0.9− | 2006 09 17 | 699 | 0.7− | 0.2+ | 2009 04 02 | G96 | 0.4− | 0.1− | | |
| 2006 08 17 | 644 | 0.2+ | 0.5− | 2006 09 17 | 699 | 0.9+ | 0.6+ | 2009 04 02 | G96 | 0.1− | 0.6+ | | |
| 2006 08 17 | 644 | 0.7+ | 0.4− | 2006 09 17 | 699 | 0.0 | 0.1− | | | | | | |

**2006 QG$_{49}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 220.16922 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18179853 | $\omega$ | 194.58091 | | +0.98090885 | +0.14354805 | |
| $a$ | 3.0860940 | $\Omega$ | 155.94844 | | −0.12995638 | +0.98573937 | |
| $e$ | 0.1988820 | $i$ | 18.77795 | | −0.14466914 | +0.08781713 | |
| $P$ | 5.42 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 08 21 | 644 | 0.3+ | 0.2+ | 2006 09 14 | 703 | 0.0 | 0.3+ | 2006 10 02 | 703 | 0.0 | 0.5+ |
| 2006 08 21 | 644 | 0.4+ | 0.3+ | 2006 09 14 | 703 | 0.1+ | 0.2− | 2006 10 02 | 703 | 1.5− | 1.3+ |
| 2006 08 21 | 644 | 0.1+ | 0.2+ | 2006 09 16 | 704 | 0.4− | 1.5− | 2006 10 09 | 644 | 0.5+ | 0.4+ |
| 2006 08 22 | 644 | 0.1+ | 0.5+ | 2006 09 16 | 704 | 0.4− | 1.1− | 2006 10 09 | 644 | 0.2+ | 0.4+ |
| 2006 08 22 | 644 | 0.5+ | 0.3+ | 2006 09 16 | 704 | 0.5+ | 0.5− | 2006 10 09 | 644 | 0.5+ | 0.5+ |
| 2006 08 22 | 644 | 0.1+ | 0.3+ | 2006 09 26 | 703 | 0.6+ | 0.1− | 2009 02 04 | 691 | 0.2− | 0.2+ |
| 2006 09 14 | 644 | 0.6+ | 0.1+ | 2006 09 26 | 703 | 0.9+ | 0.1+ | 2009 02 04 | 691 | 0.3− | 0.2+ |
| 2006 09 14 | 644 | 0.6+ | 0.3+ | 2006 09 26 | 703 | 0.7− | 1.0− | 2009 02 04 | 691 | 0.1+ | 0.2− |
| 2006 09 14 | 644 | 0.4+ | 0.3+ | 2006 09 26 | 703 | 0.8− | 0.4− | 2009 03 21 | 291 | 0.3+ | 0.0 |
| 2006 09 14 | 703 | 0.4− | 1.0+ | 2006 10 02 | 703 | 1.0− | 0.7− | 2009 03 21 | 291 | 0.1− | 0.1− |
| 2006 09 14 | 703 | 0.5− | 1.1− | 2006 10 02 | 703 | 0.7− | 0.1− | 2009 03 21 | 291 | 0.1+ | 0.0 |

**2006 QL$_{59}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 200.08566 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18084803 | $\omega$ | 29.32403 | | +0.99539946 | +0.01294935 | |
| $a$ | 3.0968977 | $\Omega$ | 329.48666 | | −0.06229369 | +0.84028850 | |
| $e$ | 0.1227114 | $i$ | 10.77610 | | +0.07279705 | +0.54198482 | |
| $P$ | 5.45 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 08 19 | 699 | 0.9+ | 0.9+ | 2006 09 14 | 703 | 0.4− | 0.8+ | 2009 02 17 | J75 | 0.0 | 0.6− |
| 2006 08 19 | 699 | 0.7+ | 0.7− | 2006 09 14 | 703 | 1.3− | 0.0 | 2009 02 17 | J75 | 0.3+ | 0.6+ |
| 2006 08 19 | 699 | 0.2+ | 0.3+ | 2006 09 14 | 703 | 0.1+ | 0.8− | 2009 02 28 | G96 | 0.1− | 0.2− |
| 2006 08 19 | 699 | 0.2− | 0.1− | 2006 09 14 | 703 | 0.1− | 0.3− | 2009 02 28 | G96 | 0.0 | 0.0 |
| 2006 08 28 | 699 | 1.3− | 0.9+ | 2006 09 26 | G96 | 0.2+ | 0.2− | 2009 02 28 | G96 | 0.3+ | 0.1− |
| 2006 08 28 | 699 | 0.3− | 1.0+ | 2006 09 26 | G96 | 0.3− | 0.4− | 2009 02 28 | G96 | 0.3+ | 0.1+ |
| 2006 08 28 | 699 | 0.2+ | 0.6− | 2006 09 26 | G96 | 0.2− | 0.2− | 2009 03 31 | G96 | 0.4+ | 0.0 |
| 2006 08 28 | 699 | (3.0− | 1.1+) | 2006 09 26 | G96 | 0.6− | 0.4− | 2009 03 31 | G96 | 0.3+ | 0.5+ |
| 2006 08 29 | 704 | 0.5+ | 0.3+ | 2009 02 02 | 691 | 0.2− | 0.1− | 2009 03 31 | G96 | 0.1+ | 0.6+ |
| 2006 08 29 | 704 | 0.1+ | 0.2+ | 2009 02 02 | 691 | 0.3− | 0.0 | 2009 03 31 | G96 | 0.1− | 0.1+ |
| 2006 08 29 | 704 | 0.2+ | 0.4− | 2009 02 02 | 691 | 0.5+ | 0.3+ | | | | |
| 2006 08 29 | 704 | 0.5+ | 0.9+ | 2009 02 17 | J75 | 0.2− | 0.0 | | | | |

**2006 QC$_{70}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 275.66759 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21258293 | $\omega$ | 324.55845 | | +0.75090839 | +0.66035204 | |
| $a$ | 2.7804630 | $\Omega$ | 354.09311 | | −0.58533777 | +0.65955743 | |
| $e$ | 0.1559615 | $i$ | 4.72202 | | −0.30580431 | +0.35905319 | |
| $P$ | 4.64 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 02 26 | 695 | 0.0 | 0.4+ | 2006 09 26 | G96 | 0.4− | 0.1− | 2006 10 16 | G96 | 0.2+ | 0.2+ |
| 2004 02 26 | 695 | 0.3+ | 0.4+ | 2006 09 26 | G96 | 0.1− | 0.1+ | 2006 10 16 | G96 | 0.1− | 0.3+ |
| 2006 08 21 | 691 | 0.1− | 0.6+ | 2006 09 26 | G96 | 0.2+ | 0.4− | 2006 10 19 | 695 | 0.1+ | 0.4+ |
| 2006 08 21 | 691 | 0.1− | 0.1+ | 2006 09 26 | G96 | 0.1+ | 0.4− | 2006 10 19 | 695 | 0.1+ | 0.4+ |
| 2006 08 21 | 691 | 0.1− | 0.2+ | 2006 09 26 | G96 | 0.5+ | 0.6− | 2006 10 20 | 695 | 0.1+ | 0.2+ |
| 2006 08 23 | 807 | 0.4+ | 0.1− | 2006 09 26 | G96 | 0.4+ | 0.3− | 2009 03 03 | G96 | 0.1− | 0.3− |
| 2006 08 23 | 807 | 0.7+ | 0.1+ | 2006 09 26 | G96 | 0.2+ | 0.2− | 2009 03 03 | G96 | 0.1− | 0.3− |
| 2006 08 28 | 691 | 0.2− | 0.1− | 2006 09 26 | G96 | 0.1+ | 0.3− | 2009 03 03 | G96 | 0.0 | 0.1+ |
| 2006 08 28 | 691 | 0.0 | 0.1− | 2006 10 16 | G96 | 0.0 | 0.2− | | | | |
| 2006 08 28 | 691 | 0.1− | 0.3− | 2006 10 16 | G96 | 0.2+ | 0.2− | | | | |

**2006 QM$_{83}$ = 2008 AR$_{132}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 243.52012 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21993801 | $\omega$ | 57.11418 | | +0.95860292 | −0.28351439 | |
| $a$ | 2.7181235 | $\Omega$ | 319.33845 | | +0.24580586 | +0.87083333 | |
| $e$ | 0.2157674 | $i$ | 2.32718 | | +0.14373563 | +0.40158301 | |
| $P$ | 4.48 | $H$ | 17.5 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 08 18 | 644 | 0.0 | 0.2− | 2006 08 27 | 691 | 0.1+ | 0.4+ | 2006 09 27 | G96 | 0.4+ | 0.1− |
| 2006 08 18 | 644 | 0.4+ | 0.2− | 2006 08 27 | 691 | 0.0 | 0.3+ | 2006 09 27 | G96 | 0.3− | 0.1− |
| 2006 08 18 | 644 | 0.2+ | 0.0 | 2006 08 28 | 703 | 0.7+ | 0.3− | 2006 09 27 | G96 | 0.1− | 0.1+ |
| 2006 08 19 | 691 | 0.1− | 0.0 | 2006 08 28 | 703 | 0.8− | 1.0− | 2008 01 06 | 568 | 0.1− | 0.0 |
| 2006 08 19 | 691 | 0.0 | 0.0 | 2006 08 28 | 703 | 1.0+ | 0.5− | 2008 01 06 | 568 | 0.2− | 0.0 |
| 2006 08 19 | 691 | 0.0 | 0.1− | 2006 08 28 | 703 | 0.4− | 0.2− | 2008 01 06 | 568 | 0.2− | 0.1+ |
| 2006 08 27 | 691 | 0.2− | 0.0 | 2006 09 27 | G96 | 0.0 | 0.1+ | 2008 01 07 | 568 | 0.5+ | 0.1− |

**2006 QL$_{89}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 276.66911 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21858623 | $\omega$ | 145.04106 | | +0.97564698 | +0.19501605 | |
| $a$ | 2.7293182 | $\Omega$ | 204.30796 | | −0.21069826 | +0.96049544 | |
| $e$ | 0.2079360 | $i$ | 14.11806 | | +0.06098535 | +0.19853778 | |
| $P$ | 4.51 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 08 28 | J75 | 1.8− | 0.3+ | 2006 10 01 | 691 | 0.2− | 0.1+ | 2006 11 14 | G96 | 0.1− | 0.3− |
| 2006 08 28 | J75 | 0.5+ | 0.5− | 2006 10 01 | 691 | 0.4− | 0.1+ | 2006 11 16 | G96 | 0.5+ | 0.1+ |
| 2006 08 28 | J75 | 0.0 | 0.1− | 2006 10 01 | 691 | 0.3− | 0.1− | 2006 11 16 | G96 | 0.2+ | 0.2+ |
| 2006 08 29 | 699 | 1.6+ | 0.2− | 2006 10 19 | G96 | 0.1+ | 0.1− | 2006 11 16 | G96 | 0.1+ | 0.1− |
| 2006 08 29 | 699 | (2.5+ | 0.3+) | 2006 10 19 | G96 | 0.3+ | 0.1− | 2006 11 16 | G96 | 0.2− | 0.4− |
| 2006 08 29 | 699 | 1.4+ | 1.3+ | 2006 10 19 | G96 | 0.1+ | 0.1− | 2006 12 26 | G96 | 0.2− | 0.1− |
| 2006 08 29 | 699 | 0.5+ | 0.5− | 2006 10 19 | G96 | 0.1− | 0.1− | 2006 12 26 | G96 | 0.8− | 0.5− |
| 2006 08 30 | J75 | 1.1− | 0.0 | 2006 10 19 | 644 | 0.6+ | 0.4+ | 2006 12 26 | G96 | 0.2+ | 0.1− |
| 2006 08 30 | J75 | 0.2− | 0.5− | 2006 10 19 | 644 | 0.0 | 0.5+ | 2006 12 26 | G96 | 0.3− | 0.1− |
| 2006 08 30 | J75 | 0.4+ | 0.9− | 2006 10 19 | 644 | 0.1+ | 0.3+ | 2006 12 26 | 291 | 0.1− | 0.2+ |
| 2006 09 02 | 620 | 0.0 | 0.3− | 2006 10 27 | G96 | 0.2+ | 0.1− | 2006 12 26 | 291 | 0.1− | 0.4+ |
| 2006 09 02 | 620 | 0.2− | 0.1− | 2006 10 27 | G96 | 0.3+ | 0.1− | 2006 12 26 | 291 | 0.4− | 0.1+ |
| 2006 09 02 | 620 | 0.6− | 0.6− | 2006 10 27 | G96 | 0.2+ | 0.1− | 2009 04 02 | 291 | 0.3− | 0.3+ |
| 2006 09 17 | H55 | 0.3+ | 1.5+ | 2006 10 27 | G96 | 0.8+ | 0.2− | 2009 04 02 | 291 | 0.3+ | 0.1− |
| 2006 09 17 | H55 | 0.0 | 1.2+ | 2006 10 28 | 704 | 0.7+ | 0.1+ | 2009 04 02 | 291 | 0.1− | 0.6+ |
| 2006 09 17 | H55 | 0.1+ | 0.7+ | 2006 10 28 | 704 | 0.0 | 0.8− | 2009 04 02 | G96 | 0.7+ | 0.0 |
| 2006 09 27 | 691 | 0.4− | 0.1− | 2006 10 28 | 704 | (0.8− | 2.4−) | 2009 04 02 | G96 | 0.4+ | 0.0 |
| 2006 09 27 | 691 | 0.1− | 0.2− | 2006 11 11 | 703 | 0.5+ | 0.8+ | 2009 04 02 | G96 | 0.1− | 0.0 |
| 2006 09 27 | 691 | 0.2+ | 0.0 | 2006 11 11 | 703 | 0.1+ | 1.5− | 2009 04 02 | G96 | 0.2+ | 0.3+ |
| 2006 09 29 | 704 | 0.7+ | 1.4+ | 2006 11 11 | 703 | 0.6+ | 1.1− | 2009 04 02 | G96 | 0.2+ | 0.4+ |
| 2006 09 29 | 704 | 0.4+ | 1.1+ | 2006 11 11 | 703 | 0.6+ | 0.4− | 2009 04 02 | G96 | 1.2− | 0.0 |
| 2006 09 29 | 704 | 1.0− | 1.4+ | 2006 11 14 | G96 | 0.0 | 0.2− | 2009 04 02 | G96 | 0.4+ | 0.2+ |
| 2006 09 29 | 704 | 0.4+ | 0.1− | 2006 11 14 | G96 | 0.4+ | 0.4− | | | | |
| 2006 09 29 | 704 | 0.6− | 0.8+ | 2006 11 14 | G96 | 0.3+ | 0.2+ | | | | |

**2006 QH$_{94}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 345.71666 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.25323014 | $\omega$ | 296.80330 | | +0.28991624 | +0.95704873 | |
| $a$ | 2.4743385 | $\Omega$ | 350.04867 | | −0.87284224 | +0.26333057 | |
| $e$ | 0.1685564 | $i$ | 0.83198 | | −0.39254935 | +0.12130431 | |
| $P$ | 3.89 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 11 | 644 | 0.1− | 0.1− | 2002 08 27 | 644 | 0.3+ | 0.2− | 2006 08 28 | 703 | 0.1− | 0.6+ |
| 2002 08 11 | 644 | 0.1− | 0.2− | 2002 08 29 | 644 | 0.5+ | 0.3− | 2006 08 28 | 703 | 0.1− | 0.2+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 11 | 644 | 0.0 | 0.0 | 2002 08 29 | 644 | 0.2− | 0.0 | 2006 09 26 | G96 | 0.2− | 0.3− | | |
| 2002 08 17 | 644 | 0.1− | 0.1− | 2006 08 16 | 644 | 0.1− | 0.2+ | 2006 09 26 | G96 | 0.1+ | 0.2− | | |
| 2002 08 17 | 644 | 0.1− | 0.1+ | 2006 08 16 | 644 | 0.4− | 0.2+ | 2006 09 26 | G96 | 0.3− | 0.0 | | |
| 2002 08 17 | 644 | 0.1− | 0.2− | 2006 08 16 | 644 | 0.2− | 0.2+ | 2006 09 26 | G96 | 0.1+ | 0.2− | | |
| 2002 08 18 | 644 | 0.5+ | 0.0 | 2006 08 19 | 691 | 0.0 | 0.1+ | 2006 10 16 | G96 | 0.2− | 0.3− | | |
| 2002 08 18 | 644 | 0.3+ | 0.4− | 2006 08 19 | 691 | 0.1− | 0.0 | 2006 10 16 | G96 | 0.2+ | 0.3− | | |
| 2002 08 18 | 644 | 0.0 | 0.2− | 2006 08 19 | 691 | 0.0 | 0.0 | 2006 10 16 | G96 | 0.1+ | 0.4− | | |
| 2002 08 27 | 644 | 0.0 | 0.0 | 2006 08 28 | 703 | 0.3+ | 0.1+ | 2006 10 16 | G96 | 0.5+ | 0.1− | | |
| 2002 08 27 | 644 | 0.4− | 0.2+ | 2006 08 28 | 703 | 0.3+ | 0.8+ | | | | | | |

**2006 QR$_{99}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 202.07085 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17452648 | $\omega$ | 35.24443 | | +0.92588392 | +0.17206874 | |
| $a$ | 3.1712356 | $\Omega$ | 311.06176 | | −0.35611497 | +0.69479940 | |
| $e$ | 0.1722152 | $i$ | 26.49287 | | +0.12617884 | +0.69831665 | |
| $P$ | 5.65 | $H$ | 15.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 07 21 | 703 | 0.1+ | 0.2− | 2006 08 30 | 699 | 0.6+ | 0.6+ | 2006 09 26 | 703 | 0.2− | 1.0− | | |
| 2006 07 21 | 703 | 0.4+ | 1.4− | 2006 08 30 | 699 | 0.6− | 0.5− | 2006 09 26 | 703 | 0.1− | 0.8− | | |
| 2006 07 21 | 703 | (2.1− | 0.7+) | 2006 08 30 | 699 | 0.7+ | 0.4+ | 2008 12 22 | G96 | 0.3+ | 0.1− | | |
| 2006 07 21 | 703 | 0.8− | 0.4+ | 2006 08 30 | 699 | 0.3− | 0.0 | 2008 12 22 | G96 | 0.4+ | 0.1− | | |
| 2006 07 21 | 703 | 0.3− | 0.2+ | 2006 09 11 | 703 | 0.3+ | 0.6+ | 2008 12 22 | G96 | 0.2+ | 0.3+ | | |
| 2006 07 21 | 703 | 0.2+ | 0.5+ | 2006 09 11 | 703 | 0.4− | 0.2− | 2008 12 22 | G96 | 0.2− | 0.2+ | | |
| 2006 07 21 | 703 | 0.0 | 0.4− | 2006 09 11 | 703 | 0.9− | 0.6+ | 2009 01 03 | G96 | 0.8+ | 0.5− | | |
| 2006 07 21 | 703 | 0.7− | 0.5+ | 2006 09 11 | 703 | 0.4− | 0.2+ | 2009 01 03 | G96 | 0.4+ | 0.1− | | |
| 2006 08 24 | 644 | 0.1− | 0.0 | 2006 09 19 | 699 | 0.2− | 0.5+ | 2009 01 03 | G96 | 0.5+ | 0.1− | | |
| 2006 08 24 | 644 | 0.1+ | 0.0 | 2006 09 19 | 699 | 0.3+ | 0.1− | 2009 01 03 | G96 | 0.1+ | 0.0 | | |
| 2006 08 24 | 644 | 0.2+ | 0.2+ | 2006 09 19 | 699 | 0.4+ | 0.4+ | 2009 01 18 | 691 | 0.1+ | 0.0 | | |
| 2006 08 29 | 704 | 0.6+ | 0.3− | 2006 09 19 | 699 | 0.8+ | 0.1− | 2009 01 18 | 691 | 0.1− | 0.1+ | | |
| 2006 08 29 | 704 | 0.1− | 0.1+ | 2006 09 26 | 703 | 0.0 | 0.2− | 2009 01 18 | 691 | 0.4− | 0.1+ | | |
| 2006 08 29 | 704 | 0.5− | 0.3− | 2006 09 26 | 703 | 0.6+ | 0.7+ | | | | | | |

**2006 QS$_{100}$ = 2005 CT$_{80}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 33.55284 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.37228992 | $\omega$ | 110.14420 | | +0.62504007 | −0.72051856 | |
| $a$ | 1.9137353 | $\Omega$ | 297.46391 | | +0.52777710 | +0.67352554 | |
| $e$ | 0.0787260 | $i$ | 19.78172 | | +0.57513150 | +0.16497379 | |
| $P$ | 2.65 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 16 | 699 | 0.3+ | 0.4+ | 2005 03 04 | 703 | 0.5+ | 0.2+ | 2006 08 25 | 704 | 0.5+ | 0.3+ | | |
| 2004 12 16 | 699 | 0.2+ | 0.1− | 2005 03 13 | 703 | 1.4− | 0.7− | 2006 08 29 | 699 | 0.9+ | 0.3+ | | |
| 2004 12 16 | 699 | 0.7− | 0.4− | 2005 03 13 | 703 | 0.1− | 0.4+ | 2006 08 29 | 699 | 1.4+ | 0.2− | | |
| 2004 12 16 | 699 | 0.0 | 0.2+ | 2005 03 13 | 703 | 0.7+ | 0.1+ | 2006 08 29 | 699 | 0.7+ | 1.1− | | |
| 2005 02 14 | 703 | 0.4+ | 0.1+ | 2005 03 13 | 703 | 0.9+ | 0.4− | 2006 08 29 | 699 | 0.2− | 0.8− | | |
| 2005 02 14 | 703 | 0.1− | 0.1+ | 2006 08 13 | 644 | 0.6− | 0.1− | 2006 09 01 | 704 | 0.6− | 0.7+ | | |
| 2005 02 14 | 703 | 0.2− | 0.4− | 2006 08 13 | 644 | 0.5− | 0.1+ | 2006 09 01 | 704 | 0.3− | 0.3+ | | |
| 2005 02 14 | 703 | 0.1− | 0.2+ | 2006 08 13 | 644 | 0.6− | 0.2− | 2006 09 01 | 704 | 0.9− | 0.7+ | | |
| 2005 03 04 | 703 | 1.2− | 0.1+ | 2006 08 25 | 704 | 0.5− | 0.8+ | 2006 09 01 | 704 | 0.7− | 0.3− | | |
| 2005 03 04 | 703 | 0.2+ | 0.3+ | 2006 08 25 | 704 | 0.0 | 0.6− | | | | | | |
| 2005 03 04 | 703 | 0.5+ | 0.0 | 2006 08 25 | 704 | 1.2+ | 0.0 | | | | | | |

**2006 QG$_{125}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 229.72350 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17460207 | $\omega$ | 351.03300 | | +0.71996144 | +0.64228091 | |
| $a$ | 3.1703201 | $\Omega$ | 324.22037 | | −0.60560815 | +0.39638661 | |
| $e$ | 0.1458929 | $i$ | 26.72461 | | −0.33896061 | +0.65601287 | |
| $P$ | 5.64 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 02 14 | 644 | 0.5+ | 0.2+ | 2006 09 11 | 703 | 0.6− | 1.3+ | 2006 09 22 | 691 | 0.2+ | 0.1− | | |
| 2004 02 14 | 644 | 0.3+ | 0.2+ | 2006 09 11 | 703 | (0.4+ | 2.0+) | 2006 09 22 | 691 | 0.2+ | 0.1+ | | |
| 2004 02 14 | 644 | 0.6+ | 0.9+ | 2006 09 11 | 703 | 0.9− | 0.6− | 2006 09 22 | 691 | (0.4− | 1.8−) | | |
| 2006 08 16 | 644 | 0.2+ | 0.1+ | 2006 09 11 | 703 | 0.4− | 0.3+ | 2006 09 26 | 691 | 0.0 | 0.0 | | |
| 2006 08 16 | 644 | 0.0 | 0.2+ | 2006 09 11 | 703 | 0.1− | 0.4+ | 2006 09 26 | 691 | 0.1+ | 0.1− | | |
| 2006 08 16 | 644 | 0.1− | 0.3+ | 2006 09 11 | 703 | 0.3− | 0.5+ | 2006 09 26 | 691 | 0.3− | 0.1− | | |
| 2006 08 29 | 703 | 0.8+ | 1.1+ | 2006 09 15 | 691 | 0.0 | 0.1+ | 2009 01 20 | 703 | 0.4+ | 0.0 | | |
| 2006 08 29 | 703 | 0.5+ | 0.1− | 2006 09 15 | 691 | 0.0 | 0.0 | 2009 01 20 | 703 | 1.3+ | 0.8− | | |
| 2006 08 29 | 703 | 0.1+ | 0.5+ | 2006 09 15 | 691 | 0.1− | 0.1− | 2009 01 20 | 703 | 0.2− | 1.2+ | | |
| 2006 08 29 | 703 | 1.2− | 0.9+ | 2006 09 17 | 691 | 0.0 | 0.0 | 2009 01 20 | 703 | 0.8− | 0.3− | | |
| 2006 09 01 | 704 | 0.2+ | 1.2− | 2006 09 17 | 691 | 0.2− | 0.2− | 2009 03 26 | 291 | 0.0 | 0.0 | | |
| 2006 09 01 | 704 | 0.5+ | 0.5− | 2006 09 17 | 691 | 0.1− | 0.1− | 2009 03 26 | 291 | 0.0 | 0.1+ | | |
| 2006 09 01 | 704 | 0.1+ | 0.7− | 2006 09 19 | 691 | 0.1+ | 0.1− | 2009 03 26 | 291 | 0.2− | 0.0 | | |
| 2006 09 11 | 703 | 0.3+ | 1.2+ | 2006 09 19 | 691 | 0.1− | 0.1+ | | | | | | |
| 2006 09 11 | 703 | 0.2+ | 0.7+ | 2006 09 19 | 691 | 0.1− | 0.1− | | | | | | |

**2006 QA$_{131}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 169.42523 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17076463 | $\omega$ | 262.24125 | | +0.72231529 | −0.64578988 | |
| $a$ | 3.2176398 | $\Omega$ | 137.50973 | | +0.68446548 | +0.71871099 | |
| $e$ | 0.1268563 | $i$ | 21.48724 | | −0.09883130 | +0.25770127 | |
| $P$ | 5.77 | $H$ | 15.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 08 20 | 644 | 0.4− | 0.0 | 2006 09 26 | 703 | 0.4+ | 0.4− | 2009 02 02 | G96 | 0.3+ | 0.3+ | | |
| 2006 08 20 | 644 | 0.4− | 0.5+ | 2006 09 26 | 703 | 0.3− | 0.4− | 2009 02 02 | G96 | 0.2− | 0.3+ | | |
| 2006 08 20 | 644 | 0.5− | 0.1+ | 2006 09 26 | 703 | 1.1− | 0.8− | 2009 02 02 | G96 | 0.2+ | 0.3+ | | |
| 2006 08 30 | 699 | 0.4+ | 0.1− | 2006 09 28 | E12 | 0.7+ | 0.5+ | 2009 03 16 | 703 | 0.4+ | 0.4+ | | |
| 2006 08 30 | 699 | 0.7− | 0.3+ | 2006 09 28 | E12 | 0.0 | 0.3− | 2009 03 16 | 703 | 0.2+ | 0.2+ | | |
| 2006 08 30 | 699 | 0.5+ | 0.2+ | 2006 09 28 | E12 | 0.3+ | 0.9+ | 2009 03 16 | 703 | 0.8− | 0.1+ | | |
| 2006 08 30 | 699 | 0.1+ | 0.4+ | 2006 09 28 | E12 | 1.1+ | 0.6+ | 2009 03 16 | 703 | 0.4− | 0.3− | | |
| 2006 09 26 | 703 | 0.3− | 0.4− | 2009 02 02 | G96 | 0.5+ | 0.2− | | | | | | |

**2006 QS$_{135}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 338.08411 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26492523 | $\omega$ | 191.99989 | | +0.79606748 | +0.60020962 | |
| $a$ | 2.4009724 | $\Omega$ | 130.83496 | | −0.54643786 | +0.76795986 | |
| $e$ | 0.2412462 | $i$ | 5.88845 | | −0.26015811 | +0.22357565 | |
| $P$ | 3.72 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 07 21 | 703 | 0.9− | 0.1+ | 2006 09 19 | 704 | 1.4− | 0.4− | 2006 09 27 | 703 | 0.4− | 0.1+ | | |
| 2006 07 21 | 703 | 0.2− | 1.4− | 2006 09 19 | 704 | 0.2− | 0.6+ | 2006 09 27 | 703 | 0.3− | 0.0 | | |
| 2006 07 21 | 703 | 0.6− | 0.5− | 2006 09 19 | 704 | 0.0 | 0.0 | 2006 09 27 | 703 | 0.2− | 0.1− | | |
| 2006 07 21 | 703 | 0.1+ | 1.1− | 2006 09 19 | 704 | 0.3− | 0.4− | 2006 09 27 | 703 | 0.5− | 0.5− | | |
| 2006 08 28 | 704 | 0.2− | 0.4+ | 2006 09 19 | 704 | 0.2− | 0.4+ | 2006 10 02 | 703 | 0.9− | 0.1+ | | |
| 2006 08 28 | 704 | 1.0+ | 1.0+ | 2006 09 20 | 608 | 0.7+ | 1.1− | 2006 10 02 | 703 | 1.0− | 1.0− | | |
| 2006 08 28 | 704 | 0.8+ | 0.9+ | 2006 09 20 | 608 | 0.7+ | 1.2− | 2006 10 02 | 703 | 0.6− | 0.5+ | | |
| 2006 08 28 | 704 | 0.8+ | 1.2− | 2006 09 20 | 608 | 0.4+ | 1.0− | 2006 10 02 | 703 | 0.7− | 0.5+ | | |
| 2006 08 30 | 704 | 0.1− | 0.2− | 2006 09 21 | 699 | 0.4− | 0.4+ | 2006 10 12 | 644 | 0.6− | 0.2− | | |
| 2006 08 30 | 704 | 0.1− | 0.1+ | 2006 09 21 | 699 | 0.9− | 0.5− | 2006 10 12 | 644 | 0.1− | 0.1+ | | |
| 2006 08 30 | 704 | 0.9+ | 0.6+ | 2006 09 21 | 699 | 0.2+ | 0.2+ | 2006 10 12 | 644 | 0.1+ | 0.1− | | |
| 2006 08 30 | 704 | 0.7− | 0.3+ | 2006 09 21 | 699 | 0.6− | 0.2+ | 2006 10 23 | 644 | 0.3+ | 0.2+ | | |
| 2006 09 12 | 704 | 0.4+ | 1.0+ | 2006 09 22 | 704 | 0.5+ | 0.0 | 2006 10 23 | 644 | 0.2− | 0.1+ | | |
| 2006 09 12 | 704 | 1.3+ | 1.3+ | 2006 09 22 | 704 | 0.2− | 0.6− | 2006 10 23 | 644 | 0.3+ | 0.0 | | |
| 2006 09 12 | 704 | 0.6+ | 0.8+ | 2006 09 22 | 704 | 0.3+ | 0.4− | 2008 01 30 | G96 | 0.1− | 0.0 | | |
| 2006 09 12 | 704 | 0.8+ | 0.8+ | 2006 09 22 | 704 | 0.5+ | 0.3+ | 2008 01 30 | G96 | 0.2+ | 0.1+ | | |
| 2006 09 12 | 704 | 0.8+ | 0.8+ | 2006 09 26 | 703 | 0.1+ | 0.4+ | 2008 01 30 | G96 | 0.2− | 0.2− | | |
| 2006 09 14 | 703 | 0.4− | 0.6− | 2006 09 26 | 703 | 0.4− | 0.6+ | 2008 01 30 | G96 | 0.2+ | 0.1+ | | |
| 2006 09 14 | 703 | 0.3+ | 0.1− | 2006 09 26 | 703 | 0.0 | 0.8+ | 2009 04 17 | 703 | 0.0 | 0.9− | | |
| 2006 09 14 | 703 | 0.1+ | 0.2+ | 2006 09 26 | 703 | 0.6+ | 0.5+ | 2009 04 17 | 703 | 0.5+ | 1.1+ | | |
| 2006 09 14 | 703 | 0.4− | 0.1− | 2006 09 26 | 703 | 0.1+ | 0.2+ | 2009 04 17 | 703 | 0.0 | 1.2+ | | |
| 2006 09 16 | 704 | 0.5+ | 0.8− | 2006 09 26 | 703 | 0.2+ | 0.1+ | 2009 04 17 | 703 | 0.0 | 0.4+ | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 2006 09 16 | 704 | 0.0 | 0.3− | 2006 09 26 | 703 | 0.3+ | 0.2− | |
| 2006 09 16 | 704 | 0.6− | 0.1− | 2006 09 26 | 703 | 0.2− | 0.1− | |

**2006 QF$_{141}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 205.06312 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.16796186 | $\omega$ | 56.56964 | | +0.86415499 | | +0.49876089 |
| $a$ | 3.2533361 | $\Omega$ | 273.43057 | | −0.48108488 | | +0.77981249 |
| $e$ | 0.1292836 | $i$ | 3.84204 | | −0.14762618 | | +0.37832533 |
| $P$ | 5.87 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 08 18 | 644 | 0.0 | 0.2+ | 2006 09 26 | 691 | 0.2+ | 0.2− | 2007 10 14 | G96 | 0.2+ | 0.2− |
| 2006 08 18 | 644 | 0.7− | 0.1+ | 2006 09 28 | G96 | 0.0 | 0.1+ | 2007 10 14 | G96 | 0.4+ | 0.2− |
| 2006 08 18 | 644 | 0.1− | 0.3+ | 2006 09 28 | G96 | 0.4+ | 0.6+ | 2007 11 02 | 691 | 0.0 | 0.1+ |
| 2006 08 20 | 644 | 0.2− | 0.0 | 2006 09 28 | G96 | 0.7− | 0.3− | 2007 11 02 | 691 | 0.7− | 0.2+ |
| 2006 08 20 | 644 | 0.0 | 0.2+ | 2006 09 28 | G96 | 0.3− | 0.2− | 2007 11 02 | 691 | 0.0 | 0.1− |
| 2006 08 20 | 644 | 0.1− | 0.1+ | 2006 09 28 | G96 | 0.2− | 0.1+ | 2007 12 15 | G96 | 0.6+ | 0.2− |
| 2006 08 20 | 644 | 0.2+ | 0.5+ | 2006 09 28 | G96 | 0.3− | 0.2− | 2007 12 15 | G96 | 0.0 | 0.3+ |
| 2006 08 20 | 644 | 0.3+ | 0.3− | 2006 09 28 | G96 | 0.2− | 0.0 | 2007 12 15 | G96 | 0.1+ | 0.1− |
| 2006 08 20 | 644 | 0.7+ | 0.0 | 2006 09 28 | G96 | 0.3+ | 0.1+ | 2007 12 15 | G96 | 0.1+ | 0.2− |
| 2006 09 26 | 691 | 0.1− | 0.1− | 2007 10 14 | G96 | 0.6+ | 0.2− | | | | |
| 2006 09 26 | 691 | 0.1+ | 0.0 | 2007 10 14 | G96 | 0.4+ | 0.0 | | | | |

**2006 QR$_{159}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 284.48116 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23030878 | $\omega$ | 120.82263 | | +0.94425594 | | +0.32889514 |
| $a$ | 2.6359007 | $\Omega$ | 219.98069 | | −0.30920694 | | +0.87095743 |
| $e$ | 0.2199337 | $i$ | 1.28837 | | −0.11301237 | | +0.36504951 |
| $P$ | 4.28 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 08 19 | 691 | 0.2+ | 0.0 | 2006 09 17 | 704 | 0.6− | 0.2− | 2006 09 28 | G96 | 0.1+ | 0.4− |
| 2006 08 19 | 691 | 0.0 | 0.0 | 2006 09 19 | 699 | 0.8+ | 0.0 | 2006 09 28 | G96 | 0.1− | 0.3− |
| 2006 08 19 | 691 | 0.0 | 0.0 | 2006 09 19 | 703 | 0.1+ | 0.2− | 2006 09 28 | G96 | 0.2+ | 0.5− |
| 2006 08 27 | 699 | 0.2+ | 1.2+ | 2006 09 19 | 699 | 0.6− | 0.2− | 2006 11 21 | G96 | 0.2− | 0.4− |
| 2006 08 27 | 699 | 0.0 | 0.4− | 2006 09 19 | 703 | 0.1− | 0.3− | 2006 11 21 | G96 | 0.3+ | 0.1− |
| 2006 08 27 | 699 | 0.3+ | 0.5− | 2006 09 19 | 703 | 0.8− | 0.1− | 2006 11 21 | G96 | 0.2− | 0.1− |
| 2006 08 27 | 699 | 0.0 | 0.1− | 2006 09 19 | 699 | 0.7+ | 0.3− | 2006 11 21 | G96 | 0.3+ | 0.0 |
| 2006 09 16 | 699 | 0.4+ | 0.5+ | 2006 09 19 | 703 | 0.1+ | 0.5− | 2008 01 15 | 691 | 0.2− | 0.1+ |
| 2006 09 16 | 699 | 0.4− | 0.7+ | 2006 09 19 | 699 | 0.9− | 1.5+ | 2008 01 15 | 691 | 0.2− | 0.3− |
| 2006 09 16 | 699 | 0.1− | 0.2+ | 2006 09 25 | 699 | 0.5− | 0.6− | 2008 01 15 | 691 | 0.4+ | 0.4+ |
| 2006 09 16 | 699 | 0.7+ | 0.7+ | 2006 09 25 | 699 | 0.4+ | 0.1− | 2009 03 22 | G96 | 0.2+ | 0.1+ |
| 2006 09 17 | 704 | 0.1+ | 0.1− | 2006 09 25 | 699 | 0.4− | 0.6− | 2009 03 22 | G96 | 0.3− | 0.4+ |
| 2006 09 17 | 704 | 0.1+ | 0.6+ | 2006 09 25 | 699 | 0.6− | 0.8+ | 2009 03 22 | G96 | 0.1− | 0.4+ |
| 2006 09 17 | 704 | 0.0 | 0.4+ | 2006 09 28 | G96 | 0.1− | 0.3− | 2009 03 22 | G96 | 0.5+ | 0.0 |

**2006 QM$_{165}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 336.15103 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23010164 | $\omega$ | 8.19489 | | +0.09628641 | | +0.99345968 |
| $a$ | 2.6374824 | $\Omega$ | 267.34596 | | −0.91666741 | | +0.06447736 |
| $e$ | 0.1305752 | $i$ | 3.52248 | | −0.38787858 | | +0.09423663 |
| $P$ | 4.28 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 08 29 | 703 | 0.7+ | 0.7− | 2006 11 10 | 291 | 0.2+ | 0.3+ | 2006 11 21 | 291 | 0.3+ | 0.2− |
| 2006 08 29 | 703 | 0.2− | 0.3− | 2006 11 11 | 291 | 0.0 | 0.1− | 2006 11 21 | 291 | 0.4− | 0.3− |
| 2006 08 29 | 703 | 0.1+ | 0.5+ | 2006 11 11 | 291 | 0.3+ | 0.2− | 2009 01 31 | G96 | 0.4+ | 0.1+ |
| 2006 08 29 | 703 | 0.9+ | 0.4− | 2006 11 11 | 291 | 0.0 | 0.1− | 2009 01 31 | G96 | 0.5− | 0.4− |
| 2006 09 17 | 703 | 1.2− | 1.0+ | 2006 11 14 | 291 | 0.0 | 0.2+ | 2009 01 31 | G96 | 0.3− | 0.1+ |
| 2006 09 17 | 703 | 0.7− | 0.6− | 2006 11 14 | 291 | 0.2− | 0.1− | 2009 01 31 | G96 | 0.2− | 0.2− |
| 2006 09 17 | 703 | 0.8− | 0.4+ | 2006 11 14 | 291 | 0.3− | 0.3− | 2009 03 01 | G96 | 0.1− | 0.1− |
| 2006 09 17 | 703 | (2.0− | 0.9−) | 2006 11 17 | 291 | 0.4+ | 0.1+ | 2009 03 01 | G96 | 0.0 | 0.1− |
| 2006 10 02 | G96 | 0.8+ | 0.2− | 2006 11 17 | 291 | 0.1+ | 0.2+ | 2009 03 01 | G96 | 0.0 | 0.1+ |
| 2006 10 02 | G96 | 0.5+ | 0.2− | 2006 11 17 | 291 | 0.2+ | 0.0 | 2009 03 25 | G96 | 0.3+ | 0.0 |
| 2006 10 02 | G96 | 0.4− | 0.2− | 2006 11 20 | 291 | 0.0 | 0.1+ | 2009 03 25 | G96 | 0.1+ | 0.3− |
| 2006 10 02 | G96 | 0.1− | 0.2− | 2006 11 20 | 291 | 0.0 | 0.0 | 2009 03 25 | G96 | 0.2− | 0.1+ |
| 2006 11 10 | 291 | 0.1+ | 0.1+ | 2006 11 20 | 291 | 0.2− | 0.1+ | 2009 03 25 | G96 | 0.2+ | 0.1− |
| 2006 11 10 | 291 | 0.2+ | 0.1+ | 2006 11 21 | 291 | 0.4− | 0.2+ | | | | |

**2006 QH$_{187}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 4.26057 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.30256415 | $\omega$ | 256.61997 | | +0.95981074 | | +0.26357432 |
| $a$ | 2.1974773 | $\Omega$ | 88.03372 | | −0.20534644 | | +0.89368040 |
| $e$ | 0.2114101 | $i$ | 5.53486 | | −0.19130131 | | +0.36313073 |
| $P$ | 3.26 | $H$ | 17.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 11 19 | 699 | 0.6+ | 0.2+ | 2006 08 16 | E12 | 0.0 | 0.1− | 2006 09 17 | 699 | 0.2− | 0.9+ |
| 2003 11 19 | 699 | 1.7− | 0.6− | 2006 08 28 | E12 | 0.3+ | 0.2− | 2006 09 17 | 699 | 0.4− | 0.3− |
| 2003 11 19 | 699 | 1.3+ | 0.1− | 2006 08 28 | E12 | 0.1− | 0.2− | 2008 02 09 | G96 | 0.2− | 0.5− |
| 2003 11 19 | 699 | 0.0 | 0.2+ | 2006 08 28 | E12 | 0.7+ | 0.1+ | 2008 02 09 | G96 | 0.3+ | 0.2− |
| 2006 08 16 | E12 | 0.3− | 0.3− | 2006 08 28 | E12 | 0.2− | 0.2+ | 2008 02 09 | G96 | 0.2− | 0.2+ |
| 2006 08 16 | E12 | 0.3+ | 0.4+ | 2006 09 17 | 699 | 0.3− | 0.6+ | 2008 02 09 | G96 | 0.1− | 0.2− |
| 2006 08 16 | E12 | 0.5+ | 1.3− | 2006 09 17 | 699 | 0.2− | 0.1− | | | | |

**2006 QJ$_{187}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 15.38945 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.28559598 | $\omega$ | 72.02455 | | +0.48615664 | | +0.87054351 |
| $a$ | 2.2836769 | $\Omega$ | 227.31099 | | −0.83586280 | | +0.43780486 |
| $e$ | 0.2260997 | $i$ | 5.95001 | | −0.25492176 | | +0.22467957 |
| $P$ | 3.45 | $H$ | 17.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 27 | 691 | 0.2+ | 0.1− | 2006 08 18 | 644 | 0.3− | 0.4− | 2006 09 18 | 703 | 0.6− | 0.4+ |
| 2003 10 27 | 691 | 0.3− | 0.2+ | 2006 08 18 | 644 | 0.0 | 0.1− | 2006 09 18 | 703 | 0.4+ | 1.2+ |
| 2003 10 27 | 691 | 0.1+ | 0.1− | 2006 08 30 | 699 | 0.9+ | 0.6+ | 2006 09 18 | 703 | 0.3− | 0.3− |
| 2003 11 19 | 691 | 0.2− | 0.1− | 2006 08 30 | 699 | 0.4− | 0.8− | 2009 04 22 | G96 | 0.1+ | 0.5+ |
| 2003 11 19 | 691 | 0.3− | 0.1+ | 2006 08 30 | 699 | 0.2+ | 0.6+ | 2009 04 22 | G96 | 0.1− | 0.3+ |
| 2003 11 19 | 691 | 0.6+ | 0.3+ | 2006 08 30 | 699 | 0.4+ | 0.7− | 2009 04 22 | G96 | 0.4+ | 0.4+ |
| 2006 08 18 | 644 | 0.0 | 0.3− | 2006 09 18 | 703 | 0.4− | 0.4+ | 2009 04 22 | G96 | 0.1− | 0.3+ |

**2006 QM$_{187}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 300.46340 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22934021 | $\omega$ | 230.16100 | | +0.65169957 | | +0.75588764 |
| $a$ | 2.6433169 | $\Omega$ | 80.62435 | | −0.67506538 | | +0.61569121 |
| $e$ | 0.1962462 | $i$ | 3.63902 | | −0.34579532 | | +0.22261672 |
| $P$ | 4.30 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 05 29 | 691 | 0.5+ | 0.1+ | 2006 08 29 | 703 | 1.2− | 0.3+ | 2009 03 03 | G96 | 0.1− | 0.1+ |
| 2001 05 29 | 691 | 0.2− | 0.1− | 2006 08 29 | 703 | 0.1− | 0.1+ | 2009 03 03 | G96 | 0.4+ | 0.0 |
| 2001 05 29 | 691 | 0.2− | 0.1− | 2006 09 18 | 699 | 1.4+ | 0.1− | 2009 03 31 | G96 | 0.1+ | 0.5+ |
| 2006 08 18 | 644 | 0.3− | 0.4− | 2006 09 18 | 699 | 0.8− | 1.4+ | 2009 03 31 | G96 | 0.2− | 0.0 |
| 2006 08 18 | 644 | 0.2− | 0.4− | 2006 09 18 | 699 | 1.5+ | 0.1− | 2009 03 31 | G96 | 0.7+ | 0.1+ |
| 2006 08 18 | 644 | 0.4− | 0.5− | 2006 09 18 | 699 | 0.8+ | 0.8+ | 2009 03 31 | G96 | 0.1− | 0.3+ |
| 2006 08 29 | 703 | 1.0− | 0.2− | 2009 03 03 | G96 | 0.2− | 0.3+ | | | | |
| 2006 08 29 | 703 | 0.2− | 0.5+ | 2009 03 03 | G96 | 0.2+ | 0.4+ | | | | |

**2006 QQ$_{187}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 218.20355 | | (2000.0) | | | |
| $n$ | 0.18585167 | $\omega$ | 72.70389 | | +0.99461401 | −0.05593765 |
| $a$ | 3.0410606 | $\Omega$ | 290.43332 | | +0.01351755 | +0.90468101 |
| $e$ | 0.1742732 | $i$ | 5.34295 | | +0.10276306 | +0.42240177 |
| $P$ | 5.30 | $H$ | 16.1 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 08 29 | 703 | 0.3− | 0.5− | 2006 09 06 | 644 | 0.3+ | 0.2− | 2007 12 17 | 691 | 0.1+ | 0.1− |
| 2006 08 29 | 703 | 0.4− | 0.9− | 2006 09 17 | 703 | 0.1− | 0.7+ | 2007 12 17 | 691 | 0.0 | 0.0 |
| 2006 08 29 | 703 | 0.2+ | 0.1+ | 2006 09 17 | 703 | 0.0 | 0.1+ | 2008 01 11 | 691 | 0.4− | 0.6− |
| 2006 08 29 | 703 | 0.2+ | 0.9− | 2006 09 17 | 703 | 0.3− | 0.8+ | 2008 01 11 | 691 | 0.8− | 0.6+ |
| 2006 09 06 | 644 | 0.4+ | 0.1+ | 2006 09 17 | 703 | 0.1+ | 0.2+ | 2008 01 11 | 691 | 1.0+ | 0.4− |
| 2006 09 06 | 644 | 0.0 | 0.1+ | 2007 12 17 | 691 | 0.1+ | 0.5+ | | | | |

**2006 RD$_{5}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 218.21014 | | (2000.0) | | | |
| $n$ | 0.17273623 | $\omega$ | 55.78360 | | +0.92973987 | +0.34297752 |
| $a$ | 3.1931091 | $\Omega$ | 283.83912 | | −0.36659039 | +0.82802179 |
| $e$ | 0.1410430 | $i$ | 7.93120 | | −0.03457257 | +0.44356098 |
| $P$ | 5.71 | $H$ | 15.4 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 09 14 | 703 | 1.0− | 0.2+ | 2006 09 22 | 703 | 0.7− | 0.6+ | 2006 10 22 | 691 | 0.0 | 0.1− |
| 2006 09 14 | 703 | 0.7− | 0.0 | 2006 09 22 | 703 | 0.3− | 0.3+ | 2006 10 22 | 691 | 0.0 | 0.2− |
| 2006 09 14 | 703 | 0.0 | 0.6− | 2006 09 22 | 703 | 0.3+ | 1.0+ | 2006 10 22 | 691 | 0.1+ | 0.2− |
| 2006 09 14 | 703 | 0.5− | 0.3+ | 2006 09 22 | 703 | 0.7+ | 0.3+ | 2007 11 07 | 691 | 0.2+ | 0.0 |
| 2006 09 15 | 704 | 0.2− | 0.0 | 2006 09 29 | 699 | 0.5− | 0.3− | 2007 11 07 | 691 | 0.2+ | 0.2− |
| 2006 09 15 | 704 | 0.1− | 0.0 | 2006 09 29 | 699 | 1.0+ | 0.3+ | 2007 11 07 | 691 | 0.6− | 0.2− |
| 2006 09 15 | 704 | 0.7− | 0.7+ | 2006 09 29 | 699 | 0.4+ | 0.2+ | 2007 12 06 | 691 | 0.3+ | 0.5+ |
| 2006 09 20 | 699 | 0.8+ | 0.8− | 2006 09 29 | 699 | 0.5− | 0.5+ | 2007 12 06 | 691 | 0.1+ | 0.1− |
| 2006 09 20 | 699 | 0.0 | 0.9+ | 2006 10 20 | 691 | 0.0 | 0.2− | 2007 12 06 | 691 | 0.1− | 0.1+ |
| 2006 09 20 | 699 | 0.9+ | 0.2+ | 2006 10 20 | 691 | 0.2+ | 0.1− | | | | |
| 2006 09 20 | 699 | 0.6+ | 0.4− | 2006 10 20 | 691 | 0.1− | 0.1− | | | | |

**2006 RN$_{6}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 179.02802 | | (2000.0) | | | |
| $n$ | 0.18258291 | $\omega$ | 221.11458 | | +0.52889683 | −0.84602957 |
| $a$ | 3.0772489 | $\Omega$ | 197.29439 | | +0.82569188 | +0.53123514 |
| $e$ | 0.0874347 | $i$ | 13.04431 | | +0.19621688 | +0.04497989 |
| $P$ | 5.40 | $H$ | 15.9 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 09 14 | 703 | 0.7− | 0.4+ | 2006 09 28 | 291 | 0.8+ | 0.2+ | 2006 11 14 | G96 | 0.6− | 0.1− |
| 2006 09 14 | 703 | 0.5− | 0.1+ | 2006 09 30 | 691 | 0.2− | 0.0 | 2006 11 14 | G96 | 0.1− | 0.1+ |
| 2006 09 14 | 703 | 0.2− | 0.7+ | 2006 09 30 | 691 | 0.3− | 0.4+ | 2006 11 14 | G96 | 0.1+ | 0.2− |
| 2006 09 14 | 703 | (1.7− | 1.2−) | 2006 09 30 | 691 | 0.3− | 0.0 | 2009 03 31 | G96 | 0.0 | 0.3+ |
| 2006 09 15 | 691 | 0.1+ | 0.0 | 2006 10 13 | 568 | 0.0 | 0.2+ | 2009 03 31 | G96 | 0.0 | 0.3+ |
| 2006 09 15 | 691 | 0.1− | 0.4− | 2006 10 13 | 568 | 0.0 | 0.2+ | 2009 03 31 | G96 | 0.3− | 0.0 |
| 2006 09 15 | 691 | 0.3+ | 0.1− | 2006 10 13 | 568 | 0.0 | 0.3+ | 2009 03 31 | G96 | 0.2− | 0.0 |
| 2006 09 19 | 691 | 0.1− | 0.1+ | 2006 10 27 | G96 | 0.1+ | 0.0 | 2009 04 28 | G96 | 0.9+ | 0.1− |
| 2006 09 19 | 691 | 0.0 | 0.2+ | 2006 10 27 | G96 | 0.0 | 0.1− | 2009 04 28 | G96 | 0.4− | 0.3− |
| 2006 09 19 | 691 | 0.3− | 0.0 | 2006 10 27 | G96 | 0.3− | 0.1− | 2009 04 28 | G96 | 0.2− | 0.2+ |
| 2006 09 28 | 291 | 0.0 | 0.5− | 2006 10 27 | G96 | 0.6− | 0.0 | 2009 04 28 | G96 | 0.2+ | 0.1− |
| 2006 09 28 | 291 | 0.7+ | 0.1− | 2006 11 14 | G96 | 0.2− | 0.2− | | | | |

**2006 RE$_{14}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 168.84940 | | (2000.0) | | | |
| $n$ | 0.17867799 | $\omega$ | 165.74109 | | +0.85416913 | −0.50337181 |
| $a$ | 3.1219217 | $\Omega$ | 225.26152 | | +0.45728852 | +0.84656168 |
| $e$ | 0.0850863 | $i$ | 10.58064 | | +0.24755262 | +0.17306111 |
| $P$ | 5.52 | $H$ | 16.2 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 08 28 | 703 | 1.0− | 0.8− | 2006 09 18 | 691 | 0.1− | 0.4+ | 2006 09 28 | 691 | 0.3− | 0.0 |
| 2006 08 28 | 703 | 1.6− | 0.0 | 2006 09 20 | 691 | 0.3− | 0.3− | 2006 09 30 | 691 | 0.4− | 0.0 |
| 2006 08 28 | 703 | 0.5+ | 0.6− | 2006 09 20 | 691 | 0.1− | 0.2− | 2006 09 30 | 691 | 0.4+ | 1.0− |
| 2006 08 28 | 703 | (0.9+ | 3.0−) | 2006 09 20 | 691 | 0.1− | 0.3+ | 2006 09 30 | 691 | 0.1− | 0.1− |
| 2006 09 14 | 691 | 0.2+ | 0.3+ | 2006 09 23 | 691 | 0.1+ | 0.3+ | 2007 11 03 | 691 | 0.1+ | 0.2+ |
| 2006 09 14 | 691 | 0.2+ | 0.1+ | 2006 09 23 | 691 | 0.0 | 0.1+ | 2007 11 03 | 691 | 0.1+ | 0.4− |
| 2006 09 14 | 691 | 0.3+ | 0.2+ | 2006 09 23 | 691 | 0.1− | 0.1− | 2007 11 03 | 691 | 0.0 | 0.1+ |
| 2006 09 16 | 691 | 0.3+ | 0.3+ | 2006 09 26 | 691 | 0.1− | 0.1− | 2007 11 19 | 691 | 0.3− | 0.2+ |
| 2006 09 16 | 691 | 0.1+ | 0.3+ | 2006 09 26 | 691 | 0.0 | 0.1+ | 2007 11 19 | 691 | 0.0 | 0.1− |
| 2006 09 16 | 691 | 0.1+ | 0.4− | 2006 09 26 | 691 | 0.4+ | 0.1+ | 2007 11 19 | 691 | 0.1+ | 0.0 |
| 2006 09 18 | 691 | 0.1+ | 0.0 | 2006 09 28 | 691 | 0.4− | 0.1− | | | | |
| 2006 09 18 | 691 | 0.1+ | 0.1− | 2006 09 28 | 691 | 0.1− | 0.3+ | | | | |

**2006 RN$_{18}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 251.72607 | | (2000.0) | | | |
| $n$ | 0.22009448 | $\omega$ | 204.86728 | | +0.84580850 | −0.53189750 |
| $a$ | 2.7168351 | $\Omega$ | 187.66660 | | +0.52637025 | +0.84459572 |
| $e$ | 0.1527975 | $i$ | 17.96429 | | +0.08684660 | +0.06118101 |
| $P$ | 4.48 | $H$ | 16.2 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 03 22 | 645 | 0.1− | 0.0 | 2006 09 22 | 704 | 0.0 | 1.0− | 2006 10 22 | 704 | 0.2+ | 0.0 |
| 1999 03 22 | 645 | 0.1+ | 0.0 | 2006 09 22 | 704 | 0.3+ | 0.0 | 2006 10 22 | 704 | (0.0 | 2.0+) |
| 2004 04 14 | 691 | 0.1− | 0.5+ | 2006 09 22 | 704 | 0.4+ | 0.6+ | 2006 10 22 | 704 | 0.3− | 0.1− |
| 2004 04 14 | 691 | 0.0 | 0.5+ | 2006 09 30 | 703 | 0.0 | 0.7+ | 2006 10 22 | 704 | 0.2− | 0.1+ |
| 2004 04 14 | 691 | 0.1+ | 0.5+ | 2006 09 30 | 703 | 0.1− | 0.6+ | 2006 10 22 | 703 | (0.4+ | 1.8+) |
| 2006 08 28 | 703 | 0.5− | 0.0 | 2006 09 30 | 703 | 0.3+ | 0.5− | 2006 10 22 | 703 | 0.2+ | 0.5+ |
| 2006 08 28 | 703 | 0.6+ | 0.7+ | 2006 09 30 | 703 | 0.8− | 0.8+ | 2006 10 22 | 703 | 1.1+ | 0.9+ |
| 2006 08 28 | 703 | 1.5− | 0.1+ | 2006 10 01 | 704 | 0.1+ | 1.2− | 2006 10 22 | 703 | 0.4+ | 1.1+ |
| 2006 08 28 | 703 | 0.8− | 0.2+ | 2006 10 01 | 704 | 0.2+ | 0.6− | 2006 10 28 | 703 | 0.7− | 0.6− |
| 2006 09 14 | 703 | 0.6+ | 1.1+ | 2006 10 01 | 704 | 1.0− | 0.1+ | 2006 10 28 | 703 | 0.5+ | 0.6− |
| 2006 09 14 | 703 | 0.6+ | 0.3+ | 2006 10 01 | 704 | 0.1+ | 1.3+ | 2006 10 28 | 703 | (1.1− | 2.2+) |
| 2006 09 14 | 703 | 0.9+ | 1.0+ | 2006 10 10 | 644 | 0.1+ | 0.1+ | 2006 10 28 | 703 | 0.6− | 0.7− |
| 2006 09 14 | 703 | 0.0 | 0.4− | 2006 10 10 | 644 | 0.4+ | 0.0 | 2006 11 16 | 703 | 0.7− | 0.9+ |
| 2006 09 16 | 644 | 0.0 | 0.3+ | 2006 10 10 | 644 | 0.5+ | 0.3+ | 2006 11 16 | 703 | 0.9+ | 1.2− |
| 2006 09 16 | 644 | 0.1− | 0.1+ | 2006 10 16 | 703 | 0.7− | 0.1+ | 2006 11 16 | 703 | 1.0− | 0.3− |
| 2006 09 16 | 644 | 0.1+ | 0.1+ | 2006 10 16 | 703 | 0.0 | 0.8− | 2006 11 16 | 703 | 1.0+ | 1.7+ |
| 2006 09 18 | 699 | 1.3+ | 0.2+ | 2006 10 16 | 703 | 0.3− | 0.7− | 2009 04 02 | G96 | 0.3+ | 0.0 |
| 2006 09 18 | 699 | 1.0− | 0.3+ | 2006 10 16 | 703 | 0.6− | 0.0 | 2009 04 02 | G96 | 0.1+ | 0.3+ |
| 2006 09 18 | 699 | (1.8− | 1.3+) | 2006 10 21 | 644 | 0.1+ | 0.2+ | 2009 04 02 | G96 | 0.3− | 0.4− |
| 2006 09 18 | 699 | 0.8− | 0.9− | 2006 10 21 | 644 | 0.1− | 0.1+ | 2009 04 02 | G96 | 0.4+ | 0.2− |
| 2006 09 22 | 704 | 0.1− | 0.1+ | 2006 10 21 | 644 | 0.0 | 0.2+ | | | | |

**2006 RN$_{21}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 196.18317 | | (2000.0) | | | |
| $n$ | 0.18160589 | $\omega$ | 210.08670 | | +0.78563122 | −0.61816923 |
| $a$ | 3.0882759 | $\Omega$ | 188.24026 | | +0.59719330 | +0.76845588 |
| $e$ | 0.1476461 | $i$ | 10.24966 | | +0.16169031 | +0.16535528 |
| $P$ | 5.43 | $H$ | 15.7 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 09 15 | 691 | 0.1− | 0.2+ | 2006 09 30 | 291 | 0.0 | 0.1+ | 2006 10 12 | 644 | 0.2+ | 0.3+ |
| 2006 09 15 | 691 | 0.1+ | 0.1+ | 2006 09 30 | 291 | 0.4− | 1.1− | 2006 10 12 | 644 | 0.1+ | 0.1+ |
| 2006 09 15 | 691 | 0.0 | 0.1+ | 2006 09 30 | 291 | 0.4+ | 0.8− | 2006 10 21 | 644 | 0.5+ | 0.1+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 09 16 | 644 | 0.2+ | 0.1+ | 2006 09 30 | 291 | 1.2+ | 0.2− | 2006 10 21 | 644 | 0.3+ | 0.4+ |
| 2006 09 16 | 644 | 0.0 | 0.3+ | 2006 09 30 | 291 | 0.1− | 0.1− | 2006 10 21 | 644 | 0.5+ | 0.3+ |
| 2006 09 16 | 644 | 0.1+ | 0.5+ | 2006 09 30 | G96 | 0.0 | 0.1+ | 2006 10 22 | G96 | 0.2+ | 0.1− |
| 2006 09 18 | 691 | 0.2+ | 0.2+ | 2006 09 30 | G96 | 0.3+ | 0.2+ | 2006 10 22 | G96 | 0.2− | 0.2− |
| 2006 09 18 | 691 | 0.3+ | 0.0 | 2006 09 30 | 291 | 0.1+ | 0.2+ | 2006 10 22 | G96 | 0.3+ | 0.1− |
| 2006 09 18 | 691 | 0.2+ | 0.1+ | 2006 09 30 | G96 | 0.0 | 0.3+ | 2006 10 22 | G96 | 0.2+ | 0.3− |
| 2006 09 18 | J75 | 0.5+ | 0.1− | 2006 09 30 | 291 | 0.1+ | 0.1+ | 2006 10 27 | 705 | 0.4+ | 0.0 |
| 2006 09 18 | J75 | 0.5+ | 0.9+ | 2006 09 30 | 291 | 0.2+ | 0.1+ | 2006 10 27 | 705 | 0.2+ | 0.0 |
| 2006 09 18 | J75 | 0.3+ | 0.5+ | 2006 09 30 | G96 | 0.4+ | 0.3+ | 2006 11 01 | 705 | 0.2+ | 0.0 |
| 2006 09 20 | J75 | 0.5+ | 0.2+ | 2006 09 30 | 291 | 0.2+ | 0.1+ | 2006 11 01 | 705 | 0.2+ | 0.1+ |
| 2006 09 20 | J75 | 0.2+ | 0.4+ | 2006 09 30 | 291 | 0.2+ | 0.0 | 2006 11 10 | 705 | 0.1+ | 0.1+ |
| 2006 09 20 | J75 | 0.3+ | 0.5+ | 2006 09 30 | 291 | 0.0 | 0.0 | 2006 11 10 | 705 | 0.0 | 0.2+ |
| 2006 09 20 | 644 | 0.0 | 0.2+ | 2006 09 30 | 291 | 0.1+ | 0.1− | 2006 11 13 | 705 | 0.0 | 0.3+ |
| 2006 09 20 | 644 | 0.1+ | 0.1+ | 2006 09 30 | 291 | 0.2+ | 0.0 | 2006 11 13 | 705 | 0.0 | 0.2+ |
| 2006 09 20 | 644 | 0.4− | 0.1− | 2006 09 30 | 291 | 0.1+ | 0.1− | 2006 11 15 | 705 | 0.0 | 0.1+ |
| 2006 09 25 | 691 | 0.4− | 0.3− | 2006 10 01 | 291 | 0.1− | 0.0 | 2006 11 15 | 705 | 0.0 | 0.0 |
| 2006 09 25 | 691 | 0.3− | 0.1− | 2006 10 01 | 291 | 0.7− | 0.8+ | 2006 11 16 | G96 | 0.2+ | 0.1− |
| 2006 09 25 | 691 | 0.3− | 0.1− | 2006 10 01 | 291 | 0.1− | 0.1+ | 2006 11 16 | G96 | 0.2− | 0.0 |
| 2006 09 26 | G96 | 0.1+ | 0.3− | 2006 10 01 | 291 | 0.0 | 0.0 | 2006 11 16 | G96 | 0.0 | 0.1− |
| 2006 09 26 | G96 | 0.2− | 0.4− | 2006 10 01 | 291 | 0.1+ | 0.1+ | 2006 11 16 | G96 | 0.5− | 0.1− |
| 2006 09 26 | G96 | 0.1− | 0.1− | 2006 10 01 | 291 | 0.1+ | 0.0 | 2006 11 17 | 705 | 0.1+ | 0.1+ |
| 2006 09 26 | G96 | 0.0 | 0.4− | 2006 10 01 | 291 | 0.4− | 0.1− | 2006 11 17 | 705 | 0.0 | 0.1+ |
| 2006 09 27 | 704 | 0.8+ | 1.2+ | 2006 10 01 | 291 | 0.3− | 0.1− | 2006 11 21 | 705 | 0.0 | 0.0 |
| 2006 09 27 | 704 | 0.3+ | 0.8+ | 2006 10 01 | 291 | 0.1− | 0.0 | 2006 11 21 | 705 | 0.3− | 0.1− |
| 2006 09 27 | 704 | 0.8+ | 0.5+ | 2006 10 01 | 291 | 0.1+ | 0.1− | 2006 11 24 | 705 | 0.1− | 0.1+ |
| 2006 09 27 | 704 | 0.3+ | 0.3− | 2006 10 01 | 291 | 0.2− | 0.1− | 2006 11 24 | 705 | 0.1− | 0.1− |
| 2006 09 28 | G96 | 0.1− | 0.1− | 2006 10 01 | 291 | 0.1+ | 0.1+ | 2006 11 29 | 705 | 0.2− | 0.0 |
| 2006 09 28 | G96 | 0.2− | 0.1+ | 2006 10 02 | 291 | 0.0 | 0.1− | 2006 11 29 | 705 | 0.4− | 0.1+ |
| 2006 09 28 | G96 | 0.2− | 0.0 | 2006 10 02 | 291 | 0.2− | 0.2− | 2009 02 27 | 691 | 0.3+ | 0.0 |
| 2006 09 28 | 291 | 0.3− | 0.1− | 2006 10 02 | 291 | 0.2− | 0.3− | 2009 02 27 | 691 | 0.1+ | 0.2+ |
| 2006 09 28 | 291 | 0.1− | 0.1− | 2006 10 02 | 291 | 0.3+ | 0.1− | 2009 02 27 | 691 | 0.0 | 0.1+ |
| 2006 09 28 | 291 | 0.1− | 0.1− | 2006 10 02 | 291 | 0.1+ | 0.1− | 2009 03 03 | 691 | 0.6− | 0.1− |
| 2006 09 28 | G96 | 0.4+ | 0.2+ | 2006 10 02 | 291 | 0.2+ | 0.0 | 2009 03 03 | 691 | 0.1− | 0.1+ |
| 2006 09 29 | 291 | 0.6− | 0.4+ | 2006 10 10 | 644 | 0.2− | 0.2+ | 2009 03 03 | 691 | 0.4+ | 0.3+ |
| 2006 09 29 | 291 | 0.5− | 0.2+ | 2006 10 10 | 644 | 0.2+ | 0.1+ | 2009 05 01 | G96 | 0.4− | 0.2+ |
| 2006 09 29 | 291 | 0.4− | 0.3+ | 2006 10 10 | 644 | 0.1− | 0.1+ | 2009 05 01 | G96 | 0.2+ | 0.3+ |
| 2006 09 29 | 291 | 0.5− | 0.1− | 2006 10 11 | 644 | 0.0 | 0.1+ | 2009 05 01 | G96 | 0.1− | 0.1− |
| 2006 09 29 | 291 | 0.2− | 0.0 | 2006 10 11 | 644 | 0.2+ | 0.1+ | 2009 05 01 | G96 | 0.6+ | 0.5+ |
| 2006 09 29 | 291 | 0.1− | 0.1− | 2006 10 11 | 644 | 0.1+ | 0.1+ | | | | |
| 2006 09 30 | 291 | 0.1+ | 0.0 | 2006 10 12 | 644 | 0.1+ | 0.0 | | | | |

**2006 RA$_{33}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 338.90791 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.24635863 | $\omega$ | 28.44615 | | +0.74191566 | | +0.67007063 |
| $a$ | 2.5201372 | $\Omega$ | 289.46094 | | −0.61984953 | | +0.67191108 |
| $e$ | 0.1310316 | $i$ | 1.44649 | | −0.25563199 | | +0.31550094 |
| $P$ | 4.00 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 09 15 | 691 | 0.1+ | 0.2− | 2006 09 30 | 691 | 0.1+ | 0.0 | 2006 11 15 | G96 | 0.0 | 0.2− |
| 2006 09 15 | 691 | 0.1+ | 0.2+ | 2006 09 30 | 691 | 0.1+ | 0.1− | 2006 11 15 | G96 | 0.0 | 0.3+ |
| 2006 09 15 | 691 | 0.7− | 0.3− | 2006 09 30 | 691 | 0.1+ | 0.1+ | 2009 04 02 | 691 | 0.4− | 0.1+ |
| 2006 09 17 | 691 | 0.1+ | 0.1+ | 2006 10 19 | G96 | 0.0 | 0.3− | 2009 04 02 | 691 | 0.3+ | 0.5− |
| 2006 09 17 | 691 | 0.1− | 0.1+ | 2006 10 19 | G96 | 0.2− | 0.1− | 2009 04 02 | 691 | 0.1+ | 0.6+ |
| 2006 09 17 | 691 | 0.1+ | 0.0 | 2006 10 19 | G96 | 0.2− | 0.1− | 2009 05 18 | G96 | 0.2− | 0.4− |
| 2006 09 19 | 691 | 0.1+ | 0.0 | 2006 10 19 | G96 | 0.2+ | 0.1− | 2009 05 18 | G96 | 0.2+ | 0.2− |
| 2006 09 19 | 691 | 0.0 | 0.2+ | 2006 11 15 | G96 | 0.1− | 0.1− | 2009 05 18 | G96 | 0.0 | 0.1− |
| 2006 09 19 | 691 | 0.0 | 0.0 | 2006 11 15 | G96 | 0.1− | 0.1+ | 2009 05 18 | G96 | 0.2− | 0.0 |

**2006 RP$_{40}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 239.93603 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17560305 | $\omega$ | 30.12819 | | +0.55170009 | | +0.81877177 |
| $a$ | 3.1582610 | $\Omega$ | 273.79557 | | −0.79348766 | | +0.45658887 |
| $e$ | 0.0618132 | $i$ | 9.16160 | | −0.25691309 | | +0.34805085 |
| $P$ | 5.61 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 08 22 | 644 | 0.0 | 0.2− | 2006 09 23 | 691 | 0.2− | 0.2+ | 2008 12 30 | G96 | 0.3− | 0.1− |
| 2006 08 22 | 644 | 0.5− | 0.0 | 2007 11 09 | G96 | 0.4− | 0.1− | 2008 12 30 | G96 | 0.3+ | 0.4+ |
| 2006 08 22 | 644 | 0.1− | 0.3+ | 2007 11 09 | G96 | 0.0 | 0.0 | 2009 01 18 | G96 | 0.5+ | 0.1+ |
| 2006 09 14 | 691 | 0.0 | 0.0 | 2007 11 09 | G96 | 0.3+ | 0.1− | 2009 01 18 | G96 | 0.4− | 0.2+ |
| 2006 09 14 | 691 | 0.1+ | 0.1+ | 2007 11 09 | G96 | 0.3− | 0.3− | 2009 01 18 | G96 | 0.5+ | 0.2+ |
| 2006 09 14 | 691 | 0.0 | 0.1− | 2007 11 20 | G96 | 0.4+ | 0.3− | 2009 01 18 | G96 | 0.2+ | 0.2+ |
| 2006 09 18 | 691 | 0.1+ | 0.2− | 2007 11 20 | G96 | 0.0 | 0.1− | 2009 02 03 | G96 | 0.5− | 0.2+ |
| 2006 09 18 | 691 | 0.1− | 0.1+ | 2007 11 20 | G96 | 0.2+ | 0.2− | 2009 02 03 | G96 | 0.9+ | 0.8+ |
| 2006 09 18 | 691 | 0.1+ | 0.1+ | 2007 11 20 | G96 | 0.1− | 0.0 | 2009 02 03 | G96 | 0.2+ | 0.1+ |
| 2006 09 23 | 691 | 0.1− | 0.0 | 2008 12 30 | G96 | 0.2− | 0.2− | 2009 02 03 | G96 | 0.0 | 0.0 |
| 2006 09 23 | 691 | 0.2+ | 0.3+ | 2008 12 30 | G96 | 0.3− | 0.1− | | | | |

**2006 RK$_{41}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 299.69045 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.25897421 | $\omega$ | 190.41686 | | +0.95995429 | | −0.28015132 |
| $a$ | 2.4376146 | $\Omega$ | 185.85324 | | +0.25824474 | | +0.88725315 |
| $e$ | 0.1945657 | $i$ | 0.97312 | | +0.10861590 | | +0.36646567 |
| $P$ | 3.81 | $H$ | 18.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 07 29 | 644 | 0.8− | 0.4− | 2006 08 28 | 691 | 0.1− | 0.2+ | 2006 09 25 | 699 | 1.4+ | 1.0+ |
| 2002 07 29 | 644 | 0.2+ | 0.9− | 2006 08 28 | 691 | 0.1− | 0.1+ | 2006 09 25 | 699 | 0.1− | 0.0 |
| 2002 07 29 | 644 | 0.2− | 0.4− | 2006 08 28 | 691 | 0.1− | 0.2+ | 2006 09 30 | 691 | 0.3+ | 0.1+ |
| 2002 08 07 | 644 | 0.6+ | 0.1+ | 2006 09 14 | 644 | 0.1+ | 0.2+ | 2006 09 30 | 691 | 0.2− | 0.0 |
| 2002 08 07 | 644 | 0.2− | 0.3− | 2006 09 14 | 644 | 0.6− | 0.0 | 2006 09 30 | 691 | 0.0 | 0.1+ |
| 2002 08 07 | 644 | 0.2− | 0.2+ | 2006 09 14 | 644 | 0.2+ | 0.9− | 2006 09 30 | 703 | 1.2− | 1.6+ |
| 2002 08 08 | 644 | 0.1+ | 0.4− | 2006 09 16 | 705 | 0.0 | 0.3− | 2006 09 30 | 703 | 0.9− | 0.1− |
| 2002 08 08 | 644 | 0.1− | 0.0 | 2006 09 16 | 705 | 0.2+ | 0.4− | 2006 09 30 | 703 | 0.9+ | 0.7− |
| 2002 08 08 | 644 | 0.0 | 0.7− | 2006 09 18 | 699 | 0.5− | 0.3+ | 2006 09 30 | 703 | 0.5+ | 1.0− |
| 2002 08 08 | 644 | 0.1− | 0.1+ | 2006 09 18 | 699 | 0.0 | 0.1+ | 2006 10 16 | G96 | 0.3+ | 0.0 |
| 2002 08 08 | 644 | 0.0 | 0.2− | 2006 09 18 | 699 | 0.6− | 0.0 | 2006 10 16 | G96 | 0.5− | 0.2− |
| 2002 08 08 | 644 | 0.2+ | 0.4+ | 2006 09 18 | 699 | 0.1− | 0.1− | 2006 10 16 | G96 | 0.3+ | 0.4− |
| 2002 08 17 | 644 | 0.1− | 0.0 | 2006 09 22 | 705 | 0.2+ | 0.3− | 2006 10 16 | G96 | 0.4− | 0.3− |
| 2002 08 17 | 644 | 0.2+ | 0.4+ | 2006 09 22 | 705 | 0.2+ | 0.3− | 2006 11 21 | G96 | 0.2+ | 0.1− |
| 2002 08 17 | 644 | 0.4+ | 0.3+ | 2006 09 22 | A50 | 0.3+ | 0.5− | 2006 11 21 | G96 | 0.2+ | 0.8− |
| 2002 08 27 | 644 | 0.6+ | 0.3+ | 2006 09 22 | A50 | 0.1+ | 0.6+ | 2006 11 21 | G96 | 0.3− | 0.0 |
| 2002 08 27 | 644 | 0.2− | 0.2+ | 2006 09 25 | 699 | (0.6− | 3.2+) | 2006 11 21 | G96 | 0.1+ | 0.6− |
| 2002 08 27 | 644 | 0.1− | 0.1− | 2006 09 25 | 699 | 0.7+ | 0.8+ | | | | |

**2006 RQ$_{49}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 139.52521 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18305695 | $\omega$ | 91.38029 | | −0.26722272 | | −0.96096921 |
| $a$ | 3.0719341 | $\Omega$ | 14.73167 | | +0.73352228 | | −0.25105111 |
| $e$ | 0.0851975 | $i$ | 16.35961 | | +0.62492966 | | −0.11623905 |
| $P$ | 5.38 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 09 14 | 691 | 0.2+ | 0.2− | 2006 09 23 | 152 | (7.3− | 1.4+) | 2006 10 11 | 691 | 0.4+ | 0.0 |
| 2006 09 14 | 691 | 0.3+ | 0.0 | 2006 09 23 | 152 | 0.2+ | 0.9+ | 2006 10 11 | 691 | 0.2+ | 0.0 |
| 2006 09 14 | 691 | 0.3+ | 0.1− | 2006 09 23 | 152 | 0.2− | 1.2+ | 2006 10 11 | 691 | 0.1+ | 0.0 |
| 2006 09 18 | 691 | 0.5+ | 0.3− | 2006 09 25 | 691 | 0.2− | 0.4+ | 2009 03 21 | 691 | 0.1− | 0.8− |
| 2006 09 18 | 691 | 0.3+ | 0.5− | 2006 09 25 | 691 | 0.1− | 0.3+ | 2009 03 21 | 691 | 0.0 | 0.6+ |
| 2006 09 18 | 691 | 0.3+ | 0.2− | 2006 09 25 | 691 | 0.3− | 0.1+ | 2009 03 21 | 691 | 0.1− | 0.4+ |
| 2006 09 21 | 152 | 1.5− | 0.4− | 2006 09 30 | 691 | 0.1− | 0.2+ | 2009 03 26 | 691 | 0.2− | 0.0 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 09 21 | 152 | 0.3+ | 0.2− | 2006 09 30 | 691 | 0.1+ | 0.0 | 2009 03 26 | 691 | 0.0 | 0.0 |
| 2006 09 22 | 152 | 0.2− | 1.5− | 2006 09 30 | 691 | 0.1+ | 0.1+ | 2009 03 26 | 691 | 0.4+ | 0.0 |

**2006 RL$_{53}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| $M$ | 234.45462 | | (2000.0) | **P** | **Q** |
|---|---|---|---|---|---|
| $n$ | 0.18660909 | $\omega$ | 174.65950 | +0.99890461 | −0.03902183 |
| $a$ | 3.0328262 | $\Omega$ | 187.71990 | +0.03255171 | +0.97594384 |
| $e$ | 0.1399944 | $i$ | 11.08361 | +0.03361489 | +0.21450156 |
| $P$ | 5.28 | $H$ | 16.6 | $G$ 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 09 14 | 691 | 0.1+ | 0.1+ | 2006 10 21 | 703 | 1.0+ | 0.4+ | 2006 11 19 | 705 | 0.1+ | 0.3+ |
| 2006 09 14 | 691 | 0.2+ | 0.2− | 2006 10 21 | 703 | 1.6− | 1.1− | 2006 11 22 | 705 | 0.0 | 0.0 |
| 2006 09 14 | 691 | 0.0 | 0.1− | 2006 10 21 | 703 | 0.1+ | 0.8− | 2006 11 22 | 705 | 0.0 | 0.2+ |
| 2006 09 18 | 691 | 0.0 | 0.0 | 2006 10 21 | 703 | 0.2+ | 1.2− | 2006 11 23 | 705 | 0.1− | 0.2+ |
| 2006 09 18 | 691 | 0.2+ | 0.1+ | 2006 10 22 | G96 | 0.1+ | 0.4− | 2006 11 23 | 705 | 0.1− | 0.3+ |
| 2006 09 18 | 691 | 0.2− | 0.0 | 2006 10 22 | G96 | 0.0 | 0.2− | 2009 03 02 | 691 | 0.5− | 0.2− |
| 2006 10 01 | 691 | 0.5− | 0.0 | 2006 10 22 | G96 | 0.5+ | 0.3− | 2009 03 02 | 691 | 0.2− | 0.0 |
| 2006 10 01 | 691 | 0.3− | 0.3+ | 2006 10 22 | G96 | 0.0 | 0.2− | 2009 03 02 | 691 | 0.8+ | 0.3+ |
| 2006 10 01 | 691 | 0.1− | 0.2+ | 2006 11 13 | 705 | 0.0 | 0.3+ | 2009 03 19 | G96 | 0.4− | 0.0 |
| 2006 10 15 | 703 | 1.6+ | 0.9+ | 2006 11 13 | 705 | 0.1− | 0.3+ | 2009 03 19 | G96 | 0.4− | 0.2− |
| 2006 10 15 | 703 | 0.2− | 0.9− | 2006 11 14 | 705 | 0.2+ | 0.3+ | 2009 03 19 | G96 | 0.2+ | 0.1− |
| 2006 10 15 | 703 | (0.8+ | 4.2−) | 2006 11 14 | 705 | 0.1+ | 0.2+ | 2009 03 19 | G96 | 0.1+ | 0.3− |
| 2006 10 15 | 703 | 0.0 | 0.4− | 2006 11 19 | 705 | 0.2+ | 0.2+ | | | | |

**2006 RR$_{61}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| $M$ | 235.37816 | | (2000.0) | **P** | **Q** |
|---|---|---|---|---|---|
| $n$ | 0.17365216 | $\omega$ | 127.35730 | +0.65291350 | +0.75722882 |
| $a$ | 3.1818712 | $\Omega$ | 183.55710 | −0.75306322 | +0.64648553 |
| $e$ | 0.2146977 | $i$ | 16.44451 | −0.08123884 | +0.09306434 |
| $P$ | 5.68 | $H$ | 15.9 | $G$ 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 11 21 | 645 | 0.0 | 0.0 | 2006 09 19 | 699 | 0.9− | 0.3+ | 2006 10 19 | G96 | 0.1+ | 0.3− |
| 2001 11 21 | 645 | 0.0 | 0.0 | 2006 09 19 | 703 | 0.8− | 0.1+ | 2006 10 19 | G96 | 0.3− | 0.4− |
| 2005 05 15 | 644 | 0.2− | 0.4+ | 2006 09 19 | 699 | 0.7+ | 0.1− | 2006 10 19 | G96 | 0.3+ | 0.1− |
| 2005 05 15 | 644 | 0.0 | 0.3+ | 2006 09 25 | 699 | 1.0+ | 0.1+ | 2006 10 19 | G96 | 0.3− | 0.3− |
| 2005 05 15 | 644 | 0.3+ | 0.2+ | 2006 09 25 | 699 | 0.7+ | 0.1− | 2006 10 19 | G96 | 0.4+ | 0.2− |
| 2006 08 18 | 644 | 0.5+ | 0.1− | 2006 09 25 | 699 | 0.6− | 0.1− | 2006 10 20 | 291 | 0.2+ | 0.3+ |
| 2006 08 18 | 644 | 0.3− | 0.4− | 2006 09 25 | 699 | 0.8+ | 0.8+ | 2006 10 20 | 291 | 0.1+ | 0.4+ |
| 2006 08 18 | 644 | 0.2− | 0.1+ | 2006 10 02 | G96 | 0.1− | 0.3− | 2006 10 20 | 291 | 0.1+ | 0.3+ |
| 2006 09 12 | 703 | 0.6+ | 0.5+ | 2006 10 02 | G96 | 0.4− | 0.2− | 2006 10 20 | G96 | 0.1− | 0.3− |
| 2006 09 12 | 703 | 0.1+ | 0.6+ | 2006 10 02 | G96 | 0.1+ | 0.1− | 2006 10 20 | G96 | 0.2− | 0.2− |
| 2006 09 12 | 703 | 0.8− | 0.4+ | 2006 10 02 | G96 | 0.7− | 0.6− | 2006 10 20 | G96 | 0.1− | 0.4− |
| 2006 09 12 | 703 | 0.1− | 0.1+ | 2006 10 02 | 291 | 0.1− | 0.1− | 2006 10 20 | G96 | 0.1− | 0.4− |
| 2006 09 19 | 699 | 0.7+ | 1.8+ | 2006 10 02 | 291 | 0.0 | 0.1+ | 2006 11 15 | G96 | 0.4− | 0.4− |
| 2006 09 19 | 703 | 0.4+ | 1.4− | 2006 10 02 | 291 | 0.0 | 0.2− | 2006 11 15 | G96 | 0.1+ | 0.1+ |
| 2006 09 19 | 699 | 1.0− | 1.1+ | 2006 10 19 | G96 | 0.1− | 0.3− | 2006 11 15 | G96 | 0.3+ | 0.2− |
| 2006 09 19 | 703 | 0.2+ | 1.0− | 2006 10 19 | G96 | 0.1− | 0.3− | 2006 11 15 | G96 | 0.1+ | 0.2− |
| 2006 09 19 | 703 | 0.6− | 0.5− | 2006 10 19 | G96 | 0.1+ | 0.3− | | | | |

**2006 RT$_{66}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| $M$ | 6.42732 | | (2000.0) | **P** | **Q** |
|---|---|---|---|---|---|
| $n$ | 0.24217550 | $\omega$ | 269.48020 | +0.21939604 | +0.97423531 |
| $a$ | 2.5490748 | $\Omega$ | 13.54046 | −0.78261079 | +0.20772046 |
| $e$ | 0.1505810 | $i$ | 12.89708 | −0.58256822 | +0.08785081 |
| $P$ | 4.07 | $H$ | 16.4 | $G$ 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 09 14 | 691 | 0.7+ | 0.4+ | 2006 09 30 | 691 | 0.2− | 0.0 | 2006 11 18 | G96 | 0.0 | 0.1+ |
| 2006 09 14 | 691 | 0.0 | 0.2− | 2006 09 30 | 691 | 0.7− | 1.2+ | 2009 04 17 | 703 | (2.4− | 0.3+) |
| 2006 09 14 | 691 | 0.2− | 0.2− | 2006 09 30 | 691 | 0.2− | 0.1+ | 2009 04 17 | 703 | 1.6− | 1.4+ |
| 2006 09 19 | 691 | 0.1+ | 0.0 | 2006 10 15 | 691 | 0.3+ | 0.1− | 2009 04 17 | 703 | 0.7+ | 0.0 |
| 2006 09 19 | 691 | 0.0 | 0.1− | 2006 10 15 | 691 | 0.1+ | 0.2− | 2009 04 17 | 703 | 1.5+ | 0.9+ |
| 2006 09 19 | 691 | 0.1− | 0.3− | 2006 10 15 | 691 | 0.3+ | 0.3− | 2009 04 24 | G96 | 0.1− | 0.4− |
| 2006 09 26 | 691 | 0.1− | 0.3− | 2006 11 18 | G96 | 0.1− | 0.5+ | 2009 04 24 | G96 | 0.1+ | 0.5− |
| 2006 09 26 | 691 | 0.0 | 0.1− | 2006 11 18 | G96 | 0.2− | 0.1+ | 2009 04 24 | G96 | 0.2− | 0.4− |
| 2006 09 26 | 691 | 0.1+ | 0.0 | 2006 11 18 | G96 | 0.1+ | 0.1+ | 2009 04 24 | G96 | 0.1− | 0.3− |

**2006 RO$_{70}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| $M$ | 176.66900 | | (2000.0) | **P** | **Q** |
|---|---|---|---|---|---|
| $n$ | 0.18289387 | $\omega$ | 51.62388 | +0.62297389 | −0.78224250 |
| $a$ | 3.0737599 | $\Omega$ | 359.84027 | +0.65595022 | +0.52271741 |
| $e$ | 0.0673909 | $i$ | 9.55223 | +0.42618405 | +0.33891473 |
| $P$ | 5.39 | $H$ | 15.8 | $G$ 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 09 15 | 691 | 0.2+ | 0.0 | 2006 09 26 | G96 | 0.4+ | 0.1+ | 2006 10 23 | G96 | 0.1− | 0.1− |
| 2006 09 15 | 691 | 0.2+ | 0.1+ | 2006 09 26 | G96 | 0.1− | 0.0 | 2009 03 15 | 691 | 0.1+ | 0.1− |
| 2006 09 15 | 691 | 0.1+ | 0.1+ | 2006 09 27 | 691 | 0.5− | 0.0 | 2009 03 15 | 691 | 0.2− | 0.1+ |
| 2006 09 19 | 691 | 0.1+ | 0.2+ | 2006 09 27 | 691 | 0.0 | 0.1+ | 2009 03 15 | 691 | 0.1+ | 0.3+ |
| 2006 09 19 | 691 | 0.1− | 0.1+ | 2006 09 27 | 691 | 0.3− | 0.2+ | 2009 04 03 | G96 | 0.3+ | 0.0 |
| 2006 09 19 | 691 | 0.1− | 0.2+ | 2006 10 23 | G96 | 0.1− | 0.4− | 2009 04 03 | G96 | 0.1− | 0.2+ |
| 2006 09 26 | G96 | 0.2+ | 0.3− | 2006 10 23 | G96 | 0.2+ | 0.1+ | 2009 04 03 | G96 | 0.6+ | 0.3+ |
| 2006 09 26 | G96 | 0.2− | 0.1− | 2006 10 23 | G96 | 0.1+ | 0.4− | 2009 04 03 | G96 | 0.6+ | 0.5+ |

**2006 RU$_{79}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| $M$ | 232.05454 | | (2000.0) | **P** | **Q** |
|---|---|---|---|---|---|
| $n$ | 0.22048169 | $\omega$ | 238.92216 | +0.71041644 | −0.70343501 |
| $a$ | 2.7136533 | $\Omega$ | 165.73983 | +0.67239499 | +0.66913370 |
| $e$ | 0.1165473 | $i$ | 5.14351 | +0.20783036 | +0.23966494 |
| $P$ | 4.47 | $H$ | 17.2 | $G$ 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 09 15 | 691 | 0.1+ | 0.3+ | 2006 09 26 | G96 | 0.1− | 0.3− | 2006 11 23 | G96 | 0.1+ | 0.5− |
| 2006 09 15 | 691 | 0.1+ | 0.2+ | 2006 09 26 | G96 | 0.2− | 0.4− | 2006 11 23 | G96 | 0.5− | 0.5− |
| 2006 09 15 | 691 | 0.2+ | 0.2+ | 2006 09 26 | G96 | 0.3+ | 0.8− | 2008 01 12 | 691 | 0.3+ | 0.3+ |
| 2006 09 18 | 705 | 0.2+ | 0.0 | 2006 09 26 | G96 | 0.2− | 0.5− | 2008 01 12 | 691 | 0.2− | 0.1− |
| 2006 09 18 | 705 | 0.1+ | 0.0 | 2006 09 27 | 691 | 0.2− | 0.1− | 2008 01 12 | 691 | 0.5− | 0.3− |
| 2006 09 19 | 691 | 0.1− | 0.1+ | 2006 09 27 | 691 | 0.0 | 0.1+ | 2008 02 08 | G96 | 0.3+ | 0.3+ |
| 2006 09 19 | 691 | 0.0 | 0.0 | 2006 09 27 | 691 | 0.2− | 0.0 | 2008 02 08 | G96 | 0.4+ | 0.3+ |
| 2006 09 19 | 691 | 0.1+ | 0.0 | 2006 10 03 | 705 | 0.2+ | 0.1+ | 2008 02 08 | G96 | 0.5+ | 0.2+ |
| 2006 09 23 | 691 | 0.3− | 0.1− | 2006 10 03 | 705 | 0.2+ | 0.0 | 2008 02 08 | G96 | 0.6+ | 0.1− |
| 2006 09 23 | 691 | 0.0 | 0.2+ | 2006 11 23 | G96 | 0.6+ | 0.2− | | | | |
| 2006 09 23 | 691 | 0.1+ | 0.0 | 2006 11 23 | G96 | 0.0 | 0.3+ | | | | |

**2006 RL$_{80}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| $M$ | 241.24068 | | (2000.0) | **P** | **Q** |
|---|---|---|---|---|---|
| $n$ | 0.17683092 | $\omega$ | 154.00988 | +0.87306118 | +0.48752729 |
| $a$ | 3.1436239 | $\Omega$ | 176.76909 | −0.47061565 | +0.84732779 |
| $e$ | 0.0872970 | $i$ | 9.20728 | −0.12761305 | +0.21060095 |
| $P$ | 5.57 | $H$ | 16.1 | $G$ 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 07 22 | G96 | 0.1+ | 0.1+ | 2006 09 27 | 691 | 0.4− | 0.4− | 2006 10 17 | 703 | 0.7+ | 0.2− |
| 2006 07 22 | G96 | 0.4+ | 0.0 | 2006 09 27 | 691 | 0.0 | 0.2− | 2006 10 17 | 703 | 0.1+ | 1.8+ |
| 2006 07 22 | G96 | 0.4− | 0.3+ | 2006 09 27 | 691 | 0.1− | 0.3− | 2006 10 17 | 703 | (0.6− | 2.5+) |
| 2006 07 22 | G96 | 0.1+ | 0.2+ | 2006 09 27 | 705 | 0.2− | 0.3− | 2006 10 17 | 703 | 1.1+ | 0.6+ |
| 2006 09 15 | 691 | 0.4− | 0.1+ | 2006 09 27 | 705 | 0.1− | 0.2− | 2009 03 01 | 691 | 0.3+ | 0.1− |
| 2006 09 15 | 691 | 0.2− | 0.0 | 2006 09 28 | 705 | 0.0 | 0.2+ | 2009 03 01 | 691 | 0.0 | 0.1+ |
| 2006 09 15 | 691 | 0.2− | 0.4+ | 2006 09 28 | 705 | 0.2+ | 0.3+ | 2009 03 01 | 691 | 0.1− | 0.1− |
| 2006 09 19 | 691 | 0.1− | 0.4+ | 2006 09 30 | 705 | 0.1− | 0.2− | 2009 03 26 | G96 | 0.0 | 0.3+ |
| 2006 09 19 | 691 | 0.2+ | 0.1− | 2006 09 30 | 705 | 0.0 | 0.2− | 2009 03 26 | G96 | 0.0 | 0.3+ |
| 2006 09 19 | 691 | 0.3+ | 0.0 | 2006 10 01 | 705 | 0.1− | 0.2− | 2009 03 26 | G96 | 0.1+ | 0.1+ |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 09 23 | 691 | 0.1+ | 0.4− | 2006 10 01 | 705 | 0.1− | 0.2− | 2009 03 26 | G96 | 0.4− | 0.0 |
| 2006 09 23 | 691 | 0.3+ | 0.2+ | 2006 10 04 | 705 | 0.1− | 0.1− | | | | |
| 2006 09 23 | 691 | 0.1+ | 0.1+ | 2006 10 04 | 705 | 0.1− | 0.2− | | | | |

**2006 RS$_{96}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 192.66934 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17636871 | $\omega$ | 28.65745 | | +0.76360048 | | −0.64454846 |
| $a$ | 3.1491138 | $\Omega$ | 11.71527 | | +0.55050652 | | +0.61883889 |
| $e$ | 0.0820655 | $i$ | 10.89018 | | +0.33742686 | | +0.44899411 |
| $P$ | 5.59 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 09 15 | 691 | 0.1− | 0.2+ | 2006 09 30 | 691 | 0.4− | 0.0 | 2009 03 21 | G96 | 0.1− | 0.3− |
| 2006 09 15 | 691 | 0.4+ | 0.1− | 2006 09 30 | 691 | 0.0 | 0.2+ | 2009 03 21 | G96 | 0.2+ | 0.4− |
| 2006 09 15 | 691 | 0.3− | 0.3+ | 2006 10 15 | 691 | 0.2+ | 0.4− | 2009 03 21 | G96 | 0.2− | 0.5− |
| 2006 09 19 | 691 | 0.2+ | 0.1− | 2006 10 15 | 691 | 0.3− | 0.4− | 2009 04 05 | 291 | 0.0 | 0.4+ |
| 2006 09 19 | 691 | 0.5+ | 0.4− | 2006 10 15 | 691 | 0.5− | 0.3+ | 2009 04 05 | 291 | 0.1+ | 0.2+ |
| 2006 09 19 | 691 | 0.2+ | 0.0 | 2006 11 17 | G96 | 0.4+ | 0.0 | 2009 04 05 | 291 | 0.0 | 0.0 |
| 2006 09 26 | 691 | 0.5− | 0.0 | 2006 11 17 | G96 | 0.5+ | 0.0 | 2009 04 27 | G96 | 1.0+ | 0.0 |
| 2006 09 26 | 691 | 0.1+ | 0.0 | 2006 11 17 | G96 | 0.5+ | 0.3+ | 2009 04 27 | G96 | 0.0 | 0.1− |
| 2006 09 26 | 691 | 0.3− | 0.2+ | 2006 11 17 | G96 | 0.0 | 0.1+ | 2009 04 27 | G96 | 0.0 | 0.2+ |
| 2006 09 30 | 691 | 0.3+ | 0.2+ | 2009 03 21 | G96 | 0.2− | 0.6− | 2009 04 27 | G96 | 0.6− | 0.0 |

**2006 RD$_{102}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 214.89248 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18459599 | $\omega$ | 182.85504 | | +0.94351340 | | −0.32837511 |
| $a$ | 3.0548358 | $\Omega$ | 196.52446 | | +0.30698831 | | +0.91655040 |
| $e$ | 0.1421977 | $i$ | 8.93687 | | +0.12466212 | | +0.22826553 |
| $P$ | 5.34 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 09 15 | 691 | 0.0 | 0.1− | 2006 09 22 | 568 | 0.1− | 0.0 | 2006 10 16 | G96 | 0.2+ | 0.3− |
| 2006 09 15 | 691 | 0.3+ | 0.1− | 2006 09 22 | 568 | 0.1+ | 0.0 | 2006 10 16 | G96 | 0.0 | 0.4− |
| 2006 09 15 | 691 | 0.2+ | 0.4− | 2006 09 22 | 568 | 0.0 | 0.0 | 2006 10 16 | G96 | 0.2− | 0.1− |
| 2006 09 17 | 568 | 0.0 | 0.3− | 2006 09 22 | 568 | 0.0 | 0.0 | 2006 10 16 | G96 | 0.2+ | 0.3− |
| 2006 09 17 | 568 | 0.1+ | 0.3− | 2006 09 22 | 568 | 0.1− | 0.0 | 2006 10 17 | 703 | 0.8+ | 1.1+ |
| 2006 09 17 | 568 | 0.1+ | 0.3− | 2006 09 22 | 568 | 0.1− | 0.0 | 2006 10 17 | 703 | 0.1+ | 0.1+ |
| 2006 09 17 | 568 | 0.1+ | 0.2− | 2006 09 22 | 568 | 0.0 | 0.0 | 2006 10 17 | 703 | 0.7+ | 0.6+ |
| 2006 09 17 | 568 | 0.0 | 0.2− | 2006 09 22 | 568 | 0.0 | 0.0 | 2006 10 17 | 703 | 0.4+ | 0.7+ |
| 2006 09 17 | 568 | 0.0 | 0.2− | 2006 09 22 | 568 | 0.0 | 0.0 | 2006 10 27 | G96 | 0.0 | 0.3− |
| 2006 09 17 | 568 | 0.1+ | 0.2− | 2006 09 22 | 568 | 0.0 | 0.0 | 2006 10 27 | G96 | 0.2− | 0.2− |
| 2006 09 19 | 691 | 0.4+ | 0.4− | 2006 09 22 | 568 | 0.0 | 0.0 | 2006 10 27 | G96 | 0.2− | 0.0 |
| 2006 09 19 | 691 | 0.4− | 0.1− | 2006 09 22 | 568 | 0.1+ | 0.0 | 2006 10 27 | G96 | 0.1− | 0.2− |
| 2006 09 19 | 691 | 0.1+ | 0.1+ | 2006 09 22 | 568 | 0.0 | 0.0 | 2006 11 14 | G96 | 0.1+ | 0.8− |
| 2006 09 19 | 691 | 0.7− | 0.1+ | 2006 09 22 | 568 | 0.0 | 0.0 | 2006 11 14 | G96 | 0.0 | 0.3+ |
| 2006 09 19 | 691 | 0.2+ | 0.1+ | 2006 09 22 | 568 | 0.1+ | 0.0 | 2006 11 14 | G96 | 0.2− | 0.2− |
| 2006 09 19 | 691 | 0.4− | 0.0 | 2006 09 22 | 568 | 0.0 | 0.0 | 2006 11 14 | G96 | 0.6+ | 0.4− |
| 2006 09 21 | 621 | 0.3+ | 0.2− | 2006 09 22 | 568 | 0.1− | 0.0 | 2009 03 22 | G96 | 0.2+ | 0.4− |
| 2006 09 21 | 621 | 0.2− | 0.0 | 2006 09 26 | 691 | 0.0 | 0.3+ | 2009 03 22 | G96 | 0.2+ | 0.1− |
| 2006 09 21 | 621 | 0.0 | 0.2+ | 2006 09 26 | 691 | 0.1− | 0.3+ | 2009 03 22 | G96 | 0.2− | 0.2− |
| 2006 09 21 | 568 | 0.0 | 0.1− | 2006 09 26 | 691 | 0.0 | 0.3+ | 2009 03 22 | G96 | (0.4+ | 1.9+) |
| 2006 09 21 | 568 | 0.0 | 0.1− | 2006 09 28 | 568 | 0.1− | 0.2+ | 2009 03 26 | 691 | 0.2− | 0.1− |
| 2006 09 21 | 568 | 0.0 | 0.1− | 2006 09 28 | 568 | 0.1− | 0.2+ | 2009 03 26 | 691 | 0.1+ | 0.2− |
| 2006 09 21 | 568 | 0.0 | 0.0 | 2006 09 28 | 568 | 0.1− | 0.2+ | 2009 03 26 | 691 | 0.1+ | 0.3+ |
| 2006 09 21 | 568 | 0.1+ | 0.0 | 2006 09 28 | 568 | 0.1− | 0.2+ | 2009 04 21 | G96 | 0.4− | 0.1− |
| 2006 09 21 | 568 | 0.0 | 0.0 | 2006 09 28 | 568 | 0.1− | 0.2+ | 2009 04 21 | G96 | 0.1+ | 0.3+ |
| 2006 09 21 | 568 | 0.0 | 0.0 | 2006 10 10 | 644 | 0.4− | 0.2+ | 2009 04 21 | G96 | 0.5+ | 0.6+ |
| 2006 09 21 | 568 | 0.1+ | 0.0 | 2006 10 10 | 644 | 0.4− | 0.1+ | 2009 04 21 | G96 | 0.6− | 0.7+ |
| 2006 09 21 | 568 | 0.0 | 0.0 | 2006 10 10 | 644 | 0.2− | 0.4+ | | | | |

**2006 RJ$_{104}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 201.75660 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18350533 | $\omega$ | 339.77291 | | +0.80784857 | | −0.57092638 |
| $a$ | 3.0669281 | $\Omega$ | 55.90027 | | +0.56214956 | | +0.67174770 |
| $e$ | 0.0718630 | $i$ | 10.18111 | | +0.17711173 | | +0.47201493 |
| $P$ | 5.37 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 11 20 | 691 | 0.4− | 0.1− | 2006 09 18 | 705 | 0.1+ | 0.1− | 2006 11 21 | 705 | 0.2− | 0.1− |
| 2001 11 20 | 691 | 0.4+ | 0.2− | 2006 09 22 | 705 | 0.1+ | 0.0 | 2006 11 22 | 705 | 0.0 | 0.0 |
| 2001 11 20 | 691 | 0.1+ | 0.2+ | 2006 09 22 | 705 | 0.2+ | 0.1− | 2006 11 22 | 705 | 0.1− | 0.1+ |
| 2006 09 11 | 705 | 0.0 | 0.1+ | 2006 10 03 | 705 | 0.2+ | 0.1+ | 2006 11 23 | 705 | 0.2− | 0.0 |
| 2006 09 11 | 705 | 0.0 | 0.2− | 2006 10 03 | 705 | 0.2+ | 0.1+ | 2006 11 23 | 705 | 0.1− | 0.1− |
| 2006 09 15 | 705 | 0.1+ | 0.1+ | 2006 11 14 | 705 | 0.0 | 0.1+ | 2009 04 02 | G96 | 0.3+ | 0.4− |
| 2006 09 15 | 705 | 0.0 | 0.1+ | 2006 11 14 | 705 | 0.1+ | 0.1+ | 2009 04 02 | G96 | 0.7− | 0.0 |
| 2006 09 16 | 705 | 0.1+ | 0.0 | 2006 11 19 | 705 | 0.1− | 0.0 | 2009 04 02 | G96 | 0.3+ | 0.2− |
| 2006 09 16 | 705 | 0.0 | 0.1+ | 2006 11 19 | 705 | 0.3− | 0.5− | 2009 04 02 | G96 | 0.1+ | 0.5+ |
| 2006 09 18 | 705 | 0.2+ | 0.1− | 2006 11 21 | 705 | 0.3− | 0.0 | | | | |

**2006 RN$_{112}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 200.48163 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21974739 | $\omega$ | 73.27050 | | +0.02138339 | | −0.99950083 |
| $a$ | 2.7196952 | $\Omega$ | 15.55967 | | +0.88107670 | | +0.00784632 |
| $e$ | 0.1358222 | $i$ | 4.97369 | | +0.47248978 | | +0.03060278 |
| $P$ | 4.49 | $H$ | 17.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 09 14 | 691 | 0.2+ | 0.0 | 2006 09 17 | 568 | 0.1+ | 0.0 | 2006 09 22 | 568 | 0.2− | 0.0 |
| 2006 09 14 | 691 | 0.4+ | 0.0 | 2006 09 17 | 568 | 0.1+ | 0.0 | 2006 09 22 | 568 | 0.2− | 0.0 |
| 2006 09 14 | 568 | 0.0 | 0.1+ | 2006 09 20 | 568 | 0.0 | 0.0 | 2006 09 22 | 568 | 0.2− | 0.0 |
| 2006 09 14 | 568 | 0.1− | 0.0 | 2006 09 20 | 568 | 0.1− | 0.0 | 2006 09 22 | 568 | 0.3− | 0.0 |
| 2006 09 14 | 691 | 0.3+ | 0.4− | 2006 09 20 | 568 | 0.1− | 0.0 | 2006 09 22 | 568 | 0.3− | 0.1+ |
| 2006 09 14 | 568 | 0.0 | 0.1+ | 2006 09 20 | 568 | 0.0 | 0.1+ | 2006 09 22 | 568 | 0.2− | 0.1+ |
| 2006 09 14 | 568 | 0.0 | 0.1+ | 2006 09 20 | 568 | 0.1− | 0.0 | 2006 09 22 | 568 | 0.2− | 0.1+ |
| 2006 09 14 | 568 | 0.1− | 0.1+ | 2006 09 20 | 568 | 0.1− | 0.0 | 2006 09 25 | G96 | 0.0 | 0.1+ |
| 2006 09 14 | 568 | 0.0 | 0.1+ | 2006 09 20 | 568 | 0.0 | 0.0 | 2006 09 25 | G96 | 0.3− | 0.2− |
| 2006 09 14 | 568 | 0.1− | 0.0 | 2006 09 20 | 568 | 0.1− | 0.0 | 2006 09 25 | G96 | 0.3− | 0.2− |
| 2006 09 14 | 568 | 0.0 | 0.0 | 2006 09 20 | 568 | 0.0 | 0.0 | 2006 09 25 | G96 | 0.4+ | 0.3− |
| 2006 09 14 | 568 | 0.1+ | 0.0 | 2006 09 20 | 568 | 0.1− | 0.0 | 2006 10 13 | 568 | 0.0 | 0.2+ |
| 2006 09 14 | 568 | 0.0 | 0.0 | 2006 09 20 | 568 | 0.1− | 0.1+ | 2006 10 13 | 568 | 0.0 | 0.5+ |
| 2006 09 14 | 568 | 0.1+ | 0.1+ | 2006 09 21 | 568 | 0.1− | 0.0 | 2006 10 13 | 568 | 0.0 | 0.5+ |
| 2006 09 14 | 568 | 0.0 | 0.0 | 2006 09 21 | 568 | 0.1− | 0.0 | 2006 10 14 | 568 | 0.1+ | 0.3+ |
| 2006 09 14 | 568 | 0.1+ | 0.0 | 2006 09 21 | 568 | 0.2− | 0.0 | 2006 10 16 | G96 | 0.6+ | 0.2− |
| 2006 09 14 | 568 | 0.0 | 0.0 | 2006 09 22 | 568 | 0.2− | 0.1+ | 2006 10 16 | G96 | 0.1+ | 0.2− |
| 2006 09 14 | 568 | 0.0 | 0.1+ | 2006 09 22 | 568 | 0.3− | 0.0 | 2006 10 16 | G96 | 0.2+ | 0.6− |
| 2006 09 14 | 568 | 0.1+ | 0.1+ | 2006 09 22 | 568 | 0.3− | 0.0 | 2006 10 16 | G96 | 0.4+ | 0.2− |
| 2006 09 17 | 568 | 0.0 | 0.0 | 2006 09 22 | 568 | 0.2− | 0.1+ | 2008 02 07 | 691 | 0.1− | 0.3+ |
| 2006 09 17 | 568 | 0.0 | 0.0 | 2006 09 22 | 568 | 0.2− | 0.1+ | 2008 02 07 | 691 | 0.3+ | 0.2− |
| 2006 09 17 | 568 | 0.1− | 0.0 | 2006 09 22 | 568 | 0.2− | 0.1+ | 2008 02 07 | 691 | 0.1− | 0.2− |
| 2006 09 17 | 568 | 0.0 | 0.0 | 2006 09 22 | 568 | 0.3− | 0.0 | 2008 02 28 | G96 | 0.3− | 0.3+ |
| 2006 09 17 | 568 | 0.1+ | 0.0 | 2006 09 22 | 568 | 0.2− | 0.0 | 2008 02 28 | G96 | 0.1+ | 0.0 |
| 2006 09 17 | 568 | 0.0 | 0.0 | 2006 09 22 | 568 | 0.2− | 0.0 | 2008 02 28 | G96 | 0.0 | 0.2+ |
| 2006 09 17 | 568 | 0.0 | 0.0 | 2006 09 22 | 568 | 0.3− | 0.0 | 2008 02 28 | G96 | 0.1− | 0.2+ |

**2006 RM$_{116}$ = 2005 JE$_{171}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 350.09090 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.24245030 | $\omega$ | 96.58793 | | +0.39505172 | | +0.91841538 |
| $a$ | 2.5471483 | $\Omega$ | 196.72949 | | −0.86922236 | | +0.36624268 |
| $e$ | 0.1544594 | $i$ | 4.21364 | | −0.29729888 | | +0.14959778 |
| $P$ | 4.07 | $H$ | 19.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 05 10 | 807 | 0.2− | 0.2+ | 2006 09 19 | 691 | 0.5− | 0.3+ | 2006 09 22 | 568 | 0.1− | 0.1+ |
| 2005 05 10 | 807 | 0.1+ | 0.1− | 2006 09 19 | 691 | 0.2+ | 0.3− | 2006 09 22 | 568 | 0.0 | 0.1+ |
| 2005 05 10 | 807 | 0.1− | 0.0 | 2006 09 19 | 691 | 0.4+ | 0.1+ | 2006 09 22 | 568 | 0.1− | 0.1+ |
| 2005 05 11 | 807 | 0.1+ | 0.1− | 2006 09 21 | 568 | 0.1+ | 0.1− | 2006 09 22 | 568 | 0.0 | 0.0 |
| 2005 05 11 | 807 | 0.1+ | 0.1+ | 2006 09 21 | 568 | 0.2+ | 0.1− | 2006 09 22 | 568 | 0.2− | 0.1+ |
| 2006 09 14 | 568 | 0.0 | 0.1− | 2006 09 21 | 568 | 0.2+ | 0.1− | 2006 09 22 | 568 | 0.2− | 0.1+ |
| 2006 09 14 | 568 | 0.0 | 0.1− | 2006 09 21 | 568 | 0.1+ | 0.0 | 2006 09 22 | 568 | 0.2− | 0.1+ |
| 2006 09 14 | 568 | 0.1+ | 0.1− | 2006 09 21 | 568 | 0.1+ | 0.0 | 2006 09 22 | 568 | 0.2− | 0.1+ |
| 2006 09 14 | 568 | 0.0 | 0.1− | 2006 09 21 | 568 | 0.1+ | 0.1− | 2006 09 22 | 568 | 0.2− | 0.1+ |
| 2006 09 14 | 568 | 0.0 | 0.1− | 2006 09 21 | 568 | 0.0 | 0.0 | 2006 10 13 | 568 | 0.2− | 0.1− |
| 2006 09 14 | 568 | 0.0 | 0.0 | 2006 09 21 | 568 | 0.0 | 0.1− | 2006 10 13 | 568 | 0.1− | 0.1− |
| 2006 09 14 | 568 | 0.1− | 0.0 | 2006 09 22 | 568 | 0.0 | 0.0 | 2006 10 13 | 568 | 0.0 | 0.2+ |
| 2006 09 14 | 568 | 0.0 | 0.0 | 2006 09 22 | 568 | 0.0 | 0.0 | 2006 10 14 | 568 | 0.3+ | 0.0 |
| 2006 09 14 | 568 | 0.1− | 0.1− | 2006 09 22 | 568 | 0.0 | 0.1+ | | | | |

## 2006 RV$_{117}$ = 2008 AF$_{133}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 219.03666 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21799018 | $\omega$ | 357.58935 | | +0.53221258 | −0.84647679 | |
| $a$ | 2.7342912 | $\Omega$ | 60.25521 | | +0.77704010 | +0.48133853 | |
| $e$ | 0.0585042 | $i$ | 0.99388 | | +0.33609291 | +0.22757474 | |
| $P$ | 4.52 | $H$ | 18.6 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 09 14 | 568 | 0.0 | 0.1+ | 2006 09 14 | 568 | 0.1− | 0.1+ | 2006 09 22 | 568 | 0.0 | 0.1− |
| 2006 09 14 | 568 | 0.1− | 0.1+ | 2006 09 14 | 568 | 0.1− | 0.1+ | 2006 09 22 | 568 | 0.0 | 0.1− |
| 2006 09 14 | 568 | 0.0 | 0.0 | 2006 09 14 | 568 | 0.2− | 0.1+ | 2006 09 22 | 568 | 0.1+ | 0.0 |
| 2006 09 14 | 568 | 0.1− | 0.1+ | 2006 09 17 | 568 | 0.2+ | 0.1− | 2006 09 22 | 568 | 0.1− | 0.0 |
| 2006 09 14 | 568 | 0.0 | 0.0 | 2006 09 17 | 568 | 0.2+ | 0.0 | 2006 09 22 | 568 | 0.0 | 0.0 |
| 2006 09 14 | 568 | 0.0 | 0.1+ | 2006 09 17 | 568 | 0.3+ | 0.1− | 2006 09 22 | 568 | 0.1− | 0.0 |
| 2006 09 14 | 568 | 0.0 | 0.1+ | 2006 09 17 | 568 | 0.2+ | 0.0 | 2006 09 22 | 568 | 0.0 | 0.1− |
| 2006 09 14 | 568 | 0.1− | 0.1+ | 2006 09 17 | 568 | 0.1+ | 0.1− | 2008 01 06 | 568 | 0.1− | 0.2− |
| 2006 09 14 | 568 | 0.1− | 0.1+ | 2006 09 17 | 568 | 0.1+ | 0.0 | 2008 01 06 | 568 | 0.2+ | 0.1+ |
| 2006 09 14 | 568 | 0.1− | 0.1+ | 2006 09 21 | 568 | 0.1− | 0.2− | 2008 01 06 | 568 | 0.1+ | 0.1+ |
| 2006 09 14 | 568 | 0.1− | 0.1+ | 2006 09 22 | 568 | 0.0 | 0.1− | 2008 01 07 | 568 | 0.2− | 0.0 |

## 2006 RY$_{120}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 265.04076 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17313879 | $\omega$ | 90.41352 | | +0.59989429 | +0.79915251 | |
| $a$ | 3.1881578 | $\Omega$ | 216.53809 | | −0.75737827 | +0.55170993 | |
| $e$ | 0.0908962 | $i$ | 3.70756 | | −0.25788563 | +0.23868686 | |
| $P$ | 5.69 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 04 13 | 691 | 0.0 | 0.2+ | 2006 09 19 | 691 | 0.0 | 0.5− | 2006 10 19 | G96 | 0.6+ | 0.3+ |
| 2004 04 13 | 691 | 0.2− | 0.0 | 2006 10 17 | 703 | 0.5− | 1.5+ | 2006 11 15 | G96 | 0.4− | 0.1− |
| 2004 04 13 | 691 | 0.4+ | 0.3+ | 2006 10 17 | 703 | 0.4− | 0.3+ | 2006 11 15 | G96 | 0.5− | 0.3+ |
| 2006 09 15 | 691 | 0.3− | 0.3− | 2006 10 17 | 703 | 0.3− | 0.6+ | 2006 11 15 | G96 | 0.1− | 0.2+ |
| 2006 09 15 | 691 | 0.2+ | 0.1− | 2006 10 17 | 703 | 0.8+ | 0.3− | 2006 11 15 | G96 | 0.2− | 0.1− |
| 2006 09 15 | 691 | 0.3− | 0.3+ | 2006 10 19 | G96 | 0.5+ | 0.0 | 2009 02 03 | 691 | 0.2+ | 0.1+ |
| 2006 09 19 | 691 | 0.3+ | 0.3+ | 2006 10 19 | G96 | 0.6+ | 0.0 | 2009 02 03 | 691 | 0.1+ | 0.1− |
| 2006 09 19 | 691 | 0.1+ | 0.1+ | 2006 10 19 | G96 | 0.6− | 0.3− | 2009 02 03 | 691 | 0.3− | 0.1− |

## 2006 RJ$_{121}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 218.63250 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18279961 | $\omega$ | 14.02814 | | +0.94480131 | −0.32725479 | |
| $a$ | 3.0748165 | $\Omega$ | 5.15814 | | +0.28088448 | +0.78392197 | |
| $e$ | 0.1055067 | $i$ | 10.22649 | | +0.16868428 | +0.52760842 | |
| $P$ | 5.39 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 09 15 | 691 | 0.1+ | 0.0 | 2006 10 20 | 644 | 0.2− | 0.2+ | 2009 03 03 | 691 | 0.1+ | 0.2− |
| 2006 09 15 | 691 | 0.0 | 0.1− | 2006 10 20 | 644 | 0.2− | 0.1− | 2009 03 03 | 691 | 0.1− | 0.1+ |
| 2006 09 15 | 691 | 0.0 | 0.0 | 2006 10 20 | 644 | 0.3− | 0.3+ | 2009 03 03 | 691 | 0.5− | 0.5− |
| 2006 09 19 | 691 | 0.6− | 1.0− | 2008 12 31 | 691 | 0.3+ | 0.3− | 2009 03 21 | G96 | 0.2+ | 0.1− |
| 2006 09 19 | 691 | 0.0 | 0.0 | 2008 12 31 | 691 | 0.9− | 0.1+ | 2009 03 21 | G96 | 0.2− | 0.4− |
| 2006 09 19 | 691 | 0.1− | 0.8+ | 2008 12 31 | 691 | 0.3+ | 0.2− | 2009 03 21 | G96 | (0.7+ | 2.2−) |
| 2006 10 02 | 691 | 0.3+ | 0.2+ | 2009 02 24 | 691 | 0.4+ | 0.1+ | 2009 03 21 | G96 | 0.3+ | 0.3− |
| 2006 10 02 | 691 | 0.3+ | 0.1+ | 2009 02 24 | 691 | 0.1+ | 0.8+ | | | | |
| 2006 10 02 | 691 | 0.2+ | 0.0 | 2009 02 24 | 691 | 0.2+ | 0.2+ | | | | |

## 2006 SP

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 206.71718 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18285257 | $\omega$ | 175.36226 | | +0.93505910 | −0.33556215 | |
| $a$ | 3.0742228 | $\Omega$ | 205.19483 | | +0.31599453 | +0.93512429 | |
| $e$ | 0.2196145 | $i$ | 15.57386 | | +0.16066094 | +0.11375682 | |
| $P$ | 5.39 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 04 13 | 691 | 0.5− | 0.2− | 2006 09 27 | 703 | 0.1− | 1.1+ | 2006 10 17 | 557 | 0.1− | 0.0 |
| 2004 04 13 | 691 | 0.1− | 0.6+ | 2006 09 27 | 703 | 1.0− | 0.2+ | 2006 10 17 | 557 | 0.6− | 0.0 |
| 2004 04 13 | 691 | 0.6+ | 0.0 | 2006 10 03 | 703 | 0.2− | 0.9− | 2006 10 17 | 557 | 0.2+ | 0.5− |
| 2005 07 11 | 691 | 0.1− | 0.4− | 2006 10 03 | 703 | 0.5− | 0.1− | 2006 10 17 | 557 | 1.2+ | 0.1− |
| 2005 07 11 | 691 | 0.3+ | 0.3+ | 2006 10 03 | 703 | 0.2− | 0.5− | 2006 10 17 | 557 | 0.3+ | 0.3+ |
| 2005 07 11 | 691 | 0.1− | 0.0 | 2006 10 03 | 703 | 0.1+ | 1.3− | 2006 10 17 | 557 | 0.2− | 0.7− |
| 2006 09 16 | 703 | 0.4+ | 0.7− | 2006 10 10 | 644 | 0.6+ | 0.1+ | 2006 10 18 | 557 | 0.1− | 0.0 |
| 2006 09 16 | 683 | 0.3+ | 0.5− | 2006 10 10 | 644 | 0.1+ | 0.1− | 2006 10 18 | 557 | 0.4+ | 0.1+ |
| 2006 09 16 | 703 | 0.2+ | 1.2− | 2006 10 10 | 644 | 0.2+ | 0.1+ | 2006 10 21 | 644 | 0.1+ | 0.0 |
| 2006 09 16 | 703 | 1.5− | 1.8+ | 2006 10 11 | 644 | 0.3+ | 0.1+ | 2006 10 21 | 644 | 0.2+ | 0.3+ |
| 2006 09 16 | 683 | 0.8− | 0.5+ | 2006 10 11 | 644 | 0.4+ | 0.2+ | 2006 10 21 | 644 | 0.0 | 0.0 |
| 2006 09 16 | 703 | 0.2− | 0.2− | 2006 10 11 | 644 | 0.6+ | 0.0 | 2006 10 23 | G96 | 0.0 | 0.3− |
| 2006 09 16 | 683 | 0.5− | 1.1− | 2006 10 17 | 703 | 0.6− | 0.7− | 2006 10 23 | G96 | 0.5+ | 0.1− |
| 2006 09 17 | 683 | 0.5+ | 0.6− | 2006 10 17 | 703 | 1.1− | 0.4+ | 2006 10 23 | G96 | 0.2− | 0.1+ |
| 2006 09 17 | 683 | 0.8+ | 1.1+ | 2006 10 17 | 703 | 1.0− | 1.6− | 2006 10 23 | G96 | 0.2− | 0.2− |
| 2006 09 17 | 683 | 1.1− | 1.8+ | 2006 10 17 | 703 | 0.7+ | 0.8+ | 2006 11 15 | G96 | 0.2+ | 0.2− |
| 2006 09 18 | 683 | 1.8+ | 0.0 | 2006 10 17 | 703 | 0.2− | 0.2+ | 2006 11 15 | G96 | 0.2− | 0.1+ |
| 2006 09 18 | 683 | 0.3− | 0.1+ | 2006 10 17 | 703 | 1.0− | 0.6− | 2006 11 15 | G96 | 0.0 | 0.2− |
| 2006 09 18 | 683 | 0.1− | 0.1− | 2006 10 17 | 703 | 0.0 | 0.1+ | 2006 11 15 | G96 | 0.2+ | 0.2+ |
| 2006 09 19 | 699 | 0.6+ | 0.6+ | 2006 10 17 | 703 | 0.3+ | 1.2+ | 2006 12 12 | G96 | 0.1+ | 0.6+ |
| 2006 09 19 | 699 | 0.4+ | 0.4+ | 2006 10 17 | 557 | 0.8− | 0.2+ | 2006 12 12 | G96 | 0.2+ | 0.1+ |
| 2006 09 19 | 699 | 0.3+ | 0.4− | 2006 10 17 | 557 | 0.2− | 0.5+ | 2006 12 12 | G96 | 0.2− | 1.3+ |
| 2006 09 19 | 699 | 0.4+ | 0.3− | 2006 10 17 | 557 | 0.3+ | 0.2− | 2006 12 12 | G96 | (2.3− | 0.7+) |
| 2006 09 27 | 703 | 1.0− | 0.3+ | 2006 10 17 | 557 | 0.1− | 0.3− | | | | |
| 2006 09 27 | 703 | 0.5+ | 1.0+ | 2006 10 17 | 557 | 0.8+ | 0.6− | | | | |

## 2006 SP$_{15}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 10.91744 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21340189 | $\omega$ | 298.68386 | | −0.32536735 | +0.94449049 | |
| $a$ | 2.7733448 | $\Omega$ | 312.25375 | | −0.84467540 | −0.31195486 | |
| $e$ | 0.0119006 | $i$ | 3.52734 | | −0.42504066 | −0.10306255 | |
| $P$ | 4.62 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 09 17 | 703 | (0.0 | 1.8−) | 2006 10 11 | 644 | 0.0 | 0.2+ | 2007 11 11 | G96 | 0.3+ | 0.0 |
| 2006 09 17 | 703 | 0.1− | 1.1− | 2006 10 11 | 644 | 0.3+ | 0.3+ | 2007 11 11 | G96 | 0.1− | 0.1− |
| 2006 09 17 | 703 | 0.3− | 0.3− | 2006 10 11 | 644 | 0.0 | 0.1+ | 2007 12 30 | 691 | 0.2− | 0.5+ |
| 2006 09 18 | 691 | 0.1+ | 0.1− | 2006 10 20 | 644 | 0.1− | 0.2− | 2007 12 30 | 691 | 0.1− | 0.3+ |
| 2006 09 18 | 691 | 0.0 | 0.0 | 2006 10 20 | 644 | 0.4+ | 0.2− | 2007 12 30 | G96 | 0.1+ | 0.3− |
| 2006 09 18 | 691 | 0.0 | 0.0 | 2006 10 20 | 644 | 0.1− | 0.1− | 2007 12 30 | G96 | 0.1+ | 0.0 |
| 2006 09 19 | 699 | 1.5− | 0.5− | 2006 10 22 | G96 | 0.6− | 1.1+ | 2007 12 30 | G96 | 0.2+ | 0.1+ |
| 2006 09 19 | 699 | 0.4− | 0.7− | 2006 10 22 | G96 | 0.1− | 0.4− | 2007 12 30 | 691 | 0.0 | 0.3+ |
| 2006 09 19 | 699 | 0.3− | 0.7− | 2006 10 22 | G96 | 0.4+ | 0.1− | 2007 12 30 | G96 | 0.1+ | 0.1− |
| 2006 09 19 | 699 | 0.4+ | 0.0 | 2006 10 22 | G96 | 0.1− | 0.3− | 2008 01 13 | 691 | 0.0 | 0.0 |
| 2006 09 26 | 691 | 0.3+ | 0.2+ | 2007 11 02 | G96 | 0.4− | 0.3+ | 2008 01 13 | 691 | 0.8+ | 0.9− |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 09 26 | 691 | 0.1+ | 0.1+ | 2007 11 02 | G96 | 0.0 | 0.0 | 2008 01 13 | 691 | 0.2− | 0.0 |
| 2006 09 26 | 691 | 0.0 | 0.3+ | 2007 11 02 | G96 | 0.5− | 0.0 | 2008 02 13 | 691 | 0.2− | 0.1+ |
| 2006 09 30 | 691 | 0.1− | 0.2+ | 2007 11 02 | G96 | 0.1− | 0.8− | 2008 02 13 | 691 | 0.2− | 0.0 |
| 2006 09 30 | 691 | 0.0 | 0.0 | 2007 11 11 | G96 | 0.2+ | 0.5− | 2008 02 13 | 691 | 0.0 | 0.0 |
| 2006 09 30 | 691 | 0.0 | 0.0 | 2007 11 11 | G96 | 0.2+ | 0.2− | | | | |

**2006 SZ$_{20}$ = 2009 OK$_{11}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 59.09548 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.31518418 | $\omega$ | 140.90157 | | +0.50949517 | | +0.86038560 |
| $a$ | 2.1384205 | $\Omega$ | 159.71947 | | −0.79810401 | | +0.47786030 |
| $e$ | 0.1635862 | $i$ | 2.03363 | | −0.32162814 | | +0.17716140 |
| $P$ | 3.13 | $H$ | 18.4 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 09 16 | 699 | (1.8− | 0.7+) | 2006 09 22 | D35 | 0.4+ | 0.5− | 2008 01 30 | 691 | 0.1+ | 0.2+ |
| 2006 09 16 | 699 | 0.4− | 0.2− | 2006 09 23 | D35 | 0.4+ | 0.2− | 2008 01 30 | 691 | 0.1+ | 0.2− |
| 2006 09 16 | 699 | 0.1+ | 1.0+ | 2006 09 23 | D35 | 0.6+ | 0.7− | 2008 01 30 | 691 | 0.2− | 0.2+ |
| 2006 09 16 | 699 | 1.0+ | 0.6+ | 2006 09 24 | D35 | 0.2+ | 0.5+ | 2009 07 27 | 691 | 0.2− | 0.1+ |
| 2006 09 19 | 703 | 0.2+ | 0.2+ | 2006 09 24 | D35 | 0.3− | 0.8− | 2009 07 27 | 691 | 0.0 | 0.3− |
| 2006 09 19 | 703 | 0.3− | 0.8+ | 2006 09 24 | D35 | 0.4− | 0.1− | 2009 07 27 | 691 | 0.0 | 0.1− |
| 2006 09 19 | 703 | 0.3− | 0.2+ | 2006 09 26 | G96 | 0.8− | 0.2− | 2009 07 31 | 691 | 0.0 | 0.1− |
| 2006 09 19 | 703 | (0.8− | 1.7+) | 2006 09 26 | G96 | 0.4− | 0.4− | 2009 07 31 | 691 | 0.3+ | 0.3+ |
| 2006 09 22 | D35 | 0.3+ | 0.1− | 2006 09 26 | G96 | 0.4− | 0.1+ | 2009 07 31 | 691 | 0.2− | 0.1+ |
| 2006 09 22 | D35 | 0.5+ | 0.0 | 2006 09 26 | G96 | 0.3− | 0.2− | | | | |

**2006 SH$_{22}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 297.18683 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.24023075 | $\omega$ | 295.59124 | | +0.97834522 | | +0.16761367 |
| $a$ | 2.5628134 | $\Omega$ | 54.98684 | | −0.09175570 | | +0.87711640 |
| $e$ | 0.1960309 | $i$ | 8.52655 | | −0.18553038 | | +0.45008051 |
| $P$ | 4.10 | $H$ | 17.4 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 04 12 | 695 | 0.1+ | 0.2+ | 2006 09 26 | 703 | 0.5+ | 0.8− | 2006 10 17 | 703 | 0.6+ | 0.7− |
| 2005 04 12 | 695 | 0.1− | 0.2− | 2006 09 26 | 703 | (2.4+ | 0.2+) | 2006 10 17 | 703 | 1.0− | 0.2+ |
| 2006 09 17 | 699 | 0.6− | 1.2+ | 2006 09 26 | 703 | 0.3+ | 0.1− | 2006 11 23 | G96 | 0.5− | 0.4+ |
| 2006 09 17 | 699 | (1.1− | 2.5+) | 2006 09 26 | 703 | 0.6+ | 1.3+ | 2006 11 23 | G96 | 0.2+ | 0.1+ |
| 2006 09 17 | 699 | 0.9− | 0.8+ | 2006 10 02 | 703 | 0.5+ | 0.7− | 2006 11 23 | G96 | 0.1− | 0.1+ |
| 2006 09 17 | 699 | (1.0− | 3.5+) | 2006 10 02 | 703 | 0.8+ | 0.3− | 2006 11 23 | G96 | 0.2+ | 0.2+ |
| 2006 09 19 | 703 | 0.0 | 0.7+ | 2006 10 02 | 703 | (3.3− | 0.2−) | 2009 04 21 | G96 | 0.5− | 0.2− |
| 2006 09 19 | 703 | 0.2− | 0.3+ | 2006 10 02 | 703 | 0.2+ | 0.3− | 2009 04 21 | G96 | 0.9− | 0.2− |
| 2006 09 19 | 703 | 0.3− | 0.4− | 2006 10 17 | 703 | 0.3− | 1.7− | 2009 04 21 | G96 | 0.1− | 0.2− |
| 2006 09 19 | 703 | 0.0 | 0.2+ | 2006 10 17 | 703 | 0.4+ | 1.0− | 2009 04 21 | G96 | 1.0+ | 0.4− |

**2006 SG$_{27}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 258.05777 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18228783 | $\omega$ | 353.01594 | | +0.81608767 | | +0.57333190 |
| $a$ | 3.0805689 | $\Omega$ | 331.61168 | | −0.52256382 | | +0.67828102 |
| $e$ | 0.0554526 | $i$ | 8.80074 | | −0.24683591 | | +0.45959264 |
| $P$ | 5.41 | $H$ | 15.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 09 16 | 703 | 0.5− | 0.1− | 2006 10 02 | G96 | 0.3+ | 0.0 | 2009 02 21 | 691 | 0.1+ | 0.1− |
| 2006 09 16 | 703 | 0.4− | 0.6+ | 2006 10 02 | G96 | 0.2+ | 0.1− | 2009 02 21 | 691 | 0.2− | 0.0 |
| 2006 09 16 | 703 | 0.3+ | 1.2− | 2006 10 02 | G96 | 0.2+ | 0.1+ | 2009 02 21 | 691 | 0.1+ | 0.1− |
| 2006 09 16 | 703 | 0.5+ | 0.9− | 2006 10 12 | 644 | 0.4− | 0.1+ | 2009 03 16 | 691 | 0.0 | 0.1+ |
| 2006 09 19 | 699 | 0.2+ | 0.2− | 2006 10 12 | 644 | 0.1− | 0.1+ | 2009 03 16 | 691 | 0.4− | 0.1− |
| 2006 09 19 | 699 | 0.1+ | 0.6− | 2006 10 12 | 644 | 0.2− | 0.1+ | 2009 03 16 | 691 | 0.4+ | 0.4+ |
| 2006 09 19 | 699 | 1.0− | 0.9+ | 2006 10 12 | 644 | 0.4− | 0.2+ | 2009 03 16 | G96 | 0.2− | 0.2− |
| 2006 09 19 | 699 | 0.0 | 0.3− | 2006 10 12 | 644 | 0.0 | 0.2+ | 2009 03 16 | G96 | 0.3− | 0.1+ |
| 2006 09 26 | 683 | 0.5+ | 0.2+ | 2006 10 12 | 644 | 0.1− | 0.6+ | 2009 03 16 | G96 | 0.1+ | 0.2− |
| 2006 09 26 | 683 | 0.9+ | 1.4+ | 2006 10 20 | 644 | 0.2− | 0.5+ | 2009 03 16 | G96 | 0.5+ | 0.2− |
| 2006 09 27 | 703 | 0.4+ | 0.7− | 2006 10 20 | 644 | 0.3− | 0.2+ | 2009 03 29 | G96 | 0.1− | 0.4− |
| 2006 09 27 | 703 | 0.2+ | 0.6− | 2006 10 20 | 644 | 0.1+ | 0.1+ | 2009 03 29 | G96 | 0.0 | 0.2− |
| 2006 09 27 | 703 | 0.5− | 0.9− | 2009 02 03 | 691 | 0.1+ | 0.1+ | 2009 03 29 | G96 | 0.3+ | 0.2− |
| 2006 09 27 | 703 | 0.3+ | 0.3− | 2009 02 03 | 691 | 0.1− | 0.1+ | 2009 03 29 | G96 | 0.3− | 0.5− |
| 2006 10 02 | G96 | 0.3+ | 0.0 | 2009 02 03 | 691 | 0.0 | 0.1− | | | | |

**2006 SX$_{46}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 191.53977 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17222645 | $\omega$ | 169.61773 | | +0.94985423 | | −0.30767741 |
| $a$ | 3.1994069 | $\Omega$ | 208.49551 | | +0.27785674 | | +0.91232201 |
| $e$ | 0.1592111 | $i$ | 6.71437 | | +0.14343140 | | +0.27019096 |
| $P$ | 5.72 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 27 | 645 | 0.0 | 0.0 | 2006 09 20 | 691 | 0.2+ | 0.0 | 2006 10 11 | 644 | 0.1+ | 0.0 |
| 2000 09 27 | 645 | 0.0 | 0.0 | 2006 09 20 | 703 | 0.2− | 0.7− | 2006 10 22 | 644 | 0.0 | 0.0 |
| 2006 08 29 | 703 | 0.6− | 0.3+ | 2006 09 20 | 703 | 0.2− | 0.4− | 2006 10 22 | 644 | 0.5− | 0.3+ |
| 2006 08 29 | 703 | 0.2− | 0.3+ | 2006 09 20 | 703 | 0.4− | 0.5− | 2006 10 22 | 644 | 0.0 | 0.1− |
| 2006 08 29 | 703 | 0.5− | 0.3− | 2006 09 20 | 703 | 0.4− | 0.1− | 2006 10 23 | G96 | 0.0 | 0.5− |
| 2006 08 29 | 703 | 0.9− | 0.6− | 2006 09 22 | 703 | 0.0 | 0.3+ | 2006 10 23 | G96 | 0.3− | 0.4− |
| 2006 09 06 | 644 | 0.1+ | 0.3+ | 2006 09 22 | 703 | 0.2+ | 0.0 | 2006 10 23 | G96 | 0.1+ | 0.2− |
| 2006 09 06 | 644 | 0.2− | 0.1+ | 2006 09 22 | 703 | 0.0 | 0.5− | 2006 10 23 | G96 | 0.4+ | 0.3− |
| 2006 09 06 | 644 | 0.1+ | 0.2+ | 2006 09 22 | 703 | 0.3+ | 0.8− | 2006 10 24 | 644 | 0.0 | 0.3− |
| 2006 09 19 | 699 | 0.4− | 0.3+ | 2006 10 01 | 703 | 0.7− | 0.7+ | 2006 10 24 | 644 | 0.2− | 0.1+ |
| 2006 09 19 | 703 | 1.1+ | 0.0 | 2006 10 01 | 703 | 0.3+ | 0.6+ | 2006 10 24 | 644 | 0.0 | 0.4− |
| 2006 09 19 | 699 | 0.1+ | 0.6+ | 2006 10 01 | 703 | 0.2− | 0.6− | 2006 11 14 | G96 | 0.3+ | 0.5− |
| 2006 09 19 | 703 | 0.2+ | 0.1+ | 2006 10 01 | 703 | 1.9− | 0.9+ | 2006 11 14 | G96 | 0.2− | 0.1+ |
| 2006 09 19 | 703 | 0.1− | 1.1− | 2006 10 01 | 704 | 1.1+ | 0.9+ | 2006 11 14 | G96 | 0.4− | 0.4− |
| 2006 09 19 | 699 | 0.5+ | 0.9+ | 2006 10 01 | 704 | 0.7+ | 1.3+ | 2006 11 14 | G96 | 0.4− | 0.3− |
| 2006 09 19 | 703 | 0.5− | 0.5+ | 2006 10 01 | 704 | 0.1+ | 0.8+ | 2009 03 01 | G96 | 0.4− | 0.1− |
| 2006 09 19 | 699 | (3.3− | 0.0 ) | 2006 10 01 | 704 | 0.5+ | 0.1− | 2009 03 01 | G96 | 0.2+ | 0.1+ |
| 2006 09 20 | 691 | 0.2+ | 0.0 | 2006 10 11 | 644 | 0.1− | 0.1+ | 2009 03 01 | G96 | 0.3+ | 0.0 |
| 2006 09 20 | 691 | 0.2+ | 0.1− | 2006 10 11 | 644 | 0.1+ | 0.3+ | 2009 03 01 | G96 | 0.2− | 0.0 |

**2006 SB$_{47}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 210.84168 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17937443 | $\omega$ | 38.64294 | | +0.99563468 | | −0.06662564 |
| $a$ | 3.1138357 | $\Omega$ | 325.00964 | | +0.02707565 | | +0.87637744 |
| $e$ | 0.1080944 | $i$ | 6.54527 | | +0.08932247 | | +0.47699434 |
| $P$ | 5.49 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 08 21 | 691 | 0.0 | 0.0 | 2006 09 22 | 703 | 0.0 | 0.1+ | 2009 02 03 | 691 | 0.1− | 0.2+ |
| 2006 08 21 | 691 | 0.0 | 0.1− | 2006 09 22 | 703 | 0.4+ | 0.5− | 2009 02 21 | 691 | 0.3− | 0.0 |
| 2006 08 21 | 691 | 0.1+ | 0.2− | 2006 09 22 | 703 | 0.2− | 0.1+ | 2009 02 21 | 691 | 0.1+ | 0.2− |
| 2006 09 19 | 703 | 1.1− | 0.8+ | 2006 09 25 | 699 | 1.3+ | 0.4+ | 2009 02 21 | 691 | 0.2+ | 0.0 |
| 2006 09 19 | 703 | 0.2− | 0.2− | 2006 09 25 | 699 | 0.1− | 1.3+ | 2009 03 16 | G96 | 0.3− | 0.2+ |
| 2006 09 19 | 703 | (1.8+ | 0.5−) | 2006 09 25 | 699 | 0.8+ | 1.1+ | 2009 03 16 | G96 | 0.1− | 0.1+ |
| 2006 09 19 | 703 | 0.5+ | 0.0 | 2006 09 25 | 699 | 0.1+ | 0.1− | 2009 03 16 | G96 | 0.1− | 0.1+ |
| 2006 09 20 | 703 | 0.9− | 0.6− | 2006 10 11 | 691 | 0.1+ | 0.0 | 2009 03 16 | G96 | 0.0 | 0.1− |
| 2006 09 20 | 703 | 0.0 | 0.6− | 2006 10 11 | 691 | 0.1− | 0.0 | 2009 03 29 | G96 | 0.4+ | 0.1+ |
| 2006 09 20 | 703 | 0.3− | 0.2+ | 2006 10 11 | 691 | 0.2+ | 0.2− | 2009 03 29 | G96 | 0.2+ | 0.1− |
| 2006 09 20 | 703 | 0.6− | 0.4− | 2009 02 03 | 691 | 0.1+ | 0.1− | 2009 03 29 | G96 | 0.8− | 0.4− |
| 2006 09 22 | 703 | 0.4− | 0.1− | 2009 02 03 | 691 | 0.1+ | 0.1− | | | | |

**2006 SA$_{68}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 226.82595 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21082726 | $\omega$ | 13.06912 | | +0.75659522 | | −0.65242976 |
| $a$ | 2.7958780 | $\Omega$ | 27.80633 | | +0.59121044 | | +0.65408498 |
| $e$ | 0.1634189 | $i$ | 5.36031 | | +0.27934546 | | +0.38276395 |
| $P$ | 4.67 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1992 10 01 | 691 | 0.0 | 0.0 | 2006 10 18 | 291 | 0.7− | 0.0 | 2006 11 14 | 705 | 0.2+ | 0.2− |
| 1992 10 01 | 691 | 0.4− | 0.3− | 2006 10 18 | 291 | 1.0− | 0.4+ | 2006 11 17 | 705 | 0.2+ | 0.1− |
| 1992 10 01 | 691 | 0.3+ | 0.5+ | 2006 10 18 | 291 | 1.0− | 0.4+ | 2006 11 17 | 705 | 0.2+ | 0.3− |
| 2006 09 12 | 705 | 0.3+ | 0.4− | 2006 10 22 | 291 | 0.2+ | 0.3+ | 2006 11 19 | 705 | 0.2+ | 0.2− |
| 2006 09 12 | 705 | 0.2+ | 0.3− | 2006 10 22 | 291 | 0.1+ | 0.4+ | 2006 11 19 | 705 | 0.1+ | 0.4− |
| 2006 09 17 | 705 | 0.4+ | 0.4− | 2006 10 22 | 291 | 0.3+ | 0.6+ | 2006 11 21 | 705 | 0.1+ | 0.2− |
| 2006 09 17 | 705 | 0.4+ | 0.3− | 2006 10 22 | 705 | 0.3+ | 0.2− | 2006 11 21 | 705 | 0.1+ | 0.2− |
| 2006 09 19 | 691 | 0.0 | 0.0 | 2006 10 22 | 705 | 0.4+ | 0.2− | 2006 11 29 | 705 | 0.2+ | 0.4− |
| 2006 09 19 | 691 | 0.1+ | 0.1− | 2006 10 27 | 705 | 0.3+ | 0.3− | 2006 11 29 | 705 | 0.1+ | 0.3− |
| 2006 09 19 | 691 | 0.1+ | 0.1− | 2006 10 27 | 705 | 0.2+ | 0.1− | 2006 12 16 | G96 | 1.0+ | 0.7− |
| 2006 09 20 | 705 | 0.4+ | 0.2− | 2006 10 29 | 705 | 0.1+ | 0.4− | 2006 12 16 | G96 | 0.1+ | 0.1− |
| 2006 09 20 | 705 | 0.4+ | 0.3− | 2006 10 29 | 705 | 0.2+ | 0.3− | 2006 12 16 | G96 | 0.7− | 0.3+ |
| 2006 09 23 | 691 | 0.0 | 0.2− | 2006 11 01 | 705 | 0.1+ | 0.2− | 2006 12 16 | G96 | 0.4− | 0.1− |
| 2006 09 23 | 691 | 0.1+ | 0.0 | 2006 11 01 | 705 | 0.2+ | 0.3− | 2008 02 11 | G96 | 0.0 | 0.2− |
| 2006 09 23 | 691 | 0.1+ | 0.0 | 2006 11 09 | 705 | 0.3+ | 0.2− | 2008 02 11 | G96 | 0.1− | 0.2+ |
| 2006 09 30 | 705 | 0.4+ | 0.3− | 2006 11 09 | 705 | 0.4+ | 0.3− | 2008 02 11 | G96 | 0.3+ | 0.0 |
| 2006 09 30 | 705 | 0.5+ | 0.0 | 2006 11 13 | 705 | 0.2+ | 0.1− | 2008 02 11 | G96 | 0.3− | 0.2− |
| 2006 10 17 | 705 | 0.1+ | 0.2− | 2006 11 13 | 705 | 0.2+ | 0.1− | | | | |
| 2006 10 17 | 705 | 0.3+ | 0.2− | 2006 11 14 | 705 | 0.3+ | 0.3− | | | | |

**2006 SV$_{82}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 159.46594 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18320143 | $\omega$ | 63.28799 | | +0.08213203 | | −0.99413364 |
| $a$ | 3.0703189 | $\Omega$ | 22.33831 | | +0.83590971 | | +0.03026479 |
| $e$ | 0.1133518 | $i$ | 10.67051 | | +0.54268710 | | +0.10383807 |
| $P$ | 5.38 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 09 18 | 691 | 0.2− | 0.0 | 2006 10 21 | G96 | 0.5+ | 0.6− | 2006 11 27 | G96 | 0.0 | 0.3− |
| 2006 09 18 | 691 | 0.0 | 0.0 | 2006 10 27 | G96 | 0.1+ | 0.2− | 2006 11 27 | G96 | 0.4+ | 0.4+ |
| 2006 09 18 | 691 | 0.6− | 0.4+ | 2006 10 27 | G96 | 0.1+ | 0.0 | 2006 11 27 | G96 | 0.1+ | 0.3+ |
| 2006 09 25 | 691 | 0.2+ | 0.2− | 2006 10 27 | G96 | 0.1− | 0.4− | 2009 03 17 | 691 | 0.1+ | 0.3+ |
| 2006 09 25 | 691 | 0.0 | 0.0 | 2006 10 27 | G96 | 0.0 | 0.5+ | 2009 03 17 | 691 | 0.0 | 0.1+ |
| 2006 09 25 | 691 | 0.1+ | 0.1− | 2006 11 23 | 291 | 0.2+ | 0.2+ | 2009 03 17 | 691 | 0.1+ | 0.3+ |
| 2006 10 21 | G96 | 0.5− | 0.5− | 2006 11 23 | 291 | 0.1+ | 0.1+ | 2009 04 18 | 691 | 0.0 | 0.2− |
| 2006 10 21 | G96 | 0.2− | 0.5− | 2006 11 23 | 291 | 0.1− | 0.3+ | 2009 04 18 | 691 | 0.0 | 0.0 |
| 2006 10 21 | G96 | 0.3+ | 0.3− | 2006 11 27 | G96 | 0.3− | 0.0 | 2009 04 18 | 691 | 0.0 | 0.2− |

**2006 SS$_{85}$ = 2002 QW$_{138}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 345.37287 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.26290770 | $\omega$ | 118.17495 | | +0.81959769 | | +0.57271705 |
| $a$ | 2.4132400 | $\Omega$ | 206.89444 | | −0.53726026 | | +0.75858130 |
| $e$ | 0.2166565 | $i$ | 2.02234 | | −0.19902525 | | +0.31072431 |
| $P$ | 3.75 | $H$ | 18.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 07 | 644 | 0.1− | 0.5+ | 2002 08 27 | 644 | 0.5+ | 0.6− | 2006 09 26 | G96 | 0.0 | 0.1− |
| 2002 08 07 | 644 | 0.1− | 1.2+ | 2006 09 18 | 691 | 0.1− | 0.3+ | 2006 09 26 | G96 | 0.2− | 0.2− |
| 2002 08 07 | 644 | 0.2− | 0.0 | 2006 09 18 | 691 | 0.1+ | 0.3− | 2006 09 26 | G96 | 0.2+ | 0.4− |
| 2002 08 17 | 644 | 0.1− | 0.1− | 2006 09 18 | 691 | 0.1− | 0.0 | 2006 10 27 | G96 | 0.1+ | 0.0 |
| 2002 08 17 | 644 | 0.0 | 0.0 | 2006 09 25 | 691 | 0.2− | 0.4+ | 2006 10 27 | G96 | 0.4− | 0.3− |
| 2002 08 17 | 644 | 0.1+ | 0.1+ | 2006 09 25 | 691 | 0.0 | 0.2+ | 2006 10 27 | G96 | 0.3+ | 0.3− |
| 2002 08 27 | 644 | 0.1+ | 0.8− | 2006 09 25 | 691 | 0.4+ | 0.0 | 2006 10 27 | G96 | 0.0 | 0.2− |
| 2002 08 27 | 644 | 0.1− | 0.7− | 2006 09 26 | G96 | 0.2− | 0.3− | | | | |

**2006 SL$_{88}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 62.41817 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.24367419 | $\omega$ | 213.69623 | | −0.54717393 | | +0.83200080 |
| $a$ | 2.5386122 | $\Omega$ | 23.53317 | | −0.70845444 | | −0.40212581 |
| $e$ | 0.1371299 | $i$ | 13.25027 | | −0.44574992 | | −0.38219039 |
| $P$ | 4.04 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 11 10 | 691 | 0.9− | 0.5+ | 2006 09 18 | 691 | 0.0 | 0.4+ | 2006 10 28 | G96 | 0.2+ | 0.2− |
| 1994 11 10 | 691 | 0.5+ | 0.0 | 2006 09 25 | 691 | 0.5+ | 0.2− | 2006 10 31 | 691 | 0.3+ | 0.3− |
| 1998 09 25 | 691 | 0.1+ | 0.6− | 2006 09 25 | 691 | 0.0 | 0.3+ | 2006 10 31 | 691 | 0.4+ | 0.0 |
| 1998 09 25 | 691 | 0.2+ | 0.4− | 2006 09 25 | 691 | 0.1− | 0.1+ | 2006 10 31 | 691 | 0.1− | 0.2− |
| 1998 09 25 | 691 | 0.6+ | 0.3− | 2006 10 28 | G96 | 0.2− | 0.3− | 2006 11 18 | 291 | 1.3− | 0.2− |
| 2006 09 18 | 691 | 0.2− | 0.7+ | 2006 10 28 | G96 | 0.1− | 0.8− | 2006 11 18 | 291 | 0.4− | 0.1− |
| 2006 09 18 | 691 | 0.1+ | 0.4+ | 2006 10 28 | G96 | 0.1+ | 0.3− | 2006 11 18 | 291 | 0.2+ | 0.1+ |

**2006 SQ$_{95}$ = 2006 SP$_{370}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 309.36728 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21665902 | $\omega$ | 284.77481 | | +0.59760840 | | +0.79668474 |
| $a$ | 2.7454795 | $\Omega$ | 22.66921 | | −0.61550149 | | +0.52803163 |
| $e$ | 0.2307835 | $i$ | 13.55311 | | −0.51383083 | | +0.29406806 |
| $P$ | 4.55 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 05 16 | 644 | 0.0 | 0.4+ | 2006 09 28 | 691 | 0.0 | 0.1+ | 2006 10 28 | 691 | 0.3+ | 0.0 |
| 2005 05 16 | 644 | 0.5+ | 0.6+ | 2006 10 01 | 461 | 0.1− | 0.1− | 2006 10 28 | 691 | 0.1− | 0.1− |
| 2005 05 16 | 644 | 0.2+ | 0.2+ | 2006 10 01 | 461 | 0.4− | 0.1− | 2006 10 28 | 691 | 0.2+ | 0.1− |
| 2006 09 18 | 691 | 0.2− | 0.0 | 2006 10 01 | 461 | 0.2− | 0.1− | 2006 11 01 | 691 | 0.0 | 0.5+ |
| 2006 09 18 | 691 | 0.0 | 0.1− | 2006 10 02 | 691 | 0.1+ | 0.7− | 2006 11 01 | 691 | 0.2+ | 0.3+ |
| 2006 09 18 | 691 | 0.0 | 0.0 | 2006 10 02 | 691 | 0.4− | 0.2+ | 2006 11 01 | 691 | 0.2+ | 0.0 |
| 2006 09 24 | J75 | (1.2+ | 2.1−) | 2006 10 02 | 691 | 0.1− | 0.1+ | 2006 11 25 | G96 | 0.5+ | 0.3− |
| 2006 09 24 | J75 | 0.7+ | 0.3+ | 2006 10 16 | 691 | 0.2− | 0.3+ | 2006 11 25 | G96 | 0.1− | 0.5− |
| 2006 09 24 | 691 | 0.2+ | 0.1+ | 2006 10 16 | 691 | 0.4− | 0.1+ | 2006 11 25 | G96 | 0.2− | 0.5− |
| 2006 09 24 | 691 | 0.0 | 0.1− | 2006 10 16 | 691 | 0.2− | 0.1+ | 2006 11 25 | G96 | 0.2+ | 0.6− |
| 2006 09 24 | 691 | 0.2+ | 0.3+ | 2006 10 20 | 691 | 0.0 | 0.1+ | 2009 04 01 | G96 | 0.1+ | 0.4+ |
| 2006 09 25 | G96 | 0.2+ | 0.1+ | 2006 10 20 | 691 | 0.1− | 0.1− | 2009 04 01 | G96 | 0.1− | 0.0 |
| 2006 09 25 | G96 | 0.1+ | 0.3− | 2006 10 20 | 691 | 0.2+ | 0.1+ | 2009 04 01 | G96 | 0.3+ | 0.5+ |
| 2006 09 25 | G96 | 0.1+ | 0.9− | 2006 10 21 | 644 | 0.1− | 0.1− | 2009 04 01 | G96 | 0.6+ | 0.3+ |
| 2006 09 28 | 691 | 0.0 | 0.1+ | 2006 10 21 | 644 | 0.4− | 0.2+ | | | | |
| 2006 09 28 | 691 | 0.2− | 0.1+ | 2006 10 21 | 644 | 0.5− | 0.1− | | | | |

**2006 SJ$_{106}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 242.20652 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18328663 | $\omega$ | 335.32834 | | +0.98241207 | | +0.17966409 |
| $a$ | 3.0693673 | $\Omega$ | 14.59587 | | −0.11937064 | | +0.81376313 |
| $e$ | 0.0148397 | $i$ | 11.64512 | | −0.14358684 | | +0.55272994 |
| $P$ | 5.38 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 01 29 | 645 | 0.0 | 0.1+ | 2006 09 17 | 568 | 0.1+ | 0.1− | 2006 09 25 | G96 | 0.6+ | 0.6− |
| 2003 01 29 | 645 | 0.0 | 0.1− | 2006 09 19 | 691 | 0.4− | 0.2+ | 2006 09 25 | G96 | 0.4+ | 0.3− |
| 2006 09 14 | 568 | 0.1+ | 0.1− | 2006 09 19 | 691 | 0.1− | 0.2− | 2006 09 25 | G96 | 0.0 | 0.6− |
| 2006 09 14 | 568 | 0.1+ | 0.1− | 2006 09 19 | 691 | 0.1− | 0.1− | 2006 09 26 | 691 | 0.3− | 0.2+ |
| 2006 09 14 | 568 | 0.0 | 0.1− | 2006 09 22 | 568 | 0.0 | 0.2+ | 2006 09 26 | 691 | 0.1+ | 0.2+ |
| 2006 09 14 | 568 | 0.0 | 0.1− | 2006 09 22 | 568 | 0.0 | 0.2+ | 2006 09 26 | 691 | 0.5+ | 0.3+ |
| 2006 09 14 | 568 | 0.0 | 0.1− | 2006 09 22 | 568 | 0.0 | 0.2+ | 2006 10 13 | 568 | 0.0 | 0.3− |
| 2006 09 14 | 568 | 0.0 | 0.1− | 2006 09 22 | 568 | 0.0 | 0.2+ | 2006 10 13 | 568 | 0.0 | 0.2− |
| 2006 09 14 | 568 | 0.0 | 0.1− | 2006 09 22 | 568 | 0.0 | 0.2+ | 2006 10 13 | 568 | 0.0 | 0.2− |
| 2006 09 14 | 568 | 0.0 | 0.1− | 2006 09 22 | 568 | 0.0 | 0.2+ | 2006 10 14 | 568 | 0.3− | 0.2− |
| 2006 09 14 | 568 | 0.1+ | 0.1− | 2006 09 22 | 568 | 0.0 | 0.2+ | 2006 10 19 | G96 | 0.1− | 0.2+ |
| 2006 09 14 | 568 | 0.1+ | 0.1− | 2006 09 22 | 568 | 0.0 | 0.2+ | 2006 10 19 | G96 | 0.4− | 0.4− |
| 2006 09 14 | 568 | 0.1+ | 0.1− | 2006 09 22 | 568 | 0.1+ | 0.2+ | 2006 10 19 | G96 | 0.7− | 0.2+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 09 17 | 568 | 0.0 | 0.1− | 2006 09 22 | 568 | 0.0 | 0.2+ | 2006 10 19 | G96 | 0.3− | 0.3− | | |
| 2006 09 17 | 568 | 0.1+ | 0.1− | 2006 09 22 | 568 | 0.0 | 0.2+ | 2009 03 01 | 691 | 1.1+ | 0.0 | | |
| 2006 09 17 | 568 | 0.0 | 0.1− | 2006 09 22 | 568 | 0.0 | 0.2+ | 2009 03 01 | 691 | 0.5− | 0.1+ | | |
| 2006 09 17 | 568 | 0.0 | 0.1− | 2006 09 22 | 568 | 0.0 | 0.2+ | 2009 03 01 | 691 | 0.5− | 0.2+ | | |
| 2006 09 17 | 568 | 0.0 | 0.1− | 2006 09 22 | 568 | 0.0 | 0.2+ | 2009 03 22 | G96 | 0.2− | 0.3− | | |
| 2006 09 17 | 568 | 0.1+ | 0.1− | 2006 09 22 | 568 | 0.0 | 0.2+ | 2009 03 22 | G96 | 0.2− | 0.0 | | |
| 2006 09 17 | 568 | 0.0 | 0.1− | 2006 09 22 | 568 | 0.0 | 0.2+ | 2009 03 22 | G96 | 0.3− | 0.0 | | |
| 2006 09 17 | 568 | 0.1+ | 0.1− | 2006 09 25 | G96 | 0.7+ | 0.6− | 2009 03 22 | G96 | 0.2+ | 0.3− | | |

**2006 SC$_{116}$ = 2001 YT$_{33}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 236.43547 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17396993 | $\omega$ | 260.29730 | | +0.82490056 | +0.50208622 | |
| $a$ | 3.1779953 | $\Omega$ | 69.15268 | | −0.34470782 | +0.81092061 | |
| $e$ | 0.2065365 | $i$ | 16.13504 | | −0.44801294 | +0.30052821 | |
| $P$ | 5.67 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 12 18 | 704 | 0.6+ | 0.1+ | 2001 12 19 | 704 | (0.0 | 1.7−) | 2006 10 21 | 703 | 0.8− | 0.5− | | |
| 2001 12 18 | 704 | 0.1− | 0.8+ | 2001 12 19 | 704 | 0.6− | 0.8− | 2006 10 21 | 703 | 0.6+ | 0.0 | | |
| 2001 12 18 | 704 | 0.3+ | 0.2+ | 2006 09 24 | 699 | (1.7− | 0.6−) | 2006 10 21 | 703 | 1.1− | 0.5− | | |
| 2001 12 18 | 704 | 0.5+ | 0.9+ | 2006 09 24 | 699 | 0.2− | 0.4+ | 2006 10 31 | 703 | 0.2− | 0.2+ | | |
| 2001 12 18 | 704 | 0.5+ | 0.3+ | 2006 09 24 | 699 | 0.7+ | 0.1− | 2006 10 31 | 703 | 0.6+ | 0.3+ | | |
| 2001 12 19 | 704 | 0.1+ | 0.2+ | 2006 09 24 | 699 | 0.1+ | 0.4− | 2006 10 31 | 703 | 0.8+ | 0.0 | | |
| 2001 12 19 | 704 | 0.3− | 0.4− | 2006 09 25 | 703 | 0.3− | 0.6− | 2006 10 31 | 703 | (1.7− | 0.4+) | | |
| 2001 12 19 | 704 | 0.2− | 0.3+ | 2006 09 25 | 703 | 0.2− | 0.2+ | 2006 11 23 | 703 | 0.9+ | 0.4− | | |
| 2001 12 19 | 704 | 0.3− | 0.1+ | 2006 09 25 | 703 | 0.1− | 0.4+ | 2006 11 23 | 703 | 0.7− | 0.3+ | | |
| 2001 12 19 | 704 | 0.1− | 0.1− | 2006 09 25 | 703 | 0.1− | 0.1+ | 2006 11 23 | 703 | (2.2+ | 0.7−) | | |
| 2001 12 19 | 704 | 0.4− | 1.4− | 2006 10 21 | 703 | 0.0 | 0.5+ | 2006 11 23 | 703 | (1.5− | 3.0+) | | |

**2006 SD$_{116}$ = 2002 XV$_{14}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 280.19792 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23161140 | $\omega$ | 285.92408 | | +0.97911716 | −0.05934795 | |
| $a$ | 2.6260083 | $\Omega$ | 77.78602 | | +0.13919851 | +0.89278280 | |
| $e$ | 0.2934367 | $i$ | 11.47524 | | −0.14816665 | +0.44656097 | |
| $P$ | 4.26 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 12 05 | 704 | 0.7− | 0.1+ | 2002 12 10 | 704 | 0.4− | 0.3− | 2006 10 04 | 703 | 0.8− | 0.2+ | | |
| 2002 12 05 | 704 | 0.2+ | 0.4+ | 2002 12 13 | 704 | (4.5+ | 3.4−) | 2006 10 04 | 703 | 0.0 | 0.7+ | | |
| 2002 12 05 | 704 | 0.5+ | 0.1− | 2002 12 13 | 704 | (3.2+ | 3.1−) | 2006 10 04 | 703 | 0.4+ | 0.6− | | |
| 2002 12 05 | 704 | 0.1− | 0.1+ | 2002 12 13 | 704 | (4.1+ | 3.2−) | 2006 10 04 | 703 | 0.8+ | 0.3+ | | |
| 2002 12 05 | 704 | 0.3+ | 0.3− | 2006 09 24 | 699 | 0.7− | 0.6− | 2006 10 21 | 703 | 0.0 | 0.5+ | | |
| 2002 12 08 | 333 | 0.5− | 0.2− | 2006 09 24 | 699 | 0.3+ | 0.4− | 2006 10 21 | 703 | 0.5+ | 0.3− | | |
| 2002 12 08 | 333 | 0.7− | 0.4− | 2006 09 24 | 699 | 0.5− | 0.4− | 2006 10 21 | 703 | 0.0 | 0.4+ | | |
| 2002 12 08 | 333 | 0.5+ | 0.3+ | 2006 09 24 | 699 | 0.2− | 0.4− | 2006 10 21 | 703 | 0.5− | 0.5+ | | |
| 2002 12 10 | 704 | 0.3− | 0.3− | 2006 09 25 | 703 | 0.2+ | 0.1+ | 2006 11 17 | 703 | 0.0 | 0.5− | | |
| 2002 12 10 | 704 | 0.3+ | 0.1− | 2006 09 25 | 703 | 0.4− | 0.0 | 2006 11 17 | 703 | 0.8− | 0.2− | | |
| 2002 12 10 | 704 | 0.3+ | 0.3− | 2006 09 25 | 703 | 0.1+ | 0.1+ | 2006 11 17 | 703 | (0.1− | 1.9+) | | |
| 2002 12 10 | 704 | 0.6+ | 1.1+ | 2006 09 25 | 703 | 0.6+ | 0.6+ | 2006 11 17 | 703 | 1.3+ | 0.2− | | |

**2006 SP$_{128}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 226.11466 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18956080 | $\omega$ | 46.32827 | | +0.97284491 | −0.22503372 | |
| $a$ | 3.0012605 | $\Omega$ | 326.56828 | | +0.17381210 | +0.86477946 | |
| $e$ | 0.1286364 | $i$ | 5.64085 | | +0.15284674 | +0.44890568 | |
| $P$ | 5.20 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 09 17 | 691 | 0.1− | 0.1− | 2006 09 29 | 704 | 0.5− | 0.9+ | 2006 10 21 | 644 | 0.1− | 0.1+ | | |
| 2006 09 17 | 691 | 0.2− | 0.2+ | 2006 09 30 | 703 | 0.8+ | 0.7− | 2006 10 21 | 644 | 0.0 | 0.2− | | |
| 2006 09 17 | 691 | 0.1+ | 0.1− | 2006 09 30 | 703 | 0.9+ | 0.5− | 2006 10 21 | 644 | 0.1+ | 0.1+ | | |
| 2006 09 18 | 699 | 0.2+ | 0.8− | 2006 09 30 | 703 | 0.5− | 0.5− | 2007 11 18 | G96 | 0.1+ | 0.1− | | |
| 2006 09 18 | 699 | 0.6− | 0.3+ | 2006 09 30 | 703 | 0.7+ | 0.2+ | 2007 11 18 | G96 | 0.3+ | 0.3− | | |
| 2006 09 18 | 699 | 0.9− | 0.1− | 2006 10 01 | 691 | 0.0 | 0.0 | 2007 11 18 | G96 | 0.0 | 0.6− | | |
| 2006 09 18 | 699 | (3.5− | 2.0+) | 2006 10 01 | 691 | 0.1− | 0.0 | 2007 11 18 | G96 | 0.4− | 0.4− | | |
| 2006 09 27 | 699 | 1.3+ | 0.9− | 2006 10 01 | 691 | 0.2− | 0.1+ | 2008 01 14 | 691 | 0.3− | 0.2+ | | |
| 2006 09 27 | 699 | 0.7− | 0.9+ | 2006 10 04 | G96 | 0.5− | 0.6− | 2008 01 14 | 691 | 0.0 | 0.1+ | | |
| 2006 09 27 | 699 | 0.2− | 0.3+ | 2006 10 04 | G96 | 0.2− | 0.7− | 2008 01 14 | 691 | 0.1− | 0.2+ | | |
| 2006 09 27 | 699 | 0.3− | 0.2+ | 2006 10 04 | G96 | 0.3− | 0.6− | 2008 02 09 | G96 | 0.5+ | 0.3− | | |
| 2006 09 27 | 691 | 0.7+ | 1.1+ | 2006 10 04 | G96 | 0.1+ | 0.8− | 2008 02 09 | G96 | 0.4+ | 0.2− | | |
| 2006 09 27 | 691 | 0.1+ | 0.0 | 2006 10 17 | 703 | 0.5+ | 0.5− | 2008 02 09 | G96 | 0.5+ | 0.3− | | |
| 2006 09 27 | 691 | 0.1+ | 0.1− | 2006 10 17 | 703 | 1.0− | 1.1− | 2008 02 09 | G96 | 0.2+ | 0.2− | | |
| 2006 09 29 | 704 | 0.6+ | 0.8+ | 2006 10 17 | 703 | 0.4− | 1.0− | | | | | | |
| 2006 09 29 | 704 | 0.5− | 0.7+ | 2006 10 17 | 703 | (1.7− | 0.3−) | | | | | | |

**2006 SV$_{134}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 146.48455 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.38624718 | $\omega$ | 64.30305 | | +0.16300275 | +0.96119164 | |
| $a$ | 1.8673505 | $\Omega$ | 217.30221 | | −0.98441064 | +0.14333621 | |
| $e$ | 0.4803203 | $i$ | 21.54784 | | −0.06607412 | +0.23572305 | |
| $P$ | 2.55 | $H$ | 18.9 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 09 28 | 703 | 0.1− | 0.3+ | 2006 10 03 | 448 | 0.1+ | 0.0 | 2006 10 23 | 691 | 0.8− | 0.8− | | |
| 2006 09 28 | 703 | 0.4+ | 0.8+ | 2006 10 03 | 448 | 0.1+ | 0.1+ | 2006 10 28 | 691 | 0.2− | 0.1+ | | |
| 2006 09 28 | 703 | 0.2+ | 0.5+ | 2006 10 03 | 448 | 0.2+ | 0.1+ | 2006 10 28 | 691 | 0.9− | 0.6+ | | |
| 2006 09 28 | 703 | 0.2+ | 1.5− | 2006 10 11 | 673 | 0.8+ | 1.0+ | 2006 10 28 | 691 | 0.0 | 0.0 | | |
| 2006 09 28 | 703 | 0.1− | 0.4+ | 2006 10 11 | 673 | 0.0 | 0.4+ | 2006 10 29 | 691 | 0.0 | 0.1− | | |
| 2006 09 28 | 703 | 0.8+ | 0.4− | 2006 10 11 | 673 | 0.5+ | 0.5+ | 2006 10 29 | 691 | 0.1+ | 0.1− | | |
| 2006 09 28 | 703 | 0.2+ | 0.4− | 2006 10 11 | 673 | 0.5+ | 0.2+ | 2006 10 29 | 691 | 0.4− | 0.4+ | | |
| 2006 09 28 | 703 | 0.1+ | 0.1+ | 2006 10 13 | 691 | 0.1+ | 0.1− | 2006 10 29 | H45 | 0.3+ | 0.2− | | |
| 2006 09 29 | 734 | 0.4− | 0.2− | 2006 10 13 | 691 | 0.1+ | 0.3− | 2006 10 29 | H45 | 0.1− | 0.8− | | |
| 2006 09 29 | 734 | 1.7+ | 0.0 | 2006 10 13 | 691 | 0.0 | 0.1− | 2006 10 29 | H45 | 0.0 | 0.2− | | |
| 2006 09 29 | 734 | 1.5− | 0.1+ | 2006 10 17 | 691 | 0.1+ | 0.0 | 2006 10 29 | H45 | 0.4− | 0.9− | | |
| 2006 09 29 | 734 | 0.4− | 0.1− | 2006 10 17 | 691 | 0.1− | 0.2+ | 2006 10 29 | H45 | 0.0 | 0.4− | | |
| 2006 09 29 | 673 | 0.1+ | 0.2+ | 2006 10 17 | 691 | 0.2+ | 0.2+ | 2006 11 10 | 691 | 0.1+ | 0.5+ | | |
| 2006 09 29 | 673 | 0.4+ | 0.1+ | 2006 10 18 | 118 | 0.1− | 0.6− | 2006 11 10 | 691 | 0.2+ | 0.1+ | | |
| 2006 09 29 | 673 | 0.5+ | 0.6+ | 2006 10 18 | 118 | 0.0 | 0.2+ | 2006 11 10 | 691 | 0.0 | 0.5+ | | |
| 2006 09 29 | 673 | 0.1+ | 0.1− | 2006 10 18 | 118 | 0.5+ | 0.2− | 2006 11 19 | 711 | 0.5− | 0.4+ | | |
| 2006 09 30 | J95 | 0.2− | 0.2+ | 2006 10 21 | 941 | 0.2+ | 0.2+ | 2006 11 19 | 711 | 0.8+ | 0.1+ | | |
| 2006 09 30 | J95 | 0.4− | 0.6+ | 2006 10 21 | 941 | 0.2+ | 0.2+ | 2006 11 19 | 711 | 0.3+ | 0.6− | | |
| 2006 09 30 | J95 | 0.3+ | 0.5− | 2006 10 21 | 941 | 0.3+ | 0.1+ | 2006 12 13 | 291 | 0.6+ | 0.3+ | | |
| 2006 09 30 | 291 | 0.3− | 1.1− | 2006 10 21 | 941 | 0.3+ | 0.2+ | 2006 12 13 | 291 | 0.8+ | 0.6+ | | |
| 2006 09 30 | 291 | 0.0 | 0.1+ | 2006 10 21 | 644 | 0.1+ | 0.2− | 2006 12 13 | 291 | 0.4+ | 0.0 | | |
| 2006 09 30 | 291 | 0.1+ | 0.2+ | 2006 10 21 | 644 | 0.4+ | 0.2+ | 2009 12 09 | 568 | 0.0 | 0.1− | | |
| 2006 10 01 | 291 | 0.1+ | 0.2+ | 2006 10 21 | 644 | 0.0 | 0.1− | 2009 12 09 | 568 | 0.1+ | 0.1− | | |
| 2006 10 01 | 291 | 0.0 | 0.2− | 2006 10 23 | 691 | 0.8− | 0.5− | 2009 12 19 | 568 | 0.1− | 0.0 | | |
| 2006 10 01 | 291 | 0.8+ | 0.1+ | 2006 10 23 | 691 | 0.9− | 0.6− | 2009 12 19 | 568 | 0.0 | 0.1+ | | |

**2006 SQ$_{154}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 273.55773 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18287490 | $\omega$ | 3.83950 | | +0.43414301 | +0.89094260 | |
| $a$ | 3.0739725 | $\Omega$ | 291.93222 | | −0.83028569 | +0.33837812 | |
| $e$ | 0.1035224 | $i$ | 8.25551 | | −0.34949324 | +0.30285563 | |
| $P$ | 5.39 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 09 21 | 699 | 0.8+ | 0.2+ | 2006 10 21 | 691 | 0.1+ | 0.3+ | 2009 01 20 | G96 | 0.3+ | 0.2+ | | |
| 2006 09 21 | 699 | 0.2+ | 0.4− | 2006 10 21 | 691 | 0.1+ | 0.0 | 2009 01 20 | G96 | 0.0 | 0.5+ | | |
| 2006 09 21 | 699 | 0.4+ | 0.7+ | 2006 10 21 | 691 | 0.0 | 0.1− | 2009 02 03 | G96 | 0.2− | 0.3− | | |
| 2006 09 21 | 699 | 1.6− | 0.4− | 2006 10 23 | 691 | 0.2+ | 0.0 | 2009 02 03 | G96 | 0.1+ | 0.3− | | |
| 2006 09 27 | 703 | 0.6− | 0.6+ | 2006 10 23 | 691 | 0.0 | 0.1− | 2009 02 03 | G96 | 0.2− | 0.1− | | |
| 2006 09 27 | 703 | 0.6+ | 0.4+ | 2006 10 23 | 691 | 0.1− | 0.1− | 2009 02 03 | G96 | 0.0 | 0.4− | | |
| 2006 09 27 | 703 | 0.4− | 0.5− | 2009 01 20 | G96 | 0.0 | 0.3+ | | | | | | |
| 2006 09 27 | 703 | 0.4− | 0.2+ | 2009 01 20 | G96 | 0.1+ | 0.3+ | | | | | | |

**2006 SO$_{157}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 133.37387 | | (2000.0) | | | |
| $n$ | 0.19196496 | $\omega$ | 111.88360 | | −0.50920148 | −0.85957968 |
| $a$ | 2.9761495 | $\Omega$ | 9.09355 | | +0.65503909 | −0.41937138 |
| $e$ | 0.1712035 | $i$ | 15.73326 | | +0.55824515 | −0.29197673 |
| $P$ | 5.13 | $H$ | 16.7 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 11 09 | 691 | 0.2− | 0.2− | 2006 09 15 | 691 | 0.0 | 0.3− | 2006 10 13 | 568 | 0.3− | 0.1− |
| 1996 11 09 | 691 | 0.2− | 0.3− | 2006 09 15 | 691 | 0.4+ | 0.1− | 2006 10 13 | 568 | 0.4− | 0.1− |
| 1996 11 09 | 691 | 0.2− | 0.6− | 2006 09 23 | 691 | 0.1− | 0.8+ | 2006 10 13 | 568 | 0.3− | 0.1− |
| 2001 09 19 | 291 | 0.2+ | 0.0 | 2006 09 23 | 691 | 0.3− | 0.6− | 2006 10 14 | 568 | 0.2− | 0.0 |
| 2001 09 19 | 291 | 1.0+ | 0.2+ | 2006 09 23 | 691 | 0.4− | 0.0 | 2006 11 15 | G96 | 0.1− | 0.5− |
| 2001 09 19 | 291 | 2.0+ | 0.1− | 2006 09 26 | G96 | 0.2− | 0.3− | 2006 11 15 | G96 | 0.2+ | 0.4− |
| 2003 01 27 | 645 | 0.0 | 0.0 | 2006 09 26 | G96 | 0.5− | 0.2− | 2006 11 15 | G96 | 0.1+ | 0.3− |
| 2003 01 27 | 645 | 0.0 | 0.0 | 2006 09 26 | G96 | 0.7− | 0.2− | 2006 11 15 | G96 | 0.1+ | 0.2− |
| 2003 03 08 | 644 | 0.1+ | 0.4+ | 2006 09 26 | G96 | 0.1− | 0.0 | 2007 12 20 | G96 | 0.2+ | 0.3− |
| 2003 03 08 | 644 | 0.3+ | 0.7+ | 2006 09 27 | 691 | 0.6− | 0.5+ | 2007 12 20 | G96 | 0.0 | 0.0 |
| 2003 03 08 | 644 | 0.5+ | 0.3+ | 2006 09 27 | 691 | 0.2− | 0.5+ | 2007 12 20 | G96 | 0.3+ | 0.1+ |
| 2006 09 15 | 691 | 0.5− | 0.6+ | 2006 09 27 | 691 | 0.4− | 0.3+ | 2007 12 20 | G96 | 0.1− | 0.4+ |

**2006 SQ$_{197}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 296.29856 | | (2000.0) | | | |
| $n$ | 0.23806954 | $\omega$ | 272.31386 | | +0.95799179 | +0.28061789 |
| $a$ | 2.5783002 | $\Omega$ | 71.39352 | | −0.23199267 | +0.87961093 |
| $e$ | 0.1694833 | $i$ | 3.58166 | | −0.16861536 | +0.38410703 |
| $P$ | 4.14 | $H$ | 17.2 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 10 10 | 644 | 0.3− | 0.5+ | 2006 09 26 | 152 | (3.8+ | 0.3−) | 2006 10 16 | 703 | 0.3− | 1.7+ |
| 2002 10 10 | 644 | 0.2− | 0.6+ | 2006 09 26 | 152 | 0.1+ | 0.1− | 2006 10 16 | 703 | 0.3+ | 0.4− |
| 2002 10 10 | 644 | 0.1− | 0.5+ | 2006 09 26 | 152 | 1.1+ | 0.2− | 2006 10 16 | 703 | (2.2+ | 0.2−) |
| 2006 08 29 | 691 | 0.2− | 0.3+ | 2006 09 26 | 152 | 1.2− | 0.6− | 2006 10 16 | 703 | 0.3− | 0.2− |
| 2006 08 29 | 691 | 0.1− | 0.2+ | 2006 09 30 | 703 | 0.3− | 0.6+ | 2006 11 23 | G96 | 0.2− | 0.1+ |
| 2006 08 29 | 691 | 0.1− | 0.1+ | 2006 09 30 | 703 | (0.2+ | 2.1+) | 2006 11 23 | G96 | 0.1− | 0.5− |
| 2006 09 25 | 152 | 1.0+ | 0.9− | 2006 09 30 | 703 | 0.1+ | 0.8+ | 2006 11 23 | G96 | 0.1− | 0.0 |
| 2006 09 25 | 152 | 0.1− | 0.5− | 2006 09 30 | 703 | 0.8+ | 0.2− | 2006 11 23 | G96 | 0.4+ | 0.4+ |
| 2006 09 25 | 152 | 0.5− | 0.1− | 2006 10 03 | G96 | 0.7− | 0.3− | 2009 04 18 | G96 | 0.1+ | 0.1− |
| 2006 09 25 | 152 | 1.6+ | 0.8− | 2006 10 03 | G96 | 0.5− | 0.1− | 2009 04 18 | G96 | 0.5+ | 0.1+ |
| 2006 09 25 | 152 | 0.1− | 0.1+ | 2006 10 03 | G96 | 0.2− | 0.2− | 2009 04 18 | G96 | 0.1− | 0.3+ |
| 2006 09 26 | 152 | 1.2+ | 1.6− | 2006 10 03 | G96 | 0.1− | 0.3− | 2009 04 18 | G96 | 0.2− | 0.3+ |

**2006 SS$_{223}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 293.01101 | | (2000.0) | | | |
| $n$ | 0.23332366 | $\omega$ | 166.89299 | | +0.98461946 | −0.16566725 |
| $a$ | 2.6131452 | $\Omega$ | 202.86839 | | +0.14463933 | +0.95107936 |
| $e$ | 0.0746522 | $i$ | 8.20893 | | +0.09799997 | +0.26077271 |
| $P$ | 4.22 | $H$ | 16.1 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 09 25 | G96 | 0.0 | 0.6− | 2006 10 21 | 644 | 0.1− | 0.0 | 2008 01 19 | G96 | 0.0 | 0.2− |
| 2006 09 25 | G96 | 0.0 | 0.6− | 2006 10 21 | 644 | 0.3+ | 0.2+ | 2008 01 19 | G96 | 0.3+ | 0.0 |
| 2006 09 25 | G96 | 0.1− | 0.7− | 2006 10 21 | 644 | 0.2+ | 0.2+ | 2008 02 09 | 703 | (1.5− | 2.3+) |
| 2006 09 25 | G96 | 0.4+ | 0.6− | 2006 10 21 | 644 | 0.3+ | 0.3+ | 2008 02 09 | 703 | 0.4+ | 0.3+ |
| 2006 09 30 | 703 | 1.4− | 0.8+ | 2006 10 21 | 644 | 0.0 | 0.0 | 2008 02 09 | 703 | 0.5− | 0.1− |
| 2006 09 30 | 703 | 0.7− | 1.8+ | 2006 10 21 | 644 | 0.3+ | 0.2+ | 2008 02 09 | 703 | 0.9− | 0.1+ |
| 2006 09 30 | 703 | 0.4− | 0.3+ | 2006 10 22 | 691 | 0.0 | 0.2+ | 2009 05 16 | G96 | 0.2+ | 0.2− |
| 2006 09 30 | 703 | (0.2− | 2.4+) | 2006 10 22 | 691 | 0.2− | 0.0 | 2009 05 16 | G96 | 0.3− | 0.2− |
| 2006 10 17 | G96 | 0.1+ | 0.1− | 2006 10 22 | 691 | 0.3− | 0.3− | 2009 05 16 | G96 | 0.4+ | 0.3− |
| 2006 10 17 | G96 | 0.0 | 0.2+ | 2006 11 11 | 703 | 0.3− | 0.4− | 2009 05 16 | G96 | 0.1+ | 0.3− |
| 2006 10 17 | G96 | 0.1+ | 0.0 | 2006 11 11 | 703 | 0.0 | 0.2− | 2009 05 30 | G96 | (0.0 | 2.4+) |
| 2006 10 17 | G96 | 0.4− | 0.2− | 2006 11 11 | 703 | 0.4+ | 0.2− | 2009 05 30 | G96 | 0.1− | 0.4− |
| 2006 10 18 | 691 | 0.5+ | 0.2+ | 2006 11 11 | 703 | 0.8+ | 1.6− | 2009 05 30 | G96 | 0.4− | 0.1− |
| 2006 10 18 | 691 | 0.1+ | 0.0 | 2008 01 19 | G96 | 0.2+ | 0.5− | 2009 05 30 | G96 | 0.0 | 0.4− |
| 2006 10 18 | 691 | 0.2+ | 0.2− | 2008 01 19 | G96 | 0.3+ | 0.4− | | | | |

**2006 SL$_{233}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 311.42860 | | (2000.0) | | | |
| $n$ | 0.18024463 | $\omega$ | 273.71349 | | −0.05843378 | +0.99809615 |
| $a$ | 3.1038054 | $\Omega$ | 352.84643 | | −0.84143209 | −0.05988174 |
| $e$ | 0.0494728 | $i$ | 9.11963 | | −0.53719413 | −0.01477328 |
| $P$ | 5.47 | $H$ | 15.9 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 09 26 | 691 | 0.1+ | 0.1− | 2006 10 22 | G96 | 0.1+ | 0.2− | 2009 02 01 | G96 | 0.4+ | 0.1− |
| 2006 09 26 | 691 | 0.0 | 0.2+ | 2006 10 22 | G96 | 0.1+ | 0.1− | 2009 02 01 | G96 | 0.3+ | 0.0 |
| 2006 09 26 | 691 | 0.1− | 0.2+ | 2006 10 31 | G96 | 0.0 | 0.1− | 2009 02 01 | G96 | 0.3− | 0.1− |
| 2006 09 30 | 691 | 0.0 | 0.1+ | 2006 10 31 | G96 | 0.2+ | 0.0 | 2009 02 26 | 691 | 0.0 | 0.6− |
| 2006 09 30 | 691 | 0.2− | 0.0 | 2006 10 31 | G96 | 0.4+ | 0.5− | 2009 02 26 | 691 | 0.5− | 0.2+ |
| 2006 09 30 | 691 | 0.3− | 0.1− | 2006 10 31 | G96 | 0.4+ | 0.0 | 2009 02 26 | 691 | 0.3− | 0.2+ |
| 2006 10 11 | 644 | 0.0 | 0.3+ | 2009 02 01 | G96 | 0.6+ | 0.0 | 2009 03 16 | 691 | 0.0 | 0.3+ |
| 2006 10 11 | 644 | 0.3+ | 0.3+ | 2009 02 01 | G96 | 0.4− | 0.1− | 2009 03 16 | 691 | 0.0 | 0.2+ |
| 2006 10 11 | 644 | 0.0 | 0.0 | 2009 02 01 | G96 | 1.4+ | 0.8− | 2009 03 16 | 691 | 0.3+ | 0.0 |
| 2006 10 22 | G96 | 0.0 | 0.4− | 2009 02 01 | G96 | 0.0 | 0.0 | | | | |
| 2006 10 22 | G96 | 0.1+ | 0.0 | 2009 02 01 | G96 | 0.2+ | 0.1− | | | | |

**2006 SS$_{247}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 209.89012 | | (2000.0) | | | |
| $n$ | 0.20954498 | $\omega$ | 26.10993 | | +0.61986050 | −0.78417007 |
| $a$ | 2.8072723 | $\Omega$ | 25.61575 | | +0.70763683 | +0.54253101 |
| $e$ | 0.1017648 | $i$ | 3.86732 | | +0.33915052 | +0.30122650 |
| $P$ | 4.70 | $H$ | 16.8 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 09 15 | 691 | 0.0 | 0.2+ | 2006 09 30 | G96 | 0.2+ | 0.7− | 2006 11 21 | G96 | 0.1+ | 0.3− |
| 2006 09 15 | 691 | 0.1+ | 0.5+ | 2006 09 30 | G96 | 0.1+ | 0.3− | 2008 02 09 | G96 | 0.1− | 0.4− |
| 2006 09 15 | 691 | 0.0 | 0.0 | 2006 10 21 | G96 | 0.3− | 0.1− | 2008 02 09 | G96 | 0.1+ | 0.1− |
| 2006 09 26 | G96 | 0.2+ | 0.4− | 2006 10 21 | G96 | 0.3− | 0.6− | 2008 02 09 | G96 | 0.0 | 0.5+ |
| 2006 09 26 | G96 | 0.1+ | 0.1+ | 2006 10 21 | G96 | 0.2− | 0.3− | 2008 02 09 | G96 | 0.1− | 0.1− |
| 2006 09 26 | G96 | 0.1+ | 0.2− | 2006 10 21 | G96 | 0.1− | 0.0 | 2009 04 21 | G96 | 0.2+ | 0.3− |
| 2006 09 26 | G96 | 0.0 | 0.1− | 2006 11 21 | G96 | 0.2+ | 0.1− | 2009 04 21 | G96 | 0.4− | 0.2− |
| 2006 09 30 | G96 | 0.0 | 0.1− | 2006 11 21 | G96 | 0.4+ | 0.2+ | 2009 04 21 | G96 | 0.4− | 0.1− |
| 2006 09 30 | G96 | 0.1+ | 0.4− | 2006 11 21 | G96 | 0.6− | 0.1− | 2009 04 21 | G96 | 0.2+ | 0.1− |

**2006 SL$_{282}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 243.08883 | | (2000.0) | | | |
| $n$ | 0.21058848 | $\omega$ | 236.22082 | | +0.99372080 | −0.09465400 |
| $a$ | 2.7979910 | $\Omega$ | 129.13706 | | +0.10967693 | +0.92953136 |
| $e$ | 0.1258122 | $i$ | 4.41156 | | −0.02213461 | +0.35638753 |
| $P$ | 4.68 | $H$ | 16.3 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 01 08 | 691 | 0.6− | 1.6+ | 2005 06 01 | 691 | 0.2+ | 0.4+ | 2006 09 30 | 703 | 0.0 | 0.4− |
| 1994 01 08 | 691 | 1.2+ | 0.2− | 2005 06 01 | 691 | 0.3+ | 0.8+ | 2006 09 30 | 703 | 0.6+ | 0.7+ |
| 1994 01 08 | 691 | 0.4− | 0.1+ | 2006 08 24 | 644 | 0.1+ | 0.0 | 2006 09 30 | 703 | 1.2+ | 1.5+ |
| 1995 04 04 | 691 | 0.3− | 0.4− | 2006 08 24 | 644 | 0.4− | 0.2+ | 2006 10 11 | 291 | 0.0 | 0.2+ |
| 1995 04 04 | 691 | 0.5− | 0.8− | 2006 08 24 | 644 | 0.5+ | 0.2+ | 2006 10 11 | 291 | 0.0 | 0.3+ |
| 1995 04 04 | 691 | 0.1− | 1.2− | 2006 09 14 | 703 | 0.1− | 0.2− | 2006 10 11 | 291 | 0.0 | 0.3+ |
| 2004 03 18 | 691 | 0.0 | 0.3+ | 2006 09 14 | 703 | 0.8+ | 0.4− | 2008 02 01 | 691 | 0.0 | 0.3− |
| 2004 03 18 | 691 | 0.0 | 0.3+ | 2006 09 14 | 703 | 0.0 | 0.0 | 2008 02 01 | 691 | 0.2− | 0.1− |
| 2004 03 18 | 691 | 0.4+ | 0.4+ | 2006 09 14 | 703 | 0.3− | 0.8− | 2008 02 01 | 691 | 0.1− | 0.1− |
| 2005 05 19 | G96 | 0.6− | 0.3+ | 2006 09 25 | 699 | 0.8− | 0.3+ | 2009 02 24 | 691 | 0.4− | 0.6+ |
| 2005 05 19 | G96 | 0.5− | 0.4+ | 2006 09 25 | 699 | 1.0− | 1.0+ | 2009 02 24 | 691 | 0.7+ | 0.2+ |
| 2005 05 19 | G96 | 0.2− | 0.3+ | 2006 09 25 | 699 | 0.5− | 1.2− | 2009 02 24 | 691 | 0.5+ | 0.4+ |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 05 19 | G96 | 0.7− | 0.2+ | 2006 09 25 | 699 | 1.3− | 0.3+ | | | | | | | |
| 2005 06 01 | 691 | 0.0 | 0.3+ | 2006 09 30 | 703 | 0.5+ | 0.4− | | | | | | | |

**2006 SR$_{286}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 217.13023 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17702890 | $\omega$ | 197.62566 | | +0.99179659 | −0.12400638 | |
| $a$ | 3.1412797 | $\Omega$ | 169.35346 | | +0.12782613 | +0.96213054 | |
| $e$ | 0.1847399 | $i$ | 9.66437 | | +0.00001517 | +0.24274935 | |
| $P$ | 5.57 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 09 21 | 699 | 0.7+ | 0.2− | 2006 10 11 | 644 | 0.3− | 0.2+ | 2006 10 22 | 703 | 0.2− | 0.1− | | | |
| 2006 09 21 | 699 | 0.1+ | 0.7+ | 2006 10 16 | 705 | 0.2+ | 0.1+ | 2006 10 22 | 703 | 0.3− | 0.1− | | | |
| 2006 09 21 | 699 | 0.4− | 0.7− | 2006 10 16 | 705 | 0.1+ | 0.1+ | 2006 10 23 | 705 | 0.3+ | 0.0 | | | |
| 2006 09 21 | 699 | 0.4− | 0.6− | 2006 10 19 | 644 | 0.2− | 0.1+ | 2006 10 23 | 705 | 0.3+ | 0.1− | | | |
| 2006 09 30 | 703 | 0.2− | 0.1− | 2006 10 19 | 644 | 0.3− | 0.2− | 2009 03 03 | G96 | 0.3− | 0.1+ | | | |
| 2006 09 30 | 703 | 0.1+ | 0.6+ | 2006 10 19 | 644 | 0.3+ | 0.2+ | 2009 03 03 | G96 | 0.0 | 0.1+ | | | |
| 2006 09 30 | 703 | 0.5+ | 0.6− | 2006 10 20 | 705 | 0.1+ | 0.0 | 2009 03 03 | G96 | 0.4− | 0.2+ | | | |
| 2006 09 30 | 703 | 0.3+ | 1.1+ | 2006 10 20 | 705 | 0.2+ | 0.0 | 2009 03 03 | G96 | 0.3+ | 0.3− | | | |
| 2006 10 10 | 644 | 0.2− | 0.3+ | 2006 10 21 | 644 | 0.1− | 0.0 | 2009 03 28 | G96 | 0.0 | 0.2+ | | | |
| 2006 10 10 | 644 | 0.4+ | 0.1+ | 2006 10 21 | 644 | 0.0 | 0.1− | 2009 03 28 | G96 | 0.3+ | 0.4− | | | |
| 2006 10 10 | 644 | 0.1− | 0.0 | 2006 10 21 | 644 | 0.1+ | 0.3− | 2009 03 28 | G96 | 1.0+ | 0.0 | | | |
| 2006 10 11 | 644 | 0.2− | 0.1+ | 2006 10 22 | 703 | 0.2+ | 0.5− | 2009 03 28 | G96 | 0.9− | 0.2+ | | | |
| 2006 10 11 | 644 | 0.2− | 0.3+ | 2006 10 22 | 703 | 1.0− | 0.4− | | | | | | | |

**2006 SE$_{291}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 46.49983 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.37550983 | $\omega$ | 108.05061 | | +0.55899456 | −0.79599688 | |
| $a$ | 1.9027797 | $\Omega$ | 305.70500 | | +0.61055202 | +0.58461441 | |
| $e$ | 0.0920443 | $i$ | 16.61515 | | +0.56102702 | +0.15689158 | |
| $P$ | 2.62 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 09 16 | 703 | 0.2− | 0.8+ | 2006 10 27 | 703 | 0.5+ | 0.6− | 2007 03 21 | G96 | 0.1+ | 0.3+ | | | |
| 2006 09 16 | 703 | 0.5+ | 0.1+ | 2006 10 27 | 703 | 0.2− | 0.2− | 2007 03 21 | G96 | 0.0 | 0.5+ | | | |
| 2006 09 16 | 703 | 0.7+ | 0.4+ | 2006 10 27 | 703 | 0.2− | 0.1+ | 2007 03 21 | G96 | 0.1+ | 0.7+ | | | |
| 2006 09 16 | 703 | 0.1+ | 0.8+ | 2006 10 27 | 703 | 0.2− | 0.2+ | 2007 03 21 | G96 | 0.1− | 0.3+ | | | |
| 2006 09 22 | 699 | (2.4+ | 0.8+) | 2006 10 27 | 703 | 0.6+ | 0.4− | 2009 11 16 | 703 | 0.0 | 1.0+ | | | |
| 2006 09 22 | 699 | 0.2+ | 0.7+ | 2006 10 27 | 703 | 0.0 | 0.2− | 2009 11 16 | 703 | 0.7+ | 1.1− | | | |
| 2006 09 22 | 699 | 0.0 | 0.3+ | 2006 11 22 | 703 | 0.9− | 0.1+ | 2009 11 16 | 703 | 0.4− | 1.7− | | | |
| 2006 09 22 | 699 | 1.0+ | 0.0 | 2006 11 22 | 703 | 0.7− | 0.1− | 2009 11 16 | 703 | 0.5− | 0.3− | | | |
| 2006 10 20 | 703 | 0.4− | 0.3− | 2006 11 22 | 703 | 0.6− | 0.4− | 2009 12 16 | 703 | 0.2− | 0.7+ | | | |
| 2006 10 20 | 703 | 0.3+ | 0.0 | 2006 11 22 | 703 | 0.1+ | 0.3+ | 2009 12 16 | 703 | 0.7+ | 0.1+ | | | |
| 2006 10 20 | 703 | 0.2− | 0.0 | 2007 03 10 | G96 | 0.3+ | 0.6+ | 2009 12 16 | 703 | 1.1− | 0.8+ | | | |
| 2006 10 20 | 703 | 0.1− | 0.5− | 2007 03 10 | G96 | 0.6+ | 0.0 | 2009 12 16 | 703 | 0.3+ | 0.4− | | | |
| 2006 10 27 | 703 | 0.2− | 0.2− | 2007 03 10 | G96 | 0.2+ | 0.1− | | | | | | | |
| 2006 10 27 | 703 | 1.2− | 1.5− | 2007 03 10 | G96 | 0.1− | 0.0 | | | | | | | |

**2006 SQ$_{297}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 155.92537 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18221839 | $\omega$ | 247.07546 | | +0.25993391 | −0.96529701 | |
| $a$ | 3.0813515 | $\Omega$ | 187.98453 | | +0.93907625 | +0.25878310 | |
| $e$ | 0.0532401 | $i$ | 10.46072 | | +0.22487811 | +0.03511401 | |
| $P$ | 5.41 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 09 17 | 691 | 0.1+ | 0.2+ | 2006 10 21 | G96 | 0.0 | 0.1− | 2006 11 16 | G96 | 0.4+ | 0.0 | | | |
| 2006 09 17 | 691 | 0.5− | 0.2− | 2006 10 21 | G96 | 0.7− | 0.4− | 2006 11 16 | G96 | 0.1− | 0.2+ | | | |
| 2006 09 17 | 691 | 0.1+ | 0.2− | 2006 10 21 | G96 | 0.8− | 0.1− | 2006 11 16 | G96 | 0.0 | 0.3+ | | | |
| 2006 09 25 | 691 | 0.0 | 0.2+ | 2006 10 21 | G96 | 0.3− | 0.8− | 2006 11 20 | 705 | 0.0 | 0.3+ | | | |
| 2006 09 25 | 691 | 0.2+ | 0.2+ | 2006 10 22 | 705 | 0.2+ | 0.0 | 2006 11 20 | 705 | 0.2− | 0.0 | | | |
| 2006 09 25 | 691 | 0.1− | 0.1+ | 2006 10 22 | 705 | 0.1+ | 0.1− | 2009 04 21 | G96 | 0.1− | 0.2+ | | | |
| 2006 09 25 | G96 | 0.2− | 0.2− | 2006 10 23 | 705 | 0.2+ | 0.1− | 2009 04 21 | G96 | 0.1+ | 0.2+ | | | |
| 2006 09 25 | G96 | 0.1− | 0.2− | 2006 10 23 | 705 | 0.1+ | 0.1− | 2009 04 21 | G96 | 0.9+ | 0.3+ | | | |
| 2006 09 25 | G96 | 0.4− | 0.2− | 2006 10 29 | 705 | 0.1+ | 0.1− | 2009 04 21 | G96 | 0.7− | 0.1+ | | | |
| 2006 09 25 | G96 | 0.2− | 0.1− | 2006 10 29 | 705 | 0.1+ | 0.1− | 2009 05 13 | G96 | 0.2+ | 0.0 | | | |
| 2006 10 02 | 691 | 0.1− | 0.1− | 2006 10 31 | 705 | 0.2+ | 0.1− | 2009 05 13 | G96 | 0.0 | 0.2+ | | | |
| 2006 10 02 | 691 | 0.6+ | 0.3+ | 2006 10 31 | 705 | 0.2+ | 0.0 | 2009 05 13 | G96 | 0.3− | 0.1+ | | | |
| 2006 10 02 | 691 | 0.1− | 0.3+ | 2006 11 16 | G96 | 0.8+ | 0.6+ | 2009 05 13 | G96 | 0.1+ | 0.0 | | | |

**2006 ST$_{314}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 143.97880 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17853856 | $\omega$ | 280.44258 | | −0.15407232 | −0.98805270 | |
| $a$ | 3.1235469 | $\Omega$ | 178.40643 | | +0.95044212 | −0.14922468 | |
| $e$ | 0.1102414 | $i$ | 7.61420 | | +0.27003981 | −0.03852081 | |
| $P$ | 5.52 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 09 17 | 691 | 0.0 | 0.1+ | 2006 10 01 | 691 | 0.1+ | 0.4+ | 2006 12 26 | G96 | 0.0 | 0.4+ | | | |
| 2006 09 17 | 691 | 0.1+ | 0.1+ | 2006 10 22 | G96 | 0.3+ | 0.3− | 2008 02 13 | G96 | 0.0 | 0.5+ | | | |
| 2006 09 17 | 691 | 0.0 | 0.2− | 2006 10 22 | G96 | 0.3− | 0.2+ | 2008 02 13 | G96 | 0.1− | 0.2− | | | |
| 2006 09 27 | 691 | 0.1+ | 0.1+ | 2006 10 22 | G96 | 0.6+ | 0.2− | 2008 02 13 | G96 | 0.1+ | 0.2− | | | |
| 2006 09 27 | 691 | 0.1− | 0.2− | 2006 10 22 | G96 | 0.1− | 0.0 | 2008 02 13 | G96 | 0.0 | 0.1+ | | | |
| 2006 09 27 | 691 | 0.2− | 0.2− | 2006 12 26 | G96 | 0.2− | 0.8− | 2009 04 02 | 691 | 0.7+ | 0.5− | | | |
| 2006 10 01 | 691 | 0.1+ | 0.0 | 2006 12 26 | G96 | 0.4− | 0.1− | 2009 04 02 | 691 | 0.9− | 0.6+ | | | |
| 2006 10 01 | 691 | 0.1− | 0.2+ | 2006 12 26 | G96 | 0.6+ | 0.7− | 2009 04 02 | 691 | 0.2+ | 0.3− | | | |

**2006 SW$_{321}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 241.65723 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21197699 | $\omega$ | 348.78184 | | +0.89191354 | −0.44669641 | |
| $a$ | 2.7857592 | $\Omega$ | 38.00384 | | +0.42323395 | +0.76979149 | |
| $e$ | 0.0167784 | $i$ | 6.56309 | | +0.15925849 | +0.45594229 | |
| $P$ | 4.65 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 09 17 | 691 | 0.2− | 0.0 | 2006 10 22 | G96 | 0.1+ | 0.3− | 2009 03 17 | 691 | 0.6+ | 0.3+ | | | |
| 2006 09 17 | 691 | 0.5− | 0.3+ | 2006 10 22 | G96 | 0.7− | 0.3− | 2009 03 17 | 691 | 0.1+ | 0.4+ | | | |
| 2006 09 17 | 691 | 0.1− | 0.2− | 2006 10 22 | G96 | 0.2− | 0.5− | 2009 04 20 | G96 | 0.1− | 0.0 | | | |
| 2006 09 27 | 691 | 0.2+ | 0.2− | 2006 10 22 | G96 | 0.3− | 0.6− | 2009 04 20 | G96 | 0.6+ | 0.3− | | | |
| 2006 09 27 | 691 | 0.1+ | 0.0 | 2006 11 16 | G96 | 0.0 | 0.1+ | 2009 04 20 | G96 | 0.1− | 0.1+ | | | |
| 2006 09 27 | 691 | 0.2+ | 0.2+ | 2006 11 16 | G96 | 0.3+ | 0.2− | 2009 04 20 | G96 | 0.2+ | 0.0 | | | |
| 2006 10 01 | 691 | 0.1+ | 0.1− | 2006 11 16 | G96 | 0.1− | 0.1− | 2009 05 25 | G96 | 0.3− | 0.3− | | | |
| 2006 10 01 | 691 | 0.2+ | 0.0 | 2006 11 16 | G96 | 0.0 | 0.3− | 2009 05 25 | G96 | 0.1− | 0.1+ | | | |
| 2006 10 01 | 691 | 0.3+ | 0.4+ | 2009 03 17 | 691 | 0.8− | 0.9− | 2009 05 25 | G96 | 0.1− | 0.1+ | | | |

**2006 SJ$_{337}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 201.34811 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17508015 | $\omega$ | 218.25288 | | +0.91682512 | −0.39714764 | |
| $a$ | 3.1645462 | $\Omega$ | 164.98480 | | +0.39423100 | +0.88394663 | |
| $e$ | 0.0858917 | $i$ | 9.17216 | | +0.06335305 | +0.24680379 | |
| $P$ | 5.63 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 09 28 | 705 | 0.2+ | 0.1− | 2006 10 02 | G96 | 0.1− | 0.2− | 2006 10 21 | 644 | 0.2+ | 0.3+ | | | |
| 2006 09 28 | 705 | 0.2+ | 0.1− | 2006 10 02 | G96 | 0.2+ | 0.1− | 2006 10 21 | 644 | 0.4+ | 0.3+ | | | |
| 2006 09 28 | 691 | 0.1+ | 0.2+ | 2006 10 02 | G96 | 0.4− | 0.2− | 2006 10 21 | 644 | 0.2+ | 0.2+ | | | |
| 2006 09 28 | 691 | 0.1− | 0.0 | 2006 10 02 | G96 | 0.2+ | 0.1− | 2009 03 03 | 691 | 0.0 | 0.0 | | | |
| 2006 09 28 | 691 | 0.0 | 0.1+ | 2006 10 03 | 291 | 0.1− | 0.2− | 2009 03 03 | 691 | 0.2+ | 0.0 | | | |
| 2006 09 30 | 705 | 0.4+ | 0.0 | 2006 10 03 | 291 | 0.1− | 0.1+ | 2009 03 03 | 691 | 0.1+ | 0.1+ | | | |
| 2006 09 30 | 705 | 0.3+ | 0.1− | 2006 10 03 | 291 | 0.1− | 0.0 | 2009 03 03 | G96 | 0.2− | 0.1− | | | |
| 2006 10 01 | 705 | 0.3+ | 0.1− | 2006 10 03 | G96 | 0.0 | 0.5− | 2009 03 03 | G96 | 0.0 | 0.0 | | | |
| 2006 10 01 | 705 | 0.4+ | 0.1− | 2006 10 03 | G96 | 0.1+ | 0.5− | 2009 03 03 | G96 | 0.2+ | 0.2+ | | | |
| 2006 10 02 | 691 | 0.2+ | 0.2+ | 2006 10 03 | 291 | 0.1+ | 0.1− | 2009 03 03 | G96 | 0.2+ | 0.1− | | | |
| 2006 10 02 | 691 | 0.2− | 0.1+ | 2006 10 03 | G96 | 0.0 | 0.3− | 2009 03 17 | 691 | 0.4− | 0.1− | | | |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 10 02 | 691 | 0.0 | 0.1+ | 2006 10 03 | 291 | 0.1− | 0.1− | 2009 03 17 | 691 | 0.2− | 0.2+ |
| 2006 10 02 | G96 | 0.3+ | 0.4− | 2006 10 03 | 291 | 0.0 | 0.1− | 2009 03 17 | 691 | 0.0 | 0.2− |
| 2006 10 02 | G96 | 0.1− | 0.5− | 2006 10 03 | G96 | 0.4− | 0.6− | 2009 03 28 | G96 | 0.5+ | 0.4+ |
| 2006 10 02 | 705 | 0.4+ | 0.0 | 2006 10 16 | 703 | 1.5− | 0.9+ | 2009 03 28 | G96 | 0.4− | 1.4− |
| 2006 10 02 | 705 | 0.5+ | 0.0 | 2006 10 16 | 703 | 0.1− | 0.4+ | 2009 03 28 | G96 | 0.1+ | 0.2+ |
| 2006 10 02 | G96 | 0.1+ | 0.4− | 2006 10 16 | 703 | 0.3− | 0.7− | 2009 03 28 | G96 | 0.5+ | 0.1+ |
| 2006 10 02 | G96 | 0.3+ | 0.2− | 2006 10 16 | 703 | 0.6− | 1.2+ | | | | |

**2006 SV$_{338}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 191.51155 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17491660 | $\omega$ | 0.90770 | | +0.83832082 | −0.53743014 | |
| $a$ | 3.1665185 | $\Omega$ | 32.14230 | | +0.49909935 | +0.68897079 | |
| $e$ | 0.0909069 | $i$ | 9.91207 | | +0.21935823 | +0.48630043 | |
| $P$ | 5.63 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 09 28 | 691 | 0.1+ | 0.1− | 2006 10 22 | G96 | 0.2− | 0.3− | 2009 02 26 | 291 | 0.0 | 0.2− |
| 2006 09 28 | 691 | 0.1+ | 0.1− | 2006 10 22 | G96 | 0.2+ | 0.1− | 2009 02 26 | 291 | 0.1+ | 0.3+ |
| 2006 09 28 | 691 | 0.2+ | 0.1− | 2006 10 22 | G96 | 0.4+ | 0.5− | 2009 02 26 | 291 | 0.2+ | 0.1− |
| 2006 10 02 | 691 | 0.4− | 0.2− | 2006 11 14 | G96 | 0.4+ | 0.1+ | 2009 03 27 | G96 | 0.7− | 0.2− |
| 2006 10 02 | 691 | 0.1− | 0.0 | 2006 11 14 | G96 | 0.1− | 0.2− | 2009 03 27 | G96 | 0.5+ | 0.1− |
| 2006 10 02 | 691 | 0.3− | 0.6+ | 2006 11 14 | G96 | 0.4+ | 0.7+ | 2009 03 27 | G96 | 0.4− | 0.1+ |
| 2006 10 22 | G96 | 0.2+ | 0.2− | 2006 11 14 | G96 | 0.4+ | 0.2+ | 2009 03 27 | G96 | 0.3− | 0.2+ |

**2006 SL$_{339}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 236.58081 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18853127 | $\omega$ | 228.51442 | | +0.99802705 | +0.01877345 | |
| $a$ | 3.0121768 | $\Omega$ | 130.32037 | | +0.00338336 | +0.93678230 | |
| $e$ | 0.0886182 | $i$ | 4.50699 | | −0.06269415 | +0.34940875 | |
| $P$ | 5.23 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 09 18 | 703 | 0.7− | 0.6− | 2006 10 02 | G96 | 0.4− | 0.3− | 2007 12 06 | G96 | 1.0+ | 0.3− |
| 2006 09 18 | 703 | 0.1− | 0.4+ | 2006 10 02 | G96 | 0.3+ | 0.1− | 2007 12 06 | G96 | 0.4+ | 0.4− |
| 2006 09 18 | 703 | 0.0 | 0.5+ | 2006 10 02 | 691 | 0.1+ | 0.1+ | 2007 12 06 | G96 | 0.9+ | 0.7− |
| 2006 09 18 | 703 | 1.4− | 0.1+ | 2006 10 02 | G96 | 0.2− | 0.5− | 2007 12 06 | G96 | 0.3+ | 0.2− |
| 2006 09 28 | 705 | 0.1+ | 0.1− | 2006 10 02 | G96 | 0.1− | 0.2− | 2007 12 30 | 691 | 0.6− | 0.1+ |
| 2006 09 28 | 705 | 0.2+ | 0.0 | 2006 10 04 | 705 | 0.1+ | 0.1− | 2007 12 30 | 691 | 0.1− | 0.2− |
| 2006 09 28 | 691 | 0.4− | 0.1+ | 2006 10 04 | 705 | 0.3+ | 0.1− | 2007 12 30 | 691 | 0.1+ | 0.2+ |
| 2006 09 28 | 691 | 0.1− | 0.3+ | 2006 10 12 | 705 | 0.0 | 0.1− | 2009 03 01 | 691 | 0.8− | 0.8+ |
| 2006 09 28 | 691 | 0.1+ | 0.2+ | 2006 10 12 | 705 | 0.2+ | 0.0 | 2009 03 01 | 691 | 0.5+ | 0.5− |
| 2006 09 30 | 705 | 0.2+ | 0.0 | 2006 10 16 | 703 | 0.8− | 0.3− | 2009 03 01 | 691 | 0.5+ | 0.5+ |
| 2006 09 30 | 705 | 0.3+ | 0.0 | 2006 10 16 | 703 | 0.6− | 0.6+ | 2009 03 22 | G96 | 0.2+ | 0.1− |
| 2006 10 01 | 705 | 0.2+ | 0.0 | 2006 10 16 | 703 | 0.5− | 1.1+ | 2009 03 22 | G96 | 0.2+ | 0.0 |
| 2006 10 01 | 705 | 0.3+ | 0.0 | 2006 10 16 | 703 | 0.9− | 0.9+ | 2009 03 22 | G96 | 0.1+ | 0.1− |
| 2006 10 02 | 691 | 0.6+ | 0.3− | 2006 10 21 | 705 | 0.1− | 0.1− | 2009 03 22 | G96 | 0.1− | 0.0 |
| 2006 10 02 | 691 | 0.2+ | 0.1+ | 2006 10 21 | 705 | 0.0 | 0.1− | | | | |

**2006 SL$_{351}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 227.32957 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18054133 | $\omega$ | 216.92395 | | +0.98570416 | +0.15417600 | |
| $a$ | 3.1004040 | $\Omega$ | 134.05775 | | −0.12293747 | +0.93392275 | |
| $e$ | 0.1355689 | $i$ | 5.42556 | | −0.11521151 | +0.32251832 | |
| $P$ | 5.46 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 09 20 | 691 | 0.1+ | 0.8− | 2006 10 02 | G96 | 0.2− | 0.1+ | 2009 03 03 | G96 | 0.2− | 0.0 |
| 2006 09 20 | 691 | 0.1− | 0.5− | 2006 10 16 | 703 | 0.3+ | 0.4− | 2009 03 03 | G96 | 0.2+ | 0.1− |
| 2006 09 20 | 691 | 0.1+ | 0.5+ | 2006 10 16 | 703 | 0.3− | 1.1− | 2009 03 03 | G96 | 0.3+ | 0.1+ |
| 2006 09 30 | 703 | 0.6− | 0.3+ | 2006 10 16 | 703 | 1.9+ | 0.2+ | 2009 03 03 | G96 | 0.3+ | 0.4− |
| 2006 09 30 | 703 | 0.5− | 1.5+ | 2006 10 16 | 703 | 0.9+ | 0.4+ | 2009 04 18 | G96 | 0.0 | 0.1− |
| 2006 09 30 | 703 | 0.2+ | 0.4+ | 2006 11 25 | G96 | 0.6− | 0.3+ | 2009 04 18 | G96 | 0.7− | 0.6− |
| 2006 09 30 | 703 | 0.8− | 0.0 | 2006 11 25 | G96 | 0.2− | 0.5+ | 2009 04 18 | G96 | 0.6− | 0.3− |
| 2006 10 02 | G96 | 0.0 | 0.3+ | 2006 11 25 | G96 | 0.3− | 0.2+ | 2009 04 18 | G96 | 0.3+ | 0.4+ |
| 2006 10 02 | G96 | 0.2− | 0.1− | 2006 11 25 | G96 | 0.1− | 0.0 | | | | |

**2006 SN$_{367}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 269.43854 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22374045 | $\omega$ | 306.27950 | | +0.97888839 | +0.11649037 | |
| $a$ | 2.6872396 | $\Omega$ | 47.69012 | | −0.01055130 | +0.84939983 | |
| $e$ | 0.2879302 | $i$ | 13.12696 | | −0.20412296 | +0.51473286 | |
| $P$ | 4.41 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 07 28 | E12 | 0.2− | 0.1− | 2006 09 26 | 703 | 0.3− | 0.5+ | 2006 10 28 | 703 | 0.6+ | 0.4− |
| 2006 07 28 | E12 | 0.3− | 0.8− | 2006 10 03 | E12 | 0.3+ | 0.2− | 2008 02 26 | 291 | 0.0 | 0.1+ |
| 2006 08 14 | 644 | 0.0 | 0.3+ | 2006 10 03 | E12 | 0.3+ | 0.0 | 2008 02 26 | 291 | 0.3− | 0.4− |
| 2006 08 14 | 644 | 0.3+ | 0.2+ | 2006 10 03 | E12 | 0.2− | 0.3+ | 2008 02 26 | 291 | 0.3+ | 0.3+ |
| 2006 08 14 | 644 | 0.3+ | 0.1− | 2006 10 03 | E12 | 0.6+ | 0.4− | 2009 04 02 | G96 | 0.1+ | 0.3− |
| 2006 09 26 | 703 | 0.3− | 0.4+ | 2006 10 28 | 703 | 0.3+ | 0.5+ | 2009 04 02 | G96 | 0.2+ | 0.9+ |
| 2006 09 26 | 703 | 0.8− | 0.1+ | 2006 10 28 | 703 | 0.8− | 0.2− | 2009 04 02 | G96 | 1.0− | 0.3+ |
| 2006 09 26 | 703 | 0.3− | 0.3+ | 2006 10 28 | 703 | 0.1+ | 0.1+ | 2009 04 02 | G96 | 1.3+ | 0.0 |

**2006 SZ$_{373}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 327.82987 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17755449 | $\omega$ | 84.67011 | | −0.34089156 | +0.93879344 | |
| $a$ | 3.1350775 | $\Omega$ | 165.10530 | | −0.92074444 | −0.32275612 | |
| $e$ | 0.0771280 | $i$ | 11.12503 | | −0.18979629 | −0.12039671 | |
| $P$ | 5.55 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 09 16 | 705 | 0.0 | 0.0 | 2006 09 30 | 705 | 0.0 | 0.0 | 2009 02 16 | 703 | 0.5− | 0.5− |
| 2006 09 16 | 705 | 0.0 | 0.0 | 2006 10 03 | 705 | 0.1+ | 0.1− | 2009 02 16 | 703 | 0.5− | 0.5− |
| 2006 09 17 | 705 | 0.1+ | 0.0 | 2006 10 03 | 705 | 0.0 | 0.0 | 2009 02 16 | 703 | 0.5+ | 0.9+ |
| 2006 09 17 | 705 | 0.0 | 0.1− | 2006 10 04 | 705 | 0.0 | 0.0 | 2009 04 26 | G96 | 0.1− | 0.3+ |
| 2006 09 28 | 705 | 0.0 | 0.0 | 2006 10 04 | 705 | 0.1+ | 0.0 | 2009 04 26 | G96 | 0.2+ | 0.1− |
| 2006 09 28 | 705 | 0.0 | 0.1+ | 2009 02 03 | 691 | 0.4+ | 0.2− | 2009 04 26 | G96 | 0.6− | 0.0 |
| 2006 09 29 | 705 | 0.0 | 0.1− | 2009 02 03 | 691 | 0.3− | 0.0 | 2009 04 26 | G96 | 0.7+ | 0.4− |
| 2006 09 29 | 705 | 0.1− | 0.1+ | 2009 02 03 | 691 | 0.2+ | 0.1+ | | | | |
| 2006 09 30 | 705 | 0.0 | 0.0 | 2009 02 16 | 703 | 0.8− | 0.7+ | | | | |

**2006 SU$_{384}$ = 2008 AT$_{131}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 296.11310 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21584479 | $\omega$ | 214.24318 | | +0.92586039 | +0.35224464 | |
| $a$ | 2.7523796 | $\Omega$ | 124.55230 | | −0.29874688 | +0.90399721 | |
| $e$ | 0.0930327 | $i$ | 9.55898 | | −0.23137165 | +0.24230716 | |
| $P$ | 4.57 | $H$ | 18.7 | $G$ | 0.15 | $U$ | 5 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 09 27 | 705 | 0.2− | 0.0 | 2006 10 01 | 705 | 0.1+ | 0.1+ | 2008 01 06 | 568 | 0.1+ | 0.0 |
| 2006 09 27 | 705 | 0.1+ | 0.1− | 2006 10 01 | 705 | 0.1+ | 0.1− | 2008 01 06 | 568 | 0.1+ | 0.0 |
| 2006 09 29 | 705 | 0.0 | 0.1+ | 2006 10 03 | 705 | 0.1− | 0.0 | 2008 01 06 | 568 | 0.0 | 0.0 |
| 2006 09 29 | 705 | 0.1− | 0.0 | 2006 10 03 | 705 | 0.1− | 0.0 | 2008 01 07 | 568 | 0.2− | 0.0 |
| 2006 09 30 | 705 | 0.1+ | 0.1+ | 2006 10 04 | 705 | 0.0 | 0.0 | | | | |
| 2006 09 30 | 705 | 0.0 | 0.0 | 2006 10 04 | 705 | 0.0 | 0.0 | | | | |

**2006 SE$_{400}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 344.68620 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24011159 | $\omega$ | 96.26930 | | +0.51258167 | +0.85654722 | |
| $a$ | 2.5636612 | $\Omega$ | 204.85158 | | −0.83333746 | +0.47945855 | |
| $e$ | 0.1228357 | $i$ | 8.19285 | | −0.20690264 | +0.19090927 | |
| $P$ | 4.10 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 09 19 | 691 | 0.0 | 0.2+ | 2006 10 19 | G96 | 0.4+ | 0.0 | 2009 03 17 | 691 | 0.1+ | 0.5− |
| 2006 09 19 | 691 | 0.0 | 0.1+ | 2006 10 19 | G96 | 0.1+ | 0.0 | 2009 03 17 | 691 | 0.2− | 0.7+ |
| 2006 09 19 | 691 | 0.1− | 0.2+ | 2006 10 19 | G96 | 0.2+ | 0.2+ | 2009 03 17 | 691 | 0.3− | 0.3− |
| 2006 09 26 | 691 | 0.1− | 0.1− | 2006 10 31 | G96 | 0.0 | 0.1− | 2009 04 18 | 691 | 0.1− | 0.1− |
| 2006 09 26 | 691 | 0.1− | 0.3− | 2006 10 31 | G96 | 0.7− | 0.4− | 2009 04 18 | 691 | 0.0 | 0.2− |
| 2006 09 26 | 691 | 0.1− | 0.1− | 2006 10 31 | G96 | 0.2− | 0.2− | 2009 04 18 | 691 | 0.2+ | 0.3+ |
| 2006 10 17 | 703 | (2.3− | 0.2+) | 2006 10 31 | G96 | 0.3− | 0.4− | 2009 05 16 | G96 | 0.0 | 0.0 |
| 2006 10 17 | 703 | 1.4+ | 0.8− | 2006 11 22 | G96 | 0.3+ | 0.3− | 2009 05 16 | G96 | 0.3+ | 0.0 |
| 2006 10 17 | 703 | (2.2− | 2.2−) | 2006 11 22 | G96 | 0.0 | 0.1+ | 2009 05 16 | G96 | 0.2+ | 0.5− |
| 2006 10 17 | 703 | (0.1− | 1.8−) | 2006 11 22 | G96 | 0.3− | 0.7+ | 2009 05 16 | G96 | 0.0 | 0.2− |
| 2006 10 19 | G96 | 0.9+ | 0.1+ | 2006 11 22 | G96 | 0.2− | 0.7− | | | | |

**2006 SX$_{412}$ = 2002 TP$_{191}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 321.05888 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23406176 | $\omega$ | 28.87449 | | +0.68321466 | | +0.69370166 |
| $a$ | 2.6076486 | $\Omega$ | 285.26560 | | −0.70712854 | | +0.55062207 |
| $e$ | 0.1177392 | $i$ | 13.67214 | | −0.18217286 | | +0.46432031 |
| $P$ | 4.21 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 05 05 | 645 | 0.0 | 0.2+ | 2005 05 14 | E12 | 0.1+ | 0.8+ | 2007 12 03 | 691 | 0.3− | 1.1+ |
| 2000 05 05 | 645 | 0.1+ | 0.1+ | 2005 07 03 | E12 | 0.6+ | 0.7+ | 2007 12 03 | 691 | 0.4+ | 0.7+ |
| 2002 10 05 | 699 | 0.4+ | 0.2+ | 2005 07 03 | E12 | 0.3+ | 0.6− | 2007 12 03 | 691 | 0.1+ | 0.3+ |
| 2002 10 05 | 699 | 0.2− | 0.0 | 2005 07 03 | E12 | 1.0+ | 0.0 | 2007 12 20 | 691 | 0.3+ | 0.0 |
| 2002 10 05 | 699 | 0.7− | 0.7+ | 2005 07 03 | E12 | 0.3− | 0.2+ | 2007 12 20 | 691 | 0.1+ | 0.1− |
| 2002 10 05 | 699 | 0.6+ | 0.8+ | 2006 09 17 | 703 | 0.6+ | 0.2+ | 2007 12 20 | 691 | 0.3+ | 0.2+ |
| 2002 10 06 | 704 | 0.1+ | 0.6+ | 2006 09 17 | 703 | 0.2− | 0.1− | 2008 01 15 | 699 | 1.6+ | 0.5− |
| 2002 10 06 | 704 | 0.1+ | 0.2− | 2006 09 17 | 703 | 0.8− | 0.4− | 2008 01 15 | 699 | 0.7− | 0.3+ |
| 2002 10 06 | 704 | 0.1− | 0.2+ | 2006 09 17 | 703 | 0.0 | 1.0+ | 2008 01 15 | 699 | 0.7− | 0.7+ |
| 2002 10 06 | 704 | 0.0 | 0.5− | 2006 09 28 | 703 | 0.2+ | 0.3+ | 2008 01 15 | 699 | 0.4+ | 0.2− |
| 2002 10 06 | 704 | 0.4+ | 0.1− | 2006 09 28 | 703 | 0.3+ | 0.1− | 2008 02 12 | 691 | 0.2− | 1.3− |
| 2004 01 17 | 644 | 0.6+ | 0.8+ | 2006 09 28 | 703 | 0.2− | 0.3− | 2008 02 12 | 691 | 0.5− | 0.9− |
| 2004 01 17 | 644 | 0.5+ | 0.5+ | 2006 09 28 | 703 | 0.4− | 0.3+ | 2008 02 12 | 691 | 0.8− | 0.8− |
| 2004 01 17 | 644 | 0.2+ | 0.4+ | 2006 10 20 | 703 | 0.0 | 0.2− | 2009 04 29 | E12 | 0.8+ | 0.5− |
| 2005 05 14 | E12 | 1.0− | 0.3+ | 2006 10 20 | 703 | 0.3− | 0.5− | 2009 04 29 | E12 | 0.2+ | 0.1− |
| 2005 05 14 | E12 | 0.1− | 0.2+ | 2006 10 20 | 703 | 0.5+ | 0.7+ | 2009 04 29 | E12 | 0.1+ | 0.6− |
| 2005 05 14 | E12 | 0.6− | 0.3+ | 2006 10 20 | 703 | 0.3− | 0.1+ | 2009 04 29 | E12 | 0.3− | 0.2+ |

**2006 SY$_{412}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 288.15050 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.27329630 | $\omega$ | 145.31592 | | +0.42379701 | | −0.89839363 |
| $a$ | 2.3516908 | $\Omega$ | 279.36613 | | +0.80233251 | | +0.43140402 |
| $e$ | 0.0896077 | $i$ | 6.70849 | | +0.42030779 | | +0.08233743 |
| $P$ | 3.61 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 05 | 644 | 0.3+ | 0.6+ | 2004 02 11 | 644 | 0.2− | 0.2+ | 2006 10 19 | 703 | 0.2− | 0.3+ |
| 2002 08 05 | 644 | 0.0 | 0.4− | 2004 02 11 | 644 | 0.2+ | 0.1− | 2006 10 19 | 703 | 0.5− | 0.5+ |
| 2002 08 05 | 644 | 0.0 | 0.2+ | 2006 09 17 | 703 | 0.4+ | 0.4− | 2006 10 19 | 703 | 0.3+ | 0.0 |
| 2002 08 16 | 644 | 0.1− | 0.1− | 2006 09 17 | 703 | 0.4− | 0.4− | 2006 10 27 | 703 | 1.5− | 0.6+ |
| 2002 08 16 | 644 | 0.3− | 0.0 | 2006 09 17 | 703 | 0.1− | 0.1− | 2006 10 27 | 703 | (2.0− | 0.9+) |
| 2002 08 16 | 644 | 0.1− | 0.3+ | 2006 09 17 | 703 | 0.2+ | 1.2− | 2006 10 27 | 703 | (0.7+ | 2.0+) |
| 2004 02 11 | 644 | 0.0 | 0.0 | 2006 10 19 | 703 | 1.1+ | 0.5+ | 2006 10 27 | 703 | 0.7+ | 0.3− |

**2006 SZ$_{412}$ = 2004 FU$_{16}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 295.21355 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21805141 | $\omega$ | 17.25504 | | +0.85279142 | | +0.49274359 |
| $a$ | 2.7337793 | $\Omega$ | 311.93216 | | −0.50240386 | | +0.68354146 |
| $e$ | 0.0948436 | $i$ | 13.45198 | | −0.14260840 | | +0.53849310 |
| $P$ | 4.52 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 03 16 | 568 | 0.4− | 0.2+ | 2006 09 17 | 703 | 0.8− | 1.2+ | 2006 10 09 | 644 | 0.1+ | 0.3+ |
| 2004 03 16 | 568 | 0.2− | 0.4+ | 2006 09 17 | 703 | 0.8+ | 0.5+ | 2007 12 05 | 691 | 0.0 | 0.4+ |
| 2004 03 16 | 568 | 0.1+ | 0.1+ | 2006 09 28 | 703 | 0.4− | 0.5− | 2007 12 05 | 691 | 0.2+ | 0.1− |
| 2004 03 17 | 568 | 0.4+ | 0.3+ | 2006 09 28 | 703 | 0.1+ | 0.3+ | 2007 12 05 | 691 | 0.3− | 0.3+ |
| 2004 03 17 | 568 | 0.4+ | 0.1+ | 2006 09 28 | 703 | 0.0 | 0.5+ | 2008 01 30 | 291 | 0.2+ | 0.4− |
| 2004 03 17 | 568 | 0.4+ | 0.1− | 2006 09 28 | 703 | 0.0 | 0.7− | 2008 01 30 | 291 | 0.0 | 0.1− |
| 2006 09 17 | 703 | (1.0− | 1.7−) | 2006 10 09 | 644 | 0.2− | 0.1+ | 2008 01 30 | 291 | 0.0 | 0.3− |
| 2006 09 17 | 703 | 0.2+ | 1.1− | 2006 10 09 | 644 | 0.0 | 0.0 | | | | |

**2006 SC$_{413}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 344.72550 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.26279096 | $\omega$ | 253.59867 | | +0.83706490 | | +0.50045153 |
| $a$ | 2.4139546 | $\Omega$ | 75.89320 | | −0.37314216 | | +0.81772726 |
| $e$ | 0.2197864 | $i$ | 13.17588 | | −0.40010909 | | +0.28437719 |
| $P$ | 3.75 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 05 09 | 691 | 0.6− | 0.9− | 2006 10 28 | 703 | 0.5+ | 0.3− | 2009 05 04 | G96 | 0.2+ | 0.4+ |
| 1994 05 09 | 691 | 0.2− | 0.5− | 2006 11 17 | 703 | 0.4− | 1.6+ | 2009 05 04 | G96 | 0.3+ | 0.5+ |
| 1994 05 09 | 691 | 0.4+ | 0.6+ | 2006 11 17 | 703 | 1.0+ | 0.8− | 2009 05 04 | G96 | 0.0 | 0.5+ |
| 2006 09 19 | 703 | 0.1− | 0.3+ | 2006 11 17 | 703 | 0.1− | 2.1+ | 2009 05 04 | G96 | 0.1+ | 0.6+ |
| 2006 09 19 | 703 | 0.7− | 0.8− | 2006 11 17 | 703 | 1.2− | 1.1+ | 2009 05 24 | 703 | 0.2− | 1.0+ |
| 2006 09 19 | 703 | 0.4+ | 0.2+ | 2008 03 05 | G96 | 0.4+ | 0.0 | 2009 05 24 | 703 | 0.4− | 0.7+ |
| 2006 09 19 | 703 | 0.3+ | 0.3− | 2008 03 05 | G96 | 0.4− | 0.2+ | 2009 05 24 | 703 | 0.8− | 0.2+ |
| 2006 10 10 | 644 | 0.2+ | 0.0 | 2008 03 05 | G96 | 0.1− | 0.3− | 2009 05 24 | 703 | 1.0− | 0.4− |
| 2006 10 10 | 644 | 0.1+ | 0.0 | 2008 03 05 | G96 | 0.0 | 0.0 | 2009 06 22 | 291 | 0.2+ | 0.0 |
| 2006 10 10 | 644 | 0.2− | 0.2− | 2009 04 02 | G96 | 0.2+ | 0.3+ | 2009 06 22 | 291 | 0.5+ | 0.1+ |
| 2006 10 28 | 703 | 0.4+ | 1.5− | 2009 04 02 | G96 | 0.4+ | 0.2+ | 2009 06 22 | 291 | 0.3+ | 0.1+ |
| 2006 10 28 | 703 | 0.1− | 0.2+ | 2009 04 02 | G96 | 0.2+ | 0.2− | | | | |
| 2006 10 28 | 703 | 0.6− | 0.5− | 2009 04 02 | G96 | 0.5+ | 0.2+ | | | | |

**2006 SD$_{413}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 273.65828 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21174236 | $\omega$ | 220.59626 | | +0.97076407 | | +0.17432109 |
| $a$ | 2.7878167 | $\Omega$ | 128.58533 | | −0.12595782 | | +0.95514440 |
| $e$ | 0.2383417 | $i$ | 12.18684 | | −0.20433245 | | +0.23939785 |
| $P$ | 4.65 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 27 | 644 | 0.1− | 0.1+ | 2006 10 20 | 703 | 1.9+ | 1.3+ | 2006 10 28 | 703 | 0.5− | 0.5− |
| 2001 08 27 | 644 | 0.4+ | 0.1− | 2006 10 20 | 703 | 0.3+ | 0.8− | 2009 03 02 | G96 | 0.1+ | 0.4+ |
| 2001 08 27 | 644 | 0.3− | 0.0 | 2006 10 20 | 703 | 1.3+ | 0.8− | 2009 03 02 | G96 | 0.1− | 0.4+ |
| 2006 09 19 | 703 | 0.3+ | 0.5− | 2006 10 20 | 703 | 0.1+ | 0.8+ | 2009 03 02 | G96 | 0.3+ | 0.1+ |
| 2006 09 19 | 703 | 0.3+ | 1.1+ | 2006 10 20 | 703 | 0.2+ | 0.2− | 2009 03 02 | G96 | 0.5− | 0.2− |
| 2006 09 19 | 703 | 0.8− | 0.1+ | 2006 10 20 | 703 | 0.3+ | 0.2− | 2009 04 21 | G96 | 0.4+ | 0.4− |
| 2006 09 19 | 703 | 0.2+ | 0.4+ | 2006 10 20 | 703 | 0.1+ | 0.3− | 2009 04 21 | G96 | 0.2− | 0.2− |
| 2006 09 26 | 703 | 0.6+ | 1.4− | 2006 10 20 | 703 | 0.3+ | 0.0 | 2009 04 21 | G96 | 0.1+ | 0.4+ |
| 2006 09 26 | 703 | 1.0− | 0.0 | 2006 10 28 | 703 | 1.1− | 0.9+ | 2009 04 21 | G96 | 0.1+ | 0.2+ |
| 2006 09 26 | 703 | 0.6− | 0.6− | 2006 10 28 | 703 | 0.2− | 0.5− | | | | |
| 2006 09 26 | 703 | 1.7− | 1.3+ | 2006 10 28 | 703 | 0.2− | 0.2+ | | | | |

**2006 SF$_{413}$ = 2003 UN$_{324}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 245.70195 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.37163421 | $\omega$ | 24.58424 | | −0.80648781 | | +0.58533534 |
| $a$ | 1.9159857 | $\Omega$ | 192.33973 | | −0.58619789 | | −0.81000336 |
| $e$ | 0.0260225 | $i$ | 22.97788 | | −0.07713265 | | +0.03573648 |
| $P$ | 2.65 | $H$ | 17.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 17 | 645 | 0.1− | 0.0 | 2006 09 30 | 703 | 0.7+ | 0.7+ | 2006 10 22 | 703 | 1.0− | 0.5+ |
| 2003 10 17 | 645 | 0.0 | 0.0 | 2006 09 30 | 703 | 0.1− | 0.6+ | 2006 10 22 | 644 | 0.1+ | 0.1− |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 18 | 645 | 0.0 | 0.0 | 2006 10 02 | G96 | 0.0 | 0.5− | 2006 10 22 | 644 | 0.1− | 0.2− |
| 2003 10 18 | 645 | 0.1+ | 0.0 | 2006 10 02 | G96 | 0.3− | 0.7− | 2006 10 22 | 644 | 0.0 | 0.3− |
| 2006 09 19 | 691 | 0.0 | 0.3− | 2006 10 02 | G96 | 0.2− | 0.4− | 2006 10 28 | 703 | 0.7− | 0.4+ |
| 2006 09 19 | 691 | 0.1− | 0.0 | 2006 10 02 | G96 | 0.3− | 0.5− | 2006 10 28 | 703 | (1.0− | 3.0−) |
| 2006 09 19 | 691 | 0.2− | 0.1+ | 2006 10 22 | 703 | 0.3− | 0.7− | 2006 10 28 | 703 | 2.0+ | 0.3+ |
| 2006 09 30 | 703 | (2.7+ | 1.7+) | 2006 10 22 | 703 | 0.9− | 0.7− | 2006 10 28 | 703 | 1.2+ | 1.0+ |
| 2006 09 30 | 703 | 1.0+ | 1.0+ | 2006 10 22 | 703 | (0.2+ | 2.2−) | | | | |

**2006 SG$_{413}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 284.39289 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.25746746 | $\omega$ | 297.43761 | | +0.84500826 | −0.50202354 | |
| $a$ | 2.4471156 | $\Omega$ | 93.22100 | | +0.53219360 | +0.75582791 | |
| $e$ | 0.1941038 | $i$ | 10.63208 | | +0.05225910 | +0.42035287 | |
| $P$ | 3.83 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 13 | 644 | 0.2− | 0.2+ | 2006 09 28 | E12 | 0.2− | 0.4− | 2009 05 16 | G96 | 0.0 | 0.1+ |
| 2002 08 13 | 644 | 0.1+ | 0.1+ | 2006 09 28 | E12 | 0.1+ | 0.7+ | 2009 05 16 | G96 | 0.5+ | 0.4− |
| 2002 08 13 | 644 | 0.4− | 0.2+ | 2006 09 28 | E12 | 0.4+ | 0.0 | 2009 05 16 | G96 | 0.2+ | 0.1+ |
| 2002 08 13 | 644 | 0.4+ | 0.2+ | 2006 09 28 | E12 | 0.3+ | 1.4− | 2009 05 16 | G96 | 0.1− | 0.2− |
| 2002 08 13 | 644 | 0.8− | 0.4− | 2006 10 12 | E12 | 0.5− | 0.8+ | 2009 05 16 | G96 | 0.1+ | 0.0 |
| 2002 08 13 | 644 | 0.8+ | 0.0 | 2006 10 12 | E12 | 0.4− | 0.1+ | 2009 05 30 | G96 | 0.1− | 0.2− |
| 2006 09 20 | 703 | 0.3+ | 0.5− | 2006 10 12 | E12 | 0.1− | 0.4− | 2009 05 30 | G96 | 0.2− | 0.1+ |
| 2006 09 20 | 703 | 0.1+ | 0.2− | 2006 10 12 | E12 | 0.7− | 0.4+ | 2009 05 30 | G96 | 0.1+ | 0.2− |
| 2006 09 20 | 703 | 0.2− | 0.3+ | 2009 05 16 | G96 | 0.4− | 0.3+ | 2009 05 30 | G96 | 0.0 | 0.1+ |
| 2006 09 20 | 703 | 1.0+ | 0.3+ | 2009 05 16 | G96 | 0.2− | 0.3+ | | | | |

**2006 SH$_{413}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 246.34908 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22719558 | $\omega$ | 281.59216 | | +0.39805711 | −0.91126161 | |
| $a$ | 2.6599254 | $\Omega$ | 144.35932 | | +0.89637062 | +0.36187805 | |
| $e$ | 0.2048513 | $i$ | 10.44183 | | +0.19511596 | +0.19658729 | |
| $P$ | 4.34 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 09 22 | 703 | 1.1− | 0.2+ | 2006 10 28 | 703 | 0.2− | 0.1− | 2008 03 06 | G96 | 0.1− | 0.5+ |
| 2006 09 22 | 703 | 0.2− | 1.9+ | 2006 10 28 | 703 | 0.1− | 1.3− | 2008 03 06 | G96 | 0.1− | 0.3+ |
| 2006 09 22 | 703 | 0.2+ | 1.1+ | 2006 10 28 | 703 | 0.1− | 0.5− | 2008 03 06 | G96 | 0.1− | 0.1+ |
| 2006 09 22 | 703 | 0.0 | 0.4+ | 2006 10 28 | 703 | 0.9+ | 0.6− | 2008 04 14 | G96 | 0.2+ | 0.1+ |
| 2006 10 17 | 703 | (0.6− | 2.4+) | 2006 11 08 | 644 | 0.1− | 0.8+ | 2008 04 14 | G96 | 0.2+ | 0.2+ |
| 2006 10 17 | 703 | 0.1+ | 0.3− | 2006 11 08 | 644 | 0.1+ | 0.1− | 2008 04 14 | G96 | 0.3− | 0.3+ |
| 2006 10 17 | 703 | 0.2− | 0.3+ | 2006 11 08 | 644 | 0.0 | 0.2− | 2008 04 14 | G96 | 0.7+ | 0.2− |
| 2006 10 17 | 703 | 0.1+ | 0.1− | 2008 03 06 | G96 | 0.1− | 0.1+ | | | | |

**2006 SJ$_{413}$ = 2002 XZ$_{104}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 276.53568 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23358590 | $\omega$ | 307.72675 | | +0.90996600 | −0.34217349 | |
| $a$ | 2.6111889 | $\Omega$ | 73.37138 | | +0.41348482 | +0.79159547 | |
| $e$ | 0.2682568 | $i$ | 14.15155 | | −0.03149891 | +0.50625479 | |
| $P$ | 4.22 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 12 05 | 704 | 0.8− | 0.9+ | 2006 09 25 | 703 | 0.0 | 1.1− | 2006 11 16 | 703 | 0.1− | 0.0 |
| 2002 12 05 | 704 | 1.1− | 1.7+ | 2006 09 25 | 703 | 0.8+ | 0.8+ | 2006 11 16 | 703 | 0.9+ | 1.1+ |
| 2002 12 05 | 704 | 1.8+ | 1.6− | 2006 10 21 | 703 | 0.7+ | 0.1− | 2006 11 16 | 703 | 0.1− | 0.5+ |
| 2002 12 05 | 704 | 0.6+ | 0.6− | 2006 10 21 | 703 | 0.3− | 0.5+ | 2006 11 16 | 703 | 1.3− | 1.2− |
| 2002 12 10 | 704 | 0.3− | 0.5+ | 2006 10 21 | 703 | 0.1− | 0.4+ | 2006 12 09 | 699 | 0.1+ | 1.4− |
| 2002 12 10 | 704 | 0.7− | 0.7− | 2006 10 21 | 703 | 0.5− | 0.1+ | 2006 12 09 | 699 | 1.0+ | 0.7+ |
| 2002 12 10 | 704 | 0.1+ | 0.4+ | 2006 10 28 | 703 | 0.3+ | 1.1− | 2006 12 09 | 699 | 0.2+ | 0.7+ |
| 2002 12 10 | 704 | 0.1+ | 0.3− | 2006 10 28 | 703 | 0.7+ | 0.8− | 2006 12 09 | 699 | (0.8+ | 2.4−) |
| 2006 09 25 | 703 | 0.1+ | 0.4+ | 2006 10 28 | 703 | 1.0− | 0.9− | | | | |
| 2006 09 25 | 703 | 0.2− | 0.8+ | 2006 10 28 | 703 | 0.7− | 0.4+ | | | | |

**2006 SL$_{413}$ = 2005 GG$_{22}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 81.48127 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.38575934 | $\omega$ | 19.61848 | | +0.62261671 | −0.75418423 | |
| $a$ | 1.8689245 | $\Omega$ | 32.89210 | | +0.65680161 | +0.35867523 | |
| $e$ | 0.0582177 | $i$ | 22.60028 | | +0.42539403 | +0.55005293 | |
| $P$ | 2.55 | $H$ | 17.6 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 04 02 | 703 | 0.7− | 0.9− | 2006 09 26 | G96 | 0.2+ | 0.4− | 2006 10 27 | 703 | 0.1− | 0.7+ |
| 2005 04 02 | 703 | 1.3+ | 1.7+ | 2006 10 19 | 703 | 0.1− | 0.2− | 2006 10 27 | 703 | 0.1+ | 0.6− |
| 2005 04 02 | 703 | 0.1− | 0.3− | 2006 10 19 | 703 | 0.2− | 0.7− | 2006 10 27 | 703 | 0.3− | 1.4+ |
| 2005 04 02 | 703 | 1.0+ | 0.1+ | 2006 10 19 | 703 | 0.2− | 1.5− | 2006 10 27 | 703 | 1.2+ | 0.6+ |
| 2005 04 06 | 703 | 0.1+ | 1.0− | 2006 10 19 | 703 | 0.3− | 0.3− | 2006 10 27 | 703 | 0.6+ | 0.2+ |
| 2005 04 06 | 703 | 1.3− | 0.8− | 2006 10 19 | 691 | 0.1− | 0.3+ | 2006 10 27 | 703 | 0.1+ | 0.4+ |
| 2005 04 06 | 703 | 0.7− | 0.6+ | 2006 10 19 | 691 | 0.2− | 0.6+ | 2006 11 02 | 703 | 0.1− | 0.3− |
| 2005 04 06 | 703 | 0.1+ | 0.5+ | 2006 10 19 | 691 | 0.1+ | 0.2+ | 2006 11 02 | 703 | 0.8− | 1.2− |
| 2006 09 26 | G96 | 0.1+ | 0.3− | 2006 10 27 | 703 | 0.7+ | 0.1− | 2006 11 02 | 703 | 0.5+ | 0.2− |
| 2006 09 26 | G96 | 0.1+ | 0.3− | 2006 10 27 | 703 | 0.3+ | 0.7− | 2006 11 02 | 703 | 1.0− | 0.6− |

**2006 SO$_{413}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 247.53422 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18856435 | $\omega$ | 236.01762 | | +0.97989039 | +0.11763063 | |
| $a$ | 3.0118244 | $\Omega$ | 116.75379 | | −0.06153438 | +0.94652916 | |
| $e$ | 0.1245372 | $i$ | 10.39883 | | −0.18981132 | +0.30040904 | |
| $P$ | 5.23 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 09 29 | 699 | 0.3+ | 0.9− | 2006 10 22 | 703 | 0.9− | 0.1+ | 2007 12 30 | G96 | 0.2+ | 0.1− |
| 2006 09 29 | 699 | 0.9− | 0.2+ | 2006 10 22 | 703 | 0.6+ | 0.3+ | 2007 12 30 | G96 | 0.1− | 0.4− |
| 2006 09 29 | 699 | 1.0− | 0.9+ | 2006 10 22 | 703 | (1.0− | 1.7−) | 2007 12 30 | G96 | 0.0 | 0.4− |
| 2006 09 29 | 699 | 0.2− | 0.1+ | 2006 10 28 | 703 | (1.6+ | 2.2+) | 2008 01 13 | 691 | 0.3− | 0.5+ |
| 2006 10 11 | 644 | 0.4− | 0.4+ | 2006 10 28 | 703 | 0.1− | 0.9+ | 2008 01 13 | 691 | 0.1+ | 0.2− |
| 2006 10 11 | 644 | 0.4− | 0.3− | 2006 10 28 | 703 | 0.3+ | 0.1+ | 2008 01 13 | 691 | 0.1− | 0.1+ |
| 2006 10 11 | 644 | 0.1− | 0.1− | 2006 10 28 | 703 | 0.7+ | 1.1− | 2008 12 30 | G96 | 0.6− | 0.0 |
| 2006 10 17 | 703 | 1.3+ | 0.3− | 2007 12 05 | G96 | 0.3+ | 0.1+ | 2008 12 30 | G96 | 0.7− | 0.1− |
| 2006 10 17 | 703 | 1.2− | 0.2+ | 2007 12 05 | G96 | 0.5+ | 0.0 | 2008 12 30 | G96 | 0.9+ | 0.3− |
| 2006 10 17 | 703 | 1.2+ | 0.3− | 2007 12 05 | G96 | 0.6+ | 0.2+ | 2008 12 30 | G96 | 0.3+ | 0.2− |
| 2006 10 17 | 703 | (0.3+ | 3.4−) | 2007 12 05 | G96 | 0.4− | 0.8− | | | | |
| 2006 10 22 | 703 | 0.8+ | 0.2− | 2007 12 30 | G96 | 0.2+ | 0.1− | | | | |

**2006 SP$_{413}$ = 2008 AL$_{41}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 210.97852 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18778835 | $\omega$ | 137.09153 | | +0.83013537 | −0.54411206 | |
| $a$ | 3.0201160 | $\Omega$ | 256.25631 | | +0.47159115 | +0.80166906 | |
| $e$ | 0.0600847 | $i$ | 7.19891 | | +0.29745094 | +0.24752532 | |
| $P$ | 5.25 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 07 24 | 691 | 0.1− | 0.1− | 2006 09 30 | 703 | 0.2− | 1.0− | 2008 01 10 | 703 | 1.1− | 0.5− |
| 2000 07 24 | 691 | 0.1+ | 0.0 | 2006 10 10 | 644 | 0.3+ | 0.0 | 2008 01 10 | 703 | 0.7− | 0.2− |
| 2000 07 24 | 691 | 0.1− | 0.3− | 2006 10 10 | 644 | 0.2+ | 0.6+ | 2008 01 10 | 703 | 0.8− | 1.0+ |
| 2001 10 26 | 644 | 0.0 | 0.4+ | 2006 10 10 | 644 | 0.7+ | 0.2+ | 2008 01 13 | G96 | 0.5+ | 0.2+ |
| 2001 10 26 | 644 | 0.1− | 0.2+ | 2006 10 22 | 644 | 0.5+ | 0.1− | 2008 01 13 | G96 | 0.1− | 0.1− |
| 2001 10 26 | 644 | 0.1+ | 0.1− | 2006 10 22 | 644 | 0.2− | 0.1+ | 2008 01 13 | G96 | 0.4+ | 0.2− |
| 2002 12 07 | 645 | 0.0 | 0.0 | 2006 10 22 | 644 | 0.0 | 0.2+ | 2008 01 13 | G96 | 0.2+ | 0.2+ |
| 2002 12 07 | 645 | 0.1+ | 0.1− | 2007 12 31 | 703 | 0.2− | 0.3+ | 2009 04 03 | G96 | 0.0 | 0.1+ |
| 2006 09 30 | 703 | 0.2+ | 0.3+ | 2007 12 31 | 703 | 0.3− | 0.8− | 2009 04 03 | G96 | 0.2+ | 0.2+ |
| 2006 09 30 | 703 | 0.5− | 0.5− | 2007 12 31 | 703 | (1.6+ | 0.2−) | 2009 04 03 | G96 | 0.2+ | 0.4+ |
| 2006 09 30 | 703 | 0.3+ | 0.8+ | 2008 01 10 | 703 | 0.4− | 0.5+ | 2009 04 03 | G96 | 0.5+ | 0.3− |

**2006 TZ$_{15}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 143.79904 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17736095 | $\omega$ | 245.39674 | | −0.03412497 | −0.99614590 | |
| $a$ | 3.1373578 | $\Omega$ | 206.93754 | | +0.96930284 | −0.01329112 | |
| $e$ | 0.0631229 | $i$ | 10.27434 | | +0.24349021 | −0.08669886 | |
| $P$ | 5.56 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 09 15 | 691 | 0.2+ | 0.0 | 2006 10 16 | 691 | 0.0 | 0.0 | 2006 11 11 | G96 | 0.9− | 0.5− |
| 2006 09 15 | 691 | 0.4− | 0.1− | 2006 10 16 | 691 | 0.1− | 0.0 | 2006 11 11 | G96 | 0.1− | 0.0 |
| 2006 09 15 | 691 | 0.9− | 0.0 | 2006 10 16 | 691 | 0.5+ | 0.1+ | 2006 11 22 | G96 | 0.4− | 0.0 |
| 2006 09 27 | 152 | 0.0 | 0.1− | 2006 10 21 | 703 | 0.9− | 0.4− | 2006 11 22 | G96 | 0.3− | 0.4+ |
| 2006 09 27 | 152 | 0.5+ | 0.8− | 2006 10 21 | 703 | 0.8− | 0.3− | 2006 11 22 | G96 | 0.2− | 0.1− |
| 2006 09 27 | 152 | 1.3+ | 0.1− | 2006 10 21 | 703 | 0.7− | 1.2− | 2006 11 22 | G96 | 0.1− | 0.3+ |
| 2006 09 30 | 691 | 0.2− | 0.1+ | 2006 10 21 | 703 | 0.4+ | 0.7− | 2009 04 01 | G96 | 0.1+ | 0.1− |
| 2006 09 30 | 691 | 0.1+ | 0.1− | 2006 10 21 | 644 | 0.5+ | 0.8+ | 2009 04 01 | G96 | 0.1− | 0.1+ |
| 2006 09 30 | 691 | 0.4+ | 0.5+ | 2006 10 21 | 644 | 0.0 | 0.4+ | 2009 04 01 | G96 | 0.2+ | 0.3− |
| 2006 10 11 | 691 | 0.1− | 0.1+ | 2006 10 21 | 644 | 0.3− | 0.1+ | 2009 04 01 | G96 | 0.1+ | 0.1+ |
| 2006 10 11 | 691 | 0.3+ | 0.1+ | 2006 10 28 | 691 | 0.1+ | 0.2− | 2009 04 28 | G96 | 0.3− | 0.2+ |
| 2006 10 11 | 691 | 0.2+ | 0.0 | 2006 10 28 | 691 | 0.0 | 0.1− | 2009 04 28 | G96 | 0.0 | 0.4+ |
| 2006 10 15 | 691 | 0.5+ | 0.0 | 2006 10 28 | 691 | 0.0 | 0.2+ | 2009 04 28 | G96 | 0.3+ | 0.3+ |
| 2006 10 15 | 691 | 0.2− | 0.2+ | 2006 11 11 | G96 | 0.2+ | 0.0 | | | | |
| 2006 10 15 | 691 | 0.1+ | 0.0 | 2006 11 11 | G96 | 0.1− | 0.0 | | | | |

**2006 TJ$_{22}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 209.27087 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17491552 | $\omega$ | 343.24248 | | +0.82353151 | −0.55227378 | |
| $a$ | 3.1665316 | $\Omega$ | 50.99956 | | +0.53771049 | +0.68720821 | |
| $e$ | 0.0767986 | $i$ | 9.59787 | | +0.18072988 | +0.47195184 | |
| $P$ | 5.63 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 09 30 | G96 | 0.0 | 0.2− | 2006 10 23 | 691 | 0.3− | 0.0 | 2006 11 17 | 703 | 0.7− | 0.8− |
| 2006 09 30 | G96 | 0.5− | 0.4− | 2006 10 23 | 691 | 0.0 | 0.2+ | 2006 11 17 | 703 | (1.8− | 2.3+) |
| 2006 09 30 | G96 | 0.3− | 0.1− | 2006 10 27 | 691 | 0.4+ | 0.0 | 2006 11 17 | 703 | 0.4− | 0.2− |
| 2006 09 30 | G96 | 0.2− | 0.2− | 2006 10 27 | 691 | 0.6− | 0.1− | 2006 11 17 | 703 | 0.9− | 0.8+ |
| 2006 09 30 | G96 | 0.5− | 0.3− | 2006 10 27 | 691 | 0.0 | 0.3+ | 2008 01 19 | G96 | 0.1− | 0.0 |
| 2006 09 30 | G96 | 0.5− | 0.4− | 2006 10 31 | 691 | 0.2+ | 0.1+ | 2008 01 19 | G96 | 0.1+ | 0.3+ |
| 2006 09 30 | G96 | 0.2− | 0.4− | 2006 10 31 | 691 | 0.2+ | 0.0 | 2008 01 19 | G96 | 0.2− | 0.1− |
| 2006 09 30 | G96 | 0.2− | 0.4− | 2006 10 31 | 691 | 0.1+ | 0.3+ | 2008 01 19 | G96 | 0.1+ | 0.0 |
| 2006 10 11 | 691 | 0.2+ | 0.1− | 2006 11 08 | 644 | 0.1− | 0.3− | 2008 03 01 | G96 | 0.1+ | 0.0 |
| 2006 10 11 | 691 | 0.2+ | 0.2+ | 2006 11 08 | 644 | 0.1+ | 0.2− | 2008 03 01 | G96 | 0.1+ | 0.0 |
| 2006 10 11 | 691 | 0.2+ | 0.2+ | 2006 11 08 | 644 | 0.3+ | 0.2− | 2008 03 01 | G96 | 0.0 | 0.1− |
| 2006 10 15 | 691 | 0.1− | 0.2+ | 2006 11 09 | 644 | 0.7+ | 0.1+ | 2008 03 01 | G96 | 0.1− | 0.4− |
| 2006 10 15 | 691 | 0.1+ | 0.0 | 2006 11 09 | 644 | 0.2− | 0.1+ | 2009 04 30 | G96 | 0.3+ | 0.2+ |
| 2006 10 15 | 691 | 0.2− | 0.2− | 2006 11 09 | 644 | 0.2− | 0.1+ | 2009 04 30 | G96 | 0.3+ | 0.4+ |
| 2006 10 19 | 691 | 0.0 | 0.1+ | 2006 11 13 | G96 | 0.3+ | 0.6− | 2009 04 30 | G96 | 0.3− | 0.1+ |
| 2006 10 19 | 691 | 0.3+ | 0.1+ | 2006 11 13 | G96 | 0.1+ | 0.8− | 2009 04 30 | G96 | 0.2+ | 0.1+ |
| 2006 10 19 | 691 | 0.3+ | 0.1+ | 2006 11 13 | G96 | 0.1− | 0.6− | | | | |
| 2006 10 23 | 691 | 0.1− | 0.1+ | 2006 11 13 | G96 | 0.2− | 0.6− | | | | |

**2006 TZ$_{22}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 313.39030 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22085799 | $\omega$ | 291.28610 | | +0.88515633 | +0.43952766 | |
| $a$ | 2.7105701 | $\Omega$ | 43.04005 | | −0.29874242 | +0.78842825 | |
| $e$ | 0.0903391 | $i$ | 12.92739 | | −0.35672293 | +0.43034444 | |
| $P$ | 4.46 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 09 30 | 703 | 0.8+ | 0.0 | 2006 10 23 | 691 | 0.4− | 0.3+ | 2006 11 27 | G96 | 0.2+ | 0.2− |
| 2006 09 30 | 703 | (2.0− | 0.1+) | 2006 10 27 | 691 | 0.2− | 0.1− | 2006 11 27 | G96 | 0.0 | 0.0 |
| 2006 09 30 | 703 | 0.1− | 0.6− | 2006 10 27 | 691 | 0.0 | 0.1+ | 2006 11 27 | G96 | 0.6+ | 0.0 |
| 2006 09 30 | 703 | 0.3− | 0.2+ | 2006 10 27 | 691 | 0.3+ | 0.1− | 2006 12 15 | G96 | 0.1− | 0.1− |
| 2006 09 30 | G96 | 1.1+ | 0.6− | 2006 10 31 | 691 | 0.1+ | 0.2− | 2006 12 15 | G96 | 0.2+ | 0.1− |
| 2006 09 30 | G96 | 0.6+ | 0.7− | 2006 10 31 | 691 | 0.6− | 0.1− | 2006 12 15 | G96 | 0.3− | 0.1+ |
| 2006 09 30 | G96 | 0.2+ | 0.6− | 2006 10 31 | 691 | (1.2+ | 1.9+) | 2006 12 15 | G96 | 0.1+ | 0.1− |
| 2006 09 30 | G96 | 0.7+ | 0.9− | 2006 11 11 | G96 | 0.1+ | 0.4− | 2009 02 27 | G96 | 0.7+ | 0.1+ |
| 2006 10 11 | 691 | 0.4+ | 0.0 | 2006 11 11 | G96 | 0.1+ | 0.4− | 2009 02 27 | G96 | 0.8+ | 0.5+ |
| 2006 10 11 | 691 | 0.3+ | 0.1+ | 2006 11 11 | G96 | 0.3+ | 0.4− | 2009 02 27 | G96 | 0.2− | 0.2+ |
| 2006 10 11 | 691 | 0.5+ | 0.1+ | 2006 11 11 | G96 | 0.0 | 0.3− | 2009 02 27 | G96 | 0.3+ | 0.1− |
| 2006 10 15 | 691 | 0.1+ | 0.5+ | 2006 11 14 | G96 | 0.1+ | 0.1− | 2009 03 31 | 691 | 0.3− | 0.1+ |
| 2006 10 15 | 691 | 0.5− | 0.0 | 2006 11 14 | G96 | 0.2+ | 0.1− | 2009 03 31 | 691 | 0.5+ | 0.2− |
| 2006 10 15 | 691 | 0.1− | 0.3+ | 2006 11 14 | G96 | 0.0 | 0.1− | 2009 03 31 | 691 | 0.5− | 0.0 |
| 2006 10 19 | 691 | 0.0 | 0.4+ | 2006 11 14 | G96 | 0.3+ | 0.1− | 2009 05 31 | G96 | 0.2+ | 0.1− |
| 2006 10 19 | 691 | 0.6− | 0.3− | 2006 11 22 | 104 | 0.2+ | 0.1+ | 2009 05 31 | G96 | 0.2− | 0.4+ |
| 2006 10 19 | 691 | 0.2− | 0.4+ | 2006 11 22 | 104 | 0.1+ | 0.9+ | 2009 05 31 | G96 | 0.1− | 0.5+ |
| 2006 10 23 | 691 | 0.2− | 0.1+ | 2006 11 22 | 104 | (0.5+ | 1.7+) | 2009 05 31 | G96 | 0.6+ | 0.3+ |
| 2006 10 23 | 691 | 0.4− | 0.1+ | 2006 11 27 | G96 | 0.2+ | 0.1+ | | | | |

**2006 TZ$_{23}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 242.53246 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18493519 | $\omega$ | 165.20930 | | +0.98440091 | −0.16395174 | |
| $a$ | 3.0510993 | $\Omega$ | 204.50466 | | +0.14171700 | +0.95390096 | |
| $e$ | 0.0489063 | $i$ | 8.85308 | | +0.10426479 | +0.25138175 | |
| $P$ | 5.33 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 09 30 | G96 | 0.1+ | 0.5− | 2006 10 19 | 691 | 0.1+ | 0.2− | 2009 03 31 | G96 | 0.1+ | 0.2− |
| 2006 09 30 | G96 | 0.0 | 0.5− | 2006 10 27 | 691 | 0.0 | 0.5+ | 2009 03 31 | G96 | 0.1− | 0.2+ |
| 2006 09 30 | G96 | 0.3+ | 0.5− | 2006 10 27 | 691 | 0.1+ | 0.3+ | 2009 03 31 | G96 | 0.2− | 0.1− |
| 2006 09 30 | G96 | 0.2+ | 0.5− | 2006 10 27 | 691 | 0.1+ | 0.3+ | 2009 03 31 | G96 | 0.2+ | 0.2+ |
| 2006 10 11 | 691 | 0.1− | 0.1+ | 2006 10 31 | G96 | 0.1+ | 0.3− | 2009 04 21 | G96 | 0.3+ | 0.4− |
| 2006 10 11 | 691 | 0.4− | 0.2+ | 2006 10 31 | G96 | 0.6+ | 0.5− | 2009 04 21 | G96 | 0.2+ | 0.1− |
| 2006 10 11 | 691 | 0.2+ | 0.1+ | 2006 10 31 | G96 | 0.5+ | 0.4− | 2009 04 21 | G96 | 0.0 | 0.0 |
| 2006 10 15 | 691 | 0.1− | 0.0 | 2006 10 31 | G96 | 0.3+ | 0.5− | 2009 04 21 | G96 | 0.1− | 0.1− |
| 2006 10 15 | 691 | 0.2+ | 0.0 | 2006 11 16 | G96 | 0.1− | 0.3− | 2009 05 14 | G96 | 0.1− | 0.0 |
| 2006 10 15 | 691 | 0.4− | 0.3+ | 2006 11 16 | G96 | 0.1+ | 0.3− | 2009 05 14 | G96 | 0.3+ | 0.3+ |
| 2006 10 19 | 691 | 0.3− | 0.2− | 2006 11 16 | G96 | 0.1+ | 0.7− | 2009 05 14 | G96 | 0.4− | 0.3+ |
| 2006 10 19 | 691 | 0.1− | 0.1− | 2006 11 16 | G96 | 0.1+ | 0.3− | 2009 05 14 | G96 | 0.1− | 0.5+ |

**2006 TK$_{27}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 237.50054 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18075203 | $\omega$ | 330.52297 | | +0.99974264 | +0.02219722 | |
| $a$ | 3.0979942 | $\Omega$ | 28.20628 | | −0.01838776 | +0.91379021 | |
| $e$ | 0.1847216 | $i$ | 0.56780 | | −0.01328704 | +0.40557951 | |
| $P$ | 5.45 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 09 29 | 691 | 0.1− | 0.3− | 2006 10 04 | G96 | 0.2+ | 0.1− | 2006 10 27 | G96 | 0.0 | 0.2− |
| 1995 09 29 | 691 | 0.1+ | 0.2+ | 2006 10 04 | G96 | 0.0 | 0.3− | 2006 10 27 | G96 | 0.1+ | 0.2− |
| 1995 09 29 | 691 | 0.1+ | 0.2− | 2006 10 12 | 691 | 0.2+ | 0.7+ | 2006 10 27 | G96 | 0.3− | 0.2− |
| 2000 08 03 | 691 | 0.3+ | 0.1+ | 2006 10 12 | 691 | 0.5+ | 0.1+ | 2006 10 29 | 691 | 0.2+ | 0.2+ |
| 2000 08 03 | 691 | 0.2− | 0.2+ | 2006 10 12 | 691 | 0.1+ | 0.2+ | 2006 10 29 | 691 | 0.1+ | 0.1+ |
| 2000 08 03 | 691 | 0.1− | 0.3− | 2006 10 16 | 691 | 0.4− | 0.3+ | 2006 10 29 | 691 | 0.1+ | 0.1+ |
| 2006 09 27 | G96 | 0.2− | 0.1+ | 2006 10 16 | 691 | 0.3− | 0.2− | 2006 11 27 | G96 | 0.1+ | 0.1− |
| 2006 09 27 | G96 | 0.8+ | 0.4− | 2006 10 16 | 691 | 0.3− | 0.2+ | 2006 11 27 | G96 | 0.1+ | 0.3− |
| 2006 09 27 | G96 | 0.3− | 0.6− | 2006 10 20 | 691 | 0.5− | 0.2− | 2006 11 27 | G96 | 0.2+ | 0.1+ |
| 2006 09 27 | G96 | 0.2+ | 0.4− | 2006 10 20 | 691 | 0.1− | 0.2− | 2006 11 27 | G96 | 0.2+ | 0.1− |
| 2006 10 04 | G96 | 0.3+ | 0.3− | 2006 10 20 | 691 | 0.2+ | 0.2− | | | | |
| 2006 10 04 | G96 | 0.6− | 0.2− | 2006 10 27 | G96 | 0.2− | 0.2− | | | | |

**2006 TY$_{39}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 2.87919 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27168790 | $\omega$ | 46.03503 | | +0.89220531 | +0.45156639 | |
| $a$ | 2.3609630 | $\Omega$ | 287.11940 | | −0.41660070 | +0.81640558 | |
| $e$ | 0.2033838 | $i$ | 0.45455 | | −0.17439480 | +0.35995795 | |
| $P$ | 3.63 | $H$ | 18.3 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 09 30 | 691 | 0.1+ | 0.1− | 2006 09 27 | G96 | 0.0 | 0.3− | 2006 10 20 | 695 | 0.1− | 0.0 |
| 1995 09 30 | 691 | 0.0 | 0.3− | 2006 09 27 | G96 | 0.2− | 0.5− | 2006 10 20 | 691 | 0.4− | 0.3− |
| 1995 09 30 | 691 | 0.0 | 0.1− | 2006 09 27 | G96 | 0.3+ | 0.4− | 2006 10 20 | 691 | 0.0 | 0.1− |
| 2002 08 08 | 644 | 0.3− | 0.5+ | 2006 09 27 | G96 | 0.3− | 0.3− | 2006 10 28 | 691 | 0.1+ | 0.1− |
| 2002 08 08 | 644 | 0.3− | 0.6+ | 2006 10 12 | 691 | 0.1+ | 0.0 | 2006 10 28 | 691 | 0.1− | 0.4+ |
| 2002 08 08 | 644 | 0.4+ | 0.1+ | 2006 10 12 | 691 | 0.1+ | 0.5+ | 2006 10 28 | 691 | 0.4+ | 0.5+ |
| 2002 08 17 | 644 | 0.1− | 0.5− | 2006 10 12 | 691 | 0.2− | 0.2− | 2006 11 27 | G96 | 0.4− | 0.5− |
| 2002 08 17 | 644 | 0.1− | 0.1− | 2006 10 16 | 691 | 0.1+ | 0.3+ | 2006 11 27 | G96 | 0.1− | 0.5− |
| 2002 08 17 | 644 | 0.2+ | 0.7− | 2006 10 16 | 691 | 0.1+ | 0.0 | 2006 11 27 | G96 | 0.3+ | 0.3− |
| 2002 08 27 | 644 | 0.1− | 0.3+ | 2006 10 16 | 691 | 0.2+ | 0.0 | 2006 11 27 | G96 | 0.4− | 0.4− |
| 2002 08 27 | 644 | 0.2+ | 0.5+ | 2006 10 20 | 695 | 0.1− | 0.2+ | | | | |
| 2002 08 27 | 644 | 0.2− | 0.0 | 2006 10 20 | 691 | 0.2− | 0.1+ | | | | |

**2006 TA$_{49}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 291.58686 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22393078 | $\omega$ | 122.72826 | | +0.98043445 | +0.11393101 | |
| $a$ | 2.6857166 | $\Omega$ | 231.25019 | | −0.15477835 | +0.95003764 | |
| $e$ | 0.1638566 | $i$ | 11.87810 | | +0.12162219 | +0.29059975 | |
| $P$ | 4.40 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1993 12 14 | 691 | 1.4− | 0.8+ | 2006 10 13 | 691 | 0.2− | 0.1− | 2006 11 11 | 703 | 0.2+ | 1.6+ |
| 1993 12 14 | 691 | 1.4+ | 0.6+ | 2006 10 17 | 691 | 0.2+ | 0.2− | 2006 11 11 | 703 | (1.1+ | 1.8+) |
| 2005 06 29 | 691 | 0.2− | 0.5+ | 2006 10 17 | 691 | 0.1+ | 0.2+ | 2006 11 11 | 703 | (1.0+ | 1.6+) |
| 2005 06 29 | 691 | 0.1− | 0.4+ | 2006 10 17 | 691 | 0.0 | 0.1+ | 2006 11 13 | 691 | 0.3− | 0.3− |
| 2005 06 29 | 691 | 0.1+ | 0.3+ | 2006 10 21 | 691 | 0.1− | 0.2− | 2006 11 13 | 691 | 0.2+ | 0.1− |
| 2006 10 04 | G96 | 0.0 | 0.1− | 2006 10 21 | 691 | 0.2+ | 0.2− | 2006 11 13 | 691 | 0.1− | 0.2− |
| 2006 10 04 | G96 | 0.2− | 0.4− | 2006 10 21 | 691 | 0.0 | 0.0 | 2006 11 22 | 104 | 0.2+ | 0.4− |
| 2006 10 04 | G96 | 0.2− | 0.2− | 2006 10 21 | 644 | 0.3− | 0.1− | 2006 11 22 | 104 | 0.4− | 0.1+ |
| 2006 10 04 | G96 | 0.2+ | 0.1− | 2006 10 21 | 644 | 0.1+ | 0.1+ | 2006 11 22 | 104 | 0.6− | 0.0 |
| 2006 10 12 | 644 | 0.1+ | 0.1− | 2006 10 21 | 644 | 0.1+ | 0.2+ | 2007 01 10 | G96 | 0.4+ | 0.5− |
| 2006 10 12 | 644 | 0.2− | 0.1− | 2006 10 21 | 644 | 0.3− | 0.3+ | 2007 01 10 | G96 | 0.3− | 0.4− |
| 2006 10 12 | 644 | 0.3− | 0.6+ | 2006 10 21 | 644 | 0.1+ | 0.1− | 2007 01 10 | G96 | 0.6+ | 0.2− |
| 2006 10 12 | 644 | 0.1+ | 0.2+ | 2006 10 21 | 644 | 0.5+ | 0.2+ | 2007 01 10 | G96 | 0.3+ | 0.3− |
| 2006 10 12 | 644 | 0.2− | 0.3+ | 2006 10 21 | 644 | 0.2− | 0.2+ | 2009 04 24 | G96 | 0.3+ | 0.2− |
| 2006 10 12 | 644 | 0.4+ | 0.2+ | 2006 10 21 | 644 | 0.1+ | 0.0 | 2009 04 24 | G96 | 0.2− | 0.2+ |
| 2006 10 13 | 691 | 0.2− | 0.1− | 2006 10 21 | 644 | 0.4+ | 0.3+ | 2009 04 24 | G96 | 0.2− | 0.2− |
| 2006 10 13 | 691 | 0.1+ | 0.0 | 2006 11 11 | 703 | 0.5− | 1.0+ | 2009 04 24 | G96 | 0.5+ | 0.0 |

**2006 TP$_{50}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 303.38436 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18965984 | $\omega$ | 192.98819 | | +0.68885537 | +0.72483726 | |
| $a$ | 3.0002156 | $\Omega$ | 120.55230 | | −0.66409713 | +0.63624756 | |
| $e$ | 0.1070486 | $i$ | 0.62852 | | −0.29060847 | +0.26419688 | |
| $P$ | 5.20 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 10 12 | 691 | 0.2+ | 0.7+ | 2006 10 28 | G96 | 0.7+ | 0.4− | 2006 11 21 | G96 | 0.2+ | 0.2− |
| 2006 10 12 | 691 | 0.1+ | 0.2+ | 2006 10 29 | G96 | 0.2− | 0.2− | 2006 11 21 | G96 | 0.1+ | 0.3− |
| 2006 10 12 | 691 | 0.0 | 0.3+ | 2006 10 29 | G96 | 1.7− | 0.9− | 2006 11 21 | G96 | 0.1+ | 0.3− |
| 2006 10 16 | 691 | 0.1+ | 0.3− | 2006 10 29 | G96 | 0.0 | 0.8− | 2007 01 15 | 568 | 0.1+ | 0.1− |
| 2006 10 16 | 691 | 0.1+ | 0.4+ | 2006 10 29 | G96 | 0.2+ | 0.5− | 2007 01 15 | 568 | 0.1+ | 0.2− |
| 2006 10 16 | 691 | 0.5− | 0.0 | 2006 10 30 | G96 | 0.3− | 0.0 | 2007 01 15 | 568 | 0.0 | 0.2− |
| 2006 10 28 | G96 | 0.1− | 0.1+ | 2006 10 30 | G96 | 0.3+ | 0.2+ | 2007 01 16 | 568 | 0.1+ | 0.5+ |
| 2006 10 28 | G96 | 0.2− | 0.3+ | 2006 10 30 | G96 | 0.2− | 0.3+ | 2009 03 21 | G96 | 0.4+ | 0.2+ |
| 2006 10 28 | G96 | 0.1+ | 0.3+ | 2006 10 30 | G96 | 0.2− | 0.1+ | 2009 03 21 | G96 | 0.5− | 0.1+ |
| 2006 10 28 | G96 | 0.1+ | 0.3− | 2006 11 11 | G96 | 0.0 | 0.2− | 2009 03 21 | G96 | 0.9− | 0.5+ |
| 2006 10 28 | G96 | 0.1+ | 0.1+ | 2006 11 11 | G96 | 0.2− | 0.2− | 2009 03 21 | G96 | 1.1+ | 0.0 |
| 2006 10 28 | G96 | 0.0 | 0.0 | 2006 11 11 | G96 | 0.3+ | 0.2− | 2009 04 28 | G96 | 0.4+ | 0.1+ |
| 2006 10 28 | G96 | 0.4+ | 0.1+ | 2006 11 11 | G96 | 1.0− | 0.3− | 2009 04 28 | G96 | 0.1− | 0.3+ |
| 2006 10 28 | G96 | 0.7− | 0.0 | 2006 11 14 | 691 | 0.1− | 0.2− | 2009 04 28 | G96 | 0.4− | 0.2− |
| 2006 10 28 | G96 | 0.3+ | 0.2− | 2006 11 14 | 691 | 0.4+ | 0.2− | 2009 04 28 | G96 | 0.2+ | 0.3− |
| 2006 10 28 | G96 | 0.6+ | 0.4− | 2006 11 14 | 691 | 0.1+ | 0.3+ | | | | |
| 2006 10 28 | G96 | 0.0 | 0.1+ | 2006 11 21 | G96 | 0.2− | 0.4− | | | | |

**2006 TN$_{51}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 183.44441 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17977784 | $\omega$ | 228.02288 | | +0.09736078 | −0.98947620 | |
| $a$ | 3.1091758 | $\Omega$ | 216.80237 | | +0.95779210 | +0.12238164 | |
| $e$ | 0.1235985 | $i$ | 10.29301 | | +0.27047214 | −0.07719831 | |
| $P$ | 5.48 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 11 17 | 691 | 0.4− | 0.5− | 2006 10 20 | 691 | 0.3− | 0.0 | 2006 11 17 | 704 | 0.8+ | 0.7+ |
| 1995 11 17 | 691 | 0.3+ | 0.0 | 2006 10 20 | 691 | 0.2− | 0.1+ | 2006 11 23 | 691 | 0.3+ | 0.3+ |
| 1995 11 17 | 691 | 0.2+ | 0.3− | 2006 10 20 | 691 | 0.2− | 0.0 | 2006 11 23 | 691 | 0.2− | 0.1− |
| 2006 09 28 | G96 | 0.3− | 0.2− | 2006 11 15 | G96 | 0.1+ | 0.4− | 2006 11 23 | 691 | 0.0 | 0.1+ |
| 2006 09 28 | G96 | 0.5+ | 0.1− | 2006 11 15 | G96 | 0.1+ | 0.5− | 2006 11 27 | 691 | 0.3− | 0.0 |
| 2006 09 28 | G96 | 0.5+ | 0.2+ | 2006 11 15 | G96 | 0.0 | 0.4− | 2006 11 27 | 691 | 0.4− | 0.3− |
| 2006 09 28 | G96 | 0.2− | 0.2− | 2006 11 15 | G96 | 0.0 | 0.2− | 2006 11 27 | 691 | 0.0 | 0.1− |
| 2006 10 12 | 691 | 0.1+ | 0.3+ | 2006 11 16 | 691 | 0.2+ | 0.1+ | 2006 11 28 | 704 | 0.6− | 0.1− |
| 2006 10 12 | 691 | 0.0 | 0.1− | 2006 11 16 | 691 | 0.1+ | 0.1+ | 2006 11 28 | 704 | 0.3− | 0.2+ |
| 2006 10 12 | 691 | 0.2+ | 0.3− | 2006 11 16 | 691 | 0.1+ | 0.1+ | 2006 11 28 | 704 | 0.6+ | 0.6− |
| 2006 10 16 | 691 | 0.5+ | 0.1+ | 2006 11 17 | 704 | 0.8+ | 1.1+ | 2009 05 25 | 691 | 0.4− | 0.0 |
| 2006 10 16 | 691 | 0.5− | 0.4+ | 2006 11 17 | 704 | 0.0 | 0.9+ | 2009 05 25 | 691 | 0.5+ | 0.3+ |
| 2006 10 16 | 691 | 0.0 | 0.0 | 2006 11 17 | 704 | 0.9+ | 1.5+ | 2009 05 25 | 691 | 0.0 | 0.0 |

**2006 TP$_{59}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 227.14015 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17701251 | $\omega$ | 355.46154 | | +0.94697443 | −0.31445748 | |
| $a$ | 3.1414735 | $\Omega$ | 23.20184 | | +0.29981705 | +0.79092853 | |
| $e$ | 0.0928557 | $i$ | 9.64385 | | +0.11553857 | +0.52492719 | |
| $P$ | 5.57 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 10 13 | 691 | 0.1− | 0.2+ | 2006 10 21 | 691 | 0.1− | 0.0 | 2006 12 11 | 291 | 0.0 | 0.3+ |
| 2006 10 13 | 691 | 0.4+ | 0.1− | 2006 11 08 | 644 | 0.3− | 0.4+ | 2006 12 11 | 291 | 0.1− | 0.3− |
| 2006 10 13 | 691 | 0.1− | 0.0 | 2006 11 08 | 644 | 0.4+ | 0.6+ | 2006 12 11 | 291 | 0.0 | 0.0 |
| 2006 10 17 | 691 | 0.0 | 0.1− | 2006 11 08 | 644 | 0.0 | 0.2+ | 2009 04 28 | G96 | 0.4+ | 0.4− |
| 2006 10 17 | 691 | 0.1+ | 0.1+ | 2006 11 14 | G96 | 0.3− | 0.1− | 2009 04 28 | G96 | 0.6− | 0.1− |
| 2006 10 17 | 691 | 0.1+ | 0.0 | 2006 11 14 | G96 | 0.1− | 0.2+ | 2009 04 28 | G96 | 0.6− | 0.4+ |
| 2006 10 17 | 691 | 0.1− | 0.2+ | 2006 11 14 | G96 | 0.2+ | 0.4− | 2009 04 28 | G96 | 0.1+ | 0.4− |
| 2006 10 17 | 691 | 0.2− | 0.3− | 2006 11 14 | G96 | 0.2+ | 0.2− | 2009 05 15 | G96 | 0.0 | 0.1+ |
| 2006 10 17 | 691 | 0.2+ | 0.0 | 2006 11 18 | G96 | 0.0 | 0.1− | 2009 05 15 | G96 | 0.3+ | 0.5− |
| 2006 10 21 | 691 | 0.0 | 0.1− | 2006 11 18 | G96 | 0.0 | 0.2− | 2009 05 15 | G96 | 0.1− | 0.2+ |
| 2006 10 21 | 691 | 0.2− | 0.0 | 2006 11 18 | G96 | 0.1+ | 0.2− | 2009 05 15 | G96 | 0.7+ | 0.8+ |

**2006 TD$_{61}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 195.77118 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17829793 | $\omega$ | 14.12359 | | +0.76871719 | −0.63397265 | |
| $a$ | 3.1263566 | $\Omega$ | 25.81846 | | +0.56635015 | +0.61327346 | |
| $e$ | 0.1588851 | $i$ | 11.19728 | | +0.29718917 | +0.47114153 | |
| $P$ | 5.53 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 09 17 | 691 | 0.0 | 0.2+ | 2006 10 17 | G96 | 0.3− | 0.3− | 2006 11 15 | G96 | 0.3+ | 0.3− |
| 2006 09 17 | 691 | 0.2+ | 0.1+ | 2006 10 19 | 644 | 0.3+ | 0.0 | 2006 11 27 | G96 | 0.0 | 0.1+ |
| 2006 09 17 | 691 | 0.1+ | 0.0 | 2006 10 19 | 644 | 0.1− | 0.6+ | 2006 11 27 | G96 | 0.1− | 0.2− |
| 2006 09 27 | 691 | 0.0 | 0.2+ | 2006 10 19 | 644 | 0.5+ | 0.5+ | 2006 11 27 | G96 | 0.2− | 0.0 |
| 2006 09 27 | 691 | 0.1− | 0.2− | 2006 10 20 | 644 | 0.0 | 0.2+ | 2006 11 27 | G96 | 0.2+ | 0.3− |
| 2006 09 27 | 691 | 0.1+ | 0.2+ | 2006 10 20 | 644 | 0.7− | 0.2+ | 2007 11 07 | G96 | 0.5+ | 0.1+ |
| 2006 10 15 | 703 | 0.5− | 1.0+ | 2006 10 20 | 644 | 0.2− | 0.2+ | 2007 11 07 | G96 | 0.5− | 0.0 |
| 2006 10 15 | 703 | 1.2+ | 0.6− | 2006 10 21 | 644 | 0.3− | 0.4+ | 2007 11 07 | G96 | 0.0 | 0.2+ |
| 2006 10 15 | 703 | 1.6− | 0.4− | 2006 10 21 | 644 | 0.3− | 0.7+ | 2007 11 07 | G96 | 0.1+ | 0.1− |
| 2006 10 15 | 703 | 0.6− | 0.6− | 2006 10 21 | 644 | 0.3− | 0.0 | 2009 04 02 | G96 | 1.0− | 0.4− |
| 2006 10 17 | G96 | 0.8+ | 1.7− | 2006 11 15 | G96 | 0.1− | 0.0 | 2009 04 02 | G96 | 1.0+ | 0.5+ |
| 2006 10 17 | G96 | 0.9+ | 0.7− | 2006 11 15 | G96 | 0.3− | 0.3− | 2009 04 02 | G96 | 0.5+ | 0.2− |
| 2006 10 17 | G96 | 0.3+ | 0.3+ | 2006 11 15 | G96 | 0.0 | 0.1− | 2009 04 02 | G96 | 0.5− | 0.3+ |

### 2006 TF$_{66}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 275.61601 | | (2000.0) | | | |
| $n$ | 0.17526391 | $\omega$ | 262.20416 | | +0.43711019 | +0.89046959 |
| $a$ | 3.1623339 | $\Omega$ | 34.61896 | | −0.71224590 | +0.42858587 |
| $e$ | 0.0673026 | $i$ | 12.86416 | | −0.54921804 | +0.15289884 |
| $P$ | 5.62 | $H$ | 15.9 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 09 11 | 705 | 0.3+ | 0.1+ | 2006 10 16 | 703 | 0.7− | 0.5+ | 2006 11 24 | 705 | 0.1− | 0.1− |
| 2006 09 11 | 705 | 0.3+ | 0.1+ | 2006 10 21 | 644 | 0.2− | 0.3− | 2006 11 24 | 705 | 0.1− | 0.1− |
| 2006 09 17 | 705 | 0.2+ | 0.1− | 2006 10 21 | 644 | 0.3− | 0.4+ | 2006 11 29 | 705 | 0.0 | 0.0 |
| 2006 09 17 | 705 | 0.1+ | 0.1− | 2006 10 21 | 644 | 0.1− | 0.0 | 2006 11 29 | 705 | 0.1+ | 0.1− |
| 2006 09 18 | 705 | 0.2+ | 0.1− | 2006 11 17 | G96 | 0.4− | 0.4− | 2009 03 02 | G96 | 0.0 | 0.2− |
| 2006 09 18 | 705 | 0.2+ | 0.1− | 2006 11 17 | G96 | 0.0 | 0.2+ | 2009 03 02 | G96 | 0.1− | 0.3− |
| 2006 10 11 | 644 | 0.3− | 0.0 | 2006 11 17 | G96 | 0.2+ | 0.2− | 2009 03 02 | G96 | 0.2− | 0.1− |
| 2006 10 11 | 644 | 0.3− | 0.1+ | 2006 11 17 | G96 | 0.2− | 0.1+ | 2009 03 02 | G96 | 0.2− | 0.1− |
| 2006 10 11 | 644 | 0.0 | 0.2+ | 2006 11 20 | 705 | 0.0 | 0.3− | 2009 04 27 | 291 | 0.1+ | 0.0 |
| 2006 10 16 | 703 | 1.0+ | 1.3+ | 2006 11 20 | 705 | 0.1− | 0.1− | 2009 04 27 | 291 | 0.1+ | 0.0 |
| 2006 10 16 | 703 | 0.0 | 0.6− | 2006 11 23 | 705 | 0.1+ | 0.1− | 2009 04 27 | 291 | 0.1− | 0.2+ |
| 2006 10 16 | 703 | 0.3− | 0.2+ | 2006 11 23 | 705 | 0.2+ | 0.2− | | | | |

### 2006 TC$_{72}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 239.07311 | | (2000.0) | | | |
| $n$ | 0.22511021 | $\omega$ | 83.28161 | | +0.41711334 | −0.90664700 |
| $a$ | 2.6763275 | $\Omega$ | 341.66237 | | +0.73396105 | +0.37710973 |
| $e$ | 0.1621081 | $i$ | 11.60818 | | +0.53602019 | +0.18915463 |
| $P$ | 4.38 | $H$ | 16.1 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 09 28 | 703 | 0.3− | 0.4− | 2006 10 19 | 703 | (2.6+ | 1.0+) | 2007 03 13 | 291 | 0.5+ | 0.0 |
| 2006 09 28 | 703 | 0.6+ | 0.5− | 2006 10 19 | 703 | 1.1+ | 0.6+ | 2007 03 15 | G96 | 0.2− | 0.1+ |
| 2006 09 28 | 703 | 0.2+ | 0.2− | 2006 10 27 | 703 | 0.2− | 0.4+ | 2007 03 15 | G96 | 0.4− | 0.1+ |
| 2006 09 28 | 703 | 0.4− | 0.9+ | 2006 10 27 | 703 | 1.4− | 0.8+ | 2007 03 15 | G96 | 0.1+ | 0.0 |
| 2006 10 11 | 644 | 0.2+ | 0.1− | 2006 10 27 | 703 | 0.9− | 0.5+ | 2007 03 15 | G96 | 0.1− | 0.3− |
| 2006 10 11 | 644 | 0.1+ | 0.0 | 2006 10 27 | 703 | 0.4+ | 0.5+ | 2008 01 30 | G96 | 0.2− | 0.5− |
| 2006 10 11 | 644 | 0.2+ | 0.0 | 2006 11 15 | 703 | 1.0+ | 0.6− | 2008 01 30 | G96 | 0.2+ | 0.2+ |
| 2006 10 12 | 644 | 0.2+ | 0.2− | 2006 11 15 | 703 | (1.3+ | 1.8+) | 2008 01 30 | G96 | 0.2− | 0.1− |
| 2006 10 12 | 644 | 0.3+ | 0.0 | 2006 11 15 | 703 | 0.1+ | 0.0 | 2008 01 30 | G96 | 0.1+ | 0.3+ |
| 2006 10 12 | 644 | 0.1+ | 0.1+ | 2006 11 15 | 703 | 1.4+ | 1.0− | 2008 03 13 | G96 | 0.1− | 0.4+ |
| 2006 10 19 | 703 | 0.3− | 0.4− | 2007 03 09 | G96 | 0.4− | 0.2− | 2008 03 13 | G96 | 0.4+ | 0.2+ |
| 2006 10 19 | 703 | 0.1+ | 0.9− | 2007 03 09 | G96 | 0.3− | 0.3− | 2008 03 13 | G96 | 0.2− | 0.3+ |
| 2006 10 19 | 703 | (2.8− | 0.3+) | 2007 03 09 | G96 | 0.5+ | 0.4− | 2008 04 09 | G96 | 0.3+ | 0.1+ |
| 2006 10 19 | 703 | 1.3− | 0.3+ | 2007 03 09 | G96 | 0.3+ | 0.2+ | 2008 04 09 | G96 | 0.7+ | 0.0 |
| 2006 10 19 | 703 | 1.4− | 0.7+ | 2007 03 13 | 291 | 0.2− | 0.0 | 2008 04 09 | G96 | 0.1+ | 0.1+ |
| 2006 10 19 | 703 | 0.3− | 1.1+ | 2007 03 13 | 291 | 0.2− | 0.3− | 2008 04 09 | G96 | 0.0 | 0.4+ |

### 2006 TO$_{104}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 294.97356 | | (2000.0) | | | |
| $n$ | 0.20497668 | $\omega$ | 277.82718 | | +0.85876091 | +0.49418806 |
| $a$ | 2.8488292 | $\Omega$ | 52.66064 | | −0.37685233 | +0.78811498 |
| $e$ | 0.1415704 | $i$ | 9.79856 | | −0.34714843 | +0.36695087 |
| $P$ | 4.81 | $H$ | 16.3 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 10 02 | G96 | 0.0 | 0.3− | 2006 10 19 | 691 | 0.1− | 0.1+ | 2008 01 16 | G96 | 0.1+ | 0.5− |
| 2006 10 02 | G96 | 0.6+ | 0.5− | 2006 11 15 | G96 | 0.3+ | 0.4− | 2008 01 16 | G96 | 0.0 | 0.1+ |
| 2006 10 02 | G96 | 0.0 | 0.5− | 2006 11 15 | G96 | 0.1− | 0.0 | 2008 01 16 | G96 | 0.1− | 0.0 |
| 2006 10 02 | G96 | 0.5+ | 0.5− | 2006 11 15 | G96 | 0.2− | 0.1− | 2008 01 16 | G96 | 0.1+ | 0.0 |
| 2006 10 15 | 691 | 0.2+ | 0.0 | 2006 11 15 | G96 | 0.4− | 0.1+ | 2009 05 13 | 291 | 0.2+ | 0.2+ |
| 2006 10 15 | 691 | 0.1− | 0.0 | 2006 12 15 | G96 | 0.4− | 0.5− | 2009 05 13 | 291 | 0.1− | 0.0 |
| 2006 10 15 | 691 | 0.0 | 0.7+ | 2006 12 15 | G96 | 0.3− | 0.3− | 2009 05 13 | 291 | 0.1+ | 0.2+ |
| 2006 10 19 | 691 | 0.0 | 0.2+ | 2006 12 15 | G96 | 0.1+ | 0.1− | | | | |
| 2006 10 19 | 691 | 0.2− | 0.2+ | 2006 12 15 | G96 | 0.2+ | 0.8− | | | | |

### 2006 TO$_{105}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 284.88374 | | (2000.0) | | | |
| $n$ | 0.17127135 | $\omega$ | 239.44098 | | +0.49343308 | +0.86497801 |
| $a$ | 3.2112904 | $\Omega$ | 60.39856 | | −0.75771693 | +0.47902580 |
| $e$ | 0.1204349 | $i$ | 6.02787 | | −0.42707008 | +0.14949024 |
| $P$ | 5.75 | $H$ | 16.0 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 09 30 | G96 | 0.2+ | 0.5− | 2006 10 23 | 691 | 0.5− | 0.1+ | 2006 11 15 | G96 | 0.1− | 0.4− |
| 2006 09 30 | G96 | 0.3+ | 0.1− | 2006 10 23 | 691 | 0.3− | 0.0 | 2006 11 15 | G96 | 0.5+ | 0.6− |
| 2006 09 30 | G96 | 0.3+ | 0.4− | 2006 10 23 | 691 | 0.8− | 0.0 | 2006 11 15 | G96 | 0.5− | 0.1− |
| 2006 09 30 | G96 | 0.3+ | 0.2+ | 2006 10 27 | 691 | 0.2− | 0.1+ | 2009 02 02 | 691 | 0.1− | 0.4+ |
| 2006 10 15 | 691 | 0.1+ | 0.4− | 2006 10 27 | 691 | 0.1− | 0.2− | 2009 02 02 | 691 | 0.0 | 0.4− |
| 2006 10 15 | 691 | 0.2+ | 0.1+ | 2006 10 27 | 691 | 0.1+ | 0.2+ | 2009 02 02 | 691 | 0.7+ | 1.0+ |
| 2006 10 15 | 691 | 0.4+ | 0.5+ | 2006 10 31 | 691 | 0.2+ | 0.0 | 2009 03 02 | 691 | 0.8− | 0.4− |
| 2006 10 19 | 691 | 0.3− | 0.0 | 2006 10 31 | 691 | 0.7+ | 0.1− | 2009 03 02 | 691 | 0.1+ | 0.3− |
| 2006 10 19 | 691 | 0.3+ | 0.0 | 2006 10 31 | 691 | 0.3+ | 0.1+ | 2009 03 02 | 691 | 0.1+ | 0.3− |
| 2006 10 19 | 691 | 0.3− | 0.1+ | 2006 11 15 | G96 | 0.4+ | 0.4− | | | | |

### 2006 TB$_{121}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 250.44867 | | (2000.0) | | | |
| $n$ | 0.18363817 | $\omega$ | 215.46242 | | +0.98951986 | +0.05153292 |
| $a$ | 3.0654489 | $\Omega$ | 140.90145 | | −0.01838601 | +0.97151087 |
| $e$ | 0.1207907 | $i$ | 12.35014 | | −0.14322149 | +0.23132444 |
| $P$ | 5.37 | $H$ | 15.8 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 10 12 | 705 | 0.1− | 0.1− | 2006 10 17 | 705 | 0.2+ | 0.0 | 2006 11 16 | 703 | 0.8+ | 0.7+ |
| 2006 10 12 | 705 | 0.0 | 0.1− | 2006 10 20 | 705 | 0.3+ | 0.1+ | 2006 11 16 | 703 | 0.2− | 0.6− |
| 2006 10 13 | 705 | 0.1+ | 0.1− | 2006 10 20 | 705 | 0.2+ | 0.0 | 2009 04 02 | G96 | 0.1+ | 0.1− |
| 2006 10 13 | 705 | 0.0 | 0.1− | 2006 10 23 | 705 | 0.4+ | 0.0 | 2009 04 02 | G96 | 0.4− | 0.0 |
| 2006 10 16 | 703 | 0.4+ | 1.7+ | 2006 10 23 | 705 | 0.3+ | 0.1+ | 2009 04 02 | G96 | 0.2+ | 0.1− |
| 2006 10 16 | 703 | 1.6− | 0.8− | 2006 10 28 | 705 | 0.5+ | 0.1+ | 2009 04 02 | G96 | 0.7− | 0.0 |
| 2006 10 16 | 703 | 0.5− | 0.1+ | 2006 10 28 | 705 | 0.4+ | 0.1+ | 2009 04 23 | G96 | 0.6+ | 0.1+ |
| 2006 10 16 | 703 | 1.1− | 0.5− | 2006 10 29 | 705 | 0.5+ | 0.1+ | 2009 04 23 | G96 | 0.2− | 0.1+ |
| 2006 10 16 | 705 | 0.1+ | 0.0 | 2006 10 29 | 705 | 0.6+ | 0.1+ | 2009 04 23 | G96 | 0.1+ | 0.1− |
| 2006 10 16 | 705 | 0.2+ | 0.0 | 2006 11 16 | 703 | 1.0− | 0.3− | 2009 04 23 | G96 | 0.3+ | 0.1+ |
| 2006 10 17 | 705 | 0.2+ | 0.0 | 2006 11 16 | 703 | 1.0− | 0.2− | | | | |

**2006 TC$_{130}$ = 2000 QH$_{18}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 213.81536 | | (2000.0) | | | |
| $n$ | 0.17449913 | $\omega$ | 211.99259 | | +0.97241368 | −0.21319940 |
| $a$ | 3.1715668 | $\Omega$ | 159.66475 | | +0.22555148 | +0.96285648 |
| $e$ | 0.2823726 | $i$ | 15.80412 | | −0.05948246 | +0.16569073 |
| $P$ | 5.65 | $H$ | 15.6 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 08 24 | 704 | 0.2− | 0.0 | 2000 08 28 | 704 | 0.2+ | 0.0 | 2006 10 11 | 644 | 0.6− | 0.2− |
| 2000 08 24 | 704 | 0.2+ | 0.4− | 2000 08 28 | 704 | 0.2− | 1.3− | 2006 10 20 | 703 | 1.1− | 0.6− |
| 2000 08 24 | 704 | 0.4+ | 0.2− | 2000 08 28 | 704 | 0.2+ | 0.5+ | 2006 10 20 | 703 | 1.6+ | 0.5− |
| 2000 08 24 | 704 | 0.9+ | 0.9+ | 2000 08 29 | 704 | 0.2− | 0.5− | 2006 10 20 | 703 | (0.2+ | 2.4−) |
| 2000 08 26 | 704 | 0.3+ | 0.2+ | 2000 08 29 | 704 | 0.3+ | 0.5+ | 2006 10 20 | 703 | 0.2+ | 0.7+ |
| 2000 08 26 | 704 | 0.1− | 0.1+ | 2000 08 29 | 704 | 0.4− | 0.0 | 2006 11 01 | 703 | 0.2+ | 0.5− |
| 2000 08 26 | 704 | 0.5− | 0.1+ | 2000 08 29 | 704 | 0.0 | 0.1+ | 2006 11 01 | 703 | 0.8− | 0.1+ |
| 2000 08 26 | 704 | 0.5− | 0.0 | 2006 10 11 | 644 | 0.3+ | 0.4+ | 2006 11 01 | 703 | 1.3− | 0.9+ |
| 2000 08 28 | 704 | 0.3− | 0.1− | 2006 10 11 | 644 | 0.0 | 0.1+ | 2006 11 01 | 703 | 1.5+ | 0.3− |

**2006 UH$_1$ = 2002 TO$_{62}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 230.31363 | | (2000.0) | | | |
| $n$ | 0.24439438 | $\omega$ | 108.20663 | | −0.18600166 | −0.98232364 |
| $a$ | 2.5336225 | $\Omega$ | 352.41918 | | +0.83033829 | −0.14569034 |
| $e$ | 0.2472843 | $i$ | 9.18706 | | +0.52530154 | −0.11753547 |
| $P$ | 4.03 | $H$ | 17.0 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 10 03 | 599 | 0.0 | 0.0 | 2002 10 06 | 644 | 0.3− | 0.3+ | 2006 09 25 | 691 | 0.5+ | 0.0 |
| 2002 10 03 | 599 | 0.1− | 0.1− | 2002 10 06 | 644 | 0.0 | 0.3+ | 2006 09 25 | 691 | 0.0 | 0.0 |
| 2002 10 03 | 599 | 0.0 | 0.0 | 2002 10 30 | 644 | 0.2− | 0.1+ | 2006 10 16 | 461 | 0.3− | 0.1+ |
| 2002 10 04 | 644 | 0.2− | 0.0 | 2002 10 30 | 644 | 0.3− | 0.8− | 2006 10 16 | 461 | 0.4− | 0.1+ |
| 2002 10 04 | 644 | 0.8− | 0.4− | 2002 10 30 | 644 | 0.5+ | 0.8− | 2006 10 16 | 461 | 0.1− | 0.4+ |
| 2002 10 05 | 644 | 0.0 | 0.9+ | 2002 11 22 | 644 | 0.4+ | 0.0 | 2006 10 17 | 461 | 0.1− | 0.2+ |
| 2002 10 05 | 644 | 0.6− | 1.4+ | 2002 11 22 | 644 | 0.1+ | 0.1+ | 2006 10 17 | 461 | 0.2− | 0.1+ |
| 2002 10 05 | 644 | 0.1+ | 0.5+ | 2002 11 22 | 644 | 0.1− | 0.1− | 2006 10 17 | 461 | 0.1− | 0.3+ |
| 2002 10 05 | 599 | 0.7+ | 0.3− | 2006 09 17 | 691 | 0.2− | 0.1− | 2006 10 23 | G96 | 0.3− | 0.3− |
| 2002 10 05 | 599 | 0.2+ | 0.3− | 2006 09 17 | 691 | 0.1− | 0.3− | 2006 10 23 | G96 | 0.2+ | 0.2− |
| 2002 10 05 | 599 | 0.1+ | 0.6+ | 2006 09 17 | 691 | 0.0 | 0.1− | 2006 10 23 | G96 | 0.1+ | 0.3− |
| 2002 10 06 | 644 | 0.4− | 0.1+ | 2006 09 25 | 691 | 0.2+ | 0.0 | 2006 10 23 | G96 | 0.2+ | 0.4− |

**2006 UK$_4$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 129.36942 | | (2000.0) | | | |
| $n$ | 0.17161107 | $\omega$ | 85.89001 | | −0.25241002 | −0.96519443 |
| $a$ | 3.2070509 | $\Omega$ | 19.15722 | | +0.78420657 | −0.24550840 |
| $e$ | 0.0453189 | $i$ | 12.04407 | | +0.56684145 | −0.09014062 |
| $P$ | 5.74 | $H$ | 16.1 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 09 18 | 691 | 0.1+ | 0.2+ | 2006 10 16 | 691 | 0.5+ | 0.1+ | 2006 11 01 | 691 | 0.1− | 0.1− |
| 2006 09 18 | 691 | 0.2+ | 0.2+ | 2006 10 16 | 691 | 0.2+ | 0.1+ | 2006 11 10 | 691 | 0.1− | 0.1+ |
| 2006 09 18 | 691 | 0.1− | 0.1+ | 2006 10 17 | 104 | 0.1− | 0.0 | 2006 11 10 | 691 | 0.0 | 0.0 |
| 2006 09 24 | 691 | 0.1− | 0.0 | 2006 10 17 | 104 | (2.5+ | 0.3−) | 2006 11 10 | 691 | 0.2− | 0.0 |
| 2006 09 24 | 691 | 0.0 | 0.1+ | 2006 10 17 | 104 | 0.1+ | 0.0 | 2009 02 28 | 691 | 0.0 | 0.4− |
| 2006 09 24 | 691 | 0.6+ | 0.2+ | 2006 10 28 | 691 | 0.0 | 0.0 | 2009 02 28 | 691 | 0.9− | 0.1− |
| 2006 10 01 | 291 | 0.5− | 0.1− | 2006 10 28 | 691 | 0.4− | 0.0 | 2009 02 28 | 691 | 0.0 | 0.2+ |
| 2006 10 01 | 291 | 0.3− | 0.4− | 2006 10 28 | 691 | 0.2+ | 0.2+ | 2009 03 18 | 291 | 0.2+ | 0.2+ |
| 2006 10 01 | 291 | 0.3− | 0.0 | 2006 11 01 | 691 | 0.2− | 0.0 | 2009 03 18 | 291 | 0.4+ | 0.0 |
| 2006 10 16 | 691 | 0.2+ | 0.3− | 2006 11 01 | 691 | 0.4+ | 0.1− | 2009 03 18 | 291 | 0.3+ | 0.1+ |

**2006 UT$_4$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 248.31953 | | (2000.0) | | | |
| $n$ | 0.17645928 | $\omega$ | 296.82186 | | +0.90259268 | +0.41824889 |
| $a$ | 3.1480362 | $\Omega$ | 38.69205 | | −0.31382105 | +0.80136740 |
| $e$ | 0.0905878 | $i$ | 9.38624 | | −0.29469104 | +0.42764256 |
| $P$ | 5.59 | $H$ | 16.3 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 10 02 | G96 | 0.1+ | 0.1− | 2006 10 17 | G96 | 0.3− | 0.3+ | 2006 12 15 | G96 | 0.1− | 0.0 |
| 2006 10 02 | G96 | 0.3− | 0.2+ | 2006 11 19 | 691 | 0.1+ | 0.9+ | 2006 12 15 | G96 | 0.2+ | 0.1− |
| 2006 10 02 | G96 | 0.5+ | 0.3+ | 2006 11 19 | 691 | 0.2− | 0.4+ | 2007 12 30 | G96 | 0.2+ | 0.0 |
| 2006 10 02 | G96 | 0.3− | 0.1− | 2006 11 19 | 691 | 0.3+ | 0.4+ | 2007 12 30 | G96 | 0.2− | 0.0 |
| 2006 10 16 | 691 | 0.6− | 1.2− | 2006 11 20 | G96 | 0.6− | 0.6− | 2007 12 30 | G96 | 0.1− | 0.0 |
| 2006 10 16 | 691 | 0.4+ | 0.1+ | 2006 11 20 | G96 | 0.6+ | 0.3− | 2007 12 30 | G96 | 0.1− | 0.2− |
| 2006 10 16 | 691 | 0.3+ | 0.4+ | 2006 11 20 | G96 | 1.2+ | 0.3− | 2009 03 01 | G96 | 0.5+ | 0.2− |
| 2006 10 17 | G96 | 0.5− | 0.4− | 2006 11 20 | G96 | 1.8− | 1.8− | 2009 03 01 | G96 | 0.3− | 0.1− |
| 2006 10 17 | G96 | 0.1− | 0.0 | 2006 12 15 | G96 | 0.6+ | 0.1+ | 2009 03 01 | G96 | 0.1+ | 0.2− |
| 2006 10 17 | G96 | 0.2− | 0.2− | 2006 12 15 | G96 | 0.4− | 0.1− | 2009 03 01 | G96 | 0.1− | 0.4+ |

**2006 UT$_6$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 302.20192 | | (2000.0) | | | |
| $n$ | 0.22592192 | $\omega$ | 304.02671 | | +0.96770983 | +0.17226804 |
| $a$ | 2.6699132 | $\Omega$ | 46.82082 | | −0.04590739 | +0.83826267 |
| $e$ | 0.0916260 | $i$ | 14.61635 | | −0.24785117 | +0.51733878 |
| $P$ | 4.36 | $H$ | 16.0 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 09 30 | 703 | 0.2+ | 0.5+ | 2006 10 31 | G96 | 0.2+ | 0.3− | 2006 11 17 | 703 | 0.3+ | 1.0− |
| 2006 09 30 | 703 | 0.3− | 0.3+ | 2006 10 31 | G96 | 0.0 | 0.2− | 2006 11 17 | 703 | 1.1− | 0.3− |
| 2006 09 30 | 703 | 0.1− | 0.6− | 2006 11 08 | 644 | 0.3− | 0.1− | 2006 11 17 | 703 | 0.4− | 0.2− |
| 2006 09 30 | 703 | 1.0+ | 0.7− | 2006 11 08 | 644 | 0.2− | 0.2+ | 2006 11 17 | 703 | 0.3− | 1.3− |
| 2006 10 16 | 703 | 0.7+ | 0.1+ | 2006 11 08 | 644 | 0.1+ | 0.1+ | 2006 11 21 | 704 | 0.1+ | 0.8+ |
| 2006 10 16 | 703 | 1.0+ | 0.3− | 2006 11 09 | 644 | 0.0 | 0.1+ | 2006 11 21 | 704 | 0.8+ | 1.6+ |
| 2006 10 16 | 703 | 0.1+ | 0.7+ | 2006 11 09 | 644 | 0.3+ | 0.3+ | 2006 11 21 | 704 | 0.6+ | 0.1+ |
| 2006 10 16 | 703 | 0.2− | 0.2+ | 2006 11 09 | 644 | 0.4+ | 0.1+ | 2006 11 21 | 704 | 0.3+ | 0.3+ |
| 2006 10 18 | 691 | 0.4+ | 0.1+ | 2006 11 11 | 703 | 0.3− | 1.6− | 2006 11 21 | 704 | 0.3+ | 1.2+ |
| 2006 10 18 | 691 | 0.1+ | 0.1− | 2006 11 11 | 703 | 1.6− | 0.5− | 2009 04 29 | 691 | 0.2+ | 0.1− |
| 2006 10 18 | 691 | 0.2+ | 0.1− | 2006 11 11 | 703 | 0.2+ | 0.8− | 2009 04 29 | 691 | 0.1− | 0.2− |
| 2006 10 22 | 691 | 0.6− | 0.1+ | 2006 11 11 | 703 | 0.0 | 1.2− | 2009 04 29 | 691 | 0.2− | 0.3− |
| 2006 10 22 | 691 | 0.1− | 0.6+ | 2006 11 15 | G96 | 0.1− | 0.3− | 2009 05 13 | 691 | 0.1− | 0.0 |
| 2006 10 22 | 691 | 0.4− | 0.2+ | 2006 11 15 | G96 | 0.0 | 0.0 | 2009 05 13 | 691 | 0.2+ | 0.2+ |
| 2006 10 31 | G96 | 0.4+ | 0.4− | 2006 11 15 | G96 | 0.0 | 0.3− | 2009 05 13 | 691 | 0.1− | 0.3+ |
| 2006 10 31 | G96 | 0.2+ | 0.3− | 2006 11 15 | G96 | 0.1+ | 0.3− | | | | |

**2006 UO$_{23}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 237.81163 | | (2000.0) | | | |
| $n$ | 0.17832346 | $\omega$ | 334.30801 | | +0.99311012 | +0.10060249 |
| $a$ | 3.1260582 | $\Omega$ | 20.19163 | | −0.05221585 | +0.83899675 |
| $e$ | 0.1039546 | $i$ | 10.02673 | | −0.10490853 | +0.53475563 |
| $P$ | 5.53 | $H$ | 15.9 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 09 18 | 691 | 0.4− | 0.1− | 2006 10 20 | 644 | 0.3− | 0.2− | 2006 11 16 | 691 | 0.1− | 0.1− |
| 2006 09 18 | 691 | 0.2− | 0.4− | 2006 10 21 | 644 | 0.1+ | 0.3− | 2006 11 16 | 691 | 0.0 | 0.0 |
| 2006 09 18 | 691 | 0.2− | 0.2− | 2006 10 21 | 644 | 0.3− | 0.1+ | 2006 11 20 | 691 | 0.6− | 0.0 |
| 2006 10 03 | 691 | 0.1− | 0.2+ | 2006 10 21 | 644 | 0.1+ | 0.2− | 2006 11 20 | 691 | 0.2− | 0.1+ |
| 2006 10 03 | 691 | 0.2+ | 0.2+ | 2006 10 29 | 691 | 0.2+ | 0.0 | 2006 11 20 | 691 | 0.1− | 0.0 |
| 2006 10 03 | 691 | 0.1− | 0.3+ | 2006 10 29 | 691 | 0.1+ | 0.1− | 2009 03 22 | G96 | 0.2+ | 0.1+ |
| 2006 10 16 | 691 | 0.1− | 0.0 | 2006 10 29 | 691 | 0.2+ | 0.0 | 2009 03 22 | G96 | 0.2− | 0.1+ |
| 2006 10 16 | 691 | 0.2− | 0.4− | 2006 11 11 | 691 | 0.3+ | 0.2− | 2009 03 22 | G96 | 0.1+ | 0.2− |
| 2006 10 16 | 691 | 0.9+ | 1.0+ | 2006 11 11 | 691 | 0.2− | 0.3+ | 2009 03 22 | G96 | 1.3+ | 0.1+ |
| 2006 10 20 | 691 | 0.1− | 0.0 | 2006 11 11 | 691 | 0.1+ | 0.1+ | 2009 05 01 | G96 | 0.2− | 0.0 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 10 20 | 691 | 0.0 | 0.2− | 2006 11 15 | 691 | 0.2+ | 0.3+ | 2009 05 01 | G96 | 0.9− | 0.0 |
| 2006 10 20 | 691 | 0.2+ | 0.2− | 2006 11 15 | 691 | 0.1+ | 0.1− | 2009 05 01 | G96 | 0.2+ | 0.2− |
| 2006 10 20 | 644 | 0.2− | 0.3− | 2006 11 15 | 691 | 0.2+ | 0.3− | 2009 05 01 | G96 | 0.7− | 0.1− |
| 2006 10 20 | 644 | 0.1− | 0.1− | 2006 11 16 | 691 | 0.1− | 0.0 | | | | |

**2006 UX$_{24}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 193.84809 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17989321 | $\omega$ | 204.03978 | | +0.52367486 | −0.83521162 | |
| $a$ | 3.1078464 | $\Omega$ | 215.06572 | | +0.82130390 | +0.54731110 | |
| $e$ | 0.2470516 | $i$ | 16.99117 | | +0.22632842 | −0.05359207 | |
| $P$ | 5.48 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 09 30 | 691 | 0.0 | 0.1+ | 2006 10 23 | 704 | 0.8+ | 0.4+ | 2006 11 18 | 704 | 0.2+ | 1.0+ |
| 2006 09 30 | 691 | 0.1+ | 0.1+ | 2006 10 23 | 704 | 0.0 | 1.2− | 2006 11 18 | 704 | 0.3+ | 0.8+ |
| 2006 09 30 | 691 | 0.1+ | 0.0 | 2006 10 23 | 704 | 1.2+ | 0.6+ | 2006 11 19 | 704 | 0.4+ | 1.1+ |
| 2006 10 16 | 691 | 0.1+ | 0.0 | 2006 10 23 | 704 | 1.2− | 0.1+ | 2006 11 19 | 704 | 0.8− | 0.7+ |
| 2006 10 16 | 691 | 0.2+ | 0.1− | 2006 10 23 | 704 | 0.5+ | 1.0− | 2006 11 19 | 704 | 0.4− | 0.8+ |
| 2006 10 16 | 691 | 0.2+ | 0.1− | 2006 10 31 | 683 | 0.6+ | 0.7− | 2006 11 21 | 704 | 1.5+ | 0.5− |
| 2006 10 19 | 704 | 0.3− | 0.2+ | 2006 10 31 | 683 | 0.7+ | 0.3− | 2006 11 21 | 704 | 0.7+ | 0.2+ |
| 2006 10 19 | 704 | 0.5− | 1.1+ | 2006 10 31 | 683 | 0.4+ | 0.1+ | 2006 11 21 | 704 | 0.4+ | 0.1+ |
| 2006 10 19 | 704 | 1.2− | 0.4− | 2006 11 11 | 703 | 0.4− | 0.2− | 2006 11 21 | 704 | 1.1+ | 0.2+ |
| 2006 10 19 | 704 | 0.9− | 1.2+ | 2006 11 11 | 703 | 0.8+ | 0.2− | 2006 11 21 | 704 | 0.8− | 0.0 |
| 2006 10 19 | 644 | 0.3− | 0.0 | 2006 11 11 | 703 | 0.0 | 0.3− | 2009 04 22 | G96 | 0.0 | 0.2− |
| 2006 10 19 | 644 | 0.7− | 0.1+ | 2006 11 11 | 703 | 0.4− | 0.3− | 2009 04 22 | G96 | 0.1+ | 0.4+ |
| 2006 10 19 | 644 | 0.0 | 0.1+ | 2006 11 14 | G96 | 0.0 | 0.5− | 2009 04 22 | G96 | 0.2− | 0.3+ |
| 2006 10 20 | 691 | 0.3− | 0.2− | 2006 11 14 | G96 | 0.2− | 0.4− | 2009 04 22 | G96 | 0.6− | 0.3+ |
| 2006 10 20 | 691 | 0.3− | 0.3+ | 2006 11 14 | G96 | 0.2+ | 0.7− | 2009 04 28 | G96 | 0.6+ | 0.1+ |
| 2006 10 20 | 691 | 0.3− | 0.1− | 2006 11 14 | G96 | 0.1− | 0.4− | 2009 04 28 | G96 | 0.1− | 0.1+ |
| 2006 10 20 | 644 | 0.1− | 0.2− | 2006 11 17 | 703 | 0.1− | 0.5− | 2009 04 28 | G96 | 0.3+ | 0.1− |
| 2006 10 20 | 644 | 0.1+ | 0.2− | 2006 11 17 | 703 | (2.1− | 2.3−) | 2009 04 28 | G96 | 1.0+ | 0.1+ |
| 2006 10 20 | 644 | 0.2− | 0.1− | 2006 11 17 | 703 | (0.9− | 2.3+) | 2009 05 14 | G96 | 0.4− | 0.6+ |
| 2006 10 21 | 644 | 0.1+ | 0.2− | 2006 11 18 | 704 | 0.3− | 0.1+ | 2009 05 14 | G96 | 0.1+ | 0.0 |
| 2006 10 21 | 644 | 0.0 | 0.3− | 2006 11 18 | 704 | 0.9+ | 0.4+ | 2009 05 14 | G96 | 0.2+ | 0.1+ |
| 2006 10 21 | 644 | 0.0 | 0.2− | 2006 11 18 | 704 | 0.9− | 0.9+ | 2009 05 14 | G96 | 0.9− | 0.3− |

**2006 UC$_{40}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 289.04941 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19084217 | $\omega$ | 75.24168 | | +0.60777972 | +0.79353828 | |
| $a$ | 2.9878112 | $\Omega$ | 232.22724 | | −0.74240392 | +0.55438839 | |
| $e$ | 0.2216233 | $i$ | 2.17607 | | −0.28185143 | +0.25089940 | |
| $P$ | 5.16 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 09 27 | G96 | 0.0 | 0.5− | 2006 10 20 | 691 | 0.6− | 0.0 | 2006 11 27 | G96 | 0.6+ | 0.3− |
| 2006 09 27 | G96 | 0.4+ | 0.2− | 2006 10 20 | 691 | 0.1+ | 0.1+ | 2006 11 27 | G96 | 0.3+ | 0.0 |
| 2006 09 27 | G96 | 0.6+ | 0.3− | 2006 11 01 | 691 | 0.1− | 0.4+ | 2009 02 21 | 691 | 0.1+ | 0.2− |
| 2006 09 27 | G96 | 0.0 | 0.1− | 2006 11 01 | 691 | 0.5− | 0.3+ | 2009 02 21 | 691 | 0.3+ | 0.1− |
| 2006 10 12 | 691 | 0.2− | 0.1− | 2006 11 01 | 691 | 0.3− | 0.0 | 2009 02 21 | 691 | 0.3− | 0.5+ |
| 2006 10 12 | 691 | 0.2+ | 0.0 | 2006 11 14 | G96 | 0.3− | 0.4− | 2009 03 29 | G96 | 0.5− | 0.4− |
| 2006 10 12 | 691 | 0.1+ | 0.2− | 2006 11 14 | G96 | 0.1+ | 0.3− | 2009 03 29 | G96 | 0.1+ | 0.2+ |
| 2006 10 16 | 691 | 0.0 | 0.3− | 2006 11 14 | G96 | 0.4+ | 0.4− | 2009 03 29 | G96 | 0.0 | 0.6− |
| 2006 10 16 | 691 | 0.1+ | 0.2+ | 2006 11 14 | G96 | 0.5+ | 0.2− | 2009 03 29 | G96 | 0.0 | 0.1− |
| 2006 10 16 | 691 | 0.6+ | 0.1− | 2006 11 27 | G96 | 0.4+ | 0.0 | | | | |
| 2006 10 20 | 691 | 0.1− | 0.3+ | 2006 11 27 | G96 | 0.5+ | 0.3− | | | | |

**2006 UV$_{44}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 29.35208 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17481754 | $\omega$ | 174.48043 | | −0.70103808 | +0.61821367 | |
| $a$ | 3.1677146 | $\Omega$ | 50.33302 | | −0.67067613 | −0.40215357 | |
| $e$ | 0.0635895 | $i$ | 27.50242 | | −0.24236160 | −0.67534018 | |
| $P$ | 5.64 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 10 16 | 691 | 0.1+ | 0.6+ | 2006 11 13 | 691 | 0.1− | 0.1− | 2009 04 18 | 703 | 0.5+ | 0.5+ |
| 2006 10 16 | 691 | 0.1− | 0.2− | 2006 11 13 | 691 | 0.3+ | 0.1− | 2009 04 18 | 703 | 0.9− | 0.1− |
| 2006 10 16 | 691 | 0.1− | 0.0 | 2006 11 13 | 691 | 0.2+ | 0.2+ | 2009 04 18 | 703 | 0.5+ | 0.4− |
| 2006 10 20 | 691 | 0.0 | 0.0 | 2006 11 16 | 691 | 0.1− | 0.3+ | 2009 04 18 | 703 | 0.7− | 0.3+ |
| 2006 10 20 | 691 | 0.2+ | 0.2− | 2006 11 16 | 691 | 0.0 | 0.4+ | 2009 04 28 | 703 | 0.4+ | 0.1− |
| 2006 10 20 | 691 | 0.2− | 0.1+ | 2006 11 16 | 691 | 0.0 | 0.1+ | 2009 04 28 | 703 | 0.1+ | 0.0 |
| 2006 10 27 | G96 | 0.3− | 0.5− | 2006 11 24 | G96 | 0.6− | 0.3− | 2009 04 28 | 703 | 0.6− | 0.2− |
| 2006 10 27 | G96 | 0.1+ | 0.7− | 2006 11 24 | G96 | 0.3− | 0.4− | 2009 04 28 | 703 | 0.8+ | 0.1− |
| 2006 10 27 | G96 | 0.0 | 0.2− | 2006 11 24 | G96 | 0.2− | 0.9− | | | | |
| 2006 10 27 | G96 | 0.8+ | 0.6− | 2006 11 24 | G96 | 0.0 | 0.6− | | | | |

**2006 UA$_{45}$ = 2006 TE$_{51}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 228.42666 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.20095039 | $\omega$ | 357.71062 | | +0.56370219 | −0.82491145 | |
| $a$ | 2.8867564 | $\Omega$ | 57.97429 | | +0.75860442 | +0.49695608 | |
| $e$ | 0.0801544 | $i$ | 2.83709 | | +0.32674023 | +0.26936175 | |
| $P$ | 4.90 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1993 01 26 | 691 | 0.1− | 0.0 | 2006 10 27 | G96 | 0.5+ | 0.2− | 2006 11 27 | G96 | 0.2+ | 0.7− |
| 1993 01 26 | 691 | 0.1− | 0.2− | 2006 10 27 | G96 | 0.2− | 0.6− | 2006 11 27 | G96 | 0.2+ | 0.5− |
| 1993 01 26 | 691 | 0.4+ | 0.7+ | 2006 11 11 | G96 | 0.3+ | 0.0 | 2006 11 27 | G96 | 0.0 | 0.6− |
| 2006 10 12 | 691 | 0.2− | 0.1+ | 2006 11 11 | G96 | 0.1− | 0.4− | 2006 12 10 | 691 | 0.2− | 0.1+ |
| 2006 10 12 | 691 | 0.3+ | 0.1− | 2006 11 11 | G96 | 0.4+ | 0.0 | 2006 12 10 | 691 | 0.1+ | 0.0 |
| 2006 10 12 | 691 | 0.0 | 0.5− | 2006 11 11 | G96 | 0.5+ | 0.7− | 2006 12 10 | 691 | 0.1− | 0.0 |
| 2006 10 16 | 691 | 0.0 | 0.1+ | 2006 11 14 | 691 | 0.2− | 0.5+ | 2007 01 15 | 568 | 0.1+ | 0.8+ |
| 2006 10 16 | 691 | 0.5− | 0.1+ | 2006 11 14 | 691 | 0.1+ | 0.1− | 2007 01 15 | 568 | 0.2− | 0.2+ |
| 2006 10 16 | 691 | 0.0 | 0.1− | 2006 11 14 | 691 | 0.6+ | 0.1+ | 2007 01 15 | 568 | 0.2− | 0.3+ |
| 2006 10 20 | 691 | 0.3− | 0.3+ | 2006 11 21 | G96 | 0.4+ | 0.1− | 2007 01 16 | 568 | 0.5− | 0.4− |
| 2006 10 20 | 691 | 0.1− | 0.2+ | 2006 11 21 | G96 | 0.0 | 0.0 | 2008 02 26 | G96 | 0.1+ | 0.3− |
| 2006 10 20 | 691 | 0.1− | 0.0 | 2006 11 21 | G96 | 0.2− | 0.2− | 2008 02 26 | G96 | 1.3− | 0.9− |
| 2006 10 27 | G96 | 0.2+ | 0.2− | 2006 11 21 | G96 | 0.2+ | 0.2− | 2008 02 26 | G96 | 0.0 | 0.4− |
| 2006 10 27 | G96 | 0.1+ | 0.0 | 2006 11 27 | G96 | 0.2+ | 0.4− | 2008 02 26 | G96 | 0.3+ | 0.4− |

**2006 UN$_{62}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 268.73962 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19073985 | $\omega$ | 138.11547 | | +0.93855987 | +0.33988424 | |
| $a$ | 2.9888796 | $\Omega$ | 202.23076 | | −0.34346097 | +0.90292616 | |
| $e$ | 0.0544849 | $i$ | 9.10459 | | −0.03376288 | +0.26306473 | |
| $P$ | 5.17 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 10 19 | 691 | 0.4− | 0.6+ | 2006 10 24 | 734 | 0.3+ | 0.3+ | 2006 11 16 | G96 | 0.2− | 0.1+ |
| 2006 10 19 | 691 | 0.1+ | 0.0 | 2006 10 24 | 734 | 0.1− | 0.1− | 2006 12 26 | G96 | 0.3− | 0.2− |
| 2006 10 19 | 691 | 0.1− | 0.2+ | 2006 10 28 | 691 | 0.1− | 0.0 | 2006 12 26 | G96 | 0.0 | 0.4− |
| 2006 10 23 | 691 | 0.2− | 0.2− | 2006 10 28 | 691 | 0.1− | 0.1+ | 2006 12 26 | G96 | 0.2− | 0.3− |
| 2006 10 23 | 691 | 0.3− | 0.2− | 2006 10 28 | 691 | 0.2− | 0.4+ | 2006 12 26 | G96 | 0.1+ | 0.3− |
| 2006 10 23 | 691 | 0.2− | 0.2− | 2006 11 01 | 691 | 0.2+ | 0.1+ | 2009 03 31 | G96 | 0.0 | 0.2− |
| 2006 10 23 | 734 | 0.5+ | 0.5+ | 2006 11 01 | 691 | 0.3+ | 0.0 | 2009 03 31 | G96 | 0.4+ | 0.0 |
| 2006 10 23 | 734 | 1.1+ | 0.1− | 2006 11 01 | 691 | 0.3+ | 0.0 | 2009 03 31 | G96 | 0.1− | 0.4+ |
| 2006 10 23 | 734 | 0.4+ | 0.2− | 2006 11 14 | G96 | 0.0 | 0.2− | 2009 03 31 | G96 | 0.3− | 0.2+ |
| 2006 10 23 | 734 | 0.4+ | 0.2− | 2006 11 14 | G96 | 0.3+ | 0.3− | 2009 04 28 | G96 | 0.2+ | 0.3− |
| 2006 10 23 | 734 | 0.3− | 0.0 | 2006 11 14 | G96 | 0.1+ | 0.1+ | 2009 04 28 | G96 | 0.1− | 0.6+ |
| 2006 10 23 | 734 | 0.3+ | 0.1+ | 2006 11 14 | G96 | 0.4+ | 0.2− | 2009 04 28 | G96 | 0.2+ | 0.5+ |
| 2006 10 23 | 734 | 0.0 | 0.2− | 2006 11 16 | G96 | 0.4+ | 0.3− | 2009 04 28 | G96 | 0.0 | 0.0 |
| 2006 10 23 | 734 | 0.0 | 0.1− | 2006 11 16 | G96 | 0.5− | 0.1− | | | | |
| 2006 10 24 | 734 | 0.2− | 0.1− | 2006 11 16 | G96 | 0.4− | 0.3− | | | | |

**2006 UX$_{68}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 223.08119 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19893149 | $\omega$ | 313.75267 | | +0.63432434 | −0.76919902 | |
| $a$ | 2.9062548 | $\Omega$ | 96.71622 | | +0.72974557 | +0.56280617 | |
| $e$ | 0.1791438 | $i$ | 4.46042 | | +0.25515494 | +0.30262532 | |
| $P$ | 4.95 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 10 10 | 644 | 0.1+ | 0.6− | 2006 10 21 | G96 | 0.1+ | 0.0 | 2006 12 26 | G96 | 0.2+ | 0.3− |
| 2001 10 10 | 644 | 0.3+ | 0.3− | 2006 10 21 | G96 | 0.1+ | 0.0 | 2006 12 26 | G96 | 0.0 | 0.4− |
| 2001 10 10 | 644 | 0.0 | 0.3− | 2006 10 22 | 691 | 0.4− | 0.1− | 2006 12 26 | G96 | 0.3− | 0.1− |
| 2006 10 16 | 703 | 1.0+ | 0.0 | 2006 10 22 | 691 | 0.2− | 0.1+ | 2006 12 26 | G96 | 0.6+ | 0.1− |
| 2006 10 16 | 703 | 1.1+ | 0.6− | 2006 10 22 | 691 | 0.4− | 0.0 | 2009 04 30 | 691 | 0.1+ | 0.3+ |
| 2006 10 16 | 703 | 0.5− | 0.7+ | 2006 11 23 | G96 | 0.0 | 0.0 | 2009 04 30 | 691 | 0.0 | 0.0 |
| 2006 10 16 | 703 | 0.1+ | 0.4+ | 2006 11 23 | G96 | 0.2+ | 0.2+ | 2009 04 30 | 691 | 0.1− | 0.3− |
| 2006 10 21 | G96 | 0.3+ | 0.2+ | 2006 11 23 | G96 | 0.1− | 0.1+ | | | | |
| 2006 10 21 | G96 | 0.4+ | 0.1− | 2006 11 23 | G96 | 0.5+ | 0.8+ | | | | |

**2006 UD$_{71}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 302.37840 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22330629 | $\omega$ | 257.19511 | | +0.89777917 | +0.37633386 | |
| $a$ | 2.6907214 | $\Omega$ | 80.32854 | | −0.25660825 | +0.86918589 | |
| $e$ | 0.2838172 | $i$ | 13.42275 | | −0.35797315 | +0.32076270 | |
| $P$ | 4.41 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 05 04 | 691 | 0.1+ | 0.0 | 2006 11 17 | G92 | 0.3− | 0.9+ | 2006 11 23 | G96 | 0.0 | 0.4− |
| 2005 05 04 | 691 | 0.0 | 0.4+ | 2006 11 17 | G92 | 0.4+ | 0.8+ | 2006 11 28 | 704 | 0.6+ | 1.2+ |
| 2005 05 04 | 691 | 0.2+ | 0.2+ | 2006 11 17 | G92 | 1.1+ | 0.1+ | 2006 11 28 | 704 | 0.2− | 0.4+ |
| 2006 10 16 | 703 | 0.6− | 0.3+ | 2006 11 19 | 703 | 1.0− | 0.1− | 2006 11 28 | 704 | 0.8+ | 1.5+ |
| 2006 10 16 | 703 | 0.7− | 0.9− | 2006 11 19 | 703 | 0.6− | 1.0− | 2006 12 12 | 703 | 1.8− | 0.8− |
| 2006 10 16 | 703 | 0.1+ | 0.1− | 2006 11 19 | 703 | 0.3− | 0.7− | 2006 12 12 | 703 | 0.2+ | 0.7− |
| 2006 10 16 | 703 | 0.7− | 0.3− | 2006 11 19 | 703 | 0.2+ | 1.0+ | 2006 12 12 | 703 | 1.4− | 0.6+ |
| 2006 10 22 | 703 | 0.1+ | 0.7+ | 2006 11 20 | G96 | 0.2− | 0.1+ | 2006 12 12 | 703 | 1.5− | 1.0+ |
| 2006 10 22 | 703 | 1.0+ | 0.6− | 2006 11 20 | G96 | 0.3+ | 0.1+ | 2006 12 25 | G96 | 0.2− | 0.1+ |
| 2006 10 22 | 703 | 1.6+ | 0.9+ | 2006 11 20 | G96 | 0.3+ | 0.2+ | 2006 12 25 | G96 | 0.4+ | 0.1− |
| 2006 10 22 | 703 | 0.9+ | 0.0 | 2006 11 20 | G96 | 0.3+ | 0.2+ | 2006 12 25 | G96 | 0.4− | 0.4− |
| 2006 10 30 | 703 | 0.5+ | 0.4− | 2006 11 20 | G96 | 0.2+ | 0.2− | 2006 12 25 | G96 | 0.2− | 0.1+ |
| 2006 10 30 | 703 | 0.5+ | 0.2+ | 2006 11 20 | G96 | 0.1+ | 0.3− | 2009 04 20 | G96 | 0.6− | 0.3− |
| 2006 10 30 | 703 | 0.9− | 1.0− | 2006 11 20 | G96 | 0.0 | 0.4− | 2009 04 20 | G96 | 0.0 | 0.4− |
| 2006 10 30 | 703 | 0.7+ | 0.5− | 2006 11 20 | G96 | 0.2+ | 0.3− | 2009 04 20 | G96 | 0.6− | 0.8− |
| 2006 11 15 | G92 | 0.7− | 0.1+ | 2006 11 23 | G96 | 0.0 | 0.3− | 2009 04 20 | G96 | 0.4+ | 0.0 |
| 2006 11 15 | G92 | 0.3− | 0.0 | 2006 11 23 | G96 | 0.1+ | 0.3− | | | | |
| 2006 11 15 | G92 | 0.2+ | 0.4+ | 2006 11 23 | G96 | 0.2+ | 0.2− | | | | |

**2006 UB$_{82}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 242.01602 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19326776 | $\omega$ | 1.07257 | | +0.94677715 | −0.31554068 | |
| $a$ | 2.9627598 | $\Omega$ | 17.72706 | | +0.29375060 | +0.76615675 | |
| $e$ | 0.1092953 | $i$ | 12.05990 | | +0.13161921 | +0.55985526 | |
| $P$ | 5.10 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 10 02 | G96 | 0.1− | 0.2− | 2006 10 27 | 703 | 1.1+ | 0.1+ | 2006 11 14 | 703 | 0.2− | 0.8+ |
| 2006 10 02 | G96 | 0.5+ | 0.1− | 2006 11 01 | G96 | 0.4+ | 0.1− | 2006 11 14 | 703 | 1.0− | 0.7− |
| 2006 10 02 | G96 | 0.0 | 0.0 | 2006 11 01 | G96 | 0.2+ | 0.1− | 2006 11 14 | 703 | 0.5+ | 0.4+ |
| 2006 10 02 | G96 | 0.1+ | 0.1− | 2006 11 01 | G96 | 0.5+ | 0.2− | 2006 11 14 | 703 | 1.4− | 0.3− |
| 2006 10 17 | 691 | 0.2+ | 0.3+ | 2006 11 01 | G96 | 0.3+ | 0.1− | 2007 03 11 | G96 | 0.3− | 0.2− |
| 2006 10 17 | 691 | 0.1− | 0.2+ | 2006 11 01 | J95 | 0.4+ | 0.1− | 2007 03 11 | G96 | 0.6+ | 0.3− |
| 2006 10 17 | 691 | 0.2+ | 0.3+ | 2006 11 01 | J95 | 0.4+ | 0.3− | 2007 03 11 | G96 | 0.1− | 0.2+ |
| 2006 10 21 | 691 | 0.4− | 0.2+ | 2006 11 01 | J95 | 0.2+ | 0.1+ | 2007 03 11 | G96 | 0.2− | 0.4+ |
| 2006 10 21 | 691 | 0.4− | 0.3+ | 2006 11 02 | H55 | 1.2− | 0.8− | 2009 03 17 | 691 | 0.3− | 0.2− |
| 2006 10 21 | 691 | 0.4− | 0.1− | 2006 11 02 | H55 | 1.1− | 1.5− | 2009 03 17 | 691 | 0.1+ | 0.1+ |
| 2006 10 22 | 644 | 0.2+ | 0.1+ | 2006 11 02 | H55 | 0.9− | 1.5− | 2009 03 17 | 691 | 0.2+ | 1.0− |
| 2006 10 22 | 644 | 0.0 | 0.5+ | 2006 11 02 | H55 | 0.6− | 1.4− | 2009 03 31 | 691 | 0.4+ | 0.8+ |
| 2006 10 22 | 644 | 0.1+ | 0.6+ | 2006 11 03 | J95 | 0.2+ | 0.1+ | 2009 03 31 | 691 | 0.3− | 0.4+ |
| 2006 10 27 | 703 | 0.2+ | 0.1− | 2006 11 03 | J95 | 0.1+ | 0.1− | 2009 03 31 | 691 | 0.2+ | 0.1+ |
| 2006 10 27 | 703 | 0.8− | 0.4− | 2006 11 04 | J95 | 0.2− | 1.1+ | | | | |
| 2006 10 27 | 703 | 0.6+ | 0.2+ | 2006 11 04 | J95 | 0.2+ | 0.6− | | | | |

**2006 UR$_{109}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 119.08679 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18470505 | $\omega$ | 206.38890 | | −0.32253820 | −0.93627082 | |
| $a$ | 3.0536332 | $\Omega$ | 262.69175 | | +0.89136681 | −0.25096442 | |
| $e$ | 0.0564308 | $i$ | 8.06531 | | +0.31848754 | −0.24579221 | |
| $P$ | 5.34 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 09 27 | 703 | 1.7− | 0.4+ | 2006 10 21 | 691 | 0.3+ | 0.2− | 2009 03 16 | 703 | 0.3− | 0.5+ |
| 2006 09 27 | 703 | 0.3+ | 0.7+ | 2006 10 21 | 691 | 0.1− | 0.2− | 2009 03 16 | 703 | 1.7− | 0.1+ |
| 2006 09 27 | 703 | 1.1+ | 0.1+ | 2006 10 23 | 691 | 0.1− | 0.0 | 2009 03 16 | 703 | 1.2+ | 0.9+ |
| 2006 09 27 | 703 | 0.4+ | 0.2+ | 2006 10 23 | 691 | 0.2− | 0.3− | 2009 03 16 | 703 | 0.2+ | 0.8− |
| 2006 10 19 | 691 | 0.0 | 0.2− | 2006 10 23 | 691 | 0.0 | 0.1− | 2009 03 31 | 703 | 0.6+ | 1.1+ |
| 2006 10 19 | 691 | 0.1− | 0.1+ | 2006 10 31 | 691 | 0.1+ | 0.2+ | 2009 03 31 | 703 | 0.2+ | 0.2− |
| 2006 10 19 | 691 | 0.3+ | 0.0 | 2006 10 31 | 691 | 0.2− | 0.1+ | 2009 03 31 | 703 | 0.2− | 0.0 |
| 2006 10 21 | 691 | 0.0 | 0.2− | 2006 10 31 | 691 | 0.0 | 0.5+ | 2009 03 31 | 703 | 0.1− | 1.6− |

**2006 UQ$_{136}$ = 2008 GV$_{142}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 177.17121 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23298006 | $\omega$ | 234.21611 | | −0.93654186 | −0.34463695 | |
| $a$ | 2.6157137 | $\Omega$ | 285.54794 | | +0.33927322 | −0.84504589 | |
| $e$ | 0.1842409 | $i$ | 3.81772 | | +0.08822141 | −0.40880657 | |
| $P$ | 4.23 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 10 19 | G96 | 0.4+ | 0.1− | 2006 10 27 | 691 | 0.9+ | 0.0 | 2008 04 04 | 703 | 0.2− | 0.3+ |
| 2006 10 19 | G96 | 0.2+ | 0.2− | 2006 10 31 | 691 | 0.4− | 0.2− | 2008 04 04 | 703 | 1.0− | 0.2− |
| 2006 10 19 | G96 | 0.4+ | 0.5− | 2006 10 31 | 691 | 0.1− | 0.2+ | 2008 04 04 | 703 | 0.2+ | 0.0 |
| 2006 10 19 | G96 | 0.2+ | 0.2− | 2006 10 31 | 691 | 0.1+ | 0.1+ | 2008 04 14 | 703 | 0.3+ | 0.8+ |
| 2006 10 23 | 691 | 0.2− | 0.1+ | 2006 11 14 | G96 | 0.2− | 0.2− | 2008 04 14 | 703 | 0.0 | 0.2− |
| 2006 10 23 | 691 | 0.4− | 0.1− | 2006 11 14 | G96 | 0.0 | 0.1− | 2008 04 14 | 703 | 0.8− | 0.1− |
| 2006 10 23 | 691 | 0.5− | 0.0 | 2006 11 14 | G96 | 0.0 | 0.1− | 2008 04 14 | 703 | 1.1+ | 0.1− |
| 2006 10 27 | 691 | 0.4+ | 0.2+ | 2006 11 14 | G96 | 0.0 | 0.2− | | | | |
| 2006 10 27 | 691 | 0.1− | 0.1+ | 2008 04 04 | 703 | 0.5+ | 0.5− | | | | |

**2006 UG$_{139}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 196.00106 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17555843 | $\omega$ | 61.68309 | | +0.49399478 | −0.86946173 | |
| $a$ | 3.1587961 | $\Omega$ | 358.70638 | | +0.75707941 | +0.43146196 | |
| $e$ | 0.1848183 | $i$ | 5.94119 | | +0.42755108 | +0.24057615 | |
| $P$ | 5.61 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 10 19 | 691 | 0.1+ | 0.2+ | 2006 10 27 | 703 | 0.4− | 0.2+ | 2006 11 23 | 703 | 0.4+ | 0.0 |
| 2006 10 19 | 691 | 0.2+ | 0.0 | 2006 11 11 | 703 | 0.5+ | 0.4+ | 2006 11 23 | 703 | 1.3− | 0.3+ |
| 2006 10 19 | 691 | 0.2+ | 0.1+ | 2006 11 11 | 703 | 0.1+ | 0.3− | 2006 11 23 | 703 | 0.0 | 0.8− |
| 2006 10 23 | 691 | 0.3− | 0.1+ | 2006 11 11 | 703 | 0.7− | 0.7− | 2006 11 23 | 703 | 0.2− | 0.4+ |
| 2006 10 23 | 691 | 0.2− | 0.1+ | 2006 11 11 | 703 | 0.9+ | 1.6− | 2008 02 26 | G96 | 0.2+ | 0.1− |
| 2006 10 23 | 691 | 0.2− | 0.1+ | 2006 11 14 | 703 | 0.1+ | 1.0− | 2008 02 26 | G96 | 0.2+ | 0.0 |
| 2006 10 23 | 691 | 0.1− | 0.2− | 2006 11 14 | 703 | 0.0 | 0.2− | 2008 02 26 | G96 | 0.2+ | 0.2− |
| 2006 10 23 | 691 | 0.1+ | 0.2+ | 2006 11 14 | 703 | 1.0− | 0.4+ | 2008 02 26 | G96 | 0.2+ | 0.1− |
| 2006 10 23 | 691 | 0.2− | 0.0 | 2006 11 14 | 703 | 0.2− | 0.5− | 2008 04 06 | G96 | 0.4− | 0.1+ |
| 2006 10 27 | 703 | 0.6+ | 0.9− | 2006 11 15 | 691 | 0.1+ | 0.3+ | 2008 04 06 | G96 | 0.0 | 0.0 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 10 27 | 703 | 0.7− | 2.0− | 2006 11 15 | 691 | 0.3+ | 0.3+ | 2008 04 06 | G96 | 0.3− | 0.0 | |
| 2006 10 27 | 703 | 0.5+ | 0.3+ | 2006 11 15 | 691 | 0.4+ | 0.3+ | 2008 04 06 | G96 | 0.0 | 0.4+ | |

**2006 UP$_{143}$ = 2002 NO$_{71}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 321.93214 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27157481 | $\omega$ | 189.09704 | | +0.91144593 | −0.41081498 | |
| $a$ | 2.3616184 | $\Omega$ | 195.21791 | | +0.38261247 | +0.86630757 | |
| $e$ | 0.2378595 | $i$ | 4.87383 | | +0.15124158 | +0.28415181 | |
| $P$ | 3.63 | $H$ | 17.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 07 03 | 644 | 0.1+ | 0.7+ | 2006 09 30 | 703 | 1.2− | 0.1− | 2006 10 23 | 704 | 0.6+ | 0.2− | |
| 2002 07 03 | 644 | 0.6+ | 0.2+ | 2006 09 30 | 703 | 0.1+ | 0.0 | 2006 10 23 | 704 | 0.2+ | 0.3− | |
| 2002 07 03 | 644 | 0.0 | 0.0 | 2006 10 11 | 644 | 0.2+ | 0.1+ | 2006 10 23 | 704 | 0.3+ | 0.8− | |
| 2002 07 08 | 644 | 0.2− | 0.2+ | 2006 10 11 | 644 | 0.1− | 0.1+ | 2006 10 23 | 704 | 0.6+ | 0.4− | |
| 2002 07 08 | 644 | 0.1− | 0.0 | 2006 10 11 | 644 | 0.0 | 0.1+ | 2006 10 28 | 691 | 0.0 | 0.2+ | |
| 2002 07 08 | 644 | 0.3− | 0.1− | 2006 10 11 | 644 | 0.0 | 0.0 | 2006 10 28 | 691 | 0.1+ | 0.2+ | |
| 2002 07 11 | 644 | 0.7− | 0.4+ | 2006 10 11 | 644 | 0.0 | 0.1+ | 2006 10 28 | 691 | 0.1+ | 0.1+ | |
| 2002 07 21 | 644 | 0.2+ | 0.4+ | 2006 10 11 | 644 | 0.2+ | 0.1+ | 2006 11 01 | 691 | 0.1− | 0.4+ | |
| 2002 07 21 | 644 | 0.0 | 0.5− | 2006 10 19 | 644 | 0.6+ | 0.3− | 2006 11 01 | G96 | 0.4− | 0.3− | |
| 2002 07 21 | 644 | 0.3+ | 0.2− | 2006 10 19 | 644 | 0.0 | 0.2+ | 2006 11 01 | G96 | 0.2− | 0.3− | |
| 2002 07 29 | 644 | 0.0 | 0.0 | 2006 10 19 | 644 | 0.3+ | 0.4+ | 2006 11 01 | 691 | 0.1− | 0.3+ | |
| 2002 07 29 | 644 | 0.2+ | 0.5− | 2006 10 21 | 644 | 0.3+ | 0.1+ | 2006 11 01 | G96 | 0.0 | 0.2− | |
| 2006 09 25 | G96 | 0.0 | 0.1− | 2006 10 21 | 644 | 0.3+ | 0.3− | 2006 11 01 | G96 | 0.2+ | 0.4− | |
| 2006 09 25 | G96 | 0.2+ | 0.2− | 2006 10 21 | 644 | 0.1+ | 0.1+ | 2006 11 01 | 691 | 0.3+ | 0.1+ | |
| 2006 09 25 | G96 | 0.2− | 0.4− | 2006 10 23 | 691 | 0.0 | 0.3− | 2006 11 11 | 691 | 0.3− | 0.0 | |
| 2006 09 25 | G96 | 0.2− | 0.0 | 2006 10 23 | 691 | 0.0 | 0.2− | 2006 11 11 | 691 | 0.1− | 0.0 | |
| 2006 09 30 | 703 | 0.6− | 1.1+ | 2006 10 23 | 691 | 0.1− | 0.3− | 2006 11 11 | 691 | 0.2− | 0.2+ | |
| 2006 09 30 | 703 | 0.4− | 0.5− | 2006 10 23 | 704 | 0.8+ | 0.2− | | | | | |

**2006 US$_{149}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 276.42270 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21720528 | $\omega$ | 267.10925 | | +0.96490248 | −0.05418499 | |
| $a$ | 2.7408744 | $\Omega$ | 95.89914 | | +0.14758028 | +0.92123838 | |
| $e$ | 0.1160125 | $i$ | 14.97073 | | −0.21721711 | +0.38520622 | |
| $P$ | 4.54 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 09 19 | 703 | 1.1+ | 0.6− | 2006 10 20 | 703 | 0.2+ | 0.2− | 2006 11 23 | 703 | 0.2+ | 0.2− | |
| 2006 09 19 | 703 | 1.2− | 0.8+ | 2006 10 20 | 703 | 0.2− | 1.0− | 2009 03 30 | G96 | 0.2− | 0.2+ | |
| 2006 09 19 | 703 | 0.1− | 0.1+ | 2006 10 21 | 703 | 0.6+ | 0.3+ | 2009 03 30 | G96 | 0.2+ | 0.4+ | |
| 2006 09 19 | 703 | 0.2− | 0.2− | 2006 10 21 | 703 | 0.8− | 0.5+ | 2009 03 30 | G96 | 0.6+ | 0.3− | |
| 2006 09 26 | 703 | 1.0+ | 0.2− | 2006 10 21 | 703 | 1.6− | 0.4+ | 2009 03 30 | G96 | 0.1− | 0.4− | |
| 2006 09 26 | 703 | 0.4+ | 0.0 | 2006 10 21 | 703 | 1.3− | 1.2− | 2009 03 30 | G96 | 0.7+ | 0.1− | |
| 2006 09 26 | 703 | 0.1− | 0.4+ | 2006 10 28 | 703 | 1.2− | 0.7− | 2009 03 30 | G96 | 0.6+ | 0.2− | |
| 2006 09 26 | 703 | 1.1− | 0.1− | 2006 10 28 | 703 | 0.2− | 0.4+ | 2009 03 30 | G96 | 1.0+ | 1.2+ | |
| 2006 10 10 | 644 | 0.7+ | 0.7+ | 2006 10 28 | 703 | 1.1+ | 0.7+ | 2009 03 30 | G96 | 0.8− | 0.4− | |
| 2006 10 10 | 644 | 0.0 | 0.2+ | 2006 10 28 | 703 | 0.5+ | 0.5+ | 2009 04 20 | 703 | 1.1+ | 0.6− | |
| 2006 10 10 | 644 | 0.5+ | 0.5+ | 2006 11 23 | 703 | 0.3+ | 0.5+ | 2009 04 20 | 703 | 0.5− | 0.4+ | |
| 2006 10 20 | 703 | 0.4+ | 1.0− | 2006 11 23 | 703 | 0.9+ | 0.1+ | 2009 04 20 | 703 | 1.5− | 0.6+ | |
| 2006 10 20 | 703 | 0.1+ | 0.6− | 2006 11 23 | 703 | 0.1+ | 0.3+ | 2009 04 20 | 703 | 0.8− | 0.6− | |

**2006 UZ$_{155}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 260.59809 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21083938 | $\omega$ | 275.23048 | | +0.99233457 | −0.07891923 | |
| $a$ | 2.7957708 | $\Omega$ | 89.31971 | | +0.11050869 | +0.91113709 | |
| $e$ | 0.0854547 | $i$ | 5.45742 | | −0.05531670 | +0.40447615 | |
| $P$ | 4.67 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 12 11 | 291 | 0.2+ | 0.0 | 2006 10 11 | 644 | 0.0 | 0.1+ | 2006 10 29 | 705 | 0.4+ | 0.0 | |
| 2002 12 11 | 291 | 0.4+ | 0.4+ | 2006 10 11 | 644 | 0.2− | 0.3+ | 2006 10 29 | 705 | 0.3+ | 0.0 | |
| 2002 12 11 | 291 | 0.6− | 0.1+ | 2006 10 11 | 644 | 0.2+ | 0.2+ | 2006 11 20 | 705 | 0.0 | 0.0 | |
| 2006 09 22 | 705 | 0.3+ | 0.0 | 2006 10 12 | 705 | 0.3+ | 0.1+ | 2006 11 20 | 705 | 0.0 | 0.2− | |
| 2006 09 22 | 705 | 0.2+ | 0.0 | 2006 10 12 | 705 | 0.3+ | 0.1+ | 2006 11 22 | 705 | 0.1+ | 0.1− | |
| 2006 09 29 | 705 | 0.1+ | 0.0 | 2006 10 21 | G96 | 0.2+ | 0.2− | 2006 11 22 | 705 | 0.1− | 0.4− | |
| 2006 09 29 | 705 | 0.3+ | 0.0 | 2006 10 21 | G96 | 0.0 | 0.2− | 2006 11 23 | 705 | 0.1− | 0.1− | |
| 2006 09 30 | 705 | 0.2+ | 0.1− | 2006 10 21 | G96 | 0.0 | 0.0 | 2006 11 23 | 705 | 0.0 | 0.3− | |
| 2006 09 30 | 705 | 0.2+ | 0.1− | 2006 10 21 | G96 | 0.1− | 0.1− | 2008 01 16 | 691 | 0.3+ | 0.2− | |
| 2006 10 02 | G96 | 0.4+ | 0.5− | 2006 10 21 | 705 | 0.2+ | 0.1− | 2008 01 16 | 691 | 0.2+ | 0.1− | |
| 2006 10 02 | G96 | 0.4− | 0.3− | 2006 10 21 | 705 | 0.3+ | 0.0 | 2008 01 16 | 691 | 0.6− | 0.2− | |
| 2006 10 02 | G96 | 0.3+ | 0.4− | 2006 10 22 | 703 | 0.9− | 0.3+ | 2009 04 29 | G96 | 0.1+ | 0.3− | |
| 2006 10 02 | 705 | 0.2+ | 0.1− | 2006 10 22 | 703 | 0.5− | 0.2+ | 2009 04 29 | G96 | 0.7− | 0.2− | |
| 2006 10 02 | G96 | 0.0 | 0.1− | 2006 10 22 | 703 | 1.7− | 0.3− | 2009 04 29 | G96 | 0.2+ | 0.1− | |
| 2006 10 02 | 705 | 0.2+ | 0.1− | 2006 10 22 | 703 | 0.9− | 0.6+ | 2009 04 29 | G96 | 0.1+ | 0.1− | |
| 2006 10 03 | 705 | 0.2+ | 0.1− | 2006 10 27 | 705 | 0.3+ | 0.0 | | | | | |
| 2006 10 03 | 705 | 0.2+ | 0.0 | 2006 10 27 | 705 | 0.4+ | 0.1− | | | | | |

**2006 UK$_{169}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 154.87651 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17200049 | $\omega$ | 45.35318 | | +0.05610993 | −0.97594391 | |
| $a$ | 3.2022084 | $\Omega$ | 42.79681 | | +0.80563750 | −0.08038258 | |
| $e$ | 0.1078428 | $i$ | 18.06488 | | +0.58974561 | +0.20266257 | |
| $P$ | 5.73 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 10 21 | G96 | 0.4+ | 0.3− | 2006 11 01 | 691 | 0.3+ | 0.1− | 2006 12 12 | G96 | 0.4+ | 0.5− | |
| 2006 10 21 | G96 | 0.3+ | 0.4− | 2006 11 01 | G96 | 0.2− | 0.1− | 2006 12 12 | G96 | 0.2− | 0.6− | |
| 2006 10 21 | G96 | 0.0 | 0.3− | 2006 11 01 | G96 | 0.2− | 0.4− | 2006 12 12 | G96 | 0.7+ | 0.3− | |
| 2006 10 21 | G96 | 0.5+ | 0.2− | 2006 11 01 | 691 | 0.2+ | 0.1+ | 2006 12 12 | G96 | 1.0− | 0.0 | |
| 2006 10 22 | 691 | 0.0 | 0.1+ | 2006 11 11 | 691 | 0.1+ | 0.4− | 2009 03 29 | 691 | 0.6− | 0.2− | |
| 2006 10 22 | 691 | 0.4− | 0.0 | 2006 11 11 | 691 | 0.0 | 0.0 | 2009 03 29 | 691 | 0.2+ | 0.4+ | |
| 2006 10 22 | 691 | 0.2− | 0.1+ | 2006 11 11 | 691 | 0.2+ | 0.5− | 2009 03 29 | 691 | 0.2+ | 0.2− | |
| 2006 10 28 | 691 | 0.1+ | 0.3+ | 2006 11 22 | 691 | 0.5− | 0.2− | 2009 04 21 | G96 | 0.0 | 0.1− | |
| 2006 10 28 | 691 | 0.2− | 0.2+ | 2006 11 22 | 691 | 0.1− | 0.0 | 2009 04 21 | G96 | 0.1+ | 0.0 | |
| 2006 10 28 | 691 | 0.2+ | 0.5+ | 2006 11 22 | 691 | 0.0 | 0.4+ | 2009 04 21 | G96 | 0.2+ | 0.2− | |
| 2006 11 01 | 691 | 0.3+ | 0.0 | 2006 11 27 | 691 | 0.1− | 0.4+ | 2009 04 21 | G96 | 0.3+ | 0.1+ | |
| 2006 11 01 | G96 | 0.0 | 0.7− | 2006 11 27 | 691 | 0.2− | 0.2+ | | | | | |
| 2006 11 01 | G96 | 0.2+ | 0.3− | 2006 11 27 | 691 | 0.2+ | 0.1− | | | | | |

**2006 UY$_{175}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 324.44964 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21717333 | $\omega$ | 238.42265 | | +0.59285915 | +0.79898957 | |
| $a$ | 2.7411432 | $\Omega$ | 68.26981 | | −0.69725922 | +0.57183352 | |
| $e$ | 0.0348209 | $i$ | 6.22119 | | −0.40292384 | +0.18607011 | |
| $P$ | 4.54 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 09 14 | 291 | 0.0 | 0.0 | 2006 10 21 | 644 | 0.3+ | 0.2+ | 2006 11 14 | 705 | 0.3+ | 0.0 | |
| 2006 09 14 | 291 | 0.1+ | 0.1+ | 2006 10 21 | 644 | 0.1+ | 0.7+ | 2006 11 14 | 705 | 0.4+ | 0.1− | |
| 2006 09 14 | 291 | 0.0 | 0.0 | 2006 10 22 | 703 | 1.6+ | 0.7+ | 2006 11 17 | 705 | 0.2+ | 0.2+ | |
| 2006 10 16 | 703 | 0.7− | 1.5− | 2006 10 22 | 703 | 0.8− | 0.4− | 2006 11 17 | 705 | 0.2+ | 0.1+ | |
| 2006 10 16 | 703 | 1.4+ | 1.6− | 2006 10 22 | 703 | 1.2− | 1.8+ | 2006 11 20 | 705 | 0.3+ | 0.0 | |
| 2006 10 16 | 703 | 1.7− | 0.2+ | 2006 10 22 | 703 | 0.4− | 0.2− | 2006 11 20 | 705 | 0.0 | 0.2+ | |
| 2006 10 16 | 703 | 0.8− | 1.5− | 2006 10 22 | 703 | 1.7− | 0.3+ | 2006 11 24 | 705 | 0.2+ | 0.1+ | |
| 2006 10 16 | 703 | 0.5+ | 0.6− | 2006 10 22 | 703 | 1.5− | 0.8+ | 2006 11 24 | 705 | 0.3+ | 0.1+ | |
| 2006 10 16 | 703 | 0.7− | 1.0− | 2006 10 22 | 703 | 0.1+ | 0.7+ | 2009 03 16 | 691 | 0.1+ | 0.4+ | |
| 2006 10 16 | 703 | 0.6− | 0.6+ | 2006 10 22 | 703 | 1.4− | 0.6+ | 2009 03 16 | 691 | 0.1+ | 0.2− | |
| 2006 10 16 | 703 | (0.2− | 2.3−) | 2006 10 29 | 705 | 0.4+ | 0.0 | 2009 03 16 | 691 | 0.0 | 0.0 | |
| 2006 10 17 | 705 | 0.5+ | 0.0 | 2006 10 29 | 705 | 0.4+ | 0.0 | 2009 03 29 | 691 | 0.0 | 0.1− | |
| 2006 10 17 | 705 | 0.6+ | 0.0 | 2006 11 01 | 705 | 0.4+ | 0.1− | 2009 03 29 | 691 | 0.2+ | 0.2+ | |
| 2006 10 20 | 705 | 0.5+ | 0.0 | 2006 11 01 | 705 | 0.5+ | 0.0 | 2009 03 29 | 691 | 0.2− | 0.0 | |
| 2006 10 20 | 705 | 0.6+ | 0.0 | 2006 11 10 | 705 | 0.4+ | 0.1+ | | | | | |
| 2006 10 21 | 644 | 0.5+ | 0.5+ | 2006 11 10 | 705 | 0.4+ | 0.1+ | | | | | |

**2006 UA$_{186}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 32.33244 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.30106933 | $\omega$ | 30.59370 | | +0.80212929 | +0.59102938 | |
| $a$ | 2.2047450 | $\Omega$ | 292.93389 | | −0.56491260 | +0.70475764 | |
| $e$ | 0.2012776 | $i$ | 5.31325 | | −0.19355196 | +0.39242954 | |
| $P$ | 3.27 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 08 29 | 699 | 0.6− | 0.2− | 2006 10 11 | 644 | 0.1+ | 0.2+ | 2006 10 22 | 644 | 0.4+ | 0.0 |
| 2006 08 29 | 699 | 0.9+ | 0.2− | 2006 10 11 | 644 | 0.0 | 0.1− | 2006 10 23 | 644 | 0.3+ | 0.0 |
| 2006 08 29 | 699 | 0.0 | 0.1+ | 2006 10 11 | 644 | 0.1+ | 0.3+ | 2006 10 23 | 644 | 0.3+ | 0.0 |
| 2006 08 29 | 699 | 0.2+ | 0.2− | 2006 10 17 | 703 | 0.1+ | 0.7+ | 2006 10 23 | 644 | 0.3+ | 0.0 |
| 2006 09 16 | 703 | (2.2+ | 2.1−) | 2006 10 17 | 703 | 0.8− | 0.6− | 2009 06 25 | E12 | 0.5− | 0.9− |
| 2006 09 16 | 703 | 1.7+ | 1.5− | 2006 10 17 | 703 | 0.9− | 0.2− | 2009 06 25 | E12 | 0.7+ | 0.1+ |
| 2006 09 16 | 703 | 0.7− | 0.6+ | 2006 10 17 | 703 | 0.9− | 0.1− | 2009 06 25 | E12 | 0.2− | 0.6+ |
| 2006 09 16 | 703 | 0.7− | 0.5+ | 2006 10 21 | 644 | 0.0 | 0.0 | 2009 06 25 | E12 | 0.0 | 0.3+ |
| 2006 09 28 | 703 | 0.0 | 0.8− | 2006 10 21 | 644 | 0.0 | 0.4+ | 2009 11 20 | G96 | 0.5+ | 0.0 |
| 2006 09 28 | 703 | 0.7+ | 0.2− | 2006 10 21 | 644 | 0.1− | 0.1+ | 2009 11 20 | G96 | 0.3− | 0.2− |
| 2006 09 28 | 703 | 0.9− | 0.5+ | 2006 10 22 | 644 | 0.6+ | 0.4+ | 2009 11 20 | G96 | 0.0 | 0.3+ |
| 2006 09 28 | 703 | 0.2− | 0.3+ | 2006 10 22 | 644 | 0.3+ | 0.3− | 2009 11 20 | G96 | 0.3− | 0.3+ |

**2006 UJ$_{196}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 189.44788 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18158951 | $\omega$ | 208.51525 | | +0.35691073 | −0.92350759 | |
| $a$ | 3.0884616 | $\Omega$ | 221.01920 | | +0.89256907 | +0.38152484 | |
| $e$ | 0.1146880 | $i$ | 12.36388 | | +0.27556340 | −0.03965513 | |
| $P$ | 5.43 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 10 20 | 691 | 0.1− | 0.1+ | 2006 11 11 | 703 | 0.3− | 0.2− | 2006 11 17 | 703 | 1.0+ | 0.3+ |
| 2006 10 20 | 691 | 0.1− | 0.1− | 2006 11 11 | 703 | 0.1− | 0.1+ | 2006 11 17 | 703 | 0.3− | 0.6− |
| 2006 10 20 | 691 | 0.0 | 0.1− | 2006 11 11 | 703 | 0.8− | 1.0− | 2006 11 17 | 703 | 1.0− | 0.4− |
| 2006 10 27 | G96 | 0.0 | 0.2− | 2006 11 11 | 703 | 0.6− | 1.1− | 2008 02 14 | 703 | 0.3+ | 0.4− |
| 2006 10 27 | G96 | 0.3+ | 0.1− | 2006 11 13 | G96 | 0.3+ | 0.2− | 2008 02 14 | 703 | 0.1+ | 0.8+ |
| 2006 10 27 | G96 | 0.1+ | 0.1− | 2006 11 13 | G96 | 0.1+ | 0.1− | 2008 02 14 | 703 | 0.6− | 1.1+ |
| 2006 10 27 | G96 | 0.4+ | 0.0 | 2006 11 13 | G96 | 0.1+ | 0.2− | 2008 02 14 | 703 | 0.1+ | 1.4− |
| 2006 11 01 | 691 | 0.2+ | 0.2+ | 2006 11 13 | G96 | 0.1− | 0.5− | 2009 04 02 | 691 | 0.2− | 0.1+ |
| 2006 11 01 | 691 | 0.1− | 0.1+ | 2006 11 13 | 644 | 0.2− | 0.4+ | 2009 04 02 | 691 | 0.1− | 0.3− |
| 2006 11 01 | 691 | 0.0 | 0.2+ | 2006 11 13 | 644 | 0.3− | 0.4+ | 2009 04 02 | 691 | 0.4− | 0.1+ |
| 2006 11 09 | 644 | 0.2− | 0.3+ | 2006 11 13 | 644 | 0.3+ | 0.4+ | 2009 04 22 | G96 | 0.8+ | 0.2− |
| 2006 11 09 | 644 | 0.0 | 0.3+ | 2006 11 15 | G96 | 0.3+ | 0.0 | 2009 04 22 | G96 | 0.5+ | 0.0 |
| 2006 11 09 | 644 | 0.2+ | 0.3+ | 2006 11 15 | G96 | 0.1+ | 0.1− | 2009 04 22 | G96 | 0.7+ | 0.2+ |
| 2006 11 09 | 644 | 0.1+ | 0.7+ | 2006 11 15 | G96 | 0.1+ | 0.0 | 2009 04 22 | G96 | 0.5+ | 0.1+ |
| 2006 11 09 | 644 | 0.4+ | 0.3+ | 2006 11 15 | G96 | 0.1+ | 0.1+ | | | | |
| 2006 11 09 | 644 | 0.0 | 0.0 | 2006 11 17 | 703 | 0.2+ | 0.5− | | | | |

**2006 UB$_{204}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 301.59921 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22577859 | $\omega$ | 116.38094 | | +0.97602569 | +0.20602691 | |
| $a$ | 2.6710430 | $\Omega$ | 231.81113 | | −0.21753903 | +0.91284447 | |
| $e$ | 0.1390667 | $i$ | 5.12357 | | −0.00711530 | +0.35251650 | |
| $P$ | 4.37 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 10 11 | 691 | 0.5+ | 0.2− | 2006 11 09 | 644 | 0.4+ | 0.2+ | 2006 11 27 | G96 | 0.4+ | 0.3− |
| 2006 10 11 | 691 | 0.2+ | 0.1− | 2006 11 09 | 644 | 0.1+ | 0.2+ | 2006 11 27 | G96 | 0.5+ | 0.3− |
| 2006 10 11 | 691 | 0.1+ | 0.1+ | 2006 11 09 | 644 | 0.2+ | 0.2+ | 2006 11 27 | G96 | 0.6+ | 0.5− |
| 2006 10 21 | 644 | 0.1+ | 0.1− | 2006 11 11 | 703 | 0.5− | 1.5+ | 2007 01 10 | G96 | 0.1− | 0.0 |
| 2006 10 21 | 644 | 0.0 | 0.1− | 2006 11 11 | 703 | 1.8− | 1.9− | 2007 01 10 | G96 | 0.3− | 0.1+ |
| 2006 10 21 | 644 | 0.5+ | 0.0 | 2006 11 11 | 703 | 0.1+ | 0.0 | 2007 01 10 | G96 | 0.1+ | 0.4+ |
| 2006 10 22 | 644 | 0.1− | 0.0 | 2006 11 11 | 703 | 0.1− | 0.2+ | 2007 01 10 | G96 | 0.1− | 0.0 |
| 2006 10 22 | 644 | 0.2+ | 0.1+ | 2006 11 13 | 644 | 0.3+ | 0.2+ | 2009 04 22 | G96 | 0.5+ | 0.3+ |
| 2006 10 22 | 644 | 0.3+ | 0.1+ | 2006 11 13 | 644 | 0.2+ | 0.2+ | 2009 04 22 | G96 | 0.3− | 0.1+ |
| 2006 10 23 | 691 | 0.4− | 0.1+ | 2006 11 13 | 644 | 0.0 | 0.2+ | 2009 04 22 | G96 | 0.2+ | 0.2+ |
| 2006 10 23 | 691 | 0.9− | 0.0 | 2006 11 17 | 703 | 0.5− | 0.1− | 2009 04 22 | G96 | 0.2+ | 0.0 |
| 2006 10 23 | 691 | 0.5− | 0.1+ | 2006 11 17 | 703 | 0.2− | 0.9+ | 2009 05 18 | G96 | 0.0 | 0.0 |
| 2006 11 01 | 691 | 0.1− | 0.1+ | 2006 11 17 | 703 | 0.2+ | 0.4− | 2009 05 18 | G96 | 0.3+ | 0.2+ |
| 2006 11 01 | 691 | 0.3+ | 0.1+ | 2006 11 17 | 703 | 1.1+ | 0.3− | 2009 05 18 | G96 | 0.3− | 0.4+ |
| 2006 11 01 | 691 | 0.2+ | 0.1+ | 2006 11 27 | G96 | 0.4+ | 0.2− | 2009 05 18 | G96 | 0.3− | 0.3+ |

**2006 UA$_{206}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 56.21838 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17955023 | $\omega$ | 334.90737 | | −0.99346726 | +0.08192158 | |
| $a$ | 3.1118029 | $\Omega$ | 210.12122 | | −0.05795833 | −0.96191715 | |
| $e$ | 0.0337239 | $i$ | 9.10894 | | −0.09830380 | −0.26077625 | |
| $P$ | 5.49 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 10 02 | 691 | 0.2− | 0.1+ | 2006 10 27 | G96 | 0.2+ | 0.1+ | 2006 11 11 | G96 | 0.2− | 0.4− |
| 2006 10 02 | 691 | 0.1+ | 0.1+ | 2006 10 27 | G96 | 0.2+ | 0.3− | 2009 03 31 | 703 | 0.8− | 0.4+ |
| 2006 10 02 | 691 | 0.2+ | 0.0 | 2006 10 28 | 691 | 0.2+ | 0.0 | 2009 03 31 | 703 | 1.2+ | 0.3− |
| 2006 10 11 | 691 | 0.0 | 0.1− | 2006 10 28 | 691 | 0.0 | 0.2+ | 2009 03 31 | 703 | 0.6+ | 1.7+ |
| 2006 10 11 | 691 | 0.0 | 0.3− | 2006 10 28 | 691 | 0.2+ | 0.1+ | 2009 03 31 | 703 | (2.5+ | 0.1+) |
| 2006 10 11 | 691 | 0.3− | 0.1− | 2006 11 01 | 691 | 0.1+ | 0.2+ | 2009 04 01 | G96 | 0.1− | 0.3− |
| 2006 10 23 | 691 | 0.2− | 0.0 | 2006 11 01 | 691 | 0.4+ | 0.2+ | 2009 04 01 | G96 | 0.2− | 0.4− |
| 2006 10 23 | 691 | 0.2− | 0.0 | 2006 11 01 | 691 | 0.1+ | 0.1− | 2009 04 01 | G96 | 0.4− | 0.4− |
| 2006 10 23 | 691 | 0.2− | 0.1+ | 2006 11 11 | G96 | 0.4− | 0.2− | 2009 04 01 | G96 | 0.3− | 0.6− |
| 2006 10 27 | G96 | 0.1− | 0.2− | 2006 11 11 | G96 | 0.3− | 0.2− | | | | |
| 2006 10 27 | G96 | 0.1− | 0.2− | 2006 11 11 | G96 | 0.2− | 0.3− | | | | |

**2006 UG$_{211}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 113.64723 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19253837 | $\omega$ | 133.97087 | | −0.93960896 | −0.33371442 | |
| $a$ | 2.9702375 | $\Omega$ | 26.80640 | | +0.24543526 | −0.81168996 | |
| $e$ | 0.0138500 | $i$ | 9.69659 | | +0.23852993 | −0.47936844 | |
| $P$ | 5.12 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 10 19 | G96 | 0.3+ | 0.3− | 2006 10 23 | 691 | 0.3− | 0.1+ | 2006 11 15 | G96 | 0.4+ | 0.2+ |
| 2006 10 19 | G96 | 0.7+ | 0.0 | 2006 10 23 | 691 | 0.0 | 0.0 | 2006 11 15 | G96 | 0.1+ | 0.2− |
| 2006 10 19 | G96 | 0.6+ | 0.1− | 2006 10 27 | 691 | 0.1+ | 0.1+ | 2006 11 15 | G96 | 0.2+ | 0.2+ |
| 2006 10 19 | G96 | 0.5+ | 0.4− | 2006 10 27 | 691 | 0.0 | 0.1− | 2006 11 15 | G96 | 0.5+ | 0.1+ |
| 2006 10 19 | 691 | 0.1+ | 0.1+ | 2006 10 27 | 691 | 0.1− | 0.1+ | 2008 01 16 | G96 | 0.1− | 0.2− |
| 2006 10 19 | 691 | 0.2+ | 0.0 | 2006 10 31 | 691 | 0.0 | 0.1− | 2008 01 16 | G96 | 0.2− | 0.2+ |
| 2006 10 19 | G96 | 0.1− | 0.4− | 2006 10 31 | 691 | 0.7− | 0.3− | 2008 01 16 | G96 | 0.1+ | 0.6− |
| 2006 10 19 | G96 | 0.3− | 0.4− | 2006 10 31 | 691 | 0.1− | 0.0 | 2008 01 16 | G96 | 0.4− | 0.2+ |
| 2006 10 19 | 691 | 0.3+ | 0.4+ | 2006 11 14 | G96 | 0.1− | 0.2− | 2008 03 01 | G96 | 0.1+ | 0.1+ |
| 2006 10 19 | G96 | 0.1+ | 0.4− | 2006 11 14 | G96 | 0.1+ | 0.2+ | 2008 03 01 | G96 | 0.2+ | 0.1+ |
| 2006 10 19 | G96 | 0.0 | 0.2− | 2006 11 14 | G96 | 0.2+ | 0.1− | 2008 03 01 | G96 | 0.1+ | 0.0 |
| 2006 10 23 | 691 | 0.3− | 0.1+ | 2006 11 14 | G96 | 0.3− | 0.0 | 2008 03 01 | G96 | 0.1+ | 0.2+ |

**2006 UC$_{230}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 242.44950 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17537856 | $\omega$ | 215.63572 | | +0.90291369 | +0.42072105 | |
| $a$ | 3.1609555 | $\Omega$ | 119.25565 | | −0.36728088 | +0.86152851 | |
| $e$ | 0.1261078 | $i$ | 5.78777 | | −0.22327476 | +0.28418731 | |
| $P$ | 5.62 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 09 14 | 291 | 0.1− | 0.2+ | 2006 10 16 | 705 | 0.1+ | 0.0 | 2006 10 28 | 705 | 0.3+ | 0.1− |
| 2006 09 14 | 291 | 0.2− | 0.3+ | 2006 10 16 | 705 | 0.2+ | 0.2− | 2006 10 29 | 705 | 0.1+ | 0.0 |
| 2006 09 14 | 291 | 0.2− | 0.3+ | 2006 10 21 | 644 | 0.9− | 0.3− | 2006 10 29 | 705 | 0.2+ | 0.0 |
| 2006 09 29 | 705 | 0.0 | 0.1− | 2006 10 21 | 644 | 0.1− | 0.6− | 2006 11 01 | 705 | 0.1+ | 0.1− |
| 2006 09 29 | 705 | 0.1+ | 0.0 | 2006 10 21 | 644 | 0.0 | 0.1+ | 2006 11 01 | 705 | 0.1+ | 0.1+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 10 02 | 705 | 0.3+ | 0.0 | 2006 10 21 | 644 | 0.7− | 0.1+ | 2009 01 31 | G96 | 0.2− | 0.1− |
| 2006 10 02 | 705 | 0.2+ | 0.1− | 2006 10 21 | 705 | 0.1+ | 0.1+ | 2009 01 31 | G96 | 0.4+ | 0.4− |
| 2006 10 03 | 705 | 0.3+ | 0.1− | 2006 10 21 | 705 | 0.1+ | 0.1+ | 2009 01 31 | G96 | 0.5+ | 0.2− |
| 2006 10 03 | 705 | 0.4+ | 0.1− | 2006 10 21 | 644 | 0.0 | 0.3+ | 2009 01 31 | G96 | 0.1− | 0.5− |
| 2006 10 04 | G96 | 0.3+ | 0.4− | 2006 10 21 | 644 | 0.5− | 0.5+ | 2009 03 02 | 291 | 0.0 | 0.3+ |
| 2006 10 04 | G96 | 0.3+ | 0.3− | 2006 10 22 | 705 | 0.1+ | 0.1+ | 2009 03 02 | 291 | 0.3− | 0.3+ |
| 2006 10 04 | G96 | 0.2+ | 0.4− | 2006 10 22 | 705 | 0.2+ | 0.0 | 2009 03 02 | 291 | 0.1− | 0.0 |
| 2006 10 04 | G96 | 0.2+ | 0.4− | 2006 10 22 | 703 | 0.4+ | 0.2− | 2009 03 31 | G96 | 0.4+ | 0.4− |
| 2006 10 12 | 705 | 0.1+ | 0.2− | 2006 10 22 | 703 | (0.5+ | 3.0+) | 2009 03 31 | G96 | 0.4+ | 0.3− |
| 2006 10 12 | 705 | 0.1+ | 0.1− | 2006 10 22 | 703 | 1.1− | 0.3+ | 2009 03 31 | G96 | 0.1− | 0.8+ |
| 2006 10 13 | 705 | 0.1+ | 0.1− | 2006 10 22 | 703 | 0.2+ | 0.4− | 2009 03 31 | G96 | 0.5+ | 0.7− |
| 2006 10 13 | 705 | 0.2+ | 0.1− | 2006 10 28 | 705 | 0.2+ | 0.0 | | | | |

**2006 UE$_{234}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 29.72715 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18478511 | $\omega$ | 168.25797 | | −0.65669806 | | +0.75199094 |
| $a$ | 3.0527511 | $\Omega$ | 60.66458 | | −0.69711404 | | −0.57641709 |
| $e$ | 0.0520397 | $i$ | 3.75372 | | −0.28771458 | | −0.31977019 |
| $P$ | 5.33 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 10 22 | 691 | 0.1+ | 0.1+ | 2006 11 11 | G96 | 0.1+ | 0.4− | 2009 03 28 | 691 | 0.0 | 0.1+ |
| 2006 10 22 | 691 | 0.3− | 0.0 | 2006 11 22 | G96 | 0.5+ | 0.2− | 2009 03 28 | 691 | 0.4− | 0.2+ |
| 2006 10 22 | 691 | 0.1− | 0.1+ | 2006 11 22 | G96 | 0.2− | 0.2− | 2009 03 28 | 691 | 0.0 | 0.2− |
| 2006 10 28 | G96 | 0.1+ | 0.5− | 2006 11 22 | G96 | 0.4− | 0.2− | 2009 04 19 | G96 | 0.2+ | 0.2− |
| 2006 10 28 | G96 | 0.2+ | 0.2+ | 2006 11 22 | G96 | 0.1+ | 0.0 | 2009 04 19 | G96 | 0.6+ | 0.0 |
| 2006 10 28 | G96 | 0.8+ | 0.8− | 2006 11 22 | G96 | 0.3− | 0.3− | 2009 04 19 | G96 | 0.2+ | 0.0 |
| 2006 10 28 | G96 | 0.0 | 0.3− | 2006 11 22 | G96 | 0.1− | 0.2− | 2009 04 19 | G96 | 0.3+ | 0.2− |
| 2006 11 01 | 691 | 0.0 | 0.3+ | 2006 11 22 | G96 | 0.2− | 0.4− | 2009 05 16 | G96 | 0.2+ | 0.3+ |
| 2006 11 01 | 691 | 0.0 | 0.1+ | 2006 11 22 | G96 | 0.0 | 0.2+ | 2009 05 16 | G96 | 0.1+ | 0.1− |
| 2006 11 01 | 691 | 0.4+ | 0.5+ | 2006 11 23 | G96 | 0.1+ | 0.4+ | 2009 05 16 | G96 | 0.2− | 0.0 |
| 2006 11 11 | G96 | 0.2− | 0.5− | 2006 11 23 | G96 | 0.7− | 0.1− | 2009 05 16 | G96 | 0.2+ | 0.2+ |
| 2006 11 11 | G96 | 0.1− | 0.3− | 2006 11 23 | G96 | 0.4− | 0.2+ | | | | |
| 2006 11 11 | G96 | 0.2+ | 0.6− | 2006 11 23 | G96 | 0.0 | 0.2+ | | | | |

**2006 UT$_{237}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 176.98470 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17765065 | $\omega$ | 227.82859 | | +0.36752602 | | −0.92758014 |
| $a$ | 3.1339461 | $\Omega$ | 200.89986 | | +0.89915119 | | +0.37286807 |
| $e$ | 0.1042302 | $i$ | 10.86267 | | +0.23759579 | | +0.02375913 |
| $P$ | 5.55 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 09 26 | G96 | 0.2− | 0.1− | 2006 10 23 | 691 | 0.2− | 0.1+ | 2006 11 16 | G96 | 0.3+ | 0.3− |
| 2006 09 26 | G96 | 0.6− | 0.2− | 2006 10 28 | 691 | 0.0 | 0.2+ | 2006 11 16 | G96 | 0.4+ | 0.5− |
| 2006 09 26 | G96 | 0.1− | 0.2+ | 2006 10 28 | 691 | 0.2− | 0.1+ | 2009 04 20 | G96 | 0.2− | 0.1+ |
| 2006 09 26 | G96 | 0.0 | 0.0 | 2006 10 28 | 691 | 0.2− | 0.2+ | 2009 04 20 | G96 | 0.1− | 0.2+ |
| 2006 10 15 | 691 | 0.6+ | 0.3− | 2006 11 01 | 691 | 0.1− | 0.1− | 2009 04 20 | G96 | 0.3− | 0.1− |
| 2006 10 15 | 691 | 0.2+ | 0.1− | 2006 11 01 | 691 | 0.4− | 0.0 | 2009 05 16 | G96 | 0.1+ | 0.2+ |
| 2006 10 15 | 691 | 0.6+ | 0.1− | 2006 11 01 | 691 | 0.4+ | 0.1− | 2009 05 16 | G96 | 0.3+ | 0.2− |
| 2006 10 23 | 691 | 0.4− | 0.2+ | 2006 11 16 | G96 | 0.1+ | 0.2− | 2009 05 16 | G96 | 0.0 | 0.0 |
| 2006 10 23 | 691 | 0.4− | 0.1+ | 2006 11 16 | G96 | 0.1+ | 0.3− | 2009 05 16 | G96 | 0.3+ | 0.0 |

**2006 UK$_{242}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 301.75289 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17569401 | $\omega$ | 79.83551 | | +0.25950084 | | +0.96390121 |
| $a$ | 3.1571709 | $\Omega$ | 205.44774 | | −0.93146901 | | +0.23351492 |
| $e$ | 0.0235534 | $i$ | 7.97477 | | −0.25499960 | | +0.12792673 |
| $P$ | 5.61 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 09 19 | 691 | 0.1− | 0.1− | 2006 10 28 | G96 | 0.2+ | 0.3− | 2006 11 16 | 691 | 0.0 | 0.1− |
| 2006 09 19 | 691 | 0.1+ | 0.0 | 2006 10 28 | G96 | 0.2+ | 0.7− | 2006 11 16 | 691 | 0.2− | 0.1− |
| 2006 09 19 | 691 | 0.1− | 0.0 | 2006 10 28 | G96 | 0.2+ | 0.3− | 2006 11 16 | 691 | 0.3+ | 0.3+ |
| 2006 09 26 | 691 | 0.2− | 0.3+ | 2006 11 11 | 691 | 0.4+ | 0.1+ | 2009 02 20 | 691 | 0.2− | 0.3+ |
| 2006 09 26 | 691 | 0.2+ | 0.2− | 2006 11 11 | 691 | 0.1+ | 0.0 | 2009 02 20 | 691 | 0.4− | 0.3+ |
| 2006 09 26 | 691 | 0.0 | 0.0 | 2006 11 11 | 691 | 0.1+ | 0.4+ | 2009 02 20 | 691 | 1.8+ | 2.0− |
| 2006 10 27 | 691 | 0.2− | 0.5+ | 2006 11 11 | G96 | 0.5+ | 0.8− | 2009 03 01 | 691 | 0.3− | 0.3+ |
| 2006 10 27 | 691 | 0.4− | 0.0 | 2006 11 11 | G96 | 0.6− | 0.9− | 2009 03 01 | 691 | 0.6− | 0.4+ |
| 2006 10 27 | 691 | 0.2− | 0.1+ | 2006 11 11 | G96 | 0.0 | 0.7− | 2009 03 01 | 691 | 0.2− | 0.7+ |
| 2006 10 28 | G96 | 0.1+ | 0.6− | 2006 11 11 | G96 | 0.1− | 0.4− | | | | |

**2006 UN$_{248}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 86.74293 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18150532 | $\omega$ | 130.54902 | | −0.97522346 | | −0.20557284 |
| $a$ | 3.0894166 | $\Omega$ | 37.79619 | | +0.14011892 | | −0.85987249 |
| $e$ | 0.1002876 | $i$ | 7.66332 | | +0.17118963 | | −0.46728911 |
| $P$ | 5.43 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 09 26 | G96 | 0.3+ | 0.5− | 2006 10 27 | G96 | 0.0 | 0.1− | 2006 11 10 | 691 | 0.3− | 0.1+ |
| 2006 09 26 | G96 | 0.1− | 0.4− | 2006 10 27 | G96 | 0.2+ | 0.2− | 2006 11 10 | 691 | 0.0 | 0.2− |
| 2006 09 26 | G96 | 0.6− | 0.5− | 2006 10 27 | G96 | 0.0 | 0.1+ | 2006 11 10 | 691 | 0.0 | 0.2+ |
| 2006 09 26 | G96 | 0.0 | 0.4− | 2006 10 27 | G96 | 0.4+ | 0.0 | 2009 03 31 | 691 | 0.0 | 0.0 |
| 2006 10 20 | 691 | 0.2− | 0.2+ | 2006 10 29 | 691 | 0.1+ | 0.1− | 2009 03 31 | 691 | 0.2+ | 0.1+ |
| 2006 10 20 | 691 | 0.0 | 1.1+ | 2006 10 29 | 691 | 0.1+ | 0.0 | 2009 03 31 | 691 | 0.1− | 0.0 |
| 2006 10 20 | 691 | 0.0 | 0.1+ | 2006 10 29 | 691 | 0.2+ | 0.3− | 2009 04 28 | G96 | 0.1− | 0.1− |
| 2006 10 27 | G96 | 0.0 | 0.4− | 2006 11 09 | 691 | 0.2− | 0.1+ | 2009 04 28 | G96 | 0.3+ | 0.1− |
| 2006 10 27 | G96 | 0.2+ | 0.6− | 2006 11 09 | 691 | 0.0 | 0.1− | 2009 04 28 | G96 | 0.7− | 0.2− |
| 2006 10 27 | G96 | 0.3+ | 0.5− | 2006 11 09 | 691 | 0.1+ | 0.5− | 2009 04 28 | G96 | 0.5+ | 0.3+ |

**2006 UV$_{253}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 263.98304 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21766626 | $\omega$ | 10.44653 | | +0.82811491 | | −0.55114956 |
| $a$ | 2.7370032 | $\Omega$ | 23.89040 | | +0.49436977 | | +0.63207071 |
| $e$ | 0.1903345 | $i$ | 14.62752 | | +0.26424273 | | +0.54472083 |
| $P$ | 4.53 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 04 14 | 291 | 0.5+ | 0.3+ | 2006 10 19 | 703 | 0.4+ | 0.3− | 2006 11 13 | 644 | 0.0 | 0.2+ |
| 2004 04 14 | 291 | 0.3− | 0.2+ | 2006 10 19 | 703 | 1.0+ | 0.1+ | 2006 11 13 | 644 | 0.1− | 0.5+ |
| 2004 04 14 | 291 | 0.5+ | 0.4+ | 2006 10 19 | 703 | 0.2+ | 0.4+ | 2006 11 13 | 644 | 0.2− | 0.2+ |
| 2006 08 28 | 703 | 0.4+ | 0.0 | 2006 10 19 | 703 | 0.5+ | 0.3− | 2006 11 15 | 703 | 0.1− | 0.2− |
| 2006 08 28 | 703 | 0.1+ | 1.6+ | 2006 10 19 | 703 | 0.1+ | 0.6− | 2006 11 15 | 703 | 0.2− | 0.4− |
| 2006 08 28 | 703 | 1.2− | 1.2+ | 2006 10 27 | 703 | 0.9− | 0.1− | 2006 11 15 | 703 | 0.2+ | 0.1+ |
| 2006 08 28 | 703 | 1.6− | 0.3+ | 2006 10 27 | 703 | 0.5+ | 0.1+ | 2006 11 15 | 703 | 0.7+ | 0.9+ |
| 2006 09 18 | 703 | 1.1− | 0.3− | 2006 10 27 | 703 | 0.2+ | 0.2− | 2006 11 21 | 703 | 0.4+ | 0.3− |
| 2006 09 18 | 703 | 1.6− | 1.7+ | 2006 10 27 | 703 | 0.2+ | 0.5+ | 2006 11 21 | 703 | 0.1− | 0.1+ |
| 2006 09 18 | 703 | 1.5− | 0.1+ | 2006 10 29 | 703 | 0.1+ | 0.3− | 2006 11 21 | 703 | 0.6− | 0.7+ |
| 2006 09 18 | 703 | 0.0 | 0.2+ | 2006 10 29 | 703 | 0.1+ | 0.5− | 2006 11 21 | 703 | 0.2+ | 0.1− |
| 2006 09 26 | 152 | 0.1+ | 0.3− | 2006 10 29 | 703 | 0.7− | 0.1+ | 2008 03 03 | G96 | 0.2− | 0.2+ |
| 2006 09 26 | 152 | 0.0 | 0.6+ | 2006 10 29 | 703 | 0.3+ | 0.6− | 2008 03 03 | G96 | 0.2− | 0.1− |
| 2006 09 26 | 152 | (2.3+ | 0.3−) | 2006 11 02 | G96 | 0.1+ | 0.3− | 2008 03 03 | G96 | 0.1+ | 0.2− |
| 2006 10 19 | 703 | 0.3− | 0.3+ | 2006 11 02 | G96 | 0.1− | 0.2− | 2008 03 03 | G96 | 0.1+ | 0.0 |
| 2006 10 19 | 703 | 0.9+ | 0.3− | 2006 11 02 | G96 | 0.1+ | 0.2− | | | | |
| 2006 10 19 | 703 | 0.1+ | 0.2− | 2006 11 02 | G96 | 0.3+ | 0.1− | | | | |

**2006 UD$_{260}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 294.98797 | | (2000.0) | | | |
| $n$ | 0.20375336 | $\omega$ | 332.14465 | | +0.87850671 | +0.47772989 |
| $a$ | 2.8602206 | $\Omega$ | 359.31783 | | −0.43282218 | +0.79562298 |
| $e$ | 0.0648192 | $i$ | 1.63874 | | −0.20221504 | +0.37250265 |
| $P$ | 4.84 | $H$ | 17.0 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 03 20 | 645 | 0.0 | 0.0 | 2006 10 28 | 691 | 0.1− | 0.2− | 2006 11 22 | 691 | 0.7+ | 0.4+ |
| 1999 03 20 | 645 | 0.0 | 0.0 | 2006 10 28 | 691 | 0.4− | 0.1− | 2006 11 22 | 691 | 0.1− | 0.1+ |
| 2006 07 21 | G96 | 0.7+ | 0.4− | 2006 10 28 | 691 | 0.1− | 0.1+ | 2006 11 27 | 691 | 0.3+ | 0.2+ |
| 2006 07 21 | G96 | 0.4− | 0.1+ | 2006 10 29 | 691 | 0.1− | 0.4− | 2006 11 27 | 691 | 0.1− | 0.9+ |
| 2006 07 21 | G96 | 0.0 | 0.2− | 2006 10 29 | 691 | 0.4− | 0.4− | 2006 11 27 | 691 | 0.2− | 0.2− |
| 2006 07 21 | G96 | 0.3+ | 0.3− | 2006 10 29 | 691 | 0.2+ | 0.2− | 2009 04 20 | G96 | 0.3+ | 0.1+ |
| 2006 09 27 | G96 | 0.2− | 0.1− | 2006 11 11 | 691 | 0.1− | 0.2+ | 2009 04 20 | G96 | 0.1+ | 0.8+ |
| 2006 09 27 | G96 | 0.2+ | 0.3− | 2006 11 11 | 691 | 0.2+ | 0.1+ | 2009 04 20 | G96 | 0.1− | 0.3+ |
| 2006 09 27 | G96 | 0.5+ | 0.3− | 2006 11 11 | 691 | 0.4− | 0.0 | 2009 04 20 | G96 | 0.3+ | 0.4+ |
| 2006 09 27 | G96 | 0.5+ | 0.4− | 2006 11 22 | 691 | 0.2+ | 0.0 | | | | |

**2006 UA$_{272}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 8.40910 | | (2000.0) | | | |
| $n$ | 0.30608686 | $\omega$ | 168.32868 | | +0.84325361 | −0.53602311 |
| $a$ | 2.1805845 | $\Omega$ | 224.16119 | | +0.48842199 | +0.79520297 |
| $e$ | 0.1644716 | $i$ | 3.29412 | | +0.22442663 | +0.28342804 |
| $P$ | 3.22 | $H$ | 18.3 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 09 27 | G96 | 0.0 | 0.2+ | 2006 11 11 | G96 | 0.3+ | 0.8− | 2006 11 27 | 691 | 0.1− | 0.1+ |
| 2006 09 27 | G96 | 0.4− | 0.3+ | 2006 11 11 | G96 | 0.7+ | 0.4− | 2006 11 27 | 703 | 0.2+ | 0.1+ |
| 2006 09 27 | G96 | 0.6+ | 0.1− | 2006 11 11 | G96 | 0.0 | 0.3− | 2006 11 27 | 703 | 1.0− | 0.8− |
| 2006 09 27 | G96 | 0.3+ | 0.3− | 2006 11 11 | G96 | 0.5− | 0.6− | 2006 11 27 | 703 | 0.1− | 0.3+ |
| 2006 10 27 | G96 | 0.1− | 0.3− | 2006 11 15 | 691 | 0.0 | 0.1+ | 2006 11 27 | 703 | 0.3− | 0.1+ |
| 2006 10 27 | G96 | 0.1+ | 0.1− | 2006 11 15 | 691 | 0.4− | 0.3+ | 2006 12 14 | G96 | 0.0 | 0.6− |
| 2006 10 27 | G96 | 0.2− | 0.2+ | 2006 11 15 | 691 | 0.2− | 0.2+ | 2006 12 14 | G96 | 0.1+ | 0.6− |
| 2006 10 27 | G96 | 0.1+ | 0.2− | 2006 11 19 | 691 | 0.4− | 0.0 | 2006 12 14 | G96 | 0.5+ | 0.3− |
| 2006 10 31 | G96 | 0.4+ | 0.2− | 2006 11 19 | 691 | 0.1− | 0.1+ | 2006 12 14 | G96 | 0.2− | 0.4− |
| 2006 10 31 | G96 | 0.3+ | 0.2− | 2006 11 19 | 691 | 0.2− | 0.0 | 2009 09 17 | 300 | 0.2− | 0.1− |
| 2006 10 31 | G96 | 0.2− | 0.1− | 2006 11 23 | 691 | 0.2+ | 0.1+ | 2009 09 17 | 300 | 0.3+ | 0.6− |
| 2006 10 31 | G96 | 0.1+ | 0.1+ | 2006 11 23 | 691 | 0.3+ | 0.0 | 2009 12 11 | G96 | 0.1+ | 0.0 |
| 2006 11 11 | 691 | 0.1− | 0.2+ | 2006 11 23 | 691 | 0.1+ | 0.1+ | 2009 12 11 | G96 | 0.0 | 0.7+ |
| 2006 11 11 | 691 | 0.2− | 0.3+ | 2006 11 27 | 691 | 0.5+ | 0.1− | 2009 12 11 | G96 | 0.0 | 0.2− |
| 2006 11 11 | 691 | 0.1− | 0.0 | 2006 11 27 | 691 | 0.2+ | 0.2− | 2009 12 11 | G96 | 0.3− | 0.3+ |

**2006 UG$_{282}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 87.04510 | | (2000.0) | | | |
| $n$ | 0.18191961 | $\omega$ | 121.35691 | | −0.98296368 | −0.03794363 |
| $a$ | 3.0847244 | $\Omega$ | 57.05019 | | −0.05719525 | −0.86673309 |
| $e$ | 0.0305030 | $i$ | 12.37526 | | +0.17467430 | −0.49732689 |
| $P$ | 5.42 | $H$ | 16.0 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 10 20 | 691 | 0.1− | 0.0 | 2006 11 12 | G96 | 0.6+ | 0.2− | 2008 03 05 | G96 | 0.1− | 0.2+ |
| 2006 10 20 | 691 | 0.4− | 0.2− | 2006 11 14 | 691 | 0.4− | 0.2+ | 2008 03 05 | G96 | 0.3− | 0.0 |
| 2006 10 20 | 691 | 0.3+ | 0.0 | 2006 11 14 | 691 | 0.2+ | 0.5+ | 2008 03 05 | G96 | 0.3+ | 0.3− |
| 2006 10 28 | G96 | 0.5+ | 0.4− | 2006 11 14 | 691 | 0.2− | 0.5+ | 2009 05 04 | G96 | 0.3+ | 0.1− |
| 2006 10 28 | G96 | 0.3+ | 0.4− | 2006 11 16 | 703 | 0.7+ | 0.5− | 2009 05 04 | G96 | 0.1− | 0.1− |
| 2006 10 28 | G96 | 0.4− | 0.4− | 2006 11 16 | 703 | 1.4− | 0.4− | 2009 05 04 | G96 | 0.2+ | 0.5+ |
| 2006 10 28 | G96 | 0.2− | 0.4− | 2006 11 16 | 703 | (2.5− | 3.5−) | 2009 05 04 | G96 | 0.2+ | 0.3− |
| 2006 11 01 | 691 | 0.3+ | 0.2+ | 2006 11 16 | 703 | (2.0+ | 2.8−) | 2009 05 16 | G96 | 0.1+ | 0.3+ |
| 2006 11 01 | 691 | 0.0 | 0.1− | 2006 11 27 | G96 | 0.2− | 0.3− | 2009 05 16 | G96 | 0.1− | 0.0 |
| 2006 11 01 | 691 | 0.1− | 0.4+ | 2006 11 27 | G96 | 0.4+ | 0.4− | 2009 05 16 | G96 | 0.3+ | 0.2+ |
| 2006 11 12 | G96 | 0.3+ | 0.3− | 2006 11 27 | G96 | 0.3+ | 0.3− | 2009 05 16 | G96 | 0.3− | 0.5+ |
| 2006 11 12 | G96 | 0.3+ | 0.3− | 2006 11 27 | G96 | 0.2− | 0.2− | | | | |
| 2006 11 12 | G96 | 0.4+ | 0.2− | 2008 03 05 | G96 | 0.0 | 0.0 | | | | |

**2006 UW$_{325}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 311.76016 | | (2000.0) | | | |
| $n$ | 0.19879890 | $\omega$ | 101.47434 | | +0.87933308 | +0.45124076 |
| $a$ | 2.9075469 | $\Omega$ | 231.89190 | | −0.47620722 | +0.83330470 |
| $e$ | 0.0544479 | $i$ | 11.15065 | | +0.00010894 | +0.31935098 |
| $P$ | 4.96 | $H$ | 16.1 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 10 20 | 695 | 0.0 | 0.2+ | 2006 10 31 | G96 | 0.0 | 0.1+ | 2009 05 17 | 691 | 0.2− | 0.3− |
| 2006 10 20 | 695 | 0.1+ | 0.1+ | 2006 11 11 | G96 | 0.2+ | 0.0 | 2009 05 17 | 691 | 0.1− | 0.1+ |
| 2006 10 21 | G96 | 0.1− | 0.3− | 2006 11 11 | G96 | 0.3+ | 0.1− | 2009 05 17 | 691 | 0.2+ | 0.2+ |
| 2006 10 21 | G96 | 0.2+ | 0.0 | 2006 11 11 | G96 | 0.2+ | 0.3− | 2009 06 23 | G96 | 0.8+ | 0.1+ |
| 2006 10 21 | G96 | 0.1− | 0.1− | 2006 11 11 | G96 | 0.2+ | 0.2+ | 2009 06 23 | G96 | 0.2− | 0.3− |
| 2006 10 21 | G96 | 0.2+ | 0.3− | 2006 12 01 | G96 | 0.3− | 0.5+ | 2009 06 23 | G96 | 0.2− | 0.0 |
| 2006 10 31 | G96 | 0.2+ | 0.1+ | 2006 12 01 | G96 | 0.2+ | 0.4− | 2009 06 23 | G96 | 0.1− | 0.2− |
| 2006 10 31 | G96 | 0.3− | 0.1+ | 2006 12 01 | G96 | 0.6− | 0.3− | | | | |
| 2006 10 31 | G96 | 0.4− | 0.1+ | 2006 12 01 | G96 | 0.2− | 0.1+ | | | | |

**2006 UA$_{361}$ = 2004 GA$_{68}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 248.07419 | | (2000.0) | | | |
| $n$ | 0.18298962 | $\omega$ | 286.98649 | | +0.97315142 | +0.11567020 |
| $a$ | 3.0726877 | $\Omega$ | 66.73861 | | −0.00965539 | +0.88430211 |
| $e$ | 0.1176883 | $i$ | 12.50916 | | −0.22996325 | +0.45236068 |
| $P$ | 5.39 | $H$ | 15.6 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 04 13 | 691 | 0.2+ | 0.1+ | 2006 10 16 | 703 | 1.9− | 1.3− | 2006 11 13 | 703 | 0.2− | 0.2+ |
| 2004 04 13 | 691 | 0.1+ | 0.0 | 2006 10 16 | 703 | 0.7− | 0.4+ | 2006 11 13 | 703 | 1.0+ | 0.3− |
| 2004 04 13 | 691 | 0.0 | 0.3− | 2006 10 22 | 703 | (1.1− | 3.0−) | 2006 11 23 | G96 | 0.4− | 0.3+ |
| 2004 04 20 | 691 | 0.0 | 0.2+ | 2006 10 22 | 703 | (0.9+ | 2.6−) | 2006 11 23 | G96 | 0.4− | 0.2+ |
| 2004 04 20 | 691 | 0.1− | 0.1− | 2006 10 22 | 703 | 0.5+ | 0.1− | 2006 11 23 | G96 | 0.3− | 0.2+ |
| 2004 04 20 | 691 | 0.1− | 0.0 | 2006 10 22 | 703 | 0.8+ | 0.3+ | 2006 11 23 | G96 | 0.4− | 0.1+ |
| 2006 10 16 | 703 | 0.6+ | 0.2+ | 2006 11 13 | 703 | 0.3+ | 0.1− | | | | |
| 2006 10 16 | 703 | 0.3− | 0.7+ | 2006 11 13 | 703 | 1.1+ | 0.6− | | | | |

**2006 UE$_{361}$ = 2009 QR$_{27}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 12.44536 | | (2000.0) | | | |
| $n$ | 0.30215028 | $\omega$ | 84.58798 | | +0.96850062 | −0.23692652 |
| $a$ | 2.1994835 | $\Omega$ | 289.09992 | | +0.18400787 | +0.88828901 |
| $e$ | 0.1264920 | $i$ | 4.65155 | | +0.16777260 | +0.39345706 |
| $P$ | 3.26 | $H$ | 17.3 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 10 19 | 703 | 1.5− | 1.0− | 2006 11 08 | 644 | 0.2+ | 0.2+ | 2009 08 16 | 703 | 0.7+ | 1.1− |
| 2006 10 19 | 703 | 1.3+ | 0.5− | 2006 11 25 | G96 | 0.3+ | 0.2− | 2009 08 16 | 703 | 0.3+ | 0.5− |
| 2006 10 19 | 703 | 1.2− | 0.1− | 2006 11 25 | G96 | 0.2+ | 0.1− | 2009 08 16 | 703 | 0.6− | 0.3+ |
| 2006 10 19 | 703 | (0.4− | 1.9−) | 2006 11 25 | G96 | 0.1+ | 0.3− | 2009 08 22 | J75 | 0.5− | 0.2− |
| 2006 10 27 | 703 | 0.1− | 0.5+ | 2006 11 25 | G96 | 0.0 | 0.0 | 2009 08 22 | J75 | 0.6+ | 0.1− |
| 2006 10 27 | 703 | 0.1+ | 0.9+ | 2006 12 25 | G96 | 0.8− | 0.2− | 2009 08 22 | J75 | 0.1− | 0.2+ |
| 2006 10 27 | 703 | 0.8+ | 0.2+ | 2006 12 25 | G96 | 0.3+ | 1.0− | 2009 09 11 | 703 | 0.3− | 0.8+ |
| 2006 10 27 | 703 | 0.0 | 1.2+ | 2006 12 25 | G96 | 0.4+ | 0.3− | 2009 09 11 | 703 | 1.4− | 0.6+ |
| 2006 11 08 | 644 | 0.2+ | 0.2+ | 2006 12 25 | G96 | 0.5− | 0.0 | 2009 09 11 | 703 | 0.2+ | 0.2+ |
| 2006 11 08 | 644 | 0.0 | 0.3+ | 2009 08 16 | 703 | 1.0+ | 0.8− | 2009 09 11 | 703 | 0.3+ | 0.2+ |

**2006 UK$_{361}$ = 2002 WJ$_{13}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 240.80629 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24283611 | $\omega$ | 1.78380 | | −0.09421466 | −0.97451181 | |
| $a$ | 2.5444497 | $\Omega$ | 93.65993 | | +0.91085638 | −0.16691959 | |
| $e$ | 0.1578764 | $i$ | 11.77153 | | +0.40182615 | +0.14988192 | |
| $P$ | 4.06 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 11 30 | 704 | 0.4+ | 0.2+ | 2002 12 05 | 704 | 0.2− | 0.6+ | 2006 10 28 | 703 | 1.9+ | 1.1− |
| 2002 11 30 | 704 | 0.4+ | 0.3+ | 2002 12 06 | 704 | 0.6+ | 0.2+ | 2006 10 28 | 703 | 1.6− | 0.3− |
| 2002 11 30 | 704 | 0.5+ | 1.0+ | 2002 12 06 | 704 | 0.1− | 0.9+ | 2006 10 28 | 703 | 1.0− | 0.9+ |
| 2002 12 01 | 608 | 0.1− | 0.4− | 2002 12 06 | 704 | 0.4− | 0.5+ | 2006 10 28 | 703 | 0.0 | 0.1− |
| 2002 12 01 | 608 | 0.0 | 0.5− | 2002 12 06 | 704 | 0.3+ | 0.5− | 2006 10 28 | 703 | 0.8− | 0.7+ |
| 2002 12 01 | 608 | 0.4+ | 0.3− | 2002 12 06 | 704 | 0.1− | 0.7− | 2006 11 16 | 703 | 0.2+ | 0.1+ |
| 2002 12 02 | 704 | 1.0+ | 0.7+ | 2002 12 06 | 704 | 1.5− | 0.8− | 2006 11 16 | 703 | 0.7+ | 0.7+ |
| 2002 12 02 | 704 | 0.5+ | 1.2− | 2002 12 12 | 608 | 0.1+ | 0.2− | 2006 11 16 | 703 | 0.2+ | 0.2+ |
| 2002 12 02 | 704 | 0.7+ | 0.7− | 2002 12 12 | 608 | 0.2− | 0.5+ | 2006 11 16 | 703 | 0.3+ | 0.7+ |
| 2002 12 02 | 704 | 0.4+ | 0.2+ | 2002 12 12 | 608 | 0.7− | 0.1− | 2006 12 11 | 703 | 1.5− | 0.8− |
| 2002 12 02 | 704 | 0.0 | 0.5− | 2006 10 22 | 703 | 0.5− | 0.7− | 2006 12 11 | 703 | 1.9+ | 0.4+ |
| 2002 12 05 | 704 | 1.3− | 0.4− | 2006 10 22 | 703 | 0.4+ | 0.5− | 2006 12 11 | 703 | 0.3− | 0.6+ |
| 2002 12 05 | 704 | 0.7− | 0.0 | 2006 10 22 | 703 | 0.1− | 0.3− | 2006 12 11 | 703 | 0.3− | 0.1− |
| 2002 12 05 | 704 | 0.2− | 0.4+ | 2006 10 22 | 703 | 1.0+ | 0.1− | | | | |
| 2002 12 05 | 704 | 0.4+ | 0.2+ | 2006 10 28 | 703 | 0.6− | 0.5+ | | | | |

**2006 VO$_4$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 182.30794 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.15541246 | $\omega$ | 167.86418 | | +0.63683512 | −0.75834951 | |
| $a$ | 3.4261957 | $\Omega$ | 242.40779 | | +0.69360634 | +0.64228803 | |
| $e$ | 0.1470657 | $i$ | 9.02952 | | +0.33667680 | +0.11122998 | |
| $P$ | 6.34 | $H$ | 15.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 10 16 | 703 | 0.3+ | 1.2− | 2006 11 19 | 704 | (2.1− | 0.1−) | 2006 12 01 | G96 | 0.4− | 0.7− |
| 2006 10 16 | 703 | 0.1+ | 0.5− | 2006 11 19 | 704 | 0.0 | 0.2− | 2006 12 01 | G96 | 0.1+ | 0.4− |
| 2006 10 16 | 703 | 0.2− | 0.4+ | 2006 11 19 | 704 | 0.8+ | 0.3+ | 2006 12 01 | G96 | 0.5+ | 0.6− |
| 2006 10 16 | 703 | 0.4− | 1.0− | 2006 11 19 | 704 | 0.5+ | 1.0+ | 2006 12 06 | 644 | 0.0 | 0.2+ |
| 2006 10 21 | 691 | 0.2− | 1.2− | 2006 11 19 | 704 | 0.2− | 1.7+ | 2006 12 06 | 644 | 0.3+ | 0.1+ |
| 2006 10 21 | 691 | 0.1− | 0.2− | 2006 11 19 | 704 | 1.2− | 0.8+ | 2006 12 06 | 644 | 0.0 | 0.4+ |
| 2006 10 21 | 691 | 0.5+ | 0.2− | 2006 11 20 | 691 | 0.3+ | 0.2+ | 2006 12 16 | 701 | 0.2+ | 0.4− |
| 2006 10 31 | G96 | 0.3+ | 0.1+ | 2006 11 20 | 691 | 0.1+ | 0.4+ | 2006 12 16 | 701 | 0.1− | 0.4− |
| 2006 10 31 | G96 | 0.2+ | 0.1− | 2006 11 20 | 691 | 0.2+ | 0.2+ | 2006 12 16 | 701 | 0.1+ | 0.2− |
| 2006 10 31 | G96 | 0.1+ | 0.1− | 2006 11 20 | 703 | 0.0 | 1.3− | 2006 12 16 | 701 | 0.0 | 0.3− |
| 2006 10 31 | G96 | 0.8− | 0.3− | 2006 11 20 | 703 | 0.0 | 0.4+ | 2007 02 08 | G96 | 0.3+ | 0.7− |
| 2006 11 09 | 691 | 0.5− | 0.0 | 2006 11 20 | 703 | 0.3+ | 1.1− | 2007 02 08 | G96 | 0.1− | 0.4− |
| 2006 11 09 | 691 | 0.1− | 0.4+ | 2006 11 20 | 704 | 0.3− | 0.7+ | 2007 02 08 | G96 | 0.1+ | 0.3− |
| 2006 11 09 | 691 | 0.2− | 0.4+ | 2006 11 20 | 703 | 0.7− | 0.3+ | 2007 02 08 | G96 | 0.6+ | 1.8− |
| 2006 11 09 | 644 | 0.2− | 0.3+ | 2006 11 20 | 704 | 0.6− | 1.0+ | 2007 02 17 | G96 | 0.4− | 0.5− |
| 2006 11 09 | 644 | 0.2+ | 0.2+ | 2006 11 20 | 704 | 0.5− | 0.3+ | 2007 02 17 | G96 | 0.2− | 0.7− |
| 2006 11 09 | 644 | 0.5+ | 0.5+ | 2006 11 20 | 704 | 0.3+ | 1.0+ | 2007 02 17 | G96 | 0.2+ | 0.3− |
| 2006 11 11 | 703 | 0.2+ | 0.3+ | 2006 11 20 | 704 | 0.4− | 0.7− | 2007 02 17 | G96 | 0.2− | 0.5− |
| 2006 11 11 | 703 | 0.0 | 0.4+ | 2006 11 21 | 704 | 1.4− | 0.0 | 2008 01 18 | G96 | 0.1+ | 0.4− |
| 2006 11 11 | 703 | 1.1+ | 1.0+ | 2006 11 21 | 704 | 0.6− | 0.4+ | 2008 01 18 | G96 | 0.4+ | 0.4− |
| 2006 11 13 | 691 | 0.1+ | 0.2+ | 2006 11 21 | 704 | 1.5− | 0.4+ | 2008 01 18 | G96 | 0.2+ | 1.0− |
| 2006 11 13 | 691 | 0.3+ | 0.0 | 2006 11 21 | 704 | 1.0− | 1.0− | 2008 01 18 | G96 | 0.5− | 0.8− |
| 2006 11 13 | 691 | 0.0 | 0.0 | 2006 11 21 | 704 | 0.5− | 0.4+ | 2008 02 09 | 703 | 0.2− | 0.7+ |
| 2006 11 18 | 704 | 2.0+ | 0.2+ | 2006 11 24 | G96 | 0.2− | 0.2− | 2008 02 09 | 703 | 0.3+ | 0.8+ |
| 2006 11 18 | 704 | (2.2+ | 0.3+) | 2006 11 24 | G96 | 0.3+ | 0.3− | 2008 02 09 | 703 | 0.8− | 0.7+ |
| 2006 11 18 | 704 | (2.6+ | 2.0−) | 2006 11 24 | G96 | 0.2+ | 0.2− | 2008 02 09 | 703 | 0.8+ | 0.9+ |
| 2006 11 18 | 704 | 0.3+ | 0.9+ | 2006 11 24 | G96 | 0.2+ | 0.2− | | | | |
| 2006 11 19 | 704 | 0.1− | 0.2− | 2006 12 01 | G96 | 0.2+ | 0.6− | | | | |

**2006 VS$_{17}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 186.62089 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18668532 | $\omega$ | 202.86226 | | +0.12661767 | −0.98136853 | |
| $a$ | 3.0320005 | $\Omega$ | 240.13559 | | +0.93391049 | +0.16703972 | |
| $e$ | 0.0822047 | $i$ | 9.59258 | | +0.33433390 | −0.09493967 | |
| $P$ | 5.28 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 10 04 | G96 | 0.5− | 0.4− | 2006 11 09 | 691 | 0.2+ | 0.0 | 2007 01 15 | 568 | 0.1− | 0.1− |
| 2006 10 04 | G96 | 0.3− | 0.3− | 2006 11 09 | 691 | 0.1+ | 0.2+ | 2007 01 15 | 568 | 0.1− | 0.1− |
| 2006 10 04 | G96 | 0.0 | 0.1− | 2006 11 13 | 691 | 0.1− | 0.2+ | 2007 01 15 | 568 | 0.1− | 0.0 |
| 2006 10 04 | G96 | 0.2+ | 0.2− | 2006 11 13 | 691 | 0.1+ | 0.2+ | 2007 01 16 | 568 | 0.2− | 0.1− |
| 2006 10 17 | 691 | 0.3− | 0.1− | 2006 11 13 | 691 | 0.3+ | 0.2+ | 2008 03 01 | G96 | 0.1+ | 0.1+ |
| 2006 10 17 | 691 | 0.0 | 0.3+ | 2006 11 16 | 691 | 0.1+ | 0.1+ | 2008 03 01 | G96 | 0.2+ | 0.1− |
| 2006 10 17 | 691 | 0.1− | 0.0 | 2006 11 16 | 691 | 0.0 | 0.0 | 2008 03 01 | G96 | 0.1+ | 0.1+ |
| 2006 11 01 | G96 | 0.5+ | 0.6− | 2006 11 16 | 691 | 0.0 | 0.1+ | 2008 03 01 | G96 | 0.3− | 0.1+ |
| 2006 11 01 | G96 | 0.3+ | 0.3− | 2006 12 15 | G96 | 0.1− | 1.1− | 2009 05 17 | 691 | 0.2+ | 0.3− |
| 2006 11 01 | G96 | 0.0 | 0.5− | 2006 12 15 | G96 | 0.6− | 0.6− | 2009 05 17 | 691 | 0.0 | 0.2+ |
| 2006 11 01 | G96 | 0.2− | 0.3− | 2006 12 15 | G96 | 0.1+ | 0.9− | 2009 05 17 | 691 | 0.1− | 0.0 |
| 2006 11 09 | 691 | 0.0 | 0.1+ | 2006 12 15 | G96 | 0.5− | 0.3− | | | | |

**2006 VG$_{22}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 102.27439 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18645089 | $\omega$ | 115.82131 | | −0.97179357 | −0.13016074 | |
| $a$ | 3.0345414 | $\Omega$ | 57.28605 | | +0.01405082 | −0.86437202 | |
| $e$ | 0.0573684 | $i$ | 13.51714 | | +0.23541419 | −0.48571514 | |
| $P$ | 5.29 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 10 19 | G96 | 0.0 | 0.3+ | 2006 11 27 | G96 | 0.2− | 0.4− | 2009 04 20 | G96 | 0.0 | 0.2− |
| 2006 10 19 | G96 | 0.3+ | 0.7− | 2006 11 27 | G96 | 0.2+ | 0.3− | 2009 04 20 | G96 | 0.0 | 0.2+ |
| 2006 10 19 | G96 | 0.1− | 0.0 | 2006 11 27 | G96 | 0.1− | 0.7− | 2009 04 20 | G96 | 0.0 | 0.2− |
| 2006 10 19 | G96 | 0.5− | 0.0 | 2006 11 27 | G96 | 0.1+ | 0.5− | 2009 04 20 | G96 | 0.1+ | 0.3+ |
| 2006 11 10 | 691 | 0.5+ | 0.1+ | 2006 12 10 | 691 | 0.1− | 0.1+ | 2009 05 29 | G96 | 0.2+ | 0.3+ |
| 2006 11 10 | 691 | 0.1+ | 0.2+ | 2006 12 10 | 691 | 0.5+ | 0.1+ | 2009 05 29 | G96 | 0.9− | 0.4− |
| 2006 11 10 | 691 | 0.3− | 0.1− | 2006 12 10 | 691 | 0.0 | 0.1+ | 2009 05 29 | G96 | 0.4+ | 0.0 |
| 2006 11 14 | 691 | 0.4− | 0.1− | 2006 12 12 | 691 | 0.2− | 0.0 | 2009 05 29 | G96 | 0.3+ | 0.1+ |
| 2006 11 14 | 691 | 0.3+ | 0.2+ | 2006 12 12 | 691 | 0.0 | 0.1− | | | | |
| 2006 11 14 | 691 | 0.1− | 0.1+ | 2006 12 12 | 691 | 0.1− | 0.1− | | | | |

**2006 VW$_{24}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 344.88891 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23119173 | $\omega$ | 95.80117 | | +0.76033154 | +0.63858626 | |
| $a$ | 2.6291852 | $\Omega$ | 224.58845 | | −0.64253091 | +0.71267585 | |
| $e$ | 0.1360349 | $i$ | 9.73951 | | −0.09513141 | +0.29034586 | |
| $P$ | 4.26 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 09 28 | G96 | 0.4− | 0.2− | 2006 11 14 | 691 | 0.2− | 0.5+ | 2009 05 13 | 691 | 0.0 | 0.0 |
| 2006 09 28 | G96 | 0.2− | 0.1+ | 2006 11 14 | 691 | 0.0 | 0.1+ | 2009 05 13 | 691 | 0.2− | 0.1+ |
| 2006 09 28 | G96 | 0.0 | 0.2− | 2006 11 23 | 691 | 0.2+ | 0.5+ | 2009 05 13 | 691 | 0.2+ | 0.6+ |
| 2006 09 28 | G96 | 0.2− | 0.0 | 2006 11 23 | 691 | 0.0 | 0.1− | 2009 05 29 | 691 | 0.2− | 0.1+ |
| 2006 11 10 | 691 | 0.2+ | 0.0 | 2006 11 23 | 691 | 0.3+ | 0.2+ | 2009 05 29 | 691 | 0.2+ | 0.2− |
| 2006 11 10 | 691 | 0.1− | 0.2+ | 2006 11 27 | 691 | 0.1− | 0.1+ | 2009 05 29 | 691 | (3.0+ | 2.2+) |
| 2006 11 10 | 691 | 0.2+ | 0.1− | 2006 11 27 | 691 | 0.4− | 0.3− | | | | |
| 2006 11 14 | 691 | 0.0 | 0.1+ | 2006 11 27 | 691 | 0.1− | 0.6− | | | | |

**2006 VT$_{28}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 340.80731 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23493992 | $\omega$ | 324.62575 | | +0.87636939 | | +0.48160116 |
| $a$ | 2.6011467 | $\Omega$ | 6.59282 | | −0.42879624 | | +0.78590822 |
| $e$ | 0.1779154 | $i$ | 3.03747 | | −0.21934101 | | +0.38782545 |
| $P$ | 4.20 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 07 18 | 644 | 0.0 | 0.1− | 2006 11 10 | 691 | 0.3− | 0.2− | 2006 11 22 | 691 | 0.3+ | 0.2+ |
| 2001 07 18 | 644 | 0.2− | 0.3− | 2006 11 14 | 691 | 0.4+ | 0.1− | 2006 12 24 | G96 | 0.2+ | 0.6− |
| 2001 07 18 | 644 | 0.2+ | 0.3+ | 2006 11 14 | 691 | 0.2− | 0.3+ | 2006 12 24 | G96 | 0.2+ | 0.5+ |
| 2006 10 20 | G96 | 0.2+ | 0.5− | 2006 11 14 | 691 | 0.0 | 0.0 | 2006 12 24 | G96 | 0.3− | 0.3− |
| 2006 10 20 | G96 | 0.1+ | 0.3− | 2006 11 18 | 691 | 0.2+ | 0.2+ | 2006 12 24 | G96 | 0.3− | 0.3− |
| 2006 10 20 | G96 | 0.2+ | 0.1− | 2006 11 18 | 691 | 0.2+ | 0.1− | 2009 05 18 | G96 | 0.2− | 0.6− |
| 2006 10 20 | G96 | 0.8− | 0.7− | 2006 11 18 | 691 | 0.3+ | 0.2+ | 2009 05 18 | G96 | 0.0 | 0.3− |
| 2006 11 10 | 691 | 0.4− | 0.1− | 2006 11 22 | 691 | 0.2+ | 0.1− | 2009 05 18 | G96 | 0.1+ | 0.1+ |
| 2006 11 10 | 691 | 0.7− | 0.1+ | 2006 11 22 | 691 | 0.3+ | 0.2− | | | | |

**2006 VF$_{36}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 151.56513 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18033103 | $\omega$ | 243.32643 | | −0.45319332 | | −0.88287567 |
| $a$ | 3.1028140 | $\Omega$ | 234.16330 | | +0.86228927 | | −0.39918701 |
| $e$ | 0.0917705 | $i$ | 8.73183 | | +0.22599342 | | −0.24734650 |
| $P$ | 5.47 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 10 21 | 691 | 0.3− | 0.0 | 2006 11 16 | 703 | 0.8− | 0.3+ | 2006 12 10 | 691 | 0.2− | 0.3+ |
| 2006 10 21 | 691 | 0.4− | 0.3+ | 2006 11 16 | 703 | 0.3− | 0.3− | 2006 12 10 | 691 | 0.1− | 0.1− |
| 2006 10 21 | 691 | 0.3− | 0.0 | 2006 11 21 | 704 | 0.0 | 0.1− | 2007 02 08 | G96 | 0.1+ | 0.2− |
| 2006 10 31 | G96 | 0.4+ | 0.4− | 2006 11 21 | 704 | 0.3− | 1.0+ | 2007 02 08 | G96 | 0.0 | 0.1− |
| 2006 10 31 | G96 | 0.0 | 0.1− | 2006 11 21 | 704 | (0.8+ | 2.1+) | 2007 02 08 | G96 | 0.1− | 0.0 |
| 2006 10 31 | G96 | 0.1+ | 0.5− | 2006 11 21 | G96 | 0.0 | 0.1− | 2007 02 08 | G96 | 0.3+ | 0.1− |
| 2006 10 31 | G96 | 0.2+ | 0.4− | 2006 11 21 | G96 | 0.2− | 0.1− | 2008 02 14 | 703 | 0.5− | 0.2+ |
| 2006 11 11 | G96 | 0.3+ | 0.4− | 2006 11 21 | G96 | 0.2+ | 0.3− | 2008 02 14 | 703 | 0.7− | 0.3− |
| 2006 11 11 | G96 | 0.0 | 0.5− | 2006 11 21 | G96 | 0.0 | 0.2− | 2008 02 14 | 703 | 0.4− | 0.3− |
| 2006 11 14 | 691 | 0.3+ | 0.1− | 2006 11 27 | G96 | 0.3+ | 0.5− | 2008 02 14 | 703 | 1.5+ | 0.5+ |
| 2006 11 14 | 691 | 0.3+ | 0.2+ | 2006 11 27 | G96 | 0.3+ | 0.5− | 2009 04 27 | G96 | 0.4− | 0.3+ |
| 2006 11 14 | 691 | 1.0+ | 0.2+ | 2006 11 27 | G96 | 0.1+ | 0.6− | 2009 04 27 | G96 | 0.2+ | 0.2− |
| 2006 11 16 | 703 | 0.3− | 0.7+ | 2006 11 27 | G96 | 0.0 | 0.7− | 2009 04 27 | G96 | 0.4+ | 0.1− |
| 2006 11 16 | 703 | 0.3− | 0.0 | 2006 12 10 | 691 | 0.4− | 0.1+ | 2009 04 27 | G96 | 0.2− | 0.0 |

**2006 VF$_{39}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 326.27300 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22577663 | $\omega$ | 282.21070 | | +0.84833109 | | +0.52633156 |
| $a$ | 2.6710584 | $\Omega$ | 46.06417 | | −0.44940637 | | +0.77324098 |
| $e$ | 0.1449495 | $i$ | 4.58206 | | −0.27994335 | | +0.35365729 |
| $P$ | 4.37 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 10 16 | 691 | 0.2− | 0.1− | 2006 11 12 | G96 | 0.1− | 0.1− | 2007 01 15 | 568 | 0.1+ | 0.0 |
| 2006 10 16 | 691 | 0.0 | 0.1+ | 2006 11 12 | G96 | 0.2+ | 0.0 | 2007 01 15 | 568 | 0.2+ | 0.1+ |
| 2006 10 16 | 691 | 0.2− | 0.2+ | 2006 11 14 | 691 | 0.1+ | 0.3+ | 2007 01 15 | 568 | 0.1+ | 0.0 |
| 2006 10 27 | G96 | 0.0 | 0.0 | 2006 11 14 | 691 | 0.4+ | 0.3+ | 2007 01 16 | 568 | 0.5+ | 0.4+ |
| 2006 10 27 | G96 | 0.3+ | 0.2− | 2006 11 14 | 691 | 0.2+ | 0.1− | 2008 02 11 | G96 | 0.1− | 0.1+ |
| 2006 10 27 | G96 | 0.4+ | 0.3− | 2006 12 01 | G96 | 0.0 | 0.3− | 2008 02 11 | G96 | 0.1− | 0.2− |
| 2006 10 27 | G96 | 0.2+ | 0.3− | 2006 12 01 | G96 | 0.6− | 0.1− | 2008 02 11 | G96 | 0.5+ | 0.4− |
| 2006 11 12 | 703 | 0.6− | 0.5+ | 2006 12 01 | G96 | 0.2+ | 0.2− | 2008 02 11 | G96 | 0.4− | 0.6+ |
| 2006 11 12 | 703 | 0.3− | 1.3− | 2006 12 01 | G96 | 0.3− | 0.1− | 2009 04 27 | G96 | 0.7+ | 0.0 |
| 2006 11 12 | 703 | 0.7+ | 0.6+ | 2006 12 15 | G96 | 0.0 | 0.1− | 2009 04 27 | G96 | 0.0 | 0.4+ |
| 2006 11 12 | 703 | 0.8− | 1.0+ | 2006 12 15 | G96 | 0.7− | 0.1− | 2009 04 27 | G96 | 0.2− | 0.0 |
| 2006 11 12 | G96 | 0.0 | 0.2− | 2006 12 15 | G96 | 0.1+ | 0.3− | 2009 04 27 | G96 | 0.3− | 0.1− |
| 2006 11 12 | G96 | 0.2− | 0.0 | 2006 12 15 | G96 | 0.2− | 0.4− | | | | |

**2006 VW$_{48}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 234.31655 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17625091 | $\omega$ | 334.67594 | | +0.86125888 | | −0.47714656 |
| $a$ | 3.1505169 | $\Omega$ | 54.94230 | | +0.49497636 | | +0.70981943 |
| $e$ | 0.0652399 | $i$ | 12.33191 | | +0.11502842 | | +0.51815783 |
| $P$ | 5.59 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 09 28 | G96 | 0.1+ | 0.3− | 2006 11 16 | 691 | 0.0 | 0.2+ | 2009 04 01 | 691 | 0.1− | 0.1+ |
| 2006 09 28 | G96 | 0.2+ | 0.3− | 2006 11 20 | 691 | 0.0 | 0.1+ | 2009 04 27 | G96 | 1.0+ | 0.1+ |
| 2006 09 28 | G96 | 0.1− | 0.0 | 2006 11 20 | 691 | 0.2− | 0.4+ | 2009 04 27 | G96 | 0.0 | 0.1− |
| 2006 09 28 | G96 | 0.0 | 0.1− | 2006 11 20 | 691 | 0.2− | 0.1+ | 2009 04 27 | G96 | 0.1+ | 0.0 |
| 2006 11 10 | 691 | 0.2− | 0.1− | 2006 11 24 | 691 | 0.5+ | 0.5− | 2009 04 27 | G96 | 0.1+ | 0.3+ |
| 2006 11 10 | 691 | 0.1+ | 0.2+ | 2006 11 24 | 691 | 0.1+ | 0.1+ | 2009 05 14 | G96 | 0.7− | 0.1− |
| 2006 11 10 | 691 | 0.5− | 0.1− | 2006 11 24 | 691 | 0.3+ | 0.3− | 2009 05 14 | G96 | 0.3− | 0.0 |
| 2006 11 16 | 691 | 0.1− | 0.1+ | 2009 04 01 | 691 | 0.3+ | 0.2− | 2009 05 14 | G96 | 0.4− | 0.3+ |
| 2006 11 16 | 691 | 0.1+ | 0.1− | 2009 04 01 | 691 | 0.1− | 0.1− | 2009 05 14 | G96 | 0.0 | 0.1+ |

**2006 VQ$_{50}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 264.76700 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.25832620 | $\omega$ | 129.73317 | | −0.33111481 | | −0.94353988 |
| $a$ | 2.4416894 | $\Omega$ | 339.59689 | | +0.85692789 | | −0.29635304 |
| $e$ | 0.1562922 | $i$ | 1.60605 | | +0.39501592 | | −0.14801136 |
| $P$ | 3.82 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 09 11 | 691 | 0.3+ | 0.1− | 2006 11 20 | 691 | 0.2+ | 0.1+ | 2006 12 14 | 704 | 0.6− | 0.7+ |
| 1994 09 11 | 691 | 0.0 | 0.1− | 2006 11 20 | 691 | 0.3+ | 0.1+ | 2006 12 14 | 704 | 0.7+ | 0.2+ |
| 1994 09 11 | 691 | 0.1− | 0.1− | 2006 11 20 | 691 | 0.0 | 0.0 | 2007 02 07 | G96 | 0.4+ | 0.4+ |
| 2006 11 10 | 691 | 0.2+ | 0.0 | 2006 12 12 | 703 | 0.7− | 1.2+ | 2007 02 07 | G96 | 0.1− | 0.1− |
| 2006 11 10 | 691 | 0.1+ | 0.1+ | 2006 12 12 | 703 | 0.3+ | 0.3− | 2007 02 07 | G96 | 0.5+ | 0.1− |
| 2006 11 10 | 691 | 0.3+ | 0.1− | 2006 12 12 | 703 | 0.2− | 0.1− | 2007 02 07 | G96 | 0.3− | 0.2− |
| 2006 11 16 | 691 | 0.9− | 0.5− | 2006 12 12 | 703 | 1.1− | 0.1− | 2009 07 27 | 691 | 0.2− | 0.0 |
| 2006 11 16 | 691 | 0.4+ | 0.0 | 2006 12 14 | 704 | 1.2− | 0.2− | 2009 07 27 | 691 | 0.3− | 0.2+ |
| 2006 11 16 | 691 | 0.2+ | 0.1− | 2006 12 14 | 704 | 0.5− | 0.7+ | 2009 07 27 | 691 | 0.3+ | 0.3+ |

**2006 VW$_{63}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 242.65990 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.19092326 | $\omega$ | 161.11774 | | +0.80236431 | | −0.58337615 |
| $a$ | 2.9869651 | $\Omega$ | 235.22253 | | +0.52593417 | | +0.79092930 |
| $e$ | 0.0814846 | $i$ | 8.82628 | | +0.28214315 | | +0.18467028 |
| $P$ | 5.16 | $H$ | 15.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 09 27 | G96 | 0.0 | 0.3− | 2006 11 18 | 704 | 0.4− | 0.3+ | 2006 12 12 | 703 | 0.8− | 0.5− |
| 2006 09 27 | G96 | 0.2+ | 0.0 | 2006 11 18 | 704 | 0.7+ | 0.2− | 2006 12 12 | 703 | 0.2+ | 0.2− |
| 2006 09 27 | G96 | 0.4+ | 0.3− | 2006 11 18 | 704 | 1.3+ | 1.2+ | 2006 12 12 | 703 | 0.2+ | 0.4− |
| 2006 09 27 | G96 | 0.3− | 0.2− | 2006 11 20 | 691 | 0.1+ | 0.0 | 2006 12 16 | 704 | 0.4− | 0.2+ |
| 2006 10 19 | G96 | 0.1− | 0.1+ | 2006 11 20 | 691 | 0.1+ | 0.1+ | 2006 12 16 | 704 | 0.3+ | 0.5+ |
| 2006 10 19 | G96 | 0.1+ | 0.0 | 2006 11 20 | 691 | 0.0 | 0.1− | 2006 12 16 | 704 | 0.5+ | 0.0 |
| 2006 10 19 | G96 | 0.1+ | 0.4− | 2006 11 21 | 704 | 0.1+ | 0.5− | 2006 12 16 | 704 | 0.9− | 0.5− |
| 2006 10 19 | G96 | 0.6− | 0.1− | 2006 11 21 | 704 | 0.2+ | 0.1− | 2006 12 22 | G96 | 0.0 | 0.1− |
| 2006 10 29 | G96 | 0.0 | 0.0 | 2006 11 21 | 704 | 1.1+ | 0.3− | 2006 12 22 | G96 | 0.3+ | 0.3− |
| 2006 10 29 | G96 | 0.4− | 0.5− | 2006 11 21 | 704 | 0.6− | 0.0 | 2006 12 22 | G96 | 0.0 | 0.2− |
| 2006 10 29 | G96 | 0.1− | 0.5− | 2006 11 21 | 704 | 0.1+ | 0.3− | 2006 12 22 | G96 | 0.3− | 0.2− |
| 2006 10 29 | G96 | 0.1− | 0.3− | 2006 11 29 | 704 | 0.1− | 0.4+ | 2009 05 17 | 691 | 0.2− | 0.1+ |
| 2006 11 11 | 691 | 0.0 | 0.1− | 2006 11 29 | 704 | 0.6− | 0.1− | 2009 05 17 | 691 | 0.1− | 0.1+ |
| 2006 11 11 | 691 | 0.3+ | 0.9+ | 2006 11 29 | 704 | 0.0 | 1.1+ | 2009 05 17 | 691 | 0.3+ | 0.1− |
| 2006 11 11 | 691 | 0.0 | 0.1+ | 2006 12 01 | G96 | 0.3− | 0.2− | 2009 05 28 | 691 | 0.2+ | 0.2− |
| 2006 11 16 | 691 | 0.1− | 0.1− | 2006 12 01 | G96 | 0.2+ | 0.4− | 2009 05 28 | 691 | 0.1− | 0.1− |
| 2006 11 16 | 691 | 0.3− | 0.3− | 2006 12 01 | G96 | 0.1− | 0.6+ | 2009 05 28 | 691 | 0.2− | 0.2+ |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 2006 11 16 | 691 | 0.2− | 0.1+ | 2006 12 01 | G96 | 0.3+ | 0.4− | |
| 2006 11 18 | 704 | 0.3+ | 0.5+ | 2006 12 12 | 703 | 0.3+ | 0.4− | |

**2006 VV$_{69}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | |
|---|---|---|---|---|---|
| $M$ | 235.92268 | (2000.0) | | **P** | **Q** |
| $n$ | 0.21695886 | $\omega$ | 221.25622 | +0.09974917 | −0.99375490 |
| $a$ | 2.7429494 | $\Omega$ | 223.08866 | +0.93103480 | +0.11095012 |
| $e$ | 0.1405455 | $i$ | 4.19847 | +0.35103321 | −0.01188545 |
| $P$ | 4.54 | $H$ | 17.1 | $G$ 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 28 | 644 | 0.3− | 0.1− | 2006 11 18 | 691 | 0.0 | 0.3− | 2006 12 21 | G96 | 0.2− | 0.3− |
| 2001 09 28 | 644 | 0.4+ | 0.2+ | 2006 11 18 | 691 | 0.4− | 0.1+ | 2007 02 19 | G96 | 0.3+ | 0.2− |
| 2001 09 28 | 644 | 0.3− | 0.3+ | 2006 11 18 | 691 | 0.1+ | 0.8+ | 2007 02 19 | G96 | 0.7− | 0.5− |
| 2006 11 11 | 691 | 0.2− | 0.4− | 2006 11 22 | 691 | 0.2+ | 0.0 | 2007 02 19 | G96 | 0.3− | 0.2− |
| 2006 11 11 | 691 | 0.0 | 0.1− | 2006 11 22 | 691 | 0.0 | 0.1+ | 2007 02 19 | G96 | 0.7+ | 0.0 |
| 2006 11 11 | 691 | 0.1+ | 0.2− | 2006 11 22 | 691 | 0.1+ | 0.1− | 2008 04 30 | G96 | 0.2+ | 0.3+ |
| 2006 11 15 | 691 | 0.0 | 0.1+ | 2006 12 21 | G96 | 0.1+ | 0.2− | 2008 04 30 | G96 | 0.2+ | 0.2+ |
| 2006 11 15 | 691 | 0.0 | 0.4+ | 2006 12 21 | G96 | 0.5− | 0.4+ | 2008 04 30 | G96 | 0.2+ | 0.5+ |
| 2006 11 15 | 691 | 0.0 | 0.0 | 2006 12 21 | G96 | 0.4+ | 0.5− | 2008 04 30 | G96 | 0.2− | 0.1+ |

**2006 VV$_{74}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | |
|---|---|---|---|---|---|
| $M$ | 56.63861 | (2000.0) | | **P** | **Q** |
| $n$ | 0.17554556 | $\omega$ | 341.14791 | −0.88699953 | +0.44319208 |
| $a$ | 3.1589504 | $\Omega$ | 225.87626 | −0.39705122 | −0.87535971 |
| $e$ | 0.0238537 | $i$ | 10.40649 | −0.23575868 | −0.19319980 |
| $P$ | 5.61 | $H$ | 15.8 | $G$ 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 09 28 | G96 | 0.4+ | 0.1− | 2006 11 15 | 691 | 0.2+ | 0.1+ | 2009 04 22 | G96 | 0.4+ | 0.1+ |
| 2006 09 28 | G96 | 0.7− | 0.1− | 2006 11 15 | 691 | 0.1− | 0.0 | 2009 04 22 | G96 | 0.1+ | 0.2− |
| 2006 09 28 | G96 | 0.4+ | 0.1+ | 2006 11 15 | 691 | 0.2− | 0.2− | 2009 04 22 | G96 | 0.3+ | 0.1+ |
| 2006 09 28 | G96 | 0.6− | 0.5+ | 2006 11 19 | 691 | 0.3+ | 0.0 | 2009 04 22 | G96 | 0.1− | 0.0 |
| 2006 10 21 | G96 | 0.3− | 0.3− | 2006 11 19 | 691 | 0.2+ | 0.0 | 2009 05 18 | G96 | 0.2− | 0.4− |
| 2006 10 21 | G96 | 0.4+ | 0.1− | 2006 11 19 | 691 | 0.2− | 0.0 | 2009 05 18 | G96 | 0.0 | 0.2− |
| 2006 10 21 | G96 | 0.1− | 0.2− | 2006 11 23 | 691 | 0.1+ | 0.2− | 2009 05 18 | G96 | 0.3+ | 0.1− |
| 2006 10 21 | G96 | 0.1+ | 0.2− | 2006 11 23 | 691 | 0.0 | 0.0 | 2009 06 14 | G96 | 0.1− | 0.4+ |
| 2006 11 11 | G96 | 0.6+ | 0.6− | 2006 11 23 | 691 | 0.0 | 0.1+ | 2009 06 14 | G96 | 0.3− | 0.2+ |
| 2006 11 11 | G96 | 0.2− | 0.5− | 2006 11 27 | 691 | 0.0 | 0.3+ | 2009 06 14 | G96 | 0.4− | 0.0 |
| 2006 11 11 | G96 | 0.2− | 0.3− | 2006 11 27 | 691 | 0.1− | 0.1+ | 2009 06 14 | G96 | 0.2− | 0.2− |
| 2006 11 11 | G96 | 0.4− | 0.5− | 2006 11 27 | 691 | 0.1− | 0.1+ | | | | |

**2006 VT$_{96}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | |
|---|---|---|---|---|---|
| $M$ | 227.80464 | (2000.0) | | **P** | **Q** |
| $n$ | 0.17985975 | $\omega$ | 169.80059 | +0.60546544 | −0.78362529 |
| $a$ | 3.1082318 | $\Omega$ | 242.79746 | +0.71874138 | +0.61342244 |
| $e$ | 0.0602623 | $i$ | 8.99654 | +0.34179296 | +0.09820549 |
| $P$ | 5.48 | $H$ | 15.6 | $G$ 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 11 10 | 691 | 0.2+ | 0.3− | 2006 12 16 | G96 | 0.1− | 0.2− | 2009 05 29 | G96 | 0.0 | 0.4− |
| 2006 11 10 | 691 | 0.1+ | 0.3− | 2006 12 16 | G96 | 0.1+ | 0.3− | 2009 05 29 | G96 | 0.6+ | 0.1− |
| 2006 11 10 | 691 | 0.1+ | 0.2− | 2006 12 21 | G96 | 0.3+ | 0.0 | 2009 06 23 | G96 | 0.1− | 0.1+ |
| 2006 11 17 | 691 | 0.4+ | 0.9+ | 2006 12 21 | G96 | 0.3+ | 0.0 | 2009 06 23 | G96 | 0.5− | 0.0 |
| 2006 11 17 | 691 | 0.5− | 0.1+ | 2006 12 21 | G96 | 0.2+ | 0.1− | 2009 06 23 | G96 | 0.5− | 0.2+ |
| 2006 11 17 | 691 | 0.5− | 0.1+ | 2006 12 21 | G96 | 0.1+ | 0.1− | 2009 06 23 | G96 | 0.0 | 0.3+ |
| 2006 12 16 | G96 | 0.2+ | 0.2− | 2009 05 29 | G96 | 0.6+ | 0.1+ | | | | |
| 2006 12 16 | G96 | 0.1+ | 0.3− | 2009 05 29 | G96 | 0.2− | 0.2+ | | | | |

**2006 VP$_{104}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | |
|---|---|---|---|---|---|
| $M$ | 291.48636 | (2000.0) | | **P** | **Q** |
| $n$ | 0.26258048 | $\omega$ | 282.72141 | +0.45366741 | −0.88915616 |
| $a$ | 2.4152444 | $\Omega$ | 140.12340 | +0.84959498 | +0.41123603 |
| $e$ | 0.2002666 | $i$ | 5.36024 | +0.26902462 | +0.20071435 |
| $P$ | 3.75 | $H$ | 16.8 | $G$ 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 01 10 | 691 | 0.4− | 0.3− | 2006 10 16 | 703 | 0.8+ | 0.5+ | 2006 11 19 | 703 | 0.1− | 0.3+ |
| 2000 01 10 | 691 | 0.4− | 0.4− | 2006 10 16 | 703 | 0.2+ | 1.0− | 2006 11 19 | 703 | 0.1− | 0.2+ |
| 2000 01 10 | 691 | 0.2− | 0.3− | 2006 11 01 | 703 | 0.4− | 0.4− | 2006 11 19 | 703 | 0.8− | 0.4− |
| 2000 02 27 | 691 | 0.5− | 0.3− | 2006 11 01 | 703 | 0.1− | 0.1+ | 2008 04 07 | 691 | 0.3− | 0.7− |
| 2000 02 27 | 691 | 0.6+ | 0.4+ | 2006 11 01 | 703 | 0.1− | 1.3− | 2008 04 07 | 691 | 0.8− | 0.5+ |
| 2000 02 27 | 691 | 0.3+ | 0.4+ | 2006 11 01 | 703 | 0.3+ | 0.2− | 2008 04 07 | 691 | 0.3+ | 0.1− |
| 2004 03 30 | 691 | 0.4+ | 0.2+ | 2006 11 13 | 703 | 0.3+ | 0.3+ | 2008 04 29 | G96 | 0.1+ | 0.0 |
| 2004 03 30 | 691 | 0.4+ | 0.7+ | 2006 11 13 | 703 | 0.8+ | 1.1+ | 2008 04 29 | G96 | 0.0 | 0.4− |
| 2004 03 30 | 691 | 0.4+ | 0.1+ | 2006 11 13 | 703 | 0.3− | 0.6+ | 2008 04 29 | G96 | 0.6− | 0.3− |
| 2006 10 16 | 703 | 0.0 | 0.1+ | 2006 11 13 | 703 | 0.3− | 0.8+ | 2008 04 29 | G96 | 0.3+ | 0.5− |
| 2006 10 16 | 703 | 0.4+ | 0.1− | 2006 11 19 | 703 | 0.5− | 0.1+ | | | | |

**2006 VJ$_{111}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | |
|---|---|---|---|---|---|
| $M$ | 25.36755 | (2000.0) | | **P** | **Q** |
| $n$ | 0.30264369 | $\omega$ | 343.49556 | +0.98103999 | −0.19060927 |
| $a$ | 2.1970923 | $\Omega$ | 27.56718 | +0.18527276 | +0.86930636 |
| $e$ | 0.1494261 | $i$ | 4.34381 | +0.05687306 | +0.45604227 |
| $P$ | 3.26 | $H$ | 17.9 | $G$ 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 09 28 | G96 | 0.7+ | 0.6− | 2006 11 25 | 691 | 0.2+ | 0.0 | 2009 10 26 | G96 | 0.2+ | 0.3+ |
| 2006 09 28 | G96 | 0.1+ | 0.3− | 2006 11 25 | 691 | 0.4+ | 0.3− | 2009 10 26 | G96 | 0.5− | 0.4− |
| 2006 09 28 | G96 | 0.1+ | 0.2− | 2009 09 23 | G96 | 0.0 | 0.1− | 2009 11 23 | G96 | 0.3+ | 0.1− |
| 2006 09 28 | G96 | 0.4− | 0.5− | 2009 09 23 | G96 | 0.0 | 0.1+ | 2009 11 23 | G96 | 0.2+ | 0.2− |
| 2006 11 13 | 691 | 0.1+ | 0.2+ | 2009 09 23 | G96 | 0.1− | 0.1− | 2009 11 23 | G96 | 0.0 | 0.0 |
| 2006 11 13 | 691 | 0.5− | 0.2+ | 2009 09 23 | G96 | 0.3+ | 0.3+ | 2009 11 23 | G96 | 1.0+ | 0.3− |
| 2006 11 13 | 691 | 0.2− | 0.2+ | 2009 10 10 | J75 | 1.3− | 0.7+ | 2009 12 11 | G96 | 0.2− | 0.3− |
| 2006 11 17 | 691 | 0.2− | 0.0 | 2009 10 10 | J75 | 0.2+ | 0.1− | 2009 12 11 | G96 | 0.4− | 0.4− |
| 2006 11 17 | 691 | 0.2− | 0.0 | 2009 10 10 | J75 | 0.0 | 0.4− | 2009 12 11 | G96 | 0.0 | 0.6+ |
| 2006 11 17 | 691 | 0.0 | 0.2+ | 2009 10 26 | G96 | 0.1+ | 0.1+ | 2009 12 11 | G96 | 0.2+ | 0.3− |
| 2006 11 25 | 691 | 0.2+ | 0.1− | 2009 10 26 | G96 | 0.4+ | 0.1+ | | | | |

**2006 VC$_{122}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | |
|---|---|---|---|---|---|
| $M$ | 213.73950 | (2000.0) | | **P** | **Q** |
| $n$ | 0.16866265 | $\omega$ | 336.54511 | +0.79706715 | −0.59726947 |
| $a$ | 3.2443181 | $\Omega$ | 60.43048 | +0.56902608 | +0.69336375 |
| $e$ | 0.0688020 | $i$ | 5.88515 | +0.20222084 | +0.40313261 |
| $P$ | 5.84 | $H$ | 16.1 | $G$ 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 09 27 | G96 | 0.3+ | 0.1− | 2006 11 18 | 691 | 0.2+ | 0.0 | 2009 04 02 | 691 | 0.3− | 0.3+ |
| 2006 09 27 | G96 | 0.1+ | 0.3+ | 2006 11 22 | 691 | 0.1+ | 0.1+ | 2009 04 27 | 291 | 0.2+ | 0.0 |
| 2006 09 27 | G96 | 0.0 | 0.2+ | 2006 11 22 | 691 | 0.2− | 0.1− | 2009 04 27 | 291 | 0.1+ | 0.0 |
| 2006 09 27 | G96 | 0.2+ | 0.6− | 2006 11 22 | 691 | 0.1− | 0.1+ | 2009 04 27 | 291 | 0.5+ | 0.3+ |
| 2006 11 14 | 701 | 0.1+ | 0.1+ | 2006 12 01 | G96 | 0.2− | 0.4− | 2009 05 16 | G96 | 0.0 | 0.3− |
| 2006 11 14 | 701 | 0.1+ | 0.2− | 2006 12 01 | G96 | 0.1+ | 0.2− | 2009 05 16 | G96 | 0.2− | 0.3+ |
| 2006 11 14 | 701 | 0.0 | 0.3+ | 2006 12 01 | G96 | 0.4− | 1.0− | 2009 05 16 | G96 | 0.5− | 0.1+ |
| 2006 11 14 | 701 | 0.1+ | 0.3− | 2006 12 01 | G96 | 0.4− | 0.6− | 2009 05 16 | G96 | 0.2− | 0.4− |
| 2006 11 18 | 691 | 0.1− | 0.3+ | 2009 04 02 | 691 | 0.2− | 0.2− | | | | |
| 2006 11 18 | 691 | 0.1+ | 0.3+ | 2009 04 02 | 691 | 0.1− | 0.2− | | | | |

**2006 VB$_{134}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 306.85854 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19121936 | $\omega$ | 278.73452 | | +0.86554276 | +0.48343434 | |
| $a$ | 2.9838809 | $\Omega$ | 52.46355 | | −0.36956358 | +0.79284763 | |
| $e$ | 0.0618818 | $i$ | 9.49948 | | −0.33802143 | +0.37105778 | |
| $P$ | 5.15 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 10 20 | G96 | 1.0+ | 0.9− | 2006 11 18 | 691 | 0.4+ | 0.1+ | 2009 04 27 | G96 | 0.5− | 0.1+ |
| 2006 10 20 | G96 | 0.7+ | 0.5− | 2006 11 18 | 691 | 0.0 | 0.1+ | 2009 04 27 | G96 | 0.5+ | 0.2− |
| 2006 10 20 | G96 | 0.7− | 0.3+ | 2006 11 18 | 691 | 0.5− | 0.2+ | 2009 05 27 | G96 | 0.4+ | 0.3+ |
| 2006 10 20 | G96 | 0.5− | 0.0 | 2006 11 24 | 691 | 0.0 | 0.0 | 2009 05 27 | G96 | 0.2+ | 0.1+ |
| 2006 11 14 | 691 | 1.4− | 0.6+ | 2006 11 24 | 691 | 0.5+ | 0.2− | 2009 05 27 | G96 | 0.5+ | 0.1+ |
| 2006 11 14 | 691 | (2.0− | 0.1−) | 2006 11 24 | 691 | 0.6+ | 0.3− | 2009 05 27 | G96 | 0.3+ | 0.0 |
| 2006 11 14 | 691 | (4.3− | 0.6−) | 2006 12 24 | G96 | 0.1− | 0.1− | 2009 06 22 | G96 | 0.2+ | 0.7+ |
| 2006 11 15 | G96 | 0.4+ | 0.0 | 2006 12 24 | G96 | 0.0 | 0.5− | 2009 06 22 | G96 | 0.4− | 0.1− |
| 2006 11 15 | G96 | 0.2+ | 0.2− | 2006 12 24 | G96 | 0.2+ | 0.2− | 2009 06 22 | G96 | 1.1− | 0.0 |
| 2006 11 15 | G96 | 0.5+ | 0.1+ | 2006 12 24 | G96 | 0.2− | 0.2− | 2009 06 22 | G96 | 0.6− | 0.3− |
| 2006 11 15 | G96 | 0.1+ | 0.1− | 2009 04 27 | G96 | 0.5+ | 0.3− | | | | |

**2006 VS$_{134}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 293.81348 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23523822 | $\omega$ | 313.36177 | | +0.94193080 | −0.31661881 | |
| $a$ | 2.5989472 | $\Omega$ | 65.38368 | | +0.33255061 | +0.83320691 | |
| $e$ | 0.2670565 | $i$ | 7.06949 | | +0.04665254 | +0.45334178 | |
| $P$ | 4.19 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 11 15 | 703 | 0.0 | 0.8− | 2006 11 21 | 704 | 0.4− | 1.4+ | 2006 12 12 | 703 | 0.1− | 0.3− |
| 2006 11 15 | 703 | 0.1− | 0.0 | 2006 11 21 | 704 | 0.2+ | 0.6+ | 2006 12 14 | 704 | 0.2+ | 0.3− |
| 2006 11 15 | 703 | 0.3+ | 0.9− | 2006 11 21 | 704 | 0.9+ | 0.2+ | 2006 12 14 | 704 | 0.6+ | 0.1+ |
| 2006 11 15 | 703 | 0.1+ | 0.0 | 2006 11 27 | 691 | 0.0 | 0.0 | 2006 12 14 | 704 | 0.1+ | 0.2+ |
| 2006 11 15 | 691 | 0.2− | 0.2− | 2006 11 27 | 703 | 0.3+ | 0.5− | 2006 12 14 | 704 | 0.1+ | 0.2+ |
| 2006 11 15 | 691 | 0.3− | 0.0 | 2006 11 27 | 703 | 0.3+ | 0.5− | 2006 12 21 | 691 | 0.4+ | 0.1+ |
| 2006 11 15 | 691 | 0.1− | 0.1− | 2006 11 27 | 691 | 0.2− | 0.1+ | 2006 12 21 | 691 | 0.2+ | 0.0 |
| 2006 11 17 | 704 | 0.9− | 0.0 | 2006 11 27 | 703 | 0.4+ | 0.2− | 2006 12 21 | 695 | 0.0 | 0.1− |
| 2006 11 17 | 704 | 0.2+ | 0.5+ | 2006 11 27 | 691 | 0.0 | 0.1+ | 2006 12 21 | 691 | 0.3+ | 0.2− |
| 2006 11 17 | 704 | 0.5+ | 0.8+ | 2006 11 27 | 703 | 0.0 | 0.0 | 2006 12 21 | 644 | 0.1+ | 0.0 |
| 2006 11 17 | 704 | 1.9+ | 1.3+ | 2006 12 01 | 691 | 0.2+ | 0.2+ | 2006 12 21 | 695 | 0.0 | 0.3− |
| 2006 11 17 | 704 | 0.7+ | 0.1− | 2006 12 01 | 691 | 0.7− | 0.7+ | 2006 12 21 | 644 | 0.1+ | 0.1− |
| 2006 11 18 | 704 | 0.4+ | 0.3− | 2006 12 01 | 704 | 0.4− | 0.2+ | 2006 12 21 | 644 | 0.6+ | 0.1+ |
| 2006 11 18 | 704 | 0.1− | 0.3− | 2006 12 01 | 691 | 0.0 | 0.0 | 2007 02 19 | G96 | 0.8− | 0.3− |
| 2006 11 18 | 704 | 0.1+ | 0.3+ | 2006 12 01 | 704 | 1.2− | 0.3− | 2007 02 19 | G96 | 0.3− | 0.2+ |
| 2006 11 18 | 704 | 1.1+ | 0.6− | 2006 12 01 | 704 | 1.2− | 0.3− | 2007 02 19 | G96 | 0.1+ | 0.7− |
| 2006 11 18 | 704 | 1.1+ | 0.3− | 2006 12 01 | 704 | 0.9− | 0.1− | 2007 02 19 | G96 | 0.6+ | 0.1+ |
| 2006 11 19 | 691 | 0.2− | 0.2− | 2006 12 11 | H07 | 0.2+ | 0.2− | 2009 05 28 | G96 | 0.5+ | 0.1− |
| 2006 11 19 | 691 | 0.1− | 0.1− | 2006 12 11 | H07 | 0.0 | 0.1− | 2009 05 28 | G96 | 0.4+ | 0.4− |
| 2006 11 19 | 691 | 0.2− | 0.2− | 2006 12 11 | H07 | 0.1+ | 0.1+ | 2009 05 28 | G96 | 0.3+ | 0.5+ |
| 2006 11 20 | J75 | 0.5+ | 0.1+ | 2006 12 12 | H07 | 0.3− | 0.2+ | 2009 05 28 | G96 | 0.2− | 0.2− |
| 2006 11 20 | J75 | 0.2+ | 0.3− | 2006 12 12 | H07 | 0.4− | 0.4+ | 2009 05 28 | G96 | 0.2− | 0.5+ |
| 2006 11 20 | J75 | 0.6+ | 0.5− | 2006 12 12 | H07 | 0.4− | 0.3+ | 2009 05 28 | G96 | 0.3− | 0.2+ |
| 2006 11 21 | 704 | 0.4− | 1.2+ | 2006 12 12 | 703 | 0.8− | 0.3− | 2009 05 28 | G96 | 0.1+ | 0.2+ |
| 2006 11 21 | 704 | 0.1− | 0.3+ | 2006 12 12 | 703 | 0.1+ | 0.4− | 2009 05 28 | G96 | 0.1− | 0.3+ |

**2006 VG$_{135}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 214.20958 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17204972 | $\omega$ | 148.89175 | | +0.74140098 | −0.66675414 | |
| $a$ | 3.2015975 | $\Omega$ | 253.12413 | | +0.59823375 | +0.70795220 | |
| $e$ | 0.0622439 | $i$ | 4.55029 | | +0.30404105 | +0.23290039 | |
| $P$ | 5.73 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 11 01 | G96 | 0.0 | 0.6− | 2006 11 19 | 691 | 0.1+ | 0.5+ | 2009 03 19 | 691 | 0.9− | 0.6− |
| 2006 11 01 | G96 | 0.0 | 0.6− | 2006 11 19 | 691 | 0.1− | 0.2+ | 2009 03 19 | 691 | 0.3+ | 0.1+ |
| 2006 11 01 | G96 | 0.1+ | 0.7− | 2006 11 23 | 691 | 0.1+ | 0.3+ | 2009 03 19 | 691 | 0.0 | 0.5+ |
| 2006 11 01 | G96 | 0.3− | 0.4− | 2006 11 23 | 691 | 0.1+ | 0.0 | 2009 03 31 | 691 | 0.4+ | 0.1+ |
| 2006 11 15 | 691 | 0.2− | 0.2+ | 2006 11 23 | 691 | 0.1+ | 0.1+ | 2009 03 31 | 691 | 0.1+ | 0.2− |
| 2006 11 15 | 691 | 0.1+ | 0.1+ | 2006 12 01 | 691 | 0.3− | 0.4− | 2009 03 31 | 691 | 0.1+ | 0.1+ |
| 2006 11 15 | 691 | 0.0 | 0.2+ | 2006 12 01 | 691 | 0.0 | 0.5− | | | | |
| 2006 11 19 | 691 | 0.1+ | 0.2+ | 2006 12 01 | 691 | 0.0 | 0.1− | | | | |

**2006 VM$_{143}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 351.86453 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17167328 | $\omega$ | 357.55211 | | −0.54063011 | +0.83850120 | |
| $a$ | 3.2062761 | $\Omega$ | 239.71352 | | −0.77049572 | −0.52601694 | |
| $e$ | 0.0677655 | $i$ | 4.52189 | | −0.33772094 | −0.14220379 | |
| $P$ | 5.74 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 09 25 | 691 | 0.0 | 0.1+ | 2006 10 29 | 691 | 0.1− | 0.1− | 2009 03 01 | 703 | 1.0− | 1.1− |
| 2006 09 25 | 691 | 0.1+ | 0.1− | 2006 11 15 | 691 | 0.3− | 0.4+ | 2009 03 01 | 703 | 0.9+ | 1.4+ |
| 2006 09 25 | 691 | 0.0 | 0.1+ | 2006 11 15 | 691 | 0.2+ | 0.0 | 2009 03 01 | 703 | 0.5+ | 0.6+ |
| 2006 10 20 | 691 | 0.1− | 0.1+ | 2006 11 15 | 691 | 0.3− | 0.1− | 2009 03 26 | G96 | 0.4+ | 0.3− |
| 2006 10 20 | 691 | 0.0 | 0.1− | 2006 11 20 | 691 | 0.0 | 0.3+ | 2009 03 26 | G96 | 0.2− | 0.3− |
| 2006 10 20 | 691 | 0.1− | 0.1− | 2006 11 20 | 691 | 0.0 | 0.2− | 2009 03 26 | G96 | 0.8− | 0.1− |
| 2006 10 29 | 691 | 0.1+ | 0.0 | 2006 11 20 | 691 | 0.5+ | 0.2− | 2009 03 26 | G96 | 0.1− | 0.3− |
| 2006 10 29 | 691 | 0.1− | 0.2− | 2009 03 01 | 703 | 0.3+ | 0.0 | | | | |

**2006 VV$_{144}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 21.92469 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.36118677 | $\omega$ | 200.85192 | | +0.02637206 | −0.95253771 | |
| $a$ | 1.9527568 | $\Omega$ | 248.67214 | | +0.95707696 | +0.11165488 | |
| $e$ | 0.0847163 | $i$ | 19.00031 | | +0.28863160 | −0.28320506 | |
| $P$ | 2.73 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 10 23 | 703 | 0.1− | 0.0 | 2006 11 25 | G96 | 0.0 | 0.3− | 2006 12 22 | 704 | 0.3+ | 0.3+ |
| 2006 10 23 | 703 | 0.3− | 0.4+ | 2006 11 25 | G96 | 0.1+ | 0.5− | 2006 12 22 | 704 | 0.1− | 0.2+ |
| 2006 10 23 | 703 | 0.1− | 0.1− | 2006 11 25 | G96 | 0.2+ | 0.4− | 2006 12 22 | 704 | 0.0 | 0.3+ |
| 2006 10 23 | 703 | 0.3+ | 0.1− | 2006 11 25 | G96 | 0.2+ | 0.4− | 2006 12 24 | 699 | 0.2+ | 0.6− |
| 2006 10 29 | 703 | 0.4+ | 0.1+ | 2006 11 28 | 704 | 0.6− | 1.2+ | 2006 12 24 | 699 | 1.0− | 1.7+ |
| 2006 10 29 | 703 | 0.5− | 0.1− | 2006 11 28 | 704 | 0.4− | 0.5− | 2006 12 24 | 699 | 0.0 | 0.3− |
| 2006 10 29 | 703 | 1.5− | 0.1+ | 2006 11 28 | 704 | 1.7− | 0.5− | 2006 12 24 | 699 | 0.3+ | 0.6+ |
| 2006 10 29 | 703 | 0.2− | 0.4+ | 2006 12 08 | 699 | 0.4+ | 0.4+ | 2007 01 09 | 703 | 0.4− | 0.4− |
| 2006 11 15 | 703 | 0.2− | 0.3− | 2006 12 08 | 699 | 1.4− | 0.8+ | 2007 01 09 | 703 | 0.4+ | 0.1− |
| 2006 11 15 | 703 | 0.3+ | 0.7− | 2006 12 08 | 699 | 0.6− | 1.3+ | 2007 01 09 | 703 | 1.7+ | 1.2+ |
| 2006 11 15 | 703 | 0.2+ | 0.2+ | 2006 12 08 | 699 | (0.6+ | 2.9+) | 2007 01 09 | 703 | 0.4+ | 0.1+ |
| 2006 11 15 | 703 | 0.2+ | 0.3− | 2006 12 15 | 704 | 0.4+ | 0.2− | 2007 04 11 | G96 | 0.4− | 0.7− |
| 2006 11 15 | 704 | 0.2+ | 0.2− | 2006 12 15 | 704 | 0.0 | 0.2− | 2007 04 11 | G96 | 0.4+ | 1.1− |
| 2006 11 15 | 704 | 0.9+ | 0.1+ | 2006 12 15 | 704 | 0.4− | 0.2− | 2007 04 11 | G96 | 0.1+ | 0.4− |
| 2006 11 15 | 704 | 0.5− | 0.2− | 2006 12 15 | 704 | 0.4− | 0.5− | 2007 04 11 | G96 | 0.4− | 0.6− |
| 2006 11 15 | 704 | 0.5+ | 0.2− | 2006 12 15 | 704 | 0.3+ | 0.1− | 2009 11 12 | J75 | 0.1+ | 0.6− |
| 2006 11 15 | 704 | 1.0+ | 0.7− | 2006 12 15 | 704 | 0.7+ | 0.1+ | 2009 11 12 | J75 | 0.2− | 0.7+ |
| 2006 11 22 | 703 | 0.6+ | 0.5− | 2006 12 15 | 704 | 0.4+ | 0.2− | 2009 11 12 | J75 | 0.9+ | 0.2+ |
| 2006 11 22 | 703 | 0.1+ | 0.1+ | 2006 12 15 | 704 | 0.7+ | 0.4+ | 2009 12 12 | J75 | 0.1+ | 0.3− |
| 2006 11 22 | 703 | 0.4− | 0.7− | 2006 12 22 | 704 | 0.0 | 0.8+ | 2009 12 12 | J75 | 0.1− | 0.8+ |
| 2006 11 22 | 703 | 0.0 | 0.3− | 2006 12 22 | 704 | 0.2− | 0.6+ | 2009 12 12 | J75 | 0.7− | 1.0− |

**2006 VH$_{148}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 184.54877 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24114180 | $\omega$ | 105.21739 | | −0.94680654 | +0.26374345 | |
| $a$ | 2.5563544 | $\Omega$ | 90.34241 | | −0.31679087 | −0.86463041 | |
| $e$ | 0.0555004 | $i$ | 10.62530 | | +0.05657673 | −0.42761391 | |
| $P$ | 4.09 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 11 15 | G96 | 0.1− | 0.6− | 2006 12 14 | 691 | 0.0 | 0.1+ | 2007 01 24 | 704 | 0.3+ | 0.0 |
| 2006 11 15 | G96 | 0.1− | 0.4− | 2006 12 14 | 691 | 0.0 | 0.1+ | 2007 01 24 | 704 | 1.0+ | 0.6+ |
| 2006 11 15 | G96 | 0.3+ | 0.4− | 2006 12 21 | 691 | 0.2+ | 0.0 | 2007 01 24 | 704 | 0.7+ | 1.3− |
| 2006 11 15 | G96 | 0.3+ | 0.6− | 2006 12 21 | 691 | 0.1+ | 0.0 | 2007 01 24 | 704 | 0.0 | 1.1+ |
| 2006 11 21 | G96 | 0.1− | 0.5− | 2006 12 21 | 691 | 0.2+ | 0.1+ | 2008 06 09 | 691 | 0.4+ | 0.3+ |
| 2006 11 21 | G96 | 0.2− | 0.2− | 2007 01 08 | 703 | 0.8+ | 0.3− | 2008 06 09 | 691 | 0.0 | 0.2+ |
| 2006 11 21 | G96 | 0.1− | 0.1− | 2007 01 08 | 703 | (3.8− | 0.5−) | 2008 06 09 | 691 | 0.2+ | 0.0 |
| 2006 11 21 | G96 | 0.0 | 0.3− | 2007 01 08 | 703 | (0.6− | 3.4−) | 2008 06 13 | 691 | 0.5+ | 0.5+ |
| 2006 12 10 | 691 | 0.0 | 0.6+ | 2007 01 08 | 703 | 0.3− | 0.8+ | 2008 06 13 | 691 | 0.2+ | 0.2+ |
| 2006 12 10 | 691 | 0.1− | 0.2+ | 2007 01 09 | 691 | 0.3− | 0.3− | 2008 06 13 | 691 | 1.3− | 1.3− |
| 2006 12 10 | 691 | 0.1− | 0.1+ | 2007 01 09 | 691 | 0.3− | 0.1− | | | | |
| 2006 12 14 | 691 | 0.1− | 0.1− | 2007 01 09 | 691 | 0.2− | 0.2− | | | | |

**2006 VG$_{152}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 333.20848 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27278111 | $\omega$ | 104.55796 | | +0.93216690 | −0.36198052 | |
| $a$ | 2.3546509 | $\Omega$ | 276.66419 | | +0.32982058 | +0.85585782 | |
| $e$ | 0.1936138 | $i$ | 0.34114 | | +0.14927578 | +0.36942860 | |
| $P$ | 3.61 | $H$ | 18.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 07 29 | 644 | 0.1− | 0.4+ | 2002 09 01 | 644 | 0.4+ | 0.2− | 2006 11 12 | G96 | 0.2+ | 0.2+ |
| 2002 07 29 | 644 | 0.2+ | 0.1− | 2002 09 01 | 644 | 0.0 | 0.6− | 2006 11 12 | G96 | 0.1+ | 0.0 |
| 2002 07 29 | 644 | 0.0 | 0.3− | 2006 09 27 | G96 | 0.1− | 0.3− | 2006 11 17 | 703 | 1.3− | 0.8+ |
| 2002 08 07 | 644 | 0.5+ | 0.1− | 2006 09 27 | G96 | 0.3− | 0.5− | 2006 11 17 | 703 | 1.3− | 0.4− |
| 2002 08 07 | 644 | 0.3− | 0.2+ | 2006 09 27 | G96 | 0.4+ | 0.1+ | 2006 11 17 | 703 | 0.2+ | 0.1+ |
| 2002 08 07 | 644 | 0.1+ | 0.4− | 2006 09 27 | G96 | 0.2+ | 0.1− | 2006 11 17 | 703 | (2.4− | 0.9−) |
| 2002 08 08 | 644 | 0.3− | 0.6− | 2006 10 17 | 691 | 0.2− | 0.6− | 2006 11 21 | G96 | 0.3− | 0.0 |
| 2002 08 08 | 644 | 0.2− | 0.3− | 2006 10 17 | 691 | 0.2− | 0.4+ | 2006 11 21 | G96 | 0.1− | 0.1− |
| 2002 08 08 | 644 | 1.0− | 0.2− | 2006 10 17 | 691 | 0.1+ | 0.5+ | 2006 11 21 | G96 | 0.0 | 0.1− |
| 2002 08 16 | 291 | 0.1− | 0.3+ | 2006 10 27 | G96 | 0.7+ | 0.3− | 2006 11 21 | G96 | 0.3+ | 0.0 |
| 2002 08 16 | 291 | 0.0 | 0.5+ | 2006 10 27 | G96 | 0.2+ | 0.1− | 2006 12 01 | G96 | 0.1− | 0.1+ |
| 2002 08 16 | 291 | 0.2+ | 0.4+ | 2006 10 27 | G96 | 0.1+ | 0.2− | 2006 12 01 | G96 | 0.2− | 0.1+ |
| 2002 08 17 | 644 | 0.1+ | 0.5− | 2006 10 27 | G96 | 0.1+ | 0.0 | 2006 12 01 | G96 | 0.7+ | 0.1− |
| 2002 08 17 | 644 | 0.1+ | 0.3− | 2006 11 09 | 644 | 0.0 | 0.4+ | 2006 12 01 | G96 | 0.5+ | 0.2− |
| 2002 08 17 | 644 | 0.3+ | 0.1− | 2006 11 09 | 644 | 0.1− | 0.1+ | 2006 12 01 | G96 | 0.1− | 0.1+ |
| 2002 08 27 | 644 | 0.3+ | 0.6− | 2006 11 09 | 644 | 0.2+ | 0.0 | 2006 12 01 | G96 | 0.0 | 0.2− |
| 2002 08 27 | 644 | 0.6− | 0.5− | 2006 11 12 | G96 | 0.4+ | 0.3+ | 2006 12 01 | G96 | 0.1+ | 0.3− |
| 2002 08 27 | 644 | 0.1− | 0.6− | 2006 11 12 | G96 | 0.4+ | 0.1− | 2006 12 01 | G96 | 0.0 | 0.4− |

**2006 VC$_{171}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 271.08757 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21941644 | $\omega$ | 295.76940 | | +0.88699857 | −0.38948207 | |
| $a$ | 2.7224293 | $\Omega$ | 88.00144 | | +0.45963646 | +0.79628677 | |
| $e$ | 0.2441692 | $i$ | 14.37209 | | −0.04436068 | +0.46285106 | |
| $P$ | 4.49 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 01 25 | 645 | 0.0 | 0.0 | 2006 11 19 | 703 | 0.3− | 0.2− | 2006 12 09 | 291 | 0.0 | 0.1+ |
| 2003 01 25 | 645 | 0.0 | 0.1− | 2006 11 19 | 703 | 0.3+ | 1.2+ | 2006 12 09 | 291 | 0.3+ | 0.0 |
| 2003 01 25 | 645 | 0.0 | 0.0 | 2006 11 19 | 703 | 0.7− | 0.1− | 2006 12 09 | 291 | 0.2+ | 0.1+ |
| 2003 01 25 | 645 | 0.0 | 0.0 | 2006 11 19 | 703 | 0.7− | 0.2− | 2007 02 06 | G96 | 0.7+ | 0.0 |
| 2006 11 13 | 703 | 0.0 | 1.0− | 2006 12 01 | G96 | 0.1− | 0.3− | 2007 02 06 | G96 | 0.1+ | 0.0 |
| 2006 11 13 | 703 | 0.4− | 0.6+ | 2006 12 01 | G96 | 0.3+ | 0.4− | 2007 02 06 | G96 | 0.1+ | 0.4− |
| 2006 11 13 | 703 | 0.9+ | 0.4− | 2006 12 01 | G96 | 0.2− | 0.3− | 2007 02 06 | G96 | 1.6− | 0.7+ |
| 2006 11 13 | 703 | 0.6− | 0.2+ | 2006 12 01 | G96 | 0.4+ | 0.3− | | | | |

**2006 WM$_{19}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 297.40886 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17969485 | $\omega$ | 344.62662 | | +0.52611690 | +0.84922724 | |
| $a$ | 3.1101330 | $\Omega$ | 317.09039 | | −0.77312210 | +0.45565160 | |
| $e$ | 0.0863900 | $i$ | 3.77947 | | −0.35423613 | +0.26682339 | |
| $P$ | 5.48 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 10 02 | G96 | 0.5+ | 0.5− | 2006 11 02 | 691 | 0.4− | 0.2− | 2006 11 19 | 291 | 0.1+ | 0.1+ |
| 2006 10 02 | G96 | 0.4+ | 0.2− | 2006 11 02 | 691 | 0.6+ | 0.2+ | 2009 02 28 | 691 | 0.2+ | 0.0 |
| 2006 10 02 | G96 | 0.2+ | 0.3− | 2006 11 02 | 691 | 0.1+ | 0.5+ | 2009 02 28 | 691 | 0.2− | 0.4+ |
| 2006 10 02 | G96 | 0.1+ | 0.1+ | 2006 11 17 | G96 | 0.5+ | 0.1− | 2009 02 28 | 691 | 0.1− | 0.0 |
| 2006 10 13 | 691 | 0.7+ | 0.6+ | 2006 11 17 | G96 | 0.4+ | 0.3− | 2009 03 19 | G96 | 0.4+ | 0.1+ |
| 2006 10 13 | 691 | 0.3+ | 0.0 | 2006 11 17 | G96 | 0.1− | 0.7− | 2009 03 19 | G96 | 0.1− | 0.0 |
| 2006 10 13 | 691 | 0.4+ | 0.3+ | 2006 11 17 | G96 | 0.1− | 0.3− | 2009 03 19 | G96 | 0.9+ | 0.2− |
| 2006 10 21 | 691 | 0.7− | 0.2− | 2006 11 18 | G96 | 0.0 | 0.4− | 2009 03 19 | G96 | 0.1− | 0.3+ |
| 2006 10 21 | 691 | 0.9− | 0.5− | 2006 11 18 | G96 | 0.1+ | 0.5− | 2009 03 27 | G96 | 0.8− | 0.1− |
| 2006 10 21 | 691 | 0.7− | 0.1− | 2006 11 18 | G96 | 0.1+ | 0.6− | 2009 03 27 | G96 | 0.1− | 0.2− |
| 2006 10 31 | 691 | 0.4− | 0.3+ | 2006 11 18 | G96 | 0.2− | 0.3− | 2009 03 27 | G96 | 0.4− | 1.3− |
| 2006 10 31 | 691 | 0.4− | 0.3+ | 2006 11 19 | 291 | 0.2+ | 0.2− | 2009 03 27 | G96 | 0.8+ | 0.0 |
| 2006 10 31 | 691 | 0.5+ | 0.1+ | 2006 11 19 | 291 | 0.2+ | 0.1− | | | | |

**2006 WN$_{44}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 105.61957 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17188516 | $\omega$ | 70.18457 | | −0.92774828 | −0.31380803 | |
| $a$ | 3.2036406 | $\Omega$ | 91.10423 | | +0.21905881 | −0.89611188 | |
| $e$ | 0.0650583 | $i$ | 11.65666 | | +0.30215287 | −0.31385988 | |
| $P$ | 5.73 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 01 20 | 699 | 0.1− | 1.0+ | 2006 11 20 | 691 | 0.1+ | 0.0 | 2006 12 12 | 699 | 0.3+ | 0.1+ |
| 2002 01 20 | 699 | 0.3− | 0.1− | 2006 11 20 | 691 | 0.1− | 0.1+ | 2006 12 12 | 699 | 0.1+ | 0.7− |
| 2002 01 20 | 699 | 0.5+ | 1.0+ | 2006 11 20 | 691 | 0.0 | 0.1+ | 2009 03 31 | G96 | 0.1+ | 0.2− |
| 2002 01 20 | 699 | 1.2− | 0.4+ | 2006 11 24 | G96 | 0.2+ | 0.1− | 2009 03 31 | G96 | 0.6+ | 0.2− |
| 2002 02 08 | 645 | 0.0 | 0.0 | 2006 11 24 | G96 | 0.1+ | 0.2− | 2009 03 31 | G96 | 0.0 | 0.4− |
| 2002 02 08 | 645 | 0.0 | 0.1− | 2006 11 24 | G96 | 0.2+ | 0.1− | 2009 03 31 | G96 | 0.5+ | 0.2− |
| 2006 11 16 | 691 | 0.2− | 0.0 | 2006 11 24 | G96 | 0.1+ | 0.1− | 2009 05 30 | 691 | 0.2− | 0.2+ |
| 2006 11 16 | 691 | 0.2+ | 0.2+ | 2006 12 12 | 699 | 1.1+ | 0.5− | 2009 05 30 | 691 | 0.1+ | 0.1+ |
| 2006 11 16 | 691 | 0.3− | 0.1− | 2006 12 12 | 699 | 0.7− | 0.0 | 2009 05 30 | 691 | 0.2− | 0.1− |

**2006 WG$_{64}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 274.31625 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18172965 | $\omega$ | 312.52534 | | +0.97639675 | +0.18382463 | |
| $a$ | 3.0868737 | $\Omega$ | 37.30343 | | −0.09766960 | +0.84404589 | |
| $e$ | 0.0467244 | $i$ | 10.78391 | | −0.19263965 | +0.50378075 | |
| $P$ | 5.42 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 10 04 | G96 | 0.3+ | 0.1− | 2006 11 17 | G96 | 0.1+ | 0.3+ | 2009 03 26 | 691 | 0.1− | 0.2− |
| 2006 10 04 | G96 | 0.1− | 0.1− | 2006 11 17 | G96 | 0.1+ | 0.0 | 2009 04 20 | G96 | 0.5− | 0.2− |
| 2006 10 04 | G96 | 0.2+ | 0.1+ | 2006 11 21 | G96 | 0.2− | 0.3+ | 2009 04 20 | G96 | 0.5+ | 0.2− |
| 2006 10 20 | G96 | 0.0 | 0.1− | 2006 11 21 | G96 | 0.5− | 0.0 | 2009 04 20 | G96 | 0.5+ | 0.3− |
| 2006 10 20 | G96 | 0.4− | 0.2− | 2009 03 18 | 691 | 0.2− | 0.2+ | 2009 04 20 | G96 | 0.5+ | 0.5− |
| 2006 10 20 | G96 | 0.3+ | 0.2− | 2009 03 18 | 691 | 0.3+ | 0.4− | 2009 05 25 | G96 | 0.4− | 0.1− |
| 2006 10 20 | G96 | 0.0 | 0.1− | 2009 03 18 | 691 | 0.3− | 0.2+ | 2009 05 25 | G96 | 0.2+ | 0.1+ |
| 2006 11 17 | G96 | 0.1+ | 0.2− | 2009 03 26 | 691 | 0.2+ | 0.2+ | 2009 05 25 | G96 | 0.1− | 0.1+ |
| 2006 11 17 | G96 | 0.0 | 0.0 | 2009 03 26 | 691 | 0.2− | 0.2+ | 2009 05 25 | G96 | 0.2+ | 0.0 |

**2006 WL$_{86}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 348.80999 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23693623 | $\omega$ | 75.40122 | | +0.82627922 | +0.52484780 | |
| $a$ | 2.5865154 | $\Omega$ | 252.56400 | | −0.56297129 | +0.75789876 | |
| $e$ | 0.1932101 | $i$ | 12.37390 | | −0.01805506 | +0.38745872 | |
| $P$ | 4.16 | $H$ | 15.3 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 11 18 | 704 | 0.4− | 0.8+ | 2006 12 15 | G96 | 0.4+ | 0.0 | 2006 12 27 | G96 | 0.1− | 0.2− |
| 2006 11 18 | 704 | 0.0 | 0.9+ | 2006 12 15 | G96 | 0.0 | 0.1− | 2007 01 17 | 644 | 0.3+ | 0.6+ |
| 2006 11 18 | 704 | 1.0− | 1.2+ | 2006 12 15 | G96 | 0.7− | 1.0− | 2007 01 17 | 644 | 0.1− | 0.6+ |
| 2006 11 18 | 704 | 0.8+ | 0.2− | 2006 12 15 | G96 | 0.4+ | 0.1− | 2007 01 17 | 644 | 0.4+ | 0.6+ |
| 2006 11 21 | 704 | 0.1− | 0.3+ | 2006 12 20 | 644 | 0.3+ | 0.3+ | 2007 02 19 | G96 | 0.4− | 0.1+ |
| 2006 11 21 | 704 | 1.0− | 1.0− | 2006 12 20 | 644 | 0.4+ | 0.3+ | 2007 02 19 | G96 | 0.3− | 0.0 |
| 2006 11 21 | 704 | 0.5+ | 0.5+ | 2006 12 20 | 644 | 0.2+ | 0.3+ | 2007 02 19 | G96 | 0.2− | 0.2− |
| 2006 11 21 | 704 | 0.1+ | 0.2− | 2006 12 21 | 703 | 0.2+ | 0.5− | 2007 02 19 | G96 | 0.1− | 0.0 |
| 2006 12 09 | 644 | 0.0 | 0.6+ | 2006 12 21 | 703 | 0.8− | 0.5− | 2009 05 28 | E12 | 0.7+ | 0.3+ |
| 2006 12 09 | 644 | 0.2+ | 0.0 | 2006 12 21 | 703 | 0.3− | 0.8− | 2009 05 28 | E12 | 0.0 | 0.4+ |
| 2006 12 09 | 644 | 0.2+ | 0.2+ | 2006 12 21 | 703 | 0.8− | 0.1+ | 2009 05 28 | E12 | 0.4+ | 0.3+ |
| 2006 12 12 | 703 | 0.0 | 0.1− | 2006 12 27 | 703 | 0.3− | 0.7− | 2009 05 28 | J75 | 0.1− | 0.0 |
| 2006 12 12 | 703 | 0.6− | 0.3+ | 2006 12 27 | 703 | 0.1+ | 0.4− | 2009 05 28 | J75 | 0.5− | 0.1+ |
| 2006 12 12 | 703 | 0.5+ | 0.3− | 2006 12 27 | 703 | 0.5+ | 0.7− | 2009 05 28 | J75 | 0.1− | 0.5− |
| 2006 12 14 | 704 | 0.3+ | 0.1− | 2006 12 27 | 703 | 1.0+ | 0.2− | 2009 06 18 | E12 | 0.4− | 0.2+ |
| 2006 12 14 | 704 | 0.2+ | 0.7+ | 2006 12 27 | G96 | 0.2+ | 0.0 | 2009 06 18 | E12 | 0.0 | 0.5+ |
| 2006 12 14 | 704 | 0.6+ | 0.3+ | 2006 12 27 | G96 | 0.3+ | 0.0 | 2009 06 18 | E12 | 0.1− | 0.3+ |
| 2006 12 14 | 704 | 0.7− | 0.3+ | 2006 12 27 | G96 | 0.2− | 0.0 | 2009 06 18 | E12 | 0.2+ | 0.4− |

**2006 WV$_{95}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 314.75299 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21636950 | $\omega$ | 264.41504 | | +0.94713078 | +0.30030297 | |
| $a$ | 2.7479281 | $\Omega$ | 78.07090 | | −0.22913529 | +0.87954363 | |
| $e$ | 0.0792417 | $i$ | 6.63015 | | −0.22458918 | +0.36908146 | |
| $P$ | 4.56 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 10 22 | G96 | 0.4+ | 0.7− | 2006 11 27 | 691 | 0.1+ | 0.0 | 2009 04 18 | G96 | 0.2+ | 0.1+ |
| 2006 10 22 | G96 | 0.1+ | 0.5− | 2006 11 27 | 691 | 0.0 | 0.4+ | 2009 04 18 | G96 | 0.5+ | 0.0 |
| 2006 10 22 | G96 | 0.2− | 0.4− | 2006 12 01 | 691 | 0.3+ | 0.0 | 2009 04 18 | G96 | 1.2+ | 0.3+ |
| 2006 10 22 | G96 | 0.2+ | 0.5− | 2006 12 01 | 691 | 0.7− | 0.2+ | 2009 05 13 | 691 | 0.3− | 0.2+ |
| 2006 11 11 | 691 | 0.2− | 0.1− | 2006 12 01 | 691 | 0.4+ | 0.1− | 2009 05 13 | 691 | 0.2+ | 0.0 |
| 2006 11 11 | 691 | 0.0 | 0.3− | 2006 12 14 | G96 | 0.2− | 0.3− | 2009 05 13 | 691 | 0.5− | 0.2+ |
| 2006 11 11 | 691 | 0.2− | 0.1− | 2006 12 14 | G96 | 0.2+ | 0.3− | 2009 05 30 | G96 | 0.7+ | 0.0 |
| 2006 11 19 | 691 | 0.0 | 0.3+ | 2006 12 14 | G96 | 0.2− | 0.4− | 2009 05 30 | G96 | 0.2+ | 0.2+ |
| 2006 11 19 | 691 | 0.0 | 0.3+ | 2006 12 14 | G96 | 0.2+ | 0.2− | 2009 05 30 | G96 | 0.3+ | 0.0 |
| 2006 11 19 | 691 | 0.1+ | 0.5+ | 2007 02 06 | G96 | 0.2+ | 0.6− | 2009 06 23 | G96 | 0.1− | 0.2− |
| 2006 11 23 | 691 | 0.3− | 0.0 | 2007 02 06 | G96 | 0.1+ | 0.3+ | 2009 06 23 | G96 | 0.0 | 0.0 |
| 2006 11 23 | 691 | 0.1+ | 0.1− | 2007 02 06 | G96 | 0.1+ | 0.3− | 2009 06 23 | G96 | 0.3+ | 0.5+ |
| 2006 11 23 | 691 | 0.0 | 0.1+ | 2007 02 06 | G96 | 0.5+ | 0.5− | 2009 06 23 | G96 | 0.1− | 0.1− |
| 2006 11 27 | 691 | 0.0 | 0.1+ | 2009 04 18 | G96 | 0.3+ | 0.2− | | | | |

**2006 WA$_{101}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 325.51002 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26824218 | $\omega$ | 23.44536 | | +0.83970239 | −0.54303243 | |
| $a$ | 2.3811386 | $\Omega$ | 9.44794 | | +0.49434170 | +0.76135322 | |
| $e$ | 0.1836266 | $i$ | 1.38172 | | +0.22478029 | +0.35419917 | |
| $P$ | 3.67 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 09 12 | 644 | 0.4− | 0.4+ | 2006 11 11 | 703 | 1.5− | 1.1+ | 2006 11 21 | 704 | 0.3+ | 0.4− |
| 2002 09 12 | 644 | 0.1− | 0.5+ | 2006 11 11 | 703 | 0.5− | 0.3− | 2006 11 25 | 691 | 0.4+ | 0.1+ |
| 2002 09 12 | 644 | 0.1− | 0.3+ | 2006 11 11 | 703 | 0.1+ | 0.5− | 2006 11 25 | 691 | 0.0 | 0.1− |
| 2006 09 27 | G96 | 0.0 | 0.4− | 2006 11 11 | 703 | 0.8− | 0.2− | 2006 11 25 | 691 | 0.3+ | 0.1− |
| 2006 09 27 | G96 | 0.1− | 0.4− | 2006 11 19 | 704 | 0.9+ | 0.4− | 2006 12 16 | 691 | 0.7− | 0.1+ |
| 2006 09 27 | G96 | 0.1− | 0.4− | 2006 11 19 | 704 | 0.7+ | 0.6+ | 2006 12 16 | 691 | 0.2− | 0.1+ |
| 2006 09 27 | G96 | 0.2− | 0.0 | 2006 11 19 | 704 | 1.0+ | 0.2− | 2006 12 16 | 691 | 0.3− | 0.2+ |
| 2006 11 01 | G96 | 0.5− | 0.4− | 2006 11 21 | 704 | 0.4+ | 0.5− | 2008 04 03 | G96 | 0.4+ | 0.2− |
| 2006 11 01 | G96 | 1.7− | 0.5+ | 2006 11 21 | 704 | 0.2+ | 0.2− | 2008 04 03 | G96 | 0.1+ | 0.4+ |
| 2006 11 01 | G96 | 1.2+ | 0.5+ | 2006 11 21 | 704 | 0.8+ | 0.2+ | 2008 04 03 | G96 | 0.6+ | 0.5+ |
| 2006 11 01 | G96 | 0.4− | 0.5− | 2006 11 21 | 704 | 1.3+ | 0.1− | 2008 04 03 | G96 | 0.6− | 0.3+ |

**2006 WR$_{173}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 185.75392 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17310791 | $\omega$ | 8.85417 | | +0.24414229 | −0.95551392 | |
| $a$ | 3.1885369 | $\Omega$ | 67.15088 | | +0.87836181 | +0.14557439 | |
| $e$ | 0.0661944 | $i$ | 10.34554 | | +0.41094413 | +0.25651752 | |
| $P$ | 5.69 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 10 21 | G96 | 0.2+ | 0.2− | 2006 11 23 | G96 | 0.3− | 0.2+ | 2006 12 12 | G96 | 0.3− | 0.4− |
| 2006 10 21 | G96 | 0.2− | 0.3− | 2006 11 23 | G96 | 0.0 | 0.0 | 2009 04 21 | G96 | 0.6+ | 0.8+ |
| 2006 10 21 | G96 | 0.4+ | 0.3+ | 2006 11 24 | G96 | 0.1+ | 0.1− | 2009 04 21 | G96 | 0.0 | 0.2+ |
| 2006 10 21 | G96 | 0.0 | 0.3− | 2006 11 24 | G96 | 0.1+ | 0.1+ | 2009 04 21 | G96 | 0.3− | 0.1+ |
| 2006 11 11 | 691 | 0.1+ | 0.7+ | 2006 11 24 | G96 | 0.0 | 0.1− | 2009 04 21 | G96 | 0.0 | 0.1− |
| 2006 11 11 | 691 | 0.3− | 0.8− | 2006 11 24 | G96 | 0.1− | 0.1− | 2009 05 04 | G96 | 0.4− | 0.5− |
| 2006 11 11 | 691 | 0.0 | 0.1+ | 2006 12 12 | G96 | 0.0 | 0.1+ | 2009 05 04 | G96 | 0.2− | 0.2− |
| 2006 11 23 | G96 | 0.1+ | 0.1− | 2006 12 12 | G96 | 0.2+ | 0.3+ | 2009 05 04 | G96 | 0.5− | 0.2− |
| 2006 11 23 | G96 | 0.3+ | 0.1+ | 2006 12 12 | G96 | 0.5+ | 0.0 | 2009 05 04 | G96 | 0.8+ | 0.3− |

**2006 WJ$_{177}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 216.56090 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18692601 | $\omega$ | 306.72766 | | +0.55579789 | −0.81810903 | |
| $a$ | 3.0293973 | $\Omega$ | 108.86442 | | +0.80377361 | +0.48351915 | |
| $e$ | 0.1835258 | $i$ | 8.97365 | | +0.21221850 | +0.31129865 | |
| $P$ | 5.27 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 11 15 | 703 | 0.0 | 0.3+ | 2006 11 25 | G96 | 0.0 | 0.2− | 2006 12 09 | 941 | 0.1+ | 0.4− |
| 2006 11 15 | 703 | 0.5− | 0.3− | 2006 11 25 | G96 | 0.1− | 0.3− | 2008 02 10 | G96 | 0.4+ | 0.3− |
| 2006 11 15 | 703 | 0.7− | 0.4+ | 2006 11 25 | G96 | 0.3+ | 0.1− | 2008 02 10 | G96 | 0.2+ | 0.5− |
| 2006 11 15 | 703 | (1.7+ | 0.7+) | 2006 11 25 | G96 | 0.1+ | 0.2+ | 2008 02 10 | G96 | 1.3− | 0.7− |
| 2006 11 23 | G96 | 0.3+ | 0.1− | 2006 12 08 | 941 | 0.0 | 0.7+ | 2008 02 10 | G96 | 0.6+ | 0.6− |
| 2006 11 23 | G96 | 0.3+ | 0.2− | 2006 12 08 | 941 | 0.1+ | 0.6+ | 2008 03 11 | 291 | 0.1− | 0.3+ |
| 2006 11 23 | G96 | 0.4+ | 0.4− | 2006 12 08 | 941 | 0.2− | 0.2+ | 2008 03 11 | 291 | 0.1− | 0.2+ |
| 2006 11 23 | G96 | 0.1− | 0.4− | 2006 12 08 | 941 | 0.0 | 0.0 | 2008 03 11 | 291 | 0.0 | 0.2+ |
| 2006 11 25 | G96 | 0.1+ | 0.1− | 2006 12 08 | 941 | 0.5− | 0.2− | 2008 04 05 | G96 | 0.5+ | 0.1+ |
| 2006 11 25 | G96 | 0.2+ | 0.2− | 2006 12 09 | 941 | 0.3− | 0.6+ | 2008 04 05 | G96 | 0.0 | 0.1− |
| 2006 11 25 | G96 | 0.0 | 0.0 | 2006 12 09 | 941 | 0.0 | 0.2+ | 2008 04 05 | G96 | 0.5+ | 0.5− |
| 2006 11 25 | G96 | 0.2+ | 0.2− | 2006 12 09 | 941 | 0.0 | 0.1− | 2008 04 05 | G96 | 0.0 | 0.3− |

**2006 WS$_{195}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 70.42719 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.00394760 | $\omega$ | 232.96763 | | +0.31851620 | +0.81766332 | |
| $a$ | 39.6503508 | $\Omega$ | 62.55446 | | −0.60282883 | +0.56514850 | |
| $e$ | 0.2420034 | $i$ | 32.70923 | | −0.73153594 | −0.10969904 | |
| $P$ | 250 | $H$ | 8.2 | $G$ | 0.15 | $U$ | 5 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 12 | 568 | 0.1+ | 0.2− | 2006 11 17 | 568 | 0.1+ | 0.0 | 2006 12 20 | 568 | 0.1+ | 0.1− |
| 2004 09 12 | 568 | 0.3+ | 0.4− | 2006 11 17 | 568 | 0.1+ | 0.1+ | 2006 12 20 | 568 | 0.2+ | 0.1− |
| 2004 09 13 | 568 | 0.0 | 0.0 | 2006 11 21 | 568 | 0.1− | 0.0 | 2006 12 20 | 568 | 0.0 | 0.1− |
| 2004 09 13 | 568 | 0.0 | 0.1+ | 2006 11 21 | 568 | 0.1+ | 0.1− | 2006 12 23 | 568 | 0.1− | 0.1+ |
| 2004 09 14 | 568 | 0.0 | 0.4+ | 2006 11 21 | 568 | 0.0 | 0.0 | 2006 12 23 | 568 | 0.0 | 0.1+ |
| 2004 09 14 | 568 | 0.4− | 0.2+ | 2006 11 24 | 568 | 0.0 | 0.0 | 2006 12 23 | 568 | 0.0 | 0.2+ |
| 2006 11 14 | 568 | 0.1− | 0.1+ | 2006 11 24 | 568 | 0.1− | 0.0 | 2006 12 26 | 568 | 0.1− | 0.1+ |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 11 14 | 568 | 0.0 | 0.0 | 2006 12 12 | 568 | 0.1+ | 0.1− | 2006 12 26 | 568 | 0.1− | 0.0 |
| 2006 11 14 | 568 | 0.0 | 0.0 | 2006 12 12 | 568 | 0.1+ | 0.1− | 2006 12 26 | 568 | 0.0 | 0.0 |
| 2006 11 17 | 568 | 0.0 | 0.1+ | 2006 12 12 | 568 | 0.0 | 0.2− | | | | |

**2006 WZ$_{199}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 165.11061 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17155892 | $\omega$ | 35.23602 | | −0.25754750 | | −0.92683537 |
| $a$ | 3.2077007 | $\Omega$ | 71.07237 | | +0.80696303 | | −0.36183594 |
| $e$ | 0.0414033 | $i$ | 16.78796 | | +0.53148843 | | +0.10025447 |
| $P$ | 5.75 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 11 16 | 691 | 0.2+ | 0.0 | 2006 12 17 | G96 | 0.0 | 0.2− | 2009 05 24 | 703 | 1.0− | 0.7+ |
| 2006 11 16 | 691 | 0.2− | 0.1+ | 2006 12 23 | G96 | 0.0 | 0.4− | 2009 05 24 | 703 | 0.9− | 0.7− |
| 2006 11 16 | 691 | 0.0 | 0.0 | 2006 12 23 | G96 | 0.4− | 0.1+ | 2009 05 24 | 703 | 1.0+ | 0.7− |
| 2006 11 24 | 691 | 0.0 | 0.1− | 2006 12 23 | G96 | 0.5− | 0.4+ | 2009 05 24 | 703 | 0.1− | 1.9− |
| 2006 11 24 | 691 | 0.0 | 0.1− | 2006 12 23 | G96 | 0.1+ | 0.1− | 2009 05 29 | 691 | 0.0 | 0.1− |
| 2006 11 24 | 691 | 0.2+ | 0.2− | 2008 02 03 | 703 | 0.3− | 0.1+ | 2009 05 29 | 691 | 0.1+ | 0.2+ |
| 2006 12 17 | G96 | 0.5+ | 0.2− | 2008 02 03 | 703 | 0.6+ | 0.7+ | 2009 05 29 | 691 | 0.1− | 0.1+ |
| 2006 12 17 | G96 | 0.2+ | 0.2− | 2008 02 03 | 703 | 0.9− | 0.0 | | | | |
| 2006 12 17 | G96 | 0.2− | 0.3− | 2008 02 03 | 703 | 0.9+ | 0.0 | | | | |

**2006 XE**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 300.53540 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21919586 | $\omega$ | 287.08226 | | +0.98633289 | | −0.08272649 |
| $a$ | 2.7242554 | $\Omega$ | 77.83938 | | +0.13610993 | | +0.89646138 |
| $e$ | 0.0823294 | $i$ | 8.38141 | | −0.09285214 | | +0.43533129 |
| $P$ | 4.50 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 10 22 | G96 | 0.1+ | 0.1+ | 2006 12 09 | H07 | (0.5− | 4.0+) | 2006 12 25 | 691 | 0.3− | 0.1− |
| 2006 10 22 | G96 | 0.1− | 0.1+ | 2006 12 09 | H07 | (0.1− | 5.0+) | 2006 12 25 | 691 | 0.2− | 0.1+ |
| 2006 10 22 | G96 | 0.1+ | 0.0 | 2006 12 10 | H07 | 0.4− | 0.1− | 2009 05 28 | G96 | 0.1+ | 0.1+ |
| 2006 10 22 | G96 | 0.2− | 0.3+ | 2006 12 10 | H07 | 0.6+ | 0.1+ | 2009 05 28 | G96 | 0.3− | 0.0 |
| 2006 11 12 | G96 | 0.4+ | 0.2+ | 2006 12 17 | G96 | 0.2+ | 0.2− | 2009 05 28 | G96 | 0.1− | 0.0 |
| 2006 11 12 | G96 | 0.0 | 0.1− | 2006 12 17 | G96 | 0.1+ | 0.1+ | 2009 05 28 | G96 | 0.1− | 0.1+ |
| 2006 11 12 | G96 | 0.2− | 0.2− | 2006 12 17 | G96 | 0.5+ | 0.0 | 2009 06 19 | G96 | 0.1− | 0.1+ |
| 2006 11 12 | G96 | 0.2− | 0.0 | 2006 12 17 | G96 | 0.9+ | 0.6+ | 2009 06 19 | G96 | 0.2+ | 0.0 |
| 2006 11 27 | 703 | 1.1+ | 1.3− | 2006 12 21 | 691 | 0.2+ | 0.3+ | 2009 06 19 | G96 | 0.1+ | 0.3+ |
| 2006 11 27 | 703 | 0.1− | 0.0 | 2006 12 21 | 691 | 0.1− | 0.1+ | 2009 06 19 | G96 | 0.4+ | 0.2+ |
| 2006 11 27 | 703 | 0.2− | 0.7+ | 2006 12 21 | 691 | 0.0 | 0.2− | | | | |
| 2006 12 09 | H07 | (0.7− | 3.4+) | 2006 12 25 | 691 | 0.4− | 0.0 | | | | |

**2006 XL$_{25}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 278.61887 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23166585 | $\omega$ | 142.12227 | | +0.68790100 | | −0.72244074 |
| $a$ | 2.6255968 | $\Omega$ | 264.29463 | | +0.64760821 | | +0.65436366 |
| $e$ | 0.2748649 | $i$ | 4.02227 | | +0.32771303 | | +0.22335525 |
| $P$ | 4.25 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 01 27 | 644 | 0.2+ | 0.3− | 2006 12 12 | G96 | 0.3− | 0.1+ | 2006 12 22 | 704 | 0.1− | 0.5+ |
| 2003 01 27 | 644 | 0.2− | 0.5+ | 2006 12 12 | G96 | 0.1+ | 0.4− | 2006 12 22 | 704 | 0.7− | 0.0 |
| 2003 01 27 | 644 | 0.1+ | 0.1+ | 2006 12 12 | G96 | 0.4+ | 0.3− | 2006 12 22 | 704 | 0.5− | 0.7+ |
| 2003 01 27 | 644 | 0.1+ | 0.9+ | 2006 12 14 | 704 | 0.7+ | 0.9+ | 2006 12 22 | 704 | 0.1− | 0.3+ |
| 2003 01 27 | 644 | 0.1− | 0.4− | 2006 12 14 | 704 | 0.2− | 0.5+ | 2007 01 08 | G96 | 0.4+ | 0.5− |
| 2003 01 27 | 644 | 0.1+ | 0.0 | 2006 12 14 | 704 | 0.4− | 0.3+ | 2007 01 08 | G96 | 0.3− | 0.1− |
| 2006 11 11 | 691 | 0.0 | 0.1− | 2006 12 15 | 704 | 0.4+ | 0.5+ | 2007 01 08 | G96 | 0.1− | 0.3− |
| 2006 11 11 | 691 | 0.0 | 0.1− | 2006 12 15 | 704 | 1.5+ | 0.5− | 2007 01 08 | G96 | 0.3− | 0.4− |
| 2006 11 11 | 691 | 0.2+ | 0.1+ | 2006 12 15 | 704 | 1.4+ | 0.6+ | 2007 02 10 | G96 | 0.1+ | 0.3− |
| 2006 11 24 | 691 | 0.5− | 0.8− | 2006 12 15 | 704 | 0.2− | 0.1− | 2007 02 10 | G96 | 0.1+ | 0.6− |
| 2006 11 24 | 691 | 0.4+ | 0.6− | 2006 12 18 | 704 | 0.0 | 0.6− | 2007 02 10 | G96 | 0.2+ | 0.5− |
| 2006 11 24 | 691 | 0.1+ | 0.1+ | 2006 12 18 | 704 | (2.5− | 0.4−) | 2007 02 10 | G96 | 0.3+ | 0.6− |
| 2006 12 10 | 691 | 0.1+ | 0.1− | 2006 12 18 | 704 | 0.1− | 1.1− | 2007 02 23 | G96 | 0.3+ | 0.5− |
| 2006 12 10 | 691 | 0.1+ | 0.2− | 2006 12 18 | 704 | 0.6+ | 0.4− | 2007 02 23 | G96 | 0.0 | 0.2− |
| 2006 12 10 | 691 | 1.3− | 1.8+ | 2006 12 18 | 704 | 0.5+ | 0.6+ | 2007 02 23 | G96 | 0.5− | 0.4− |
| 2006 12 12 | G96 | 0.3+ | 0.2− | 2006 12 22 | 704 | 0.1− | 0.2+ | 2007 02 23 | G96 | 0.2+ | 0.6− |

**2006 XB$_{43}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 293.29630 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.27485622 | $\omega$ | 199.99823 | | −0.52155094 | | −0.84909490 |
| $a$ | 2.3427845 | $\Omega$ | 281.52060 | | +0.79398836 | | −0.44704124 |
| $e$ | 0.1309518 | $i$ | 4.90611 | | +0.31235732 | | −0.28141070 |
| $P$ | 3.59 | $H$ | 17.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 09 19 | 645 | 0.0 | 0.1− | 2006 12 16 | 691 | 0.1+ | 0.0 | 2007 01 17 | 644 | 0.1+ | 0.1+ |
| 1998 09 19 | 645 | 0.0 | 0.0 | 2006 12 16 | 691 | 0.1+ | 0.2− | 2007 01 17 | 644 | 0.0 | 0.5+ |
| 2002 11 01 | 644 | 0.2− | 0.4+ | 2006 12 27 | G96 | 0.2+ | 0.3− | 2007 01 17 | 644 | 0.0 | 0.5+ |
| 2002 11 01 | 644 | 0.8+ | 0.4− | 2006 12 27 | G96 | 0.2+ | 0.5− | 2007 01 17 | 644 | 0.0 | 0.4+ |
| 2002 11 01 | 644 | 0.3− | 0.1− | 2006 12 27 | G96 | 0.2− | 0.2− | 2007 01 17 | 644 | 0.2+ | 0.4+ |
| 2002 11 13 | 644 | 0.2− | 0.7+ | 2006 12 27 | G96 | 0.1− | 0.4− | 2007 01 27 | G96 | 0.2− | 0.3+ |
| 2002 11 13 | 644 | 0.1+ | 1.6− | 2007 01 09 | 691 | 0.2− | 0.1+ | 2007 01 27 | G96 | 0.1+ | 0.1− |
| 2002 11 13 | 644 | 0.3+ | 0.4− | 2007 01 09 | 691 | 0.2− | 0.2+ | 2007 01 27 | G96 | 0.1− | 0.0 |
| 2006 11 15 | G96 | 0.4− | 0.0 | 2007 01 09 | 691 | 0.2− | 0.1+ | 2007 01 27 | G96 | 0.2+ | 0.1− |
| 2006 11 15 | G96 | 0.4− | 0.4− | 2007 01 09 | G96 | 0.1− | 0.3− | 2007 02 10 | G96 | 0.3+ | 0.1− |
| 2006 11 15 | G96 | 0.4− | 0.2− | 2007 01 09 | G96 | 0.1+ | 0.1− | 2007 02 10 | G96 | 0.4+ | 0.5− |
| 2006 11 15 | G96 | 0.0 | 0.3− | 2007 01 09 | G96 | 0.2− | 0.0 | 2007 02 10 | G96 | 0.2+ | 0.2− |
| 2006 11 27 | G96 | 0.2− | 0.2− | 2007 01 09 | G96 | 0.0 | 0.1+ | 2007 02 10 | G96 | 0.2− | 0.0 |
| 2006 11 27 | G96 | 0.3+ | 0.2− | 2007 01 16 | 704 | 0.5+ | 0.7+ | 2007 03 16 | G96 | 0.1− | 0.1− |
| 2006 11 27 | G96 | 0.4− | 0.4− | 2007 01 16 | 704 | 0.9+ | 0.5− | 2007 03 16 | G96 | 0.1+ | 0.2+ |
| 2006 11 27 | G96 | 0.1− | 0.2− | 2007 01 16 | 704 | 0.2+ | 0.8+ | 2007 03 16 | G96 | 0.3+ | 0.1+ |
| 2006 12 12 | G96 | 0.0 | 0.1− | 2007 01 16 | G96 | 0.1− | 0.2− | 2009 09 19 | 691 | 1.0− | 0.7+ |
| 2006 12 12 | G96 | 0.1+ | 0.3− | 2007 01 16 | G96 | 0.4+ | 0.2− | 2009 09 19 | 691 | 0.3+ | 0.3+ |
| 2006 12 12 | G96 | 0.2− | 0.5− | 2007 01 16 | G96 | 0.3+ | 0.1− | 2009 09 19 | 691 | 0.2+ | 0.3+ |
| 2006 12 12 | G96 | 0.3+ | 0.4− | 2007 01 16 | G96 | 0.3− | 0.1+ | | | | |
| 2006 12 16 | 691 | 0.0 | 0.2+ | 2007 01 17 | 644 | 0.0 | 0.2+ | | | | |

**2006 XV$_{44}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 285.15042 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.19931755 | $\omega$ | 293.77930 | | +0.98488161 | | −0.16527794 |
| $a$ | 2.9025009 | $\Omega$ | 75.76662 | | +0.17193177 | | +0.89606296 |
| $e$ | 0.1094776 | $i$ | 3.06804 | | +0.02115836 | | +0.41201260 |
| $P$ | 4.94 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 12 13 | 691 | 0.0 | 0.0 | 2006 12 17 | G96 | 0.0 | 0.0 | 2008 02 28 | G96 | 0.8− | 0.3+ |
| 2006 12 13 | 691 | 0.2+ | 0.0 | 2006 12 21 | 691 | 0.1+ | 0.0 | 2008 02 28 | G96 | 0.6+ | 0.3− |
| 2006 12 13 | 691 | 0.2+ | 0.0 | 2006 12 21 | 691 | 0.4− | 0.3+ | 2008 02 28 | G96 | 0.0 | 0.0 |
| 2006 12 16 | 691 | 0.1− | 0.1+ | 2006 12 21 | 691 | 0.3+ | 0.1+ | 2008 04 04 | G96 | 0.2+ | 0.3+ |
| 2006 12 16 | 691 | 0.2− | 0.1+ | 2007 01 09 | G96 | 0.1+ | 0.3− | 2008 04 04 | G96 | 0.2+ | 0.4− |
| 2006 12 16 | 691 | 0.2− | 0.2− | 2007 01 09 | G96 | 0.8− | 0.2− | 2008 04 04 | G96 | 0.2− | 0.0 |
| 2006 12 17 | G96 | 0.1+ | 0.2− | 2007 01 09 | G96 | 0.5+ | 0.1− | 2008 04 04 | G96 | 0.0 | 0.1− |
| 2006 12 17 | G96 | 0.1+ | 0.5− | 2007 01 09 | G96 | 0.1+ | 0.2− | | | | |
| 2006 12 17 | G96 | 0.3+ | 0.3− | 2008 02 28 | G96 | 0.1− | 0.2+ | | | | |

**2006 XB$_{55}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 232.24387 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.19959906 | $\omega$ | 31.06266 | | +0.10289778 | | −0.99148991 |
| $a$ | 2.8997711 | $\Omega$ | 53.14966 | | +0.89093717 | | +0.05621656 |
| $e$ | 0.2013919 | $i$ | 5.71959 | | +0.44231550 | | +0.11742001 |
| $P$ | 4.94 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 12 15 | 704 | 1.0+ | 0.1+ | 2006 12 18 | 704 | 0.3+ | 0.8+ | 2007 01 24 | 704 | 0.5+ | 0.5+ |
| 2006 12 15 | 704 | 0.5+ | 1.1+ | 2006 12 18 | 704 | (2.7− | 0.0 ) | 2008 03 28 | 691 | 0.5+ | 0.0 |
| 2006 12 15 | 704 | 1.0+ | 0.0 | 2006 12 26 | 691 | 0.1− | 0.2− | 2008 03 28 | 691 | 0.4− | 0.1+ |
| 2006 12 15 | 704 | 0.2+ | 0.2− | 2006 12 26 | 691 | 0.4− | 0.2− | 2008 03 28 | 691 | 0.1− | 0.1− |
| 2006 12 16 | 691 | 0.2− | 0.0 | 2006 12 26 | 691 | 0.2− | 0.3− | 2008 04 13 | 691 | 0.1+ | 0.3− |
| 2006 12 16 | 691 | 0.1− | 0.0 | 2007 01 24 | 704 | 0.4+ | 0.9− | 2008 04 13 | 691 | 0.2− | 0.2+ |
| 2006 12 16 | 691 | 0.0 | 0.1− | 2007 01 24 | 704 | 0.5+ | 0.8+ | 2008 04 13 | 691 | 0.2+ | 0.1+ |
| 2006 12 18 | 704 | (2.6− | 0.9−) | 2007 01 24 | 704 | 0.7− | 0.7+ | | | | |
| 2006 12 18 | 704 | (2.6− | 1.7−) | 2007 01 24 | 704 | 0.1+ | 0.0 | | | | |

**2006 XB$_{68}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 290.95190 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.25886227 | $\omega$ | 2.40540 | | −0.36729913 | −0.92855669 | |
| $a$ | 2.4383172 | $\Omega$ | 109.14768 | | +0.85240252 | −0.35911744 | |
| $e$ | 0.1652516 | $i$ | 3.25314 | | +0.37215761 | −0.09389963 | |
| $P$ | 3.81 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 11 28 | G96 | 0.1+ | 0.1− | 2007 01 24 | 704 | 0.8+ | 0.3+ | 2007 02 08 | 644 | 0.3+ | 0.1+ |
| 2006 11 28 | G96 | 0.3− | 0.2+ | 2007 01 24 | 704 | 0.6+ | 0.5+ | 2007 02 10 | 644 | 0.2+ | 0.1− |
| 2006 11 28 | G96 | 0.1− | 0.5− | 2007 01 24 | 704 | 0.7+ | 0.3+ | 2007 02 10 | 644 | 0.4+ | 0.4+ |
| 2006 11 28 | G96 | 0.0 | 0.6+ | 2007 01 24 | 703 | 0.4+ | 0.3+ | 2007 02 10 | 644 | 0.7+ | 0.1+ |
| 2006 12 14 | G96 | 0.0 | 0.4− | 2007 01 24 | 703 | 0.4+ | 0.2− | 2009 09 20 | G96 | 0.2− | 0.1+ |
| 2006 12 14 | G96 | 0.3+ | 0.3− | 2007 01 24 | 703 | (0.5− | 2.3−) | 2009 09 20 | G96 | 0.2+ | 0.0 |
| 2006 12 14 | G96 | 0.3+ | 0.5− | 2007 01 24 | 703 | 1.5− | 0.7− | 2009 09 20 | G96 | 0.2− | 0.2− |
| 2006 12 14 | G96 | 0.1+ | 0.3− | 2007 01 25 | 691 | 1.7− | 0.3− | 2009 09 20 | G96 | 0.2+ | 0.2− |
| 2006 12 21 | 695 | 0.1+ | 0.2+ | 2007 01 25 | 691 | 0.1+ | 0.1+ | 2009 10 25 | G96 | 0.2− | 0.0 |
| 2006 12 21 | 695 | 0.1+ | 0.2+ | 2007 01 25 | 691 | 0.2+ | 0.1− | 2009 10 25 | G96 | 0.1− | 0.5+ |
| 2007 01 24 | 704 | 0.7+ | 0.6+ | 2007 02 08 | 644 | 0.3+ | 0.0 | 2009 10 25 | G96 | 0.2+ | 0.0 |
| 2007 01 24 | 704 | 0.4+ | 0.2+ | 2007 02 08 | 644 | 0.5+ | 0.0 | 2009 10 25 | G96 | 0.1− | 0.1+ |

**2006 YE$_{7}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 295.80262 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24564276 | $\omega$ | 187.13163 | | +0.73513961 | −0.66980848 | |
| $a$ | 2.5250312 | $\Omega$ | 215.64843 | | +0.63049710 | +0.73219596 | |
| $e$ | 0.2206992 | $i$ | 10.33212 | | +0.24908465 | +0.12347334 | |
| $P$ | 4.01 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 11 28 | 608 | 0.0 | 0.8− | 2006 11 15 | 703 | 0.6− | 0.2+ | 2006 12 20 | 644 | 0.1+ | 0.0 |
| 2002 11 28 | 608 | 0.2− | 0.7− | 2006 11 15 | 703 | 0.7+ | 0.7+ | 2006 12 21 | 699 | 0.9− | 0.7+ |
| 2002 11 28 | 608 | 0.2− | 0.4− | 2006 11 25 | G96 | 0.2+ | 0.2+ | 2006 12 21 | 699 | 0.3− | 0.3+ |
| 2002 11 28 | 608 | 0.5+ | 0.3− | 2006 11 25 | G96 | 0.1− | 0.2+ | 2006 12 21 | 703 | 0.6+ | 0.5+ |
| 2002 11 28 | 608 | 0.0 | 1.1− | 2006 11 25 | G96 | 0.2+ | 0.1+ | 2006 12 21 | 699 | 0.9+ | 0.4+ |
| 2002 11 28 | 608 | 0.2− | 0.5− | 2006 11 25 | G96 | 0.0 | 0.4+ | 2006 12 21 | 703 | 0.3− | 0.3− |
| 2006 09 28 | G96 | 0.1+ | 0.1+ | 2006 12 09 | 644 | 0.0 | 0.2+ | 2006 12 21 | 703 | 0.7− | 1.1− |
| 2006 09 28 | G96 | 0.1+ | 0.2+ | 2006 12 09 | 644 | 0.3− | 0.5+ | 2006 12 21 | 703 | 1.6− | 1.1− |
| 2006 09 28 | G96 | 0.1+ | 0.2− | 2006 12 09 | 644 | 0.3+ | 0.8+ | 2006 12 21 | 699 | 0.6+ | 1.6+ |
| 2006 09 28 | G96 | 0.3− | 0.1+ | 2006 12 20 | 644 | 0.6+ | 0.1− | | | | |
| 2006 11 15 | 703 | 0.3− | 0.6− | 2006 12 20 | 644 | 0.9+ | 0.2− | | | | |

**2006 YT$_{17}$ = 2000 SV$_{316}$ = 2008 CK$_{186}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 152.07008 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17896450 | $\omega$ | 220.99533 | | −0.18929082 | −0.95655888 | |
| $a$ | 3.1185889 | $\Omega$ | 241.01173 | | +0.95402774 | −0.12572314 | |
| $e$ | 0.0866113 | $i$ | 14.68394 | | +0.23237914 | −0.26303763 | |
| $P$ | 5.51 | $H$ | 15.1 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 30 | 704 | 0.4− | 0.8− | 2006 11 01 | G96 | 0.0 | 0.5− | 2007 02 16 | G96 | 0.1+ | 0.1+ |
| 2000 09 30 | 704 | 0.2+ | 0.6− | 2006 11 01 | G96 | 0.1+ | 0.4− | 2007 02 16 | G96 | 0.6− | 1.0− |
| 2000 09 30 | 704 | 1.2− | 0.7− | 2006 11 01 | G96 | 0.2+ | 0.5− | 2008 01 01 | 703 | 0.7− | 0.0 |
| 2000 09 30 | 704 | 0.0 | 0.6− | 2006 11 01 | G96 | 0.4+ | 0.5− | 2008 01 01 | 703 | 0.3− | 0.4− |
| 2000 10 04 | 704 | 0.3− | 1.5+ | 2006 12 22 | G96 | 0.5+ | 0.0 | 2008 01 01 | 703 | 0.4− | 0.2+ |
| 2000 10 04 | 704 | 0.0 | 1.3+ | 2006 12 22 | G96 | 0.5+ | 0.0 | 2008 01 01 | 703 | 0.5− | 0.3+ |
| 2000 10 04 | 704 | 1.1+ | 1.2+ | 2006 12 22 | G96 | 0.0 | 0.3− | 2008 02 02 | 703 | 0.1− | 0.2− |
| 2006 10 21 | 644 | 0.1+ | 0.1+ | 2006 12 22 | G96 | 0.1+ | 0.2− | 2008 02 02 | 703 | 0.3+ | 0.3+ |
| 2006 10 21 | 644 | 0.0 | 0.2+ | 2006 12 25 | G96 | 0.2− | 0.1+ | 2008 02 02 | 703 | 0.3− | 0.0 |
| 2006 10 21 | 644 | 0.0 | 0.0 | 2006 12 25 | G96 | 0.1− | 0.4− | 2008 02 02 | 703 | 1.1+ | 0.1− |
| 2006 10 27 | 703 | 0.1− | 0.7− | 2006 12 25 | G96 | 0.0 | 0.1− | 2008 02 09 | 703 | 0.4+ | 0.3− |
| 2006 10 27 | 703 | 0.8− | 0.2+ | 2006 12 25 | G96 | 0.3− | 0.3− | 2008 02 09 | 703 | 0.1− | 0.4+ |
| 2006 10 27 | 703 | 0.0 | 1.2+ | 2007 02 16 | G96 | 0.6− | 0.2− | 2008 02 09 | 703 | 0.8+ | 0.6+ |
| 2006 10 27 | 703 | 0.9+ | 1.7+ | 2007 02 16 | G96 | 0.7− | 0.2− | 2008 02 09 | 703 | 0.3+ | 0.3+ |

**2006 YP$_{18}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 343.03656 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23738421 | $\omega$ | 272.12482 | | +0.95898693 | +0.19040457 | |
| $a$ | 2.5832603 | $\Omega$ | 76.94833 | | −0.08336700 | +0.89748863 | |
| $e$ | 0.3221196 | $i$ | 12.44749 | | −0.27091329 | +0.39781939 | |
| $P$ | 4.15 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 06 12 | 644 | 0.1− | 0.3− | 2006 12 12 | 691 | 0.3+ | 0.3+ | 2006 12 26 | 691 | 0.1− | 0.0 |
| 2001 06 12 | 644 | 0.0 | 0.8− | 2006 12 12 | 691 | 0.1+ | 0.2+ | 2006 12 26 | 691 | 0.2− | 0.0 |
| 2001 06 12 | 644 | 0.1+ | 0.4− | 2006 12 23 | 703 | 0.3− | 0.2− | 2007 01 08 | 703 | 1.3+ | 1.4− |
| 2006 09 25 | 691 | 0.2− | 0.1− | 2006 12 23 | 703 | 1.0− | 0.5− | 2007 01 08 | 703 | 0.1− | 0.9− |
| 2006 09 25 | 691 | 0.0 | 0.2+ | 2006 12 23 | 703 | 0.1+ | 0.1− | 2007 01 08 | 703 | 0.8+ | 1.3+ |
| 2006 09 25 | 691 | 0.2+ | 0.2− | 2006 12 23 | 703 | 0.3+ | 0.9+ | 2007 01 08 | 703 | 1.8+ | 0.6− |
| 2006 11 02 | G96 | 0.3− | 0.4− | 2006 12 25 | 703 | 1.1− | 0.1− | 2009 06 24 | G96 | 0.2+ | 0.1+ |
| 2006 11 02 | G96 | 0.0 | 0.3− | 2006 12 25 | 703 | 0.6− | 0.6− | 2009 06 24 | G96 | 0.1− | 0.1+ |
| 2006 11 02 | G96 | 0.1− | 0.0 | 2006 12 25 | 703 | 0.2− | 0.6− | 2009 06 24 | G96 | 0.1+ | 0.1+ |
| 2006 11 02 | G96 | 0.1− | 0.5− | 2006 12 25 | 703 | 0.3+ | 0.8− | 2009 06 24 | G96 | 0.0 | 0.1+ |
| 2006 12 12 | 691 | 0.2− | 0.4+ | 2006 12 26 | 691 | 0.1− | 0.0 | | | | |

**2006 YZ$_{29}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 62.68433 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.30946859 | $\omega$ | 353.13563 | | +0.97836866 | −0.20640754 | |
| $a$ | 2.1646698 | $\Omega$ | 18.79349 | | +0.19177816 | +0.87994761 | |
| $e$ | 0.1234907 | $i$ | 2.45666 | | +0.07756219 | +0.42788799 | |
| $P$ | 3.18 | $H$ | 17.7 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 11 22 | G96 | 0.3− | 0.7− | 2007 01 09 | 691 | 0.1− | 0.0 | 2009 12 11 | G96 | 0.2+ | 0.0 |
| 2006 11 22 | G96 | 0.2+ | 0.6− | 2007 01 09 | 691 | 0.1+ | 0.0 | 2009 12 11 | G96 | 0.2+ | 0.0 |
| 2006 11 22 | G96 | 0.2− | 0.4− | 2007 01 09 | 691 | 0.1+ | 0.0 | 2009 12 11 | G96 | 0.2+ | 0.1+ |
| 2006 11 22 | G96 | 0.3+ | 0.1+ | 2007 01 28 | G96 | 0.2+ | 0.4− | 2009 12 11 | G96 | 0.1− | 0.1+ |
| 2006 12 21 | 691 | 0.1+ | 0.1+ | 2007 01 28 | G96 | 0.1− | 0.1+ | 2009 12 13 | G96 | 0.3+ | 0.2− |
| 2006 12 21 | 691 | 0.1+ | 0.0 | 2007 01 28 | G96 | 0.0 | 0.2− | 2009 12 13 | G96 | 0.2− | 0.0 |
| 2006 12 21 | 691 | 0.1+ | 0.2+ | 2007 01 28 | G96 | 0.1+ | 0.3− | 2009 12 13 | G96 | 0.2− | 0.3− |
| 2006 12 25 | 691 | 0.1− | 0.3+ | 2009 11 26 | 691 | 0.1− | 0.1+ | 2009 12 13 | G96 | 0.1+ | 0.1− |
| 2006 12 25 | 691 | 0.2− | 0.0 | 2009 11 26 | 691 | 0.1− | 0.0 | | | | |
| 2006 12 25 | 691 | 0.2− | 0.1− | 2009 11 26 | 691 | 0.0 | 0.0 | | | | |

**2006 YX$_{52}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 258.80722 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28116412 | $\omega$ | 28.22701 | | −0.97731162 | −0.20893718 | |
| $a$ | 2.3076120 | $\Omega$ | 139.66474 | | +0.18282818 | −0.91499620 | |
| $e$ | 0.0870121 | $i$ | 3.07718 | | +0.10693858 | −0.34514809 | |
| $P$ | 3.51 | $H$ | 17.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 04 14 | 691 | 0.1+ | 0.1− | 2007 01 16 | G96 | 0.4+ | 0.2+ | 2007 02 21 | G96 | 0.5+ | 0.0 |
| 2004 04 14 | 691 | 0.0 | 0.1+ | 2007 01 16 | G96 | 0.3− | 0.1+ | 2009 11 20 | G96 | 0.4− | 0.0 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 04 14 | 691 | 0.1− | 0.1+ | 2007 01 16 | G96 | 0.6+ | 0.3+ | 2009 11 20 | G96 | (1.7− | 0.1+) |
| 2006 12 27 | G96 | 0.0 | 0.1+ | 2007 01 16 | G96 | 0.1− | 0.5+ | 2009 11 20 | G96 | 0.3− | 0.2− |
| 2006 12 27 | G96 | 0.2− | 0.0 | 2007 02 07 | G96 | 0.3− | 0.1− | 2009 11 20 | G96 | 0.2+ | 0.1+ |
| 2006 12 27 | G96 | 0.2+ | 0.1+ | 2007 02 07 | G96 | 0.4− | 0.0 | 2009 11 23 | G96 | 0.7− | 0.7+ |
| 2006 12 27 | G96 | 0.1− | 0.1+ | 2007 02 07 | G96 | 0.6− | 0.3− | 2009 11 23 | G96 | 0.4+ | 0.1− |
| 2007 01 09 | G96 | 0.2− | 0.2− | 2007 02 07 | G96 | 0.7+ | 0.8− | 2009 11 23 | G96 | 0.4+ | 0.2+ |
| 2007 01 09 | G96 | 0.0 | 0.0 | 2007 02 21 | G96 | 0.1− | 0.5+ | 2009 11 23 | G96 | 0.2+ | 0.1− |
| 2007 01 09 | G96 | 0.0 | 0.5− | 2007 02 21 | G96 | 0.4− | 0.2+ | | | | |
| 2007 01 09 | G96 | 0.1+ | 0.2− | 2007 02 21 | G96 | 0.3+ | 0.1− | | | | |

**2007 AH$_5$ = 2009 WC$_{236}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 11.52069 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.29743844 | $\omega$ | 124.75327 | | +0.57119214 | −0.81879683 | |
| $a$ | 2.2226512 | $\Omega$ | 290.31192 | | +0.73160909 | +0.53964596 | |
| $e$ | 0.0736356 | $i$ | 3.51784 | | +0.37213933 | +0.19584175 | |
| $P$ | 3.31 | $H$ | 18.7 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 12 15 | 691 | 0.2+ | 0.3+ | 2007 01 08 | G96 | 0.2+ | 0.2− | 2009 11 20 | 926 | 1.2+ | 0.9+ |
| 2006 12 15 | 691 | 0.2+ | 0.2− | 2007 01 08 | G96 | 0.3+ | 0.7− | 2009 11 20 | 926 | 0.0 | 0.3+ |
| 2006 12 15 | 691 | 0.3− | 0.2+ | 2007 01 10 | 691 | 0.0 | 0.2+ | 2009 11 20 | 926 | 0.0 | 0.1+ |
| 2006 12 24 | 691 | 0.5− | 0.1+ | 2007 01 10 | 691 | 0.2+ | 0.4+ | 2009 11 23 | 291 | 0.0 | 0.1+ |
| 2006 12 24 | 691 | 0.2− | 0.4− | 2007 01 10 | 691 | 0.2+ | 0.2+ | 2009 11 23 | 291 | 0.0 | 0.2+ |
| 2006 12 24 | 691 | 0.0 | 0.4− | 2009 11 09 | 691 | 0.2− | 0.3− | 2009 11 23 | 291 | 0.3+ | 0.1+ |
| 2007 01 08 | G96 | 0.2+ | 0.7− | 2009 11 09 | 691 | 0.0 | 0.5− | | | | |
| 2007 01 08 | G96 | 0.5− | 0.3− | 2009 11 09 | 691 | 0.4− | 0.2+ | | | | |

**2007 AY$_8$ = 2008 GA$_{143}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 151.65768 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19012744 | $\omega$ | 69.79799 | | −0.94647903 | −0.27466332 | |
| $a$ | 2.9952944 | $\Omega$ | 93.96129 | | +0.19402567 | −0.90389379 | |
| $e$ | 0.1401250 | $i$ | 9.78360 | | +0.25793697 | −0.32792694 | |
| $P$ | 5.18 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 12 15 | 645 | 0.0 | 0.0 | 2007 01 14 | A44 | 0.1+ | 0.1+ | 2008 04 05 | 703 | 0.0 | 0.3− |
| 2001 12 15 | 645 | 0.0 | 0.0 | 2007 01 14 | A44 | 0.2− | 0.3+ | 2008 04 05 | 703 | 1.1− | 0.1+ |
| 2007 01 10 | 691 | 0.5− | 0.3+ | 2007 01 15 | B21 | 0.4+ | 0.1− | 2008 04 05 | 703 | 1.2− | 0.1− |
| 2007 01 10 | 691 | 0.5− | 0.1+ | 2007 01 15 | B21 | 0.1+ | 0.2− | 2008 04 12 | G96 | 0.2+ | 0.2− |
| 2007 01 10 | 691 | 0.3− | 0.1+ | 2007 01 15 | B21 | 0.2+ | 0.0 | 2008 04 12 | G96 | 0.4+ | 0.2+ |
| 2007 01 13 | A44 | 0.8+ | 0.6+ | 2007 01 15 | A44 | 0.1+ | 0.1− | 2008 04 12 | G96 | 0.5+ | 0.3+ |
| 2007 01 13 | A44 | 0.7+ | 0.0 | 2007 01 15 | A44 | 0.2− | 0.1+ | 2008 04 12 | G96 | 0.7+ | 0.1+ |
| 2007 01 13 | B21 | 0.3+ | 1.2− | 2007 01 15 | A44 | 0.8+ | 0.1+ | 2008 04 12 | 703 | 0.5− | 0.4+ |
| 2007 01 13 | A44 | 0.4+ | 0.2+ | 2007 01 21 | A44 | 0.5+ | 0.0 | 2008 04 12 | 703 | 0.4+ | 1.1− |
| 2007 01 13 | B21 | 0.3+ | 1.0− | 2007 01 21 | A44 | 0.4+ | 0.3− | 2008 04 12 | 703 | 0.2+ | 0.5− |
| 2007 01 13 | B21 | 0.0 | 0.6− | 2007 01 21 | A44 | 0.2+ | 0.0 | 2008 04 12 | 703 | 0.0 | 0.7+ |
| 2007 01 14 | A44 | 0.1+ | 0.1+ | 2008 04 05 | 703 | 0.5+ | 0.4+ | | | | |

**2007 AB$_{15}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 234.84411 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24352765 | $\omega$ | 234.01021 | | −0.83297467 | −0.54560077 | |
| $a$ | 2.5396305 | $\Omega$ | 272.75313 | | +0.53268246 | −0.74574314 | |
| $e$ | 0.0911681 | $i$ | 5.28761 | | +0.14967496 | −0.38234405 | |
| $P$ | 4.05 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 11 14 | G96 | 0.2+ | 0.2− | 2006 12 13 | G96 | 0.1− | 0.1+ | 2007 01 16 | 704 | 0.2− | 0.1+ |
| 2006 11 14 | G96 | 0.1− | 0.0 | 2006 12 13 | 691 | 0.3+ | 0.2+ | 2007 01 16 | 704 | 0.1− | 0.8− |
| 2006 11 14 | G96 | 0.1+ | 0.2+ | 2006 12 13 | 691 | 0.2+ | 0.4+ | 2007 01 16 | 704 | 0.8− | 0.1+ |
| 2006 11 14 | G96 | 0.8+ | 0.1− | 2006 12 27 | G96 | 0.2+ | 0.2− | 2009 08 18 | 691 | 0.0 | 0.1− |
| 2006 12 01 | G96 | 0.4− | 0.1+ | 2006 12 27 | G96 | 0.5− | 0.0 | 2009 08 18 | 691 | 0.1− | 0.3+ |
| 2006 12 01 | G96 | 0.3− | 0.3+ | 2006 12 27 | G96 | 0.1− | 0.5− | 2009 08 18 | 691 | 0.1− | 0.0 |
| 2006 12 01 | G96 | 0.3+ | 0.3− | 2006 12 27 | G96 | 0.0 | 0.3− | 2009 09 17 | G96 | 0.4+ | 0.2− |
| 2006 12 01 | G96 | 0.6− | 0.6− | 2007 01 10 | G96 | 0.1+ | 0.1− | 2009 09 17 | G96 | 0.2+ | 0.0 |
| 2006 12 13 | G96 | 0.5+ | 0.0 | 2007 01 10 | G96 | 0.1− | 0.1− | 2009 09 17 | G96 | 0.0 | 0.1− |
| 2006 12 13 | G96 | 0.1− | 0.1− | 2007 01 10 | G96 | 0.4− | 0.1− | 2009 09 17 | G96 | 0.3+ | 0.7− |
| 2006 12 13 | G96 | 0.1− | 0.2− | 2007 01 10 | G96 | 0.2+ | 0.1− | | | | |
| 2006 12 13 | 691 | 0.1− | 0.2+ | 2007 01 16 | 704 | 0.1+ | 0.7− | | | | |

**2007 AN$_{26}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 138.10212 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27605603 | $\omega$ | 165.85858 | | +0.34805437 | +0.87520232 | |
| $a$ | 2.3359913 | $\Omega$ | 123.45849 | | −0.89450253 | +0.41730092 | |
| $e$ | 0.0820796 | $i$ | 23.74768 | | −0.28057688 | −0.24470561 | |
| $P$ | 3.57 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 01 09 | G96 | 0.1+ | 0.1− | 2007 01 24 | 704 | 0.5− | 0.2+ | 2007 02 08 | 644 | 0.3− | 0.2+ |
| 2007 01 09 | G96 | 0.0 | 0.2+ | 2007 01 24 | G96 | 0.6− | 0.4− | 2007 02 08 | 644 | 0.0 | 0.1− |
| 2007 01 09 | G96 | 0.1− | 0.1− | 2007 01 24 | G96 | 0.0 | 0.7− | 2007 02 10 | 644 | 0.1− | 0.1− |
| 2007 01 09 | G96 | 0.1− | 0.0 | 2007 01 24 | G96 | 0.0 | 0.1+ | 2007 02 10 | 644 | 0.0 | 0.1+ |
| 2007 01 24 | 691 | 0.1+ | 0.0 | 2007 01 24 | G96 | 0.5− | 0.3− | 2007 02 10 | 644 | 0.2+ | 0.1+ |
| 2007 01 24 | 704 | 1.3+ | 0.1− | 2007 01 25 | 704 | 0.5+ | 0.6+ | 2009 12 15 | 703 | 0.1− | 0.2− |
| 2007 01 24 | 704 | 0.0 | 0.0 | 2007 01 25 | 704 | 0.5+ | 0.9+ | 2009 12 15 | 703 | 1.0− | 0.8− |
| 2007 01 24 | 691 | 0.3− | 0.1+ | 2007 01 25 | 704 | 1.0+ | 0.1+ | 2009 12 15 | 703 | 0.7− | 0.1+ |
| 2007 01 24 | 691 | 0.2− | 0.1− | 2007 01 25 | 704 | 0.6+ | 0.7+ | 2009 12 15 | 703 | 1.8+ | 0.8+ |
| 2007 01 24 | 704 | 0.1+ | 0.9− | 2007 02 08 | 644 | 0.2− | 0.5− | | | | |

**2007 BQ$_1$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 259.29767 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24123139 | $\omega$ | 162.20685 | | −0.60070290 | −0.79759162 | |
| $a$ | 2.5557214 | $\Omega$ | 324.65644 | | +0.72150439 | −0.51131635 | |
| $e$ | 0.2116425 | $i$ | 5.43640 | | +0.34436528 | −0.32000499 | |
| $P$ | 4.09 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 02 22 | 644 | 0.4+ | 0.9+ | 2007 01 21 | 704 | 0.2+ | 1.1− | 2007 02 16 | 644 | 0.3+ | 0.1+ |
| 2003 02 22 | 644 | 0.5+ | 1.0+ | 2007 01 24 | 691 | 0.3− | 0.1− | 2007 02 16 | 644 | 0.4− | 0.0 |
| 2003 02 22 | 699 | 0.4− | 0.5− | 2007 01 24 | 704 | 0.9+ | 0.2+ | 2007 02 16 | G96 | 0.0 | 0.6− |
| 2003 02 22 | 699 | 0.4− | 0.9+ | 2007 01 24 | 691 | 0.2− | 0.1− | 2007 02 16 | G96 | (1.1− | 2.9−) |
| 2003 02 22 | 699 | 0.9+ | 0.6− | 2007 01 24 | 704 | 0.9+ | 0.7+ | 2007 02 16 | G96 | (1.1+ | 2.5−) |
| 2003 02 22 | 644 | 0.2+ | 0.9+ | 2007 01 24 | 704 | 0.1+ | 0.4+ | 2007 02 16 | G96 | 0.3− | 0.3− |
| 2003 02 22 | 699 | 0.1− | 0.5− | 2007 01 24 | 691 | 0.1− | 0.1− | 2007 02 23 | 704 | 0.5+ | 0.9− |
| 2007 01 16 | 703 | 0.4− | 1.0− | 2007 01 24 | 704 | 0.7+ | 0.5+ | 2007 02 23 | 704 | 0.5− | 1.2− |
| 2007 01 16 | 703 | 0.6− | 0.6− | 2007 01 24 | 704 | 0.1− | 0.7+ | 2007 02 23 | 704 | 0.0 | 1.2− |
| 2007 01 16 | 703 | 0.2+ | 0.7− | 2007 01 27 | 699 | 0.8− | 1.3+ | 2007 02 23 | 704 | 0.3+ | 0.0 |
| 2007 01 16 | 703 | 0.9− | 0.4+ | 2007 01 27 | 699 | 0.4− | 0.5+ | 2007 03 09 | G96 | 0.0 | 0.2− |
| 2007 01 17 | 691 | 0.1+ | 0.0 | 2007 01 27 | 699 | 0.2+ | 0.3+ | 2007 03 09 | G96 | 0.1+ | 0.1− |
| 2007 01 17 | 691 | 0.2+ | 0.1− | 2007 01 27 | 699 | 0.6+ | 1.3+ | 2007 03 09 | G96 | 0.1− | 0.2− |
| 2007 01 17 | 691 | 0.2+ | 0.0 | 2007 01 28 | 691 | 0.2− | 0.0 | 2007 03 09 | G96 | 0.1+ | 0.1− |
| 2007 01 17 | 644 | 0.4+ | 0.2− | 2007 01 28 | 691 | 0.1− | 0.1+ | 2007 03 26 | G96 | 0.2− | 0.1+ |
| 2007 01 17 | 644 | 0.4+ | 0.3+ | 2007 01 28 | 691 | 0.1− | 0.0 | 2007 03 26 | G96 | 0.4− | 0.1− |
| 2007 01 17 | 644 | 0.6+ | 0.4+ | 2007 02 08 | 644 | 0.0 | 0.1+ | 2007 03 26 | G96 | 0.1− | 0.1− |
| 2007 01 21 | 704 | 0.5− | 0.6− | 2007 02 08 | 644 | 0.3− | 0.1− | 2007 03 26 | G96 | 0.3− | 0.1− |
| 2007 01 21 | 704 | 0.8+ | 0.3+ | 2007 02 08 | 644 | 0.3+ | 0.2+ | | | | |
| 2007 01 21 | 704 | 0.1+ | 0.7+ | 2007 02 16 | 644 | 0.0 | 0.0 | | | | |

**2007 BJ$_{10}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 355.81793 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28402614 | $\omega$ | 1.01377 | | +0.23073433 | −0.97057422 | |
| $a$ | 2.2920839 | $\Omega$ | 75.64848 | | +0.89222417 | +0.18279334 | |
| $e$ | 0.0302813 | $i$ | 4.07834 | | +0.38819800 | +0.15675548 | |
| $P$ | 3.47 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 01 17 | 691 | 0.0 | 0.2+ | 2007 02 08 | 644 | 0.2+ | 0.0 | 2009 11 20 | G96 | 0.1+ | 0.1− |
| 2007 01 17 | 691 | 0.2− | 0.1− | 2007 02 08 | 644 | 0.4+ | 0.3− | 2009 11 20 | G96 | 0.1− | 0.2− |
| 2007 01 17 | 691 | 0.2− | 0.0 | 2007 02 16 | 703 | 0.5+ | 0.6− | 2009 11 20 | G96 | 0.2− | 0.6− |
| 2007 01 24 | 691 | 0.5− | 0.1+ | 2007 02 16 | 703 | (0.2− | 1.7−) | 2009 12 11 | G96 | 0.6+ | 0.0 |
| 2007 01 24 | 691 | 0.0 | 0.0 | 2007 02 16 | 703 | 0.1+ | 0.8+ | 2009 12 11 | G96 | 0.4+ | 0.2+ |
| 2007 01 24 | 691 | 0.2− | 0.2+ | 2007 02 16 | 703 | 0.0 | 0.7− | 2009 12 11 | G96 | 0.7+ | 0.0 |
| 2007 01 24 | 704 | 1.0+ | 0.1− | 2009 10 25 | 691 | 0.1+ | 0.3+ | 2009 12 11 | G96 | 0.5+ | 0.3+ |
| 2007 01 24 | 704 | 1.3+ | 0.3− | 2009 10 25 | 691 | 0.3− | 0.1+ | 2009 12 11 | 703 | 0.7− | 1.3+ |
| 2007 01 24 | 704 | 1.2+ | 0.9− | 2009 10 25 | 691 | 0.5− | 0.1− | 2009 12 11 | 703 | 0.4− | 0.5− |
| 2007 01 28 | 691 | 0.0 | 0.2− | 2009 11 11 | J75 | 0.1+ | 0.3+ | 2009 12 11 | 703 | 1.0+ | 0.4− |
| 2007 01 28 | 691 | 0.1− | 0.1+ | 2009 11 11 | J75 | 0.1+ | 0.5− | 2009 12 11 | 703 | 0.8+ | 1.1− |
| 2007 01 28 | 691 | 0.1− | 0.3+ | 2009 11 11 | J75 | 0.0 | 0.5+ | | | | |
| 2007 02 08 | 644 | 0.3+ | 0.0 | 2009 11 20 | G96 | 0.2− | 0.3− | | | | |

## 2007 BX$_{49}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 317.46991 | | (2000.0) | | | |
| $n$ | 0.24629226 | $\omega$ | 286.80114 | | +0.29615038 | −0.94638508 |
| $a$ | 2.5205900 | $\Omega$ | 145.12334 | | +0.93954790 | +0.26433321 |
| $e$ | 0.0983983 | $i$ | 13.04177 | | +0.17188571 | +0.18569660 |
| $P$ | 4.00 | $H$ | 17.5 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 02 08 | 691 | 0.2− | 0.2− | 2007 01 26 | 461 | 0.3+ | 0.3+ | 2007 02 14 | 461 | 0.1− | 0.4+ |
| 1995 02 08 | 691 | 0.1+ | 0.4+ | 2007 01 26 | 461 | 0.2+ | 0.1+ | 2007 02 14 | 461 | 0.2+ | 0.0 |
| 2002 12 07 | 645 | 0.0 | 0.0 | 2007 01 27 | 691 | 0.1− | 0.0 | 2007 03 10 | G96 | 0.2− | 0.3− |
| 2002 12 07 | 645 | 0.0 | 0.0 | 2007 01 27 | 691 | 0.1− | 0.2+ | 2007 03 10 | G96 | 0.1+ | 0.5− |
| 2003 01 28 | 645 | 0.0 | 0.0 | 2007 01 27 | 691 | 0.3− | 0.2− | 2007 03 10 | G96 | 0.5+ | 0.1− |
| 2003 01 28 | 645 | 0.0 | 0.0 | 2007 02 14 | 461 | 0.0 | 0.0 | 2007 03 10 | G96 | 0.4+ | 0.3− |

## 2007 BW$_{58}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 174.36091 | | (2000.0) | | | |
| $n$ | 0.17793573 | $\omega$ | 207.22477 | | −0.97313366 | −0.19387458 |
| $a$ | 3.1305978 | $\Omega$ | 320.95346 | | +0.23023590 | −0.81585477 |
| $e$ | 0.1267568 | $i$ | 11.37002 | | +0.00151771 | −0.54478770 |
| $P$ | 5.54 | $H$ | 15.2 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 11 24 | G96 | 0.2+ | 0.2+ | 2007 02 13 | 704 | 0.1+ | 0.2+ | 2007 03 09 | 703 | (2.2− | 0.5+) |
| 2006 11 24 | G96 | 0.1+ | 0.2+ | 2007 02 13 | 704 | 0.2+ | 0.5− | 2007 03 13 | 699 | 0.7− | 0.0 |
| 2006 11 24 | G96 | 0.0 | 0.3+ | 2007 02 13 | 704 | 0.6+ | 0.8− | 2007 03 13 | 699 | 0.1+ | 0.2+ |
| 2006 11 24 | G96 | 0.1− | 0.3+ | 2007 02 17 | 703 | 1.0− | 1.0− | 2007 03 13 | 699 | 0.4+ | 0.3− |
| 2007 01 24 | 703 | 1.1− | 0.3+ | 2007 02 17 | 703 | 0.4− | 0.5− | 2007 03 13 | 699 | 0.4− | 0.4+ |
| 2007 01 24 | 703 | 0.3− | 0.9− | 2007 02 17 | 703 | 0.6− | 0.3− | 2007 03 16 | G96 | 0.3− | 0.3− |
| 2007 01 24 | 703 | 0.5− | 1.5+ | 2007 02 17 | 703 | 0.6+ | 1.1− | 2007 03 16 | G96 | 0.4− | 0.3− |
| 2007 01 24 | 703 | 0.3− | 0.1− | 2007 02 17 | 644 | 0.3− | 0.1+ | 2007 03 16 | G96 | 0.5− | 0.3− |
| 2007 01 28 | G96 | 0.1+ | 0.0 | 2007 02 17 | 644 | 0.2+ | 0.2− | 2007 03 16 | G96 | 0.1− | 0.4− |
| 2007 01 28 | G96 | 0.2− | 0.4− | 2007 02 17 | 644 | 0.5+ | 0.0 | 2007 03 21 | 704 | 0.8− | 0.2− |
| 2007 01 28 | G96 | 0.0 | 0.2− | 2007 02 21 | 704 | 0.9+ | 0.7+ | 2007 03 21 | 704 | 0.3− | 1.3+ |
| 2007 01 28 | G96 | 0.2+ | 0.1− | 2007 02 21 | 704 | 1.0+ | 0.7+ | 2007 03 21 | 704 | 0.4− | 0.4+ |
| 2007 01 28 | 691 | 0.2− | 0.0 | 2007 02 21 | 704 | 0.7+ | 0.4+ | 2007 03 21 | 704 | 1.5+ | 1.0+ |
| 2007 01 28 | 691 | 0.1− | 0.1+ | 2007 02 21 | 704 | 0.8+ | 0.9+ | 2009 07 14 | 691 | 0.2− | 0.4− |
| 2007 01 28 | 691 | 0.1− | 0.1+ | 2007 02 21 | 704 | 0.8+ | 0.2+ | 2009 07 14 | 691 | 0.1− | 0.1+ |
| 2007 02 08 | 703 | 1.1+ | 0.4− | 2007 02 22 | 699 | 1.4+ | 0.6− | 2009 07 14 | 691 | 0.2+ | 0.2+ |
| 2007 02 08 | 703 | 0.4+ | 0.1+ | 2007 02 22 | 699 | 1.6+ | 0.3− | 2009 09 22 | G96 | 0.3− | 0.0 |
| 2007 02 08 | 703 | 0.8− | 0.2− | 2007 02 22 | 699 | 0.8+ | 0.9+ | 2009 09 22 | G96 | 0.2+ | 0.3+ |
| 2007 02 08 | 703 | 1.3− | 0.1− | 2007 02 22 | 699 | 0.1− | 0.0 | 2009 09 22 | G96 | 0.3− | 0.2+ |
| 2007 02 08 | 644 | 0.3+ | 0.2− | 2007 03 09 | 703 | 1.3− | 0.8+ | 2009 09 22 | G96 | 0.2+ | 0.5+ |
| 2007 02 08 | 644 | 0.1− | 0.1− | 2007 03 09 | 703 | 0.1− | 0.7− | | | | |
| 2007 02 08 | 644 | 0.0 | 0.0 | 2007 03 09 | 703 | 0.7− | 0.4− | | | | |

## 2007 BP$_{101}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 255.24861 | | (2000.0) | | | |
| $n$ | 0.26643206 | $\omega$ | 80.39883 | | −0.97422365 | −0.18664016 |
| $a$ | 2.3919113 | $\Omega$ | 88.76597 | | +0.12261025 | −0.90955978 |
| $e$ | 0.0513556 | $i$ | 7.28083 | | +0.18935418 | −0.37130372 |
| $P$ | 3.70 | $H$ | 17.0 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 04 04 | 699 | 0.5− | 0.9+ | 2007 01 28 | 691 | 0.0 | 0.2+ | 2007 02 16 | 703 | 0.8− | 0.8+ |
| 2000 04 04 | 699 | 0.1+ | 0.7− | 2007 01 28 | 691 | 0.1+ | 0.0 | 2007 02 22 | 703 | 0.3+ | 0.4+ |
| 2000 04 04 | 699 | 0.8+ | 0.2+ | 2007 01 28 | 691 | 0.1− | 0.2+ | 2007 02 22 | 703 | 0.6+ | 0.8+ |
| 2000 04 04 | 699 | 0.2+ | 0.3+ | 2007 02 09 | 703 | 0.5− | 0.0 | 2007 02 22 | 703 | 1.3+ | 0.9− |
| 2004 06 15 | 691 | 0.2− | 0.2− | 2007 02 09 | 703 | 0.4− | 0.6+ | 2007 02 22 | 703 | (2.1+ | 0.3−) |
| 2004 06 15 | 691 | 0.2− | 0.2− | 2007 02 09 | 703 | 1.3− | 0.5+ | 2009 10 14 | 621 | 0.4− | 0.1− |
| 2004 06 15 | 691 | 0.2+ | 0.0 | 2007 02 09 | 703 | 0.3+ | 0.4+ | 2009 10 14 | 621 | 0.4+ | 0.0 |
| 2005 08 31 | 644 | 0.3− | 0.5+ | 2007 02 16 | 703 | 0.4+ | 1.3− | 2009 10 14 | 621 | 0.4+ | 0.2− |
| 2005 08 31 | 644 | 0.7− | 0.7+ | 2007 02 16 | 703 | (0.1+ | 1.9+) | 2009 10 14 | 621 | 0.7+ | 0.3+ |
| 2005 08 31 | 644 | 0.5− | 0.3+ | 2007 02 16 | 703 | (1.8− | 2.4−) | 2009 11 19 | 621 | 0.6+ | 0.1− |
| 2007 01 16 | 703 | (1.8− | 1.0+) | 2007 02 16 | 703 | (0.8− | 2.8−) | 2009 11 19 | 621 | 0.9− | 1.2− |
| 2007 01 16 | 703 | 0.4+ | 0.5+ | 2007 02 16 | 703 | 1.0− | 1.4− | 2009 11 19 | 621 | 0.1− | 0.1− |
| 2007 01 16 | 703 | (1.9− | 0.5−) | 2007 02 16 | 703 | 0.1− | 0.1− | 2009 11 19 | 621 | 0.8+ | 0.0 |
| 2007 01 16 | 703 | 0.8+ | 0.9− | 2007 02 16 | 703 | 0.3− | 0.4− | | | | |

## 2007 BQ$_{101}$ = 2009 RG$_{67}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 359.53516 | | (2000.0) | | | |
| $n$ | 0.25376797 | $\omega$ | 265.55234 | | +0.86464684 | −0.49441512 |
| $a$ | 2.4708412 | $\Omega$ | 124.05429 | | +0.49295538 | +0.80078000 |
| $e$ | 0.1892967 | $i$ | 6.17397 | | +0.09685476 | +0.33809036 |
| $P$ | 3.88 | $H$ | 18.3 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 01 27 | 691 | 0.0 | 0.0 | 2007 02 16 | G96 | 0.2+ | 0.0 | 2009 09 15 | G96 | 0.0 | 0.1− |
| 2007 01 27 | 691 | 0.2− | 0.0 | 2007 02 16 | G96 | 0.2− | 0.2+ | 2009 09 15 | G96 | 0.3+ | 0.7+ |
| 2007 01 27 | 691 | 0.2+ | 0.0 | 2007 02 16 | G96 | 0.2+ | 0.3+ | 2009 09 26 | G96 | 0.2+ | 0.1− |
| 2007 02 14 | 568 | 0.2+ | 0.2− | 2007 02 16 | G96 | 0.6− | 0.2− | 2009 09 26 | G96 | 0.1− | 0.3+ |
| 2007 02 14 | 568 | 0.3+ | 0.2− | 2009 09 15 | G96 | 0.2− | 0.0 | 2009 09 26 | G96 | 0.1− | 0.2− |
| 2007 02 14 | 568 | 0.1+ | 0.0 | 2009 09 15 | G96 | 0.2− | 0.1− | 2009 09 26 | G96 | 0.1+ | 0.4− |

## 2007 CP$_{4}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 329.37825 | | (2000.0) | | | |
| $n$ | 0.29718169 | $\omega$ | 170.85063 | | −0.52435507 | −0.84685484 |
| $a$ | 2.2239312 | $\Omega$ | 310.71835 | | +0.77363663 | −0.43023251 |
| $e$ | 0.0965038 | $i$ | 6.72971 | | +0.35572199 | −0.31262897 |
| $P$ | 3.32 | $H$ | 17.2 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 10 04 | 644 | 0.4− | 0.8+ | 2007 02 06 | G96 | 0.2+ | 0.2− | 2007 02 17 | G96 | 0.1− | 0.6− |
| 2002 10 04 | 644 | 0.1− | 0.5+ | 2007 02 07 | 703 | 1.0− | 0.6+ | 2007 02 17 | G96 | 0.1+ | 0.0 |
| 2002 10 04 | 644 | 0.6− | 0.8+ | 2007 02 07 | 703 | 0.6+ | 0.9+ | 2007 02 17 | G96 | 0.1− | 0.1− |
| 2006 12 23 | G96 | 0.2+ | 0.1+ | 2007 02 07 | 703 | 1.4− | 0.1− | 2007 02 25 | G96 | 0.0 | 0.2− |
| 2006 12 23 | G96 | 0.2+ | 0.7− | 2007 02 07 | 703 | 0.8− | 0.7− | 2007 02 25 | G96 | 0.0 | 0.1− |
| 2006 12 23 | G96 | 0.0 | 0.2− | 2007 02 08 | 644 | 0.0 | 0.3+ | 2007 02 25 | G96 | 0.1+ | 0.1+ |
| 2006 12 23 | G96 | 0.2+ | 0.2− | 2007 02 08 | 644 | 0.1+ | 0.1+ | 2007 02 25 | G96 | 0.6+ | 0.1− |
| 2007 01 10 | 691 | 0.3− | 0.0 | 2007 02 08 | 644 | 0.1+ | 0.2+ | 2007 03 16 | G96 | 0.1+ | 0.2− |
| 2007 01 10 | 691 | 0.2− | 0.1+ | 2007 02 13 | 704 | 0.7+ | 0.2+ | 2007 03 16 | G96 | 0.2+ | 0.1− |
| 2007 01 10 | 691 | 0.6− | 0.3+ | 2007 02 13 | 704 | 0.9+ | 0.6+ | 2007 03 16 | G96 | 0.2+ | 0.2− |
| 2007 01 24 | 703 | 0.8− | 0.4− | 2007 02 13 | 704 | 0.6+ | 0.3+ | 2007 03 16 | G96 | 0.2+ | 0.1− |
| 2007 01 24 | 703 | 1.0+ | 0.1+ | 2007 02 13 | 704 | 0.5+ | 0.0 | 2009 11 27 | G96 | 0.2+ | 0.1− |
| 2007 01 24 | 703 | 0.5+ | 0.8+ | 2007 02 13 | 704 | 0.9+ | 0.2+ | 2009 11 27 | G96 | 0.2− | 0.3− |
| 2007 01 24 | 703 | 0.4− | 0.3+ | 2007 02 15 | 644 | 0.5+ | 0.0 | 2009 11 27 | G96 | 0.1− | 0.4− |
| 2007 02 06 | G96 | 0.1+ | 0.2− | 2007 02 15 | 644 | 0.3+ | 0.7+ | 2009 11 27 | G96 | 0.0 | 0.6− |

2007 02 06 G96 0.1+ 0.2− 2007 02 15 644 0.6+ 0.3+ 2009 11 27 G96 0.2+ 0.4−
2007 02 06 G96 0.3− 0.1− 2007 02 17 G96 0.3+ 0.3−

**2007 CB$_5$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 94.53539 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22589804 | $\omega$ | 333.33610 | | +0.38823076 | +0.91373122 | |
| $a$ | 2.6701013 | $\Omega$ | 319.19925 | | −0.80938571 | +0.27587425 | |
| $e$ | 0.0778862 | $i$ | 10.57185 | | −0.44064913 | +0.29830966 | |
| $P$ | 4.36 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

2007 01 27 691 0.0 0.1− 2007 02 13 G96 0.1− 0.2− 2009 09 21 703 0.2− 0.6−
2007 01 27 691 0.0 0.1+ 2007 02 13 G96 0.1+ 0.3− 2009 09 21 703 0.1− 0.1−
2007 01 27 691 0.1+ 0.1+ 2007 02 13 G96 0.2− 0.3− 2009 09 21 703 0.1+ 0.1−
2007 02 06 G96 0.1− 0.1+ 2007 02 25 G96 0.1+ 0.3− 2009 09 21 703 0.3+ 0.3−
2007 02 06 G96 0.6+ 0.0 2007 02 25 G96 0.2+ 0.2− 2009 10 15 J75 0.2− 0.7−
2007 02 06 G96 0.2− 0.2− 2007 02 25 G96 0.3+ 0.3− 2009 10 15 J75 0.4+ 0.1+
2007 02 06 G96 0.8− 0.2− 2007 02 25 G96 0.4+ 0.4− 2009 10 15 J75 0.4− 0.8+
2007 02 07 691 0.2− 0.1+ 2007 03 15 G96 0.3+ 0.3+ 2009 10 16 703 0.8+ 0.6+
2007 02 07 691 0.0 0.2+ 2007 03 15 G96 0.0 0.0 2009 10 16 703 0.3+ 0.6+
2007 02 07 691 0.1− 0.1+ 2007 03 15 G96 0.2− 0.0 2009 10 16 703 0.2− 0.4−
2007 02 13 G96 0.2− 0.3− 2007 03 15 G96 0.2+ 0.1− 2009 10 16 703 0.7− 0.2+

**2007 CX$_6$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 84.43579 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22276046 | $\omega$ | 350.69427 | | +0.19463391 | +0.96159379 | |
| $a$ | 2.6951151 | $\Omega$ | 290.33842 | | −0.88613896 | +0.08778071 | |
| $e$ | 0.1583599 | $i$ | 11.91151 | | −0.42056556 | +0.26006138 | |
| $P$ | 4.42 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

2007 01 09 G96 0.2− 0.1− 2007 02 08 691 0.0 0.2+ 2009 08 17 703 0.5− 0.6−
2007 01 09 G96 0.2+ 0.1− 2007 02 08 691 0.0 0.3+ 2009 08 17 703 1.2− 0.4+
2007 01 09 G96 0.0 0.1− 2007 02 19 691 0.1− 0.1+ 2009 08 17 703 0.2+ 0.3+
2007 01 09 G96 0.1− 0.2+ 2007 02 19 691 0.1+ 0.3− 2009 08 17 703 0.7+ 0.3−
2007 02 06 691 0.2+ 0.0 2007 02 19 691 0.0 0.3+ 2009 09 21 703 0.1+ 0.1+
2007 02 06 691 0.0 0.0 2007 02 21 691 0.5− 0.0 2009 09 21 703 0.7+ 0.7−
2007 02 06 691 0.0 0.0 2007 02 21 691 0.2+ 0.2+ 2009 09 21 703 0.4+ 0.1+
2007 02 08 691 0.1+ 0.3− 2007 02 21 691 0.1+ 0.3− 2009 09 21 703 0.5− 0.7+

**2007 CO$_{14}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 359.54067 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.30043953 | $\omega$ | 299.83617 | | −0.01088587 | −0.99946547 | |
| $a$ | 2.2078251 | $\Omega$ | 150.73919 | | +0.93781514 | −0.02090163 | |
| $e$ | 0.1412703 | $i$ | 3.61589 | | +0.34696436 | +0.02513747 | |
| $P$ | 3.28 | $H$ | 17.8 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

2002 08 30 291 0.0 0.4+ 2007 02 07 G96 0.3+ 0.3− 2007 02 23 G96 0.2+ 0.4−
2002 08 30 291 0.2− 0.1+ 2007 02 08 691 0.4− 0.0 2007 02 27 691 0.2− 0.0
2002 08 30 291 0.2− 0.5+ 2007 02 08 691 0.2+ 0.1− 2007 02 27 691 0.2− 0.7+
2006 12 24 G96 0.2+ 0.2− 2007 02 08 691 0.1− 0.3− 2007 02 27 691 0.3+ 1.1+
2006 12 24 G96 0.4+ 1.0− 2007 02 13 704 0.7+ 1.3+ 2009 12 15 703 0.8+ 0.9+
2006 12 24 G96 0.1+ 0.6− 2007 02 13 704 0.8+ 0.7+ 2009 12 15 703 0.2+ 0.2−
2006 12 24 G96 0.2− 0.0 2007 02 13 704 0.4+ 0.6+ 2009 12 15 703 0.2− 0.1+
2006 12 24 G96 0.2+ 0.3− 2007 02 13 704 0.6− 0.1+ 2009 12 15 703 0.3− 0.3−
2006 12 24 G96 0.1− 0.1+ 2007 02 16 644 0.1− 0.4+ 2009 12 17 G96 0.3− 0.3−
2006 12 24 G96 0.4− 0.0 2007 02 16 644 0.5+ 0.1+ 2009 12 17 G96 0.1+ 0.4−
2006 12 24 G96 0.1− 0.3− 2007 02 16 644 0.2+ 0.3+ 2009 12 17 G96 0.0 0.2−
2007 02 07 G96 0.3+ 0.6− 2007 02 23 G96 0.2+ 0.4− 2009 12 17 G96 0.3− 0.2−
2007 02 07 G96 0.1− 0.2− 2007 02 23 G96 0.0 0.2−
2007 02 07 G96 0.2+ 0.1− 2007 02 23 G96 0.0 0.5−

**2007 CT$_{14}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 237.21564 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27984998 | $\omega$ | 51.92487 | | −0.75773989 | +0.65251822 | |
| $a$ | 2.3148305 | $\Omega$ | 168.80083 | | −0.60955477 | −0.70388768 | |
| $e$ | 0.1651485 | $i$ | 2.09116 | | −0.23296619 | −0.28064587 | |
| $P$ | 3.52 | $H$ | 17.9 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

2007 01 27 G96 0.5− 0.5− 2007 02 13 G96 0.1+ 0.3− 2007 04 07 G96 0.2+ 0.0
2007 01 27 G96 0.0 0.2− 2007 02 13 704 0.5− 1.9+ 2007 04 07 G96 0.2− 0.2+
2007 01 27 G96 0.1− 0.1− 2007 02 13 G96 0.3− 0.2− 2007 04 07 G96 0.0 0.2+
2007 01 27 G96 0.0 0.0 2007 02 13 704 0.7+ 0.0 2007 04 07 G96 0.1+ 0.3−
2007 01 30 H07 0.1− 0.6+ 2007 02 13 704 1.6+ 1.2+ 2007 04 16 G96 0.2− 0.0
2007 01 30 H07 0.0 0.6+ 2007 02 13 704 1.2+ 0.2− 2007 04 16 G96 0.0 0.1−
2007 01 30 H07 0.4+ 0.2+ 2007 02 25 G96 0.1− 0.0 2007 04 16 G96 0.1+ 0.1−
2007 02 07 G96 0.1+ 0.1+ 2007 02 25 G96 0.1− 0.1− 2007 04 16 G96 0.0 0.1+
2007 02 07 G96 0.5− 0.2− 2007 02 25 G96 0.1− 0.3− 2008 09 06 G96 0.3+ 0.4+
2007 02 07 G96 0.2+ 0.3− 2007 02 25 G96 0.1− 0.3− 2008 09 06 G96 0.1+ 0.3−
2007 02 07 G96 0.3+ 0.0 2007 03 13 H55 0.4+ 0.1+ 2008 09 06 G96 0.3− 0.1−
2007 02 08 691 0.4− 0.1− 2007 03 13 H55 0.4− 0.5+ 2008 09 06 G96 0.1− 0.2+
2007 02 08 691 0.1+ 0.1− 2007 03 25 G96 0.4+ 0.4− 2009 12 11 G96 0.6− 0.2−
2007 02 08 691 0.4− 0.2− 2007 03 25 G96 0.0 0.1− 2009 12 11 G96 0.6+ 0.2−
2007 02 13 G96 0.4− 0.3− 2007 03 25 G96 0.2− 0.2− 2009 12 11 G96 0.3− 0.1+
2007 02 13 G96 1.0+ 0.1+ 2007 03 25 G96 0.2− 0.0 2009 12 11 G96 0.3+ 0.1+

**2007 CW$_{16}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 313.95015 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28579275 | $\omega$ | 124.91139 | | −0.58150657 | −0.81353989 | |
| $a$ | 2.2826285 | $\Omega$ | 0.65272 | | +0.68850887 | −0.49325948 | |
| $e$ | 0.1621501 | $i$ | 8.67825 | | +0.43336549 | −0.30797391 | |
| $P$ | 3.45 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

2007 01 17 703 0.5+ 1.6+ 2007 02 16 703 0.3+ 1.4− 2007 03 16 704 0.3+ 0.6+
2007 01 17 703 0.1+ 0.6+ 2007 02 16 703 0.0 1.0− 2007 03 16 704 0.6+ 1.1−
2007 01 17 703 0.8+ 0.5+ 2007 02 16 703 0.7+ 0.1− 2007 03 16 704 1.3− 0.1−
2007 01 17 703 0.6− 1.0− 2007 02 16 703 1.1− 1.0+ 2009 11 19 703 0.5+ 0.4+
2007 02 08 G96 0.1− 0.3− 2007 03 06 644 0.2+ 0.1− 2009 11 19 703 1.1+ 0.6+
2007 02 08 G96 0.1+ 0.4− 2007 03 06 644 0.2− 0.3− 2009 11 19 703 0.4− 0.1−
2007 02 08 G96 0.0 0.3− 2007 03 06 644 0.2+ 0.1− 2009 11 19 703 0.0 0.4−
2007 02 08 G96 0.2+ 0.3− 2007 03 15 703 0.6− 0.0 2009 11 26 703 0.5+ 1.4+
2007 02 09 703 0.7− 0.3− 2007 03 15 703 0.0 0.9+ 2009 11 26 703 0.2+ 0.2−
2007 02 09 703 0.4+ 0.3− 2007 03 15 703 (1.9− 0.3−) 2009 11 26 703 0.5− 0.3−
2007 02 09 703 0.0 0.1+ 2007 03 15 703 0.3− 1.0+ 2009 11 26 703 1.4− 1.6−
2007 02 09 703 0.4− 1.0+ 2007 03 16 704 1.1+ 0.0

**2007 CN$_{46}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 300.65187 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26538225 | $\omega$ | 337.99933 | | −0.33135676 | −0.94210323 | |
| $a$ | 2.3982151 | $\Omega$ | 131.31173 | | +0.87553098 | −0.32733926 | |
| $e$ | 0.2086970 | $i$ | 3.92551 | | +0.35163645 | −0.07273593 | |
| $P$ | 3.71 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

2002 12 05 608 0.1+ 0.9− 2007 01 10 G96 0.2− 0.4− 2007 02 13 704 0.2+ 0.4+
2002 12 05 608 0.2+ 0.5− 2007 01 16 704 0.9+ 0.2− 2007 02 13 704 0.2+ 0.2+
2002 12 05 608 0.1+ 0.5− 2007 01 16 704 0.7+ 0.5+ 2007 02 13 704 0.6+ 0.1−
2006 11 21 G96 0.3+ 0.4− 2007 01 16 704 0.0 0.9+ 2007 02 13 704 0.0 0.2+
2006 11 21 G96 0.2+ 0.1− 2007 01 16 704 0.9+ 0.8+ 2007 02 15 644 0.2− 0.3+
2006 11 21 G96 0.1+ 0.0 2007 01 16 704 0.6+ 1.6+ 2007 02 15 644 0.1− 0.3+
2006 11 21 G96 0.5+ 0.2− 2007 01 24 703 0.6− 0.9+ 2007 02 15 644 0.0 0.1+
2006 12 13 G96 0.6− 0.3− 2007 01 24 703 0.9− 0.4+ 2007 02 23 704 0.5+ 0.6−

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 12 13 | G96 | 0.1− | 0.1+ | 2007 01 24 | 703 | 0.3− | 0.2+ | 2007 02 23 | 704 | 0.6+ | 0.3+ |
| 2006 12 13 | G96 | 0.2− | 0.2− | 2007 01 24 | 703 | 0.6− | 0.4+ | 2007 02 23 | 704 | 0.2+ | 0.2− |
| 2006 12 13 | G96 | 0.4− | 0.5− | 2007 02 08 | G96 | 0.2− | 0.2− | 2007 02 23 | 704 | 0.8+ | 0.3+ |
| 2007 01 10 | G96 | 0.5− | 0.0 | 2007 02 08 | G96 | 0.4− | 0.2− | 2009 08 18 | 691 | 0.1− | 0.3+ |
| 2007 01 10 | G96 | 0.1− | 0.5− | 2007 02 08 | G96 | 0.1− | 0.2− | 2009 08 18 | 691 | 0.1− | 0.4+ |
| 2007 01 10 | G96 | 0.2− | 0.2− | 2007 02 08 | G96 | 0.3− | 0.3− | 2009 08 18 | 691 | 0.2− | 0.4+ |

**2007 CA$_{60}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 327.67488 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.28034083 | $\omega$ | 283.97801 | | −0.26149812 | | −0.96520116 |
| $a$ | 2.3121277 | $\Omega$ | 181.18855 | | +0.92329738 | | −0.24943923 |
| $e$ | 0.1981229 | $i$ | 6.45899 | | +0.28131954 | | −0.07852888 |
| $P$ | 3.52 | $H$ | 17.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 02 10 | 703 | 0.4− | 0.5+ | 2007 02 17 | G96 | 0.3− | 0.2− | 2009 09 15 | 691 | 0.1+ | 0.3− |
| 2007 02 10 | 703 | 1.2+ | 0.4− | 2007 02 26 | 703 | 0.1+ | 0.4+ | 2009 09 15 | 691 | 0.2+ | 0.2− |
| 2007 02 10 | 703 | 0.2+ | 0.7+ | 2007 02 26 | 703 | 0.9− | 0.4− | 2009 09 15 | 691 | 0.2+ | 0.0 |
| 2007 02 10 | 703 | 0.3− | 0.1− | 2007 02 26 | 703 | 0.2− | 1.9− | 2009 09 27 | 691 | 0.1+ | 0.1+ |
| 2007 02 16 | 644 | 0.5+ | 0.3+ | 2007 03 09 | 644 | 0.1+ | 0.4+ | 2009 09 27 | 691 | 0.1− | 0.2− |
| 2007 02 16 | 644 | 0.4+ | 0.4+ | 2007 03 09 | 644 | 0.0 | 0.3+ | 2009 09 27 | 691 | 0.7− | 0.8+ |
| 2007 02 16 | 644 | 0.3+ | 0.5+ | 2007 03 09 | 644 | 0.2− | 0.0 | 2009 10 25 | G96 | 0.7+ | 0.3− |
| 2007 02 17 | 703 | 0.7− | 0.0 | 2007 03 10 | 644 | 0.1+ | 0.2− | 2009 10 25 | G96 | 0.6+ | 0.2− |
| 2007 02 17 | 703 | 0.6− | 0.3− | 2007 03 10 | 644 | 0.3+ | 0.1+ | 2009 10 25 | G96 | 0.5+ | 0.0 |
| 2007 02 17 | G96 | 0.1− | 0.3− | 2007 03 10 | 644 | 0.4+ | 0.2− | 2009 10 25 | G96 | 0.5+ | 0.5− |
| 2007 02 17 | 703 | 0.7+ | 0.3+ | 2007 03 16 | G96 | 0.1− | 0.1+ | 2009 11 09 | 703 | 0.2+ | 0.2− |
| 2007 02 17 | G96 | 0.4− | 0.1+ | 2007 03 16 | G96 | 0.2+ | 0.0 | 2009 11 09 | 703 | 0.5− | 0.6− |
| 2007 02 17 | G96 | 0.0 | 0.2+ | 2007 03 16 | G96 | 0.1− | 0.1− | 2009 11 09 | 703 | 0.7− | 0.0 |
| 2007 02 17 | 703 | 0.3− | 0.1+ | 2007 03 16 | G96 | 0.0 | 0.0 | 2009 11 09 | 703 | 0.4− | 0.3+ |

**2007 DJ$_{14}$ = 2009 WG$_{246}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 29.25625 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.28963130 | $\omega$ | 29.06353 | | +0.63948614 | | −0.76842228 |
| $a$ | 2.2624156 | $\Omega$ | 21.21224 | | +0.69182022 | | +0.56144993 |
| $e$ | 0.1093710 | $i$ | 3.83181 | | +0.33532410 | | +0.30708496 |
| $P$ | 3.40 | $H$ | 18.1 | $G$ | 0.15 | $U$ | 5 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 02 08 | G96 | 0.8− | 0.4+ | 2007 02 21 | 691 | 0.3+ | 0.1+ | 2009 11 27 | 691 | 0.5− | 0.1− |
| 2007 02 08 | G96 | 0.3− | 0.4− | 2007 02 21 | 691 | 0.3+ | 0.1+ | 2009 11 27 | 691 | 0.4− | 0.3+ |
| 2007 02 08 | G96 | 0.4+ | 0.0 | 2007 02 21 | 691 | 0.0 | 0.2+ | 2009 12 18 | G96 | 0.8+ | 0.1− |
| 2007 02 08 | G96 | 0.4− | 0.8+ | 2009 11 23 | 691 | 0.0 | 0.1+ | 2009 12 18 | G96 | 0.4+ | 0.2− |
| 2007 02 17 | 691 | 0.0 | 0.8− | 2009 11 23 | 691 | 0.4− | 0.1− | 2009 12 18 | G96 | 0.4+ | 0.1− |
| 2007 02 17 | 691 | 0.1− | 0.0 | 2009 11 23 | 691 | 0.5+ | 0.1+ | | | | |
| 2007 02 17 | 691 | 0.1− | 0.2+ | 2009 11 27 | 691 | 0.4+ | 0.1− | | | | |

**2007 DL$_{28}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 112.12335 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18048996 | $\omega$ | 127.07787 | | −0.26735075 | | +0.95961405 |
| $a$ | 3.1009922 | $\Omega$ | 127.18644 | | −0.91529230 | | −0.22449212 |
| $e$ | 0.1131391 | $i$ | 6.30901 | | −0.30126996 | | −0.16954105 |
| $P$ | 5.46 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 02 07 | 691 | 0.4+ | 0.2− | 2007 02 21 | 691 | 0.1− | 0.0 | 2009 08 18 | 691 | 0.4− | 0.1+ |
| 2007 02 07 | 691 | 0.0 | 0.2+ | 2007 02 23 | 691 | 0.4+ | 0.1− | 2009 08 18 | 691 | 0.2− | 0.3+ |
| 2007 02 07 | 691 | 0.0 | 0.0 | 2007 02 23 | 691 | 0.1− | 0.1− | 2009 08 18 | 691 | 0.2+ | 0.1− |
| 2007 02 17 | 691 | 0.2− | 0.1+ | 2007 02 23 | 691 | 0.1− | 0.2+ | 2009 09 24 | G96 | 0.1− | 0.4− |
| 2007 02 17 | 691 | 0.2+ | 0.1+ | 2007 03 19 | G96 | 0.5+ | 1.0+ | 2009 09 24 | G96 | 0.4+ | 0.1+ |
| 2007 02 17 | 691 | 0.3− | 0.1− | 2007 03 19 | G96 | 0.2+ | 0.3− | 2009 09 24 | G96 | 0.3+ | 0.1− |
| 2007 02 21 | 691 | 0.1− | 0.1− | 2007 03 19 | G96 | 0.1− | 0.0 | 2009 09 24 | G96 | 0.4+ | 0.1− |
| 2007 02 21 | 691 | 0.2− | 0.1− | 2007 03 19 | G96 | 0.2+ | 0.1− | | | | |

**2007 DQ$_{74}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 121.38621 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17814512 | $\omega$ | 80.16556 | | −0.46855002 | | +0.88301204 |
| $a$ | 3.1281442 | $\Omega$ | 161.81719 | | −0.84105312 | | −0.43636576 |
| $e$ | 0.1071729 | $i$ | 5.03695 | | −0.27035260 | | −0.17284288 |
| $P$ | 5.53 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 02 21 | 691 | 0.2− | 0.1− | 2007 03 10 | G96 | 1.1+ | 0.1− | 2009 08 27 | 691 | 0.2− | 0.1+ |
| 2007 02 21 | 691 | 0.4+ | 0.1− | 2007 03 25 | G96 | 0.6− | 0.1− | 2009 08 27 | 691 | 0.2− | 0.0 |
| 2007 02 21 | 691 | 0.3− | 0.2+ | 2007 03 25 | G96 | 0.1− | 0.3− | 2009 08 27 | 691 | 0.3+ | 0.1− |
| 2007 02 25 | 691 | 0.0 | 0.1+ | 2007 03 25 | G96 | 0.4+ | 0.0 | 2009 09 19 | G96 | 0.4+ | 0.3− |
| 2007 02 25 | 691 | 0.2+ | 0.1− | 2007 03 25 | G96 | 0.2− | 0.1− | 2009 09 19 | G96 | 0.2+ | 0.2− |
| 2007 02 25 | 691 | 0.1− | 0.0 | 2007 04 23 | G96 | 0.0 | 0.0 | 2009 09 19 | G96 | 0.9− | 0.1− |
| 2007 03 10 | G96 | 0.2− | 0.2+ | 2007 04 23 | G96 | 0.0 | 0.3+ | 2009 09 19 | G96 | 0.4+ | 1.1+ |
| 2007 03 10 | G96 | 0.8+ | 0.5− | 2007 04 23 | G96 | 0.5− | 0.4+ | | | | |
| 2007 03 10 | G96 | 0.3− | 0.4+ | 2007 04 23 | G96 | 0.0 | 0.1+ | | | | |

**2007 DY$_{74}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 137.80468 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17774160 | $\omega$ | 76.07520 | | −0.69231951 | | +0.72151064 |
| $a$ | 3.1328769 | $\Omega$ | 150.10182 | | −0.67011246 | | −0.63731885 |
| $e$ | 0.1313458 | $i$ | 1.23857 | | −0.26766207 | | −0.27064196 |
| $P$ | 5.55 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 01 24 | 691 | 0.0 | 0.2+ | 2007 03 10 | G96 | 0.7+ | 0.6− | 2009 09 18 | G96 | 0.1+ | 0.1− |
| 2001 01 24 | 691 | 0.1+ | 0.1− | 2007 03 10 | G96 | 0.1− | 0.0 | 2009 09 18 | G96 | 0.5+ | 0.3+ |
| 2001 01 24 | 691 | 0.1− | 0.2− | 2007 03 10 | G96 | 0.1+ | 0.0 | 2009 09 18 | G96 | 0.3− | 0.2+ |
| 2007 02 21 | 691 | 0.1+ | 0.0 | 2007 03 10 | G96 | 0.1+ | 0.1− | 2009 10 18 | G96 | 0.9+ | 1.0+ |
| 2007 02 21 | 691 | 0.1+ | 0.1+ | 2007 03 25 | G96 | 0.1− | 0.3− | 2009 10 18 | G96 | 0.2− | 0.2− |
| 2007 02 21 | 691 | 0.1+ | 0.1+ | 2007 03 25 | G96 | 0.0 | 0.0 | 2009 10 18 | G96 | 0.7− | 0.9+ |
| 2007 02 25 | 691 | 0.1+ | 0.2+ | 2007 03 25 | G96 | 0.1+ | 0.4+ | 2009 10 18 | G96 | 0.8− | 1.5− |
| 2007 02 25 | 691 | 0.1− | 0.1+ | 2007 03 25 | G96 | 0.3+ | 0.0 | | | | |
| 2007 02 25 | 691 | 0.3− | 0.1− | 2009 09 18 | G96 | 0.2+ | 0.1+ | | | | |

**2007 DF$_{84}$ = 2007 DQ$_{61}$ = 2009 WM$_{238}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 247.47725 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.25670813 | $\omega$ | 30.50360 | | −0.99613503 | | +0.08381000 |
| $a$ | 2.4519389 | $\Omega$ | 154.26455 | | −0.08771761 | | −0.93374720 |
| $e$ | 0.0599920 | $i$ | 3.47042 | | −0.00454049 | | −0.34798282 |
| $P$ | 3.84 | $H$ | 17.6 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 11 03 | 691 | 0.1− | 0.1+ | 2007 02 26 | G96 | 0.2+ | 0.1+ | 2007 03 11 | G96 | 0.1− | 0.1+ |
| 2005 11 03 | 691 | 0.0 | 0.1− | 2007 02 26 | G96 | 0.0 | 0.5− | 2007 03 11 | G96 | 0.0 | 0.0 |
| 2005 11 03 | 691 | 0.0 | 0.1+ | 2007 02 26 | G96 | 0.1− | 0.2− | 2007 03 11 | G96 | 0.4− | 0.2+ |
| 2007 02 19 | G96 | 0.3− | 0.6+ | 2007 02 26 | G96 | 0.5+ | 0.2− | 2009 11 17 | G96 | 0.2− | 0.3− |
| 2007 02 19 | G96 | 0.3− | 0.3− | 2007 02 26 | G96 | 0.2+ | 0.4− | 2009 11 17 | G96 | 0.1− | 0.1+ |
| 2007 02 19 | G96 | 0.1− | 0.4− | 2007 02 26 | G96 | 0.2− | 0.3− | 2009 11 17 | G96 | 0.4− | 0.1− |
| 2007 02 19 | G96 | 0.1− | 0.1− | 2007 02 26 | G96 | 0.1− | 0.0 | 2009 11 26 | G96 | 0.4+ | 0.1+ |
| 2007 02 25 | 691 | 0.0 | 0.1+ | 2007 02 26 | 291 | 0.2+ | 0.1− | 2009 11 26 | G96 | 0.3− | 0.0 |
| 2007 02 25 | 691 | 0.2+ | 0.2+ | 2007 02 26 | 291 | 0.1− | 0.0 | 2009 11 26 | G96 | 0.1+ | 0.3+ |
| 2007 02 25 | 691 | 0.2+ | 0.2+ | 2007 02 26 | 291 | 0.3− | 0.1+ | 2009 11 26 | G96 | 0.4+ | 0.1+ |
| 2007 02 26 | G96 | 0.3− | 0.4− | 2007 03 11 | G96 | 0.0 | 0.1− | 2009 11 26 | G96 | 0.2+ | 0.3− |

**2007 DK$_{92}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 270.70756 | | (2000.0) | | | |
| $n$ | 0.22387399 | $\omega$ | 128.99896 | | −0.37181045 | −0.92424284 |
| $a$ | 2.6861708 | $\Omega$ | 342.22539 | | +0.73934569 | −0.23829430 |
| $e$ | 0.1100582 | $i$ | 16.51678 | | +0.56135990 | −0.29831360 |
| $P$ | 4.40 | $H$ | 16.1 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 01 24 | 704 | 1.6+ | 0.1− | 2007 02 27 | 691 | 0.3− | 0.1− | 2007 03 17 | 704 | 0.2+ | 1.5+ |
| 2007 01 24 | 704 | 1.1+ | 0.1− | 2007 02 27 | 691 | 0.2− | 0.1− | 2007 03 20 | G96 | 0.0 | 0.2+ |
| 2007 01 24 | 704 | 0.2− | 0.1+ | 2007 03 08 | 644 | 0.1+ | 0.3− | 2007 03 20 | G96 | 0.0 | 0.1− |
| 2007 02 23 | 691 | 0.1− | 0.2− | 2007 03 08 | 644 | 0.3− | 0.3+ | 2007 03 20 | G96 | 0.1+ | 0.2− |
| 2007 02 23 | 691 | 0.2− | 0.0 | 2007 03 08 | 644 | 0.0 | 0.2+ | 2007 03 20 | G96 | 0.2+ | 0.1+ |
| 2007 02 23 | 691 | 0.0 | 0.0 | 2007 03 11 | G96 | 0.9− | 0.1+ | 2009 08 16 | 691 | 0.8− | 0.1+ |
| 2007 02 23 | 704 | 0.2+ | 0.2+ | 2007 03 11 | G96 | 0.1+ | 0.2− | 2009 08 16 | 691 | 0.0 | 0.6+ |
| 2007 02 23 | 704 | 0.8+ | 0.4+ | 2007 03 11 | G96 | 0.0 | 0.0 | 2009 08 16 | 691 | 0.2+ | 0.1− |
| 2007 02 23 | 704 | 0.1+ | 0.3+ | 2007 03 17 | 704 | (2.9+ | 1.0+) | 2009 08 27 | 691 | 0.0 | 0.5− |
| 2007 02 23 | 704 | 0.4+ | 0.2+ | 2007 03 17 | 704 | 0.1− | 0.2− | 2009 08 27 | 691 | 0.3+ | 0.1− |
| 2007 02 27 | 691 | 0.1+ | 0.2− | 2007 03 17 | 704 | 0.7+ | 1.6+ | 2009 08 27 | 691 | 0.1+ | 0.4+ |

**2007 DF$_{98}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 39.60022 | | (2000.0) | | | |
| $n$ | 0.17741211 | $\omega$ | 319.99168 | | +0.47482100 | +0.87774823 |
| $a$ | 3.1367546 | $\Omega$ | 338.12409 | | −0.75710323 | +0.37027968 |
| $e$ | 0.0707327 | $i$ | 9.89919 | | −0.44870894 | +0.30405757 |
| $P$ | 5.56 | $H$ | 15.9 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 02 15 | 691 | 0.1+ | 0.0 | 2007 02 09 | 691 | 0.0 | 0.3− | 2007 03 13 | G96 | 0.0 | 0.5− |
| 1996 02 15 | 691 | 0.0 | 0.1+ | 2007 02 09 | 691 | 0.8− | 0.6+ | 2007 03 13 | G96 | 0.5+ | 0.6− |
| 1996 02 15 | 691 | 0.0 | 0.1+ | 2007 02 25 | G96 | 0.3+ | 0.4− | 2007 03 13 | G96 | 0.3+ | 0.4− |
| 2001 02 21 | 645 | 0.0 | 0.1+ | 2007 02 25 | G96 | 0.4+ | 0.3− | 2007 03 13 | G96 | 0.2+ | 0.5− |
| 2001 02 21 | 645 | 0.0 | 0.1+ | 2007 02 25 | G96 | 0.5+ | 0.3− | 2007 05 11 | G96 | 0.0 | 0.5− |
| 2002 04 05 | 644 | 0.7+ | 0.4+ | 2007 02 25 | G96 | 0.7+ | 0.3− | 2007 05 11 | G96 | 0.5+ | 0.5− |
| 2002 04 05 | 644 | 0.1+ | 0.7+ | 2007 02 27 | 691 | 0.0 | 0.2− | 2007 05 11 | G96 | 0.6+ | 0.2− |
| 2002 04 05 | 644 | 0.5+ | 0.6+ | 2007 02 27 | 691 | 0.0 | 0.2+ | 2007 05 11 | G96 | 0.5− | 0.3+ |
| 2007 02 09 | 691 | 0.1+ | 0.4− | 2007 02 27 | 691 | 0.8− | 0.1− | | | | |

**2007 DJ$_{109}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 322.80292 | | (2000.0) | | | |
| $n$ | 0.27564569 | $\omega$ | 131.49278 | | −0.52909514 | −0.84855233 |
| $a$ | 2.3383090 | $\Omega$ | 350.44892 | | +0.77088653 | −0.47860951 |
| $e$ | 0.1241165 | $i$ | 1.43547 | | +0.35467207 | −0.22559230 |
| $P$ | 3.58 | $H$ | 18.2 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 02 16 | 701 | 1.0+ | 0.2+ | 2007 03 16 | G96 | 0.0 | 0.1+ | 2009 11 25 | 691 | 0.2+ | 0.0 |
| 2007 02 16 | 701 | 1.1+ | 0.0 | 2007 03 16 | G96 | 0.1− | 0.1− | 2009 11 25 | 691 | 0.2+ | 0.0 |
| 2007 02 16 | 701 | 1.2− | 0.1− | 2007 03 16 | G96 | 0.1− | 0.2− | 2009 12 18 | G96 | 0.1+ | 0.0 |
| 2007 02 16 | 701 | 0.6− | 0.4+ | 2007 03 25 | G96 | 0.1− | 0.3− | 2009 12 18 | G96 | 0.3− | 0.1− |
| 2007 02 23 | G96 | 0.0 | 0.4− | 2007 03 25 | G96 | 0.2− | 0.4+ | 2009 12 18 | G96 | 0.7+ | 0.1+ |
| 2007 02 23 | G96 | 0.6− | 0.4− | 2007 03 25 | G96 | 0.4+ | 0.4− | 2009 12 19 | 691 | 0.2− | 0.5− |
| 2007 02 23 | G96 | 0.1− | 0.4− | 2007 03 25 | G96 | 0.3+ | 0.5− | 2009 12 19 | 691 | 0.1− | 0.2+ |
| 2007 02 23 | G96 | 0.2− | 0.1+ | 2007 04 07 | G96 | 0.6+ | 0.6− | 2009 12 19 | 691 | 0.4+ | 0.2+ |
| 2007 03 09 | 691 | 0.2− | 0.0 | 2007 04 07 | G96 | 0.2+ | 0.0 | 2009 12 19 | G96 | 0.8+ | 0.1+ |
| 2007 03 09 | 691 | 0.0 | 0.4+ | 2007 04 07 | G96 | 0.1− | 0.3− | 2009 12 19 | G96 | 0.1+ | 0.5+ |
| 2007 03 09 | 691 | 0.1+ | 0.2+ | 2007 04 07 | G96 | 0.0 | 0.4− | 2009 12 19 | G96 | 0.4+ | 0.5+ |
| 2007 03 16 | G96 | 0.2+ | 0.1+ | 2009 11 25 | 691 | 0.9− | 0.2− | 2009 12 19 | G96 | 0.3− | 0.2+ |

**2007 DC$_{114}$ = 2009 WS$_{219}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 301.36031 | | (2000.0) | | | |
| $n$ | 0.27218542 | $\omega$ | 347.86681 | | −0.79135741 | −0.61110110 |
| $a$ | 2.3580851 | $\Omega$ | 154.43868 | | +0.56425674 | −0.74115653 |
| $e$ | 0.1329364 | $i$ | 2.33451 | | +0.23530361 | −0.27792524 |
| $P$ | 3.62 | $H$ | 18.7 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 02 25 | 691 | 0.0 | 0.1+ | 2007 03 10 | G96 | 0.1+ | 0.3− | 2009 11 16 | G96 | 0.0 | 0.2+ |
| 2007 02 25 | 691 | 0.2+ | 0.2+ | 2007 03 10 | G96 | 0.4+ | 0.3− | 2009 11 16 | G96 | 0.7− | 0.3− |
| 2007 02 25 | 691 | 0.1+ | 0.1+ | 2007 03 25 | G96 | (2.4+ | 0.1+) | 2009 11 24 | G96 | 0.1+ | 0.3+ |
| 2007 03 10 | 691 | 0.2− | 0.2+ | 2007 03 25 | G96 | 0.3+ | 0.2+ | 2009 11 24 | G96 | 0.0 | 0.0 |
| 2007 03 10 | 691 | 0.7− | 0.3− | 2007 03 25 | G96 | 0.8+ | 0.2− | 2009 11 24 | G96 | 0.2− | 0.3− |
| 2007 03 10 | 691 | 0.1− | 0.1+ | 2007 03 25 | G96 | 0.8+ | 0.5− | 2009 11 24 | G96 | 0.2+ | 0.2+ |
| 2007 03 10 | G96 | 0.2+ | 0.3− | 2009 11 16 | G96 | 0.6+ | 0.0 | | | | |
| 2007 03 10 | G96 | 0.0 | 0.2− | 2009 11 16 | G96 | 0.0 | 0.2− | | | | |

**2007 DK$_{116}$ = 2005 UW$_{334}$ = 2009 WL$_{46}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 246.18176 | | (2000.0) | | | |
| $n$ | 0.23185893 | $\omega$ | 48.45196 | | −0.99940182 | +0.00484155 |
| $a$ | 2.6241390 | $\Omega$ | 131.79554 | | −0.01715373 | −0.92916318 |
| $e$ | 0.1198765 | $i$ | 2.63257 | | +0.03002925 | −0.36963812 |
| $P$ | 4.25 | $H$ | 16.9 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 03 05 | 691 | 0.3+ | 0.0 | 2005 11 04 | 691 | 0.1− | 0.7+ | 2007 04 07 | 703 | 1.9− | 0.6− |
| 1994 03 05 | 691 | 0.1+ | 0.1− | 2005 11 04 | 691 | 0.1− | 0.4+ | 2007 04 07 | 703 | 0.7− | 0.9− |
| 1994 03 05 | 691 | 0.7+ | 0.3− | 2005 11 04 | 691 | 0.2− | 0.6+ | 2007 04 07 | 703 | 0.4+ | 0.7− |
| 1997 12 21 | 691 | 0.4− | 0.0 | 2005 12 01 | G96 | 0.3− | 0.5+ | 2007 04 25 | G96 | 0.4+ | 0.1− |
| 1997 12 21 | 691 | 0.2− | 0.4+ | 2005 12 01 | G96 | 0.1+ | 0.6+ | 2007 04 25 | G96 | 0.0 | 0.2− |
| 1997 12 21 | 691 | 1.1− | 0.2+ | 2005 12 01 | G96 | 0.5+ | 0.5+ | 2007 04 25 | G96 | 0.1− | 0.3− |
| 2000 10 02 | 691 | 0.5+ | 0.5− | 2005 12 01 | G96 | 0.1− | 0.7+ | 2007 04 25 | G96 | 0.1− | 0.4− |
| 2000 10 02 | 691 | 0.4− | 1.2− | 2007 02 26 | G96 | 0.2− | 0.1− | 2009 09 22 | G96 | 0.1− | 0.8+ |
| 2000 10 02 | 691 | 0.3+ | 0.8− | 2007 02 26 | G96 | 0.3− | 0.2− | 2009 09 22 | G96 | 0.2+ | 0.9+ |
| 2003 05 22 | 691 | 0.3− | 0.2+ | 2007 02 26 | G96 | 0.1− | 0.0 | 2009 09 22 | G96 | 0.4+ | 0.7+ |
| 2003 05 22 | 691 | 0.2− | 0.3+ | 2007 02 26 | G96 | 0.4− | 0.0 | 2009 09 22 | G96 | 0.6+ | 0.9+ |
| 2003 05 22 | 691 | 0.2+ | 0.7+ | 2007 03 15 | 691 | 0.0 | 0.2− | 2009 11 18 | G96 | 0.1− | 0.0 |
| 2003 06 06 | 691 | 0.4+ | 0.7+ | 2007 03 15 | 691 | 0.1+ | 0.5− | 2009 11 18 | G96 | 0.2+ | 0.3+ |
| 2003 06 06 | 691 | 0.8+ | 0.9+ | 2007 03 15 | 691 | 0.1+ | 0.2− | 2009 11 18 | G96 | 0.3+ | 0.0 |
| 2003 06 06 | 691 | 0.0 | 1.3+ | 2007 03 25 | 703 | 0.3+ | 0.3+ | 2009 11 18 | G96 | 0.2− | 0.4+ |
| 2005 10 29 | G96 | 0.6+ | 0.7+ | 2007 03 25 | 703 | 0.3− | 1.9− | 2009 11 20 | G96 | 0.2− | 0.6+ |
| 2005 10 29 | G96 | 0.5+ | 0.6+ | 2007 03 25 | 703 | 1.1− | 0.1+ | 2009 11 20 | G96 | 0.2− | 0.5+ |
| 2005 10 29 | G96 | 0.7+ | 0.3+ | 2007 03 25 | 703 | 1.9− | 0.2− | 2009 11 20 | G96 | 0.1− | 0.6+ |
| 2005 10 29 | G96 | 0.2+ | 0.3+ | 2007 04 07 | 703 | 1.1+ | 0.1− | 2009 11 20 | G96 | 0.1+ | 0.3+ |

**2007 DL$_{116}$ = 2004 TD$_{172}$ = 2009 PN$_{16}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 347.61704 | | (2000.0) | | | |
| $n$ | 0.18614500 | $\omega$ | 220.18049 | | +0.81970160 | −0.57253104 |
| $a$ | 3.0378649 | $\Omega$ | 174.66038 | | +0.56151235 | +0.79725090 |
| $e$ | 0.0142113 | $i$ | 10.68117 | | +0.11310687 | +0.19130919 |
| $P$ | 5.29 | $H$ | 15.2 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 06 08 | 691 | 0.1− | 0.0 | 2005 01 19 | 809 | 0.2+ | 0.3+ | 2007 04 25 | G96 | 0.1+ | 0.1+ |
| 1997 06 08 | 691 | 0.1+ | 0.1− | 2005 01 19 | 809 | 0.0 | 0.8+ | 2007 04 25 | G96 | 0.4− | 0.2+ |
| 1997 06 08 | 691 | 0.1+ | 0.2− | 2005 01 19 | 809 | 0.3+ | 0.3+ | 2007 04 25 | G96 | 0.3− | 0.1+ |
| 1997 07 07 | 691 | 0.2− | 0.4− | 2006 01 04 | G96 | 0.3+ | 0.0 | 2007 04 25 | G96 | 0.3+ | 0.1+ |
| 1997 07 07 | 691 | 0.0 | 0.2− | 2006 01 04 | G96 | 0.2+ | 0.1+ | 2009 08 15 | 691 | 0.3− | 0.3− |
| 1997 07 07 | 691 | 0.2− | 0.1+ | 2006 01 04 | G96 | 1.0− | 0.7− | 2009 08 15 | 691 | 0.6+ | 0.0 |
| 1998 09 22 | 910 | 0.5+ | 0.6+ | 2006 01 04 | G96 | 0.9+ | 1.1− | 2009 08 15 | 691 | 0.3− | 0.1+ |
| 1998 09 22 | 910 | 0.7+ | 1.0+ | 2007 02 26 | G96 | 0.0 | 0.3+ | 2009 08 19 | 691 | 0.2− | 0.0 |
| 1998 09 22 | 910 | 0.0 | 0.5+ | 2007 02 26 | G96 | 0.5+ | 0.2+ | 2009 08 19 | 691 | 0.1− | 0.0 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 08 | 704 | 0.6− | 0.8+ | 2007 02 26 | G96 | 0.3+ | 0.2+ | 2009 08 19 | 691 | 0.2+ | 0.3+ |
| 2004 10 08 | 704 | 0.9− | 0.6+ | 2007 02 26 | G96 | 0.2+ | 0.2+ | 2009 08 27 | 691 | 0.1− | 0.0 |
| 2004 10 08 | 704 | 0.9− | 0.5+ | 2007 03 11 | 691 | 0.4− | 0.5+ | 2009 08 27 | 691 | 0.1+ | 0.1+ |
| 2004 10 09 | 704 | 0.3+ | 0.7− | 2007 03 11 | 691 | 0.2+ | 0.4+ | 2009 08 27 | 691 | 0.0 | 0.2+ |
| 2004 10 09 | 704 | 0.2+ | 0.2+ | 2007 03 11 | 691 | 0.1+ | 0.2+ | 2009 09 25 | 703 | (0.1+ | 2.2+) |
| 2004 10 09 | 704 | 0.7− | 0.8− | 2007 04 15 | 703 | (1.5− | 2.3+) | 2009 09 25 | 703 | (1.1− | 1.6+) |
| 2004 10 09 | 704 | 1.1− | 0.4+ | 2007 04 15 | 703 | (0.9− | 1.6+) | 2009 09 25 | 703 | (0.5− | 1.9+) |
| 2004 10 09 | 704 | 0.5+ | 0.7− | 2007 04 15 | 703 | 0.8+ | 1.0+ | 2009 09 25 | 703 | 0.0 | 0.8+ |
| 2004 10 09 | 704 | 0.9+ | 0.7+ | 2007 04 15 | 703 | 0.9+ | 1.1+ | | | | |

### 2007 EC$_8$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 116.18690 | | (2000.0) | | **P** | **Q** |
| $n$ | 0.18088339 | $\omega$ | 252.05484 | | −0.33981057 | +0.94044606 |
| $a$ | 3.0964941 | $\Omega$ | 358.00351 | | −0.72646680 | −0.26887277 |
| $e$ | 0.0819500 | $i$ | 15.80072 | | −0.59730626 | −0.20801116 |
| $P$ | 5.45 | $H$ | 15.2 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 03 09 | 644 | 0.5+ | 0.0 | 2007 03 14 | 704 | 0.4+ | 0.1− | 2009 08 18 | 691 | 0.1− | 0.0 |
| 2007 03 09 | 644 | 0.0 | 0.0 | 2007 03 14 | 704 | 1.2+ | 0.0 | 2009 08 18 | 691 | 0.1+ | 0.0 |
| 2007 03 09 | 644 | 0.2+ | 0.3− | 2007 03 17 | 699 | 0.1− | 0.6+ | 2009 08 27 | J75 | 1.4+ | 0.6− |
| 2007 03 09 | 644 | 0.4+ | 0.2− | 2007 03 17 | 699 | 0.1+ | 1.0+ | 2009 08 27 | J75 | 0.9− | 0.1+ |
| 2007 03 09 | 644 | 0.2+ | 0.1− | 2007 03 17 | 699 | 0.5+ | 0.3+ | 2009 08 27 | J75 | 0.1− | 0.7+ |
| 2007 03 09 | 644 | 0.3+ | 0.2− | 2007 03 17 | 699 | 0.1+ | 0.5− | 2009 08 27 | 691 | 0.2− | 0.2+ |
| 2007 03 10 | 691 | 0.5− | 0.0 | 2007 03 17 | 704 | 0.8+ | 0.9+ | 2009 08 27 | 691 | 0.1− | 0.3+ |
| 2007 03 10 | 691 | 0.1+ | 0.2− | 2007 03 17 | 704 | 0.3+ | 1.1+ | 2009 08 27 | 691 | 0.0 | 0.1+ |
| 2007 03 10 | 691 | 0.2− | 0.0 | 2007 03 17 | 704 | 0.2+ | 1.0+ | 2009 09 18 | G96 | 0.2− | 0.0 |
| 2007 03 10 | G96 | 0.0 | 0.4− | 2007 04 16 | G96 | 0.3− | 0.1+ | 2009 09 18 | G96 | 0.3+ | 0.1+ |
| 2007 03 10 | G96 | 0.0 | 0.5− | 2007 04 16 | G96 | 0.3− | 0.1− | 2009 09 18 | G96 | 0.1+ | 0.0 |
| 2007 03 10 | G96 | 0.3− | 0.3− | 2007 04 16 | G96 | 0.1+ | 0.0 | 2009 09 18 | G96 | 0.3− | 0.1− |
| 2007 03 10 | G96 | 0.3+ | 0.3− | 2007 04 16 | G96 | 0.0 | 0.2+ | 2009 10 17 | G96 | 0.4− | 0.1+ |
| 2007 03 14 | 691 | 0.1+ | 0.1− | 2007 05 11 | G96 | 0.6+ | 0.2− | 2009 10 17 | G96 | 0.9− | 0.2+ |
| 2007 03 14 | 691 | 0.2− | 0.0 | 2007 05 11 | G96 | 0.3+ | 0.4+ | 2009 10 17 | G96 | 0.6− | 0.4+ |
| 2007 03 14 | 691 | 0.1− | 0.3+ | 2007 05 11 | G96 | 0.1+ | 0.4+ | 2009 10 17 | G96 | 0.6− | 0.0 |
| 2007 03 14 | 704 | 0.7+ | 0.1+ | 2007 05 11 | G96 | 0.3+ | 0.2+ | | | | |
| 2007 03 14 | 704 | 0.3− | 0.2+ | 2009 08 18 | 691 | 0.1+ | 0.2+ | | | | |

### 2007 EV$_{10}$ = 2009 WS$_{51}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 20.20418 | | (2000.0) | | **P** | **Q** |
| $n$ | 0.30394747 | $\omega$ | 121.37869 | | +0.15915508 | −0.98642356 |
| $a$ | 2.1908048 | $\Omega$ | 319.40102 | | +0.88335445 | +0.16059317 |
| $e$ | 0.1106720 | $i$ | 3.56589 | | +0.44085663 | +0.03432778 |
| $P$ | 3.24 | $H$ | 18.1 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 07 12 | G96 | 0.1+ | 0.1− | 2007 03 11 | 691 | 0.3+ | 0.1− | 2009 11 21 | G96 | 0.2+ | 0.4− |
| 2005 07 12 | G96 | 0.4− | 0.5+ | 2007 03 11 | 691 | 0.4− | 0.1− | 2009 12 18 | G96 | 0.1− | 0.1− |
| 2005 07 12 | G96 | 0.2− | 0.1+ | 2007 03 26 | 691 | 0.0 | 0.2+ | 2009 12 18 | G96 | 0.4+ | 0.0 |
| 2005 07 12 | G96 | 0.1+ | 0.3+ | 2007 03 26 | 691 | 0.5+ | 0.1− | 2009 12 18 | G96 | 0.1− | 0.2− |
| 2007 01 28 | G96 | 0.0 | 0.0 | 2007 03 26 | 691 | 0.4− | 0.0 | 2009 12 18 | G96 | 0.2+ | 0.2− |
| 2007 01 28 | G96 | 0.1+ | 0.4+ | 2009 11 20 | G96 | 0.0 | 0.1− | 2009 12 19 | 691 | 0.7+ | 0.1+ |
| 2007 01 28 | G96 | 0.2− | 0.2− | 2009 11 20 | G96 | 0.1− | 0.2− | 2009 12 19 | 691 | 0.4− | 0.2− |
| 2007 01 28 | G96 | 0.0 | 0.1− | 2009 11 20 | G96 | 0.1− | 0.1− | 2009 12 19 | 691 | 0.2− | 0.1+ |
| 2007 03 09 | 691 | 0.2+ | 0.3− | 2009 11 20 | G96 | 0.2− | 0.4+ | 2009 12 27 | 691 | 0.1+ | 0.1+ |
| 2007 03 09 | 691 | 0.3− | 0.4+ | 2009 11 21 | G96 | 0.2− | 0.1− | 2009 12 27 | 691 | 0.1− | 0.0 |
| 2007 03 09 | 691 | 0.1+ | 0.1+ | 2009 11 21 | G96 | 0.2+ | 0.4− | 2009 12 27 | 691 | 0.2− | 0.3+ |
| 2007 03 11 | 691 | 0.0 | 0.1− | 2009 11 21 | G96 | 0.2+ | 0.0 | | | | |

### 2007 EC$_{12}$ = 2009 XR$_8$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 316.90058 | | (2000.0) | | **P** | **Q** |
| $n$ | 0.28547632 | $\omega$ | 82.05416 | | −0.68819817 | −0.72400322 |
| $a$ | 2.2843150 | $\Omega$ | 51.54368 | | +0.63981178 | −0.63612589 |
| $e$ | 0.1631673 | $i$ | 3.43593 | | +0.34208794 | −0.26676431 |
| $P$ | 3.45 | $H$ | 17.5 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 02 25 | G96 | 0.1− | 0.4− | 2007 03 25 | 621 | 0.1− | 0.6− | 2009 12 11 | 703 | 0.1− | 0.0 |
| 2007 02 25 | G96 | 0.1+ | 0.3− | 2007 03 25 | 621 | 0.3+ | 0.5+ | 2009 12 15 | A77 | 0.8+ | 0.1+ |
| 2007 02 25 | G96 | 0.2− | 0.3− | 2007 03 25 | 621 | 0.1− | 0.7− | 2009 12 15 | A77 | 0.9+ | 0.0 |
| 2007 02 25 | G96 | 0.5− | 0.0 | 2009 09 19 | G96 | 0.2− | 0.3+ | 2009 12 15 | A77 | 0.5+ | 0.5− |
| 2007 03 08 | 644 | 0.1+ | 0.7+ | 2009 09 19 | G96 | 0.1− | 0.2+ | 2009 12 18 | G96 | 0.3+ | 0.2+ |
| 2007 03 08 | 644 | 0.1+ | 0.2+ | 2009 09 19 | G96 | 0.6+ | 1.0− | 2009 12 18 | G96 | 0.2+ | 0.0 |
| 2007 03 08 | 644 | 0.4+ | 0.1+ | 2009 09 19 | G96 | 0.3− | 0.0 | 2009 12 18 | G96 | 0.2+ | 0.1+ |
| 2007 03 09 | 703 | 0.2− | 0.3+ | 2009 10 21 | G96 | 0.5+ | 0.2− | 2009 12 18 | G96 | 0.3+ | 0.1+ |
| 2007 03 09 | 703 | (0.9− | 2.1−) | 2009 10 21 | G96 | 0.5+ | 0.1+ | 2009 12 19 | 691 | 0.4− | 0.2+ |
| 2007 03 09 | 703 | (1.6+ | 1.2−) | 2009 10 21 | G96 | 0.5+ | 0.0 | 2009 12 19 | 691 | 0.1− | 0.2+ |
| 2007 03 09 | 703 | 0.7− | 0.2+ | 2009 10 21 | G96 | 0.5+ | 0.6+ | 2009 12 19 | 691 | 0.1− | 0.0 |
| 2007 03 10 | 644 | 0.2− | 0.2+ | 2009 11 08 | 691 | 0.4− | 1.1− | 2009 12 19 | G96 | 0.1+ | 0.3+ |
| 2007 03 10 | 644 | 0.3+ | 0.3+ | 2009 11 08 | 691 | 0.0 | 0.3+ | 2009 12 19 | G96 | 0.3+ | 0.1− |
| 2007 03 10 | 644 | 0.2+ | 0.5+ | 2009 11 08 | 691 | 0.2− | 0.5+ | 2009 12 19 | G96 | 0.1+ | 0.2+ |
| 2007 03 19 | 621 | 0.3+ | 0.3− | 2009 12 11 | 703 | 0.2− | 0.2− | 2009 12 19 | G96 | 0.7− | 1.3− |
| 2007 03 20 | 621 | 0.1+ | 0.5− | 2009 12 11 | 703 | 0.8+ | 0.5+ | | | | |
| 2007 03 20 | 621 | 0.3+ | 0.2− | 2009 12 11 | 703 | 0.2− | 0.2− | | | | |

### 2007 EY$_{23}$ = 2001 SP$_{314}$ = 2009 TX$_{42}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 331.37021 | | (2000.0) | | **P** | **Q** |
| $n$ | 0.25009286 | $\omega$ | 333.07003 | | −0.00528768 | −0.99827742 |
| $a$ | 2.4949884 | $\Omega$ | 117.18308 | | +0.92889681 | −0.02654123 |
| $e$ | 0.1819249 | $i$ | 3.76627 | | +0.37030091 | +0.05232365 |
| $P$ | 3.94 | $H$ | 17.0 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 23 | 704 | 0.3− | 1.0+ | 2005 11 01 | 703 | 0.1+ | 1.7− | 2009 10 11 | J75 | 1.2+ | 0.1+ |
| 2001 09 23 | 704 | 0.6+ | 0.3+ | 2005 11 01 | 703 | 0.0 | 0.2+ | 2009 10 11 | J75 | 0.8+ | 0.2− |
| 2001 09 23 | 704 | 0.0 | 1.3+ | 2007 03 10 | G96 | 0.6− | 0.3− | 2009 10 11 | J75 | 0.3− | 0.4− |
| 2001 09 23 | 704 | 0.2+ | 1.5+ | 2007 03 10 | G96 | 0.1+ | 0.2− | 2009 10 16 | G96 | 0.5+ | 0.0 |
| 2001 09 25 | 704 | 0.0 | 0.2+ | 2007 03 10 | G96 | 0.1+ | 0.2− | 2009 10 16 | G96 | 0.1+ | 0.1+ |
| 2001 09 25 | 704 | 0.6− | 0.5+ | 2007 03 10 | G96 | 0.1+ | 0.6− | 2009 10 16 | G96 | 0.5+ | 0.1− |
| 2001 09 25 | 704 | 0.5− | 0.8+ | 2007 03 11 | 691 | 0.2− | 0.1− | 2009 10 16 | G96 | 0.2+ | 0.2− |
| 2003 03 27 | 644 | 0.4+ | 0.5+ | 2007 03 11 | 691 | 0.0 | 0.4+ | 2009 10 24 | G96 | 0.3− | 0.2+ |
| 2003 03 27 | 644 | 0.2− | 0.4+ | 2007 03 11 | 691 | 0.0 | 0.1− | 2009 10 24 | G96 | 0.0 | 0.2+ |
| 2003 03 27 | 644 | 0.4+ | 0.3+ | 2007 03 15 | 691 | 0.6+ | 0.0 | 2009 10 24 | G96 | 0.1− | 0.3+ |
| 2005 10 06 | 703 | 0.8− | 1.0− | 2007 03 15 | 691 | 0.3− | 0.0 | 2009 10 24 | G96 | 0.2− | 0.0 |
| 2005 10 06 | 703 | 1.0+ | 2.1− | 2007 03 15 | 691 | 0.3− | 0.1− | 2009 11 09 | 703 | 0.1+ | 0.1+ |
| 2005 10 06 | 703 | 1.8+ | 1.8− | 2007 04 23 | G96 | 0.1+ | 0.1− | 2009 11 09 | 703 | 0.3+ | 1.5+ |
| 2005 10 06 | 703 | 1.3− | 2.0− | 2007 04 23 | G96 | 0.1+ | 0.2− | 2009 11 09 | 703 | 1.1− | 1.3+ |
| 2005 11 01 | 703 | 0.1− | 0.3+ | 2007 04 23 | G96 | 0.4+ | 0.4+ | 2009 11 09 | 703 | 1.3− | 0.2+ |
| 2005 11 01 | 703 | 0.8− | 0.2+ | 2007 04 23 | G96 | 0.0 | 0.1− | | | | |

### 2007 ES$_{25}$ = 2009 VP$_{99}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 62.18191 | | (2000.0) | | **P** | **Q** |
| $n$ | 0.23610348 | $\omega$ | 313.85401 | | +0.99004255 | −0.12997847 |
| $a$ | 2.5925937 | $\Omega$ | 53.68700 | | +0.14052892 | +0.89021375 |
| $e$ | 0.0874325 | $i$ | 3.84606 | | +0.00820748 | +0.43660633 |
| $P$ | 4.17 | $H$ | 16.3 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 04 25 | 691 | 0.0 | 0.6+ | 2007 03 10 | G96 | 0.0 | 0.2+ | 2009 09 30 | G96 | 0.1+ | 0.3+ |
| 2003 04 25 | 691 | 0.1− | 0.6+ | 2007 03 10 | G96 | 0.2− | 0.2− | 2009 09 30 | G96 | 0.1+ | 0.6+ |
| 2003 04 25 | 691 | 0.1+ | 0.5+ | 2007 03 11 | 691 | 0.3− | 0.2− | 2009 09 30 | G96 | 0.1+ | 0.1− |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 05 05 | 691 | 0.2+ | 0.1+ | 2007 03 11 | 691 | 0.2+ | 0.1− | 2009 11 09 | G96 | 0.2+ | 0.1− |
| 2003 05 05 | 691 | 0.7+ | 0.0 | 2007 03 11 | 691 | 0.3+ | 0.1+ | 2009 11 09 | G96 | 0.2− | 0.2− |
| 2003 05 05 | 691 | 0.1+ | 0.0 | 2007 03 15 | 691 | 0.3+ | 0.2− | 2009 11 09 | G96 | 0.1− | 0.1− |
| 2004 08 22 | E12 | 0.5+ | 0.3+ | 2007 03 15 | 691 | 0.6+ | 0.1+ | 2009 11 25 | 691 | 0.4− | 0.0 |
| 2004 08 22 | E12 | 0.1− | 1.0+ | 2007 03 15 | 691 | 0.2+ | 0.1− | 2009 11 25 | 691 | 0.2− | 0.0 |
| 2004 08 22 | E12 | 0.6− | 1.0+ | 2007 03 20 | 691 | 0.5− | 0.2− | 2009 11 25 | 691 | 0.3− | 0.1+ |
| 2004 08 22 | E12 | 0.5− | 0.0 | 2007 03 20 | 691 | 0.9− | 0.1− | 2009 12 09 | J75 | 0.4− | 0.3− |
| 2006 02 01 | G96 | 0.4− | 0.5+ | 2007 03 20 | 691 | 0.2− | 0.1+ | 2009 12 09 | J75 | 0.3− | 0.0 |
| 2006 02 01 | G96 | 0.2− | 0.2+ | 2007 04 25 | G96 | 0.9− | 0.6− | 2009 12 09 | J75 | 0.1− | 0.1+ |
| 2006 02 01 | G96 | 0.4+ | 0.6+ | 2007 04 25 | G96 | 0.5− | 0.5− | 2009 12 16 | G96 | 0.5+ | 0.3+ |
| 2006 02 01 | G96 | 0.1+ | 0.4+ | 2007 04 25 | G96 | 0.5+ | 0.4− | 2009 12 16 | G96 | 0.4+ | 0.1+ |
| 2006 02 01 | G96 | 0.3− | 0.2+ | 2007 04 25 | G96 | 0.2− | 0.5− | 2009 12 16 | G96 | 0.3+ | 0.3+ |
| 2006 02 01 | G96 | 0.7+ | 0.2+ | 2009 09 20 | G96 | 0.3+ | 0.2− | 2009 12 16 | G96 | 0.4+ | 0.1+ |
| 2006 02 01 | G96 | 0.1− | 0.0 | 2009 09 20 | G96 | 0.3− | 0.2− | 2009 12 26 | 291 | 0.3− | 0.1+ |
| 2006 02 01 | G96 | 0.4− | 0.4− | 2009 09 20 | G96 | 0.3+ | 0.3+ | 2009 12 26 | 291 | 0.1+ | 0.0 |
| 2007 03 10 | G96 | 0.4+ | 0.1+ | 2009 09 20 | G96 | 0.3+ | 0.0 | 2009 12 26 | 291 | 0.7+ | 0.3+ |
| 2007 03 10 | G96 | 0.2+ | 0.2+ | 2009 09 30 | G96 | 0.0 | 0.4+ | | | | |

**2007 EN$_{28}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 175.44216 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17469056 | $\omega$ | 358.10058 | | −0.98787314 | −0.15313690 | |
| $a$ | 3.1692495 | $\Omega$ | 172.93445 | | +0.14505520 | −0.96910044 | |
| $e$ | 0.1318334 | $i$ | 12.01592 | | +0.05536828 | −0.19337381 | |
| $P$ | 5.64 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 02 16 | G96 | 0.3− | 0.5− | 2007 03 09 | 644 | 0.2+ | 0.0 | 2007 04 14 | G96 | 0.0 | 0.4− |
| 2007 02 16 | G96 | 0.1− | 0.3− | 2007 03 09 | 644 | 0.1+ | 0.3+ | 2007 04 14 | G96 | 0.5− | 0.2− |
| 2007 02 16 | G96 | 0.4− | 0.2− | 2007 03 09 | 644 | 0.1+ | 0.3+ | 2007 04 14 | G96 | 0.4− | 0.3− |
| 2007 02 16 | G96 | 0.2+ | 0.1− | 2007 03 12 | G96 | 0.9− | 0.0 | 2009 07 29 | 691 | 0.7− | 0.1+ |
| 2007 02 17 | 703 | 1.5− | 0.6+ | 2007 03 12 | G96 | 0.1− | 0.2− | 2009 07 29 | 691 | 0.1+ | 0.1+ |
| 2007 02 17 | 703 | 1.5+ | 0.9− | 2007 03 12 | G96 | 0.3− | 0.2− | 2009 07 29 | 691 | 0.0 | 0.1− |
| 2007 02 17 | 703 | 0.3− | 0.4− | 2007 03 12 | G96 | 0.5− | 0.0 | 2009 08 16 | 691 | 0.5+ | 0.1+ |
| 2007 02 17 | 703 | 0.5+ | 0.4− | 2007 03 14 | 704 | 1.1+ | 1.0+ | 2009 08 16 | 691 | 0.3+ | 0.2− |
| 2007 03 08 | 644 | 0.3− | 0.3+ | 2007 03 14 | 704 | 1.2+ | 0.9+ | 2009 08 16 | 691 | 0.3− | 0.0 |
| 2007 03 08 | 644 | 0.3+ | 0.0 | 2007 03 14 | 704 | 0.4+ | 0.3+ | | | | |
| 2007 03 08 | 644 | 0.0 | 0.4+ | 2007 04 14 | G96 | 0.2− | 0.3− | | | | |

**2007 EP$_{29}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 178.01121 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19118995 | $\omega$ | 36.58246 | | −0.98130952 | +0.17004170 | |
| $a$ | 2.9841868 | $\Omega$ | 152.78952 | | −0.18658374 | −0.95532723 | |
| $e$ | 0.0589341 | $i$ | 11.36369 | | +0.04709704 | −0.24173478 | |
| $P$ | 5.16 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 12 23 | G96 | 0.1+ | 0.4+ | 2007 03 09 | 644 | 0.5+ | 0.0 | 2007 03 16 | 704 | 1.2+ | 0.4+ |
| 2006 12 23 | G96 | 0.7+ | 0.9− | 2007 03 12 | G96 | 0.3+ | 0.2− | 2007 03 19 | G96 | 0.1− | 0.2− |
| 2006 12 23 | G96 | 0.6− | 0.6+ | 2007 03 12 | G96 | 0.5+ | 1.0+ | 2007 03 19 | G96 | 0.1− | 0.3− |
| 2006 12 23 | G96 | 0.7− | 0.2+ | 2007 03 12 | G96 | 0.1+ | 0.3− | 2007 03 19 | G96 | 0.0 | 0.3− |
| 2007 02 21 | 691 | 1.2− | 1.7+ | 2007 03 12 | G96 | 0.2+ | 0.2− | 2007 03 19 | G96 | 0.4− | 0.1− |
| 2007 02 21 | 691 | 0.5+ | 0.1+ | 2007 03 15 | 703 | 0.1− | 0.3− | 2009 08 16 | 691 | 0.1− | 0.5+ |
| 2007 02 21 | 691 | 0.6+ | 0.1+ | 2007 03 15 | 703 | 0.7− | 0.6− | 2009 08 16 | 691 | 0.3+ | 0.4+ |
| 2007 03 09 | 644 | 0.5+ | 0.1+ | 2007 03 15 | 703 | 0.3− | 0.3+ | 2009 08 16 | 691 | 0.2− | 0.7+ |
| 2007 03 09 | 703 | 0.4− | 1.1− | 2007 03 15 | 703 | 0.5− | 0.6− | 2009 09 24 | G96 | 0.6− | 0.2+ |
| 2007 03 09 | 703 | 0.5− | 0.0 | 2007 03 16 | 704 | (1.7+ | 2.1+) | 2009 09 24 | G96 | 0.3− | 0.0 |
| 2007 03 09 | 703 | 0.6− | 1.7− | 2007 03 16 | 704 | 0.6+ | 0.2+ | 2009 09 24 | G96 | 0.6− | 0.2+ |
| 2007 03 09 | 703 | 1.3− | 0.4− | 2007 03 16 | 704 | 0.5+ | 1.4+ | 2009 09 24 | G96 | 0.0 | 0.2+ |
| 2007 03 09 | 644 | 1.0+ | 0.1+ | 2007 03 16 | 704 | 1.8+ | 1.1+ | | | | |

**2007 EN$_{39}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 245.22027 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22889717 | $\omega$ | 152.55115 | | −0.97610227 | −0.21033595 | |
| $a$ | 2.6467267 | $\Omega$ | 15.59819 | | +0.14267891 | −0.80987615 | |
| $e$ | 0.1677889 | $i$ | 11.71975 | | +0.16391180 | −0.54759421 | |
| $P$ | 4.31 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 03 10 | 691 | 0.3− | 1.0− | 2007 03 16 | 704 | (1.2− | 2.0−) | 2007 04 10 | 246 | 1.0+ | 0.5+ |
| 2007 03 10 | 691 | 0.5− | 0.0 | 2007 03 16 | 704 | 0.0 | 0.6+ | 2007 04 10 | 246 | (2.0+ | 0.0 ) |
| 2007 03 10 | 691 | 0.5− | 0.1− | 2007 03 16 | 699 | 0.1− | 0.2+ | 2007 04 10 | 246 | 1.1+ | 0.1− |
| 2007 03 10 | G96 | 0.4− | 0.3− | 2007 03 16 | 704 | 0.2− | 0.2+ | 2007 04 10 | 246 | (1.7+ | 0.1−) |
| 2007 03 10 | G96 | 0.4− | 0.4− | 2007 03 16 | 699 | 0.1+ | 0.1− | 2007 04 10 | 246 | 1.3+ | 0.1+ |
| 2007 03 10 | G96 | 0.3− | 0.4− | 2007 03 16 | 246 | 0.5+ | 0.1− | 2007 04 10 | 246 | 1.0+ | 0.5+ |
| 2007 03 10 | G96 | 0.2− | 0.4− | 2007 03 16 | 246 | 0.4+ | 0.2+ | 2007 04 10 | 246 | 1.1+ | 0.0 |
| 2007 03 12 | 246 | 0.1+ | 0.2+ | 2007 03 16 | 246 | 0.5+ | 0.3+ | 2007 04 10 | 246 | 1.0+ | 0.1+ |
| 2007 03 12 | 246 | 0.3+ | 0.3+ | 2007 03 16 | 246 | 0.6+ | 0.1+ | 2007 04 10 | 246 | 1.2+ | 0.4+ |
| 2007 03 12 | 246 | 0.3+ | 0.2+ | 2007 03 16 | 246 | 0.7+ | 0.1− | 2007 04 10 | 246 | (1.7+ | 0.4+) |
| 2007 03 12 | 246 | 0.1+ | 0.2− | 2007 03 16 | 246 | 0.7+ | 0.0 | 2007 04 10 | 246 | 0.7+ | 0.2+ |
| 2007 03 12 | 246 | 0.3+ | 0.2+ | 2007 03 16 | 246 | 0.5+ | 0.1+ | 2007 04 10 | 246 | 1.3+ | 0.0 |
| 2007 03 12 | 246 | 0.2+ | 0.1+ | 2007 03 23 | 152 | 0.4− | 0.2+ | 2007 04 10 | 246 | 0.8+ | 0.2− |
| 2007 03 12 | 246 | 0.1+ | 0.2+ | 2007 03 23 | 152 | 0.3− | 0.1+ | 2007 04 10 | 246 | 0.9+ | 0.3− |
| 2007 03 12 | 246 | 0.2+ | 0.1+ | 2007 03 23 | 152 | 0.3+ | 0.1− | 2007 04 10 | 246 | 1.0+ | 0.0 |
| 2007 03 12 | 246 | 0.5+ | 0.1+ | 2007 03 23 | 152 | 0.2+ | 0.4− | 2007 04 10 | 246 | 0.8+ | 0.2+ |
| 2007 03 12 | 246 | 0.3+ | 0.1+ | 2007 03 23 | 152 | 0.3− | 0.4− | 2007 04 10 | 246 | (1.8+ | 0.2+) |
| 2007 03 12 | 246 | 0.3+ | 0.1+ | 2007 04 06 | A13 | 1.1− | 0.2− | 2007 04 10 | 246 | 0.8+ | 0.2− |
| 2007 03 13 | 246 | 0.2+ | 0.2+ | 2007 04 06 | A13 | 1.0− | 0.4− | 2007 04 16 | 699 | (0.3− | 1.8−) |
| 2007 03 13 | 246 | 0.2+ | 0.5+ | 2007 04 06 | A13 | 0.7− | 0.4− | 2007 04 16 | 699 | 1.3− | 0.7− |
| 2007 03 13 | 246 | 0.2− | 0.0 | 2007 04 07 | 703 | 0.3− | 0.1− | 2007 04 16 | 699 | 0.5+ | 0.3+ |
| 2007 03 13 | 246 | 0.2+ | 0.3+ | 2007 04 07 | 703 | 1.3− | 0.4+ | 2007 04 16 | 704 | 0.2+ | 0.1+ |
| 2007 03 13 | 246 | 0.3+ | 0.5+ | 2007 04 07 | 703 | 0.2− | 1.0+ | 2007 04 16 | 699 | 0.2− | 0.3+ |
| 2007 03 13 | 246 | 0.3+ | 0.3+ | 2007 04 07 | 703 | (1.7− | 0.9+) | 2007 04 16 | 704 | 0.5− | 0.5− |
| 2007 03 13 | 246 | 0.3+ | 0.3+ | 2007 04 08 | 644 | 0.5− | 0.1− | 2007 04 16 | 704 | 0.2− | 0.4+ |
| 2007 03 14 | 691 | 0.4− | 0.0 | 2007 04 08 | 644 | 0.1− | 0.1− | 2007 04 16 | 704 | 0.6− | 0.3+ |
| 2007 03 14 | 691 | 0.6− | 0.2− | 2007 04 08 | 644 | 0.4− | 0.2− | 2007 04 16 | 704 | 0.1− | 0.5+ |
| 2007 03 14 | 691 | 0.5− | 0.5+ | 2007 04 08 | A13 | 0.4− | 0.9− | 2007 04 17 | 699 | 0.5− | 0.0 |
| 2007 03 14 | 246 | 0.5+ | 0.1− | 2007 04 08 | A13 | 0.7− | 0.3− | 2007 04 17 | 699 | 0.4− | 0.2− |
| 2007 03 14 | 246 | 0.2+ | 0.2− | 2007 04 08 | 246 | 0.5+ | 0.0 | 2007 04 17 | 699 | 0.2− | 0.1− |
| 2007 03 14 | 246 | 0.1+ | 0.3− | 2007 04 08 | 246 | 0.0 | 0.3− | 2007 04 17 | 699 | 0.4− | 1.5+ |
| 2007 03 14 | 246 | 0.3+ | 0.1− | 2007 04 08 | 246 | 0.0 | 0.2− | 2007 04 20 | G96 | 0.8− | 0.2− |
| 2007 03 14 | 246 | 0.2− | 0.0 | 2007 04 08 | 246 | 0.1− | 0.2− | 2007 04 20 | G96 | 0.4− | 0.2− |
| 2007 03 15 | 246 | 0.4+ | 0.1+ | 2007 04 08 | 246 | 0.1− | 0.1+ | 2007 04 20 | G96 | 0.7− | 0.2− |
| 2007 03 15 | 246 | 0.3+ | 0.0 | 2007 04 08 | 246 | 0.1+ | 0.0 | 2007 04 20 | G96 | 0.2− | 0.4− |
| 2007 03 15 | 246 | 0.3− | 0.1+ | 2007 04 08 | 246 | 0.2+ | 0.0 | 2009 09 15 | 691 | 0.1− | 0.0 |
| 2007 03 15 | 246 | 0.0 | 0.2− | 2007 04 08 | 246 | 0.3+ | 0.0 | 2009 09 15 | 691 | 0.3+ | 0.2+ |
| 2007 03 15 | 246 | 0.1− | 0.1+ | 2007 04 08 | 246 | 0.3+ | 0.0 | 2009 09 15 | 691 | 0.0 | 0.1+ |
| 2007 03 15 | 246 | 0.0 | 0.2+ | 2007 04 08 | A13 | 1.1− | 0.4− | 2009 09 27 | 691 | 0.1+ | 0.0 |
| 2007 03 15 | 246 | 0.3+ | 0.2+ | 2007 04 08 | 246 | 0.0 | 0.2+ | 2009 09 27 | 691 | 0.1+ | 0.2+ |
| 2007 03 15 | 246 | 0.1+ | 0.2− | 2007 04 08 | 246 | 0.2− | 0.2+ | 2009 09 27 | 691 | 0.1+ | 0.1− |
| 2007 03 15 | 246 | 0.1+ | 0.1− | 2007 04 08 | 246 | 0.4− | 0.0 | 2009 10 27 | G96 | 0.5− | 0.4− |
| 2007 03 16 | 699 | 0.8+ | 0.0 | 2007 04 08 | 246 | 0.0 | 0.0 | 2009 10 27 | G96 | 0.3− | 0.2− |
| 2007 03 16 | 704 | (2.1− | 0.1+) | 2007 04 08 | 246 | 0.3− | 0.2− | 2009 10 27 | G96 | 0.0 | 0.4− |
| 2007 03 16 | 704 | 0.1− | 0.2+ | 2007 04 08 | 246 | 0.2− | 0.4− | 2009 10 27 | G96 | 0.3− | 0.0 |
| 2007 03 16 | 704 | 0.2− | 0.7+ | 2007 04 08 | 246 | 0.0 | 0.0 | 2009 12 18 | G96 | 0.4− | 0.2+ |
| 2007 03 16 | 704 | 0.0 | 1.0+ | 2007 04 08 | 246 | 0.1+ | 0.2− | 2009 12 18 | G96 | 0.5− | 0.5+ |
| 2007 03 16 | 699 | 0.2+ | 0.4+ | 2007 04 08 | 246 | 0.4+ | 0.1− | 2009 12 18 | G96 | 0.5− | 0.0 |
| 2007 03 16 | 704 | 0.1+ | 0.8− | 2007 04 10 | 246 | 1.4+ | 0.2+ | 2009 12 18 | G96 | 1.2− | 0.6− |
| 2007 03 16 | 704 | 0.2− | 0.6+ | 2007 04 10 | 246 | 1.3+ | 0.0 | | | | |

**2007 EG$_{42}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 324.74040 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.25518394 | $\omega$ | 108.00570 | | −0.33855206 | | −0.94094300 |
| $a$ | 2.4616926 | $\Omega$ | 1.79112 | | +0.82349276 | | −0.29781310 |
| $e$ | 0.0873159 | $i$ | 5.43675 | | +0.45523859 | | −0.16103920 |
| $P$ | 3.86 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 10 11 | 644 | 0.4− | 0.6+ | 2007 03 09 | G96 | 0.1+ | 0.4+ | 2009 10 26 | 691 | 0.3− | 0.2− |
| 2001 10 11 | 644 | 0.7− | 0.5+ | 2007 03 13 | 691 | 0.4− | 0.3+ | 2009 10 26 | 691 | 0.1− | 0.2− |
| 2001 10 11 | 644 | 0.6− | 0.6+ | 2007 03 13 | 691 | 0.1− | 0.1− | 2009 11 09 | 691 | 0.4− | 0.6+ |
| 2005 10 01 | G96 | 0.6+ | 0.4− | 2007 03 13 | 691 | 0.3− | 0.0 | 2009 11 09 | 691 | 0.6+ | 0.1− |
| 2005 10 01 | G96 | 0.3+ | 0.0 | 2007 03 26 | G96 | 0.1+ | 0.2− | 2009 11 09 | 691 | 0.1− | 0.1+ |
| 2005 10 01 | G96 | 0.6+ | 0.2− | 2007 03 26 | G96 | 0.3+ | 0.2− | 2009 11 10 | 703 | 1.4+ | 0.7+ |
| 2005 10 01 | G96 | 0.3+ | 0.2− | 2007 03 26 | G96 | 0.3+ | 0.1+ | 2009 11 10 | 703 | 0.3− | 0.0 |
| 2007 03 09 | 691 | 0.1− | 0.2+ | 2007 03 26 | G96 | 0.2+ | 0.3− | 2009 11 10 | 703 | 0.3− | 0.4+ |
| 2007 03 09 | 691 | 0.0 | 0.1+ | 2007 04 19 | G96 | 0.4+ | 0.4− | 2009 11 10 | 703 | 0.6− | 0.5− |
| 2007 03 09 | 691 | 0.4+ | 0.0 | 2007 04 19 | G96 | 0.0 | 0.3− | 2009 12 20 | G96 | 0.3+ | 0.4− |
| 2007 03 09 | G96 | 0.3+ | 0.1− | 2007 04 19 | G96 | 0.1+ | 0.2− | 2009 12 20 | G96 | 0.2+ | 0.3− |
| 2007 03 09 | G96 | 0.2+ | 0.5+ | 2007 04 19 | G96 | 0.1+ | 0.5− | 2009 12 20 | G96 | 0.1+ | 0.2− |
| 2007 03 09 | G96 | 0.7+ | 0.3+ | 2009 10 26 | 691 | 0.2− | 0.2− | 2009 12 20 | G96 | 0.1+ | 0.2− |

**2007 ET$_{48}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 168.34862 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17681437 | $\omega$ | 190.81412 | | −0.84125939 | | +0.52265292 |
| $a$ | 3.1438201 | $\Omega$ | 22.42474 | | −0.46502993 | | −0.56911900 |
| $e$ | 0.1668780 | $i$ | 21.25058 | | −0.27573503 | | −0.63477358 |
| $P$ | 5.57 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 03 09 | 691 | 0.1+ | 0.1− | 2007 04 16 | 704 | 0.2− | 0.8+ | 2007 04 26 | 691 | 0.1− | 0.2− |
| 2007 03 09 | 691 | 0.2+ | 0.1+ | 2007 04 16 | 704 | 0.6+ | 0.7+ | 2007 04 26 | 691 | 0.5− | 0.3− |
| 2007 03 09 | 691 | 0.2− | 0.0 | 2007 04 16 | 704 | 0.8+ | 0.1− | 2007 04 26 | 691 | 0.3− | 0.1− |
| 2007 03 13 | 691 | 0.1+ | 0.1+ | 2007 04 16 | 704 | 0.1+ | 0.2+ | 2009 07 28 | 291 | 0.7− | 0.1− |
| 2007 03 13 | 691 | 0.0 | 0.1− | 2007 04 16 | 704 | 1.0+ | 0.4+ | 2009 07 28 | 291 | 0.3− | 0.1− |
| 2007 03 13 | 691 | 0.0 | 0.1+ | 2007 04 18 | 699 | 1.0+ | 0.2− | 2009 07 28 | 291 | 0.1+ | 0.2− |
| 2007 03 30 | 644 | 0.5+ | 0.4− | 2007 04 18 | G96 | 0.1− | 0.2+ | 2009 10 16 | G96 | 0.5+ | 0.3+ |
| 2007 03 30 | 644 | 0.1+ | 0.1− | 2007 04 18 | 699 | 0.1− | 0.7+ | 2009 10 16 | G96 | 0.4+ | 0.4+ |
| 2007 03 30 | 644 | 1.0+ | 0.3+ | 2007 04 18 | G96 | 0.1− | 0.0 | 2009 10 16 | G96 | 0.7+ | 0.1+ |
| 2007 04 07 | 703 | 1.2− | 1.0− | 2007 04 18 | G96 | 0.0 | 0.3+ | 2009 10 16 | G96 | 0.4+ | 0.0 |
| 2007 04 07 | 703 | 0.3− | 0.7− | 2007 04 18 | G96 | 0.0 | 0.2+ | 2009 10 24 | G96 | 0.6+ | 0.1+ |
| 2007 04 07 | 703 | (1.0− | 1.7−) | 2007 04 18 | 699 | 0.3+ | 0.2+ | 2009 10 24 | G96 | 0.0 | 0.2+ |
| 2007 04 07 | 703 | 0.5− | 0.7+ | 2007 04 18 | 699 | 0.7+ | 0.4+ | 2009 10 24 | G96 | 0.2+ | 0.6+ |

**2007 EV$_{56}$ = 2008 RP$_{132}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 181.09004 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.35704033 | $\omega$ | 180.24827 | | +0.95838291 | | +0.26167652 |
| $a$ | 1.9678464 | $\Omega$ | 163.18426 | | −0.26124349 | | +0.96508586 |
| $e$ | 0.0592049 | $i$ | 23.23732 | | −0.11512622 | | −0.01160543 |
| $P$ | 2.76 | $H$ | 17.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 02 17 | 703 | 0.4− | 0.7+ | 2007 03 11 | 691 | 0.2+ | 0.4+ | 2008 09 06 | 703 | 0.3+ | 0.3− |
| 2007 02 17 | 703 | (0.3+ | 1.8−) | 2007 03 11 | 691 | 0.0 | 0.0 | 2008 09 06 | 703 | 0.4+ | 0.8+ |
| 2007 02 17 | 703 | 0.1+ | 0.8− | 2007 03 15 | G96 | 0.2+ | 0.2− | 2008 09 06 | 703 | 0.0 | 0.1− |
| 2007 02 17 | 703 | 0.3+ | 0.8+ | 2007 03 15 | G96 | 0.1+ | 0.2− | 2008 09 06 | 703 | 0.9− | 0.4− |
| 2007 02 17 | 703 | 0.6+ | 0.1+ | 2007 03 15 | G96 | 0.5+ | 0.2− | 2008 09 20 | 703 | 0.3+ | 0.4+ |
| 2007 02 17 | 703 | 0.3− | 1.0− | 2007 03 16 | G96 | 0.1+ | 0.2− | 2008 09 20 | 703 | (2.0− | 0.5−) |
| 2007 02 17 | 703 | 0.2− | 0.0 | 2007 03 16 | G96 | 0.1+ | 0.1− | 2008 09 20 | 703 | 0.0 | 0.5− |
| 2007 02 17 | 703 | 0.8− | 0.1+ | 2007 03 16 | G96 | 0.0 | 0.2− | 2008 09 20 | 703 | 0.1− | 0.0 |
| 2007 03 11 | 691 | 0.2− | 0.1− | 2007 03 16 | G96 | 0.2− | 0.2− | | | | |

**2007 EM$_{68}$ = 2009 XT**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 253.56042 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.26848096 | $\omega$ | 69.18404 | | −0.96724773 | | +0.23269281 |
| $a$ | 2.3797266 | $\Omega$ | 124.14108 | | −0.25339171 | | −0.90872412 |
| $e$ | 0.0716320 | $i$ | 7.03858 | | +0.01498209 | | −0.34651773 |
| $P$ | 3.67 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 03 08 | 644 | 0.0 | 0.1− | 2007 03 14 | 699 | 0.7− | 0.4+ | 2009 12 08 | D25 | 0.4+ | 1.0+ |
| 2007 03 08 | 644 | 0.2+ | 0.2+ | 2007 03 14 | 699 | 0.5+ | 1.0− | 2009 12 08 | D25 | 1.2+ | 0.1+ |
| 2007 03 08 | 644 | 0.1− | 0.3+ | 2007 03 16 | 703 | 0.2− | 0.7− | 2009 12 08 | D25 | 0.0 | 0.3+ |
| 2007 03 08 | 644 | 0.1+ | 0.4− | 2007 03 16 | 703 | 0.5− | 0.2− | 2009 12 09 | D25 | 0.0 | 0.0 |
| 2007 03 08 | 644 | 0.1+ | 0.1+ | 2007 03 16 | 703 | 0.3− | 0.3+ | 2009 12 09 | D25 | 0.2+ | 0.3+ |
| 2007 03 08 | 644 | 0.4+ | 0.4+ | 2007 03 16 | 703 | 0.1+ | 0.0 | 2009 12 09 | D25 | 0.6− | 0.7− |
| 2007 03 10 | 644 | 0.2+ | 0.0 | 2009 11 26 | G96 | 0.1− | 0.1+ | 2009 12 09 | D25 | 0.4− | 0.2− |
| 2007 03 10 | 644 | 0.2+ | 0.2+ | 2009 11 26 | G96 | 0.0 | 0.0 | 2009 12 18 | 291 | 0.1− | 0.1− |
| 2007 03 10 | 644 | 0.3− | 0.3+ | 2009 11 26 | G96 | 0.1+ | 0.2− | 2009 12 18 | 291 | 0.0 | 0.1− |
| 2007 03 14 | 699 | 0.2+ | 0.7− | 2009 11 26 | G96 | 0.2+ | 0.0 | 2009 12 18 | 291 | 0.1− | 0.0 |
| 2007 03 14 | 699 | 0.0 | 0.8+ | 2009 11 26 | G96 | 0.4− | 0.1+ | | | | |

**2007 EM$_{79}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 227.50953 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21700239 | $\omega$ | 351.46980 | | −0.99500606 | | +0.08197796 |
| $a$ | 2.7425825 | $\Omega$ | 193.62963 | | −0.07121153 | | −0.98277713 |
| $e$ | 0.0736835 | $i$ | 13.98392 | | −0.06994183 | | −0.16561618 |
| $P$ | 4.54 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 05 02 | 691 | 0.5+ | 0.1− | 2007 03 18 | 691 | 0.0 | 0.4+ | 2007 04 19 | G96 | 0.2+ | 0.2+ |
| 1998 05 02 | 691 | 0.4− | 0.3− | 2007 03 18 | 691 | 0.2− | 0.6− | 2007 04 19 | G96 | 0.1− | 0.1+ |
| 1998 05 02 | 691 | 0.2− | 0.3+ | 2007 03 18 | 691 | 0.2− | 0.2− | 2007 04 22 | G96 | 0.1+ | 0.2− |
| 2004 09 12 | 691 | 0.2− | 0.3+ | 2007 03 20 | G96 | 0.2+ | 0.3− | 2007 04 22 | G96 | 0.1− | 0.0 |
| 2004 09 12 | 691 | 0.0 | 0.2− | 2007 03 20 | G96 | 0.0 | 0.1− | 2007 04 22 | G96 | 0.1− | 0.3+ |
| 2004 09 12 | 691 | 0.1+ | 0.0 | 2007 03 20 | G96 | 0.6− | 0.0 | 2007 04 22 | G96 | 0.2− | 0.5+ |
| 2007 03 10 | 691 | 0.1+ | 0.5+ | 2007 03 20 | G96 | 0.3− | 0.2− | 2007 05 16 | G96 | 0.0 | 0.1+ |
| 2007 03 10 | 691 | 0.3+ | 0.0 | 2007 03 26 | 691 | 0.1+ | 0.1+ | 2007 05 16 | G96 | 0.3+ | 0.3− |
| 2007 03 10 | 691 | 0.5− | 0.5− | 2007 03 26 | 691 | 0.3− | 0.0 | 2007 05 16 | G96 | 0.2+ | 0.1+ |
| 2007 03 14 | 691 | 0.1+ | 0.1+ | 2007 03 26 | 691 | 0.3+ | 0.0 | 2007 05 16 | G96 | 0.0 | 0.4− |
| 2007 03 14 | 691 | 0.2+ | 0.3+ | 2007 04 19 | G96 | 0.1− | 0.1+ | | | | |
| 2007 03 14 | 691 | 0.1+ | 0.0 | 2007 04 19 | G96 | 0.1+ | 0.1+ | | | | |

**2007 ET$_{81}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 153.83866 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18061733 | $\omega$ | 202.37492 | | −0.77196170 | | +0.62948998 |
| $a$ | 3.0995343 | $\Omega$ | 17.54737 | | −0.52974524 | | −0.56019428 |
| $e$ | 0.0712348 | $i$ | 17.05332 | | −0.35134757 | | −0.53844659 |
| $P$ | 5.46 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 03 11 | 691 | 0.1− | 0.0 | 2007 04 23 | G96 | 0.2− | 0.1+ | 2009 10 23 | G96 | 0.2+ | 0.2− |
| 2007 03 11 | 691 | 0.1+ | 0.1+ | 2007 04 25 | G96 | 0.0 | 0.3− | 2009 10 23 | G96 | 0.2+ | 0.4+ |
| 2007 03 11 | 691 | 0.1+ | 0.2+ | 2007 04 25 | G96 | 0.0 | 0.2− | 2009 10 23 | G96 | 0.3− | 0.3− |
| 2007 03 14 | 691 | 0.2− | 0.2− | 2007 04 25 | G96 | 0.4+ | 0.2+ | 2009 10 23 | G96 | 0.1− | 0.2− |
| 2007 03 14 | 691 | 0.1− | 0.2− | 2007 04 25 | G96 | 0.1+ | 0.2− | 2009 11 16 | G96 | 0.2+ | 0.4+ |
| 2007 03 14 | 691 | 0.2+ | 0.1+ | 2009 09 26 | G96 | 0.1+ | 0.1+ | 2009 11 16 | G96 | 0.1− | 0.2− |
| 2007 04 23 | G96 | 0.1+ | 0.1+ | 2009 09 26 | G96 | 0.1− | 0.1+ | 2009 11 16 | G96 | 0.4− | 0.2− |
| 2007 04 23 | G96 | 0.1− | 0.3+ | 2009 09 26 | G96 | 0.5− | 0.0 | 2009 11 16 | G96 | 0.4+ | 0.3+ |
| 2007 04 23 | G96 | 0.1− | 0.1+ | 2009 09 26 | G96 | 0.3+ | 0.0 | | | | |

**2007 EP$_{94}$ = 2009 VZ$_{101}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 71.67128 | | (2000.0) | | | |
| $n$ | 0.23905278 | $\omega$ | 346.40265 | | +0.97838175 | +0.20679748 |
| $a$ | 2.5712256 | $\Omega$ | 1.66648 | | −0.18277041 | +0.86912791 |
| $e$ | 0.0745818 | $i$ | 3.92228 | | −0.09676844 | +0.44927885 |
| $P$ | 4.12 | $H$ | 17.4 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 01 | 691 | 0.0 | 0.1+ | 2007 03 15 | 691 | 0.0 | 0.1+ | 2009 11 11 | 691 | 0.3− | 0.2+ |
| 2005 12 01 | 691 | 0.2− | 0.0 | 2007 03 15 | 691 | 0.2− | 0.2+ | 2009 11 11 | 691 | 0.1− | 0.1− |
| 2005 12 01 | 691 | 0.1+ | 0.1− | 2007 03 15 | 691 | 0.6− | 0.1+ | 2009 11 11 | 691 | 0.1+ | 0.0 |
| 2007 03 10 | G96 | 0.2+ | 0.2− | 2007 03 25 | G96 | 0.8+ | 0.4− | 2009 11 22 | G96 | 0.5+ | 0.0 |
| 2007 03 10 | G96 | 0.6+ | 0.0 | 2007 03 25 | G96 | 0.7+ | 0.2− | 2009 11 22 | G96 | 0.6+ | 0.0 |
| 2007 03 10 | G96 | 0.3− | 0.3− | 2007 03 25 | G96 | 0.6+ | 0.5− | 2009 11 22 | G96 | 0.4+ | 0.1− |
| 2007 03 10 | G96 | 0.1+ | 0.0 | 2007 03 25 | G96 | 0.4+ | 0.2− | | | | |

**2007 ER$_{96}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 106.49178 | | (2000.0) | | | |
| $n$ | 0.18610653 | $\omega$ | 283.66695 | | +0.47565189 | +0.87800352 |
| $a$ | 3.0382836 | $\Omega$ | 15.08754 | | −0.70646771 | +0.41756106 |
| $e$ | 0.1425007 | $i$ | 11.86690 | | −0.52407887 | +0.23399269 |
| $P$ | 5.30 | $H$ | 15.5 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 03 10 | G96 | 0.1− | 0.2+ | 2007 04 08 | 691 | 0.2+ | 0.1− | 2009 10 26 | G96 | 1.2+ | 0.0 |
| 2007 03 10 | G96 | 0.3+ | 0.5+ | 2007 04 08 | 691 | 0.2+ | 0.4− | 2009 10 26 | G96 | 0.1− | 0.1− |
| 2007 03 10 | G96 | 0.1+ | 0.6+ | 2007 04 18 | 699 | 0.1− | 1.0+ | 2009 11 09 | G96 | 0.1− | 0.2+ |
| 2007 03 10 | G96 | 0.1+ | 0.3+ | 2007 04 18 | 699 | 0.3+ | 0.5+ | 2009 11 09 | G96 | 0.1− | 0.1+ |
| 2007 03 15 | 691 | 0.1+ | 0.1− | 2007 04 18 | 699 | 0.3+ | 0.5− | 2009 11 09 | G96 | 0.2− | 0.3− |
| 2007 03 15 | 691 | 0.0 | 0.2− | 2007 04 18 | 699 | 0.6− | 0.6+ | 2009 11 09 | G96 | 0.3− | 0.0 |
| 2007 03 15 | 691 | 0.4− | 0.1+ | 2009 10 26 | G96 | 0.2− | 0.0 | | | | |
| 2007 04 08 | 691 | 0.1− | 0.0 | 2009 10 26 | G96 | 0.1− | 0.1+ | | | | |

**2007 EG$_{101}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 264.45020 | | (2000.0) | | | |
| $n$ | 0.23232333 | $\omega$ | 125.26602 | | −0.82391122 | −0.56195833 |
| $a$ | 2.6206408 | $\Omega$ | 20.84728 | | +0.42963759 | −0.70371982 |
| $e$ | 0.1304867 | $i$ | 11.88652 | | +0.36956979 | −0.43471975 |
| $P$ | 4.24 | $H$ | 17.0 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 03 11 | 691 | 0.2− | 0.3− | 2007 04 14 | 691 | 0.1− | 0.2− | 2009 09 28 | 691 | 0.0 | 0.0 |
| 2007 03 11 | 691 | 0.2− | 0.1− | 2007 04 18 | 691 | 0.2− | 0.2+ | 2009 09 28 | 691 | 0.1− | 0.0 |
| 2007 03 11 | 691 | 0.0 | 0.1− | 2007 04 18 | 691 | 0.1+ | 0.0 | 2009 10 27 | G96 | 0.1+ | 0.1− |
| 2007 03 15 | 691 | 0.3+ | 0.1+ | 2007 04 18 | 691 | 0.2− | 0.3+ | 2009 10 27 | G96 | 0.3− | 0.5− |
| 2007 03 15 | 691 | 0.1+ | 0.1− | 2007 05 11 | G96 | 0.0 | 0.1− | 2009 10 27 | G96 | 0.3− | 0.4+ |
| 2007 03 15 | 691 | 0.1+ | 0.1− | 2007 05 11 | G96 | 0.4− | 0.3− | 2009 10 27 | G96 | 0.9+ | 0.4+ |
| 2007 03 21 | 704 | 1.4+ | 1.4+ | 2007 05 11 | G96 | 0.2− | 0.2− | 2009 11 18 | G96 | 0.2+ | 0.1− |
| 2007 03 21 | 704 | (0.4− | 2.0+) | 2007 05 11 | G96 | 0.2− | 0.1− | 2009 11 18 | G96 | 0.1− | 0.1+ |
| 2007 03 21 | 704 | 0.0 | 0.5+ | 2009 09 20 | 691 | 0.5+ | 0.7+ | 2009 11 18 | G96 | 0.5− | 0.5− |
| 2007 03 21 | 704 | (2.2+ | 0.5−) | 2009 09 20 | 691 | 0.1− | 0.1− | 2009 11 18 | G96 | 0.2+ | 0.3− |
| 2007 04 14 | 691 | 0.1+ | 0.1− | 2009 09 20 | 691 | 0.2− | 0.1− | | | | |
| 2007 04 14 | 691 | 0.1+ | 0.0 | 2009 09 28 | 691 | 0.2− | 0.3− | | | | |

**2007 EX$_{104}$ = 2009 WR$_{246}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 124.86182 | | (2000.0) | | | |
| $n$ | 0.22584868 | $\omega$ | 226.49752 | | +0.49595032 | +0.86823525 |
| $a$ | 2.6704904 | $\Omega$ | 73.23994 | | −0.79236529 | +0.45916788 |
| $e$ | 0.1643153 | $i$ | 0.84801 | | −0.35523306 | +0.18796916 |
| $P$ | 4.36 | $H$ | 16.7 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 31 | 291 | 0.0 | 0.1+ | 2007 03 15 | 691 | 0.1− | 0.3+ | 2009 11 16 | 691 | 0.2− | 0.0 |
| 2005 12 31 | 291 | 0.1− | 0.1+ | 2007 03 15 | 691 | 0.1+ | 0.1+ | 2009 11 16 | 691 | 0.5− | 0.0 |
| 2005 12 31 | 291 | 0.1+ | 0.2+ | 2007 03 15 | 691 | 0.1+ | 0.3− | 2009 11 16 | 691 | 0.0 | 0.4− |
| 2007 02 25 | G96 | 0.5− | 0.1− | 2007 03 20 | G96 | 0.2− | 0.0 | 2009 11 24 | 691 | 0.4− | 0.1− |
| 2007 02 25 | G96 | 0.6+ | 0.4− | 2007 03 20 | G96 | 0.1+ | 0.2+ | 2009 11 24 | 691 | 0.1+ | 0.2− |
| 2007 02 25 | G96 | 0.7− | 0.1+ | 2007 03 20 | G96 | 0.0 | 0.0 | 2009 11 24 | 691 | 0.8− | 0.0 |
| 2007 02 25 | G96 | 0.2− | 0.3− | 2007 03 20 | G96 | 0.1− | 0.2− | 2009 11 27 | G96 | 1.9+ | 0.4+ |
| 2007 03 11 | G96 | 0.8+ | 0.4− | 2009 11 08 | G96 | 1.3+ | 0.7− | 2009 11 27 | G96 | 0.6+ | 0.3+ |
| 2007 03 11 | G96 | 0.4− | 0.2+ | 2009 11 08 | G96 | 0.2+ | 0.3− | 2009 11 27 | G96 | 0.8+ | 0.6+ |
| 2007 03 11 | G96 | 0.0 | 0.0 | 2009 11 08 | G96 | 0.2+ | 1.1+ | 2009 11 27 | G96 | 1.4+ | 0.3− |
| 2007 03 11 | G96 | 0.1− | 0.2− | 2009 11 08 | G96 | 1.2+ | 0.5+ | 2009 11 27 | G96 | 0.1+ | 0.3− |

**2007 EG$_{108}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 261.23362 | | (2000.0) | | | |
| $n$ | 0.27078711 | $\omega$ | 187.01741 | | −0.88624777 | +0.45765906 |
| $a$ | 2.3661961 | $\Omega$ | 20.68743 | | −0.41454566 | −0.71475150 |
| $e$ | 0.1470242 | $i$ | 11.67801 | | −0.20668042 | −0.52884637 |
| $P$ | 3.64 | $H$ | 17.0 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 21 | 691 | 0.2− | 0.1− | 2007 03 16 | 704 | 1.2+ | 0.9− | 2007 04 16 | 704 | 0.8+ | 0.2+ |
| 2001 09 21 | 691 | 0.1+ | 0.3+ | 2007 03 16 | 699 | 0.0 | 0.3+ | 2007 04 16 | 704 | 0.5+ | 0.1+ |
| 2001 09 21 | 691 | 0.1+ | 0.1− | 2007 03 16 | 704 | 0.7+ | 0.9+ | 2007 04 16 | 704 | 0.5+ | 1.1+ |
| 2004 08 09 | E12 | 0.6− | 0.5+ | 2007 03 16 | 704 | 0.8+ | 0.3+ | 2007 04 16 | 704 | 0.4+ | 0.1+ |
| 2004 08 09 | E12 | 0.3− | 0.3− | 2007 03 16 | 704 | 0.2+ | 0.6− | 2007 04 18 | 699 | 1.9+ | 1.0− |
| 2004 08 09 | E12 | 0.4+ | 0.4+ | 2007 03 26 | 691 | 0.3− | 0.1+ | 2007 04 18 | 699 | 0.0 | 1.1+ |
| 2004 08 09 | E12 | 0.2+ | 0.3− | 2007 03 26 | 691 | 0.3− | 0.1+ | 2007 04 18 | 699 | 0.0 | 0.7+ |
| 2007 03 11 | 691 | 0.0 | 0.2− | 2007 03 26 | 691 | 0.2− | 0.1+ | 2007 04 18 | 699 | 0.9+ | 0.2− |
| 2007 03 11 | 691 | 0.0 | 0.0 | 2007 04 15 | G96 | 0.0 | 0.1− | 2007 05 12 | 703 | 0.8+ | 0.5+ |
| 2007 03 11 | 691 | 0.0 | 0.2+ | 2007 04 15 | G96 | 0.2+ | 0.1− | 2007 05 12 | 703 | 1.3− | 0.2+ |
| 2007 03 15 | 691 | 0.0 | 0.1+ | 2007 04 15 | G96 | 0.2− | 0.0 | 2007 05 12 | 703 | 0.4− | 0.5− |
| 2007 03 15 | 691 | 0.0 | 0.0 | 2007 04 15 | 703 | 1.1− | 0.7− | 2007 05 12 | 703 | 2.0− | 0.6+ |
| 2007 03 15 | 691 | 0.1− | 0.1− | 2007 04 15 | 703 | 0.1− | 0.4− | 2007 06 04 | G96 | 0.0 | 0.1− |
| 2007 03 16 | 699 | 0.6− | 0.4− | 2007 04 15 | G96 | 0.0 | 0.1− | 2007 06 04 | G96 | 0.1+ | 0.0 |
| 2007 03 16 | 699 | 0.1− | 0.5+ | 2007 04 15 | 703 | 0.5− | 0.5+ | 2007 06 04 | G96 | 0.1+ | 0.0 |
| 2007 03 16 | 699 | 1.4− | 0.7+ | 2007 04 15 | 703 | 1.0− | 0.3− | 2007 06 04 | G96 | 0.2+ | 0.9− |
| 2007 03 16 | 704 | 2.7+ | 1.0− | 2007 04 16 | 704 | 1.1+ | 1.4− | | | | |

**2007 EK$_{110}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 177.66777 | | (2000.0) | | | |
| $n$ | 0.17514720 | $\omega$ | 22.29129 | | −0.96493693 | +0.26128549 |
| $a$ | 3.1637385 | $\Omega$ | 172.71801 | | −0.26060442 | −0.94228247 |
| $e$ | 0.0697822 | $i$ | 11.39015 | | −0.03133788 | −0.20936486 |
| $P$ | 5.63 | $H$ | 15.6 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 02 26 | G96 | 0.6− | 0.2− | 2007 04 16 | 703 | (1.9− | 0.9−) | 2009 08 27 | 691 | 0.2+ | 0.0 |
| 2007 02 26 | G96 | 0.2+ | 0.6− | 2007 04 16 | 703 | 0.1+ | 0.8+ | 2009 08 27 | 691 | 0.0 | 0.0 |
| 2007 02 26 | G96 | 0.0 | 0.3− | 2007 04 16 | 703 | 0.3− | 0.8+ | 2009 09 18 | G96 | 0.4+ | 0.1− |
| 2007 02 26 | G96 | 0.4+ | 0.3+ | 2007 04 23 | G96 | 0.0 | 0.2− | 2009 09 18 | G96 | 0.2+ | 0.1− |
| 2007 03 11 | 691 | 0.2− | 0.0 | 2007 04 23 | G96 | 0.1+ | 0.0 | 2009 09 18 | G96 | 0.2+ | 0.2− |
| 2007 03 11 | 691 | 0.3+ | 0.3+ | 2007 04 23 | G96 | 0.0 | 0.2− | 2009 09 18 | G96 | 0.2+ | 0.1+ |
| 2007 03 11 | 691 | 0.2+ | 0.1+ | 2007 04 23 | G96 | 0.0 | 0.2− | 2009 10 25 | G96 | 0.3+ | 0.2− |
| 2007 03 15 | 691 | 0.0 | 0.1− | 2009 08 15 | 691 | 0.1− | 0.1− | 2009 10 25 | G96 | 0.5+ | 0.3+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 03 15 | 691 | 0.0 | 0.1− | 2009 08 15 | 691 | 0.2+ | 0.0 | 2009 10 25 | G96 | 0.0 | 0.0 | | |
| 2007 03 15 | 691 | 0.1− | 0.1− | 2009 08 15 | 691 | 0.0 | 0.1− | 2009 10 25 | G96 | 0.1+ | 0.2− | | |
| 2007 04 16 | 703 | 0.7− | 0.5− | 2009 08 27 | 691 | 0.7− | 0.2+ | | | | | | |

**2007 EP$_{112}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 263.75275 | | (2000.0) | | | |
| $n$ | 0.24066493 | $\omega$ | 348.01728 | | −0.99573944 | −0.09096727 |
| $a$ | 2.5597301 | $\Omega$ | 186.81771 | | +0.09156287 | −0.95600645 |
| $e$ | 0.0737001 | $i$ | 7.30650 | | +0.01091851 | −0.27888460 |
| $P$ | 4.10 | $H$ | 17.1 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 09 12 | 691 | 0.7− | 0.1− | 2007 04 23 | 691 | 0.0 | 0.2+ | 2007 05 16 | G96 | 0.1− | 0.2+ | | |
| 1996 09 12 | 691 | 0.6+ | 0.1− | 2007 04 23 | 691 | 0.0 | 0.5+ | 2007 05 16 | G96 | 0.4+ | 0.1+ | | |
| 1996 09 12 | 691 | 0.1+ | 0.3+ | 2007 04 25 | 691 | 0.1+ | 0.0 | 2007 05 16 | G96 | 0.2− | 0.1− | | |
| 2004 08 22 | 691 | 0.1+ | 0.3+ | 2007 04 25 | 691 | 0.2+ | 0.1+ | 2007 05 16 | G96 | 0.2− | 0.1+ | | |
| 2004 08 22 | 691 | 0.1+ | 0.3+ | 2007 04 25 | 691 | 0.3− | 0.0 | 2009 11 23 | G96 | 0.3+ | 0.4+ | | |
| 2004 08 22 | 691 | 0.4− | 0.2+ | 2007 05 16 | G96 | 0.0 | 0.2− | 2009 11 23 | G96 | 0.7+ | 0.3+ | | |
| 2007 03 11 | 691 | 0.0 | 0.0 | 2007 05 16 | G96 | 0.3+ | 0.1+ | 2009 11 23 | G96 | 0.4+ | 0.4+ | | |
| 2007 03 11 | 691 | 0.3+ | 0.4+ | 2007 05 16 | G96 | 0.4− | 0.1− | 2009 11 23 | G96 | 0.2+ | 0.3+ | | |
| 2007 03 11 | 691 | 0.3+ | 0.3− | 2007 05 16 | G96 | 0.0 | 0.4− | 2009 12 18 | 691 | 0.1− | 0.4+ | | |
| 2007 03 15 | 691 | 0.0 | 0.0 | 2007 05 16 | G96 | 1.0− | 0.4− | 2009 12 18 | 691 | 0.4− | 0.1+ | | |
| 2007 03 15 | 691 | 0.4+ | 0.3+ | 2007 05 16 | G96 | 0.1− | 0.1− | 2009 12 18 | 691 | 0.1− | 0.0 | | |
| 2007 03 15 | 691 | 0.2+ | 0.3+ | 2007 05 16 | G96 | 0.2+ | 0.0 | | | | | | |
| 2007 04 23 | 691 | 0.4− | 0.1− | 2007 05 16 | G96 | 0.2− | 0.3+ | | | | | | |

**2007 EZ$_{141}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 258.46123 | | (2000.0) | | | |
| $n$ | 0.22479240 | $\omega$ | 318.71788 | | −0.86721324 | −0.49699574 |
| $a$ | 2.6788494 | $\Omega$ | 191.59686 | | +0.48740899 | −0.83470257 |
| $e$ | 0.0856407 | $i$ | 8.75593 | | +0.10185120 | −0.23720635 |
| $P$ | 4.38 | $H$ | 17.5 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 24 | 691 | 0.1+ | 0.0 | 2007 03 12 | 691 | 0.3− | 0.1+ | 2007 04 20 | G96 | 0.3− | 0.0 | | |
| 2000 09 24 | 691 | 0.3+ | 0.2− | 2007 03 16 | 691 | 0.1+ | 0.0 | 2007 04 20 | G96 | 0.1+ | 0.3− | | |
| 2000 09 24 | 691 | 0.3− | 0.2− | 2007 03 16 | 691 | 0.0 | 0.1+ | 2007 04 20 | G96 | 0.1− | 0.1− | | |
| 2003 05 22 | 691 | 0.1− | 0.0 | 2007 03 16 | 691 | 0.5− | 0.2− | 2007 04 20 | G96 | 0.3+ | 0.0 | | |
| 2003 05 22 | 691 | 0.1+ | 0.0 | 2007 03 26 | G96 | 0.5+ | 0.4− | 2007 05 22 | G96 | 0.3+ | 0.3− | | |
| 2003 05 22 | 691 | 0.0 | 0.1+ | 2007 03 26 | G96 | 0.9+ | 0.3− | 2007 05 22 | G96 | 0.2− | 0.3− | | |
| 2007 03 12 | 691 | 0.1− | 0.3+ | 2007 03 26 | G96 | 0.9+ | 0.3− | 2007 05 22 | G96 | 0.4− | 0.4− | | |
| 2007 03 12 | 691 | 0.1− | 0.1+ | 2007 03 26 | G96 | 0.4+ | 0.4− | 2007 05 22 | G96 | 0.2+ | 0.2− | | |

**2007 EC$_{168}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 121.98287 | | (2000.0) | | | |
| $n$ | 0.17378955 | $\omega$ | 179.15357 | | −0.18751505 | +0.98139087 |
| $a$ | 3.1801940 | $\Omega$ | 80.03788 | | −0.90145405 | −0.15521424 |
| $e$ | 0.0764042 | $i$ | 2.40633 | | −0.39015215 | −0.11305090 |
| $P$ | 5.67 | $H$ | 16.1 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 03 13 | 691 | 0.2− | 0.3+ | 2007 04 23 | 691 | 0.1− | 0.2− | 2009 10 16 | G96 | 0.1+ | 0.2+ | | |
| 2007 03 13 | 691 | 0.1− | 0.0 | 2007 04 23 | 691 | 0.2+ | 0.1− | 2009 10 16 | G96 | 0.0 | 0.1+ | | |
| 2007 03 13 | 691 | 0.5+ | 0.2− | 2007 05 12 | G96 | 0.0 | 0.3+ | 2009 10 16 | G96 | 0.0 | 0.0 | | |
| 2007 03 17 | 691 | 0.3− | 0.1+ | 2007 05 12 | G96 | 0.2+ | 0.0 | 2009 10 24 | G96 | 0.1− | 0.3+ | | |
| 2007 03 17 | 691 | 0.2− | 0.3+ | 2007 05 12 | G96 | 0.3+ | 0.1+ | 2009 10 24 | G96 | 0.0 | 0.3− | | |
| 2007 03 17 | 691 | 0.3+ | 0.4− | 2007 05 12 | G96 | 0.1− | 0.1+ | 2009 10 24 | G96 | 0.4+ | 0.4− | | |
| 2007 04 23 | 691 | 0.3− | 0.1+ | 2009 10 16 | G96 | 0.1− | 0.0 | 2009 10 24 | G96 | 0.2− | 0.1+ | | |

**2007 ES$_{171}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 109.29272 | | (2000.0) | | | |
| $n$ | 0.18983605 | $\omega$ | 269.48124 | | +0.45436611 | +0.88663471 |
| $a$ | 2.9983587 | $\Omega$ | 28.05646 | | −0.72692707 | +0.42496563 |
| $e$ | 0.0711560 | $i$ | 10.56027 | | −0.51490628 | +0.18243658 |
| $P$ | 5.19 | $H$ | 15.5 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 05 10 | 644 | 0.3− | 0.0 | 2007 03 26 | G98 | 0.8+ | 0.4+ | 2009 09 21 | G96 | 0.0 | 0.2+ | | |
| 2002 05 10 | 644 | 0.2+ | 0.1− | 2007 03 26 | G98 | 0.2+ | 0.1+ | 2009 09 21 | G96 | 0.0 | 0.1+ | | |
| 2002 05 10 | 644 | 0.1+ | 0.1+ | 2007 04 14 | G96 | 0.2− | 0.3− | 2009 09 21 | G96 | 0.3+ | 0.2+ | | |
| 2007 02 21 | G96 | 0.5− | 0.5− | 2007 04 14 | G96 | 0.1+ | 0.1− | 2009 09 21 | G96 | 0.2− | 0.0 | | |
| 2007 02 21 | G96 | 0.1− | 0.4− | 2007 04 14 | G96 | 0.4− | 0.3− | 2009 10 23 | G96 | 0.2+ | 0.0 | | |
| 2007 02 21 | G96 | 0.3+ | 0.2− | 2007 04 14 | G96 | 0.4− | 0.1+ | 2009 10 23 | G96 | 0.1− | 0.2− | | |
| 2007 02 21 | G96 | 0.0 | 0.3− | 2007 04 18 | G92 | 0.3+ | 0.6+ | 2009 10 23 | G96 | 0.1+ | 0.0 | | |
| 2007 03 11 | G96 | 0.3− | 0.0 | 2007 04 18 | G92 | 0.7+ | 0.4+ | 2009 10 23 | G96 | 0.1+ | 0.0 | | |
| 2007 03 11 | G96 | 0.5+ | 0.2− | 2007 04 18 | G92 | 0.0 | 0.0 | 2009 11 10 | G96 | 0.2− | 0.3− | | |
| 2007 03 11 | G96 | 0.2− | 0.3− | 2007 04 22 | G96 | 0.4− | 0.1− | 2009 11 10 | G96 | 0.2+ | 0.1− | | |
| 2007 03 11 | G96 | 0.2+ | 0.2− | 2007 04 22 | G96 | 0.2+ | 0.2− | 2009 11 10 | G96 | 0.2− | 0.1− | | |
| 2007 03 18 | 691 | 0.1+ | 0.5− | 2007 04 22 | G96 | 0.3+ | 0.3− | 2009 11 10 | G96 | 0.2+ | 0.0 | | |
| 2007 03 18 | 691 | 0.4− | 0.3+ | 2007 04 22 | G96 | 0.3+ | 0.2− | 2009 11 19 | G96 | 0.4− | 0.2+ | | |
| 2007 03 18 | 691 | 0.4− | 0.6+ | 2007 05 12 | G96 | 0.2− | 0.1+ | 2009 11 19 | G96 | 0.2− | 0.1− | | |
| 2007 03 26 | G98 | 0.8+ | 0.4+ | 2007 05 12 | G96 | 0.3+ | 0.0 | 2009 11 19 | G96 | 0.1+ | 0.1+ | | |
| 2007 03 26 | G98 | 0.5+ | 0.2+ | 2007 05 12 | G96 | 0.2− | 0.1− | 2009 11 19 | G96 | 0.2− | 0.3+ | | |
| 2007 03 26 | G98 | 0.5+ | 0.2+ | 2007 05 12 | G96 | 0.2− | 0.4− | | | | | | |

**2007 EF$_{176}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 169.97479 | | (2000.0) | | | |
| $n$ | 0.18016254 | $\omega$ | 356.16657 | | −0.86208647 | +0.50298635 |
| $a$ | 3.1047482 | $\Omega$ | 214.25608 | | −0.46197881 | −0.83012328 |
| $e$ | 0.1369642 | $i$ | 6.29692 | | −0.20828467 | −0.24062434 |
| $P$ | 5.47 | $H$ | 16.2 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 13 | 691 | 0.2− | 0.1+ | 2007 03 18 | 691 | 0.2− | 0.0 | 2007 05 16 | G96 | 0.4+ | 0.1− | | |
| 2004 10 13 | 691 | 0.3+ | 0.1+ | 2007 03 18 | 691 | 0.2− | 0.3+ | 2007 05 16 | G96 | 0.1+ | 0.4− | | |
| 2004 10 13 | 691 | 0.1− | 0.1+ | 2007 04 11 | 703 | 0.2+ | 0.1− | 2007 05 16 | G96 | 0.1− | 0.1+ | | |
| 2007 03 10 | 691 | 0.0 | 0.2− | 2007 04 11 | 703 | 0.7− | 0.8+ | 2007 05 16 | G96 | 0.4+ | 0.1− | | |
| 2007 03 10 | 691 | 0.3+ | 0.0 | 2007 04 11 | 703 | 0.4− | 0.1+ | 2008 07 02 | G96 | 0.3− | 0.1+ | | |
| 2007 03 10 | 691 | 0.1− | 0.0 | 2007 04 11 | 703 | 0.5+ | 0.5+ | 2008 07 02 | G96 | 0.3− | 0.1+ | | |
| 2007 03 14 | 691 | 0.1+ | 0.1+ | 2007 04 23 | 703 | 0.7− | 0.6− | 2008 07 02 | G96 | 0.3+ | 0.2+ | | |
| 2007 03 14 | 691 | 0.0 | 0.2+ | 2007 04 23 | 703 | 0.2+ | 0.4− | 2008 07 02 | G96 | 0.2+ | 0.2+ | | |
| 2007 03 14 | 691 | 0.0 | 0.1+ | 2007 04 23 | 703 | 1.2+ | 1.9− | | | | | | |
| 2007 03 18 | 691 | 0.1− | 0.0 | 2007 04 23 | 703 | 0.0 | 0.7+ | | | | | | |

**2007 EQ$_{180}$ = 2008 SF$_{292}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 114.72011 | | (2000.0) | | | |
| $n$ | 0.17710554 | $\omega$ | 90.06637 | | +0.43131280 | +0.87886464 |
| $a$ | 3.1403734 | $\Omega$ | 208.43430 | | −0.89891382 | +0.43790133 |
| $e$ | 0.2210958 | $i$ | 25.35207 | | +0.07696246 | +0.18931288 |
| $P$ | 5.57 | $H$ | 15.6 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 03 14 | G96 | 0.8+ | 0.0 | 2007 05 06 | 691 | 0.3− | 0.3+ | 2008 09 22 | 703 | 0.4− | 0.1− | | |
| 2007 03 14 | G96 | 0.3− | 0.0 | 2007 05 06 | 691 | 0.3+ | 0.2− | 2008 09 22 | 703 | 0.4− | 0.3− | | |
| 2007 03 14 | G96 | 0.3+ | 0.1+ | 2007 05 06 | 691 | 0.1− | 0.0 | 2008 09 28 | 703 | 0.6− | 0.1− | | |
| 2007 03 18 | 691 | 0.0 | 0.6+ | 2008 08 07 | 106 | 1.0+ | 1.0− | 2008 09 28 | 703 | 0.3− | 0.3− | | |
| 2007 03 18 | 691 | 0.3− | 0.2+ | 2008 08 08 | 106 | 0.5+ | 0.0 | 2008 09 28 | 703 | 0.2− | 0.1+ | | |
| 2007 03 18 | 691 | 0.2+ | 0.1− | 2008 08 08 | 106 | 0.8+ | 0.4+ | 2008 09 28 | 703 | 0.7− | 1.5+ | | |
| 2007 03 26 | 691 | 0.1− | 0.1− | 2008 08 08 | 106 | 0.2+ | 0.4+ | 2008 09 28 | 703 | 0.7+ | 0.1− | | |
| 2007 03 26 | 691 | 0.1+ | 0.2− | 2008 09 09 | 703 | 0.2+ | 0.4− | 2008 09 28 | 703 | 1.0+ | 0.3+ | | |
| 2007 03 26 | 691 | 0.0 | 0.1+ | 2008 09 09 | 703 | 0.5− | 0.6− | 2008 09 28 | 703 | 0.2− | 0.4− | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 04 16 | 703 | (0.6+ | 2.2−) | 2008 09 09 | 703 | 0.8− | 0.1+ | 2008 09 28 | 703 | 0.6+ | 0.2− |
| 2007 04 16 | 703 | (1.7+ | 0.1+) | 2008 09 09 | 703 | 0.6− | 0.3+ | 2008 09 28 | 703 | 0.0 | 0.7+ |
| 2007 04 16 | 703 | 0.7+ | 1.3− | 2008 09 22 | 703 | 0.3+ | 0.7+ | | | | |
| 2007 04 16 | 703 | 0.4− | 0.7− | 2008 09 22 | 703 | 0.4− | 0.7− | | | | |

**2007 ET$_{180}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 160.43393 | | $(2000.0)$ | | | |
| $n$ | 0.17761213 | $\omega$ | 22.97382 | | −0.64133702 | +0.75868704 |
| $a$ | 3.1343991 | $\Omega$ | 207.55196 | | −0.73674461 | −0.65057092 |
| $e$ | 0.0787267 | $i$ | 14.31550 | | −0.21422933 | −0.03393311 |
| $P$ | 5.55 | $H$ | 16.1 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 04 13 | 691 | 0.6+ | 0.0 | 2007 04 16 | G96 | 0.2+ | 0.1+ | 2007 05 10 | 691 | 0.0 | 0.0 |
| 1996 04 13 | 691 | 0.8− | 0.1− | 2007 04 16 | G96 | 0.2− | 0.2+ | 2009 09 18 | 691 | 0.7− | 0.1− |
| 1996 04 13 | 691 | 0.2+ | 0.3− | 2007 04 22 | G96 | 0.2− | 0.1− | 2009 09 18 | 691 | 0.6− | 0.4− |
| 2007 03 14 | G96 | 0.2− | 0.7− | 2007 04 22 | G96 | 0.3+ | 0.1− | 2009 09 18 | 691 | 0.1+ | 0.6+ |
| 2007 03 14 | G96 | 0.1− | 0.2− | 2007 04 22 | G96 | 0.1− | 0.0 | 2009 09 26 | 691 | 0.4+ | 0.2+ |
| 2007 03 14 | G96 | 0.1− | 0.4− | 2007 04 22 | G96 | 0.3+ | 0.1− | 2009 09 26 | 691 | 0.2− | 0.1+ |
| 2007 03 18 | 691 | 0.4+ | 0.0 | 2007 05 06 | 691 | 0.2− | 0.1− | 2009 09 26 | 691 | 0.2+ | 0.1− |
| 2007 03 18 | 691 | 0.3− | 0.2+ | 2007 05 06 | 691 | 0.0 | 0.7+ | 2009 10 27 | G96 | 0.7+ | 0.1− |
| 2007 03 18 | 691 | 0.0 | 0.1+ | 2007 05 06 | 691 | 0.0 | 0.1− | 2009 10 27 | G96 | 0.9+ | 0.3− |
| 2007 04 16 | G96 | 0.0 | 0.1− | 2007 05 10 | 691 | 0.0 | 0.2− | 2009 10 27 | G96 | 0.3+ | 0.2− |
| 2007 04 16 | G96 | 0.1+ | 0.0 | 2007 05 10 | 691 | 0.0 | 0.1+ | 2009 10 27 | G96 | 1.2+ | 0.7− |

**2007 EW$_{181}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 157.90417 | | $(2000.0)$ | | | |
| $n$ | 0.17436154 | $\omega$ | 21.76431 | | −0.66061719 | +0.73978587 |
| $a$ | 3.1732352 | $\Omega$ | 207.39804 | | −0.72319955 | −0.67275541 |
| $e$ | 0.1590405 | $i$ | 16.10865 | | −0.20141336 | −0.01081779 |
| $P$ | 5.65 | $H$ | 16.0 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 03 14 | 691 | 0.1− | 0.1+ | 2007 04 14 | G96 | 0.1+ | 0.2− | 2009 09 28 | 691 | 0.5− | 0.2+ |
| 2007 03 14 | 691 | 0.2− | 0.2− | 2007 04 14 | G96 | 0.0 | 0.2− | 2009 10 27 | G96 | 0.3+ | 0.2− |
| 2007 03 14 | 691 | 0.1− | 0.2− | 2007 04 16 | 704 | 1.5+ | 0.7+ | 2009 10 27 | G96 | 0.1+ | 0.3− |
| 2007 03 18 | 691 | 0.0 | 0.2− | 2007 04 16 | 704 | 1.4+ | 1.1+ | 2009 10 27 | G96 | 0.5+ | 0.4− |
| 2007 03 18 | 691 | 0.3− | 0.2+ | 2007 04 16 | 704 | 1.3+ | 1.3− | 2009 10 27 | G96 | 0.7+ | 0.1+ |
| 2007 03 18 | 691 | 0.2− | 0.1− | 2007 04 16 | 704 | (0.1+ | 1.6−) | 2009 11 18 | G96 | 0.2+ | 0.0 |
| 2007 03 29 | 691 | 0.0 | 0.2− | 2007 05 11 | 691 | 0.1− | 0.2+ | 2009 11 18 | G96 | 0.1+ | 0.6− |
| 2007 03 29 | 691 | 0.4+ | 0.0 | 2007 05 11 | 691 | 0.1− | 0.1− | 2009 11 18 | G96 | 0.3+ | 0.3− |
| 2007 03 29 | 691 | 0.0 | 0.4+ | 2007 05 11 | 691 | 0.4− | 0.4− | 2009 11 18 | G96 | 0.4+ | 0.8− |
| 2007 04 14 | G96 | 0.2− | 0.0 | 2009 09 28 | 691 | 0.2+ | 0.0 | | | | |
| 2007 04 14 | G96 | 0.4− | 0.3+ | 2009 09 28 | 691 | 0.2− | 0.1− | | | | |

**2007 EM$_{182}$ = 2009 VS$_{96}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 217.28315 | | $(2000.0)$ | | | |
| $n$ | 0.23635606 | $\omega$ | 2.20462 | | −0.69091556 | +0.72171862 |
| $a$ | 2.5907463 | $\Omega$ | 224.09661 | | −0.66419888 | −0.65661090 |
| $e$ | 0.0507830 | $i$ | 3.45427 | | −0.28543920 | −0.21905332 |
| $P$ | 4.17 | $H$ | 17.0 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 08 23 | 691 | 0.1+ | 0.3− | 2007 03 14 | 691 | 0.1+ | 0.1− | 2009 11 08 | 691 | 0.5− | 0.3− |
| 2004 08 23 | 691 | 0.0 | 0.2− | 2007 03 14 | 691 | 0.0 | 0.3+ | 2009 11 08 | 691 | 0.4+ | 0.1+ |
| 2004 08 23 | 691 | 0.1− | 0.1− | 2007 03 14 | 691 | 0.1+ | 0.1− | 2009 11 08 | 691 | 0.2+ | 0.2− |
| 2004 09 12 | 691 | 0.0 | 0.0 | 2007 03 18 | 691 | 0.0 | 0.3+ | 2009 11 24 | 691 | 0.3− | 0.1+ |
| 2004 09 12 | 691 | 0.1− | 0.3+ | 2007 03 18 | 691 | 0.1− | 0.2− | 2009 11 24 | 691 | 0.3− | 0.1+ |
| 2004 09 12 | 691 | 0.1+ | 0.3+ | 2007 03 18 | 691 | 0.2− | 0.1+ | 2009 11 24 | 691 | 0.4+ | 0.2+ |
| 2007 03 14 | G96 | 0.4− | 0.1− | 2007 04 22 | G96 | 0.4+ | 0.1+ | 2009 12 11 | G96 | 0.2+ | 0.1+ |
| 2007 03 14 | G96 | 0.0 | 0.1− | 2007 04 22 | G96 | 0.2+ | 0.3− | 2009 12 11 | G96 | 0.2+ | 0.1+ |
| 2007 03 14 | G96 | 0.2− | 0.0 | 2007 04 22 | G96 | 0.0 | 0.1− | 2009 12 11 | G96 | 0.2− | 0.1+ |
| 2007 03 14 | G96 | 0.0 | 0.1− | 2007 04 22 | G96 | 0.3+ | 0.1− | | | | |

**2007 ET$_{185}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 315.62978 | | $(2000.0)$ | | | |
| $n$ | 0.28264930 | $\omega$ | 81.60924 | | −0.93290608 | −0.34212117 |
| $a$ | 2.2995213 | $\Omega$ | 78.32699 | | +0.26836708 | −0.86864389 |
| $e$ | 0.1057154 | $i$ | 6.59204 | | +0.24013611 | −0.35834466 |
| $P$ | 3.49 | $H$ | 17.3 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 03 14 | G96 | 0.3+ | 0.3+ | 2007 04 23 | G96 | 0.3− | 0.1− | 2009 11 11 | G96 | 0.2+ | 0.1− |
| 2007 03 14 | G96 | 0.1+ | 0.1+ | 2007 04 23 | G96 | 0.4− | 0.0 | 2009 11 11 | G96 | 0.1− | 0.2+ |
| 2007 03 14 | G96 | 0.0 | 0.1+ | 2007 04 23 | G96 | 0.1− | 0.1− | 2009 11 23 | G96 | 0.3− | 0.2− |
| 2007 03 14 | G96 | 0.0 | 0.0 | 2007 04 26 | G96 | 0.2− | 0.3− | 2009 11 23 | G96 | 0.1− | 0.3− |
| 2007 03 19 | G96 | 0.1− | 0.0 | 2007 04 26 | G96 | 0.0 | 0.0 | 2009 11 23 | G96 | 0.1+ | 0.2+ |
| 2007 03 19 | G96 | 0.1+ | 0.0 | 2007 04 26 | G96 | 0.3+ | 0.1− | 2009 11 23 | G96 | 0.2− | 0.1+ |
| 2007 03 19 | G96 | 0.4+ | 0.1+ | 2007 04 26 | G96 | 0.0 | 0.2+ | 2009 12 18 | G96 | 0.1− | 0.1− |
| 2007 03 19 | G96 | 0.2+ | 0.0 | 2009 11 11 | G96 | 0.1+ | 0.2− | 2009 12 18 | G96 | 0.2+ | 0.0 |
| 2007 04 23 | G96 | 0.1− | 0.1− | 2009 11 11 | G96 | 0.4+ | 0.0 | 2009 12 18 | G96 | 0.1− | 0.0 |

**2007 EX$_{196}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 264.21060 | | $(2000.0)$ | | | |
| $n$ | 0.22923539 | $\omega$ | 320.52207 | | −0.91360148 | −0.40282817 |
| $a$ | 2.6441227 | $\Omega$ | 195.99378 | | +0.40497685 | −0.88927773 |
| $e$ | 0.1425553 | $i$ | 11.58514 | | +0.03641549 | −0.21659775 |
| $P$ | 4.30 | $H$ | 17.2 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 20 | 695 | 0.1− | 0.5+ | 2007 03 26 | 691 | 0.1− | 0.1+ | 2007 04 22 | G96 | 0.2+ | 0.1+ |
| 2000 09 20 | 695 | 0.1− | 0.4+ | 2007 03 26 | 691 | 0.1+ | 0.1+ | 2007 04 23 | 691 | 0.1+ | 0.0 |
| 2005 10 30 | 691 | 0.0 | 0.1− | 2007 04 11 | 691 | 0.3+ | 0.0 | 2007 04 23 | 691 | 0.1− | 0.1− |
| 2005 10 30 | 691 | 0.1− | 0.0 | 2007 04 11 | 691 | 0.4− | 0.2+ | 2007 04 23 | 691 | 0.2− | 0.0 |
| 2005 10 30 | 691 | 0.2+ | 0.2+ | 2007 04 11 | 691 | 0.1− | 0.0 | 2007 05 07 | 691 | 0.1− | 0.2− |
| 2007 03 15 | 691 | 0.0 | 0.1+ | 2007 04 19 | G96 | 0.1− | 0.1+ | 2007 05 07 | 691 | 0.1+ | 0.2+ |
| 2007 03 15 | 691 | 0.1+ | 0.0 | 2007 04 19 | G96 | 0.2− | 0.1− | 2007 05 07 | 691 | 0.5+ | 0.1− |
| 2007 03 15 | 691 | 0.1+ | 0.0 | 2007 04 19 | G96 | 0.2+ | 0.1+ | 2007 05 16 | G96 | 0.0 | 0.2− |
| 2007 03 20 | 691 | 0.0 | 0.1− | 2007 04 19 | G96 | 0.3− | 0.7+ | 2007 05 16 | G96 | 0.2+ | 0.2− |
| 2007 03 20 | 691 | 0.0 | 0.0 | 2007 04 22 | G96 | 0.2+ | 0.1− | 2007 05 16 | G96 | 0.3+ | 0.1+ |
| 2007 03 20 | 691 | 0.0 | 0.1− | 2007 04 22 | G96 | 0.0 | 0.1− | 2007 05 16 | G96 | 0.1− | 0.4− |
| 2007 03 26 | 691 | 0.1− | 0.1+ | 2007 04 22 | G96 | 0.2− | 0.2− | | | | |

**2007 EX$_{197}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 320.28964 | | $(2000.0)$ | | | |
| $n$ | 0.22702519 | $\omega$ | 258.83216 | | −0.10195317 | −0.98824711 |
| $a$ | 2.6612562 | $\Omega$ | 198.23392 | | +0.99391600 | −0.09639754 |
| $e$ | 0.0724978 | $i$ | 21.34711 | | +0.04167164 | −0.11863879 |
| $P$ | 4.34 | $H$ | 17.0 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 03 15 | 691 | 0.1− | 0.2+ | 2007 04 07 | G96 | 0.3− | 0.3+ | 2007 05 16 | G96 | 0.2− | 0.1− |
| 2007 03 15 | 691 | 0.1− | 0.3+ | 2007 04 07 | G96 | 0.2+ | 0.4+ | 2009 09 15 | 691 | 0.2− | 0.1+ |
| 2007 03 15 | 691 | 0.1− | 0.0 | 2007 04 07 | G96 | 0.0 | 0.2+ | 2009 09 15 | 691 | 0.0 | 0.1− |
| 2007 03 20 | 691 | 0.4+ | 0.2− | 2007 04 19 | G96 | 0.5+ | 0.1− | 2009 09 15 | 691 | 0.1+ | 0.0 |
| 2007 03 20 | 691 | 0.1+ | 0.2+ | 2007 04 19 | G96 | 0.2− | 0.2− | 2009 10 26 | G96 | 0.2+ | 0.2+ |
| 2007 03 20 | 691 | 0.1− | 0.1+ | 2007 04 19 | G96 | 0.1+ | 0.1+ | 2009 10 26 | G96 | 0.2− | 0.1+ |
| 2007 03 26 | 691 | 0.3− | 0.2− | 2007 04 19 | G96 | 0.1+ | 0.1+ | 2009 10 26 | G96 | 0.7+ | 0.0 |
| 2007 03 26 | 691 | 0.2+ | 0.3− | 2007 05 16 | G96 | 0.3− | 0.1− | 2009 10 26 | G96 | 0.2− | 0.1− |
| 2007 03 26 | 691 | 0.0 | 0.5− | 2007 05 16 | G96 | 0.4− | 0.4− | | | | |
| 2007 04 07 | G96 | 0.2− | 0.4− | 2007 05 16 | G96 | 0.3+ | 1.2+ | | | | |

**2007 EM$_{198}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 193.59074 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.36561623 | $\omega$ | 174.95745 | | +0.99930371 | +0.02711991 | |
| $a$ | 1.9369530 | $\Omega$ | 183.78409 | | −0.02741216 | +0.99956233 | |
| $e$ | 0.0707531 | $i$ | 22.84645 | | +0.02531125 | +0.01181812 | |
| $P$ | 2.70 | $H$ | 17.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 03 12 | 691 | 0.1− | 0.2+ | 2007 04 07 | G96 | 0.7+ | 0.2+ | 2008 10 09 | 703 | 0.2+ | 0.1+ |
| 2007 03 12 | 691 | 0.1− | 0.1+ | 2007 04 07 | G96 | 0.3+ | 0.1− | 2008 10 09 | 703 | 0.3+ | 0.4+ |
| 2007 03 12 | 691 | 0.1− | 0.6− | 2007 04 07 | G96 | 0.1− | 0.2− | 2008 10 09 | 703 | 0.2− | 0.2− |
| 2007 03 21 | 704 | 0.8+ | 1.3+ | 2007 04 09 | 947 | 0.2+ | 0.1− | 2008 10 09 | 703 | 1.3+ | 0.7+ |
| 2007 03 21 | 704 | 0.5− | 0.0 | 2007 04 09 | 947 | 0.0 | 0.8+ | 2008 10 26 | 703 | 0.7− | 0.9− |
| 2007 03 21 | 704 | 0.5− | 0.5+ | 2007 04 09 | 947 | 0.3+ | 0.2− | 2008 10 26 | 703 | 0.1− | 0.3+ |
| 2007 03 21 | 704 | 0.5− | 0.9+ | 2007 04 10 | 947 | 0.1+ | 0.3+ | 2008 10 26 | 703 | 0.1− | 0.2− |
| 2007 04 07 | G96 | 0.2+ | 0.3− | 2007 04 10 | 947 | 0.6+ | 1.7− | 2008 10 26 | 703 | 0.6− | 0.1− |

**2007 EE$_{200}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 184.64927 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17534988 | $\omega$ | 8.89664 | | −0.99424013 | +0.10599025 | |
| $a$ | 3.1613001 | $\Omega$ | 177.04464 | | −0.10703101 | −0.98961680 | |
| $e$ | 0.1544545 | $i$ | 17.95598 | | +0.00556167 | −0.09708068 | |
| $P$ | 5.62 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 03 11 | 691 | 1.0− | 0.1− | 2007 04 08 | D29 | 0.2+ | 0.3− | 2009 08 20 | 691 | 0.7− | 0.0 |
| 2007 03 11 | 691 | 0.4+ | 0.0 | 2007 04 08 | D29 | 0.1+ | 0.2+ | 2009 08 20 | 691 | 0.3+ | 0.1− |
| 2007 03 11 | 691 | 0.3+ | 0.1+ | 2007 04 08 | D29 | 0.1+ | 0.3− | 2009 08 20 | 691 | 0.4+ | 0.2+ |
| 2007 03 24 | J75 | 0.8+ | 0.3− | 2007 04 16 | 703 | 0.1− | 0.1− | 2009 09 18 | G96 | 0.2− | 0.2− |
| 2007 03 24 | J75 | 0.1+ | 0.8+ | 2007 04 16 | 703 | 0.3− | 0.1+ | 2009 09 18 | G96 | 0.2+ | 0.0 |
| 2007 03 24 | J75 | 0.4+ | 0.2− | 2007 04 16 | 703 | 0.1− | 0.4+ | 2009 09 18 | G96 | 0.0 | 0.0 |
| 2007 04 08 | D29 | 0.4+ | 0.3+ | 2007 04 16 | 703 | 0.2− | 0.7− | 2009 09 18 | G96 | 0.2− | 0.3− |

**2007 ED$_{205}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 270.88341 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18722307 | $\omega$ | 299.95801 | | −0.27078244 | −0.96163389 | |
| $a$ | 3.0261920 | $\Omega$ | 165.55117 | | +0.93279500 | −0.27340930 | |
| $e$ | 0.0441693 | $i$ | 10.15976 | | +0.23784523 | −0.02253039 | |
| $P$ | 5.26 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 03 11 | 691 | 0.4− | 0.2− | 2007 04 06 | H55 | 0.4+ | 0.2− | 2009 08 15 | 691 | 0.1− | 0.1+ |
| 2007 03 11 | 691 | 0.1− | 0.0 | 2007 04 06 | H55 | 0.0 | 0.6+ | 2009 08 27 | 691 | 0.1− | 0.1+ |
| 2007 03 11 | 691 | 0.1+ | 0.1− | 2007 04 06 | H55 | 0.7− | 0.2− | 2009 08 27 | 691 | 0.2− | 0.2− |
| 2007 03 15 | 691 | 0.0 | 0.1+ | 2007 04 10 | H55 | 0.1+ | 0.1− | 2009 08 27 | 691 | 0.3+ | 0.1+ |
| 2007 03 15 | 691 | 0.2+ | 0.1+ | 2007 04 10 | H55 | 0.2+ | 0.0 | 2009 09 20 | G96 | 0.3+ | 0.2− |
| 2007 03 15 | 691 | 0.2+ | 0.1− | 2007 04 10 | H55 | 0.3+ | 0.1+ | 2009 09 20 | G96 | 0.0 | 0.1− |
| 2007 04 06 | H55 | 0.1− | 0.2+ | 2009 08 15 | 691 | 0.1− | 0.1+ | 2009 09 20 | G96 | 0.3+ | 0.1− |
| 2007 04 06 | H55 | 0.3− | 0.0 | 2009 08 15 | 691 | 0.0 | 0.3− | 2009 09 20 | G96 | 0.2+ | 0.0 |

**2007 EK$_{210}$ = 2009 WF$_{238}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 296.19606 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27616132 | $\omega$ | 41.43738 | | −0.82796280 | −0.55711673 | |
| $a$ | 2.3353975 | $\Omega$ | 104.59627 | | +0.49552266 | −0.78027632 | |
| $e$ | 0.1233015 | $i$ | 3.79318 | | +0.26255457 | −0.28423550 | |
| $P$ | 3.57 | $H$ | 17.4 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 02 08 | 691 | 0.3− | 0.1+ | 2007 03 08 | 644 | 0.0 | 0.2− | 2009 11 17 | G96 | 0.4+ | 0.0 |
| 2007 02 08 | 691 | 0.2+ | 0.1+ | 2007 03 09 | 644 | 0.1− | 0.1− | 2009 11 17 | G96 | 0.1+ | 0.6+ |
| 2007 02 08 | 691 | 0.1− | 0.0 | 2007 03 09 | 644 | 0.2+ | 0.2+ | 2009 11 17 | G96 | 0.3+ | 0.1+ |
| 2007 02 26 | G96 | 0.1− | 0.4− | 2007 03 09 | 644 | 0.1+ | 0.2+ | 2009 11 24 | G96 | 0.1+ | 0.0 |
| 2007 02 26 | G96 | 0.4+ | 0.5− | 2009 10 23 | G96 | 0.5− | 0.1+ | 2009 11 24 | G96 | 0.1+ | 0.1− |
| 2007 02 26 | G96 | 0.4+ | 0.0 | 2009 10 23 | G96 | 0.4− | 0.1− | 2009 11 24 | G96 | 0.1+ | 0.0 |
| 2007 02 26 | G96 | 0.2− | 0.5− | 2009 10 23 | G96 | 0.4− | 0.3− | 2009 11 24 | G96 | 0.2+ | 0.0 |
| 2007 03 08 | 644 | 0.2+ | 0.1+ | 2009 10 23 | G96 | 0.1− | 0.4− | | | | |
| 2007 03 08 | 644 | 0.0 | 0.4+ | 2009 11 17 | G96 | 0.1+ | 0.1+ | | | | |

**2007 EM$_{210}$ = 2009 UP$_{144}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 334.53737 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27950561 | $\omega$ | 21.00285 | | −0.09590337 | −0.99373648 | |
| $a$ | 2.3167315 | $\Omega$ | 74.53571 | | +0.90455814 | −0.11105767 | |
| $e$ | 0.1931115 | $i$ | 3.41205 | | +0.41542401 | +0.01241006 | |
| $P$ | 3.53 | $H$ | 17.7 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 02 08 | 691 | 0.0 | 0.0 | 2007 03 09 | 644 | 0.4+ | 0.1+ | 2009 10 25 | G96 | 0.4− | 0.3− |
| 2007 02 08 | 691 | 0.5− | 0.2+ | 2007 03 09 | 644 | 0.0 | 0.1− | 2009 10 25 | G96 | 0.3− | 0.6− |
| 2007 02 08 | 691 | 0.1− | 0.1+ | 2007 03 09 | 644 | 0.2− | 0.3+ | 2009 10 25 | G96 | 0.2− | 0.2− |
| 2007 02 26 | G96 | 0.2− | 0.2− | 2009 09 19 | 691 | 0.1− | 0.2− | 2009 10 25 | G96 | 0.4− | 0.6− |
| 2007 02 26 | G96 | 0.5+ | 0.9− | 2009 09 19 | 691 | 0.1− | 0.5− | 2009 11 09 | 703 | 0.2+ | 0.0 |
| 2007 02 26 | G96 | 0.5+ | 0.3− | 2009 09 19 | 691 | 0.1+ | 0.0 | 2009 11 09 | 703 | 0.0 | 0.3− |
| 2007 02 26 | G96 | 0.4+ | 0.1− | 2009 10 17 | 703 | 1.2+ | 0.6+ | 2009 11 09 | 703 | 0.2− | 0.1− |
| 2007 03 08 | 644 | 0.2+ | 0.1+ | 2009 10 17 | 703 | 0.6+ | 0.5+ | 2009 11 09 | 703 | 0.6+ | 0.1+ |
| 2007 03 08 | 644 | 0.3+ | 0.2− | 2009 10 17 | 703 | 0.1− | 1.3+ | | | | |
| 2007 03 08 | 644 | 0.3+ | 0.0 | 2009 10 17 | 703 | 0.7− | 1.6+ | | | | |

**2007 ET$_{210}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 309.16991 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21791151 | $\omega$ | 261.64848 | | +0.49819234 | −0.85004452 | |
| $a$ | 2.7349493 | $\Omega$ | 155.97821 | | +0.86350433 | +0.50426019 | |
| $e$ | 0.1950525 | $i$ | 24.83284 | | −0.07851546 | +0.15213805 | |
| $P$ | 4.52 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 08 05 | E12 | 0.2+ | 0.4− | 2007 02 27 | 691 | 0.2− | 0.1− | 2007 03 16 | 704 | 0.1+ | 0.9− |
| 2005 08 05 | E12 | 0.1− | 0.1+ | 2007 02 27 | 691 | 0.1+ | 0.2− | 2007 03 16 | 704 | 0.4+ | 0.7+ |
| 2005 08 05 | E12 | 0.3− | 0.5+ | 2007 02 27 | 691 | 0.2− | 0.1− | 2009 06 24 | 691 | 0.3+ | 0.0 |
| 2005 08 05 | E12 | 0.1+ | 0.3+ | 2007 03 08 | 644 | 0.4+ | 0.5+ | 2009 06 24 | 691 | 0.1+ | 0.2− |
| 2007 01 24 | 703 | 0.7+ | 0.3+ | 2007 03 08 | 644 | 0.2+ | 0.1+ | 2009 06 24 | 691 | 0.0 | 0.0 |
| 2007 01 24 | 703 | 0.4+ | 0.7− | 2007 03 08 | 644 | 0.3+ | 0.1+ | 2009 07 27 | 703 | 0.2+ | 0.2− |
| 2007 01 24 | 703 | 1.0− | 0.1− | 2007 03 09 | 703 | 0.2− | 0.6− | 2009 07 27 | 703 | 0.8− | 0.3+ |
| 2007 01 24 | 703 | 1.3− | 0.3− | 2007 03 09 | 703 | 0.4− | 0.9+ | 2009 07 27 | 703 | 0.6+ | 0.0 |
| 2007 02 17 | 691 | 0.0 | 0.2+ | 2007 03 09 | 703 | 1.0− | 0.2− | 2009 07 27 | 703 | 1.4− | 0.7+ |
| 2007 02 17 | 691 | 0.2+ | 0.0 | 2007 03 09 | 703 | (0.0 | 1.5−) | 2009 11 20 | G96 | 0.1− | 0.1− |
| 2007 02 17 | 691 | 0.0 | 0.2+ | 2007 03 09 | 644 | 0.2+ | 0.1+ | 2009 11 20 | G96 | 0.0 | 0.7+ |
| 2007 02 21 | 691 | 0.3+ | 0.2+ | 2007 03 09 | 644 | 0.0 | 0.4− | 2009 11 20 | G96 | 0.3− | 0.0 |
| 2007 02 21 | 691 | 0.1− | 0.1+ | 2007 03 09 | 644 | 0.4+ | 0.3+ | 2009 11 20 | G96 | 0.8+ | 0.1− |
| 2007 02 21 | 691 | (3.7+ | 0.4−) | 2007 03 16 | 704 | (0.8+ | 2.4−) | | | | |

**2007 EY$_{211}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 163.34538 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17235550 | $\omega$ | 242.88352 | | −0.97644849 | +0.17309018 | |
| $a$ | 3.1978097 | $\Omega$ | 306.80766 | | −0.09112065 | −0.87196051 | |
| $e$ | 0.1808033 | $i$ | 9.25698 | | −0.19556426 | −0.45795705 | |
| $P$ | 5.72 | $H$ | 15.2 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 02 06 | 691 | 0.1− | 0.1− | 2007 02 26 | 703 | 0.6+ | 0.4+ | 2007 03 19 | 699 | 0.5+ | 0.1− |
| 1995 02 06 | 691 | 0.0 | 0.1− | 2007 02 26 | 703 | 0.1− | 1.4+ | 2007 03 19 | 699 | 0.4+ | 0.9− |
| 1995 02 06 | 691 | 0.2+ | 0.6+ | 2007 03 08 | 644 | 0.6+ | 0.0 | 2007 03 19 | 699 | 1.3+ | 0.3+ |
| 2006 11 11 | G96 | 0.4− | 0.2+ | 2007 03 08 | 644 | 0.4+ | 0.0 | 2007 03 19 | 699 | 0.8+ | 0.3− |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 11 11 | G96 | 0.1− | 0.0 | 2007 03 08 | 644 | 0.0 | 0.2+ | 2009 08 17 | 691 | 0.3+ | 0.9+ | | |
| 2006 11 11 | G96 | 0.4− | 0.8− | 2007 03 11 | 703 | 0.5− | 0.5− | 2009 08 17 | 691 | 0.3− | 0.4+ | | |
| 2006 11 11 | G96 | 1.1− | 0.8− | 2007 03 11 | 703 | 0.7− | 0.9+ | 2009 08 17 | 691 | 0.6− | 0.1− | | |
| 2007 02 26 | 703 | 0.3+ | 0.7+ | 2007 03 11 | 703 | 0.9− | 0.0 | | | | | | |
| 2007 02 26 | 703 | 0.2+ | 1.4+ | 2007 03 11 | 703 | 0.5− | 0.1− | | | | | | |

**2007 FA$_{12}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 322.96388 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.29454392 | $\omega$ | 299.28925 | | −0.84945436 | −0.52756260 | |
| $a$ | 2.2371890 | $\Omega$ | 208.87342 | | +0.49118425 | −0.78348696 | |
| $e$ | 0.1442987 | $i$ | 1.21588 | | +0.19278309 | −0.32836852 | |
| $P$ | 3.35 | $H$ | 17.8 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 03 17 | 699 | 0.5− | 0.9+ | 2007 04 15 | G96 | 0.1− | 0.4− | 2007 05 10 | G96 | 0.0 | 0.3+ | |
| 2007 03 17 | 699 | 1.3+ | 0.7+ | 2007 04 21 | A50 | 0.4+ | 0.0 | 2007 05 10 | G96 | 0.4− | 0.1− | |
| 2007 03 17 | 699 | 1.8+ | 1.4+ | 2007 04 21 | A50 | 0.0 | 0.5− | 2007 05 10 | G96 | 0.2− | 0.2− | |
| 2007 03 17 | 699 | 1.5− | 0.4+ | 2007 04 21 | A50 | 0.7+ | 0.2+ | 2007 05 10 | G96 | 0.0 | 0.0 | |
| 2007 03 20 | G96 | 0.2+ | 0.5− | 2007 04 22 | G96 | 0.2+ | 0.4+ | 2009 12 16 | 691 | 0.5− | 0.0 | |
| 2007 03 20 | G96 | 0.3− | 0.3− | 2007 04 22 | G96 | 0.1+ | 0.6− | 2009 12 16 | 691 | 0.4+ | 0.2− | |
| 2007 03 20 | G96 | 0.3− | 0.3− | 2007 04 22 | G96 | 0.1+ | 0.4− | 2009 12 16 | 691 | 0.5+ | 0.4+ | |
| 2007 03 20 | G96 | 0.6− | 0.4− | 2007 04 22 | G96 | 0.6− | 0.3− | 2009 12 20 | 691 | 0.1− | 0.2− | |
| 2007 04 15 | G96 | 0.3− | 0.3− | 2007 04 23 | G96 | 0.4+ | 0.1+ | 2009 12 20 | 691 | 0.1− | 0.2− | |
| 2007 04 15 | G96 | 0.5− | 0.5− | 2007 04 23 | G96 | 0.1+ | 0.4+ | 2009 12 20 | 691 | 0.2− | 0.1+ | |
| 2007 04 15 | G96 | 0.1− | 0.3− | 2007 04 23 | G96 | 0.2− | 0.1− | | | | | |

**2007 FO$_{15}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 207.83671 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21599708 | $\omega$ | 359.44379 | | −0.86954773 | +0.47614670 | |
| $a$ | 2.7510857 | $\Omega$ | 210.13047 | | −0.45208354 | −0.87427027 | |
| $e$ | 0.0736584 | $i$ | 15.13225 | | −0.19876423 | −0.09452947 | |
| $P$ | 4.56 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 03 18 | 691 | 0.4− | 0.1+ | 2007 04 15 | 704 | 1.9+ | 0.3− | 2007 05 07 | 703 | 0.4+ | 0.4+ | |
| 2007 03 18 | 691 | 0.2− | 0.1− | 2007 04 15 | 704 | 0.7+ | 0.3+ | 2007 05 07 | 703 | 0.4+ | 0.6− | |
| 2007 03 18 | 691 | 0.3− | 0.2− | 2007 04 15 | 704 | 0.4+ | 0.3− | 2007 05 07 | 703 | (1.8+ | 2.2−) | |
| 2007 03 21 | 704 | 0.2+ | 0.0 | 2007 04 22 | 704 | 1.5+ | 1.3− | 2009 09 16 | G96 | 0.2+ | 0.5+ | |
| 2007 03 21 | 704 | 1.5+ | 0.4+ | 2007 04 22 | 704 | 0.0 | 0.1+ | 2009 09 16 | G96 | 0.4+ | 0.3+ | |
| 2007 03 21 | 704 | 0.5+ | 0.3+ | 2007 04 22 | 704 | 0.2+ | 0.4+ | 2009 09 16 | G96 | 0.1+ | 0.0 | |
| 2007 04 11 | 703 | 0.4− | 0.9+ | 2007 04 22 | 704 | 0.3− | 0.6+ | 2009 11 20 | G96 | 0.1− | 0.1− | |
| 2007 04 11 | 703 | 0.9− | 0.5− | 2007 04 26 | 691 | 0.3− | 0.1+ | 2009 11 20 | G96 | 0.2− | 0.1− | |
| 2007 04 11 | 703 | 1.9− | 0.6− | 2007 04 26 | 691 | 0.0 | 0.1− | 2009 11 20 | G96 | 0.1− | 0.3− | |
| 2007 04 11 | 703 | 0.3− | 1.6+ | 2007 04 26 | 691 | 0.1+ | 0.4− | 2009 11 20 | G96 | 0.0 | 0.0 | |
| 2007 04 15 | 704 | 0.0 | 1.0+ | 2007 05 07 | 703 | 0.5+ | 0.1− | | | | | |

**2007 FL$_{26}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 29.83704 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22492805 | $\omega$ | 17.62037 | | +0.91187041 | −0.41027683 | |
| $a$ | 2.6777723 | $\Omega$ | 6.64476 | | +0.36196167 | +0.78892589 | |
| $e$ | 0.0396150 | $i$ | 6.37911 | | +0.19358748 | +0.45745915 | |
| $P$ | 4.38 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 03 09 | G96 | 0.2+ | 0.1− | 2007 03 26 | 291 | 0.3− | 0.1+ | 2007 04 16 | G96 | 0.4+ | 0.2− | |
| 2007 03 09 | G96 | 0.5+ | 0.3− | 2007 03 26 | 291 | 0.1− | 0.1+ | 2009 11 08 | 703 | 0.7− | 0.5+ | |
| 2007 03 09 | G96 | 0.2− | 0.4− | 2007 03 26 | 291 | 0.2− | 0.2+ | 2009 11 08 | 703 | 0.4− | 0.4− | |
| 2007 03 09 | G96 | 0.2+ | 0.1− | 2007 04 07 | G96 | 0.2− | 0.1− | 2009 11 08 | 703 | 0.7+ | 0.7+ | |
| 2007 03 20 | 691 | 0.0 | 0.0 | 2007 04 07 | G96 | 0.3+ | 0.2− | 2009 11 08 | 703 | 0.2− | 0.3+ | |
| 2007 03 20 | 691 | 0.4+ | 0.3− | 2007 04 07 | G96 | 0.4+ | 0.1− | 2009 11 21 | G96 | 0.1− | 0.3− | |
| 2007 03 20 | 691 | 0.1+ | 0.2+ | 2007 04 07 | G96 | 0.6+ | 0.2− | 2009 11 21 | G96 | 0.2+ | 0.4− | |
| 2007 03 26 | 691 | 0.0 | 0.2− | 2007 04 16 | G96 | 0.3+ | 0.0 | 2009 11 21 | G96 | 0.0 | 0.2− | |
| 2007 03 26 | 691 | 0.3− | 0.4+ | 2007 04 16 | G96 | 0.0 | 0.1+ | 2009 11 21 | G96 | 0.4+ | 0.2− | |
| 2007 03 26 | 691 | 0.1− | 0.0 | 2007 04 16 | G96 | 0.4− | 0.2− | | | | | |

**2007 FS$_{31}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 137.01131 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.16909415 | $\omega$ | 34.69930 | | −0.56464872 | +0.82401741 | |
| $a$ | 3.2387965 | $\Omega$ | 201.04248 | | −0.78355125 | −0.55293025 | |
| $e$ | 0.0083986 | $i$ | 7.44941 | | −0.25926678 | −0.12354531 | |
| $P$ | 5.83 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 03 20 | 691 | 0.1− | 0.0 | 2007 04 11 | 691 | 0.0 | 0.2+ | 2009 08 28 | 691 | 0.0 | 0.2− | |
| 2007 03 20 | 691 | 0.0 | 0.3− | 2007 04 14 | G96 | 0.3− | 0.4− | 2009 08 28 | 691 | 0.3− | 0.1+ | |
| 2007 03 20 | 691 | 0.2− | 0.0 | 2007 04 14 | G96 | 0.0 | 0.4− | 2009 09 17 | G96 | 0.4+ | 0.4− | |
| 2007 03 26 | 691 | 0.3+ | 0.2+ | 2007 04 14 | G96 | 0.6− | 0.4− | 2009 09 17 | G96 | 0.2− | 0.4− | |
| 2007 03 26 | 691 | 0.1+ | 0.1− | 2007 04 14 | G96 | 0.2+ | 0.4− | 2009 09 17 | G96 | 0.6+ | 0.2− | |
| 2007 03 26 | 691 | 0.4− | 0.2− | 2007 05 07 | 691 | 0.1− | 0.1+ | 2009 09 17 | G96 | 0.1− | 0.5− | |
| 2007 04 07 | G96 | 0.6+ | 0.1+ | 2007 05 07 | 691 | 0.1+ | 0.2− | 2009 09 17 | G96 | 0.8+ | 0.1− | |
| 2007 04 07 | G96 | 0.1+ | 0.1− | 2007 05 07 | 691 | 0.1− | 0.1+ | 2009 09 17 | G96 | 0.2+ | 0.4− | |
| 2007 04 07 | G96 | 0.1− | 0.0 | 2009 08 16 | 691 | 0.4− | 0.3+ | 2009 09 17 | G96 | 0.3+ | 0.2− | |
| 2007 04 07 | G96 | 0.2− | 0.3− | 2009 08 16 | 691 | 0.2− | 0.1− | 2009 09 17 | G96 | 0.3− | 0.5− | |
| 2007 04 11 | 691 | 0.2+ | 0.5+ | 2009 08 16 | 691 | 0.5+ | 0.2+ | | | | | |
| 2007 04 11 | 691 | 0.2+ | 0.1− | 2009 08 28 | 691 | 0.1− | 0.3+ | | | | | |

**2007 FM$_{33}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 313.53867 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26659476 | $\omega$ | 297.71570 | | −0.58689544 | −0.80965873 | |
| $a$ | 2.3909380 | $\Omega$ | 188.22273 | | +0.74897893 | −0.54171081 | |
| $e$ | 0.1295069 | $i$ | 1.02001 | | +0.30754562 | −0.22583652 | |
| $P$ | 3.70 | $H$ | 17.8 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 01 29 | 291 | 0.9− | 0.4+ | 2007 04 15 | G96 | 0.3− | 0.5− | 2009 10 27 | 691 | 0.3− | 0.6− | |
| 2003 01 29 | 291 | 0.6+ | 0.3+ | 2007 04 15 | G96 | 0.3− | 0.4− | 2009 10 27 | 691 | 0.0 | 0.1+ | |
| 2003 01 29 | 291 | 0.5+ | 0.1+ | 2007 04 15 | G96 | 0.1− | 0.2− | 2009 10 27 | 691 | 0.1− | 0.1− | |
| 2007 03 09 | G96 | 0.0 | 0.1− | 2007 04 19 | G96 | 0.1+ | 0.0 | 2009 11 11 | 691 | 0.4− | 0.1− | |
| 2007 03 09 | G96 | 0.1− | 0.2− | 2007 04 19 | G96 | 0.1+ | 0.6− | 2009 11 11 | 691 | 0.4− | 0.2+ | |
| 2007 03 09 | G96 | 0.1+ | 0.1− | 2007 04 19 | G96 | 0.1+ | 0.3− | 2009 11 11 | 691 | 0.1− | 0.6+ | |
| 2007 03 09 | G96 | 1.5− | 0.0 | 2007 04 19 | G96 | 0.5− | 0.0 | 2009 11 11 | G96 | 0.1+ | 0.5− | |
| 2007 03 25 | G96 | 0.1− | 0.3− | 2007 04 23 | G96 | 1.0− | 0.0 | 2009 11 11 | G96 | 0.6+ | 0.8− | |
| 2007 03 25 | G96 | 0.1+ | 0.1− | 2007 04 23 | G96 | 0.3+ | 0.3+ | 2009 11 11 | G96 | 0.5+ | 1.0− | |
| 2007 03 25 | G96 | 0.1+ | 0.4− | 2007 04 23 | G96 | 0.1− | 0.2+ | 2009 11 23 | G96 | 1.0+ | 0.3+ | |
| 2007 03 25 | G96 | 0.2+ | 0.3− | 2007 04 23 | G96 | 0.2+ | 0.4− | 2009 11 23 | G96 | 0.3+ | 0.2− | |
| 2007 03 26 | 691 | 0.1+ | 0.3+ | 2007 05 10 | G96 | 0.4+ | 0.4− | 2009 11 23 | G96 | 0.8+ | 0.2− | |
| 2007 03 26 | 691 | 0.1− | 0.1− | 2007 05 10 | G96 | 0.2+ | 0.4− | 2009 11 23 | G96 | 0.3+ | 0.3− | |
| 2007 03 26 | 691 | 0.5+ | 0.1− | 2007 05 10 | G96 | 0.1− | 0.1− | 2009 12 10 | G96 | 0.5+ | 0.4− | |
| 2007 04 07 | G96 | 0.4− | 0.0 | 2007 05 10 | G96 | 0.2+ | 0.2− | 2009 12 10 | G96 | 0.4+ | 0.6− | |
| 2007 04 07 | G96 | 0.5− | 0.2− | 2009 10 18 | G96 | 0.6+ | 0.2− | 2009 12 10 | G96 | 0.3− | 0.3− | |
| 2007 04 07 | G96 | 0.7− | 0.2− | 2009 10 18 | G96 | 0.7+ | 0.4− | 2009 12 10 | G96 | 0.4+ | 0.2− | |
| 2007 04 07 | G96 | 0.2− | 0.2+ | 2009 10 18 | G96 | 0.3+ | 0.3− | | | | | |
| 2007 04 15 | G96 | 0.1− | 0.2− | 2009 10 18 | G96 | 0.0 | 0.1+ | | | | | |

**2007 FX$_{45}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 4.34225 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19002454 | $\omega$ | 237.09071 | | +0.81816484 | −0.57172819 | |
| $a$ | 2.9963756 | $\Omega$ | 157.59332 | | +0.56641464 | +0.78313079 | |
| $e$ | 0.0934597 | $i$ | 9.22383 | | +0.09889769 | +0.24460794 | |
| $P$ | 5.19 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 02 21 | 691 | 0.1+ | 0.1+ | 2007 04 15 | 691 | 0.1− | 0.3− | 2007 05 24 | G96 | 0.6+ | 0.7− | |
| 2001 02 21 | 691 | 0.2− | 0.1− | 2007 04 15 | 691 | 0.1+ | 0.1+ | 2007 05 24 | G96 | 0.1+ | 0.1− | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 02 21 | 691 | 0.1+ | 0.0 | 2007 04 19 | 691 | 0.4− | 1.0+ | 2007 05 24 | G96 | 0.6+ | 0.2− |
| 2007 03 16 | G96 | 0.6+ | 0.0 | 2007 04 19 | 691 | 0.4+ | 0.4− | 2007 05 24 | G96 | 0.1+ | 0.3− |
| 2007 03 16 | G96 | 0.6+ | 0.4+ | 2007 04 19 | 691 | 0.0 | 0.4− | 2009 10 15 | 703 | 0.3− | 0.7− |
| 2007 03 16 | G96 | 1.0− | 0.2+ | 2007 05 06 | 691 | 0.1+ | 0.1− | 2009 10 15 | 703 | 1.0+ | 0.8− |
| 2007 03 16 | G96 | 0.7+ | 0.1− | 2007 05 06 | 691 | 0.4− | 0.1− | 2009 10 15 | 703 | 0.2− | 0.4+ |
| 2007 04 15 | 691 | 0.0 | 0.3− | 2007 05 06 | 691 | 0.4− | 0.7+ | 2009 10 15 | 703 | 0.6− | 1.2+ |

**2007 FW$_{48}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 150.85051 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18049734 | $\omega$ | 213.37440 | | −0.61163607 | | +0.78842434 |
| $a$ | 3.1009078 | $\Omega$ | 19.17989 | | −0.67523388 | | −0.47710375 |
| $e$ | 0.0448221 | $i$ | 11.49757 | | −0.41226270 | | −0.38827706 |
| $P$ | 5.46 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 03 09 | 691 | 0.2+ | 0.3+ | 2007 04 07 | G96 | 0.8− | 0.7+ | 2009 10 18 | G96 | 0.4− | 0.9+ |
| 2007 03 09 | 691 | 0.3− | 0.1+ | 2007 04 18 | G96 | 0.1+ | 0.3+ | 2009 10 18 | G96 | 0.8+ | 0.5+ |
| 2007 03 09 | 691 | 0.3+ | 0.3− | 2007 04 18 | G96 | 0.3+ | 0.1+ | 2009 10 18 | G96 | 0.7+ | 0.0 |
| 2007 03 26 | 691 | 0.2+ | 0.1− | 2007 04 18 | G96 | 0.3− | 0.0 | 2009 10 26 | G96 | 0.5− | 0.1− |
| 2007 03 26 | 691 | 0.1− | 0.2+ | 2007 04 18 | G96 | 0.1− | 0.1+ | 2009 10 26 | G96 | 0.9+ | 0.7− |
| 2007 03 26 | 691 | 0.1+ | 0.3− | 2009 09 27 | 691 | 0.6− | 0.2− | 2009 10 26 | G96 | 0.6− | 0.2− |
| 2007 04 07 | G96 | 0.1− | 0.2+ | 2009 09 27 | 691 | 0.0 | 0.0 | 2009 10 26 | G96 | 0.5− | 0.0 |
| 2007 04 07 | G96 | 0.5− | 0.3− | 2009 09 27 | 691 | 0.3+ | 0.0 | | | | |
| 2007 04 07 | G96 | 0.3− | 0.0 | 2009 10 18 | G96 | 0.6+ | 0.1+ | | | | |

**2007 FL$_{49}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 136.63396 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.20379230 | $\omega$ | 188.75260 | | +0.23352676 | | +0.93044913 |
| $a$ | 2.8598562 | $\Omega$ | 95.11888 | | −0.87407594 | | +0.32809685 |
| $e$ | 0.1190227 | $i$ | 16.46891 | | −0.42597712 | | −0.16314677 |
| $P$ | 4.84 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 04 10 | 644 | 0.3+ | 0.6+ | 2007 04 20 | 699 | 0.3− | 0.2+ | 2007 05 13 | 703 | 1.2− | 0.3+ |
| 2002 04 10 | 644 | 0.2+ | 0.5+ | 2007 04 20 | 699 | (0.4− | 2.6+) | 2008 08 02 | E12 | 0.5− | 0.2+ |
| 2002 04 10 | 644 | 0.2+ | 0.6+ | 2007 04 20 | 699 | 1.3+ | 0.2+ | 2008 08 02 | E12 | 0.2− | 0.2+ |
| 2007 03 26 | 703 | 0.2+ | 0.3− | 2007 04 20 | 699 | 0.9+ | 0.7+ | 2008 08 02 | E12 | 0.4− | 0.0 |
| 2007 03 26 | 703 | 0.6− | 0.5− | 2007 04 24 | 703 | 1.5+ | 0.6− | 2008 08 02 | E12 | 0.5+ | 1.2+ |
| 2007 03 26 | 703 | 0.0 | 0.3− | 2007 04 24 | 703 | 0.2+ | 0.1− | 2009 11 22 | 703 | 1.2− | 0.3+ |
| 2007 03 26 | 703 | 0.2− | 0.5+ | 2007 04 24 | 703 | 0.9− | 1.3+ | 2009 11 22 | 703 | 0.6− | 0.3+ |
| 2007 04 11 | 703 | 0.5+ | 0.4− | 2007 04 24 | 703 | 1.1− | 0.3− | 2009 11 22 | 703 | 0.3− | 1.4+ |
| 2007 04 11 | 703 | 0.6− | 1.5+ | 2007 05 13 | 703 | 0.4− | 0.1− | 2009 11 22 | 703 | 1.7+ | 0.3− |
| 2007 04 11 | 703 | 0.1− | 0.3+ | 2007 05 13 | 703 | 0.0 | 0.0 | | | | |
| 2007 04 11 | 703 | 0.4+ | 0.5− | 2007 05 13 | 703 | 0.4+ | 1.6− | | | | |

**2007 FM$_{49}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 157.21249 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22614460 | $\omega$ | 156.65928 | | +0.13984442 | | +0.96387964 |
| $a$ | 2.6681602 | $\Omega$ | 120.68299 | | −0.94493835 | | +0.19831306 |
| $e$ | 0.1119069 | $i$ | 15.28196 | | −0.29586323 | | −0.17778629 |
| $P$ | 4.36 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 05 10 | 691 | 0.2− | 0.2+ | 2007 03 20 | 703 | 0.5+ | 0.2+ | 2007 04 24 | 703 | 0.5− | 0.1+ |
| 2003 05 10 | 691 | 0.2− | 0.1+ | 2007 03 20 | 703 | 0.6− | 1.3+ | 2007 04 24 | 703 | 0.8+ | 0.8+ |
| 2003 05 10 | 691 | 0.3+ | 0.1+ | 2007 04 08 | D29 | 1.3+ | 0.3+ | 2007 04 24 | 703 | 0.9− | 1.3− |
| 2003 07 24 | 644 | 0.2+ | 0.3− | 2007 04 08 | D29 | 0.9+ | 0.0 | 2008 08 05 | E12 | 0.3+ | 0.4− |
| 2003 07 24 | 644 | 0.1+ | 0.1− | 2007 04 08 | D29 | 0.0 | 0.2− | 2008 08 05 | E12 | 0.1− | 1.4+ |
| 2003 07 24 | 644 | 0.3+ | 0.0 | 2007 04 08 | D29 | 0.4+ | 0.2− | 2008 08 05 | E12 | 1.0− | 0.4− |
| 2004 09 14 | 644 | 0.5− | 0.4+ | 2007 04 14 | 703 | (1.7− | 2.4−) | 2008 08 05 | E12 | 0.2− | 0.3− |
| 2004 09 14 | 644 | 0.6− | 0.1− | 2007 04 14 | 703 | (1.9− | 2.0−) | 2008 08 23 | E12 | 0.5+ | 0.3− |
| 2004 09 14 | 644 | 0.6+ | 1.2+ | 2007 04 14 | 703 | 0.5− | 0.3− | 2008 08 23 | E12 | 0.5+ | 0.0 |
| 2007 03 20 | 703 | 0.0 | 0.2− | 2007 04 14 | 703 | 0.3− | 1.1− | 2008 08 23 | E12 | 1.0+ | 0.8− |
| 2007 03 20 | 703 | 0.5+ | 1.3+ | 2007 04 24 | 703 | 1.3− | 0.5− | 2008 08 23 | E12 | 1.1− | 0.0 |

**2007 GX$_1$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 292.00110 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.27263059 | $\omega$ | 121.84118 | | −0.89922129 | | −0.36983856 |
| $a$ | 2.3555175 | $\Omega$ | 37.94681 | | +0.14243564 | | −0.75258491 |
| $e$ | 0.3162160 | $i$ | 22.33741 | | +0.41365827 | | −0.54482603 |
| $P$ | 3.62 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 03 16 | 703 | 0.2− | 1.3+ | 2007 04 16 | 704 | 0.3+ | 0.4+ | 2007 04 26 | G96 | 0.0 | 0.5− |
| 2007 03 16 | 703 | (0.9+ | 2.0+) | 2007 04 16 | 704 | 0.3+ | 0.3+ | 2007 04 26 | G96 | 0.4− | 0.4− |
| 2007 03 16 | 703 | 0.2− | 0.2+ | 2007 04 16 | 704 | 0.1+ | 0.0 | 2007 04 26 | G96 | 0.4− | 0.6− |
| 2007 03 16 | 703 | 0.1− | 0.6− | 2007 04 16 | 704 | 0.4+ | 0.4+ | 2007 05 08 | 699 | 0.5+ | 0.1− |
| 2007 03 26 | 703 | 0.1− | 0.3+ | 2007 04 16 | 704 | 0.5+ | 0.1+ | 2007 05 08 | 699 | 0.4+ | 0.1+ |
| 2007 03 26 | 703 | 0.5− | 0.2+ | 2007 04 16 | 704 | 0.1+ | 0.1+ | 2007 05 08 | 699 | 0.2+ | 0.5+ |
| 2007 03 26 | 703 | 0.5− | 0.2+ | 2007 04 16 | 704 | 0.2+ | 0.3+ | 2007 05 08 | 699 | 0.1+ | 0.4+ |
| 2007 03 26 | 703 | 0.5− | 0.3+ | 2007 04 16 | 704 | 0.4+ | 0.1− | 2007 05 09 | 703 | 0.3+ | 0.1− |
| 2007 04 10 | D29 | 0.4+ | 0.5− | 2007 04 16 | 704 | 0.3+ | 0.0 | 2007 05 09 | 703 | 0.3− | 0.4− |
| 2007 04 10 | D29 | 0.0 | 0.1− | 2007 04 16 | D29 | 0.4+ | 0.4− | 2007 05 13 | G96 | 0.2+ | 0.4− |
| 2007 04 10 | D29 | 0.2+ | 0.4− | 2007 04 16 | D29 | 0.1+ | 0.2− | 2007 05 13 | G96 | 0.2+ | 0.2− |
| 2007 04 10 | D29 | 0.1− | 0.3− | 2007 04 16 | D29 | 0.2− | 0.2− | 2007 05 13 | G96 | 0.2+ | 0.2− |
| 2007 04 11 | 704 | 0.6+ | 0.0 | 2007 04 16 | D29 | 0.3− | 0.2− | 2007 05 13 | G96 | 0.1+ | 0.1− |
| 2007 04 11 | 704 | 0.7+ | 0.9+ | 2007 04 16 | D29 | 0.3− | 0.1− | 2007 05 13 | 704 | 0.9+ | 1.4+ |
| 2007 04 11 | 704 | 1.0− | 0.6+ | 2007 04 16 | D29 | 0.4− | 0.6+ | 2007 05 13 | 704 | (1.6+ | 2.0+) |
| 2007 04 11 | 704 | 0.9− | 0.2+ | 2007 04 17 | D29 | 0.1− | 0.2− | 2007 05 13 | 704 | (1.8+ | 0.3+) |
| 2007 04 11 | 704 | 0.8+ | 0.2+ | 2007 04 17 | D29 | 0.1− | 0.3− | 2007 05 13 | 704 | (0.5+ | 2.0+) |
| 2007 04 11 | D29 | 0.2− | 0.0 | 2007 04 17 | D29 | 0.2− | 0.2− | 2007 05 13 | 704 | (1.2+ | 2.0+) |
| 2007 04 11 | D29 | 0.3− | 0.2− | 2007 04 17 | D29 | 0.1+ | 1.0− | 2007 05 21 | 703 | 0.9+ | 0.3+ |
| 2007 04 11 | D29 | 0.4− | 0.4− | 2007 04 17 | D29 | 0.4− | 0.2− | 2007 05 21 | 703 | 0.3− | 0.1+ |
| 2007 04 11 | D29 | 0.1− | 0.4− | 2007 04 17 | D29 | 0.1− | 0.1− | 2007 05 21 | 703 | 0.5− | 0.5+ |
| 2007 04 15 | 704 | 0.2+ | 0.1+ | 2007 04 17 | D29 | 0.1+ | 0.1+ | 2007 05 21 | 703 | 0.2− | 0.3+ |
| 2007 04 15 | 704 | 0.2− | 0.1+ | 2007 04 17 | D29 | 0.2− | 0.2− | 2009 10 24 | 691 | 0.1− | 0.0 |
| 2007 04 15 | 704 | 0.3+ | 0.3+ | 2007 04 18 | D29 | 0.0 | 0.3− | 2009 10 24 | 691 | 0.2− | 0.2− |
| 2007 04 15 | 704 | 0.0 | 0.9+ | 2007 04 18 | D29 | 0.1− | 0.3− | 2009 10 24 | 691 | 0.2− | 0.1− |
| 2007 04 15 | 704 | 0.1+ | 0.4+ | 2007 04 18 | D29 | 0.2+ | 0.2− | 2009 11 10 | 114 | 1.5− | 0.4+ |
| 2007 04 15 | 704 | 0.0 | 0.1+ | 2007 04 18 | D29 | 0.0 | 0.3− | 2009 11 10 | 114 | 0.5+ | 0.4+ |
| 2007 04 15 | 704 | 0.6+ | 0.2+ | 2007 04 20 | 699 | 0.0 | 0.2+ | 2009 11 10 | 114 | 0.3+ | 1.1+ |
| 2007 04 15 | 704 | 0.2+ | 0.6+ | 2007 04 20 | 699 | 0.0 | 0.1+ | 2009 11 10 | 114 | 0.3+ | 0.2+ |
| 2007 04 15 | 704 | 0.4+ | 0.1+ | 2007 04 20 | 699 | 0.3− | 0.5+ | 2009 11 10 | 114 | 1.2+ | 0.0 |
| 2007 04 15 | 704 | 0.1+ | 0.6− | 2007 04 23 | 703 | 0.7− | 0.8+ | 2009 11 12 | 114 | 0.3+ | 0.4+ |
| 2007 04 15 | G96 | 0.4+ | 0.6− | 2007 04 23 | 703 | 0.5+ | 0.0 | 2009 11 12 | 114 | 0.1+ | 0.0 |
| 2007 04 15 | G96 | 0.0 | 0.7− | 2007 04 23 | 703 | 0.0 | 0.9+ | 2009 11 12 | 114 | 0.2− | 0.2− |
| 2007 04 15 | G96 | 0.2+ | 0.6− | 2007 04 23 | 703 | 1.0− | 0.1− | 2009 11 12 | 114 | 0.1+ | 0.0 |
| 2007 04 15 | G96 | 0.0 | 0.6− | 2007 04 26 | G96 | 0.1− | 0.4− | 2009 11 12 | 114 | 0.1− | 0.3+ |

**2007 GO$_9$ = 2009 VN$_{85}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 153.17213 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22471745 | $\omega$ | 206.42569 | | +0.04760349 | | +0.97952734 |
| $a$ | 2.6794451 | $\Omega$ | 66.84025 | | −0.87465408 | | +0.13545037 |
| $e$ | 0.0482441 | $i$ | 12.28337 | | −0.48240455 | | −0.14892747 |
| $P$ | 4.39 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 02 12 | 644 | 0.2− | 0.7+ | 2007 04 22 | 703 | 1.3+ | 0.9+ | 2009 11 18 | 691 | 0.2− | 0.1+ |
| 2002 02 12 | 644 | 0.4+ | 0.9+ | 2007 04 22 | 703 | 0.3− | 1.3+ | 2009 11 18 | 691 | 0.0 | 0.2+ |
| 2002 02 12 | 644 | 0.4+ | 0.3+ | 2008 08 08 | E12 | 0.1+ | 0.3+ | 2009 11 18 | 691 | 0.1+ | 0.2+ |
| 2003 07 07 | 644 | 0.2+ | 0.3+ | 2008 08 08 | E12 | 0.4− | 0.4+ | 2009 11 26 | 691 | 0.1+ | 0.1− |
| 2003 07 07 | 644 | 0.3+ | 0.7+ | 2008 08 08 | E12 | 0.0 | 0.8+ | 2009 11 26 | 691 | 0.0 | 0.0 |
| 2003 07 07 | 644 | 0.0 | 0.4+ | 2008 08 26 | E12 | 0.6− | 1.1+ | 2009 11 26 | 691 | 0.1− | 0.1+ |
| 2007 04 08 | D29 | 0.5+ | 0.1− | 2008 08 26 | E12 | 0.3+ | 0.1+ | 2009 12 09 | J75 | 0.9− | 0.4− |
| 2007 04 08 | D29 | 0.5− | 0.5− | 2008 08 26 | E12 | 0.4+ | 0.4+ | 2009 12 09 | J75 | 0.3+ | 0.5− |
| 2007 04 08 | D29 | 0.7− | 0.4+ | 2008 08 26 | E12 | 0.4− | 0.1− | 2009 12 09 | J75 | 0.0 | 0.4− |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 04 08 | D29 | 0.2+ | 0.6− | 2009 10 25 | 691 | 0.3− | 0.1− | 2009 12 11 | G96 | 0.0 | 0.2− |
| 2007 04 15 | G96 | 0.2+ | 0.2− | 2009 10 25 | 691 | 0.4− | 0.1+ | 2009 12 11 | G96 | 0.4+ | 0.3− |
| 2007 04 15 | G96 | 0.5+ | 0.1− | 2009 10 25 | 691 | 0.9+ | 0.2+ | 2009 12 11 | G96 | 0.2+ | 0.3− |
| 2007 04 15 | G96 | 0.0 | 0.1− | 2009 11 10 | 691 | 0.3− | 0.2+ | 2009 12 11 | G96 | 0.1+ | 0.3+ |
| 2007 04 15 | G96 | 0.4− | 0.4− | 2009 11 10 | 691 | 0.1− | 0.3+ | | | | |
| 2007 04 22 | 703 | 0.3+ | 1.5+ | 2009 11 10 | 691 | 0.1− | 0.1+ | | | | |

**2007 GM$_{23}$ = 2009 VB$_{104}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 338.54697 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23620287 | $\omega$ | 245.61875 | | −0.26013740 | | −0.96110541 |
| $a$ | 2.5918663 | $\Omega$ | 219.82479 | | +0.93006360 | | −0.22359870 |
| $e$ | 0.1257542 | $i$ | 8.32811 | | +0.25944215 | | −0.16211111 |
| $P$ | 4.17 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1992 10 25 | 691 | 0.7− | 0.5+ | 2007 04 15 | 691 | 0.0 | 0.3+ | 2007 05 10 | G96 | 0.1− | 0.3+ |
| 1992 10 25 | 691 | 0.1+ | 0.3− | 2007 04 15 | 691 | 0.0 | 0.1+ | 2009 11 10 | 691 | 0.3− | 0.0 |
| 1992 10 25 | 691 | 0.7+ | 0.2− | 2007 04 15 | 691 | 0.1− | 0.1− | 2009 11 10 | 691 | 0.2− | 0.2+ |
| 2004 08 22 | 691 | 0.1+ | 0.1+ | 2007 04 27 | 691 | 0.2− | 0.2+ | 2009 11 10 | 691 | 0.3+ | 0.3+ |
| 2004 08 22 | 691 | 0.0 | 0.0 | 2007 04 27 | 691 | 0.2+ | 0.3+ | 2009 11 25 | G96 | 0.3+ | 0.3− |
| 2004 08 22 | 691 | 0.1− | 0.1− | 2007 04 27 | 691 | 0.8+ | 0.0 | 2009 11 25 | G96 | 0.0 | 0.4− |
| 2007 04 11 | 691 | 0.2− | 0.4− | 2007 05 10 | G96 | 0.1+ | 0.1+ | 2009 11 25 | G96 | 0.3+ | 0.3− |
| 2007 04 11 | 691 | 0.3− | 0.4− | 2007 05 10 | G96 | 0.0 | 0.2+ | 2009 11 25 | G96 | 0.1+ | 0.3− |
| 2007 04 11 | 691 | 0.2− | 0.0 | 2007 05 10 | G96 | 0.0 | 0.2− | | | | |

**2007 GY$_{24}$ = 2008 RB$_{134}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 135.71210 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21318059 | $\omega$ | 307.62522 | | +0.41497856 | | +0.90938700 |
| $a$ | 2.7752639 | $\Omega$ | 346.80415 | | −0.79060319 | | +0.34495969 |
| $e$ | 0.2068085 | $i$ | 7.15337 | | −0.45026590 | | +0.23241794 |
| $P$ | 4.62 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 02 03 | 691 | 0.0 | 0.5+ | 2007 04 15 | 291 | 0.1+ | 0.1+ | 2008 09 20 | G96 | 0.3+ | 0.2+ |
| 1997 02 03 | 691 | 0.1+ | 0.0 | 2007 04 15 | 291 | 0.0 | 0.0 | 2008 09 20 | 703 | 0.1− | 0.1− |
| 1997 02 03 | 691 | 0.3+ | 0.4+ | 2007 04 15 | 291 | 0.1− | 0.0 | 2008 09 20 | G96 | 0.1+ | 0.1+ |
| 2007 04 11 | 246 | 0.6+ | 0.5+ | 2007 04 16 | G96 | 0.3− | 0.0 | 2008 09 20 | 703 | 0.9− | 0.4− |
| 2007 04 11 | 246 | 0.7+ | 1.1+ | 2007 04 16 | G96 | 0.1− | 0.1− | 2008 09 20 | G96 | 0.0 | 0.3+ |
| 2007 04 11 | 246 | 0.9+ | 0.1− | 2007 04 16 | G96 | 0.5− | 0.1− | 2008 09 20 | 703 | 0.6− | 0.3+ |
| 2007 04 11 | 246 | 0.1− | 0.6+ | 2007 04 16 | G96 | 0.2− | 0.2+ | 2008 09 20 | G96 | 0.2− | 0.2− |
| 2007 04 11 | 246 | 0.4+ | 0.1+ | 2008 08 21 | 691 | 0.2− | 0.0 | 2008 09 20 | 703 | 0.2+ | 0.1− |
| 2007 04 11 | 246 | 0.1+ | 0.8+ | 2008 08 21 | 691 | 0.1− | 0.9+ | 2008 11 19 | G96 | 0.1− | 0.5+ |
| 2007 04 11 | 246 | 0.4+ | 0.3+ | 2008 08 21 | 691 | 0.0 | 0.1+ | 2008 11 19 | G96 | 0.2− | 0.1− |
| 2007 04 14 | G96 | 0.0 | 0.2− | 2008 09 07 | 703 | 0.0 | 0.2+ | 2008 11 19 | G96 | 0.2− | 0.4+ |
| 2007 04 14 | G96 | 0.4− | 0.3− | 2008 09 07 | 703 | 0.4+ | 0.0 | 2008 11 19 | G96 | 0.2+ | 0.4+ |
| 2007 04 14 | G96 | 0.3+ | 0.4− | 2008 09 07 | 703 | 0.7− | 0.4− | | | | |
| 2007 04 14 | G96 | 0.2− | 0.0 | 2008 09 07 | 703 | 0.3− | 0.0 | | | | |

**2007 GJ$_{26}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 88.97597 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17737548 | $\omega$ | 112.19007 | | +0.46030073 | | +0.88773324 |
| $a$ | 3.1371865 | $\Omega$ | 185.23381 | | −0.84105921 | | +0.43344728 |
| $e$ | 0.1318051 | $i$ | 4.57456 | | −0.28415251 | | +0.15509078 |
| $P$ | 5.56 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 03 14 | 691 | 0.4− | 0.1− | 2007 04 14 | G96 | 0.5+ | 0.8− | 2009 10 14 | G96 | 0.5+ | 0.2− |
| 2007 03 14 | 691 | 0.1− | 0.3− | 2007 04 14 | G96 | 0.4+ | 0.6+ | 2009 10 14 | G96 | 0.4+ | 0.2+ |
| 2007 03 14 | 691 | 0.3− | 0.2− | 2007 04 15 | G96 | 0.3− | 0.4− | 2009 11 20 | 691 | 0.2− | 0.2− |
| 2007 03 26 | 691 | 0.2+ | 0.7+ | 2007 04 15 | G96 | 0.2+ | 0.4+ | 2009 11 20 | 691 | 0.5− | 0.1+ |
| 2007 03 26 | 691 | 0.1− | 0.0 | 2007 04 15 | G96 | 0.1+ | 0.3− | 2009 11 20 | 691 | 0.1+ | 0.1+ |
| 2007 03 26 | 691 | 0.4+ | 0.0 | 2007 04 15 | G96 | 0.0 | 0.4− | 2009 11 22 | 691 | 1.0+ | 0.9− |
| 2007 04 14 | G96 | 0.1− | 0.5− | 2009 10 14 | G96 | 0.8+ | 0.2+ | 2009 11 22 | 691 | 0.6− | 0.5+ |
| 2007 04 14 | G96 | 0.7+ | 0.3+ | 2009 10 14 | G96 | 0.1+ | 0.2+ | 2009 11 22 | 691 | 0.3− | 0.3+ |

**2007 GA$_{27}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 184.54584 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21824938 | $\omega$ | 167.36573 | | −0.00921799 | | +0.99539228 |
| $a$ | 2.7321259 | $\Omega$ | 102.04760 | | −0.92572496 | | +0.02759367 |
| $e$ | 0.1867112 | $i$ | 5.60052 | | −0.37808508 | | −0.09183031 |
| $P$ | 4.52 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 01 27 | G96 | 0.1− | 0.2+ | 2007 04 15 | 291 | 0.1− | 0.2+ | 2007 06 23 | 691 | 0.3+ | 0.0 |
| 2006 01 27 | G96 | 0.2+ | 0.4+ | 2007 05 17 | 703 | 0.9− | 0.0 | 2007 06 23 | 691 | 0.2+ | 0.2+ |
| 2006 01 27 | G96 | 0.0 | 0.3− | 2007 05 17 | 703 | 0.5− | 0.4+ | 2007 06 23 | 691 | 0.1− | 0.4+ |
| 2006 01 27 | G96 | 0.1− | 0.1+ | 2007 05 17 | 703 | 0.0 | 0.7− | 2008 10 27 | G96 | 0.1− | 0.0 |
| 2007 04 14 | 291 | 0.3+ | 0.2− | 2007 05 17 | 703 | 0.0 | 0.3− | 2008 10 27 | G96 | 0.4+ | 0.3+ |
| 2007 04 14 | 291 | 0.0 | 0.2− | 2007 05 24 | 703 | 0.2+ | 1.0− | 2008 10 27 | G96 | 0.1− | 0.0 |
| 2007 04 14 | 291 | 0.0 | 0.1− | 2007 05 24 | 703 | 1.0+ | 1.0− | 2008 10 27 | G96 | 0.3− | 0.1− |
| 2007 04 15 | 291 | 0.0 | 0.3+ | 2007 05 24 | 703 | 0.8− | 0.0 | | | | |
| 2007 04 15 | 291 | 0.0 | 0.3+ | 2007 05 24 | 703 | 0.9− | 0.1− | | | | |

**2007 GZ$_{27}$ = 2009 UR$_{83}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 116.06812 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18142626 | $\omega$ | 227.02164 | | +0.36885340 | | +0.92175596 |
| $a$ | 3.0903140 | $\Omega$ | 64.98146 | | −0.80974926 | | +0.38185810 |
| $e$ | 0.1831047 | $i$ | 7.58664 | | −0.45634779 | | +0.06745625 |
| $P$ | 5.43 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 18 | 644 | 0.1+ | 0.3+ | 2007 04 13 | D35 | 0.6+ | 0.2+ | 2009 10 23 | G96 | 0.1+ | 0.5+ |
| 2003 09 18 | 644 | 0.1− | 0.3+ | 2007 04 15 | 703 | 0.0 | 1.0+ | 2009 10 23 | G96 | 0.0 | 0.2− |
| 2003 09 18 | 644 | 0.1− | 0.1− | 2007 04 15 | 703 | 0.6− | 0.6+ | 2009 10 25 | 691 | 0.1− | 0.1+ |
| 2003 10 29 | 699 | 0.4− | 0.1− | 2007 04 15 | 703 | 1.1− | 0.1− | 2009 10 25 | 691 | 0.3− | 0.4+ |
| 2003 10 29 | 699 | 1.0− | 1.1+ | 2007 04 15 | 703 | 0.7− | 0.5− | 2009 10 25 | 691 | 0.1− | 0.1− |
| 2003 10 29 | 699 | 0.1+ | 0.3+ | 2007 04 20 | 704 | 0.6+ | 0.2+ | 2009 11 20 | G96 | 0.4+ | 0.5+ |
| 2003 10 29 | 699 | 0.3− | 0.2+ | 2007 04 20 | 704 | 0.8+ | 1.9+ | 2009 11 20 | G96 | 0.5+ | 0.1+ |
| 2004 12 11 | 691 | 0.2+ | 0.0 | 2007 04 20 | 704 | 0.5+ | 1.1+ | 2009 11 20 | G96 | 0.1+ | 0.1+ |
| 2004 12 11 | 691 | 0.2− | 0.1+ | 2007 04 20 | 704 | 0.5+ | 0.5+ | 2009 11 20 | G96 | 0.5+ | 0.3+ |
| 2004 12 11 | 691 | 0.3+ | 0.0 | 2008 08 23 | E12 | 0.9− | 0.5− | 2009 12 11 | G96 | 0.7− | 0.2+ |
| 2007 04 13 | D35 | 0.1− | 0.6+ | 2008 08 23 | E12 | 0.8+ | 1.5+ | 2009 12 11 | G96 | 0.6− | 1.1+ |
| 2007 04 13 | D35 | 0.2+ | 0.2+ | 2008 08 23 | E12 | 0.0 | 0.2+ | 2009 12 11 | G96 | 0.4− | 0.4+ |
| 2007 04 13 | D35 | 0.8+ | 0.7+ | 2008 08 23 | E12 | 0.3− | 1.1+ | 2009 12 11 | G96 | 0.3− | 0.1+ |
| 2007 04 13 | D35 | 0.9+ | 0.1+ | 2009 10 23 | G96 | 0.1+ | 0.2+ | | | | |
| 2007 04 13 | D35 | 0.8+ | 0.7+ | 2009 10 23 | G96 | 0.1+ | 0.0 | | | | |

**2007 GM$_{31}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 95.06257 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18395913 | $\omega$ | 99.23078 | | +0.04654851 | | +0.99886107 |
| $a$ | 3.0618822 | $\Omega$ | 173.41007 | | −0.94859978 | | +0.04748876 |
| $e$ | 0.0744475 | $i$ | 5.23889 | | −0.31303625 | | +0.00462460 |
| $P$ | 5.36 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 03 09 | 691 | 0.0 | 0.2+ | 2007 04 15 | G96 | 0.1− | 0.1− | 2009 08 27 | 691 | 0.1+ | 0.0 |
| 2007 03 09 | 691 | 0.1− | 0.1+ | 2007 04 15 | G96 | 0.5+ | 0.2− | 2009 09 18 | G96 | 0.1+ | 0.2− |
| 2007 03 09 | 691 | 0.1− | 0.1+ | 2007 04 15 | G96 | 0.0 | 0.0 | 2009 09 18 | G96 | 0.5+ | 0.1+ |
| 2007 03 16 | G96 | 0.1+ | 0.2+ | 2007 04 16 | G96 | 0.2+ | 0.1+ | 2009 09 18 | G96 | 0.8+ | 0.2− |
| 2007 03 16 | G96 | 0.3− | 0.1+ | 2007 04 16 | G96 | 0.1+ | 0.2+ | 2009 09 18 | G96 | 0.5+ | 0.2− |
| 2007 03 16 | G96 | 0.2+ | 0.0 | 2007 04 16 | G96 | 0.1+ | 0.1− | 2009 10 25 | 691 | 0.2− | 0.0 |
| 2007 03 16 | G96 | 0.2− | 0.2+ | 2007 04 16 | G96 | 0.2− | 0.4+ | 2009 10 25 | 691 | 0.5− | 0.3− |
| 2007 03 26 | G96 | 0.5+ | 0.2+ | 2009 08 15 | 691 | 0.3+ | 0.4+ | 2009 10 25 | 691 | 0.2+ | 0.2+ |
| 2007 03 26 | G96 | 0.1+ | 0.1− | 2009 08 15 | 691 | 0.4− | 0.2+ | 2009 10 25 | G96 | 0.2+ | 0.3+ |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 03 26 | G96 | 0.1+ | 0.1− | 2009 08 15 | 691 | 0.2+ | 0.2+ | 2009 10 25 | G96 | 0.5+ | 0.3+ | | | |
| 2007 03 26 | G96 | 0.1+ | 0.3− | 2009 08 27 | 691 | 0.2− | 0.2− | 2009 10 25 | G96 | 0.2+ | 0.4+ | | | |
| 2007 04 15 | G96 | 0.5+ | 0.1− | 2009 08 27 | 691 | 0.3− | 0.2− | 2009 10 25 | G96 | 0.1− | 0.1+ | | | |

**2007 GC$_{32}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 33.02932 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.19876835 | $\omega$ | 207.48477 | | +0.99446752 | | −0.08140867 |
| $a$ | 2.9078448 | $\Omega$ | 156.89637 | | +0.09553091 | | +0.96370978 |
| $e$ | 0.0905123 | $i$ | 9.74010 | | −0.04368295 | | +0.25423630 |
| $P$ | 4.96 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 03 14 | G96 | 0.0 | 0.1− | 2007 04 17 | H55 | 0.2− | 0.2+ | 2009 09 28 | G96 | 0.1− | 0.1− | | | |
| 2007 03 14 | G96 | 0.1− | 0.2− | 2007 04 17 | H55 | 0.4+ | 0.0 | 2009 10 15 | 703 | 1.3− | 0.2− | | | |
| 2007 03 14 | G96 | 0.2− | 0.2− | 2007 04 17 | H55 | 0.3+ | 0.2+ | 2009 10 15 | 703 | (1.9+ | 0.2+) | | | |
| 2007 03 14 | G96 | 0.2− | 0.4− | 2007 05 09 | 734 | 0.4− | 0.1− | 2009 10 15 | 703 | 0.1+ | 0.2+ | | | |
| 2007 04 10 | H55 | 0.0 | 0.2+ | 2007 05 09 | 734 | 0.3+ | 0.4− | 2009 10 15 | 703 | 1.0+ | 0.4+ | | | |
| 2007 04 10 | H55 | 0.1+ | 0.1+ | 2007 05 09 | 734 | 0.1− | 0.2− | 2009 10 15 | 703 | 0.4− | 0.5− | | | |
| 2007 04 10 | H55 | 0.1− | 0.3+ | 2007 05 09 | 734 | 0.4− | 0.1− | 2009 10 15 | 703 | (0.1+ | 2.1+) | | | |
| 2007 04 17 | H55 | 0.5+ | 0.2+ | 2009 09 28 | G96 | 0.3+ | 0.3− | 2009 10 15 | 703 | 0.8+ | 0.3+ | | | |
| 2007 04 17 | H55 | 0.2− | 0.1+ | 2009 09 28 | G96 | 0.1+ | 0.2− | 2009 10 15 | 703 | 0.4− | 0.2+ | | | |
| 2007 04 17 | H55 | 0.0 | 0.1+ | 2009 09 28 | G96 | 0.0 | 0.1− | | | | | | | |

**2007 GP$_{33}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 330.53393 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23971550 | $\omega$ | 261.02902 | | −0.32848718 | | −0.94213011 |
| $a$ | 2.5664845 | $\Omega$ | 208.43197 | | +0.91241739 | | −0.29819754 |
| $e$ | 0.1240269 | $i$ | 8.08786 | | +0.24411203 | | −0.15319621 |
| $P$ | 4.11 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 03 15 | G96 | 0.3− | 0.3+ | 2007 04 18 | 691 | 0.2− | 0.2− | 2009 11 17 | G96 | 0.1− | 0.0 | | | |
| 2007 03 15 | G96 | 0.3+ | 0.0 | 2007 04 18 | 691 | 0.3+ | 0.0 | 2009 11 17 | G96 | 0.2+ | 0.1+ | | | |
| 2007 03 15 | G96 | 0.4+ | 0.5+ | 2007 04 22 | 691 | 0.0 | 0.1+ | 2009 11 17 | G96 | 0.0 | 0.0 | | | |
| 2007 03 15 | G96 | 0.3− | 0.2− | 2007 04 22 | 691 | 0.3− | 0.1+ | 2009 11 17 | G96 | 0.1− | 0.0 | | | |
| 2007 04 11 | G96 | 0.3+ | 0.2− | 2007 04 22 | 691 | 0.1+ | 0.2− | 2009 11 25 | G96 | 0.0 | 0.2− | | | |
| 2007 04 11 | G96 | 0.2− | 0.2− | 2008 07 29 | G96 | 0.1+ | 0.2+ | 2009 11 25 | G96 | 0.3+ | 0.1− | | | |
| 2007 04 11 | G96 | 0.4− | 0.1+ | 2008 07 29 | G96 | 0.4− | 0.1− | 2009 11 25 | G96 | 0.0 | 0.1− | | | |
| 2007 04 11 | G96 | 0.1+ | 0.1+ | 2008 07 29 | G96 | 0.3+ | 0.1− | 2009 11 25 | G96 | 0.1− | 0.0 | | | |
| 2007 04 18 | 691 | 0.1+ | 0.0 | 2008 07 29 | G96 | 0.1− | 0.0 | | | | | | | |

**2007 GT$_{49}$ = 2009 UH$_{145}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 307.27482 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.27456522 | $\omega$ | 299.83120 | | −0.71963259 | | −0.68444627 |
| $a$ | 2.3444395 | $\Omega$ | 197.87430 | | +0.69174344 | | −0.72128146 |
| $e$ | 0.2476924 | $i$ | 22.38460 | | −0.06016605 | | −0.10623728 |
| $P$ | 3.59 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 03 02 | 644 | 0.0 | 0.1− | 2007 03 29 | 644 | 0.1+ | 0.3+ | 2007 04 19 | G96 | 0.4− | 0.0 | | | |
| 2007 03 02 | 644 | 0.0 | 0.6− | 2007 04 15 | 704 | 0.5− | 0.3− | 2007 04 19 | G96 | 0.3− | 0.0 | | | |
| 2007 03 02 | 644 | 0.0 | 0.3− | 2007 04 15 | 704 | 0.0 | 0.1− | 2007 04 19 | G96 | 0.3− | 0.1− | | | |
| 2007 03 02 | 644 | 0.3+ | 0.5− | 2007 04 15 | 704 | 0.4+ | 0.3− | 2009 09 17 | G96 | 0.0 | 0.2− | | | |
| 2007 03 02 | 644 | 0.4+ | 0.2− | 2007 04 15 | 704 | 0.1+ | 1.2− | 2009 09 17 | G96 | 0.1− | 0.2+ | | | |
| 2007 03 02 | 644 | 0.8+ | 0.3+ | 2007 04 15 | 704 | 1.0− | 0.0 | 2009 09 17 | G96 | 0.0 | 0.2− | | | |
| 2007 03 14 | 703 | 0.7+ | 0.4− | 2007 04 16 | 699 | 0.2+ | 0.3+ | 2009 10 16 | 703 | 1.5+ | 0.3+ | | | |
| 2007 03 14 | 703 | 0.5− | 0.9+ | 2007 04 16 | 699 | 0.6− | 0.7− | 2009 10 16 | 703 | 0.8+ | 0.9− | | | |
| 2007 03 14 | 703 | 0.6− | 0.7+ | 2007 04 16 | 699 | 1.2− | 0.0 | 2009 10 16 | 703 | 0.0 | 0.4+ | | | |
| 2007 03 14 | 703 | 0.3+ | 0.4+ | 2007 04 16 | 699 | 0.2− | 0.5+ | 2009 10 16 | 703 | 0.3+ | 0.3+ | | | |
| 2007 03 20 | 703 | 0.4+ | 0.3+ | 2007 04 18 | 704 | 0.9+ | 0.5+ | 2009 11 17 | 703 | 1.6− | 0.1− | | | |
| 2007 03 20 | 703 | 0.2− | 0.1+ | 2007 04 18 | 704 | 0.9+ | 0.3+ | 2009 11 17 | 703 | 0.0 | 0.4− | | | |
| 2007 03 20 | 703 | 0.2+ | 0.4+ | 2007 04 18 | 704 | 0.4+ | 0.0 | 2009 11 17 | 703 | 0.8− | 0.5− | | | |
| 2007 03 20 | 703 | 0.0 | 0.8− | 2007 04 18 | 704 | 0.2+ | 0.5+ | 2009 11 17 | 703 | 0.1− | 1.2+ | | | |
| 2007 03 29 | 644 | 0.2− | 0.7− | 2007 04 18 | 704 | 0.7+ | 0.6+ | | | | | | | |
| 2007 03 29 | 644 | 0.3− | 0.1+ | 2007 04 19 | G96 | 0.4− | 0.1+ | | | | | | | |

**2007 GD$_{52}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 187.12049 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17406705 | $\omega$ | 355.45683 | | −0.94206393 | | +0.29330877 |
| $a$ | 3.1768131 | $\Omega$ | 203.67030 | | −0.29356855 | | −0.95566124 |
| $e$ | 0.2067100 | $i$ | 23.91409 | | −0.16227462 | | +0.02610680 |
| $P$ | 5.66 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 04 14 | 152 | (0.7+ | 2.3+) | 2007 04 17 | 152 | 0.6+ | 0.4+ | 2009 10 15 | G96 | 0.1− | 0.2+ | | | |
| 2007 04 15 | 152 | 0.4− | 0.4+ | 2007 04 22 | 703 | 0.4− | 0.4− | 2009 10 15 | G96 | 0.1+ | 0.0 | | | |
| 2007 04 15 | 152 | 0.1+ | 0.7− | 2007 04 22 | 703 | 0.1+ | 0.1− | 2009 10 15 | G96 | 0.2+ | 0.3+ | | | |
| 2007 04 16 | 703 | 1.0+ | 0.6− | 2007 04 22 | 703 | 0.7+ | 1.0− | 2009 10 15 | G96 | 0.2+ | 0.2+ | | | |
| 2007 04 16 | 703 | 0.2− | 0.4+ | 2007 04 22 | 703 | 0.9− | 0.5− | 2009 10 25 | 291 | 0.1− | 0.1+ | | | |
| 2007 04 16 | 703 | 0.4− | 1.5+ | 2007 05 26 | G96 | 0.0 | 0.1− | 2009 10 25 | 291 | 0.3+ | 0.2− | | | |
| 2007 04 16 | 703 | 0.4− | 0.4− | 2007 05 26 | G96 | 0.7+ | 0.5+ | 2009 10 25 | 291 | 0.2− | 0.1− | | | |
| 2007 04 17 | 152 | 0.3+ | 0.4+ | 2007 05 26 | G96 | 0.4− | 0.1+ | | | | | | | |
| 2007 04 17 | 152 | 0.4− | 0.4+ | 2007 05 26 | G96 | 0.1+ | 0.1− | | | | | | | |

**2007 GF$_{53}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 128.76317 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18571302 | $\omega$ | 64.27834 | | +0.13075671 | | +0.98629211 |
| $a$ | 3.0425740 | $\Omega$ | 213.71436 | | −0.96215450 | | +0.10175939 |
| $e$ | 0.1045069 | $i$ | 10.44755 | | −0.23908448 | | +0.12989577 |
| $P$ | 5.31 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 03 18 | 691 | 0.1− | 0.0 | 2007 04 19 | G96 | 0.1− | 0.3− | 2009 09 16 | G96 | 0.1+ | 0.1− | | | |
| 2007 03 18 | 691 | 0.3+ | 0.1+ | 2007 04 19 | G96 | 0.1+ | 0.1− | 2009 09 16 | G96 | 0.3− | 0.1+ | | | |
| 2007 03 18 | 691 | 0.3− | 0.1+ | 2007 04 26 | G96 | 0.3− | 0.2+ | 2009 09 16 | G96 | 0.2+ | 0.1− | | | |
| 2007 04 14 | G96 | 0.6+ | 0.3− | 2007 04 26 | G96 | 0.1− | 0.1− | 2009 09 16 | G96 | 0.3− | 0.0 | | | |
| 2007 04 14 | G96 | 0.0 | 0.5− | 2007 04 26 | G96 | 0.0 | 0.3+ | 2009 11 09 | 703 | 0.6− | 0.0 | | | |
| 2007 04 14 | G96 | 0.3+ | 0.3+ | 2007 04 26 | G96 | 0.0 | 0.3+ | 2009 11 09 | 703 | 0.3+ | 0.6+ | | | |
| 2007 04 14 | G96 | 0.1+ | 0.2− | 2007 05 07 | 691 | 0.1+ | 0.3+ | 2009 11 09 | 703 | 0.4− | 1.1− | | | |
| 2007 04 19 | G96 | 0.2− | 0.2− | 2007 05 07 | 691 | 0.1− | 0.1− | 2009 11 09 | 703 | 0.8+ | 0.5+ | | | |
| 2007 04 19 | G96 | 0.0 | 0.4− | 2007 05 07 | 691 | 0.1− | 0.1− | | | | | | | |

**2007 GC$_{55}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 304.44712 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21233261 | $\omega$ | 314.83529 | | −0.23168718 | | −0.97032504 |
| $a$ | 2.7826479 | $\Omega$ | 148.36962 | | +0.92560494 | | −0.24178035 |
| $e$ | 0.1227437 | $i$ | 7.58372 | | +0.29929342 | | −0.00340398 |
| $P$ | 4.64 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 04 15 | 691 | 0.0 | 0.1− | 2007 04 22 | 703 | 1.9+ | 0.1+ | 2007 05 24 | G96 | 0.3+ | 0.4− | | | |
| 2007 04 15 | 691 | 0.1+ | 0.1− | 2007 04 22 | 703 | 0.5− | 0.2− | 2009 10 14 | G92 | (3.1+ | 0.8−) | | | |
| 2007 04 15 | 691 | 0.0 | 0.1− | 2007 04 22 | 703 | 1.7+ | 0.1− | 2009 10 14 | G92 | 0.4− | 0.3+ | | | |
| 2007 04 15 | 703 | 0.5− | 0.0 | 2007 04 22 | 703 | 1.2− | 0.7− | 2009 10 14 | G92 | 0.2+ | 0.4+ | | | |
| 2007 04 15 | 703 | 0.3− | 0.9+ | 2007 05 06 | 691 | 0.1− | 0.0 | 2009 10 16 | 703 | 0.5− | 0.0 | | | |
| 2007 04 15 | 703 | 0.4− | 1.2+ | 2007 05 06 | 691 | 0.3− | 0.0 | 2009 10 16 | 703 | 0.9+ | 0.1− | | | |
| 2007 04 15 | 703 | 0.8− | 0.1+ | 2007 05 06 | 691 | 0.2− | 0.4+ | 2009 10 16 | 703 | 0.2− | 0.4− | | | |
| 2007 04 19 | 691 | 0.0 | 0.1− | 2007 05 24 | G96 | 0.1− | 0.1− | 2009 10 16 | 703 | 0.1+ | 0.4− | | | |
| 2007 04 19 | 691 | 0.1− | 0.3− | 2007 05 24 | G96 | 0.4+ | 0.0 | | | | | | | |
| 2007 04 19 | 691 | 0.3+ | 0.1+ | 2007 05 24 | G96 | 0.4+ | 0.1− | | | | | | | |

**2007 GG$_{64}$ = 2009 XH$_5$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 293.44036 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.26232865 | $\omega$ | 320.56981 | | −0.99027552 | | −0.13820164 |
| $a$ | 2.4167899 | $\Omega$ | 211.49729 | | +0.13411039 | | −0.91780549 |
| $e$ | 0.1765638 | $i$ | 1.75049 | | +0.03699738 | | −0.37220074 |
| $P$ | 3.76 | $H$ | 17.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 11 01 | 691 | 0.4+ | 0.1+ | 2007 05 10 | G96 | 0.2+ | 0.2+ | 2009 12 10 | G96 | 0.3− | 0.6− |
| 2005 11 01 | 691 | 0.7− | 0.2+ | 2007 05 10 | G96 | 0.2− | 0.0 | 2009 12 10 | G96 | 0.1− | 0.1− |
| 2005 11 01 | 691 | 0.3+ | 0.2− | 2007 05 10 | G96 | 0.0 | 0.1− | 2009 12 10 | G96 | 0.3+ | 0.1+ |
| 2007 04 15 | 691 | 0.4− | 0.0 | 2007 05 10 | G96 | 0.5− | 0.0 | 2009 12 10 | G96 | 0.1+ | 0.3+ |
| 2007 04 15 | 691 | 0.3+ | 0.1− | 2007 05 11 | G96 | 0.3− | 0.1+ | 2009 12 10 | G96 | 0.9+ | 0.3+ |
| 2007 04 15 | 691 | 0.3− | 0.1− | 2007 05 11 | G96 | 0.2− | 0.1− | 2009 12 10 | G96 | 0.1− | 0.1+ |
| 2007 04 19 | 691 | 0.1+ | 0.1+ | 2007 05 11 | G96 | 0.3− | 0.2− | 2009 12 10 | G96 | 0.3+ | 0.1+ |
| 2007 04 19 | 691 | 0.0 | 0.2+ | 2007 05 11 | G96 | 0.2+ | 0.0 | 2009 12 11 | G96 | 0.2− | 0.2+ |
| 2007 04 19 | 691 | 0.3+ | 0.1+ | 2007 05 12 | G96 | 0.1+ | 0.2− | 2009 12 11 | G96 | 0.1− | 0.2− |
| 2007 05 09 | G96 | 0.6− | 0.1− | 2007 05 12 | G96 | 0.4+ | 0.3− | 2009 12 11 | G96 | 0.1− | 0.2− |
| 2007 05 09 | G96 | 0.2+ | 0.0 | 2007 05 12 | G96 | 0.2+ | 0.1− | 2009 12 11 | G96 | 0.5− | 0.2− |
| 2007 05 09 | G96 | 0.1− | 0.1+ | 2007 05 12 | G96 | 0.4+ | 0.1− | | | | |
| 2007 05 09 | G96 | 0.1+ | 0.1+ | 2009 12 10 | G96 | 0.2− | 0.1− | | | | |

**2007 GH$_{65}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 165.83879 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17453216 | $\omega$ | 193.99489 | | −0.67708826 | | +0.72333688 |
| $a$ | 3.1711667 | $\Omega$ | 33.70364 | | −0.64952810 | | −0.50091955 |
| $e$ | 0.0605790 | $i$ | 14.12411 | | −0.34592592 | | −0.47525084 |
| $P$ | 5.65 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 02 25 | G96 | 0.4+ | 0.4− | 2007 04 23 | 691 | 0.1+ | 0.1+ | 2009 10 15 | G96 | 0.2+ | 0.6− |
| 2007 02 25 | G96 | 0.2+ | 0.5+ | 2007 04 23 | 691 | 0.1+ | 0.1+ | 2009 10 15 | G96 | 0.6− | 0.9− |
| 2007 02 25 | G96 | 0.0 | 0.4− | 2007 04 23 | 691 | 0.2− | 0.2− | 2009 10 15 | G96 | 0.2+ | 0.3− |
| 2007 02 25 | G96 | 0.9+ | 0.0 | 2007 05 11 | G96 | 0.0 | 0.1− | 2009 10 15 | G96 | 0.1+ | 0.4− |
| 2007 04 15 | 691 | 0.1− | 0.0 | 2007 05 11 | G96 | 0.1+ | 0.2− | 2009 10 23 | G96 | 0.2+ | 0.2− |
| 2007 04 15 | 691 | 0.2+ | 0.1− | 2007 05 11 | G96 | 0.1+ | 0.3− | 2009 10 23 | G96 | 0.1+ | 0.2+ |
| 2007 04 15 | 691 | 0.2− | 0.1+ | 2007 05 11 | G96 | 0.4− | 0.4− | 2009 10 23 | G96 | 0.1+ | 0.2+ |
| 2007 04 19 | 691 | 0.0 | 0.3+ | 2009 09 22 | 691 | 0.2− | 0.4+ | 2009 10 23 | G96 | 0.4+ | 0.2+ |
| 2007 04 19 | 691 | 0.1− | 0.0 | 2009 09 22 | 691 | 0.2+ | 0.1− | | | | |
| 2007 04 19 | 691 | 0.0 | 0.0 | 2009 09 22 | 691 | 0.2− | 0.1+ | | | | |

**2007 GD$_{66}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 179.96564 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18186566 | $\omega$ | 178.32089 | | −0.73857570 | | +0.66102785 |
| $a$ | 3.0853345 | $\Omega$ | 44.03715 | | −0.62073936 | | −0.59011874 |
| $e$ | 0.0524358 | $i$ | 10.98600 | | −0.26303721 | | −0.46346742 |
| $P$ | 5.42 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 04 11 | G96 | 0.3+ | 0.1− | 2007 04 19 | 691 | 0.1+ | 0.0 | 2007 05 10 | G96 | 0.1− | 0.1+ |
| 2007 04 11 | G96 | 0.1+ | 0.1− | 2007 04 19 | 691 | 0.0 | 0.1− | 2007 05 10 | G96 | 0.0 | 0.0 |
| 2007 04 11 | G96 | 0.0 | 0.3+ | 2007 04 20 | G96 | 0.1− | 0.2− | 2009 09 21 | 691 | 0.3+ | 0.4− |
| 2007 04 11 | G96 | 0.8− | 0.3− | 2007 04 20 | G96 | 0.1+ | 0.2− | 2009 09 21 | 691 | 0.3+ | 0.1+ |
| 2007 04 15 | 691 | 0.2− | 0.1+ | 2007 04 20 | G96 | 0.2− | 0.7+ | 2009 09 21 | 691 | 1.0− | 0.4+ |
| 2007 04 15 | 691 | 0.1+ | 0.3− | 2007 04 20 | G96 | 0.1− | 0.1+ | 2009 09 27 | 691 | 0.5+ | 0.1+ |
| 2007 04 15 | 691 | 0.1+ | 0.3+ | 2007 05 10 | G96 | 0.0 | 0.2− | 2009 09 27 | 691 | 0.1− | 0.3+ |
| 2007 04 19 | 691 | 0.1+ | 0.0 | 2007 05 10 | G96 | 0.0 | 0.0 | 2009 09 27 | 691 | 0.0 | 0.5− |

**2007 GL$_{75}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 87.12319 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.19177438 | $\omega$ | 273.40643 | | +0.92136210 | | +0.34795336 |
| $a$ | 2.9781209 | $\Omega$ | 66.29145 | | −0.23654521 | | +0.85561582 |
| $e$ | 0.0895571 | $i$ | 10.90813 | | −0.30844489 | | +0.38321016 |
| $P$ | 5.14 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 04 14 | 691 | 0.3+ | 0.2+ | 2007 05 10 | G96 | 0.0 | 0.4− | 2009 09 22 | G96 | 0.0 | 0.2− |
| 2007 04 14 | 691 | 0.5− | 0.1− | 2007 05 10 | G96 | 0.1− | 0.1+ | 2009 09 22 | G96 | 0.3+ | 0.4+ |
| 2007 04 14 | 691 | 0.3− | 0.2+ | 2007 05 26 | G96 | 0.6− | 0.0 | 2009 11 16 | 691 | 0.0 | 0.1− |
| 2007 04 22 | 691 | 0.3+ | 0.2− | 2007 05 26 | G96 | 0.2− | 0.1+ | 2009 11 16 | 691 | 0.2− | 0.0 |
| 2007 04 22 | 691 | 0.2+ | 0.2− | 2007 05 26 | G96 | 0.7+ | 0.5+ | 2009 11 16 | 691 | 0.4− | 0.1− |
| 2007 04 22 | 691 | 0.1+ | 0.2+ | 2007 05 26 | G96 | 0.5− | 0.1− | 2009 11 25 | 691 | 0.2+ | 0.1− |
| 2007 05 10 | G96 | 0.1+ | 0.4− | 2009 09 22 | G96 | 0.1− | 0.1− | 2009 11 25 | 691 | 0.0 | 0.2+ |
| 2007 05 10 | G96 | 0.1+ | 0.2− | 2009 09 22 | G96 | 0.3− | 0.3− | 2009 11 25 | 691 | 0.4+ | 0.1+ |

**2007 GD$_{76}$ = 2009 VY$_{108}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 340.32307 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22316418 | $\omega$ | 48.46240 | | −0.11581841 | | −0.97684575 |
| $a$ | 2.6918636 | $\Omega$ | 49.12668 | | +0.82571255 | | −0.19534830 |
| $e$ | 0.0821647 | $i$ | 13.76221 | | +0.55207326 | | +0.08724353 |
| $P$ | 4.42 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 04 15 | 691 | 0.5− | 0.2+ | 2009 09 19 | G96 | 0.3− | 0.3− | 2009 11 25 | 703 | 0.0 | 0.4− |
| 2007 04 15 | 691 | 0.0 | 0.1+ | 2009 09 19 | G96 | 0.1− | 0.3+ | 2009 11 25 | 703 | 0.7+ | 0.3+ |
| 2007 04 15 | 691 | 0.1− | 0.2+ | 2009 09 19 | G96 | 0.1− | 0.2− | 2009 12 06 | J75 | 0.8+ | 1.1− |
| 2007 04 23 | 691 | 0.2+ | 0.1+ | 2009 09 19 | G96 | 0.0 | 0.2+ | 2009 12 06 | J75 | 1.5+ | 0.3− |
| 2007 04 23 | 691 | 0.3+ | 0.3− | 2009 11 09 | 691 | 0.1− | 0.0 | 2009 12 06 | J75 | 0.5+ | 0.4+ |
| 2007 04 23 | 691 | 0.1+ | 0.3− | 2009 11 09 | 691 | 0.2− | 0.2+ | 2009 12 15 | 704 | 0.3− | 0.1+ |
| 2007 05 09 | G96 | 0.1+ | 0.3+ | 2009 11 09 | 691 | 0.1− | 0.1+ | 2009 12 15 | 704 | 0.6− | 0.1+ |
| 2007 05 09 | G96 | 0.1+ | 0.0 | 2009 11 25 | 703 | 0.2− | 0.2+ | 2009 12 15 | 704 | 1.0− | 0.3− |
| 2007 05 09 | G96 | 0.1− | 0.1− | 2009 11 25 | 703 | 0.6+ | 0.2− | 2009 12 15 | 704 | 0.5− | 0.2− |
| 2007 05 09 | G96 | 0.3+ | 0.1+ | 2009 11 25 | 703 | 0.6+ | 0.3− | 2009 12 15 | 704 | 0.7− | 0.7+ |

**2007 HH$_1$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 132.65334 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18508936 | $\omega$ | 253.71092 | | −0.00205702 | | +0.99930307 |
| $a$ | 3.0494048 | $\Omega$ | 16.30786 | | −0.85932458 | | +0.01729514 |
| $e$ | 0.1707144 | $i$ | 7.62755 | | −0.51142647 | | −0.03307949 |
| $P$ | 5.33 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 03 09 | 691 | 0.1+ | 0.0 | 2007 04 16 | 703 | 0.7− | 0.2− | 2009 10 24 | 691 | 0.3+ | 0.2+ |
| 2007 03 09 | 691 | 0.0 | 0.3− | 2007 04 16 | 703 | 0.5− | 0.2− | 2009 10 24 | 691 | 0.1− | 0.3+ |
| 2007 03 09 | 691 | 0.1− | 0.0 | 2007 04 16 | 703 | 0.5− | 1.1− | 2009 10 24 | 691 | 0.6− | 0.4− |
| 2007 03 26 | 691 | 0.3+ | 0.0 | 2007 04 16 | 703 | 0.6− | 0.1+ | 2009 11 09 | G96 | 0.5+ | 0.1− |
| 2007 03 26 | 691 | 0.1+ | 0.0 | 2007 04 16 | 703 | 0.5+ | 0.5− | 2009 11 09 | G96 | 0.4+ | 0.1− |
| 2007 03 26 | 691 | 0.2+ | 0.2+ | 2007 04 18 | G96 | 0.0 | 0.3+ | 2009 11 09 | G96 | 0.4+ | 0.1+ |
| 2007 04 16 | 703 | 1.1− | 0.6− | 2007 04 18 | G96 | 0.4+ | 0.5+ | 2009 11 09 | G96 | 0.2+ | 0.1− |
| 2007 04 16 | 703 | 0.1− | 1.0+ | 2007 04 18 | G96 | 0.2+ | 0.4+ | | | | |
| 2007 04 16 | 703 | 0.1− | 0.3+ | 2007 04 18 | G96 | 0.6+ | 0.4+ | | | | |

**2007 HH$_{17}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 217.49049 | | (2000.0) | | | |
| $n$ | 0.21471728 | $\omega$ | 138.64503 | | −0.90792150 | +0.35611312 |
| $a$ | 2.7620066 | $\Omega$ | 63.49847 | | −0.41912271 | −0.76653846 |
| $e$ | 0.1404456 | $i$ | 14.30017 | | −0.00383423 | −0.53441766 |
| $P$ | 4.59 | $H$ | 15.8 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 03 31 | 644 | 0.2+ | 0.3− | 2007 04 23 | 703 | 0.7− | 0.5+ | 2007 05 23 | 703 | 0.8− | 0.3− |
| 2007 03 31 | 644 | 0.5+ | 0.0 | 2007 04 23 | G96 | 0.0 | 0.3− | 2007 05 23 | 703 | 0.5− | 0.4+ |
| 2007 03 31 | 644 | 0.3+ | 0.0 | 2007 04 23 | G96 | 0.3+ | 0.1− | 2007 05 23 | 703 | 0.8− | 0.1− |
| 2007 04 16 | 703 | 0.7+ | 0.2+ | 2007 04 23 | G96 | 0.1+ | 0.2− | 2007 05 24 | G96 | 0.7+ | 0.2+ |
| 2007 04 16 | 703 | 0.4+ | 0.2+ | 2007 04 23 | G96 | 0.1− | 0.1− | 2007 05 24 | G96 | 0.4+ | 0.0 |
| 2007 04 16 | 703 | 0.3− | 0.4+ | 2007 05 09 | 703 | 0.1− | 0.8− | 2007 05 24 | G96 | 0.5+ | 0.1− |
| 2007 04 16 | 703 | 0.2+ | 0.3− | 2007 05 09 | 703 | 0.7− | 0.4− | 2007 05 24 | G96 | 0.8+ | 0.0 |
| 2007 04 23 | G96 | 0.1− | 0.3− | 2007 05 09 | 703 | 1.0+ | 0.7+ | 2009 11 09 | 703 | 0.6− | 0.9+ |
| 2007 04 23 | 703 | 0.4− | 0.3+ | 2007 05 09 | 703 | 0.4− | 0.5− | 2009 11 09 | 703 | 0.1− | 0.0 |
| 2007 04 23 | G96 | 0.1− | 0.1− | 2007 05 19 | 703 | 1.0+ | 1.6− | 2009 11 09 | 703 | 0.7− | 0.2− |
| 2007 04 23 | 703 | 0.8− | 0.8+ | 2007 05 19 | 703 | 0.2− | 0.3− | 2009 11 09 | 703 | 0.4+ | 0.5+ |
| 2007 04 23 | G96 | 0.1− | 0.3− | 2007 05 19 | 703 | 0.2+ | 0.0 | 2009 11 20 | G96 | 0.6+ | 0.6− |
| 2007 04 23 | 703 | 0.2− | 0.0 | 2007 05 19 | 703 | 0.5− | 0.7+ | 2009 11 20 | G96 | 0.4+ | 0.5− |
| 2007 04 23 | G96 | 0.1− | 0.2− | 2007 05 23 | 703 | 0.6− | 1.9+ | | | | |

**2007 HX$_{36}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 253.83321 | | (2000.0) | | | |
| $n$ | 0.24146388 | $\omega$ | 166.43710 | | −0.95017299 | +0.30875123 |
| $a$ | 2.5540806 | $\Omega$ | 31.64999 | | −0.29309177 | −0.83795417 |
| $e$ | 0.1788151 | $i$ | 4.69409 | | −0.10615326 | −0.45000609 |
| $P$ | 4.08 | $H$ | 17.3 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 01 | 691 | 0.4+ | 0.4− | 2007 04 19 | 691 | 0.0 | 0.3+ | 2007 05 11 | G96 | 0.6+ | 0.3+ |
| 2005 12 01 | 691 | 0.3− | 0.2− | 2007 04 23 | 691 | 0.1+ | 0.2− | 2007 05 11 | G96 | 0.0 | 0.3+ |
| 2005 12 01 | 691 | 0.0 | 0.2+ | 2007 04 23 | 691 | 0.0 | 0.2− | 2007 05 11 | G96 | 0.2− | 0.4+ |
| 2007 02 25 | G96 | (1.5− | 2.3−) | 2007 04 23 | 691 | 0.1− | 0.3+ | 2009 12 16 | G96 | 0.0 | 0.2− |
| 2007 02 25 | G96 | 0.3− | 0.1+ | 2007 05 07 | 703 | 0.2− | 1.3− | 2009 12 16 | G96 | 0.5+ | 0.8+ |
| 2007 02 25 | G96 | 0.1− | 0.2− | 2007 05 07 | 703 | 0.0 | 1.0− | 2009 12 16 | G96 | 0.5− | 0.9+ |
| 2007 02 25 | G96 | 0.1+ | 0.8− | 2007 05 07 | 703 | 0.3− | 0.1− | 2009 12 16 | G96 | 0.5− | 0.5+ |
| 2007 04 19 | 691 | 0.0 | 0.0 | 2007 05 07 | 703 | 0.9+ | 0.1+ | | | | |
| 2007 04 19 | 691 | 0.0 | 0.2+ | 2007 05 11 | G96 | 0.3− | 0.2+ | | | | |

**2007 HO$_{41}$ = 2009 WC$_{219}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 7.80386 | | (2000.0) | | | |
| $n$ | 0.19281288 | $\omega$ | 336.78442 | | +0.71423615 | −0.69008342 |
| $a$ | 2.9674177 | $\Omega$ | 67.39488 | | +0.66036180 | +0.60910995 |
| $e$ | 0.0433322 | $i$ | 7.27104 | | +0.23192460 | +0.39085796 |
| $P$ | 5.11 | $H$ | 16.5 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 12 08 | 691 | 0.1− | 0.2− | 2007 05 12 | G96 | 0.1+ | 0.1+ | 2009 11 16 | G96 | 0.4+ | 0.1− |
| 1999 12 08 | 691 | 0.1+ | 0.3+ | 2007 05 12 | G96 | 0.1+ | 0.5+ | 2009 11 16 | G96 | 0.1− | 0.1− |
| 1999 12 08 | 691 | 0.1− | 0.2− | 2007 05 12 | G96 | 0.5+ | 0.4+ | 2009 11 16 | G96 | 0.6− | 0.1+ |
| 2004 11 10 | 691 | 0.2− | 0.3+ | 2009 10 26 | 691 | 0.0 | 0.1− | 2009 11 16 | G96 | 0.0 | 0.2− |
| 2004 11 10 | 691 | 0.1+ | 0.1+ | 2009 10 26 | 691 | 0.2− | 0.2+ | 2009 11 16 | G96 | 0.2− | 0.5+ |
| 2004 11 10 | 691 | 0.2+ | 0.0 | 2009 10 26 | 691 | (2.0− | 1.0+) | 2009 11 16 | G96 | 0.7+ | 0.2− |
| 2007 04 20 | 691 | 0.3+ | 0.1− | 2009 11 16 | G96 | 0.4+ | 0.1+ | 2009 11 16 | G96 | 0.2− | 0.0 |
| 2007 04 20 | 691 | 0.0 | 0.4+ | 2009 11 16 | G96 | 0.2− | 0.0 | 2009 11 16 | G96 | 0.4− | 0.1+ |
| 2007 04 20 | 691 | 0.0 | 0.3− | 2009 11 16 | G96 | 0.3+ | 0.2− | 2009 11 16 | G96 | 0.3− | 0.3− |
| 2007 04 22 | 691 | 0.1− | 0.1− | 2009 11 16 | G96 | 0.1− | 0.3− | 2009 11 23 | G96 | 0.2− | 0.1+ |
| 2007 04 22 | 691 | 0.4− | 0.2+ | 2009 11 16 | G96 | 0.3+ | 0.1− | 2009 11 23 | G96 | 0.1− | 0.5− |
| 2007 04 22 | 691 | 0.0 | 0.2− | 2009 11 16 | G96 | 0.0 | 0.2+ | 2009 11 23 | G96 | 0.2+ | 0.1− |
| 2007 05 12 | G96 | 0.6+ | 0.2+ | 2009 11 16 | G96 | 0.1+ | 0.2− | 2009 11 23 | G96 | 0.0 | 0.2+ |

**2007 HH$_{73}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 120.69437 | | (2000.0) | | | |
| $n$ | 0.18106555 | $\omega$ | 226.77066 | | +0.43573401 | +0.89522084 |
| $a$ | 3.0944169 | $\Omega$ | 69.27819 | | −0.79417415 | +0.43120482 |
| $e$ | 0.1390696 | $i$ | 5.72846 | | −0.42358387 | +0.11243686 |
| $P$ | 5.44 | $H$ | 16.0 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 04 14 | 691 | 0.2+ | 0.2− | 2007 05 11 | G96 | 0.1+ | 0.0 | 2009 10 21 | G96 | 0.0 | 0.3+ |
| 2007 04 14 | 691 | 0.2− | 0.2+ | 2007 05 11 | G96 | 0.2+ | 0.2− | 2009 11 24 | 691 | 0.5+ | 0.3+ |
| 2007 04 14 | 691 | 0.1+ | 0.2− | 2007 05 11 | G96 | 0.2− | 0.1− | 2009 11 24 | 691 | 0.1− | 0.0 |
| 2007 04 22 | 691 | 0.2− | 0.3− | 2007 05 12 | G96 | 0.2+ | 0.1+ | 2009 11 24 | 691 | 0.6− | 0.1− |
| 2007 04 22 | 691 | 0.1− | 0.1+ | 2007 05 12 | G96 | 0.0 | 0.1− | 2009 12 11 | G96 | 0.2+ | 0.3− |
| 2007 04 22 | 691 | 0.2− | 0.2+ | 2007 05 12 | G96 | 0.2− | 0.2− | 2009 12 11 | G96 | 0.1− | 0.2− |
| 2007 04 26 | 691 | 0.2+ | 0.0 | 2007 05 12 | G96 | 0.0 | 0.2− | 2009 12 11 | G96 | 0.2− | 0.1+ |
| 2007 04 26 | 691 | 0.3+ | 0.2+ | 2009 10 21 | G96 | 0.0 | 0.3− | 2009 12 11 | G96 | 0.3+ | 0.2− |
| 2007 04 26 | 691 | 0.1− | 0.1+ | 2009 10 21 | G96 | 0.2− | 0.2− | | | | |
| 2007 05 11 | G96 | 0.0 | 0.0 | 2009 10 21 | G96 | 0.7+ | 0.0 | | | | |

**2007 HM$_{87}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 261.11593 | | (2000.0) | | | |
| $n$ | 0.23852984 | $\omega$ | 90.39887 | | −0.96445352 | +0.25713451 |
| $a$ | 2.5749822 | $\Omega$ | 104.50202 | | −0.26050276 | −0.88645796 |
| $e$ | 0.1117949 | $i$ | 3.60772 | | −0.04435904 | −0.38480402 |
| $P$ | 4.13 | $H$ | 17.3 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 04 24 | 691 | 0.1− | 0.0 | 2007 05 12 | G96 | 0.1+ | 0.0 | 2009 12 10 | G96 | 0.2+ | 0.3− |
| 2007 04 24 | 691 | 0.1+ | 0.1+ | 2007 05 26 | G96 | 0.2+ | 0.3+ | 2009 12 10 | G96 | 0.0 | 0.3− |
| 2007 04 24 | 691 | 0.3+ | 0.5+ | 2007 05 26 | G96 | 0.4− | 0.4− | 2009 12 10 | G96 | 0.3+ | 0.4− |
| 2007 04 28 | 691 | 0.1+ | 0.0 | 2007 05 26 | G96 | 0.1+ | 0.2− | 2009 12 11 | G96 | 0.2+ | 0.2− |
| 2007 04 28 | 691 | 0.2− | 0.0 | 2007 05 26 | G96 | 0.5− | 0.0 | 2009 12 11 | G96 | 0.3+ | 0.3− |
| 2007 04 28 | 691 | 0.3+ | 0.2− | 2009 11 24 | 691 | 0.7− | 0.4+ | 2009 12 11 | G96 | 0.2+ | 0.0 |
| 2007 05 12 | G96 | 0.5− | 0.1− | 2009 11 24 | 691 | 0.0 | 0.2+ | 2009 12 11 | G96 | 0.4+ | 0.2− |
| 2007 05 12 | G96 | 0.2− | 0.2− | 2009 11 24 | 691 | 0.3+ | 0.0 | | | | |
| 2007 05 12 | G96 | 0.2− | 1.0− | 2009 12 10 | G96 | 0.0 | 0.6− | | | | |

**2007 JG$_{4}$ = 2009 YR$_{6}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 321.25139 | | (2000.0) | | | |
| $n$ | 0.24197768 | $\omega$ | 261.70291 | | −0.67461814 | −0.71828489 |
| $a$ | 2.5504639 | $\Omega$ | 232.16314 | | +0.73319948 | −0.62533134 |
| $e$ | 0.0987965 | $i$ | 12.44298 | | +0.08549197 | −0.30500413 |
| $P$ | 4.07 | $H$ | 16.4 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 05 07 | 691 | 0.0 | 0.2− | 2007 05 26 | G96 | 0.3− | 0.2+ | 2009 12 16 | D25 | 0.3− | 0.1− |
| 2007 05 07 | 691 | 0.3− | 0.3− | 2007 05 26 | G96 | 0.1+ | 0.1− | 2009 12 20 | H10 | 0.5− | 1.2− |
| 2007 05 07 | 691 | 0.3− | 0.5− | 2007 05 26 | G96 | 0.1− | 0.2− | 2009 12 20 | H10 | 0.5+ | 0.0 |
| 2007 05 10 | 691 | 0.4+ | 0.1− | 2009 11 10 | 691 | 0.4− | 0.4− | 2009 12 20 | H10 | 0.3+ | 0.3+ |
| 2007 05 10 | 691 | 0.2+ | 0.0 | 2009 11 10 | 691 | 0.1− | 0.1− | 2009 12 20 | H10 | 1.1+ | 0.3+ |
| 2007 05 10 | 691 | 0.0 | 0.2− | 2009 11 10 | 691 | 0.0 | 0.5+ | 2009 12 27 | H10 | 0.1+ | 0.1+ |
| 2007 05 11 | 691 | 0.0 | 0.8+ | 2009 12 16 | D25 | 0.1− | 0.3+ | 2009 12 27 | H10 | 0.4− | 0.6− |
| 2007 05 11 | 691 | 0.2+ | 0.1+ | 2009 12 16 | D25 | 0.5+ | 0.0 | 2009 12 27 | H10 | 0.3− | 0.9+ |
| 2007 05 11 | 691 | 0.2+ | 0.4+ | 2009 12 16 | D25 | 0.4+ | 0.4+ | 2009 12 27 | H10 | 0.1+ | 0.3+ |
| 2007 05 26 | G96 | 0.7− | 0.1− | 2009 12 16 | D25 | 0.2+ | 0.5− | | | | |

**2007 JL$_{23}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 237.78838 | | (2000.0) | | | |
| $n$ | 0.23981154 | $\omega$ | 72.01757 | | −0.65150161 | +0.75732501 |
| $a$ | 2.5657992 | $\Omega$ | 157.14131 | | −0.73234600 | −0.61241436 |
| $e$ | 0.2117197 | $i$ | 6.61825 | | −0.19802772 | −0.22673219 |
| $P$ | 4.11 | $H$ | 15.7 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 07 | 691 | 0.3− | 0.1+ | 2007 05 13 | D29 | 0.1− | 0.2− | 2007 06 09 | 703 | 0.1− | 0.2+ |
| 2005 12 07 | 691 | 0.6+ | 1.2− | 2007 05 13 | D29 | 0.2+ | 0.0 | 2007 06 13 | H51 | 0.0 | 0.1− |
| 2005 12 07 | 691 | 0.3− | 0.2+ | 2007 05 17 | 703 | 0.7− | 0.2+ | 2007 06 13 | H51 | 0.3− | 0.4− |
| 2007 04 22 | G96 | 0.1− | 0.1+ | 2007 05 17 | 703 | 0.1− | 0.3+ | 2007 06 13 | H51 | 0.4+ | 0.4+ |
| 2007 04 22 | G96 | 0.0 | 0.1+ | 2007 05 17 | 703 | 0.2− | 0.3− | 2007 06 19 | 704 | 0.8+ | 0.7− |
| 2007 04 22 | G96 | 0.3− | 0.1+ | 2007 05 17 | 703 | 0.2− | 0.0 | 2007 06 19 | 704 | 0.1+ | 0.2+ |
| 2007 04 22 | G96 | 0.0 | 0.1+ | 2007 05 25 | 703 | (4.3− | 2.5−) | 2007 06 19 | 704 | 0.7+ | 0.0 |
| 2007 05 07 | 703 | 0.0 | 0.3+ | 2007 05 25 | 703 | (0.2+ | 3.0−) | 2007 06 19 | 704 | 0.3+ | 0.2− |
| 2007 05 07 | 703 | 0.4+ | 0.5+ | 2007 05 25 | 703 | 0.3+ | 0.4− | 2007 06 19 | 704 | 0.5− | 0.2− |
| 2007 05 07 | 703 | 0.8− | 0.6+ | 2007 05 25 | 703 | 0.0 | 0.0 | 2007 07 15 | 704 | 1.4+ | 0.9+ |
| 2007 05 07 | 703 | 0.6− | 0.2− | 2007 05 27 | 118 | 0.1− | 0.4− | 2007 07 15 | 704 | (2.0+ | 2.8+) |
| 2007 05 13 | G96 | 0.0 | 0.1+ | 2007 05 27 | 118 | 0.4− | 0.3− | 2007 07 15 | 704 | (1.3+ | 3.3+) |
| 2007 05 13 | G96 | 0.2− | 0.1+ | 2007 06 08 | A50 | 0.7+ | 1.3− | 2008 09 03 | 691 | 0.2+ | 0.2− |
| 2007 05 13 | G96 | 0.0 | 0.1+ | 2007 06 08 | A50 | 0.9+ | 1.5− | 2008 09 03 | 691 | 0.2− | 0.2+ |
| 2007 05 13 | G96 | 0.2− | 0.2+ | 2007 06 09 | 703 | 0.7− | 0.3− | 2008 09 03 | 691 | 0.1+ | 0.3− |
| 2007 05 13 | D29 | 0.1+ | 0.0 | 2007 06 09 | 703 | 0.3− | 0.1− | | | | |
| 2007 05 13 | D29 | 0.0 | 0.1− | 2007 06 09 | 703 | 0.6− | 0.6− | | | | |

**2007 JB$_{27}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 66.00310 | | (2000.0) | | | |
| $n$ | 0.18261107 | $\omega$ | 149.33760 | | +0.99540133 | −0.01063787 |
| $a$ | 3.0769326 | $\Omega$ | 211.70052 | | −0.01354118 | +0.96820912 |
| $e$ | 0.0950903 | $i$ | 10.43778 | | +0.09483050 | +0.24991585 |
| $P$ | 5.40 | $H$ | 15.7 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 05 09 | 691 | 0.4− | 0.4− | 2007 06 12 | 691 | 0.1+ | 0.0 | 2009 11 17 | 703 | 0.4− | 0.8+ |
| 2007 05 09 | 691 | 0.1+ | 0.5+ | 2007 06 12 | 691 | 0.1− | 0.0 | 2009 11 17 | 703 | 1.7+ | 0.7+ |
| 2007 05 09 | 691 | 0.2+ | 0.2− | 2007 06 19 | 691 | 0.1− | 0.1− | 2009 11 26 | G96 | 0.1− | 0.1− |
| 2007 05 13 | 691 | 0.1− | 0.1+ | 2007 06 19 | 691 | 0.2+ | 0.2− | 2009 11 26 | G96 | 0.0 | 0.0 |
| 2007 05 13 | 691 | 0.1+ | 0.1− | 2007 06 19 | 691 | 0.1+ | 0.0 | 2009 11 26 | G96 | 0.4− | 0.1− |
| 2007 05 13 | 691 | 0.1+ | 0.2+ | 2009 11 17 | 703 | 1.1+ | 1.1− | 2009 11 26 | G96 | 0.4− | 0.4− |
| 2007 06 12 | 691 | 0.1− | 0.3+ | 2009 11 17 | 703 | 1.1− | 0.2+ | 2009 11 26 | G96 | 0.3− | 0.1+ |

**2007 JG$_{33}$ = 2009 YU$_{1}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 57.57084 | | (2000.0) | | | |
| $n$ | 0.21207926 | $\omega$ | 277.01228 | | +0.83826755 | −0.52720039 |
| $a$ | 2.7848635 | $\Omega$ | 114.89265 | | +0.54093217 | +0.77198244 |
| $e$ | 0.1705355 | $i$ | 8.82513 | | +0.06855586 | +0.35510963 |
| $P$ | 4.65 | $H$ | 16.0 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 09 08 | 703 | 1.2− | 1.0+ | 2007 04 25 | 691 | 0.0 | 0.1− | 2008 08 23 | E12 | 0.7− | 0.4+ |
| 1999 09 08 | 703 | 0.1+ | 1.2− | 2007 04 25 | 691 | 0.1− | 0.0 | 2009 12 17 | G96 | 0.2+ | 0.1− |
| 1999 09 08 | 703 | 2.0+ | 0.4+ | 2007 05 12 | G96 | 0.0 | 0.1+ | 2009 12 17 | G96 | 0.1− | 0.2− |
| 1999 09 08 | 703 | 1.4− | 0.7− | 2007 05 12 | G96 | 0.2+ | 0.3+ | 2009 12 17 | G96 | 0.3+ | 0.3− |
| 2001 01 20 | 691 | 0.4+ | 1.1− | 2007 05 12 | G96 | 0.2+ | 0.1+ | 2009 12 17 | G96 | 0.2+ | 0.3− |
| 2001 01 20 | 691 | 0.4− | 0.8+ | 2007 05 12 | G96 | 0.5+ | 0.1+ | 2009 12 17 | G96 | 0.4+ | 0.1− |
| 2001 01 20 | 691 | 0.4− | 1.3+ | 2007 05 13 | 691 | 0.2− | 0.2− | 2009 12 18 | 691 | 0.0 | 0.1+ |
| 2004 11 04 | 699 | 0.8+ | 0.4+ | 2007 05 13 | 691 | 0.1+ | 0.0 | 2009 12 18 | 691 | 0.0 | 0.1− |
| 2004 11 04 | 699 | 1.1+ | 0.1+ | 2007 05 13 | 691 | 0.5+ | 0.3− | 2009 12 18 | 691 | 0.0 | 0.2− |
| 2004 11 04 | 699 | 0.7− | 0.5+ | 2008 08 23 | E12 | 0.2+ | 0.4+ | 2009 12 19 | 291 | 0.4− | 0.0 |
| 2004 11 04 | 699 | 1.9+ | 0.3+ | 2008 08 23 | E12 | 1.1− | 0.8+ | 2009 12 19 | 291 | 0.1− | 0.1+ |
| 2007 04 25 | 691 | 0.1+ | 0.3+ | 2008 08 23 | E12 | 1.0− | 0.7+ | 2009 12 19 | 291 | 0.1− | 0.1+ |

**2007 JX$_{34}$ = 2009 WW$_{101}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 30.52335 | | (2000.0) | | | |
| $n$ | 0.18412191 | $\omega$ | 148.34660 | | +0.89881978 | −0.41032178 |
| $a$ | 3.0600773 | $\Omega$ | 236.64799 | | +0.35369220 | +0.88666650 |
| $e$ | 0.0452545 | $i$ | 10.63375 | | +0.25889155 | +0.21321014 |
| $P$ | 5.35 | $H$ | 15.0 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 08 24 | 644 | 0.2+ | 0.5+ | 2007 05 10 | 691 | 0.2− | 0.0 | 2009 11 08 | G96 | 0.1− | 0.1+ |
| 2003 08 24 | 644 | 0.3+ | 0.5+ | 2007 05 10 | 691 | 0.1+ | 0.0 | 2009 11 08 | G96 | 0.0 | 0.2+ |
| 2003 08 24 | 644 | 0.6+ | 0.5+ | 2007 05 14 | 704 | 0.5+ | 0.0 | 2009 11 08 | G96 | 0.2+ | 0.0 |
| 2003 09 30 | 699 | 0.7+ | 0.9− | 2007 05 14 | 704 | 0.5+ | 0.2− | 2009 11 08 | G96 | 0.4+ | 0.1− |
| 2003 09 30 | 699 | 0.7− | 0.7+ | 2007 05 14 | 704 | 0.2+ | 0.9− | 2009 11 08 | G96 | 0.0 | 0.2+ |
| 2003 09 30 | 699 | 0.8− | 0.3+ | 2007 05 14 | 704 | 0.3+ | 0.7+ | 2009 11 08 | G96 | 0.2+ | 0.2+ |
| 2003 09 30 | 699 | 0.5− | 0.7− | 2007 05 26 | G96 | 0.2+ | 0.0 | 2009 11 08 | G96 | 0.2+ | 0.0 |
| 2004 12 09 | 691 | 0.1− | 0.0 | 2007 05 26 | G96 | 0.2− | 0.1− | 2009 11 08 | G96 | 0.1− | 0.0 |
| 2004 12 09 | 691 | 0.0 | 0.1− | 2007 05 26 | G96 | 0.1− | 0.3+ | 2009 11 22 | G96 | 0.2+ | 0.0 |
| 2004 12 09 | 691 | 0.0 | 0.1− | 2007 05 26 | G96 | 1.0− | 0.1+ | 2009 11 22 | G96 | 0.3+ | 0.1+ |
| 2006 02 24 | 644 | 0.2− | 0.3− | 2008 07 03 | G96 | 0.3+ | 0.1− | 2009 11 22 | G96 | 0.1− | 0.1− |
| 2006 02 24 | 644 | 0.2+ | 0.3+ | 2008 07 03 | G96 | 0.3+ | 0.1− | 2009 11 22 | G96 | 0.0 | 0.1+ |
| 2006 02 24 | 703 | 0.2+ | 0.2+ | 2008 07 03 | G96 | 0.3+ | 0.0 | 2009 11 23 | 703 | 1.0− | 0.7− |
| 2006 02 24 | 703 | 0.8+ | 0.2+ | 2008 07 03 | G96 | 0.1− | 0.0 | 2009 11 23 | 703 | 0.1+ | 0.4+ |
| 2006 02 24 | 703 | 0.2− | 0.6+ | 2009 10 24 | 703 | 0.5− | 0.0 | 2009 11 23 | 703 | (0.6+ | 1.7−) |
| 2006 02 24 | 644 | 0.1+ | 0.1− | 2009 10 24 | 703 | 0.4− | 0.4+ | 2009 11 23 | 703 | 0.3− | 0.3− |
| 2006 02 24 | 703 | (2.4− | 1.6−) | 2009 10 24 | 703 | 0.2− | 0.4+ | 2009 12 15 | G96 | 0.3− | 0.1+ |
| 2007 04 22 | 807 | 0.2+ | 0.1+ | 2009 10 24 | 703 | 1.0+ | 0.1+ | 2009 12 15 | G96 | 0.2− | 0.0 |
| 2007 04 22 | 807 | 0.2+ | 0.2+ | 2009 11 08 | G96 | 0.0 | 0.0 | 2009 12 15 | G96 | 0.1− | 0.1− |
| 2007 05 10 | 691 | 0.2− | 0.1− | 2009 11 08 | G96 | 0.1− | 0.0 | 2009 12 15 | G96 | 0.2+ | 0.2− |

**2007 JE$_{42}$ = 2009 YL$_{14}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 238.38640 | | (2000.0) | | | |
| $n$ | 0.23661898 | $\omega$ | 137.14108 | | −0.41615866 | +0.78615871 |
| $a$ | 2.5888268 | $\Omega$ | 103.27850 | | −0.90814370 | −0.33410399 |
| $e$ | 0.0750506 | $i$ | 27.99929 | | −0.04568354 | −0.51993173 |
| $P$ | 4.17 | $H$ | 15.6 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 02 04 | 703 | 0.0 | 0.2− | 2007 06 13 | J75 | 0.2+ | 0.5+ | 2009 12 18 | G96 | 0.3+ | 0.2+ |
| 2006 02 04 | 703 | 0.2− | 0.6+ | 2007 06 13 | J75 | 0.0 | 0.0 | 2009 12 18 | G96 | 0.1+ | 0.1+ |
| 2006 02 04 | 703 | 0.1+ | 0.3− | 2007 06 13 | J75 | 1.3− | 0.4− | 2009 12 19 | 691 | 0.6+ | 0.7− |
| 2006 02 04 | 703 | 0.1+ | 0.4− | 2009 11 16 | G96 | 0.3+ | 0.0 | 2009 12 19 | 691 | 0.3− | 0.2+ |
| 2007 05 15 | J75 | 0.0 | 0.2− | 2009 11 16 | G96 | 0.1+ | 0.2− | 2009 12 19 | 691 | 0.2− | 0.2+ |
| 2007 05 15 | J75 | 0.6+ | 0.1− | 2009 11 16 | G96 | 0.0 | 0.1+ | 2009 12 27 | 691 | 0.1− | 0.2+ |
| 2007 05 18 | J75 | 0.0 | 0.2− | 2009 11 16 | G96 | 0.0 | 0.1− | 2009 12 27 | 691 | 0.2− | 0.0 |
| 2007 05 18 | J75 | 0.1+ | 0.2+ | 2009 12 18 | G96 | 0.2+ | 0.1+ | 2009 12 27 | 691 | 0.0 | 0.1+ |
| 2007 05 18 | J75 | 0.4+ | 0.2+ | 2009 12 18 | G96 | 0.0 | 0.1+ | | | | |

**2007 KQ$_{4}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 92.12512 | | (2000.0) | | | |
| $n$ | 0.21728692 | $\omega$ | 275.09562 | | +0.99255025 | −0.02360212 |
| $a$ | 2.7401878 | $\Omega$ | 86.29338 | | +0.07012218 | +0.91294279 |
| $e$ | 0.0470185 | $i$ | 6.87932 | | −0.09963378 | +0.40740447 |
| $P$ | 4.54 | $H$ | 16.2 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 11 17 | E12 | 0.4− | 0.4+ | 2007 05 25 | 291 | 0.4− | 0.1+ | 2008 10 02 | 703 | 0.6− | 0.9+ |
| 2004 11 17 | E12 | 0.2− | 0.3+ | 2007 05 25 | 291 | 0.3− | 0.2+ | 2008 10 02 | 703 | 1.1+ | 0.1− |
| 2004 11 17 | E12 | 0.4− | 0.2− | 2007 06 09 | 691 | 0.4+ | 0.0 | 2008 10 02 | 703 | 1.0− | 0.7+ |
| 2004 11 17 | E12 | 0.7+ | 0.1+ | 2007 06 09 | 691 | 0.1− | 0.1− | 2008 10 02 | 703 | 1.1− | 0.4+ |
| 2007 05 12 | 691 | 0.1+ | 0.1− | 2007 06 09 | 691 | 0.8+ | 0.3− | 2009 11 17 | G96 | 0.3+ | 0.1+ |
| 2007 05 12 | 691 | 0.1+ | 0.1− | 2007 06 13 | 691 | 0.1− | 0.1− | 2009 11 17 | G96 | 0.1− | 0.1+ |
| 2007 05 12 | 691 | 0.2+ | 0.6− | 2007 06 13 | 691 | 0.2− | 0.1+ | 2009 11 17 | G96 | 0.1+ | 0.4+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 05 21 | 291 | 0.1− | 0.1+ | 2007 06 13 | 691 | 0.0 | 0.2+ | 2009 11 17 | G96 | 0.2− | 0.3+ | | |
| 2007 05 21 | 291 | 0.1− | 0.4+ | 2008 09 02 | J75 | 0.3+ | 0.6− | 2009 12 17 | 691 | 0.6+ | 0.3− | | |
| 2007 05 21 | 291 | 0.1− | 0.2+ | 2008 09 02 | J75 | 0.6+ | 0.6− | 2009 12 17 | 691 | 0.2− | 0.1− | | |
| 2007 05 25 | 291 | 0.1− | 0.2+ | 2008 09 02 | J75 | 0.7+ | 0.7− | 2009 12 17 | 691 | 0.3− | 0.3+ | | |

**2007 KN$_7$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| $M$ | 211.09444 | | (2000.0) | **P** | **Q** |
|---|---|---|---|---|---|
| $n$ | 0.22480485 | $\omega$ | 347.44766 | −0.57463617 | +0.79236235 |
| $a$ | 2.6787505 | $\Omega$ | 247.12662 | −0.73034731 | −0.60942141 |
| $e$ | 0.2005663 | $i$ | 12.84479 | −0.36930486 | −0.02770281 |
| $P$ | 4.38 | $H$ | 16.0 | $G$ 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 04 11 | E12 | 0.1+ | 0.5+ | 2007 05 16 | E12 | 0.0 | 0.4+ | 2009 11 27 | G96 | 0.0 | 0.1− | | |
| 2007 04 11 | E12 | 0.0 | 0.5+ | 2007 05 16 | E12 | 0.0 | 0.2− | 2009 11 27 | G96 | 0.0 | 0.2− | | |
| 2007 04 11 | E12 | 0.3+ | 0.4+ | 2007 05 25 | E12 | 0.3− | 0.5− | 2009 11 27 | G96 | 0.1− | 0.1− | | |
| 2007 04 11 | E12 | 0.0 | 0.6+ | 2007 05 25 | E12 | 1.1− | 0.1+ | 2009 11 27 | G96 | 0.3+ | 0.1+ | | |
| 2007 04 16 | E12 | 0.5− | 1.6− | 2007 05 25 | E12 | 0.0 | 0.4+ | 2009 12 15 | G96 | 0.5− | 0.2+ | | |
| 2007 04 16 | E12 | 0.2+ | 0.3+ | 2007 05 25 | E12 | 0.2+ | 0.1− | 2009 12 15 | G96 | 0.2+ | 0.3+ | | |
| 2007 04 16 | E12 | 1.1+ | 0.0 | 2007 06 16 | 291 | 0.1+ | 0.1+ | 2009 12 15 | G96 | 0.0 | 0.1+ | | |
| 2007 04 16 | E12 | 0.4+ | 0.1− | 2007 06 16 | 291 | 0.2− | 0.1+ | 2009 12 15 | G96 | 0.1− | 0.0 | | |
| 2007 05 16 | E12 | 0.2− | 0.3− | 2007 06 16 | 291 | 0.3+ | 0.1+ | | | | | | |
| 2007 05 16 | E12 | 1.0− | 1.3− | 2009 11 27 | G96 | 0.0 | 0.2− | | | | | | |

**2007 LP$_1$ = 2009 WX$_{243}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| $M$ | 200.80199 | | (2000.0) | **P** | **Q** |
|---|---|---|---|---|---|
| $n$ | 0.19238524 | $\omega$ | 29.34805 | −0.70309648 | +0.70985853 |
| $a$ | 2.9718135 | $\Omega$ | 196.10160 | −0.67832698 | −0.68721545 |
| $e$ | 0.0279974 | $i$ | 8.69083 | −0.21337255 | −0.15438846 |
| $P$ | 5.12 | $H$ | 15.6 | $G$ 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 22 | 691 | 0.1+ | 0.3+ | 2008 10 07 | G96 | 0.0 | 0.3− | 2009 11 19 | G96 | 0.2− | 0.1− | | |
| 2003 09 22 | 691 | 0.1− | 0.3− | 2008 10 07 | G96 | 0.0 | 0.1− | 2009 11 19 | G96 | 0.5+ | 0.2− | | |
| 2003 09 22 | 691 | 0.1+ | 0.1− | 2008 10 07 | G96 | 0.2+ | 0.3− | 2009 11 19 | G96 | 0.2+ | 0.3+ | | |
| 2007 06 07 | 691 | 0.1+ | 0.1+ | 2008 10 07 | G96 | 0.3− | 0.1− | 2009 11 19 | G96 | 0.5+ | 0.2+ | | |
| 2007 06 07 | 691 | 0.1− | 0.8+ | 2009 10 12 | G96 | 0.3+ | 0.1+ | 2009 11 19 | G96 | 0.4+ | 0.2+ | | |
| 2007 06 07 | 691 | 0.4+ | 0.1+ | 2009 10 12 | G96 | 0.1+ | 0.2+ | 2009 11 19 | G96 | 0.2+ | 0.2− | | |
| 2007 06 09 | 691 | 0.1+ | 0.1− | 2009 10 12 | G96 | 0.1+ | 0.2+ | 2009 11 19 | G96 | 0.1+ | 0.0 | | |
| 2007 06 09 | 691 | 0.2− | 0.2− | 2009 10 12 | G96 | 0.2+ | 0.3+ | 2009 11 25 | G96 | 0.7+ | 0.1+ | | |
| 2007 06 09 | 691 | 0.0 | 0.0 | 2009 10 12 | 291 | 0.5− | 0.4+ | 2009 11 25 | G96 | 0.6+ | 0.1− | | |
| 2007 06 16 | 691 | 0.0 | 0.1+ | 2009 10 12 | 291 | 0.5− | 0.3+ | 2009 11 25 | G96 | 0.6+ | 0.3+ | | |
| 2007 06 16 | 691 | 0.3− | 0.1+ | 2009 10 12 | 291 | 0.3− | 0.1+ | | | | | | |
| 2007 06 16 | 691 | 0.1+ | 0.1+ | 2009 11 19 | G96 | 0.6+ | 0.1+ | | | | | | |

**2007 LJ$_3$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| $M$ | 236.25037 | | (2000.0) | **P** | **Q** |
|---|---|---|---|---|---|
| $n$ | 0.21083698 | $\omega$ | 335.68837 | −0.95565349 | +0.28063867 |
| $a$ | 2.7957920 | $\Omega$ | 220.94254 | −0.24293979 | −0.92259524 |
| $e$ | 0.1479355 | $i$ | 7.82920 | −0.16645317 | −0.26468843 |
| $P$ | 4.67 | $H$ | 17.0 | $G$ 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 04 19 | G96 | 0.3− | 0.0 | 2007 06 08 | 691 | 0.2− | 0.3+ | 2009 11 17 | G96 | 0.1− | 0.1+ | | |
| 2007 04 19 | G96 | 0.2− | 0.1− | 2007 06 10 | 691 | 0.2− | 0.2− | 2009 11 17 | G96 | 0.1+ | 0.1− | | |
| 2007 04 19 | G96 | 0.4+ | 0.1+ | 2007 06 10 | 691 | 0.2+ | 0.0 | 2009 11 17 | G96 | 0.4− | 0.5+ | | |
| 2007 05 26 | G96 | 0.2+ | 0.0 | 2007 06 10 | 691 | 0.0 | 0.2− | 2009 11 24 | G96 | 0.4− | 0.1+ | | |
| 2007 05 26 | G96 | 0.2+ | 0.3− | 2009 11 17 | G96 | 0.0 | 0.2− | 2009 11 24 | G96 | 0.4+ | 0.4+ | | |
| 2007 05 26 | G96 | 0.1+ | 0.2+ | 2009 11 17 | G96 | 0.4− | 0.2− | 2009 11 24 | G96 | 0.0 | 0.4− | | |
| 2007 05 26 | G96 | 0.1+ | 0.0 | 2009 11 17 | G96 | 0.2+ | 0.2− | 2009 11 24 | G96 | 0.1+ | 0.0 | | |
| 2007 06 08 | 691 | 0.1+ | 0.0 | 2009 11 17 | G96 | 0.3+ | 0.4− | | | | | | |
| 2007 06 08 | 691 | 0.2− | 0.1+ | 2009 11 17 | G96 | 0.0 | 0.6+ | | | | | | |

**2007 LK$_5$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| $M$ | 357.93741 | | (2000.0) | **P** | **Q** |
|---|---|---|---|---|---|
| $n$ | 0.21157028 | $\omega$ | 359.79325 | +0.15409943 | −0.97171427 |
| $a$ | 2.7893282 | $\Omega$ | 81.33876 | +0.90678268 | +0.06715029 |
| $e$ | 0.1212560 | $i$ | 10.42911 | +0.39242646 | +0.22641160 |
| $P$ | 4.66 | $H$ | 16.3 | $G$ 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 05 11 | G96 | 0.3+ | 0.3− | 2007 06 10 | 691 | 0.1− | 0.3+ | 2009 12 06 | 941 | 0.4+ | 0.2− | | |
| 2007 05 11 | G96 | 0.0 | 0.5− | 2007 06 10 | 691 | 0.1− | 0.2+ | 2009 12 06 | 941 | 0.3+ | 0.1+ | | |
| 2007 05 11 | G96 | 0.2− | 0.4− | 2009 11 20 | A50 | 0.1+ | 0.3+ | 2009 12 06 | 941 | 0.1+ | 0.1− | | |
| 2007 05 11 | G96 | 0.3+ | 1.1+ | 2009 11 20 | A50 | 0.6+ | 0.3− | 2009 12 11 | 703 | 0.6+ | 0.1− | | |
| 2007 05 26 | G96 | 0.4+ | 0.1+ | 2009 11 21 | A50 | 0.4+ | 0.8− | 2009 12 11 | 703 | 0.1+ | 0.3+ | | |
| 2007 05 26 | G96 | 0.2+ | 0.1− | 2009 11 26 | 691 | 0.5− | 0.1− | 2009 12 11 | 703 | 0.8− | 0.5+ | | |
| 2007 05 26 | G96 | 0.5+ | 0.2− | 2009 11 26 | 691 | 0.2− | 0.1− | 2009 12 11 | 703 | 0.9+ | 0.9− | | |
| 2007 05 26 | G96 | 0.7+ | 0.2− | 2009 11 26 | 691 | 0.2− | 0.4+ | 2009 12 17 | G96 | 0.2+ | 0.1+ | | |
| 2007 06 09 | 691 | 0.1+ | 0.0 | 2009 12 06 | 941 | 0.1+ | 0.2+ | 2009 12 17 | G96 | 0.2− | 0.1− | | |
| 2007 06 09 | 691 | 0.0 | 0.0 | 2009 12 06 | 941 | 0.1+ | 0.2+ | 2009 12 17 | G96 | 0.2+ | 0.2+ | | |
| 2007 06 09 | 691 | 0.8− | 0.5− | 2009 12 06 | 941 | 0.2+ | 0.1+ | 2009 12 17 | G96 | 0.1+ | 0.1+ | | |
| 2007 06 10 | 691 | 0.4+ | 0.3+ | 2009 12 06 | 941 | 0.4+ | 0.1− | | | | | | |

**2007 LU$_8$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| $M$ | 90.88956 | | (2000.0) | **P** | **Q** |
|---|---|---|---|---|---|
| $n$ | 0.22463059 | $\omega$ | 240.28161 | +0.96021443 | −0.26901658 |
| $a$ | 2.6801357 | $\Omega$ | 135.20626 | +0.27854241 | +0.90331248 |
| $e$ | 0.0874920 | $i$ | 6.10707 | +0.02005913 | +0.33415062 |
| $P$ | 4.39 | $H$ | 16.6 | $G$ 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 01 10 | 691 | 0.1+ | 0.3− | 2007 06 12 | 691 | 0.3− | 0.0 | 2008 09 20 | 703 | 0.9− | 0.1− | | |
| 1997 01 10 | 691 | 0.3− | 0.2− | 2007 06 12 | 691 | 0.8+ | 0.3+ | 2008 09 20 | 703 | 0.0 | 1.0− | | |
| 1997 01 10 | 691 | 0.0 | 0.0 | 2007 06 12 | 691 | 0.2− | 0.3+ | 2008 10 01 | 703 | 2.6+ | 1.4+ | | |
| 2006 01 31 | 691 | 0.2+ | 0.5+ | 2007 06 19 | 691 | 0.4− | 0.7− | 2008 10 01 | 703 | 0.4+ | 0.4+ | | |
| 2006 01 31 | 691 | 0.1+ | 0.7+ | 2007 06 19 | 691 | 0.1− | 0.1− | 2008 10 01 | 703 | 0.1− | 2.3+ | | |
| 2006 01 31 | 691 | 0.1+ | 0.0 | 2007 06 19 | 691 | 0.0 | 0.2− | 2008 10 01 | 703 | (1.0+ | 4.0+) | | |
| 2007 06 09 | 691 | 0.3− | 0.2− | 2008 09 06 | 703 | 0.3− | 0.3− | 2008 10 07 | G96 | 0.3+ | 0.2− | | |
| 2007 06 09 | 691 | 0.3+ | 0.0 | 2008 09 06 | 703 | 0.8− | 0.1− | 2008 10 07 | G96 | 0.2+ | 0.4− | | |
| 2007 06 09 | 691 | 0.2+ | 0.2+ | 2008 09 06 | 703 | 0.6− | 0.4− | 2008 10 07 | G96 | 0.1+ | 0.4− | | |
| 2007 06 12 | 691 | 0.0 | 0.5+ | 2008 09 06 | 703 | 1.4− | 1.2− | 2008 10 07 | G96 | 0.2− | 0.4− | | |
| 2007 06 12 | 691 | 0.1− | 0.1+ | 2008 09 20 | 703 | 0.9− | 0.1− | | | | | | |
| 2007 06 12 | 691 | 0.1+ | 0.0 | 2008 09 20 | 703 | 0.3− | 0.4− | | | | | | |

**2007 LQ$_{14}$ = 2008 UU$_{253}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| $M$ | 110.28363 | | (2000.0) | **P** | **Q** |
|---|---|---|---|---|---|
| $n$ | 0.24265211 | $\omega$ | 299.28054 | +0.91904492 | −0.28653528 |
| $a$ | 2.5457358 | $\Omega$ | 78.48842 | +0.38204246 | +0.81649359 |
| $e$ | 0.1457333 | $i$ | 16.03419 | −0.09695353 | +0.50123424 |
| $P$ | 4.06 | $H$ | 15.8 | $G$ 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 10 09 | 691 | 0.1+ | 0.1− | 2007 03 15 | G96 | 0.1− | 0.1− | 2008 10 27 | 703 | 0.3− | 0.1− | | |
| 1996 10 09 | 691 | 0.0 | 0.1− | 2007 03 15 | G96 | 0.1+ | 0.1+ | 2008 10 27 | 703 | (0.5− | 1.6−) | | |
| 1996 10 09 | 691 | 0.0 | 0.1− | 2007 06 10 | 691 | 0.1− | 0.2+ | 2008 10 27 | 703 | 0.2− | 0.7− | | |
| 2000 12 04 | 608 | 0.7+ | 0.5− | 2007 06 10 | 691 | 0.1− | 0.2− | 2008 10 29 | 703 | 0.3− | 0.4− | | |
| 2000 12 04 | 608 | 0.3+ | 0.9− | 2007 06 10 | 691 | 0.0 | 0.0 | 2008 10 29 | 703 | 0.2− | 1.3− | | |
| 2000 12 04 | 608 | 0.1− | 0.2− | 2007 06 13 | 691 | 0.6− | 0.1+ | 2008 10 29 | 703 | 0.0 | 0.5− | | |
| 2004 10 13 | 699 | 0.5− | 0.2+ | 2007 06 13 | 691 | 0.1+ | 0.0 | 2008 10 29 | 703 | 0.7+ | 0.4− | | |
| 2004 10 13 | 699 | 0.4+ | 0.3− | 2007 06 13 | 691 | 0.1+ | 0.4− | 2008 11 20 | 703 | 0.9+ | 0.0 | | |
| 2004 10 13 | 699 | 0.5+ | 0.8+ | 2007 06 17 | 691 | 0.5+ | 0.1+ | 2008 11 20 | 703 | 0.0 | 0.9+ | | |
| 2004 10 13 | 699 | 0.0 | 0.5+ | 2007 06 17 | 691 | 0.3− | 0.1+ | 2008 11 20 | 703 | 0.1+ | 0.4+ | | |
| 2004 12 04 | 699 | 0.2− | 0.1+ | 2007 06 17 | 691 | 0.4+ | 0.1+ | 2008 11 20 | 703 | 0.2− | 0.2− | | |
| 2004 12 04 | 699 | 0.8− | 0.9+ | 2008 09 22 | 703 | 0.7+ | 0.1+ | 2008 12 01 | 703 | 0.5− | 0.3+ | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 04 | 699 | 1.3− | 0.8+ | 2008 09 22 | 703 | 0.6+ | 1.1+ | 2008 12 01 | 703 | 1.1− | 0.0 | | |
| 2004 12 04 | 699 | 0.0 | 0.5+ | 2008 09 22 | 703 | 0.7+ | 0.2+ | 2008 12 01 | 703 | (1.6− | 0.0 ) | | |
| 2007 03 15 | G96 | 0.1− | 0.3+ | 2008 09 22 | 703 | 0.5+ | 0.4+ | 2008 12 01 | 703 | 0.6− | 0.8+ | | |
| 2007 03 15 | G96 | 0.2+ | 0.0 | 2008 10 27 | 703 | 0.7− | 1.0− | | | | | | |

**2007 LD$_{32}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 181.40849 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17709435 | $\omega$ | 160.88605 | | −0.71066042 | | +0.67433630 |
| $a$ | 3.1405057 | $\Omega$ | 63.21325 | | −0.67120787 | | −0.56443613 |
| $e$ | 0.1577718 | $i$ | 12.98475 | | −0.21081214 | | −0.47611176 |
| $P$ | 5.57 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 04 19 | G96 | 0.1− | 0.1+ | 2007 05 25 | G96 | 0.1− | 0.0 | 2009 09 27 | G96 | 0.7− | 0.2− |
| 2007 04 19 | G96 | 0.3− | 0.1− | 2007 05 25 | G96 | 0.7− | 1.0− | 2009 09 27 | G96 | 0.1− | 0.4− |
| 2007 04 19 | G96 | 0.1+ | 0.2+ | 2007 05 25 | G96 | 0.1− | 0.0 | 2009 09 27 | G96 | 0.3+ | 0.2+ |
| 2007 04 19 | G96 | 0.1− | 0.1− | 2007 06 15 | 691 | 0.3+ | 0.0 | 2009 09 27 | G96 | 0.3− | 0.3− |
| 2007 05 12 | D29 | 0.7+ | 0.4− | 2007 06 15 | 691 | 0.2− | 0.1− | 2009 11 20 | G96 | 0.4− | 0.3− |
| 2007 05 12 | D29 | 0.1+ | 0.3+ | 2007 06 15 | 691 | 0.2− | 0.6+ | 2009 11 20 | G96 | 0.5+ | 0.4+ |
| 2007 05 12 | D29 | 0.1+ | 0.3+ | 2007 06 20 | 691 | 0.1+ | 0.3− | 2009 11 20 | G96 | 0.5+ | 0.5+ |
| 2007 05 12 | D29 | 1.4+ | 0.1+ | 2007 06 20 | 691 | 0.3− | 0.1+ | 2009 11 20 | G96 | 0.1− | 0.5+ |
| 2007 05 25 | G96 | 0.2− | 0.1+ | 2007 06 20 | 691 | 0.1+ | 0.1− | | | | |

**2007 MR$_2$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 124.08943 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21988692 | $\omega$ | 179.45672 | | +0.97212008 | | +0.22861911 |
| $a$ | 2.7185446 | $\Omega$ | 166.96796 | | −0.21599676 | | +0.95957780 |
| $e$ | 0.1019597 | $i$ | 13.36231 | | −0.09125762 | | +0.16414549 |
| $P$ | 4.48 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 10 01 | 691 | 0.2− | 0.7− | 2007 06 16 | 691 | 0.3− | 0.0 | 2008 09 29 | 703 | 0.8− | 0.2− |
| 1999 10 01 | 691 | 0.4+ | 0.1− | 2007 06 16 | 691 | 0.1− | 0.1− | 2008 09 29 | 703 | 0.4− | 0.6+ |
| 1999 10 01 | 691 | 0.0 | 0.5− | 2007 06 20 | 691 | 0.1+ | 0.0 | 2008 09 29 | 703 | 0.4+ | 1.1+ |
| 2006 03 23 | G96 | 0.7− | 0.4− | 2007 06 20 | 691 | 0.0 | 0.3+ | 2008 09 29 | 703 | 0.2− | 0.5+ |
| 2006 03 23 | G96 | 0.3+ | 0.3− | 2007 06 20 | 691 | 0.1+ | 0.4− | 2008 10 08 | 703 | (0.4+ | 2.1+) |
| 2006 03 23 | G96 | 0.1− | 0.1− | 2007 06 24 | 691 | 0.1+ | 0.0 | 2008 10 08 | 703 | (1.0− | 1.6+) |
| 2006 03 23 | G96 | 0.4+ | 0.1+ | 2007 06 24 | 691 | 0.2+ | 0.3+ | 2008 10 08 | 703 | 0.3− | 1.4+ |
| 2007 06 16 | 691 | 0.1− | 0.2− | 2007 06 24 | 691 | 0.0 | 0.2+ | 2008 10 08 | 703 | 0.4+ | 1.1+ |

**2007 NV$_2$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 258.11463 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21855019 | $\omega$ | 329.47056 | | −0.26816611 | | +0.93821322 |
| $a$ | 2.7296183 | $\Omega$ | 284.21758 | | −0.83200485 | | −0.34000693 |
| $e$ | 0.1235104 | $i$ | 13.04061 | | −0.48564891 | | +0.06443013 |
| $P$ | 4.51 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 07 14 | A55 | 0.4+ | 0.4− | 2007 07 21 | A55 | 0.8− | 0.1− | 2007 10 03 | A55 | 0.2− | 0.4+ |
| 2007 07 14 | A55 | 0.5− | 0.3− | 2007 08 05 | A55 | 0.7+ | 0.2+ | 2007 10 03 | A55 | 0.5− | 0.1− |
| 2007 07 14 | A55 | 0.3− | 0.2+ | 2007 08 05 | A55 | 0.1+ | 0.1− | 2007 10 03 | A55 | 0.7− | 0.4− |
| 2007 07 15 | A55 | 0.5+ | 0.1+ | 2007 08 05 | A55 | 0.4+ | 0.6+ | 2009 12 18 | 291 | 0.2− | 0.1− |
| 2007 07 15 | A55 | 0.4− | 0.1− | 2007 08 23 | A55 | 0.5+ | 1.1+ | 2009 12 18 | 291 | 0.1− | 0.1− |
| 2007 07 15 | A55 | 0.2− | 0.3− | 2007 08 23 | A55 | 0.9+ | 0.2+ | 2009 12 18 | 291 | 0.0 | 0.1− |
| 2007 07 15 | A55 | 0.7− | 0.5− | 2007 08 23 | A55 | 0.2+ | 0.6+ | 2009 12 19 | 291 | 0.1+ | 0.2+ |
| 2007 07 15 | A55 | 0.3− | 0.1+ | 2007 09 03 | G96 | 0.0 | 0.5− | 2009 12 19 | 291 | 0.1− | 0.4+ |
| 2007 07 15 | A55 | 0.3+ | 0.4+ | 2007 09 03 | G96 | 0.0 | 0.3− | 2009 12 19 | 291 | 0.3+ | 0.1− |
| 2007 07 21 | A55 | 0.3− | 0.5+ | 2007 09 03 | G96 | 0.1+ | 0.5− | | | | |
| 2007 07 21 | A55 | 0.1+ | 0.3+ | 2007 09 03 | G96 | 0.2+ | 0.7− | | | | |

**2007 OU$_3$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 249.53907 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.26499491 | $\omega$ | 83.98684 | | +0.57619204 | | +0.81264970 |
| $a$ | 2.4005515 | $\Omega$ | 221.59825 | | −0.79218972 | | +0.52904305 |
| $e$ | 0.2317256 | $i$ | 7.54697 | | −0.20109246 | | +0.24436432 |
| $P$ | 3.72 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 10 12 | 566 | 1.3− | 0.0 | 2007 09 08 | 699 | 0.6+ | 0.8+ | 2007 09 18 | 683 | 0.2− | 2.4− |
| 1996 10 12 | 566 | 1.0+ | 0.3+ | 2007 09 08 | 699 | 0.1− | 1.0+ | 2007 10 12 | 704 | 0.5+ | 0.0 |
| 1996 10 12 | 566 | 0.3+ | 0.1− | 2007 09 08 | 699 | 0.3− | 0.4+ | 2007 10 12 | 704 | 0.0 | 0.8+ |
| 2002 03 05 | 645 | 0.0 | 0.0 | 2007 09 08 | 699 | 0.1+ | 0.1+ | 2007 10 12 | 704 | 0.2− | 0.0 |
| 2002 03 05 | 645 | 0.0 | 0.1+ | 2007 09 08 | 620 | 0.0 | 0.1− | 2007 10 12 | 704 | 0.6+ | 0.5+ |
| 2007 07 20 | J75 | 0.2+ | 0.2− | 2007 09 08 | 620 | 0.0 | 0.2− | 2007 10 12 | 704 | 0.0 | 0.2+ |
| 2007 07 20 | J75 | 0.0 | 0.3− | 2007 09 08 | 620 | 0.1− | 0.2+ | 2007 10 15 | 704 | 0.4− | 0.7− |
| 2007 07 20 | J75 | 0.6+ | 0.3+ | 2007 09 11 | 703 | 0.1+ | 0.3− | 2007 10 15 | 704 | 0.7+ | 0.5+ |
| 2007 07 23 | J75 | 0.3− | 0.1− | 2007 09 11 | 703 | 0.5− | 0.0 | 2007 10 15 | 704 | 0.0 | 0.1+ |
| 2007 07 23 | J75 | 1.0+ | 0.3+ | 2007 09 11 | 703 | 0.4− | 0.9− | 2007 10 15 | 704 | 0.4− | 0.1− |
| 2007 07 23 | 620 | 0.4+ | 0.5+ | 2007 09 11 | 703 | 0.6− | 0.6− | 2007 11 02 | G96 | 0.2− | 0.1+ |
| 2007 07 23 | J75 | 0.2− | 0.4− | 2007 09 13 | 704 | 0.7− | 0.4+ | 2007 11 02 | G96 | 0.1− | 0.3+ |
| 2007 07 23 | 620 | 0.5− | 0.4+ | 2007 09 13 | 704 | 0.4− | 0.5+ | 2007 11 02 | G96 | 0.2− | 0.0 |
| 2007 07 23 | 620 | 0.3+ | 0.4+ | 2007 09 13 | 704 | 0.1+ | 0.5+ | 2007 11 02 | G96 | 0.3− | 0.1− |
| 2007 07 28 | 620 | 0.5− | 0.5+ | 2007 09 13 | 704 | 0.5+ | 0.5+ | 2007 11 12 | G96 | 0.1+ | 0.6− |
| 2007 07 28 | 620 | 0.4− | 0.0 | 2007 09 14 | 568 | 0.1+ | 0.2− | 2007 11 12 | G96 | 0.2+ | 0.3+ |
| 2007 07 28 | 620 | 0.2+ | 0.2+ | 2007 09 14 | 568 | 0.2+ | 0.1− | 2007 11 12 | G96 | 0.2+ | 0.5− |
| 2007 09 05 | 620 | 0.2+ | 0.0 | 2007 09 14 | 568 | 0.0 | 0.1− | 2007 11 12 | G96 | 0.3− | 0.2− |
| 2007 09 05 | 620 | 0.1− | 0.1− | 2007 09 16 | 568 | 0.2+ | 0.0 | | | | |
| 2007 09 06 | 620 | 0.2+ | 0.0 | 2007 09 18 | 683 | 0.1+ | 0.6− | | | | |

**2007 OQ$_6$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 212.25823 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.25426084 | $\omega$ | 344.99046 | | +0.82071129 | | +0.57070143 |
| $a$ | 2.4676472 | $\Omega$ | 340.13755 | | −0.51564709 | | +0.71946913 |
| $e$ | 0.1661369 | $i$ | 4.56999 | | −0.24605093 | | +0.39580809 |
| $P$ | 3.88 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 02 06 | 695 | 0.4+ | 0.6+ | 2006 04 02 | G96 | 0.3− | 0.1− | 2007 08 09 | 704 | 1.0− | 0.5+ |
| 2002 02 06 | 695 | 0.2+ | 0.6+ | 2006 04 02 | G96 | 0.7− | 0.1+ | 2007 10 14 | G96 | 0.2+ | 0.2+ |
| 2005 12 03 | 568 | 0.3+ | 0.0 | 2007 07 21 | 428 | 1.4+ | 1.3− | 2007 10 14 | G96 | 0.5+ | 0.5+ |
| 2005 12 03 | 568 | 0.3+ | 0.0 | 2007 07 21 | 428 | 1.2+ | 0.8− | 2007 10 14 | G96 | 0.3− | 0.3+ |
| 2005 12 03 | 568 | 0.3+ | 0.0 | 2007 07 24 | 428 | 0.5+ | 0.1+ | 2007 10 14 | G96 | 0.2− | 0.5+ |
| 2006 02 24 | 691 | 0.1+ | 0.2− | 2007 07 24 | 428 | 0.4− | 0.2+ | 2007 10 15 | G96 | 0.2− | 0.4+ |
| 2006 02 24 | 691 | 0.4− | 0.0 | 2007 07 24 | 428 | 0.6− | 0.0 | 2007 10 15 | G96 | 0.0 | 0.1− |
| 2006 02 24 | 691 | 1.0+ | 0.0 | 2007 08 08 | 704 | 0.9− | 0.6+ | 2007 10 15 | G96 | 0.3− | 0.0 |
| 2006 02 24 | G96 | 0.2− | 0.5+ | 2007 08 08 | 704 | 0.0 | 1.3+ | 2007 10 15 | G96 | 0.5+ | 0.2+ |
| 2006 02 24 | G96 | 0.5− | 0.7+ | 2007 08 08 | 704 | 0.3− | 1.0− | 2009 01 01 | 691 | 0.2− | 0.1+ |
| 2006 02 24 | G96 | 0.7− | 0.7+ | 2007 08 08 | 704 | 0.6− | 0.4+ | 2009 01 01 | 691 | 0.0 | 0.4− |
| 2006 02 24 | G96 | 0.1− | 0.5+ | 2007 08 09 | 704 | 0.4+ | 1.0+ | 2009 01 01 | 691 | 0.1+ | 0.6+ |
| 2006 04 02 | G96 | 1.3− | 0.3+ | 2007 08 09 | 704 | 0.2− | 0.2+ | | | | |
| 2006 04 02 | G96 | 1.4+ | 0.3− | 2007 08 09 | 704 | 0.5− | 0.3+ | | | | |

**2007 PJ$_1$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 143.27687 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.25820341 | $\omega$ | 183.08377 | | +0.28892428 | | −0.95014228 |
| $a$ | 2.4424634 | $\Omega$ | 250.14629 | | +0.88099972 | | +0.31181627 |
| $e$ | 0.1298535 | $i$ | 7.16236 | | +0.37464951 | | −0.00050948 |
| $P$ | 3.82 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 12 31 | 608 | 0.3+ | 0.5+ | 2007 08 12 | A44 | 0.5− | 0.2+ | 2007 09 14 | B01 | 0.3+ | 0.1+ |
| 2000 12 31 | 608 | 0.4− | 0.6+ | 2007 08 12 | A44 | 0.0 | 0.2+ | 2007 09 15 | B01 | 0.1− | 0.5− |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 12 31 | 608 | 0.2+ | 0.6+ | 2007 08 15 | A44 | 0.0 | 0.3+ | 2007 09 15 | B01 | 0.2− | 0.3− |
| 2006 05 23 | G96 | 0.1+ | 0.2+ | 2007 08 15 | A44 | 0.4− | 0.1+ | 2007 09 20 | G96 | 0.3− | 0.3+ |
| 2006 05 23 | G96 | 0.0 | 0.8+ | 2007 08 15 | A44 | 0.6− | 0.1− | 2007 09 20 | G96 | 0.1+ | 0.1+ |
| 2006 05 23 | G96 | 0.2+ | 0.1− | 2007 08 15 | A44 | 0.2− | 0.1− | 2007 09 20 | G96 | 0.2− | 0.2− |
| 2006 05 23 | G96 | 0.1− | 0.7+ | 2007 08 15 | A44 | 0.1− | 0.1+ | 2007 09 20 | G96 | 0.3− | 0.2+ |
| 2007 08 05 | A44 | 0.2− | 0.1− | 2007 08 15 | A44 | 0.4− | 0.4+ | 2007 10 05 | A44 | 0.3+ | 0.3− |
| 2007 08 05 | A44 | 0.2+ | 0.3+ | 2007 08 18 | B21 | 0.6+ | 0.3+ | 2007 10 05 | A44 | 0.2− | 0.1− |
| 2007 08 05 | A44 | 1.0− | 0.2+ | 2007 08 18 | B21 | 0.4+ | 0.0 | 2007 10 05 | A44 | 0.7− | 0.3− |
| 2007 08 07 | A44 | 0.1− | 0.3+ | 2007 08 18 | B21 | 0.6+ | 0.2+ | 2007 11 01 | A44 | 0.2+ | 0.6+ |
| 2007 08 07 | A44 | 0.1− | 0.1− | 2007 08 25 | B21 | 0.5+ | 0.0 | 2007 11 01 | A44 | 0.5− | 0.2+ |
| 2007 08 07 | A44 | 0.3− | 0.4− | 2007 08 25 | B21 | 0.4+ | 0.1− | 2007 11 01 | A44 | 0.1+ | 0.4− |
| 2007 08 12 | A44 | 0.4− | 0.0 | 2007 08 25 | B21 | 0.9+ | 0.4− | | | | |
| 2007 08 12 | A44 | 0.3− | 0.1+ | 2007 09 14 | B01 | 1.8+ | 0.3+ | | | | |

**2007 PV$_6$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 244.13253 | | (2000.0) | | | |
| $n$ | 0.25956982 | $\omega$ | 145.63225 | | +0.42591572 | +0.90441512 |
| $a$ | 2.4338842 | $\Omega$ | 149.55419 | | −0.84082227 | +0.40590005 |
| $e$ | 0.1971239 | $i$ | 2.83717 | | −0.33408637 | +0.13144750 |
| $P$ | 3.80 | $H$ | 17.1 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 02 25 | G96 | 0.1− | 0.2+ | 2007 08 09 | D29 | 0.2− | 0.4− | 2007 09 03 | 703 | 0.1+ | 0.7− |
| 2006 02 25 | G96 | 0.1+ | 0.3+ | 2007 08 11 | 699 | 0.7+ | 0.8+ | 2007 09 03 | 703 | 0.5− | 0.5− |
| 2006 02 25 | G96 | 0.6+ | 0.3+ | 2007 08 11 | 699 | 0.6+ | 0.2+ | 2007 09 03 | 703 | 1.0− | 0.7+ |
| 2006 02 25 | G96 | 0.0 | 0.8+ | 2007 08 11 | 699 | 0.9+ | 0.8− | 2007 09 03 | 703 | 0.8− | 0.6− |
| 2007 07 18 | G96 | 0.1− | 0.3− | 2007 08 11 | 699 | 0.2− | 0.2+ | 2007 09 10 | G96 | 0.3+ | 0.4− |
| 2007 07 18 | G96 | 0.1− | 0.4− | 2007 08 11 | 428 | 1.0− | 0.6− | 2007 09 10 | G96 | 0.1+ | 0.6− |
| 2007 07 18 | G96 | 0.1− | 0.3− | 2007 08 11 | 428 | 0.9+ | 0.0 | 2007 09 10 | G96 | 0.2+ | 0.2− |
| 2007 07 18 | G96 | 0.0 | 0.2− | 2007 08 15 | 704 | 0.3− | 0.5+ | 2007 09 10 | G96 | 0.0 | 0.2− |
| 2007 08 09 | 704 | 0.1+ | 1.7+ | 2007 08 15 | 704 | 0.6− | 0.4+ | 2007 10 10 | G96 | 0.0 | 0.3− |
| 2007 08 09 | 704 | 0.8+ | 0.9+ | 2007 08 15 | 704 | 0.5− | 0.7+ | 2007 10 10 | G96 | 0.2+ | 0.5− |
| 2007 08 09 | 704 | 0.0 | 1.0− | 2007 08 15 | 704 | 1.2− | 1.3+ | 2007 10 10 | G96 | 0.1− | 0.1− |
| 2007 08 09 | 704 | 0.3+ | 0.3+ | 2007 08 15 | 704 | 1.5− | 1.6+ | 2007 10 10 | G96 | 0.3+ | 0.4− |
| 2007 08 09 | 704 | 0.3+ | 0.7+ | 2007 08 18 | 699 | 0.2− | 0.3+ | 2008 12 05 | 691 | 0.1+ | 0.2+ |
| 2007 08 09 | D29 | 0.1− | 0.4− | 2007 08 18 | 699 | 0.8+ | 0.5+ | 2008 12 05 | 691 | 0.2− | 0.0 |
| 2007 08 09 | D29 | 0.1− | 0.3− | 2007 08 18 | 699 | 0.6+ | 0.6+ | 2008 12 05 | 691 | 0.1+ | 0.1+ |
| 2007 08 09 | D29 | 0.1− | 0.9− | 2007 08 18 | 699 | 0.7+ | 0.3− | | | | |

**2007 PW$_6$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 205.02864 | | (2000.0) | | | |
| $n$ | 0.26576916 | $\omega$ | 65.44390 | | +0.99470263 | −0.09916179 |
| $a$ | 2.3958870 | $\Omega$ | 300.23684 | | +0.07926810 | +0.90769930 |
| $e$ | 0.2416328 | $i$ | 1.79654 | | +0.06544646 | +0.40773634 |
| $P$ | 3.71 | $H$ | 17.3 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 18 | G96 | 0.1− | 0.3− | 2007 08 09 | D29 | 0.8+ | 0.3+ | 2007 08 22 | 691 | 0.2− | 0.2+ |
| 2004 12 18 | G96 | 0.2− | 0.1− | 2007 08 09 | D29 | 0.2− | 0.2− | 2007 08 22 | 691 | 0.3− | 0.2− |
| 2004 12 18 | G96 | 0.2+ | 0.3− | 2007 08 09 | D29 | 0.2+ | 0.4− | 2007 10 09 | G96 | 0.3+ | 0.4− |
| 2004 12 18 | G96 | 0.1+ | 0.0 | 2007 08 09 | D29 | 0.1− | 0.1+ | 2007 10 09 | G96 | 0.2+ | 0.4+ |
| 2005 01 16 | 691 | 0.0 | 0.2+ | 2007 08 10 | 691 | 0.1− | 0.4− | 2007 10 09 | G96 | 0.1− | 0.6− |
| 2005 01 16 | 691 | 0.2+ | 0.5+ | 2007 08 10 | 691 | 0.4− | 0.1+ | 2007 10 09 | G96 | 0.3+ | 0.4− |
| 2005 01 16 | 691 | 0.1− | 0.0 | 2007 08 10 | 691 | 0.1+ | 0.8+ | 2007 10 11 | G96 | 0.1+ | 0.1− |
| 2007 08 09 | 704 | 1.8+ | 0.2− | 2007 08 15 | 704 | 0.2+ | 0.9+ | 2007 10 11 | G96 | 0.3+ | 0.3− |
| 2007 08 09 | 704 | 0.5+ | 0.2− | 2007 08 15 | 704 | 0.3+ | 0.7+ | 2007 10 11 | G96 | 0.3+ | 0.4− |
| 2007 08 09 | 704 | 0.1− | 0.2− | 2007 08 15 | 704 | 0.0 | 0.0 | 2007 10 11 | G96 | 0.2− | 0.4− |
| 2007 08 09 | 704 | 0.1− | 0.5+ | 2007 08 22 | 691 | 0.2− | 0.1− | | | | |

**2007 PS$_{36}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 231.88763 | | (2000.0) | | | |
| $n$ | 0.26117053 | $\omega$ | 142.47624 | | +0.72483073 | +0.68886322 |
| $a$ | 2.4239292 | $\Omega$ | 173.95735 | | −0.65169079 | +0.69000320 |
| $e$ | 0.1632771 | $i$ | 5.10878 | | −0.22342678 | +0.22217797 |
| $P$ | 3.77 | $H$ | 17.0 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 12 06 | 691 | 0.3− | 0.2+ | 2007 08 13 | 704 | 0.4+ | 0.7− | 2007 08 18 | 699 | 1.4− | 0.7+ |
| 2000 12 06 | 691 | 0.3− | 0.0 | 2007 08 13 | 704 | 0.2+ | 0.0 | 2007 10 09 | G96 | 0.5+ | 0.0 |
| 2000 12 06 | 691 | 0.4+ | 0.0 | 2007 08 13 | 704 | 0.7+ | 0.2+ | 2007 10 09 | G96 | 0.1− | 0.6+ |
| 2002 03 09 | 291 | 0.3− | 0.2− | 2007 08 13 | 704 | 0.3+ | 0.3+ | 2007 10 09 | G96 | 0.4+ | 0.1+ |
| 2002 03 09 | 291 | 0.0 | 0.3+ | 2007 08 13 | 704 | 0.1+ | 0.6+ | 2007 10 09 | G96 | 0.2− | 0.1− |
| 2002 03 09 | 291 | 0.9+ | 0.4+ | 2007 08 16 | 704 | 0.2+ | 0.2+ | 2007 10 11 | G96 | 0.5+ | 0.2− |
| 2006 03 02 | 691 | 0.3− | 0.1+ | 2007 08 16 | 704 | 0.6− | 0.0 | 2007 10 11 | G96 | 0.3− | 0.2− |
| 2006 03 02 | 691 | 0.3− | 0.2+ | 2007 08 16 | 704 | 0.5− | 0.1− | 2007 10 11 | G96 | 0.0 | 0.0 |
| 2006 03 02 | 691 | 0.2+ | 0.1+ | 2007 08 16 | 704 | 0.4− | 0.3+ | 2007 10 11 | G96 | 0.3− | 0.2− |
| 2006 03 23 | G96 | 0.4− | 0.6+ | 2007 08 16 | 704 | 0.0 | 0.6+ | 2007 10 31 | G96 | 0.3+ | 0.2− |
| 2006 03 23 | G96 | 0.0 | 0.1− | 2007 08 18 | 699 | 0.4+ | 0.2+ | 2007 10 31 | G96 | 0.4+ | 0.1+ |
| 2006 03 23 | G96 | 1.0+ | 0.4− | 2007 08 18 | 699 | 0.5− | 0.3− | 2007 10 31 | G96 | 0.5+ | 0.1+ |
| 2006 03 23 | G96 | 0.1− | 0.4− | 2007 08 18 | 699 | 0.6− | 0.6+ | 2007 10 31 | G96 | 0.5+ | 0.1+ |

**2007 PY$_{43}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 174.04116 | | (2000.0) | | | |
| $n$ | 0.22274567 | $\omega$ | 48.34780 | | +0.98493777 | +0.05184085 |
| $a$ | 2.6952344 | $\Omega$ | 308.01456 | | −0.12979717 | +0.85195947 |
| $e$ | 0.2034417 | $i$ | 12.08557 | | +0.11423782 | +0.52103510 |
| $P$ | 4.42 | $H$ | 16.5 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 07 09 | D35 | 0.0 | 0.0 | 2007 08 13 | D29 | 0.4− | 0.2− | 2007 11 12 | G96 | (0.2+ | 1.9−) |
| 2007 07 09 | D35 | 0.6− | 0.2− | 2007 08 13 | D29 | 0.0 | 0.3− | 2007 11 12 | G96 | 0.1− | 0.1− |
| 2007 07 09 | D35 | 1.0− | 0.3+ | 2007 08 13 | D29 | 0.0 | 0.2− | 2007 11 12 | G96 | 0.1+ | 0.2− |
| 2007 07 18 | G96 | 0.6+ | 0.2− | 2007 08 16 | 704 | 0.6+ | 0.2+ | 2007 11 12 | G96 | 0.0 | 0.5− |
| 2007 07 18 | G96 | 0.4+ | 0.1− | 2007 08 16 | 704 | (0.6+ | 1.8+) | 2008 12 31 | 691 | 0.1− | 0.3− |
| 2007 07 18 | G96 | 0.1+ | 0.3− | 2007 08 16 | 704 | 0.2+ | 0.9+ | 2008 12 31 | 691 | 0.0 | 0.4+ |
| 2007 07 18 | G96 | 0.4+ | 0.1− | 2007 08 16 | 704 | 0.2+ | 1.0+ | 2008 12 31 | 691 | 0.3+ | 0.2+ |
| 2007 08 13 | 704 | 0.4− | 0.7− | 2007 08 22 | 704 | 0.2+ | 0.2+ | 2009 01 21 | G96 | 0.4− | 0.2− |
| 2007 08 13 | 704 | 0.0 | 1.4− | 2007 08 22 | 704 | 0.7+ | 1.1+ | 2009 01 21 | G96 | 0.4+ | 0.2− |
| 2007 08 13 | 704 | 1.2− | 0.6− | 2007 08 22 | 704 | 0.0 | 0.9+ | 2009 01 21 | G96 | 0.3− | 0.0 |
| 2007 08 13 | 704 | 0.8− | 0.2+ | 2007 08 22 | 704 | 0.0 | 0.7+ | 2009 01 21 | G96 | 0.1− | 0.2− |
| 2007 08 13 | D29 | 0.0 | 0.6− | 2007 08 22 | 704 | 0.3− | 0.2+ | 2009 02 20 | G96 | 0.0 | 0.1− |
| 2007 08 13 | D29 | 0.2+ | 0.1+ | 2007 09 05 | 703 | (1.8+ | 1.0+) | 2009 02 20 | G96 | 0.5− | 0.4− |
| 2007 08 13 | D29 | 0.2+ | 0.3− | 2007 09 05 | 703 | 0.0 | 0.6+ | 2009 02 20 | G96 | 0.1+ | 0.1− |
| 2007 08 13 | D29 | 0.2+ | 0.2− | 2007 09 05 | 703 | 0.3+ | 0.6− | 2009 02 20 | G96 | 0.1+ | 0.1− |
| 2007 08 13 | D29 | 0.2− | 0.3− | 2007 09 05 | 703 | 0.7+ | 0.5+ | | | | |

**2007 PW$_{46}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 196.04758 | | (2000.0) | | | |
| $n$ | 0.21259226 | $\omega$ | 238.25816 | | +0.75801216 | +0.60330457 |
| $a$ | 2.7803816 | $\Omega$ | 83.43780 | | −0.48146315 | +0.77393667 |
| $e$ | 0.2011385 | $i$ | 14.44840 | | −0.44001227 | +0.19247240 |
| $P$ | 4.64 | $H$ | 16.0 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 08 14 | E12 | 0.1+ | 0.4+ | 2007 09 18 | E12 | 0.8− | 0.4− | 2007 10 04 | E12 | 1.0+ | 0.3+ |
| 2007 08 14 | E12 | 0.6+ | 0.2− | 2007 09 18 | E12 | 0.6+ | 0.2− | 2007 10 04 | E12 | 0.2+ | 0.0 |
| 2007 08 14 | E12 | 0.1+ | 0.6− | 2007 09 18 | E12 | 0.3− | 0.2− | 2008 12 02 | 691 | 0.2+ | 0.0 |
| 2007 08 14 | E12 | 0.4− | 0.8+ | 2007 09 18 | E12 | 0.1+ | 0.4− | 2008 12 02 | 691 | 0.2− | 0.1− |
| 2007 09 05 | E12 | 0.2− | 0.7+ | 2007 09 18 | E12 | 0.0 | 0.0 | 2008 12 02 | 691 | 0.1+ | 0.1+ |
| 2007 09 05 | E12 | 0.5− | 0.1+ | 2007 09 18 | E12 | 1.0− | 0.1− | 2008 12 30 | 691 | 0.0 | 0.1− |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 09 05 | E12 | 0.3+ | 0.3− | 2007 09 18 | E12 | 0.0 | 0.4− | 2008 12 30 | 691 | 0.0 | 0.1+ | | |
| 2007 09 05 | E12 | 0.5− | 0.5+ | 2007 09 18 | E12 | 0.7+ | 0.1+ | 2008 12 30 | 691 | 0.1− | 0.0 | | |

**2007 PH$_{47}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 96.35322 | | (2000.0) | | **P** | | **Q** | | |
| $n$ | 0.08195251 | $\omega$ | 148.93181 | | +0.76324655 | | +0.64280290 | | |
| $a$ | 5.2492172 | $\Omega$ | 170.22604 | | −0.64307035 | | +0.76555580 | | |
| $e$ | 0.0499561 | $i$ | 22.60860 | | −0.06257182 | | −0.02699531 | | |
| $P$ | 12.03 | $H$ | 13.6 | $G$ | 0.15 | $U$ | 1 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 04 27 | 645 | 0.0 | 0.1− | 2007 08 24 | 691 | 0.0 | 0.1+ | 2007 10 19 | G96 | 0.2+ | 0.4− | | |
| 2003 04 27 | 645 | 0.0 | 0.1− | 2007 08 24 | 691 | 0.1− | 1.0− | 2007 10 19 | G96 | 0.1+ | 0.0 | | |
| 2004 05 21 | 691 | 0.0 | 0.2+ | 2007 09 10 | G96 | 0.1− | 0.3− | 2007 10 19 | G96 | 0.3+ | 0.2+ | | |
| 2004 05 21 | 691 | 0.1− | 0.1+ | 2007 09 10 | G96 | 0.1− | 0.3− | 2007 10 19 | G96 | 0.3+ | 0.1+ | | |
| 2004 05 21 | 691 | 0.1+ | 0.2+ | 2007 09 10 | G96 | 0.3+ | 0.5− | 2007 10 30 | G96 | 0.2+ | 0.4− | | |
| 2007 08 10 | 691 | 0.1+ | 0.3+ | 2007 09 10 | G96 | 0.3+ | 0.4− | 2007 10 30 | G96 | 0.1+ | 0.8− | | |
| 2007 08 10 | 691 | 0.3− | 0.4+ | 2007 10 12 | 691 | 0.3− | 0.1− | 2007 10 30 | G96 | 0.2− | 0.3− | | |
| 2007 08 10 | 691 | 0.1+ | 0.2+ | 2007 10 12 | 691 | 0.2+ | 0.1+ | | | | | | |
| 2007 08 24 | 691 | 0.1− | 0.2+ | 2007 10 12 | 691 | 0.0 | 0.0 | | | | | | |

**2007 PF$_{48}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 155.63740 | | (2000.0) | | **P** | | **Q** | | |
| $n$ | 0.19697759 | $\omega$ | 313.12855 | | +0.97266138 | | +0.18412080 | | |
| $a$ | 2.9254421 | $\Omega$ | 36.93448 | | −0.07489527 | | +0.82556799 | | |
| $e$ | 0.1293779 | $i$ | 13.62236 | | −0.21981932 | | +0.53342013 | | |
| $P$ | 5.00 | $H$ | 15.3 | $G$ | 0.15 | $U$ | 1 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 09 01 | 644 | 0.0 | 0.2+ | 2006 02 27 | G96 | 0.3+ | 0.0 | 2007 08 13 | E12 | 0.1+ | 0.1+ | | |
| 2002 09 01 | 644 | 0.5− | 0.5+ | 2006 03 25 | G96 | 0.7− | 0.0 | 2007 08 13 | E12 | 0.4+ | 0.4+ | | |
| 2002 09 01 | 644 | 0.2− | 0.6+ | 2006 03 25 | G96 | 0.3+ | 0.5− | 2007 08 13 | E12 | 0.2+ | 0.5+ | | |
| 2005 03 09 | 703 | 0.1− | 0.2− | 2006 03 25 | G96 | 0.1+ | 0.3+ | 2007 09 08 | E12 | 0.4− | 0.6+ | | |
| 2005 03 09 | 703 | 0.9+ | 0.1− | 2006 03 25 | G96 | 0.4+ | 0.2− | 2007 09 08 | E12 | 0.3+ | 0.9− | | |
| 2005 03 09 | 703 | 0.6− | 0.4+ | 2006 05 06 | G96 | 0.6− | 0.0 | 2007 09 08 | E12 | 0.5+ | 0.1− | | |
| 2005 03 09 | 703 | (1.3+ | 2.0+) | 2006 05 06 | G96 | 0.6+ | 0.1− | 2007 09 08 | E12 | 0.1+ | 0.0 | | |
| 2006 02 27 | G96 | 0.2+ | 0.1+ | 2006 05 06 | G96 | 0.1− | 0.1− | 2007 10 03 | E12 | 0.4+ | 0.9− | | |
| 2006 02 27 | G96 | 0.2− | 0.1+ | 2006 05 06 | G96 | 0.4− | 0.1+ | 2007 10 03 | E12 | 0.3− | 0.8− | | |
| 2006 02 27 | G96 | 0.1+ | 0.3+ | 2007 08 13 | E12 | 0.1+ | 0.0 | 2007 10 03 | E12 | 1.0− | 0.3− | | |

**2007 QA$_5$ = 2004 XZ$_{178}$ = 2006 GR$_{16}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 111.84427 | | (2000.0) | | **P** | | **Q** | | |
| $n$ | 0.22361137 | $\omega$ | 254.90533 | | +0.82281675 | | −0.56701895 | | |
| $a$ | 2.6882736 | $\Omega$ | 139.61683 | | +0.54144972 | | +0.76171625 | | |
| $e$ | 0.0596235 | $i$ | 3.38344 | | +0.17264067 | | +0.31349299 | | |
| $P$ | 4.41 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 0 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 02 13 | 691 | 0.1+ | 0.2+ | 2006 04 02 | 691 | 0.5+ | 0.2+ | 2007 09 02 | 413 | 0.0 | 0.0 | | |
| 2001 02 13 | 691 | 0.4+ | 0.2+ | 2006 04 07 | 691 | 0.3+ | 0.1+ | 2007 09 02 | 413 | 0.1+ | 0.2− | | |
| 2001 02 13 | 691 | 0.1+ | 0.3+ | 2006 04 07 | 691 | 0.2+ | 0.4+ | 2007 09 05 | 413 | 0.4+ | 0.3+ | | |
| 2001 02 27 | 691 | 0.1− | 0.4+ | 2006 04 07 | 691 | 0.0 | 0.1+ | 2007 09 05 | 413 | 0.4+ | 0.2− | | |
| 2001 02 27 | 691 | 0.3− | 0.5+ | 2007 06 16 | 691 | 0.6− | 0.6+ | 2008 09 27 | G96 | 0.7− | 0.0 | | |
| 2001 02 27 | 691 | 0.1− | 0.3+ | 2007 06 16 | 691 | 0.5− | 0.2− | 2008 09 27 | G96 | 0.0 | 0.2+ | | |
| 2002 06 03 | 644 | 0.6+ | 0.2+ | 2007 06 16 | 691 | 0.0 | 0.6+ | 2008 09 27 | G96 | 0.1+ | 0.1+ | | |
| 2002 06 03 | 644 | 0.6− | 0.8+ | 2007 08 31 | 413 | 0.1− | 0.1+ | 2008 09 27 | G96 | 0.2+ | 0.1+ | | |
| 2002 06 11 | 644 | 0.0 | 0.4+ | 2007 08 31 | 413 | 0.2− | 0.1+ | 2008 11 01 | G96 | 0.2− | 0.2− | | |
| 2002 06 11 | 644 | 0.1− | 0.0 | 2007 08 31 | 413 | 0.2− | 0.1+ | 2008 11 01 | G96 | 0.0 | 0.1+ | | |
| 2003 09 21 | 691 | 0.1+ | 0.6+ | 2007 08 31 | 413 | 0.3− | 0.2+ | 2008 11 01 | G96 | 0.1− | 0.1− | | |
| 2003 09 21 | 691 | 0.1− | 0.8+ | 2007 08 31 | 413 | 0.3− | 0.3+ | 2008 11 01 | G96 | 0.4− | 0.3− | | |
| 2003 09 21 | 691 | 0.0 | 0.7+ | 2007 08 31 | 413 | 0.4− | 0.1+ | 2008 11 21 | G96 | 0.7+ | 1.2+ | | |
| 2004 12 13 | 691 | 0.0 | 0.1− | 2007 09 01 | 413 | 0.1+ | 0.3+ | 2008 11 21 | G96 | 0.6+ | 1.1+ | | |
| 2004 12 13 | 691 | 0.4− | 0.1+ | 2007 09 01 | 413 | 0.2+ | 0.3+ | 2008 11 21 | G96 | 0.6+ | 1.3+ | | |
| 2004 12 13 | 691 | 0.2+ | 0.1− | 2007 09 01 | 413 | 0.2− | 0.3+ | 2008 11 21 | G96 | 0.7+ | 1.1+ | | |
| 2004 12 18 | 691 | 0.2− | 0.4+ | 2007 09 01 | 413 | 0.2− | 0.2+ | 2008 12 08 | G96 | 0.4− | 0.0 | | |
| 2004 12 18 | 691 | 0.2+ | 0.2+ | 2007 09 01 | 413 | 0.1+ | 0.1− | 2008 12 08 | G96 | 1.2− | 0.1− | | |
| 2004 12 18 | 691 | 0.1− | 0.2+ | 2007 09 01 | 413 | 0.2+ | 0.1− | 2008 12 08 | G96 | 0.4− | 0.0 | | |
| 2006 04 02 | 691 | 0.3+ | 0.3+ | 2007 09 01 | 413 | 0.0 | 0.1+ | 2008 12 08 | G96 | 0.2− | 0.1− | | |
| 2006 04 02 | 691 | 0.2+ | 0.0 | 2007 09 02 | 413 | 0.4− | 0.2− | | | | | | |

**2007 QS$_{15}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 170.71092 | | (2000.0) | | **P** | | **Q** | | |
| $n$ | 0.17794037 | $\omega$ | 355.17935 | | +0.74841916 | | +0.66168945 | | |
| $a$ | 3.1305434 | $\Omega$ | 323.26191 | | −0.60594865 | | +0.65454338 | | |
| $e$ | 0.1309861 | $i$ | 4.32605 | | −0.26962011 | | +0.36570485 | | |
| $P$ | 5.54 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 1 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 09 12 | 691 | 0.4− | 0.2− | 2007 08 21 | 699 | 1.2+ | 1.0+ | 2007 10 14 | G96 | 0.0 | 0.2+ | | |
| 1996 09 12 | 691 | 0.2+ | 0.1− | 2007 08 21 | 699 | 0.7− | 0.6− | 2007 10 14 | G96 | 0.6+ | 0.1− | | |
| 1996 09 12 | 691 | 0.2+ | 0.1− | 2007 08 21 | 699 | (2.3− | 1.6+) | 2007 10 14 | G96 | 0.1+ | 0.4− | | |
| 1999 02 08 | 691 | 0.2+ | 0.4− | 2007 09 10 | G96 | 0.0 | 0.3− | 2008 10 25 | 691 | 0.3− | 0.3+ | | |
| 1999 02 08 | 691 | 0.5+ | 0.1− | 2007 09 10 | G96 | 0.3+ | 0.1− | 2008 10 25 | 691 | 0.3− | 0.0 | | |
| 1999 02 08 | 691 | 0.0 | 0.1+ | 2007 09 10 | G96 | 0.4+ | 0.1− | 2008 10 25 | 691 | 0.1− | 0.1+ | | |
| 2005 03 11 | G96 | 0.5− | 0.4+ | 2007 09 10 | G96 | 0.2+ | 0.1− | 2008 12 29 | G96 | 0.3+ | 0.2− | | |
| 2005 03 11 | G96 | 0.9− | 0.3+ | 2007 09 30 | 691 | 0.2+ | 0.1+ | 2008 12 29 | G96 | 0.3+ | 0.1− | | |
| 2005 03 11 | G96 | 0.0 | 0.5+ | 2007 09 30 | 691 | 0.2− | 0.4+ | 2008 12 29 | G96 | 0.4+ | 0.1− | | |
| 2005 03 11 | G96 | 0.4− | 0.3+ | 2007 09 30 | 691 | 0.3− | 0.1− | 2008 12 29 | G96 | 0.8+ | 0.5− | | |
| 2007 08 21 | 699 | 0.0 | 0.7+ | 2007 10 14 | G96 | 0.1+ | 0.0 | | | | | | |

**2007 QW$_{15}$ = 2003 SD$_{398}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 219.86357 | | (2000.0) | | **P** | | **Q** | | |
| $n$ | 0.22956676 | $\omega$ | 190.18718 | | +0.59870496 | | +0.78841569 | | |
| $a$ | 2.6415776 | $\Omega$ | 116.73238 | | −0.72330002 | | +0.60793315 | | |
| $e$ | 0.1957154 | $i$ | 9.10011 | | −0.34407768 | | +0.09390414 | | |
| $P$ | 4.29 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 4 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 26 | 645 | 0.1+ | 0.1− | 2007 08 16 | D29 | 0.1− | 0.4− | 2007 09 18 | 699 | 0.0 | 0.3+ | | |
| 2003 09 26 | 645 | 0.1+ | 0.0 | 2007 08 16 | D29 | 0.6+ | 0.4− | 2007 09 18 | 699 | 0.4− | 0.8− | | |
| 2003 09 27 | 645 | 0.1− | 0.0 | 2007 09 04 | 703 | 1.1− | 0.3+ | 2007 10 02 | E12 | 0.2+ | 0.4+ | | |
| 2003 09 27 | 645 | 0.0 | 0.1+ | 2007 09 04 | 703 | 0.9+ | 0.4+ | 2007 10 02 | E12 | 0.2+ | 0.2+ | | |
| 2003 09 28 | 645 | 0.0 | 0.0 | 2007 09 04 | 703 | 0.7− | 0.5+ | 2007 10 02 | E12 | 0.2+ | 0.0 | | |
| 2003 09 28 | 645 | 0.1− | 0.0 | 2007 09 04 | 703 | 1.1− | 0.1+ | 2007 10 02 | E12 | 1.3+ | 0.0 | | |
| 2007 08 16 | D29 | 0.1− | 0.7− | 2007 09 18 | 699 | 0.2− | 0.0 | | | | | | |
| 2007 08 16 | D29 | 0.6+ | 0.3− | 2007 09 18 | 699 | 0.1− | 0.7+ | | | | | | |

**2007 QY$_{15}$ = 2002 CZ$_{24}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 283.92190 | | (2000.0) | | **P** | | **Q** | | |
| $n$ | 0.26354833 | $\omega$ | 139.79290 | | +0.07447256 | | +0.99542295 | | |
| $a$ | 2.4093277 | $\Omega$ | 134.38477 | | −0.93510665 | | +0.09057292 | | |
| $e$ | 0.1112867 | $i$ | 4.80727 | | −0.34645257 | | −0.03049088 | | |
| $P$ | 3.74 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 4 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 02 07 | 704 | 0.9+ | 0.4− | 2002 02 10 | 704 | 0.7+ | 1.0− | 2007 09 03 | 703 | (0.6+ | 2.3+) | | |
| 2002 02 07 | 704 | 1.4+ | 1.0− | 2002 02 10 | 704 | 0.1+ | 0.9− | 2007 09 03 | 703 | (1.9+ | 2.9+) | | |
| 2002 02 07 | 704 | 0.9− | 1.0− | 2002 02 12 | 704 | 0.3+ | 0.1− | 2007 09 12 | 703 | 0.4− | 1.0+ | | |
| 2002 02 07 | 291 | 0.5− | 0.3+ | 2002 02 12 | 704 | 0.5+ | 0.4+ | 2007 09 12 | 703 | 0.5− | 0.2− | | |
| 2002 02 07 | 291 | 0.3− | 0.4+ | 2002 02 12 | 704 | 0.0 | 1.2+ | 2007 09 12 | 703 | 0.6− | 0.7+ | | |
| 2002 02 07 | 291 | 0.3− | 0.2+ | 2002 02 12 | 704 | 0.3+ | 0.2+ | 2007 09 12 | 703 | 0.3− | 0.1+ | | |
| 2002 02 08 | 291 | 0.1+ | 0.1+ | 2002 02 13 | 644 | 0.1− | 0.4+ | 2007 09 12 | 691 | 0.3− | 0.0 | | |
| 2002 02 08 | 291 | 0.0 | 0.0 | 2002 02 13 | 644 | 0.2+ | 0.8+ | 2007 09 12 | 691 | 0.2+ | 0.2+ | | |
| 2002 02 08 | 291 | 0.1+ | 0.0 | 2002 02 13 | 644 | 0.1+ | 0.8+ | 2007 09 12 | 691 | 0.5− | 0.1− | | |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 02 09 | 291 | 0.0 | 0.0 | 2007 08 21 | 699 | 0.9− | 0.2+ | 2007 10 15 | G96 | 0.7+ | 0.4− |
| 2002 02 09 | 291 | 0.1− | 0.0 | 2007 08 21 | 699 | 0.5+ | 0.6− | 2007 10 15 | G96 | 0.7+ | 0.6− |
| 2002 02 09 | 291 | 0.2− | 0.1− | 2007 08 21 | 699 | 1.4+ | 0.5− | 2007 10 15 | G96 | 0.1+ | 0.5− |
| 2002 02 10 | 704 | 0.9+ | 0.6− | 2007 08 21 | 699 | 0.3+ | 0.7+ | 2007 10 15 | G96 | 0.1+ | 0.7− |
| 2002 02 10 | 704 | 0.5− | 0.6− | 2007 09 03 | 703 | 0.6+ | 1.1+ | | | | |
| 2002 02 10 | 704 | 0.9+ | 0.5− | 2007 09 03 | 703 | (1.3+ | 1.6+) | | | | |

**2007 QZ$_{15}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 252.04915 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27748599 | $\omega$ | 190.03596 | | +0.82308793 | +0.55597747 | |
| $a$ | 2.3279591 | $\Omega$ | 135.52902 | | −0.50891906 | +0.81259711 | |
| $e$ | 0.1824242 | $i$ | 9.51665 | | −0.25204694 | +0.17485706 | |
| $P$ | 3.55 | $H$ | 17.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 02 08 | 291 | 0.1+ | 0.2+ | 2007 09 05 | 703 | 1.1+ | 1.1+ | 2007 09 18 | 699 | 0.3+ | 0.3− |
| 2002 02 08 | 291 | 0.1+ | 0.3+ | 2007 09 05 | 703 | 0.7+ | 0.7+ | 2007 09 18 | 699 | 0.4+ | 2.1+ |
| 2002 02 08 | 291 | 0.1− | 0.0 | 2007 09 05 | 703 | 0.6− | 0.5+ | 2009 01 15 | 691 | 0.4+ | 0.2+ |
| 2003 07 07 | 691 | 0.2+ | 0.5+ | 2007 09 05 | 703 | 1.1+ | 1.3+ | 2009 01 15 | 691 | 0.8− | 0.5+ |
| 2003 07 07 | 691 | 0.2− | 0.5+ | 2007 09 12 | 703 | 0.1+ | 0.0 | 2009 01 15 | 691 | 0.8+ | 0.0 |
| 2003 07 07 | 691 | 0.2+ | 0.4+ | 2007 09 12 | 703 | 0.2+ | 0.3− | 2009 02 03 | 691 | 0.2− | 0.5+ |
| 2007 08 21 | 699 | 0.7− | 0.2− | 2007 09 12 | 703 | 0.7− | 0.4− | 2009 02 03 | 691 | 0.0 | 0.2+ |
| 2007 08 21 | 699 | 1.0+ | 0.2− | 2007 09 12 | 703 | 1.7− | 0.9+ | 2009 02 03 | 691 | 0.1− | 0.2+ |
| 2007 08 21 | 699 | 0.8+ | 0.8+ | 2007 09 18 | 699 | 2.0− | 0.6− | | | | |
| 2007 08 21 | 699 | 0.4− | 0.9− | 2007 09 18 | 699 | 1.3− | 0.5+ | | | | |

**2007 RU$_{1}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 249.15684 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.29102407 | $\omega$ | 150.85232 | | +0.70932735 | +0.70471075 | |
| $a$ | 2.2551916 | $\Omega$ | 164.31050 | | −0.65725265 | +0.66914169 | |
| $e$ | 0.1744874 | $i$ | 3.26669 | | −0.25470308 | +0.23586470 | |
| $P$ | 3.39 | $H$ | 17.6 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 02 07 | 691 | 0.0 | 0.1+ | 2007 09 01 | 413 | 0.1+ | 0.0 | 2007 10 11 | G96 | 0.1+ | 0.2− |
| 2006 02 07 | 691 | 0.2+ | 0.8− | 2007 09 01 | 413 | 0.0 | 0.1+ | 2007 10 11 | G96 | 0.3− | 0.0 |
| 2006 02 07 | 691 | 0.2− | 0.7+ | 2007 09 01 | 413 | 0.1− | 0.0 | 2007 10 11 | G96 | 0.1+ | 0.1− |
| 2007 06 19 | 691 | 0.0 | 0.1+ | 2007 09 05 | 413 | 0.0 | 0.1+ | 2007 10 11 | G96 | 0.2+ | 0.2+ |
| 2007 06 19 | 691 | 0.1+ | 0.2+ | 2007 09 05 | 413 | 0.8− | 0.0 | 2009 01 18 | G96 | 0.1+ | 0.4+ |
| 2007 06 19 | 691 | 0.0 | 0.1+ | 2007 09 06 | 413 | 0.0 | 0.2− | 2009 01 18 | G96 | 0.1− | 0.8+ |
| 2007 09 01 | 413 | 0.2− | 0.1+ | 2007 09 06 | 413 | 0.4+ | 0.1− | 2009 01 18 | G96 | 0.1− | 0.6+ |
| 2007 09 01 | 413 | 0.0 | 0.0 | 2007 09 06 | 413 | 0.0 | 0.1− | 2009 01 18 | G96 | 0.3+ | 0.3+ |

**2007 RD$_{10}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 233.32039 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28845451 | $\omega$ | 175.55530 | | +0.98846869 | −0.14667571 | |
| $a$ | 2.2685646 | $\Omega$ | 193.06124 | | +0.13329208 | +0.96071992 | |
| $e$ | 0.2130004 | $i$ | 9.58450 | | +0.07185310 | +0.23559175 | |
| $P$ | 3.42 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 05 24 | 691 | 0.0 | 0.8+ | 2007 09 14 | 704 | 0.7− | 0.0 | 2007 10 16 | A50 | 0.1− | 0.1+ |
| 2003 05 24 | 691 | 0.0 | 0.4+ | 2007 09 14 | 704 | 0.4− | 0.1+ | 2007 10 16 | A50 | 0.8+ | 0.8+ |
| 2003 05 24 | 691 | 0.1+ | 0.1+ | 2007 09 14 | 704 | 0.5− | 0.5+ | 2007 10 16 | A50 | 1.1+ | 0.8+ |
| 2006 03 24 | 691 | 0.6+ | 0.2− | 2007 09 14 | 704 | 0.5− | 0.0 | 2007 10 16 | A50 | 0.4+ | 0.5+ |
| 2006 03 24 | 691 | 0.4− | 0.1− | 2007 09 15 | H51 | 0.3− | 0.3− | 2007 10 18 | 704 | 0.1+ | 0.6+ |
| 2006 03 24 | 691 | 0.0 | 0.4+ | 2007 09 15 | H51 | 0.2− | 0.8− | 2007 10 18 | 704 | 1.0+ | 0.8+ |
| 2007 09 02 | G96 | 0.3− | 0.8− | 2007 09 15 | H51 | 0.1− | 0.5− | 2007 10 18 | 704 | 1.1+ | 1.6+ |
| 2007 09 02 | G96 | 0.3− | 1.0− | 2007 09 17 | 704 | 0.1− | 0.2+ | 2007 10 18 | 704 | 1.4+ | 0.6+ |
| 2007 09 02 | G96 | 0.3− | 1.2− | 2007 09 17 | 704 | 0.6+ | 0.2− | 2007 10 18 | 704 | 0.2− | 0.3+ |
| 2007 09 02 | G96 | 0.3− | 0.9− | 2007 09 17 | H51 | 0.8+ | 0.1+ | 2007 10 18 | 704 | 0.4+ | 0.1− |
| 2007 09 04 | 703 | 0.2+ | 0.2+ | 2007 09 17 | 704 | 0.6+ | 0.4+ | 2007 10 18 | 704 | 0.0 | 1.0+ |
| 2007 09 04 | 703 | 0.0 | 0.1− | 2007 09 17 | 704 | 0.6+ | 0.0 | 2007 10 18 | 704 | 0.6− | 0.6+ |
| 2007 09 04 | 703 | 1.0+ | 0.2− | 2007 09 17 | H51 | 0.7+ | 0.0 | 2007 10 31 | G96 | 0.8+ | 0.0 |
| 2007 09 04 | 703 | 0.7− | 0.9− | 2007 09 17 | 704 | 0.3+ | 0.3− | 2007 10 31 | 704 | 0.0 | 0.8+ |
| 2007 09 05 | 699 | 1.2− | 1.2+ | 2007 09 17 | H51 | 0.6+ | 0.2− | 2007 10 31 | G96 | 0.7+ | 0.1− |
| 2007 09 05 | 699 | 0.6− | 1.0− | 2007 10 06 | 699 | 0.7− | 0.2− | 2007 10 31 | G96 | 1.2+ | 0.1+ |
| 2007 09 05 | 699 | 0.5− | 0.6− | 2007 10 06 | 699 | 0.3− | 0.3− | 2007 10 31 | G96 | 1.2+ | 0.1+ |
| 2007 09 05 | 699 | 0.4− | 0.7− | 2007 10 06 | 699 | 0.2− | 0.4− | 2007 10 31 | 704 | 0.5− | 0.7+ |
| 2007 09 07 | 704 | 0.3− | 0.7+ | 2007 10 06 | 699 | 0.0 | 0.4+ | 2007 10 31 | 704 | 0.2− | 0.7+ |
| 2007 09 07 | 704 | 0.3− | 0.1+ | 2007 10 07 | 703 | 0.2− | 0.6− | 2007 11 05 | 704 | 1.2− | 0.4+ |
| 2007 09 07 | 704 | 0.2− | 0.2+ | 2007 10 07 | 703 | 1.2− | 1.3− | 2007 11 05 | G96 | 0.6+ | 0.1− |
| 2007 09 07 | 704 | 0.1+ | 0.5+ | 2007 10 07 | 703 | 0.9− | 0.5− | 2007 11 05 | G96 | 0.5+ | 0.1− |
| 2007 09 07 | 704 | 0.2− | 0.8+ | 2007 10 07 | 703 | 1.9− | 1.5− | 2007 11 05 | 704 | 0.3− | 0.2+ |
| 2007 09 11 | 703 | 0.7− | 0.6− | 2007 10 08 | 704 | 0.5+ | 0.2+ | 2007 11 05 | G96 | 0.2− | 0.1+ |
| 2007 09 11 | 703 | 0.7− | 0.5− | 2007 10 08 | 704 | 0.9+ | 0.0 | 2007 11 05 | G96 | 0.7+ | 0.1+ |
| 2007 09 11 | 703 | 0.1− | 0.6− | 2007 10 08 | 704 | 0.3− | 0.5− | 2007 11 05 | 704 | 0.8− | 0.7+ |
| 2007 09 11 | 703 | 0.7− | 0.9− | 2007 10 08 | 704 | 0.4+ | 0.0 | 2007 11 05 | 704 | 1.1− | 0.6+ |
| 2007 09 12 | 699 | 0.6− | 0.1− | 2007 10 08 | 704 | 0.5− | 0.1+ | 2007 11 14 | 704 | 0.7− | 0.7+ |
| 2007 09 12 | 699 | 0.2+ | 0.5− | 2007 10 11 | 704 | 0.7+ | 0.2+ | 2007 11 14 | 704 | 0.7− | 1.1+ |
| 2007 09 12 | 699 | 0.4+ | 0.5− | 2007 10 11 | 704 | 0.7+ | 0.1− | 2007 11 14 | 704 | 0.6− | 0.5+ |
| 2007 09 12 | 699 | 0.4+ | 0.0 | 2007 10 11 | 704 | 0.2+ | 0.3+ | 2007 11 14 | 704 | 0.2− | 0.3− |
| 2007 09 13 | 704 | 0.2− | 0.2+ | 2007 10 14 | 704 | 0.3+ | 0.4+ | 2007 11 14 | 704 | 0.7− | 0.3+ |
| 2007 09 13 | 704 | 0.5+ | 0.1+ | 2007 10 14 | 704 | 0.1− | 0.6+ | 2007 11 17 | G96 | 0.6+ | 0.4+ |
| 2007 09 13 | 704 | 0.4− | 0.7− | 2007 10 14 | 704 | 0.2+ | 0.7+ | 2007 11 17 | G96 | 0.5+ | 0.2+ |
| 2007 09 13 | 704 | 0.2+ | 0.2− | 2007 10 14 | 704 | 0.7+ | 0.5+ | 2007 11 17 | G96 | 0.6+ | 0.0 |
| 2007 09 14 | 704 | 0.1− | 0.1− | 2007 10 14 | 704 | 0.5+ | 0.8+ | 2007 11 17 | G96 | 1.1+ | 0.3+ |

**2007 RN$_{24}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 202.29618 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.25980990 | $\omega$ | 155.87230 | | +0.94386056 | −0.32341810 | |
| $a$ | 2.4323847 | $\Omega$ | 223.18084 | | +0.28484362 | +0.89995753 | |
| $e$ | 0.1441630 | $i$ | 5.64324 | | +0.16730616 | +0.29236479 | |
| $P$ | 3.79 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 07 23 | 644 | 0.1+ | 0.2− | 2007 09 14 | 704 | 0.6− | 0.2− | 2007 10 12 | 704 | 0.3− | 1.0+ |
| 2003 07 23 | 644 | 0.0 | 0.2− | 2007 09 14 | 704 | 0.0 | 0.0 | 2007 10 12 | 704 | 0.4+ | 1.1+ |
| 2003 07 23 | 644 | 0.1+ | 0.4− | 2007 09 14 | 704 | 0.6+ | 1.0− | 2007 10 12 | 704 | 0.1− | 0.9+ |
| 2006 04 30 | 691 | 0.1+ | 0.3+ | 2007 09 14 | 704 | 0.4− | 0.2+ | 2007 10 13 | 703 | 0.4+ | 0.4− |
| 2006 04 30 | 691 | 0.0 | 0.0 | 2007 09 20 | 691 | 0.1− | 0.2+ | 2007 10 13 | 703 | 0.6+ | 0.1+ |
| 2006 04 30 | 691 | 0.1+ | 0.3+ | 2007 09 20 | 691 | 0.1− | 0.0 | 2007 10 13 | 703 | 0.4+ | 0.4+ |
| 2007 09 04 | H55 | 0.1− | 0.0 | 2007 09 20 | 691 | 0.2− | 0.0 | 2007 10 13 | 703 | 0.5− | 0.1− |
| 2007 09 04 | H55 | 0.2+ | 0.1+ | 2007 10 07 | 703 | 0.3− | 0.4+ | 2007 10 20 | G96 | 0.5+ | 0.0 |
| 2007 09 04 | H55 | 0.4+ | 0.2+ | 2007 10 07 | 703 | 0.4− | 1.4+ | 2007 10 20 | G96 | 0.3+ | 0.1− |
| 2007 09 04 | H55 | 0.1+ | 0.1+ | 2007 10 07 | 703 | (2.1− | 0.6+) | 2007 10 20 | G96 | 0.9+ | 0.3− |
| 2007 09 09 | 691 | 0.1− | 0.2− | 2007 10 07 | 703 | 1.0− | 0.2+ | 2007 10 20 | G96 | 0.3− | 0.2− |
| 2007 09 09 | 691 | 0.2+ | 0.3− | 2007 10 09 | 704 | 0.8− | 0.9+ | 2007 11 12 | G96 | 0.1− | 0.3− |
| 2007 09 09 | 691 | 0.2+ | 0.3− | 2007 10 09 | 704 | 0.5+ | 0.8+ | 2007 11 12 | G96 | 0.3− | 0.6− |
| 2007 09 13 | 691 | 0.1+ | 0.1− | 2007 10 09 | 704 | 0.5+ | 0.6+ | 2007 11 12 | G96 | 0.5− | 0.5− |
| 2007 09 13 | 691 | 0.0 | 0.3− | 2007 10 09 | 704 | 0.6+ | 0.4− | 2007 11 12 | G96 | 0.3+ | 0.0 |
| 2007 09 13 | 691 | 0.4− | 0.1− | 2007 10 12 | 704 | 0.2− | 1.1+ | | | | |
| 2007 09 14 | 704 | 0.6+ | 0.0 | 2007 10 12 | 704 | 0.4+ | 1.1+ | | | | |

**2007 RD$_{53}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 13.23434 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.29780331 | $\omega$ | 1.29636 | | −0.63726235 | +0.76693518 | |
| $a$ | 2.2208354 | $\Omega$ | 229.12202 | | −0.70795084 | −0.62132779 | |
| $e$ | 0.1315060 | $i$ | 5.73422 | | −0.30447052 | −0.16050613 | |
| $P$ | 3.31 | $H$ | 17.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 18 | 695 | 0.2− | 0.2− | 2007 09 09 | 691 | 0.1− | 0.2− | 2007 09 19 | 691 | 0.3− | 0.0 |
| 2004 10 18 | 695 | 0.2+ | 0.1− | 2007 09 09 | 691 | 0.2− | 0.2+ | 2007 11 11 | G96 | 0.0 | 0.0 |
| 2006 03 04 | 703 | 0.2+ | 0.4+ | 2007 09 13 | 691 | 0.1− | 0.3− | 2007 11 11 | G96 | 0.2+ | 0.0 |
| 2006 03 04 | 703 | 0.1− | 0.1+ | 2007 09 13 | 691 | 0.2+ | 0.0 | 2007 11 11 | G96 | 0.3− | 0.6+ |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 03 04 | 703 | 0.8− | 1.1− | 2007 09 13 | 691 | 0.1− | 0.4+ | 2007 11 11 | G96 | 0.4+ | 0.0 |
| 2006 03 04 | 703 | 0.7+ | 0.6+ | 2007 09 19 | 691 | 0.4+ | 0.1− | | | | |
| 2007 09 09 | 691 | 0.0 | 0.3− | 2007 09 19 | 691 | 0.1− | 0.1+ | | | | |

**2007 RX$_{54}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 134.45145 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17901812 | $\omega$ | 100.59152 | | +0.89942540 | −0.43068107 | |
| $a$ | 3.1179662 | $\Omega$ | 284.95283 | | +0.36479081 | +0.83356596 | |
| $e$ | 0.1499163 | $i$ | 4.42154 | | +0.24075219 | +0.34595030 | |
| $P$ | 5.51 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 09 09 | 691 | 0.0 | 0.0 | 2007 09 19 | 691 | 0.2− | 0.3− | 2008 12 21 | G96 | 0.9+ | 0.5+ |
| 2007 09 09 | 691 | 0.0 | 0.1− | 2007 09 19 | 691 | 0.5− | 0.4− | 2008 12 21 | G96 | 0.6+ | 0.6+ |
| 2007 09 09 | 691 | 0.1− | 0.2− | 2007 09 19 | 691 | 0.3− | 0.4− | 2009 01 07 | 691 | 0.2+ | 0.1+ |
| 2007 09 13 | 703 | 0.4+ | 0.2− | 2007 10 12 | 704 | 0.6+ | 0.6+ | 2009 01 07 | 691 | 0.2− | 0.0 |
| 2007 09 13 | 703 | 1.0− | 0.8+ | 2007 10 12 | 704 | 0.1+ | 1.0− | 2009 01 07 | 691 | 0.6− | 0.1− |
| 2007 09 13 | 703 | 0.5+ | 0.2+ | 2007 10 12 | 704 | 0.4− | 0.6+ | 2009 01 16 | G96 | 0.3+ | 0.1+ |
| 2007 09 13 | 703 | 1.4+ | 0.5+ | 2007 10 12 | 704 | 0.3+ | 0.7+ | 2009 01 16 | G96 | 0.7+ | 0.3− |
| 2007 09 13 | 691 | 0.1− | 0.1− | 2007 10 12 | 704 | 0.3− | 0.2+ | 2009 01 16 | G96 | 0.7+ | 0.0 |
| 2007 09 13 | 691 | 0.1+ | 0.1− | 2007 10 13 | 703 | 0.9+ | 1.1+ | 2009 01 16 | G96 | 0.2+ | 0.1− |
| 2007 09 13 | 691 | 0.2+ | 0.2− | 2007 10 13 | 703 | 1.3+ | 0.0 | 2009 02 20 | G96 | 0.9− | 0.7− |
| 2007 09 14 | 704 | 1.0+ | 0.5+ | 2007 10 13 | 703 | 0.1+ | 0.6+ | 2009 02 20 | G96 | 0.1− | 0.3− |
| 2007 09 14 | 704 | 1.3− | 1.1+ | 2007 10 13 | 703 | 0.7− | 0.1+ | 2009 02 20 | G96 | 0.2− | 0.0 |
| 2007 09 14 | 704 | 0.4+ | 0.2+ | 2008 12 21 | G96 | 0.4+ | 0.1− | 2009 02 20 | G96 | 0.4− | 0.2− |
| 2007 09 14 | 704 | 0.5+ | 0.8+ | 2008 12 21 | G96 | 0.1+ | 0.0 | | | | |

**2007 RA$_{69}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 214.72403 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26194869 | $\omega$ | 274.96048 | | +0.99791938 | −0.05152508 | |
| $a$ | 2.4191264 | $\Omega$ | 87.99672 | | +0.06272520 | +0.91492434 | |
| $e$ | 0.2230588 | $i$ | 2.22251 | | −0.01491531 | +0.40032313 | |
| $P$ | 3.76 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 04 09 | 807 | 0.1+ | 0.6+ | 2007 09 14 | 691 | 0.2− | 0.0 | 2007 10 07 | 704 | 0.7− | 0.4+ |
| 2002 04 09 | 807 | 0.4+ | 0.6+ | 2007 09 14 | 699 | 0.6+ | 0.3+ | 2007 10 07 | 704 | 0.8− | 0.5+ |
| 2005 01 19 | 691 | 0.0 | 0.3+ | 2007 09 14 | 691 | 0.0 | 0.0 | 2007 10 07 | 704 | 1.1− | 0.3− |
| 2005 01 19 | 691 | 0.2+ | 0.3+ | 2007 09 14 | 699 | 0.2− | 0.1+ | 2007 10 07 | 704 | 0.3− | 0.4+ |
| 2005 01 19 | 691 | 0.0 | 0.1+ | 2007 09 14 | 699 | 0.7− | 0.6+ | 2007 10 13 | 704 | 0.4+ | 0.1− |
| 2007 08 21 | 699 | 0.2− | 0.0 | 2007 09 14 | 699 | 0.3− | 0.4− | 2007 10 13 | 704 | 0.5+ | 1.3+ |
| 2007 08 21 | 699 | 0.3− | 0.3+ | 2007 09 15 | 704 | 1.4+ | 0.1− | 2007 10 13 | 704 | 0.3+ | 0.2+ |
| 2007 08 21 | 699 | 0.1+ | 0.4+ | 2007 09 15 | 704 | 0.2+ | 0.5− | 2007 10 13 | 704 | 0.2− | 1.2− |
| 2007 08 21 | 699 | 1.1+ | 0.2+ | 2007 09 15 | 704 | 0.8+ | 0.4+ | 2007 10 16 | G96 | 0.3+ | 0.1+ |
| 2007 09 03 | 703 | 0.8− | 0.3− | 2007 09 15 | 704 | 0.7+ | 0.9+ | 2007 10 16 | G96 | 0.4+ | 0.2+ |
| 2007 09 03 | 703 | 0.1+ | 0.3+ | 2007 09 15 | 704 | 0.3+ | 0.7+ | 2007 10 16 | G96 | 0.5+ | 0.2+ |
| 2007 09 03 | 703 | 0.6− | 0.0 | 2007 09 16 | 704 | 0.0 | 0.3+ | 2007 10 16 | G96 | 1.7− | 0.5+ |
| 2007 09 03 | 703 | 0.7− | 0.2+ | 2007 09 16 | 704 | 0.5− | 0.5− | 2007 11 03 | G96 | 0.4+ | 0.5− |
| 2007 09 10 | 691 | 0.2− | 0.4+ | 2007 09 16 | 704 | 1.4+ | 0.4− | 2007 11 03 | G96 | 0.2+ | 0.4− |
| 2007 09 10 | 691 | 0.1− | 0.0 | 2007 09 16 | 704 | 0.5− | 0.0 | 2007 11 03 | G96 | 0.2+ | 0.3− |
| 2007 09 10 | 691 | 0.2− | 0.1− | 2007 09 16 | 704 | 0.2− | 0.6− | 2007 11 03 | G96 | 0.1+ | 0.4− |
| 2007 09 12 | 699 | 1.0+ | 0.3+ | 2007 09 18 | 704 | (2.3+ | 0.4+) | 2007 11 17 | G96 | 1.6+ | 1.9− |
| 2007 09 12 | 699 | 0.3+ | 0.3+ | 2007 09 18 | 704 | (2.1+ | 0.4+) | 2007 11 17 | G96 | 0.4+ | 0.7− |
| 2007 09 12 | 699 | 0.0 | 0.1+ | 2007 09 18 | 704 | (2.2+ | 0.8+) | 2007 11 17 | G96 | 0.2+ | 0.3− |
| 2007 09 14 | 691 | 0.4− | 0.1− | 2007 10 07 | 704 | 0.3− | 0.8+ | 2007 11 17 | G96 | 0.6+ | 0.3− |

**2007 RF$_{77}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 183.87532 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17626628 | $\omega$ | 126.41540 | | +0.40466226 | +0.91363559 | |
| $a$ | 3.1503337 | $\Omega$ | 167.27945 | | −0.88541793 | +0.40210704 | |
| $e$ | 0.2118683 | $i$ | 10.19314 | | −0.22865596 | +0.05983250 | |
| $P$ | 5.59 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 02 14 | 691 | 0.6+ | 0.3+ | 2006 06 01 | 691 | 0.3+ | 0.0 | 2007 09 30 | 691 | 0.9− | 0.0 |
| 2005 02 14 | 691 | 0.1+ | 0.3+ | 2006 06 01 | 691 | 0.3− | 0.4+ | 2007 09 30 | 691 | 0.1− | 0.0 |
| 2005 02 14 | 691 | 0.1− | 0.2+ | 2007 09 10 | G96 | 0.6+ | 0.1− | 2007 10 15 | 691 | 0.1− | 0.6+ |
| 2005 03 13 | G96 | 0.7− | 0.1+ | 2007 09 10 | G96 | 0.1+ | 0.0 | 2007 10 15 | 691 | 0.1− | 0.1− |
| 2005 03 13 | G96 | 0.7− | 0.5+ | 2007 09 10 | G96 | 0.2+ | 0.0 | 2007 10 15 | 691 | 0.3+ | 0.3− |
| 2005 03 13 | G96 | 0.2− | 0.2− | 2007 09 10 | G96 | 0.4+ | 0.1− | 2007 10 19 | 691 | 0.2+ | 0.1− |
| 2005 03 13 | G96 | 0.3− | 0.2+ | 2007 09 11 | 691 | 0.0 | 0.1+ | 2007 10 19 | 691 | 0.1− | 0.1+ |
| 2006 05 24 | 691 | 0.2− | 0.0 | 2007 09 11 | 691 | 0.0 | 0.3+ | 2007 10 19 | 691 | 0.1+ | 0.1− |
| 2006 05 24 | 691 | 0.0 | 0.0 | 2007 09 11 | 691 | 0.1+ | 0.2+ | 2007 10 19 | G96 | 0.4+ | 0.2− |
| 2006 05 24 | 691 | 0.1− | 0.1− | 2007 09 13 | 704 | 0.7+ | 0.4+ | 2007 10 19 | G96 | 0.4+ | 0.6− |
| 2006 06 01 | 691 | 0.1+ | 0.4− | 2007 09 13 | 704 | 0.1− | 0.3+ | 2007 10 19 | G96 | 0.2+ | 0.3− |
| 2006 06 01 | 691 | 0.2+ | 0.0 | 2007 09 13 | 704 | 1.0+ | 0.0 | 2007 10 19 | G96 | 0.7+ | 0.2− |
| 2006 06 01 | 691 | 0.0 | 0.3+ | 2007 09 13 | 704 | 0.2− | 0.4− | | | | |
| 2006 06 01 | 691 | 0.1+ | 0.1+ | 2007 09 30 | 691 | 0.5− | 0.4+ | | | | |

**2007 RD$_{80}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 85.72326 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21807649 | $\omega$ | 109.41602 | | −0.02047463 | −0.99914750 | |
| $a$ | 2.7335697 | $\Omega$ | 341.64652 | | +0.86927458 | −0.00007756 | |
| $e$ | 0.0524711 | $i$ | 6.53708 | | +0.49390534 | −0.04128272 | |
| $P$ | 4.52 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 03 | 691 | 0.2+ | 0.3− | 2007 09 10 | G96 | 0.2− | 0.2+ | 2007 10 04 | G96 | 0.2+ | 0.2+ |
| 2003 10 03 | 691 | 0.3+ | 0.1+ | 2007 09 11 | 691 | 0.1− | 0.0 | 2007 10 04 | G96 | 0.4+ | 0.1+ |
| 2003 10 03 | 691 | 0.1+ | 0.1− | 2007 09 11 | 691 | 0.3− | 0.1+ | 2007 10 04 | G96 | 0.7+ | 0.2− |
| 2003 10 23 | 691 | 0.0 | 0.0 | 2007 09 11 | 691 | 0.2− | 0.0 | 2007 10 11 | G96 | 0.2+ | 0.1− |
| 2003 10 23 | 691 | 0.0 | 0.3− | 2007 09 14 | 699 | 0.3− | 0.5− | 2007 10 11 | G96 | 0.1− | 0.0 |
| 2003 10 23 | 691 | 0.0 | 0.2+ | 2007 09 14 | 699 | 0.6− | 0.4− | 2007 10 11 | G96 | 0.3+ | 0.1− |
| 2003 11 24 | 691 | 0.2− | 0.1+ | 2007 09 14 | 699 | 1.0+ | 1.0− | 2007 10 11 | G96 | 0.3+ | 0.2− |
| 2003 11 24 | 691 | 0.1− | 0.1+ | 2007 09 14 | 699 | 0.7− | 0.3+ | 2007 11 07 | G96 | 0.4+ | 0.2− |
| 2003 11 24 | 691 | 0.3− | 0.2+ | 2007 09 19 | 691 | 0.1+ | 0.3+ | 2007 11 07 | G96 | 0.0 | 0.1− |
| 2007 09 10 | G96 | 0.2+ | 0.2+ | 2007 09 19 | 691 | 0.3− | 0.1+ | 2007 11 07 | G96 | 0.3− | 0.1+ |
| 2007 09 10 | G96 | 0.6+ | 0.1− | 2007 09 19 | 691 | 0.0 | 0.0 | 2007 11 07 | G96 | 0.3+ | 0.3− |
| 2007 09 10 | G96 | 0.5+ | 0.2+ | 2007 10 04 | G96 | 0.4+ | 0.1− | | | | |

**2007 RB$_{84}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 91.78747 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.12458129 | $\omega$ | 259.39252 | | +0.88067379 | −0.47058579 | |
| $a$ | 3.9703992 | $\Omega$ | 128.65711 | | +0.45731546 | +0.81456241 | |
| $e$ | 0.2800659 | $i$ | 3.99691 | | +0.12359713 | +0.33917119 | |
| $P$ | 7.91 | $H$ | 14.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 09 08 | 699 | 0.8+ | 0.4− | 2007 09 15 | 704 | 0.5+ | 1.0+ | 2007 10 07 | 699 | 0.4+ | 0.1− |
| 2007 09 08 | 699 | 0.6+ | 0.2− | 2007 09 15 | 704 | 0.3+ | 0.3− | 2007 10 13 | 704 | 0.1+ | 0.9+ |
| 2007 09 08 | 699 | 0.4+ | 0.5− | 2007 09 15 | 704 | 0.3+ | 1.3− | 2007 10 13 | 704 | 0.3+ | 0.9+ |
| 2007 09 08 | 699 | 0.4+ | 0.1+ | 2007 09 15 | 704 | 1.5+ | 0.5− | 2007 10 13 | 704 | 0.0 | 0.3+ |
| 2007 09 10 | 691 | 0.1− | 0.1− | 2007 09 17 | D29 | 0.9+ | 0.2− | 2007 10 13 | 704 | 0.1+ | 0.8+ |
| 2007 09 10 | 691 | 0.0 | 0.2+ | 2007 09 17 | D29 | 0.1− | 0.4− | 2007 10 13 | 704 | 0.3+ | 0.6+ |
| 2007 09 10 | 691 | 0.1+ | 0.0 | 2007 09 17 | D29 | 0.1− | 0.7− | 2007 10 17 | 699 | 0.1+ | 0.5− |
| 2007 09 12 | 703 | 0.9− | 0.7− | 2007 09 17 | D29 | 0.3− | 0.1+ | 2007 10 17 | 699 | 0.4+ | 0.0 |
| 2007 09 12 | 703 | 0.8− | 0.8+ | 2007 09 18 | 704 | 0.3+ | 0.8+ | 2007 10 17 | 699 | 0.2− | 0.6− |
| 2007 09 12 | 703 | 0.7− | 1.3+ | 2007 09 18 | 704 | 0.7− | 1.2+ | 2007 10 17 | 699 | 0.4+ | 0.2+ |
| 2007 09 12 | 703 | 0.6− | 1.5+ | 2007 09 18 | 704 | (0.4+ | 2.1−) | 2007 10 18 | 704 | 0.5+ | 0.4− |
| 2007 09 13 | 699 | 0.3+ | 0.0 | 2007 10 04 | 703 | 1.7− | 0.3+ | 2007 10 18 | 704 | 0.4− | 0.4+ |
| 2007 09 13 | 699 | 0.2+ | 0.6− | 2007 10 04 | 703 | 1.1− | 0.7− | 2007 10 18 | 704 | 0.4− | 0.1− |
| 2007 09 13 | 699 | 0.1+ | 0.1+ | 2007 10 04 | 703 | 0.5− | 0.8− | 2007 10 20 | G96 | 0.0 | 0.4− |
| 2007 09 13 | 699 | 0.1− | 0.7− | 2007 10 04 | 703 | 1.5− | 0.7− | 2007 10 20 | G96 | 0.3− | 0.4− |
| 2007 09 14 | 699 | 0.5− | 0.3− | 2007 10 07 | 704 | 0.4+ | 0.8+ | 2007 10 20 | G96 | 0.6+ | 0.3− |
| 2007 09 14 | 699 | 0.2− | 0.2− | 2007 10 07 | 704 | 0.5+ | 0.2+ | 2007 10 20 | G96 | 0.3+ | 0.5− |
| 2007 09 14 | 699 | 0.5− | 0.2− | 2007 10 07 | 704 | 0.2+ | 0.5+ | 2008 11 23 | 691 | 0.0 | 0.1+ |
| 2007 09 14 | 699 | 0.8− | 0.6+ | 2007 10 07 | 704 | 0.2− | 0.2+ | 2008 11 23 | 691 | 0.1− | 0.2+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 09 15 | 704 | 0.5− | 0.1− | 2007 10 07 | 704 | 0.3+ | 0.3+ | 2008 11 23 | 691 | 0.1+ | 0.1− |
| 2007 09 15 | 704 | 0.8+ | 0.9− | 2007 10 07 | 699 | 0.6+ | 0.1+ | 2009 01 17 | 691 | 0.1− | 0.2− |
| 2007 09 15 | 704 | 0.3+ | 0.1− | 2007 10 07 | 699 | 1.0− | 0.3− | 2009 01 17 | 691 | 0.2+ | 0.1− |
| 2007 09 15 | 704 | 0.8+ | 0.7+ | 2007 10 07 | 699 | 0.4+ | 0.6− | 2009 01 17 | 691 | 0.1− | 0.0 |

**2007 RP$_{95}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 313.33517 | | (2000.0) | | −0.60685386 | +0.79360155 |
| $n$ | 0.20996615 | $\omega$ | 88.69312 | | −0.75559351 | −0.55890300 |
| $a$ | 2.8035170 | $\Omega$ | 143.82674 | | −0.24659043 | −0.24046624 |
| $e$ | 0.0434647 | $i$ | 4.26301 | | | |
| $P$ | 4.69 | $H$ | 16.8 | $G$ 0.15 | $U$ 1 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 02 03 | 691 | 0.1− | 0.2+ | 2007 09 11 | 691 | 0.0 | 0.2− | 2007 11 20 | 705 | 0.5+ | 0.1− |
| 2000 02 03 | 691 | 0.1+ | 0.0 | 2007 09 11 | 691 | 0.1+ | 0.0 | 2007 11 20 | 705 | 0.2+ | 0.1− |
| 2000 02 03 | 691 | 0.1+ | 0.2+ | 2007 09 18 | 691 | 0.3− | 0.5− | 2007 11 20 | 705 | 0.1+ | 0.3− |
| 2005 03 16 | G96 | 0.2− | 0.0 | 2007 09 18 | 691 | 0.1− | 0.1− | 2009 01 01 | 691 | 0.0 | 0.7+ |
| 2005 03 16 | G96 | 0.0 | 0.1− | 2007 09 18 | 691 | 0.3+ | 0.2− | 2009 01 01 | 691 | 0.2+ | 1.2− |
| 2005 03 16 | G96 | 0.1+ | 0.5+ | 2007 10 13 | G96 | 0.9+ | 0.1+ | 2009 01 01 | 691 | 0.3− | 0.3− |
| 2005 03 16 | G96 | 0.1+ | 0.0 | 2007 10 13 | G96 | 0.4+ | 0.1− | 2009 01 20 | 691 | 0.0 | 0.2+ |
| 2007 09 10 | 691 | 0.2− | 0.3− | 2007 10 13 | G96 | 1.3+ | 1.4+ | 2009 01 20 | 691 | 0.0 | 0.2+ |
| 2007 09 10 | 691 | 0.5− | 0.3+ | 2007 10 13 | G96 | 0.3+ | 0.1+ | 2009 01 20 | 691 | 0.0 | 0.3+ |
| 2007 09 10 | 691 | 0.3− | 0.5+ | 2007 10 29 | 705 | 0.5+ | 0.2− | | | | |
| 2007 09 11 | 691 | 0.3− | 0.5+ | 2007 10 29 | 705 | 0.4+ | 0.2− | | | | |

**2007 RL$_{103}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 251.67608 | | (2000.0) | | +0.81933946 | +0.57330825 |
| $n$ | 0.27000948 | $\omega$ | 326.04334 | | −0.51686112 | +0.73813532 |
| $a$ | 2.3707370 | $\Omega$ | 358.97461 | | −0.24806739 | +0.35563170 |
| $e$ | 0.2119501 | $i$ | 2.25746 | | | |
| $P$ | 3.65 | $H$ | 17.2 | $G$ 0.15 | $U$ 4 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 09 11 | 703 | 0.3+ | 0.3− | 2007 10 06 | 704 | 0.1− | 0.3− | 2007 10 19 | 704 | 0.4+ | 1.2+ |
| 2007 09 11 | 703 | 0.2− | 0.3− | 2007 10 06 | 704 | 0.6+ | 0.3+ | 2007 10 19 | 704 | 1.7− | 1.0+ |
| 2007 09 11 | 703 | 0.5− | 0.4− | 2007 10 08 | 704 | 0.2− | 0.0 | 2007 10 19 | 704 | 0.0 | 0.8+ |
| 2007 09 11 | 703 | 1.2+ | 0.3− | 2007 10 08 | 704 | 0.3+ | 0.0 | 2007 11 01 | G96 | 0.1− | 0.2− |
| 2007 09 13 | 699 | (0.6+ | 2.4−) | 2007 10 08 | 704 | 0.9− | 0.3+ | 2007 11 01 | G96 | 0.3+ | 0.3− |
| 2007 09 13 | 699 | 1.7+ | 0.1− | 2007 10 08 | 704 | 0.1− | 0.1− | 2007 11 01 | G96 | 0.2+ | 0.4− |
| 2007 09 13 | 699 | 0.6− | 0.8+ | 2007 10 09 | G96 | 0.1+ | 0.2− | 2007 11 01 | G96 | 0.1− | 0.2− |
| 2007 09 13 | 699 | 0.4+ | 0.2+ | 2007 10 09 | G96 | 0.1− | 0.3− | 2007 11 18 | G96 | 0.3+ | 0.1− |
| 2007 09 19 | 704 | 0.9+ | 0.7+ | 2007 10 09 | G96 | 0.2− | 0.2− | 2007 11 18 | G96 | 0.2− | 0.3− |
| 2007 09 19 | 704 | 0.1− | 0.2+ | 2007 10 09 | G96 | 0.3+ | 0.3− | 2007 11 18 | G96 | 0.0 | 0.2− |
| 2007 09 19 | 704 | 1.3− | 0.4+ | 2007 10 11 | 704 | 0.9+ | 0.0 | 2007 11 18 | G96 | 0.0 | 0.4− |
| 2007 09 21 | 704 | 1.2− | 0.5− | 2007 10 11 | 704 | 0.5+ | 0.3+ | 2009 01 02 | G96 | 0.3+ | 0.2+ |
| 2007 09 21 | 704 | 0.9− | 0.0 | 2007 10 11 | 704 | 0.5− | 0.2+ | 2009 01 02 | G96 | 0.3+ | 0.3− |
| 2007 09 21 | 704 | 0.5− | 0.3+ | 2007 10 14 | 704 | 1.2+ | 0.3− | 2009 01 02 | G96 | 0.8+ | 0.1− |
| 2007 09 21 | 704 | 1.7− | 0.5+ | 2007 10 14 | 704 | 0.8+ | 0.0 | 2009 01 02 | G96 | 0.7+ | 0.2− |
| 2007 09 21 | 704 | 0.9− | 0.3− | 2007 10 14 | 704 | 0.7+ | 0.2− | 2009 02 04 | 691 | 0.2+ | 0.5− |
| 2007 10 06 | 704 | 0.1+ | 0.5− | 2007 10 14 | 704 | 0.8+ | 0.7− | 2009 02 04 | 691 | 0.6− | 0.7+ |
| 2007 10 06 | 704 | 0.2− | 0.4− | 2007 10 14 | 704 | 0.8+ | 0.2− | 2009 02 04 | 691 | 0.1− | 0.1− |
| 2007 10 06 | 704 | 0.5− | 0.1+ | 2007 10 19 | 704 | 0.0 | 0.4+ | | | | |

**2007 RV$_{123}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 101.97243 | | (2000.0) | | +0.30062963 | −0.94820516 |
| $n$ | 0.17856203 | $\omega$ | 231.23163 | | +0.93786751 | +0.31345724 |
| $a$ | 3.1232732 | $\Omega$ | 201.94447 | | +0.17328116 | −0.05149313 |
| $e$ | 0.1919328 | $i$ | 15.93655 | | | |
| $P$ | 5.52 | $H$ | 15.7 | $G$ 0.15 | $U$ 1 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 10 15 | 645 | 0.1+ | 0.0 | 2007 09 22 | 704 | 1.2+ | 1.1+ | 2007 10 14 | G96 | 0.5+ | 0.4− |
| 2001 10 15 | 645 | 0.1− | 0.0 | 2007 09 22 | 704 | 1.0+ | 0.2+ | 2007 10 14 | G96 | 0.0 | 0.6− |
| 2004 03 28 | 691 | 0.2− | 0.2+ | 2007 09 22 | 704 | 0.2+ | 0.7+ | 2007 10 14 | G96 | 0.0 | 0.4− |
| 2004 03 28 | 691 | 0.1+ | 0.2+ | 2007 09 22 | 704 | 1.0+ | 1.5+ | 2007 10 15 | 704 | 0.0 | 0.2+ |
| 2004 03 28 | 691 | 0.2+ | 0.2+ | 2007 09 22 | 704 | 0.2+ | 0.2− | 2007 10 15 | 704 | 1.7+ | 0.9− |
| 2007 09 12 | 703 | 0.8+ | 0.1− | 2007 10 07 | 703 | 0.1+ | 0.8+ | 2007 10 15 | 704 | 0.6− | 1.7+ |
| 2007 09 12 | 703 | 0.6+ | 0.6+ | 2007 10 07 | 703 | 0.3+ | 0.3− | 2007 10 15 | 704 | 0.4− | 0.0 |
| 2007 09 12 | 703 | 0.8+ | 0.6+ | 2007 10 07 | 703 | 0.0 | 0.8+ | 2007 11 01 | G96 | 0.2+ | 0.2− |
| 2007 09 12 | 703 | 0.4− | 0.3+ | 2007 10 07 | 703 | 0.8+ | 0.0 | 2007 11 01 | G96 | 0.2+ | 0.6− |
| 2007 09 13 | 691 | 0.2− | 0.1− | 2007 10 09 | 699 | 0.6− | 0.0 | 2007 11 01 | G96 | 0.1+ | 0.2− |
| 2007 09 13 | 691 | 0.0 | 0.2− | 2007 10 09 | 699 | 0.1− | 1.2− | 2007 11 01 | G96 | 0.1+ | 0.1− |
| 2007 09 13 | 691 | 0.2− | 0.2− | 2007 10 09 | 699 | 0.3− | 0.1− | 2007 11 09 | G96 | 0.1− | 0.5− |
| 2007 09 14 | 704 | 1.1+ | 1.0+ | 2007 10 09 | 699 | 0.7− | 0.2− | 2007 11 09 | G96 | 0.3− | 0.2− |
| 2007 09 14 | 704 | 0.5+ | 0.9+ | 2007 10 12 | 704 | 0.5+ | 0.1+ | 2007 11 09 | G96 | 0.4− | 0.3− |
| 2007 09 14 | 704 | 0.8+ | 0.2− | 2007 10 12 | 704 | 0.1− | 0.1+ | 2007 11 09 | G96 | 0.5− | 0.5− |
| 2007 09 14 | 704 | 0.5− | 0.9+ | 2007 10 12 | 704 | 0.1+ | 0.7− | 2007 12 05 | 704 | 0.7− | 0.3+ |
| 2007 09 19 | 691 | 0.6− | 0.4− | 2007 10 12 | 704 | 0.2− | 0.2− | 2007 12 05 | 704 | 0.3+ | 0.8+ |
| 2007 09 19 | 691 | 0.6− | 0.1− | 2007 10 12 | 704 | 0.1− | 0.4+ | 2007 12 05 | 704 | 0.0 | 1.0+ |
| 2007 09 19 | 691 | 0.2− | 0.2− | 2007 10 14 | G96 | 0.0 | 0.4− | 2007 12 05 | 704 | 0.2− | 1.2+ |

**2007 RZ$_{139}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 235.28386 | | (2000.0) | | +0.91479978 | +0.40386559 |
| $n$ | 0.26624918 | $\omega$ | 82.60267 | | −0.37293299 | +0.83901801 |
| $a$ | 2.3930064 | $\Omega$ | 253.57712 | | −0.15512044 | +0.36461126 |
| $e$ | 0.1998097 | $i$ | 0.34805 | | | |
| $P$ | 3.70 | $H$ | 17.3 | $G$ 0.15 | $U$ 2 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 12 03 | 691 | 0.1− | 0.1− | 2007 09 16 | 704 | 1.3− | 0.4+ | 2007 10 06 | 699 | 0.2+ | 0.4− |
| 2000 12 03 | 691 | 0.0 | 0.2− | 2007 09 16 | 704 | 0.0 | 0.2− | 2007 10 07 | G96 | 0.3− | 0.0 |
| 2000 12 03 | 691 | 0.1+ | 0.1− | 2007 09 16 | 704 | 0.3+ | 0.6+ | 2007 10 07 | G96 | 0.1− | 0.0 |
| 2002 03 10 | 691 | 0.1+ | 0.6+ | 2007 09 19 | 704 | 0.3− | 0.2+ | 2007 10 07 | G96 | 0.0 | 0.0 |
| 2002 03 10 | 691 | 0.5+ | 0.9+ | 2007 09 19 | 704 | 0.2+ | 0.8+ | 2007 10 07 | G96 | 0.3− | 0.3− |
| 2002 03 10 | 691 | 0.2+ | 0.4+ | 2007 09 19 | 704 | 0.6− | 0.3+ | 2007 10 30 | G96 | 0.1− | 0.2− |
| 2007 07 18 | G96 | 0.2− | 0.4− | 2007 09 19 | 704 | 0.3− | 0.1+ | 2007 10 30 | G96 | 0.2+ | 0.1− |
| 2007 07 18 | G96 | 0.3+ | 0.6− | 2007 09 19 | 704 | 0.2− | 0.5+ | 2007 10 30 | G96 | 0.1− | 0.3− |
| 2007 07 18 | G96 | 0.2− | 0.5− | 2007 09 30 | 691 | 0.5− | 0.0 | 2007 10 30 | G96 | 0.2+ | 0.0 |
| 2007 07 18 | G96 | 0.3+ | 0.3− | 2007 09 30 | 691 | 0.5− | 0.0 | 2007 11 09 | G96 | 0.6− | 0.1− |
| 2007 09 12 | G96 | 0.1− | 0.2+ | 2007 09 30 | 691 | 0.3− | 0.2+ | 2007 11 09 | G96 | 0.3+ | 0.2− |
| 2007 09 12 | G96 | 0.3+ | 0.0 | 2007 10 06 | 704 | 0.8+ | 1.5+ | 2007 11 09 | G96 | 0.2+ | 0.2+ |
| 2007 09 12 | G96 | 0.3+ | 0.1+ | 2007 10 06 | 704 | 0.7+ | 0.8+ | 2007 11 09 | G96 | 0.5− | 0.2− |
| 2007 09 12 | G96 | 0.1+ | 0.4+ | 2007 10 06 | 704 | 0.5+ | 0.1+ | 2007 11 17 | G96 | 0.2+ | 0.4− |
| 2007 09 13 | 704 | 0.5+ | 0.2− | 2007 10 06 | 704 | 0.9+ | 0.6+ | 2007 11 17 | G96 | 0.2− | 0.6− |
| 2007 09 13 | 704 | 0.1+ | 0.8+ | 2007 10 06 | 704 | 0.1− | 0.5+ | 2007 11 17 | G96 | 0.1− | 0.2− |
| 2007 09 13 | 704 | 0.3+ | 0.0 | 2007 10 06 | 699 | 1.3+ | 0.7+ | 2007 11 17 | G96 | 0.0 | 0.3− |
| 2007 09 16 | 704 | 0.6− | 0.3+ | 2007 10 06 | 699 | 0.0 | 0.6+ | | | | |
| 2007 09 16 | 704 | 0.4+ | 0.2− | 2007 10 06 | 699 | 0.4+ | 0.0 | | | | |

**2007 RZ$_{148}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 144.74319 | | (2000.0) | | +0.76699899 | −0.63862308 |
| $n$ | 0.21255848 | $\omega$ | 197.54328 | | +0.60647357 | +0.75320693 |
| $a$ | 2.7806762 | $\Omega$ | 202.50844 | | +0.20952890 | +0.15760674 |
| $e$ | 0.1747128 | $i$ | 9.35600 | | | |
| $P$ | 4.64 | $H$ | 16.6 | $G$ 0.15 | $U$ 2 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 04 | 644 | 0.2− | 0.3− | 2007 09 14 | 699 | 0.3− | 0.6− | 2007 11 12 | G96 | 0.5+ | 0.2+ |
| 2002 08 04 | 644 | 0.3− | 0.3+ | 2007 09 14 | 699 | 1.7− | 0.3− | 2007 11 12 | G96 | 0.3− | 0.1+ |
| 2002 08 04 | 644 | 0.4+ | 0.0 | 2007 09 14 | 699 | 0.2+ | 0.4+ | 2007 11 12 | G96 | 0.1− | 0.3+ |
| 2005 03 17 | 691 | 0.3+ | 0.3+ | 2007 09 14 | 699 | 0.9+ | 1.1+ | 2007 11 12 | G96 | 0.4− | 0.1+ |
| 2005 03 17 | 691 | 0.2− | 0.3+ | 2007 10 12 | G96 | 0.2+ | 0.2− | 2007 11 13 | G96 | 0.3− | 0.0 |
| 2005 03 17 | 691 | 0.1+ | 0.2+ | 2007 10 12 | G96 | 0.2+ | 0.1− | 2007 11 13 | G96 | 0.1− | 0.4+ |
| 2007 09 12 | 683 | 1.7+ | 1.3− | 2007 10 12 | G96 | 0.3− | 0.0 | 2007 11 13 | G96 | 0.4+ | 0.2+ |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 09 12 | 683 | 1.0− | 0.9+ | 2007 10 12 | G96 | 0.2− | 0.1+ | 2007 11 13 | G96 | 0.2+ | 0.1+ |
| 2007 09 12 | 699 | 0.6− | 0.9+ | 2007 11 12 | G96 | 0.0 | 0.0 | 2007 12 06 | G96 | 0.3+ | 0.2+ |
| 2007 09 12 | 699 | 0.2+ | 0.4+ | 2007 11 12 | G96 | 0.1+ | 0.1− | 2007 12 06 | G96 | 0.0 | 0.2+ |
| 2007 09 12 | 699 | 0.2− | 0.5− | 2007 11 12 | G96 | 0.6+ | 0.8+ | 2007 12 06 | G96 | 0.3− | 0.2+ |
| 2007 09 12 | 699 | 0.6+ | 0.2− | 2007 11 12 | G96 | 0.3− | 0.0 | 2007 12 06 | G96 | 0.7− | 0.0 |

**2007 RQ$_{151}$ = 2003 WK$_{23}$ = 2006 JG$_{41}$ = 2008 UT$_{365}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 70.15347 | | (2000.0) | | **P** | | **Q** | | |
| $n$ | 0.20115411 | $\omega$ | 221.23958 | | +0.20426093 | | −0.97631305 | | |
| $a$ | 2.8848071 | $\Omega$ | 217.13736 | | +0.92627779 | | +0.21634107 | | |
| $e$ | 0.0461900 | $i$ | 6.78686 | | +0.31668112 | | −0.00306085 | | |
| $P$ | 4.90 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 0 | | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 10 28 | 691 | 0.0 | 0.1− | 2006 05 07 | G96 | 1.3+ | 0.0 | 2007 09 19 | 691 | 0.1− | 0.5+ |
| 1998 10 28 | 691 | 0.1− | 0.0 | 2006 05 07 | G96 | 0.2− | 0.4+ | 2008 10 25 | G96 | 0.7+ | 0.1− |
| 1998 10 28 | 691 | 0.4− | 0.2+ | 2006 05 08 | G96 | 0.2− | 0.5+ | 2008 10 25 | G96 | 0.0 | 0.1+ |
| 2003 11 18 | 691 | 0.4+ | 0.3− | 2006 05 08 | G96 | 0.2+ | 0.7+ | 2008 10 25 | G96 | 0.4+ | 0.3− |
| 2003 11 18 | 691 | 0.5+ | 0.4+ | 2006 05 08 | G96 | 0.1+ | 0.5+ | 2008 10 25 | G96 | 0.3+ | 0.2− |
| 2003 11 18 | 691 | 0.3+ | 0.0 | 2006 05 08 | G96 | 0.2− | 0.5+ | 2008 11 07 | G96 | 0.2+ | 0.1+ |
| 2003 11 19 | 599 | 0.8− | 0.1+ | 2007 09 10 | 691 | 0.1+ | 0.2− | 2008 11 07 | G96 | 0.1+ | 0.0 |
| 2003 11 19 | 599 | 0.2+ | 0.5+ | 2007 09 10 | 691 | 0.0 | 0.5+ | 2008 11 07 | G96 | 0.1− | 0.1+ |
| 2003 11 19 | 599 | 0.0 | 0.5+ | 2007 09 10 | 691 | 0.1− | 0.2+ | 2008 11 07 | G96 | 0.1− | 0.0 |
| 2003 11 20 | 695 | 0.4− | 0.1+ | 2007 09 14 | 691 | 0.0 | 0.3+ | 2008 11 20 | 691 | 0.0 | 0.2+ |
| 2003 11 20 | 695 | 0.2− | 0.2+ | 2007 09 14 | 691 | 0.1+ | 0.3− | 2008 11 20 | 691 | 0.1− | 0.1+ |
| 2005 03 10 | 703 | 0.1+ | 2.3+ | 2007 09 14 | 691 | 0.1− | 0.3− | 2008 11 20 | 691 | 0.4− | 0.2− |
| 2005 03 10 | 703 | 0.7+ | 1.6+ | 2007 09 19 | 691 | 0.5− | 0.0 | 2008 12 03 | 691 | 0.3− | 0.1− |
| 2005 03 10 | 703 | 0.1+ | 0.8− | 2007 09 19 | 691 | 0.1− | 0.1− | 2008 12 03 | 691 | 0.1− | 0.4+ |
| 2005 03 10 | 703 | 0.2− | 0.1+ | 2007 09 19 | 691 | 0.2+ | 0.0 | 2008 12 03 | 691 | 0.0 | 0.2+ |
| 2006 05 07 | G96 | 0.0 | 0.3+ | 2007 09 19 | 691 | 0.2+ | 0.1− | | | | |
| 2006 05 07 | G96 | 0.2− | 1.0+ | 2007 09 19 | 691 | 0.0 | 0.2+ | | | | |

**2007 RU$_{152}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 88.81053 | | (2000.0) | | **P** | | **Q** | | |
| $n$ | 0.19548568 | $\omega$ | 168.94275 | | +0.32220153 | | −0.94521659 | | |
| $a$ | 2.9403075 | $\Omega$ | 262.24500 | | +0.86446491 | | +0.31635622 | | |
| $e$ | 0.0715601 | $i$ | 3.03474 | | +0.38585826 | | +0.08052537 | | |
| $P$ | 5.04 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 3 | | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 08 24 | 691 | 0.3− | 0.2+ | 2007 09 14 | 691 | 0.3+ | 0.0 | 2008 11 22 | 691 | 0.1− | 0.1− |
| 2007 08 24 | 691 | 0.2− | 0.0 | 2007 10 09 | 691 | 0.4+ | 0.1− | 2008 11 22 | 691 | 0.1− | 0.0 |
| 2007 08 24 | 691 | 0.1− | 0.1− | 2007 10 09 | 691 | 0.4− | 0.0 | 2008 11 22 | 691 | 0.2+ | 0.1+ |
| 2007 09 10 | 691 | 0.2+ | 0.2+ | 2007 10 09 | 691 | 0.2− | 0.2− | 2008 12 19 | J75 | 0.2− | 0.1− |
| 2007 09 10 | 691 | 0.0 | 0.1+ | 2007 10 12 | G96 | 0.4+ | 0.5− | 2008 12 19 | J75 | 0.2+ | 0.1+ |
| 2007 09 10 | 691 | 0.2+ | 0.1+ | 2007 10 12 | G96 | 0.3+ | 0.2− | 2008 12 19 | J75 | 0.1− | 0.2+ |
| 2007 09 14 | 691 | 0.1− | 0.1+ | 2007 10 12 | G96 | 0.1+ | 0.5− | | | | |
| 2007 09 14 | 691 | 0.1− | 0.0 | 2007 10 12 | G96 | 0.4+ | 0.4− | | | | |

**2007 RO$_{171}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 162.88211 | | (2000.0) | | **P** | | **Q** | | |
| $n$ | 0.21056721 | $\omega$ | 220.75905 | | +0.98656609 | | −0.14981502 | | |
| $a$ | 2.7981794 | $\Omega$ | 147.68237 | | +0.16255493 | | +0.93987728 | | |
| $e$ | 0.0369609 | $i$ | 6.99827 | | −0.01622454 | | +0.30689764 | | |
| $P$ | 4.68 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 4 | | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 07 22 | 644 | 0.4+ | 0.2− | 2002 08 30 | 291 | 0.8− | 0.3− | 2007 09 10 | 691 | 0.0 | 0.1+ |
| 2002 07 22 | 644 | 0.1+ | 0.1+ | 2002 08 30 | 291 | 0.3+ | 0.3+ | 2007 09 10 | 691 | 0.1+ | 0.0 |
| 2002 07 22 | 644 | 0.4− | 0.5+ | 2002 08 30 | 291 | 0.3+ | 0.2− | 2007 09 14 | 691 | 0.1+ | 0.0 |
| 2002 08 07 | 644 | 0.8+ | 0.4+ | 2002 09 04 | 644 | 0.1+ | 0.5+ | 2007 09 14 | 691 | 0.0 | 0.1− |
| 2002 08 07 | 644 | 0.7+ | 0.1+ | 2002 09 04 | 644 | 0.1+ | 0.2+ | 2007 09 14 | 691 | 0.0 | 0.0 |
| 2002 08 07 | 644 | 0.6+ | 0.1+ | 2002 09 04 | 644 | 0.1+ | 0.1− | 2007 09 20 | 691 | 0.5− | 0.2− |
| 2002 08 12 | 608 | 0.3− | 0.5− | 2007 08 24 | 691 | 0.3+ | 0.2− | 2007 09 20 | 691 | 0.6+ | 0.1+ |
| 2002 08 17 | 644 | 0.5− | 0.0 | 2007 08 24 | 691 | 0.3− | 0.0 | 2007 09 20 | 691 | 0.3− | 0.3+ |
| 2002 08 17 | 644 | 0.3− | 0.3− | 2007 08 24 | 691 | 0.0 | 0.2+ | | | | |
| 2002 08 17 | 644 | 0.6− | 0.1+ | 2007 09 10 | 691 | 0.2+ | 0.0 | | | | |

**2007 RA$_{179}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 193.50498 | | (2000.0) | | **P** | | **Q** | | |
| $n$ | 0.22398672 | $\omega$ | 181.35081 | | +0.90942289 | | −0.40810209 | | |
| $a$ | 2.6852695 | $\Omega$ | 203.25007 | | +0.38343124 | | +0.89731557 | | |
| $e$ | 0.1965853 | $i$ | 11.69519 | | +0.16102946 | | +0.16815903 | | |
| $P$ | 4.40 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 2 | | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 10 27 | 691 | 0.1− | 0.1− | 2007 09 14 | G96 | 0.3+ | 0.3− | 2007 11 15 | 699 | 0.6+ | 0.4− |
| 1998 10 27 | 691 | 0.1+ | 0.4− | 2007 10 10 | 691 | 0.2− | 0.2+ | 2007 11 15 | 699 | 1.3− | 0.3+ |
| 1998 10 27 | 691 | 0.1+ | 0.3+ | 2007 10 10 | 691 | 0.3− | 0.1− | 2007 11 15 | 699 | 0.9− | 0.2+ |
| 2002 06 21 | 950 | 0.2− | 0.4+ | 2007 10 10 | 691 | 0.1− | 0.1+ | 2007 11 15 | G96 | 0.5+ | 0.1+ |
| 2002 06 21 | 950 | 0.1− | 0.3+ | 2007 11 09 | 703 | 0.7+ | 0.6+ | 2007 11 15 | G96 | 0.2+ | 0.1+ |
| 2002 06 21 | 950 | 0.1+ | 0.3+ | 2007 11 09 | 703 | 1.1+ | 0.3+ | 2007 11 15 | G96 | 0.1− | 0.0 |
| 2007 09 10 | G96 | 0.1+ | 0.1− | 2007 11 09 | 703 | 1.1− | 0.1− | 2007 11 15 | G96 | 0.1− | 0.1+ |
| 2007 09 10 | G96 | 0.3− | 0.5− | 2007 11 09 | 703 | 1.4− | 0.2+ | 2007 11 17 | G96 | 0.4+ | 0.1+ |
| 2007 09 10 | G96 | 0.2− | 0.3− | 2007 11 15 | G96 | 0.3+ | 0.1− | 2007 11 17 | G96 | 0.3+ | 0.3+ |
| 2007 09 10 | G96 | 0.1− | 0.4− | 2007 11 15 | G96 | 0.2+ | 0.2− | 2007 11 17 | G96 | 0.6+ | 0.1+ |
| 2007 09 14 | G96 | 0.3− | 0.2− | 2007 11 15 | G96 | 0.1+ | 0.0 | 2007 11 17 | G96 | 0.5+ | 0.1+ |
| 2007 09 14 | G96 | 0.6+ | 0.1− | 2007 11 15 | G96 | 0.2+ | 0.1− | | | | |
| 2007 09 14 | G96 | 0.1− | 0.0 | 2007 11 15 | 699 | 0.9+ | 0.1− | | | | |

**2007 RC$_{179}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 117.29174 | | (2000.0) | | **P** | | **Q** | | |
| $n$ | 0.17853832 | $\omega$ | 226.79063 | | +0.25220646 | | −0.96401271 | | |
| $a$ | 3.1235498 | $\Omega$ | 208.91899 | | +0.93059100 | | +0.26545040 | | |
| $e$ | 0.0517462 | $i$ | 10.01445 | | +0.26531546 | | −0.01468260 | | |
| $P$ | 5.52 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 2 | | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 10 21 | 691 | 0.1− | 0.0 | 2007 09 14 | G96 | 0.0 | 0.1− | 2007 11 12 | 704 | 0.1+ | 0.3+ |
| 2001 10 21 | 691 | 0.1+ | 0.0 | 2007 10 10 | G96 | 0.2+ | 0.1− | 2007 11 12 | 704 | 0.4+ | 1.2+ |
| 2001 10 21 | 691 | 0.0 | 0.2− | 2007 10 10 | G96 | 0.3+ | 0.1+ | 2007 11 15 | 704 | 1.4+ | 0.3+ |
| 2004 03 28 | 691 | 0.1− | 0.2+ | 2007 10 10 | G96 | 0.2+ | 0.2− | 2007 11 15 | 704 | 0.3− | 0.1− |
| 2004 03 28 | 691 | 0.3+ | 0.1− | 2007 10 10 | G96 | 0.2+ | 0.1− | 2007 11 15 | 704 | (0.4+ | 2.4−) |
| 2004 03 28 | 691 | 0.2− | 0.3− | 2007 10 21 | 691 | 0.3− | 0.1+ | 2007 11 15 | 704 | 0.8+ | 0.4− |
| 2007 09 10 | G96 | 0.3− | 0.2+ | 2007 10 21 | 691 | 0.1− | 0.1− | 2007 11 15 | 704 | 0.5+ | 0.3+ |
| 2007 09 10 | G96 | 0.5− | 0.0 | 2007 10 21 | 691 | 0.1− | 0.2− | 2007 11 20 | G96 | 0.2+ | 0.3+ |
| 2007 09 10 | G96 | 0.4+ | 0.3+ | 2007 11 02 | 691 | 0.2− | 0.0 | 2007 11 20 | G96 | 0.0 | 0.5− |
| 2007 09 10 | G96 | 0.4− | 0.0 | 2007 11 02 | 691 | 0.1− | 0.1− | 2007 11 20 | G96 | 0.1− | 0.0 |
| 2007 09 14 | G96 | 0.1+ | 0.3− | 2007 11 02 | 691 | 0.1− | 0.0 | 2007 11 20 | G96 | 0.6+ | 0.0 |
| 2007 09 14 | G96 | 0.2− | 0.0 | 2007 11 12 | 704 | 0.6− | 0.0 | | | | |
| 2007 09 14 | G96 | 0.2+ | 0.1+ | 2007 11 12 | 704 | 0.7+ | 0.0 | | | | |

**2007 RS$_{184}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 161.43121 | | (2000.0) | | **P** | | **Q** | | |
| $n$ | 0.17430565 | $\omega$ | 156.60900 | | +0.95401267 | | +0.29922181 | | |
| $a$ | 3.1739134 | $\Omega$ | 186.06579 | | −0.29488139 | | +0.92593029 | | |
| $e$ | 0.0764295 | $i$ | 9.84021 | | −0.05389612 | | +0.23047649 | | |
| $P$ | 5.65 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 2 | | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 03 22 | 645 | 0.0 | 0.0 | 2007 09 14 | G96 | 0.0 | 0.1− | 2007 10 31 | G96 | 0.0 | 0.0 |
| 1999 03 22 | 645 | 0.0 | 0.0 | 2007 10 12 | G96 | 0.2− | 0.2+ | 2007 10 31 | G96 | 0.4− | 0.1− |
| 2005 04 11 | G96 | 0.0 | 0.1− | 2007 10 12 | G96 | 0.6+ | 0.5+ | 2007 10 31 | G96 | 0.1− | 0.3+ |
| 2005 04 11 | G96 | 0.6+ | 0.1− | 2007 10 12 | G96 | 0.7+ | 0.1+ | 2007 10 31 | G96 | 0.9− | 0.3− |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 04 11 | G96 | 0.4− | 0.3− | 2007 10 12 | G96 | 0.5+ | 0.1+ | 2007 11 05 | G96 | 0.9+ | 0.1− |
| 2005 04 11 | G96 | 0.4− | 0.1+ | 2007 10 14 | G96 | 0.3+ | 0.1− | 2007 11 05 | G96 | 0.5+ | 0.2− |
| 2007 09 13 | G96 | 0.3− | 0.1− | 2007 10 14 | G96 | 0.2− | 0.1− | 2007 11 05 | G96 | 0.6+ | 0.2− |
| 2007 09 13 | G96 | 0.1− | 0.2− | 2007 10 14 | G96 | 0.1+ | 0.4− | 2007 11 05 | G96 | 0.2+ | 0.1− |
| 2007 09 13 | G96 | 0.1+ | 0.2− | 2007 10 14 | G96 | 0.2+ | 0.0 | 2007 12 05 | G96 | 0.1+ | 0.4− |
| 2007 09 13 | G96 | 0.2− | 0.0 | 2007 10 15 | G96 | 0.1+ | 0.3+ | 2007 12 05 | G96 | 0.3+ | 0.1− |
| 2007 09 14 | G96 | 0.6− | 0.2+ | 2007 10 15 | G96 | 0.1− | 0.3+ | 2007 12 05 | G96 | 0.6− | 0.4− |
| 2007 09 14 | G96 | 0.4− | 0.3+ | 2007 10 15 | G96 | 0.5− | 0.3+ | 2007 12 05 | G96 | 0.5− | 0.1+ |
| 2007 09 14 | G96 | 0.1− | 0.1+ | 2007 10 15 | G96 | 0.1− | 0.4+ | | | | |

**2007 RY$_{217}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 193.89849 | | (2000.0) | | | |
| $n$ | 0.22942355 | $\omega$ | 206.11889 | | +0.86910131 | −0.49462467 |
| $a$ | 2.6426768 | $\Omega$ | 183.53061 | | +0.46206620 | +0.81406714 |
| $e$ | 0.1643187 | $i$ | 2.84484 | | +0.17651554 | +0.30437004 |
| $P$ | 4.30 | $H$ | 16.9 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 10 10 | 691 | 0.1+ | 0.4− | 2007 10 15 | 703 | 0.6− | 1.6+ | 2007 11 15 | 699 | 0.3+ | 0.0 |
| 1994 10 10 | 691 | 0.2+ | 0.4− | 2007 10 21 | 691 | 0.2− | 0.1− | 2007 11 17 | 703 | 0.9− | 1.0+ |
| 1994 10 10 | 691 | 0.0 | 0.2− | 2007 10 21 | 691 | 0.2− | 0.1− | 2007 11 17 | 703 | 0.1+ | 0.4+ |
| 2007 09 13 | G96 | 0.4+ | 0.1− | 2007 10 21 | 691 | 0.3− | 0.0 | 2007 11 17 | 703 | 0.0 | 0.0 |
| 2007 09 13 | G96 | 0.4+ | 0.0 | 2007 11 02 | D29 | 0.3+ | 0.3− | 2007 11 17 | 703 | 0.0 | 1.2+ |
| 2007 09 13 | G96 | 0.4+ | 0.3− | 2007 11 02 | D29 | 1.1+ | 0.7− | 2007 11 18 | G96 | 0.3+ | 0.3− |
| 2007 09 13 | G96 | 0.4+ | 0.2− | 2007 11 02 | D29 | 0.6+ | 0.2+ | 2007 11 18 | G96 | 0.3+ | 0.4− |
| 2007 09 15 | G96 | 0.3+ | 0.2− | 2007 11 02 | D29 | 0.4+ | 0.2− | 2007 11 18 | G96 | 0.4+ | 0.5− |
| 2007 09 15 | G96 | 0.1+ | 0.1+ | 2007 11 03 | 691 | 0.3− | 0.0 | 2008 01 10 | G96 | 0.0 | 0.5− |
| 2007 09 15 | G96 | 0.3+ | 0.0 | 2007 11 03 | 691 | 0.0 | 0.2− | 2008 01 10 | G96 | 0.2+ | 0.9− |
| 2007 09 15 | G96 | 0.1− | 0.0 | 2007 11 03 | 691 | 0.3− | 0.0 | 2008 01 10 | G96 | 0.3+ | 0.8− |
| 2007 10 08 | G96 | 0.4+ | 0.3− | 2007 11 07 | 703 | 0.8− | 0.0 | 2008 01 10 | G96 | 0.6+ | 0.4− |
| 2007 10 08 | G96 | 0.4+ | 0.2− | 2007 11 07 | 703 | 0.3+ | 0.4+ | 2008 01 11 | G96 | 0.2+ | 0.0 |
| 2007 10 08 | G96 | 0.4+ | 0.2− | 2007 11 07 | 703 | 0.3− | 0.3+ | 2008 01 11 | G96 | 0.1+ | 0.1− |
| 2007 10 08 | G96 | 0.3+ | 0.2− | 2007 11 07 | 703 | 0.4+ | 0.3+ | 2008 01 11 | G96 | 0.5+ | 0.2− |
| 2007 10 12 | 691 | 0.3− | 0.1− | 2007 11 14 | 704 | 0.2+ | 1.3+ | 2008 01 11 | G96 | 0.2+ | 0.4− |
| 2007 10 12 | 691 | 0.3− | 0.0 | 2007 11 14 | 704 | 0.1+ | 1.1+ | 2009 04 02 | G96 | 0.5− | 0.1− |
| 2007 10 12 | 691 | 0.4− | 0.0 | 2007 11 14 | 704 | 0.2− | 1.1+ | 2009 04 02 | G96 | 0.2+ | 0.2− |
| 2007 10 15 | 703 | 0.4+ | 1.2+ | 2007 11 15 | 699 | 0.3+ | 0.2+ | 2009 04 02 | G96 | 0.3− | 0.1+ |
| 2007 10 15 | 703 | 0.4− | 1.2+ | 2007 11 15 | 699 | 0.2− | 0.7+ | 2009 04 02 | G96 | 0.3+ | 0.8− |
| 2007 10 15 | 703 | 0.4+ | 0.1− | 2007 11 15 | 699 | 0.5+ | 0.8− | | | | |

**2007 RW$_{227}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 210.15833 | | (2000.0) | | | |
| $n$ | 0.22735000 | $\omega$ | 340.79383 | | +0.94148277 | −0.33206521 |
| $a$ | 2.6587208 | $\Omega$ | 38.75391 | | +0.32007485 | +0.82701750 |
| $e$ | 0.0965874 | $i$ | 5.29963 | | +0.10565175 | +0.45362402 |
| $P$ | 4.34 | $H$ | 16.9 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 09 10 | G96 | 0.1+ | 0.2− | 2007 11 02 | 691 | 0.1− | 0.1− | 2009 03 03 | G96 | 0.0 | 0.1− |
| 2007 09 10 | G96 | 0.6+ | 0.2− | 2007 11 09 | 691 | 0.0 | 0.0 | 2009 03 03 | G96 | 0.1− | 0.3+ |
| 2007 09 10 | G96 | 0.0 | 0.1+ | 2007 11 09 | 691 | 0.3− | 0.2+ | 2009 03 03 | G96 | 0.3+ | 0.2− |
| 2007 09 10 | G96 | 0.3+ | 0.4− | 2007 11 09 | 691 | 0.1− | 0.1+ | 2009 03 03 | G96 | 0.1− | 0.2+ |
| 2007 09 15 | G96 | 0.4+ | 0.7− | 2007 11 13 | 691 | 0.2− | 0.4+ | 2009 03 31 | G96 | 0.4− | 0.3− |
| 2007 09 15 | G96 | 0.1− | 0.0 | 2007 11 13 | 691 | 0.9+ | 0.4− | 2009 03 31 | G96 | 1.0+ | 0.8− |
| 2007 09 15 | G96 | 0.1+ | 0.7− | 2007 11 13 | 691 | 0.1− | 0.3+ | 2009 03 31 | G96 | 0.4− | 0.2− |
| 2007 09 15 | G96 | 0.6+ | 0.8− | 2007 11 17 | 691 | 0.1+ | 0.0 | 2009 03 31 | G96 | 0.6− | 0.4+ |
| 2007 11 02 | 691 | 0.5− | 0.2− | 2007 11 17 | 691 | 0.1+ | 0.1− | | | | |
| 2007 11 02 | 691 | 0.4− | 0.2+ | 2007 11 17 | 691 | 0.1+ | 0.1+ | | | | |

**2007 RC$_{228}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 196.44256 | | (2000.0) | | | |
| $n$ | 0.22983124 | $\omega$ | 195.85958 | | +0.81828062 | −0.57449419 |
| $a$ | 2.6395507 | $\Omega$ | 199.24281 | | +0.53355364 | +0.77161332 |
| $e$ | 0.1930875 | $i$ | 3.36068 | | +0.21386291 | +0.27307382 |
| $P$ | 4.29 | $H$ | 16.6 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 05 24 | 807 | 0.0 | 0.5+ | 2007 10 20 | G96 | 0.0 | 0.3− | 2007 11 14 | 704 | 0.0 | 1.0+ |
| 2001 05 24 | 807 | 0.2+ | 0.4+ | 2007 10 20 | G96 | 0.3− | 0.4− | 2007 11 21 | G96 | 0.5− | 0.9− |
| 2005 04 10 | G96 | 0.1− | 0.3− | 2007 10 20 | G96 | 0.4− | 0.3− | 2007 11 21 | G96 | 0.3− | 0.9− |
| 2005 04 10 | G96 | 0.2− | 0.2− | 2007 11 09 | H07 | 0.3− | 0.9+ | 2007 11 21 | G96 | 0.0 | 0.8− |
| 2005 04 10 | G96 | 0.3− | 0.4− | 2007 11 09 | H07 | 0.2+ | 0.3− | 2007 11 21 | G96 | 0.3− | 1.0− |
| 2005 04 10 | G96 | 0.1+ | 0.6− | 2007 11 09 | H07 | 0.4− | 0.2− | 2007 12 04 | 704 | 0.4+ | 0.6+ |
| 2007 09 10 | G96 | 0.1+ | 0.3− | 2007 11 09 | H07 | 0.1+ | 0.3+ | 2007 12 04 | 704 | 0.1− | 0.7+ |
| 2007 09 10 | G96 | 0.4+ | 0.2− | 2007 11 09 | H07 | 0.4+ | 0.3+ | 2007 12 04 | 703 | 0.4+ | 0.8+ |
| 2007 09 10 | G96 | 0.4− | 0.2− | 2007 11 09 | H07 | 0.8+ | 0.3− | 2007 12 04 | 704 | 0.0 | 0.2− |
| 2007 09 10 | G96 | 0.2− | 0.1+ | 2007 11 11 | H07 | 0.3+ | 0.4+ | 2007 12 04 | 703 | 0.8− | 0.2− |
| 2007 09 15 | G96 | 0.3+ | 0.0 | 2007 11 11 | H07 | 0.2+ | 0.5− | 2007 12 04 | 703 | 0.2+ | 0.3− |
| 2007 09 15 | G96 | 0.3+ | 0.1− | 2007 11 11 | H07 | 0.1− | 0.9− | 2007 12 04 | 704 | 0.8+ | 1.0+ |
| 2007 09 15 | G96 | 0.3− | 0.2− | 2007 11 14 | 704 | 0.2+ | 1.2+ | 2007 12 04 | 703 | 0.1+ | 0.4+ |
| 2007 09 15 | G96 | 0.2− | 0.2+ | 2007 11 14 | 704 | 0.1+ | 0.5− | 2007 12 04 | 704 | 0.0 | 0.7+ |
| 2007 10 20 | G96 | 0.4− | 0.4− | 2007 11 14 | 704 | 0.8− | 0.3+ | | | | |

**2007 RS$_{235}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 217.19273 | | (2000.0) | | | |
| $n$ | 0.21740604 | $\omega$ | 332.83730 | | +0.70933402 | +0.70463484 |
| $a$ | 2.7391868 | $\Omega$ | 342.32297 | | −0.63526941 | +0.62782411 |
| $e$ | 0.0707871 | $i$ | 3.45560 | | −0.30541450 | +0.33064578 |
| $P$ | 4.53 | $H$ | 16.4 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 11 16 | 691 | 0.2− | 0.9+ | 2007 09 12 | G96 | 0.3+ | 0.5− | 2007 10 20 | G96 | 0.1+ | 0.3− |
| 2003 11 16 | 691 | 0.4− | 1.0+ | 2007 09 15 | G96 | 0.0 | 0.4− | 2007 10 20 | G96 | 0.2− | 0.3− |
| 2003 11 16 | 691 | 0.3− | 1.1+ | 2007 09 15 | G96 | 0.1+ | 0.4− | 2007 10 20 | G96 | 0.3+ | 0.7− |
| 2007 09 12 | 699 | (4.0+ | 1.0−) | 2007 09 15 | G96 | 0.2− | 0.5− | 2007 12 06 | G96 | 0.4− | 0.3− |
| 2007 09 12 | 699 | 1.3+ | 0.1+ | 2007 09 15 | G96 | 0.1− | 0.3− | 2007 12 06 | G96 | 0.7− | 0.1− |
| 2007 09 12 | 699 | 0.2− | 1.5− | 2007 10 10 | G96 | 0.0 | 0.1− | 2007 12 06 | G96 | 0.1+ | 0.2+ |
| 2007 09 12 | G96 | 0.3+ | 0.4− | 2007 10 10 | G96 | 0.4+ | 0.5− | 2007 12 06 | G96 | 0.3+ | 0.4− |
| 2007 09 12 | G96 | 0.3+ | 0.1− | 2007 10 10 | G96 | 0.3+ | 0.1+ | 2008 12 30 | 691 | 0.6− | 0.5− |
| 2007 09 12 | 699 | 0.4− | 1.0− | 2007 10 10 | G96 | 0.2+ | 0.0 | 2008 12 30 | 691 | 0.0 | 1.0− |
| 2007 09 12 | G96 | 0.9+ | 0.2− | 2007 10 20 | G96 | 1.2+ | 0.4− | 2008 12 30 | 691 | 0.4+ | 1.3− |

**2007 RD$_{239}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 137.19963 | | (2000.0) | | | |
| $n$ | 0.18043653 | $\omega$ | 291.95242 | | +0.97515811 | −0.19071954 |
| $a$ | 3.1016044 | $\Omega$ | 79.18384 | | +0.22057596 | +0.88272540 |
| $e$ | 0.0648635 | $i$ | 6.58630 | | −0.02031999 | +0.42944373 |
| $P$ | 5.46 | $H$ | 15.7 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 09 14 | 703 | 0.7− | 0.8− | 2007 10 10 | 291 | 0.4+ | 0.2+ | 2008 11 30 | 691 | 0.3+ | 0.1− |
| 2007 09 14 | 703 | 1.4− | 0.2+ | 2007 10 10 | 291 | 0.2+ | 0.0 | 2008 11 30 | 691 | 0.2+ | 0.1+ |
| 2007 09 14 | 703 | 0.8− | 0.6+ | 2007 10 10 | 291 | 0.4+ | 0.1+ | 2009 01 21 | G96 | 0.4− | 0.1− |
| 2007 09 14 | 703 | 0.9− | 0.4− | 2007 10 20 | G96 | 0.1− | 0.3− | 2009 01 21 | G96 | 0.2− | 0.0 |
| 2007 09 15 | 699 | 0.7+ | 0.1+ | 2007 10 20 | G96 | 0.0 | 0.3− | 2009 01 21 | G96 | 0.6− | 0.0 |
| 2007 09 15 | 699 | 0.1+ | 0.7− | 2007 10 20 | G96 | 0.5− | 0.1− | 2009 01 21 | G96 | 0.4− | 0.1− |
| 2007 09 15 | 699 | 1.0− | 0.7+ | 2007 10 20 | G96 | 0.1+ | 0.4− | | | | |
| 2007 09 15 | 699 | 0.4+ | 0.1+ | 2008 11 30 | 691 | 0.1− | 0.1+ | | | | |

**2007 RM$_{245}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 212.91210 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22457152 | $\omega$ | 212.26757 | | +0.88357021 | +0.46550037 | |
| $a$ | 2.6806057 | $\Omega$ | 119.90721 | | −0.41616028 | +0.83056036 | |
| $e$ | 0.2088534 | $i$ | 3.38077 | | −0.21474241 | +0.30574318 | |
| $P$ | 4.39 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 11 24 | 691 | 0.1− | 0.3− | 2007 09 20 | 691 | 0.3+ | 0.0 | 2007 10 18 | 705 | 0.0 | 0.0 | |
| 2003 11 24 | 691 | 0.0 | 0.1+ | 2007 09 20 | 691 | 0.2+ | 0.0 | 2007 11 07 | 705 | 0.4+ | 0.2− | |
| 2003 11 24 | 691 | 0.1+ | 0.1+ | 2007 09 20 | 691 | 0.0 | 0.1+ | 2007 11 07 | 705 | 0.4+ | 0.1− | |
| 2006 05 07 | G96 | 0.3+ | 0.2+ | 2007 10 11 | 703 | 0.2+ | 0.5− | 2007 11 07 | 705 | 0.2+ | 0.0 | |
| 2006 05 07 | G96 | 0.3− | 0.2+ | 2007 10 11 | 703 | 0.0 | 0.2− | 2007 11 13 | 705 | 0.3+ | 0.1+ | |
| 2006 05 07 | G96 | 0.1+ | 0.1+ | 2007 10 11 | 703 | 1.2− | 0.7− | 2007 11 13 | 705 | 0.3+ | 0.1− | |
| 2006 05 07 | G96 | 0.1+ | 0.0 | 2007 10 11 | 703 | 0.5− | 0.1− | 2007 11 13 | 705 | 0.3+ | 0.1+ | |
| 2007 09 11 | 691 | 0.5− | 0.1+ | 2007 10 13 | 704 | 0.1+ | 0.3+ | 2007 11 20 | 705 | 0.2+ | 0.1+ | |
| 2007 09 11 | 691 | 0.4− | 0.0 | 2007 10 13 | 704 | 0.1+ | 0.5+ | 2007 11 20 | 705 | 0.3+ | 0.2− | |
| 2007 09 11 | 691 | 0.4− | 0.1− | 2007 10 13 | 704 | 0.5− | 0.2+ | 2007 11 20 | 705 | 0.1+ | 0.1+ | |
| 2007 09 18 | 691 | 0.1+ | 0.4+ | 2007 10 13 | 704 | 0.5+ | 0.7+ | 2009 01 02 | 691 | 0.3− | 0.0 | |
| 2007 09 18 | 691 | 0.1+ | 0.4− | 2007 10 18 | 705 | 0.3+ | 0.1− | 2009 01 02 | 691 | 0.2+ | 0.1+ | |
| 2007 09 18 | 691 | 0.2+ | 0.0 | 2007 10 18 | 705 | 0.1+ | 0.2+ | 2009 01 02 | 691 | 0.2+ | 0.3+ | |

**2007 RL$_{246}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 180.88226 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18364461 | $\omega$ | 160.54260 | | +0.71124035 | +0.69586056 | |
| $a$ | 3.0653772 | $\Omega$ | 154.47751 | | −0.67168576 | +0.71453024 | |
| $e$ | 0.1582145 | $i$ | 13.36216 | | −0.20730508 | +0.07228147 | |
| $P$ | 5.37 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 05 20 | G96 | 0.1− | 0.4+ | 2007 09 12 | 703 | 0.7− | 0.3+ | 2007 09 18 | 699 | 0.3+ | 0.3+ | |
| 2006 05 20 | G96 | 0.5− | 0.2− | 2007 09 12 | 703 | 1.6− | 0.8+ | 2007 10 13 | 703 | 0.3− | 0.3+ | |
| 2006 05 20 | G96 | 0.6− | 0.5− | 2007 09 12 | 703 | 0.7+ | 0.1− | 2007 10 13 | 703 | 0.6− | 0.5− | |
| 2006 06 18 | 691 | 0.2+ | 0.1− | 2007 09 12 | 703 | 1.0+ | 0.3+ | 2007 10 13 | 703 | 0.4− | 0.6− | |
| 2006 06 18 | 691 | 0.3+ | 0.1− | 2007 09 12 | 691 | 0.2+ | 0.1− | 2007 10 13 | 703 | 0.8− | 0.1+ | |
| 2006 06 18 | 691 | 0.1− | 0.2+ | 2007 09 12 | 691 | 0.4+ | 0.2− | 2007 10 16 | G96 | 0.5+ | 0.3− | |
| 2007 09 03 | 703 | 0.2+ | 0.0 | 2007 09 12 | 691 | 0.5− | 0.1+ | 2007 10 16 | G96 | 0.1+ | 0.2− | |
| 2007 09 03 | 703 | 1.2− | 0.3− | 2007 09 18 | 699 | 0.0 | 0.5+ | 2007 10 16 | G96 | 0.3+ | 0.0 | |
| 2007 09 03 | 703 | 0.8+ | 0.6− | 2007 09 18 | 699 | 0.4+ | 0.3+ | 2007 10 16 | G96 | 0.3+ | 0.3− | |
| 2007 09 03 | 703 | 0.1− | 0.4− | 2007 09 18 | 699 | 0.7+ | 1.2+ | | | | | |

**2007 RW$_{257}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 195.45856 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18492203 | $\omega$ | 112.68138 | | +0.65650508 | +0.75348090 | |
| $a$ | 3.0512440 | $\Omega$ | 198.49312 | | −0.72671866 | +0.61912515 | |
| $e$ | 0.1688649 | $i$ | 6.44483 | | −0.20219067 | +0.22124779 | |
| $P$ | 5.33 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 11 04 | 649 | 0.5− | 0.6+ | 2007 10 07 | 699 | 0.9− | 0.6− | 2007 10 20 | 703 | 0.4+ | 0.1− | |
| 2002 11 04 | 649 | 0.4+ | 0.4+ | 2007 10 07 | 699 | 0.1− | 0.6− | 2007 10 20 | 703 | 0.4+ | 0.1+ | |
| 2002 11 04 | 649 | 0.2− | 0.3+ | 2007 10 07 | 699 | 0.7− | 0.5− | 2007 10 20 | 703 | 1.8− | 0.0 | |
| 2007 09 14 | G96 | 0.6+ | 0.1+ | 2007 10 07 | 699 | 0.1− | 1.0+ | 2007 10 20 | 703 | 1.9− | 0.9− | |
| 2007 09 14 | G96 | 0.6+ | 0.2− | 2007 10 09 | G96 | 0.3+ | 0.3− | 2007 10 30 | G96 | 0.3− | 0.2− | |
| 2007 09 14 | G96 | 0.7+ | 0.3− | 2007 10 09 | G96 | 0.3+ | 0.2− | 2007 10 30 | G96 | 0.1+ | 0.2− | |
| 2007 09 14 | G96 | 0.7+ | 0.3− | 2007 10 09 | G96 | 0.2+ | 0.1− | 2007 10 30 | G96 | 0.4+ | 0.2− | |
| 2007 09 20 | 691 | 0.3− | 0.2− | 2007 10 09 | G96 | 0.1+ | 0.2− | 2007 10 30 | G96 | 0.2+ | 0.2− | |
| 2007 09 20 | 691 | 0.0 | 0.1− | 2007 10 11 | 704 | 0.6+ | 0.4− | 2007 11 09 | G96 | 0.0 | 0.2− | |
| 2007 09 20 | 691 | 0.2− | 0.1+ | 2007 10 11 | 704 | 0.0 | 0.8+ | 2007 11 09 | G96 | 0.0 | 0.0 | |
| 2007 10 04 | 683 | 0.2− | 0.4− | 2007 10 11 | 704 | 1.0+ | 0.9+ | 2007 11 09 | G96 | 0.0 | 0.1− | |
| 2007 10 04 | 683 | 0.8+ | 1.1+ | 2007 10 14 | 704 | 0.7− | 0.9+ | 2007 11 09 | G96 | 0.0 | 0.1− | |
| 2007 10 04 | 683 | 1.1+ | 0.8+ | 2007 10 14 | 704 | 0.1+ | 0.8+ | 2007 12 04 | G96 | 0.5+ | 0.7− | |
| 2007 10 06 | 704 | 0.9− | 0.6+ | 2007 10 14 | 704 | (0.3+ | 2.7+) | 2007 12 04 | G96 | 0.1+ | 0.3− | |
| 2007 10 06 | 704 | 0.8− | 0.4+ | 2007 10 14 | 704 | 0.1+ | 0.7+ | 2007 12 04 | G96 | 0.6+ | 1.5− | |
| 2007 10 06 | 704 | 0.2− | 0.7+ | 2007 10 14 | 704 | 1.7+ | 0.2− | 2007 12 04 | G96 | 1.0− | 1.5− | |

**2007 RG$_{269}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 300.10919 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28326298 | $\omega$ | 81.84223 | | +0.28085890 | +0.95905684 | |
| $a$ | 2.2961989 | $\Omega$ | 204.56386 | | −0.91146576 | +0.25464415 | |
| $e$ | 0.1241412 | $i$ | 5.02960 | | −0.30058018 | +0.12396102 | |
| $P$ | 3.48 | $H$ | 17.8 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 03 05 | 691 | 0.0 | 0.1+ | 2007 10 13 | 703 | 0.2− | 0.5+ | 2007 11 17 | 705 | 0.2− | 0.0 | |
| 2006 03 05 | 691 | 0.1− | 0.2+ | 2007 10 14 | G96 | 0.0 | 0.2+ | 2007 11 17 | 705 | 0.3− | 0.2− | |
| 2006 03 05 | 691 | 0.3+ | 0.3+ | 2007 10 14 | G96 | 0.4+ | 0.1− | 2007 11 19 | 705 | 0.3− | 0.1− | |
| 2007 09 15 | 691 | 0.1+ | 0.2+ | 2007 10 14 | G96 | 0.1+ | 0.1− | 2007 11 19 | 705 | 0.5− | 0.1+ | |
| 2007 09 15 | 691 | 0.1+ | 0.2+ | 2007 10 14 | G96 | 0.3+ | 1.0− | 2007 11 19 | 705 | 0.3− | 0.3− | |
| 2007 09 15 | 691 | 0.1+ | 0.2+ | 2007 10 31 | 705 | 0.1+ | 0.0 | 2009 01 01 | 291 | 0.1+ | 0.1− | |
| 2007 09 20 | 691 | 0.3− | 0.3− | 2007 10 31 | 705 | 0.1+ | 0.2+ | 2009 01 01 | 291 | 0.0 | 0.0 | |
| 2007 09 20 | 691 | 0.3− | 0.0 | 2007 10 31 | 705 | 0.1− | 0.3+ | 2009 01 01 | 291 | 0.3− | 0.5+ | |
| 2007 09 20 | 691 | 0.0 | 0.2+ | 2007 11 09 | 705 | 0.1− | 0.1− | 2009 02 03 | G96 | 0.4− | 0.8− | |
| 2007 10 13 | 703 | 1.2+ | 0.2+ | 2007 11 09 | 705 | 0.1+ | 0.1+ | 2009 02 03 | G96 | 0.4+ | 0.5− | |
| 2007 10 13 | 703 | 0.1− | 0.7+ | 2007 11 09 | 705 | 0.3− | 0.2− | 2009 02 03 | G96 | 0.0 | 0.5− | |
| 2007 10 13 | 703 | 0.7+ | 0.3+ | 2007 11 17 | 705 | 0.3− | 0.3− | 2009 02 03 | G96 | 0.7+ | 0.0 | |

**2007 RU$_{271}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 281.03401 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.30132232 | $\omega$ | 323.59348 | | +0.94981107 | −0.29691654 | |
| $a$ | 2.2035108 | $\Omega$ | 53.96993 | | +0.30799526 | +0.83249203 | |
| $e$ | 0.0594443 | $i$ | 6.99495 | | +0.05475270 | +0.46775805 | |
| $P$ | 3.27 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 09 15 | G96 | 0.0 | 0.0 | 2007 12 13 | 704 | 0.1+ | 0.3+ | 2009 05 02 | J75 | 0.4− | 0.2− | |
| 2007 09 15 | G96 | 0.0 | 0.4+ | 2007 12 13 | 704 | 0.3− | 0.2+ | 2009 05 02 | J75 | 0.1− | 1.2− | |
| 2007 09 15 | G96 | 0.0 | 0.2+ | 2007 12 13 | 704 | 0.0 | 0.3− | 2009 05 02 | J75 | 0.5+ | 0.7+ | |
| 2007 09 15 | G96 | 0.0 | 0.0 | 2007 12 15 | 704 | 0.6− | 0.2− | 2009 05 18 | G96 | 0.1− | 0.2− | |
| 2007 09 18 | G96 | 0.0 | 0.1− | 2007 12 15 | 704 | 0.0 | 0.3+ | 2009 05 18 | G96 | 0.1+ | 0.1+ | |
| 2007 09 18 | G96 | 0.3− | 0.3− | 2007 12 15 | 704 | 0.7− | 0.1+ | 2009 05 18 | G96 | 0.0 | 0.3− | |
| 2007 09 18 | G96 | 0.1− | 0.3+ | 2007 12 16 | 703 | 0.8+ | 0.7− | 2009 05 18 | G96 | 0.2+ | 0.1− | |
| 2007 09 18 | G96 | 0.1+ | 0.3+ | 2007 12 16 | 703 | (0.2+ | 1.6+) | 2009 06 14 | G96 | 0.0 | 0.1− | |
| 2007 11 09 | 691 | 1.0+ | 0.9− | 2007 12 16 | 703 | 0.5− | 1.1+ | 2009 06 14 | G96 | 0.4+ | 0.2+ | |
| 2007 11 09 | 691 | 0.4− | 0.0 | 2007 12 16 | 703 | 0.2− | 0.5+ | 2009 06 14 | G96 | 0.1+ | 0.0 | |
| 2007 11 09 | 691 | 0.4− | 0.2+ | 2009 03 31 | 691 | 0.2− | 0.2− | 2009 06 14 | G96 | 0.1− | 0.1− | |
| 2007 12 13 | 704 | 0.3+ | 0.0 | 2009 03 31 | 691 | 0.3+ | 0.4+ | | | | | |
| 2007 12 13 | 704 | 0.2+ | 0.2+ | 2009 03 31 | 691 | 0.3− | 0.0 | | | | | |

**2007 RJ$_{302}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 215.91890 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18988352 | $\omega$ | 260.33265 | | +0.89753824 | +0.43557882 | |
| $a$ | 2.9978590 | $\Omega$ | 73.81905 | | −0.37138994 | +0.83056523 | |
| $e$ | 0.0935345 | $i$ | 4.09184 | | −0.23768597 | +0.34703384 | |
| $P$ | 5.19 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 09 14 | G96 | 0.2− | 0.5+ | 2007 11 05 | G96 | 0.2+ | 0.0 | 2008 12 31 | 691 | 0.1− | 0.2+ | |
| 2007 09 14 | G96 | 0.6+ | 0.4− | 2007 11 05 | G96 | 0.4+ | 0.2− | 2008 12 31 | 691 | 0.3− | 0.6− | |
| 2007 09 14 | G96 | 0.0 | 0.4− | 2007 11 14 | 691 | 0.4+ | 0.2+ | 2009 01 17 | 691 | 0.0 | 0.2− | |
| 2007 09 14 | G96 | 0.4+ | 0.2− | 2007 11 14 | 691 | 0.1+ | 0.2+ | 2009 01 17 | 691 | 0.0 | 0.2+ | |
| 2007 10 08 | 691 | 0.3− | 0.1− | 2007 11 14 | 691 | 0.3+ | 0.1+ | 2009 01 17 | 691 | 0.0 | 0.3+ | |
| 2007 10 08 | 691 | 0.5− | 0.1+ | 2007 12 04 | 691 | 0.8− | 0.2+ | 2009 02 19 | 691 | 0.2+ | 0.3+ | |
| 2007 10 08 | 691 | 0.3+ | 0.2− | 2007 12 04 | 691 | 0.3+ | 0.0 | 2009 02 19 | 691 | 0.2− | 0.3− | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 11 05 | G96 | 0.4+ | 0.2− | 2007 12 04 | 691 | 0.4− | 0.2− | 2009 02 19 | 691 | 0.2+ | 0.0 | | |
| 2007 11 05 | G96 | 0.6+ | 0.1− | 2008 12 31 | 691 | 0.2+ | 0.0 | | | | | | |

**2007 RW$_{309}$ = 2009 BN$_6$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 89.83386 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18591635 | $\omega$ | 284.36550 | | −0.00672085 | −0.99942407 | |
| $a$ | 3.0403552 | $\Omega$ | 165.89301 | | +0.96199506 | −0.01554239 | |
| $e$ | 0.1226147 | $i$ | 7.84355 | | +0.27298413 | +0.03016557 | |
| $P$ | 5.30 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 02 14 | 691 | 0.1+ | 0.1+ | 2007 10 07 | 699 | 0.2− | 0.8+ | 2009 01 18 | 704 | 1.3+ | 0.0 |
| 2004 02 14 | 691 | 0.2+ | 0.3+ | 2007 10 07 | 699 | 0.5− | 0.0 | 2009 01 18 | 704 | 1.4+ | 0.2− |
| 2004 02 14 | 691 | 0.3+ | 0.3+ | 2007 10 07 | 699 | 0.0 | 0.1− | 2009 01 18 | D29 | 0.7+ | 0.7− |
| 2004 03 26 | 691 | 0.2− | 0.4+ | 2007 10 07 | 699 | 0.1+ | 2.3+ | 2009 01 18 | D29 | 0.1− | 0.5− |
| 2004 03 26 | 691 | 0.0 | 0.0 | 2007 10 11 | 703 | 1.7− | 0.6+ | 2009 01 18 | D29 | 0.4+ | 0.6+ |
| 2004 03 26 | 691 | 0.2− | 0.3− | 2007 10 11 | 703 | 0.7− | 0.2+ | 2009 01 18 | D29 | 0.2− | 0.4− |
| 2005 04 30 | 691 | 0.1+ | 0.3+ | 2007 10 11 | 703 | 0.0 | 0.9+ | 2009 01 21 | 704 | 1.2+ | 1.2+ |
| 2005 04 30 | 691 | 0.1+ | 0.3+ | 2007 10 11 | 703 | 0.1+ | 0.3− | 2009 01 21 | 704 | 0.4+ | 0.7+ |
| 2005 04 30 | 691 | 0.3+ | 0.4+ | 2007 10 21 | G96 | 0.1− | 0.0 | 2009 01 21 | 704 | 0.0 | 1.3+ |
| 2005 05 16 | 691 | 0.0 | 0.1+ | 2007 10 21 | G96 | 0.1+ | 0.4+ | 2009 02 03 | G96 | 0.0 | 0.2+ |
| 2005 05 16 | 691 | 0.5+ | 0.2+ | 2007 10 21 | G96 | 0.0 | 0.3+ | 2009 02 03 | G96 | 0.4− | 0.2+ |
| 2005 05 16 | 691 | 0.3+ | 0.1+ | 2007 10 21 | G96 | 0.3+ | 0.2+ | 2009 02 03 | G96 | 0.7− | 0.2+ |
| 2005 06 09 | 691 | 0.5− | 0.0 | 2008 12 29 | 703 | 0.1− | 0.0 | 2009 02 03 | G96 | 0.0 | 0.2+ |
| 2005 06 09 | 691 | 0.3− | 0.1+ | 2008 12 29 | 703 | 0.7− | 0.9+ | 2009 02 03 | G96 | 0.2− | 0.1− |
| 2005 06 09 | 691 | 0.2− | 0.5+ | 2008 12 29 | 703 | 2.3− | 1.0− | 2009 02 03 | G96 | 0.2− | 0.0 |
| 2007 09 13 | G96 | 0.1− | 0.4+ | 2008 12 29 | 703 | 1.2− | 0.1+ | 2009 02 03 | G96 | 0.5− | 0.1− |
| 2007 09 13 | G96 | 0.0 | 0.9+ | 2009 01 18 | 703 | (0.2+ | 3.1+) | 2009 02 03 | G96 | 1.4− | 0.2+ |
| 2007 09 13 | G96 | 0.0 | 0.5+ | 2009 01 18 | 703 | (0.3− | 2.6+) | 2009 04 01 | G96 | 0.1− | 0.2− |
| 2007 09 13 | G96 | 0.0 | 0.7+ | 2009 01 18 | 704 | 0.4+ | 0.1− | 2009 04 01 | G96 | 0.4− | 0.2− |
| 2007 09 13 | G96 | 0.0 | 0.3+ | 2009 01 18 | 703 | (1.3− | 1.5+) | 2009 04 01 | G96 | 0.1− | 0.5− |
| 2007 09 13 | G96 | 0.0 | 0.1− | 2009 01 18 | 703 | 0.5+ | 1.4+ | 2009 04 01 | G96 | 0.1+ | 0.5+ |
| 2007 09 13 | G96 | 0.0 | 0.5+ | 2009 01 18 | 704 | 1.2+ | 0.5− | | | | |
| 2007 09 13 | G96 | 0.1+ | 0.0 | 2009 01 18 | 704 | 1.1+ | 0.5− | | | | |

**2007 RA$_{310}$ = 2001 FO$_{119}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 187.60368 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21876119 | $\omega$ | 158.25821 | | +0.90012914 | +0.43505903 | |
| $a$ | 2.7278629 | $\Omega$ | 175.75201 | | −0.43061034 | +0.89631470 | |
| $e$ | 0.1252440 | $i$ | 17.40919 | | −0.06589587 | +0.08569482 | |
| $P$ | 4.51 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 03 27 | 691 | 0.0 | 0.3+ | 2007 09 03 | 703 | 0.1+ | 1.0− | 2007 09 13 | 699 | 0.1− | 0.4+ |
| 2001 03 27 | 691 | 0.2− | 0.1− | 2007 09 03 | 703 | 0.1+ | 0.2+ | 2007 09 13 | 699 | 0.1+ | 0.9+ |
| 2001 03 27 | 691 | 0.8− | 0.1+ | 2007 09 03 | 703 | 0.5+ | 0.2+ | 2007 09 13 | 699 | 0.6− | 0.2+ |
| 2001 03 29 | 691 | 0.3+ | 0.2− | 2007 09 08 | 699 | 0.5− | 0.8− | 2007 09 13 | 699 | 0.2+ | 1.5− |
| 2001 03 29 | 691 | 0.3+ | 0.1− | 2007 09 08 | 699 | 1.4− | 0.2+ | 2007 10 11 | G96 | 0.0 | 0.5− |
| 2001 03 29 | 691 | 0.4+ | 0.1+ | 2007 09 08 | 699 | 0.3− | 0.5+ | 2007 10 11 | G96 | 0.2+ | 0.2− |
| 2007 09 03 | 703 | 1.3+ | 0.0 | 2007 09 08 | 699 | 0.1+ | 0.7+ | 2007 10 11 | G96 | 0.2+ | 0.8+ |

**2007 RE$_{310}$ = 2006 DC$_{14}$ = 2008 YG$_8$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 292.90780 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26300828 | $\omega$ | 210.98987 | | −0.12499582 | +0.98815249 | |
| $a$ | 2.4126247 | $\Omega$ | 51.97974 | | −0.88556641 | −0.07064325 | |
| $e$ | 0.0901157 | $i$ | 6.49076 | | −0.44737924 | −0.13625049 | |
| $P$ | 3.75 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 01 | 691 | 0.2− | 0.1− | 2006 02 22 | 703 | (0.9− | 1.7−) | 2007 09 18 | 699 | 0.9− | 1.3+ |
| 2000 11 01 | 691 | 0.5− | 0.0 | 2006 02 22 | 703 | 0.4+ | 1.2+ | 2007 09 18 | 699 | 0.5+ | 0.6+ |
| 2000 11 01 | 691 | 0.2− | 0.0 | 2006 02 22 | 703 | 1.1− | 0.9+ | 2007 09 18 | 699 | 1.6+ | 1.6− |
| 2002 02 22 | 644 | 0.7+ | 0.6+ | 2006 02 23 | 699 | 0.6− | 0.4+ | 2007 10 02 | E12 | 0.3+ | 0.9− |
| 2002 02 22 | 644 | 0.2+ | 0.4+ | 2006 02 23 | 699 | (1.5+ | 0.6−) | 2007 10 02 | E12 | 0.6+ | 0.4− |
| 2002 02 22 | 644 | 0.7+ | 0.0 | 2006 02 23 | 699 | 0.2+ | 0.2+ | 2007 10 02 | E12 | 1.0+ | 0.2+ |
| 2002 03 11 | 644 | 1.1+ | 0.5− | 2006 02 23 | 699 | 0.5+ | 0.7+ | 2007 10 02 | E12 | 0.8− | 0.4+ |
| 2002 03 11 | 644 | 0.7+ | 0.7− | 2006 04 18 | 703 | 0.3− | 0.3+ | 2008 11 21 | 691 | 0.3− | 0.1+ |
| 2002 03 11 | 644 | 1.0+ | 0.3− | 2006 04 18 | 703 | 0.0 | 0.9+ | 2008 11 21 | 691 | 0.0 | 0.0 |
| 2004 09 16 | 691 | 0.1+ | 0.1− | 2006 04 18 | 703 | 0.4+ | 0.2+ | 2008 11 21 | 691 | 0.1− | 0.1+ |
| 2004 09 16 | 691 | 0.1+ | 0.2− | 2006 04 18 | 703 | 0.3− | 1.5+ | 2008 12 23 | 300 | 1.0− | 0.1+ |
| 2004 09 16 | 691 | 0.6− | 0.0 | 2007 09 04 | 703 | 0.1+ | 0.8− | 2008 12 23 | 300 | 0.1− | 0.8− |
| 2004 11 04 | 691 | 0.3+ | 0.0 | 2007 09 04 | 703 | 0.1+ | 0.7+ | 2008 12 23 | 300 | 0.4− | 0.0 |
| 2004 11 04 | 691 | 0.3+ | 0.1− | 2007 09 04 | 703 | 0.7− | 0.1− | 2008 12 23 | 300 | 0.4+ | 0.1+ |
| 2004 11 04 | 691 | 0.3+ | 0.1− | 2007 09 04 | 703 | 0.3+ | 0.2+ | 2008 12 23 | 300 | 0.1− | 0.3− |
| 2004 12 12 | 599 | 0.0 | 0.3+ | 2007 09 14 | 703 | 0.7− | 0.6− | 2008 12 23 | 300 | 0.0 | 0.2+ |
| 2004 12 12 | 599 | 0.1+ | 0.4+ | 2007 09 14 | 703 | 0.3− | 1.2+ | 2008 12 25 | 300 | 1.3+ | 1.2+ |
| 2004 12 12 | 599 | 0.2+ | 0.1+ | 2007 09 14 | 703 | 0.9− | 1.7+ | 2008 12 25 | 300 | 0.3+ | 0.4+ |
| 2004 12 12 | 599 | 0.1+ | 0.5+ | 2007 09 14 | 703 | 1.6− | 0.9+ | | | | |
| 2006 02 22 | 703 | 0.1− | 0.3+ | 2007 09 18 | 699 | (0.6+ | 3.6+) | | | | |

**2007 RH$_{310}$ = 2004 VE$_{59}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 274.60737 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.29073489 | $\omega$ | 48.31920 | | +0.60248547 | +0.78965299 | |
| $a$ | 2.2566868 | $\Omega$ | 259.09855 | | −0.76288037 | +0.52703893 | |
| $e$ | 0.1397373 | $i$ | 6.78516 | | −0.23457368 | +0.31413073 | |
| $P$ | 3.39 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 6 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 11 09 | 703 | 0.1+ | 1.1+ | 2004 11 11 | 691 | 0.2+ | 0.0 | 2007 09 08 | 699 | 0.1− | 0.5− |
| 2004 11 09 | 703 | 0.3− | 0.1+ | 2007 09 05 | 703 | 0.1+ | 0.3+ | 2007 09 08 | 699 | 0.8+ | 1.3+ |
| 2004 11 09 | 703 | 1.6− | 0.3+ | 2007 09 05 | 703 | 0.2+ | 1.0− | 2007 09 14 | 683 | 1.6+ | 0.5− |
| 2004 11 09 | 703 | 0.1− | 0.2+ | 2007 09 05 | 703 | 0.5+ | 0.4+ | 2007 09 14 | 683 | 1.2− | 1.6− |
| 2004 11 11 | 691 | 0.1+ | 0.3− | 2007 09 05 | 703 | 1.4− | 0.5+ | | | | |
| 2004 11 11 | 691 | 0.1+ | 0.2− | 2007 09 08 | 699 | 0.4− | 0.8+ | | | | |

**2007 RL$_{310}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 231.94696 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27315747 | $\omega$ | 246.59803 | | +0.97775208 | +0.17038470 | |
| $a$ | 2.3524875 | $\Omega$ | 103.41332 | | −0.11477365 | +0.92277589 | |
| $e$ | 0.1458696 | $i$ | 7.22596 | | −0.17557867 | +0.34562076 | |
| $P$ | 3.61 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 25 | 699 | 0.2+ | 0.6+ | 2007 09 14 | 703 | 0.0 | 0.3− | 2008 12 03 | G96 | 0.3+ | 0.2− |
| 2000 09 25 | 699 | 0.5− | 0.5− | 2007 09 14 | 703 | 0.2− | 0.0 | 2008 12 03 | G96 | 0.4+ | 0.4− |
| 2000 09 25 | 699 | 0.7+ | 0.3− | 2007 09 14 | 703 | 0.2+ | 0.2− | 2008 12 03 | G96 | 0.6+ | 0.6− |
| 2000 09 25 | 699 | 0.4− | 0.5+ | 2007 09 14 | 703 | 0.4− | 0.0 | 2008 12 03 | G96 | 0.1+ | 0.5− |
| 2006 04 09 | G96 | 0.3+ | 0.3+ | 2007 09 18 | 699 | 0.0 | 0.1+ | 2009 01 18 | 691 | 0.1− | 0.0 |
| 2006 04 09 | G96 | 0.1+ | 0.5+ | 2007 09 18 | 699 | 0.3+ | 1.0+ | 2009 01 18 | 691 | 0.0 | 0.1+ |
| 2006 04 09 | G96 | 0.4+ | 0.3+ | 2007 09 18 | 699 | 0.4+ | 0.2+ | 2009 01 18 | 691 | 0.0 | 0.3+ |
| 2006 04 09 | G96 | 0.4− | 0.5+ | 2007 09 18 | 699 | 0.5− | 0.3− | 2009 02 14 | 703 | 0.2+ | 1.2− |
| 2007 09 05 | 703 | 0.4+ | 0.1− | 2007 10 11 | 703 | 0.4− | 0.2− | 2009 02 14 | 703 | 0.5− | 0.0 |
| 2007 09 05 | 703 | 0.2− | 0.6− | 2007 10 11 | 703 | 0.0 | 0.2− | 2009 02 14 | 703 | 0.7+ | 0.6+ |
| 2007 09 05 | 703 | 0.7− | 0.2+ | 2007 10 11 | 703 | (1.6− | 0.4+) | 2009 02 14 | 703 | 0.0 | 1.4+ |
| 2007 09 05 | 703 | 0.0 | 0.2− | 2007 10 11 | 703 | 1.1− | 0.4− | 2009 03 16 | 703 | 1.3+ | 0.6+ |
| 2007 09 14 | 703 | 0.2+ | 1.3+ | 2007 11 01 | 699 | (0.1− | 1.5−) | 2009 03 16 | 703 | 0.2− | 0.3− |
| 2007 09 14 | 703 | 0.2− | 1.1+ | 2007 11 01 | 699 | 0.1− | 0.4− | 2009 03 16 | 703 | 0.8− | 0.3+ |
| 2007 09 14 | 703 | (1.1+ | 1.7+) | 2007 11 01 | 699 | (1.7+ | 0.3+) | 2009 03 16 | 703 | (1.7− | 0.5−) |
| 2007 09 14 | 703 | 0.8+ | 1.5+ | 2007 11 01 | 699 | 0.4+ | 0.3− | | | | |

**2007 RP$_{310}$ = 1991 SA$_4$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 160.44850 | | (2000.0) | | | |
| $n$ | 0.18106158 | $\omega$ | 305.40657 | | +0.84848749 | +0.52047262 |
| $a$ | 3.0944621 | $\Omega$ | 23.67908 | | −0.37425820 | +0.71811636 |
| $e$ | 0.2872623 | $i$ | 13.79995 | | −0.37416545 | +0.46197094 |
| $P$ | 5.44 | $H$ | 16.0 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1991 09 30 | 691 | 0.3− | 0.1− | 2002 11 24 | 644 | 0.7− | 0.4− | 2007 09 06 | E12 | 0.8− | 0.0 |
| 1991 09 30 | 691 | 0.0 | 0.8+ | 2002 11 24 | 644 | 0.2− | 0.4− | 2007 10 02 | E12 | 0.4− | 0.2+ |
| 1991 10 13 | 691 | 0.0 | 0.6− | 2002 11 24 | 644 | 0.6− | 0.2− | 2007 10 02 | E12 | 0.0 | 0.0 |
| 1991 10 13 | 691 | 0.1+ | 0.7− | 2002 11 24 | 644 | 0.2− | 0.1− | 2007 10 02 | E12 | 0.1− | 0.1− |
| 1991 10 13 | 691 | 0.8+ | 0.2− | 2002 12 11 | 644 | 0.1− | 0.6+ | 2007 10 02 | E12 | 0.3+ | 0.5− |
| 2002 11 01 | 644 | 0.0 | 0.8+ | 2002 12 11 | 644 | 0.3+ | 0.8+ | 2007 10 16 | 703 | 1.0− | 0.4+ |
| 2002 11 01 | 644 | 0.1+ | 1.1+ | 2002 12 11 | 644 | 0.4− | 0.4+ | 2007 10 16 | 703 | 0.4+ | 0.6+ |
| 2002 11 01 | 644 | 0.5+ | 0.8+ | 2007 09 06 | E12 | 1.0− | 0.4+ | 2007 10 16 | 703 | 1.3+ | 0.3+ |
| 2002 11 24 | 644 | 0.5− | 0.5− | 2007 09 06 | E12 | 0.2− | 0.1− | 2007 10 16 | 703 | 1.1+ | 0.6+ |
| 2002 11 24 | 644 | 0.1− | 0.1− | 2007 09 06 | E12 | 0.3− | 0.0 | | | | |

**2007 RQ$_{310}$ = 1992 SA$_{26}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 169.05727 | | (2000.0) | | | |
| $n$ | 0.19844551 | $\omega$ | 220.27090 | | +0.99804441 | +0.04063669 |
| $a$ | 2.9109977 | $\Omega$ | 137.32724 | | −0.02150381 | +0.93667872 |
| $e$ | 0.1575315 | $i$ | 4.01829 | | −0.05869364 | +0.34782414 |
| $P$ | 4.97 | $H$ | 16.6 | $G$ | 0.15 | $U$ 5 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1992 09 26 | 691 | 0.1+ | 0.1+ | 2007 09 11 | D35 | 0.4+ | 0.2− | 2007 10 12 | 703 | 0.9+ | 1.4+ |
| 1992 09 26 | 691 | 0.1+ | 0.1− | 2007 09 11 | D35 | 0.2− | 0.2+ | 2007 10 12 | 703 | 0.2− | 0.3+ |
| 1992 09 27 | 691 | 0.2+ | 0.2− | 2007 10 04 | 703 | 0.2− | 0.9+ | 2007 10 12 | 703 | 0.2− | 1.8− |
| 1992 09 27 | 691 | 0.0 | 0.1+ | 2007 10 04 | 703 | 0.3− | 1.5+ | 2007 10 12 | 703 | 0.3+ | 1.3− |
| 1992 09 27 | 691 | 0.4− | 0.1+ | 2007 10 04 | 703 | 1.2− | 0.2− | | | | |
| 2007 09 11 | D35 | 0.0 | 0.1− | 2007 10 04 | 703 | 0.7+ | 0.4− | | | | |

**2007 RV$_{310}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 154.85094 | | (2000.0) | | | |
| $n$ | 0.18811810 | $\omega$ | 81.08739 | | +0.98765715 | −0.07591440 |
| $a$ | 3.0165856 | $\Omega$ | 283.18014 | | +0.01092081 | +0.90594425 |
| $e$ | 0.0758563 | $i$ | 8.08903 | | +0.15625011 | +0.41653573 |
| $P$ | 5.24 | $H$ | 15.5 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 11 13 | 644 | 0.1− | 0.3+ | 2007 10 08 | 703 | 0.8− | 0.9− | 2008 11 30 | 691 | 0.3+ | 0.3+ |
| 2002 11 13 | 644 | 0.2− | 0.2+ | 2007 10 08 | 703 | 0.5− | 0.6− | 2008 11 30 | 691 | 0.2+ | 0.1+ |
| 2002 11 13 | 644 | 0.1− | 0.3+ | 2007 10 08 | 703 | (0.2− | 1.8−) | 2008 11 30 | 691 | 0.2+ | 0.0 |
| 2003 12 22 | 691 | 0.3+ | 0.6+ | 2007 11 03 | 699 | (0.3+ | 1.7−) | 2008 12 21 | 691 | 0.2+ | 0.2+ |
| 2003 12 22 | 691 | 0.1+ | 0.7+ | 2007 11 03 | 699 | 0.4+ | 0.2+ | 2008 12 21 | 691 | 0.3− | 0.4− |
| 2003 12 22 | 691 | 0.2+ | 0.4+ | 2007 11 03 | 699 | 0.7+ | 0.1− | 2008 12 21 | 691 | 0.3+ | 0.1− |
| 2007 09 13 | 703 | 0.7+ | 0.6+ | 2007 11 03 | 699 | 1.0− | 0.7− | 2008 12 31 | 691 | 1.2− | 0.7− |
| 2007 09 13 | 703 | 0.0 | 0.5+ | 2008 02 08 | G96 | 0.5− | 0.5− | 2008 12 31 | 691 | 0.1+ | 0.4− |
| 2007 09 13 | 703 | 0.4+ | 0.7+ | 2008 02 08 | G96 | 0.3− | 0.1− | 2008 12 31 | 691 | 0.2− | 0.6− |
| 2007 09 13 | 703 | 0.3+ | 1.2+ | 2008 02 08 | G96 | 0.5+ | 0.2+ | | | | |
| 2007 10 08 | 703 | 0.5− | 0.0 | 2008 02 08 | G96 | 0.8+ | 0.3− | | | | |

**2007 RX$_{310}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 234.33942 | | (2000.0) | | | |
| $n$ | 0.27377619 | $\omega$ | 89.18170 | | +0.97973715 | −0.13754820 |
| $a$ | 2.3489418 | $\Omega$ | 278.71539 | | +0.06595893 | +0.90792269 |
| $e$ | 0.1502778 | $i$ | 8.46978 | | +0.18911512 | +0.39592536 |
| $P$ | 3.60 | $H$ | 17.3 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 07 06 | 691 | 0.2+ | 0.1− | 2007 10 08 | 703 | 0.3+ | 0.4+ | 2007 11 01 | 703 | 0.0 | 0.1+ |
| 2003 07 06 | 691 | 0.2− | 0.1+ | 2007 10 08 | 703 | 0.2− | 0.8+ | 2007 11 01 | 703 | 1.2− | 0.4+ |
| 2003 07 06 | 691 | 0.1+ | 0.1− | 2007 10 08 | 703 | 0.9− | 0.1− | 2007 11 01 | 703 | 0.9− | 1.4− |
| 2007 09 13 | 703 | 0.1− | 0.3− | 2007 10 12 | 699 | 0.4+ | 0.1− | 2009 02 03 | G96 | 0.0 | 0.7+ |
| 2007 09 13 | 703 | 0.3− | 0.8+ | 2007 10 12 | 699 | 0.6− | 0.1− | 2009 02 03 | G96 | 0.6− | 0.4− |
| 2007 09 13 | 703 | 1.1− | 1.1+ | 2007 10 12 | 699 | 0.1− | 0.1+ | 2009 02 03 | G96 | 0.9− | 0.1+ |
| 2007 09 13 | 703 | 0.4− | 0.0 | 2007 10 12 | 699 | 0.0 | 0.5− | 2009 02 03 | G96 | 0.4− | 0.3+ |
| 2007 10 08 | 703 | 1.4+ | 2.2− | 2007 10 14 | 703 | 0.7+ | 0.1− | 2009 03 18 | 291 | 0.3+ | 0.1− |
| 2007 10 08 | 703 | 0.8+ | 0.3− | 2007 10 14 | 703 | 0.1− | 0.1+ | 2009 03 18 | 291 | 0.0 | 0.0 |
| 2007 10 08 | 703 | 1.2+ | 0.0 | 2007 10 14 | 703 | 0.1+ | 0.6+ | 2009 03 18 | 291 | 0.3+ | 0.0 |
| 2007 10 08 | 703 | 2.0+ | 0.4+ | 2007 10 14 | 703 | 0.7− | 0.4− | | | | |
| 2007 10 08 | 703 | 0.1− | 0.8+ | 2007 11 01 | 703 | 0.4− | 0.2+ | | | | |

**2007 RZ$_{310}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 194.68038 | | (2000.0) | | | |
| $n$ | 0.22628824 | $\omega$ | 283.75726 | | +0.96628323 | +0.16692971 |
| $a$ | 2.6670310 | $\Omega$ | 66.92526 | | −0.05819375 | +0.88325621 |
| $e$ | 0.2777106 | $i$ | 12.30331 | | −0.25081908 | +0.43817000 |
| $P$ | 4.36 | $H$ | 16.8 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 11 26 | 691 | 0.3+ | 0.2− | 2007 10 02 | E12 | 1.2+ | 0.2− | 2007 11 07 | 703 | 1.5− | 0.0 |
| 2003 11 26 | 691 | 0.3+ | 0.1− | 2007 10 02 | E12 | 0.0 | 0.8− | 2007 11 07 | 703 | 0.3− | 0.1− |
| 2003 11 26 | 691 | 0.7− | 0.3+ | 2007 10 02 | E12 | 0.9+ | 0.8− | 2007 12 06 | G96 | 0.6+ | 0.1− |
| 2003 12 14 | 691 | 0.1+ | 0.0 | 2007 10 02 | E12 | 0.0 | 0.2+ | 2007 12 06 | G96 | 0.5+ | 0.1− |
| 2003 12 14 | 691 | 0.0 | 0.1− | 2007 10 12 | 703 | 0.1+ | 1.1+ | 2007 12 06 | G96 | 0.8+ | 0.0 |
| 2003 12 14 | 691 | 0.1− | 0.2+ | 2007 10 12 | 703 | 0.3− | 0.1+ | 2007 12 06 | G96 | 0.1+ | 0.1− |
| 2007 09 14 | 703 | 0.1− | 0.1− | 2007 10 12 | 703 | 0.6− | 0.3− | 2009 01 29 | G96 | 0.4− | 0.0 |
| 2007 09 14 | 703 | 0.0 | 0.4+ | 2007 10 12 | 703 | 1.2+ | 0.4− | 2009 01 29 | G96 | 0.2+ | 0.2− |
| 2007 09 14 | 703 | 0.1+ | 0.4+ | 2007 11 07 | 703 | 1.2− | 0.3− | 2009 01 29 | G96 | 0.0 | 0.4+ |
| 2007 09 14 | 703 | 1.2− | 0.5+ | 2007 11 07 | 703 | 0.1− | 0.2+ | 2009 01 29 | G96 | 0.2+ | 0.2− |

**2007 TU$_4$ = 2007 TK$_{312}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 278.57886 | | (2000.0) | | | |
| $n$ | 0.26363498 | $\omega$ | 172.62758 | | +0.49793946 | +0.86632587 |
| $a$ | 2.4087997 | $\Omega$ | 127.22801 | | −0.79814235 | +0.47548572 |
| $e$ | 0.1911237 | $i$ | 2.82112 | | −0.33915347 | +0.15294711 |
| $P$ | 3.74 | $H$ | 17.6 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 03 05 | 645 | 0.1+ | 0.1− | 2007 09 14 | G96 | 0.2+ | 0.4− | 2007 10 11 | G96 | 0.4+ | 0.1− |
| 2002 03 05 | 645 | 0.1− | 0.0 | 2007 09 14 | G96 | 0.1+ | 0.2− | 2007 10 11 | G96 | 0.0 | 0.1− |
| 2002 03 12 | 645 | 0.0 | 0.1− | 2007 09 14 | G96 | 0.0 | 0.2− | 2007 10 11 | G96 | 0.1+ | 0.3− |
| 2002 03 12 | 645 | 0.0 | 0.1+ | 2007 10 06 | H07 | 1.0+ | 0.6+ | 2007 10 11 | G96 | 0.2− | 0.2− |
| 2006 04 25 | 691 | 0.1− | 0.0 | 2007 10 06 | H07 | 0.3+ | 1.0+ | 2007 10 15 | 691 | 0.2− | 0.1− |
| 2006 04 25 | 691 | 0.2+ | 0.2+ | 2007 10 06 | H07 | 0.6− | 0.6+ | 2007 10 15 | 691 | 0.3− | 0.1+ |
| 2006 04 25 | 691 | 0.1+ | 0.2− | 2007 10 07 | H07 | 0.1+ | 0.6+ | 2007 10 15 | 691 | 0.2+ | 0.0 |
| 2006 05 30 | G96 | 0.2+ | 0.2+ | 2007 10 07 | H07 | 0.2− | 0.5+ | 2007 10 19 | 691 | 0.0 | 0.2− |
| 2006 05 30 | G96 | 0.0 | 0.5+ | 2007 10 07 | H07 | 0.8+ | 0.8+ | 2007 10 19 | 691 | 0.0 | 0.2− |
| 2006 05 30 | G96 | 0.2− | 0.1+ | 2007 10 11 | 691 | 0.2− | 0.1+ | 2007 10 19 | 691 | 0.2− | 0.1− |
| 2006 05 30 | G96 | 0.9− | 0.0 | 2007 10 11 | 691 | 0.0 | 0.2+ | | | | |
| 2007 09 14 | G96 | 0.3+ | 0.4− | 2007 10 11 | 691 | 0.0 | 0.1− | | | | |

**2007 TP$_{15}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 147.10500 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17407070 | $\omega$ | 294.87755 | | +0.94809533 | −0.26601055 | |
| $a$ | 3.1767687 | $\Omega$ | 80.93714 | | +0.31576129 | +0.85227750 | |
| $e$ | 0.0807026 | $i$ | 10.16162 | | −0.03755069 | +0.45040144 | |
| $P$ | 5.66 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 10 03 | 734 | 0.5+ | 0.4+ | 2007 10 20 | 734 | 0.1+ | 0.3+ | 2008 11 01 | G96 | 0.2+ | 0.3+ |
| 2007 10 03 | 734 | 0.5− | 0.4+ | 2007 10 20 | 734 | 0.5+ | 0.2+ | 2008 11 01 | G96 | 0.2− | 0.1+ |
| 2007 10 03 | 734 | 0.3+ | 0.4+ | 2007 10 20 | 734 | 0.2+ | 0.0 | 2008 12 05 | G96 | 0.1+ | 0.6+ |
| 2007 10 03 | 734 | 0.7− | 0.2+ | 2007 11 01 | 734 | 0.2+ | 0.1+ | 2008 12 05 | G96 | 0.2− | 0.0 |
| 2007 10 06 | 734 | 0.0 | 0.1− | 2007 11 01 | 734 | 1.2+ | 0.8− | 2008 12 05 | G96 | 0.4+ | 0.3− |
| 2007 10 06 | 734 | 0.3+ | 0.2− | 2007 11 01 | 734 | 1.1− | 1.0− | 2008 12 05 | G96 | 0.3− | 0.1− |
| 2007 10 06 | 734 | 0.3+ | 0.2+ | 2007 12 03 | 734 | 0.5− | 0.1+ | 2009 01 01 | G96 | 0.3+ | 0.0 |
| 2007 10 09 | 734 | 0.2− | 0.2− | 2007 12 03 | 734 | 0.1− | 1.2+ | 2009 01 01 | G96 | 0.2+ | 0.1− |
| 2007 10 09 | 734 | 0.2− | 0.7− | 2008 11 01 | G96 | 0.1+ | 0.1− | 2009 01 01 | G96 | 0.2+ | 0.0 |
| 2007 10 09 | 734 | 0.0 | 0.6− | 2008 11 01 | G96 | 0.6− | 0.3− | 2009 01 01 | G96 | 0.4− | 0.1− |

**2007 TN$_{20}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 183.81058 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19476376 | $\omega$ | 89.84423 | | +0.95319162 | +0.29779897 | |
| $a$ | 2.9475688 | $\Omega$ | 252.83009 | | −0.29462060 | +0.87579534 | |
| $e$ | 0.1324543 | $i$ | 3.14148 | | −0.06800325 | +0.37986615 | |
| $P$ | 5.06 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 09 24 | 691 | 0.4− | 0.2+ | 2007 10 09 | 704 | 0.4− | 0.3− | 2007 10 20 | 703 | 1.0− | 0.2− |
| 2007 09 24 | 691 | 0.2+ | 0.2+ | 2007 10 09 | 704 | 0.3− | 0.0 | 2007 10 20 | 703 | 0.2− | 0.5− |
| 2007 09 24 | 691 | 0.2− | 0.0 | 2007 10 12 | 704 | 1.4+ | 0.2+ | 2007 10 20 | 703 | 0.2+ | 0.8− |
| 2007 10 07 | G96 | 0.1− | 0.1− | 2007 10 12 | 704 | 0.2+ | 0.9+ | 2007 11 07 | G96 | 0.0 | 0.1− |
| 2007 10 07 | 703 | 0.9+ | 1.5− | 2007 10 12 | 704 | 0.5− | 0.4− | 2007 11 07 | G96 | 0.1+ | 0.2− |
| 2007 10 07 | G96 | 0.1+ | 0.1− | 2007 10 12 | 704 | 0.3+ | 0.4+ | 2007 11 07 | G96 | 0.4− | 0.3− |
| 2007 10 07 | 703 | 0.3+ | 1.0+ | 2007 10 12 | 704 | 0.4− | 0.5+ | 2007 11 07 | G96 | 0.1− | 0.2− |
| 2007 10 07 | G96 | 0.3+ | 0.2− | 2007 10 12 | 704 | 0.5− | 0.2+ | 2008 12 04 | G96 | 0.2− | 0.1+ |
| 2007 10 07 | 703 | 0.9− | 0.4+ | 2007 10 12 | 704 | 0.6− | 0.4− | 2008 12 04 | G96 | 0.1+ | 0.2+ |
| 2007 10 07 | G96 | 0.1− | 0.0 | 2007 10 12 | 704 | 0.5− | 0.7+ | 2008 12 04 | G96 | 0.1− | 0.2− |
| 2007 10 07 | 703 | 0.9− | 0.2+ | 2007 10 12 | 704 | 0.5− | 0.5+ | 2008 12 04 | G96 | 0.1+ | 0.0 |
| 2007 10 08 | 704 | 1.0+ | 0.5− | 2007 10 13 | 703 | 1.3+ | 0.0 | 2009 01 02 | G96 | 0.1− | 0.1− |
| 2007 10 08 | 704 | 0.9+ | 0.1+ | 2007 10 13 | 703 | 0.6+ | 0.2+ | 2009 01 02 | G96 | 0.1+ | 0.1− |
| 2007 10 08 | 704 | 0.1+ | 0.0 | 2007 10 13 | 703 | 0.1− | 0.2+ | 2009 01 02 | G96 | 0.3+ | 0.1+ |
| 2007 10 09 | 704 | 0.3+ | 0.3− | 2007 10 13 | 703 | 1.0+ | 0.4+ | 2009 01 02 | G96 | 0.0 | 0.3+ |
| 2007 10 09 | 704 | 0.2+ | 1.1− | 2007 10 20 | 703 | 0.2+ | 0.2− | | | | |

**2007 TN$_{28}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 190.84045 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21652273 | $\omega$ | 149.28282 | | +0.97552327 | −0.21849659 | |
| $a$ | 2.7466314 | $\Omega$ | 223.36049 | | +0.19371055 | +0.90719887 | |
| $e$ | 0.0847485 | $i$ | 2.06758 | | +0.10407008 | +0.35951279 | |
| $P$ | 4.55 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 10 04 | 691 | 0.0 | 0.4+ | 2007 10 12 | 691 | 0.0 | 0.0 | 2007 11 18 | G96 | 0.4+ | 0.3− |
| 2007 10 04 | 691 | 0.3+ | 0.0 | 2007 10 12 | 691 | 0.1+ | 0.2− | 2007 12 05 | G96 | 0.2− | 0.0 |
| 2007 10 04 | 691 | 0.1− | 0.2+ | 2007 10 20 | 691 | 0.6+ | 0.6+ | 2007 12 05 | G96 | 0.5− | 0.2− |
| 2007 10 07 | G96 | 0.1+ | 0.5− | 2007 10 20 | 691 | 0.1− | 0.1− | 2007 12 05 | G96 | 0.3− | 0.3− |
| 2007 10 07 | G96 | 0.2+ | 0.6− | 2007 10 20 | 691 | 0.7− | 0.3− | 2007 12 05 | G96 | 0.1− | 0.3− |
| 2007 10 07 | G96 | 0.4+ | 0.5− | 2007 10 20 | 691 | 0.0 | 0.0 | 2009 01 18 | 691 | 0.3− | 0.1− |
| 2007 10 07 | G96 | 0.1+ | 0.3− | 2007 10 20 | 691 | 0.1− | 0.1− | 2009 01 18 | 691 | 0.2− | 0.2+ |
| 2007 10 08 | 691 | 0.1− | 0.0 | 2007 10 20 | 691 | 0.1+ | 0.3− | 2009 01 18 | 691 | 0.5+ | 0.2− |
| 2007 10 08 | 691 | 0.2− | 0.3+ | 2007 11 18 | G96 | 0.0 | 0.2− | 2009 02 01 | 691 | 0.2+ | 0.0 |
| 2007 10 08 | 691 | 0.2− | 0.4+ | 2007 11 18 | G96 | 0.6+ | 0.0 | 2009 02 01 | 691 | 0.3− | 0.3+ |
| 2007 10 12 | 691 | 0.1− | 0.1− | 2007 11 18 | G96 | 1.0+ | 0.0 | 2009 02 01 | 691 | 0.2+ | 0.0 |

**2007 TC$_{62}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 174.66195 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18062199 | $\omega$ | 148.22893 | | +0.99546518 | +0.02281771 | |
| $a$ | 3.0994810 | $\Omega$ | 210.87181 | | −0.04532309 | +0.96730023 | |
| $e$ | 0.0799577 | $i$ | 10.36841 | | +0.08363550 | +0.25260564 | |
| $P$ | 5.46 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 04 16 | 691 | 0.3+ | 0.5+ | 2007 10 07 | G96 | 0.3+ | 0.2− | 2007 10 20 | 703 | 1.0+ | 0.1− |
| 2005 04 16 | 691 | 0.3+ | 0.2+ | 2007 10 07 | G96 | 0.5+ | 0.3+ | 2007 10 20 | 703 | 1.1+ | 0.5+ |
| 2005 04 16 | 691 | 0.2+ | 0.1+ | 2007 10 08 | 691 | 0.0 | 0.2+ | 2007 10 20 | 703 | (1.1+ | 2.0+) |
| 2005 04 30 | 691 | 0.0 | 0.1+ | 2007 10 08 | 691 | 0.4− | 0.0 | 2007 11 01 | G96 | 0.1− | 0.4− |
| 2005 04 30 | 691 | 0.1− | 0.3+ | 2007 10 08 | 691 | 0.5− | 0.3+ | 2007 11 01 | G96 | 0.4+ | 0.4− |
| 2005 04 30 | 691 | 0.3+ | 0.0 | 2007 10 12 | 691 | 0.0 | 0.0 | 2007 11 01 | G96 | 0.5+ | 0.5− |
| 2005 05 14 | G96 | 1.1− | 0.5− | 2007 10 12 | 691 | 0.2− | 0.1+ | 2007 11 01 | G96 | 0.5+ | 0.6− |
| 2005 05 14 | G96 | 1.3− | 0.3− | 2007 10 12 | 691 | 0.1+ | 0.1− | 2007 11 14 | 704 | 0.3− | 0.6+ |
| 2005 05 14 | G96 | 1.4− | 0.2− | 2007 10 20 | 691 | 0.1− | 0.1− | 2007 11 14 | 704 | (1.5− | 1.6+) |
| 2005 05 14 | G96 | 0.0 | 0.2− | 2007 10 20 | 691 | 0.1− | 0.1+ | 2007 11 14 | 704 | 0.5+ | 1.4+ |
| 2007 10 07 | G96 | 0.4+ | 0.2− | 2007 10 20 | 691 | 0.2− | 0.0 | 2007 11 14 | 704 | 0.2− | 1.4+ |
| 2007 10 07 | G96 | 0.6+ | 0.1+ | 2007 10 20 | 703 | 0.1− | 0.2− | | | | |

**2007 TH$_{73}$ = 2007 TR$_{121}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 178.28227 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21138476 | $\omega$ | 302.96827 | | +0.92772631 | −0.37229939 | |
| $a$ | 2.7909599 | $\Omega$ | 78.90150 | | +0.35092232 | +0.84551097 | |
| $e$ | 0.0833383 | $i$ | 1.56368 | | +0.12719045 | +0.38275889 | |
| $P$ | 4.66 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 10 09 | 291 | 0.1− | 0.0 | 2007 10 14 | A44 | 0.3+ | 0.2− | 2007 10 23 | 691 | 0.2− | 0.0 |
| 2002 10 09 | 291 | 0.3− | 0.1+ | 2007 10 14 | A44 | 0.1+ | 0.2− | 2007 11 02 | A44 | 0.4− | 0.8+ |
| 2002 10 09 | 291 | 0.4+ | 0.0 | 2007 10 15 | A44 | 0.0 | 0.1− | 2007 11 02 | A44 | 0.2+ | 0.3+ |
| 2003 12 29 | 691 | 0.0 | 0.3+ | 2007 10 15 | A44 | 0.4+ | 0.0 | 2007 11 07 | G96 | 0.2+ | 0.0 |
| 2003 12 29 | 691 | 0.1+ | 0.2− | 2007 10 15 | A44 | 0.2+ | 0.1− | 2007 11 07 | G96 | 0.0 | 0.1− |
| 2003 12 29 | 691 | 0.0 | 0.1+ | 2007 10 16 | A44 | 0.0 | 0.4− | 2007 11 07 | G96 | 0.4+ | 0.4− |
| 2007 10 06 | 691 | 0.2− | 0.1+ | 2007 10 16 | A44 | 0.0 | 0.3+ | 2007 11 07 | G96 | 0.3− | 0.2− |
| 2007 10 06 | 691 | 0.0 | 0.6+ | 2007 10 16 | A44 | 0.1+ | 0.1+ | 2007 12 05 | G96 | 0.5+ | 0.2− |
| 2007 10 06 | 691 | 0.2− | 0.0 | 2007 10 18 | 691 | 0.2+ | 0.3− | 2007 12 05 | G96 | 0.2+ | 0.6− |
| 2007 10 10 | 691 | 0.4− | 0.4+ | 2007 10 18 | 691 | 0.2+ | 0.3− | 2007 12 05 | G96 | 0.0 | 0.4− |
| 2007 10 10 | 691 | 0.2− | 0.2− | 2007 10 18 | 691 | 0.3+ | 0.1− | 2007 12 05 | G96 | 0.3+ | 0.0 |
| 2007 10 10 | 691 | 0.0 | 0.5− | 2007 10 23 | 691 | 0.1− | 0.0 | | | | |
| 2007 10 14 | A44 | 0.3+ | 0.1− | 2007 10 23 | 691 | 0.1+ | 0.5+ | | | | |

**2007 TP$_{109}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 199.38903 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21565325 | $\omega$ | 12.93870 | | +0.96417038 | +0.26205352 | |
| $a$ | 2.7540091 | $\Omega$ | 331.76496 | | −0.25050249 | +0.84815477 | |
| $e$ | 0.1257229 | $i$ | 5.00487 | | −0.08731538 | +0.46039270 | |
| $P$ | 4.57 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 09 09 | 691 | 0.1− | 0.3+ | 2007 10 09 | 704 | 0.2+ | 1.1+ | 2007 10 21 | G96 | 0.4− | 1.5− |
| 2007 09 09 | 691 | 0.7− | 0.2− | 2007 10 09 | 704 | 0.2− | 0.2+ | 2007 10 21 | G96 | 0.1+ | 1.4− |
| 2007 09 09 | 691 | 1.0+ | 0.6− | 2007 10 09 | 704 | 0.3− | 0.1− | 2007 10 21 | G96 | 0.1− | 1.1− |
| 2007 09 19 | 691 | 0.2− | 0.2+ | 2007 10 09 | 699 | 1.0− | 0.4− | 2007 11 12 | G96 | 0.0 | 0.6− |
| 2007 09 19 | 691 | 0.3− | 0.1+ | 2007 10 09 | 699 | 0.6− | 0.3+ | 2007 11 12 | G96 | 0.1+ | 0.7− |
| 2007 09 19 | 691 | 0.3− | 0.1+ | 2007 10 09 | 699 | 0.8+ | 0.0 | 2007 11 12 | G96 | 0.8+ | 0.2− |
| 2007 10 07 | G96 | 0.3+ | 0.3− | 2007 10 09 | 699 | 1.0− | 0.5+ | 2007 11 12 | G96 | 0.3+ | 0.2+ |
| 2007 10 07 | 703 | 0.4+ | 1.3+ | 2007 10 12 | 704 | (0.4− | 2.5+) | 2009 01 26 | G96 | 0.2+ | 0.1− |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 10 07 | G96 | 0.4+ | 0.3− | 2007 10 12 | 704 | 0.1+ | 0.4+ | 2009 01 26 | G96 | 0.2+ | 0.1− |
| 2007 10 07 | 703 | 0.3− | 0.5− | 2007 10 12 | 704 | 0.1− | 0.9+ | 2009 01 26 | G96 | 0.4+ | 0.0 |
| 2007 10 07 | G96 | 0.6+ | 0.3− | 2007 10 13 | 703 | 0.4+ | 0.7+ | 2009 01 26 | G96 | 0.1+ | 0.1+ |
| 2007 10 07 | 703 | 1.6+ | 0.2+ | 2007 10 13 | 703 | 0.4+ | 0.9+ | 2009 02 14 | 691 | 0.2+ | 0.4+ |
| 2007 10 07 | G96 | 0.3+ | 0.5− | 2007 10 13 | 703 | 1.2− | 0.6+ | 2009 02 14 | 691 | 0.2− | 0.2+ |
| 2007 10 07 | 703 | 0.3+ | 1.5+ | 2007 10 13 | 703 | 0.0 | 0.5+ | 2009 02 14 | 691 | 0.2− | 0.4− |
| 2007 10 09 | 704 | 0.4+ | 0.4+ | 2007 10 21 | G96 | 0.3− | 1.4− | | | | |

### 2007 TZ$_{109}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 163.02804 | | $\omega$ | (2000.0) | +0.98619358 | −0.15167496 |
| $n$ | 0.18202344 | | $\Omega$ | 246.45313 | +0.16545896 | +0.91889239 |
| $a$ | 3.0835513 | | $i$ | 122.21034 | −0.00674960 | +0.36418606 |
| $e$ | 0.2172274 | | $H$ | 4.50516 | $G$ 0.15 | $U$ 4 |
| $P$ | 5.41 | | | 15.9 | | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 10 07 | 703 | 0.1+ | 0.0 | 2007 10 18 | 699 | 1.0+ | 1.7− | 2007 11 11 | 699 | 0.1+ | 0.7+ |
| 2007 10 07 | 703 | 0.4− | 0.1+ | 2007 10 18 | 699 | 0.8+ | 0.0 | 2007 11 12 | 704 | 0.1− | 0.0 |
| 2007 10 07 | 703 | 1.0+ | 0.3− | 2007 10 30 | 703 | 1.2− | 0.1− | 2007 11 12 | 704 | 1.3+ | 1.3+ |
| 2007 10 07 | 703 | 0.1− | 0.1+ | 2007 10 30 | 703 | 0.6+ | 0.8+ | 2007 11 12 | 704 | (2.3+ | 1.6+) |
| 2007 10 10 | G96 | 0.4+ | 0.3− | 2007 10 30 | 703 | 0.8− | 0.8+ | 2007 11 12 | 704 | 0.7+ | 0.1− |
| 2007 10 10 | G96 | 0.2− | 0.3− | 2007 10 30 | 703 | 0.1− | 0.5− | 2007 11 12 | 704 | 0.6+ | 0.7+ |
| 2007 10 10 | G96 | 0.1+ | 0.4− | 2007 11 02 | G96 | 0.0 | 0.2− | 2007 11 18 | 703 | 0.2− | 0.8− |
| 2007 10 10 | G96 | 0.0 | 0.2− | 2007 11 02 | G96 | 0.9+ | 0.3− | 2007 11 18 | 703 | 1.8− | 0.1+ |
| 2007 10 13 | 703 | 0.0 | 0.8+ | 2007 11 02 | G96 | 0.0 | 0.2− | 2007 11 18 | 703 | 0.0 | 1.1− |
| 2007 10 13 | 703 | 0.6− | 0.9+ | 2007 11 02 | G96 | 0.4+ | 0.2− | 2007 11 18 | 703 | 0.4− | 0.4− |
| 2007 10 13 | 703 | 0.5− | 0.6+ | 2007 11 04 | 704 | 0.8− | 0.4+ | 2009 01 20 | 691 | 0.5− | 0.4− |
| 2007 10 13 | 703 | 0.1+ | 1.2+ | 2007 11 04 | 704 | 0.3+ | 0.3− | 2009 01 20 | 691 | 0.4+ | 0.3+ |
| 2007 10 14 | 106 | 0.8− | 0.0 | 2007 11 04 | 704 | 1.4− | 0.2− | 2009 01 20 | 691 | 0.1+ | 0.6+ |
| 2007 10 15 | 106 | 0.5− | 0.3− | 2007 11 04 | 704 | 0.6− | 0.6+ | 2009 01 31 | 691 | 0.3− | 0.2− |
| 2007 10 15 | 106 | 0.5+ | 0.9− | 2007 11 04 | 704 | 0.3− | 0.7+ | 2009 01 31 | 691 | 0.3+ | 0.2− |
| 2007 10 15 | 106 | 1.4+ | 1.2− | 2007 11 11 | 699 | 0.6+ | 0.6− | 2009 01 31 | 691 | 0.0 | 0.1− |
| 2007 10 18 | 699 | 0.3− | 0.1+ | 2007 11 11 | 699 | 1.0+ | 0.2+ | | | | |
| 2007 10 18 | 699 | 0.8− | 0.2− | 2007 11 11 | 699 | 0.4+ | 0.4+ | | | | |

### 2007 TV$_{111}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 273.83816 | | $\omega$ | (2000.0) | +0.84088115 | +0.53667612 |
| $n$ | 0.28303115 | | $\Omega$ | 71.79227 | −0.51984367 | +0.76490722 |
| $a$ | 2.2974526 | | $i$ | 255.69637 | −0.15060363 | +0.35622421 |
| $e$ | 0.1123328 | | $H$ | 4.14162 | $G$ 0.15 | $U$ 3 |
| $P$ | 3.48 | | | 17.2 | | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 02 13 | 645 | 0.0 | 0.0 | 2007 10 09 | 699 | 0.1− | 0.1+ | 2007 10 15 | 704 | 0.7+ | 0.9− |
| 2002 02 13 | 645 | 0.0 | 0.1+ | 2007 10 11 | 691 | 0.2− | 0.1− | 2007 10 15 | 704 | 0.3+ | 0.4− |
| 2007 09 20 | 703 | (2.2+ | 2.2+) | 2007 10 11 | 691 | 0.2− | 0.2− | 2007 10 15 | 704 | 1.1+ | 0.2+ |
| 2007 09 20 | 703 | 1.1+ | 1.5+ | 2007 10 11 | 691 | 0.3− | 0.2− | 2007 10 20 | 703 | 1.8+ | 0.6+ |
| 2007 09 20 | 703 | 1.1+ | 1.0+ | 2007 10 12 | 704 | 0.0 | 0.7+ | 2007 10 20 | 703 | 0.0 | 0.8− |
| 2007 09 20 | 703 | 1.0+ | 1.6+ | 2007 10 12 | 704 | 0.3− | 0.8− | 2007 10 20 | 703 | 1.5+ | 1.5+ |
| 2007 10 08 | 703 | 0.1− | 0.8− | 2007 10 12 | 704 | 1.1− | 0.2+ | 2007 10 20 | 703 | 0.9+ | 0.8+ |
| 2007 10 08 | 703 | 1.3+ | 0.2− | 2007 10 12 | 704 | (0.3− | 2.0+) | 2007 11 07 | 704 | 0.7+ | 1.3− |
| 2007 10 08 | 703 | 0.6+ | 0.6− | 2007 10 13 | 704 | 0.4− | 1.3+ | 2007 11 07 | 704 | 0.2+ | 1.3− |
| 2007 10 08 | 703 | 0.8+ | 0.3− | 2007 10 13 | 704 | 1.9− | 0.0 | 2007 11 07 | 704 | 1.2+ | 1.0+ |
| 2007 10 09 | 704 | 0.6− | 0.4+ | 2007 10 13 | 704 | 1.2− | 0.7+ | 2007 11 07 | 704 | 0.2− | 0.4+ |
| 2007 10 09 | 704 | 1.2− | 0.4+ | 2007 10 13 | 704 | 0.9− | 0.5+ | 2007 12 15 | G96 | 0.0 | 0.2− |
| 2007 10 09 | 704 | 0.8− | 0.2+ | 2007 10 13 | 704 | 0.3− | 0.3+ | 2007 12 15 | G96 | 0.3− | 0.3− |
| 2007 10 09 | 699 | 0.6− | 1.0− | 2007 10 14 | 691 | 0.4− | 0.1+ | 2007 12 15 | G96 | 0.0 | 0.2− |
| 2007 10 09 | 704 | 0.1− | 0.5− | 2007 10 14 | 691 | 0.0 | 0.2− | 2007 12 15 | G96 | 0.3− | 0.3+ |
| 2007 10 09 | 704 | 0.4− | 0.2+ | 2007 10 14 | 691 | 0.2− | 0.1+ | 2009 02 03 | 691 | 0.3+ | 0.1+ |
| 2007 10 09 | 699 | 1.4+ | 0.3− | 2007 10 15 | 704 | 0.5+ | 0.2+ | 2009 02 03 | 691 | 0.5− | 0.3− |
| 2007 10 09 | 699 | 0.7− | 1.7− | 2007 10 15 | 704 | 1.2+ | 0.2− | 2009 02 03 | 691 | 0.2+ | 0.1+ |

### 2007 TT$_{122}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 264.10832 | | $\omega$ | (2000.0) | +0.36705638 | +0.92574091 |
| $n$ | 0.21657105 | | $\Omega$ | 249.56522 | −0.79514947 | +0.36300513 |
| $a$ | 2.7462228 | | $i$ | 42.32564 | −0.48270792 | +0.10597664 |
| $e$ | 0.1043653 | | $H$ | 7.76350 | $G$ 0.15 | $U$ 2 |
| $P$ | 4.55 | | | 16.7 | | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 11 16 | 691 | 0.2− | 0.1+ | 2007 10 10 | 691 | 1.0− | 0.3− | 2007 11 17 | G96 | 0.1+ | 0.6+ |
| 1998 11 16 | 691 | 0.1+ | 0.0 | 2007 10 10 | 691 | 0.2− | 0.0 | 2007 11 17 | G96 | 0.0 | 0.4+ |
| 1998 11 16 | 691 | 0.1+ | 0.0 | 2007 11 01 | G96 | 0.3+ | 0.3− | 2007 11 17 | G96 | 0.3+ | 0.6+ |
| 2001 04 16 | 691 | 0.0 | 0.1+ | 2007 11 01 | G96 | 0.2− | 0.2− | 2007 11 17 | G96 | 0.5+ | 0.3+ |
| 2001 04 16 | 691 | 0.1− | 0.1+ | 2007 11 01 | G96 | 0.2− | 0.3− | 2007 12 05 | G96 | 0.5+ | 0.1− |
| 2001 04 16 | 691 | 0.2+ | 0.0 | 2007 11 01 | G96 | 0.4+ | 0.2− | 2007 12 05 | G96 | 0.3+ | 0.2+ |
| 2007 10 06 | 691 | 0.5+ | 0.1+ | 2007 11 02 | G96 | 0.3+ | 0.1− | 2007 12 05 | G96 | 0.6+ | 0.0 |
| 2007 10 06 | 691 | 0.2+ | 0.2− | 2007 11 02 | G96 | 0.2+ | 0.3− | 2007 12 05 | G96 | 0.1− | 0.3+ |
| 2007 10 06 | 691 | 0.5− | 0.3+ | 2007 11 02 | G96 | 0.1− | 0.4− | | | | |
| 2007 10 10 | 691 | 0.4+ | 0.3+ | 2007 11 02 | G96 | 0.2− | 0.4− | | | | |

### 2007 TY$_{132}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 142.62354 | | $\omega$ | (2000.0) | +0.74704154 | −0.66477177 |
| $n$ | 0.17944030 | | $\Omega$ | 215.25047 | +0.61538740 | +0.69308576 |
| $a$ | 3.1130736 | | $i$ | 186.41644 | +0.25145038 | +0.27876625 |
| $e$ | 0.1873036 | | $H$ | 1.39849 | $G$ 0.15 | $U$ 3 |
| $P$ | 5.49 | | | 16.7 | | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 24 | 691 | 0.2− | 0.3+ | 2007 10 07 | G96 | 0.4+ | 0.4− | 2007 10 18 | 691 | 0.0 | 0.3− |
| 2001 08 24 | 691 | 0.0 | 0.3+ | 2007 10 07 | G96 | 0.3+ | 0.1+ | 2007 10 18 | 691 | 0.2− | 0.1+ |
| 2001 08 24 | 691 | 0.1− | 0.1+ | 2007 10 10 | 691 | 0.0 | 0.4+ | 2007 11 09 | G96 | 0.4+ | 0.5− |
| 2007 09 09 | G96 | 0.3+ | 0.0 | 2007 10 10 | 691 | 0.3+ | 0.4− | 2007 11 09 | G96 | 0.7+ | 0.2− |
| 2007 09 09 | G96 | 0.0 | 0.1− | 2007 10 10 | 691 | 0.0 | 0.3+ | 2007 11 09 | G96 | 0.4+ | 0.6− |
| 2007 09 09 | G96 | 0.4+ | 0.4− | 2007 10 16 | 691 | 0.6− | 0.1− | 2007 11 09 | G96 | 0.5+ | 0.6− |
| 2007 09 09 | G96 | 0.1+ | 0.5− | 2007 10 16 | 691 | 0.2− | 0.3+ | 2009 02 01 | 691 | 0.3+ | 0.2+ |
| 2007 10 07 | G96 | 0.6+ | 0.0 | 2007 10 16 | 691 | 0.4− | 0.3+ | 2009 02 01 | 691 | 0.4− | 0.2+ |
| 2007 10 07 | G96 | 0.5+ | 0.1− | 2007 10 18 | 691 | 0.2+ | 0.1+ | 2009 02 01 | 691 | 0.4+ | 0.3+ |

### 2007 TQ$_{136}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 149.39834 | | $\omega$ | (2000.0) | +0.95097650 | −0.28211720 |
| $n$ | 0.18060861 | | $\Omega$ | 65.35481 | +0.18659772 | +0.85013499 |
| $a$ | 3.0996340 | | $i$ | 310.76617 | +0.24662723 | +0.44461263 |
| $e$ | 0.1790529 | | $H$ | 9.63033 | $G$ 0.15 | $U$ 3 |
| $P$ | 5.46 | | | 15.7 | | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 10 08 | 703 | (1.3− | 1.6+) | 2007 10 21 | 703 | 0.6− | 0.0 | 2008 12 29 | G96 | 0.1− | 0.4− |
| 2007 10 08 | 703 | 0.3+ | 0.7+ | 2007 10 21 | 703 | 0.4− | 0.7− | 2008 12 29 | G96 | 0.4− | 0.7− |
| 2007 10 08 | 703 | 0.4+ | 0.6+ | 2007 10 21 | 703 | 0.8− | 0.2+ | 2008 12 29 | G96 | 0.1− | 0.4− |
| 2007 10 08 | 703 | 0.5− | 0.4− | 2007 11 07 | 699 | 0.0 | 0.3− | 2009 01 08 | 691 | 0.3− | 0.2+ |
| 2007 10 10 | 699 | 0.3− | 1.2+ | 2007 11 07 | 699 | 0.2+ | 0.1− | 2009 01 08 | 691 | 0.1+ | 0.2− |
| 2007 10 10 | 699 | 0.4− | 1.1+ | 2007 11 07 | 699 | 0.1+ | 0.1− | 2009 01 08 | 691 | 0.2− | 0.4+ |
| 2007 10 10 | 699 | 0.2− | 0.2+ | 2007 11 07 | 699 | 0.5+ | 1.2− | 2009 01 20 | 691 | 0.1− | 0.3+ |
| 2007 10 10 | 699 | 0.7− | 0.3− | 2007 11 09 | 704 | 0.7− | 0.2+ | 2009 01 20 | 691 | 0.1+ | 0.2+ |
| 2007 10 14 | 703 | 0.3+ | 0.1+ | 2007 11 09 | 704 | 0.4− | 0.1− | 2009 01 20 | 691 | 0.4+ | 0.0 |
| 2007 10 14 | 703 | 0.3+ | 0.6− | 2007 11 09 | 704 | 0.1− | 0.0 | 2009 02 03 | 291 | 0.1− | 0.2− |
| 2007 10 14 | 703 | 1.0+ | 0.3− | 2007 11 09 | 704 | 0.2− | 0.2+ | 2009 02 03 | 291 | 0.0 | 0.1− |
| 2007 10 14 | 703 | 0.5+ | 0.0 | 2007 11 09 | 704 | 0.7+ | 0.5− | 2009 02 03 | 291 | 0.3+ | 0.1− |
| 2007 10 21 | 703 | 1.0+ | 0.1+ | 2008 12 29 | G96 | 0.1+ | 0.5− | | | | |

**2007 TC$_{140}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 301.68150 | | (2000.0) | | | |
| $n$ | 0.30101883 | $\omega$ | 347.53321 | | +0.72637591 | +0.68474481 |
| $a$ | 2.2049916 | $\Omega$ | 328.98887 | | −0.62030864 | +0.61606254 |
| $e$ | 0.2109051 | $i$ | 6.59626 | | −0.29596493 | +0.38934753 |
| $P$ | 3.27 | $H$ | 17.2 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 10 09 | 703 | 0.4+ | 0.9+ | 2007 11 02 | 703 | (1.6+ | 0.6+) | 2008 01 01 | G96 | 0.3+ | 0.4− |
| 2007 10 09 | 703 | 1.1+ | 0.0 | 2007 11 02 | 703 | 0.3− | 0.5+ | 2008 01 01 | G96 | 0.3+ | 0.2+ |
| 2007 10 09 | 703 | 0.1− | 1.0− | 2007 11 02 | 703 | 0.2+ | 0.1− | 2008 01 01 | G96 | 0.1− | 0.4− |
| 2007 10 09 | 703 | 0.3− | 0.0 | 2007 11 02 | 703 | 0.6− | 0.9+ | 2008 01 01 | G96 | 0.1− | 0.1− |
| 2007 10 10 | 699 | 0.5− | 0.5− | 2007 11 09 | 704 | (1.1+ | 1.8+) | 2009 01 31 | 691 | 0.1− | 0.0 |
| 2007 10 10 | 699 | 0.8+ | 0.8− | 2007 11 09 | 704 | 0.0 | 0.4+ | 2009 01 31 | 691 | 0.0 | 0.0 |
| 2007 10 10 | 699 | 0.4− | 0.4+ | 2007 11 09 | 704 | 0.5− | 0.0 | 2009 01 31 | 691 | 0.0 | 0.0 |
| 2007 10 10 | 699 | 0.8+ | 0.7− | 2007 11 09 | 704 | 0.2− | 0.4+ | 2009 03 03 | 691 | 0.2− | 0.3− |
| 2007 10 16 | 703 | 1.2− | 0.0 | 2007 11 16 | G96 | 0.1− | 0.3− | 2009 03 03 | 691 | 0.1+ | 0.2+ |
| 2007 10 16 | 703 | 0.7− | 0.4+ | 2007 11 16 | G96 | 0.3+ | 0.3− | 2009 03 03 | 691 | 0.0 | 0.3+ |
| 2007 10 16 | 703 | 0.9+ | 0.4+ | 2007 11 16 | G96 | 0.2+ | 0.4− | 2009 03 26 | G96 | 0.2+ | 0.1− |
| 2007 10 16 | 703 | 0.1− | 0.1+ | 2007 11 16 | G96 | 0.2+ | 0.3− | 2009 03 26 | G96 | 0.1+ | 0.4− |
| 2007 10 21 | 703 | 0.4− | 0.1− | 2007 12 02 | 704 | (1.6− | 0.5+) | 2009 03 26 | G96 | 0.1+ | 0.5− |
| 2007 10 21 | 703 | 0.4+ | 1.1− | 2007 12 02 | 704 | 0.8− | 0.9+ | 2009 03 26 | G96 | (0.6+ | 2.6−) |
| 2007 10 21 | 703 | 0.7+ | 0.3− | 2007 12 02 | 704 | 0.3+ | 1.2+ | | | | |
| 2007 10 21 | 703 | 0.1− | 0.2− | 2007 12 02 | 704 | 0.4− | 0.2+ | | | | |

**2007 TX$_{142}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 222.85376 | | (2000.0) | | | |
| $n$ | 0.30249448 | $\omega$ | 9.28814 | | +0.56248108 | −0.82349086 |
| $a$ | 2.1978147 | $\Omega$ | 46.52662 | | +0.75188537 | +0.47222074 |
| $e$ | 0.1154584 | $i$ | 5.85369 | | +0.34392357 | +0.31443661 |
| $P$ | 3.26 | $H$ | 17.3 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 10 09 | G96 | 0.5+ | 0.5− | 2007 10 20 | 704 | 0.0 | 1.2+ | 2007 11 12 | 703 | 0.2+ | 0.5− |
| 2007 10 09 | G96 | 0.5+ | 0.4− | 2007 10 20 | 704 | 0.4+ | 0.3+ | 2007 11 12 | 703 | 0.6+ | 0.4− |
| 2007 10 09 | G96 | 0.3+ | 0.5− | 2007 10 20 | 704 | 0.3+ | 1.0+ | 2007 11 12 | 703 | 0.3− | 0.2+ |
| 2007 10 09 | G96 | 0.1+ | 0.4− | 2007 10 20 | 703 | 0.2− | 0.4+ | 2007 12 05 | G96 | 0.3− | 0.3+ |
| 2007 10 09 | G96 | 0.5+ | 0.6− | 2007 10 20 | 704 | 0.1+ | 0.2+ | 2007 12 05 | G96 | 0.1+ | 0.1+ |
| 2007 10 09 | G96 | 0.4+ | 0.4− | 2007 10 20 | 703 | 0.8− | 0.6+ | 2007 12 05 | G96 | 0.0 | 0.3+ |
| 2007 10 09 | G96 | 0.1+ | 0.6− | 2007 10 20 | 704 | 0.4− | 1.4+ | 2007 12 15 | G96 | 0.8+ | 0.1+ |
| 2007 10 09 | G96 | 0.0 | 0.5− | 2007 10 20 | 704 | 0.5+ | 0.8+ | 2007 12 15 | G96 | 0.2+ | 0.3− |
| 2007 10 11 | 691 | 0.0 | 0.1− | 2007 10 20 | 703 | 0.3− | 0.4+ | 2007 12 15 | G96 | 0.3+ | 0.1+ |
| 2007 10 11 | 691 | 0.1− | 0.3− | 2007 10 20 | 703 | 0.7− | 0.6+ | 2007 12 15 | G96 | 0.1+ | 0.2− |
| 2007 10 11 | 691 | 0.1+ | 0.1− | 2007 10 20 | 704 | 0.2− | 0.8+ | 2007 12 15 | G96 | 0.3+ | 0.0 |
| 2007 10 15 | A77 | 0.1− | 0.5+ | 2007 10 20 | 704 | 0.3+ | 0.3+ | 2007 12 15 | G96 | 0.7+ | 0.1− |
| 2007 10 15 | A77 | 0.3− | 0.9+ | 2007 10 20 | 704 | (0.1+ | 1.9+) | 2007 12 15 | G96 | 0.3− | 0.1+ |
| 2007 10 15 | A77 | 0.1+ | 0.0 | 2007 10 21 | 691 | 0.2− | 0.0 | 2007 12 15 | G96 | 0.2+ | 0.1− |
| 2007 10 15 | 691 | 0.5− | 0.2+ | 2007 10 21 | 691 | 0.4− | 0.3+ | 2009 04 18 | G96 | 0.1− | 0.1− |
| 2007 10 15 | 691 | 0.0 | 0.1+ | 2007 10 21 | 691 | 0.3− | 0.1+ | 2009 04 18 | G96 | 0.0 | 0.2+ |
| 2007 10 15 | 691 | 0.1− | 0.1+ | 2007 10 30 | 703 | 1.4− | 0.6− | 2009 04 18 | G96 | 0.1+ | 0.1− |
| 2007 10 15 | 703 | 0.6+ | 0.6− | 2007 10 30 | 703 | 1.2− | 0.5+ | 2009 04 18 | G96 | 0.0 | 0.1+ |
| 2007 10 15 | 703 | 0.2+ | 0.1− | 2007 10 30 | 703 | 0.1+ | 0.6− | 2009 04 28 | 291 | 0.1+ | 0.4+ |
| 2007 10 15 | 703 | 0.8+ | 0.6+ | 2007 10 30 | 703 | 0.3− | 0.8+ | 2009 04 28 | 291 | 0.2+ | 0.4+ |
| 2007 10 15 | 703 | 0.1− | 0.2+ | 2007 11 05 | 704 | 0.1+ | 0.2+ | 2009 04 28 | 291 | 0.9+ | 0.9+ |
| 2007 10 18 | A77 | 0.0 | 0.7+ | 2007 11 05 | 704 | 0.4− | 0.0 | 2009 05 13 | G96 | 0.5− | 0.3+ |
| 2007 10 18 | A77 | 0.5+ | 0.5− | 2007 11 05 | 704 | 1.2+ | 0.5+ | 2009 05 13 | G96 | 0.1− | 0.2+ |
| 2007 10 18 | A77 | 0.3+ | 0.2− | 2007 11 05 | 704 | 0.0 | 0.4+ | 2009 05 13 | G96 | 0.2− | 0.2+ |
| 2007 10 20 | 704 | 1.1− | 0.0 | 2007 11 12 | 703 | 0.3+ | 0.4− | 2009 05 13 | G96 | 0.0 | 0.3+ |

**2007 TR$_{152}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 199.30914 | | (2000.0) | | | |
| $n$ | 0.21988307 | $\omega$ | 81.99825 | | +0.98613344 | +0.15255618 |
| $a$ | 2.7185762 | $\Omega$ | 269.20942 | | −0.16594812 | +0.90308681 |
| $e$ | 0.1224972 | $i$ | 3.74591 | | −0.00143280 | +0.40144841 |
| $P$ | 4.48 | $H$ | 16.5 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 06 16 | 644 | 0.6+ | 0.1+ | 2007 09 12 | 703 | 0.4− | 0.2− | 2007 11 07 | 704 | 0.4+ | 1.2− |
| 2002 06 16 | 644 | 0.0 | 0.5+ | 2007 09 12 | 703 | 0.5− | 1.0− | 2007 11 07 | 704 | 0.7− | 1.1+ |
| 2002 06 16 | 644 | 0.9+ | 0.3+ | 2007 10 07 | 703 | 0.4− | 0.5− | 2007 11 07 | 704 | 0.2− | 0.4+ |
| 2002 07 09 | 644 | 0.1− | 0.1− | 2007 10 07 | 703 | 0.9+ | 0.4− | 2007 11 12 | G96 | 0.2+ | 0.3− |
| 2002 07 09 | 644 | 0.0 | 0.1+ | 2007 10 07 | 703 | 0.6− | 0.0 | 2007 11 12 | G96 | 0.0 | 0.2− |
| 2002 07 09 | 644 | 0.3− | 0.1− | 2007 10 07 | 703 | 0.0 | 0.9+ | 2007 11 12 | G96 | 0.3+ | 0.4− |
| 2002 07 09 | 644 | 0.2− | 0.1− | 2007 10 09 | 704 | 0.9+ | 0.1+ | 2007 11 12 | G96 | 0.6+ | 0.6− |
| 2002 07 09 | 644 | 0.2− | 0.0 | 2007 10 09 | 704 | 0.2+ | 0.6− | 2009 01 07 | 691 | 0.3+ | 0.3− |
| 2002 07 09 | 644 | 0.3− | 0.0 | 2007 10 09 | 704 | (2.9+ | 1.1−) | 2009 01 07 | 691 | 0.9− | 0.4+ |
| 2002 07 22 | 644 | 0.2− | 0.4− | 2007 10 09 | 704 | 0.6+ | 0.7+ | 2009 01 07 | 691 | 0.5− | 0.0 |
| 2002 07 22 | 644 | 0.2− | 0.0 | 2007 10 12 | 704 | 0.0 | 0.3+ | 2009 01 17 | G96 | 0.2+ | 0.5− |
| 2002 07 22 | 644 | 0.6+ | 0.3− | 2007 10 12 | 704 | 0.8− | 0.1− | 2009 01 17 | G96 | 0.9+ | 0.0 |
| 2002 08 07 | 644 | 0.5− | 0.1+ | 2007 10 12 | 704 | 0.7− | 0.6− | 2009 01 17 | G96 | 0.4+ | 0.1+ |
| 2002 08 07 | 644 | 0.1− | 0.0 | 2007 10 12 | 704 | 0.1+ | 0.7+ | 2009 01 17 | G96 | 0.5+ | 0.0 |
| 2002 08 07 | 644 | 0.2− | 0.0 | 2007 10 12 | 704 | 0.2+ | 0.7+ | 2009 02 04 | G96 | 0.7+ | 0.1+ |
| 2002 08 28 | 644 | 0.3+ | 0.1+ | 2007 10 13 | 703 | 1.3+ | 0.6+ | 2009 02 04 | G96 | 0.9+ | 0.3+ |
| 2002 08 28 | 644 | 0.0 | 0.4− | 2007 10 13 | 703 | 0.0 | 0.3− | 2009 02 04 | G96 | 0.1+ | 0.0 |
| 2002 08 28 | 644 | 0.2+ | 0.2+ | 2007 10 13 | 703 | 0.7− | 0.3+ | 2009 02 04 | G96 | 0.9+ | 0.1− |
| 2007 09 12 | 703 | 0.2− | 0.7+ | 2007 10 13 | 703 | 0.9− | 0.1− | | | | |
| 2007 09 12 | 703 | 0.2+ | 0.2+ | 2007 11 07 | 704 | (0.1+ | 1.6+) | | | | |

**2007 TV$_{173}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 125.08931 | | (2000.0) | | | |
| $n$ | 0.18534997 | $\omega$ | 33.64972 | | +0.54334647 | −0.83831290 |
| $a$ | 3.0465457 | $\Omega$ | 23.53380 | | +0.74339553 | +0.45566680 |
| $e$ | 0.1103836 | $i$ | 6.44059 | | +0.39004833 | +0.29933134 |
| $P$ | 5.32 | $H$ | 16.3 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 09 11 | G96 | 0.5+ | 0.3− | 2007 10 15 | D35 | 0.3− | 0.3+ | 2009 01 29 | G96 | 0.7+ | 0.1− |
| 2007 09 11 | G96 | 0.4+ | 0.5− | 2007 10 15 | D35 | 0.4+ | 0.2− | 2009 01 29 | G96 | 0.4− | 0.2− |
| 2007 09 11 | G96 | 0.2+ | 0.5− | 2007 11 01 | G96 | 0.3+ | 0.2− | 2009 02 04 | 703 | 0.1+ | 0.5− |
| 2007 09 11 | G96 | 0.7+ | 0.4− | 2007 11 01 | G96 | 0.2+ | 0.3− | 2009 02 04 | 703 | 0.3+ | 0.2+ |
| 2007 10 04 | 691 | 0.2− | 0.0 | 2007 11 01 | G96 | 0.1+ | 0.1− | 2009 02 04 | 703 | 0.0 | 0.9+ |
| 2007 10 04 | 691 | 0.1− | 0.5+ | 2007 11 01 | G96 | 0.5+ | 0.2− | 2009 02 04 | 703 | 0.2− | 0.2+ |
| 2007 10 04 | 691 | 0.5− | 0.0 | 2009 01 29 | G96 | 0.1+ | 0.6− | | | | |
| 2007 10 15 | D35 | 0.2+ | 0.1− | 2009 01 29 | G96 | 0.6− | 0.1+ | | | | |

**2007 TV$_{179}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 350.45673 | | (2000.0) | | | |
| $n$ | 0.18110433 | $\omega$ | 349.70892 | | −0.97128429 | +0.23422274 |
| $a$ | 3.0939751 | $\Omega$ | 203.96194 | | −0.21032401 | −0.92738380 |
| $e$ | 0.0054781 | $i$ | 5.90631 | | −0.11122337 | −0.29171732 |
| $P$ | 5.44 | $H$ | 16.1 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 10 07 | G96 | 0.5+ | 0.6− | 2007 11 01 | G96 | 0.0 | 0.2− | 2009 02 02 | G96 | 0.5+ | 0.1− |
| 2007 10 07 | G96 | 0.4+ | 0.2− | 2007 11 01 | G96 | 0.2+ | 0.1− | 2009 02 02 | G96 | 0.1+ | 0.1− |
| 2007 10 07 | G96 | 0.4+ | 0.3− | 2007 11 01 | G96 | 0.3+ | 0.4− | 2009 02 02 | G96 | 0.3+ | 0.2− |
| 2007 10 07 | G96 | 0.3+ | 0.0 | 2007 11 09 | G96 | 0.3− | 1.3+ | 2009 03 02 | G96 | 0.4− | 0.2+ |
| 2007 10 10 | 691 | 0.3− | 0.0 | 2007 11 09 | G96 | 0.5+ | 0.5− | 2009 03 02 | G96 | 0.0 | 0.1+ |
| 2007 10 10 | 691 | 0.3− | 0.5+ | 2007 11 09 | G96 | 0.0 | 0.4− | 2009 03 02 | G96 | 0.6− | 0.1− |
| 2007 10 10 | 691 | 0.2− | 0.1− | 2007 11 09 | G96 | 0.5+ | 0.2− | 2009 03 02 | G96 | 0.2− | 0.7+ |
| 2007 11 01 | G96 | 0.3+ | 0.2− | 2009 02 02 | G96 | 0.2+ | 0.4− | | | | |

**2007 TQ$_{186}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 188.55037 | | $\omega$ | 202.51614 | +0.89930625 | −0.43712105 |
| $n$ | 0.23226640 | | $\Omega$ | 183.48909 | +0.42692710 | +0.88406354 |
| $a$ | 2.6210690 | | $i$ | 12.49802 | +0.09477086 | +0.16539904 |
| $e$ | 0.1830648 | | $H$ | 16.7 | $G$ 0.15 | $U$ 3 |
| $P$ | 4.24 | | | | | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 03 12 | 691 | 0.1+ | 0.3+ | 2007 10 13 | 704 | 0.2− | 0.2+ | 2007 11 11 | 704 | 0.4− | 0.0 |
| 2005 03 12 | 691 | 0.1− | 0.2+ | 2007 10 13 | 704 | 0.4+ | 0.9+ | 2007 11 11 | 704 | 0.5+ | 0.0 |
| 2005 03 12 | 691 | 0.1+ | 0.2− | 2007 10 13 | 704 | 0.1− | 0.1− | 2007 11 11 | 704 | 0.3+ | 0.3+ |
| 2007 09 14 | G96 | 0.1+ | 0.2− | 2007 10 17 | 699 | 0.1− | 0.5− | 2007 11 11 | 704 | 1.0− | 0.4− |
| 2007 09 14 | G96 | 0.0 | 0.0 | 2007 10 17 | 699 | 0.5+ | 0.1− | 2007 11 17 | 703 | 1.4− | 1.2− |
| 2007 09 14 | G96 | 0.4+ | 0.0 | 2007 10 17 | 699 | 0.2+ | 0.1− | 2007 11 17 | 703 | 0.8− | 1.1− |
| 2007 09 18 | 699 | 1.3+ | 0.2− | 2007 10 17 | 699 | 0.3− | 0.6+ | 2007 11 17 | 703 | (0.7− | 2.3−) |
| 2007 09 18 | 699 | 1.2− | 0.4+ | 2007 10 19 | 704 | 0.9+ | 0.1− | 2007 11 17 | 703 | 0.6− | 0.2+ |
| 2007 09 18 | 699 | 0.3− | 0.3+ | 2007 10 19 | 704 | 0.6+ | 0.7− | 2009 04 01 | G96 | 0.4− | 0.1+ |
| 2007 09 18 | 699 | 1.2− | 0.5+ | 2007 10 19 | 704 | 0.2+ | 0.3− | 2009 04 01 | G96 | 0.8+ | 0.1− |
| 2007 10 12 | 703 | 0.3+ | 0.1− | 2007 10 19 | 704 | 0.2+ | 0.1− | 2009 04 01 | G96 | 0.1− | 0.1− |
| 2007 10 12 | 703 | 0.6− | 1.4+ | 2007 10 19 | 703 | 1.1+ | 0.4+ | 2009 04 01 | G96 | 0.1+ | 0.1− |
| 2007 10 12 | 703 | 1.0− | 0.0 | 2007 10 19 | 703 | 0.8+ | 0.1+ | 2009 04 01 | G96 | 0.0 | 0.2− |
| 2007 10 12 | 703 | 0.2− | 1.2− | 2007 10 19 | 703 | 1.2+ | 1.0+ | 2009 04 01 | G96 | 0.2− | 0.0 |
| 2007 10 13 | 704 | 0.7− | 0.3− | 2007 10 19 | 703 | 0.3+ | 1.1+ | 2009 04 01 | G96 | 0.1+ | 0.0 |
| 2007 10 13 | 704 | 0.1− | 0.4− | 2007 11 11 | 704 | 0.0 | 0.2+ | 2009 04 01 | G96 | 0.2− | 0.3+ |

**2007 TN$_{196}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 129.14984 | | $\omega$ | 216.61546 | +0.52653655 | −0.84965417 |
| $n$ | 0.17507287 | | $\Omega$ | 201.65899 | +0.79751370 | +0.50550457 |
| $a$ | 3.1646339 | | $i$ | 4.52280 | +0.29450153 | +0.15017630 |
| $e$ | 0.1672692 | | $H$ | 16.0 | $G$ 0.15 | $U$ 3 |
| $P$ | 5.63 | | | | | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 09 13 | G96 | 0.0 | 0.2− | 2007 11 01 | 291 | 0.1+ | 0.1− | 2007 11 11 | 699 | 0.1− | 0.3− |
| 2007 09 13 | G96 | 0.4− | 0.6− | 2007 11 01 | 291 | 0.1+ | 0.1− | 2007 11 14 | 704 | 0.4− | 0.4+ |
| 2007 09 13 | G96 | 0.1− | 0.4− | 2007 11 01 | 291 | 0.1+ | 0.2− | 2007 11 14 | 704 | 0.1+ | 0.6+ |
| 2007 09 13 | G96 | 0.1+ | 0.5− | 2007 11 02 | 291 | 0.4− | 0.3− | 2007 11 14 | 704 | 0.3− | 0.3+ |
| 2007 10 07 | G96 | 0.7+ | 0.2− | 2007 11 02 | 291 | 0.2− | 0.4− | 2007 11 14 | 704 | 0.1+ | 0.8+ |
| 2007 10 07 | G96 | 0.2+ | 0.5− | 2007 11 02 | 291 | 0.1− | 0.1− | 2007 11 14 | 704 | 0.1− | 0.3+ |
| 2007 10 07 | G96 | 0.7+ | 0.5− | 2007 11 05 | G96 | 0.3+ | 0.6− | 2007 11 14 | 704 | 1.1+ | 0.3+ |
| 2007 10 07 | G96 | 0.3+ | 0.2− | 2007 11 05 | G96 | 0.3+ | 0.6− | 2007 11 14 | 704 | 0.1− | 1.0+ |
| 2007 10 12 | 691 | 0.6+ | 0.3+ | 2007 11 05 | G96 | 0.2+ | 0.6− | 2007 11 14 | 704 | 0.3− | 0.4+ |
| 2007 10 12 | 691 | 0.7− | 0.4+ | 2007 11 05 | G96 | 0.3+ | 0.5− | 2007 11 14 | 704 | 0.6+ | 0.3− |
| 2007 10 12 | 691 | 0.1− | 0.3+ | 2007 11 07 | 703 | 0.2+ | 1.5+ | 2009 02 03 | 691 | 0.2+ | 0.7+ |
| 2007 10 16 | 691 | 0.1+ | 0.1+ | 2007 11 07 | 703 | 0.6− | 0.3− | 2009 02 03 | 691 | 0.1− | 0.6+ |
| 2007 10 16 | 691 | 0.1+ | 0.2+ | 2007 11 07 | 703 | 0.5− | 1.1+ | 2009 02 03 | 691 | 0.1− | 1.9− |
| 2007 10 16 | 691 | 0.1+ | 0.3+ | 2007 11 07 | 703 | 0.2− | 0.0 | 2009 02 27 | 703 | 0.9+ | 0.8− |
| 2007 10 20 | 691 | 0.3− | 0.1− | 2007 11 11 | 699 | 0.3− | 0.1− | 2009 02 27 | 703 | 0.3− | 1.2+ |
| 2007 10 20 | 691 | 0.2− | 0.2+ | 2007 11 11 | 699 | 0.3+ | 0.1+ | 2009 02 27 | 703 | 0.8+ | 0.6+ |
| 2007 10 20 | 691 | 0.0 | 0.2− | 2007 11 11 | 699 | 1.4+ | 1.6− | 2009 02 27 | 703 | 1.0− | 1.5+ |

**2007 TC$_{208}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 197.84616 | | $\omega$ | 217.16073 | +0.99713562 | −0.02825585 |
| $n$ | 0.22063788 | | $\Omega$ | 144.26524 | +0.04843809 | +0.95098090 |
| $a$ | 2.7123725 | | $i$ | 6.89942 | −0.05808874 | +0.30795606 |
| $e$ | 0.0501911 | | $H$ | 16.8 | $G$ 0.15 | $U$ 3 |
| $P$ | 4.47 | | | | | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 09 25 | 645 | 0.0 | 0.1+ | 2002 08 08 | 644 | 0.0 | 0.2+ | 2007 10 10 | 703 | 1.2− | 0.3+ |
| 1998 09 25 | 645 | 0.1− | 0.0 | 2002 08 08 | 644 | 0.1− | 0.0 | 2007 10 10 | 703 | 0.3+ | 1.5− |
| 2002 07 22 | 644 | 0.2− | 0.7+ | 2002 08 08 | 644 | 0.2− | 0.0 | 2007 10 10 | 703 | 0.9− | 1.2− |
| 2002 07 22 | 644 | 0.3+ | 0.1+ | 2002 08 08 | 644 | 0.1− | 0.1− | 2007 10 10 | 703 | 0.1+ | 0.7− |
| 2002 07 22 | 644 | 0.1− | 0.1+ | 2002 08 17 | 644 | 0.1+ | 0.3− | 2007 10 11 | 703 | 0.5+ | 0.3+ |
| 2002 07 29 | 644 | 0.1+ | 0.1− | 2002 08 17 | 644 | 0.1+ | 0.1− | 2007 10 11 | 703 | 0.4+ | 1.2+ |
| 2002 07 29 | 644 | 0.1+ | 0.3+ | 2002 08 17 | 644 | 0.2− | 0.3+ | 2007 10 11 | 703 | 0.8+ | 0.2+ |
| 2002 07 29 | 644 | 0.3− | 0.4− | 2002 08 17 | 644 | 0.2+ | 0.3− | 2007 10 11 | 703 | 0.4− | 0.3− |
| 2002 08 07 | 644 | 0.1+ | 0.0 | 2002 08 17 | 644 | 0.2− | 0.1+ | 2007 10 21 | G96 | 0.3+ | 0.0 |
| 2002 08 07 | 644 | 0.0 | 0.0 | 2002 08 17 | 644 | 0.2+ | 0.1+ | 2007 10 21 | G96 | 0.4+ | 0.0 |
| 2002 08 07 | 644 | 0.1+ | 0.2− | 2002 08 27 | 644 | 0.2+ | 0.1+ | 2007 10 21 | G96 | 0.1− | 0.2+ |
| 2002 08 08 | 644 | 0.2+ | 0.1− | 2002 08 27 | 644 | 0.2+ | 0.7− | 2007 10 21 | G96 | 0.2+ | 0.0 |
| 2002 08 08 | 644 | 0.5− | 0.0 | 2002 08 27 | 644 | 0.1+ | 0.2− | | | | |

**2007 TM$_{226}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 149.88845 | | $\omega$ | 303.88092 | +0.91384774 | −0.40460657 |
| $n$ | 0.17512331 | | $\Omega$ | 80.00642 | +0.38310316 | +0.83111895 |
| $a$ | 3.1640263 | | $i$ | 1.99537 | +0.13458929 | +0.38149026 |
| $e$ | 0.1037907 | | $H$ | 16.4 | $G$ 0.15 | $U$ 3 |
| $P$ | 5.63 | | | | | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 02 26 | 695 | 0.0 | 0.1+ | 2007 11 01 | G96 | 0.0 | 0.0 | 2008 12 22 | 691 | 0.1− | 0.2− |
| 2004 02 26 | 695 | 0.1+ | 0.1+ | 2007 11 18 | G96 | 0.1+ | 0.2− | 2009 01 02 | 691 | 0.7+ | 0.2+ |
| 2007 10 08 | 691 | 0.1− | 0.3+ | 2007 11 18 | G96 | 0.2− | 0.0 | 2009 01 02 | 691 | 0.2− | 0.2+ |
| 2007 10 08 | 691 | 0.1+ | 0.4+ | 2007 11 18 | G96 | 0.0 | 0.2− | 2009 01 02 | 691 | 0.3+ | 0.1+ |
| 2007 10 08 | 691 | 0.6− | 1.0− | 2007 11 18 | G96 | 0.2− | 0.1− | 2009 01 16 | 691 | 0.5+ | 0.3− |
| 2007 10 12 | 691 | 0.1+ | 0.4+ | 2008 01 12 | G96 | 0.0 | 0.1− | 2009 01 16 | 691 | 0.2− | 0.0 |
| 2007 10 12 | 691 | 0.2+ | 0.0 | 2008 01 12 | G96 | 0.3− | 0.3− | 2009 01 16 | 691 | 1.6− | 0.4+ |
| 2007 10 12 | 691 | 0.2+ | 0.2+ | 2008 01 12 | G96 | 0.1+ | 1.0− | 2009 01 20 | 691 | 0.5− | 0.1− |
| 2007 11 01 | G96 | 0.4+ | 0.0 | 2008 01 12 | G96 | 0.4+ | 0.5+ | 2009 01 20 | 691 | 0.8+ | 0.1+ |
| 2007 11 01 | G96 | 0.2+ | 0.1− | 2008 12 22 | 691 | 0.3+ | 0.2− | 2009 01 20 | 691 | 0.1− | 0.0 |
| 2007 11 01 | G96 | 0.2+ | 0.1− | 2008 12 22 | 691 | 0.2+ | 0.2− | | | | |

**2007 TE$_{229}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 299.86442 | | $\omega$ | 354.53860 | −0.54766007 | +0.83631456 |
| $n$ | 0.17241604 | | $\Omega$ | 242.25239 | −0.76656639 | −0.51370025 |
| $a$ | 3.1970612 | | $i$ | 1.64623 | −0.33532734 | −0.19154638 |
| $e$ | 0.0485889 | | $H$ | 15.8 | $G$ 0.15 | $U$ 4 |
| $P$ | 5.72 | | | | | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 08 19 | 691 | 0.1+ | 0.3− | 2007 10 08 | 691 | 0.4− | 0.0 | 2007 11 09 | G96 | 0.4+ | 0.3+ |
| 2006 08 19 | 691 | 0.1+ | 0.5+ | 2007 10 12 | 691 | 0.1− | 0.2− | 2007 11 09 | G96 | 0.2− | 0.8+ |
| 2006 08 19 | 691 | 0.0 | 0.1+ | 2007 10 12 | 691 | 0.3− | 0.1− | 2007 11 09 | G96 | 0.3+ | 0.2+ |
| 2006 09 26 | G96 | 0.6− | 0.4− | 2007 10 12 | 691 | 0.4− | 0.2− | 2007 11 11 | G96 | 0.3+ | 0.2− |
| 2006 09 26 | G96 | 0.4− | 0.1− | 2007 10 30 | G96 | 0.1+ | 0.2− | 2007 11 11 | G96 | 0.7+ | 0.1− |
| 2006 09 26 | G96 | 0.2− | 0.5− | 2007 10 30 | G96 | 0.4− | 0.5− | 2007 11 11 | G96 | 0.5+ | 0.0 |
| 2006 09 26 | G96 | 0.1− | 0.5− | 2007 10 30 | G96 | 0.4− | 0.8− | 2007 11 11 | G96 | 0.3+ | 0.2− |
| 2007 10 08 | 691 | 0.5+ | 0.1+ | 2007 10 30 | G96 | 0.1+ | 0.3− | | | | |
| 2007 10 08 | 691 | 0.2+ | 0.7+ | 2007 11 09 | G96 | 0.3+ | 0.2+ | | | | |

**2007 TS$_{243}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 145.63299 | | $\omega$ | 71.81830 | +0.46362936 | −0.88568566 |
| $n$ | 0.20931658 | | $\Omega$ | 350.44679 | +0.74633945 | +0.40539038 |
| $a$ | 2.8093141 | | $i$ | 8.54937 | +0.47751989 | +0.22631737 |
| $e$ | 0.2267068 | | $H$ | 16.4 | $G$ 0.15 | $U$ 3 |
| $P$ | 4.71 | | | | | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 10 08 | 703 | 0.3+ | 0.6+ | 2007 10 17 | G96 | 0.1+ | 0.3− | 2008 01 03 | G96 | 0.1+ | 0.3− |
| 2007 10 08 | 703 | 0.1− | 0.3− | 2007 10 17 | G96 | 0.3− | 0.4− | 2008 01 03 | G96 | 0.5+ | 0.6− |
| 2007 10 08 | 703 | 0.1+ | 0.1+ | 2007 10 17 | A50 | 1.3+ | 1.0+ | 2008 01 03 | G96 | 0.0 | 0.1+ |
| 2007 10 08 | 703 | 0.7− | 0.0 | 2007 10 17 | A50 | 0.9+ | 1.2+ | 2008 01 03 | G96 | 0.1− | 0.0 |
| 2007 10 12 | 699 | 0.5+ | 0.8− | 2007 10 17 | A50 | (1.4+ | 1.7+) | 2009 02 21 | 691 | 0.0 | 0.1+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 10 12 | 699 | 0.0 | 0.0 | 2007 10 17 | A50 | 0.1+ | 0.4+ | 2009 02 21 | 691 | 0.4+ | 0.2− |
| 2007 10 12 | 699 | 0.6− | 0.1− | 2007 11 02 | 704 | 0.0 | 0.4− | 2009 02 21 | 691 | 0.1+ | 0.0 |
| 2007 10 12 | 699 | 0.5− | 0.0 | 2007 11 02 | 704 | 0.2− | 0.5− | 2009 02 28 | 691 | 0.8− | 0.2+ |
| 2007 10 14 | 703 | 0.1− | 0.2− | 2007 11 02 | 704 | 0.5− | 0.1+ | 2009 02 28 | 691 | 0.2− | 0.1− |
| 2007 10 14 | 703 | (1.8− | 0.9−) | 2007 11 02 | 704 | 0.5− | 0.4− | 2009 02 28 | 691 | 0.2+ | 0.5+ |
| 2007 10 14 | 703 | 0.3− | 0.2− | 2007 11 02 | 704 | 0.2+ | 0.4+ | 2009 03 19 | G96 | 0.2+ | 0.4− |
| 2007 10 14 | 703 | (2.0− | 0.6−) | 2007 11 08 | 704 | 0.2− | 0.2− | 2009 03 19 | G96 | 0.3+ | 0.4− |
| 2007 10 17 | G96 | 0.1− | 0.3− | 2007 11 08 | 704 | 0.2+ | 1.0+ | 2009 03 19 | G96 | 0.1+ | 0.3− |
| 2007 10 17 | G96 | 0.1+ | 0.4− | 2007 11 08 | 704 | 0.2− | 0.6+ | 2009 03 19 | G96 | 0.4+ | 0.3− |

**2007 TS$_{287}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 286.84842 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.30077353 | $\omega$ | 218.69630 | | +0.74692147 | | +0.65256711 |
| $a$ | 2.2061903 | $\Omega$ | 100.07694 | | −0.57329107 | | +0.72920250 |
| $e$ | 0.1702127 | $i$ | 7.44246 | | −0.33681695 | | +0.20596086 |
| $P$ | 3.28 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 03 24 | 691 | 0.0 | 0.5+ | 2007 10 11 | 703 | 0.1− | 0.0 | 2007 11 02 | 703 | 0.8+ | 1.2+ |
| 2003 03 24 | 691 | 0.2+ | 0.3+ | 2007 10 11 | 703 | 1.0− | 1.2− | 2007 11 02 | 703 | 0.4− | 0.7+ |
| 2003 03 24 | 691 | 0.1+ | 0.1+ | 2007 10 11 | 703 | 0.8− | 0.2− | 2007 11 02 | 703 | (0.4− | 2.5+) |
| 2007 09 12 | 703 | 0.1− | 0.9− | 2007 10 15 | 699 | 0.1− | 0.3− | 2007 11 11 | 704 | 0.1− | 0.4+ |
| 2007 09 12 | 703 | 0.2− | 0.4+ | 2007 10 15 | 699 | 0.3− | 0.3− | 2007 11 11 | 704 | 0.3+ | 0.2+ |
| 2007 09 12 | 703 | 0.4+ | 0.8− | 2007 10 15 | 699 | 0.4− | 0.2− | 2007 11 11 | 704 | 0.1− | 0.7+ |
| 2007 09 12 | 703 | 0.1− | 0.6− | 2007 10 15 | 699 | 0.1− | 0.6+ | 2007 11 11 | 704 | 0.7+ | 1.0+ |
| 2007 10 09 | A50 | 1.6− | 0.5+ | 2007 10 19 | 703 | 1.0+ | 0.8− | 2009 01 31 | G96 | 0.2− | 0.3− |
| 2007 10 09 | A50 | 0.9− | 0.3− | 2007 10 19 | 703 | 0.0 | 1.0+ | 2009 01 31 | G96 | 0.1+ | 0.1− |
| 2007 10 09 | A50 | 0.8− | 1.1− | 2007 10 19 | 703 | 0.8+ | 1.7+ | 2009 01 31 | G96 | 0.0 | 0.2− |
| 2007 10 09 | A50 | 0.4+ | 0.4− | 2007 10 19 | 703 | 0.3+ | 0.8+ | 2009 01 31 | G96 | 0.1− | 0.2− |
| 2007 10 11 | 703 | 0.3+ | 0.0 | 2007 11 02 | 703 | 1.8+ | 0.9+ | | | | |

**2007 TD$_{298}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 106.52732 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18940854 | $\omega$ | 74.04360 | | +0.04536143 | | −0.99827109 |
| $a$ | 3.0028687 | $\Omega$ | 13.52230 | | +0.84448650 | | +0.01833139 |
| $e$ | 0.1803175 | $i$ | 9.19867 | | +0.53365241 | | +0.05584608 |
| $P$ | 5.20 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 09 14 | G96 | 0.8+ | 0.1+ | 2007 10 31 | 691 | 0.1− | 0.0 | 2007 11 13 | 691 | 0.0 | 0.2− |
| 2007 09 14 | G96 | 0.9+ | 0.4− | 2007 10 31 | 691 | 0.4− | 0.0 | 2007 11 13 | 691 | 0.2+ | 0.0 |
| 2007 09 14 | G96 | 0.5+ | 0.6− | 2007 10 31 | 691 | 0.2+ | 0.0 | 2007 11 15 | 691 | 0.1+ | 0.0 |
| 2007 09 14 | G96 | 0.1+ | 0.2+ | 2007 10 31 | A44 | 0.4+ | 0.1+ | 2007 11 15 | 691 | 0.3+ | 0.2+ |
| 2007 10 04 | 691 | 0.6+ | 0.3+ | 2007 10 31 | A44 | 1.0+ | 0.3+ | 2007 11 15 | 691 | 0.6− | 0.1+ |
| 2007 10 04 | 691 | 0.1+ | 0.3+ | 2007 10 31 | A44 | 0.5+ | 0.2+ | 2009 02 24 | 104 | 1.1− | 1.4+ |
| 2007 10 04 | 691 | 0.1− | 0.6+ | 2007 11 02 | 691 | 0.0 | 0.0 | 2009 02 24 | 104 | 1.6− | 0.2− |
| 2007 10 11 | G96 | 0.2+ | 0.3− | 2007 11 02 | 691 | 0.2+ | 0.1+ | 2009 02 24 | 104 | 0.2+ | 0.9− |
| 2007 10 11 | G96 | 0.1+ | 0.6− | 2007 11 02 | 691 | 0.3+ | 0.1− | 2009 03 21 | 291 | 0.0 | 0.0 |
| 2007 10 11 | G96 | 0.7+ | 0.5− | 2007 11 07 | 691 | 0.0 | 0.1+ | 2009 03 21 | 291 | 0.4+ | 0.0 |
| 2007 10 16 | 691 | 0.5− | 0.5− | 2007 11 07 | 691 | 0.3+ | 0.1− | 2009 03 21 | 291 | 0.3+ | 0.0 |
| 2007 10 16 | 691 | 0.6− | 0.2+ | 2007 11 07 | 691 | 0.1− | 0.3− | | | | |
| 2007 10 16 | 691 | 0.8− | 0.8− | 2007 11 13 | 691 | 0.1− | 0.5+ | | | | |

**2007 TF$_{388}$ = 2005 EC$_{135}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 213.74730 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21824894 | $\omega$ | 158.85394 | | +0.91801394 | | +0.39652445 |
| $a$ | 2.7321295 | $\Omega$ | 177.77089 | | −0.37793494 | | +0.87817946 |
| $e$ | 0.0294823 | $i$ | 6.39431 | | −0.12006492 | | +0.26752421 |
| $P$ | 4.52 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 06 | 644 | 0.1− | 0.0 | 2005 03 11 | G96 | 0.1+ | 0.1+ | 2007 11 07 | 705 | 0.1− | 0.1+ |
| 2002 08 06 | 644 | 0.2− | 0.1+ | 2007 10 13 | G96 | 0.1+ | 0.2− | 2007 11 07 | 705 | 0.3− | 0.3+ |
| 2002 08 06 | 644 | 0.3− | 0.2+ | 2007 10 13 | G96 | 0.4+ | 0.2− | 2007 11 09 | 705 | 0.1− | 0.1− |
| 2002 08 16 | 644 | 0.1+ | 0.0 | 2007 10 13 | G96 | (0.2+ | 1.6+) | 2007 11 09 | 705 | 0.2+ | 0.1− |
| 2002 08 16 | 644 | 0.2− | 0.3+ | 2007 10 13 | G96 | 0.0 | 0.1+ | 2007 11 09 | 705 | 0.1− | 0.0 |
| 2002 08 16 | 644 | 0.4+ | 0.3+ | 2007 10 18 | G96 | 0.3+ | 0.1− | 2007 11 18 | 705 | 0.2+ | 0.3+ |
| 2005 03 09 | G96 | 0.4+ | 0.3+ | 2007 10 18 | G96 | 0.1− | 0.1+ | 2007 11 18 | 705 | 0.2+ | 0.1+ |
| 2005 03 09 | G96 | 0.4+ | 0.1+ | 2007 10 18 | G96 | 0.0 | 0.2− | 2007 11 18 | 705 | 0.0 | 0.1+ |
| 2005 03 09 | G96 | 0.2+ | 0.1− | 2007 10 18 | G96 | 0.1+ | 0.2+ | 2009 01 03 | G96 | 0.1− | 0.1+ |
| 2005 03 09 | G96 | 0.8− | 1.1+ | 2007 11 02 | G96 | 0.5+ | 0.4+ | 2009 01 03 | G96 | 0.1+ | 0.0 |
| 2005 03 11 | G96 | 0.2− | 0.0 | 2007 11 02 | G96 | 1.1− | 0.0 | 2009 01 03 | G96 | 0.2− | 0.1− |
| 2005 03 11 | G96 | 0.3+ | 0.1+ | 2007 11 02 | G96 | 0.0 | 0.0 | 2009 01 03 | G96 | 0.0 | 0.0 |
| 2005 03 11 | G96 | 0.1+ | 0.1− | 2007 11 02 | G96 | 0.5− | 0.1− | | | | |

**2007 TE$_{405}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 10.86136 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18857189 | $\omega$ | 155.60209 | | −0.97018409 | | +0.22068982 |
| $a$ | 3.0117441 | $\Omega$ | 37.59106 | | −0.24046681 | | −0.82477554 |
| $e$ | 0.0553989 | $i$ | 9.45347 | | −0.03030756 | | −0.52061629 |
| $P$ | 5.23 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 10 15 | 691 | 0.1+ | 0.1− | 2007 10 31 | 691 | 0.3+ | 0.2− | 2009 01 28 | 703 | 0.2− | 0.6+ |
| 2007 10 15 | 691 | 0.2+ | 0.1− | 2007 11 04 | 691 | 0.1+ | 0.1− | 2009 01 28 | 703 | 0.2− | 0.6− |
| 2007 10 15 | 691 | 0.1+ | 0.3− | 2007 11 04 | 691 | 0.7− | 0.2+ | 2009 01 28 | 703 | 0.7+ | 0.3− |
| 2007 10 19 | 691 | 0.3+ | 0.0 | 2007 11 04 | 691 | 0.9− | 0.2+ | 2009 01 29 | G96 | 0.3+ | 0.1− |
| 2007 10 19 | 691 | 0.0 | 0.0 | 2007 12 05 | 691 | 0.1+ | 0.1− | 2009 01 29 | G96 | 0.4+ | 0.0 |
| 2007 10 19 | 691 | 0.2+ | 0.1+ | 2007 12 05 | 691 | 0.1− | 0.3+ | 2009 01 29 | G96 | 0.4+ | 0.1− |
| 2007 10 31 | 691 | 0.0 | 0.3+ | 2007 12 05 | 691 | 0.6+ | 0.4− | 2009 01 29 | G96 | 0.1+ | 0.0 |
| 2007 10 31 | 691 | 0.1− | 0.3+ | 2009 01 28 | 703 | 1.4− | 0.5+ | | | | |

**2007 TS$_{422}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 103.12503 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.19135938 | $\omega$ | 49.32793 | | −0.39793872 | | −0.90854305 |
| $a$ | 2.9824251 | $\Omega$ | 64.54905 | | +0.79345712 | | −0.41047390 |
| $e$ | 0.1267040 | $i$ | 8.10189 | | +0.46051121 | | −0.07785048 |
| $P$ | 5.15 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 10 10 | G96 | 0.6+ | 0.2− | 2007 11 14 | 704 | 0.3+ | 0.0 | 2007 12 15 | G96 | 0.5+ | 0.2− |
| 2007 10 10 | G96 | 0.5+ | 0.6− | 2007 11 14 | 704 | 0.2+ | 0.2− | 2007 12 15 | G96 | 0.4+ | 0.1− |
| 2007 10 10 | G96 | 0.9+ | 0.4− | 2007 11 14 | 704 | 0.4+ | 0.8+ | 2007 12 15 | G96 | 0.0 | 0.3− |
| 2007 10 10 | G96 | 0.7+ | 0.3− | 2007 11 14 | 704 | 0.5− | 0.4+ | 2007 12 15 | G96 | 0.2+ | 0.2− |
| 2007 10 31 | 691 | 0.0 | 0.5− | 2007 11 19 | 691 | 0.0 | 0.2+ | 2009 03 01 | G96 | 0.1+ | 0.1+ |
| 2007 10 31 | 691 | 0.2+ | 0.1+ | 2007 11 19 | 691 | 0.2− | 0.0 | 2009 03 01 | G96 | 0.1− | 0.0 |
| 2007 10 31 | 691 | 0.2+ | 0.4+ | 2007 11 19 | 691 | 0.1− | 0.1+ | 2009 03 01 | G96 | 0.1− | 0.0 |
| 2007 11 08 | 691 | 0.7− | 0.2+ | 2007 12 06 | G96 | 0.5+ | 0.2− | 2009 03 01 | G96 | 0.3− | 0.2+ |
| 2007 11 08 | 691 | 0.4− | 0.1− | 2007 12 06 | G96 | 0.2+ | 0.0 | 2009 03 20 | J75 | 0.0 | 0.0 |
| 2007 11 08 | 691 | 0.2− | 0.3− | 2007 12 06 | G96 | 0.6+ | 0.5+ | 2009 03 20 | J75 | 0.2+ | 0.7− |
| 2007 11 14 | 704 | 0.4− | 0.4+ | 2007 12 06 | G96 | 0.2+ | 0.2− | 2009 03 20 | J75 | 0.2+ | 0.3+ |

**2007 TY$_{425}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 57.26100 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18316653 | $\omega$ | 89.51651 | | −0.58768688 | | −0.80770294 |
| $a$ | 3.0707089 | $\Omega$ | 36.60984 | | +0.70717660 | | −0.54120398 |
| $e$ | 0.0754878 | $i$ | 4.55199 | | +0.39309717 | | −0.23391070 |
| $P$ | 5.38 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 10 09 | 691 | 0.0 | 0.2+ | 2007 10 21 | 691 | 0.1− | 0.4+ | 2009 01 01 | 691 | 0.1+ | 0.1− |
| 2007 10 09 | 691 | 0.2− | 0.1− | 2007 10 30 | G96 | 0.2+ | 0.2− | 2009 01 01 | G96 | 0.3+ | 0.5− |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 10 09 | 691 | 0.2− | 0.3+ | 2007 10 30 | G96 | 0.3− | 0.5− | 2009 01 01 | G96 | 0.6+ | 0.3− |
| 2007 10 09 | 691 | 0.2− | 0.1− | 2007 10 30 | G96 | 0.1− | 0.2− | 2009 01 01 | G96 | 0.3+ | 0.6− |
| 2007 10 09 | 691 | 0.0 | 0.5+ | 2007 10 30 | G96 | 0.1− | 0.1+ | 2009 01 01 | G96 | 0.4+ | 0.3− |
| 2007 10 09 | 691 | 1.1+ | 0.5− | 2007 11 17 | G96 | 0.3− | 0.6− | 2009 01 26 | G96 | 0.1− | 0.4− |
| 2007 10 13 | 691 | 0.3− | 0.3+ | 2007 11 17 | G96 | 0.6+ | 0.4− | 2009 01 26 | G96 | 0.0 | 0.0 |
| 2007 10 13 | 691 | 0.4− | 0.3− | 2007 11 17 | G96 | 0.4+ | 0.2− | 2009 01 26 | G96 | 0.4− | 0.1+ |
| 2007 10 13 | 691 | 0.0 | 0.7− | 2007 11 17 | G96 | 0.2+ | 0.6+ | 2009 01 26 | G96 | 0.1+ | 0.3− |
| 2007 10 21 | 691 | 0.1+ | 0.2+ | 2009 01 01 | 691 | 0.3− | 0.6+ | | | | |
| 2007 10 21 | 691 | 0.0 | 0.1+ | 2009 01 01 | 691 | 0.1− | 0.0 | | | | |

**2007 TL$_{432}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 163.71444 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.19294719 | $\omega$ | 190.58665 | | +0.90540057 | | −0.42434494 |
| $a$ | 2.9660405 | $\Omega$ | 194.54502 | | +0.39333688 | | +0.85033030 |
| $e$ | 0.0754761 | $i$ | 3.07241 | | +0.15979960 | | +0.31123905 |
| $P$ | 5.11 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 10 04 | 691 | 0.1− | 0.1− | 2007 10 20 | 691 | 0.3− | 0.0 | 2009 01 18 | 691 | 0.1+ | 0.0 |
| 2007 10 04 | 691 | 0.0 | 0.0 | 2007 11 01 | G96 | 0.2+ | 0.2+ | 2009 01 18 | 691 | 0.1− | 0.1+ |
| 2007 10 04 | 691 | 0.0 | 0.2− | 2007 11 01 | G96 | 0.3+ | 0.0 | 2009 01 18 | 691 | 0.2− | 0.1+ |
| 2007 10 12 | 691 | 0.5+ | 0.3+ | 2007 11 01 | G96 | 0.1+ | 0.1+ | 2009 02 04 | G96 | 0.4+ | 0.5+ |
| 2007 10 12 | 691 | 0.1− | 0.0 | 2007 11 01 | G96 | 0.1− | 0.0 | 2009 02 04 | G96 | 0.9+ | 0.2+ |
| 2007 10 12 | 691 | 0.2− | 0.2− | 2009 01 01 | 691 | 0.3− | 0.2− | 2009 02 04 | G96 | 0.7− | 0.1− |
| 2007 10 20 | 691 | 0.0 | 0.1+ | 2009 01 01 | 691 | 0.1− | 0.1+ | 2009 02 04 | G96 | 0.3− | 0.3− |
| 2007 10 20 | 691 | 0.0 | 0.1+ | 2009 01 01 | 691 | 0.6+ | 0.2− | | | | |

**2007 TD$_{435}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 136.32367 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17861843 | $\omega$ | 334.16717 | | +0.63589694 | | −0.73830168 |
| $a$ | 3.1226157 | $\Omega$ | 75.48469 | | +0.74222894 | | +0.50519983 |
| $e$ | 0.2655745 | $i$ | 13.42878 | | +0.21149771 | | +0.44685989 |
| $P$ | 5.52 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 11 03 | 691 | 0.1+ | 0.1+ | 2007 10 31 | 703 | 0.1+ | 0.5+ | 2007 11 18 | 699 | 1.2+ | 0.1+ |
| 1996 11 03 | 691 | 0.4− | 0.2+ | 2007 10 31 | 703 | 0.1+ | 1.2+ | 2007 12 06 | 703 | 1.7− | 1.7− |
| 1996 11 03 | 691 | 0.2+ | 0.0 | 2007 10 31 | 703 | 0.1+ | 1.3+ | 2007 12 06 | 703 | 1.0− | 0.2− |
| 2002 12 13 | 645 | 0.0 | 0.1+ | 2007 11 07 | 703 | 0.0 | 0.8+ | 2007 12 06 | 703 | 0.3− | 0.1+ |
| 2002 12 13 | 645 | 0.0 | 0.0 | 2007 11 07 | 703 | 0.3+ | 0.4+ | 2007 12 06 | 703 | 0.4+ | 0.2+ |
| 2007 10 10 | 703 | 0.2− | 0.2+ | 2007 11 07 | 703 | 0.6− | 0.4− | 2008 02 10 | G96 | 0.2+ | 0.4− |
| 2007 10 10 | 703 | 0.3− | 1.6+ | 2007 11 07 | 703 | 0.3− | 0.5− | 2008 02 10 | G96 | 0.7+ | 0.2− |
| 2007 10 10 | 703 | 0.3− | 0.3− | 2007 11 18 | 703 | 0.6− | 0.3− | 2008 02 10 | G96 | 0.1+ | 0.1− |
| 2007 10 10 | 703 | 0.7+ | 1.2− | 2007 11 18 | 703 | 0.3− | 0.4+ | 2008 02 10 | G96 | 0.6+ | 0.2− |
| 2007 10 19 | 699 | 0.6− | 0.8− | 2007 11 18 | 703 | 0.1− | 0.3− | 2008 02 29 | G96 | 0.0 | 0.4− |
| 2007 10 19 | 699 | 0.1+ | 0.5− | 2007 11 18 | 703 | 1.5− | 0.2− | 2008 02 29 | G96 | 0.3− | 0.2− |
| 2007 10 19 | 699 | 0.3+ | 0.8− | 2007 11 18 | 699 | 1.3+ | 0.2− | 2008 02 29 | G96 | 0.6+ | 0.1+ |
| 2007 10 19 | 699 | 0.5− | 1.1− | 2007 11 18 | 699 | 1.3+ | 0.7+ | 2008 02 29 | G96 | 0.3+ | 0.2− |
| 2007 10 31 | 703 | 0.4+ | 0.9+ | 2007 11 18 | 699 | 1.2+ | 0.4− | | | | |

**2007 TN$_{440}$ = 2005 CN$_{70}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 280.49971 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.25527438 | $\omega$ | 342.54430 | | +0.64810479 | | +0.76136522 |
| $a$ | 2.4611112 | $\Omega$ | 327.84856 | | −0.69488218 | | +0.58218144 |
| $e$ | 0.2026587 | $i$ | 1.81211 | | −0.31160702 | | +0.28528542 |
| $P$ | 3.86 | $H$ | 17.6 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 08 19 | 809 | 0.5− | 0.7+ | 2005 02 10 | 568 | 0.0 | 0.7+ | 2007 12 03 | 703 | 0.7− | 0.3− |
| 1995 08 20 | 809 | 0.2+ | 1.0+ | 2007 10 14 | G96 | 1.0+ | 0.4− | 2007 12 03 | 703 | 0.2− | 0.2+ |
| 1995 08 25 | 809 | 0.2− | 0.1+ | 2007 10 14 | G96 | 0.5+ | 0.3− | 2007 12 03 | 703 | 0.8+ | 0.3− |
| 1995 09 17 | 809 | 0.0 | 0.6− | 2007 10 14 | G96 | 0.5+ | 0.0 | 2007 12 18 | 691 | 0.2+ | 0.2− |
| 2003 10 21 | 691 | 0.2− | 0.2+ | 2007 10 14 | G96 | 0.5+ | 0.6− | 2007 12 18 | 691 | 0.0 | 0.0 |
| 2003 10 21 | 691 | 0.1− | 0.2+ | 2007 11 09 | 300 | 0.8− | 0.4− | 2007 12 18 | 691 | 0.4− | 0.2+ |
| 2003 10 21 | 691 | 0.0 | 0.2+ | 2007 11 09 | 300 | 0.5+ | 0.1− | 2009 01 25 | 691 | 0.0 | 0.0 |
| 2005 02 08 | 568 | 0.2+ | 0.6− | 2007 11 09 | 300 | 0.1− | 0.5− | 2009 01 25 | 691 | 0.1− | 0.1+ |
| 2005 02 10 | 568 | 0.6+ | 0.3+ | 2007 11 09 | 300 | 0.2− | 0.5+ | 2009 01 25 | 691 | 0.1+ | 0.1+ |
| 2005 02 10 | 568 | 0.1− | 1.2+ | 2007 12 03 | 703 | 0.3+ | 0.9− | | | | |

**2007 TT$_{440}$ = 2009 BA$_{7}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 118.79849 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18233312 | $\omega$ | 145.71488 | | +0.47214909 | | −0.86506411 |
| $a$ | 3.0800588 | $\Omega$ | 275.57738 | | +0.76580531 | | +0.49776377 |
| $e$ | 0.1228436 | $i$ | 9.80719 | | +0.43659760 | | +0.06241237 |
| $P$ | 5.41 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 10 08 | 703 | 0.3− | 0.1− | 2007 11 01 | 703 | 1.3+ | 1.0+ | 2009 01 21 | 704 | 1.1+ | 0.9− |
| 2007 10 08 | 703 | 0.7+ | 0.5+ | 2007 11 01 | 703 | 0.7− | 0.6− | 2009 01 21 | 704 | 0.9+ | 0.3+ |
| 2007 10 08 | 703 | 0.7− | 0.7− | 2007 11 01 | 703 | 0.2− | 0.8+ | 2009 01 21 | 704 | 0.8+ | 0.3+ |
| 2007 10 08 | 703 | 0.6− | 0.3+ | 2007 11 01 | 703 | 1.2− | 0.3+ | 2009 01 21 | 704 | 0.7+ | 0.8+ |
| 2007 10 21 | 703 | 0.3+ | 0.9− | 2009 01 18 | 704 | 0.5− | 0.3+ | 2009 01 31 | G96 | 0.4− | 0.4+ |
| 2007 10 21 | 703 | 0.1+ | 0.6− | 2009 01 18 | 704 | 0.4− | 0.9− | 2009 01 31 | G96 | 0.1− | 0.1+ |
| 2007 10 21 | 703 | 0.3+ | 0.5+ | 2009 01 18 | 704 | 0.9− | 1.1− | 2009 01 31 | G96 | 0.5− | 0.3+ |
| 2007 10 21 | 703 | 1.0+ | 0.6− | 2009 01 18 | 704 | (1.8− | 0.5+) | 2009 01 31 | G96 | 0.7− | 0.2+ |

**2007 TX$_{440}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 170.31923 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18285691 | $\omega$ | 5.92357 | | +0.99953466 | | +0.01889400 |
| $a$ | 3.0741741 | $\Omega$ | 352.86106 | | −0.02913169 | | +0.82406385 |
| $e$ | 0.1659409 | $i$ | 11.11021 | | +0.00904510 | | +0.56618177 |
| $P$ | 5.39 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 07 20 | 644 | 0.4− | 0.2− | 2001 08 27 | 644 | 0.1− | 0.3+ | 2007 10 14 | 703 | 0.7− | 0.4− |
| 2001 07 20 | 644 | 0.3− | 0.4− | 2004 02 16 | 691 | 0.4+ | 0.2+ | 2007 10 14 | 703 | 0.2− | 1.2+ |
| 2001 07 20 | 644 | 0.6− | 0.4− | 2004 02 16 | 691 | 0.1+ | 0.1+ | 2007 10 14 | 703 | 0.5+ | 0.6− |
| 2001 08 10 | 644 | 0.4+ | 0.2+ | 2004 02 16 | 691 | 0.4− | 0.1− | 2007 10 14 | 703 | 0.1− | 0.4− |
| 2001 08 10 | 644 | 0.3+ | 0.0 | 2007 10 08 | 703 | 0.8− | 0.4− | 2007 11 08 | 703 | 0.2+ | 0.2− |
| 2001 08 10 | 644 | 0.1+ | 0.1+ | 2007 10 08 | 703 | 0.3+ | 0.0 | 2007 11 08 | 703 | 0.0 | 0.0 |
| 2001 08 27 | 644 | 0.2+ | 0.6+ | 2007 10 08 | 703 | 0.2+ | 0.6+ | 2007 11 08 | 703 | 0.3− | 0.1− |
| 2001 08 27 | 644 | 0.1+ | 0.5+ | 2007 10 08 | 703 | 0.2+ | 0.3− | 2007 11 08 | 703 | 0.5+ | 0.6+ |

**2007 TE$_{441}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 186.43137 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.24459758 | $\omega$ | 273.45872 | | +0.55029138 | | −0.82719240 |
| $a$ | 2.5322191 | $\Omega$ | 142.41853 | | +0.82083239 | | +0.51097252 |
| $e$ | 0.1473946 | $i$ | 10.74624 | | +0.15301500 | | +0.23379440 |
| $P$ | 4.03 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 03 19 | 645 | 0.1− | 0.0 | 2007 10 10 | 703 | 0.3+ | 0.6+ | 2007 11 07 | 703 | 0.3− | 0.0 |
| 2001 03 19 | 645 | 0.1+ | 0.0 | 2007 10 10 | 703 | (1.6+ | 0.9+) | 2007 11 07 | 703 | 0.6− | 0.4− |
| 2003 11 21 | 703 | (1.9+ | 0.4+) | 2007 10 10 | 703 | 0.5− | 0.6− | 2007 11 15 | 703 | 0.1+ | 0.8− |
| 2003 11 21 | 703 | 1.2− | 0.1− | 2007 10 10 | 703 | 0.7+ | 0.7+ | 2007 11 15 | 703 | 0.3+ | 0.2− |
| 2003 11 21 | 703 | 0.3+ | 1.4+ | 2007 10 10 | 703 | (1.7− | 0.8+) | 2007 11 15 | 703 | 0.3+ | 0.6− |
| 2003 11 21 | 703 | 0.9− | 0.4+ | 2007 10 10 | 703 | (1.7− | 0.5−) | 2007 11 15 | 703 | 0.4+ | 1.1− |
| 2003 11 23 | 699 | 0.9+ | 0.0 | 2007 10 10 | 703 | 0.1+ | 0.2+ | 2007 12 06 | 703 | 0.3− | 0.1+ |
| 2003 11 23 | 699 | 0.2− | 0.1+ | 2007 10 10 | 703 | 0.3− | 0.9+ | 2007 12 06 | 703 | 0.6− | 0.4+ |
| 2003 11 23 | 699 | 0.2+ | 0.0 | 2007 11 07 | 703 | 0.4+ | 0.3− | 2007 12 06 | 703 | 0.3− | 0.6+ |
| 2003 11 23 | 699 | 0.6+ | 0.7− | 2007 11 07 | 703 | 0.5+ | 0.0 | 2007 12 06 | 703 | 0.1− | 0.0 |

**2007 UV$_{55}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 230.45252 | | (2000.0) | | | |
| $n$ | 0.21181160 | $\omega$ | 272.05901 | | +0.83632670 | +0.54283796 |
| $a$ | 2.7872091 | $\Omega$ | 55.07276 | | −0.45842918 | +0.76919244 |
| $e$ | 0.1538927 | $i$ | 5.36867 | | −0.30066649 | +0.33714972 |
| $P$ | 4.65 | $H$ | 16.7 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 10 08 | G96 | 0.5+ | 0.2− | 2007 10 30 | 691 | 0.1+ | 0.2− | 2007 12 15 | G96 | 0.1− | 0.7− |
| 2007 10 08 | G96 | 0.5+ | 0.2− | 2007 10 31 | 691 | 0.2− | 0.1+ | 2007 12 15 | G96 | 0.2+ | 0.0 |
| 2007 10 08 | G96 | 0.4+ | 0.1− | 2007 10 31 | 691 | 0.2+ | 0.2+ | 2007 12 16 | 291 | 0.4+ | 0.0 |
| 2007 10 08 | G96 | 0.5+ | 0.3− | 2007 10 31 | 691 | 0.7− | 0.2+ | 2007 12 16 | 291 | 0.1− | 0.0 |
| 2007 10 16 | G96 | 0.3+ | 0.4− | 2007 11 05 | G96 | 0.9+ | 0.1− | 2007 12 16 | 291 | 0.3+ | 0.1+ |
| 2007 10 16 | G96 | 0.7+ | 0.1+ | 2007 11 05 | G96 | 0.6+ | 0.1− | 2008 12 31 | 691 | 0.6+ | 0.2− |
| 2007 10 16 | G96 | 0.5+ | 0.0 | 2007 11 05 | G96 | 0.3+ | 0.2− | 2008 12 31 | 691 | 0.5− | 0.2+ |
| 2007 10 16 | G96 | 0.3+ | 0.2− | 2007 11 05 | G96 | 0.5+ | 0.2− | 2008 12 31 | 691 | 0.3− | 0.4+ |
| 2007 10 16 | 691 | 0.2+ | 0.1− | 2007 12 15 | 291 | 0.1− | 0.2− | 2009 02 02 | G96 | 0.6+ | 0.6− |
| 2007 10 16 | 691 | 0.5− | 0.0 | 2007 12 15 | 291 | 0.2− | 0.0 | 2009 02 02 | G96 | 0.0 | 0.5− |
| 2007 10 16 | 691 | 0.1+ | 0.0 | 2007 12 15 | G96 | 0.4+ | 0.5− | 2009 02 02 | G96 | 0.3− | 0.1− |
| 2007 10 30 | 691 | 0.1− | 0.5+ | 2007 12 15 | 291 | 0.5− | 0.1+ | 2009 02 02 | G96 | 0.5+ | 0.3− |
| 2007 10 30 | 691 | 0.7− | 0.0 | 2007 12 15 | G96 | 0.3+ | 0.2− | | | | |

**2007 UZ$_{129}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 258.10202 | | (2000.0) | | | |
| $n$ | 0.22499683 | $\omega$ | 309.29872 | | +0.89540385 | +0.44459044 |
| $a$ | 2.6772265 | $\Omega$ | 24.33324 | | −0.38819313 | +0.80623616 |
| $e$ | 0.0573490 | $i$ | 3.38323 | | −0.21807806 | +0.39028526 |
| $P$ | 4.38 | $H$ | 17.0 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 10 16 | G96 | 0.5+ | 0.5− | 2007 11 05 | 691 | 0.1− | 0.1+ | 2007 12 19 | G96 | 0.4+ | 0.3+ |
| 2007 10 16 | G96 | 0.6+ | 0.6− | 2007 11 09 | 691 | 0.3− | 0.5− | 2009 01 29 | G96 | 0.5+ | 0.1+ |
| 2007 10 16 | G96 | 0.5+ | 0.1+ | 2007 11 09 | 691 | 0.0 | 0.0 | 2009 01 29 | G96 | 0.9+ | 0.2− |
| 2007 10 16 | G96 | 0.6+ | 0.1− | 2007 11 09 | 691 | 0.4− | 0.2− | 2009 01 29 | G96 | 0.4− | 0.1− |
| 2007 10 16 | G96 | 0.4− | 0.5− | 2007 11 17 | 691 | 0.3− | 0.0 | 2009 01 29 | G96 | 0.0 | 0.3+ |
| 2007 10 16 | G96 | 0.7+ | 0.5+ | 2007 11 17 | 691 | 1.0− | 1.0+ | 2009 03 03 | G96 | 0.7− | 0.3+ |
| 2007 10 16 | G96 | 0.2+ | 0.3− | 2007 11 17 | 691 | 0.2+ | 0.0 | 2009 03 03 | G96 | 0.5+ | 0.0 |
| 2007 10 16 | G96 | 0.7+ | 0.1− | 2007 12 19 | G96 | 1.0+ | 0.2+ | 2009 03 03 | G96 | 0.1+ | 0.4− |
| 2007 11 05 | 691 | 0.3+ | 0.3− | 2007 12 19 | G96 | 0.8+ | 0.1+ | 2009 03 03 | G96 | 0.8− | 0.1− |
| 2007 11 05 | 691 | 0.0 | 0.2+ | 2007 12 19 | G96 | 1.1+ | 0.7− | | | | |

**2007 UZ$_{135}$ = 2009 HK$_{56}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 133.46304 | | (2000.0) | | | |
| $n$ | 0.25915941 | $\omega$ | 245.11482 | | −0.73560743 | −0.67090846 |
| $a$ | 2.4364532 | $\Omega$ | 252.59813 | | +0.65152319 | −0.66287355 |
| $e$ | 0.0951642 | $i$ | 5.63000 | | +0.18547034 | −0.33238606 |
| $P$ | 3.80 | $H$ | 17.0 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 12 23 | 645 | 0.1− | 0.0 | 2007 11 14 | 300 | (0.4+ | 1.7+) | 2008 02 10 | G96 | 0.2+ | 0.3− |
| 2000 12 23 | 645 | 0.1− | 0.0 | 2007 11 14 | 300 | (0.8− | 1.6+) | 2008 02 10 | G96 | 0.4+ | 0.2− |
| 2001 02 22 | 645 | 0.0 | 0.0 | 2007 11 14 | 300 | 1.1− | 1.4+ | 2009 04 21 | G96 | 0.3+ | 0.3+ |
| 2001 02 22 | 645 | 0.1+ | 0.0 | 2007 12 03 | 703 | 0.7+ | 1.5+ | 2009 04 21 | G96 | 0.2+ | 0.3+ |
| 2007 10 16 | G96 | 0.2+ | 0.2− | 2007 12 03 | 703 | 0.6− | 0.1− | 2009 04 21 | G96 | 0.2− | 0.2+ |
| 2007 10 16 | G96 | 0.3− | 0.1− | 2007 12 03 | 703 | 0.5− | 0.3+ | 2009 04 24 | G96 | 0.1− | 0.2− |
| 2007 10 16 | G96 | 0.0 | 0.2− | 2007 12 03 | 703 | 0.7+ | 0.3+ | 2009 04 24 | G96 | 0.2+ | 0.2+ |
| 2007 10 16 | G96 | 0.4+ | 0.3− | 2007 12 31 | G96 | 0.4+ | 0.3− | 2009 04 24 | G96 | 0.0 | 0.0 |
| 2007 11 02 | 691 | 0.2− | 0.1− | 2007 12 31 | G96 | 0.1− | 0.2− | 2009 06 01 | G96 | 0.0 | 0.8+ |
| 2007 11 02 | 691 | 0.2− | 0.1− | 2007 12 31 | G96 | 0.1+ | 0.0 | 2009 06 01 | G96 | 0.4+ | 0.2+ |
| 2007 11 02 | 691 | 0.0 | 0.1+ | 2007 12 31 | G96 | 0.2+ | 0.4− | 2009 06 01 | G96 | 0.3− | 0.1+ |
| 2007 11 14 | 300 | 0.8+ | 1.0+ | 2008 02 10 | G96 | 0.2+ | 0.4− | 2009 06 01 | G96 | 0.1− | 0.0 |
| 2007 11 14 | 300 | (0.4+ | 1.6+) | 2008 02 10 | G96 | 0.2− | 0.3− | | | | |

**2007 UB$_{136}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 220.67083 | | (2000.0) | | | |
| $n$ | 0.18624413 | $\omega$ | 231.24463 | | +0.85802215 | +0.43093746 |
| $a$ | 3.0367869 | $\Omega$ | 101.59911 | | −0.33624289 | +0.88258001 |
| $e$ | 0.0665652 | $i$ | 16.57518 | | −0.38825083 | +0.18800382 |
| $P$ | 5.29 | $H$ | 15.2 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 05 04 | 703 | 0.2− | 0.6+ | 2006 08 14 | E12 | 0.4− | 0.3+ | 2007 12 05 | 703 | 0.0 | 0.2− |
| 2005 05 04 | 703 | 0.8+ | 0.1+ | 2007 10 16 | 703 | 0.1− | 0.3− | 2007 12 05 | 703 | 0.9− | 0.4+ |
| 2005 05 04 | 703 | 0.3− | 0.7− | 2007 10 16 | 703 | 0.5− | 0.5− | 2007 12 05 | 703 | 0.3+ | 0.4+ |
| 2005 05 04 | 703 | 0.4− | 0.4− | 2007 10 16 | 703 | 0.3− | 0.8+ | 2007 12 05 | 703 | 0.4+ | 0.7+ |
| 2005 05 08 | 699 | 1.3− | 0.0 | 2007 10 16 | 703 | 1.1+ | 0.2− | 2007 12 05 | 703 | 0.7− | 0.2+ |
| 2005 05 08 | 699 | 1.2+ | 0.9+ | 2007 11 09 | 703 | 0.1+ | 1.8− | 2007 12 05 | 703 | 1.0+ | 0.2− |
| 2005 05 08 | 699 | 0.3− | 0.5− | 2007 11 09 | 703 | 1.4− | 0.8+ | 2007 12 18 | 703 | 0.5− | 0.7+ |
| 2005 05 08 | 699 | (1.5+ | 3.0+) | 2007 11 09 | 703 | 1.2− | 0.6− | 2007 12 18 | 703 | 0.6+ | 2.1+ |
| 2005 05 20 | 644 | 0.6+ | 0.5+ | 2007 11 09 | 703 | 0.6− | 0.9+ | 2007 12 18 | 703 | 0.6− | 1.2+ |
| 2005 05 20 | 644 | 0.4+ | 0.5+ | 2007 11 12 | 703 | 0.7+ | 0.1+ | 2007 12 18 | 703 | 0.5+ | 0.5− |
| 2005 05 20 | 644 | 0.3+ | 0.7+ | 2007 11 12 | 703 | 0.2+ | 0.5+ | 2008 12 01 | G96 | 0.2+ | 0.5+ |
| 2006 08 14 | E12 | 0.2+ | 0.1+ | 2007 11 12 | 703 | 0.7+ | 0.2+ | 2008 12 01 | G96 | 0.0 | 0.1+ |
| 2006 08 14 | E12 | 0.3− | 0.8+ | 2007 12 05 | 703 | 0.4+ | 0.3− | 2008 12 01 | G96 | 0.3+ | 0.1− |
| 2006 08 14 | E12 | 0.0 | 0.1− | 2007 12 05 | 703 | 1.1− | 0.7+ | 2008 12 01 | G96 | 0.5− | 0.2− |

**2007 UC$_{136}$ = 2009 BV$_{139}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 241.42820 | | (2000.0) | | | |
| $n$ | 0.23987356 | $\omega$ | 17.68464 | | +0.86723494 | +0.48440883 |
| $a$ | 2.5653569 | $\Omega$ | 312.77330 | | −0.47366760 | +0.73142599 |
| $e$ | 0.1446560 | $i$ | 9.02257 | | −0.15343585 | +0.47996261 |
| $P$ | 4.11 | $H$ | 16.3 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 10 21 | 703 | 0.4− | 0.6− | 2007 11 01 | 703 | 0.1− | 0.5− | 2009 01 15 | 691 | 0.0 | 0.3+ |
| 2007 10 21 | 703 | 0.1− | 0.2− | 2007 11 13 | 703 | 0.1+ | 0.0 | 2009 01 29 | 691 | 0.2+ | 0.1− |
| 2007 10 21 | 703 | 0.1− | 0.0 | 2007 11 13 | 703 | 0.4− | 0.0 | 2009 01 29 | 691 | 0.6+ | 0.3− |
| 2007 10 21 | 703 | 0.2+ | 1.2+ | 2007 11 13 | 703 | 0.7+ | 0.2+ | 2009 01 29 | 691 | 0.0 | 0.1+ |
| 2007 11 01 | 703 | (1.7− | 0.2+) | 2007 11 13 | 703 | 1.1+ | 0.3− | 2009 02 03 | 691 | 0.3− | 0.2+ |
| 2007 11 01 | 703 | 0.7− | 0.2+ | 2009 01 15 | 691 | 0.0 | 0.4− | 2009 02 03 | 691 | 0.2− | 0.2+ |
| 2007 11 01 | 703 | 0.2− | 0.1− | 2009 01 15 | 691 | 0.0 | 0.2+ | 2009 02 03 | 691 | 0.4− | 0.3− |

**2007 UE$_{136}$ = 2004 FL$_{137}$ = 2009 CD$_{55}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 88.59923 | | (2000.0) | | | |
| $n$ | 0.18510229 | $\omega$ | 0.62482 | | −0.37528388 | −0.91251449 |
| $a$ | 3.0492628 | $\Omega$ | 111.42670 | | +0.84966317 | −0.40882914 |
| $e$ | 0.1052019 | $i$ | 10.06738 | | +0.37045177 | +0.01326781 |
| $P$ | 5.32 | $H$ | 15.4 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 03 29 | 704 | 0.5− | 0.4+ | 2007 11 07 | 703 | 0.9− | 1.9− | 2009 01 31 | G96 | 0.1+ | 0.3+ |
| 2004 03 29 | 704 | 0.1+ | 0.5− | 2007 11 07 | 703 | 1.0− | 0.4+ | 2009 01 31 | G96 | 0.0 | 0.5+ |
| 2004 03 29 | 704 | 0.6− | 0.4− | 2007 11 07 | 703 | 0.0 | 0.6− | 2009 01 31 | G96 | 0.1+ | 0.4+ |
| 2004 03 29 | 704 | 0.6− | 1.1− | 2007 11 07 | 703 | 1.3− | 1.9+ | 2009 01 31 | G96 | 0.1+ | 1.0− |
| 2004 03 30 | 704 | 0.3+ | 1.1+ | 2007 11 15 | 703 | 0.8+ | 0.7+ | 2009 02 14 | J75 | 0.0 | 0.5− |
| 2004 03 30 | 704 | 0.0 | 0.2− | 2007 11 15 | 703 | 0.0 | 0.5+ | 2009 02 14 | J75 | 0.0 | 0.2+ |
| 2004 03 30 | 704 | 1.1+ | 0.7+ | 2007 11 15 | 703 | 0.8+ | 0.0 | 2009 02 14 | J75 | 0.7− | 0.0 |
| 2004 03 30 | 704 | 0.5+ | 1.3+ | 2007 11 15 | 703 | 0.7− | 0.6+ | 2009 02 20 | 703 | 1.2− | 0.3+ |
| 2007 10 30 | 703 | 1.4+ | 0.4− | 2009 01 23 | D29 | 0.9+ | 0.6+ | 2009 02 20 | 703 | 0.9− | 1.0− |
| 2007 10 30 | 703 | 0.2− | 0.8− | 2009 01 23 | D29 | 0.7+ | 0.1+ | 2009 02 20 | 703 | 0.1+ | 0.6− |
| 2007 10 30 | 703 | 1.3+ | 0.3− | 2009 01 23 | D29 | 0.7+ | 0.0 | 2009 02 20 | 703 | 0.5− | 0.1− |
| 2007 10 30 | 703 | 0.3− | 0.4+ | 2009 01 23 | D29 | 0.6+ | 0.1+ | | | | |

**2007 UF$_{136}$ = 1999 YZ$_{10}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 302.30570 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23837502 | $\omega$ | 190.36350 | | +0.09108907 | +0.96542685 | |
| $a$ | 2.5760971 | $\Omega$ | 85.17745 | | −0.89523251 | +0.18681215 | |
| $e$ | 0.1300608 | $i$ | 14.18827 | | −0.43618979 | −0.18180269 | |
| $P$ | 4.13 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 12 27 | 691 | 0.3− | 0.4+ | 2003 11 18 | 691 | 0.2+ | 0.0 | 2007 11 07 | 703 | (0.1− | 1.7−) |
| 1999 12 27 | 691 | 0.0 | 0.0 | 2003 12 22 | 691 | 0.2− | 0.1− | 2007 11 07 | 703 | 0.3+ | 0.2+ |
| 1999 12 27 | 691 | 0.0 | 0.1+ | 2003 12 22 | 691 | 0.2− | 0.2+ | 2007 11 07 | 703 | 0.5+ | 0.0 |
| 2000 01 02 | 691 | 0.1+ | 0.5− | 2003 12 22 | 691 | 0.0 | 0.1− | 2007 11 07 | 703 | 0.4+ | 0.3+ |
| 2000 01 02 | 691 | 0.2+ | 0.2+ | 2007 10 31 | 703 | 1.5− | 0.1+ | 2007 11 15 | 703 | 0.3− | 0.0 |
| 2000 01 02 | 691 | 0.1+ | 0.1− | 2007 10 31 | 703 | 0.1− | 0.4+ | 2007 11 15 | 703 | 0.7+ | 0.2− |
| 2003 11 18 | 691 | 0.1− | 0.1− | 2007 10 31 | 703 | 0.1− | 0.5− | 2007 11 15 | 703 | 0.4− | 0.6− |
| 2003 11 18 | 691 | 0.4+ | 0.0 | 2007 10 31 | 703 | 0.1− | 0.2+ | 2007 11 15 | 703 | 0.2+ | 0.4+ |

**2007 VG$_{4}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 116.28464 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.12510782 | $\omega$ | 49.35217 | | +0.96316908 | −0.25835104 | |
| $a$ | 3.9592513 | $\Omega$ | 325.43004 | | +0.18945905 | +0.84879655 | |
| $e$ | 0.2440829 | $i$ | 7.55131 | | +0.19081560 | +0.46130160 | |
| $P$ | 7.88 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 11 02 | A77 | 0.2+ | 0.2+ | 2007 11 19 | 291 | 0.1− | 0.0 | 2008 12 02 | G96 | 0.0 | 0.4+ |
| 2007 11 03 | A77 | 0.5+ | 0.3− | 2007 11 19 | 291 | 0.2− | 0.0 | 2008 12 30 | G96 | 0.4+ | 0.3− |
| 2007 11 03 | A77 | 0.7+ | 0.6+ | 2007 11 19 | 291 | 0.1− | 0.1− | 2008 12 30 | G96 | 1.0+ | 0.2− |
| 2007 11 03 | A77 | 0.8+ | 1.1+ | 2008 01 01 | G96 | 0.5+ | 0.2− | 2008 12 30 | G96 | 0.0 | 0.3− |
| 2007 11 03 | A77 | 0.8− | 0.3− | 2008 01 01 | G96 | 0.2− | 0.3+ | 2008 12 30 | G96 | (2.0− | 0.5+) |
| 2007 11 04 | A77 | 0.2− | 0.1− | 2008 01 01 | G96 | 0.1+ | 0.2+ | 2008 12 31 | 691 | 0.4− | 0.5+ |
| 2007 11 16 | G96 | 0.1+ | 0.4− | 2008 01 01 | G96 | 0.1− | 0.2− | 2008 12 31 | 691 | 0.1− | 0.1+ |
| 2007 11 16 | G96 | 0.2+ | 0.1− | 2008 12 02 | G96 | 0.2− | 0.0 | 2008 12 31 | 691 | 0.4+ | 0.6− |
| 2007 11 16 | G96 | 0.1− | 0.1− | 2008 12 02 | G96 | 0.3− | 0.1+ | | | | |
| 2007 11 16 | G96 | 0.0 | 0.3− | 2008 12 02 | G96 | 0.4− | 0.5+ | | | | |

**2007 VS$_{18}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 347.80033 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18945794 | $\omega$ | 99.95598 | | −0.90936870 | +0.41446449 | |
| $a$ | 3.0023467 | $\Omega$ | 104.53674 | | −0.39462528 | −0.83241871 | |
| $e$ | 0.0851281 | $i$ | 2.10799 | | −0.13160341 | −0.36782913 | |
| $P$ | 5.20 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 10 18 | 691 | 0.1− | 0.1+ | 2007 11 02 | G96 | 0.2− | 0.1− | 2009 01 07 | 691 | 0.2− | 0.1+ |
| 2007 10 18 | 691 | 0.3− | 0.0 | 2007 11 07 | G96 | 0.4+ | 0.2− | 2009 01 07 | 691 | 0.1− | 0.1− |
| 2007 10 18 | 691 | 0.1+ | 0.2+ | 2007 11 07 | G96 | 0.2+ | 0.2− | 2009 01 16 | G96 | 0.9+ | 0.1− |
| 2007 11 01 | G96 | 0.1+ | 0.1+ | 2007 11 07 | G96 | 0.1− | 0.1− | 2009 01 16 | G96 | 0.4+ | 0.1− |
| 2007 11 01 | G96 | 0.6+ | 0.2+ | 2007 11 07 | G96 | 0.2− | 0.2− | 2009 01 16 | G96 | 0.1− | 0.1+ |
| 2007 11 01 | G96 | 0.4+ | 0.2− | 2007 11 17 | G96 | 0.3− | 0.0 | 2009 01 16 | G96 | 0.4+ | 0.1+ |
| 2007 11 01 | G96 | 0.2+ | 0.1+ | 2007 11 17 | G96 | 0.0 | 0.0 | 2009 02 01 | G96 | 0.2+ | 0.3− |
| 2007 11 02 | G96 | 0.0 | 0.1− | 2007 11 17 | G96 | 0.1− | 0.4− | 2009 02 01 | G96 | 0.6− | 0.3− |
| 2007 11 02 | G96 | 0.1+ | 0.0 | 2007 11 17 | G96 | 0.1+ | 0.2− | 2009 02 01 | G96 | 0.3− | 0.2− |
| 2007 11 02 | G96 | 0.1+ | 0.1− | 2009 01 07 | 691 | 0.1+ | 0.3+ | 2009 02 01 | G96 | 0.0 | 0.3− |

**2007 VF$_{35}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 155.06963 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17341764 | $\omega$ | 291.06610 | | +0.84127933 | −0.53629347 | |
| $a$ | 3.1847392 | $\Omega$ | 101.42340 | | +0.51820235 | +0.76411025 | |
| $e$ | 0.1184207 | $i$ | 3.98425 | | +0.15399814 | +0.35850361 | |
| $P$ | 5.68 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 02 01 | 645 | 0.0 | 0.0 | 2007 11 08 | 691 | 0.2− | 0.2− | 2007 11 19 | 291 | 0.2+ | 0.1− |
| 2003 02 01 | 645 | 0.0 | 0.1− | 2007 11 08 | 691 | 0.5− | 0.1+ | 2007 11 19 | 291 | 0.4− | 0.8− |
| 2007 10 20 | G96 | 0.5+ | 0.3− | 2007 11 11 | D35 | 1.2+ | 0.7+ | 2007 11 19 | 291 | 0.1+ | 0.1− |
| 2007 10 20 | G96 | 0.3+ | 0.2− | 2007 11 11 | D35 | 0.3+ | 0.5+ | 2007 11 19 | 291 | 0.2+ | 0.0 |
| 2007 10 20 | G96 | 0.7+ | 0.2− | 2007 11 11 | D35 | 1.1+ | 0.8+ | 2007 11 19 | 291 | 0.2+ | 0.1+ |
| 2007 10 20 | G96 | 0.5+ | 0.0 | 2007 11 14 | 704 | 0.3+ | 0.8+ | 2008 02 10 | G96 | 0.8+ | 0.7− |
| 2007 11 03 | H07 | 0.3+ | 0.6+ | 2007 11 14 | 704 | 0.2+ | 0.0 | 2008 02 10 | G96 | 0.2− | 0.1+ |
| 2007 11 03 | H07 | 0.4+ | 0.3+ | 2007 11 14 | 704 | 0.1+ | 0.4+ | 2008 02 10 | G96 | 0.0 | 0.5− |
| 2007 11 03 | H07 | 1.7+ | 0.7+ | 2007 11 14 | 704 | 0.1− | 0.9+ | 2008 02 10 | G96 | 0.6+ | 0.7− |
| 2007 11 04 | 691 | 0.0 | 0.0 | 2007 11 19 | 691 | 0.1− | 0.0 | 2009 01 16 | 691 | 0.0 | 0.1+ |
| 2007 11 04 | 691 | 0.8− | 0.3− | 2007 11 19 | 691 | 0.0 | 0.2+ | 2009 01 16 | 691 | 0.0 | 0.2+ |
| 2007 11 04 | 691 | 0.1− | 0.5− | 2007 11 19 | 691 | 0.1− | 0.1+ | 2009 01 16 | 691 | 0.1+ | 0.0 |
| 2007 11 08 | 691 | 0.7− | 0.5+ | 2007 11 19 | 291 | 0.1+ | 0.0 | | | | |

**2007 VO$_{43}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 94.79975 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17649231 | $\omega$ | 167.05006 | | −0.30579434 | −0.94763296 | |
| $a$ | 3.1476434 | $\Omega$ | 300.68922 | | +0.86370832 | −0.23540319 | |
| $e$ | 0.1752094 | $i$ | 6.14784 | | +0.40062172 | −0.21581731 | |
| $P$ | 5.58 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 11 01 | 691 | 0.1− | 0.3− | 2007 11 08 | 703 | 1.0+ | 0.1+ | 2007 11 17 | 704 | 0.2− | 0.9+ |
| 2007 11 01 | 691 | 0.1− | 0.0 | 2007 11 08 | 703 | 1.3+ | 0.8− | 2007 11 20 | 691 | 0.1− | 0.2− |
| 2007 11 01 | 691 | 0.2− | 0.2− | 2007 11 08 | 703 | 0.6+ | 0.4+ | 2007 11 20 | 691 | 0.4− | 0.2− |
| 2007 11 05 | 691 | 0.1− | 0.0 | 2007 11 17 | 691 | 0.0 | 0.2− | 2007 11 20 | 691 | 0.2+ | 0.0 |
| 2007 11 05 | 691 | 0.4− | 0.1− | 2007 11 17 | 691 | 0.2− | 0.1− | 2009 02 03 | 691 | 0.2+ | 0.0 |
| 2007 11 05 | 691 | 0.0 | 0.0 | 2007 11 17 | 691 | (2.7− | 0.3−) | 2009 02 03 | 691 | 0.0 | 0.2+ |
| 2007 11 08 | 704 | 1.2− | 1.7+ | 2007 11 17 | G96 | 0.5+ | 0.3− | 2009 02 03 | 691 | 0.0 | 0.2− |
| 2007 11 08 | 704 | 0.0 | 1.5+ | 2007 11 17 | 704 | 0.3+ | 0.4+ | 2009 03 01 | G96 | 0.1− | 0.2− |
| 2007 11 08 | 704 | 0.2+ | 0.2+ | 2007 11 17 | G96 | 0.2+ | 0.2− | 2009 03 01 | G96 | 0.2− | 0.4− |
| 2007 11 08 | 704 | 0.7+ | 0.3+ | 2007 11 17 | G96 | 0.5+ | 0.3− | 2009 03 01 | G96 | 0.4− | 0.1+ |
| 2007 11 08 | 704 | 0.3+ | 1.0+ | 2007 11 17 | 704 | 1.4+ | 0.1+ | 2009 03 01 | G96 | 0.0 | 0.0 |
| 2007 11 08 | 703 | 0.1− | 0.1+ | 2007 11 17 | G96 | 0.2+ | 0.4− | | | | |

**2007 VM$_{83}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 154.73816 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.25702016 | $\omega$ | 224.93718 | | −0.82725793 | −0.55466053 | |
| $a$ | 2.4499540 | $\Omega$ | 281.17619 | | +0.53767569 | −0.73545112 | |
| $e$ | 0.0607437 | $i$ | 5.22971 | | +0.16293915 | −0.38918292 | |
| $P$ | 3.83 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 17 | 644 | 0.3+ | 0.4+ | 2007 11 04 | G96 | 0.2+ | 0.1− | 2007 12 15 | 691 | 0.8− | 0.1− |
| 2002 08 17 | 644 | 0.2− | 0.4+ | 2007 11 04 | G96 | 0.2+ | 1.5− | 2007 12 15 | 691 | 0.1− | 0.1− |
| 2002 08 17 | 644 | 0.0 | 0.3+ | 2007 11 04 | G96 | 0.2+ | 0.0 | 2007 12 15 | 691 | 0.2− | 0.1+ |
| 2002 08 26 | 644 | 1.3− | 1.9− | 2007 11 05 | G96 | 0.6− | 0.2+ | 2008 01 01 | 691 | 0.6+ | 0.2+ |
| 2002 08 26 | 644 | 0.3+ | 0.5+ | 2007 11 05 | G96 | 0.1+ | 0.2+ | 2008 01 01 | 691 | 0.7+ | 0.1+ |
| 2002 08 26 | 644 | 0.4+ | 0.6+ | 2007 11 05 | G96 | 0.9+ | 0.5+ | 2008 01 01 | 691 | 0.6+ | 0.3− |
| 2002 08 27 | 644 | 0.1− | 0.3+ | 2007 11 05 | G96 | 0.0 | 0.1+ | 2008 01 30 | 691 | 0.0 | 0.3− |
| 2002 08 27 | 644 | 0.1− | 0.3+ | 2007 12 03 | 691 | 0.0 | 0.3+ | 2008 01 30 | 691 | 0.1+ | 0.9+ |
| 2002 08 27 | 644 | 0.3+ | 0.2+ | 2007 12 03 | 691 | 0.1− | 0.2− | 2008 01 30 | 691 | 0.1+ | 0.0 |
| 2007 11 04 | G96 | 0.2+ | 0.1− | 2007 12 03 | 691 | 1.4− | 0.1− | | | | |

**2007 VJ$_{90}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 304.71319 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17099668 | $\omega$ | 176.23877 | | −0.39335737 | +0.87910383 | |
| $a$ | 3.2147282 | $\Omega$ | 70.43707 | | −0.85079824 | −0.23710922 | |
| $e$ | 0.0995686 | $i$ | 16.59758 | | −0.34844272 | −0.41346786 | |
| $P$ | 5.76 | $H$ | 14.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 04 10 | 699 | 1.0+ | 0.9+ | 2007 11 07 | 704 | 0.6+ | 0.3− | 2008 01 12 | G96 | 0.1+ | 0.1+ |
| 2004 04 10 | 699 | 0.9− | 0.1+ | 2007 11 07 | 704 | 0.3− | 0.0 | 2008 02 28 | G96 | 0.6+ | 0.3+ |
| 2004 04 10 | 699 | 0.1+ | 0.9+ | 2007 11 07 | 704 | 0.3+ | 0.1+ | 2008 02 28 | G96 | 0.2+ | 0.3+ |
| 2004 04 10 | 699 | 0.3+ | 1.0− | 2007 11 07 | 704 | 0.4+ | 0.6+ | 2008 02 28 | G96 | 0.3+ | 0.0 |
| 2007 11 01 | 691 | 0.7− | 0.2− | 2007 12 30 | G96 | 0.5+ | 0.4− | 2008 02 28 | G96 | 0.5+ | 0.0 |
| 2007 11 01 | 691 | 0.0 | 0.4− | 2007 12 30 | G96 | 0.7+ | 0.6− | 2009 01 01 | D29 | 0.2+ | 0.2− |
| 2007 11 01 | 691 | 0.4− | 0.0 | 2007 12 30 | G96 | 0.1+ | 0.2+ | 2009 01 01 | D29 | 0.3+ | 0.0 |
| 2007 11 04 | 704 | 0.3+ | 1.0+ | 2007 12 30 | G96 | 0.5+ | 0.0 | 2009 01 01 | D29 | 0.3+ | 0.8− |
| 2007 11 04 | 704 | 0.7− | 0.3+ | 2008 01 12 | G96 | 0.5+ | 0.0 | 2009 01 01 | D29 | 0.8− | 0.3+ |
| 2007 11 04 | 704 | 0.3+ | 1.6+ | 2008 01 12 | G96 | 0.6+ | 0.1+ | | | | |
| 2007 11 04 | 704 | 0.7− | 0.2+ | 2008 01 12 | G96 | 0.1+ | 0.0 | | | | |

**2007 VC$_{107}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 180.23101 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18735444 | $\omega$ | 328.87172 | | +0.98062123 | −0.19451852 | |
| $a$ | 3.0247772 | $\Omega$ | 42.36509 | | +0.18611606 | +0.88775429 | |
| $e$ | 0.1364111 | $i$ | 1.98457 | | +0.06117864 | +0.41719883 | |
| $P$ | 5.26 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 05 07 | G96 | 0.0 | 0.1+ | 2007 10 09 | G96 | 0.0 | 0.3− | 2007 11 18 | 691 | 0.1+ | 0.1− |
| 2005 05 07 | G96 | 0.2+ | 0.1− | 2007 10 09 | G96 | 0.4+ | 0.4− | 2007 12 06 | G96 | 0.2− | 0.2+ |
| 2005 05 07 | G96 | 0.1− | 0.4− | 2007 11 03 | 691 | 0.0 | 0.2+ | 2007 12 06 | G96 | 1.5+ | 0.4− |
| 2005 05 07 | G96 | 0.1− | 0.4+ | 2007 11 03 | 691 | 0.1− | 0.2+ | 2007 12 06 | G96 | 0.5+ | 0.3− |
| 2007 09 18 | G96 | 0.2+ | 0.4− | 2007 11 03 | 691 | 0.1− | 0.2+ | 2007 12 06 | G96 | 0.0 | 0.3− |
| 2007 09 18 | G96 | 0.2− | 0.0 | 2007 11 07 | 691 | 0.5− | 0.2+ | 2009 02 03 | 691 | 0.4+ | 0.2− |
| 2007 09 18 | G96 | 0.1+ | 0.1− | 2007 11 07 | 691 | 0.1− | 0.1+ | 2009 02 03 | 691 | 0.1+ | 0.4− |
| 2007 09 18 | G96 | 0.1+ | 0.3− | 2007 11 07 | 691 | 0.0 | 0.0 | 2009 02 03 | 691 | 0.5− | 0.5+ |
| 2007 10 09 | G96 | 0.4+ | 0.5− | 2007 11 18 | 691 | 0.0 | 0.1+ | | | | |
| 2007 10 09 | G96 | 0.8+ | 0.3− | 2007 11 18 | 691 | 0.0 | 0.2− | | | | |

**2007 VB$_{227}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 263.13951 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.29781154 | $\omega$ | 286.60443 | | +0.96899635 | −0.19143623 | |
| $a$ | 2.2207945 | $\Omega$ | 84.63792 | | +0.23969255 | +0.88174020 | |
| $e$ | 0.2672856 | $i$ | 9.02619 | | −0.05994626 | +0.43114545 | |
| $P$ | 3.31 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 10 29 | 566 | 0.1+ | 0.3− | 2007 11 13 | G96 | 0.0 | 0.2− | 2007 12 30 | 703 | 1.3− | 0.8− |
| 1997 10 29 | 566 | 0.0 | 0.1+ | 2007 11 13 | G96 | 0.1+ | 0.3− | 2007 12 30 | 703 | 0.2+ | 0.7+ |
| 1997 10 29 | 566 | 0.1+ | 0.2− | 2007 11 21 | 703 | 0.5− | 0.3− | 2007 12 30 | 703 | 0.3+ | 0.5+ |
| 2007 09 27 | G96 | 0.1− | 0.1− | 2007 11 21 | G96 | 0.2+ | 0.2− | 2007 12 30 | 703 | 0.3+ | 0.4+ |
| 2007 09 27 | G96 | 0.2+ | 0.2+ | 2007 11 21 | 703 | 0.4− | 1.6− | 2008 01 12 | G96 | 0.0 | 0.3− |
| 2007 09 27 | G96 | 0.3− | 0.2− | 2007 11 21 | G96 | 0.0 | 0.2− | 2008 01 12 | G96 | 0.0 | 0.2+ |
| 2007 09 27 | G96 | 0.2+ | 0.4− | 2007 11 21 | 703 | 1.1+ | 0.4− | 2008 01 12 | G96 | 0.0 | 0.0 |
| 2007 10 19 | D29 | 0.5− | 0.2+ | 2007 11 21 | G96 | 0.3+ | 0.1− | 2008 01 20 | 691 | 0.2− | 0.4+ |
| 2007 10 19 | D29 | 0.2− | 0.3− | 2007 11 21 | 703 | 0.7+ | 0.7+ | 2008 01 20 | 691 | 0.0 | 0.1+ |
| 2007 10 19 | D29 | 0.3+ | 0.1− | 2007 11 21 | G96 | 0.3+ | 0.1− | 2008 01 20 | 691 | 0.6− | 0.0 |
| 2007 10 19 | D29 | 0.5− | 0.5+ | 2007 12 03 | 703 | 0.1+ | 0.3− | 2008 02 09 | G96 | 0.3+ | 0.5− |
| 2007 11 11 | D29 | 0.3+ | 0.5+ | 2007 12 03 | 703 | 0.4− | 0.4+ | 2008 02 09 | G96 | 0.0 | 0.4− |
| 2007 11 11 | D29 | 0.2+ | 0.5− | 2007 12 03 | 703 | 0.3+ | 0.2− | 2008 02 09 | G96 | 0.3+ | 0.2− |
| 2007 11 11 | D29 | 0.2− | 0.1+ | 2007 12 04 | 704 | 0.4+ | 0.2+ | 2008 02 09 | G96 | 0.5− | 0.6− |
| 2007 11 11 | D29 | 0.2+ | 0.0 | 2007 12 04 | 704 | 0.0 | 1.8+ | 2009 04 02 | G96 | 0.1+ | 0.8− |
| 2007 11 12 | 704 | 0.8+ | 0.2− | 2007 12 04 | 704 | 0.4+ | 1.2+ | 2009 04 02 | G96 | 0.4− | 0.1+ |
| 2007 11 12 | 704 | 0.2+ | 0.7+ | 2007 12 15 | 703 | 0.0 | 0.3− | 2009 04 02 | G96 | 0.3+ | 0.5− |
| 2007 11 12 | 704 | 0.0 | 0.2+ | 2007 12 15 | 703 | 0.9− | 0.0 | 2009 04 02 | G96 | 0.5− | 0.0 |
| 2007 11 12 | 704 | 0.1+ | 0.1+ | 2007 12 15 | 703 | 0.1+ | 1.2− | | | | |
| 2007 11 13 | G96 | 0.1− | 0.5− | 2007 12 15 | 703 | 0.2− | 0.4− | | | | |

**2007 VL$_{233}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 219.10807 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18569800 | $\omega$ | 277.56554 | | +0.92349935 | +0.34535497 | |
| $a$ | 3.0427380 | $\Omega$ | 62.35857 | | −0.23305539 | +0.85085924 | |
| $e$ | 0.0377350 | $i$ | 10.86418 | | −0.30468695 | +0.39594003 | |
| $P$ | 5.31 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 10 20 | G96 | 0.1+ | 0.1+ | 2007 11 08 | 691 | 0.2− | 0.4+ | 2007 12 04 | G96 | 0.7+ | 0.3− |
| 2007 10 20 | G96 | 0.4+ | 0.2+ | 2007 11 08 | 691 | 0.1− | 0.2+ | 2007 12 04 | G96 | 0.1+ | 0.0 |
| 2007 10 20 | G96 | 0.7+ | 0.2− | 2007 11 08 | 691 | 0.2− | 0.3− | 2009 01 29 | G96 | 0.4− | 0.6− |
| 2007 10 20 | G96 | 0.5+ | 0.2− | 2007 11 14 | 691 | 0.4− | 0.0 | 2009 01 29 | G96 | 0.2− | 0.6− |
| 2007 10 31 | G96 | 0.0 | 0.0 | 2007 11 14 | 691 | 0.1+ | 0.0 | 2009 01 29 | G96 | 0.4− | 0.2− |
| 2007 10 31 | G96 | 0.1+ | 0.3− | 2007 11 14 | 691 | 0.3− | 0.2+ | 2009 01 29 | G96 | 0.2− | 0.3− |
| 2007 10 31 | G96 | 0.7+ | 0.4− | 2007 12 04 | G96 | 0.6+ | 0.1− | 2009 02 27 | 703 | 1.8+ | 0.2+ |
| 2007 10 31 | G96 | 0.3+ | 0.8− | 2007 12 04 | G96 | 0.0 | 0.1+ | 2009 02 27 | 703 | 0.6− | 1.5+ |

**2007 VM$_{263}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 79.72259 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22654252 | $\omega$ | 269.38957 | | −0.98837186 | −0.12072919 | |
| $a$ | 2.6650348 | $\Omega$ | 263.67359 | | +0.14736528 | −0.91037652 | |
| $e$ | 0.1202716 | $i$ | 5.33670 | | −0.03747712 | −0.39577653 | |
| $P$ | 4.35 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 11 01 | 691 | 0.1+ | 0.3+ | 2007 12 19 | G96 | 0.4− | 0.2− | 2008 02 26 | G96 | 0.6− | 1.2− |
| 2007 11 01 | 691 | 0.1+ | 0.3+ | 2007 12 19 | G96 | 0.1+ | 0.0 | 2008 02 26 | G96 | 0.1+ | 0.2− |
| 2007 11 01 | 691 | 0.1− | 0.2+ | 2007 12 19 | G96 | 0.6+ | 1.1− | 2008 02 26 | G96 | 0.7− | 0.6+ |
| 2007 11 13 | 691 | 0.1− | 0.5− | 2007 12 19 | G96 | 0.4+ | 0.4− | 2008 02 26 | G96 | 0.5− | 0.1− |
| 2007 11 13 | 691 | 0.1+ | 0.1+ | 2007 12 31 | G96 | 0.1− | 0.4− | 2009 04 03 | G96 | 0.1+ | 0.4− |
| 2007 11 13 | 691 | 0.5− | 0.2− | 2007 12 31 | G96 | 0.1+ | 0.1− | 2009 04 03 | G96 | 0.0 | 0.3− |
| 2007 11 15 | 704 | 0.0 | 0.2− | 2007 12 31 | G96 | 0.4+ | 0.2+ | 2009 04 03 | G96 | 0.1+ | 1.4+ |
| 2007 11 15 | 704 | 0.5+ | 0.6+ | 2007 12 31 | G96 | 0.1+ | 0.1+ | 2009 04 03 | G96 | 0.0 | 0.6− |
| 2007 11 15 | 704 | 1.0+ | 1.6+ | 2008 01 30 | G96 | 0.1+ | 0.3− | 2009 04 18 | 703 | 0.3− | 0.1− |
| 2007 11 17 | 691 | 0.1+ | 0.2+ | 2008 01 30 | G96 | 0.2− | 0.2− | 2009 04 18 | 703 | 1.0− | 1.0+ |
| 2007 11 17 | 691 | 0.2− | 0.1+ | 2008 01 30 | G96 | 0.9+ | 0.5− | 2009 04 18 | 703 | 1.6+ | 0.0 |
| 2007 11 17 | 691 | 0.2− | 0.0 | 2008 01 30 | G96 | 0.2+ | 0.2+ | | | | |

**2007 VM$_{272}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 153.61839 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17898393 | $\omega$ | 258.53662 | | +0.89811509 | −0.38469916 | |
| $a$ | 3.1183631 | $\Omega$ | 123.74640 | | +0.43110820 | +0.86584149 | |
| $e$ | 0.1918980 | $i$ | 14.84695 | | −0.08680440 | +0.31988290 | |
| $P$ | 5.51 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 10 15 | 703 | 0.9− | 0.6+ | 2007 11 18 | 703 | 0.7+ | 0.1+ | 2009 01 01 | 291 | 0.6+ | 0.2− |
| 2007 10 15 | 703 | 0.2− | 0.3+ | 2007 11 18 | 703 | 0.7− | 0.4− | 2009 01 16 | 691 | 1.3− | 0.9+ |
| 2007 10 15 | 703 | 0.6− | 0.1− | 2007 11 18 | 703 | 1.3+ | 0.4− | 2009 01 16 | 691 | 0.2− | 0.1+ |
| 2007 10 15 | 703 | 0.4− | 1.0+ | 2007 11 18 | 703 | 0.0 | 0.0 | 2009 01 16 | 691 | 0.6− | 0.2− |
| 2007 11 02 | 703 | 1.1+ | 0.8− | 2008 12 30 | G96 | 0.9+ | 0.3− | 2009 01 16 | G96 | 0.3+ | 0.3+ |
| 2007 11 02 | 703 | 0.0 | 0.2+ | 2008 12 30 | G96 | 0.0 | 0.0 | 2009 01 16 | G96 | 1.0+ | 0.1− |
| 2007 11 02 | 703 | 0.5− | 0.3+ | 2008 12 30 | G96 | 0.6+ | 0.1+ | 2009 01 16 | G96 | 0.6+ | 0.3+ |
| 2007 11 02 | 703 | 0.9+ | 0.3+ | 2008 12 30 | G96 | 0.2+ | 1.1− | 2009 01 16 | G96 | 0.5+ | 0.2− |
| 2007 11 11 | 703 | 0.8− | 1.1− | 2009 01 01 | 291 | 0.2+ | 0.3− | | | | |
| 2007 11 11 | 703 | (1.6− | 0.1+) | 2009 01 01 | 291 | 0.3+ | 0.0 | | | | |

**2007 VZ$_{305}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 171.06851 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19694626 | $\omega$ | 2.86987 | | +0.21347849 | −0.97550538 | |
| $a$ | 2.9257523 | $\Omega$ | 74.80814 | | +0.89523333 | +0.17358620 | |
| $e$ | 0.0872583 | $i$ | 3.15225 | | +0.39113196 | +0.13511874 | |
| $P$ | 5.00 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 04 12 | 691 | 0.2+ | 0.1+ | 2007 12 04 | 691 | 0.2− | 0.0 | | 2008 01 15 | G96 | 0.5+ | 0.2− | | |
| 2004 04 12 | 691 | 0.2− | 0.3+ | 2007 12 04 | 691 | 0.1− | 0.0 | | 2008 01 15 | G96 | 0.5+ | 0.1+ | | |
| 2004 04 12 | 691 | 0.3+ | 0.2+ | 2007 12 17 | 691 | 0.3+ | 0.1− | | 2008 01 15 | G96 | 0.6− | 0.0 | | |
| 2007 11 07 | G96 | 0.6+ | 0.8− | 2007 12 17 | 691 | 0.0 | 0.2− | | 2008 01 15 | G96 | 0.0 | 0.3+ | | |
| 2007 11 07 | G96 | 0.3+ | 0.3− | 2007 12 17 | 691 | 0.3+ | 0.1+ | | 2009 04 02 | 691 | 0.2+ | 0.0 | | |
| 2007 11 07 | G96 | 0.4+ | 0.3− | 2007 12 31 | 691 | 0.4+ | 0.1+ | | 2009 04 02 | 691 | 0.4− | 0.5− | | |
| 2007 11 07 | G96 | 0.7− | 0.2− | 2007 12 31 | 691 | 0.1− | 0.1+ | | 2009 04 02 | 691 | 0.1− | 0.2− | | |
| 2007 12 04 | 691 | 0.1+ | 0.3− | 2007 12 31 | 691 | 1.0− | 0.5+ | | | | | | | |

**2007 VC$_{307}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 315.85786 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27440034 | $\omega$ | 248.81275 | | +0.65634134 | +0.74716844 | |
| $a$ | 2.3453786 | $\Omega$ | 62.64837 | | −0.64112078 | +0.62547856 | |
| $e$ | 0.1333808 | $i$ | 6.76759 | | −0.39771874 | +0.22475741 | |
| $P$ | 3.59 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 11 02 | 691 | 0.5+ | 0.0 | 2007 12 14 | 704 | (5.0+ | 2.5+) | | 2008 03 12 | G96 | 0.7+ | 0.2+ | | |
| 2007 11 02 | 691 | 0.5+ | 0.3+ | 2007 12 14 | 704 | (5.3+ | 2.0+) | | 2008 03 12 | G96 | 0.7+ | 0.5− | | |
| 2007 11 02 | 691 | 0.1+ | 0.6+ | 2007 12 14 | 704 | (4.5+ | 2.3+) | | 2009 03 21 | 703 | 0.6− | 0.6− | | |
| 2007 11 19 | 291 | 0.1+ | 0.1− | 2007 12 15 | G96 | 0.6+ | 0.3− | | 2009 03 21 | 703 | 1.1+ | 0.2+ | | |
| 2007 11 19 | 291 | 0.1− | 0.1− | 2007 12 15 | G96 | 0.3+ | 0.3− | | 2009 03 21 | 703 | 0.2− | 0.2+ | | |
| 2007 11 19 | 291 | 0.2+ | 0.1− | 2007 12 15 | G96 | 0.1+ | 0.1− | | 2009 03 21 | 703 | 1.5− | 0.5− | | |
| 2007 11 20 | 291 | 0.4− | 0.3+ | 2007 12 15 | G96 | 0.3+ | 0.3− | | 2009 03 31 | G96 | 0.4+ | 0.3+ | | |
| 2007 11 20 | 291 | 0.4− | 0.1+ | 2007 12 31 | G96 | 0.4+ | 0.2+ | | 2009 03 31 | G96 | 0.2+ | 0.3+ | | |
| 2007 11 20 | 291 | 1.1− | 0.7− | 2007 12 31 | G96 | 0.0 | 0.1− | | 2009 03 31 | G96 | 0.5+ | 0.5+ | | |
| 2007 12 06 | D35 | 1.1+ | 1.1+ | 2007 12 31 | G96 | 0.2+ | 0.0 | | 2009 03 31 | G96 | 0.4+ | 0.3+ | | |
| 2007 12 06 | D35 | 0.2− | 0.2+ | 2008 03 12 | G96 | 0.5− | 0.1+ | | | | | | | |
| 2007 12 06 | D35 | 0.5− | 0.1− | 2008 03 12 | G96 | 0.1+ | 0.7− | | | | | | | |

**2007 WV$_3$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 23.58475 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.45752545 | $\omega$ | 107.62149 | | +0.96453601 | −0.15068982 | |
| $a$ | 1.6679866 | $\Omega$ | 261.46739 | | +0.06500798 | +0.93134876 | |
| $e$ | 0.4525804 | $i$ | 12.65821 | | +0.25582075 | +0.33148464 | |
| $P$ | 2.15 | $H$ | 19.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 11 18 | G96 | 0.2+ | 0.1+ | 2007 12 03 | 448 | 0.0 | 0.1+ | | 2008 01 16 | H55 | 0.1− | 0.1− | | |
| 2007 11 18 | G96 | 0.4+ | 0.1− | 2007 12 03 | 448 | 0.0 | 0.3+ | | 2008 01 16 | H55 | 0.2+ | 0.0 | | |
| 2007 11 18 | G96 | 0.2+ | 0.1− | 2007 12 03 | 448 | 0.6+ | 0.4− | | 2008 01 16 | H55 | 0.1+ | 0.1+ | | |
| 2007 11 18 | G96 | 0.1− | 0.2− | 2007 12 13 | 448 | 0.1+ | 0.2− | | 2008 01 20 | H55 | 0.6+ | 0.5− | | |
| 2007 11 18 | G96 | 0.4− | 0.1− | 2007 12 13 | 448 | 0.1+ | 0.1+ | | 2008 01 20 | H55 | 0.6− | 0.6− | | |
| 2007 11 18 | G96 | 0.0 | 0.0 | 2007 12 13 | 448 | 0.6+ | 0.5− | | 2008 01 23 | H55 | 0.3− | 0.1+ | | |
| 2007 11 19 | G96 | 0.4+ | 0.3+ | 2007 12 14 | 703 | 0.2+ | 0.6− | | 2008 01 23 | H55 | 1.2− | 0.6+ | | |
| 2007 11 19 | G96 | 0.3+ | 0.1+ | 2007 12 14 | 703 | 0.1+ | 1.1− | | 2008 01 23 | H55 | 0.1+ | 0.6+ | | |
| 2007 11 19 | G96 | 0.3+ | 0.3+ | 2007 12 14 | 703 | 0.4− | 1.1+ | | 2008 02 14 | H55 | 0.3+ | 0.8− | | |
| 2007 11 19 | G96 | 0.2+ | 0.2+ | 2007 12 14 | 703 | (1.8+ | 1.5+) | | 2008 02 14 | H55 | 0.3+ | 0.0 | | |
| 2007 11 19 | G96 | 0.4+ | 0.3+ | 2007 12 18 | 448 | 0.4− | 0.2− | | 2008 02 14 | H55 | 0.1− | 0.3+ | | |
| 2007 11 19 | G96 | 0.4+ | 0.3+ | 2007 12 18 | 448 | 0.3− | 0.2− | | 2009 06 02 | 568 | 0.1− | 0.0 | | |
| 2007 11 19 | G96 | 0.3+ | 0.3+ | 2007 12 18 | 448 | 0.5+ | 0.2− | | 2009 06 02 | 568 | 0.1− | 0.0 | | |
| 2007 11 19 | G96 | 0.3+ | 0.4+ | 2007 12 19 | H45 | 1.3+ | 0.6+ | | 2009 06 02 | 568 | 0.1+ | 0.1+ | | |
| 2007 11 19 | 689 | 0.3+ | 0.3− | 2007 12 19 | H45 | 0.3+ | 0.9+ | | 2009 06 22 | 568 | 0.0 | 0.0 | | |
| 2007 11 19 | 689 | 0.7+ | 0.4+ | 2007 12 19 | H45 | 0.0 | 0.4+ | | 2009 06 22 | 568 | 0.0 | 0.0 | | |
| 2007 11 20 | 291 | 0.6− | 0.4+ | 2007 12 30 | 448 | 0.5− | 0.4+ | | 2009 06 22 | 568 | 0.0 | 0.1+ | | |
| 2007 11 20 | 291 | 0.8− | 0.6+ | 2007 12 30 | 448 | 0.6+ | 0.4− | | 2009 12 05 | 926 | 0.2+ | 1.1+ | | |
| 2007 11 20 | 291 | 0.7− | 0.5+ | 2007 12 30 | 448 | 0.4+ | 0.1− | | 2009 12 05 | 926 | 0.1− | 0.2+ | | |
| 2007 11 25 | H55 | 0.0 | 0.2− | 2008 01 08 | 711 | 0.1+ | 0.2+ | | 2009 12 05 | 926 | 0.5− | 0.5+ | | |
| 2007 11 25 | H55 | 0.3+ | 0.6− | 2008 01 08 | 711 | 0.8+ | 0.8− | | | | | | | |
| 2007 11 25 | H55 | 0.8+ | 0.7− | 2008 01 08 | 711 | 0.8+ | 0.5− | | | | | | | |

**2007 WV$_{18}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 297.32149 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18692413 | $\omega$ | 183.91918 | | +0.03225991 | +0.98523007 | |
| $a$ | 3.0294176 | $\Omega$ | 87.98534 | | −0.91236883 | +0.09772927 | |
| $e$ | 0.0593976 | $i$ | 9.68746 | | −0.40809609 | −0.14060830 | |
| $P$ | 5.27 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 01 28 | 645 | 0.0 | 0.1+ | 2007 11 19 | 691 | 0.2− | 0.1+ | | 2008 01 11 | G96 | 0.8+ | 0.2− | | |
| 2004 01 28 | 645 | 0.0 | 0.1+ | 2007 12 18 | G96 | 0.5+ | 0.3− | | 2008 01 11 | G96 | 0.8+ | 0.1− | | |
| 2007 11 07 | 691 | 0.2− | 0.2+ | 2007 12 18 | G96 | 0.3+ | 0.5− | | 2008 02 11 | G96 | 0.2+ | 0.1+ | | |
| 2007 11 07 | 691 | 0.4− | 0.3+ | 2007 12 18 | G96 | 0.3+ | 0.3− | | 2008 02 11 | G96 | 0.4+ | 0.3+ | | |
| 2007 11 07 | 691 | 0.0 | 0.1− | 2007 12 18 | G96 | 0.2+ | 0.0 | | 2008 02 11 | G96 | 0.3+ | 0.3+ | | |
| 2007 11 18 | G96 | 0.3+ | 0.5− | 2008 01 10 | G96 | 0.1+ | 0.2− | | 2008 02 11 | G96 | 0.7+ | 0.1+ | | |
| 2007 11 18 | G96 | 0.5+ | 0.3− | 2008 01 10 | G96 | 0.6+ | 0.0 | | 2009 01 31 | G96 | 0.3+ | 0.6− | | |
| 2007 11 18 | G96 | 0.3+ | 0.5− | 2008 01 10 | G96 | 0.5+ | 0.3− | | 2009 01 31 | G96 | 0.3+ | 0.8− | | |
| 2007 11 18 | G96 | 0.6− | 0.4− | 2008 01 10 | G96 | 0.2− | 0.1+ | | 2009 01 31 | G96 | 0.7+ | 0.4− | | |
| 2007 11 19 | 691 | 0.4− | 0.2+ | 2008 01 11 | G96 | 0.1+ | 0.1+ | | 2009 01 31 | G96 | 1.9− | 0.8− | | |
| 2007 11 19 | 691 | 0.3− | 0.4+ | 2008 01 11 | G96 | 0.7+ | 0.3− | | | | | | | |

**2007 XA$_{53}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 218.23051 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26481951 | $\omega$ | 327.80448 | | +0.57669164 | −0.81138786 | |
| $a$ | 2.4016114 | $\Omega$ | 86.80692 | | +0.76831814 | +0.49901475 | |
| $e$ | 0.0941857 | $i$ | 5.47542 | | +0.27769406 | +0.30435838 | |
| $P$ | 3.72 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 12 04 | G96 | 0.0 | 0.3− | 2007 12 16 | 691 | 0.3− | 0.2+ | | 2008 02 09 | G96 | 0.2− | 0.0 | | |
| 2007 12 04 | G96 | 0.3+ | 0.5− | 2008 01 11 | G96 | 0.3+ | 0.4− | | 2008 02 09 | G96 | 0.1+ | 0.1− | | |
| 2007 12 04 | G96 | 0.3− | 0.3− | 2008 01 11 | G96 | 0.4+ | 0.4− | | 2009 04 02 | 691 | 0.6+ | 0.5+ | | |
| 2007 12 04 | G96 | 0.1+ | 0.5− | 2008 01 11 | G96 | 0.1+ | 0.1− | | 2009 04 02 | 691 | 0.4− | 0.1− | | |
| 2007 12 05 | 704 | 0.0 | 0.7+ | 2008 01 11 | G96 | 0.0 | 0.2− | | 2009 04 02 | 691 | 0.1+ | 0.2+ | | |
| 2007 12 05 | 704 | 1.4+ | 1.2+ | 2008 01 30 | G96 | 0.1+ | 0.4− | | 2009 04 29 | G96 | 0.0 | 0.4− | | |
| 2007 12 05 | 704 | 0.7+ | 0.7+ | 2008 01 30 | G96 | 0.2+ | 0.2− | | 2009 04 29 | G96 | 0.0 | 0.6− | | |
| 2007 12 05 | 704 | 0.4+ | 0.3+ | 2008 01 30 | G96 | 0.3+ | 0.5− | | 2009 04 29 | G96 | 0.7− | 0.4− | | |
| 2007 12 05 | 704 | 0.8− | 0.0 | 2008 01 30 | G96 | 0.4+ | 0.4− | | 2009 04 29 | G96 | 0.0 | 0.3− | | |
| 2007 12 16 | 691 | 0.3− | 0.0 | 2008 02 09 | G96 | 0.0 | 0.0 | | | | | | | |
| 2007 12 16 | 691 | 0.3− | 0.1− | 2008 02 09 | G96 | 0.4+ | 0.3+ | | | | | | | |

**2007 YO$_5$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 71.20507 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18679737 | $\omega$ | 99.95105 | | −0.96784584 | −0.18289335 | |
| $a$ | 3.0307879 | $\Omega$ | 69.67211 | | +0.08773294 | −0.88887452 | |
| $e$ | 0.1946407 | $i$ | 10.61260 | | +0.23574850 | −0.42006203 | |
| $P$ | 5.28 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 11 13 | 691 | 0.2− | 0.4− | 2007 12 16 | 291 | 0.3− | 0.2− | | 2009 03 28 | G96 | 0.0 | 0.5− | | |
| 2007 11 13 | 691 | 0.4+ | 0.4+ | 2007 12 16 | G96 | 0.4+ | 0.1− | | 2009 03 28 | G96 | 0.6+ | 0.0 | | |
| 2007 11 13 | 691 | 0.6− | 0.2+ | 2007 12 16 | G96 | 0.1− | 0.6+ | | 2009 03 28 | G96 | 0.4+ | 0.2− | | |
| 2007 12 06 | G96 | 0.3+ | 0.3+ | 2007 12 16 | G96 | 0.2+ | 0.6+ | | 2009 03 28 | G96 | 0.7+ | 0.1− | | |
| 2007 12 06 | G96 | 0.5+ | 0.1− | 2007 12 16 | G96 | 0.9+ | 0.4+ | | 2009 04 17 | 703 | 0.2− | 0.1+ | | |
| 2007 12 06 | G96 | 0.7+ | 0.1+ | 2007 12 17 | G96 | 0.3+ | 0.1+ | | 2009 04 17 | 703 | 0.8− | 0.5+ | | |
| 2007 12 06 | G96 | 0.4+ | 0.2− | 2007 12 17 | G96 | 0.4+ | 0.1+ | | 2009 04 17 | 703 | 0.4− | 0.0 | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 12 16 | 291 | 0.4− | 0.3− | 2007 12 17 | G96 | 0.7+ | 0.2+ | 2009 04 17 | 703 | 0.3− | 0.4+ | | |
| 2007 12 16 | 291 | 0.2− | 0.1− | 2007 12 17 | G96 | 0.2+ | 0.0 | | | | | | |

**2007 YL$_{45}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 21.73203 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.20359942 | $\omega$ | 131.77224 | | −0.18218959 | +0.96794534 | |
| $a$ | 2.8616622 | $\Omega$ | 126.90736 | | −0.95405434 | −0.13148578 | |
| $e$ | 0.0965419 | $i$ | 12.48657 | | −0.23788077 | −0.21399371 | |
| $P$ | 4.84 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 12 30 | G96 | 0.2+ | 0.8− | 2008 01 16 | 691 | 0.2+ | 0.3− | 2008 02 25 | G96 | 1.0− | 0.4− |
| 2007 12 30 | G96 | 0.2+ | 0.1− | 2008 01 16 | 691 | 0.0 | 0.1− | 2009 04 22 | G96 | 0.5+ | 0.9+ |
| 2007 12 30 | G96 | 0.2+ | 0.7− | 2008 01 16 | 691 | 0.2− | 0.2+ | 2009 04 22 | G96 | 0.2+ | 0.3+ |
| 2007 12 30 | G96 | 0.6+ | 0.4− | 2008 01 30 | G96 | 0.2+ | 0.3− | 2009 04 22 | G96 | 0.1− | 0.7+ |
| 2007 12 31 | 691 | 0.1− | 0.1+ | 2008 01 30 | G96 | 0.4+ | 0.0 | 2009 04 22 | G96 | 0.1+ | 0.9+ |
| 2007 12 31 | 691 | 0.0 | 0.1+ | 2008 01 30 | G96 | 0.2− | 0.1− | 2009 05 13 | 703 | 0.4− | 0.3− |
| 2007 12 31 | 691 | 0.4− | 0.0 | 2008 01 30 | G96 | 0.4+ | 0.2− | 2009 05 13 | 703 | 0.1+ | 1.8− |
| 2008 01 10 | 691 | 0.1+ | 0.0 | 2008 02 25 | G96 | 0.0 | 0.2+ | 2009 05 13 | 703 | 1.3− | 0.6− |
| 2008 01 10 | 691 | 0.3+ | 0.3+ | 2008 02 25 | G96 | 0.0 | 0.1+ | 2009 05 13 | 703 | 1.0+ | 0.1− |
| 2008 01 10 | 691 | 0.1− | 0.2+ | 2008 02 25 | G96 | 0.1− | 0.1+ | | | | |

**2007 YV$_{56}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 33.07750 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.49833099 | $\omega$ | 265.52110 | | +0.98423687 | −0.14142458 | |
| $a$ | 1.5756416 | $\Omega$ | 102.58301 | | +0.17130466 | +0.91160689 | |
| $e$ | 0.6220837 | $i$ | 6.24649 | | −0.04396009 | +0.38596887 | |
| $P$ | 1.98 | $H$ | 21.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 12 31 | 703 | 0.1− | 0.1+ | 2008 01 03 | H55 | 0.1+ | 0.0 | 2008 01 08 | A13 | (2.7− | 1.2+) |
| 2007 12 31 | 703 | 0.5− | 0.4− | 2008 01 03 | H55 | 0.2+ | 0.1+ | 2008 01 08 | A13 | (2.3− | 1.2+) |
| 2007 12 31 | 703 | 0.3− | 0.3− | 2008 01 03 | H45 | 0.0 | 0.2− | 2008 01 08 | A13 | (2.3− | 0.9+) |
| 2007 12 31 | 703 | 1.2− | 0.0 | 2008 01 03 | H45 | 0.4+ | 0.2− | 2008 01 08 | A13 | (2.2− | 0.8+) |
| 2007 12 31 | 703 | 1.4− | 0.1− | 2008 01 03 | H45 | 0.3+ | 0.0 | 2008 01 08 | A13 | (2.6− | 1.6+) |
| 2007 12 31 | 703 | 1.0− | 0.7− | 2008 01 03 | H45 | 0.3+ | 0.1+ | 2008 01 10 | 704 | 0.2+ | 0.4+ |
| 2007 12 31 | 703 | (1.2− | 2.1−) | 2008 01 03 | H45 | 0.1+ | 0.3+ | 2008 01 10 | 704 | 0.2+ | 0.4+ |
| 2007 12 31 | 703 | (0.1− | 1.7−) | 2008 01 03 | H45 | 1.3− | 0.6+ | 2008 01 10 | 704 | 0.3+ | 0.2+ |
| 2007 12 31 | 703 | 0.4+ | 0.2− | 2008 01 03 | H45 | 0.1− | 0.1+ | 2008 01 10 | 704 | 0.3+ | 0.6+ |
| 2007 12 31 | 703 | 0.7+ | 0.8− | 2008 01 03 | H45 | (0.5+ | 3.0+) | 2008 01 10 | 704 | 0.3+ | 0.5+ |
| 2008 01 01 | 595 | 0.5− | 0.1+ | 2008 01 03 | H45 | 1.2+ | 0.6− | 2008 01 11 | 461 | 0.3+ | 0.3+ |
| 2008 01 01 | 595 | 0.4− | 0.6+ | 2008 01 03 | H45 | 0.2+ | 0.1+ | 2008 01 11 | 461 | 0.1− | 0.1− |
| 2008 01 01 | B55 | 0.6− | 0.4+ | 2008 01 04 | 711 | 0.7+ | 0.4+ | 2008 01 11 | 461 | 0.3− | 0.1+ |
| 2008 01 01 | 595 | 0.3− | 0.2+ | 2008 01 04 | 711 | 0.7+ | 0.8+ | 2008 01 18 | 448 | 0.4− | 0.3+ |
| 2008 01 01 | B55 | 0.1− | 0.5− | 2008 01 04 | H45 | 0.3− | 0.4+ | 2008 01 18 | 448 | 0.1− | 0.2+ |
| 2008 01 01 | 204 | 0.2+ | 0.1+ | 2008 01 04 | H45 | 0.1+ | 0.2+ | 2008 01 18 | 448 | 0.7− | 0.1+ |
| 2008 01 01 | 204 | 0.2+ | 0.1+ | 2008 01 04 | 711 | 0.8+ | 0.2− | 2008 01 27 | H55 | 0.0 | 0.3− |
| 2008 01 01 | 204 | 0.1+ | 0.0 | 2008 01 04 | H45 | 0.1− | 0.1+ | 2008 01 27 | H55 | 0.2+ | 0.0 |
| 2008 01 01 | H06 | 1.1+ | 0.1− | 2008 01 04 | H45 | 0.2+ | 0.0 | 2008 01 27 | H55 | 0.1+ | 0.6+ |
| 2008 01 01 | H06 | 0.5+ | 0.6− | 2008 01 04 | H45 | 0.2+ | 0.1+ | 2008 01 30 | 649 | 0.1+ | 0.4+ |
| 2008 01 01 | G96 | 0.1+ | 0.2+ | 2008 01 04 | H45 | 0.5+ | 0.1− | 2008 01 30 | 649 | 0.6− | 0.2+ |
| 2008 01 01 | G96 | 0.0 | 0.1+ | 2008 01 04 | H45 | 0.2+ | 0.5+ | 2008 01 30 | 649 | 0.1+ | 0.1+ |
| 2008 01 01 | G96 | 0.1+ | 0.0 | 2008 01 04 | H45 | 0.1+ | 0.3+ | 2008 01 31 | 291 | 0.4− | 0.8− |
| 2008 01 01 | G96 | 0.0 | 0.2+ | 2008 01 05 | J65 | 1.0− | 1.3+ | 2008 01 31 | 291 | 0.3− | 0.3+ |
| 2008 01 01 | G96 | 0.0 | 0.2− | 2008 01 06 | J95 | 0.1+ | 0.2− | 2008 01 31 | 291 | 0.5+ | 1.2− |
| 2008 01 01 | G96 | 0.3− | 0.1− | 2008 01 06 | J95 | 0.3+ | 0.2− | 2008 02 04 | 711 | 0.7+ | 0.7+ |
| 2008 01 01 | G96 | 0.5− | 0.2− | 2008 01 06 | J95 | 0.1+ | 0.4− | 2008 02 04 | 711 | 0.3+ | 0.6+ |
| 2008 01 01 | G96 | 0.6− | 0.1− | 2008 01 08 | A13 | (2.3− | 1.6+) | 2008 02 04 | 711 | 0.9+ | 0.4+ |
| 2008 01 02 | I77 | 0.8− | 0.2− | 2008 01 08 | A13 | (2.8− | 0.7+) | 2008 02 12 | 291 | 1.2− | 0.2− |
| 2008 01 02 | I77 | 0.5− | 0.4− | 2008 01 08 | A13 | (2.8− | 0.9+) | 2008 02 12 | 291 | 0.3− | 0.1+ |
| 2008 01 02 | I77 | 0.0 | 0.6− | 2008 01 08 | A13 | (2.4− | 0.7+) | 2008 02 12 | 291 | 0.5− | 0.3+ |
| 2008 01 03 | H55 | 0.1+ | 0.1− | 2008 01 08 | A13 | (2.3− | 1.3+) | 2009 08 12 | 568 | 0.1+ | 0.0 |
| 2008 01 03 | H55 | 0.2+ | 0.1− | 2008 01 08 | A13 | (2.4− | 1.1+) | 2009 12 09 | 568 | 0.0 | 0.0 |
| 2008 01 03 | H55 | 0.2+ | 0.1− | 2008 01 08 | A13 | (2.5− | 0.9+) | 2009 12 09 | 568 | 0.0 | 0.1− |
| 2008 01 03 | H55 | 0.1+ | 0.0 | 2008 01 08 | A13 | (3.0− | 1.6+) | 2009 12 19 | 568 | 0.1+ | 0.1+ |
| 2008 01 03 | H55 | 0.1+ | 0.1− | 2008 01 08 | A13 | (2.6− | 1.3+) | 2009 12 19 | 568 | 0.0 | 0.1+ |

**2008 AF$_4$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 110.27183 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.60622474 | $\omega$ | 293.32011 | | +0.72388263 | −0.67425193 | |
| $a$ | 1.3826543 | $\Omega$ | 109.42719 | | +0.67600066 | +0.65080403 | |
| $e$ | 0.4106184 | $i$ | 8.91914 | | +0.13790232 | +0.34905366 | |
| $P$ | 1.63 | $H$ | 19.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 06 01 | 644 | 0.0 | 0.1− | 2008 01 20 | B04 | 1.0+ | 0.6+ | 2008 02 07 | 379 | 0.5− | 0.1+ |
| 2002 06 01 | 644 | 0.1− | 0.3− | 2008 01 20 | B04 | 0.6+ | 0.4+ | 2008 02 07 | 379 | 0.4+ | 0.3− |
| 2007 07 28 | 568 | 0.5+ | 0.4− | 2008 01 20 | J40 | 0.9− | 1.3+ | 2008 02 07 | 379 | 0.1+ | 0.2− |
| 2008 01 10 | 704 | 0.8+ | 0.3+ | 2008 01 21 | J40 | 0.5− | 0.9+ | 2008 02 07 | 379 | 0.5− | 0.5+ |
| 2008 01 10 | 704 | 0.4+ | 0.1+ | 2008 01 21 | J40 | 0.2− | 0.5+ | 2008 02 07 | 379 | 0.1+ | 0.2+ |
| 2008 01 10 | 704 | 0.7+ | 0.2+ | 2008 01 21 | H45 | 0.1− | 0.0 | 2008 02 07 | 379 | 0.3− | 0.3+ |
| 2008 01 10 | 704 | 0.7+ | 0.1− | 2008 01 21 | H45 | 0.3+ | 0.1− | 2008 02 07 | B34 | 0.1− | 0.0 |
| 2008 01 11 | 461 | 0.1− | 0.7+ | 2008 01 21 | H45 | 0.3+ | 0.0 | 2008 02 07 | B34 | 0.3− | 0.3− |
| 2008 01 11 | 461 | 0.1+ | 0.0 | 2008 01 21 | H45 | 0.2+ | 0.1− | 2008 02 07 | 130 | 0.1+ | 0.3− |
| 2008 01 11 | 461 | 0.0 | 0.4+ | 2008 01 21 | H45 | 0.0 | 0.0 | 2008 02 08 | 130 | 0.4+ | 0.2− |
| 2008 01 11 | 461 | 0.2+ | 0.2− | 2008 01 21 | H45 | 0.0 | 0.1− | 2008 02 08 | 130 | 0.2+ | 0.1− |
| 2008 01 11 | 461 | 0.2+ | 0.1− | 2008 01 21 | H45 | 0.3+ | 0.0 | 2008 02 08 | 130 | 0.3+ | 0.1− |
| 2008 01 11 | 461 | 0.0 | 0.2+ | 2008 01 21 | H45 | 0.2+ | 0.1− | 2008 02 08 | 291 | 0.3− | 0.0 |
| 2008 01 11 | 461 | 0.1− | 0.2+ | 2008 01 23 | H51 | 0.6+ | 0.6− | 2008 02 08 | 291 | 0.4− | 0.1− |
| 2008 01 11 | 461 | 0.1+ | 0.3+ | 2008 01 23 | H51 | 0.3− | 0.1+ | 2008 02 08 | 291 | 0.4− | 0.0 |
| 2008 01 11 | 461 | 0.1+ | 0.1+ | 2008 01 23 | H51 | 0.1− | 0.3− | 2008 02 08 | A78 | 0.2− | 0.4− |
| 2008 01 11 | 461 | 0.1− | 0.2+ | 2008 01 23 | H51 | 0.1+ | 0.2− | 2008 02 08 | A78 | 0.1+ | 0.2− |
| 2008 01 11 | 461 | 0.1+ | 0.2+ | 2008 01 23 | H51 | 0.1+ | 0.3+ | 2008 02 08 | A78 | 0.2+ | 0.2− |
| 2008 01 11 | 461 | 0.0 | 0.2+ | 2008 01 23 | H51 | 0.3+ | 0.4− | 2008 02 08 | A17 | 0.1− | 0.5− |
| 2008 01 11 | 461 | 0.3+ | 0.0 | 2008 01 23 | H51 | 0.3− | 0.2− | 2008 02 08 | A17 | 0.0 | 0.0 |
| 2008 01 11 | 461 | 0.1− | 0.3+ | 2008 01 23 | H51 | 0.2+ | 0.1− | 2008 02 08 | A17 | 0.2− | 0.4− |
| 2008 01 11 | 461 | 0.3+ | 0.0 | 2008 01 23 | H51 | 0.0 | 0.2− | 2008 02 08 | 176 | 0.0 | 0.3− |
| 2008 01 11 | 461 | 0.1− | 0.4+ | 2008 01 23 | H51 | 0.3− | 0.3− | 2008 02 08 | 176 | 0.1− | 0.2− |
| 2008 01 11 | 461 | 0.1− | 0.2+ | 2008 01 23 | A48 | 0.4+ | 0.2+ | 2008 02 08 | 176 | 0.1− | 0.2− |
| 2008 01 11 | 461 | 0.1− | 0.3+ | 2008 01 23 | A48 | 0.4+ | 0.1+ | 2008 02 08 | 176 | 0.2− | 0.2− |
| 2008 01 11 | 461 | 0.0 | 0.2+ | 2008 01 23 | A48 | 0.4+ | 0.0 | 2008 02 08 | 176 | 0.2− | 0.1− |
| 2008 01 11 | 461 | 0.0 | 0.1+ | 2008 01 23 | A48 | 0.3+ | 0.2+ | 2008 02 08 | 176 | 0.3− | 0.1− |
| 2008 01 11 | 461 | 0.2+ | 0.2+ | 2008 01 25 | H51 | 0.0 | 0.3− | 2008 02 08 | A53 | 0.8+ | 0.1+ |
| 2008 01 11 | 461 | 0.2+ | 0.1− | 2008 01 25 | H51 | 0.3− | 0.1+ | 2008 02 08 | A53 | 0.1+ | 0.2+ |
| 2008 01 11 | 461 | 0.3+ | 0.3− | 2008 01 25 | H51 | 0.8− | 0.4− | 2008 02 08 | A53 | 0.0 | 0.8− |
| 2008 01 11 | 461 | 0.3+ | 0.1+ | 2008 01 25 | H51 | 0.0 | 0.7− | 2008 02 08 | 046 | 0.2+ | 0.1+ |
| 2008 01 11 | 461 | 0.2+ | 0.1+ | 2008 01 25 | H51 | 0.4+ | 0.7− | 2008 02 08 | 046 | 0.2+ | 0.2+ |
| 2008 01 11 | 461 | 0.0 | 0.2+ | 2008 01 25 | H51 | 0.6+ | 0.7− | 2008 02 08 | 046 | 0.1+ | 0.2− |
| 2008 01 11 | 461 | 0.1− | 0.3+ | 2008 01 25 | H51 | 0.3+ | 0.3− | 2008 02 08 | 046 | 0.1+ | 0.1− |
| 2008 01 11 | 703 | 0.3− | 0.5− | 2008 01 25 | H51 | 0.3− | 0.2− | 2008 02 08 | 046 | 0.1+ | 0.1+ |
| 2008 01 11 | 703 | 0.5+ | 0.7− | 2008 01 25 | H51 | 0.3− | 0.2− | 2008 02 08 | 046 | 0.0 | 0.3+ |
| 2008 01 11 | 703 | 0.2+ | 0.6− | 2008 01 25 | H51 | 0.1− | 0.2− | 2008 02 09 | H45 | 0.2− | 0.1− |
| 2008 01 11 | 703 | 0.6+ | 0.7− | 2008 01 25 | H51 | 0.3+ | 0.0 | 2008 02 09 | H45 | 0.1+ | 0.1+ |
| 2008 01 11 | G96 | 0.3+ | 0.2− | 2008 01 25 | H51 | 0.2− | 0.4− | 2008 02 09 | H45 | 0.2− | 0.1+ |
| 2008 01 11 | G96 | 0.1+ | 0.3− | 2008 01 25 | H51 | 0.1+ | 0.4− | 2008 02 09 | H45 | 0.1+ | 0.0 |
| 2008 01 11 | 734 | 0.1+ | 0.2+ | 2008 01 25 | H51 | 0.2− | 0.1− | 2008 02 09 | H45 | 0.0 | 0.1− |
| 2008 01 11 | G96 | (2.3− | 2.6−) | 2008 01 25 | H51 | 0.2− | 0.3− | 2008 02 09 | H45 | 0.0 | 0.0 |
| 2008 01 11 | 734 | 0.1+ | 0.0 | 2008 01 25 | H51 | 0.1+ | 0.4− | 2008 02 09 | 151 | 0.1− | 0.4− |
| 2008 01 11 | 734 | 0.2+ | 0.1− | 2008 01 25 | H51 | 0.1− | 0.2− | 2008 02 09 | 151 | 0.2− | 0.0 |
| 2008 01 11 | 734 | 0.1− | 0.1− | 2008 01 25 | H51 | 0.1− | 0.3− | 2008 02 09 | 151 | 0.2− | 0.2+ |
| 2008 01 11 | G96 | 0.2+ | 0.2− | 2008 01 25 | H51 | 0.0 | 0.2− | 2008 02 09 | 046 | 0.2− | 0.0 |
| 2008 01 14 | H45 | 0.4− | 0.2+ | 2008 01 25 | H51 | 0.0 | 0.1− | 2008 02 09 | 046 | 0.1− | 0.2+ |
| 2008 01 14 | H45 | 0.0 | 0.4+ | 2008 01 25 | H51 | 0.3− | 0.5− | 2008 02 09 | 046 | 0.0 | 0.3− |
| 2008 01 14 | H45 | 0.0 | 0.2+ | 2008 01 25 | H51 | 0.2− | 0.2− | 2008 02 09 | 046 | 0.2− | 0.6− |
| 2008 01 14 | H45 | 0.2− | 0.1+ | 2008 01 25 | H51 | 0.1− | 0.2− | 2008 02 09 | 046 | 0.2+ | 0.0 |
| 2008 01 14 | H45 | 0.1− | 0.0 | 2008 01 25 | H51 | 0.1+ | 0.1− | 2008 02 09 | 046 | 0.2+ | 0.1− |
| 2008 01 14 | H45 | 0.1− | 0.1+ | 2008 01 25 | H51 | 0.3− | 0.0 | 2008 02 09 | 560 | 0.2+ | 0.2+ |
| 2008 01 14 | H45 | 0.0 | 0.1+ | 2008 01 25 | H51 | 0.0 | 0.0 | 2008 02 09 | 560 | 0.2+ | 0.1+ |
| 2008 01 14 | H45 | 0.0 | 0.3+ | 2008 01 25 | H51 | 0.1− | 0.3− | 2008 02 09 | A81 | 0.2− | 0.2− |
| 2008 01 14 | H45 | 0.1+ | 0.0 | 2008 01 25 | H51 | 0.4− | 0.4− | 2008 02 09 | 560 | 0.3+ | 0.1+ |

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 01 14 | H45 | 0.0 | 0.2+ | 2008 01 25 | H51 | 0.1+ | 0.4− | 2008 02 09 | A53 | 0.3+ | 0.5+ | 2008 01 19 | H51 | 0.1− | 0.1− | 2008 01 30 | H45 | 0.2+ | 0.2− |
| 2008 01 14 | H45 | 0.0 | 0.2+ | 2008 01 25 | H51 | 0.2− | 0.3− | 2008 02 09 | A81 | 0.0 | 0.4− | 2008 01 19 | H51 | 0.1+ | 0.3− | 2008 01 30 | H45 | 0.3+ | 0.1− |
| 2008 01 14 | H45 | 0.1+ | 0.2+ | 2008 01 25 | H51 | 0.0 | 0.3− | 2008 02 09 | A81 | 0.2− | 0.2− | 2008 01 19 | H51 | 0.2+ | 0.2− | 2008 01 30 | H45 | 0.0 | 0.2− |
| 2008 01 14 | F84 | 0.0 | 0.0 | 2008 01 25 | H51 | 0.3− | 0.1− | 2008 02 09 | A53 | 0.2+ | 0.1+ | 2008 01 19 | B04 | 0.4+ | 0.5+ | 2008 01 30 | H45 | 0.0 | 0.0 |
| 2008 01 14 | F84 | 0.1− | 0.1− | 2008 01 25 | H51 | 0.2− | 0.5− | 2008 02 09 | A53 | 0.3+ | 0.4+ | 2008 01 19 | B04 | 0.2+ | 0.4+ | 2008 01 31 | J51 | 0.3+ | 0.3− |
| 2008 01 14 | F84 | 0.1− | 0.2− | 2008 01 25 | H51 | 0.1− | 0.1− | 2008 02 10 | 703 | 0.5+ | 0.3+ | 2008 01 19 | B04 | 0.1+ | 0.2+ | 2008 01 31 | J51 | 0.2+ | 0.3− |
| 2008 01 15 | B49 | (1.8+ | 0.9−) | 2008 01 25 | H51 | 0.0 | 0.2− | 2008 02 10 | 703 | 0.1+ | 0.2+ | 2008 01 19 | B04 | 0.5+ | 0.3+ | 2008 01 31 | J51 | 0.1+ | 0.2− |
| 2008 01 15 | B49 | 0.3+ | 1.0− | 2008 01 25 | H51 | 0.0 | 0.2− | 2008 02 10 | 703 | 0.3+ | 0.6+ | 2008 01 19 | B04 | 0.3+ | 0.7+ | 2008 01 31 | 379 | 0.1+ | 0.2− |
| 2008 01 15 | 461 | 0.3+ | 0.3+ | 2008 01 25 | H51 | 0.2− | 0.4− | 2008 02 10 | 703 | 0.4− | 0.3+ | 2008 01 19 | B04 | 0.4+ | 0.3+ | 2008 01 31 | 379 | 0.1+ | 0.5− |
| 2008 01 15 | 461 | 0.5+ | 0.0 | 2008 01 25 | H51 | 0.1+ | 0.3− | 2008 02 11 | G72 | 1.2+ | 0.6+ | 2008 01 19 | B04 | 0.0 | 0.2− | 2008 01 31 | 379 | 0.1+ | 0.2− |
| 2008 01 15 | 461 | 0.5+ | 0.3+ | 2008 01 25 | H51 | 0.3− | 0.3− | 2008 02 11 | G72 | 1.2+ | 0.3+ | 2008 01 19 | B04 | 0.7+ | 0.2+ | 2008 01 31 | 379 | 0.0 | 0.2+ |
| 2008 01 15 | H55 | 0.4+ | 0.0 | 2008 01 25 | H51 | 0.4− | 0.1− | 2008 02 11 | G72 | 0.4+ | 0.3− | 2008 01 20 | J51 | 0.1+ | 0.0 | 2008 01 31 | 379 | 0.1+ | 0.3+ |
| 2008 01 15 | H55 | 0.3+ | 0.0 | 2008 01 25 | H51 | 0.1+ | 0.5− | 2008 02 11 | H45 | 0.3+ | 0.2− | 2008 01 20 | J51 | 0.1− | 0.2− | 2008 01 31 | 379 | 0.5− | 0.3− |
| 2008 01 15 | H55 | 0.2+ | 0.1+ | 2008 01 25 | H51 | 0.3− | 0.4− | 2008 02 11 | H45 | 0.1+ | 0.2− | 2008 01 20 | J51 | 0.0 | 0.1− | 2008 01 31 | B34 | 0.2+ | 0.3− |
| 2008 01 15 | H55 | 0.3+ | 0.1− | 2008 01 25 | H51 | 0.2− | 0.4− | 2008 02 11 | H45 | 0.3− | 0.2− | 2008 01 20 | H51 | 0.1− | 0.0 | 2008 01 31 | B34 | 0.0 | 0.3+ |
| 2008 01 15 | H45 | 0.4− | 0.3+ | 2008 01 25 | H51 | 0.0 | 0.6− | 2008 02 11 | H45 | 0.0 | 0.3− | 2008 01 20 | H51 | 0.2+ | 0.1− | 2008 02 01 | 703 | 0.1+ | 0.0 |
| 2008 01 15 | H45 | 0.2− | 0.1− | 2008 01 25 | H51 | 0.0 | 0.3− | 2008 02 11 | H45 | 0.1+ | 0.2− | 2008 01 20 | H51 | 0.2+ | 0.0 | 2008 02 01 | 703 | 0.6− | 0.1+ |
| 2008 01 15 | H45 | 0.1+ | 0.3+ | 2008 01 25 | H51 | 0.3− | 0.2− | 2008 02 11 | H45 | 0.0 | 0.3− | 2008 01 20 | H51 | 0.0 | 0.1+ | 2008 02 01 | 703 | 0.1− | 0.1− |
| 2008 01 15 | H45 | 0.2+ | 0.1+ | 2008 01 25 | H51 | 0.2− | 0.4− | 2008 02 11 | 291 | 0.3− | 0.0 | 2008 01 20 | H51 | 0.1− | 0.0 | 2008 02 01 | 703 | 0.2− | 0.0 |
| 2008 01 15 | H45 | 0.2+ | 0.2+ | 2008 01 25 | H51 | 0.0 | 0.2− | 2008 02 11 | 291 | 0.4− | 0.0 | 2008 01 20 | H51 | 0.1− | 0.1+ | 2008 02 01 | 379 | 0.7− | 0.2+ |
| 2008 01 15 | H45 | 0.0 | 0.1+ | 2008 01 25 | H51 | 0.0 | 0.2− | 2008 02 11 | 291 | 0.3− | 0.1− | 2008 01 20 | H51 | 0.2− | 0.0 | 2008 02 01 | 379 | 0.3− | 0.2+ |
| 2008 01 15 | H45 | 0.0 | 0.2+ | 2008 01 25 | H51 | 0.1+ | 0.1− | 2008 02 11 | B04 | 0.8+ | 0.6− | 2008 01 20 | H51 | 0.0 | 0.0 | 2008 02 01 | 379 | 0.0 | 0.3+ |
| 2008 01 15 | H45 | 0.1+ | 0.1+ | 2008 01 25 | J46 | 0.1+ | 0.1− | 2008 02 11 | B04 | 0.6+ | 0.7− | 2008 01 20 | H51 | 0.1− | 0.0 | 2008 02 01 | 379 | 0.0 | 0.1− |
| 2008 01 15 | H45 | 0.1+ | 0.2+ | 2008 01 25 | J46 | 0.1+ | 0.0 | 2008 02 11 | B04 | 0.9− | 0.1+ | 2008 01 20 | H51 | 0.1− | 0.0 | 2008 02 02 | 704 | 0.1+ | 0.4+ |
| 2008 01 15 | H45 | 0.1+ | 0.1+ | 2008 01 25 | J46 | 0.0 | 0.0 | 2008 02 11 | 046 | 0.2+ | 0.2+ | 2008 01 20 | H51 | 0.0 | 0.1+ | 2008 02 02 | 704 | 0.0 | 0.5+ |
| 2008 01 15 | H45 | 0.1+ | 0.2+ | 2008 01 26 | 147 | 0.1+ | 0.2− | 2008 02 11 | 046 | 0.0 | 0.2+ | 2008 01 20 | H51 | 0.3− | 0.0 | 2008 02 02 | 704 | 0.3+ | 0.4+ |
| 2008 01 15 | H45 | 0.0 | 0.2+ | 2008 01 26 | 147 | 0.0 | 0.3− | 2008 02 11 | 046 | 0.1+ | 0.3+ | 2008 01 20 | H51 | 0.3+ | 0.2+ | 2008 02 02 | 704 | 0.4+ | 0.6+ |
| 2008 01 16 | 291 | 0.7− | 0.9+ | 2008 01 26 | 147 | 0.0 | 0.3− | 2008 02 11 | 046 | 0.1+ | 0.1+ | 2008 01 20 | H51 | 0.1− | 0.2− | 2008 02 02 | 704 | 0.0 | 0.6+ |
| 2008 01 16 | 291 | 1.0− | 0.6+ | 2008 01 26 | 147 | 0.0 | 0.2− | 2008 02 11 | 046 | 0.2+ | 0.1+ | 2008 01 20 | H51 | 0.1− | 0.1− | 2008 02 02 | 639 | 0.1+ | 0.1+ |
| 2008 01 16 | 291 | 0.3− | 0.8+ | 2008 01 26 | 147 | 0.0 | 0.2− | 2008 02 11 | 046 | 0.2− | 0.4+ | 2008 01 20 | H51 | 0.0 | 0.2− | 2008 02 02 | 639 | 0.1− | 0.2+ |
| 2008 01 16 | H55 | 0.0 | 0.1+ | 2008 01 26 | 147 | 0.0 | 0.2− | 2008 02 11 | J51 | 0.3− | 0.1− | 2008 01 20 | H51 | 0.1− | 0.0 | 2008 02 02 | 639 | 0.1+ | 0.3+ |
| 2008 01 16 | H55 | 0.0 | 0.0 | 2008 01 26 | A13 | 0.2− | 0.0 | 2008 02 11 | J51 | 0.0 | 0.2+ | 2008 01 20 | H51 | 0.3− | 0.3− | 2008 02 02 | 639 | 0.4+ | 0.5+ |
| 2008 01 16 | H55 | 0.1+ | 0.0 | 2008 01 26 | A13 | 0.3− | 0.1+ | 2008 02 11 | J51 | 0.2+ | 0.1+ | 2008 01 20 | H51 | 0.0 | 0.1− | 2008 02 02 | 639 | 0.2+ | 0.5+ |
| 2008 01 16 | H55 | 0.1+ | 0.1− | 2008 01 26 | A13 | 0.4− | 0.0 | 2008 02 12 | 046 | 0.1− | 0.3− | 2008 01 20 | H51 | 0.1+ | 0.2− | 2008 02 02 | 639 | 0.7+ | 0.7+ |
| 2008 01 16 | 379 | 0.2+ | 0.3− | 2008 01 26 | A13 | 0.3− | 0.1+ | 2008 02 12 | 046 | 0.2− | 0.1− | 2008 01 20 | H51 | 0.1− | 0.0 | 2008 02 03 | 291 | 0.3− | 0.2+ |
| 2008 01 16 | 379 | 0.1+ | 1.0− | 2008 01 26 | A13 | 0.2− | 0.2+ | 2008 02 12 | 046 | 0.1+ | 0.2+ | 2008 01 20 | H51 | 0.1+ | 0.0 | 2008 02 03 | 291 | 0.1− | 0.5+ |
| 2008 01 16 | 379 | 0.5− | 0.1− | 2008 01 26 | A13 | 0.1− | 0.0 | 2008 02 12 | 046 | 0.2− | 0.1+ | 2008 01 20 | H51 | 0.3− | 0.1+ | 2008 02 03 | A17 | 0.3− | 0.3− |
| 2008 01 16 | 379 | 0.3− | 0.5− | 2008 01 27 | 379 | 0.4− | 0.6− | 2008 02 12 | 046 | 0.4− | 0.2− | 2008 01 20 | H51 | 0.3− | 0.1+ | 2008 02 03 | A17 | 0.4− | 0.0 |
| 2008 01 17 | B49 | 1.2+ | 0.7− | 2008 01 27 | 379 | 0.2− | 0.6− | 2008 02 12 | 046 | 0.1− | 0.1+ | 2008 01 20 | H51 | 0.2− | 0.1+ | 2008 02 03 | A17 | 0.0 | 0.3− |
| 2008 01 17 | B49 | 0.6+ | 0.6− | 2008 01 27 | 379 | 0.2+ | 0.4− | 2008 02 12 | 046 | 0.1− | 0.1+ | 2008 01 20 | H51 | 0.0 | 0.1+ | 2008 02 03 | B34 | 0.0 | 0.4− |
| 2008 01 18 | 448 | 0.1− | 0.0 | 2008 01 27 | 379 | 0.2+ | 0.4− | 2008 02 12 | 048 | 1.1+ | 0.0 | 2008 01 20 | H51 | 0.0 | 0.2− | 2008 02 03 | B34 | 0.2+ | 0.2− |
| 2008 01 18 | 448 | 0.1+ | 0.1− | 2008 01 27 | 379 | 0.2− | 0.1+ | 2008 02 12 | 048 | 0.8+ | 0.1+ | 2008 01 20 | H51 | 0.1+ | 0.0 | 2008 02 03 | 246 | 0.2+ | 0.2− |
| 2008 01 18 | 448 | 0.2+ | 0.2− | 2008 01 27 | 379 | 0.1+ | 0.4− | 2008 02 12 | 048 | 1.2+ | 0.1+ | 2008 01 20 | H51 | 0.0 | 0.0 | 2008 02 03 | 246 | 0.0 | 0.1− |
| 2008 01 18 | 448 | 0.0 | 0.1− | 2008 01 27 | 379 | 0.1− | 0.6− | 2008 02 12 | 048 | 1.1+ | 0.1+ | 2008 01 20 | H51 | 0.2+ | 0.1− | 2008 02 03 | 246 | 0.0 | 0.1− |
| 2008 01 18 | 448 | 0.0 | 0.1− | 2008 01 27 | 379 | 0.3+ | 0.4− | 2008 02 12 | 048 | 0.8+ | 0.2+ | 2008 01 20 | G72 | 0.6+ | 0.2+ | 2008 02 03 | 246 | 0.2+ | 0.0 |
| 2008 01 18 | G96 | 0.3− | 0.1− | 2008 01 27 | 379 | 0.1− | 0.6− | 2008 02 13 | 355 | 0.1− | 0.7− | 2008 01 20 | G72 | 0.3+ | 0.2+ | 2008 02 03 | 246 | 0.2+ | 0.2− |
| 2008 01 18 | G96 | 0.1+ | 0.0 | 2008 01 27 | 379 | 0.3− | 0.6− | 2008 02 13 | 355 | 0.2+ | 0.9− | 2008 01 20 | G72 | 0.0 | 0.1+ | 2008 02 03 | 246 | 0.1+ | 0.1− |
| 2008 01 18 | G96 | 0.2− | 0.1− | 2008 01 28 | B09 | (0.9− | 1.5+) | 2008 02 13 | 355 | 0.5+ | 0.8− | 2008 01 20 | G72 | 0.5+ | 0.0 | 2008 02 03 | A80 | 0.3+ | 0.3+ |
| 2008 01 18 | G96 | 0.3+ | 0.7+ | 2008 01 28 | B09 | (6.6+ | 1.0−) | 2008 02 13 | 355 | 0.2− | 0.8− | 2008 01 20 | G72 | 0.9+ | 0.2+ | 2008 02 03 | A80 | 0.4+ | 0.1− |
| 2008 01 19 | B19 | (4.9− | 2.3+) | 2008 01 29 | J95 | 0.1+ | 0.1− | 2008 02 13 | 560 | 0.2+ | 0.1− | 2008 01 20 | G72 | 0.4+ | 0.1+ | 2008 02 03 | A80 | 0.4+ | 0.1+ |
| 2008 01 19 | B19 | (4.9+ | 0.6+) | 2008 01 29 | J95 | 0.1+ | 0.1− | 2008 02 13 | 046 | 0.1− | 0.1− | 2008 01 20 | H51 | 0.1− | 0.5− | 2008 02 04 | 379 | 0.0 | 0.3+ |
| 2008 01 19 | H51 | 0.1− | 0.2− | 2008 01 29 | J95 | 0.1+ | 0.2− | 2008 02 13 | 560 | 0.2+ | 0.2− | 2008 01 20 | H51 | 0.2− | 0.5− | 2008 02 04 | 379 | 0.5+ | 0.3+ |
| 2008 01 19 | H51 | 0.2− | 0.2+ | 2008 01 29 | A81 | 0.0 | 0.3− | 2008 02 13 | 046 | 0.1+ | 0.3+ | 2008 01 20 | H51 | 0.2− | 0.3− | 2008 02 04 | 379 | 1.0+ | 0.2+ |
| 2008 01 19 | H51 | 0.2− | 0.1+ | 2008 01 29 | A81 | 0.2+ | 0.1+ | 2008 02 13 | 046 | 0.1− | 0.1+ | 2008 01 20 | H51 | 0.1− | 0.2− | 2008 02 04 | 379 | 0.9+ | 0.5+ |
| 2008 01 19 | H51 | 0.1+ | 0.1− | 2008 01 29 | A81 | 0.1− | 0.2− | 2008 02 13 | 560 | 0.1+ | 0.0 | 2008 01 20 | H51 | 0.3− | 0.2− | 2008 02 05 | G72 | 0.2+ | 0.2+ |
| 2008 01 19 | H51 | 0.1+ | 0.0 | 2008 01 29 | A81 | 0.0 | 0.3− | 2008 02 13 | 046 | 0.1+ | 0.1− | 2008 01 20 | H51 | 0.0 | 0.2− | 2008 02 05 | G72 | 0.1− | 0.2+ |
| 2008 01 19 | H51 | 0.0 | 0.0 | 2008 01 29 | A81 | 0.0 | 0.3− | 2008 02 13 | 046 | 0.3+ | 0.3− | 2008 01 20 | H51 | 0.0 | 0.1− | 2008 02 05 | G72 | 0.1− | 0.7− |
| 2008 01 19 | H51 | 0.0 | 0.1− | 2008 01 29 | 176 | 0.1+ | 0.2− | 2008 02 13 | 046 | 0.2+ | 0.0 | 2008 01 20 | H51 | 0.2− | 0.1− | 2008 02 05 | G72 | 1.0− | 0.2+ |
| 2008 01 19 | H51 | 0.2+ | 0.1− | 2008 01 29 | 176 | 0.2+ | 0.3− | 2008 02 13 | 046 | 0.1− | 0.4− | 2008 01 20 | H51 | 0.4− | 0.3− | 2008 02 05 | G72 | 1.0+ | 0.7+ |
| 2008 01 19 | H51 | 0.1− | 0.1+ | 2008 01 29 | 176 | 0.2+ | 0.0 | 2008 02 16 | 560 | 0.9+ | 1.2+ | 2008 01 20 | H51 | 0.4− | 0.1− | 2008 02 05 | G72 | 0.0 | 0.3+ |
| 2008 01 19 | H51 | 0.1− | 0.1+ | 2008 01 29 | 176 | 0.1− | 0.1− | 2008 02 16 | 560 | 0.4− | 0.9+ | 2008 01 20 | H51 | 0.3− | 0.2− | 2008 02 05 | J44 | 0.5− | 0.2+ |
| 2008 01 19 | H51 | 0.0 | 0.2− | 2008 01 29 | 176 | 0.0 | 0.3+ | 2008 02 16 | 560 | 0.7− | 0.8+ | 2008 01 20 | H51 | 0.4− | 0.3− | 2008 02 05 | J44 | 0.3− | 0.8− |
| 2008 01 19 | H51 | 0.2− | 0.1− | 2008 01 30 | 649 | 0.2+ | 0.2− | 2008 02 16 | 246 | 0.6+ | 0.3+ | 2008 01 20 | H51 | 0.0 | 0.2− | 2008 02 05 | J44 | 0.1+ | 0.4− |
| 2008 01 19 | H51 | 0.1− | 0.2− | 2008 01 30 | 649 | 0.1− | 0.3− | 2008 02 16 | 246 | 0.7+ | 0.4+ | 2008 01 20 | H51 | 0.3− | 0.5− | 2008 02 06 | 726 | 0.3− | 1.1+ |
| 2008 01 19 | H51 | 0.0 | 0.0 | 2008 01 30 | 649 | 0.1+ | 0.2− | 2008 02 16 | 246 | 0.9+ | 1.0+ | 2008 01 20 | H51 | 0.1− | 0.3− | 2008 02 06 | 726 | 0.3+ | 0.4+ |
| 2008 01 19 | H51 | 0.3− | 0.0 | 2008 01 30 | 649 | 0.2+ | 0.3− | 2008 02 16 | 246 | 0.4+ | 0.4− | 2008 01 20 | H51 | 0.2− | 0.2− | 2008 02 06 | G72 | 0.8+ | 0.4− |
| 2008 01 19 | H51 | 0.3− | 0.1− | 2008 01 30 | H45 | 0.2+ | 0.0 | 2008 02 16 | 246 | 0.7+ | 0.4− | 2008 01 20 | H51 | 0.3− | 0.2− | 2008 02 06 | G72 | 0.1− | 0.6− |
| 2008 01 19 | H51 | 0.0 | 0.0 | 2008 01 30 | H45 | 0.2+ | 0.3− | 2008 02 16 | 246 | 0.5+ | 0.2+ | 2008 01 20 | H51 | 0.2− | 0.2− | 2008 02 06 | G72 | 0.7+ | 0.1− |

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 02 16 | 046 | 0.0 | 0.2+ | 2008 03 01 | H45 | 0.3+ | 0.2− | 2008 03 26 | 734 | 0.1− | 1.1− | 2008 01 19 | H51 | 0.1− | 0.1− | 2008 01 30 | H45 | 0.2+ | 0.2− |
| 2008 02 17 | 046 | 0.4+ | 0.1+ | 2008 03 01 | H45 | 0.3+ | 0.2− | 2008 03 26 | 734 | 0.3− | 0.7− | 2008 01 19 | H51 | 0.1+ | 0.3− | 2008 01 30 | H45 | 0.3+ | 0.1− |
| 2008 02 17 | 046 | 1.2+ | 0.3+ | 2008 03 01 | H45 | 0.3+ | 0.1+ | 2008 03 26 | 734 | 0.5+ | 0.3− | 2008 01 19 | H51 | 0.2+ | 0.2− | 2008 01 30 | H45 | 0.0 | 0.2− |
| 2008 02 17 | 046 | 0.4+ | 0.7+ | 2008 03 04 | 711 | 0.2+ | 0.0 | 2008 03 26 | B03 | 0.0 | 0.3− | 2008 01 19 | B04 | 0.4+ | 0.5+ | 2008 01 30 | H45 | 0.0 | 0.0 |
| 2008 02 17 | 046 | 0.5+ | 0.6− | 2008 03 04 | 703 | (1.7− | 0.4−) | 2008 03 26 | B03 | 0.2+ | 0.2− | 2008 01 19 | B04 | 0.2+ | 0.4+ | 2008 01 31 | J51 | 0.3+ | 0.3− |
| 2008 02 17 | J95 | 0.1− | 0.1− | 2008 03 04 | 711 | 0.1+ | 0.3− | 2008 03 26 | B03 | 0.2+ | 0.2− | 2008 01 19 | B04 | 0.1+ | 0.2+ | 2008 01 31 | J51 | 0.2+ | 0.3− |
| 2008 02 17 | J95 | 0.0 | 0.2− | 2008 03 04 | 703 | 0.5− | 0.2+ | 2008 03 26 | B03 | 0.2− | 0.0 | 2008 01 19 | B04 | 0.5+ | 0.3+ | 2008 01 31 | J51 | 0.1+ | 0.2− |
| 2008 02 17 | J95 | 0.1− | 0.2− | 2008 03 04 | 703 | 0.6− | 0.0 | 2008 03 01 | H45 | 0.3+ | 0.2− | 2008 01 19 | B04 | 0.3+ | 0.7+ | 2008 01 31 | 379 | 0.1+ | 0.2− |
| 2008 02 17 | J66 | 0.0 | 0.5+ | 2008 03 04 | 711 | 0.0 | 0.5+ | 2008 03 01 | H45 | 0.3+ | 0.2− | 2008 01 19 | B04 | 0.4+ | 0.3+ | 2008 01 31 | 379 | 0.1+ | 0.5− |
| 2008 02 17 | J66 | 0.3+ | 0.7+ | 2008 03 04 | 703 | 1.2− | 0.4+ | 2008 03 01 | H45 | 0.3+ | 0.2− | 2008 01 19 | B04 | 0.0 | 0.2− | 2008 01 31 | 379 | 0.1+ | 0.2− |
| 2008 02 17 | J66 | 0.0 | 0.2+ | 2008 03 05 | 711 | 0.3+ | 0.1− | 2008 03 01 | H45 | 0.3+ | 0.2− | 2008 01 19 | B04 | 0.7+ | 0.2+ | 2008 01 31 | 379 | 0.0 | 0.2+ |
| 2008 02 17 | J66 | 0.2+ | 0.2− | 2008 03 05 | 711 | 0.2+ | 0.2− | 2008 03 01 | H45 | 0.3+ | 0.2− | 2008 01 20 | J51 | 0.1+ | 0.0 | 2008 01 31 | 379 | 0.1+ | 0.3+ |
| 2008 02 17 | J66 | 0.1+ | 0.2+ | 2008 03 05 | 711 | 0.0 | 0.4− | 2008 03 01 | H45 | 0.3+ | 0.1+ | 2008 01 20 | J51 | 0.1− | 0.2− | 2008 01 31 | 379 | 0.5− | 0.3− |
| 2008 02 17 | J66 | 0.0 | 0.4− | 2008 03 05 | A17 | 0.1− | 0.1− | 2008 03 01 | H45 | 0.3+ | 0.2− | 2008 01 20 | J51 | 0.0 | 0.1− | 2008 01 31 | B34 | 0.2+ | 0.3− |
| 2008 02 18 | J95 | 0.2− | 0.2− | 2008 03 05 | A17 | 0.1+ | 0.1+ | 2008 03 01 | H45 | 0.3+ | 0.2− | 2008 01 20 | H51 | 0.1− | 0.0 | 2008 01 31 | B34 | 0.0 | 0.3+ |
| 2008 02 18 | J95 | 0.1+ | 0.1+ | 2008 03 05 | A17 | 0.4− | 0.2+ | 2008 03 01 | H45 | 0.3+ | 0.2− | 2008 01 20 | H51 | 0.2+ | 0.1− | 2008 02 01 | 703 | 0.1+ | 0.0 |
| 2008 02 18 | J95 | 0.3− | 0.1+ | 2008 03 08 | 711 | 0.4+ | 0.3+ | 2008 03 04 | 711 | 0.2+ | 0.0 | 2008 01 20 | H51 | 0.2+ | 0.0 | 2008 02 01 | 703 | 0.6− | 0.1+ |
| 2008 02 18 | 198 | 0.4− | 0.2+ | 2008 03 08 | 734 | 0.3+ | 0.1− | 2008 03 04 | 703 | (1.7− | 0.4−) | 2008 01 20 | H51 | 0.0 | 0.1+ | 2008 02 01 | 703 | 0.1− | 0.1− |
| 2008 02 18 | 198 | 0.1− | 0.3+ | 2008 03 08 | 711 | 0.6+ | 0.2+ | 2008 03 04 | 711 | 0.1+ | 0.3− | 2008 01 20 | H51 | 0.1− | 0.0 | 2008 02 01 | 703 | 0.2− | 0.0 |
| 2008 02 18 | 198 | 0.1− | 0.4+ | 2008 03 08 | 711 | (0.7+ | 2.0+) | 2008 03 04 | 703 | 0.5− | 0.2+ | 2008 01 20 | H51 | 0.1− | 0.1+ | 2008 02 01 | 379 | 0.7− | 0.2+ |
| 2008 02 18 | 198 | 0.4+ | 0.5+ | 2008 03 08 | 734 | 0.0 | 0.0 | 2008 03 04 | 703 | 0.6− | 0.0 | 2008 01 20 | H51 | 0.2− | 0.0 | 2008 02 01 | 379 | 0.3− | 0.2+ |
| 2008 02 26 | B03 | 0.0 | 0.3− | 2008 03 09 | 703 | 0.6− | 1.0+ | 2008 03 04 | 711 | 0.0 | 0.5+ | 2008 01 20 | H51 | 0.0 | 0.0 | 2008 02 01 | 379 | 0.0 | 0.3+ |
| 2008 02 26 | B03 | 0.2+ | 0.2− | 2008 03 09 | 703 | (2.0− | 0.1+) | 2008 03 04 | 703 | 1.2− | 0.4+ | 2008 01 20 | H51 | 0.1− | 0.0 | 2008 02 01 | 379 | 0.0 | 0.1− |
| 2008 02 26 | B03 | 0.2+ | 0.2− | 2008 03 09 | 703 | (0.1+ | 1.8+) | 2008 03 05 | 711 | 0.3+ | 0.1− | 2008 01 20 | H51 | 0.1− | 0.0 | 2008 02 02 | 704 | 0.1+ | 0.4+ |
| 2008 02 26 | B03 | 0.2− | 0.0 | 2008 03 09 | 703 | 0.4− | 0.5+ | 2008 03 05 | 711 | 0.2+ | 0.2− | 2008 01 20 | H51 | 0.0 | 0.1+ | 2008 02 02 | 704 | 0.0 | 0.5+ |
| 2008 03 01 | H45 | 0.3+ | 0.2− | 2008 03 13 | 568 | 0.0 | 0.1+ | 2008 03 05 | 711 | 0.0 | 0.4− | 2008 01 20 | H51 | 0.3− | 0.0 | 2008 02 02 | 704 | 0.3+ | 0.4+ |
| 2008 03 01 | H45 | 0.3+ | 0.2− | 2008 03 13 | 568 | 0.1+ | 0.1+ | 2008 03 05 | A17 | 0.1− | 0.1− | 2008 01 20 | H51 | 0.3+ | 0.2+ | 2008 02 02 | 704 | 0.4+ | 0.6+ |
| 2008 03 01 | H45 | 0.3+ | 0.2− | 2008 03 15 | 291 | 0.3− | 0.4+ | 2008 03 05 | A17 | 0.1+ | 0.1+ | 2008 01 20 | H51 | 0.1− | 0.2− | 2008 02 02 | 704 | 0.0 | 0.6+ |
| 2008 03 01 | H45 | 0.3+ | 0.1+ | 2008 03 15 | 291 | 0.3− | 0.1+ | 2008 03 05 | A17 | 0.4− | 0.2+ | 2008 01 20 | H51 | 0.1− | 0.1− | 2008 02 02 | 639 | 0.1+ | 0.1+ |
| 2008 03 01 | H45 | 0.1− | 0.1+ | 2008 03 15 | 291 | 0.3− | 0.2+ | 2008 03 08 | 711 | 0.6+ | 0.2+ | 2008 01 20 | H51 | 0.0 | 0.2− | 2008 02 02 | 639 | 0.1− | 0.2+ |
| 2008 03 01 | H45 | 0.3− | 0.3− | 2008 03 20 | H01 | 0.0 | 0.0 | 2008 03 08 | 711 | (0.7+ | 2.0+) | 2008 01 20 | H51 | 0.1− | 0.0 | 2008 02 02 | 639 | 0.1+ | 0.3+ |
| 2008 03 04 | 711 | 0.2+ | 0.0 | 2008 03 20 | H01 | 0.0 | 0.1+ | 2008 03 08 | 734 | 0.0 | 0.0 | 2008 01 20 | H51 | 0.3− | 0.3− | 2008 02 02 | 639 | 0.4+ | 0.5+ |
| 2008 03 04 | 703 | 0.5− | 0.2+ | 2008 03 20 | H01 | 0.1+ | 0.2+ | 2008 03 09 | 703 | 0.6− | 1.0+ | 2008 01 20 | H51 | 0.0 | 0.1− | 2008 02 02 | 639 | 0.2+ | 0.5+ |
| 2008 03 04 | 703 | 0.6− | 0.0 | 2008 03 26 | 734 | 0.1− | 1.1− | 2008 03 09 | 703 | (2.0− | 0.1+) | 2008 01 20 | H51 | 0.3− | 0.2− | 2008 02 03 | 291 | 0.1− | 0.5+ |
| 2008 03 04 | 711 | 0.0 | 0.5+ | 2008 03 26 | 734 | 0.3− | 0.7− | 2008 03 09 | 703 | (0.1+ | 1.8+) | 2008 01 20 | H51 | 0.3− | 0.1+ | 2008 02 03 | A17 | 0.3− | 0.3− |
| 2008 03 04 | 703 | 1.2− | 0.4+ | 2008 03 26 | 734 | 0.5+ | 0.3− | 2008 03 09 | 703 | 0.4− | 0.5+ | 2008 01 20 | H51 | 0.3− | 0.1+ | 2008 02 03 | A17 | 0.4− | 0.0 |
| 2008 03 05 | 711 | 0.3+ | 0.1− | 2008 03 26 | 734 | 1.1+ | 0.1− | 2008 03 13 | 568 | 0.0 | 0.1+ | 2008 01 20 | H51 | 0.2− | 0.1+ | 2008 02 03 | B34 | 0.0 | 0.4− |
| 2008 03 05 | 711 | 0.2+ | 0.2− | 2008 04 03 | H55 | 0.2− | 0.1− | 2008 03 13 | 568 | 0.1+ | 0.1+ | 2008 01 20 | H51 | 0.0 | 0.2− | 2008 02 03 | B34 | 0.2+ | 0.2− |
| 2008 03 05 | 711 | 0.0 | 0.4− | 2008 04 03 | H55 | 0.1+ | 0.6− | 2008 03 15 | 291 | 0.3− | 0.4+ | 2008 01 20 | H51 | 0.1+ | 0.0 | 2008 02 03 | 246 | 0.2+ | 0.2− |
| 2008 03 05 | A17 | 0.1− | 0.1− | 2008 04 03 | H55 | 0.7+ | 0.1+ | 2008 03 15 | 291 | 0.3− | 0.1+ | 2008 01 20 | H51 | 0.0 | 0.0 | 2008 02 03 | 246 | 0.0 | 0.1− |
| 2008 03 05 | A17 | 0.1+ | 0.1+ | | | | | 2008 03 15 | 291 | 0.3− | 0.2+ | 2008 01 20 | H51 | 0.2+ | 0.1− | 2008 02 03 | 246 | 0.0 | 0.1− |
| 2008 03 05 | A17 | 0.4− | 0.2+ | | | | | 2008 03 20 | H01 | 0.0 | 0.0 | 2008 01 20 | G72 | 0.6+ | 0.2+ | 2008 02 03 | 246 | 0.2+ | 0.0 |
| 2008 03 08 | 711 | 0.4+ | 0.3+ | | | | | 2008 03 20 | H01 | 0.0 | 0.1+ | 2008 01 20 | G72 | 0.3+ | 0.2+ | 2008 02 03 | 246 | 0.2+ | 0.2− |
| 2008 03 08 | 734 | 0.3+ | 0.1− | | | | | 2008 03 20 | H01 | 0.1+ | 0.2+ | 2008 01 20 | G72 | 0.0 | 0.1+ | 2008 02 03 | 246 | 0.1+ | 0.1− |
| 2008 03 08 | 711 | 0.6+ | 0.2+ | | | | | 2008 03 26 | 734 | 0.1− | 1.1− | 2008 01 20 | G72 | 0.5+ | 0.0 | 2008 02 03 | A80 | 0.3+ | 0.3+ |
| 2008 03 08 | 711 | (0.7+ | 2.0+) | | | | | 2008 03 26 | 734 | 0.3− | 0.7− | 2008 01 20 | G72 | 0.9+ | 0.2+ | 2008 02 03 | A80 | 0.4+ | 0.1− |
| 2008 03 08 | 734 | 0.0 | 0.0 | | | | | 2008 03 26 | 734 | 0.5+ | 0.3− | 2008 01 20 | G72 | 0.4+ | 0.1+ | 2008 02 03 | A80 | 0.4+ | 0.1+ |
| 2008 03 09 | 703 | 0.6− | 1.0+ | | | | | 2008 03 26 | 734 | 1.1+ | 0.1− | 2008 01 20 | H51 | 0.1− | 0.5− | 2008 02 04 | 379 | 0.0 | 0.3+ |
| 2008 03 09 | 703 | (2.0− | 0.1+) | | | | | 2008 04 03 | H55 | 0.2− | 0.1− | 2008 01 20 | H51 | 0.2− | 0.5− | 2008 02 04 | 379 | 0.5+ | 0.3+ |
| 2008 03 09 | 703 | (0.1+ | 1.8+) | | | | | 2008 04 03 | H55 | 0.1+ | 0.6− | 2008 01 20 | H51 | 0.2− | 0.3− | 2008 02 04 | 379 | 1.0+ | 0.2+ |
| 2008 03 09 | 703 | 0.4− | 0.5+ | | | | | 2008 04 03 | H55 | 0.7+ | 0.1+ | 2008 01 20 | H51 | 0.1− | 0.2− | 2008 02 04 | 379 | 0.9+ | 0.5+ |
| 2008 03 13 | 568 | 0.0 | 0.1+ | | | | | | | | | 2008 01 20 | H51 | 0.3− | 0.2− | 2008 02 05 | G72 | 0.2+ | 0.2+ |
| 2008 03 13 | 568 | 0.1+ | 0.1+ | | | | | | | | | 2008 01 20 | H51 | 0.0 | 0.2− | 2008 02 05 | G72 | 0.1− | 0.2+ |
| 2008 03 15 | 291 | 0.3− | 0.4+ | | | | | | | | | 2008 01 20 | H51 | 0.0 | 0.1− | 2008 02 05 | G72 | 0.1− | 0.7− |
| 2008 03 15 | 291 | 0.3− | 0.1+ | | | | | | | | | 2008 01 20 | H51 | 0.2− | 0.1− | 2008 02 05 | G72 | 1.0− | 0.2+ |
| 2008 03 15 | 291 | 0.3− | 0.2+ | | | | | | | | | 2008 01 20 | H51 | 0.4− | 0.3− | 2008 02 05 | G72 | 

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 01 20 | H51 | 0.2− | 0.2− | 2008 02 06 | G72 | 0.1− | 0.1− | 2008 04 05 | 734 | 0.2− | 0.6+ |
| 2008 01 20 | H51 | 0.4− | 0.4− | 2008 02 06 | G72 | 0.4+ | 0.5+ | 2008 04 05 | 734 | 0.3− | 0.5− |
| 2008 01 20 | H51 | 0.1− | 0.1− | 2008 02 06 | G72 | 0.2+ | 0.2+ | 2008 04 12 | 568 | 0.0 | 0.0 |
| 2008 01 20 | H51 | 0.4− | 0.4− | 2008 02 06 | 291 | 0.4− | 0.2+ | 2008 04 22 | 568 | 0.0 | 0.1+ |
| 2008 01 20 | H51 | 0.4− | 0.4− | 2008 02 06 | 291 | 0.4− | 0.1+ | 2008 04 22 | 568 | 0.0 | 0.1+ |
| 2008 01 20 | H51 | 0.3− | 0.3− | 2008 02 06 | 291 | 0.4− | 0.0 | 2008 04 22 | 568 | 0.0 | 0.1+ |
| 2008 01 20 | H51 | 0.2− | 0.3− | 2008 02 07 | 291 | 0.5− | 0.0 | 2008 04 22 | 568 | 0.0 | 0.1+ |
| 2008 01 20 | H51 | 0.3− | 0.3− | 2008 02 07 | 291 | 0.5− | 0.0 | 2008 04 23 | H55 | 0.0 | 0.1+ |
| 2008 01 20 | H51 | 0.1− | 0.2− | 2008 02 07 | 291 | 0.5− | 0.0 | 2008 04 23 | H55 | 0.2+ | 0.2− |
| 2008 01 20 | H51 | 0.1− | 0.2− | 2008 02 07 | H45 | 0.1− | 0.1− | 2008 04 23 | H55 | 0.3+ | 0.2+ |
| 2008 01 20 | H51 | 0.3− | 0.1− | 2008 02 07 | H45 | 0.0 | 0.2− | 2008 05 20 | 568 | 0.0 | 0.0 |
| 2008 01 20 | H51 | 0.2− | 0.2− | 2008 02 07 | H45 | 0.3+ | 0.2− | 2008 05 20 | 568 | 0.0 | 0.1− |
| 2008 01 20 | B04 | 0.4+ | 0.5+ | 2008 02 07 | H45 | 0.0 | 0.2− | | | | |
| 2008 01 20 | B04 | 0.9+ | 0.6+ | 2008 02 07 | H45 | 0.0 | 0.1− | | | | |

### 2008 AX$_{28}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 248.02692 | | (2000.0) | | | |
| $n$ | 0.29187999 | $\omega$ | 73.84719 | | +0.80276115 | −0.59586410 |
| $a$ | 2.2507806 | $\Omega$ | 322.71853 | | +0.53169667 | +0.73258559 |
| $e$ | 0.4267277 | $i$ | 2.15854 | | +0.26995033 | +0.32903546 |
| $P$ | 3.38 | $H$ | 20.0 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 03 | 691 | 0.2− | 0.2+ | 2008 01 11 | 291 | 0.2− | 0.3− | 2008 01 18 | 691 | 0.1+ | 0.4− |
| 2000 09 03 | 691 | 0.0 | 0.0 | 2008 01 11 | 291 | 0.1+ | 0.1− | 2008 01 31 | G96 | 0.1− | 0.1+ |
| 2000 09 03 | 691 | 0.3+ | 0.1− | 2008 01 14 | 691 | 0.1+ | 0.1− | 2008 01 31 | G96 | 0.3+ | 0.5− |
| 2008 01 10 | 691 | 0.3− | 0.3− | 2008 01 14 | 691 | 0.5− | 0.4− | 2008 01 31 | G96 | 0.3+ | 0.2+ |
| 2008 01 10 | 691 | 0.6+ | 0.6+ | 2008 01 14 | 691 | 0.5+ | 0.3+ | 2008 01 31 | G96 | 0.0 | 0.6+ |
| 2008 01 10 | 691 | 0.1− | 0.0 | 2008 01 18 | 691 | 0.4− | 0.8+ | | | | |
| 2008 01 11 | 291 | 0.2− | 0.0 | 2008 01 18 | 691 | 0.0 | 0.2− | | | | |

### 2008 AV$_{47}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 219.83953 | | (2000.0) | | | |
| $n$ | 0.21091060 | $\omega$ | 283.06691 | | +0.87315253 | −0.47188040 |
| $a$ | 2.7951413 | $\Omega$ | 105.20372 | | +0.48173468 | +0.79709429 |
| $e$ | 0.0992830 | $i$ | 7.27520 | | +0.07440671 | +0.37678852 |
| $P$ | 4.67 | $H$ | 16.5 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 11 05 | G96 | 0.3+ | 0.4− | 2007 12 16 | 691 | 0.6− | 0.1− | 2008 01 13 | G96 | 0.1− | 0.1− |
| 2007 11 05 | G96 | 0.2− | 0.3− | 2007 12 20 | 691 | 0.1+ | 0.2− | 2008 01 13 | G96 | 0.1+ | 0.3− |
| 2007 11 05 | G96 | 0.0 | 0.3− | 2007 12 20 | 691 | 0.2+ | 0.0 | 2008 01 13 | G96 | 0.2+ | 0.1+ |
| 2007 11 05 | G96 | 0.1+ | 0.3− | 2007 12 20 | 691 | 0.0 | 0.1− | 2008 01 13 | G96 | 0.2+ | 0.1− |
| 2007 12 04 | G96 | 0.5− | 0.1− | 2008 01 01 | 691 | 0.0 | 0.1+ | 2009 04 23 | 691 | 0.2− | 0.2+ |
| 2007 12 04 | G96 | 0.3− | 0.7− | 2008 01 01 | 691 | 0.2− | 0.2− | 2009 04 23 | 691 | 0.2− | 0.2− |
| 2007 12 04 | G96 | 0.4+ | 0.7− | 2008 01 01 | 691 | 0.0 | 0.1+ | 2009 04 23 | 691 | 0.1− | 0.4− |
| 2007 12 04 | G96 | 0.7+ | 1.1− | 2008 01 11 | 691 | 0.0 | 0.1− | 2009 04 30 | 691 | 0.2+ | 0.4+ |
| 2007 12 16 | 691 | 0.4+ | 1.8+ | 2008 01 11 | 691 | 0.2+ | 0.1− | 2009 04 30 | 691 | 0.2+ | 0.1− |
| 2007 12 16 | 691 | 0.1− | 0.1− | 2008 01 11 | 691 | 0.2− | 0.2− | 2009 04 30 | 691 | (2.2+ | 2.7−) |

### 2008 AX$_{85}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 59.61342 | | (2000.0) | | | |
| $n$ | 0.19543228 | $\omega$ | 104.25291 | | −0.76883346 | +0.63102880 |
| $a$ | 2.9408431 | $\Omega$ | 114.98090 | | −0.62183326 | −0.70010380 |
| $e$ | 0.0877352 | $i$ | 6.55199 | | −0.14905875 | −0.33415165 |
| $P$ | 5.04 | $H$ | 16.2 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 12 30 | G96 | 1.0+ | 0.0 | 2008 02 01 | G96 | 0.1− | 0.2− | 2009 04 19 | 691 | 0.0 | 0.1− |
| 2007 12 30 | G96 | 1.2+ | 0.6− | 2008 02 01 | G96 | 0.7+ | 0.1− | 2009 04 19 | 691 | 0.1− | 0.1− |
| 2007 12 30 | G96 | 1.4+ | 0.7− | 2008 02 01 | G96 | 0.1+ | 0.2− | 2009 04 19 | 691 | 0.3− | 0.1− |
| 2007 12 30 | G96 | 0.6+ | 0.2+ | 2008 03 12 | G96 | 0.2+ | 0.2− | 2009 05 01 | 691 | 0.3+ | 0.0 |
| 2008 01 13 | 691 | 0.6− | 0.4+ | 2008 03 12 | G96 | 0.2+ | 0.3− | 2009 05 01 | 691 | 0.1− | 0.1+ |
| 2008 01 13 | 691 | 0.7− | 0.1− | 2008 03 12 | G96 | 0.3+ | 0.4− | 2009 05 01 | 691 | 0.1+ | 0.1− |
| 2008 01 13 | 691 | 0.2− | 0.0 | 2008 03 12 | G96 | 0.2− | 0.1− | 2009 05 26 | 691 | 0.1+ | 0.1+ |
| 2008 01 17 | 691 | 0.1− | 0.0 | 2008 04 06 | G96 | 0.0 | 0.1+ | 2009 05 26 | 691 | 0.4− | 0.4+ |
| 2008 01 17 | 691 | 0.1+ | 0.3+ | 2008 04 06 | G96 | 0.5+ | 0.3+ | 2009 05 26 | 691 | 0.3+ | 0.2− |
| 2008 01 17 | 691 | 0.2+ | 0.0 | 2008 04 06 | G96 | 0.0 | 0.1− | | | | |
| 2008 02 01 | G96 | 0.3− | 0.3− | 2008 04 06 | G96 | 0.0 | 0.6+ | | | | |

### 2008 AP$_{104}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 149.52249 | | (2000.0) | | | |
| $n$ | 0.22689729 | $\omega$ | 5.50105 | | −0.64549898 | −0.76260460 |
| $a$ | 2.6622561 | $\Omega$ | 124.70978 | | +0.69877374 | −0.61188557 |
| $e$ | 0.1050897 | $i$ | 2.92970 | | +0.30829583 | −0.20983393 |
| $P$ | 4.34 | $H$ | 17.0 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 02 02 | 691 | 0.1+ | 0.1− | 2008 01 10 | 703 | 1.0+ | 0.2+ | 2008 01 30 | 691 | 0.6+ | 0.9− |
| 1995 02 02 | 691 | 0.0 | 0.3+ | 2008 01 10 | 703 | 0.1− | 0.3+ | 2008 01 30 | 691 | 0.2− | 0.2+ |
| 1995 02 02 | 691 | 0.0 | 0.1+ | 2008 01 10 | 703 | 0.2+ | 0.8− | 2008 03 27 | G96 | 0.1+ | 0.4+ |
| 2007 12 30 | 691 | 0.1+ | 0.0 | 2008 01 15 | 691 | 0.1− | 0.0 | 2008 03 27 | G96 | 0.1− | 0.2− |
| 2007 12 30 | 691 | 0.2+ | 0.2+ | 2008 01 15 | 691 | 0.0 | 0.1− | 2008 03 27 | G96 | 0.1− | 0.4− |
| 2007 12 30 | 691 | 0.1+ | 0.3+ | 2008 01 15 | 691 | 0.6− | 0.2+ | 2008 03 27 | G96 | 0.1+ | 0.1− |
| 2008 01 04 | 069 | 0.1− | 0.1− | 2008 01 19 | 691 | 0.4− | 0.1− | 2009 06 13 | 691 | 0.6− | 0.2− |
| 2008 01 05 | 069 | 1.0− | 0.2− | 2008 01 19 | 691 | 0.1+ | 0.1+ | 2009 06 13 | 691 | 0.0 | 0.2+ |
| 2008 01 05 | 069 | 0.8+ | 0.2− | 2008 01 19 | 691 | 0.0 | 0.1+ | 2009 06 13 | 691 | 0.6+ | 0.1+ |
| 2008 01 10 | 703 | 1.5− | 0.5+ | 2008 01 30 | 691 | 0.4+ | 0.0 | | | | |

### 2008 BY$_{21}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 107.87443 | | (2000.0) | | | |
| $n$ | 0.23690964 | $\omega$ | 78.09283 | | −0.68689093 | +0.71756617 |
| $a$ | 2.5867089 | $\Omega$ | 147.54896 | | −0.72189694 | −0.65534888 |
| $e$ | 0.0732994 | $i$ | 12.40163 | | −0.08393841 | −0.23583181 |
| $P$ | 4.16 | $H$ | 17.1 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 05 23 | 807 | 0.2− | 0.2+ | 2008 01 11 | G96 | 0.2+ | 0.5− | 2008 03 06 | G96 | 0.2+ | 0.4+ |
| 2001 05 23 | 807 | 0.2+ | 0.2+ | 2008 01 30 | 691 | 0.1− | 0.3+ | 2008 03 06 | G96 | 0.4+ | 0.2+ |
| 2008 01 10 | G96 | 0.5+ | 0.7− | 2008 01 30 | 691 | 0.0 | 0.1− | 2008 04 05 | G96 | 0.1+ | 0.8− |
| 2008 01 10 | G96 | 0.6+ | 1.7− | 2008 01 30 | 691 | 0.3− | 0.6+ | 2008 04 05 | G96 | 0.5+ | 0.4− |
| 2008 01 10 | G96 | 0.1+ | 0.6− | 2008 02 01 | 291 | 0.3− | 0.2+ | 2008 04 05 | G96 | 0.1− | 0.2− |
| 2008 01 10 | G96 | 0.1+ | 0.3− | 2008 02 01 | 291 | 0.2− | 0.1+ | 2008 04 05 | G96 | 0.3− | 0.3− |
| 2008 01 11 | G96 | 0.4+ | 0.5− | 2008 02 01 | 291 | 0.1− | 0.0 | 2009 06 16 | 691 | 0.1+ | 0.1+ |
| 2008 01 11 | G96 | 0.1+ | 0.3− | 2008 03 06 | G96 | 0.4+ | 0.6+ | 2009 06 16 | 691 | 0.1− | 0.1+ |
| 2008 01 11 | G96 | 0.1− | 0.5− | 2008 03 06 | G96 | 0.6+ | 0.3+ | 2009 06 16 | 691 | 0.0 | 0.3− |

### 2008 CD$_{22}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 336.69504 | | (2000.0) | | | |
| $n$ | 0.49823932 | $\omega$ | 8.97289 | | −0.92277605 | −0.37414511 |
| $a$ | 1.5758349 | $\Omega$ | 148.55365 | | +0.34167026 | −0.90507160 |
| $e$ | 0.3226763 | $i$ | 10.17871 | | +0.17817349 | −0.20214062 |
| $P$ | 1.98 | $H$ | 22.2 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 02 09 | 703 | 0.3− | 0.6− | 2008 02 13 | 046 | 0.0 | 0.2− | 2008 02 27 | H45 | 0.0 | 0.2+ |
| 2008 02 09 | 703 | 1.0− | 1.1− | 2008 02 13 | 046 | 0.9− | 0.3+ | 2008 02 28 | H45 | 0.4+ | 0.4+ |
| 2008 02 09 | 703 | 0.2− | 0.5+ | 2008 02 13 | 046 | 0.3+ | 0.2− | 2008 02 28 | H45 | 0.0 | 0.3+ |
| 2008 02 09 | 703 | 1.0− | 0.1− | 2008 02 13 | 046 | 0.2+ | 0.7+ | 2008 02 28 | H45 | 0.1− | 0.1+ |
| 2008 02 09 | 673 | 0.0 | 0.0 | 2008 02 14 | H55 | 0.2+ | 0.1+ | 2008 02 28 | H45 | 0.3+ | 0.2+ |
| 2008 02 09 | 651 | 0.2− | 0.1+ | 2008 02 14 | H55 | 0.0 | 0.1− | 2008 02 28 | H45 | 0.0 | 0.1− |
| 2008 02 09 | 651 | 0.1− | 0.0 | 2008 02 14 | H55 | 0.1+ | 0.0 | 2008 02 28 | H45 | 0.1− | 0.1− |
| 2008 02 09 | 673 | 0.1+ | 0.2+ | 2008 02 14 | 703 | 0.0 | 0.2− | 2008 02 28 | 703 | 0.9− | 0.2+ |
| 2008 02 09 | 651 | 0.1− | 0.2+ | 2008 02 14 | 703 | 0.4− | 0.4+ | 2008 02 28 | 703 | 0.3− | 0.0 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 02 09 | 673 | 0.0 | 0.0 | 2008 02 14 | 703 | 0.1+ | 0.6+ | 2008 02 28 | 703 | 0.3− | 0.3+ |
| 2008 02 09 | 673 | 0.0 | 0.2− | 2008 02 14 | 703 | 0.1− | 1.3+ | 2008 02 28 | 703 | 0.9− | 0.0 |
| 2008 02 09 | 703 | 0.6− | 0.2+ | 2008 02 15 | A81 | 0.1+ | 0.2− | 2008 02 29 | 703 | 0.5− | 0.0 |
| 2008 02 09 | 703 | 0.5− | 0.3+ | 2008 02 15 | A81 | 0.1+ | 0.4− | 2008 02 29 | 703 | 0.2− | 0.3− |
| 2008 02 09 | 703 | 0.3− | 0.4+ | 2008 02 16 | H55 | 0.2+ | 0.3+ | 2008 02 29 | 703 | 0.6− | 0.1+ |
| 2008 02 09 | 703 | 0.6− | 0.0 | 2008 02 16 | H55 | 0.2+ | 0.3+ | 2008 02 29 | 703 | 0.1+ | 0.1− |
| 2008 02 09 | J66 | 0.2+ | 0.3+ | 2008 02 16 | H55 | 0.1+ | 0.1+ | 2008 03 01 | 699 | 1.0− | 0.8− |
| 2008 02 09 | J66 | 0.2− | 0.0 | 2008 02 16 | H55 | 0.1+ | 0.2+ | 2008 03 01 | 699 | 0.3− | 0.3− |
| 2008 02 09 | J66 | 0.4− | 0.4+ | 2008 02 16 | H55 | 0.2+ | 0.3+ | 2008 03 01 | 699 | 0.1+ | 0.2− |
| 2008 02 09 | J66 | 0.3+ | 0.1− | 2008 02 16 | H55 | 0.1+ | 0.3+ | 2008 03 01 | A48 | 0.2+ | 0.4− |
| 2008 02 09 | J66 | 0.4− | 0.0 | 2008 02 16 | 246 | 0.1+ | 0.5+ | 2008 03 01 | A48 | 0.4+ | 0.9+ |
| 2008 02 10 | A80 | 0.5+ | 0.3+ | 2008 02 16 | 246 | 0.8+ | 0.3− | 2008 03 02 | A48 | 0.3+ | 0.8+ |
| 2008 02 10 | A80 | 0.3+ | 0.1− | 2008 02 16 | 246 | 0.2+ | 0.2− | 2008 03 02 | A48 | 0.7− | 0.7+ |
| 2008 02 10 | A80 | 0.6+ | 0.4− | 2008 02 16 | 246 | 0.5+ | 0.3− | 2008 03 02 | A53 | 0.3+ | 0.6+ |
| 2008 02 10 | 130 | 0.2− | 0.2+ | 2008 02 16 | 246 | 0.1− | 0.5+ | 2008 03 02 | A53 | 0.6+ | 0.2− |
| 2008 02 10 | 130 | 0.6+ | 0.1− | 2008 02 16 | 246 | 0.6+ | 0.2− | 2008 03 02 | A53 | 0.2+ | 1.0− |
| 2008 02 10 | 130 | 0.3+ | 0.6+ | 2008 02 17 | 046 | 0.3+ | 0.2− | 2008 03 05 | H45 | 0.0 | 0.3− |
| 2008 02 10 | 130 | 0.3− | 0.2+ | 2008 02 17 | 046 | 0.9− | 0.9+ | 2008 03 05 | H45 | 0.3+ | 0.1− |
| 2008 02 10 | A48 | 0.1− | 0.2+ | 2008 02 17 | 046 | 0.4+ | 0.1− | 2008 03 05 | H45 | 0.1− | 0.5− |
| 2008 02 10 | A48 | 0.1− | 0.1− | 2008 02 17 | 046 | 0.2+ | 0.2− | 2008 03 05 | H45 | 0.3+ | 0.0 |
| 2008 02 10 | A48 | 0.1+ | 0.3− | 2008 02 17 | 046 | 0.8+ | 0.7+ | 2008 03 05 | H45 | 1.0− | 0.4− |
| 2008 02 10 | A48 | 1.0+ | 0.3− | 2008 02 17 | 046 | 0.3− | 0.0 | 2008 03 05 | H45 | 0.3+ | 0.0 |
| 2008 02 10 | 012 | 0.1− | 0.1+ | 2008 02 17 | 448 | 0.0 | 0.3+ | 2008 03 10 | 046 | 0.9− | 0.5+ |
| 2008 02 10 | 012 | 0.0 | 0.1− | 2008 02 17 | 448 | 0.4+ | 0.1− | 2008 03 10 | 046 | 1.5− | 0.0 |
| 2008 02 10 | 012 | 0.2− | 0.3+ | 2008 02 17 | 448 | 0.1+ | 0.2+ | 2008 03 10 | 046 | 0.5+ | 0.2+ |
| 2008 02 10 | 012 | 0.4+ | 0.1+ | 2008 02 17 | 448 | 0.2+ | 0.2− | 2008 03 10 | 046 | 0.9+ | 0.1− |
| 2008 02 10 | 012 | 0.1− | 0.2+ | 2008 02 23 | H51 | 0.5− | 0.6− | 2008 03 10 | 046 | 0.1− | 0.5+ |
| 2008 02 10 | 012 | 0.3− | 0.2− | 2008 02 23 | H51 | 0.2+ | 0.0 | 2008 03 10 | 046 | 0.1− | 0.2+ |
| 2008 02 11 | 704 | 0.4− | 0.2− | 2008 02 23 | H51 | 0.2+ | 0.2+ | 2008 03 10 | 046 | 0.7+ | 0.4+ |
| 2008 02 11 | 704 | 0.1+ | 0.3+ | 2008 02 23 | H51 | 0.4+ | 0.1+ | 2008 03 15 | 704 | 1.2+ | 0.1− |
| 2008 02 11 | 704 | 0.2+ | 0.2− | 2008 02 23 | H51 | 0.0 | 0.2+ | 2008 03 15 | 704 | 0.1+ | 1.2+ |
| 2008 02 11 | 704 | 0.4+ | 0.9+ | 2008 02 23 | H51 | 0.1+ | 0.1− | 2008 03 15 | 704 | 0.1− | 0.7+ |
| 2008 02 11 | 704 | 0.2− | 0.2− | 2008 02 23 | H51 | 0.5+ | 0.3+ | 2008 03 15 | 704 | 0.6+ | 0.3+ |
| 2008 02 11 | 560 | 0.0 | 0.4+ | 2008 02 23 | H51 | 0.5+ | 0.0 | 2008 03 15 | 704 | 0.1+ | 0.0 |
| 2008 02 11 | 560 | 0.0 | 0.4+ | 2008 02 23 | H51 | 0.3+ | 0.0 | 2008 03 15 | 704 | 0.5+ | 0.7+ |
| 2008 02 11 | A57 | 0.2+ | 1.9− | 2008 02 23 | H51 | 0.5+ | 0.1+ | 2008 03 15 | 704 | 0.9+ | 0.7+ |
| 2008 02 11 | 560 | 0.1− | 0.3+ | 2008 02 23 | H51 | 0.4+ | 0.3− | 2008 03 15 | 704 | 0.9+ | 0.1+ |
| 2008 02 11 | A57 | 0.8+ | 0.5− | 2008 02 23 | H51 | 0.4+ | 0.2+ | 2008 03 15 | 704 | 0.5− | 0.8+ |
| 2008 02 11 | A57 | 0.5+ | 1.2− | 2008 02 23 | H51 | 0.1+ | 0.5− | 2008 03 24 | H55 | 0.2− | 0.1+ |
| 2008 02 12 | 046 | 0.4+ | 0.1+ | 2008 02 23 | H51 | 0.4+ | 0.6+ | 2008 03 24 | H55 | 0.2− | 0.1+ |
| 2008 02 12 | 046 | 0.1+ | 0.2− | 2008 02 23 | H51 | 0.2+ | 0.4− | 2008 03 24 | H55 | 0.3− | 0.1+ |
| 2008 02 12 | 046 | 0.2+ | 0.5+ | 2008 02 23 | H51 | 0.3+ | 0.5+ | 2008 03 31 | G96 | 0.0 | 0.1+ |
| 2008 02 12 | 046 | 0.3− | 0.3+ | 2008 02 23 | H51 | 0.1+ | 0.0 | 2008 03 31 | G96 | 0.2− | 0.2+ |
| 2008 02 12 | 046 | 0.5− | 0.2− | 2008 02 23 | H51 | 0.1+ | 0.1− | 2008 03 31 | G96 | 0.0 | 0.1+ |
| 2008 02 12 | 046 | 0.2+ | 0.4− | 2008 02 23 | H51 | 0.1+ | 0.2− | 2008 04 23 | H55 | 0.6− | 0.2− |
| 2008 02 12 | 046 | 0.9− | 0.2+ | 2008 02 23 | H51 | 0.2+ | 0.2+ | 2008 04 23 | H55 | 0.4− | 0.3− |
| 2008 02 12 | 046 | 0.6− | 0.2+ | 2008 02 23 | H51 | 0.1+ | 0.2− | 2008 04 23 | H55 | 0.4+ | 0.3+ |
| 2008 02 12 | 246 | 0.4− | 0.4− | 2008 02 23 | H51 | 0.3+ | 0.2− | 2008 05 10 | H55 | 0.3− | 0.0 |
| 2008 02 12 | 246 | 0.2− | 0.2+ | 2008 02 23 | H51 | 0.3− | 0.1+ | 2008 05 10 | H55 | 0.1− | 0.2+ |
| 2008 02 12 | 246 | 0.1+ | 0.1− | 2008 02 23 | H51 | 0.4+ | 0.0 | 2008 05 10 | H55 | 0.1− | 0.3− |
| 2008 02 12 | 246 | 0.0 | 0.1− | 2008 02 23 | H51 | 0.5+ | 0.4+ | 2008 05 22 | H55 | 0.7− | 0.2+ |
| 2008 02 12 | 246 | 0.6− | 0.7− | 2008 02 23 | H51 | 0.1+ | 0.0 | 2008 05 22 | H55 | 0.6− | 0.2+ |
| 2008 02 13 | A78 | 0.3− | 0.6− | 2008 02 23 | H51 | 0.4+ | 0.4+ | 2008 05 22 | H55 | 0.3− | 0.2− |
| 2008 02 13 | A78 | 0.8− | 1.0− | 2008 02 24 | A78 | 0.9− | 1.8− | 2008 05 29 | H55 | 0.2− | 0.5− |
| 2008 02 13 | A78 | 0.2− | 1.0− | 2008 02 24 | A78 | 0.8− | 1.6− | 2008 05 29 | H55 | 0.5− | 0.0 |
| 2008 02 13 | A78 | 0.7− | 1.1− | 2008 02 24 | A78 | 1.1− | 1.8− | 2008 05 29 | H55 | 0.6− | 0.6− |
| 2008 02 13 | 560 | 0.0 | 0.0 | 2008 02 27 | H45 | 0.0 | 0.1− | 2009 12 09 | 568 | 0.1+ | 0.0 |
| 2008 02 13 | 560 | 0.2+ | 0.2+ | 2008 02 27 | H45 | 0.1+ | 0.2− | 2009 12 09 | 568 | 0.0 | 0.1+ |
| 2008 02 13 | 560 | 0.4+ | 0.5+ | 2008 02 27 | H45 | 0.0 | 0.1− | 2009 12 19 | 568 | 0.0 | 0.0 |
| 2008 02 13 | 046 | 0.1− | 0.5+ | 2008 02 27 | H45 | 0.0 | 0.1− | 2009 12 19 | 568 | 0.0 | 0.0 |
| 2008 02 13 | 046 | 0.0 | 0.3− | 2008 02 27 | H45 | 0.2− | 0.1− | | | | |
| 2008 02 13 | 046 | 0.3+ | 0.1− | 2008 02 27 | H45 | 0.0 | 0.0 | | | | |

**2008 CB$_{32}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 42.48038 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17658791 | $\omega$ | 96.83159 | | −0.49494058 | +0.85847199 | |
| $a$ | 3.1465072 | $\Omega$ | 142.51409 | | −0.85864274 | −0.45947413 | |
| $e$ | 0.0929856 | $i$ | 12.75745 | | −0.13329090 | −0.22783626 | |
| $P$ | 5.58 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 04 01 | 645 | 0.0 | 0.0 | 2008 02 09 | 691 | 0.4+ | 0.0 | 2008 03 05 | G96 | 0.6+ | 0.1+ |
| 2003 04 01 | 645 | 0.0 | 0.1− | 2008 02 09 | 691 | 0.1− | 0.2− | 2008 03 05 | G96 | 0.1+ | 0.3− |
| 2003 04 27 | 645 | 0.0 | 0.1+ | 2008 02 09 | 691 | 0.3+ | 0.1+ | 2008 03 05 | G96 | 0.7+ | 0.0 |
| 2003 04 27 | 645 | 0.0 | 0.1+ | 2008 02 10 | 691 | 0.1+ | 0.3+ | 2008 04 05 | G96 | 0.1− | 0.2+ |
| 2008 02 02 | 691 | 1.1− | 0.1+ | 2008 02 10 | 691 | 0.3+ | 0.1− | 2008 04 05 | G96 | 0.2+ | 0.3− |
| 2008 02 02 | 691 | 0.5− | 0.4− | 2008 02 10 | 691 | 0.2+ | 0.1+ | 2008 04 05 | G96 | 0.1+ | 0.1− |
| 2008 02 02 | 691 | 0.1− | 0.2+ | 2008 03 05 | G96 | 0.5+ | 0.0 | 2008 04 05 | G96 | 0.4+ | 0.1− |

**2008 CS$_{60}$ = 2006 QL$_{187}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 230.67383 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22273847 | $\omega$ | 95.74092 | | +0.73167399 | −0.66683907 | |
| $a$ | 2.6952924 | $\Omega$ | 306.17864 | | +0.53532519 | +0.69048798 | |
| $e$ | 0.1979702 | $i$ | 10.08514 | | +0.42199540 | +0.28027129 | |
| $P$ | 4.42 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 08 18 | 644 | 0.3+ | 0.5+ | 2006 09 18 | 703 | 0.9+ | 0.2− | 2008 02 09 | G96 | 0.2− | 0.0 |
| 2006 08 18 | 644 | 0.4+ | 0.5+ | 2006 09 18 | 703 | 0.7+ | 0.7+ | 2008 02 09 | G96 | 0.1+ | 0.2− |
| 2006 08 18 | 644 | 0.1+ | 0.6+ | 2006 09 18 | 703 | 0.6− | 0.6− | 2008 02 09 | G96 | 0.0 | 0.1− |
| 2006 08 29 | 703 | 0.6+ | 1.0− | 2008 02 07 | G96 | 0.0 | 0.2− | 2008 02 12 | 691 | 0.1− | 0.3+ |
| 2006 08 29 | 703 | 0.8− | 0.3− | 2008 02 07 | G96 | 0.3+ | 0.3− | 2008 02 12 | 691 | 0.1+ | 0.0 |
| 2006 08 29 | 703 | 0.5− | 0.6− | 2008 02 07 | G96 | 0.1+ | 0.3− | 2008 02 12 | 691 | 0.2− | 0.0 |
| 2006 08 29 | 703 | 0.7− | 0.5− | 2008 02 07 | G96 | 0.4+ | 0.1− | | | | |
| 2006 09 18 | 703 | 0.4− | 1.0+ | 2008 02 09 | G96 | 0.0 | 0.3− | | | | |

**2008 CA$_{73}$ = 2009 SB$_{352}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 47.42948 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.38715137 | $\omega$ | 43.73924 | | +0.97174634 | −0.02590476 | |
| $a$ | 1.8644419 | $\Omega$ | 316.05371 | | −0.12317168 | +0.79222556 | |
| $e$ | 0.1076617 | $i$ | 19.75816 | | +0.20133997 | +0.60967828 | |
| $P$ | 2.55 | $H$ | 17.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 01 15 | G96 | 0.9− | 0.1+ | 2008 02 11 | 143 | 0.5+ | 0.3− | 2009 09 19 | 703 | 0.0 | 0.6+ |
| 2008 01 15 | G96 | 0.3− | 0.4+ | 2008 02 11 | 246 | 0.9+ | 0.7+ | 2009 09 29 | G96 | 0.1+ | 0.3+ |
| 2008 01 15 | G96 | 0.6+ | 0.3− | 2008 02 11 | 143 | 0.2− | 0.1+ | 2009 09 29 | G96 | 0.0 | 0.2+ |
| 2008 01 15 | G96 | 0.2− | 0.2+ | 2008 02 11 | 143 | 0.2− | 0.1− | 2009 09 29 | G96 | 0.5+ | 0.0 |
| 2008 02 10 | 704 | 1.1+ | 0.1− | 2008 02 12 | G96 | 0.4+ | 0.6− | 2009 09 29 | G96 | 0.2− | 0.2+ |
| 2008 02 10 | 704 | 0.5− | 0.2− | 2008 02 12 | G96 | 0.2− | 0.5− | 2009 10 17 | 703 | 0.2− | 0.2− |
| 2008 02 10 | 704 | 1.3− | 1.2+ | 2008 02 12 | G96 | 0.3− | 0.2− | 2009 10 17 | 703 | 0.2+ | 0.1− |
| 2008 02 11 | 246 | 0.1+ | 0.4+ | 2008 02 12 | G96 | 0.0 | 0.3− | 2009 10 17 | 703 | 0.2+ | 0.4+ |
| 2008 02 11 | 246 | 0.4+ | 0.3− | 2009 09 19 | 703 | 0.9− | 0.3− | 2009 10 17 | 703 | 0.6− | 0.2− |
| 2008 02 11 | 246 | 0.2− | 0.2− | 2009 09 19 | 703 | 0.1+ | 0.5− | 2009 10 17 | 703 | 0.5+ | 0.1− |
| 2008 02 11 | 246 | 0.2+ | 0.1+ | 2009 09 19 | 703 | 0.3+ | 0.3− | | | | |

**2008 CJ$_{73}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 242.88741 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24172377 | $\omega$ | 298.24582 | | +0.62326409 | −0.75046901 | |
| $a$ | 2.5522496 | $\Omega$ | 111.47800 | | +0.77439343 | +0.55315087 | |
| $e$ | 0.1559885 | $i$ | 13.66627 | | +0.10888847 | +0.36169101 | |
| $P$ | 4.08 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 10 19 | G96 | 0.2+ | 0.4− | 2008 02 07 | 704 | 0.5+ | 0.9+ | 2008 02 13 | 704 | 1.0+ | 0.3+ |
| 2007 10 19 | G96 | 0.1+ | 0.0 | 2008 02 07 | 704 | 0.8+ | 1.0+ | 2009 04 22 | 691 | 0.0 | 0.2+ |
| 2007 10 19 | G96 | 0.5+ | 0.3− | 2008 02 07 | 704 | 0.5+ | 0.4+ | 2009 04 22 | 691 | 0.4− | 0.5− |
| 2007 10 19 | G96 | 0.1+ | 0.3− | 2008 02 07 | 704 | 0.7− | 0.4+ | 2009 04 22 | 691 | 0.1− | 0.3− |
| 2008 01 18 | G96 | 0.0 | 0.7− | 2008 02 07 | 704 | 0.3− | 0.8+ | 2009 04 30 | 691 | 0.1+ | 0.5+ |
| 2008 01 18 | G96 | 0.1+ | 0.8− | 2008 02 09 | A77 | 0.1+ | 0.3− | 2009 04 30 | 691 | 0.2− | 0.1+ |
| 2008 01 18 | G96 | 0.1+ | 1.1− | 2008 02 09 | A77 | 0.1+ | 0.8− | 2009 04 30 | 691 | 0.1− | 0.3− |
| 2008 01 18 | G96 | 0.2+ | 0.8− | 2008 02 09 | A77 | 0.0 | 0.5− | 2009 05 31 | 691 | 0.4− | 0.4+ |
| 2008 02 06 | 703 | 0.7− | 1.0+ | 2008 02 13 | 704 | 0.7− | 0.3− | 2009 05 31 | 691 | 0.9+ | 0.2− |
| 2008 02 06 | 703 | 0.4− | 0.4+ | 2008 02 13 | 704 | 0.4− | 1.1+ | 2009 05 31 | 691 | 0.1+ | 0.0 |
| 2008 02 06 | 703 | 0.0 | 0.5− | 2008 02 13 | 704 | 0.3− | 0.6+ | | | | |
| 2008 02 06 | 703 | 0.5− | 0.2+ | 2008 02 13 | 704 | 0.2+ | 0.7− | | | | |

**2008 CX$_{97}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 238.39485 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18282652 | $\omega$ | 248.64764 | | +0.87986991 | −0.46517119 | |
| $a$ | 3.0745147 | $\Omega$ | 138.90355 | | +0.47206939 | +0.83208393 | |
| $e$ | 0.1164992 | $i$ | 8.50216 | | +0.05458421 | +0.30207961 | |
| $P$ | 5.39 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 07 28 | 644 | 0.2− | 0.1+ | 2006 12 21 | 703 | 1.5− | 0.5− | 2008 02 24 | G96 | 0.2+ | 0.1− |
| 2005 07 28 | 644 | 0.1+ | 0.1+ | 2008 02 09 | 691 | 0.1− | 0.1− | 2008 03 29 | G96 | 0.0 | 0.0 |
| 2005 07 28 | 644 | 0.0 | 0.1+ | 2008 02 09 | 691 | 0.0 | 0.0 | 2008 03 29 | G96 | 0.1+ | 0.1+ |
| 2006 11 25 | G96 | 0.3+ | 0.2− | 2008 02 09 | 691 | 0.3− | 0.1+ | 2008 03 29 | G96 | 0.6+ | 0.2+ |
| 2006 11 25 | G96 | 0.4+ | 0.1− | 2008 02 10 | 691 | 0.3+ | 0.1− | 2008 03 29 | G96 | 0.5− | 0.3− |
| 2006 11 25 | G96 | 0.5+ | 0.2+ | 2008 02 10 | 691 | 0.2− | 0.1− | 2008 04 05 | G96 | 0.6+ | 0.1− |
| 2006 11 25 | G96 | 0.7+ | 0.0 | 2008 02 10 | 691 | 0.1− | 0.4+ | 2008 04 05 | G96 | 0.1+ | 0.2+ |
| 2006 12 21 | 703 | 0.1− | 0.1+ | 2008 02 24 | G96 | 0.1+ | 0.1− | 2008 04 05 | G96 | 0.1+ | 0.3− |
| 2006 12 21 | 703 | 0.4+ | 1.3+ | 2008 02 24 | G96 | 0.1− | 0.1− | 2008 04 05 | G96 | 0.0 | 0.1+ |
| 2006 12 21 | 703 | 0.8− | 0.8− | 2008 02 24 | G96 | 0.6+ | 0.6− | | | | |

**2008 CS$_{125}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 214.58375 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21262810 | $\omega$ | 121.84883 | | +0.97462287 | −0.21672843 | |
| $a$ | 2.7800692 | $\Omega$ | 250.71966 | | +0.18004803 | +0.90767301 | |
| $e$ | 0.0885245 | $i$ | 3.40287 | | +0.13301494 | +0.35938626 | |
| $P$ | 4.64 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 11 19 | 691 | 0.3+ | 0.4− | 2007 12 16 | 691 | 0.2− | 0.4+ | 2008 02 12 | G96 | 0.3− | 0.5+ |
| 2007 11 19 | 691 | 0.2+ | 0.0 | 2007 12 16 | 691 | 0.1− | 0.1− | 2008 02 12 | G96 | 0.3− | 0.1+ |
| 2007 11 19 | 691 | 0.1− | 0.0 | 2008 01 11 | G96 | 0.5+ | 0.4− | 2009 01 31 | G96 | 0.2− | 0.3+ |
| 2007 12 04 | 691 | 0.3− | 0.1− | 2008 01 11 | G96 | 0.4+ | 0.3− | 2009 01 31 | G96 | 0.5− | 0.0 |
| 2007 12 04 | 691 | 0.3− | 0.0 | 2008 01 11 | G96 | 0.3+ | 0.3− | 2009 01 31 | G96 | 0.2− | 0.1+ |
| 2007 12 04 | 691 | 0.3− | 0.1+ | 2008 01 11 | G96 | 0.6+ | 0.4− | 2009 01 31 | G96 | 0.3+ | 0.1− |
| 2007 12 05 | 704 | 0.8+ | 1.1+ | 2008 02 08 | G96 | 0.0 | 0.1− | 2009 03 01 | G96 | 0.3+ | 0.0 |
| 2007 12 05 | 704 | 0.7+ | 0.2− | 2008 02 08 | G96 | 0.2+ | 0.5− | 2009 03 01 | G96 | 0.1+ | 0.1− |
| 2007 12 05 | 704 | 0.5+ | 0.2+ | 2008 02 08 | G96 | 0.2− | 0.6− | 2009 03 01 | G96 | 0.3+ | 0.0 |
| 2007 12 05 | 704 | 0.4+ | 0.6+ | 2008 02 08 | G96 | 0.0 | 0.5− | 2009 03 01 | G96 | 0.0 | 0.0 |
| 2007 12 05 | 704 | (0.8+ | 2.7+) | 2008 02 12 | G96 | 0.1+ | 0.2+ | | | | |
| 2007 12 16 | 691 | 0.1− | 0.1+ | 2008 02 12 | G96 | 0.1+ | 0.0 | | | | |

**2008 CF$_{132}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 21.77426 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.12396741 | $\omega$ | 55.84001 | | −0.66443239 | +0.74731293 | |
| $a$ | 3.9834959 | $\Omega$ | 172.50829 | | −0.70274443 | −0.62143279 | |
| $e$ | 0.0989789 | $i$ | 3.20060 | | −0.25432237 | −0.23525450 | |
| $P$ | 7.95 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 02 08 | 691 | 0.2− | 0.2− | 2008 03 09 | G96 | 0.9+ | 0.6− | 2009 04 22 | G96 | 0.8+ | 0.2+ |
| 2008 02 08 | 691 | 0.3− | 0.0 | 2008 03 14 | G96 | 0.4+ | 0.1− | 2009 04 22 | G96 | 0.2+ | 0.0 |
| 2008 02 08 | 691 | 0.8+ | 0.1− | 2008 03 14 | G96 | 0.2− | 0.3+ | 2009 04 22 | G96 | 0.2− | 0.1− |
| 2008 02 12 | 691 | 0.6− | 0.0 | 2008 03 14 | G96 | 0.3+ | 0.2+ | 2009 04 22 | G96 | 0.1− | 0.2+ |
| 2008 02 12 | 691 | 0.1− | 0.6+ | 2008 03 14 | G96 | 1.0− | 0.4− | 2009 05 17 | G96 | 0.7− | 0.3− |
| 2008 02 12 | 691 | 0.2+ | 0.2− | 2008 03 26 | G96 | 0.4+ | 0.3+ | 2009 05 17 | G96 | 0.3+ | 0.0 |
| 2008 03 09 | G96 | 0.0 | 0.4− | 2008 03 26 | G96 | 0.2+ | 0.2+ | 2009 05 17 | G96 | 0.2− | 0.3− |
| 2008 03 09 | G96 | 0.2− | 0.2+ | 2008 03 26 | G96 | 0.1+ | 0.2+ | 2009 05 17 | G96 | 0.2− | 0.4+ |
| 2008 03 09 | G96 | 0.1+ | 0.1− | 2008 03 26 | G96 | 0.1− | 0.2+ | | | | |

**2008 CM$_{170}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 260.71215 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21345058 | $\omega$ | 208.08055 | | +0.85083833 | −0.52537999 | |
| $a$ | 2.7729231 | $\Omega$ | 183.63677 | | +0.50053442 | +0.81454834 | |
| $e$ | 0.0621791 | $i$ | 6.40097 | | +0.15981064 | +0.24594078 | |
| $P$ | 4.62 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 04 14 | 691 | 0.2+ | 0.3+ | 2006 10 21 | G96 | 0.2+ | 0.3+ | 2008 02 13 | 691 | 0.3− | 0.3+ |
| 2004 04 14 | 691 | 0.3− | 0.2+ | 2008 01 12 | G96 | 0.6+ | 0.4− | 2008 02 13 | 691 | 0.3− | 0.1+ |
| 2004 04 14 | 691 | 0.2+ | 0.0 | 2008 01 12 | G96 | 0.2+ | 0.1+ | 2008 02 27 | G96 | 0.3+ | 0.0 |
| 2006 10 03 | G96 | 0.2− | 0.0 | 2008 01 12 | G96 | 0.2− | 0.1− | 2008 02 27 | G96 | 0.3+ | 0.1+ |
| 2006 10 03 | G96 | 0.1− | 0.1+ | 2008 01 12 | G96 | 0.3+ | 0.3− | 2008 02 27 | G96 | 0.1− | 0.4− |
| 2006 10 03 | G96 | 0.1+ | 0.1− | 2008 02 12 | G96 | 0.2+ | 0.1− | 2008 02 27 | G96 | 0.9+ | 0.2− |
| 2006 10 03 | G96 | 0.4− | 0.0 | 2008 02 12 | G96 | 0.2− | 0.0 | 2009 05 15 | 691 | 0.8− | 0.1− |
| 2006 10 21 | G96 | 0.0 | 0.1+ | 2008 02 12 | G96 | 0.5+ | 0.1− | 2009 05 15 | 691 | 0.3+ | 0.2− |
| 2006 10 21 | G96 | 0.1+ | 0.4+ | 2008 02 12 | G96 | 0.4− | 0.2− | 2009 05 15 | 691 | 0.5+ | 0.0 |
| 2006 10 21 | G96 | 0.1+ | 0.1+ | 2008 02 13 | 691 | 0.1− | 0.2− | | | | |

**2008 CM$_{208}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 257.89231 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27914256 | $\omega$ | 60.67183 | | +0.31221462 | −0.94971084 | |
| $a$ | 2.3187397 | $\Omega$ | 11.21295 | | +0.82342636 | +0.25797903 | |
| $e$ | 0.0829493 | $i$ | 7.06079 | | +0.47380488 | +0.17747153 | |
| $P$ | 3.53 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 05 11 | 807 | 0.1+ | 0.1+ | 2008 02 06 | 704 | 1.3+ | 0.2+ | 2008 02 27 | 703 | 0.3− | 0.0 |
| 2005 05 11 | 807 | 0.0 | 0.1+ | 2008 02 06 | 704 | (2.8+ | 0.3−) | 2008 03 06 | G96 | 0.1− | 0.2− |
| 2006 08 18 | 644 | 0.0 | 0.2− | 2008 02 13 | 704 | 0.1− | 0.7− | 2008 03 06 | G96 | 0.2− | 0.2− |
| 2006 08 18 | 644 | 0.1− | 0.0 | 2008 02 13 | 704 | 0.4− | 0.4− | 2008 03 06 | G96 | 0.2+ | 0.2− |
| 2006 08 18 | 644 | 0.2+ | 0.0 | 2008 02 13 | 704 | 0.0 | 0.9− | 2008 03 06 | G96 | 0.0 | 0.2− |
| 2008 02 02 | 703 | 0.3− | 0.1− | 2008 02 13 | 704 | 0.6+ | 0.6− | 2008 04 08 | G96 | 0.1− | 0.1+ |
| 2008 02 02 | 703 | (2.1− | 0.2−) | 2008 02 13 | 704 | 0.3+ | 0.0 | 2008 04 08 | G96 | 0.0 | 0.1+ |
| 2008 02 02 | 703 | 0.6− | 1.5+ | 2008 02 27 | 703 | 0.4− | 1.1+ | 2008 04 08 | G96 | 0.4− | 0.1+ |
| 2008 02 02 | 703 | 0.6+ | 0.2− | 2008 02 27 | 703 | 1.3− | 0.1+ | 2008 04 08 | G96 | 0.1+ | 0.4− |
| 2008 02 06 | 704 | 1.9+ | 0.5+ | 2008 02 27 | 703 | 1.3− | 0.0 | | | | |

**2008 DM$_{8}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 298.84159 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21878984 | $\omega$ | 217.08274 | | +0.99154249 | −0.02246294 | |
| $a$ | 2.7276247 | $\Omega$ | 143.56806 | | +0.05161325 | +0.97192267 | |
| $e$ | 0.0465471 | $i$ | 12.42958 | | −0.11907795 | +0.23422583 | |
| $P$ | 4.50 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 02 02 | 691 | 0.1+ | 0.3− | 2008 02 24 | G96 | 0.9+ | 0.5− | 2008 04 05 | G96 | 0.4− | 0.3− |
| 2008 02 02 | 691 | 0.2+ | 0.1+ | 2008 02 24 | G96 | 0.1− | 0.2+ | 2008 04 05 | G96 | 0.2− | 0.1+ |
| 2008 02 02 | 691 | 0.1+ | 0.2+ | 2008 02 28 | G96 | 0.0 | 0.1+ | 2009 05 18 | G96 | 0.0 | 0.4− |
| 2008 02 09 | 691 | 0.4− | 0.1+ | 2008 02 28 | G96 | 0.0 | 0.1+ | 2009 05 18 | G96 | 0.2+ | 0.5− |
| 2008 02 09 | 691 | 0.1+ | 0.1− | 2008 02 28 | G96 | 0.3+ | 0.1+ | 2009 05 18 | G96 | 0.1− | 0.4− |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 02 09 | 691 | 0.3− | 0.2+ | 2008 02 28 | G96 | 0.1− | 0.3+ | 2009 06 13 | 691 | 0.2− | 0.0 |
| 2008 02 24 | G96 | 0.3+ | 0.3− | 2008 04 05 | G96 | 0.2+ | 0.3− | 2009 06 13 | 691 | 0.1+ | 0.2+ |
| 2008 02 24 | G96 | 0.2− | 0.2− | 2008 04 05 | G96 | 0.5+ | 0.4+ | 2009 06 13 | 691 | 0.0 | 0.2+ |

**2008 DO$_{15}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 86.06409 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.20968601 | $\omega$ | 248.02886 | | −0.87028982 | −0.48826992 | |
| $a$ | 2.8060134 | $\Omega$ | 262.69228 | | +0.47254207 | −0.79065644 | |
| $e$ | 0.1050734 | $i$ | 3.74096 | | +0.13892310 | −0.36939799 | |
| $P$ | 4.70 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 01 09 | 327 | 0.1− | 0.0 | 2007 11 17 | 691 | 0.3+ | 0.3+ | 2008 02 27 | G96 | 0.1− | 0.0 |
| 1999 01 09 | 327 | 0.5+ | 0.3− | 2007 11 17 | 691 | 0.1− | 0.4+ | 2008 02 27 | G96 | 0.3− | 0.8+ |
| 1999 01 09 | 327 | 0.6− | 1.0− | 2007 12 15 | G96 | 0.5+ | 0.4− | 2008 02 27 | G96 | 1.0+ | 0.3− |
| 2007 10 16 | G96 | 1.2+ | 0.9− | 2007 12 15 | G96 | 0.3+ | 0.1− | 2008 02 27 | G96 | 0.3− | 0.2− |
| 2007 10 16 | G96 | 0.9+ | 0.3− | 2007 12 15 | G96 | 0.2+ | 0.2+ | 2008 02 28 | G96 | 0.2+ | 0.0 |
| 2007 10 16 | G96 | 0.7+ | 0.4− | 2007 12 15 | G96 | 0.0 | 0.1− | 2008 02 28 | G96 | 0.6− | 0.4− |
| 2007 10 16 | G96 | 0.9+ | 0.9− | 2007 12 15 | G96 | 0.2+ | 0.2+ | 2008 02 28 | G96 | 0.4− | 0.3− |
| 2007 11 01 | 691 | 0.5+ | 0.2+ | 2007 12 15 | G96 | 0.5+ | 0.0 | 2008 02 28 | G96 | 0.3+ | 0.1+ |
| 2007 11 01 | 691 | 0.2− | 0.2+ | 2007 12 15 | G96 | 0.5+ | 0.2− | 2009 03 08 | G96 | 0.3+ | 0.1+ |
| 2007 11 01 | 691 | 0.0 | 0.2− | 2007 12 15 | G96 | 0.4+ | 0.1− | 2009 03 08 | G96 | 0.1− | 0.3+ |
| 2007 11 05 | 691 | 0.4− | 0.2+ | 2007 12 31 | G96 | 0.6+ | 0.4+ | 2009 03 08 | G96 | 0.0 | 0.3+ |
| 2007 11 05 | 691 | 0.2− | 0.0 | 2007 12 31 | G96 | 0.1− | 0.3− | 2009 03 08 | G96 | 0.2+ | 0.4+ |
| 2007 11 05 | 691 | 0.4− | 0.0 | 2007 12 31 | G96 | 0.4+ | 0.0 | | | | |
| 2007 11 17 | 691 | 1.3− | 0.1− | 2007 12 31 | G96 | 0.7+ | 0.1+ | | | | |

**2008 DL$_{23}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 52.77681 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18189966 | $\omega$ | 70.99188 | | −0.59385001 | +0.80044011 | |
| $a$ | 3.0849499 | $\Omega$ | 161.84412 | | −0.80080987 | −0.57824631 | |
| $e$ | 0.0099393 | $i$ | 15.15687 | | −0.07775422 | −0.15788232 | |
| $P$ | 5.42 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 02 03 | 691 | 0.3− | 0.6+ | 2008 03 26 | 691 | 0.1− | 0.1− | 2008 04 06 | G96 | 0.7+ | 0.1− |
| 2008 02 03 | 691 | 0.3+ | 0.4− | 2008 03 26 | 691 | 0.8− | 0.3+ | 2008 04 06 | G96 | 0.5+ | 0.1+ |
| 2008 02 03 | 691 | 0.2− | 0.0 | 2008 03 26 | 691 | 0.3− | 0.3+ | 2008 04 06 | G96 | 0.2+ | 0.3− |
| 2008 02 24 | 691 | 0.2+ | 0.1− | 2008 03 28 | 691 | 0.0 | 0.2− | 2009 05 15 | G96 | 0.9− | 0.1+ |
| 2008 02 24 | 691 | 0.1+ | 0.1+ | 2008 03 28 | 691 | 0.1+ | 0.2− | 2009 05 15 | G96 | 0.6+ | 0.2+ |
| 2008 02 24 | 691 | 0.2+ | 0.3− | 2008 03 28 | 691 | 0.2− | 0.1+ | 2009 05 15 | G96 | 0.5+ | 0.2+ |
| 2008 02 29 | D29 | 0.7+ | 0.1− | 2008 03 31 | 691 | 0.4+ | 0.0 | 2009 05 15 | G96 | 0.3− | 0.0 |
| 2008 02 29 | D29 | 0.4+ | 0.6+ | 2008 03 31 | 691 | 0.4+ | 0.6+ | 2009 06 22 | G96 | 0.3+ | 0.1− |
| 2008 02 29 | D29 | 0.0 | 0.0 | 2008 03 31 | 691 | 0.4− | 0.6− | 2009 06 22 | G96 | 0.0 | 0.1− |
| 2008 02 29 | D29 | 0.3− | 0.0 | 2008 04 06 | G96 | 0.4+ | 0.1− | 2009 06 22 | G96 | 0.2− | 0.2− |

**2008 DV$_{25}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 203.03937 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21238487 | $\omega$ | 124.19164 | | +0.06859749 | −0.98832131 | |
| $a$ | 2.7821914 | $\Omega$ | 321.16483 | | +0.82898972 | +0.13235037 | |
| $e$ | 0.1704296 | $i$ | 12.53237 | | +0.55504093 | −0.07552729 | |
| $P$ | 4.64 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 12 31 | 645 | 0.0 | 0.0 | 2008 01 31 | 291 | 0.2+ | 0.0 | 2008 03 03 | 703 | 1.6− | 1.1− |
| 2002 12 31 | 645 | 0.0 | 0.1− | 2008 01 31 | 291 | 0.3+ | 0.0 | 2008 03 03 | 703 | (2.1− | 0.9+) |
| 2006 09 28 | 703 | 1.3+ | 0.4+ | 2008 01 31 | 291 | 0.0 | 0.1+ | 2008 03 03 | 703 | 0.5− | 0.1− |
| 2006 09 28 | 703 | 0.8− | 0.3+ | 2008 01 31 | 291 | 0.2− | 0.2+ | 2008 03 10 | G96 | 0.0 | 0.4− |
| 2006 09 28 | 703 | 1.2− | 1.8+ | 2008 01 31 | 291 | 0.1+ | 0.4+ | 2008 03 10 | G96 | 0.6+ | 0.1− |
| 2006 09 28 | 703 | 0.7− | 0.1− | 2008 02 12 | G96 | 0.4+ | 0.2− | 2008 03 10 | G96 | 0.6+ | 0.3− |
| 2007 12 16 | G96 | 0.0 | 0.1+ | 2008 02 12 | G96 | 0.6+ | 0.2− | 2008 03 10 | G96 | 0.6+ | 0.5− |
| 2007 12 16 | G96 | 0.0 | 0.2− | 2008 02 12 | G96 | 0.1+ | 0.3− | 2008 03 12 | 703 | 0.1− | 0.0 |
| 2007 12 16 | G96 | 0.4− | 0.2+ | 2008 02 12 | G96 | 0.1+ | 0.2− | 2008 03 12 | 703 | 0.9− | 0.6+ |
| 2007 12 16 | G96 | 0.2+ | 0.2− | 2008 02 29 | D29 | 0.4+ | 0.3− | 2008 03 12 | 703 | 0.1− | 0.9+ |
| 2008 01 31 | 291 | 0.1− | 0.0 | 2008 02 29 | D29 | 0.0 | 0.3+ | 2008 03 12 | 703 | 0.8+ | 1.1− |
| 2008 01 31 | 291 | 0.5− | 0.3+ | 2008 02 29 | D29 | 0.3+ | 0.8− | 2008 04 01 | 291 | 0.3+ | 0.0 |
| 2008 01 31 | 291 | 0.1− | 0.5+ | 2008 02 29 | D29 | 0.2− | 1.0+ | 2008 04 01 | 291 | 0.1+ | 0.2− |
| 2008 01 31 | 291 | 0.0 | 0.4+ | 2008 03 03 | 703 | 0.9− | 0.4− | 2008 04 01 | 291 | 0.4+ | 0.1+ |

**2008 DT$_{26}$ = 2001 WU$_{34}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 38.60362 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.20264602 | $\omega$ | 136.43836 | | −0.09550511 | +0.99443547 | |
| $a$ | 2.8706307 | $\Omega$ | 128.03143 | | −0.92806401 | −0.07280085 | |
| $e$ | 0.0079495 | $i$ | 3.23591 | | −0.35996662 | −0.07614544 | |
| $P$ | 4.86 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 02 26 | 691 | 0.4− | 1.1− | 2005 09 14 | 691 | 0.0 | 0.5+ | 2008 01 30 | 691 | 0.0 | 0.1+ |
| 1998 02 26 | 691 | 0.0 | 0.6− | 2005 09 14 | 691 | 0.2+ | 0.2+ | 2008 02 28 | G96 | 0.5+ | 0.0 |
| 1998 02 26 | 691 | 0.5− | 0.6− | 2006 11 16 | G96 | 0.0 | 0.5− | 2008 02 28 | G96 | 0.2+ | 0.1− |
| 2001 11 17 | 704 | 0.3− | 0.5+ | 2006 11 16 | G96 | 0.1+ | 0.5− | 2008 02 28 | G96 | 0.1+ | 0.1− |
| 2001 11 17 | 704 | 0.3− | 1.7+ | 2006 11 16 | G96 | 0.2− | 0.6− | 2008 02 28 | G96 | 0.2− | 0.0 |
| 2001 11 17 | 704 | 0.1+ | 1.8+ | 2006 11 16 | G96 | 0.1− | 0.3− | 2008 03 02 | D29 | 1.0+ | 0.8+ |
| 2001 11 17 | 704 | 0.1+ | 1.9+ | 2006 12 14 | G96 | 0.1+ | 0.2− | 2008 03 02 | D29 | 0.3+ | 0.2+ |
| 2001 11 20 | 704 | 0.1− | 0.0 | 2006 12 14 | G96 | 0.5− | 0.5− | 2008 03 02 | D29 | 1.3+ | 0.2− |
| 2001 11 20 | 704 | 0.4+ | 0.8+ | 2006 12 14 | G96 | 0.2+ | 0.0 | 2008 03 02 | D29 | 1.1+ | 0.1+ |
| 2001 11 20 | 704 | 0.4− | 0.5+ | 2006 12 14 | G96 | 0.2+ | 0.3− | 2008 03 05 | 704 | 0.7+ | 0.8+ |
| 2003 02 22 | 644 | 0.4+ | 0.0 | 2006 12 27 | G96 | 0.2+ | 0.0 | 2008 03 05 | 704 | 0.3+ | 1.2+ |
| 2003 02 22 | 644 | 0.4+ | 0.4− | 2006 12 27 | G96 | 0.1+ | 0.3− | 2008 03 05 | 704 | 1.2+ | 0.1− |
| 2003 02 22 | 644 | 0.5+ | 0.3− | 2006 12 27 | G96 | 0.2− | 0.0 | 2008 03 11 | 703 | 0.0 | 1.7− |
| 2003 02 26 | 599 | 0.4+ | 0.4+ | 2006 12 27 | G96 | 0.3− | 0.2− | 2008 03 11 | 703 | 1.4− | 0.9− |
| 2003 02 26 | 599 | 0.6+ | 0.3+ | 2007 02 22 | G96 | 0.7+ | 0.4− | 2008 03 11 | 703 | 0.2+ | 0.4− |
| 2003 02 26 | 599 | 0.3+ | 1.8+ | 2007 02 22 | G96 | 0.6+ | 0.3− | 2008 03 11 | 703 | 0.4− | 1.1+ |
| 2003 02 26 | 599 | 0.2+ | 0.4+ | 2007 02 22 | G96 | 0.7− | 0.2− | 2008 03 12 | 691 | 0.1+ | 0.1+ |
| 2005 08 08 | 807 | 0.9− | 0.0 | 2007 02 22 | G96 | 0.5− | 0.3− | 2008 03 12 | 691 | 0.1+ | 0.4+ |
| 2005 08 08 | 807 | 0.6− | 0.1− | 2008 01 30 | 691 | 0.1+ | 0.5+ | 2008 03 12 | 691 | 0.4+ | 0.2+ |
| 2005 08 30 | 691 | 0.1+ | 0.2− | 2008 01 30 | 691 | 0.1+ | 0.1+ | 2008 04 07 | 691 | 0.1− | 0.2+ |
| 2005 08 30 | 691 | 0.0 | 0.0 | 2008 01 30 | 291 | 0.5− | 0.4+ | 2008 04 07 | 691 | 0.0 | 0.0 |
| 2005 08 30 | 691 | 0.3− | 0.3− | 2008 01 30 | 291 | 0.4− | 0.4+ | 2008 04 07 | 691 | 0.2− | 0.0 |
| 2005 09 14 | 691 | 0.1− | 0.5+ | 2008 01 30 | 291 | 0.4− | 0.3+ | | | | |

**2008 DC$_{52}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 66.03767 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22482120 | $\omega$ | 127.43871 | | −0.09175602 | +0.97274010 | |
| $a$ | 2.6786206 | $\Omega$ | 135.77283 | | −0.98255705 | −0.05370201 | |
| $e$ | 0.1861587 | $i$ | 17.77835 | | −0.16174819 | −0.22559433 | |
| $P$ | 4.38 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 02 14 | G96 | 0.0 | 0.2− | 2008 03 01 | G96 | 0.2+ | 0.0 | 2008 03 08 | 704 | 0.8+ | 1.6− |
| 2008 02 14 | G96 | 0.3− | 0.1− | 2008 03 01 | G96 | 0.3− | 0.1+ | 2009 06 23 | G96 | 0.3+ | 0.1+ |
| 2008 02 14 | G96 | 0.0 | 0.6− | 2008 03 07 | 704 | 1.2+ | 0.2+ | 2009 06 23 | G96 | 0.0 | 0.2+ |
| 2008 02 14 | G96 | 0.2− | 0.2− | 2008 03 07 | 704 | 0.6− | 1.2+ | 2009 06 23 | G96 | 0.2− | 0.2+ |
| 2008 02 29 | G96 | 0.0 | 0.1− | 2008 03 07 | 704 | 0.3+ | 0.4+ | 2009 06 23 | G96 | 0.0 | 0.1− |
| 2008 02 29 | G96 | 0.5− | 0.2+ | 2008 03 07 | 704 | 1.4− | 0.6+ | 2009 07 27 | 703 | 0.0 | 0.1− |
| 2008 02 29 | G96 | 0.2− | 0.1+ | 2008 03 07 | 704 | 0.2+ | 1.3+ | 2009 07 27 | 703 | 0.2− | 0.5+ |
| 2008 02 29 | G96 | 0.3− | 0.1− | 2008 03 08 | 704 | 0.8+ | 0.6− | 2009 07 27 | 703 | 0.1+ | 0.9− |
| 2008 03 01 | G96 | 0.4− | 0.0 | 2008 03 08 | 704 | 0.2− | 0.2+ | 2009 07 27 | 703 | 0.0 | 0.1− |
| 2008 03 01 | G96 | 0.3− | 0.1− | 2008 03 08 | 704 | 1.3+ | 1.0− | | | | |

**2008 DM$_{55}$ = 2006 TL$_{130}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 206.23993 | | (2000.0) | | | |
| $n$ | 0.27176868 | $\omega$ | 304.87614 | | −0.74119710 | −0.67127759 |
| $a$ | 2.3604951 | $\Omega$ | 192.95942 | | +0.62107144 | −0.68368290 |
| $e$ | 0.1308498 | $i$ | 0.93032 | | +0.25474915 | −0.28629371 |
| $P$ | 3.63 | $H$ | 17.6 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 09 25 | 691 | 0.2− | 0.5+ | 2006 10 16 | G96 | 0.6+ | 0.1− | 2008 03 04 | 704 | 0.1− | 1.4+ |
| 2006 09 25 | 691 | 0.0 | 0.2− | 2006 10 16 | G96 | 0.2− | 0.1− | 2008 03 04 | 704 | 0.4− | 1.2+ |
| 2006 09 25 | 691 | 0.0 | 0.1− | 2008 02 26 | G96 | 0.3− | 0.6− | 2008 03 08 | G96 | 0.5− | 0.3− |
| 2006 09 25 | G96 | 0.2+ | 0.4+ | 2008 02 26 | G96 | 0.4− | 0.4− | 2008 03 08 | G96 | 0.1− | 0.5− |
| 2006 09 25 | G96 | 0.1+ | 0.1+ | 2008 02 26 | G96 | 0.4− | 0.2− | 2008 03 08 | G96 | 0.2− | 0.3− |
| 2006 09 25 | G96 | 0.0 | 0.2+ | 2008 02 26 | G96 | 0.5− | 0.7− | 2008 03 08 | G96 | 0.4− | 0.4− |
| 2006 09 25 | G96 | 0.1− | 0.0 | 2008 03 03 | D29 | 0.5+ | 0.8− | 2008 03 11 | 704 | (1.9+ | 0.6+) |
| 2006 10 13 | 568 | 0.1+ | 0.2− | 2008 03 03 | D29 | 0.4+ | 0.0 | 2008 03 11 | 704 | 0.6+ | 0.6+ |
| 2006 10 13 | 568 | 0.2+ | 0.1− | 2008 03 03 | D29 | 0.5+ | 0.7− | 2008 03 11 | 704 | 1.1+ | 0.3+ |
| 2006 10 13 | 568 | 0.4+ | 0.2− | 2008 03 03 | D29 | 0.2+ | 0.3− | 2008 03 11 | 704 | 0.9− | 0.8+ |
| 2006 10 16 | G96 | 0.6− | 0.0 | 2008 03 04 | 704 | 1.1+ | 0.3+ | 2008 03 11 | 704 | (2.2+ | 0.2+) |
| 2006 10 16 | G96 | 0.1− | 0.1− | 2008 03 04 | 704 | 0.0 | 1.0+ | | | | |

**2008 DJ$_{76}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 128.49239 | | (2000.0) | | | |
| $n$ | 0.22324135 | $\omega$ | 183.10784 | | −0.99281190 | +0.11967405 |
| $a$ | 2.6912433 | $\Omega$ | 3.76661 | | −0.10926760 | −0.90076217 |
| $e$ | 0.0549223 | $i$ | 1.42004 | | −0.04883770 | −0.41749925 |
| $P$ | 4.41 | $H$ | 17.7 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 02 13 | 691 | 0.0 | 0.2+ | 2007 01 15 | 568 | 0.0 | 0.4+ | 2008 03 06 | G96 | 0.6+ | 0.6− |
| 1999 02 13 | 691 | 0.1+ | 0.6− | 2007 01 16 | 568 | 0.2+ | 0.4+ | 2008 03 06 | G96 | 0.7+ | 0.1− |
| 1999 02 13 | 691 | 0.2− | 0.0 | 2008 02 11 | 691 | 0.0 | 0.1− | 2008 03 06 | G96 | 0.1+ | 0.6− |
| 2006 11 24 | G96 | 0.4− | 0.2+ | 2008 02 11 | 691 | 0.1+ | 0.7+ | 2008 03 06 | G96 | 0.2+ | 0.3− |
| 2006 11 24 | G96 | 0.1+ | 0.0 | 2008 02 11 | 691 | 0.7− | 0.7+ | 2008 03 14 | G96 | 0.1− | 0.1− |
| 2006 11 24 | G96 | 0.0 | 0.5− | 2008 02 28 | G96 | 0.0 | 0.2− | 2008 03 14 | G96 | (2.2+ | 0.1+) |
| 2006 11 24 | G96 | 0.1− | 0.4− | 2008 02 28 | G96 | 0.2+ | 0.3− | 2008 03 14 | G96 | 0.2+ | 0.2− |
| 2007 01 15 | 568 | 0.1+ | 0.4+ | 2008 02 28 | G96 | 0.2+ | 0.3− | 2008 03 14 | G96 | 0.7+ | 0.0 |
| 2007 01 15 | 568 | 0.1+ | 0.4+ | 2008 02 28 | G96 | 0.4+ | 0.5− | | | | |

**2008 EY$_{26}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 9.84509 | | (2000.0) | | | |
| $n$ | 0.21152818 | $\omega$ | 156.21526 | | +0.59053412 | +0.80587593 |
| $a$ | 2.7896983 | $\Omega$ | 149.92720 | | −0.75345238 | +0.56957190 |
| $e$ | 0.0468563 | $i$ | 4.90186 | | −0.28910027 | +0.16171527 |
| $P$ | 4.66 | $H$ | 16.7 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 01 28 | 645 | 0.0 | 0.0 | 2008 02 10 | 691 | 0.1+ | 0.4+ | 2008 03 27 | 691 | 0.0 | 0.3− |
| 2003 01 28 | 645 | 0.0 | 0.0 | 2008 02 10 | 691 | 0.2− | 0.2+ | 2008 03 30 | 691 | 0.2+ | 0.1− |
| 2005 08 30 | 691 | 0.1− | 0.3+ | 2008 03 04 | 291 | 0.1+ | 0.0 | 2008 03 30 | 691 | 0.2+ | 0.2+ |
| 2005 08 30 | 691 | 0.1− | 0.2+ | 2008 03 04 | 291 | 0.1+ | 0.1+ | 2008 03 30 | 691 | 0.1+ | 0.3− |
| 2005 08 30 | 691 | 0.0 | 0.2+ | 2008 03 04 | 291 | 0.0 | 0.1+ | 2008 04 13 | G96 | 0.6− | 0.1− |
| 2008 02 01 | G96 | 0.2− | 0.7− | 2008 03 05 | 291 | 0.1+ | 0.3+ | 2008 04 13 | G96 | 0.3− | 0.2+ |
| 2008 02 01 | G96 | 0.2+ | 0.2− | 2008 03 05 | 291 | 0.1+ | 0.0 | 2008 04 13 | G96 | 0.1− | 0.1+ |
| 2008 02 01 | G96 | 0.4− | 0.0 | 2008 03 05 | 291 | 0.0 | 0.2− | 2008 04 13 | G96 | 0.2+ | 0.2− |
| 2008 02 01 | G96 | 0.2+ | 0.3− | 2008 03 27 | 691 | 0.4− | 0.3+ | | | | |
| 2008 02 10 | 691 | 0.3+ | 0.0 | 2008 03 27 | 691 | 0.3− | 0.2+ | | | | |

**2008 ES$_{30}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 106.47612 | | (2000.0) | | | |
| $n$ | 0.22626558 | $\omega$ | 199.47215 | | −0.74734229 | +0.66404597 |
| $a$ | 2.6672091 | $\Omega$ | 22.18707 | | −0.60130412 | −0.66129358 |
| $e$ | 0.0768855 | $i$ | 3.47008 | | −0.28268861 | −0.34890365 |
| $P$ | 4.36 | $H$ | 17.0 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 10 16 | 291 | 0.1+ | 0.2+ | 2008 03 05 | 291 | 0.1+ | 0.1+ | 2008 03 27 | 691 | 0.8+ | 0.6− |
| 2001 10 16 | 291 | 0.4− | 0.5+ | 2008 03 05 | 291 | 0.5+ | 0.0 | 2008 04 01 | 691 | 0.2− | 0.7+ |
| 2001 10 16 | 291 | 0.4− | 0.5+ | 2008 03 06 | 291 | 0.2− | 0.3+ | 2008 04 01 | 691 | 0.2+ | 0.4− |
| 2004 04 24 | 691 | 0.1+ | 0.2+ | 2008 03 06 | 291 | 0.4− | 0.2− | 2008 04 01 | 691 | 0.1+ | 0.1− |
| 2004 04 24 | 691 | 0.1+ | 0.2+ | 2008 03 06 | 291 | 0.4− | 0.3+ | 2008 04 13 | G96 | 0.4− | 0.2+ |
| 2004 04 24 | 691 | 0.1+ | 0.2+ | 2008 03 25 | 691 | 0.1− | 0.0 | 2008 04 13 | G96 | 0.1+ | 0.2− |
| 2008 02 10 | 691 | 0.1+ | 0.1− | 2008 03 25 | 691 | 0.4− | 0.4+ | 2008 04 13 | G96 | 0.6− | 0.1+ |
| 2008 02 10 | 691 | 0.1+ | 0.2+ | 2008 03 25 | 691 | 0.1+ | 0.0 | 2008 04 13 | G96 | 0.7− | 0.5+ |
| 2008 02 10 | 691 | 0.1+ | 0.1+ | 2008 03 27 | 691 | 0.2+ | 0.0 | | | | |
| 2008 03 05 | 291 | 0.1+ | 0.1+ | 2008 03 27 | 691 | 0.0 | 0.2− | | | | |

**2008 ES$_{32}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 117.01456 | | (2000.0) | | | |
| $n$ | 0.28168723 | $\omega$ | 201.95671 | | −0.06472530 | +0.99485589 |
| $a$ | 2.3047542 | $\Omega$ | 64.40461 | | −0.90222719 | −0.02497554 |
| $e$ | 0.2141178 | $i$ | 4.95680 | | −0.42637629 | −0.09817321 |
| $P$ | 3.50 | $H$ | 17.4 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 01 18 | 691 | 0.0 | 0.0 | 2008 03 08 | G96 | 0.3+ | 0.2− | 2009 10 16 | G96 | 0.0 | 0.0 |
| 2004 01 18 | 691 | 0.1+ | 0.0 | 2008 03 08 | G96 | 0.0 | 0.0 | 2009 10 16 | G96 | 0.3+ | 0.2− |
| 2004 01 18 | 691 | 0.0 | 0.2+ | 2008 03 08 | G96 | 0.2+ | 0.0 | 2009 10 16 | G96 | 0.3+ | 0.1+ |
| 2005 07 06 | E12 | 1.1+ | 0.4+ | 2008 03 08 | G96 | 0.1− | 0.0 | 2009 10 24 | G96 | 0.1− | 0.0 |
| 2005 07 06 | E12 | 0.4− | 0.1+ | 2008 03 13 | 704 | 0.6+ | 0.2+ | 2009 10 24 | G96 | 0.2+ | 0.1+ |
| 2005 07 06 | E12 | 0.9− | 0.5− | 2008 03 13 | 704 | 0.7+ | 0.2− | 2009 10 24 | G96 | 1.0+ | 0.6− |
| 2005 08 04 | 644 | 0.1− | 0.6+ | 2008 03 13 | 704 | 0.6+ | 0.4+ | 2009 10 24 | G96 | 0.3+ | 0.0 |
| 2005 08 04 | 644 | 0.2+ | 0.3+ | 2008 03 13 | 704 | 0.8+ | 0.7+ | 2009 11 16 | G96 | 0.4+ | 0.1+ |
| 2005 08 04 | 644 | 0.0 | 0.1+ | 2009 09 26 | 691 | 0.2− | 0.0 | 2009 11 16 | G96 | 0.1− | 0.1+ |
| 2008 03 01 | 691 | 0.5− | 0.1+ | 2009 09 26 | 691 | 0.4− | 0.2+ | 2009 11 16 | G96 | 0.7+ | 0.9+ |
| 2008 03 01 | 691 | 0.3− | 0.3− | 2009 09 26 | 691 | 0.4− | 0.0 | 2009 11 16 | G96 | 0.1+ | 0.2− |
| 2008 03 01 | 691 | 0.0 | 0.3+ | 2009 10 16 | G96 | 0.4+ | 0.2+ | | | | |

**2008 EL$_{48}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 188.26749 | | (2000.0) | | | |
| $n$ | 0.23874843 | $\omega$ | 328.58622 | | −0.92505147 | −0.37905712 |
| $a$ | 2.5734103 | $\Omega$ | 189.23704 | | +0.37234940 | −0.89223471 |
| $e$ | 0.1028991 | $i$ | 8.74406 | | +0.07507126 | −0.24542397 |
| $P$ | 4.13 | $H$ | 17.0 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 05 29 | 691 | 0.1+ | 0.2− | 2008 02 02 | G96 | 0.1− | 0.6− | 2008 03 29 | G96 | 0.2+ | 0.0 |
| 2000 05 29 | 691 | 0.1− | 0.3+ | 2008 03 05 | 691 | 0.5+ | 0.4+ | 2008 04 06 | G96 | 0.3− | 0.0 |
| 2000 05 29 | 691 | 0.1− | 0.1− | 2008 03 05 | 691 | 0.1− | 0.0 | 2008 04 06 | G96 | 0.7− | 0.3− |
| 2006 11 25 | G96 | 0.1+ | 0.2+ | 2008 03 05 | 691 | 0.0 | 0.1+ | 2008 04 06 | G96 | 0.1− | 0.2− |
| 2006 11 25 | G96 | 0.3+ | 0.1− | 2008 03 09 | 691 | 0.1− | 0.1− | 2008 04 06 | G96 | 0.1− | 0.1− |
| 2006 11 25 | G96 | 0.1− | 0.0 | 2008 03 09 | 691 | 0.4− | 0.2+ | 2008 04 07 | 704 | 1.1+ | 1.8+ |
| 2006 11 25 | G96 | 0.0 | 0.2+ | 2008 03 09 | 691 | 0.1− | 0.4− | 2008 04 07 | 704 | 0.3+ | 0.2+ |
| 2006 11 25 | G96 | 0.0 | 0.1+ | 2008 03 28 | G96 | 0.1− | 0.5− | 2008 04 07 | 704 | (1.4+ | 2.5+) |
| 2006 11 25 | G96 | 0.3− | 0.1− | 2008 03 28 | G96 | 0.6− | 0.3− | 2008 04 07 | 704 | 1.5+ | 0.2+ |
| 2006 11 25 | G96 | 0.0 | 0.2+ | 2008 03 28 | G96 | 0.1− | 0.1− | 2008 04 07 | 704 | 1.6+ | 1.2+ |
| 2006 11 25 | G96 | 0.2− | 0.2− | 2008 03 28 | G96 | 0.1− | 0.2− | 2008 04 12 | 691 | 0.4− | 0.1− |
| 2008 02 02 | G96 | 0.2− | 0.3+ | 2008 03 29 | G96 | 0.3− | 0.0 | 2008 04 12 | 691 | 0.1+ | 0.5− |
| 2008 02 02 | G96 | 0.1− | 0.3+ | 2008 03 29 | G96 | 0.0 | 0.4− | 2008 04 12 | 691 | 0.1− | 0.2+ |
| 2008 02 02 | G96 | 1.0+ | 0.0 | 2008 03 29 | G96 | 0.1− | 0.4− | | | | |

**2008 EW$_{68}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 181.72431 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.37201422 | $\omega$ | 221.20748 | | −0.44335215 | +0.88495145 | |
| $a$ | 1.9146807 | $\Omega$ | 23.57436 | | −0.70033790 | −0.24279081 | |
| $e$ | 0.0636323 | $i$ | 20.86994 | | −0.55943337 | −0.39738339 | |
| $P$ | 2.65 | $H$ | 17.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1993 10 15 | 691 | 0.1+ | 0.5+ | 2008 03 12 | 673 | 1.5+ | 0.1+ | 2008 05 08 | G96 | 0.1+ | 0.1+ | |
| 1993 10 15 | 691 | 0.5− | 0.0 | 2008 03 12 | 673 | 0.4+ | 0.2− | 2008 05 08 | G96 | 0.3+ | 0.2+ | |
| 1993 10 15 | 691 | 0.2− | 0.2+ | 2008 03 12 | 673 | 0.4+ | 0.1+ | 2009 10 21 | G96 | 0.1+ | 0.1− | |
| 2008 03 11 | 703 | 0.4+ | 0.6− | 2008 03 29 | 703 | 0.1− | 0.5+ | 2009 10 21 | G96 | 0.4+ | 0.5− | |
| 2008 03 11 | 703 | 0.6− | 0.9+ | 2008 03 29 | 703 | 0.8+ | 0.7− | 2009 10 21 | G96 | 0.3+ | 0.2− | |
| 2008 03 11 | 703 | 0.5− | 0.7+ | 2008 03 29 | 703 | 0.5− | 1.0+ | 2009 10 21 | G96 | 0.3+ | 0.3− | |
| 2008 03 11 | 703 | 1.1− | 0.5− | 2008 03 29 | 703 | 0.6− | 1.0+ | 2009 10 30 | G96 | 0.4− | 0.3− | |
| 2008 03 11 | H55 | 0.2+ | 0.2+ | 2008 04 06 | 703 | 0.5− | 0.3− | 2009 10 30 | G96 | 0.1+ | 0.4− | |
| 2008 03 11 | H55 | (2.5+ | 0.5+) | 2008 04 06 | 703 | 0.0 | 0.9− | 2009 10 30 | G96 | 0.2+ | 0.6− | |
| 2008 03 11 | H55 | 0.1+ | 0.0 | 2008 04 06 | 703 | 1.0− | 0.8+ | 2009 10 30 | G96 | 0.2+ | 0.3− | |
| 2008 03 11 | H55 | (1.6+ | 0.1+) | 2008 04 06 | 703 | 0.5− | 0.0 | 2009 11 09 | 703 | 0.2+ | 0.8− | |
| 2008 03 11 | H55 | 0.1− | 0.1+ | 2008 04 11 | 704 | 0.5+ | 0.5− | 2009 11 09 | 703 | 1.1+ | 0.1+ | |
| 2008 03 11 | H55 | (2.4+ | 0.3+) | 2008 04 11 | 704 | 0.8+ | 0.5− | 2009 11 09 | 703 | (1.7+ | 0.8−) | |
| 2008 03 12 | G96 | 0.1+ | 0.4− | 2008 04 11 | 704 | 0.6+ | 0.0 | 2009 11 09 | 703 | (1.8+ | 1.1+) | |
| 2008 03 12 | G96 | 0.2− | 0.1− | 2008 04 11 | 704 | 0.5+ | 0.9− | 2009 11 19 | 703 | 0.2+ | 0.2+ | |
| 2008 03 12 | G96 | 0.3− | 0.0 | 2008 04 11 | 704 | 0.4+ | 1.0+ | 2009 11 19 | 703 | 1.0− | 1.3− | |
| 2008 03 12 | G96 | 0.2− | 0.1+ | 2008 05 08 | G96 | 0.1+ | 0.4+ | 2009 11 19 | 703 | 0.1+ | 1.3+ | |
| 2008 03 12 | 673 | 0.1+ | 0.5− | 2008 05 08 | G96 | 0.1− | 0.1+ | 2009 11 19 | 703 | 0.5− | 1.2+ | |

**2008 EP$_{90}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 145.08013 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21113516 | $\omega$ | 9.60975 | | −0.99961766 | +0.00845284 | |
| $a$ | 2.7931591 | $\Omega$ | 170.75192 | | −0.01462714 | −0.96964955 | |
| $e$ | 0.1019399 | $i$ | 9.42833 | | +0.02346439 | −0.24435284 | |
| $P$ | 4.67 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 03 12 | 644 | 0.0 | 0.5+ | 2008 02 13 | G96 | 0.1− | 0.1− | 2008 03 31 | G96 | 0.1− | 0.2− | |
| 2003 03 12 | 644 | 0.1+ | 0.4+ | 2008 02 13 | G96 | 0.1− | 0.3− | 2008 03 31 | G96 | 0.1− | 0.3− | |
| 2003 03 12 | 644 | 0.2+ | 0.6+ | 2008 03 03 | 691 | 0.5− | 0.2+ | 2008 03 31 | G96 | 0.1− | 0.2− | |
| 2005 10 11 | 691 | 0.3− | 0.5+ | 2008 03 03 | 691 | 0.6+ | 0.7+ | 2008 03 31 | G96 | 0.1− | 0.1− | |
| 2005 10 11 | 691 | 0.4− | 0.7+ | 2008 03 03 | 691 | 0.2+ | 0.0 | 2008 04 02 | J87 | 0.3− | 0.1− | |
| 2005 10 11 | 691 | 0.3+ | 0.5+ | 2008 03 11 | 691 | 0.1− | 0.2+ | 2008 04 02 | J87 | 0.2− | 0.1− | |
| 2007 12 20 | G96 | 0.3+ | 0.7− | 2008 03 11 | 691 | 0.4− | 0.2+ | 2008 04 02 | J87 | 0.1− | 0.3− | |
| 2007 12 20 | G96 | 0.4+ | 0.1+ | 2008 03 11 | 691 | 0.4− | 0.1− | 2008 04 04 | G96 | 0.2− | 0.2− | |
| 2007 12 20 | G96 | 0.3− | 0.0 | 2008 03 14 | 568 | 0.1+ | 0.0 | 2008 04 04 | G96 | 0.1+ | 0.2− | |
| 2007 12 20 | G96 | 0.8+ | 0.2+ | 2008 03 14 | 568 | 0.0 | 0.0 | 2008 04 04 | G96 | 0.6− | 0.1− | |
| 2008 01 30 | G96 | 0.6− | 0.1+ | 2008 03 15 | 691 | 0.1+ | 0.1− | 2008 04 04 | G96 | 0.4− | 0.3− | |
| 2008 01 30 | G96 | 0.5− | 0.1− | 2008 03 15 | 691 | 0.1− | 0.0 | 2008 04 08 | 704 | 0.7+ | 0.6− | |
| 2008 01 30 | G96 | 0.4− | 0.0 | 2008 03 15 | 691 | 0.1− | 0.0 | 2008 04 08 | 704 | 0.1− | 0.7+ | |
| 2008 01 30 | G96 | 0.1− | 0.2− | 2008 03 30 | 703 | 0.6− | 0.6− | 2008 04 08 | 704 | 0.4+ | 1.5+ | |
| 2008 02 13 | G96 | 0.2+ | 0.1− | 2008 03 30 | 703 | 0.5− | 0.1− | 2008 04 08 | 704 | 1.2+ | 0.2− | |
| 2008 02 13 | G96 | 0.3+ | 0.0 | 2008 03 30 | 703 | 0.8+ | 0.4− | 2008 04 08 | 704 | 0.6+ | 0.2− | |

**2008 FH$_{7}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 275.99754 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.35722902 | $\omega$ | 98.88150 | | −0.76686614 | −0.58549510 | |
| $a$ | 1.9671534 | $\Omega$ | 45.82338 | | +0.34208262 | −0.71945469 | |
| $e$ | 0.0790313 | $i$ | 21.50329 | | +0.54304309 | −0.37360464 | |
| $P$ | 2.76 | $H$ | 17.4 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 03 30 | 703 | 0.7+ | 1.2+ | 2008 04 01 | 673 | 0.5+ | 0.0 | 2008 05 07 | G96 | 0.2− | 0.1− | |
| 2008 03 30 | 703 | 0.1+ | 1.0+ | 2008 04 01 | 673 | 0.7+ | 0.1− | 2008 05 07 | G96 | 0.3− | 0.0 | |
| 2008 03 30 | 703 | (2.2− | 1.9+) | 2008 04 01 | G96 | 0.3− | 0.2− | 2009 10 02 | G96 | 0.3+ | 0.4+ | |
| 2008 03 30 | 703 | 0.3+ | 0.1+ | 2008 04 01 | G96 | 0.1+ | 0.2− | 2009 10 02 | G96 | 0.5− | 0.1− | |
| 2008 03 30 | 703 | 0.1− | 0.2+ | 2008 04 01 | G96 | 0.0 | 0.2− | 2009 10 02 | G96 | 0.3+ | 0.1− | |
| 2008 03 30 | 703 | 0.3+ | 0.3+ | 2008 04 01 | G96 | 0.0 | 0.3− | 2009 10 02 | G96 | 0.2− | 0.4+ | |
| 2008 03 30 | 703 | 0.2− | 0.3− | 2008 04 06 | 703 | 0.7+ | 0.6+ | 2009 10 26 | J75 | 1.2− | 0.5− | |
| 2008 03 31 | J95 | 0.3+ | 0.5− | 2008 04 06 | 703 | 0.5− | 0.3+ | 2009 10 26 | J75 | 0.1+ | 0.2− | |
| 2008 03 31 | J95 | 0.2− | 0.6− | 2008 04 06 | 703 | 0.2− | 0.4+ | 2009 10 26 | J75 | 0.1− | 0.2+ | |
| 2008 03 31 | J95 | 0.2− | 0.1− | 2008 04 06 | 703 | 0.2+ | 0.7+ | 2009 12 15 | G96 | 0.1+ | 0.1− | |
| 2008 03 31 | 118 | 0.2+ | 0.3− | 2008 04 12 | 703 | 0.5− | 1.1+ | 2009 12 15 | G96 | 0.4+ | 0.1+ | |
| 2008 03 31 | 118 | 0.3− | 0.2− | 2008 04 12 | 703 | 0.3− | 0.2− | 2009 12 15 | G96 | 0.2+ | 0.5− | |
| 2008 03 31 | 854 | 0.2+ | 0.6+ | 2008 04 12 | 703 | (1.7− | 0.9+) | 2009 12 15 | G96 | 0.4+ | 0.1+ | |
| 2008 03 31 | 854 | 1.0+ | 0.6+ | 2008 04 12 | 703 | 1.0− | 0.6− | 2009 12 15 | G96 | 0.2+ | 0.0 | |
| 2008 03 31 | 854 | 0.5+ | 0.9+ | 2008 04 24 | 704 | (2.2+ | 1.9+) | 2009 12 15 | G96 | 0.0 | 0.0 | |
| 2008 03 31 | G96 | 0.3− | 0.2− | 2008 04 24 | 704 | 0.8+ | 0.1+ | 2009 12 15 | G96 | 0.4− | 0.2− | |
| 2008 03 31 | G96 | 0.2− | 0.1− | 2008 04 24 | 704 | 0.7+ | 0.3+ | 2009 12 16 | G96 | 0.0 | 0.1− | |
| 2008 03 31 | G96 | 0.1− | 0.1− | 2008 04 24 | 704 | 0.7+ | 0.9+ | 2009 12 16 | G96 | 0.2+ | 0.4− | |
| 2008 03 31 | G96 | 0.1+ | 0.2− | 2008 04 29 | 703 | 0.8− | 0.3− | 2009 12 16 | G96 | 0.2+ | 0.1+ | |
| 2008 04 01 | 658 | 0.1+ | 0.2+ | 2008 04 29 | 703 | 1.1− | 0.7+ | 2009 12 16 | G96 | 0.3+ | 0.4+ | |
| 2008 04 01 | 658 | 0.1+ | 0.3+ | 2008 04 29 | 703 | 0.9− | 0.3− | 2009 12 17 | G96 | 0.0 | 0.1+ | |
| 2008 04 01 | 658 | 0.2+ | 0.3+ | 2008 04 29 | 703 | 0.6− | 0.1+ | 2009 12 17 | G96 | 0.0 | 0.1+ | |
| 2008 04 01 | 673 | 0.1− | 0.2− | 2008 05 07 | G96 | 0.1− | 0.2− | 2009 12 17 | G96 | 0.1+ | 0.0 | |
| 2008 04 01 | 673 | 1.5+ | 0.4− | 2008 05 07 | G96 | 0.7− | 0.2+ | 2009 12 17 | G96 | 0.3+ | 0.4+ | |

**2008 FS$_{14}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 2.26934 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28375823 | $\omega$ | 198.17410 | | +0.99706340 | −0.07530207 | |
| $a$ | 2.2935264 | $\Omega$ | 166.12237 | | +0.07547398 | +0.93543128 | |
| $e$ | 0.1329019 | $i$ | 3.33062 | | +0.01297127 | +0.34539531 | |
| $P$ | 3.47 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 07 09 | 644 | 0.0 | 0.2+ | 2006 09 30 | G96 | 0.4− | 0.5− | 2008 03 26 | G96 | 0.4+ | 0.2− | |
| 2002 07 09 | 644 | 0.0 | 0.1+ | 2006 09 30 | G96 | 0.4− | 0.2− | 2008 03 26 | G96 | 0.3− | 0.1+ | |
| 2002 07 09 | 644 | 0.0 | 0.2+ | 2006 09 30 | G96 | 0.0 | 0.1− | 2008 03 26 | G96 | 0.1+ | 0.3+ | |
| 2002 07 22 | 644 | 0.2− | 0.6+ | 2006 09 30 | G96 | 0.0 | 0.1− | 2008 03 28 | G96 | 0.0 | 0.1+ | |
| 2002 07 22 | 644 | 0.2− | 0.1+ | 2006 10 22 | 691 | 0.3− | 0.2+ | 2008 03 28 | G96 | 0.1− | 0.2+ | |
| 2002 07 22 | 644 | 0.0 | 0.2+ | 2006 10 22 | 691 | 0.3− | 0.2+ | 2008 03 28 | G96 | 0.1− | 0.1+ | |
| 2002 08 06 | 644 | 0.2+ | 0.4+ | 2006 10 22 | 691 | 0.2− | 0.4+ | 2008 03 28 | G96 | 0.0 | 0.2− | |
| 2002 08 06 | 644 | 0.1− | 0.8+ | 2006 11 17 | G96 | 0.2+ | 0.2− | 2008 04 04 | G96 | 0.0 | 0.6− | |
| 2002 08 06 | 644 | 0.1+ | 0.3+ | 2006 11 17 | G96 | 0.1+ | 0.1− | 2008 04 04 | G96 | 0.0 | 0.6− | |
| 2002 08 07 | 644 | 0.1− | 0.2+ | 2006 11 17 | G96 | 0.0 | 0.1− | 2008 04 04 | G96 | 0.1+ | 0.0 | |
| 2002 08 07 | 644 | 0.3− | 0.0 | 2006 11 17 | G96 | 0.0 | 0.0 | 2008 04 04 | G96 | 0.3− | 0.0 | |
| 2002 08 07 | 644 | 0.3− | 0.1+ | 2006 11 17 | G96 | 0.2− | 0.0 | 2009 09 22 | G96 | 1.5+ | 0.4+ | |
| 2004 02 11 | 691 | 0.4+ | 0.1+ | 2006 11 17 | G96 | 0.3+ | 0.0 | 2009 09 22 | G96 | 0.0 | 0.1− | |
| 2004 02 11 | 691 | 0.2+ | 0.2+ | 2006 11 17 | G96 | 0.2+ | 0.0 | 2009 09 22 | G96 | 0.1+ | 0.1− | |
| 2004 02 11 | 691 | 0.4+ | 0.0 | 2006 11 17 | G96 | 0.3+ | 0.1+ | 2009 09 22 | G96 | 0.2+ | 0.2− | |
| 2005 05 12 | G96 | 0.4− | 0.0 | 2008 03 13 | 691 | 0.4+ | 0.6+ | 2009 10 22 | G96 | 0.4+ | 0.2− | |
| 2005 05 12 | G96 | 0.0 | 0.2+ | 2008 03 13 | 691 | 0.2− | 0.4+ | 2009 10 22 | G96 | 0.1+ | 0.2− | |
| 2005 05 12 | G96 | 0.1− | 0.1+ | 2008 03 13 | 691 | 0.3− | 0.1− | 2009 10 22 | G96 | 0.2+ | 0.0 | |
| 2005 05 12 | G96 | 0.4− | 0.2+ | 2008 03 26 | G96 | 0.0 | 0.1− | 2009 10 22 | G96 | 0.3+ | 0.5+ | |

**2008 FP$_{37}$ = 2006 YE$_{24}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 299.94387 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22837828 | $\omega$ | 311.27051 | | +0.76948296 | −0.63456936 | |
| $a$ | 2.6507342 | $\Omega$ | 88.24546 | | +0.60544874 | +0.68877905 | |
| $e$ | 0.1197004 | $i$ | 4.14424 | | +0.20329240 | +0.35057831 | |
| $P$ | 4.32 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 5 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 12 21 | 691 | 0.3+ | 0.2+ | 2008 03 28 | 691 | 0.2− | 0.4+ | 2008 04 11 | G96 | 0.7+ | 0.5− | |
| 2006 12 21 | 691 | 0.4+ | 0.2+ | 2008 03 28 | 691 | 0.7− | 0.1+ | 2008 04 11 | G96 | 0.3+ | 0.3+ | |
| 2006 12 21 | 691 | 0.5+ | 0.0 | 2008 03 31 | 691 | 0.1+ | 0.0 | 2008 04 11 | G96 | 0.6+ | 0.1+ | |
| 2006 12 25 | 691 | 0.4− | 0.1− | 2008 03 31 | 691 | 0.1+ | 0.4+ | 2008 04 11 | G96 | 0.3− | 0.5+ | |
| 2006 12 25 | 691 | 0.2− | 0.1− | 2008 03 31 | 691 | 0.0 | 0.7− | 2008 04 11 | G96 | 0.1+ | 0.4− | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 12 25 | 691 | 0.7− | 0.2− | 2008 04 11 | G96 | 0.3+ | 0.1− | 2008 04 11 | G96 | 0.5+ | 0.1+ | | |
| 2008 03 28 | 691 | 0.3+ | 0.2− | 2008 04 11 | G96 | 0.7− | 0.5− | | | | | | |

**2008 FJ$_{42}$ = 2004 FN$_{100}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 307.73456 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.24287281 | $\omega$ | 195.22812 | | +0.91020788 | | −0.41403427 |
| $a$ | 2.5441934 | $\Omega$ | 189.24878 | | +0.38609937 | | +0.85692886 |
| $e$ | 0.1405373 | $i$ | 3.51757 | | +0.14982954 | | +0.30699928 |
| $P$ | 4.06 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 03 23 | 291 | 0.0 | 0.2+ | 2006 09 28 | G96 | 0.1− | 0.5+ | 2008 03 29 | G96 | 0.4− | 0.1+ |
| 2004 03 23 | 291 | 0.3− | 0.1+ | 2006 10 23 | G96 | 0.1+ | 0.5− | 2008 03 29 | G96 | 1.0− | 0.2− |
| 2004 03 23 | 291 | 0.3− | 0.1− | 2006 10 23 | G96 | 0.0 | 0.0 | 2008 03 29 | G96 | 0.3− | 0.1− |
| 2004 03 26 | 691 | 0.1+ | 0.4+ | 2006 10 23 | G96 | 0.1− | 0.1− | 2008 03 29 | G96 | 0.2− | 0.4+ |
| 2004 03 26 | 691 | 0.0 | 0.3+ | 2006 10 23 | G96 | 0.1− | 0.0 | 2008 04 11 | G96 | 0.3− | 0.5− |
| 2004 03 26 | 691 | 0.8+ | 0.3− | 2008 03 28 | G96 | 0.3− | 0.5− | 2008 04 11 | G96 | 1.0+ | 0.1− |
| 2006 09 28 | G96 | 0.7+ | 0.2+ | 2008 03 28 | G96 | 0.3− | 0.2− | 2008 04 11 | G96 | 0.2+ | 0.6− |
| 2006 09 28 | G96 | 0.1− | 0.0 | 2008 03 28 | G96 | 0.4− | 0.3− | 2008 04 11 | G96 | 0.5+ | 0.0 |
| 2006 09 28 | G96 | 0.3− | 0.2+ | 2008 03 28 | G96 | 0.7+ | 0.1− | | | | |

**2008 FG$_{59}$ = 2009 SP$_{284}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 14.55494 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.37954587 | $\omega$ | 47.01751 | | +0.68760430 | | −0.72607928 |
| $a$ | 1.8892664 | $\Omega$ | 359.50964 | | +0.51910691 | | +0.49451176 |
| $e$ | 0.0904375 | $i$ | 20.75862 | | +0.50766952 | | +0.47777295 |
| $P$ | 2.60 | $H$ | 17.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 02 25 | 691 | 0.3− | 0.1− | 2008 02 28 | 691 | 0.0 | 0.0 | 2009 09 25 | 703 | 0.4− | 0.3+ |
| 1995 02 25 | 691 | 0.2+ | 0.2− | 2008 03 29 | G96 | 0.2+ | 0.0 | 2009 09 25 | 703 | 0.2− | 0.3+ |
| 1995 02 25 | 691 | 0.0 | 0.3+ | 2008 03 29 | G96 | 0.1+ | 0.4+ | 2009 09 25 | 703 | 0.0 | 0.3− |
| 2001 08 12 | 644 | 0.0 | 0.3+ | 2008 03 29 | G96 | 0.3− | 0.1− | 2009 09 30 | G96 | 0.1+ | 0.1+ |
| 2001 08 12 | 644 | 0.5− | 0.4+ | 2008 03 29 | G96 | 0.5− | 0.2− | 2009 09 30 | G96 | 0.1− | 0.1+ |
| 2001 08 12 | 644 | 0.2− | 0.2+ | 2008 03 31 | 291 | 0.1− | 0.1+ | 2009 09 30 | G96 | 0.2− | 0.2+ |
| 2008 02 18 | G96 | 0.5− | 0.0 | 2008 03 31 | 291 | 0.1− | 0.2+ | 2009 09 30 | G96 | 0.4+ | 0.4+ |
| 2008 02 18 | G96 | 0.1+ | 0.8− | 2008 03 31 | 291 | 0.1− | 0.1+ | 2009 10 10 | J75 | 0.3− | 0.2+ |
| 2008 02 18 | G96 | 0.1+ | 0.7− | 2008 04 01 | 291 | 0.5+ | 0.1+ | 2009 10 10 | J75 | 0.9− | 0.3+ |
| 2008 02 18 | G96 | 0.3+ | 0.4− | 2008 04 01 | 291 | 0.5+ | 0.2+ | 2009 10 10 | J75 | 0.1+ | 0.6+ |
| 2008 02 28 | 691 | 0.1+ | 0.5+ | 2008 04 01 | 291 | 0.3+ | 0.0 | | | | |
| 2008 02 28 | 691 | 0.2− | 0.1− | 2009 09 25 | 703 | 0.2− | 0.4− | | | | |

**2008 FY$_{63}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 87.88696 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.12596139 | $\omega$ | 280.38774 | | −0.88069220 | | −0.47296436 |
| $a$ | 3.9413447 | $\Omega$ | 231.39052 | | +0.44666111 | | −0.81076145 |
| $e$ | 0.1178617 | $i$ | 1.92075 | | +0.15771841 | | −0.34492114 |
| $P$ | 7.82 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 02 09 | 691 | 0.1+ | 0.1+ | 2008 03 13 | G96 | 0.0 | 0.1+ | 2009 04 02 | 691 | 0.0 | 0.3+ |
| 2008 02 09 | 691 | 0.0 | 0.2+ | 2008 03 28 | G96 | 0.5− | 0.2+ | 2009 04 02 | 691 | 0.1+ | 0.0 |
| 2008 02 09 | 691 | 0.2− | 0.2− | 2008 03 28 | G96 | 0.2− | 0.1− | 2009 04 02 | 691 | 0.2− | 0.3− |
| 2008 02 26 | G96 | 0.0 | 0.6− | 2008 03 28 | G96 | 0.7+ | 0.0 | 2009 04 22 | G96 | 0.2+ | 0.2+ |
| 2008 02 26 | G96 | 0.1+ | 0.0 | 2008 03 28 | G96 | 0.0 | 0.1− | 2009 04 22 | G96 | 0.2− | 0.3+ |
| 2008 02 26 | G96 | 0.7+ | 0.1− | 2008 04 01 | G96 | 0.3+ | 0.2− | 2009 04 22 | G96 | 0.1+ | 0.0 |
| 2008 03 13 | G96 | 0.4− | 0.0 | 2008 04 01 | G96 | 0.5− | 0.3− | 2009 04 22 | G96 | 0.1− | 0.6− |
| 2008 03 13 | G96 | 0.3− | 0.0 | 2008 04 01 | G96 | 0.3+ | 0.2− | | | | |
| 2008 03 13 | G96 | 0.1− | 0.3+ | 2008 04 01 | G96 | 0.0 | 0.1+ | | | | |

**2008 FG$_{64}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 313.54144 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.37911259 | $\omega$ | 289.77646 | | −0.44822984 | | −0.89271157 |
| $a$ | 1.8907056 | $\Omega$ | 187.37892 | | +0.89376284 | | −0.44657802 |
| $e$ | 0.0876971 | $i$ | 21.19512 | | +0.01667316 | | −0.06028376 |
| $P$ | 2.60 | $H$ | 17.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 04 25 | 645 | 0.0 | 0.1+ | 2008 03 28 | 691 | 0.1− | 0.1+ | 2008 04 09 | G96 | 0.1− | 0.3− |
| 2003 04 25 | 645 | 0.0 | 0.0 | 2008 03 30 | 704 | 0.2+ | 0.3+ | 2009 09 27 | G96 | 0.0 | 0.1+ |
| 2008 03 04 | 691 | 0.2− | 0.1+ | 2008 03 30 | 704 | 0.4+ | 0.6− | 2009 09 27 | G96 | 0.0 | 0.1+ |
| 2008 03 04 | 691 | 0.1− | 0.4+ | 2008 03 30 | 704 | 0.5− | 0.5− | 2009 09 27 | G96 | 0.2− | 0.2+ |
| 2008 03 04 | 691 | 0.2+ | 0.1− | 2008 04 01 | 691 | 0.0 | 0.1− | 2009 09 27 | G96 | 0.2− | 0.1− |
| 2008 03 11 | 704 | 1.3+ | 0.3+ | 2008 04 01 | 691 | 0.3− | 0.2− | 2009 10 27 | 703 | 1.1+ | 0.2+ |
| 2008 03 11 | 704 | (2.5+ | 0.8+) | 2008 04 01 | 691 | 0.2+ | 0.1+ | 2009 10 27 | 703 | 1.0− | 0.1+ |
| 2008 03 11 | 704 | (2.2+ | 1.7+) | 2008 04 09 | G96 | 0.3− | 0.4− | 2009 10 27 | 703 | 0.5− | 0.3+ |
| 2008 03 28 | 691 | 0.1+ | 0.1+ | 2008 04 09 | G96 | 0.1+ | 0.1− | 2009 10 27 | 703 | 0.6+ | 1.1+ |
| 2008 03 28 | 691 | 0.0 | 0.1+ | 2008 04 09 | G96 | 0.0 | 0.3− | | | | |

**2008 FS$_{85}$ = 2004 RV$_{330}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 46.22180 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17230621 | $\omega$ | 93.67095 | | −0.04767642 | | +0.99860480 |
| $a$ | 3.1984195 | $\Omega$ | 173.46540 | | −0.97724245 | | −0.04192909 |
| $e$ | 0.1786388 | $i$ | 11.50726 | | −0.20669821 | | −0.03210002 |
| $P$ | 5.72 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 15 | 691 | 0.3+ | 0.5+ | 2008 02 27 | 691 | 0.3− | 0.5− | 2008 03 28 | G96 | 0.3+ | 0.0 |
| 2004 09 15 | 691 | 0.0 | 0.7+ | 2008 02 27 | 691 | 0.2− | 0.0 | 2008 03 28 | G96 | 0.2+ | 0.1− |
| 2004 09 15 | 691 | 0.0 | 0.2+ | 2008 03 15 | 691 | 0.0 | 0.2+ | 2008 04 04 | G96 | 0.8+ | 0.2+ |
| 2004 09 21 | 691 | 0.1+ | 0.1− | 2008 03 15 | 691 | 0.3− | 0.2+ | 2008 04 04 | G96 | 0.5+ | 0.3+ |
| 2004 09 21 | 691 | 0.0 | 0.2+ | 2008 03 15 | 691 | 0.0 | 0.1+ | 2008 04 04 | G96 | 0.0 | 0.2+ |
| 2004 09 21 | 691 | 0.6− | 0.2− | 2008 03 28 | G96 | 0.2− | 0.1− | 2008 04 04 | G96 | 0.0 | 0.4+ |
| 2008 02 27 | 691 | 0.6+ | 1.0+ | 2008 03 28 | G96 | 0.3+ | 0.4+ | | | | |

**2008 FD$_{108}$ = 2009 SL$_{25}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 109.82379 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23173898 | $\omega$ | 255.28885 | | −0.22773890 | | +0.97370277 |
| $a$ | 2.6250444 | $\Omega$ | 1.58661 | | −0.78575853 | | −0.18003909 |
| $e$ | 0.2294525 | $i$ | 12.84764 | | −0.57508133 | | −0.13960242 |
| $P$ | 4.25 | $H$ | 17.4 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 02 28 | 691 | 0.1− | 0.2− | 2008 04 04 | 703 | 0.8+ | 0.2− | 2009 09 16 | 691 | 0.3− | 0.0 |
| 2008 02 28 | 691 | 0.4− | 0.0 | 2008 04 04 | 703 | 0.6+ | 0.7− | 2009 09 16 | 691 | 0.1− | 0.1− |
| 2008 02 28 | 691 | 0.5+ | 0.1+ | 2008 04 04 | 703 | 0.1− | 0.2− | 2009 09 16 | 691 | 0.1− | 0.0 |
| 2008 03 31 | G92 | 0.0 | 0.3+ | 2008 04 11 | 703 | 0.4− | 0.1+ | 2009 09 20 | 691 | 0.3+ | 0.7+ |
| 2008 03 31 | G92 | 0.1− | 0.8+ | 2008 04 11 | 703 | 1.1− | 0.6− | 2009 09 20 | 691 | 0.1+ | 0.2− |
| 2008 03 31 | G92 | 0.6+ | 1.1+ | 2008 04 11 | 703 | 0.7− | 0.1+ | 2009 09 20 | 691 | 0.0 | 0.3− |
| 2008 04 04 | 703 | 0.5+ | 0.2+ | 2008 04 11 | 703 | 0.1+ | 0.3− | | | | |

**2008 FQ$_{111}$ = 2008 LM$_{3}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 115.07977 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.27094986 | $\omega$ | 162.56804 | | +0.47042821 | | +0.87875282 |
| $a$ | 2.3652484 | $\Omega$ | 135.40389 | | −0.82268054 | | +0.46976553 |
| $e$ | 0.2292857 | $i$ | 6.58911 | | −0.31920844 | | +0.08434351 |
| $P$ | 3.64 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 07 26 | 608 | 0.0 | 1.1− | 2007 01 27 | G96 | 0.0 | 0.0 | 2008 06 02 | 704 | (2.0+ | 2.0+) | | |
| 2001 07 26 | 608 | 0.1+ | 1.2− | 2007 01 27 | G96 | 0.3+ | 0.3+ | 2008 06 02 | G96 | 0.2+ | 0.2− | | |
| 2001 07 26 | 608 | 0.0 | 0.9− | 2007 01 27 | G96 | 0.4+ | 0.6− | 2008 06 02 | G96 | 0.3+ | 0.0 | | |
| 2004 03 15 | 691 | 0.1+ | 0.2+ | 2008 03 31 | 691 | 0.0 | 0.3+ | 2008 06 02 | G96 | 0.1− | 0.2+ | | |
| 2004 03 15 | 691 | 0.1+ | 0.0 | 2008 03 31 | 691 | 0.1− | 0.1+ | 2008 06 02 | 704 | 0.5+ | 1.4+ | | |
| 2004 03 15 | 691 | 0.0 | 0.3− | 2008 03 31 | 691 | 0.0 | 0.2+ | 2008 06 02 | G96 | 0.6+ | 0.1+ | | |
| 2005 10 03 | 703 | 0.4+ | 0.5− | 2008 04 04 | 691 | 0.2− | 0.2+ | 2008 06 02 | 704 | 1.1+ | 0.8+ | | |
| 2005 10 03 | 703 | 0.0 | 0.5+ | 2008 04 04 | 691 | 0.0 | 0.3+ | 2008 06 04 | 691 | 0.1+ | 1.1− | | |
| 2005 10 03 | 703 | 0.1+ | 2.0+ | 2008 04 04 | 691 | 0.8− | 0.1+ | 2008 06 04 | 691 | 0.2+ | 0.7− | | |
| 2005 10 03 | 703 | 0.2+ | 0.5+ | 2008 04 08 | 691 | 0.4− | 0.6− | 2008 06 04 | 691 | 0.3− | 0.6− | | |
| 2005 11 01 | 703 | 1.1+ | 0.1+ | 2008 04 08 | 691 | 0.0 | 0.3+ | 2008 06 10 | 691 | 0.1+ | 0.1+ | | |
| 2005 11 01 | 703 | 0.9− | 1.0+ | 2008 04 08 | 691 | 0.1+ | 0.1+ | 2008 06 10 | 691 | 0.0 | 0.0 | | |
| 2005 11 01 | 703 | 1.3− | 1.2− | 2008 05 01 | 704 | 0.2+ | 1.0+ | 2008 06 10 | 691 | 0.1+ | 0.3+ | | |
| 2005 11 01 | 703 | 0.7− | 0.0 | 2008 05 01 | 704 | 1.1+ | 0.1+ | 2009 11 25 | G96 | 0.3+ | 0.0 | | |
| 2007 01 24 | G96 | 0.0 | 0.8− | 2008 05 01 | 704 | 0.3+ | 1.0+ | 2009 11 25 | G96 | 0.4+ | 0.2− | | |
| 2007 01 24 | G96 | 0.0 | 0.6− | 2008 05 01 | 704 | 0.4+ | 0.5− | 2009 11 25 | G96 | 0.1− | 0.3− | | |
| 2007 01 24 | G96 | 0.3− | 0.2− | 2008 05 09 | 704 | (0.4+ | 2.7+) | 2009 11 25 | G96 | 0.0 | 0.1+ | | |
| 2007 01 24 | G96 | 0.2+ | 0.3− | 2008 05 09 | 704 | 0.4+ | 1.1+ | | | | | | |
| 2007 01 27 | G96 | 1.1− | 1.9− | 2008 05 09 | 704 | 0.2+ | 1.3+ | | | | | | |

## 2008 $FC_{116}$ = 2009 $UV_{96}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 65.72004 | | (2000.0) | | | |
| $n$ | 0.28299861 | $\omega$ | 272.89546 | | +0.84538447 | +0.53046249 |
| $a$ | 2.2976287 | $\Omega$ | 55.07604 | | −0.45464828 | +0.77621196 |
| $e$ | 0.2246958 | $i$ | 4.38765 | | −0.28039265 | +0.34074116 |
| $P$ | 3.48 | $H$ | 17.5 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 10 31 | 608 | 0.4− | 0.7+ | 2008 04 04 | G96 | 1.2+ | 0.2+ | 2009 10 22 | G96 | 0.1+ | 0.1+ | | |
| 2002 10 31 | 608 | 0.1− | 0.6+ | 2008 04 06 | 691 | 0.2− | 0.3− | 2009 10 22 | G96 | 0.5+ | 0.1− | | |
| 2002 10 31 | 608 | 0.3− | 0.3+ | 2008 04 06 | 691 | 0.1− | 0.5+ | 2009 10 26 | 691 | 0.2− | 0.2+ | | |
| 2008 03 11 | 691 | 0.1+ | 0.1− | 2008 04 06 | 691 | 0.3− | 0.2+ | 2009 10 26 | 691 | 0.0 | 0.5+ | | |
| 2008 03 11 | 691 | 0.4+ | 0.0 | 2009 10 14 | J75 | 0.1− | 0.1− | 2009 10 26 | 691 | 0.1− | 0.2+ | | |
| 2008 03 11 | 691 | 0.6− | 0.2+ | 2009 10 14 | J75 | 0.0 | 0.9− | 2009 11 15 | 703 | 0.8+ | 1.0− | | |
| 2008 03 31 | G96 | 0.1+ | 0.2− | 2009 10 14 | J75 | 0.4+ | 0.5− | 2009 11 15 | 703 | 0.1− | 1.4− | | |
| 2008 03 31 | G96 | 0.4+ | 0.2− | 2009 10 14 | 703 | 0.2+ | 1.0− | 2009 11 15 | 703 | (1.0− | 2.7−) | | |
| 2008 03 31 | G96 | 0.7+ | 0.3− | 2009 10 14 | 703 | 0.9− | 0.6− | 2009 11 15 | 703 | (2.5− | 0.6−) | | |
| 2008 03 31 | G96 | 0.5+ | 0.2− | 2009 10 14 | 703 | 0.4− | 0.3− | 2009 11 19 | G96 | 0.3+ | 0.1+ | | |
| 2008 04 04 | G96 | 0.2− | 0.2− | 2009 10 14 | 703 | 0.4− | 0.5+ | 2009 11 19 | G96 | 0.3+ | 0.1− | | |
| 2008 04 04 | G96 | 0.3+ | 0.3− | 2009 10 22 | G96 | 0.2− | 0.1+ | 2009 11 19 | G96 | 0.4+ | 0.1+ | | |
| 2008 04 04 | G96 | 0.2+ | 0.3− | 2009 10 22 | G96 | 0.2+ | 0.1+ | 2009 11 19 | G96 | 0.3+ | 0.2+ | | |

## 2008 $FZ_{125}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 200.70564 | | (2000.0) | | | |
| $n$ | 0.20159659 | $\omega$ | 320.98429 | | +0.22694058 | −0.96205941 |
| $a$ | 2.8805843 | $\Omega$ | 115.42452 | | +0.93027265 | +0.16810591 |
| $e$ | 0.1946554 | $i$ | 9.65411 | | +0.28825470 | +0.21490019 |
| $P$ | 4.89 | $H$ | 16.7 | $G$ | 0.15 | $U$ 5 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 10 15 | 644 | 0.1− | 0.2+ | 2008 02 11 | G96 | 0.4+ | 0.2+ | 2008 03 29 | 461 | 0.0 | 0.2− | | |
| 2001 10 15 | 644 | 0.7+ | 0.1+ | 2008 02 11 | G96 | 0.1− | 0.3+ | 2008 03 29 | 461 | 0.1+ | 0.2+ | | |
| 2001 10 15 | 644 | 0.2+ | 0.1− | 2008 02 11 | G96 | 0.0 | 0.2+ | 2008 03 29 | 461 | 0.4+ | 0.2− | | |
| 2001 10 23 | 644 | 0.2− | 0.4+ | 2008 03 04 | G96 | 0.4− | 0.0 | 2008 03 30 | 461 | 0.4− | 0.7+ | | |
| 2001 10 23 | 644 | 0.4− | 0.1− | 2008 03 04 | G96 | 0.2+ | 0.0 | 2008 03 30 | 461 | 0.4+ | 0.1− | | |
| 2001 10 23 | 644 | 0.2− | 0.4− | 2008 03 04 | G96 | 0.5− | 0.7− | | | | | | |
| 2008 02 11 | G96 | 0.2− | 0.2− | 2008 03 04 | G96 | 0.1+ | 0.1− | | | | | | |

## 2008 $GF_4$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 135.96213 | | (2000.0) | | | |
| $n$ | 0.22935687 | $\omega$ | 236.75797 | | −0.77158274 | +0.63061207 |
| $a$ | 2.6431890 | $\Omega$ | 341.87573 | | −0.45658978 | −0.64051340 |
| $e$ | 0.1808499 | $i$ | 15.58889 | | −0.44292872 | −0.43825905 |
| $P$ | 4.30 | $H$ | 16.1 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 04 06 | 703 | 0.1+ | 0.3+ | 2008 04 14 | 703 | 0.0 | 0.5+ | 2008 05 12 | E12 | 0.1+ | 0.1+ | | |
| 2008 04 06 | 703 | 1.2+ | 1.1− | 2008 04 25 | E16 | 0.0 | 0.5+ | 2009 08 20 | J75 | 0.7− | 0.0 | | |
| 2008 04 06 | 703 | 0.8+ | 0.1− | 2008 04 25 | E16 | 0.1− | 0.3+ | 2009 08 20 | J75 | 0.4− | 0.1+ | | |
| 2008 04 06 | 703 | 0.1− | 0.1− | 2008 04 25 | E16 | 0.8− | 0.0 | 2009 08 20 | J75 | 0.5− | 0.7− | | |
| 2008 04 07 | E16 | 0.4+ | 0.3+ | 2008 04 29 | E16 | (1.5+ | 2.0−) | 2009 08 27 | 691 | 1.4+ | 0.2− | | |
| 2008 04 07 | E16 | 0.5− | 0.4+ | 2008 04 29 | E16 | 0.3+ | 0.2− | 2009 08 27 | 691 | 0.3− | 0.2+ | | |
| 2008 04 07 | E16 | 0.8+ | 0.4+ | 2008 04 29 | E16 | 0.5+ | 0.2− | 2009 08 27 | 691 | 0.8− | 0.1− | | |
| 2008 04 07 | E16 | 0.4− | 0.3+ | 2008 04 29 | E16 | 0.4+ | 0.1+ | 2009 09 09 | 300 | 0.8+ | 0.2− | | |
| 2008 04 07 | E16 | 0.5+ | 0.1+ | 2008 05 06 | E12 | 0.2− | 0.4− | 2009 09 09 | 300 | 0.5− | 0.3− | | |
| 2008 04 09 | E16 | 0.1+ | 0.0 | 2008 05 06 | E12 | 0.1− | 0.4− | 2009 09 09 | 300 | 0.3− | 0.2+ | | |
| 2008 04 09 | E16 | 0.5− | 0.0 | 2008 05 06 | E12 | 0.3− | 0.2− | 2009 09 09 | 300 | 1.3+ | 0.4− | | |
| 2008 04 09 | E16 | 0.3+ | 0.3− | 2008 05 06 | E12 | 0.4+ | 0.3− | 2009 09 12 | 291 | 0.7− | 0.4+ | | |
| 2008 04 14 | 703 | 0.9− | 0.1− | 2008 05 12 | E12 | 0.0 | 0.1+ | 2009 09 12 | 291 | 0.2+ | 0.3+ | | |
| 2008 04 14 | 703 | 0.8− | 0.3+ | 2008 05 12 | E12 | 0.5− | 0.2+ | 2009 09 12 | 291 | 0.1+ | 0.1− | | |
| 2008 04 14 | 703 | 0.7− | 0.2+ | 2008 05 12 | E12 | 0.1+ | 0.7− | | | | | | |

## 2008 $GL_9$ = 2009 $WX_{134}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 61.15568 | | (2000.0) | | | |
| $n$ | 0.23738961 | $\omega$ | 297.01447 | | +0.89048227 | +0.43390711 |
| $a$ | 2.5832211 | $\Omega$ | 37.71765 | | −0.29585709 | +0.78087091 |
| $e$ | 0.2881911 | $i$ | 12.93949 | | −0.34570206 | +0.44940544 |
| $P$ | 4.15 | $H$ | 16.9 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 04 01 | 691 | 0.1− | 0.3+ | 2008 04 25 | G96 | 0.0 | 0.5− | 2009 11 22 | 703 | 0.7− | 0.9+ | | |
| 2008 04 01 | 691 | 0.2− | 0.2+ | 2008 04 25 | G96 | 0.1+ | 0.6− | 2009 11 22 | 703 | 0.7− | 1.4− | | |
| 2008 04 01 | 691 | 0.1+ | 0.3− | 2009 09 19 | G96 | 0.2+ | 0.3− | 2009 11 22 | G96 | 0.4+ | 0.0 | | |
| 2008 04 05 | 691 | 0.4− | 0.8+ | 2009 09 19 | G96 | 0.0 | 0.1− | 2009 11 22 | G96 | 0.3+ | 0.0 | | |
| 2008 04 05 | 691 | 0.6+ | 0.1+ | 2009 09 19 | G96 | 0.1+ | 0.3− | 2009 11 22 | G96 | 0.4+ | 0.4− | | |
| 2008 04 05 | 691 | 0.2− | 0.0 | 2009 09 19 | G96 | 0.2− | 0.0 | 2009 11 22 | G96 | 0.6+ | 0.3+ | | |
| 2008 04 14 | 691 | 0.2+ | 0.2− | 2009 11 11 | 691 | 0.5− | 0.2+ | 2009 11 24 | G96 | 0.3+ | 0.1+ | | |
| 2008 04 14 | 691 | 0.3− | 0.6− | 2009 11 11 | 691 | 0.1+ | 0.1− | 2009 11 24 | G96 | 0.5+ | 0.0 | | |
| 2008 04 14 | 691 | 0.0 | 0.0 | 2009 11 11 | 691 | 0.3+ | 0.1+ | 2009 11 24 | G96 | 0.4+ | 0.0 | | |
| 2008 04 25 | G96 | 0.2+ | 0.1+ | 2009 11 22 | 703 | 0.4− | 0.5+ | 2009 11 24 | G96 | 0.2+ | 0.1+ | | |
| 2008 04 25 | G96 | 0.7+ | 0.9− | 2009 11 22 | 703 | 0.3− | 0.9− | | | | | | |

## 2008 $GV_{10}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 116.62906 | | (2000.0) | | | |
| $n$ | 0.26069238 | $\omega$ | 71.29784 | | +0.07072930 | +0.99649841 |
| $a$ | 2.4268922 | $\Omega$ | 202.89752 | | −0.95292845 | +0.05428899 |
| $e$ | 0.1027879 | $i$ | 6.58074 | | −0.29483001 | +0.06358956 |
| $P$ | 3.78 | $H$ | 18.0 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 03 29 | 691 | 0.4+ | 0.4+ | 2008 04 05 | 691 | 0.4− | 0.1+ | 2008 04 30 | G96 | 0.6+ | 0.3− | | |
| 2004 03 29 | 691 | 0.1− | 0.2+ | 2008 04 05 | 691 | 0.2+ | 0.2− | 2008 04 30 | G96 | 0.8+ | 0.3− | | |
| 2004 03 29 | 691 | 0.0 | 0.5+ | 2008 04 05 | 691 | 0.6− | 0.2+ | 2008 04 30 | G96 | 0.5+ | 0.0 | | |
| 2005 10 01 | 691 | 0.2+ | 0.2+ | 2008 04 11 | 691 | 0.2+ | 0.0 | 2008 04 30 | G96 | 0.4− | 0.6+ | | |
| 2005 10 01 | 691 | 0.2− | 0.5+ | 2008 04 11 | 691 | 0.0 | 0.4− | 2008 04 30 | G96 | 0.4+ | 0.5− | | |
| 2005 10 01 | 691 | 0.3− | 0.2+ | 2008 04 11 | 691 | 0.0 | 0.3− | 2009 10 21 | G96 | 0.4− | 0.5− | | |
| 2008 04 01 | 691 | 0.1− | 0.2+ | 2008 04 30 | G96 | 0.0 | 0.1+ | 2009 10 21 | G96 | 0.2+ | 0.5− | | |
| 2008 04 01 | 691 | 0.1+ | 0.3+ | 2008 04 30 | G96 | 0.2+ | 0.3− | 2009 10 21 | G96 | 0.6+ | 0.4− | | |
| 2008 04 01 | 691 | 0.4− | 0.1− | 2008 04 30 | G96 | 0.5+ | 0.3− | 2009 10 21 | G96 | 0.1− | 0.1+ | | |

**2008 GN$_{12}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 91.55266 | | (2000.0) | | | |
| $n$ | 0.36854784 | $\omega$ | 318.98506 | | +0.81428066 | +0.57924525 |
| $a$ | 1.9266676 | $\Omega$ | 5.99053 | | −0.39179221 | +0.59637496 |
| $e$ | 0.0503059 | $i$ | 21.18115 | | −0.42830581 | +0.55570841 |
| $P$ | 2.67 | $H$ | 17.9 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 05 05 | 645 | 0.0 | 0.0 | 2008 04 03 | 691 | 0.0 | 0.2− | 2008 04 07 | 691 | 0.0 | 0.0 |
| 2000 05 05 | 645 | 0.1+ | 0.0 | 2008 04 03 | 691 | 0.1− | 0.3− | 2008 04 07 | 691 | 0.1− | 0.2− |
| 2008 03 15 | 704 | 0.4+ | 0.6+ | 2008 04 05 | 691 | 0.0 | 0.2+ | 2009 11 20 | 703 | 0.9− | 0.5+ |
| 2008 03 15 | 704 | 1.2− | 0.5+ | 2008 04 05 | 691 | 0.0 | 0.1− | 2009 11 20 | 703 | 0.3− | 0.2+ |
| 2008 03 15 | 704 | 0.9+ | 0.8+ | 2008 04 05 | 691 | 0.0 | 0.1− | 2009 11 20 | 703 | 0.3+ | 0.2− |
| 2008 04 03 | 691 | 0.1+ | 0.1− | 2008 04 07 | 691 | 0.2− | 0.1+ | 2009 11 20 | 703 | 0.9+ | 0.4− |

**2008 GA$_{20}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 27.11035 | | (2000.0) | | | |
| $n$ | 0.20625114 | $\omega$ | 153.10678 | | +0.91756777 | +0.39743576 |
| $a$ | 2.8370815 | $\Omega$ | 183.52732 | | −0.38883125 | +0.89144616 |
| $e$ | 0.0951487 | $i$ | 10.00293 | | −0.08294363 | +0.21764321 |
| $P$ | 4.78 | $H$ | 16.5 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 04 04 | 291 | 0.2+ | 0.0 | 2008 05 11 | 691 | 0.1+ | 0.5+ | 2009 08 17 | 691 | 0.6− | 0.6+ |
| 2008 04 04 | 291 | 0.4− | 0.1− | 2008 05 11 | 691 | 0.3− | 0.1− | 2009 08 17 | 691 | 0.3+ | 0.4− |
| 2008 04 04 | 291 | 0.2− | 0.3+ | 2008 05 31 | G96 | 0.1+ | 0.1− | 2009 08 20 | 691 | 0.6− | 0.0 |
| 2008 04 05 | 291 | 0.6+ | 0.2+ | 2008 05 31 | G96 | 0.8+ | 0.1+ | 2009 08 20 | 691 | 0.3+ | 0.1− |
| 2008 04 05 | 291 | 0.1+ | 0.4− | 2008 05 31 | G96 | 0.2− | 0.4− | 2009 08 20 | 691 | 0.6+ | 0.0 |
| 2008 04 05 | 291 | 0.2− | 0.2− | 2008 05 31 | G96 | 0.3+ | 0.1− | | | | |
| 2008 05 11 | 691 | 0.1− | 0.2− | 2009 08 17 | 691 | 0.0 | 0.1− | | | | |

**2008 GH$_{23}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 231.04691 | | (2000.0) | | | |
| $n$ | 0.21269826 | $\omega$ | 323.30302 | | −0.15990020 | −0.98507158 |
| $a$ | 2.7794578 | $\Omega$ | 135.79674 | | +0.92602761 | −0.17206274 |
| $e$ | 0.0192850 | $i$ | 5.24744 | | +0.34191343 | +0.00532798 |
| $P$ | 4.63 | $H$ | 15.9 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 08 29 | 691 | 0.2− | 0.0 | 2008 04 01 | G96 | 0.2+ | 0.1+ | 2008 04 08 | G96 | 0.1− | 0.0 |
| 2005 08 29 | 691 | 0.1+ | 0.1+ | 2008 04 01 | G96 | 0.1− | 0.1+ | 2008 04 08 | G96 | 0.1+ | 0.1+ |
| 2005 08 29 | 691 | 0.1− | 0.1− | 2008 04 01 | G96 | 0.0 | 0.2+ | 2008 04 29 | G96 | 0.1− | 0.7− |
| 2005 09 12 | 691 | 0.0 | 0.1+ | 2008 04 01 | G96 | 0.7+ | 0.2+ | 2008 04 29 | G96 | 0.3− | 0.1+ |
| 2005 09 12 | 691 | 0.0 | 0.0 | 2008 04 08 | G96 | 0.3+ | 0.0 | 2008 04 29 | G96 | 0.0 | 0.0 |
| 2005 09 12 | 691 | 0.1+ | 0.1− | 2008 04 08 | G96 | 0.2− | 0.0 | 2008 04 29 | G96 | 0.3− | 0.1− |

**2008 GA$_{27}$ = 2001 SM$_{333}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 336.06382 | | (2000.0) | | | |
| $n$ | 0.22242564 | $\omega$ | 327.04866 | | +0.95095400 | +0.30801183 |
| $a$ | 2.6978190 | $\Omega$ | 15.09122 | | −0.25475306 | +0.83217883 |
| $e$ | 0.0492595 | $i$ | 6.29598 | | −0.17546332 | +0.46109339 |
| $P$ | 4.43 | $H$ | 16.6 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 19 | 704 | 0.1− | 0.8− | 2001 10 18 | 691 | 0.3− | 0.4+ | 2008 04 03 | 691 | 0.3+ | 0.1+ |
| 2001 09 19 | 704 | 0.5− | 0.7− | 2001 10 18 | 691 | 0.5+ | 0.6− | 2008 04 03 | 691 | 0.3+ | 0.0 |
| 2001 09 19 | 704 | 0.7+ | 1.4+ | 2001 11 16 | 291 | 0.2+ | 0.5+ | 2008 04 07 | 691 | 0.5− | 0.5+ |
| 2001 09 19 | 704 | 0.1− | 0.5− | 2001 11 16 | 291 | 0.3− | 0.1+ | 2008 04 07 | 691 | 0.3+ | 0.2− |
| 2001 09 21 | 704 | 1.4− | 0.5+ | 2001 11 16 | 291 | 0.2− | 0.5− | 2008 04 07 | 691 | 0.1− | 0.0 |
| 2001 09 21 | 704 | 0.8+ | 0.8+ | 2004 04 22 | 691 | 0.2+ | 0.2+ | 2008 04 13 | G96 | 0.2− | 0.3− |
| 2001 09 21 | 704 | 0.8− | 0.5+ | 2004 04 22 | 691 | 0.1+ | 0.1+ | 2008 04 13 | G96 | 0.3+ | 0.3− |
| 2001 09 21 | 704 | 0.4− | 1.1+ | 2004 04 22 | 691 | 0.1− | 0.2+ | 2008 04 13 | G96 | 1.2+ | 0.0 |
| 2001 10 18 | 691 | 0.0 | 0.5+ | 2008 04 03 | 691 | 0.3− | 0.3+ | 2008 04 13 | G96 | 0.6+ | 0.1+ |

**2008 GM$_{27}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 356.87021 | | (2000.0) | | | |
| $n$ | 0.18749304 | $\omega$ | 124.75626 | | +0.66562578 | +0.74596426 |
| $a$ | 3.0232864 | $\Omega$ | 187.09762 | | −0.72946759 | +0.64415016 |
| $e$ | 0.1249963 | $i$ | 10.20948 | | −0.15754161 | +0.16913870 |
| $P$ | 5.26 | $H$ | 15.6 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 25 | 691 | 0.4− | 0.1− | 2008 03 10 | 691 | 0.0 | 0.1− | 2008 04 07 | 691 | 0.1+ | 0.0 |
| 2005 09 25 | 691 | 0.1− | 0.1+ | 2008 03 10 | 691 | 0.0 | 0.1+ | 2008 04 07 | 691 | 0.0 | 0.1− |
| 2005 09 25 | 691 | 0.4− | 0.2− | 2008 03 10 | 691 | 0.2+ | 0.1+ | 2008 04 26 | G96 | 0.1+ | 0.3+ |
| 2005 10 01 | 703 | 0.4− | 0.0 | 2008 04 03 | 691 | 0.0 | 0.1− | 2008 04 26 | G96 | 0.1+ | 0.2+ |
| 2005 10 01 | 703 | 2.0+ | 1.1− | 2008 04 03 | 691 | 0.2− | 0.1− | 2008 04 26 | G96 | 0.1+ | 0.3+ |
| 2005 10 01 | 703 | 0.3+ | 0.5+ | 2008 04 03 | 691 | 0.1− | 0.1− | 2008 04 26 | G96 | 0.0 | 0.0 |
| 2005 10 01 | 703 | 1.6+ | 1.7+ | 2008 04 07 | 691 | 0.1− | 0.1+ | | | | |

**2008 GE$_{38}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 109.72839 | | (2000.0) | | | |
| $n$ | 0.18448843 | $\omega$ | 95.14860 | | −0.62381650 | +0.78097610 |
| $a$ | 3.0560230 | $\Omega$ | 136.20697 | | −0.73339764 | −0.57143957 |
| $e$ | 0.1321630 | $i$ | 2.52464 | | −0.27014972 | −0.25205782 |
| $P$ | 5.34 | $H$ | 16.7 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 02 13 | 691 | 0.1+ | 0.5+ | 2007 02 06 | G96 | 0.5− | 0.8− | 2008 04 03 | 691 | 0.3− | 0.1+ |
| 2002 02 13 | 691 | 0.2+ | 0.3+ | 2007 02 06 | G96 | 0.1− | 0.2− | 2008 04 07 | 691 | 0.1− | 0.2− |
| 2002 02 13 | 691 | 0.2+ | 0.6+ | 2007 02 06 | G96 | 0.3− | 0.4− | 2008 04 07 | 691 | 0.0 | 0.1− |
| 2005 12 01 | G96 | 0.6+ | 0.3+ | 2007 02 06 | G96 | 0.5− | 0.4− | 2008 04 07 | 691 | 0.4− | 0.1+ |
| 2005 12 01 | G96 | 0.4− | 0.3− | 2007 03 09 | G96 | 0.4+ | 0.5− | 2008 05 11 | 691 | 0.4+ | 0.5− |
| 2005 12 01 | G96 | 0.2− | 0.3+ | 2007 03 09 | G96 | 0.7+ | 0.6− | 2008 05 11 | 691 | 0.1− | 0.1+ |
| 2005 12 01 | G96 | 0.1− | 0.2+ | 2007 03 09 | G96 | 0.4+ | 0.2− | 2008 05 11 | 691 | 0.0 | 0.1− |
| 2007 01 27 | 691 | 0.2− | 0.2+ | 2007 03 09 | G96 | 0.8+ | 0.6− | 2008 06 04 | 691 | 0.4+ | 0.2− |
| 2007 01 27 | 691 | 0.2− | 0.2− | 2008 04 03 | 691 | 0.3− | 0.3− | 2008 06 04 | 691 | 0.2+ | 0.3+ |
| 2007 01 27 | 691 | 0.0 | 0.4− | 2008 04 03 | 691 | 0.2− | 0.1− | 2008 06 04 | 691 | 0.1+ | 0.2+ |

**2008 GH$_{38}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 212.24385 | | (2000.0) | | | |
| $n$ | 0.30312914 | $\omega$ | 11.15585 | | −0.96572387 | +0.25951942 |
| $a$ | 2.1947460 | $\Omega$ | 183.89731 | | −0.24365596 | −0.91323968 |
| $e$ | 0.0959288 | $i$ | 4.39054 | | −0.08949401 | −0.31407477 |
| $P$ | 3.25 | $H$ | 18.3 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 11 17 | G96 | 0.1+ | 0.2− | 2008 04 07 | 691 | 0.1− | 0.1− | 2008 06 03 | G96 | 0.5+ | 0.3+ |
| 2006 11 17 | G96 | 0.4+ | 0.2− | 2008 04 07 | 691 | 0.0 | 0.2+ | 2008 06 03 | G96 | 0.1+ | 0.1− |
| 2006 11 17 | G96 | 0.3− | 0.2+ | 2008 04 07 | 691 | 0.2− | 0.0 | 2009 10 17 | G96 | 0.8− | 0.3+ |
| 2006 11 17 | G96 | 0.1− | 0.4− | 2008 04 28 | 691 | 0.2− | 0.3− | 2009 10 17 | G96 | 0.7+ | 0.4− |
| 2008 04 03 | G96 | 0.5+ | 0.0 | 2008 04 28 | 691 | 0.2− | 0.3− | 2009 10 17 | G96 | 0.4− | 0.1+ |
| 2008 04 03 | G96 | 0.5− | 0.2− | 2008 04 28 | 691 | 0.1+ | 0.1+ | 2009 10 17 | G96 | 0.6+ | 0.4− |
| 2008 04 03 | G96 | 0.7+ | 0.3+ | 2008 06 03 | G96 | 0.5+ | 0.2+ | | | | |
| 2008 04 03 | G96 | 0.3+ | 0.0 | 2008 06 03 | G96 | 0.0 | 0.1+ | | | | |

**2008 GD$_{41}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 223.98785 | | | (2000.0) | | |
| $n$ | 0.23000356 | $\omega$ | 2.31689 | | −0.63649604 | −0.76771096 |
| $a$ | 2.6382321 | $\Omega$ | 127.22452 | | +0.70613041 | −0.61868728 |
| $e$ | 0.0180889 | $i$ | 5.34051 | | +0.31024609 | −0.16687101 |
| $P$ | 4.29 | $H$ | 17.5 | $G$ 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 10 15 | 645 | 0.0 | 0.0 | 2005 08 28 | 691 | 0.2− | 0.4+ | 2008 04 08 | 691 | 0.1+ | 0.7− |
| 2001 10 15 | 645 | 0.1+ | 0.0 | 2005 08 28 | 691 | 0.5− | 0.3+ | 2008 04 08 | 691 | 0.4− | 0.3+ |
| 2001 10 25 | 645 | 0.0 | 0.1− | 2005 09 11 | 691 | 0.4+ | 0.2+ | 2008 04 08 | 691 | 0.4+ | 0.2+ |
| 2001 10 25 | 645 | 0.0 | 0.0 | 2005 09 11 | 691 | 0.0 | 0.4+ | 2008 04 24 | G96 | 0.2− | 0.3+ |
| 2003 02 09 | 291 | 0.2− | 0.6+ | 2005 09 11 | 691 | 0.1− | 0.5+ | 2008 04 24 | G96 | 0.5+ | 0.2+ |
| 2003 02 09 | 291 | 0.5+ | 0.4+ | 2008 04 04 | 691 | 0.1− | 0.1+ | 2008 04 24 | G96 | 0.0 | 0.3+ |
| 2003 02 09 | 291 | 0.0 | 0.5+ | 2008 04 04 | 691 | 0.4− | 0.3+ | 2008 04 24 | G96 | 0.2+ | 0.0 |
| 2005 08 28 | 691 | 0.4− | 0.5+ | 2008 04 04 | 691 | 0.3+ | 0.2− | | | | |

**2008 GT$_{44}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 30.85621 | | | (2000.0) | | |
| $n$ | 0.21199481 | $\omega$ | 291.73719 | | +0.85513834 | +0.42880784 |
| $a$ | 2.7856031 | $\Omega$ | 44.35544 | | −0.16243141 | +0.75528125 |
| $e$ | 0.2690210 | $i$ | 24.62581 | | −0.49229509 | +0.49565520 |
| $P$ | 4.65 | $H$ | 16.5 | $G$ 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 04 04 | G96 | 0.3+ | 0.1− | 2008 04 29 | G96 | 0.4− | 0.1− | 2009 09 15 | E12 | 0.0 | 0.4+ |
| 2008 04 04 | G96 | 0.2− | 0.1+ | 2008 04 29 | G96 | 0.2+ | 0.0 | 2009 09 15 | E12 | 0.3+ | 0.0 |
| 2008 04 04 | G96 | 0.2− | 0.1− | 2008 04 29 | G96 | 0.1+ | 0.0 | 2009 09 15 | E12 | 0.0 | 0.0 |
| 2008 04 04 | G96 | 0.5+ | 0.1− | 2008 04 29 | G96 | 0.0 | 0.4− | 2009 10 14 | E12 | 0.7− | 0.5− |
| 2008 04 06 | G96 | 0.1+ | 0.0 | 2008 05 31 | G96 | 0.2+ | 0.3+ | 2009 10 14 | E12 | 0.1+ | 0.3− |
| 2008 04 06 | G96 | 0.1+ | 0.1− | 2008 05 31 | G96 | 0.1+ | 0.2+ | 2009 10 14 | E12 | 0.2− | 0.1+ |
| 2008 04 06 | G96 | 0.5− | 0.1+ | 2008 05 31 | G96 | 0.1− | 0.1− | 2009 10 14 | E12 | 0.5+ | 0.1+ |
| 2008 04 06 | G96 | 0.0 | 0.1− | 2008 05 31 | G96 | 0.2− | 0.3+ | | | | |

**2008 GR$_{50}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 61.01652 | | | (2000.0) | | |
| $n$ | 0.17354615 | $\omega$ | 79.99486 | | −0.00404875 | +0.99886898 |
| $a$ | 3.1831667 | $\Omega$ | 190.13959 | | −0.99008535 | −0.01065609 |
| $e$ | 0.2313565 | $i$ | 15.61092 | | −0.14040870 | +0.04633806 |
| $P$ | 5.68 | $H$ | 16.1 | $G$ 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 03 10 | 691 | 0.2− | 0.3− | 2008 04 11 | 691 | 0.1− | 0.2+ | 2008 05 03 | G96 | 0.1− | 0.3− |
| 2008 03 10 | 691 | 0.0 | 0.6+ | 2008 04 11 | 691 | 0.1+ | 0.2+ | 2008 05 03 | G96 | 0.1− | 0.3− |
| 2008 03 10 | 691 | 0.2+ | 0.2+ | 2008 04 11 | 691 | 0.1+ | 0.2− | 2008 05 03 | G96 | 0.0 | 0.1− |
| 2008 03 28 | G96 | 0.2+ | 0.5− | 2008 04 13 | 691 | 0.2− | 0.2+ | 2009 04 21 | 691 | 0.3+ | 0.3− |
| 2008 03 28 | G96 | 0.4+ | 0.2− | 2008 04 13 | 691 | 0.2+ | 0.1− | 2009 04 21 | 691 | 0.1− | 0.2− |
| 2008 03 28 | G96 | 0.4+ | 0.4− | 2008 04 13 | 691 | 0.0 | 0.1+ | 2009 04 21 | 691 | 0.1− | 0.1+ |
| 2008 03 28 | G96 | 0.2+ | 0.4− | 2008 04 27 | G96 | 0.4− | 0.0 | 2009 09 26 | 291 | 0.1− | 0.0 |
| 2008 04 05 | G96 | 0.2− | 0.1+ | 2008 04 27 | G96 | 0.1− | 0.1+ | 2009 09 26 | 291 | 0.0 | 0.4+ |
| 2008 04 05 | G96 | 0.1− | 0.3+ | 2008 04 27 | G96 | 0.2− | 0.1− | 2009 09 26 | 291 | 0.0 | 0.1+ |
| 2008 04 05 | G96 | 0.0 | 0.0 | 2008 04 27 | G96 | 0.3− | 0.2− | | | | |
| 2008 04 05 | G96 | 0.2+ | 0.1− | 2008 05 03 | G96 | 0.2− | 0.4− | | | | |

**2008 GX$_{62}$ = 2009 SY$_{138}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 319.61019 | | | (2000.0) | | |
| $n$ | 0.37707843 | $\omega$ | 271.47524 | | −0.49975656 | −0.84740438 |
| $a$ | 1.8974991 | $\Omega$ | 210.68457 | | +0.86613500 | −0.49066277 |
| $e$ | 0.0909785 | $i$ | 20.57040 | | −0.00731656 | −0.20286909 |
| $P$ | 2.61 | $H$ | 18.3 | $G$ 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 12 10 | 645 | 0.0 | 0.1+ | 2008 04 29 | G96 | 0.2− | 0.2− | 2009 09 22 | G96 | 0.1+ | 0.9+ |
| 2001 12 10 | 645 | 0.0 | 0.1− | 2008 04 29 | G96 | 0.3+ | 0.0 | 2009 09 22 | G96 | 0.3− | 0.1− |
| 2008 04 05 | 691 | 0.3+ | 0.1+ | 2008 04 29 | G96 | 0.2+ | 0.0 | 2009 11 24 | 703 | 0.1− | 0.2+ |
| 2008 04 05 | 691 | 0.2+ | 0.2+ | 2009 09 18 | G96 | 0.2+ | 0.3+ | 2009 11 24 | 703 | 0.3− | 0.6+ |
| 2008 04 05 | 691 | 0.2− | 0.2+ | 2009 09 18 | G96 | 0.4+ | 0.2− | 2009 11 24 | 703 | 0.9− | 0.9− |
| 2008 04 09 | 691 | 0.1+ | 0.2− | 2009 09 18 | G96 | 0.0 | 0.3− | 2009 11 24 | 703 | 0.7+ | 0.1+ |
| 2008 04 09 | 691 | 0.5− | 0.0 | 2009 09 18 | G96 | 0.8+ | 0.1− | | | | |
| 2008 04 09 | 691 | 0.1+ | 0.2− | 2009 09 22 | G96 | 0.0 | 0.0 | | | | |

**2008 GN$_{63}$ = 2009 SD$_{94}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 48.06940 | | | (2000.0) | | |
| $n$ | 0.25834377 | $\omega$ | 183.56984 | | +0.85169818 | +0.52226629 |
| $a$ | 2.4415787 | $\Omega$ | 144.83796 | | −0.47892275 | +0.80905701 |
| $e$ | 0.1564669 | $i$ | 4.28107 | | −0.21270451 | +0.26956387 |
| $P$ | 3.82 | $H$ | 17.4 | $G$ 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 07 09 | 691 | 0.0 | 0.1− | 2008 04 05 | 291 | 0.1+ | 0.2+ | 2009 08 18 | 691 | 0.3− | 0.0 |
| 2005 07 09 | 691 | 0.1+ | 0.0 | 2008 04 05 | 291 | 0.2+ | 0.1+ | 2009 08 29 | 691 | 0.1+ | 0.1+ |
| 2005 07 09 | 691 | 0.2+ | 0.1− | 2008 04 05 | 291 | 0.1+ | 0.0 | 2009 08 29 | 691 | 0.0 | 0.0 |
| 2005 07 28 | 644 | 0.1+ | 0.0 | 2008 04 08 | G96 | 0.1− | 0.4+ | 2009 08 29 | 691 | 0.1− | 0.0 |
| 2005 07 28 | 644 | 0.2− | 0.1+ | 2008 04 08 | G96 | 0.6− | 0.1− | 2009 09 19 | G96 | 0.7+ | 0.2+ |
| 2005 07 28 | 644 | 0.1+ | 0.0 | 2008 04 08 | G96 | 0.2+ | 0.0 | 2009 09 19 | G96 | 0.5+ | 0.1+ |
| 2005 07 28 | 644 | 0.1− | 0.0 | 2008 04 08 | G96 | 0.4+ | 0.0 | 2009 09 19 | G96 | 0.4+ | 0.2+ |
| 2005 07 28 | 644 | 0.1− | 0.2− | 2008 05 03 | G96 | 0.8− | 0.3+ | 2009 09 19 | G96 | 0.3+ | 0.3+ |
| 2005 07 28 | 644 | 0.1− | 0.1− | 2008 05 03 | G96 | 0.0 | 0.1− | 2009 09 20 | G96 | 0.3+ | 0.1− |
| 2005 10 06 | G96 | 0.9− | 0.1− | 2008 05 03 | G96 | 0.1+ | 0.1− | 2009 09 20 | G96 | 0.2+ | 0.1+ |
| 2005 10 06 | G96 | 0.3+ | 0.7− | 2008 05 03 | G96 | 0.2− | 0.2− | 2009 09 20 | G96 | 0.0 | 0.0 |
| 2005 10 06 | G96 | 0.2+ | 0.1+ | 2009 08 18 | 691 | 0.3− | 0.1+ | 2009 09 20 | G96 | 0.3+ | 0.1+ |
| 2005 10 06 | G96 | 0.4− | 0.2+ | 2009 08 18 | 691 | 0.3− | 0.2+ | | | | |

**2008 GU$_{68}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 176.53057 | | | (2000.0) | | |
| $n$ | 0.26251222 | $\omega$ | 41.97752 | | −0.92814344 | +0.37039336 |
| $a$ | 2.4156631 | $\Omega$ | 159.67247 | | −0.36347184 | −0.88052327 |
| $e$ | 0.1767615 | $i$ | 6.09062 | | −0.08023706 | −0.29578291 |
| $P$ | 3.75 | $H$ | 18.5 | $G$ 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 02 13 | 291 | 0.1− | 0.4+ | 2008 04 06 | 691 | 0.2+ | 0.1− | 2008 04 14 | 691 | 0.2+ | 0.2− |
| 2004 02 13 | 291 | 0.4− | 0.1+ | 2008 04 06 | 691 | 0.0 | 0.0 | 2008 05 05 | G96 | 0.2− | 0.0 |
| 2004 02 13 | 291 | 0.2+ | 0.3+ | 2008 04 10 | 691 | 0.5− | 0.3− | 2008 05 05 | G96 | 0.1− | 0.1− |
| 2004 03 23 | 691 | 0.0 | 0.0 | 2008 04 10 | 691 | 0.1+ | 0.3+ | 2008 05 05 | G96 | 0.2+ | 0.1+ |
| 2004 03 23 | 691 | 0.1+ | 0.2− | 2008 04 10 | 691 | 0.0 | 0.0 | 2008 05 05 | G96 | 0.3− | 0.0 |
| 2004 03 23 | 691 | 0.1+ | 0.7− | 2008 04 14 | 691 | 0.2− | 0.8+ | | | | |
| 2008 04 06 | 691 | 0.2+ | 0.3− | 2008 04 14 | 691 | 0.1+ | 0.1+ | | | | |

**2008 GT$_{69}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 87.44948 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.15964144 | $\omega$ | 62.61224 | | −0.48485527 | +0.87457316 | |
| $a$ | 3.3654175 | $\Omega$ | 178.34689 | | −0.85836953 | −0.47451290 | |
| $e$ | 0.0408777 | $i$ | 12.19715 | | −0.16768159 | −0.09979622 | |
| $P$ | 6.17 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 04 06 | G96 | 0.1+ | 0.1− | 2008 04 24 | 691 | 0.0 | 0.0 | 2008 06 01 | G96 | 0.1− | 0.5− |
| 2008 04 06 | G96 | 0.1+ | 0.0 | 2008 04 24 | 691 | 0.3+ | 0.5− | 2008 06 01 | G96 | 0.0 | 0.7− |
| 2008 04 06 | G96 | 0.1+ | 0.0 | 2008 04 24 | 691 | 0.3− | 0.2− | 2008 06 01 | G96 | 0.1+ | 0.2− |
| 2008 04 06 | G96 | 0.2+ | 0.1+ | 2008 04 29 | 691 | 0.2− | 0.5− | 2009 06 17 | 691 | 0.4− | 0.0 |
| 2008 04 06 | 691 | 0.1+ | 0.1− | 2008 04 29 | 691 | 0.0 | 0.2− | 2009 06 17 | 691 | 0.3+ | 0.2− |
| 2008 04 06 | 691 | 0.1+ | 0.3− | 2008 04 29 | 691 | 0.4− | 0.0 | 2009 06 17 | 691 | 0.2+ | 0.1− |
| 2008 04 06 | 691 | 0.3+ | 0.0 | 2008 05 03 | 691 | 0.1− | 1.9+ | 2009 06 21 | 691 | 0.2+ | 0.2− |
| 2008 04 10 | 691 | 0.0 | 0.4− | 2008 05 03 | 691 | 0.4+ | 0.2− | 2009 06 21 | 691 | 0.3− | 0.3+ |
| 2008 04 10 | 691 | 0.5+ | 0.3+ | 2008 05 03 | 691 | 0.1+ | 0.0 | 2009 06 21 | 691 | 0.0 | 0.3+ |
| 2008 04 10 | 691 | 0.8− | 0.5+ | 2008 06 01 | G96 | 0.4+ | 0.0 | | | | |

**2008 GA$_{77}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 74.88644 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26419971 | $\omega$ | 228.41638 | | +0.86069483 | +0.49782306 | |
| $a$ | 2.4053659 | $\Omega$ | 101.47195 | | −0.42871741 | +0.82168139 | |
| $e$ | 0.2193436 | $i$ | 6.24819 | | −0.27460115 | +0.27751018 | |
| $P$ | 3.73 | $H$ | 17.4 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 04 07 | 691 | 0.3+ | 0.4+ | 2008 04 15 | 691 | 0.2− | 0.2− | 2009 11 19 | G96 | 0.4− | 0.0 |
| 2008 04 07 | 691 | 0.2− | 0.0 | 2008 04 15 | 691 | 0.1− | 0.2− | 2009 11 19 | G96 | 0.2+ | 0.1+ |
| 2008 04 07 | 691 | 0.4+ | 0.1− | 2009 09 28 | G96 | 0.0 | 0.0 | 2009 11 25 | G96 | 0.1+ | 0.3− |
| 2008 04 11 | 691 | 0.1− | 0.2− | 2009 09 28 | G96 | 0.3+ | 0.1+ | 2009 11 25 | G96 | 0.1− | 0.2− |
| 2008 04 11 | 691 | 0.0 | 0.0 | 2009 09 28 | G96 | 0.0 | 0.4− | 2009 11 25 | G96 | 0.1− | 0.0 |
| 2008 04 11 | 691 | 0.0 | 0.2+ | 2009 09 28 | G96 | 0.3+ | 0.2+ | 2009 11 25 | G96 | 0.1− | 0.2+ |
| 2008 04 15 | 691 | 0.1− | 0.2+ | 2009 11 19 | G96 | 0.1+ | 0.1+ | | | | |

**2008 GB$_{79}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 133.92687 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.29690871 | $\omega$ | 236.31089 | | +0.29423518 | +0.94892805 | |
| $a$ | 2.2252941 | $\Omega$ | 51.21818 | | −0.82141414 | +0.31197750 | |
| $e$ | 0.1622190 | $i$ | 8.39779 | | −0.48857391 | +0.04696380 | |
| $P$ | 3.32 | $H$ | 18.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 03 30 | 691 | 0.1− | 0.5− | 2008 04 11 | 691 | 0.2− | 0.1− | 2008 05 13 | 691 | 0.3− | 0.2+ |
| 2008 03 30 | 691 | 0.4+ | 0.1+ | 2008 04 11 | 691 | 1.1− | 0.1− | 2009 11 17 | 691 | 0.1− | 0.1− |
| 2008 03 30 | 691 | 0.0 | 0.4+ | 2008 04 15 | 691 | 0.2+ | 0.1− | 2009 11 17 | 691 | 0.1− | 0.4+ |
| 2008 04 07 | 691 | 0.1+ | 0.2+ | 2008 04 15 | 691 | 0.2+ | 0.0 | 2009 11 17 | 691 | 0.3− | 0.2+ |
| 2008 04 07 | 691 | 0.2+ | 0.1+ | 2008 04 15 | 691 | 0.1+ | 0.1+ | 2009 11 25 | 691 | 0.3− | 0.2− |
| 2008 04 07 | 691 | 0.2+ | 0.1+ | 2008 05 13 | 691 | 0.2+ | 0.4− | 2009 11 25 | 691 | 0.6+ | 0.3− |
| 2008 04 11 | 691 | 0.2+ | 0.1− | 2008 05 13 | 691 | 0.1− | 0.1+ | 2009 11 25 | 691 | 0.1+ | 0.1− |

**2008 GM$_{86}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 79.83262 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21272776 | $\omega$ | 234.12239 | | −0.05641124 | +0.99832545 | |
| $a$ | 2.7792009 | $\Omega$ | 32.65084 | | −0.90819882 | −0.04598091 | |
| $e$ | 0.1404736 | $i$ | 1.36044 | | −0.41472000 | −0.03510071 | |
| $P$ | 4.63 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 29 | G96 | 0.2+ | 0.5+ | 2008 04 09 | 691 | 0.2+ | 0.1− | 2008 05 02 | G96 | 0.5+ | 0.2− |
| 2005 09 29 | G96 | 0.5+ | 0.3+ | 2008 04 09 | 691 | 0.0 | 0.1+ | 2008 05 02 | G96 | 0.2+ | 0.1− |
| 2005 09 29 | G96 | 0.6− | 0.0 | 2008 04 11 | 691 | 0.0 | 0.2+ | 2008 05 02 | G96 | 0.2+ | 0.0 |
| 2005 09 29 | G96 | 0.6− | 0.5+ | 2008 04 11 | 691 | 0.1+ | 0.2+ | 2008 05 02 | G96 | 0.3− | 0.3+ |
| 2008 03 10 | 691 | 0.1+ | 0.3+ | 2008 04 11 | 691 | 0.1− | 0.1+ | 2009 07 28 | F84 | 0.4+ | 1.0+ |
| 2008 03 10 | 691 | 0.2− | 0.4− | 2008 04 24 | G96 | 0.1+ | 0.0 | 2009 07 28 | F84 | 0.0 | 0.2+ |
| 2008 03 10 | 691 | 0.4+ | 0.0 | 2008 04 24 | G96 | 0.1+ | 0.1− | 2009 07 28 | F84 | 0.5− | 0.9− |
| 2008 04 09 | 691 | 0.3− | 0.0 | 2008 04 24 | G96 | 0.6− | 0.3− | | | | |

**2008 GQ$_{90}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 221.29273 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24318290 | $\omega$ | 312.58481 | | −0.53614237 | −0.84406594 | |
| $a$ | 2.5420301 | $\Omega$ | 169.82188 | | +0.79039586 | −0.50622084 | |
| $e$ | 0.1176457 | $i$ | 3.30926 | | +0.29635407 | −0.17689872 | |
| $P$ | 4.05 | $H$ | 17.8 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 10 22 | 691 | 0.1− | 0.6+ | 2008 03 28 | G96 | 0.7+ | 0.0 | 2008 04 06 | G96 | 0.2+ | 0.1+ |
| 2006 10 22 | 691 | 0.3+ | 0.2+ | 2008 03 28 | G96 | 0.6+ | 0.7− | 2008 04 06 | G96 | 0.2− | 0.2+ |
| 2006 10 22 | 691 | 0.5− | 0.1+ | 2008 03 28 | G96 | 0.3+ | 0.0 | 2008 04 06 | G96 | 0.0 | 0.1+ |
| 2006 11 16 | G96 | 0.6+ | 0.6− | 2008 03 28 | G96 | 0.2− | 0.5− | 2008 04 06 | G96 | 0.1+ | 0.2+ |
| 2006 11 16 | G96 | 0.3+ | 0.5− | 2008 04 06 | 691 | 0.4− | 0.2+ | 2008 04 12 | 691 | 0.1+ | 0.3+ |
| 2006 11 16 | G96 | 0.1− | 0.7− | 2008 04 06 | 691 | 0.2− | 0.2+ | 2008 04 12 | 691 | 0.2+ | 0.2− |
| 2006 11 16 | G96 | 0.2+ | 0.4− | 2008 04 06 | 691 | 0.1− | 0.3− | 2008 04 12 | 691 | 0.2+ | 0.2+ |

**2008 GM$_{95}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 104.07864 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26431569 | $\omega$ | 192.18709 | | +0.32389712 | +0.94227620 | |
| $a$ | 2.4046623 | $\Omega$ | 96.75816 | | −0.86068654 | +0.33072458 | |
| $e$ | 0.1944422 | $i$ | 4.90383 | | −0.39282227 | +0.05231461 | |
| $P$ | 3.73 | $H$ | 17.5 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 03 28 | 691 | 0.3− | 0.3− | 2008 04 14 | 691 | 0.3− | 0.5+ | 2009 10 27 | G96 | 0.3+ | 0.2− |
| 2008 03 28 | 691 | 0.2− | 0.2+ | 2008 04 14 | 691 | 0.5− | 0.3− | 2009 10 27 | G96 | 0.1− | 0.3− |
| 2008 03 28 | 691 | 0.2− | 0.1+ | 2009 09 17 | G96 | 0.2+ | 0.1+ | 2009 10 27 | G96 | 0.1− | 0.4− |
| 2008 04 08 | 691 | 0.4+ | 0.1+ | 2009 09 17 | G96 | 0.2+ | 0.4− | 2009 11 20 | G96 | 0.1− | 0.3+ |
| 2008 04 08 | 691 | 0.6+ | 0.4− | 2009 09 17 | G96 | 0.2+ | 0.2+ | 2009 11 20 | G96 | 0.1− | 0.2+ |
| 2008 04 08 | 691 | 0.2+ | 0.1− | 2009 09 17 | G96 | 0.2+ | 0.1− | 2009 11 20 | G96 | 0.2− | 0.1+ |
| 2008 04 14 | 691 | 0.3+ | 0.1+ | 2009 10 27 | G96 | 0.1− | 0.1+ | 2009 11 20 | G96 | 0.3− | 0.0 |

**2008 GU$_{98}$ = 2004 CC$_{58}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 162.22366 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22439321 | $\omega$ | 68.62196 | | −0.12008464 | −0.98590326 | |
| $a$ | 2.6820255 | $\Omega$ | 29.03829 | | +0.79854798 | −0.16565116 | |
| $e$ | 0.1362167 | $i$ | 13.88834 | | +0.58983116 | +0.02354667 | |
| $P$ | 4.39 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 02 14 | 704 | 0.2+ | 0.7− | 2008 04 09 | G96 | 0.5− | 0.3− | 2009 03 17 | 691 | 0.1− | 0.1− |
| 2004 02 14 | 704 | 0.3+ | 1.0+ | 2008 04 14 | G96 | 0.3+ | 0.1− | 2009 03 17 | 691 | 0.2+ | 0.2− |
| 2004 02 14 | 704 | 0.0 | 0.3− | 2008 04 14 | G96 | 0.2+ | 0.3− | 2009 03 26 | 691 | 0.2− | 0.0 |
| 2004 02 14 | 704 | 0.1+ | 0.1− | 2008 04 14 | G96 | 0.6+ | 0.3− | 2009 03 26 | 691 | 0.0 | 0.2+ |
| 2004 02 15 | 644 | 0.2+ | 0.4+ | 2008 04 14 | G96 | 0.0 | 0.3− | 2009 03 26 | 691 | 0.0 | 0.2+ |
| 2004 02 15 | 644 | 0.1− | 0.3+ | 2008 05 06 | G96 | 0.5− | 0.1+ | 2009 04 21 | G96 | 0.4+ | 0.2− |
| 2004 02 15 | 644 | 0.1+ | 0.6+ | 2008 05 06 | G96 | 0.1− | 0.2+ | 2009 04 21 | G96 | 0.4+ | 0.0 |
| 2008 04 09 | G96 | 0.1+ | 0.3− | 2008 05 06 | G96 | 0.5− | 0.3− | 2009 04 21 | G96 | 0.0 | 0.1+ |
| 2008 04 09 | G96 | 0.0 | 0.1+ | 2008 05 06 | G96 | 0.3+ | 0.0 | 2009 04 21 | G96 | 0.1− | 0.7− |
| 2008 04 09 | G96 | 0.0 | 0.4− | 2009 03 17 | 691 | 0.2− | 0.0 | | | | |

**2008 GC$_{100}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 58.42444 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18414621 | $\omega$ | 82.48426 | | +0.21943721 | +0.97394131 | |
| $a$ | 3.0598081 | $\Omega$ | 200.46727 | | −0.94725952 | +0.19862427 | |
| $e$ | 0.1327044 | $i$ | 9.43487 | | −0.23355237 | +0.10948391 | |
| $P$ | 5.35 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1993 09 18 | 691 | 0.2− | 0.3+ | 2008 03 28 | G96 | 0.1− | 0.4− | 2008 04 27 | G96 | 0.2+ | 0.2− |
| 1993 09 18 | 691 | 0.1− | 0.0 | 2008 03 28 | G96 | 0.2− | 0.1− | 2009 07 28 | 703 | 1.6+ | 0.7− |
| 1993 09 18 | 691 | 0.1+ | 0.3+ | 2008 04 09 | 691 | 0.0 | 0.2− | 2009 07 28 | 703 | 0.8+ | 0.6− |
| 1994 11 29 | 691 | 0.0 | 0.2+ | 2008 04 09 | 691 | 0.1− | 0.0 | 2009 07 28 | 703 | 1.1+ | 0.4− |
| 1994 11 29 | 691 | 0.1− | 1.0− | 2008 04 09 | 691 | 0.2+ | 0.1− | 2009 07 28 | 703 | 0.4+ | 0.1− |
| 1994 11 29 | 691 | 0.2+ | 0.0 | 2008 04 13 | 691 | 0.1− | 0.4− | 2009 08 15 | 703 | 0.2− | 0.4− |
| 2008 03 28 | 691 | 0.1− | 0.4+ | 2008 04 13 | 691 | 0.2− | 0.2+ | 2009 08 15 | 703 | 0.7− | 0.6+ |
| 2008 03 28 | 691 | 0.0 | 0.4− | 2008 04 13 | 691 | 0.0 | 0.0 | 2009 08 15 | 703 | 0.2− | 1.0− |
| 2008 03 28 | G96 | 0.2+ | 0.1+ | 2008 04 27 | G96 | 0.4+ | 0.2+ | 2009 08 15 | 703 | 1.7− | 1.0− |
| 2008 03 28 | G96 | 0.4− | 0.2− | 2008 04 27 | G96 | 0.2+ | 0.2− | | | | |
| 2008 03 28 | 691 | 0.2+ | 0.0 | 2008 04 27 | G96 | 0.2− | 0.0 | | | | |

**2008 GF$_{100}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 162.56607 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24257088 | $\omega$ | 159.57339 | | −0.95649740 | +0.27706879 | |
| $a$ | 2.5463041 | $\Omega$ | 36.90295 | | −0.28431756 | −0.81509127 | |
| $e$ | 0.1665384 | $i$ | 8.75098 | | −0.06539307 | −0.50878198 | |
| $P$ | 4.06 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 04 25 | 691 | 0.3+ | 0.1− | 2008 03 05 | G96 | 0.2− | 0.4+ | 2008 04 09 | 691 | 0.1− | 1.0− |
| 2004 04 25 | 691 | 0.1+ | 0.1− | 2008 03 05 | G96 | 0.2− | 0.0 | 2008 04 14 | 691 | 0.2− | 0.1− |
| 2004 04 25 | 691 | 0.2+ | 0.2+ | 2008 03 28 | G96 | 0.4− | 0.1+ | 2008 04 14 | 691 | 0.1− | 0.1− |
| 2004 05 16 | 691 | 0.3− | 0.0 | 2008 03 28 | G96 | 0.2− | 0.0 | 2008 04 14 | 691 | 0.2+ | 0.5+ |
| 2004 05 16 | 691 | 0.1− | 0.0 | 2008 03 28 | G96 | 0.2− | 0.2+ | 2008 04 14 | 704 | 1.2+ | 0.7+ |
| 2004 05 16 | 691 | 0.2− | 0.1+ | 2008 03 28 | G96 | 0.0 | 0.2+ | 2008 04 14 | 704 | 0.9+ | 0.9+ |
| 2008 03 05 | G96 | 0.2+ | 0.1− | 2008 04 09 | 691 | 0.3− | 0.1− | 2008 04 14 | 704 | 1.9+ | 0.4+ |
| 2008 03 05 | G96 | 0.2+ | 0.2+ | 2008 04 09 | 691 | 0.3− | 0.0 | | | | |

**2008 GX$_{100}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 105.34703 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22932337 | $\omega$ | 217.71527 | | −0.13449760 | +0.98035740 | |
| $a$ | 2.6434464 | $\Omega$ | 45.08010 | | −0.85235353 | −0.04021180 | |
| $e$ | 0.0986540 | $i$ | 11.75481 | | −0.50537496 | −0.19308644 | |
| $P$ | 4.30 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 29 | 691 | 0.8+ | 0.4+ | 2005 12 01 | G96 | 0.3+ | 0.1+ | 2008 04 09 | 691 | 0.1− | 0.0 |
| 2005 09 29 | 691 | 0.2− | 0.3− | 2005 12 01 | G96 | 0.3+ | 0.1− | 2008 04 13 | 691 | 0.1− | 0.0 |
| 2005 09 29 | 691 | 0.3− | 0.3− | 2008 03 28 | G96 | 0.0 | 0.1− | 2008 04 13 | 691 | 0.2− | 0.0 |
| 2005 10 12 | 691 | 0.1+ | 0.1+ | 2008 03 28 | G96 | 0.4− | 0.1− | 2008 04 13 | 691 | 0.1+ | 0.2+ |
| 2005 10 12 | 691 | 0.5− | 0.0 | 2008 03 28 | G96 | 0.2+ | 0.4− | 2008 05 02 | G96 | 0.0 | 0.1− |
| 2005 10 12 | 691 | 0.3− | 0.2+ | 2008 03 28 | G96 | 0.8− | 0.3+ | 2008 05 02 | G96 | 0.0 | 0.2− |
| 2005 12 01 | G96 | 1.2+ | 0.4− | 2008 04 09 | 691 | 0.1− | 0.1− | 2008 05 02 | G96 | 0.2− | 0.0 |
| 2005 12 01 | G96 | 0.3− | 0.3+ | 2008 04 09 | 691 | 0.6+ | 0.1+ | 2008 05 02 | G96 | 0.3− | 0.2− |

**2008 GA$_{101}$ = 2009 VU$_{36}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 58.22408 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.30567610 | $\omega$ | 316.61151 | | +0.99477735 | +0.06979066 | |
| $a$ | 2.1825376 | $\Omega$ | 39.56887 | | −0.02583723 | +0.87812011 | |
| $e$ | 0.0878014 | $i$ | 6.71451 | | −0.09874443 | +0.47332265 | |
| $P$ | 3.22 | $H$ | 17.4 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 03 28 | 691 | 0.1+ | 0.1+ | 2009 09 16 | G96 | 0.4− | 0.3+ | 2009 11 11 | J75 | 0.7+ | 0.8− |
| 2008 03 28 | 691 | 0.1+ | 0.2+ | 2009 09 16 | G96 | 0.1+ | 0.4+ | 2009 11 11 | J75 | 0.0 | 0.3− |
| 2008 03 28 | 691 | 0.2+ | 0.0 | 2009 09 16 | G96 | 0.0 | 0.2+ | 2009 11 11 | 106 | 0.4+ | 0.3+ |
| 2008 04 09 | 691 | 0.1− | 0.1− | 2009 09 16 | G96 | 0.0 | 0.4+ | 2009 11 11 | 106 | 0.4+ | 0.2− |
| 2008 04 09 | 691 | 0.2− | 0.3− | 2009 10 14 | 703 | 0.6− | 0.9− | 2009 11 11 | 106 | 0.4+ | 0.7− |
| 2008 04 09 | 691 | 0.1− | 0.3+ | 2009 10 14 | 703 | 0.9− | 0.5− | 2009 11 11 | 106 | 0.3+ | 0.5+ |
| 2008 04 13 | 691 | 0.2+ | 0.1+ | 2009 10 14 | 703 | (2.3− | 2.3+) | 2009 11 18 | 185 | 0.3+ | 0.2− |
| 2008 04 13 | 691 | 0.1+ | 0.1+ | 2009 10 14 | 703 | (1.5− | 2.0+) | 2009 11 18 | 185 | 0.9− | 0.6+ |
| 2008 04 13 | 691 | 0.2− | 0.0 | 2009 11 08 | G96 | 0.1− | 0.0 | 2009 11 20 | 926 | 0.2− | 0.6+ |
| 2008 04 26 | G96 | 0.6+ | 0.0 | 2009 11 08 | G96 | 0.2− | 0.0 | 2009 11 20 | 926 | 0.2− | 0.3+ |
| 2008 04 26 | G96 | 0.4− | 0.3− | 2009 11 08 | G96 | 0.1+ | 0.0 | 2009 11 20 | 926 | 0.2− | 0.4+ |
| 2008 04 26 | G96 | 0.2+ | 0.0 | 2009 11 08 | G96 | 0.1+ | 0.1+ | | | | |
| 2008 04 26 | G96 | 0.3− | 0.2− | 2009 11 11 | J75 | 0.5+ | 0.1+ | | | | |

**2008 GR$_{114}$ = 2005 UM$_{271}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 40.98464 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21933391 | $\omega$ | 153.41545 | | +0.73581963 | +0.67574645 | |
| $a$ | 2.7231121 | $\Omega$ | 163.82878 | | −0.64602715 | +0.71996937 | |
| $e$ | 0.1018945 | $i$ | 9.09043 | | −0.20302316 | +0.15814817 | |
| $P$ | 4.49 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 03 | 645 | 0.0 | 0.0 | 2008 03 28 | 691 | 0.1+ | 0.1+ | 2009 07 29 | 691 | 0.2− | 0.7+ |
| 2000 09 03 | 645 | 0.0 | 0.1− | 2008 03 28 | 691 | 0.4+ | 0.5− | 2009 07 29 | 691 | 0.0 | 0.2+ |
| 2005 10 28 | 703 | 0.6− | 0.2+ | 2008 03 28 | 691 | 0.1− | 0.2− | 2009 08 27 | 703 | 1.3+ | 0.2− |
| 2005 10 28 | 703 | 0.1− | 0.7− | 2008 04 11 | 691 | 0.1− | 0.1− | 2009 08 27 | 703 | 0.1− | 0.6− |
| 2005 10 28 | 703 | (2.1− | 0.8−) | 2008 04 11 | 691 | 0.1+ | 0.1+ | 2009 08 27 | 703 | 1.4− | 1.1− |
| 2005 10 28 | 703 | 0.5− | 0.4+ | 2008 04 11 | 691 | 0.1+ | 0.0 | 2009 09 22 | G96 | 0.3+ | 0.0 |
| 2005 10 29 | G96 | 0.8+ | 0.1− | 2008 04 15 | 691 | 0.1− | 0.3− | 2009 09 22 | G96 | 0.0 | 0.1+ |
| 2005 10 29 | G96 | 0.3+ | 0.0 | 2008 04 15 | 691 | 0.0 | 0.6+ | 2009 09 22 | G96 | 0.3+ | 0.0 |
| 2005 10 29 | G96 | 0.2+ | 0.0 | 2008 04 15 | 691 | 0.4− | 0.0 | 2009 09 22 | G96 | 0.7+ | 0.1+ |
| 2005 10 29 | G96 | 0.1− | 0.4− | 2009 07 29 | 691 | 0.2− | 0.1− | | | | |

**2008 GQ$_{117}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 144.68321 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17412029 | $\omega$ | 330.28629 | | −0.97292574 | −0.21214591 | |
| $a$ | 3.1761656 | $\Omega$ | 198.16692 | | +0.22252875 | −0.96703641 | |
| $e$ | 0.1792315 | $i$ | 17.10504 | | −0.06242162 | −0.14083569 | |
| $P$ | 5.66 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 06 09 | 691 | 0.5− | 0.1+ | 2008 03 29 | 691 | 0.3+ | 0.1+ | 2008 04 15 | 691 | 0.1+ | 0.1+ |
| 1997 06 09 | 691 | 0.6− | 0.1+ | 2008 03 29 | 691 | 0.3+ | 0.2+ | 2008 04 25 | 691 | 0.1+ | 0.0 |
| 1997 06 09 | 691 | 0.5− | 0.0 | 2008 04 11 | 691 | 0.0 | 0.2+ | 2008 04 25 | 691 | 0.0 | 0.2− |
| 1997 07 02 | 691 | 0.5+ | 0.6− | 2008 04 11 | 691 | 0.1− | 0.1− | 2008 04 25 | 691 | 0.2− | 0.3− |
| 1997 07 02 | 691 | 0.4+ | 0.0 | 2008 04 11 | 691 | 0.1− | 0.0 | 2008 06 11 | 691 | 0.3− | 0.4− |
| 1997 07 02 | 691 | 0.9+ | 0.3+ | 2008 04 15 | 691 | 0.1+ | 0.2− | 2008 06 11 | 691 | 0.1+ | 0.1− |
| 2008 03 29 | 691 | 0.0 | 0.4− | 2008 04 15 | 691 | 0.0 | 0.2+ | 2008 06 11 | 691 | 0.3− | 1.0+ |

**2008 GT$_{117}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 284.00273 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19200540 | $\omega$ | 306.09739 | | +0.60411930 | −0.78854272 | |
| $a$ | 2.9757316 | $\Omega$ | 106.33382 | | +0.76425105 | +0.53239768 | |
| $e$ | 0.0855627 | $i$ | 6.88666 | | +0.22574365 | +0.30781991 | |
| $P$ | 5.13 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 05 02 | 291 | 0.1− | 0.4− | 2003 05 27 | 691 | 0.2− | 0.5+ | 2008 04 15 | 691 | 0.3− | 0.0 |
| 2003 05 02 | 291 | 0.1− | 0.2+ | 2008 04 11 | 691 | 0.1+ | 0.1+ | 2008 04 15 | 691 | 0.0 | 0.1+ |
| 2003 05 02 | 291 | 0.2+ | 0.5+ | 2008 04 11 | 691 | 0.1+ | 0.5+ | 2008 04 25 | 691 | 0.1− | 0.0 |
| 2003 05 27 | 691 | 0.0 | 0.1− | 2008 04 11 | 691 | 0.1+ | 0.3+ | 2008 04 25 | 691 | 0.2− | 1.3− |
| 2003 05 27 | 691 | 0.2+ | 0.3− | 2008 04 15 | 691 | 0.3+ | 0.0 | 2008 04 25 | 691 | 0.1− | 0.0 |

**2008 GY$_{117}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 93.67445 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23234153 | $\omega$ | 219.88370 | | −0.01782477 | +0.99349058 | |
| $a$ | 2.6205040 | $\Omega$ | 49.40295 | | −0.87538982 | +0.03886317 | |
| $e$ | 0.1617022 | $i$ | 8.52126 | | −0.48308896 | −0.10707999 | |
| $P$ | 4.24 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 06 17 | 691 | 0.1− | 0.0 | 2005 10 12 | 691 | 0.0 | 0.2− | 2008 04 11 | G96 | 0.1− | 0.0 |
| 2004 06 17 | 691 | 0.1− | 0.3− | 2008 03 10 | G96 | 0.1+ | 0.0 | 2008 04 11 | G96 | 0.2+ | 0.0 |
| 2004 06 17 | 691 | 0.2+ | 0.2+ | 2008 03 10 | G96 | 0.5+ | 0.0 | 2008 04 11 | G96 | 0.0 | 0.1− |
| 2005 09 29 | 691 | 0.2− | 0.1+ | 2008 03 10 | G96 | 0.1− | 0.4− | 2008 04 11 | G96 | 0.1− | 0.3− |
| 2005 09 29 | 691 | 0.1− | 0.3+ | 2008 03 10 | G96 | 0.1− | 0.6− | 2008 04 15 | 691 | 0.2− | 0.1+ |
| 2005 09 29 | 691 | 0.1− | 0.2+ | 2008 04 01 | 691 | 0.2+ | 0.1+ | 2008 04 15 | 691 | 0.1− | 0.1+ |
| 2005 10 12 | 691 | 0.5+ | 0.3− | 2008 04 01 | 691 | 0.0 | 0.1+ | 2008 04 15 | 691 | 0.0 | 0.1− |
| 2005 10 12 | 691 | 0.0 | 0.1− | 2008 04 01 | 691 | 0.1− | 0.1+ | | | | |

**2008 GT$_{121}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 128.04003 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23020468 | $\omega$ | 146.39285 | | −0.69896908 | +0.71038788 | |
| $a$ | 2.6366953 | $\Omega$ | 79.10899 | | −0.67323022 | −0.61473933 | |
| $e$ | 0.0558237 | $i$ | 4.81397 | | −0.24125357 | −0.34270193 | |
| $P$ | 4.28 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 04 02 | 691 | 0.6+ | 0.1+ | 2005 09 13 | 691 | 0.4+ | 0.2+ | 2008 04 13 | 691 | 0.1− | 0.0 |
| 1995 04 02 | 691 | 0.1− | 0.0 | 2005 09 13 | 691 | 0.2+ | 0.4+ | 2008 04 15 | 691 | 0.0 | 0.1− |
| 1995 04 02 | 691 | 0.1+ | 0.7− | 2006 12 13 | 691 | 0.1+ | 0.4+ | 2008 04 15 | 691 | 0.0 | 0.1+ |
| 1997 10 28 | 691 | 0.2+ | 0.5− | 2006 12 13 | 691 | 0.4+ | 0.3+ | 2008 04 15 | 691 | 0.6− | 0.0 |
| 1997 10 28 | 691 | 1.0− | 0.5− | 2006 12 13 | 691 | 0.4+ | 0.6+ | 2008 04 28 | G96 | 0.1+ | 0.3+ |
| 1997 10 28 | 691 | 0.3− | 0.7− | 2008 03 31 | 691 | 0.2− | 0.3+ | 2008 04 28 | G96 | 0.1+ | 0.1+ |
| 2005 08 30 | 691 | 0.0 | 0.1+ | 2008 03 31 | 691 | 0.1− | 0.2+ | 2008 04 28 | G96 | 0.3− | 0.3+ |
| 2005 08 30 | 691 | 0.2− | 0.5+ | 2008 03 31 | 691 | 0.5+ | 0.3+ | 2008 04 28 | G96 | 0.2− | 0.0 |
| 2005 08 30 | 691 | 0.3− | 0.0 | 2008 04 13 | 691 | 0.1+ | 0.2+ | | | | |
| 2005 09 13 | 691 | 0.4+ | 0.2+ | 2008 04 13 | 691 | 0.1− | 0.2− | | | | |

**2008 GN$_{143}$ = 2004 FT$_{129}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 187.26986 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.25290390 | $\omega$ | 106.21208 | | −0.95231241 | −0.24749832 | |
| $a$ | 2.4764659 | $\Omega$ | 59.76578 | | +0.13384331 | −0.86442297 | |
| $e$ | 0.1847448 | $i$ | 11.92023 | | +0.27420256 | −0.43762713 | |
| $P$ | 3.90 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 09 25 | 645 | 0.1− | 0.0 | 2006 11 16 | G96 | 0.0 | 0.1+ | 2008 04 06 | 703 | 1.3− | 0.6− |
| 1998 09 25 | 645 | 0.0 | 0.1+ | 2006 11 16 | G96 | 0.1+ | 0.2+ | 2008 04 12 | 703 | 0.5− | 0.0 |
| 2004 03 19 | 644 | 0.3+ | 0.0 | 2006 11 16 | G96 | 0.1+ | 0.1− | 2008 04 12 | 703 | 0.5− | 0.1− |
| 2004 03 19 | 644 | 0.3+ | 0.1− | 2008 04 04 | G96 | 0.5+ | 0.5− | 2008 04 12 | 703 | 0.1+ | 0.5+ |
| 2004 03 19 | 644 | 0.4+ | 0.2− | 2008 04 04 | G96 | 0.7+ | 0.5− | 2008 04 12 | 703 | (1.6− | 1.7+) |
| 2004 03 22 | 699 | 0.2+ | 0.2− | 2008 04 04 | G96 | 0.9+ | 0.4+ | 2008 04 24 | 703 | 0.6− | 1.2+ |
| 2004 03 22 | 699 | 0.3+ | 0.1+ | 2008 04 04 | G96 | 0.5+ | 0.6− | 2008 04 24 | 703 | 0.2+ | 0.3− |
| 2004 03 22 | 699 | 0.1+ | 0.3+ | 2008 04 06 | 703 | 0.1+ | 0.2+ | 2008 04 24 | 703 | 0.9− | 0.8+ |
| 2004 03 22 | 699 | 1.0− | 0.5+ | 2008 04 06 | 703 | 1.2+ | 0.6+ | 2008 04 24 | 703 | (1.6+ | 0.7+) |
| 2006 11 16 | G96 | 0.0 | 0.0 | 2008 04 06 | 703 | (0.8+ | 1.8−) | | | | |

**2008 HQ$_{1}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 160.93348 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.20999261 | $\omega$ | 18.83832 | | −0.99908808 | +0.01258728 | |
| $a$ | 2.8032815 | $\Omega$ | 161.73825 | | −0.02356072 | −0.95943255 | |
| $e$ | 0.1800371 | $i$ | 7.48111 | | +0.03560754 | −0.28165714 | |
| $P$ | 4.69 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 03 26 | 699 | 0.4− | 0.4+ | 2008 03 04 | G96 | 0.3− | 0.4+ | 2008 05 03 | 691 | 0.7+ | 0.4− |
| 2003 03 26 | 644 | 0.2+ | 0.4+ | 2008 04 24 | 691 | 0.4− | 1.1− | 2008 05 03 | 691 | 0.1+ | 0.2− |
| 2003 03 26 | 699 | 0.7− | 0.1− | 2008 04 24 | 691 | 0.0 | 0.1− | 2008 05 03 | 691 | 0.9− | 1.8+ |
| 2003 03 26 | 699 | 0.6+ | 0.4− | 2008 04 24 | 691 | 0.0 | 0.2+ | 2008 05 11 | 691 | 0.1+ | 0.1− |
| 2003 03 26 | 644 | 0.4+ | 0.2+ | 2008 04 25 | 691 | 0.1+ | 0.4− | 2008 05 11 | 691 | 0.0 | 0.1− |
| 2003 03 26 | 699 | 0.3− | 0.4− | 2008 04 25 | 691 | 0.2+ | 0.2− | 2008 05 11 | 691 | (2.7+ | 2.9−) |
| 2003 03 26 | 644 | 0.4+ | 0.4+ | 2008 04 25 | 691 | 0.0 | 0.1+ | 2008 05 31 | G96 | 0.2− | 0.1+ |
| 2008 03 04 | G96 | 0.1− | 0.2+ | 2008 04 25 | 691 | 0.2+ | 0.1− | 2008 05 31 | G96 | 0.2+ | 0.6+ |
| 2008 03 04 | G96 | 0.0 | 0.5− | 2008 04 25 | 691 | 0.0 | 0.1− | 2008 05 31 | G96 | 0.0 | 0.4+ |
| 2008 03 04 | G96 | 0.6+ | 0.2− | 2008 04 25 | 691 | 0.2− | 0.1+ | 2008 05 31 | G96 | 0.0 | 0.4+ |

**2008 HR$_{8}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 310.77337 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.25579405 | $\omega$ | 246.93173 | | +0.44898913 | −0.89339294 | |
| $a$ | 2.4577767 | $\Omega$ | 176.27060 | | +0.88322244 | +0.44101189 | |
| $e$ | 0.0609467 | $i$ | 14.29173 | | +0.13537681 | +0.08577632 | |
| $P$ | 3.85 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 03 31 | G96 | 0.3+ | 0.0 | 2008 04 27 | 691 | 0.1− | 0.0 | 2009 09 15 | 691 | 0.1+ | 0.1+ |
| 2008 03 31 | G96 | 0.1− | 0.4+ | 2008 04 27 | 691 | 0.3− | 0.1+ | 2009 09 15 | 691 | 0.3− | 0.1− |
| 2008 03 31 | G96 | 0.6+ | 0.4− | 2008 04 27 | 691 | 0.1− | 0.1− | 2009 10 22 | G96 | 0.1− | 0.0 |
| 2008 03 31 | G96 | 0.3+ | 0.2− | 2008 05 06 | 691 | 0.3− | 0.1− | 2009 10 22 | G96 | 0.1+ | 0.1+ |
| 2008 04 24 | 691 | 0.2+ | 0.0 | 2008 05 06 | 691 | 0.0 | 0.1+ | 2009 10 22 | G96 | 0.4+ | 0.2+ |
| 2008 04 24 | 691 | 0.1− | 0.1− | 2008 05 06 | 691 | 0.4+ | 0.1− | 2009 10 22 | G96 | 0.0 | 0.4+ |
| 2008 04 24 | 691 | 0.0 | 0.3+ | 2009 09 15 | 691 | 0.1+ | 0.1− | | | | |

**2008 HR$_{11}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 82.73068 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18193871 | $\omega$ | 88.99146 | | +0.12453598 | +0.99160543 | |
| $a$ | 3.0845085 | $\Omega$ | 188.40492 | | −0.97841513 | +0.11690302 | |
| $e$ | 0.2675025 | $i$ | 13.76428 | | −0.16490792 | +0.05524821 | |
| $P$ | 5.42 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 07 26 | 644 | 0.0 | 0.1+ | 2008 04 24 | 691 | 0.2− | 0.5− | 2008 05 13 | 691 | 0.3+ | 0.0 |
| 2003 07 26 | 644 | 0.1− | 0.0 | 2008 04 24 | 691 | 0.4+ | 0.3+ | 2009 10 16 | G96 | 0.1− | 0.2+ |
| 2003 07 26 | 644 | 0.1+ | 0.1− | 2008 04 29 | 691 | 0.1+ | 0.0 | 2009 10 16 | G96 | 0.2− | 0.4− |
| 2008 04 06 | 691 | 0.1+ | 0.7− | 2008 04 29 | 691 | 0.2− | 0.1− | 2009 10 16 | G96 | 0.3+ | 0.1− |
| 2008 04 06 | 691 | 0.3+ | 0.2+ | 2008 04 29 | 691 | 0.5− | 0.3+ | 2009 10 16 | G96 | 0.0 | 0.3− |
| 2008 04 06 | 691 | 0.2+ | 0.1− | 2008 05 13 | 691 | 0.1+ | 0.0 | | | | |
| 2008 04 24 | 691 | 0.2− | 0.1+ | 2008 05 13 | 691 | 0.3− | 0.3+ | | | | |

**2008 HU$_{11}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 309.66262 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.08158955 | $\omega$ | 258.46706 | | +0.86526914 | +0.39317458 | |
| $a$ | 5.2647736 | $\Omega$ | 77.74623 | | −0.23609224 | +0.86687934 | |
| $e$ | 0.0862685 | $i$ | 18.55737 | | −0.44223271 | +0.30648647 | |
| $P$ | 12.08 | $H$ | 13.5 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 10 18 | 291 | 0.3+ | 0.8+ | 2008 04 24 | 691 | 0.1− | 0.5+ | 2008 05 05 | G96 | 0.2+ | 0.1+ | |
| 2001 10 18 | 291 | 0.7− | 0.7+ | 2008 04 24 | 691 | 0.1− | 0.6+ | 2008 05 05 | G96 | 0.4+ | 0.3− | |
| 2001 10 18 | 291 | 0.9− | 0.5+ | 2008 04 24 | 691 | 0.1− | 0.2+ | 2008 05 05 | G96 | 0.1− | 0.1− | |
| 2003 12 28 | 691 | 0.5+ | 0.4− | 2008 04 29 | 691 | 0.5+ | 0.4+ | 2008 05 05 | G96 | 0.1− | 0.0 | |
| 2003 12 28 | 691 | 0.1− | 0.3+ | 2008 04 29 | 691 | 0.0 | 0.1+ | 2008 05 05 | G96 | 0.0 | 0.1+ | |
| 2003 12 28 | 691 | 0.2− | 0.1− | 2008 04 29 | 691 | 0.1− | 0.2+ | 2008 05 11 | 691 | 0.3+ | 0.3+ | |
| 2005 02 09 | G96 | 0.0 | 0.2− | 2008 05 05 | G96 | 0.4+ | 0.2− | 2008 05 11 | 691 | 0.2+ | 0.0 | |
| 2005 02 09 | G96 | 0.0 | 0.3− | 2008 05 05 | G96 | 0.1− | 0.2+ | 2008 05 11 | 691 | 0.3− | 0.0 | |
| 2005 02 09 | G96 | 0.1− | 0.3+ | 2008 05 05 | G96 | 0.0 | 0.1+ | 2008 05 31 | G96 | 0.4+ | 0.2+ | |
| 2005 02 09 | G96 | 0.2− | 0.3+ | 2008 05 05 | G96 | 0.4+ | 0.0 | 2008 05 31 | G96 | 0.6+ | 0.0 | |
| 2008 03 27 | 691 | 0.1− | 0.3− | 2008 05 05 | G96 | 0.4+ | 0.0 | 2008 05 31 | G96 | 0.1+ | 0.3+ | |
| 2008 03 27 | 691 | 0.1+ | 0.1− | 2008 05 05 | G96 | 0.3+ | 0.3+ | 2008 05 31 | G96 | 0.1+ | 0.0 | |
| 2008 03 27 | 691 | 0.1+ | 0.2− | 2008 05 05 | G96 | 0.3+ | 0.1+ | | | | | |

**2008 HU$_{21}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 64.16654 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17682065 | $\omega$ | 62.58958 | | +0.29934039 | +0.94319294 | |
| $a$ | 3.1437455 | $\Omega$ | 225.61329 | | −0.93108907 | +0.25573886 | |
| $e$ | 0.1657281 | $i$ | 11.63795 | | −0.20849096 | +0.21209598 | |
| $P$ | 5.57 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 04 26 | G96 | 0.2− | 0.1− | 2008 05 27 | 691 | 0.1− | 0.0 | 2009 08 27 | 703 | 1.0+ | 0.6+ | |
| 2008 04 26 | G96 | 0.4− | 0.1+ | 2008 05 27 | 691 | 0.1+ | 0.1+ | 2009 08 27 | 703 | 1.2+ | 0.6− | |
| 2008 04 26 | G96 | 0.3+ | 0.6+ | 2008 05 31 | 691 | 0.0 | 0.1− | 2009 08 27 | 703 | 0.4+ | 0.4+ | |
| 2008 04 26 | G96 | 0.1− | 0.1− | 2008 05 31 | 691 | 0.2+ | 0.2+ | 2009 08 27 | 703 | 0.6+ | 1.2+ | |
| 2008 04 29 | 691 | 0.2− | 0.1− | 2008 05 31 | 691 | 0.2+ | 0.1− | 2009 09 20 | 703 | 0.8− | 0.7+ | |
| 2008 04 29 | 691 | 0.2− | 0.1− | 2008 06 04 | 691 | 0.0 | 0.0 | 2009 09 20 | 703 | 0.2− | 1.6− | |
| 2008 04 29 | 691 | 0.2− | 0.0 | 2008 06 04 | 691 | 0.1+ | 0.4− | 2009 09 20 | 703 | 1.1− | 0.2− | |
| 2008 05 14 | G96 | 0.3+ | 0.2− | 2008 06 04 | 691 | 0.1+ | 0.1+ | 2009 09 20 | 703 | 0.4− | 1.0− | |
| 2008 05 14 | G96 | 0.3+ | 0.6+ | 2009 08 17 | 703 | 0.1+ | 1.0− | 2009 10 18 | G96 | 0.1− | 0.2− | |
| 2008 05 14 | G96 | 0.2+ | 0.1− | 2009 08 17 | 703 | 0.5− | 0.3− | 2009 10 18 | G96 | 0.4+ | 0.0 | |
| 2008 05 14 | G96 | 0.2− | 0.1+ | 2009 08 17 | 703 | 0.6+ | 1.7+ | 2009 10 18 | G96 | 0.2− | 0.5− | |
| 2008 05 27 | 691 | 0.1− | 0.2+ | 2009 08 17 | 703 | 1.2− | 0.6+ | 2009 10 18 | G96 | 0.3+ | 0.1− | |

**2008 HU$_{22}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 206.94166 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22791480 | $\omega$ | 260.80833 | | −0.38162684 | −0.91778078 | |
| $a$ | 2.6543266 | $\Omega$ | 212.32423 | | +0.90800499 | −0.35003860 | |
| $e$ | 0.2310906 | $i$ | 11.84140 | | +0.17288113 | −0.18748711 | |
| $P$ | 4.32 | $H$ | 17.7 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 10 23 | 691 | 0.1− | 0.0 | 2008 04 11 | G96 | 0.6+ | 0.1− | 2008 04 27 | 691 | 0.2− | 0.5− | |
| 2006 10 23 | 691 | 0.0 | 0.3− | 2008 04 11 | G96 | 0.6+ | 0.5− | 2008 04 30 | G96 | 0.2− | 0.2+ | |
| 2006 10 23 | 691 | 0.0 | 0.4− | 2008 04 11 | G96 | 0.1+ | 0.1+ | 2008 04 30 | G96 | 0.5− | 0.2+ | |
| 2006 10 31 | 691 | 0.6+ | 0.1− | 2008 04 11 | G96 | 0.2+ | 0.1− | 2008 04 30 | G96 | 0.4− | 0.2− | |
| 2006 10 31 | 691 | 0.1+ | 0.5+ | 2008 04 27 | 691 | 0.0 | 0.4− | 2008 04 30 | G96 | 0.6− | 0.2− | |
| 2006 10 31 | 691 | 0.5− | 0.0 | 2008 04 27 | 691 | 0.2+ | 0.7+ | | | | | |

**2008 HF$_{37}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 136.05587 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24133938 | $\omega$ | 5.72403 | | −0.47729711 | +0.87423737 | |
| $a$ | 2.5549589 | $\Omega$ | 235.79808 | | −0.81043266 | −0.47702823 | |
| $e$ | 0.1030598 | $i$ | 6.16795 | | −0.33968570 | −0.09029440 | |
| $P$ | 4.08 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 10 25 | 910 | 0.1− | 0.3+ | 2008 05 05 | 704 | 0.4+ | 0.6− | 2009 09 20 | G96 | 0.0 | 0.1− | |
| 1997 10 25 | 910 | 0.1− | 0.4+ | 2008 05 05 | 704 | 0.3+ | 0.1− | 2009 09 20 | G96 | 0.1− | 0.1+ | |
| 1997 10 25 | 910 | 0.1− | 0.3+ | 2008 05 14 | G96 | 0.3+ | 0.1− | 2009 09 20 | G96 | 0.1+ | 0.1− | |
| 2008 04 30 | G96 | 0.2− | 0.1− | 2008 05 14 | G96 | 0.3+ | 0.0 | 2009 09 20 | G96 | 0.0 | 0.1+ | |
| 2008 04 30 | G96 | 0.1− | 0.1+ | 2008 05 14 | G96 | 0.1− | 0.2− | 2009 09 25 | G96 | 0.0 | 0.4− | |
| 2008 04 30 | G96 | 0.1+ | 0.2− | 2008 05 14 | G96 | 0.0 | 0.1− | 2009 09 25 | G96 | 0.0 | 0.2− | |
| 2008 04 30 | G96 | 0.1+ | 0.0 | 2008 05 26 | 691 | 0.1− | 0.1− | 2009 09 25 | G96 | 0.0 | 0.0 | |
| 2008 05 01 | 703 | 0.8+ | 1.4+ | 2008 05 26 | 691 | 0.1+ | 0.0 | 2009 09 25 | G96 | 0.1+ | 0.2− | |
| 2008 05 01 | 703 | 0.2+ | 1.5+ | 2008 05 26 | 691 | 0.5+ | 0.5+ | 2009 10 24 | 691 | 0.2+ | 0.2+ | |
| 2008 05 01 | 703 | 0.1+ | 1.2+ | 2008 05 30 | 691 | 0.4− | 0.1+ | 2009 10 24 | 691 | 0.2+ | 0.2+ | |
| 2008 05 01 | 703 | (0.0 | 1.8+) | 2008 05 30 | 691 | 0.1+ | 0.0 | 2009 10 24 | 691 | 0.3− | 0.3− | |
| 2008 05 04 | 691 | 0.1+ | 0.2− | 2008 05 30 | 691 | 0.2− | 0.2− | 2009 11 16 | G96 | 0.1+ | 0.0 | |
| 2008 05 04 | 691 | 0.1− | 0.7− | 2008 06 03 | 691 | 0.1− | 0.1− | 2009 11 16 | G96 | 0.0 | 0.3+ | |
| 2008 05 04 | 691 | 0.6− | 0.3− | 2008 06 03 | 691 | 0.1− | 0.0 | 2009 11 16 | G96 | 0.0 | 0.0 | |
| 2008 05 05 | 704 | 0.9+ | 0.1+ | 2008 06 03 | 691 | 0.0 | 0.2+ | 2009 11 16 | G96 | 0.2− | 0.4− | |

**2008 HB$_{44}$ = 2005 UZ$_{427}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 262.33568 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17128984 | $\omega$ | 9.30599 | | +0.59888552 | −0.77881383 | |
| $a$ | 3.2110592 | $\Omega$ | 44.19733 | | +0.71646971 | +0.41701547 | |
| $e$ | 0.0923543 | $i$ | 15.51769 | | +0.35778106 | +0.46855856 | |
| $P$ | 5.75 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 28 | 691 | 0.1− | 0.0 | 2008 04 05 | 691 | 0.0 | 0.0 | 2008 04 27 | G96 | 0.5+ | 0.4+ | |
| 2005 10 28 | 691 | 0.0 | 0.2− | 2008 04 05 | 691 | 0.1+ | 0.0 | 2008 05 03 | G96 | 0.2+ | 0.3+ | |
| 2005 10 28 | 691 | 0.0 | 0.5+ | 2008 04 05 | 691 | 0.0 | 0.2− | 2008 05 03 | G96 | 0.2− | 0.0 | |
| 2005 11 01 | 691 | 0.1+ | 0.2− | 2008 04 27 | G96 | 0.4− | 0.0 | 2008 05 03 | G96 | 0.0 | 0.1− | |
| 2005 11 01 | 691 | 0.0 | 0.2+ | 2008 04 27 | G96 | 0.6− | 0.1− | 2008 05 03 | G96 | 0.1+ | 0.1+ | |
| 2005 11 01 | 691 | 0.0 | 0.2− | 2008 04 27 | G96 | 0.2+ | 0.4+ | | | | | |

**2008 HX$_{45}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 88.12773 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23643383 | $\omega$ | 234.75768 | | +0.74470453 | +0.66161562 | |
| $a$ | 2.5901782 | $\Omega$ | 83.64820 | | −0.58010096 | +0.70662130 | |
| $e$ | 0.2998157 | $i$ | 5.05871 | | −0.32999703 | +0.25090061 | |
| $P$ | 4.17 | $H$ | 17.4 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 04 11 | 691 | 0.4+ | 0.5+ | 2008 06 03 | G96 | 0.3− | 0.1+ | 2009 12 10 | G96 | 0.1+ | 0.3+ | |
| 2008 04 11 | 691 | 0.0 | 0.1− | 2008 06 03 | G96 | 0.2− | 0.1− | 2009 12 10 | G96 | 0.4+ | 0.1− | |
| 2008 04 11 | 691 | 0.1+ | 0.3− | 2008 06 03 | G96 | 0.4− | 0.1− | 2009 12 10 | G96 | 1.0+ | 0.1− | |
| 2008 04 28 | 691 | 0.4− | 0.1− | 2008 06 04 | 691 | 0.3− | 0.1− | 2009 12 13 | G96 | 0.3+ | 0.0 | |
| 2008 04 28 | 691 | 0.1+ | 0.4+ | 2008 06 04 | 691 | 0.2− | 0.0 | 2009 12 13 | G96 | 0.6+ | 0.1+ | |
| 2008 04 28 | 691 | 0.5+ | 0.1− | 2008 06 04 | 691 | 0.2− | 0.1+ | 2009 12 13 | G96 | 0.4+ | 0.4− | |
| 2008 05 02 | 691 | 0.1+ | 0.2− | 2009 11 24 | 691 | 0.5− | 0.2+ | 2009 12 13 | G96 | 0.3+ | 0.6− | |
| 2008 05 02 | 691 | 0.1+ | 0.4− | 2009 11 24 | 691 | 0.1− | 0.1+ | 2009 12 13 | G96 | 0.1+ | 0.3− | |
| 2008 05 02 | 691 | 0.1+ | 0.2+ | 2009 11 24 | 691 | 0.4− | 0.0 | | | | | |
| 2008 06 03 | G96 | 0.0 | 0.1− | 2009 12 10 | G96 | 1.0+ | 0.4− | | | | | |

**2008 HE$_{58}$ = 2009 TE$_{20}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 95.19970 | | (2000.0) | | | |
| $n$ | 0.28792111 | $\omega$ | 92.15384 | | +0.64025166 | +0.76690762 |
| $a$ | 2.2713656 | $\Omega$ | 217.77445 | | −0.73021468 | +0.58986812 |
| $e$ | 0.2077227 | $i$ | 4.11327 | | −0.23846243 | +0.25280092 |
| $P$ | 3.42 | $H$ | 17.6 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 10 29 | 291 | 0.1− | 0.3+ | 2008 05 02 | G96 | 0.1+ | 0.0 | 2009 10 27 | 691 | 0.3+ | 0.1+ | |
| 2002 10 29 | 291 | 0.3− | 0.4+ | 2008 05 02 | G96 | 0.2+ | 0.1+ | 2009 10 27 | 691 | 0.5− | 0.1− | |
| 2002 10 29 | 291 | 0.0 | 0.4+ | 2008 05 02 | G96 | 0.0 | 0.1+ | 2009 10 27 | 691 | 0.0 | 0.0 | |
| 2006 12 13 | 691 | 0.3− | 0.1− | 2008 06 01 | G96 | 0.3− | 0.0 | 2009 11 08 | 691 | 0.1− | 0.2− | |
| 2006 12 13 | 691 | 0.3+ | 0.1+ | 2008 06 01 | G96 | 0.5− | 0.2+ | 2009 11 08 | 691 | 0.2− | 0.2− | |
| 2006 12 13 | 691 | 0.0 | 0.2+ | 2008 06 01 | G96 | 0.0 | 0.4+ | 2009 11 08 | 691 | 0.1+ | 0.3+ | |
| 2008 04 13 | G96 | 0.2+ | 0.0 | 2008 06 01 | G96 | 0.2− | 0.4+ | 2009 11 23 | G96 | 0.2+ | 0.2− | |
| 2008 04 13 | G96 | 0.3− | 0.2− | 2009 10 11 | G96 | 0.1− | 0.3− | 2009 11 23 | G96 | 0.4+ | 0.1− | |
| 2008 04 13 | G96 | 0.4+ | 0.2+ | 2009 10 11 | G96 | 0.2+ | 0.2− | 2009 11 23 | G96 | 0.1+ | 0.2− | |
| 2008 04 13 | G96 | 0.0 | 0.0 | 2009 10 11 | G96 | 0.0 | 0.1− | 2009 11 23 | G96 | 0.0 | 0.5− | |
| 2008 04 30 | G96 | 0.2+ | 0.5+ | 2009 10 11 | G96 | 0.1− | 0.3− | 2009 12 19 | G96 | 0.1− | 0.2− | |
| 2008 04 30 | G96 | 0.4+ | 0.2+ | 2009 10 18 | G96 | 0.3− | 0.2− | 2009 12 19 | G96 | 0.1+ | 0.2− | |
| 2008 04 30 | G96 | 0.2− | 0.2+ | 2009 10 18 | G96 | 0.4+ | 0.4− | 2009 12 19 | G96 | 0.9+ | 0.3+ | |
| 2008 04 30 | G96 | 0.5+ | 0.6+ | 2009 10 18 | G96 | 0.1+ | 0.2− | 2009 12 19 | G96 | 0.1+ | 0.1+ | |
| 2008 05 02 | G96 | 0.3+ | 0.1+ | 2009 10 18 | G96 | 0.4+ | 0.2− | | | | | |

**2008 HF$_{58}$ = 2005 LN$_{28}$ = 2009 SR$_{233}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 37.55849 | | (2000.0) | | | |
| $n$ | 0.26418210 | $\omega$ | 125.71517 | | +0.92937450 | +0.36571722 |
| $a$ | 2.4054728 | $\Omega$ | 212.91638 | | −0.36142922 | +0.87391826 |
| $e$ | 0.1244311 | $i$ | 5.29406 | | −0.07504642 | +0.32018400 |
| $P$ | 3.73 | $H$ | 17.1 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 06 09 | 691 | 0.0 | 0.1− | 2008 04 13 | G96 | 0.2− | 0.0 | 2009 09 21 | 703 | 0.8+ | 0.2− | |
| 2005 06 09 | 691 | 0.2− | 0.0 | 2008 04 30 | G96 | 0.3+ | 0.3+ | 2009 09 21 | 703 | 0.3+ | 1.1− | |
| 2005 06 09 | 691 | 0.2+ | 0.1− | 2008 04 30 | G96 | 0.2− | 0.1+ | 2009 09 21 | 703 | 0.2− | 0.6+ | |
| 2005 06 13 | 691 | 0.0 | 0.0 | 2008 04 30 | G96 | 0.0 | 0.0 | 2009 09 27 | 703 | 0.5− | 0.3+ | |
| 2005 06 13 | 691 | 0.0 | 0.1+ | 2008 04 30 | G96 | 0.0 | 0.0 | 2009 09 27 | 703 | 1.7+ | 0.2+ | |
| 2005 06 13 | 691 | 0.0 | 0.1+ | 2008 05 02 | G96 | 0.1+ | 0.2+ | 2009 09 27 | 703 | 0.9− | 1.0+ | |
| 2008 04 13 | G96 | 0.5+ | 0.3− | 2008 05 02 | G96 | 0.2− | 0.2− | 2009 09 27 | 703 | 1.2− | 0.6− | |
| 2008 04 13 | G96 | 0.2− | 0.4+ | 2008 05 02 | G96 | 0.4− | 0.2− | | | | | |
| 2008 04 13 | G96 | 0.3+ | 0.1− | 2008 05 02 | G96 | 0.0 | 0.0 | | | | | |

**2008 HB$_{65}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 4.19254 | | (2000.0) | | | |
| $n$ | 0.18292025 | $\omega$ | 211.83367 | | +0.88695028 | +0.43034282 |
| $a$ | 3.0734644 | $\Omega$ | 121.77273 | | −0.37147207 | +0.88044454 |
| $e$ | 0.0525319 | $i$ | 11.37702 | | −0.27445891 | +0.19905394 |
| $P$ | 5.39 | $H$ | 16.1 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 04 11 | G96 | 0.0 | 0.1+ | 2008 05 06 | 691 | 0.2− | 0.7+ | 2009 06 22 | G96 | 0.3+ | 0.0 | |
| 2008 04 11 | G96 | 0.0 | 0.1− | 2008 05 06 | 691 | 0.1+ | 0.2− | 2009 06 22 | 691 | 0.4− | 0.8− | |
| 2008 04 11 | G96 | 0.3+ | 0.3− | 2008 05 06 | 691 | 0.3+ | 0.4− | 2009 06 22 | G96 | 0.5+ | 0.1+ | |
| 2008 04 11 | G96 | 0.4− | 0.5− | 2008 06 11 | 691 | 0.2+ | 0.0 | 2009 06 22 | G96 | 0.6+ | 0.8+ | |
| 2008 04 29 | 691 | 0.1− | 0.0 | 2008 06 11 | 691 | 0.5+ | 0.1+ | 2009 06 22 | 691 | 0.1− | 0.2+ | |
| 2008 04 29 | 691 | 0.3− | 0.1+ | 2008 06 11 | 691 | 0.7− | 0.1− | 2009 06 22 | 691 | 0.1+ | 0.3+ | |
| 2008 04 29 | 691 | 0.2+ | 0.0 | 2009 06 22 | G96 | 0.1+ | 0.3+ | | | | | |

**2008 JM = 2009 WM$_{213}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 33.86522 | | (2000.0) | | | |
| $n$ | 0.35824551 | $\omega$ | 316.82675 | | +0.67572570 | −0.59654509 |
| $a$ | 1.9634306 | $\Omega$ | 85.14476 | | +0.73713932 | +0.55042271 |
| $e$ | 0.0669026 | $i$ | 25.76019 | | −0.00451532 | +0.58409656 |
| $P$ | 2.75 | $H$ | 17.3 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 05 02 | 703 | 0.0 | 0.7− | 2008 05 02 | J95 | 0.5+ | 0.4− | 2009 11 26 | G96 | 0.3− | 0.1− | |
| 2008 05 02 | 703 | 0.1+ | 0.8+ | 2008 05 02 | J95 | 0.4+ | 1.0− | 2009 11 26 | G96 | 0.2+ | 0.2− | |
| 2008 05 02 | 703 | 0.9− | 0.5+ | 2008 05 02 | A74 | 0.1− | 0.4− | 2009 11 26 | G96 | 0.2− | 0.1− | |
| 2008 05 02 | 703 | (2.9− | 0.8+) | 2008 05 03 | H55 | 0.6− | 0.0 | 2009 11 26 | G96 | 0.2− | 0.1− | |
| 2008 05 02 | 703 | 0.3− | 1.8+ | 2008 05 07 | 703 | 0.1+ | 0.6+ | 2009 11 26 | G96 | 0.2− | 0.3− | |
| 2008 05 02 | 703 | 0.0 | 0.0 | 2008 05 07 | 703 | 1.2− | 0.2+ | 2009 12 10 | 703 | 0.4+ | 0.0 | |
| 2008 05 02 | 703 | 0.2− | 0.2− | 2008 05 07 | 703 | 0.4− | 0.0 | 2009 12 10 | 703 | 0.5+ | 0.0 | |
| 2008 05 02 | 703 | 0.2+ | 0.1+ | 2008 05 07 | 703 | 0.6− | 0.4+ | 2009 12 10 | 703 | 0.2+ | 0.4− | |
| 2008 05 02 | A74 | 0.5+ | 0.0 | 2009 11 19 | J75 | 0.0 | 0.5+ | 2009 12 10 | 703 | 0.6− | 0.7+ | |
| 2008 05 02 | J95 | 0.3− | 0.7+ | 2009 11 19 | J75 | 0.3+ | 0.1− | | | | | |
| 2008 05 02 | A74 | 0.3+ | 0.0 | 2009 11 19 | J75 | (2.2+ | 0.9+) | | | | | |

**2008 JU**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 139.89072 | | (2000.0) | | | |
| $n$ | 0.29700680 | $\omega$ | 328.35765 | | +0.00338413 | +0.99936399 |
| $a$ | 2.2248041 | $\Omega$ | 301.81395 | | −0.90853887 | −0.01175840 |
| $e$ | 0.0887879 | $i$ | 2.39422 | | −0.41778664 | +0.03366537 |
| $P$ | 3.32 | $H$ | 17.2 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 05 16 | 691 | 0.4+ | 0.1+ | 2006 12 13 | G96 | 0.3− | 0.3− | 2008 05 01 | 703 | 0.6+ | 0.4+ | |
| 1998 05 16 | 691 | 0.6+ | 0.5+ | 2006 12 17 | G96 | 0.1+ | 0.8− | 2008 05 01 | 703 | 0.4− | 0.2+ | |
| 1998 05 16 | 691 | 0.3− | 0.6+ | 2006 12 17 | G96 | 0.2+ | 0.3− | 2008 05 01 | 703 | 0.4− | 0.5+ | |
| 1998 05 24 | 691 | 0.0 | 0.8− | 2006 12 17 | G96 | 0.7− | 0.4+ | 2008 05 01 | 703 | 0.0 | 0.7+ | |
| 1998 05 24 | 691 | 0.2− | 0.1+ | 2006 12 17 | G96 | 0.0 | 0.5+ | 2008 05 03 | G96 | 0.2− | 0.1− | |
| 2001 02 20 | 645 | 0.1− | 0.0 | 2007 02 07 | G96 | 0.1− | 0.2+ | 2008 05 03 | G96 | 0.3− | 0.1+ | |
| 2001 02 20 | 645 | 0.1− | 0.0 | 2007 02 07 | G96 | 0.2+ | 0.6− | 2008 05 03 | G96 | 0.3− | 0.2+ | |
| 2003 12 21 | 691 | 0.4+ | 0.1+ | 2007 02 07 | G96 | 0.0 | 0.2+ | 2008 05 03 | G96 | 0.2− | 0.1+ | |
| 2003 12 21 | 691 | 0.1+ | 0.1+ | 2007 02 07 | G96 | 0.4+ | 0.6− | 2009 10 25 | 691 | 0.4− | 0.2+ | |
| 2003 12 21 | 691 | 0.1+ | 0.1− | 2008 04 01 | G96 | 0.2+ | 0.0 | 2009 10 25 | 691 | 0.1− | 0.4+ | |
| 2004 01 27 | 691 | 0.2+ | 0.1+ | 2008 04 01 | G96 | 0.1+ | 0.3− | 2009 10 25 | 691 | 0.4− | 0.1+ | |
| 2004 01 27 | 691 | 0.2+ | 0.2+ | 2008 04 01 | G96 | 0.4− | 0.0 | 2009 11 18 | G96 | 0.6+ | 0.0 | |
| 2004 01 27 | 691 | 0.0 | 0.0 | 2008 04 01 | G96 | 0.2+ | 0.0 | 2009 11 18 | G96 | 0.3+ | 0.1+ | |
| 2006 12 13 | G96 | 0.0 | 0.4− | 2008 05 01 | 703 | 0.8+ | 0.8− | 2009 11 18 | G96 | 0.7+ | 0.5− | |
| 2006 12 13 | G96 | 0.1− | 0.2− | 2008 05 01 | 703 | 0.4− | 0.2− | 2009 11 18 | G96 | 0.6+ | 0.1+ | |
| 2006 12 13 | G96 | 0.3+ | 0.3− | 2008 05 01 | 703 | 1.2+ | 0.6− | | | | | |

**2008 JN$_{3}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 80.28913 | | (2000.0) | | | |
| $n$ | 0.18051587 | $\omega$ | 173.58516 | | +0.04305998 | +0.94701908 |
| $a$ | 3.1006955 | $\Omega$ | 98.54565 | | −0.93034092 | +0.15412741 |
| $e$ | 0.2084408 | $i$ | 18.77490 | | −0.36415876 | −0.28177934 |
| $P$ | 5.46 | $H$ | 15.5 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 01 16 | G96 | 0.4− | 1.1− | 2008 05 03 | 300 | 0.2+ | 0.3+ | 2008 05 25 | 704 | 0.8+ | 0.1+ | |
| 2008 01 16 | G96 | 0.6− | 0.5− | 2008 05 05 | 703 | 0.7− | 0.3− | 2008 05 25 | 704 | 0.7+ | 0.7− | |
| 2008 01 16 | G96 | 0.3− | 0.0 | 2008 05 05 | 703 | 0.5− | 0.0 | 2008 05 25 | 704 | 1.7+ | 0.3+ | |
| 2008 01 16 | G96 | 0.5− | 0.5− | 2008 05 05 | 703 | 0.3− | 0.6+ | 2008 05 25 | 704 | 1.1+ | 0.7+ | |
| 2008 04 28 | 703 | 0.9− | 0.1− | 2008 05 05 | 703 | 0.1+ | 0.7+ | 2008 06 05 | G96 | 0.2− | 0.4+ | |
| 2008 04 28 | 703 | 1.0− | 0.4− | 2008 05 05 | 300 | 0.1+ | 0.3+ | 2008 06 05 | G96 | 0.2− | 0.1+ | |
| 2008 04 28 | 703 | 1.6− | 0.0 | 2008 05 05 | 300 | 0.2+ | 0.1− | 2008 06 05 | G96 | 0.1− | 0.0 | |
| 2008 04 28 | 703 | 1.3− | 0.0 | 2008 05 05 | 300 | 0.5− | 0.2− | 2008 06 05 | G96 | 0.1− | 0.2+ | |
| 2008 05 03 | 704 | 0.8+ | 0.5+ | 2008 05 05 | 300 | 0.2− | 0.3− | 2009 09 15 | E12 | 1.6+ | 0.5− | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 05 03 | 704 | 0.8+ | 0.4+ | 2008 05 14 | 703 | 0.2− | 0.1− | 2009 09 15 | E12 | 0.0 | 0.3− |
| 2008 05 03 | 704 | 1.8+ | 0.6+ | 2008 05 14 | 703 | 0.2− | 0.1− | 2009 09 15 | E12 | 0.6− | 1.2+ |
| 2008 05 03 | 704 | 0.8+ | 0.4− | 2008 05 14 | 703 | 0.1− | 0.1− | 2009 09 15 | E12 | 0.7− | 0.1+ |
| 2008 05 03 | 704 | 0.4+ | 0.2+ | 2008 05 14 | 703 | 0.8− | 0.5− | 2009 09 25 | 703 | 0.3+ | 0.5− |
| 2008 05 03 | 300 | 0.1+ | 0.1− | 2008 05 15 | G96 | 0.2− | 0.1− | 2009 09 25 | 703 | 1.5+ | 0.9− |
| 2008 05 03 | 300 | 0.7− | 0.7− | 2008 05 15 | G96 | 0.1− | 0.2− | 2009 09 25 | 703 | 0.1− | 0.2+ |
| 2008 05 03 | 300 | 0.2+ | 0.4− | 2008 05 15 | G96 | 0.4+ | 0.4− | 2009 09 25 | 703 | 1.7− | 0.5− |
| 2008 05 03 | 300 | 0.4+ | 0.3+ | 2008 05 15 | G96 | 0.2− | 0.3− | | | | |

**2008 JY$_8$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 47.66063 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17868838 | $\omega$ | 231.97880 | | +0.37847563 | +0.89734672 | |
| $a$ | 3.1218007 | $\Omega$ | 61.71932 | | −0.74777307 | +0.44095369 | |
| $e$ | 0.1999381 | $i$ | 14.93708 | | −0.54551960 | +0.01813055 | |
| $P$ | 5.52 | $H$ | 15.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 03 15 | A77 | 0.3+ | 0.9+ | 2008 04 12 | 703 | 0.5− | 0.4+ | 2008 05 07 | G96 | 0.2+ | 0.1+ |
| 2008 03 15 | A77 | 0.6+ | 0.2+ | 2008 04 12 | 703 | 1.1− | 0.4− | 2009 07 31 | E12 | 0.1+ | 0.8+ |
| 2008 03 15 | A77 | 0.2+ | 0.5+ | 2008 05 01 | 703 | 0.2+ | 0.5+ | 2009 07 31 | E12 | 0.9− | 0.2− |
| 2008 04 04 | G96 | 0.1− | 0.0 | 2008 05 01 | 703 | 0.2+ | 1.1− | 2009 07 31 | E12 | 0.3− | 0.3+ |
| 2008 04 04 | G96 | 0.2+ | 0.1− | 2008 05 01 | 703 | 0.3+ | 0.2− | 2009 07 31 | E12 | 0.1+ | 0.2− |
| 2008 04 04 | G96 | 0.1− | 0.3− | 2008 05 01 | 703 | 0.3− | 0.1+ | 2009 08 18 | E12 | 0.7+ | 0.4− |
| 2008 04 04 | G96 | 0.1+ | 0.2− | 2008 05 07 | G96 | 0.4+ | 0.1+ | 2009 08 18 | E12 | 0.3+ | 0.2− |
| 2008 04 12 | 703 | 0.5+ | 0.8− | 2008 05 07 | G96 | 0.0 | 0.3+ | | | | |
| 2008 04 12 | 703 | 1.1− | 0.3+ | 2008 05 07 | G96 | 0.1− | 0.0 | | | | |

**2008 JO$_{13}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 55.72230 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27545287 | $\omega$ | 282.87305 | | +0.97088128 | −0.05597725 | |
| $a$ | 2.3394001 | $\Omega$ | 80.69245 | | +0.15267552 | +0.89385409 | |
| $e$ | 0.2755149 | $i$ | 13.65275 | | −0.18460694 | +0.44484988 | |
| $P$ | 3.58 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 05 05 | G96 | 0.1+ | 0.0 | 2009 10 14 | G96 | 0.3+ | 0.2+ | 2009 12 16 | 704 | (1.9− | 0.8−) |
| 2008 05 05 | G96 | 0.2+ | 0.2+ | 2009 10 14 | G96 | 0.2− | 0.3+ | 2009 12 16 | 704 | 0.1+ | 0.1+ |
| 2008 05 05 | G96 | 0.2+ | 0.2+ | 2009 10 14 | G96 | 0.1− | 0.2− | 2009 12 16 | 704 | 0.4− | 0.8− |
| 2008 05 05 | G96 | 0.4+ | 0.3+ | 2009 10 14 | G96 | 0.1− | 0.1− | 2009 12 16 | 704 | 0.5− | 0.4+ |
| 2008 05 07 | 691 | 0.5− | 0.3− | 2009 12 10 | G96 | 0.1− | 0.5− | 2009 12 16 | H10 | 1.1− | 0.9+ |
| 2008 05 07 | 691 | 0.1− | 0.4− | 2009 12 10 | G96 | 0.3+ | 0.1+ | 2009 12 16 | H10 | 0.2+ | 1.0− |
| 2008 05 07 | 691 | 0.2− | 0.2+ | 2009 12 10 | G96 | 0.3+ | 0.0 | 2009 12 20 | G96 | 0.5+ | 0.2+ |
| 2008 05 11 | 691 | 0.4+ | 0.3− | 2009 12 10 | G96 | 0.2+ | 0.1+ | 2009 12 20 | G96 | 0.1− | 0.2+ |
| 2008 05 11 | 691 | 0.2+ | 0.3+ | 2009 12 12 | H10 | 0.1+ | 0.1+ | 2009 12 20 | G96 | 0.1− | 0.4+ |
| 2008 05 11 | 691 | 0.0 | 0.3+ | 2009 12 12 | H10 | 0.6+ | 0.4− | | | | |

**2008 JP$_{16}$ = 2006 AS$_9$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 19.37323 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18655416 | $\omega$ | 239.47100 | | +0.95190591 | +0.28740596 | |
| $a$ | 3.0334215 | $\Omega$ | 103.64942 | | −0.23008152 | +0.89937299 | |
| $e$ | 0.1730510 | $i$ | 6.27265 | | −0.20233050 | +0.32943292 | |
| $P$ | 5.28 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 12 30 | 691 | 0.2+ | 0.7+ | 2006 01 05 | 691 | 0.1+ | 0.3− | 2008 05 08 | 691 | 0.2− | 0.2+ |
| 2000 12 30 | 691 | 0.3− | 0.1− | 2006 01 05 | 691 | 0.2− | 0.2− | 2008 05 28 | 691 | 0.3+ | 0.1− |
| 2000 12 30 | 691 | 0.3+ | 0.2+ | 2008 05 03 | G96 | 0.3− | 0.1+ | 2008 05 28 | 691 | 0.1− | 0.1+ |
| 2006 01 04 | G96 | 0.6− | 0.0 | 2008 05 03 | G96 | 0.2+ | 0.0 | 2008 05 28 | 691 | 0.0 | 0.1− |
| 2006 01 04 | G96 | 0.6+ | 0.3− | 2008 05 03 | G96 | 0.6+ | 0.3− | 2009 08 26 | 703 | 0.5− | 0.0 |
| 2006 01 04 | G96 | 0.5− | 0.2− | 2008 05 03 | G96 | 0.5− | 0.0 | 2009 08 26 | 703 | 0.7+ | 0.5− |
| 2006 01 04 | G96 | 0.3− | 0.6− | 2008 05 08 | 691 | 0.1+ | 0.0 | 2009 08 26 | 703 | 0.1− | 0.5+ |
| 2006 01 05 | 691 | 0.2+ | 0.1− | 2008 05 08 | 691 | 0.1− | 0.3− | 2009 08 26 | 703 | 0.0 | 0.0 |

**2008 JR$_{17}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 72.04688 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18056395 | $\omega$ | 105.25882 | | +0.32377431 | +0.94600958 | |
| $a$ | 3.1001451 | $\Omega$ | 183.73979 | | −0.93304706 | +0.31656189 | |
| $e$ | 0.2446139 | $i$ | 13.62506 | | −0.15682274 | +0.06967392 | |
| $P$ | 5.46 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 04 06 | G96 | 0.3+ | 0.3− | 2008 05 04 | 691 | 0.1− | 0.8+ | 2009 09 20 | 291 | 0.5− | 0.0 |
| 2008 04 06 | G96 | 0.3+ | 0.2− | 2008 05 08 | 691 | 0.0 | 0.3− | 2009 09 20 | 291 | 0.1− | 0.0 |
| 2008 04 06 | G96 | 0.0 | 0.4− | 2008 05 08 | 691 | 0.1− | 0.2+ | 2009 09 20 | 291 | 0.1+ | 0.1+ |
| 2008 04 06 | G96 | 0.2− | 0.3− | 2008 05 08 | 691 | 0.0 | 0.1+ | 2009 10 17 | G96 | 0.3+ | 0.1+ |
| 2008 04 06 | 691 | 0.2+ | 0.1− | 2008 06 01 | G96 | 0.1+ | 0.5− | 2009 10 17 | G96 | 0.3+ | 0.1− |
| 2008 04 06 | 691 | 0.3− | 0.4− | 2008 06 01 | G96 | 0.1+ | 0.7− | 2009 10 17 | G96 | 0.2+ | 0.0 |
| 2008 04 06 | 691 | 0.1+ | 0.0 | 2008 06 01 | G96 | 0.1− | 0.7− | 2009 10 17 | G96 | 0.2+ | 0.1− |
| 2008 05 04 | 691 | 0.2− | 0.4+ | 2008 06 01 | G96 | 0.3+ | 0.5− | 2009 10 26 | G96 | 0.2+ | 0.1− |
| 2008 05 04 | 691 | 0.1− | 0.3+ | 2008 06 02 | G96 | 0.3+ | 0.2+ | 2009 10 26 | G96 | 0.1− | 0.1− |
| 2008 05 04 | 691 | 0.1+ | 0.2− | 2008 06 02 | G96 | 0.2+ | 0.1− | 2009 10 26 | G96 | 0.6+ | 0.1− |
| 2008 05 04 | 691 | 0.0 | 0.0 | 2008 06 02 | G96 | 0.1+ | 0.2+ | 2009 10 26 | G96 | 0.3+ | 0.1− |
| 2008 05 04 | 691 | 0.0 | 0.0 | 2008 06 02 | G96 | 0.1− | 0.3− | | | | |

**2008 JO$_{21}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 351.20148 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.08020455 | $\omega$ | 213.74449 | | +0.12850662 | +0.92308866 | |
| $a$ | 5.3252097 | $\Omega$ | 66.05180 | | −0.79949725 | +0.31269355 | |
| $e$ | 0.0553738 | $i$ | 23.36747 | | −0.58676247 | −0.22389746 | |
| $P$ | 12.29 | $H$ | 13.9 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 11 07 | 291 | 0.3+ | 0.3− | 2008 04 03 | G96 | 0.5+ | 0.2− | 2008 05 11 | G96 | 0.3+ | 0.1− |
| 2002 11 07 | 291 | 0.1+ | 0.3+ | 2008 04 03 | G96 | 0.2− | 0.1+ | 2008 05 11 | G96 | 0.5+ | 0.3− |
| 2002 11 07 | 291 | 0.3− | 0.0 | 2008 04 03 | G96 | 0.2− | 0.1+ | 2008 05 11 | G96 | 0.3+ | 0.1− |
| 2002 12 09 | 291 | 0.2+ | 0.1− | 2008 05 05 | 691 | 0.1− | 0.1− | 2008 06 11 | 691 | 0.2− | 0.2− |
| 2002 12 09 | 291 | 0.4− | 0.0 | 2008 05 05 | 691 | 0.2− | 0.0 | 2008 06 11 | 691 | 0.4+ | 0.2+ |
| 2002 12 09 | 291 | 0.2+ | 0.0 | 2008 05 05 | 691 | 0.0 | 0.3+ | 2008 06 11 | 691 | 0.2− | 0.1+ |
| 2008 04 03 | G96 | 0.1− | 0.2+ | 2008 05 11 | G96 | 0.0 | 0.1− | | | | |

**2008 JO$_{22}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 74.68649 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17240578 | $\omega$ | 272.18006 | | −0.07798323 | +0.99550552 | |
| $a$ | 3.1971880 | $\Omega$ | 352.66584 | | −0.66197542 | −0.09200709 | |
| $e$ | 0.2286729 | $i$ | 24.89332 | | −0.74545769 | −0.02243762 | |
| $P$ | 5.72 | $H$ | 15.3 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 04 05 | 644 | 0.1− | 0.8+ | 2008 05 11 | E12 | 0.6− | 0.6+ | 2009 10 09 | E12 | 0.5− | 0.5− |
| 2002 04 05 | 644 | 0.1− | 0.8+ | 2008 05 11 | E12 | 0.4− | 0.1− | 2009 10 09 | E12 | 0.6− | 0.6− |
| 2002 04 05 | 644 | 0.3− | 0.6+ | 2008 05 11 | E12 | 0.1− | 0.2+ | 2009 10 19 | G96 | 0.5+ | 0.3+ |
| 2002 04 19 | 644 | 0.4+ | 0.6− | 2008 05 11 | E12 | 0.2− | 0.3− | 2009 10 19 | G96 | 0.3+ | 0.2+ |
| 2002 04 19 | 644 | 0.4+ | 0.8− | 2008 05 26 | E12 | 0.6+ | 1.0+ | 2009 10 19 | G96 | 0.2+ | 0.0 |
| 2002 04 19 | 644 | 0.4+ | 0.3− | 2008 05 26 | E12 | 0.6+ | 0.5− | 2009 10 19 | G96 | 0.6+ | 0.0 |
| 2008 05 01 | E12 | 0.0 | 0.5− | 2008 05 26 | E12 | 0.0 | 0.5+ | 2009 11 09 | G96 | 0.3− | 0.3+ |
| 2008 05 01 | E12 | 1.4+ | 0.1+ | 2008 05 26 | E12 | 0.1+ | 0.7− | 2009 11 09 | G96 | 0.4− | 0.2− |
| 2008 05 01 | E12 | 0.3− | 0.3− | 2009 09 21 | 703 | 0.7+ | 0.4+ | 2009 11 09 | G96 | 1.1− | 0.5+ |
| 2008 05 01 | E12 | 0.2− | 0.1+ | 2009 09 21 | 703 | 1.4− | 0.4− | 2009 11 09 | G96 | 0.8− | 0.1− |
| 2008 05 06 | E12 | 0.1+ | 0.2+ | 2009 09 21 | 703 | 0.8+ | 0.6− | 2009 11 17 | G96 | 0.6− | 0.4+ |
| 2008 05 06 | E12 | 0.2− | 0.0 | 2009 09 21 | 703 | 0.4+ | 0.8+ | 2009 11 17 | G96 | 0.6− | 0.4− |
| 2008 05 06 | E12 | 0.5− | 0.2− | 2009 10 09 | E12 | 0.1+ | 0.7+ | 2009 11 17 | G96 | 0.1+ | 0.2− |
| 2008 05 06 | E12 | 0.2− | 0.1− | 2009 10 09 | E12 | 1.1+ | 0.1− | 2009 11 17 | G96 | 0.3+ | 0.3− |

**2008 JT$_{25}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 20.57355 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.08475002 | $\omega$ | 177.58736 | | −0.07612057 | +0.94234110 | |
| $a$ | 5.1330582 | $\Omega$ | 87.91488 | | −0.92019385 | +0.05947327 | |
| $e$ | 0.1051576 | $i$ | 19.03209 | | −0.38399080 | −0.32932685 | |
| $P$ | 11.63 | $H$ | 14.0 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 21 | 645 | 0.0 | 0.0 | 2008 04 14 | G96 | 0.3+ | 0.1− | 2008 05 13 | 691 | 0.5− | 0.1+ |
| 2001 09 21 | 645 | 0.0 | 0.1+ | 2008 04 14 | G96 | 0.6+ | 0.1− | 2008 05 13 | 691 | 0.3− | 0.1+ |
| 2001 11 11 | 645 | 0.0 | 0.0 | 2008 05 08 | 691 | 0.1− | 0.0 | 2008 06 01 | G96 | 0.7+ | 0.2+ |
| 2001 11 11 | 645 | 0.0 | 0.0 | 2008 05 08 | 691 | 0.2+ | 0.0 | 2008 06 01 | G96 | 0.1+ | 0.2+ |
| 2008 04 14 | G96 | 0.6+ | 0.1+ | 2008 05 08 | 691 | 0.1− | 0.4− | 2008 06 01 | G96 | 0.2+ | 0.1+ |
| 2008 04 14 | G96 | 0.2+ | 0.1− | 2008 05 13 | 691 | 0.1+ | 0.2+ | 2008 06 01 | G96 | 0.2− | 0.2− |

**2008 JE$_{26}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 96.48077 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17864621 | $\omega$ | 18.58072 | | −0.30622927 | +0.94146308 | |
| $a$ | 3.1222920 | $\Omega$ | 233.82486 | | −0.89404483 | −0.33528914 | |
| $e$ | 0.1089791 | $i$ | 10.05712 | | −0.32696710 | +0.03504932 | |
| $P$ | 5.52 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 12 04 | 691 | 0.4− | 0.9− | 2008 05 05 | 704 | 0.2− | 1.1+ | 2008 05 27 | G96 | 0.4+ | 0.2+ |
| 1999 12 04 | 691 | 0.1− | 0.8+ | 2008 05 05 | 704 | (0.4+ | 2.0+) | 2008 06 12 | 691 | 0.2− | 0.2+ |
| 1999 12 04 | 691 | 0.2+ | 0.0 | 2008 05 11 | 703 | 1.0− | 0.9+ | 2008 06 12 | 691 | 0.2+ | 1.4+ |
| 1999 12 17 | 691 | 0.3− | 0.1+ | 2008 05 11 | 703 | 0.6+ | 1.1− | 2008 06 12 | 691 | 0.1+ | 0.9− |
| 1999 12 17 | 691 | 0.4+ | 0.0 | 2008 05 11 | 703 | 0.8− | 1.1− | 2009 08 26 | 703 | 1.2− | 0.8+ |
| 1999 12 17 | 691 | 0.2+ | 0.3+ | 2008 05 11 | 703 | 0.1− | 0.1− | 2009 08 26 | 703 | 0.8+ | 0.1+ |
| 2005 12 05 | 691 | 0.1+ | 0.1− | 2008 05 13 | G96 | 0.1+ | 0.1− | 2009 08 26 | 703 | 0.3+ | 0.2+ |
| 2005 12 05 | 691 | 0.1− | 0.1+ | 2008 05 13 | G96 | 0.7+ | 0.2− | 2009 08 26 | 703 | 0.8+ | 1.0− |
| 2005 12 05 | 691 | 0.0 | 0.6+ | 2008 05 27 | G96 | 0.6+ | 0.1+ | 2009 09 22 | 012 | 0.0 | 0.2+ |
| 2008 05 05 | 704 | 0.3+ | 0.2− | 2008 05 27 | G96 | 0.1+ | 0.1+ | 2009 09 22 | 012 | 0.3+ | 1.2+ |
| 2008 05 05 | 704 | 0.8− | 0.7+ | 2008 05 27 | G96 | 0.2+ | 0.2+ | 2009 09 22 | 012 | 1.2− | 0.9− |

**2008 JU$_{28}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 81.36906 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21890987 | $\omega$ | 194.17348 | | +0.67328300 | +0.73526516 | |
| $a$ | 2.7266275 | $\Omega$ | 118.21305 | | −0.66946616 | +0.65096567 | |
| $e$ | 0.2370924 | $i$ | 5.07453 | | −0.31385515 | +0.18875602 | |
| $P$ | 4.50 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 08 07 | 644 | 0.1− | 0.4+ | 2008 04 13 | G96 | 0.1+ | 0.1+ | 2008 05 14 | 691 | 0.3+ | 0.1− |
| 2004 08 07 | 644 | 0.2+ | 0.3+ | 2008 04 13 | G96 | 0.3+ | 0.1− | 2008 05 14 | 691 | 0.4− | 0.0 |
| 2004 08 07 | 644 | 0.3+ | 0.1− | 2008 04 13 | G96 | 0.1− | 0.5− | 2008 05 14 | 691 | 0.1− | 0.3+ |
| 2004 09 17 | 699 | 1.0+ | 0.9− | 2008 04 13 | G96 | 0.4− | 0.2+ | 2008 05 28 | G96 | 0.0 | 0.0 |
| 2004 09 17 | 699 | 0.7+ | 1.3+ | 2008 05 08 | 691 | 0.5+ | 0.0 | 2008 05 28 | G96 | 0.4− | 0.1− |
| 2004 09 17 | 699 | 1.7− | 1.8− | 2008 05 08 | 691 | 0.0 | 0.2− | 2008 05 28 | G96 | 0.3+ | 0.1+ |
| 2004 09 17 | 699 | 0.3− | 0.9+ | 2008 05 08 | 691 | 0.1− | 0.2+ | 2008 05 28 | G96 | 0.7− | 0.2− |

**2008 JG$_{33}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 86.63980 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18632099 | $\omega$ | 98.78279 | | +0.08416386 | +0.99625637 | |
| $a$ | 3.0359518 | $\Omega$ | 175.88773 | | −0.98770958 | +0.08602755 | |
| $e$ | 0.1239439 | $i$ | 15.97864 | | −0.13170513 | −0.00851491 | |
| $P$ | 5.29 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 05 08 | G96 | 0.2+ | 0.1− | 2008 06 02 | 691 | 0.7+ | 0.4− | 2009 09 18 | G96 | 0.1+ | 0.1− |
| 2008 05 08 | G96 | 0.1+ | 0.5− | 2008 06 06 | 691 | 0.3− | 0.1+ | 2009 09 18 | G96 | 0.3− | 0.1− |
| 2008 05 08 | G96 | 0.1+ | 0.2− | 2008 06 06 | 691 | 1.1− | 0.3+ | 2009 09 18 | G96 | 0.2− | 0.1− |
| 2008 05 08 | G96 | 0.1− | 0.2− | 2008 06 06 | 691 | 0.1+ | 0.4+ | 2009 09 18 | G96 | 0.3+ | 0.1− |
| 2008 05 15 | G96 | 0.0 | 0.2− | 2009 08 16 | 691 | 0.4− | 0.6− | 2009 10 25 | G96 | 0.5+ | 0.2+ |
| 2008 05 15 | G96 | 0.0 | 0.9− | 2009 08 16 | 691 | 0.4− | 0.2+ | 2009 10 25 | G96 | 0.1+ | 0.2+ |
| 2008 05 15 | G96 | 0.2+ | 0.1− | 2009 08 16 | 691 | 0.3− | 0.8+ | 2009 10 25 | G96 | 0.2− | 0.1+ |
| 2008 05 15 | G96 | 0.6+ | 0.2− | 2009 08 20 | 691 | 0.3− | 0.2− | 2009 10 25 | G96 | 0.1+ | 0.1+ |
| 2008 06 02 | 691 | 0.1+ | 0.1+ | 2009 08 20 | 691 | 0.1− | 0.2− | | | | |
| 2008 06 02 | 691 | 0.3+ | 0.1+ | 2009 08 20 | 691 | 1.3+ | 0.1− | | | | |

**2008 KF$_{7}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 1.02056 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.20120690 | $\omega$ | 253.43274 | | +0.92914799 | −0.31819934 | |
| $a$ | 2.8843024 | $\Omega$ | 124.74516 | | +0.36023860 | +0.89371095 | |
| $e$ | 0.1621231 | $i$ | 13.24314 | | −0.08313937 | +0.31627506 | |
| $P$ | 4.90 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 05 01 | 691 | 0.1− | 0.0 | 2004 08 21 | E12 | 0.4− | 0.3− | 2008 05 26 | 691 | 0.4− | 0.9− |
| 2003 05 01 | 691 | 0.0 | 0.0 | 2008 05 03 | G96 | 0.1+ | 0.1+ | 2008 05 26 | 691 | 0.1− | 0.3+ |
| 2003 05 01 | 691 | 0.0 | 0.0 | 2008 05 03 | G96 | 0.1+ | 0.2+ | 2008 05 30 | 691 | 0.2− | 0.0 |
| 2004 08 21 | E12 | 0.3+ | 0.2+ | 2008 05 03 | G96 | 0.7+ | 0.2+ | 2008 05 30 | 691 | 0.1− | 0.1+ |
| 2004 08 21 | E12 | 0.1− | 0.3− | 2008 05 03 | G96 | 0.1+ | 0.1+ | 2008 05 30 | 691 | 0.2+ | 0.0 |
| 2004 08 21 | E12 | 0.3+ | 0.4+ | 2008 05 26 | 691 | 0.4+ | 0.3+ | | | | |

**2008 KJ$_{9}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 66.04632 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18324223 | $\omega$ | 209.40303 | | +0.51011121 | +0.85835545 | |
| $a$ | 3.0698631 | $\Omega$ | 91.31753 | | −0.77802504 | +0.48769451 | |
| $e$ | 0.2236095 | $i$ | 3.14716 | | −0.36669278 | +0.15931098 | |
| $P$ | 5.38 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 05 03 | 691 | 0.0 | 0.1+ | 2008 05 27 | 691 | 0.8− | 0.8− | 2009 09 28 | 691 | 0.9− | 0.3+ |
| 2008 05 03 | 691 | 0.6+ | 0.1− | 2008 05 27 | 691 | 0.2− | 0.3− | 2009 10 17 | G96 | 0.6+ | 0.0 |
| 2008 05 03 | 691 | 0.2− | 0.2+ | 2008 05 30 | 691 | 0.6+ | 0.0 | 2009 10 17 | G96 | 0.9+ | 0.4− |
| 2008 05 11 | 691 | 0.0 | 0.1− | 2008 05 30 | 691 | 0.6− | 0.2+ | 2009 10 17 | G96 | 0.2+ | 0.3− |
| 2008 05 11 | 691 | 0.2− | 0.1+ | 2008 05 30 | 691 | 0.2+ | 0.2+ | 2009 10 17 | G96 | 0.6+ | 0.1− |
| 2008 05 11 | 691 | 0.3+ | 0.3+ | 2009 09 28 | 691 | 0.2+ | 0.1+ | | | | |
| 2008 05 27 | 691 | 0.3+ | 0.2+ | 2009 09 28 | 691 | 0.1+ | 0.2− | | | | |

**2008 KJ$_{10}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 61.11006 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18144123 | $\omega$ | 231.77558 | | +0.95926420 | +0.10804463 | |
| $a$ | 3.0901441 | $\Omega$ | 120.57455 | | −0.04464784 | +0.97034582 | |
| $e$ | 0.1911251 | $i$ | 17.64908 | | −0.27896016 | +0.21622983 | |
| $P$ | 5.43 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 05 28 | G96 | 0.2+ | 0.1+ | 2008 06 14 | 691 | 0.2+ | 0.2− | 2009 12 17 | G89 | 0.0 | 0.0 |
| 2008 05 28 | G96 | 0.2+ | 0.1+ | 2008 06 14 | 691 | 0.0 | 0.0 | 2009 12 17 | G89 | 0.0 | 0.0 |
| 2008 05 28 | G96 | 0.3+ | 0.0 | 2008 07 01 | 704 | 0.3+ | 0.1− | 2009 12 17 | G89 | 0.0 | 0.0 |
| 2008 05 28 | G96 | 0.4+ | 0.0 | 2008 07 01 | 704 | 0.6+ | 0.1+ | 2009 12 18 | G89 | 0.0 | 0.0 |
| 2008 05 30 | 291 | 0.2− | 0.1+ | 2008 07 01 | 704 | (0.7+ | 2.2−) | 2009 12 18 | G89 | 0.0 | 0.0 |
| 2008 05 30 | 291 | 0.2− | 0.0 | 2008 07 01 | 704 | 0.1+ | 0.0 | 2009 12 18 | G89 | 0.0 | 0.0 |
| 2008 05 30 | 291 | 0.0 | 0.0 | 2008 07 25 | E12 | 0.0 | 0.1+ | | | | |
| 2008 06 14 | 691 | 0.4− | 0.1+ | 2008 07 25 | E12 | 0.5− | 0.1+ | | | | |

**2008 KE$_{12}$ = 2009 SF$_{280}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 101.37007 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.24099277 | $\omega$ | 221.59517 | | +0.27591366 | | +0.95769002 |
| $a$ | 2.5574081 | $\Omega$ | 64.56848 | | −0.85620072 | | +0.28358876 |
| $e$ | 0.1141156 | $i$ | 5.20079 | | −0.43679742 | | +0.04906360 |
| $P$ | 4.09 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 11 17 | 691 | 0.1+ | 0.2− | 2007 01 28 | 691 | 0.1+ | 0.7+ | 2008 05 31 | 691 | 0.1+ | 0.0 |
| 2001 11 17 | 691 | 0.2− | 0.2+ | 2007 01 28 | 691 | 0.2+ | 0.0 | 2009 09 17 | 691 | 0.5− | 0.1+ |
| 2001 11 17 | 691 | 0.1+ | 0.3− | 2007 01 28 | 691 | 0.1+ | 0.1+ | 2009 09 17 | 691 | 0.4− | 0.2+ |
| 2004 05 14 | 701 | 0.2+ | 0.4+ | 2008 04 29 | 691 | 0.5+ | 0.6+ | 2009 09 17 | 691 | 0.2− | 0.1− |
| 2004 05 14 | 701 | (0.9− | 1.5−) | 2008 04 29 | 691 | 0.1− | 0.0 | 2009 09 25 | 691 | 0.4− | 0.2+ |
| 2004 05 14 | 701 | 0.0 | 0.1+ | 2008 04 29 | 691 | 0.0 | 0.0 | 2009 09 25 | 691 | 0.2− | 0.3+ |
| 2005 10 01 | 691 | 0.1− | 0.4− | 2008 05 07 | 691 | 0.3+ | 0.1+ | 2009 09 25 | 691 | 0.1+ | 0.2+ |
| 2005 10 01 | 691 | 0.1+ | 0.1− | 2008 05 07 | 691 | 0.1+ | 0.1− | 2009 09 29 | 691 | 0.3+ | 0.1+ |
| 2005 10 01 | 691 | 0.2+ | 0.1+ | 2008 05 07 | 691 | 0.2+ | 0.1− | 2009 09 29 | 691 | 0.1− | 0.3+ |
| 2005 10 12 | 691 | 0.1− | 0.2+ | 2008 05 26 | G96 | 0.1+ | 0.1+ | 2009 09 29 | 691 | 0.0 | 0.5+ |
| 2005 10 12 | 691 | 0.3+ | 0.1+ | 2008 05 26 | G96 | 0.2− | 1.4+ | 2009 10 16 | G96 | 0.2+ | 0.0 |
| 2005 10 12 | 691 | 0.0 | 0.2+ | 2008 05 26 | G96 | (0.2− | 1.6+) | 2009 10 16 | G96 | 0.5+ | 0.2− |
| 2007 01 10 | 691 | 0.2− | 0.2+ | 2008 05 26 | G96 | 0.1+ | 0.5+ | 2009 10 16 | G96 | 0.7+ | 0.0 |
| 2007 01 10 | 691 | 0.0 | 0.1+ | 2008 05 31 | 691 | 0.2+ | 0.3+ | 2009 10 16 | G96 | 0.2+ | 0.1− |
| 2007 01 10 | 691 | 0.1+ | 0.2+ | 2008 05 31 | 691 | 0.7− | 0.2+ | | | | |

**2008 KH$_{14}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 73.60374 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17743003 | $\omega$ | 130.93227 | | +0.12785382 | | +0.98572996 |
| $a$ | 3.1365433 | $\Omega$ | 145.94182 | | −0.95856032 | | +0.15115460 |
| $e$ | 0.1230906 | $i$ | 11.27512 | | −0.25458890 | | −0.07408595 |
| $P$ | 5.55 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 05 14 | 691 | 0.0 | 0.0 | 2008 05 31 | 691 | 0.2+ | 0.1− | 2009 09 15 | G96 | 0.4− | 0.3− |
| 2008 05 14 | 691 | 0.0 | 0.2+ | 2008 05 31 | 691 | 0.1+ | 0.0 | 2009 09 15 | G96 | 0.1+ | 0.5− |
| 2008 05 14 | 691 | 0.0 | 0.2+ | 2008 05 31 | 691 | 0.2− | 0.0 | 2009 09 15 | G96 | 0.0 | 0.3+ |
| 2008 05 27 | 691 | 0.1− | 0.1− | 2009 08 30 | 291 | 0.1− | 0.1− | 2009 09 15 | G96 | 0.3+ | 0.0 |
| 2008 05 27 | 691 | 0.0 | 0.1− | 2009 08 30 | 291 | 0.2+ | 0.1+ | | | | |
| 2008 05 27 | 691 | 0.1− | 0.1− | 2009 08 30 | 291 | 0.1− | 0.1+ | | | | |

**2008 KK$_{25}$ = 2009 WF$_{224}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 120.24997 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.27948674 | $\omega$ | 200.26305 | | +0.41241712 | | +0.90438488 |
| $a$ | 2.3168358 | $\Omega$ | 94.22523 | | −0.81996029 | | +0.42090831 |
| $e$ | 0.1819435 | $i$ | 6.30630 | | −0.39696000 | | +0.07017258 |
| $P$ | 3.53 | $H$ | 17.9 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 08 27 | 644 | 0.1− | 0.0 | 2008 05 29 | G96 | 0.2− | 0.1+ | 2009 11 16 | G96 | 0.3+ | 0.1− |
| 2005 08 27 | 644 | 0.2− | 0.4− | 2008 05 29 | G96 | 0.0 | 0.5− | 2009 11 16 | G96 | 0.5− | 0.1− |
| 2005 08 27 | 644 | 0.4+ | 0.3+ | 2008 06 01 | 691 | 0.2− | 0.1+ | 2009 11 16 | G96 | 0.3− | 0.0 |
| 2008 04 06 | 691 | 0.4+ | 0.3+ | 2008 06 01 | 691 | 0.0 | 0.2− | 2009 11 16 | G96 | 0.6− | 0.8+ |
| 2008 04 06 | 691 | 0.3− | 0.3− | 2008 06 01 | 691 | 0.3+ | 0.2+ | 2009 11 23 | G96 | 0.6+ | 0.1− |
| 2008 04 06 | 691 | 0.2− | 0.2− | 2008 06 04 | 691 | 0.1+ | 0.2+ | 2009 11 23 | G96 | 0.7− | 0.2− |
| 2008 05 29 | G96 | 0.0 | 0.1+ | 2008 06 04 | 691 | 0.0 | 0.1− | 2009 11 23 | G96 | 0.7+ | 0.0 |
| 2008 05 29 | G96 | 0.3− | 0.4+ | 2008 06 04 | 691 | 0.0 | 0.1− | 2009 11 23 | G96 | 0.3+ | 0.2+ |

**2008 KB$_{30}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 107.86254 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17622042 | $\omega$ | 72.42674 | | −0.51347670 | | +0.85550992 |
| $a$ | 3.1508802 | $\Omega$ | 166.07609 | | −0.85413425 | | −0.50209280 |
| $e$ | 0.1814726 | $i$ | 16.08405 | | −0.08244007 | | −0.12651321 |
| $P$ | 5.59 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 04 28 | G96 | 0.3+ | 0.6− | 2008 05 29 | 291 | 0.1+ | 0.3− | 2008 06 06 | 691 | 0.1− | 0.2+ |
| 2008 04 28 | G96 | 0.3− | 0.9− | 2008 05 29 | 291 | 0.2+ | 0.3− | 2008 06 10 | 691 | 0.0 | 0.1− |
| 2008 04 28 | G96 | 0.8+ | 0.4+ | 2008 05 29 | 291 | 0.2+ | 0.3− | 2008 06 10 | 691 | 0.5+ | 0.2+ |
| 2008 04 28 | G96 | 0.4− | 0.5+ | 2008 05 29 | 291 | 0.3− | 0.0 | 2008 06 10 | 691 | 0.2+ | 0.1− |
| 2008 05 15 | G96 | 0.4+ | 0.3− | 2008 05 29 | 291 | 0.4− | 0.1− | 2009 08 27 | 691 | 0.3− | 0.1+ |
| 2008 05 15 | G96 | 0.3+ | 0.1− | 2008 05 29 | 291 | 0.3− | 0.1− | 2009 08 27 | 691 | 0.4− | 0.4+ |
| 2008 05 15 | G96 | 0.3+ | 0.2− | 2008 06 02 | 691 | 0.2− | 0.2− | 2009 08 27 | 691 | 0.6+ | 0.5− |
| 2008 05 15 | G96 | 0.2+ | 0.3− | 2008 06 02 | 691 | 0.0 | 0.2− | 2009 09 22 | G96 | 0.2+ | 0.1+ |
| 2008 05 29 | 691 | 0.1+ | 0.1− | 2008 06 02 | 691 | 0.1+ | 0.4+ | 2009 09 22 | G96 | 0.0 | 0.1+ |
| 2008 05 29 | 691 | 0.1+ | 0.3+ | 2008 06 06 | 691 | 0.1+ | 0.0 | 2009 09 22 | G96 | 0.1+ | 0.1+ |
| 2008 05 29 | 691 | 0.7− | 0.6+ | 2008 06 06 | 691 | 0.1− | 0.3+ | 2009 09 22 | G96 | 0.1− | 0.4− |

**2008 KZ$_{30}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 29.39219 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18834750 | $\omega$ | 247.32120 | | +0.91749372 | | +0.29816766 |
| $a$ | 3.0141358 | $\Omega$ | 94.51037 | | −0.19152536 | | +0.91125262 |
| $e$ | 0.1873965 | $i$ | 15.31165 | | −0.34860194 | | +0.28410332 |
| $P$ | 5.23 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 05 15 | 691 | 0.3− | 0.1− | 2008 05 29 | G96 | 0.1− | 0.5+ | 2009 09 17 | 703 | 0.5− | 0.9− |
| 2008 05 15 | 691 | 0.0 | 0.2+ | 2008 05 29 | G96 | 0.5− | 0.1+ | 2009 09 17 | 703 | 0.8+ | 0.7+ |
| 2008 05 15 | 691 | 0.3+ | 0.1+ | 2008 06 02 | 691 | 0.1+ | 0.3+ | 2009 09 17 | 703 | 1.3− | 0.8− |
| 2008 05 29 | 691 | 0.3+ | 0.0 | 2008 06 02 | 691 | 0.1− | 0.2− | 2009 09 17 | 703 | 0.4− | 0.1+ |
| 2008 05 29 | 691 | 0.5+ | 0.3− | 2008 06 02 | 691 | 0.5+ | 0.1+ | 2009 09 25 | 703 | 0.4− | 0.3− |
| 2008 05 29 | 691 | 0.0 | 0.1− | 2008 06 06 | 691 | 0.3− | 0.4− | 2009 09 25 | 703 | 0.3+ | 0.5− |
| 2008 05 29 | G96 | 0.2− | 0.0 | 2008 06 06 | 691 | 0.2− | 0.3+ | 2009 09 25 | 703 | 0.5+ | 0.2+ |
| 2008 05 29 | G96 | 0.2− | 0.1− | 2008 06 06 | 691 | 0.5− | 0.1+ | 2009 09 25 | 703 | 1.2+ | 1.6+ |

**2008 KB$_{31}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 292.74217 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18953002 | $\omega$ | 326.14049 | | +0.49019364 | | −0.81703259 |
| $a$ | 3.0015855 | $\Omega$ | 92.76025 | | +0.85181278 | | +0.37523791 |
| $e$ | 0.1141029 | $i$ | 17.69467 | | +0.18473002 | | +0.43778335 |
| $P$ | 5.20 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 07 | 703 | 0.7− | 1.5+ | 2006 01 05 | G96 | 1.1+ | 0.3− | 2008 05 29 | G96 | 0.1+ | 0.1− |
| 2005 12 07 | 703 | (2.4+ | 1.5−) | 2008 05 03 | 691 | 0.2+ | 0.1+ | 2008 05 29 | G96 | 0.4+ | 0.1+ |
| 2005 12 07 | 703 | 0.2+ | 0.3− | 2008 05 03 | 691 | 0.1− | 0.1+ | 2008 05 29 | G96 | 0.4+ | 0.4− |
| 2005 12 07 | 703 | 0.0 | 0.9− | 2008 05 03 | 691 | 0.1+ | 0.4− | 2008 05 29 | G96 | 0.4+ | 0.3+ |
| 2006 01 05 | G96 | 0.0 | 0.1− | 2008 05 29 | 691 | 0.0 | 0.2+ | 2008 06 02 | 691 | 0.0 | 0.6+ |
| 2006 01 05 | G96 | 0.3− | 0.0 | 2008 05 29 | 691 | 0.0 | 0.1− | 2008 06 02 | 691 | 0.0 | 0.1− |
| 2006 01 05 | G96 | 0.4− | 0.5+ | 2008 05 29 | 691 | 0.5− | 0.3− | 2008 06 02 | 691 | 0.1+ | 0.1+ |

**2008 KZ$_{37}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 334.97813 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.08512751 | $\omega$ | 106.66918 | | +0.71606964 | | +0.64316579 |
| $a$ | 5.1178720 | $\Omega$ | 214.76083 | | −0.66636084 | | +0.74557825 |
| $e$ | 0.0620855 | $i$ | 28.40937 | | +0.20786416 | | +0.17450171 |
| $P$ | 11.58 | $H$ | 13.3 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 05 17 | 691 | 0.1− | 0.0 | 2008 04 06 | G96 | 0.1+ | 0.1+ | 2008 06 03 | 691 | 0.2+ | 0.2− |
| 1996 05 17 | 691 | 0.1+ | 0.0 | 2008 04 06 | 691 | 0.3− | 0.1+ | 2008 06 03 | 691 | 0.1+ | 0.4+ |
| 1996 05 17 | 691 | 0.0 | 0.2− | 2008 04 06 | 691 | 0.3− | 0.1+ | 2008 06 07 | 691 | 0.1+ | 0.2+ |
| 2007 03 20 | 691 | 0.1− | 0.2− | 2008 05 13 | 691 | 0.4− | 0.0 | 2008 06 07 | 691 | 0.2− | 0.2− |
| 2007 03 20 | 691 | 0.2+ | 0.3+ | 2008 05 13 | 691 | 0.0 | 0.0 | 2008 06 07 | 691 | 0.0 | 0.1+ |
| 2007 03 20 | 691 | 0.2− | 0.1− | 2008 05 13 | 691 | 0.8+ | 0.0 | 2008 06 11 | 691 | 0.2+ | 0.1− |
| 2008 04 06 | G96 | 0.0 | 0.2+ | 2008 05 30 | 691 | 0.0 | 0.3− | 2008 06 11 | 691 | 0.0 | 0.1+ |
| 2008 04 06 | G96 | 0.3+ | 0.2+ | 2008 05 30 | 691 | 0.0 | 0.1− | 2008 06 11 | 691 | 0.0 | 0.4+ |
| 2008 04 06 | 691 | 0.0 | 0.2− | 2008 05 30 | 691 | 0.3− | 0.5− | | | | |
| 2008 04 06 | G96 | 0.1− | 0.6+ | 2008 06 03 | 691 | 0.1+ | 0.0 | | | | |

### 2008 $KM_{39}$ = 2009 $SW_{162}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 51.13749 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18188033 | $\omega$ | 142.44040 | | +0.76568776 | +0.64314998 | |
| $a$ | 3.0851685 | $\Omega$ | 177.47775 | | −0.62842616 | +0.75098429 | |
| $e$ | 0.1736189 | $i$ | 11.75270 | | −0.13712333 | +0.14960181 | |
| $P$ | 5.42 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 05 30 | 691 | 0.3+ | 0.2− | 2008 06 11 | 691 | 0.2− | 0.2+ | 2009 09 23 | G96 | 0.1− | 0.3+ |
| 2008 05 30 | 691 | 0.1+ | 0.2+ | 2008 06 11 | 691 | 0.1− | 0.1− | 2009 09 23 | G96 | 0.0 | 0.3+ |
| 2008 05 30 | 691 | 0.2− | 0.2− | 2009 09 21 | G96 | 0.1− | 0.1− | 2009 09 23 | G96 | 0.2+ | 0.3− |
| 2008 06 03 | 691 | 0.1− | 0.3− | 2009 09 21 | G96 | 0.1− | 0.1− | 2009 10 26 | G96 | 0.0 | 0.1− |
| 2008 06 03 | 691 | 0.2+ | 0.1− | 2009 09 21 | G96 | 0.0 | 0.2− | 2009 10 26 | G96 | 0.1+ | 0.4+ |
| 2008 06 03 | 691 | 0.0 | 0.0 | 2009 09 21 | G96 | 0.1− | 0.3− | 2009 10 26 | G96 | 0.2− | 0.4− |
| 2008 06 11 | 691 | 0.2+ | 0.3+ | 2009 09 23 | G96 | 0.3+ | 0.3+ | 2009 10 26 | G96 | 0.1+ | 0.1+ |

### 2008 $KZ_{41}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 110.56178 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18053691 | $\omega$ | 93.24092 | | −0.55505768 | +0.82281775 | |
| $a$ | 3.1004546 | $\Omega$ | 142.19689 | | −0.82011789 | −0.51683207 | |
| $e$ | 0.0895135 | $i$ | 11.47987 | | −0.13898786 | −0.23633782 | |
| $P$ | 5.46 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 02 10 | 691 | 0.1+ | 0.4+ | 2005 12 27 | 291 | 0.1− | 0.1+ | 2008 05 31 | 691 | 0.0 | 0.1− |
| 1996 02 10 | 691 | 0.2− | 0.4− | 2008 05 14 | 691 | 0.2+ | 0.1− | 2008 05 31 | 691 | 0.2+ | 0.1− |
| 1996 02 10 | 691 | 0.2+ | 0.0 | 2008 05 14 | 691 | 0.7− | 0.0 | 2008 06 04 | 691 | 0.4+ | 0.1− |
| 2005 12 27 | 291 | 0.2+ | 0.1+ | 2008 05 14 | 691 | 0.3− | 0.3+ | 2008 06 04 | 691 | 0.1+ | 0.0 |
| 2005 12 27 | 291 | 0.1− | 0.2− | 2008 05 31 | 691 | 0.1+ | 0.3− | 2008 06 04 | 691 | 0.1− | 0.3+ |

### 2008 $LS_2$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 309.83358 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.08256982 | $\omega$ | 220.02470 | | +0.88891850 | +0.43169724 | |
| $a$ | 5.2230215 | $\Omega$ | 113.77040 | | −0.36568291 | +0.87017071 | |
| $e$ | 0.0950086 | $i$ | 9.63491 | | −0.27586214 | +0.23757193 | |
| $P$ | 11.94 | $H$ | 13.4 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 12 28 | 691 | 0.0 | 0.1− | 2008 04 03 | 691 | 0.1− | 0.4+ | 2008 06 01 | 691 | 0.2− | 0.0 |
| 2003 12 28 | 691 | 0.1+ | 0.4+ | 2008 04 08 | 691 | 0.1− | 0.1− | 2008 06 01 | 691 | 0.5+ | 0.1− |
| 2003 12 28 | 691 | 0.1− | 0.0 | 2008 04 08 | 691 | 0.2+ | 0.1− | 2008 06 01 | 691 | 0.1+ | 0.3− |
| 2005 01 19 | 691 | 0.0 | 0.0 | 2008 04 08 | 691 | 0.1+ | 0.1+ | 2008 06 04 | 691 | 0.3− | 0.0 |
| 2005 01 19 | 691 | 0.0 | 0.2− | 2008 05 14 | G96 | 0.2+ | 0.0 | 2008 06 04 | 691 | 0.4− | 0.0 |
| 2005 01 19 | 691 | 0.0 | 0.1− | 2008 05 14 | G96 | 0.2+ | 0.0 | 2008 06 04 | 691 | 0.2+ | 0.3+ |
| 2008 04 03 | 691 | 0.1− | 0.1+ | 2008 05 14 | G96 | 0.2− | 0.1− | | | | |
| 2008 04 03 | 691 | 0.0 | 0.1− | 2008 05 14 | G96 | 0.3+ | 0.2+ | | | | |

### 2008 $LU_2$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 216.45233 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24033798 | $\omega$ | 79.11349 | | −0.82803769 | −0.50295158 | |
| $a$ | 2.5620510 | $\Omega$ | 70.27455 | | +0.35365797 | −0.81145514 | |
| $e$ | 0.0503536 | $i$ | 15.26135 | | +0.43506278 | −0.29762436 | |
| $P$ | 4.10 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 04 14 | 691 | 0.1− | 0.0 | 2006 12 12 | 644 | 0.1− | 0.1− | 2008 06 04 | 691 | 0.0 | 0.1+ |
| 2004 04 14 | 691 | 0.1+ | 0.1+ | 2008 05 05 | G96 | 0.2− | 0.0 | 2008 06 04 | 691 | 0.1+ | 0.1+ |
| 2004 04 14 | 691 | 0.1− | 0.1− | 2008 05 05 | G96 | 0.2− | 0.1+ | 2008 06 04 | 691 | 0.3+ | 0.1+ |
| 2004 05 09 | 691 | 0.3+ | 0.2− | 2008 05 05 | G96 | 0.4+ | 0.0 | 2008 06 10 | 691 | 0.3+ | 0.2+ |
| 2004 05 09 | 691 | 0.2− | 0.1+ | 2008 05 05 | G96 | 0.1− | 0.2+ | 2008 06 10 | 691 | 0.5+ | 0.1+ |
| 2004 05 09 | 691 | 0.1+ | 0.2+ | 2008 06 01 | 691 | 0.2− | 0.2− | 2008 06 10 | 691 | 0.2+ | 0.1+ |
| 2006 12 12 | 644 | 0.0 | 0.3+ | 2008 06 01 | 691 | 0.1+ | 0.2+ | | | | |
| 2006 12 12 | 644 | 0.0 | 0.0 | 2008 06 01 | 691 | 1.3− | 0.8− | | | | |

### 2008 $LZ_2$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 351.41668 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18066966 | $\omega$ | 270.29860 | | +0.97360456 | −0.10300010 | |
| $a$ | 3.0989357 | $\Omega$ | 95.61968 | | +0.17410874 | +0.91217750 | |
| $e$ | 0.1161505 | $i$ | 11.80975 | | −0.14758151 | +0.39663988 | |
| $P$ | 5.46 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 03 | 644 | 0.3− | 0.1+ | 2006 01 05 | 691 | 0.1+ | 0.1− | 2008 06 04 | 691 | 0.2+ | 0.2+ |
| 2004 10 03 | 644 | 0.2+ | 0.6+ | 2006 01 05 | 691 | 0.0 | 0.2+ | 2008 06 04 | 691 | 0.3+ | 0.4− |
| 2004 10 03 | 644 | 0.3− | 0.3+ | 2006 01 05 | 691 | 0.0 | 0.1+ | 2008 06 23 | 691 | 0.6− | 0.0 |
| 2005 11 26 | G96 | 0.1− | 0.2+ | 2008 06 01 | 691 | 0.2+ | 0.2+ | 2008 06 23 | 691 | 0.2− | 0.0 |
| 2005 11 26 | G96 | 0.3− | 0.0 | 2008 06 01 | 691 | 0.0 | 0.4+ | 2008 06 23 | 691 | 0.2+ | 0.2+ |
| 2005 11 26 | G96 | 0.5− | 0.3+ | 2008 06 01 | 691 | 0.1+ | 0.3− | | | | |
| 2005 11 26 | G96 | 0.5+ | 0.2− | 2008 06 04 | 691 | 0.0 | 0.3+ | | | | |

### 2008 $LD_9$ = 2005 $WW_{209}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 106.92912 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23661276 | $\omega$ | 189.05535 | | +0.18827556 | +0.94341098 | |
| $a$ | 2.5888722 | $\Omega$ | 92.14606 | | −0.88310689 | +0.28425227 | |
| $e$ | 0.0907894 | $i$ | 15.85417 | | −0.42973775 | −0.17081093 | |
| $P$ | 4.17 | $H$ | 17.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 11 24 | 568 | 0.0 | 0.1− | 2005 11 25 | 568 | 0.0 | 0.1+ | 2008 06 14 | 691 | 0.1− | 0.4− |
| 2005 11 24 | 568 | 0.0 | 0.0 | 2005 11 25 | 568 | 0.1+ | 0.0 | 2008 06 14 | 691 | 0.1− | 0.5+ |
| 2005 11 24 | 568 | 0.1− | 0.0 | 2008 06 03 | 691 | 0.4+ | 0.1− | 2008 06 14 | 691 | 0.4− | 0.3− |
| 2005 11 25 | 568 | 0.1− | 0.0 | 2008 06 03 | 691 | 0.1+ | 0.1− | 2008 06 24 | 691 | 0.2+ | 0.2− |
| 2005 11 25 | 568 | 0.1+ | 0.0 | 2008 06 03 | 691 | 0.2+ | 0.6+ | 2008 06 24 | 691 | 0.1+ | 0.7+ |
| 2005 11 25 | 568 | 0.0 | 0.0 | 2008 06 10 | 691 | 0.5+ | 0.2− | 2008 06 24 | 691 | 0.2+ | 0.2− |
| 2005 11 25 | 568 | 0.0 | 0.0 | 2008 06 10 | 691 | 0.5− | 0.4− | | | | |
| 2005 11 25 | 568 | 0.0 | 0.0 | 2008 06 10 | 691 | 0.5− | 0.0 | | | | |

### 2008 $LW_9$ = 2009 $SP_{232}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 38.75933 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22190109 | $\omega$ | 182.46613 | | +0.96788145 | +0.24042921 | |
| $a$ | 2.7020689 | $\Omega$ | 163.06575 | | −0.22612850 | +0.96027892 | |
| $e$ | 0.0959413 | $i$ | 14.61191 | | −0.10986988 | +0.14162697 | |
| $P$ | 4.44 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 26 | 645 | 0.0 | 0.0 | 2008 05 29 | 691 | 0.5− | 0.1+ | 2009 09 19 | 703 | 0.4− | 0.2− |
| 2000 09 26 | 645 | 0.0 | 0.2+ | 2008 05 29 | 691 | 0.1+ | 0.2+ | 2009 09 27 | 703 | 0.3+ | 0.3+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 11 05 | G96 | 0.1+ | 0.0 | 2008 06 06 | 691 | 0.3+ | 0.0 | 2009 09 27 | 703 | 0.4+ | 0.8− |
| 2005 11 05 | G96 | 0.1+ | 0.1− | 2008 06 06 | 691 | 0.4+ | 0.0 | 2009 09 27 | 703 | 0.9+ | 0.2− |
| 2005 11 05 | G96 | 0.0 | 0.1+ | 2008 06 06 | 691 | 0.1+ | 0.2+ | 2009 09 27 | 703 | 0.7− | 1.0+ |
| 2005 11 05 | G96 | 0.1− | 0.1+ | 2008 06 10 | 691 | 0.0 | 0.0 | 2009 09 27 | G96 | 0.0 | 0.0 |
| 2007 02 23 | G96 | 0.1+ | 0.6+ | 2008 06 10 | 691 | 0.4− | 0.8− | 2009 09 27 | G96 | 0.0 | 0.1+ |
| 2007 02 23 | G96 | 0.3+ | 0.2+ | 2008 06 10 | 691 | 0.0 | 0.2+ | 2009 09 27 | G96 | 0.0 | 0.1− |
| 2007 02 23 | G96 | 0.7+ | 1.0+ | 2009 09 19 | 703 | 0.2− | 0.0 | 2009 09 27 | G96 | 0.2+ | 0.1+ |
| 2007 02 23 | G96 | 0.8− | 0.7+ | 2009 09 19 | 703 | 0.0 | 0.4− | | | | |
| 2008 05 29 | 691 | 0.0 | 0.2+ | 2009 09 19 | 703 | 0.3− | 1.0− | | | | |

**2008 LC$_{15}$ = 2004 TF$_{202}$ = 2009 UY$_{132}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 96.89993 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18784281 | $\omega$ | 57.28243 | | +0.55435746 | +0.82345518 | |
| $a$ | 3.0195322 | $\Omega$ | 246.84744 | | −0.80082268 | +0.48820142 | |
| $e$ | 0.0616091 | $i$ | 7.55377 | | −0.22665138 | +0.28910369 | |
| $P$ | 5.25 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 30 | 645 | 0.0 | 0.1+ | 2008 05 28 | G96 | 0.3+ | 0.2− | 2008 07 29 | G96 | 0.1+ | 0.2− |
| 2000 11 30 | 645 | 0.0 | 0.2+ | 2008 06 08 | 691 | 0.0 | 0.0 | 2009 10 22 | 703 | 0.6+ | 0.1− |
| 2004 10 07 | 691 | 0.3− | 0.2+ | 2008 06 08 | 691 | 0.3− | 0.8+ | 2009 10 22 | 703 | 1.2− | 0.8+ |
| 2004 10 07 | 691 | 0.1− | 0.2+ | 2008 06 08 | 691 | 0.3+ | 0.6+ | 2009 10 22 | 703 | 0.2+ | 0.6− |
| 2004 10 07 | 691 | 0.1+ | 0.2+ | 2008 06 12 | 691 | 0.1− | 0.2+ | 2009 10 22 | 703 | 0.1− | 0.2− |
| 2004 10 11 | 691 | 0.1+ | 0.1− | 2008 06 12 | 691 | 0.5− | 0.3+ | 2009 11 06 | 703 | 0.5+ | 0.3− |
| 2004 10 11 | 691 | 0.3+ | 0.1+ | 2008 06 12 | 691 | 0.2− | 0.4− | 2009 11 06 | 703 | 0.1+ | 1.1− |
| 2004 10 11 | 691 | 0.1+ | 0.1− | 2008 07 02 | G96 | 0.2+ | 0.2− | 2009 11 06 | 703 | 0.3+ | 1.5− |
| 2007 03 16 | 691 | 0.0 | 0.4− | 2008 07 02 | G96 | 0.2+ | 0.1− | 2009 11 06 | 703 | 1.0− | 0.5+ |
| 2007 03 16 | 691 | 0.1− | 0.1− | 2008 07 02 | G96 | 0.4− | 0.3− | 2009 11 21 | G96 | 0.1− | 0.3+ |
| 2007 03 16 | 691 | 0.1+ | 0.3− | 2008 07 02 | G96 | 0.1+ | 0.2− | 2009 11 21 | G96 | 0.2+ | 0.2+ |
| 2008 05 28 | G96 | 0.1+ | 0.1− | 2008 07 29 | G96 | 0.1− | 0.1− | 2009 11 21 | G96 | 0.1+ | 0.3− |
| 2008 05 28 | G96 | 0.2+ | 0.1− | 2008 07 29 | G96 | 0.3+ | 0.2− | 2009 11 21 | G96 | 0.6+ | 0.1+ |
| 2008 05 28 | G96 | 0.8+ | 0.3+ | 2008 07 29 | G96 | 0.3− | 0.2− | | | | |

**2008 MT$_1$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 76.52253 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.20477830 | $\omega$ | 79.75263 | | +0.73200543 | +0.63938989 | |
| $a$ | 2.8506688 | $\Omega$ | 240.06823 | | −0.68128582 | +0.68483273 | |
| $e$ | 0.1141700 | $i$ | 15.75186 | | −0.00420554 | +0.34954929 | |
| $P$ | 4.81 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 06 28 | 185 | 0.6+ | 0.3− | 2008 07 04 | 185 | 0.4− | 0.8+ | 2008 08 02 | H36 | 0.7+ | 0.8− |
| 2008 06 28 | 185 | 0.4+ | 0.9− | 2008 07 04 | 185 | 0.6− | 0.4− | 2008 08 02 | H36 | 0.9− | 1.3− |
| 2008 06 28 | 185 | 0.4− | 0.6− | 2008 07 04 | 185 | 0.5− | 0.5− | 2009 10 26 | G96 | 0.2+ | 0.2− |
| 2008 06 28 | 185 | 0.2− | 0.1− | 2008 07 06 | 941 | 0.2+ | 0.6− | 2009 10 26 | G96 | 0.1+ | 0.1− |
| 2008 06 30 | 185 | 1.0− | 0.7+ | 2008 07 06 | 941 | 0.1+ | 0.2− | 2009 10 26 | G96 | 0.1− | 0.3− |
| 2008 06 30 | 185 | 1.4− | 0.1+ | 2008 07 06 | 941 | 0.3+ | 0.0 | 2009 10 26 | G96 | 0.4+ | 0.0 |
| 2008 06 30 | 185 | 0.0 | 0.1+ | 2008 07 06 | 941 | 0.1+ | 0.2+ | 2009 11 25 | 703 | 0.3+ | 1.0+ |
| 2008 06 30 | 185 | 0.9− | 1.1+ | 2008 07 07 | 734 | 0.8− | 0.5+ | 2009 11 25 | 703 | 0.4+ | 1.9+ |
| 2008 07 03 | J95 | 1.2+ | 0.9+ | 2008 07 07 | 734 | 0.7+ | 0.5− | 2009 11 25 | 703 | 0.6− | 1.8− |
| 2008 07 03 | J95 | 0.3− | 0.4− | 2008 07 09 | 185 | 0.2+ | 0.6− | 2009 11 25 | 703 | 0.8− | 0.1− |
| 2008 07 03 | J95 | 0.2− | 0.6+ | 2008 07 09 | 185 | 0.7+ | 0.9− | | | | |
| 2008 07 04 | 185 | 0.1− | 0.1+ | 2008 07 09 | 185 | 0.5− | 0.8− | | | | |

**2008 MC$_5$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 100.27069 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21884006 | $\omega$ | 230.40292 | | +0.94526742 | +0.22188817 | |
| $a$ | 2.7272074 | $\Omega$ | 115.56432 | | −0.15210595 | +0.94830437 | |
| $e$ | 0.2108013 | $i$ | 15.37893 | | −0.28867506 | +0.22690189 | |
| $P$ | 4.50 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 06 29 | E12 | 0.7− | 0.1− | 2008 08 23 | E12 | 0.2− | 0.2+ | 2008 12 02 | 703 | 0.5+ | 0.1+ |
| 2008 06 29 | E12 | 0.7− | 0.0 | 2008 09 09 | E12 | 0.4+ | 0.4− | 2009 10 26 | G96 | 0.5− | 0.3− |
| 2008 06 29 | E12 | 0.4− | 0.1− | 2008 09 09 | E12 | 0.3+ | 1.0− | 2009 10 26 | G96 | 0.2− | 0.1+ |
| 2008 06 29 | E12 | 0.2− | 1.1− | 2008 09 09 | E12 | 0.2+ | 0.2− | 2009 10 26 | G96 | 0.1+ | 0.1+ |
| 2008 08 05 | E12 | 0.8+ | 0.2+ | 2008 09 20 | E12 | 1.0+ | 0.8− | 2009 10 26 | G96 | 0.4+ | 0.1− |
| 2008 08 05 | E12 | 0.0 | 0.6+ | 2008 09 20 | E12 | 0.6+ | 0.0 | 2009 12 18 | G96 | 0.1+ | 0.1− |
| 2008 08 05 | E12 | 0.2+ | 0.2+ | 2008 09 20 | E12 | 0.3+ | 0.3− | 2009 12 18 | G96 | 0.8+ | 0.6− |
| 2008 08 05 | E12 | 0.1− | 0.3+ | 2008 09 20 | E12 | 0.4+ | 0.5− | 2009 12 18 | G96 | 0.1− | 0.2+ |
| 2008 08 23 | E12 | 0.3+ | 0.0 | 2008 12 02 | 703 | 0.9− | 0.9+ | 2009 12 18 | G96 | 0.5− | 0.3− |
| 2008 08 23 | E12 | 0.5− | 0.4+ | 2008 12 02 | 703 | 1.3− | 1.4+ | | | | |
| 2008 08 23 | E12 | 0.8− | 0.6+ | 2008 12 02 | 703 | 0.6− | 0.2− | | | | |

**2008 NZ$_3$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 154.30369 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27259955 | $\omega$ | 200.48412 | | +0.63564662 | +0.76106575 | |
| $a$ | 2.3556963 | $\Omega$ | 109.21542 | | −0.68784256 | +0.63443000 | |
| $e$ | 0.1188558 | $i$ | 7.87342 | | −0.35046537 | +0.13519430 | |
| $P$ | 3.62 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 07 15 | B11 | 1.7+ | 0.9+ | 2008 08 03 | J75 | 0.7− | 0.4− | 2008 08 23 | E12 | 0.3+ | 0.2+ |
| 2008 07 15 | B11 | 0.4+ | 0.2+ | 2008 08 03 | J75 | 0.0 | 0.0 | 2008 08 23 | E12 | 0.4− | 0.1− |
| 2008 07 15 | B11 | 0.3− | 0.0 | 2008 08 03 | J75 | 0.0 | 0.7− | 2008 08 30 | B11 | 0.1− | 1.5− |
| 2008 07 15 | B11 | 0.4− | 0.1− | 2008 08 23 | 704 | 0.1+ | 0.9− | 2008 08 30 | B11 | 0.2− | 0.4+ |
| 2008 07 25 | B11 | 0.1+ | 0.2− | 2008 08 23 | 704 | 1.0+ | 0.4+ | 2009 11 22 | B11 | 0.3+ | 0.1− |
| 2008 07 25 | B11 | 0.7− | 0.1− | 2008 08 23 | 704 | 0.0 | 0.6− | 2009 11 22 | B11 | 0.1− | 0.1− |
| 2008 07 25 | B11 | 0.1+ | 0.2+ | 2008 08 23 | 704 | 0.1− | 0.3+ | 2009 11 22 | B11 | 0.2+ | 0.1− |
| 2008 07 25 | B11 | 0.5− | 0.3+ | 2008 08 23 | 704 | 0.3+ | 1.2+ | 2009 11 22 | B11 | 0.5+ | 0.4− |
| 2008 08 02 | B11 | 0.0 | 0.3− | 2008 08 23 | E12 | 0.2+ | 1.2+ | 2009 12 10 | B11 | 0.1+ | 0.2− |
| 2008 08 02 | B11 | 0.1− | 0.2− | 2008 08 23 | E12 | 0.6− | 0.0 | 2009 12 10 | B11 | 1.0− | 1.1+ |

**2008 OL$_1$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 108.31077 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21283206 | $\omega$ | 356.46827 | | +0.76939832 | +0.63417115 | |
| $a$ | 2.7782928 | $\Omega$ | 323.80413 | | −0.58283917 | +0.64796553 | |
| $e$ | 0.2148982 | $i$ | 7.44365 | | −0.26138998 | +0.42186210 | |
| $P$ | 4.63 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 14 | 644 | 0.3− | 0.2− | 2008 07 28 | E12 | 0.4+ | 0.3+ | 2008 08 24 | 704 | 0.3+ | 0.1+ |
| 2004 10 14 | 644 | 0.2+ | 0.2+ | 2008 08 10 | J75 | 0.2− | 0.4− | 2008 09 06 | G96 | 0.3− | 0.0 |
| 2004 10 14 | 644 | 0.0 | 0.2+ | 2008 08 10 | J75 | 0.3− | 0.3− | 2008 09 06 | G96 | 0.2− | 0.1+ |
| 2006 01 30 | 691 | 0.2+ | 0.3− | 2008 08 10 | J75 | 0.3− | 0.2− | 2008 09 06 | G96 | 0.2− | 0.1+ |
| 2006 01 30 | 691 | 0.2+ | 0.1− | 2008 08 11 | J75 | 0.3− | 0.4− | 2008 09 06 | G96 | 0.6− | 0.1− |
| 2006 01 30 | 691 | 0.4− | 0.2+ | 2008 08 11 | J75 | 0.1− | 0.3− | 2008 09 21 | G96 | 0.0 | 0.2− |
| 2008 07 26 | J75 | 0.6+ | 0.1− | 2008 08 11 | J75 | 0.1− | 0.3− | 2008 09 21 | G96 | 0.2+ | 0.5+ |
| 2008 07 26 | J75 | 0.5− | 0.1− | 2008 08 19 | E12 | 1.5− | 0.9− | 2008 09 21 | G96 | 0.6+ | 0.3+ |
| 2008 07 26 | J75 | 1.1− | 0.3− | 2008 08 19 | E12 | 0.7+ | 0.1+ | 2008 09 21 | G96 | 0.5+ | 0.3− |
| 2008 07 27 | 620 | 0.1− | 0.2− | 2008 08 19 | E12 | 0.1+ | 0.6+ | 2008 11 19 | G96 | 0.1− | 0.1− |
| 2008 07 27 | 620 | 0.0 | 0.2− | 2008 08 19 | E12 | 0.6+ | 0.3− | 2008 11 19 | G96 | 0.1+ | 0.1− |
| 2008 07 27 | 620 | 0.1+ | 1.0− | 2008 08 24 | 704 | 1.6+ | 0.2+ | 2008 11 19 | G96 | 0.3+ | 0.1+ |
| 2008 07 28 | E12 | 0.3− | 0.7+ | 2008 08 24 | 704 | 0.8+ | 0.2− | 2008 11 19 | G96 | 0.6− | 0.0 |
| 2008 07 28 | E12 | 0.4− | 0.3+ | 2008 08 24 | 704 | 0.4+ | 0.3+ | | | | |
| 2008 07 28 | E12 | 0.0 | 0.7+ | 2008 08 24 | 704 | 0.1+ | 1.2+ | | | | |

**2008 OZ$_3$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 127.82701 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21248680 | $\omega$ | 356.90072 | | +0.38350790 | +0.91406682 | |
| $a$ | 2.7813016 | $\Omega$ | 295.61788 | | −0.84415162 | +0.28900657 | |
| $e$ | 0.2702860 | $i$ | 8.41283 | | −0.37460610 | +0.28452951 | |
| $P$ | 4.64 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 01 22 | G96 | 0.3− | 0.1− | 2008 07 31 | 704 | 0.2− | 0.1− | 2008 09 07 | 703 | 0.6+ | 0.3− |
| 2006 01 22 | G96 | 0.1+ | 0.4− | 2008 08 05 | J75 | 0.2+ | 0.3− | 2008 09 07 | 703 | 0.8+ | 0.1+ |
| 2006 01 22 | G96 | 0.1+ | 0.0 | 2008 08 05 | J75 | 0.3+ | 0.2− | 2008 09 07 | 703 | 0.3− | 0.3+ |
| 2006 01 22 | G96 | 0.1+ | 0.1+ | 2008 08 05 | J75 | 0.3+ | 0.0 | 2009 11 27 | G96 | 0.2+ | 0.1+ |
| 2008 07 26 | E12 | 0.1− | 0.8− | 2008 08 09 | J75 | 0.2− | 0.0 | 2009 11 27 | G96 | 0.5+ | 0.2+ |
| 2008 07 26 | E12 | 0.5+ | 0.5+ | 2008 08 09 | J75 | 0.1+ | 0.3− | 2009 11 27 | G96 | 0.2− | 0.1− |
| 2008 07 29 | 691 | 0.1− | 0.0 | 2008 08 09 | J75 | 0.2+ | 0.2+ | 2009 11 27 | G96 | 0.3− | 0.2− |
| 2008 07 29 | 691 | 0.1− | 0.1− | 2008 08 30 | 704 | 0.4− | 1.0− | 2009 11 27 | G96 | 0.0 | 0.3− |
| 2008 07 29 | 691 | 0.3− | 0.2+ | 2008 08 30 | 704 | 0.2− | 0.1− | 2009 12 18 | G96 | 0.3+ | 0.2+ |
| 2008 07 31 | 704 | 1.0+ | 0.2− | 2008 08 30 | 704 | 0.1− | 0.4+ | 2009 12 18 | G96 | 0.0 | 0.2+ |
| 2008 07 31 | 704 | 0.6− | 0.2− | 2008 08 30 | 704 | 0.0 | 0.6+ | 2009 12 18 | G96 | 0.0 | 0.2+ |
| 2008 07 31 | 704 | 0.1− | 0.7+ | 2008 08 30 | 704 | 0.1+ | 0.4+ | 2009 12 18 | G96 | 0.5− | 0.1+ |
| 2008 07 31 | 704 | 0.0 | 0.0 | 2008 09 07 | 703 | 0.3− | 0.2− | | | | |

**2008 OZ$_6$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 107.63899 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22949706 | $\omega$ | 54.67116 | | +0.97255110 | +0.15913022 | |
| $a$ | 2.6421124 | $\Omega$ | 295.63075 | | −0.22145553 | +0.85695221 | |
| $e$ | 0.1632284 | $i$ | 10.85352 | | +0.07142694 | +0.49021473 | |
| $P$ | 4.29 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 02 14 | 807 | 0.1− | 0.3+ | 2004 12 16 | 703 | 0.0 | 0.4− | 2008 09 21 | 703 | 0.7− | 0.5+ |
| 2002 02 14 | 807 | 0.6+ | 0.2+ | 2005 10 07 | 568 | 0.1+ | 0.0 | 2008 09 28 | 703 | 0.1− | 0.5+ |
| 2002 02 14 | 807 | 0.0 | 0.4+ | 2005 10 07 | 568 | 0.0 | 0.0 | 2008 09 28 | 703 | 0.5+ | 0.3+ |
| 2002 02 14 | 807 | 0.0 | 0.1+ | 2005 10 07 | 568 | 0.1+ | 0.1+ | 2008 09 28 | 703 | 1.0− | 0.3− |
| 2002 02 14 | 807 | 0.2+ | 0.1+ | 2008 07 29 | 106 | 0.0 | 0.2− | 2008 09 28 | 703 | 0.2+ | 0.3+ |
| 2004 10 07 | 644 | 0.0 | 0.3− | 2008 07 29 | 106 | 0.5− | 0.5− | 2009 11 21 | G96 | 0.4− | 0.3+ |
| 2004 10 07 | 644 | 0.0 | 0.2− | 2008 07 29 | 106 | 0.5− | 0.9+ | 2009 11 21 | G96 | 0.5+ | 0.4− |
| 2004 10 07 | 644 | 0.3+ | 0.1− | 2008 07 29 | 106 | 0.4− | 0.6− | 2009 11 21 | G96 | 0.4+ | 0.1− |
| 2004 11 03 | 703 | 1.1− | 0.1− | 2008 07 30 | 703 | 0.7+ | 0.4− | 2009 11 21 | G96 | 0.1+ | 0.2− |
| 2004 11 03 | 703 | 0.1− | 1.0+ | 2008 07 30 | 703 | 1.3− | 0.5− | 2009 12 17 | G96 | 0.0 | 0.4− |
| 2004 11 03 | 703 | 0.6+ | 0.2+ | 2008 07 30 | 703 | 0.8− | 0.3− | 2009 12 17 | G96 | 0.3+ | 0.3− |
| 2004 11 03 | 703 | 0.1+ | 0.9+ | 2008 07 30 | 703 | 0.4+ | 0.0 | 2009 12 17 | G96 | 0.0 | 0.0 |
| 2004 11 19 | 699 | 0.8+ | 0.4+ | 2008 08 01 | 704 | 0.2+ | 0.4+ | 2009 12 17 | G96 | 0.2− | 0.2− |
| 2004 11 19 | 699 | 0.6+ | 0.3− | 2008 08 01 | 704 | 0.2− | 0.4− | 2009 12 18 | 691 | 0.2− | 0.1− |
| 2004 11 19 | 699 | 0.8+ | 0.5− | 2008 08 01 | 704 | 0.1+ | 0.6+ | 2009 12 18 | 691 | 0.2− | 0.1+ |
| 2004 11 19 | 699 | 1.4− | 0.1+ | 2008 08 01 | 704 | 0.2+ | 0.2+ | 2009 12 18 | 691 | 0.3− | 0.1− |
| 2004 12 16 | 703 | 0.9− | 0.1− | 2008 09 21 | 703 | 1.2+ | 0.4− | 2009 12 26 | 691 | 0.0 | 0.1− |
| 2004 12 16 | 703 | 0.2− | 0.6− | 2008 09 21 | 703 | 0.8+ | 0.0 | 2009 12 26 | 691 | 0.5+ | 0.5+ |
| 2004 12 16 | 703 | (1.9− | 0.4+) | 2008 09 21 | 703 | 0.6+ | 0.3+ | 2009 12 26 | 691 | 0.1− | 0.1− |

**2008 OK$_{10}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 85.10187 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.25288968 | $\omega$ | 164.45558 | | +0.83017634 | −0.55099984 | |
| $a$ | 2.4765588 | $\Omega$ | 229.29602 | | +0.49881865 | +0.80213239 | |
| $e$ | 0.2903476 | $i$ | 6.42946 | | +0.24897230 | +0.23017996 | |
| $P$ | 3.90 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 03 12 | 645 | 0.0 | 0.1+ | 2008 08 03 | A77 | 0.2− | 0.5+ | 2008 08 30 | 704 | 1.3+ | 0.6+ |
| 2002 03 12 | 645 | 0.1+ | 0.2+ | 2008 08 03 | A77 | 0.4− | 0.3− | 2008 08 30 | 704 | 0.2+ | 0.8+ |
| 2007 05 11 | G96 | 0.1− | 0.0 | 2008 08 04 | J75 | 0.5+ | 0.5+ | 2008 09 05 | 704 | 1.1− | 0.2+ |
| 2007 05 11 | G96 | 0.0 | 0.4− | 2008 08 04 | J75 | 0.5+ | 0.7+ | 2008 09 05 | 704 | 0.4− | 0.2+ |
| 2007 05 11 | G96 | 0.5+ | 0.3+ | 2008 08 04 | J75 | 0.1− | 0.0 | 2008 09 05 | 704 | 0.3− | 0.7+ |
| 2007 05 11 | G96 | 0.2− | 0.3− | 2008 08 08 | J75 | 0.4− | 0.3− | 2008 09 05 | 704 | 0.4− | 0.0 |
| 2008 07 31 | A77 | 0.2− | 0.7+ | 2008 08 08 | J75 | 0.4− | 0.2− | 2008 09 05 | 704 | 0.3− | 1.6+ |
| 2008 07 31 | A77 | 0.1+ | 1.2− | 2008 08 08 | J75 | 1.1− | 0.1+ | 2008 10 26 | G96 | 0.1− | 0.3− |
| 2008 08 01 | A77 | 0.5− | 0.9+ | 2008 08 20 | 691 | 0.2− | 0.1− | 2008 10 26 | G96 | 0.2− | 0.3− |
| 2008 08 01 | A77 | 0.0 | 0.2+ | 2008 08 20 | 691 | 0.3− | 0.0 | 2008 10 26 | G96 | 0.1− | 0.1− |
| 2008 08 01 | A77 | 0.3− | 0.4+ | 2008 08 20 | 691 | 0.2− | 0.1− | 2008 10 26 | G96 | 0.2− | 0.1+ |
| 2008 08 01 | 704 | 0.2+ | 0.0 | 2008 08 26 | 704 | 0.3+ | 0.8+ | 2008 12 02 | G96 | 0.3− | 0.2− |
| 2008 08 01 | 704 | 0.6+ | 0.2− | 2008 08 26 | 704 | 0.8+ | 0.0 | 2008 12 02 | G96 | 0.6− | 0.1− |
| 2008 08 01 | 704 | 0.1− | 0.0 | 2008 08 26 | 704 | 0.8+ | 0.3+ | 2008 12 02 | G96 | 0.4− | 0.2+ |
| 2008 08 01 | 704 | 0.2− | 1.2− | 2008 08 30 | 704 | 0.6+ | 0.1+ | 2008 12 02 | G96 | 0.4+ | 0.1+ |
| 2008 08 01 | 704 | 0.3− | 0.4− | 2008 08 30 | 704 | 1.4+ | 0.5− | | | | |
| 2008 08 03 | A77 | 0.4+ | 0.6+ | 2008 08 30 | 704 | 0.8+ | 0.3+ | | | | |

**2008 OA$_{11}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 108.80184 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18207569 | $\omega$ | 349.44249 | | +0.82816224 | +0.54546535 | |
| $a$ | 3.0829613 | $\Omega$ | 336.07600 | | −0.48828865 | +0.58923553 | |
| $e$ | 0.3561600 | $i$ | 18.53335 | | −0.27517540 | +0.59604451 | |
| $P$ | 5.41 | $H$ | 15.2 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 10 05 | 327 | 0.1− | 0.3+ | 2008 08 01 | 704 | 0.9− | 1.1+ | 2008 10 04 | 703 | 0.1+ | 0.1− |
| 1997 10 05 | 327 | 0.3− | 0.3+ | 2008 08 01 | 704 | 0.6− | 1.6+ | 2008 10 04 | 703 | 0.2+ | 0.5+ |
| 1997 10 05 | 327 | 0.3− | 0.2+ | 2008 08 01 | 704 | 0.5− | 0.1− | 2008 10 04 | 703 | 0.6+ | 0.0 |
| 2006 02 07 | 691 | 0.4+ | 0.4+ | 2008 08 01 | 704 | 0.3− | 0.3+ | 2008 10 04 | J75 | 0.2+ | 0.0 |
| 2006 02 07 | 691 | 0.3+ | 0.0 | 2008 09 02 | J75 | 0.5− | 0.1− | 2008 10 04 | J75 | 0.2+ | 0.6− |
| 2006 02 07 | 691 | 0.1− | 0.4+ | 2008 09 02 | J75 | 0.3+ | 0.4+ | 2008 10 04 | J75 | 0.1+ | 0.2− |
| 2008 07 28 | 703 | 1.8+ | 0.9− | 2008 09 02 | J75 | 0.2− | 0.6− | 2008 10 31 | 703 | 0.7− | 0.0 |
| 2008 07 28 | 703 | 0.7− | 0.3+ | 2008 09 09 | 703 | 0.9− | 0.3− | 2008 10 31 | 703 | 1.2+ | 0.6+ |
| 2008 07 28 | 703 | 0.2+ | 1.0+ | 2008 09 09 | 703 | 0.2+ | 0.3− | 2008 10 31 | 703 | 0.6+ | 0.1− |
| 2008 07 28 | 703 | 1.3− | 0.8+ | 2008 09 09 | 703 | 0.0 | 0.4− | 2008 10 31 | 703 | 0.4− | 0.1+ |
| 2008 07 31 | 704 | 0.7− | 0.1+ | 2008 09 09 | 703 | 0.2+ | 0.1− | 2008 11 04 | 704 | 0.2− | 0.3− |
| 2008 07 31 | 704 | 0.6− | 0.8− | 2008 09 23 | 703 | 0.4+ | 0.8− | 2008 11 04 | 704 | 0.4− | 0.3+ |
| 2008 07 31 | 704 | 0.6− | 0.1− | 2008 09 23 | 703 | 0.7− | 0.9+ | 2008 11 04 | 704 | 0.0 | 0.4+ |
| 2008 07 31 | 704 | 0.6− | 0.7− | 2008 09 23 | 703 | 0.7+ | 0.1+ | 2008 11 04 | 704 | 0.2+ | 0.2+ |
| 2008 07 31 | 704 | 0.6− | 0.0 | 2008 09 23 | 703 | 1.0+ | 0.6− | 2008 11 04 | 704 | 0.1+ | 0.1+ |
| 2008 08 01 | 704 | 0.0 | 0.1+ | 2008 10 04 | 703 | 0.5+ | 0.0 | | | | |

**2008 OP$_{12}$ = 2009 UH$_{104}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 51.95451 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.12557801 | $\omega$ | 183.82858 | | +0.85925827 | +0.51043612 | |
| $a$ | 3.9493624 | $\Omega$ | 145.41227 | | −0.46774365 | +0.81059689 | |
| $e$ | 0.2195807 | $i$ | 3.39515 | | −0.20710169 | +0.28703248 | |
| $P$ | 7.85 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 07 28 | J75 | 0.0 | 0.7− | 2008 07 30 | 620 | 0.1+ | 0.1+ | 2009 10 25 | G96 | 0.2+ | 0.1− |
| 2008 07 28 | J75 | 0.3− | 0.4− | 2008 07 30 | 620 | 0.6− | 0.4− | 2009 10 25 | G96 | 0.6+ | 0.5− |
| 2008 07 28 | J75 | 0.1+ | 0.1+ | 2008 08 19 | H55 | 0.1+ | 0.3+ | 2009 10 25 | G96 | 0.3+ | 0.2− |
| 2008 07 29 | G96 | 0.2− | 0.1− | 2008 08 19 | H55 | 0.1+ | 0.2+ | 2009 10 25 | G96 | 0.4+ | 0.1− |
| 2008 07 29 | G96 | 0.1+ | 0.1− | 2008 08 19 | H55 | 0.2+ | 0.9+ | 2009 10 26 | 291 | 0.3− | 0.1− |
| 2008 07 29 | G96 | 0.4+ | 0.1+ | 2009 09 15 | 691 | 0.0 | 0.2+ | 2009 10 26 | 291 | 0.2− | 0.2+ |
| 2008 07 29 | G96 | 0.2+ | 0.1− | 2009 09 15 | 691 | 0.4+ | 0.1+ | 2009 10 26 | 291 | 0.1+ | 0.0 |
| 2008 07 30 | 620 | 0.1− | 0.0 | 2009 09 15 | 691 | 0.4− | 0.1− | | | | |

**2008 OE$_{14}$ = 2007 DG$_{78}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 154.46323 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26438399 | $\omega$ | 130.96919 | | +0.27578146 | +0.96045972 | |
| $a$ | 2.4042481 | $\Omega$ | 154.96154 | | −0.90681117 | +0.27315724 | |
| $e$ | 0.2153426 | $i$ | 5.18290 | | −0.31880729 | +0.05387253 | |
| $P$ | 3.73 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 02 13 | G96 | 0.3+ | 0.1+ | 2007 02 25 | G96 | 0.4− | 0.1+ | 2008 07 31 | 704 | 0.6− | 0.2+ |
| 2007 02 13 | G96 | 0.2+ | 0.3− | 2007 03 09 | G96 | 0.1+ | 0.0 | 2008 07 31 | 704 | 0.6+ | 0.5+ |
| 2007 02 13 | G96 | 0.1+ | 0.1− | 2007 03 09 | G96 | 0.4+ | 0.2− | 2008 08 04 | 704 | 0.2− | 0.3− |
| 2007 02 13 | G96 | 0.4− | 0.2− | 2007 03 09 | G96 | 0.7+ | 0.6− | 2008 08 04 | 704 | 0.6+ | 0.5+ |
| 2007 02 23 | G96 | 0.1+ | 0.0 | 2007 03 09 | G96 | 0.2− | 0.0 | 2008 08 04 | 704 | 0.1+ | 0.5+ |
| 2007 02 23 | G96 | 0.0 | 0.1+ | 2008 07 28 | G96 | 0.3− | 0.0 | 2008 08 04 | 704 | 0.1− | 0.6− |
| 2007 02 23 | G96 | 0.2− | 0.2+ | 2008 07 28 | G96 | 0.6− | 0.2− | 2008 08 04 | 704 | 0.2+ | 0.5+ |
| 2007 02 23 | G96 | 0.8− | 0.5− | 2008 07 28 | G96 | 0.4− | 0.3− | 2008 09 06 | G96 | 0.4+ | 0.3− |
| 2007 02 25 | G96 | 0.3− | 0.2+ | 2008 07 28 | G96 | 0.1− | 0.2− | 2008 09 06 | G96 | 0.5− | 0.5− |
| 2007 02 25 | G96 | 0.4+ | 0.2+ | 2008 07 31 | 704 | 1.3+ | 0.2− | | | | |
| 2007 02 25 | G96 | 0.1− | 0.1+ | 2008 07 31 | 704 | 0.3− | 0.3− | | | | |

**2008 OP$_{19}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 181.99051 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22898276 | $\omega$ | 87.37286 | | −0.19989935 | +0.97964990 | |
| $a$ | 2.6460672 | $\Omega$ | 171.03469 | | −0.93872561 | −0.18620040 | |
| $e$ | 0.0896262 | $i$ | 6.65667 | | −0.28077478 | −0.07493657 | |
| $P$ | 4.30 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 04 03 | 691 | 0.4− | 0.2+ | 2008 08 07 | 691 | 0.1− | 0.6+ | 2008 09 07 | G96 | 0.2− | 0.3− |
| 1994 04 03 | 691 | 0.2+ | 0.4− | 2008 08 07 | 691 | 0.5− | 0.6− | 2008 09 23 | G96 | 0.2+ | 0.4− |
| 1994 04 03 | 691 | 0.1+ | 0.3− | 2008 08 07 | 691 | 0.1+ | 0.0 | 2008 09 23 | G96 | 0.2+ | 0.2+ |
| 2007 05 07 | 691 | 0.2+ | 0.3+ | 2008 08 21 | 691 | 1.1+ | 0.2− | 2008 09 23 | G96 | 0.7+ | 0.2+ |
| 2007 05 07 | 691 | 0.0 | 0.4+ | 2008 08 21 | 691 | 0.7− | 0.1− | 2008 09 23 | G96 | 0.1+ | 0.4+ |
| 2007 05 07 | 691 | 0.1− | 0.3− | 2008 08 21 | 691 | 0.3+ | 0.2− | 2008 10 02 | G96 | 0.1− | 0.2+ |
| 2008 07 29 | 691 | 0.1− | 0.2+ | 2008 09 07 | G96 | 0.0 | 0.2+ | 2008 10 02 | G96 | 0.0 | 0.3+ |
| 2008 07 29 | 691 | 0.1− | 0.4− | 2008 09 07 | G96 | 0.1+ | 0.1− | 2008 10 02 | G96 | 0.0 | 0.4+ |
| 2008 07 29 | 691 | 0.2− | 0.2+ | 2008 09 07 | G96 | 0.3− | 0.3− | 2008 10 02 | G96 | 0.1+ | 0.6+ |

**2008 OS$_{19}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 138.87992 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21853696 | $\omega$ | 137.44093 | | +0.43932868 | +0.89766795 | |
| $a$ | 2.7297285 | $\Omega$ | 158.55024 | | −0.84742967 | +0.42683597 | |
| $e$ | 0.1440804 | $i$ | 5.39596 | | −0.29808264 | +0.10955958 | |
| $P$ | 4.51 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 08 07 | 691 | 0.0 | 0.3+ | 2008 08 07 | 691 | 0.2+ | 0.1+ | 2008 09 06 | G96 | 0.2− | 0.2− |
| 1999 08 07 | 691 | 0.1− | 0.3+ | 2008 08 07 | 691 | 0.7− | 0.1+ | 2008 09 06 | G96 | 0.1− | 0.2− |
| 1999 08 07 | 691 | 0.0 | 0.5− | 2008 08 07 | 691 | 0.8+ | 0.1− | 2008 09 06 | G96 | 0.6− | 0.3− |
| 2007 04 22 | 691 | 0.2+ | 0.0 | 2008 08 21 | 691 | 0.2− | 0.0 | 2008 09 06 | G96 | 0.1+ | 0.1− |
| 2007 04 22 | 691 | 0.0 | 0.1+ | 2008 08 21 | 691 | 0.0 | 0.6+ | 2008 10 02 | G96 | 1.2− | 0.1− |
| 2007 04 22 | 691 | 0.3− | 0.3− | 2008 08 21 | 691 | 0.3+ | 0.2− | 2008 10 02 | G96 | 0.0 | 0.3− |
| 2008 07 29 | 691 | 0.1+ | 0.3+ | 2008 08 27 | J75 | 0.3+ | 1.0− | 2008 10 02 | G96 | 0.2+ | 0.5− |
| 2008 07 29 | 691 | 0.0 | 0.0 | 2008 08 27 | J75 | 0.3+ | 0.6− | 2008 10 02 | G96 | 0.1− | 0.3− |
| 2008 07 29 | 691 | 0.2− | 0.0 | 2008 08 27 | J75 | 0.4+ | 0.3− | | | | |

**2008 OG$_{23}$ = 2009 WL$_{20}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 63.76751 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17429071 | $\omega$ | 44.72492 | | +0.99703888 | +0.04567317 | |
| $a$ | 3.1740947 | $\Omega$ | 312.55124 | | −0.06865070 | +0.89115379 | |
| $e$ | 0.2042827 | $i$ | 4.81741 | | +0.03464892 | +0.45139659 | |
| $P$ | 5.65 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 24 | 691 | 0.1− | 0.0 | 2008 09 06 | G96 | 0.3− | 0.1+ | 2009 11 18 | 691 | 0.4− | 0.4+ |
| 2003 10 24 | 691 | 0.2+ | 0.1+ | 2008 09 06 | G96 | 0.2+ | 0.3− | 2009 11 22 | 691 | 0.7+ | 1.4− |
| 2003 10 24 | 691 | 0.2− | 0.3+ | 2008 09 06 | G96 | 0.3+ | 0.0 | 2009 11 22 | 691 | 0.3− | 0.0 |
| 2008 07 30 | G96 | 0.4− | 0.7− | 2008 09 06 | G96 | 0.2− | 0.4− | 2009 11 22 | 691 | 0.2− | 0.0 |
| 2008 07 30 | G96 | 0.1− | 0.2+ | 2009 11 17 | G96 | 0.4+ | 0.4+ | 2009 12 18 | G96 | 0.1+ | 0.1+ |
| 2008 07 30 | G96 | 0.3− | 0.1+ | 2009 11 17 | G96 | 0.1− | 0.3+ | 2009 12 18 | G96 | 1.0+ | 0.0 |
| 2008 07 30 | G96 | 0.0 | 0.1+ | 2009 11 17 | G96 | 0.1+ | 0.2+ | 2009 12 18 | G96 | 0.1+ | 0.3− |
| 2008 08 10 | J75 | 0.4+ | 0.1− | 2009 11 17 | G96 | 0.0 | 0.1+ | 2009 12 18 | G96 | 0.3− | 0.0 |
| 2008 08 10 | J75 | 0.4+ | 0.0 | 2009 11 18 | 691 | 0.2− | 0.1− | | | | |
| 2008 08 10 | J75 | 0.6+ | 0.0 | 2009 11 18 | 691 | 0.0 | 0.5+ | | | | |

**2008 PY$_4$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 129.71570 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23050241 | $\omega$ | 79.83731 | | +0.34838177 | +0.93609650 | |
| $a$ | 2.6344243 | $\Omega$ | 210.69015 | | −0.89292506 | +0.31568006 | |
| $e$ | 0.3672136 | $i$ | 5.45416 | | −0.28515782 | +0.15514328 | |
| $P$ | 4.28 | $H$ | 17.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 09 | 691 | 0.1+ | 0.1− | 2008 07 26 | E12 | 0.6+ | 0.0 | 2008 08 07 | J75 | 0.1− | 0.1+ |
| 2004 09 09 | 691 | 0.1− | 0.3− | 2008 08 04 | J75 | 0.6− | 1.3− | 2008 09 07 | 703 | 0.0 | 0.1− |
| 2004 09 09 | 691 | 0.0 | 0.1+ | 2008 08 04 | J75 | 0.8+ | 0.8− | 2008 09 07 | 703 | 0.7− | 0.1+ |
| 2004 09 23 | 691 | 0.1− | 0.1+ | 2008 08 04 | J75 | 0.3− | 0.2+ | 2008 09 07 | 703 | 1.0+ | 1.4+ |
| 2004 09 23 | 691 | 0.2+ | 0.1+ | 2008 08 05 | 620 | 0.3− | 0.1− | 2008 09 07 | 703 | 1.9+ | 1.0+ |
| 2004 09 23 | 691 | 0.2− | 0.1+ | 2008 08 05 | 620 | 0.3− | 0.2− | 2008 10 07 | G96 | 0.1− | 0.2− |
| 2008 07 26 | E12 | 0.1+ | 0.2+ | 2008 08 05 | 620 | 0.3− | 0.1− | 2008 10 07 | G96 | 0.2− | 0.5− |
| 2008 07 26 | E12 | 0.5− | 0.0 | 2008 08 07 | J75 | (1.7+ | 2.6−) | 2008 10 07 | G96 | 0.4− | 0.2− |
| 2008 07 26 | E12 | 0.0 | 0.4+ | 2008 08 07 | J75 | 0.1− | 0.5+ | 2008 10 07 | G96 | 0.4− | 0.1− |

**2008 PE$_5$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 68.99028 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17380644 | $\omega$ | 187.13396 | | +0.99524739 | +0.07849779 | |
| $a$ | 3.1799879 | $\Omega$ | 167.90296 | | −0.07008590 | +0.98825946 | |
| $e$ | 0.2637093 | $i$ | 15.96049 | | −0.06760627 | +0.13107759 | |
| $P$ | 5.67 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 03 03 | 691 | 0.1− | 0.1+ | 2008 08 06 | 620 | 0.3− | 0.1+ | 2008 09 07 | 703 | 0.4− | 0.9− |
| 2000 03 03 | 691 | 0.0 | 0.0 | 2008 08 09 | J75 | 0.4+ | 0.3− | 2008 09 07 | 703 | 0.4+ | 0.1+ |
| 2000 03 03 | 691 | 0.1+ | 0.1+ | 2008 08 09 | J75 | 0.2+ | 0.3− | 2008 09 07 | 703 | 0.7+ | 0.2+ |
| 2007 05 22 | G96 | 0.8− | 0.2− | 2008 08 09 | J75 | 0.2− | 0.2− | 2008 09 07 | 703 | 0.5+ | 0.0 |
| 2007 05 22 | G96 | 0.2+ | 1.0+ | 2008 08 10 | 620 | 0.3− | 0.2+ | 2008 10 23 | G96 | 0.1+ | 0.1− |
| 2007 05 22 | G96 | 0.0 | 0.5− | 2008 08 10 | 620 | 0.1+ | 0.1+ | 2008 10 23 | G96 | 0.6+ | 0.0 |
| 2007 05 22 | G96 | 0.4+ | 0.6− | 2008 08 10 | 620 | 0.1− | 0.3+ | 2008 10 23 | G96 | 1.5− | 0.5+ |
| 2008 08 04 | J75 | 0.1+ | 0.2+ | 2008 08 30 | 704 | 0.6− | 0.3− | 2008 10 23 | G96 | 0.1− | 0.5− |
| 2008 08 04 | J75 | 0.1+ | 0.1− | 2008 08 30 | 704 | 0.6+ | 0.2+ | 2008 11 04 | G96 | 0.7− | 0.3− |
| 2008 08 05 | J75 | 0.0 | 0.0 | 2008 08 30 | 704 | 0.1− | 0.3+ | 2008 11 04 | G96 | 0.1+ | 0.1− |
| 2008 08 06 | 620 | 0.0 | 0.0 | 2008 08 30 | 704 | 0.1− | 0.3+ | 2008 11 04 | G96 | 0.4+ | 0.2− |
| 2008 08 06 | 620 | 0.2− | 0.0 | 2008 08 30 | 704 | 0.0 | 1.2+ | 2008 11 04 | G96 | 0.2+ | 0.1+ |

**2008 PO$_5$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 125.44151 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23002242 | $\omega$ | 69.31829 | | +0.60544443 | +0.79471963 | |
| $a$ | 2.6380880 | $\Omega$ | 238.01638 | | −0.74781931 | +0.54950792 | |
| $e$ | 0.1269082 | $i$ | 2.91276 | | −0.27240287 | +0.25780176 | |
| $P$ | 4.28 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 03 16 | 691 | 0.5+ | 0.0 | 2008 07 28 | G96 | 0.4− | 0.3− | 2009 12 10 | G96 | 0.5+ | 0.1− |
| 2007 03 16 | 691 | 0.2− | 0.1− | 2008 07 28 | G96 | 0.1+ | 0.1− | 2009 12 10 | G96 | 0.3+ | 0.4+ |
| 2007 03 16 | 691 | 0.2− | 0.3+ | 2008 08 01 | J75 | 0.4+ | 0.5− | 2009 12 10 | G96 | 0.4+ | 0.5− |
| 2008 07 01 | 691 | 0.1+ | 0.3+ | 2008 08 01 | J75 | 0.2+ | 0.2− | 2009 12 10 | G96 | 0.2+ | 0.2− |
| 2008 07 01 | 691 | 0.1− | 0.1+ | 2008 08 01 | J75 | 0.2+ | 0.6− | 2009 12 11 | G96 | 0.3− | 0.2− |
| 2008 07 01 | 691 | 0.2− | 0.5+ | 2009 11 20 | 691 | 0.2+ | 0.2− | 2009 12 11 | G96 | 0.3− | 0.3− |
| 2008 07 28 | G96 | 0.0 | 0.2− | 2009 11 20 | 691 | 0.3− | 0.3+ | 2009 12 11 | G96 | 0.2− | 0.1− |
| 2008 07 28 | G96 | 0.1− | 0.2− | 2009 11 20 | 691 | 0.1− | 0.5+ | 2009 12 11 | G96 | 0.3+ | 0.2− |

**2008 PH$_7$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 104.16297 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21359762 | $\omega$ | 65.21368 | | +0.81682481 | | +0.56547967 |
| $a$ | 2.7716504 | $\Omega$ | 260.15726 | | −0.56224937 | | +0.73607117 |
| $e$ | 0.2120348 | $i$ | 6.65290 | | −0.12913351 | | +0.37206448 |
| $P$ | 4.61 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 11 11 | 691 | 0.1+ | 0.1− | 2008 08 06 | J75 | 0.3− | 0.4− | 2008 09 05 | 704 | 0.4− | 0.7+ | | | | | |
| 2004 11 11 | 691 | 0.1− | 0.0 | 2008 08 06 | J75 | 0.1− | 0.4− | 2008 10 26 | G96 | 0.1+ | 0.2− | | | | | |
| 2004 11 11 | 691 | 0.0 | 0.0 | 2008 08 26 | 704 | 0.1− | 0.1− | 2008 10 26 | G96 | 1.0+ | 0.0 | | | | | |
| 2008 07 26 | E12 | 0.1+ | 0.6+ | 2008 08 26 | 704 | 1.0+ | 0.8− | 2008 10 26 | G96 | 1.4− | 0.3− | | | | | |
| 2008 07 26 | E12 | 0.6− | 0.8− | 2008 08 26 | 704 | 1.4+ | 1.1+ | 2008 10 26 | G96 | 0.5− | 0.1− | | | | | |
| 2008 07 26 | E12 | 0.2− | 0.1− | 2008 08 30 | 704 | 0.4+ | 0.5+ | 2009 12 16 | G96 | 0.0 | 0.2+ | | | | | |
| 2008 07 26 | E12 | 0.5− | 0.8− | 2008 08 30 | 704 | 0.3+ | 0.8+ | 2009 12 16 | G96 | 0.1+ | 0.2− | | | | | |
| 2008 08 05 | J75 | 0.2− | 0.5− | 2008 08 30 | 704 | 0.3− | 0.2+ | 2009 12 16 | G96 | 0.4− | 0.1+ | | | | | |
| 2008 08 05 | J75 | 0.3− | 0.6− | 2008 08 30 | 704 | 0.2− | 0.3+ | 2009 12 16 | G96 | 0.3+ | 0.1+ | | | | | |
| 2008 08 05 | J75 | 0.5+ | 0.3− | 2008 09 05 | 704 | 0.8+ | 1.2+ | | | | | | | | | |
| 2008 08 06 | J75 | 0.5− | 0.7− | 2008 09 05 | 704 | 0.0 | 0.7+ | | | | | | | | | |

**2008 PL$_8$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 169.75668 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23172187 | $\omega$ | 329.60153 | | −0.12746021 | | +0.97481728 |
| $a$ | 2.6251737 | $\Omega$ | 292.54011 | | −0.86546003 | | −0.19943076 |
| $e$ | 0.1017690 | $i$ | 11.42727 | | −0.48449235 | | +0.09979298 |
| $P$ | 4.25 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 01 09 | 691 | 0.2+ | 0.2+ | 2008 08 06 | J75 | 0.7+ | 0.4+ | 2008 09 05 | 691 | 0.4− | 0.1− | | | | | |
| 2002 01 09 | 691 | 0.1− | 0.0 | 2008 08 07 | J75 | 0.6+ | 0.0 | 2008 10 18 | 291 | 0.1− | 0.0 | | | | | |
| 2002 01 09 | 691 | 0.0 | 0.1+ | 2008 08 07 | J75 | 0.2− | 0.2− | 2008 10 18 | 291 | 0.0 | 0.0 | | | | | |
| 2006 02 01 | G96 | 0.7− | 0.6− | 2008 08 07 | J75 | 0.2− | 0.2+ | 2008 10 18 | 291 | 0.0 | 0.2+ | | | | | |
| 2006 02 01 | G96 | 0.2− | 0.4− | 2008 09 03 | 691 | 0.2+ | 0.0 | 2008 11 01 | G96 | 0.5+ | 0.4− | | | | | |
| 2006 02 01 | G96 | 0.4+ | 0.1+ | 2008 09 03 | 691 | 0.2− | 0.3+ | 2008 11 01 | G96 | 0.6+ | 0.5− | | | | | |
| 2006 02 01 | G96 | 0.3+ | 0.1− | 2008 09 03 | 691 | 0.1+ | 0.1+ | 2008 11 01 | G96 | 0.3− | 0.0 | | | | | |
| 2008 08 06 | J75 | 0.4+ | 0.1− | 2008 09 05 | 691 | 0.0 | 0.2− | 2008 11 01 | G96 | 0.2− | 0.8− | | | | | |
| 2008 08 06 | J75 | 0.4+ | 0.1− | 2008 09 05 | 691 | 0.3− | 0.1+ | | | | | | | | | |

**2008 PH$_{10}$ = 2004 RA$_{90}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 146.35963 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.24429428 | $\omega$ | 106.43647 | | +0.27818957 | | +0.96052589 |
| $a$ | 2.5343145 | $\Omega$ | 179.71239 | | −0.92896025 | | +0.26924880 |
| $e$ | 0.2618252 | $i$ | 8.72250 | | −0.24422001 | | +0.06996500 |
| $P$ | 4.03 | $H$ | 17.6 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 07 | 691 | 0.1+ | 0.0 | 2004 09 10 | 704 | 0.4− | 1.1+ | 2008 08 05 | J75 | 0.1− | 0.2− | | | | | |
| 2000 09 07 | 691 | 0.2+ | 0.1− | 2004 09 10 | 704 | 0.1− | 0.2− | 2008 08 05 | J75 | 0.1+ | 0.5− | | | | | |
| 2000 09 07 | 691 | 0.2− | 0.0 | 2004 09 10 | 704 | 1.0+ | 0.2− | 2008 08 05 | J75 | 0.1+ | 0.0 | | | | | |
| 2004 09 08 | 704 | 0.6− | 0.1+ | 2008 07 26 | E12 | 0.5− | 0.6+ | 2008 08 09 | J75 | 0.4+ | 0.2− | | | | | |
| 2004 09 08 | 704 | 0.8− | 0.5+ | 2008 07 26 | E12 | 0.3+ | 0.8− | 2008 08 09 | J75 | 0.1+ | 0.3− | | | | | |
| 2004 09 08 | 704 | 0.7− | 0.0 | 2008 07 26 | E12 | 0.5− | 0.0 | 2008 08 09 | J75 | 0.2− | 0.1− | | | | | |
| 2004 09 08 | 704 | 1.3+ | 0.7− | 2008 07 26 | E12 | 0.3+ | 1.1+ | | | | | | | | | |

**2008 PO$_{12}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 105.85455 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.26505266 | $\omega$ | 62.99851 | | +0.98441276 | | +0.04274945 |
| $a$ | 2.4002028 | $\Omega$ | 294.13245 | | −0.11806832 | | +0.87956982 |
| $e$ | 0.1113311 | $i$ | 10.77407 | | +0.13035104 | | +0.47384535 |
| $P$ | 3.72 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 07 25 | E12 | 0.0 | 0.1− | 2008 08 20 | 691 | 0.1+ | 0.1− | 2009 11 21 | G96 | 0.2− | 0.3− | | | | | |
| 2008 07 25 | E12 | 0.6+ | 0.5+ | 2008 08 20 | 691 | 0.2− | 0.1+ | 2009 12 17 | G96 | 0.3+ | 0.4− | | | | | |
| 2008 07 25 | E12 | 0.4− | 0.3− | 2008 09 05 | 704 | (1.1− | 1.8+) | 2009 12 17 | G96 | 0.2+ | 0.1+ | | | | | |
| 2008 07 25 | E12 | 0.1− | 0.2+ | 2008 09 05 | 704 | 0.0 | 0.9+ | 2009 12 17 | G96 | 0.1− | 0.4− | | | | | |
| 2008 08 06 | J75 | 0.5− | 0.4− | 2008 09 05 | 704 | 0.2+ | 0.4+ | 2009 12 17 | G96 | 0.6+ | 0.1− | | | | | |
| 2008 08 06 | J75 | 0.1+ | 0.7− | 2008 09 05 | 704 | 0.5+ | 0.6− | 2009 12 18 | 691 | 0.1+ | 0.1+ | | | | | |
| 2008 08 06 | J75 | 0.2− | 0.1+ | 2008 11 01 | G96 | 0.3− | 0.5− | 2009 12 18 | 691 | 0.2+ | 0.1− | | | | | |
| 2008 08 09 | A77 | 0.2+ | 0.1− | 2008 11 01 | G96 | 0.3+ | 0.1− | 2009 12 18 | 691 | 0.1− | 0.1− | | | | | |
| 2008 08 09 | A77 | 0.2+ | 0.1+ | 2008 11 01 | G96 | 0.5+ | 0.3− | 2009 12 25 | 691 | 0.1− | 0.0 | | | | | |
| 2008 08 10 | A77 | 0.4+ | 0.1− | 2008 11 01 | G96 | 0.5− | 0.3− | 2009 12 25 | 691 | 0.2+ | 0.5+ | | | | | |
| 2008 08 10 | A77 | 0.2+ | 0.4+ | 2009 11 21 | G96 | 0.4+ | 0.4− | 2009 12 25 | 691 | 0.5− | 0.1+ | | | | | |
| 2008 08 10 | A77 | 0.0 | 0.5+ | 2009 11 21 | G96 | 0.4+ | 0.1− | | | | | | | | | |
| 2008 08 20 | 691 | 0.2− | 0.1+ | 2009 11 21 | G96 | 0.2− | 0.2− | | | | | | | | | |

**2008 PR$_{15}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 65.08946 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17923258 | $\omega$ | 71.28740 | | +0.89728305 | | −0.39874421 |
| $a$ | 3.1154784 | $\Omega$ | 311.72331 | | +0.24408465 | | +0.80567453 |
| $e$ | 0.2408792 | $i$ | 14.70316 | | +0.36783938 | | +0.43805433 |
| $P$ | 5.50 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 07 30 | 703 | 1.0− | 0.6+ | 2008 08 26 | J75 | 1.5− | 1.3− | 2008 09 30 | 704 | 0.2+ | 0.2− | | | | | |
| 2008 07 30 | 703 | 0.9+ | 0.5− | 2008 08 26 | J75 | 0.5− | 1.5− | 2008 09 30 | 704 | 0.4+ | 0.0 | | | | | |
| 2008 07 30 | 703 | 0.4− | 1.1− | 2008 08 26 | J75 | 0.3− | 0.8− | 2008 09 30 | 704 | 0.0 | 0.0 | | | | | |
| 2008 07 30 | 703 | 0.2− | 0.2+ | 2008 08 30 | 704 | 0.3− | 0.5+ | 2008 09 30 | 704 | 0.6+ | 0.1+ | | | | | |
| 2008 08 06 | F85 | 1.4+ | 0.7+ | 2008 08 30 | 704 | 0.5− | 0.1− | 2008 09 30 | 704 | 0.4− | 0.5− | | | | | |
| 2008 08 06 | F85 | 0.3− | 0.9− | 2008 08 30 | 704 | 0.1− | 0.4− | 2008 11 04 | F85 | 0.4− | 0.9− | | | | | |
| 2008 08 09 | F85 | 0.5+ | 0.8+ | 2008 08 30 | 704 | 0.2− | 0.3+ | 2008 11 04 | F85 | 0.1− | 0.5− | | | | | |
| 2008 08 09 | F85 | 1.1+ | 0.0 | 2008 08 30 | 704 | 0.4− | 0.1− | 2009 12 08 | F85 | 0.7+ | 0.6− | | | | | |
| 2008 08 11 | F85 | 0.4− | 0.5− | 2008 09 05 | 704 | 0.2+ | 0.7+ | 2009 12 08 | F85 | 0.2+ | 0.1+ | | | | | |
| 2008 08 11 | F85 | 0.3+ | 0.5+ | 2008 09 05 | 704 | 0.1+ | 0.5+ | 2009 12 10 | F84 | 0.6+ | 0.6+ | | | | | |
| 2008 08 21 | H85 | 0.0 | 0.4− | 2008 09 05 | 704 | 0.0 | 0.0 | 2009 12 10 | F84 | 0.3− | 0.5− | | | | | |
| 2008 08 21 | H85 | 0.1+ | 0.3+ | 2008 09 05 | 704 | 0.1+ | 0.5+ | 2009 12 10 | F84 | 0.9+ | 0.1− | | | | | |
| 2008 08 21 | H85 | 0.2+ | 0.2+ | 2008 09 05 | 704 | 0.5− | 0.3+ | 2009 12 20 | 691 | 0.4− | 0.1+ | | | | | |
| 2008 08 26 | 704 | 0.3− | 0.2+ | 2008 09 21 | 703 | (1.4+ | 1.8+) | 2009 12 20 | 691 | 0.1− | 0.0 | | | | | |
| 2008 08 26 | 704 | 0.4− | 0.0 | 2008 09 21 | 703 | 0.6+ | 1.2+ | 2009 12 20 | 691 | 0.0 | 0.0 | | | | | |
| 2008 08 26 | 704 | 0.1− | 0.3+ | 2008 09 21 | 703 | (2.0+ | 0.0 ) | | | | | | | | | |
| 2008 08 26 | 704 | 0.1+ | 0.2+ | 2008 09 21 | 703 | 1.4+ | 1.2+ | | | | | | | | | |

**2008 PS$_{16}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 108.23345 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21012137 | $\omega$ | 147.38666 | | +0.86688071 | | +0.49844701 |
| $a$ | 2.8021361 | $\Omega$ | 182.75592 | | −0.48627946 | | +0.84183305 |
| $e$ | 0.2486786 | $i$ | 9.90561 | | −0.10977305 | | +0.20704515 |
| $P$ | 4.69 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 03 20 | 691 | 0.4+ | 0.6+ | 2008 09 09 | G96 | 0.0 | 0.3− | 2008 09 25 | G96 | 0.1− | 0.0 | | | | | |
| 2002 03 20 | 691 | 0.2− | 0.6+ | 2008 09 20 | 703 | 0.7+ | 0.0 | 2008 09 25 | G96 | 0.2− | 0.4− | | | | | |
| 2002 03 20 | 691 | 0.2+ | 0.8+ | 2008 09 20 | 703 | 1.0+ | 0.9+ | 2008 09 25 | G96 | 0.1+ | 0.6− | | | | | |
| 2007 04 23 | 691 | 0.3+ | 0.4− | 2008 09 20 | 703 | 0.2− | 0.5+ | 2008 10 03 | 691 | 0.2− | 0.2− | | | | | |
| 2007 04 23 | 691 | 0.4− | 0.4− | 2008 09 20 | 703 | 0.2+ | 0.5+ | 2008 10 03 | 691 | 0.1− | 0.1+ | | | | | |
| 2007 04 23 | 691 | 0.0 | 0.1+ | 2008 09 22 | 704 | 0.4− | 0.1− | 2008 10 03 | 691 | 0.3− | 0.0 | | | | | |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 08 11 | 106 | 0.1− | 0.2− | 2008 09 22 | 704 | 0.2+ | 0.1− | 2008 10 03 | 691 | 0.5+ | 0.9− |
| 2008 08 11 | 106 | 0.0 | 0.5+ | 2008 09 22 | 704 | 0.7+ | 1.1+ | 2008 10 03 | 691 | 0.4+ | 0.2− |
| 2008 08 11 | 106 | 0.0 | 0.4+ | 2008 09 23 | 691 | 0.4− | 0.3− | 2008 10 03 | 691 | 0.2− | 0.1− |
| 2008 08 11 | 106 | 0.9− | 0.3− | 2008 09 23 | 691 | 0.0 | 0.1− | 2008 10 07 | 691 | 0.3− | 0.1− |
| 2008 08 12 | 106 | 0.3− | 0.2− | 2008 09 23 | 691 | 0.0 | 0.2− | 2008 10 07 | 691 | 0.3− | 0.6+ |
| 2008 08 12 | 106 | 0.3+ | 0.4− | 2008 09 24 | 704 | 2.4+ | 1.5+ | 2008 10 07 | 691 | 0.3− | 0.5+ |
| 2008 08 12 | 106 | 0.1+ | 0.4− | 2008 09 24 | 704 | (1.3+ | 4.2+) | 2008 10 08 | 691 | 0.2− | 0.2− |
| 2008 08 12 | 106 | 0.1− | 0.6− | 2008 09 24 | 704 | 0.7+ | 1.1+ | 2008 10 08 | 691 | 0.1− | 0.0 |
| 2008 09 07 | 703 | 0.5+ | 0.4− | 2008 09 24 | 704 | 0.7+ | 2.3+ | 2008 10 08 | 691 | 0.2− | 0.1− |
| 2008 09 07 | 703 | 0.2− | 0.2+ | 2008 09 24 | 704 | 0.5+ | 2.3+ | 2008 10 21 | G96 | 0.2+ | 0.4− |
| 2008 09 07 | 703 | 0.4− | 0.4− | 2008 09 25 | 691 | 0.4− | 0.2+ | 2008 10 21 | G96 | 0.5+ | 0.2− |
| 2008 09 07 | 703 | 0.1− | 0.0 | 2008 09 25 | 691 | 0.0 | 0.2− | 2008 10 21 | G96 | 0.2+ | 0.4− |
| 2008 09 09 | G96 | 0.0 | 0.1− | 2008 09 25 | 691 | 0.2− | 0.1− | 2008 10 21 | G96 | 0.2+ | 0.3− |
| 2008 09 09 | G96 | 0.3+ | 0.5− | 2008 09 25 | G96 | 0.1+ | 0.3− | | | | |

**2008 PM$_{20}$ = 2004 QQ$_{11}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 136.60640 | | (2000.0) | | | |
| $n$ | 0.25208924 | $\omega$ | 299.84731 | | +0.83748285 | +0.54363744 |
| $a$ | 2.4817985 | $\Omega$ | 27.33541 | | −0.45035391 | +0.74415134 |
| $e$ | 0.1343850 | $i$ | 6.94252 | | −0.30952193 | +0.38819727 |
| $P$ | 3.91 | $H$ | 16.9 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 04 08 | 691 | 0.8+ | 0.7+ | 2007 03 13 | 691 | 0.3− | 0.4− | 2008 08 06 | E12 | 0.6+ | 0.6+ |
| 2003 04 08 | 691 | 0.3+ | 0.4+ | 2007 03 13 | 691 | 0.2− | 0.6− | 2008 09 03 | J75 | 0.5− | 0.1− |
| 2003 04 08 | 691 | 0.1− | 0.7+ | 2007 03 13 | 691 | 0.4− | 0.1− | 2008 09 03 | J75 | 0.5− | 0.0 |
| 2003 04 25 | 691 | 0.5+ | 0.3+ | 2007 04 19 | G96 | 0.3− | 0.3− | 2008 09 03 | J75 | 0.9+ | 0.1+ |
| 2003 04 25 | 691 | 0.1+ | 0.0 | 2007 04 19 | G96 | 0.6− | 0.6− | 2008 09 06 | 703 | 0.2− | 0.1+ |
| 2003 04 25 | 691 | 0.3+ | 0.7+ | 2007 04 19 | G96 | 0.1+ | 0.7− | 2008 09 06 | 703 | 0.2− | 0.4+ |
| 2004 08 21 | E12 | 0.3+ | 0.2− | 2007 04 19 | G96 | (2.3− | 3.5−) | 2008 09 06 | 703 | 0.1+ | 0.6+ |
| 2004 08 21 | E12 | 0.1+ | 0.1+ | 2007 05 09 | G96 | 0.5− | 0.6− | 2008 09 06 | 703 | 0.3− | 1.1+ |
| 2004 08 21 | E12 | 0.3+ | 0.1+ | 2007 05 09 | G96 | 0.2− | 0.8− | 2008 12 04 | G96 | 0.3− | 0.5+ |
| 2004 08 21 | E12 | 0.2+ | 0.1− | 2007 05 09 | G96 | 0.4− | 0.6− | 2008 12 04 | G96 | 1.4− | 0.0 |
| 2004 08 23 | 699 | (1.9− | 0.1+) | 2007 05 09 | G96 | 0.0 | 0.4− | 2008 12 04 | G96 | 0.3− | 0.6+ |
| 2004 08 23 | 699 | 0.6− | 0.5+ | 2008 08 06 | E12 | 0.5− | 0.1+ | 2008 12 04 | G96 | 0.3− | 0.1− |
| 2004 08 23 | 699 | 0.6+ | 0.7− | 2008 08 06 | E12 | 0.3+ | 1.1+ | | | | |
| 2004 08 23 | 699 | 0.7− | 1.0− | 2008 08 06 | E12 | 0.1+ | 0.4− | | | | |

**2008 PN$_{20}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 97.17235 | | (2000.0) | | | |
| $n$ | 0.21839659 | $\omega$ | 254.46774 | | +0.94788606 | +0.14259451 |
| $a$ | 2.7308980 | $\Omega$ | 96.68663 | | −0.03546696 | +0.93592396 |
| $e$ | 0.3034154 | $i$ | 16.67068 | | −0.31662931 | +0.32204527 |
| $P$ | 4.51 | $H$ | 15.5 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 05 25 | 691 | 0.1− | 0.3− | 2008 09 01 | E12 | 0.0 | 0.1− | 2008 09 30 | E12 | 0.3− | 0.2+ |
| 2003 05 25 | 691 | 0.3+ | 0.3+ | 2008 09 01 | E12 | 0.1− | 0.1− | 2008 09 30 | E12 | 0.1− | 0.1− |
| 2003 05 25 | 691 | 0.1− | 0.3+ | 2008 09 17 | E12 | 0.0 | 0.5+ | 2008 09 30 | E12 | 0.2− | 0.3+ |
| 2008 07 03 | E12 | 0.1− | 0.9− | 2008 09 17 | E12 | 0.3+ | 0.0 | 2008 10 25 | E12 | 0.1− | 0.4+ |
| 2008 07 03 | E12 | 0.4− | 0.0 | 2008 09 17 | E12 | 0.2+ | 0.2+ | 2008 10 25 | E12 | 0.1− | 0.5+ |
| 2008 07 03 | E12 | 0.3+ | 0.7+ | 2008 09 17 | E12 | 0.9+ | 0.2+ | 2008 10 25 | E12 | 0.1− | 0.0 |
| 2008 08 02 | E12 | 0.3− | 0.0 | 2008 09 30 | E12 | 0.5+ | 0.3− | 2008 10 25 | E12 | 1.1− | 0.2+ |
| 2008 08 02 | E12 | 0.1− | 0.1+ | 2008 09 30 | E12 | 0.1− | 0.1− | 2009 11 19 | G96 | 0.2+ | 0.4+ |
| 2008 08 02 | E12 | 0.2− | 0.1+ | 2008 09 30 | E12 | 0.6+ | 0.2− | 2009 11 19 | G96 | 0.3− | 0.5+ |
| 2008 08 02 | E12 | 0.1− | 0.0 | 2008 09 30 | E12 | 0.0 | 0.1− | 2009 11 19 | G96 | 0.4+ | 0.4+ |
| 2008 09 01 | E12 | 0.2− | 0.1− | 2008 09 30 | E12 | 0.2+ | 0.2− | 2009 11 19 | G96 | 0.1− | 0.3+ |
| 2008 09 01 | E12 | 0.2+ | 0.1− | 2008 09 30 | E12 | 0.1+ | 0.1− | | | | |

**2008 PO$_{20}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 141.63110 | | (2000.0) | | | |
| $n$ | 0.22235718 | $\omega$ | 253.10571 | | +0.37953816 | +0.90820069 |
| $a$ | 2.6983727 | $\Omega$ | 40.64951 | | −0.71178526 | +0.40845356 |
| $e$ | 0.1806078 | $i$ | 15.71259 | | −0.59102667 | +0.09130822 |
| $P$ | 4.43 | $H$ | 15.8 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 15 | 699 | 0.8+ | 0.9+ | 2008 08 02 | E12 | 0.0 | 0.0 | 2008 09 21 | E12 | 0.9+ | 0.5− |
| 2004 10 15 | 699 | 0.3− | 0.8− | 2008 08 02 | E12 | 0.2− | 0.1− | 2008 09 21 | E12 | 0.2− | 0.3− |
| 2004 10 15 | 699 | 0.1+ | 0.7+ | 2008 08 23 | E12 | 0.4− | 0.2+ | 2008 09 21 | E12 | 0.0 | 0.4+ |
| 2004 10 15 | 699 | 0.3− | 1.3− | 2008 08 23 | E12 | 0.0 | 0.3+ | 2008 09 21 | E12 | 0.6− | 0.8− |
| 2007 04 22 | 703 | 0.3− | 0.3+ | 2008 08 23 | E12 | 0.1− | 0.0 | 2008 09 21 | E12 | 0.5+ | 0.5− |
| 2007 04 22 | 703 | 0.5+ | 0.1+ | 2008 08 23 | E12 | 0.6+ | 0.4+ | 2008 09 21 | E12 | 0.2− | 0.4− |
| 2007 04 22 | 703 | 0.2+ | 0.1− | 2008 09 10 | E12 | 0.1− | 0.2+ | 2008 09 21 | E12 | 0.6+ | 0.3− |
| 2007 04 22 | 703 | 0.8− | 0.9− | 2008 09 10 | E12 | 0.4− | 0.2+ | 2008 09 21 | E12 | 0.1− | 0.4− |
| 2008 08 02 | E12 | 0.0 | 0.3+ | 2008 09 10 | E12 | 0.7− | 0.9+ | | | | |
| 2008 08 02 | E12 | 0.8+ | 1.0− | 2008 09 10 | E12 | 0.1− | 1.1+ | | | | |

**2008 QV = 2009 VR$_{99}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 359.28319 | | (2000.0) | | | |
| $n$ | 0.18707680 | $\omega$ | 69.62630 | | +0.17181906 | −0.98511222 |
| $a$ | 3.0277692 | $\Omega$ | 10.48492 | | +0.89182512 | +0.15309885 |
| $e$ | 0.0896016 | $i$ | 1.78503 | | +0.41848077 | +0.07819630 |
| $P$ | 5.27 | $H$ | 16.2 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 04 26 | 691 | 0.1+ | 0.5+ | 2008 08 24 | 461 | 0.2+ | 0.2+ | 2009 11 09 | G96 | 0.4+ | 0.0 |
| 2001 04 26 | 691 | 0.2+ | 0.3+ | 2008 08 24 | 461 | 0.2− | 0.4+ | 2009 11 09 | G96 | 0.3+ | 0.2+ |
| 2001 04 26 | 691 | 0.1− | 0.5+ | 2008 08 24 | 461 | 0.8+ | 0.1+ | 2009 11 09 | G96 | 0.5− | 0.2+ |
| 2003 09 29 | 645 | 0.1− | 0.0 | 2008 08 25 | 461 | 0.7+ | 0.4+ | 2009 11 09 | G96 | 0.4+ | 0.1+ |
| 2003 09 29 | 645 | 0.1− | 0.0 | 2008 08 25 | 461 | 0.8+ | 0.3+ | 2009 11 25 | 691 | 0.4− | 0.1+ |
| 2005 01 18 | 691 | 0.2+ | 0.5+ | 2008 08 26 | 461 | 0.5+ | 0.3− | 2009 11 25 | 691 | 0.3− | 0.1− |
| 2005 01 18 | 691 | 0.6+ | 0.1− | 2008 08 26 | 461 | 0.4+ | 0.0 | 2009 11 25 | 691 | 0.4− | 0.0 |
| 2005 01 18 | 691 | 0.2+ | 0.2+ | 2008 08 26 | 461 | 0.2+ | 0.5+ | 2009 12 15 | G96 | 0.3− | 0.1+ |
| 2006 04 28 | 807 | 0.2+ | 0.6+ | 2008 08 27 | 461 | 0.2+ | 0.2+ | 2009 12 15 | G96 | 0.7+ | 0.2+ |
| 2006 04 28 | 807 | 0.2+ | 0.7+ | 2008 08 27 | 461 | 0.2− | 0.8+ | 2009 12 15 | G96 | 0.1− | 0.3− |
| 2008 08 21 | 461 | 0.3− | 0.4+ | 2008 08 27 | 461 | 0.4+ | 0.8+ | 2009 12 15 | G96 | 0.0 | 0.2+ |
| 2008 08 21 | 461 | 1.0+ | 0.6+ | 2008 10 07 | 691 | 0.1− | 0.3+ | 2009 12 17 | H10 | 0.4+ | 0.1− |
| 2008 08 22 | 461 | (0.2+ | 2.0+) | 2008 10 07 | 691 | 0.1− | 0.4− | 2009 12 17 | H10 | 0.5− | 0.1+ |
| 2008 08 22 | 461 | 0.2− | 0.7+ | 2008 10 07 | 691 | 0.5− | 0.4+ | 2009 12 17 | H10 | 0.0 | 0.6+ |

**2008 QS$_4$ = 2009 WN$_{26}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 93.72805 | | (2000.0) | | | |
| $n$ | 0.19342415 | $\omega$ | 42.25855 | | +0.83565532 | +0.52724597 |
| $a$ | 2.9611626 | $\Omega$ | 285.30293 | | −0.53690581 | +0.72504786 |
| $e$ | 0.0692001 | $i$ | 9.18250 | | −0.11581166 | +0.44307706 |
| $P$ | 5.10 | $H$ | 16.1 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 02 22 | 645 | 0.0 | 0.1+ | 2008 08 20 | 691 | 0.1− | 0.1+ | 2009 11 24 | D29 | 0.5+ | 0.1− |
| 2001 02 22 | 645 | 0.0 | 0.1+ | 2008 08 22 | 691 | 0.3− | 0.1+ | 2009 11 25 | H36 | 0.8+ | 0.1+ |
| 2002 05 16 | 644 | 0.2+ | 0.4+ | 2008 08 22 | 691 | 0.1+ | 0.1+ | 2009 11 25 | H36 | 0.5+ | 0.3+ |
| 2002 05 16 | 644 | 0.1+ | 0.2+ | 2008 08 22 | 691 | 0.2− | 0.3+ | 2009 11 25 | H36 | 0.4+ | 0.6+ |
| 2002 05 16 | 644 | 0.6+ | 0.1+ | 2009 11 22 | H36 | 0.4− | 0.1+ | 2009 11 25 | G96 | 0.2− | 0.1+ |
| 2003 08 22 | 644 | 0.2− | 0.2+ | 2009 11 22 | H36 | 0.4− | 0.0 | 2009 11 25 | G96 | 0.2+ | 0.2+ |
| 2003 08 22 | 644 | 0.1− | 0.2+ | 2009 11 22 | H36 | 0.6+ | 0.0 | 2009 11 25 | G96 | 0.3+ | 0.1+ |
| 2003 08 22 | 644 | 0.1− | 0.4+ | 2009 11 23 | H36 | 0.2− | 0.7− | 2009 11 25 | G96 | 0.0 | 0.1+ |
| 2008 08 05 | J75 | 0.5+ | 0.4− | 2009 11 23 | H36 | 0.0 | 0.0 | 2009 11 27 | 691 | 0.0 | 0.3+ |
| 2008 08 05 | J75 | 0.6+ | 0.1+ | 2009 11 23 | H36 | 0.7+ | 0.3+ | 2009 11 27 | 691 | 0.3− | 0.6+ |
| 2008 08 06 | J75 | 0.1− | 0.4− | 2009 11 24 | D29 | 0.2+ | 0.2+ | 2009 11 27 | 691 | 0.6− | 1.0− |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 2008 08 20 | 691 | 0.1− | 0.1+ | 2009 11 24 | D29 | 0.2+ | 0.5+ | |
| 2008 08 20 | 691 | 0.2− | 0.2+ | 2009 11 24 | D29 | 0.4+ | 0.4+ | |

**2008 QT$_4$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 105.54129 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21292440 | $\omega$ | 155.16638 | | +0.81885481 | | +0.57270546 |
| $a$ | 2.7774895 | $\Omega$ | 169.62934 | | −0.55589968 | | +0.80797102 |
| $e$ | 0.1086028 | $i$ | 12.36201 | | −0.14301171 | | +0.13853262 |
| $P$ | 4.63 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 03 16 | G96 | 0.0 | 0.2− | 2007 04 23 | G96 | 0.1+ | 0.3+ | 2008 08 22 | 691 | 0.0 | 0.1− |
| 2007 03 16 | G96 | 0.2− | 0.0 | 2008 08 05 | J75 | 0.3+ | 0.5− | 2008 08 22 | 691 | 0.3− | 0.1− |
| 2007 03 16 | G96 | 0.1+ | 0.1+ | 2008 08 06 | J75 | 0.2− | 0.4− | 2008 08 22 | 691 | 0.2− | 0.3+ |
| 2007 03 16 | G96 | 0.1− | 0.4− | 2008 08 06 | J75 | 0.3+ | 0.1− | 2008 09 24 | G96 | 0.1+ | 0.0 |
| 2007 04 23 | G96 | 0.1+ | 0.1− | 2008 08 20 | 691 | 0.3+ | 0.1+ | 2008 09 24 | G96 | 0.2+ | 0.2− |
| 2007 04 23 | G96 | 0.1+ | 0.1+ | 2008 08 20 | 691 | 0.1+ | 0.1+ | 2008 09 24 | G96 | 0.3+ | 0.2− |
| 2007 04 23 | G96 | 0.1− | 0.1+ | 2008 08 20 | 691 | 0.2− | 0.1+ | | | | |

**2008 QY$_4$ = 2009 WX$_{109}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 106.26764 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18441697 | $\omega$ | 92.80861 | | +0.53724359 | | +0.84030098 |
| $a$ | 3.0568125 | $\Omega$ | 210.04683 | | −0.81991954 | | +0.50016703 |
| $e$ | 0.1263787 | $i$ | 8.33126 | | −0.19774042 | | +0.20911050 |
| $P$ | 5.34 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 18 | 691 | 0.0 | 0.2− | 2008 08 22 | 691 | 0.2+ | 0.1− | 2009 11 17 | G96 | 0.0 | 0.1− |
| 2003 09 18 | 691 | 0.1− | 0.2+ | 2008 08 22 | 691 | 0.2− | 0.2+ | 2009 11 17 | G96 | 0.1+ | 0.2− |
| 2003 09 18 | 691 | 0.1+ | 0.4− | 2008 08 22 | 691 | 0.0 | 0.1− | 2009 11 17 | G96 | 0.3+ | 0.0 |
| 2003 09 21 | 644 | 0.0 | 0.1+ | 2008 08 23 | 691 | 0.1− | 0.2+ | 2009 11 17 | G96 | 0.0 | 0.1+ |
| 2003 09 21 | 644 | 0.1+ | 0.2+ | 2008 08 23 | 691 | 0.0 | 0.2+ | 2009 11 17 | G96 | 0.6− | 0.3− |
| 2003 09 21 | 644 | 0.1+ | 0.5+ | 2008 08 23 | 691 | 0.1+ | 0.0 | 2009 11 17 | G96 | 0.1+ | 0.5+ |
| 2008 05 29 | G96 | 0.5− | 0.1− | 2009 08 17 | 291 | 0.2− | 0.3− | 2009 11 17 | G96 | 0.1+ | 0.3+ |
| 2008 05 29 | G96 | 0.7+ | 0.4− | 2009 08 17 | 291 | 0.3− | 0.1− | 2009 11 17 | G96 | 0.1− | 0.3+ |
| 2008 05 29 | G96 | 0.2+ | 0.2− | 2009 08 17 | 291 | 0.2+ | 0.2+ | 2009 11 24 | G96 | 0.1+ | 0.3+ |
| 2008 05 29 | G96 | 0.8− | 0.0 | 2009 10 22 | G96 | 0.7− | 0.2+ | 2009 11 24 | G96 | 0.1− | 0.0 |
| 2008 08 07 | J75 | 0.1− | 0.3− | 2009 10 22 | G96 | 0.3+ | 0.4+ | 2009 11 24 | G96 | 0.1+ | 0.2+ |
| 2008 08 07 | J75 | 0.2+ | 0.5+ | 2009 10 22 | G96 | 0.3+ | 0.1− | 2009 11 24 | G96 | 0.4+ | 0.1− |
| 2008 08 07 | J75 | 0.2+ | 0.2− | 2009 10 22 | G96 | 0.3+ | 0.4− | | | | |

**2008 QX$_5$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 327.44063 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.08085753 | $\omega$ | 151.17806 | | +0.25711921 | | −0.90405010 |
| $a$ | 5.2965012 | $\Omega$ | 282.15547 | | +0.80609541 | | +0.39551592 |
| $e$ | 0.0610954 | $i$ | 20.44288 | | +0.53301023 | | −0.16205114 |
| $P$ | 12.19 | $H$ | 12.6 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 07 28 | 691 | 0.6+ | 0.4− | 2008 08 26 | J75 | 0.4+ | 0.3− | 2008 10 02 | 704 | 0.0 | 0.4− |
| 1995 07 28 | 691 | 0.2− | 0.1− | 2008 08 26 | J75 | 0.8+ | 0.0 | 2008 10 02 | 704 | 1.0− | 1.4+ |
| 1995 07 28 | 691 | 0.1− | 0.2− | 2008 08 27 | 620 | 0.4+ | 0.7− | 2008 10 02 | 704 | 0.0 | 0.8+ |
| 2000 11 30 | 645 | 0.1− | 0.1− | 2008 08 27 | 620 | 1.0+ | 0.6+ | 2009 01 18 | G96 | 0.0 | 1.0− |
| 2000 11 30 | 645 | 0.0 | 0.2− | 2008 08 27 | 620 | 0.2− | 0.0 | 2009 01 18 | G96 | 0.1+ | 0.5− |
| 2001 01 19 | 608 | 0.7− | 0.2− | 2008 09 28 | 703 | 0.4− | 0.3+ | 2009 01 18 | G96 | 0.2− | 0.3− |
| 2001 01 19 | 608 | 0.5− | 0.0 | 2008 09 28 | 703 | 0.8− | 0.5+ | 2009 01 18 | G96 | 0.1− | 0.7− |
| 2001 01 19 | 608 | 0.6− | 0.2− | 2008 09 28 | 703 | 0.3− | 0.3+ | 2009 10 18 | 703 | 0.1+ | 0.7+ |
| 2001 03 19 | 645 | 0.1+ | 0.1+ | 2008 09 28 | 703 | 0.7+ | 0.0 | 2009 10 18 | 703 | 0.5− | 0.3− |
| 2001 03 19 | 645 | 0.1+ | 0.1+ | 2008 10 02 | 704 | 0.3+ | 0.8+ | 2009 10 18 | 703 | 0.1− | 0.7− |
| 2008 08 25 | J75 | 0.2− | 0.3− | 2008 10 02 | 704 | 0.3− | 0.1− | 2009 10 18 | 703 | 0.4− | 0.7+ |

**2008 QY$_5$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 89.88936 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23634475 | $\omega$ | 65.58946 | | +0.79235019 | | −0.53268965 |
| $a$ | 2.5908290 | $\Omega$ | 324.34361 | | +0.17807095 | | +0.66813972 |
| $e$ | 0.2054520 | $i$ | 30.67174 | | +0.58349972 | | +0.51945265 |
| $P$ | 4.17 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 24 | 568 | 0.2+ | 0.1− | 2008 08 26 | J75 | 1.0− | 0.8− | 2008 09 09 | 703 | 0.2− | 0.0 |
| 2005 10 24 | 568 | 0.1+ | 0.0 | 2008 08 26 | 620 | 0.3− | 0.3− | 2008 09 09 | 703 | 0.3− | 1.0+ |
| 2005 10 24 | 568 | 0.2+ | 0.0 | 2008 08 27 | 620 | 0.3+ | 0.6− | 2008 09 23 | 703 | 1.2+ | 0.4+ |
| 2005 10 31 | 568 | 0.0 | 0.2+ | 2008 08 27 | 620 | 0.4− | 0.0 | 2008 09 23 | 703 | 0.3+ | 0.1+ |
| 2005 10 31 | 568 | 0.0 | 0.1+ | 2008 08 27 | 620 | 1.1− | 0.0 | 2008 09 23 | 703 | 0.2− | 0.7− |
| 2005 10 31 | 568 | 0.1− | 0.1+ | 2008 08 27 | 620 | 0.3− | 0.4+ | 2008 09 23 | 703 | 0.4+ | 0.4+ |
| 2008 08 26 | J75 | 0.8+ | 0.2+ | 2008 09 09 | 703 | 0.8+ | 0.0 | | | | |
| 2008 08 26 | J75 | 0.1− | 0.1− | 2008 09 09 | 703 | 0.1− | 0.2+ | | | | |

**2008 QO$_{10}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 116.92118 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18776729 | $\omega$ | 324.93556 | | +0.59406121 | | +0.80417788 |
| $a$ | 3.0203418 | $\Omega$ | 341.48507 | | −0.72311655 | | +0.52311405 |
| $e$ | 0.2442044 | $i$ | 3.56191 | | −0.35241133 | | +0.28222265 |
| $P$ | 5.25 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 17 | 691 | 0.1+ | 0.2+ | 2008 08 28 | J75 | 0.8+ | 1.0+ | 2008 09 23 | E12 | 0.7+ | 0.0 |
| 2003 10 17 | 691 | 0.1− | 0.2+ | 2008 09 06 | 703 | 0.4− | 0.4+ | 2008 09 23 | E12 | 0.1+ | 0.6+ |
| 2003 10 17 | 691 | 0.1− | 0.0 | 2008 09 06 | 703 | 0.2− | 0.1− | 2008 09 23 | E12 | 0.9+ | 0.1− |
| 2007 04 20 | 691 | 0.3− | 0.1− | 2008 09 06 | 703 | 1.1− | 0.5− | 2008 09 23 | E12 | 0.2+ | 0.5+ |
| 2007 04 20 | 691 | 0.4+ | 0.0 | 2008 09 06 | G96 | 0.3+ | 0.1− | 2008 09 24 | 704 | 1.2+ | 1.7− |
| 2007 04 20 | 691 | 0.1− | 0.2+ | 2008 09 06 | 703 | 0.3− | 0.5+ | 2008 09 24 | 704 | 1.4+ | 0.5+ |
| 2008 08 21 | 691 | 0.1− | 0.2+ | 2008 09 06 | G96 | 0.3+ | 0.0 | 2008 09 24 | 704 | 0.9+ | 1.1+ |
| 2008 08 21 | 691 | 0.3− | 0.1+ | 2008 09 06 | G96 | 0.3+ | 0.2− | 2008 09 24 | 704 | 0.6+ | 0.9+ |
| 2008 08 21 | 691 | 0.9− | 0.2− | 2008 09 06 | G96 | 0.4+ | 0.1− | 2008 09 24 | 704 | 1.2+ | 0.6− |
| 2008 08 26 | J75 | 0.1− | 0.4− | 2008 09 20 | 703 | 0.4− | 0.3− | 2008 10 02 | G96 | 0.1− | 0.2− |
| 2008 08 26 | J75 | 0.3+ | 0.1+ | 2008 09 20 | 703 | 1.6− | 0.7− | 2008 10 02 | G96 | 0.2− | 0.0 |
| 2008 08 26 | J75 | 0.1− | 0.5− | 2008 09 20 | 703 | 0.4+ | 1.1+ | 2008 10 02 | G96 | 0.1+ | 0.5+ |
| 2008 08 27 | J75 | 0.1− | 0.3+ | 2008 09 20 | 703 | 0.7− | 0.3+ | 2008 10 02 | G96 | 0.0 | 0.0 |
| 2008 08 27 | J75 | 0.0 | 0.5− | 2008 09 21 | G96 | 0.3+ | 0.3− | 2008 11 20 | G96 | 0.3− | 0.0 |
| 2008 08 27 | J75 | 0.3+ | 0.6− | 2008 09 21 | G96 | 0.2+ | 0.3+ | 2008 11 20 | G96 | 0.4− | 0.3− |
| 2008 08 28 | J75 | 1.0− | 0.4− | 2008 09 21 | G96 | 0.2+ | 0.4− | 2008 11 20 | G96 | 0.0 | 0.2− |
| 2008 08 28 | J75 | 0.8+ | 0.2− | 2008 09 21 | G96 | 0.2+ | 0.4− | 2008 11 20 | G96 | 0.5+ | 1.2− |

**2008 QQ$_{10}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 149.84784 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.36217931 | $\omega$ | 218.15853 | | +0.82582239 | | −0.56330067 |
| $a$ | 1.9491875 | $\Omega$ | 175.84925 | | +0.56392024 | | +0.82516773 |
| $e$ | 0.0801080 | $i$ | 21.59621 | | −0.00336709 | | +0.04231507 |
| $P$ | 2.72 | $H$ | 17.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 09 29 | 691 | 0.2− | 0.2+ | 2007 03 09 | 691 | 0.4− | 0.2+ | 2008 09 21 | 703 | 0.3+ | 0.9+ |
| 1997 09 29 | 691 | 0.3− | 0.2+ | 2007 03 09 | G96 | 0.2− | 0.3+ | 2008 09 21 | 703 | 0.1− | 0.8+ |
| 1997 09 29 | 691 | 0.1− | 0.1+ | 2007 03 09 | G96 | 0.3− | 0.0 | 2008 09 21 | 703 | 0.6+ | 0.3− |
| 1999 03 20 | 645 | 0.2+ | 0.0 | 2007 03 09 | G96 | 0.2+ | 0.2+ | 2008 10 09 | 703 | 0.1+ | 1.2+ |
| 1999 03 20 | 645 | 0.1+ | 0.1+ | 2007 03 09 | G96 | 0.0 | 0.2+ | 2008 10 09 | 703 | 1.0+ | 0.0 |
| 2005 07 17 | 644 | 0.3− | 0.5+ | 2008 08 26 | A77 | 0.3− | 0.1− | 2008 10 09 | 703 | 1.2+ | 0.2+ |
| 2005 07 17 | 644 | 0.3− | 0.2+ | 2008 08 26 | A77 | 0.4+ | 0.3− | 2008 10 09 | 703 | 1.0+ | 1.1+ |
| 2005 07 17 | 644 | 0.2− | 0.4+ | 2008 08 26 | A77 | 0.1− | 0.3− | 2008 10 29 | 703 | 0.7− | 0.1− |
| 2007 02 23 | 691 | 0.3+ | 0.3+ | 2008 08 28 | A77 | 0.3− | 0.2+ | 2008 10 29 | 703 | 0.7+ | 0.0 |
| 2007 02 23 | 691 | 0.1− | 0.0 | 2008 08 28 | A77 | 0.4− | 0.7+ | 2008 10 29 | 703 | 0.1− | 0.5− |
| 2007 02 23 | 691 | 0.1− | 0.5+ | 2008 08 29 | A77 | 0.1+ | 0.5+ | 2008 10 29 | 703 | 0.4− | 0.3− |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 2007 03 09 | 691 | 0.5− | 0.2+ | 2008 08 29 | A77 | 0.1− | 0.3− | |
| 2007 03 09 | 691 | 0.2− | 0.2+ | 2008 09 21 | 703 | 0.9− | 0.0 | |

**2008 QX$_{12}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 157.97271 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23156567 | $\omega$ | 306.30165 | | +0.20764628 | | +0.97654490 |
| $a$ | 2.6263540 | $\Omega$ | 335.49743 | | −0.84770464 | | +0.15058844 |
| $e$ | 0.1135431 | $i$ | 7.89234 | | −0.48813919 | | +0.15389339 |
| $P$ | 4.26 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 03 14 | 691 | 0.4− | 0.3+ | 2008 08 26 | J75 | 0.6+ | 0.0 | 2008 09 06 | G96 | 0.2+ | 0.2− |
| 1994 03 14 | 691 | 0.1− | 0.3− | 2008 08 26 | J75 | 0.2+ | 0.1− | 2008 09 06 | 703 | 1.8+ | 0.5+ |
| 1994 03 14 | 691 | 0.1+ | 0.7− | 2008 08 26 | J75 | 0.0 | 0.4− | 2008 09 23 | G96 | 0.6+ | 0.3− |
| 2007 03 16 | 691 | 0.2− | 0.0 | 2008 08 27 | J75 | 0.0 | 0.4− | 2008 09 23 | G96 | 0.1− | 0.5− |
| 2007 03 16 | 691 | 0.2+ | 0.0 | 2008 08 27 | J75 | 0.2+ | 0.4− | 2008 09 23 | G96 | 0.2+ | 0.2− |
| 2007 03 16 | 691 | 0.1+ | 0.2+ | 2008 08 27 | J75 | 0.5+ | 0.6− | 2008 09 23 | G96 | 0.1− | 0.4− |
| 2008 07 30 | 691 | 0.6− | 0.3+ | 2008 09 06 | 703 | 1.2− | 0.2− | 2008 10 24 | G96 | 0.6+ | 0.2− |
| 2008 07 30 | 691 | 0.2− | 0.0 | 2008 09 06 | G96 | 0.2+ | 0.2− | 2008 10 24 | G96 | 0.2+ | 0.0 |
| 2008 07 30 | 691 | 0.3− | 0.5− | 2008 09 06 | G96 | 0.5+ | 0.1− | 2008 10 24 | G96 | 0.2− | 0.3+ |
| 2008 08 20 | 691 | 0.0 | 0.2+ | 2008 09 06 | 703 | 0.7− | 0.1+ | 2008 10 24 | G96 | 0.0 | 0.3+ |
| 2008 08 20 | 691 | 0.1− | 0.1+ | 2008 09 06 | G96 | 0.4+ | 0.3− | | | | |
| 2008 08 20 | 691 | 0.1+ | 0.2+ | 2008 09 06 | 703 | 1.7+ | 0.2− | | | | |

**2008 QN$_{14}$ = 1999 BK$_{35}$ = 2009 WM$_{128}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 1.01875 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17312868 | $\omega$ | 262.21474 | | +0.13135993 | | −0.99133473 |
| $a$ | 3.1882819 | $\Omega$ | 180.23721 | | +0.92260089 | | +0.12230491 |
| $e$ | 0.1387004 | $i$ | 1.97916 | | +0.36270121 | | +0.04792663 |
| $P$ | 5.69 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 01 18 | 691 | 0.3− | 0.2+ | 2008 08 28 | 122 | 0.0 | 0.0 | 2009 11 20 | 691 | 0.4− | 0.0 |
| 1999 01 18 | 691 | 0.3− | 0.2+ | 2008 08 28 | 122 | 0.5+ | 0.1+ | 2009 11 20 | 691 | 0.3− | 0.0 |
| 1999 01 18 | 691 | 0.1− | 0.3+ | 2008 08 29 | 122 | 0.2− | 0.1− | 2009 11 20 | 691 | 0.9+ | 0.6+ |
| 2000 04 26 | 691 | 0.2+ | 0.3+ | 2008 08 29 | 122 | 0.0 | 0.1+ | 2009 11 24 | 691 | 0.4− | 0.2+ |
| 2000 04 26 | 691 | 0.5+ | 0.7+ | 2008 08 29 | 122 | 0.2+ | 0.7+ | 2009 11 24 | 691 | 0.3− | 0.0 |
| 2000 04 26 | 691 | 0.4+ | 0.3+ | 2008 09 06 | G96 | 0.3+ | 0.1− | 2009 11 24 | 691 | 0.3− | 0.1+ |
| 2003 10 23 | 691 | 0.2+ | 0.1− | 2008 09 06 | G96 | 0.3+ | 0.2− | 2009 12 08 | J75 | 0.4− | 0.8− |
| 2003 10 23 | 691 | 0.6+ | 0.0 | 2008 09 06 | G96 | 0.3+ | 0.0 | 2009 12 08 | J75 | 0.1− | 0.3+ |
| 2003 10 23 | 691 | 0.1+ | 0.2+ | 2008 09 06 | G96 | 0.6+ | 0.2− | 2009 12 08 | J75 | 0.2− | 0.8− |
| 2008 07 29 | 691 | 0.5− | 0.1− | 2008 09 20 | G96 | 0.9− | 1.7+ | 2009 12 11 | G96 | 0.2+ | 0.2− |
| 2008 07 29 | 691 | 0.5− | 0.1+ | 2008 09 20 | G96 | 0.4− | 0.1− | 2009 12 11 | G96 | 0.0 | 0.1− |
| 2008 07 29 | 691 | 0.1+ | 0.1+ | 2008 09 20 | G96 | 0.3+ | 0.0 | 2009 12 11 | G96 | 0.4+ | 0.2− |
| 2008 08 27 | 122 | 0.2+ | 0.1+ | 2008 09 20 | G96 | 0.3− | 0.2− | 2009 12 11 | G96 | 0.4+ | 0.1− |
| 2008 08 27 | 122 | 0.1− | 0.3+ | 2008 10 02 | 691 | 0.4− | 0.1− | 2009 12 17 | 704 | 0.8+ | 0.3+ |
| 2008 08 27 | 122 | 0.4+ | 0.1− | 2008 10 02 | 691 | 0.2− | 0.7+ | 2009 12 17 | 704 | 0.7+ | 0.1− |
| 2008 08 28 | 122 | 0.2+ | 0.0 | 2008 10 02 | 691 | 0.2− | 0.2+ | 2009 12 17 | 704 | 1.2+ | 0.8+ |

**2008 QH$_{21}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 63.17354 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21239442 | $\omega$ | 157.65820 | | +0.72497155 | | −0.67965351 |
| $a$ | 2.7821080 | $\Omega$ | 245.65737 | | +0.61194705 | | +0.71003190 |
| $e$ | 0.2179177 | $i$ | 7.04512 | | +0.31612822 | | +0.18418961 |
| $P$ | 4.64 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 02 24 | 807 | 0.2− | 0.6+ | 2008 08 30 | 704 | 0.6− | 0.1− | 2008 09 29 | 704 | 0.7− | 0.0 |
| 2001 02 24 | 807 | 0.7+ | 0.4+ | 2008 08 30 | 704 | 0.1− | 0.1+ | 2008 09 29 | 704 | 1.3+ | 1.9− |
| 2001 02 24 | 807 | 0.2+ | 0.5+ | 2008 08 30 | 704 | 0.4− | 0.1+ | 2008 09 29 | 704 | 0.8− | 0.9− |
| 2001 02 24 | 807 | 0.3+ | 0.5+ | 2008 09 04 | 683 | 0.2− | 0.1+ | 2008 10 01 | G96 | 0.2− | 0.4− |
| 2004 12 21 | 691 | 0.0 | 0.0 | 2008 09 04 | 683 | 0.5− | 0.4− | 2008 10 01 | G96 | 0.0 | 0.4− |
| 2004 12 21 | 691 | 0.1− | 0.1+ | 2008 09 04 | 683 | 0.7+ | 0.7+ | 2008 10 01 | G96 | 0.3− | 0.2− |
| 2004 12 21 | 691 | 0.1+ | 0.1+ | 2008 09 05 | 704 | 0.1+ | 1.5+ | 2008 10 01 | G96 | 0.1− | 0.6− |
| 2008 08 26 | 704 | 0.1− | 0.2+ | 2008 09 05 | 704 | 0.0 | 0.8+ | 2008 10 30 | G96 | 0.3+ | 0.1− |
| 2008 08 26 | 704 | 0.4+ | 0.4+ | 2008 09 05 | 704 | 0.5+ | 0.0 | 2008 10 30 | G96 | 0.3+ | 0.2− |
| 2008 08 26 | 704 | 0.2+ | 0.7+ | 2008 09 05 | 704 | 0.1− | 1.1+ | 2008 10 30 | G96 | 0.2+ | 0.2− |
| 2008 08 26 | 704 | 0.3+ | 1.1+ | 2008 09 05 | 704 | 0.5+ | 0.7+ | 2008 10 30 | G96 | 0.7+ | 0.0 |
| 2008 08 30 | 704 | 0.1+ | 0.7+ | 2008 09 29 | 704 | 1.2− | 0.2− | | | | |
| 2008 08 30 | 704 | 0.1− | 0.0 | 2008 09 29 | 704 | 1.0− | 0.7− | | | | |

**2008 QL$_{23}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 62.29258 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17032830 | $\omega$ | 222.16111 | | +0.98062059 | | −0.03050387 |
| $a$ | 3.2231327 | $\Omega$ | 138.36306 | | +0.06620593 | | +0.98128895 |
| $e$ | 0.1805929 | $i$ | 16.93446 | | −0.18439098 | | +0.19010922 |
| $P$ | 5.79 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 06 24 | 644 | 0.3− | 0.3+ | 2002 07 29 | 644 | 0.1− | 0.1− | 2007 04 24 | G96 | 0.1− | 0.3− |
| 2002 06 24 | 644 | 0.1− | 0.3− | 2002 08 05 | 599 | 0.2+ | 0.7+ | 2007 04 24 | G96 | 0.1+ | 0.4− |
| 2002 06 24 | 644 | 0.6− | 0.1+ | 2002 08 05 | 599 | 0.3+ | 0.4− | 2007 04 24 | G96 | 0.1− | 0.6− |
| 2002 07 03 | 644 | 0.1− | 0.1+ | 2002 08 05 | 599 | 0.6+ | 0.1+ | 2007 05 13 | 691 | 0.2− | 0.5+ |
| 2002 07 03 | 644 | 0.1− | 0.0 | 2002 08 07 | 644 | 0.0 | 0.3+ | 2007 05 13 | 691 | 0.0 | 0.0 |
| 2002 07 03 | 644 | 0.2+ | 0.2+ | 2002 08 07 | 644 | 0.3+ | 0.4− | 2007 05 13 | 691 | 0.1+ | 0.0 |
| 2002 07 09 | 644 | 0.2+ | 0.2− | 2002 08 07 | 644 | 0.1− | 0.2+ | 2008 08 25 | F85 | 0.1− | 0.1− |
| 2002 07 09 | 644 | 0.1+ | 0.0 | 2002 08 16 | 644 | 0.3+ | 0.1+ | 2008 08 25 | F85 | 0.2− | 0.1− |
| 2002 07 09 | 644 | 0.1+ | 0.2− | 2002 08 16 | 644 | 0.2− | 0.1− | 2008 08 26 | F85 | 0.1+ | 0.1− |
| 2002 07 12 | 644 | 0.4− | 0.3+ | 2002 08 16 | 644 | 0.2− | 0.1+ | 2008 08 26 | F85 | 0.0 | 0.8− |
| 2002 07 12 | 644 | 0.2− | 0.1− | 2002 08 17 | 644 | 0.2− | 0.2+ | 2008 08 31 | F85 | 0.3− | 0.0 |
| 2002 07 21 | 644 | 0.1+ | 0.3− | 2002 08 17 | 644 | 0.3− | 0.4+ | 2008 08 31 | F85 | 1.0− | 0.6+ |
| 2002 07 21 | 644 | 0.2− | 0.3− | 2002 08 28 | 644 | 0.1− | 0.0 | 2008 09 06 | 703 | 1.4+ | 0.6+ |
| 2002 07 21 | 644 | 0.1+ | 0.2+ | 2002 08 28 | 644 | 0.2+ | 0.4− | 2008 09 06 | 703 | 0.4− | 0.1− |
| 2002 07 29 | 644 | 0.1+ | 0.1− | 2002 08 28 | 644 | 0.1+ | 0.1− | 2008 09 06 | 703 | 0.1+ | 0.1+ |
| 2002 07 29 | 644 | 0.1+ | 0.1− | 2007 04 24 | G96 | 0.3+ | 0.6− | 2008 09 06 | 703 | 0.6+ | 0.3− |

**2008 QL$_{24}$ = 2009 XJ$_{1}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 16.77211 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22623835 | $\omega$ | 156.23047 | | −0.18813879 | | −0.96411960 |
| $a$ | 2.6674231 | $\Omega$ | 304.10952 | | +0.86094039 | | −0.07012706 |
| $e$ | 0.0555427 | $i$ | 13.07366 | | +0.47263670 | | −0.25603826 |
| $P$ | 4.36 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 11 19 | 699 | 0.4− | 0.4− | 2008 08 26 | J75 | 0.1+ | 0.3− | 2008 12 04 | 703 | 0.7− | 0.5+ |
| 2004 11 19 | 699 | 1.3− | 0.1+ | 2008 08 26 | J75 | 0.2− | 0.9− | 2008 12 04 | 703 | 0.1+ | 0.7+ |
| 2004 11 19 | 699 | 0.3+ | 0.4+ | 2008 08 26 | J75 | 0.4+ | 0.0 | 2009 11 19 | G96 | 0.1− | 0.3− |
| 2004 11 19 | 699 | 0.5− | 0.4− | 2008 08 30 | 620 | 0.6+ | 0.5− | 2009 11 19 | G96 | 0.2− | 0.2− |
| 2004 12 01 | 703 | 0.2+ | 0.5+ | 2008 08 30 | 620 | 0.2− | 1.0− | 2009 11 19 | G96 | 0.0 | 0.3− |
| 2004 12 01 | 703 | 1.2+ | 1.1+ | 2008 08 30 | 620 | 0.3− | 0.1− | 2009 11 19 | G96 | 0.4− | 0.0 |
| 2004 12 01 | 703 | 0.3+ | 0.5− | 2008 09 22 | 703 | 0.7+ | 0.5− | 2009 12 10 | H06 | 0.1+ | 0.0 |
| 2004 12 01 | 703 | 0.8+ | 0.7− | 2008 09 22 | 703 | 0.5+ | 0.6+ | 2009 12 10 | H06 | 0.5+ | 0.1+ |
| 2004 12 15 | 703 | 0.1− | 0.2− | 2008 09 22 | 703 | 1.0− | 0.6+ | 2009 12 10 | H06 | 0.1− | 0.0 |
| 2004 12 15 | 703 | 0.1+ | 1.0− | 2008 09 22 | 703 | 0.1− | 1.4+ | 2009 12 11 | H06 | 0.1− | 0.7+ |
| 2004 12 15 | 703 | 0.1− | 0.1− | 2008 10 06 | 703 | 1.3+ | 0.8− | 2009 12 11 | H06 | 0.5+ | 0.7+ |
| 2004 12 15 | 703 | 0.2+ | 0.7− | 2008 10 06 | 703 | 0.4− | 0.2+ | 2009 12 11 | H06 | 0.3+ | 0.5+ |
| 2006 02 24 | 703 | 0.4− | 0.3+ | 2008 10 06 | 703 | 0.1− | 0.4+ | 2009 12 13 | H06 | 0.3+ | 0.3− |
| 2006 02 24 | 703 | 1.1− | 0.5+ | 2008 10 06 | 703 | 0.3+ | 0.2− | 2009 12 13 | H06 | 0.3− | 0.4+ |
| 2006 02 24 | 703 | 0.4+ | 1.1− | 2008 12 04 | 703 | 0.5− | 0.1− | 2009 12 13 | H06 | 0.2+ | 0.3− |
| 2006 02 24 | 703 | 0.4+ | 0.7− | 2008 12 04 | 703 | 1.8− | 0.6+ | | | | |

**2008 QU$_{24}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| $M$ | 103.03743 | | | (2000.0) | | **P** | | **Q** | | | |
| $n$ | 0.22021639 | $\omega$ | 226.80852 | | | +0.98839676 | | +0.04503648 | | | |
| $a$ | 2.7158323 | $\Omega$ | 130.06545 | | | −0.00286721 | | +0.96039489 | | | |
| $e$ | 0.2969993 | $i$ | 10.92649 | | | −0.15186715 | | +0.27497887 | | | |
| $P$ | 4.48 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 2 | | | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 08 08 | 699 | 0.1− | 1.7+ | 2008 08 30 | J75 | 0.3+ | 0.1+ | 2008 10 29 | 703 | 0.8− | 0.3− | | | | | |
| 1999 08 08 | 699 | 0.5− | 0.7+ | 2008 09 01 | J75 | 0.5+ | 0.2− | 2008 10 29 | 703 | 0.0 | 1.1− | | | | | |
| 1999 08 08 | 699 | 0.2− | 1.1+ | 2008 09 01 | J75 | 0.5+ | 0.4− | 2008 10 29 | 703 | 0.4− | 0.3+ | | | | | |
| 2007 04 24 | G96 | 0.3− | 0.6− | 2008 09 01 | J75 | 0.4+ | 0.5− | 2009 12 18 | G96 | 0.4+ | 0.5+ | | | | | |
| 2007 04 24 | G96 | 0.1− | 0.2− | 2008 10 02 | 703 | 0.3+ | 0.1− | 2009 12 18 | G96 | 0.1+ | 0.7+ | | | | | |
| 2007 04 24 | G96 | 0.1− | 0.4− | 2008 10 02 | 703 | 0.3− | 0.3− | 2009 12 18 | G96 | 0.1− | 0.2+ | | | | | |
| 2007 04 24 | G96 | 0.1+ | 0.5− | 2008 10 02 | 703 | 0.2− | 0.3− | 2009 12 18 | G96 | 0.2− | 0.6+ | | | | | |
| 2008 08 30 | J75 | 0.3+ | 0.1− | 2008 10 02 | 703 | 0.2+ | 0.3+ | | | | | | | | | |
| 2008 08 30 | J75 | 0.2+ | 0.1− | 2008 10 29 | 703 | 0.4− | 0.6− | | | | | | | | | |

**2008 QT$_{25}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| $M$ | 112.67733 | | | (2000.0) | | **P** | | **Q** | | | |
| $n$ | 0.27177969 | $\omega$ | 168.12385 | | | +0.97328006 | | −0.21618627 | | | |
| $a$ | 2.3604314 | $\Omega$ | 204.77557 | | | +0.19264978 | | +0.95219360 | | | |
| $e$ | 0.2401044 | $i$ | 10.64226 | | | +0.12494792 | | +0.21584913 | | | |
| $P$ | 3.63 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 3 | | | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 04 24 | G96 | 0.1+ | 0.3+ | 2008 09 02 | A77 | 0.1+ | 0.2− | 2008 09 21 | 703 | 1.4− | 0.9− | | | | | |
| 2007 04 24 | G96 | 0.1+ | 0.2+ | 2008 09 02 | A77 | 0.2− | 0.3+ | 2008 09 29 | 704 | 0.1+ | 0.4+ | | | | | |
| 2007 04 24 | G96 | 0.9− | 0.2− | 2008 09 02 | A77 | 0.3+ | 0.3− | 2008 09 29 | 704 | 0.0 | 0.4+ | | | | | |
| 2007 04 24 | G96 | 0.4− | 0.2+ | 2008 09 05 | 704 | 0.3+ | 0.4− | 2008 09 29 | 704 | 0.3− | 1.4+ | | | | | |
| 2007 04 24 | G96 | 0.0 | 0.1+ | 2008 09 05 | 704 | 0.1+ | 0.1− | 2008 09 29 | 704 | 0.1+ | 0.3+ | | | | | |
| 2007 04 24 | G96 | 0.3− | 0.6− | 2008 09 05 | 704 | 0.1+ | 0.2− | 2008 09 29 | 704 | 0.7+ | 0.7− | | | | | |
| 2007 04 24 | G96 | 0.4+ | 0.3+ | 2008 09 05 | 704 | 0.0 | 0.3− | 2008 11 20 | G96 | 0.0 | 0.2+ | | | | | |
| 2007 04 24 | G96 | 1.1+ | 0.4+ | 2008 09 05 | 704 | 0.3− | 0.3+ | 2008 11 20 | G96 | 0.2+ | 0.0 | | | | | |
| 2008 08 30 | A77 | 0.6+ | 0.2+ | 2008 09 21 | 703 | 0.1+ | 0.4+ | 2008 11 20 | G96 | 0.2+ | 0.2+ | | | | | |
| 2008 08 30 | A77 | 0.5+ | 0.0 | 2008 09 21 | 703 | 1.3− | 0.0 | | | | | | | | | |
| 2008 08 31 | A77 | 0.2− | 0.1− | 2008 09 21 | 703 | 0.6+ | 0.4− | | | | | | | | | |

**2008 QV$_{28}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| $M$ | 127.81506 | | | (2000.0) | | **P** | | **Q** | | | |
| $n$ | 0.21790965 | $\omega$ | 309.97273 | | | +0.43837387 | | +0.89697090 | | | |
| $a$ | 2.7349648 | $\Omega$ | 345.69991 | | | −0.73780219 | | +0.32277994 | | | |
| $e$ | 0.0994843 | $i$ | 13.38940 | | | −0.51329939 | | +0.30208659 | | | |
| $P$ | 4.52 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 4 | | | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 08 20 | F85 | 0.4− | 0.1− | 2008 08 25 | F85 | 0.2+ | 0.3− | 2008 10 27 | G96 | 0.6+ | 0.7− | | | | | |
| 2008 08 20 | F85 | 0.4− | 0.2− | 2008 08 27 | F85 | 0.0 | 0.2− | 2008 10 27 | G96 | 0.1+ | 0.2− | | | | | |
| 2008 08 23 | F84 | 0.7− | 0.9+ | 2008 08 27 | F85 | 0.2+ | 0.3− | 2008 10 27 | G96 | 0.0 | 0.1+ | | | | | |
| 2008 08 23 | F84 | 0.5+ | 0.3− | 2008 09 03 | F85 | 0.3+ | 0.2− | 2008 10 27 | G96 | 0.1+ | 0.2− | | | | | |
| 2008 08 23 | E12 | 0.1− | 0.1+ | 2008 09 03 | F85 | 0.6+ | 0.2− | 2009 11 17 | H85 | 0.2− | 0.9+ | | | | | |
| 2008 08 23 | E12 | 0.7− | 1.0+ | 2008 10 26 | G96 | 0.4+ | 0.0 | 2009 11 17 | H85 | 0.6+ | 0.8+ | | | | | |
| 2008 08 23 | E12 | 1.2− | 0.4+ | 2008 10 26 | G96 | 0.6+ | 0.5− | 2009 11 17 | H85 | 0.6+ | 0.1+ | | | | | |
| 2008 08 23 | E12 | 0.1+ | 0.9+ | 2008 10 26 | G96 | 0.2+ | 0.0 | 2009 12 14 | F84 | 0.1− | 0.7− | | | | | |
| 2008 08 25 | F85 | 0.1− | 0.2− | 2008 10 26 | G96 | 0.3+ | 0.1− | 2009 12 14 | F84 | 0.9− | 0.6− | | | | | |

**2008 QX$_{28}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| $M$ | 342.20894 | | | (2000.0) | | **P** | | **Q** | | | |
| $n$ | 0.08160227 | $\omega$ | 87.59097 | | | +0.61626336 | | −0.77692678 | | | |
| $a$ | 5.2642262 | $\Omega$ | 323.33529 | | | +0.60918709 | | +0.57397043 | | | |
| $e$ | 0.0413917 | $i$ | 12.46213 | | | +0.49910977 | | +0.25873292 | | | |
| $P$ | 12.08 | $H$ | 13.2 | $G$ | 0.15 | $U$ | 2 | | | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 03 30 | 691 | 0.1+ | 0.7+ | 2008 09 02 | 152 | 0.4+ | 0.6+ | 2008 09 24 | 152 | (2.4− | 0.9−) | | | | | |
| 2003 03 30 | 691 | 0.5+ | 0.8+ | 2008 09 02 | 152 | 0.3− | 0.1− | 2008 10 01 | G96 | 0.3+ | 0.1+ | | | | | |
| 2003 03 30 | 691 | 0.4+ | 0.3+ | 2008 09 23 | 152 | 1.5− | 0.2+ | 2008 10 01 | G96 | 0.1− | 0.0 | | | | | |
| 2007 09 10 | G96 | 0.2+ | 0.2− | 2008 09 23 | 152 | 1.0+ | 0.5+ | 2008 10 01 | G96 | 0.0 | 0.2+ | | | | | |
| 2007 09 10 | G96 | 0.1+ | 0.0 | 2008 09 23 | 152 | 0.1− | 0.9− | 2008 10 01 | G96 | 0.3+ | 0.0 | | | | | |
| 2007 09 10 | G96 | 0.4+ | 0.3− | 2008 09 23 | 152 | 1.1− | 0.0 | 2009 01 01 | G96 | 0.2− | 0.1− | | | | | |
| 2007 09 10 | G96 | 0.3+ | 0.3− | 2008 09 23 | 152 | 0.8+ | 0.4+ | 2009 01 01 | G96 | 0.3− | 0.3+ | | | | | |
| 2008 08 31 | 152 | 0.8− | 1.4+ | 2008 09 23 | 152 | 0.0 | 0.9+ | 2009 01 01 | G96 | 0.8− | 0.3− | | | | | |
| 2008 08 31 | 152 | (2.3+ | 0.1−) | 2008 09 23 | 152 | 0.2+ | 1.2− | 2009 01 01 | G96 | 0.3+ | 0.4+ | | | | | |
| 2008 08 31 | 152 | 0.5− | 0.3− | 2008 09 24 | 152 | (1.2+ | 2.5+) | 2009 10 20 | 703 | 0.6− | 0.6+ | | | | | |
| 2008 08 31 | 152 | 0.1+ | 0.9+ | 2008 09 24 | 152 | 1.0− | 1.0− | 2009 10 20 | 703 | 1.3− | 1.0+ | | | | | |
| 2008 08 31 | 152 | 0.2− | 0.2+ | 2008 09 24 | 152 | 1.0− | 0.5− | 2009 10 20 | 703 | 0.8− | 1.3+ | | | | | |
| 2008 08 31 | 152 | 0.3+ | 0.7+ | 2008 09 24 | 152 | 0.1+ | 0.2− | 2009 10 20 | 703 | 0.5+ | 1.0+ | | | | | |
| 2008 09 02 | 152 | 0.4+ | 0.1− | 2008 09 24 | 152 | 0.4+ | 1.4+ | | | | | | | | | |

**2008 QX$_{30}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| $M$ | 177.95094 | | | (2000.0) | | **P** | | **Q** | | | |
| $n$ | 0.27318392 | $\omega$ | 8.87766 | | | +0.25302820 | | +0.95976875 | | | |
| $a$ | 2.3523357 | $\Omega$ | 275.84747 | | | −0.89496941 | | +0.18441777 | | | |
| $e$ | 0.1870024 | $i$ | 7.02931 | | | −0.36743230 | | +0.21174051 | | | |
| $P$ | 3.61 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 1 | | | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 10 12 | 608 | 0.2− | 0.8+ | 2007 04 07 | 568 | 0.3+ | 0.5+ | 2008 09 05 | 704 | 0.4− | 0.1+ | | | | | |
| 2001 10 12 | 608 | 0.4− | 0.3+ | 2007 04 07 | 568 | 0.3+ | 0.4+ | 2008 09 05 | 704 | 0.3− | 0.3+ | | | | | |
| 2001 10 12 | 608 | 0.2+ | 0.3+ | 2008 08 30 | 704 | 0.1+ | 0.2+ | 2008 09 21 | 703 | 0.3+ | 0.0 | | | | | |
| 2005 11 10 | 691 | 0.1− | 0.1+ | 2008 08 30 | 704 | 0.4− | 0.5− | 2008 09 21 | 703 | 0.1+ | 0.2+ | | | | | |
| 2005 11 10 | 691 | 0.0 | 0.1+ | 2008 08 30 | 704 | 0.3− | 0.3+ | 2008 09 21 | 703 | 0.1− | 0.4+ | | | | | |
| 2005 11 10 | 691 | 0.4− | 0.1+ | 2008 08 30 | 704 | 0.3− | 0.2+ | 2008 09 21 | 703 | 0.2+ | 0.6− | | | | | |
| 2005 12 10 | 691 | 0.2+ | 0.2− | 2008 08 30 | 704 | 0.2+ | 0.1− | 2008 10 31 | G96 | 0.4+ | 0.7− | | | | | |
| 2005 12 10 | 691 | 0.2+ | 0.1− | 2008 09 05 | 704 | 0.1− | 0.5+ | 2008 10 31 | G96 | 0.3+ | 0.7− | | | | | |
| 2005 12 10 | 691 | 0.1+ | 0.1− | 2008 09 05 | 704 | 0.0 | 0.0 | 2008 10 31 | G96 | 0.3+ | 0.6− | | | | | |
| 2007 04 07 | 568 | 0.2+ | 0.4+ | 2008 09 05 | 704 | 0.5+ | 0.5+ | | | | | | | | | |

**2008 QA$_{31}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| $M$ | 42.78783 | | | (2000.0) | | **P** | | **Q** | | | |
| $n$ | 0.18383259 | $\omega$ | 90.32404 | | | +0.52476015 | | −0.83829235 | | | |
| $a$ | 3.0632872 | $\Omega$ | 326.64825 | | | +0.63389498 | | +0.50083397 | | | |
| $e$ | 0.2010006 | $i$ | 15.61253 | | | +0.56815837 | | +0.21547914 | | | |
| $P$ | 5.36 | $H$ | 15.1 | $G$ | 0.15 | $U$ | 1 | | | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 09 26 | 910 | 0.3+ | 0.4− | 2008 08 30 | 704 | (0.2− | 1.9+) | 2008 09 21 | 703 | 0.8− | 0.0 | | | | | |
| 1997 09 26 | 910 | 0.3+ | 0.2− | 2008 08 30 | 704 | (0.5− | 1.8+) | 2008 10 06 | 703 | 0.3− | 0.3− | | | | | |
| 1997 09 26 | 910 | 0.8+ | 0.5− | 2008 08 30 | 704 | 0.5− | 0.6+ | 2008 10 06 | 703 | 0.7+ | 0.0 | | | | | |
| 2003 10 16 | 644 | 0.0 | 0.1− | 2008 08 30 | 704 | 0.6− | 0.4+ | 2008 10 06 | 703 | 0.0 | 0.7+ | | | | | |
| 2003 10 16 | 644 | 0.1+ | 0.2+ | 2008 08 30 | 704 | 0.2+ | 0.7+ | 2008 10 06 | 703 | 0.7− | 0.1+ | | | | | |
| 2003 10 16 | 644 | 0.0 | 0.6− | 2008 09 05 | 704 | 0.2+ | 1.0+ | 2008 11 21 | 703 | 1.0− | 1.1− | | | | | |
| 2005 02 16 | 809 | 0.1+ | 0.3− | 2008 09 05 | 704 | 0.3− | 1.1+ | 2008 11 21 | 703 | 0.6+ | 0.5− | | | | | |
| 2005 02 16 | 809 | 0.1+ | 0.3− | 2008 09 05 | 704 | 0.3+ | 0.7+ | 2008 11 21 | 703 | 1.0− | 1.4− | | | | | |
| 2005 02 16 | 809 | 0.0 | 0.4− | 2008 09 05 | 704 | 0.2− | 1.1+ | 2008 11 21 | 703 | 0.1+ | 0.3− | | | | | |
| 2005 03 10 | 703 | 0.8− | 0.5+ | 2008 09 05 | 704 | 0.2+ | 1.4+ | 2009 11 18 | 703 | 0.8− | 0.0 | | | | | |
| 2005 03 10 | 703 | 0.1+ | 1.4+ | 2008 09 21 | 703 | 0.3− | 0.5− | 2009 11 18 | 703 | 0.1+ | 0.0 | | | | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 03 10 | 703 | 0.9+ | 1.1+ | 2008 09 21 | 703 | 0.3− | 0.2− | 2009 11 18 | 703 | 0.0 | 0.0 |
| 2005 03 10 | 703 | 0.1+ | 0.4+ | 2008 09 21 | 703 | 0.8+ | 1.5− | 2009 11 18 | 703 | 1.8+ | 0.5− |

**2008 QB$_{35}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 174.47027 | | (2000.0) | | | |
| $n$ | 0.31203528 | $\omega$ | 153.24219 | | +0.70493303 | +0.70914657 |
| $a$ | 2.1527830 | $\Omega$ | 161.57156 | | −0.65812185 | +0.66104112 |
| $e$ | 0.1994930 | $i$ | 2.43629 | | −0.26447127 | +0.24522600 |
| $P$ | 3.16 | $H$ | 18.6 | $G$ | 0.15 | $U$ 5 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 29 | G96 | 0.3+ | 0.0 | 2008 08 29 | J75 | 0.1− | 0.2+ | 2008 09 06 | G96 | 0.1− | 0.1+ |
| 2005 10 29 | G96 | 0.1+ | 0.2+ | 2008 08 29 | J75 | 0.1+ | 0.3− | 2008 09 06 | G96 | 0.3− | 0.0 |
| 2005 10 29 | G96 | 0.1− | 0.2+ | 2008 08 29 | J75 | 0.2− | 0.3+ | 2008 09 06 | G96 | 0.2+ | 0.2+ |
| 2005 10 29 | G96 | 0.6− | 0.5− | 2008 09 06 | 703 | 0.4+ | 0.0 | 2008 09 21 | G96 | 0.3+ | 0.0 |
| 2005 11 01 | G96 | 0.6+ | 0.1− | 2008 09 06 | 703 | 0.2− | 0.2− | 2008 09 21 | G96 | 0.2+ | 0.0 |
| 2005 11 01 | G96 | 0.2+ | 0.1+ | 2008 09 06 | 703 | 0.1− | 0.1− | 2008 09 21 | G96 | 0.2− | 0.0 |
| 2005 11 01 | G96 | 0.1− | 0.0 | 2008 09 06 | 703 | 0.6+ | 0.4− | 2008 09 21 | G96 | 0.3− | 0.1+ |
| 2005 11 01 | G96 | 0.5− | 0.1+ | 2008 09 06 | G96 | 0.1− | 0.1+ | | | | |

**2008 QL$_{36}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 109.32896 | | (2000.0) | | | |
| $n$ | 0.25525176 | $\omega$ | 14.44705 | | +0.99957294 | +0.00038981 |
| $a$ | 2.4612565 | $\Omega$ | 345.43611 | | −0.01490347 | +0.86689485 |
| $e$ | 0.1569826 | $i$ | 6.67284 | | +0.02513606 | +0.49849089 |
| $P$ | 3.86 | $H$ | 17.0 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 08 22 | E12 | 0.1− | 0.8− | 2008 08 20 | 691 | 0.2+ | 1.3+ | 2008 09 20 | G96 | 0.3− | 0.5− |
| 2004 08 22 | E12 | 0.4+ | 0.1− | 2008 08 20 | 691 | 1.8− | 0.4+ | 2008 09 29 | 703 | 0.0 | 0.3+ |
| 2004 08 22 | E12 | 0.5+ | 0.6− | 2008 09 06 | 703 | 0.1− | 0.7− | 2008 09 29 | 703 | 0.1− | 0.5− |
| 2004 08 22 | E12 | 0.0 | 0.7− | 2008 09 06 | 703 | 0.4+ | 0.7− | 2008 09 29 | 703 | 1.4+ | 1.1+ |
| 2004 08 22 | E12 | 0.6+ | 0.3− | 2008 09 06 | 703 | 0.1− | 0.0 | 2008 09 29 | 703 | (2.3+ | 1.5+) |
| 2004 08 22 | E12 | 0.0 | 0.5− | 2008 09 06 | 703 | 0.1− | 0.3− | 2008 10 02 | G96 | 0.6+ | 0.0 |
| 2004 08 22 | E12 | 0.3− | 0.4− | 2008 09 20 | 703 | 0.9+ | 0.4− | 2008 10 02 | G96 | 0.1+ | 0.4− |
| 2004 08 22 | E12 | 0.1+ | 0.3− | 2008 09 20 | 703 | 0.6+ | 0.1+ | 2008 10 02 | G96 | 0.1+ | 0.1− |
| 2006 01 06 | G96 | 0.0 | 0.3+ | 2008 09 20 | G96 | 0.1+ | 0.3− | 2008 10 02 | G96 | 0.0 | 0.0 |
| 2006 01 06 | G96 | 0.3+ | 0.2+ | 2008 09 20 | 703 | 0.2+ | 0.7− | 2008 10 21 | G96 | 0.3+ | 0.5− |
| 2006 01 06 | G96 | 0.0 | 0.3+ | 2008 09 20 | 703 | 0.5+ | 1.0+ | 2008 10 21 | G96 | 0.9+ | 0.3− |
| 2006 01 06 | G96 | 0.1− | 0.3− | 2008 09 20 | G96 | 0.3− | 0.3− | 2008 10 21 | G96 | 0.4+ | 0.5− |
| 2008 08 20 | 691 | 0.2− | 0.0 | 2008 09 20 | G96 | 0.2+ | 0.2− | 2008 10 21 | G96 | 0.3+ | 0.3− |

**2008 QH$_{38}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 127.27256 | | (2000.0) | | | |
| $n$ | 0.20947198 | $\omega$ | 151.30920 | | +0.86545637 | +0.50097914 |
| $a$ | 2.8079245 | $\Omega$ | 178.61974 | | −0.47579978 | +0.82336358 |
| $e$ | 0.0858471 | $i$ | 5.42176 | | −0.15684338 | +0.26663142 |
| $P$ | 4.71 | $H$ | 16.9 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 08 04 | 691 | 0.0 | 0.1+ | 2008 09 02 | 691 | 0.1+ | 0.1− | 2008 09 29 | G96 | 1.0+ | 0.3− |
| 2003 08 04 | 691 | 0.1− | 0.1+ | 2008 09 02 | 691 | 0.1+ | 0.0 | 2008 09 29 | G96 | 0.6+ | 0.4− |
| 2003 08 04 | 691 | 0.0 | 0.2+ | 2008 09 06 | 691 | 1.0− | 0.4− | 2008 09 29 | G96 | 0.9+ | 0.2− |
| 2006 03 02 | G96 | 0.3+ | 0.3+ | 2008 09 06 | 691 | 0.1+ | 0.1− | 2008 09 29 | G96 | 0.5+ | 0.2− |
| 2006 03 02 | G96 | 0.1+ | 0.5+ | 2008 09 06 | 691 | 0.4+ | 0.2− | 2008 10 18 | 691 | 0.0 | 0.2+ |
| 2006 03 02 | G96 | 0.0 | 0.3+ | 2008 09 10 | 691 | 0.3− | 0.2− | 2008 10 18 | 691 | 0.5− | 0.5+ |
| 2006 03 02 | G96 | 0.0 | 0.0 | 2008 09 10 | 691 | 0.0 | 0.2− | 2008 10 18 | 691 | 0.5− | 0.7+ |
| 2008 08 23 | 691 | 0.0 | 0.2− | 2008 09 10 | 691 | 0.3− | 0.1+ | 2008 10 25 | G96 | 0.2+ | 0.0 |
| 2008 08 23 | 691 | 0.1− | 0.1− | 2008 09 19 | 691 | 0.3+ | 0.2+ | 2008 10 25 | G96 | 0.8+ | 0.0 |
| 2008 08 23 | 691 | 0.1− | 0.2+ | 2008 09 19 | 691 | 0.2+ | 0.0 | 2008 10 25 | G96 | 0.5+ | 0.3− |
| 2008 09 02 | 691 | 0.1− | 0.0 | 2008 09 19 | 691 | 0.3+ | 0.1− | 2008 10 25 | G96 | 0.2+ | 0.0 |

**2008 QY$_{42}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 163.63621 | | (2000.0) | | | |
| $n$ | 0.17217967 | $\omega$ | 29.50044 | | +0.08521357 | +0.98620345 |
| $a$ | 3.1999864 | $\Omega$ | 245.70275 | | −0.94193456 | +0.03330367 |
| $e$ | 0.0524301 | $i$ | 8.95815 | | −0.32480446 | +0.16215308 |
| $P$ | 5.72 | $H$ | 14.8 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 27 | 644 | 0.0 | 0.1+ | 2008 09 05 | 704 | 0.1+ | 0.1− | 2008 12 03 | G96 | 0.0 | 0.4− |
| 2002 08 27 | 644 | 0.1+ | 0.2+ | 2008 09 05 | 704 | 0.2− | 1.4− | 2008 12 03 | G96 | 0.5− | 0.4− |
| 2002 08 27 | 644 | 0.1+ | 0.2+ | 2008 09 05 | 704 | 0.7+ | 0.0 | 2009 09 22 | G96 | 0.6+ | 0.0 |
| 2002 09 04 | 644 | 0.6− | 0.1− | 2008 09 24 | 703 | 0.2− | 0.7− | 2009 09 22 | G96 | 0.5− | 0.7− |
| 2002 09 04 | 644 | 0.2− | 0.4+ | 2008 09 24 | 703 | 0.9+ | 0.3− | 2009 09 22 | G96 | 0.1+ | 0.4− |
| 2002 09 04 | 644 | 0.1− | 0.7+ | 2008 09 24 | 703 | 1.1+ | 0.9+ | 2009 09 22 | G96 | 0.3+ | 0.0 |
| 2003 10 18 | 691 | 0.8− | 0.2+ | 2008 09 24 | 703 | 0.5− | 0.9+ | 2009 11 08 | 691 | 0.1− | 0.1+ |
| 2003 10 18 | 691 | 0.7+ | 0.8+ | 2008 10 10 | 703 | 0.0 | 0.3− | 2009 11 08 | 691 | 0.1+ | 0.2+ |
| 2003 10 18 | 691 | 0.0 | 0.5− | 2008 10 10 | 703 | 0.6+ | 0.1− | 2009 11 08 | 691 | 0.3+ | 0.0 |
| 2003 12 18 | 691 | 0.1− | 0.0 | 2008 10 10 | 703 | 0.2− | 0.1+ | 2009 11 16 | 691 | 0.1− | 0.1+ |
| 2003 12 18 | 691 | 0.0 | 0.1+ | 2008 10 10 | 703 | 0.1− | 0.7+ | 2009 11 16 | 691 | 0.5− | 0.0 |
| 2003 12 18 | 691 | 0.2+ | 0.0 | 2008 11 01 | G96 | 0.3+ | 0.4− | 2009 11 16 | 691 | 0.5− | 0.2+ |
| 2008 08 30 | 704 | 1.0− | 0.4− | 2008 11 01 | G96 | 0.2+ | 0.1− | 2009 12 11 | G96 | 0.6+ | 0.5− |
| 2008 08 30 | 704 | 0.8− | 0.2+ | 2008 11 01 | G96 | 0.2+ | 0.4− | 2009 12 11 | G96 | 0.7+ | 0.5− |
| 2008 08 30 | 704 | (1.6− | 0.9+) | 2008 11 01 | G96 | 0.2+ | 0.0 | 2009 12 11 | G96 | 0.8+ | 0.6− |
| 2008 09 05 | 704 | 0.6+ | 0.2− | 2008 12 03 | G96 | 0.2+ | 0.6− | 2009 12 11 | G96 | 0.5+ | 0.5− |
| 2008 09 05 | 704 | 0.8− | 0.4+ | 2008 12 03 | G96 | 0.1+ | 0.4− | | | | |

**2008 QK$_{43}$ = 2009 WF$_{167}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 128.43327 | | (2000.0) | | | |
| $n$ | 0.22301518 | $\omega$ | 55.50536 | | +0.64016975 | +0.72966540 |
| $a$ | 2.6930625 | $\Omega$ | 256.18261 | | −0.76068226 | +0.55829519 |
| $e$ | 0.1390779 | $i$ | 14.33074 | | −0.10744853 | +0.39483526 |
| $P$ | 4.42 | $H$ | 15.4 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 27 | 691 | 0.2+ | 0.2− | 2008 08 26 | 106 | 0.1− | 0.2− | 2008 09 28 | G96 | 0.2− | 0.1− |
| 2000 11 27 | 691 | 0.3+ | 0.2− | 2008 08 26 | 106 | 0.5− | 0.8− | 2008 09 28 | G96 | 0.4− | 0.3− |
| 2000 11 27 | 691 | 0.2+ | 0.1− | 2008 09 02 | 106 | 0.4− | 0.2− | 2008 09 28 | 703 | 0.1+ | 0.0 |
| 2003 07 08 | 644 | 0.5− | 0.1+ | 2008 09 02 | 106 | 0.3− | 0.4− | 2008 09 28 | 703 | 0.4− | 0.1− |
| 2003 07 08 | 644 | 0.3− | 0.3+ | 2008 09 02 | 106 | 0.2− | 0.2− | 2008 09 28 | 703 | 0.3+ | 0.5− |
| 2003 07 08 | 644 | 0.2− | 0.3+ | 2008 09 02 | 106 | 0.0 | 0.3− | 2008 09 28 | 703 | 0.6− | 0.1− |
| 2004 10 24 | 699 | 0.6− | 0.4− | 2008 09 21 | 703 | (4.1+ | 0.7+) | 2009 11 21 | 691 | 0.3− | 0.1− |
| 2004 10 24 | 699 | 0.4− | 0.5+ | 2008 09 21 | 703 | 2.3+ | 1.3+ | 2009 11 21 | 691 | 0.2+ | 0.0 |
| 2004 10 24 | 699 | 1.2− | 0.3+ | 2008 09 21 | 703 | 0.1+ | 0.4+ | 2009 11 21 | 691 | 0.7− | 0.1+ |
| 2004 10 24 | 699 | 1.8− | 0.6+ | 2008 09 21 | 703 | 1.0− | 1.1+ | 2009 11 25 | 691 | 1.1+ | 0.1− |
| 2008 08 26 | 106 | 0.5+ | 0.3+ | 2008 09 28 | G96 | 0.4− | 0.2− | 2009 11 25 | 691 | 0.3− | 0.2+ |
| 2008 08 26 | 106 | 0.1+ | 0.0 | 2008 09 28 | G96 | 0.6− | 0.2− | 2009 11 25 | 691 | 0.2− | 0.1+ |

**2008 QV$_{43}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 56.88895 | | (2000.0) | | | |
| $n$ | 0.19746220 | $\omega$ | 332.19265 | | +0.82917625 | −0.53213011 |
| $a$ | 2.9206537 | $\Omega$ | 60.97540 | | +0.54229755 | +0.69149644 |
| $e$ | 0.1475974 | $i$ | 11.28981 | | +0.13557330 | +0.48853887 |
| $P$ | 4.99 | $H$ | 15.0 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 08 28 | 644 | 0.4− | 0.3− | 2005 01 07 | 703 | 0.0 | 0.1+ | 2008 09 25 | E12 | 0.1+ | 0.9− |
| 2003 08 28 | 644 | 0.2− | 0.3− | 2005 01 07 | 703 | 0.1− | 0.3+ | 2008 10 29 | 703 | 0.6+ | 0.4+ |
| 2003 08 28 | 644 | 0.3− | 0.2− | 2008 08 23 | E12 | 0.2+ | 0.6+ | 2008 10 29 | 703 | 0.4+ | 1.4− |
| 2003 09 27 | 699 | 1.1+ | 0.5− | 2008 08 23 | E12 | 0.0 | 0.7+ | 2008 10 29 | 703 | 1.0− | 0.0 |
| 2003 09 27 | 699 | 0.0 | 0.7+ | 2008 08 23 | E12 | 0.4+ | 0.2− | 2008 10 29 | 703 | 0.1− | 0.5− |
| 2003 09 27 | 699 | 0.1− | 0.1− | 2008 08 23 | E12 | 0.1− | 0.5+ | 2008 11 24 | 703 | 0.4+ | 0.6+ |
| 2003 09 27 | 699 | 0.2− | 0.5− | 2008 09 09 | E12 | 0.3+ | 0.3+ | 2008 11 24 | 703 | 0.6+ | 1.4+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 21 | 703 | 0.6+ | 0.5− | 2008 09 09 | E12 | 0.3− | 0.0 | 2008 11 24 | 703 | 0.4− | 1.0− |
| 2004 12 21 | 703 | 0.1+ | 0.3− | 2008 09 09 | E12 | 0.2− | 0.2− | 2008 11 24 | 703 | 1.2− | 1.1+ |
| 2004 12 21 | 703 | 0.2− | 0.4− | 2008 09 09 | E12 | 0.1− | 0.1+ | 2009 09 27 | 291 | 0.1− | 0.1+ |
| 2004 12 21 | 703 | 0.2− | 0.2+ | 2008 09 25 | E12 | 0.5+ | 0.3− | 2009 09 27 | 291 | 0.1− | 0.2+ |
| 2005 01 07 | 703 | 0.0 | 0.6− | 2008 09 25 | E12 | 0.0 | 0.4− | 2009 09 27 | 291 | 0.1− | 0.1+ |
| 2005 01 07 | 703 | 0.4+ | 0.3− | 2008 09 25 | E12 | 0.0 | 0.2+ | | | | |

**2008 RK$_8$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 201.88319 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17849266 | $\omega$ | 5.71820 | | −0.54085806 | +0.83939410 | |
| $a$ | 3.1240823 | $\Omega$ | 231.55227 | | −0.77440191 | −0.52188858 | |
| $e$ | 0.0473584 | $i$ | 3.93606 | | −0.32828988 | −0.15182178 | |
| $P$ | 5.52 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 02 | 691 | 0.2− | 0.1− | 2006 03 26 | 699 | (0.4− | 3.0+) | 2009 09 20 | G96 | 0.7+ | 0.1+ |
| 2003 10 02 | 691 | 0.3− | 0.2+ | 2008 08 24 | 691 | 0.2− | 0.2+ | 2009 09 20 | G96 | 0.1+ | 0.4− |
| 2003 10 02 | 691 | 0.4− | 0.3+ | 2008 08 24 | 691 | 0.1− | 0.2+ | 2009 12 11 | G96 | 0.1− | 0.3− |
| 2003 11 19 | 691 | 0.1− | 0.5+ | 2008 08 24 | 691 | 0.2− | 0.1+ | 2009 12 11 | G96 | 0.2− | 0.3− |
| 2003 11 19 | 691 | 0.3+ | 0.0 | 2008 09 03 | 691 | 0.0 | 0.1+ | 2009 12 11 | G96 | 0.2− | 0.3− |
| 2003 11 19 | 691 | 0.3+ | 0.3+ | 2008 09 03 | 691 | 0.1− | 0.1− | 2009 12 11 | G96 | 0.0 | 0.2− |
| 2003 11 30 | 691 | 0.1+ | 0.0 | 2008 09 03 | 691 | 0.0 | 0.1+ | 2009 12 15 | G96 | 0.3− | 0.0 |
| 2003 11 30 | 691 | 0.2+ | 0.3+ | 2008 09 05 | 691 | 0.1− | 0.0 | 2009 12 15 | G96 | 0.0 | 0.1+ |
| 2003 11 30 | 691 | 0.3− | 0.4− | 2008 09 05 | 691 | 0.6+ | 0.1− | 2009 12 15 | G96 | 0.2+ | 0.1− |
| 2006 03 26 | 699 | 0.9+ | 0.3+ | 2008 09 05 | 691 | 0.3− | 0.1+ | 2009 12 15 | G96 | 0.1− | 0.3− |
| 2006 03 26 | 699 | 0.9+ | 0.1− | 2009 09 20 | G96 | 0.3+ | 0.3− | | | | |
| 2006 03 26 | 699 | 0.2+ | 1.1+ | 2009 09 20 | G96 | 0.2− | 0.4− | | | | |

**2008 RH$_{13}$ = 2009 YH$_3$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 356.88506 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22180787 | $\omega$ | 211.78562 | | −0.34290173 | −0.93630348 | |
| $a$ | 2.7028260 | $\Omega$ | 258.36269 | | +0.87727066 | −0.29031353 | |
| $e$ | 0.0287328 | $i$ | 4.44192 | | +0.33587884 | −0.19762049 | |
| $P$ | 4.44 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 02 02 | 691 | 0.0 | 0.1+ | 2008 09 04 | 691 | 0.2− | 0.3+ | 2009 12 17 | G96 | 0.6+ | 0.0 |
| 2006 02 02 | 691 | 0.1+ | 0.1− | 2008 09 05 | 691 | 0.1+ | 0.3− | 2009 12 18 | 691 | 0.2+ | 0.0 |
| 2006 02 02 | 691 | 0.1− | 0.0 | 2008 09 05 | 691 | 0.1+ | 0.4+ | 2009 12 18 | 691 | 0.2+ | 0.1− |
| 2008 08 24 | 691 | 0.5− | 0.4+ | 2008 09 05 | 691 | 0.1+ | 1.0− | 2009 12 18 | 691 | 0.3+ | 0.1+ |
| 2008 08 24 | 691 | 0.5+ | 0.6+ | 2009 12 17 | G96 | 0.3− | 0.2+ | 2009 12 26 | 691 | 0.0 | 0.1− |
| 2008 08 24 | 691 | 0.1+ | 0.4+ | 2009 12 17 | G96 | 1.2+ | 0.1+ | 2009 12 26 | 691 | 0.8− | 0.2+ |
| 2008 09 04 | 691 | 0.0 | 0.2− | 2009 12 17 | G96 | 1.0+ | 0.2− | 2009 12 26 | 691 | 0.5− | 0.2− |
| 2008 09 04 | 691 | 0.2− | 0.5− | 2009 12 17 | G96 | 0.5+ | 0.2+ | | | | |

**2008 RM$_{14}$ = 2009 UC$_{117}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 55.42765 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.08516549 | $\omega$ | 42.08680 | | +0.96548311 | +0.24469630 | |
| $a$ | 5.1163506 | $\Omega$ | 303.53904 | | −0.25827022 | +0.85498696 | |
| $e$ | 0.0366533 | $i$ | 6.14707 | | −0.03374713 | +0.45729752 | |
| $P$ | 11.57 | $H$ | 13.6 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 03 05 | 645 | 0.1+ | 0.2+ | 2008 09 04 | 691 | 0.2+ | 0.2+ | 2008 10 30 | G96 | 0.0 | 0.6− |
| 2002 03 05 | 645 | 0.1+ | 0.1+ | 2008 09 04 | 691 | 0.1+ | 0.2+ | 2008 10 30 | G96 | 0.2− | 0.7− |
| 2007 09 15 | 691 | 0.0 | 0.4+ | 2008 09 04 | 691 | 0.4+ | 0.2− | 2009 10 22 | G96 | 0.5+ | 0.1+ |
| 2007 09 15 | 691 | 0.2− | 0.3+ | 2008 09 05 | 691 | 0.6− | 0.0 | 2009 10 22 | G96 | 0.3+ | 0.1− |
| 2007 09 15 | 691 | 0.1− | 0.1+ | 2008 09 05 | 691 | 0.5− | 0.4+ | 2009 10 22 | G96 | 0.1+ | 0.1+ |
| 2008 08 24 | 691 | 0.2− | 0.1+ | 2008 09 05 | 691 | 0.4− | 0.4+ | 2009 10 22 | G96 | 0.0 | 0.5+ |
| 2008 08 24 | 691 | 0.1− | 0.1− | 2008 09 05 | 691 | 0.0 | 0.1+ | 2009 10 27 | G96 | 0.0 | 0.5− |
| 2008 08 24 | 691 | 0.0 | 0.0 | 2008 09 05 | 691 | 0.3+ | 0.0 | 2009 10 27 | G96 | 0.2+ | 0.3− |
| 2008 09 04 | 691 | 0.1+ | 0.2+ | 2008 09 05 | 691 | 0.1+ | 0.1+ | 2009 10 27 | G96 | 0.1+ | 0.2− |
| 2008 09 04 | 691 | 0.1+ | 0.1+ | 2008 10 30 | G96 | 0.1+ | 0.7− | 2009 10 27 | G96 | 0.6− | 0.4− |
| 2008 09 04 | 691 | 0.3− | 0.1+ | 2008 10 30 | G96 | 0.3+ | 0.8− | | | | |

**2008 RU$_{16}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 18.34047 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.08480305 | $\omega$ | 164.11188 | | +0.88785023 | −0.45398717 | |
| $a$ | 5.1309181 | $\Omega$ | 223.14300 | | +0.40932923 | +0.85367538 | |
| $e$ | 0.0410135 | $i$ | 6.29259 | | +0.21017030 | +0.25521362 | |
| $P$ | 11.62 | $H$ | 13.4 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 04 26 | 691 | 0.0 | 0.5+ | 2008 09 05 | 691 | 0.1− | 0.3+ | 2009 09 16 | G96 | 0.8+ | 0.2+ |
| 2003 04 26 | 691 | 0.3+ | 0.8+ | 2008 09 05 | 691 | 0.1− | 0.1+ | 2009 11 08 | G96 | 0.6+ | 0.4+ |
| 2003 04 26 | 691 | 0.5+ | 0.5+ | 2008 09 05 | 691 | 0.4− | 0.4+ | 2009 11 08 | G96 | 0.8+ | 0.3+ |
| 2004 05 19 | 291 | 0.2+ | 0.2+ | 2008 09 25 | G96 | (2.0+ | 2.9−) | 2009 11 08 | G96 | 0.5+ | 0.3+ |
| 2004 05 19 | 291 | 0.3− | 0.4− | 2008 09 25 | G96 | 0.5+ | 0.3+ | 2009 11 08 | G96 | 0.3+ | 0.1+ |
| 2004 05 19 | 291 | 0.3− | 0.3+ | 2008 09 25 | G96 | 0.8+ | 0.3+ | 2009 11 23 | 703 | 1.0− | 0.4+ |
| 2007 09 14 | 691 | 0.3+ | 0.0 | 2008 09 30 | J75 | 0.4− | 0.7+ | 2009 11 23 | 703 | 1.4− | 0.5− |
| 2007 09 14 | 691 | 0.3+ | 0.1− | 2008 09 30 | J75 | 0.5+ | 0.0 | 2009 11 23 | 703 | 1.3− | 2.0− |
| 2007 09 14 | 691 | 0.1+ | 0.4− | 2008 09 30 | J75 | 0.5+ | 0.0 | 2009 11 23 | 703 | 0.2− | 1.1+ |
| 2008 08 24 | 691 | 0.3+ | 0.1− | 2008 10 02 | 691 | 0.4+ | 0.2+ | 2009 11 23 | 703 | 0.7− | 0.3− |
| 2008 08 24 | 691 | 0.3− | 0.2− | 2008 10 02 | 691 | 0.2− | 0.0 | 2009 12 17 | G96 | 0.7+ | 0.1+ |
| 2008 08 24 | 691 | 0.4− | 0.0 | 2008 10 02 | 691 | 0.2+ | 0.3+ | 2009 12 17 | G96 | 0.2+ | 0.1+ |
| 2008 09 04 | 691 | 0.8− | 0.1+ | 2009 09 16 | G96 | 0.6+ | 0.2+ | 2009 12 17 | G96 | 0.6+ | 0.2+ |
| 2008 09 04 | 691 | 0.4− | 0.1+ | 2009 09 16 | G96 | 0.0 | 0.2+ | 2009 12 17 | G96 | 0.1+ | 0.2+ |
| 2008 09 04 | 691 | 0.1− | 0.3+ | 2009 09 16 | G96 | 0.5+ | 0.4+ | | | | |

**2008 RG$_{17}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 318.68711 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.08485722 | $\omega$ | 128.49250 | | −0.04991818 | −0.99707096 | |
| $a$ | 5.1287342 | $\Omega$ | 324.23949 | | +0.88269746 | −0.01689876 | |
| $e$ | 0.0620177 | $i$ | 5.69046 | | +0.46728296 | −0.07459180 | |
| $P$ | 11.61 | $H$ | 14.2 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 08 24 | 691 | 1.6− | 0.1− | 2008 09 23 | G96 | 0.3+ | 0.3− | 2009 10 22 | G96 | 0.3− | 0.4+ |
| 2008 08 24 | 691 | 0.4+ | 0.1− | 2008 09 23 | G96 | 0.3− | 0.5− | 2009 10 22 | G96 | 1.4− | 0.0 |
| 2008 08 24 | 691 | 0.3+ | 0.0 | 2008 09 23 | G96 | 0.3+ | 0.6− | 2009 10 22 | G96 | 0.2− | 0.8+ |
| 2008 09 04 | 691 | 0.0 | 0.0 | 2008 09 23 | G96 | 0.1+ | 0.3− | 2009 11 21 | G96 | 0.0 | 0.3− |
| 2008 09 04 | 691 | 0.7+ | 0.3+ | 2008 11 01 | G96 | 0.3+ | 0.1− | 2009 11 21 | G96 | 0.5+ | 0.1+ |
| 2008 09 04 | 691 | 0.3+ | 0.1+ | 2008 11 01 | G96 | 0.5− | 0.5− | 2009 11 21 | G96 | 0.3+ | 0.4− |
| 2008 09 05 | 691 | 0.1− | 0.0 | 2008 11 01 | G96 | 0.1− | 0.1− | 2009 11 21 | G96 | 0.1+ | 0.1+ |
| 2008 09 05 | 691 | 0.1+ | 0.3+ | 2008 11 01 | G96 | 0.3− | 0.2− | | | | |
| 2008 09 05 | 691 | 0.0 | 0.1+ | 2009 10 22 | G96 | 0.9+ | 0.4− | | | | |

**2008 RL$_{19}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 90.61307 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22623889 | $\omega$ | 111.81477 | | +0.93693530 | −0.34607356 | |
| $a$ | 2.6674188 | $\Omega$ | 268.45967 | | +0.29990790 | +0.86784923 | |
| $e$ | 0.1075995 | $i$ | 2.80045 | | +0.17946449 | +0.35646992 | |
| $P$ | 4.36 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 12 03 | 691 | 0.1+ | 0.1− | 2006 03 02 | G96 | 0.5+ | 0.1− | 2008 09 05 | 691 | 0.4+ | 0.6+ |
| 2000 12 03 | 691 | 0.2+ | 0.6− | 2006 03 02 | G96 | 0.8+ | 0.7+ | 2008 09 05 | 691 | 0.1− | 0.0 |
| 2000 12 03 | 691 | 0.5− | 0.1− | 2006 03 02 | G96 | 0.1− | 0.3+ | 2008 09 24 | 683 | 0.4+ | 0.5+ |
| 2004 10 23 | 691 | 0.0 | 0.2+ | 2008 08 24 | 691 | 0.1+ | 0.1+ | 2008 09 24 | 683 | 0.1− | 0.9+ |
| 2004 10 23 | 691 | 0.1− | 0.1+ | 2008 08 24 | 691 | 0.1− | 0.0 | 2008 09 24 | 683 | 0.6− | 0.5+ |
| 2004 10 23 | 691 | 0.1+ | 0.2+ | 2008 08 24 | 691 | 0.0 | 0.0 | 2008 12 03 | G96 | 0.5− | 0.7− |
| 2006 02 02 | 691 | 0.4+ | 0.2− | 2008 09 04 | 691 | 0.2− | 0.0 | 2008 12 03 | G96 | 0.8− | 0.7− |
| 2006 02 02 | 691 | 0.1− | 0.8+ | 2008 09 04 | 691 | 0.1+ | 0.3+ | 2008 12 03 | G96 | 0.9− | 0.1− |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 02 02 | 691 | 0.1+ | 0.6+ | 2008 09 04 | 691 | 0.1− | 0.1− | 2008 12 03 | G96 | 0.1+ | 0.5− | | |
| 2006 03 02 | G96 | 0.1+ | 0.2+ | 2008 09 05 | 691 | 0.0 | 0.2− | | | | | | |

**2008 RA$_{21}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 178.48674 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.24689362 | $\omega$ | 49.16442 | | +0.23145675 | | +0.97247799 |
| $a$ | 2.5164954 | $\Omega$ | 234.23805 | | −0.90218768 | | +0.20428624 |
| $e$ | 0.1398866 | $i$ | 1.88750 | | −0.36398510 | | +0.11204323 |
| $P$ | 3.99 | $H$ | 18.1 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 04 18 | G96 | 0.2+ | 0.3− | 2007 05 09 | G96 | 0.2− | 0.2− | 2008 09 20 | G96 | 0.5+ | 0.2− |
| 2007 04 18 | G96 | 0.1+ | 0.6− | 2007 05 09 | G96 | 0.2− | 0.4+ | 2008 09 20 | G96 | 0.0 | 0.2− |
| 2007 04 18 | G96 | 0.1− | 0.1+ | 2007 05 09 | G96 | 0.1− | 0.2+ | 2008 09 20 | G96 | 0.3− | 0.2− |
| 2007 04 18 | G96 | 0.1− | 0.0 | 2008 09 04 | 691 | 0.4− | 0.3+ | 2008 09 20 | G96 | 0.3+ | 0.8− |
| 2007 04 18 | G96 | 0.4− | 0.1− | 2008 09 04 | 691 | 0.1− | 0.4+ | 2008 09 29 | G96 | 0.2− | 0.1− |
| 2007 04 18 | G96 | 0.1− | 0.4+ | 2008 09 04 | 691 | 0.2− | 0.0 | 2008 09 29 | G96 | 0.2+ | 0.2− |
| 2007 04 18 | G96 | 0.3+ | 0.2− | 2008 09 05 | 691 | 0.1− | 0.2− | 2008 09 29 | G96 | 0.2+ | 0.3− |
| 2007 04 18 | G96 | 0.1+ | 0.1− | 2008 09 05 | 691 | 0.5+ | 0.1− | 2008 09 29 | G96 | 0.3+ | 0.3− |
| 2007 05 09 | G96 | 0.3+ | 0.2− | 2008 09 05 | 691 | 0.1+ | 0.1− | | | | |

**2008 RB$_{26}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 61.35475 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.19596696 | $\omega$ | 141.89452 | | +0.84998271 | | −0.48308195 |
| $a$ | 2.9354914 | $\Omega$ | 248.24023 | | +0.41050945 | | +0.85736275 |
| $e$ | 0.2106400 | $i$ | 13.07746 | | +0.33016870 | | +0.17765400 |
| $P$ | 5.03 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 08 27 | 644 | 0.4− | 0.0 | 2008 09 07 | A77 | 0.2+ | 0.3+ | 2008 09 28 | G96 | 0.6− | 0.1+ |
| 2003 08 27 | 644 | 0.1− | 0.0 | 2008 09 07 | A77 | 0.2− | 0.8− | 2008 09 28 | G96 | 0.1− | 0.1− |
| 2003 08 27 | 644 | 0.2+ | 0.2+ | 2008 09 07 | A77 | 0.2+ | 0.2+ | 2008 09 28 | G96 | 0.3− | 0.1+ |
| 2003 09 21 | 644 | 0.1− | 0.0 | 2008 09 08 | A77 | 0.1+ | 0.5− | 2008 09 30 | 704 | 0.2+ | 0.1+ |
| 2003 09 21 | 644 | 0.1− | 0.1+ | 2008 09 08 | A77 | 0.0 | 0.5+ | 2008 09 30 | 704 | 0.3− | 0.1+ |
| 2003 09 21 | 644 | 0.4+ | 0.1− | 2008 09 28 | G96 | 0.2+ | 0.0 | 2008 09 30 | 704 | 0.7+ | 0.1− |

**2008 RH$_{27}$ = 2004 TH$_{309}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 103.44579 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23798666 | $\omega$ | 50.58926 | | +0.96565451 | | −0.24326292 |
| $a$ | 2.5788988 | $\Omega$ | 323.22750 | | +0.16560097 | | +0.84696406 |
| $e$ | 0.2176464 | $i$ | 8.77194 | | +0.20021909 | | +0.47273145 |
| $P$ | 4.14 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 10 | 704 | 0.6− | 0.3+ | 2004 10 15 | 704 | 0.1+ | 0.7− | 2008 08 24 | 691 | 0.0 | 0.0 |
| 2004 10 10 | 704 | 1.0− | 0.7+ | 2006 02 01 | G96 | 0.3+ | 0.0 | 2008 09 08 | A77 | 0.2+ | 0.5+ |
| 2004 10 10 | 704 | 0.1+ | 1.0− | 2006 02 01 | G96 | 0.2− | 0.5+ | 2008 09 08 | A77 | 0.5+ | 0.0 |
| 2004 10 15 | 704 | 0.4+ | 0.3− | 2006 02 01 | G96 | 0.0 | 0.2+ | 2008 09 08 | A77 | 0.3+ | 0.1− |
| 2004 10 15 | 704 | 0.5+ | 0.1− | 2006 02 01 | G96 | 0.5+ | 0.2+ | 2008 09 08 | A77 | 0.0 | 0.4− |
| 2004 10 15 | 704 | 0.5+ | 0.7+ | 2008 08 24 | 691 | 0.2− | 0.0 | 2008 09 08 | A77 | 0.1− | 0.0 |
| 2004 10 15 | 704 | 0.1+ | 0.1+ | 2008 08 24 | 691 | 0.1− | 0.1+ | 2008 09 09 | A77 | 0.3− | 0.1− |

**2008 RS$_{29}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 109.71027 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18266838 | $\omega$ | 341.04820 | | +0.84405377 | | +0.53615175 |
| $a$ | 3.0762890 | $\Omega$ | 346.51397 | | −0.48588937 | | +0.75617823 |
| $e$ | 0.1413141 | $i$ | 2.63013 | | −0.22690250 | | +0.37514768 |
| $P$ | 5.40 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 21 | 691 | 0.1− | 0.1+ | 2008 09 06 | 691 | 0.1− | 0.3+ | 2008 10 23 | G96 | 0.1+ | 0.0 |
| 2003 10 21 | 691 | 0.0 | 0.2− | 2008 09 06 | 691 | 0.1− | 0.3+ | 2008 10 23 | G96 | 0.1+ | 0.3− |
| 2003 10 21 | 691 | 0.1+ | 0.1+ | 2008 09 25 | G96 | 0.2+ | 0.3− | 2008 10 23 | G96 | 0.1+ | 0.2+ |
| 2006 02 24 | 691 | 0.2+ | 0.5+ | 2008 09 25 | G96 | 0.3+ | 0.0 | 2008 10 23 | G96 | 0.2+ | 0.2− |
| 2006 02 24 | 691 | 0.0 | 0.2+ | 2008 09 25 | G96 | 0.0 | 0.4− | 2008 11 19 | G96 | 0.2+ | 0.1− |
| 2006 02 24 | 691 | 0.5+ | 0.5+ | 2008 09 25 | G96 | 0.6+ | 0.2+ | 2008 11 19 | G96 | 0.1− | 0.0 |
| 2008 09 02 | 691 | 0.1− | 0.0 | 2008 10 02 | G96 | 0.5+ | 0.1+ | 2008 11 19 | G96 | 0.3+ | 0.3+ |
| 2008 09 02 | 691 | 0.4− | 0.2+ | 2008 10 02 | G96 | 0.2+ | 0.3− | 2008 11 19 | G96 | 0.0 | 0.3+ |
| 2008 09 02 | 691 | 0.3− | 0.2+ | 2008 10 02 | G96 | 0.5+ | 0.4− | | | | |
| 2008 09 06 | 691 | 0.3− | 0.4+ | 2008 10 02 | G96 | 0.2+ | 0.2− | | | | |

**2008 RO$_{34}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 71.79803 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.25810790 | $\omega$ | 149.75226 | | +0.35380872 | | −0.93498058 |
| $a$ | 2.4430659 | $\Omega$ | 279.51742 | | +0.85295418 | | +0.33355351 |
| $e$ | 0.1941704 | $i$ | 1.45915 | | +0.38378191 | | +0.12063734 |
| $P$ | 3.82 | $H$ | 17.7 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 02 07 | 691 | 0.0 | 0.0 | 2006 04 02 | G96 | 0.2− | 0.2− | 2008 09 06 | 691 | 0.2+ | 0.0 |
| 2006 02 07 | 691 | 0.0 | 0.2+ | 2006 04 02 | G96 | 0.1− | 0.7− | 2008 09 20 | G96 | 0.3+ | 0.4− |
| 2006 02 07 | 691 | 0.3+ | 0.0 | 2006 04 02 | G96 | 0.1− | 0.2− | 2008 09 20 | G96 | 0.6− | 0.1+ |
| 2006 03 02 | G96 | 0.3− | 0.4+ | 2008 09 02 | 691 | 0.0 | 0.2+ | 2008 09 20 | G96 | 0.2+ | 0.3− |
| 2006 03 02 | G96 | 0.7− | 0.2+ | 2008 09 02 | 691 | 0.5− | 0.4+ | 2008 09 20 | G96 | 0.6+ | 0.3− |
| 2006 03 02 | G96 | 0.9− | 0.3+ | 2008 09 02 | 691 | 0.0 | 0.2+ | 2008 09 24 | 704 | 0.8+ | 0.3+ |
| 2006 03 02 | G96 | 0.1− | 0.3+ | 2008 09 06 | 691 | 0.0 | 0.3− | 2008 09 24 | 704 | 0.9+ | 0.2− |
| 2006 04 02 | G96 | 1.0+ | 1.0− | 2008 09 06 | 691 | 0.4− | 0.1− | 2008 09 24 | 704 | 0.3+ | 0.6− |

**2008 RU$_{36}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 54.94693 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21068399 | $\omega$ | 85.38206 | | +0.53120916 | | −0.84706619 |
| $a$ | 2.7971453 | $\Omega$ | 332.50915 | | +0.76181115 | | +0.48642938 |
| $e$ | 0.1601161 | $i$ | 2.13491 | | +0.37075680 | | +0.21416194 |
| $P$ | 4.68 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 09 13 | 691 | 0.3− | 0.2+ | 2008 09 06 | 691 | 0.1− | 0.1+ | 2008 10 23 | G96 | 0.8+ | 0.3+ |
| 1994 09 13 | 691 | 0.1+ | 0.0 | 2008 09 06 | 691 | 0.0 | 0.0 | 2008 10 23 | G96 | 0.5− | 0.2+ |
| 1994 09 13 | 691 | 0.1+ | 0.2− | 2008 09 25 | G96 | 0.1− | 0.1− | 2008 10 23 | G96 | 0.3+ | 0.4− |
| 2004 12 03 | 691 | 0.3− | 0.2+ | 2008 09 25 | G96 | 0.0 | 0.2− | 2008 10 23 | G96 | 0.1+ | 0.1+ |
| 2004 12 03 | 691 | 0.0 | 0.4+ | 2008 09 25 | G96 | 0.2+ | 0.2− | 2008 11 19 | G96 | 0.1− | 0.4− |
| 2004 12 03 | 691 | 0.3+ | 0.3− | 2008 09 25 | G96 | 0.2− | 0.3− | 2008 11 19 | G96 | 0.4+ | 0.2− |
| 2008 09 02 | 691 | 0.0 | 0.2+ | 2008 10 02 | G96 | 0.2− | 0.2− | 2008 11 19 | G96 | 0.1− | 0.1− |
| 2008 09 02 | 691 | 0.0 | 0.1+ | 2008 10 02 | G96 | 0.0 | 0.4− | 2008 11 19 | G96 | 0.6+ | 0.6− |
| 2008 09 02 | 691 | 0.1− | 0.2+ | 2008 10 02 | G96 | 0.4+ | 0.3− | | | | |
| 2008 09 06 | 691 | 0.0 | 0.1+ | 2008 10 02 | G96 | 0.1− | 0.3− | | | | |

**2008 RP$_{40}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 107.17749 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18899915 | $\omega$ | 159.44961 | | +0.90155651 | | +0.43254731 |
| $a$ | 3.0072034 | $\Omega$ | 174.88800 | | −0.41089952 | | +0.86317487 |
| $e$ | 0.2255578 | $i$ | 6.40132 | | −0.13548965 | | +0.26044571 |
| $P$ | 5.21 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 11 19 | 644 | 0.0 | 0.2− | 2008 09 10 | 691 | 0.0 | 0.3+ | 2008 09 29 | G96 | 0.5+ | 0.2− |
| 2003 11 19 | 644 | 0.0 | 0.4− | 2008 09 10 | 691 | 0.0 | 0.0 | 2008 10 02 | G96 | 0.4+ | 0.2− |
| 2003 11 19 | 644 | 0.1+ | 0.1+ | 2008 09 19 | 691 | 0.1− | 0.1− | 2008 10 02 | G96 | 0.3+ | 0.2− |
| 2006 03 02 | 691 | 0.5− | 0.1+ | 2008 09 19 | 691 | 0.1− | 0.2− | 2008 10 02 | G96 | 0.2+ | 0.2− |
| 2006 03 02 | 691 | 0.0 | 0.5+ | 2008 09 19 | 691 | 0.1− | 0.1+ | 2008 10 02 | G96 | 0.1+ | 0.2− |
| 2006 03 02 | 691 | 0.6+ | 0.2+ | 2008 09 28 | 704 | 0.5+ | 1.1+ | 2008 10 17 | 691 | 0.5− | 0.4+ |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 09 02 | 691 | 0.4+ | 0.3+ | 2008 09 28 | 704 | 0.1+ | 1.3+ | 2008 10 17 | 691 | 0.0 | 0.0 |
| 2008 09 02 | 691 | 0.3− | 0.2+ | 2008 09 28 | 704 | 0.1+ | 0.3− | 2008 10 17 | 691 | 0.1− | 0.1− |
| 2008 09 02 | 691 | 0.0 | 0.2− | 2008 09 28 | 704 | 0.1+ | 0.3+ | 2008 11 02 | G96 | 0.4− | 0.5− |
| 2008 09 06 | 691 | 0.0 | 0.0 | 2008 09 28 | 704 | 0.2+ | 0.3+ | 2008 11 02 | G96 | 0.3− | 0.4− |
| 2008 09 06 | 691 | 0.1− | 0.0 | 2008 09 29 | G96 | 0.8+ | 0.2− | 2008 11 02 | G96 | 0.2− | 0.5− |
| 2008 09 06 | 691 | 0.3− | 0.1− | 2008 09 29 | G96 | 0.7+ | 0.2− | 2008 11 02 | G96 | 0.2− | 0.9− |
| 2008 09 10 | 691 | 0.1+ | 0.2+ | 2008 09 29 | G96 | 0.6+ | 0.2− | | | | |

**2008 RG$_{46}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 24.37973 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.08257538 | $\omega$ | 5.05137 | | +0.92030980 | −0.38851530 | |
| $a$ | 5.2227872 | $\Omega$ | 18.02089 | | +0.35354153 | +0.77607779 | |
| $e$ | 0.0266283 | $i$ | 8.48933 | | +0.16744631 | +0.49674856 | |
| $P$ | 11.94 | $H$ | 14.3 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 09 02 | 691 | 0.5+ | 0.5− | 2008 09 29 | G96 | 0.3+ | 0.3+ | 2009 11 10 | G96 | 0.3− | 0.1− |
| 2008 09 02 | 691 | 0.1+ | 0.1+ | 2008 09 29 | G96 | 0.2+ | 0.3− | 2009 11 10 | G96 | 0.0 | 0.0 |
| 2008 09 02 | 691 | 0.2− | 0.6+ | 2008 09 29 | G96 | 0.2+ | 0.1− | 2009 11 10 | G96 | 0.5− | 0.2− |
| 2008 09 06 | 691 | 0.0 | 0.1− | 2008 09 29 | G96 | 0.4− | 0.2− | 2009 11 19 | G96 | 0.0 | 0.0 |
| 2008 09 06 | 691 | 0.2− | 0.1− | 2008 10 25 | G96 | 0.1+ | 0.3+ | 2009 11 19 | G96 | 0.2− | 0.5+ |
| 2008 09 06 | 691 | 0.2− | 0.1+ | 2008 10 25 | G96 | 0.2+ | 0.2− | 2009 11 19 | G96 | 0.2+ | 0.0 |
| 2008 09 10 | 691 | 0.0 | 0.0 | 2008 10 25 | G96 | 0.2− | 0.0 | 2009 11 19 | G96 | 0.4+ | 0.1+ |
| 2008 09 10 | 691 | 0.1+ | 0.0 | 2008 10 25 | G96 | 0.1− | 0.3− | | | | |
| 2008 09 10 | 691 | 0.1− | 0.0 | 2009 11 10 | G96 | 0.3+ | 0.3− | | | | |

**2008 RZ$_{49}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 50.11819 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17638627 | $\omega$ | 106.01299 | | +0.81209134 | −0.57279074 | |
| $a$ | 3.1489048 | $\Omega$ | 289.05929 | | +0.48010648 | +0.76440649 | |
| $e$ | 0.1907275 | $i$ | 6.77099 | | +0.33167066 | +0.29596196 | |
| $P$ | 5.59 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 12 13 | 691 | 0.2+ | 0.9− | 2003 12 16 | 691 | 0.2− | 0.2− | 2008 10 01 | G96 | 0.2− | 0.3− |
| 1998 12 13 | 691 | 0.7− | 0.6+ | 2008 09 03 | 691 | 0.4− | 0.2+ | 2008 10 01 | G96 | 0.3− | 0.1− |
| 1998 12 13 | 691 | 0.0 | 0.1+ | 2008 09 03 | 691 | 0.1+ | 0.1− | 2008 10 01 | G96 | 0.0 | 0.0 |
| 1999 01 13 | 691 | 0.6+ | 0.1+ | 2008 09 03 | 691 | 0.1+ | 0.0 | 2008 10 01 | G96 | 0.1− | 0.2− |
| 1999 01 13 | 691 | 0.2+ | 0.0 | 2008 09 06 | 691 | 0.1− | 0.1− | 2008 10 01 | 704 | 0.8+ | 1.1+ |
| 1999 01 13 | 691 | 0.2− | 0.4+ | 2008 09 06 | 691 | 0.3− | 0.1+ | 2008 10 01 | 704 | 0.6− | 0.3+ |
| 2003 11 20 | 691 | 0.3− | 0.2+ | 2008 09 06 | 691 | 0.0 | 0.0 | 2008 10 01 | 704 | 1.0+ | 0.2+ |
| 2003 11 20 | 691 | 0.3− | 0.1+ | 2008 09 29 | 704 | 0.5− | 0.5− | 2008 10 01 | 704 | 1.1+ | 0.8+ |
| 2003 11 20 | 691 | 0.4− | 0.0 | 2008 09 29 | 704 | 0.2− | 0.3+ | 2008 10 01 | 704 | 1.0+ | 0.4− |
| 2003 12 16 | 691 | 0.4+ | 0.5− | 2008 09 29 | 704 | 0.5+ | 0.0 | | | | |
| 2003 12 16 | 691 | 1.0+ | 0.3+ | 2008 09 29 | 704 | 0.6− | 0.7− | | | | |

**2008 RB$_{52}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 198.08370 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.30512114 | $\omega$ | 59.02101 | | +0.08004914 | +0.99565578 | |
| $a$ | 2.1851832 | $\Omega$ | 215.66612 | | −0.94010105 | +0.05955017 | |
| $e$ | 0.1681781 | $i$ | 4.67852 | | −0.33136407 | +0.07157749 | |
| $P$ | 3.23 | $H$ | 18.6 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 09 | 691 | 0.1+ | 0.1+ | 2008 07 29 | G96 | 0.5+ | 1.0− | 2008 09 06 | 691 | 0.1− | 0.1+ |
| 2005 10 09 | 691 | 0.0 | 0.2+ | 2008 07 29 | G96 | 0.4+ | 1.0− | 2008 09 06 | 691 | 0.1+ | 0.1− |
| 2005 10 09 | 691 | 0.0 | 0.4− | 2008 07 29 | G96 | 0.8− | 0.7+ | 2008 09 06 | 691 | 0.1− | 0.2+ |
| 2005 10 27 | G96 | 0.1+ | 0.4+ | 2008 07 29 | G96 | 0.1+ | 0.8+ | 2008 09 09 | G96 | 0.5+ | 0.2− |
| 2005 10 27 | G96 | 0.4− | 0.1− | 2008 09 03 | 691 | 0.2+ | 0.2+ | 2008 09 09 | G96 | 0.1+ | 0.3− |
| 2005 10 27 | G96 | 0.2+ | 0.0 | 2008 09 03 | 691 | 0.4− | 0.1− | 2008 09 09 | G96 | 0.3+ | 0.1− |
| 2005 10 27 | G96 | 0.4− | 0.1− | 2008 09 03 | 691 | 0.1+ | 0.0 | 2008 09 09 | G96 | 0.1− | 0.1− |

**2008 RX$_{53}$ = 2009 WE$_{42}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 157.15924 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21617718 | $\omega$ | 24.74521 | | +0.28883234 | +0.95435787 | |
| $a$ | 2.7495576 | $\Omega$ | 262.11603 | | −0.89066027 | +0.23873757 | |
| $e$ | 0.0420504 | $i$ | 4.40071 | | −0.35114124 | +0.17945870 | |
| $P$ | 4.56 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 06 | 691 | 0.1− | 0.0 | 2008 09 06 | 691 | 0.1− | 0.1+ | 2009 11 17 | 691 | 0.3− | 0.5+ |
| 2004 10 06 | 691 | 0.0 | 0.3− | 2008 09 06 | 691 | 0.1− | 0.1+ | 2009 11 21 | 691 | 0.5− | 0.4+ |
| 2004 10 06 | 691 | 0.3+ | 0.1− | 2008 10 07 | G96 | 0.1− | 0.4− | 2009 11 21 | 691 | 0.0 | 0.0 |
| 2008 07 29 | G96 | 0.0 | 0.4− | 2008 10 07 | G96 | 1.2+ | 0.3− | 2009 11 21 | 691 | 0.1+ | 0.1− |
| 2008 07 29 | G96 | 0.1− | 0.2− | 2008 10 07 | G96 | 0.2+ | 0.3− | 2009 12 10 | G96 | 0.7+ | 0.0 |
| 2008 07 29 | G96 | 0.4+ | 0.2− | 2008 10 07 | G96 | 0.4+ | 0.1− | 2009 12 10 | G96 | 0.8+ | 0.1− |
| 2008 07 29 | G96 | 0.4+ | 0.0 | 2009 11 09 | 691 | 0.3+ | 0.1+ | 2009 12 10 | G96 | 0.5+ | 0.3− |
| 2008 09 03 | 691 | 0.2− | 0.1+ | 2009 11 09 | 691 | 0.0 | 0.1+ | 2009 12 19 | G96 | 1.1+ | 0.2− |
| 2008 09 03 | 691 | 0.1− | 0.0 | 2009 11 09 | 691 | 0.4− | 0.0 | 2009 12 19 | G96 | 0.4+ | 0.2− |
| 2008 09 03 | 691 | 0.1− | 0.0 | 2009 11 17 | 691 | 0.4− | 0.3− | 2009 12 19 | G96 | 0.8+ | 0.0 |
| 2008 09 06 | 691 | 0.0 | 0.2+ | 2009 11 17 | 691 | 0.0 | 0.2− | 2009 12 19 | G96 | 0.2+ | 0.2− |

**2008 RK$_{61}$ = 2005 BW$_{36}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 355.56196 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17439509 | $\omega$ | 131.26662 | | +0.19292683 | −0.97505804 | |
| $a$ | 3.1728281 | $\Omega$ | 307.27587 | | +0.85397747 | +0.22193090 | |
| $e$ | 0.0611936 | $i$ | 7.92641 | | +0.48322016 | −0.00291613 | |
| $P$ | 5.65 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 01 15 | 691 | 0.1− | 0.3+ | 2005 01 17 | 568 | 0.1− | 0.9− | 2008 09 06 | 691 | 0.1− | 0.1− |
| 2005 01 15 | 691 | 0.3+ | 0.3+ | 2008 09 04 | 691 | 0.0 | 0.0 | 2008 10 07 | G96 | 0.1+ | 0.1− |
| 2005 01 15 | 691 | 0.0 | 0.3+ | 2008 09 04 | 691 | 0.1+ | 0.2− | 2008 10 07 | G96 | 0.0 | 0.6+ |
| 2005 01 16 | 568 | 0.2− | 1.0− | 2008 09 04 | 691 | 0.0 | 0.0 | 2008 10 07 | G96 | 0.0 | 0.0 |
| 2005 01 16 | 568 | 0.3− | 0.9− | 2008 09 06 | 691 | 0.1− | 0.2+ | 2008 10 07 | G96 | 0.0 | 0.2− |
| 2005 01 16 | 568 | 0.2− | 0.9− | 2008 09 06 | 691 | 0.1+ | 0.0 | | | | |

**2008 RD$_{67}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 98.88257 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21672390 | $\omega$ | 273.75038 | | +0.99521172 | −0.07769826 | |
| $a$ | 2.7449315 | $\Omega$ | 90.71251 | | +0.09491225 | +0.91315847 | |
| $e$ | 0.1292553 | $i$ | 3.39996 | | −0.02335164 | +0.40013071 | |
| $P$ | 4.55 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 01 02 | 691 | 0.1+ | 0.3+ | 2007 04 19 | G96 | 0.1+ | 0.3+ | 2008 09 08 | 691 | 0.3− | 0.3− |
| 2001 01 02 | 691 | 0.0 | 0.2+ | 2007 05 11 | G96 | 0.6+ | 0.1− | 2008 09 20 | 703 | 1.1+ | 1.0+ |
| 2001 01 02 | 691 | 0.1+ | 0.4+ | 2007 05 11 | G96 | 0.4+ | 0.3+ | 2008 09 20 | 703 | 0.5− | 0.5− |
| 2004 12 12 | 691 | 0.1− | 0.1− | 2007 05 11 | G96 | 0.2+ | 0.1− | 2008 09 20 | 703 | 0.8+ | 0.4+ |
| 2004 12 12 | 691 | 0.1+ | 0.2− | 2007 05 11 | G96 | 0.0 | 0.2+ | 2008 09 20 | 703 | 0.3+ | 0.9+ |
| 2004 12 12 | 691 | 0.0 | 0.2− | 2007 06 22 | 691 | 0.5− | 0.2+ | 2008 09 22 | 704 | 0.2+ | 1.1+ |
| 2006 02 02 | G96 | 1.1+ | 0.2+ | 2007 06 22 | 691 | 0.2− | 0.0 | 2008 09 22 | 704 | 0.7− | 1.5+ |
| 2006 02 02 | G96 | 0.1+ | 0.1− | 2007 06 22 | 691 | 0.1− | 0.4+ | 2008 09 22 | 704 | (0.4+ | 2.1+) |
| 2006 02 02 | G96 | 0.3+ | 0.0 | 2008 09 04 | 691 | 0.2+ | 0.1− | 2008 09 22 | 704 | (0.2+ | 1.9+) |
| 2006 02 02 | G96 | 0.6+ | 0.3+ | 2008 09 04 | 691 | 0.0 | 0.6− | 2008 09 22 | 704 | 0.2+ | 1.5+ |
| 2006 03 03 | G96 | 1.1+ | 0.0 | 2008 09 04 | 691 | 0.0 | 0.1+ | 2008 09 23 | 704 | 0.2+ | 0.2+ |
| 2006 03 03 | G96 | 0.1− | 0.1− | 2008 09 06 | 703 | (1.9+ | 0.5−) | 2008 09 23 | 704 | 0.1− | 0.7+ |
| 2006 03 03 | G96 | 0.9+ | 0.7+ | 2008 09 06 | 703 | 0.3+ | 0.2+ | 2008 09 23 | 704 | 0.1− | 0.1+ |
| 2006 03 03 | G96 | 0.1+ | 0.7+ | 2008 09 06 | 703 | 0.3− | 0.8+ | 2008 09 23 | 704 | 0.7+ | 0.1+ |
| 2007 04 19 | G96 | 0.5+ | 0.1+ | 2008 09 06 | 703 | 0.1+ | 1.4+ | 2009 12 18 | 691 | 0.3− | 0.3+ |
| 2007 04 19 | G96 | 0.0 | 0.7+ | 2008 09 08 | 691 | 0.4− | 0.1− | 2009 12 18 | 691 | 0.0 | 0.1+ |
| 2007 04 19 | G96 | 0.5+ | 0.4+ | 2008 09 08 | 691 | 0.4− | 0.4+ | 2009 12 18 | 691 | 0.0 | 0.0 |

**2008 RQ$_{71}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 49.31044 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17458293 | $\omega$ | 44.81442 | | +0.95132542 | −0.30099894 | |
| $a$ | 3.1705519 | $\Omega$ | 332.50012 | | +0.22695530 | +0.82950381 | |
| $e$ | 0.0910998 | $i$ | 8.24012 | | +0.20849757 | +0.47044985 | |
| $P$ | 5.65 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 21 | 291 | 0.1+ | 0.0 | 2008 09 06 | G96 | 0.2+ | 0.2− | 2008 09 19 | 691 | 0.2+ | 0.0 |
| 2003 09 21 | 291 | 0.0 | 0.0 | 2008 09 06 | G96 | 0.5+ | 0.0 | 2008 09 25 | 691 | 0.4− | 0.6+ |
| 2003 09 21 | 291 | 0.1− | 0.2− | 2008 09 07 | G96 | 0.3+ | 0.6− | 2008 09 25 | 691 | 0.1+ | 0.1+ |
| 2003 10 21 | 691 | 0.0 | 0.1− | 2008 09 07 | G96 | 0.6+ | 0.6− | 2008 09 25 | 691 | 0.4− | 0.1+ |
| 2003 10 21 | 691 | 0.1+ | 0.1+ | 2008 09 07 | G96 | 0.5− | 0.6− | 2009 11 21 | 291 | 0.3− | 0.2+ |
| 2003 10 21 | 691 | 0.0 | 0.2− | 2008 09 07 | G96 | 0.4+ | 0.3− | 2009 11 21 | 291 | 0.3+ | 0.1+ |
| 2008 09 06 | G96 | 0.4+ | 0.0 | 2008 09 19 | 691 | 0.1− | 0.2− | 2009 11 21 | 291 | 0.1− | 0.0 |
| 2008 09 06 | G96 | 0.0 | 0.3− | 2008 09 19 | 691 | 0.2− | 0.4+ | | | | |

**2008 RL$_{77}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 95.97773 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18745556 | $\omega$ | 165.11286 | | +0.98945805 | +0.14415330 | |
| $a$ | 3.0236894 | $\Omega$ | 186.64561 | | −0.14208321 | +0.94775141 | |
| $e$ | 0.3802341 | $i$ | 6.88748 | | −0.02802029 | +0.28458230 | |
| $P$ | 5.26 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 11 24 | 691 | 0.1− | 0.1− | 2008 09 30 | 704 | 0.2− | 0.2+ | 2008 10 10 | 691 | 0.1− | 0.1− |
| 2003 11 24 | 699 | 0.3− | 0.3+ | 2008 09 30 | 704 | 0.0 | 0.6+ | 2008 10 10 | 691 | 0.1− | 0.0 |
| 2003 11 24 | 691 | 0.0 | 0.3− | 2008 09 30 | 704 | 0.1− | 0.4+ | 2008 10 10 | 683 | 0.7+ | 0.2− |
| 2003 11 24 | 699 | 0.3+ | 0.6+ | 2008 09 30 | 704 | 0.3+ | 0.2+ | 2008 10 10 | 683 | (2.5− | 0.8−) |
| 2003 11 24 | 699 | 0.1− | 0.8+ | 2008 09 30 | 704 | 0.0 | 0.2+ | 2008 10 24 | 704 | 0.2+ | 0.7+ |
| 2003 11 24 | 691 | 0.0 | 0.0 | 2008 10 02 | 691 | 0.1− | 0.2− | 2008 10 24 | G96 | 0.3− | 0.3− |
| 2003 11 24 | 699 | 0.4+ | 0.2− | 2008 10 02 | 691 | 0.1+ | 0.4+ | 2008 10 24 | G96 | 0.1− | 0.3− |
| 2008 09 06 | 703 | 0.8+ | 0.4+ | 2008 10 02 | 691 | 0.2+ | 0.2− | 2008 10 24 | 704 | 0.4+ | 0.0 |
| 2008 09 06 | 703 | 0.6− | 1.2+ | 2008 10 02 | 703 | 0.1− | 0.4+ | 2008 10 24 | G96 | 0.3− | 0.2− |
| 2008 09 06 | 703 | 0.6+ | 0.2+ | 2008 10 02 | 703 | 0.9+ | 0.0 | 2008 10 24 | G96 | 0.1+ | 0.2− |
| 2008 09 06 | 703 | 0.3+ | 0.2− | 2008 10 02 | 703 | 0.7+ | 0.5− | 2008 10 24 | 704 | 0.0 | 1.2+ |
| 2008 09 07 | G96 | 0.2+ | 0.0 | 2008 10 02 | 703 | 0.5+ | 0.5− | 2008 10 24 | 704 | 0.3+ | 0.4+ |
| 2008 09 07 | G96 | 0.3+ | 0.0 | 2008 10 03 | J75 | 0.5+ | 0.1+ | 2008 10 24 | 704 | 0.0 | 0.1+ |
| 2008 09 07 | G96 | 0.2+ | 0.4− | 2008 10 03 | J75 | 0.1− | 0.4− | 2008 10 25 | 704 | 0.4+ | 0.6+ |
| 2008 09 07 | G96 | 0.2+ | 0.1− | 2008 10 03 | J75 | 0.8− | 0.5− | 2008 10 25 | 704 | 0.2+ | 0.2− |
| 2008 09 20 | 691 | 0.6− | 0.1− | 2008 10 06 | 691 | 0.4− | 0.1+ | 2008 10 25 | 704 | 0.5+ | 0.1− |
| 2008 09 20 | 691 | 0.0 | 0.3− | 2008 10 06 | 691 | 0.6− | 0.1+ | 2008 10 25 | 704 | 1.6+ | 0.9− |
| 2008 09 20 | 691 | 0.1− | 0.2− | 2008 10 06 | 691 | 0.4− | 0.0 | 2008 10 25 | 704 | 0.3+ | 0.3+ |
| 2008 09 24 | 691 | 0.1− | 0.1+ | 2008 10 08 | 703 | 0.1− | 0.0 | 2008 10 30 | 704 | 1.7− | 2.0− |
| 2008 09 24 | 691 | 0.1− | 0.1+ | 2008 10 08 | 703 | 0.2− | 0.3+ | 2008 10 30 | 704 | 1.3+ | 0.8+ |
| 2008 09 24 | 691 | 0.1− | 0.2− | 2008 10 08 | 703 | 0.7+ | 0.0 | 2008 10 30 | 704 | 0.1+ | 0.3+ |
| 2008 09 28 | 704 | 0.2+ | 0.0 | 2008 10 08 | 703 | 0.5+ | 0.4+ | 2008 10 30 | 704 | 0.1+ | 0.5+ |
| 2008 09 28 | 704 | 0.5+ | 0.2+ | 2008 10 09 | 683 | 0.7+ | 1.1− | 2008 11 08 | 703 | 0.5− | 1.1+ |
| 2008 09 28 | 704 | 0.0 | 0.6+ | 2008 10 09 | 683 | 1.0+ | 0.3+ | 2008 11 08 | 703 | 0.1+ | 0.1+ |
| 2008 09 28 | 704 | 0.2+ | 0.4− | 2008 10 09 | 683 | (2.7+ | 0.1−) | 2008 11 08 | 703 | 0.6− | 0.2− |
| 2008 09 28 | 704 | 0.1+ | 0.2+ | 2008 10 10 | 691 | 0.2− | 0.0 | 2008 11 08 | 703 | 0.2+ | 0.6− |

**2008 RM$_{77}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 131.87137 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26651599 | $\omega$ | 359.28218 | | +0.99134379 | +0.13068112 | |
| $a$ | 2.3914091 | $\Omega$ | 353.16990 | | −0.11992158 | +0.86207062 | |
| $e$ | 0.3523894 | $i$ | 6.10443 | | −0.05344444 | +0.48964955 | |
| $P$ | 3.70 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 10 30 | 566 | 0.1− | 0.1+ | 2008 10 02 | 703 | 0.2+ | 0.4+ | 2008 10 27 | 704 | 0.6+ | 0.5+ |
| 1997 10 30 | 566 | 0.1+ | 0.2+ | 2008 10 02 | 703 | 0.7+ | 0.3+ | 2008 10 27 | 704 | 0.2+ | 0.5+ |
| 1997 10 30 | 566 | 0.0 | 0.1+ | 2008 10 02 | 703 | 0.5+ | 0.4+ | 2008 10 30 | G96 | 0.2+ | 0.2− |
| 2001 11 21 | 645 | 0.1+ | 0.1− | 2008 10 02 | 703 | 0.5+ | 0.6+ | 2008 10 30 | G96 | 0.2+ | 0.0 |
| 2001 11 21 | 645 | 0.2− | 0.1− | 2008 10 08 | G96 | 0.1+ | 0.4− | 2008 10 30 | G96 | 0.3+ | 0.2− |
| 2003 04 01 | 695 | 0.0 | 0.2+ | 2008 10 08 | G96 | 0.1+ | 0.5− | 2008 10 30 | G96 | 0.2+ | 0.0 |
| 2003 04 01 | 695 | 0.0 | 0.2+ | 2008 10 08 | G96 | 0.2+ | 0.5− | 2008 11 03 | 704 | 1.2+ | 0.6− |
| 2006 01 31 | 691 | 0.1+ | 0.3+ | 2008 10 08 | G96 | 0.3− | 0.4− | 2008 11 03 | 704 | 0.7+ | 0.9+ |
| 2006 01 31 | 691 | 0.7+ | 0.5+ | 2008 10 09 | 691 | 0.5− | 0.1+ | 2008 11 03 | 704 | 0.8+ | 0.0 |
| 2006 01 31 | 691 | 0.1− | 0.3+ | 2008 10 09 | 691 | 0.4− | 0.1+ | 2008 11 03 | 704 | 0.5− | 0.6+ |
| 2008 07 26 | E12 | 0.0 | 0.7− | 2008 10 09 | 691 | 0.5− | 0.1+ | 2008 11 17 | 106 | 0.4+ | 0.6− |
| 2008 07 26 | E12 | 0.3+ | 0.2− | 2008 10 19 | 291 | 0.4− | 0.0 | 2008 11 17 | 106 | 0.2− | 0.6− |
| 2008 07 26 | E12 | 0.0 | 0.2+ | 2008 10 19 | 291 | 0.3− | 0.1− | 2008 11 17 | 106 | 0.2− | 0.3− |
| 2008 07 26 | E12 | 0.8− | 0.2+ | 2008 10 19 | 291 | 0.4− | 0.0 | 2008 11 17 | 106 | 0.5+ | 0.1+ |
| 2008 09 06 | 703 | 0.3+ | 0.0 | 2008 10 19 | 203 | 0.1+ | 0.5− | 2008 11 19 | 703 | 1.0− | 0.2− |
| 2008 09 06 | 703 | 0.1+ | 0.3+ | 2008 10 19 | 203 | 0.3+ | 0.0 | 2008 11 19 | 703 | 0.9− | 0.3− |
| 2008 09 06 | 703 | 0.2− | 0.0 | 2008 10 24 | 703 | 0.0 | 0.3− | 2008 11 19 | 703 | 0.3− | 0.5+ |
| 2008 09 07 | G96 | 0.0 | 0.1− | 2008 10 24 | 703 | 0.0 | 0.6− | 2008 11 19 | 703 | 0.3− | 0.8+ |
| 2008 09 07 | G96 | 0.2− | 0.1− | 2008 10 24 | 703 | 0.1− | 0.0 | 2008 11 21 | 704 | 0.8− | 0.6− |
| 2008 09 07 | G96 | 0.3− | 0.1− | 2008 10 24 | 703 | 0.1− | 0.3− | 2008 11 21 | 704 | 0.5− | 0.1+ |
| 2008 09 21 | 691 | 1.3+ | 0.2+ | 2008 10 27 | 704 | 1.1+ | 0.7+ | 2008 11 21 | 704 | 0.4+ | 0.3− |
| 2008 09 21 | 691 | 0.3− | 0.0 | 2008 10 27 | 704 | 0.6+ | 0.1+ | 2008 11 21 | 704 | 1.0+ | 0.0 |
| 2008 09 21 | 691 | 0.2− | 0.0 | 2008 10 27 | 704 | 0.4+ | 0.9+ | | | | |

**2008 RB$_{78}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 134.46272 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18058863 | $\omega$ | 214.15206 | | +0.54145081 | +0.81965588 | |
| $a$ | 3.0998626 | $\Omega$ | 89.30845 | | −0.72353699 | +0.56761097 | |
| $e$ | 0.0869566 | $i$ | 10.78265 | | −0.42816498 | +0.07734357 | |
| $P$ | 5.46 | $H$ | 14.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 13 | 644 | 0.3− | 0.6+ | 2005 02 04 | G96 | 0.2− | 0.4− | 2008 10 27 | 703 | 0.5+ | 0.3+ |
| 2002 08 13 | 644 | 0.4− | 0.4+ | 2005 02 04 | G96 | 0.2− | 0.2− | 2009 11 08 | 691 | 0.4− | 0.1+ |
| 2002 08 13 | 644 | 0.5− | 0.2+ | 2008 09 09 | 300 | (1.4+ | 1.7−) | 2009 11 08 | 691 | 0.0 | 0.4− |
| 2003 10 23 | 699 | 0.3+ | 0.1− | 2008 09 09 | 300 | 0.7+ | 0.7− | 2009 11 08 | 691 | 0.0 | 0.1− |
| 2003 10 23 | 699 | 0.3− | 0.0 | 2008 09 09 | 300 | 0.5+ | 0.7− | 2009 12 10 | G96 | 0.0 | 0.2− |
| 2003 10 23 | 699 | 1.0+ | 0.8− | 2008 09 10 | 300 | (0.9+ | 7.4+) | 2009 12 10 | G96 | 0.3+ | 0.3− |
| 2003 10 23 | 699 | 1.1− | 0.5+ | 2008 09 10 | 300 | (0.0 | 6.8+) | 2009 12 10 | G96 | 0.0 | 0.3− |
| 2004 12 15 | 691 | 0.1+ | 0.3+ | 2008 09 10 | 300 | (0.3+ | 6.9+) | 2009 12 10 | G96 | 0.3− | 0.2− |
| 2004 12 15 | 691 | 0.3+ | 0.1+ | 2008 09 20 | 703 | 0.4+ | 0.1+ | 2009 12 17 | 704 | (1.8+ | 0.9+) |
| 2004 12 15 | 691 | 0.1− | 0.0 | 2008 09 20 | 703 | 0.5− | 0.2+ | 2009 12 17 | 704 | 0.7+ | 0.0 |
| 2005 01 18 | 691 | 0.1− | 0.2+ | 2008 09 20 | 703 | 0.3− | 0.2+ | 2009 12 17 | 704 | 0.5+ | 0.2− |
| 2005 01 18 | 691 | 0.0 | 0.0 | 2008 09 20 | 703 | 0.1− | 0.1+ | 2009 12 17 | 704 | 1.0+ | 1.3+ |
| 2005 01 18 | 691 | 0.4+ | 0.2+ | 2008 10 27 | 703 | 0.0 | 0.3+ | 2009 12 25 | 691 | 0.1− | 0.1− |
| 2005 02 04 | G96 | 0.1+ | 0.0 | 2008 10 27 | 703 | 0.4+ | 0.3+ | 2009 12 25 | 691 | 0.5− | 0.1− |
| 2005 02 04 | G96 | 0.1+ | 0.1− | 2008 10 27 | 703 | 0.5+ | 1.4+ | 2009 12 25 | 691 | 0.3− | 0.0 |

**2008 RO$_{79}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 83.79813 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21593760 | $\omega$ | 345.48863 | | +0.97538008 | −0.21587213 | |
| $a$ | 2.7515910 | $\Omega$ | 27.10514 | | +0.21091312 | +0.85341918 | |
| $e$ | 0.1768130 | $i$ | 5.67921 | | +0.06441556 | +0.47442063 | |
| $P$ | 4.56 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 04 08 | 691 | 0.2− | 0.3+ | 2008 09 06 | 703 | 0.3− | 0.5+ | 2008 09 29 | 703 | 0.9+ | 0.5+ |
| 2002 04 08 | 691 | 0.1+ | 0.8+ | 2008 09 06 | 703 | 0.2+ | 0.6+ | 2008 12 04 | G96 | 0.9+ | 0.5+ |
| 2002 04 08 | 691 | 0.3+ | 0.3− | 2008 09 06 | 703 | 1.0− | 0.1+ | 2008 12 04 | G96 | 0.2+ | 0.0 |
| 2006 03 04 | 691 | 0.1+ | 0.0 | 2008 09 20 | 703 | 1.0− | 0.2+ | 2008 12 04 | G96 | 0.5+ | 0.1− |
| 2006 03 04 | 691 | 0.5+ | 0.1+ | 2008 09 20 | 703 | 0.6− | 0.4+ | 2008 12 04 | G96 | 0.6+ | 0.3+ |
| 2006 03 04 | 691 | 0.2+ | 0.3+ | 2008 09 20 | 703 | 0.7− | 0.3+ | 2009 12 20 | 691 | 0.2− | 0.4+ |
| 2008 09 02 | J75 | 0.6+ | 0.2− | 2008 09 20 | 703 | 0.8− | 0.5+ | 2009 12 20 | 691 | 0.1+ | 0.1− |
| 2008 09 02 | J75 | 0.0 | 0.1+ | 2008 09 29 | 703 | 0.3− | 0.6+ | 2009 12 20 | 691 | 0.0 | 0.2+ |
| 2008 09 02 | J75 | 0.4+ | 0.2− | 2008 09 29 | 703 | 0.7− | 0.1+ | | | | |
| 2008 09 06 | 703 | 0.3+ | 0.5+ | 2008 09 29 | 703 | 0.4− | 0.5+ | | | | |

**2008 RU$_{81}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 66.92880 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18440962 | $\omega$ | 48.09452 | | +0.90473731 | −0.38956080 | |
| $a$ | 3.0568937 | $\Omega$ | 333.40678 | | +0.17527120 | +0.70914330 | |
| $e$ | 0.2597910 | $i$ | 22.63950 | | +0.38824014 | +0.58767181 | |
| $P$ | 5.34 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 02 09 | 691 | 0.3+ | 0.1+ | 2008 07 30 | 691 | 0.1− | 0.0 | 2008 10 01 | G96 | 0.1+ | 0.1− | | | | | |
| 2005 02 09 | 691 | 0.2+ | 0.0 | 2008 07 30 | 691 | 0.1− | 0.2− | 2008 10 01 | G96 | 0.3+ | 0.2− | | | | | |
| 2005 02 09 | 691 | 0.4+ | 0.2+ | 2008 08 07 | 691 | 0.1+ | 0.2− | 2008 10 01 | G96 | 0.1+ | 0.2− | | | | | |
| 2005 02 09 | G96 | 0.3− | 0.4+ | 2008 08 07 | 691 | 0.0 | 0.2+ | 2008 10 01 | G96 | 0.1− | 0.1− | | | | | |
| 2005 02 09 | G96 | 0.4− | 0.2− | 2008 08 07 | 691 | 0.0 | 0.0 | 2008 10 07 | 291 | 0.2− | 0.2− | | | | | |
| 2005 02 09 | G96 | 0.4+ | 0.1+ | 2008 09 04 | 691 | 0.0 | 0.1+ | 2008 10 07 | 291 | 0.2+ | 0.0 | | | | | |
| 2005 02 09 | G96 | 0.5− | 0.2+ | 2008 09 04 | 691 | 0.1+ | 0.1+ | 2008 10 07 | 291 | 0.1− | 0.1+ | | | | | |
| 2005 02 09 | G96 | 0.3− | 0.1− | 2008 09 04 | 691 | 0.0 | 0.1− | 2008 11 01 | G96 | 0.3+ | 0.2+ | | | | | |
| 2005 02 09 | G96 | 0.7− | 0.3− | 2008 09 09 | G96 | 0.2+ | 0.1+ | 2008 11 01 | G96 | 0.1+ | 0.4+ | | | | | |
| 2005 02 09 | G96 | 0.1+ | 0.2− | 2008 09 09 | G96 | 0.1+ | 0.0 | 2008 11 01 | G96 | 0.5+ | 0.2+ | | | | | |
| 2005 02 09 | G96 | 0.7− | 0.2− | 2008 09 09 | G96 | 0.5+ | 0.0 | 2008 11 01 | G96 | 0.8− | 0.1+ | | | | | |
| 2008 07 30 | 691 | 0.5− | 0.2+ | 2008 09 09 | G96 | 0.4+ | 0.0 | | | | | | | | | |

**2008 RM$_{85}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 83.13433 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17641701 | $\omega$ | 156.41518 | | +0.99485500 | +0.08330416 | |
| $a$ | 3.1485390 | $\Omega$ | 199.07632 | | −0.09475507 | +0.96648912 | |
| $e$ | 0.2322484 | $i$ | 10.16037 | | +0.03584695 | +0.24281515 | |
| $P$ | 5.59 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 11 24 | 691 | 0.2+ | 0.2+ | 2008 09 05 | 691 | 0.0 | 0.1+ | 2008 09 29 | G96 | 0.1− | 0.0 | | | | | |
| 2003 11 24 | 691 | 0.0 | 0.3+ | 2008 09 05 | 691 | 0.0 | 0.2+ | 2008 09 29 | G96 | 0.3− | 0.2− | | | | | |
| 2003 11 24 | 691 | 0.0 | 0.3+ | 2008 09 05 | 691 | 0.1− | 0.1+ | 2008 11 19 | G96 | 0.3− | 0.0 | | | | | |
| 2003 12 16 | 691 | 0.1− | 0.2− | 2008 09 09 | G96 | 0.5+ | 0.0 | 2008 11 19 | G96 | 0.2− | 0.1− | | | | | |
| 2003 12 16 | 691 | 0.1+ | 0.1− | 2008 09 09 | G96 | 0.2+ | 0.2+ | 2008 11 19 | G96 | 0.6− | 0.3− | | | | | |
| 2003 12 16 | 691 | 0.1− | 0.2− | 2008 09 09 | G96 | 0.5+ | 0.0 | 2008 11 30 | G96 | 0.5+ | 0.8− | | | | | |
| 2007 06 16 | 691 | 0.2− | 0.0 | 2008 09 09 | G96 | 0.1+ | 0.1+ | 2008 11 30 | G96 | 0.2+ | 0.6− | | | | | |
| 2007 06 16 | 691 | 0.0 | 0.2+ | 2008 09 29 | G96 | 0.2− | 0.1− | 2008 11 30 | G96 | 0.2− | 0.6− | | | | | |
| 2007 06 16 | 691 | 0.2+ | 0.1− | 2008 09 29 | G96 | 0.1+ | 0.1− | 2008 11 30 | G96 | 0.2− | 0.9− | | | | | |

**2008 RT$_{85}$ = 1997 UP$_{18}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 179.69120 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17070407 | $\omega$ | 48.71092 | | −0.12853054 | +0.98622658 | |
| $a$ | 3.2184008 | $\Omega$ | 214.32496 | | −0.95610539 | −0.15110528 | |
| $e$ | 0.0584187 | $i$ | 10.63861 | | −0.26332942 | +0.06726307 | |
| $P$ | 5.77 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 10 28 | 691 | 0.1+ | 0.7− | 2006 05 06 | G96 | 0.5− | 0.3+ | 2008 10 09 | 691 | 0.2+ | 0.3+ | | | | | |
| 1997 10 28 | 691 | 0.0 | 0.3− | 2006 05 06 | G96 | 0.0 | 0.2− | 2008 10 09 | 691 | 0.1+ | 0.1+ | | | | | |
| 1997 10 28 | 691 | 0.0 | 0.4− | 2006 05 06 | G96 | 0.3− | 0.3+ | 2008 10 10 | G96 | 0.2+ | 0.4− | | | | | |
| 1997 11 02 | 691 | 0.3− | 0.2+ | 2006 05 06 | G96 | 0.3− | 0.4+ | 2008 10 10 | G96 | 0.2+ | 0.2− | | | | | |
| 1997 11 02 | 691 | 0.2+ | 0.1− | 2006 06 19 | G96 | 0.7− | 0.6− | 2008 10 10 | G96 | 0.6+ | 0.1+ | | | | | |
| 1997 11 02 | 691 | 0.3+ | 0.2− | 2006 06 19 | G96 | 1.0− | 0.2− | 2008 10 10 | G96 | 0.5+ | 0.2+ | | | | | |
| 2002 10 05 | 644 | 0.2+ | 0.7+ | 2006 06 19 | G96 | 0.0 | 0.0 | 2008 10 26 | G96 | 0.0 | 0.2+ | | | | | |
| 2002 10 05 | 644 | 0.3− | 0.3+ | 2006 06 19 | G96 | 0.6− | 0.7− | 2008 10 26 | G96 | 0.0 | 0.1− | | | | | |
| 2002 10 05 | 644 | 0.1+ | 0.4+ | 2008 09 05 | 691 | 0.2− | 0.0 | 2008 10 26 | G96 | 0.3+ | 0.1+ | | | | | |
| 2003 12 16 | 691 | 0.6− | 0.4+ | 2008 09 05 | 691 | 0.1− | 0.0 | 2008 10 26 | G96 | 0.3+ | 0.0 | | | | | |
| 2003 12 16 | 691 | 0.0 | 0.2+ | 2008 09 05 | 691 | 0.2− | 0.1+ | 2009 11 27 | G96 | 0.5+ | 0.2+ | | | | | |
| 2003 12 16 | 691 | 0.1− | 0.4+ | 2008 09 09 | 691 | 0.2− | 0.1− | 2009 11 27 | G96 | 0.4+ | 0.3+ | | | | | |
| 2006 03 26 | 691 | 0.8+ | 0.9+ | 2008 09 09 | 691 | 0.0 | 0.2+ | 2009 11 27 | G96 | 0.1+ | 0.5+ | | | | | |
| 2006 03 26 | 691 | 0.1+ | 0.3+ | 2008 09 09 | 691 | 0.2− | 0.4+ | 2009 11 27 | G96 | 0.5+ | 0.2+ | | | | | |
| 2006 03 26 | 691 | 0.1+ | 0.0 | 2008 10 09 | 691 | 0.4− | 0.4+ | | | | | | | | | |

**2008 RD$_{97}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 142.20776 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18253794 | $\omega$ | 297.12065 | | +0.40274380 | +0.91530673 | |
| $a$ | 3.0777543 | $\Omega$ | 356.62395 | | −0.81855702 | +0.35854491 | |
| $e$ | 0.2406276 | $i$ | 3.23236 | | −0.40958741 | +0.18346427 | |
| $P$ | 5.40 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 06 | 644 | 0.2− | 0.3+ | 2008 09 09 | G96 | 0.5− | 0.1− | 2008 10 03 | 691 | 0.0 | 0.2+ | | | | | |
| 2002 08 06 | 644 | 0.0 | 0.2+ | 2008 09 09 | G96 | 0.6+ | 0.2+ | 2008 10 07 | 691 | 0.1− | 0.4+ | | | | | |
| 2002 08 06 | 644 | 0.1+ | 0.0 | 2008 09 09 | G96 | 0.3+ | 0.1− | 2008 10 07 | 691 | 0.3− | 0.0 | | | | | |
| 2003 11 21 | 695 | 0.2− | 0.4+ | 2008 09 09 | G96 | 0.4+ | 0.1− | 2008 10 07 | 691 | 0.2− | 0.1− | | | | | |
| 2003 11 21 | 695 | 0.0 | 0.3+ | 2008 09 09 | G96 | 0.5+ | 0.1− | 2008 11 06 | G96 | 0.3+ | 0.2− | | | | | |
| 2008 09 07 | G96 | 0.4+ | 0.4− | 2008 09 25 | 691 | 0.1− | 0.1+ | 2008 11 06 | G96 | 0.6+ | 0.4− | | | | | |
| 2008 09 07 | G96 | 0.6+ | 0.5− | 2008 09 25 | 691 | 0.0 | 0.1− | 2008 11 06 | G96 | 0.4+ | 0.5+ | | | | | |
| 2008 09 07 | G96 | 0.1− | 0.5− | 2008 09 25 | 691 | 0.1− | 0.3− | 2008 11 06 | G96 | 0.2+ | 0.4− | | | | | |
| 2008 09 07 | G96 | 0.2+ | 0.6− | 2008 10 03 | 691 | 0.3− | 0.4+ | | | | | | | | | |
| 2008 09 09 | G96 | 0.6+ | 0.1− | 2008 10 03 | 691 | 0.1+ | 0.1− | | | | | | | | | |

**2008 RD$_{98}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 133.09372 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23860207 | $\omega$ | 147.78466 | | +0.94333102 | −0.33076128 | |
| $a$ | 2.5744625 | $\Omega$ | 231.55406 | | +0.29672247 | +0.87698916 | |
| $e$ | 0.0987184 | $i$ | 1.96824 | | +0.14860138 | +0.34854984 | |
| $P$ | 4.13 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 03 23 | 291 | 0.1− | 0.3− | 2008 09 24 | G96 | 0.3− | 0.0 | 2008 11 21 | 291 | 0.3− | 0.3+ | | | | | |
| 2006 03 23 | 291 | 0.4+ | 0.0 | 2008 09 24 | G96 | 0.3− | 0.0 | 2008 11 21 | 291 | 0.3− | 0.4+ | | | | | |
| 2006 03 23 | 291 | 0.1+ | 0.3+ | 2008 10 20 | G96 | 0.3+ | 0.1+ | 2008 11 21 | 291 | 0.1+ | 0.0 | | | | | |
| 2006 03 23 | 291 | 0.2+ | 0.2+ | 2008 10 20 | G96 | 0.3+ | 0.3+ | 2008 11 21 | 291 | 0.2+ | 0.1− | | | | | |
| 2006 03 23 | 291 | 0.3+ | 0.3+ | 2008 10 20 | G96 | 0.1+ | 0.7+ | 2008 11 21 | 291 | 0.0 | 0.0 | | | | | |
| 2006 03 23 | 291 | 0.9− | 0.6− | 2008 10 20 | G96 | 0.5+ | 0.3− | 2008 12 01 | 704 | 0.7+ | 0.6− | | | | | |
| 2008 09 07 | G96 | 0.3+ | 0.5− | 2008 10 28 | 691 | 0.3− | 0.0 | 2008 12 01 | 704 | 0.2− | 0.4− | | | | | |
| 2008 09 07 | G96 | 0.7− | 0.7− | 2008 10 28 | 691 | 0.4− | 0.1+ | 2008 12 01 | 704 | 0.3+ | 1.0− | | | | | |
| 2008 09 07 | G96 | 0.0 | 0.8− | 2008 10 28 | 691 | 0.5+ | 0.1− | 2008 12 01 | 704 | 0.7+ | 1.1− | | | | | |
| 2008 09 07 | G96 | 0.1+ | 1.0− | 2008 11 17 | 691 | 0.2+ | 0.0 | 2008 12 02 | 691 | 0.1+ | 0.0 | | | | | |
| 2008 09 09 | G96 | 0.6+ | 0.4+ | 2008 11 17 | 691 | 0.1+ | 0.2− | 2008 12 02 | 691 | 0.1+ | 0.1− | | | | | |
| 2008 09 09 | G96 | 0.0 | 0.3− | 2008 11 17 | 691 | 0.3− | 0.2+ | 2008 12 02 | 691 | 0.3− | 0.2− | | | | | |
| 2008 09 09 | G96 | 0.1− | 0.1− | 2008 11 21 | 691 | 0.1− | 0.1+ | 2008 12 20 | G96 | 0.9+ | 0.1+ | | | | | |
| 2008 09 09 | G96 | 0.4+ | 0.1+ | 2008 11 21 | 691 | 0.2+ | 0.3+ | 2008 12 20 | G96 | 0.5− | 0.4− | | | | | |
| 2008 09 24 | G96 | 0.2− | 0.6+ | 2008 11 21 | 691 | 0.1+ | 0.1+ | 2008 12 20 | G96 | 0.1− | 0.1+ | | | | | |
| 2008 09 24 | G96 | 0.3+ | 0.1+ | 2008 11 21 | 291 | 0.3− | 0.2+ | 2008 12 20 | G96 | 0.4+ | 0.1− | | | | | |

**2008 RH$_{108}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 44.60168 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.14467336 | $\omega$ | 81.36761 | | +0.66474803 | −0.74670342 | |
| $a$ | 3.5937153 | $\Omega$ | 326.93156 | | +0.66751175 | +0.60768909 | |
| $e$ | 0.0898278 | $i$ | 2.45004 | | +0.33546701 | +0.27045882 | |
| $P$ | 6.81 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 10 20 | 691 | 0.1− | 0.4+ | 2008 09 09 | G96 | 0.8+ | 0.1+ | 2008 10 25 | G96 | 0.5+ | 0.0 | | | | | |
| 2001 10 20 | 691 | 0.0 | 0.3+ | 2008 09 21 | 691 | 0.3+ | 0.4+ | 2008 10 25 | G96 | 0.7+ | 0.4− | | | | | |
| 2001 10 20 | 691 | 0.3− | 0.3+ | 2008 09 21 | 691 | 0.2− | 0.0 | 2008 11 08 | G96 | 0.4+ | 0.1+ | | | | | |
| 2004 03 17 | 691 | 0.0 | 0.2+ | 2008 09 21 | 691 | 0.2− | 0.1+ | 2008 11 08 | G96 | 0.4+ | 0.3+ | | | | | |
| 2004 03 17 | 691 | 0.1+ | 0.1− | 2008 10 03 | 691 | 0.0 | 0.6+ | 2008 11 08 | G96 | 0.4+ | 0.1− | | | | | |
| 2004 03 17 | 691 | 0.0 | 0.3+ | 2008 10 03 | 691 | 0.0 | 0.7− | 2008 11 08 | G96 | 1.0+ | 0.1− | | | | | |
| 2005 04 11 | 691 | 0.3+ | 0.3+ | 2008 10 03 | 691 | 0.7− | 0.2+ | 2009 11 21 | G96 | 0.3+ | 0.1− | | | | | |
| 2005 04 11 | 691 | 0.3+ | 0.3+ | 2008 10 07 | 691 | 0.7− | 0.3− | 2009 11 21 | G96 | 0.6+ | 0.2− | | | | | |
| 2005 04 11 | 691 | 0.1− | 0.6+ | 2008 10 07 | 691 | 0.2+ | 0.2+ | 2009 11 21 | G96 | 0.0 | 0.1+ | | | | | |
| 2008 09 09 | G96 | 0.7+ | 0.1+ | 2008 10 07 | 691 | 0.5− | 0.1+ | 2009 11 21 | G96 | 0.6− | 0.1− | | | | | |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 09 09 | G96 | 0.5+ | 0.0 | 2008 10 25 | G96 | 0.2+ | 0.3− | | | | | | | |
| 2008 09 09 | G96 | 0.9+ | 0.3− | 2008 10 25 | G96 | 0.4+ | 0.1− | | | | | | | |

**2008 RP$_{109}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 338.77786 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.08606769 | $\omega$ | 10.85131 | | +0.31048377 | | −0.94993318 |
| $a$ | 5.0805330 | $\Omega$ | 61.06826 | | +0.86911456 | | +0.26875854 |
| $e$ | 0.0368453 | $i$ | 2.29359 | | +0.38501911 | | +0.15936058 |
| $P$ | 11.45 | $H$ | 14.1 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 09 02 | 691 | 0.4− | 0.1− | 2008 10 17 | 691 | 0.2− | 1.3+ | 2009 11 08 | G96 | 0.1− | 0.6− | | | |
| 2008 09 02 | 691 | 0.5+ | 0.0 | 2008 10 17 | 691 | 0.3− | 0.0 | 2009 11 08 | G96 | 0.3+ | 0.3− | | | |
| 2008 09 02 | 691 | 0.0 | 0.2− | 2008 10 17 | 691 | 0.0 | 0.1− | 2009 12 17 | G96 | 0.4+ | 0.1+ | | | |
| 2008 09 29 | G96 | 0.2+ | 0.1− | 2008 10 25 | G96 | 0.2+ | 0.3− | 2009 12 17 | G96 | 0.2+ | 0.2+ | | | |
| 2008 09 29 | G96 | 0.6+ | 0.3− | 2008 10 25 | G96 | 0.2+ | 0.5− | 2009 12 17 | G96 | 0.0 | 0.3+ | | | |
| 2008 09 29 | G96 | 0.0 | 0.3− | 2008 10 25 | G96 | 0.3− | 0.8− | 2009 12 17 | G96 | 0.7− | 0.1+ | | | |
| 2008 09 29 | G96 | 0.3+ | 0.2− | 2008 10 25 | G96 | 0.3+ | 0.5− | | | | | | | |

**2008 RR$_{113}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 299.38201 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.25573815 | $\omega$ | 188.66104 | | −0.99930679 | | −0.03259860 |
| $a$ | 2.4581348 | $\Omega$ | 349.42085 | | +0.03722821 | | −0.87417087 |
| $e$ | 0.0752532 | $i$ | 5.62014 | | +0.00006644 | | −0.48452308 |
| $P$ | 3.85 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1993 11 09 | 691 | 0.0 | 0.0 | 2008 09 20 | G96 | 0.1+ | 0.0 | 2008 10 24 | G96 | 0.1+ | 0.1− | | | |
| 1993 11 09 | 691 | 0.0 | 0.2+ | 2008 09 20 | G96 | 0.7+ | 0.7− | 2008 10 24 | G96 | 0.1− | 0.3− | | | |
| 1993 11 09 | 691 | 0.1− | 0.1− | 2008 09 20 | G96 | 0.7+ | 0.1+ | 2008 10 24 | G96 | 0.3+ | 0.3+ | | | |
| 2004 09 07 | 691 | 0.2− | 0.3+ | 2008 09 20 | G96 | 0.6+ | 0.1− | 2008 11 30 | G96 | 0.3− | 0.2+ | | | |
| 2004 09 07 | 691 | 0.0 | 0.1− | 2008 10 02 | G96 | 0.2+ | 0.1+ | 2008 11 30 | G96 | 0.3− | 0.1− | | | |
| 2004 09 07 | 691 | 0.1+ | 0.1+ | 2008 10 02 | G96 | 0.2− | 0.1− | 2008 11 30 | G96 | 0.6+ | 0.0 | | | |
| 2008 09 06 | 691 | 0.2− | 0.1+ | 2008 10 02 | G96 | 0.1+ | 0.1− | 2008 11 30 | G96 | 0.1+ | 0.4+ | | | |
| 2008 09 06 | 691 | 0.0 | 0.1+ | 2008 10 02 | G96 | 0.3− | 0.1− | | | | | | | |
| 2008 09 06 | 691 | 0.4− | 0.2− | 2008 10 24 | G96 | 0.7+ | 0.1− | | | | | | | |

**2008 RG$_{117}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 134.15856 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22407488 | $\omega$ | 36.43981 | | +0.76200015 | | +0.61261659 |
| $a$ | 2.6845651 | $\Omega$ | 284.42628 | | −0.63348922 | | +0.63794065 |
| $e$ | 0.1787797 | $i$ | 12.51708 | | −0.13433979 | | +0.46661830 |
| $P$ | 4.40 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 09 09 | 703 | 0.1− | 0.5+ | 2008 10 10 | 703 | 1.2+ | 0.8+ | 2009 11 23 | G96 | 0.6+ | 0.2+ | | | |
| 2008 09 09 | 703 | 0.5− | 0.2− | 2008 10 10 | 703 | (0.6+ | 2.3+) | 2009 11 23 | G96 | 0.5+ | 0.5+ | | | |
| 2008 09 09 | 703 | 0.6− | 0.4− | 2008 10 10 | 703 | 0.8+ | 0.3+ | 2009 12 10 | G96 | 0.7+ | 0.6+ | | | |
| 2008 09 09 | 703 | 0.6− | 0.5− | 2008 10 25 | 703 | 0.2− | 0.5+ | 2009 12 10 | G96 | 1.2+ | 0.3− | | | |
| 2008 09 28 | 703 | 0.4+ | 0.1+ | 2008 10 25 | 703 | 0.1+ | 0.0 | 2009 12 10 | G96 | 1.0+ | 0.4+ | | | |
| 2008 09 28 | 703 | 0.5− | 0.3+ | 2008 10 25 | 703 | 0.2− | 0.3− | 2009 12 10 | G96 | 1.5+ | 0.5+ | | | |
| 2008 09 28 | 703 | 0.1− | 0.3− | 2008 10 25 | 703 | 1.0+ | 0.9− | 2009 12 25 | 691 | 0.2− | 0.1− | | | |
| 2008 09 28 | 703 | 0.5+ | 0.7− | 2009 11 23 | G96 | 0.4+ | 0.4+ | 2009 12 25 | 691 | 0.5+ | 0.0 | | | |
| 2008 10 10 | 703 | 1.1− | 0.6+ | 2009 11 23 | G96 | 0.4+ | 0.5+ | 2009 12 25 | 691 | 1.7− | 0.6− | | | |

**2008 RM$_{117}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 72.07549 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21543395 | $\omega$ | 192.83088 | | +0.90095626 | | −0.43326738 |
| $a$ | 2.7558778 | $\Omega$ | 192.92169 | | +0.40684788 | | +0.86242593 |
| $e$ | 0.0399604 | $i$ | 6.05941 | | +0.15083974 | | +0.26172675 |
| $P$ | 4.57 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 04 19 | 691 | 0.0 | 0.0 | 2008 09 25 | G96 | 0.2+ | 0.2+ | 2008 10 21 | G96 | 0.2− | 0.2+ | | | |
| 2002 04 19 | 691 | 0.2+ | 0.0 | 2008 09 25 | G96 | 0.4+ | 0.1+ | 2008 10 21 | G96 | 0.1− | 0.2+ | | | |
| 2002 04 19 | 691 | 0.1− | 0.1+ | 2008 09 25 | G96 | 0.1+ | 0.2+ | 2008 10 21 | G96 | 0.2− | 0.3+ | | | |
| 2004 11 10 | 691 | 0.0 | 0.4+ | 2008 09 25 | G96 | 0.4+ | 0.4+ | 2008 11 24 | G96 | 0.1+ | 0.3− | | | |
| 2004 11 10 | 691 | 0.0 | 0.1− | 2008 10 08 | G96 | 0.1+ | 0.1− | 2008 11 24 | G96 | 0.2+ | 0.2− | | | |
| 2004 11 10 | 691 | 0.1− | 0.1− | 2008 10 08 | G96 | 0.3− | 0.0 | 2008 11 24 | G96 | 0.3+ | 0.2− | | | |
| 2008 09 09 | G96 | 0.2− | 0.1− | 2008 10 08 | G96 | 0.0 | 0.1+ | 2008 11 24 | G96 | 0.2+ | 0.4− | | | |
| 2008 09 09 | G96 | 0.5− | 0.1+ | 2008 10 08 | G96 | 0.0 | 0.2+ | | | | | | | |
| 2008 09 09 | G96 | 0.5− | 0.3− | 2008 10 21 | G96 | 0.3+ | 0.1− | | | | | | | |

**2008 RB$_{118}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 164.87129 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21702739 | $\omega$ | 324.70281 | | +0.40085775 | | +0.91582934 |
| $a$ | 2.7423719 | $\Omega$ | 328.90906 | | −0.82956174 | | +0.35179648 |
| $e$ | 0.1770598 | $i$ | 2.64916 | | −0.38876777 | | +0.19363846 |
| $P$ | 4.54 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 09 02 | 691 | 0.1+ | 0.7+ | 2008 09 09 | G96 | 0.4+ | 0.2− | 2008 10 24 | G96 | 0.1+ | 0.7− | | | |
| 1994 09 02 | 691 | 0.4+ | 1.0− | 2008 09 29 | 691 | 0.2− | 0.5+ | 2008 10 24 | G96 | 0.2+ | 0.6− | | | |
| 1994 09 02 | 691 | 0.7− | 0.8+ | 2008 09 29 | 691 | 0.1+ | 0.1− | 2008 10 24 | G96 | 0.2+ | 0.6− | | | |
| 2003 08 25 | 807 | 0.3+ | 0.7− | 2008 09 29 | 691 | 0.2− | 0.2− | 2008 11 19 | 291 | 0.0 | 0.1+ | | | |
| 2003 08 25 | 807 | 0.3+ | 0.8− | 2008 10 07 | 691 | 0.4− | 0.4+ | 2008 11 19 | 291 | 0.1+ | 0.1− | | | |
| 2008 09 09 | G96 | 0.3+ | 0.1+ | 2008 10 07 | 691 | 0.3+ | 0.2+ | 2008 11 19 | 291 | 0.2+ | 0.4+ | | | |
| 2008 09 09 | G96 | 0.4+ | 0.1− | 2008 10 07 | 691 | 0.4− | 0.7− | | | | | | | |
| 2008 09 09 | G96 | 0.4+ | 0.1− | 2008 10 24 | G96 | 0.3+ | 0.6− | | | | | | | |

**2008 RZ$_{121}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 329.36841 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.08155956 | $\omega$ | 244.17629 | | +0.34825131 | | −0.93666672 |
| $a$ | 5.2660638 | $\Omega$ | 185.82902 | | +0.93619767 | | +0.34953662 |
| $e$ | 0.0471225 | $i$ | 21.42670 | | +0.04748636 | | −0.02190006 |
| $P$ | 12.08 | $H$ | 13.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 09 03 | 691 | 0.0 | 0.3+ | 2008 10 24 | G96 | 0.0 | 0.0 | 2009 09 29 | G96 | 0.1− | 0.4+ | | | |
| 2008 09 03 | 691 | 0.0 | 0.4+ | 2008 10 24 | G96 | 0.1+ | 0.1+ | 2009 10 22 | G96 | 0.3+ | 0.3− | | | |
| 2008 09 03 | 691 | 0.2− | 0.4− | 2008 10 24 | G96 | 0.2+ | 0.4− | 2009 10 22 | G96 | 0.1+ | 0.1+ | | | |
| 2008 09 28 | G96 | 0.0 | 0.3− | 2008 10 24 | G96 | 0.1− | 0.3+ | 2009 10 22 | G96 | 0.2− | 0.2− | | | |
| 2008 09 28 | G96 | 0.5+ | 0.4− | 2009 09 29 | G96 | 0.1− | 0.4+ | 2009 10 22 | G96 | 0.4− | 0.5− | | | |
| 2008 09 28 | G96 | 0.2− | 0.2− | 2009 09 29 | G96 | 0.0 | 0.2+ | | | | | | | |
| 2008 09 28 | G96 | 0.3+ | 0.2− | 2009 09 29 | G96 | 0.3+ | 0.1+ | | | | | | | |

**2008 RD$_{122}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 5.68897 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.12325976 | $\omega$ | 318.13631 | | +0.53593909 | | −0.84386643 |
| $a$ | 3.9987279 | $\Omega$ | 99.44095 | | +0.78133338 | | +0.48424924 |
| $e$ | 0.0609595 | $i$ | 1.49092 | | +0.31982407 | | +0.23106736 |
| $P$ | 8.00 | $H$ | 15.2 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 09 03 | 691 | 0.2− | 0.3− | 2008 10 09 | G96 | 0.5+ | 0.1− | 2009 11 20 | G96 | 0.1− | 0.2− |
| 2008 09 03 | 691 | 0.1+ | 0.2+ | 2008 10 09 | G96 | 0.1+ | 0.4− | 2009 11 20 | G96 | 0.0 | 1.0− |
| 2008 09 03 | 691 | 0.1− | 0.0 | 2009 10 27 | 691 | 0.1+ | 0.1− | 2009 11 20 | G96 | 0.4− | 0.1− |
| 2008 09 24 | G96 | 0.0 | 0.3+ | 2009 10 27 | 691 | 0.2+ | 0.3+ | 2009 12 11 | G96 | 0.1+ | 0.2− |
| 2008 09 24 | G96 | 0.2− | 0.3+ | 2009 10 27 | 691 | 0.1+ | 0.3+ | 2009 12 11 | G96 | 0.5+ | 0.3+ |
| 2008 09 24 | G96 | 0.2+ | 0.3+ | 2009 11 08 | 691 | 0.1+ | 0.1+ | 2009 12 11 | G96 | 0.5− | 0.4+ |
| 2008 09 24 | G96 | 0.0 | 0.3+ | 2009 11 08 | 691 | 0.8− | 0.4− | 2009 12 11 | G96 | 0.2+ | 0.0 |
| 2008 10 09 | G96 | 0.5+ | 0.3− | 2009 11 08 | 691 | 0.3+ | 0.0 | | | | |
| 2008 10 09 | G96 | 0.3− | 0.3− | 2009 11 20 | G96 | 0.3− | 0.3+ | | | | |

**2008 RK$_{124}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 294.15819 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.08196006 | $\omega$ | 117.34824 | | −0.28150668 | | −0.95950245 |
| $a$ | 5.2488948 | $\Omega$ | 348.98677 | | +0.85993898 | | −0.24743792 |
| $e$ | 0.0717699 | $i$ | 3.13327 | | +0.42574517 | | −0.13464589 |
| $P$ | 12.03 | $H$ | 13.5 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 12 27 | 691 | 0.3− | 0.2+ | 2003 04 25 | 691 | 0.1+ | 0.5+ | 2008 10 20 | G96 | 0.3− | 0.2+ |
| 2000 12 27 | 691 | 0.3− | 0.4+ | 2003 04 25 | 691 | 0.2+ | 0.7+ | 2008 10 20 | G96 | 0.2− | 0.3+ |
| 2000 12 27 | 691 | 0.2− | 0.5+ | 2003 04 25 | 691 | 0.2− | 0.5+ | 2009 09 20 | 691 | 0.1− | 0.0 |
| 2001 05 16 | 691 | 0.3+ | 0.3− | 2008 09 06 | G96 | 0.1− | 0.4+ | 2009 09 20 | 691 | 0.0 | 0.1+ |
| 2001 05 16 | 691 | 0.1+ | 0.2− | 2008 09 06 | G96 | 0.3− | 0.3+ | 2009 09 20 | 691 | 0.2− | 0.2+ |
| 2001 05 16 | 691 | 0.4+ | 0.2+ | 2008 09 06 | G96 | 0.1+ | 0.3+ | 2009 10 14 | 703 | 1.4− | 0.5+ |
| 2002 02 13 | 691 | 0.2+ | 0.1+ | 2008 09 06 | G96 | 0.2− | 0.6+ | 2009 10 14 | 703 | 1.1+ | 0.9− |
| 2002 02 13 | 691 | 0.3+ | 0.1− | 2008 09 20 | G96 | 0.5+ | 0.2+ | 2009 10 14 | 703 | 0.1+ | 1.1+ |
| 2002 02 13 | 691 | 0.3+ | 0.0 | 2008 09 20 | G96 | 0.0 | 0.1+ | 2009 10 14 | 703 | 1.1− | 0.3− |
| 2002 02 24 | 644 | 0.5+ | 0.3+ | 2008 09 20 | G96 | 0.0 | 0.5+ | 2009 11 17 | 691 | 0.3− | 0.3+ |
| 2002 02 24 | 644 | 0.1− | 0.5− | 2008 09 20 | G96 | 0.0 | 0.5+ | 2009 11 17 | 691 | 1.0− | 0.1+ |
| 2002 02 24 | 644 | 0.5+ | 0.3− | 2008 10 08 | G96 | 0.7− | 0.4+ | 2009 11 17 | 691 | 1.1+ | 0.2− |
| 2002 03 12 | 644 | 0.2− | 0.1− | 2008 10 08 | G96 | 0.4− | 0.5+ | 2009 11 25 | G96 | 0.5+ | 0.0 |
| 2002 03 12 | 644 | 0.3+ | 0.0 | 2008 10 08 | G96 | 0.6− | 0.9+ | 2009 11 25 | G96 | 0.3+ | 0.2+ |
| 2002 03 13 | 644 | 0.2− | 0.2+ | 2008 10 08 | G96 | 0.6− | 0.1+ | 2009 11 25 | G96 | 0.7+ | 0.1+ |
| 2002 03 13 | 644 | 0.1− | 0.1− | 2008 10 20 | G96 | 0.4+ | 0.3+ | 2009 11 25 | G96 | 0.0 | 0.1+ |
| 2002 03 13 | 644 | 0.5− | 0.2− | 2008 10 20 | G96 | 0.4+ | 0.4+ | | | | |

**2008 RG$_{127}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 14.69907 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.08269026 | $\omega$ | 60.46690 | | +0.87156929 | | −0.48954538 |
| $a$ | 5.2179488 | $\Omega$ | 328.82151 | | +0.43008788 | | +0.78957622 |
| $e$ | 0.1464333 | $i$ | 2.95501 | | +0.23535373 | | +0.37001987 |
| $P$ | 11.92 | $H$ | 13.7 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 09 30 | 910 | 0.3+ | 0.3− | 2008 10 02 | G96 | 0.4− | 0.2+ | 2009 11 10 | G96 | 0.5+ | 0.1+ |
| 1997 09 30 | 910 | 0.4+ | 0.4− | 2008 10 02 | G96 | 0.4− | 0.2+ | 2009 11 10 | G96 | 0.4+ | 0.2− |
| 1997 09 30 | 910 | 0.2− | 0.6− | 2008 10 02 | G96 | 0.4− | 0.2+ | 2009 11 19 | G96 | 0.5+ | 0.1− |
| 2001 01 26 | 691 | 0.1− | 0.5+ | 2008 10 02 | G96 | 0.4− | 0.1− | 2009 11 19 | G96 | 0.3+ | 0.2− |
| 2001 01 26 | 691 | 0.2− | 0.0 | 2008 10 23 | G96 | 0.0 | 0.4− | 2009 11 19 | G96 | 0.3+ | 0.1+ |
| 2001 01 26 | 691 | 0.4+ | 0.3− | 2008 10 23 | G96 | 0.1+ | 0.4− | 2009 11 19 | G96 | 0.1+ | 0.1+ |
| 2007 09 10 | G96 | 0.0 | 0.2− | 2008 10 23 | G96 | 0.1+ | 0.5− | 2009 11 19 | G96 | 0.1− | 0.2− |
| 2007 09 10 | G96 | 0.1+ | 0.4− | 2008 10 23 | G96 | 0.4− | 0.7− | 2009 11 19 | G96 | 0.1− | 0.0 |
| 2007 09 10 | G96 | 0.0 | 0.3− | 2009 10 24 | 691 | 0.3− | 0.0 | 2009 11 19 | G96 | 0.1+ | 0.1− |
| 2007 09 10 | G96 | 0.5+ | 0.2+ | 2009 10 24 | 691 | 0.3− | 0.1+ | 2009 11 19 | G96 | 0.3+ | 0.3− |
| 2008 09 06 | 691 | 0.3− | 0.1+ | 2009 10 24 | 691 | 0.3− | 0.1+ | 2009 11 19 | G96 | 0.3+ | 0.0 |
| 2008 09 06 | 691 | 0.1+ | 0.3+ | 2009 11 10 | G96 | 0.1+ | 0.2− | 2009 11 19 | G96 | 0.3+ | 0.2+ |
| 2008 09 06 | 691 | 0.3+ | 0.3+ | 2009 11 10 | G96 | 0.2+ | 0.0 | 2009 11 19 | G96 | 0.7+ | 0.2+ |

**2008 RZ$_{131}$ = 2007 LY$_{13}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 86.32724 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21016502 | $\omega$ | 254.17853 | | +0.98369600 | | −0.16096978 |
| $a$ | 2.8017482 | $\Omega$ | 115.02839 | | +0.17920299 | | +0.91484506 |
| $e$ | 0.1218084 | $i$ | 5.07753 | | −0.01511513 | | +0.37033396 |
| $P$ | 4.69 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 06 10 | 691 | (1.4+ | 1.9−) | 2008 09 06 | 703 | 1.1− | 0.1+ | 2009 12 15 | G96 | 0.3+ | 0.4+ |
| 2007 06 10 | 691 | 0.2+ | 0.1+ | 2008 09 20 | 703 | 0.4+ | 0.3− | 2009 12 15 | G96 | 0.3− | 0.1− |
| 2007 06 10 | 691 | 0.5+ | 0.3− | 2008 09 20 | 703 | 0.4− | 0.2− | 2009 12 15 | G96 | 0.3+ | 0.1+ |
| 2007 06 13 | 691 | 0.3+ | 0.4+ | 2008 09 20 | 703 | 0.1− | 0.1− | 2009 12 15 | G96 | 0.8+ | 0.0 |
| 2007 06 13 | 691 | 0.0 | 0.5+ | 2008 09 20 | 703 | 0.3+ | 0.0 | 2009 12 15 | G96 | 0.1− | 0.3− |
| 2007 06 13 | 691 | 0.7− | 0.2+ | 2008 10 01 | 703 | 0.0 | 1.4+ | 2009 12 18 | 691 | 0.0 | 0.3+ |
| 2008 09 06 | 703 | 0.4+ | 0.2− | 2008 10 01 | 703 | 0.2+ | 0.5+ | 2009 12 18 | 691 | 0.3− | 0.6+ |
| 2008 09 06 | 703 | 0.1+ | 0.3− | 2008 10 01 | 703 | 0.3+ | 1.0+ | 2009 12 18 | 691 | 0.1+ | 0.1+ |
| 2008 09 06 | 703 | 0.7− | 0.0 | 2008 10 01 | 703 | (0.4+ | 2.1+) | | | | |

**2008 RA$_{132}$ = 2004 XR$_{168}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 91.92058 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22356738 | $\omega$ | 222.39136 | | +0.91715848 | | −0.38973012 |
| $a$ | 2.6886262 | $\Omega$ | 160.07279 | | +0.39846577 | | +0.90032568 |
| $e$ | 0.2647419 | $i$ | 14.13829 | | −0.00673517 | | +0.19371141 |
| $P$ | 4.41 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 07 | 704 | 0.5+ | 0.1− | 2004 12 19 | 703 | 0.8− | 1.1+ | 2008 09 20 | 703 | 1.4− | 0.5− |
| 2004 12 07 | 704 | 0.4+ | 0.9− | 2004 12 19 | 703 | 0.5− | 0.2+ | 2008 09 20 | 703 | 0.7− | 0.8+ |
| 2004 12 07 | 704 | 0.7+ | 0.1− | 2008 09 06 | 703 | 0.3+ | 0.0 | 2008 09 20 | 703 | 1.2− | 0.7− |
| 2004 12 07 | 704 | 0.5+ | 0.5− | 2008 09 06 | 703 | 0.4+ | 0.3− | 2008 10 02 | 703 | 0.5+ | 0.7+ |
| 2004 12 07 | 704 | (2.5+ | 0.1−) | 2008 09 06 | 703 | 0.1− | 0.2+ | 2008 10 02 | 703 | 0.7+ | 0.0 |
| 2004 12 19 | 703 | 0.2+ | 0.2− | 2008 09 06 | 703 | 0.4+ | 0.3− | 2008 10 02 | 703 | 0.8+ | 0.5+ |
| 2004 12 19 | 703 | 0.9− | 0.3+ | 2008 09 20 | 703 | 0.5+ | 0.3− | | | | |

**2008 RE$_{132}$ = 2006 AD$_{50}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 122.01662 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.26673954 | $\omega$ | 261.03646 | | +0.99072248 | | −0.07386875 |
| $a$ | 2.3900727 | $\Omega$ | 103.13976 | | +0.11142262 | | +0.92208203 |
| $e$ | 0.1044971 | $i$ | 6.72700 | | −0.07780730 | | +0.37987910 |
| $P$ | 3.70 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 28 | 691 | 0.1+ | 0.1− | 2006 01 09 | 691 | 0.1+ | 0.2+ | 2008 09 20 | 703 | 0.3− | 0.7− |
| 2005 12 28 | 691 | 0.2− | 0.1+ | 2006 01 09 | 691 | 0.2+ | 0.1+ | 2008 09 20 | 703 | 1.0− | 1.4+ |
| 2005 12 28 | 691 | 0.2− | 0.2− | 2008 09 06 | 703 | 0.2+ | 0.1− | 2008 09 20 | 703 | 0.4+ | 0.1− |
| 2006 01 05 | 691 | 0.0 | 0.1− | 2008 09 06 | 703 | 0.1+ | 0.1− | 2008 10 02 | 703 | 1.4+ | 0.1− |
| 2006 01 05 | 691 | 0.1− | 0.1− | 2008 09 06 | 703 | 0.5− | 0.5− | 2008 10 02 | 703 | 0.5+ | 0.6+ |
| 2006 01 05 | 691 | 0.0 | 0.1− | 2008 09 06 | 703 | 0.0 | 0.3− | | | | |
| 2006 01 09 | 691 | 0.1+ | 0.2+ | 2008 09 20 | 703 | 0.8− | 0.1− | | | | |

**2008 RF$_{132}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 101.59655 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18799397 | $\omega$ | 203.61737 | | +0.96610550 | | +0.21412773 |
| $a$ | 3.0179134 | $\Omega$ | 143.07289 | | −0.18156065 | | +0.96066587 |
| $e$ | 0.1589548 | $i$ | 13.88594 | | −0.18350990 | | +0.17683438 |
| $P$ | 5.24 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 27 | 699 | 0.2− | 0.6− | 2003 11 23 | 703 | (3.4− | 1.2−) | 2008 09 20 | 703 | 0.8+ | 0.1− |
| 2003 10 27 | 699 | (2.6+ | 2.7−) | 2008 09 07 | 703 | 0.0 | 0.6− | 2008 09 20 | 703 | 0.1+ | 1.2+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 27 | 699 | 0.3+ | 1.3− | 2008 09 07 | 703 | 0.3− | 0.4− | 2008 10 02 | 703 | 0.7+ | 0.6− |
| 2003 10 27 | 699 | 0.9+ | 0.5+ | 2008 09 07 | 703 | 0.0 | 0.2+ | 2008 10 02 | 703 | 0.2+ | 0.3− |
| 2003 11 23 | 703 | 1.2− | 0.4+ | 2008 09 07 | 703 | 0.3− | 0.3− | 2008 10 02 | 703 | 1.3− | 0.3+ |
| 2003 11 23 | 703 | 0.8+ | 1.0+ | 2008 09 20 | 703 | 0.7+ | 0.3+ | 2008 10 02 | 703 | 1.2− | 0.3− |
| 2003 11 23 | 703 | 0.6− | 0.2− | 2008 09 20 | 703 | 0.5+ | 0.9+ | | | | |

**2008 RC$_{133}$ = 2002 XG$_{59}$ = 2005 UJ$_{379}$ = 2005 WJ$_{98}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 177.69185 | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.30532724 | $\omega$ | 219.63107 | | +0.62386930 | | +0.78072112 | |
| $a$ | 2.1841997 | $\Omega$ | 88.99770 | | −0.70772380 | | +0.58364923 | |
| $e$ | 0.1529345 | $i$ | 2.03585 | | −0.33153298 | | +0.22322211 | |
| $P$ | 3.23 | $H$ | 17.9 | $G$ | 0.15 | $U$ | 1 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 12 12 | 673 | 0.2− | 0.0 | 2005 10 31 | 691 | 0.1− | 0.1+ | 2007 02 27 | 691 | 0.3+ | 0.5+ |
| 2002 12 12 | 673 | 0.9+ | 0.4+ | 2005 10 31 | 691 | 0.0 | 0.3− | 2007 02 27 | 691 | 0.3+ | 0.0 |
| 2002 12 12 | 673 | 1.0+ | 0.3+ | 2005 11 28 | 691 | 0.5− | 0.1+ | 2007 02 27 | 691 | 0.0 | 0.1+ |
| 2002 12 13 | 673 | (2.7− | 0.2+) | 2005 11 28 | 691 | 0.1+ | 0.1+ | 2007 03 15 | G96 | 0.1+ | 0.1− |
| 2002 12 13 | 673 | (2.6+ | 0.1+) | 2005 11 28 | 691 | 0.1+ | 0.3− | 2007 03 15 | G96 | 0.3− | 0.2− |
| 2002 12 13 | 673 | (2.3+ | 0.1+) | 2005 11 29 | G96 | 1.4− | 0.6+ | 2007 03 15 | G96 | 0.7− | 0.2− |
| 2004 04 12 | 691 | 0.2− | 0.5+ | 2005 11 29 | G96 | 0.2+ | 0.2− | 2007 03 15 | G96 | 0.0 | 0.1− |
| 2004 04 12 | 691 | 0.3+ | 0.3+ | 2005 11 29 | G96 | 0.2+ | 0.1− | 2008 09 06 | 703 | 0.7− | 0.9+ |
| 2004 04 12 | 691 | 0.2+ | 0.1+ | 2005 11 29 | G96 | 0.7+ | 0.8− | 2008 09 06 | 703 | 0.6+ | 0.3+ |
| 2004 04 21 | 691 | 0.1+ | 0.0 | 2005 11 30 | 691 | 0.0 | 0.2+ | 2008 09 06 | 703 | 0.4+ | 1.5+ |
| 2004 04 21 | 691 | 0.3+ | 0.4+ | 2005 11 30 | 691 | 0.1+ | 0.1+ | 2008 09 06 | 703 | 0.4− | 1.6+ |
| 2004 04 21 | 691 | 0.4− | 0.0 | 2005 11 30 | 691 | 0.0 | 0.2+ | 2008 09 23 | G96 | 1.2− | 0.2− |
| 2004 07 16 | 807 | 0.4+ | 0.2− | 2005 11 30 | 691 | 0.2+ | 0.1− | 2008 09 23 | G96 | 0.6− | 0.1− |
| 2004 07 16 | 807 | 0.2+ | 0.7− | 2005 11 30 | 691 | 0.0 | 0.2+ | 2008 09 23 | G96 | 0.6− | 0.1+ |
| 2005 10 29 | G96 | 0.4− | 0.3− | 2005 11 30 | 691 | 0.1− | 0.2+ | 2008 09 23 | G96 | 1.0− | 0.1− |
| 2005 10 29 | G96 | 0.2− | 0.5− | 2007 01 28 | G96 | 0.1− | 0.3− | 2008 09 29 | 703 | 1.8+ | 0.7− |
| 2005 10 29 | G96 | 0.0 | 0.2+ | 2007 01 28 | G96 | 1.0− | 0.9− | 2008 09 29 | 703 | 0.2− | 0.0 |
| 2005 10 29 | G96 | 0.4− | 0.1− | 2007 01 28 | G96 | 0.2− | 0.3− | 2008 09 29 | 703 | 0.4− | 0.2+ |
| 2005 10 31 | 691 | 0.2− | 0.1+ | 2007 01 28 | G96 | 0.0 | 0.4− | 2008 09 29 | 703 | 1.9+ | 0.5− |

**2008 RL$_{133}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 121.65547 | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.22485217 | $\omega$ | 62.58598 | | +0.95797951 | | +0.21840311 | |
| $a$ | 2.6783747 | $\Omega$ | 284.31147 | | −0.27949133 | | +0.85651035 | |
| $e$ | 0.1570358 | $i$ | 11.06368 | | +0.06449686 | | +0.46764314 | |
| $P$ | 4.38 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 4 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 12 20 | 691 | 0.4− | 0.2+ | 2008 09 09 | 703 | 0.4+ | 0.4− | 2008 10 06 | 703 | 0.0 | 0.0 |
| 2000 12 20 | 691 | 0.4− | 0.1+ | 2008 09 28 | 703 | 1.4− | 0.2+ | 2008 10 06 | 703 | 0.2− | 0.2+ |
| 2000 12 20 | 691 | 0.1+ | 0.6− | 2008 09 28 | 703 | 0.5+ | 0.2− | 2008 10 06 | 703 | 0.9− | 0.1+ |
| 2000 12 30 | 691 | 0.2+ | 0.4− | 2008 09 28 | 703 | 0.7− | 0.4− | 2008 10 06 | 703 | 0.5− | 0.3+ |
| 2000 12 30 | 691 | 0.2+ | 0.2+ | 2008 09 28 | 703 | 0.7+ | 0.2− | 2008 10 28 | 704 | 0.4+ | 0.6+ |
| 2000 12 30 | 691 | 0.2+ | 0.4+ | 2008 10 06 | 703 | 1.2+ | 0.3+ | 2008 10 28 | 704 | 0.1− | 0.1+ |
| 2008 09 09 | 703 | 0.1+ | 1.8− | 2008 10 06 | 703 | 0.0 | 0.4+ | 2008 10 28 | 704 | 0.1− | 1.0+ |
| 2008 09 09 | 703 | 0.6− | 0.9+ | 2008 10 06 | 703 | 0.1− | 0.5− | 2008 10 28 | 704 | 0.2− | 0.2+ |
| 2008 09 09 | 703 | 0.6+ | 0.3− | 2008 10 06 | 703 | 0.9+ | 0.3− | | | | |

**2008 RM$_{133}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 110.62664 | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.26113512 | $\omega$ | 305.78142 | | +0.94772267 | | −0.30591529 | |
| $a$ | 2.4241483 | $\Omega$ | 72.18446 | | +0.31479874 | | +0.84982615 | |
| $e$ | 0.1551199 | $i$ | 5.47047 | | +0.05218717 | | +0.42919850 | |
| $P$ | 3.77 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 1 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 08 08 | 644 | 0.3− | 0.1+ | 2007 04 18 | 691 | 0.1+ | 0.1+ | 2008 10 01 | 703 | 0.6− | 0.1− |
| 2004 08 08 | 644 | 0.2− | 0.1+ | 2007 04 18 | 691 | 0.2− | 0.3− | 2008 10 01 | 703 | 0.9− | 0.6− |
| 2004 08 08 | 644 | 0.1+ | 0.0 | 2008 09 06 | 703 | 1.5+ | 0.3+ | 2008 10 01 | 703 | 0.3+ | 0.2− |
| 2004 08 22 | E12 | 0.5+ | 0.4− | 2008 09 06 | 703 | 0.6+ | 0.9+ | 2008 10 01 | 703 | 0.3− | 0.9+ |
| 2004 08 22 | E12 | 0.1+ | 0.3− | 2008 09 06 | 703 | 0.9+ | 0.9+ | 2008 10 01 | 703 | 0.4− | 0.0 |
| 2004 08 22 | E12 | 0.0 | 0.0 | 2008 09 06 | 703 | (1.7+ | 2.2+) | 2008 10 01 | 703 | 0.1+ | 0.4+ |
| 2004 08 22 | E12 | 0.1+ | 0.5− | 2008 09 20 | 703 | 0.8+ | 0.0 | 2008 10 27 | 703 | 0.3− | 0.3− |
| 2006 01 26 | 703 | 0.9+ | 0.7− | 2008 09 20 | 703 | 0.7+ | 0.2+ | 2008 10 27 | 703 | 0.1− | 0.3+ |
| 2006 01 26 | 703 | 0.2+ | 0.2− | 2008 09 20 | 703 | 0.5+ | 0.5− | 2008 10 27 | 703 | 0.1− | 0.6− |
| 2006 01 26 | 703 | 0.7− | 0.8− | 2008 09 20 | 703 | 0.8− | 0.1− | 2008 10 27 | 703 | 0.0 | 0.8− |
| 2006 01 26 | 703 | 0.5− | 0.9+ | 2008 10 01 | 703 | 1.0− | 0.6− | | | | |
| 2007 04 18 | 691 | 0.1+ | 0.2+ | 2008 10 01 | 703 | 0.8− | 0.0 | | | | |

**2008 RD$_{134}$ = 2006 BK$_{188}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 89.50249 | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.22094303 | $\omega$ | 262.43835 | | +0.95165416 | | −0.28948063 | |
| $a$ | 2.7098745 | $\Omega$ | 114.34274 | | +0.30696551 | | +0.88399610 | |
| $e$ | 0.0880011 | $i$ | 6.47469 | | +0.01124843 | | +0.36708563 | |
| $P$ | 4.46 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 1 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1993 03 30 | 691 | 0.8+ | 0.8+ | 2007 05 11 | G96 | 0.4− | 0.5+ | 2009 10 30 | G96 | 0.4+ | 0.1+ |
| 1993 03 30 | 691 | 1.1− | 0.8− | 2008 09 06 | 703 | 0.6+ | 1.0+ | 2009 10 30 | G96 | 1.0− | 0.4− |
| 2006 01 28 | 691 | 0.2+ | 0.3+ | 2008 09 06 | 703 | 0.1− | 1.1+ | 2009 10 30 | G96 | 0.1− | 0.4− |
| 2006 01 28 | 691 | 0.0 | 0.1+ | 2008 09 06 | 703 | (1.8− | 0.5+) | 2009 11 16 | G96 | 0.3+ | 0.1− |
| 2006 01 28 | 691 | 0.2+ | 0.6− | 2008 09 06 | 703 | 0.2− | 0.6+ | 2009 11 16 | G96 | 0.0 | 0.1− |
| 2006 02 01 | 691 | 0.1+ | 0.2+ | 2008 09 20 | 703 | (0.7− | 2.8+) | 2009 11 16 | G96 | 0.1+ | 0.2+ |
| 2006 02 01 | 691 | 0.4+ | 0.2+ | 2008 09 20 | 703 | 0.1− | 0.3+ | 2009 11 16 | G96 | 0.2− | 0.1− |
| 2006 02 01 | 691 | 0.1− | 0.2+ | 2008 09 20 | 703 | (2.0+ | 0.8+) | 2009 12 15 | G96 | (1.6− | 0.2−) |
| 2006 02 25 | 691 | 0.2+ | 0.1+ | 2008 09 20 | 703 | 0.2+ | 0.5− | 2009 12 15 | G96 | 0.1− | 0.5+ |
| 2006 02 25 | 691 | 0.3+ | 0.1+ | 2008 10 02 | 703 | (1.7+ | 1.0+) | 2009 12 15 | G96 | 0.9+ | 0.2+ |
| 2006 02 25 | 691 | 0.2+ | 0.2+ | 2008 10 02 | 703 | 0.1− | 0.9+ | 2009 12 15 | G96 | 0.1− | 0.0 |
| 2007 05 11 | G96 | 0.4− | 0.0 | 2008 10 02 | 703 | 0.1+ | 1.0+ | 2009 12 25 | 691 | 0.1− | 0.3− |
| 2007 05 11 | G96 | 0.3− | 0.1+ | 2008 10 02 | 703 | 0.7− | 0.8− | 2009 12 25 | 691 | 0.8− | 0.1− |
| 2007 05 11 | G96 | 0.1− | 0.4+ | 2009 10 30 | G96 | 0.1+ | 0.0 | 2009 12 25 | 691 | 0.1− | 0.2+ |

**2008 RE$_{134}$ = 2000 WM$_{122}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 62.74353 | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.23411203 | $\omega$ | 300.24447 | | +0.42027696 | | −0.89980222 | |
| $a$ | 2.6072753 | $\Omega$ | 124.44642 | | +0.87368540 | | +0.36641432 | |
| $e$ | 0.1810692 | $i$ | 8.16676 | | +0.24503284 | | +0.23684702 | |
| $P$ | 4.21 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 2 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 01 31 | 557 | 0.3− | 0.1− | 2000 11 30 | 704 | 0.7− | 0.7− | 2008 09 06 | 703 | 0.6+ | 0.7+ |
| 1997 01 31 | 557 | 0.7− | 0.8− | 2000 11 30 | 704 | 0.4− | 0.9+ | 2008 09 06 | 703 | 0.9− | 0.2+ |
| 1997 01 31 | 557 | 0.7+ | 0.6− | 2000 11 30 | 704 | 0.2+ | 1.2+ | 2008 09 06 | 703 | 0.5+ | 0.9+ |
| 1997 02 01 | 557 | 0.0 | 0.0 | 2006 01 23 | 291 | 0.3+ | 0.4+ | 2008 10 02 | 703 | (1.7− | 1.8+) |
| 1997 02 01 | 557 | 0.2+ | 0.2− | 2006 01 23 | 291 | 0.2+ | 0.6+ | 2008 10 02 | 703 | (2.7− | 2.0+) |
| 2000 11 29 | 704 | 0.2+ | 1.3− | 2006 01 23 | 291 | 0.2+ | 0.6+ | 2008 10 02 | 703 | (0.3+ | 2.6+) |
| 2000 11 29 | 704 | 0.1− | 0.1− | 2006 02 24 | 644 | 0.1+ | 0.9− | 2008 10 02 | 703 | (1.3− | 2.9+) |
| 2000 11 29 | 704 | 0.3+ | 0.0 | 2006 02 24 | 644 | 0.5− | 0.3− | 2008 10 27 | 703 | (1.8− | 0.9+) |
| 2000 11 29 | 704 | 0.1+ | 0.2+ | 2006 02 24 | 644 | 0.7− | 0.4− | 2008 10 27 | 703 | (0.9− | 2.5+) |
| 2000 11 30 | 704 | 0.5+ | 0.7+ | 2008 09 06 | 703 | 1.2− | 0.6+ | 2008 10 27 | 703 | (2.2− | 0.0 ) |

**2008 RF$_{134}$ = 1998 TT$_{32}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 124.14155 | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.29178426 | $\omega$ | 229.29742 | | +0.95638930 | | −0.28536163 | |
| $a$ | 2.2512729 | $\Omega$ | 147.14293 | | +0.29044979 | | +0.90645386 | |
| $e$ | 0.1941913 | $i$ | 6.59970 | | +0.03095844 | | +0.31130394 | |
| $P$ | 3.38 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 1 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 10 12 | 699 | 0.8+ | 0.9+ | 2003 01 28 | 645 | 0.1− | 0.1+ | 2008 09 06 | 703 | 0.5− | 0.5− |
| 1998 10 12 | 699 | 0.1− | 0.9+ | 2003 02 22 | 699 | 1.4+ | 0.4+ | 2008 09 06 | 703 | 0.7− | 0.3+ |
| 1998 10 12 | 699 | 0.5− | 0.2− | 2003 02 22 | 699 | 0.2− | 0.1+ | 2008 09 06 | 703 | 0.4− | 0.6+ |
| 1998 10 17 | 699 | 0.9− | 0.2− | 2003 02 22 | 699 | 1.9+ | 1.9+ | 2008 09 20 | 703 | 0.1+ | 0.6+ |
| 1998 10 17 | 699 | 0.1− | 0.4+ | 2003 02 22 | 699 | 1.0+ | 0.6+ | 2008 09 20 | 703 | 0.8+ | 0.6− |
| 1998 10 17 | 699 | 0.4− | 0.3+ | 2003 03 06 | 644 | 0.6+ | 0.4+ | 2008 09 20 | 703 | 0.9+ | 0.0 |
| 2001 07 27 | 608 | 0.3+ | 0.0 | 2003 03 06 | 644 | 0.7+ | 0.2− | 2008 09 20 | 703 | 0.4− | 0.7+ |
| 2001 07 27 | 608 | 0.4+ | 0.2− | 2003 03 06 | 644 | 1.4+ | 0.2+ | 2008 10 09 | 703 | 0.5+ | 0.1− |
| 2001 07 27 | 608 | 0.5+ | 0.0 | 2004 06 10 | 599 | 0.5− | 1.4+ | 2008 10 09 | 703 | 0.8− | 0.3− |
| 2002 12 07 | 645 | 0.1− | 0.0 | 2004 06 10 | 599 | 0.4− | 1.1+ | 2008 10 09 | 703 | 0.1+ | 0.7+ |
| 2002 12 07 | 645 | 0.0 | 0.1− | 2004 06 10 | 599 | 0.3− | 0.9+ | 2008 10 09 | 703 | 0.1− | 0.1− |
| 2003 01 28 | 645 | 0.0 | 0.0 | 2008 09 06 | 703 | 0.1− | 0.0 | | | | |

**2008 RG$_{134}$ = 2000 WS$_{162}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 95.50575 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23667032 | $\omega$ | 244.54885 | | +0.91113872 | −0.39519838 | |
| $a$ | 2.5884524 | $\Omega$ | 138.45190 | | +0.41206539 | +0.87003538 | |
| $e$ | 0.2150160 | $i$ | 10.14368 | | +0.00532407 | +0.29471455 | |
| $P$ | 4.16 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 20 | 699 | 0.2− | 0.9+ | 2006 02 24 | G96 | 0.4− | 0.0 | 2008 09 20 | 703 | 0.5+ | 0.1+ |
| 2000 11 20 | 699 | 0.4− | 0.1− | 2006 02 24 | G96 | 0.1+ | 0.1− | 2008 09 20 | 703 | 0.4+ | 0.6− |
| 2000 11 20 | 699 | 0.2− | 0.3+ | 2006 03 04 | 691 | 0.2− | 0.1+ | 2008 09 20 | 703 | 0.7− | 0.3− |
| 2000 11 20 | 699 | 0.6+ | 1.2− | 2006 03 04 | 691 | 0.5+ | 0.1− | 2008 09 20 | 703 | 0.3+ | 0.3− |
| 2000 11 26 | 704 | 1.0+ | 0.3− | 2006 03 04 | 691 | 0.1− | 0.0 | 2008 10 02 | 703 | 1.2+ | 0.7+ |
| 2000 11 26 | 704 | 0.0 | 0.8+ | 2008 09 06 | 703 | 1.1+ | 0.3+ | 2008 10 02 | 703 | 0.3+ | 0.1+ |
| 2000 11 26 | 704 | 0.7− | 0.4− | 2008 09 06 | 703 | 0.3+ | 0.4+ | 2008 10 02 | 703 | 1.5− | 0.2+ |
| 2006 02 24 | G96 | 0.2− | 0.4− | 2008 09 06 | 703 | 1.1− | 0.4− | 2008 10 02 | 703 | 0.9− | 0.6− |
| 2006 02 24 | G96 | 0.4− | 0.1− | 2008 09 06 | 703 | 0.2+ | 0.2− | | | | |

**2008 RH$_{134}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 95.17416 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26033727 | $\omega$ | 336.75538 | | +0.80402510 | −0.58808956 | |
| $a$ | 2.4290986 | $\Omega$ | 59.55792 | | +0.56025748 | +0.69989599 | |
| $e$ | 0.1042872 | $i$ | 5.83957 | | +0.19913613 | +0.40533476 | |
| $P$ | 3.79 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1993 10 11 | 809 | (2.3+ | 4.1+) | 2006 01 26 | 703 | 0.6− | 0.1− | 2008 09 20 | 703 | 0.4− | 0.3− |
| 1993 10 11 | 809 | (0.7+ | 3.4+) | 2006 02 04 | 703 | 0.5− | 0.6− | 2008 09 20 | 703 | (2.0− | 2.3+) |
| 1993 10 11 | 809 | (1.3+ | 4.6+) | 2006 02 04 | 703 | 0.8− | 0.5+ | 2008 10 08 | 703 | 0.2− | 0.6+ |
| 1999 03 21 | 645 | 0.1+ | 0.0 | 2006 02 04 | 703 | 1.2+ | 0.9+ | 2008 10 08 | 703 | 0.1+ | 0.6+ |
| 1999 03 21 | 645 | 0.1+ | 0.0 | 2006 02 04 | 703 | (1.5− | 2.9+) | 2008 10 08 | 703 | 0.7− | 0.4+ |
| 2003 05 05 | 291 | 0.5− | 0.3+ | 2007 04 14 | G96 | 0.1− | 0.1+ | 2008 10 08 | 703 | 0.1+ | 0.2+ |
| 2003 05 05 | 291 | 0.5+ | 0.2+ | 2007 04 14 | G96 | 0.1+ | 0.1− | 2008 10 08 | 703 | 1.1− | 1.0+ |
| 2003 05 05 | 291 | 0.3+ | 0.3+ | 2007 04 14 | G96 | 0.2− | 0.0 | 2008 10 08 | 703 | 0.2+ | 0.1+ |
| 2004 08 23 | 699 | 1.2− | 1.4− | 2007 04 14 | G96 | 0.0 | 0.0 | 2008 10 08 | 703 | 0.8− | 0.4− |
| 2004 08 23 | 699 | 0.1+ | 0.3− | 2008 09 06 | 703 | 0.2− | 1.5+ | 2008 10 08 | 703 | 1.0− | 1.0+ |
| 2004 08 23 | 699 | 1.3+ | 1.9− | 2008 09 06 | 703 | 0.0 | 0.3+ | 2008 12 03 | G96 | 0.1+ | 0.1+ |
| 2004 08 23 | 699 | 1.0− | 0.2+ | 2008 09 06 | 703 | 1.9+ | 1.4+ | 2008 12 03 | G96 | 0.6+ | 0.0 |
| 2006 01 26 | 703 | 0.5+ | 0.8+ | 2008 09 06 | 703 | 0.1+ | 0.6+ | 2008 12 03 | G96 | 0.2+ | 0.3+ |
| 2006 01 26 | 703 | 0.3+ | 0.6− | 2008 09 20 | 703 | 0.3+ | 0.2+ | 2008 12 03 | G96 | 0.2+ | 0.2− |
| 2006 01 26 | 703 | 1.4− | 0.4− | 2008 09 20 | 703 | 0.0 | 0.5− | | | | |

**2008 RJ$_{134}$ = 2005 XT$_{87}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 107.04413 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.29637077 | $\omega$ | 291.78347 | | +0.66803155 | −0.73138158 | |
| $a$ | 2.2279861 | $\Omega$ | 115.54687 | | +0.72648554 | +0.60110696 | |
| $e$ | 0.1474154 | $i$ | 8.74463 | | +0.16109814 | +0.32210464 | |
| $P$ | 3.33 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 07 23 | 608 | 0.3+ | 0.3+ | 2005 12 30 | 704 | (1.7+ | 1.1−) | 2008 10 09 | 703 | 0.3− | 0.7− |
| 2001 07 23 | 608 | 0.2+ | 0.1+ | 2005 12 30 | 704 | 0.7− | 0.4+ | 2008 10 09 | 703 | 0.6+ | 1.2+ |
| 2001 07 23 | 608 | 0.5− | 0.1+ | 2005 12 30 | 704 | 0.8+ | 0.5+ | 2008 10 09 | 703 | 0.0 | 0.3+ |
| 2003 02 12 | 608 | 0.8+ | 0.2+ | 2005 12 30 | 704 | 0.2− | 0.4+ | 2008 10 09 | 703 | 0.3+ | 0.2+ |
| 2003 02 12 | 608 | 0.5− | 0.2− | 2005 12 30 | 704 | 0.1+ | 0.0 | 2008 10 09 | 703 | 0.5− | 0.3+ |
| 2003 02 12 | 608 | 0.2− | 0.7+ | 2008 09 07 | 703 | 0.4− | 0.5+ | 2008 10 09 | 703 | 0.1− | 1.2+ |
| 2003 03 07 | 644 | 0.2+ | 0.6+ | 2008 09 07 | 703 | (1.6− | 0.5+) | 2008 10 09 | 703 | 0.4+ | 0.3+ |
| 2003 03 07 | 644 | 0.2− | 0.3+ | 2008 09 07 | 703 | 0.0 | 0.5+ | 2008 10 09 | 703 | 0.1− | 0.0 |
| 2003 03 07 | 644 | 0.0 | 0.2+ | 2008 09 07 | 703 | 0.5+ | 0.4+ | 2008 10 27 | 703 | 0.1− | 0.8− |
| 2005 12 08 | 704 | 0.3+ | 0.4− | 2008 09 20 | 703 | 0.3+ | 0.8− | 2008 10 27 | 703 | 0.5− | 0.0 |
| 2005 12 08 | 704 | 0.4− | 0.3− | 2008 09 20 | 703 | 0.8− | 0.8− | 2008 10 27 | 703 | 0.4− | 0.5− |
| 2005 12 08 | 704 | 0.2+ | 0.9− | 2008 09 20 | 703 | (0.6+ | 1.6+) | 2008 10 27 | 703 | 0.3− | 0.4+ |
| 2005 12 08 | 704 | 0.3+ | 0.3− | 2008 09 20 | 703 | 0.5+ | 0.4− | | | | |

**2008 RN$_{134}$ = 2003 QM$_{65}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 79.65586 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19870112 | $\omega$ | 337.91584 | | +0.99112936 | −0.13141492 | |
| $a$ | 2.9085007 | $\Omega$ | 29.65679 | | +0.12713838 | +0.89412544 | |
| $e$ | 0.1827838 | $i$ | 2.29531 | | +0.03870945 | +0.42810025 | |
| $P$ | 4.96 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 03 24 | 691 | 0.1+ | 0.4+ | 2003 09 01 | 704 | 0.6− | 0.4+ | 2008 09 20 | 703 | 1.2+ | 1.0+ |
| 2001 03 24 | 691 | 0.4+ | 0.1− | 2003 09 01 | 704 | 0.2+ | 0.1− | 2008 09 20 | 703 | 1.5− | 0.4+ |
| 2001 03 24 | 691 | 0.0 | 0.0 | 2006 02 20 | 691 | 0.3+ | 0.4+ | 2008 09 20 | 703 | 0.6+ | 0.8+ |
| 2003 08 25 | 644 | 0.4− | 0.1+ | 2006 02 20 | 691 | 0.2− | 0.0 | 2008 09 20 | 703 | 0.6− | 1.3− |
| 2003 08 25 | 644 | 0.5− | 0.1+ | 2006 02 20 | 691 | 0.1+ | 0.2+ | 2008 09 23 | G96 | 1.1− | 0.6− |
| 2003 08 25 | 644 | 1.3− | 0.0 | 2006 03 02 | 691 | 0.1− | 0.4+ | 2008 09 23 | G96 | 0.0 | 0.5− |
| 2003 08 26 | 704 | 0.5− | 0.8+ | 2006 03 02 | 691 | 0.1− | 0.1+ | 2008 09 23 | G96 | 0.8+ | 0.4− |
| 2003 08 26 | 704 | 0.7− | 0.6+ | 2006 03 02 | 691 | 0.1+ | 0.2+ | 2008 09 23 | G96 | 0.4− | 0.0 |
| 2003 08 26 | 704 | 0.6+ | 0.7+ | 2008 09 07 | 703 | 1.0+ | 1.4+ | 2009 11 11 | G96 | 0.3+ | 0.4+ |
| 2003 09 01 | 704 | 0.3+ | 0.5+ | 2008 09 07 | 703 | 0.1+ | 0.6+ | 2009 11 11 | G96 | 0.1+ | 0.8+ |
| 2003 09 01 | 704 | 0.6+ | 0.8+ | 2008 09 07 | 703 | (0.9− | 1.6+) | 2009 11 11 | G96 | 0.1+ | 0.8+ |
| 2003 09 01 | 704 | 0.2− | 0.2− | 2008 09 07 | 703 | 0.1− | 0.5+ | 2009 11 11 | G96 | 0.1− | 0.5+ |

**2008 RP$_{134}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 201.01470 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28533877 | $\omega$ | 62.23678 | | +0.23123517 | +0.97065837 | |
| $a$ | 2.2850491 | $\Omega$ | 221.30534 | | −0.92410137 | +0.19792528 | |
| $e$ | 0.1422921 | $i$ | 5.73632 | | −0.30424818 | +0.13655738 | |
| $P$ | 3.45 | $H$ | 17.4 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 02 12 | 645 | 0.0 | 0.0 | 2005 10 25 | G96 | 0.4− | 0.0 | 2008 09 23 | 691 | (2.1− | 2.1+) |
| 2000 02 12 | 645 | 0.0 | 0.1+ | 2005 11 06 | 691 | 0.7− | 0.4+ | 2008 10 02 | 691 | 0.2− | 0.2+ |
| 2001 11 12 | 645 | 0.0 | 0.1− | 2005 11 06 | 691 | 0.3+ | 0.0 | 2008 10 02 | 691 | 0.0 | 0.0 |
| 2001 11 12 | 645 | 0.1+ | 0.0 | 2005 11 06 | 691 | 0.2+ | 0.1− | 2008 10 02 | 691 | 0.3+ | 0.2+ |
| 2001 11 18 | 645 | 0.1+ | 0.1− | 2008 09 05 | 691 | 0.0 | 0.4+ | 2008 10 26 | G96 | 0.1+ | 0.1− |
| 2001 11 18 | 645 | 0.0 | 0.2− | 2008 09 05 | 691 | 0.5− | 0.5+ | 2008 10 26 | G96 | 0.3+ | 0.1− |
| 2005 10 25 | G96 | 0.2− | 0.0 | 2008 09 05 | 691 | 0.1− | 0.3+ | 2008 10 26 | G96 | 0.6+ | 0.1+ |
| 2005 10 25 | G96 | 0.5+ | 0.4− | 2008 09 23 | 691 | 0.1− | 0.2+ | 2008 10 26 | G96 | 0.2+ | 0.1+ |
| 2005 10 25 | G96 | 0.1+ | 0.3− | 2008 09 23 | 691 | 0.3− | 0.2+ | | | | |

**2008 SH$_2$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 94.92466 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22607154 | $\omega$ | 184.75032 | | +0.94211023 | −0.33349716 | |
| $a$ | 2.6687350 | $\Omega$ | 194.87409 | | +0.31192286 | +0.90972471 | |
| $e$ | 0.2219436 | $i$ | 7.78153 | | +0.12301398 | +0.24734714 | |
| $P$ | 4.36 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 09 19 | 691 | 0.2+ | 0.6− | 2008 09 23 | 683 | 0.9+ | 1.1+ | 2008 09 29 | 704 | 0.7− | 1.6+ |
| 1995 09 19 | 691 | 0.2+ | 0.7− | 2008 09 23 | 683 | 0.2− | 1.6+ | 2008 09 29 | 704 | 0.3− | 1.6+ |
| 1995 09 19 | 691 | 0.1+ | 0.5− | 2008 09 23 | 683 | (0.2+ | 2.5+) | 2008 10 03 | J75 | 0.9+ | 0.3− |
| 2006 03 05 | 691 | 0.1+ | 0.5+ | 2008 09 24 | 704 | 0.6+ | 0.9+ | 2008 10 03 | J75 | 0.4− | 1.5− |
| 2006 03 05 | 691 | 0.1− | 1.0+ | 2008 09 24 | 703 | 0.5+ | 0.2+ | 2008 10 03 | J75 | 0.2− | 0.4− |
| 2006 03 05 | 691 | 0.5+ | 0.3+ | 2008 09 24 | 703 | 0.4+ | 0.1− | 2008 11 02 | G96 | 0.6+ | 0.5− |
| 2008 08 24 | 691 | 0.1− | 0.1+ | 2008 09 24 | 704 | 0.0 | 0.6+ | 2008 11 02 | G96 | 0.5+ | 0.3− |
| 2008 08 24 | 691 | 0.1− | 0.4+ | 2008 09 24 | 703 | 0.2− | 0.6+ | 2008 11 02 | G96 | 0.2− | 0.2− |
| 2008 08 24 | 691 | 0.2− | 0.1+ | 2008 09 24 | 703 | 0.1+ | 0.1+ | 2008 11 02 | G96 | 0.2+ | 0.5− |
| 2008 09 05 | 691 | 0.1− | 0.1+ | 2008 09 24 | 704 | 0.4− | 0.6+ | 2008 12 03 | G96 | 1.0− | 0.1+ |
| 2008 09 05 | 691 | 0.2− | 0.1+ | 2008 09 24 | 704 | 0.4+ | 0.6+ | 2008 12 03 | G96 | 0.8− | 0.1− |
| 2008 09 05 | 691 | 0.3− | 0.9− | 2008 09 24 | 704 | 0.2+ | 0.5+ | 2008 12 03 | G96 | 0.4− | 0.1− |
| 2008 09 22 | 683 | 0.3+ | 1.4+ | 2008 09 29 | 704 | 0.5− | 2.0+ | 2008 12 03 | G96 | 0.4− | 0.1+ |
| 2008 09 22 | 683 | 0.1+ | 1.3+ | 2008 09 29 | 704 | 0.8− | 1.8+ | | | | |
| 2008 09 22 | 683 | (0.4+ | 3.8+) | 2008 09 29 | 704 | (0.3− | 2.2+) | | | | |

**2008 SC$_8$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 136.47440 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.29476251 | $\omega$ | 100.12942 | | +0.99819800 | +0.03206278 | |
| $a$ | 2.2360828 | $\Omega$ | 258.04647 | | −0.04925493 | +0.92059924 | |
| $e$ | 0.2291184 | $i$ | 2.97190 | | +0.03427386 | +0.38919021 | |
| $P$ | 3.34 | $H$ | 18.3 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 04 | 691 | 0.2− | 0.0 | 2008 09 07 | 703 | 0.6− | 0.2+ | 2008 09 29 | 704 | 0.2− | 0.2− |
| 2005 12 04 | 691 | 0.1− | 0.1+ | 2008 09 07 | 703 | 0.8− | 1.1+ | 2008 09 29 | 704 | 0.2− | 0.5+ |
| 2005 12 04 | 691 | 0.4+ | 0.1+ | 2008 09 23 | 152 | 0.3+ | 1.2− | 2008 09 29 | 704 | 0.2− | 1.0+ |
| 2005 12 25 | G96 | 0.3+ | 0.3− | 2008 09 23 | 152 | 0.1+ | 0.5− | 2008 09 29 | 704 | 0.3− | 0.7− |
| 2005 12 25 | G96 | 0.5− | 0.1+ | 2008 09 23 | 152 | 0.2+ | 0.2+ | 2008 09 29 | 704 | 0.7− | 0.0 |
| 2005 12 25 | G96 | 0.3− | 0.2− | 2008 09 23 | 152 | 0.2− | 0.0 | 2008 10 01 | G96 | 0.1+ | 0.3− |
| 2005 12 25 | G96 | 0.1− | 0.4− | 2008 09 24 | 152 | 0.9+ | 0.2− | 2008 10 01 | G96 | 0.1+ | 0.2− |
| 2008 09 07 | 703 | 0.8+ | 0.3+ | 2008 09 24 | 152 | 0.5+ | 0.1+ | 2008 10 01 | G96 | 0.0 | 0.1− |
| 2008 09 07 | 703 | 0.0 | 0.4− | 2008 09 24 | 152 | 0.2− | 0.5+ | 2008 10 01 | G96 | 0.4+ | 0.1− |

**2008 SV$_{17}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 108.56459 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19572910 | $\omega$ | 115.93809 | | +0.77871189 | +0.62660065 | |
| $a$ | 2.9378692 | $\Omega$ | 205.29903 | | −0.59862750 | +0.72716836 | |
| $e$ | 0.1115010 | $i$ | 4.19971 | | −0.18775760 | +0.28035298 | |
| $P$ | 5.04 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 27 | 691 | 0.0 | 0.0 | 2008 09 19 | 691 | 0.4− | 0.2+ | 2008 10 24 | G96 | 0.1− | 0.3+ |
| 2003 09 27 | 691 | 0.2− | 0.1+ | 2008 09 19 | 691 | 0.0 | 0.0 | 2009 11 10 | 691 | 0.2+ | 0.4− |
| 2003 09 27 | 691 | 0.0 | 0.2+ | 2008 09 23 | 691 | 0.2+ | 0.1+ | 2009 11 10 | 691 | 0.3− | 0.0 |
| 2006 02 02 | 691 | 0.2+ | 0.4+ | 2008 09 23 | 691 | 0.2− | 0.0 | 2009 11 10 | 691 | 0.0 | 0.4− |
| 2006 02 02 | 691 | 0.1+ | 0.6+ | 2008 09 23 | 691 | 0.0 | 0.0 | 2009 11 22 | 691 | 0.4− | 0.4+ |
| 2006 02 02 | 691 | 0.5+ | 0.7+ | 2008 09 25 | 691 | 0.0 | 0.7+ | 2009 11 22 | 691 | 0.0 | 0.1− |
| 2007 05 10 | G96 | 0.2− | 0.3+ | 2008 09 25 | 691 | 0.1+ | 0.2+ | 2009 11 22 | 691 | 0.1− | 0.0 |
| 2007 05 10 | G96 | 0.4+ | 0.1− | 2008 09 25 | 691 | 0.0 | 0.2+ | 2009 12 11 | G96 | 0.4+ | 0.3− |
| 2007 05 10 | G96 | 0.5− | 0.5− | 2008 10 24 | G96 | 0.2− | 0.0 | 2009 12 11 | G96 | 0.4+ | 0.2− |
| 2007 05 10 | G96 | 0.6− | 0.3− | 2008 10 24 | G96 | 0.3− | 0.1+ | 2009 12 11 | G96 | 0.3+ | 0.3− |
| 2008 09 19 | 691 | 0.3+ | 0.1− | 2008 10 24 | G96 | 0.2− | 0.1+ | 2009 12 11 | G96 | 0.3+ | 0.3− |

**2008 SL$_{22}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 55.53777 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18926548 | $\omega$ | 175.56867 | | +0.89162354 | −0.45219028 | |
| $a$ | 3.0043817 | $\Omega$ | 211.34836 | | +0.41404150 | +0.83489077 | |
| $e$ | 0.1007875 | $i$ | 2.53967 | | +0.18324055 | +0.31381740 | |
| $P$ | 5.21 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 18 | 691 | 0.1− | 0.0 | 2006 03 04 | 691 | 0.6+ | 0.5− | 2008 09 19 | 691 | 0.1− | 0.1− |
| 2003 09 18 | 691 | 0.2− | 0.0 | 2006 03 25 | 291 | 0.1− | 0.6+ | 2008 09 19 | 691 | 0.0 | 0.3+ |
| 2003 09 18 | 691 | 0.1− | 0.0 | 2006 03 25 | 291 | 0.1+ | 0.4+ | 2008 09 21 | 691 | 0.5+ | 0.0 |
| 2003 09 29 | 691 | 0.1+ | 0.0 | 2006 03 25 | 291 | 0.1− | 0.4+ | 2008 09 21 | 691 | 0.2− | 0.6+ |
| 2003 09 29 | 691 | 0.0 | 0.3+ | 2008 09 04 | 691 | 0.1+ | 0.1− | 2008 09 21 | 691 | 0.1− | 0.0 |
| 2003 09 29 | 691 | 0.1+ | 0.2+ | 2008 09 04 | 691 | 0.3+ | 0.3− | 2008 09 25 | 691 | 0.1− | 0.1+ |
| 2006 03 04 | 691 | 0.3− | 0.6− | 2008 09 04 | 691 | 0.1− | 0.3− | 2008 09 25 | 691 | 0.0 | 0.5+ |
| 2006 03 04 | 691 | 0.0 | 0.1+ | 2008 09 19 | 691 | 0.6− | 0.3− | 2008 09 25 | 691 | 0.2+ | 0.4− |

**2008 SL$_{27}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 54.13522 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21413972 | $\omega$ | 230.64504 | | +0.51153340 | −0.85923655 | |
| $a$ | 2.7669707 | $\Omega$ | 188.59689 | | +0.80167422 | +0.48007967 | |
| $e$ | 0.0740054 | $i$ | 2.60414 | | +0.30927662 | +0.17673725 | |
| $P$ | 4.60 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 10 19 | 691 | 0.1− | 0.3− | 2008 09 03 | 691 | 0.1+ | 0.1+ | 2008 10 17 | 691 | 0.3+ | 0.0 |
| 1999 10 19 | 691 | 0.3+ | 0.1+ | 2008 09 03 | 691 | 0.2+ | 0.0 | 2008 10 24 | G96 | 0.9+ | 0.3− |
| 1999 10 19 | 691 | 0.1− | 0.3− | 2008 09 19 | 691 | 0.2+ | 0.3− | 2008 10 24 | G96 | 0.2+ | 0.2− |
| 2004 12 13 | 691 | 0.1− | 0.0 | 2008 09 19 | 691 | 0.3− | 0.2+ | 2008 10 24 | G96 | 0.3+ | 0.2− |
| 2004 12 13 | 691 | 0.1+ | 0.2+ | 2008 09 19 | 691 | 0.5− | 0.2− | 2008 10 24 | G96 | 0.5+ | 0.2− |
| 2004 12 13 | 691 | 0.0 | 0.1+ | 2008 09 24 | 691 | 0.3− | 0.1− | 2008 11 24 | G96 | 0.5− | 0.3− |
| 2008 08 24 | 691 | 0.0 | 0.2+ | 2008 09 24 | 691 | 0.0 | 0.2− | 2008 11 24 | G96 | 0.7− | 0.0 |
| 2008 08 24 | 691 | 0.2− | 0.2− | 2008 09 24 | 691 | 0.2+ | 0.3+ | 2008 11 24 | G96 | 0.2− | 0.3− |
| 2008 08 24 | 691 | 0.5− | 0.2+ | 2008 10 17 | 691 | 0.6+ | 0.4+ | 2008 11 24 | G96 | 0.4− | 0.1− |
| 2008 09 03 | 691 | 0.1− | 0.2+ | 2008 10 17 | 691 | 0.1− | 0.1+ | | | | |

**2008 SZ$_{31}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 97.88478 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21521724 | $\omega$ | 26.24093 | | +0.95641775 | −0.28994568 | |
| $a$ | 2.7577275 | $\Omega$ | 350.41873 | | +0.21774409 | +0.78710446 | |
| $e$ | 0.1371105 | $i$ | 11.99495 | | +0.19455746 | +0.54442454 | |
| $P$ | 4.58 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 02 25 | 691 | 0.0 | 0.3+ | 2008 09 25 | 691 | 0.1+ | 0.1+ | 2008 10 24 | 703 | 0.4− | 1.5+ |
| 2006 02 25 | G96 | 0.1− | 0.4− | 2008 09 25 | 691 | 0.1+ | 0.3− | 2008 10 24 | 703 | 0.4+ | 0.0 |
| 2006 02 25 | 691 | 0.0 | 0.1+ | 2008 10 02 | 704 | 0.2+ | 0.3+ | 2008 10 24 | 703 | 0.1+ | 0.3− |
| 2006 02 25 | G96 | 0.4+ | 0.8− | 2008 10 02 | 704 | 0.0 | 0.0 | 2008 10 24 | 703 | 1.6− | 1.6− |
| 2006 02 25 | G96 | 0.2− | 0.5− | 2008 10 02 | 704 | 0.0 | 0.5+ | 2008 10 31 | G96 | 0.1− | 0.4− |
| 2006 02 25 | G96 | 0.3− | 0.1− | 2008 10 02 | 704 | 0.3− | 0.4+ | 2008 10 31 | G96 | 0.1− | 0.3− |
| 2006 02 25 | 691 | 0.1+ | 0.1+ | 2008 10 02 | 703 | 1.6+ | 0.1+ | 2008 10 31 | G96 | 0.0 | 0.2− |
| 2008 09 20 | 691 | 0.0 | 0.0 | 2008 10 02 | 703 | 1.4+ | 1.2+ | 2008 10 31 | G96 | 0.1+ | 0.4− |
| 2008 09 20 | 691 | 0.1+ | 0.3− | 2008 10 02 | 703 | 1.3+ | 1.3+ | 2008 12 02 | G96 | 0.6+ | 0.2+ |
| 2008 09 20 | 691 | 0.0 | 0.2− | 2008 10 02 | 703 | (1.2+ | 2.3+) | 2008 12 02 | G96 | 0.1+ | 0.3+ |
| 2008 09 22 | 691 | 0.4− | 0.3+ | 2008 10 10 | G96 | 0.3+ | 0.7− | 2008 12 02 | G96 | 0.2− | 0.3+ |
| 2008 09 22 | 691 | 0.5− | 0.5+ | 2008 10 10 | G96 | 0.1+ | 0.7− | 2008 12 02 | G96 | 0.2− | 0.5+ |
| 2008 09 22 | 691 | 0.3− | 0.0 | 2008 10 10 | G96 | 0.0 | 0.8− | | | | |
| 2008 09 25 | 691 | 0.1+ | 0.2− | 2008 10 10 | G96 | 0.1− | 0.7− | | | | |

**2008 SG$_{34}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 103.46730 | | | (2000.0) | | |
| $n$ | 0.25371585 | $\omega$ | 293.41395 | | +0.94275132 | −0.33185272 |
| $a$ | 2.4711796 | $\Omega$ | 85.98055 | | +0.31680288 | +0.86016473 |
| $e$ | 0.2360269 | $i$ | 1.89987 | | +0.10419157 | +0.38728594 |
| $P$ | 3.88 | $H$ | 17.3 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 07 29 | 807 | 0.1+ | 0.4+ | 2004 09 12 | 691 | 0.2+ | 0.0 | 2008 09 20 | 703 | 1.0+ | 0.5+ |
| 2000 07 29 | 807 | 0.1− | 0.5+ | 2008 09 07 | 703 | 0.2+ | 0.9− | 2008 09 23 | G96 | 0.0 | 0.4− |
| 2004 08 21 | E12 | 0.6− | 0.1− | 2008 09 07 | 703 | 0.2− | 0.5− | 2008 09 23 | G96 | 0.1− | 0.3− |
| 2004 08 21 | E12 | 0.2− | 0.2− | 2008 09 07 | 703 | 0.3+ | 0.4+ | 2008 09 23 | G96 | 0.2+ | 0.3− |
| 2004 08 21 | E12 | 0.7− | 0.1+ | 2008 09 07 | 703 | 0.2− | 0.5+ | 2008 09 23 | G96 | 0.1+ | 0.5− |
| 2004 08 21 | E12 | 0.4+ | 0.5− | 2008 09 20 | 703 | 0.1− | 0.8− | 2008 10 08 | 291 | 0.2− | 0.2+ |
| 2004 09 12 | 691 | 0.2+ | 0.2− | 2008 09 20 | 703 | 1.4+ | 0.8− | 2008 10 08 | 291 | 0.3− | 0.3+ |
| 2004 09 12 | 691 | 0.1− | 0.2+ | 2008 09 20 | 703 | 0.1− | 0.5+ | 2008 10 08 | 291 | 0.2− | 0.2+ |

**2008 SX$_{51}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 43.37891 | | | (2000.0) | | |
| $n$ | 0.19578743 | $\omega$ | 233.28485 | | +0.30043499 | −0.95375437 |
| $a$ | 2.9372857 | $\Omega$ | 199.23810 | | +0.88408921 | +0.28222436 |
| $e$ | 0.1438445 | $i$ | 1.66288 | | +0.35794563 | +0.10345055 |
| $P$ | 5.03 | $H$ | 16.6 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 18 | 691 | 0.0 | 0.1+ | 2008 09 24 | 691 | 0.1− | 0.0 | 2008 10 09 | G96 | 0.5+ | 0.1+ |
| 2003 10 18 | 691 | 0.2− | 0.1+ | 2008 10 01 | J75 | 0.2+ | 0.5− | 2008 10 09 | G96 | 0.2+ | 0.5+ |
| 2003 10 18 | 691 | 0.0 | 0.0 | 2008 10 01 | J75 | 1.1+ | 1.0− | 2008 10 10 | G96 | 0.0 | 0.2− |
| 2006 04 28 | 807 | 0.0 | 0.0 | 2008 10 01 | J75 | 0.6+ | 0.6− | 2008 10 10 | G96 | 0.4+ | 0.0 |
| 2006 04 28 | 807 | 0.1+ | 0.1+ | 2008 10 03 | G96 | 0.0 | 1.2− | 2008 10 10 | G96 | 0.6+ | 0.2− |
| 2008 09 02 | 691 | 0.0 | 0.6+ | 2008 10 03 | G96 | 0.3− | 0.7− | 2008 10 10 | G96 | 0.1− | 0.2− |
| 2008 09 02 | 691 | 0.1− | 0.4+ | 2008 10 03 | G96 | 0.5− | 0.9− | 2008 10 27 | 691 | 0.3− | 0.1− |
| 2008 09 02 | 691 | 0.1− | 0.3− | 2008 10 03 | G96 | 0.6− | 1.0− | 2008 10 27 | 691 | 0.1− | 0.3+ |
| 2008 09 20 | G96 | 0.5+ | 0.3− | 2008 10 09 | G96 | 0.3+ | 0.3+ | 2008 10 27 | 691 | 0.1− | 0.1+ |
| 2008 09 20 | G96 | 0.4+ | 0.2− | 2008 10 09 | G96 | 0.5− | 0.3+ | 2008 11 07 | G96 | 0.2− | 0.1+ |
| 2008 09 20 | G96 | 0.2− | 0.1− | 2008 10 09 | G96 | 0.3+ | 0.0 | 2008 11 07 | G96 | 0.9+ | 0.4+ |
| 2008 09 20 | G96 | 0.1+ | 0.3− | 2008 10 09 | G96 | 0.2+ | 0.0 | 2008 11 07 | G96 | 0.2− | 0.2+ |
| 2008 09 24 | 691 | 0.1− | 0.1+ | 2008 10 09 | G96 | 0.5+ | 0.4+ | 2008 11 07 | G96 | 0.4+ | 0.2+ |
| 2008 09 24 | 691 | 0.1− | 0.0 | 2008 10 09 | G96 | 0.2− | 0.1+ | | | | |

**2008 SG$_{55}$ = 2006 FY$_{22}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 3.92089 | | | (2000.0) | | |
| $n$ | 0.22591066 | $\omega$ | 296.92600 | | −0.65567503 | −0.75102253 |
| $a$ | 2.6700019 | $\Omega$ | 194.86762 | | +0.75435059 | −0.64717178 |
| $e$ | 0.1449932 | $i$ | 17.65445 | | +0.03233331 | −0.13089629 |
| $P$ | 4.36 | $H$ | 17.1 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 03 24 | 691 | 0.0 | 0.1+ | 2006 03 26 | G96 | 0.8− | 0.1− | 2008 09 24 | 691 | 0.0 | 0.4+ |
| 2006 03 24 | 691 | 0.1+ | 0.2+ | 2006 04 07 | 691 | 0.1+ | 0.2− | 2008 10 02 | 691 | 0.2− | 0.2+ |
| 2006 03 24 | 691 | 0.1+ | 0.1− | 2006 04 07 | 691 | 0.3+ | 0.2+ | 2008 10 02 | 691 | 0.4− | 0.4+ |
| 2006 03 24 | G96 | 0.2− | 0.2− | 2006 04 07 | 691 | 0.1+ | 0.2− | 2008 10 02 | 691 | 0.0 | 0.1− |
| 2006 03 24 | G96 | 0.0 | 0.1+ | 2008 09 20 | G96 | 0.5+ | 0.2− | 2008 10 24 | G96 | 0.7+ | 0.3− |
| 2006 03 24 | G96 | 0.1+ | 0.4− | 2008 09 20 | G96 | 0.8+ | 0.6− | 2008 10 24 | G96 | 0.3− | 0.4− |
| 2006 03 24 | G96 | 0.2− | 0.2+ | 2008 09 20 | G96 | 0.1+ | 0.5− | 2008 10 24 | G96 | 0.5+ | 0.2− |
| 2006 03 26 | G96 | 0.4− | 0.2− | 2008 09 20 | G96 | 0.4+ | 0.0 | 2008 10 24 | G96 | 0.4− | 0.3− |
| 2006 03 26 | G96 | 0.9− | 0.3+ | 2008 09 24 | 691 | 0.3+ | 0.2− | | | | |
| 2006 03 26 | G96 | 0.5− | 0.2− | 2008 09 24 | 691 | 0.2− | 0.1− | | | | |

**2008 SK$_{56}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 137.60568 | | | (2000.0) | | |
| $n$ | 0.21809099 | $\omega$ | 296.55911 | | +0.88422553 | +0.46679896 |
| $a$ | 2.7334486 | $\Omega$ | 35.62025 | | −0.41841243 | +0.80654357 |
| $e$ | 0.0981010 | $i$ | 1.53667 | | −0.20754817 | +0.36274813 |
| $P$ | 4.52 | $H$ | 16.8 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 03 03 | G96 | 0.2+ | 0.3+ | 2008 10 02 | 691 | 0.5− | 0.1+ | 2008 11 07 | G96 | 0.2+ | 0.1+ |
| 2006 03 03 | G96 | 0.1+ | 0.5+ | 2008 10 02 | 691 | 0.2− | 0.1+ | 2008 11 07 | G96 | 0.0 | 0.3− |
| 2006 03 03 | G96 | 0.0 | 0.3+ | 2008 10 02 | 691 | 0.4− | 0.2+ | 2008 11 07 | G96 | 0.3+ | 0.1− |
| 2006 03 03 | G96 | 0.3+ | 0.4+ | 2008 10 10 | 691 | 0.0 | 0.0 | 2008 11 07 | G96 | 0.2+ | 0.3− |
| 2008 09 06 | G96 | 0.2+ | 0.2− | 2008 10 10 | 691 | 0.2− | 0.1− | 2008 11 07 | G96 | 0.0 | 0.2− |
| 2008 09 06 | G96 | 0.2+ | 0.1− | 2008 10 10 | 691 | 0.3− | 0.4+ | 2008 11 07 | G96 | 0.1− | 0.0 |
| 2008 09 06 | G96 | 0.3− | 0.7− | 2008 10 20 | G96 | 0.3+ | 0.0 | 2008 11 07 | G96 | 0.1+ | 0.3− |
| 2008 09 06 | G96 | 0.4+ | 0.3− | 2008 10 20 | G96 | 0.4+ | 0.3− | 2009 12 17 | G96 | 0.7+ | 0.0 |
| 2008 09 20 | G96 | 0.6+ | 0.1+ | 2008 10 20 | G96 | 0.4+ | 0.0 | 2009 12 17 | G96 | 0.5+ | 0.3− |
| 2008 09 20 | G96 | 0.2− | 0.1− | 2008 10 20 | G96 | 0.5+ | 0.1− | 2009 12 17 | G96 | 0.4− | 0.7− |
| 2008 09 20 | G96 | 0.1− | 0.2− | 2008 10 23 | G96 | 0.5+ | 0.1− | 2009 12 17 | G96 | 0.4+ | 0.7− |
| 2008 09 20 | G96 | 0.2+ | 0.1− | 2008 10 23 | G96 | 1.0+ | 0.1− | 2009 12 18 | 691 | 0.1− | 0.0 |
| 2008 09 24 | 691 | 0.0 | 0.1− | 2008 10 23 | G96 | 0.5+ | 0.1+ | 2009 12 18 | 691 | 0.1− | 0.1+ |
| 2008 09 24 | 691 | 0.1+ | 0.3+ | 2008 10 23 | G96 | 0.5+ | 0.2− | 2009 12 18 | 691 | 0.1− | 0.2+ |
| 2008 09 24 | 691 | 0.0 | 0.2+ | 2008 11 07 | G96 | 0.4+ | 0.0 | | | | |

**2008 SM$_{58}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 140.84772 | | | (2000.0) | | |
| $n$ | 0.08394314 | $\omega$ | 239.95729 | | +0.26518693 | +0.95839213 |
| $a$ | 5.1658990 | $\Omega$ | 45.82359 | | −0.82614311 | +0.28234328 |
| $e$ | 0.0088947 | $i$ | 8.47047 | | −0.49715536 | +0.04203335 |
| $P$ | 11.74 | $H$ | 13.8 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 04 12 | 644 | 0.1− | 0.2+ | 2008 09 24 | 691 | 0.4− | 0.5+ | 2009 11 25 | 691 | 0.1+ | 0.1+ |
| 2002 04 12 | 644 | 0.3+ | 0.2+ | 2008 10 23 | G96 | 0.6+ | 0.4− | 2009 11 25 | 691 | 0.1+ | 0.0 |
| 2002 04 12 | 644 | 0.2+ | 0.4+ | 2008 10 23 | G96 | 0.3+ | 0.1− | 2009 11 25 | 691 | 0.1+ | 0.1+ |
| 2007 10 16 | G96 | 0.2+ | 0.0 | 2008 10 23 | G96 | 0.5+ | 0.1− | 2009 12 16 | G96 | 0.4+ | 0.3− |
| 2007 10 16 | G96 | 0.0 | 0.2− | 2008 10 23 | G96 | 0.2− | 0.5− | 2009 12 16 | G96 | 0.3+ | 0.1+ |
| 2007 10 16 | G96 | 0.1− | 0.2− | 2008 11 09 | G96 | 0.4+ | 0.2+ | 2009 12 16 | G96 | 0.5+ | 0.4− |
| 2007 10 16 | G96 | 0.3+ | 0.0 | 2008 11 09 | G96 | 0.7+ | 0.3− | 2009 12 16 | G96 | 0.2+ | 0.3+ |
| 2008 09 20 | 691 | 0.2+ | 0.0 | 2008 11 09 | G96 | 1.1+ | 0.2+ | 2009 12 16 | G96 | 0.1− | 0.2− |
| 2008 09 20 | 691 | 0.3− | 0.3+ | 2008 11 09 | G96 | 0.8+ | 0.1− | 2009 12 16 | G96 | 0.3− | 0.3− |
| 2008 09 20 | 691 | 0.3− | 0.1− | 2009 11 09 | 691 | 0.3− | 0.2+ | 2009 12 16 | G96 | 0.4+ | 0.3− |
| 2008 09 24 | 691 | 0.4− | 0.1− | 2009 11 09 | 691 | 0.1− | 0.3− | 2009 12 16 | G96 | 0.2+ | 0.1− |
| 2008 09 24 | 691 | 0.2− | 0.2+ | 2009 11 09 | 691 | 0.2− | 0.0 | | | | |

**2008 SF$_{62}$ = 2005 ET$_{141}$ = 2009 UQ$_{102}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 32.81306 | | | (2000.0) | | |
| $n$ | 0.15701268 | $\omega$ | 78.38509 | | +0.87689085 | −0.47497921 |
| $a$ | 3.4028769 | $\Omega$ | 309.92617 | | +0.39491051 | +0.79947072 |
| $e$ | 0.0423294 | $i$ | 5.52788 | | +0.27405862 | +0.36775171 |
| $P$ | 6.28 | $H$ | 15.0 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 09 13 | 644 | 0.3− | 0.6+ | 2005 03 11 | G96 | 0.2− | 0.2+ | 2009 10 24 | 703 | 0.8− | 0.1− |
| 2002 09 13 | 644 | 0.1− | 0.2+ | 2005 03 11 | G96 | 0.3− | 0.0 | 2009 10 24 | 703 | 0.9− | 0.1− |
| 2002 09 13 | 644 | 0.1− | 0.1+ | 2006 05 30 | 291 | 0.1− | 0.4+ | 2009 10 24 | 703 | 0.9− | 0.3+ |
| 2005 01 19 | 691 | 0.4+ | 0.2− | 2006 05 30 | 291 | 0.2+ | 0.6+ | 2009 10 26 | 691 | 0.0 | 0.1+ |
| 2005 01 19 | 691 | 0.2+ | 0.2+ | 2006 05 30 | 291 | 0.6+ | 0.5+ | 2009 10 26 | 691 | 0.2− | 0.4+ |
| 2005 01 19 | 691 | 0.4+ | 0.1+ | 2008 09 09 | G96 | 0.2− | 0.1− | 2009 10 26 | 691 | 0.1+ | 0.4+ |
| 2005 03 10 | G96 | 0.3− | 0.3+ | 2008 09 09 | G96 | 0.1+ | 0.1− | 2009 11 09 | G96 | 0.7+ | 0.0 |
| 2005 03 10 | G96 | 0.1− | 0.2+ | 2008 09 09 | G96 | 0.3− | 0.1− | 2009 11 09 | G96 | 0.2+ | 0.1− |
| 2005 03 10 | G96 | 0.2− | 0.2+ | 2008 09 09 | G96 | 0.2+ | 0.1− | 2009 11 09 | G96 | 0.3+ | 0.1− |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 03 10 | G96 | 0.1− | 0.3+ | 2008 09 21 | 691 | 0.2− | 0.4+ | 2009 11 09 | G96 | 0.3+ | 0.1+ | | | |
| 2005 03 11 | G96 | 0.4− | 0.1+ | 2008 09 21 | 691 | 0.2+ | 0.1+ | 2009 11 22 | G96 | 0.3+ | 0.2+ | | | |
| 2005 03 11 | G96 | 0.2+ | 0.4+ | 2008 09 21 | 691 | 0.3+ | 0.2+ | 2009 11 22 | G96 | 0.2+ | 0.1+ | | | |
| 2005 03 11 | G96 | 0.1− | 0.0 | 2008 09 23 | 691 | 0.6− | 0.1+ | 2009 11 22 | G96 | 0.4+ | 0.1+ | | | |
| 2005 03 11 | G96 | 0.2− | 0.2+ | 2008 09 23 | 691 | 0.2− | 0.1− | 2009 11 22 | G96 | 0.5+ | 0.2+ | | | |
| 2005 03 11 | G96 | 0.5− | 0.1+ | 2008 09 23 | 691 | 0.1+ | 0.3+ | | | | | | | |
| 2005 03 11 | G96 | 0.5− | 0.0 | 2009 10 24 | 703 | 1.1− | 0.2− | | | | | | | |

**2008 SG$_{68}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 87.96458 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22683319 | $\omega$ | 92.68430 | | +0.59827727 | −0.79001453 | |
| $a$ | 2.6627577 | $\Omega$ | 319.56381 | | +0.62833161 | +0.56627451 | |
| $e$ | 0.1719474 | $i$ | 11.91816 | | +0.49725616 | +0.23496856 | |
| $P$ | 4.35 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 09 05 | 703 | 0.3− | 0.3+ | 2008 09 21 | G96 | 0.4+ | 0.5− | 2008 11 08 | 703 | 0.0 | 0.6+ | | | |
| 1999 09 05 | 703 | 0.9+ | 0.9− | 2008 09 21 | G96 | 0.2+ | 0.6− | 2008 11 08 | 703 | 0.3− | 0.4+ | | | |
| 1999 09 05 | 703 | (3.0+ | 2.3+) | 2008 09 24 | 703 | 0.5− | 0.1+ | 2008 11 08 | 703 | 0.5− | 0.1+ | | | |
| 1999 09 05 | 703 | 0.5− | 0.3+ | 2008 09 24 | 703 | 0.4− | 0.2− | 2008 11 08 | 703 | 0.5− | 0.9− | | | |
| 2005 03 11 | G96 | 1.2− | 0.8− | 2008 09 24 | 703 | 0.3− | 1.4+ | 2008 11 17 | 703 | 0.5− | 0.1− | | | |
| 2005 03 11 | G96 | 0.0 | 0.1+ | 2008 09 24 | 703 | 0.1− | 0.2+ | 2008 11 17 | 703 | (1.9− | 0.3−) | | | |
| 2005 03 11 | G96 | 0.7+ | 0.3+ | 2008 10 26 | 703 | 0.3+ | 0.5− | 2008 11 17 | 703 | 1.2+ | 0.3− | | | |
| 2005 03 11 | G96 | 0.3+ | 0.1− | 2008 10 26 | 703 | 1.1− | 0.4+ | 2008 11 17 | 703 | 0.7+ | 0.4+ | | | |
| 2008 09 21 | G96 | 0.3+ | 0.4− | 2008 10 26 | 703 | 1.0+ | 0.4+ | | | | | | | |
| 2008 09 21 | G96 | 0.2+ | 0.4− | 2008 10 26 | 703 | (1.5+ | 0.4+) | | | | | | | |

**2008 SL$_{68}$ = 2006 HA$_{59}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 358.49611 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23789721 | $\omega$ | 203.89818 | | −0.91557569 | −0.37403883 | |
| $a$ | 2.5795453 | $\Omega$ | 313.27909 | | +0.39386669 | −0.75990941 | |
| $e$ | 0.1133307 | $i$ | 11.70554 | | +0.08117995 | −0.53163206 | |
| $P$ | 4.14 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 04 21 | E12 | (1.7− | 0.7+) | 2007 10 11 | G96 | 0.2− | 0.3− | 2008 09 22 | G96 | 0.1− | 0.1+ | | | |
| 2006 04 21 | E12 | 0.9− | 0.0 | 2007 10 11 | G96 | 0.2+ | 0.1− | 2008 10 31 | 703 | 0.3+ | 0.5+ | | | |
| 2006 04 21 | E12 | 0.1+ | 1.0+ | 2007 10 11 | G96 | 0.2+ | 0.0 | 2008 10 31 | 703 | 0.9+ | 1.0+ | | | |
| 2006 04 21 | E12 | 0.9+ | 0.8− | 2008 09 21 | G96 | 0.3+ | 0.4− | 2008 10 31 | 703 | 1.0+ | 0.2+ | | | |
| 2006 04 29 | E12 | 0.7+ | 0.5− | 2008 09 21 | G96 | 0.3+ | 0.2− | 2008 10 31 | 703 | 0.7− | 0.7+ | | | |
| 2006 04 29 | E12 | 0.1− | 0.3+ | 2008 09 21 | G96 | 0.2+ | 0.0 | 2008 11 17 | 703 | 0.8− | 0.9− | | | |
| 2006 04 29 | E12 | 0.5+ | 1.1+ | 2008 09 21 | G96 | 0.2+ | 0.4− | 2008 11 17 | 703 | 1.0+ | 0.2− | | | |
| 2006 04 29 | E12 | 0.3− | 0.3+ | 2008 09 22 | 291 | 0.3− | 0.0 | 2008 11 17 | 703 | (0.1+ | 2.3−) | | | |
| 2007 09 05 | G96 | 0.1+ | 0.0 | 2008 09 22 | G96 | 0.2− | 0.1+ | 2008 11 17 | 703 | 0.2+ | 1.4− | | | |
| 2007 09 05 | G96 | 0.4− | 0.2+ | 2008 09 22 | 291 | 0.1− | 0.4+ | 2009 12 17 | 691 | 0.3− | 0.7+ | | | |
| 2007 09 05 | G96 | 0.1− | 0.1− | 2008 09 22 | 291 | 0.4− | 0.2+ | 2009 12 17 | 691 | 0.3+ | 0.4− | | | |
| 2007 09 05 | G96 | 0.1+ | 0.2+ | 2008 09 22 | G96 | 0.0 | 0.4+ | 2009 12 17 | 691 | 0.1+ | 0.2− | | | |
| 2007 10 11 | G96 | 0.2+ | 0.4+ | 2008 09 22 | G96 | 0.3− | 0.4+ | | | | | | | |

**2008 SZ$_{70}$ = 2002 GK$_{186}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 118.43306 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22073802 | $\omega$ | 312.88763 | | +0.99532025 | +0.05260200 | |
| $a$ | 2.7115521 | $\Omega$ | 44.28145 | | −0.00822159 | +0.88190958 | |
| $e$ | 0.0485790 | $i$ | 6.66710 | | −0.09628086 | +0.46847467 | |
| $P$ | 4.47 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 02 21 | 645 | 0.3− | 0.1+ | 2008 09 22 | 691 | 0.2− | 0.2+ | 2008 12 04 | G96 | 0.5+ | 0.2+ | | | |
| 2001 02 21 | 645 | 0.2+ | 0.0 | 2008 09 22 | 691 | 0.3− | 0.4+ | 2008 12 04 | G96 | 0.5+ | 0.1− | | | |
| 2002 04 08 | 644 | 0.3+ | 0.4+ | 2008 09 22 | 691 | 0.3− | 0.1+ | 2008 12 04 | G96 | 0.3+ | 0.1− | | | |
| 2002 04 08 | 644 | 0.2− | 0.0 | 2008 09 23 | G96 | 0.1− | 0.4− | 2008 12 04 | G96 | 0.2+ | 0.5− | | | |
| 2002 04 08 | 644 | 0.9+ | 0.4+ | 2008 09 23 | G96 | 0.2+ | 0.2− | 2008 12 31 | G96 | 0.2− | 0.0 | | | |
| 2002 04 09 | 644 | 0.3− | 0.4+ | 2008 09 23 | G96 | 0.0 | 0.2− | 2008 12 31 | G96 | 0.1+ | 0.1+ | | | |
| 2002 04 09 | 644 | 0.2+ | 0.1+ | 2008 09 23 | G96 | 0.3+ | 0.1− | 2008 12 31 | G96 | 0.2− | 0.8− | | | |
| 2002 04 09 | 644 | 1.0+ | 0.1− | 2008 10 05 | J75 | 0.2+ | 0.3+ | 2008 12 31 | G96 | 0.1+ | 0.2− | | | |
| 2002 04 14 | 644 | 0.1+ | 0.3+ | 2008 10 05 | J75 | 0.3+ | 0.0 | 2009 09 28 | G96 | 1.1− | 0.3+ | | | |
| 2002 04 14 | 644 | 0.1+ | 0.8+ | 2008 10 05 | J75 | 0.1+ | 0.2− | 2009 09 28 | G96 | 0.0 | 0.2− | | | |
| 2002 04 14 | 644 | 0.2− | 0.6+ | 2008 10 29 | 703 | 0.7− | 0.2+ | 2009 09 28 | G96 | 0.5+ | 0.3− | | | |
| 2004 11 04 | 691 | 0.1+ | 0.1+ | 2008 10 29 | 703 | 0.5+ | 0.4+ | 2009 09 28 | G96 | 0.6+ | 0.2− | | | |
| 2004 11 04 | 691 | 0.2+ | 0.1+ | 2008 10 29 | 703 | 0.4− | 0.2− | | | | | | | |
| 2004 11 04 | 691 | 0.0 | 0.1+ | 2008 10 29 | 703 | 0.2− | 1.0+ | | | | | | | |

**2008 SE$_{71}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 113.78380 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22235437 | $\omega$ | 161.66637 | | +0.98555217 | +0.16533345 | |
| $a$ | 2.6983955 | $\Omega$ | 189.05704 | | −0.16923960 | +0.96988505 | |
| $e$ | 0.1272039 | $i$ | 13.50678 | | +0.00669953 | +0.17885146 | |
| $P$ | 4.43 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 10 30 | 691 | 0.3+ | 0.3+ | 2008 09 23 | G96 | 0.2− | 0.3− | 2008 10 17 | 291 | 0.3+ | 0.1− | | | |
| 1999 10 30 | 691 | 0.1− | 0.2+ | 2008 09 23 | G96 | 0.2+ | 0.4− | 2008 10 17 | 291 | 0.4+ | 0.1+ | | | |
| 1999 10 30 | 691 | 0.3− | 0.1− | 2008 09 24 | 691 | 0.0 | 0.0 | 2008 10 17 | 291 | 0.4+ | 0.0 | | | |
| 2007 05 10 | 691 | 0.1+ | 0.2− | 2008 09 24 | 691 | 0.0 | 0.2− | 2008 10 17 | 291 | 0.1+ | 0.1− | | | |
| 2007 05 10 | 691 | 0.0 | 0.1+ | 2008 09 24 | 691 | 0.0 | 0.1+ | 2008 10 17 | 291 | 0.4+ | 0.1− | | | |
| 2007 05 10 | 691 | 0.1− | 0.2+ | 2008 09 24 | 703 | 0.2+ | 0.6+ | 2008 10 17 | 291 | 0.3− | 0.0 | | | |
| 2008 08 24 | 691 | 0.0 | 0.0 | 2008 09 24 | 703 | 0.3+ | 0.1− | 2008 10 18 | 291 | 0.1− | 0.1+ | | | |
| 2008 08 24 | 691 | 0.1− | 0.1− | 2008 09 24 | 703 | 0.2+ | 0.4+ | 2008 10 18 | 291 | 0.1− | 0.4+ | | | |
| 2008 08 24 | 691 | 0.2− | 0.0 | 2008 09 24 | 703 | 0.7+ | 0.1+ | 2008 10 18 | 291 | 0.3− | 0.4+ | | | |
| 2008 09 03 | 691 | 0.0 | 0.0 | 2008 09 29 | 704 | 1.0− | 0.2− | 2008 10 25 | G96 | 0.3+ | 0.4− | | | |
| 2008 09 03 | 691 | 0.0 | 0.1+ | 2008 09 29 | 704 | 1.0− | 0.1+ | 2008 10 25 | G96 | 0.5+ | 0.3− | | | |
| 2008 09 03 | 691 | 0.1− | 0.2+ | 2008 09 29 | 704 | 0.6− | 0.2+ | 2008 10 25 | G96 | 0.7+ | 0.5− | | | |
| 2008 09 22 | 683 | 2.1+ | 1.3− | 2008 09 29 | 704 | 0.7− | 0.3+ | 2008 10 25 | G96 | 0.3+ | 0.4− | | | |
| 2008 09 22 | 683 | 0.9+ | 1.1− | 2008 09 29 | 704 | 1.0− | 0.2− | 2008 12 03 | G96 | 0.2− | 0.3+ | | | |
| 2008 09 22 | 683 | 0.4+ | 1.8− | 2008 10 17 | 691 | 0.6− | 0.2− | 2008 12 03 | G96 | 0.4+ | 0.2+ | | | |
| 2008 09 23 | G96 | 0.2− | 0.2− | 2008 10 17 | 691 | 0.0 | 0.1− | 2008 12 03 | G96 | 0.4+ | 0.4+ | | | |
| 2008 09 23 | G96 | 0.0 | 0.3− | 2008 10 17 | 691 | 0.2− | 0.3+ | 2008 12 03 | G96 | 0.1+ | 0.1+ | | | |

**2008 SH$_{77}$ = 2009 XJ$_{2}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 354.43202 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17392774 | $\omega$ | 111.88420 | | −0.38986099 | −0.92085060 | |
| $a$ | 3.1785093 | $\Omega$ | 1.12605 | | +0.67360954 | −0.29000407 | |
| $e$ | 0.1828748 | $i$ | 19.39446 | | +0.62790015 | −0.26063732 | |
| $P$ | 5.67 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 03 04 | G96 | 0.8− | 0.1− | 2008 08 23 | 691 | 0.2− | 0.5+ | 2008 09 24 | 691 | 0.0 | 0.1+ | | | |
| 2005 03 04 | G96 | 0.6− | 0.3+ | 2008 08 23 | 691 | 0.3− | 0.2− | 2008 09 24 | 691 | 0.3− | 0.3+ | | | |
| 2005 03 04 | G96 | 0.5− | 0.1+ | 2008 08 23 | 691 | 0.2+ | 0.2− | 2009 12 11 | H06 | 0.2− | 0.1− | | | |
| 2005 03 04 | G96 | 0.4− | 0.1+ | 2008 09 02 | 691 | 0.3− | 0.1− | 2009 12 11 | H06 | 0.4+ | 0.2+ | | | |
| 2005 03 16 | 691 | 0.4+ | 0.3+ | 2008 09 02 | 691 | 0.4− | 0.5+ | 2009 12 11 | H06 | 0.3− | 0.0 | | | |
| 2005 03 16 | 691 | 0.5+ | 0.2+ | 2008 09 02 | 691 | 0.1− | 0.3+ | 2009 12 12 | H06 | 0.0 | 0.3+ | | | |
| 2005 03 16 | 691 | 0.4+ | 0.2+ | 2008 09 23 | G96 | 0.2+ | 0.0 | 2009 12 12 | H06 | 0.2+ | 0.0 | | | |
| 2005 04 05 | G96 | 0.6+ | 0.2+ | 2008 09 23 | G96 | 0.3+ | 0.2− | 2009 12 12 | H06 | 0.1+ | 0.5− | | | |
| 2005 04 05 | G96 | 0.5+ | 0.6+ | 2008 09 23 | G96 | 0.6+ | 0.3− | 2009 12 16 | H06 | 0.4− | 0.2+ | | | |
| 2005 04 05 | G96 | 0.1− | 0.3+ | 2008 09 23 | G96 | 0.2+ | 0.5− | 2009 12 16 | H06 | 0.5+ | 0.4− | | | |
| 2005 04 05 | G96 | 0.0 | 0.4+ | 2008 09 24 | 691 | 0.2− | 0.3+ | 2009 12 16 | H06 | 0.4− | 0.2+ | | | |

**2008 SD$_{78}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 320.44082 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.07992609 | $\omega$ | 226.72207 | | −0.01121771 | −0.99934584 | |
| $a$ | 5.3375710 | $\Omega$ | 223.95621 | | +0.93117204 | +0.00209020 | |
| $e$ | 0.0608790 | $i$ | 2.83918 | | +0.36440746 | −0.03610439 | |
| $P$ | 12.33 | $H$ | 13.7 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 02 20 | 645 | 0.1+ | 0.2+ | 2008 09 03 | 691 | 0.0 | 0.5+ | 2008 10 18 | 691 | 0.5− | 0.6+ |
| 2001 02 20 | 645 | 0.0 | 0.2+ | 2008 09 03 | 691 | 0.3− | 0.3− | 2009 09 16 | G96 | 0.4+ | 0.0 |
| 2003 05 24 | 691 | 0.0 | 0.7+ | 2008 09 03 | 691 | 0.2+ | 0.3+ | 2009 09 16 | G96 | 0.0 | 0.3− |
| 2003 05 24 | 691 | 0.5+ | 0.8+ | 2008 09 23 | G96 | 0.0 | 0.2− | 2009 09 16 | G96 | 0.3+ | 0.2− |
| 2003 05 24 | 691 | 0.1+ | 0.7+ | 2008 09 23 | G96 | 0.8+ | 0.2− | 2009 09 16 | G96 | 0.3+ | 0.3− |
| 2007 09 13 | G96 | 0.1+ | 0.5+ | 2008 09 23 | G96 | 0.5+ | 0.4− | 2009 10 24 | 691 | 0.2− | 0.3+ |
| 2007 09 13 | G96 | 0.2+ | 0.6+ | 2008 09 23 | G96 | 0.6+ | 0.1− | 2009 10 24 | 691 | 0.3− | 0.6+ |
| 2007 09 13 | G96 | 0.3+ | 0.7+ | 2008 09 24 | 691 | 0.1+ | 0.2− | 2009 10 24 | 691 | 0.2− | 0.5+ |
| 2007 09 13 | G96 | 0.1− | 0.6+ | 2008 09 24 | 691 | 0.5− | 0.2− | 2009 11 11 | G96 | 0.2+ | 0.1− |
| 2008 08 24 | 691 | 0.2− | 0.3+ | 2008 09 24 | 691 | 0.1+ | 0.3− | 2009 11 11 | G96 | 0.2− | 0.3+ |
| 2008 08 24 | 691 | 0.1− | 0.5+ | 2008 10 18 | 691 | 0.4− | 0.3+ | 2009 11 11 | G96 | 0.5+ | 0.1+ |
| 2008 08 24 | 691 | 0.3+ | 0.4+ | 2008 10 18 | 691 | 0.3− | 0.2+ | 2009 11 11 | G96 | 0.7+ | 0.1+ |

### 2008 SM$_{83}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 89.83487 | | (2000.0) | | | |
| $n$ | 0.17684520 | $\omega$ | 23.50085 | | +0.99821481 | −0.05419764 |
| $a$ | 3.1434546 | $\Omega$ | 339.55846 | | +0.03668185 | +0.88792460 |
| $e$ | 0.1513134 | $i$ | 4.12060 | | +0.04713414 | +0.45678498 |
| $P$ | 5.57 | $H$ | 16.4 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 10 10 | 291 | 0.4− | 0.3+ | 2008 10 08 | G96 | 0.4+ | 0.1− | 2008 10 28 | 691 | 0.2− | 0.2+ |
| 2002 10 10 | 291 | 0.2+ | 0.2+ | 2008 10 08 | G96 | 0.4+ | 0.1− | 2008 10 28 | 691 | 0.0 | 0.1− |
| 2002 10 10 | 291 | 0.2+ | 0.4− | 2008 10 08 | G96 | 0.5+ | 0.2− | 2008 10 28 | 691 | 0.3− | 0.2+ |
| 2005 03 04 | G96 | 0.3− | 0.4+ | 2008 10 08 | G96 | 0.1+ | 0.3− | 2008 10 30 | 691 | 0.2− | 0.6+ |
| 2005 03 04 | G96 | 0.1− | 0.1+ | 2008 10 08 | H10 | 0.0 | 1.0− | 2008 10 30 | 691 | 0.1− | 0.2+ |
| 2005 03 04 | G96 | 0.1− | 0.7− | 2008 10 08 | H10 | 0.0 | 0.5− | 2008 10 30 | 691 | 0.3− | 0.1+ |
| 2005 03 04 | G96 | 0.1+ | 0.1− | 2008 10 08 | H10 | 0.4+ | 0.4+ | 2008 11 01 | 691 | 0.1− | 0.2+ |
| 2008 09 27 | B01 | 0.5+ | 0.1+ | 2008 10 09 | H10 | 0.5+ | 0.0 | 2008 11 01 | 691 | 0.1− | 0.2− |
| 2008 09 27 | B01 | 0.4+ | 0.2− | 2008 10 09 | H10 | 0.2+ | 0.1+ | 2008 11 01 | 691 | 0.1− | 0.1+ |
| 2008 09 27 | B01 | 0.0 | 0.1− | 2008 10 09 | H10 | 0.8+ | 0.3+ | 2008 12 02 | G96 | 0.4+ | 0.4− |
| 2008 09 27 | B01 | 0.0 | 0.2− | 2008 10 09 | H10 | 0.5+ | 0.6+ | 2008 12 02 | G96 | 0.1− | 0.6− |
| 2008 09 28 | B01 | 0.7+ | 0.2− | 2008 10 22 | H10 | 0.2+ | 0.1− | 2008 12 02 | G96 | 0.2− | 0.1− |
| 2008 09 28 | B01 | 0.7+ | 0.1− | 2008 10 22 | H10 | 0.1− | 0.2+ | 2008 12 02 | G96 | 0.4+ | 0.5− |
| 2008 09 28 | B01 | 0.5+ | 0.3− | 2008 10 22 | H10 | 0.1− | 0.3− | 2009 12 19 | G96 | 0.5+ | 0.0 |
| 2008 10 03 | 691 | 0.4− | 0.6− | 2008 10 26 | 691 | 0.0 | 0.0 | 2009 12 19 | G96 | 0.4+ | 0.0 |
| 2008 10 03 | 691 | 0.0 | 0.1+ | 2008 10 26 | 691 | 0.1+ | 0.2− | 2009 12 19 | G96 | 0.2− | 0.1− |
| 2008 10 03 | 691 | 0.1+ | 0.1+ | 2008 10 26 | 691 | 0.2− | 0.1+ | 2009 12 19 | G96 | 0.2− | 0.0 |

### 2008 SQ$_{83}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 23.56997 | | (2000.0) | | | |
| $n$ | 0.12632383 | $\omega$ | 273.56839 | | +0.44894921 | −0.89344740 |
| $a$ | 3.9338023 | $\Omega$ | 149.74285 | | +0.83046763 | +0.41141188 |
| $e$ | 0.1768733 | $i$ | 1.59356 | | +0.32980013 | +0.18025540 |
| $P$ | 7.80 | $H$ | 15.9 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 10 01 | 691 | 0.1− | 0.1+ | 2008 10 02 | G96 | 0.2+ | 0.0 | 2008 10 10 | 691 | 0.0 | 0.2+ |
| 2000 10 01 | 691 | 0.1− | 0.1− | 2008 10 02 | G96 | 0.2+ | 0.2− | 2008 10 10 | 691 | 0.1− | 0.0 |
| 2000 10 01 | 691 | 0.2+ | 0.0 | 2008 10 02 | G96 | 0.2+ | 0.0 | 2008 10 10 | G96 | 0.5+ | 0.2− |
| 2008 09 27 | A44 | 0.4− | 0.1+ | 2008 10 06 | 691 | 0.1− | 0.2+ | 2008 10 10 | G96 | 0.0 | 0.3− |
| 2008 09 27 | A44 | 0.2− | 0.0 | 2008 10 06 | 691 | 0.1− | 0.1− | 2008 10 10 | G96 | 0.2+ | 0.4− |
| 2008 09 27 | A44 | 0.5+ | 0.3− | 2008 10 06 | 691 | 0.0 | 0.4− | 2008 10 10 | G96 | 0.3+ | 0.4− |
| 2008 09 28 | A44 | 0.1+ | 0.0 | 2008 10 07 | A44 | 0.3− | 0.5+ | 2009 12 20 | 691 | 0.5+ | 0.4− |
| 2008 09 28 | A44 | 0.1+ | 0.1+ | 2008 10 07 | A44 | 0.7+ | 0.2+ | 2009 12 20 | 691 | 0.5− | 0.1− |
| 2008 09 28 | A44 | 0.0 | 0.2+ | 2008 10 07 | A44 | 0.3− | 1.2+ | 2009 12 20 | 691 | 0.0 | 0.1+ |
| 2008 10 02 | 691 | 0.0 | 0.1− | 2008 10 08 | A44 | 0.6+ | 0.9− | 2009 12 25 | 691 | 0.0 | 0.2+ |
| 2008 10 02 | 691 | 0.1− | 0.1− | 2008 10 08 | A44 | 0.0 | 0.4+ | 2009 12 25 | 691 | 0.2− | 0.2+ |
| 2008 10 02 | 691 | 0.4− | 0.2+ | 2008 10 08 | A44 | 0.5+ | 0.6+ | 2009 12 25 | 691 | 0.3+ | 0.2+ |
| 2008 10 02 | G96 | 0.8+ | 0.1− | 2008 10 10 | 691 | 0.1− | 0.3− | | | | |

### 2008 SZ$_{87}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 57.30555 | | (2000.0) | | | |
| $n$ | 0.17849669 | $\omega$ | 56.13188 | | +0.81760461 | −0.56757055 |
| $a$ | 3.1240354 | $\Omega$ | 337.95723 | | +0.40503508 | +0.68653941 |
| $e$ | 0.2498512 | $i$ | 14.96031 | | +0.40923011 | +0.45445276 |
| $P$ | 5.52 | $H$ | 15.9 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 03 10 | 691 | 0.3+ | 0.4− | 2008 08 21 | 691 | 0.2+ | 0.2+ | 2008 09 26 | G96 | 0.1− | 0.2− |
| 1994 03 10 | 691 | (3.1− | 0.1−) | 2008 08 21 | 691 | 0.3+ | 0.3+ | 2008 09 26 | G96 | 0.0 | 0.3− |
| 1994 03 10 | 691 | 0.0 | 0.7+ | 2008 09 07 | 703 | 0.3+ | 0.4− | 2008 09 26 | G96 | 0.2− | 0.3− |
| 2005 03 09 | G96 | 0.4+ | 0.1+ | 2008 09 07 | 703 | 0.2+ | 0.4+ | 2008 10 01 | 703 | 0.6− | 0.4− |
| 2005 03 09 | G96 | 0.1+ | 0.3+ | 2008 09 07 | 703 | 0.4+ | 0.6− | 2008 10 01 | 703 | 0.7+ | 0.3+ |
| 2005 03 09 | G96 | 0.3+ | 0.1+ | 2008 09 07 | 703 | 0.2+ | 0.2+ | 2008 10 01 | 703 | 0.7− | 0.1− |
| 2005 03 09 | G96 | 0.2− | 0.3+ | 2008 09 20 | 703 | 0.1+ | 0.9+ | 2008 10 01 | 703 | 0.5− | 0.6+ |
| 2008 07 30 | 691 | 0.2+ | 0.1+ | 2008 09 20 | 703 | 0.2− | 0.1+ | 2008 10 08 | G96 | 0.3− | 0.3− |
| 2008 07 30 | 691 | 0.7− | 0.1− | 2008 09 20 | 703 | 0.2+ | 0.9+ | 2008 10 08 | G96 | 0.3− | 0.3− |
| 2008 07 30 | 691 | 0.0 | 0.1− | 2008 09 20 | 703 | 0.0 | 1.0+ | 2008 10 08 | G96 | 0.1− | 0.5− |
| 2008 08 21 | 691 | 0.2− | 0.1− | 2008 09 26 | G96 | 0.1+ | 0.4− | 2008 10 08 | G96 | 0.1− | 0.4− |

### 2008 SA$_{88}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 96.67888 | | (2000.0) | | | |
| $n$ | 0.21997316 | $\omega$ | 49.04012 | | +0.99886926 | −0.00561537 |
| $a$ | 2.7178339 | $\Omega$ | 311.22592 | | −0.01549516 | +0.90032352 |
| $e$ | 0.1855786 | $i$ | 3.59871 | | +0.04494564 | +0.43518504 |
| $P$ | 4.48 | $H$ | 17.1 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 02 01 | G96 | 0.6+ | 0.5+ | 2008 08 21 | 691 | 0.1− | 0.0 | 2008 09 24 | 704 | 0.1− | 1.1+ |
| 2006 02 01 | G96 | 0.5− | 0.2+ | 2008 09 07 | 703 | 1.6+ | 0.7− | 2008 09 24 | 704 | 0.1+ | 0.3+ |
| 2006 02 01 | G96 | 0.0 | 0.2− | 2008 09 07 | 703 | 0.5− | 0.9− | 2008 09 24 | 704 | 0.7+ | 0.4− |
| 2006 02 01 | G96 | 0.6+ | 1.0+ | 2008 09 07 | 703 | 0.4+ | 1.0+ | 2008 09 24 | 704 | 1.3− | 0.1− |
| 2006 03 03 | 691 | 0.4− | 0.2− | 2008 09 07 | 703 | 0.4+ | 1.0+ | 2008 09 24 | 704 | 1.1+ | 0.0 |
| 2006 03 03 | 691 | 0.3+ | 0.0 | 2008 09 20 | 703 | 0.2− | 0.6− | 2008 09 26 | G96 | 0.0 | 0.1− |
| 2006 03 03 | 691 | 0.1+ | 0.1+ | 2008 09 20 | 703 | 1.5− | 1.2− | 2008 09 26 | G96 | 0.7+ | 0.0 |
| 2008 08 21 | 691 | 0.1− | 0.4+ | 2008 09 20 | 703 | 0.4+ | 0.2+ | 2008 09 26 | G96 | 0.0 | 0.0 |
| 2008 08 21 | 691 | 0.1− | 0.0 | 2008 09 20 | 703 | 0.9− | 0.0 | 2008 09 26 | G96 | 0.2+ | 0.2− |

### 2008 SY$_{91}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 20.52848 | | (2000.0) | | | |
| $n$ | 0.08193148 | $\omega$ | 24.41984 | | +0.78700747 | −0.60808270 |
| $a$ | 5.2501155 | $\Omega$ | 14.53474 | | +0.47542253 | +0.49014035 |
| $e$ | 0.0633515 | $i$ | 24.52795 | | +0.39318274 | +0.62449809 |
| $P$ | 12.03 | $H$ | 13.1 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 10 07 | 691 | 0.3+ | 0.4− | 2008 09 25 | 691 | 0.2− | 0.0 | 2008 10 25 | G96 | 0.2+ | 0.4+ |
| 1996 10 07 | 691 | 0.0 | 0.3− | 2008 09 25 | 691 | 0.2− | 0.1− | 2008 10 25 | G96 | 0.1+ | 0.2− |
| 1996 10 07 | 691 | 0.2+ | 0.2+ | 2008 10 03 | 691 | 0.2+ | 0.4+ | 2008 10 26 | 704 | 0.3+ | 1.5+ |
| 2002 04 17 | 691 | 0.0 | 0.2+ | 2008 10 03 | 691 | 0.1− | 0.1+ | 2008 10 26 | 704 | 0.7− | 0.8+ |
| 2002 04 17 | 691 | 0.2− | 0.3− | 2008 10 03 | 691 | 0.1+ | 0.2+ | 2008 10 26 | 704 | 1.5− | 0.1+ |
| 2002 04 17 | 691 | 0.0 | 0.1− | 2008 10 07 | 691 | 0.2− | 0.5− | 2008 10 26 | 704 | 0.1+ | 1.4− |
| 2008 09 07 | G96 | 0.5+ | 0.2− | 2008 10 07 | 691 | 0.3− | 0.1+ | 2008 10 26 | 704 | 0.2+ | 0.2+ |
| 2008 09 07 | G96 | 0.1+ | 0.3− | 2008 10 07 | 691 | 0.1+ | 0.4+ | 2008 11 08 | G96 | 0.1+ | 0.2− |
| 2008 09 21 | 691 | 0.0 | 0.0 | 2008 10 20 | 185 | 0.5− | 0.2+ | 2008 11 08 | G96 | 0.7+ | 0.0 |
| 2008 09 21 | 691 | 0.5− | 0.1− | 2008 10 20 | 185 | 1.2+ | 0.4+ | 2008 11 08 | G96 | 0.3− | 0.2− |
| 2008 09 21 | 691 | 0.5+ | 0.3− | 2008 10 20 | 185 | 1.8+ | 0.7− | 2008 11 08 | G96 | 0.1+ | 0.1− |
| 2008 09 25 | 691 | 0.1− | 0.1+ | 2008 10 25 | G96 | 0.8− | 0.4+ | | | | |

**2008 SU$_{97}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 149.58974 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21712738 | $\omega$ | 94.49718 | | +0.53448799 | +0.84309154 | |
| $a$ | 2.7415299 | $\Omega$ | 208.06614 | | −0.81681030 | +0.49724365 | |
| $e$ | 0.2611862 | $i$ | 7.24358 | | −0.21712559 | +0.20480577 | |
| $P$ | 4.54 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 04 20 | 688 | 0.3− | 0.3− | 2008 09 25 | 691 | 0.1− | 0.1− | 2008 10 23 | G96 | 0.2+ | 0.2− |
| 1998 04 20 | 688 | 0.1+ | 0.2− | 2008 09 29 | 691 | 0.2+ | 0.5+ | 2008 10 23 | G96 | 0.3+ | 0.0 |
| 1998 04 20 | 688 | 0.0 | 0.5− | 2008 09 29 | 691 | 0.1− | 0.1− | 2008 10 23 | G96 | 0.3+ | 0.1− |
| 1999 10 30 | 691 | 0.2+ | 0.4− | 2008 09 29 | 691 | 0.3− | 0.2− | 2008 11 07 | G96 | 0.2− | 0.2− |
| 1999 10 30 | 691 | 0.3− | 0.0 | 2008 10 03 | 691 | 0.2− | 1.0− | 2008 11 07 | G96 | 0.2− | 0.5+ |
| 1999 10 30 | 691 | 0.1+ | 0.1+ | 2008 10 03 | 691 | 0.0 | 0.1+ | 2008 11 07 | G96 | 0.5+ | 0.1+ |
| 2008 09 21 | 691 | 0.0 | 0.1− | 2008 10 03 | 691 | 0.1− | 0.1− | 2008 11 07 | G96 | 0.1+ | 0.3+ |
| 2008 09 21 | 691 | 0.3+ | 0.3+ | 2008 10 10 | 691 | 0.0 | 0.1+ | 2008 11 24 | G96 | 0.1− | 0.0 |
| 2008 09 21 | 691 | 0.3− | 0.4+ | 2008 10 10 | 691 | 0.3+ | 0.2+ | 2008 11 24 | G96 | 0.1− | 0.1− |
| 2008 09 25 | 691 | 0.2+ | 0.2+ | 2008 10 10 | 691 | 0.1− | 0.2− | 2008 11 24 | G96 | 0.1− | 0.4+ |
| 2008 09 25 | 691 | 0.0 | 0.1− | 2008 10 23 | G96 | 0.3+ | 0.2− | 2008 11 24 | G96 | 0.3− | 0.2− |

**2008 SF$_{98}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 129.23334 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23074201 | $\omega$ | 4.61654 | | +0.99360011 | +0.11268377 | |
| $a$ | 2.6326003 | $\Omega$ | 348.90427 | | −0.10489200 | +0.89476462 | |
| $e$ | 0.0847091 | $i$ | 2.32951 | | −0.04191051 | +0.43208638 | |
| $P$ | 4.27 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 11 11 | 691 | 0.1+ | 0.2− | 2008 09 25 | 691 | 0.0 | 0.1+ | 2008 10 20 | G96 | (0.5− | 2.6+) |
| 2004 11 11 | 691 | 0.1+ | 0.5− | 2008 09 25 | 691 | 0.2− | 0.2+ | 2008 10 20 | G96 | (0.5− | 2.4+) |
| 2004 11 11 | 691 | 0.1+ | 0.4− | 2008 09 25 | 691 | 0.5− | 0.7− | 2008 10 20 | G96 | (0.4− | 2.8+) |
| 2006 03 03 | 691 | 0.4+ | 0.2+ | 2008 09 29 | 691 | 0.4+ | 0.0 | 2008 10 23 | G96 | 0.2+ | 0.0 |
| 2006 03 03 | 691 | 0.0 | 0.2+ | 2008 09 29 | 691 | 0.1+ | 0.2− | 2008 10 23 | G96 | 0.4+ | 0.2− |
| 2006 03 03 | 691 | 0.0 | 0.5+ | 2008 09 29 | 691 | 0.2+ | 0.3+ | 2008 10 23 | G96 | 0.4+ | 0.1− |
| 2008 09 09 | G96 | 0.3+ | 0.0 | 2008 10 03 | 691 | 0.2− | 0.5+ | 2008 10 23 | G96 | 0.5+ | 0.0 |
| 2008 09 09 | G96 | 0.5+ | 0.4− | 2008 10 03 | 691 | 0.1− | 0.0 | 2008 11 08 | G96 | 0.1+ | 0.2+ |
| 2008 09 09 | G96 | 0.2+ | 0.1+ | 2008 10 03 | 691 | 0.3− | 0.3+ | 2008 11 08 | G96 | 0.1+ | 0.4+ |
| 2008 09 09 | G96 | 0.2+ | 0.1− | 2008 10 07 | 691 | 0.4− | 0.1+ | 2008 11 08 | G96 | 1.0+ | 0.6+ |
| 2008 09 21 | 691 | 0.1+ | 0.3+ | 2008 10 07 | 691 | 0.3− | 0.4+ | 2008 11 08 | G96 | 0.1+ | 0.5+ |
| 2008 09 21 | 691 | 0.3− | 0.2− | 2008 10 07 | 691 | 0.4− | 0.0 | | | | |
| 2008 09 21 | 691 | 0.3+ | 0.0 | 2008 10 20 | G96 | (0.0 | 3.2+) | | | | |

**2008 SW$_{99}$ = 1998 SY$_{17}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 86.17927 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.20040700 | $\omega$ | 231.93484 | | +0.82274869 | −0.56741896 | |
| $a$ | 2.8919722 | $\Omega$ | 162.55522 | | +0.55019360 | +0.78021932 | |
| $e$ | 0.0740512 | $i$ | 6.41043 | | +0.14272911 | +0.26323665 | |
| $P$ | 4.92 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 09 17 | 691 | 0.2− | 0.0 | 2005 01 17 | 691 | 0.0 | 0.5+ | 2008 09 21 | 691 | 0.4− | 0.1− |
| 1998 09 17 | 691 | 0.4+ | 0.4− | 2005 01 17 | 691 | 0.1+ | 0.0 | 2008 09 21 | 691 | 0.0 | 0.2+ |
| 1998 09 17 | 691 | 0.6+ | 0.7− | 2005 01 17 | 691 | 0.1+ | 0.1− | 2008 09 21 | 691 | 0.2− | 0.0 |
| 1998 09 24 | 691 | 0.6− | 0.6+ | 2005 03 13 | G96 | 0.2− | 0.2− | 2008 09 25 | 691 | 0.3− | 0.1+ |
| 1998 09 24 | 691 | 0.5− | 0.2− | 2005 03 13 | G96 | 0.4− | 0.5− | 2008 09 25 | 691 | 0.3− | 0.1+ |
| 1998 09 24 | 691 | 0.7− | 0.3+ | 2005 03 13 | G96 | 0.3− | 0.4− | 2008 09 25 | 691 | 0.3− | 0.2+ |
| 2003 10 20 | 691 | 0.3+ | 0.4+ | 2005 03 13 | G96 | 0.5− | 0.0 | 2008 10 22 | G96 | 0.3+ | 0.3− |
| 2003 10 20 | 691 | 0.2+ | 0.4+ | 2006 04 09 | G96 | 0.1+ | 0.3− | 2008 10 22 | G96 | 0.1+ | 0.4− |
| 2003 10 20 | 691 | 0.2+ | 0.3+ | 2006 04 09 | G96 | 0.3+ | 0.0 | 2008 10 22 | G96 | 0.5+ | 0.4− |
| 2003 11 20 | 645 | 0.2+ | 0.1− | 2006 04 09 | G96 | 0.3− | 0.3− | 2008 10 22 | G96 | 0.3− | 0.4− |
| 2003 11 20 | 645 | 0.2+ | 0.0 | 2006 04 09 | G96 | 0.3+ | 0.8+ | | | | |

**2008 SL$_{104}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 51.88419 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17321431 | $\omega$ | 214.46603 | | +0.46528983 | −0.88240113 | |
| $a$ | 3.1872310 | $\Omega$ | 207.99604 | | +0.84191595 | +0.46553029 | |
| $e$ | 0.0739530 | $i$ | 8.55282 | | +0.27328172 | +0.06818932 | |
| $P$ | 5.69 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 10 06 | 644 | 0.1− | 1.9+ | 2008 09 25 | 691 | 0.4− | 0.1+ | 2008 10 27 | 691 | 0.3+ | 0.3− |
| 2002 10 06 | 644 | 0.2− | 0.3− | 2008 09 25 | 691 | 0.5− | 0.2+ | 2008 11 09 | G96 | 1.6+ | 0.7+ |
| 2002 10 06 | 644 | 0.0 | 0.4− | 2008 09 29 | 691 | 0.4+ | 0.4− | 2008 11 09 | G96 | 0.4+ | 0.3− |
| 2006 05 06 | G96 | 0.2− | 0.5− | 2008 09 29 | 691 | 0.2+ | 0.2− | 2008 11 09 | G96 | 0.0 | 0.5+ |
| 2006 05 06 | G96 | 0.0 | 0.6+ | 2008 09 29 | 691 | 0.4− | 0.2+ | 2008 11 09 | G96 | 0.4+ | 0.0 |
| 2006 05 06 | G96 | 0.2+ | 0.1− | 2008 10 23 | G96 | 0.2− | 0.1− | 2008 11 17 | 691 | 0.0 | 0.2+ |
| 2006 05 06 | G96 | 0.0 | 0.5− | 2008 10 23 | G96 | 0.6+ | 0.0 | 2008 11 17 | 691 | 0.0 | 0.2+ |
| 2008 09 21 | 691 | 0.2+ | 0.1+ | 2008 10 23 | G96 | 0.7+ | 0.1+ | 2008 11 17 | 691 | 0.0 | 0.4− |
| 2008 09 21 | 691 | 0.1− | 0.0 | 2008 10 23 | G96 | 0.5+ | 0.3− | 2008 11 20 | 691 | 0.1− | 0.1+ |
| 2008 09 21 | 691 | 0.3− | 0.1− | 2008 10 27 | 691 | 0.1+ | 0.1+ | 2008 11 20 | 691 | 0.2− | 0.0 |
| 2008 09 25 | 691 | 0.1+ | 0.6− | 2008 10 27 | 691 | 0.4− | 0.2+ | 2008 11 20 | 691 | 0.1− | 0.2+ |

**2008 SA$_{105}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 146.52628 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18013485 | $\omega$ | 270.12764 | | +0.63321758 | +0.77151232 | |
| $a$ | 3.1050663 | $\Omega$ | 39.38307 | | −0.66581728 | +0.58362911 | |
| $e$ | 0.1653286 | $i$ | 5.57840 | | −0.39461733 | +0.25327022 | |
| $P$ | 5.47 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 04 24 | 691 | 0.1+ | 0.2− | 2008 09 29 | 691 | 0.3− | 0.2+ | 2008 11 08 | G96 | 0.4+ | 0.1− |
| 2001 04 24 | 691 | 0.3− | 0.4− | 2008 09 29 | 691 | 0.1+ | 0.1+ | 2008 11 08 | G96 | 0.0 | 0.3− |
| 2001 04 24 | 691 | 0.1− | 0.2− | 2008 09 29 | 691 | 0.1− | 0.3− | 2008 11 08 | G96 | 0.7+ | 0.6− |
| 2002 08 30 | 644 | 0.1+ | 0.2+ | 2008 10 03 | 691 | 0.4− | 0.3+ | 2008 11 17 | 691 | 0.1+ | 0.1− |
| 2002 08 30 | 644 | 0.1+ | 0.1+ | 2008 10 03 | 691 | 0.1− | 0.0 | 2008 11 17 | 691 | 0.2− | 0.1+ |
| 2002 08 30 | 644 | 0.3− | 0.0 | 2008 10 03 | 691 | 0.3+ | 0.4− | 2008 11 17 | 691 | 0.1− | 0.0 |
| 2008 09 21 | 691 | 0.5+ | 0.2− | 2008 10 05 | H59 | 0.7+ | 1.1+ | 2008 12 05 | G96 | 1.1+ | 0.2− |
| 2008 09 21 | 691 | 0.4− | 0.2+ | 2008 10 05 | H59 | 0.4− | 1.1+ | 2008 12 05 | G96 | 0.3− | 0.2− |
| 2008 09 21 | 691 | 0.2− | 0.1− | 2008 10 25 | 691 | 0.1+ | 0.1− | 2008 12 05 | G96 | 0.6+ | 0.1− |
| 2008 09 25 | 691 | 0.0 | 0.1− | 2008 10 25 | 691 | 0.4+ | 0.2− | 2008 12 05 | G96 | 0.2− | 0.3− |
| 2008 09 25 | 691 | 0.5− | 0.1− | 2008 10 25 | 691 | 0.2+ | 0.2+ | | | | |
| 2008 09 25 | 691 | 0.2+ | 0.4− | 2008 11 08 | G96 | 0.2+ | 0.4− | | | | |

**2008 SY$_{106}$ = 2006 DR$_{95}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 66.58270 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.25900724 | $\omega$ | 278.32035 | | −0.08816961 | −0.99610217 | |
| $a$ | 2.4374073 | $\Omega$ | 176.73467 | | +0.93073597 | −0.08330169 | |
| $e$ | 0.1489468 | $i$ | 2.58390 | | +0.35490375 | −0.02900522 | |
| $P$ | 3.81 | $H$ | 17.9 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 07 | 691 | 0.2− | 0.3+ | 2006 03 21 | G96 | 0.1+ | 0.7+ | 2008 09 29 | 691 | 0.0 | 0.2+ |
| 2004 10 07 | 691 | 0.0 | 0.3+ | 2006 03 21 | G96 | 0.2+ | 0.3− | 2008 10 24 | G96 | 0.3+ | 0.2+ |
| 2004 10 07 | 691 | 0.1− | 0.3+ | 2006 03 21 | G96 | 0.2− | 0.4− | 2008 10 24 | G96 | 0.1+ | 0.0 |
| 2006 02 24 | G96 | 0.5− | 0.2− | 2008 09 21 | 691 | 0.4+ | 0.0 | 2008 10 24 | G96 | 0.1− | 0.3+ |
| 2006 02 24 | G96 | 0.6− | 1.1+ | 2008 09 21 | 691 | 0.2+ | 0.3+ | 2008 10 24 | G96 | 0.2+ | 0.0 |
| 2006 02 24 | G96 | 0.1− | 0.2+ | 2008 09 21 | 691 | 0.0 | 0.1− | 2008 11 09 | G96 | 0.1− | 0.2− |
| 2006 02 24 | G96 | 0.5− | 0.4+ | 2008 09 25 | 691 | 0.3− | 0.8− | 2008 11 09 | G96 | 0.5+ | 0.7− |
| 2006 03 06 | 691 | 0.2+ | 0.2+ | 2008 09 25 | 691 | 0.1+ | 0.2− | 2008 11 09 | G96 | 0.0 | 0.3− |
| 2006 03 06 | 691 | 0.1+ | 0.3+ | 2008 09 25 | 691 | 0.1+ | 0.1+ | 2008 11 09 | G96 | 0.6+ | 0.4− |
| 2006 03 06 | 691 | 0.2+ | 0.2− | 2008 09 29 | 691 | 0.2− | 0.3+ | | | | |
| 2006 03 21 | G96 | 0.4+ | 0.2− | 2008 09 29 | 691 | 0.7− | 0.2+ | | | | |

**2008 SW$_{113}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 131.36341 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17516154 | $\omega$ | 276.35206 | | +0.73705434 | +0.66593669 | |
| $a$ | 3.1635659 | $\Omega$ | 41.97864 | | −0.53172180 | +0.67664350 | |
| $e$ | 0.0786626 | $i$ | 9.92088 | | −0.41716043 | +0.31413676 | |
| $P$ | 5.63 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 04 02 | 691 | 0.1+ | 0.3+ | 2006 05 24 | G96 | 0.2− | 0.0 | 2008 10 08 | 691 | 0.1+ | 0.1+ |
| 2006 04 02 | 691 | 0.1+ | 0.0 | 2008 09 22 | 691 | 0.0 | 0.2− | 2008 10 24 | G96 | 0.2+ | 0.1+ |
| 2006 04 02 | 691 | 0.0 | 0.2− | 2008 09 22 | 691 | 0.1− | 0.1+ | 2008 10 24 | G96 | 0.3+ | 0.1+ |
| 2006 05 04 | 291 | 0.3+ | 0.4+ | 2008 09 22 | 691 | 0.1− | 0.1− | 2008 10 24 | G96 | 0.4+ | 0.3+ |
| 2006 05 04 | 291 | 0.0 | 0.5+ | 2008 09 26 | 691 | 0.3− | 0.2− | 2008 10 24 | G96 | 0.5+ | 0.1+ |
| 2006 05 04 | 291 | 0.2+ | 0.3− | 2008 09 26 | 691 | 0.1+ | 0.1+ | 2008 12 31 | G96 | 0.2− | 0.4+ |
| 2006 05 24 | G96 | 0.0 | 0.5− | 2008 09 26 | 691 | 0.1− | 0.1+ | 2008 12 31 | G96 | 0.1+ | 0.9+ |
| 2006 05 24 | G96 | 0.6− | 0.4+ | 2008 10 08 | 691 | 0.0 | 0.0 | 2008 12 31 | G96 | 0.7− | 0.1+ |
| 2006 05 24 | G96 | 0.1− | 0.1+ | 2008 10 08 | 691 | 0.1− | 0.3+ | 2008 12 31 | G96 | 0.1+ | 0.3+ |

**2008 SJ$_{124}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 152.92700 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.20930095 | $\omega$ | 98.96191 | | +0.72088484 | +0.68965390 | |
| $a$ | 2.8094540 | $\Omega$ | 217.48313 | | −0.67188849 | +0.67117225 | |
| $e$ | 0.1101415 | $i$ | 6.47042 | | −0.16997326 | +0.27185529 | |
| $P$ | 4.71 | $H$ | 17.4 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 02 20 | 645 | 0.1− | 0.8− | 2008 09 27 | G96 | 0.0 | 0.3+ | 2008 10 20 | G96 | 0.7+ | 0.1− |
| 2001 02 20 | 645 | 0.1+ | 0.7+ | 2008 09 28 | G96 | 0.6− | 0.1− | 2008 10 20 | G96 | 0.1+ | 0.0 |
| 2003 09 30 | 691 | 0.2+ | 0.4− | 2008 09 28 | G96 | 0.0 | 0.2+ | 2008 10 20 | G96 | 0.1+ | 0.1− |
| 2003 09 30 | 691 | 0.2− | 0.2− | 2008 09 28 | G96 | 0.1− | 0.3+ | 2008 11 08 | G96 | 0.3− | 0.3+ |
| 2003 09 30 | 691 | 0.2+ | 0.1− | 2008 09 28 | G96 | 0.2− | 0.0 | 2008 11 08 | G96 | 0.0 | 0.0 |
| 2008 09 22 | G96 | 0.4− | 0.2− | 2008 10 06 | 691 | 0.7− | 0.5+ | 2008 11 08 | G96 | 0.1− | 0.0 |
| 2008 09 22 | G96 | 0.4+ | 0.1+ | 2008 10 06 | 691 | 0.6− | 0.0 | 2008 11 08 | G96 | 0.3+ | 0.3− |
| 2008 09 22 | G96 | 0.3− | 0.3+ | 2008 10 06 | 691 | 0.0 | 0.0 | 2008 11 24 | G96 | 0.6+ | 0.0 |
| 2008 09 22 | G96 | 0.0 | 0.2− | 2008 10 19 | 291 | 0.1+ | 0.4+ | 2008 11 24 | G96 | 0.8+ | 0.1+ |
| 2008 09 27 | G96 | 0.1+ | 0.3+ | 2008 10 19 | 291 | 0.7+ | 0.5− | 2008 11 24 | G96 | 0.4+ | 0.4− |
| 2008 09 27 | G96 | 0.3− | 0.6+ | 2008 10 19 | 291 | 0.1+ | 0.0 | 2008 11 24 | G96 | 1.0+ | 0.5− |
| 2008 09 27 | G96 | 0.2− | 0.3+ | 2008 10 20 | G96 | 1.0− | 0.4− | | | | |

**2008 SQ$_{126}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 91.36648 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22725021 | $\omega$ | 200.10310 | | +0.71084613 | −0.69566493 | |
| $a$ | 2.6594991 | $\Omega$ | 204.95416 | | +0.67423577 | +0.71594889 | |
| $e$ | 0.2695684 | $i$ | 14.22515 | | +0.20025961 | +0.05888540 | |
| $P$ | 4.34 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 10 02 | 691 | 0.1+ | 0.9− | 2008 10 10 | 691 | 0.1+ | 0.2− | 2008 10 31 | 704 | 0.0 | 0.7+ |
| 1995 10 02 | 691 | 0.0 | 1.0− | 2008 10 17 | D35 | 0.2+ | 0.3+ | 2008 10 31 | 704 | 0.2+ | 0.9+ |
| 1995 10 02 | 691 | 0.2+ | 0.9− | 2008 10 17 | D35 | 0.4− | 0.4− | 2008 10 31 | 704 | 0.2+ | 0.9+ |
| 2001 03 19 | 645 | 0.0 | 0.0 | 2008 10 17 | D35 | 0.2+ | 0.7− | 2008 11 08 | 683 | 0.0 | 0.5+ |
| 2001 03 19 | 645 | 0.0 | 0.1− | 2008 10 20 | G68 | 0.9+ | 1.3+ | 2008 11 08 | 683 | 1.0+ | 0.3+ |
| 2008 09 22 | 691 | 0.5− | 0.1+ | 2008 10 20 | G68 | 1.1+ | 0.6+ | 2008 11 08 | 683 | (2.1− | 1.8−) |
| 2008 09 22 | 691 | 0.6− | 0.7+ | 2008 10 20 | G68 | 1.1+ | 0.9+ | 2008 11 08 | 703 | 1.7+ | 0.3+ |
| 2008 09 22 | 691 | 0.2− | 0.1− | 2008 10 21 | 691 | 0.2− | 0.4− | 2008 11 08 | 703 | 0.5− | 0.1− |
| 2008 09 26 | 691 | 0.2− | 0.1− | 2008 10 21 | 691 | 0.1− | 0.1− | 2008 11 08 | 703 | 0.5− | 0.4+ |
| 2008 09 26 | 691 | 0.1− | 0.2− | 2008 10 21 | 691 | 0.3− | 0.1− | 2008 11 08 | 703 | 0.4− | 0.1− |
| 2008 09 26 | 691 | 0.3− | 0.2− | 2008 10 25 | 704 | 1.0+ | 0.8+ | 2008 11 18 | 704 | 0.2+ | 0.4+ |
| 2008 09 27 | G96 | 0.4+ | 0.4− | 2008 10 25 | 704 | 0.4+ | 0.8+ | 2008 11 18 | 704 | 0.7− | 0.5− |
| 2008 09 27 | G96 | 0.0 | 0.3− | 2008 10 25 | 704 | 0.8+ | 1.1+ | 2008 11 18 | 704 | 0.3+ | 0.9− |
| 2008 09 27 | G96 | 0.5+ | 0.4− | 2008 10 25 | 704 | 0.9+ | 1.1+ | 2008 11 18 | 704 | 0.6− | 0.6+ |
| 2008 10 01 | 704 | 0.4− | 0.6+ | 2008 10 25 | 704 | 0.3− | 0.8− | 2008 11 18 | 704 | 0.4+ | 0.4+ |
| 2008 10 01 | 704 | 0.4− | 1.2+ | 2008 10 30 | 703 | 0.0 | 0.1+ | 2008 11 30 | 704 | 0.7+ | 0.4+ |
| 2008 10 01 | 704 | 0.4− | 0.5+ | 2008 10 30 | 703 | 0.0 | 0.0 | 2008 11 30 | 704 | 0.4− | 0.2− |
| 2008 10 01 | 704 | 0.3− | 0.7+ | 2008 10 30 | 703 | 0.1+ | 0.4− | 2008 11 30 | 704 | 0.6+ | 0.2+ |
| 2008 10 01 | 704 | 0.4− | 1.0+ | 2008 10 30 | 703 | 0.3+ | 0.3+ | 2008 11 30 | 704 | 0.8+ | 0.2− |
| 2008 10 10 | 691 | 0.1− | 0.2− | 2008 10 31 | 704 | 0.3+ | 0.7+ | | | | |
| 2008 10 10 | 691 | 0.2− | 0.2− | 2008 10 31 | 704 | 0.3+ | 0.9+ | | | | |

**2008 SJ$_{128}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 32.36812 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21911513 | $\omega$ | 240.12946 | | −0.25900509 | −0.96019258 | |
| $a$ | 2.7249245 | $\Omega$ | 225.28035 | | +0.92918622 | −0.21812842 | |
| $e$ | 0.0754806 | $i$ | 8.46728 | | +0.26368416 | −0.17449984 | |
| $P$ | 4.50 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 11 15 | 691 | 0.0 | 0.0 | 2008 09 26 | 691 | 0.1− | 0.1− | 2008 10 08 | 691 | 0.0 | 0.0 |
| 1999 11 15 | 691 | 0.1− | 0.6+ | 2008 09 26 | 691 | 0.0 | 0.0 | 2008 10 25 | 691 | 0.1+ | 0.0 |
| 1999 11 15 | 691 | 0.1− | 0.2+ | 2008 09 26 | 691 | 0.3+ | 0.5− | 2008 10 25 | 691 | 0.1+ | 0.0 |
| 2003 10 23 | 645 | 0.0 | 0.0 | 2008 09 26 | 691 | 0.0 | 0.0 | 2008 10 25 | 691 | 0.1− | 0.0 |
| 2003 10 23 | 645 | 0.0 | 0.0 | 2008 09 26 | 691 | 0.1+ | 0.1− | 2008 12 04 | G96 | 0.5− | 0.7− |
| 2008 09 22 | 691 | 0.2− | 0.4+ | 2008 09 26 | 691 | 0.0 | 0.2− | 2008 12 04 | G96 | 0.5+ | 0.8− |
| 2008 09 22 | 691 | 0.0 | 0.0 | 2008 10 08 | 691 | 0.1− | 0.0 | 2008 12 04 | G96 | 0.2+ | 0.5− |
| 2008 09 22 | 691 | 0.1+ | 0.0 | 2008 10 08 | 691 | 0.0 | 0.1+ | 2008 12 04 | G96 | 0.2+ | 0.2− |

**2008 SJ$_{129}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 112.02912 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19070722 | $\omega$ | 80.63633 | | +0.99784006 | −0.04599877 | |
| $a$ | 2.9892205 | $\Omega$ | 281.98964 | | +0.02300241 | +0.91338017 | |
| $e$ | 0.0724860 | $i$ | 2.74798 | | +0.06153135 | +0.40450065 | |
| $P$ | 5.17 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 20 | 691 | 0.1+ | 0.3− | 2008 09 22 | 691 | 0.0 | 0.0 | 2008 11 18 | 691 | 0.3− | 0.2+ |
| 2003 10 20 | 691 | 0.0 | 0.1+ | 2008 09 26 | 691 | 0.0 | 0.2− | 2008 11 18 | 691 | 0.2− | 0.1− |
| 2003 10 20 | 691 | 0.2− | 0.3− | 2008 09 26 | 691 | 0.3+ | 0.3− | 2008 11 18 | 691 | 0.1+ | 0.0 |
| 2003 11 15 | 691 | 0.1+ | 0.1+ | 2008 09 26 | 691 | 0.1+ | 0.2+ | 2009 01 01 | G96 | 0.2− | 0.5+ |
| 2003 11 15 | 691 | 0.1+ | 0.0 | 2008 10 24 | G96 | 0.3+ | 0.1− | 2009 01 01 | G96 | 0.1− | 0.3− |
| 2003 11 15 | 691 | 0.2− | 0.1+ | 2008 10 24 | G96 | 0.1+ | 0.2− | 2009 01 01 | G96 | 0.5+ | 0.2+ |
| 2008 09 22 | 691 | 0.1− | 0.1+ | 2008 10 24 | G96 | 0.3+ | 0.1− | 2009 01 01 | G96 | 0.1− | 0.1− |
| 2008 09 22 | 691 | 0.2− | 0.3+ | 2008 10 24 | G96 | 0.1+ | 0.1− | | | | |

**2008 SF$_{133}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 133.79148 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23212092 | $\omega$ | 130.01410 | | +0.92016457 | +0.38061705 | |
| $a$ | 2.6221641 | $\Omega$ | 207.97490 | | −0.39148022 | +0.89058815 | |
| $e$ | 0.2982313 | $i$ | 11.28604 | | −0.00635705 | +0.24896467 | |
| $P$ | 4.25 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 10 02 | 691 | 0.1+ | 0.2+ | 2008 09 26 | 691 | 0.2− | 0.2+ | 2008 10 31 | 704 | 0.5+ | 0.4− |
| 1995 10 02 | 691 | 0.1+ | 0.3− | 2008 09 26 | 691 | 0.3+ | 0.2− | 2008 10 31 | 704 | 0.5+ | 0.3− |
| 1995 10 02 | 691 | 0.2− | 0.1− | 2008 10 26 | 704 | 0.4− | 0.2+ | 2008 10 31 | 704 | 0.6+ | 0.2− |
| 2007 04 14 | G96 | (3.0− | 0.1+) | 2008 10 26 | 704 | 0.4− | 0.0 | 2008 10 31 | 704 | 0.6+ | 0.2− |
| 2007 04 14 | G96 | 0.2+ | 1.8− | 2008 10 26 | 704 | 0.6− | 0.1+ | 2008 11 06 | 691 | 0.1− | 0.0 |
| 2007 04 14 | G96 | 0.0 | 0.5− | 2008 10 26 | 704 | 0.1− | 1.1+ | 2008 11 06 | 691 | 0.0 | 0.1− |
| 2007 04 14 | G96 | 0.5− | 0.1+ | 2008 10 26 | 704 | 0.5− | 0.5+ | 2008 11 06 | 691 | 0.0 | 0.4− |
| 2008 09 06 | 703 | 0.3− | 0.5+ | 2008 10 27 | 691 | 0.1+ | 0.1+ | 2008 11 23 | 704 | 0.0 | 0.2+ |
| 2008 09 06 | 703 | 0.9+ | 0.3+ | 2008 10 27 | 691 | 0.2− | 0.2− | 2008 11 23 | 704 | 0.9+ | 0.8+ |
| 2008 09 06 | 703 | 0.1− | 0.1− | 2008 10 27 | 691 | 0.0 | 0.1− | 2008 11 23 | 704 | 0.5− | 0.2+ |
| 2008 09 06 | 703 | 0.6+ | 0.1+ | 2008 10 30 | 703 | 0.1− | 0.2+ | 2008 11 30 | 704 | 0.9− | 0.4− |
| 2008 09 22 | 691 | 0.2− | 0.1− | 2008 10 30 | 703 | 0.2+ | 0.1+ | 2008 11 30 | 704 | 0.3+ | 0.2+ |
| 2008 09 22 | 691 | 0.1+ | 0.2− | 2008 10 30 | 703 | 0.5− | 0.0 | 2008 11 30 | 704 | 0.1− | 0.6− |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 2008 09 22 | 691 | 0.2− | 0.1+ | 2008 10 30 | 703 | 0.9+ | 0.1+ | |
| 2008 09 26 | 691 | 0.2− | 0.1− | 2008 10 31 | 704 | 0.5+ | 0.5− | |

**2008 SF$_{142}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 64.32717 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17449636 | $\omega$ | 295.21628 | | +0.58243929 | −0.81225432 | |
| $a$ | 3.1716004 | $\Omega$ | 119.12464 | | +0.75826281 | +0.52882466 | |
| $e$ | 0.1620900 | $i$ | 2.08221 | | +0.29291977 | +0.24614508 | |
| $P$ | 5.65 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 09 05 | 645 | 0.1+ | 0.1− | 2008 09 25 | 691 | 0.5− | 0.4− | 2008 11 06 | 691 | 0.8− | 0.7+ |
| 2002 09 05 | 645 | 0.1+ | 0.2− | 2008 09 29 | 691 | 0.1− | 0.1+ | 2008 11 06 | 691 | 0.4+ | 0.1+ |
| 2003 12 21 | 645 | 0.0 | 0.2− | 2008 09 29 | 691 | 0.4− | 0.2+ | 2008 11 06 | 691 | 0.1− | 0.4− |
| 2003 12 21 | 645 | 0.1− | 0.0 | 2008 09 29 | 691 | 0.7+ | 0.4+ | 2008 11 17 | 691 | 0.1− | 0.1− |
| 2008 09 24 | G96 | 0.7+ | 0.0 | 2008 10 21 | 691 | 0.3+ | 0.1− | 2008 11 17 | 691 | 0.2− | 0.3+ |
| 2008 09 24 | G96 | 0.5+ | 0.2+ | 2008 10 21 | 691 | 0.4− | 0.2+ | 2008 11 17 | 691 | 0.6+ | 0.4+ |
| 2008 09 24 | G96 | 0.4+ | 0.0 | 2008 10 21 | 691 | 0.2− | 0.3− | 2008 11 20 | 691 | 0.2+ | 0.2− |
| 2008 09 24 | G96 | 0.8+ | 0.0 | 2008 10 28 | G96 | 0.6+ | 0.0 | 2008 11 20 | 691 | 0.1− | 0.0 |
| 2008 09 25 | 691 | 0.3+ | 0.4− | 2008 10 28 | G96 | 0.3+ | 0.1− | 2008 11 20 | 691 | 0.1− | 0.0 |
| 2008 09 25 | 691 | 0.3− | 0.6+ | 2008 10 28 | G96 | 0.8+ | 0.1+ | 2008 11 24 | 691 | 0.3− | 0.1− |
| 2008 09 25 | 691 | 0.2+ | 0.0 | 2008 11 02 | 691 | 0.1− | 0.3− | 2008 11 24 | 691 | 0.0 | 0.1− |
| 2008 09 25 | 691 | 0.5− | 0.4+ | 2008 11 02 | 691 | 0.1− | 0.0 | 2008 11 24 | 691 | 0.1+ | 0.1− |
| 2008 09 25 | 691 | 0.4− | 0.3+ | 2008 11 02 | 691 | 0.2+ | 0.8+ | | | | |

**2008 SS$_{142}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 151.54997 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22891270 | $\omega$ | 216.18958 | | +0.93750237 | +0.34688264 | |
| $a$ | 2.6466070 | $\Omega$ | 123.49114 | | −0.31098768 | +0.87078968 | |
| $e$ | 0.0734903 | $i$ | 1.89652 | | −0.15612808 | +0.34842183 | |
| $P$ | 4.31 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 12 31 | 691 | 0.0 | 0.1+ | 2008 09 24 | G96 | 0.5+ | 0.2− | 2008 10 28 | G96 | 0.2+ | 0.4− |
| 2000 12 31 | 691 | 0.1+ | 0.6+ | 2008 09 24 | G96 | 0.0 | 0.4− | 2008 10 28 | G96 | 0.5+ | 0.3− |
| 2000 12 31 | 691 | 0.1− | 0.1− | 2008 09 25 | 691 | 0.8+ | 0.7+ | 2008 11 02 | 691 | 0.4+ | 0.2− |
| 2006 03 05 | G96 | 0.2− | 0.7− | 2008 09 25 | 691 | 0.8− | 0.0 | 2008 11 02 | 691 | 0.6− | 0.1+ |
| 2006 03 05 | G96 | 0.2+ | 0.7− | 2008 09 25 | 691 | 0.0 | 0.6− | 2008 11 02 | 691 | 0.2+ | 0.1+ |
| 2006 03 05 | G96 | 0.4− | 0.3− | 2008 09 29 | 691 | 0.1+ | 0.3+ | 2008 11 06 | 691 | 0.1+ | 0.1+ |
| 2006 03 05 | G96 | 0.4− | 0.5− | 2008 09 29 | 691 | 0.2− | 0.9+ | 2008 11 06 | 691 | 0.1− | 0.0 |
| 2008 09 24 | G96 | 0.3+ | 0.2+ | 2008 09 29 | 691 | 0.1+ | 0.2− | 2008 11 06 | 691 | 0.3− | 0.1− |
| 2008 09 24 | G96 | 0.4+ | 0.6− | 2008 10 07 | 691 | 0.5+ | 0.4− | 2008 11 24 | 691 | 0.0 | 0.3− |
| 2008 09 24 | G96 | 0.1− | 0.1+ | 2008 10 07 | 691 | 0.3− | 0.1+ | 2008 11 24 | 691 | 0.3− | 0.1− |
| 2008 09 24 | G96 | 0.6+ | 0.2− | 2008 10 07 | 691 | 0.3− | 0.2− | 2008 11 24 | 691 | 0.2+ | 0.3− |
| 2008 09 24 | G96 | 0.1+ | 0.1+ | 2008 10 28 | G96 | 0.1+ | 0.2− | | | | |
| 2008 09 24 | G96 | 0.2+ | 0.0 | 2008 10 28 | G96 | 0.4+ | 0.1− | | | | |

**2008 SA$_{143}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 87.37419 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19485959 | $\omega$ | 351.19513 | | +0.80545422 | −0.58381625 | |
| $a$ | 2.9466023 | $\Omega$ | 45.04125 | | +0.55215210 | +0.67668093 | |
| $e$ | 0.1413045 | $i$ | 8.28706 | | +0.21534057 | +0.44862178 | |
| $P$ | 5.06 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 05 23 | 807 | 0.1+ | 0.3+ | 2008 10 20 | 691 | 0.3− | 0.1+ | 2008 11 08 | 691 | 0.1− | 0.2− |
| 2001 05 23 | 807 | 0.2+ | 0.3+ | 2008 10 20 | 691 | 0.4− | 0.3+ | 2008 11 08 | G96 | 0.3− | 0.7− |
| 2003 10 23 | 691 | 0.1+ | 0.2− | 2008 10 20 | 691 | 0.0 | 0.3+ | 2008 11 08 | G96 | 0.1+ | 0.6− |
| 2003 10 23 | 691 | 0.0 | 0.0 | 2008 10 28 | G96 | 0.3+ | 0.2− | 2008 11 08 | 691 | 0.1− | 0.2− |
| 2003 10 23 | 691 | 0.0 | 0.2− | 2008 10 28 | G96 | 0.2+ | 0.5− | 2008 11 08 | G96 | 0.0 | 0.5− |
| 2008 09 24 | G96 | 0.2− | 0.1− | 2008 10 28 | G96 | 0.5+ | 0.3− | 2008 11 08 | G96 | 0.4+ | 0.6− |
| 2008 09 24 | G96 | 0.9+ | 0.0 | 2008 10 28 | G96 | 0.4+ | 0.6− | 2008 11 17 | 691 | 0.3+ | 0.1+ |
| 2008 09 24 | G96 | 0.2+ | 0.3− | 2008 11 01 | 691 | 0.3− | 0.3− | 2008 11 17 | 691 | 0.0 | 0.6+ |
| 2008 09 24 | G96 | 0.7+ | 0.0 | 2008 11 01 | 691 | 0.3+ | 0.1− | 2008 11 17 | 691 | 0.1+ | 0.0 |
| 2008 09 25 | 691 | 0.3+ | 0.5+ | 2008 11 01 | 691 | 0.1+ | 0.1− | 2008 11 21 | 691 | 0.4+ | 0.2+ |
| 2008 09 25 | 691 | 0.1− | 0.3+ | 2008 11 04 | 703 | 1.1+ | 0.3+ | 2008 11 21 | 691 | 0.1+ | 0.4+ |
| 2008 09 25 | 691 | 0.2− | 0.2+ | 2008 11 04 | 703 | 0.5+ | 0.8+ | 2008 11 21 | 691 | 0.2− | 0.0 |
| 2008 10 03 | 691 | 0.5+ | 0.6− | 2008 11 04 | 703 | 0.1− | 0.1− | 2008 11 24 | 691 | 0.0 | 0.3+ |
| 2008 10 03 | 691 | 0.2− | 0.4+ | 2008 11 04 | 703 | 0.3− | 0.4+ | 2008 11 24 | 691 | 0.2− | 0.1− |
| 2008 10 03 | 691 | 0.2− | 0.6− | 2008 11 08 | 691 | 0.4− | 0.1− | 2008 11 24 | 691 | 0.4− | 0.0 |

**2008 SX$_{145}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 68.27968 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21244913 | $\omega$ | 40.44646 | | +0.56427345 | −0.82489472 | |
| $a$ | 2.7816303 | $\Omega$ | 15.29965 | | +0.72052914 | +0.47205304 | |
| $e$ | 0.2019463 | $i$ | 7.36512 | | +0.40303006 | +0.31098975 | |
| $P$ | 4.64 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 12 07 | 703 | 0.2− | 0.2+ | 2008 09 30 | 704 | 0.5− | 0.1+ | 2008 10 21 | 683 | (2.1+ | 1.1+) |
| 1999 12 07 | 703 | 0.3+ | 0.4− | 2008 10 02 | G96 | 0.1− | 0.2− | 2008 10 22 | 691 | 0.6− | 0.1− |
| 1999 12 07 | 703 | 0.3− | 0.2+ | 2008 10 02 | G96 | 0.1+ | 0.3− | 2008 10 22 | 691 | 0.4− | 0.0 |
| 1999 12 07 | 703 | 0.0 | 0.4+ | 2008 10 02 | G96 | 0.3− | 0.3− | 2008 10 22 | 691 | 0.3− | 0.3− |
| 2004 12 21 | 703 | 0.3+ | 0.3− | 2008 10 02 | G96 | 0.1− | 0.1− | 2008 10 23 | 683 | 0.5− | 0.2+ |
| 2004 12 21 | 703 | 0.2+ | 0.2− | 2008 10 06 | 683 | 0.0 | 0.2− | 2008 10 23 | 683 | 0.3− | 1.7+ |
| 2004 12 21 | 703 | 0.2+ | 0.7+ | 2008 10 06 | 683 | 0.7+ | 1.2− | 2008 10 23 | 683 | 0.6+ | 0.9+ |
| 2004 12 21 | 703 | 0.8− | 0.5− | 2008 10 06 | 683 | 0.9+ | 0.1+ | 2008 10 24 | 691 | 0.3− | 0.3− |
| 2008 09 22 | 683 | 0.5+ | 1.7− | 2008 10 07 | 683 | 0.3+ | 0.3− | 2008 10 24 | 691 | 0.3− | 0.0 |
| 2008 09 22 | 683 | (1.8− | 3.4−) | 2008 10 07 | 683 | 0.5+ | 1.6− | 2008 10 24 | 691 | 0.4− | 0.2− |
| 2008 09 24 | 683 | 1.5− | 0.5− | 2008 10 07 | 683 | 0.6− | 0.2+ | 2008 10 24 | 704 | 0.0 | 1.1+ |
| 2008 09 24 | 683 | 0.8+ | 0.3− | 2008 10 08 | 683 | 0.3+ | 0.0 | 2008 10 24 | 704 | 1.0+ | 0.1+ |
| 2008 09 24 | 683 | 0.8+ | 1.5+ | 2008 10 08 | 683 | 0.2− | 0.4+ | 2008 10 24 | 704 | 0.1− | 0.1+ |
| 2008 09 25 | 683 | 0.3+ | 0.3− | 2008 10 08 | 683 | 0.0 | 0.9+ | 2008 10 26 | 683 | 1.1+ | 0.6+ |
| 2008 09 25 | 683 | (2.3+ | 2.4−) | 2008 10 08 | 703 | 0.8+ | 0.0 | 2008 10 26 | 683 | 1.1+ | 1.5− |
| 2008 09 28 | 704 | 1.2+ | 1.2+ | 2008 10 08 | 703 | 0.3+ | 0.1− | 2008 10 26 | 683 | 0.4− | 1.7− |
| 2008 09 28 | 704 | 0.5− | 0.3+ | 2008 10 08 | 703 | 0.7+ | 0.7+ | 2008 10 27 | 691 | 0.1− | 0.1− |
| 2008 09 28 | 704 | 0.1+ | 0.0 | 2008 10 08 | 703 | 0.4− | 0.0 | 2008 10 27 | 691 | 0.2− | 0.0 |
| 2008 09 28 | 704 | 0.3+ | 0.1+ | 2008 10 09 | 683 | 1.2+ | 1.1− | 2008 10 27 | 691 | 0.1− | 0.2− |
| 2008 09 28 | 704 | 0.3+ | 0.8+ | 2008 10 09 | 683 | 0.2+ | 0.1+ | 2008 10 28 | A50 | 0.1− | 0.6− |
| 2008 09 28 | 683 | 0.6+ | 0.3− | 2008 10 09 | 683 | 0.5− | 0.5− | 2008 10 28 | A50 | 0.4+ | 0.1+ |
| 2008 09 28 | 683 | 1.0+ | 0.2+ | 2008 10 09 | G96 | 0.2+ | 0.2− | 2008 10 28 | A50 | 0.0 | 0.1+ |
| 2008 09 28 | 683 | 0.8+ | 0.2+ | 2008 10 09 | G96 | 0.1+ | 0.1− | 2008 10 30 | 683 | 0.5+ | 1.2− |
| 2008 09 29 | 683 | (1.5+ | 2.2−) | 2008 10 09 | G96 | 0.0 | 0.2− | 2008 10 30 | 683 | 1.3+ | 1.6+ |
| 2008 09 29 | 683 | 0.2+ | 0.3− | 2008 10 09 | G96 | 0.2+ | 0.2− | 2008 11 01 | 704 | 0.5+ | 0.1+ |
| 2008 09 29 | 683 | 0.3+ | 1.0− | 2008 10 10 | G96 | 0.0 | 0.0 | 2008 11 01 | 704 | 0.3+ | 0.4+ |
| 2008 09 29 | 703 | 0.8− | 0.2+ | 2008 10 10 | G96 | 0.2+ | 0.2− | 2008 11 01 | 704 | 0.2− | 0.3+ |
| 2008 09 29 | 703 | 0.2− | 0.4+ | 2008 10 10 | G96 | 0.2+ | 0.2+ | 2008 11 01 | 704 | 0.0 | 0.9− |
| 2008 09 29 | 703 | 0.5− | 0.0 | 2008 10 10 | G96 | 0.2− | 0.2− | 2008 11 02 | 683 | 0.8− | 0.9+ |
| 2008 09 29 | 703 | 0.4− | 0.4+ | 2008 10 20 | 683 | (2.0+ | 1.2+) | 2008 11 02 | 683 | 0.8+ | 1.7+ |
| 2008 09 30 | 704 | 0.7− | 0.6+ | 2008 10 20 | 683 | 0.8− | 1.0+ | 2008 12 03 | G96 | 0.0 | 0.3− |
| 2008 09 30 | 704 | 0.4− | 0.6+ | 2008 10 20 | 683 | 1.4− | 0.4+ | 2008 12 03 | G96 | 0.1+ | 0.3− |
| 2008 09 30 | 704 | 0.6− | 0.7+ | 2008 10 21 | 683 | 0.4+ | 0.7+ | 2008 12 03 | G96 | 0.4+ | 0.5− |
| 2008 09 30 | 704 | 0.1− | 0.4+ | 2008 10 21 | 683 | 1.7+ | 0.1+ | 2008 12 03 | G96 | 0.5+ | 0.4− |

**2008 SD$_{155}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 24.25728 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.20055955 | $\omega$ | 339.06747 | | +0.11786375 | −0.99151599 | |
| $a$ | 2.8905056 | $\Omega$ | 104.13175 | | +0.91893099 | +0.08798156 | |
| $e$ | 0.0408078 | $i$ | 3.24014 | | +0.37639604 | +0.09568328 | |
| $P$ | 4.91 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 03 24 | 691 | 0.0 | 0.3− | 2008 09 29 | 704 | (0.6− | 1.7+) | 2009 11 10 | G96 | 0.4+ | 0.0 |
| 2006 03 24 | 691 | 0.0 | 0.3− | 2008 09 29 | 704 | (0.2+ | 1.9+) | 2009 11 10 | G96 | 0.2+ | 0.1− |
| 2006 03 24 | 691 | 0.2+ | 0.2− | 2008 09 29 | 704 | 0.2+ | 1.2+ | 2009 12 15 | G96 | 0.5− | 0.4+ |
| 2006 04 18 | 691 | 0.2+ | 0.5+ | 2008 09 29 | 704 | (0.2− | 1.9+) | 2009 12 15 | G96 | 0.4+ | 0.0 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 04 18 | 691 | 0.2− | 0.5+ | 2008 10 08 | 703 | 1.1− | 0.1− | 2009 12 15 | G96 | 0.7+ | 0.2− |
| 2006 04 18 | 691 | 0.2+ | 0.6+ | 2008 10 08 | 703 | 0.5− | 1.3+ | 2009 12 15 | G96 | 0.4+ | 0.5− |
| 2008 09 23 | 704 | 0.0 | 0.7+ | 2008 10 08 | 703 | 0.5+ | 0.2+ | 2009 12 15 | G96 | 0.3+ | 0.2− |
| 2008 09 23 | 704 | 0.2− | 0.3+ | 2008 10 08 | 703 | 0.1− | 0.6− | 2009 12 17 | 691 | 0.3+ | 0.2+ |
| 2008 09 23 | 704 | (1.7− | 0.2−) | 2009 10 18 | G96 | 0.3+ | 0.4− | 2009 12 17 | 691 | 0.1− | 0.2+ |
| 2008 09 28 | G96 | 0.1+ | 0.1− | 2009 10 18 | G96 | 0.6+ | 0.3− | 2009 12 17 | 691 | 0.1+ | 0.1+ |
| 2008 09 28 | G96 | 0.3− | 0.2+ | 2009 10 18 | G96 | 0.2+ | 0.3+ | 2009 12 25 | 691 | 0.5− | 0.1− |
| 2008 09 28 | G96 | 0.2− | 0.2+ | 2009 10 18 | G96 | 0.1− | 0.1− | 2009 12 25 | 691 | 0.3− | 0.3+ |
| 2008 09 28 | G96 | 0.0 | 0.5+ | 2009 11 10 | G96 | 0.4+ | 0.5− | 2009 12 25 | 691 | 0.1− | 0.0 |
| 2008 09 29 | 704 | (0.2+ | 1.9+) | 2009 11 10 | G96 | 0.3+ | 0.5− | | | | |

**2008 SL$_{156}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 62.02429 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.20257273 | $\omega$ | 320.57289 | | +0.71907588 | −0.69276855 | |
| $a$ | 2.8713230 | $\Omega$ | 83.36964 | | +0.65071061 | +0.64354869 | |
| $e$ | 0.0657474 | $i$ | 3.16181 | | +0.24393768 | +0.32544865 | |
| $P$ | 4.87 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 21 | 691 | 0.0 | 0.1− | 2008 09 28 | 704 | 0.1+ | 0.5+ | 2008 11 02 | G96 | 0.0 | 0.0 |
| 2003 09 21 | 691 | 0.2+ | 0.0 | 2008 09 28 | 704 | (0.9− | 1.7+) | 2008 11 02 | G96 | 0.5+ | 0.0 |
| 2003 09 21 | 691 | 0.1− | 0.1− | 2008 10 02 | G96 | 0.2− | 0.1− | 2008 12 03 | G96 | 0.3− | 0.6− |
| 2006 04 02 | 691 | 0.0 | 0.3+ | 2008 10 02 | G96 | 0.0 | 0.5− | 2008 12 03 | G96 | 0.6+ | 0.7− |
| 2006 04 02 | 691 | 0.0 | 0.3+ | 2008 10 02 | G96 | 0.2+ | 0.3− | 2008 12 03 | G96 | 0.6+ | 1.0− |
| 2006 04 02 | 691 | 0.5+ | 0.6+ | 2008 10 02 | G96 | 0.1− | 0.3− | 2008 12 03 | G96 | 0.1+ | 0.3− |
| 2008 09 04 | 691 | 0.3− | 0.1+ | 2008 10 08 | 703 | 0.2− | 0.0 | 2009 12 15 | G96 | 0.8+ | 0.1+ |
| 2008 09 04 | 691 | 0.2− | 0.2+ | 2008 10 08 | 703 | 0.8+ | 0.2+ | 2009 12 15 | G96 | 0.5+ | 0.4− |
| 2008 09 04 | 691 | 0.0 | 0.1+ | 2008 10 08 | 703 | 1.4+ | 0.7+ | 2009 12 15 | G96 | 0.5+ | 0.9− |
| 2008 09 23 | 704 | 0.4+ | 0.8+ | 2008 10 08 | 703 | 0.2− | 0.1− | 2009 12 15 | G96 | 1.7− | 0.4− |
| 2008 09 23 | 704 | 0.2− | 0.3+ | 2008 10 27 | 691 | 0.4− | 0.0 | 2009 12 18 | 691 | 0.3+ | 0.1+ |
| 2008 09 23 | 704 | 0.6+ | 0.2+ | 2008 10 27 | 691 | 0.5− | 0.0 | 2009 12 18 | 691 | 0.0 | 0.3+ |
| 2008 09 28 | 704 | 0.5− | 0.6+ | 2008 10 27 | 691 | 0.1+ | 0.6+ | 2009 12 18 | 691 | 0.2− | 0.3+ |
| 2008 09 28 | 704 | 0.8− | 0.7+ | 2008 11 02 | G96 | 0.2+ | 0.2− | | | | |
| 2008 09 28 | 704 | 0.3− | 0.7+ | 2008 11 02 | G96 | 0.1+ | 0.1− | | | | |

**2008 SP$_{157}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 103.12524 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22910296 | $\omega$ | 9.32378 | | +0.98804249 | −0.15417081 | |
| $a$ | 2.6451416 | $\Omega$ | 359.53288 | | +0.12286472 | +0.79451136 | |
| $e$ | 0.2939126 | $i$ | 13.05172 | | +0.09314660 | +0.58735258 | |
| $P$ | 4.30 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 01 26 | 645 | 0.0 | 0.0 | 2008 09 29 | 704 | 0.2− | 0.1− | 2008 10 28 | 683 | 1.3+ | 0.4− |
| 2001 01 26 | 645 | 0.0 | 0.0 | 2008 10 08 | 703 | 0.9− | 1.2− | 2008 10 28 | 683 | 0.2+ | 1.0− |
| 2006 03 05 | G96 | 0.4+ | 0.2+ | 2008 10 08 | 703 | 0.8+ | 0.5− | 2008 10 28 | 683 | 1.2+ | 0.1+ |
| 2006 03 05 | G96 | 0.2− | 0.4+ | 2008 10 08 | 703 | 0.3+ | 0.6− | 2008 10 29 | G96 | 0.2+ | 0.1− |
| 2006 03 05 | G96 | 0.3+ | 0.5+ | 2008 10 08 | 703 | 0.2− | 0.8− | 2008 10 29 | G96 | 0.1− | 0.1− |
| 2006 03 05 | G96 | 0.2+ | 0.1− | 2008 10 24 | 683 | 0.9− | 0.6− | 2008 10 29 | G96 | 0.1+ | 0.0 |
| 2008 09 03 | 691 | 0.3− | 0.1− | 2008 10 24 | 683 | 0.1− | 0.6+ | 2008 10 29 | G96 | 0.2+ | 0.0 |
| 2008 09 03 | 691 | 0.3− | 0.1− | 2008 10 24 | 683 | (2.3− | 0.9+) | 2008 11 02 | 704 | 0.3+ | 0.7+ |
| 2008 09 03 | 691 | 0.3− | 0.1− | 2008 10 24 | 704 | 0.5− | 0.1+ | 2008 11 02 | 704 | 0.2− | 0.3+ |
| 2008 09 20 | G96 | 0.6+ | 1.0− | 2008 10 24 | 704 | 1.2− | 0.5+ | 2008 11 02 | 704 | 1.4+ | 0.5+ |
| 2008 09 20 | G96 | 0.6+ | 0.8− | 2008 10 24 | 704 | (2.2− | 1.3+) | 2008 11 02 | 704 | 0.2− | 0.7+ |
| 2008 09 20 | G96 | 0.3+ | 0.8− | 2008 10 24 | 704 | 0.4− | 0.4+ | 2008 11 30 | 703 | 0.4− | 1.2− |
| 2008 09 24 | 704 | 0.4+ | 0.9+ | 2008 10 24 | 704 | 0.3− | 0.9+ | 2008 11 30 | 703 | 0.8+ | 0.6− |
| 2008 09 24 | 704 | 0.2+ | 0.7+ | 2008 10 25 | 704 | 0.3− | 0.1+ | 2008 11 30 | 703 | (2.4− | 0.2−) |
| 2008 09 24 | 704 | 0.1+ | 0.6+ | 2008 10 25 | 704 | 0.7+ | 0.1+ | 2008 11 30 | 703 | 0.2+ | 0.0 |
| 2008 09 24 | 704 | 0.2+ | 0.9+ | 2008 10 25 | 704 | 0.6+ | 0.1+ | 2008 11 30 | 703 | 0.8− | 0.9− |
| 2008 09 24 | 704 | 0.1+ | 0.9+ | 2008 10 25 | 704 | 0.1− | 1.3+ | 2008 11 30 | 703 | 0.3+ | 0.1+ |
| 2008 09 29 | 704 | 0.4+ | 0.2+ | 2008 10 25 | 704 | 0.4+ | 0.3+ | 2008 11 30 | 703 | 1.7− | 0.7+ |
| 2008 09 29 | 704 | 0.3+ | 0.2+ | 2008 10 26 | 683 | 0.0 | 0.7− | 2008 11 30 | 703 | 0.5− | 0.6+ |
| 2008 09 29 | 704 | 0.2− | 0.1+ | 2008 10 26 | 683 | 0.3− | 0.8− | | | | |
| 2008 09 29 | 704 | 0.1+ | 0.3+ | 2008 10 26 | 683 | 0.6− | 0.5+ | | | | |

**2008 SP$_{158}$ = 2001 SY$_{258}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 26.14100 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28029185 | $\omega$ | 146.86871 | | −0.42523847 | −0.90383464 | |
| $a$ | 2.3123970 | $\Omega$ | 328.22284 | | +0.80955847 | −0.35637312 | |
| $e$ | 0.1318868 | $i$ | 5.17379 | | +0.40470648 | −0.23681456 | |
| $P$ | 3.52 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 20 | 704 | 0.3+ | 0.0 | 2006 01 05 | 703 | 1.3+ | 0.8− | 2008 09 29 | 704 | 0.3− | 0.5+ |
| 2001 09 20 | 704 | 0.4+ | 0.1− | 2006 01 05 | 703 | 0.3− | 0.3+ | 2008 09 29 | 704 | 0.4+ | 0.3− |
| 2001 09 20 | 704 | 0.6+ | 0.2+ | 2006 01 05 | 703 | 0.3− | 0.0 | 2008 09 29 | 704 | 0.4+ | 0.2+ |
| 2001 09 20 | 704 | 0.3+ | 1.5− | 2006 02 02 | G96 | 0.1+ | 0.4+ | 2008 10 08 | G96 | 0.1− | 0.2− |
| 2001 09 20 | 704 | 0.2+ | 0.2− | 2006 02 02 | G96 | 0.3+ | 0.9− | 2008 10 08 | G96 | 0.0 | 0.5− |
| 2001 09 21 | 704 | 0.5+ | 0.2− | 2006 02 02 | G96 | 1.3− | 0.2− | 2008 10 08 | G96 | 0.1− | 0.1− |
| 2001 09 21 | 704 | 0.1− | 0.2− | 2008 09 24 | 704 | (3.0− | 1.3+) | 2008 10 08 | G96 | 0.1+ | 0.2− |
| 2001 09 21 | 704 | 0.0 | 0.3− | 2008 09 24 | 704 | 0.2− | 0.1+ | 2009 10 27 | G96 | 0.2+ | 0.3+ |
| 2001 09 21 | 704 | 0.1− | 0.1− | 2008 09 24 | 704 | (1.3− | 2.5+) | 2009 10 27 | G96 | 0.2− | 0.1− |
| 2001 11 18 | 645 | 0.2− | 0.1+ | 2008 09 25 | G96 | 0.0 | 0.3− | 2009 10 27 | G96 | 0.5+ | 0.7− |
| 2001 11 18 | 645 | 0.0 | 0.1+ | 2008 09 25 | G96 | 0.6− | 0.3− | 2009 10 27 | G96 | 0.5− | 0.4+ |
| 2006 01 05 | 703 | 0.2+ | 0.1− | 2008 09 25 | G96 | 1.2+ | 0.2− | | | | |

**2008 SD$_{163}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 156.87054 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27017014 | $\omega$ | 157.13537 | | +0.82745635 | +0.56123230 | |
| $a$ | 2.3697970 | $\Omega$ | 168.66916 | | −0.52850763 | +0.78938374 | |
| $e$ | 0.1657378 | $i$ | 5.33964 | | −0.18972525 | +0.24878027 | |
| $P$ | 3.65 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 03 15 | 691 | 0.1+ | 0.4+ | 2008 09 28 | 704 | 0.4+ | 0.6+ | 2008 09 29 | 704 | 0.1+ | 0.2− |
| 2007 03 15 | 691 | 0.2+ | 0.5− | 2008 09 28 | 704 | 0.1+ | 1.0+ | 2008 09 29 | 704 | 0.6− | 0.2− |
| 2007 03 15 | 691 | 0.0 | 0.6+ | 2008 09 28 | 704 | 0.1− | 0.4+ | 2008 10 08 | 703 | 1.7− | 0.6+ |
| 2007 04 25 | G96 | 0.5+ | 0.2− | 2008 09 28 | 704 | 0.1− | 0.8+ | 2008 10 08 | 703 | 0.3− | 0.1+ |
| 2007 04 25 | G96 | 0.2− | 0.6+ | 2008 09 28 | G96 | 0.1+ | 0.2− | 2008 10 08 | 703 | 0.1− | 0.6− |
| 2007 04 25 | G96 | 0.6− | 0.2− | 2008 09 28 | G96 | 0.6+ | 0.2− | 2008 10 08 | 703 | 0.2+ | 0.2+ |
| 2007 04 25 | G96 | 0.2+ | 0.2− | 2008 09 28 | G96 | 0.5+ | 0.7− | 2008 10 10 | G96 | 0.2+ | 0.3− |
| 2008 09 03 | 691 | 0.2− | 0.0 | 2008 09 28 | G96 | 0.4+ | 0.3− | 2008 10 10 | G96 | 0.2+ | 0.2− |
| 2008 09 03 | 691 | 0.1− | 0.1− | 2008 09 29 | 704 | 0.4− | 0.7+ | 2008 10 10 | G96 | 0.3+ | 0.4− |
| 2008 09 03 | 691 | 0.0 | 0.1− | 2008 09 29 | 704 | 0.1+ | 0.5+ | 2008 10 10 | G96 | 0.6+ | 0.5− |
| 2008 09 28 | 704 | 0.3− | 0.8+ | 2008 09 29 | 704 | 0.0 | 0.5+ | | | | |

**2008 SK$_{166}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 124.13546 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22477204 | $\omega$ | 320.03069 | | +0.98081461 | +0.17499012 | |
| $a$ | 2.6790112 | $\Omega$ | 30.22049 | | −0.10426730 | +0.84328123 | |
| $e$ | 0.1231923 | $i$ | 9.82799 | | −0.16471499 | +0.50818817 | |
| $P$ | 4.38 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 10 24 | 691 | 0.1+ | 0.3− | 2008 10 02 | 691 | 0.3− | 0.4+ | 2008 10 28 | 683 | 0.8+ | 0.9− |
| 1995 10 24 | 691 | 0.2+ | 0.3− | 2008 10 02 | 691 | 0.3− | 0.0 | 2008 10 28 | 683 | 1.4+ | 0.6− |
| 1995 10 24 | 691 | 0.3+ | 0.4− | 2008 10 02 | 691 | 0.2− | 0.1+ | 2008 10 31 | 704 | 1.4+ | 0.8+ |
| 2002 03 05 | 291 | 0.1+ | 0.4+ | 2008 10 05 | J75 | 0.1+ | 0.3− | 2008 10 31 | 704 | 1.5+ | 1.6+ |
| 2002 03 05 | 291 | 0.3+ | 0.1+ | 2008 10 05 | J75 | 0.2− | 0.1− | 2008 10 31 | 704 | 0.5− | 1.3+ |
| 2002 03 05 | 291 | 0.4+ | 0.8+ | 2008 10 05 | J75 | 0.0 | 0.1− | 2008 11 04 | 703 | (2.4− | 0.2+) |
| 2008 09 22 | 691 | 0.2− | 0.0 | 2008 10 06 | 691 | 0.2− | 0.3+ | 2008 11 04 | 703 | 0.5− | 0.8+ |
| 2008 09 22 | 691 | 0.0 | 0.2− | 2008 10 06 | 691 | 0.2− | 0.1+ | 2008 11 04 | 703 | 1.4− | 0.7+ |
| 2008 09 22 | 691 | 0.1− | 0.3− | 2008 10 06 | 691 | 0.2+ | 0.1− | 2008 11 04 | 703 | 1.0− | 1.6+ |
| 2008 09 28 | 704 | 0.4+ | 0.4+ | 2008 10 10 | 691 | 0.0 | 0.3+ | 2008 11 07 | G96 | 0.3− | 0.0 |
| 2008 09 28 | 704 | 0.0 | 0.5+ | 2008 10 10 | 691 | 0.2− | 0.1+ | 2008 11 07 | G96 | 0.1+ | 0.1+ |
| 2008 09 28 | 704 | 0.5− | 0.3− | 2008 10 10 | 691 | 0.2− | 0.4+ | 2008 11 07 | G96 | 0.1− | 0.3− |
| 2008 09 28 | 704 | 0.3− | 0.2− | 2008 10 23 | G96 | 0.2+ | 0.2− | 2008 11 07 | G96 | 0.3+ | 0.3+ |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 09 30 | 704 | 0.2+ | 0.8− | 2008 10 23 | G96 | 0.5+ | 0.1+ | 2008 11 20 | G96 | 0.1− | 0.1+ |
| 2008 09 30 | 704 | 0.0 | 0.3+ | 2008 10 23 | G96 | 0.2+ | 0.1+ | 2008 11 20 | G96 | 0.4+ | 0.4− |
| 2008 09 30 | 704 | 0.1+ | 0.1− | 2008 10 23 | G96 | 0.5+ | 0.1− | 2008 11 20 | G96 | 0.3+ | 0.2− |
| 2008 09 30 | 704 | 0.6− | 0.2− | 2008 10 24 | 683 | 0.8− | 0.3+ | 2008 12 03 | G96 | 0.7+ | 0.8+ |
| 2008 10 01 | 300 | 0.5− | 0.6+ | 2008 10 24 | 683 | 0.1− | 1.6− | 2008 12 03 | G96 | 0.2+ | 0.4+ |
| 2008 10 01 | 300 | 0.1+ | 0.0 | 2008 10 24 | 683 | (4.3+ | 0.5−) | 2008 12 03 | G96 | 0.2+ | 0.9+ |
| 2008 10 01 | 300 | 0.1+ | 0.2− | 2008 10 28 | 683 | 0.6− | 1.5− | 2008 12 03 | G96 | 0.4+ | 0.4+ |

**2008 SW$_{172}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 89.81771 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.20481866 | $\omega$ | 96.09912 | | +0.96729140 | | −0.10313208 |
| $a$ | 2.8502943 | $\Omega$ | 269.98709 | | +0.00561581 | | +0.92210487 |
| $e$ | 0.1689221 | $i$ | 13.40051 | | +0.25360564 | | +0.37294286 |
| $P$ | 4.81 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 08 20 | 644 | 0.1− | 0.6− | 2008 09 22 | 703 | 0.2− | 0.1− | 2008 10 02 | 704 | 0.7+ | 0.3− |
| 2003 08 20 | 644 | 0.3− | 0.6− | 2008 09 22 | 703 | 0.4− | 0.2+ | 2008 10 02 | 704 | 0.4− | 0.2+ |
| 2003 08 20 | 644 | 0.0 | 0.8− | 2008 09 28 | 703 | 0.2+ | 0.6+ | 2008 10 25 | 703 | 0.3+ | 0.6− |
| 2003 09 23 | 644 | 0.3+ | 0.7+ | 2008 09 28 | 703 | 0.3+ | 0.2+ | 2008 10 25 | 703 | 0.8− | 0.8− |
| 2003 09 23 | 644 | 0.1+ | 0.6+ | 2008 09 28 | 703 | 0.9+ | 0.1+ | 2008 10 25 | 703 | 0.8− | 1.7− |
| 2003 09 23 | 644 | 0.1+ | 0.5+ | 2008 09 28 | 703 | 0.5+ | 0.4+ | 2008 10 25 | 703 | 0.3− | 0.8− |
| 2008 09 22 | 703 | 0.1− | 1.3+ | 2008 10 02 | 704 | 0.2+ | 0.6+ | | | | |
| 2008 09 22 | 703 | 0.0 | 0.5+ | 2008 10 02 | 704 | 0.4− | 0.1+ | | | | |

**2008 SB$_{174}$ = 2005 EM$_{189}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 91.99259 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22356987 | $\omega$ | 91.25745 | | +0.92586921 | | −0.30697567 |
| $a$ | 2.6886062 | $\Omega$ | 286.65353 | | +0.18367265 | | +0.87517857 |
| $e$ | 0.1235781 | $i$ | 13.29384 | | +0.33019776 | | +0.37393637 |
| $P$ | 4.41 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 01 | 703 | 0.4− | 0.5+ | 2005 03 13 | G96 | 0.3− | 0.1− | 2008 09 28 | 703 | 0.1− | 0.6− |
| 2004 12 01 | 703 | 0.3+ | 0.4− | 2005 03 13 | G96 | 0.0 | 0.0 | 2008 09 28 | 703 | 0.1+ | 0.5− |
| 2004 12 01 | 703 | 0.6+ | 0.3− | 2005 03 13 | G96 | 0.2+ | 0.2+ | 2008 09 28 | 703 | 0.7− | 0.2− |
| 2004 12 01 | 703 | 0.7− | 0.3+ | 2005 03 13 | G96 | 0.2− | 0.1+ | 2008 09 28 | 703 | 0.3− | 0.3− |
| 2004 12 14 | 703 | 0.1− | 0.3+ | 2008 09 09 | 703 | 0.2+ | 0.2− | 2008 10 25 | 703 | 0.3+ | 1.0− |
| 2004 12 14 | 703 | 0.0 | 0.1− | 2008 09 09 | 703 | 0.1− | 0.6+ | 2008 10 25 | 703 | 0.2+ | 0.1+ |
| 2004 12 14 | 703 | 0.2+ | 0.3− | 2008 09 09 | 703 | 0.1− | 0.3+ | 2008 10 25 | 703 | 0.0 | 0.3− |
| 2004 12 14 | 703 | 0.1− | 0.1− | 2008 09 09 | 703 | 0.4+ | 0.3+ | 2008 10 25 | 703 | 0.2− | 0.3− |
| 2005 03 11 | G96 | 0.2+ | 0.1+ | 2008 09 22 | 703 | 0.2+ | 0.8+ | 2009 12 15 | G96 | 0.2+ | 0.2+ |
| 2005 03 11 | G96 | 0.0 | 0.0 | 2008 09 22 | 703 | 0.2− | 0.4+ | 2009 12 15 | G96 | 0.1− | 0.3+ |
| 2005 03 11 | G96 | (1.2+ | 1.9−) | 2008 09 22 | 703 | 0.1− | 0.4+ | 2009 12 15 | G96 | 0.2− | 0.2+ |
| 2005 03 11 | G96 | 0.3+ | 0.1− | 2008 09 22 | 703 | 0.5+ | 0.6+ | 2009 12 15 | G96 | 0.3+ | 0.3− |

**2008 SB$_{176}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 53.58274 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18532014 | $\omega$ | 126.80527 | | +0.52364799 | | −0.85121125 |
| $a$ | 3.0468726 | $\Omega$ | 291.58176 | | +0.76912003 | | +0.49006451 |
| $e$ | 0.1201405 | $i$ | 2.16338 | | +0.36639754 | | +0.18781958 |
| $P$ | 5.32 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 12 21 | 691 | 0.1− | 0.2− | 2008 09 09 | G96 | 0.5+ | 0.0 | 2008 09 29 | 691 | 0.1+ | 0.1+ |
| 2003 12 21 | 691 | 0.1+ | 0.2− | 2008 09 09 | G96 | 0.6+ | 0.2+ | 2008 10 07 | 691 | 0.3+ | 0.4+ |
| 2003 12 21 | 691 | 0.2+ | 0.1− | 2008 09 09 | G96 | 0.6+ | 0.0 | 2008 10 07 | 691 | 0.2− | 0.3+ |
| 2005 03 11 | G96 | 0.3+ | 0.1− | 2008 09 09 | G96 | 0.7+ | 0.1+ | 2008 10 07 | 691 | 0.2− | 0.2− |
| 2005 03 11 | G96 | 0.5+ | 0.1− | 2008 09 09 | G96 | 0.3+ | 0.1− | 2008 10 09 | 691 | 0.2− | 0.1− |
| 2005 03 11 | G96 | 0.2− | 0.3+ | 2008 09 23 | 691 | 0.3− | 0.7+ | 2008 10 09 | 691 | 0.1− | 0.0 |
| 2005 03 11 | G96 | 0.2+ | 1.8+ | 2008 09 23 | 691 | 0.3− | 0.2− | 2008 10 09 | 691 | 0.1− | 0.3+ |
| 2008 09 09 | G96 | 0.9+ | 0.4− | 2008 09 23 | 691 | 0.1+ | 0.1− | 2008 11 19 | 291 | 0.1+ | 0.0 |
| 2008 09 09 | G96 | 0.5+ | 0.2− | 2008 09 29 | 691 | 0.0 | 0.3− | 2008 11 19 | 291 | 0.2+ | 0.0 |
| 2008 09 09 | G96 | 0.5+ | 0.2− | 2008 09 29 | 691 | 0.0 | 0.1+ | 2008 11 19 | 291 | 0.4− | 0.1− |

**2008 SE$_{177}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 128.13824 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23574201 | $\omega$ | 178.98741 | | +0.99238969 | | +0.12151728 |
| $a$ | 2.5952432 | $\Omega$ | 173.92390 | | −0.11425677 | | +0.96898812 |
| $e$ | 0.1490616 | $i$ | 10.83968 | | −0.04591403 | | +0.21516408 |
| $P$ | 4.18 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 03 23 | G96 | 0.0 | 0.2− | 2008 09 23 | G96 | 0.3− | 0.1+ | 2008 10 22 | G96 | 0.1+ | 0.1− |
| 2006 03 23 | G96 | 0.7+ | 0.3+ | 2008 09 29 | 703 | 0.3+ | 0.0 | 2008 10 22 | G96 | 0.0 | 0.0 |
| 2006 03 23 | G96 | 0.3− | 0.2+ | 2008 09 29 | 703 | 0.1+ | 0.6+ | 2008 10 29 | 703 | 2.7+ | 1.7+ |
| 2006 03 23 | G96 | 0.3− | 0.4+ | 2008 09 29 | 703 | 0.6− | 0.3− | 2008 10 29 | 703 | 0.7+ | 0.1+ |
| 2007 05 10 | 691 | 0.3+ | 0.4+ | 2008 09 29 | 703 | 0.3− | 0.1+ | 2008 10 29 | 703 | 0.8+ | 0.4− |
| 2007 05 10 | 691 | 0.1− | 0.1− | 2008 10 04 | J75 | 0.1+ | 0.7− | 2008 10 29 | 703 | 0.8− | 0.2+ |
| 2007 05 10 | 691 | 0.2− | 0.2− | 2008 10 04 | J75 | 0.1− | 0.1+ | 2008 11 03 | 703 | 0.2+ | 0.9− |
| 2008 09 23 | G96 | 0.2− | 0.0 | 2008 10 04 | J75 | 0.0 | 0.1− | 2008 11 03 | 703 | 0.6− | 0.3+ |
| 2008 09 23 | G96 | 0.6− | 0.0 | 2008 10 22 | G96 | 0.1− | 0.0 | 2008 11 03 | 703 | 0.2− | 0.5+ |
| 2008 09 23 | G96 | 0.5− | 0.6+ | 2008 10 22 | G96 | 0.2+ | 0.2− | 2008 11 03 | 703 | 1.1− | 0.5− |

**2008 ST$_{180}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 117.44290 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18894957 | $\omega$ | 306.61942 | | +0.98363000 | | +0.17898046 |
| $a$ | 3.0077295 | $\Omega$ | 43.08134 | | −0.15400088 | | +0.89524115 |
| $e$ | 0.0577826 | $i$ | 1.75586 | | −0.09357215 | | +0.40805549 |
| $P$ | 5.22 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 05 23 | 807 | 0.2− | 0.0 | 2008 10 01 | 691 | 0.1− | 0.2− | 2008 10 21 | 691 | 0.4+ | 0.1+ |
| 2001 05 23 | 807 | 0.2+ | 0.0 | 2008 10 08 | 691 | 0.0 | 0.2− | 2008 10 28 | G96 | 0.0 | 0.1− |
| 2003 11 16 | 691 | 0.2+ | 0.1+ | 2008 10 08 | 691 | 0.2− | 0.1+ | 2008 10 28 | G96 | 0.6+ | 0.1− |
| 2003 11 16 | 691 | 0.4+ | 0.0 | 2008 10 08 | 691 | 0.1+ | 0.1+ | 2008 10 28 | G96 | 0.7+ | 0.0 |
| 2003 11 16 | 691 | 0.7− | 0.1+ | 2008 10 20 | G96 | 0.4+ | 0.1− | 2008 10 28 | G96 | 0.8+ | 0.6− |
| 2008 09 24 | 691 | 0.4− | 0.1− | 2008 10 20 | G96 | 0.8+ | 0.3− | 2008 11 24 | G96 | 0.3− | 0.1+ |
| 2008 09 24 | 691 | 0.3− | 0.2+ | 2008 10 20 | G96 | 0.7+ | 0.1− | 2008 11 24 | G96 | 0.1+ | 0.4− |
| 2008 09 24 | 691 | 0.6− | 0.4+ | 2008 10 20 | G96 | 0.7+ | 0.3− | 2008 11 24 | G96 | 0.0 | 0.6− |
| 2008 10 01 | 691 | 0.1− | 0.2− | 2008 10 21 | 691 | 0.0 | 0.4+ | 2008 11 24 | G96 | 0.2− | 0.1+ |
| 2008 10 01 | 691 | 0.2− | 0.0 | 2008 10 21 | 691 | 0.3+ | 0.1− | | | | |

**2008 SW$_{183}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 160.32956 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23987947 | $\omega$ | 150.37691 | | +0.66323071 | | +0.74814141 |
| $a$ | 2.5653148 | $\Omega$ | 161.14583 | | −0.69838129 | | +0.62838523 |
| $e$ | 0.2131308 | $i$ | 3.58996 | | −0.26905128 | | +0.21311132 |
| $P$ | 4.11 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 04 30 | 691 | 0.2+ | 0.1+ | 2007 05 10 | 691 | 0.1+ | 0.6− | 2008 10 01 | 691 | 0.0 | 0.1− |
| 2003 04 30 | 691 | 0.3− | 0.3+ | 2008 09 24 | 691 | 0.0 | 0.2− | 2008 10 01 | 691 | 0.1+ | 0.0 |
| 2003 04 30 | 691 | 0.3+ | 0.4+ | 2008 09 24 | 691 | 0.2− | 0.5− | 2008 10 01 | 691 | 0.0 | 0.0 |
| 2007 04 18 | 691 | 0.2− | 0.4+ | 2008 09 24 | 691 | 0.4+ | 0.2− | 2008 10 08 | 691 | 0.2− | 0.3+ |
| 2007 04 18 | 691 | 0.3+ | 0.1− | 2008 09 30 | 704 | 0.5+ | 0.5+ | 2008 10 08 | 691 | 0.2− | 0.2+ |
| 2007 04 18 | 691 | 0.5− | 0.2+ | 2008 09 30 | 704 | 1.1+ | 0.7+ | 2008 10 08 | 691 | 0.3− | 0.0 |
| 2007 05 10 | 691 | 0.0 | 0.3− | 2008 09 30 | 704 | 0.3− | 0.3+ | | | | |
| 2007 05 10 | 691 | 0.1− | 0.5− | 2008 09 30 | 704 | (1.9+ | 2.1−) | | | | |

**2008 SK$_{191}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 74.43140 | | (2000.0) | | | |
| $n$ | 0.21337460 | $\omega$ | 58.26997 | | +0.72841966 | −0.68394755 |
| $a$ | 2.7735813 | $\Omega$ | 344.75502 | | +0.56534245 | +0.63321550 |
| $e$ | 0.1818272 | $i$ | 8.80637 | | +0.38703063 | +0.36228977 |
| $P$ | 4.62 | $H$ | 16.1 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 07 08 | 644 | 0.3− | 0.4+ | 2008 09 25 | G96 | 0.1+ | 0.1− | 2008 10 25 | 704 | 1.5− | 0.4− |
| 2003 07 08 | 644 | 0.2+ | 0.0 | 2008 09 25 | G96 | 0.1+ | 0.2− | 2008 10 25 | 704 | 0.3+ | 0.5+ |
| 2003 07 08 | 644 | 0.1− | 0.0 | 2008 09 28 | G96 | 0.2+ | 0.4− | 2008 10 25 | 704 | 0.3− | 0.5+ |
| 2005 02 04 | G96 | 0.2+ | 0.4+ | 2008 09 28 | G96 | 0.4+ | 0.4− | 2008 11 01 | G96 | 0.1+ | 0.5− |
| 2005 02 04 | G96 | 0.1− | 0.1+ | 2008 09 28 | G96 | 0.5+ | 0.3− | 2008 11 01 | G96 | 0.3+ | 0.4− |
| 2005 02 04 | G96 | 0.1− | 0.2− | 2008 09 28 | G96 | 0.1+ | 0.2− | 2008 11 01 | G96 | 0.3+ | 0.3− |
| 2005 02 04 | G96 | 0.1+ | 0.0 | 2008 10 02 | 691 | 0.1+ | 0.1+ | 2008 11 01 | G96 | 0.3− | 0.3− |
| 2008 08 24 | 691 | 0.1− | 0.1+ | 2008 10 02 | 691 | 0.0 | 0.0 | 2008 11 02 | 704 | 0.8+ | 0.0 |
| 2008 08 24 | 691 | 0.1+ | 0.1+ | 2008 10 02 | 691 | 0.0 | 0.1+ | 2008 11 02 | 704 | 0.3− | 1.9+ |
| 2008 08 24 | 691 | 0.2− | 0.1− | 2008 10 09 | 691 | 0.3− | 0.1− | 2008 11 02 | 704 | 0.4+ | 0.7− |
| 2008 09 25 | G96 | 0.4+ | 0.3− | 2008 10 09 | 691 | 0.1− | 0.0 | 2008 11 02 | 704 | 0.2+ | 0.5+ |
| 2008 09 25 | G96 | 0.0 | 0.2+ | 2008 10 09 | 691 | 0.1− | 0.0 | 2008 11 02 | 704 | 0.6+ | 0.5+ |

**2008 SE$_{198}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 83.67671 | | (2000.0) | | | |
| $n$ | 0.19213391 | $\omega$ | 294.88646 | | +0.76110890 | −0.64694263 |
| $a$ | 2.9744045 | $\Omega$ | 105.46079 | | +0.61120879 | +0.69125942 |
| $e$ | 0.0200836 | $i$ | 2.77572 | | +0.21711070 | +0.32190938 |
| $P$ | 5.13 | $H$ | 16.6 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 11 24 | 695 | 0.0 | 0.2+ | 2008 09 29 | 691 | 0.1+ | 0.3+ | 2008 11 19 | 691 | 0.2− | 0.6− |
| 2003 11 24 | 695 | 0.1− | 0.0 | 2008 09 29 | 691 | 0.2+ | 0.0 | 2008 11 19 | 691 | 0.3+ | 0.1+ |
| 2006 05 01 | 691 | 0.3+ | 0.2+ | 2008 10 27 | 291 | 0.3+ | 0.3+ | 2008 11 19 | 691 | 0.1+ | 0.0 |
| 2006 05 01 | 691 | 0.1+ | 0.2+ | 2008 10 27 | 291 | 0.1− | 0.1+ | 2008 11 21 | 691 | 0.4+ | 0.0 |
| 2006 05 01 | 691 | 0.2− | 0.4+ | 2008 10 27 | 291 | 0.3+ | 0.1+ | 2008 11 21 | 691 | 0.2+ | 0.1− |
| 2008 09 25 | 691 | 0.0 | 0.2− | 2008 10 28 | G96 | 0.4+ | 0.1+ | 2008 11 21 | 691 | 0.2− | 0.1+ |
| 2008 09 25 | 691 | 0.9− | 0.0 | 2008 10 28 | G96 | 0.4+ | 0.0 | 2008 12 02 | 691 | 0.1− | 0.3+ |
| 2008 09 25 | 691 | 0.5− | 0.1− | 2008 10 28 | G96 | 0.2+ | 0.5+ | 2008 12 02 | 691 | 0.6− | 0.3+ |
| 2008 09 29 | 691 | 0.0 | 0.3− | 2008 10 28 | G96 | 0.6+ | 0.2− | 2008 12 02 | 691 | 0.0 | 0.2+ |

**2008 SE$_{199}$ = 2009 VA$_{61}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 258.57855 | | (2000.0) | | | |
| $n$ | 0.19181624 | $\omega$ | 286.36763 | | −0.97931556 | −0.14205616 |
| $a$ | 2.9776876 | $\Omega$ | 245.65251 | | +0.18316208 | −0.92498442 |
| $e$ | 0.0375272 | $i$ | 9.09970 | | −0.08598074 | −0.35245406 |
| $P$ | 5.14 | $H$ | 15.7 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 11 | 599 | 0.2− | 0.3+ | 2008 08 25 | 106 | 0.2+ | 0.6− | 2009 11 08 | 691 | 0.0 | 0.2− |
| 2004 12 11 | 599 | 0.4− | 0.3+ | 2008 09 26 | G96 | 0.2+ | 0.2− | 2009 11 08 | 691 | 0.0 | 0.0 |
| 2004 12 11 | 599 | 0.3− | 0.1+ | 2008 09 26 | G96 | 0.2+ | 0.1− | 2009 11 16 | 691 | 0.1+ | 0.0 |
| 2004 12 11 | 599 | 0.8+ | 0.7+ | 2008 09 26 | G96 | 0.2+ | 0.7− | 2009 11 16 | 691 | 0.2− | 0.1+ |
| 2006 02 24 | 644 | 0.2+ | 0.3− | 2008 09 26 | G96 | 0.2+ | 0.2− | 2009 11 16 | 691 | 0.0 | 0.1− |
| 2006 02 24 | 644 | 0.1− | 0.4+ | 2008 09 29 | G96 | 0.4+ | 0.1− | 2009 11 20 | 691 | 0.1+ | 0.0 |
| 2006 02 24 | 644 | 0.1+ | 0.4+ | 2008 09 29 | G96 | 0.1− | 0.3+ | 2009 11 20 | 691 | 0.0 | 0.1+ |
| 2008 08 25 | 106 | 0.1− | 0.5+ | 2008 09 29 | G96 | 0.1+ | 0.4+ | 2009 11 20 | 691 | 0.1+ | 0.0 |
| 2008 08 25 | 106 | 0.2− | 0.4− | 2008 09 29 | G96 | 0.1+ | 0.2+ | 2009 11 20 | G96 | 0.7+ | 0.2− |
| 2008 08 25 | 106 | 0.3− | 0.9+ | 2008 10 30 | G96 | 0.2− | 0.6+ | 2009 11 20 | G96 | 0.5+ | 0.1− |
| 2008 08 25 | 106 | 1.0− | 0.1+ | 2008 10 30 | G96 | 0.9+ | 0.3+ | 2009 11 20 | G96 | 0.0 | 0.1− |
| 2008 08 25 | 106 | 0.5− | 0.2+ | 2008 10 30 | G96 | 0.2− | 0.2− | 2009 11 20 | G96 | 0.1− | 0.0 |
| 2008 08 25 | 106 | 0.0 | 0.4− | 2008 10 30 | G96 | 0.2− | 0.1+ | | | | |
| 2008 08 25 | 106 | 0.3+ | 0.3+ | 2009 11 08 | 691 | 0.3− | 0.1− | | | | |

**2008 SF$_{211}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 123.14033 | | (2000.0) | | | |
| $n$ | 0.28808693 | $\omega$ | 90.23267 | | +0.91689781 | −0.38747442 |
| $a$ | 2.2704939 | $\Omega$ | 292.56602 | | +0.31239193 | +0.84597613 |
| $e$ | 0.1258192 | $i$ | 5.94963 | | +0.24841434 | +0.36631675 |
| $P$ | 3.42 | $H$ | 17.3 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 06 | 691 | 0.5+ | 0.2+ | 2008 09 22 | 703 | 1.3− | 0.1+ | 2008 10 02 | 704 | 0.9+ | 0.2− |
| 2005 12 06 | 691 | 0.6− | 0.4− | 2008 09 22 | 703 | 0.6− | 0.8+ | 2008 10 02 | 704 | 0.1− | 0.2+ |
| 2005 12 06 | 691 | 0.3+ | 0.3+ | 2008 09 28 | 703 | 0.2+ | 0.4+ | 2008 10 02 | 704 | 0.3+ | 0.2− |
| 2006 02 03 | 691 | 0.2+ | 0.4− | 2008 09 28 | 703 | 1.0+ | 0.9+ | 2008 10 09 | G96 | 0.6+ | 0.0 |
| 2006 02 03 | 691 | 0.7+ | 0.1+ | 2008 09 28 | 703 | 0.4+ | 0.2− | 2008 10 09 | G96 | 0.3+ | 0.2− |
| 2006 02 03 | 691 | 1.0− | 0.3+ | 2008 09 28 | 703 | 0.6+ | 0.3+ | 2008 10 09 | G96 | 0.5+ | 0.2− |
| 2008 09 05 | 704 | 0.5− | 0.5− | 2008 09 29 | G96 | 0.1+ | 0.2− | 2008 10 09 | G96 | 0.2+ | 0.1− |
| 2008 09 05 | 704 | 0.3− | 0.0 | 2008 09 29 | G96 | 0.1+ | 0.4− | 2008 12 02 | G96 | 0.1− | 0.8− |
| 2008 09 05 | 704 | 1.1− | 0.5− | 2008 09 29 | G96 | 0.3+ | 0.2− | 2008 12 02 | G96 | 0.2− | 0.4− |
| 2008 09 05 | 704 | 2.0− | 0.9+ | 2008 09 29 | G96 | 0.3+ | 0.4− | 2008 12 02 | G96 | 0.3− | 0.2− |
| 2008 09 22 | 703 | 1.0− | 0.5− | 2008 10 02 | 704 | 0.7+ | 0.3+ | 2008 12 02 | G96 | 0.0 | 0.4− |
| 2008 09 22 | 703 | 0.2+ | 0.4+ | 2008 10 02 | 704 | 0.1− | 0.7+ | | | | |

**2008 SM$_{211}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 94.31551 | | (2000.0) | | | |
| $n$ | 0.17429725 | $\omega$ | 155.51135 | | +0.93459548 | −0.34006801 |
| $a$ | 3.1740154 | $\Omega$ | 224.80089 | | +0.29705220 | +0.90749611 |
| $e$ | 0.0788670 | $i$ | 8.51465 | | +0.19568160 | +0.24658581 |
| $P$ | 5.65 | $H$ | 16.0 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 10 05 | 649 | 0.1+ | 0.0 | 2008 10 23 | 691 | 0.2− | 0.1− | 2008 11 04 | 703 | 0.5+ | 0.2+ |
| 2002 10 05 | 649 | 0.1− | 0.2− | 2008 10 23 | 691 | 0.2+ | 0.1+ | 2008 11 07 | 691 | 0.2+ | 0.1− |
| 2002 10 05 | 649 | 0.1+ | 0.2− | 2008 10 23 | 691 | 0.0 | 0.1+ | 2008 11 07 | 691 | 0.1− | 0.3+ |
| 2006 05 24 | 691 | 0.1− | 0.0 | 2008 10 27 | 691 | 0.4− | 0.8− | 2008 11 07 | 691 | 0.0 | 0.0 |
| 2006 05 24 | 691 | 0.1+ | 0.2+ | 2008 10 27 | 691 | 0.0 | 0.2− | 2008 11 17 | 691 | 0.2− | 0.4+ |
| 2006 05 24 | 691 | 0.0 | 0.1+ | 2008 10 27 | 691 | 0.1+ | 0.0 | 2008 11 17 | 691 | 0.2+ | 0.1− |
| 2008 09 28 | G96 | 0.0 | 0.0 | 2008 10 27 | 291 | 0.0 | 0.1− | 2008 11 17 | 691 | 0.0 | 0.2− |
| 2008 09 28 | G96 | 0.1− | 0.2− | 2008 10 27 | 291 | 0.0 | 0.0 | 2008 11 19 | 691 | 0.2− | 0.2− |
| 2008 09 28 | G96 | 0.3+ | 0.0 | 2008 10 27 | 291 | 0.1− | 0.2− | 2008 11 19 | 691 | 0.1− | 0.2+ |
| 2008 09 28 | G96 | 0.8+ | 0.0 | 2008 10 28 | 291 | 0.3− | 0.4+ | 2008 11 19 | 691 | 0.4− | 0.1+ |
| 2008 10 01 | G96 | 0.0 | 0.4− | 2008 10 28 | 291 | 0.3− | 0.5+ | 2008 11 23 | 691 | 0.2+ | 0.1− |
| 2008 10 01 | G96 | 0.4+ | 0.2− | 2008 10 28 | 291 | 0.3− | 0.4+ | 2008 11 23 | 691 | 0.3+ | 0.5− |
| 2008 10 01 | G96 | 0.0 | 0.1+ | 2008 10 31 | 691 | 0.2− | 0.1+ | 2008 11 23 | 691 | 0.1− | 0.3− |
| 2008 10 01 | G96 | 0.0 | 0.1− | 2008 10 31 | 691 | 0.1− | 0.2+ | 2008 11 30 | 691 | 0.4+ | 0.1+ |
| 2008 10 01 | G96 | 0.5+ | 0.1− | 2008 10 31 | 691 | 0.1− | 0.2− | 2008 11 30 | 691 | 0.2+ | 0.1+ |
| 2008 10 02 | 691 | 0.3− | 0.1− | 2008 11 01 | 704 | 0.2+ | 0.1− | 2008 11 30 | 691 | 0.2+ | 0.4+ |
| 2008 10 02 | 691 | 0.0 | 0.1− | 2008 11 01 | 704 | 0.9+ | 0.2+ | 2008 12 02 | 691 | 0.0 | 0.1− |
| 2008 10 02 | 691 | 0.2− | 0.4+ | 2008 11 01 | 704 | 0.5+ | 0.7+ | 2008 12 02 | 691 | 0.3+ | 0.1− |
| 2008 10 06 | 691 | 0.1− | 0.4− | 2008 11 04 | 703 | 0.6+ | 0.5+ | 2008 12 02 | 691 | 0.1− | 0.0 |
| 2008 10 06 | 691 | 0.1− | 0.0 | 2008 11 04 | 703 | 1.3+ | 1.5+ | | | | |
| 2008 10 06 | 691 | 0.4− | 0.3− | 2008 11 04 | 703 | 1.9+ | 1.0+ | | | | |

**2008 SC$_{215}$ = 2003 SC$_{21}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 46.92765 | | (2000.0) | | | |
| $n$ | 0.20428532 | $\omega$ | 41.93903 | | +0.52169213 | −0.85307983 |
| $a$ | 2.8552531 | $\Omega$ | 16.62238 | | +0.77354416 | +0.46824787 |
| $e$ | 0.0604018 | $i$ | 1.92287 | | +0.35981489 | +0.23021456 |
| $P$ | 4.82 | $H$ | 17.2 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 16 | 691 | 0.0 | 0.3− | 2008 09 19 | 691 | 0.3− | 0.3− | 2008 10 01 | G96 | 0.6+ | 0.1− |
| 2003 09 16 | 691 | 0.0 | 0.1+ | 2008 09 19 | 691 | 0.0 | 0.4+ | 2008 10 01 | G96 | 0.0 | 0.2+ |
| 2003 09 16 | 691 | 0.3+ | 0.1+ | 2008 09 29 | G96 | 0.2+ | 0.3− | 2008 10 01 | G96 | 0.0 | 0.1+ |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 19 | 691 | 0.1− | 0.2− | 2008 09 29 | G96 | 0.1+ | 0.2− | 2009 12 18 | G96 | 0.2+ | 0.2+ |
| 2003 09 19 | 691 | 0.0 | 0.1+ | 2008 09 29 | G96 | 0.0 | 0.0 | 2009 12 18 | G96 | 0.6− | 0.1+ |
| 2003 09 19 | 691 | 0.2− | 0.1+ | 2008 09 29 | G96 | 0.1− | 0.1− | 2009 12 18 | G96 | 0.1+ | 0.4− |
| 2008 09 19 | 691 | 0.2− | 0.1+ | 2008 10 01 | G96 | 0.6+ | 0.2− | 2009 12 18 | G96 | 0.2+ | 0.0 |

**2008 SC$_{216}$ = 2009 SX$_{351}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 311.40871 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.08235153 | $\omega$ | 281.81514 | | −0.11612664 | | −0.99321558 |
| $a$ | 5.2322475 | $\Omega$ | 174.84171 | | +0.93571156 | | −0.11146434 |
| $e$ | 0.0309567 | $i$ | 3.90077 | | +0.33310430 | | −0.03314371 |
| $P$ | 11.97 | $H$ | 14.5 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 03 13 | 291 | 0.2+ | 0.5+ | 2008 09 29 | G96 | 0.5− | 0.1+ | 2009 09 21 | 291 | 0.2+ | 0.1+ |
| 2002 03 13 | 291 | 0.1+ | 0.4+ | 2008 09 29 | G96 | 0.2− | 0.1+ | 2009 09 28 | 291 | 0.1− | 0.0 |
| 2002 03 13 | 291 | 0.3+ | 0.5+ | 2008 10 01 | G96 | 0.0 | 0.0 | 2009 09 28 | 291 | 0.1− | 0.0 |
| 2008 09 19 | 691 | 0.1+ | 0.5+ | 2008 10 01 | G96 | 0.1− | 0.0 | 2009 09 28 | 291 | 0.2+ | 0.3− |
| 2008 09 19 | 691 | 0.5− | 0.5+ | 2008 10 01 | G96 | 0.6− | 0.1− | 2009 10 22 | G96 | 0.6+ | 0.7− |
| 2008 09 19 | 691 | 0.0 | 0.9+ | 2008 10 01 | G96 | 0.4+ | 0.2+ | 2009 10 22 | G96 | 0.3+ | 0.5− |
| 2008 09 29 | G96 | 0.0 | 0.2− | 2009 09 21 | 291 | 0.1− | 0.0 | 2009 10 22 | G96 | 0.0 | 0.2− |
| 2008 09 29 | G96 | 0.4+ | 0.1− | 2009 09 21 | 291 | 0.2− | 0.1− | 2009 10 22 | G96 | 0.4− | 0.1+ |

**2008 SO$_{217}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 209.44300 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21380718 | $\omega$ | 221.47331 | | +0.15695980 | | +0.96196949 |
| $a$ | 2.7698390 | $\Omega$ | 58.70261 | | −0.82313260 | | +0.25250758 |
| $e$ | 0.0419981 | $i$ | 15.16681 | | −0.54572553 | | −0.10418549 |
| $P$ | 4.61 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 05 02 | 691 | 0.3+ | 0.0 | 2008 10 01 | 691 | 0.2− | 0.2− | 2008 11 30 | 691 | 0.6− | 0.1+ |
| 1997 05 02 | 691 | 0.0 | 0.1− | 2008 10 01 | 691 | 0.1− | 0.0 | 2008 11 30 | 691 | 0.2+ | 0.0 |
| 1997 05 02 | 691 | 0.1+ | 0.5+ | 2008 10 01 | 691 | 1.2− | 0.4− | 2008 11 30 | 691 | 0.2+ | 0.1+ |
| 1999 12 06 | 691 | 0.2+ | 0.1− | 2008 11 19 | 691 | 0.1+ | 0.0 | 2008 12 02 | 691 | 0.6+ | 0.2− |
| 1999 12 06 | 691 | 0.3+ | 0.2− | 2008 11 19 | 691 | 0.0 | 0.2− | 2008 12 02 | 691 | 0.6+ | 0.2+ |
| 1999 12 06 | 691 | 0.3− | 0.1+ | 2008 11 19 | 691 | 0.2+ | 0.2− | 2008 12 02 | 691 | 0.0 | 0.3+ |
| 2008 09 29 | 291 | 0.2+ | 0.1+ | 2008 11 21 | 691 | 0.1+ | 0.1− | 2008 12 06 | 691 | 0.2+ | 0.1+ |
| 2008 09 29 | 291 | 0.1+ | 0.4+ | 2008 11 21 | 691 | 0.2− | 0.0 | 2008 12 06 | 691 | 0.1+ | 0.3+ |
| 2008 09 29 | 291 | 0.2+ | 0.0 | 2008 11 21 | 691 | 0.0 | 0.2+ | 2008 12 06 | 691 | 1.0− | 0.4+ |

**2008 SN$_{218}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 99.20320 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22974308 | $\omega$ | 256.04297 | | +0.98984988 | | −0.12355598 |
| $a$ | 2.6402259 | $\Omega$ | 111.01757 | | +0.14091026 | | +0.91751712 |
| $e$ | 0.0916057 | $i$ | 4.31425 | | −0.01847991 | | +0.37801620 |
| $P$ | 4.29 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1993 01 29 | 691 | 0.6− | 0.7− | 2006 02 24 | G96 | 0.1− | 0.1+ | 2008 11 02 | F84 | 0.7− | 0.7+ |
| 1993 01 29 | 691 | 0.1− | 0.5− | 2007 05 12 | 691 | 0.3− | 0.2+ | 2008 11 02 | F84 | 0.6− | 0.7+ |
| 2000 11 29 | 691 | 0.0 | 0.1+ | 2007 05 12 | 691 | 0.4− | 0.2+ | 2009 12 15 | G96 | 0.0 | 0.2+ |
| 2000 11 29 | 691 | 0.1− | 0.0 | 2007 05 12 | 691 | 0.1+ | 0.1− | 2009 12 15 | G96 | 0.5− | 0.2− |
| 2000 11 29 | 691 | 0.1+ | 0.0 | 2008 09 25 | F85 | 0.2+ | 1.1+ | 2009 12 15 | G96 | 0.4+ | 0.1+ |
| 2002 03 13 | 291 | 0.7+ | 0.5+ | 2008 09 25 | F85 | 0.3+ | 0.0 | 2009 12 15 | G96 | 0.1− | 0.2− |
| 2002 03 13 | 291 | 0.5+ | 0.2+ | 2008 09 29 | F84 | 0.5+ | 0.6+ | 2009 12 17 | 691 | 0.2− | 0.5+ |
| 2002 03 13 | 291 | 0.1+ | 0.3+ | 2008 09 29 | F84 | 0.4− | 0.8+ | 2009 12 17 | 691 | 0.7+ | 0.3+ |
| 2006 02 01 | 691 | 0.5+ | 0.5+ | 2008 10 02 | F84 | 0.5+ | 0.5+ | 2009 12 17 | 691 | 0.3+ | 0.2− |
| 2006 02 01 | 691 | 0.1+ | 0.1− | 2008 10 02 | F84 | 0.1+ | 0.1+ | 2009 12 25 | 691 | 0.6− | 0.0 |
| 2006 02 01 | 691 | 0.3+ | 0.2+ | 2008 10 05 | F84 | 0.8+ | 0.4+ | 2009 12 25 | 691 | 0.4− | 0.2− |
| 2006 02 24 | G96 | 0.2− | 0.0 | 2008 10 05 | F84 | 0.1+ | 0.0 | 2009 12 25 | 691 | 0.3− | 0.1+ |
| 2006 02 24 | G96 | 0.1− | 0.3− | 2008 10 06 | F84 | 1.0− | 0.1+ | | | | |
| 2006 02 24 | G96 | 0.2− | 0.2+ | 2008 10 06 | F84 | 0.6− | 0.0 | | | | |

**2008 SO$_{223}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 14.68211 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.08233101 | $\omega$ | 101.29317 | | +0.82350457 | | −0.56202628 |
| $a$ | 5.2331169 | $\Omega$ | 292.94691 | | +0.48227553 | | +0.76525163 |
| $e$ | 0.0395830 | $i$ | 4.81175 | | +0.29874828 | | +0.31387321 |
| $P$ | 11.97 | $H$ | 13.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 09 05 | 691 | 0.3− | 0.1+ | 2008 10 02 | 691 | 0.2− | 0.1+ | 2009 11 10 | G96 | 0.0 | 0.2− |
| 2008 09 05 | 691 | 0.1+ | 0.0 | 2008 10 02 | 691 | 0.1− | 0.0 | 2009 11 10 | G96 | 0.2− | 0.0 |
| 2008 09 05 | 691 | 0.2− | 0.4+ | 2008 10 27 | G96 | 0.2+ | 0.6− | 2009 11 26 | G96 | 0.2+ | 0.2− |
| 2008 09 25 | G96 | 0.7+ | 0.0 | 2008 10 27 | G96 | 0.3+ | 0.5− | 2009 11 26 | G96 | 0.3+ | 0.0 |
| 2008 09 25 | G96 | 0.9+ | 0.2− | 2008 10 27 | G96 | 0.4+ | 0.3− | 2009 11 26 | G96 | 0.2− | 0.0 |
| 2008 09 25 | G96 | 0.5+ | 0.3+ | 2008 10 27 | G96 | 0.1+ | 0.8− | 2009 11 26 | G96 | 0.1− | 0.4+ |
| 2008 09 25 | G96 | 0.8+ | 0.5− | 2009 11 10 | G96 | 0.4+ | 0.0 | 2009 11 26 | G96 | 0.2− | 0.3+ |
| 2008 10 02 | 691 | 0.4− | 0.1− | 2009 11 10 | G96 | 0.3− | 0.0 | | | | |

**2008 SX$_{223}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 118.46094 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21773150 | $\omega$ | 335.51896 | | +0.96695758 | | −0.24391752 |
| $a$ | 2.7364564 | $\Omega$ | 38.83554 | | +0.24902947 | | +0.84147326 |
| $e$ | 0.0358309 | $i$ | 6.79025 | | +0.05456518 | | +0.48210683 |
| $P$ | 4.53 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 12 07 | 691 | 0.2+ | 0.4− | 2008 10 06 | 691 | 0.1− | 0.2+ | 2008 11 07 | 691 | 0.2− | 0.2+ |
| 1999 12 07 | 691 | 0.1+ | 0.6− | 2008 10 06 | 691 | 0.1− | 0.0 | 2008 11 07 | 691 | 0.4+ | 0.2+ |
| 1999 12 07 | 691 | 0.2+ | 0.3− | 2008 10 20 | 691 | 0.0 | 0.3+ | 2008 11 17 | 691 | 0.2+ | 0.3+ |
| 2006 03 24 | 691 | 0.3+ | 0.3− | 2008 10 20 | 691 | 0.1− | 0.2+ | 2008 11 17 | 691 | 0.3+ | 0.0 |
| 2006 03 24 | 691 | 0.1+ | 0.6+ | 2008 10 20 | 691 | 0.1− | 0.1+ | 2008 11 17 | 691 | 0.0 | 0.0 |
| 2006 03 24 | 691 | 0.1− | 0.2+ | 2008 10 29 | 691 | 0.0 | 0.1+ | 2008 11 21 | 691 | 0.0 | 0.3+ |
| 2008 09 25 | 691 | 0.1− | 0.1+ | 2008 10 29 | 691 | 0.0 | 0.3+ | 2008 11 21 | 691 | 0.2+ | 0.1+ |
| 2008 09 25 | 691 | 0.3− | 0.1+ | 2008 10 29 | 691 | 0.1− | 0.3+ | 2008 11 21 | 691 | 0.2+ | 0.0 |
| 2008 09 25 | 691 | 0.4− | 0.3− | 2008 11 04 | 703 | 0.0 | 0.6+ | 2008 11 24 | 691 | 0.1+ | 0.3+ |
| 2008 10 02 | 691 | 0.8− | 0.8− | 2008 11 04 | 703 | 1.1+ | 1.5+ | 2008 11 24 | 691 | 0.5+ | 0.1+ |
| 2008 10 02 | 691 | 0.6− | 0.3− | 2008 11 04 | 703 | 0.2+ | 0.2− | 2008 11 24 | 691 | 0.2+ | 0.0 |
| 2008 10 02 | 691 | 0.3− | 0.7− | 2008 11 04 | 703 | 0.8− | 0.9− | | | | |
| 2008 10 06 | 691 | 0.2− | 0.3+ | 2008 11 07 | 691 | 0.0 | 0.1− | | | | |

**2008 SE$_{229}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 186.60534 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.24340138 | $\omega$ | 345.30467 | | +0.12150188 | | +0.99048097 |
| $a$ | 2.5405087 | $\Omega$ | 291.64111 | | −0.90351786 | | +0.08337984 |
| $e$ | 0.1411774 | $i$ | 3.99074 | | −0.41096565 | | +0.10952285 |
| $P$ | 4.05 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 01 19 | 691 | 0.4+ | 0.4+ | 2005 12 28 | G96 | 0.0 | 0.0 | 2008 09 28 | G96 | 0.8+ | 0.6+ |
| 1994 01 19 | 691 | 0.8+ | 0.2+ | 2005 12 28 | G96 | 0.3− | 0.0 | 2008 09 28 | G96 | 0.0 | 0.2− |
| 1994 01 19 | 691 | 0.0 | 0.0 | 2006 01 07 | G96 | 0.3− | 0.1− | 2008 09 28 | G96 | 0.3+ | 0.2− |
| 1994 01 19 | 691 | 0.3− | 0.5+ | 2006 01 07 | G96 | 0.4+ | 0.1− | 2008 09 30 | 704 | 0.7− | 0.6+ |
| 1994 01 19 | 691 | 0.5− | 0.1− | 2006 01 07 | G96 | 0.1+ | 0.3− | 2008 09 30 | 704 | 0.1− | 0.5+ |
| 1994 01 19 | 691 | 0.2− | 0.1− | 2006 01 07 | G96 | 0.4+ | 0.3− | 2008 09 30 | 704 | 0.7− | 0.6− |
| 1998 01 01 | 691 | 0.3+ | 0.6+ | 2007 03 16 | 691 | 0.1− | 0.4+ | 2008 09 30 | 704 | 0.0 | 0.7+ |
| 1998 01 01 | 691 | 0.0 | 0.2− | 2007 03 16 | 691 | 0.2+ | 0.2− | 2008 10 02 | 691 | 0.3− | 0.3+ |
| 1998 01 01 | 691 | 0.0 | 0.0 | 2007 03 16 | 691 | 0.0 | 0.1+ | 2008 10 02 | 691 | 0.1+ | 0.2− |
| 2001 12 20 | 691 | 0.2− | 0.6− | 2008 09 20 | 703 | 0.3+ | 0.9+ | 2008 10 02 | 691 | 0.1+ | 0.1− |
| 2001 12 20 | 691 | 0.2− | 0.3− | 2008 09 20 | 703 | 0.7− | 0.7− | 2008 11 01 | G96 | 0.5+ | 0.2− |
| 2001 12 20 | 691 | 0.0 | 0.2− | 2008 09 20 | 703 | 1.1− | 1.3+ | 2008 11 01 | G96 | 0.2+ | 0.4− |
| 2005 12 28 | G96 | 0.2− | 0.1+ | 2008 09 20 | 703 | 0.1+ | 0.7+ | 2008 11 01 | G96 | 0.4+ | 0.2− |
| 2005 12 28 | G96 | 0.0 | 0.1+ | 2008 09 28 | G96 | 0.0 | 0.4− | 2008 11 01 | G96 | 0.6+ | 0.4− |

**2008 SJ$_{235}$ = 2008 RU$_{108}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 202.13450 | | (2000.0) | | | |
| $n$ | 0.22125429 | $\omega$ | 88.84287 | | −0.15467956 | +0.98772835 |
| $a$ | 2.7073324 | $\Omega$ | 172.15905 | | −0.95771240 | −0.14453618 |
| $e$ | 0.0693550 | $i$ | 9.11375 | | −0.24261327 | −0.05917771 |
| $P$ | 4.45 | $H$ | 16.2 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 03 16 | 152 | 0.1− | 1.6+ | 2008 09 06 | 691 | 0.1− | 0.1+ | 2008 10 02 | G96 | 0.1+ | 0.0 | |
| 2002 03 17 | 152 | 0.6+ | 0.7+ | 2008 09 06 | 691 | 0.0 | 0.2− | 2008 10 17 | 691 | 0.5− | 0.0 | |
| 2002 03 17 | 152 | (1.2+ | 2.1+) | 2008 09 06 | 691 | 0.0 | 0.3+ | 2008 10 17 | 691 | 0.1− | 0.8+ | |
| 2006 05 26 | G96 | 0.2− | 0.2+ | 2008 09 28 | G96 | 0.2+ | 0.2− | 2008 10 17 | 691 | 0.2− | 0.1+ | |
| 2006 05 26 | G96 | 0.6+ | 0.1− | 2008 09 28 | G96 | 0.4+ | 0.3− | 2008 11 02 | G96 | 0.5+ | 0.7− | |
| 2006 05 26 | G96 | 0.5− | 0.1+ | 2008 09 28 | G96 | 0.1− | 0.1− | 2008 11 02 | G96 | 1.1+ | 0.7− | |
| 2006 05 26 | G96 | 0.2+ | 0.0 | 2008 09 28 | G96 | 0.1− | 0.0 | 2008 11 02 | G96 | 0.2+ | 0.6− | |
| 2008 09 02 | 691 | 0.0 | 0.1+ | 2008 10 02 | G96 | 0.2+ | 0.2− | 2008 11 02 | G96 | 0.3+ | 0.7− | |
| 2008 09 02 | 691 | 0.0 | 0.0 | 2008 10 02 | G96 | 0.2+ | 0.3+ | | | | | |
| 2008 09 02 | 691 | 0.1− | 0.1+ | 2008 10 02 | G96 | 0.6+ | 0.0 | | | | | |

**2008 SM$_{246}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 28.34783 | | (2000.0) | | | |
| $n$ | 0.23698892 | $\omega$ | 158.12481 | | −0.32081055 | −0.94653297 |
| $a$ | 2.5861320 | $\Omega$ | 310.56998 | | +0.86221891 | −0.27700087 |
| $e$ | 0.1708684 | $i$ | 2.56532 | | +0.39199380 | −0.16536582 |
| $P$ | 4.16 | $H$ | 17.0 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 09 | 691 | 0.0 | 0.4− | 2006 03 05 | 691 | 0.2+ | 0.5+ | 2008 09 24 | 704 | 0.8+ | 0.6− | |
| 2004 10 09 | 691 | 0.3+ | 0.2− | 2006 03 05 | 691 | 0.1+ | 0.1+ | 2008 09 24 | 704 | 0.1+ | 1.3− | |
| 2004 10 09 | 691 | 0.3+ | 0.2− | 2008 08 24 | 691 | 0.2+ | 0.6+ | 2008 09 30 | J75 | 0.5+ | 0.8+ | |
| 2004 11 03 | 644 | 0.5− | 0.9+ | 2008 08 24 | 691 | 0.2+ | 0.6+ | 2008 09 30 | J75 | 0.1+ | 0.2+ | |
| 2004 11 03 | 644 | 0.9− | 0.9+ | 2008 08 24 | 691 | 0.0 | 0.4+ | 2008 09 30 | J75 | 0.8+ | 0.2− | |
| 2004 11 03 | 644 | 1.0− | 0.9+ | 2008 09 21 | 691 | 0.1− | 0.3− | 2008 10 02 | 691 | 0.1− | 0.0 | |
| 2006 02 25 | 691 | 0.1+ | 0.2+ | 2008 09 21 | 691 | 0.2− | 0.1− | 2008 10 02 | 691 | 0.1− | 0.1+ | |
| 2006 02 25 | 691 | 0.0 | 0.1− | 2008 09 21 | 691 | 0.2− | 0.4− | 2008 10 02 | 691 | 0.3− | 0.2+ | |
| 2006 02 25 | 691 | 0.1+ | 0.1+ | 2008 09 24 | 704 | 1.2− | 0.6+ | | | | | |
| 2006 03 05 | 691 | 0.0 | 0.2+ | 2008 09 24 | 704 | 0.7− | 1.1+ | | | | | |

**2008 SV$_{246}$ = 2006 DG$_{197}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 100.46219 | | (2000.0) | | | |
| $n$ | 0.24187771 | $\omega$ | 311.09128 | | +0.71796870 | −0.57890183 |
| $a$ | 2.5511666 | $\Omega$ | 87.96011 | | +0.69589154 | +0.60971326 |
| $e$ | 0.0536458 | $i$ | 22.75303 | | −0.01599701 | +0.54140781 |
| $P$ | 4.07 | $H$ | 15.8 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 02 24 | 644 | 0.3+ | 0.8+ | 2008 09 27 | 703 | (1.6− | 0.4−) | 2008 10 27 | 703 | 0.5+ | 1.1+ | |
| 2006 02 24 | 644 | 0.5+ | 0.5+ | 2008 09 27 | 703 | 0.2+ | 0.6− | 2008 10 27 | 703 | 0.8+ | 0.5+ | |
| 2006 02 24 | 644 | 0.7+ | 0.6+ | 2008 09 27 | 703 | 0.3+ | 1.1+ | 2008 10 27 | 703 | 0.4+ | 1.0+ | |
| 2006 03 03 | 703 | 1.0− | 1.5− | 2008 10 02 | 703 | 0.3− | 0.1+ | 2008 11 21 | 703 | 0.1− | 0.0 | |
| 2006 03 03 | 703 | 0.1− | 0.6− | 2008 10 02 | 703 | (1.7− | 0.2−) | 2008 11 21 | 703 | 0.9− | 1.3− | |
| 2006 03 03 | 703 | 0.5− | 0.0 | 2008 10 02 | 703 | 1.2− | 1.3− | 2008 11 21 | 703 | 0.6+ | 0.5− | |
| 2006 03 03 | 703 | (1.2− | 1.9−) | 2008 10 02 | 703 | 0.0 | 0.5− | 2008 11 21 | 703 | 1.3− | 0.4+ | |
| 2008 09 27 | 703 | 0.0 | 0.0 | 2008 10 27 | 703 | 0.7+ | 0.1− | | | | | |

**2008 SQ$_{248}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 127.90601 | | (2000.0) | | | |
| $n$ | 0.18757270 | $\omega$ | 115.39025 | | +0.69230694 | +0.71979894 |
| $a$ | 3.0224304 | $\Omega$ | 198.71601 | | −0.70593189 | +0.66093035 |
| $e$ | 0.1659087 | $i$ | 9.14459 | | −0.14957028 | +0.21227475 |
| $P$ | 5.25 | $H$ | 16.6 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 21 | 691 | 0.0 | 0.4+ | 2008 09 21 | 691 | 0.2− | 0.1− | 2008 10 10 | 691 | 0.2− | 0.1− | |
| 2003 10 21 | 691 | 0.1+ | 0.1+ | 2008 09 21 | 691 | 0.3− | 0.4+ | 2008 10 10 | 691 | 0.4− | 0.2− | |
| 2003 10 21 | 691 | 0.3− | 0.3+ | 2008 10 01 | G96 | 0.0 | 0.2− | 2008 10 17 | 691 | 0.1+ | 0.2+ | |
| 2007 06 09 | 691 | 0.0 | 0.1+ | 2008 10 01 | G96 | 0.1+ | 0.4− | 2008 10 17 | 691 | 0.3− | 0.2+ | |
| 2007 06 09 | 691 | 0.3− | 0.0 | 2008 10 01 | G96 | 0.1+ | 0.3− | 2008 10 17 | 691 | 0.2− | 0.1+ | |
| 2007 06 09 | 691 | 0.3+ | 0.1+ | 2008 10 01 | G96 | 0.2+ | 0.2− | 2008 11 07 | G96 | 0.5+ | 1.4− | |
| 2008 09 04 | 691 | 0.5+ | 0.2− | 2008 10 02 | J75 | 0.4− | 0.7− | 2008 11 07 | G96 | 1.2+ | 0.8− | |
| 2008 09 04 | 691 | 0.3+ | 0.1+ | 2008 10 02 | J75 | 0.8+ | 0.8− | 2008 11 07 | G96 | 1.4+ | 1.1− | |
| 2008 09 04 | 691 | 0.4+ | 0.1+ | 2008 10 02 | J75 | 0.5+ | 0.1− | 2008 11 07 | G96 | 0.4+ | 0.6− | |
| 2008 09 21 | 691 | 0.8− | 0.3+ | 2008 10 10 | 691 | 0.2+ | 0.1+ | | | | | |

**2008 SU$_{254}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 122.28142 | | (2000.0) | | | |
| $n$ | 0.08197812 | $\omega$ | 38.26815 | | +0.38429604 | +0.91541036 |
| $a$ | 5.2481241 | $\Omega$ | 254.61915 | | −0.87468117 | +0.31951818 |
| $e$ | 0.0259552 | $i$ | 7.13455 | | −0.29538009 | +0.24481014 |
| $P$ | 12.02 | $H$ | 13.7 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 09 23 | 691 | 0.4− | 0.0 | 2008 10 08 | G96 | 0.5+ | 0.1− | 2009 10 24 | 691 | 0.3− | 0.1− | |
| 2008 09 23 | 691 | 0.0 | 0.1+ | 2008 10 08 | G96 | 0.4+ | 0.3− | 2009 11 09 | 691 | 0.2+ | 0.1+ | |
| 2008 09 23 | 691 | 0.1− | 0.1+ | 2008 10 26 | G96 | 0.1+ | 0.1− | 2009 11 09 | 691 | 0.2− | 0.1+ | |
| 2008 09 24 | 291 | 0.5+ | 0.1+ | 2008 10 26 | G96 | 0.5− | 0.1− | 2009 11 09 | 691 | 0.0 | 0.1− | |
| 2008 09 24 | 291 | 0.2− | 0.0 | 2008 10 26 | G96 | 0.0 | 0.0 | 2009 11 24 | G96 | 0.1+ | 0.0 | |
| 2008 09 24 | 291 | 0.0 | 0.3+ | 2008 10 26 | G96 | 0.5+ | 0.4− | 2009 11 24 | G96 | 0.1+ | 0.4− | |
| 2008 10 08 | G96 | 0.0 | 0.5− | 2009 10 24 | 691 | 0.1+ | 0.1+ | 2009 11 24 | G96 | 0.4− | 0.1− | |
| 2008 10 08 | G96 | 0.2− | 0.5− | 2009 10 24 | 691 | 0.2+ | 0.1+ | 2009 11 24 | G96 | 0.2+ | 0.3− | |

**2008 SJ$_{261}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 118.56124 | | (2000.0) | | | |
| $n$ | 0.18615701 | $\omega$ | 260.02834 | | +0.94892520 | +0.30906961 |
| $a$ | 3.0377343 | $\Omega$ | 81.94730 | | −0.25855155 | +0.87691136 |
| $e$ | 0.2032537 | $i$ | 3.67004 | | −0.18080947 | +0.36810658 |
| $P$ | 5.29 | $H$ | 17.0 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 09 | 807 | 0.2+ | 0.7− | 2008 10 08 | 691 | 0.1− | 0.0 | 2008 11 06 | 691 | 0.0 | 0.3+ | |
| 2002 08 09 | 807 | 0.1− | 0.5+ | 2008 10 08 | 691 | 0.3+ | 0.1− | 2008 11 06 | 691 | 0.3− | 0.1− | |
| 2003 12 01 | 291 | 0.1+ | 0.1− | 2008 10 21 | 691 | 0.3− | 0.1+ | 2008 11 17 | 691 | 0.5− | 0.1− | |
| 2003 12 01 | 291 | 0.2− | 0.0 | 2008 10 21 | 691 | 0.2+ | 0.1− | 2008 11 17 | 691 | 0.4− | 0.2− | |
| 2003 12 01 | 291 | 0.1+ | 0.0 | 2008 10 21 | 691 | 0.4+ | 0.0 | 2008 11 17 | 691 | 0.8− | 0.0 | |
| 2008 09 23 | 691 | 0.3− | 0.1− | 2008 10 29 | 291 | 0.0 | 0.1+ | 2008 11 20 | 691 | 0.2− | 0.3− | |
| 2008 09 23 | 691 | 0.1+ | 0.5+ | 2008 10 29 | 291 | 0.1+ | 0.2+ | 2008 11 20 | 691 | 0.1+ | 0.1− | |
| 2008 09 23 | 691 | 0.4− | 0.2− | 2008 10 29 | 291 | 0.1+ | 0.0 | 2008 11 20 | 691 | 0.1+ | 0.1− | |
| 2008 10 01 | 691 | 0.1− | 0.3+ | 2008 11 02 | 691 | 0.6+ | 0.2+ | 2008 11 24 | 691 | 0.1+ | 0.6+ | |
| 2008 10 01 | 691 | 0.0 | 0.1− | 2008 11 02 | 691 | 0.2+ | 0.0 | 2008 11 24 | 691 | 0.0 | 0.6− | |
| 2008 10 01 | 691 | 0.1+ | 0.0 | 2008 11 02 | 691 | 0.1+ | 0.0 | 2008 11 24 | 691 | 0.4+ | 0.1+ | |
| 2008 10 08 | 691 | 0.1+ | 0.2− | 2008 11 06 | 691 | 0.4+ | 0.2− | | | | | |

**2008 ST$_{261}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 112.28888 | | (2000.0) | | | |
| $n$ | 0.21231477 | $\omega$ | 52.92431 | | +0.98740320 | +0.15673917 |
| $a$ | 2.7828037 | $\Omega$ | 298.04874 | | −0.15183256 | +0.90016395 |
| $e$ | 0.0830900 | $i$ | 1.40422 | | −0.04451732 | +0.40637137 |
| $P$ | 4.64 | $H$ | 17.7 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 01 26 | 691 | 0.2− | 0.2+ | 2006 02 27 | G96 | 0.8− | 0.5+ | 2008 10 02 | 291 | 0.1− | 0.1+ |
| 2001 01 26 | 691 | 0.0 | 0.1− | 2006 02 27 | G96 | 0.4+ | 0.1− | 2008 10 02 | 291 | 0.1− | 0.1+ |
| 2001 01 26 | 691 | 0.5+ | 0.7+ | 2006 02 27 | G96 | 0.1− | 0.0 | 2008 10 02 | 291 | 0.0 | 0.1+ |
| 2001 02 16 | 691 | 0.5− | 0.8+ | 2008 08 24 | 691 | 0.2+ | 0.0 | 2008 10 10 | 691 | 0.3− | 0.2+ |
| 2001 02 16 | 691 | 0.0 | 0.4− | 2008 08 24 | 691 | 0.1+ | 0.0 | 2008 10 10 | 691 | 0.2− | 0.1− |
| 2001 02 16 | 691 | 0.5+ | 0.4− | 2008 08 24 | 691 | 0.3− | 0.4+ | 2008 10 10 | 691 | 0.2− | 0.2+ |
| 2004 12 11 | 691 | 0.1− | 0.3− | 2008 09 24 | 703 | 1.1+ | 0.1− | 2008 10 18 | 691 | 0.0 | 0.2+ |
| 2004 12 11 | 691 | 0.0 | 0.2− | 2008 09 24 | 703 | 0.8+ | 0.1− | 2008 10 18 | 691 | 0.2− | 0.2+ |
| 2004 12 11 | 691 | 0.1+ | 0.2− | 2008 09 24 | 703 | (0.9+ | 2.7+) | 2008 10 18 | 691 | 0.2+ | 0.6− |
| 2006 02 27 | G96 | 0.8+ | 0.2+ | 2008 09 24 | 703 | (1.6+ | 1.6+) | | | | |

**2008 SW$_{271}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 173.38667 | | (2000.0) | | | |
| $n$ | 0.23304347 | $\omega$ | 294.48963 | | +0.88531034 | +0.45216993 |
| $a$ | 2.6152392 | $\Omega$ | 38.87861 | | −0.33892164 | +0.78718947 |
| $e$ | 0.0656270 | $i$ | 9.95237 | | −0.31836729 | +0.41937464 |
| $P$ | 4.23 | $H$ | 16.7 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 04 08 | 644 | 0.3+ | 0.2− | 2008 09 24 | G96 | 0.1− | 0.0 | 2008 11 21 | G96 | 0.5+ | 0.4− |
| 2002 04 08 | 644 | 0.0 | 0.1+ | 2008 10 20 | 691 | 0.0 | 0.0 | 2008 11 21 | G96 | 0.3+ | 0.0 |
| 2002 04 08 | 644 | 0.0 | 0.1+ | 2008 10 20 | 691 | 0.1− | 0.3+ | 2008 11 21 | G96 | 0.1+ | 0.6− |
| 2002 04 14 | 644 | 0.2− | 0.2− | 2008 10 20 | 691 | 0.1+ | 0.1− | 2008 12 03 | G96 | 0.3+ | 0.4+ |
| 2002 04 14 | 644 | 0.0 | 0.3+ | 2008 10 28 | 691 | 0.1− | 0.0 | 2008 12 03 | G96 | 0.2− | 0.1+ |
| 2008 09 24 | G96 | 0.3− | 0.1− | 2008 10 28 | 691 | 0.2− | 0.1− | 2008 12 03 | G96 | 0.4+ | 0.3+ |
| 2008 09 24 | G96 | 0.4+ | 0.5− | 2008 10 28 | 691 | 0.1− | 0.2+ | | | | |
| 2008 09 24 | G96 | 0.1+ | 0.1− | 2008 11 21 | G96 | 0.3+ | 0.2− | | | | |

**2008 SG$_{274}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 9.31495 | | (2000.0) | | | |
| $n$ | 0.08196461 | $\omega$ | 355.73562 | | +0.71093344 | −0.70197701 |
| $a$ | 5.2487005 | $\Omega$ | 48.94622 | | +0.64688137 | +0.62906794 |
| $e$ | 0.0663314 | $i$ | 3.22697 | | +0.27589516 | +0.33391886 |
| $P$ | 12.02 | $H$ | 14.0 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 09 19 | 691 | 0.1+ | 0.3+ | 2008 10 25 | G96 | 0.3+ | 0.4− | 2009 11 11 | G96 | 0.1− | 0.0 |
| 2008 09 19 | 691 | 0.0 | 0.0 | 2008 10 25 | G96 | 0.1− | 0.5− | 2009 11 23 | G96 | 0.0 | 0.3− |
| 2008 09 19 | 691 | 0.2− | 0.1+ | 2009 10 18 | G96 | 0.3− | 0.1+ | 2009 11 23 | G96 | 0.0 | 0.4− |
| 2008 10 09 | G96 | 0.0 | 0.2+ | 2009 10 18 | G96 | 0.0 | 0.2+ | 2009 11 23 | G96 | 0.0 | 0.1− |
| 2008 10 09 | G96 | 0.2+ | 0.3− | 2009 10 18 | G96 | 0.2+ | 0.2− | 2009 11 23 | G96 | 0.6− | 0.2+ |
| 2008 10 09 | G96 | 0.1− | 0.2− | 2009 10 18 | G96 | 0.0 | 0.1+ | 2009 12 10 | G96 | 0.2+ | 0.1− |
| 2008 10 09 | G96 | 0.3+ | 0.1+ | 2009 11 11 | G96 | 0.3+ | 0.1+ | 2009 12 10 | G96 | 0.1+ | 0.2+ |
| 2008 10 25 | G96 | 0.2− | 0.2− | 2009 11 11 | G96 | 0.3+ | 0.1+ | 2009 12 10 | G96 | 0.1− | 0.6+ |
| 2008 10 25 | G96 | 0.1+ | 0.4− | 2009 11 11 | G96 | 0.2− | 0.2− | 2009 12 10 | G96 | 0.3+ | 0.0 |

**2008 SP$_{275}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 13.68548 | | (2000.0) | | | |
| $n$ | 0.08425699 | $\omega$ | 157.26770 | | +0.66031990 | −0.74357116 |
| $a$ | 5.1530626 | $\Omega$ | 251.23476 | | +0.67079864 | +0.64701046 |
| $e$ | 0.0863161 | $i$ | 6.38269 | | +0.33764895 | +0.16875840 |
| $P$ | 11.70 | $H$ | 14.4 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 09 23 | 691 | 0.0 | 0.2− | 2008 10 29 | G96 | 0.2− | 0.0 | 2009 12 11 | G96 | 0.1− | 0.1− |
| 2008 09 23 | 691 | 0.1− | 0.0 | 2008 10 29 | G96 | 0.2− | 0.3− | 2009 12 18 | G96 | 0.1− | 0.1+ |
| 2008 09 23 | 691 | 0.2− | 0.4+ | 2008 10 29 | G96 | 0.4+ | 0.4− | 2009 12 18 | G96 | 0.1− | 0.0 |
| 2008 10 08 | G96 | 0.4+ | 0.3+ | 2008 10 29 | G96 | 0.0 | 0.3− | 2009 12 18 | G96 | 0.1− | 0.2− |
| 2008 10 08 | G96 | 0.4+ | 0.2− | 2009 12 11 | G96 | 0.2+ | 0.2− | 2009 12 18 | G96 | 0.6− | 0.2− |
| 2008 10 08 | G96 | 0.2− | 0.0 | 2009 12 11 | G96 | 0.4+ | 0.4+ | | | | |
| 2008 10 08 | G96 | 0.6+ | 0.2+ | 2009 12 11 | G96 | 0.2+ | 0.1+ | | | | |

**2008 SX$_{277}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 61.57284 | | (2000.0) | | | |
| $n$ | 0.17415154 | $\omega$ | 356.61824 | | +0.68428283 | −0.71143397 |
| $a$ | 3.1757856 | $\Omega$ | 50.12425 | | +0.67384179 | +0.53300067 |
| $e$ | 0.0548222 | $i$ | 12.03812 | | +0.27873688 | +0.45800873 |
| $P$ | 5.66 | $H$ | 16.3 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 01 01 | 691 | 0.0 | 0.0 | 2006 05 26 | G96 | 0.3− | 0.4+ | 2008 09 29 | 691 | 0.3+ | 0.3− |
| 1998 01 01 | 691 | 0.2− | 0.1− | 2006 05 26 | G96 | 0.1− | 0.3+ | 2008 10 07 | 691 | 0.1+ | 0.1+ |
| 1998 01 01 | 691 | 0.2+ | 0.2+ | 2008 09 25 | 691 | 0.1− | 0.1+ | 2008 10 07 | 691 | 0.2− | 0.0 |
| 2006 04 28 | 807 | 0.2+ | 0.2− | 2008 09 25 | 691 | 0.3+ | 1.1+ | 2008 10 07 | 691 | 0.2− | 0.0 |
| 2006 04 28 | 807 | 0.2+ | 0.4− | 2008 09 25 | 691 | 0.3+ | 0.0 | 2008 10 22 | G96 | 0.1− | 0.6− |
| 2006 05 26 | G96 | 0.0 | 0.1+ | 2008 09 29 | 691 | 0.4− | 0.7− | 2008 10 22 | G96 | 0.1− | 0.1+ |
| 2006 05 26 | G96 | 0.1+ | 0.1+ | 2008 09 29 | 691 | 0.1− | 0.1− | 2008 10 22 | G96 | 0.2+ | 0.3− |

**2008 SD$_{278}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 33.93450 | | (2000.0) | | | |
| $n$ | 0.08395922 | $\omega$ | 102.94190 | | +0.96917318 | −0.21807645 |
| $a$ | 5.1652393 | $\Omega$ | 269.74091 | | +0.15701353 | +0.90530431 |
| $e$ | 0.0695841 | $i$ | 6.58386 | | +0.18986865 | +0.36450893 |
| $P$ | 11.74 | $H$ | 13.7 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 09 05 | 691 | 0.1+ | 1.2+ | 2008 10 09 | G96 | 0.4− | 0.5− | 2009 11 09 | G96 | 0.0 | 0.1+ |
| 2008 09 05 | 691 | 0.4− | 0.3+ | 2008 11 01 | G96 | 0.6+ | 0.3− | 2009 11 09 | G96 | 0.4− | 0.3+ |
| 2008 09 05 | 691 | 0.2− | 0.2− | 2008 11 01 | G96 | 0.3+ | 0.1− | 2009 11 09 | G96 | 0.2+ | 0.0 |
| 2008 09 28 | G96 | 0.0 | 0.8− | 2008 11 01 | G96 | 0.5+ | 0.4− | 2009 11 26 | G96 | 0.1− | 0.2+ |
| 2008 09 28 | G96 | 0.1+ | 0.9− | 2008 11 01 | G96 | 0.3+ | 0.3− | 2009 11 26 | G96 | 0.4− | 0.1+ |
| 2008 09 28 | G96 | 0.4+ | 0.4− | 2009 11 09 | G96 | 0.3+ | 0.1+ | 2009 11 26 | G96 | 0.2+ | 0.3− |
| 2008 09 28 | G96 | 0.1+ | 0.6− | 2009 11 09 | G96 | 0.3+ | 0.1+ | 2009 11 26 | G96 | 0.2− | 0.2− |
| 2008 10 09 | G96 | 0.3+ | 0.3− | 2009 11 09 | G96 | 0.2+ | 0.2+ | 2009 11 26 | G96 | 0.2− | 0.3− |
| 2008 10 09 | G96 | 0.3− | 0.7− | 2009 11 09 | G96 | 0.0 | 0.1+ | | | | |
| 2008 10 09 | G96 | 0.1+ | 0.4− | 2009 11 09 | G96 | 0.0 | 0.0 | | | | |

**2008 SK$_{278}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 65.84601 | | (2000.0) | | | |
| $n$ | 0.17349322 | $\omega$ | 113.10949 | | +0.82218490 | −0.56256399 |
| $a$ | 3.1838142 | $\Omega$ | 281.22854 | | +0.48450822 | +0.77167762 |
| $e$ | 0.1367169 | $i$ | 5.07680 | | +0.29877045 | +0.29670762 |
| $P$ | 5.68 | $H$ | 16.1 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 09 13 | 644 | 0.1− | 0.1− | 2008 10 29 | G96 | 0.3+ | 0.3− | 2008 12 02 | G96 | 0.2− | 0.9+ |
| 2002 09 13 | 644 | 0.1+ | 0.0 | 2008 10 29 | G96 | 0.0 | 0.5− | 2008 12 02 | G96 | 0.2− | 0.3+ |
| 2002 09 13 | 644 | 0.1− | 0.3+ | 2008 10 29 | G96 | 0.1− | 0.3− | 2009 11 16 | G96 | 0.5+ | 0.2+ |
| 2008 09 20 | 691 | 0.2− | 0.2− | 2008 10 29 | G96 | 0.4+ | 0.4− | 2009 11 16 | G96 | 0.4+ | 0.5+ |
| 2008 09 20 | 691 | 0.2− | 0.3+ | 2008 11 06 | G96 | 0.7− | 0.2− | 2009 11 16 | G96 | 0.4+ | 0.8+ |
| 2008 09 20 | 691 | 0.0 | 0.2+ | 2008 11 06 | G96 | 0.2− | 0.4− | 2009 11 16 | G96 | 0.3+ | 0.2+ |
| 2008 10 03 | G96 | 0.6+ | 0.0 | 2008 11 06 | G96 | 0.3+ | 0.3− | 2009 12 17 | 691 | 0.3− | 0.1+ |
| 2008 10 03 | G96 | 0.5+ | 0.2− | 2008 11 06 | G96 | 0.9+ | 0.1− | 2009 12 17 | 691 | 0.0 | 0.2+ |
| 2008 10 03 | G96 | 0.2+ | 0.2− | 2008 12 02 | G96 | 0.3− | 0.5+ | 2009 12 17 | 691 | 0.0 | 0.7− |
| 2008 10 03 | G96 | 0.4+ | 0.4− | 2008 12 02 | G96 | 0.3− | 0.2+ | | | | |

**2008 SW$_{278}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 323.29387 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.08314492 | | $\omega$ | 253.38979 | | −0.22966660 | | −0.95821484 | |
| $a$ | 5.1989093 | | $\Omega$ | 211.50683 | | +0.96999695 | | −0.21099852 | |
| $e$ | 0.0443160 | | $i$ | 19.04401 | | +0.07974442 | | −0.19314227 | |
| $P$ | 11.85 | | $H$ | 13.9 | $G$ | 0.15 | $U$ | 3 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 09 25 | 691 | 0.1− | 0.3− | 2008 10 20 | G96 | 0.6+ | 0.2− | 2009 09 28 | G96 | 0.1− | 0.0 |
| 2008 09 25 | 691 | 0.3+ | 0.4− | 2008 10 28 | G96 | 0.2− | 0.3+ | 2009 09 28 | G96 | 0.2+ | 0.2+ |
| 2008 09 25 | 691 | 0.2+ | 0.2− | 2008 10 28 | G96 | 0.3− | 0.4− | 2009 09 28 | G96 | 0.1+ | 0.4− |
| 2008 09 29 | 691 | 0.6− | 0.0 | 2008 10 28 | G96 | 0.3+ | 0.6− | 2009 11 22 | G96 | 0.1− | 0.0 |
| 2008 09 29 | 691 | 0.0 | 0.5+ | 2008 10 28 | G96 | 0.2+ | 0.3− | 2009 11 22 | G96 | 0.1+ | 0.2+ |
| 2008 09 29 | 691 | 0.0 | 0.5+ | 2008 11 08 | 691 | 0.5− | 0.4− | 2009 11 22 | G96 | 0.3+ | 0.0 |
| 2008 10 20 | G96 | 0.1+ | 0.1+ | 2008 11 08 | 691 | 0.0 | 0.3+ | 2009 11 22 | G96 | 0.2− | 0.0 |
| 2008 10 20 | G96 | 1.2+ | 0.1+ | 2008 11 08 | 691 | 0.1+ | 0.3+ | | | | |
| 2008 10 20 | G96 | 1.1+ | 0.1− | 2009 09 28 | G96 | 0.4− | 0.2− | | | | |

**2008 SU$_{279}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 337.35118 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.08129656 | | $\omega$ | 320.68507 | | +0.33797679 | | −0.94084133 | |
| $a$ | 5.2774151 | | $\Omega$ | 109.54921 | | +0.86985463 | | +0.30242059 | |
| $e$ | 0.0813888 | | $i$ | 1.47610 | | +0.35933912 | | +0.15283775 | |
| $P$ | 12.12 | | $H$ | 13.8 | $G$ | 0.15 | $U$ | 4 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 09 24 | G96 | 0.1− | 0.2+ | 2008 11 02 | G96 | 0.4+ | 0.2− | 2009 10 26 | 691 | 0.0 | 0.1− |
| 2008 09 24 | G96 | 0.4− | 0.2+ | 2008 11 02 | G96 | 0.2+ | 0.3− | 2009 10 26 | 691 | 0.6− | 0.0 |
| 2008 09 24 | G96 | 0.6− | 0.2+ | 2008 11 02 | G96 | 0.5+ | 0.5− | 2009 10 26 | 691 | 0.3+ | 0.2+ |
| 2008 09 24 | G96 | 0.2− | 0.0 | 2008 11 02 | G96 | 0.3+ | 0.1− | 2009 11 19 | G96 | 0.3− | 0.2− |
| 2008 10 09 | G96 | 0.4+ | 0.4+ | 2009 09 22 | G96 | 0.4+ | 0.1− | 2009 11 19 | G96 | 0.2+ | 0.1− |
| 2008 10 09 | G96 | 0.4− | 0.1− | 2009 09 22 | G96 | 0.4+ | 0.2− | 2009 11 19 | G96 | 0.2− | 0.2− |
| 2008 10 09 | G96 | 0.1+ | 0.0 | 2009 09 22 | G96 | 0.1+ | 0.0 | 2009 11 19 | G96 | 0.3+ | 0.2+ |
| 2008 10 09 | G96 | 0.0 | 0.0 | 2009 09 22 | G96 | 0.1+ | 0.1+ | | | | |

**2008 SG$_{283}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 27.73808 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.29603776 | | $\omega$ | 130.25281 | | −0.85102693 | | −0.52411524 | |
| $a$ | 2.2296566 | | $\Omega$ | 18.21213 | | +0.44468426 | | −0.75220569 | |
| $e$ | 0.0728689 | | $i$ | 5.96922 | | +0.27930103 | | −0.39936177 | |
| $P$ | 3.33 | | $H$ | 17.2 | $G$ | 0.15 | $U$ | 4 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 03 07 | 699 | 2.1+ | 0.3+ | 2008 09 22 | G96 | 0.1− | 0.1− | 2008 11 09 | 691 | 0.0 | 0.0 |
| 2003 03 07 | 699 | 0.4− | 0.1− | 2008 09 22 | G96 | 0.1+ | 0.1+ | 2008 11 17 | 691 | 0.3− | 0.0 |
| 2003 03 07 | 699 | 0.3+ | 0.3+ | 2008 09 22 | G96 | 0.3+ | 0.4− | 2008 11 17 | 691 | 0.1− | 0.1− |
| 2003 03 07 | 699 | 0.4− | 0.9− | 2008 10 02 | 691 | 0.1− | 0.2+ | 2008 11 17 | 691 | 0.2+ | 0.1− |
| 2003 03 07 | 644 | 0.3− | 0.3+ | 2008 10 02 | 691 | 0.1+ | 0.3+ | 2009 01 20 | 291 | 0.1+ | 0.0 |
| 2003 03 07 | 644 | 0.8− | 0.1− | 2008 10 02 | 691 | 0.3− | 0.0 | 2009 01 20 | 291 | 0.1+ | 0.0 |
| 2003 03 07 | 644 | 0.5− | 0.5+ | 2008 11 09 | 691 | 0.0 | 0.0 | 2009 01 20 | 291 | 0.1− | 0.0 |
| 2008 09 22 | G96 | 0.2+ | 0.1− | 2008 11 09 | 691 | 0.3+ | 0.0 | | | | |

**2008 SO$_{291}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 119.51354 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.21817143 | | $\omega$ | 81.22844 | | +0.93777374 | | +0.33517221 | |
| $a$ | 2.7327766 | | $\Omega$ | 259.14955 | | −0.34370731 | | +0.85870877 | |
| $e$ | 0.0703315 | | $i$ | 5.30324 | | −0.04945394 | | +0.38765813 | |
| $P$ | 4.52 | | $H$ | 16.5 | $G$ | 0.15 | $U$ | 3 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 11 11 | 691 | 0.1+ | 0.1+ | 2008 09 28 | 703 | 0.2+ | 0.4− | 2009 12 17 | G96 | 0.2+ | 0.2+ |
| 2004 11 11 | 691 | 0.2− | 0.1− | 2008 10 06 | G96 | 0.5− | 0.3− | 2009 12 17 | G96 | 0.1− | 0.0 |
| 2004 11 11 | 691 | 0.1+ | 0.2− | 2008 10 06 | G96 | 0.0 | 0.3− | 2009 12 17 | G96 | 0.1+ | 0.0 |
| 2008 09 23 | 291 | 0.0 | 0.1− | 2008 10 06 | G96 | 0.1− | 0.2− | 2009 12 17 | G96 | 0.3+ | 0.2+ |
| 2008 09 23 | 291 | 0.1+ | 0.1− | 2008 10 06 | G96 | 0.6− | 0.5− | 2009 12 17 | G96 | 0.0 | 0.2+ |
| 2008 09 23 | 291 | 0.0 | 0.1− | 2008 10 30 | G96 | 0.5− | 0.2+ | 2009 12 18 | 691 | 0.1− | 0.3+ |
| 2008 09 28 | 703 | 0.1+ | 0.8+ | 2008 10 30 | G96 | 0.1+ | 0.2+ | 2009 12 18 | 691 | 0.3+ | 0.7− |
| 2008 09 28 | 703 | 1.1+ | 0.9+ | 2008 10 30 | G96 | 0.4− | 0.0 | 2009 12 18 | 691 | 0.2− | 0.5+ |
| 2008 09 28 | 703 | 0.1− | 1.2+ | 2008 10 30 | G96 | 0.1+ | 0.2+ | | | | |

**2008 SX$_{291}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 165.25447 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.21290327 | | $\omega$ | 349.20056 | | +0.12415576 | | +0.98543710 | |
| $a$ | 2.7776733 | | $\Omega$ | 287.85444 | | −0.90104368 | | +0.06292640 | |
| $e$ | 0.1858363 | | $i$ | 7.01125 | | −0.41557868 | | +0.15796831 | |
| $P$ | 4.63 | | $H$ | 15.9 | $G$ | 0.15 | $U$ | 1 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 04 05 | 644 | 0.4+ | 0.4+ | 2006 03 03 | G96 | 0.2− | 0.5+ | 2008 09 28 | 703 | 1.2+ | 0.4− |
| 2002 04 05 | 644 | 0.2+ | 0.5+ | 2007 05 13 | E12 | 0.4+ | 0.4+ | 2008 10 01 | 704 | 0.5+ | 0.1+ |
| 2002 04 05 | 644 | 0.8+ | 0.3+ | 2007 05 13 | E12 | 0.1− | 0.1− | 2008 10 01 | 704 | 0.9+ | 0.1+ |
| 2003 11 20 | 691 | 0.1+ | 0.0 | 2007 05 13 | E12 | 0.0 | 0.1− | 2008 10 01 | 704 | 0.1+ | 0.7+ |
| 2003 11 20 | 691 | 0.3− | 0.3+ | 2007 05 13 | E12 | 0.4− | 0.4+ | 2008 10 01 | 704 | 0.6+ | 0.0 |
| 2003 11 20 | 691 | 0.0 | 0.0 | 2008 09 05 | 704 | 0.9+ | 0.7+ | 2008 10 01 | 704 | 0.2+ | 0.4+ |
| 2004 11 11 | 691 | 0.3− | 0.0 | 2008 09 05 | 704 | 0.7− | 0.9+ | 2008 10 10 | 703 | (2.2− | 0.2−) |
| 2004 11 11 | 691 | 0.1− | 0.0 | 2008 09 05 | 704 | 0.8− | 0.2+ | 2008 10 10 | 703 | 1.4− | 0.0 |
| 2004 11 11 | 691 | 0.2+ | 0.2− | 2008 09 05 | 704 | (5.2− | 6.2−) | 2008 10 10 | 703 | 0.0 | 0.9+ |
| 2006 01 10 | G96 | 0.3− | 0.1− | 2008 09 24 | 703 | 0.8− | 1.4− | 2008 10 10 | 703 | 0.7− | 0.4− |
| 2006 01 10 | G96 | 0.4+ | 0.3+ | 2008 09 24 | 703 | 0.2− | 0.6+ | 2008 12 03 | G96 | 0.3+ | 0.1− |
| 2006 01 10 | G96 | 0.1+ | 0.2+ | 2008 09 24 | 703 | 0.3− | 0.0 | 2008 12 03 | G96 | 0.0 | 0.2− |
| 2006 01 10 | G96 | 0.4+ | 0.4+ | 2008 09 24 | 703 | 0.9− | 0.0 | 2008 12 03 | G96 | 0.4+ | 0.1− |
| 2006 03 03 | G96 | 1.1− | 0.1+ | 2008 09 28 | 703 | 0.3+ | 0.6+ | 2008 12 03 | G96 | 0.2+ | 0.1− |
| 2006 03 03 | G96 | 1.2+ | 0.0 | 2008 09 28 | 703 | 0.0 | 0.1− | | | | |
| 2006 03 03 | G96 | 0.3− | 0.2+ | 2008 09 28 | 703 | (1.9+ | 1.1−) | | | | |

**2008 SY$_{291}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 139.90404 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.30272269 | | $\omega$ | 66.65597 | | +0.99173713 | | −0.11191164 | |
| $a$ | 2.1967100 | | $\Omega$ | 299.71775 | | +0.07438892 | | +0.89995829 | |
| $e$ | 0.2190257 | | $i$ | 4.14112 | | +0.10451675 | | +0.42136784 | |
| $P$ | 3.26 | | $H$ | 17.9 | $G$ | 0.15 | $U$ | 3 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 06 | 691 | 0.2+ | 0.3+ | 2008 09 05 | 691 | 0.1− | 0.0 | 2008 10 01 | 704 | 0.1+ | 0.1+ |
| 2005 12 06 | 691 | 0.1+ | 0.0 | 2008 09 05 | 691 | 0.0 | 0.2+ | 2008 10 01 | 704 | 0.5− | 0.8+ |
| 2005 12 06 | 691 | 0.5− | 0.2− | 2008 09 05 | 691 | 0.1− | 0.1− | 2008 10 01 | 704 | 0.0 | 0.5− |
| 2005 12 28 | G96 | 0.5+ | 0.3+ | 2008 09 24 | 703 | 0.4+ | 0.3− | 2008 10 01 | 704 | 0.2− | 0.6− |
| 2005 12 28 | G96 | 0.2+ | 0.1+ | 2008 09 24 | 703 | 0.6− | 0.6− | 2008 10 09 | G96 | 0.2+ | 0.6− |
| 2005 12 28 | G96 | 0.1+ | 0.3+ | 2008 09 24 | 703 | 0.0 | 0.6− | 2008 10 09 | G96 | 0.3− | 0.5− |
| 2005 12 28 | G96 | 0.2+ | 0.4+ | 2008 09 24 | 703 | 0.1+ | 0.8− | 2008 10 09 | G96 | 0.3− | 1.7− |
| 2008 09 04 | 704 | 0.6− | 1.1+ | 2008 09 28 | 703 | 1.1+ | 0.2+ | 2008 10 09 | G96 | 0.9+ | 1.2− |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 09 04 | 704 | 0.0 | 1.2+ | 2008 09 28 | 703 | (1.9+ | 2.9+) | 2008 11 01 | G96 | 0.3+ | 0.0 | | |
| 2008 09 04 | 704 | 0.8− | 1.0+ | 2008 09 28 | 703 | 0.5+ | 1.3+ | 2008 11 01 | G96 | 0.1+ | 0.1− | | |
| 2008 09 04 | 704 | 0.5− | 0.7− | 2008 09 28 | 703 | 0.3+ | 1.9+ | 2008 11 01 | G96 | 0.3+ | 0.1− | | |
| 2008 09 04 | 704 | 0.3+ | 0.4+ | 2008 10 01 | 704 | 0.4+ | 0.2+ | 2008 11 01 | G96 | 0.0 | 0.3− | | |

**2008 SU$_{292}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 91.68979 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17125660 | $\omega$ | 233.87022 | | +0.97176194 | −0.02627423 | |
| $a$ | 3.2114746 | $\Omega$ | 126.45476 | | +0.07974211 | +0.97188086 | |
| $e$ | 0.0935942 | $i$ | 16.95038 | | −0.22208090 | +0.23400268 | |
| $P$ | 5.76 | $H$ | 15.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 09 01 | 644 | 0.2− | 0.3+ | 2008 09 22 | 703 | 0.7+ | 0.7+ | 2008 10 09 | 703 | 0.5− | 0.0 | | |
| 2002 09 01 | 644 | 0.2+ | 0.5+ | 2008 09 22 | 703 | 0.7− | 0.1− | 2008 10 09 | 703 | (0.7− | 2.0+) | | |
| 2002 09 01 | 644 | 0.3− | 0.4+ | 2008 09 22 | 703 | 1.0+ | 0.3− | 2008 10 09 | 703 | 1.2+ | 0.4+ | | |
| 2002 10 02 | 608 | 0.0 | 0.8− | 2008 09 22 | 703 | 0.4− | 0.2− | 2008 10 29 | 703 | 1.0+ | 0.2− | | |
| 2002 10 02 | 608 | 0.4+ | 1.1− | 2008 09 28 | 703 | 1.1− | 0.1+ | 2008 10 29 | 703 | 0.5+ | 0.1+ | | |
| 2002 10 02 | 608 | 0.1+ | 0.6− | 2008 09 28 | 703 | 0.5− | 0.6+ | 2008 10 29 | 703 | 1.4+ | 0.6− | | |
| 2006 06 01 | 691 | 0.1+ | 0.2+ | 2008 09 28 | 703 | 0.8− | 0.5+ | 2008 10 29 | 703 | 0.2− | 0.2+ | | |
| 2006 06 01 | 691 | 0.1+ | 0.0 | 2008 09 28 | 703 | 0.5− | 0.7− | | | | | | |
| 2006 06 01 | 691 | 0.1− | 0.1− | 2008 10 09 | 703 | 1.4− | 0.8+ | | | | | | |

**2008 SC$_{293}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 80.55216 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23395751 | $\omega$ | 305.60922 | | +0.65195963 | −0.72794106 | |
| $a$ | 2.6084232 | $\Omega$ | 102.25220 | | +0.74679724 | +0.56796429 | |
| $e$ | 0.0800341 | $i$ | 12.54452 | | +0.13131082 | +0.38408123 | |
| $P$ | 4.21 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 11 11 | 699 | (0.9− | 3.7+) | 2006 02 28 | 703 | 0.0 | 0.3− | 2008 10 04 | 703 | 0.4+ | 0.4− | | |
| 2004 11 11 | 699 | 0.0 | 0.2− | 2006 02 28 | 703 | 1.0+ | 0.4− | 2008 10 04 | 703 | 1.1− | 1.2− | | |
| 2004 11 11 | 699 | 0.8− | 1.3− | 2006 02 28 | 703 | 0.1− | 0.5+ | 2008 10 04 | 703 | 0.3+ | 1.1+ | | |
| 2004 11 11 | 699 | 0.4− | 0.1− | 2006 02 28 | 703 | 0.8− | 0.6+ | 2008 10 04 | 703 | 0.2+ | 0.2+ | | |
| 2004 12 04 | 699 | 1.2+ | 0.5+ | 2008 09 22 | 703 | 0.6− | 0.5+ | 2008 10 22 | E12 | 0.1− | 0.6+ | | |
| 2004 12 04 | 699 | 1.0+ | 0.6+ | 2008 09 22 | 703 | 0.1− | 0.3+ | 2008 10 22 | E12 | 0.1+ | 0.3− | | |
| 2004 12 04 | 699 | 0.7− | 0.4+ | 2008 09 22 | 703 | 0.1− | 0.7+ | 2008 10 22 | E12 | 1.0+ | 0.1+ | | |
| 2004 12 04 | 699 | 0.2− | 0.0 | 2008 09 22 | 703 | 0.3− | 0.0 | 2008 10 22 | E12 | 0.2+ | 1.2− | | |

**2008 SF$_{293}$ = 2003 XQ$_{26}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 68.02647 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18959688 | $\omega$ | 302.29803 | | +0.63202546 | −0.77129684 | |
| $a$ | 3.0008797 | $\Omega$ | 108.31591 | | +0.73495678 | +0.56584350 | |
| $e$ | 0.1879455 | $i$ | 4.53929 | | +0.24572820 | +0.29141434 | |
| $P$ | 5.20 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 11 19 | 699 | 0.9+ | 0.2− | 2003 12 21 | 691 | 0.0 | 0.0 | 2008 10 08 | 703 | 0.4+ | 0.9− | | |
| 2003 11 19 | 699 | 0.2+ | 0.2+ | 2003 12 21 | 691 | 0.0 | 0.3− | 2008 10 08 | 703 | 1.3− | 0.2+ | | |
| 2003 11 19 | 699 | 0.8− | 0.5− | 2003 12 21 | 691 | 0.0 | 0.2+ | 2008 10 08 | 703 | 0.8+ | 1.2− | | |
| 2003 11 19 | 699 | 0.8+ | 1.4− | 2008 09 29 | 703 | 0.1+ | 0.2− | 2008 10 21 | G96 | 0.1+ | 0.3− | | |
| 2003 12 01 | 704 | 0.6− | 0.5+ | 2008 09 29 | 703 | 0.6+ | 0.5+ | 2008 10 21 | G96 | 0.3+ | 0.1− | | |
| 2003 12 01 | 704 | 0.2− | 1.5+ | 2008 09 29 | 703 | 0.1− | 1.4+ | 2008 10 21 | G96 | 0.4+ | 0.2− | | |
| 2003 12 01 | 704 | 0.0 | 0.4+ | 2008 09 29 | 703 | 0.6− | 0.2+ | 2008 10 21 | G96 | 0.1− | 0.3− | | |
| 2003 12 01 | 704 | 0.3− | 0.3+ | 2008 10 08 | 703 | 0.5− | 0.9+ | | | | | | |

**2008 SN$_{293}$ = 2009 WT$_{50}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 16.57798 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.08266066 | $\omega$ | 264.20436 | | +0.74074488 | −0.66253812 | |
| $a$ | 5.2191943 | $\Omega$ | 137.21877 | | +0.66272402 | +0.69362249 | |
| $e$ | 0.0905053 | $i$ | 9.41330 | | +0.10997221 | +0.28272084 | |
| $P$ | 11.92 | $H$ | 13.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 04 15 | 644 | 0.0 | 1.0+ | 2008 09 29 | 703 | 0.8− | 1.0− | 2009 11 19 | J75 | 0.6− | 0.1+ | | |
| 2002 04 15 | 644 | 0.2+ | 0.7+ | 2008 10 08 | 703 | 0.4− | 1.8+ | 2009 11 19 | J75 | 0.4+ | 0.9− | | |
| 2002 04 15 | 644 | 0.6+ | 0.9+ | 2008 10 08 | 703 | 0.2+ | 1.6+ | 2009 11 19 | J75 | 0.1+ | 0.2− | | |
| 2007 09 11 | 691 | 0.3− | 0.8− | 2008 10 08 | 703 | 0.8+ | 1.9+ | 2009 11 21 | 703 | 0.6− | 0.4+ | | |
| 2007 09 11 | 691 | 0.3− | 0.2+ | 2008 10 08 | 703 | 0.1− | 1.7+ | 2009 11 21 | 703 | 1.4− | 0.4− | | |
| 2007 09 11 | 691 | 0.0 | 0.1+ | 2008 10 27 | G96 | 0.2+ | 0.3− | 2009 11 21 | 703 | 0.0 | 0.8+ | | |
| 2007 10 16 | G96 | 0.5+ | 0.3+ | 2008 10 27 | G96 | 0.1+ | 0.3− | 2009 11 21 | 703 | 0.1+ | 0.3− | | |
| 2007 10 16 | G96 | 0.4+ | 0.4+ | 2008 10 27 | G96 | 0.2− | 0.3− | 2009 12 10 | 703 | 1.7+ | 1.4− | | |
| 2007 10 16 | G96 | 0.7+ | 0.2+ | 2008 10 27 | G96 | 0.3+ | 0.2− | 2009 12 10 | 703 | 0.4+ | 0.5+ | | |
| 2007 10 16 | G96 | 0.6+ | 0.1+ | 2009 10 25 | G96 | 0.1+ | 0.1− | 2009 12 10 | 703 | 0.6− | 0.2− | | |
| 2008 09 29 | 703 | 0.0 | 0.8+ | 2009 10 25 | G96 | 0.2+ | 0.2− | 2009 12 10 | 703 | 0.6+ | 0.6+ | | |
| 2008 09 29 | 703 | 1.1− | 0.5− | 2009 10 25 | G96 | 0.0 | 0.0 | | | | | | |
| 2008 09 29 | 703 | 0.4− | 0.8− | 2009 10 25 | G96 | 0.0 | 0.1− | | | | | | |

**2008 SB$_{294}$ = 1998 QN$_{22}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 165.32934 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.29867911 | $\omega$ | 192.24540 | | +0.76072887 | +0.64190512 | |
| $a$ | 2.2164919 | $\Omega$ | 127.39260 | | −0.58483098 | +0.74214369 | |
| $e$ | 0.2804711 | $i$ | 6.95274 | | −0.28153919 | +0.19282264 | |
| $P$ | 3.30 | $H$ | 17.8 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 08 17 | 704 | 0.1+ | 1.1+ | 2008 09 20 | 703 | 0.1+ | 0.2− | 2008 10 09 | 703 | 0.3− | 0.2− | | |
| 1998 08 17 | 704 | 0.1− | 0.3+ | 2008 09 20 | 703 | 0.1− | 0.4+ | 2008 10 09 | 703 | 1.3− | 0.4+ | | |
| 1998 08 17 | 704 | 0.1+ | 0.7− | 2008 09 20 | 703 | 0.1− | 0.3− | 2008 10 09 | 703 | 0.4+ | 0.5− | | |
| 1998 08 17 | 704 | 0.3+ | 1.1+ | 2008 09 20 | 703 | 0.4− | 1.4− | 2008 10 09 | 703 | 0.9+ | 0.0 | | |
| 1998 08 17 | 704 | (3.3− | 1.3+) | 2008 10 02 | 703 | 0.6+ | 0.5+ | 2008 10 09 | 703 | 0.1+ | 0.7− | | |
| 1998 08 23 | 704 | 1.7− | 0.6− | 2008 10 02 | 703 | 0.1− | 1.1+ | 2008 10 09 | 703 | 0.4+ | 0.6+ | | |
| 1998 08 23 | 704 | 1.1+ | 0.7− | 2008 10 02 | 703 | 0.2+ | 0.0 | 2008 10 09 | 703 | 0.0 | 0.8+ | | |
| 1998 08 23 | 704 | 0.2+ | 0.4− | 2008 10 02 | 703 | 1.0+ | 0.0 | 2008 10 09 | 703 | 1.3− | 0.6− | | |

**2008 SC$_{294}$ = 2007 EA$_{164}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 164.66980 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.30030605 | $\omega$ | 222.00140 | | +0.84974244 | +0.51752382 | |
| $a$ | 2.2084793 | $\Omega$ | 106.56886 | | −0.45147089 | +0.81280170 | |
| $e$ | 0.2170272 | $i$ | 6.02072 | | −0.27223486 | +0.26743688 | |
| $P$ | 3.28 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 12 06 | 645 | 0.0 | 0.0 | 2007 03 15 | G96 | 0.1+ | 0.2− | 2008 09 20 | 703 | 0.1+ | 0.7+ | | |
| 2002 12 06 | 645 | 0.0 | 0.0 | 2007 03 15 | G96 | 0.3− | 0.2− | 2008 10 01 | 703 | 0.3− | 0.5+ | | |
| 2004 04 14 | 691 | 0.2− | 0.4+ | 2007 03 15 | G96 | 0.1− | 0.2− | 2008 10 01 | 703 | 0.1− | 0.2+ | | |
| 2004 04 14 | 691 | 0.3+ | 0.2+ | 2007 03 16 | G96 | 0.2+ | 1.0+ | 2008 10 01 | 703 | 0.8+ | 0.3+ | | |
| 2004 04 14 | 691 | 0.2+ | 0.5+ | 2007 03 16 | G96 | (0.1+ | 2.1+) | 2008 10 01 | 703 | 0.5− | 0.6− | | |
| 2005 11 25 | 703 | 0.1+ | 0.9+ | 2007 03 16 | G96 | 0.4+ | 0.6− | 2008 10 08 | 703 | 0.1− | 0.3− | | |
| 2005 11 25 | 703 | 0.1− | 0.1− | 2007 03 16 | G96 | 0.5+ | 1.4+ | 2008 10 08 | 703 | 0.2+ | 0.4+ | | |
| 2005 11 25 | 703 | 0.9− | 0.1− | 2008 09 07 | 703 | 0.2+ | 0.3− | 2008 10 08 | 703 | 0.5+ | 0.1+ | | |
| 2005 11 25 | 703 | 0.8+ | 0.6− | 2008 09 07 | 703 | 0.2+ | 0.0 | 2008 10 08 | 703 | 1.3+ | 0.1+ | | |
| 2006 01 25 | G96 | 0.6− | 0.2+ | 2008 09 07 | 703 | 0.0 | 0.3− | 2008 10 27 | 703 | 2.3− | 0.6+ | | |
| 2006 01 25 | G96 | 0.5+ | 0.3+ | 2008 09 07 | 703 | 0.6− | 0.8− | 2008 10 27 | 703 | 0.7+ | 1.0+ | | |
| 2006 01 25 | G96 | 0.4− | 0.6− | 2008 09 20 | 703 | 0.8− | 0.1+ | 2008 10 27 | 703 | 1.3− | 1.4+ | | |
| 2006 01 25 | G96 | 0.3+ | 0.1+ | 2008 09 20 | 703 | (0.6− | 1.8−) | 2008 10 27 | 703 | 0.7+ | 0.8+ | | |
| 2007 03 15 | G96 | 0.0 | 0.4− | 2008 09 20 | 703 | 0.5− | 0.3+ | | | | | | |

**2008 SX$_{294}$ = 2004 XW$_{39}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 99.88022 | | | (2000.0) | | |
| $n$ | 0.22922583 | $\omega$ | 312.96453 | | +0.92058774 | −0.34829692 |
| $a$ | 2.6441962 | $\Omega$ | 68.12721 | | +0.39015146 | +0.80014889 |
| $e$ | 0.2177961 | $i$ | 10.97378 | | +0.01732207 | +0.48831447 |
| $P$ | 4.30 | $H$ | 17.2 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 11 11 | 691 | 0.4+ | 0.0 | 2004 12 12 | 704 | 0.5+ | 0.1+ | 2008 10 02 | 703 | 0.5+ | 0.0 |
| 2004 11 11 | 691 | 0.2+ | 0.3− | 2004 12 12 | 704 | 0.2− | 1.0− | 2008 10 02 | 703 | 1.1+ | 0.7+ |
| 2004 11 11 | 691 | 0.1− | 0.2+ | 2008 09 22 | 703 | (1.7− | 0.7+) | 2008 10 02 | 703 | 0.1+ | 0.6− |
| 2004 12 10 | 691 | 0.0 | 0.0 | 2008 09 22 | 703 | 0.4− | 0.8+ | 2008 10 09 | 703 | 0.1− | 0.7− |
| 2004 12 10 | 691 | 0.1− | 0.0 | 2008 09 22 | 703 | 0.4+ | 0.4+ | 2008 10 09 | 703 | 1.2− | 0.5− |
| 2004 12 10 | 691 | 0.1− | 0.1+ | 2008 09 22 | 703 | 1.0− | 0.3+ | 2008 10 09 | 703 | 0.8− | 0.0 |
| 2004 12 12 | 704 | 1.1− | 0.6+ | 2008 10 02 | 703 | 0.0 | 0.0 | 2008 10 09 | 703 | 1.2+ | 0.4− |

**2008 SB$_{295}$ = 2009 VQ$_{58}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 29.23758 | | | (2000.0) | | |
| $n$ | 0.22597147 | $\omega$ | 151.44017 | | −0.14858199 | −0.96950682 |
| $a$ | 2.6695228 | $\Omega$ | 306.44141 | | +0.85498553 | −0.02691522 |
| $e$ | 0.1026608 | $i$ | 14.01958 | | +0.49691362 | −0.24358182 |
| $P$ | 4.36 | $H$ | 16.0 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 09 09 | 703 | 1.1+ | 0.4+ | 2008 10 06 | 703 | 0.5− | 0.3+ | 2009 11 15 | G96 | 0.4− | 0.3− |
| 2008 09 09 | 703 | 0.6+ | 1.4− | 2008 10 06 | 703 | 0.8+ | 1.1+ | 2009 11 15 | G96 | 0.1+ | 0.7− |
| 2008 09 09 | 703 | 0.4− | 0.8− | 2008 10 06 | 703 | 0.1− | 0.7+ | 2009 11 15 | G96 | 0.6+ | 0.5− |
| 2008 09 09 | 703 | 0.1− | 0.5− | 2008 11 02 | 291 | 0.1+ | 0.1+ | 2009 11 15 | G96 | 0.6+ | 0.0 |
| 2008 09 23 | 703 | 0.0 | 0.4− | 2008 11 02 | 291 | 0.1− | 0.3− | 2009 11 17 | 691 | 0.3− | 0.3+ |
| 2008 09 23 | 703 | 1.0− | 0.1+ | 2008 11 02 | 291 | 0.1− | 0.1+ | 2009 11 17 | 691 | 0.2− | 0.1− |
| 2008 09 23 | 703 | 0.4− | 0.3− | 2009 10 25 | 691 | 0.1+ | 0.5+ | 2009 11 17 | 691 | 0.1+ | 0.3− |
| 2008 09 23 | 703 | 0.0 | 0.4+ | 2009 10 25 | 691 | 0.1+ | 0.1− | | | | |
| 2008 10 06 | 703 | 0.4+ | 0.1+ | 2009 10 25 | 691 | 0.2− | 0.1+ | | | | |

**2008 SU$_{295}$ = 2004 UO**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 72.67608 | | | (2000.0) | | |
| $n$ | 0.23730111 | $\omega$ | 78.79146 | | +0.40541589 | −0.90716419 |
| $a$ | 2.5838633 | $\Omega$ | 345.61912 | | +0.55566780 | +0.34241413 |
| $e$ | 0.2859661 | $i$ | 26.97375 | | +0.72585898 | +0.24455202 |
| $P$ | 4.15 | $H$ | 17.2 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 09 | 644 | 0.5− | 0.1+ | 2004 10 20 | 704 | 0.5+ | 0.3+ | 2008 09 28 | 703 | 0.6− | 0.3+ |
| 2004 10 09 | 644 | 0.4− | 0.1− | 2004 10 20 | 704 | 0.7− | 0.1− | 2008 09 28 | 703 | 0.9+ | 0.3− |
| 2004 10 09 | 644 | 0.4− | 0.0 | 2008 09 03 | 691 | 0.0 | 0.2+ | 2008 10 06 | 703 | 0.3+ | 0.6− |
| 2004 10 18 | 704 | 0.9+ | 0.0 | 2008 09 03 | 691 | 0.1− | 0.0 | 2008 10 06 | 703 | 0.4+ | 0.7− |
| 2004 10 18 | 704 | 0.3+ | 0.3+ | 2008 09 03 | 691 | 0.1− | 0.2− | 2008 10 06 | 703 | 0.7− | 0.7+ |
| 2004 10 18 | 704 | 0.5+ | 0.3− | 2008 09 28 | 703 | 0.8+ | 0.2− | 2008 10 06 | 703 | 0.7− | 1.2+ |
| 2004 10 20 | 704 | 0.2− | 0.0 | 2008 09 28 | 703 | 0.4+ | 0.6− | | | | |

**2008 SE$_{296}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 110.70533 | | | (2000.0) | | |
| $n$ | 0.20027724 | $\omega$ | 268.56143 | | +0.90868085 | +0.32395139 |
| $a$ | 2.8932213 | $\Omega$ | 72.48012 | | −0.17751938 | +0.87074021 |
| $e$ | 0.2543499 | $i$ | 16.03134 | | −0.37787031 | +0.36995539 |
| $P$ | 4.92 | $H$ | 16.4 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 28 | 699 | 0.4+ | 1.1− | 2008 09 01 | E12 | 0.5+ | 0.4− | 2008 10 22 | E12 | 0.4− | 0.4− |
| 2003 09 28 | 699 | 0.3+ | 0.1− | 2008 09 01 | E12 | 0.2+ | 1.2− | 2008 10 22 | E12 | 0.8− | 0.6+ |
| 2003 09 28 | 699 | 1.8− | 1.0+ | 2008 09 28 | 703 | 1.5− | 0.6− | 2008 10 22 | E12 | 0.9− | 0.6− |
| 2003 09 28 | 699 | 0.4+ | 1.3+ | 2008 09 28 | 703 | 1.2− | 0.2+ | 2008 10 22 | E12 | 0.4− | 0.5− |
| 2007 04 25 | 691 | 0.3+ | 0.1+ | 2008 09 28 | 703 | 1.1+ | 1.0+ | 2008 10 29 | 703 | 1.0+ | 0.9+ |
| 2007 04 25 | 691 | 0.2− | 0.1+ | 2008 10 09 | 703 | 0.3+ | 0.0 | 2008 10 29 | 703 | (0.4− | 2.5+) |
| 2007 04 25 | 691 | 0.1+ | 0.1+ | 2008 10 09 | 703 | 0.5− | 0.9+ | 2008 10 29 | 703 | 0.7+ | 0.8+ |
| 2008 09 01 | E12 | 0.9+ | 0.4− | 2008 10 09 | 703 | 0.0 | 0.1− | 2008 10 29 | 703 | 0.9+ | 1.6+ |
| 2008 09 01 | E12 | 0.7+ | 1.2− | 2008 10 09 | 703 | 0.0 | 1.0− | | | | |

**2008 SH$_{296}$ = 2001 TW$_{157}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 117.15355 | | | (2000.0) | | |
| $n$ | 0.28413617 | $\omega$ | 255.40325 | | +0.84808971 | −0.52702354 |
| $a$ | 2.2914921 | $\Omega$ | 136.36446 | | +0.51151491 | +0.78745095 |
| $e$ | 0.1688537 | $i$ | 4.54489 | | +0.13818950 | +0.31963604 |
| $P$ | 3.47 | $H$ | 17.8 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 10 10 | 644 | 0.0 | 0.3+ | 2006 01 02 | G96 | 0.1+ | 0.1+ | 2008 10 08 | 703 | 0.6− | 0.3− |
| 2001 10 10 | 644 | 1.0− | 0.4+ | 2006 01 02 | G96 | 0.1+ | 0.3− | 2008 10 08 | 703 | 0.1+ | 0.0 |
| 2001 10 10 | 644 | 0.8− | 0.2+ | 2006 02 06 | G96 | 0.1− | 0.2− | 2008 10 08 | 703 | 1.4− | 0.9+ |
| 2001 10 17 | 644 | 0.0 | 1.2+ | 2006 02 06 | G96 | 0.2+ | 0.0 | 2008 10 08 | 703 | 0.1− | 0.1− |
| 2001 10 17 | 644 | 0.3+ | 1.2+ | 2006 02 06 | G96 | 0.1− | 0.1− | 2008 10 27 | G96 | 0.4− | 0.4− |
| 2001 10 17 | 644 | 0.0 | 1.1+ | 2006 02 06 | G96 | 0.3− | 0.1− | 2008 10 27 | G96 | 0.2− | 0.4− |
| 2003 04 01 | 645 | 0.1+ | 0.1+ | 2008 09 29 | 703 | (0.1+ | 3.3+) | 2008 10 27 | G96 | 0.0 | 0.6− |
| 2003 04 01 | 645 | 0.1+ | 0.2+ | 2008 09 29 | 703 | (0.3− | 2.3+) | 2008 10 27 | G96 | 0.2+ | 0.5− |
| 2006 01 02 | G96 | 0.0 | 0.3− | 2008 09 29 | 703 | 1.2+ | 1.5+ | | | | |
| 2006 01 02 | G96 | 0.5+ | 0.1− | 2008 09 29 | 703 | 0.5+ | 0.7+ | | | | |

**2008 SP$_{296}$ = 2003 FX$_{117}$ = 2007 LF$_{2}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 38.24323 | | | (2000.0) | | |
| $n$ | 0.28148750 | $\omega$ | 348.20282 | | −0.39180164 | −0.91529981 |
| $a$ | 2.3058443 | $\Omega$ | 124.79604 | | +0.85310622 | −0.39942033 |
| $e$ | 0.0430886 | $i$ | 6.52862 | | +0.34453049 | −0.05186189 |
| $P$ | 3.50 | $H$ | 16.8 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 18 | 645 | 0.1− | 0.1+ | 2005 12 07 | 691 | 0.4− | 0.2+ | 2008 10 08 | 703 | (1.7+ | 1.6+) |
| 2001 09 18 | 645 | 0.1− | 0.0 | 2006 02 02 | 691 | 0.2+ | 0.0 | 2008 10 08 | 703 | (0.7+ | 1.9+) |
| 2003 03 25 | 644 | 1.2+ | 1.0+ | 2006 02 02 | 691 | 0.1+ | 0.1+ | 2008 10 08 | 703 | 0.9+ | 1.2+ |
| 2003 03 25 | 644 | 1.2+ | 0.6+ | 2006 02 02 | 691 | 0.3− | 0.7+ | 2008 10 21 | G96 | 0.1− | 0.4+ |
| 2003 03 25 | 644 | 0.9+ | 0.2+ | 2007 06 07 | 691 | 0.2− | 0.6+ | 2008 10 21 | G96 | 0.1− | 0.5+ |
| 2003 03 26 | 699 | 1.1− | 0.3+ | 2007 06 07 | 691 | 0.0 | 0.4+ | 2008 10 21 | G96 | 0.0 | 0.6+ |
| 2003 03 26 | 699 | 0.1+ | 0.3− | 2007 06 07 | 691 | 0.1+ | 0.2+ | 2008 10 21 | G96 | 0.0 | 0.5+ |
| 2003 03 26 | 699 | 0.7+ | 0.2− | 2007 06 09 | 691 | 0.1− | 0.4+ | 2009 11 22 | 691 | 0.0 | 0.6+ |
| 2003 03 26 | 699 | 0.5+ | 0.1− | 2007 06 09 | 691 | 0.0 | 0.4+ | 2009 11 22 | 691 | 0.4+ | 0.1− |
| 2004 08 22 | 691 | 0.0 | 0.3+ | 2007 06 09 | 691 | 0.0 | 0.2+ | 2009 11 22 | 691 | 0.2+ | 0.3+ |
| 2004 08 22 | 691 | 0.1+ | 0.0 | 2007 06 12 | 691 | 0.1+ | 0.3+ | 2009 12 17 | 691 | 0.2− | 0.6+ |
| 2004 08 22 | 691 | 0.1+ | 0.1+ | 2007 06 12 | 691 | 0.0 | 0.4+ | 2009 12 17 | 691 | 0.0 | 0.2+ |
| 2004 08 22 | E12 | 0.3− | 0.1− | 2007 06 12 | 691 | 0.1− | 0.1− | 2009 12 17 | 691 | 0.2− | 0.2− |
| 2004 08 22 | E12 | 0.2+ | 0.1+ | 2008 09 29 | 703 | 1.4− | 1.3+ | 2009 12 18 | 691 | 0.3+ | 0.2+ |
| 2004 08 22 | E12 | 0.5+ | 0.9+ | 2008 09 29 | 703 | 1.0− | 1.1+ | 2009 12 18 | 691 | 0.5+ | 0.2− |
| 2004 08 22 | E12 | 0.5− | 0.4+ | 2008 09 29 | 703 | 0.2− | 1.5+ | 2009 12 18 | 691 | 0.2− | 0.5+ |
| 2005 12 07 | 691 | 0.0 | 0.3+ | 2008 09 29 | 703 | 1.2+ | 0.6+ | | | | |
| 2005 12 07 | 691 | 0.2− | 0.1+ | 2008 10 08 | 703 | 0.1− | 0.5+ | | | | |

**2008 SE$_{297}$ = 2005 XH$_{105}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 149.08369 | | | (2000.0) | | |
| $n$ | 0.23656285 | $\omega$ | 201.37769 | | +0.74597900 | +0.61918356 |
| $a$ | 2.5892363 | $\Omega$ | 117.96634 | | −0.56366435 | +0.78312019 |
| $e$ | 0.1859292 | $i$ | 16.11873 | | −0.35467991 | +0.05774501 |
| $P$ | 4.17 | $H$ | 16.0 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 04 25 | 699 | 0.6− | 0.0 | 2005 12 05 | G96 | 0.5+ | 0.5− | 2008 10 09 | 703 | 0.4+ | 0.2− |
| 2003 04 25 | 699 | 1.3+ | 1.3+ | 2005 12 05 | G96 | 0.1+ | 0.1− | 2008 10 09 | 703 | 0.4+ | 1.8+ |
| 2003 04 25 | 699 | 1.1+ | 1.4− | 2005 12 05 | G96 | 0.4− | 0.0 | 2008 10 09 | 703 | 0.1+ | 0.6+ |
| 2003 04 25 | 699 | 0.7+ | 1.2+ | 2005 12 05 | G96 | 0.2+ | 0.4− | 2008 10 09 | 703 | 1.3+ | 1.9+ |
| 2003 04 28 | 645 | 0.1− | 0.1− | 2007 05 12 | 699 | 0.7+ | 0.2− | 2008 10 27 | 703 | 0.2+ | 0.1+ |
| 2003 04 28 | 645 | 0.1− | 0.0 | 2007 05 12 | 699 | 0.4+ | 1.8+ | 2008 10 27 | 703 | 0.1− | 0.2− |
| 2003 05 08 | 608 | 1.4+ | 0.9+ | 2007 05 12 | 699 | 0.6− | 0.3− | 2008 10 27 | 703 | 0.7− | 0.3+ |
| 2003 05 08 | 608 | 1.0+ | 0.4+ | 2007 05 12 | 699 | 0.1− | 0.7+ | 2008 10 27 | 703 | 0.5− | 0.4+ |
| 2003 05 08 | 608 | 0.9+ | 0.2− | 2008 09 28 | 703 | 0.8− | 1.4− | 2009 12 15 | G96 | 0.2− | 0.1+ |
| 2005 12 01 | 695 | 0.1− | 0.5+ | 2008 09 28 | 703 | 0.0 | 0.0 | 2009 12 15 | G96 | 0.7+ | 0.7+ |
| 2005 12 02 | 695 | 0.1− | 0.3+ | 2008 09 28 | 703 | 1.4− | 0.7− | 2009 12 15 | G96 | 0.2− | 0.1− |
| 2005 12 02 | 695 | 0.2− | 0.3+ | 2008 09 28 | 703 | 0.1+ | 0.5− | 2009 12 15 | G96 | 0.1+ | 0.2+ |

## 2008 $SK_{297}$ = 2003 $UN_{230}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 76.76332 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18411917 | $\omega$ | 147.45118 | | +0.90878913 | −0.36340870 | |
| $a$ | 3.0601077 | $\Omega$ | 235.21293 | | +0.30902179 | +0.91636903 | |
| $e$ | 0.0508831 | $i$ | 14.45650 | | +0.28037091 | +0.16793424 | |
| $P$ | 5.35 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 07 19 | 644 | 0.2+ | 0.5+ | 2003 10 25 | 691 | 0.0 | 0.1+ | 2008 10 10 | G96 | 0.2+ | 0.1− |
| 2002 07 19 | 644 | 0.2+ | 0.4+ | 2003 10 25 | 691 | 0.1+ | 0.1+ | 2008 10 10 | G96 | 0.5− | 0.1+ |
| 2002 07 19 | 644 | 0.1+ | 0.3+ | 2003 10 25 | 691 | 0.0 | 0.1+ | 2008 10 24 | 703 | 1.0+ | 0.2+ |
| 2002 08 03 | 644 | 0.2− | 0.8− | 2008 09 30 | 703 | 0.0 | 0.2+ | 2008 10 24 | 703 | 0.5− | 0.7+ |
| 2002 08 03 | 644 | 0.2− | 0.0 | 2008 09 30 | 703 | 0.5+ | 1.2+ | 2008 10 24 | 703 | 0.8− | 0.8− |
| 2002 08 03 | 644 | 0.1− | 0.2− | 2008 09 30 | 703 | 1.1− | 1.0− | 2008 10 24 | 703 | (0.1− | 3.2−) |
| 2003 10 23 | 691 | 0.0 | 0.1− | 2008 09 30 | 703 | 0.2+ | 0.0 | 2008 10 31 | G96 | 0.4+ | 0.2− |
| 2003 10 23 | 691 | 0.1− | 0.1− | 2008 10 10 | G96 | 0.3− | 0.4− | 2008 10 31 | G96 | 0.4+ | 0.2− |
| 2003 10 23 | 691 | 0.1+ | 0.0 | 2008 10 10 | G96 | 0.2+ | 0.1+ | 2008 10 31 | G96 | 0.2+ | 0.5− |

## 2008 $TV_8$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 32.16903 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21670593 | $\omega$ | 311.60301 | | +0.28378600 | −0.95259122 | |
| $a$ | 2.7450833 | $\Omega$ | 121.59345 | | +0.91362288 | +0.23387758 | |
| $e$ | 0.0616939 | $i$ | 7.39999 | | +0.29113353 | +0.19460535 | |
| $P$ | 4.55 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 01 17 | 691 | 0.3+ | 0.1+ | 2008 09 20 | 703 | (2.0+ | 1.3−) | 2008 10 22 | F85 | 0.1− | 0.2− |
| 2001 01 17 | 691 | 0.1− | 0.3+ | 2008 09 20 | 703 | 0.9+ | 0.9− | 2008 10 22 | F85 | (1.1− | 1.5−) |
| 2001 01 17 | 691 | 0.0 | 0.9+ | 2008 09 20 | 703 | 0.7+ | 0.9− | 2009 12 17 | 704 | 0.3+ | 0.6+ |
| 2003 08 05 | 691 | 0.2− | 0.3+ | 2008 09 20 | 703 | (1.8− | 1.0+) | 2009 12 17 | 704 | 0.4− | 1.0− |
| 2003 08 05 | 691 | 0.2− | 0.4+ | 2008 09 20 | 703 | 0.1− | 1.4+ | 2009 12 17 | 704 | 0.5+ | 0.0 |
| 2003 08 05 | 691 | 0.1− | 0.3+ | 2008 09 20 | 703 | 0.4+ | 0.3− | 2009 12 17 | 704 | 1.0+ | 0.0 |
| 2005 12 10 | 691 | 0.3+ | 0.3+ | 2008 09 20 | 703 | 0.5+ | 1.2+ | 2009 12 18 | 691 | 1.1+ | 0.3− |
| 2005 12 10 | 691 | 0.0 | 0.6+ | 2008 10 01 | 703 | 0.1− | 1.0+ | 2009 12 18 | G96 | 0.2− | 0.2− |
| 2005 12 10 | 691 | 0.3+ | 0.2+ | 2008 10 01 | 703 | (0.0 | 2.8+) | 2009 12 18 | 691 | 0.0 | 0.0 |
| 2005 12 30 | G96 | 0.1− | 0.3+ | 2008 10 01 | 703 | 0.9− | 0.1+ | 2009 12 18 | G96 | 0.1+ | 0.1− |
| 2005 12 30 | G96 | 0.4+ | 0.5+ | 2008 10 01 | 703 | 1.4− | 1.4+ | 2009 12 18 | G96 | 0.1− | 0.0 |
| 2005 12 30 | G96 | 0.1− | 0.2− | 2008 10 05 | F84 | 0.0 | 0.0 | 2009 12 18 | 691 | 0.4− | 0.0 |
| 2005 12 30 | G96 | 0.2− | 0.1+ | 2008 10 05 | F84 | 0.3+ | 0.5− | 2009 12 18 | G96 | 0.2+ | 0.4− |
| 2006 02 21 | 703 | 0.5− | 1.4+ | 2008 10 06 | F84 | 0.0 | 0.4+ | 2009 12 26 | 691 | 0.4− | 0.2− |
| 2006 02 21 | 703 | 1.3+ | 0.4− | 2008 10 06 | F84 | 0.0 | 0.2+ | 2009 12 26 | 691 | 0.6− | 0.1− |
| 2006 02 21 | 703 | 0.6− | 0.1− | 2008 10 06 | F84 | 0.4− | 0.2− | 2009 12 26 | 691 | 0.3− | 0.1+ |
| 2006 02 21 | 703 | 0.8+ | 0.0 | 2008 10 06 | F84 | 0.0 | 0.5+ | | | | |
| 2008 09 20 | 703 | 0.6+ | 0.7+ | 2008 10 22 | F85 | 0.1− | 0.1− | | | | |

## 2008 $TA_{12}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 107.62058 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21593205 | $\omega$ | 165.53940 | | +0.99959394 | +0.01866176 | |
| $a$ | 2.7516380 | $\Omega$ | 193.44674 | | −0.02447486 | +0.94929352 | |
| $e$ | 0.0606233 | $i$ | 5.31327 | | +0.01459245 | +0.31383683 | |
| $P$ | 4.56 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 07 24 | 644 | 0.3− | 0.2+ | 2008 08 24 | 691 | 0.3− | 0.2− | 2008 10 03 | 291 | 0.1− | 0.2+ |
| 2003 07 24 | 644 | 0.2+ | 0.0 | 2008 09 19 | 691 | 0.2− | 0.0 | 2008 10 03 | 291 | 0.1− | 0.2+ |
| 2003 07 24 | 644 | 0.0 | 0.2+ | 2008 09 19 | 691 | 0.1− | 0.1− | 2008 10 03 | 291 | 0.3− | 0.3+ |
| 2006 03 05 | 691 | 0.1− | 0.0 | 2008 09 19 | 691 | 0.1+ | 0.1+ | 2008 10 24 | G96 | 0.6+ | 0.2− |
| 2006 03 05 | 691 | 0.2+ | 0.1+ | 2008 10 01 | G96 | 0.2− | 0.1− | 2008 10 24 | G96 | 0.1+ | 0.4− |
| 2006 03 05 | 691 | 0.0 | 0.1+ | 2008 10 01 | G96 | 0.0 | 0.0 | 2008 10 24 | G96 | 0.5+ | 0.3− |
| 2008 08 24 | 691 | 0.1+ | 0.3− | 2008 10 01 | G96 | 0.2+ | 0.1− | 2008 10 24 | G96 | 0.6+ | 0.2− |
| 2008 08 24 | 691 | 0.7+ | 0.2+ | 2008 10 01 | G96 | 0.2− | 0.0 | | | | |

## 2008 $TF_{17}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 158.91845 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22549571 | $\omega$ | 92.79337 | | +0.84199734 | +0.53797955 | |
| $a$ | 2.6732764 | $\Omega$ | 234.66372 | | −0.51249067 | +0.77435160 | |
| $e$ | 0.1111751 | $i$ | 2.82673 | | −0.16850457 | +0.33310299 | |
| $P$ | 4.37 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 11 19 | 691 | 0.1+ | 0.1− | 2008 10 01 | G96 | 0.3+ | 0.0 | 2008 10 31 | 691 | 0.0 | 0.2− |
| 1995 11 19 | 691 | (5.5+ | 2.5+) | 2008 10 01 | G96 | 0.1+ | 0.5− | 2008 10 31 | 691 | 0.1− | 0.0 |
| 1995 11 19 | 691 | 0.1− | 0.1− | 2008 10 01 | G96 | 0.1+ | 0.3− | 2008 11 17 | 691 | 0.2+ | 0.1− |
| 2003 07 24 | 644 | 0.0 | 0.2+ | 2008 10 01 | G96 | 0.6+ | 0.5− | 2008 11 17 | 691 | 0.2+ | 0.1+ |
| 2003 07 24 | 644 | 0.1− | 0.1+ | 2008 10 02 | 691 | 0.7− | 0.5+ | 2008 11 17 | 691 | 0.4+ | 0.1+ |
| 2003 07 24 | 644 | 0.1− | 0.5+ | 2008 10 02 | 691 | 0.2− | 0.1− | 2008 11 19 | 691 | 0.1− | 0.2+ |
| 2008 09 22 | G96 | 0.4− | 0.0 | 2008 10 02 | 691 | 0.1+ | 0.1− | 2008 11 19 | 691 | 0.1− | 0.5+ |
| 2008 09 22 | G96 | 0.5+ | 0.5− | 2008 10 06 | 691 | 0.3− | 0.5− | 2008 11 19 | 691 | 0.4+ | 0.2+ |
| 2008 09 22 | G96 | 0.9+ | 0.2− | 2008 10 06 | 691 | 0.1− | 0.3− | 2008 11 21 | 691 | 0.3− | 0.6+ |
| 2008 09 22 | G96 | 0.8+ | 0.4− | 2008 10 06 | 691 | 0.4− | 0.2− | 2008 11 21 | 691 | 0.2+ | 0.1− |
| 2008 10 01 | G96 | 0.9+ | 0.3− | 2008 10 31 | 691 | 0.6− | 0.1+ | 2008 11 21 | 691 | 0.3+ | 0.2+ |

## 2008 $TS_{20}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 7.96047 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17837643 | $\omega$ | 259.67810 | | −0.45988667 | −0.87527818 | |
| $a$ | 3.1254393 | $\Omega$ | 218.85724 | | +0.87908309 | −0.42497685 | |
| $e$ | 0.0633919 | $i$ | 13.79898 | | +0.12536812 | −0.23083065 | |
| $P$ | 5.53 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 03 22 | 645 | 0.0 | 0.0 | 2008 10 02 | 691 | 0.3− | 0.1+ | 2008 11 08 | G96 | 0.4+ | 0.3− |
| 1999 03 22 | 645 | 0.0 | 0.0 | 2008 10 02 | 691 | 0.3+ | 0.6− | 2008 11 08 | 691 | 0.2+ | 0.1+ |
| 2000 05 04 | 691 | 0.5+ | 0.3− | 2008 10 20 | 691 | 0.2+ | 0.3+ | 2008 11 08 | G96 | 0.7+ | 0.2− |
| 2000 05 04 | 691 | 0.4− | 0.0 | 2008 10 20 | 691 | 0.2+ | 0.3+ | 2008 11 08 | 691 | 0.1− | 0.2− |
| 2000 05 04 | 691 | 0.2− | 0.3− | 2008 10 20 | 691 | 0.4− | 0.5+ | 2008 11 17 | 691 | 0.0 | 0.2− |
| 2008 10 01 | G96 | 0.4+ | 0.4− | 2008 10 24 | 691 | 0.2+ | 0.2+ | 2008 11 17 | 691 | 0.2+ | 0.3− |
| 2008 10 01 | G96 | 0.5+ | 0.0 | 2008 10 24 | 691 | 0.1+ | 0.2+ | 2008 11 17 | 691 | 0.3− | 0.1− |
| 2008 10 01 | G96 | 0.5+ | 0.2− | 2008 10 24 | 691 | 0.1− | 0.2− | 2008 11 30 | 691 | 0.2− | 0.4+ |
| 2008 10 01 | G96 | 0.4− | 0.1− | 2008 11 08 | 691 | 0.1− | 0.2− | 2008 11 30 | 691 | 0.1+ | 0.1− |
| 2008 10 01 | G96 | 0.1+ | 0.1− | 2008 11 08 | G96 | 0.3+ | 0.4− | 2008 11 30 | 691 | 0.6− | 0.0 |
| 2008 10 02 | 691 | 0.1− | 0.3− | 2008 11 08 | G96 | 0.3+ | 0.4− | | | | |

**2008 TW$_{24}$ = 2003 UV$_{290}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 74.95614 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18616669 | $\omega$ | 329.39919 | | +0.90020739 | −0.42878985 | |
| $a$ | 3.0376290 | $\Omega$ | 56.18157 | | +0.41574818 | +0.79441581 | |
| $e$ | 0.1453212 | $i$ | 5.24402 | | +0.12953806 | +0.43016599 | |
| $P$ | 5.29 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 6 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 23 | 691 | 0.2+ | 0.3− | 2008 10 02 | G96 | 0.6− | 0.2+ | 2008 10 04 | G96 | 0.5+ | 0.3− |
| 2003 10 23 | 691 | 0.0 | 0.3− | 2008 10 02 | G96 | 0.3− | 0.1+ | 2008 10 04 | G96 | 0.4+ | 0.2− |
| 2003 10 23 | 691 | 0.3+ | 0.2− | 2008 10 02 | G96 | 0.6− | 0.2+ | 2008 10 04 | G96 | 1.1+ | 0.5− |
| 2003 10 24 | 695 | 0.9− | 1.4+ | 2008 10 03 | 291 | 0.2− | 0.1+ | 2008 10 04 | G96 | 1.0+ | 0.4− |
| 2003 10 24 | 695 | 1.5− | 1.6+ | 2008 10 03 | 291 | 0.1− | 0.1+ | | | | |
| 2008 10 02 | G96 | 0.7− | 0.3+ | 2008 10 03 | 291 | 0.1+ | 0.0 | | | | |

**2008 TU$_{28}$ = 2004 XJ$_{171}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 116.54120 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21554083 | $\omega$ | 55.45723 | | +0.82401806 | +0.55876766 | |
| $a$ | 2.7549667 | $\Omega$ | 270.39977 | | −0.54565931 | +0.73820197 | |
| $e$ | 0.0805443 | $i$ | 5.37456 | | −0.15247998 | +0.37793723 | |
| $P$ | 4.57 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 10 | 691 | 0.0 | 0.1+ | 2008 08 28 | 106 | 0.4− | 0.0 | 2008 10 07 | G96 | 0.4+ | 0.1− |
| 2004 12 10 | 691 | 0.0 | 0.0 | 2008 08 28 | 106 | 0.5+ | 0.4− | 2008 10 07 | G96 | 0.3+ | 0.1+ |
| 2004 12 10 | 691 | 0.1+ | 0.0 | 2008 09 07 | 703 | (1.8− | 0.0 ) | 2008 10 07 | G96 | 0.6+ | 0.5− |
| 2004 12 20 | 691 | 0.1− | 0.0 | 2008 09 07 | 703 | 0.7− | 0.2+ | 2008 10 07 | G96 | 0.6+ | 0.1− |
| 2004 12 20 | 691 | 0.1+ | 0.0 | 2008 09 07 | 703 | 0.3− | 0.3− | 2008 10 07 | G96 | 0.4+ | 0.5− |
| 2004 12 20 | 691 | 0.1− | 0.1+ | 2008 09 07 | 703 | 0.3− | 0.6+ | 2009 12 16 | G96 | 0.1− | 0.2− |
| 2006 01 30 | 703 | 0.7+ | 0.1− | 2008 10 01 | 703 | 0.2− | 0.4+ | 2009 12 16 | G96 | 0.1− | 0.2− |
| 2006 01 30 | 703 | 0.2+ | 0.7− | 2008 10 01 | 703 | (2.6− | 0.8+) | 2009 12 16 | G96 | 0.1− | 0.2− |
| 2006 01 30 | 703 | 0.5− | 0.4− | 2008 10 01 | 703 | 0.2− | 0.3+ | 2009 12 16 | G96 | 0.3− | 0.0 |
| 2006 01 30 | 703 | 0.6− | 0.4+ | 2008 10 01 | 703 | 0.9− | 1.2+ | 2009 12 16 | G96 | 0.6+ | 0.2+ |
| 2008 08 28 | 106 | 0.2− | 0.7− | 2008 10 07 | G96 | 0.7+ | 0.1− | | | | |
| 2008 08 28 | 106 | 0.0 | 0.4− | 2008 10 07 | G96 | 0.4+ | 0.8− | | | | |

**2008 TD$_{29}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 352.49298 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.08280494 | $\omega$ | 62.29949 | | +0.53552387 | −0.84440675 | |
| $a$ | 5.2131301 | $\Omega$ | 355.25110 | | +0.70398756 | +0.45539969 | |
| $e$ | 0.0691945 | $i$ | 9.62058 | | +0.46649299 | +0.28211411 | |
| $P$ | 11.90 | $H$ | 12.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 03 13 | 644 | 0.8+ | 0.2− | 2008 10 01 | G96 | 0.3− | 0.7− | 2008 10 17 | 691 | 0.3− | 0.2+ |
| 2002 03 13 | 644 | 0.1+ | 0.8+ | 2008 10 01 | G96 | 0.6+ | 0.3− | 2009 09 29 | G96 | 0.4+ | 0.1− |
| 2002 03 13 | 644 | 0.7+ | 0.0 | 2008 10 01 | G96 | 0.8+ | 0.1− | 2009 09 29 | G96 | 0.3+ | 0.0 |
| 2002 04 04 | 644 | 0.1+ | 1.0+ | 2008 10 01 | G96 | 0.4+ | 0.0 | 2009 09 29 | G96 | 0.1+ | 0.1+ |
| 2002 04 04 | 644 | 0.4+ | 1.3+ | 2008 10 04 | J75 | 0.4+ | 0.4− | 2009 09 29 | G96 | 0.5+ | 0.1− |
| 2002 04 04 | 644 | 0.5+ | 1.2+ | 2008 10 04 | J75 | 0.2− | 0.0 | 2009 10 27 | G96 | 0.1+ | 0.0 |
| 2008 08 22 | 691 | 0.2+ | 0.0 | 2008 10 04 | J75 | 0.4+ | 0.1− | 2009 10 27 | G96 | 0.6+ | 0.7− |
| 2008 08 22 | 691 | 0.2− | 0.1+ | 2008 10 08 | 703 | 0.1+ | 1.1+ | 2009 10 27 | G96 | 0.1+ | 0.3− |
| 2008 08 22 | 691 | 0.1− | 0.3+ | 2008 10 08 | 703 | 0.7− | 1.4+ | 2009 10 27 | G96 | 0.2− | 0.0 |
| 2008 09 23 | G96 | 0.5+ | 0.2− | 2008 10 08 | 703 | 1.0− | 0.4− | 2009 11 08 | 703 | 0.3− | 0.5− |
| 2008 09 23 | G96 | 0.0 | 0.1− | 2008 10 08 | 703 | 0.8− | 0.0 | 2009 11 08 | 703 | 0.2+ | 0.6+ |
| 2008 09 23 | G96 | 0.1+ | 0.1− | 2008 10 17 | 691 | 0.1− | 0.4+ | 2009 11 08 | 703 | 0.5− | 0.2− |
| 2008 09 23 | G96 | 0.3+ | 0.0 | 2008 10 17 | 691 | 0.3− | 0.2+ | 2009 11 08 | 703 | 0.9− | 0.4+ |

**2008 TH$_{30}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 70.21485 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27458657 | $\omega$ | 61.88646 | | −0.05257557 | −0.99845798 | |
| $a$ | 2.3443180 | $\Omega$ | 31.14282 | | +0.90370143 | −0.05516302 | |
| $e$ | 0.1568027 | $i$ | 1.97436 | | +0.42492298 | −0.00622136 | |
| $P$ | 3.59 | $H$ | 18.6 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 02 02 | G96 | 0.1+ | 0.3+ | 2008 10 01 | 691 | 0.2− | 0.5+ | 2008 10 20 | G96 | 0.1− | 0.3− |
| 2006 02 02 | G96 | 0.3+ | 0.2+ | 2008 10 01 | 691 | 0.1− | 0.1− | 2008 10 20 | G96 | 0.2+ | 0.0 |
| 2006 02 02 | G96 | 0.1− | 0.1+ | 2008 10 01 | 691 | 0.1− | 0.0 | 2008 10 28 | G96 | 0.5+ | 0.4− |
| 2006 02 02 | G96 | 0.8+ | 0.3+ | 2008 10 08 | 691 | 0.1− | 0.2− | 2008 10 28 | G96 | 0.4− | 0.3− |
| 2006 03 02 | G96 | 0.4− | 0.0 | 2008 10 08 | 691 | 0.1+ | 0.1+ | 2008 10 28 | G96 | 0.5+ | 0.1− |
| 2006 03 02 | G96 | 0.0 | 0.5− | 2008 10 08 | 691 | 0.0 | 0.2+ | 2008 10 28 | G96 | 0.0 | 0.4− |
| 2006 03 02 | G96 | 0.2− | 0.3− | 2008 10 20 | G96 | 0.4+ | 0.1− | | | | |
| 2006 03 02 | G96 | 0.3− | 0.2+ | 2008 10 20 | G96 | 0.1+ | 0.6− | | | | |

**2008 TN$_{30}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 47.58873 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.20215817 | $\omega$ | 232.14082 | | +0.29292933 | −0.95556925 | |
| $a$ | 2.8752472 | $\Omega$ | 200.89752 | | +0.90362610 | +0.28791158 | |
| $e$ | 0.0516627 | $i$ | 5.28586 | | +0.31249364 | +0.06320076 | |
| $P$ | 4.88 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 10 28 | 691 | 0.1− | 0.0 | 2008 10 01 | 691 | 0.1+ | 0.0 | 2008 11 08 | G96 | 0.2+ | 0.2+ |
| 1998 10 28 | 691 | 0.1− | 0.1− | 2008 10 01 | 691 | 0.1− | 0.1+ | 2008 11 08 | G96 | 0.1− | 0.1− |
| 1998 10 28 | 691 | 0.3+ | 0.3+ | 2008 10 08 | 691 | 0.5− | 0.3+ | 2008 11 08 | G96 | 0.3− | 0.0 |
| 2003 10 19 | 691 | 0.1− | 0.0 | 2008 10 08 | 691 | 0.0 | 0.1− | 2008 11 08 | G96 | 0.5+ | 0.2− |
| 2003 10 19 | 691 | 0.1− | 0.1+ | 2008 10 08 | 691 | 0.4− | 0.5+ | 2008 11 23 | G96 | 0.2− | 0.1+ |
| 2003 10 19 | 691 | 0.1− | 0.2− | 2008 10 20 | G96 | 0.1− | 0.4− | 2008 11 23 | G96 | 1.0+ | 0.4+ |
| 2008 09 20 | 691 | 0.2+ | 0.5− | 2008 10 20 | G96 | 0.3− | 0.4− | 2008 11 23 | G96 | 0.2+ | 0.2+ |
| 2008 09 20 | 691 | 0.8− | 0.7+ | 2008 10 20 | G96 | 0.3− | 0.5− | 2008 11 23 | G96 | 0.2+ | 0.4+ |
| 2008 09 20 | 691 | 0.6+ | 0.8− | 2008 10 20 | G96 | 0.0 | 0.5− | 2008 11 24 | G96 | 0.3+ | 0.2+ |
| 2008 09 24 | 691 | 0.3+ | 0.1+ | 2008 10 28 | G96 | 0.3+ | 0.1− | 2008 11 24 | G96 | 0.5+ | 0.2+ |
| 2008 09 24 | 691 | 0.3+ | 0.0 | 2008 10 28 | G96 | 0.2+ | 0.4− | 2008 11 24 | G96 | 0.1+ | 0.2+ |
| 2008 09 24 | 691 | 0.1− | 0.1− | 2008 10 28 | G96 | 0.2+ | 0.1− | 2008 11 24 | G96 | 0.4+ | 0.2− |
| 2008 10 01 | 691 | 0.2− | 0.1+ | 2008 10 28 | G96 | 0.2+ | 0.3− | | | | |

**2008 TT$_{31}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 119.00800 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22440279 | $\omega$ | 204.59737 | | +0.99620394 | −0.08622921 | |
| $a$ | 2.6819492 | $\Omega$ | 160.33829 | | +0.08457997 | +0.92640597 | |
| $e$ | 0.0983431 | $i$ | 2.03125 | | +0.02058960 | +0.36651945 | |
| $P$ | 4.39 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 03 | 568 | 0.0 | 0.0 | 2008 09 20 | 691 | 0.5− | 0.1+ | 2008 10 08 | 691 | 0.2− | 0.0 |
| 2005 12 03 | 568 | 0.1− | 0.0 | 2008 09 20 | 691 | 0.2+ | 0.2+ | 2008 11 08 | G96 | 0.2+ | 0.7− |
| 2005 12 03 | 568 | 0.2− | 0.1− | 2008 10 01 | 691 | 0.1+ | 0.1+ | 2008 11 08 | G96 | 1.1+ | 0.6− |
| 2006 03 06 | 691 | 0.4− | 0.3+ | 2008 10 01 | 691 | 0.5− | 0.1+ | 2008 11 08 | G96 | 0.8+ | 0.1+ |
| 2006 03 06 | 691 | 0.7+ | 0.1− | 2008 10 01 | 691 | 0.0 | 0.0 | 2008 11 08 | G96 | 0.4+ | 0.3− |
| 2006 03 06 | 691 | 0.2− | 0.0 | 2008 10 08 | 691 | 0.3− | 0.4− | | | | |
| 2008 09 20 | 691 | 0.4+ | 0.2+ | 2008 10 08 | 691 | 0.1+ | 0.4+ | | | | |

**2008 TV$_{33}$ = 2003 WY$_{178}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 104.70753 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19575027 | $\omega$ | 267.90396 | | +0.98919347 | +0.13997630 | |
| $a$ | 2.9376573 | $\Omega$ | 84.04754 | | −0.11093199 | +0.90908621 | |
| $e$ | 0.3290443 | $i$ | 2.51373 | | −0.09586642 | +0.39238871 | |
| $P$ | 5.04 | $H$ | 18.7 | $G$ | 0.15 | $U$ | 5 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 11 20 | 695 | 0.2− | 0.0 | 2008 10 01 | 691 | 0.1+ | 0.1+ | 2008 10 23 | G96 | 0.5+ | 0.3− |
| 2003 11 20 | 695 | 0.0 | 0.0 | 2008 10 01 | 691 | 0.0 | 0.2− | 2008 10 23 | G96 | 0.2+ | 0.2− |
| 2003 11 22 | 695 | 0.1− | 0.1+ | 2008 10 01 | 691 | 0.0 | 0.2− | 2008 10 23 | G96 | 0.2− | 0.0 |
| 2003 11 22 | 695 | 0.0 | 0.0 | 2008 10 08 | 691 | 0.0 | 0.3+ | 2008 10 23 | G96 | 0.1− | 0.1− |
| 2003 11 24 | 695 | 0.3+ | 0.0 | 2008 10 08 | 691 | 0.1− | 0.0 | | | | |
| 2003 11 24 | 695 | 0.1− | 0.0 | 2008 10 08 | 691 | 0.1− | 0.1+ | | | | |

**2008 TO$_{37}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 110.03015 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22873962 | $\omega$ | 62.76146 | | +0.99691957 | −0.07365281 | |
| $a$ | 2.6479419 | $\Omega$ | 301.45116 | | +0.05600839 | +0.90914107 | |
| $e$ | 0.1312746 | $i$ | 1.81076 | | +0.05490383 | +0.40992411 | |
| $P$ | 4.31 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 15 | 691 | 0.0 | 0.6− | 2008 09 30 | J75 | 0.3− | 0.6+ | 2008 10 07 | 691 | 0.0 | 0.2+ |
| 2004 10 15 | 691 | 0.0 | 0.2− | 2008 09 30 | J75 | 0.4+ | 0.5− | 2008 10 10 | 691 | 0.3− | 0.2− |
| 2004 10 15 | 691 | 0.2+ | 0.3− | 2008 10 01 | J75 | 1.7+ | 1.3− | 2008 10 10 | 691 | 0.1+ | 0.2− |
| 2006 01 30 | 691 | 0.2+ | 0.0 | 2008 10 01 | G96 | 0.3+ | 0.3− | 2008 10 10 | 691 | 0.4− | 0.9+ |
| 2006 01 30 | 691 | 0.1− | 0.3+ | 2008 10 01 | G96 | 0.1+ | 0.3− | 2008 10 17 | 691 | 0.3− | 1.7+ |
| 2006 01 30 | 691 | 0.3+ | 0.4+ | 2008 10 01 | G96 | 0.1+ | 0.3− | 2008 10 17 | 691 | 0.0 | 0.3− |
| 2008 09 02 | 691 | 0.1+ | 0.2− | 2008 10 01 | G96 | 0.4+ | 0.3− | 2008 10 17 | 691 | 0.3− | 0.1+ |
| 2008 09 02 | 691 | 0.2+ | 0.1− | 2008 10 02 | J75 | 0.6+ | 0.2− | 2008 12 03 | G96 | 0.3+ | 0.2− |
| 2008 09 02 | 691 | 0.2+ | 0.1− | 2008 10 02 | J75 | 0.3+ | 0.3− | 2008 12 03 | G96 | 0.2− | 0.0 |
| 2008 09 21 | 691 | 0.5− | 0.4− | 2008 10 02 | J75 | 0.1+ | 0.4− | 2008 12 03 | G96 | 0.4− | 0.2− |
| 2008 09 21 | 691 | 0.1− | 0.4+ | 2008 10 07 | 691 | 0.5+ | 0.0 | 2008 12 03 | G96 | 0.0 | 0.0 |
| 2008 09 21 | 691 | 0.3− | 0.2+ | 2008 10 07 | 691 | 0.4− | 0.1+ | | | | |

**2008 TK$_{38}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 92.43699 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19959277 | $\omega$ | 291.84419 | | +0.96738050 | −0.19736465 | |
| $a$ | 2.8998320 | $\Omega$ | 79.81932 | | +0.24702888 | +0.87386539 | |
| $e$ | 0.2240102 | $i$ | 9.28558 | | −0.05614004 | +0.44430449 | |
| $P$ | 4.94 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 24 | 644 | 0.1− | 0.0 | 2008 09 22 | 703 | 0.1+ | 1.1+ | 2008 10 08 | 703 | 0.7− | 0.2− |
| 2003 09 24 | 644 | 0.0 | 0.1+ | 2008 09 22 | 703 | 0.3+ | 0.2+ | 2008 10 08 | 703 | 0.0 | 0.0 |
| 2003 09 24 | 644 | 0.1− | 0.1+ | 2008 09 22 | 703 | 0.9− | 0.4− | 2008 10 08 | 703 | 0.2− | 0.3− |
| 2003 10 16 | 608 | (2.5+ | 0.9+) | 2008 09 22 | 703 | 0.7+ | 0.2+ | 2008 10 26 | 703 | 0.0 | 0.3− |
| 2003 10 16 | 608 | 0.9+ | 0.9− | 2008 10 01 | 703 | 0.3+ | 0.2− | 2008 10 26 | 703 | 0.0 | 0.1+ |
| 2003 10 16 | 608 | 0.7+ | 1.0− | 2008 10 01 | 703 | 0.0 | 0.6− | 2008 10 26 | 703 | 0.4+ | 0.3− |
| 2003 10 24 | 608 | 0.7− | 0.7+ | 2008 10 01 | 703 | 0.3− | 0.3+ | 2008 10 26 | 703 | 0.2+ | 0.8+ |
| 2003 10 24 | 608 | 0.4− | 0.1+ | 2008 10 01 | 703 | 0.1+ | 0.6+ | | | | |
| 2003 10 24 | 608 | 0.2− | 0.7+ | 2008 10 08 | 703 | 0.1− | 0.6− | | | | |

**2008 TC$_{40}$ = 2006 EM$_{41}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 359.48059 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23102002 | $\omega$ | 219.25157 | | −0.67867409 | −0.71790448 | |
| $a$ | 2.6304879 | $\Omega$ | 274.08931 | | +0.70687425 | −0.58123101 | |
| $e$ | 0.0764950 | $i$ | 8.93780 | | +0.19932456 | −0.38312357 | |
| $P$ | 4.27 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 11 09 | 703 | 0.7− | 0.1− | 2006 03 05 | 699 | 0.3− | 0.9− | 2008 10 08 | G96 | 0.4− | 0.1+ |
| 2004 11 09 | 703 | 0.0 | 0.3+ | 2006 03 05 | 699 | 0.4− | 0.0 | 2008 10 08 | G96 | 0.1− | 0.0 |
| 2004 11 09 | 703 | 0.1+ | 0.8− | 2006 03 05 | 699 | 0.9+ | 0.9− | 2008 10 08 | G96 | 0.3− | 0.3+ |
| 2004 11 09 | 703 | 0.6+ | 0.7+ | 2008 10 01 | G96 | 0.2+ | 0.1+ | 2008 10 21 | G96 | 0.1+ | 0.3− |
| 2006 03 04 | 703 | 0.2+ | 1.0+ | 2008 10 01 | G96 | 0.4+ | 0.1+ | 2008 10 21 | G96 | 0.1− | 0.4− |
| 2006 03 04 | 703 | 0.7+ | 0.4+ | 2008 10 01 | G96 | 0.0 | 0.1+ | 2008 10 21 | G96 | 0.1+ | 0.4− |
| 2006 03 04 | 703 | 0.6− | 0.6+ | 2008 10 01 | G96 | 0.2+ | 0.0 | 2008 10 21 | G96 | 0.1− | 0.3− |
| 2006 03 04 | 703 | 0.4− | 0.3− | 2008 10 01 | G96 | 0.3+ | 0.1+ | | | | |
| 2006 03 05 | 699 | (0.3+ | 2.5+) | 2008 10 08 | G96 | 0.3− | 0.3+ | | | | |

**2008 TC$_{52}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 220.31410 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19783461 | $\omega$ | 2.37980 | | −0.42082878 | +0.89017887 | |
| $a$ | 2.9169873 | $\Omega$ | 242.77867 | | −0.83549418 | −0.45531538 | |
| $e$ | 0.0418389 | $i$ | 11.32329 | | −0.35334490 | +0.01641587 | |
| $P$ | 4.98 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 21 | 644 | 0.4− | 0.1+ | 2006 03 24 | 703 | 0.7− | 0.5+ | 2008 10 08 | G96 | 0.1+ | 0.3− |
| 2003 09 21 | 644 | 0.1− | 0.2+ | 2006 03 24 | 703 | 0.2+ | 0.5− | 2008 10 21 | G96 | 0.3− | 0.1+ |
| 2003 09 21 | 644 | 0.2− | 0.3+ | 2006 03 24 | 644 | 0.1+ | 0.1− | 2008 10 21 | G96 | 0.2− | 0.2+ |
| 2003 10 17 | 699 | 0.4+ | 0.6+ | 2006 03 24 | 644 | 0.1− | 0.2+ | 2008 10 21 | G96 | 0.1− | 0.1+ |
| 2003 10 17 | 699 | 0.0 | 1.2− | 2008 10 02 | 291 | 0.0 | 0.2+ | 2008 10 21 | G96 | 0.2+ | 0.3+ |
| 2003 10 17 | 699 | (1.8− | 0.5+) | 2008 10 02 | 291 | 0.4+ | 0.0 | 2008 11 01 | G96 | 0.5− | 0.0 |
| 2003 10 17 | 699 | 0.3+ | 0.1+ | 2008 10 02 | 291 | 0.0 | 0.1− | 2008 11 01 | G96 | 0.1− | 0.1+ |
| 2006 03 24 | 644 | 0.3− | 0.1+ | 2008 10 08 | G96 | 0.1+ | 0.3− | 2008 11 01 | G96 | 0.2− | 0.1− |
| 2006 03 24 | 703 | 0.3− | 0.1− | 2008 10 08 | G96 | 0.3− | 0.3− | 2008 11 01 | G96 | 0.2− | 0.0 |
| 2006 03 24 | 703 | 1.0+ | 0.0 | 2008 10 08 | G96 | 0.1− | 0.3− | | | | |

**2008 TB$_{55}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 349.51041 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17281595 | $\omega$ | 276.44648 | | −0.56054225 | −0.82749075 | |
| $a$ | 3.1921271 | $\Omega$ | 207.72465 | | +0.78467849 | −0.51821004 | |
| $e$ | 0.1129469 | $i$ | 3.99676 | | +0.26471127 | −0.21614214 | |
| $P$ | 5.70 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 11 08 | 645 | 0.0 | 0.0 | 2008 10 02 | 691 | 0.6− | 0.3+ | 2008 10 23 | G96 | 1.1+ | 0.1− |
| 2002 11 08 | 645 | 0.0 | 0.1+ | 2008 10 02 | 691 | 0.3− | 0.3− | 2008 11 07 | G96 | 0.1+ | 0.6− |
| 2005 03 17 | 691 | 0.1− | 0.1− | 2008 10 02 | 691 | 0.3+ | 0.1+ | 2008 11 07 | G96 | 0.4+ | 0.5− |
| 2005 03 17 | 691 | 0.0 | 0.1+ | 2008 10 06 | 691 | 0.0 | 0.1− | 2008 11 07 | G96 | 0.7+ | 0.2+ |
| 2005 03 17 | 691 | 0.0 | 0.0 | 2008 10 06 | 691 | 0.1+ | 0.2+ | 2008 11 07 | G96 | 0.2− | 0.1− |
| 2008 09 07 | G96 | 0.1+ | 0.3− | 2008 10 06 | 691 | 0.4− | 0.2− | 2008 11 23 | G96 | 0.4+ | 0.0 |
| 2008 09 07 | G96 | 0.5+ | 0.0 | 2008 10 10 | 691 | 0.2− | 0.0 | 2008 11 23 | G96 | 0.3+ | 0.0 |
| 2008 09 07 | G96 | 0.9+ | 0.0 | 2008 10 10 | 691 | 0.5− | 0.0 | 2008 11 23 | G96 | 0.4+ | 0.1+ |
| 2008 09 07 | G96 | 0.6+ | 0.4− | 2008 10 10 | 691 | 0.1− | 0.4+ | 2008 11 23 | G96 | 0.1− | 0.0 |
| 2008 09 24 | 691 | 0.3+ | 0.3+ | 2008 10 23 | G96 | 0.3+ | 0.4− | 2009 12 20 | 691 | 0.3+ | 0.1+ |
| 2008 09 24 | 691 | 0.0 | 0.1− | 2008 10 23 | G96 | 0.9+ | 0.3− | 2009 12 20 | 691 | 0.3− | 0.2+ |
| 2008 09 24 | 691 | 0.1− | 0.1− | 2008 10 23 | G96 | 0.5+ | 0.3− | 2009 12 20 | 691 | 0.0 | 0.3− |

**2008 TG$_{56}$ = 2005 UY$_{60}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 221.19570 | | (2000.0) | | | |
| $n$ | 0.30758270 | $\omega$ | 67.63956 | | +0.14902450 | +0.98867830 |
| $a$ | 2.1735090 | $\Omega$ | 210.94683 | | −0.91930877 | +0.13199899 |
| $e$ | 0.1904059 | $i$ | 1.95231 | | −0.36422943 | +0.07135464 |
| $P$ | 3.20 | $H$ | 18.3 | $G$ 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 09 29 | 691 | 0.1− | 0.4+ | 2005 10 25 | G96 | 0.2+ | 0.0 | 2008 10 06 | 691 | 0.4− | 0.2+ |
| 1995 09 29 | 691 | 0.3− | 0.6+ | 2005 10 25 | G96 | 0.5− | 0.1+ | 2008 10 06 | 691 | 0.2+ | 0.3− |
| 1995 09 29 | 691 | 0.1− | 0.3+ | 2005 10 26 | 691 | 0.0 | 0.3+ | 2008 10 06 | 691 | 0.3− | 0.0 |
| 2004 03 29 | 691 | 0.1+ | 0.6+ | 2005 10 26 | 691 | 0.1− | 0.2− | 2008 10 20 | G96 | 1.3+ | 0.6− |
| 2004 03 29 | 691 | 0.6+ | 0.6+ | 2005 10 26 | 691 | 0.2+ | 0.2+ | 2008 10 20 | G96 | 0.8+ | 0.4− |
| 2004 03 29 | 691 | 0.2+ | 0.8+ | 2008 10 02 | 691 | 0.2− | 0.9+ | 2008 10 20 | G96 | 1.0+ | 0.6− |
| 2005 10 25 | G96 | 0.6− | 0.1+ | 2008 10 02 | 691 | 0.4− | 0.2+ | 2008 10 20 | G96 | 1.1+ | 0.1− |
| 2005 10 25 | G96 | 0.3− | 0.8+ | 2008 10 02 | 691 | 0.0 | 0.1− | | | | |

**2008 TL$_{57}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 356.88701 | | (2000.0) | | | |
| $n$ | 0.08284066 | $\omega$ | 23.21991 | | +0.36523371 | −0.93075411 |
| $a$ | 5.2116311 | $\Omega$ | 45.36326 | | +0.85022859 | +0.32592807 |
| $e$ | 0.0658324 | $i$ | 1.39737 | | +0.37909852 | +0.16573374 |
| $P$ | 11.90 | $H$ | 14.4 | $G$ 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 09 24 | 691 | 0.1+ | 0.2+ | 2008 10 06 | 691 | 0.1+ | 0.2− | 2009 11 24 | 691 | 0.0 | 0.1+ |
| 2008 09 24 | 691 | 0.2− | 0.2+ | 2008 10 06 | 691 | 0.0 | 0.0 | 2009 11 24 | 691 | 0.2− | 0.2+ |
| 2008 09 24 | 691 | 0.4+ | 0.2+ | 2008 10 20 | G96 | 0.4+ | 0.4− | 2009 12 11 | G96 | 0.3+ | 0.0 |
| 2008 10 02 | 691 | 0.1+ | 0.2+ | 2008 10 20 | G96 | 0.7+ | 0.1− | 2009 12 11 | G96 | 0.5− | 0.1− |
| 2008 10 02 | 691 | 0.3− | 0.1+ | 2008 10 20 | G96 | 0.3+ | 0.4− | 2009 12 11 | G96 | 0.8+ | 0.0 |
| 2008 10 02 | 691 | 0.4− | 0.1− | 2008 10 20 | G96 | 0.4+ | 0.3− | 2009 12 11 | G96 | 0.5− | 0.0 |
| 2008 10 06 | 691 | 0.3− | 0.3− | 2009 11 24 | 691 | 0.2+ | 0.2− | | | | |

**2008 TK$_{58}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 100.49955 | | (2000.0) | | | |
| $n$ | 0.23296299 | $\omega$ | 2.55615 | | +0.87529237 | −0.47806802 |
| $a$ | 2.6158415 | $\Omega$ | 26.39604 | | +0.44072924 | +0.72654549 |
| $e$ | 0.1938635 | $i$ | 9.43769 | | +0.19905026 | +0.49354090 |
| $P$ | 4.23 | $H$ | 16.9 | $G$ 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1991 10 03 | 691 | 0.6− | 0.3+ | 2008 10 10 | 691 | 0.1+ | 0.2− | 2008 11 01 | 704 | 0.1+ | 0.9+ |
| 1991 10 03 | 691 | 0.0 | 0.2+ | 2008 10 10 | 691 | 0.0 | 0.2− | 2008 11 01 | 704 | 0.7− | 0.1+ |
| 1991 10 03 | 691 | 0.2− | 0.8+ | 2008 10 20 | G96 | 0.4+ | 0.5− | 2008 11 01 | 704 | 0.1− | 0.7+ |
| 2004 12 14 | 703 | 0.1+ | 0.3+ | 2008 10 20 | G96 | 0.4+ | 0.5− | 2008 11 01 | 704 | 0.8− | 0.4+ |
| 2004 12 14 | 703 | 0.2− | 0.4+ | 2008 10 20 | G96 | 0.3+ | 0.5− | 2008 11 01 | 704 | 0.2− | 0.9+ |
| 2004 12 14 | 703 | 0.1− | 0.0 | 2008 10 20 | G96 | 0.4+ | 0.4− | 2008 11 07 | G96 | 0.1+ | 0.4+ |
| 2004 12 14 | 703 | 0.7− | 0.9+ | 2008 10 25 | 704 | 0.7− | 0.5− | 2008 11 07 | G96 | 0.4+ | 0.2+ |
| 2008 10 02 | 691 | 0.1+ | 0.2− | 2008 10 25 | 704 | 0.2− | 0.1− | 2008 11 07 | G96 | 0.6+ | 0.1− |
| 2008 10 02 | 691 | 0.2+ | 0.2− | 2008 10 25 | 704 | 0.4− | 0.6+ | 2008 11 07 | G96 | 0.4+ | 0.1+ |
| 2008 10 02 | 691 | 0.1+ | 0.3− | 2008 10 25 | 704 | 0.3− | 0.6− | 2008 12 01 | G96 | 0.5+ | 0.3+ |
| 2008 10 06 | 691 | 0.1+ | 0.1+ | 2008 10 30 | 704 | 0.1+ | 0.4− | 2008 12 01 | G96 | 0.5+ | 0.3+ |
| 2008 10 06 | 691 | 0.1+ | 0.2− | 2008 10 30 | 704 | 0.4+ | 0.3− | 2008 12 01 | G96 | 0.4+ | 0.2+ |
| 2008 10 06 | 691 | 0.2− | 0.1− | 2008 10 30 | 704 | 0.1− | 0.8− | 2008 12 01 | G96 | 0.3+ | 0.6+ |
| 2008 10 10 | 691 | 0.1+ | 0.0 | 2008 10 30 | 704 | 0.7+ | 1.4− | | | | |

**2008 TC$_{62}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 131.00795 | | (2000.0) | | | |
| $n$ | 0.23839228 | $\omega$ | 241.68363 | | +0.90556722 | +0.39966906 |
| $a$ | 2.5759727 | $\Omega$ | 94.45644 | | −0.32182836 | +0.86563219 |
| $e$ | 0.2098763 | $i$ | 8.19846 | | −0.27635942 | +0.30157181 |
| $P$ | 4.13 | $H$ | 16.5 | $G$ 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 04 30 | 691 | 0.5− | 0.1+ | 2008 09 07 | 703 | 1.4+ | 0.1− | 2008 10 02 | 703 | 1.1− | 0.7− |
| 2003 04 30 | 691 | 0.2+ | 0.0 | 2008 09 07 | 703 | 0.1+ | 0.3+ | 2008 10 02 | 703 | 0.6− | 0.4− |
| 2003 04 30 | 691 | 0.1+ | 0.3+ | 2008 09 07 | 703 | 0.7− | 0.4− | 2008 10 09 | 703 | 0.3+ | 0.6+ |
| 2003 06 01 | 691 | 0.5+ | 0.4− | 2008 09 07 | 703 | 0.6+ | 0.2− | 2008 10 09 | 703 | 0.8+ | 1.1− |
| 2003 06 01 | 691 | 0.4− | 0.3+ | 2008 09 20 | 703 | 1.0− | 0.5+ | 2008 10 09 | 703 | 1.2+ | 0.4+ |
| 2003 06 01 | 691 | 0.1+ | 0.1− | 2008 09 20 | 703 | 1.2+ | 0.3− | 2008 10 09 | 703 | 1.0+ | 0.3+ |
| 2007 03 16 | G96 | 0.2− | 0.5− | 2008 09 20 | 703 | 1.0− | 0.0 | 2008 10 09 | 703 | 0.7− | 0.4+ |
| 2007 03 16 | G96 | 0.0 | 0.5− | 2008 09 20 | 703 | 0.5− | 0.2− | 2008 10 09 | 703 | 0.0 | 0.6+ |
| 2007 03 16 | G96 | 0.2− | 0.2+ | 2008 10 02 | 703 | 0.5− | 0.5− | 2008 10 09 | 703 | 0.2+ | 0.6+ |
| 2007 03 16 | G96 | 0.1+ | 0.1− | 2008 10 02 | 703 | 0.5− | 0.1+ | 2008 10 09 | 703 | 0.2− | 0.1− |

**2008 TZ$_{62}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 277.67824 | | (2000.0) | | | |
| $n$ | 0.21922864 | $\omega$ | 359.47240 | | −0.88729526 | +0.45573416 |
| $a$ | 2.7239838 | $\Omega$ | 207.98614 | | −0.42258980 | −0.86486492 |
| $e$ | 0.0863476 | $i$ | 8.67848 | | −0.18472950 | −0.21051139 |
| $P$ | 4.50 | $H$ | 16.7 | $G$ 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 10 11 | 691 | 0.3+ | 0.7− | 2008 10 02 | 691 | 0.1− | 0.1− | 2008 10 21 | 691 | 0.0 | 0.3+ |
| 1999 10 11 | 691 | 0.2− | 0.7− | 2008 10 06 | 691 | 0.5− | 0.2+ | 2008 10 21 | 691 | 0.3− | 0.3+ |
| 1999 10 11 | 691 | 0.2+ | 0.3− | 2008 10 06 | 691 | 0.1− | 0.0 | 2008 10 21 | 691 | 0.2− | 0.1− |
| 2003 09 22 | 691 | 0.1+ | 0.2+ | 2008 10 06 | 691 | 0.1− | 0.2+ | 2008 10 28 | G96 | 0.3+ | 0.2− |
| 2003 09 22 | 691 | 0.0 | 0.3− | 2008 10 19 | 291 | 0.2+ | 0.2+ | 2008 10 28 | G96 | 0.2− | 0.1− |
| 2003 09 22 | 691 | 0.0 | 0.1+ | 2008 10 19 | 291 | 0.2+ | 0.2+ | 2008 10 28 | G96 | 0.1+ | 0.1− |
| 2008 09 22 | 691 | 0.3+ | 0.1− | 2008 10 19 | 291 | 0.1+ | 0.0 | 2008 10 28 | G96 | 0.5+ | 0.0 |
| 2008 09 22 | 691 | 0.2− | 0.1− | 2008 10 20 | G96 | 0.1− | 0.2− | 2008 11 24 | G96 | 0.4+ | 0.2+ |
| 2008 09 22 | 691 | 0.7− | 0.5+ | 2008 10 20 | G96 | 0.3+ | 0.1− | 2008 11 24 | G96 | 0.9+ | 0.1+ |
| 2008 10 02 | 691 | 0.3+ | 0.0 | 2008 10 20 | G96 | 0.2+ | 0.0 | 2008 11 24 | G96 | 0.5+ | 0.7+ |
| 2008 10 02 | 691 | 0.3− | 0.0 | 2008 10 20 | G96 | 0.2+ | 0.2+ | 2008 11 24 | G96 | 0.6+ | 0.2+ |

**2008 TD$_{63}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 116.22103 | | (2000.0) | | | |
| $n$ | 0.18843154 | $\omega$ | 266.02102 | | +0.84196093 | +0.51197303 |
| $a$ | 3.0132395 | $\Omega$ | 63.10769 | | −0.38740662 | +0.79329384 |
| $e$ | 0.1101224 | $i$ | 11.00500 | | −0.37552352 | +0.32949734 |
| $P$ | 5.23 | $H$ | 15.5 | $G$ 0.15 | $U$ | 5 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 05 09 | 691 | 0.4− | 0.1+ | 2008 09 07 | 703 | 0.2+ | 0.6+ | 2008 10 02 | 703 | 1.2− | 0.6+ |
| 1996 05 09 | 691 | 0.2− | 0.0 | 2008 09 07 | 703 | 1.0− | 0.6− | 2008 10 02 | 703 | 0.1+ | 0.6+ |
| 1996 05 09 | 691 | 0.1+ | 0.6+ | 2008 09 07 | 703 | 0.8− | 0.7− | 2008 10 02 | 703 | 0.2− | 0.2− |
| 1996 05 15 | 691 | 0.3+ | 0.4+ | 2008 09 20 | 703 | 0.5− | 0.0 | 2008 10 09 | 703 | 1.0+ | 0.0 |
| 1996 05 15 | 691 | 0.3+ | 1.1− | 2008 09 20 | 703 | 1.0+ | 0.4− | 2008 10 09 | 703 | 0.9+ | 0.4+ |
| 1996 05 15 | 691 | (5.9+ | 6.2−) | 2008 09 20 | 703 | (2.3− | 0.3−) | 2008 10 09 | 703 | 0.2+ | 0.0 |
| 2008 09 07 | 703 | 0.3+ | 0.3+ | 2008 09 20 | 703 | 0.3− | 1.1− | 2008 10 09 | 703 | 0.3+ | 0.4+ |

**2008 TZ$_{64}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 94.74924 | | (2000.0) | | | |
| $n$ | 0.24317635 | $\omega$ | 85.17331 | | +0.75743466 | −0.65045394 |
| $a$ | 2.5420758 | $\Omega$ | 315.38804 | | +0.56254902 | +0.69414488 |
| $e$ | 0.2202275 | $i$ | 4.62177 | | +0.33140811 | +0.30833839 |
| $P$ | 4.05 | $H$ | 17.5 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 12 08 | 691 | 0.0 | 0.1+ | 2004 11 04 | 703 | 0.3− | 0.9+ | 2008 10 06 | 691 | 0.3+ | 0.1− |
| 1996 12 08 | 691 | 0.1− | 0.1− | 2008 09 25 | 691 | 0.4− | 0.0 | 2008 10 29 | G96 | 0.0 | 0.2− |
| 1996 12 08 | 691 | 0.1− | 0.1− | 2008 09 25 | 691 | 0.2− | 0.1− | 2008 10 29 | G96 | 0.1− | 0.4− |
| 2004 10 08 | 699 | 0.6+ | 0.9− | 2008 09 25 | 691 | 0.0 | 0.0 | 2008 10 29 | G96 | 0.1− | 0.3− |
| 2004 10 08 | 699 | 0.3− | 0.2+ | 2008 10 02 | 703 | 1.4+ | 0.3+ | 2008 12 02 | G96 | 0.1− | 0.5− |
| 2004 10 08 | 699 | 0.4+ | 1.0+ | 2008 10 02 | 703 | 0.8− | 0.5− | 2008 12 02 | G96 | 0.0 | 0.1− |
| 2004 10 08 | 699 | 0.2− | 1.2+ | 2008 10 02 | 703 | 1.3+ | 0.2+ | 2008 12 02 | G96 | 0.1− | 0.4− |
| 2004 11 04 | 703 | 0.2+ | 0.2+ | 2008 10 02 | 703 | 0.3− | 0.7− | 2008 12 02 | G96 | 0.4+ | 0.6− |
| 2004 11 04 | 703 | 0.8− | 0.0 | 2008 10 06 | 691 | 0.0 | 0.1+ | | | | |
| 2004 11 04 | 703 | 1.0+ | 0.0 | 2008 10 06 | 691 | 0.1− | 0.2+ | | | | |

**2008 TN$_{66}$ = 2003 YF$_{164}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 284.20197 | | (2000.0) | | | |
| $n$ | 0.17620936 | $\omega$ | 130.01494 | | −0.98424698 | +0.16909973 |
| $a$ | 3.1510121 | $\Omega$ | 59.77820 | | −0.17488183 | −0.88830756 |
| $e$ | 0.0666698 | $i$ | 3.42393 | | −0.02596598 | −0.42698357 |
| $P$ | 5.59 | $H$ | 15.8 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 12 17 | 691 | 0.6+ | 0.6− | 2006 06 04 | G96 | 0.3+ | 0.5+ | 2008 10 23 | G96 | 0.4+ | 0.0 |
| 2003 12 17 | 691 | 0.0 | 0.2− | 2006 06 04 | G96 | 0.6+ | 0.8+ | 2008 11 18 | 691 | 0.0 | 0.3+ |
| 2003 12 17 | 691 | 0.0 | 0.7+ | 2008 10 02 | 691 | 0.2+ | 0.2+ | 2008 11 18 | 691 | 0.1− | 0.5+ |
| 2003 12 29 | 691 | 0.2− | 0.2− | 2008 10 02 | 691 | 0.2+ | 0.0 | 2008 11 18 | 691 | 0.2− | 0.1+ |
| 2003 12 29 | 691 | 0.2− | 0.1− | 2008 10 02 | 691 | 0.1− | 0.2+ | 2008 11 18 | 691 | 0.2− | 0.2+ |
| 2003 12 29 | 691 | 0.1− | 0.0 | 2008 10 07 | 691 | 0.2− | 0.1+ | 2008 11 18 | 691 | 0.0 | 0.1+ |
| 2005 02 09 | 691 | 0.2+ | 0.2+ | 2008 10 07 | 691 | 0.4− | 0.2− | 2008 11 18 | 691 | 0.0 | 0.2+ |
| 2005 02 09 | 691 | 0.1− | 0.4+ | 2008 10 07 | 691 | 0.0 | 0.1− | 2009 12 18 | G96 | 0.0 | 0.4− |
| 2005 02 09 | 691 | 0.2+ | 0.3+ | 2008 10 23 | G96 | 0.1− | 0.4− | 2009 12 18 | G96 | 0.2− | 0.3− |
| 2006 06 04 | G96 | 0.1− | 0.3+ | 2008 10 23 | G96 | 0.1− | 0.0 | 2009 12 18 | G96 | 0.3+ | 0.4− |
| 2006 06 04 | G96 | 0.3− | 0.8+ | 2008 10 23 | G96 | 0.3+ | 0.1− | 2009 12 18 | G96 | 0.2− | 0.1− |

**2008 TA$_{68}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 292.88018 | | (2000.0) | | | |
| $n$ | 0.18117507 | $\omega$ | 139.40880 | | −0.98168142 | +0.11413618 |
| $a$ | 3.0931697 | $\Omega$ | 47.84047 | | −0.17761742 | −0.83797158 |
| $e$ | 0.0917750 | $i$ | 11.87670 | | +0.06894661 | −0.53364460 |
| $P$ | 5.44 | $H$ | 15.9 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 05 05 | 645 | 0.0 | 0.0 | 2008 10 25 | G96 | 0.1+ | 0.1+ | 2008 11 17 | 691 | 0.1− | 0.1+ |
| 2000 05 05 | 645 | 0.0 | 0.0 | 2008 10 25 | G96 | 0.2+ | 0.4− | 2008 11 17 | 691 | 0.1+ | 0.1+ |
| 2003 12 18 | 691 | 0.1− | 0.3− | 2008 10 25 | G96 | 0.1− | 0.3− | 2008 11 17 | 691 | 0.2− | 0.2+ |
| 2003 12 18 | 691 | 0.1+ | 0.0 | 2008 10 25 | G96 | 0.2+ | 0.1− | 2008 11 20 | 691 | 0.4− | 0.4+ |
| 2003 12 18 | 691 | 0.1+ | 0.0 | 2008 10 27 | 691 | 0.4+ | 0.2+ | 2008 11 20 | 691 | 0.0 | 0.1+ |
| 2008 10 02 | 691 | 0.3− | 0.0 | 2008 10 27 | 691 | 0.2+ | 0.1− | 2008 11 20 | 691 | 0.0 | 0.4+ |
| 2008 10 02 | 691 | 0.2+ | 0.4− | 2008 10 27 | 691 | 0.1+ | 0.2+ | 2008 12 04 | G96 | 0.7+ | 0.4+ |
| 2008 10 02 | 691 | 0.2− | 0.4− | 2008 11 09 | G96 | 0.2+ | 0.5+ | 2008 12 04 | G96 | 0.2− | 0.1− |
| 2008 10 06 | 691 | 0.1− | 0.0 | 2008 11 09 | G96 | 0.2+ | 0.3+ | 2008 12 04 | G96 | 0.1+ | 0.3− |
| 2008 10 06 | 691 | 0.7− | 0.1− | 2008 11 09 | G96 | 0.5+ | 0.0 | 2008 12 04 | G96 | 0.3+ | 0.1− |
| 2008 10 06 | 691 | 0.2− | 0.1− | 2008 11 09 | G96 | 0.9+ | 0.0 | | | | |

**2008 TA$_{71}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 145.30080 | | (2000.0) | | | |
| $n$ | 0.21833315 | $\omega$ | 169.20067 | | +0.90115651 | +0.43296394 |
| $a$ | 2.7314270 | $\Omega$ | 165.08771 | | −0.40367125 | +0.85615234 |
| $e$ | 0.1108734 | $i$ | 4.77642 | | −0.15800780 | +0.28203793 |
| $P$ | 4.51 | $H$ | 17.1 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 08 04 | 691 | 0.2− | 0.1+ | 2006 03 02 | 695 | 0.3+ | 0.6+ | 2008 10 02 | 691 | 0.5+ | 0.0 |
| 2003 08 04 | 691 | 0.1− | 0.1+ | 2006 03 02 | 695 | 0.3+ | 0.7+ | 2008 10 06 | 691 | 0.6− | 0.1+ |
| 2003 08 04 | 691 | 0.3+ | 0.0 | 2006 03 02 | 695 | 0.1+ | 0.8+ | 2008 10 06 | 691 | 0.6− | 0.1+ |
| 2003 08 24 | 807 | 0.0 | 0.1− | 2008 09 23 | 691 | 0.1+ | 0.1+ | 2008 10 06 | 691 | 0.3− | 0.2+ |
| 2003 08 24 | 807 | 0.1− | 0.1− | 2008 09 23 | 691 | 0.3+ | 0.8+ | 2008 10 25 | G96 | 0.3− | 0.0 |
| 2003 09 21 | 291 | 0.4+ | 0.3+ | 2008 09 23 | 691 | 0.7− | 1.4− | 2008 10 25 | G96 | 0.5+ | 0.1− |
| 2003 09 21 | 291 | 0.5+ | 0.1+ | 2008 10 02 | 691 | 0.5+ | 0.0 | 2008 10 25 | G96 | 0.3+ | 0.1− |
| 2003 09 21 | 291 | 0.9− | 0.1− | 2008 10 02 | 691 | 0.4+ | 0.2+ | 2008 10 25 | G96 | 0.5+ | 0.0 |

**2008 TM$_{75}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 337.85411 | | (2000.0) | | | |
| $n$ | 0.21840654 | $\omega$ | 127.59029 | | −0.95157625 | −0.30560080 |
| $a$ | 2.7308150 | $\Omega$ | 34.65128 | | +0.26033193 | −0.85874994 |
| $e$ | 0.0497972 | $i$ | 3.36043 | | +0.16349288 | −0.41128664 |
| $P$ | 4.51 | $H$ | 17.4 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 11 13 | 691 | 0.3+ | 0.1− | 2006 05 05 | G96 | 0.8+ | 0.5+ | 2008 10 29 | 691 | 0.2− | 0.2+ |
| 1999 11 13 | 691 | 0.1+ | 0.5− | 2006 05 05 | G96 | 0.0 | 0.2+ | 2008 10 29 | 691 | 0.4+ | 0.0 |
| 1999 11 13 | 691 | 0.1− | 0.1− | 2008 10 02 | 691 | 0.0 | 0.1+ | 2008 11 17 | 691 | 0.1− | 0.3+ |
| 2006 04 19 | G96 | 0.1− | 0.1− | 2008 10 02 | 691 | 0.0 | 0.3− | 2008 11 17 | 691 | 0.4+ | 0.1+ |
| 2006 04 19 | G96 | 0.2− | 0.2− | 2008 10 02 | 691 | 0.4− | 0.1− | 2008 11 17 | 691 | 0.2+ | 0.3+ |
| 2006 04 19 | G96 | 0.1+ | 0.2+ | 2008 10 06 | 691 | 0.0 | 0.2+ | 2008 11 24 | 691 | 0.1+ | 0.6− |
| 2006 04 19 | G96 | 0.2+ | 0.2+ | 2008 10 06 | 691 | 0.1− | 0.1+ | 2008 11 24 | 691 | 0.1+ | 0.0 |
| 2006 05 05 | G96 | 0.6− | 0.2+ | 2008 10 06 | 691 | 0.3− | 0.1− | 2008 11 24 | 691 | 0.1− | 0.2+ |
| 2006 05 05 | G96 | 0.6+ | 0.8+ | 2008 10 29 | 691 | 0.5− | 0.5+ | | | | |

**2008 TQ$_{76}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 102.31643 | | (2000.0) | | | |
| $n$ | 0.18089400 | $\omega$ | 184.79735 | | +0.96666124 | +0.25602503 |
| $a$ | 3.0963731 | $\Omega$ | 160.36680 | | −0.23451638 | +0.89172706 |
| $e$ | 0.1731356 | $i$ | 0.70778 | | −0.10280130 | +0.37319437 |
| $P$ | 5.45 | $H$ | 17.0 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 02 05 | 695 | 0.2+ | 0.7+ | 2008 10 02 | G96 | 0.6+ | 0.3− | 2008 10 26 | 691 | 0.3+ | 0.2− |
| 2000 02 05 | 695 | 0.2+ | 0.4+ | 2008 10 02 | G96 | 0.2+ | 0.1− | 2008 10 26 | 691 | 0.2− | 0.0 |
| 2002 07 04 | 291 | 0.2+ | 0.1+ | 2008 10 09 | G96 | 0.3+ | 0.0 | 2008 10 26 | 691 | 0.1+ | 0.1− |
| 2002 07 04 | 291 | 0.1− | 0.1− | 2008 10 09 | G96 | 0.3+ | 0.1+ | 2008 10 29 | 691 | 0.1− | 0.0 |
| 2002 07 04 | 291 | 0.1− | 0.3+ | 2008 10 09 | G96 | 0.3+ | 0.2+ | 2008 10 29 | 691 | 0.6− | 0.5+ |
| 2008 09 02 | 691 | 0.5− | 0.8− | 2008 10 09 | G96 | 0.2+ | 0.1+ | 2008 10 29 | 691 | 0.0 | 0.3− |
| 2008 09 02 | 691 | 0.0 | 0.6+ | 2008 10 10 | G96 | 0.4+ | 0.1− | 2008 11 02 | 691 | 0.5− | 0.7+ |
| 2008 09 02 | 691 | 0.2− | 0.2− | 2008 10 10 | G96 | 0.6+ | 0.1− | 2008 11 02 | 691 | 0.3+ | 0.2− |
| 2008 10 02 | G96 | 0.7+ | 0.1+ | 2008 10 10 | G96 | 0.8+ | 0.1+ | 2008 11 02 | 691 | 0.1− | 0.1+ |
| 2008 10 02 | G96 | 0.3+ | 0.1− | 2008 10 10 | G96 | 0.4+ | 0.0 | | | | |

**2008 TL$_{77}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 60.93836 | | (2000.0) | | | |
| $n$ | 0.19541705 | $\omega$ | 3.36584 | | +0.66054007 | −0.75059953 |
| $a$ | 2.9409959 | $\Omega$ | 45.29399 | | +0.68827906 | +0.59637182 |
| $e$ | 0.1084560 | $i$ | 1.36623 | | +0.29993124 | +0.28450132 |
| $P$ | 5.04 | $H$ | 17.0 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 18 | 691 | 0.0 | 0.2+ | 2008 10 02 | G96 | 0.1+ | 0.2− | 2008 10 21 | 691 | 0.3− | 0.3+ |
| 2003 10 18 | 691 | 0.0 | 0.1+ | 2008 10 02 | G96 | 0.5+ | 0.2− | 2008 10 21 | 691 | 0.1+ | 0.2+ |
| 2003 10 18 | 691 | 0.2− | 0.1+ | 2008 10 02 | G96 | 0.4+ | 0.0 | 2008 10 21 | 691 | 0.3− | 0.5− |
| 2005 03 10 | G96 | 0.3− | 0.3− | 2008 10 09 | G96 | 0.7+ | 0.3− | 2008 10 29 | 691 | 0.1− | 0.2+ |
| 2005 03 10 | G96 | 0.5+ | 0.5+ | 2008 10 09 | G96 | 0.3+ | 0.1− | 2008 10 29 | 691 | 0.7+ | 0.3+ |
| 2005 03 10 | G96 | 0.2− | 0.1− | 2008 10 09 | G96 | 0.6+ | 0.1− | 2008 10 29 | 691 | 0.1− | 0.0 |
| 2005 03 10 | G96 | 0.0 | 0.1− | 2008 10 09 | G96 | 0.7+ | 0.3− | 2008 11 02 | 691 | 0.3− | 0.0 |
| 2008 09 02 | 691 | 0.1− | 0.1+ | 2008 10 10 | G96 | 0.8+ | 0.3− | 2008 11 02 | 691 | 0.0 | 0.0 |
| 2008 09 02 | 691 | 0.2− | 0.3+ | 2008 10 10 | G96 | 0.7+ | 0.2− | 2008 11 02 | 691 | 0.4− | 0.6− |
| 2008 09 02 | 691 | 0.3− | 0.1− | 2008 10 10 | G96 | 0.6+ | 0.5− | | | | |
| 2008 10 02 | G96 | 0.2+ | 0.2− | 2008 10 10 | G96 | 0.4+ | 0.2− | | | | |

**2008 TV$_{79}$ = 1995 VA$_{16}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 105.84468 | | (2000.0) | | | |
| $n$ | 0.29978830 | $\omega$ | 359.08281 | | +0.52118266 | −0.85311718 |
| $a$ | 2.2110213 | $\Omega$ | 59.50523 | | +0.78319534 | +0.46708499 |
| $e$ | 0.1827835 | $i$ | 1.57332 | | +0.33907771 | +0.23242783 |
| $P$ | 3.29 | $H$ | 19.6 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 11 15 | 691 | 0.5+ | 0.2− | 2005 11 30 | 691 | 0.3+ | 0.1− | 2008 10 09 | G96 | 0.0 | 0.0 |
| 1995 11 15 | 691 | 0.1− | 0.1− | 2008 10 02 | G96 | 0.0 | 0.2− | 2008 10 10 | G96 | 0.2− | 0.4− |
| 1995 11 15 | 691 | 0.1+ | 0.1+ | 2008 10 02 | G96 | 0.1+ | 0.0 | 2008 10 10 | G96 | 0.6+ | 0.7− |
| 1995 11 20 | 691 | 0.3− | 0.1− | 2008 10 02 | G96 | 0.1+ | 0.3− | 2008 10 10 | G96 | 0.4+ | 0.1− |
| 1995 11 20 | 691 | 0.0 | 0.3− | 2008 10 02 | G96 | 0.4− | 0.3− | 2008 10 10 | G96 | 0.2+ | 0.1− |
| 1995 11 20 | 691 | 0.0 | 0.1− | 2008 10 09 | G96 | 0.4+ | 0.2+ | 2008 10 23 | 691 | 0.6− | 0.5+ |
| 2005 11 30 | 691 | 0.0 | 0.1+ | 2008 10 09 | G96 | 0.1− | 0.3− | 2008 10 23 | 691 | 0.4+ | 0.4+ |
| 2005 11 30 | 691 | 0.2− | 0.5+ | 2008 10 09 | G96 | 0.0 | 0.2− | 2008 10 23 | 691 | 0.3− | 0.2+ |

**2008 TJ$_{85}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 22.38244 | | (2000.0) | | | |
| $n$ | 0.08316427 | $\omega$ | 22.98331 | | +0.86502644 | −0.50155416 |
| $a$ | 5.1981029 | $\Omega$ | 7.16191 | | +0.44240327 | +0.75013199 |
| $e$ | 0.0341597 | $i$ | 6.05019 | | +0.23666136 | +0.43098192 |
| $P$ | 11.85 | $H$ | 13.8 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 10 09 | G96 | 0.1+ | 0.1− | 2008 10 10 | G96 | 0.0 | 0.5+ | 2008 11 01 | 703 | 1.3+ | 0.5+ |
| 2007 10 09 | G96 | 0.6+ | 0.1− | 2008 10 10 | G96 | 0.3+ | 0.1+ | 2008 11 01 | 703 | 0.8− | 0.8+ |
| 2007 10 09 | G96 | 0.1− | 0.1− | 2008 10 10 | G96 | 0.4+ | 0.3− | 2008 11 01 | 703 | 0.6− | 0.3− |
| 2007 10 09 | G96 | 0.4− | 0.1− | 2008 10 21 | 691 | 0.1− | 0.1− | 2008 11 01 | 703 | 0.5+ | 0.9− |
| 2008 09 10 | 691 | 0.2− | 0.1+ | 2008 10 21 | 691 | 0.3− | 0.2− | 2009 10 24 | 691 | 0.1+ | 0.2− |
| 2008 09 10 | 691 | 0.3− | 0.7+ | 2008 10 21 | 691 | 0.3+ | 0.1+ | 2009 10 24 | 691 | 0.2+ | 0.3− |
| 2008 09 10 | 691 | 0.2− | 0.1− | 2008 10 24 | 691 | 0.1− | 0.1+ | 2009 10 24 | 691 | 0.5− | 0.1− |
| 2008 09 24 | 691 | 0.2+ | 0.1+ | 2008 10 24 | 691 | 0.4− | 0.5− | 2009 11 23 | 691 | 0.2− | 0.3− |
| 2008 09 24 | 691 | 0.2+ | 0.1+ | 2008 10 24 | 691 | 0.1+ | 0.0 | 2009 11 23 | 691 | 0.4− | 0.0 |
| 2008 09 24 | 691 | 0.1− | 0.5+ | 2008 10 26 | 691 | 0.5− | 0.4− | 2009 11 23 | 691 | 0.1− | 0.4+ |
| 2008 10 03 | G96 | 0.5+ | 0.5− | 2008 10 26 | 691 | 0.1+ | 0.4− | 2009 11 23 | 291 | 0.0 | 0.0 |
| 2008 10 03 | G96 | 1.1+ | 0.3− | 2008 10 26 | 691 | 0.0 | 0.0 | 2009 11 23 | 291 | 0.2+ | 0.3+ |
| 2008 10 03 | G96 | 0.4+ | 0.2− | 2008 10 29 | 691 | 0.1− | 0.1− | 2009 11 23 | 291 | 0.7+ | 0.3+ |
| 2008 10 03 | G96 | 0.9+ | 0.3− | 2008 10 29 | 691 | 0.1+ | 0.0 | | | | |
| 2008 10 10 | G96 | 0.4+ | 0.0 | 2008 10 29 | 691 | 0.1+ | 0.4+ | | | | |

**2008 TL$_{89}$ = 2004 TK$_{349}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 210.54072 | | (2000.0) | | | |
| $n$ | 0.24034769 | $\omega$ | 65.98409 | | +0.10980962 | +0.99386432 |
| $a$ | 2.5619820 | $\Omega$ | 210.32940 | | −0.92120238 | +0.09675713 |
| $e$ | 0.1033583 | $i$ | 1.50357 | | −0.37326670 | +0.05358893 |
| $P$ | 4.10 | $H$ | 17.0 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 12 16 | 691 | 0.1+ | 0.5− | 2004 11 03 | 691 | 0.2+ | 0.2+ | 2008 09 25 | 691 | 0.4+ | 0.2+ |
| 2000 12 16 | 691 | 0.0 | 0.2− | 2004 11 03 | 691 | 0.2+ | 0.1+ | 2008 09 25 | 691 | 0.4− | 0.0 |
| 2000 12 16 | 691 | 0.1− | 0.5+ | 2004 11 03 | 691 | 0.0 | 0.3+ | 2008 10 03 | 691 | 0.1− | 0.2− |
| 2004 10 08 | 691 | 0.2− | 0.2− | 2006 01 22 | G96 | 0.2+ | 0.0 | 2008 10 03 | 691 | 0.5− | 0.1+ |
| 2004 10 08 | 691 | 0.3+ | 0.1− | 2006 01 22 | G96 | 0.1− | 0.2+ | 2008 10 03 | 691 | 0.2+ | 0.1+ |
| 2004 10 08 | 691 | 0.1− | 0.3− | 2006 01 22 | G96 | 0.1+ | 0.1− | 2008 10 07 | 691 | 0.1+ | 0.1+ |
| 2004 10 10 | 695 | 0.1− | 0.0 | 2006 01 22 | G96 | 0.2− | 0.0 | 2008 10 07 | 691 | 0.0 | 0.1− |
| 2004 10 10 | 695 | 0.2− | 0.1+ | 2008 09 25 | 691 | 0.0 | 0.1+ | 2008 10 07 | 691 | 0.1+ | 0.3− |

**2008 TV$_{95}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 16.18250 | | (2000.0) | | | |
| $n$ | 0.17854301 | $\omega$ | 114.64382 | | +0.05141273 | −0.99567088 |
| $a$ | 3.1234950 | $\Omega$ | 332.07297 | | +0.84605836 | +0.08462112 |
| $e$ | 0.0643059 | $i$ | 9.51684 | | +0.53060530 | −0.03845464 |
| $P$ | 5.52 | $H$ | 16.1 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 02 02 | 691 | 0.1+ | 0.0 | 2008 09 09 | 691 | 0.7+ | 0.6+ | 2008 10 06 | 691 | 0.4− | 0.1+ |
| 2005 02 02 | 691 | 0.1− | 0.1+ | 2008 09 09 | 691 | 0.2− | 0.0 | 2008 10 06 | 691 | 0.1+ | 0.2− |
| 2005 02 02 | 691 | 0.2+ | 0.1− | 2008 09 09 | 691 | 1.0− | 0.9− | 2008 10 08 | 691 | 0.1+ | 0.1+ |
| 2005 03 08 | G96 | 0.0 | 0.1− | 2008 09 25 | 691 | 0.0 | 0.1− | 2008 10 08 | 691 | 0.3+ | 0.1+ |
| 2005 03 08 | G96 | 0.5− | 0.2+ | 2008 09 25 | 691 | 0.1− | 0.3+ | 2008 10 08 | 691 | 0.0 | 0.1+ |
| 2005 03 08 | G96 | 0.0 | 0.3+ | 2008 09 25 | 691 | 0.0 | 0.1− | | | | |
| 2005 03 08 | G96 | 0.3− | 0.1− | 2008 10 06 | 691 | 0.4+ | 0.1+ | | | | |

**2008 TC$_{97}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 174.13983 | | (2000.0) | | | |
| $n$ | 0.16966957 | $\omega$ | 21.26442 | | −0.05529082 | +0.99283907 |
| $a$ | 3.2314697 | $\Omega$ | 245.69449 | | −0.93202464 | −0.08936268 |
| $e$ | 0.0826047 | $i$ | 6.67242 | | −0.35815219 | +0.07927728 |
| $P$ | 5.81 | $H$ | 15.5 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 09 05 | 691 | 0.8+ | 0.1+ | 2008 10 08 | 691 | 0.0 | 0.2+ | 2009 12 10 | G96 | 0.6+ | 0.0 |
| 2008 09 05 | 691 | 0.1+ | 0.2− | 2008 10 08 | 691 | 0.2+ | 0.0 | 2009 12 10 | G96 | 0.3+ | 0.2− |
| 2008 09 05 | 691 | 0.0 | 0.1+ | 2009 11 20 | 691 | 0.1− | 0.4− | 2009 12 10 | G96 | 0.8+ | 0.2− |
| 2008 09 20 | 691 | 0.2− | 0.2− | 2009 11 20 | 691 | 0.1+ | 0.2+ | 2009 12 10 | G96 | 0.1− | 0.3− |
| 2008 09 20 | 691 | 0.1− | 0.3− | 2009 11 20 | 691 | 0.6− | 0.3+ | 2009 12 10 | G96 | 0.1+ | 0.2− |
| 2008 09 20 | 691 | 0.1+ | 0.0 | 2009 11 24 | 691 | 0.3− | 0.1+ | 2009 12 11 | G96 | 0.6+ | 0.2− |
| 2008 10 06 | 691 | 0.5− | 0.4+ | 2009 11 24 | 691 | 0.5− | 0.4+ | 2009 12 11 | G96 | 0.2+ | 0.2− |
| 2008 10 06 | 691 | 0.3− | 0.1− | 2009 11 24 | 691 | 0.3+ | 0.2+ | 2009 12 11 | G96 | 0.4+ | 0.2− |
| 2008 10 06 | 691 | 0.2− | 0.1− | 2009 12 10 | G96 | 0.2+ | 0.6− | 2009 12 11 | G96 | 0.5+ | 0.3− |
| 2008 10 08 | 691 | 0.2+ | 0.0 | 2009 12 10 | G96 | 0.5+ | 0.5− | | | | |

**2008 TO$_{98}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 201.16375 | | (2000.0) | | | |
| $n$ | 0.17752004 | $\omega$ | 53.73499 | | −0.36300753 | +0.93056657 |
| $a$ | 3.1354831 | $\Omega$ | 195.19645 | | −0.90256317 | −0.36387170 |
| $e$ | 0.0932743 | $i$ | 10.47554 | | −0.23152810 | −0.04053709 |
| $P$ | 5.55 | $H$ | 16.3 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 03 25 | 691 | 0.4+ | 0.4+ | 2008 09 07 | G96 | 0.6+ | 0.6+ | 2008 10 06 | 691 | 0.2− | 0.8+ |
| 2006 03 25 | 691 | 0.8− | 0.5+ | 2008 09 07 | G96 | 1.5+ | 0.2− | 2008 10 06 | 691 | 0.0 | 0.0 |
| 2006 03 25 | 691 | 0.4+ | 0.6+ | 2008 09 07 | G96 | 0.8+ | 0.1+ | 2008 10 10 | 691 | 0.2− | 0.0 |
| 2006 04 24 | 691 | 0.6+ | 0.3+ | 2008 09 24 | 691 | 0.1+ | 0.3− | 2008 10 10 | 691 | 0.3− | 0.1+ |
| 2006 04 24 | 691 | 0.0 | 0.1− | 2008 09 24 | 691 | 0.0 | 0.1+ | 2008 10 10 | 691 | 0.3− | 0.7+ |
| 2006 04 24 | 691 | 0.2− | 0.3+ | 2008 09 24 | 691 | 0.0 | 0.2+ | | | | |
| 2008 09 07 | G96 | 0.2+ | 0.1+ | 2008 10 06 | 691 | 0.3− | 0.3+ | | | | |

**2008 TU$_{98}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 175.60747 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22182354 | $\omega$ | 264.48091 | | +0.40352182 | +0.91462807 | |
| $a$ | 2.7026986 | $\Omega$ | 29.35743 | | −0.81797419 | +0.37285915 | |
| $e$ | 0.0887109 | $i$ | 2.92448 | | −0.40998581 | +0.15630595 | |
| $P$ | 4.44 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 09 03 | 691 | 0.0 | 0.0 | 2002 04 17 | 691 | 0.5+ | 0.5− | 2008 10 10 | 691 | 0.2+ | 0.1+ |
| 1999 09 03 | 691 | 0.1− | 0.0 | 2008 09 24 | 691 | 0.1+ | 0.4+ | 2008 10 10 | 691 | 0.3+ | 0.5+ |
| 1999 09 03 | 691 | 0.2+ | 0.1− | 2008 09 24 | 691 | 0.3− | 0.0 | 2008 10 20 | G96 | 0.7+ | 0.1− |
| 2002 04 02 | 691 | 0.3− | 0.3+ | 2008 09 24 | 691 | 0.1− | 0.0 | 2008 10 20 | G96 | 0.9+ | 0.2− |
| 2002 04 02 | 691 | 0.3− | 0.1+ | 2008 10 06 | 691 | 0.5− | 0.8− | 2008 10 20 | G96 | 0.5+ | 0.1− |
| 2002 04 02 | 691 | 0.5− | 0.0 | 2008 10 06 | 691 | 0.1+ | 0.3+ | 2008 10 20 | G96 | 0.7+ | 0.2+ |
| 2002 04 17 | 691 | 0.0 | 0.1− | 2008 10 06 | 691 | 0.0 | 0.4− | | | | |
| 2002 04 17 | 691 | 0.6+ | 0.1+ | 2008 10 10 | 691 | 0.4− | 0.0 | | | | |

**2008 TY$_{98}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 257.93384 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28453783 | $\omega$ | 49.25625 | | −0.46235159 | +0.88633608 | |
| $a$ | 2.2893351 | $\Omega$ | 193.27315 | | −0.84310879 | −0.44827558 | |
| $e$ | 0.0940616 | $i$ | 6.32291 | | −0.27458802 | −0.11600585 | |
| $P$ | 3.46 | $H$ | 18.1 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 09 11 | 691 | 0.1+ | 0.6− | 2003 01 28 | 645 | 0.1+ | 0.0 | 2007 04 22 | G96 | 0.4+ | 0.1+ |
| 1994 09 11 | 691 | 0.3− | 1.0− | 2003 01 28 | 645 | 0.1+ | 0.0 | 2008 09 07 | G96 | 0.2− | 0.0 |
| 1994 09 11 | 691 | 0.3+ | 2.2+ | 2003 01 28 | 645 | 0.0 | 0.1+ | 2008 09 07 | G96 | 0.2+ | 0.0 |
| 1994 09 28 | 691 | 0.2− | 0.3− | 2004 06 27 | 691 | 0.4+ | 0.4+ | 2008 09 07 | G96 | 0.1+ | 0.1− |
| 1994 09 28 | 691 | 0.7− | 0.1+ | 2004 06 27 | 691 | 0.4+ | 0.3+ | 2008 09 07 | G96 | 0.1− | 0.1− |
| 1994 09 28 | 691 | 0.3− | 0.1+ | 2004 06 27 | 691 | 0.1+ | 0.3+ | 2008 09 25 | 691 | 0.3+ | 0.3+ |
| 2000 04 13 | 691 | 0.1+ | 0.2+ | 2005 11 03 | G96 | 0.1− | 0.1− | 2008 09 25 | 691 | 0.5− | 0.2+ |
| 2000 04 13 | 691 | 0.0 | 0.3+ | 2005 11 03 | G96 | 0.2+ | 0.2+ | 2008 09 25 | 691 | 0.3− | 0.1+ |
| 2000 04 13 | 691 | 0.4− | 0.4+ | 2005 11 03 | G96 | 0.0 | 0.6− | 2008 10 06 | 691 | 0.7− | 1.2+ |
| 2001 09 22 | 691 | 0.2+ | 0.3− | 2005 11 03 | G96 | 0.3− | 0.8− | 2008 10 06 | 691 | 0.2− | 0.3− |
| 2001 09 22 | 691 | 0.2+ | 0.6− | 2007 03 18 | 691 | 0.4− | 0.9+ | 2008 10 06 | 691 | 0.1+ | 0.3+ |
| 2001 09 22 | 691 | 0.4+ | 0.8+ | 2007 03 18 | 691 | 0.1+ | 0.4− | 2008 10 10 | 691 | 0.5− | 0.4− |
| 2001 10 14 | 691 | 0.3+ | 0.4+ | 2007 03 18 | 691 | 0.1+ | 0.6+ | 2008 10 10 | 691 | 0.0 | 0.1− |
| 2001 10 14 | 691 | 0.2+ | 0.1− | 2007 04 22 | G96 | 0.0 | 0.1− | 2008 10 10 | 691 | 0.1− | 0.3− |
| 2001 10 14 | 691 | 0.0 | 0.4+ | 2007 04 22 | G96 | 0.2− | 0.1− | | | | |
| 2003 01 28 | 645 | 0.1+ | 0.0 | 2007 04 22 | G96 | 0.0 | 0.0 | | | | |

**2008 TN$_{103}$ = 2004 XH$_{180}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 78.48531 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22753424 | $\omega$ | 149.15353 | | +0.48444449 | −0.86279914 | |
| $a$ | 2.6572854 | $\Omega$ | 271.51703 | | +0.77025652 | +0.49900817 | |
| $e$ | 0.3519200 | $i$ | 8.31345 | | +0.41475105 | +0.08104621 | |
| $P$ | 4.33 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 14 | 704 | 0.0 | 0.1+ | 2005 02 02 | 703 | 0.5− | 0.4+ | 2008 11 07 | 703 | 0.3+ | 1.2+ |
| 2004 12 14 | 704 | 0.9+ | 0.9+ | 2008 10 06 | 703 | 0.2+ | 0.0 | 2008 11 20 | 703 | 0.3+ | 0.3− |
| 2004 12 14 | 704 | 0.5+ | 0.5+ | 2008 10 06 | 703 | 0.3+ | 0.1− | 2008 11 20 | 703 | 0.1− | 1.0− |
| 2004 12 14 | 704 | 0.6+ | 0.1+ | 2008 10 06 | 703 | 0.3+ | 0.1+ | 2008 11 20 | 703 | 0.6+ | 0.1− |
| 2004 12 14 | 704 | 0.2− | 0.1− | 2008 10 06 | 703 | 0.3+ | 0.1+ | 2008 11 30 | 703 | 0.3− | 1.0− |
| 2004 12 20 | 699 | 0.3− | 0.2− | 2008 10 07 | 703 | 0.0 | 0.0 | 2008 11 30 | 703 | 0.0 | 0.5− |
| 2004 12 20 | 699 | 0.6− | 0.0 | 2008 10 07 | 703 | 0.5− | 0.0 | 2008 11 30 | 703 | 0.5− | 0.4+ |
| 2004 12 20 | 699 | 0.2− | 1.2− | 2008 10 07 | 703 | 0.3− | 0.5+ | 2008 12 22 | 703 | 0.1+ | 0.5− |
| 2004 12 20 | 699 | (0.3+ | 3.6−) | 2008 10 07 | 703 | 0.3− | 0.4+ | 2008 12 22 | 703 | 1.0+ | 1.1− |
| 2005 02 02 | 703 | 0.7+ | 0.0 | 2008 11 07 | 703 | 0.7− | 0.8+ | 2008 12 22 | 703 | 0.8− | 0.6+ |
| 2005 02 02 | 703 | 0.6− | 0.3+ | 2008 11 07 | 703 | 0.4+ | 0.5− | 2008 12 22 | 703 | 0.1− | 1.1+ |
| 2005 02 02 | 703 | 0.1− | 0.5− | 2008 11 07 | 703 | 0.2− | 0.4− | | | | |

**2008 TZ$_{106}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 229.53649 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21502665 | $\omega$ | 190.97376 | | −0.48453167 | +0.87204301 | |
| $a$ | 2.7593568 | $\Omega$ | 50.08329 | | −0.79561652 | −0.40649240 | |
| $e$ | 0.0263834 | $i$ | 5.16643 | | −0.36362537 | −0.27258929 | |
| $P$ | 4.58 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 04 08 | 291 | 0.4− | 0.1− | 2004 12 13 | 599 | 0.2− | 0.3+ | 2008 09 23 | G96 | 0.5− | 0.0 |
| 2002 04 08 | 291 | 0.2− | 0.4+ | 2006 03 09 | G96 | 0.1− | 0.3+ | 2008 10 06 | G96 | 0.2+ | 0.2− |
| 2002 04 08 | 291 | 0.0 | 0.1+ | 2006 03 09 | G96 | 0.0 | 0.1+ | 2008 10 06 | G96 | 0.2− | 0.0 |
| 2002 04 22 | 691 | 0.0 | 0.2+ | 2006 03 09 | G96 | 0.2+ | 0.0 | 2008 10 06 | G96 | 0.0 | 0.1− |
| 2002 04 22 | 691 | 0.3+ | 0.0 | 2006 03 09 | G96 | 0.3+ | 0.3+ | 2008 10 06 | G96 | 0.1+ | 0.1− |
| 2002 04 22 | 691 | 0.0 | 0.0 | 2008 09 03 | 691 | 0.5+ | 0.4+ | 2008 10 10 | G96 | 0.4+ | 0.2+ |
| 2002 05 08 | 291 | 0.1+ | 0.0 | 2008 09 03 | 691 | 0.4− | 0.2+ | 2008 10 10 | G96 | 0.6+ | 0.0 |
| 2002 05 08 | 291 | 0.1+ | 0.0 | 2008 09 03 | 691 | 0.2− | 0.0 | 2008 10 10 | G96 | 0.1+ | 0.1− |
| 2002 05 08 | 291 | 0.3+ | 0.0 | 2008 09 23 | G96 | 0.6− | 0.2+ | 2008 10 10 | G96 | 0.1− | 0.2− |
| 2004 12 13 | 599 | 0.0 | 0.4+ | 2008 09 23 | G96 | 0.2− | 0.0 | | | | |
| 2004 12 13 | 599 | 0.1− | 0.5+ | 2008 09 23 | G96 | 0.3− | 0.4+ | | | | |

**2008 TK$_{108}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 32.84596 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23488466 | $\omega$ | 11.20028 | | −0.17093773 | −0.98329798 | |
| $a$ | 2.6015546 | $\Omega$ | 88.66415 | | +0.89908000 | −0.18161322 | |
| $e$ | 0.1008376 | $i$ | 3.58389 | | +0.40303280 | −0.01190452 | |
| $P$ | 4.20 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1993 01 25 | 691 | 0.7− | 0.1+ | 2006 03 24 | 699 | 0.1− | 0.0 | 2008 10 10 | G96 | 0.4− | 0.0 |
| 1993 01 25 | 691 | 0.6− | 0.0 | 2006 03 24 | 699 | 1.1+ | 1.1+ | 2008 10 10 | G96 | 0.1− | 0.1+ |
| 1993 01 25 | 691 | 1.6+ | 0.3− | 2006 03 24 | 699 | 0.6− | 1.1− | 2008 10 10 | G96 | 0.3− | 0.1+ |
| 1996 12 08 | 327 | 1.3− | 0.5− | 2006 03 24 | 699 | 0.9+ | 0.5− | 2008 10 25 | G96 | 0.1+ | 0.2+ |
| 1996 12 08 | 327 | 0.1− | 0.1− | 2008 09 03 | 691 | 0.1− | 0.5+ | 2008 10 25 | G96 | 0.1− | 0.3+ |
| 1996 12 08 | 327 | 0.2− | 0.3− | 2008 09 03 | 691 | 0.1− | 0.1+ | 2008 10 25 | G96 | 0.2− | 0.4+ |
| 2002 04 15 | 644 | 0.5− | 0.4+ | 2008 09 03 | 691 | 0.1− | 0.0 | 2008 10 25 | G96 | 0.3+ | 0.3+ |
| 2002 04 15 | 644 | 0.2− | 0.4+ | 2008 10 06 | G96 | 0.1+ | 0.3+ | 2009 01 02 | G96 | 0.1− | 0.1− |
| 2002 04 15 | 644 | 0.0 | 0.5+ | 2008 10 06 | G96 | 0.0 | 0.4+ | 2009 01 02 | G96 | 0.2− | 0.1+ |
| 2006 03 05 | 291 | 0.4+ | 0.4+ | 2008 10 06 | G96 | 0.1− | 0.1+ | 2009 01 02 | G96 | 0.2− | 0.1− |
| 2006 03 05 | 291 | 0.4+ | 0.3+ | 2008 10 06 | G96 | 0.3+ | 0.3+ | 2009 01 02 | G96 | 0.3− | 0.3+ |
| 2006 03 05 | 291 | 0.4− | 0.5+ | 2008 10 10 | G96 | 0.1− | 0.2+ | | | | |

**2008 TO$_{112}$ = 2002 ST$_{26}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 71.41352 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.16989368 | $\omega$ | 33.49019 | | +0.83282790 | −0.55353189 | |
| $a$ | 3.2286272 | $\Omega$ | 0.12120 | | +0.46374481 | +0.69738563 | |
| $e$ | 0.2690765 | $i$ | 9.68369 | | +0.30222250 | +0.45525348 | |
| $P$ | 5.80 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 09 29 | 608 | 0.5+ | 0.9+ | 2002 10 07 | 699 | 0.7+ | 0.7− | 2002 10 11 | 704 | (0.6+ | 3.3+) |
| 2002 09 29 | 608 | 0.5+ | 0.3+ | 2002 10 07 | 699 | 0.7− | 1.1− | 2008 10 06 | 703 | 0.3− | 0.2+ |
| 2002 09 29 | 608 | 0.7+ | 0.1− | 2002 10 07 | 699 | 0.3− | 0.2− | 2008 10 06 | 703 | 0.3+ | 0.1− |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 09 30 | 704 | 0.6− | 1.1+ | 2002 10 07 | 699 | 0.7+ | 0.0 | 2008 10 06 | 703 | 0.7+ | 1.0− |
| 2002 09 30 | 704 | 0.6+ | 1.4− | 2002 10 11 | 704 | 0.5+ | 0.5− | 2008 10 06 | 703 | 0.4+ | 0.5− |
| 2002 09 30 | 704 | 1.4+ | 0.6− | 2002 10 11 | 704 | 0.5− | 0.3+ | 2008 10 09 | 691 | 0.1+ | 0.1+ |
| 2002 10 03 | 704 | 0.8− | 0.2− | 2002 10 11 | 704 | 1.2− | 0.5+ | 2008 10 09 | 691 | 0.3− | 0.3+ |
| 2002 10 03 | 704 | 0.2− | 0.2+ | 2002 10 11 | 704 | 0.2− | 0.3+ | 2008 10 09 | 691 | 0.2− | 0.1+ |
| 2002 10 03 | 704 | 0.2− | 0.3+ | 2002 10 11 | 704 | 0.7− | 1.1− | 2008 10 26 | G96 | 0.2+ | 0.2− |
| 2002 10 04 | 644 | 0.0 | 0.2+ | 2002 10 11 | 704 | 0.5− | 0.8+ | 2008 10 26 | G96 | 0.2+ | 0.2− |
| 2002 10 04 | 644 | 0.1+ | 0.1− | 2002 10 11 | 704 | 0.0 | 0.1− | 2008 10 26 | G96 | 0.3+ | 0.3− |
| 2002 10 04 | 644 | 0.2+ | 0.1+ | 2002 10 11 | 704 | 0.1− | 1.3+ | | | | |

**2008 TB$_{115}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 24.70727 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23760940 | $\omega$ | 234.47897 | | −0.32521885 | | −0.92779713 |
| $a$ | 2.5816279 | $\Omega$ | 235.51548 | | +0.92345893 | | −0.26997116 |
| $e$ | 0.0596800 | $i$ | 12.81481 | | +0.20360823 | | −0.25750352 |
| $P$ | 4.15 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 24 | 691 | 0.1+ | 0.1+ | 2008 10 06 | 703 | 1.4+ | 0.8+ | 2008 10 09 | G96 | 0.0 | 0.2+ |
| 2000 11 24 | 691 | 0.1− | 0.2+ | 2008 10 06 | 703 | 0.2+ | 0.2− | 2008 10 09 | G96 | 0.2+ | 0.2+ |
| 2000 11 24 | 691 | 0.1+ | 0.1− | 2008 10 07 | 703 | 2.0− | 0.2− | 2008 10 09 | G96 | 0.1− | 0.2+ |
| 2004 11 19 | 703 | 1.0− | 0.1− | 2008 10 07 | 703 | 0.1+ | 0.7− | 2008 10 09 | 291 | 0.3− | 0.0 |
| 2004 11 19 | 703 | 0.0 | 0.9− | 2008 10 07 | 703 | 0.8+ | 1.7+ | 2008 10 09 | 291 | 0.3− | 0.1− |
| 2004 11 19 | 703 | 1.0+ | 0.1+ | 2008 10 07 | 703 | (0.1− | 2.2+) | 2008 10 09 | 291 | 0.4− | 0.2− |
| 2004 11 19 | 703 | 0.2− | 0.5− | 2008 10 08 | G96 | 0.9+ | 0.3+ | 2008 11 01 | G96 | 0.0 | 0.4− |
| 2008 10 01 | G96 | 0.1+ | 0.1+ | 2008 10 08 | G96 | 0.1+ | 0.1− | 2008 11 01 | G96 | 0.0 | 0.5− |
| 2008 10 01 | G96 | 0.1− | 0.2+ | 2008 10 08 | G96 | 0.7+ | 0.2− | 2008 11 01 | G96 | 0.1+ | 0.4− |
| 2008 10 01 | G96 | 0.3− | 0.1− | 2008 10 08 | G96 | 0.3+ | 0.2+ | 2008 11 01 | G96 | 0.0 | 0.5− |
| 2008 10 01 | G96 | 0.2+ | 0.1+ | 2008 10 08 | G96 | 0.1− | 0.5− | 2008 11 30 | G96 | 0.7− | 0.7+ |
| 2008 10 01 | G96 | 0.1− | 0.1+ | 2008 10 08 | G96 | 0.8+ | 0.1− | 2008 11 30 | G96 | 0.1− | 0.2+ |
| 2008 10 06 | 703 | 0.2− | 0.6+ | 2008 10 08 | G96 | 0.0 | 0.3− | 2008 11 30 | G96 | 0.5+ | 0.9+ |
| 2008 10 06 | 703 | 1.1+ | 0.1+ | 2008 10 09 | G96 | 0.3− | 0.2− | 2008 11 30 | G96 | 0.6+ | 0.1− |

**2008 TX$_{118}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 52.28736 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21717690 | $\omega$ | 112.79445 | | +0.46449247 | | −0.88515402 |
| $a$ | 2.7411132 | $\Omega$ | 309.49920 | | +0.79893965 | | +0.43218278 |
| $e$ | 0.0745853 | $i$ | 2.03272 | | +0.38202379 | | +0.17239610 |
| $P$ | 4.54 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 02 22 | 950 | 0.1− | 0.5+ | 2006 02 27 | G96 | 0.4+ | 0.5+ | 2008 09 24 | 703 | 1.1+ | 1.0+ |
| 2001 02 22 | 950 | 0.2− | 0.5+ | 2006 04 02 | G96 | 0.0 | 0.0 | 2008 10 07 | 691 | 0.2− | 0.2− |
| 2004 11 20 | 691 | 0.7+ | 0.0 | 2006 04 02 | G96 | 0.0 | 0.2+ | 2008 10 07 | 691 | 0.1+ | 0.2− |
| 2004 11 20 | 691 | 0.3+ | 0.2+ | 2006 04 02 | G96 | 0.0 | 0.3+ | 2008 10 07 | 691 | 0.0 | 0.1− |
| 2004 11 20 | 691 | 0.5+ | 0.2− | 2006 04 02 | G96 | 0.3+ | 0.2− | 2008 10 10 | 691 | 0.2+ | 0.1− |
| 2004 12 10 | 691 | 0.5− | 0.2− | 2008 09 03 | 691 | 0.2+ | 0.1+ | 2008 10 10 | 691 | 0.1+ | 0.2+ |
| 2004 12 10 | 691 | 0.3− | 0.0 | 2008 09 03 | 691 | 0.9− | 0.6+ | 2008 10 10 | 691 | 0.5− | 0.6− |
| 2004 12 10 | 691 | 0.5− | 0.2+ | 2008 09 03 | 691 | 0.4+ | 0.9+ | 2009 11 21 | G96 | 0.3+ | 0.2+ |
| 2006 02 27 | G96 | 0.4+ | 0.6+ | 2008 09 24 | 703 | 0.6− | 0.0 | 2009 11 21 | G96 | 0.4− | 0.4− |
| 2006 02 27 | G96 | 0.1+ | 0.5+ | 2008 09 24 | 703 | 0.5− | 0.5+ | 2009 11 21 | G96 | 0.1− | 0.0 |
| 2006 02 27 | G96 | 0.3+ | 0.2+ | 2008 09 24 | 703 | 0.9+ | 1.1− | 2009 11 21 | G96 | 0.3− | 0.0 |

**2008 TX$_{120}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 36.49349 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22013016 | $\omega$ | 347.09578 | | −0.13466731 | | −0.98553606 |
| $a$ | 2.7165415 | $\Omega$ | 110.57040 | | +0.91860682 | | −0.16309503 |
| $e$ | 0.1315449 | $i$ | 6.30849 | | +0.37151882 | | +0.04602921 |
| $P$ | 4.48 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 04 01 | D35 | 0.3− | 0.5− | 2008 09 29 | 703 | 0.3+ | 0.8− | 2008 10 08 | 703 | 1.0+ | 0.8+ |
| 2006 04 01 | D35 | 0.3− | 0.3+ | 2008 09 29 | 703 | 0.1+ | 0.1+ | 2008 10 21 | G96 | 0.1− | 0.4− |
| 2006 04 01 | D35 | 0.3+ | 0.5+ | 2008 09 29 | 703 | 0.0 | 0.7− | 2008 10 21 | G96 | 0.4− | 0.2− |
| 2006 05 08 | G96 | 0.4+ | 0.1− | 2008 09 29 | 703 | 0.1− | 0.2+ | 2008 10 21 | G96 | 0.2− | 0.3− |
| 2006 05 08 | G96 | 0.5− | 0.0 | 2008 10 07 | G96 | 0.1− | 0.4− | 2008 10 21 | G96 | 0.0 | 0.3− |
| 2006 05 08 | G96 | 0.2+ | 0.0 | 2008 10 07 | G96 | 0.2− | 0.3− | 2008 10 30 | 704 | 0.1− | 0.1+ |
| 2006 05 08 | G96 | 0.2+ | 0.0 | 2008 10 07 | G96 | 0.3+ | 0.3− | 2008 10 30 | 704 | 0.2+ | 0.9+ |
| 2008 09 23 | 704 | 0.8− | 0.7+ | 2008 10 07 | G96 | 0.2− | 0.3− | 2008 10 30 | 704 | 0.5− | 0.1+ |
| 2008 09 23 | 704 | 1.0− | 0.2+ | 2008 10 08 | 703 | (0.7+ | 2.4+) | 2008 10 30 | 704 | 0.4− | 0.2− |
| 2008 09 23 | 704 | 0.3+ | 0.5− | 2008 10 08 | 703 | 1.0+ | 1.0+ | | | | |
| 2008 09 23 | 704 | 0.5− | 0.6+ | 2008 10 08 | 703 | 1.2+ | 0.0 | | | | |

**2008 TT$_{124}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 310.86024 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.19316242 | $\omega$ | 158.22367 | | −0.91568167 | | −0.40185828 |
| $a$ | 2.9638368 | $\Omega$ | 358.05006 | | +0.33729894 | | −0.76016873 |
| $e$ | 0.0226137 | $i$ | 10.29955 | | +0.21853263 | | −0.51054229 |
| $P$ | 5.10 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 01 | 691 | 0.0 | 0.1− | 2008 09 25 | 691 | 0.2− | 0.1− | 2008 10 09 | 691 | 0.5− | 0.3+ |
| 2003 10 01 | 691 | 0.2− | 0.2+ | 2008 09 25 | 691 | 0.1+ | 0.3− | 2008 10 09 | 691 | 0.0 | 0.1+ |
| 2003 10 01 | 691 | 0.3+ | 0.4− | 2008 10 08 | G96 | 0.3+ | 0.6− | 2008 11 06 | G96 | 0.7+ | 0.5− |
| 2003 11 02 | 691 | 0.2− | 0.2− | 2008 10 08 | G96 | 0.2+ | 0.5− | 2008 11 06 | G96 | 0.5+ | 0.3− |
| 2003 11 02 | 691 | 0.2+ | 0.6+ | 2008 10 08 | G96 | 0.2+ | 0.1− | 2008 11 06 | G96 | 0.0 | 0.3− |
| 2003 11 02 | 691 | 0.1− | 0.1− | 2008 10 08 | G96 | 0.2+ | 0.3− | 2008 11 06 | G96 | 0.2+ | 0.1− |
| 2008 09 25 | 691 | 0.1− | 0.1+ | 2008 10 09 | 691 | 0.1+ | 0.5+ | | | | |

**2008 TE$_{127}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 17.63391 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.08219386 | $\omega$ | 137.33350 | | +0.76336375 | | −0.63441113 |
| $a$ | 5.2389365 | $\Omega$ | 262.45237 | | +0.55465132 | | +0.74025335 |
| $e$ | 0.0326304 | $i$ | 7.04861 | | +0.33111584 | | +0.22259267 |
| $P$ | 11.99 | $H$ | 13.4 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 09 20 | 691 | 0.1+ | 0.6+ | 2008 10 19 | 291 | 0.1+ | 0.0 | 2009 11 10 | G96 | 0.0 | 0.1− |
| 2008 09 20 | 691 | 0.1+ | 0.0 | 2008 10 19 | 291 | 0.3+ | 0.3− | 2009 11 24 | G96 | 0.3+ | 0.0 |
| 2008 09 20 | 691 | 0.5− | 0.1− | 2008 10 19 | 291 | 0.1+ | 0.0 | 2009 11 24 | G96 | 0.4− | 0.3+ |
| 2008 10 08 | G96 | 0.1+ | 0.0 | 2008 10 30 | G96 | 0.0 | 0.2− | 2009 11 24 | G96 | 0.0 | 0.1− |
| 2008 10 08 | G96 | 0.4+ | 0.3− | 2008 10 30 | G96 | 0.1+ | 0.0 | 2009 11 24 | G96 | 0.3− | 0.0 |
| 2008 10 08 | G96 | 0.2+ | 0.3− | 2008 10 30 | G96 | 0.3− | 0.1− | 2009 11 24 | G96 | 0.1+ | 0.2+ |
| 2008 10 08 | G96 | 0.1+ | 0.3− | 2008 10 30 | G96 | 0.6− | 0.4− | 2009 11 24 | G96 | 0.2− | 0.2+ |
| 2008 10 09 | 691 | 0.1+ | 0.1+ | 2009 11 10 | G96 | 0.3+ | 0.1− | 2009 11 24 | G96 | 0.2+ | 0.3− |
| 2008 10 09 | 691 | 0.3− | 0.1+ | 2009 11 10 | G96 | 0.1+ | 0.0 | 2009 11 24 | G96 | 0.0 | 0.0 |
| 2008 10 09 | 691 | 0.0 | 0.0 | 2009 11 10 | G96 | 0.0 | 0.1+ | | | | |

**2008 TY$_{136}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 143.09656 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.26115271 | $\omega$ | 139.31097 | | +0.99400033 | | +0.09433654 |
| $a$ | 2.4240395 | $\Omega$ | 215.39158 | | −0.10726095 | | +0.93979411 |
| $e$ | 0.1612952 | $i$ | 5.48438 | | +0.02141084 | | +0.32846254 |
| $P$ | 3.77 | $H$ | 18.3 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 12 | 691 | 0.2− | 0.0 | 2008 10 09 | 691 | 0.3+ | 0.2− | 2008 11 08 | G96 | 0.8+ | 0.5− |
| 2004 09 12 | 691 | 0.0 | 0.2+ | 2008 10 09 | 691 | 0.4+ | 0.1+ | 2008 11 18 | 691 | 0.2− | 0.1+ |
| 2004 09 12 | 691 | 0.1+ | 0.3+ | 2008 10 09 | 691 | 0.3− | 0.3+ | 2008 11 18 | 691 | 0.5− | 0.2+ |
| 2004 09 23 | 691 | 0.1+ | 0.4− | 2008 10 25 | 691 | 0.2− | 0.2− | 2008 11 18 | 691 | 0.3+ | 0.2+ |
| 2004 09 23 | 691 | 0.0 | 0.2− | 2008 10 25 | 691 | 0.3− | 0.2+ | 2008 11 20 | 691 | 0.0 | 0.0 |
| 2004 09 23 | 691 | 0.0 | 0.1+ | 2008 10 25 | 691 | 0.3+ | 0.2+ | 2008 11 20 | 691 | 0.0 | 0.2+ |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 10 08 | 691 | 0.1− | 0.1− | 2008 11 08 | G96 | 1.0+ | 0.5− | 2008 11 20 | 691 | 0.2− | 0.2+ |
| 2008 10 08 | 691 | 0.6− | 0.4− | 2008 11 08 | G96 | 1.0+ | 0.6− | | | | |
| 2008 10 08 | 691 | 0.0 | 0.1− | 2008 11 08 | G96 | 1.2+ | 0.5− | | | | |

**2008 TR$_{139}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 225.01927 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.27305884 | $\omega$ | 302.73547 | | −0.04847742 | | +0.99863937 |
| $a$ | 2.3530540 | $\Omega$ | 324.47056 | | −0.90498223 | | −0.05205703 |
| $e$ | 0.1864841 | $i$ | 1.89518 | | −0.42267848 | | −0.00307745 |
| $P$ | 3.61 | $H$ | 17.8 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 01 28 | 645 | 0.0 | 0.0 | 2007 04 11 | 703 | 0.4+ | 0.7− | 2008 10 08 | G96 | 0.5+ | 0.1− |
| 2003 01 28 | 645 | 0.0 | 0.0 | 2007 04 11 | 703 | (3.4+ | 3.6−) | 2008 10 09 | 691 | 0.1− | 0.0 |
| 2004 10 04 | 691 | 0.2− | 0.5+ | 2007 04 11 | 703 | 0.6+ | 1.1− | 2008 10 09 | 691 | 0.7− | 0.0 |
| 2004 10 04 | 691 | 0.2+ | 0.1+ | 2008 10 01 | 691 | 0.2− | 0.0 | 2008 10 09 | 691 | 0.0 | 0.2+ |
| 2004 10 04 | 691 | 0.3− | 0.1+ | 2008 10 01 | 691 | 0.1+ | 0.2+ | 2008 10 26 | G96 | 0.1− | 0.1− |
| 2007 03 15 | 691 | 0.1+ | 0.2+ | 2008 10 01 | 691 | 0.1− | 0.2− | 2008 10 26 | G96 | 0.3+ | 0.2+ |
| 2007 03 15 | 691 | 0.2− | 0.3+ | 2008 10 08 | G96 | 0.6+ | 0.2− | 2008 10 26 | G96 | 0.2+ | 0.2− |
| 2007 03 15 | 691 | 0.1− | 0.4+ | 2008 10 08 | G96 | 0.7+ | 0.4+ | 2008 10 26 | G96 | 0.5+ | 0.0 |
| 2007 04 11 | 703 | 0.5+ | 0.5+ | 2008 10 08 | G96 | 0.8+ | 0.3− | | | | |

**2008 TL$_{144}$ = 2009 WT$_{65}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 351.45176 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.07983444 | $\omega$ | 298.88270 | | +0.41946314 | | −0.90755919 |
| $a$ | 5.3416554 | $\Omega$ | 126.30333 | | +0.84113599 | | +0.38043098 |
| $e$ | 0.0875316 | $i$ | 1.39874 | | +0.34138092 | | +0.17778802 |
| $P$ | 12.35 | $H$ | 14.3 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 10 09 | G96 | 0.2− | 0.8− | 2008 10 29 | 691 | 0.4− | 0.6+ | 2009 11 23 | G96 | 0.0 | 0.2+ |
| 2008 10 09 | G96 | 0.0 | 0.9− | 2008 10 29 | 691 | 0.3− | 1.0+ | 2009 11 23 | G96 | 0.1− | 0.3− |
| 2008 10 09 | G96 | 0.4+ | 0.4− | 2008 10 29 | 691 | 0.0 | 0.0 | 2009 11 23 | G96 | 0.1− | 0.0 |
| 2008 10 09 | G96 | 0.0 | 0.4− | 2009 11 17 | G96 | 0.0 | 0.1+ | 2009 12 10 | G96 | 0.4+ | 0.3− |
| 2008 10 10 | G96 | 0.6+ | 0.7− | 2009 11 17 | G96 | 0.1+ | 0.0 | 2009 12 10 | G96 | 0.3+ | 0.1+ |
| 2008 10 10 | G96 | 0.5+ | 0.7− | 2009 11 17 | G96 | 0.1− | 0.2+ | 2009 12 10 | G96 | 0.7− | 0.1− |
| 2008 10 10 | G96 | 0.9+ | 1.0− | 2009 11 17 | G96 | 0.0 | 0.2− | 2009 12 10 | G96 | 0.1+ | 0.1− |
| 2008 10 10 | G96 | 0.1+ | 0.7− | 2009 11 23 | G96 | 0.1+ | 0.0 | | | | |

**2008 TG$_{148}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 256.85165 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.19433549 | $\omega$ | 152.67073 | | −0.90578787 | | +0.42093075 |
| $a$ | 2.9518977 | $\Omega$ | 52.30662 | | −0.39912792 | | −0.80901122 |
| $e$ | 0.0526583 | $i$ | 3.52397 | | −0.14228578 | | −0.41026595 |
| $P$ | 5.07 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 04 14 | 691 | 0.2+ | 0.5− | 2006 04 08 | 691 | 0.1+ | 0.2+ | 2008 10 10 | G96 | 0.1− | 0.1+ |
| 2001 04 14 | 691 | 0.3− | 0.3+ | 2008 09 23 | G96 | 0.3− | 0.1− | 2008 10 10 | G96 | 0.3+ | 0.2+ |
| 2001 04 14 | 691 | 0.0 | 0.1+ | 2008 09 23 | G96 | 0.2− | 0.0 | 2008 10 10 | G96 | 0.5+ | 0.1− |
| 2006 03 02 | G96 | 0.5− | 0.1− | 2008 09 23 | G96 | 0.5+ | 0.0 | 2008 10 10 | G96 | 0.2− | 0.1− |
| 2006 03 02 | G96 | 0.2− | 0.2− | 2008 09 23 | G96 | 0.6+ | 0.3− | 2008 10 25 | G96 | 0.3− | 0.8+ |
| 2006 03 02 | G96 | 0.3− | 0.1− | 2008 10 09 | G96 | 0.1− | 0.3− | 2008 10 25 | G96 | 0.2− | 0.1− |
| 2006 03 02 | G96 | 0.8− | 0.1+ | 2008 10 09 | G96 | 0.3− | 0.0 | 2008 10 25 | G96 | 0.5− | 0.1+ |
| 2006 04 08 | 691 | 0.5+ | 0.4− | 2008 10 09 | G96 | 0.5+ | 0.1− | 2008 10 25 | G96 | 0.4− | 0.0 |
| 2006 04 08 | 691 | 0.1− | 0.3+ | 2008 10 09 | G96 | 0.3+ | 0.1+ | | | | |

**2008 TK$_{150}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 83.91180 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.08423874 | $\omega$ | 233.01088 | | +0.79919820 | | +0.59931270 |
| $a$ | 5.1538070 | $\Omega$ | 90.12304 | | −0.53585943 | | +0.74500549 |
| $e$ | 0.0345397 | $i$ | 2.63063 | | −0.27228094 | | +0.29290120 |
| $P$ | 11.70 | $H$ | 13.9 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 09 28 | G96 | 0.3+ | 0.6− | 2008 10 25 | G96 | 0.7+ | 0.3− | 2009 11 24 | G96 | 0.2+ | 0.0 |
| 2008 09 28 | G96 | 0.1+ | 0.3− | 2008 10 25 | G96 | 0.2− | 0.3− | 2009 11 24 | G96 | 0.2+ | 0.1+ |
| 2008 09 28 | G96 | 0.1+ | 0.3− | 2008 10 25 | G96 | 0.5+ | 0.0 | 2009 11 24 | G96 | 0.2+ | 0.2− |
| 2008 09 28 | G96 | 0.5+ | 0.3− | 2008 10 29 | 691 | 0.4− | 0.1− | 2009 11 24 | G96 | 0.3− | 0.2− |
| 2008 10 09 | G96 | 0.1+ | 0.2+ | 2008 10 29 | 691 | 0.0 | 0.1+ | 2009 12 15 | G96 | 0.8− | 0.5− |
| 2008 10 09 | G96 | 0.4− | 0.3− | 2008 10 29 | 691 | 0.1− | 0.5+ | 2009 12 15 | G96 | 0.0 | 0.1− |
| 2008 10 09 | G96 | 0.1+ | 0.1− | 2009 10 26 | 691 | 0.3− | 0.1− | 2009 12 15 | G96 | 0.3+ | 0.0 |
| 2008 10 09 | G96 | 0.3− | 0.0 | 2009 10 26 | 691 | 0.2+ | 0.1− | 2009 12 15 | G96 | 0.1+ | 0.6+ |
| 2008 10 10 | G96 | 0.2+ | 0.2+ | 2009 10 26 | 691 | 0.2− | 0.1+ | 2009 12 15 | G96 | 0.1+ | 0.3+ |
| 2008 10 10 | G96 | 0.1+ | 0.2+ | 2009 11 08 | G96 | 0.8+ | 0.9− | 2009 12 15 | G96 | 0.6− | 0.5+ |
| 2008 10 10 | G96 | 0.7− | 0.1− | 2009 11 08 | G96 | 0.4+ | 0.1+ | 2009 12 15 | G96 | 0.3+ | 0.1+ |
| 2008 10 10 | G96 | 0.2− | 0.4+ | 2009 11 08 | G96 | 0.5+ | 0.2− | 2009 12 15 | G96 | 0.3− | 0.3+ |
| 2008 10 25 | G96 | 0.7+ | 0.2− | 2009 11 08 | G96 | 0.2+ | 0.2+ | | | | |

**2008 TQ$_{151}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 101.68332 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.20724125 | $\omega$ | 276.69346 | | +0.99564494 | | −0.07885393 |
| $a$ | 2.8280380 | $\Omega$ | 87.83752 | | +0.09218330 | | +0.91230232 |
| $e$ | 0.0751723 | $i$ | 2.85261 | | −0.01390685 | | +0.40185388 |
| $P$ | 4.76 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 06 07 | 291 | 0.0 | 0.2+ | 2008 10 09 | G96 | 0.2+ | 0.2− | 2008 11 02 | 691 | 0.1− | 0.1− |
| 2002 06 07 | 291 | 0.2+ | 0.5+ | 2008 10 10 | G96 | 0.3+ | 0.3− | 2008 12 04 | G96 | 0.1− | 0.1− |
| 2002 06 07 | 291 | 0.2+ | 0.4+ | 2008 10 10 | G96 | 0.8+ | 0.2+ | 2008 12 04 | G96 | 0.4− | 0.5− |
| 2006 02 24 | G96 | 0.9− | 0.6+ | 2008 10 10 | G96 | 0.3+ | 0.0 | 2008 12 04 | G96 | 0.5+ | 0.0 |
| 2006 02 24 | G96 | 0.3+ | 0.5+ | 2008 10 10 | G96 | 0.2+ | 0.3− | 2008 12 04 | G96 | 0.3+ | 0.8+ |
| 2006 02 24 | G96 | 0.2+ | 0.1− | 2008 10 17 | 691 | 0.6− | 0.3+ | 2009 12 18 | 691 | 0.1+ | 0.2+ |
| 2006 02 24 | G96 | 0.3+ | 0.2+ | 2008 10 17 | 691 | 0.1− | 0.3− | 2009 12 18 | 691 | 0.1+ | 0.1+ |
| 2008 09 28 | G96 | 0.5+ | 0.2+ | 2008 10 17 | 691 | 0.1+ | 0.2+ | 2009 12 18 | 691 | 0.3− | 0.0 |
| 2008 09 28 | G96 | 0.8+ | 0.2− | 2008 10 23 | 691 | 0.1− | 0.6+ | 2009 12 26 | 691 | 0.2− | 0.2+ |
| 2008 09 28 | G96 | 0.5+ | 0.3− | 2008 10 23 | 691 | 0.3− | 0.1− | 2009 12 26 | 691 | 0.2+ | 0.2+ |
| 2008 10 09 | G96 | 0.6+ | 0.2− | 2008 10 23 | 691 | 0.0 | 0.6+ | 2009 12 26 | 691 | 0.4+ | 0.0 |
| 2008 10 09 | G96 | 0.5+ | 0.2− | 2008 11 02 | 691 | 0.4− | 0.2+ | | | | |
| 2008 10 09 | G96 | 0.2+ | 0.4− | 2008 11 02 | 691 | 0.3− | 0.1− | | | | |

**2008 TK$_{152}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 48.39203 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18676099 | $\omega$ | 263.53396 | | +0.56509723 | | −0.82400022 |
| $a$ | 3.0311815 | $\Omega$ | 151.93283 | | +0.78726678 | | +0.52366983 |
| $e$ | 0.0722573 | $i$ | 5.01066 | | +0.24673091 | | +0.21631816 |
| $P$ | 5.28 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 08 11 | 691 | 0.5+ | 0.2− | 2008 09 03 | 691 | 0.0 | 0.1+ | 2008 10 10 | G96 | 0.3− | 0.2+ |
| 1997 08 11 | 691 | (5.9+ | 1.0−) | 2008 09 28 | G96 | 0.5+ | 0.1− | 2008 10 10 | G96 | 0.5+ | 0.1− |
| 2003 10 02 | 291 | 0.4− | 0.3+ | 2008 09 28 | G96 | 0.1+ | 0.0 | 2008 10 10 | G96 | 0.0 | 0.1− |
| 2003 10 02 | 291 | 0.1− | 0.2− | 2008 09 28 | G96 | 0.1− | 0.1− | 2009 12 18 | G96 | 0.3− | 0.4+ |
| 2003 10 02 | 291 | 0.3− | 0.3+ | 2008 09 28 | G96 | 0.0 | 0.1− | 2009 12 18 | G96 | 0.8+ | 0.1− |
| 2006 05 01 | 691 | 0.1+ | 0.1+ | 2008 10 09 | G96 | 0.0 | 0.0 | 2009 12 18 | G96 | 0.2− | 0.1− |
| 2006 05 01 | 691 | 0.0 | 0.3+ | 2008 10 09 | G96 | 0.1+ | 0.1+ | 2009 12 18 | G96 | 0.5− | 0.1+ |
| 2006 05 01 | 691 | 0.2− | 0.4+ | 2008 10 09 | G96 | 0.1+ | 0.1− | 2009 12 20 | 691 | 0.0 | 0.3+ |
| 2008 09 03 | 691 | 0.1− | 0.0 | 2008 10 09 | G96 | 0.3− | 0.0 | 2009 12 20 | 691 | 1.0+ | 0.4− |
| 2008 09 03 | 691 | 0.2− | 0.4+ | 2008 10 10 | G96 | 0.2+ | 0.2− | 2009 12 20 | 691 | 0.4− | 0.1− |

**2008 TU$_{157}$ = 2000 LH$_6$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 160.55797 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26108457 | $\omega$ | 240.27620 | | +0.61560171 | +0.74069757 | |
| $a$ | 2.4244612 | $\Omega$ | 70.24411 | | −0.58744339 | +0.65891006 | |
| $e$ | 0.2817195 | $i$ | 16.61286 | | −0.52530449 | +0.13116646 | |
| $P$ | 3.78 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 06 01 | 704 | 0.9+ | 0.2− | 2004 08 15 | E12 | 0.1+ | 0.0 | 2008 10 09 | 703 | 0.5− | 1.0− |
| 2000 06 01 | 704 | 0.8− | 0.0 | 2004 08 15 | E12 | 0.4− | 0.2− | 2008 10 09 | 703 | 0.5− | 0.9+ |
| 2000 06 01 | 704 | 0.1− | 0.4− | 2004 08 15 | E12 | 0.1− | 0.1+ | 2008 10 09 | 703 | (1.7− | 1.2−) |
| 2000 06 01 | 704 | 0.7− | 0.4+ | 2004 08 15 | E12 | 0.2− | 0.2+ | 2008 10 09 | 703 | 0.6− | 0.7− |
| 2000 06 07 | 704 | 0.5+ | 0.1− | 2008 10 04 | 703 | 0.8+ | 0.6+ | 2008 10 26 | 703 | (1.8+ | 0.2+) |
| 2000 06 07 | 704 | 0.3+ | 0.5− | 2008 10 04 | 703 | 0.3+ | 0.2+ | 2008 10 26 | 703 | 0.5− | 0.8+ |
| 2000 06 07 | 704 | 0.5+ | 0.8+ | 2008 10 04 | 703 | (2.1+ | 1.0+) | 2008 10 26 | 703 | 0.1− | 0.9− |
| 2000 06 07 | 704 | 0.5− | 0.0 | 2008 10 04 | 703 | 1.3+ | 0.1− | 2008 11 02 | 703 | 0.3− | 0.2− |
| 2004 07 16 | E12 | 0.0 | 0.2+ | 2008 10 09 | 703 | 0.2+ | 0.4− | 2008 11 02 | 703 | 1.1− | 0.8+ |
| 2004 07 16 | E12 | 0.2− | 0.1− | 2008 10 09 | 703 | 1.2+ | 1.2− | 2008 11 02 | 703 | (0.3+ | 1.8+) |
| 2004 07 16 | E12 | 0.2+ | 0.1+ | 2008 10 09 | 703 | (0.3+ | 1.6−) | 2008 11 02 | 703 | 0.5− | 0.6+ |
| 2004 07 16 | E12 | 0.5+ | 0.0 | 2008 10 09 | 703 | 0.4+ | 0.5+ | | | | |

**2008 TV$_{157}$ = 2005 CR$_{36}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 81.09258 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19126948 | $\omega$ | 259.90526 | | +0.81810105 | −0.53705958 | |
| $a$ | 2.9833596 | $\Omega$ | 132.23239 | | +0.57293209 | +0.79200874 | |
| $e$ | 0.1012880 | $i$ | 16.12293 | | −0.04959327 | +0.29032596 | |
| $P$ | 5.15 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 06 16 | 645 | 0.0 | 0.1+ | 2005 02 03 | 704 | 0.4+ | 0.1+ | 2008 10 04 | 703 | 0.3− | 0.2− |
| 2001 06 16 | 645 | 0.1− | 0.0 | 2005 02 03 | 704 | 0.6+ | 1.1+ | 2008 10 04 | 703 | 0.9− | 0.4+ |
| 2002 08 07 | 644 | 0.1+ | 0.4+ | 2005 02 04 | G96 | 0.1− | 0.1− | 2008 10 04 | 703 | 1.5− | 0.4− |
| 2002 08 07 | 644 | 0.4+ | 0.5+ | 2005 02 04 | G96 | 0.4− | 0.2− | 2008 10 04 | 703 | 0.1− | 0.8+ |
| 2002 08 07 | 644 | 0.1+ | 0.5+ | 2005 02 04 | G96 | 0.6− | 0.3+ | 2008 10 09 | 703 | 0.0 | 0.0 |
| 2003 11 24 | 644 | 0.3− | 0.3+ | 2005 02 04 | G96 | 0.0 | 0.3− | 2008 10 09 | 703 | 0.0 | 0.7+ |
| 2003 11 24 | 644 | 0.0 | 0.6+ | 2005 02 09 | G96 | 0.0 | 0.0 | 2008 10 09 | 703 | 0.0 | 0.1− |
| 2003 11 24 | 644 | 0.3+ | 0.5+ | 2005 02 09 | G96 | 0.1+ | 0.2− | 2008 10 09 | 703 | (0.0 | 1.7−) |
| 2003 11 24 | 644 | 0.1+ | 0.6+ | 2005 02 09 | G96 | 0.0 | 0.1+ | 2008 10 27 | 703 | 1.4+ | 1.1+ |
| 2003 11 24 | 644 | 0.3− | 0.2+ | 2005 02 09 | G96 | 0.2− | 0.2+ | 2008 10 27 | 703 | 0.8+ | 0.1− |
| 2003 11 24 | 644 | 0.5− | 0.1− | 2006 06 01 | 691 | 0.1+ | 0.2+ | 2008 10 27 | 703 | 0.4+ | 0.6− |
| 2005 02 03 | 704 | 0.1+ | 0.6+ | 2006 06 01 | 691 | 0.1+ | 0.0 | 2008 10 27 | 703 | 0.9− | 0.2− |
| 2005 02 03 | 704 | 1.0+ | 0.5+ | 2006 06 01 | 691 | 0.1+ | 0.3+ | | | | |

**2008 TB$_{158}$ = 2004 RC$_{319}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 111.87068 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24207777 | $\omega$ | 35.30564 | | +0.87196485 | −0.48909521 | |
| $a$ | 2.5497608 | $\Omega$ | 353.85831 | | +0.39007686 | +0.72065391 | |
| $e$ | 0.2113127 | $i$ | 11.60481 | | +0.29583330 | +0.49136933 | |
| $P$ | 4.07 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 12 | 644 | 0.3− | 0.3+ | 2006 04 02 | G96 | 0.7+ | 0.2− | 2008 10 31 | 703 | 0.5+ | 0.2− |
| 2004 09 12 | 644 | 0.6− | 0.0 | 2006 04 02 | G96 | 0.3+ | 0.1+ | 2008 10 31 | 703 | 0.6+ | 0.1+ |
| 2004 09 12 | 644 | 0.1− | 0.2+ | 2006 04 02 | G96 | 0.3− | 0.1+ | 2008 10 31 | 703 | 0.6+ | 0.2+ |
| 2004 09 18 | 704 | 0.0 | 0.4− | 2006 04 02 | G96 | 0.0 | 0.3+ | 2008 10 31 | 703 | 0.6+ | 0.2+ |
| 2004 09 18 | 704 | 0.4+ | 1.0+ | 2008 10 05 | J75 | 0.6− | 0.2− | 2008 10 31 | 703 | 0.2+ | 0.4+ |
| 2004 09 18 | 704 | 0.5− | 0.4+ | 2008 10 05 | J75 | 0.3− | 0.2− | 2008 11 17 | 703 | 0.2− | 0.4+ |
| 2004 09 18 | 704 | 0.6+ | 0.3+ | 2008 10 05 | J75 | 0.5− | 0.3− | 2008 11 17 | 703 | 0.5− | 0.7− |
| 2004 12 01 | 703 | 0.0 | 0.6− | 2008 10 10 | 703 | 0.8+ | 0.2− | 2008 11 17 | 703 | 0.4− | 1.0− |
| 2004 12 01 | 703 | 0.6− | 0.5− | 2008 10 10 | 703 | 0.1+ | 1.2− | 2008 11 17 | 703 | 0.8− | 0.6− |
| 2004 12 01 | 703 | 0.2+ | 0.7+ | 2008 10 10 | 703 | 1.4− | 1.1+ | 2008 11 30 | 703 | (0.7+ | 1.9+) |
| 2004 12 01 | 703 | 0.2+ | 0.8+ | 2008 10 10 | 703 | (1.6− | 0.7+) | 2008 11 30 | 703 | 0.5− | 0.5+ |
| 2006 02 20 | 691 | 0.4+ | 0.1− | 2008 10 25 | 703 | 0.2+ | 0.0 | 2008 11 30 | 703 | 0.7+ | 1.2+ |
| 2006 02 20 | 691 | 0.0 | 0.5+ | 2008 10 25 | 703 | 0.8− | 0.0 | 2008 11 30 | 703 | 0.6+ | 0.6− |
| 2006 02 20 | 691 | 0.0 | 0.3+ | 2008 10 25 | 703 | 0.1+ | 0.8− | 2008 11 30 | 703 | 0.9+ | 1.1+ |
| 2006 02 24 | 691 | 0.7− | 0.4− | 2008 10 31 | 703 | 0.7+ | 0.2+ | 2008 11 30 | 703 | 1.2− | 1.3− |
| 2006 02 24 | 691 | 0.1+ | 0.4− | 2008 10 31 | 703 | 0.9+ | 0.2− | 2008 11 30 | 703 | 0.0 | 0.8+ |
| 2006 02 24 | 691 | 0.0 | 0.0 | 2008 10 31 | 703 | 0.3+ | 0.4− | 2008 11 30 | 703 | (1.7− | 0.2−) |

**2008 TE$_{162}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 103.84026 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17617541 | $\omega$ | 258.07134 | | +0.88873251 | −0.08054478 | |
| $a$ | 3.1514169 | $\Omega$ | 105.21850 | | +0.20731285 | +0.94864310 | |
| $e$ | 0.1588868 | $i$ | 27.88485 | | −0.40887151 | +0.30592287 | |
| $P$ | 5.59 | $H$ | 14.8 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 07 26 | 691 | 0.1− | 0.2+ | 2008 10 10 | 703 | 0.5+ | 0.5+ | 2008 11 24 | 703 | 0.4+ | 0.6+ |
| 1995 07 26 | 691 | 0.6+ | 0.3+ | 2008 10 10 | 703 | 0.3+ | 0.4− | 2008 11 24 | 703 | 0.5− | 0.6+ |
| 1995 07 26 | 691 | 0.1− | 0.2+ | 2008 10 29 | 703 | 0.1+ | 0.1+ | 2008 11 24 | 703 | 0.9− | 0.6+ |
| 2004 01 30 | 691 | 0.2− | 0.1+ | 2008 10 29 | 703 | 0.2+ | 0.4− | 2008 12 31 | 703 | 0.4− | 0.2+ |
| 2004 01 30 | 691 | 0.1+ | 0.1+ | 2008 10 29 | 703 | 1.0+ | 0.0 | 2008 12 31 | 703 | 1.0− | 0.0 |
| 2004 01 30 | 691 | 0.1+ | 0.1− | 2008 10 29 | 703 | 0.0 | 0.1− | 2008 12 31 | 703 | 0.7+ | 0.4+ |
| 2008 10 10 | 703 | 0.4− | 0.7+ | 2008 11 24 | 703 | 1.2− | 1.1− | 2008 12 31 | 703 | 0.1+ | 0.3+ |

**2008 TG$_{177}$ = 2006 DH$_{66}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 114.13384 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22122518 | $\omega$ | 229.18053 | | +0.99266602 | +0.08472190 | |
| $a$ | 2.7075699 | $\Omega$ | 125.78664 | | −0.05078766 | +0.93959869 | |
| $e$ | 0.0055686 | $i$ | 6.10234 | | −0.10970317 | +0.33162704 | |
| $P$ | 4.46 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 02 22 | 699 | (0.4− | 1.7+) | 2006 03 03 | 699 | 1.3− | 0.3+ | 2008 10 08 | 703 | (1.4+ | 2.6+) |
| 2006 02 22 | 699 | 0.2− | 1.2+ | 2008 10 01 | 703 | 0.9+ | 0.6+ | 2008 10 08 | 703 | (1.9+ | 3.0+) |
| 2006 02 22 | 699 | 0.8− | 1.1+ | 2008 10 01 | 703 | 0.5+ | 0.4+ | 2008 10 27 | 703 | (2.3+ | 0.1+) |
| 2006 02 22 | 699 | 0.6− | 1.0+ | 2008 10 01 | 703 | (2.0+ | 0.3+) | 2008 10 27 | 703 | 1.2+ | 0.1− |
| 2006 02 25 | 704 | 1.3+ | 0.3+ | 2008 10 01 | 703 | 1.2+ | 0.4+ | 2008 10 27 | 703 | 0.1+ | 0.8+ |
| 2006 02 25 | 704 | 0.3+ | 0.0 | 2008 10 01 | 703 | 0.4+ | 0.7+ | 2008 10 27 | 703 | 0.4+ | 0.4+ |
| 2006 02 25 | 704 | 0.2− | 0.0 | 2008 10 01 | 703 | (2.5+ | 1.3+) | 2009 09 18 | 691 | 0.1− | 0.2− |
| 2006 02 28 | 704 | 0.9+ | 0.4− | 2008 10 01 | 703 | 0.2+ | 0.5+ | 2009 09 18 | 691 | 0.4+ | 0.0 |
| 2006 02 28 | 704 | 1.1+ | 0.1+ | 2008 10 01 | 703 | 1.2+ | 1.0+ | 2009 09 18 | 691 | 0.1+ | 0.3− |
| 2006 02 28 | 704 | 1.0+ | 0.1− | 2008 10 01 | 291 | 0.7− | 0.0 | 2009 12 17 | 704 | 0.3− | 0.2− |
| 2006 02 28 | 704 | (0.5− | 1.7+) | 2008 10 01 | 291 | 0.6− | 0.1− | 2009 12 17 | 704 | 0.1+ | 0.9− |
| 2006 03 03 | 699 | 0.0 | 0.4− | 2008 10 01 | 291 | 0.5− | 0.1− | 2009 12 17 | 704 | 0.9− | 0.1− |
| 2006 03 03 | 699 | 0.3+ | 0.0 | 2008 10 08 | 703 | (0.4+ | 2.0+) | 2009 12 17 | 704 | 0.0 | 0.5+ |
| 2006 03 03 | 699 | 0.4− | 1.2+ | 2008 10 08 | 703 | (2.1+ | 1.6+) | 2009 12 17 | 704 | 0.1+ | 0.5− |

**2008 TJ$_{177}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 144.75638 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.29280832 | $\omega$ | 235.22725 | | +0.98773776 | +0.10745262 | |
| $a$ | 2.2460208 | $\Omega$ | 118.36363 | | −0.06333802 | +0.93888020 | |
| $e$ | 0.1815336 | $i$ | 7.39522 | | −0.14269690 | +0.32704419 | |
| $P$ | 3.37 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 07 27 | 608 | 0.3+ | 0.8− | 2005 12 01 | 691 | 0.0 | 0.4− | 2008 10 09 | 703 | 0.4− | 0.3+ |
| 2001 07 27 | 608 | 0.4+ | 0.8− | 2005 12 01 | 691 | 0.1+ | 0.4− | 2008 10 09 | 703 | 0.7− | 0.0 |
| 2001 07 27 | 608 | 0.6− | 1.2− | 2008 09 20 | 703 | 0.0 | 1.0+ | 2008 10 09 | 703 | 0.8+ | 0.1+ |
| 2003 01 31 | 644 | 0.3+ | 0.7+ | 2008 09 20 | 703 | 0.2+ | 1.5+ | 2008 10 09 | 703 | 0.7+ | 0.2− |
| 2003 01 31 | 644 | 0.9+ | 0.4+ | 2008 09 20 | 703 | 0.0 | 0.2+ | 2008 10 09 | 703 | 0.5− | 0.0 |
| 2003 01 31 | 644 | 0.0 | 0.6+ | 2008 09 20 | 703 | 0.8+ | 0.7+ | 2008 10 09 | 703 | 1.1− | 0.0 |
| 2004 05 19 | 599 | 0.3+ | 0.4+ | 2008 10 02 | 703 | 0.0 | 0.6+ | 2008 10 27 | 703 | 0.2− | 0.5+ |
| 2004 05 19 | 599 | 0.2+ | 0.3+ | 2008 10 02 | 703 | 0.3− | 0.2+ | 2008 10 27 | 703 | 0.5− | 0.7+ |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 05 19 | 599 | 0.9− | 0.3+ | 2008 10 02 | 703 | 0.3+ | 0.2− | 2008 10 27 | 703 | 0.3+ | 0.3+ |
| 2004 05 19 | 599 | 0.3+ | 0.7+ | 2008 10 09 | 703 | 0.7+ | 1.4− | 2008 10 27 | 703 | 0.5− | 0.2+ |
| 2005 12 01 | 691 | 0.2− | 0.1− | 2008 10 09 | 703 | 0.7− | 1.0− | | | | |

**2008 TL$_{177}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 42.19772 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17163554 | $\omega$ | 324.32110 | | +0.49156316 | | −0.84760255 |
| $a$ | 3.2067460 | $\Omega$ | 95.45486 | | +0.83830101 | | +0.39842220 |
| $e$ | 0.0377989 | $i$ | 11.58070 | | +0.23583274 | | +0.35047064 |
| $P$ | 5.74 | $H$ | 15.1 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 05 06 | 691 | 0.2+ | 0.0 | 2008 10 09 | 703 | 0.4− | 0.4− | 2009 11 10 | G96 | 0.2+ | 0.2− |
| 2006 05 06 | 691 | 0.2+ | 0.1− | 2008 10 26 | 703 | 0.6− | 0.2+ | 2009 11 10 | G96 | 0.0 | 0.0 |
| 2006 05 06 | 691 | 0.0 | 0.1− | 2008 10 26 | 703 | 0.5− | 0.3+ | 2009 11 10 | G96 | 0.2+ | 0.6+ |
| 2006 05 23 | 691 | 1.6− | 0.0 | 2008 10 26 | 703 | 0.9− | 0.2+ | 2009 11 10 | G96 | 0.4− | 0.7+ |
| 2006 05 23 | 691 | 0.8+ | 0.1+ | 2008 10 26 | 703 | 0.9+ | 0.1− | 2009 11 23 | G96 | 0.0 | 0.1− |
| 2006 05 23 | 691 | 0.4+ | 0.1+ | 2008 11 02 | 703 | 0.6+ | 0.7+ | 2009 11 23 | G96 | 0.2− | 0.2− |
| 2008 10 09 | 703 | 0.2− | 0.2− | 2008 11 02 | 703 | 0.9− | 1.0+ | 2009 11 23 | G96 | 0.0 | 0.4− |
| 2008 10 09 | 703 | 0.2+ | 0.5− | 2008 11 02 | 703 | 0.5+ | 0.4+ | 2009 11 23 | G96 | 0.2+ | 0.3− |
| 2008 10 09 | 703 | 0.1+ | 0.8− | 2008 11 02 | 703 | 1.2+ | 0.5− | | | | |

**2008 TM$_{177}$ = 2006 EO$_5$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 113.78937 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.26647602 | $\omega$ | 245.60387 | | +0.76089353 | | −0.64222620 |
| $a$ | 2.3916482 | $\Omega$ | 154.04846 | | +0.64514216 | | +0.73346102 |
| $e$ | 0.2475277 | $i$ | 12.22486 | | +0.06951707 | | +0.22266665 |
| $P$ | 3.70 | $H$ | 17.6 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 03 02 | 691 | 0.5+ | 0.3− | 2008 10 09 | 703 | 0.6+ | 0.6+ | 2008 10 26 | 703 | 0.5− | 0.0 |
| 2006 03 02 | 691 | 0.2+ | 0.1− | 2008 10 09 | 703 | 0.1− | 0.4− | 2008 11 02 | 703 | 0.0 | 0.4− |
| 2006 03 02 | 691 | 0.0 | 0.1− | 2008 10 09 | 703 | 0.4− | 0.2− | 2008 11 02 | 703 | 0.0 | 0.4+ |
| 2006 03 03 | G96 | 0.4− | 0.0 | 2008 10 09 | 703 | 0.0 | 0.4+ | 2008 11 02 | 703 | 0.2+ | 0.9+ |
| 2006 03 03 | G96 | 0.6− | 0.7+ | 2008 10 26 | 703 | 0.4− | 0.2− | 2008 11 02 | 703 | 0.7− | 0.6+ |
| 2006 03 03 | G96 | 0.7− | 0.6+ | 2008 10 26 | 703 | 1.8+ | 0.5− | | | | |
| 2006 03 03 | G96 | 1.1− | 0.7+ | 2008 10 26 | 703 | 0.4− | 1.2− | | | | |

**2008 TN$_{177}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 67.84232 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18032770 | $\omega$ | 291.79739 | | +0.62741155 | | −0.73701396 |
| $a$ | 3.1028522 | $\Omega$ | 116.83005 | | +0.77696136 | | +0.57103637 |
| $e$ | 0.1511286 | $i$ | 16.35848 | | +0.05182464 | | +0.36156311 |
| $P$ | 5.47 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 09 09 | 644 | 0.1+ | 0.5− | 2008 09 27 | 703 | 0.9+ | 0.0 | 2008 10 26 | 703 | (0.2+ | 2.2−) |
| 2002 09 09 | 644 | 0.2+ | 0.2− | 2008 09 27 | 703 | 0.6− | 0.9− | 2008 10 26 | 703 | 0.4− | 0.4− |
| 2002 09 09 | 644 | 0.1− | 0.3− | 2008 10 09 | 703 | (0.2− | 1.7+) | 2008 10 26 | 703 | 0.9+ | 0.3+ |
| 2007 06 16 | 691 | 0.0 | 0.6+ | 2008 10 09 | 703 | 1.0− | 0.8+ | 2008 11 20 | 703 | 1.0+ | 0.5− |
| 2007 06 16 | 691 | 0.3− | 0.3− | 2008 10 09 | 703 | 0.4− | 0.6+ | 2008 11 20 | 703 | 0.0 | 0.1− |
| 2007 06 16 | 691 | 0.2− | 0.3− | 2008 10 09 | 703 | 0.4+ | 1.1+ | 2008 11 20 | 703 | 0.5− | 0.7− |
| 2007 07 13 | D35 | 0.9+ | 0.1+ | 2008 10 09 | 703 | 0.2+ | 0.7+ | 2008 11 20 | 703 | 0.7+ | 1.2− |
| 2007 07 13 | D35 | 0.3+ | 0.4+ | 2008 10 09 | 703 | 0.4− | 0.3+ | 2009 09 21 | G96 | 0.4− | 0.5+ |
| 2007 07 13 | D35 | 0.8+ | 0.3+ | 2008 10 09 | 703 | (0.1− | 1.8+) | 2009 09 21 | G96 | 0.6+ | 0.1+ |
| 2008 09 27 | 703 | (2.1− | 0.3−) | 2008 10 09 | 703 | 1.3− | 1.0+ | 2009 09 21 | G96 | 0.2− | 0.1− |
| 2008 09 27 | 703 | 0.2+ | 0.0 | 2008 10 26 | 703 | 0.1− | 0.7− | 2009 09 21 | G96 | 0.1+ | 0.4+ |

**2008 TR$_{177}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 57.47373 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18935265 | $\omega$ | 311.83661 | | +0.69946202 | | −0.68652840 |
| $a$ | 3.0034596 | $\Omega$ | 92.57636 | | +0.70037344 | | +0.60318039 |
| $e$ | 0.0980082 | $i$ | 11.46533 | | +0.14223196 | | +0.40601992 |
| $P$ | 5.21 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 21 | 644 | 0.3+ | 0.3− | 2008 10 09 | 703 | 0.4− | 0.1− | 2009 11 11 | G96 | 0.1+ | 0.0 |
| 2003 10 21 | 644 | 0.3+ | 0.2− | 2008 10 27 | 703 | (0.1− | 1.8−) | 2009 11 11 | G96 | 0.2− | 0.2− |
| 2003 10 21 | 644 | 0.1− | 0.5− | 2008 10 27 | 703 | 0.1+ | 0.4− | 2009 11 11 | G96 | 0.6− | 0.1+ |
| 2008 10 02 | 703 | 0.5+ | 0.5+ | 2008 10 27 | 703 | 1.0+ | 0.3+ | 2009 12 18 | H10 | 0.2+ | 0.5+ |
| 2008 10 02 | 703 | 1.3− | 0.5− | 2008 10 27 | 703 | 0.9− | 0.6− | 2009 12 18 | H10 | 0.9− | 0.9+ |
| 2008 10 02 | 703 | 0.6+ | 0.2− | 2009 10 18 | G96 | 0.1− | 0.1+ | 2009 12 18 | H10 | (0.9− | 1.6+) |
| 2008 10 02 | 703 | (1.7− | 0.9+) | 2009 10 18 | G96 | 0.3+ | 0.2− | 2009 12 19 | 691 | 0.1− | 0.1− |
| 2008 10 09 | 703 | 0.4+ | 0.9+ | 2009 10 18 | G96 | 0.6+ | 0.0 | 2009 12 19 | 691 | 0.1+ | 0.2− |
| 2008 10 09 | 703 | 0.0 | 0.3+ | 2009 10 18 | G96 | 0.1− | 0.3− | 2009 12 19 | 691 | 0.2+ | 0.1+ |
| 2008 10 09 | 703 | 0.5− | 0.8+ | 2009 11 11 | G96 | 0.0 | 0.1− | | | | |

**2008 TS$_{177}$ = 2002 HD$_3$ = 2004 TF$_{206}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 281.31192 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22922806 | $\omega$ | 155.61716 | | −0.91192367 | | +0.38596262 |
| $a$ | 2.6441791 | $\Omega$ | 47.83645 | | −0.40057912 | | −0.76354716 |
| $e$ | 0.0328561 | $i$ | 10.83869 | | −0.08905946 | | −0.51771477 |
| $P$ | 4.30 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 04 11 | 704 | 1.2+ | 0.9+ | 2002 04 17 | 704 | (1.3− | 2.7+) | 2006 02 21 | 703 | 0.3− | 0.2+ |
| 2002 04 11 | 704 | 0.8+ | 0.3+ | 2004 10 07 | 691 | 0.1+ | 0.2− | 2006 02 21 | 703 | 0.1+ | 0.3− |
| 2002 04 11 | 704 | 0.2+ | 0.5− | 2004 10 07 | 691 | 0.1+ | 0.3+ | 2008 10 04 | J75 | 0.8− | 0.6+ |
| 2002 04 11 | 704 | 0.6+ | 0.5− | 2004 10 07 | 691 | 0.1+ | 0.1+ | 2008 10 04 | J75 | 0.1− | 0.0 |
| 2002 04 11 | 704 | 0.3+ | 0.1+ | 2004 10 11 | 691 | 0.2+ | 0.1+ | 2008 10 04 | J75 | 0.4− | 0.1− |
| 2002 04 16 | 704 | 0.2+ | 0.7+ | 2004 10 11 | 691 | 0.2+ | 0.0 | 2008 10 23 | G96 | 0.0 | 0.6+ |
| 2002 04 16 | 704 | 0.1+ | 0.9+ | 2004 10 11 | 691 | 0.0 | 0.2+ | 2008 10 23 | G96 | 0.0 | 0.7+ |
| 2002 04 16 | 704 | 0.5+ | 0.9+ | 2004 11 09 | 703 | 0.1+ | 0.1+ | 2008 10 23 | G96 | 0.1− | 0.5+ |
| 2002 04 16 | 704 | 0.4− | 0.3+ | 2004 11 09 | 703 | 1.4− | 0.6− | 2008 10 29 | 703 | (2.1+ | 1.2+) |
| 2002 04 17 | 704 | 1.4− | 0.7+ | 2004 11 09 | 703 | 0.7− | 0.8− | 2008 10 29 | 703 | 0.4− | 0.1+ |
| 2002 04 17 | 704 | (2.0− | 1.4+) | 2004 11 09 | 703 | 0.2− | 0.2− | 2008 10 29 | 703 | 0.4+ | 0.2− |
| 2002 04 17 | 704 | (2.0− | 2.8+) | 2006 02 21 | 703 | 0.2+ | 0.1− | 2008 10 29 | 703 | 0.5− | 0.7+ |
| 2002 04 17 | 704 | (1.7− | 2.8+) | 2006 02 21 | 703 | 0.3− | 0.7− | | | | |

**2008 TY$_{177}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 81.71896 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.27059057 | $\omega$ | 324.83549 | | +0.39569689 | | −0.91031465 |
| $a$ | 2.3673417 | $\Omega$ | 101.58321 | | +0.86845018 | | +0.32788434 |
| $e$ | 0.1104337 | $i$ | 7.12183 | | +0.29869425 | | +0.25262442 |
| $P$ | 3.64 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 04 24 | 691 | 0.0 | 0.3+ | 2006 05 03 | G96 | 0.2+ | 0.0 | 2008 10 08 | 703 | 1.0+ | 0.2− |
| 2003 04 24 | 691 | 0.2− | 0.4+ | 2006 05 03 | G96 | 0.3+ | 0.3+ | 2008 10 08 | 703 | 1.2+ | 0.6− |
| 2003 04 24 | 691 | 0.2+ | 0.3+ | 2008 10 01 | 703 | 0.3+ | 0.9− | 2008 10 26 | 703 | 0.2− | 0.3+ |
| 2003 05 01 | 691 | 0.2− | 0.1− | 2008 10 01 | 703 | 0.5− | 0.4− | 2008 10 26 | 703 | 1.0− | 1.0+ |
| 2003 05 01 | 691 | 0.0 | 0.2− | 2008 10 01 | 703 | 0.4− | 0.5− | 2008 10 26 | 703 | 0.2− | 0.0 |
| 2003 05 01 | 691 | 0.2+ | 0.5− | 2008 10 01 | 703 | 0.7− | 0.3+ | 2008 10 26 | 703 | 0.2+ | 0.7+ |
| 2006 05 03 | G96 | 0.5− | 0.4− | 2008 10 08 | 703 | 0.7− | 0.6+ | | | | |
| 2006 05 03 | G96 | 0.1+ | 0.3− | 2008 10 08 | 703 | 0.6+ | 0.2+ | | | | |

**2008 TC$_{178}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 60.93128 | | (2000.0) | | | |
| $n$ | 0.22802741 | $\omega$ | 279.99476 | | +0.08096586 | −0.99149231 |
| $a$ | 2.6534527 | $\Omega$ | 164.23682 | | +0.99628796 | +0.07750726 |
| $e$ | 0.0533091 | $i$ | 22.03478 | | +0.02923759 | +0.10457349 |
| $P$ | 4.32 | $H$ | 15.7 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 05 16 | 644 | 0.2− | 0.8+ | 2006 04 02 | 699 | 0.2+ | 0.4− | 2008 10 27 | 703 | 0.5+ | 0.1− |
| 2002 05 16 | 644 | 0.6− | 0.8+ | 2006 04 25 | 703 | 1.2− | 0.1+ | 2008 10 27 | 703 | 0.7− | 1.4+ |
| 2002 05 16 | 644 | 0.1− | 0.8+ | 2006 04 25 | 703 | 0.6+ | 1.4− | 2008 10 27 | 703 | 0.7+ | 1.0+ |
| 2002 06 15 | 644 | 0.5+ | 0.0 | 2006 04 25 | 703 | (2.9− | 1.6+) | 2008 10 27 | 703 | 0.1+ | 0.5− |
| 2002 06 15 | 644 | 0.3+ | 0.3+ | 2006 04 25 | 703 | 0.1− | 0.1+ | 2008 11 06 | 703 | 0.1− | 0.7− |
| 2002 06 15 | 644 | 0.0 | 0.3+ | 2006 04 26 | G96 | 0.3+ | 0.4− | 2008 11 06 | 703 | 1.0− | 0.0 |
| 2004 12 18 | 703 | 0.2− | 0.9+ | 2006 04 26 | G96 | 0.0 | 0.6+ | 2008 11 06 | 703 | 0.8− | 1.4− |
| 2004 12 18 | 703 | 0.3− | 0.6+ | 2006 04 26 | G96 | 0.0 | 0.4+ | 2008 11 06 | 703 | 0.4+ | 1.3− |
| 2004 12 18 | 703 | 0.1+ | 0.0 | 2006 04 26 | G96 | 0.1+ | 0.5+ | 2008 11 21 | 703 | 0.1+ | 0.0 |
| 2004 12 18 | 703 | 0.6+ | 0.0 | 2008 10 09 | 703 | (0.7+ | 2.0+) | 2008 11 21 | 703 | 1.5− | 0.7− |
| 2006 04 02 | 699 | (0.8− | 2.2+) | 2008 10 09 | 703 | 0.8+ | 1.8+ | 2008 11 21 | 703 | 0.3− | 0.1+ |
| 2006 04 02 | 699 | 0.5+ | 0.3+ | 2008 10 09 | 703 | 1.1+ | 1.7+ | 2008 11 21 | 703 | 0.4+ | 0.2+ |
| 2006 04 02 | 699 | 0.0 | 0.1+ | 2008 10 09 | 703 | 0.3− | 0.4+ | | | | |

**2008 TM$_{179}$ = 2001 WN$_{42}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 154.23381 | | (2000.0) | | | |
| $n$ | 0.27743208 | $\omega$ | 267.88623 | | +0.79311043 | +0.57113389 |
| $a$ | 2.3282606 | $\Omega$ | 57.21471 | | −0.40887760 | +0.75676636 |
| $e$ | 0.3250257 | $i$ | 14.57896 | | −0.45143655 | +0.31797918 |
| $P$ | 3.55 | $H$ | 17.6 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 11 18 | 704 | 0.3− | 1.0− | 2001 11 20 | 704 | 0.1− | 0.1− | 2008 10 01 | 703 | 1.0− | 0.2+ |
| 2001 11 18 | 704 | 0.5+ | 0.4− | 2001 11 21 | 704 | 0.2− | 0.8+ | 2008 10 09 | 703 | 0.3+ | 0.1+ |
| 2001 11 18 | 704 | 0.8+ | 1.7+ | 2001 11 21 | 704 | 0.2− | 0.1+ | 2008 10 09 | 703 | 0.8+ | 0.7+ |
| 2001 11 18 | 704 | 0.4+ | 0.8+ | 2001 11 21 | 704 | 0.0 | 0.4− | 2008 10 09 | 703 | 0.5− | 0.4− |
| 2001 11 20 | 704 | 0.0 | 0.2− | 2001 11 21 | 704 | 1.0− | 0.9+ | 2008 10 09 | 703 | 0.1− | 0.7− |
| 2001 11 20 | 704 | 1.0+ | 0.7− | 2008 10 01 | 703 | 1.4+ | 0.3+ | 2008 10 27 | G96 | 0.1− | 0.1− |
| 2001 11 20 | 704 | 0.7− | 1.3− | 2008 10 01 | 703 | 1.0− | 0.1+ | 2008 10 27 | G96 | 0.2+ | 0.0 |
| 2001 11 20 | 704 | 0.2− | 0.2− | 2008 10 01 | 703 | 0.3+ | 0.5− | 2008 10 27 | G96 | 0.2− | 0.1+ |

**2008 TT$_{179}$ = 2009 XB$_{8}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 150.54647 | | (2000.0) | | | |
| $n$ | 0.20122941 | $\omega$ | 193.65419 | | +0.67594216 | +0.72289834 |
| $a$ | 2.8840874 | $\Omega$ | 119.09050 | | −0.65981713 | +0.68022515 |
| $e$ | 0.0375036 | $i$ | 9.43495 | | −0.32824312 | +0.12129198 |
| $P$ | 4.90 | $H$ | 15.2 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 03 23 | 608 | 0.5+ | 1.1+ | 2006 03 24 | 699 | 0.7− | 1.2+ | 2008 12 31 | 703 | 0.2− | 0.1+ |
| 2001 03 23 | 608 | 0.9+ | 0.2+ | 2006 03 24 | 699 | 0.3+ | 0.0 | 2008 12 31 | 703 | 0.7+ | 0.5+ |
| 2001 03 23 | 608 | 0.3+ | 0.9+ | 2008 09 21 | 703 | 0.3− | 0.6− | 2008 12 31 | 703 | 0.1− | 0.1− |
| 2003 08 25 | 608 | 0.2− | 0.1− | 2008 09 21 | 703 | 1.1− | 0.8− | 2009 12 15 | H06 | 0.0 | 0.1− |
| 2003 08 25 | 608 | 0.6− | 0.3+ | 2008 09 21 | 703 | 0.2− | 0.3+ | 2009 12 15 | H06 | 0.3− | 0.6+ |
| 2003 08 25 | 608 | 0.1− | 0.3− | 2008 09 21 | 703 | 0.9− | 1.5− | 2009 12 15 | H06 | 0.1+ | 0.0 |
| 2003 10 18 | 699 | 0.8− | 0.5+ | 2008 10 01 | 703 | 0.6+ | 1.5+ | 2009 12 16 | H06 | 0.6− | 0.2+ |
| 2003 10 18 | 699 | 0.1− | 0.0 | 2008 10 01 | 703 | 1.5+ | 1.4+ | 2009 12 16 | H06 | 0.7− | 0.4+ |
| 2003 10 18 | 699 | 0.2+ | 0.2− | 2008 10 01 | 703 | (0.1+ | 1.8+) | 2009 12 16 | H06 | 0.5− | 0.2− |
| 2003 10 18 | 699 | 0.1− | 0.6+ | 2008 10 01 | 703 | 0.5− | 1.4+ | 2009 12 17 | H06 | 0.1+ | 0.3− |
| 2004 12 19 | 291 | 0.1+ | 0.1− | 2008 10 08 | 703 | 0.2− | 0.8+ | 2009 12 17 | H06 | 0.6− | 0.5+ |
| 2004 12 19 | 291 | 0.0 | 0.0 | 2008 10 08 | 703 | 0.3+ | 0.5+ | 2009 12 17 | H06 | 0.0 | 0.1− |
| 2004 12 19 | 291 | 0.0 | 0.0 | 2008 10 08 | 703 | 0.4− | 0.1− | 2009 12 19 | 691 | 0.3+ | 0.1− |
| 2006 03 24 | 699 | 0.2+ | 0.6+ | 2008 10 08 | 703 | 0.4+ | 0.8+ | 2009 12 19 | 691 | 0.2+ | 0.0 |
| 2006 03 24 | 699 | 0.3+ | 0.8+ | 2008 12 31 | 703 | 0.6+ | 0.7− | 2009 12 19 | 691 | 0.1+ | 0.3− |

**2008 TF$_{180}$ = 2009 XD$_{1}$ = 2003 UB$_{320}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 135.47871 | | (2000.0) | | | |
| $n$ | 0.18335586 | $\omega$ | 234.58905 | | +0.60264444 | +0.77252101 |
| $a$ | 3.0685946 | $\Omega$ | 73.71453 | | −0.64780139 | +0.61999847 |
| $e$ | 0.0817576 | $i$ | 12.03100 | | −0.46601828 | +0.13716118 |
| $P$ | 5.38 | $H$ | 14.9 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 04 17 | 699 | 1.4+ | 0.3− | 2004 12 13 | 291 | 0.1+ | 0.2+ | 2008 10 09 | 703 | 0.5+ | 0.7+ |
| 2001 04 17 | 699 | 1.4+ | 0.6− | 2005 01 06 | 703 | 1.2− | 0.9− | 2008 10 27 | 703 | 0.7− | 1.0− |
| 2001 04 17 | 699 | 0.8+ | 1.0+ | 2005 01 06 | 703 | 0.9+ | 0.1− | 2008 10 27 | 703 | 0.4+ | 0.1− |
| 2001 04 17 | 699 | 0.6− | 1.1+ | 2005 01 06 | 703 | 0.1− | 0.8− | 2008 10 27 | 703 | 0.7+ | 0.8− |
| 2002 07 16 | 644 | 0.2− | 0.3− | 2005 01 06 | 703 | 0.5− | 0.3+ | 2008 10 27 | 703 | 0.2+ | 0.3− |
| 2002 07 16 | 644 | 0.2− | 0.1+ | 2006 03 23 | 703 | 1.1+ | 0.1− | 2009 11 20 | 691 | 0.0 | 0.2+ |
| 2002 07 16 | 644 | 0.2− | 0.2− | 2006 03 23 | 703 | 0.1+ | 1.2+ | 2009 11 20 | 691 | 0.1+ | 0.1+ |
| 2002 07 16 | 644 | 0.2+ | 0.3+ | 2006 03 23 | 703 | 0.3− | 0.1− | 2009 11 20 | 691 | 0.2+ | 0.2+ |
| 2002 07 16 | 644 | 0.2− | 0.3− | 2006 03 23 | 703 | 2.1+ | 1.3+ | 2009 12 10 | H06 | 0.2+ | 0.1+ |
| 2002 07 16 | 644 | 0.4− | 0.0 | 2006 04 23 | 699 | 2.4− | 2.1− | 2009 12 10 | H06 | 0.5+ | 0.1− |
| 2003 10 21 | 644 | 0.2+ | 0.2+ | 2006 04 23 | 699 | 0.6− | 0.3+ | 2009 12 10 | H06 | 0.3+ | 0.6+ |
| 2003 10 21 | 644 | 0.1+ | 0.2+ | 2006 04 23 | 699 | 0.0 | 0.8− | 2009 12 11 | H06 | 0.3+ | 0.1+ |
| 2003 10 21 | 644 | 0.2+ | 0.5+ | 2006 04 23 | 699 | 0.6− | 0.3+ | 2009 12 11 | H06 | 0.0 | 0.3− |
| 2003 10 27 | 704 | 0.8+ | 0.2− | 2008 10 02 | 703 | 0.4+ | 0.5+ | 2009 12 11 | H06 | 0.2− | 0.3− |
| 2003 10 27 | 704 | 0.3+ | 0.3− | 2008 10 02 | 703 | 0.6− | 1.3+ | 2009 12 13 | H06 | 0.2+ | 0.9− |
| 2003 10 27 | 704 | 0.2+ | 0.1+ | 2008 10 02 | 703 | 1.2− | 1.0+ | 2009 12 13 | H06 | 0.4− | 0.8+ |
| 2003 10 27 | 704 | 0.5− | 0.1− | 2008 10 02 | 703 | 0.9+ | 0.8+ | 2009 12 13 | H06 | 0.5+ | 0.4+ |
| 2003 10 27 | 704 | 0.0 | 0.9+ | 2008 10 09 | 703 | 0.1− | 0.0 | 2009 12 20 | H06 | 0.6− | 0.2+ |
| 2004 12 13 | 291 | 0.7− | 0.5− | 2008 10 09 | 703 | 1.0− | 0.7− | 2009 12 20 | H06 | 0.3+ | 0.5− |
| 2004 12 13 | 291 | 0.2− | 0.2+ | 2008 10 09 | 703 | 0.8− | 1.3− | 2009 12 20 | H06 | 0.1+ | 0.2+ |

**2008 TS$_{180}$ = 2009 WH$_{167}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 70.63540 | | (2000.0) | | | |
| $n$ | 0.18795134 | $\omega$ | 86.58890 | | +0.80197884 | −0.59088762 |
| $a$ | 3.0183697 | $\Omega$ | 309.60999 | | +0.49289132 | +0.73746358 |
| $e$ | 0.1408306 | $i$ | 6.53246 | | +0.33747309 | +0.32710747 |
| $P$ | 5.24 | $H$ | 16.2 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 03 13 | G96 | 0.3+ | 0.2− | 2008 10 24 | 703 | 0.5− | 0.7− | 2009 11 21 | G96 | 0.2+ | 0.1− |
| 2005 03 13 | G96 | 0.2+ | 0.2− | 2008 10 24 | 703 | 0.6− | 0.4+ | 2009 11 21 | G96 | 0.0 | 0.3+ |
| 2005 03 13 | G96 | 0.3− | 0.0 | 2008 10 24 | 703 | 0.5+ | 0.0 | 2009 11 21 | G96 | 0.3+ | 0.8+ |
| 2005 03 13 | G96 | 0.4− | 0.1− | 2008 10 24 | 703 | 0.1− | 0.5+ | 2009 11 26 | G96 | 0.3+ | 0.3+ |
| 2008 10 02 | 703 | (1.9− | 0.2+) | 2008 10 31 | G96 | 0.4+ | 0.6− | 2009 11 26 | G96 | 0.3− | 0.3− |
| 2008 10 02 | 703 | 0.1+ | 0.7+ | 2008 10 31 | G96 | 0.2+ | 0.0 | 2009 11 26 | G96 | 0.4− | 0.1− |
| 2008 10 02 | 703 | 1.1+ | 0.4+ | 2008 10 31 | G96 | 0.2− | 0.0 | 2009 11 26 | G96 | 0.0 | 0.0 |
| 2008 10 02 | 703 | (0.6+ | 3.0+) | 2008 12 02 | G96 | 0.3− | 0.1+ | 2009 11 26 | G96 | 0.3+ | 0.1− |
| 2008 10 10 | G96 | 0.3− | 0.3− | 2008 12 02 | G96 | 0.4+ | 0.0 | 2009 12 17 | G96 | 0.2− | 0.1− |
| 2008 10 10 | G96 | 0.2+ | 0.1− | 2008 12 02 | G96 | 0.6+ | 0.2+ | 2009 12 17 | G96 | 0.1+ | 0.1+ |
| 2008 10 10 | G96 | 0.4− | 0.2− | 2008 12 02 | G96 | 0.4− | 0.2− | 2009 12 17 | G96 | 0.3− | 0.0 |
| 2008 10 10 | G96 | 0.5− | 0.4− | 2009 11 21 | G96 | 0.3+ | 0.3− | 2009 12 17 | G96 | 0.1− | 0.0 |

**2008 TT$_{180}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 161.30205 | | (2000.0) | | | |
| $n$ | 0.28074711 | $\omega$ | 169.96934 | | +0.90516619 | +0.42383281 |
| $a$ | 2.3098965 | $\Omega$ | 164.82955 | | −0.39802306 | +0.87177729 |
| $e$ | 0.1509322 | $i$ | 7.07845 | | −0.14917041 | +0.24570329 |
| $P$ | 3.51 | $H$ | 17.9 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 10 25 | 645 | 0.0 | 0.0 | 2008 10 04 | J75 | 0.6+ | 0.4+ | 2008 11 03 | 703 | 0.8+ | 1.1+ |
| 2001 10 25 | 645 | 0.0 | 0.0 | 2008 10 04 | J75 | 0.1+ | 0.6+ | 2008 11 03 | 703 | 0.4− | 0.2+ |
| 2001 11 12 | 645 | 0.1− | 0.1− | 2008 10 22 | G96 | 0.1− | 0.4− | 2008 11 03 | 703 | (1.6− | 0.1+) |
| 2001 11 12 | 645 | 0.0 | 0.1− | 2008 10 22 | G96 | 0.4− | 0.4− | 2008 11 18 | 291 | 0.3− | 0.2+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 11 18 | 645 | 0.1+ | 0.0 | 2008 10 22 | G96 | 0.1− | 0.4− | 2008 11 18 | 291 | 0.3− | 0.5+ | | |
| 2001 11 18 | 645 | 0.1+ | 0.0 | 2008 10 22 | G96 | 0.0 | 0.3− | 2008 11 18 | 291 | 0.1− | 0.6+ | | |
| 2008 10 04 | J75 | 0.0 | 0.4− | 2008 11 03 | 703 | 0.2+ | 0.5+ | | | | | | |

**2008 TY$_{180}$ = 2002 TC$_{13}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 85.97871 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17317915 | $\omega$ | 220.92608 | | +0.94324154 | −0.33002640 | |
| $a$ | 3.1876623 | $\Omega$ | 158.25881 | | +0.32480400 | +0.89340536 | |
| $e$ | 0.1500556 | $i$ | 5.75156 | | +0.06926590 | +0.30481050 | |
| $P$ | 5.69 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 09 05 | 645 | 0.0 | 0.0 | 2002 10 03 | 704 | 0.3− | 0.2− | 2008 10 08 | 703 | 0.6− | 0.1+ | | |
| 2002 09 05 | 645 | 0.0 | 0.0 | 2002 10 03 | 704 | 0.2+ | 0.4− | 2008 10 08 | 703 | 0.1− | 0.5− | | |
| 2002 10 01 | 699 | 0.5+ | 1.0− | 2002 10 03 | 704 | 0.6+ | 1.3+ | 2008 10 08 | 703 | 0.9+ | 0.6− | | |
| 2002 10 01 | 699 | 0.0 | 1.1− | 2002 10 03 | 704 | 0.6− | 0.1− | 2008 11 08 | 703 | 0.6− | 0.1+ | | |
| 2002 10 01 | 699 | 0.4− | 1.3+ | 2008 09 21 | 691 | 0.1− | 0.0 | 2008 11 08 | 703 | 0.9+ | 0.3− | | |
| 2002 10 01 | 699 | 0.4+ | 0.1+ | 2008 09 21 | 691 | 0.0 | 0.1− | 2008 11 08 | 703 | 0.1− | 0.4+ | | |
| 2002 10 03 | 704 | 0.5+ | 0.4+ | 2008 09 21 | 691 | 0.1− | 0.0 | 2008 11 08 | 703 | 0.6− | 1.0+ | | |
| 2002 10 03 | 704 | 1.1− | 0.8− | 2008 10 08 | 703 | 0.9+ | 0.3+ | | | | | | |

**2008 TZ$_{180}$ = 2003 SM$_{407}$ = 2005 AZ$_{29}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 131.75431 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18840397 | $\omega$ | 201.50815 | | +0.76825121 | +0.61682320 | |
| $a$ | 3.0135334 | $\Omega$ | 119.24902 | | −0.55498228 | +0.77508125 | |
| $e$ | 0.0928394 | $i$ | 11.31773 | | −0.31903722 | +0.13703358 | |
| $P$ | 5.23 | $H$ | 15.3 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 03 19 | 645 | 0.0 | 0.0 | 2005 01 15 | 704 | 0.3− | 0.0 | 2006 04 02 | 703 | 0.9+ | 0.2+ | | |
| 2001 03 19 | 645 | 0.0 | 0.0 | 2005 01 15 | 704 | 0.5− | 0.5− | 2008 10 09 | 703 | 0.4+ | 0.4+ | | |
| 2002 07 04 | 644 | 0.3− | 0.8+ | 2005 01 16 | 691 | 0.3+ | 0.3+ | 2008 10 09 | 703 | 0.7+ | 0.1− | | |
| 2002 07 04 | 644 | 0.1+ | 0.5+ | 2005 01 16 | 691 | 0.4+ | 0.1+ | 2008 10 09 | 703 | 0.1− | 0.8+ | | |
| 2002 07 04 | 644 | 0.2+ | 1.1+ | 2005 01 16 | 691 | 0.0 | 0.2+ | 2008 10 09 | 703 | 0.6+ | 1.5+ | | |
| 2003 09 27 | 645 | 0.1− | 0.1− | 2005 01 17 | 704 | 0.5+ | 0.0 | 2008 10 26 | 703 | 0.3+ | 0.3+ | | |
| 2003 09 27 | 645 | 0.1− | 0.0 | 2005 01 17 | 704 | 0.3− | 0.1− | 2008 10 26 | 703 | 0.3+ | 0.3+ | | |
| 2003 09 30 | 645 | 0.0 | 0.0 | 2005 01 17 | 704 | 0.7+ | 0.4+ | 2008 10 26 | 703 | 0.3− | 1.0+ | | |
| 2003 09 30 | 645 | 0.0 | 0.0 | 2005 01 17 | 704 | 0.5+ | 0.0 | 2008 10 26 | 703 | 0.2− | 0.0 | | |
| 2003 10 23 | 645 | 0.0 | 0.0 | 2006 03 23 | 703 | 1.5− | 1.0− | 2008 11 06 | 703 | 1.3+ | 1.3+ | | |
| 2003 10 23 | 645 | 0.0 | 0.0 | 2006 03 23 | 703 | 0.8− | 0.3+ | 2008 11 06 | 703 | 0.5− | 0.5− | | |
| 2005 01 08 | 599 | 0.1− | 0.2+ | 2006 03 23 | 703 | 0.5+ | 0.1− | 2008 11 06 | 703 | 0.9− | 0.5+ | | |
| 2005 01 08 | 599 | 0.2+ | 0.2+ | 2006 03 23 | 703 | 0.6+ | 0.2− | 2008 11 06 | 703 | 1.2− | 0.4− | | |
| 2005 01 08 | 599 | 0.5− | 0.2+ | 2006 04 02 | 703 | 0.7− | 0.9+ | 2009 12 18 | 691 | 0.2− | 0.1+ | | |
| 2005 01 08 | 599 | 0.1− | 0.0 | 2006 04 02 | 703 | (3.1+ | 0.4+) | 2009 12 18 | 691 | 0.2− | 0.0 | | |
| 2005 01 15 | 704 | 1.0+ | 0.5− | 2006 04 02 | 703 | 2.4− | 1.4+ | 2009 12 18 | 691 | 0.3− | 0.0 | | |

**2008 UG**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 123.38591 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27063829 | $\omega$ | 346.93069 | | +0.97251666 | +0.23282709 | |
| $a$ | 2.3670634 | $\Omega$ | 359.59384 | | −0.18613184 | +0.77303749 | |
| $e$ | 0.3752188 | $i$ | 13.89355 | | −0.13987955 | +0.59008862 | |
| $P$ | 3.64 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 03 16 | G96 | 0.0 | 0.0 | 2008 07 14 | E12 | 0.1− | 0.5+ | 2008 10 20 | E12 | 0.2+ | 0.4− | | |
| 2007 03 16 | G96 | 0.1+ | 0.1+ | 2008 07 14 | E12 | 0.1+ | 0.3− | 2008 10 21 | E12 | 0.2+ | 0.3+ | | |
| 2007 03 16 | G96 | 0.1+ | 0.0 | 2008 07 14 | E12 | 0.2+ | 0.1− | 2008 10 21 | E12 | 1.3− | 0.8+ | | |
| 2007 04 11 | G96 | 0.2− | 0.0 | 2008 07 14 | E12 | 0.3+ | 0.2+ | 2008 10 23 | E12 | 0.5+ | 0.4− | | |
| 2007 04 11 | G96 | 0.1+ | 0.1− | 2008 08 08 | E12 | 0.1+ | 0.2+ | 2008 10 23 | E12 | 0.2+ | 0.1+ | | |
| 2007 04 11 | G96 | 0.4+ | 0.0 | 2008 08 08 | E12 | 0.3+ | 0.0 | 2008 10 23 | E12 | 0.3+ | 0.7− | | |
| 2007 04 11 | G96 | 0.3− | 0.2+ | 2008 08 08 | E12 | 0.0 | 0.3− | 2008 10 29 | 703 | 0.0 | 0.2− | | |
| 2008 06 05 | E12 | 0.4− | 0.8+ | 2008 08 26 | E12 | 0.1− | 0.1− | 2008 10 29 | 703 | 0.1− | 0.5− | | |
| 2008 06 05 | E12 | 0.2+ | 0.5− | 2008 08 26 | E12 | 0.1+ | 0.0 | 2008 10 29 | 703 | 0.8+ | 0.4− | | |
| 2008 06 05 | E12 | 1.1− | 0.0 | 2008 08 26 | E12 | 0.4+ | 0.1+ | 2008 10 29 | 703 | 0.5− | 0.4− | | |
| 2008 06 05 | E12 | 0.2+ | 0.9+ | 2008 10 17 | E12 | 0.4− | 0.6+ | 2008 11 17 | 703 | 0.0 | 1.8+ | | |
| 2008 06 26 | E12 | 0.0 | 0.6− | 2008 10 17 | E12 | 0.2+ | 0.2− | 2008 11 17 | 703 | 0.0 | 0.3+ | | |
| 2008 06 26 | E12 | 0.0 | 0.0 | 2008 10 17 | E12 | 0.1− | 0.4+ | 2008 11 17 | 703 | 0.9− | 0.1− | | |
| 2008 06 26 | E12 | 0.1+ | 0.7− | 2008 10 17 | E12 | 0.1+ | 0.2+ | 2008 11 17 | 703 | 1.0− | 0.6− | | |
| 2008 06 26 | E12 | 0.6− | 0.2+ | 2008 10 20 | E12 | 0.6+ | 0.3− | | | | | | |

**2008 UK**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 62.64922 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.12344313 | $\omega$ | 236.98845 | | +0.84909389 | −0.52783866 | |
| $a$ | 3.9947668 | $\Omega$ | 154.85266 | | +0.49940937 | +0.78940486 | |
| $e$ | 0.2328411 | $i$ | 2.78365 | | +0.17213322 | +0.31341076 | |
| $P$ | 7.98 | $H$ | 15.2 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 08 03 | 691 | 0.0 | 0.4− | 2007 09 11 | G96 | 0.2+ | 0.3− | 2008 10 31 | 704 | 1.4+ | 0.3+ | | |
| 1999 08 03 | 691 | 0.3− | 0.3+ | 2007 10 31 | G96 | 0.3+ | 0.3− | 2008 11 08 | G96 | 0.9+ | 0.3− | | |
| 1999 08 03 | 691 | 0.0 | 0.3+ | 2007 10 31 | G96 | 0.3+ | 0.3− | 2008 11 08 | G96 | 0.9+ | 0.5− | | |
| 2002 02 15 | 691 | 0.2+ | 0.1− | 2007 10 31 | G96 | 0.3+ | 0.1− | 2008 11 08 | G96 | 0.3+ | 0.3− | | |
| 2002 02 15 | 691 | 0.1+ | 0.9+ | 2007 10 31 | G96 | 0.3− | 0.2− | 2008 11 19 | 704 | 1.2− | 0.3+ | | |
| 2002 02 15 | 691 | 0.2+ | 0.1− | 2008 10 19 | H55 | 0.2+ | 0.0 | 2008 11 19 | 704 | 0.9− | 0.2− | | |
| 2007 07 18 | G96 | 0.1+ | 0.0 | 2008 10 19 | H55 | 0.1+ | 0.0 | 2008 11 19 | 704 | 0.5+ | 0.1+ | | |
| 2007 07 18 | G96 | 0.2+ | 0.1− | 2008 10 19 | H55 | 0.1− | 0.1− | 2008 11 19 | 704 | 0.5− | 0.1− | | |
| 2007 07 18 | G96 | 0.2+ | 0.4− | 2008 10 20 | H55 | 0.1− | 0.2− | 2008 12 01 | 704 | 0.0 | 0.1+ | | |
| 2007 07 18 | G96 | 0.3− | 0.1+ | 2008 10 20 | H55 | 0.2+ | 0.0 | 2008 12 01 | 704 | 0.1+ | 0.4+ | | |
| 2007 08 10 | 691 | 0.2− | 0.4+ | 2008 10 20 | H55 | 1.1− | 1.0− | 2008 12 01 | 704 | 0.4+ | 0.4+ | | |
| 2007 08 10 | 691 | 0.1− | 0.2+ | 2008 10 20 | 291 | 0.4− | 0.0 | 2008 12 01 | 704 | 0.3− | 1.3+ | | |
| 2007 08 10 | 691 | 0.0 | 0.1+ | 2008 10 20 | 291 | 0.1− | 0.1+ | 2009 12 15 | G96 | 0.5− | 0.1− | | |
| 2007 09 11 | G96 | 0.1+ | 0.0 | 2008 10 20 | 291 | 0.0 | 0.0 | 2009 12 15 | G96 | 0.1− | 0.4− | | |
| 2007 09 11 | G96 | 0.1+ | 0.0 | 2008 10 31 | 704 | 0.9+ | 1.0− | 2009 12 15 | G96 | 0.7− | 0.5+ | | |
| 2007 09 11 | G96 | 0.2+ | 0.0 | 2008 10 31 | 704 | 0.5+ | 0.1− | 2009 12 15 | G96 | 0.7− | 0.2− | | |

**2008 UP$_2$ = 1999 XR$_9$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 120.92510 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22002934 | $\omega$ | 310.09906 | | +0.92629886 | +0.24411907 | |
| $a$ | 2.7173713 | $\Omega$ | 38.42947 | | +0.02015978 | +0.72853092 | |
| $e$ | 0.2522791 | $i$ | 27.50130 | | −0.37624993 | +0.64003796 | |
| $P$ | 4.48 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 12 03 | 691 | 0.1+ | 0.1− | 2008 10 22 | G96 | 0.3+ | 0.1− | 2008 10 30 | 703 | 0.5− | 0.4+ | | |
| 1999 12 03 | 691 | 0.2+ | 0.3− | 2008 10 22 | G96 | 0.7+ | 0.0 | 2008 10 30 | 704 | 0.4− | 0.2+ | | |
| 1999 12 03 | 691 | 0.1+ | 0.1− | 2008 10 22 | G96 | 0.6+ | 0.1− | 2008 10 30 | 703 | 0.5+ | 0.3− | | |
| 1999 12 05 | 691 | 0.1− | 0.1+ | 2008 10 23 | 683 | 0.3+ | 0.3+ | 2008 10 30 | 703 | 0.2− | 0.1− | | |
| 1999 12 05 | 691 | 0.1+ | 0.1+ | 2008 10 23 | 683 | 0.1+ | 0.5− | 2008 10 30 | 704 | 0.4− | 0.1− | | |
| 1999 12 05 | 691 | 0.0 | 0.0 | 2008 10 23 | 683 | 1.3− | 0.2+ | 2008 10 30 | 703 | 0.3+ | 0.7− | | |
| 2008 09 29 | 703 | 0.2− | 0.1+ | 2008 10 24 | 683 | 0.5+ | 0.1− | 2008 10 30 | 704 | 0.5− | 0.1− | | |
| 2008 09 29 | 703 | 0.2+ | 0.1− | 2008 10 24 | 683 | 0.6+ | 0.2− | 2008 10 30 | 704 | 0.8− | 0.3+ | | |
| 2008 09 29 | 703 | 0.7− | 0.8− | 2008 10 24 | 683 | 0.3+ | 0.4− | 2008 10 30 | 704 | 0.4− | 0.4+ | | |
| 2008 10 06 | G96 | 0.1− | 0.2− | 2008 10 25 | 704 | 0.2− | 0.8+ | 2008 10 31 | 704 | 0.4+ | 0.5+ | | |
| 2008 10 06 | G96 | 0.1+ | 0.2− | 2008 10 25 | 704 | 1.1− | 0.1+ | 2008 10 31 | 704 | (1.6+ | 0.7+) | | |
| 2008 10 06 | G96 | 0.2− | 0.2− | 2008 10 25 | 704 | 0.0 | 0.0 | 2008 10 31 | 704 | 0.2+ | 0.6+ | | |
| 2008 10 06 | G96 | 0.0 | 0.1− | 2008 10 25 | 704 | 0.3+ | 0.1− | 2008 10 31 | 704 | 0.4+ | 0.1+ | | |
| 2008 10 22 | 683 | 0.4+ | 0.3− | 2008 10 25 | 704 | 0.8− | 0.5+ | 2008 10 31 | 704 | 0.1− | 0.2− | | |
| 2008 10 22 | 683 | 0.6+ | 0.2+ | 2008 10 26 | 683 | 0.4+ | 0.7+ | | | | | | |
| 2008 10 22 | 683 | 0.4− | 0.3+ | 2008 10 26 | 683 | (0.1− | 1.9−) | | | | | | |

**2008 US$_7$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 121.83276 | | (2000.0) | | | |
| $n$ | 0.19545014 | $\omega$ | 125.17495 | | +0.85242925 | +0.52272757 |
| $a$ | 2.9406639 | $\Omega$ | 203.31554 | | −0.48825734 | +0.78836534 |
| $e$ | 0.0880511 | $i$ | 1.58773 | | −0.18700037 | +0.32440095 |
| $P$ | 5.04 | $H$ | 16.8 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 10 13 | 691 | 0.0 | 0.2− | 2006 03 25 | G96 | 0.3− | 0.6− | 2008 10 01 | G96 | 0.2+ | 0.1+ |
| 1998 10 13 | 691 | 0.2− | 0.2− | 2008 09 02 | 691 | 0.4− | 0.4− | 2008 10 01 | G96 | 0.3+ | 0.1− |
| 1998 10 13 | 691 | 0.1− | 0.0 | 2008 09 02 | 691 | 0.2+ | 0.1+ | 2008 10 01 | G96 | 0.5+ | 0.1− |
| 2003 09 20 | 291 | 0.1+ | 0.3+ | 2008 09 02 | 691 | 0.1+ | 0.1+ | 2008 10 01 | G96 | 0.0 | 0.3− |
| 2003 09 20 | 291 | 0.1+ | 0.2+ | 2008 09 24 | 691 | 0.2− | 0.1− | 2008 10 01 | G96 | 0.5+ | 0.0 |
| 2003 09 20 | 291 | 0.1+ | 0.0 | 2008 09 24 | 691 | 0.1− | 0.1− | 2008 10 01 | G96 | 0.2− | 0.0 |
| 2003 09 27 | 691 | 0.1+ | 0.1+ | 2008 09 24 | 691 | 0.1− | 0.1+ | 2008 10 01 | G96 | 0.2+ | 0.1− |
| 2003 09 27 | 691 | 0.2+ | 0.3− | 2008 09 24 | 704 | 0.8+ | 0.3+ | 2008 10 01 | G96 | 0.7+ | 0.1+ |
| 2003 09 27 | 691 | 0.9+ | 1.3− | 2008 09 24 | 704 | (1.9+ | 0.5+) | 2008 10 17 | 691 | 0.5− | 0.3+ |
| 2003 10 20 | 691 | 0.1− | 0.1+ | 2008 09 24 | 704 | 0.7+ | 0.2− | 2008 10 17 | 691 | 0.9− | 0.5+ |
| 2003 10 20 | 691 | 0.0 | 0.1− | 2008 09 24 | 704 | 0.8+ | 0.5+ | 2008 10 17 | 691 | 0.1− | 0.3+ |
| 2003 10 20 | 691 | 0.1+ | 0.1+ | 2008 10 01 | G96 | 0.4+ | 0.0 | 2008 10 18 | 691 | 0.4− | 0.1+ |
| 2006 03 25 | G96 | 0.4− | 0.1+ | 2008 10 01 | G96 | 0.1+ | 0.2− | 2008 10 18 | 691 | 0.4+ | 0.1+ |
| 2006 03 25 | G96 | 0.0 | 0.2− | 2008 10 01 | G96 | 0.4+ | 0.2+ | 2008 10 18 | 691 | 0.3− | 0.2+ |
| 2006 03 25 | G96 | 0.3+ | 0.3− | 2008 10 01 | G96 | 0.1+ | 0.1− | | | | |

**2008 US$_8$ = 2003 UM$_9$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 103.65506 | | (2000.0) | | | |
| $n$ | 0.39790240 | $\omega$ | 258.11107 | | −0.10346180 | −0.98709592 |
| $a$ | 1.8307049 | $\Omega$ | 199.15980 | | +0.99405873 | −0.09844192 |
| $e$ | 0.0730261 | $i$ | 21.86277 | | +0.03380675 | −0.12629658 |
| $P$ | 2.48 | $H$ | 19.4 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 20 | 691 | 0.2− | 0.2− | 2003 10 22 | 291 | 0.2+ | 0.1− | 2008 10 17 | 691 | 0.1+ | 0.0 |
| 2003 10 20 | 691 | 0.2− | 0.1+ | 2003 10 22 | 291 | 0.0 | 0.2− | 2008 10 18 | 691 | 0.1+ | 0.2− |
| 2003 10 20 | 691 | 0.1− | 0.4− | 2008 09 25 | 691 | 0.5− | 0.2+ | 2008 10 18 | 691 | 0.3− | 0.1+ |
| 2003 10 21 | 291 | 0.1+ | 0.3+ | 2008 09 25 | 691 | 0.2+ | 0.0 | 2008 10 18 | 691 | 0.1− | 0.4+ |
| 2003 10 21 | 291 | 0.1+ | 1.1+ | 2008 09 25 | 691 | 0.4+ | 0.3− | 2008 10 26 | 291 | 0.0 | 0.0 |
| 2003 10 21 | 291 | 0.2+ | 0.3− | 2008 10 17 | 691 | 0.3+ | 0.2− | 2008 10 26 | 291 | 0.1− | 0.2− |
| 2003 10 22 | 291 | 0.0 | 0.3− | 2008 10 17 | 691 | 0.4− | 0.2+ | 2008 10 26 | 291 | 0.3+ | 0.0 |

**2008 UR$_9$ = 1995 UL$_{55}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 178.63029 | | (2000.0) | | | |
| $n$ | 0.22539214 | $\omega$ | 79.05182 | | +0.21953679 | +0.97051610 |
| $a$ | 2.6740952 | $\Omega$ | 204.33421 | | −0.96257605 | +0.19886216 |
| $e$ | 0.1077273 | $i$ | 13.97469 | | −0.15890548 | +0.13620700 |
| $P$ | 4.37 | $H$ | 17.1 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 10 17 | 691 | 0.5+ | 0.8− | 2007 04 25 | 691 | 0.1− | 0.0 | 2008 09 23 | 691 | 0.1− | 0.6+ |
| 1995 10 17 | 691 | 0.4+ | 1.0− | 2007 04 25 | 691 | 0.1+ | 0.4− | 2008 10 17 | 691 | 0.3+ | 0.2+ |
| 1995 10 17 | 691 | 0.6− | 1.8− | 2007 04 25 | 691 | 0.0 | 0.4− | 2008 10 17 | 691 | 0.4+ | 0.0 |
| 1995 10 21 | 691 | 0.4+ | 0.0 | 2008 09 05 | 691 | 0.1− | 0.1+ | 2008 10 17 | 691 | 0.0 | 0.4+ |
| 1995 10 21 | 691 | 0.2− | 0.2+ | 2008 09 05 | 691 | 0.1− | 0.5+ | 2008 10 18 | 691 | 0.2+ | 0.4− |
| 1995 10 21 | 691 | 0.1− | 0.2− | 2008 09 05 | 691 | 0.3− | 0.6+ | 2008 10 18 | 691 | 0.0 | 0.4+ |
| 1999 10 13 | 645 | 0.0 | 0.1− | 2008 09 23 | 691 | 0.5− | 0.1+ | 2008 10 18 | 691 | 0.1+ | 0.7+ |
| 1999 10 13 | 645 | 0.1+ | 0.1− | 2008 09 23 | 691 | 0.4− | 0.7+ | | | | |

**2008 UK$_{10}$ = 2004 YU$_{28}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 77.66811 | | (2000.0) | | | |
| $n$ | 0.21975748 | $\omega$ | 64.89881 | | +0.73433949 | −0.67834750 |
| $a$ | 2.7196119 | $\Omega$ | 337.78999 | | +0.59732728 | +0.66280277 |
| $e$ | 0.1342145 | $i$ | 3.68483 | | +0.32240601 | +0.31707593 |
| $P$ | 4.48 | $H$ | 17.6 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 16 | 691 | 0.4+ | 0.3+ | 2008 09 04 | 691 | 0.1+ | 0.2− | 2008 10 17 | 691 | 0.1− | 0.1+ |
| 2004 12 16 | 691 | 0.1− | 0.1− | 2008 09 04 | 691 | 0.2+ | 0.2− | 2008 10 17 | 691 | 0.1− | 0.7+ |
| 2004 12 16 | 691 | 0.2− | 0.3− | 2008 09 04 | 691 | 0.0 | 0.3+ | 2008 10 17 | 691 | 0.2+ | 0.2− |
| 2004 12 21 | 691 | 0.4− | 0.5− | 2008 09 23 | 691 | 0.4+ | 0.2+ | 2008 10 18 | 691 | 0.3− | 0.4− |
| 2004 12 21 | 691 | 0.4− | 0.4+ | 2008 09 23 | 691 | 0.0 | 0.2− | 2008 10 18 | 691 | 0.3− | 0.2+ |
| 2004 12 21 | 691 | 0.7+ | 0.1+ | 2008 09 23 | 691 | 0.3− | 0.3− | 2008 10 18 | 691 | 0.3+ | 0.1− |

**2008 UZ$_{10}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 209.63928 | | (2000.0) | | | |
| $n$ | 0.25322012 | $\omega$ | 354.86174 | | −0.14720426 | +0.98843202 |
| $a$ | 2.4744038 | $\Omega$ | 266.66986 | | −0.90617925 | −0.14956593 |
| $e$ | 0.1571220 | $i$ | 2.09593 | | −0.39644680 | −0.02514299 |
| $P$ | 3.89 | $H$ | 17.3 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 03 26 | 691 | 0.5− | 0.5+ | 2007 03 14 | G96 | 0.4− | 0.1− | 2008 09 23 | 691 | 0.2− | 0.1+ |
| 2003 03 26 | 691 | 0.3− | 0.2+ | 2007 03 14 | G96 | 0.6− | 0.1+ | 2008 10 17 | 691 | 0.3− | 0.2+ |
| 2003 03 26 | 691 | 0.2− | 0.2+ | 2007 03 14 | G96 | 0.1− | 0.1− | 2008 10 17 | 691 | 0.1− | 0.2+ |
| 2003 04 07 | 691 | 0.2− | 0.0 | 2007 03 14 | G96 | 0.3− | 0.1+ | 2008 10 17 | 691 | 0.2− | 0.3− |
| 2003 04 07 | 691 | 0.1− | 0.2− | 2007 03 29 | 691 | 0.1− | 0.2− | 2008 10 18 | 691 | 0.1+ | 0.2− |
| 2003 04 07 | 691 | 0.4− | 0.1+ | 2007 03 29 | 691 | 0.3+ | 0.0 | 2008 10 18 | 691 | 0.2+ | 0.9+ |
| 2003 04 26 | 691 | 1.0+ | 0.4+ | 2007 03 29 | 691 | 0.0 | 0.2− | 2008 10 18 | 691 | 0.2+ | 0.0 |
| 2003 04 26 | 691 | 0.5+ | 0.2+ | 2008 09 23 | 691 | 0.2− | 0.3+ | | | | |
| 2003 04 26 | 691 | 0.9+ | 0.0 | 2008 09 23 | 691 | 0.0 | 0.0 | | | | |

**2008 UF$_{12}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 102.02059 | | (2000.0) | | | |
| $n$ | 0.19909430 | $\omega$ | 354.49652 | | +0.99951616 | −0.02821225 |
| $a$ | 2.9046702 | $\Omega$ | 7.15951 | | +0.03100656 | +0.87047563 |
| $e$ | 0.0712885 | $i$ | 6.03188 | | +0.00245856 | +0.49140233 |
| $P$ | 4.95 | $H$ | 17.0 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 10 01 | 691 | 0.4+ | 0.6+ | 2008 09 02 | 691 | 0.0 | 0.1+ | 2008 10 17 | 691 | 0.1− | 0.1− |
| 1998 10 01 | 691 | 0.1− | 0.2− | 2008 09 02 | 691 | (2.8+ | 2.4+) | 2008 10 21 | 691 | 0.3+ | 0.4− |
| 1998 10 01 | 691 | 0.3− | 0.3− | 2008 10 10 | G96 | 0.1+ | 0.2− | 2008 10 21 | 691 | 0.0 | 0.1− |
| 2006 03 25 | G96 | 0.2+ | 0.6+ | 2008 10 10 | G96 | 0.2+ | 0.0 | 2008 10 21 | 691 | 0.0 | 0.1− |
| 2006 03 25 | G96 | 0.1+ | 0.5+ | 2008 10 10 | G96 | 0.1− | 0.4− | 2008 10 26 | 691 | 0.2+ | 0.0 |
| 2006 03 25 | G96 | 0.2+ | 0.0 | 2008 10 10 | G96 | 0.0 | 0.3− | 2008 10 26 | 691 | 0.0 | 0.1− |
| 2006 03 25 | G96 | 0.2+ | 0.1+ | 2008 10 17 | 691 | 0.2+ | 1.1+ | 2008 10 26 | 691 | 0.1− | 0.1− |
| 2008 09 02 | 691 | 0.1− | 0.1− | 2008 10 17 | 691 | 0.4− | 0.2+ | | | | |

**2008 UD$_{14}$ = 2006 KH$_2$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 280.33524 | | (2000.0) | | | |
| $n$ | 0.17958886 | $\omega$ | 260.58473 | | −0.97941645 | +0.10499897 |
| $a$ | 3.1113566 | $\Omega$ | 285.29603 | | −0.02002552 | −0.90038634 |
| $e$ | 0.1067573 | $i$ | 10.29533 | | −0.20085417 | −0.42223176 |
| $P$ | 5.49 | $H$ | 15.2 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 03 12 | 699 | 1.3+ | 1.3+ | 2003 12 19 | 691 | 0.1+ | 0.1− | 2008 10 17 | 291 | 0.1− | 0.3+ |
| 2000 03 12 | 699 | 0.0 | 1.1+ | 2005 02 02 | 703 | 0.4− | 0.6− | 2008 10 21 | G96 | 0.2− | 0.1− |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 03 12 | 699 | 0.4+ | 0.8+ | 2005 02 02 | 703 | 0.0 | 0.9− | 2008 10 21 | G96 | 0.0 | 0.1+ | | |
| 2000 03 12 | 699 | 0.5+ | 0.5+ | 2005 02 02 | 703 | 0.6− | 0.3+ | 2008 10 21 | G96 | 0.2− | 0.1+ | | |
| 2003 10 27 | 691 | (8.9− | 0.1−) | 2005 02 02 | 703 | (0.7− | 1.8−) | 2008 10 21 | G96 | 0.4− | 0.2+ | | |
| 2003 10 27 | 691 | (7.6− | 0.0 ) | 2006 05 17 | E12 | 0.4+ | 0.2− | 2008 11 02 | 703 | 0.1+ | 0.9+ | | |
| 2003 10 27 | 691 | (8.3− | 0.3+) | 2006 05 17 | E12 | 0.0 | 0.3+ | 2008 11 02 | 703 | 1.0+ | 1.0− | | |
| 2003 11 19 | 644 | 0.2+ | 0.7+ | 2006 05 17 | E12 | 0.6− | 0.3− | 2008 11 02 | 703 | 1.2− | 0.2+ | | |
| 2003 11 19 | 644 | 0.3+ | 0.2− | 2006 05 17 | E12 | (1.6− | 1.1+) | 2008 11 02 | 703 | 0.8+ | 0.7− | | |
| 2003 11 19 | 644 | 0.3− | 0.0 | 2006 05 22 | E12 | 0.3+ | 0.5+ | 2008 11 23 | G96 | 0.2+ | 0.4+ | | |
| 2003 12 01 | 691 | 0.2− | 0.3+ | 2006 05 22 | E12 | 0.3+ | 0.6+ | 2008 11 23 | G96 | 0.3+ | 0.0 | | |
| 2003 12 01 | 691 | 0.1− | 0.0 | 2006 05 22 | E12 | 0.4− | 0.9+ | 2008 11 23 | G96 | 0.6+ | 0.0 | | |
| 2003 12 01 | 691 | 0.1− | 0.1− | 2006 05 22 | E12 | 0.1+ | 0.2+ | 2008 11 23 | G96 | 0.2+ | 0.2+ | | |
| 2003 12 19 | 691 | 0.0 | 0.1+ | 2008 10 17 | 291 | 0.4− | 0.2+ | | | | | | |
| 2003 12 19 | 691 | 0.1− | 0.2+ | 2008 10 17 | 291 | 0.1− | 0.4+ | | | | | | |

### 2008 $UO_{14}$ = 2006 $CZ_{24}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 263.81864 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22994529 | $\omega$ | 231.96959 | | −0.89159329 | +0.45264599 | |
| $a$ | 2.6386778 | $\Omega$ | 334.93590 | | −0.40513493 | −0.81031249 | |
| $e$ | 0.0739571 | $i$ | 1.77930 | | −0.20230446 | −0.37216296 | |
| $P$ | 4.29 | $H$ | 17.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 09 29 | 691 | 0.1− | 0.1+ | 2006 02 02 | 691 | 0.2+ | 0.1− | 2008 09 03 | 691 | 0.0 | 0.1− | | |
| 1995 09 29 | 691 | 0.1− | 0.3+ | 2006 02 02 | 691 | 0.1+ | 0.5+ | 2008 09 24 | 691 | 0.6− | 0.6+ | | |
| 1995 09 29 | 691 | 0.1+ | 0.0 | 2006 02 06 | G96 | 0.3− | 0.1− | 2008 09 24 | 691 | 0.2+ | 0.1+ | | |
| 2004 10 23 | 291 | 0.0 | 0.1− | 2006 02 06 | G96 | 0.8+ | 0.2− | 2008 09 24 | 691 | 0.1− | 0.1+ | | |
| 2004 10 23 | 291 | 0.2+ | 0.2+ | 2006 02 06 | G96 | 0.1− | 0.1− | 2008 10 18 | 691 | 0.1− | 0.1− | | |
| 2004 10 23 | 291 | 0.3− | 0.0 | 2006 02 06 | G96 | 0.1− | 0.2− | 2008 10 18 | 691 | 0.0 | 0.1− | | |
| 2006 01 22 | G96 | 1.5− | 0.1− | 2008 08 24 | 691 | 0.5+ | 0.2+ | 2008 10 18 | 691 | 0.1+ | 0.7− | | |
| 2006 01 22 | G96 | 0.5− | 0.4− | 2008 08 24 | 691 | 0.0 | 0.2+ | 2008 10 24 | G96 | 0.1+ | 0.0 | | |
| 2006 01 22 | G96 | 0.4− | 0.4− | 2008 08 24 | 691 | 0.1− | 0.5− | 2008 10 24 | G96 | 0.5+ | 0.2− | | |
| 2006 01 22 | G96 | 0.0 | 1.0− | 2008 09 03 | 691 | 0.2− | 0.3+ | 2008 10 24 | G96 | 0.4+ | 0.2− | | |
| 2006 02 02 | 691 | 0.2+ | 0.5+ | 2008 09 03 | 691 | 0.2+ | 0.4− | 2008 10 24 | G96 | 0.3+ | 0.1− | | |

### 2008 $UY_{15}$ = 2000 $EA_1$ = 2005 $XH_{42}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 320.18873 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.29916595 | $\omega$ | 204.08909 | | −0.96717978 | +0.25405284 | |
| $a$ | 2.2140866 | $\Omega$ | 350.62499 | | −0.22839065 | −0.87700252 | |
| $e$ | 0.1408747 | $i$ | 1.58954 | | −0.11135966 | −0.40782808 | |
| $P$ | 3.29 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 03 03 | 704 | 0.0 | 0.5+ | 2005 12 04 | 691 | 0.2− | 0.2+ | 2008 10 18 | 291 | 0.2+ | 0.1− | | |
| 2000 03 03 | 704 | 0.7− | 0.3− | 2005 12 04 | 691 | 0.0 | 0.2+ | 2008 10 18 | 291 | 0.5+ | 0.1− | | |
| 2000 03 03 | 704 | 0.8− | 0.6− | 2005 12 06 | G96 | 0.0 | 0.6− | 2008 10 18 | 291 | 0.3+ | 0.0 | | |
| 2000 03 04 | 704 | 0.2+ | 0.5+ | 2005 12 06 | G96 | 0.4+ | 0.2− | 2008 10 21 | G96 | 0.3− | 0.2− | | |
| 2000 03 04 | 704 | 0.3+ | 0.7− | 2005 12 06 | G96 | 0.1− | 0.1− | 2008 10 21 | G96 | 0.6− | 0.3− | | |
| 2000 03 04 | 704 | 0.5+ | 0.1+ | 2005 12 06 | G96 | 0.1+ | 0.6− | 2008 10 21 | G96 | 0.1+ | 0.0 | | |
| 2000 03 04 | 704 | 0.3− | 0.5+ | 2008 09 25 | 691 | 0.3− | 0.4− | 2008 10 21 | G96 | 0.3− | 0.2− | | |
| 2000 03 04 | 704 | 0.5+ | 0.4− | 2008 09 25 | 691 | 0.3− | 0.4+ | | | | | | |
| 2005 12 04 | 691 | 0.0 | 0.2+ | 2008 09 25 | 691 | 0.1− | 0.0 | | | | | | |

### 2008 $UV_{16}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 192.05603 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17750381 | $\omega$ | 60.72648 | | −0.13481171 | +0.98740842 | |
| $a$ | 3.1356742 | $\Omega$ | 201.99265 | | −0.96842050 | −0.14897703 | |
| $e$ | 0.0586250 | $i$ | 12.76864 | | −0.20973208 | +0.05320212 | |
| $P$ | 5.55 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 04 26 | 691 | 0.2− | 0.4+ | 2006 05 06 | G96 | 0.1− | 0.2− | 2008 10 20 | G96 | 0.3+ | 0.3− | | |
| 1995 04 26 | 691 | 0.2+ | 0.4− | 2008 09 09 | G96 | 0.4+ | 0.2− | 2008 10 20 | G96 | 0.2+ | 0.3− | | |
| 1995 04 26 | 691 | 0.1− | 0.2+ | 2008 09 09 | G96 | 0.1− | 0.3− | 2008 10 20 | G96 | 0.2+ | 0.1− | | |
| 2003 11 26 | 691 | 0.3+ | 0.2− | 2008 09 09 | G96 | 0.1+ | 0.3− | 2008 10 20 | G96 | 0.0 | 0.0 | | |
| 2003 11 26 | 691 | 0.3+ | 0.1− | 2008 09 09 | G96 | 0.1+ | 0.3+ | 2008 10 20 | G96 | 0.2+ | 0.3− | | |
| 2003 11 26 | 691 | 0.1− | 0.0 | 2008 09 25 | 691 | 0.1− | 0.2− | 2008 10 20 | G96 | 0.1− | 0.1+ | | |
| 2003 12 21 | 691 | 0.2− | 0.1+ | 2008 09 25 | 691 | 0.4− | 0.1− | 2008 10 20 | G96 | 0.1+ | 0.1+ | | |
| 2003 12 21 | 691 | 0.3− | 0.5+ | 2008 09 25 | 691 | 0.4− | 0.1− | 2008 10 24 | G96 | 0.1+ | 0.2+ | | |
| 2003 12 21 | 691 | 0.0 | 0.1− | 2008 10 18 | 291 | 0.1+ | 0.2+ | 2008 10 24 | G96 | 0.2− | 0.2+ | | |
| 2006 05 06 | G96 | 0.3+ | 0.0 | 2008 10 18 | 291 | 0.1+ | 0.3+ | 2008 10 24 | G96 | 0.5+ | 0.1+ | | |
| 2006 05 06 | G96 | 0.2− | 0.4+ | 2008 10 18 | 291 | 0.3+ | 0.4+ | 2008 10 24 | G96 | 0.1+ | 0.1+ | | |
| 2006 05 06 | G96 | 0.1+ | 0.3+ | 2008 10 20 | G96 | 0.1− | 0.1+ | | | | | | |

### 2008 $UV_{23}$ = 2005 $AT_{75}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 248.55954 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17713048 | $\omega$ | 262.81643 | | −0.89280262 | +0.44740350 | |
| $a$ | 3.1400786 | $\Omega$ | 303.74761 | | −0.38447951 | −0.81737433 | |
| $e$ | 0.0940506 | $i$ | 3.60511 | | −0.23468914 | −0.36294534 | |
| $P$ | 5.56 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 01 15 | 691 | 0.3+ | 0.1+ | 2005 03 08 | G96 | 0.1− | 0.6− | 2008 10 22 | 691 | 0.0 | 0.1− | | |
| 2005 01 15 | 691 | 0.4+ | 0.2+ | 2008 10 08 | G96 | 0.5+ | 0.7− | 2008 10 22 | 691 | 0.2− | 0.5+ | | |
| 2005 01 15 | 691 | 0.3+ | 0.1+ | 2008 10 08 | G96 | 0.2+ | 0.6− | 2009 11 26 | 691 | 0.1− | 0.3− | | |
| 2005 01 19 | 691 | 0.8− | 0.3+ | 2008 10 08 | G96 | 0.4+ | 0.2− | 2009 11 26 | 691 | 0.1+ | 0.0 | | |
| 2005 01 19 | 691 | 0.1+ | 0.0 | 2008 10 08 | G96 | 0.6+ | 0.6− | 2009 11 26 | 691 | 0.3− | 0.2− | | |
| 2005 01 19 | 691 | 0.1+ | 0.3+ | 2008 10 20 | 691 | 0.2− | 0.3+ | 2009 12 20 | G96 | 0.7+ | 0.3− | | |
| 2005 03 08 | G96 | 0.2+ | 0.5− | 2008 10 20 | 691 | 0.2− | 0.4+ | 2009 12 20 | G96 | 0.5+ | 0.1− | | |
| 2005 03 08 | G96 | 0.2− | 0.7− | 2008 10 20 | 691 | 0.1+ | 0.2− | 2009 12 20 | G96 | 0.2+ | 0.1+ | | |
| 2005 03 08 | G96 | 0.3− | 0.4− | 2008 10 22 | 691 | 0.0 | 0.1− | 2009 12 20 | G96 | 0.1+ | 0.1− | | |

### 2008 $UV_{32}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 98.85686 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23764207 | $\omega$ | 207.38404 | | +0.67052423 | −0.74077693 | |
| $a$ | 2.5813912 | $\Omega$ | 200.59180 | | +0.70003502 | +0.64986270 | |
| $e$ | 0.1351362 | $i$ | 6.62568 | | +0.24565878 | +0.17008236 | |
| $P$ | 4.15 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 05 15 | 691 | 0.2− | 0.2+ | 2008 10 28 | 691 | 0.0 | 0.2− | 2008 11 09 | G96 | 0.0 | 0.1+ | | |
| 1994 05 15 | 691 | 0.0 | 0.3+ | 2008 10 28 | 691 | 0.0 | 0.2− | 2008 11 09 | G96 | 0.1+ | 0.1+ | | |
| 1994 05 15 | 691 | 0.4+ | 0.6+ | 2008 10 28 | 691 | 0.1+ | 0.3− | 2008 11 09 | G96 | 0.1+ | 0.1+ | | |
| 1995 08 29 | 691 | 0.2− | 0.0 | 2008 10 31 | 704 | 1.0+ | 0.7+ | 2008 11 09 | G96 | 0.3+ | 0.1− | | |
| 1995 08 29 | 691 | 0.1− | 0.3+ | 2008 10 31 | 704 | 0.5+ | 0.8+ | 2008 11 09 | G96 | 0.1+ | 0.1− | | |
| 1995 08 29 | 691 | 0.0 | 0.2+ | 2008 10 31 | 704 | 0.2− | 0.3+ | 2008 11 18 | 704 | 0.5− | 0.5+ | | |
| 2006 02 25 | 691 | 0.6+ | 0.6+ | 2008 10 31 | 704 | 1.1+ | 0.6+ | 2008 11 18 | 703 | 1.2+ | 0.4+ | | |
| 2006 02 25 | 691 | 0.2− | 0.2+ | 2008 10 31 | 704 | 0.3+ | 1.4+ | 2008 11 18 | 704 | 0.5− | 0.8+ | | |
| 2006 02 25 | 691 | 0.2− | 0.1+ | 2008 11 09 | G96 | 0.2+ | 0.2− | 2008 11 18 | 703 | 0.8+ | 0.8+ | | |
| 2008 09 09 | G96 | 0.3+ | 0.0 | 2008 11 09 | G96 | 0.2+ | 0.2− | 2008 11 18 | 703 | 0.5+ | 0.3+ | | |
| 2008 09 09 | G96 | 0.6+ | 0.1− | 2008 11 09 | G96 | 0.2+ | 0.2− | 2008 11 18 | 704 | 0.1− | 0.4+ | | |
| 2008 09 09 | G96 | 0.2+ | 0.1− | 2008 11 09 | G96 | 0.3+ | 0.3− | 2008 11 18 | 703 | 0.4− | 0.1− | | |
| 2008 09 09 | G96 | 0.5+ | 0.0 | 2008 11 09 | G96 | 0.0 | 0.2+ | 2008 11 18 | 704 | 0.4− | 0.1− | | |
| 2008 09 22 | G96 | 0.2+ | 0.1− | 2008 11 09 | G96 | 0.1− | 0.1+ | 2008 11 18 | 704 | 0.3− | 0.8− | | |
| 2008 09 22 | G96 | 0.5− | 0.6+ | 2008 11 09 | G96 | 0.5+ | 0.1+ | 2008 11 23 | 704 | (0.7+ | 2.2+) | | |
| 2008 09 22 | G96 | 0.1− | 0.6− | 2008 11 09 | G96 | 0.3+ | 0.2+ | 2008 11 23 | 704 | 1.2+ | 1.4+ | | |
| 2008 10 20 | 691 | 0.4− | 0.1− | 2008 11 09 | 291 | 0.5− | 0.0 | 2008 11 23 | 704 | 0.8+ | 1.0+ | | |
| 2008 10 20 | 691 | 0.2− | 0.2− | 2008 11 09 | G96 | 0.2+ | 0.1− | 2008 12 01 | G96 | 0.5+ | 0.2− | | |
| 2008 10 20 | 691 | 0.1− | 0.2+ | 2008 11 09 | 291 | 0.5− | 0.2+ | 2008 12 01 | G96 | 0.5+ | 0.2− | | |
| 2008 10 24 | 691 | 0.2− | 0.1− | 2008 11 09 | G96 | 0.2+ | 0.2− | 2008 12 01 | G96 | 0.3+ | 0.2− | | |
| 2008 10 24 | 691 | 0.3− | 0.1+ | 2008 11 09 | 291 | 0.6− | 0.2+ | 2008 12 01 | G96 | 0.3+ | 0.6− | | |
| 2008 10 24 | 691 | 0.1− | 0.1+ | 2008 11 09 | G96 | 0.4+ | 0.2+ | | | | | | |

**2008 UD$_{48}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 208.72651 | | (2000.0) | | | |
| $n$ | 0.26754678 | $\omega$ | 49.15833 | | +0.19187417 | +0.98113321 |
| $a$ | 2.3852628 | $\Omega$ | 231.91962 | | −0.90925463 | +0.16862275 |
| $e$ | 0.1460863 | $i$ | 1.72574 | | −0.36937830 | +0.09457271 |
| $P$ | 3.68 | $H$ | 17.9 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 10 23 | 691 | 0.3+ | 0.7− | 2007 05 10 | G96 | 0.7+ | 1.1− | 2008 10 20 | G96 | 0.0 | 0.1+ |
| 1997 10 23 | 691 | 0.3− | 0.0 | 2008 09 22 | G96 | 0.0 | 0.3− | 2008 10 20 | G96 | 0.2+ | 0.0 |
| 1997 10 23 | 691 | 0.3+ | 0.4− | 2008 09 22 | G96 | 0.3− | 0.1− | 2008 10 20 | G96 | 0.1− | 0.2− |
| 2007 04 22 | G96 | 0.2+ | 0.3+ | 2008 09 22 | G96 | 0.1+ | 0.0 | 2008 10 21 | 691 | (1.9− | 0.3+) |
| 2007 04 22 | G96 | 0.1+ | 0.0 | 2008 09 22 | G96 | 0.2− | 0.4− | 2008 10 21 | 691 | 0.0 | 0.3+ |
| 2007 04 22 | G96 | 0.1− | 0.2+ | 2008 10 10 | G96 | 0.2+ | 0.0 | 2008 10 21 | 691 | 0.2− | 0.2+ |
| 2007 04 22 | G96 | 0.3+ | 0.1+ | 2008 10 10 | G96 | 0.0 | 0.4+ | 2008 10 28 | G96 | 0.4− | 0.3+ |
| 2007 05 10 | G96 | 0.2+ | 0.6− | 2008 10 10 | G96 | 0.2+ | 0.1+ | 2008 10 28 | G96 | 0.1+ | 0.1+ |
| 2007 05 10 | G96 | 0.6− | 0.1− | 2008 10 10 | G96 | 0.2− | 0.1− | 2008 10 28 | G96 | 0.1+ | 0.1+ |
| 2007 05 10 | G96 | 1.2− | 0.2− | 2008 10 20 | G96 | 0.1− | 0.1− | 2008 10 28 | G96 | 0.1+ | 0.0 |

**2008 UK$_{54}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 149.27153 | | (2000.0) | | | |
| $n$ | 0.24314893 | $\omega$ | 317.29170 | | +0.98330308 | −0.07538208 |
| $a$ | 2.5422669 | $\Omega$ | 47.82339 | | +0.15266734 | +0.83705203 |
| $e$ | 0.0740309 | $i$ | 12.91443 | | −0.09903403 | +0.54190538 |
| $P$ | 4.05 | $H$ | 16.2 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 03 12 | 645 | 0.0 | 0.0 | 2008 10 20 | G96 | 0.3+ | 0.3− | 2008 11 19 | 691 | 0.0 | 0.6+ |
| 2002 03 12 | 645 | 0.0 | 0.0 | 2008 10 21 | 691 | 0.1− | 0.0 | 2008 11 19 | 691 | 0.2+ | 0.1− |
| 2004 12 02 | 703 | 0.3− | 0.1+ | 2008 10 21 | 691 | 0.6− | 0.4+ | 2008 11 19 | 691 | 0.3+ | 0.3− |
| 2004 12 02 | 703 | 0.0 | 0.3− | 2008 10 21 | 691 | 0.3− | 0.2+ | 2008 11 20 | 704 | 0.2+ | 0.3+ |
| 2004 12 02 | 703 | 0.5+ | 0.2− | 2008 10 25 | 691 | 0.1− | 0.2− | 2008 11 20 | 704 | 0.3− | 0.7− |
| 2004 12 02 | 703 | 0.1+ | 0.6− | 2008 10 25 | 691 | 0.1− | 0.1+ | 2008 11 20 | 704 | 0.1+ | 0.2− |
| 2008 09 09 | G96 | 0.6+ | 0.6− | 2008 10 25 | 691 | 0.2− | 0.0 | 2008 11 20 | 704 | 0.1+ | 0.5+ |
| 2008 09 09 | G96 | 0.7+ | 0.3− | 2008 10 29 | 691 | 0.1− | 0.0 | 2008 12 01 | G92 | 0.4+ | 0.1+ |
| 2008 09 09 | G96 | 0.4+ | 0.4− | 2008 10 29 | 691 | 0.2+ | 0.3− | 2008 12 01 | G92 | 1.3+ | 0.0 |
| 2008 09 09 | G96 | 0.5+ | 0.3− | 2008 10 29 | 691 | 0.1− | 0.2+ | 2008 12 01 | G92 | 0.6+ | 0.9− |
| 2008 10 20 | G96 | 0.6+ | 0.7− | 2008 11 06 | 691 | 0.4− | 0.0 | 2008 12 02 | G92 | 1.1+ | 0.0 |
| 2008 10 20 | G96 | 0.6+ | 0.5− | 2008 11 06 | 691 | 0.3− | 0.1− | 2008 12 02 | G92 | 0.2+ | 1.5+ |
| 2008 10 20 | G96 | 0.1+ | 0.5− | 2008 11 06 | 691 | 0.6− | 0.3+ | 2008 12 02 | G92 | 1.0+ | 1.4+ |

**2008 US$_{60}$ = 2006 HX$_{149}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 100.04159 | | (2000.0) | | | |
| $n$ | 0.17438402 | $\omega$ | 131.19578 | | +0.95734651 | −0.25901759 |
| $a$ | 3.1729624 | $\Omega$ | 244.17399 | | +0.20365441 | +0.91926229 |
| $e$ | 0.0778189 | $i$ | 8.17875 | | +0.20496963 | +0.29642325 |
| $P$ | 5.65 | $H$ | 15.6 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 04 27 | 807 | 0.3+ | 0.1+ | 2008 10 21 | 691 | 0.1− | 0.3− | 2008 11 02 | 691 | 0.4+ | 0.2+ |
| 2006 04 28 | 807 | 0.0 | 0.1+ | 2008 10 21 | 691 | 0.0 | 0.2− | 2008 11 02 | 691 | 0.6− | 0.2+ |
| 2006 04 28 | 807 | 0.0 | 0.0 | 2008 10 21 | 691 | 0.1− | 0.2− | 2008 11 18 | 703 | 0.4+ | 0.3+ |
| 2006 05 26 | G96 | 0.1− | 0.2+ | 2008 10 25 | 691 | 0.3+ | 0.2+ | 2008 11 18 | 703 | 0.1+ | 1.0− |
| 2006 05 26 | G96 | 0.1+ | 0.1+ | 2008 10 25 | 691 | 0.1+ | 0.1+ | 2008 11 18 | 703 | 0.6− | 0.5− |
| 2006 05 26 | G96 | 0.0 | 0.2− | 2008 10 25 | 691 | 0.2− | 0.2− | 2008 11 18 | 703 | 0.3+ | 0.2+ |
| 2006 05 26 | G96 | 0.2− | 0.0 | 2008 11 02 | 691 | 0.1+ | 0.4+ | | | | |

**2008 UD$_{61}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 113.82371 | | (2000.0) | | | |
| $n$ | 0.21215113 | $\omega$ | 42.74731 | | +0.95635939 | −0.29140999 |
| $a$ | 2.7842345 | $\Omega$ | 334.17200 | | +0.25308735 | +0.86270661 |
| $e$ | 0.1034988 | $i$ | 2.81234 | | +0.14602574 | +0.41330076 |
| $P$ | 4.65 | $H$ | 17.4 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 08 26 | 691 | 0.1− | 0.5+ | 2003 10 24 | 645 | 0.2+ | 0.1− | 2008 10 29 | 691 | 0.2− | 0.0 |
| 1998 08 26 | 691 | 0.8− | 0.9+ | 2003 10 24 | 645 | 0.2+ | 0.2− | 2008 10 29 | 691 | 0.6− | 0.2+ |
| 1998 08 26 | 691 | 0.0 | 0.7+ | 2008 10 21 | 691 | 0.0 | 1.1+ | 2008 10 29 | 691 | 0.2− | 0.2+ |
| 2003 09 18 | 691 | 0.2− | 0.3− | 2008 10 21 | 691 | 0.2+ | 0.4+ | 2008 11 02 | 691 | 0.0 | 0.6+ |
| 2003 09 18 | 691 | 0.2− | 0.0 | 2008 10 21 | 691 | 0.2− | 0.7+ | 2008 11 02 | 691 | 0.2+ | 0.1+ |
| 2003 09 18 | 691 | 0.3− | 0.2− | 2008 10 25 | 691 | 0.1− | 0.1− | 2008 11 02 | 691 | 0.4+ | 0.3− |
| 2003 10 19 | 645 | 0.0 | 0.2− | 2008 10 25 | 691 | 0.4− | 0.1− | | | | |
| 2003 10 19 | 645 | 0.1+ | 0.1− | 2008 10 25 | 691 | 0.1+ | 0.1+ | | | | |

**2008 UG$_{62}$ = 2002 GL$_{120}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 215.69509 | | (2000.0) | | | |
| $n$ | 0.22320913 | $\omega$ | 249.25137 | | +0.01910264 | +0.99887113 |
| $a$ | 2.6915023 | $\Omega$ | 21.97908 | | −0.86865426 | +0.03811954 |
| $e$ | 0.1512564 | $i$ | 6.67317 | | −0.49505037 | −0.02834383 |
| $P$ | 4.42 | $H$ | 17.0 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 10 14 | 645 | 0.0 | 0.1− | 2002 04 18 | 644 | 0.2− | 0.1− | 2008 09 28 | G96 | 0.4+ | 0.1− |
| 1999 10 14 | 645 | 0.1+ | 0.1− | 2002 04 18 | 644 | 0.3+ | 0.6− | 2008 10 21 | 691 | 0.4− | 0.3+ |
| 2002 04 12 | 704 | 0.2− | 1.1+ | 2002 04 18 | 644 | 0.1+ | 0.2− | 2008 10 21 | 691 | 0.1− | 0.1+ |
| 2002 04 12 | 704 | 1.3− | 1.0− | 2006 02 01 | 691 | 0.3− | 0.2+ | 2008 10 21 | 691 | 0.2− | 0.4+ |
| 2002 04 12 | 704 | 0.2+ | 0.9+ | 2006 02 01 | 691 | 0.2− | 0.4− | 2008 10 25 | 691 | 0.0 | 0.3+ |
| 2002 04 12 | 704 | 1.2+ | 0.9+ | 2006 02 01 | 691 | 0.2+ | 0.3− | 2008 10 25 | 691 | 0.0 | 0.0 |
| 2002 04 13 | 291 | 0.0 | 0.2+ | 2008 09 28 | G96 | 0.1− | 0.1− | 2008 10 25 | 691 | 0.0 | 0.3+ |
| 2002 04 13 | 291 | 0.1+ | 0.2+ | 2008 09 28 | G96 | 0.5+ | 0.1− | | | | |
| 2002 04 13 | 291 | 0.2+ | 0.0 | 2008 09 28 | G96 | 0.2+ | 0.2− | | | | |

**2008 UN$_{68}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 344.85984 | | (2000.0) | | | |
| $n$ | 0.17409714 | $\omega$ | 38.40340 | | −0.68414599 | −0.72115491 |
| $a$ | 3.1764471 | $\Omega$ | 95.05766 | | +0.63921121 | −0.66482864 |
| $e$ | 0.1409071 | $i$ | 6.28193 | | +0.35121688 | −0.19477801 |
| $P$ | 5.66 | $H$ | 16.2 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 09 24 | G96 | 0.3+ | 0.3+ | 2008 10 23 | G96 | 0.5+ | 0.1− | 2009 12 15 | G96 | 0.3+ | 0.2+ |
| 2008 09 24 | G96 | 0.4− | 0.2+ | 2008 10 23 | G96 | 0.0 | 0.2− | 2009 12 15 | G96 | 0.4+ | 0.0 |
| 2008 09 24 | G96 | 0.1− | 0.0 | 2008 10 23 | G96 | 0.1− | 0.0 | 2009 12 15 | G96 | 0.1+ | 0.1− |
| 2008 09 24 | G96 | 0.1− | 0.1− | 2008 10 23 | G96 | 0.1− | 0.2− | 2009 12 15 | G96 | 0.4+ | 0.1+ |
| 2008 10 21 | G96 | 0.4− | 0.2+ | 2009 10 18 | G96 | 0.2+ | 0.3− | 2009 12 18 | 691 | 0.0 | 0.1+ |
| 2008 10 21 | G96 | 0.2+ | 0.1− | 2009 10 18 | G96 | 1.3− | 0.8− | 2009 12 18 | 691 | 0.2− | 0.1− |
| 2008 10 21 | G96 | 0.5− | 0.2+ | 2009 10 18 | G96 | 0.0 | 0.3− | 2009 12 18 | 691 | 0.1− | 0.1+ |
| 2008 10 21 | G96 | 0.5+ | 0.2− | 2009 10 18 | G96 | 1.1+ | 0.4+ | | | | |

**2008 UH$_{69}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 134.73365 | | (2000.0) | | | |
| $n$ | 0.19621455 | $\omega$ | 146.62123 | | +0.84765449 | +0.53053045 |
| $a$ | 2.9330215 | $\Omega$ | 181.36061 | | −0.51821677 | +0.82614854 |
| $e$ | 0.1104222 | $i$ | 10.66251 | | −0.11372441 | +0.18977890 |
| $P$ | 5.02 | $H$ | 16.6 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 20 | 691 | 0.2+ | 0.2− | 2008 09 22 | 691 | 0.1+ | 0.2− | 2008 10 21 | G96 | 0.6+ | 0.2− |
| 2003 10 20 | 691 | 0.0 | 0.0 | 2008 10 08 | 691 | 0.2− | 0.2− | 2008 10 23 | G96 | 0.2+ | 0.0 |
| 2003 10 20 | 691 | 0.0 | 0.1− | 2008 10 08 | 691 | 0.2− | 0.4+ | 2008 10 23 | G96 | 0.0 | 0.4− |
| 2003 11 20 | 645 | 0.0 | 0.1+ | 2008 10 08 | 691 | 0.4− | 0.0 | 2008 10 23 | G96 | 0.3+ | 0.1− |
| 2003 11 20 | 645 | 0.0 | 0.0 | 2008 10 21 | G96 | 0.6+ | 0.1− | 2008 10 23 | G96 | 0.1+ | 0.1− |
| 2008 09 22 | 691 | 0.0 | 0.3+ | 2008 10 21 | G96 | 0.4+ | 0.1− | | | | |
| 2008 09 22 | 691 | 0.0 | 0.0 | 2008 10 21 | G96 | 0.3+ | 0.0 | | | | |

**2008 UW$_{79}$ = 2004 ON$_{15}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 207.45109 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.28376531 | | $\omega$ | 295.79634 | | +0.49158721 | | +0.87078735 | |
| $a$ | 2.2934882 | | $\Omega$ | 3.68171 | | −0.74440790 | | +0.42523799 | |
| $e$ | 0.1303839 | | $i$ | 7.56213 | | −0.45188372 | | +0.24678340 | |
| $P$ | 3.47 | | $H$ | 16.8 | $G$ | 0.15 | $U$ | 4 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 07 29 | E12 | 0.8+ | 0.3+ | 2004 08 19 | E12 | 0.2+ | 0.5+ | 2008 10 24 | 703 | 0.4+ | 0.1− |
| 2004 07 29 | E12 | 0.1+ | 0.4− | 2008 10 01 | G96 | 0.3+ | 0.1− | 2008 10 24 | 703 | 0.4− | 0.2− |
| 2004 07 29 | E12 | 0.5− | 0.2+ | 2008 10 01 | G96 | 0.4+ | 0.1− | 2008 10 28 | 704 | 0.5+ | 0.4+ |
| 2004 07 29 | E12 | 0.3+ | 0.3− | 2008 10 01 | G96 | 0.1− | 0.2− | 2008 10 28 | 704 | 0.4− | 0.0 |
| 2004 08 08 | E12 | 0.5+ | 0.6− | 2008 10 01 | G96 | 0.1+ | 0.2− | 2008 10 28 | 704 | 0.1+ | 1.3+ |
| 2004 08 08 | E12 | 0.2− | 0.2+ | 2008 10 01 | G96 | 0.7+ | 0.2− | 2008 10 28 | 704 | 0.4− | 0.4+ |
| 2004 08 08 | E12 | 0.0 | 0.3− | 2008 10 22 | 691 | 0.0 | 0.1+ | 2008 10 28 | 704 | 0.3+ | 0.7+ |
| 2004 08 08 | E12 | 0.1− | 0.2− | 2008 10 22 | 691 | 0.0 | 0.0 | 2008 10 31 | G96 | 0.5+ | 0.4− |
| 2004 08 19 | E12 | 0.5− | 0.0 | 2008 10 22 | 691 | 1.2− | 0.1− | 2008 10 31 | G96 | 0.4+ | 0.5− |
| 2004 08 19 | E12 | 0.0 | 0.4+ | 2008 10 24 | 703 | 0.7+ | 0.5− | 2008 10 31 | G96 | 0.2+ | 0.7− |
| 2004 08 19 | E12 | 0.6− | 0.1+ | 2008 10 24 | 703 | 0.0 | 0.3+ | 2008 10 31 | G96 | 1.2+ | 0.0 |

**2008 UX$_{81}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 209.44250 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.20289346 | | $\omega$ | 139.44872 | | −0.13687408 | | +0.98956380 | |
| $a$ | 2.8682963 | | $\Omega$ | 122.63894 | | −0.92212006 | | −0.11066970 | |
| $e$ | 0.0210961 | | $i$ | 3.06628 | | −0.36188408 | | −0.09228060 | |
| $P$ | 4.86 | | $H$ | 16.9 | $G$ | 0.15 | $U$ | 3 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 02 | 691 | 0.4+ | 0.1+ | 2008 10 08 | 691 | 0.4− | 0.1− | 2008 10 23 | G96 | 0.1− | 0.0 |
| 2003 10 02 | 691 | 0.1+ | 0.0 | 2008 10 08 | 691 | 0.0 | 0.2+ | 2008 10 23 | G96 | 0.6+ | 0.4+ |
| 2003 10 02 | 691 | 0.1+ | 0.1− | 2008 10 08 | 691 | 0.2+ | 0.0 | 2009 12 18 | 691 | 0.7+ | 0.1− |
| 2003 10 23 | 645 | 0.0 | 0.0 | 2008 10 22 | G96 | 0.4− | 0.5− | 2009 12 18 | 691 | 0.1− | 0.1− |
| 2003 10 23 | 645 | 0.0 | 0.1− | 2008 10 22 | G96 | 0.1+ | 0.3− | 2009 12 18 | 691 | 0.7− | 0.1+ |
| 2008 09 22 | 691 | 0.1− | 0.1+ | 2008 10 22 | G96 | 0.1− | 0.3− | 2009 12 25 | 691 | 0.0 | 0.2− |
| 2008 09 22 | 691 | 0.0 | 0.4+ | 2008 10 23 | G96 | 0.2+ | 0.4+ | 2009 12 25 | 691 | 0.1+ | 0.1+ |
| 2008 09 22 | 691 | 0.3− | 0.1+ | 2008 10 23 | G96 | 0.9+ | 0.1− | 2009 12 25 | 691 | 0.1+ | 0.1+ |

**2008 UU$_{82}$ = 2004 RO$_{241}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 101.13863 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.26544744 | | $\omega$ | 79.68816 | | +0.32944356 | | −0.94410086 | |
| $a$ | 2.3978225 | | $\Omega$ | 351.04984 | | +0.83371261 | | +0.29677016 | |
| $e$ | 0.2267923 | | $i$ | 4.36957 | | +0.44315936 | | +0.14353059 | |
| $P$ | 3.71 | | $H$ | 18.6 | $G$ | 0.15 | $U$ | 2 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 08 01 | 807 | 0.2+ | 0.2− | 2004 09 15 | 691 | 0.3+ | 0.2+ | 2008 11 06 | 691 | 0.2+ | 0.0 |
| 2000 08 01 | 807 | 0.0 | 0.2− | 2004 09 15 | 691 | 0.1+ | 0.1+ | 2008 11 06 | 691 | 0.2− | 0.0 |
| 2004 09 10 | 691 | 0.1− | 0.1+ | 2004 09 15 | 691 | 0.5+ | 0.1+ | 2008 11 06 | 691 | 0.3− | 0.3− |
| 2004 09 10 | 691 | 0.2− | 0.1+ | 2008 10 22 | 691 | 0.3− | 0.1+ | 2008 12 03 | G96 | 0.2+ | 0.1− |
| 2004 09 10 | 691 | 0.1− | 0.1+ | 2008 10 22 | 691 | 0.1− | 0.3− | 2008 12 03 | G96 | 0.1+ | 0.0 |
| 2004 09 12 | 568 | 0.6− | 0.8− | 2008 10 22 | 691 | 0.0 | 0.1+ | 2008 12 03 | G96 | 0.2+ | 0.0 |
| 2004 09 12 | 568 | 0.7− | 0.7− | 2008 10 25 | 691 | 0.3+ | 0.1+ | 2008 12 03 | G96 | 0.2− | 0.0 |
| 2004 09 12 | 568 | 0.5− | 0.7− | 2008 10 25 | 691 | 0.2+ | 0.3+ | | | | |
| 2004 09 14 | 568 | 0.2− | 0.5− | 2008 10 25 | 691 | 0.2+ | 0.0 | | | | |

**2008 UF$_{83}$ = 1997 US$_{23}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 16.53266 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.17777417 | | $\omega$ | 6.61026 | | −0.28201774 | | −0.95291536 | |
| $a$ | 3.1324942 | | $\Omega$ | 99.81388 | | +0.87498117 | | −0.30310380 | |
| $e$ | 0.1196494 | | $i$ | 6.49361 | | +0.39354028 | | −0.00896712 | |
| $P$ | 5.54 | | $H$ | 15.6 | $G$ | 0.15 | $U$ | 1 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 10 28 | 688 | 0.2− | 0.2+ | 2008 09 21 | 691 | 0.2− | 0.2− | 2009 10 24 | G96 | 0.7− | 0.3+ |
| 1997 10 28 | 688 | 0.5− | 0.1− | 2008 10 22 | G96 | 0.8+ | 0.5− | 2009 10 24 | G96 | 1.5+ | 0.2+ |
| 1997 10 29 | 688 | 0.4+ | 0.1− | 2008 10 22 | G96 | 0.5+ | 0.3− | 2009 10 24 | G96 | 0.6− | 0.1+ |
| 1997 10 29 | 688 | 0.3+ | 0.0 | 2008 10 22 | G96 | 0.3+ | 0.1− | 2009 10 24 | G96 | 0.0 | 0.1+ |
| 2004 01 28 | 691 | 0.0 | 0.1− | 2008 10 22 | G96 | 0.7+ | 0.3− | 2009 11 21 | G96 | 0.5− | 0.3+ |
| 2004 01 28 | 691 | 0.0 | 0.0 | 2008 10 25 | G96 | 0.4+ | 0.1− | 2009 11 21 | G96 | 0.3+ | 0.2− |
| 2004 01 28 | 691 | 0.0 | 0.1+ | 2008 10 25 | G96 | 0.6+ | 0.3− | 2009 11 21 | G96 | 0.0 | 0.4− |
| 2008 09 21 | 691 | 0.8− | 0.7+ | 2008 10 25 | G96 | 0.2+ | 0.1− | 2009 11 21 | G96 | 0.2+ | 0.1+ |
| 2008 09 21 | 691 | 0.1− | 0.1+ | 2008 10 25 | G96 | 0.4+ | 0.4− | | | | |

**2008 UL$_{90}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 175.54280 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 1.70155340 | | $\omega$ | 183.58417 | | −0.09670243 | | +0.90839593 | |
| $a$ | 0.6948734 | | $\Omega$ | 81.18170 | | −0.90264062 | | +0.09216767 | |
| $e$ | 0.3801392 | | $i$ | 24.30792 | | −0.41939069 | | −0.40782588 | |
| $P$ | 0.58 | | $H$ | 18.5 | $G$ | 0.15 | $U$ | 3 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 10 26 | G96 | 0.7+ | 0.9− | 2008 10 29 | G96 | 0.0 | 0.2− | 2008 12 02 | 703 | (1.8− | 1.3−) |
| 2008 10 26 | G96 | 0.2− | 0.1+ | 2008 10 29 | G96 | 0.3+ | 0.2− | 2008 12 02 | 703 | 1.3− | 0.9− |
| 2008 10 26 | G96 | 0.1− | 0.0 | 2008 10 29 | G96 | 0.2− | 0.2− | 2008 12 02 | 703 | 0.3− | 0.9+ |
| 2008 10 26 | G96 | 0.1+ | 0.2+ | 2008 10 29 | G96 | 0.0 | 0.1− | 2008 12 07 | J95 | 0.8− | 0.0 |
| 2008 10 26 | G96 | 0.5− | 0.2− | 2008 10 31 | 704 | 0.9+ | 1.0− | 2008 12 07 | J95 | 0.4+ | 0.7− |
| 2008 10 26 | G96 | 0.4− | 0.1+ | 2008 10 31 | 704 | 0.1− | 0.1+ | 2008 12 07 | J95 | 0.4− | 0.7− |
| 2008 10 26 | G96 | 0.1+ | 0.0 | 2008 10 31 | 704 | 0.8+ | 0.7− | 2008 12 17 | J95 | 0.2− | 0.1+ |
| 2008 10 26 | G96 | 0.4− | 0.2− | 2008 10 31 | 704 | 0.3+ | 0.3+ | 2008 12 17 | J95 | 0.2− | 0.4+ |
| 2008 10 27 | H01 | 0.1− | 0.1+ | 2008 11 01 | G96 | 0.3− | 0.2− | 2008 12 17 | J95 | 0.2+ | 0.3+ |
| 2008 10 27 | H01 | 0.2+ | 0.0 | 2008 11 01 | G96 | 0.1+ | 0.2− | 2009 01 03 | J95 | 0.5+ | 0.1+ |
| 2008 10 27 | H01 | 0.5+ | 0.1− | 2008 11 01 | G96 | 0.3− | 0.2− | 2009 01 03 | J95 | 0.3+ | 0.1− |
| 2008 10 28 | J95 | 0.6+ | 0.2− | 2008 11 01 | G96 | 0.0 | 0.1− | 2009 12 14 | D90 | 0.4+ | 0.4− |
| 2008 10 28 | J95 | 0.8− | 0.6− | 2008 11 04 | 448 | 0.4− | 0.7+ | 2009 12 14 | D90 | 1.1+ | 0.8− |
| 2008 10 28 | J95 | 0.5− | 0.7+ | 2008 11 04 | 448 | 0.1+ | 0.4− | 2009 12 14 | D90 | 0.2+ | 0.4+ |
| 2008 10 28 | J95 | 0.1− | 0.2− | 2008 11 04 | 448 | 0.4− | 0.6+ | 2009 12 26 | 448 | 0.5− | 0.6− |
| 2008 10 28 | J95 | 0.4+ | 0.3+ | 2008 11 07 | 448 | 0.9+ | 0.0 | 2009 12 26 | 448 | 0.2− | 0.3− |
| 2008 10 28 | H01 | 0.0 | 0.1+ | 2008 11 07 | 448 | 0.3− | 0.2− | 2009 12 26 | 448 | 0.2+ | 0.0 |
| 2008 10 28 | H01 | 0.0 | 0.2+ | 2008 11 07 | 448 | 0.6− | 0.8+ | 2009 12 26 | 291 | 0.1− | 0.1+ |
| 2008 10 28 | G96 | 0.5− | 0.2− | 2008 11 08 | 448 | (1.3+ | 1.8−) | 2009 12 26 | 291 | 0.4− | 0.4− |
| 2008 10 28 | H01 | 0.2− | 0.2+ | 2008 11 11 | 448 | 0.6− | 0.4+ | 2009 12 26 | 291 | 0.2− | 0.2+ |
| 2008 10 28 | G96 | 0.0 | 0.4− | 2008 11 11 | 448 | 0.8− | 1.0+ | 2009 12 27 | 291 | 0.0 | 0.3+ |
| 2008 10 28 | H01 | 0.1+ | 0.1+ | 2008 11 11 | 448 | (0.8− | 1.7+) | 2009 12 27 | 448 | 0.6+ | 0.0 |
| 2008 10 28 | G96 | 0.5− | 0.4+ | 2008 11 23 | H55 | 0.3+ | 0.1+ | 2009 12 27 | 291 | 0.3− | 0.2− |
| 2008 10 28 | G96 | 0.1+ | 0.1− | 2008 11 23 | H55 | 0.1+ | 0.4− | 2009 12 27 | 448 | 0.2+ | 0.3− |
| 2008 10 28 | 291 | 0.3+ | 0.6+ | 2008 11 23 | H55 | 0.1+ | 0.1− | 2009 12 27 | 448 | 0.9+ | 0.1− |
| 2008 10 28 | 291 | 0.1− | 0.6+ | 2008 11 24 | 448 | (2.3− | 0.1−) | 2009 12 27 | 291 | 0.5− | 0.0 |
| 2008 10 28 | 291 | 0.8− | 0.2+ | 2008 11 24 | 448 | (0.4− | 1.7−) | 2009 12 28 | 932 | 0.4+ | 0.3+ |
| 2008 10 29 | J95 | 0.5+ | 0.2+ | 2008 11 25 | J95 | 0.2− | 0.6+ | 2009 12 28 | 932 | 0.0 | 0.1+ |
| 2008 10 29 | J95 | 0.3+ | 0.5− | 2008 11 25 | J95 | 0.7+ | 0.2− | 2009 12 28 | 932 | 0.4+ | 0.5+ |

**2008 UQ$_{92}$ = 2006 GH$_5$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 79.20850 | | (2000.0) | | | |
| $n$ | 0.22370647 | $\omega$ | 275.82860 | | +0.59879974 | −0.79759503 |
| $a$ | 2.6875116 | $\Omega$ | 137.11000 | | +0.77057196 | +0.54901636 |
| $e$ | 0.0914917 | $i$ | 6.12948 | | +0.21830650 | +0.24984635 |
| $P$ | 4.41 | $H$ | 16.2 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 08 25 | 807 | 0.0 | 0.1− | 2006 04 08 | G96 | 0.8− | 0.4− | 2008 10 22 | G96 | 0.1− | 0.6− |
| 2003 08 25 | 807 | 0.0 | 0.3+ | 2008 09 23 | G96 | 0.1+ | 0.5− | 2008 10 22 | G96 | 0.2+ | 0.6− |
| 2006 04 02 | 691 | 0.5+ | 0.5+ | 2008 09 23 | G96 | 0.1− | 0.5− | 2008 10 24 | 704 | 0.5− | 0.3+ |
| 2006 04 02 | 691 | 0.5+ | 0.1+ | 2008 09 23 | G96 | 0.3+ | 0.5− | 2008 10 24 | 704 | 0.1− | 1.1+ |
| 2006 04 02 | 691 | 0.1+ | 0.1− | 2008 09 23 | G96 | 0.3− | 0.4− | 2008 10 24 | 704 | 0.5− | 0.9+ |
| 2006 04 07 | 691 | 0.0 | 0.0 | 2008 09 29 | 703 | 0.1+ | 0.3− | 2008 10 24 | 704 | 0.1− | 0.5− |
| 2006 04 07 | 691 | 0.1− | 0.3− | 2008 09 29 | 703 | (2.0+ | 0.4+) | 2008 10 29 | 704 | 0.0 | 0.1+ |
| 2006 04 07 | 691 | 0.4− | 0.4− | 2008 09 29 | 703 | 1.1+ | 1.2+ | 2008 10 29 | 704 | 0.2− | 0.8+ |
| 2006 04 08 | G96 | 0.3− | 0.0 | 2008 09 29 | 703 | 0.8+ | 0.5− | 2008 10 29 | 704 | 0.7− | 0.1− |
| 2006 04 08 | G96 | 0.1− | 0.0 | 2008 10 22 | G96 | 0.4+ | 0.5− | 2008 10 29 | 704 | 0.2− | 0.6+ |
| 2006 04 08 | G96 | 0.6− | 0.1+ | 2008 10 22 | G96 | 0.1+ | 0.7− | | | | |

**2008 UG$_{94}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 103.11305 | | (2000.0) | | | |
| $n$ | 0.23304022 | $\omega$ | 221.97138 | | +0.58520221 | −0.80965987 |
| $a$ | 2.6152635 | $\Omega$ | 192.43175 | | +0.78814754 | +0.58086472 |
| $e$ | 0.1994865 | $i$ | 11.95722 | | +0.19068778 | +0.08394687 |
| $P$ | 4.23 | $H$ | 16.4 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 07 07 | 691 | 0.1− | 0.0 | 2008 10 25 | 704 | 0.1+ | 1.1+ | 2008 11 19 | 683 | 0.3+ | 0.8− |
| 2003 07 07 | 691 | 0.1− | 0.1− | 2008 10 25 | 704 | 0.9+ | 0.2− | 2008 11 19 | 703 | 0.4− | 0.4+ |
| 2003 07 07 | 691 | 0.2+ | 0.1+ | 2008 10 29 | 704 | 0.4− | 0.5+ | 2008 11 19 | 683 | 0.6− | 0.2− |
| 2006 04 24 | 691 | 0.1− | 0.3+ | 2008 10 29 | 704 | 0.8− | 0.1+ | 2008 11 19 | 703 | 0.6+ | 0.3+ |
| 2006 04 24 | 691 | 0.1+ | 0.2+ | 2008 10 29 | 704 | 0.3− | 0.0 | 2008 11 19 | 683 | (2.9− | 1.5−) |
| 2006 04 24 | 691 | 0.0 | 0.1+ | 2008 10 29 | 704 | 0.4− | 0.3+ | 2008 11 19 | 703 | 0.2− | 1.3− |
| 2008 09 30 | G96 | 0.2− | 0.0 | 2008 10 29 | 704 | 1.3+ | 0.8− | 2008 11 19 | 703 | 0.3+ | 1.5+ |
| 2008 09 30 | G96 | 0.3− | 0.2+ | 2008 11 03 | 703 | 0.1− | 0.4+ | 2008 12 03 | 703 | 0.3− | 0.9− |
| 2008 09 30 | G96 | 0.0 | 0.1+ | 2008 11 03 | 703 | 0.8− | 0.3+ | 2008 12 03 | 703 | 0.7+ | 0.2− |
| 2008 09 30 | G96 | 0.0 | 0.2+ | 2008 11 03 | 703 | 0.3+ | 0.4+ | 2008 12 03 | 703 | 0.1+ | 0.1+ |
| 2008 10 25 | 704 | 0.1− | 1.2+ | 2008 11 03 | 703 | 0.1+ | 0.3+ | 2008 12 03 | 703 | 0.0 | 0.6− |

**2008 UQ$_{94}$ = 2004 RD$_{221}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 105.45428 | | (2000.0) | | | |
| $n$ | 0.23318105 | $\omega$ | 60.71389 | | +0.95688709 | −0.23551776 |
| $a$ | 2.6142105 | $\Omega$ | 312.33756 | | +0.11295868 | +0.84093061 |
| $e$ | 0.1060199 | $i$ | 13.29563 | | +0.26759565 | +0.48720335 |
| $P$ | 4.23 | $H$ | 15.7 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1993 01 29 | 691 | 0.3− | 0.1− | 2006 01 31 | 703 | 0.9− | 0.2+ | 2008 10 29 | 704 | 0.4− | 0.3+ |
| 1993 01 29 | 691 | 0.5− | 0.3− | 2006 01 31 | 703 | 0.1+ | 1.3− | 2008 10 29 | 704 | 0.6− | 0.1+ |
| 1993 01 29 | 691 | 0.2− | 0.6− | 2006 02 22 | 703 | 0.9− | 0.4− | 2008 10 29 | 704 | 0.0 | 0.3− |
| 1995 07 02 | 691 | 0.5+ | 0.2− | 2006 02 22 | 703 | 1.2+ | 0.1+ | 2008 10 30 | 704 | 0.4− | 0.3+ |
| 1995 07 02 | 691 | 0.2− | 0.2− | 2006 02 22 | 703 | (3.3+ | 0.3+) | 2008 10 30 | 704 | 0.7+ | 0.3− |
| 1995 07 02 | 691 | 0.2+ | 0.1− | 2006 02 22 | 703 | 0.4− | 0.6+ | 2008 10 30 | 704 | 0.4− | 0.2− |
| 2004 09 11 | 704 | 0.3− | 0.4+ | 2008 09 23 | 703 | 0.7+ | 0.2+ | 2008 10 30 | 291 | 0.3− | 0.0 |
| 2004 09 11 | 704 | 0.5− | 0.2+ | 2008 09 23 | 703 | 0.5− | 0.5− | 2008 10 30 | 291 | 0.1− | 0.0 |
| 2004 09 11 | 704 | 1.1− | 0.4− | 2008 09 23 | 703 | 0.2− | 1.7+ | 2008 10 30 | 704 | 0.2− | 0.8− |
| 2004 09 14 | 704 | 0.1+ | 0.2+ | 2008 09 23 | 703 | 0.3− | 1.5+ | 2008 10 30 | 291 | 0.2− | 0.0 |
| 2004 09 14 | 704 | 0.3+ | 0.5− | 2008 09 28 | 703 | 0.3+ | 0.1+ | 2008 10 30 | H36 | 0.6+ | 0.3− |
| 2004 09 14 | 704 | 0.6+ | 0.2+ | 2008 09 28 | 703 | 1.1− | 0.3+ | 2008 10 30 | H36 | 0.4+ | 0.2− |
| 2004 09 14 | 704 | 0.0 | 0.1+ | 2008 09 28 | 703 | 0.4− | 0.2+ | 2008 10 30 | H36 | 0.3+ | 0.5− |
| 2004 09 14 | 704 | 0.1− | 0.5− | 2008 09 28 | 703 | 0.7− | 1.8− | 2008 10 30 | H36 | 0.7+ | 0.6− |
| 2004 11 19 | 699 | 0.1+ | 0.1+ | 2008 10 25 | 703 | 0.2− | 0.1+ | 2008 12 21 | 703 | 0.9+ | 0.2+ |
| 2004 11 19 | 699 | 0.2+ | 0.3+ | 2008 10 25 | 703 | 0.4+ | 0.1+ | 2008 12 21 | 703 | 1.7− | 0.9+ |
| 2004 11 19 | 699 | 0.6+ | 0.7− | 2008 10 25 | 703 | 0.6+ | 0.0 | 2008 12 21 | 703 | 0.3+ | 0.8− |
| 2004 11 19 | 699 | 0.2− | 0.0 | 2008 10 25 | 703 | 0.1+ | 0.0 | 2008 12 21 | 703 | 0.9− | 0.9− |
| 2004 12 01 | 703 | 0.9+ | 0.6− | 2008 10 28 | 704 | 1.1+ | 0.7+ | 2009 11 21 | G96 | 0.1+ | 0.3+ |
| 2004 12 01 | 703 | 1.0+ | 0.5+ | 2008 10 28 | 704 | 0.1+ | 0.1+ | 2009 11 21 | G96 | 0.1− | 0.5+ |
| 2004 12 01 | 703 | 0.0 | 0.6+ | 2008 10 28 | 704 | 0.4+ | 0.3+ | 2009 11 21 | G96 | 0.2− | 0.4+ |
| 2004 12 01 | 703 | 0.1− | 1.0+ | 2008 10 28 | 704 | 0.0 | 0.5+ | 2009 11 21 | G96 | 0.3+ | 0.5+ |
| 2006 01 31 | 703 | 0.5+ | 2.3+ | 2008 10 29 | 704 | 0.1+ | 0.4+ | | | | |
| 2006 01 31 | 703 | 0.2− | 0.3+ | 2008 10 29 | 704 | 0.2+ | 0.5− | | | | |

**2008 UK$_{99}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 315.80582 | | (2000.0) | | | |
| $n$ | 0.17666684 | $\omega$ | 203.00890 | | −0.87671330 | −0.47676862 |
| $a$ | 3.1455700 | $\Omega$ | 308.36063 | | +0.45299956 | −0.77379219 |
| $e$ | 0.0634700 | $i$ | 4.66418 | | +0.16175659 | −0.41705794 |
| $P$ | 5.58 | $H$ | 16.3 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 12 28 | 691 | 0.1− | 0.3− | 2008 09 23 | 691 | 0.2+ | 0.1+ | 2008 10 30 | H01 | 0.3+ | 0.2+ |
| 1998 12 28 | 691 | 0.2− | 0.0 | 2008 10 19 | 291 | 0.7− | 0.1+ | 2008 10 30 | H01 | 0.4+ | 0.1+ |
| 1998 12 28 | 691 | 0.1+ | 0.0 | 2008 10 19 | 291 | 0.1− | 0.2+ | 2008 10 31 | H01 | 0.4+ | 0.1+ |
| 2002 10 05 | 645 | 0.2+ | 0.0 | 2008 10 19 | 291 | 0.5− | 0.5+ | 2008 10 31 | H01 | 0.2+ | 0.2+ |
| 2002 10 05 | 645 | 0.1− | 0.1− | 2008 10 29 | G96 | 0.6+ | 0.3− | 2008 10 31 | H01 | 0.5+ | 0.1+ |
| 2005 03 13 | G96 | 0.1+ | 0.1+ | 2008 10 29 | G96 | 0.2+ | 0.3− | 2008 10 31 | H01 | 0.2+ | 0.2+ |
| 2005 03 13 | G96 | 1.6− | 0.4+ | 2008 10 29 | G96 | 0.7+ | 0.1− | 2008 11 22 | H55 | 0.3− | 0.2− |
| 2005 03 13 | G96 | 1.3+ | 0.2− | 2008 10 29 | G96 | 0.2+ | 0.6− | 2008 11 22 | H55 | 0.3+ | 0.4+ |
| 2005 03 13 | G96 | 0.4+ | 0.2+ | 2008 10 30 | H01 | 0.3+ | 0.2+ | 2008 11 22 | H55 | 0.3+ | 0.2+ |
| 2008 09 23 | 691 | 0.2− | 0.4− | 2008 10 30 | H01 | 0.2+ | 0.1+ | | | | |
| 2008 09 23 | 691 | 0.1− | 0.0 | 2008 10 30 | H01 | 0.3+ | 0.1+ | | | | |

**2008 UN$_{100}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 2.27908 | | (2000.0) | | | |
| $n$ | 0.08100792 | $\omega$ | 23.46062 | | +0.78390356 | −0.61471809 |
| $a$ | 5.2899440 | $\Omega$ | 15.45671 | | +0.50508946 | +0.54962836 |
| $e$ | 0.0618123 | $i$ | 19.11541 | | +0.36108148 | +0.56571223 |
| $P$ | 12.17 | $H$ | 12.8 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 09 15 | 809 | 0.6+ | 0.5− | 2008 10 01 | 703 | 0.8+ | 0.8+ | 2008 11 06 | 850 | 0.5− | 0.3+ |
| 1996 10 08 | 809 | 0.8− | 0.7+ | 2008 10 01 | 703 | 0.2− | 0.3− | 2008 11 06 | 850 | 0.5− | 0.2+ |
| 2008 09 06 | 703 | 0.5+ | 0.0 | 2008 10 30 | 850 | 0.5+ | 0.5− | 2008 11 06 | 850 | 0.6+ | 0.1+ |
| 2008 09 06 | 703 | 0.2+ | 0.8− | 2008 10 30 | 850 | 0.2− | 0.5− | 2008 11 06 | 850 | 0.6+ | 0.4− |
| 2008 09 06 | 703 | 1.6+ | 0.0 | 2008 10 30 | 850 | 0.4+ | 0.3+ | 2008 12 03 | G96 | 0.3+ | 0.6− |
| 2008 09 06 | 703 | 0.3− | 0.2− | 2008 10 31 | 850 | 0.5− | 0.1− | 2008 12 03 | G96 | 0.1− | 0.5− |
| 2008 10 01 | 703 | 1.1− | 1.3+ | 2008 10 31 | 850 | 0.8− | 0.2+ | 2008 12 03 | G96 | 0.5+ | 0.2− |
| 2008 10 01 | 703 | 1.0− | 0.6+ | 2008 10 31 | 850 | 0.6− | 0.3+ | 2008 12 03 | G96 | 0.1+ | 0.5− |

**2008 UP$_{106}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 157.90729 | | (2000.0) | | | |
| $n$ | 0.22481894 | $\omega$ | 266.77616 | | +0.30639285 | +0.94848761 |
| $a$ | 2.6786385 | $\Omega$ | 21.60319 | | −0.76309651 | +0.29534837 |
| $e$ | 0.2707106 | $i$ | 12.64376 | | −0.56904055 | +0.11463246 |
| $P$ | 4.38 | $H$ | 17.1 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 04 23 | G96 | 0.3− | 0.1+ | 2008 09 23 | G96 | 0.1− | 0.2− | 2008 10 21 | 691 | 0.2− | 0.2+ |
| 2007 04 23 | G96 | 0.5+ | 0.4− | 2008 09 23 | G96 | 0.3− | 0.1+ | 2008 10 21 | 691 | 0.2− | 0.1− |
| 2007 04 23 | G96 | 0.5− | 0.3+ | 2008 10 10 | G96 | 0.4+ | 0.1+ | 2008 10 21 | 691 | 0.2+ | 0.0 |
| 2007 04 23 | G96 | 0.2+ | 0.0 | 2008 10 10 | G96 | 0.2+ | 0.3+ | 2008 10 26 | 691 | 0.3− | 0.2− |
| 2008 09 23 | G96 | 0.0 | 0.2− | 2008 10 10 | G96 | 0.5+ | 0.1+ | 2008 10 26 | 691 | 0.1− | 0.0 |
| 2008 09 23 | G96 | 0.0 | 0.1− | 2008 10 10 | G96 | 0.1+ | 0.0 | 2008 10 26 | 691 | 0.4+ | 0.1+ |

**2008 UE$_{107}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 156.58521 | | (2000.0) | | | |
| $n$ | 0.17617929 | $\omega$ | 284.37931 | | +0.66367154 | +0.74014740 |
| $a$ | 3.1513706 | $\Omega$ | 28.14253 | | −0.56683061 | +0.59205990 |
| $e$ | 0.1107010 | $i$ | 13.27017 | | −0.48810158 | +0.31882112 |
| $P$ | 5.59 | $H$ | 15.8 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 05 05 | 645 | 0.0 | 0.0 | 2006 03 26 | 691 | 0.2− | 0.3+ | 2008 10 21 | 691 | 0.2+ | 0.2+ |
| 2000 05 05 | 645 | 0.0 | 0.0 | 2007 08 07 | E12 | 0.2− | 1.1+ | 2008 10 21 | 691 | 0.1+ | 0.3+ |
| 2002 10 30 | 645 | 0.0 | 0.1− | 2007 08 07 | E12 | 1.2− | 0.4+ | 2008 10 21 | 691 | 0.3− | 0.4+ |
| 2002 10 30 | 645 | 0.1+ | 0.1− | 2007 08 07 | E12 | 0.3− | 0.3+ | 2008 10 26 | 691 | 0.3− | 0.2+ |
| 2006 01 31 | 691 | 0.1+ | 0.1− | 2007 08 07 | E12 | 0.1+ | 1.3+ | 2008 10 26 | 691 | 0.1− | 0.1+ |
| 2006 01 31 | 691 | 0.4+ | 0.2+ | 2008 09 28 | G96 | 0.8+ | 1.2+ | 2008 10 26 | 691 | 0.1− | 0.2+ |
| 2006 01 31 | 691 | 0.3+ | 0.1− | 2008 09 28 | G96 | 0.4+ | 0.1− | 2008 11 09 | 691 | 0.1+ | 0.4+ |
| 2006 03 26 | 691 | 0.1+ | 0.3+ | 2008 09 28 | G96 | 0.3+ | 0.1− | 2008 11 09 | 691 | 0.4− | 0.1− |
| 2006 03 26 | 691 | 0.1+ | 0.2+ | 2008 09 28 | G96 | 0.4+ | 0.4− | 2008 11 09 | 691 | 0.6− | 0.0 |

**2008 UO$_{115}$ = 2006 DQ$_{140}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 312.35244 | | (2000.0) | | | |
| $n$ | 0.24368952 | $\omega$ | 187.59783 | | −0.93697583 | +0.34742114 |
| $a$ | 2.5385057 | $\Omega$ | 12.91946 | | −0.31120882 | −0.78162001 |
| $e$ | 0.0342994 | $i$ | 9.54608 | | −0.15882493 | −0.51804316 |
| $P$ | 4.04 | $H$ | 17.2 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 02 08 | 291 | 0.1+ | 0.1+ | 2006 03 04 | 691 | 0.2+ | 0.1+ | 2008 10 26 | 291 | 0.1− | 0.3+ |
| 2006 02 08 | 291 | 0.2+ | 0.1+ | 2008 10 22 | 691 | 0.3+ | 0.3+ | 2008 10 26 | 291 | 1.4− | 0.3+ |
| 2006 02 08 | 291 | 0.3+ | 0.2− | 2008 10 22 | 691 | 0.0 | 0.2+ | 2008 10 27 | 291 | 0.2− | 0.3− |
| 2006 02 25 | 691 | 0.5− | 0.3+ | 2008 10 22 | 691 | 0.2+ | 0.1− | 2008 10 27 | 291 | 1.0+ | 0.0 |
| 2006 02 25 | 691 | 0.2− | 0.0 | 2008 10 26 | 691 | 0.2+ | 0.2− | 2008 10 27 | 291 | 0.1− | 0.0 |
| 2006 02 25 | 691 | 0.1− | 0.4+ | 2008 10 26 | 691 | 0.0 | 0.2− | 2008 11 02 | G96 | 0.6+ | 0.5− |
| 2006 03 04 | 691 | 0.1+ | 0.1− | 2008 10 26 | 291 | 0.1− | 0.2+ | 2008 11 02 | G96 | 0.7+ | 0.1+ |
| 2006 03 04 | 691 | 0.1− | 0.6− | 2008 10 26 | 691 | 0.4− | 0.2− | 2008 11 02 | G96 | 1.0+ | 0.2− |

**2008 UE$_{122}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 207.74988 | | (2000.0) | | | |
| $n$ | 0.17516924 | $\omega$ | 353.97526 | | −0.02344213 | +0.98984164 |
| $a$ | 3.1634731 | $\Omega$ | 274.62185 | | −0.91125627 | −0.07884611 |
| $e$ | 0.1266293 | $i$ | 8.08754 | | −0.41117208 | +0.11830817 |
| $P$ | 5.63 | $H$ | 15.6 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 06 24 | 691 | 0.0 | 0.0 | 2007 09 11 | 703 | 0.0 | 1.0+ | 2009 12 15 | G96 | 0.2+ | 0.2− |
| 2001 06 24 | 691 | 0.4− | 0.0 | 2008 10 22 | 691 | 0.1+ | 0.1− | 2009 12 15 | G96 | 0.7+ | 0.5− |
| 2001 06 24 | 691 | 0.1− | 0.0 | 2008 10 22 | 691 | 0.6+ | 0.1+ | 2009 12 15 | G96 | 0.0 | 0.1+ |
| 2001 07 17 | 608 | 1.4+ | 0.5− | 2008 10 22 | 691 | 0.2− | 0.2− | 2009 12 15 | G96 | 0.0 | 0.3+ |
| 2001 07 17 | 608 | 0.6+ | 0.2− | 2008 10 26 | 691 | 0.2− | 0.0 | 2009 12 15 | G96 | 0.4+ | 0.3+ |
| 2001 07 17 | 608 | 0.5+ | 0.1+ | 2008 10 26 | 691 | 0.3+ | 0.2+ | 2009 12 18 | 691 | 0.0 | 0.4+ |
| 2006 05 29 | E12 | 0.4− | 0.6+ | 2008 10 26 | 691 | 0.0 | 0.0 | 2009 12 18 | 691 | 0.4+ | 0.6+ |
| 2006 05 29 | E12 | 0.1+ | 1.1+ | 2008 10 30 | 691 | 0.1− | 0.1− | 2009 12 18 | G96 | 0.4+ | 0.8− |
| 2006 05 29 | E12 | 0.2+ | 1.2+ | 2008 10 30 | 691 | 0.2− | 0.0 | 2009 12 18 | G96 | 0.2+ | 0.6− |
| 2006 05 29 | E12 | 0.3− | 0.6+ | 2008 10 30 | 691 | 0.1− | 0.1+ | 2009 12 18 | G96 | 0.1+ | 0.7− |
| 2007 09 11 | 703 | 0.4− | 0.4+ | 2008 11 03 | 691 | 0.1− | 0.0 | 2009 12 18 | 691 | 0.2− | 0.3+ |
| 2007 09 11 | 703 | 0.5− | 1.3+ | 2008 11 03 | 691 | 0.2− | 0.1− | 2009 12 18 | G96 | 0.4+ | 0.1+ |
| 2007 09 11 | 703 | 0.7+ | 1.0+ | 2008 11 03 | 691 | 0.4− | 0.1+ | | | | |

**2008 UU$_{126}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 158.00060 | | (2000.0) | | | |
| $n$ | 0.29786558 | $\omega$ | 153.52147 | | +0.98246562 | −0.17759913 |
| $a$ | 2.2205259 | $\Omega$ | 216.84873 | | +0.14984112 | +0.93323618 |
| $e$ | 0.2184834 | $i$ | 5.42942 | | +0.11094568 | +0.31229597 |
| $P$ | 3.31 | $H$ | 17.4 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 11 19 | 552 | 0.2− | 0.3+ | 2008 09 24 | G96 | 0.3+ | 0.2− | 2008 11 20 | 691 | 0.0 | 0.2+ |
| 1998 11 19 | 552 | 0.5+ | 1.8− | 2008 10 22 | G96 | 0.2+ | 0.1+ | 2008 11 20 | 691 | 0.9− | 0.6+ |
| 2007 04 19 | 691 | 0.1+ | 0.3+ | 2008 10 22 | G96 | 0.1+ | 0.2− | 2008 11 20 | 691 | 0.0 | 0.1+ |
| 2007 04 19 | 691 | 0.2− | 0.4− | 2008 10 22 | G96 | 0.3+ | 0.1+ | 2008 11 24 | 691 | 0.0 | 0.0 |
| 2007 04 19 | 691 | 0.1+ | 0.1+ | 2008 10 22 | G96 | 0.0 | 0.1+ | 2008 11 24 | 691 | 0.0 | 0.0 |
| 2008 09 07 | G96 | 0.3− | 0.4+ | 2008 10 28 | 691 | 0.1− | 0.0 | 2008 11 24 | 691 | 0.0 | 0.0 |
| 2008 09 07 | G96 | 0.3+ | 0.2+ | 2008 10 28 | 691 | 0.5− | 0.0 | 2008 11 30 | 704 | 1.4+ | 0.9− |
| 2008 09 07 | G96 | 0.1− | 0.1+ | 2008 10 28 | 691 | 0.0 | 0.0 | 2008 11 30 | 704 | 0.2+ | 0.8− |
| 2008 09 07 | G96 | 0.1+ | 0.5+ | 2008 11 07 | G96 | 0.5+ | 0.3− | 2008 11 30 | 704 | 0.4+ | 0.1− |
| 2008 09 24 | G96 | 0.3+ | 0.1− | 2008 11 07 | G96 | 0.7+ | 0.4− | 2008 11 30 | 704 | 0.6+ | 0.1− |
| 2008 09 24 | G96 | 0.0 | 0.1− | 2008 11 07 | G96 | 0.8+ | 0.3− | 2008 11 30 | 704 | 0.4+ | 0.7+ |
| 2008 09 24 | G96 | 0.0 | 0.1− | 2008 11 07 | G96 | 0.3+ | 0.2− | | | | |

**2008 UZ$_{126}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 122.86696 | | (2000.0) | | | |
| $n$ | 0.18841506 | $\omega$ | 303.11937 | | +0.99923834 | −0.02547394 |
| $a$ | 3.0134152 | $\Omega$ | 58.35642 | | +0.03544033 | +0.90947249 |
| $e$ | 0.1844016 | $i$ | 1.98987 | | −0.01633191 | +0.41498298 |
| $P$ | 5.23 | $H$ | 16.8 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 04 10 | 695 | 0.0 | 0.0 | 2008 10 22 | 691 | 0.3− | 0.4+ | 2008 10 30 | 691 | 0.3+ | 0.0 |
| 2000 04 10 | 695 | 0.0 | 0.1+ | 2008 10 22 | 691 | 0.5− | 0.1− | 2008 11 17 | 691 | 0.2− | 0.6+ |
| 2006 04 26 | 807 | 0.1+ | 0.0 | 2008 10 22 | 691 | 0.1− | 0.1+ | 2008 11 17 | 691 | 0.1− | 0.0 |
| 2006 04 26 | 807 | 0.1− | 0.0 | 2008 10 26 | 691 | 0.0 | 0.1+ | 2008 11 17 | 691 | 0.0 | 0.3− |
| 2008 09 24 | G96 | 0.4+ | 0.0 | 2008 10 26 | 691 | 0.1+ | 0.1+ | 2008 11 30 | 691 | 0.0 | 0.2− |
| 2008 09 24 | G96 | 0.6+ | 0.0 | 2008 10 26 | 691 | 0.2+ | 0.2− | 2008 11 30 | 691 | 0.0 | 0.2− |
| 2008 09 24 | G96 | 1.1− | 0.2− | 2008 10 30 | 691 | 0.1+ | 0.1+ | 2008 11 30 | 691 | 0.2+ | 0.0 |
| 2008 09 24 | G96 | 0.3+ | 0.2− | 2008 10 30 | 691 | 0.2+ | 0.3− | | | | |

**2008 UR$_{128}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 103.55716 | | (2000.0) | | | |
| $n$ | 0.22479387 | $\omega$ | 331.56086 | | +0.97895769 | −0.18910368 |
| $a$ | 2.6788377 | $\Omega$ | 39.57741 | | +0.20248777 | +0.85357551 |
| $e$ | 0.0423277 | $i$ | 6.91361 | | +0.02530898 | +0.48543656 |
| $P$ | 4.38 | $H$ | 16.9 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 11 20 | 691 | 0.1+ | 0.2+ | 2008 10 09 | G96 | 0.5+ | 0.4− | 2008 10 27 | 691 | 0.3− | 0.3+ |
| 1995 11 20 | 691 | 0.0 | 0.1+ | 2008 10 09 | G96 | 0.3+ | 0.5− | 2008 10 27 | 691 | 0.5− | 0.2+ |
| 1995 11 20 | 691 | 0.1− | 0.3− | 2008 10 17 | 691 | 0.0 | 0.3+ | 2008 10 27 | 691 | 0.1− | 0.1+ |
| 2002 04 19 | 691 | 0.2+ | 0.7+ | 2008 10 17 | 691 | 0.1+ | 0.2+ | 2008 11 02 | 691 | 0.8− | 0.3+ |
| 2002 04 19 | 691 | 0.8+ | 0.6+ | 2008 10 17 | 691 | 0.5+ | 0.0 | 2008 11 02 | 691 | 0.2− | 0.2+ |
| 2002 04 19 | 691 | 0.3+ | 0.9+ | 2008 10 23 | 691 | 0.3− | 0.2+ | 2008 11 02 | 691 | 0.1− | 0.2+ |
| 2008 09 28 | G96 | 0.4+ | 0.3− | 2008 10 23 | 691 | 0.3− | 0.2+ | 2008 12 04 | G96 | 0.6+ | 0.4+ |
| 2008 09 28 | G96 | 0.2+ | 0.4− | 2008 10 23 | 691 | 0.3− | 0.9+ | 2008 12 04 | G96 | 0.0 | 0.0 |
| 2008 09 28 | G96 | 0.5+ | 0.2− | 2008 10 25 | G96 | 0.9+ | 0.2+ | 2008 12 04 | G96 | 0.0 | 0.2+ |
| 2008 09 28 | G96 | 0.2+ | 0.2− | 2008 10 25 | G96 | 0.6+ | 0.1− | 2008 12 04 | G96 | 0.3+ | 0.1+ |
| 2008 10 09 | G96 | 0.4+ | 0.5− | 2008 10 25 | G96 | 0.3+ | 0.4− | | | | |
| 2008 10 09 | G96 | 0.2+ | 0.4− | 2008 10 25 | G96 | 0.3− | 0.2− | | | | |

**2008 UN$_{144}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 122.71144 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19020044 | $\omega$ | 137.77889 | | +0.99503896 | +0.07435684 | |
| $a$ | 2.9945279 | $\Omega$ | 218.10785 | | −0.09164682 | +0.94359250 | |
| $e$ | 0.1341830 | $i$ | 6.14806 | | +0.03870828 | +0.32265192 | |
| $P$ | 5.18 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 11 | 644 | 0.2− | 0.1− | 2008 10 01 | 291 | 0.3− | 0.2− | 2008 11 09 | 691 | 0.1+ | 0.0 |
| 2002 08 11 | 644 | 0.1− | 0.0 | 2008 10 01 | 291 | 0.2− | 0.2− | 2008 11 09 | 691 | 0.3− | 0.1+ |
| 2002 08 11 | 644 | 0.3+ | 0.1+ | 2008 10 23 | 691 | 0.0 | 0.4+ | 2008 11 09 | 691 | 0.6− | 0.1+ |
| 2003 12 17 | 691 | 0.1+ | 0.1− | 2008 10 23 | 691 | 0.9+ | 0.6+ | 2008 11 21 | G96 | 0.1+ | 0.2− |
| 2003 12 17 | 691 | 0.9− | 0.0 | 2008 10 23 | 691 | 0.0 | 0.1− | 2008 11 21 | G96 | 0.3+ | 0.0 |
| 2003 12 17 | 691 | 0.8+ | 0.0 | 2008 10 27 | 691 | 0.6− | 0.1− | 2008 11 21 | G96 | 0.8+ | 0.1− |
| 2008 09 22 | G96 | 0.2+ | 0.2− | 2008 10 27 | 691 | 0.1+ | 0.5− | 2008 11 21 | G96 | 0.6+ | 0.1+ |
| 2008 09 22 | G96 | 0.5+ | 0.1− | 2008 10 27 | 691 | 0.6− | 0.5+ | 2008 11 30 | G96 | 0.4+ | 0.2− |
| 2008 09 22 | G96 | 0.1+ | 0.1− | 2008 10 31 | 691 | 0.8+ | 0.2− | 2008 11 30 | G96 | 0.2+ | 0.4− |
| 2008 09 22 | G96 | 0.6+ | 0.8− | 2008 10 31 | 691 | 0.2+ | 0.2− | 2008 11 30 | G96 | 0.3+ | 0.2+ |
| 2008 10 01 | 291 | 0.0 | 0.0 | 2008 10 31 | 691 | 0.5− | 0.2+ | 2008 11 30 | G96 | 0.0 | 0.1− |

**2008 UB$_{149}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 92.73195 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24108078 | $\omega$ | 53.23013 | | +0.38501470 | −0.92289062 | |
| $a$ | 2.5567856 | $\Omega$ | 14.12895 | | +0.83866213 | +0.34712513 | |
| $e$ | 0.1221403 | $i$ | 1.41992 | | +0.38523955 | +0.16666449 | |
| $P$ | 4.09 | $H$ | 17.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 12 31 | 691 | 0.0 | 0.2− | 2008 09 24 | G96 | 0.0 | 0.1− | 2008 11 18 | 691 | 0.1− | 0.2+ |
| 2000 12 31 | 691 | 0.0 | 0.0 | 2008 10 23 | 691 | 0.1+ | 0.3+ | 2008 11 18 | 691 | 0.0 | 0.5+ |
| 2000 12 31 | 691 | 0.0 | 0.1+ | 2008 10 23 | 691 | 0.1− | 0.1+ | 2008 11 18 | 691 | 2.0+ | 1.2− |
| 2006 03 25 | G96 | 0.0 | 0.3+ | 2008 10 23 | 691 | 0.0 | 0.0 | 2008 11 20 | G96 | 0.6+ | 0.1− |
| 2006 03 25 | G96 | 1.2+ | 0.7+ | 2008 10 27 | 691 | 0.0 | 0.0 | 2008 11 20 | G96 | 0.1+ | 0.2+ |
| 2006 03 25 | G96 | 0.4− | 0.2+ | 2008 10 27 | 691 | 0.1− | 0.7+ | 2008 11 20 | G96 | 0.4+ | 0.0 |
| 2006 03 25 | G96 | 0.3− | 0.1+ | 2008 10 27 | 691 | 0.2− | 0.1− | 2008 11 20 | G96 | 0.5+ | 0.2+ |
| 2008 09 24 | G96 | 0.1+ | 0.0 | 2008 10 31 | 691 | 0.4− | 0.0 | 2008 12 04 | 691 | 0.0 | 0.7− |
| 2008 09 24 | G96 | 0.2+ | 0.1+ | 2008 10 31 | 691 | 0.5− | 0.0 | 2008 12 04 | 691 | 0.5− | 0.4+ |
| 2008 09 24 | G96 | 0.1− | 0.1+ | 2008 10 31 | 691 | 0.2− | 0.2+ | 2008 12 04 | 691 | 0.5− | 0.1− |

**2008 UP$_{150}$ = 2004 TM$_{88}$ = 2005 YR$_{112}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 244.00018 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.25936689 | $\omega$ | 128.48035 | | −0.32211216 | +0.94621955 | |
| $a$ | 2.4351536 | $\Omega$ | 122.70324 | | −0.87937612 | −0.28723593 | |
| $e$ | 0.1578930 | $i$ | 2.05705 | | −0.35063000 | −0.14887606 | |
| $P$ | 3.80 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 05 | 691 | 0.0 | 0.5− | 2005 12 25 | G96 | 0.1− | 0.1+ | 2008 10 10 | 691 | 0.0 | 0.4+ |
| 2004 10 05 | 691 | 0.4− | 0.4− | 2005 12 29 | 691 | 0.1+ | 0.2+ | 2008 10 23 | G96 | 0.0 | 0.0 |
| 2004 10 05 | 691 | 0.1+ | 0.2− | 2005 12 29 | 691 | 0.1− | 0.2− | 2008 10 23 | G96 | 0.5+ | 0.0 |
| 2004 10 09 | 691 | 0.1+ | 0.1+ | 2005 12 29 | 691 | 0.1+ | 0.3− | 2008 10 23 | G96 | 0.6+ | 0.0 |
| 2004 10 09 | 691 | 0.4+ | 0.1− | 2008 09 23 | 691 | 0.0 | 0.1− | 2008 10 23 | G96 | 0.1− | 0.2− |
| 2004 10 09 | 691 | 0.1+ | 0.2+ | 2008 09 23 | 691 | 0.0 | 0.5− | 2008 10 27 | 691 | 0.3− | 0.2+ |
| 2005 12 25 | G96 | 0.4− | 0.0 | 2008 09 23 | 691 | 0.1− | 0.4+ | 2008 10 27 | 691 | 0.4− | 0.2+ |
| 2005 12 25 | G96 | 0.3− | 0.0 | 2008 10 10 | 691 | 0.0 | 0.1− | 2008 10 27 | 691 | 0.5+ | 0.1+ |
| 2005 12 25 | G96 | 0.4+ | 0.2− | 2008 10 10 | 691 | 0.4− | 0.4+ | | | | |

**2008 UR$_{161}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 75.02589 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19342228 | $\omega$ | 27.58099 | | +0.85005598 | −0.52654231 | |
| $a$ | 2.9611816 | $\Omega$ | 4.25523 | | +0.44663896 | +0.70799881 | |
| $e$ | 0.0896916 | $i$ | 9.75413 | | +0.27913880 | +0.47062818 | |
| $P$ | 5.10 | $H$ | 17.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 17 | 691 | 0.0 | 0.0 | 2008 09 23 | 691 | 0.0 | 0.6+ | 2008 10 26 | 691 | 0.1− | 0.1+ |
| 2003 10 17 | 691 | 0.1+ | 0.0 | 2008 09 23 | 691 | 0.2+ | 0.4− | 2008 10 26 | 691 | 0.0 | 0.4+ |
| 2003 10 17 | 691 | 0.1− | 0.1+ | 2008 09 23 | 691 | 0.3− | 0.3− | 2008 10 26 | 691 | 0.2+ | 0.2− |
| 2003 11 02 | 691 | 0.1+ | 0.2+ | 2008 10 24 | 691 | 0.0 | 0.0 | 2008 10 28 | 691 | 0.1+ | 0.2− |
| 2003 11 02 | 691 | 0.0 | 0.3− | 2008 10 24 | 691 | 0.0 | 0.1− | 2008 10 28 | 691 | 0.4− | 0.4+ |
| 2003 11 02 | 691 | 0.2− | 0.0 | 2008 10 24 | 691 | 0.1+ | 0.1+ | 2008 10 28 | 691 | 0.2+ | 0.5− |

**2008 UA$_{163}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 234.90604 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28723452 | $\omega$ | 302.28838 | | +0.11853358 | +0.99271903 | |
| $a$ | 2.2749837 | $\Omega$ | 334.49310 | | −0.89347162 | +0.09722318 | |
| $e$ | 0.0927966 | $i$ | 2.85091 | | −0.43319541 | +0.07110970 | |
| $P$ | 3.43 | $H$ | 17.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 10 09 | 691 | 0.3− | 0.1+ | 2005 12 29 | 691 | 1.0+ | 0.9− | 2008 10 10 | G96 | 0.0 | 0.0 |
| 1994 10 09 | 691 | 0.0 | 0.6+ | 2006 01 31 | G96 | 0.1− | 0.4− | 2008 10 24 | 691 | 0.1− | 0.3+ |
| 1994 10 09 | 691 | 0.2+ | 0.3− | 2006 01 31 | G96 | 0.1− | 0.4− | 2008 10 24 | 691 | 0.0 | 0.1+ |
| 2003 01 28 | 291 | 0.1− | 0.5+ | 2006 01 31 | G96 | 0.1− | 0.3− | 2008 10 24 | 691 | 0.1− | 0.1+ |
| 2003 01 28 | 291 | 0.9+ | 0.4+ | 2006 01 31 | G96 | 0.1− | 0.2− | 2008 10 26 | 691 | 0.1+ | 0.2+ |
| 2003 01 28 | 291 | 0.2− | 0.7+ | 2008 10 10 | G96 | 0.3− | 0.1− | 2008 10 26 | 691 | 0.1− | 0.0 |
| 2005 12 29 | 691 | 0.6− | 0.5− | 2008 10 10 | G96 | 0.9− | 0.9+ | 2008 10 26 | 691 | 0.2+ | 0.1+ |
| 2005 12 29 | 691 | 0.3− | 0.1− | 2008 10 10 | G96 | 0.1+ | 0.0 | | | | |

**2008 UN$_{176}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 149.31560 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24573892 | $\omega$ | 299.18134 | | +0.84164883 | +0.52737105 | |
| $a$ | 2.5243724 | $\Omega$ | 29.44770 | | −0.37575033 | +0.72647021 | |
| $e$ | 0.2579317 | $i$ | 13.67400 | | −0.38786459 | +0.44059142 | |
| $P$ | 4.01 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 04 01 | 695 | 0.7− | 0.2− | 2007 04 18 | G96 | 1.0− | 0.1− | 2008 11 01 | 704 | 0.8+ | 0.1− |
| 2003 04 01 | 695 | 0.1− | 0.2− | 2008 09 25 | 691 | 0.4− | 0.2− | 2008 11 01 | 704 | 0.2− | 0.3+ |
| 2003 04 25 | 691 | 0.3+ | 0.3+ | 2008 09 25 | 691 | 0.2− | 0.1− | 2008 11 01 | 704 | 0.2+ | 0.2+ |
| 2003 04 25 | 691 | 0.5+ | 0.2+ | 2008 09 25 | 691 | 0.4− | 0.2+ | 2008 11 01 | 704 | 0.5+ | 0.6− |
| 2003 04 25 | 691 | 0.3+ | 0.2+ | 2008 10 24 | G96 | 0.6− | 0.0 | 2008 11 01 | 704 | 0.6− | 0.4+ |
| 2004 11 04 | 703 | 0.4− | 0.8+ | 2008 10 24 | G96 | 0.3− | 0.1+ | 2008 11 01 | 704 | 1.2+ | 0.2+ |
| 2004 11 04 | 703 | 1.2− | 1.2+ | 2008 10 24 | G96 | 0.6− | 0.0 | 2008 11 01 | 704 | 0.1− | 0.5− |
| 2004 11 04 | 703 | 0.3+ | 0.1+ | 2008 10 24 | G96 | 0.3− | 0.2+ | 2008 11 02 | 704 | 0.5+ | 0.5− |
| 2004 11 04 | 703 | 0.6− | 0.9− | 2008 10 26 | 691 | 0.3− | 0.0 | 2008 11 02 | 704 | 0.1+ | 0.1− |
| 2007 04 18 | G96 | 0.2− | 0.1+ | 2008 10 26 | 691 | 0.3− | 0.1+ | 2008 11 02 | 704 | 0.3+ | 0.5− |
| 2007 04 18 | G96 | 0.5− | 0.2+ | 2008 10 26 | 691 | 1.0+ | 0.5+ | 2008 11 02 | 704 | 1.0+ | 0.2− |
| 2007 04 18 | G96 | 0.1− | 0.2+ | 2008 11 01 | 704 | 0.4+ | 0.4+ | | | | |

**2008 UZ$_{179}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 34.73977 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17403234 | $\omega$ | 70.34833 | | −0.37467995 | −0.90681087 | |
| $a$ | 3.1772356 | $\Omega$ | 43.28201 | | +0.70953097 | −0.41454581 | |
| $e$ | 0.2231579 | $i$ | 16.36384 | | +0.59680879 | −0.07645793 | |
| $P$ | 5.66 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 01 31 | 645 | 0.0 | 0.1+ | 2008 10 20 | 691 | 0.1+ | 0.6− | 2008 10 28 | 691 | 0.0 | 0.1− |
| 2004 01 31 | 645 | 0.1− | 0.1+ | 2008 10 20 | 691 | 0.3− | 0.3+ | 2008 11 09 | 691 | 0.1− | 0.1+ |
| 2004 02 17 | 645 | 0.1+ | 0.1− | 2008 10 20 | 691 | 0.0 | 0.2− | 2008 11 09 | 691 | 0.1+ | 0.2− |
| 2004 02 17 | 645 | 0.0 | 0.1− | 2008 10 24 | 691 | 0.5− | 0.5− | 2008 11 09 | 691 | 0.0 | 0.4+ |
| 2008 09 07 | G96 | 0.1+ | 0.0 | 2008 10 24 | 691 | 0.2− | 0.1− | 2008 12 03 | G96 | 0.1+ | 0.3− |
| 2008 09 07 | G96 | 0.0 | 0.1− | 2008 10 24 | 691 | 0.0 | 0.0 | 2008 12 03 | G96 | 0.2+ | 0.1− |
| 2008 09 07 | G96 | 0.4+ | 0.1− | 2008 10 28 | 691 | 0.6+ | 0.9+ | 2008 12 03 | G96 | 0.2+ | 0.3− |
| 2008 09 07 | G96 | 0.3+ | 0.1− | 2008 10 28 | 691 | 0.1+ | 0.2+ | | | | |

**2008 UK$_{181}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 12.80453 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18136162 | $\omega$ | 268.90190 | | −0.45813931 | | −0.88413219 |
| $a$ | 3.0910484 | $\Omega$ | 208.93254 | | +0.87218677 | | −0.42722267 |
| $e$ | 0.1300160 | $i$ | 10.93289 | | +0.17146025 | | −0.18918527 |
| $P$ | 5.43 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 09 28 | 691 | 0.3+ | 0.5− | 2008 09 25 | 691 | (1.0− | 2.3+) | 2008 11 09 | G96 | 0.3+ | 0.1− |
| 1997 09 28 | 691 | 0.0 | 0.6− | 2008 09 29 | 691 | 0.1+ | 0.0 | 2008 11 09 | G96 | 0.2+ | 0.3+ |
| 1997 09 28 | 691 | 0.0 | 0.7− | 2008 09 29 | 691 | 0.2+ | 0.3− | 2008 11 09 | G96 | 0.8+ | 0.1+ |
| 2002 09 13 | 644 | 0.4− | 0.0 | 2008 09 29 | 691 | 0.1+ | 0.2− | 2008 11 09 | G96 | 0.8+ | 0.1+ |
| 2002 09 13 | 644 | 0.1− | 0.9+ | 2008 10 24 | G96 | 0.6+ | 0.2− | 2008 11 17 | 691 | 0.1+ | 0.0 |
| 2002 09 13 | 644 | 0.0 | 0.8+ | 2008 10 24 | G96 | 0.6− | 0.9+ | 2008 11 17 | 691 | 0.2+ | 0.0 |
| 2008 09 21 | 691 | 0.3− | 0.7+ | 2008 10 24 | G96 | 0.2+ | 0.2− | 2008 11 17 | 691 | 0.3+ | 0.1+ |
| 2008 09 21 | 691 | 0.1+ | 0.2+ | 2008 10 24 | G96 | 0.6+ | 0.1− | 2008 11 20 | 691 | 0.1+ | 0.0 |
| 2008 09 21 | 691 | 0.1− | 0.0 | 2008 10 27 | 691 | 0.2+ | 0.1+ | 2008 11 20 | 691 | 0.0 | 0.2+ |
| 2008 09 25 | 691 | 0.0 | 0.4+ | 2008 10 27 | 691 | 0.1+ | 0.2− | 2008 11 20 | 691 | 1.7− | 0.2− |
| 2008 09 25 | 691 | 0.3− | 0.2+ | 2008 10 27 | 691 | 0.0 | 0.1+ | | | | |

**2008 UZ$_{187}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 97.68797 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22433141 | $\omega$ | 217.26347 | | +0.54600730 | | −0.83722573 |
| $a$ | 2.6825181 | $\Omega$ | 199.70016 | | +0.78878338 | | +0.52599411 |
| $e$ | 0.1654059 | $i$ | 5.18791 | | +0.28230624 | | +0.14961039 |
| $P$ | 4.39 | $H$ | 17.6 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 10 14 | 645 | 0.0 | 0.1− | 2008 10 24 | 691 | 0.1− | 0.0 | 2008 11 07 | G96 | 0.6+ | 0.3− |
| 1999 10 14 | 645 | 0.0 | 0.1− | 2008 10 24 | 691 | 0.2− | 0.2+ | 2008 11 07 | G96 | 0.6+ | 0.1− |
| 2003 09 19 | 691 | 0.3− | 0.1+ | 2008 10 28 | 691 | 0.3− | 0.0 | 2008 11 20 | 691 | 0.1+ | 0.0 |
| 2003 09 19 | 691 | 0.0 | 0.3+ | 2008 10 28 | 691 | 0.0 | 0.7+ | 2008 11 20 | 691 | 0.2+ | 0.1− |
| 2003 09 19 | 691 | 0.1+ | 0.2+ | 2008 10 28 | 691 | 0.1+ | 0.0 | 2008 11 20 | 691 | 0.1− | 0.0 |
| 2008 09 29 | G96 | 0.2− | 0.3+ | 2008 11 01 | 691 | 0.2− | 0.1+ | 2008 12 03 | 691 | 0.0 | 0.1+ |
| 2008 09 29 | G96 | 0.3+ | 0.0 | 2008 11 01 | 691 | 0.0 | 0.0 | 2008 12 03 | 691 | 0.1− | 0.2− |
| 2008 09 29 | G96 | 0.7+ | 0.2+ | 2008 11 01 | 691 | 0.2− | 0.1+ | 2008 12 03 | 691 | 0.1+ | 0.2+ |
| 2008 09 29 | G96 | 0.3− | 0.3− | 2008 11 07 | G96 | 0.7+ | 0.2+ | | | | |
| 2008 10 24 | 691 | 0.2− | 0.2− | 2008 11 07 | G96 | 0.5+ | 0.0 | | | | |

**2008 UF$_{189}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 289.87506 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.08471443 | $\omega$ | 106.72347 | | −0.49786116 | | −0.86676913 |
| $a$ | 5.1344954 | $\Omega$ | 13.25235 | | +0.73952522 | | −0.44181097 |
| $e$ | 0.0265771 | $i$ | 7.28738 | | +0.45303058 | | −0.23133168 |
| $P$ | 11.63 | $H$ | 13.7 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 09 07 | G96 | 0.1+ | 0.7− | 2008 10 01 | G96 | 0.3+ | 0.5− | 2008 10 26 | G96 | 0.5+ | 0.7− |
| 2008 09 07 | G96 | 1.7+ | 0.3− | 2008 10 17 | 691 | 0.2− | 0.6+ | 2008 10 26 | G96 | 0.1+ | 0.5− |
| 2008 09 07 | G96 | 0.0 | 0.2− | 2008 10 17 | 691 | 0.2− | 0.0 | 2009 10 25 | 691 | 0.3+ | 0.1− |
| 2008 09 07 | G96 | 0.5+ | 0.4− | 2008 10 17 | 691 | 0.2+ | 0.0 | 2009 10 25 | 691 | 0.6− | 0.2+ |
| 2008 09 10 | 691 | 0.7− | 0.1+ | 2008 10 25 | G96 | 0.1− | 0.4− | 2009 10 25 | 691 | 0.0 | 0.1− |
| 2008 09 10 | 691 | 0.7− | 0.3+ | 2008 10 25 | G96 | 0.1− | 0.5− | 2009 11 19 | G96 | 0.1+ | 0.2+ |
| 2008 09 10 | 691 | 0.8+ | 0.7+ | 2008 10 25 | G96 | 0.1− | 0.6− | 2009 11 19 | G96 | 0.4+ | 0.1+ |
| 2008 10 01 | G96 | 0.4− | 0.8+ | 2008 10 25 | G96 | 0.5+ | 1.0− | 2009 11 19 | G96 | 0.3+ | 0.0 |
| 2008 10 01 | G96 | 0.1+ | 0.4− | 2008 10 26 | G96 | 0.2− | 0.6− | 2009 11 19 | G96 | 0.4+ | 0.2− |
| 2008 10 01 | G96 | 0.0 | 0.4− | 2008 10 26 | G96 | 0.7+ | 0.6− | | | | |

**2008 UO$_{189}$ = 2004 TR$_{284}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 356.53177 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23691013 | $\omega$ | 123.50998 | | −0.76188335 | | −0.64350483 |
| $a$ | 2.5867053 | $\Omega$ | 16.82963 | | +0.47697943 | | −0.63441352 |
| $e$ | 0.1903979 | $i$ | 14.75213 | | +0.43820588 | | −0.42827681 |
| $P$ | 4.16 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 5 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 08 | 691 | 0.1+ | 0.2− | 2008 10 17 | 691 | 0.2− | 0.6− | 2008 10 25 | G96 | 0.3+ | 0.5− |
| 2004 10 08 | 691 | 0.3+ | 0.4− | 2008 10 17 | 691 | 0.1+ | 0.1+ | 2008 10 26 | G96 | 0.0 | 0.2− |
| 2004 10 08 | 691 | 0.1+ | 0.0 | 2008 10 17 | 691 | 0.4− | 0.8+ | 2008 10 26 | G96 | 0.1+ | 0.2+ |
| 2004 10 14 | 691 | 0.2− | 0.1+ | 2008 10 25 | G96 | 0.2+ | 0.2− | 2008 10 26 | G96 | 0.3+ | 0.1− |
| 2004 10 14 | 691 | 0.0 | 0.2+ | 2008 10 25 | G96 | 0.5+ | 0.2− | 2008 10 26 | G96 | 0.4+ | 0.2− |
| 2004 10 14 | 691 | 0.3− | 0.3+ | 2008 10 25 | G96 | 0.6+ | 0.2− | | | | |

**2008 UQ$_{189}$ = 1999 TT$_{256}$ = 2006 ER$_{31}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 67.63737 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21945892 | $\omega$ | 25.69731 | | +0.68605813 | | −0.72640838 |
| $a$ | 2.7220779 | $\Omega$ | 21.06265 | | +0.64646503 | | +0.58299285 |
| $e$ | 0.0676692 | $i$ | 6.49983 | | +0.33377717 | | +0.36393709 |
| $P$ | 4.49 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 10 09 | 704 | 0.3− | 0.6+ | 2006 03 03 | 691 | 0.0 | 0.2+ | 2008 10 25 | G96 | 0.3− | 0.1− |
| 1999 10 09 | 704 | 0.5+ | 0.0 | 2006 03 03 | 691 | 0.1+ | 0.0 | 2008 10 25 | G96 | 0.3− | 0.2− |
| 1999 10 09 | 704 | 0.3− | 0.4+ | 2006 03 03 | 691 | 0.2− | 0.1+ | 2008 10 25 | G96 | 0.3+ | 0.1− |
| 1999 10 09 | 704 | 0.3+ | 0.3+ | 2006 03 04 | G96 | 0.5− | 0.2− | 2008 10 26 | G96 | 0.0 | 0.1− |
| 1999 10 15 | 704 | 0.1+ | 0.9+ | 2006 03 04 | G96 | 0.3− | 0.3− | 2008 10 26 | G96 | 0.4+ | 0.2− |
| 1999 10 15 | 704 | 1.3− | 0.4− | 2006 03 04 | G96 | 0.3− | 0.0 | 2008 10 26 | G96 | 0.0 | 0.1− |
| 1999 10 15 | 704 | 0.4+ | 0.8− | 2006 03 04 | G96 | 0.3− | 0.1+ | 2008 11 07 | G96 | 0.4+ | 0.6+ |
| 1999 10 15 | 704 | 0.5+ | 0.9− | 2008 10 17 | 691 | 0.1− | 0.1+ | 2008 11 07 | G96 | 0.3+ | 0.1+ |
| 2006 03 03 | 691 | 0.2+ | 0.1− | 2008 10 17 | 691 | 0.2− | 0.0 | 2008 11 07 | G96 | 0.6+ | 0.5− |
| 2006 03 03 | 691 | 0.1− | 0.1+ | 2008 10 17 | 691 | 0.2− | 0.2+ | 2008 11 07 | G96 | 0.5+ | 0.0 |
| 2006 03 03 | 691 | 0.3+ | 0.2− | 2008 10 25 | G96 | 0.3+ | 0.2− | | | | |

**2008 UZ$_{190}$ = 2005 YZ$_{40}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 326.01321 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.29440731 | $\omega$ | 63.86664 | | −0.93409852 | | +0.35549341 |
| $a$ | 2.2378810 | $\Omega$ | 136.93560 | | −0.34235988 | | −0.86577911 |
| $e$ | 0.1016001 | $i$ | 2.76425 | | −0.10124065 | | −0.35220870 |
| $P$ | 3.35 | $H$ | 17.8 | $G$ | 0.15 | $U$ | 5 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 21 | 691 | 0.5− | 0.1− | 2005 12 27 | G96 | 0.3+ | 0.0 | 2008 10 25 | G96 | 0.0 | 0.1+ |
| 2005 12 21 | 691 | 0.0 | 0.1− | 2008 10 06 | 691 | 0.1− | 0.0 | 2008 10 25 | G96 | 0.9+ | 0.5− |
| 2005 12 21 | 691 | 0.1+ | 0.1+ | 2008 10 06 | 691 | 0.1− | 0.1− | 2008 10 27 | 691 | 0.2+ | 0.1+ |
| 2005 12 27 | G96 | 0.2+ | 0.3− | 2008 10 06 | 691 | 0.1− | 0.3− | 2008 10 27 | 691 | 0.1− | 0.1+ |
| 2005 12 27 | G96 | 0.4+ | 0.0 | 2008 10 25 | G96 | 0.2+ | 0.0 | 2008 10 27 | 691 | 0.1− | 0.3+ |
| 2005 12 27 | G96 | 0.7+ | 0.2+ | 2008 10 25 | G96 | 0.0 | 0.0 | | | | |

**2008 UG$_{191}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 137.07212 | | (2000.0) | | | |
| $n$ | 0.17434138 | $\omega$ | 239.21845 | | +0.80909126 | +0.58412448 |
| $a$ | 3.1734798 | $\Omega$ | 84.96466 | | −0.51460866 | +0.75726132 |
| $e$ | 0.1010949 | $i$ | 3.71681 | | −0.28381203 | +0.29215387 |
| $P$ | 5.65 | $H$ | 15.9 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 06 27 | 691 | 0.1+ | 0.1+ | 2008 10 25 | G96 | 0.6+ | 0.6− | 2009 12 15 | G96 | 0.5− | 0.5− | |
| 2007 06 27 | 691 | 0.0 | 0.1− | 2008 10 25 | G96 | 0.6+ | 0.4− | 2009 12 15 | G96 | 0.0 | 0.2− | |
| 2007 06 27 | 691 | 0.0 | 0.7− | 2008 10 25 | G96 | 0.1+ | 0.2− | 2009 12 15 | G96 | 0.6+ | 0.4− | |
| 2008 09 23 | 691 | 0.1− | 0.3+ | 2008 10 27 | 691 | 0.1− | 0.3+ | 2009 12 15 | G96 | 0.4− | 0.6− | |
| 2008 09 23 | 691 | 0.1− | 0.3+ | 2008 10 27 | 691 | 0.0 | 0.2+ | 2009 12 18 | G96 | 0.1− | 0.2− | |
| 2008 09 23 | 691 | 0.1+ | 0.2+ | 2008 10 27 | 691 | 0.1− | 0.1− | 2009 12 18 | G96 | 0.1+ | 0.1− | |
| 2008 10 02 | 691 | 0.1− | 0.1− | 2008 11 09 | G96 | 0.0 | 0.5− | 2009 12 18 | G96 | 0.1− | 0.4− | |
| 2008 10 02 | 691 | 0.0 | 0.4− | 2008 11 09 | G96 | 0.0 | 0.0 | 2009 12 18 | G96 | 0.1+ | 0.5− | |
| 2008 10 02 | 691 | 0.2− | 0.1+ | 2008 11 09 | G96 | 0.2+ | 0.2− | | | | | |
| 2008 10 25 | G96 | 0.5+ | 0.6− | 2008 11 09 | G96 | 0.3+ | 0.3− | | | | | |

**2008 UE$_{194}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 60.70104 | | (2000.0) | | | |
| $n$ | 0.17332607 | $\omega$ | 36.37534 | | +0.39254164 | −0.90616285 |
| $a$ | 3.1858607 | $\Omega$ | 31.40836 | | +0.75641703 | +0.22071035 |
| $e$ | 0.2000089 | $i$ | 17.58169 | | +0.52320583 | +0.36077117 |
| $P$ | 5.69 | $H$ | 16.6 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 10 10 | 645 | 0.1− | 0.0 | 2008 09 06 | G96 | 0.7+ | 0.5− | 2008 10 27 | 291 | 0.1− | 0.1+ | |
| 2002 10 10 | 645 | 0.1− | 0.1+ | 2008 09 28 | G96 | 0.2+ | 0.1− | 2008 10 27 | 291 | 0.0 | 0.2+ | |
| 2002 10 30 | 645 | 0.0 | 0.1− | 2008 09 28 | G96 | 0.5+ | 0.2− | 2008 10 30 | 691 | 0.0 | 0.0 | |
| 2002 10 30 | 645 | 0.1+ | 0.1− | 2008 09 28 | G96 | 0.2+ | 0.0 | 2008 10 30 | 691 | 0.9− | 0.2+ | |
| 2002 11 08 | 645 | 0.1+ | 0.0 | 2008 09 28 | G96 | 0.1− | 0.1+ | 2008 10 30 | 691 | 0.0 | 0.3+ | |
| 2002 11 08 | 645 | 0.0 | 0.0 | 2008 10 26 | 691 | 0.0 | 0.1− | 2008 10 30 | G96 | 0.6+ | 0.3− | |
| 2008 09 06 | G96 | 0.3+ | 0.3− | 2008 10 26 | 691 | 0.2+ | 0.1− | 2008 10 30 | G96 | 0.4+ | 0.4− | |
| 2008 09 06 | G96 | 0.1+ | 0.0 | 2008 10 26 | 691 | 0.2+ | 0.0 | 2008 10 30 | G96 | 0.4+ | 0.2− | |
| 2008 09 06 | G96 | 0.1− | 0.5− | 2008 10 27 | 291 | 0.2− | 0.1− | | | | | |

**2008 UZ$_{195}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 80.56910 | | (2000.0) | | | |
| $n$ | 0.18037814 | $\omega$ | 249.55031 | | +0.94801694 | −0.22639998 |
| $a$ | 3.1022737 | $\Omega$ | 122.91231 | | +0.28039863 | +0.92659045 |
| $e$ | 0.3239654 | $i$ | 15.44864 | | −0.15046754 | +0.30028850 |
| $P$ | 5.46 | $H$ | 15.1 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 04 25 | G96 | 0.1+ | 0.3− | 2008 09 08 | E12 | 0.0 | 0.4+ | 2008 11 24 | 703 | 0.3+ | 0.7− | |
| 2007 04 25 | G96 | 0.2− | 0.4− | 2008 09 08 | E12 | 0.3− | 0.5− | 2008 11 24 | 703 | 0.3− | 0.5− | |
| 2007 04 25 | G96 | 0.2+ | 0.2− | 2008 09 08 | E12 | 0.1− | 0.1+ | 2008 11 24 | 703 | 0.1− | 0.2+ | |
| 2007 04 25 | G96 | 0.6+ | 0.1+ | 2008 09 08 | E12 | 0.2+ | 0.1− | 2009 10 23 | G96 | 0.1− | 0.6− | |
| 2007 06 13 | 691 | 0.0 | 0.0 | 2008 10 26 | E12 | 0.6+ | 0.0 | 2009 10 23 | G96 | 0.7+ | 0.2+ | |
| 2007 06 13 | 691 | 0.1+ | 0.6+ | 2008 10 26 | E12 | 0.4− | 1.0+ | 2009 10 23 | G96 | 0.0 | 0.2+ | |
| 2007 06 13 | 691 | 0.1− | 0.2− | 2008 10 26 | E12 | 0.2+ | 0.0 | 2009 10 23 | G96 | 0.3− | 0.0 | |
| 2007 06 21 | 691 | 0.3+ | 0.2− | 2008 10 26 | E12 | 0.2+ | 0.3+ | 2009 11 15 | G96 | 0.6+ | 0.0 | |
| 2007 06 21 | 691 | 0.3+ | 0.2+ | 2008 10 27 | E12 | 0.4+ | 0.1− | 2009 11 15 | G96 | 1.2− | 0.7+ | |
| 2007 06 21 | 691 | 0.7− | 0.3− | 2008 10 27 | E12 | 0.2− | 0.0 | 2009 11 15 | G96 | 0.3+ | 0.2+ | |
| 2008 08 06 | E12 | 0.2− | 0.1− | 2008 10 27 | E12 | 0.1+ | 0.1− | 2009 11 15 | G96 | 0.1+ | 0.1+ | |
| 2008 08 06 | E12 | 0.5− | 0.1− | 2008 10 27 | E12 | 0.0 | 0.3− | | | | | |
| 2008 08 06 | E12 | 0.3+ | 0.8+ | 2008 11 24 | 703 | 0.6− | 0.1− | | | | | |

**2008 UE$_{198}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 82.15650 | | (2000.0) | | | |
| $n$ | 0.22908958 | $\omega$ | 257.71450 | | +0.54544076 | −0.83800748 |
| $a$ | 2.6452445 | $\Omega$ | 159.20832 | | +0.78488647 | +0.50423763 |
| $e$ | 0.1973758 | $i$ | 2.49011 | | +0.29401975 | +0.20853750 |
| $P$ | 4.30 | $H$ | 17.1 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 10 20 | 691 | 0.0 | 0.1+ | 2008 10 01 | 691 | 0.1− | 0.0 | 2008 10 25 | 704 | 0.0 | 0.6+ | |
| 1995 10 20 | 691 | 0.1− | 0.3+ | 2008 10 01 | 691 | 0.6− | 0.3− | 2008 10 25 | 704 | 0.5− | 0.2− | |
| 1995 10 20 | 691 | 0.0 | 0.2− | 2008 10 01 | 691 | 0.1− | 0.2+ | 2008 10 31 | 704 | 0.1+ | 0.7+ | |
| 1999 08 08 | 691 | 0.1− | 0.5− | 2008 10 08 | 691 | 0.2− | 0.0 | 2008 10 31 | 704 | 0.1− | 0.6+ | |
| 1999 08 08 | 691 | 0.0 | 0.1− | 2008 10 08 | 691 | 0.6+ | 0.5− | 2008 10 31 | 704 | 0.5− | 0.4+ | |
| 1999 08 08 | 691 | 0.2+ | 0.2+ | 2008 10 08 | 691 | 0.2− | 0.0 | 2008 10 31 | 704 | 1.2+ | 0.4+ | |
| 2004 12 02 | 691 | 0.3− | 0.2− | 2008 10 20 | G96 | 0.1+ | 0.2− | 2008 10 31 | 704 | 1.5+ | 0.9+ | |
| 2004 12 02 | 691 | 0.0 | 0.1+ | 2008 10 20 | G96 | 0.4+ | 0.2− | 2008 11 19 | 703 | 1.5+ | 0.7+ | |
| 2004 12 02 | 691 | 0.2+ | 0.1− | 2008 10 20 | G96 | 0.1+ | 0.3− | 2008 11 19 | 703 | 0.4+ | 0.8− | |
| 2008 09 20 | 691 | 0.0 | 0.1+ | 2008 10 20 | G96 | 0.2+ | 0.3− | 2008 11 19 | 703 | 0.2+ | 0.2+ | |
| 2008 09 20 | 691 | 0.1− | 0.0 | 2008 10 25 | 704 | 0.8− | 0.5+ | 2008 11 19 | 703 | 0.9− | 1.2− | |
| 2008 09 20 | 691 | 0.0 | 0.0 | 2008 10 25 | 704 | 0.5− | 0.1− | | | | | |

**2008 UY$_{205}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 344.76037 | | (2000.0) | | | |
| $n$ | 0.08458461 | $\omega$ | 201.22114 | | +0.24162016 | −0.96745221 |
| $a$ | 5.1397479 | $\Omega$ | 234.87073 | | +0.90301392 | +0.25254351 |
| $e$ | 0.0840188 | $i$ | 5.27608 | | +0.35522608 | +0.01606203 |
| $P$ | 11.65 | $H$ | 14.1 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 09 04 | 691 | 0.1+ | 0.0 | 2008 10 08 | G96 | 0.3+ | 0.8− | 2009 11 11 | G96 | 0.4− | 0.4+ | |
| 2008 09 04 | 691 | 0.6− | 0.3+ | 2008 10 22 | 691 | 0.3+ | 0.1+ | 2009 11 11 | G96 | 0.2+ | 0.1− | |
| 2008 09 04 | 691 | 0.0 | 0.4+ | 2008 10 22 | 691 | 0.4− | 0.0 | 2009 11 23 | G96 | 0.4+ | 0.3+ | |
| 2008 09 23 | 691 | 0.0 | 0.0 | 2008 10 22 | 691 | 0.2− | 0.1+ | 2009 11 23 | G96 | 0.2+ | 0.3+ | |
| 2008 09 23 | 691 | 0.6+ | 0.6− | 2008 10 29 | 691 | 0.2+ | 0.1+ | 2009 11 23 | G96 | 0.2− | 0.0 | |
| 2008 09 23 | 691 | 0.1− | 0.0 | 2008 10 29 | 691 | 0.2− | 0.2− | 2009 12 11 | G96 | 0.1+ | 0.0 | |
| 2008 10 08 | G96 | 0.3+ | 0.2+ | 2008 10 29 | 691 | 0.1− | 0.0 | 2009 12 11 | G96 | 0.1− | 0.0 | |
| 2008 10 08 | G96 | 0.6+ | 0.6− | 2009 11 11 | G96 | 0.3− | 0.1− | 2009 12 11 | G96 | 0.2− | 0.2− | |
| 2008 10 08 | G96 | 0.4+ | 0.3− | 2009 11 11 | G96 | 0.0 | 0.0 | 2009 12 11 | G96 | 0.2+ | 0.5− | |

**2008 UJ$_{209}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 44.51447 | | (2000.0) | | | |
| $n$ | 0.08536678 | $\omega$ | 98.21863 | | +0.87167361 | −0.48965057 |
| $a$ | 5.1083047 | $\Omega$ | 291.10114 | | +0.44047106 | +0.80122463 |
| $e$ | 0.1042389 | $i$ | 1.26980 | | +0.21487289 | +0.34392065 |
| $P$ | 11.55 | $H$ | 14.3 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 09 22 | 691 | 0.4− | 0.1− | 2008 10 23 | 691 | 0.1+ | 0.1− | 2009 11 25 | 691 | 0.1− | 0.1− | |
| 2008 09 22 | 691 | 0.0 | 0.1+ | 2008 10 23 | 691 | 0.1+ | 0.2+ | 2009 11 25 | 691 | 0.0 | 0.0 | |
| 2008 09 22 | 691 | 0.2+ | 0.1+ | 2008 10 23 | 691 | 0.2− | 0.3+ | 2009 11 25 | 691 | 0.2− | 0.8+ | |
| 2008 10 01 | 691 | 0.3+ | 0.5− | 2008 10 29 | 691 | 0.4+ | 0.1− | 2009 12 10 | G96 | 0.6+ | 0.4− | |
| 2008 10 01 | 691 | 0.5− | 0.3− | 2008 10 29 | 691 | 0.1+ | 0.1+ | 2009 12 10 | G96 | 0.1− | 0.8− | |
| 2008 10 01 | 691 | 0.1− | 0.2− | 2008 10 29 | 691 | 0.0 | 0.0 | 2009 12 10 | G96 | 0.1− | 0.1− | |
| 2008 10 01 | 691 | 0.1− | 0.2− | 2008 11 07 | 691 | 0.0 | 0.1+ | 2009 12 10 | G96 | 0.3+ | 0.5− | |
| 2008 10 01 | 691 | 0.6+ | 0.2+ | 2008 11 07 | 691 | 0.3− | 0.4+ | 2009 12 19 | G96 | 0.6+ | 0.5− | |
| 2008 10 01 | 691 | 0.3− | 0.2+ | 2008 11 07 | 691 | 0.0 | 0.1+ | 2009 12 19 | G96 | 0.1− | 0.5− | |
| 2008 10 09 | 691 | 0.2− | 0.2− | 2008 11 20 | 691 | 0.1− | 0.1− | 2009 12 19 | G96 | 0.2− | 0.3− | |
| 2008 10 09 | 691 | 0.7+ | 0.0 | 2008 11 20 | 691 | 0.1− | 0.0 | | | | | |
| 2008 10 09 | 691 | 0.2− | 0.2+ | 2008 11 20 | 691 | 0.2− | 0.1− | | | | | |

**2008 UG$_{239}$ = 2004 BT$_{128}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 65.21688 | | (2000.0) | | | |
| $n$ | 0.18347329 | $\omega$ | 134.26484 | | +0.27850461 | −0.95668021 |
| $a$ | 3.0672851 | $\Omega$ | 299.38722 | | +0.85111942 | +0.28677071 |
| $e$ | 0.2975636 | $i$ | 5.58783 | | +0.44500666 | +0.05025481 |
| $P$ | 5.37 | $H$ | 18.1 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 01 16 | 691 | 0.2+ | 0.1− | 2008 10 26 | 691 | 0.3− | 0.1+ | 2008 11 03 | 691 | 0.0 | 0.1+ |
| 2004 01 16 | 691 | 0.1− | 0.2+ | 2008 10 30 | 691 | 0.0 | 0.4+ | 2008 11 03 | G96 | 0.3+ | 0.4− |
| 2004 01 16 | 691 | 0.2+ | 0.0 | 2008 10 30 | 691 | 0.4− | 0.3+ | 2008 11 03 | 691 | 0.2+ | 0.3+ |
| 2004 01 27 | 691 | 0.0 | 0.2− | 2008 10 30 | 691 | 0.1+ | 0.1− | 2008 12 01 | G96 | 0.4− | 0.2+ |
| 2004 01 27 | 691 | 0.0 | 0.1− | 2008 11 03 | G96 | 0.3+ | 0.4− | 2008 12 01 | G96 | 0.2− | 0.7− |
| 2004 01 27 | 691 | 0.3− | 0.2+ | 2008 11 03 | 691 | 0.2+ | 0.5− | 2008 12 01 | G96 | 0.1− | 0.3− |
| 2008 10 26 | 691 | 0.3− | 0.2+ | 2008 11 03 | G96 | 0.1+ | 0.8− | 2008 12 01 | G96 | 0.0 | 0.3− |
| 2008 10 26 | 691 | 0.2+ | 0.1+ | 2008 11 03 | G96 | 0.7+ | 0.8− | | | | |

**2008 UE$_{240}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 287.12670 | | (2000.0) | | | |
| $n$ | 0.22186598 | $\omega$ | 248.32111 | | −0.77596553 | +0.62884111 |
| $a$ | 2.7023540 | $\Omega$ | 330.57593 | | −0.53521101 | −0.69779654 |
| $e$ | 0.0581789 | $i$ | 5.76642 | | −0.33380634 | −0.34298520 |
| $P$ | 4.44 | $H$ | 16.5 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 03 25 | 695 | 0.1+ | 0.7+ | 2007 09 10 | G96 | 0.1− | 0.1− | 2008 10 26 | 691 | 0.2+ | 0.3− |
| 2001 03 25 | 695 | 0.4+ | 0.5+ | 2007 10 12 | G96 | 0.7+ | 0.1− | 2008 10 30 | 691 | 0.3− | 0.2+ |
| 2003 10 29 | 691 | 0.2− | 0.4+ | 2007 10 12 | G96 | 0.3+ | 0.3− | 2008 10 30 | 691 | 0.1+ | 0.0 |
| 2003 10 29 | 691 | 0.1− | 0.1+ | 2007 10 12 | G96 | 0.2− | 0.2− | 2008 10 30 | 691 | 0.2− | 0.2− |
| 2003 10 29 | 691 | 0.0 | 0.1+ | 2007 10 12 | G96 | 0.2− | 0.0 | 2008 11 18 | 703 | 0.9− | 0.1+ |
| 2007 08 06 | D35 | 0.2− | 0.2− | 2007 10 31 | G96 | 0.5+ | 0.0 | 2008 11 18 | 703 | 0.6+ | 0.9− |
| 2007 08 06 | D35 | 0.3− | 0.9+ | 2007 10 31 | G96 | 0.2+ | 0.1+ | 2008 11 18 | 703 | 1.0+ | 0.1− |
| 2007 08 06 | D35 | 0.0 | 1.0+ | 2007 10 31 | G96 | 0.3+ | 0.1+ | 2008 11 18 | 703 | 0.1+ | 0.1+ |
| 2007 09 10 | G96 | 0.6− | 1.2− | 2007 10 31 | G96 | 0.0 | 0.1− | 2008 12 21 | 291 | 0.1+ | 0.1+ |
| 2007 09 10 | G96 | 0.2− | 0.3− | 2008 10 26 | 691 | 0.0 | 0.2+ | 2008 12 21 | 291 | 0.0 | 0.0 |
| 2007 09 10 | G96 | 0.4+ | 0.2− | 2008 10 26 | 691 | 0.0 | 0.0 | 2008 12 21 | 291 | 0.1+ | 0.0 |

**2008 UA$_{242}$ = 2006 EU$_{39}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 105.77549 | | (2000.0) | | | |
| $n$ | 0.23825549 | $\omega$ | 221.20522 | | +0.87649104 | −0.47839268 |
| $a$ | 2.5769585 | $\Omega$ | 167.05289 | | +0.48011036 | +0.86037135 |
| $e$ | 0.2137324 | $i$ | 13.91699 | | +0.03546137 | +0.17578848 |
| $P$ | 4.14 | $H$ | 16.7 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 11 | 683 | (0.1+ | 1.8−) | 2006 03 04 | G96 | 0.7− | 0.1− | 2008 10 09 | 703 | (0.6+ | 2.0+) |
| 2004 10 11 | 683 | 0.3− | 1.0− | 2006 03 04 | G96 | 0.0 | 0.1− | 2008 10 26 | 703 | 0.4+ | 0.8+ |
| 2004 10 11 | 683 | (2.4− | 0.9−) | 2006 03 04 | G96 | 0.4+ | 0.3− | 2008 10 26 | 703 | 0.8+ | 0.5+ |
| 2004 11 19 | 699 | 0.1+ | 0.1+ | 2006 03 04 | G96 | 0.2− | 0.0 | 2008 10 26 | 703 | 1.2+ | 0.2+ |
| 2004 11 19 | 699 | 0.4− | 0.4+ | 2006 03 06 | 691 | 0.0 | 0.0 | 2008 10 26 | 703 | 0.5+ | 0.7+ |
| 2004 11 19 | 699 | 1.1+ | 0.1+ | 2006 03 06 | 691 | 0.2− | 0.2+ | 2008 11 02 | 703 | 0.7− | 0.6− |
| 2004 11 19 | 699 | 0.2+ | 0.5− | 2006 03 06 | 691 | 0.3+ | 0.1− | 2008 11 02 | 703 | 0.6− | 0.8− |
| 2004 12 01 | 644 | 0.1− | 0.1+ | 2008 10 09 | 703 | 0.8− | 0.4+ | 2008 11 02 | 703 | 0.6− | 0.9− |
| 2004 12 01 | 644 | 0.3− | 0.2+ | 2008 10 09 | 703 | 0.0 | 0.2+ | 2008 11 02 | 703 | 0.4− | 0.4− |
| 2004 12 01 | 644 | 0.3− | 0.3+ | 2008 10 09 | 703 | (1.8− | 0.8+) | | | | |

**2008 UV$_{242}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 104.01234 | | (2000.0) | | | |
| $n$ | 0.23455429 | $\omega$ | 284.89279 | | +0.86581164 | −0.47658481 |
| $a$ | 2.6039969 | $\Omega$ | 103.77162 | | +0.49781417 | +0.78968971 |
| $e$ | 0.2642280 | $i$ | 9.02986 | | +0.05051002 | +0.38633805 |
| $P$ | 4.20 | $H$ | 16.9 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 02 | 644 | 0.1− | 0.3+ | 2008 09 22 | 704 | 0.9− | 0.7+ | 2008 10 23 | 704 | 0.2− | 0.1+ |
| 2004 12 02 | 644 | 0.0 | 0.1− | 2008 09 22 | 704 | 1.1− | 0.5+ | 2008 10 23 | 704 | 0.6− | 0.5+ |
| 2004 12 02 | 644 | 0.1− | 0.2+ | 2008 09 29 | 703 | 0.1+ | 0.8− | 2008 10 23 | 704 | 0.3+ | 0.1+ |
| 2004 12 14 | 599 | 0.0 | 0.0 | 2008 09 29 | 703 | 0.2+ | 0.3− | 2008 10 26 | G96 | 0.1+ | 0.1− |
| 2004 12 14 | 599 | 0.0 | 0.0 | 2008 09 29 | 703 | 0.7− | 0.6− | 2008 10 26 | G96 | 0.3+ | 0.2− |
| 2004 12 14 | 599 | 0.0 | 0.0 | 2008 09 29 | 703 | 0.0 | 0.6− | 2008 10 26 | G96 | 0.0 | 0.3− |
| 2004 12 14 | 599 | 0.0 | 0.1+ | 2008 10 09 | 703 | 1.0+ | 0.3+ | 2008 10 26 | G96 | 0.2+ | 0.0 |
| 2007 06 10 | 691 | 0.4+ | 0.1− | 2008 10 09 | 703 | 1.1+ | 0.2+ | 2008 11 02 | 703 | 0.8− | 0.8− |
| 2007 06 10 | 691 | 0.2− | 0.0 | 2008 10 09 | 703 | 0.7+ | 1.1+ | 2008 11 02 | 703 | 0.7− | 0.9− |
| 2007 06 10 | 691 | 0.2− | 0.2+ | 2008 10 09 | 703 | 1.3+ | 0.8+ | 2008 11 02 | 703 | 0.7− | 0.3− |
| 2008 09 22 | 704 | 0.2− | 0.5+ | 2008 10 23 | 704 | 0.2+ | 0.3− | 2008 11 02 | 703 | 0.4+ | 0.1+ |

**2008 UF$_{244}$ = 2006 PU$_{40}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 36.74379 | | (2000.0) | | | |
| $n$ | 0.08196862 | $\omega$ | 280.80231 | | +0.82396539 | −0.52504840 |
| $a$ | 5.2485294 | $\Omega$ | 111.18104 | | +0.56663923 | +0.76281742 |
| $e$ | 0.0671613 | $i$ | 13.21014 | | +0.00100538 | +0.37740397 |
| $P$ | 12.02 | $H$ | 12.8 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 04 12 | 644 | 0.2+ | 0.3+ | 2006 08 17 | 644 | 0.1+ | 0.3+ | 2008 11 02 | 703 | 0.2+ | 0.3− |
| 2002 04 12 | 644 | 0.3+ | 0.3+ | 2006 08 17 | 644 | 0.3− | 0.5+ | 2009 11 09 | 703 | 0.7− | 0.1+ |
| 2002 04 12 | 644 | 0.3+ | 0.1+ | 2006 08 17 | 644 | 0.1− | 0.5+ | 2009 11 09 | 703 | (1.6− | 0.8−) |
| 2002 05 06 | 644 | 0.0 | 0.3− | 2007 10 02 | E12 | 0.1+ | 0.5+ | 2009 11 09 | 703 | 0.8− | 0.5− |
| 2002 05 06 | 644 | 0.1+ | 0.1+ | 2007 10 02 | E12 | 0.1− | 0.1− | 2009 11 09 | 703 | 0.4+ | 0.1+ |
| 2002 05 06 | 644 | 0.3+ | 0.2+ | 2007 10 02 | E12 | 0.0 | 0.2− | 2009 11 17 | 703 | 1.2+ | 1.0− |
| 2002 05 12 | 644 | 0.1− | 0.2+ | 2007 10 02 | E12 | 0.1+ | 1.0+ | 2009 11 17 | 703 | 0.6+ | 0.2+ |
| 2002 05 12 | 644 | 0.1+ | 0.2+ | 2008 09 29 | 703 | 0.9− | 0.2+ | 2009 11 17 | 703 | 1.1− | 1.1+ |
| 2002 05 12 | 644 | 0.1− | 0.4+ | 2008 09 29 | 703 | 0.7− | 0.8+ | 2009 11 17 | 703 | 2.1− | 0.3− |
| 2002 05 16 | 644 | 0.4+ | 0.3+ | 2008 09 29 | 703 | 0.1+ | 0.2+ | 2009 11 26 | G96 | 0.6+ | 0.1+ |
| 2002 05 16 | 644 | 0.1+ | 0.3+ | 2008 09 29 | 703 | 0.5+ | 1.2+ | 2009 11 26 | G96 | 0.8+ | 0.1− |
| 2002 05 16 | 644 | 0.1+ | 0.7+ | 2008 10 26 | G96 | 0.9− | 0.1− | 2009 11 26 | G96 | 0.6+ | 0.1− |
| 2002 05 18 | 644 | 0.0 | 0.7+ | 2008 10 26 | G96 | 0.1− | 0.1+ | 2009 11 26 | G96 | 0.3+ | 0.1+ |
| 2002 05 18 | 644 | 0.3+ | 0.4+ | 2008 10 26 | G96 | 0.0 | 0.1+ | 2009 11 26 | G96 | 0.5+ | 0.0 |
| 2002 05 18 | 644 | 0.1+ | 0.9+ | 2008 10 26 | G96 | 0.1+ | 0.1− | 2009 12 11 | 703 | 1.0− | 0.2− |
| 2006 08 14 | 644 | 0.0 | 0.2+ | 2008 11 02 | 703 | 0.3+ | 0.4+ | 2009 12 11 | 703 | 1.0+ | 0.7+ |
| 2006 08 14 | 644 | 0.1− | 0.4+ | 2008 11 02 | 703 | 1.0+ | 0.5− | 2009 12 11 | 703 | 0.9− | 1.9+ |
| 2006 08 14 | 644 | 0.1− | 0.0 | 2008 11 02 | 703 | 0.5− | 0.6− | 2009 12 11 | 703 | 0.0 | 0.1+ |

**2008 UP$_{244}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 152.73598 | | (2000.0) | | | |
| $n$ | 0.22754395 | $\omega$ | 19.23809 | | +0.82567459 | +0.52777144 |
| $a$ | 2.6572099 | $\Omega$ | 307.27700 | | −0.54485326 | +0.65442203 |
| $e$ | 0.1334336 | $i$ | 14.50477 | | −0.14627510 | +0.54146940 |
| $P$ | 4.33 | $H$ | 15.8 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 09 05 | 703 | 0.2+ | 0.4+ | 2008 09 24 | 703 | 0.9+ | 0.2+ | 2008 11 02 | 703 | 0.6− | 0.9− |
| 1999 09 05 | 703 | 0.0 | 0.2− | 2008 09 24 | 703 | 0.3− | 0.1+ | 2008 11 02 | 703 | 0.2+ | 0.7− |
| 1999 09 05 | 703 | 0.9+ | 0.8+ | 2008 10 06 | 703 | 0.8+ | 0.0 | 2009 11 21 | G96 | 0.1− | 0.0 |
| 1999 09 05 | 703 | 0.4+ | 1.2+ | 2008 10 06 | 703 | 0.3− | 0.2+ | 2009 11 21 | G96 | 0.4− | 0.1− |
| 1999 09 30 | 703 | 0.2+ | 0.4− | 2008 10 06 | 703 | 0.2− | 0.6− | 2009 11 21 | G96 | 0.1+ | 0.1− |
| 1999 09 30 | 703 | 1.3− | 0.0 | 2008 10 06 | 703 | 1.0+ | 0.1+ | 2009 11 21 | G96 | 0.2− | 0.4− |
| 1999 09 30 | 703 | 1.6− | 0.9− | 2008 10 26 | 703 | 0.3− | 0.3+ | 2009 12 17 | G96 | 0.2+ | 0.7+ |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 09 30 | 703 | 0.0 | 0.1+ | 2008 10 26 | 703 | 0.2− | 0.2− | 2009 12 17 | G96 | 0.0 | 0.1− |
| 2000 11 26 | 645 | 0.0 | 0.0 | 2008 10 26 | 703 | 0.7+ | 0.3− | 2009 12 17 | G96 | 0.4+ | 0.4+ |
| 2000 11 26 | 645 | 0.0 | 0.0 | 2008 10 26 | 703 | 0.3− | 0.3− | 2009 12 17 | G96 | 0.3+ | 0.1+ |
| 2008 09 24 | 703 | 0.3+ | 0.1+ | 2008 11 02 | 703 | 0.6− | 0.5− | | | | |
| 2008 09 24 | 703 | 0.1+ | 1.1+ | 2008 11 02 | 703 | 0.3− | 0.2+ | | | | |

**2008 UN$_{255}$ = 2003 UO$_{262}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 120.58318 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.19130705 | $\omega$ | 260.69937 | | +0.90845797 | | +0.36615490 |
| $a$ | 2.9829689 | $\Omega$ | 77.61256 | | −0.25386076 | | +0.86648570 |
| $e$ | 0.1437093 | $i$ | 11.91061 | | −0.33205246 | | +0.33931271 |
| $P$ | 5.15 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 03 19 | 645 | 0.0 | 0.0 | 2008 09 29 | 703 | 1.2− | 0.3+ | 2008 11 03 | 703 | 0.3+ | 0.3+ |
| 2001 03 19 | 645 | 0.0 | 0.0 | 2008 09 29 | 703 | 0.3+ | 0.7− | 2008 11 03 | 703 | 0.0 | 0.8+ |
| 2003 10 26 | 608 | 0.8+ | 0.2− | 2008 09 29 | 703 | 0.5− | 0.1+ | 2008 11 03 | 703 | 0.3− | 0.7+ |
| 2003 10 26 | 608 | 0.0 | 0.6− | 2008 09 29 | 703 | 0.4− | 0.6− | 2008 11 03 | 703 | 0.2− | 0.2− |
| 2003 10 26 | 608 | 0.1− | 0.2− | 2008 10 27 | G96 | 0.1+ | 0.1− | 2008 11 19 | 703 | (0.1+ | 2.2+) |
| 2003 10 29 | 691 | 0.0 | 0.1+ | 2008 10 27 | G96 | 0.5+ | 0.1+ | 2008 11 19 | 703 | (1.9− | 1.1+) |
| 2003 10 29 | 691 | 0.1+ | 0.1− | 2008 10 27 | G96 | 0.2+ | 0.0 | 2008 11 19 | 703 | 0.5+ | 1.2+ |
| 2003 10 29 | 691 | 0.1− | 0.0 | 2008 10 27 | G96 | 0.0 | 0.1− | 2008 11 19 | 703 | (0.3− | 1.9+) |

**2008 UW$_{263}$ = 2003 UL$_{309}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 5.29033 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18497826 | $\omega$ | 253.83972 | | −0.26171692 | | −0.95383977 |
| $a$ | 3.0506257 | $\Omega$ | 212.50889 | | +0.95663961 | | −0.23615699 |
| $e$ | 0.1016439 | $i$ | 15.90605 | | +0.12784724 | | −0.18552510 |
| $P$ | 5.33 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 19 | 691 | 0.2+ | 0.4+ | 2003 10 29 | 691 | 0.4− | 0.4− | 2008 10 30 | 691 | 0.4+ | 0.1− |
| 2003 10 19 | 691 | 0.4+ | 0.0 | 2008 10 08 | G96 | 0.3− | 0.2− | 2008 10 30 | 691 | 0.3+ | 0.6− |
| 2003 10 19 | 691 | 0.0 | 0.1+ | 2008 10 08 | G96 | 0.8− | 0.2− | 2008 10 30 | 691 | 0.0 | 0.1− |
| 2003 10 29 | 691 | 0.2+ | 0.1− | 2008 10 08 | G96 | 0.2+ | 0.2− | 2008 11 01 | 691 | 0.0 | 0.3+ |
| 2003 10 29 | 691 | 0.0 | 0.2− | 2008 10 08 | G96 | 0.2+ | 0.2+ | 2008 11 01 | 691 | 0.4− | 0.6+ |
| 2003 10 29 | 691 | 0.3− | 0.1+ | 2008 10 28 | 691 | 0.5− | 0.0 | 2008 11 01 | 691 | 0.3+ | 0.3+ |
| 2003 10 29 | 691 | 0.1+ | 0.4+ | 2008 10 28 | 691 | 0.0 | 0.4− | | | | |
| 2003 10 29 | 691 | 0.2− | 0.3− | 2008 10 28 | 691 | 0.1+ | 0.2+ | | | | |

**2008 UG$_{268}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 280.52087 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.28106703 | $\omega$ | 32.54376 | | −0.51760238 | | +0.85456732 |
| $a$ | 2.3081433 | $\Omega$ | 206.35794 | | −0.80405923 | | −0.50277589 |
| $e$ | 0.1405918 | $i$ | 5.48732 | | −0.29253466 | | −0.13011956 |
| $P$ | 3.51 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 04 01 | 691 | 0.0 | 0.1+ | 2004 09 12 | 691 | 0.1− | 0.1+ | 2008 10 29 | 291 | 0.1− | 0.0 |
| 2003 04 01 | 691 | 0.4− | 0.1+ | 2004 09 23 | 691 | 0.4− | 0.1− | 2008 10 29 | 291 | 0.1− | 0.1+ |
| 2003 04 01 | 691 | 0.5+ | 0.2− | 2004 09 23 | 691 | 0.3+ | 0.2− | 2008 11 01 | 691 | 0.1− | 0.2− |
| 2004 08 23 | 691 | 0.2+ | 0.2− | 2004 09 23 | 691 | 0.0 | 0.3− | 2008 11 01 | 691 | 0.3− | 0.1+ |
| 2004 08 23 | 691 | 0.2+ | 0.1+ | 2008 10 28 | 691 | 0.2+ | 0.2+ | 2008 11 01 | 691 | 0.2+ | 0.0 |
| 2004 08 23 | 691 | 0.0 | 0.2+ | 2008 10 28 | 691 | 0.1− | 0.3− | 2008 11 21 | 691 | 0.2+ | 0.1− |
| 2004 09 12 | 691 | 0.1+ | 0.3+ | 2008 10 28 | 691 | 0.1− | 0.1+ | 2008 11 21 | 691 | 0.1+ | 0.0 |
| 2004 09 12 | 691 | 0.3− | 0.2+ | 2008 10 29 | 291 | 0.1+ | 0.0 | 2008 11 21 | 691 | 0.2+ | 0.1+ |

**2008 UC$_{272}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 111.45434 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.19112800 | $\omega$ | 25.12402 | | +0.96518438 | | −0.26149561 |
| $a$ | 2.9848317 | $\Omega$ | 350.02872 | | +0.23346964 | | +0.87203399 |
| $e$ | 0.0793554 | $i$ | 2.07103 | | +0.11794507 | | +0.41373513 |
| $P$ | 5.16 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 02 09 | G96 | 0.1+ | 0.1+ | 2006 04 30 | 691 | 0.1+ | 0.1+ | 2008 10 28 | 691 | 0.3+ | 0.0 |
| 2005 02 09 | G96 | 0.2− | 0.4+ | 2006 04 30 | 691 | 0.1− | 0.1+ | 2008 11 01 | 691 | 0.2+ | 0.2+ |
| 2005 02 09 | G96 | 0.4− | 0.3+ | 2006 04 30 | 691 | 0.0 | 0.0 | 2008 11 01 | 691 | 0.0 | 0.3− |
| 2005 02 09 | G96 | 0.1− | 0.2− | 2008 10 20 | 691 | 0.2− | 0.1− | 2008 11 01 | 691 | 0.2+ | 0.2− |
| 2005 03 04 | G96 | 0.3+ | 0.2+ | 2008 10 20 | 691 | 0.1− | 0.3− | 2008 11 18 | 703 | 0.8+ | 0.9− |
| 2005 03 04 | G96 | 0.1+ | 0.4− | 2008 10 20 | 691 | 0.2+ | 0.1− | 2008 11 18 | 703 | 0.1+ | 0.2+ |
| 2005 03 04 | G96 | 0.2− | 0.0 | 2008 10 28 | 691 | 0.2+ | 0.3+ | 2008 11 18 | 703 | (1.7+ | 0.9+) |
| 2005 03 04 | G96 | 0.4+ | 0.4− | 2008 10 28 | 691 | 1.1− | 0.7+ | 2008 11 18 | 703 | 0.1+ | 1.0+ |

**2008 UW$_{274}$ = 2007 KK$_{5}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 126.21374 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.16898770 | $\omega$ | 267.42339 | | +0.70149785 | | +0.71234679 |
| $a$ | 3.2401565 | $\Omega$ | 47.14928 | | −0.64164909 | | +0.64443789 |
| $e$ | 0.3698688 | $i$ | 1.68157 | | −0.31014064 | | +0.27796017 |
| $P$ | 5.83 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 10 14 | 327 | 0.7− | 0.1+ | 2007 05 24 | G96 | 0.4+ | 0.1+ | 2008 10 20 | 691 | 0.6− | 0.1− |
| 1996 10 14 | 327 | 0.1− | 0.1+ | 2007 05 25 | G96 | 0.2− | 0.1+ | 2008 10 20 | 691 | 0.3− | 0.7− |
| 1996 10 14 | 327 | 0.1− | 0.8− | 2007 05 25 | G96 | 0.0 | 0.3+ | 2008 10 20 | 691 | 0.2− | 0.2+ |
| 2002 10 15 | 644 | 0.3− | 0.0 | 2007 05 25 | G96 | 0.2+ | 0.3+ | 2008 10 28 | 691 | 0.1+ | 0.0 |
| 2002 10 15 | 644 | 0.1+ | 0.0 | 2007 05 25 | G96 | 0.4+ | 0.2+ | 2008 10 28 | 691 | 0.2− | 0.0 |
| 2002 10 15 | 644 | 0.0 | 0.1− | 2007 06 15 | 691 | 0.2− | 0.1+ | 2008 10 28 | 691 | 0.2− | 0.2+ |
| 2002 10 30 | 291 | 0.3+ | 0.2+ | 2007 06 15 | 691 | 0.6− | 0.7− | 2008 11 01 | 691 | 0.3− | 0.2− |
| 2002 10 30 | 291 | 0.2+ | 0.3+ | 2007 06 15 | 691 | 0.1+ | 0.4+ | 2008 11 01 | 691 | 0.1− | 0.1+ |
| 2002 10 30 | 291 | 0.1+ | 0.3+ | 2008 09 07 | G96 | 0.2− | 0.1− | 2008 11 01 | 691 | 0.8+ | 0.2− |
| 2007 05 24 | G96 | 0.4+ | 0.5+ | 2008 09 07 | G96 | 0.1+ | 0.3− | 2008 11 20 | G96 | 1.0+ | 0.0 |
| 2007 05 24 | G96 | 0.5+ | 0.1+ | 2008 09 07 | G96 | 0.3+ | 0.1+ | 2008 11 20 | G96 | 0.6+ | 0.2+ |
| 2007 05 24 | G96 | 0.7+ | 1.1− | 2008 09 07 | G96 | 0.1+ | 0.3− | | | | |

**2008 UT$_{295}$ = 2004 RC$_{15}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 197.02520 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.27158226 | $\omega$ | 353.14419 | | +0.50265785 | | +0.86423671 |
| $a$ | 2.3615752 | $\Omega$ | 307.02968 | | −0.79191142 | | +0.45070664 |
| $e$ | 0.2108674 | $i$ | 1.48842 | | −0.34671514 | | +0.22351385 |
| $P$ | 3.63 | $H$ | 17.9 | $G$ | 0.15 | $U$ | 5 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 06 | E12 | 0.2+ | 0.3− | 2004 09 08 | 704 | 0.4+ | 0.9+ | 2008 10 29 | 691 | 0.1− | 0.0 |
| 2004 09 06 | E12 | 0.4− | 0.4+ | 2008 10 21 | 691 | 0.3+ | 0.8+ | 2008 10 29 | 691 | 0.1+ | 0.4+ |
| 2004 09 06 | E12 | 0.8+ | 0.5− | 2008 10 21 | 691 | 0.4− | 0.6− | 2008 11 02 | 691 | 0.4− | 0.5− |
| 2004 09 08 | 704 | 0.2− | 0.1+ | 2008 10 21 | 691 | 0.1− | 0.0 | 2008 11 02 | 691 | 0.0 | 0.2+ |
| 2004 09 08 | 704 | 0.8− | 0.6− | 2008 10 29 | 691 | 0.5+ | 0.2− | 2008 11 02 | 691 | 0.1+ | 0.0 |

**2008 UQ$_{303}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 65.23588 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23325700 | $\omega$ | 68.24014 | | −0.19883408 | | −0.97913582 |
| $a$ | 2.6136429 | $\Omega$ | 33.31569 | | +0.86860468 | | −0.19587896 |
| $e$ | 0.1217797 | $i$ | 4.37815 | | +0.45386222 | | −0.05407850 |
| $P$ | 4.23 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 13 | 691 | 0.1+ | 0.0 | 2008 10 03 | G96 | 0.6+ | 0.2− | 2008 11 06 | 691 | 0.2− | 0.0 |
| 2004 12 13 | 691 | 0.0 | 0.0 | 2008 10 29 | 691 | 0.2+ | 0.2− | 2008 12 02 | 691 | 0.3+ | 0.0 |
| 2004 12 13 | 691 | 0.1− | 0.1− | 2008 10 29 | 691 | 0.3+ | 0.1− | 2008 12 02 | 691 | 0.4+ | 0.2+ |
| 2006 04 26 | 691 | 0.1− | 0.2+ | 2008 10 29 | 691 | 0.4− | 0.0 | 2008 12 02 | 691 | 0.2+ | 0.1− |
| 2006 04 26 | 691 | 0.1− | 0.1− | 2008 11 02 | 691 | 0.1+ | 0.0 | 2008 12 06 | 691 | 0.1+ | 0.0 |
| 2006 04 26 | 691 | 0.1+ | 0.1− | 2008 11 02 | 691 | 1.0− | 0.2+ | 2008 12 06 | 691 | 0.2+ | 0.0 |
| 2008 10 03 | G96 | 0.2+ | 0.3− | 2008 11 02 | 691 | 0.1− | 0.1− | 2008 12 06 | 691 | 0.1+ | 0.1− |
| 2008 10 03 | G96 | 0.1+ | 0.2− | 2008 11 06 | 691 | 0.2− | 0.0 | | | | |
| 2008 10 03 | G96 | 0.6+ | 0.2− | 2008 11 06 | 691 | 0.3− | 0.3+ | | | | |

**2008 UA$_{307}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 124.33671 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18748512 | $\omega$ | 241.65818 | | +0.95588043 | | +0.21760541 |
| $a$ | 3.0233715 | $\Omega$ | 105.20448 | | −0.14141453 | | +0.92967142 |
| $e$ | 0.1300758 | $i$ | 11.79973 | | −0.25747725 | | +0.29725231 |
| $P$ | 5.26 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 05 24 | 645 | 0.0 | 0.0 | 2003 11 24 | 691 | 0.0 | 0.1+ | 2008 11 19 | 703 | 0.4− | 0.8− |
| 2001 05 24 | 645 | 0.1+ | 0.0 | 2003 11 24 | 691 | 0.0 | 0.2+ | 2008 11 19 | 703 | 0.3+ | 0.9+ |
| 2001 06 15 | 645 | 0.1− | 0.1+ | 2008 10 30 | 703 | 0.2+ | 0.2+ | 2008 11 19 | 703 | 1.0+ | 0.3+ |
| 2001 06 15 | 645 | 0.0 | 0.1+ | 2008 10 30 | 703 | 0.2+ | 1.0+ | 2008 12 01 | 703 | 0.8+ | 0.6− |
| 2002 08 13 | 644 | 0.4+ | 0.1+ | 2008 10 30 | 703 | 0.2+ | 0.8+ | 2008 12 01 | 703 | 1.1− | 0.7− |
| 2002 08 13 | 644 | 0.3+ | 0.1− | 2008 10 30 | 703 | 1.3+ | 0.2− | 2008 12 01 | 703 | 0.1+ | 1.9− |
| 2002 08 13 | 644 | 0.1− | 0.4− | 2008 11 03 | 703 | 0.7− | 0.5− | 2008 12 01 | 703 | 0.8− | 0.2+ |
| 2002 08 30 | 644 | 0.3− | 0.4+ | 2008 11 03 | 703 | 0.4− | 0.5+ | 2009 11 21 | G96 | 0.4+ | 0.5+ |
| 2002 08 30 | 644 | 0.0 | 0.1+ | 2008 11 03 | 703 | 0.6− | 0.9+ | 2009 11 21 | G96 | 0.2+ | 0.1− |
| 2002 08 30 | 644 | 0.3− | 0.6+ | 2008 11 03 | 703 | 0.9− | 0.7− | 2009 11 21 | G96 | 0.0 | 0.0 |
| 2003 11 24 | 691 | 0.2− | 0.3+ | 2008 11 19 | 703 | 0.3+ | 0.3+ | 2009 11 21 | G96 | 0.1− | 0.3− |

**2008 UX$_{307}$ = 2005 AY$_{62}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 129.46976 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.20937744 | $\omega$ | 210.82818 | | +0.95766370 | | +0.24447851 |
| $a$ | 2.8087697 | $\Omega$ | 134.19214 | | −0.20137882 | | +0.94623939 |
| $e$ | 0.2164215 | $i$ | 12.24090 | | −0.20573481 | | +0.21180479 |
| $P$ | 4.71 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 07 20 | 910 | 0.3− | 1.5+ | 2007 05 10 | G96 | 0.0 | 0.2+ | 2008 11 03 | 703 | 1.2− | 0.5− |
| 1998 07 20 | 910 | 0.1+ | 1.0+ | 2007 05 10 | G96 | 0.3+ | 0.3+ | 2008 11 03 | 703 | 1.2− | 0.3+ |
| 1998 07 20 | 910 | 0.0 | 1.2+ | 2007 05 10 | G96 | 0.2+ | 0.2+ | 2008 11 03 | 703 | 0.2− | 0.4− |
| 2005 01 13 | 691 | 0.2− | 0.5+ | 2008 09 23 | 291 | 0.1+ | 0.1− | 2008 11 03 | 703 | 0.8− | 0.4− |
| 2005 01 13 | 691 | 0.1− | 0.1+ | 2008 09 23 | 291 | 0.0 | 0.1− | 2008 11 19 | 703 | 1.3+ | 1.4+ |
| 2005 01 13 | 691 | 0.0 | 0.4+ | 2008 09 23 | 291 | 0.2− | 0.1− | 2008 11 19 | 703 | 0.9+ | 1.2+ |
| 2005 01 19 | 691 | 0.1+ | 0.2+ | 2008 10 30 | 703 | 0.0 | 0.8− | 2008 11 19 | 703 | 0.8+ | 0.9+ |
| 2005 01 19 | 691 | 0.2+ | 0.1− | 2008 10 30 | 703 | 0.0 | 0.2− | 2008 11 19 | 703 | 0.1+ | 1.5+ |
| 2005 01 19 | 691 | 0.1− | 0.0 | 2008 10 30 | 703 | 0.5+ | 1.1− | | | | |
| 2007 05 10 | G96 | 0.2− | 0.4+ | 2008 10 30 | 703 | 0.1− | 0.4− | | | | |

**2008 UK$_{308}$ = 2007 MQ$_{14}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 135.67450 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.19225666 | $\omega$ | 70.05945 | | +0.95898895 | | +0.25583813 |
| $a$ | 2.9731384 | $\Omega$ | 274.96565 | | −0.28343150 | | +0.86950511 |
| $e$ | 0.1128356 | $i$ | 7.03480 | | +0.00260164 | | +0.42250174 |
| $P$ | 5.13 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 06 20 | 691 | 0.1− | 0.3− | 2008 10 22 | 691 | 0.5− | 0.2− | 2008 12 01 | G96 | 0.3+ | 0.4− |
| 2007 06 20 | 691 | 0.0 | 0.1− | 2008 10 30 | 691 | 0.2+ | 0.0 | 2008 12 01 | G96 | 0.3+ | 0.5− |
| 2007 06 20 | 691 | 0.4− | 0.0 | 2008 10 30 | 691 | 0.0 | 0.2+ | 2008 12 01 | G96 | 0.3+ | 0.5− |
| 2007 06 24 | 691 | 0.4+ | 0.2− | 2008 10 30 | 691 | 0.2+ | 0.1+ | 2008 12 01 | 291 | 0.2− | 0.1− |
| 2007 06 24 | 691 | 0.2+ | 0.3+ | 2008 11 03 | 691 | 0.0 | 0.0 | 2008 12 01 | 291 | 0.2− | 0.1+ |
| 2007 06 24 | 691 | 0.0 | 0.2+ | 2008 11 03 | 691 | 0.1+ | 0.1+ | 2008 12 01 | 291 | 0.0 | 0.1+ |
| 2008 10 22 | 691 | 0.2+ | 0.1− | 2008 11 03 | 691 | 0.1− | 0.3+ | | | | |
| 2008 10 22 | 691 | 0.0 | 0.1− | 2008 12 01 | G96 | 0.2+ | 0.0 | | | | |

**2008 UG$_{309}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 34.87554 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21841767 | $\omega$ | 222.80300 | | −0.41047026 | | −0.89109330 |
| $a$ | 2.7307223 | $\Omega$ | 252.28274 | | +0.88190357 | | −0.33395860 |
| $e$ | 0.1295402 | $i$ | 11.72424 | | +0.23186259 | | −0.30728551 |
| $P$ | 4.51 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 03 24 | 699 | 0.3+ | 0.7− | 2006 06 01 | G96 | 0.1− | 0.3+ | 2008 11 02 | G96 | 0.2− | 0.1+ |
| 2001 03 24 | 699 | 0.6− | 0.2− | 2006 06 17 | 691 | 0.1+ | 0.2− | 2008 11 04 | 704 | 0.5+ | 0.2− |
| 2001 03 24 | 699 | 0.1+ | 1.0+ | 2006 06 17 | 691 | 0.2+ | 0.4− | 2008 11 04 | 704 | 0.5− | 0.8+ |
| 2001 03 24 | 699 | 0.3+ | 0.3+ | 2006 06 17 | 691 | 0.0 | 0.3+ | 2008 11 04 | 704 | 0.7− | 0.4+ |
| 2005 01 13 | 703 | 0.4+ | 0.5− | 2008 10 24 | 703 | 0.4− | 0.5− | 2008 11 04 | 704 | 0.5− | 0.8+ |
| 2005 01 13 | 703 | 0.7− | 0.0 | 2008 10 24 | 703 | 0.6+ | 0.4− | 2008 11 21 | 704 | 1.0− | 0.1+ |
| 2005 01 13 | 703 | 0.0 | 0.2− | 2008 10 24 | 703 | 0.5+ | 0.0 | 2008 11 21 | 704 | 0.8+ | 0.5+ |
| 2005 01 13 | 703 | 0.1+ | 0.4+ | 2008 10 24 | 703 | (1.9− | 0.0 ) | 2008 11 21 | 704 | 0.6+ | 0.1− |
| 2006 06 01 | G96 | 0.4− | 0.1+ | 2008 10 30 | 703 | 0.4− | 0.6− | 2008 11 21 | 704 | (1.9− | 0.1+) |
| 2006 06 01 | G96 | 0.1+ | 0.2− | 2008 10 30 | 703 | 1.1+ | 0.0 | 2008 11 30 | 703 | 0.1+ | 1.0+ |
| 2006 06 01 | G96 | 0.4− | 0.1− | 2008 10 30 | 703 | 0.1+ | 0.2− | 2008 11 30 | 703 | 0.4+ | 0.5+ |
| 2006 06 01 | G96 | 0.4− | 0.0 | 2008 10 30 | 703 | 0.2+ | 0.0 | 2008 11 30 | 703 | 0.8− | 0.5− |
| 2006 06 01 | G96 | 0.3− | 1.2+ | 2008 11 02 | G96 | 0.1+ | 0.1+ | 2008 11 30 | 703 | 0.5− | 0.5− |
| 2006 06 01 | G96 | 0.7+ | 0.5+ | 2008 11 02 | G96 | 0.1− | 0.2+ | | | | |
| 2006 06 01 | G96 | 0.2− | 0.1+ | 2008 11 02 | G96 | 0.0 | 0.1+ | | | | |

**2008 UK$_{312}$ = 2003 UC$_{241}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 101.24279 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18138716 | $\omega$ | 97.93100 | | +0.92480915 | | +0.34820199 |
| $a$ | 3.0907581 | $\Omega$ | 241.80479 | | −0.37973147 | | +0.86932707 |
| $e$ | 0.1181327 | $i$ | 10.01316 | | +0.02306615 | | +0.35075037 |
| $P$ | 5.43 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 24 | 691 | 0.1+ | 0.1+ | 2008 09 28 | 703 | 0.2+ | 1.4− | 2008 12 01 | G96 | 0.1− | 0.1+ |
| 2003 10 24 | 691 | 0.2+ | 0.1− | 2008 09 28 | 703 | (1.8− | 0.2+) | 2008 12 01 | G96 | 0.1+ | 0.3− |
| 2003 10 24 | 691 | 0.1+ | 0.1− | 2008 09 28 | 703 | 1.0− | 1.0+ | 2008 12 01 | G96 | 0.8− | 0.2+ |
| 2003 10 25 | 704 | 0.5− | 0.4− | 2008 10 30 | G96 | 0.0 | 0.1+ | 2008 12 01 | G96 | 0.4+ | 0.1− |
| 2003 10 25 | 704 | 0.6− | 0.6+ | 2008 10 30 | G96 | 0.2− | 0.2− | 2008 12 01 | G96 | 0.4− | 0.1− |
| 2003 10 25 | 704 | 0.9− | 0.0 | 2008 10 30 | G96 | 0.2+ | 0.3+ | 2008 12 01 | G96 | 0.4− | 0.1− |
| 2008 09 22 | 703 | 1.0+ | 0.7− | 2008 10 30 | G96 | 0.5− | 0.0 | 2008 12 01 | G96 | 0.1− | 0.1+ |
| 2008 09 22 | 703 | (1.7+ | 0.4+) | 2008 11 01 | G96 | 0.3+ | 0.2+ | 2008 12 01 | G96 | 1.1+ | 0.0 |
| 2008 09 22 | 703 | 0.7− | 0.7+ | 2008 11 01 | G96 | 0.2+ | 0.0 | | | | |
| 2008 09 22 | 703 | 0.5+ | 0.4+ | 2008 11 01 | G96 | 0.2+ | 0.2− | | | | |

**2008 UG$_{313}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 175.55743 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.29928016 | $\omega$ | 347.10471 | | +0.95088730 | | +0.30936251 |
| $a$ | 2.2135233 | $\Omega$ | 354.83904 | | −0.27274222 | | +0.82149179 |
| $e$ | 0.1530929 | $i$ | 6.63963 | | −0.14637287 | | +0.47900530 |
| $P$ | 3.29 | $H$ | 17.5 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 07 14 | 644 | 0.1+ | 0.0 | 2008 10 24 | 703 | 0.7− | 1.3− | 2008 11 02 | G96 | 0.3− | 0.1+ |
| 2001 07 14 | 644 | 0.1− | 0.0 | 2008 10 24 | 703 | 0.3− | 0.4− | 2008 11 02 | G96 | 0.2− | 0.0 |
| 2001 07 14 | 644 | 0.2− | 0.2+ | 2008 10 24 | 703 | 0.4− | 0.1− | 2008 11 02 | G96 | 0.2− | 0.1+ |
| 2001 08 12 | 644 | 0.1− | 0.3+ | 2008 10 24 | 703 | 0.0 | 0.1− | 2008 11 02 | G96 | 0.2− | 0.3+ |
| 2001 08 12 | 644 | 0.3+ | 0.1− | 2008 10 30 | 703 | 0.4+ | 0.0 | 2008 11 02 | G96 | 0.2− | 0.3+ |
| 2001 08 12 | 644 | 0.0 | 0.3− | 2008 10 30 | 703 | 1.1+ | 1.1− | 2008 11 02 | G96 | 0.2− | 0.2+ |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 09 29 | G96 | 0.5+ | 0.0 | 2008 10 30 | 703 | 0.8+ | 0.3− | 2008 11 04 | 704 | 0.4+ | 0.6+ |
| 2008 09 29 | G96 | 0.2+ | 0.0 | 2008 10 30 | 703 | 0.9+ | 0.1− | 2008 11 04 | 704 | 0.1+ | 0.2+ |
| 2008 09 29 | G96 | 0.0 | 0.0 | 2008 11 02 | G96 | 0.2− | 0.1+ | 2008 11 04 | 704 | 1.0− | 1.1+ |
| 2008 09 29 | G96 | 0.0 | 0.2+ | 2008 11 02 | G96 | 0.5− | 0.2+ | | | | |

**2008 UW$_{313}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 169.23781 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23336325 | $\omega$ | 351.00352 | | +0.40274943 | | +0.91293468 |
| $a$ | 2.6128496 | $\Omega$ | 302.72135 | | −0.83483306 | | +0.33686336 |
| $e$ | 0.2914339 | $i$ | 4.49278 | | −0.37529542 | | +0.23037653 |
| $P$ | 4.22 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 05 26 | 608 | 0.2− | 0.6− | 2006 01 22 | G96 | 0.4− | 0.1− | 2008 11 01 | 291 | 0.4+ | 0.3− |
| 2003 05 26 | 608 | 0.2− | 0.8− | 2006 01 22 | G96 | 0.5− | 0.1− | 2008 11 03 | 703 | 0.3− | 1.0− |
| 2003 05 26 | 608 | 0.1− | 0.8− | 2006 01 22 | G96 | 0.1− | 0.2− | 2008 11 03 | 703 | 0.7+ | 0.4+ |
| 2003 07 03 | 699 | 0.5+ | 0.3− | 2006 01 22 | G96 | 0.3− | 0.0 | 2008 11 03 | 703 | 0.3− | 0.2+ |
| 2003 07 03 | 699 | 0.5+ | 0.3− | 2007 03 12 | 691 | 0.1− | 0.2+ | 2008 11 03 | 703 | 0.4− | 1.3− |
| 2003 07 03 | 699 | (0.1+ | 1.8+) | 2007 03 12 | 691 | 0.3+ | 0.1+ | 2008 11 18 | 691 | 0.3− | 0.1+ |
| 2003 07 03 | 699 | 1.0− | 0.1− | 2007 03 12 | 691 | 0.3− | 0.1− | 2008 11 18 | 691 | 0.2− | 0.1+ |
| 2004 11 11 | 691 | 0.2− | 0.1+ | 2008 09 24 | 691 | 0.1+ | 0.2+ | 2008 11 18 | 691 | 0.4− | 0.3+ |
| 2004 11 11 | 691 | 0.0 | 0.2+ | 2008 09 24 | 691 | 0.1+ | 0.0 | 2008 12 02 | G96 | 0.2+ | 0.2− |
| 2004 11 11 | 691 | 0.2− | 0.0 | 2008 09 24 | 691 | 0.8+ | 0.6− | 2008 12 02 | G96 | 0.3+ | 0.3− |
| 2004 11 20 | 691 | 0.1− | 0.3+ | 2008 10 30 | G96 | 0.6+ | 0.0 | 2008 12 02 | G96 | 0.4+ | 0.2− |
| 2004 11 20 | 691 | 0.2− | 0.0 | 2008 10 30 | G96 | 0.6+ | 0.3+ | 2008 12 02 | G96 | 0.0 | 0.2− |
| 2004 11 20 | 691 | 0.2+ | 0.4+ | 2008 10 30 | G96 | 0.2+ | 0.2− | 2009 12 18 | G96 | 0.4− | 0.6− |
| 2006 01 08 | 691 | 0.4+ | 0.4− | 2008 10 30 | G96 | 0.2+ | 0.3− | 2009 12 18 | G96 | 0.0 | 0.3− |
| 2006 01 08 | 691 | 0.2+ | 0.4− | 2008 11 01 | 291 | 0.0 | 0.1+ | 2009 12 18 | G96 | 0.4+ | 0.0 |
| 2006 01 08 | 691 | 0.3− | 0.3+ | 2008 11 01 | 291 | 0.4− | 0.7− | 2009 12 18 | G96 | 0.4+ | 0.5− |

**2008 UF$_{315}$ = 1999 TG$_{287}$ = 2003 US$_{37}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 169.67689 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22833193 | $\omega$ | 91.03713 | | +0.81699903 | | +0.57283015 |
| $a$ | 2.6510930 | $\Omega$ | 234.01848 | | −0.55623212 | | +0.75262378 |
| $e$ | 0.2024544 | $i$ | 4.69026 | | −0.15204743 | | +0.32468918 |
| $P$ | 4.32 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 11 27 | 691 | 0.3+ | 0.0 | 1999 10 20 | 704 | 0.8+ | 1.2+ | 2008 10 30 | 691 | 0.2+ | 0.1− |
| 1995 11 27 | 691 | 0.1− | 0.2+ | 2003 10 17 | 291 | 0.3− | 0.0 | 2008 10 30 | 691 | 0.2− | 0.3+ |
| 1995 11 27 | 691 | 0.3− | 0.4− | 2003 10 17 | 291 | 0.3− | 0.3− | 2008 10 30 | 691 | 0.2+ | 0.0 |
| 1995 12 18 | 691 | 0.1− | 0.2− | 2003 10 17 | 291 | 0.0 | 0.0 | 2008 11 03 | 691 | 0.1+ | 0.0 |
| 1995 12 18 | 691 | 0.0 | 0.4+ | 2003 10 18 | 291 | 0.1+ | 0.2+ | 2008 11 03 | 691 | 0.2− | 0.1− |
| 1995 12 18 | 691 | 0.2+ | 0.2+ | 2003 10 18 | 291 | 0.3+ | 0.2+ | 2008 11 03 | 691 | 0.0 | 0.1+ |
| 1999 10 10 | 704 | 0.2− | 0.6− | 2003 10 18 | 291 | 0.0 | 0.3+ | 2008 11 25 | J75 | 0.9− | 0.3+ |
| 1999 10 10 | 704 | 0.1− | 1.5− | 2008 09 07 | G96 | 1.5− | 0.1+ | 2008 11 25 | J75 | 0.4+ | 0.2− |
| 1999 10 10 | 704 | 0.8+ | 1.2− | 2008 09 07 | G96 | 0.4+ | 0.1+ | 2008 11 25 | J75 | 0.2+ | 0.4− |
| 1999 10 20 | 704 | 0.0 | 0.2− | 2008 09 07 | G96 | 0.3+ | 0.1+ | | | | |
| 1999 10 20 | 704 | 0.6− | 0.6+ | 2008 09 07 | G96 | 0.2+ | 0.3− | | | | |

**2008 UM$_{322}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 24.42578 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.19804888 | $\omega$ | 162.56960 | | −0.07796600 | | −0.99371675 |
| $a$ | 2.9148830 | $\Omega$ | 291.84215 | | +0.90407204 | | −0.03652265 |
| $e$ | 0.0192798 | $i$ | 4.96298 | | +0.42020834 | | −0.10579756 |
| $P$ | 4.98 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 07 05 | 291 | 0.0 | 0.2+ | 2005 01 19 | 691 | 0.2+ | 0.0 | 2008 10 31 | G96 | 0.3+ | 0.1− |
| 2002 07 05 | 291 | 0.1+ | 0.1− | 2005 01 19 | 691 | 0.4− | 0.2+ | 2008 10 31 | G96 | 0.2+ | 0.2− |
| 2002 07 05 | 291 | 0.2− | 0.0 | 2005 01 19 | 691 | 0.2+ | 0.2− | 2008 11 04 | 691 | 0.0 | 0.1+ |
| 2003 10 17 | 691 | 0.0 | 0.1− | 2008 10 08 | G96 | 0.6+ | 0.2− | 2008 11 04 | 691 | 0.3+ | 0.4+ |
| 2003 10 17 | 691 | 0.0 | 0.1− | 2008 10 08 | G96 | 0.4+ | 0.4− | 2008 11 04 | 691 | 0.0 | 0.4+ |
| 2003 10 17 | 691 | 0.2+ | 0.1− | 2008 10 08 | G96 | 0.4+ | 0.2− | 2008 11 06 | 691 | 0.7− | 0.1− |
| 2003 11 02 | 691 | 0.1+ | 0.2− | 2008 10 08 | G96 | 0.4+ | 0.4− | 2008 11 06 | 691 | 0.3− | 0.3+ |
| 2003 11 02 | 691 | 0.0 | 0.3− | 2008 10 31 | G96 | 0.0 | 0.0 | 2008 11 06 | 691 | 0.2− | 0.1+ |
| 2003 11 02 | 691 | 0.1+ | 0.0 | 2008 10 31 | G96 | 0.1− | 0.3− | | | | |

**2008 US$_{323}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 128.18722 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21181513 | $\omega$ | 313.35529 | | +0.92174171 | | +0.37451754 |
| $a$ | 2.7871782 | $\Omega$ | 25.16188 | | −0.25038087 | | +0.77290039 |
| $e$ | 0.3215474 | $i$ | 13.69222 | | −0.29614462 | | +0.51221246 |
| $P$ | 4.65 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 26 | 644 | 0.3+ | 0.1+ | 2008 10 06 | 703 | 0.2− | 1.2+ | 2008 11 02 | G96 | 0.4− | 0.3− |
| 2003 09 26 | 644 | 0.2+ | 0.1− | 2008 10 06 | 703 | 0.2+ | 0.6+ | 2008 11 02 | G96 | 0.2− | 0.1− |
| 2003 09 26 | 644 | 0.1+ | 0.3− | 2008 10 06 | 703 | 0.1− | 0.0 | 2008 11 04 | 704 | 1.2+ | 0.6+ |
| 2003 10 18 | 699 | 0.9+ | 1.0− | 2008 10 26 | 691 | 0.3− | 0.1− | 2008 11 04 | 704 | 1.1+ | 0.4+ |
| 2003 10 18 | 699 | 1.3− | 1.4+ | 2008 10 26 | 691 | 0.5− | 0.0 | 2008 11 04 | 704 | 0.8+ | 0.7− |
| 2003 10 18 | 699 | 0.3− | 0.5− | 2008 10 26 | 691 | 0.5− | 0.1+ | 2008 11 04 | 704 | 1.3+ | 0.7+ |
| 2003 10 18 | 699 | 0.1− | 0.5+ | 2008 10 31 | 703 | 0.0 | 0.4− | 2008 11 22 | 704 | (1.9+ | 2.7+) |
| 2008 09 24 | 704 | 0.0 | 0.6− | 2008 10 31 | 703 | 0.1+ | 1.1+ | 2008 11 22 | 704 | 1.1− | 0.2− |
| 2008 09 24 | 704 | 0.6+ | 0.0 | 2008 10 31 | 703 | 0.5− | 0.1− | 2008 11 22 | 704 | 0.6+ | 0.5− |
| 2008 09 24 | 704 | 0.0 | 0.5− | 2008 10 31 | 703 | 1.0+ | 0.1+ | 2008 11 22 | 704 | 0.1+ | 0.0 |
| 2008 09 24 | 704 | 0.2+ | 0.7− | 2008 11 02 | G96 | 0.3− | 0.1− | | | | |
| 2008 10 06 | 703 | 0.8+ | 0.0 | 2008 11 02 | G96 | 0.3+ | 0.7− | | | | |

**2008 UV$_{348}$ = 2009 XU$_{13}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 65.86732 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.08472906 | $\omega$ | 354.14898 | | +0.99102765 | | −0.13244040 |
| $a$ | 5.1339044 | $\Omega$ | 13.50159 | | +0.12554099 | | +0.87617993 |
| $e$ | 0.0282211 | $i$ | 4.41998 | | +0.04586573 | | +0.46343097 |
| $P$ | 11.63 | $H$ | 14.6 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 05 20 | 807 | 0.3+ | 0.2− | 2007 10 08 | G96 | 0.0 | 0.4+ | 2008 11 20 | 691 | 0.4− | 0.5+ |
| 2001 05 21 | 807 | 0.1+ | 0.2− | 2007 10 08 | G96 | 0.7− | 0.4+ | 2009 12 13 | G96 | 0.5+ | 0.5− |
| 2002 04 06 | 291 | 0.4+ | 0.4+ | 2008 10 26 | 691 | 0.6− | 0.1+ | 2009 12 13 | G96 | 0.3− | 0.0 |
| 2002 04 06 | 291 | 0.1− | 0.2+ | 2008 10 26 | 691 | 0.4+ | 0.1+ | 2009 12 13 | G96 | 0.3− | 0.2− |
| 2002 04 06 | 291 | 0.2+ | 0.6+ | 2008 10 26 | 691 | 0.0 | 0.7+ | 2009 12 13 | G96 | 0.4+ | 0.9− |
| 2007 09 11 | G96 | 0.0 | 0.2+ | 2008 11 06 | G96 | 0.1− | 0.1− | 2009 12 18 | G96 | 0.4+ | 0.1− |
| 2007 09 11 | G96 | 0.1+ | 0.1+ | 2008 11 06 | G96 | 0.0 | 0.6− | 2009 12 18 | G96 | 0.3+ | 0.6− |
| 2007 09 11 | G96 | 0.1+ | 0.3+ | 2008 11 06 | G96 | 0.1+ | 0.2− | 2009 12 18 | G96 | 0.5+ | 0.3+ |
| 2007 09 11 | G96 | 0.2+ | 0.4+ | 2008 11 06 | G96 | 0.5− | 0.3− | 2009 12 18 | G96 | 0.1− | 0.0 |
| 2007 10 08 | G96 | 0.4+ | 0.1+ | 2008 11 20 | 691 | 0.1− | 0.3+ | | | | |
| 2007 10 08 | G96 | 0.2+ | 0.1+ | 2008 11 20 | 691 | 0.1− | 0.4− | | | | |

**2008 UM$_{356}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 142.17684 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23116908 | $\omega$ | 289.69825 | | +0.89107567 | | +0.42039040 |
| $a$ | 2.6293570 | $\Omega$ | 45.88177 | | −0.27276468 | | +0.79725960 |
| $e$ | 0.2735169 | $i$ | 13.78354 | | −0.36274451 | | +0.43318477 |
| $P$ | 4.26 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 04 22 | 691 | 0.0 | 0.3+ | 2008 09 07 | G96 | 0.2+ | 0.3+ | 2008 11 07 | 691 | 0.1− | 0.0 |
| 2007 04 22 | 691 | 0.2+ | 0.1− | 2008 09 07 | G96 | 0.3− | 0.2+ | 2008 11 07 | 691 | 0.3− | 0.2− |
| 2007 04 22 | 691 | 0.0 | 0.1+ | 2008 10 23 | 691 | 0.2+ | 0.3+ | 2008 11 18 | 703 | 1.4+ | 0.6+ |
| 2007 05 09 | G96 | 0.2+ | 0.1+ | 2008 10 23 | 691 | 0.2+ | 0.4+ | 2008 11 18 | 703 | 0.1− | 1.2+ |
| 2007 05 09 | G96 | 0.2− | 0.6− | 2008 10 23 | 691 | 0.1− | 0.3+ | 2008 11 18 | 703 | 0.5+ | 1.0+ |
| 2007 05 09 | G96 | 0.7− | 0.1+ | 2008 10 27 | 691 | 0.1− | 2.3− | 2008 11 18 | 703 | 1.1+ | 1.4+ |
| 2007 05 09 | G96 | 0.0 | 0.0 | 2008 10 27 | 691 | 0.2− | 0.3+ | 2008 12 02 | G96 | 0.1+ | 0.2− |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 09 07 | G96 | 0.3− | 0.1+ | 2008 10 27 | 691 | 0.3− | 0.3+ | 2008 12 02 | G96 | 0.4+ | 0.2− |
| 2008 09 07 | G96 | 0.4− | 0.1+ | 2008 11 07 | 691 | 0.1− | 0.1+ | 2008 12 02 | G96 | 0.1+ | 0.3− |

**2008 UL$_{358}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 142.77973 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18426055 | $\omega$ | 236.83024 | | +0.80746489 | +0.53585373 | |
| $a$ | 3.0585422 | $\Omega$ | 89.61286 | | −0.42484781 | +0.81836822 | |
| $e$ | 0.0971949 | $i$ | 14.28270 | | −0.40927349 | +0.20768783 | |
| $P$ | 5.35 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 09 10 | 644 | 0.3− | 0.1+ | 2008 11 03 | 703 | (2.0− | 2.3+) | 2008 12 01 | 703 | 0.0 | 0.4+ |
| 2002 09 10 | 644 | 0.1+ | 0.4+ | 2008 11 03 | 703 | 1.0− | 1.2+ | 2008 12 01 | 703 | 0.4− | 0.4− |
| 2002 09 10 | 644 | 0.0 | 0.1− | 2008 11 03 | 703 | 0.1+ | 0.3+ | 2009 12 15 | 621 | 0.4− | 0.6+ |
| 2003 11 24 | 691 | 0.1− | 0.2− | 2008 11 03 | 703 | 1.4− | 0.2+ | 2009 12 15 | 621 | 0.0 | 0.4+ |
| 2003 11 24 | 691 | 0.2+ | 0.1− | 2008 11 17 | 703 | 1.5+ | 0.1− | 2009 12 15 | 621 | 0.0 | 0.2− |
| 2003 11 24 | 691 | 0.1+ | 0.1− | 2008 11 17 | 703 | 0.5− | 0.3+ | 2009 12 19 | G96 | 0.3+ | 0.2− |
| 2008 10 26 | G96 | 0.1− | 0.1− | 2008 11 17 | 703 | 0.7+ | 1.2− | 2009 12 19 | G96 | 0.2+ | 0.2+ |
| 2008 10 26 | G96 | 0.2− | 0.5− | 2008 11 17 | 703 | 0.3− | 0.1+ | 2009 12 19 | G96 | 0.0 | 0.3+ |
| 2008 10 26 | G96 | 0.1− | 0.3− | 2008 12 01 | 703 | 1.2+ | 1.3+ | 2009 12 19 | G96 | 0.2− | 0.3+ |
| 2008 10 26 | G96 | 0.2− | 0.5− | 2008 12 01 | 703 | 0.3+ | 0.5+ | | | | |

**2008 UW$_{360}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 86.15482 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17122076 | $\omega$ | 309.12764 | | +0.84274122 | −0.43988185 | |
| $a$ | 3.2119229 | $\Omega$ | 79.01354 | | +0.53722162 | +0.72402017 | |
| $e$ | 0.0818082 | $i$ | 18.42733 | | −0.03435367 | +0.53131794 | |
| $P$ | 5.76 | $H$ | 15.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 11 05 | 644 | 0.2+ | 0.2+ | 2008 10 24 | 703 | 0.7+ | 0.7− | 2008 11 03 | 703 | 1.5− | 0.3− |
| 2002 11 05 | 644 | 0.2+ | 0.0 | 2008 10 24 | 703 | 0.4− | 1.0+ | 2008 11 19 | 703 | 0.3− | 0.9− |
| 2002 11 05 | 644 | 0.8− | 0.4+ | 2008 10 30 | 703 | 1.3+ | 0.4− | 2008 11 19 | 703 | 1.0− | 0.6− |
| 2006 05 07 | G96 | 0.0 | 0.0 | 2008 10 30 | 703 | 1.6+ | 0.2+ | 2008 11 19 | 703 | 0.2+ | 0.8+ |
| 2006 05 07 | G96 | 0.1+ | 0.1− | 2008 10 30 | 703 | 0.1+ | 0.5+ | 2008 11 19 | 703 | 0.6− | 0.3− |
| 2006 05 07 | G96 | 0.0 | 0.0 | 2008 10 30 | 703 | 1.2+ | 1.3+ | 2009 09 25 | G96 | 0.1− | 0.3+ |
| 2006 05 07 | G96 | 0.3− | 0.2− | 2008 11 03 | 703 | 0.0 | 0.2− | 2009 09 25 | G96 | 0.3+ | 0.2− |
| 2008 10 24 | 703 | 0.5− | 0.6− | 2008 11 03 | 703 | 0.6+ | 0.5+ | 2009 09 25 | G96 | 0.5− | 0.3+ |
| 2008 10 24 | 703 | 0.0 | 0.3− | 2008 11 03 | 703 | 0.9− | 0.9− | 2009 09 25 | G96 | 0.2+ | 0.3− |

**2008 UX$_{360}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 67.81563 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22921902 | $\omega$ | 299.78514 | | +0.21897325 | −0.96448960 | |
| $a$ | 2.6442486 | $\Omega$ | 136.74409 | | +0.95301517 | +0.17894203 | |
| $e$ | 0.0837413 | $i$ | 12.44578 | | +0.20931506 | +0.19426672 | |
| $P$ | 4.30 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 03 05 | 691 | 0.2+ | 0.3− | 2008 10 08 | 703 | 1.0− | 0.6+ | 2008 11 03 | 703 | 1.1+ | 1.2+ |
| 1997 03 05 | 691 | 0.1− | 0.0 | 2008 10 08 | 703 | 0.2+ | 0.0 | 2008 11 03 | 703 | 1.2− | 0.6+ |
| 1997 03 05 | 691 | 0.2− | 0.3− | 2008 10 08 | 703 | 0.1− | 0.1− | 2008 11 03 | 703 | 0.2− | 0.2− |
| 2003 09 04 | 691 | 0.0 | 0.1− | 2008 10 08 | 703 | 0.1+ | 0.8+ | 2008 11 17 | 703 | 0.2− | 1.0− |
| 2003 09 04 | 691 | 0.3+ | 0.2− | 2008 10 30 | 703 | 0.4+ | 0.3+ | 2008 11 17 | 703 | 1.0+ | 1.4− |
| 2003 09 04 | 691 | 0.3− | 0.3− | 2008 10 30 | 703 | 0.1+ | 0.7− | 2008 11 17 | 703 | 0.7+ | 1.7− |
| 2005 02 04 | 691 | 0.1+ | 0.0 | 2008 10 30 | 703 | 0.2+ | 0.6+ | 2008 11 17 | 703 | 0.3+ | 1.3− |
| 2005 02 04 | 691 | 0.1+ | 0.0 | 2008 10 30 | 703 | 0.3− | 0.4+ | | | | |
| 2005 02 04 | 691 | 0.3− | 0.1+ | 2008 11 03 | 703 | 0.8− | 1.1+ | | | | |

**2008 UZ$_{360}$ = 2003 YY$_{107}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 78.26830 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18055215 | $\omega$ | 2.20822 | | +0.67492419 | −0.73399914 | |
| $a$ | 3.1002802 | $\Omega$ | 45.35558 | | +0.67535811 | +0.57317434 | |
| $e$ | 0.1263295 | $i$ | 6.10348 | | +0.29726885 | +0.36430267 | |
| $P$ | 5.46 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 12 18 | 691 | 0.3+ | 0.1+ | 2005 03 11 | 691 | 0.4+ | 0.2+ | 2008 10 27 | 691 | (2.8+ | 1.3−) |
| 2003 12 18 | 691 | 0.1+ | 0.1− | 2005 03 11 | 691 | 0.1− | 0.1+ | 2008 11 07 | 703 | 0.4+ | 1.0+ |
| 2003 12 18 | 691 | 0.2− | 0.2− | 2008 09 22 | G96 | 0.0 | 0.0 | 2008 11 07 | 703 | 0.6+ | 0.1− |
| 2003 12 25 | 461 | 0.4− | 0.1− | 2008 09 22 | G96 | 0.4− | 0.2− | 2008 11 07 | 703 | 0.3− | 0.1− |
| 2003 12 25 | 461 | 0.4+ | 0.4− | 2008 09 22 | G96 | 0.2+ | 0.4− | 2008 11 07 | 703 | 0.4+ | 0.6+ |
| 2003 12 25 | 461 | 0.2+ | 0.3+ | 2008 09 22 | G96 | 0.2+ | 0.3− | 2008 11 18 | 703 | 0.6+ | 0.8+ |
| 2003 12 25 | 461 | 0.4− | 0.2+ | 2008 10 23 | 691 | 0.2− | 0.1− | 2008 11 18 | 703 | 0.4− | 0.2+ |
| 2003 12 26 | 461 | 0.2− | 0.3− | 2008 10 23 | 691 | 0.2− | 0.2+ | 2008 11 18 | 703 | 0.2+ | 0.4+ |
| 2003 12 26 | 461 | 0.3− | 0.1− | 2008 10 23 | 691 | 0.1− | 0.3− | 2008 11 18 | 703 | 0.3− | 0.2− |
| 2003 12 26 | 461 | 0.3− | 0.3− | 2008 10 27 | 691 | 0.0 | 0.2+ | | | | |
| 2005 03 11 | 691 | 0.1− | 0.0 | 2008 10 27 | 691 | (2.1+ | 1.2−) | | | | |

**2008 UB$_{361}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 167.45348 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23944587 | $\omega$ | 120.84111 | | +0.74525187 | +0.66359809 | |
| $a$ | 2.5684107 | $\Omega$ | 197.85784 | | −0.66096163 | +0.72234474 | |
| $e$ | 0.1829000 | $i$ | 12.25541 | | −0.08791685 | +0.19456528 | |
| $P$ | 4.12 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 07 07 | 691 | 0.2− | 0.1− | 2007 05 24 | 703 | 0.8+ | 0.2− | 2008 11 06 | 703 | 0.1+ | 0.4+ |
| 2003 07 07 | 691 | 0.0 | 0.1− | 2007 05 24 | 703 | 0.9+ | 0.8− | 2008 11 06 | 703 | 0.9− | 0.5− |
| 2003 07 07 | 691 | 0.0 | 0.1+ | 2007 05 24 | 703 | 0.6− | 0.8+ | 2008 11 06 | 703 | 0.8+ | 0.3+ |
| 2003 07 23 | 644 | 0.3+ | 0.1− | 2008 07 30 | G96 | 0.3− | 0.0 | 2008 11 06 | 703 | 1.8− | 0.1+ |
| 2003 07 23 | 644 | 0.2+ | 0.0 | 2008 07 30 | G96 | 0.1− | 0.0 | 2008 11 07 | G96 | 0.0 | 0.1+ |
| 2003 07 23 | 644 | 0.4+ | 0.5+ | 2008 07 30 | G96 | 0.2+ | 0.1− | 2008 11 07 | G96 | 0.1− | 0.1+ |
| 2007 04 24 | 691 | 0.1+ | 0.0 | 2008 07 30 | G96 | 0.4+ | 0.1− | 2008 11 07 | G96 | 0.1− | 0.2+ |
| 2007 04 24 | 691 | 0.1+ | 0.2+ | 2008 09 09 | G96 | 0.0 | 0.3+ | 2008 11 07 | G96 | 0.1+ | 0.1+ |
| 2007 04 24 | 691 | 0.2− | 0.0 | 2008 09 09 | G96 | 0.0 | 0.1− | 2008 12 01 | G96 | 0.0 | 0.1+ |
| 2007 05 16 | G96 | 0.1− | 0.3− | 2008 09 09 | G96 | 0.2+ | 0.0 | 2008 12 01 | G96 | 0.2− | 0.2+ |
| 2007 05 16 | G96 | 0.2− | 0.3− | 2008 10 25 | 703 | 0.7− | 0.3+ | 2008 12 01 | G96 | 0.5+ | 1.2− |
| 2007 05 16 | G96 | 0.1− | 0.3− | 2008 10 25 | 703 | 1.0+ | 0.4− | 2008 12 01 | G96 | 1.5+ | 0.5− |
| 2007 05 16 | G96 | 0.3− | 0.2− | 2008 10 25 | 703 | 0.2− | 0.8+ | | | | |
| 2007 05 24 | 703 | 0.2− | 0.8+ | 2008 10 25 | 703 | 0.1− | 0.3− | | | | |

**2008 UC$_{361}$ = 2001 SW$_{103}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 99.72285 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.29376294 | $\omega$ | 255.72042 | | +0.14559401 | −0.98926464 | |
| $a$ | 2.2411523 | $\Omega$ | 185.95078 | | +0.94800485 | +0.14313188 | |
| $e$ | 0.0942427 | $i$ | 6.96086 | | +0.28300033 | +0.02947449 | |
| $P$ | 3.36 | $H$ | 17.6 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1991 10 07 | 691 | 0.1− | 0.6+ | 2001 09 22 | 704 | 0.8− | 1.0+ | 2008 11 03 | G96 | 0.1+ | 0.2+ |
| 1991 10 07 | 691 | 0.1+ | 0.1− | 2001 10 14 | 645 | 0.0 | 0.0 | 2008 11 03 | G96 | 0.2+ | 0.1− |
| 1991 10 07 | 691 | 0.3− | 0.4+ | 2001 10 14 | 645 | 0.0 | 0.0 | 2008 11 03 | G96 | 0.2+ | 0.0 |
| 2001 09 20 | 704 | 0.0 | 0.1− | 2003 04 07 | 691 | 0.1− | 0.7+ | 2008 11 03 | G96 | 0.0 | 0.0 |
| 2001 09 20 | 704 | 0.4+ | 0.6− | 2003 04 07 | 691 | 0.3+ | 0.3+ | 2008 11 18 | 703 | 0.2− | 0.4− |
| 2001 09 20 | 704 | 0.2− | 0.1+ | 2003 04 07 | 691 | 0.2+ | 0.5+ | 2008 11 18 | 703 | 0.1− | 0.5+ |
| 2001 09 20 | 704 | 0.2+ | 0.1− | 2008 10 25 | 703 | 0.3+ | 0.3− | 2008 11 18 | 703 | 0.4− | 0.1+ |
| 2001 09 20 | 704 | 0.0 | 0.3− | 2008 10 25 | 703 | (0.5+ | 1.7−) | 2008 11 18 | 703 | (1.7− | 1.3−) |
| 2001 09 22 | 704 | 0.1− | 0.2+ | 2008 10 25 | 703 | (1.7+ | 0.4−) | | | | |
| 2001 09 22 | 704 | 0.4− | 1.2+ | 2008 10 25 | 703 | 0.2+ | 0.4− | | | | |

**2008 UD$_{361}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 2.44967 | | (2000.0) | | −0.67398204 | −0.69221985 |
| $n$ | 0.19306979 | $\omega$ | 230.48684 | | −0.73205635 | −0.57890848 |
| $a$ | 2.9647847 | $\Omega$ | 263.96085 | | +0.09920540 | −0.43092535 |
| $e$ | 0.1273415 | $i$ | 15.03866 | | | |
| $P$ | 5.10 | $H$ | 15.3 | $G$ 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 18 | 644 | 0.2− | 0.3+ | 2006 07 21 | G96 | 0.3− | 0.1+ | 2008 10 31 | 703 | 0.4+ | 1.5+ |
| 2003 10 18 | 644 | 0.2− | 0.2− | 2006 07 21 | G96 | 0.0 | 0.4+ | 2008 10 31 | 703 | 0.0 | 0.2+ |
| 2003 10 18 | 644 | 0.2− | 0.8+ | 2006 07 21 | G96 | 0.5− | 0.1+ | 2008 11 07 | 703 | 1.0− | 0.0 |
| 2003 12 01 | 691 | 0.0 | 0.0 | 2006 07 21 | G96 | 0.1− | 0.4+ | 2008 11 07 | 703 | 0.2+ | 0.9− |
| 2003 12 01 | 691 | 0.1− | 0.2− | 2008 09 21 | G96 | 0.4+ | 0.4− | 2008 11 07 | 703 | 0.8+ | 0.8− |
| 2003 12 01 | 691 | 0.0 | 0.1− | 2008 09 21 | G96 | 0.6+ | 0.3− | 2008 11 07 | 703 | 1.5− | 0.2+ |
| 2004 01 18 | 699 | 0.1+ | 0.4+ | 2008 09 21 | G96 | 0.0 | 0.5− | 2008 11 30 | 703 | 0.3− | 0.4− |
| 2004 01 18 | 699 | 0.7+ | 0.7+ | 2008 09 21 | G96 | 0.2+ | 0.2− | 2008 11 30 | 703 | 0.2+ | 1.0− |
| 2004 01 18 | 699 | 1.4− | 0.7− | 2008 10 25 | 703 | (2.4+ | 0.9+) | 2008 11 30 | 703 | 1.2− | 0.4− |
| 2004 01 18 | 699 | 0.5− | 0.2− | 2008 10 25 | 703 | 1.1+ | 1.7+ | 2008 11 30 | 703 | (2.2− | 1.7−) |
| 2005 04 11 | 699 | 0.8+ | 0.9+ | 2008 10 25 | 703 | 1.2+ | 0.5+ | 2009 11 19 | 291 | 0.0 | 0.3+ |
| 2005 04 11 | 699 | 0.8− | 0.6− | 2008 10 25 | 703 | 0.6− | 1.0+ | 2009 11 19 | 291 | 0.2− | 0.3+ |
| 2005 04 11 | 699 | 0.8+ | 0.8− | 2008 10 31 | 703 | 1.2+ | 0.5+ | 2009 11 19 | 291 | 0.1− | 0.1+ |
| 2005 04 11 | 699 | 0.8+ | 0.9− | 2008 10 31 | 703 | 0.3+ | 0.3− | | | | |

**2008 UH$_{361}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 147.03018 | | (2000.0) | | +0.64641067 | +0.72362227 |
| $n$ | 0.22699395 | $\omega$ | 223.64229 | | −0.61660029 | +0.68218479 |
| $a$ | 2.6615004 | $\Omega$ | 88.18758 | | −0.44939663 | +0.10485574 |
| $e$ | 0.1820769 | $i$ | 14.00689 | | | |
| $P$ | 4.34 | $H$ | 15.9 | $G$ 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 12 27 | 691 | 0.2+ | 0.0 | 2008 09 01 | E12 | 0.3− | 0.1+ | 2008 10 27 | 703 | 0.0 | 0.3+ |
| 2000 12 27 | 691 | 0.0 | 0.4− | 2008 09 01 | E12 | 0.3− | 0.0 | 2008 10 27 | 703 | 0.2+ | 0.1− |
| 2000 12 27 | 691 | 0.2− | 0.4+ | 2008 09 01 | E12 | 1.0− | 0.2− | 2008 10 27 | 703 | 0.0 | 0.5− |
| 2005 02 13 | 809 | 0.2− | 0.1+ | 2008 10 09 | 703 | 0.3+ | 1.0− | 2008 10 27 | 703 | 0.3− | 0.5− |
| 2005 02 13 | 809 | 0.1− | 0.1+ | 2008 10 09 | 703 | 0.2− | 0.3− | 2008 11 21 | 703 | 0.3− | 0.6+ |
| 2005 02 13 | 809 | 0.2+ | 0.1+ | 2008 10 09 | 703 | 0.3− | 0.2− | 2008 11 21 | 703 | 0.7− | 0.4+ |
| 2007 04 23 | 703 | 0.0 | 0.3− | 2008 10 09 | 703 | 0.0 | 0.2+ | 2008 11 21 | 703 | 0.0 | 0.4− |
| 2007 04 23 | 703 | 0.7− | 0.8− | 2008 10 26 | E12 | 0.9+ | 0.5+ | 2008 11 21 | 703 | 0.5+ | 0.5− |
| 2007 04 23 | 703 | 0.3+ | 0.8+ | 2008 10 26 | E12 | 0.6+ | 0.5− | 2009 09 16 | 691 | 0.2− | 0.1− |
| 2007 04 23 | 703 | 0.2+ | 0.3− | 2008 10 26 | E12 | 0.1− | 0.4+ | 2009 09 16 | 691 | 0.2+ | 0.2+ |
| 2008 09 01 | E12 | 0.2+ | 0.2+ | 2008 10 26 | E12 | 1.1+ | 1.0+ | 2009 09 16 | 691 | 0.0 | 0.1− |

**2008 UM$_{361}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 151.80330 | | (2000.0) | | +0.58570234 | +0.78367535 |
| $n$ | 0.18990326 | $\omega$ | 167.13710 | | −0.76842260 | +0.61808319 |
| $a$ | 2.9976513 | $\Omega$ | 138.19909 | | −0.25783615 | −0.06185558 |
| $e$ | 0.1740463 | $i$ | 18.08334 | | | |
| $P$ | 5.19 | $H$ | 15.1 | $G$ 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 07 28 | 608 | 0.2+ | 0.2− | 2006 04 02 | 703 | 0.7+ | 1.0+ | 2008 11 06 | 703 | 0.1+ | 0.2+ |
| 2002 07 28 | 608 | 0.3− | 0.3− | 2006 04 02 | 703 | 0.4− | 1.6− | 2008 11 06 | 703 | 0.5− | 0.2− |
| 2002 07 28 | 608 | (1.8+ | 2.6−) | 2008 10 27 | 703 | 0.3− | 0.3− | 2008 11 21 | 703 | 0.0 | 0.4− |
| 2003 11 27 | 691 | 0.1+ | 0.2+ | 2008 10 27 | 703 | 0.5+ | 0.9+ | 2008 11 21 | 703 | 0.0 | 0.4− |
| 2003 11 27 | 691 | 0.2+ | 0.2− | 2008 10 27 | 703 | 0.4+ | 1.7+ | 2008 11 21 | 703 | 1.1− | 0.5− |
| 2003 11 27 | 691 | 0.1− | 0.3− | 2008 10 27 | 703 | 0.7+ | 1.0+ | 2008 11 21 | 703 | 0.7− | 0.9− |
| 2006 04 02 | 703 | 1.1+ | 0.4+ | 2008 11 06 | 703 | 0.6− | 0.3− | | | | |
| 2006 04 02 | 703 | 1.5− | 0.2+ | 2008 11 06 | 703 | 0.8+ | 0.5+ | | | | |

**2008 UN$_{361}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 294.25368 | | (2000.0) | | −0.81156844 | +0.53398571 |
| $n$ | 0.23978961 | $\omega$ | 304.89576 | | −0.42807791 | −0.81964409 |
| $a$ | 2.5659556 | $\Omega$ | 268.49212 | | −0.39762542 | −0.20746767 |
| $e$ | 0.0527333 | $i$ | 13.72023 | | | |
| $P$ | 4.11 | $H$ | 15.7 | $G$ 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 10 14 | 645 | 0.0 | 0.1− | 2007 06 22 | 691 | 0.4+ | 0.6+ | 2008 11 07 | 703 | 0.6− | 0.4− |
| 1999 10 14 | 645 | 0.0 | 0.0 | 2007 06 22 | 691 | 0.4− | 0.2− | 2008 11 07 | 703 | 0.7+ | 0.7+ |
| 2004 12 02 | 703 | (1.6− | 2.3−) | 2008 10 31 | 703 | 0.3+ | 0.4− | 2008 11 07 | 703 | 0.4− | 0.0 |
| 2004 12 02 | 703 | 1.4+ | 1.0− | 2008 10 31 | 703 | 0.9+ | 0.2+ | 2008 11 17 | 703 | 0.3+ | 0.8+ |
| 2004 12 02 | 703 | 0.0 | 0.0 | 2008 10 31 | 703 | 0.6+ | 0.4− | 2008 11 17 | 703 | 1.2− | 0.2+ |
| 2004 12 02 | 703 | 1.6− | 0.4+ | 2008 10 31 | 703 | 0.5− | 0.5+ | 2008 11 17 | 703 | 1.1− | 1.0+ |
| 2007 06 22 | 691 | 0.2− | 0.0 | 2008 11 07 | 703 | 1.0− | 0.9− | 2008 11 17 | 703 | 1.8+ | 0.8+ |

**2008 UP$_{361}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 116.90843 | | (2000.0) | | +0.11581428 | −0.94585307 |
| $n$ | 0.36413056 | $\omega$ | 179.06656 | | +0.90932188 | +0.22379842 |
| $a$ | 1.9422180 | $\Omega$ | 264.23836 | | +0.39965081 | −0.23510901 |
| $e$ | 0.0777640 | $i$ | 17.74437 | | | |
| $P$ | 2.71 | $H$ | 18.0 | $G$ 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 01 21 | 691 | 0.1+ | 0.2− | 2008 10 31 | 703 | 0.6− | 0.0 | 2008 11 17 | 703 | 1.6+ | 0.3+ |
| 2001 01 21 | 691 | 0.0 | 0.3+ | 2008 10 31 | 703 | 0.5+ | 0.7+ | 2008 11 17 | 703 | 0.0 | 0.2+ |
| 2001 01 21 | 691 | 0.1− | 0.1− | 2008 10 31 | 703 | 0.2+ | 0.8− | 2008 11 17 | 703 | 0.6+ | 0.0 |
| 2005 08 30 | 644 | 0.0 | 0.1− | 2008 10 31 | 703 | 0.4+ | 0.3− | 2008 11 17 | 703 | 0.7− | 0.7+ |
| 2005 08 30 | 644 | 0.1+ | 0.1− | 2008 10 31 | 703 | 0.5− | 0.3− | 2008 12 04 | 703 | 1.0− | 0.0 |
| 2005 08 30 | 644 | 0.1− | 0.2+ | 2008 11 08 | 703 | 0.5− | 0.3+ | 2008 12 04 | 703 | 0.6− | 0.0 |
| 2008 10 31 | 703 | 0.8+ | 0.1− | 2008 11 08 | 703 | 1.3− | 1.1− | 2008 12 04 | 703 | 0.8+ | 0.2+ |
| 2008 10 31 | 703 | 0.2+ | 0.6+ | 2008 11 08 | 703 | 0.3+ | 0.1+ | 2008 12 04 | 703 | 0.1− | 0.7− |
| 2008 10 31 | 703 | 0.4− | 0.4+ | 2008 11 08 | 703 | 0.2+ | 0.2− | | | | |

**2008 UL$_{362}$ = 2004 VK$_9$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 42.01740 | | (2000.0) | | −0.09339924 | −0.97859619 |
| $n$ | 0.23654793 | $\omega$ | 150.93339 | | +0.86548255 | +0.01124135 |
| $a$ | 2.5893452 | $\Omega$ | 303.85298 | | +0.49215499 | −0.20548268 |
| $e$ | 0.1010997 | $i$ | 12.75648 | | | |
| $P$ | 4.17 | $H$ | 16.1 | $G$ 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 08 29 | 691 | 0.1− | 0.1− | 2006 02 24 | 703 | 0.4− | 1.0+ | 2008 10 04 | J75 | 0.1− | 0.8− |
| 1995 08 29 | 691 | 0.1+ | 0.0 | 2006 02 24 | 703 | 1.0+ | 0.1− | 2008 10 04 | J75 | (1.5+ | 0.8−) |
| 1995 08 29 | 691 | 0.0 | 0.1+ | 2006 02 24 | 703 | (3.4− | 2.5+) | 2008 10 04 | J75 | 0.3+ | 0.1+ |
| 2004 11 03 | 703 | 0.2− | 0.3+ | 2006 03 04 | 703 | 0.1− | 0.1− | 2008 10 25 | 703 | (1.8− | 1.3−) |
| 2004 11 03 | 703 | 0.5+ | 0.7− | 2006 03 04 | 703 | 1.0+ | 1.0− | 2008 10 25 | 703 | 0.2+ | 0.2+ |
| 2004 11 03 | 703 | 1.4− | 0.1− | 2006 03 04 | 703 | 0.1+ | 0.7+ | 2008 10 25 | 703 | 0.8− | 0.7+ |
| 2004 11 03 | 703 | 1.2− | 0.2− | 2006 03 04 | 703 | 1.0− | 1.0+ | 2008 10 25 | 703 | 0.7− | 0.2+ |
| 2004 11 04 | 704 | 0.9+ | 0.7− | 2006 03 24 | 703 | 1.1− | 0.3+ | 2008 11 02 | 703 | 0.2− | 0.8+ |
| 2004 11 04 | 704 | 1.1+ | 0.3− | 2006 03 24 | 703 | 0.3+ | 1.0− | 2008 11 02 | 703 | 0.2− | 0.2+ |
| 2004 11 04 | 704 | 0.6+ | 0.4+ | 2006 03 24 | 703 | (1.9− | 0.2+) | 2008 11 02 | 703 | 0.5+ | 0.7+ |
| 2006 02 24 | 703 | (1.4− | 1.6+) | 2006 03 24 | 703 | 0.6+ | 0.2− | 2008 11 02 | 703 | 0.1+ | 0.6− |

**2008 UV$_{363}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 71.34714 | | | (2000.0) | | |
| $n$ | 0.28257806 | $\omega$ | 39.66597 | | −0.24895007 | −0.87788804 |
| $a$ | 2.2999078 | $\Omega$ | 68.36276 | | +0.73866246 | −0.44527972 |
| $e$ | 0.2147876 | $i$ | 26.10879 | | +0.62641970 | +0.17617761 |
| $P$ | 3.49 | $H$ | 16.7 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 04 23 | 691 | 0.4− | 0.8− | 2003 06 06 | 691 | 0.3+ | 0.1− | 2008 11 02 | 703 | 1.2− | 0.6+ |
| 1996 04 23 | 691 | 0.4− | 1.0− | 2003 06 06 | 691 | 0.2+ | 0.3− | 2008 11 02 | 703 | 0.4− | 0.9+ |
| 1996 04 23 | 691 | 0.8− | 1.1− | 2003 06 06 | 691 | 0.1+ | 0.5− | 2008 11 02 | 703 | 0.3− | 0.5+ |
| 2001 10 20 | 608 | 0.4− | 0.1+ | 2008 10 09 | 703 | 1.3− | 0.5+ | 2009 01 18 | G96 | 0.1+ | 0.0 |
| 2001 10 20 | 608 | 0.6− | 0.2+ | 2008 10 09 | 703 | 0.2− | 0.1− | 2009 01 18 | G96 | 0.1− | 0.7+ |
| 2001 10 20 | 608 | 0.6− | 0.0 | 2008 10 09 | 703 | 0.3− | 0.7− | 2009 01 18 | G96 | 0.2+ | 0.8+ |
| 2003 04 11 | 691 | 1.6+ | 2.4+ | 2008 10 09 | 703 | 1.0− | 1.0− | 2009 01 18 | G96 | 0.1+ | 0.5+ |
| 2003 04 11 | 691 | 1.3+ | 2.7+ | 2008 10 26 | 703 | 0.0 | 0.6+ | 2009 03 26 | G96 | 1.2+ | 0.5+ |
| 2003 04 11 | 691 | 0.8+ | 1.9+ | 2008 10 26 | 703 | 0.7− | 0.4+ | 2009 03 26 | G96 | 0.9+ | 0.7+ |
| 2003 05 25 | 691 | 0.5− | 0.7− | 2008 10 26 | 703 | 0.2− | 0.1− | 2009 03 26 | G96 | 1.6+ | 0.4+ |
| 2003 05 25 | 691 | 0.2− | 0.4− | 2008 10 26 | 703 | 0.6+ | 0.3+ | 2009 03 26 | G96 | 0.9+ | 0.5+ |
| 2003 05 25 | 691 | 0.6− | 0.2− | 2008 11 02 | 703 | 0.0 | 0.3+ | | | | |

**2008 UC$_{364}$ = 1977 RO$_{18}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 93.33746 | | | (2000.0) | | |
| $n$ | 0.19308834 | $\omega$ | 44.19811 | | +0.83990010 | −0.54060928 |
| $a$ | 2.9645948 | $\Omega$ | 348.24670 | | +0.40911840 | +0.68881305 |
| $e$ | 0.1260609 | $i$ | 13.64590 | | +0.35663702 | +0.48298882 |
| $P$ | 5.10 | $H$ | 15.1 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1977 09 09 | 675 | 1.3− | 0.2− | 2007 08 07 | E12 | 0.2− | 0.0 | 2008 10 31 | 703 | 0.1+ | 0.5+ |
| 1977 09 10 | 675 | 1.1+ | 0.5+ | 2007 08 07 | E12 | 0.3− | 0.3+ | 2008 10 31 | 703 | 0.3− | 0.1+ |
| 2005 02 09 | 691 | 0.4+ | 0.0 | 2008 09 24 | 703 | 0.7+ | 0.1+ | 2008 10 31 | 703 | 0.6− | 0.1+ |
| 2005 02 09 | 691 | 0.1+ | 0.2+ | 2008 09 24 | 703 | 0.5+ | 0.1+ | 2008 11 17 | 703 | 0.4− | 0.4− |
| 2005 02 09 | 691 | 0.4+ | 0.1− | 2008 09 24 | 703 | 0.2− | 0.4+ | 2008 11 17 | 703 | 0.9− | 0.0 |
| 2005 03 02 | 703 | 1.3− | 0.8+ | 2008 09 24 | 703 | 0.1+ | 0.6+ | 2008 11 17 | 703 | 0.4− | 0.6− |
| 2005 03 02 | 703 | (2.1− | 0.2−) | 2008 10 26 | 703 | 0.2− | 0.4+ | 2008 11 17 | 703 | 0.3− | 0.0 |
| 2005 03 02 | 703 | 0.8− | 0.6+ | 2008 10 26 | 703 | 0.2+ | 0.3+ | 2009 03 18 | G96 | 0.3+ | 0.3− |
| 2005 03 02 | 703 | 0.7− | 1.0− | 2008 10 26 | 703 | 0.2+ | 0.1− | 2009 03 18 | G96 | 0.1− | 0.1+ |
| 2007 08 07 | E12 | 0.4+ | 0.2+ | 2008 10 26 | 703 | 1.0+ | 1.2− | 2009 03 18 | G96 | 0.1+ | 0.1− |
| 2007 08 07 | E12 | 0.1− | 0.1+ | 2008 10 31 | 703 | 0.8+ | 0.1− | 2009 03 18 | G96 | 0.2− | 0.1+ |

**2008 UD$_{364}$ = 2003 YH$_{83}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 16.43171 | | | (2000.0) | | |
| $n$ | 0.16955372 | $\omega$ | 189.49101 | | −0.22142380 | −0.90835567 |
| $a$ | 3.2329414 | $\Omega$ | 273.93424 | | +0.91641363 | −0.06944314 |
| $e$ | 0.0723032 | $i$ | 20.83069 | | +0.33340300 | −0.41239256 |
| $P$ | 5.81 | $H$ | 14.4 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 16 | 644 | 0.2− | 0.1+ | 2003 12 22 | 704 | 0.3+ | 0.4+ | 2008 11 17 | 703 | 0.2− | 0.0 |
| 2001 08 16 | 644 | 0.1+ | 0.1+ | 2008 10 26 | 703 | 0.8− | 0.6− | 2008 11 17 | 703 | 0.4+ | 0.0 |
| 2001 08 16 | 644 | 0.1+ | 0.0 | 2008 10 26 | 703 | 0.0 | 0.2+ | 2009 11 16 | 703 | 0.5− | 0.4− |
| 2003 12 18 | 608 | 0.2− | 0.3+ | 2008 10 26 | 703 | 1.2− | 0.6− | 2009 11 16 | 703 | (1.9− | 0.5+) |
| 2003 12 18 | 608 | 0.1− | 0.3+ | 2008 10 26 | 703 | 0.1+ | 0.3+ | 2009 11 16 | 703 | 1.1− | 0.3+ |
| 2003 12 18 | 608 | 0.1+ | 0.3− | 2008 10 31 | 703 | 1.2+ | 0.0 | 2009 11 16 | 703 | 0.2+ | 0.5− |
| 2003 12 22 | 704 | 0.3+ | 0.5+ | 2008 10 31 | 703 | 0.9+ | 0.1+ | 2009 11 27 | G96 | 0.2− | 0.4− |
| 2003 12 22 | 704 | 0.1+ | 0.5+ | 2008 10 31 | 703 | 0.5+ | 0.5+ | 2009 11 27 | G96 | 0.3+ | 0.5− |
| 2003 12 22 | 704 | 0.2+ | 0.3+ | 2008 11 17 | 703 | 0.3− | 0.3− | 2009 11 27 | G96 | 0.1+ | 0.5− |
| 2003 12 22 | 704 | 0.3+ | 0.1− | 2008 11 17 | 703 | 0.5− | 0.1+ | | | | |

**2008 UG$_{364}$ = 1999 NA$_{21}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 121.91337 | | | (2000.0) | | |
| $n$ | 0.22827945 | $\omega$ | 241.74133 | | +0.93740877 | +0.28994131 |
| $a$ | 2.6514992 | $\Omega$ | 100.86136 | | −0.20848054 | +0.91090280 |
| $e$ | 0.2180801 | $i$ | 11.32582 | | −0.27892769 | +0.29358156 |
| $P$ | 4.32 | $H$ | 15.9 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 07 14 | 704 | 0.2+ | 0.3− | 2003 07 08 | 691 | 0.1− | 0.2+ | 2008 10 27 | 703 | 1.2+ | 0.2+ |
| 1999 07 14 | 704 | 0.1+ | 0.4− | 2008 09 08 | E12 | 0.4+ | 0.5− | 2008 10 27 | 703 | 0.3+ | 0.1− |
| 1999 07 14 | 704 | 0.4− | 0.2+ | 2008 09 08 | E12 | 0.3− | 0.3+ | 2008 11 06 | 703 | (1.7− | 0.5+) |
| 1999 07 14 | 704 | 0.1− | 1.0− | 2008 09 08 | E12 | 0.0 | 0.1− | 2008 11 06 | 703 | 1.1− | 0.1+ |
| 1999 07 16 | 704 | 0.5+ | 0.1+ | 2008 09 08 | E12 | 1.3− | 0.3+ | 2008 11 06 | 703 | 0.4− | 1.2+ |
| 1999 07 16 | 704 | 0.8− | 0.7− | 2008 10 09 | 703 | 0.0 | 0.5+ | 2008 11 06 | 703 | (2.0− | 2.0+) |
| 1999 07 16 | 704 | 0.6+ | 0.1− | 2008 10 09 | 703 | 1.1+ | 0.4+ | 2009 11 21 | G96 | 0.1− | 0.3+ |
| 1999 07 16 | 704 | 0.2+ | 0.5+ | 2008 10 09 | 703 | 0.0 | 0.1− | 2009 11 21 | G96 | 0.0 | 0.2+ |
| 1999 07 16 | 704 | 0.2− | 0.4+ | 2008 10 09 | 703 | (1.5+ | 0.2−) | 2009 11 21 | G96 | 0.1− | 0.2+ |
| 2003 07 08 | 691 | 0.4+ | 0.4+ | 2008 10 27 | 703 | 0.4+ | 0.5− | 2009 11 21 | G96 | 0.5+ | 0.8+ |
| 2003 07 08 | 691 | 0.1− | 0.0 | 2008 10 27 | 703 | 1.1− | 0.3− | | | | |

**2008 UM$_{364}$ = 2002 PK$_{177}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 98.12740 | | | (2000.0) | | |
| $n$ | 0.17804669 | $\omega$ | 28.76887 | | +0.98589136 | +0.03881555 |
| $a$ | 3.1292970 | $\Omega$ | 327.72770 | | −0.13222770 | +0.77705091 |
| $e$ | 0.2880290 | $i$ | 17.75489 | | +0.10263556 | +0.62823979 |
| $P$ | 5.54 | $H$ | 16.3 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 11 | 644 | 0.1− | 0.0 | 2002 08 18 | 644 | 0.3− | 0.2− | 2008 10 28 | 703 | (0.3+ | 2.4−) |
| 2002 08 11 | 644 | 0.1+ | 0.1+ | 2002 08 18 | 644 | 0.4− | 0.3+ | 2008 10 28 | 703 | 0.1+ | 0.6+ |
| 2002 08 11 | 644 | 0.2+ | 0.0 | 2008 10 06 | 703 | 0.2+ | 0.1− | 2008 10 28 | 703 | 0.5+ | 0.8− |
| 2002 08 11 | 644 | 0.2− | 0.0 | 2008 10 06 | 703 | 0.0 | 0.5+ | 2008 11 02 | 703 | 0.7− | 0.3− |
| 2002 08 11 | 644 | 0.1+ | 0.3− | 2008 10 06 | 703 | 0.7+ | 0.2− | 2008 11 02 | 703 | 0.4− | 0.6+ |
| 2002 08 11 | 644 | 0.4+ | 0.2+ | 2008 10 06 | 703 | 0.2− | 0.4− | 2008 11 02 | 703 | 0.2+ | 0.2− |
| 2002 08 18 | 644 | 0.3+ | 0.1− | 2008 10 28 | 703 | 0.2− | 0.2− | 2008 11 02 | 703 | 0.2− | 0.3+ |

**2008 UQ$_{364}$ = 2003 OD$_{30}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 137.19442 | | | (2000.0) | | |
| $n$ | 0.21174093 | $\omega$ | 199.12638 | | +0.82129408 | +0.55067391 |
| $a$ | 2.7878292 | $\Omega$ | 126.55023 | | −0.49625367 | +0.81850640 |
| $e$ | 0.2842786 | $i$ | 10.69703 | | −0.28143972 | +0.16372392 |
| $P$ | 4.65 | $H$ | 16.6 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 07 24 | 644 | 0.1− | 0.5+ | 2007 04 25 | G96 | 0.0 | 0.0 | 2008 11 03 | 703 | 1.1− | 0.8+ |
| 2003 07 24 | 644 | 0.1+ | 0.6+ | 2007 04 25 | G96 | 0.2− | 0.3− | 2008 11 03 | 703 | 0.4− | 1.3− |
| 2003 07 24 | 644 | 0.0 | 0.6+ | 2007 04 25 | G96 | 0.3+ | 0.0 | 2008 11 03 | 703 | 0.4+ | 0.6+ |
| 2003 07 25 | 644 | 0.1+ | 0.2+ | 2007 05 26 | G96 | 0.5+ | 0.1− | 2008 11 03 | 703 | 0.1+ | 0.1− |
| 2003 07 25 | 644 | 0.1+ | 0.7+ | 2007 05 26 | G96 | 0.7− | 0.4+ | 2008 11 19 | 703 | 0.4+ | 0.3+ |
| 2003 07 25 | 644 | 0.4+ | 0.4+ | 2007 05 26 | G96 | 0.1+ | 0.6− | 2008 11 19 | 703 | 0.4− | 0.1+ |
| 2003 08 31 | 608 | 0.3− | 1.3− | 2007 05 26 | G96 | 0.2− | 0.2+ | 2008 11 19 | 703 | 1.1+ | 0.1+ |
| 2003 08 31 | 608 | 0.1− | 0.8− | 2008 10 28 | 703 | (0.6+ | 1.8+) | 2008 11 19 | 703 | 1.3− | 1.1− |
| 2003 08 31 | 608 | 0.1− | 0.9− | 2008 10 28 | 703 | 1.5+ | 0.1+ | | | | |
| 2007 04 25 | G96 | 0.2+ | 0.0 | 2008 10 28 | 703 | 0.5− | 0.9+ | | | | |

**2008 UV$_{364}$ = 2004 XY$_{151}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 152.04161 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21869281 | $\omega$ | 257.36702 | | +0.69577593 | +0.70378512 | |
| $a$ | 2.7284315 | $\Omega$ | 57.68473 | | −0.57533415 | +0.66566862 | |
| $e$ | 0.1448280 | $i$ | 9.77373 | | −0.42998427 | +0.24813665 | |
| $P$ | 4.51 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 07 07 | 644 | 0.3+ | 0.0 | 2007 03 16 | G96 | 0.1− | 0.0 | 2008 10 29 | 703 | 0.9− | 0.0 |
| 2003 07 07 | 644 | 0.7− | 0.7+ | 2007 06 15 | 691 | 0.0 | 0.5− | 2008 10 30 | 704 | 0.5+ | 0.1+ |
| 2003 07 07 | 644 | 0.0 | 0.2+ | 2007 06 15 | 691 | 0.1+ | 0.6+ | 2008 10 30 | 704 | 0.9+ | 0.4+ |
| 2003 07 07 | 644 | 0.1− | 0.2+ | 2007 06 15 | 691 | 0.1− | 0.1− | 2008 10 30 | 704 | 0.3+ | 0.6+ |
| 2003 07 07 | 644 | 0.4+ | 0.2− | 2008 09 29 | 703 | 1.2+ | 0.1− | 2008 10 30 | 704 | 0.7+ | 0.4+ |
| 2003 07 07 | 644 | 0.2− | 0.1+ | 2008 09 29 | 703 | 0.1+ | 0.7+ | 2008 10 30 | 704 | 0.5− | 0.6− |
| 2004 12 15 | 691 | 0.1− | 0.0 | 2008 09 29 | 703 | (0.9− | 1.9−) | 2008 11 08 | 703 | 0.7− | 0.4+ |
| 2004 12 15 | 691 | 0.2− | 0.2+ | 2008 09 29 | 703 | 1.4− | 1.0− | 2008 11 08 | 703 | 1.1− | 0.5+ |
| 2004 12 15 | 691 | 0.1+ | 0.0 | 2008 10 21 | G96 | 0.0 | 0.4− | 2008 11 08 | 703 | 0.9− | 0.1+ |
| 2004 12 20 | 691 | 0.0 | 0.1− | 2008 10 21 | G96 | 0.2− | 0.4− | 2008 11 08 | 703 | 0.6− | 0.4+ |
| 2004 12 20 | 691 | 0.2+ | 0.2+ | 2008 10 21 | G96 | 0.1+ | 0.4− | 2009 01 02 | G96 | 0.2− | 0.3− |
| 2004 12 20 | 691 | 0.0 | 0.1+ | 2008 10 21 | G96 | 0.4+ | 0.2− | 2009 01 02 | G96 | 0.8− | 0.4− |
| 2007 03 16 | G96 | 0.1− | 0.2+ | 2008 10 29 | 703 | 1.1+ | 0.3− | 2009 01 02 | G96 | 0.0 | 0.2− |
| 2007 03 16 | G96 | 0.4+ | 0.3+ | 2008 10 29 | 703 | 1.4+ | 0.4+ | 2009 01 02 | G96 | 0.2− | 0.8− |
| 2007 03 16 | G96 | 0.3+ | 0.2+ | 2008 10 29 | 703 | 0.6+ | 0.3+ | | | | |

**2008 UM$_{365}$ = 2003 YP$_{24}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 63.92600 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17772126 | $\omega$ | 304.58612 | | +0.46588458 | −0.86042683 | |
| $a$ | 3.1331159 | $\Omega$ | 116.35364 | | +0.86840580 | +0.39984711 | |
| $e$ | 0.1352506 | $i$ | 13.31961 | | +0.16977316 | +0.31589232 | |
| $P$ | 5.55 | $H$ | 15.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 05 04 | 645 | 0.0 | 0.1+ | 2003 12 23 | 704 | 0.3+ | 0.3+ | 2008 10 30 | 703 | 0.1+ | 0.2+ |
| 2000 05 04 | 645 | 0.0 | 0.1+ | 2006 05 09 | G96 | 0.3+ | 0.0 | 2008 10 30 | 703 | 0.7− | 0.0 |
| 2003 12 17 | 691 | 0.1− | 0.0 | 2006 05 09 | G96 | 0.1− | 0.2+ | 2008 10 30 | 703 | 0.1+ | 0.8+ |
| 2003 12 17 | 691 | 0.1− | 0.1− | 2006 05 09 | G96 | 0.0 | 0.3+ | 2008 11 19 | 703 | 1.0− | 0.7− |
| 2003 12 17 | 691 | 0.0 | 0.1+ | 2006 05 09 | G96 | 0.1+ | 0.5+ | 2008 11 19 | 703 | 0.6− | 0.5− |
| 2003 12 19 | 704 | 0.6− | 0.8− | 2006 05 26 | G96 | 0.2+ | 0.2+ | 2008 11 19 | 703 | 1.3− | 1.1+ |
| 2003 12 19 | 704 | 0.2+ | 0.9− | 2006 05 26 | G96 | 0.3+ | 0.0 | 2008 11 19 | 703 | 0.1− | 0.6+ |
| 2003 12 19 | 704 | 0.7− | 0.2− | 2006 05 26 | G96 | 0.2− | 0.2+ | 2008 12 29 | 703 | 0.4− | 0.8− |
| 2003 12 21 | 704 | 0.4+ | 0.1− | 2006 05 26 | G96 | 0.1+ | 0.1+ | 2008 12 29 | 703 | 0.0 | 0.3− |
| 2003 12 21 | 704 | (0.3+ | 2.2+) | 2006 05 26 | G96 | 0.0 | 0.1+ | 2008 12 29 | 703 | 0.4+ | 0.3− |
| 2003 12 21 | 704 | 1.2+ | 0.8+ | 2006 05 26 | G96 | 0.2+ | 0.1+ | 2008 12 29 | 703 | 0.2− | 0.4+ |
| 2003 12 21 | 704 | 0.5+ | 0.4− | 2006 05 26 | G96 | 0.4+ | 0.1+ | 2009 11 22 | G96 | 0.4− | 0.5+ |
| 2003 12 23 | 704 | 0.9− | 0.9+ | 2008 09 26 | 291 | 0.1+ | 0.1+ | 2009 11 22 | G96 | 0.4+ | 0.0 |
| 2003 12 23 | 704 | 0.2− | 0.1− | 2008 09 26 | 291 | 0.0 | 0.3+ | 2009 11 22 | G96 | 0.1− | 0.2− |
| 2003 12 23 | 704 | 0.3+ | 0.2+ | 2008 09 26 | 291 | 0.0 | 0.2+ | 2009 11 22 | G96 | 0.4+ | 0.3+ |
| 2003 12 23 | 704 | 0.8+ | 0.5+ | 2008 10 30 | 703 | 1.2+ | 1.5+ | | | | |

**2008 US$_{365}$ = 2006 DH$_{53}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 89.20678 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26901011 | $\omega$ | 271.66350 | | +0.25821647 | −0.96566893 | |
| $a$ | 2.3766048 | $\Omega$ | 163.28876 | | +0.92102012 | +0.23718386 | |
| $e$ | 0.1958399 | $i$ | 5.67238 | | +0.29162681 | +0.10595912 | |
| $P$ | 3.66 | $H$ | 18.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 03 09 | 691 | 0.3+ | 0.2− | 2006 02 24 | 691 | 0.2+ | 0.2+ | 2008 10 22 | G96 | 0.2+ | 0.3− |
| 1995 03 09 | 691 | 0.4− | 1.2− | 2006 02 24 | 691 | 0.0 | 0.3+ | 2008 10 22 | G96 | 0.3+ | 0.5− |
| 1995 03 09 | 691 | 0.2− | 0.8− | 2006 02 24 | 691 | 0.2+ | 0.8+ | 2008 10 26 | 735 | 0.7+ | 1.0− |
| 2002 01 08 | 644 | 1.0− | 0.8+ | 2006 02 25 | G96 | 0.4− | 0.0 | 2008 10 26 | 735 | (0.0 | 2.0−) |
| 2002 01 08 | 644 | 0.1− | 0.6+ | 2006 02 25 | G96 | 0.1+ | 0.1+ | 2008 10 26 | 735 | 0.1− | 0.3− |
| 2002 01 08 | 644 | 0.4− | 0.3+ | 2006 02 25 | G96 | 0.0 | 0.2+ | 2008 10 30 | 703 | 0.2+ | 0.7+ |
| 2004 09 09 | 705 | 1.5− | 0.2− | 2006 02 25 | G96 | 0.0 | 0.1+ | 2008 10 30 | 703 | 0.0 | 0.6+ |
| 2004 09 09 | 705 | 0.1+ | 0.5− | 2008 10 22 | G96 | 0.1− | 0.3− | 2008 10 30 | 703 | 0.4+ | 0.7− |
| 2004 09 09 | 705 | 0.5+ | 0.2− | 2008 10 22 | G96 | 0.0 | 0.2− | 2008 10 30 | 703 | 0.5+ | 0.2+ |

**2008 UU$_{365}$ = 2001 GJ$_{4}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 181.82106 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.20535435 | $\omega$ | 162.45075 | | +0.74177731 | +0.67040316 | |
| $a$ | 2.8453353 | $\Omega$ | 155.42219 | | −0.62039544 | +0.69617323 | |
| $e$ | 0.0600019 | $i$ | 2.48806 | | −0.25470751 | +0.25671468 | |
| $P$ | 4.80 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1993 09 15 | 691 | 0.3− | 0.6+ | 2006 04 07 | 691 | 0.3+ | 0.4+ | 2007 10 12 | G96 | 0.4+ | 0.2+ |
| 1993 09 15 | 691 | 0.2− | 0.7+ | 2006 04 07 | 691 | 0.1+ | 0.7+ | 2008 10 25 | G96 | 0.0 | 0.7+ |
| 1993 09 15 | 691 | 0.3− | 0.3+ | 2006 04 26 | 691 | 0.2− | 0.2+ | 2008 10 25 | G96 | 0.1− | 0.9+ |
| 2001 04 15 | 691 | 0.4+ | 0.6+ | 2006 04 26 | 691 | 0.5+ | 0.1− | 2008 10 25 | G96 | 0.3+ | 0.7+ |
| 2001 04 15 | 691 | 0.3+ | 0.8+ | 2006 04 26 | 691 | 0.1− | 0.4+ | 2008 10 25 | G96 | 0.3+ | 0.6+ |
| 2001 04 15 | 691 | 0.2+ | 0.5+ | 2006 05 26 | G96 | 0.7− | 0.4+ | 2008 11 01 | G96 | 0.2+ | 0.1+ |
| 2001 04 18 | 691 | 0.1+ | 0.2− | 2006 05 26 | G96 | 0.3− | 0.2+ | 2008 11 01 | G96 | 0.2+ | 0.4− |
| 2001 04 18 | 691 | 0.2− | 0.0 | 2006 05 26 | G96 | 0.5− | 0.3+ | 2008 11 01 | G96 | 0.3+ | 0.0 |
| 2001 04 18 | 691 | 0.3+ | 0.3− | 2006 05 26 | G96 | 0.1+ | 0.1+ | 2008 11 01 | G96 | 0.3+ | 0.3− |
| 2003 10 19 | 691 | 0.0 | 0.5+ | 2007 09 10 | G96 | 0.3− | 0.0 | 2008 11 20 | 691 | 0.1− | 0.2+ |
| 2003 10 19 | 691 | 0.1− | 0.5+ | 2007 09 10 | G96 | 0.5+ | 0.0 | 2008 11 20 | 691 | 0.2− | 0.2− |
| 2003 10 19 | 691 | 0.1+ | 0.1+ | 2007 09 10 | G96 | 0.3− | 0.1+ | 2008 11 20 | 691 | 0.5− | 0.6+ |
| 2003 11 20 | 691 | 0.2− | 0.2− | 2007 09 10 | G96 | 0.1+ | 0.2+ | 2008 12 05 | G96 | 0.0 | 0.1+ |
| 2003 11 20 | 691 | 0.0 | 0.2+ | 2007 10 12 | G96 | 0.3− | 0.1+ | 2008 12 05 | G96 | 0.5+ | 0.1− |
| 2003 11 20 | 691 | 0.0 | 0.1− | 2007 10 12 | G96 | 0.2+ | 0.1− | 2008 12 05 | G96 | 0.4+ | 0.1− |
| 2006 04 07 | 691 | 0.0 | 0.5+ | 2007 10 12 | G96 | 0.5+ | 0.3+ | 2008 12 05 | G96 | 0.2− | 0.2+ |

**2008 VW$_{3}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 67.51523 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22844807 | $\omega$ | 102.84546 | | −0.03036999 | −0.99927888 | |
| $a$ | 2.6501943 | $\Omega$ | 348.81977 | | +0.86542845 | −0.01488031 | |
| $e$ | 0.2564597 | $i$ | 6.74998 | | +0.50011126 | −0.03493271 | |
| $P$ | 4.31 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 09 04 | 691 | 0.5− | 0.0 | 2008 10 31 | 703 | 0.4+ | 0.2+ | 2008 11 04 | 704 | 0.6− | 0.2+ |
| 1999 09 04 | 691 | 0.6− | 0.2− | 2008 10 31 | 703 | 0.8+ | 0.2− | 2008 11 06 | G92 | 0.8− | 0.4− |
| 1999 09 04 | 691 | 0.3− | 0.2− | 2008 10 31 | G96 | 0.2+ | 0.4− | 2008 11 06 | G92 | 0.1+ | 0.2− |
| 1999 09 18 | 691 | 0.6+ | 0.2+ | 2008 10 31 | 703 | 0.7− | 1.1+ | 2008 11 06 | G92 | 0.6− | 0.1+ |
| 1999 09 18 | 691 | 0.4+ | 0.1+ | 2008 10 31 | 703 | 1.0+ | 0.8+ | 2008 11 07 | G92 | 1.0− | 1.2− |
| 1999 09 18 | 691 | 0.4+ | 0.1− | 2008 10 31 | G96 | 0.1+ | 0.2− | 2008 11 07 | G92 | 1.0− | 0.0 |
| 2001 03 26 | 695 | 0.5+ | 0.4+ | 2008 10 31 | G96 | 0.1+ | 0.0 | 2008 11 07 | G92 | 0.8+ | 0.8− |
| 2001 03 26 | 695 | 0.5+ | 0.5+ | 2008 11 04 | G92 | 0.6+ | 0.9− | 2008 11 21 | 704 | 0.2− | 0.9− |
| 2001 04 16 | 645 | 0.0 | 0.1− | 2008 11 04 | G92 | 0.7+ | 0.3+ | 2008 11 21 | 704 | 0.2− | 0.5+ |
| 2001 04 16 | 645 | 0.1− | 0.0 | 2008 11 04 | G92 | 0.7+ | 0.1− | 2008 11 21 | 704 | 0.3− | 0.9− |
| 2004 12 21 | 703 | 0.9− | 0.3− | 2008 11 04 | 704 | 0.1− | 0.7+ | 2008 11 21 | 704 | 0.9− | 0.8+ |
| 2004 12 21 | 703 | 0.9+ | 0.0 | 2008 11 04 | 704 | 0.5+ | 0.7+ | 2008 11 21 | 704 | (0.9− | 2.3+) |
| 2004 12 21 | 703 | 0.8+ | 0.1+ | 2008 11 04 | 704 | 0.1+ | 0.2+ | | | | |
| 2004 12 21 | 703 | 0.8− | 0.1− | 2008 11 04 | 704 | 0.5+ | 0.5+ | | | | |

**2008 VN$_{5}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 331.57602 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17908270 | $\omega$ | 187.49023 | | −0.72549808 | −0.67325011 | |
| $a$ | 3.1172165 | $\Omega$ | 309.16417 | | +0.64059810 | −0.58476465 | |
| $e$ | 0.0114833 | $i$ | 10.61186 | | +0.25156830 | −0.45253132 | |
| $P$ | 5.50 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 02 02 | 703 | 0.4− | 1.3− | 2005 03 17 | G96 | 0.0 | 0.0 | 2008 10 25 | 703 | (1.6− | 0.7−) |
| 2005 02 02 | 703 | (1.7− | 0.7+) | 2007 08 12 | 691 | 0.1+ | 0.1+ | 2008 10 25 | 703 | 0.5− | 0.5− |
| 2005 02 02 | 703 | (1.5+ | 1.2−) | 2007 08 12 | 691 | 0.2− | 0.0 | 2008 11 01 | G96 | 0.2− | 0.1+ |
| 2005 02 02 | 703 | 0.2− | 0.0 | 2007 08 12 | 691 | 0.0 | 0.2+ | 2008 11 01 | G96 | 0.1− | 0.0 |
| 2005 02 14 | 691 | 0.2+ | 0.2+ | 2008 10 10 | G96 | 0.2− | 0.1− | 2008 11 01 | G96 | 0.0 | 0.1− |
| 2005 02 14 | 691 | 0.1+ | 0.3+ | 2008 10 10 | G96 | 0.0 | 0.2+ | 2008 11 01 | G96 | 0.3− | 0.1+ |
| 2005 02 14 | 691 | 0.2+ | 0.2+ | 2008 10 10 | G96 | 0.1+ | 0.1− | 2008 11 03 | 621 | 0.0 | 0.1+ |
| 2005 03 17 | G96 | 0.4− | 0.4− | 2008 10 10 | G96 | 0.1− | 0.1+ | 2008 11 03 | 621 | 0.1− | 0.1− |
| 2005 03 17 | G96 | 0.4− | 0.1− | 2008 10 25 | 703 | 0.1− | 0.2+ | 2008 11 03 | 621 | 0.1− | 0.1+ |
| 2005 03 17 | G96 | 0.2− | 0.1− | 2008 10 25 | 703 | 1.3+ | 0.5+ | | | | |

### 2008 VJ$_7$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 9.38965 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21641568 | $\omega$ | 98.06502 | | −0.08313178 | −0.99645224 | |
| $a$ | 2.7475371 | $\Omega$ | 356.61950 | | +0.80409620 | −0.05929771 | |
| $e$ | 0.1745229 | $i$ | 12.85193 | | +0.58865815 | −0.05972191 | |
| $P$ | 4.55 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 01 31 | G96 | 0.1+ | 0.1+ | 2008 10 06 | 691 | 0.1− | 0.1− | 2008 11 04 | G96 | 0.2− | 0.3− |
| 2006 01 31 | G96 | 0.1+ | 0.3+ | 2008 10 06 | 691 | 0.5+ | 0.5− | 2008 11 18 | 291 | 0.1− | 0.4+ |
| 2006 01 31 | G96 | 0.1+ | 0.1+ | 2008 11 02 | G96 | 0.5+ | 0.1− | 2008 11 18 | 291 | 0.2− | 0.2+ |
| 2006 01 31 | G96 | 0.2+ | 0.0 | 2008 11 02 | G96 | 0.1+ | 0.1− | 2008 11 18 | 291 | 0.0 | 0.1+ |
| 2006 02 24 | G96 | 0.4+ | 0.3− | 2008 11 02 | G96 | 0.2+ | 0.0 | 2009 09 24 | G96 | 0.4− | 0.0 |
| 2006 02 24 | G96 | 0.5− | 0.5+ | 2008 11 02 | G96 | 0.3− | 0.4+ | 2009 09 24 | G96 | 0.1+ | 0.4+ |
| 2006 02 24 | G96 | 0.1+ | 0.2− | 2008 11 04 | G96 | 0.2− | 0.3− | 2009 09 24 | G96 | 0.3+ | 0.6− |
| 2006 02 24 | G96 | 0.1+ | 0.2+ | 2008 11 04 | G96 | 0.1+ | 0.0 | 2009 09 24 | G96 | 0.0 | 0.1− |
| 2008 10 06 | 691 | 0.3− | 0.3+ | 2008 11 04 | G96 | 0.2+ | 0.0 | | | | |

### 2008 VM$_{16}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 12.11800 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.08179457 | $\omega$ | 13.58809 | | +0.38951467 | −0.91476841 | |
| $a$ | 5.2559722 | $\Omega$ | 53.59224 | | +0.83209237 | +0.29965126 | |
| $e$ | 0.0155462 | $i$ | 7.64952 | | +0.39484251 | +0.27093888 | |
| $P$ | 12.05 | $H$ | 14.4 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 09 29 | 691 | 0.0 | 0.2+ | 2008 11 01 | 691 | 0.4+ | 0.7− | 2009 11 21 | 691 | 0.0 | 0.2− |
| 2008 09 29 | 691 | 0.8− | 0.0 | 2008 11 08 | G96 | 1.0+ | 0.0 | 2009 11 21 | 691 | 0.1+ | 0.2− |
| 2008 09 29 | 691 | 0.3+ | 0.2− | 2008 11 08 | G96 | 0.7+ | 0.5− | 2009 11 21 | 691 | 0.1− | 0.3+ |
| 2008 10 20 | 691 | 0.3+ | 0.0 | 2008 11 08 | G96 | 0.5+ | 0.5− | 2009 12 11 | G96 | 0.0 | 0.0 |
| 2008 10 20 | 691 | 0.1+ | 0.5+ | 2008 11 08 | G96 | 0.2− | 0.0 | 2009 12 11 | G96 | 0.3− | 0.1− |
| 2008 10 20 | 691 | 0.3+ | 0.1− | 2008 11 21 | 691 | 0.3− | 0.1+ | 2009 12 11 | G96 | 0.5+ | 0.6+ |
| 2008 11 01 | 691 | 0.3− | 0.0 | 2008 11 21 | 691 | 0.2− | 0.3+ | | | | |
| 2008 11 01 | 691 | 0.1− | 0.1+ | 2008 11 21 | 691 | 0.1− | 0.0 | | | | |

### 2008 VE$_{19}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 60.58714 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.20393975 | $\omega$ | 344.23879 | | +0.25317158 | −0.96570830 | |
| $a$ | 2.8584776 | $\Omega$ | 91.06928 | | +0.89369475 | +0.21068677 | |
| $e$ | 0.0572486 | $i$ | 3.29959 | | +0.37042388 | +0.15171872 | |
| $P$ | 4.83 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 01 11 | 691 | 0.5+ | 0.3− | 2006 05 01 | 691 | 0.0 | 0.2+ | 2008 11 08 | G96 | 0.0 | 0.1− |
| 2000 01 11 | 691 | 0.2− | 0.3− | 2006 05 01 | 691 | 0.1+ | 0.0 | 2008 11 08 | G96 | 0.3− | 0.2− |
| 2000 01 11 | 691 | 0.5− | 0.4− | 2006 05 01 | 691 | 0.5+ | 0.3+ | 2008 11 08 | 691 | 0.0 | 0.3+ |
| 2005 01 16 | 691 | 0.1+ | 0.3+ | 2008 10 06 | G96 | 0.9+ | 0.2− | 2008 11 08 | G96 | 0.1+ | 0.0 |
| 2005 01 16 | 691 | 0.3+ | 0.1− | 2008 10 06 | G96 | 0.3+ | 0.0 | 2008 12 02 | G96 | 0.7− | 0.1− |
| 2005 01 16 | 691 | 0.1+ | 0.6+ | 2008 10 06 | G96 | 0.2+ | 0.0 | 2008 12 02 | G96 | 0.2+ | 0.2+ |
| 2005 02 04 | G96 | 0.4− | 0.2+ | 2008 10 06 | G96 | 0.2+ | 0.1+ | 2008 12 02 | G96 | 0.0 | 0.1− |
| 2005 02 04 | G96 | 0.3− | 0.1+ | 2008 11 01 | 691 | 0.1− | 0.1+ | 2008 12 02 | G96 | 0.2+ | 0.0 |
| 2005 02 04 | G96 | 0.2− | 0.0 | 2008 11 01 | 691 | 0.0 | 0.0 | 2009 01 18 | G96 | 0.8+ | 0.1− |
| 2005 02 04 | G96 | 0.3− | 0.1+ | 2008 11 01 | 691 | 0.3− | 0.4+ | 2009 01 18 | G96 | 0.1+ | 0.1− |
| 2006 04 24 | 691 | 0.1+ | 0.5+ | 2008 11 08 | 691 | 0.2+ | 0.1− | 2009 01 18 | G96 | 0.5+ | 0.2+ |
| 2006 04 24 | 691 | 0.1+ | 0.5+ | 2008 11 08 | G96 | 0.1+ | 0.0 | 2009 01 18 | G96 | 0.3+ | 0.0 |
| 2006 04 24 | 691 | 0.8− | 1.1− | 2008 11 08 | 691 | 0.6− | 0.1− | | | | |

### 2008 VO$_{22}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 140.23179 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26602955 | $\omega$ | 255.42743 | | +0.98971751 | −0.13331948 | |
| $a$ | 2.3943233 | $\Omega$ | 112.21292 | | +0.14300526 | +0.91480190 | |
| $e$ | 0.2219054 | $i$ | 3.20867 | | +0.00295630 | +0.38126552 | |
| $P$ | 3.70 | $H$ | 18.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 07 16 | 807 | 0.1− | 0.1+ | 2008 11 01 | G96 | 0.4− | 0.3+ | 2008 11 07 | G96 | 0.1− | 0.0 |
| 2004 07 16 | 807 | 0.1+ | 0.2+ | 2008 11 01 | G96 | 0.2− | 0.2+ | 2008 11 07 | G96 | 0.5+ | 0.0 |
| 2004 08 23 | 691 | 0.1+ | 0.1+ | 2008 11 01 | G96 | 0.0 | 0.6+ | 2008 11 07 | G96 | 0.2− | 0.1+ |
| 2004 08 23 | 691 | 0.0 | 0.0 | 2008 11 01 | G96 | 0.2− | 0.4+ | 2008 11 21 | G96 | 0.1+ | 0.0 |
| 2004 08 23 | 691 | 0.1− | 0.1− | 2008 11 06 | G96 | 0.2− | 0.0 | 2008 11 21 | G96 | 0.5+ | 0.2− |
| 2008 09 27 | G96 | 0.2− | 0.6− | 2008 11 06 | G96 | 0.4+ | 0.3− | 2008 11 21 | G96 | 0.3− | 0.0 |
| 2008 09 27 | G96 | 0.3+ | 0.1− | 2008 11 06 | G96 | 0.4+ | 0.3− | 2008 11 21 | G96 | 0.6− | 0.2+ |
| 2008 09 27 | G96 | 0.3+ | 0.2− | 2008 11 06 | G96 | 0.5+ | 0.0 | | | | |
| 2008 09 27 | G96 | 0.2− | 0.5− | 2008 11 07 | G96 | 0.3− | 0.0 | | | | |

### 2008 VL$_{24}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 108.14824 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19818182 | $\omega$ | 236.73107 | | +0.82606644 | −0.56297623 | |
| $a$ | 2.9135792 | $\Omega$ | 157.49739 | | +0.53697736 | +0.77228731 | |
| $e$ | 0.0959777 | $i$ | 3.88375 | | +0.17108347 | +0.29432987 | |
| $P$ | 4.97 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 02 05 | 695 | 0.1+ | 0.3+ | 2008 09 29 | G96 | 0.0 | 0.2+ | 2008 11 20 | 691 | 0.3+ | 0.2+ |
| 2000 02 05 | 695 | 0.1+ | 0.3+ | 2008 11 01 | 691 | 0.0 | 0.0 | 2008 11 20 | 691 | 0.3− | 0.1+ |
| 2005 04 04 | G96 | 0.1+ | 0.4− | 2008 11 01 | 691 | 0.4+ | 0.1− | 2008 11 24 | 691 | 0.3− | 0.3− |
| 2005 04 04 | G96 | 0.1− | 0.0 | 2008 11 01 | 691 | 0.1+ | 0.0 | 2008 11 24 | 691 | 0.2− | 0.1+ |
| 2005 04 04 | G96 | 0.1− | 0.3− | 2008 11 07 | G96 | 0.5+ | 0.2− | 2008 11 24 | 691 | 0.1− | 0.2− |
| 2005 04 04 | G96 | 0.1− | 0.1− | 2008 11 07 | G96 | 0.2+ | 0.4− | 2008 12 03 | 691 | 0.4+ | 0.2+ |
| 2008 09 29 | G96 | 0.7+ | 0.3− | 2008 11 07 | G96 | 0.8+ | 0.0 | 2008 12 03 | 691 | 0.2− | 0.2− |
| 2008 09 29 | G96 | 0.1− | 0.1+ | 2008 11 07 | G96 | 0.1− | 0.4− | 2008 12 03 | 691 | 0.6− | 0.0 |
| 2008 09 29 | G96 | 0.2− | 0.1− | 2008 11 20 | 691 | 0.1+ | 0.4+ | | | | |

### 2008 VM$_{28}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 88.61928 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27042421 | $\omega$ | 85.27298 | | +0.34491360 | −0.93662776 | |
| $a$ | 2.3683125 | $\Omega$ | 344.12605 | | +0.74750091 | +0.31361865 | |
| $e$ | 0.1737805 | $i$ | 12.96016 | | +0.56769446 | +0.15611465 | |
| $P$ | 3.64 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 12 23 | 644 | 0.0 | 0.1+ | 2006 02 27 | G96 | 0.0 | 0.2+ | 2008 11 02 | 703 | 0.3+ | 0.9+ |
| 2001 12 23 | 644 | 0.1− | 0.0 | 2008 10 06 | 703 | 1.0− | 0.5+ | 2008 11 02 | 703 | 0.6− | 0.7+ |
| 2001 12 23 | 644 | 0.0 | 0.1− | 2008 10 06 | 703 | 0.4+ | 0.6+ | 2008 11 02 | 703 | 0.6− | 0.1+ |
| 2006 01 28 | 691 | 0.1− | 0.2+ | 2008 10 06 | 703 | 0.4− | 0.3− | 2008 11 02 | 703 | 0.5− | 0.3− |
| 2006 01 28 | 691 | 0.1− | 0.1− | 2008 10 06 | 703 | 0.1+ | 0.8− | 2008 11 07 | G96 | 0.2− | 0.5− |
| 2006 01 28 | 691 | 0.2+ | 0.2− | 2008 10 24 | 703 | 0.9+ | 0.4− | 2008 11 07 | G96 | 0.1− | 0.3− |
| 2006 02 27 | G96 | 0.2− | 0.0 | 2008 10 24 | 703 | 0.3+ | 0.1+ | 2008 11 07 | G96 | 0.6− | 0.3− |
| 2006 02 27 | G96 | 0.5+ | 0.2+ | 2008 10 24 | 703 | 1.4+ | 0.7+ | 2008 11 07 | G96 | 0.4− | 0.4− |
| 2006 02 27 | G96 | 0.1− | 0.1+ | 2008 10 24 | 703 | 0.8+ | 0.2− | | | | |

**2008 VL$_{30}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 176.89054 | | (2000.0) | | | |
| $n$ | 0.24241307 | $\omega$ | 313.64709 | | +0.76012878 | +0.64973449 |
| $a$ | 2.5474091 | $\Omega$ | 5.84394 | | −0.57453869 | +0.67712681 |
| $e$ | 0.1535503 | $i$ | 3.95533 | | −0.30349553 | +0.34546254 |
| $P$ | 4.07 | $H$ | 17.3 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 11 | 695 | 0.6− | 0.1+ | 2008 10 25 | 691 | 0.2+ | 0.0 | 2008 11 06 | 691 | 0.0 | 0.2+ |
| 2004 10 11 | 695 | 0.8+ | 0.2− | 2008 10 25 | 691 | 0.2− | 0.2− | 2008 11 06 | 691 | 0.1+ | 0.2+ |
| 2004 11 11 | 691 | 0.4− | 0.1+ | 2008 11 02 | 691 | 0.1+ | 0.4− | 2008 12 01 | G96 | 0.3− | 0.2+ |
| 2004 11 11 | 691 | 0.1− | 0.1+ | 2008 11 02 | 691 | 0.1− | 0.2− | 2008 12 01 | G96 | 0.6+ | 0.1+ |
| 2004 11 11 | 691 | 0.4+ | 0.2− | 2008 11 02 | 691 | 0.2+ | 0.0 | 2008 12 01 | G96 | 0.4+ | 0.3− |
| 2008 10 25 | 691 | 0.1+ | 0.2+ | 2008 11 06 | 691 | 0.6− | 0.2+ | 2008 12 01 | G96 | 0.3+ | 0.1+ |

**2008 VY$_{38}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 114.66381 | | (2000.0) | | | |
| $n$ | 0.22931901 | $\omega$ | 237.16910 | | +0.87388858 | −0.48009310 |
| $a$ | 2.6434799 | $\Omega$ | 151.30626 | | +0.48198391 | +0.83522918 |
| $e$ | 0.1873068 | $i$ | 9.15007 | | +0.06332663 | +0.26814705 |
| $P$ | 4.30 | $H$ | 16.9 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 08 07 | 691 | 0.0 | 0.1− | 2008 11 09 | G96 | 0.0 | 0.8− | 2008 11 17 | 703 | 0.4− | 0.3+ |
| 1999 08 07 | 691 | (3.4− | 0.5+) | 2008 11 09 | G96 | 0.3+ | 0.5− | 2008 12 01 | 703 | 0.9+ | 0.2+ |
| 1999 08 07 | 691 | 0.1+ | 0.1+ | 2008 11 09 | G96 | 0.2+ | 0.8− | 2008 12 01 | 703 | 0.6+ | 0.2− |
| 2008 11 02 | 703 | 0.3+ | 1.2+ | 2008 11 09 | G96 | 0.5+ | 0.7− | 2008 12 01 | 703 | 0.6− | 0.2+ |
| 2008 11 02 | 703 | 0.1− | 0.7+ | 2008 11 17 | 703 | 0.0 | 0.2+ | 2008 12 01 | 703 | 0.9− | 0.4+ |
| 2008 11 02 | 703 | 0.2+ | 0.3+ | 2008 11 17 | 703 | 1.5− | 0.4− | | | | |
| 2008 11 02 | 703 | 0.5− | 0.7+ | 2008 11 17 | 703 | 0.7+ | 0.5− | | | | |

**2008 VL$_{39}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 118.58784 | | (2000.0) | | | |
| $n$ | 0.22357516 | $\omega$ | 93.55779 | | +0.81772718 | −0.57076074 |
| $a$ | 2.6885638 | $\Omega$ | 301.25959 | | +0.48742521 | +0.75549533 |
| $e$ | 0.0510114 | $i$ | 5.00169 | | +0.30616813 | +0.32165041 |
| $P$ | 4.41 | $H$ | 17.0 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 02 20 | 645 | 0.0 | 0.1+ | 2005 01 17 | 691 | 0.4+ | 0.1− | 2008 11 02 | 691 | 0.1+ | 0.2− |
| 2001 02 20 | 645 | 0.0 | 0.2+ | 2005 01 17 | 691 | 0.3+ | 0.1+ | 2008 11 02 | 691 | 0.1+ | 0.0 |
| 2003 09 18 | 691 | 0.0 | 0.4+ | 2007 09 05 | G96 | 0.7+ | 0.2+ | 2008 11 06 | 691 | 0.2+ | 0.2− |
| 2003 09 18 | 691 | 0.4− | 0.2+ | 2007 09 05 | G96 | 0.2+ | 0.0 | 2008 11 06 | 691 | 0.1+ | 0.1− |
| 2003 09 18 | 691 | 0.1− | 0.3+ | 2007 09 05 | G96 | 0.2− | 0.2+ | 2008 11 06 | 691 | 0.1− | 0.0 |
| 2004 12 18 | G96 | 0.4+ | 0.1− | 2007 09 05 | G96 | 0.1− | 0.2+ | 2008 12 06 | 691 | 0.1+ | 0.2− |
| 2004 12 18 | G96 | 0.1− | 0.0 | 2008 10 22 | 691 | 0.5− | 0.1− | 2008 12 06 | 691 | 0.3+ | 0.2− |
| 2004 12 18 | G96 | 0.2+ | 0.2− | 2008 10 22 | 691 | 0.4− | 0.2+ | 2008 12 06 | 691 | 0.1+ | 0.1+ |
| 2004 12 18 | G96 | 0.1− | 0.1− | 2008 10 22 | 691 | 0.1− | 0.3+ | | | | |
| 2005 01 17 | 691 | 0.1+ | 0.1+ | 2008 11 02 | 691 | 0.4− | 0.0 | | | | |

**2008 VP$_{39}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 45.86426 | | (2000.0) | | | |
| $n$ | 0.17595266 | $\omega$ | 48.04333 | | −0.12570999 | −0.92358157 |
| $a$ | 3.1540761 | $\Omega$ | 52.93100 | | +0.72160772 | −0.33567400 |
| $e$ | 0.1306265 | $i$ | 26.99707 | | +0.68079314 | +0.18525674 |
| $P$ | 5.60 | $H$ | 16.1 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 10 04 | 645 | 0.0 | 0.0 | 2005 04 30 | 691 | 0.1− | 0.1+ | 2008 11 02 | 691 | 0.4+ | 0.2− |
| 2002 10 04 | 645 | 0.0 | 0.0 | 2005 04 30 | 691 | 0.1+ | 0.3− | 2008 11 02 | 691 | 0.4+ | 0.1− |
| 2002 10 11 | 645 | 0.0 | 0.0 | 2005 04 30 | 691 | 0.1+ | 0.3+ | 2008 11 02 | 691 | 0.6− | 0.3+ |
| 2002 10 11 | 645 | 0.0 | 0.1− | 2008 10 26 | 691 | 0.0 | 0.0 | 2008 11 06 | 691 | 0.2+ | 0.0 |
| 2002 10 29 | 645 | 0.0 | 0.1+ | 2008 10 26 | 691 | 0.2− | 0.0 | 2008 11 06 | 691 | 0.1+ | 0.1− |
| 2002 10 29 | 645 | 0.0 | 0.0 | 2008 10 26 | 691 | 0.5− | 0.3+ | 2008 11 06 | 691 | 0.2+ | 0.2− |

**2008 VA$_{41}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 133.39086 | | (2000.0) | | | |
| $n$ | 0.21770911 | $\omega$ | 9.03390 | | +0.99274947 | −0.12013226 |
| $a$ | 2.7366441 | $\Omega$ | 357.85306 | | +0.10233388 | +0.86254324 |
| $e$ | 0.0411768 | $i$ | 6.26985 | | +0.06305771 | +0.49151542 |
| $P$ | 4.53 | $H$ | 17.7 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 29 | 645 | 0.1+ | 0.0 | 2008 10 26 | 691 | 0.2+ | 0.1+ | 2008 11 07 | 691 | 0.3− | 0.4+ |
| 2003 09 29 | 645 | 0.1+ | 0.0 | 2008 10 26 | 691 | 0.1+ | 0.2− | 2008 12 01 | G96 | 0.6+ | 0.3− |
| 2003 10 18 | 645 | 0.0 | 0.0 | 2008 11 03 | 691 | 0.4− | 0.2− | 2008 12 01 | G96 | 0.7+ | 0.6− |
| 2003 10 18 | 645 | 0.1− | 0.1− | 2008 11 03 | 691 | 0.1+ | 0.0 | 2008 12 01 | G96 | 0.4+ | 0.4− |
| 2003 10 22 | 645 | 0.0 | 0.1+ | 2008 11 03 | 691 | 0.2+ | 0.0 | 2008 12 01 | G96 | 0.1+ | 0.0 |
| 2003 10 22 | 645 | 0.1− | 0.0 | 2008 11 07 | 691 | 0.3− | 0.3+ | | | | |
| 2008 10 26 | 691 | 0.1+ | 0.0 | 2008 11 07 | 691 | 0.0 | 0.1− | | | | |

**2008 VQ$_{45}$ = 2002 SD$_{11}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 117.47507 | | (2000.0) | | | |
| $n$ | 0.17907977 | $\omega$ | 344.90103 | | +0.98279760 | −0.16476185 |
| $a$ | 3.1172504 | $\Omega$ | 25.04840 | | +0.18318884 | +0.81225628 |
| $e$ | 0.0910680 | $i$ | 11.36634 | | +0.02346764 | +0.55954739 |
| $P$ | 5.50 | $H$ | 16.4 | $G$ | 0.15 | $U$ 5 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 09 27 | 644 | 0.1+ | 0.2− | 2002 09 28 | 644 | 0.2− | 0.1+ | 2008 11 03 | 691 | 0.0 | 0.1+ |
| 2002 09 27 | 644 | 0.0 | 0.1− | 2008 10 31 | 691 | 0.4+ | 0.2+ | 2008 11 03 | 691 | 0.1+ | 0.0 |
| 2002 09 27 | 644 | 0.0 | 0.1+ | 2008 10 31 | 691 | 0.6− | 0.1+ | 2008 11 09 | 691 | 0.2− | 0.1− |
| 2002 09 28 | 644 | 0.4+ | 0.1+ | 2008 10 31 | 691 | 0.5+ | 0.3− | 2008 11 09 | 691 | 0.3+ | 0.2+ |
| 2002 09 28 | 644 | 0.3− | 0.1+ | 2008 11 03 | 691 | 0.6− | 0.0 | 2008 11 09 | 691 | 0.0 | 0.1− |

**2008 VS$_{54}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 350.68507 | | (2000.0) | | | |
| $n$ | 0.23940451 | $\omega$ | 241.22448 | | −0.91569275 | −0.39765027 |
| $a$ | 2.5687066 | $\Omega$ | 275.29306 | | +0.38607414 | −0.83024691 |
| $e$ | 0.0781197 | $i$ | 3.34774 | | +0.11159545 | −0.39059486 |
| $P$ | 4.12 | $H$ | 16.6 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 13 | 691 | 0.0 | 0.3− | 2008 10 24 | G96 | 0.4+ | 0.0 | 2008 11 07 | G96 | 0.1− | 0.2− |
| 2004 10 13 | 691 | 0.1− | 0.3− | 2008 10 24 | G96 | 0.3+ | 0.0 | 2008 11 07 | G96 | 0.5+ | 0.2+ |
| 2004 10 13 | 691 | 0.1+ | 0.2+ | 2008 10 24 | G96 | 0.2+ | 0.1+ | 2008 11 18 | 691 | 0.3− | 0.2+ |
| 2004 11 09 | 703 | 0.0 | 0.7+ | 2008 10 24 | G96 | 0.2+ | 0.0 | 2008 11 18 | 691 | 0.3− | 0.3+ |
| 2004 11 09 | 703 | 0.7− | 0.6+ | 2008 11 06 | G96 | 0.2+ | 0.1+ | 2008 11 18 | 691 | 0.4− | 0.1− |
| 2004 11 09 | 703 | 0.1− | 0.4− | 2008 11 06 | G96 | 0.5+ | 0.1− | 2009 01 01 | G96 | 0.2+ | 0.0 |
| 2004 11 09 | 703 | 0.6+ | 0.3− | 2008 11 06 | G96 | 0.2+ | 0.4− | 2009 01 01 | G96 | 0.4+ | 0.1− |
| 2006 03 05 | 691 | 0.0 | 0.0 | 2008 11 06 | G96 | 0.4+ | 0.2− | 2009 01 01 | G96 | 0.4− | 0.2− |
| 2006 03 05 | 691 | 0.0 | 0.1− | 2008 11 07 | G96 | 0.0 | 0.2− | 2009 01 01 | G96 | 0.3+ | 0.1+ |
| 2006 03 05 | 691 | 0.0 | 0.1+ | 2008 11 07 | G96 | 0.3+ | 0.2− | | | | |

**2008 VQ$_{61}$ = 2006 HR$_{119}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 192.43673 | | (2000.0) | | | |
| $n$ | 0.17715558 | $\omega$ | 213.59733 | | +0.11307747 | +0.97679411 |
| $a$ | 3.1397819 | $\Omega$ | 63.49191 | | −0.86099623 | +0.18769976 |
| $e$ | 0.1192028 | $i$ | 11.72806 | | −0.49588203 | −0.10316038 |
| $P$ | 5.56 | $H$ | 15.5 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 04 30 | 691 | 0.0 | 0.3− | 2008 10 27 | G96 | 0.4+ | 0.5+ | 2008 11 09 | G96 | 0.1− | 0.3− |
| 2006 04 30 | 691 | 0.7− | 0.8+ | 2008 10 27 | G96 | 0.1− | 0.2+ | 2008 11 09 | G96 | 0.5+ | 0.1+ |
| 2006 04 30 | 691 | 0.3+ | 0.2− | 2008 10 27 | G96 | 0.0 | 0.1+ | 2008 11 09 | G96 | 0.3− | 0.7− |
| 2006 05 09 | 691 | 0.2+ | 0.0 | 2008 11 08 | G96 | 0.0 | 0.3− | 2008 12 01 | G96 | 0.2+ | 0.1+ |
| 2006 05 09 | 691 | 0.3+ | 0.1+ | 2008 11 08 | G96 | 0.3− | 0.1− | 2008 12 01 | G96 | 0.2− | 0.1− |
| 2006 05 09 | 691 | 0.1− | 0.4− | 2008 11 08 | G96 | 0.3− | 0.1− | 2008 12 01 | G96 | 0.1− | 0.3+ |
| 2008 10 27 | G96 | 0.3+ | 0.0 | 2008 11 09 | G96 | 0.2+ | 0.2+ | 2008 12 01 | G96 | 0.0 | 0.0 |

## 2008 $VZ_{74}$ = 2003 PP

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 116.54548 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21056223 | $\omega$ | 237.24557 | | +0.98192870 | | −0.02559513 |
| $a$ | 2.7982235 | $\Omega$ | 123.55847 | | +0.07721129 | | +0.95878144 |
| $e$ | 0.3150774 | $i$ | 13.00393 | | −0.17278437 | | +0.28298947 |
| $P$ | 4.68 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 08 02 | 608 | 0.2− | 0.3+ | 2007 06 14 | 691 | 0.0 | 0.1+ | 2008 11 10 | J75 | 0.6− | 0.2+ |
| 2003 08 02 | 608 | 0.4+ | 0.1+ | 2007 06 14 | 691 | 0.0 | 0.0 | 2008 11 10 | J75 | (1.9+ | 0.3−) |
| 2003 08 02 | 608 | 0.6+ | 0.5− | 2007 06 14 | 691 | 0.0 | 0.2− | 2008 11 19 | 703 | 0.0 | 0.3+ |
| 2003 08 03 | 673 | 0.1+ | 0.6+ | 2008 10 01 | 703 | 1.1+ | 0.2− | 2008 11 19 | 703 | 0.8− | 0.4− |
| 2003 08 03 | 673 | 0.1+ | 0.5+ | 2008 10 01 | 703 | 0.6+ | 0.4− | 2008 11 19 | 703 | 0.4− | 0.2+ |
| 2003 08 03 | 673 | 0.3+ | 1.0+ | 2008 10 01 | 703 | 0.0 | 0.0 | 2008 11 19 | 703 | 0.0 | 0.5+ |
| 2003 08 31 | 608 | 0.5− | 0.1− | 2008 10 01 | 703 | 0.1− | 0.8− | 2008 12 22 | 703 | 0.3+ | 0.0 |
| 2003 08 31 | 608 | 0.2− | 0.1+ | 2008 11 06 | 703 | 0.5+ | 0.2− | 2008 12 22 | 703 | 0.2− | 1.3+ |
| 2003 08 31 | 608 | 0.0 | 0.0 | 2008 11 06 | 703 | 1.1+ | 0.4+ | 2008 12 22 | 703 | 0.6− | 1.0− |
| 2003 09 19 | 644 | 0.0 | 0.3− | 2008 11 06 | 703 | 0.3− | 0.4− | 2008 12 22 | 703 | 0.6− | 1.1+ |
| 2003 09 19 | 644 | 0.3− | 0.5− | 2008 11 06 | 703 | 0.0 | 0.1− | | | | |
| 2003 09 19 | 644 | 0.3− | 0.4− | 2008 11 10 | J75 | 0.0 | 0.6− | | | | |

## 2008 $VA_{75}$ = 2003 $YY_{96}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 23.22180 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18383080 | $\omega$ | 16.37722 | | −0.43581512 | | −0.87355673 |
| $a$ | 3.0633071 | $\Omega$ | 99.89391 | | +0.79913112 | | −0.48634414 |
| $e$ | 0.0922953 | $i$ | 12.70804 | | +0.41407081 | | +0.01918395 |
| $P$ | 5.36 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 12 19 | 704 | 0.2+ | 0.6+ | 2005 04 02 | 703 | 0.6− | 0.6− | 2008 11 06 | 703 | 0.4− | 0.9+ |
| 2003 12 19 | 704 | 0.3− | 0.3− | 2005 04 02 | 703 | 0.9− | 1.0+ | 2008 11 18 | 703 | (1.9+ | 0.6−) |
| 2003 12 19 | 704 | 0.2+ | 0.2− | 2005 04 02 | 703 | 0.1− | 0.6+ | 2008 11 18 | 703 | 0.7+ | 0.2+ |
| 2003 12 23 | 704 | 0.4+ | 0.2− | 2005 04 02 | 703 | (3.6+ | 0.7+) | 2008 11 18 | 703 | 0.4− | 0.2+ |
| 2003 12 23 | 704 | 0.1− | 0.2+ | 2005 04 09 | 703 | 0.0 | 0.9− | 2008 11 18 | 703 | 0.8+ | 1.2− |
| 2003 12 23 | 704 | 0.1+ | 0.8− | 2005 04 09 | 703 | (0.3− | 1.8−) | 2008 12 01 | 703 | 0.2− | 0.1+ |
| 2003 12 23 | 704 | 0.4− | 0.1+ | 2005 04 09 | 703 | (1.7+ | 0.6+) | 2008 12 01 | 703 | 1.0− | 0.7+ |
| 2005 03 10 | 703 | 0.1+ | 1.3+ | 2005 04 09 | 703 | 0.0 | 0.3− | 2008 12 01 | 703 | 0.0 | 0.2− |
| 2005 03 10 | 703 | 0.3+ | 0.3+ | 2008 11 06 | 703 | 0.1− | 0.5− | 2008 12 01 | 703 | 0.1− | 0.3+ |
| 2005 03 10 | 703 | (2.0+ | 1.4−) | 2008 11 06 | 703 | 0.9− | 0.6+ | | | | |
| 2005 03 10 | 703 | 1.3+ | 1.2− | 2008 11 06 | 703 | 1.4+ | 0.7− | | | | |

## 2008 $VC_{75}$ = 2003 $KT_{33}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 143.72201 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.24076265 | $\omega$ | 176.07803 | | +0.95807186 | | +0.28431297 |
| $a$ | 2.5590375 | $\Omega$ | 167.23242 | | −0.26706807 | | +0.93105514 |
| $e$ | 0.1927138 | $i$ | 9.25935 | | −0.10379290 | | +0.22869733 |
| $P$ | 4.09 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 05 27 | 691 | 0.2+ | 0.5+ | 2003 07 03 | 691 | 0.3− | 0.0 | 2008 11 17 | 703 | (1.6+ | 0.6+) |
| 2003 05 27 | 691 | 0.6+ | 0.3+ | 2003 07 03 | 691 | 0.8− | 0.5− | 2008 11 17 | 703 | 0.8+ | 0.4− |
| 2003 05 27 | 691 | 0.1+ | 0.5+ | 2008 11 03 | 703 | 0.5− | 0.5+ | 2008 11 17 | 703 | (0.6+ | 1.5−) |
| 2003 06 01 | 691 | 0.1− | 0.3− | 2008 11 03 | 703 | 0.4− | 0.9+ | 2008 12 01 | 703 | 0.2− | 0.4− |
| 2003 06 01 | 691 | 0.1− | 0.2− | 2008 11 03 | 703 | (1.7− | 1.2+) | 2008 12 01 | 703 | 0.1+ | 0.3− |
| 2003 06 01 | 691 | 0.3+ | 0.1− | 2008 11 03 | 703 | 0.5+ | 0.7+ | 2008 12 01 | 703 | 0.2− | 0.1+ |
| 2003 07 03 | 691 | 0.0 | 0.0 | 2008 11 17 | 703 | 0.1+ | 0.1− | 2008 12 01 | 703 | 0.6− | 0.5− |

## 2008 $VD_{75}$ = 2003 $SN_{212}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 133.60535 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21210307 | $\omega$ | 240.53342 | | +0.95400441 | | +0.24950481 |
| $a$ | 2.7846551 | $\Omega$ | 104.59946 | | −0.17891790 | | +0.91868382 |
| $e$ | 0.2336695 | $i$ | 9.88940 | | −0.24054929 | | +0.30621462 |
| $P$ | 4.65 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 08 31 | 608 | 0.0 | 0.8+ | 2003 09 27 | 699 | 0.5− | 0.5− | 2008 12 01 | 703 | 1.2− | 0.8+ |
| 2003 08 31 | 608 | 0.2+ | 1.1+ | 2008 11 06 | 703 | 0.3+ | 0.1+ | 2008 12 01 | 703 | 0.4+ | 0.4− |
| 2003 08 31 | 608 | 0.3+ | 0.8+ | 2008 11 06 | 703 | 0.0 | 0.0 | 2008 12 01 | 703 | (1.7+ | 0.7+) |
| 2003 09 25 | 644 | 0.4− | 0.9− | 2008 11 06 | 703 | 1.0+ | 0.0 | 2008 12 01 | 703 | 0.1+ | 0.5− |
| 2003 09 25 | 644 | 0.2+ | 0.7− | 2008 11 06 | 703 | 0.3+ | 0.3+ | 2008 12 22 | 703 | 1.3− | 1.1− |
| 2003 09 25 | 644 | 0.0 | 0.7− | 2008 11 18 | 703 | 0.2+ | 0.2+ | 2008 12 22 | 703 | (1.2− | 2.1−) |
| 2003 09 27 | 699 | 0.8− | 0.9+ | 2008 11 18 | 703 | 0.8− | 1.4− | 2008 12 22 | 703 | 0.6− | 0.9+ |
| 2003 09 27 | 699 | 0.7+ | 0.3− | 2008 11 18 | 703 | 0.9+ | 0.1− | 2008 12 22 | 703 | 0.5+ | 1.1+ |
| 2003 09 27 | 699 | 0.2+ | 0.5− | 2008 11 18 | 703 | 0.2− | 0.4+ | | | | |

## 2008 $VG_{75}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 114.91450 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18111024 | $\omega$ | 258.39892 | | +0.86534909 | | +0.43095244 |
| $a$ | 3.0939078 | $\Omega$ | 75.63311 | | −0.29091525 | | +0.84760265 |
| $e$ | 0.2546458 | $i$ | 15.31306 | | −0.40809224 | | +0.30959609 |
| $P$ | 5.44 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 03 19 | 645 | 0.1+ | 0.1− | 2003 12 29 | 691 | 0.1− | 0.0 | 2008 11 02 | 703 | 0.4+ | 1.0+ |
| 2001 03 19 | 645 | 0.1− | 0.1− | 2003 12 29 | 691 | 1.2− | 0.4+ | 2008 11 02 | 703 | 0.1− | 1.3+ |
| 2001 04 16 | 645 | 0.1+ | 0.1+ | 2008 09 22 | 704 | (1.6− | 0.0 ) | 2008 11 02 | 703 | 0.9− | 1.0+ |
| 2001 04 16 | 645 | 0.0 | 0.2+ | 2008 09 22 | 704 | 0.7− | 0.2− | 2008 11 02 | 703 | 0.2+ | 0.6+ |
| 2002 05 18 | 644 | 0.3+ | 0.0 | 2008 09 22 | 704 | 0.9− | 0.1− | 2008 11 17 | 703 | 0.4− | 0.8+ |
| 2002 05 18 | 644 | 0.5− | 0.5+ | 2008 10 23 | 704 | 0.9+ | 0.6− | 2008 11 17 | 703 | 0.1− | 0.6− |
| 2002 05 18 | 644 | 0.2− | 0.3+ | 2008 10 23 | 704 | 0.3+ | 0.1− | 2008 11 17 | 703 | 0.1+ | 0.3− |
| 2003 11 29 | 691 | 0.3+ | 0.0 | 2008 10 23 | 704 | 0.6− | 0.9+ | 2008 11 17 | 703 | (1.8+ | 1.7−) |
| 2003 11 29 | 691 | 0.2+ | 0.0 | 2008 10 23 | 704 | 0.7+ | 1.1− | 2009 10 27 | G96 | 0.6− | 0.1− |
| 2003 11 29 | 691 | 0.2+ | 0.1+ | 2008 10 23 | 704 | 0.3− | 0.4− | 2009 10 27 | G96 | 0.3+ | 0.5− |
| 2003 12 17 | 691 | 0.2+ | 0.1+ | 2008 10 26 | G96 | 0.1− | 0.1− | 2009 10 27 | G96 | 0.3+ | 0.3− |
| 2003 12 17 | 691 | 0.3+ | 0.1− | 2008 10 26 | G96 | 0.3+ | 0.3− | 2009 10 27 | G96 | 0.6− | 0.5− |
| 2003 12 17 | 691 | 0.1− | 0.1− | 2008 10 26 | G96 | 0.2+ | 0.2− | | | | |
| 2003 12 29 | 691 | 0.1+ | 0.0 | 2008 10 26 | G96 | 0.1− | 0.0 | | | | |

## 2008 $VH_{75}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 145.72703 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23371268 | $\omega$ | 257.10122 | | +0.90685055 | | +0.32447064 |
| $a$ | 2.6102445 | $\Omega$ | 83.46286 | | −0.19652231 | | +0.89010832 |
| $e$ | 0.1437044 | $i$ | 15.70728 | | −0.37282845 | | +0.32004058 |
| $P$ | 4.22 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 06 21 | G96 | 0.2− | 0.1+ | 2008 11 03 | 703 | 1.2+ | 1.1− | 2008 11 17 | 703 | 0.2− | 0.2− |
| 2007 06 21 | G96 | 0.0 | 0.1− | 2008 11 03 | 703 | 0.3+ | 0.3− | 2008 11 17 | 703 | 0.9+ | 0.2− |
| 2007 06 21 | G96 | 0.2− | 0.2− | 2008 11 03 | 703 | 0.1+ | 0.2− | 2008 11 17 | 703 | 0.1− | 0.3− |
| 2007 06 21 | G96 | 0.2+ | 0.0 | 2008 11 03 | 703 | 0.5+ | 0.0 | 2008 11 17 | 703 | 0.1− | 0.0 |
| 2008 10 08 | 703 | 0.1− | 0.9+ | 2008 11 03 | 703 | 0.3+ | 0.0 | 2008 12 01 | 703 | 1.0+ | 0.1+ |
| 2008 10 08 | 703 | 0.3+ | 0.1+ | 2008 11 03 | 703 | 0.1+ | 0.4− | 2008 12 01 | 703 | 0.6− | 0.5+ |
| 2008 10 08 | 703 | 0.6+ | 0.3+ | 2008 11 03 | 703 | 1.5− | 1.0+ | 2008 12 01 | 703 | 0.1− | 1.3− |
| 2008 10 08 | 703 | 1.7− | 0.8− | 2008 11 03 | 703 | 0.1− | 0.7+ | 2008 12 01 | 703 | 0.7− | 1.2+ |

**2008 VT$_{75}$ = 2002 RC$_{20}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 103.89832 | | (2000.0) | | | |
| $n$ | 0.17927616 | $\omega$ | 225.53980 | | +0.95825919 | −0.27289393 |
| $a$ | 3.1149735 | $\Omega$ | 149.99163 | | +0.28576806 | +0.92332722 |
| $e$ | 0.1540365 | $i$ | 9.81483 | | −0.00871394 | +0.27017726 |
| $P$ | 5.50 | $H$ | 15.5 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 09 04 | 699 | 0.6+ | 0.8+ | 2002 09 06 | 704 | 0.5− | 1.0− | 2008 11 17 | 703 | 0.1+ | 0.4+ |
| 2002 09 04 | 699 | 0.6− | 0.3+ | 2002 09 06 | 704 | 0.1+ | 0.2− | 2008 11 17 | 703 | 1.3+ | 0.3− |
| 2002 09 04 | 699 | 0.2− | 0.8− | 2002 10 02 | 608 | 0.3+ | 0.0 | 2008 11 17 | 703 | 0.8− | 0.1− |
| 2002 09 04 | 699 | 0.2+ | 0.2+ | 2002 10 02 | 608 | 0.2+ | 0.6+ | 2008 11 17 | 703 | 0.2− | 0.7− |
| 2002 09 05 | 704 | 0.0 | 0.2− | 2002 10 02 | 608 | 0.2+ | 0.6− | 2008 12 02 | G96 | 0.1− | 0.3− |
| 2002 09 05 | 704 | 0.4+ | 0.1+ | 2008 11 02 | 703 | 0.2− | 0.7+ | 2008 12 02 | G96 | 0.1− | 0.6− |
| 2002 09 05 | 704 | 0.8+ | 0.5− | 2008 11 02 | 703 | 0.2+ | 1.3+ | 2008 12 02 | G96 | 0.0 | 0.5− |
| 2002 09 06 | 704 | 0.9− | 0.1+ | 2008 11 02 | 703 | 0.4− | 0.6+ | 2008 12 02 | G96 | 0.2+ | 0.4− |
| 2002 09 06 | 704 | 0.6− | 0.8+ | 2008 11 02 | 703 | 0.1− | 0.2+ | | | | |

**2008 VU$_{75}$ = 2005 CL$_{68}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 70.01806 | | (2000.0) | | | |
| $n$ | 0.21514699 | $\omega$ | 293.09934 | | +0.11192064 | −0.98640438 |
| $a$ | 2.7583278 | $\Omega$ | 149.70175 | | +0.97649000 | +0.08672064 |
| $e$ | 0.1490708 | $i$ | 13.79920 | | +0.18423099 | +0.13959201 |
| $P$ | 4.58 | $H$ | 16.0 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 06 09 | 691 | 0.0 | 0.2− | 2005 02 09 | 704 | 0.0 | 0.3− | 2007 10 11 | G96 | 0.3− | 0.6+ |
| 1997 06 09 | 691 | 0.0 | 0.2− | 2005 04 04 | G96 | 0.3− | 0.2+ | 2007 10 11 | G96 | 0.2+ | 0.7+ |
| 1997 06 09 | 691 | 0.1− | 0.1+ | 2005 04 04 | G96 | 0.4− | 0.0 | 2008 11 06 | 703 | 0.5− | 0.3+ |
| 2005 02 02 | 704 | 0.7− | 0.1− | 2005 04 04 | G96 | 0.4− | 0.0 | 2008 11 06 | 703 | 1.2− | 1.1+ |
| 2005 02 02 | 704 | 0.2+ | 0.5− | 2005 04 04 | G96 | 0.2− | 0.1− | 2008 11 06 | 703 | 0.8− | 0.2− |
| 2005 02 02 | 704 | 1.0− | 0.7− | 2006 04 19 | 691 | 0.1− | 0.5+ | 2008 11 06 | 703 | 0.3+ | 0.6+ |
| 2005 02 02 | 704 | 0.6− | 0.4− | 2006 04 19 | 691 | 0.5+ | 0.7+ | 2008 11 19 | 703 | (1.0+ | 1.9+) |
| 2005 02 04 | 699 | 0.0 | 0.1− | 2006 04 19 | 691 | 0.1− | 0.7+ | 2008 11 19 | 703 | 0.8+ | 0.5+ |
| 2005 02 04 | 699 | 0.5+ | 0.5+ | 2007 09 15 | G96 | 0.1+ | 0.5+ | 2008 11 19 | 703 | 0.7+ | 1.4+ |
| 2005 02 04 | 699 | 0.9− | 1.0+ | 2007 09 15 | G96 | 0.6+ | 0.6+ | 2008 11 19 | 703 | 1.0− | 0.4+ |
| 2005 02 04 | 699 | 1.3+ | 0.9− | 2007 09 15 | G96 | 0.5+ | 0.1+ | 2008 12 02 | 703 | (0.3+ | 2.1+) |
| 2005 02 09 | 704 | 0.4+ | 0.5+ | 2007 09 15 | G96 | 0.2+ | 0.2+ | 2008 12 02 | 703 | 0.2− | 0.8+ |
| 2005 02 09 | 704 | 1.5+ | 0.7+ | 2007 10 11 | G96 | 0.4− | 0.3− | 2008 12 02 | 703 | 0.1− | 1.1+ |
| 2005 02 09 | 704 | 1.2+ | 0.7+ | 2007 10 11 | G96 | 0.9− | 0.4− | 2008 12 02 | 703 | 0.3+ | 0.0 |

**2008 VV$_{75}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 329.58025 | | (2000.0) | | | |
| $n$ | 0.30687017 | $\omega$ | 110.62551 | | −0.85970268 | +0.50958552 |
| $a$ | 2.1768722 | $\Omega$ | 100.02541 | | −0.48092282 | −0.78433743 |
| $e$ | 0.0567355 | $i$ | 2.04426 | | −0.17211780 | −0.35374765 |
| $P$ | 3.21 | $H$ | 17.1 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 05 14 | 691 | 0.6− | 0.6+ | 2005 11 26 | 691 | 0.4− | 0.4+ | 2008 11 18 | 703 | 0.4+ | 0.2− |
| 1994 05 14 | 691 | 1.3+ | 0.5+ | 2005 11 26 | 691 | 0.0 | 0.3+ | 2008 12 02 | G96 | 0.4+ | 0.1− |
| 1994 05 14 | 691 | 0.3− | 0.2− | 2005 11 26 | 691 | 0.1− | 0.1+ | 2008 12 02 | G96 | 0.2− | 0.3− |
| 2001 08 23 | 608 | 0.1− | 0.5+ | 2008 11 07 | 703 | 0.5+ | 1.6+ | 2008 12 02 | G96 | 0.4− | 0.4− |
| 2001 08 23 | 608 | 0.4− | 0.1− | 2008 11 07 | 703 | 0.8+ | 0.1− | 2008 12 02 | G96 | 0.0 | 0.3− |
| 2001 08 23 | 608 | 0.0 | 0.0 | 2008 11 07 | 703 | 0.1+ | 1.5+ | 2009 01 18 | G96 | 0.1+ | 0.3− |
| 2004 07 21 | E12 | 0.3− | 0.5+ | 2008 11 07 | 703 | 1.2− | 0.1− | 2009 01 18 | G96 | 1.0+ | 0.0 |
| 2004 07 21 | E12 | 0.2− | 0.6+ | 2008 11 18 | 703 | 1.0− | 0.4+ | 2009 01 18 | G96 | 0.3+ | 0.1− |
| 2004 07 21 | E12 | 0.3+ | 0.1+ | 2008 11 18 | 703 | 0.8+ | 0.4− | 2009 01 18 | G96 | 0.0 | 0.0 |
| 2004 07 21 | E12 | 0.2− | 0.4− | 2008 11 18 | 703 | 0.1+ | 0.6+ | | | | |

**2008 WZ$_{8}$ = 2002 TU$_{359}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 246.19126 | | (2000.0) | | | |
| $n$ | 0.17871885 | $\omega$ | 54.74591 | | −0.61741076 | +0.78663323 |
| $a$ | 3.1214459 | $\Omega$ | 177.11961 | | −0.74236489 | −0.58119022 |
| $e$ | 0.0367191 | $i$ | 3.97284 | | −0.26018902 | −0.20838928 |
| $P$ | 5.51 | $H$ | 16.9 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 10 10 | 645 | 0.0 | 0.0 | 2008 10 28 | G96 | 0.4+ | 0.3+ | 2008 11 17 | 691 | 0.0 | 0.2− |
| 2002 10 10 | 645 | 0.0 | 0.0 | 2008 10 28 | G96 | 0.3+ | 0.0 | 2008 11 19 | 691 | 0.0 | 0.2− |
| 2002 10 11 | 645 | 0.0 | 0.0 | 2008 10 28 | G96 | 0.1− | 0.9− | 2008 11 19 | 691 | 0.3+ | 0.2− |
| 2002 10 11 | 645 | 0.0 | 0.0 | 2008 11 17 | 691 | 0.1− | 0.2+ | 2008 11 19 | 691 | 0.0 | 0.2+ |
| 2008 10 28 | G96 | 0.2+ | 0.1+ | 2008 11 17 | 691 | 0.5− | 0.4+ | | | | |

**2008 WP$_{33}$ = 2006 JO$_{76}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 89.83912 | | (2000.0) | | | |
| $n$ | 0.20163198 | $\omega$ | 301.40044 | | +0.80122223 | −0.59823736 |
| $a$ | 2.8802473 | $\Omega$ | 95.34622 | | +0.55314897 | +0.73258000 |
| $e$ | 0.0505761 | $i$ | 0.71645 | | +0.22818664 | +0.32471311 |
| $P$ | 4.89 | $H$ | 17.4 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 10 22 | 691 | 0.0 | 0.1+ | 2005 03 04 | G96 | 0.2− | 0.3+ | 2008 10 28 | G96 | 0.4− | 0.6− |
| 1998 10 22 | 691 | 0.8− | 0.1+ | 2005 03 04 | G96 | 0.6+ | 0.1+ | 2008 10 28 | G96 | 0.4+ | 0.5− |
| 1998 10 22 | 691 | 0.2− | 0.3+ | 2005 03 04 | G96 | 0.0 | 0.1− | 2008 11 17 | 691 | 0.0 | 0.1− |
| 2001 05 22 | 807 | 0.1+ | 0.2+ | 2006 05 01 | 568 | 0.5+ | 0.8+ | 2008 11 17 | 691 | 0.0 | 0.0 |
| 2001 05 23 | 807 | 0.2+ | 0.5+ | 2006 05 01 | 568 | 0.2+ | 0.9+ | 2008 11 17 | 691 | 0.3− | 0.0 |
| 2003 09 27 | 691 | 0.1+ | 0.2− | 2006 05 01 | 568 | 0.3+ | 0.8+ | 2008 11 21 | 691 | 0.4− | 0.2− |
| 2003 09 27 | 691 | 0.5+ | 0.1+ | 2006 05 02 | 568 | 0.2+ | 0.2+ | 2008 11 21 | 691 | 0.2+ | 0.9+ |
| 2003 09 27 | 691 | 0.7+ | 0.2+ | 2008 10 28 | G96 | 0.5+ | 0.3− | 2008 11 21 | 691 | 0.4− | 0.3+ |
| 2005 03 04 | G96 | 0.5− | 0.4− | 2008 10 28 | G96 | 0.4− | 1.3− | | | | |

**2008 WQ$_{36}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 141.03157 | | (2000.0) | | | |
| $n$ | 0.19489514 | $\omega$ | 293.92643 | | +0.99069653 | +0.12804490 |
| $a$ | 2.9462440 | $\Omega$ | 58.74608 | | −0.09677736 | +0.90100957 |
| $e$ | 0.0731462 | $i$ | 3.09100 | | −0.09567933 | +0.41447107 |
| $P$ | 5.06 | $H$ | 17.0 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 04 24 | 291 | 1.1+ | 0.6+ | 2007 09 13 | G96 | 0.4+ | 0.9+ | 2008 11 17 | 691 | 0.2− | 0.1− |
| 2001 04 24 | 291 | 0.1+ | 0.0 | 2007 09 13 | G96 | 0.3− | 0.8+ | 2008 11 21 | 691 | 0.2+ | 0.8+ |
| 2001 04 24 | 291 | 0.0 | 0.1+ | 2007 09 13 | G96 | 0.3− | 0.4+ | 2008 11 21 | 691 | 0.0 | 0.1+ |
| 2001 05 24 | 291 | 0.1− | 0.0 | 2007 09 13 | G96 | 0.4− | 0.1− | 2008 11 21 | 691 | 0.0 | 0.2+ |
| 2001 05 24 | 291 | 0.0 | 0.4+ | 2008 11 07 | 691 | 0.2− | 1.0+ | 2008 12 02 | 691 | 0.3+ | 0.1+ |
| 2001 05 24 | 291 | 0.6− | 0.2+ | 2008 11 07 | 691 | 1.2− | 0.2− | 2008 12 02 | 691 | 0.6+ | 0.5+ |
| 2006 04 24 | 691 | 0.2+ | 0.1+ | 2008 11 07 | 691 | 0.5− | 0.3− | 2008 12 02 | 691 | 0.1+ | 0.1− |
| 2006 04 24 | 691 | 0.3+ | 0.0 | 2008 11 17 | 691 | 0.6+ | 0.6+ | | | | |
| 2006 04 24 | 691 | 0.2− | 0.6+ | 2008 11 17 | 691 | 0.2− | 0.5− | | | | |

**2008 WX$_{48}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 78.85582 | | (2000.0) | | | |
| $n$ | 0.27876496 | $\omega$ | 245.85352 | | −0.25505396 | −0.96525609 |
| $a$ | 2.3208332 | $\Omega$ | 219.06208 | | +0.91664725 | −0.22267200 |
| $e$ | 0.1743844 | $i$ | 5.17294 | | +0.30774227 | −0.13674011 |
| $P$ | 3.54 | $H$ | 17.3 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 12 20 | 644 | 0.0 | 0.4− | 2008 11 07 | 703 | 1.8+ | 0.8− | 2008 11 24 | 704 | 0.4− | 0.2− |
| 2001 12 20 | 644 | 0.1− | 0.3− | 2008 11 07 | 703 | 0.6+ | 0.1− | 2008 11 24 | 704 | 0.4− | 0.6+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 12 20 | 644 | 0.2+ | 0.0 | 2008 11 07 | 703 | 0.5+ | 0.5+ | 2008 11 24 | 704 | 0.1− | 0.2+ | | |
| 2004 09 15 | 291 | 0.4+ | 0.2+ | 2008 11 18 | J75 | 0.2− | 0.3− | 2008 11 24 | 704 | 0.4+ | 0.3+ | | |
| 2004 09 15 | 291 | 0.5− | 0.3− | 2008 11 18 | J75 | 0.4+ | 0.1− | 2008 11 24 | 704 | 0.4− | 0.6+ | | |
| 2004 09 15 | 291 | 0.2+ | 0.1+ | 2008 11 18 | J75 | 0.5− | 0.4+ | 2008 11 30 | G96 | 0.1− | 0.5− | | |
| 2008 09 22 | G96 | 0.1− | 0.4− | 2008 11 18 | 703 | 0.9+ | 0.4+ | 2008 11 30 | G96 | 0.0 | 0.5− | | |
| 2008 09 22 | G96 | 0.5+ | 0.0 | 2008 11 18 | 703 | 0.0 | 1.2+ | 2008 11 30 | G96 | 0.1+ | 0.4− | | |
| 2008 09 22 | G96 | 0.3+ | 0.2+ | 2008 11 18 | 703 | 0.2− | 0.6+ | 2008 11 30 | G96 | 0.2− | 0.4− | | |
| 2008 09 22 | G96 | 0.4+ | 0.6− | 2008 11 18 | 703 | 0.1− | 0.8+ | 2008 12 01 | 704 | 0.9+ | 0.3+ | | |
| 2008 10 27 | 691 | 0.5− | 0.1− | 2008 11 21 | G96 | 0.1− | 0.1− | 2008 12 01 | 704 | 0.4− | 0.1− | | |
| 2008 10 27 | 691 | 0.3− | 0.0 | 2008 11 21 | G96 | 0.3− | 0.0 | 2008 12 01 | 704 | 0.8+ | 0.1− | | |
| 2008 10 27 | 691 | 0.1− | 0.1+ | 2008 11 21 | G96 | 0.1+ | 0.2− | 2008 12 01 | 704 | 1.1+ | 0.2− | | |
| 2008 11 07 | 703 | 1.2− | 0.6− | 2008 11 21 | G96 | 0.2− | 0.1− | | | | | | |

**2008 WX$_{73}$ = 2006 JJ$_4$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 120.79752 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.24062944 | $\omega$ | 346.71611 | | +0.55269547 | | −0.82955937 |
| $a$ | 2.5599818 | $\Omega$ | 69.67809 | | +0.77217632 | | +0.47376060 |
| $e$ | 0.1682719 | $i$ | 4.87810 | | +0.31348278 | | +0.29560471 |
| $P$ | 4.10 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 21 | 703 | 0.3+ | 0.4− | 2006 05 02 | G96 | 0.7− | 0.3− | 2008 11 22 | 691 | 0.1− | 0.2+ | | |
| 2004 12 21 | 703 | 0.8− | 0.3+ | 2006 05 02 | G96 | 0.6− | 0.2+ | 2008 11 22 | 691 | 0.5− | 0.1+ | | |
| 2004 12 21 | 703 | 0.1− | 0.4+ | 2006 05 03 | 691 | 0.2+ | 0.0 | 2008 12 04 | 691 | 0.1− | 0.1+ | | |
| 2004 12 21 | 703 | 0.2+ | 0.5+ | 2006 05 03 | 691 | 0.0 | 0.3− | 2008 12 04 | 691 | 1.1+ | 0.5+ | | |
| 2005 01 06 | 703 | 0.0 | 0.1+ | 2006 05 03 | 691 | 0.2+ | 0.8+ | 2008 12 04 | 691 | 0.1− | 0.1+ | | |
| 2005 01 06 | 703 | 0.0 | 1.4− | 2008 11 19 | G96 | 0.1− | 0.3− | 2009 01 15 | 691 | 0.0 | 0.2− | | |
| 2005 01 06 | 703 | 0.6+ | 0.6+ | 2008 11 19 | G96 | 0.2− | 0.0 | 2009 01 15 | 691 | 0.2+ | 0.4− | | |
| 2005 01 06 | 703 | 0.2− | 0.2− | 2008 11 19 | G96 | 0.2− | 0.4+ | 2009 01 15 | 691 | 0.1+ | 0.2− | | |
| 2006 05 02 | G96 | 0.1+ | 0.3− | 2008 11 19 | G96 | 0.3+ | 0.1+ | | | | | | |
| 2006 05 02 | G96 | 0.2− | 0.2− | 2008 11 22 | 691 | 0.6− | 0.1− | | | | | | |

**2008 WL$_{75}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 114.81199 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21084502 | $\omega$ | 305.46364 | | +0.83111242 | | −0.53919834 |
| $a$ | 2.7957209 | $\Omega$ | 87.53371 | | +0.54408856 | | +0.73784093 |
| $e$ | 0.0304607 | $i$ | 7.82827 | | +0.11497735 | | +0.40602453 |
| $P$ | 4.67 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 04 16 | 645 | 0.0 | 0.0 | 2008 11 24 | 691 | 0.2− | 0.1+ | 2009 01 29 | 291 | 0.4− | 0.3+ | | |
| 2001 04 16 | 645 | 0.0 | 0.1+ | 2008 11 24 | 691 | 0.2− | 0.1+ | 2009 01 29 | 291 | 0.2− | 0.3+ | | |
| 2005 01 18 | 691 | 0.1+ | 0.2− | 2008 11 30 | 704 | 0.4+ | 0.7− | 2009 01 29 | 291 | 0.2− | 0.3+ | | |
| 2005 01 18 | 691 | 0.2+ | 0.3− | 2008 11 30 | 704 | 0.6+ | 0.7+ | 2009 02 01 | G96 | 0.6+ | 0.3− | | |
| 2005 01 18 | 691 | 0.4− | 0.1+ | 2008 11 30 | 704 | 1.2+ | 0.2+ | 2009 02 01 | G96 | 0.2+ | 0.1+ | | |
| 2008 11 20 | 691 | 0.1− | 0.1+ | 2008 12 30 | G96 | 0.2+ | 0.3− | 2009 02 01 | G96 | 0.2+ | 0.5− | | |
| 2008 11 20 | 691 | 0.0 | 0.1+ | 2008 12 30 | G96 | 0.5+ | 0.5− | 2009 02 01 | G96 | 0.9+ | 0.3− | | |
| 2008 11 20 | 691 | 0.2+ | 0.1− | 2008 12 30 | G96 | 0.5+ | 0.5− | | | | | | |
| 2008 11 24 | 691 | 0.3− | 0.0 | 2008 12 30 | G96 | 0.0 | 0.5− | | | | | | |

**2008 WK$_{77}$ = 2008 UT$_{205}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 174.50608 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18184332 | $\omega$ | 228.54570 | | +0.72372112 | | +0.67751017 |
| $a$ | 3.0855872 | $\Omega$ | 88.35748 | | −0.58755984 | | +0.70465451 |
| $e$ | 0.0754099 | $i$ | 7.54080 | | −0.36194085 | | +0.21081270 |
| $P$ | 5.42 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 10 15 | 644 | 0.6+ | 0.1+ | 2008 10 25 | G96 | 0.1+ | 0.4− | 2008 11 20 | 691 | 0.1− | 0.2− | | |
| 2002 10 15 | 644 | 0.6− | 0.4− | 2008 10 25 | G96 | 0.2+ | 0.2− | 2008 11 24 | 691 | 0.3+ | 0.1+ | | |
| 2002 10 15 | 644 | 0.4+ | 0.3+ | 2008 10 25 | G96 | 0.5+ | 0.2+ | 2008 11 24 | 691 | 0.1+ | 0.2− | | |
| 2002 11 06 | 644 | 0.0 | 0.1+ | 2008 10 25 | G96 | 0.6+ | 0.1+ | 2008 11 24 | 691 | 0.3− | 0.1− | | |
| 2002 11 06 | 644 | 0.3+ | 0.1+ | 2008 11 01 | 691 | 0.0 | 0.2+ | 2009 02 01 | G96 | 0.6+ | 0.1− | | |
| 2002 11 06 | 644 | 0.6− | 0.6− | 2008 11 01 | 691 | 0.8− | 0.2+ | 2009 02 01 | G96 | 0.0 | 0.1+ | | |
| 2008 10 24 | 691 | 0.3+ | 0.3− | 2008 11 01 | 691 | 0.2+ | 0.0 | 2009 02 01 | G96 | 0.4+ | 0.1− | | |
| 2008 10 24 | 691 | 0.4− | 0.7+ | 2008 11 20 | 691 | 0.0 | 0.0 | 2009 02 01 | G96 | 0.3− | 0.1+ | | |
| 2008 10 24 | 691 | 0.2− | 0.2− | 2008 11 20 | 691 | 0.3+ | 0.1− | | | | | | |

**2008 WO$_{92}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 157.47116 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.24342876 | $\omega$ | 95.83670 | | +0.98954522 | | −0.05616577 |
| $a$ | 2.5403182 | $\Omega$ | 267.43483 | | +0.00010320 | | +0.92132859 |
| $e$ | 0.2923865 | $i$ | 7.64127 | | +0.14422294 | | +0.38470643 |
| $P$ | 4.05 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 01 13 | 691 | 0.5− | 0.0 | 2008 12 01 | 704 | 0.4+ | 0.5− | 2008 12 23 | J75 | 0.5+ | 0.4+ | | |
| 2005 01 13 | 691 | 0.4+ | 0.0 | 2008 12 01 | 704 | 0.6+ | 0.7+ | 2008 12 24 | J75 | 0.4− | 0.5− | | |
| 2005 01 13 | 691 | 0.0 | 0.0 | 2008 12 01 | 704 | 0.7+ | 0.7+ | 2008 12 24 | J75 | 0.2+ | 0.6− | | |
| 2005 01 13 | 703 | 0.2+ | 0.7+ | 2008 12 04 | G96 | 0.8− | 0.2− | 2008 12 28 | A77 | 0.8+ | 0.2+ | | |
| 2005 01 13 | 703 | 0.6+ | 0.1+ | 2008 12 04 | G96 | 0.4− | 0.1− | 2008 12 29 | A77 | 1.0+ | 0.3+ | | |
| 2005 01 13 | 703 | 0.3+ | 0.5+ | 2008 12 04 | G96 | 0.7− | 0.1− | 2008 12 29 | A77 | 0.1+ | 0.1+ | | |
| 2005 01 13 | 703 | 0.1+ | 0.3+ | 2008 12 04 | G96 | 0.5− | 0.1+ | 2008 12 29 | 704 | 0.3+ | 1.1+ | | |
| 2008 11 08 | G96 | 0.0 | 0.5− | 2008 12 21 | 704 | 0.2+ | 0.1− | 2008 12 29 | 704 | 0.6+ | 1.0+ | | |
| 2008 11 08 | G96 | 0.0 | 0.5− | 2008 12 21 | 704 | 0.0 | 0.3+ | 2008 12 29 | 704 | 0.0 | 0.7+ | | |
| 2008 11 08 | G96 | 0.1+ | 0.5− | 2008 12 21 | 704 | 0.4+ | 0.1− | 2008 12 29 | 704 | 0.8− | 0.1− | | |
| 2008 11 08 | G96 | 0.1+ | 0.4− | 2008 12 21 | 704 | 1.4− | 0.4+ | 2009 01 02 | A77 | 1.4+ | 0.5+ | | |
| 2008 11 25 | A77 | 0.8− | 0.4− | 2008 12 21 | 704 | 0.4+ | 0.9− | 2009 01 03 | A77 | 0.9+ | 0.4+ | | |
| 2008 11 25 | A77 | 0.0 | 0.4+ | 2008 12 21 | 703 | (1.7− | 2.8+) | 2009 01 03 | A77 | 0.1+ | 0.5+ | | |
| 2008 11 25 | A77 | 1.2− | 0.5+ | 2008 12 21 | 703 | (0.4− | 2.2+) | 2009 01 20 | 691 | 1.9− | 1.6− | | |
| 2008 11 27 | A77 | 0.1− | 0.2+ | 2008 12 21 | 703 | 0.6− | 0.1+ | 2009 01 20 | 691 | 0.6+ | 0.1+ | | |
| 2008 11 27 | A77 | 0.2+ | 0.0 | 2008 12 21 | 703 | 0.2+ | 0.2+ | 2009 01 20 | 691 | 0.4+ | 0.2+ | | |
| 2008 12 01 | 704 | 1.3+ | 0.1− | 2008 12 21 | 703 | 0.0 | 0.1− | | | | | | |

**2008 WU$_{97}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 134.59017 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.24483829 | $\omega$ | 246.01497 | | +0.98345122 | | +0.08137356 |
| $a$ | 2.5305592 | $\Omega$ | 108.99125 | | −0.02167639 | | +0.93988828 |
| $e$ | 0.2779246 | $i$ | 9.85693 | | −0.17987170 | | +0.33164495 |
| $P$ | 4.03 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 20 | 699 | 0.6+ | 0.2+ | 2008 10 24 | 703 | 0.6+ | 0.5+ | 2008 11 03 | 703 | 1.6− | 0.7− | | |
| 2000 11 20 | 699 | 0.1− | 0.5− | 2008 10 24 | 703 | 1.4+ | 0.0 | 2008 11 03 | 703 | 0.1− | 0.5− | | |
| 2000 11 20 | 699 | 0.0 | 0.8+ | 2008 10 24 | 703 | 0.4− | 0.5+ | 2008 11 19 | 703 | 1.9− | 0.4+ | | |
| 2000 11 20 | 699 | 0.6− | 0.0 | 2008 11 03 | 703 | 0.0 | 0.1− | 2008 11 19 | 703 | 0.2+ | 0.1+ | | |
| 2007 04 26 | G96 | 0.2− | 0.0 | 2008 11 03 | 703 | 0.5+ | 0.9− | 2008 11 19 | 703 | 0.5− | 0.0 | | |
| 2007 04 26 | G96 | 0.1+ | 0.2− | 2008 11 03 | 703 | 0.1− | 0.8+ | 2008 11 19 | 703 | 0.3− | 0.4+ | | |
| 2007 04 26 | G96 | 0.2− | 0.2− | 2008 11 03 | 703 | 0.5+ | 0.5+ | 2008 11 27 | J75 | 0.2+ | 0.4− | | |
| 2007 04 26 | G96 | 0.2+ | 0.1− | 2008 11 03 | 703 | 0.4+ | 0.4− | 2008 11 27 | J75 | 0.1+ | 0.4− | | |
| 2008 10 24 | 703 | 0.9+ | 0.1+ | 2008 11 03 | 703 | 0.1+ | 0.2− | 2008 11 28 | J75 | 0.3+ | 0.5− | | |

**2008 WD$_{103}$ = 2004 XX$_{57}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 358.33407 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22102928 | $\omega$ | 49.90247 | | −0.82952100 | | −0.50559818 |
| $a$ | 2.7091695 | $\Omega$ | 98.48381 | | +0.41098210 | | −0.84022955 |
| $e$ | 0.0544974 | $i$ | 13.87636 | | +0.37813837 | | −0.19592036 |
| $P$ | 4.46 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 10 | 691 | 0.3+ | 0.1− | 2008 10 24 | 703 | 0.9− | 0.8− | 2008 11 27 | J75 | 0.2+ | 0.1− | | |
| 2004 12 10 | 691 | 0.0 | 0.0 | 2008 10 24 | 703 | 0.0 | 0.9− | 2008 11 27 | J75 | 0.1+ | 0.9− | | |
| 2004 12 10 | 691 | 0.1− | 0.3+ | 2008 10 24 | 703 | 0.4+ | 1.2+ | 2008 11 27 | J75 | 0.1+ | 0.6− | | |
| 2004 12 14 | 691 | 0.0 | 0.1− | 2008 10 30 | 703 | 0.4+ | 0.2− | 2008 12 01 | 703 | 0.9− | 0.3− | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 14 | 691 | 0.1− | 0.0 | 2008 10 30 | 703 | 0.9+ | 0.6− | 2008 12 01 | 703 | 0.2+ | 0.9+ | | |
| 2004 12 14 | 691 | 0.1− | 0.1− | 2008 10 30 | 703 | 0.6+ | 0.7+ | 2008 12 01 | 703 | 0.1+ | 0.1+ | | |
| 2008 10 24 | 703 | 0.4− | 0.1+ | 2008 10 30 | 703 | 0.9− | 0.7+ | 2008 12 01 | 703 | 0.1− | 0.6+ | | |

**2008 WQ$_{105}$ = 2002 PH$_{148}$ = 2007 RN$_{198}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 189.06922 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.20086611 | $\omega$ | 311.14515 | | +0.73472269 | | +0.67835773 |
| $a$ | 2.8875639 | $\Omega$ | 6.14262 | | −0.61171090 | | +0.66484798 |
| $e$ | 0.0422052 | $i$ | 1.95745 | | −0.29324452 | | +0.31274263 |
| $P$ | 4.91 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 01 29 | 691 | 0.2− | 1.5− | 2005 03 01 | 691 | 0.2+ | 0.2+ | 2008 11 17 | 691 | 0.1− | 0.3− | | |
| 1995 01 29 | 691 | 0.2− | 0.5− | 2005 03 01 | 691 | 0.3− | 0.6+ | 2008 11 17 | 691 | 0.1− | 0.0 | | |
| 1995 01 29 | 691 | 0.7− | 0.5− | 2006 05 01 | 691 | 0.3+ | 0.2− | 2008 11 30 | G96 | 0.8+ | 0.4− | | |
| 2002 08 10 | 807 | 0.0 | 0.0 | 2006 05 01 | 691 | 0.2− | 0.3− | 2008 11 30 | G96 | 0.4+ | 0.3− | | |
| 2002 08 10 | 807 | 0.4+ | 0.2+ | 2006 05 01 | 691 | 0.2− | 0.0 | 2008 11 30 | G96 | 0.1+ | 0.2− | | |
| 2002 08 12 | 807 | 0.1+ | 0.2− | 2007 09 13 | G96 | 0.3− | 0.1− | 2008 11 30 | G96 | 0.3+ | 0.1− | | |
| 2002 08 12 | 807 | 0.2− | 0.4− | 2007 09 13 | G96 | 0.1− | 0.4+ | 2008 12 02 | 691 | 0.2− | 0.4+ | | |
| 2003 12 19 | 691 | 0.3+ | 0.2− | 2007 09 13 | G96 | 0.1− | 0.1+ | 2008 12 02 | 691 | 0.0 | 0.1+ | | |
| 2003 12 19 | 691 | 0.1+ | 0.1+ | 2007 09 13 | G96 | 1.0− | 0.2− | 2008 12 02 | 691 | 0.0 | 0.1+ | | |
| 2003 12 19 | 691 | 0.2+ | 0.0 | 2007 09 14 | G96 | 0.2+ | 0.3+ | 2008 12 06 | 691 | 0.0 | 0.0 | | |
| 2005 02 09 | 691 | 0.5+ | 0.3+ | 2007 09 14 | G96 | 0.3+ | 0.1+ | 2008 12 06 | 691 | 0.2− | 0.1+ | | |
| 2005 02 09 | 691 | 0.3+ | 0.4+ | 2007 09 14 | G96 | 0.1− | 0.0 | 2008 12 06 | 691 | 0.1+ | 0.1+ | | |
| 2005 02 09 | 691 | 0.3+ | 0.6+ | 2007 09 14 | G96 | 0.5+ | 0.1+ | | | | | | |
| 2005 03 01 | 691 | 0.2+ | 0.3+ | 2008 11 17 | 691 | 0.3− | 0.0 | | | | | | |

**2008 WU$_{107}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 97.12056 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.28094777 | $\omega$ | 245.90794 | | −0.02943377 | | −0.99874342 |
| $a$ | 2.3087965 | $\Omega$ | 205.87758 | | +0.94752243 | | −0.01495510 |
| $e$ | 0.1262653 | $i$ | 5.33247 | | +0.31833141 | | −0.04783222 |
| $P$ | 3.51 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 08 23 | 691 | 0.3+ | 0.1− | 2006 03 05 | 691 | 0.2+ | 0.1− | 2008 12 03 | 691 | 0.1− | 0.4+ | | |
| 2004 08 23 | 691 | 0.1− | 0.0 | 2006 04 02 | 691 | 0.2− | 0.0 | 2008 12 03 | 691 | 0.0 | 0.2+ | | |
| 2004 08 23 | 691 | 0.2+ | 0.1− | 2006 04 02 | 691 | 0.1− | 0.1+ | 2008 12 03 | 691 | 0.1− | 0.1− | | |
| 2004 09 12 | 691 | 0.1− | 0.0 | 2006 04 02 | 691 | 0.2− | 0.3+ | 2009 01 01 | G96 | 0.0 | 0.0 | | |
| 2004 09 12 | 691 | 0.3− | 0.3+ | 2008 11 20 | 691 | 0.0 | 0.1+ | 2009 01 01 | G96 | 0.3− | 0.2− | | |
| 2004 09 12 | 691 | 0.4− | 0.4+ | 2008 11 20 | 691 | 0.0 | 0.0 | 2009 01 01 | G96 | 0.1− | 0.3− | | |
| 2004 09 23 | 691 | 0.2+ | 0.1− | 2008 11 20 | 691 | 0.1+ | 0.1+ | 2009 01 01 | G96 | 0.1+ | 0.3− | | |
| 2004 09 23 | 691 | 0.0 | 0.0 | 2008 11 30 | G96 | 0.1+ | 0.4− | 2009 03 01 | G96 | 0.4− | 0.2+ | | |
| 2004 09 23 | 691 | 0.1+ | 0.2− | 2008 11 30 | G96 | 0.5+ | 0.4− | 2009 03 01 | G96 | 0.2+ | 0.3− | | |
| 2006 03 05 | 691 | 0.2+ | 0.0 | 2008 11 30 | G96 | 0.2+ | 0.2− | 2009 03 01 | G96 | 0.4− | 0.5− | | |
| 2006 03 05 | 691 | 0.2+ | 0.0 | 2008 11 30 | G96 | 0.2+ | 0.0 | 2009 03 01 | G96 | 0.1+ | 0.3− | | |

**2008 WB$_{110}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 210.61051 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18415782 | $\omega$ | 0.81956 | | +0.27036545 | | +0.96234288 |
| $a$ | 3.0596796 | $\Omega$ | 284.86681 | | −0.88347927 | | +0.23633033 |
| $e$ | 0.0516331 | $i$ | 1.67558 | | −0.38257929 | | +0.13432855 |
| $P$ | 5.35 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 03 11 | G96 | 0.1+ | 0.3− | 2007 09 14 | 691 | 0.3+ | 0.0 | 2008 11 21 | 691 | 0.0 | 0.1+ | | |
| 2005 03 11 | G96 | 0.1− | 0.0 | 2007 09 14 | 691 | 0.0 | 0.1+ | 2008 11 21 | 691 | 0.3+ | 0.3− | | |
| 2005 03 11 | G96 | 0.1− | 0.1+ | 2007 10 11 | G96 | 0.2− | 0.3− | 2008 11 21 | 691 | 0.0 | 0.0 | | |
| 2005 03 11 | G96 | 0.0 | 0.1+ | 2007 10 11 | G96 | 0.1− | 0.0 | 2008 11 30 | 691 | 0.2− | 0.2− | | |
| 2005 04 09 | G96 | 0.0 | 0.2− | 2007 10 11 | G96 | 0.1+ | 0.1− | 2008 11 30 | 691 | 0.1+ | 0.2+ | | |
| 2005 04 09 | G96 | 0.1+ | 0.2+ | 2007 10 11 | G96 | 0.3− | 0.2+ | 2008 11 30 | 691 | 0.1− | 0.1− | | |
| 2005 04 09 | G96 | 0.1− | 0.1− | 2008 11 08 | 691 | 0.1+ | 0.1− | 2008 12 04 | 691 | 0.4+ | 0.4+ | | |
| 2005 04 09 | G96 | 0.0 | 0.0 | 2008 11 08 | 691 | 0.3− | 0.1− | 2008 12 04 | 691 | 0.4− | 0.3+ | | |
| 2007 09 14 | 691 | 0.2− | 0.1− | 2008 11 08 | 691 | 0.1− | 0.1+ | 2008 12 04 | 691 | 0.2+ | 0.3− | | |

**2008 WA$_{112}$ = 2008 WV$_{124}$ = 1993 UE$_{10}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 317.04212 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.27143526 | $\omega$ | 169.40109 | | −0.66718587 | | +0.73982072 |
| $a$ | 2.3624278 | $\Omega$ | 58.68615 | | −0.69063999 | | −0.57074416 |
| $e$ | 0.0976455 | $i$ | 5.82899 | | −0.27906884 | | −0.35625329 |
| $P$ | 3.63 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1993 10 20 | 809 | 0.7+ | 1.7− | 2006 02 28 | 703 | 0.2− | 0.8− | 2008 11 30 | G96 | 0.6+ | 0.4− | | |
| 1993 10 20 | 809 | 1.0+ | 2.0− | 2006 02 28 | 703 | 0.3− | 0.1+ | 2008 12 04 | 691 | 0.1+ | 0.4+ | | |
| 1993 10 20 | 809 | (1.6+ | 2.3−) | 2008 11 17 | 691 | 0.3+ | 0.1− | 2008 12 04 | 691 | 0.0 | 0.2+ | | |
| 2000 09 05 | 645 | 0.0 | 0.0 | 2008 11 17 | 691 | 0.1+ | 0.1+ | 2008 12 04 | 691 | 0.1+ | 0.1+ | | |
| 2000 09 05 | 645 | 0.0 | 0.0 | 2008 11 17 | 691 | 0.1− | 0.2− | 2008 12 22 | 691 | 0.0 | 0.4+ | | |
| 2006 01 26 | 703 | 0.9− | 0.4− | 2008 11 30 | 691 | 0.5− | 0.1− | 2008 12 22 | 691 | 0.1+ | 0.3+ | | |
| 2006 01 26 | 703 | 0.5+ | 0.4+ | 2008 11 30 | 691 | 0.4− | 0.0 | 2008 12 22 | 691 | 0.0 | 0.4+ | | |
| 2006 01 26 | 703 | 0.3+ | 1.1− | 2008 11 30 | 691 | 0.6− | 0.3− | 2009 01 31 | G96 | 0.1+ | 0.2− | | |
| 2006 01 26 | 703 | (0.3− | 1.7−) | 2008 11 30 | G96 | 0.4+ | 0.2− | 2009 01 31 | G96 | 0.3+ | 0.2− | | |
| 2006 02 28 | 703 | 0.1+ | 0.2− | 2008 11 30 | G96 | 0.4+ | 0.2− | 2009 01 31 | G96 | 0.9+ | 0.4− | | |
| 2006 02 28 | 703 | 0.1− | 0.4+ | 2008 11 30 | G96 | 0.4+ | 0.2− | 2009 01 31 | G96 | (0.1+ | 1.7−) | | |

**2008 WA$_{116}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 137.87821 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18443979 | $\omega$ | 286.92234 | | +0.97780619 | | +0.00939130 |
| $a$ | 3.0565603 | $\Omega$ | 72.92641 | | +0.08715331 | | +0.89022563 |
| $e$ | 0.1147130 | $i$ | 12.64739 | | −0.19052392 | | +0.45542302 |
| $P$ | 5.34 | $H$ | 15.2 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 10 02 | 608 | 0.1− | 0.0 | 2006 05 21 | G96 | 0.2+ | 0.1+ | 2008 11 24 | 704 | 0.1− | 0.2+ | | |
| 2002 10 02 | 608 | 0.1− | 0.6+ | 2006 05 21 | G96 | 0.1+ | 0.0 | 2008 11 30 | 691 | 0.2− | 0.1+ | | |
| 2002 10 02 | 608 | 0.4− | 0.0 | 2006 05 21 | G96 | 0.2+ | 0.2+ | 2008 11 30 | 691 | 0.3− | 0.1+ | | |
| 2002 10 16 | 644 | 0.1+ | 0.0 | 2006 06 20 | 691 | 0.2+ | 0.3+ | 2008 11 30 | 691 | 0.4− | 0.1− | | |
| 2002 10 16 | 644 | 0.3+ | 0.0 | 2006 06 20 | 691 | 0.4+ | 0.6+ | 2008 12 02 | 704 | 0.5+ | 0.4+ | | |
| 2002 10 16 | 644 | 0.0 | 0.3− | 2006 06 20 | 691 | 0.2− | 0.2− | 2008 12 02 | 704 | 0.7+ | 0.9+ | | |
| 2006 05 06 | G96 | 0.1+ | 0.2+ | 2008 11 18 | 691 | 0.0 | 0.4+ | 2008 12 02 | 704 | 1.1+ | 0.3− | | |
| 2006 05 06 | G96 | 0.5− | 0.5− | 2008 11 18 | 691 | 0.1− | 0.2+ | 2008 12 02 | 704 | (6.0+ | 5.2−) | | |
| 2006 05 06 | G96 | 0.2+ | 0.3− | 2008 11 18 | 691 | 0.1+ | 0.2+ | 2008 12 04 | 691 | 0.3+ | 0.1− | | |
| 2006 05 06 | G96 | 0.0 | 0.1+ | 2008 11 24 | 704 | 0.6− | 0.1− | 2008 12 04 | 691 | 0.1+ | 0.0 | | |
| 2006 05 21 | G96 | 0.3− | 0.4+ | 2008 11 24 | 704 | 0.1+ | 0.7− | 2008 12 04 | 691 | 0.0 | 0.1− | | |

**2008 WP$_{116}$ = 2002 AH$_{138}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 2.96836 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.27221528 | $\omega$ | 291.12529 | | −0.99342632 | | +0.08835699 |
| $a$ | 2.3579127 | $\Omega$ | 254.00101 | | −0.05456200 | | −0.92440528 |
| $e$ | 0.0476731 | $i$ | 4.34228 | | −0.10063371 | | −0.37103628 |
| $P$ | 3.62 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 01 09 | 704 | 0.9+ | 1.1+ | 2004 11 03 | 644 | 0.4+ | 0.5+ | 2008 11 30 | 691 | 0.6+ | 0.1− | | |
| 2002 01 09 | 704 | 0.3− | 0.3+ | 2004 11 03 | 644 | 0.1+ | 0.4− | 2008 12 04 | 691 | 0.4− | 0.2+ | | |
| 2002 01 09 | 704 | 0.1− | 0.7+ | 2004 11 03 | 644 | 0.4− | 0.1+ | 2008 12 04 | 691 | 0.2− | 0.4+ | | |
| 2002 01 15 | 704 | 0.2+ | 0.3+ | 2004 11 03 | 644 | 0.2+ | 0.4− | 2008 12 04 | 691 | 0.3− | 0.1− | | |
| 2002 01 15 | 704 | 0.4+ | 0.2− | 2008 11 22 | 691 | 0.5− | 0.5+ | 2008 12 29 | 691 | 0.4+ | 0.5− | | |
| 2002 01 15 | 704 | 0.8− | 0.4− | 2008 11 22 | 691 | 0.6− | 0.4+ | 2008 12 29 | 691 | 1.3+ | 1.5− | | |
| 2002 01 15 | 704 | 0.2− | 0.3− | 2008 11 22 | 691 | 0.7− | 0.1+ | 2008 12 29 | 691 | (2.0+ | 3.3−) | | |
| 2004 11 03 | 644 | 0.3+ | 0.3− | 2008 11 30 | 691 | 0.5+ | 0.2+ | | | | | | |
| 2004 11 03 | 644 | 0.4− | 0.1− | 2008 11 30 | 691 | 0.0 | 0.3+ | | | | | | |

**2008 WP$_{118}$ = 2004 XX$_{65}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 201.10899 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24585477 | $\omega$ | 49.93927 | | +0.67348023 | +0.72920560 | |
| $a$ | 2.5235793 | $\Omega$ | 262.83914 | | −0.70994478 | +0.59240657 | |
| $e$ | 0.1531903 | $i$ | 7.01495 | | −0.20591936 | +0.34251079 | |
| $P$ | 4.01 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 02 | 703 | 0.2+ | 0.7− | 2008 11 19 | 691 | 0.2− | 0.0 | 2008 12 04 | 691 | 0.0 | 0.1− |
| 2004 12 02 | 703 | 0.9+ | 0.7+ | 2008 11 19 | 691 | 0.1+ | 0.2+ | 2008 12 04 | 691 | 0.1+ | 0.0 |
| 2004 12 02 | 703 | 0.8− | 0.6− | 2008 11 19 | 691 | 0.2− | 0.0 | 2008 12 04 | 691 | 0.1+ | 0.0 |
| 2004 12 02 | 703 | 0.1− | 0.3− | 2008 11 30 | G96 | 0.5+ | 0.2− | 2008 12 22 | 691 | 0.3− | 0.0 |
| 2004 12 10 | 691 | 0.1+ | 0.1+ | 2008 11 30 | G96 | 0.7+ | 0.1− | 2008 12 22 | 691 | 0.3− | 0.2− |
| 2004 12 10 | 691 | 0.3− | 0.2− | 2008 11 30 | G96 | 0.9+ | 0.2− | 2008 12 22 | 691 | 0.1+ | 0.2+ |
| 2004 12 10 | 691 | 0.1+ | 0.6+ | 2008 11 30 | G96 | 0.5+ | 0.2− | | | | |

**2008 WR$_{121}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 120.23556 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23309879 | $\omega$ | 90.65192 | | +0.97167659 | −0.13048225 | |
| $a$ | 2.6148255 | $\Omega$ | 276.85852 | | +0.03881044 | +0.91053397 | |
| $e$ | 0.3125042 | $i$ | 11.44606 | | +0.23310588 | +0.39230381 | |
| $P$ | 4.23 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 07 04 | 691 | 0.1− | 0.3+ | 2008 09 24 | 703 | (2.0+ | 0.4+) | 2008 11 30 | 703 | 0.4+ | 0.3+ |
| 1995 07 04 | 691 | 0.1+ | 0.2− | 2008 09 24 | 703 | 0.1− | 0.9− | 2008 11 30 | 703 | (0.3+ | 1.7+) |
| 1995 07 04 | 691 | 0.3− | 0.3+ | 2008 09 24 | 703 | (1.7+ | 1.4−) | 2008 11 30 | 703 | (2.1− | 0.7+) |
| 2004 12 03 | 691 | 0.0 | 0.2+ | 2008 11 09 | G96 | 0.2+ | 0.1+ | 2008 11 30 | 703 | (2.2− | 1.0+) |
| 2004 12 03 | 691 | 0.2− | 0.2+ | 2008 11 09 | G96 | 0.1− | 0.0 | 2008 12 06 | G96 | 0.0 | 0.2+ |
| 2004 12 03 | 691 | 0.3+ | 0.4− | 2008 11 09 | G96 | 0.1+ | 0.0 | 2008 12 06 | G96 | 0.1− | 0.5− |
| 2004 12 20 | 691 | 0.1− | 0.1+ | 2008 11 09 | G96 | 0.1− | 0.0 | 2008 12 06 | G96 | 0.3− | 0.1+ |
| 2004 12 20 | 691 | 0.0 | 0.2+ | 2008 11 29 | 621 | 0.2− | 0.2− | 2008 12 06 | G96 | 0.5− | 0.1+ |
| 2004 12 20 | 691 | 0.2+ | 0.2+ | 2008 11 29 | 621 | 0.1− | 0.1− | | | | |
| 2008 09 24 | 703 | 1.0+ | 0.1− | 2008 11 29 | 621 | 0.1− | 0.3− | | | | |

**2008 WJ$_{123}$ = 2006 KR$_{90}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 97.26228 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21501460 | $\omega$ | 349.53940 | | +0.49253078 | −0.83958265 | |
| $a$ | 2.7594599 | $\Omega$ | 70.61520 | | +0.81499855 | +0.35259781 | |
| $e$ | 0.1103466 | $i$ | 14.05965 | | +0.30527166 | +0.41325024 | |
| $P$ | 4.58 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 05 24 | G96 | 0.6+ | 0.2+ | 2008 11 22 | 691 | 0.0 | 0.2− | 2008 12 06 | 691 | 0.1+ | 0.0 |
| 2006 05 24 | G96 | 0.1− | 0.0 | 2008 11 22 | 691 | 0.0 | 0.5+ | 2008 12 06 | 691 | 0.1+ | 0.2− |
| 2006 05 24 | G96 | 0.0 | 0.1− | 2008 11 22 | 691 | 0.0 | 0.0 | 2008 12 29 | 691 | 0.0 | 0.3− |
| 2006 05 24 | G96 | 0.7− | 0.1− | 2008 11 30 | 691 | 0.0 | 0.2− | 2008 12 29 | 691 | 0.2− | 0.2+ |
| 2006 05 29 | 691 | 0.3+ | 0.4+ | 2008 11 30 | 691 | 0.2− | 0.1+ | 2008 12 29 | 691 | 0.1+ | 0.2+ |
| 2006 05 29 | 691 | 0.3− | 0.8− | 2008 11 30 | 691 | 0.2− | 0.2− | | | | |
| 2006 05 29 | 691 | 0.0 | 0.4+ | 2008 12 06 | 691 | 0.2+ | 0.1− | | | | |

**2008 WR$_{132}$ = 2006 KH$_{104}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 57.02954 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24027549 | $\omega$ | 326.35978 | | −0.31078351 | −0.93651290 | |
| $a$ | 2.5624952 | $\Omega$ | 141.03618 | | +0.91901122 | −0.33966613 | |
| $e$ | 0.1306993 | $i$ | 14.96189 | | +0.24255305 | +0.08700867 | |
| $P$ | 4.10 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 07 24 | 691 | 0.4− | 0.0 | 2006 05 02 | 703 | 0.1− | 0.8− | 2007 10 08 | G96 | 0.4+ | 0.0 |
| 1995 07 24 | 691 | 0.0 | 0.6− | 2006 05 02 | 703 | 0.7− | 0.2+ | 2008 10 09 | 703 | 0.5− | 0.7+ |
| 1995 07 24 | 691 | 0.1− | 0.2+ | 2006 05 26 | 703 | (1.5− | 2.1+) | 2008 10 09 | 703 | 0.0 | 1.0+ |
| 2002 05 05 | 644 | 1.0+ | 1.3+ | 2006 05 26 | 703 | (2.4− | 2.0−) | 2008 10 09 | 703 | 0.6− | 0.7+ |
| 2002 05 05 | 644 | (0.6+ | 1.8+) | 2006 05 26 | 703 | 0.7− | 0.4− | 2008 10 09 | 703 | 0.3+ | 0.1+ |
| 2002 05 05 | 644 | 0.7+ | 1.5+ | 2006 05 26 | 703 | 1.3− | 0.5+ | 2008 11 06 | 703 | 0.7− | 1.0− |
| 2002 05 13 | 644 | 0.5+ | 0.7+ | 2006 06 01 | 691 | 0.4+ | 0.4+ | 2008 11 06 | 703 | 1.4− | 0.7+ |
| 2002 05 13 | 644 | 0.8+ | 0.8+ | 2006 06 01 | 691 | 0.0 | 0.4+ | 2008 11 06 | 703 | 0.9− | 0.8+ |
| 2002 05 13 | 644 | 0.9+ | 0.7+ | 2006 06 01 | 691 | 0.1+ | 0.3+ | 2008 11 06 | 703 | 0.1+ | 0.7− |
| 2004 11 11 | 699 | 0.5+ | 1.3+ | 2007 06 20 | 691 | 0.0 | 0.5+ | 2008 11 20 | 703 | (0.7+ | 2.0+) |
| 2004 11 11 | 699 | 0.9− | 1.2+ | 2007 06 20 | 691 | 0.3− | 0.3+ | 2008 11 20 | 703 | 0.9+ | 0.9+ |
| 2004 11 11 | 699 | 0.0 | 1.2+ | 2007 06 20 | 691 | 0.2− | 0.1+ | 2008 11 20 | 703 | 1.4+ | 0.5+ |
| 2004 11 11 | 699 | (1.3− | 2.0+) | 2007 09 05 | G96 | 0.4+ | 0.0 | 2008 11 20 | 703 | 0.4− | 0.9+ |
| 2004 12 03 | 699 | 1.1+ | 0.8+ | 2007 09 05 | G96 | 0.3+ | 0.2+ | 2008 12 02 | 703 | (0.8+ | 1.9+) |
| 2004 12 03 | 699 | 0.4− | 0.2+ | 2007 09 05 | G96 | 0.3+ | 0.2− | 2008 12 02 | 703 | 0.4− | 0.3− |
| 2004 12 03 | 699 | 1.1+ | 0.7+ | 2007 09 05 | G96 | 0.2+ | 0.0 | 2008 12 02 | 703 | 0.5− | 0.9+ |
| 2004 12 03 | 699 | (2.7+ | 0.1+) | 2007 10 08 | G96 | 0.8+ | 0.3+ | 2008 12 02 | 703 | 0.6− | 0.0 |
| 2006 05 02 | 703 | (2.6− | 1.7+) | 2007 10 08 | G96 | 1.1+ | 0.2+ | | | | |
| 2006 05 02 | 703 | 0.0 | 0.9+ | 2007 10 08 | G96 | 0.2+ | 0.3+ | | | | |

**2008 WG$_{133}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 124.75311 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18463170 | $\omega$ | 296.70791 | | +0.89653562 | −0.42907297 | |
| $a$ | 3.0544420 | $\Omega$ | 88.87428 | | +0.43539916 | +0.80780322 | |
| $e$ | 0.1276550 | $i$ | 6.32185 | | +0.08155643 | +0.40416623 | |
| $P$ | 5.34 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 10 07 | 608 | 0.3− | 0.1+ | 2004 01 28 | 691 | 0.0 | 0.0 | 2008 12 21 | 691 | 0.1+ | 0.4+ |
| 2002 10 07 | 608 | 0.8− | 0.3− | 2004 01 28 | 691 | 0.4− | 0.1+ | 2008 12 21 | 691 | 0.6+ | 0.6+ |
| 2002 10 07 | 608 | 0.1− | 0.0 | 2008 11 19 | 691 | 0.1+ | 0.1− | 2008 12 21 | 691 | 0.0 | 0.3+ |
| 2002 10 30 | 645 | 0.0 | 0.0 | 2008 11 19 | 691 | 0.2+ | 0.2− | 2008 12 31 | 691 | 0.1− | 0.2+ |
| 2002 10 30 | 645 | 0.1+ | 0.0 | 2008 11 19 | 691 | 0.2− | 0.1− | 2008 12 31 | 691 | 0.0 | 0.3− |
| 2002 11 07 | 645 | 0.0 | 0.0 | 2008 11 30 | 691 | 0.5− | 0.3− | 2008 12 31 | 691 | 0.1+ | 0.2− |
| 2002 11 07 | 645 | 0.0 | 0.0 | 2008 11 30 | 691 | 0.3− | 0.1− | | | | |
| 2004 01 28 | 691 | 0.3+ | 0.3− | 2008 11 30 | 691 | 0.1− | 0.0 | | | | |

**2008 XA$_{17}$ = 2003 SE$_{2}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 156.04532 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22401577 | $\omega$ | 176.21086 | | +0.99372500 | +0.11183318 | |
| $a$ | 2.6850373 | $\Omega$ | 177.36566 | | −0.10372561 | +0.92804765 | |
| $e$ | 0.1209391 | $i$ | 2.48120 | | −0.04185233 | +0.35527580 | |
| $P$ | 4.40 | $H$ | 17.9 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 16 | 691 | 0.1+ | 0.1− | 2003 09 27 | 691 | 0.1− | 0.1− | 2008 12 01 | 691 | 0.1− | 0.1− |
| 2003 09 16 | 691 | 0.2− | 0.0 | 2003 09 27 | 691 | 0.0 | 0.2+ | 2008 12 01 | 691 | 0.1− | 0.3+ |
| 2003 09 16 | 691 | 0.1+ | 0.3− | 2003 09 27 | 691 | 0.1+ | 0.2+ | 2008 12 01 | 691 | 0.2+ | 0.2− |
| 2003 09 17 | 291 | 0.3+ | 0.0 | 2008 11 19 | 691 | 0.4− | 0.0 | 2008 12 05 | 691 | 0.0 | 0.1+ |
| 2003 09 17 | 291 | 0.0 | 0.1+ | 2008 11 19 | 691 | 0.0 | 0.1− | 2008 12 05 | 691 | 0.1− | 0.1+ |
| 2003 09 17 | 291 | 0.2− | 0.1+ | 2008 11 19 | 691 | 0.4+ | 0.0 | 2008 12 05 | 691 | 0.0 | 0.1− |

**2008 XJ$_{17}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 103.64715 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27217913 | $\omega$ | 225.96012 | | +0.17829932 | −0.98365082 | |
| $a$ | 2.3581214 | $\Omega$ | 213.79327 | | +0.91529188 | +0.17523888 | |
| $e$ | 0.1429023 | $i$ | 2.60779 | | +0.36117879 | +0.04150172 | |
| $P$ | 3.62 | $H$ | 17.8 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 03 04 | 691 | 0.3+ | 0.1− | 2006 04 02 | G96 | 0.5− | 0.0 | 2008 12 01 | 691 | 0.4+ | 0.3− |
| 2006 03 04 | 691 | 0.1+ | 0.1+ | 2008 11 24 | J75 | 1.2+ | 0.3− | 2008 12 05 | 691 | 0.0 | 0.0 |
| 2006 03 04 | 691 | 0.1− | 0.1+ | 2008 11 24 | J75 | 0.5+ | 0.2+ | 2008 12 05 | 691 | 0.1+ | 0.2+ |
| 2006 04 02 | G96 | 0.4− | 0.1+ | 2008 11 24 | J75 | 0.2+ | 0.3+ | 2008 12 05 | 691 | 0.4− | 0.0 |
| 2006 04 02 | G96 | 0.7+ | 0.2− | 2008 12 01 | 691 | 0.3− | 0.1+ | | | | |
| 2006 04 02 | G96 | 0.6− | 0.2− | 2008 12 01 | 691 | 0.1− | 0.1− | | | | |

**2008 XY$_{17}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 37.88270 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.24079686 | $\omega$ | 335.34793 | | −0.86434103 | | −0.50288000 |
| $a$ | 2.5587950 | $\Omega$ | 174.45315 | | +0.46976085 | | −0.81097223 |
| $e$ | 0.1455908 | $i$ | 3.04039 | | +0.17955314 | | −0.29905809 |
| $P$ | 4.09 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1993 02 16 | 691 | 0.1− | 0.0 | 2007 08 10 | 691 | 0.2+ | 0.0 | 2008 12 01 | 691 | 0.0 | 0.1− |
| 1993 02 16 | 691 | 0.0 | 0.3+ | 2007 08 10 | 691 | 0.3− | 0.0 | 2008 12 01 | 691 | 0.2− | 0.2+ |
| 1993 02 16 | 691 | 0.0 | 0.1− | 2007 08 10 | 691 | 0.1+ | 0.2− | 2008 12 01 | 691 | 0.2− | 0.1+ |
| 1999 09 30 | 691 | 0.2− | 0.1− | 2007 08 24 | 691 | 0.4− | 0.2+ | 2008 12 05 | 691 | 0.1− | 0.2− |
| 1999 09 30 | 691 | 0.4+ | 0.1+ | 2007 08 24 | 691 | 0.2+ | 0.4+ | 2008 12 05 | 691 | 0.2− | 0.2− |
| 1999 09 30 | 691 | 0.1− | 0.1− | 2007 08 24 | 691 | 0.1− | 0.0 | 2008 12 05 | 691 | 0.2− | 0.1− |
| 2004 12 12 | 691 | 0.2+ | 0.6+ | 2008 11 19 | 691 | 0.2− | 0.1− | 2008 12 31 | G96 | 0.7+ | 0.3− |
| 2004 12 12 | 691 | 0.4+ | 0.1+ | 2008 11 19 | 691 | 0.1− | 0.1+ | 2008 12 31 | G96 | 0.6+ | 0.1− |
| 2004 12 12 | 691 | 0.1+ | 0.2+ | 2008 11 19 | 691 | 0.2− | 0.2+ | 2008 12 31 | G96 | 0.5+ | 0.1− |
| 2006 05 26 | G96 | 0.1− | 0.3+ | 2008 11 30 | 704 | 0.3+ | 0.5− | 2008 12 31 | G96 | 0.8+ | 0.0 |
| 2006 05 26 | G96 | 0.7+ | 1.0+ | 2008 11 30 | 704 | 0.5+ | 0.1− | | | | |
| 2006 05 26 | G96 | 0.1− | 0.2+ | 2008 11 30 | 704 | 0.0 | 0.2− | | | | |

**2008 XN$_{20}$ = 2001 XK$_{144}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 113.00972 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.28387501 | $\omega$ | 340.96027 | | +0.11383660 | | −0.98847321 |
| $a$ | 2.2928973 | $\Omega$ | 102.40699 | | +0.92426603 | | +0.06852174 |
| $e$ | 0.1710735 | $i$ | 5.86566 | | +0.36438104 | | +0.13500183 |
| $P$ | 3.47 | $H$ | 17.7 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 12 14 | 704 | 0.3+ | 0.4− | 2001 12 20 | 704 | 0.1− | 0.4+ | 2008 12 01 | 691 | 0.3+ | 0.1+ |
| 2001 12 14 | 704 | 0.1+ | 0.1+ | 2008 11 24 | 691 | 1.0− | 0.3+ | 2008 12 05 | 691 | 0.1+ | 0.0 |
| 2001 12 14 | 704 | 0.4− | 0.5− | 2008 11 24 | 691 | 0.6+ | 0.1+ | 2008 12 05 | 691 | 0.1− | 0.4+ |
| 2001 12 14 | 704 | 0.0 | 0.0 | 2008 11 24 | 691 | 1.0− | 0.8− | 2008 12 05 | 691 | 0.1− | 0.0 |
| 2001 12 17 | 704 | 0.3+ | 0.4+ | 2008 12 01 | 691 | 0.4+ | 0.0 | 2008 12 21 | 703 | 0.3− | 0.4− |
| 2001 12 17 | 704 | 0.0 | 0.1− | 2008 12 01 | 691 | 0.4+ | 0.2+ | 2008 12 21 | 703 | 0.2− | 0.3+ |
| 2001 12 17 | 704 | 0.7+ | 0.5+ | 2008 12 01 | 691 | 0.3+ | 0.2− | 2008 12 21 | 703 | 0.3− | 0.1− |
| 2001 12 20 | 704 | 0.2− | 0.2− | 2008 12 01 | 691 | 0.4+ | 0.0 | 2008 12 21 | 703 | 1.2− | 0.7− |
| 2001 12 20 | 704 | 0.6− | 0.5− | 2008 12 01 | 691 | 0.4+ | 0.1+ | 2008 12 21 | 703 | 0.5− | 0.0 |

**2008 XP$_{36}$ = 1994 UU$_{8}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 116.12621 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21649147 | $\omega$ | 104.64348 | | +0.79068319 | | −0.60991417 |
| $a$ | 2.7468958 | $\Omega$ | 292.96789 | | +0.53714796 | | +0.73275621 |
| $e$ | 0.0727510 | $i$ | 3.30924 | | +0.29375528 | | +0.30178310 |
| $P$ | 4.55 | $H$ | 17.6 | $G$ | 0.15 | $U$ | 5 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 10 28 | 691 | 0.7− | 0.1− | 1994 11 01 | 691 | 0.4+ | 0.4− | 2008 12 02 | 691 | 0.0 | 0.2+ |
| 1994 10 28 | 691 | 0.1+ | 0.8+ | 2008 11 19 | 691 | 0.5− | 0.2− | 2008 12 02 | 691 | 0.1+ | 0.1− |
| 1994 10 28 | 691 | 0.7− | 0.5+ | 2008 11 19 | 691 | 0.2+ | 0.1− | 2008 12 06 | 691 | 0.1+ | 0.2+ |
| 1994 11 01 | 691 | 0.4+ | 0.5− | 2008 11 19 | 691 | 0.0 | 0.0 | 2008 12 06 | 691 | 0.0 | 0.4+ |
| 1994 11 01 | 691 | 0.5+ | 0.2− | 2008 12 02 | 691 | 0.1− | 0.2− | 2008 12 06 | 691 | 0.2+ | 0.1− |

**2008 XH$_{39}$ = 2003 SR$_{351}$ = 2004 XC$_{161}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 193.27664 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22824527 | $\omega$ | 262.96458 | | +0.73663968 | | +0.67228787 |
| $a$ | 2.6517640 | $\Omega$ | 54.76017 | | −0.57956631 | | +0.68350739 |
| $e$ | 0.1567074 | $i$ | 5.15772 | | −0.34851811 | | +0.28433547 |
| $P$ | 4.32 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 19 | 699 | 0.1− | 1.2− | 2004 12 14 | 691 | 0.3+ | 0.2+ | 2008 12 02 | 691 | 0.1− | 0.1− |
| 2003 09 19 | 699 | 0.6+ | 1.3+ | 2004 12 19 | 691 | 0.1− | 0.2− | 2008 12 02 | 691 | 0.2+ | 0.0 |
| 2003 09 19 | 699 | 0.6+ | 0.1+ | 2004 12 19 | 691 | 0.3+ | 0.0 | 2008 12 02 | 691 | 0.1− | 0.1+ |
| 2003 09 19 | 699 | 0.6+ | 0.0 | 2004 12 19 | 691 | 0.2+ | 0.1+ | 2008 12 06 | 691 | 0.1+ | 0.1+ |
| 2003 09 28 | 704 | 1.0− | 0.1+ | 2007 06 25 | D35 | 0.3+ | 0.6− | 2008 12 06 | 691 | 0.3+ | 0.1− |
| 2003 09 28 | 704 | 0.4− | 0.6− | 2007 06 25 | D35 | 0.5− | 0.9+ | 2008 12 06 | 691 | 0.0 | 0.1+ |
| 2003 09 28 | 704 | 0.3− | 0.1+ | 2007 06 25 | D35 | 0.0 | 0.3+ | 2008 12 29 | G96 | 0.8− | 0.9− |
| 2003 09 28 | 704 | 0.1+ | 0.2+ | 2008 11 24 | 691 | 0.3− | 0.0 | 2008 12 29 | G96 | 0.1+ | 0.6− |
| 2004 12 14 | 691 | 0.0 | 0.1+ | 2008 11 24 | 691 | 0.4+ | 0.2+ | 2008 12 29 | G96 | 0.9− | 0.5− |
| 2004 12 14 | 691 | 0.6− | 0.2+ | 2008 11 24 | 691 | 0.0 | 0.1+ | 2008 12 29 | G96 | 0.4− | 0.3− |

**2008 XJ$_{40}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 117.52055 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21705247 | $\omega$ | 334.75929 | | +0.65349091 | | −0.72871533 |
| $a$ | 2.7421606 | $\Omega$ | 73.71842 | | +0.72562265 | | +0.52610683 |
| $e$ | 0.0482932 | $i$ | 12.31623 | | +0.21545626 | | +0.43838976 |
| $P$ | 4.54 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 19 | 683 | 1.2+ | 1.2+ | 2003 11 23 | 699 | 0.4+ | 0.2+ | 2006 06 16 | 691 | 0.2− | 0.5+ |
| 2003 10 19 | 683 | 1.8− | 1.7+ | 2003 11 23 | 699 | 1.3− | 0.5+ | 2008 12 02 | 691 | 0.0 | 0.7+ |
| 2003 10 19 | 683 | 2.0− | 0.9− | 2006 05 21 | 691 | 0.3− | 0.4− | 2008 12 02 | 691 | 0.1+ | 0.1+ |
| 2003 10 20 | 683 | 0.4− | 0.3− | 2006 05 21 | 691 | 0.2− | 0.3− | 2008 12 02 | 691 | 0.1+ | 0.0 |
| 2003 10 20 | 683 | 0.2+ | 1.1− | 2006 05 21 | 691 | 0.2− | 0.2− | 2008 12 06 | 691 | 0.2− | 0.2+ |
| 2003 11 19 | 644 | 0.4+ | 0.2+ | 2006 06 02 | 691 | 0.3+ | 0.2+ | 2008 12 06 | 691 | 0.1+ | 0.1+ |
| 2003 11 19 | 644 | 0.5+ | 0.2+ | 2006 06 02 | 691 | 0.2− | 0.3+ | 2008 12 06 | 691 | 0.1− | 0.2+ |
| 2003 11 19 | 644 | 0.3+ | 0.5+ | 2006 06 02 | 691 | 1.7+ | 1.4+ | 2008 12 20 | J75 | 0.1+ | 0.8− |
| 2003 11 23 | 699 | 0.1+ | 0.9+ | 2006 06 16 | 691 | 0.2+ | 0.4+ | 2008 12 20 | J75 | 0.5− | 0.2− |
| 2003 11 23 | 699 | 0.0 | 0.8+ | 2006 06 16 | 691 | 0.0 | 0.3+ | 2008 12 20 | J75 | 0.6− | 0.5+ |

**2008 XH$_{42}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 301.77015 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18307769 | $\omega$ | 257.94134 | | −0.58019104 | | +0.81421966 |
| $a$ | 3.0717021 | $\Omega$ | 336.55793 | | −0.72567289 | | −0.52825313 |
| $e$ | 0.1334404 | $i$ | 2.96943 | | −0.36983404 | | −0.24082146 |
| $P$ | 5.38 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 10 18 | 691 | 0.1+ | 0.0 | 2004 01 16 | 691 | 0.0 | 0.4+ | 2008 11 21 | 691 | 0.2− | 0.1+ |
| 1996 10 18 | 691 | 0.2+ | 0.1− | 2004 02 11 | 691 | 0.4+ | 0.3+ | 2008 11 21 | 691 | 0.2− | 0.0 |
| 1996 10 18 | 691 | 0.6+ | 0.5− | 2004 02 11 | 691 | 0.2− | 0.1+ | 2008 11 21 | 691 | 0.4− | 0.1− |
| 2001 08 25 | 691 | 0.4− | 0.4+ | 2004 02 11 | 691 | 0.1− | 0.2+ | 2008 12 02 | 691 | 0.1− | 0.1− |
| 2001 08 25 | 691 | 0.4− | 0.1+ | 2006 08 15 | 644 | 0.1− | 0.3+ | 2008 12 02 | 691 | 0.3+ | 0.1− |
| 2001 08 25 | 691 | 0.6− | 0.3+ | 2006 08 15 | 644 | 0.3− | 0.5+ | 2008 12 02 | 691 | 0.1− | 0.3− |
| 2001 09 22 | 691 | 0.1− | 0.0 | 2006 08 15 | 644 | 0.2− | 0.5+ | 2008 12 06 | 691 | 0.0 | 0.2+ |
| 2001 09 22 | 691 | 0.0 | 0.0 | 2006 08 27 | 691 | 0.3+ | 0.5+ | 2008 12 06 | 691 | 0.1− | 0.7− |
| 2001 09 22 | 691 | 0.2− | 0.2+ | 2006 08 27 | 691 | 0.2+ | 0.0 | 2008 12 06 | 691 | 0.0 | 0.0 |
| 2003 12 21 | 691 | 0.2+ | 0.4+ | 2006 08 27 | 691 | 0.0 | 0.0 | 2008 12 31 | 691 | 0.2+ | 0.2− |
| 2003 12 21 | 691 | 0.3+ | 0.5+ | 2006 09 25 | G96 | 0.6− | 0.1− | 2008 12 31 | 691 | 0.2+ | 0.1− |
| 2003 12 21 | 691 | 0.0 | 0.2+ | 2006 09 25 | G96 | 0.4− | 0.2− | 2008 12 31 | 691 | 0.3+ | 0.2− |
| 2004 01 16 | 691 | 0.1− | 0.1+ | 2006 09 25 | G96 | 0.1− | 0.3− | | | | |
| 2004 01 16 | 691 | 0.0 | 0.4+ | 2006 09 25 | G96 | 0.2+ | 0.2+ | | | | |

**2008 XH$_{52}$ = 2004 YA$_6$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 9.06335 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.24011827 | $\omega$ | 87.12266 | | −0.98905005 | | +0.10783332 |
| $a$ | 2.5636137 | $\Omega$ | 99.05286 | | −0.13847858 | | −0.91415736 |
| $e$ | 0.0682277 | $i$ | 5.85596 | | +0.05102620 | | −0.39075350 |
| $P$ | 4.10 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 30 | 691 | 0.0 | 0.3+ | 2005 01 17 | 691 | 0.4− | 0.7+ | 2007 10 20 | G96 | 0.5+ | 0.5− |
| 2003 09 30 | 691 | 0.2− | 0.1+ | 2005 01 17 | 691 | 0.2− | 0.5+ | 2008 12 05 | 691 | 0.1+ | 0.1− |
| 2003 09 30 | 691 | 0.1− | 0.2+ | 2005 01 17 | 691 | 0.4+ | 0.0 | 2008 12 05 | 691 | 0.1+ | 0.3+ |
| 2004 12 16 | 691 | 0.4+ | 0.0 | 2006 05 06 | G96 | 0.5− | 0.4+ | 2008 12 05 | 691 | 0.1+ | 0.2+ |
| 2004 12 16 | 691 | 0.1− | 0.2+ | 2006 05 06 | G96 | 0.0 | 0.1+ | 2008 12 21 | 691 | 0.0 | 0.4− |
| 2004 12 16 | 691 | 0.3+ | 0.4+ | 2006 05 06 | G96 | 0.1+ | 0.4+ | 2008 12 21 | 691 | 0.1− | 0.7− |
| 2004 12 18 | G96 | 0.3− | 0.3− | 2006 05 06 | G96 | 0.7+ | 0.1+ | 2008 12 21 | 691 | 0.1+ | 0.4− |
| 2004 12 18 | G96 | 0.0 | 0.2− | 2007 10 20 | G96 | 0.6− | 0.0 | 2009 01 02 | 691 | 0.0 | 0.0 |
| 2004 12 18 | G96 | 0.2− | 0.4− | 2007 10 20 | G96 | 0.3+ | 0.2− | 2009 01 02 | 691 | 0.1− | 0.2− |
| 2004 12 18 | G96 | 0.2− | 0.1+ | 2007 10 20 | G96 | 0.1+ | 0.1+ | 2009 01 02 | 691 | 0.1− | 0.1− |

**2008 YF$_1$ = 2007 QV$_{15}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 114.64595 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17257319 | $\omega$ | 292.96513 | | +0.88754673 | | −0.44419251 |
| $a$ | 3.1951199 | $\Omega$ | 93.59434 | | +0.45470707 | | +0.80181361 |
| $e$ | 0.1507706 | $i$ | 7.03796 | | +0.07417739 | | +0.39973484 |
| $P$ | 5.71 | $H$ | 15.3 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 08 16 | D29 | 0.1+ | 0.3+ | 2007 09 10 | 703 | 0.1− | 0.2+ | 2008 12 19 | J75 | 0.1− | 0.4+ |
| 2007 08 16 | D29 | 0.0 | 0.2− | 2007 09 10 | 703 | 1.0+ | 0.1− | 2008 12 20 | J75 | 0.0 | 0.3+ |
| 2007 08 16 | D29 | 0.4+ | 0.3+ | 2007 09 10 | 703 | 0.9+ | 1.0− | 2008 12 20 | J75 | 0.3− | 0.1+ |
| 2007 08 16 | D29 | 0.2− | 0.2+ | 2007 10 02 | E12 | 0.1+ | 0.5− | 2008 12 20 | J75 | 0.0 | 0.1+ |
| 2007 09 04 | 703 | 1.3− | 0.4+ | 2007 10 02 | E12 | 0.4+ | 0.7− | 2008 12 25 | J75 | 0.0 | 0.3− |
| 2007 09 04 | 703 | 0.6− | 0.7+ | 2007 10 02 | E12 | 0.4− | 0.4− | 2008 12 25 | J75 | 0.3+ | 0.2− |
| 2007 09 04 | 703 | 0.3− | 0.1− | 2007 10 02 | E12 | 0.3+ | 0.3− | 2008 12 25 | J75 | 0.1+ | 0.5− |
| 2007 09 04 | 703 | 0.2− | 0.9+ | 2008 12 19 | J75 | 0.4− | 0.2+ | | | | |
| 2007 09 10 | 703 | 0.1− | 0.4+ | 2008 12 19 | J75 | 0.3+ | 0.3+ | | | | |

**2008 YB$_5$ = 2006 KL$_{128}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 284.43143 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22713827 | $\omega$ | 327.33091 | | −0.10061690 | | +0.99476670 |
| $a$ | 2.6603728 | $\Omega$ | 296.88890 | | −0.90849698 | | −0.09913922 |
| $e$ | 0.0204635 | $i$ | 1.14106 | | −0.40559769 | | −0.02471083 |
| $P$ | 4.34 | $H$ | 17.4 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 03 08 | G96(22.0+ | 3.1−) | | 2007 10 11 | G96 | 0.5− | 0.4+ | 2008 12 23 | 461 | 0.4− | 0.9+ |
| 2005 03 08 | G96(22.2+ | 3.0−) | | 2007 10 11 | G96 | 0.1− | 0.2+ | 2008 12 24 | 461 | 0.1− | 0.0 |
| 2005 03 08 | G96(22.0+ | 3.1−) | | 2007 10 11 | G96 | 0.1− | 0.4− | 2008 12 24 | 461 | 0.3+ | 0.2+ |
| 2005 03 08 | G96(21.3+ | 1.7−) | | 2007 10 11 | G96 | 0.4− | 0.1+ | 2008 12 24 | 461 | 0.3+ | 0.1− |
| 2006 05 25 | 568 | 0.1+ | 0.7+ | 2008 12 04 | G96 | 0.2− | 0.1+ | 2008 12 28 | 461 | 0.1+ | 0.1− |
| 2006 05 25 | 568 | 0.0 | 0.8+ | 2008 12 04 | G96 | 0.0 | 0.0 | 2008 12 28 | 461 | 0.4− | 0.3+ |
| 2006 05 25 | 568 | 0.1+ | 0.8+ | 2008 12 04 | G96 | 0.1+ | 0.3− | 2008 12 30 | 461 | 0.2+ | 0.2− |
| 2006 05 26 | 568 | 0.1+ | 0.4+ | 2008 12 04 | G96 | 0.2+ | 0.4− | 2008 12 30 | 461 | 0.1− | 0.1+ |
| 2007 09 13 | G96 | 0.1+ | 0.2+ | 2008 12 22 | 461 | 0.1+ | 0.2+ | 2008 12 30 | 461 | 0.0 | 0.4+ |
| 2007 09 13 | G96 | 0.4+ | 0.2+ | 2008 12 22 | 461 | 0.3− | 0.2+ | 2008 12 31 | 461 | 0.1+ | 0.3+ |
| 2007 09 13 | G96 | 0.1+ | 0.5+ | 2008 12 23 | 461 | 0.1+ | 0.2+ | 2008 12 31 | 461 | 0.4+ | 0.1− |
| 2007 09 13 | G96 | 0.2− | 0.3+ | 2008 12 23 | 461 | 0.4− | 0.6+ | 2008 12 31 | 461 | 0.1+ | 0.2+ |

**2008 YZ$_6$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 73.67698 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.25483530 | $\omega$ | 332.76614 | | −0.72528683 | | −0.68831704 |
| $a$ | 2.4639373 | $\Omega$ | 163.71444 | | +0.63999719 | | −0.68127232 |
| $e$ | 0.1326407 | $i$ | 2.73209 | | +0.25369788 | | −0.24917400 |
| $P$ | 3.87 | $H$ | 17.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 12 | 691 | 0.0 | 0.5− | 2008 12 24 | A77 | 0.3− | 0.6+ | 2009 01 16 | G96 | 0.2− | 0.0 |
| 2004 12 12 | 691 | 0.2+ | 0.5− | 2008 12 24 | A77 | 0.1+ | 0.1− | 2009 01 17 | 704 | (0.5+ | 2.0+) |
| 2004 12 12 | 691 | 0.0 | 0.0 | 2008 12 24 | A77 | 0.1+ | 0.2+ | 2009 01 17 | 704 | (1.6+ | 0.4+) |
| 2004 12 21 | 691 | 0.0 | 0.4+ | 2008 12 29 | 704 | 0.5− | 0.8− | 2009 01 17 | 704 | 0.9− | 0.6+ |
| 2004 12 21 | 691 | 0.2− | 0.3+ | 2008 12 29 | 704 | 0.3− | 0.2+ | 2009 01 17 | 704 | 0.5+ | 0.3− |
| 2004 12 21 | 691 | 0.1− | 0.3+ | 2008 12 29 | 704 | 0.4+ | 0.2− | 2009 01 22 | 704 | 0.8+ | 1.0− |
| 2007 09 10 | G96 | 0.3+ | 0.3+ | 2009 01 02 | G96 | 0.2− | 0.1+ | 2009 01 22 | 704 | 0.0 | 0.8− |
| 2007 09 10 | G96 | 0.2+ | 0.2− | 2009 01 02 | G96 | 0.1− | 0.0 | 2009 01 22 | 704 | 0.7+ | 0.7− |
| 2007 09 10 | G96 | 0.1− | 0.0 | 2009 01 02 | G96 | 0.5− | 0.3+ | 2009 01 22 | 704 | 0.8+ | 0.1− |
| 2007 09 10 | G96 | 0.3− | 0.3− | 2009 01 02 | G96 | 0.4− | 0.0 | 2009 03 19 | G96 | 0.2+ | 0.2− |
| 2008 12 23 | A77 | 0.0 | 0.5+ | 2009 01 16 | G96 | 0.1+ | 0.1+ | 2009 03 19 | G96 | 0.1− | 0.2+ |
| 2008 12 23 | A77 | 0.0 | 0.5+ | 2009 01 16 | G96 | 0.1+ | 0.1+ | 2009 03 19 | G96 | 0.3− | 0.1+ |
| 2008 12 23 | A77 | 0.2+ | 0.7+ | 2009 01 16 | G96 | 0.3− | 0.0 | | | | |

**2008 YA$_9$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 102.04844 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21584236 | $\omega$ | 349.99030 | | +0.42871747 | | −0.90137027 |
| $a$ | 2.7524003 | $\Omega$ | 74.60214 | | +0.83320869 | | +0.36834286 |
| $e$ | 0.0783756 | $i$ | 3.63343 | | +0.34923433 | | +0.22771732 |
| $P$ | 4.57 | $H$ | 17.5 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 02 01 | 691 | 0.4+ | 0.1+ | 2008 12 21 | 461 | 0.3− | 0.2+ | 2008 12 27 | 461 | 0.1+ | 0.1+ |
| 2005 02 01 | 691 | 0.0 | 0.2+ | 2008 12 21 | 461 | 0.0 | 0.7+ | 2008 12 27 | 461 | 0.2− | 0.0 |
| 2005 02 01 | 691 | 0.6+ | 0.0 | 2008 12 23 | 461 | 0.4+ | 0.3− | 2008 12 28 | 461 | 0.2+ | 0.5− |
| 2005 02 09 | 691 | 0.1− | 0.1+ | 2008 12 23 | 461 | 0.7+ | 0.1+ | 2008 12 28 | 461 | 0.6− | 0.1− |
| 2005 02 09 | 691 | 0.1− | 0.2− | 2008 12 23 | 461 | 0.7+ | 0.3+ | 2008 12 29 | 461 | 0.2+ | 0.0 |
| 2005 02 09 | 691 | 0.8− | 0.2− | 2008 12 26 | 461 | 0.1+ | 0.6− | 2008 12 29 | 461 | 0.2+ | 0.0 |
| 2008 11 22 | 691 | 0.6− | 0.2− | 2008 12 26 | 461 | 0.4− | 0.2− | 2008 12 29 | 461 | 0.4+ | 0.1+ |
| 2008 11 22 | 691 | 0.0 | 0.5+ | 2008 12 26 | 461 | 0.4− | 0.2− | | | | |
| 2008 11 22 | 691 | 0.2+ | 0.1− | 2008 12 27 | 461 | 0.3+ | 0.6− | | | | |

**2008 YA$_{14}$ = 2002 JD$_{19}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 212.76833 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22433620 | $\omega$ | 217.12639 | | +0.43234616 | | +0.88716491 |
| $a$ | 2.6824799 | $\Omega$ | 79.00294 | | −0.78283291 | | +0.45806536 |
| $e$ | 0.1404451 | $i$ | 9.45713 | | −0.44749238 | | +0.05580810 |
| $P$ | 4.39 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 05 07 | 644 | 0.2+ | 0.4+ | 2002 05 09 | 644 | 0.2+ | 0.4+ | 2008 12 20 | G96 | 0.6+ | 0.4− |
| 2002 05 07 | 644 | 0.0 | 0.3+ | 2007 08 08 | E12 | 0.6− | 0.4− | 2008 12 20 | G96 | 0.4+ | 0.5− |
| 2002 05 07 | 644 | 0.2+ | 0.2+ | 2007 08 08 | E12 | 0.3+ | 0.5+ | 2008 12 22 | 691 | 0.1+ | 0.0 |
| 2002 05 08 | 704 | (0.9+ | 2.7−) | 2007 08 08 | E12 | 0.2− | 0.5+ | 2008 12 22 | 691 | 0.1− | 0.3+ |
| 2002 05 08 | 704 | (0.5+ | 3.4−) | 2007 08 08 | E12 | 0.2+ | 0.5+ | 2008 12 22 | 691 | 0.2− | 0.0 |
| 2002 05 08 | 704 | (0.2− | 2.8−) | 2008 12 01 | 691 | 0.3− | 0.2+ | 2008 12 28 | 461 | 0.0 | 0.4+ |
| 2002 05 08 | 704 | (0.8− | 2.5−) | 2008 12 01 | 691 | 0.1− | 0.2+ | 2008 12 28 | 461 | 0.1+ | 0.2+ |
| 2002 05 09 | 644 | 0.1+ | 0.6+ | 2008 12 01 | 691 | 0.2− | 0.2+ | 2008 12 28 | 461 | 0.0 | 0.0 |
| 2002 05 09 | 644 | 0.2+ | 0.4+ | 2008 12 20 | G96 | 0.5+ | 0.5− | | | | |

**2008 YJ$_{15}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 100.97547 | | (2000.0) | | | |
| $n$ | 0.30146972 | $\omega$ | 215.93804 | | −0.48137416 | −0.86855257 |
| $a$ | 2.2027925 | $\Omega$ | 263.10694 | | +0.82936150 | −0.40782412 |
| $e$ | 0.0774519 | $i$ | 6.81921 | | +0.28361669 | −0.28159532 |
| $P$ | 3.27 | $H$ | 17.0 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 08 25 | 691 | 0.0 | 0.0 | 2008 11 20 | G96 | 0.0 | 0.4− | 2008 12 22 | 691 | 1.3− | 0.7+ |
| 2004 08 25 | 691 | 0.1+ | 0.0 | 2008 12 01 | 704 | 0.6+ | 0.5− | 2008 12 28 | 704 | 0.3− | 0.3− |
| 2004 08 25 | 691 | 0.1− | 0.2− | 2008 12 01 | 704 | 0.8+ | 0.6+ | 2008 12 28 | 704 | 1.1+ | 0.0 |
| 2006 01 31 | 699 | 0.4− | 0.1− | 2008 12 01 | 704 | 0.2− | 0.2+ | 2008 12 28 | 704 | (2.0+ | 0.5−) |
| 2006 01 31 | 699 | 0.6− | 0.5+ | 2008 12 04 | G96 | 0.1+ | 0.4− | 2008 12 28 | 704 | (1.6+ | 0.1−) |
| 2006 01 31 | 699 | 0.2+ | 0.2− | 2008 12 04 | G96 | 0.1− | 0.4− | 2009 01 18 | 704 | 0.8+ | 0.4− |
| 2006 01 31 | 699 | (1.9− | 0.2−) | 2008 12 04 | G96 | 0.2+ | 0.3− | 2009 01 18 | 704 | 1.0+ | 0.0 |
| 2006 02 22 | 699 | 0.1+ | 0.6− | 2008 12 04 | G96 | 0.5+ | 0.4− | 2009 01 18 | 704 | 0.7+ | 0.8− |
| 2006 02 22 | 699 | 0.3− | 0.3− | 2008 12 21 | 703 | 0.2− | 0.7+ | 2009 01 18 | 704 | 1.0− | 0.4+ |
| 2006 02 22 | 699 | 0.0 | 0.9+ | 2008 12 21 | 703 | 0.7+ | 0.3+ | 2009 01 21 | 704 | 0.2− | 0.9− |
| 2006 02 22 | 699 | 0.6+ | 1.0− | 2008 12 21 | 703 | 0.1− | 0.5+ | 2009 01 21 | 704 | 0.5+ | 1.3+ |
| 2008 11 20 | G96 | 0.1+ | 0.3− | 2008 12 21 | 703 | 1.2− | 0.1+ | 2009 01 21 | 704 | 0.6+ | 0.1+ |
| 2008 11 20 | G96 | 0.3+ | 0.4− | 2008 12 22 | 691 | 0.1− | 0.2− | 2009 01 21 | 704 | 0.5+ | 0.0 |
| 2008 11 20 | G96 | 0.4+ | 0.3− | 2008 12 22 | 691 | 0.1+ | 0.1− | | | | |

**2008 YF$_{27}$ = 2004 XV$_{95}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 125.61037 | | (2000.0) | | | |
| $n$ | 0.24215712 | $\omega$ | 293.31702 | | +0.74381820 | −0.62790269 |
| $a$ | 2.5492038 | $\Omega$ | 106.39181 | | +0.66651118 | +0.67118992 |
| $e$ | 0.1778698 | $i$ | 13.81421 | | +0.04997325 | +0.39400799 |
| $P$ | 4.07 | $H$ | 16.0 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 12 30 | 691 | 0.3− | 0.1+ | 2004 12 15 | 691 | 0.0 | 0.3− | 2008 12 22 | 704 | 0.1− | 0.2− |
| 2000 12 30 | 691 | 0.2− | 0.0 | 2004 12 15 | 691 | 0.3+ | 0.0 | 2008 12 28 | 704 | 0.0 | 0.2+ |
| 2000 12 30 | 691 | 0.3− | 0.0 | 2004 12 15 | 691 | 0.4+ | 0.1− | 2008 12 28 | 704 | 0.5− | 0.2− |
| 2002 04 11 | 644 | 0.2+ | 0.1− | 2008 12 21 | 703 | 0.6− | 0.1+ | 2008 12 28 | 704 | 0.4− | 0.1− |
| 2002 04 11 | 644 | 0.2+ | 0.1+ | 2008 12 21 | 703 | 0.6− | 1.9+ | 2008 12 28 | 704 | 0.4+ | 0.3+ |
| 2002 04 11 | 644 | 0.1− | 0.1+ | 2008 12 21 | 703 | 1.1+ | 1.3+ | 2009 01 20 | G96 | 1.0− | 0.5− |
| 2004 12 11 | 691 | 0.3+ | 0.0 | 2008 12 21 | 703 | 0.6− | 0.1− | 2009 01 20 | G96 | 0.9− | 0.5− |
| 2004 12 11 | 691 | 0.3+ | 0.1+ | 2008 12 22 | 704 | 0.4+ | 0.8− | 2009 01 20 | G96 | 0.7− | 0.5− |
| 2004 12 11 | 691 | 0.2+ | 0.1+ | 2008 12 22 | 704 | 1.0+ | 0.5− | 2009 01 20 | G96 | 0.7− | 0.6− |

**2008 YS$_{28}$ = 2004 XD$_{113}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 64.40967 | | (2000.0) | | | |
| $n$ | 0.25605216 | $\omega$ | 201.17047 | | −0.80165127 | −0.59744390 |
| $a$ | 2.4561247 | $\Omega$ | 302.12611 | | +0.55186523 | −0.72651633 |
| $e$ | 0.1488899 | $i$ | 1.38008 | | +0.22978253 | −0.33946253 |
| $P$ | 3.85 | $H$ | 17.6 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 10 11 | 691 | 0.2− | 0.1+ | 2007 09 10 | G96 | 0.4− | 0.4− | 2008 12 30 | 461 | 0.2+ | 0.1+ |
| 1996 10 11 | 691 | 0.2+ | 0.4− | 2007 09 10 | G96 | 0.1+ | 0.1+ | 2008 12 30 | 461 | 0.2+ | 0.1− |
| 1996 10 11 | 691 | 0.1+ | 0.1+ | 2007 09 10 | G96 | 0.1+ | 0.3+ | 2008 12 30 | 461 | 0.3+ | 0.2+ |
| 2002 05 09 | 644 | 0.3+ | 0.1+ | 2007 09 10 | G96 | 0.0 | 0.4+ | 2008 12 31 | 461 | 0.1+ | 0.0 |
| 2002 05 09 | 644 | 0.3+ | 0.2+ | 2007 09 10 | G96 | 0.1+ | 0.6+ | 2008 12 31 | 461 | 0.2+ | 0.1+ |
| 2002 05 09 | 644 | 0.1+ | 0.3+ | 2007 09 10 | G96 | 0.1− | 0.0 | 2008 12 31 | 461 | 0.3+ | 0.2+ |
| 2002 05 18 | 644 | 0.3− | 0.2+ | 2007 09 10 | G96 | 0.5− | 0.1− | 2009 01 02 | 461 | 0.2+ | 0.1+ |
| 2002 05 18 | 644 | 0.1− | 0.7+ | 2007 09 10 | G96 | 0.3+ | 0.2+ | 2009 01 02 | 461 | 0.3+ | 0.0 |
| 2004 12 10 | 691 | 0.3− | 0.2+ | 2008 12 29 | 461 | 0.0 | 0.0 | 2009 01 02 | 461 | 0.4+ | 0.0 |
| 2004 12 10 | 691 | 0.1− | 0.1+ | 2008 12 29 | 461 | 0.1+ | 0.2− | 2009 01 18 | 291 | 0.0 | 0.1+ |
| 2004 12 10 | 691 | 0.4+ | 0.1+ | 2008 12 29 | 461 | 0.2− | 0.0 | 2009 01 18 | 291 | 0.1− | 0.1− |
| 2004 12 16 | 691 | 0.1− | 0.1+ | 2008 12 29 | 691 | 0.1+ | 0.2− | 2009 01 18 | 291 | 0.1+ | 0.1− |
| 2004 12 16 | 691 | 0.0 | 0.0 | 2008 12 29 | 691 | 0.2− | 0.4+ | | | | |
| 2004 12 16 | 691 | 0.0 | 0.0 | 2008 12 29 | 691 | 0.3− | 0.2− | | | | |

**2008 YV$_{40}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 134.72144 | | (2000.0) | | | |
| $n$ | 0.23118566 | $\omega$ | 80.83669 | | +0.87997677 | −0.46264247 |
| $a$ | 2.6292313 | $\Omega$ | 306.64634 | | +0.36578900 | +0.80464814 |
| $e$ | 0.2734816 | $i$ | 7.71547 | | +0.30305000 | +0.37216033 |
| $P$ | 4.26 | $H$ | 16.8 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 09 18 | 703 | 0.1− | 1.0+ | 2008 12 05 | G96 | 0.3+ | 0.1− | 2009 01 01 | D29 | 0.4+ | 0.1− |
| 1999 09 18 | 703 | 0.2+ | 0.1− | 2008 12 05 | G96 | 0.0 | 0.1− | 2009 01 01 | D29 | 0.3+ | 0.4− |
| 1999 09 18 | 703 | 0.2+ | 0.5− | 2008 12 05 | G96 | 0.3− | 0.3− | 2009 01 01 | D29 | 0.6+ | 0.3+ |
| 1999 09 18 | 703 | 0.4− | 0.2− | 2008 12 30 | 691 | 0.7− | 0.3+ | 2009 01 02 | G96 | 0.0 | 0.2− |
| 2003 08 05 | 691 | 0.1− | 0.1+ | 2008 12 30 | 691 | 0.5+ | 0.5− | 2009 01 02 | G96 | 0.2+ | 0.2− |
| 2003 08 05 | 691 | 0.0 | 0.3+ | 2008 12 30 | 691 | 0.0 | 0.1+ | 2009 01 02 | G96 | 0.2− | 0.3− |
| 2003 08 05 | 691 | 0.2− | 0.2+ | 2008 12 31 | 704 | (1.6− | 0.2−) | 2009 01 02 | G96 | 0.2− | 0.1− |
| 2005 01 17 | 691 | 0.5+ | 0.2+ | 2008 12 31 | 704 | 1.5− | 0.1− | 2009 01 16 | 704 | 0.7+ | 0.7+ |
| 2005 01 17 | 691 | 0.3+ | 0.4+ | 2008 12 31 | 704 | 1.1− | 1.2+ | 2009 01 16 | 704 | 0.4+ | 0.2+ |
| 2005 01 17 | 691 | 0.2− | 0.1+ | 2008 12 31 | 704 | (1.8− | 2.3+) | 2009 01 16 | 704 | 0.6+ | 0.1− |
| 2005 03 11 | G96 | 0.1+ | 0.1+ | 2008 12 31 | 704 | (1.8− | 0.8+) | 2009 01 16 | 704 | (0.9− | 1.7+) |
| 2005 03 11 | G96 | 0.7− | 0.0 | 2009 01 01 | 691 | 0.1− | 0.1+ | 2009 01 20 | G96 | 0.2+ | 0.1− |
| 2005 03 11 | G96 | 0.4− | 0.0 | 2009 01 01 | 691 | 0.1− | 0.1− | 2009 01 20 | G96 | 0.5+ | 0.4+ |
| 2005 03 11 | G96 | 0.0 | 0.1− | 2009 01 01 | 691 | 0.1+ | 0.0 | 2009 01 20 | G96 | 0.0 | 0.2− |
| 2008 12 05 | G96 | 0.5− | 0.3− | 2009 01 01 | D29 | 0.6+ | 0.3+ | | | | |

**2008 YP$_{77}$ = 2007 SY$_{20}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 163.28218 | | (2000.0) | | | |
| $n$ | 0.18070661 | $\omega$ | 207.37335 | | +0.99914521 | −0.01277404 |
| $a$ | 3.0985132 | $\Omega$ | 153.27097 | | +0.02486197 | +0.94551555 |
| $e$ | 0.1379652 | $i$ | 5.01468 | | −0.03302611 | +0.32532626 |
| $P$ | 5.45 | $H$ | 16.1 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 05 04 | 691 | 0.3− | 0.3+ | 2007 09 21 | D29 | 0.6+ | 0.3− | 2007 11 17 | 703 | 0.2+ | 0.1− |
| 2000 05 04 | 691 | 0.1+ | 0.3+ | 2007 09 21 | D29 | 0.3+ | 0.1− | 2008 12 30 | G96 | 0.5+ | 0.1+ |
| 2000 05 04 | 691 | 0.1+ | 0.5+ | 2007 09 21 | D29 | 0.1+ | 0.2+ | 2008 12 30 | G96 | 0.3− | 0.1− |
| 2001 07 17 | 644 | 0.3− | 0.8+ | 2007 09 21 | D29 | 0.4+ | 0.1+ | 2008 12 30 | G96 | 0.5+ | 0.1+ |
| 2001 07 17 | 644 | 0.0 | 0.5+ | 2007 10 13 | 703 | 0.1− | 0.2− | 2008 12 30 | G96 | 0.1− | 0.5− |
| 2001 07 17 | 644 | 0.1− | 0.3+ | 2007 10 13 | 703 | 0.6− | 0.6+ | 2009 01 01 | 691 | 0.5− | 0.3+ |
| 2001 08 22 | 691 | 0.0 | 0.4+ | 2007 10 13 | 703 | 0.5− | 0.0 | 2009 01 01 | 691 | 0.0 | 0.1+ |
| 2001 08 22 | 691 | 0.0 | 0.1+ | 2007 10 13 | 703 | 0.4− | 1.7+ | 2009 01 01 | 691 | 0.1− | 0.1+ |
| 2001 08 22 | 691 | 0.1− | 0.1+ | 2007 11 07 | 703 | 0.3+ | 0.4+ | 2009 01 16 | G96 | 0.2+ | 0.1− |
| 2004 02 12 | 691 | 0.3+ | 0.5+ | 2007 11 07 | 703 | 0.1− | 1.4+ | 2009 01 16 | G96 | 0.0 | 0.2− |
| 2004 02 12 | 691 | 0.0 | 0.2+ | 2007 11 07 | 703 | 0.5− | 0.8+ | 2009 01 16 | G96 | 0.3− | 0.3− |
| 2004 02 12 | 691 | 0.4+ | 0.2+ | 2007 11 07 | 703 | 0.2+ | 0.3+ | 2009 01 16 | G96 | 0.1− | 0.0 |
| 2005 04 01 | 691 | 0.3− | 0.3− | 2007 11 17 | 703 | 0.8− | 0.8+ | 2009 01 17 | 704 | 0.7+ | 0.4+ |
| 2005 04 01 | 691 | 0.1+ | 0.3+ | 2007 11 17 | 703 | 0.9− | 0.8− | 2009 01 17 | 704 | 0.2+ | 1.1+ |
| 2005 04 01 | 691 | 0.6+ | 0.0 | 2007 11 17 | 703 | 0.5+ | 0.7− | 2009 01 17 | 704 | (1.6+ | 0.0 ) |

**2008 YH$_{83}$ = 2000 WJ$_{84}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 188.36797 | | (2000.0) | | | |
| $n$ | 0.25749600 | $\omega$ | 28.52861 | | +0.98413374 | +0.17638753 |
| $a$ | 2.4469347 | $\Omega$ | 321.29692 | | −0.16806106 | +0.89203271 |
| $e$ | 0.2100273 | $i$ | 1.75862 | | −0.05688823 | +0.41613109 |
| $P$ | 3.83 | $H$ | 16.5 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 10 04 | 691 | 0.2− | 0.2+ | 2008 12 30 | D29 | 0.2+ | 0.3− | 2009 01 02 | G96 | 0.4+ | 0.0 |
| 1996 10 04 | 691 | 0.2+ | 0.2− | 2008 12 30 | D29 | 1.2+ | 0.1+ | 2009 01 02 | G96 | 0.2+ | 0.0 |
| 1996 10 04 | 691 | 0.1+ | 0.1− | 2008 12 30 | D29 | 1.1+ | 0.2+ | 2009 01 07 | 691 | 0.2− | 0.3+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 20 | 704 | 0.8− | 1.4+ | 2008 12 31 | 691 | 0.2− | 0.2+ | 2009 01 07 | 691 | 0.1− | 0.0 | | |
| 2000 11 20 | 704 | 0.2+ | 0.3+ | 2008 12 31 | 691 | 0.2− | 0.0 | 2009 01 07 | 691 | 0.1+ | 0.1− | | |
| 2000 11 20 | 704 | 0.5+ | 1.0− | 2008 12 31 | 691 | 0.3− | 0.0 | 2009 01 20 | G96 | 0.3+ | 0.1− | | |
| 2000 11 20 | 704 | 0.7+ | 0.9− | 2009 01 01 | 691 | 0.1− | 0.0 | 2009 01 20 | G96 | 0.7− | 1.1− | | |
| 2000 11 29 | 704 | 0.1− | 0.3+ | 2009 01 01 | 691 | 0.2− | 0.1− | 2009 01 20 | G96 | 0.8+ | 0.2+ | | |
| 2000 11 29 | 704 | 0.5+ | 0.1+ | 2009 01 01 | 691 | 0.2+ | 0.2+ | 2009 01 20 | G96 | 0.3+ | 0.0 | | |
| 2000 11 29 | 704 | 1.2− | 0.5+ | 2009 01 02 | G96 | 0.5+ | 0.1− | | | | | | |
| 2008 12 30 | D29 | 0.5+ | 0.3− | 2009 01 02 | G96 | 0.1− | 0.2− | | | | | | |

**2008 YZ$_{97}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 90.19887 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.17499608 | $\omega$ | 132.39959 | | | +0.08604689 | | −0.97684633 | |
| $a$ | 3.1655596 | $\Omega$ | 311.55517 | | | +0.81982197 | | +0.18113927 | |
| $e$ | 0.1922366 | $i$ | 15.17419 | | | +0.56611649 | | −0.11384118 | |
| $P$ | 5.63 | $H$ | 16.3 | $G$ | 0.15 | | $U$ | 3 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 20 | 645 | 0.0 | 0.0 | 2009 01 16 | 691 | 0.1+ | 0.5+ | 2009 02 14 | G96 | 0.1+ | 0.1− |
| 2001 09 20 | 645 | 0.1+ | 0.0 | 2009 01 20 | 691 | 0.0 | 0.2− | 2009 02 14 | G96 | 0.0 | 0.4− |
| 2001 09 20 | 645 | 0.1− | 0.0 | 2009 01 20 | 691 | 0.1+ | 0.1− | 2009 02 14 | G96 | 0.4+ | 1.1− |
| 2001 09 20 | 645 | 0.0 | 0.0 | 2009 01 20 | 691 | 0.0 | 0.1− | 2009 02 14 | G96 | 0.7+ | 0.1− |
| 2008 12 29 | G96 | 0.1− | 0.6− | 2009 01 30 | G96 | 0.0 | 0.3− | 2009 02 21 | G96 | 0.0 | 0.1+ |
| 2008 12 29 | G96 | 0.2+ | 0.6− | 2009 01 30 | G96 | 0.3+ | 0.3− | 2009 02 21 | G96 | 0.2+ | 0.1+ |
| 2008 12 29 | G96 | 0.0 | 0.7− | 2009 01 30 | G96 | 0.4+ | 0.3− | 2009 02 21 | G96 | 0.3− | 0.0 |
| 2008 12 29 | G96 | 0.0 | 0.2− | 2009 01 31 | 291 | 0.1− | 0.0 | 2009 02 21 | G96 | 0.2+ | 0.4− |
| 2009 01 02 | 691 | 0.1+ | 0.1+ | 2009 01 31 | 291 | 0.1− | 0.2+ | 2009 02 27 | G96 | 0.2+ | 0.1− |
| 2009 01 02 | 691 | 0.1− | 0.0 | 2009 01 31 | 291 | 0.0 | 0.2+ | 2009 02 27 | G96 | 0.2+ | 0.0 |
| 2009 01 02 | 691 | 0.1+ | 0.0 | 2009 02 01 | 291 | 0.2− | 0.0 | 2009 02 27 | G96 | 0.1+ | 0.2+ |
| 2009 01 08 | 691 | 0.0 | 0.2+ | 2009 02 01 | 291 | 0.0 | 0.2− | 2009 02 27 | G96 | 0.3− | 0.0 |
| 2009 01 08 | 691 | 0.1− | 0.3+ | 2009 02 01 | 291 | 0.0 | 0.1− | 2009 03 21 | G96 | 0.3− | 0.6− |
| 2009 01 08 | 691 | 0.2− | 0.0 | 2009 02 14 | 691 | 0.2− | 0.4+ | 2009 03 21 | G96 | 0.5− | 0.3− |
| 2009 01 16 | 691 | 0.1− | 0.1− | 2009 02 14 | 691 | 0.2+ | 0.3+ | 2009 03 21 | G96 | 0.3+ | 0.2− |
| 2009 01 16 | 691 | 0.1− | 0.1− | 2009 02 14 | 691 | 0.1+ | 0.1+ | 2009 03 21 | G96 | 0.5+ | 0.0 |

**2008 YS$_{102}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 108.84003 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.17870896 | $\omega$ | 135.97511 | | | +0.42187261 | | −0.89708829 | |
| $a$ | 3.1215610 | $\Omega$ | 288.66944 | | | +0.78879678 | | +0.43459434 | |
| $e$ | 0.0865717 | $i$ | 7.97023 | | | +0.44701582 | | +0.07975189 | |
| $P$ | 5.52 | $H$ | 16.6 | $G$ | 0.15 | | $U$ | 4 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 20 | 645 | 0.0 | 0.0 | 2008 12 21 | G96 | 0.1− | 0.0 | 2009 01 15 | 691 | 0.1+ | 0.1− |
| 2001 09 20 | 645 | 0.1− | 0.0 | 2008 12 21 | G96 | 0.3− | 0.2+ | 2009 01 15 | 691 | 0.3− | 0.1+ |
| 2001 09 20 | 645 | 0.1+ | 0.0 | 2008 12 21 | G96 | 0.1− | 0.1− | 2009 01 15 | 691 | 0.3+ | 0.2+ |
| 2001 09 20 | 645 | 0.0 | 0.0 | 2008 12 29 | 691 | 0.2− | 0.1+ | 2009 01 17 | G96 | 0.4+ | 0.0 |
| 2008 11 21 | G96 | 0.1+ | 0.4− | 2008 12 29 | 691 | 0.3+ | 0.1+ | 2009 01 17 | G96 | 0.7+ | 0.0 |
| 2008 11 21 | G96 | 0.3+ | 0.1− | 2008 12 29 | 691 | 0.2− | 0.1+ | 2009 01 17 | G96 | 0.3+ | 0.1+ |
| 2008 11 21 | G96 | 0.5− | 0.2+ | 2009 01 02 | 691 | 0.0 | 0.0 | 2009 02 01 | G96 | 0.9− | 0.2− |
| 2008 11 21 | G96 | 0.2+ | 0.1+ | 2009 01 02 | 691 | 0.4− | 0.1+ | 2009 02 01 | G96 | 0.8+ | 0.6− |
| 2008 12 21 | 691 | 0.1− | 0.2− | 2009 01 02 | 691 | 0.0 | 0.5+ | 2009 02 01 | G96 | 0.9+ | 0.4− |
| 2008 12 21 | 691 | 0.2− | 0.3− | 2009 01 08 | 691 | 0.0 | 0.1+ | 2009 02 01 | G96 | 0.5+ | 0.8− |
| 2008 12 21 | 691 | 0.2− | 0.1+ | 2009 01 08 | 691 | 0.5+ | 0.3− | | | | |
| 2008 12 21 | G96 | 0.3+ | 0.5− | 2009 01 08 | 691 | 0.2− | 0.3+ | | | | |

**2008 YH$_{136}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 269.96187 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.22655981 | $\omega$ | 303.24611 | | | +0.11674157 | | +0.99299397 | |
| $a$ | 2.6648993 | $\Omega$ | 333.43992 | | | −0.89706314 | | +0.09752636 | |
| $e$ | 0.0296092 | $i$ | 2.34384 | | | −0.42620316 | | +0.06672022 | |
| $P$ | 4.35 | $H$ | 17.7 | $G$ | 0.15 | | $U$ | 1 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 09 27 | 691 | 0.1− | 0.1+ | 2007 10 11 | G96 | 0.2+ | 0.1− | 2009 01 07 | 691 | 0.6− | 0.3+ |
| 1994 09 27 | 691 | 0.1+ | 0.5+ | 2007 10 11 | G96 | 0.5+ | 0.0 | 2009 01 07 | 691 | 0.2− | 0.1+ |
| 1994 09 27 | 691 | 0.0 | 0.7− | 2007 10 11 | G96 | 0.4− | 0.5− | 2009 01 07 | 691 | 0.5− | 0.0 |
| 2003 10 22 | 691 | 0.2+ | 0.1+ | 2007 10 11 | G96 | 0.4+ | 0.3− | 2009 01 15 | 691 | 0.2+ | 0.2+ |
| 2003 10 22 | 691 | 0.4− | 0.1− | 2008 12 30 | 691 | 0.2+ | 0.1− | 2009 01 15 | 691 | 0.3+ | 0.2− |
| 2003 10 22 | 691 | 0.0 | 0.4+ | 2008 12 30 | 691 | 0.5− | 0.1− | 2009 01 15 | 691 | 0.8+ | 0.3− |
| 2007 09 13 | G96 | 0.2− | 0.4− | 2008 12 30 | 691 | 0.1+ | 0.3− | 2009 01 17 | 691 | 0.2− | 0.1+ |
| 2007 09 13 | G96 | 0.4− | 0.0 | 2009 01 03 | 691 | 0.1− | 0.1+ | 2009 01 17 | 691 | 0.1+ | 0.2+ |
| 2007 09 13 | G96 | 0.1+ | 0.4+ | 2009 01 03 | 691 | 0.2− | 0.1− | 2009 01 17 | 691 | 0.4+ | 0.1− |
| 2007 09 13 | G96 | 0.1+ | 0.2+ | 2009 01 03 | 691 | 0.1+ | 0.0 | | | | |

**2009 AM$_{15}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 274.17780 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 1.34577151 | $\omega$ | 131.46551 | | | +0.48680666 | | +0.86590977 | |
| $a$ | 0.8124971 | $\Omega$ | 166.22100 | | | −0.87337006 | | +0.48014015 | |
| $e$ | 0.4871329 | $i$ | 28.86410 | | | +0.01562104 | | −0.14023445 | |
| $P$ | 0.73 | $H$ | 18.8 | $G$ | 0.15 | | $U$ | 4 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2009 01 06 | E12 | 0.2+ | 0.2+ | 2009 01 18 | E12 | 0.0 | 0.1+ | 2009 02 19 | E12 | 0.5− | 0.6− |
| 2009 01 06 | E12 | 0.0 | 0.3+ | 2009 01 18 | E12 | 0.2− | 0.0 | 2009 02 28 | E12 | 0.6+ | 0.3− |
| 2009 01 06 | E12 | 0.4− | 0.1+ | 2009 01 19 | E12 | 0.3+ | 0.3− | 2009 02 28 | E12 | 0.4+ | 0.3− |
| 2009 01 06 | E12 | 0.5+ | 0.1− | 2009 01 19 | E12 | 0.0 | 0.1+ | 2009 03 14 | E12 | 0.2+ | 0.3− |
| 2009 01 06 | E12 | 0.2+ | 0.0 | 2009 01 25 | E12 | 0.2− | 0.1− | 2009 03 14 | E12 | 0.3+ | 0.1+ |
| 2009 01 08 | E12 | 0.5+ | 0.0 | 2009 01 25 | E12 | 0.8− | 0.2+ | 2009 03 15 | H55 | 0.7− | 0.1− |
| 2009 01 08 | E12 | 0.2− | 0.3− | 2009 02 01 | E12 | 0.1+ | 0.0 | 2009 03 15 | H55 | 0.7− | 0.1+ |
| 2009 01 08 | E12 | 0.2− | 0.2− | 2009 02 02 | E12 | 0.3+ | 0.1+ | 2009 03 15 | H55 | 0.0 | 0.1+ |
| 2009 01 13 | E12 | 0.1+ | 0.1+ | 2009 02 02 | E12 | 0.2− | 0.4+ | 2009 04 04 | H55 | 0.1+ | 0.2+ |
| 2009 01 13 | E12 | 0.2+ | 0.0 | 2009 02 02 | E12 | 0.5− | 0.6+ | 2009 04 04 | H55 | 0.6+ | 0.3+ |
| 2009 01 14 | E12 | 0.0 | 0.1− | 2009 02 19 | 448 | (1.9+ | 2.7−) | 2009 11 09 | 568 | 0.0 | 0.0 |
| 2009 01 14 | E12 | 0.1+ | 0.0 | 2009 02 19 | 448 | (0.1− | 2.1−) | 2009 12 09 | 568 | 0.1+ | 0.0 |
| 2009 01 16 | E12 | 0.2− | 0.1+ | 2009 02 19 | 448 | 0.2− | 0.3− | 2009 12 09 | 568 | 0.0 | 0.0 |
| 2009 01 16 | E12 | 0.1+ | 0.0 | 2009 02 19 | E12 | 0.2+ | 0.3− | 2009 12 09 | 568 | 0.0 | 0.0 |

**2009 AK$_{47}$ = 2002 GS$_{187}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 25.14420 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.26871475 | $\omega$ | 108.95996 | | | −0.85116137 | | +0.52177984 | |
| $a$ | 2.3783460 | $\Omega$ | 102.52835 | | | −0.50093763 | | −0.77492004 | |
| $e$ | 0.1487988 | $i$ | 3.35830 | | | −0.15679862 | | −0.35671379 | |
| $P$ | 3.67 | $H$ | 18.3 | $G$ | 0.15 | | $U$ | 4 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 04 02 | 644 | 0.0 | 0.1+ | 2002 04 14 | 644 | 0.6− | 0.1+ | 2009 01 16 | 691 | 0.1+ | 0.0 |
| 2002 04 02 | 644 | 0.5+ | 0.2+ | 2002 04 14 | 644 | 0.4− | 0.3− | 2009 01 16 | 691 | 0.1− | 0.1− |
| 2002 04 02 | 644 | 0.1+ | 0.2− | 2009 01 02 | 691 | 0.2+ | 0.1+ | 2009 01 16 | 691 | 0.0 | 0.4− |
| 2002 04 12 | 644 | 0.2− | 0.4− | 2009 01 02 | 691 | 0.1− | 0.1− | 2009 02 03 | 291 | 0.2− | 0.3+ |
| 2002 04 12 | 644 | 0.1− | 0.3− | 2009 01 02 | G96 | 0.1+ | 0.3+ | 2009 02 03 | 291 | 0.3− | 0.3+ |
| 2002 04 12 | 644 | 0.2− | 0.3− | 2009 01 02 | 691 | 0.3− | 0.1+ | 2009 02 03 | 291 | 0.5+ | 0.2− |
| 2002 04 13 | 644 | 0.2− | 0.7+ | 2009 01 02 | G96 | 0.6+ | 0.1− | 2009 02 14 | 691 | 0.3− | 0.1− |
| 2002 04 13 | 644 | 0.4+ | 0.0 | 2009 01 02 | G96 | 0.1− | 0.4− | 2009 02 14 | 691 | 0.1− | 0.1+ |
| 2002 04 13 | 644 | 0.6+ | 0.4+ | 2009 01 02 | G96 | 0.4+ | 0.6+ | 2009 02 14 | 691 | 0.2+ | 0.1+ |

**2009 BW$_{2}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 250.79680 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.95861093 | $\omega$ | 193.18785 | | | −0.77187345 | | +0.63572817 | |
| $a$ | 1.0186879 | $\Omega$ | 26.29115 | | | −0.58170043 | | −0.70120793 | |
| $e$ | 0.1394973 | $i$ | 1.01094 | | | −0.25658525 | | −0.32273383 | |
| $P$ | 1.03 | $H$ | 25.1 | $G$ | 0.15 | | $U$ | 4 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2009 01 20 | 703 | 0.9− | 0.0 | 2009 01 20 | J95 | 0.2− | 0.0 | 2009 01 25 | A17 | 0.1+ | 0.2− |
| 2009 01 20 | 703 | 0.3− | 1.0+ | 2009 01 20 | J95 | 0.0 | 0.2− | 2009 01 25 | A17 | 0.2+ | 0.2− |
| 2009 01 20 | 703 | (1.5− | 0.2−) | 2009 01 21 | H55 | 0.2+ | 0.1+ | 2009 01 29 | H55 | 0.2+ | 0.2− |
| 2009 01 20 | 703 | 0.9− | 0.1− | 2009 01 21 | H55 | 0.1− | 0.1+ | 2009 01 29 | H55 | 0.5+ | 0.6− |
| 2009 01 20 | H01 | 0.0 | 0.3+ | 2009 01 21 | H55 | 0.1− | 0.3+ | 2009 01 29 | H55 | 0.6+ | 0.4− |
| 2009 01 20 | H01 | 0.1− | 0.4+ | 2009 01 21 | H55 | 0.1− | 0.2+ | 2009 01 31 | H55 | 0.7+ | 0.0 |
| 2009 01 20 | 854 | 0.7− | 0.5+ | 2009 01 23 | J95 | 0.1− | 0.0 | 2009 01 31 | H55 | 0.8+ | 0.0 |
| 2009 01 20 | H01 | 0.1− | 0.4+ | 2009 01 23 | J95 | 0.1− | 0.0 | 2009 01 31 | H55 | 0.6+ | 0.1− |
| 2009 01 20 | 854 | 0.4− | 0.5+ | 2009 01 23 | J95 | 0.2+ | 0.0 | 2009 02 05 | H55 | 1.1− | 0.4− |
| 2009 01 20 | 854 | 0.5+ | 0.8+ | 2009 01 25 | H55 | 0.1+ | 0.3− | 2009 02 05 | H55 | 0.1− | 0.8− |
| 2009 01 20 | H01 | 0.0 | 0.4+ | 2009 01 25 | H55 | 0.2+ | 0.4− | 2009 11 26 | 691 | 0.2+ | 0.1− |
| 2009 01 20 | H01 | 0.0 | 0.3+ | 2009 01 25 | H55 | 0.2+ | 0.3− | 2009 11 26 | 691 | 0.2− | 0.3− |
| 2009 01 20 | J95 | 0.0 | 0.2+ | 2009 01 25 | A17 | 0.4+ | 0.2− | | | | |

## 2009 $BV_{15}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 153.60386 | | (2000.0) | | | |
| $n$ | 0.22530999 | $\omega$ | 262.02233 | | +0.82479105 | −0.55986825 |
| $a$ | 2.6747452 | $\Omega$ | 131.98379 | | +0.55162785 | +0.76596738 |
| $e$ | 0.0643973 | $i$ | 6.11367 | | +0.12420326 | +0.31597708 |
| $P$ | 4.37 | $H$ | 16.6 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 09 12 | G96 | 0.0 | 0.1− | 2009 01 02 | 691 | 0.2− | 0.2− | 2009 01 17 | G96 | 0.5+ | 0.3− |
| 2007 09 12 | G96 | 0.2+ | 0.2− | 2009 01 02 | 691 | 0.0 | 0.3+ | 2009 01 17 | G96 | 0.2− | 0.4− |
| 2007 09 12 | G96 | 0.5+ | 0.0 | 2009 01 02 | 691 | 0.2− | 0.2+ | 2009 01 17 | G96 | 0.6+ | 0.3− |
| 2007 09 12 | G96 | 0.1+ | 0.1− | 2009 01 16 | G96 | 0.1+ | 0.1+ | 2009 02 01 | G96 | 0.4− | 0.1− |
| 2007 10 15 | G96 | 0.3− | 0.3− | 2009 01 16 | G96 | 0.4+ | 0.1+ | 2009 02 01 | G96 | 0.3− | 0.0 |
| 2007 10 15 | G96 | 0.3− | 0.1+ | 2009 01 16 | G96 | 0.3+ | 0.1+ | 2009 02 01 | G96 | 0.4− | 0.2− |
| 2007 10 15 | G96 | 0.2+ | 0.5+ | 2009 01 16 | G96 | 0.1− | 0.1+ | 2009 02 01 | G96 | 0.3+ | 0.3− |
| 2007 10 15 | G96 | 0.4− | 0.0 | 2009 01 17 | G96 | 0.5+ | 0.3− | | | | |

## 2009 $BD_{122}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 314.38574 | | (2000.0) | | | |
| $n$ | 0.24281750 | $\omega$ | 136.40935 | | +0.25630408 | +0.95838945 |
| $a$ | 2.5445797 | $\Omega$ | 147.82740 | | −0.93891323 | +0.27774717 |
| $e$ | 0.1423935 | $i$ | 13.65349 | | −0.22967405 | −0.06592548 |
| $P$ | 4.06 | $H$ | 16.7 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 06 23 | 644 | 0.5+ | 0.6+ | 2002 08 16 | 644 | 0.1− | 0.4− | 2009 02 17 | J75 | 0.8− | 0.1− |
| 2002 06 23 | 644 | 0.4+ | 0.1− | 2002 08 16 | 644 | 0.5− | 0.2− | 2009 02 19 | 291 | 0.3+ | 0.0 |
| 2002 07 02 | 644 | 0.3− | 0.2− | 2002 08 26 | 644 | 0.2− | 0.1− | 2009 02 19 | 291 | 0.2+ | 0.1− |
| 2002 07 02 | 644 | 0.1+ | 0.2− | 2002 08 26 | 644 | 0.1+ | 0.1− | 2009 02 19 | 291 | 0.2+ | 0.1+ |
| 2002 07 02 | 644 | 0.1+ | 0.2− | 2002 08 26 | 644 | 0.4− | 0.7− | 2009 02 28 | G96 | 0.3+ | 0.3+ |
| 2002 07 12 | 644 | 0.0 | 0.6+ | 2002 08 28 | 644 | 0.4+ | 0.3− | 2009 02 28 | G96 | 0.2+ | 0.1+ |
| 2002 07 12 | 644 | 0.0 | 0.1+ | 2002 08 28 | 644 | 0.1+ | 0.0 | 2009 02 28 | G96 | 0.1+ | 0.2+ |
| 2002 07 12 | 644 | 0.1− | 0.2− | 2009 01 31 | 691 | 0.3− | 0.1+ | 2009 02 28 | G96 | 0.5+ | 0.0 |
| 2002 07 21 | 644 | 0.1− | 0.2+ | 2009 01 31 | 691 | 0.1− | 0.1+ | 2009 03 15 | G96 | 0.4− | 0.2− |
| 2002 07 21 | 644 | 0.0 | 0.2− | 2009 01 31 | 691 | 0.5− | 0.3− | 2009 03 15 | G96 | 0.1+ | 0.1− |
| 2002 07 21 | 644 | 0.5− | 0.3+ | 2009 02 01 | 691 | 0.1+ | 0.0 | 2009 03 15 | G96 | 0.1− | 0.7− |
| 2002 08 05 | 644 | 0.1− | 0.2+ | 2009 02 01 | 691 | 0.2− | 0.3− | 2009 03 15 | G96 | 0.8+ | 0.1− |
| 2002 08 05 | 644 | 0.0 | 0.2+ | 2009 02 01 | 691 | 0.4− | 0.1+ | 2009 03 24 | G96 | 0.1− | 0.2− |
| 2002 08 05 | 644 | 0.1− | 0.3+ | 2009 02 05 | 691 | 0.1+ | 0.1− | 2009 03 24 | G96 | 0.3− | 0.1+ |
| 2002 08 09 | 608 | 0.0 | 0.5− | 2009 02 05 | 691 | 0.2− | 0.1− | 2009 03 24 | G96 | 0.1+ | 0.2+ |
| 2002 08 09 | 608 | 0.5+ | 0.0 | 2009 02 05 | 691 | 0.3+ | 0.2+ | 2009 03 24 | G96 | 1.4+ | 0.0 |
| 2002 08 09 | 608 | 0.0 | 0.1− | 2009 02 17 | J75 | 0.5− | 0.3+ | | | | |
| 2002 08 16 | 644 | 0.0 | 0.2− | 2009 02 17 | J75 | 0.0 | 0.4− | | | | |

## 2009 $CQ_5$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 39.30128 | | (2000.0) | | | |
| $n$ | 1.09421886 | $\omega$ | 118.16469 | | +0.75376832 | −0.57582916 |
| $a$ | 0.9326813 | $\Omega$ | 278.73493 | | +0.43205880 | +0.79731170 |
| $e$ | 0.0915679 | $i$ | 18.68378 | | +0.49513484 | +0.18087241 |
| $P$ | 0.90 | $H$ | 17.6 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2009 02 14 | 703 | 0.3− | 0.1− | 2009 02 20 | H55 | 0.2− | 0.1+ | 2009 03 28 | 291 | 0.2− | 0.0 |
| 2009 02 14 | 703 | 0.7+ | 0.6+ | 2009 02 20 | H55 | 0.0 | 0.2+ | 2009 03 28 | 291 | 0.2+ | 0.1− |
| 2009 02 14 | 703 | 1.0− | 0.4+ | 2009 02 20 | H55 | 0.3+ | 0.2+ | 2009 03 28 | 291 | 0.2− | 0.1+ |
| 2009 02 14 | 703 | 1.5− | 1.2− | 2009 02 20 | H55 | 0.2+ | 0.3+ | 2009 04 08 | H55 | 0.2+ | 0.0 |
| 2009 02 14 | 703 | 0.3− | 0.4+ | 2009 02 20 | 291 | 0.1− | 0.0 | 2009 04 08 | H55 | 0.1+ | 0.1− |
| 2009 02 14 | 703 | 0.2− | 0.6+ | 2009 02 20 | G96 | 0.0 | 0.1− | 2009 04 08 | H55 | 0.6+ | 0.0 |
| 2009 02 14 | 703 | (2.3− | 0.1−) | 2009 02 20 | 291 | 0.0 | 0.0 | 2009 04 09 | H55 | 0.9+ | 0.1+ |
| 2009 02 14 | 204 | 0.5+ | 0.0 | 2009 02 20 | G96 | 0.2− | 0.1− | 2009 04 09 | H55 | 0.7+ | 0.1− |
| 2009 02 14 | 204 | 0.3+ | 0.2+ | 2009 02 20 | G96 | 0.3+ | 0.2− | 2009 04 09 | H55 | 0.3+ | 0.7− |
| 2009 02 14 | 204 | 0.2+ | 0.6+ | 2009 02 20 | 291 | 0.0 | 0.0 | 2009 07 20 | E12 | 0.1− | 0.1+ |
| 2009 02 14 | 493 | 0.2+ | 0.0 | 2009 02 20 | G96 | 0.1− | 0.2− | 2009 07 20 | E12 | 0.0 | 0.3+ |
| 2009 02 14 | 493 | 0.0 | 0.2− | 2009 02 26 | 448 | 0.3− | 1.0− | 2009 08 23 | I19 | 0.3+ | 0.3− |
| 2009 02 14 | 493 | 0.1+ | 0.2− | 2009 02 26 | 448 | 0.2− | 0.9+ | 2009 08 23 | I19 | 0.1+ | 0.0 |
| 2009 02 15 | 104 | 0.6+ | 0.4+ | 2009 03 16 | 448 | 0.0 | 0.2− | 2009 08 23 | I19 | 0.2+ | 0.1− |
| 2009 02 15 | 104 | 1.1− | 0.1+ | 2009 03 16 | 448 | 0.4+ | 0.5− | 2009 12 05 | 160 | 0.7− | 0.2+ |
| 2009 02 15 | 104 | 0.2− | 0.2+ | 2009 03 17 | H55 | 0.5+ | 0.4+ | 2009 12 05 | 160 | 0.0 | 0.0 |
| 2009 02 15 | 493 | 0.1+ | 0.1− | 2009 03 17 | H55 | 0.3+ | 0.6+ | 2009 12 05 | 160 | 0.1− | 0.3+ |
| 2009 02 15 | 493 | 0.2+ | 0.1− | 2009 03 17 | H55 | 0.3− | 0.4+ | 2009 12 16 | 932 | 0.4+ | 0.3− |
| 2009 02 15 | 493 | 0.2+ | 0.1− | 2009 03 20 | 587 | 0.1− | 0.5− | 2009 12 16 | 932 | 0.2+ | 0.0 |
| 2009 02 19 | 448 | 0.4+ | 0.4+ | 2009 03 20 | 587 | 0.0 | 0.1− | 2009 12 16 | 932 | 0.4+ | 0.1− |
| 2009 02 19 | 448 | 0.5+ | 0.5+ | 2009 03 28 | 448 | 0.1+ | 0.6− | | | | |
| 2009 02 19 | 448 | 0.5− | 0.5+ | 2009 03 28 | 448 | 1.0− | 0.6− | | | | |

## 2009 $CO_7$ = 2005 $AC_{59}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 105.47010 | | (2000.0) | | | |
| $n$ | 0.23204484 | $\omega$ | 175.71104 | | +0.55338030 | −0.83218832 |
| $a$ | 2.6227372 | $\Omega$ | 240.68609 | | +0.76299424 | +0.52337463 |
| $e$ | 0.2413021 | $i$ | 2.30782 | | +0.33408086 | +0.18314367 |
| $P$ | 4.25 | $H$ | 16.2 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 11 17 | 691 | 0.5+ | 0.2− | 2005 01 17 | 704 | 0.6− | 1.5+ | 2008 12 31 | G96 | 0.4+ | 0.4− |
| 1995 11 17 | 691 | 0.4− | 0.0 | 2005 01 17 | 704 | 1.1+ | 0.8+ | 2008 12 31 | G96 | 0.4+ | 0.3− |
| 1995 11 17 | 691 | 0.1− | 0.2+ | 2005 01 17 | 704 | 0.6− | 0.0 | 2008 12 31 | G96 | 0.4+ | 0.4− |
| 2001 02 20 | 645 | 0.1− | 0.1− | 2008 11 23 | J75 | 0.9− | 0.0 | 2009 02 01 | G96 | 0.3+ | 0.3− |
| 2001 02 20 | 645 | 0.0 | 0.1− | 2008 11 23 | J75 | 0.7− | 0.3+ | 2009 02 01 | G96 | 0.3− | 0.2− |
| 2005 01 15 | 704 | 0.4+ | 0.6+ | 2008 11 23 | J75 | 0.1− | 0.0 | 2009 02 01 | G96 | 0.4− | 0.1− |
| 2005 01 15 | 704 | 0.1+ | 0.2− | 2008 12 21 | 703 | 0.5− | 0.2− | 2009 02 01 | G96 | 0.4− | 0.1− |
| 2005 01 15 | 704 | 1.0− | 1.5+ | 2008 12 21 | 703 | 0.3+ | 0.2− | 2009 02 02 | G96 | 0.6+ | 0.0 |
| 2005 01 15 | 704 | 0.5+ | 1.0+ | 2008 12 21 | 703 | 0.5+ | 0.0 | 2009 02 02 | G96 | 0.2+ | 0.2− |
| 2005 01 15 | 704 | 0.0 | 0.4+ | 2008 12 21 | 703 | 0.1+ | 0.0 | 2009 02 02 | G96 | 0.6+ | 0.2− |
| 2005 01 17 | 704 | 1.4+ | 0.9+ | 2008 12 21 | 703 | 0.7− | 0.2− | 2009 02 02 | G96 | 0.4+ | 0.7− |
| 2005 01 17 | 704 | 0.6+ | 0.4+ | 2008 12 31 | G96 | 0.2+ | 0.7− | | | | |

## 2009 $DX_{24}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 3.17194 | | (2000.0) | | | |
| $n$ | 0.18049415 | $\omega$ | 94.67991 | | −0.71873540 | +0.69275312 |
| $a$ | 3.1009443 | $\Omega$ | 129.18324 | | −0.66437992 | −0.65915874 |
| $e$ | 0.1611905 | $i$ | 4.38513 | | −0.20498472 | −0.29257968 |
| $P$ | 5.46 | $H$ | 16.3 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 07 12 | G96 | 0.1− | 0.1+ | 2008 12 31 | G96 | 0.0 | 0.3− | 2009 02 26 | 691 | 0.6− | 0.4+ |
| 2005 07 12 | G96 | 0.2+ | 0.2+ | 2008 12 31 | G96 | 0.1+ | 0.1+ | 2009 02 26 | 691 | 0.4+ | 0.2− |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 07 12 | G96 | 0.5+ | 0.0 | 2009 02 21 | G96 | 0.1+ | 0.1− | 2009 03 21 | G96 | 0.4+ | 0.4+ |
| 2005 07 12 | G96 | 0.4− | 0.0 | 2009 02 21 | G96 | 0.1+ | 0.1+ | 2009 03 21 | G96 | 0.4+ | 0.1− |
| 2005 07 12 | G96 | 0.2− | 0.1+ | 2009 02 21 | G96 | 0.1+ | 0.0 | 2009 03 21 | G96 | 0.4+ | 0.3+ |
| 2005 07 12 | G96 | 0.5− | 0.4− | 2009 02 21 | G96 | 0.3− | 0.1− | 2009 03 21 | G96 | 0.4+ | 0.4+ |
| 2005 07 12 | G96 | 0.4+ | 0.1− | 2009 02 22 | 691 | 0.1− | 0.1− | 2009 03 24 | G96 | 0.5− | 0.1+ |
| 2005 07 12 | G96 | 0.0 | 0.1− | 2009 02 22 | 691 | 0.0 | 0.1− | 2009 03 24 | G96 | 0.7− | 0.3− |
| 2008 12 31 | G96 | 0.1+ | 0.2− | 2009 02 22 | 691 | 0.1− | 0.1− | 2009 03 24 | G96 | 0.2+ | 0.0 |
| 2008 12 31 | G96 | 0.1− | 0.1+ | 2009 02 26 | 691 | 0.1+ | 0.1− | 2009 03 24 | G96 | 0.0 | 0.1− |

**2009 DR$_{81}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 59.59758 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17762937 | $\omega$ | 138.22193 | | −0.99100179 | | −0.12300599 |
| $a$ | 3.1341964 | $\Omega$ | 34.81766 | | +0.08454051 | | −0.88089873 |
| $e$ | 0.1373987 | $i$ | 5.30327 | | +0.10377073 | | −0.45704152 |
| $P$ | 5.55 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 10 16 | 291 | 0.4− | 0.4+ | 2009 02 28 | 691 | 0.1+ | 0.2− | 2009 04 05 | 291 | 0.1+ | 0.2− |
| 2001 10 16 | 291 | 0.4− | 0.2+ | 2009 02 28 | 691 | 0.3− | 0.0 | 2009 04 05 | 291 | 0.1− | 0.4+ |
| 2001 10 16 | 291 | 0.3+ | 0.9+ | 2009 02 28 | 691 | 0.4+ | 0.2− | 2009 04 05 | 291 | 0.0 | 0.3+ |
| 2007 11 19 | 691 | 0.8+ | 2.0− | 2009 03 16 | 691 | 0.1+ | 0.0 | 2009 04 30 | G96 | 0.3+ | 0.3+ |
| 2007 11 19 | 691 | 0.9− | 0.5+ | 2009 03 16 | 691 | 0.2+ | 0.3+ | 2009 04 30 | G96 | 0.3− | 0.4+ |
| 2007 11 19 | 691 | 0.2+ | 0.5+ | 2009 03 16 | 691 | 0.1− | 0.1+ | 2009 04 30 | G96 | 0.1+ | 0.3+ |
| 2009 02 24 | 691 | 0.5+ | 0.1+ | 2009 03 18 | 691 | 0.3− | 0.5− | 2009 04 30 | G96 | 0.7+ | 0.7+ |
| 2009 02 24 | 691 | 0.1+ | 0.1− | 2009 03 18 | 691 | 0.7− | 0.4+ | | | | |
| 2009 02 24 | 691 | 0.4+ | 0.2− | 2009 03 18 | 691 | 0.1− | 0.2+ | | | | |

**2009 DO$_{111}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 202.05570 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.91694673 | $\omega$ | 273.06898 | | +0.09281808 | | +0.99568096 |
| $a$ | 1.0493168 | $\Omega$ | 2.25985 | | −0.89157912 | | +0.08403180 |
| $e$ | 0.2797636 | $i$ | 2.98645 | | −0.44325104 | | +0.03947244 |
| $P$ | 1.07 | $H$ | 22.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc (radar residuals in s.d.)

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2009 02 22 | 691 | 0.1− | 0.3+ | 2009 03 17 | A17 | 0.9− | 2.0+ | 2009 03 19 | 127 | 0.4− | 0.9+ |
| 2009 02 22 | 691 | 0.2− | 0.2+ | 2009 03 17 | A13 | 0.3− | 0.7+ | 2009 03 19 | 127 | 0.8+ | 0.3− |
| 2009 02 22 | 691 | 0.3− | 0.2+ | 2009 03 17 | A13 | 0.2− | 0.7+ | 2009 03 19 | 127 | 0.5+ | 0.3+ |
| 2009 02 26 | 691 | 0.1− | 0.4+ | 2009 03 17 | A13 | 0.3− | 0.7+ | 2009 03 19 | 127 | 1.3+ | 0.8− |
| 2009 02 26 | 691 | 0.3− | 0.3+ | 2009 03 17 | A13 | 0.3− | 0.8+ | 2009 03 19 | 127 | 0.5− | 1.6+ |
| 2009 02 26 | 691 | 0.2− | 0.4+ | 2009 03 17 | 143 | 0.0− | 0.3− | 2009 03 19 | 127 | 0.6− | 2.2+ |
| 2009 03 02 | 691 | 0.4− | 0.3+ | 2009 03 17 | A13 | 0.5− | 0.7+ | 2009 03 19 | 127 | (3.5− | 6.5+) |
| 2009 03 02 | 691 | 0.3− | 0.2+ | 2009 03 17 | A13 | 0.4− | 0.9+ | 2009 03 19 | 127 | 0.5− | 1.5+ |
| 2009 03 02 | 691 | 0.2− | 0.4+ | 2009 03 17 | A13 | 0.4− | 0.7+ | 2009 03 19 | 127 | 0.8− | 2.3+ |
| 2009 03 15 | 703 | 0.1− | 0.1− | 2009 03 17 | 143 | 0.1− | 0.2− | 2009 03 19 | 127 | 0.5+ | 0.4+ |
| 2009 03 15 | 703 | 0.1+ | 0.1+ | 2009 03 17 | 143 | 0.0+ | 0.2− | 2009 03 19 | 127 | 0.6− | 1.5+ |
| 2009 03 15 | 703 | 0.2− | 0.2+ | 2009 03 17 | 970 | 0.1+ | 0.3− | 2009 03 19 | J95 | 0.1− | 0.1+ |
| 2009 03 15 | 703 | 0.2− | 0.2+ | 2009 03 17 | 143 | 0.0− | 0.4− | 2009 03 19 | 127 | 0.6− | 2.0+ |
| 2009 03 15 | H06 | 0.0− | 0.4+ | 2009 03 17 | 143 | 0.1− | 0.2− | 2009 03 19 | 127 | 0.3− | 0.9+ |
| 2009 03 15 | H06 | 0.3− | 0.3+ | 2009 03 17 | 970 | 0.0− | 0.2− | 2009 03 19 | 127 | (0.3− | 11.5+) |
| 2009 03 15 | 703 | 0.1− | 0.0+ | 2009 03 17 | 143 | 0.1− | 0.3− | 2009 03 19 | 127 | 0.8− | 2.5+ |
| 2009 03 15 | 703 | 0.2− | 0.2− | 2009 03 17 | 143 | 0.0+ | 0.4− | 2009 03 19 | J95 | 0.2− | 0.0+ |
| 2009 03 15 | 703 | 0.4− | 0.2− | 2009 03 17 | A17 | 0.7− | 2.0+ | 2009 03 19 | J95 | 0.4+ | 0.3− |
| 2009 03 15 | 703 | 0.3− | 0.1− | 2009 03 17 | A74 | 0.1+ | 0.0+ | 2009 03 19 | J95 | 0.4+ | 0.4− |
| 2009 03 15 | 900 | 0.2+ | 0.4− | 2009 03 18 | A74 | 0.1+ | 0.1+ | 2009 03 19 | J95 | 0.3+ | 0.4− |
| 2009 03 15 | 900 | 0.2− | 0.0+ | 2009 03 18 | A74 | 0.1− | 0.1+ | 2009 03 19 | 127 | 1.0− | 1.3+ |
| 2009 03 15 | J95 | 0.2− | 0.0− | 2009 03 18 | A74 | 0.1− | 0.0+ | 2009 03 19 | 127 | 0.8− | 0.6+ |
| 2009 03 15 | J95 | 0.1− | 0.0+ | 2009 03 18 | A74 | 0.0− | 0.0+ | 2009 03 19 | 127 | 0.3− | 1.2+ |
| 2009 03 15 | J95 | 0.1− | 0.0+ | 2009 03 18 | A74 | 0.1− | 0.0− | 2009 03 19 | 127 | 0.1+ | 0.1+ |
| 2009 03 16 | 291 | 0.4− | 0.2+ | 2009 03 18 | 510 | 0.2− | 0.1− | 2009 03 19 | 127 | 0.3− | 0.8+ |
| 2009 03 16 | 291 | 0.5− | 0.1+ | 2009 03 18 | 510 | 0.0− | 0.2+ | 2009 03 19 | 127 | 0.8− | 1.7+ |
| 2009 03 16 | 291 | 0.2− | 0.0− | 2009 03 18 | 510 | 0.1+ | 0.1+ | 2009 03 19 | 127 | 0.4+ | 0.4− |
| 2009 03 16 | 118 | 0.2− | 0.1− | 2009 03 18 | H45 | 0.1− | 0.5+ | 2009 03 19 | 127 | 0.0+ | 0.7+ |
| 2009 03 16 | 118 | 0.2− | 0.0− | 2009 03 18 | H45 | 0.2− | 0.4+ | 2009 03 19 | J77 | (1.5− | 2.5+) |
| 2009 03 16 | 560 | 0.0+ | 0.4+ | 2009 03 18 | H45 | 0.1− | 0.0+ | 2009 03 19 | J77 | (3.5− | 4.4+) |
| 2009 03 16 | 560 | 0.1+ | 0.5+ | 2009 03 18 | H45 | 0.1− | 0.3+ | 2009 03 19 | J77 | (3.8− | 4.5+) |
| 2009 03 16 | 560 | 0.2+ | 0.2+ | 2009 03 18 | H45 | 0.1− | 0.3+ | 2009 03 19 | J77 | (2.9− | 3.7+) |
| 2009 03 16 | 118 | 0.1− | 0.2− | 2009 03 18 | H45 | 0.2− | 0.3+ | 2009 03 20 | 510 | 0.1− | 0.2− |
| 2009 03 16 | 118 | 0.1− | 0.1− | 2009 03 18 | H45 | 0.1− | 0.6+ | 2009 03 20 | 510 | 0.1− | 0.1− |
| 2009 03 16 | 118 | 0.1− | 0.1− | 2009 03 18 | H45 | 0.0− | 0.2+ | 2009 03 20 | 510 | 0.2− | 0.1+ |
| 2009 03 16 | 118 | 0.1− | 0.3− | 2009 03 18 | H45 | 0.1− | 0.3+ | 2009 03 20 | 510 | 0.2− | 0.1+ |
| 2009 03 16 | 118 | 0.1− | 0.1− | 2009 03 18 | H45 | 0.0+ | 0.2+ | 2009 03 20 | H55 | 1.0+ | 0.8− |
| 2009 03 16 | 118 | 0.1− | 0.0+ | 2009 03 18 | A17 | 0.1+ | 0.2− | 2009 03 20 | H55 | 0.4− | 0.2+ |
| 2009 03 16 | 118 | 0.1− | 0.0− | 2009 03 18 | A17 | 0.0− | 0.3− | 2009 03 20 | H55 | 0.1+ | 0.4+ |
| 2009 03 16 | 118 | 0.1+ | 0.1− | 2009 03 18 | A17 | 0.3+ | 0.8− | 2009 03 20 | H55 | 0.5+ | 1.5− |
| 2009 03 16 | J95 | 0.2− | 0.2− | 2009 03 18 | A17 | 0.0− | 1.0− | 2009 03 20 | H55 | 1.2+ | 1.2− |
| 2009 03 16 | J95 | 0.1− | 0.0+ | 2009 03 18 | 970 | 0.0− | 0.4− | 2009 03 20 | H55 | 0.1− | 0.3− |
| 2009 03 16 | J27 | 0.1+ | 0.1− | 2009 03 18 | 595 | 0.2+ | 0.3− | 2009 03 20 | H55 | 0.2− | 0.3− |
| 2009 03 16 | J27 | 0.2+ | 0.4− | 2009 03 18 | 595 | 0.3+ | 0.5− | 2009 03 20 | H55 | 0.3+ | 0.1+ |
| 2009 03 16 | J27 | 0.1− | 0.3− | 2009 03 18 | 595 | 0.5+ | 0.6− | 2009 03 20 | H55 | 0.1+ | 0.6− |
| 2009 03 17 | A53 | 0.4+ | 0.1+ | 2009 03 18 | 127 | 0.2+ | 0.3+ | 2009 03 20 | H55 | 0.3+ | 0.4− |
| 2009 03 17 | A53 | 0.1+ | 0.0− | 2009 03 18 | 127 | 0.1+ | 0.5+ | 2009 03 20 | H55 | 0.6+ | 1.5− |
| 2009 03 17 | A53 | 0.2+ | 0.2+ | 2009 03 18 | 127 | 1.5− | 0.7+ | 2009 03 20 | H55 | 0.5− | 0.4+ |
| 2009 03 17 | A53 | 0.5+ | 0.4+ | 2009 03 18 | 127 | 0.4+ | 0.5− | 2009 03 20 | H55 | 0.7+ | 0.6− |
| 2009 03 17 | A53 | 0.4+ | 0.1+ | 2009 03 18 | 127 | 1.7+ | 0.6− | 2009 03 20 | H55 | 0.6+ | 0.6− |
| 2009 03 17 | 204 | 0.1− | 0.0+ | 2009 03 18 | 127 | 0.7+ | 0.9− | 2009 03 20 | H55 | 0.4− | 0.2− |
| 2009 03 17 | 204 | 0.0+ | 0.0− | 2009 03 18 | 127 | 2.3+ | 0.9− | 2009 03 20 | H55 | 0.9+ | 0.2+ |
| 2009 03 17 | 204 | 0.1− | 0.1− | 2009 03 18 | 127 | 0.6+ | 0.6+ | 2009 03 20 | H55 | 0.2− | 0.5+ |
| 2009 03 17 | 204 | 0.1− | 0.0− | 2009 03 18 | 970 | 0.0+ | 0.1− | 2009 03 20 | H55 | 0.7+ | 0.9− |
| 2009 03 17 | 204 | 0.1+ | 0.1− | 2009 03 18 | 970 | 0.1− | 0.8+ | 2009 03 20 | H25 | 0.1+ | 0.3+ |
| 2009 03 17 | J95 | 0.1− | 0.1− | 2009 03 18 | J27 | 0.0+ | 0.4− | 2009 03 20 | H25 | 0.3+ | 0.1+ |
| 2009 03 17 | J95 | 0.2− | 0.2− | 2009 03 18 | J27 | 0.7− | 0.2− | 2009 03 20 | H25 | 0.4+ | 0.2+ |
| 2009 03 17 | H45 | 0.0+ | 0.0+ | 2009 03 19 | J27 | 0.0+ | 0.3− | 2009 03 20 | H25 | 0.7+ | 0.0− |
| 2009 03 17 | H45 | 0.1+ | 0.1− | 2009 03 19 | J95 | 0.2+ | 0.8− | 2009 03 20 | H25 | 0.1+ | 0.1− |
| 2009 03 17 | H45 | 0.1+ | 0.1+ | 2009 03 19 | J95 | 0.1+ | 0.8− | 2009 03 20 | H25 | 0.5+ | 0.2− |
| 2009 03 17 | H45 | 0.0− | 0.0− | 2009 03 19 | J95 | 0.1+ | 0.8− | 2009 03 20 | H25 | 0.8+ | 0.4+ |
| 2009 03 17 | H45 | 0.0− | 0.0− | 2009 03 19 | J95 | 0.1+ | 0.5− | 2009 03 20 | H25 | 0.7+ | 0.1+ |
| 2009 03 17 | H45 | 0.1− | 0.2− | 2009 03 19 | 673 | 0.7− | 1.0+ | 2009 03 20 | H25 | 0.4+ | 0.2+ |
| 2009 03 17 | H45 | 0.1− | 0.1− | 2009 03 19 | 673 | 0.0− | 0.4− | 2009 03 20 | H25 | 0.3+ | 0.1− |
| 2009 03 17 | H45 | 0.1+ | 0.1− | 2009 03 19 | 673 | 0.6+ | 0.7− | 2009 03 20 | H25 | 0.4+ | 0.3+ |
| 2009 03 17 | H45 | 0.1− | 0.0+ | 2009 03 19 | 673 | 0.5+ | 0.9− | 2009 03 20 | H25 | 0.1− | 0.3+ |
| 2009 03 17 | H45 | 0.1− | 0.1− | 2009 03 19 | 673 | 0.8+ | 1.5− | 2009 03 20 | H25 | 0.4+ | 0.5+ |
| 2009 03 17 | H55 | 0.2+ | 0.0− | 2009 03 19 | H25 | 0.4+ | 1.2− | 2009 03 20 | H25 | 0.2+ | 0.3+ |
| 2009 03 17 | H55 | 0.1+ | 0.1− | 2009 03 19 | H25 | 0.4+ | 1.1− | 2009 03 20 | H25 | 0.1+ | 0.2+ |
| 2009 03 17 | H55 | 0.3+ | 0.2− | 2009 03 19 | H25 | 0.4+ | 0.6− | 2009 03 20 | H25 | 0.3+ | 0.4+ |
| 2009 03 17 | 291 | 0.7− | 0.7+ | 2009 03 19 | H25 | 0.4+ | 0.9− | 2009 03 20 | H25 | 0.1− | 0.3+ |
| 2009 03 17 | 291 | 0.5− | 1.1+ | 2009 03 19 | H25 | 0.0+ | 0.9− | 2009 03 20 | H25 | 0.1− | 0.1+ |
| 2009 03 17 | 291 | 0.1− | 0.4+ | 2009 03 19 | H25 | 0.2+ | 1.0− | 2009 03 20 | H25 | 0.0− | 0.0− |
| 2009 03 17 | 900 | 0.5− | 0.1+ | 2009 03 19 | H25 | 0.2+ | 1.4− | 2009 03 20 | H25 | 0.1− | 0.4+ |
| 2009 03 17 | 900 | 0.1− | 0.3− | 2009 03 19 | H25 | 0.6+ | 1.0− | 2009 03 20 | H25 | 0.1+ | 0.3− |
| 2009 03 17 | 970 | 0.2− | 0.3− | 2009 03 19 | H25 | 0.3+ | 1.3− | 2009 03 20 | H25 | 0.3− | 0.2+ |
| 2009 03 17 | B84 | 0.2+ | 0.1− | 2009 03 19 | H25 | 0.3+ | 0.9− | 2009 03 20 | H25 | 0.4− | 0.1+ |
| 2009 03 17 | B84 | 0.3+ | 0.0− | 2009 03 19 | H25 | 0.6+ | 1.0− | 2009 03 20 | H25 | 0.3+ | 0.0+ |
| 2009 03 17 | B84 | 0.1+ | 0.0+ | 2009 03 19 | H25 | 0.2+ | 0.8− | 2009 03 20 | H25 | 0.3+ | 0.1− |
| 2009 03 17 | 970 | 0.1+ | 0.3− | 2009 03 19 | J95 | 0.2+ | 0.5− | 2009 03 20 | H25 | 0.4+ | 0.1+ |
| 2009 03 17 | A17 | 0.6− | 1.3+ | 2009 03 19 | J95 | 0.2+ | 0.1− | 2009 03 20 | H25 | 0.1+ | 0.1+ |
| 2009 03 17 | 970 | 0.2− | 0.2+ | 2009 03 19 | B84 | 0.2− | 0.1− | 2009 03 20 | H25 | 0.2+ | 0.3− |
| 2009 03 17 | 970 | 0.1+ | 0.1− | 2009 03 19 | B84 | 0.3− | 0.2+ | 2009 03 20 | H25 | 0.3+ | 0.1− |
| 2009 03 17 | B84 | 0.2+ | 0.4− | 2009 03 19 | B84 | 0.5+ | 1.4− | 2009 03 21 | 253/ 252 | 0.207− | D |
| 2009 03 17 | B84 | 0.1+ | 0.1− | 2009 03 19 | B84 | 0.3− | 0.3+ | 2009 12 09 | 568 | 0.1+ | 0.4+ |
| 2009 03 17 | B84 | 0.2+ | 0.3− | 2009 03 19 | B84 | 0.6− | 0.9+ | 2009 12 09 | 568 | 0.1+ | 0.4+ |
| 2009 03 17 | B84 | 0.4+ | 0.4− | 2009 03 19 | B84 | 1.1− | 1.9+ | 2009 12 19 | 568 | 0.3+ | 0.4+ |
| 2009 03 17 | B84 | 0.1+ | 0.0− | 2009 03 19 | B84 | 0.1+ | 0.3− | 2009 12 19 | 568 | 0.3+ | 0.5+ |
| 2009 03 17 | B84 | 0.3+ | 0.2− | 2009 03 19 | 127 | (1.5− | 2.7+) | | | | |
| 2009 03 17 | 970 | 0.0− | 0.1− | 2009 03 19 | 127 | 0.1− | 0.8+ | | | | |

**2009 DX$_{136}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 70.00757 | | (2000.0) | | | |
| $n$ | 0.17363750 | $\omega$ | 306.34125 | | −0.86701276 | −0.45024816 |
| $a$ | 3.1820503 | $\Omega$ | 208.78157 | | +0.46087668 | −0.88746419 |
| $e$ | 0.1887388 | $i$ | 26.31785 | | −0.18942429 | −0.09840686 |
| $P$ | 5.68 | $H$ | 15.4 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 12 27 | 644 | 0.1− | 0.3− | 2009 02 25 | E12 | 0.7− | 0.4− | 2009 03 28 | E12 | 0.7+ | 0.1− |
| 2002 12 27 | 644 | 0.3+ | 0.0 | 2009 02 25 | E12 | 0.4+ | 0.1+ | 2009 03 28 | E12 | 0.1+ | 0.1− |
| 2003 01 11 | 644 | 0.4+ | 0.2− | 2009 02 25 | E12 | 0.2+ | 0.2− | 2009 04 20 | 703 | 0.5− | 0.3+ |
| 2003 01 11 | 644 | 1.3− | 1.0+ | 2009 03 16 | E12 | 0.3+ | 0.5− | 2009 04 20 | 703 | 0.7− | 0.6− |
| 2003 01 30 | 644 | 0.4+ | 0.1− | 2009 03 16 | E12 | 0.2− | 0.1+ | 2009 04 20 | 703 | 0.2− | 0.4+ |
| 2003 01 30 | 644 | 0.3+ | 0.4− | 2009 03 28 | E12 | 0.1− | 0.5+ | | | | |
| 2009 02 25 | E12 | 0.2+ | 0.2+ | 2009 03 28 | E12 | 0.5+ | 0.2+ | | | | |

**2009 EK$_1$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 342.90024 | | (2000.0) | | | |
| $n$ | 0.71223013 | $\omega$ | 21.67137 | | +0.93845780 | −0.34536952 |
| $a$ | 1.2418119 | $\Omega$ | 358.51443 | | +0.28905315 | +0.79182779 |
| $e$ | 0.2296394 | $i$ | 9.11244 | | +0.18906411 | +0.50371484 |
| $P$ | 1.38 | $H$ | 21.4 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 12 18 | 645 | 0.0 | 0.0 | 2009 03 03 | H55 | 0.4+ | 0.1+ | 2009 03 15 | H55 | 0.7+ | 0.3+ |
| 2001 12 18 | 645 | 0.0 | 0.0 | 2009 03 03 | H55 | 0.5+ | 0.0 | 2009 03 15 | H55 | 0.1− | 0.7+ |
| 2009 03 02 | G96 | 0.4+ | 0.3− | 2009 03 03 | G96 | 0.3− | 0.2+ | 2009 03 15 | 291 | 0.5+ | 0.2− |
| 2009 03 02 | G96 | 0.1+ | 0.1− | 2009 03 03 | G96 | 0.3+ | 0.0 | 2009 03 15 | 291 | 0.3+ | 0.1− |
| 2009 03 02 | G96 | 0.3+ | 0.2− | 2009 03 03 | G96 | 0.3+ | 0.0 | 2009 03 15 | 291 | 0.5− | 0.3+ |
| 2009 03 02 | G96 | 0.8+ | 0.0 | 2009 03 03 | 291 | 0.1− | 0.2+ | 2009 03 16 | 291 | 0.1− | 0.2+ |
| 2009 03 02 | G96 | 0.1− | 0.6− | 2009 03 03 | 291 | 0.0 | 0.3+ | 2009 03 16 | 291 | 0.2+ | 0.2− |
| 2009 03 02 | G96 | 0.2− | 0.3− | 2009 03 03 | 291 | 0.0 | 0.1+ | 2009 03 16 | 291 | 0.7− | 0.5− |
| 2009 03 02 | G96 | 0.2− | 0.2− | 2009 03 05 | J95 | 0.1+ | 0.2+ | 2009 03 21 | 291 | 0.2− | 0.2+ |
| 2009 03 02 | G96 | 0.1− | 0.1− | 2009 03 05 | J95 | 0.7− | 0.4− | 2009 03 21 | 291 | 0.0 | 0.1− |
| 2009 03 03 | H55 | 0.4+ | 0.2+ | 2009 03 15 | H55 | 0.3+ | 0.3− | 2009 03 21 | 291 | 0.3+ | 0.2+ |

**2009 FP$_{61}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 218.26985 | | (2000.0) | | | |
| $n$ | 0.23147722 | $\omega$ | 6.67204 | | +0.68430330 | −0.70809400 |
| $a$ | 2.6270230 | $\Omega$ | 40.36452 | | +0.65598314 | +0.49347438 |
| $e$ | 0.0738400 | $i$ | 15.59954 | | +0.31845739 | +0.50506031 |
| $P$ | 4.26 | $H$ | 16.2 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 09 19 | 644 | 0.5+ | 0.2− | 2009 03 18 | 691 | 0.1− | 0.2− | 2009 04 18 | G96 | 0.1+ | 0.2− |
| 2002 09 19 | 644 | 0.6+ | 0.3+ | 2009 03 29 | 691 | 0.1+ | 0.2+ | 2009 04 26 | 291 | 0.1+ | 0.1− |
| 2002 09 19 | 644 | 0.1+ | 0.8− | 2009 03 29 | 691 | 0.2+ | 0.0 | 2009 04 26 | 291 | 0.1+ | 0.0 |
| 2002 09 28 | 608 | 1.2− | 0.1− | 2009 03 29 | 691 | 0.2− | 0.3+ | 2009 04 26 | 291 | 0.1+ | 0.2− |
| 2002 09 28 | 608 | 1.3− | 0.1− | 2009 04 02 | 691 | 0.0 | 0.0 | 2009 05 16 | G96 | 0.4+ | 0.3− |
| 2002 10 25 | 644 | 1.1+ | 0.6+ | 2009 04 02 | 691 | 0.0 | 0.2+ | 2009 05 16 | G96 | 0.1− | 0.0 |
| 2002 10 25 | 644 | 0.0 | 0.1+ | 2009 04 02 | 691 | 0.6− | 0.1+ | 2009 05 16 | G96 | 0.0 | 0.4− |
| 2002 10 25 | 644 | 0.3+ | 0.1+ | 2009 04 18 | G96 | 0.3+ | 0.1− | 2009 05 16 | G96 | 0.6+ | 0.1− |
| 2009 03 18 | 691 | 0.1− | 0.1+ | 2009 04 18 | G96 | 0.2+ | 0.3− | | | | |
| 2009 03 18 | 691 | 0.1− | 0.1− | 2009 04 18 | G96 | 0.2+ | 0.1− | | | | |

**2009 HL**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 85.22165 | | (2000.0) | | | |
| $n$ | 0.27379623 | $\omega$ | 155.98583 | | −0.91905003 | +0.27956850 |
| $a$ | 2.3488272 | $\Omega$ | 43.47059 | | −0.39405389 | −0.66655963 |
| $e$ | 0.1252545 | $i$ | 23.81786 | | +0.00828166 | −0.69104249 |
| $P$ | 3.60 | $H$ | 16.3 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 11 20 | 645 | 0.0 | 0.0 | 2009 04 17 | 703 | 0.1+ | 0.5+ | 2009 05 03 | 704 | 0.8+ | 0.7− |
| 2003 11 20 | 645 | 0.0 | 0.0 | 2009 04 17 | 703 | 0.5− | 1.3+ | 2009 05 03 | 704 | 0.4+ | 0.4+ |
| 2007 11 13 | 703 | 0.5− | 0.2− | 2009 04 17 | 703 | 0.1+ | 0.1− | 2009 05 03 | 704 | 1.1+ | 0.2+ |
| 2007 11 13 | 703 | 0.0 | 0.3− | 2009 04 18 | H10 | 0.3− | 0.3− | 2009 05 12 | E12 | 0.5+ | 0.0 |
| 2007 11 13 | 703 | 0.1− | 1.4+ | 2009 04 18 | H10 | 0.1− | 0.2− | 2009 05 12 | E12 | 0.3+ | 1.1+ |
| 2009 03 19 | 703 | 0.8− | 0.0 | 2009 04 18 | H10 | 0.3+ | 0.1− | 2009 05 12 | E12 | 0.4− | 0.2+ |
| 2009 03 19 | 703 | 0.5− | 0.5− | 2009 04 18 | H10 | 0.3+ | 0.4− | 2009 05 12 | E12 | 0.5− | 0.4+ |
| 2009 03 19 | 703 | 0.5− | 0.2− | 2009 04 18 | H10 | 0.2− | 0.2+ | 2009 05 20 | 704 | 0.6+ | 0.1+ |
| 2009 03 19 | 703 | 0.1− | 1.8+ | 2009 04 19 | H10 | 0.3+ | 0.2− | 2009 05 20 | 704 | 0.2− | 0.5− |
| 2009 03 26 | G96 | 0.2− | 0.0 | 2009 04 19 | H10 | 0.1− | 0.4− | 2009 05 20 | 704 | 1.0+ | 0.8+ |
| 2009 03 26 | G96 | 0.7− | 0.5+ | 2009 04 19 | H10 | 0.0 | 0.3− | 2009 05 20 | 704 | 0.1− | 0.2+ |
| 2009 03 26 | G96 | 0.3+ | 0.1+ | 2009 04 19 | H10 | 0.3+ | 0.3− | 2009 05 20 | 704 | 0.7− | 0.8+ |
| 2009 03 26 | G96 | 0.2− | 0.2+ | 2009 04 19 | H10 | 0.2+ | 0.0 | 2009 05 31 | 703 | 0.0 | 0.4− |
| 2009 04 16 | D29 | 0.5+ | 0.0 | 2009 04 23 | J75 | 0.4+ | 0.2+ | 2009 05 31 | 703 | 0.5− | 1.3+ |
| 2009 04 16 | D29 | 0.2− | 0.7− | 2009 04 23 | J75 | 0.1+ | 0.4− | 2009 05 31 | 703 | 0.6− | 0.8− |
| 2009 04 16 | D29 | 0.2+ | 1.1− | 2009 04 23 | J75 | 0.3− | 0.1− | 2009 05 31 | 703 | 0.7− | 0.3− |
| 2009 04 16 | D29 | 0.2+ | 0.6− | 2009 05 03 | 704 | 0.1− | 0.1− | | | | |
| 2009 04 17 | 703 | 0.1+ | 0.5+ | 2009 05 03 | 704 | 0.6+ | 0.4− | | | | |

**2009 OQ$_2$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 32.52954 | | (2000.0) | | | |
| $n$ | 0.26011999 | $\omega$ | 218.93125 | | +0.84526117 | +0.52008380 |
| $a$ | 2.4304511 | $\Omega$ | 109.31218 | | −0.45200983 | +0.81834431 |
| $e$ | 0.1603396 | $i$ | 7.46829 | | −0.28499240 | +0.24459236 |
| $P$ | 3.79 | $H$ | 16.3 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 01 26 | 691 | 0.0 | 0.0 | 2007 02 10 | G96 | 0.1− | 0.1+ | 2009 08 15 | 704 | 0.4− | 1.3+ |
| 1996 01 26 | 691 | 0.1− | 0.1− | 2007 02 10 | G96 | 0.0 | 0.3+ | 2009 08 15 | 704 | 0.9− | 1.3+ |
| 1996 01 26 | 691 | 0.0 | 0.2+ | 2007 02 10 | G96 | 0.1+ | 0.3+ | 2009 08 15 | 704 | 0.7− | 0.6+ |
| 2002 11 27 | 608 | 0.1+ | 0.1− | 2009 07 19 | J75 | 0.1− | 1.1− | 2009 08 15 | 704 | 0.4+ | 1.2+ |
| 2002 11 27 | 608 | 0.0 | 0.4+ | 2009 07 19 | J75 | 0.2− | 0.8− | 2009 08 22 | 704 | 0.5+ | 0.2− |
| 2002 11 27 | 608 | 0.1+ | 0.1− | 2009 07 19 | J75 | 1.0− | 0.8− | 2009 08 22 | 704 | (0.6− | 1.6−) |
| 2002 12 03 | 608 | 1.1+ | 0.2+ | 2009 07 21 | J75 | 0.2− | 0.9− | 2009 08 22 | 704 | 0.7+ | 0.8− |
| 2002 12 03 | 608 | 0.2− | 0.4− | 2009 07 21 | J75 | 0.1+ | 0.3− | 2009 08 22 | 704 | 0.4+ | 0.4− |
| 2002 12 03 | 608 | 0.4− | 0.6− | 2009 07 21 | J75 | 0.6+ | 0.5− | 2009 08 29 | 703 | 0.3+ | 0.8+ |
| 2002 12 10 | 644 | 0.1+ | 0.3− | 2009 07 25 | J75 | 0.4+ | 0.7− | 2009 08 29 | 703 | 1.5− | 0.9+ |
| 2002 12 10 | 644 | 0.0 | 0.4− | 2009 07 25 | J75 | 0.0 | 0.8− | 2009 08 29 | 703 | 0.0 | 0.1− |
| 2002 12 10 | 644 | 0.0 | 0.5− | 2009 07 25 | J75 | 0.5+ | 0.7− | 2009 08 29 | 703 | 0.6+ | 0.9+ |
| 2007 02 10 | G96 | 0.3− | 0.1+ | 2009 08 15 | 704 | 0.6+ | 1.1+ | | | | |

**2009 OW$_2$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 2.49523 | | (2000.0) | | | |
| $n$ | 0.25692002 | $\omega$ | 253.05478 | | +0.99858934 | +0.03633914 |
| $a$ | 2.4505905 | $\Omega$ | 104.84972 | | −0.01848836 | +0.92145694 |
| $e$ | 0.2049301 | $i$ | 2.29542 | | −0.04977452 | +0.38677716 |
| $P$ | 3.84 | $H$ | 17.3 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 01 04 | 291 | 0.0 | 0.1− | 2009 06 21 | G96 | 0.3+ | 0.5+ | 2009 07 23 | A79 | 0.6− | 0.1− |
| 2003 01 04 | 291 | 0.3+ | 0.1− | 2009 06 21 | G96 | 0.1− | 0.4+ | 2009 07 23 | A79 | 0.6− | 1.1+ |
| 2003 01 04 | 291 | 0.3− | 0.5+ | 2009 06 21 | G96 | 0.1+ | 0.4+ | 2009 07 27 | A79 | (0.4− | 1.8+) |
| 2004 03 23 | 691 | 1.3− | 0.2+ | 2009 06 21 | G96 | 0.2− | 0.2− | 2009 07 27 | A79 | 0.4+ | 0.9− |
| 2004 03 23 | 691 | 1.4− | 0.1− | 2009 07 21 | A79 | 0.0 | 0.1− | 2009 07 27 | A79 | 0.6+ | 0.5− |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 03 23 | 691 | 1.1− | 0.1− | | 2009 07 21 | A79 | 0.3− | 1.0+ | | 2009 07 27 | A79 | (1.9+ | 2.1−) | |
| 2004 07 15 | 807 | 0.8− | 0.0 | | 2009 07 21 | A79 | 0.3− | 0.3+ | | 2009 07 31 | A79 | 0.2+ | 0.2− | |
| 2004 07 16 | 807 | (25.8+ | 0.8+) | | 2009 07 21 | A79 | 0.5− | 0.4− | | 2009 07 31 | A79 | 0.1− | 0.3+ | |
| 2006 12 26 | 691 | 0.0 | 0.2+ | | 2009 07 22 | A79 | 0.1+ | 0.0 | | 2009 08 27 | H11 | 0.3+ | 0.4+ | |
| 2006 12 26 | 691 | 0.1+ | 0.3+ | | 2009 07 22 | A79 | 0.6− | 0.6− | | 2009 08 27 | H11 | 0.2+ | 0.1+ | |
| 2006 12 26 | 691 | 0.3+ | 0.1+ | | 2009 07 23 | A79 | (0.4+ | 1.9−) | | 2009 08 27 | H11 | 0.3+ | 0.2+ | |

**2009 OM$_{24}$ = 2006 AF$_{83}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 30.56525 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17351821 | $\omega$ | 251.33612 | | +0.84573838 | +0.43588055 | |
| $a$ | 3.1835085 | $\Omega$ | 81.81853 | | −0.29100162 | +0.86025817 | |
| $e$ | 0.1243622 | $i$ | 18.11679 | | −0.44726351 | +0.26450713 | |
| $P$ | 5.68 | $H$ | 14.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 05 16 | 608 | 0.4+ | 0.1+ | | 2006 01 07 | 704 | 0.1+ | 0.7− | | 2009 07 19 | E12 | 0.1− | 0.3+ | |
| 2002 05 16 | 608 | 0.4− | 0.5− | | 2006 01 07 | 704 | 1.0+ | 1.3− | | 2009 07 19 | E12 | 0.0 | 0.9+ | |
| 2002 05 16 | 608 | 0.0 | 0.3+ | | 2006 01 18 | 703 | (2.3− | 1.3+) | | 2009 07 19 | E12 | 0.1+ | 0.6− | |
| 2004 11 05 | 644 | 0.5+ | 0.5− | | 2006 01 18 | 703 | 0.9− | 0.4− | | 2009 08 17 | E12 | 0.2− | 0.5− | |
| 2004 11 05 | 644 | 0.0 | 0.7− | | 2006 01 18 | 703 | 2.0− | 0.3+ | | 2009 08 17 | E12 | 0.0 | 0.4− | |
| 2004 11 05 | 644 | 0.4+ | 0.8− | | 2006 01 18 | 703 | 0.4+ | 0.5− | | 2009 08 17 | E12 | 0.3− | 0.4− | |
| 2004 12 03 | 699 | 1.4− | 1.3+ | | 2006 01 30 | 703 | 0.5− | 0.1+ | | 2009 08 17 | E12 | 0.1− | 0.1+ | |
| 2004 12 03 | 699 | 0.2− | 0.6+ | | 2006 01 30 | 703 | 0.7+ | 0.6+ | | 2009 09 16 | E12 | 0.1− | 0.2+ | |
| 2004 12 03 | 699 | 0.4+ | 0.3+ | | 2006 01 30 | 703 | 0.2− | 0.2+ | | 2009 09 16 | E12 | 0.2− | 0.2− | |
| 2004 12 03 | 699 | 0.2− | 0.5+ | | 2006 01 30 | 703 | 0.6+ | 0.8+ | | 2009 09 16 | E12 | 1.1+ | 0.6+ | |
| 2006 01 07 | 704 | 0.4+ | 0.1− | | 2009 07 19 | E12 | 0.2− | 0.0 | | 2009 09 16 | E12 | 0.6+ | 0.7− | |

**2009 PE$_{4}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 28.66445 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22289585 | $\omega$ | 162.69054 | | +0.89788915 | +0.43969281 | |
| $a$ | 2.6940236 | $\Omega$ | 171.13276 | | −0.41864678 | +0.86801047 | |
| $e$ | 0.1767562 | $i$ | 8.04427 | | −0.13612471 | +0.23071205 | |
| $P$ | 4.42 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 07 02 | 691 | 0.2+ | 0.0 | | 2009 08 14 | J75 | 0.3+ | 0.2− | | 2009 08 27 | 703 | 0.6+ | 0.0 | |
| 2000 07 02 | 691 | 0.1− | 0.1+ | | 2009 08 14 | J75 | 0.6+ | 0.4− | | 2009 08 27 | 703 | 0.4− | 1.1+ | |
| 2000 07 02 | 691 | 0.1− | 0.2− | | 2009 08 14 | J75 | 0.0 | 0.0 | | 2009 09 22 | G96 | 0.1+ | 0.5− | |
| 2008 04 29 | G96 | 0.1+ | 0.1− | | 2009 08 16 | 691 | 0.1− | 0.1− | | 2009 09 22 | G96 | 0.0 | 0.2− | |
| 2008 04 29 | G96 | 0.0 | 0.6+ | | 2009 08 16 | 691 | 0.3− | 0.3+ | | 2009 09 22 | G96 | 0.5+ | 0.3− | |
| 2008 04 29 | G96 | 0.6− | 0.2− | | 2009 08 16 | 691 | 0.3− | 0.3− | | 2009 09 22 | G96 | 0.2− | 0.1− | |
| 2008 04 29 | G96 | 0.5+ | 0.2− | | 2009 08 16 | J75 | 0.2− | 0.5− | | 2009 10 15 | G96 | 0.2− | 0.2− | |
| 2009 06 16 | G96 | 0.4+ | 0.5− | | 2009 08 16 | J75 | 0.1+ | 0.1+ | | 2009 10 15 | G96 | 0.1+ | 0.2− | |
| 2009 06 16 | G96 | 0.1+ | 0.3− | | 2009 08 16 | J75 | 0.2+ | 0.2+ | | 2009 10 15 | G96 | 0.1− | 0.4− | |
| 2009 06 16 | G96 | 0.2− | 0.3− | | 2009 08 27 | 703 | 0.7− | 1.1+ | | 2009 10 15 | G96 | 0.4+ | 0.3− | |
| 2009 06 16 | G96 | 0.4+ | 0.1− | | 2009 08 27 | 703 | 1.1+ | 1.6+ | | | | | | |

**2009 PT$_{18}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 358.72419 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.20297247 | $\omega$ | 303.76662 | | +0.78159008 | −0.54930949 | |
| $a$ | 2.8675520 | $\Omega$ | 91.27373 | | +0.62378719 | +0.68632449 | |
| $e$ | 0.3627619 | $i$ | 17.19756 | | +0.00254770 | +0.47667366 | |
| $P$ | 4.86 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 07 14 | E12 | 0.2− | 0.0 | | 2004 08 23 | E12 | 1.3− | 0.4− | | 2009 10 08 | E12 | 0.5+ | 0.3+ | |
| 2004 07 14 | E12 | 0.2− | 0.3− | | 2009 08 01 | E12 | 0.4+ | 0.2+ | | 2009 10 08 | E12 | 0.1+ | 0.0 | |
| 2004 07 14 | E12 | 0.7+ | 0.1− | | 2009 08 01 | E12 | 0.2− | 0.9− | | 2009 10 08 | E12 | 0.2− | 0.2+ | |
| 2004 07 14 | E12 | 0.6+ | 0.2+ | | 2009 08 18 | E12 | 0.4− | 0.3+ | | 2009 10 23 | E12 | 0.4− | 0.3+ | |
| 2004 08 09 | E12 | 0.7− | 0.5− | | 2009 08 18 | E12 | 0.1− | 0.2− | | 2009 10 23 | E12 | 0.3− | 0.0 | |
| 2004 08 09 | E12 | 0.6− | 0.6+ | | 2009 08 18 | E12 | 0.1− | 0.4+ | | 2009 10 23 | E12 | 0.0 | 0.4− | |
| 2004 08 09 | E12 | 0.8− | 0.1− | | 2009 09 16 | E12 | 0.3− | 0.1+ | | 2009 10 23 | E12 | 0.4+ | 0.8− | |
| 2004 08 09 | E12 | 1.8+ | 0.4+ | | 2009 09 16 | E12 | 0.2− | 0.3+ | | 2009 11 10 | E12 | 0.7− | 0.0 | |
| 2004 08 23 | E12 | 0.5− | 0.1+ | | 2009 09 16 | E12 | 0.1+ | 0.7− | | 2009 11 10 | E12 | 0.2− | 0.4+ | |
| 2004 08 23 | E12 | 0.6+ | 0.1− | | 2009 09 16 | E12 | 0.1− | 0.3+ | | 2009 11 10 | E12 | 0.8+ | 1.1− | |
| 2004 08 23 | E12 | 0.6+ | 0.1+ | | 2009 10 08 | E12 | 0.8+ | 0.4+ | | 2009 11 10 | E12 | 0.3+ | 0.6+ | |

**2009 QJ$_{13}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 66.41615 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22298247 | $\omega$ | 116.90100 | | +0.34038495 | +0.94013635 | |
| $a$ | 2.6933259 | $\Omega$ | 172.93680 | | −0.90385715 | +0.33206602 | |
| $e$ | 0.2098098 | $i$ | 7.84541 | | −0.25919170 | +0.07665378 | |
| $P$ | 4.42 | $H$ | 17.4 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 06 14 | 691 | 0.1− | 0.0 | | 2009 08 16 | 691 | 0.2+ | 0.0 | | 2009 09 18 | G96 | 0.1− | 0.1+ | |
| 2004 06 14 | 691 | 0.0 | 0.0 | | 2009 08 16 | 691 | 0.3+ | 0.1− | | 2009 09 18 | G96 | 0.2+ | 0.0 | |
| 2004 06 14 | 691 | 0.0 | 0.1− | | 2009 08 20 | 691 | 0.1+ | 0.1+ | | 2009 09 18 | G96 | 0.4+ | 0.1− | |
| 2008 03 26 | G96 | 0.1− | 0.2+ | | 2009 08 20 | 691 | 1.0− | 0.5− | | 2009 09 18 | G96 | 0.1+ | 0.3+ | |
| 2008 03 26 | G96 | 0.4− | 0.8+ | | 2009 08 20 | 691 | 0.4+ | 0.2+ | | 2009 09 18 | G96 | 0.3+ | 0.4+ | |
| 2008 03 26 | G96 | 0.5+ | 0.3+ | | 2009 08 28 | 691 | 0.1− | 0.0 | | 2009 09 18 | G96 | 0.3+ | 0.2− | |
| 2008 03 26 | G96 | 0.4− | 0.1− | | 2009 08 28 | 691 | 0.1− | 0.3+ | | 2009 09 18 | G96 | 0.2+ | 0.1− | |
| 2008 04 08 | G96 | 0.1− | 0.2− | | 2009 08 28 | 691 | 0.1− | 0.0 | | 2009 09 18 | G96 | 0.3− | 0.1+ | |
| 2008 04 08 | G96 | 0.1+ | 0.2+ | | 2009 09 18 | G96 | 0.1+ | 0.1− | | 2009 09 18 | G96 | 0.3− | 0.1+ | |
| 2008 04 08 | G96 | 0.5+ | 0.0 | | 2009 09 18 | G96 | 0.1+ | 0.1− | | | | | | |
| 2009 08 16 | 691 | 0.2+ | 0.1+ | | 2009 09 18 | G96 | 0.0 | 0.1− | | | | | | |

**2009 QL$_{16}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 286.91368 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18128060 | $\omega$ | 289.57073 | | −0.11466882 | −0.99243738 | |
| $a$ | 3.0919692 | $\Omega$ | 166.78363 | | +0.96806679 | −0.12153162 | |
| $e$ | 0.0450132 | $i$ | 11.04677 | | +0.22292993 | +0.01726599 | |
| $P$ | 5.44 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 09 01 | 691 | 0.3− | 0.3+ | | 2007 04 18 | 291 | 0.1− | 0.2+ | | 2009 08 16 | 691 | 0.5+ | 0.1+ | |
| 1998 09 01 | 691 | 0.0 | 0.6+ | | 2007 04 26 | G96 | 0.0 | 0.3+ | | 2009 08 20 | 691 | 0.0 | 0.2+ | |
| 1998 09 01 | 691 | 0.0 | 0.3+ | | 2007 04 26 | G96 | 0.4− | 0.2− | | 2009 08 20 | 691 | 0.4+ | 0.3+ | |
| 2001 02 20 | 645 | 0.1+ | 0.2+ | | 2007 04 26 | G96 | 0.4+ | 0.2+ | | 2009 08 20 | 691 | 0.2+ | 0.2+ | |
| 2001 02 20 | 645 | 0.0 | 0.2+ | | 2007 04 26 | G96 | 0.5+ | 0.1− | | 2009 08 28 | 691 | 0.5− | 0.1+ | |
| 2007 03 15 | G96 | 0.1− | 0.3− | | 2007 05 23 | G96 | 0.1+ | 0.1+ | | 2009 08 28 | 691 | 0.5− | 0.4+ | |
| 2007 03 15 | G96 | 0.2+ | 0.2+ | | 2007 05 23 | G96 | 0.3+ | 0.1+ | | 2009 08 28 | 691 | 0.5− | 0.1− | |
| 2007 03 15 | G96 | 0.1+ | 0.1− | | 2007 05 23 | G96 | 0.0 | 0.1− | | 2009 09 22 | G96 | 0.5+ | 0.0 | |
| 2007 03 15 | G96 | 0.1+ | 0.1− | | 2007 05 23 | G96 | 0.3+ | 0.1− | | 2009 09 22 | G96 | 0.0 | 0.1+ | |
| 2007 04 18 | 291 | 0.1− | 0.1+ | | 2009 08 16 | 691 | 0.0 | 0.2− | | 2009 09 22 | G96 | 0.1+ | 0.1− | |
| 2007 04 18 | 291 | 0.1− | 0.2+ | | 2009 08 16 | 691 | 0.0 | 0.4+ | | 2009 09 22 | G96 | 0.2+ | 0.3− | |

**2009 QZ$_{23}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 71.47125 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26931384 | $\omega$ | 101.82727 | | +0.14529008 | +0.98937912 | |
| $a$ | 2.3748176 | $\Omega$ | 176.51758 | | −0.93384956 | +0.13861651 | |
| $e$ | 0.1456361 | $i$ | 4.19548 | | −0.32682685 | +0.04375408 | |
| $P$ | 3.66 | $H$ | 17.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 10 25 | 691 | 0.4+ | 0.4− | | 2008 02 26 | G96 | 0.3− | 0.1− | | 2009 08 01 | 691 | 0.0 | 0.3+ | |
| 1995 10 25 | 691 | 0.4− | 0.2− | | 2008 02 26 | G96 | 0.4+ | 0.6+ | | 2009 08 16 | 703 | 0.6+ | 0.1+ | |
| 1995 10 25 | 691 | 0.1+ | 0.1+ | | 2008 02 26 | G96 | 0.5− | 0.2+ | | 2009 08 16 | 703 | 0.6− | 0.0 | |
| 2006 11 16 | G96 | 0.1+ | 0.3+ | | 2008 03 09 | G96 | 0.2+ | 0.3− | | 2009 08 16 | 703 | 0.7− | 0.5− | |
| 2006 11 16 | G96 | 0.4− | 0.6+ | | 2008 03 09 | G96 | 0.1+ | 0.1− | | 2009 08 16 | 703 | 0.2− | 0.3− | |
| 2006 11 16 | G96 | 0.5− | 0.1+ | | 2008 03 09 | G96 | 0.0 | 0.1+ | | 2009 08 17 | J75 | 0.4+ | 0.4− | |
| 2006 11 16 | G96 | 0.6+ | 0.4+ | | 2008 03 09 | G96 | 0.0 | 0.0 | | 2009 08 17 | J75 | 0.3+ | 0.2− | |
| 2006 11 16 | G96 | 0.2+ | 0.2+ | | 2009 07 28 | 691 | 0.0 | 0.3+ | | 2009 08 17 | J75 | 0.2+ | 1.2− | |
| 2006 11 16 | G96 | 0.3− | 0.1− | | 2009 07 28 | 691 | 0.3+ | 0.2+ | | 2009 09 22 | G96 | 0.3− | 0.1+ | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 11 16 | G96 | 0.3− | 0.2+ | 2009 07 28 | 691 | 0.1− | 0.2+ | 2009 09 22 | G96 | 0.1+ | 0.0 | | |
| 2006 11 16 | G96 | 0.2+ | 0.6+ | 2009 08 01 | 691 | 0.4− | 0.1− | 2009 09 22 | G96 | 0.1+ | 0.1+ | | |
| 2008 02 26 | G96 | 0.1+ | 0.2− | 2009 08 01 | 691 | 0.2+ | 0.1− | 2009 09 22 | G96 | 0.0 | 0.2− | | |

**2009 QS$_{30}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 39.01219 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21562447 | $\omega$ | 0.75622 | | +0.91496230 | | +0.37755172 |
| $a$ | 2.7542542 | $\Omega$ | 335.49148 | | −0.37201983 | | +0.65238475 |
| $e$ | 0.2941299 | $i$ | 20.08729 | | −0.15634970 | | +0.65715207 |
| $P$ | 4.57 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 03 14 | G96 | (3.1− | 4.9−) | 2009 08 21 | 704 | 0.5+ | 0.1− | 2009 09 27 | 704 | 0.3− | 0.2+ | | |
| 2007 03 14 | G96 | (3.0− | 2.7−) | 2009 08 26 | 704 | 0.2+ | 0.7− | 2009 09 27 | 704 | 0.0 | 0.1− | | |
| 2007 03 14 | G96 | 1.8− | 0.4− | 2009 08 26 | 704 | 0.3+ | 0.6− | 2009 09 27 | 704 | 0.3− | 0.6− | | |
| 2007 03 14 | G96 | 0.3+ | 0.3+ | 2009 08 26 | 704 | 0.3+ | 0.7− | 2009 09 27 | 704 | 0.3+ | 0.6− | | |
| 2007 03 20 | G96 | 0.3+ | 0.2− | 2009 08 26 | 704 | 0.2− | 0.3− | 2009 10 12 | J75 | 0.2− | 0.1+ | | |
| 2007 03 20 | G96 | 0.4+ | 0.1+ | 2009 08 26 | 704 | 0.3− | 0.2− | 2009 10 12 | J75 | 0.3+ | 0.2− | | |
| 2007 03 20 | G96 | 0.5+ | 0.2− | 2009 09 11 | 703 | 0.3+ | 0.6+ | 2009 10 12 | J75 | 0.1− | 0.2+ | | |
| 2007 03 20 | G96 | 0.3− | 0.4− | 2009 09 11 | 703 | 1.4− | 0.2− | 2009 10 15 | 703 | 0.0 | 0.5+ | | |
| 2009 08 18 | 703 | 0.4+ | 0.1+ | 2009 09 11 | 703 | 1.4− | 0.8+ | 2009 10 15 | 703 | 0.1+ | 1.6+ | | |
| 2009 08 18 | 703 | 0.2+ | 0.3− | 2009 09 11 | 703 | 0.5+ | 0.8+ | 2009 10 15 | 703 | 1.0+ | 0.4+ | | |
| 2009 08 18 | 703 | 0.2+ | 0.6+ | 2009 09 22 | 703 | 0.5− | 0.6− | 2009 10 15 | 703 | 0.7+ | 0.5+ | | |
| 2009 08 18 | 703 | 0.5− | 0.1+ | 2009 09 22 | 703 | 0.2− | 0.3− | 2009 10 17 | B74 | 0.4− | 0.4− | | |
| 2009 08 21 | 704 | 1.4+ | 1.2+ | 2009 09 22 | 703 | 0.0 | 0.9− | 2009 10 17 | B74 | 0.1− | 0.3− | | |
| 2009 08 21 | 704 | 0.2+ | 1.1+ | 2009 09 22 | 703 | 0.6− | 0.7− | 2009 10 17 | B74 | 0.1− | 0.1+ | | |
| 2009 08 21 | 704 | 0.5+ | 0.7− | 2009 09 27 | 704 | 0.2− | 0.4− | | | | | | |

**2009 QC$_{34}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 47.43500 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23225825 | $\omega$ | 18.96192 | | +0.95305891 | | +0.25157010 |
| $a$ | 2.6211303 | $\Omega$ | 325.04436 | | −0.30161345 | | +0.73988444 |
| $e$ | 0.1876202 | $i$ | 17.10301 | | −0.02660897 | | +0.62392588 |
| $P$ | 4.24 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 01 28 | G96 | 0.2+ | 0.6− | 2009 08 28 | 106 | 0.1+ | 0.2− | 2009 10 18 | 704 | 0.1+ | 0.2− | | |
| 2007 01 28 | G96 | 0.0 | 0.2− | 2009 08 28 | 704 | 0.5+ | 0.2+ | 2009 10 18 | 704 | 1.3+ | 0.6+ | | |
| 2007 01 28 | G96 | 0.0 | 0.1− | 2009 08 28 | 704 | 0.0 | 0.1+ | 2009 10 18 | 704 | 0.5+ | 0.0 | | |
| 2007 01 28 | G96 | 0.1− | 0.3− | 2009 08 28 | 704 | (2.2+ | 2.8+) | 2009 10 18 | 704 | 0.0 | 0.4− | | |
| 2007 01 28 | 691 | 0.1+ | 0.3+ | 2009 08 28 | 704 | 0.1− | 0.2− | 2009 10 18 | 704 | 0.6+ | 0.1+ | | |
| 2007 01 28 | 691 | 0.0 | 0.1− | 2009 08 28 | 704 | 0.1+ | 0.3− | 2009 11 06 | 703 | 0.3+ | 0.5− | | |
| 2007 01 28 | 691 | 0.1− | 0.2+ | 2009 09 18 | 703 | 0.7− | 0.3− | 2009 11 06 | 703 | 0.1− | 0.1− | | |
| 2009 08 19 | 703 | 0.6− | 0.1− | 2009 09 18 | 703 | 0.3+ | 0.3+ | 2009 11 06 | 703 | 0.9− | 0.0 | | |
| 2009 08 19 | 703 | 0.0 | 0.7+ | 2009 09 18 | 703 | 0.2+ | 0.0 | 2009 11 06 | 703 | 1.0+ | 0.1− | | |
| 2009 08 19 | 703 | 0.4− | 0.2− | 2009 09 18 | 703 | 1.2− | 0.3− | 2009 11 23 | 704 | 0.4− | 0.2− | | |
| 2009 08 19 | 703 | 0.2+ | 0.4+ | 2009 09 26 | 703 | 0.4− | 0.3+ | 2009 11 23 | 704 | 0.2+ | 0.6+ | | |
| 2009 08 28 | 106 | 0.1− | 0.4− | 2009 09 26 | 703 | 0.2− | 0.1+ | 2009 11 23 | 704 | 0.1+ | 0.2− | | |
| 2009 08 28 | 106 | 0.1+ | 0.3− | 2009 09 26 | 703 | 0.3+ | 0.2+ | 2009 11 23 | 704 | 0.0 | 0.0 | | |
| 2009 08 28 | 106 | 0.3− | 0.1+ | 2009 09 26 | 703 | 0.9− | 0.6+ | | | | | | |

**2009 QB$_{35}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 26.98327 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.28553851 | $\omega$ | 157.28064 | | +0.91526646 | | −0.39779913 |
| $a$ | 2.2839833 | $\Omega$ | 226.32145 | | +0.35478439 | | +0.87072856 |
| $e$ | 0.5000817 | $i$ | 5.04394 | | +0.19082803 | | +0.28911526 |
| $P$ | 3.45 | $H$ | 19.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 15 | 644 | 0.4− | 0.1+ | 2009 08 29 | J95 | 0.3+ | 0.3− | 2009 09 15 | A17 | 0.1− | 0.1− | | |
| 2002 08 15 | 644 | 0.6− | 0.1− | 2009 08 29 | J95 | 0.1− | 0.1+ | 2009 09 15 | A17 | 0.2− | 0.4− | | |
| 2002 08 15 | 644 | 0.0 | 0.3+ | 2009 08 29 | 854 | 0.4− | 1.2+ | 2009 09 15 | H55 | 0.0 | 0.0 | | |
| 2002 08 23 | 644 | 0.3− | 0.4+ | 2009 08 29 | 854 | 0.9+ | 0.1+ | 2009 09 15 | H55 | 0.2+ | 0.6+ | | |
| 2002 08 23 | 644 | 0.4− | 0.2+ | 2009 08 30 | A74 | 0.4− | 0.3− | 2009 09 15 | H55 | 0.1+ | 1.0+ | | |
| 2002 08 23 | 644 | 0.5− | 0.5+ | 2009 08 31 | A74 | 0.1− | 0.3− | 2009 10 05 | H55 | 0.4+ | 0.4+ | | |
| 2002 08 23 | 644 | 0.4+ | 0.4+ | 2009 08 31 | A74 | 0.2+ | 0.1− | 2009 10 05 | H55 | 0.1+ | 0.1− | | |
| 2002 08 23 | 644 | 0.0 | 0.6+ | 2009 08 31 | A74 | 0.3+ | 0.3− | 2009 10 05 | H55 | 0.0 | 0.1− | | |
| 2002 10 11 | 644 | 0.1− | 0.1− | 2009 08 31 | A74 | 0.8− | 0.1+ | 2009 10 07 | H36 | 0.5− | 0.2− | | |
| 2002 10 11 | 644 | 0.4+ | 0.3+ | 2009 09 01 | A74 | 0.1− | 0.1− | 2009 10 07 | H36 | 0.3+ | 0.8− | | |
| 2002 10 11 | 644 | 0.6+ | 0.2− | 2009 09 01 | A74 | 0.0 | 0.1+ | 2009 10 07 | H36 | 0.5+ | 0.7− | | |
| 2009 08 28 | 704 | 0.7+ | 0.6+ | 2009 09 01 | H55 | 0.0 | 0.1− | 2009 10 18 | H55 | 0.4− | 0.3+ | | |
| 2009 08 28 | 704 | (1.6+ | 0.3+) | 2009 09 01 | H55 | 0.1− | 0.2− | 2009 10 18 | H55 | 0.1− | 0.2+ | | |
| 2009 08 28 | 704 | 0.3+ | 1.0− | 2009 09 01 | H55 | 0.1− | 0.1+ | 2009 10 18 | H55 | 0.1− | 0.2+ | | |
| 2009 08 28 | J95 | 0.1+ | 0.0 | 2009 09 01 | H55 | 0.2− | 0.0 | 2009 11 01 | H55 | 0.1+ | 0.0 | | |
| 2009 08 29 | 176 | 0.3− | 0.4+ | 2009 09 02 | H55 | 0.1+ | 0.0 | 2009 11 01 | H55 | 0.5− | 0.8− | | |
| 2009 08 29 | 176 | 0.1+ | 0.7+ | 2009 09 02 | H55 | 0.1+ | 0.0 | 2009 11 12 | H21 | 0.1+ | 0.0 | | |
| 2009 08 29 | 176 | 0.0 | 0.0 | 2009 09 02 | H55 | 0.1+ | 0.0 | 2009 11 12 | H21 | 0.1+ | 0.0 | | |
| 2009 08 29 | 176 | 0.3+ | 0.6− | 2009 09 05 | 568 | 0.1− | 0.0 | 2009 11 12 | H21 | 0.2+ | 0.0 | | |
| 2009 08 29 | 176 | 1.2+ | 0.9− | 2009 09 05 | 568 | 0.0 | 0.0 | 2009 11 29 | H21 | 0.5− | 0.9+ | | |
| 2009 08 29 | 204 | 0.0 | 0.2+ | 2009 09 05 | 568 | 0.0 | 0.0 | 2009 11 29 | H21 | 0.7+ | 0.7+ | | |
| 2009 08 29 | J95 | 0.3+ | 0.1− | 2009 09 15 | A17 | 0.0 | 0.1− | 2009 11 29 | H21 | 0.7+ | 0.5+ | | |

**2009 QB$_{36}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 11.74774 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.29345714 | $\omega$ | 176.55293 | | −0.60046554 | | −0.77276023 |
| $a$ | 2.2427090 | $\Omega$ | 310.22887 | | +0.72707304 | | −0.42056264 |
| $e$ | 0.7867308 | $i$ | 15.62457 | | +0.33287526 | | −0.47536165 |
| $P$ | 3.36 | $H$ | 17.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 10 11 | 645 | 0.1+ | 0.1− | 2009 08 30 | 704 | 0.8+ | 1.0+ | 2009 09 13 | J13 | 0.0 | 0.1− | | |
| 2002 10 11 | 645 | 0.0 | 0.0 | 2009 08 30 | 704 | 0.2+ | 0.1+ | 2009 09 13 | J13 | 0.1+ | 0.1− | | |
| 2009 08 29 | 704 | 0.9+ | 1.5+ | 2009 08 30 | 704 | 0.9+ | 0.3− | 2009 09 13 | J13 | 0.1+ | 0.1− | | |
| 2009 08 29 | 704 | 0.5+ | 0.9+ | 2009 08 30 | 704 | 0.4+ | 0.6− | 2009 09 19 | H26 | 0.7+ | 0.5− | | |
| 2009 08 29 | 704 | (0.3+ | 2.1+) | 2009 08 30 | 854 | 0.7+ | 0.3− | 2009 09 19 | H26 | 0.1− | 0.4+ | | |
| 2009 08 29 | 704 | 0.6− | 1.5+ | 2009 08 30 | 854 | 0.5+ | 0.3+ | 2009 09 19 | H26 | 0.8+ | 0.4− | | |
| 2009 08 29 | J95 | 0.1− | 0.3− | 2009 08 30 | 704 | 0.1− | 0.1− | 2009 09 19 | J16 | 0.3+ | 0.2+ | | |
| 2009 08 29 | J95 | 0.8− | 0.4+ | 2009 08 30 | 300 | 0.4+ | 0.8+ | 2009 09 19 | J16 | 0.0 | 0.3− | | |
| 2009 08 29 | J95 | 0.1+ | 0.0 | 2009 08 30 | 300 | 0.8+ | 0.1+ | 2009 09 20 | 204 | 0.0 | 0.1− | | |
| 2009 08 29 | A17 | 0.2+ | 0.3− | 2009 08 30 | 300 | 0.3+ | 0.1+ | 2009 09 20 | 204 | 0.0 | 0.0 | | |
| 2009 08 29 | B21 | 0.0 | 0.3+ | 2009 08 30 | 300 | 1.0+ | 0.2− | 2009 09 20 | 204 | 0.1− | 0.1− | | |
| 2009 08 29 | B21 | 0.1− | 0.1+ | 2009 09 01 | J95 | 0.3− | 0.1− | 2009 09 22 | 160 | 0.0 | 0.1− | | |
| 2009 08 29 | B21 | 0.1− | 0.2+ | 2009 09 01 | J95 | 0.1− | 0.1− | 2009 09 22 | 160 | 0.5+ | 0.4− | | |
| 2009 08 29 | B21 | 0.0 | 0.1+ | 2009 09 01 | J95 | 0.2− | 0.3− | 2009 09 23 | B75 | 1.5− | 1.4+ | | |
| 2009 08 29 | A17 | 0.2+ | 0.1− | 2009 09 02 | H55 | 0.0 | 0.1+ | 2009 09 23 | 151 | 0.1+ | 0.5+ | | |
| 2009 08 29 | A17 | 0.1− | 0.1− | 2009 09 02 | H55 | 0.1+ | 0.1+ | 2009 09 23 | 151 | 0.1− | 0.3+ | | |
| 2009 08 29 | J41 | 0.8+ | 0.3− | 2009 09 02 | H55 | 0.2+ | 0.2+ | 2009 09 23 | 151 | 0.3− | 0.1− | | |
| 2009 08 29 | J41 | 0.6+ | 0.0 | 2009 09 03 | J95 | 0.3+ | 0.0 | 2009 09 23 | 151 | 0.7− | 0.4− | | |
| 2009 08 29 | 473 | 0.1+ | 0.4+ | 2009 09 03 | J95 | 0.1+ | 0.0 | 2009 09 23 | 130 | 0.4+ | 0.1− | | |
| 2009 08 29 | J41 | 0.1+ | 0.2− | 2009 09 08 | H55 | 0.1+ | 0.3+ | 2009 09 23 | 130 | 0.8− | 0.4− | | |
| 2009 08 30 | 113 | 0.2− | 0.4− | 2009 09 08 | H55 | 0.2− | 0.2+ | 2009 09 23 | 130 | 0.1+ | 0.2− | | |
| 2009 08 30 | 113 | 0.3+ | 0.3+ | 2009 09 08 | H55 | 0.1− | 0.3+ | 2009 09 23 | 130 | 0.5− | 0.1+ | | |
| 2009 08 30 | 113 | 0.1+ | 0.4− | 2009 09 09 | 118 | 0.2− | 0.1− | 2009 09 27 | H45 | 0.4+ | 0.5− | | |
| 2009 08 30 | 118 | 0.4+ | 0.7− | 2009 09 09 | 118 | 0.1− | 0.3− | 2009 09 27 | H45 | 0.2+ | 0.2− | | |
| 2009 08 30 | 118 | 1.2− | 1.7− | 2009 09 09 | 118 | 0.1+ | 0.4− | 2009 09 27 | H45 | 0.1− | 0.4+ | | |
| 2009 08 30 | H55 | 0.6+ | 0.6+ | 2009 09 09 | 118 | 0.1− | 0.2+ | 2009 09 27 | H45 | 0.2+ | 0.0 | | |
| 2009 08 30 | H55 | 0.3− | 0.5+ | 2009 09 09 | 118 | 0.1− | 0.2− | 2009 09 27 | H45 | 0.2+ | 0.3+ | | |
| 2009 08 30 | H36 | 0.3+ | 0.5+ | 2009 09 09 | H55 | 0.0 | 0.3+ | 2009 09 27 | H45 | 0.3+ | 0.0 | | |
| 2009 08 30 | H36 | 0.1+ | 0.5− | 2009 09 09 | H55 | 0.2+ | 0.2+ | 2009 09 29 | B51 | (1.3+ | 3.2+) | | |
| 2009 08 30 | H36 | 0.3+ | 0.8− | 2009 09 09 | H55 | 0.5+ | 0.1− | 2009 09 29 | B51 | (1.1+ | 2.6+) | | |
| 2009 08 30 | 291 | 0.3− | 0.0 | 2009 09 12 | H55 | 0.1+ | 0.1+ | 2009 09 29 | B51 | (1.1+ | 2.8+) | | |
| 2009 08 30 | 291 | 1.1− | 0.3− | 2009 09 12 | H55 | 0.0 | 0.1+ | 2009 09 30 | B51 | (1.1+ | 2.5+) | | |
| 2009 08 30 | 291 | 0.3− | 0.1+ | 2009 09 12 | H55 | 0.1+ | 0.0 | 2009 09 30 | B51 | (1.1+ | 2.4+) | | |
| 2009 08 30 | G58 | 0.2+ | 0.1+ | 2009 09 12 | H55 | 0.2+ | 0.1− | 2009 10 09 | 926 | 0.1− | 0.1− | | |
| 2009 08 30 | G58 | 0.1+ | 0.1− | 2009 09 12 | 587 | 0.3+ | 0.5+ | 2009 10 09 | 926 | 0.1− | 0.1− | | |
| 2009 08 30 | G58 | 0.4− | 0.1+ | 2009 09 12 | 587 | 0.2+ | 0.1− | 2009 10 09 | 926 | 0.2− | 0.0 | | |
| 2009 08 30 | G58 | 0.0 | 0.0 | 2009 09 12 | 587 | 0.5− | 0.1− | | | | | | |
| 2009 08 30 | G58 | 0.1− | 0.4− | 2009 09 13 | J13 | 0.2+ | 0.0 | | | | | | |

**2009 QH$_{37}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 242.87193 | | (2000.0) | | | |
| $n$ | 0.17621771 | $\omega$ | 344.97213 | | −0.66690162 | −0.73923801 |
| $a$ | 3.1509126 | $\Omega$ | 146.69606 | | +0.70004318 | −0.66462678 |
| $e$ | 0.1472582 | $i$ | 9.81973 | | +0.25530721 | −0.10862047 |
| $P$ | 5.59 | $H$ | 16.1 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 03 19 | 645 | 0.0 | 0.1+ | 2009 08 31 | F65 | 0.2− | 0.2+ | 2009 09 12 | F65 | 0.1− | 0.1+ |
| 2001 03 19 | 645 | 0.0 | 0.0 | 2009 08 31 | F65 | 0.1− | 0.2+ | 2009 09 12 | F65 | 0.0 | 0.1+ |
| 2003 08 26 | 807 | 0.0 | 0.1− | 2009 08 31 | F65 | 0.2+ | 0.2− | 2009 09 16 | F65 | 0.0 | 0.4+ |
| 2003 08 26 | 807 | 0.3+ | 0.1− | 2009 08 31 | F65 | 0.1− | 0.0 | 2009 09 16 | F65 | 0.0 | 0.1+ |
| 2006 02 02 | G96 | 0.0 | 0.1− | 2009 09 01 | F65 | 0.1+ | 0.5+ | 2009 09 28 | F65 | 0.4− | 0.1− |
| 2006 02 02 | G96 | 0.1− | 0.0 | 2009 09 01 | F65 | 0.3− | 0.4+ | 2009 10 23 | F65 | 0.1+ | 0.1+ |
| 2006 02 02 | G96 | 0.4+ | 0.1+ | 2009 09 01 | F65 | 0.3− | 1.0+ | 2009 10 23 | F65 | 0.1+ | 0.0 |
| 2006 02 02 | G96 | 0.3− | 0.2+ | 2009 09 12 | F65 | 0.0 | 0.0 | 2009 10 23 | F65 | 0.1+ | 0.1− |
| 2006 04 02 | G96 | 0.1+ | 0.3+ | 2009 09 12 | F65 | 0.0 | 0.0 | 2009 10 23 | F65 | 0.1+ | 0.2+ |
| 2006 04 02 | G96 | 0.6− | 0.1+ | 2009 09 12 | F65 | 0.0 | 0.1− | 2009 12 08 | F65 | 0.2− | 0.0 |
| 2006 04 02 | G96 | 0.3+ | 0.0 | 2009 09 12 | F65 | 0.2+ | 0.1− | 2009 12 08 | F65 | 0.5− | 0.3+ |
| 2006 04 02 | G96 | 0.4+ | 0.3+ | 2009 09 12 | F65 | 0.0 | 0.0 | | | | |
| 2009 08 31 | F65 | 0.1+ | 0.0 | 2009 09 12 | F65 | 0.1+ | 0.1+ | | | | |

**2009 QB$_{41}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 357.97398 | | (2000.0) | | | |
| $n$ | 0.26547956 | $\omega$ | 147.31982 | | +0.92256624 | −0.38533810 |
| $a$ | 2.3976290 | $\Omega$ | 235.35718 | | +0.34867269 | +0.85442536 |
| $e$ | 0.0885584 | $i$ | 1.36855 | | +0.16522378 | +0.34852812 |
| $P$ | 3.71 | $H$ | 17.5 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 03 29 | 691 | 0.6+ | 0.5+ | 2006 12 26 | 691 | 0.3− | 0.0 | 2009 08 26 | 703 | 0.4− | 0.2− |
| 2004 03 29 | 691 | 0.1− | 0.5+ | 2006 12 26 | 691 | 0.2− | 0.0 | 2009 08 26 | 703 | 0.1− | 0.0 |
| 2004 03 29 | 691 | 0.4+ | 0.7+ | 2008 03 31 | 691 | 0.2− | 0.5+ | 2009 08 27 | 691 | 0.3+ | 0.1+ |
| 2005 06 14 | G96 | 0.2+ | 0.1− | 2008 03 31 | 691 | 0.2+ | 0.3+ | 2009 08 27 | 691 | 0.4+ | 0.0 |
| 2005 06 14 | G96 | 0.3+ | 0.1+ | 2008 03 31 | 691 | 0.5− | 0.5− | 2009 08 27 | 691 | 0.0 | 0.1+ |
| 2005 06 14 | G96 | 0.3+ | 0.1− | 2008 04 25 | G96 | 0.5+ | 0.1− | 2009 09 22 | G96 | 0.4+ | 0.1− |
| 2005 06 14 | G96 | 0.1− | 0.0 | 2008 04 25 | G96 | 1.2+ | 0.1− | 2009 09 22 | G96 | 0.2+ | 0.2+ |
| 2005 07 03 | G96 | 0.0 | 0.4+ | 2009 08 15 | 691 | 0.2− | 0.0 | 2009 09 22 | G96 | 0.0 | 0.0 |
| 2005 07 03 | G96 | 0.4− | 0.2− | 2009 08 15 | 691 | 1.6− | 1.6+ | 2009 09 22 | G96 | 0.3+ | 0.2+ |
| 2005 07 03 | G96 | 0.0 | 0.1− | 2009 08 15 | 691 | 0.1− | 0.7+ | 2009 11 09 | G96 | 0.3− | 0.1− |
| 2005 07 03 | G96 | 0.6− | 0.1− | 2009 08 18 | 691 | 0.6− | 0.6− | 2009 11 09 | G96 | 0.2+ | 0.1+ |
| 2006 12 15 | 691 | 0.3+ | 0.5+ | 2009 08 18 | 691 | 0.6+ | 0.1− | 2009 11 09 | G96 | 0.6+ | 0.0 |
| 2006 12 15 | 691 | 0.1+ | 0.0 | 2009 08 18 | 691 | 0.1− | 0.0 | 2009 11 09 | G96 | 0.3− | 0.5+ |
| 2006 12 15 | 691 | 0.3+ | 0.7+ | 2009 08 26 | 703 | 0.4+ | 0.8+ | | | | |
| 2006 12 26 | 691 | 0.2− | 0.0 | 2009 08 26 | 703 | 0.7+ | 0.3− | | | | |

**2009 QL$_{44}$ = 2005 UQ$_{273}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 109.63654 | | (2000.0) | | | |
| $n$ | 0.17799264 | $\omega$ | 195.65625 | | +0.01892745 | +0.98350868 |
| $a$ | 3.1299304 | $\Omega$ | 75.68873 | | −0.89623906 | +0.09642985 |
| $e$ | 0.0323832 | $i$ | 10.69777 | | −0.44316734 | −0.15300966 |
| $P$ | 5.54 | $H$ | 15.2 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 07 08 | 644 | 0.5− | 0.1− | 2004 12 16 | 691 | 0.2+ | 0.1− | 2009 08 28 | 291 | 0.2+ | 0.3+ |
| 2003 07 08 | 644 | 0.1+ | 0.0 | 2005 10 28 | G96 | 0.1+ | 0.5+ | 2009 08 28 | 291 | 0.1+ | 0.2+ |
| 2003 07 08 | 644 | 0.4+ | 0.1− | 2005 10 28 | G96 | 0.3+ | 0.5+ | 2009 08 29 | 291 | 0.2− | 0.2− |
| 2004 11 04 | 703 | 1.4− | 0.6− | 2005 10 28 | G96 | 0.1+ | 0.6+ | 2009 08 29 | 291 | 0.7− | 0.1+ |
| 2004 11 04 | 703 | 0.4+ | 0.0 | 2005 10 28 | G96 | 0.3+ | 0.7+ | 2009 08 29 | 291 | 0.1− | 0.1− |
| 2004 11 04 | 703 | 0.3+ | 0.7+ | 2005 10 29 | G96 | 0.3− | 0.1+ | 2009 10 16 | 703 | (1.6+ | 1.6−) |
| 2004 11 04 | 703 | (1.2− | 1.9−) | 2005 10 29 | G96 | 0.1− | 0.2+ | 2009 10 16 | 703 | 0.1+ | 0.2− |
| 2004 11 17 | E12 | 0.3+ | 0.4+ | 2005 10 29 | G96 | 0.0 | 0.4+ | 2009 10 16 | 703 | 0.8− | 0.0 |
| 2004 11 17 | E12 | 0.9− | 1.4− | 2005 10 29 | G96 | 0.1+ | 0.4+ | 2009 10 16 | 703 | 0.3+ | 0.6− |
| 2004 11 17 | E12 | 0.6+ | 0.2+ | 2009 08 27 | 291 | 0.1− | 0.2+ | 2009 10 23 | 703 | 0.4− | 0.1− |
| 2004 11 17 | E12 | 0.2+ | 0.3− | 2009 08 27 | 291 | 0.0 | 0.3+ | 2009 10 23 | 703 | 0.2− | 1.0− |
| 2004 12 16 | 691 | 0.3+ | 0.2− | 2009 08 27 | 291 | 0.8+ | 0.0 | 2009 10 23 | 703 | 1.1− | 0.7− |
| 2004 12 16 | 691 | 0.0 | 0.1− | 2009 08 28 | 291 | 0.1− | 0.2+ | 2009 10 23 | 703 | 0.9+ | 0.9+ |

**2009 QX$_{45}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 308.74702 | | (2000.0) | | | |
| $n$ | 0.22801830 | $\omega$ | 87.70162 | | +0.23676877 | −0.96835909 |
| $a$ | 2.6535233 | $\Omega$ | 347.70801 | | +0.67689847 | +0.22265143 |
| $e$ | 0.0746500 | $i$ | 21.74577 | | +0.69695697 | +0.11272543 |
| $P$ | 4.32 | $H$ | 16.3 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 25 | 703 | 0.1+ | 0.5+ | 2009 08 15 | 703 | 0.2− | 0.5− | 2009 09 14 | 704 | 0.1+ | 1.8+ |
| 2005 10 25 | 703 | 0.2+ | 0.6− | 2009 08 15 | 703 | 0.0 | 0.5+ | 2009 09 14 | 704 | 0.5+ | 0.3+ |
| 2005 10 25 | 703 | 1.0− | 0.3+ | 2009 08 27 | 621 | 0.2− | 0.4+ | 2009 09 20 | G96 | 0.1− | 0.1− |
| 2005 10 25 | 703 | 0.1+ | 0.5+ | 2009 08 27 | 621 | 0.1− | 0.3+ | 2009 09 20 | G96 | 0.5+ | 0.3− |
| 2007 03 16 | 703 | 0.8+ | 0.0 | 2009 08 27 | 621 | 2.1+ | 0.6− | 2009 09 20 | G96 | 0.1+ | 0.3− |
| 2007 03 16 | 703 | 0.4− | 0.6− | 2009 08 27 | 691 | 0.3− | 0.1+ | 2009 09 20 | G96 | 0.1+ | 0.5− |
| 2007 03 16 | 703 | 1.4− | 0.9− | 2009 08 27 | 691 | 0.4− | 0.1+ | 2009 09 24 | G96 | 0.2+ | 0.1− |
| 2007 03 16 | 703 | 0.0 | 0.4+ | 2009 08 27 | 691 | 0.2+ | 0.3− | 2009 09 24 | G96 | 0.2+ | 0.2− |
| 2009 08 15 | 691 | 0.2− | 0.2+ | 2009 08 28 | J75 | 0.0 | 1.0− | 2009 09 24 | G96 | 0.3+ | 0.3− |
| 2009 08 15 | 691 | 0.3− | 0.2− | 2009 08 28 | J75 | 0.1+ | 0.2− | 2009 09 24 | G96 | 0.3+ | 0.5− |
| 2009 08 15 | 691 | 0.5− | 0.2− | 2009 08 29 | J75 | 0.6+ | 0.5− | 2009 10 15 | 291 | 0.3+ | 0.1+ |
| 2009 08 15 | 703 | 0.1+ | 0.7− | 2009 09 14 | 704 | 0.5− | 0.2+ | 2009 10 15 | 291 | 0.3+ | 0.0 |
| 2009 08 15 | 703 | 0.7+ | 0.2+ | 2009 09 14 | 704 | 0.7− | 1.7+ | 2009 10 15 | 291 | 0.1+ | 0.1+ |

**2009 QC$_{48}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 24.94355 | | (2000.0) | | | |
| $n$ | 0.17090853 | $\omega$ | 197.54061 | | +0.99775981 | −0.02605004 |
| $a$ | 3.2158335 | $\Omega$ | 163.58065 | | +0.03770813 | +0.97980518 |
| $e$ | 0.0570081 | $i$ | 12.59093 | | −0.05525814 | +0.19825036 |
| $P$ | 5.77 | $H$ | 15.0 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 03 01 | 691 | 0.7+ | 2.0− | 2006 02 06 | 691 | 0.1+ | 0.7+ | 2007 05 22 | G96 | 0.2+ | 0.2+ |
| 1995 03 01 | 691 | 0.2− | 2.1− | 2006 02 06 | 691 | 0.2+ | 0.6+ | 2007 05 22 | G96 | 0.3+ | 0.5+ |
| 1995 03 01 | 691 | (6.4+ | 6.1−) | 2006 05 24 | G96 | 0.1− | 0.0 | 2009 08 28 | J75 | 0.1− | 0.7− |
| 1995 03 26 | 691 | 0.1+ | 0.5+ | 2006 05 24 | G96 | 0.4− | 0.2+ | 2009 08 28 | J75 | 0.4+ | 0.2− |
| 1995 03 26 | 691 | 0.5+ | 0.1− | 2006 05 24 | G96 | 0.6− | 0.0 | 2009 08 28 | J75 | 0.0 | 0.4− |
| 1995 03 26 | 691 | 0.1+ | 0.2− | 2006 05 24 | G96 | 0.3− | 0.6+ | 2009 08 29 | J75 | 0.0 | 0.1− |
| 1995 04 02 | 691 | 0.3− | 0.2− | 2007 04 15 | 703 | 0.3+ | 1.1+ | 2009 08 29 | J75 | 0.4+ | 0.5− |
| 1995 04 02 | 691 | 0.2+ | 0.2+ | 2007 04 15 | 703 | 0.8+ | 0.7+ | 2009 08 29 | J75 | 0.3+ | 0.7− |
| 1995 04 02 | 691 | 0.2− | 0.2− | 2007 04 15 | 703 | 0.8+ | 0.9+ | 2009 10 09 | 703 | 0.7+ | 0.2+ |
| 1995 04 06 | 691 | 1.6− | 1.1− | 2007 04 15 | 703 | 0.3− | 0.9+ | 2009 10 09 | 703 | 0.3− | 0.4− |
| 1995 04 06 | 691 | 0.3− | 0.1+ | 2007 04 24 | G96 | 0.0 | 0.7+ | 2009 10 09 | 703 | 1.2− | 0.2+ |
| 1995 04 06 | 691 | 0.0 | 0.2+ | 2007 04 24 | G96 | 0.1+ | 0.8+ | 2009 10 09 | 703 | 0.6− | 1.0− |
| 2003 09 28 | 691 | 0.2+ | 0.2+ | 2007 04 24 | G96 | 0.0 | 0.7+ | 2009 10 14 | J75 | 0.9− | 0.5− |
| 2003 09 28 | 691 | 0.1+ | 0.1− | 2007 04 24 | G96 | 0.0 | 0.6+ | 2009 10 14 | J75 | 1.1+ | 0.6− |
| 2003 09 28 | 691 | 0.1− | 0.1− | 2007 05 22 | G96 | 0.5− | 0.1+ | 2009 10 14 | J75 | 0.8+ | 0.7− |
| 2006 02 06 | 691 | 0.3+ | 0.7+ | 2007 05 22 | G96 | 0.0 | 0.4+ | | | | |

**2009 QN$_{57}$ = 2008 EV$_{67}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 64.56860 | | (2000.0) | | | |
| $n$ | 0.30226902 | $\omega$ | 357.22469 | | +0.82671267 | +0.55741710 |
| $a$ | 2.1989075 | $\Omega$ | 328.51016 | | −0.51334096 | +0.69175879 |
| $e$ | 0.2306641 | $i$ | 8.40705 | | −0.23027639 | +0.45908164 |
| $P$ | 3.26 | $H$ | 17.7 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 03 09 | G96 | 0.8+ | 0.1− | 2009 09 25 | 703 | 0.1+ | 0.9− | 2009 11 10 | 114 | 0.2− | 0.3+ |
| 2008 03 09 | G96 | 0.3− | 0.1− | 2009 10 02 | G96 | 0.3+ | 0.3+ | 2009 11 10 | 114 | 0.1− | 0.0 |
| 2008 03 09 | G96 | 0.7− | 1.3+ | 2009 10 02 | G96 | 0.2+ | 0.1− | 2009 11 10 | 114 | 0.4− | 0.1+ |
| 2008 03 09 | G96 | 0.5+ | 0.4+ | 2009 10 02 | G96 | 0.2+ | 0.3+ | 2009 11 10 | 114 | 0.1+ | 0.8+ |
| 2008 03 10 | G96 | 0.0 | 0.6− | 2009 10 02 | G96 | 0.1+ | 0.0 | 2009 11 11 | 114 | 0.1− | 0.3+ |
| 2008 03 10 | G96 | 0.3+ | 0.0 | 2009 10 02 | G96 | 0.2+ | 0.1+ | 2009 11 11 | 114 | 0.4+ | 0.1+ |
| 2008 03 10 | G96 | 0.5− | 0.0 | 2009 10 02 | G96 | 0.3+ | 0.1+ | 2009 11 11 | 114 | 0.1+ | 0.4− |
| 2008 03 10 | G96 | 0.0 | 0.9− | 2009 10 02 | G96 | 0.2+ | 0.3+ | 2009 11 11 | 114 | 0.2+ | 0.3− |
| 2009 08 20 | 291 | 0.1− | 0.4+ | 2009 10 02 | G96 | 0.1− | 0.1+ | 2009 11 11 | 114 | 0.0 | 0.7− |
| 2009 08 20 | 291 | 0.0 | 0.2− | 2009 10 16 | 703 | 0.7− | 0.2− | 2009 11 11 | 114 | 0.5− | 0.2− |
| 2009 08 20 | 291 | 0.0 | 0.1− | 2009 10 16 | 703 | 0.2− | 0.0 | 2009 11 11 | 114 | 0.3− | 0.9− |
| 2009 09 25 | 703 | 0.6− | 0.1+ | 2009 10 16 | 703 | 1.0− | 0.8+ | 2009 11 11 | 114 | 0.1+ | 0.6+ |
| 2009 09 25 | 703 | 0.5+ | 0.9− | 2009 10 16 | 703 | 0.3+ | 0.2+ | 2009 11 11 | 114 | 0.3+ | 0.3− |
| 2009 09 25 | 703 | 0.1+ | 0.1− | 2009 11 10 | 114 | 0.0 | 0.4+ | 2009 11 11 | 114 | 0.7+ | 0.3− |

### 2009 QO$_{57}$ = 2009 UN$_{146}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 45.14293 | | (2000.0) | | | |
| $n$ | 0.22078341 | $\omega$ | 347.07794 | | +0.84387925 | +0.53592894 |
| $a$ | 2.7111804 | $\Omega$ | 340.45097 | | −0.48524495 | +0.74210871 |
| $e$ | 0.1125370 | $i$ | 4.36297 | | −0.22892172 | +0.40256035 |
| $P$ | 4.46 | $H$ | 16.8 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 02 08 | G96 | 0.3− | 0.1+ | 2009 08 27 | 691 | 0.2− | 0.2+ | 2009 10 23 | G96 | 0.1− | 0.2− |
| 2007 02 08 | G96 | 0.6+ | 0.1+ | 2009 08 27 | 691 | 0.1− | 0.3+ | 2009 11 11 | G96 | 0.3+ | 0.4− |
| 2007 02 08 | G96 | 0.0 | 0.2+ | 2009 09 17 | G96 | 0.2+ | 0.1− | 2009 11 11 | G96 | 0.0 | 0.1− |
| 2007 02 08 | G96 | 1.3+ | 0.3+ | 2009 09 17 | G96 | 0.5+ | 0.1− | 2009 11 11 | G96 | 0.4+ | 0.4− |
| 2007 03 11 | G96 | 0.1+ | 0.0 | 2009 09 17 | G96 | 0.3+ | 0.2− | 2009 11 11 | G96 | 0.2+ | 0.1− |
| 2007 03 11 | G96 | 0.0 | 0.5+ | 2009 09 17 | G96 | 0.2+ | 0.3− | 2009 11 21 | G96 | 0.3+ | 0.4+ |
| 2007 03 11 | G96 | 0.4− | 0.3− | 2009 10 23 | G96 | 0.1− | 0.1− | 2009 11 21 | G96 | 0.1− | 0.2− |
| 2007 03 11 | G96 | 0.8− | 0.5+ | 2009 10 23 | G96 | 0.1+ | 0.0 | 2009 11 21 | G96 | 0.1− | 0.1− |
| 2009 08 27 | 691 | 0.3− | 0.2+ | 2009 10 23 | G96 | 0.3− | 0.0 | 2009 11 21 | G96 | 0.5+ | 0.1− |

### 2009 QQ$_{57}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 0.04904 | | (2000.0) | | | |
| $n$ | 0.22960617 | $\omega$ | 30.32989 | | +0.77351634 | −0.63357680 |
| $a$ | 2.6412754 | $\Omega$ | 9.03623 | | +0.55924406 | +0.67052968 |
| $e$ | 0.2184078 | $i$ | 5.81143 | | +0.29819214 | +0.38596682 |
| $P$ | 4.29 | $H$ | 18.3 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 29 | 691 | 0.0 | 0.2+ | 2009 08 20 | 691 | 0.3− | 0.2+ | 2009 09 29 | G96 | 0.6+ | 0.2− |
| 2005 10 29 | 691 | 0.0 | 0.1− | 2009 09 23 | G96 | 0.9+ | 0.4− | 2009 10 24 | 691 | 0.1− | 0.1+ |
| 2005 10 29 | 691 | 0.3+ | 0.3+ | 2009 09 23 | G96 | 0.0 | 0.4− | 2009 10 24 | 691 | 0.1− | 0.1+ |
| 2005 11 06 | 691 | 0.3− | 0.4− | 2009 09 23 | G96 | 0.1− | 0.3− | 2009 10 24 | 691 | 0.1− | 0.0 |
| 2005 11 06 | 691 | 0.0 | 0.2+ | 2009 09 23 | G96 | 0.2+ | 0.1− | 2009 11 11 | G96 | 0.1− | 0.3− |
| 2005 11 06 | 691 | 0.0 | 0.1− | 2009 09 29 | G96 | 0.4+ | 0.1− | 2009 11 11 | G96 | 0.3+ | 0.5− |
| 2009 08 20 | 691 | 0.2− | 0.2+ | 2009 09 29 | G96 | 0.0 | 0.2− | 2009 11 11 | G96 | 0.4+ | 0.1+ |
| 2009 08 20 | 691 | 0.2− | 0.1+ | 2009 09 29 | G96 | 0.8+ | 0.3− | 2009 11 11 | G96 | 0.2+ | 0.4− |

### 2009 QR$_{57}$ = 2007 BR$_{48}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 27.91411 | | (2000.0) | | | |
| $n$ | 0.22109587 | $\omega$ | 334.16136 | | +0.99059626 | +0.13388577 |
| $a$ | 2.7086255 | $\Omega$ | 18.21065 | | −0.10461226 | +0.87389626 |
| $e$ | 0.0487022 | $i$ | 5.17202 | | −0.08817778 | +0.46731139 |
| $P$ | 4.46 | $H$ | 16.8 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 08 27 | 807 | 1.3− | 0.1+ | 2007 01 26 | 691 | 0.1− | 0.2− | 2009 08 29 | 691 | 0.2− | 0.0 |
| 2000 08 27 | 807 | 0.6− | 0.3+ | 2007 01 26 | 691 | 0.5− | 0.3− | 2009 08 29 | 691 | 0.1+ | 0.3+ |
| 2003 03 27 | 691 | 0.3+ | 0.6+ | 2007 01 27 | 691 | 0.1− | 0.1+ | 2009 09 19 | G96 | 0.2− | 0.2+ |
| 2003 03 27 | 691 | 0.7+ | 1.0+ | 2007 01 27 | 691 | 0.3+ | 0.0 | 2009 09 19 | G96 | 0.1− | 0.2+ |
| 2003 03 27 | 691 | 1.0+ | 0.7+ | 2007 01 27 | 691 | 0.2+ | 0.1− | 2009 09 19 | G96 | 0.1+ | 0.1+ |
| 2005 10 30 | 691 | 0.1+ | 0.3+ | 2007 02 08 | 691 | 0.0 | 0.0 | 2009 09 19 | G96 | 0.1− | 0.1+ |
| 2005 10 30 | 691 | 0.0 | 0.2+ | 2007 02 08 | 691 | 0.0 | 0.2− | 2009 10 25 | G96 | 0.1− | 0.1+ |
| 2005 10 30 | 691 | 0.1+ | 0.0 | 2007 02 08 | 691 | 0.0 | 0.1− | 2009 10 25 | G96 | 0.1− | 0.2+ |
| 2005 11 03 | 691 | (0.0 | 3.4−) | 2007 02 25 | 691 | 0.3+ | 0.1+ | 2009 10 25 | G96 | 0.4+ | 0.1+ |
| 2005 11 03 | 691 | 0.3+ | 0.1+ | 2007 02 25 | 691 | 0.2− | 0.0 | 2009 10 25 | G96 | 0.2− | 0.1+ |
| 2005 11 03 | 691 | 0.4+ | 0.1− | 2007 02 25 | 691 | 0.4− | 0.8+ | 2009 11 11 | G96 | 0.7+ | 0.4+ |
| 2005 12 04 | 691 | 0.2− | 0.3+ | 2009 08 18 | 691 | 0.6− | 0.2+ | 2009 11 11 | G96 | 0.9+ | 0.1+ |
| 2005 12 04 | 691 | 0.1− | 0.6+ | 2009 08 18 | 691 | 0.3− | 0.3+ | 2009 11 11 | G96 | 0.6+ | 0.4+ |
| 2005 12 04 | 691 | 0.6− | 0.1− | 2009 08 18 | 691 | 0.5− | 0.2+ | 2009 11 11 | G96 | 1.2+ | 0.0 |
| 2007 01 26 | 691 | 0.2− | 0.3+ | 2009 08 29 | 691 | 0.1− | 0.2+ | | | | |

### 2009 QS$_{57}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 331.47319 | | (2000.0) | | | |
| $n$ | 0.21081259 | $\omega$ | 91.74836 | | +0.31622598 | −0.94562282 |
| $a$ | 2.7960077 | $\Omega$ | 339.31468 | | +0.76194122 | +0.30098027 |
| $e$ | 0.1878313 | $i$ | 12.44926 | | +0.56519617 | +0.12332218 |
| $P$ | 4.68 | $H$ | 16.2 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 08 20 | 691 | 0.0 | 0.0 | 2005 12 30 | 703 | 0.3+ | 0.1− | 2009 09 28 | 691 | 0.0 | 0.2− |
| 2004 08 20 | 691 | 0.1+ | 0.0 | 2005 12 30 | 703 | 0.2− | 0.7− | 2009 09 28 | 691 | 0.2+ | 0.2− |
| 2004 08 20 | 691 | 0.1− | 0.0 | 2009 08 17 | 691 | 0.1− | 0.0 | 2009 09 28 | 691 | 0.1+ | 0.2− |
| 2004 09 11 | 691 | 0.2+ | 0.2− | 2009 08 17 | 691 | 0.1− | 0.1+ | 2009 10 14 | 703 | 0.7− | 0.7+ |
| 2004 09 11 | 691 | 0.3+ | 0.1− | 2009 08 17 | 691 | 0.1− | 0.2+ | 2009 10 14 | 703 | 0.7+ | 1.0− |
| 2004 09 11 | 691 | 0.3− | 0.0 | 2009 08 29 | 691 | 0.0 | 0.2+ | 2009 10 14 | 703 | 0.4− | 1.0+ |
| 2005 12 30 | 703 | 0.6− | 0.0 | 2009 08 29 | 691 | 0.0 | 0.1− | 2009 10 14 | 703 | 0.0 | 0.9+ |
| 2005 12 30 | 703 | 0.5+ | 0.4+ | 2009 08 29 | 691 | 0.1− | 0.0 | | | | |

### 2009 QU$_{57}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 28.30891 | | (2000.0) | | | |
| $n$ | 0.24269700 | $\omega$ | 78.46023 | | +0.95306792 | +0.14893881 |
| $a$ | 2.5454219 | $\Omega$ | 272.56377 | | −0.24740413 | +0.88495949 |
| $e$ | 0.2137813 | $i$ | 15.29877 | | +0.17450713 | +0.44120736 |
| $P$ | 4.06 | $H$ | 16.5 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 10 21 | 699 | 0.2+ | 0.1− | 2005 10 23 | 703 | 0.5+ | 0.1− | 2009 09 15 | 703 | (0.1+ | 1.9+) |
| 2001 10 21 | 699 | 0.7− | 1.3+ | 2005 11 04 | 703 | 0.5+ | 0.2− | 2009 09 15 | 703 | 0.8+ | 0.1+ |
| 2001 10 21 | 699 | 0.2− | 0.4+ | 2005 11 04 | 703 | 0.1− | 1.0− | 2009 09 24 | J75 | 0.7− | 0.0 |
| 2001 10 21 | 699 | (0.1+ | 1.9−) | 2005 11 04 | 703 | 0.1− | 0.5+ | 2009 09 24 | J75 | 0.2− | 0.0 |
| 2005 09 02 | 644 | 0.1+ | 0.4+ | 2005 11 04 | 703 | 0.3+ | 1.0− | 2009 09 24 | J75 | 0.1− | 0.5− |
| 2005 09 02 | 644 | 0.0 | 0.4+ | 2009 08 27 | 106 | 0.3− | 0.1− | 2009 10 16 | 703 | 0.1− | 0.6− |
| 2005 09 02 | 644 | 0.0 | 0.4+ | 2009 08 27 | 106 | 0.2+ | 0.2− | 2009 10 16 | 703 | 0.7− | 0.5+ |
| 2005 10 23 | 703 | 0.4+ | 0.4+ | 2009 08 27 | 106 | 0.4+ | 0.7− | 2009 10 16 | 703 | 0.3+ | 0.7− |
| 2005 10 23 | 703 | 0.2− | 1.2− | 2009 08 27 | 106 | 0.5+ | 0.1+ | 2009 10 16 | 703 | 0.3+ | 0.9+ |
| 2005 10 23 | 703 | 0.4− | 0.0 | 2009 09 15 | 703 | 0.5− | 1.0+ | | | | |

### 2009 QV$_{57}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 66.01091 | | (2000.0) | | | |
| $n$ | 0.17647652 | $\omega$ | 286.83540 | | +0.50212608 | +0.86416388 |
| $a$ | 3.1478312 | $\Omega$ | 13.45479 | | −0.72955956 | +0.44379605 |
| $e$ | 0.1746645 | $i$ | 8.15804 | | −0.46434067 | +0.23720423 |
| $P$ | 5.58 | $H$ | 15.6 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 07 08 | 644 | 0.3− | 0.0 | 2009 08 29 | J75 | 0.2− | 0.2+ | 2009 10 18 | G96 | 0.2+ | 0.4+ |
| 2003 07 08 | 644 | 0.1+ | 0.1− | 2009 08 29 | J75 | 0.1− | 0.2− | 2009 11 23 | G96 | 0.0 | 0.1− |
| 2003 07 08 | 644 | 0.2+ | 0.1− | 2009 08 29 | J75 | 0.5+ | 0.2− | 2009 11 23 | G96 | 0.2+ | 0.1− |
| 2004 11 11 | 691 | 0.1+ | 0.0 | 2009 09 21 | G96 | 0.0 | 0.1− | 2009 11 23 | G96 | 0.2− | 0.1− |
| 2004 11 11 | 691 | 0.1− | 0.0 | 2009 09 21 | G96 | 0.0 | 0.2− | 2009 11 23 | G96 | 0.2− | 0.1+ |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 11 11 | 691 | 0.0 | 0.1− | 2009 09 21 | G96 | 0.0 | 0.3− | 2009 12 11 | G96 | 1.0− | 0.2+ |
| 2007 03 12 | G96 | 0.1− | 0.3+ | 2009 09 21 | G96 | 0.0 | 0.0 | 2009 12 11 | G96 | 0.3+ | 0.2− |
| 2007 03 12 | G96 | 0.0 | 0.1+ | 2009 10 18 | G96 | 0.1− | 0.2+ | 2009 12 11 | G96 | 0.1− | 0.2− |
| 2007 03 12 | G96 | 0.1− | 0.3− | 2009 10 18 | G96 | 0.3+ | 0.3+ | 2009 12 11 | G96 | 0.1− | 0.1− |
| 2007 03 12 | G96 | 0.0 | 0.3− | 2009 10 18 | G96 | 0.3+ | 0.3+ | | | | |

**2009 QW$_{57}$ = 1998 TO$_{10}$ = 2005 DK$_2$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 245.72969 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.08053997 | $\omega$ | 273.45438 | | −0.65688461 | −0.75197880 | |
| $a$ | 5.3104141 | $\Omega$ | 217.79651 | | +0.72253007 | −0.60692501 | |
| $e$ | 0.0565609 | $i$ | 5.15353 | | +0.21552937 | −0.25723513 | |
| $P$ | 12.24 | $H$ | 13.6 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 10 12 | 691 | 0.4+ | 0.6+ | 2003 04 29 | 691 | 0.4+ | 0.3+ | 2009 08 17 | 691 | 0.0 | 0.1+ |
| 1998 10 12 | 691 | 0.7+ | 0.3− | 2004 04 24 | 691 | 0.1+ | 0.2+ | 2009 08 17 | 691 | 0.4− | 0.2+ |
| 1998 10 12 | 691 | 0.1+ | 0.1− | 2004 04 24 | 691 | 0.2+ | 0.2+ | 2009 08 17 | 691 | 0.2− | 0.4+ |
| 1998 10 18 | 691 | 0.2+ | 0.7+ | 2004 04 24 | 691 | 0.0 | 0.1+ | 2009 10 24 | 691 | 0.3− | 0.4+ |
| 1998 10 18 | 691 | 1.8− | 1.8+ | 2005 02 16 | 809 | 0.2− | 0.2+ | 2009 10 24 | 691 | 0.3− | 0.2+ |
| 1998 10 18 | 691 | 0.1− | 0.0 | 2005 02 16 | 809 | 0.3− | 0.1+ | 2009 10 24 | 691 | 0.0 | 0.4+ |
| 2002 03 12 | 645 | 0.1− | 0.1− | 2005 02 16 | 809 | 0.3− | 0.1+ | 2009 12 18 | G96 | 0.3+ | 0.3− |
| 2002 03 12 | 645 | 0.1− | 0.1− | 2005 02 18 | 809 | 0.3− | 0.1+ | 2009 12 18 | G96 | 0.0 | 0.2+ |
| 2003 03 26 | 644 | 0.5+ | 0.6+ | 2005 02 18 | 809 | 0.3− | 0.1+ | 2009 12 18 | G96 | 1.0+ | 0.5+ |
| 2003 03 26 | 644 | 0.6+ | 0.4+ | 2008 07 29 | 691 | 0.2− | 0.5+ | 2009 12 18 | G96 | 0.1+ | 0.6+ |
| 2003 03 26 | 644 | 1.3+ | 0.4+ | 2008 07 29 | 691 | 0.0 | 0.5+ | 2009 12 19 | 291 | 0.5− | 0.3+ |
| 2003 04 07 | 691 | 0.3+ | 1.4+ | 2008 07 29 | 691 | 0.5− | 0.3+ | 2009 12 19 | 291 | 0.1+ | 0.5+ |
| 2003 04 07 | 691 | 0.4+ | 1.4+ | 2008 09 24 | G96 | 0.1+ | 0.4+ | 2009 12 19 | G96 | 0.8+ | 0.1− |
| 2003 04 07 | 691 | 0.3+ | 1.3+ | 2008 09 24 | G96 | 0.0 | 0.8+ | 2009 12 19 | G96 | 0.3+ | 0.1+ |
| 2003 04 29 | 691 | 0.3+ | 0.9+ | 2008 09 24 | G96 | 0.1+ | 0.4+ | 2009 12 19 | G96 | 0.4+ | 0.0 |
| 2003 04 29 | 691 | 0.3+ | 0.5+ | 2008 09 24 | G96 | 0.0 | 0.3+ | 2009 12 19 | G96 | 0.1− | 0.3+ |

**2009 RE$_5$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 342.47229 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23220707 | $\omega$ | 271.07610 | | +0.57357554 | −0.81685846 | |
| $a$ | 2.6215155 | $\Omega$ | 143.70137 | | +0.78669634 | +0.52846255 | |
| $e$ | 0.2545008 | $i$ | 5.94010 | | +0.22829800 | +0.23123492 | |
| $P$ | 4.24 | $H$ | 17.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 03 05 | 691 | 0.4+ | 0.2− | 2005 11 03 | 703 | 0.7+ | 1.1− | 2009 09 28 | F65 | 0.0 | 0.6+ |
| 1994 03 05 | 691 | 0.1− | 0.5+ | 2009 09 14 | F65 | 0.1− | 0.2+ | 2009 10 23 | F65 | 0.0 | 0.1+ |
| 1994 03 05 | 691 | 0.1− | 0.4+ | 2009 09 14 | F65 | 0.1− | 0.2+ | 2009 10 23 | F65 | 0.1− | 0.1+ |
| 2005 10 28 | 703 | 0.8− | 1.1+ | 2009 09 14 | F65 | 0.1+ | 0.2+ | 2009 12 08 | F65 | 0.2− | 0.5+ |
| 2005 10 28 | 703 | 1.0+ | 0.6− | 2009 09 14 | F65 | 0.3− | 0.2+ | 2009 12 08 | F65 | 0.1+ | 0.7+ |
| 2005 10 28 | 703 | 0.1+ | 0.6+ | 2009 09 16 | F65 | 0.1− | 0.4+ | 2009 12 08 | F65 | 0.1− | 0.3+ |
| 2005 10 28 | 703 | 0.4− | 0.4+ | 2009 09 16 | F65 | 0.1− | 0.2+ | 2009 12 19 | F65 | 0.1+ | 0.0 |
| 2005 11 03 | 703 | 0.8− | 1.0− | 2009 09 16 | F65 | 0.2− | 0.2+ | 2009 12 19 | F65 | 0.1− | 0.0 |
| 2005 11 03 | 703 | 0.9− | 0.2− | 2009 09 21 | F65 | 0.0 | 0.0 | | | | |
| 2005 11 03 | 703 | 1.3+ | 0.2+ | 2009 09 21 | F65 | 0.0 | 0.0 | | | | |

**2009 RG$_8$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 291.27483 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21165784 | $\omega$ | 277.88138 | | −0.50309181 | −0.86300850 | |
| $a$ | 2.7885588 | $\Omega$ | 202.50564 | | +0.83270397 | −0.46980896 | |
| $e$ | 0.1798108 | $i$ | 6.90052 | | +0.23130658 | −0.18573066 | |
| $P$ | 4.66 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 05 12 | G96 | 0.0 | 0.2− | 2009 09 16 | 691 | 0.1+ | 0.4− | 2009 09 28 | 691 | 0.1− | 0.2+ |
| 2007 05 12 | G96 | 0.4− | 0.6− | 2009 09 16 | 691 | 0.0 | 0.4− | 2009 10 21 | G96 | 0.5+ | 1.0− |
| 2007 05 12 | G96 | 0.2− | 0.2− | 2009 09 16 | 691 | 0.3+ | 0.1+ | 2009 10 21 | G96 | 0.5+ | 0.6− |
| 2007 05 12 | G96 | 0.0 | 0.1+ | 2009 09 20 | 691 | 0.1+ | 0.2+ | 2009 10 21 | G96 | 0.0 | 0.4+ |
| 2007 05 12 | G96 | 0.1+ | 0.3+ | 2009 09 20 | 691 | 0.3+ | 0.4− | 2009 10 21 | G96 | 0.4+ | 0.2− |
| 2007 05 12 | G96 | 0.2+ | 0.0 | 2009 09 20 | 691 | 0.0 | 0.3+ | 2009 11 11 | G96 | 0.1+ | 0.3+ |
| 2007 05 12 | G96 | 0.0 | 0.3+ | 2009 09 26 | 691 | 0.4+ | 0.3− | 2009 11 11 | G96 | 0.1+ | 0.1− |
| 2007 05 12 | G96 | 0.2+ | 0.3+ | 2009 09 26 | 691 | 0.3− | 0.3+ | 2009 11 11 | G96 | 0.1+ | 0.0 |
| 2009 09 12 | 691 | 0.2+ | 0.2− | 2009 09 26 | 691 | 0.6− | 1.1+ | 2009 11 11 | G96 | 0.5− | 0.0 |
| 2009 09 12 | 691 | 0.2− | 0.2+ | 2009 09 28 | 691 | 0.6− | 0.2− | | | | |
| 2009 09 12 | 691 | 0.0 | 0.0 | 2009 09 28 | 691 | 0.1+ | 0.1− | | | | |

**2009 RA$_{35}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 166.89284 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.08351392 | $\omega$ | 20.47643 | | −0.63775482 | +0.74975709 | |
| $a$ | 5.1835839 | $\Omega$ | 210.71253 | | −0.74600109 | −0.65827577 | |
| $e$ | 0.0215661 | $i$ | 20.21091 | | −0.19170595 | +0.06735963 | |
| $P$ | 11.80 | $H$ | 13.6 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 03 30 | 691 | 0.1+ | 0.2+ | 2009 09 18 | 691 | 0.4− | 0.1− | 2009 10 18 | G96 | 0.4+ | 0.2+ |
| 2003 03 30 | 691 | 0.1− | 0.1+ | 2009 09 18 | 691 | 0.1− | 0.2− | 2009 10 18 | G96 | 0.6+ | 0.3− |
| 2003 03 30 | 691 | 0.0 | 0.4− | 2009 09 18 | 691 | 0.3− | 0.2− | 2009 10 18 | G96 | 1.2+ | 0.1− |
| 2008 11 01 | G96 | 0.1+ | 0.2− | 2009 09 22 | 691 | 0.0 | 0.5+ | 2009 10 24 | 691 | 0.3− | 0.2+ |
| 2008 11 01 | G96 | 0.6− | 0.2− | 2009 09 22 | 691 | 0.0 | 0.1− | 2009 10 24 | 691 | 0.1− | 0.2+ |
| 2008 11 01 | G96 | 0.4+ | 0.2+ | 2009 09 22 | 691 | 0.3− | 0.0 | 2009 10 24 | 691 | 0.1− | 0.1− |
| 2008 11 01 | G96 | 0.2+ | 0.0 | 2009 10 02 | G96 | 0.5+ | 1.1− | 2009 11 19 | G96 | 0.3− | 0.4− |
| 2009 09 14 | 691 | 0.3+ | 0.0 | 2009 10 02 | G96 | 1.1+ | 0.0 | 2009 11 19 | G96 | 0.1− | 0.3− |
| 2009 09 14 | 691 | 0.1+ | 0.4+ | 2009 10 02 | G96 | 1.1+ | 0.3+ | 2009 11 19 | G96 | 0.1+ | 0.2− |
| 2009 09 14 | 691 | 0.3− | 0.0 | 2009 10 02 | G96 | 0.7+ | 0.4− | 2009 11 19 | G96 | 0.8+ | 0.3− |

**2009 RG$_{42}$ = 2008 GO$_{142}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 137.89352 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26727369 | $\omega$ | 352.88393 | | −0.45192276 | +0.88841960 | |
| $a$ | 2.3868873 | $\Omega$ | 250.22152 | | −0.81417444 | −0.44765063 | |
| $e$ | 0.1711902 | $i$ | 4.90601 | | −0.36453504 | −0.10158513 | |
| $P$ | 3.69 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 12 05 | 695 | 0.0 | 0.5+ | 2008 04 11 | 703 | 0.2− | 0.1+ | 2009 09 19 | 691 | 0.3− | 0.0 |
| 2002 12 05 | 695 | 0.1− | 0.1− | 2008 04 11 | 703 | 0.6+ | 0.3+ | 2009 09 23 | 691 | 0.1− | 0.0 |
| 2008 03 09 | 691 | 0.2+ | 0.2+ | 2008 04 11 | 703 | 0.5− | 0.5+ | 2009 09 23 | 691 | 0.2+ | 0.2+ |
| 2008 03 09 | 691 | 0.2− | 0.0 | 2008 04 11 | 703 | 0.3+ | 0.6− | 2009 09 23 | 691 | 0.1− | 0.2− |
| 2008 03 09 | 691 | 0.1− | 0.4− | 2009 09 15 | 691 | 0.1+ | 0.1+ | 2009 09 30 | G96 | 0.4+ | 0.2− |
| 2008 04 04 | 703 | 0.1− | 1.3+ | 2009 09 15 | 691 | 0.9− | 0.6− | 2009 09 30 | G96 | 0.9+ | 0.2− |
| 2008 04 04 | 703 | 0.1+ | 0.3+ | 2009 09 15 | 691 | 0.1+ | 0.2+ | 2009 09 30 | G96 | 0.8+ | 0.0 |
| 2008 04 04 | 703 | 0.1+ | 0.0 | 2009 09 19 | 691 | 0.3+ | 0.0 | 2009 09 30 | G96 | 0.6+ | 0.0 |
| 2008 04 04 | 703 | 0.3+ | 1.0− | 2009 09 19 | 691 | 0.1− | 0.4+ | | | | |

**2009 RP$_{43}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 50.41458 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23591496 | $\omega$ | 52.36418 | | +0.85667371 | +0.51288971 | |
| $a$ | 2.5939747 | $\Omega$ | 276.71657 | | −0.48909013 | +0.77348258 | |
| $e$ | 0.2328988 | $i$ | 3.19002 | | −0.16401524 | +0.37238266 | |
| $P$ | 4.18 | $H$ | 17.4 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 22 | 691 | 0.1− | 0.1+ | 2009 09 15 | 691 | 0.2+ | 0.1− | 2009 09 30 | G96 | 0.5+ | 0.3− |
| 2005 10 22 | 691 | 0.0 | 0.0 | 2009 09 19 | 691 | 0.4− | 0.2+ | 2009 09 30 | G96 | 0.5+ | 0.3− |
| 2005 10 22 | 691 | 0.2+ | 0.1+ | 2009 09 19 | 691 | 0.4− | 0.1+ | 2009 09 30 | G96 | 0.5+ | 0.1− |
| 2005 11 10 | 691 | 0.1+ | 0.1− | 2009 09 19 | 691 | 0.2− | 0.0 | 2009 12 18 | G96 | 0.3− | 0.4− |
| 2005 11 10 | 691 | 0.1− | 0.0 | 2009 09 23 | 691 | 0.1− | 0.0 | 2009 12 18 | G96 | 0.1+ | 0.1+ |
| 2005 11 10 | 691 | 0.1− | 0.0 | 2009 09 23 | 691 | 0.1− | 0.0 | 2009 12 18 | G96 | 0.5+ | 0.1− |
| 2009 09 15 | 691 | 0.2+ | 0.4− | 2009 09 23 | 691 | 0.2+ | 0.3+ | 2009 12 18 | G96 | 0.2− | 0.1− |
| 2009 09 15 | 691 | 0.2+ | 0.1+ | 2009 09 30 | G96 | 0.1+ | 0.1− | | | | |

**2009 RX$_{50}$ = 2003 QE$_{97}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 29.34707 | | (2000.0) | | | |
| $n$ | 0.17624131 | $\omega$ | 204.47518 | | +0.99833707 | −0.05758099 |
| $a$ | 3.1506312 | $\Omega$ | 158.82525 | | +0.05406265 | +0.91868840 |
| $e$ | 0.1801718 | $i$ | 0.43531 | | +0.02000828 | +0.39076342 |
| $P$ | 5.59 | $H$ | 16.6 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 08 30 | 291 | 0.1+ | 0.2+ | 2009 10 14 | G96 | 0.3+ | 0.3− | 2009 11 11 | G96 | 0.4+ | 0.2− |
| 2003 08 30 | 291 | 0.0 | 0.1+ | 2009 10 14 | G96 | 0.3− | 0.2− | 2009 11 11 | G96 | 0.2+ | 0.2− |
| 2003 08 30 | 291 | 0.0 | 0.1+ | 2009 10 14 | G96 | 0.3+ | 0.2− | 2009 11 11 | G96 | 0.2− | 0.0 |
| 2003 08 31 | 691 | 0.0 | 0.2− | 2009 10 14 | G96 | 0.2− | 0.2− | 2009 11 25 | G96 | 0.1− | 0.0 |
| 2003 08 31 | 691 | 0.0 | 0.1− | 2009 10 17 | J75 | 1.0+ | 0.3+ | 2009 11 25 | G96 | 0.2+ | 0.4− |
| 2003 08 31 | 691 | 0.0 | 0.1− | 2009 10 17 | J75 | 0.3− | 0.4− | 2009 11 25 | G96 | 0.3− | 0.0 |
| 2009 09 15 | 691 | 0.0 | 0.0 | 2009 10 17 | J75 | 0.2+ | 0.3− | 2009 11 25 | G96 | 0.2+ | 0.1− |
| 2009 09 15 | 691 | 0.0 | 0.2+ | 2009 10 27 | G96 | 0.2− | 0.2− | 2009 12 15 | G96 | 0.0 | 0.3− |
| 2009 09 15 | 691 | 0.1+ | 0.2+ | 2009 10 27 | G96 | 0.0 | 0.2− | 2009 12 15 | G96 | 0.2− | 0.2− |
| 2009 09 19 | 691 | 0.0 | 0.1+ | 2009 10 27 | G96 | 0.2− | 0.1− | 2009 12 15 | G96 | 0.1+ | 0.2− |
| 2009 09 19 | 691 | 0.1− | 0.0 | 2009 10 27 | G96 | 0.1+ | 0.1− | 2009 12 15 | G96 | 0.1− | 1.0+ |
| 2009 09 19 | 691 | 0.3− | 0.2+ | 2009 11 11 | G96 | 0.1− | 0.0 | | | | |

**2009 RZ$_{50}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 158.56569 | | (2000.0) | | | |
| $n$ | 0.22017850 | $\omega$ | 218.31093 | | −0.52702645 | +0.84493130 |
| $a$ | 2.7161439 | $\Omega$ | 20.39166 | | −0.70073919 | −0.37126428 |
| $e$ | 0.0871706 | $i$ | 15.18908 | | −0.48084063 | −0.38503758 |
| $P$ | 4.48 | $H$ | 16.0 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 26 | 691 | 0.5+ | 0.2− | 2009 09 15 | 691 | 0.5− | 0.6+ | 2009 10 14 | 703 | 0.5+ | 1.1+ |
| 2000 11 26 | 691 | 0.3+ | 0.6− | 2009 09 15 | 691 | 0.0 | 0.1+ | 2009 10 14 | 703 | 0.7− | 0.5− |
| 2000 11 26 | 691 | 0.2+ | 0.4− | 2009 09 15 | 691 | 0.4− | 0.3+ | 2009 11 21 | G96 | 0.1− | 0.0 |
| 2004 08 21 | E12 | 0.7+ | 0.4− | 2009 09 19 | 691 | 0.6− | 0.3− | 2009 11 21 | G96 | 0.5+ | 0.1− |
| 2004 08 21 | E12 | 0.7− | 0.7− | 2009 09 19 | 691 | 0.1+ | 0.1+ | 2009 11 21 | G96 | 0.2+ | 0.3− |
| 2004 08 21 | E12 | 0.2+ | 0.7− | 2009 09 19 | 691 | 0.1+ | 0.0 | 2009 11 21 | G96 | 0.3+ | 0.1+ |
| 2004 08 21 | E12 | 0.2+ | 0.9+ | 2009 09 28 | 691 | 0.5+ | 1.0− | 2009 11 26 | 291 | 0.0 | 0.3+ |
| 2007 02 23 | 703 | 0.3+ | 0.3− | 2009 09 28 | 691 | 0.2− | 0.1+ | 2009 11 26 | 291 | 0.1+ | 0.5+ |
| 2007 02 23 | 703 | 0.4− | 0.6+ | 2009 09 28 | 691 | 0.1− | 0.1+ | 2009 11 26 | 291 | 0.1+ | 0.3+ |
| 2007 02 23 | 703 | 0.1− | 0.8+ | 2009 10 14 | 703 | 0.6− | 0.3+ | | | | |
| 2007 02 23 | 703 | 0.1+ | 1.3− | 2009 10 14 | 703 | 0.4− | 0.3+ | | | | |

**2009 RB$_{61}$ = 2005 UU$_{439}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 11.55732 | | (2000.0) | | | |
| $n$ | 0.23743449 | $\omega$ | 84.30165 | | +0.93533373 | −0.29119168 |
| $a$ | 2.5828956 | $\Omega$ | 292.49626 | | +0.17072643 | +0.86891124 |
| $e$ | 0.0825202 | $i$ | 12.55870 | | +0.30984399 | +0.40025075 |
| $P$ | 4.15 | $H$ | 16.3 | $G$ | 0.15 | $U$ 5 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 03 | 644 | 0.1− | 0.2− | 2005 11 01 | 699 | 0.0 | 0.5− | 2009 09 14 | 703 | 0.4+ | 0.7− |
| 2005 10 03 | 644 | 0.0 | 0.1− | 2005 11 01 | 699 | 0.1− | 1.2+ | 2009 09 21 | 703 | 0.6+ | 0.1+ |
| 2005 10 03 | 644 | 0.6+ | 0.1− | 2005 11 04 | 703 | 0.8− | 0.4+ | 2009 09 21 | 703 | 0.5+ | 0.2+ |
| 2005 10 29 | 703 | 0.3+ | 0.1+ | 2005 11 04 | 703 | 0.3− | 0.1+ | 2009 09 21 | 703 | 0.9+ | 0.0 |
| 2005 10 29 | 703 | 0.2+ | 0.0 | 2005 11 04 | 703 | 0.4+ | 0.4+ | 2009 09 21 | 703 | 1.5+ | 0.1+ |
| 2005 10 29 | 703 | 0.1− | 0.2+ | 2005 11 04 | 703 | 0.6+ | 1.3− | 2009 09 28 | 703 | 0.8− | 0.2− |
| 2005 10 29 | 703 | 1.0− | 0.3− | 2009 09 14 | 703 | 1.2− | 0.1− | 2009 09 28 | 703 | 0.5− | 0.4− |
| 2005 11 01 | 699 | 0.1− | 0.3− | 2009 09 14 | 703 | 1.1− | 0.0 | 2009 09 28 | 703 | 0.6− | 0.7+ |
| 2005 11 01 | 699 | 0.4+ | 0.0 | 2009 09 14 | 703 | 0.5+ | 0.3+ | 2009 09 28 | 703 | 0.4− | 0.1+ |

**2009 RA$_{63}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 324.96428 | | (2000.0) | | | |
| $n$ | 0.08295850 | $\omega$ | 48.21760 | | +0.42909684 | −0.90299160 |
| $a$ | 5.2066948 | $\Omega$ | 16.41255 | | +0.80396740 | +0.37073544 |
| $e$ | 0.0773300 | $i$ | 4.45678 | | +0.41171875 | +0.21716676 |
| $P$ | 11.88 | $H$ | 13.2 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 02 08 | 695 | 0.3− | 0.2− | 2009 09 20 | 691 | 0.5− | 0.3+ | 2009 10 16 | A77 | 0.8− | 0.0 |
| 2002 02 08 | 695 | 0.0 | 0.4− | 2009 09 28 | 691 | 0.0 | 0.1+ | 2009 10 18 | A77 | 0.5− | 0.4− |
| 2003 04 04 | 691 | 0.7+ | 0.7+ | 2009 09 28 | 691 | 0.2+ | 0.2+ | 2009 10 19 | A77 | 0.4+ | 0.2+ |
| 2003 04 04 | 691 | 0.6+ | 1.1+ | 2009 09 28 | 691 | 0.2− | 0.1+ | 2009 10 19 | A77 | 0.0 | 0.1+ |
| 2003 04 04 | 691 | 0.2+ | 1.0+ | 2009 10 14 | G96 | 0.2− | 0.3− | 2009 11 18 | G96 | 0.4− | 0.2+ |
| 2009 09 12 | 691 | 0.2+ | 0.9+ | 2009 10 14 | G96 | 0.1− | 0.5− | 2009 11 18 | G96 | 0.3− | 0.2− |
| 2009 09 12 | 691 | 0.0 | 0.4+ | 2009 10 14 | G96 | 0.0 | 0.2− | 2009 11 18 | G96 | 0.4− | 0.0 |
| 2009 09 12 | 691 | 0.3− | 0.1+ | 2009 10 14 | G96 | 0.1+ | 0.3− | 2009 11 18 | G96 | 0.2+ | 0.2− |
| 2009 09 20 | 691 | 0.3− | 0.4+ | 2009 10 16 | A77 | 0.5+ | 0.3+ | | | | |
| 2009 09 20 | 691 | 0.0 | 0.4+ | 2009 10 16 | A77 | 0.1− | 0.2− | | | | |

**2009 RV$_{69}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 30.83187 | | (2000.0) | | | |
| $n$ | 0.18332835 | $\omega$ | 352.09592 | | +0.99940853 | −0.01776431 |
| $a$ | 3.0689016 | $\Omega$ | 9.07927 | | +0.03121214 | +0.82800944 |
| $e$ | 0.0620717 | $i$ | 10.75422 | | −0.01443554 | +0.56043269 |
| $P$ | 5.38 | $H$ | 15.5 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 08 24 | 644 | 0.3+ | 0.0 | 2007 03 18 | 691 | 0.2+ | 0.3+ | 2009 10 11 | G96 | 0.2+ | 0.2− |
| 2003 08 24 | 644 | 0.0 | 0.5− | 2009 09 15 | 691 | 0.2− | 0.2+ | 2009 10 14 | 703 | 0.2+ | 0.2+ |
| 2003 08 24 | 644 | 0.1− | 0.1+ | 2009 09 15 | 691 | 0.0 | 0.0 | 2009 10 14 | 703 | 0.7+ | 0.7− |
| 2006 02 04 | 703 | 0.3− | 1.1+ | 2009 09 15 | 691 | 0.2− | 0.3+ | 2009 10 14 | 703 | 0.3− | 0.4+ |
| 2006 02 04 | 703 | 0.4+ | 0.4− | 2009 09 23 | 691 | 0.2− | 0.3+ | 2009 10 14 | 703 | 0.9− | 1.3− |
| 2006 02 04 | 703 | 1.2+ | 0.2− | 2009 09 23 | 691 | 0.4− | 0.3+ | 2009 10 15 | 704 | 0.1− | 0.3+ |
| 2006 02 04 | 703 | 1.1− | 1.4− | 2009 09 23 | 691 | 0.1− | 0.3+ | 2009 10 15 | 704 | 0.2+ | 0.4+ |
| 2006 05 03 | G96 | 0.4+ | 0.4+ | 2009 10 09 | 703 | 1.0+ | 0.2+ | 2009 10 15 | 704 | 0.4− | 0.5+ |
| 2006 05 03 | G96 | 0.1+ | 0.1+ | 2009 10 09 | 703 | 0.5+ | 0.3− | 2009 10 15 | 704 | 0.7+ | 0.7+ |
| 2006 05 03 | G96 | 0.4− | 0.5+ | 2009 10 09 | 703 | 1.0− | 0.9− | 2009 12 18 | G96 | 0.4− | 0.2+ |
| 2006 05 03 | G96 | 0.0 | 0.8+ | 2009 10 09 | 703 | 0.1+ | 0.3+ | 2009 12 18 | G96 | 0.0 | 0.3+ |
| 2007 03 18 | 691 | 0.3+ | 0.9+ | 2009 10 11 | G96 | 0.4+ | 0.4− | 2009 12 18 | G96 | 0.2− | 0.3− |
| 2007 03 18 | 691 | 0.1+ | 0.1− | 2009 10 11 | G96 | 0.3+ | 0.3− | 2009 12 18 | G96 | 0.2− | 0.1− |

**2009 RV$_{72}$ = 2008 KU$_{3}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 17.18442 | | (2000.0) | | | |
| $n$ | 0.17387323 | $\omega$ | 119.57778 | | +0.92842406 | +0.09638788 |
| $a$ | 3.1791735 | $\Omega$ | 237.17318 | | −0.15829774 | +0.97633872 |
| $e$ | 0.2918018 | $i$ | 25.27637 | | +0.33611098 | +0.19357709 |
| $P$ | 5.67 | $H$ | 15.3 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 11 15 | 699 | 0.3− | 0.6+ | 2008 05 28 | G96 | 0.1+ | 0.6+ | 2009 10 27 | 703 | 0.3− | 0.0 |
| 1998 11 15 | 699 | 0.7+ | 1.9+ | 2009 09 15 | 703 | 0.0 | 0.1+ | 2009 10 27 | 703 | 1.3+ | 0.1− |
| 1998 11 15 | 699 | 0.1+ | 0.9+ | 2009 09 15 | 703 | 0.5− | 0.0 | 2009 11 09 | 703 | 1.2− | 0.2− |
| 2008 05 27 | G96 | 0.7− | 0.8+ | 2009 09 15 | 703 | 0.1− | 0.7− | 2009 11 09 | 703 | 0.3+ | 0.6− |
| 2008 05 27 | G96 | 0.2+ | 0.1+ | 2009 10 16 | 703 | 0.4+ | 0.3+ | 2009 11 09 | 703 | 0.4− | 0.2+ |
| 2008 05 27 | G96 | 0.4− | 0.3+ | 2009 10 16 | 703 | 0.1− | 0.4− | 2009 11 09 | 703 | 0.6+ | 0.8− |
| 2008 05 27 | G96 | 0.1− | 0.5+ | 2009 10 16 | 703 | 0.4− | 0.3+ | 2009 11 20 | 703 | 0.5+ | 0.6+ |
| 2008 05 28 | G96 | 0.1+ | 0.1− | 2009 10 16 | 703 | 0.3+ | 0.4+ | 2009 11 20 | 703 | 0.5+ | 0.0 |
| 2008 05 28 | G96 | 0.1+ | 1.0+ | 2009 10 27 | 703 | 0.4− | 0.4− | 2009 11 20 | 703 | 0.1+ | 0.1+ |
| 2008 05 28 | G96 | 0.1+ | 0.2+ | 2009 10 27 | 703 | 0.1+ | 0.2− | 2009 11 20 | 703 | 0.3− | 0.5+ |

**2009 RZ$_{72}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 72.02576 | | | (2000.0) | | |
| $n$ | 0.18083595 | $\omega$ | 291.52801 | | +0.79523479 | +0.59911758 |
| $a$ | 3.0970356 | $\Omega$ | 31.88193 | | −0.47036588 | +0.70647553 |
| $e$ | 0.0502166 | $i$ | 10.14785 | | −0.38256707 | +0.37676311 |
| $P$ | 5.45 | $H$ | 16.7 | $G$ 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 04 14 | G96 | 0.0 | 0.3− | 2009 09 15 | 691 | 0.5− | 0.4+ | 2009 10 27 | G96 | 0.6+ | 0.0 |
| 2007 04 14 | G96 | 0.5+ | 0.5− | 2009 09 15 | 691 | 0.1+ | 0.2− | 2009 10 27 | G96 | 0.1− | 0.1+ |
| 2007 04 14 | G96 | 0.7+ | 0.5− | 2009 09 15 | 691 | 0.1− | 0.2− | 2009 11 11 | G96 | 0.3+ | 0.5+ |
| 2007 04 14 | G96 | 0.7+ | 0.8+ | 2009 09 27 | 691 | 0.2+ | 0.1− | 2009 11 11 | G96 | 0.1+ | 0.3+ |
| 2007 05 10 | G96 | 0.2− | 0.3+ | 2009 09 27 | 691 | 0.2− | 0.2+ | 2009 11 11 | G96 | 0.1+ | 0.1+ |
| 2007 05 10 | G96 | 0.8− | 0.4+ | 2009 09 27 | 691 | 0.2+ | 0.2− | 2009 11 11 | G96 | 0.2+ | 0.2+ |
| 2007 05 10 | G96 | 0.4− | 0.3− | 2009 10 27 | G96 | 0.0 | 0.1+ | | | | |
| 2007 05 10 | G96 | 0.5− | 0.3+ | 2009 10 27 | G96 | 0.2+ | 0.4− | | | | |

**2009 RB$_{73}$ = 2005 XN$_{46}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 40.91384 | | | (2000.0) | | |
| $n$ | 0.21229800 | $\omega$ | 52.26092 | | +0.97915626 | +0.18763874 |
| $a$ | 2.7829503 | $\Omega$ | 296.80291 | | −0.20270442 | +0.87864992 |
| $e$ | 0.0665852 | $i$ | 4.99715 | | −0.01280357 | +0.43905127 |
| $P$ | 4.64 | $H$ | 16.3 | $G$ 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 08 22 | 691 | 0.2+ | 0.2− | 2006 01 27 | G96 | 0.2+ | 0.3− | 2009 09 19 | 691 | 1.2− | 1.0+ |
| 2004 08 22 | 691 | 0.1− | 0.2− | 2006 01 27 | G96 | 0.4− | 0.2− | 2009 09 30 | G96 | 0.6+ | 0.3− |
| 2004 08 22 | 691 | 0.2− | 0.4+ | 2006 01 27 | G96 | 0.2− | 0.1+ | 2009 09 30 | G96 | 0.4+ | 0.3− |
| 2005 12 02 | 691 | 0.1+ | 0.3− | 2006 01 27 | G96 | 0.5− | 0.1+ | 2009 09 30 | G96 | 0.4+ | 0.4− |
| 2005 12 02 | 691 | 0.4+ | 0.0 | 2009 09 15 | 691 | 0.1− | 0.2− | 2009 09 30 | G96 | 0.2+ | 0.3− |
| 2005 12 02 | 691 | 0.3− | 0.0 | 2009 09 15 | 691 | 0.0 | 0.1− | 2009 10 16 | 703 | 1.1+ | 0.5+ |
| 2005 12 06 | 691 | 0.2− | 0.1+ | 2009 09 15 | 691 | 0.1+ | 0.1− | 2009 10 16 | 703 | 0.7− | 0.5− |
| 2005 12 06 | 691 | 0.1+ | 0.0 | 2009 09 19 | 691 | 0.6+ | 0.1− | 2009 10 16 | 703 | (1.9+ | 0.4−) |
| 2005 12 06 | 691 | 0.0 | 0.2+ | 2009 09 19 | 691 | 0.2+ | 0.1− | 2009 10 16 | 703 | 0.3− | 0.4− |

**2009 RC$_{73}$ = 2005 WY$_{159}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 16.22485 | | | (2000.0) | | |
| $n$ | 0.21707241 | $\omega$ | 136.69417 | | +0.94868617 | −0.30684452 |
| $a$ | 2.7419927 | $\Omega$ | 241.32116 | | +0.26113190 | +0.89649941 |
| $e$ | 0.0354382 | $i$ | 4.99755 | | +0.17833869 | +0.31958606 |
| $P$ | 4.54 | $H$ | 17.5 | $G$ 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 11 30 | 691 | 0.2+ | 0.3− | 2005 12 04 | G96 | 0.5+ | 0.6− | 2009 09 30 | G96 | 0.2+ | 0.3− |
| 2005 11 30 | 691 | 0.2− | 0.4+ | 2005 12 04 | G96 | 0.5+ | 0.2− | 2009 09 30 | G96 | 0.4+ | 0.3− |
| 2005 11 30 | 691 | 0.2+ | 0.3− | 2009 09 15 | 691 | 0.2− | 0.0 | 2009 09 30 | G96 | 0.6+ | 0.3− |
| 2005 12 04 | 691 | 0.2− | 0.4+ | 2009 09 15 | 691 | 0.3+ | 0.3− | 2009 09 30 | G96 | 0.2+ | 0.5− |
| 2005 12 04 | 691 | 0.2− | 0.1+ | 2009 09 15 | 691 | 0.1− | 0.2+ | 2009 10 15 | G96 | 0.3− | 0.0 |
| 2005 12 04 | 691 | 0.0 | 0.0 | 2009 09 19 | 691 | 0.3− | 0.3− | 2009 10 15 | G96 | 0.1− | 0.3+ |
| 2005 12 04 | G96 | 0.5+ | 0.4− | 2009 09 19 | 691 | 0.2− | 0.4+ | 2009 10 15 | G96 | 0.0 | 0.1− |
| 2005 12 04 | G96 | 0.6− | 0.2− | 2009 09 19 | 691 | 0.1+ | 0.2+ | 2009 10 15 | G96 | 0.0 | 0.4+ |

**2009 RE$_{73}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 319.45187 | | | (2000.0) | | |
| $n$ | 0.08525227 | $\omega$ | 223.98788 | | +0.06868714 | −0.99631313 |
| $a$ | 5.1128778 | $\Omega$ | 222.15216 | | +0.93517295 | +0.08224630 |
| $e$ | 0.0511551 | $i$ | 4.39284 | | +0.34746745 | −0.02440696 |
| $P$ | 11.56 | $H$ | 13.2 | $G$ 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 12 13 | 691 | 0.0 | 0.3− | 2003 05 06 | 691 | 0.6+ | 0.0 | 2009 09 14 | 691 | 0.5− | 0.4+ |
| 1998 12 13 | 691 | 0.2+ | 0.2− | 2003 05 06 | 691 | 0.7+ | 1.3+ | 2009 09 18 | 691 | 0.3− | 0.3+ |
| 1998 12 13 | 691 | 0.3− | 0.0 | 2003 05 06 | 691 | 0.4+ | 1.6+ | 2009 09 18 | 691 | 0.3− | 0.5+ |
| 2002 04 04 | 644 | 0.7+ | 0.5+ | 2004 04 21 | 691 | 0.4+ | 0.3+ | 2009 09 18 | 691 | 0.4+ | 1.1+ |
| 2002 04 04 | 644 | 1.1+ | 0.8+ | 2004 04 21 | 691 | 0.2− | 0.1+ | 2009 10 14 | J75 | 0.3+ | 0.8− |
| 2002 04 04 | 644 | 0.7+ | 0.4+ | 2004 04 21 | 691 | 0.2− | 0.2+ | 2009 10 14 | J75 | 1.1+ | 0.2− |
| 2002 04 04 | 644 | 0.3+ | 0.4+ | 2008 09 02 | 691 | 0.2− | 0.4+ | 2009 10 14 | J75 | 0.5+ | 0.1+ |
| 2002 04 04 | 644 | 0.3+ | 0.3+ | 2008 09 02 | 691 | 0.1− | 0.5+ | 2009 10 25 | 691 | 0.2− | 0.2+ |
| 2002 04 04 | 644 | 0.8+ | 0.7+ | 2008 09 02 | 691 | 0.0 | 0.5+ | 2009 10 25 | 691 | 0.3− | 0.1+ |
| 2003 04 09 | 644 | 0.6+ | 1.4+ | 2008 09 21 | G96 | 0.7+ | 0.2+ | 2009 10 25 | 691 | 0.3− | 0.1+ |
| 2003 04 09 | 644 | 1.1+ | 1.3+ | 2008 09 21 | G96 | 0.2+ | 0.0 | 2009 11 25 | G96 | 0.5+ | 0.2+ |
| 2003 04 09 | 644 | 0.1− | 0.9+ | 2008 09 21 | G96 | 0.6+ | 0.3+ | 2009 11 25 | G96 | 0.2− | 0.1− |
| 2003 04 24 | 691 | 0.7− | 0.1− | 2008 09 21 | G96 | 0.2+ | 0.2+ | 2009 11 25 | G96 | 0.2+ | 0.1+ |
| 2003 04 24 | 691 | 0.3− | 0.1− | 2009 09 14 | 691 | 0.2− | 0.4+ | 2009 11 25 | G96 | 0.5+ | 0.1+ |
| 2003 04 24 | 691 | 0.5− | 0.4− | 2009 09 14 | 691 | 0.5− | 0.4+ | | | | |

**2009 RF$_{73}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 6.59704 | | | (2000.0) | | |
| $n$ | 0.22859858 | $\omega$ | 65.39127 | | +0.75268978 | −0.63318299 |
| $a$ | 2.6490310 | $\Omega$ | 332.76128 | | +0.36422918 | +0.62870636 |
| $e$ | 0.3358539 | $i$ | 23.21014 | | +0.54844800 | +0.45145057 |
| $P$ | 4.31 | $H$ | 16.9 | $G$ 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 23 | 644 | 0.3− | 0.2− | 2006 01 10 | 703 | 0.2+ | 1.6− | 2009 09 26 | 703 | 0.2+ | 0.1+ |
| 2005 12 23 | 644 | 0.3− | 0.0 | 2006 01 10 | 703 | 0.3− | 0.1+ | 2009 09 26 | 703 | 0.3− | 0.3− |
| 2005 12 23 | 644 | 0.1− | 0.3− | 2006 01 10 | 703 | 0.7− | 0.7+ | 2009 10 15 | 703 | 0.5+ | 0.4− |
| 2006 01 10 | 703 | 0.3+ | 1.7+ | 2009 09 15 | 703 | 1.5+ | 0.5+ | 2009 10 15 | 703 | 0.1− | 0.2− |
| 2006 01 10 | 703 | 0.9+ | 1.2− | 2009 09 15 | 703 | 0.1− | 0.2− | 2009 10 15 | 703 | 0.8+ | 0.5− |
| 2006 01 10 | 703 | 0.6− | 0.2− | 2009 09 15 | 703 | (3.6− | 1.7+) | 2009 10 27 | 703 | 0.5− | 0.6+ |
| 2006 01 10 | 703 | 0.5− | 0.0 | 2009 09 26 | 703 | 0.1− | 0.2− | 2009 10 27 | 703 | 1.2− | 0.8− |
| 2006 01 10 | 703 | 1.2+ | 0.5+ | 2009 09 26 | 703 | 0.1− | 0.4+ | 2009 10 27 | 703 | 1.0− | 1.0+ |

**2009 SG$_{19}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 21.42671 | | | (2000.0) | | |
| $n$ | 0.22583542 | $\omega$ | 345.49605 | | +0.96316339 | −0.24010918 |
| $a$ | 2.6705949 | $\Omega$ | 29.26909 | | +0.26474723 | +0.76766041 |
| $e$ | 0.2534111 | $i$ | 14.34036 | | +0.04717189 | +0.59417597 |
| $P$ | 4.36 | $H$ | 17.2 | $G$ 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 10 07 | 691 | 0.4− | 0.3+ | 2009 09 28 | G96 | 0.0 | 0.3− | 2009 10 21 | 703 | 0.9+ | 0.6+ |
| 1996 10 07 | 691 | 0.3− | 0.1+ | 2009 09 28 | G96 | 0.5+ | 0.1− | 2009 10 21 | 703 | 0.9− | 0.5− |
| 1996 10 07 | 691 | 0.3− | 0.1+ | 2009 09 29 | 691 | 0.1− | 0.0 | 2009 10 21 | 703 | 0.6− | 0.9− |
| 1996 10 16 | 691 | 0.0 | 0.2+ | 2009 09 29 | 691 | 0.1− | 0.1+ | 2009 10 21 | G96 | 0.2+ | 0.0 |
| 1996 10 16 | 691 | 1.9+ | 1.0− | 2009 09 29 | 691 | 0.1+ | 0.1− | 2009 10 21 | G96 | 0.1+ | 0.1− |
| 1996 10 16 | 691 | 1.2− | 0.7+ | 2009 10 09 | 703 | 0.4+ | 0.7− | 2009 10 21 | G96 | 0.0 | 0.0 |
| 2009 09 22 | A44 | 0.1+ | 0.3− | 2009 10 09 | 703 | 0.4− | 0.1+ | 2009 10 21 | G96 | 0.3− | 0.0 |
| 2009 09 22 | A44 | 0.1+ | 0.3− | 2009 10 09 | 703 | 0.2+ | 0.8− | 2009 10 27 | G96 | 0.0 | 0.2− |
| 2009 09 22 | A44 | 0.1− | 0.2− | 2009 10 09 | 703 | 0.8− | 0.4+ | 2009 10 27 | G96 | 0.4+ | 0.2− |
| 2009 09 23 | A44 | 0.0 | 0.5+ | 2009 10 11 | J75 | 1.2+ | 0.3− | 2009 10 27 | G96 | 0.4+ | 0.2− |
| 2009 09 23 | A44 | 0.0 | 0.6− | 2009 10 11 | J75 | 0.4+ | 0.0 | 2009 10 27 | G96 | 0.4+ | 0.0 |
| 2009 09 23 | A44 | 0.1− | 0.6+ | 2009 10 11 | J75 | 0.6− | 0.7+ | 2009 11 16 | H10 | 0.4+ | 0.7− |
| 2009 09 26 | A44 | 0.0 | 0.1+ | 2009 10 11 | J75 | 0.5+ | 0.1+ | 2009 11 16 | H10 | 0.1+ | 1.1− |
| 2009 09 26 | A44 | 0.0 | 0.1+ | 2009 10 11 | J75 | 0.9− | 0.8+ | 2009 11 16 | H10 | 0.1− | 0.6+ |
| 2009 09 26 | A44 | 0.1− | 0.2+ | 2009 10 11 | J75 | 0.3− | 0.4− | 2009 12 17 | G96 | 0.4+ | 0.2+ |
| 2009 09 27 | A44 | 0.1+ | 0.0 | 2009 10 13 | 704 | (0.9+ | 2.8+) | 2009 12 17 | G96 | 0.4+ | 0.5+ |
| 2009 09 27 | A44 | 0.0 | 0.1+ | 2009 10 13 | 704 | (0.4+ | 3.0+) | 2009 12 17 | G96 | 0.2− | 0.2− |
| 2009 09 27 | A44 | 0.3− | 0.2+ | 2009 10 13 | 704 | (0.1+ | 2.3+) | 2009 12 17 | G96 | 0.2+ | 0.3+ |
| 2009 09 28 | G96 | 0.1+ | 0.2− | 2009 10 13 | 704 | 0.7+ | 0.8+ | | | | |
| 2009 09 28 | G96 | 0.2+ | 0.2− | 2009 10 21 | 703 | 0.5− | 0.1− | | | | |

**2009 ST**$_{19}$

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 | | | | | | MPC | |
| $M$ | 34.53061 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27108584 | $\omega$ | 336.40458 | | +0.91978516 | +0.39242101 | |
| $a$ | 2.3644574 | $\Omega$ | 0.49354 | | −0.33894405 | +0.79572529 | |
| $e$ | 0.5917237 | $i$ | 6.68904 | | −0.19776801 | +0.46133179 | |
| $P$ | 3.64 | $H$ | 18.3 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 11 19 | 699 | 0.9− | 2.1+ | 2009 10 04 | 160 | 0.1+ | 0.3+ | 2009 10 25 | 160 | 0.1− | 0.1− |
| 1998 11 19 | 699 | 1.1− | 1.0+ | 2009 10 04 | A06 | 0.0 | 0.2− | 2009 10 26 | 130 | 0.2+ | 0.5− |
| 1998 11 19 | 699 | 0.7− | 0.4+ | 2009 10 04 | 160 | 0.0 | 0.1+ | 2009 10 26 | 130 | 0.2+ | 0.1− |
| 2009 09 16 | B74 | (1.8− | 2.1+) | 2009 10 05 | J47 | 0.1+ | 0.0 | 2009 10 26 | 130 | 0.3+ | 0.4− |
| 2009 09 16 | B74 | 0.3− | 0.9+ | 2009 10 05 | J47 | 0.2+ | 0.0 | 2009 10 26 | 130 | 0.4+ | 0.1− |
| 2009 09 16 | B74 | 1.6− | 1.5+ | 2009 10 05 | J47 | 0.1− | 0.1+ | 2009 10 27 | 379 | 0.3− | 0.7− |
| 2009 09 16 | B74 | (1.7− | 2.4+) | 2009 10 10 | 379 | 0.1− | 0.4− | 2009 10 27 | 379 | 0.3− | 0.6− |
| 2009 09 22 | 704 | 0.4+ | 0.7− | 2009 10 10 | 379 | 0.1+ | 0.1+ | 2009 10 27 | 379 | 0.7− | 0.1− |
| 2009 09 22 | 704 | 0.3+ | 0.4− | 2009 10 10 | 379 | 0.1− | 0.0 | 2009 10 27 | 379 | 0.2− | 0.1− |
| 2009 09 22 | 704 | 0.2+ | 0.7− | 2009 10 10 | 379 | 0.2− | 0.2− | 2009 10 29 | 379 | 0.1+ | 0.2− |
| 2009 09 22 | 704 | (0.9− | 2.5−) | 2009 10 10 | 379 | 0.5− | 0.4− | 2009 10 29 | 379 | 0.2+ | 0.1− |
| 2009 09 22 | 704 | 0.5+ | 0.6− | 2009 10 10 | 379 | 0.3− | 0.2− | 2009 10 29 | 379 | 0.2− | 0.3+ |
| 2009 09 22 | 113 | 0.1− | 0.1− | 2009 10 10 | 379 | 0.2− | 0.2− | 2009 10 29 | 379 | 0.2+ | 0.2+ |
| 2009 09 22 | 113 | 0.4+ | 0.1− | 2009 10 10 | 379 | 0.2− | 0.1+ | 2009 10 29 | 379 | 0.3+ | 0.4+ |
| 2009 09 22 | 113 | 0.1− | 0.0 | 2009 10 10 | 379 | 0.3− | 0.1+ | 2009 10 29 | A70 | 0.0 | 0.2− |
| 2009 09 22 | 113 | 0.3+ | 0.3− | 2009 10 10 | 379 | 0.4− | 0.0 | 2009 10 29 | A70 | 0.1− | 0.0 |
| 2009 09 22 | 113 | 0.3+ | 0.1+ | 2009 10 11 | 379 | 1.0− | 0.5− | 2009 10 29 | A70 | 0.2+ | 0.2+ |
| 2009 09 22 | 113 | 0.6+ | 0.0 | 2009 10 11 | 379 | 0.6− | 0.2− | 2009 10 31 | H45 | 0.2+ | 0.3− |
| 2009 09 23 | 204 | 0.1− | 0.0 | 2009 10 11 | 379 | 0.2− | 0.6− | 2009 10 31 | H45 | 0.1+ | 0.1− |
| 2009 09 23 | 204 | 0.1+ | 0.1− | 2009 10 11 | 379 | 0.2− | 0.1− | 2009 10 31 | H45 | 0.2+ | 0.2+ |
| 2009 09 23 | 204 | 0.1+ | 0.1− | 2009 10 11 | 379 | 0.6− | 0.6− | 2009 10 31 | H45 | 0.1+ | 0.3− |
| 2009 09 23 | 204 | 0.0 | 0.0 | 2009 10 11 | B49 | 0.0 | 0.2− | 2009 10 31 | H45 | 0.2+ | 0.3− |
| 2009 09 23 | 113 | 0.1+ | 0.3− | 2009 10 11 | B49 | 0.3− | 0.2− | 2009 10 31 | H45 | 0.1+ | 0.0 |
| 2009 09 23 | 113 | 0.3− | 0.2− | 2009 10 12 | 071 | 0.7+ | 0.7+ | 2009 11 01 | J47 | 0.6+ | 0.2+ |
| 2009 09 23 | 113 | 0.4+ | 1.0− | 2009 10 12 | 071 | (3.8+ | 1.7−) | 2009 11 01 | J47 | 0.7+ | 0.4+ |
| 2009 09 23 | 113 | 0.5+ | 0.6− | 2009 10 12 | 071 | 0.7− | 0.2+ | 2009 11 01 | J47 | 0.4+ | 0.3+ |
| 2009 09 23 | H06 | 0.2+ | 0.0 | 2009 10 12 | B37 | 0.1+ | 0.0 | 2009 11 02 | H45 | 0.3+ | 0.1− |
| 2009 09 23 | H06 | 0.3+ | 0.2− | 2009 10 12 | B37 | 0.1+ | 0.0 | 2009 11 02 | H45 | 0.3+ | 0.1+ |
| 2009 09 23 | H06 | 0.4+ | 0.1− | 2009 10 12 | B37 | 0.1+ | 0.0 | 2009 11 02 | H45 | 0.2+ | 0.0 |
| 2009 09 23 | H36 | 0.2+ | 0.5− | 2009 10 13 | B74 | 0.7− | 0.1+ | 2009 11 02 | H45 | 0.2+ | 0.4− |
| 2009 09 23 | H36 | 0.2+ | 0.1− | 2009 10 13 | B74 | 0.9− | 0.2+ | 2009 11 02 | H45 | 0.1+ | 0.2− |
| 2009 09 23 | H36 | 0.0 | 0.1− | 2009 10 13 | B74 | 0.9− | 0.2+ | 2009 11 02 | H45 | 0.2+ | 0.1− |
| 2009 09 23 | H36 | 0.1+ | 0.1− | 2009 10 13 | B74 | 1.0− | 0.4+ | 2009 11 05 | B74 | 0.3− | 0.6+ |
| 2009 09 23 | 854 | 0.7+ | 0.1+ | 2009 10 13 | 355 | 0.1+ | 0.0 | 2009 11 05 | B74 | 1.0− | 0.2− |
| 2009 09 23 | 854 | 0.2+ | 0.3+ | 2009 10 13 | 355 | 0.6+ | 0.0 | 2009 11 05 | B74 | 1.2− | 0.5− |
| 2009 09 23 | 854 | 0.2+ | 0.3+ | 2009 10 13 | 355 | 0.2+ | 0.2+ | 2009 11 07 | 379 | 0.0 | 0.4− |
| 2009 09 23 | 673 | 0.0 | 0.0 | 2009 10 13 | 355 | 0.2+ | 0.0 | 2009 11 07 | 379 | 0.1+ | 0.1− |
| 2009 09 23 | 673 | 0.1+ | 0.0 | 2009 10 15 | 379 | 0.4− | 0.1− | 2009 11 07 | 379 | 0.4− | 0.5+ |
| 2009 09 23 | 673 | 0.1+ | 0.1− | 2009 10 15 | 379 | 0.6− | 0.1+ | 2009 11 07 | 379 | 0.2− | 0.1+ |
| 2009 09 23 | 673 | 0.0 | 0.0 | 2009 10 15 | 379 | 0.0 | 0.1− | 2009 11 07 | 379 | 0.1+ | 0.4+ |
| 2009 09 23 | H06 | 0.1+ | 0.0 | 2009 10 15 | 379 | 0.1− | 0.3+ | 2009 11 08 | 379 | 0.2+ | 0.2− |
| 2009 09 23 | H06 | 0.4+ | 0.1+ | 2009 10 15 | 379 | 0.3− | 0.1− | 2009 11 08 | 379 | 0.3− | 0.5+ |
| 2009 09 23 | F65 | 0.3− | 0.4+ | 2009 10 15 | 379 | 0.1+ | 0.1− | 2009 11 08 | 379 | 0.3+ | 0.3+ |
| 2009 09 23 | F65 | 0.2− | 0.3+ | 2009 10 15 | C00 | 0.4+ | 0.0 | 2009 11 08 | 379 | 0.0 | 0.3+ |
| 2009 09 23 | F65 | 0.3− | 0.4+ | 2009 10 15 | C00 | 0.4+ | 0.1− | 2009 11 08 | 379 | 0.6+ | 0.2+ |
| 2009 09 23 | F65 | 0.2− | 0.5+ | 2009 10 15 | C00 | 0.6+ | 0.5− | 2009 11 09 | 704 | (1.7− | 0.8−) |
| 2009 09 23 | F65 | 0.0 | 0.1+ | 2009 10 15 | J51 | 0.3− | 0.2+ | 2009 11 09 | 704 | 0.6− | 0.9+ |
| 2009 09 23 | F65 | 0.0 | 0.1+ | 2009 10 15 | J51 | 0.2+ | 0.1+ | 2009 11 09 | 704 | 0.7− | 0.1− |
| 2009 09 23 | F65 | 0.0 | 0.1+ | 2009 10 15 | J51 | 0.5+ | 0.3+ | 2009 11 09 | 704 | 1.1− | 0.3− |
| 2009 09 23 | F65 | 0.0 | 0.1+ | 2009 10 16 | A78 | 0.1− | 0.7− | 2009 11 09 | 704 | 0.1− | 0.6+ |
| 2009 09 24 | 213 | 0.1+ | 0.0 | 2009 10 16 | A78 | 0.1− | 0.2− | 2009 11 09 | B49 | (1.7− | 2.9−) |
| 2009 09 24 | 213 | 0.1+ | 0.2+ | 2009 10 16 | A78 | 0.3− | 0.3− | 2009 11 09 | B49 | (0.0 | 2.0−) |
| 2009 09 24 | 213 | 0.1− | 0.3+ | 2009 10 16 | A78 | 0.6− | 0.3− | 2009 11 09 | B49 | (2.5+ | 2.2−) |
| 2009 09 25 | B49 | 0.1+ | 0.1− | 2009 10 16 | B49 | 0.3+ | 0.1− | 2009 11 09 | B74 | 0.5− | 0.4− |
| 2009 09 25 | B49 | 0.4+ | 0.2− | 2009 10 16 | B49 | 0.1+ | 0.1− | 2009 11 09 | B74 | 0.5− | 0.2− |
| 2009 09 25 | B49 | 0.3+ | 0.2− | 2009 10 17 | B49 | 0.2− | 0.2+ | 2009 11 09 | B74 | 0.5− | 0.2− |
| 2009 09 25 | B49 | 1.1− | 0.3+ | 2009 10 17 | B74 | 0.6− | 0.1+ | 2009 11 10 | 704 | 0.3− | 0.6+ |
| 2009 09 25 | J95 | 0.3+ | 0.2− | 2009 10 17 | B74 | 0.7− | 0.1+ | 2009 11 10 | 704 | 0.0 | 0.9+ |
| 2009 09 25 | J95 | 0.2+ | 0.2− | 2009 10 17 | B74 | 1.0− | 0.2+ | 2009 11 10 | 704 | 0.2− | 0.7+ |
| 2009 09 25 | J95 | 0.2+ | 0.2− | 2009 10 17 | 704 | 0.6+ | 1.0− | 2009 11 10 | 704 | 0.0 | 0.4+ |
| 2009 09 25 | B76 | 0.2+ | 0.7+ | 2009 10 17 | 704 | 0.3− | 0.1+ | 2009 11 10 | 704 | 0.2+ | 0.7+ |
| 2009 09 25 | B76 | 0.0 | 0.9+ | 2009 10 17 | 704 | 0.3+ | 0.3+ | 2009 11 11 | B49 | 0.2+ | 0.1+ |
| 2009 09 25 | B76 | 0.9− | 0.8+ | 2009 10 17 | 704 | 0.1− | 0.2+ | 2009 11 11 | B49 | 0.1+ | 0.3− |
| 2009 09 25 | B76 | 0.1− | 0.6− | 2009 10 17 | 704 | 0.3− | 0.3+ | 2009 11 11 | B49 | 0.4+ | 0.5− |
| 2009 09 26 | B70 | 0.4− | 0.1+ | 2009 10 18 | H45 | 0.2+ | 0.1− | 2009 11 13 | H23 | 0.2+ | 0.3+ |
| 2009 09 26 | B70 | 0.5− | 0.3− | 2009 10 18 | H45 | 0.2+ | 0.1− | 2009 11 13 | H23 | 0.1+ | 0.0 |
| 2009 09 27 | B70 | 0.1+ | 0.4− | 2009 10 18 | H45 | 0.1+ | 0.2− | 2009 11 13 | H23 | 0.4+ | 0.8+ |
| 2009 09 27 | 213 | 0.1+ | 0.2− | 2009 10 18 | H45 | 0.1+ | 0.1+ | 2009 11 14 | 355 | 0.1+ | 0.1+ |
| 2009 09 27 | 213 | 0.4+ | 0.3− | 2009 10 18 | H45 | 0.2+ | 0.1− | 2009 11 14 | 355 | 0.0 | 0.7− |
| 2009 09 27 | 213 | 0.2+ | 0.4− | 2009 10 18 | H45 | 0.1+ | 0.1+ | 2009 11 14 | 355 | 0.2+ | 0.1− |
| 2009 09 27 | B49 | 0.4+ | 0.6− | 2009 10 18 | 379 | 0.3+ | 0.1− | 2009 11 14 | 355 | 0.3+ | 0.1+ |
| 2009 09 27 | B49 | 0.4+ | 0.5− | 2009 10 18 | 379 | 0.1− | 0.1+ | 2009 11 16 | H23 | 0.2− | 1.4+ |
| 2009 09 27 | B49 | 0.1+ | 0.5− | 2009 10 18 | 379 | 0.0 | 0.3+ | 2009 11 16 | H23 | (0.4+ | 2.2+) |
| 2009 09 27 | 232 | 0.0 | 0.1+ | 2009 10 18 | 379 | 0.4− | 0.1+ | 2009 11 16 | H23 | 0.7+ | 1.1+ |
| 2009 09 27 | B74 | 1.0− | 0.9+ | 2009 10 18 | 379 | 0.3− | 0.5− | 2009 11 19 | 703 | 0.7+ | 0.3+ |
| 2009 09 27 | 232 | 0.2+ | 0.0 | 2009 10 18 | B75 | (1.3+ | 1.7+) | 2009 11 19 | 703 | 0.0 | 0.1+ |
| 2009 09 27 | 232 | 0.4− | 0.0 | 2009 10 19 | 379 | 0.0 | 0.1+ | 2009 11 19 | 703 | 0.2− | 0.1+ |
| 2009 09 27 | B19 | 0.5+ | 0.1+ | 2009 10 19 | 379 | 0.3+ | 0.2+ | 2009 11 19 | 703 | 0.1− | 0.8− |
| 2009 09 27 | B19 | 0.6+ | 0.1− | 2009 10 19 | 379 | 0.1+ | 0.3+ | 2009 11 19 | B74 | 0.5− | 0.5− |
| 2009 09 27 | B19 | 0.4+ | 0.1− | 2009 10 19 | 379 | 0.3+ | 0.3+ | 2009 11 19 | B74 | 0.8− | 0.7− |
| 2009 09 27 | J51 | 0.3− | 0.2− | 2009 10 19 | 379 | 0.1− | 0.1+ | 2009 11 19 | B74 | 1.0− | 0.5− |
| 2009 09 27 | B74 | 0.6− | 1.1+ | 2009 10 19 | 379 | 0.0 | 0.2− | 2009 11 22 | B74 | 0.1− | 0.5− |
| 2009 09 27 | J51 | 0.0 | 0.3− | 2009 10 19 | 379 | 0.3+ | 0.1+ | 2009 11 22 | B74 | 0.2− | 0.4− |
| 2009 09 27 | B74 | 0.4− | 0.4+ | 2009 10 19 | 379 | 0.4+ | 0.2− | 2009 11 22 | B74 | 0.3− | 0.3− |
| 2009 09 27 | J51 | 0.3+ | 0.3− | 2009 10 19 | 379 | 0.1− | 0.3− | 2009 11 24 | 704 | 0.3+ | 0.4+ |
| 2009 09 28 | B37 | 0.3− | 0.2+ | 2009 10 19 | 379 | 0.2− | 0.2+ | 2009 11 24 | 704 | 0.3+ | 0.7+ |
| 2009 09 28 | B37 | 0.1− | 0.2+ | 2009 10 19 | C00 | 0.6+ | 0.0 | 2009 11 24 | 704 | 0.7+ | 0.6+ |
| 2009 09 28 | B37 | 0.1− | 0.3+ | 2009 10 19 | C00 | 0.0 | 0.2− | 2009 11 24 | 704 | 0.2+ | 0.2+ |
| 2009 09 28 | B37 | 0.3− | 1.0+ | 2009 10 19 | C00 | 0.0 | 0.4− | 2009 11 24 | 704 | 0.7+ | 1.0+ |
| 2009 09 28 | B37 | 0.4+ | 0.2− | 2009 10 20 | H45 | 0.3+ | 0.1− | 2009 11 24 | B49 | 0.0 | 0.7− |
| 2009 09 28 | B37 | 0.1− | 0.0 | 2009 10 20 | H45 | 0.1+ | 0.2− | 2009 11 24 | B49 | 0.6+ | 1.3− |
| 2009 09 28 | B37 | 0.1+ | 0.0 | 2009 10 20 | H45 | 0.0 | 0.2− | 2009 11 24 | B49 | 1.3+ | 1.0− |
| 2009 09 29 | 704 | 0.5+ | 0.6+ | 2009 10 20 | H45 | 0.1+ | 0.1− | 2009 11 25 | G56 | 0.1+ | 0.0 |
| 2009 09 29 | 704 | 0.3+ | 0.1− | 2009 10 20 | H45 | 0.1− | 0.3− | 2009 11 25 | G56 | 0.1+ | 0.5+ |
| 2009 09 29 | 704 | 0.3+ | 0.1+ | 2009 10 20 | H45 | 0.0 | 0.1− | 2009 11 25 | G56 | 0.1+ | 0.2+ |
| 2009 09 29 | 704 | 0.2+ | 0.3+ | 2009 10 20 | 379 | 0.5+ | 0.6− | 2009 11 26 | H45 | 0.3+ | 0.4− |
| 2009 09 29 | 704 | 0.1+ | 0.3− | 2009 10 20 | 379 | 0.3+ | 0.5− | 2009 11 26 | H45 | 0.2+ | 0.0 |
| 2009 09 30 | B74 | 0.7− | 0.7+ | 2009 10 20 | 379 | 0.1− | 0.4− | 2009 11 26 | H45 | 0.2+ | 0.0 |
| 2009 09 30 | B74 | 0.7− | 0.8+ | 2009 10 20 | 379 | 0.3+ | 0.2+ | 2009 11 26 | H45 | 0.4+ | 0.2− |
| 2009 09 30 | B74 | 0.6− | 0.7+ | 2009 10 20 | 379 | 0.2+ | 0.1+ | 2009 11 26 | H45 | 0.4+ | 0.2− |
| 2009 10 01 | J47 | 0.1− | 0.1− | 2009 10 20 | 379 | 0.3+ | 0.0 | 2009 11 26 | H45 | 0.1+ | 0.1− |
| 2009 10 01 | J47 | 0.2− | 0.1+ | 2009 10 20 | 379 | 0.1− | 0.3− | 2009 11 29 | 932 | 0.2+ | 0.2− |
| 2009 10 01 | J47 | 0.1− | 0.1+ | 2009 10 20 | 379 | 0.1+ | 0.1− | 2009 11 29 | 932 | 0.1+ | 0.2− |
| 2009 10 01 | J47 | 0.3− | 0.0 | 2009 10 20 | 379 | 0.1− | 0.1+ | 2009 11 29 | 932 | 0.0 | 0.4+ |
| 2009 10 01 | J47 | 0.3− | 0.1+ | 2009 10 21 | 379 | 0.3+ | 0.1− | 2009 12 08 | B74 | 0.3+ | 1.1− |
| 2009 10 01 | J47 | 0.2− | 0.0 | 2009 10 21 | 379 | 0.6+ | 0.4− | 2009 12 08 | B74 | 0.3+ | 0.8− |
| 2009 10 02 | 926 | 0.3+ | 0.1− | 2009 10 21 | 379 | 0.1+ | 0.2− | 2009 12 08 | B74 | 0.6+ | 0.3− |
| 2009 10 02 | 926 | 0.2+ | 0.2+ | 2009 10 21 | 379 | 0.2+ | 0.0 | 2009 12 09 | 704 | 1.1− | 1.2+ |
| 2009 10 02 | 926 | 0.1+ | 0.2+ | 2009 10 21 | 379 | 0.0 | 0.4− | 2009 12 09 | 704 | 0.1+ | 0.1+ |
| 2009 10 03 | 941 | 0.1+ | 0.1− | 2009 10 21 | 379 | 0.2+ | 0.1− | 2009 12 09 | 704 | 0.3− | 0.7+ |
| 2009 10 03 | 941 | 0.1+ | 0.1− | 2009 10 21 | 379 | 0.2+ | 0.4− | 2009 12 09 | 704 | 0.0 | 0.5+ |
| 2009 10 03 | 941 | 0.2+ | 0.1− | 2009 10 21 | 379 | 0.4+ | 0.5− | 2009 12 09 | 560 | 0.1+ | 0.3+ |
| 2009 10 03 | 941 | 0.1+ | 0.1− | 2009 10 25 | J51 | 0.2+ | 0.2− | 2009 12 09 | 560 | 0.1+ | 0.3+ |
| 2009 10 03 | 587 | 0.5− | 0.6+ | 2009 10 25 | J51 | 0.2+ | 0.0 | 2009 12 09 | 560 | 0.2+ | 0.3+ |
| 2009 10 03 | 587 | 0.7− | 0.4+ | 2009 10 25 | J51 | 0.3+ | 0.2+ | 2009 12 19 | H45 | 0.0 | 0.3+ |
| 2009 10 03 | 587 | 0.8− | 0.1+ | 2009 10 25 | B74 | 0.4− | 0.5+ | 2009 12 19 | H45 | 0.2+ | 0.4− |
| 2009 10 03 | 587 | 0.6− | 0.6+ | 2009 10 25 | B74 | 1.3− | 0.1− | 2009 12 19 | H45 | 0.1+ | 0.1+ |
| 2009 10 03 | A06 | 0.2+ | 0.2+ | 2009 10 25 | B74 | 0.7− | 0.4+ | 2009 12 19 | H45 | 0.3− | 0.2+ |
| 2009 10 03 | A06 | 0.3+ | 0.0 | 2009 10 25 | B74 | 1.3− | 0.4+ | 2009 12 19 | H45 | 0.0 | 0.4+ |
| 2009 10 04 | A06 | 0.1+ | 0.1− | 2009 10 25 | 160 | 0.5+ | 0.1− | 2009 12 19 | H45 | 0.2− | 0.3− |
| 2009 10 04 | 160 | 0.3− | 0.3+ | 2009 10 25 | 160 | 0.4+ | 0.2− | | | | |

**2009 SU$_{19}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 333.49039 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.32841847 | $\omega$ | 342.45557 | | −0.90924965 | −0.41505883 | |
| $a$ | 2.0805796 | $\Omega$ | 172.78053 | | +0.40560526 | −0.90045375 | |
| $e$ | 0.8996524 | $i$ | 14.50879 | | +0.09353847 | −0.13003540 | |
| $P$ | 3.00 | $H$ | 17.9 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 22 | 695 | 0.5− | 0.7− | 2009 09 20 | G96 | 0.6+ | 0.1− | 2009 09 27 | 291 | 1.1− | 0.4+ |
| 2003 10 22 | 695 | 0.0 | 0.4− | 2009 09 21 | 291 | 0.0 | 0.2− | 2009 09 27 | 291 | 0.2+ | 0.3− |
| 2009 09 18 | G96 | 0.5+ | 0.0 | 2009 09 21 | 291 | 0.1− | 0.0 | 2009 09 28 | 291 | 0.9+ | 0.6+ |
| 2009 09 18 | G96 | 0.6+ | 0.1+ | 2009 09 21 | 291 | 0.1+ | 0.5− | 2009 10 09 | 291 | 0.2− | 0.2+ |
| 2009 09 18 | G96 | 0.1+ | 0.1+ | 2009 09 21 | F65 | 0.2− | 0.1− | 2009 10 09 | 291 | 0.9+ | 0.0 |
| 2009 09 18 | G96 | 0.7+ | 0.2+ | 2009 09 21 | F65 | 0.1− | 0.2+ | 2009 10 09 | 291 | 0.4+ | 0.0 |
| 2009 09 19 | 291 | 0.1− | 0.7+ | 2009 09 22 | 291 | 0.3+ | 0.4− | 2009 10 16 | 291 | 1.1− | 0.6+ |
| 2009 09 19 | 291 | 0.0 | 0.3− | 2009 09 22 | 291 | 0.5+ | 0.5− | 2009 10 16 | 291 | 0.5− | 0.1− |
| 2009 09 19 | 291 | 0.8− | 0.2+ | 2009 09 22 | 291 | 0.0 | 0.6− | 2009 10 21 | 291 | 1.1+ | 0.5+ |
| 2009 09 19 | G96 | 0.1+ | 0.2− | 2009 09 23 | H36 | (0.3+ | 2.0−) | 2009 10 21 | 291 | 0.1+ | 0.7+ |
| 2009 09 19 | G96 | 0.5+ | 0.2− | 2009 09 23 | H36 | 0.2− | 0.5− | 2009 10 22 | 291 | 0.8+ | 1.0− |
| 2009 09 19 | G96 | 0.4+ | 0.0 | 2009 09 23 | H36 | 0.2+ | 0.5− | 2009 10 22 | 291 | 1.3− | 0.5− |
| 2009 09 19 | G96 | 0.4+ | 0.1− | 2009 09 23 | 291 | 0.4− | 0.4− | 2009 10 22 | 291 | 0.0 | 0.0 |
| 2009 09 20 | 291 | 0.6− | 0.1− | 2009 09 23 | 291 | 0.5− | 0.5− | 2009 11 09 | 291 | 0.4− | 0.4+ |
| 2009 09 20 | 291 | 0.3− | 1.2+ | 2009 09 23 | 291 | 0.1+ | 0.1+ | 2009 11 09 | 291 | 0.4+ | 0.1− |
| 2009 09 20 | 291 | 0.1− | 0.2+ | 2009 09 23 | F65 | 0.6+ | 0.2+ | 2009 11 09 | 291 | 0.1− | 0.3− |
| 2009 09 20 | G96 | 0.0 | 0.0 | 2009 09 23 | F65 | 0.3+ | 0.0 | 2009 12 20 | 291 | 0.4+ | 0.2+ |
| 2009 09 20 | G96 | 0.1− | 0.3− | 2009 09 23 | F65 | 0.2+ | 0.1+ | 2009 12 20 | 291 | 0.4− | 0.1− |
| 2009 09 20 | G96 | 0.3+ | 0.2− | 2009 09 27 | 291 | 0.8+ | 0.4+ | | | | |

**2009 SR$_{20}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 21.99270 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17270530 | $\omega$ | 150.19019 | | +0.98091137 | +0.04990065 | |
| $a$ | 3.1934904 | $\Omega$ | 208.84545 | | −0.06091400 | +0.99671980 | |
| $e$ | 0.2465597 | $i$ | 22.92725 | | +0.18466828 | +0.06371466 | |
| $P$ | 5.71 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 07 27 | 644 | 0.3− | 0.0 | 2009 09 22 | 106 | 0.0 | 0.3+ | 2009 10 24 | 703 | 0.5+ | 1.2+ |
| 2003 07 27 | 644 | 0.3− | 0.1+ | 2009 09 22 | 106 | 0.3− | 0.5− | 2009 10 24 | 703 | 0.8+ | 0.1− |
| 2003 07 27 | 644 | 0.3− | 0.2− | 2009 09 26 | 704 | 0.7+ | 0.4+ | 2009 10 24 | 704 | 1.4− | 0.2− |
| 2003 09 30 | 291 | 0.1− | 0.0 | 2009 09 26 | 704 | 0.2+ | 0.5+ | 2009 10 24 | 703 | 1.3− | 0.2− |
| 2003 09 30 | 291 | 0.0 | 0.2+ | 2009 09 26 | 704 | 0.5+ | 0.2+ | 2009 10 24 | 703 | 0.7+ | 0.6+ |
| 2003 09 30 | 291 | 0.3+ | 0.1− | 2009 09 26 | 704 | 0.8+ | 0.6+ | 2009 10 24 | 704 | 0.4− | 0.3+ |
| 2009 09 21 | 106 | 0.5− | 0.8− | 2009 09 26 | 704 | 0.7+ | 0.7+ | 2009 12 11 | G96 | 0.1+ | 0.3− |
| 2009 09 21 | 106 | 0.4+ | 0.5− | 2009 10 15 | J75 | 1.1+ | 0.2− | 2009 12 11 | G96 | 0.1+ | 0.1+ |
| 2009 09 22 | 106 | 0.7+ | 0.6− | 2009 10 15 | J75 | 0.4+ | 0.7− | 2009 12 11 | G96 | 0.1− | 0.2− |
| 2009 09 22 | 106 | 0.7+ | 1.0− | 2009 10 15 | J75 | 0.7+ | 0.1− | 2009 12 11 | G96 | 0.3− | 0.3− |
| 2009 09 22 | 703 | 0.9− | 0.1− | 2009 10 22 | 703 | 1.5− | 1.8+ | 2009 12 13 | G96 | 0.1+ | 0.2− |
| 2009 09 22 | 703 | 0.6− | 0.0 | 2009 10 22 | 703 | 0.4− | 0.2+ | 2009 12 13 | G96 | 0.1+ | 0.5− |
| 2009 09 22 | 703 | 0.8− | 0.0 | 2009 10 22 | 703 | 0.4− | 0.2− | 2009 12 13 | G96 | 0.1+ | 0.2− |
| 2009 09 22 | 703 | 1.0− | 0.1+ | 2009 10 22 | 703 | 1.3+ | 0.3+ | 2009 12 13 | G96 | 0.0 | 0.2− |
| 2009 09 22 | 106 | 0.2+ | 0.2− | 2009 10 24 | 704 | 0.4− | 0.5− | | | | |
| 2009 09 22 | 106 | 0.1− | 0.2− | 2009 10 24 | 704 | 0.7− | 0.4+ | | | | |

**2009 SZ$_{20}$ = 2008 JH**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 350.89675 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21186104 | $\omega$ | 245.61392 | | +0.61973993 | −0.74828699 | |
| $a$ | 2.7867755 | $\Omega$ | 159.62073 | | +0.68897067 | +0.66312317 | |
| $e$ | 0.2173810 | $i$ | 42.80361 | | −0.37582155 | −0.01828238 | |
| $P$ | 4.65 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 05 01 | G96 | 0.5+ | 0.1− | 2009 09 16 | 703 | 0.7+ | 0.2+ | 2009 09 24 | D21 | 0.6− | 0.2− |
| 2008 05 01 | G96 | 0.5+ | 0.3− | 2009 09 24 | 703 | 0.8− | 0.1− | 2009 10 23 | E12 | 0.2− | 0.5+ |
| 2008 05 01 | G96 | 0.4− | 0.1− | 2009 09 24 | 703 | 0.9+ | 0.5− | 2009 10 23 | E12 | 0.2− | 0.2− |
| 2008 05 01 | G96 | 0.3− | 0.1+ | 2009 09 24 | 703 | 0.7− | 0.1+ | 2009 10 23 | E12 | 0.3+ | 0.3+ |
| 2008 05 02 | G96 | 0.2+ | 0.3− | 2009 09 24 | 703 | 0.4− | 0.4+ | 2009 10 23 | E12 | 0.2− | 0.1− |
| 2008 05 02 | G96 | 0.1− | 0.3+ | 2009 09 24 | 703 | 0.3− | 0.5− | 2009 12 12 | E12 | 0.0 | 0.3+ |
| 2008 05 02 | G96 | 0.1− | 0.2+ | 2009 09 24 | 703 | 0.5− | 0.3+ | 2009 12 12 | E12 | 0.1− | 0.0 |
| 2008 05 02 | G96 | 0.6+ | 0.2+ | 2009 09 24 | 703 | 0.8− | 0.2+ | 2009 12 12 | E12 | 0.1− | 0.4− |
| 2008 05 02 | G96 | 0.4− | 0.1+ | 2009 09 24 | 703 | 0.5+ | 0.9+ | 2009 12 13 | 926 | 0.4+ | 0.1+ |
| 2008 05 02 | G96 | 0.5− | 0.2+ | 2009 09 24 | E12 | 0.3+ | 0.2− | 2009 12 13 | 926 | 0.0 | 0.2− |
| 2009 09 16 | 703 | 0.2− | 0.1− | 2009 09 24 | E12 | 0.2+ | 0.2− | 2009 12 13 | 926 | 0.7+ | 0.4+ |
| 2009 09 16 | 703 | 0.1− | 0.2+ | 2009 09 24 | D21 | 0.3− | 0.0 | | | | |
| 2009 09 16 | 703 | 0.2+ | 0.6+ | 2009 09 24 | D21 | 0.0 | 0.1− | | | | |

**2009 SA$_{26}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 7.23092 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.08221946 | $\omega$ | 129.92853 | | +0.96709836 | −0.25345482 | |
| $a$ | 5.2378490 | $\Omega$ | 244.76363 | | +0.22538626 | +0.89360154 | |
| $e$ | 0.1061269 | $i$ | 1.38992 | | +0.11799066 | +0.37045503 | |
| $P$ | 11.99 | $H$ | 14.4 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 06 17 | 691 | 0.4+ | 0.3+ | 2008 09 23 | G96 | 0.3− | 0.5− | 2009 09 24 | 691 | 0.5− | 0.2+ |
| 2007 06 17 | 691 | 0.5− | 1.1− | 2008 09 23 | G96 | 0.5+ | 0.5− | 2009 09 24 | 691 | 0.2− | 0.0 |
| 2007 06 17 | 691 | 0.3+ | 0.1− | 2008 09 23 | G96 | 0.2+ | 1.0− | 2009 10 15 | G96 | 0.4+ | 0.4− |
| 2008 07 29 | 691 | 0.0 | 0.2+ | 2009 09 16 | 691 | 0.2+ | 0.1− | 2009 10 15 | G96 | 0.1+ | 0.6− |
| 2008 07 29 | 691 | 0.2+ | 0.2− | 2009 09 16 | 691 | 0.0 | 0.2− | 2009 10 15 | G96 | 0.7− | 0.5− |
| 2008 07 29 | 691 | 1.2− | 0.3+ | 2009 09 16 | 691 | 0.6+ | 0.3− | 2009 10 15 | G96 | 0.1+ | 1.5− |
| 2008 08 07 | 691 | 0.7+ | 1.1+ | 2009 09 20 | 691 | 0.1+ | 0.1+ | 2009 11 18 | G96 | 0.1+ | 0.1+ |
| 2008 08 07 | 691 | 0.2− | 0.1+ | 2009 09 20 | 691 | 0.3− | 0.8+ | 2009 11 18 | G96 | 0.2− | 0.3+ |
| 2008 08 07 | 691 | 0.1+ | 0.2+ | 2009 09 20 | 691 | 0.1+ | 0.1+ | 2009 11 18 | G96 | 0.6+ | 0.2− |
| 2008 09 23 | G96 | 0.0 | 0.6− | 2009 09 24 | 691 | 0.0 | 0.6− | 2009 11 18 | G96 | 0.3+ | 0.2− |

**2009 SU$_{34}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 339.45233 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22120880 | $\omega$ | 203.25144 | | +0.32013010 | −0.94572708 | |
| $a$ | 2.7077036 | $\Omega$ | 228.12780 | | +0.88054746 | +0.31877245 | |
| $e$ | 0.0996724 | $i$ | 4.29987 | | +0.34950378 | +0.06312218 | |
| $P$ | 4.46 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 07 | 691 | 0.0 | 0.5− | 2009 09 16 | 691 | 0.3− | 0.0 | 2009 11 10 | 703 | 0.5+ | 0.3− |
| 2000 09 07 | 691 | 0.3+ | 0.3− | 2009 09 16 | 691 | 0.1− | 0.1+ | 2009 11 10 | 703 | (1.0− | 1.8+) |
| 2000 09 07 | 691 | 0.2+ | 0.5− | 2009 09 20 | 691 | 0.0 | 0.0 | 2009 11 10 | 703 | (1.6− | 0.3−) |
| 2002 02 13 | 645 | 0.0 | 0.0 | 2009 09 20 | 691 | 0.1− | 0.2+ | 2009 11 18 | G96 | 0.8+ | 0.1+ |
| 2002 02 13 | 645 | 0.0 | 0.0 | 2009 09 20 | 691 | 0.2− | 0.1+ | 2009 11 18 | G96 | 0.2+ | 0.0 |
| 2005 12 05 | 691 | 0.1− | 0.2− | 2009 09 28 | 691 | 0.0 | 0.1+ | 2009 11 18 | G96 | 0.0 | 0.0 |
| 2005 12 05 | 691 | 0.2+ | 0.1− | 2009 09 28 | 691 | 0.3− | 0.1+ | 2009 11 18 | G96 | 0.4+ | 0.0 |
| 2005 12 05 | 691 | 0.0 | 0.4+ | 2009 09 28 | 691 | 0.2− | 0.2+ | 2009 11 25 | G96 | 0.4+ | 0.3+ |
| 2007 04 18 | G96 | 0.1− | 0.0 | 2009 10 14 | G96 | 0.5+ | 0.6+ | 2009 11 25 | G96 | 0.3+ | 0.0 |
| 2007 04 18 | G96 | 0.1− | 0.1− | 2009 10 14 | G96 | 0.2+ | 0.5− | 2009 11 25 | G96 | 0.2+ | 0.1+ |
| 2007 04 18 | G96 | 0.3+ | 0.3− | 2009 10 14 | G96 | 0.7+ | 0.2+ | 2009 11 25 | G96 | 0.1+ | 0.1+ |
| 2007 04 18 | G96 | 0.1+ | 0.3− | 2009 10 14 | G96 | 0.6+ | 0.3+ | | | | |
| 2009 09 16 | 691 | 0.4− | 0.0 | 2009 11 10 | 703 | 0.6+ | 0.7− | | | | |

**2009 SV$_{43}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 347.57459 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.08539954 | $\omega$ | 158.02958 | | +0.59590431 | −0.79761173 | |
| $a$ | 5.1069980 | $\Omega$ | 255.27267 | | +0.72168005 | +0.58287586 | |
| $e$ | 0.0473530 | $i$ | 5.53867 | | +0.35224419 | +0.15514915 | |
| $P$ | 11.54 | $H$ | 13.7 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 06 13 | G96 | 0.1− | 0.3− | 2009 09 16 | 691 | 0.1− | 0.1− | 2009 10 21 | G96 | 0.3+ | 0.5− |
| 2005 06 13 | G96 | 0.1− | 0.1+ | 2009 09 20 | 691 | 0.2− | 0.0 | 2009 10 21 | G96 | 0.3+ | 0.2− |
| 2005 06 13 | G96 | 0.3+ | 0.1+ | 2009 09 20 | 691 | 0.1+ | 0.1+ | 2009 10 21 | G96 | 0.6+ | 0.3− |
| 2005 06 13 | G96 | 0.2− | 0.4+ | 2009 09 20 | 691 | 0.1+ | 0.2+ | 2009 10 21 | G96 | 0.1+ | 0.4− |
| 2008 09 28 | G96 | 0.2+ | 0.3− | 2009 09 24 | 691 | 0.2− | 0.4+ | 2009 11 21 | G96 | 0.2− | 0.2− |
| 2008 09 28 | G96 | 0.1− | 0.3− | 2009 09 24 | 691 | 0.4− | 0.0 | 2009 11 21 | G96 | 0.1+ | 0.5− |
| 2008 09 28 | G96 | 0.1+ | 0.1− | 2009 09 24 | 691 | 0.0 | 0.2+ | 2009 11 21 | G96 | 0.4+ | 0.5− |
| 2008 09 28 | G96 | 0.2+ | 0.0 | 2009 09 28 | 691 | 0.0 | 0.2− | 2009 11 21 | G96 | 0.0 | 0.0 |
| 2009 09 16 | 691 | 0.0 | 0.0 | 2009 09 28 | 691 | 0.0 | 0.0 | | | | |
| 2009 09 16 | 691 | 0.2+ | 0.2+ | 2009 09 28 | 691 | 0.0 | 0.1+ | | | | |

**2009 SK$_{59}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 7.37780 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18786494 | $\omega$ | 174.61686 | | +0.82963318 | −0.54768986 | |
| $a$ | 3.0192951 | $\Omega$ | 219.23190 | | +0.50563160 | +0.81937301 | |
| $e$ | 0.1910156 | $i$ | 9.86636 | | +0.23673926 | +0.16930352 | |
| $P$ | 5.25 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 15 | G96 | 0.4+ | 0.4− | 2004 11 10 | 691 | 0.1+ | 0.1+ | 2009 09 29 | 691 | 0.0 | 0.2+ |
| 2004 10 15 | G96 | 0.0 | 0.2− | 2004 11 10 | 691 | 0.1− | 0.1+ | 2009 09 29 | 691 | 0.5− | 0.1+ |
| 2004 10 15 | G96 | 0.0 | 0.5− | 2009 09 17 | 691 | 0.0 | 0.1+ | 2009 10 27 | G96 | 0.5+ | 0.3− |
| 2004 10 15 | G96 | 0.3− | 0.2− | 2009 09 17 | 691 | 0.6− | 0.2− | 2009 10 27 | G96 | 0.4+ | 0.3− |
| 2004 10 15 | G96 | 0.3− | 0.1− | 2009 09 17 | 691 | 0.2− | 0.2− | 2009 10 27 | G96 | 0.5+ | 0.0 |
| 2004 10 15 | G96 | 0.0 | 0.4− | 2009 09 21 | 691 | 0.2+ | 0.1+ | 2009 10 27 | G96 | 0.0 | 0.1− |
| 2004 10 15 | G96 | 0.2− | 0.1− | 2009 09 21 | 691 | 0.2+ | 0.3+ | 2009 12 16 | 291 | 0.3− | 0.2− |
| 2004 10 15 | G96 | 0.5− | 0.1+ | 2009 09 21 | 691 | 0.3+ | 0.0 | 2009 12 16 | 291 | 0.0 | 0.0 |
| 2004 11 10 | 691 | 0.2+ | 0.2+ | 2009 09 29 | 691 | 0.3+ | 0.2− | 2009 12 16 | 291 | 0.2+ | 0.2+ |

**2009 SE$_{67}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 30.79919 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19246422 | $\omega$ | 9.49046 | | +0.82169387 | −0.56939313 | |
| $a$ | 2.9710004 | $\Omega$ | 25.26669 | | +0.51902928 | +0.72969470 | |
| $e$ | 0.0197662 | $i$ | 3.31895 | | +0.23543106 | +0.37859887 | |
| $P$ | 5.12 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 03 19 | 691 | 0.0 | 0.3+ | 2009 09 17 | 291 | 0.0 | 0.0 | 2009 11 20 | G96 | 0.5+ | 0.1− |
| 2001 03 19 | 691 | 0.1+ | 0.4+ | 2009 09 17 | 291 | 0.0 | 0.3+ | 2009 11 20 | G96 | 0.4+ | 0.1+ |
| 2001 03 19 | 691 | 0.5+ | 0.5+ | 2009 09 21 | G96 | 0.1− | 0.3− | 2009 11 20 | G96 | 0.1+ | 0.5− |
| 2003 09 04 | 691 | 0.2− | 0.2+ | 2009 09 21 | G96 | 0.4+ | 0.0 | 2009 11 20 | G96 | 0.6+ | 0.1+ |
| 2003 09 04 | 691 | 0.2− | 0.3+ | 2009 09 21 | G96 | 0.5+ | 0.5+ | 2009 11 27 | 691 | 0.3− | 0.2+ |
| 2003 09 04 | 691 | 0.0 | 0.2+ | 2009 09 21 | G96 | 0.1+ | 0.3− | 2009 11 27 | 691 | 0.3− | 0.1+ |
| 2006 02 04 | 691 | 0.2+ | 0.2− | 2009 10 27 | 691 | 0.2− | 0.2+ | 2009 11 27 | 691 | 0.4− | 0.1− |
| 2006 02 04 | 691 | 0.2− | 0.2+ | 2009 10 27 | 691 | 0.0 | 0.1− | 2009 12 17 | G96 | 0.3+ | 0.2− |
| 2006 02 04 | 691 | 0.1− | 0.3− | 2009 10 27 | 691 | 0.0 | 0.1− | 2009 12 17 | G96 | 0.5+ | 0.0 |
| 2006 03 08 | 691 | 0.3+ | 0.3+ | 2009 11 20 | G96 | 0.5+ | 0.2− | 2009 12 17 | G96 | 0.0 | 0.2− |
| 2006 03 08 | 691 | 0.0 | 0.3+ | 2009 11 20 | G96 | 0.0 | 0.1+ | 2009 12 17 | G96 | 0.2+ | 0.0 |
| 2006 03 08 | 691 | 0.5− | 0.7− | 2009 11 20 | G96 | 0.1+ | 0.1− | | | | |
| 2009 09 17 | 291 | 0.2+ | 0.0 | 2009 11 20 | G96 | 0.2+ | 0.4+ | | | | |

**2009 SP$_{74}$ = 2006 BD$_{184}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 23.70701 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19840345 | $\omega$ | 274.72147 | | +0.95315056 | −0.29372268 | |
| $a$ | 2.9114091 | $\Omega$ | 102.37272 | | +0.29850358 | +0.87457034 | |
| $e$ | 0.1389071 | $i$ | 4.24638 | | +0.04898599 | +0.38581563 | |
| $P$ | 4.97 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 01 28 | G96 | 0.0 | 0.2− | 2009 09 17 | 691 | 0.2− | 0.3+ | 2009 10 17 | G96 | 0.0 | 0.2− |
| 2006 01 28 | G96 | 0.9− | 0.3− | 2009 09 21 | 691 | 0.0 | 0.0 | 2009 10 17 | G96 | 0.1− | 0.5− |
| 2006 01 28 | G96 | 0.7+ | 0.9− | 2009 09 21 | 691 | 0.3+ | 0.1− | 2009 10 17 | G96 | 0.2− | 0.3− |
| 2006 01 28 | G96 | 0.3+ | 0.2+ | 2009 09 21 | 691 | 0.1+ | 0.0 | 2009 11 09 | 703 | 0.8− | 1.1+ |
| 2006 01 31 | 691 | 0.3+ | 0.0 | 2009 10 17 | 703 | 0.4+ | 0.2− | 2009 11 09 | 703 | 0.4− | 0.8− |
| 2006 01 31 | 691 | 0.1− | 0.1+ | 2009 10 17 | 703 | 0.9+ | 1.2+ | 2009 11 09 | 703 | 0.6− | 0.6+ |
| 2006 01 31 | 691 | 0.3− | 0.1+ | 2009 10 17 | 703 | 0.3− | 0.9− | 2009 11 09 | 703 | 0.3− | 0.3+ |
| 2009 09 17 | 691 | 0.1+ | 0.0 | 2009 10 17 | 703 | 0.2+ | 0.3+ | | | | |
| 2009 09 17 | 691 | 0.0 | 0.2− | 2009 10 17 | G96 | 0.0 | 0.2− | | | | |

**2009 SK$_{78}$ = 2005 JU$_{157}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 304.42607 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.08344846 | $\omega$ | 241.12398 | | +0.15060609 | −0.97537319 | |
| $a$ | 5.1862945 | $\Omega$ | 202.05377 | | +0.98841247 | +0.15168694 | |
| $e$ | 0.0993749 | $i$ | 25.41374 | | +0.01893659 | −0.16011938 | |
| $P$ | 11.81 | $H$ | 12.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1993 05 20 | 691 | (3.2+ | 4.9−) | 2008 09 28 | G96 | 0.2+ | 0.1+ | 2009 09 25 | 704 | 0.1+ | 0.4+ |
| 1993 05 20 | 691 | 0.2− | 0.2− | 2008 09 28 | G96 | 0.2− | 0.1− | 2009 09 25 | 704 | 1.2− | 0.0 |
| 1993 05 20 | 691 | 0.4+ | 0.5− | 2008 09 28 | G96 | 0.3+ | 0.0 | 2009 09 29 | 691 | 0.1+ | 0.2− |
| 1993 05 27 | 691 | 0.2+ | 0.4− | 2008 09 28 | G96 | 0.2− | 0.3− | 2009 09 29 | 691 | 0.1+ | 0.2− |
| 1993 05 27 | 691 | 0.1+ | 0.5− | 2009 09 18 | 691 | 0.0 | 0.1− | 2009 09 29 | 691 | 0.1+ | 0.0 |
| 1993 05 27 | 691 | 0.2− | 0.3− | 2009 09 18 | 691 | 0.3− | 0.0 | 2009 10 15 | 704 | 1.4+ | 0.8+ |
| 2005 05 04 | 691 | 0.3− | 0.3+ | 2009 09 18 | 691 | 0.7− | 0.2+ | 2009 10 15 | 704 | 1.4+ | 0.4+ |
| 2005 05 04 | 691 | 0.3− | 0.2+ | 2009 09 19 | G96 | 0.4− | 1.4− | 2009 10 15 | 704 | 0.9+ | 0.4+ |
| 2005 05 04 | 691 | 0.0 | 0.6+ | 2009 09 19 | G96 | 0.3+ | 0.1− | 2009 10 15 | 704 | 0.8+ | 0.7+ |
| 2005 05 13 | 691 | 0.1+ | 0.2+ | 2009 09 19 | G96 | 0.0 | 0.1− | 2009 10 22 | 703 | 0.1− | 0.6− |
| 2005 05 13 | 691 | 0.2− | 0.3+ | 2009 09 22 | 691 | 0.1− | 0.1− | 2009 10 22 | 703 | 0.2+ | 0.9+ |
| 2005 05 13 | 691 | 0.2+ | 0.2+ | 2009 09 22 | 691 | 0.1− | 0.1− | 2009 10 22 | 703 | 1.0− | 0.3+ |
| 2005 06 24 | 644 | 0.2− | 0.3+ | 2009 09 22 | 691 | 0.1− | 0.1− | 2009 10 22 | 703 | 0.5+ | 0.7− |
| 2005 06 24 | 644 | 0.1+ | 0.7+ | 2009 09 25 | 691 | 0.1− | 0.0 | 2009 12 16 | G96 | 0.3+ | 0.2− |
| 2005 06 24 | 644 | 0.0 | 0.3+ | 2009 09 25 | 691 | 0.1− | 0.1+ | 2009 12 16 | G96 | 0.2+ | 0.3− |
| 2005 07 09 | 691 | 0.3+ | 0.1− | 2009 09 25 | 691 | 0.0 | 0.1+ | 2009 12 16 | G96 | 0.7+ | 0.1− |
| 2005 07 09 | 691 | 0.3− | 0.0 | 2009 09 25 | 704 | 0.7+ | 0.3+ | 2009 12 16 | G96 | 0.1+ | 0.1− |
| 2005 07 09 | 691 | 0.1+ | 0.1− | 2009 09 25 | 704 | (0.7− | 2.4+) | | | | |

**2009 SQ$_{92}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 339.76281 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17746068 | $\omega$ | 46.14607 | | +0.13380719 | −0.98550189 | |
| $a$ | 3.1361822 | $\Omega$ | 36.54800 | | +0.85156803 | +0.06050188 | |
| $e$ | 0.0645135 | $i$ | 10.08876 | | +0.50688018 | +0.15851039 | |
| $P$ | 5.55 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 28 | 645 | 0.0 | 0.0 | 2009 09 21 | G96 | 0.3− | 0.2− | 2009 11 08 | G96 | 0.5+ | 0.0 |
| 2003 09 28 | 645 | 0.0 | 0.0 | 2009 09 21 | G96 | 0.0 | 0.3− | 2009 11 08 | G96 | 0.0 | 0.1+ |
| 2003 11 20 | 645 | 0.0 | 0.0 | 2009 10 24 | 691 | 0.0 | 0.0 | 2009 11 21 | 691 | 0.5− | 0.8− |
| 2003 11 20 | 645 | 0.0 | 0.0 | 2009 10 24 | 691 | 0.0 | 0.2− | 2009 11 21 | 691 | 0.3− | 0.2− |
| 2009 09 18 | G96 | 0.4+ | 0.1+ | 2009 10 24 | 691 | 0.1+ | 0.0 | 2009 11 21 | 691 | 0.0 | 0.1− |
| 2009 09 18 | G96 | 0.3+ | 0.2− | 2009 11 08 | 691 | 0.2− | 0.4+ | 2009 11 23 | 691 | 0.2− | 0.2+ |
| 2009 09 18 | G96 | 0.7+ | 0.1+ | 2009 11 08 | 691 | 0.5+ | 0.0 | 2009 11 23 | 691 | 0.2− | 0.8+ |
| 2009 09 18 | G96 | 0.6+ | 0.1+ | 2009 11 08 | 691 | 0.2− | 0.3+ | 2009 11 23 | 691 | 0.0 | 0.2− |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 2009 09 21 | G96 | 0.1+ | 0.4− | 2009 11 08 | G96 | 0.6+ | 0.1− | |
| 2009 09 21 | G96 | 0.5+ | 0.2− | 2009 11 08 | G96 | 0.5+ | 0.2− | |

**2009 SX$_{94}$ = 2004 TM$_{32}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 45.16151 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18415381 | $\omega$ | 315.33561 | | +0.74770918 | | +0.66397387 |
| $a$ | 3.0597239 | $\Omega$ | 3.09610 | | −0.55780196 | | +0.63486926 |
| $e$ | 0.1363922 | $i$ | 8.89159 | | −0.36026097 | | +0.39506927 |
| $P$ | 5.35 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 04 | 691 | 0.2+ | 0.2+ | 2009 09 19 | G96 | 0.3− | 0.1+ | 2009 09 20 | G96 | 0.0 | 0.5− |
| 2004 10 04 | 691 | 0.2− | 0.2− | 2009 09 19 | G96 | 0.1− | 0.2+ | 2009 09 20 | G96 | 0.2+ | 0.1+ |
| 2004 10 04 | 691 | 0.3+ | 0.2− | 2009 09 19 | G96 | 0.2− | 0.2+ | 2009 10 24 | G96 | 0.2+ | 0.0 |
| 2004 10 08 | 691 | 0.1− | 0.2+ | 2009 09 19 | G96 | 0.2− | 0.2+ | 2009 10 24 | G96 | 0.1+ | 0.2− |
| 2004 10 08 | 691 | 0.0 | 0.0 | 2009 09 20 | G96 | 0.3+ | 0.1− | 2009 10 24 | G96 | 0.0 | 0.1+ |
| 2004 10 08 | 691 | 0.2− | 0.0 | 2009 09 20 | G96 | 0.0 | 0.0 | 2009 10 24 | G96 | 0.1− | 0.1− |

**2009 SN$_{98}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 345.96580 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.35285005 | $\omega$ | 305.24805 | | −0.12250084 | | −0.99099827 |
| $a$ | 1.9833952 | $\Omega$ | 151.64323 | | +0.94351159 | | −0.13316336 |
| $e$ | 0.4069813 | $i$ | 6.52826 | | +0.30786268 | | +0.01378230 |
| $P$ | 2.79 | $H$ | 19.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 02 18 | 699 | 0.3+ | 0.9− | 2009 09 24 | H01 | 0.0 | 0.1− | 2009 09 29 | G96 | 0.2− | 0.2− |
| 1999 02 18 | 699 | 0.3− | 0.5+ | 2009 09 24 | G96 | 0.0 | 0.1+ | 2009 10 09 | 926 | 0.5+ | 1.0+ |
| 1999 02 18 | 699 | 0.1− | 0.2+ | 2009 09 24 | G96 | 0.0 | 0.2+ | 2009 10 09 | 926 | 0.4+ | 0.0 |
| 2009 08 28 | 691 | 0.1− | 0.2− | 2009 09 24 | G96 | 0.1+ | 0.1+ | 2009 10 09 | 926 | 0.0 | 0.1+ |
| 2009 08 28 | 691 | 0.4− | 0.1+ | 2009 09 24 | G96 | 0.1+ | 0.0 | 2009 10 18 | 448 | 0.0 | 0.3− |
| 2009 08 28 | 691 | 0.2− | 0.2+ | 2009 09 24 | H01 | 0.1+ | 0.2− | 2009 10 18 | 448 | 0.2+ | 0.2+ |
| 2009 09 24 | G96 | 0.4+ | 0.1− | 2009 09 24 | E10 | 0.0 | 0.0 | 2009 10 18 | 448 | 0.8+ | 0.5+ |
| 2009 09 24 | G96 | 0.1− | 0.3− | 2009 09 24 | E10 | 0.2+ | 0.1− | 2009 11 16 | 291 | 0.2− | 0.2− |
| 2009 09 24 | G96 | 0.1+ | 0.2− | 2009 09 24 | E10 | 0.2+ | 0.0 | 2009 11 16 | 291 | 0.2+ | 0.3+ |
| 2009 09 24 | G96 | 0.1+ | 0.3− | 2009 09 29 | G96 | 0.0 | 0.2− | 2009 11 16 | 291 | 0.4− | 0.0 |
| 2009 09 24 | H01 | 0.0 | 0.0 | 2009 09 29 | G96 | 0.3+ | 0.4− | | | | |
| 2009 09 24 | H01 | 0.2+ | 0.4− | 2009 09 29 | G96 | 0.0 | 0.3− | | | | |

**2009 SH$_{118}$ = 2002 RV$_{187}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 40.29632 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.28629691 | $\omega$ | 2.92487 | | +0.99730443 | | +0.07185779 |
| $a$ | 2.2799480 | $\Omega$ | 352.90309 | | −0.06952327 | | +0.86073708 |
| $e$ | 0.1286006 | $i$ | 6.90032 | | −0.02346023 | | +0.50395252 |
| $P$ | 3.44 | $H$ | 17.4 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 09 07 | 704 | 1.4+ | 0.3+ | 2002 09 15 | 699 | 0.8− | 0.5+ | 2009 10 08 | J75 | 0.1− | 0.3− |
| 2002 09 07 | 704 | 0.7+ | 0.1+ | 2002 09 15 | 699 | 0.5− | 0.1− | 2009 10 08 | J75 | 0.0 | 0.3+ |
| 2002 09 07 | 704 | 0.3+ | 0.2− | 2009 09 18 | 691 | 0.3+ | 0.3+ | 2009 10 08 | J75 | 0.4+ | 0.9+ |
| 2002 09 12 | 644 | 0.2− | 0.1− | 2009 09 18 | 691 | 0.5+ | 0.0 | 2009 10 22 | 703 | 0.1+ | 0.0 |
| 2002 09 12 | 644 | 0.1− | 0.0 | 2009 09 18 | 691 | 0.1− | 0.2+ | 2009 10 22 | 703 | 0.3+ | 0.3+ |
| 2002 09 12 | 644 | 0.0 | 0.0 | 2009 09 22 | 691 | 0.1+ | 0.7− | 2009 10 22 | 703 | 0.8− | 0.8+ |
| 2002 09 15 | 699 | 0.7− | 0.1− | 2009 09 22 | 691 | 0.5− | 0.3− | 2009 10 22 | 703 | 0.2− | 0.8− |
| 2002 09 15 | 699 | 0.4− | 0.4+ | 2009 09 22 | 691 | 0.0 | 0.1+ | | | | |

**2009 SQ$_{120}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 302.25286 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.08144508 | $\omega$ | 244.19269 | | +0.01334378 | | −0.99560067 |
| $a$ | 5.2709976 | $\Omega$ | 205.56294 | | +0.97702720 | | +0.03271181 |
| $e$ | 0.0869362 | $i$ | 12.41144 | | +0.21269649 | | −0.08780233 |
| $P$ | 12.10 | $H$ | 13.4 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 04 01 | 695 | 0.3+ | 0.3− | 2009 09 22 | 691 | 0.1− | 0.5− | 2009 11 18 | G96 | 0.3− | 0.3− |
| 2003 04 01 | 695 | 0.2+ | 0.3− | 2009 09 22 | 691 | 0.3− | 0.2+ | 2009 11 18 | G96 | 0.0 | 0.2− |
| 2003 04 24 | 691 | 0.3− | 0.5+ | 2009 09 22 | 691 | 0.4− | 0.0 | 2009 11 18 | G96 | 0.3− | 0.3− |
| 2003 04 24 | 691 | 0.0 | 0.5− | 2009 10 15 | G96 | 0.9+ | 0.0 | 2009 12 17 | G96 | 0.3+ | 0.0 |
| 2003 04 24 | 691 | 0.1+ | 0.0 | 2009 10 15 | G96 | 0.4+ | 0.0 | 2009 12 17 | G96 | 0.3+ | 0.3+ |
| 2009 09 18 | 691 | 0.1+ | 0.3+ | 2009 10 15 | G96 | 0.0 | 0.2− | 2009 12 17 | G96 | 0.2− | 0.1+ |
| 2009 09 18 | 691 | 0.6− | 0.1+ | 2009 10 15 | G96 | 0.5+ | 0.1+ | 2009 12 17 | G96 | 0.4+ | 0.5+ |
| 2009 09 18 | 691 | 0.9+ | 0.1+ | 2009 11 18 | G96 | 0.0 | 0.3− | | | | |

**2009 SZ$_{126}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 83.67760 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21923669 | $\omega$ | 85.60460 | | +0.54935221 | | +0.83090567 |
| $a$ | 2.7239171 | $\Omega$ | 218.15335 | | −0.81211974 | | +0.50603969 |
| $e$ | 0.0937220 | $i$ | 8.22349 | | −0.19665624 | | +0.23134302 |
| $P$ | 4.50 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 07 05 | 691 | 0.2+ | 0.1+ | 2006 02 02 | G96 | 0.3− | 0.3− | 2009 10 09 | 703 | 0.1− | 0.3+ |
| 1995 07 05 | 691 | 0.7− | 0.3+ | 2006 02 02 | G96 | 0.1− | 0.2− | 2009 10 09 | 703 | (1.0− | 1.6−) |
| 1995 07 05 | 691 | 0.3+ | 0.2+ | 2006 02 02 | G96 | 0.3+ | 0.1+ | 2009 10 09 | 703 | 1.1− | 0.5− |
| 2004 08 14 | 644 | 0.0 | 0.1− | 2009 09 15 | 704 | (1.7+ | 2.1−) | 2009 10 14 | 703 | 1.0+ | 0.7+ |
| 2004 08 14 | 644 | 0.1+ | 0.1+ | 2009 09 15 | 704 | 0.5− | 1.1+ | 2009 10 14 | 703 | 0.7− | 0.6+ |
| 2004 08 14 | 644 | 0.1+ | 0.1− | 2009 09 15 | 704 | 0.1+ | 0.2+ | 2009 10 14 | 703 | 0.3+ | 0.8− |
| 2005 11 01 | G96 | 0.2+ | 0.2− | 2009 09 15 | 704 | 0.2+ | 0.3− | 2009 10 14 | 703 | 0.8+ | 0.7− |
| 2005 11 01 | G96 | 0.1+ | 0.0 | 2009 09 18 | 691 | 0.0 | 0.1− | 2009 10 15 | 704 | 0.2− | 1.0+ |
| 2005 11 01 | G96 | 0.1+ | 0.1− | 2009 09 18 | 691 | 0.3+ | 0.1− | 2009 10 15 | 704 | 0.3+ | 0.1+ |
| 2005 11 01 | G96 | 0.5+ | 0.1+ | 2009 09 18 | 691 | 0.2− | 0.0 | 2009 10 15 | 704 | 0.3+ | 0.6+ |
| 2005 11 10 | 691 | 0.5− | 0.1+ | 2009 09 21 | J75 | 0.1− | 0.4− | 2009 10 15 | 704 | 1.0+ | 0.8+ |
| 2005 11 10 | 691 | 0.0 | 0.1+ | 2009 09 21 | J75 | 1.2+ | 0.7− | 2009 10 15 | 704 | 0.6− | 0.0 |
| 2005 11 10 | 691 | 0.1− | 0.0 | 2009 09 21 | J75 | 0.3+ | 0.2− | 2009 10 27 | G96 | 0.1+ | 0.1− |
| 2005 11 10 | 691 | 0.2+ | 0.4+ | 2009 09 22 | 691 | 0.4− | 0.2− | 2009 10 27 | G96 | 0.4+ | 0.0 |
| 2005 11 10 | 691 | 0.0 | 0.4+ | 2009 09 22 | 691 | 0.2− | 0.2− | 2009 10 27 | G96 | 0.1− | 0.6− |
| 2005 11 10 | 691 | 0.3+ | 0.1− | 2009 09 22 | 691 | 0.3− | 0.5− | 2009 10 27 | G96 | 1.2+ | 0.1+ |
| 2006 02 02 | G96 | 0.1− | 0.0 | 2009 10 09 | 703 | (0.6− | 2.2−) | | | | |

**2009 SM$_{137}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 144.06337 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23996213 | $\omega$ | 235.81776 | | −0.26933659 | | +0.96248208 |
| $a$ | 2.5647257 | $\Omega$ | 18.64126 | | −0.84617907 | | −0.22017476 |
| $e$ | 0.1308511 | $i$ | 5.91773 | | −0.45982472 | | −0.15859168 |
| $P$ | 4.11 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 27 | 691 | 0.1− | 0.1− | 2007 01 27 | 691 | 0.0 | 0.2+ | 2009 10 21 | G96 | 0.4+ | 0.4− |
| 2005 10 27 | 691 | 0.0 | 0.0 | 2009 09 18 | 691 | 0.3− | 0.2− | 2009 10 21 | G96 | 0.6+ | 0.1+ |
| 2005 10 27 | 691 | 0.1+ | 0.0 | 2009 09 18 | 691 | 0.5− | 0.1− | 2009 11 11 | 691 | 0.1+ | 0.2+ |
| 2005 11 03 | G96 | 0.1+ | 0.3− | 2009 09 18 | 691 | 0.1+ | 0.2+ | 2009 11 11 | 691 | 0.0 | 0.1+ |
| 2005 11 03 | G96 | 0.2+ | 0.4− | 2009 09 22 | 691 | 0.4+ | 0.4− | 2009 11 11 | 691 | 0.1+ | 0.0 |
| 2005 11 03 | G96 | 0.1− | 0.3− | 2009 09 22 | 691 | 0.5− | 0.2+ | 2009 11 19 | 691 | 0.1− | 0.0 |
| 2005 11 03 | G96 | 0.1+ | 0.0 | 2009 09 22 | 691 | 0.5− | 0.2− | 2009 11 19 | 691 | 0.1+ | 0.6+ |
| 2007 01 27 | 691 | 0.1+ | 0.0 | 2009 10 21 | G96 | 0.8+ | 0.2− | 2009 11 19 | 691 | 0.0 | 0.1+ |
| 2007 01 27 | 691 | 0.1− | 0.2− | 2009 10 21 | G96 | 0.6+ | 0.0 | | | | |

**2009 SB$_{139}$ = 2007 HU$_{75}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 295.95944 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22970910 | $\omega$ | 286.35789 | | −0.79864123 | −0.58718972 | |
| $a$ | 2.6404863 | $\Omega$ | 217.96867 | | +0.60070950 | −0.76459428 | |
| $e$ | 0.1168239 | $i$ | 12.37360 | | +0.03633563 | −0.26571380 | |
| $P$ | 4.29 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 05 05 | 691 | 0.0 | 0.3− | 2007 05 11 | G96 | 0.1+ | 0.4+ | 2009 09 22 | G96 | 0.4− | 0.2+ | |
| 1994 05 05 | 691 | 0.0 | 0.1+ | 2008 07 25 | G96 | 0.7+ | 0.4− | 2009 10 23 | G96 | 0.3− | 0.0 | |
| 1994 05 05 | 691 | 0.2+ | 0.3− | 2008 07 25 | G96 | 0.5+ | 0.3− | 2009 10 23 | G96 | 0.1− | 0.2+ | |
| 1996 10 18 | 691 | 0.2− | 0.3− | 2008 07 25 | G96 | 0.1− | 0.1− | 2009 10 23 | G96 | 0.1− | 0.2− | |
| 1996 10 18 | 691 | 0.0 | 0.2+ | 2008 07 25 | G96 | 0.3+ | 0.5− | 2009 10 23 | G96 | 0.5+ | 0.0 | |
| 1996 10 18 | 691 | 0.1− | 0.0 | 2008 08 20 | 691 | 0.1+ | 0.1+ | 2009 11 17 | G96 | 0.5+ | 0.0 | |
| 2007 04 22 | 691 | 0.2− | 0.1− | 2008 08 20 | 691 | 0.2− | 0.3+ | 2009 11 17 | G96 | 0.2+ | 0.7− | |
| 2007 04 22 | 691 | 0.5− | 0.2− | 2008 08 20 | 691 | 0.1− | 0.2− | 2009 11 17 | G96 | 0.1− | 0.2+ | |
| 2007 04 22 | 691 | 0.0 | 0.1+ | 2009 09 18 | G96 | 0.1− | 0.2− | 2009 11 17 | G96 | 0.9− | 0.7− | |
| 2007 04 26 | 691 | 0.1+ | 0.2+ | 2009 09 18 | G96 | 0.4+ | 0.1+ | 2009 11 25 | G96 | 0.4+ | 0.2+ | |
| 2007 04 26 | 691 | 0.3+ | 0.1+ | 2009 09 18 | G96 | 0.1+ | 0.2− | 2009 11 25 | G96 | 0.6+ | 0.2+ | |
| 2007 04 26 | 691 | 0.1− | 0.2− | 2009 09 18 | G96 | 0.3− | 0.3− | 2009 11 25 | G96 | 0.0 | 0.3− | |
| 2007 05 11 | G96 | 0.1− | 0.2+ | 2009 09 22 | G96 | 0.1− | 0.3+ | 2009 11 25 | G96 | 0.3+ | 0.1− | |
| 2007 05 11 | G96 | 0.2+ | 0.2+ | 2009 09 22 | G96 | 0.1+ | 0.3+ | | | | | |
| 2007 05 11 | G96 | 0.1− | 0.1+ | 2009 09 22 | G96 | 0.1+ | 0.1+ | | | | | |

**2009 SB$_{143}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 23.49125 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.08111092 | $\omega$ | 162.62083 | | +0.99093639 | −0.04260540 | |
| $a$ | 5.2854647 | $\Omega$ | 201.09687 | | +0.03398795 | +0.99703278 | |
| $e$ | 0.0508756 | $i$ | 20.72801 | | +0.12996108 | +0.06411258 | |
| $P$ | 12.15 | $H$ | 13.5 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 04 13 | 691 | 0.3− | 0.4+ | 2009 09 19 | 691 | 0.2+ | 0.3+ | 2009 10 23 | G96 | 0.1− | 0.1− | |
| 2004 04 13 | 691 | 0.2+ | 0.1− | 2009 09 23 | 691 | 0.2+ | 0.0 | 2009 10 23 | G96 | 0.3+ | 0.2− | |
| 2004 04 13 | 691 | 0.1+ | 0.3+ | 2009 09 23 | 691 | 0.1+ | 0.1+ | 2009 10 27 | G96 | 0.3+ | 0.2− | |
| 2008 10 31 | G96 | 0.9+ | 0.1− | 2009 09 23 | 691 | 0.3− | 0.3+ | 2009 10 27 | G96 | 0.3− | 0.8− | |
| 2008 10 31 | G96 | 0.0 | 0.5− | 2009 09 23 | 691 | 0.0 | 0.3+ | 2009 10 27 | G96 | 0.4+ | 0.4− | |
| 2008 10 31 | G96 | 0.3− | 0.3− | 2009 09 23 | 691 | 0.0 | 0.3+ | 2009 10 27 | G96 | 0.2− | 0.1− | |
| 2008 10 31 | G96 | 0.1− | 0.5− | 2009 09 23 | 691 | 0.3+ | 0.4+ | 2009 11 18 | G96 | 0.3+ | 0.2− | |
| 2009 09 15 | 691 | 0.2− | 0.1+ | 2009 09 27 | 691 | 0.1+ | 0.1− | 2009 11 18 | G96 | 0.0 | 0.2− | |
| 2009 09 15 | 691 | 0.6− | 0.1− | 2009 09 27 | 691 | 0.1+ | 0.3+ | 2009 11 18 | G96 | 0.1+ | 0.1− | |
| 2009 09 15 | 691 | 0.6− | 0.2− | 2009 09 27 | 691 | 0.1+ | 0.0 | 2009 11 18 | G96 | 0.9+ | 0.8− | |
| 2009 09 19 | 691 | 0.1− | 0.2− | 2009 10 23 | G96 | 0.3+ | 0.2− | | | | | |
| 2009 09 19 | 691 | 0.1− | 0.2+ | 2009 10 23 | G96 | 0.8+ | 0.3+ | | | | | |

**2009 SH$_{143}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 13.18929 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17653499 | $\omega$ | 353.60100 | | +0.98982580 | −0.12858462 | |
| $a$ | 3.1471361 | $\Omega$ | 14.22736 | | +0.13904790 | +0.78337369 | |
| $e$ | 0.1242976 | $i$ | 14.35100 | | +0.03017556 | +0.60810498 | |
| $P$ | 5.58 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 10 01 | 327 | 1.1− | 0.9+ | 2007 03 26 | 691 | 0.1− | 0.2+ | 2009 11 23 | G96 | 0.0 | 0.2+ | |
| 1998 10 01 | 327 | 0.3− | 0.1− | 2007 03 26 | 691 | 0.1− | 0.1− | 2009 11 23 | G96 | 0.1+ | 0.3+ | |
| 1998 10 01 | 327 | 0.3+ | 0.2+ | 2007 03 26 | 691 | 0.1+ | 0.2+ | 2009 11 23 | G96 | 0.0 | 0.4+ | |
| 1998 10 19 | 327 | 0.4+ | 0.2− | 2009 08 18 | 691 | 0.3− | 0.1− | 2009 11 23 | G96 | 0.1+ | 0.2+ | |
| 1998 10 19 | 327 | 0.3+ | 0.1− | 2009 08 18 | 691 | 0.3− | 0.0 | 2009 12 12 | G96 | 0.0 | 0.0 | |
| 1998 10 19 | 327 | 0.0 | 0.6− | 2009 08 18 | 691 | 0.9− | 0.3+ | 2009 12 12 | G96 | 0.2+ | 0.0 | |
| 2000 04 06 | 645 | 0.0 | 0.1− | 2009 09 19 | 703 | 0.5+ | 0.5+ | 2009 12 12 | G96 | 0.2− | 0.2− | |
| 2000 04 06 | 645 | 0.0 | 0.1+ | 2009 09 19 | 703 | 0.6+ | 1.2+ | 2009 12 12 | G96 | 0.4+ | 0.1+ | |
| 2001 02 20 | 645 | 0.1+ | 0.0 | 2009 09 19 | 703 | 0.6+ | 1.3+ | 2009 12 18 | G96 | 0.1− | 0.5− | |
| 2001 02 20 | 645 | 0.1+ | 0.1+ | 2009 09 19 | 703 | (0.3+ | 1.9+) | 2009 12 18 | G96 | 0.1− | 0.4− | |
| 2007 03 10 | G96 | 0.3− | 0.0 | 2009 09 22 | G96 | 0.3+ | 0.1− | 2009 12 18 | G96 | 0.2− | 0.0 | |
| 2007 03 10 | G96 | 0.2+ | 0.4+ | 2009 09 22 | G96 | 0.2− | 0.0 | 2009 12 18 | G96 | 0.2+ | 0.1+ | |
| 2007 03 10 | G96 | 0.1+ | 0.1− | 2009 09 22 | G96 | 0.6+ | 0.1+ | | | | | |
| 2007 03 10 | G96 | 0.1− | 0.4+ | 2009 09 22 | G96 | 0.1+ | 0.1− | | | | | |

**2009 SU$_{146}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 350.28932 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.08572920 | $\omega$ | 359.70534 | | +0.59967357 | −0.79333733 | |
| $a$ | 5.0938975 | $\Omega$ | 53.44560 | | +0.73447709 | +0.49358920 | |
| $e$ | 0.0742367 | $i$ | 7.50474 | | +0.31770270 | +0.35635035 | |
| $P$ | 11.50 | $H$ | 13.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 04 09 | 644 | 0.1+ | 0.7+ | 2009 09 19 | 691 | 0.0 | 0.1+ | 2009 10 22 | G96 | 0.5+ | 0.6+ | |
| 2003 04 09 | 644 | 0.2+ | 0.8+ | 2009 09 19 | 691 | 0.2− | 0.1+ | 2009 10 26 | 691 | 0.0 | 0.2+ | |
| 2003 04 09 | 644 | 0.8+ | 0.8+ | 2009 09 19 | 691 | 0.2− | 0.0 | 2009 10 26 | 691 | 0.2− | 0.1− | |
| 2004 04 25 | 691 | 0.3+ | 0.0 | 2009 09 23 | 691 | 0.8− | 0.1+ | 2009 10 26 | 691 | 0.0 | 0.2+ | |
| 2004 04 25 | 691 | 0.2+ | 0.2+ | 2009 09 23 | 691 | 0.0 | 0.2+ | 2009 11 19 | G96 | 0.6+ | 0.0 | |
| 2004 04 25 | 691 | 0.2− | 0.4+ | 2009 09 23 | 691 | 0.6− | 0.5+ | 2009 11 19 | G96 | 0.2+ | 0.1− | |
| 2004 05 28 | 691 | 0.3+ | 0.4+ | 2009 10 14 | D29 | 0.2− | 0.5+ | 2009 11 19 | G96 | 0.2+ | 0.0 | |
| 2004 05 28 | 691 | 0.3+ | 0.1+ | 2009 10 14 | D29 | 0.1− | 0.1+ | 2009 11 19 | G96 | 0.4+ | 0.1+ | |
| 2004 05 28 | 691 | 0.2− | 0.1+ | 2009 10 14 | D29 | 0.4− | 0.2+ | 2009 11 19 | 621 | 0.1+ | 0.1+ | |
| 2008 10 07 | G96 | 0.5+ | 0.3− | 2009 10 14 | D29 | 0.2− | 0.3+ | 2009 11 19 | 621 | 1.2+ | 0.1− | |
| 2008 10 07 | G96 | 0.2− | 0.4− | 2009 10 22 | G96 | 0.7+ | 0.4+ | 2009 11 19 | 621 | 0.5+ | 0.1− | |
| 2008 10 07 | G96 | 0.1− | 0.6− | 2009 10 22 | G96 | 0.0 | 0.5+ | 2009 11 19 | 621 | 0.4+ | 0.0 | |
| 2008 10 07 | G96 | 0.1+ | 0.1− | 2009 10 22 | G96 | 0.4+ | 0.7+ | | | | | |

**2009 SR$_{178}$ = 2007 GG$_{13}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 150.58931 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17164948 | $\omega$ | 161.30300 | | −0.83519569 | +0.54483334 | |
| $a$ | 3.2065724 | $\Omega$ | 51.94146 | | −0.51592044 | −0.72907383 | |
| $e$ | 0.1135835 | $i$ | 5.45599 | | −0.19045802 | −0.41425593 | |
| $P$ | 5.74 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 03 11 | 691 | 0.0 | 0.1+ | 2007 04 14 | 691 | 0.0 | 0.1+ | 2009 09 25 | G96 | 0.6− | 0.2− | |
| 2007 03 11 | 691 | 0.1− | 0.1− | 2009 09 20 | G96 | 0.1+ | 0.1− | 2009 10 09 | 809 | 0.3− | 0.1+ | |
| 2007 03 11 | 691 | 0.0 | 0.0 | 2009 09 20 | G96 | 0.2+ | 0.1− | 2009 10 09 | 809 | 0.3− | 0.2+ | |
| 2007 04 11 | 691 | 0.0 | 0.1− | 2009 09 20 | G96 | 0.2+ | 0.1+ | 2009 10 09 | 809 | 0.0 | 0.0 | |
| 2007 04 11 | 691 | 0.3+ | 0.1− | 2009 09 20 | G96 | 0.1− | 0.4+ | 2009 10 09 | 809 | 0.0 | 0.1− | |
| 2007 04 11 | 691 | 0.0 | 0.4+ | 2009 09 25 | G96 | 0.0 | 0.4− | 2009 10 09 | 809 | 0.0 | 0.0 | |
| 2007 04 14 | 691 | 0.0 | 0.1+ | 2009 09 25 | G96 | 0.2+ | 0.2+ | | | | | |
| 2007 04 14 | 691 | 0.2− | 0.4− | 2009 09 25 | G96 | 0.4+ | 0.1− | | | | | |

**2009 SS$_{183}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 54.63078 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21344725 | $\omega$ | 81.12548 | | +0.89589297 | +0.43231835 | |
| $a$ | 2.7729519 | $\Omega$ | 253.20594 | | −0.43793913 | +0.82061355 | |
| $e$ | 0.1544876 | $i$ | 6.13753 | | −0.07473356 | +0.37375692 | |
| $P$ | 4.62 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 08 20 | 691 | 0.1+ | 0.0 | 2009 09 17 | 691 | 0.0 | 0.1+ | 2009 10 15 | G96 | 0.6+ | 0.3+ | |
| 2004 08 20 | 691 | 0.1− | 0.1− | 2009 09 17 | 691 | 0.0 | 0.1− | 2009 10 15 | G96 | 0.8+ | 0.3+ | |
| 2004 08 20 | 691 | 0.0 | 0.0 | 2009 09 17 | 691 | 0.1+ | 0.2+ | 2009 10 15 | G96 | 0.4+ | 0.5+ | |
| 2005 12 08 | 691 | 0.5− | 0.3− | 2009 09 21 | 691 | 0.4− | 0.1− | 2009 10 15 | G96 | 0.6+ | 0.3+ | |
| 2005 12 08 | 691 | 0.0 | 0.1+ | 2009 09 21 | 691 | 0.4− | 0.0 | 2009 12 16 | G96 | 0.7+ | 0.1− | |
| 2005 12 08 | 691 | 0.0 | 0.0 | 2009 09 21 | 691 | 1.0+ | 1.0− | 2009 12 16 | G96 | 0.1+ | 0.1− | |
| 2005 12 28 | 691 | 0.5− | 0.1+ | 2009 09 25 | 691 | 0.5− | 0.1+ | 2009 12 16 | G96 | 0.0 | 0.6+ | |
| 2005 12 28 | 691 | 0.5+ | 0.1+ | 2009 09 25 | 691 | 0.5− | 0.4+ | 2009 12 16 | G96 | 0.0 | 0.2− | |
| 2005 12 28 | 691 | 0.4+ | 0.1+ | 2009 09 25 | 691 | 0.1− | 0.1+ | | | | | |

**2009 SN$_{199}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 32.26331 | | (2000.0) | | | |
| $n$ | 0.21934954 | $\omega$ | 47.59946 | | +0.99861591 | −0.01840453 |
| $a$ | 2.7229828 | $\Omega$ | 313.39048 | | −0.00513535 | +0.89818132 |
| $e$ | 0.1304133 | $i$ | 3.88767 | | +0.05234392 | +0.43923979 |
| $P$ | 4.49 | $H$ | 17.5 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 02 | 691 | 0.0 | 0.5+ | 2007 03 13 | G96 | 0.4+ | 0.2− | 2009 09 26 | 691 | 0.1+ | 0.1− |
| 2005 12 02 | 691 | 0.1+ | 0.3− | 2009 09 22 | 691 | 0.3− | 0.1− | 2009 10 14 | 703 | 0.8− | 0.1+ |
| 2005 12 02 | 691 | 0.1− | 0.1− | 2009 09 22 | 691 | 0.1− | 0.2− | 2009 10 14 | 703 | 0.9+ | 1.1− |
| 2007 03 13 | G96 | 0.9− | 0.8− | 2009 09 22 | 691 | 0.2− | 0.2− | 2009 10 14 | 703 | 0.1+ | 0.6+ |
| 2007 03 13 | G96 | 0.2− | 0.0 | 2009 09 26 | 691 | 0.1− | 0.1− | 2009 10 14 | 703 | 0.7+ | 1.5+ |
| 2007 03 13 | G96 | 0.3+ | 0.3+ | 2009 09 26 | 691 | 0.4+ | 0.2+ | | | | |

**2009 SE$_{205}$ = 2009 SH$_{137}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 349.82934 | | (2000.0) | | | |
| $n$ | 0.08627559 | $\omega$ | 190.30911 | | +0.63088074 | −0.77285373 |
| $a$ | 5.0723679 | $\Omega$ | 220.62344 | | +0.71913131 | +0.61558076 |
| $e$ | 0.0127549 | $i$ | 6.03556 | | +0.29127248 | +0.15413450 |
| $P$ | 11.42 | $H$ | 13.7 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 04 22 | 691 | 0.3+ | 0.4+ | 2009 09 14 | 691 | 0.2+ | 0.2− | 2009 10 25 | 691 | 0.1− | 0.0 |
| 2004 04 22 | 691 | 0.1+ | 0.2+ | 2009 09 14 | 691 | 0.1− | 0.0 | 2009 10 25 | 691 | 0.1− | 0.1+ |
| 2004 04 22 | 691 | 0.2− | 0.3+ | 2009 09 18 | 691 | 0.2− | 0.2− | 2009 10 25 | 691 | 0.1− | 0.2+ |
| 2008 09 03 | 691 | 0.1+ | 0.4− | 2009 09 18 | 691 | 0.0 | 0.0 | 2009 11 11 | G96 | 0.0 | 0.1− |
| 2008 09 03 | 691 | 0.4− | 1.1+ | 2009 09 18 | 691 | 0.3− | 0.0 | 2009 11 11 | G96 | 0.0 | 0.0 |
| 2008 09 03 | 691 | 0.1− | 0.1− | 2009 09 22 | 691 | 0.1+ | 0.1+ | 2009 11 11 | G96 | 0.4+ | 0.2− |
| 2008 09 21 | G96 | 0.9+ | 0.5− | 2009 09 22 | 691 | 0.0 | 0.2+ | 2009 11 11 | G96 | 0.2+ | 0.1+ |
| 2008 09 21 | G96 | 0.0 | 1.0− | 2009 09 22 | 691 | 0.0 | 0.2+ | 2009 11 19 | G96 | 0.2− | 0.7− |
| 2008 09 21 | G96 | 0.8+ | 0.9− | 2009 09 26 | 691 | 0.2+ | 0.1+ | 2009 11 19 | G96 | 0.4+ | 0.2+ |
| 2008 09 21 | G96 | 0.5+ | 0.7− | 2009 09 26 | 691 | 0.1− | 0.1+ | 2009 11 19 | G96 | 0.1+ | 0.1− |
| 2009 09 14 | 691 | 0.2− | 0.2+ | 2009 09 26 | 691 | 0.2+ | 0.5+ | 2009 11 19 | G96 | 0.0 | 0.1− |

**2009 SQ$_{209}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 22.02755 | | (2000.0) | | | |
| $n$ | 0.25893131 | $\omega$ | 344.43507 | | +0.98791136 | −0.15355754 |
| $a$ | 2.4378838 | $\Omega$ | 24.42857 | | +0.14714710 | +0.88578074 |
| $e$ | 0.1807279 | $i$ | 2.94427 | | +0.04877380 | +0.43796412 |
| $P$ | 3.81 | $H$ | 17.5 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 12 13 | 645 | 0.0 | 0.0 | 2009 09 14 | J75 | 0.4+ | 0.5− | 2009 09 25 | 703 | (0.5− | 1.7+) |
| 2002 12 13 | 645 | 0.0 | 0.1− | 2009 09 14 | J75 | 0.0 | 1.3− | 2009 09 25 | 703 | (0.0 | 2.0+) |
| 2005 07 27 | 644 | 0.2− | 0.3+ | 2009 09 14 | J75 | 0.3− | 0.1− | 2009 10 10 | J75 | 0.8+ | 0.1+ |
| 2005 07 27 | 644 | 0.0 | 0.3+ | 2009 09 14 | J75 | 0.9+ | 0.1+ | 2009 10 10 | J75 | 0.5− | 0.3+ |
| 2005 07 27 | 644 | 0.5+ | 0.4+ | 2009 09 16 | A50 | 0.3+ | 0.2+ | 2009 10 10 | J75 | 0.5− | 0.6+ |
| 2005 09 01 | 644 | 0.4− | 0.0 | 2009 09 17 | A50 | 0.9− | 0.4+ | 2009 10 18 | G96 | 0.1− | 0.4+ |
| 2005 09 01 | 644 | 0.0 | 0.0 | 2009 09 17 | A50 | 0.2+ | 0.2− | 2009 10 18 | G96 | 0.4− | 0.3+ |
| 2005 09 01 | 644 | 0.4− | 0.2+ | 2009 09 23 | G96 | 0.2− | 0.1+ | 2009 10 18 | G96 | 0.3− | 0.0 |
| 2007 01 28 | 691 | 0.1+ | 0.1+ | 2009 09 23 | G96 | 0.1− | 0.1+ | 2009 10 18 | G96 | 0.2− | 0.1+ |
| 2007 01 28 | 691 | 0.2+ | 0.2+ | 2009 09 23 | G96 | 0.1+ | 0.2+ | 2009 12 11 | G96 | 0.5+ | 0.0 |
| 2007 01 28 | 691 | 0.1− | 0.3+ | 2009 09 23 | G96 | 0.1− | 0.3+ | 2009 12 11 | G96 | 0.1+ | 0.2− |
| 2009 09 14 | J75 | 0.4+ | 0.7+ | 2009 09 25 | 703 | (0.2+ | 1.6+) | 2009 12 11 | G96 | 0.4+ | 0.2− |
| 2009 09 14 | J75 | 0.3− | 0.9− | 2009 09 25 | 703 | (0.2+ | 2.5+) | 2009 12 11 | G96 | 0.0 | 0.3− |

**2009 SG$_{213}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 99.46958 | | (2000.0) | | | |
| $n$ | 0.26239188 | $\omega$ | 259.52927 | | +0.34649105 | +0.93618059 |
| $a$ | 2.4164017 | $\Omega$ | 30.94935 | | −0.80928841 | +0.33026788 |
| $e$ | 0.1507828 | $i$ | 6.61505 | | −0.47433766 | +0.12037041 |
| $P$ | 3.76 | $H$ | 16.7 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 12 | 644 | 0.5− | 0.9+ | 2008 04 26 | G96 | 0.1+ | 0.1+ | 2009 10 13 | J75 | 0.6+ | 0.1− |
| 2001 08 12 | 644 | 0.2− | 0.4+ | 2008 04 26 | G96 | 0.1+ | 0.2+ | 2009 10 14 | G96 | 0.4+ | 0.3− |
| 2001 08 12 | 644 | 0.3+ | 0.0 | 2008 04 26 | G96 | 0.0 | 0.2+ | 2009 10 14 | G96 | 0.1+ | 0.2− |
| 2005 09 23 | 703 | 0.3− | 0.1− | 2008 04 26 | G96 | 0.1+ | 0.2+ | 2009 10 14 | G96 | 0.3+ | 0.1− |
| 2005 09 23 | 703 | 0.2+ | 0.7− | 2009 09 15 | 691 | 0.4− | 0.1+ | 2009 10 14 | G96 | 0.1− | 0.3− |
| 2005 09 23 | 703 | 0.1+ | 0.4+ | 2009 09 15 | 691 | 0.0 | 0.4+ | 2009 11 10 | 703 | 0.5+ | 0.2− |
| 2005 09 23 | 703 | 1.2+ | 0.3− | 2009 09 15 | 691 | 0.1− | 0.1− | 2009 11 10 | 703 | 1.3+ | 0.1+ |
| 2005 10 01 | 703 | 0.9+ | 0.5− | 2009 09 23 | 691 | 0.1− | 0.1+ | 2009 11 10 | 703 | 0.1− | 0.2− |
| 2005 10 01 | 703 | 0.3− | 1.3− | 2009 09 23 | 691 | 0.5− | 0.6+ | 2009 11 10 | 703 | 0.7+ | 2.3+ |
| 2005 10 01 | 703 | 0.3+ | 1.4− | 2009 09 23 | 691 | 0.1− | 0.2+ | 2009 11 25 | G96 | 0.1− | 0.6− |
| 2005 10 01 | 703 | 0.5− | 0.6− | 2009 09 27 | 691 | 0.2− | 0.1+ | 2009 11 25 | G96 | 0.2− | 0.1− |
| 2005 12 01 | G96 | 0.1+ | 0.0 | 2009 09 27 | 691 | 0.1− | 0.1+ | 2009 11 25 | G96 | 0.4− | 0.4− |
| 2005 12 01 | G96 | 0.6+ | 0.0 | 2009 09 27 | 691 | 0.4− | 0.1+ | 2009 11 25 | G96 | 0.0 | 0.8− |
| 2005 12 01 | G96 | 0.5+ | 0.4− | 2009 10 13 | J75 | 0.8+ | 0.2− | | | | |
| 2005 12 01 | G96 | 0.5+ | 0.0 | 2009 10 13 | J75 | 0.8+ | 0.0 | | | | |

**2009 SN$_{213}$ = 2000 RW$_{12}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 85.31204 | | (2000.0) | | | |
| $n$ | 0.22809096 | $\omega$ | 29.00355 | | +0.33911258 | +0.90596581 |
| $a$ | 2.6529598 | $\Omega$ | 261.79672 | | −0.90495269 | +0.24054622 |
| $e$ | 0.1709063 | $i$ | 14.83602 | | −0.25702782 | +0.34837260 |
| $P$ | 4.32 | $H$ | 15.4 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 01 | 704 | 0.2− | 0.8− | 2000 09 03 | 704 | 0.4− | 0.5− | 2009 10 14 | G96 | 0.2− | 0.0 |
| 2000 09 01 | 704 | 1.4− | 0.1+ | 2000 09 03 | 704 | 0.6+ | 0.3− | 2009 10 14 | G96 | 0.4− | 0.0 |
| 2000 09 01 | 704 | 0.2+ | 0.4+ | 2002 01 05 | 691 | 0.3+ | 0.1+ | 2009 10 14 | G96 | 0.1− | 0.1− |
| 2000 09 01 | 704 | 0.7+ | 0.5+ | 2002 01 05 | 691 | 0.5− | 0.1+ | 2009 10 14 | G96 | 0.3− | 0.0 |
| 2000 09 03 | 704 | 1.4+ | 0.5− | 2002 01 05 | 691 | 0.1+ | 0.3− | 2009 10 21 | 703 | 0.1+ | 0.4− |
| 2000 09 03 | 704 | 0.4− | 0.4+ | 2009 09 23 | 703 | 0.7− | 0.1− | 2009 10 21 | 703 | 0.3+ | 0.2− |
| 2000 09 03 | 704 | 0.6+ | 1.2+ | 2009 09 23 | 703 | 0.6− | 0.8− | 2009 10 21 | 703 | 0.1+ | 1.1− |
| 2000 09 03 | 704 | 0.2+ | 0.3− | 2009 09 23 | 703 | 1.3+ | 0.2+ | 2009 10 21 | 703 | 1.0− | 0.6+ |
| 2000 09 03 | 704 | 0.0 | 0.9+ | 2009 09 23 | 703 | 0.4− | 0.8− | 2009 11 08 | 703 | 0.4+ | 0.2− |
| 2000 09 03 | 704 | 0.4− | 0.5− | 2009 09 26 | J75 | 0.2+ | 0.4+ | 2009 11 08 | 703 | 0.2+ | 0.4− |
| 2000 09 03 | 704 | 0.3− | 0.4− | 2009 09 26 | J75 | 0.3+ | 1.0+ | 2009 11 08 | 703 | 0.5+ | 0.1− |
| 2000 09 03 | 704 | 0.4− | 0.3− | 2009 09 26 | J75 | 0.0 | 1.1+ | 2009 11 08 | 703 | 0.2+ | 1.2+ |

**2009 SG$_{215}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 56.02941 | | (2000.0) | | | |
| $n$ | 0.26900558 | $\omega$ | 67.14166 | | +0.79075979 | +0.61156378 |
| $a$ | 2.3766316 | $\Omega$ | 255.14566 | | −0.57109760 | +0.72164761 |
| $e$ | 0.1936426 | $i$ | 1.55580 | | −0.22033267 | +0.32436782 |
| $P$ | 3.66 | $H$ | 17.1 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 02 05 | 695 | 0.4− | 0.1+ | 2009 09 10 | 703 | (1.9+ | 0.2+) | 2009 09 27 | G96 | 0.1− | 0.2− |
| 2000 02 05 | 695 | 0.2− | 0.1+ | 2009 09 10 | 703 | 0.8− | 0.5+ | 2009 09 27 | G96 | 0.2+ | 0.1− |
| 2002 11 25 | 644 | 0.1+ | 0.2− | 2009 09 10 | 703 | 0.1+ | 1.4− | 2009 10 10 | 703 | 1.0+ | 1.0− |
| 2002 11 25 | 644 | 0.2− | 0.5+ | 2009 09 16 | 691 | 0.3− | 0.3+ | 2009 10 10 | 703 | 0.4− | 0.0 |
| 2002 11 25 | 644 | 0.6+ | 0.1+ | 2009 09 16 | 691 | 0.1− | 0.1+ | 2009 10 10 | 703 | 0.1− | 0.8+ |
| 2005 12 01 | 695 | 0.0 | 0.0 | 2009 09 16 | 691 | 0.1− | 0.4+ | 2009 10 10 | 703 | (2.5− | 0.6−) |
| 2005 12 01 | 695 | 0.2− | 0.1− | 2009 09 23 | 106 | 0.4+ | 0.5+ | 2009 12 17 | G96 | 0.3− | 0.1+ |
| 2008 03 27 | G96 | 0.2+ | 0.1+ | 2009 09 23 | 106 | 0.3− | 0.7− | 2009 12 17 | G96 | 0.3− | 0.1+ |
| 2008 03 27 | G96 | 0.0 | 0.0 | 2009 09 23 | 106 | 1.2+ | 0.0 | 2009 12 17 | G96 | 0.9− | 0.1− |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 03 27 | G96 | 0.4+ | 0.0 | 2009 09 23 | 106 | 0.6+ | 0.8− | 2009 12 17 | G96 | 0.3+ | 0.6− | | |
| 2008 03 27 | G96 | 0.1− | 0.1+ | 2009 09 27 | G96 | 0.2− | 0.2− | | | | | | |
| 2009 09 10 | 703 | 0.9+ | 0.5+ | 2009 09 27 | G96 | 0.2− | 0.3− | | | | | | |

### 2009 $SS_{215}$ = 2008 $KA_{14}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 71.88951 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17585400 | $\omega$ | 103.78296 | | +0.34800996 | | +0.93698795 |
| $a$ | 3.1552556 | $\Omega$ | 186.82245 | | −0.92857360 | | +0.34000854 |
| $e$ | 0.2171499 | $i$ | 14.97843 | | −0.12899666 | | +0.08029806 |
| $P$ | 5.60 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 04 13 | G96 | 0.2+ | 0.1− | 2008 05 31 | 691 | 0.1− | 0.3− | 2009 09 27 | 691 | 0.2− | 0.3+ |
| 2008 04 13 | G96 | 0.4+ | 0.4− | 2009 09 15 | 691 | 0.7+ | 0.1− | 2009 10 18 | G96 | 0.3+ | 0.3+ |
| 2008 04 13 | G96 | 0.5+ | 0.4+ | 2009 09 15 | 691 | 0.6+ | 0.1− | 2009 10 18 | G96 | 0.3− | 0.1+ |
| 2008 04 13 | G96 | 0.1+ | 0.1− | 2009 09 15 | 691 | 0.3+ | 0.0 | 2009 10 18 | G96 | 0.3+ | 0.1+ |
| 2008 05 27 | 691 | 0.2− | 0.1+ | 2009 09 24 | 691 | 1.0− | 0.1− | 2009 10 18 | G96 | 0.1− | 0.0 |
| 2008 05 27 | 691 | 0.3+ | 0.0 | 2009 09 24 | 691 | 0.0 | 0.1+ | 2009 10 26 | G96 | 0.7+ | 0.1+ |
| 2008 05 27 | 691 | 0.2− | 0.0 | 2009 09 24 | 691 | 0.5− | 0.2+ | 2009 10 26 | G96 | 1.1+ | 0.8− |
| 2008 05 31 | 691 | 0.2+ | 0.1+ | 2009 09 27 | 691 | 0.3− | 0.4− | 2009 10 26 | G96 | 0.3+ | 0.8+ |
| 2008 05 31 | 691 | 0.3− | 0.2+ | 2009 09 27 | 691 | 0.0 | 0.2− | 2009 10 26 | G96 | 0.3+ | 0.4+ |

### 2009 $SW_{216}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 285.65601 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.08208572 | $\omega$ | 94.55415 | | −0.28493815 | | −0.95659657 |
| $a$ | 5.2435368 | $\Omega$ | 12.52518 | | +0.72913744 | | −0.25768111 |
| $e$ | 0.1412016 | $i$ | 16.36403 | | +0.62222893 | | −0.13610089 |
| $P$ | 12.01 | $H$ | 13.3 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 01 16 | 012 | 0.8− | 1.2− | 2002 04 02 | 644 | 0.2+ | 0.6+ | 2009 09 27 | 691 | 0.0 | 0.1− |
| 2001 01 16 | 012 | 0.0 | 0.0 | 2009 09 15 | 691 | 0.1− | 0.2+ | 2009 10 16 | G96 | 0.3+ | 0.0 |
| 2001 01 16 | 012 | (1.9− | 0.9−) | 2009 09 15 | 691 | 0.1+ | 0.0 | 2009 10 16 | G96 | 0.5+ | 0.0 |
| 2001 01 16 | 012 | 0.7+ | 0.3+ | 2009 09 15 | 691 | 0.4+ | 0.0 | 2009 10 16 | G96 | 0.2+ | 0.3+ |
| 2001 01 16 | 012 | 0.2− | 0.5+ | 2009 09 24 | 691 | 0.1− | 0.1+ | 2009 10 16 | G96 | 0.6+ | 0.1+ |
| 2002 03 12 | 645 | 0.0 | 0.0 | 2009 09 24 | 691 | 0.2− | 0.1+ | 2009 12 11 | G96 | 0.4− | 0.1+ |
| 2002 03 12 | 645 | 0.0 | 0.0 | 2009 09 24 | 691 | 0.1− | 0.2+ | 2009 12 11 | G96 | 0.1− | 0.2+ |
| 2002 04 02 | 644 | 0.5+ | 0.8+ | 2009 09 27 | 691 | 0.2− | 0.2− | 2009 12 11 | G96 | 0.3− | 0.1− |
| 2002 04 02 | 644 | 0.4+ | 0.6+ | 2009 09 27 | 691 | 0.4− | 0.2− | 2009 12 11 | G96 | 0.0 | 0.2+ |

### 2009 $SY_{224}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 0.09267 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.26654738 | $\omega$ | 358.08983 | | +0.51858424 | | −0.85324591 |
| $a$ | 2.3912213 | $\Omega$ | 60.66894 | | +0.78530793 | | +0.44979494 |
| $e$ | 0.2016385 | $i$ | 3.62710 | | +0.33817429 | | +0.26392411 |
| $P$ | 3.70 | $H$ | 18.9 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 11 15 | 691 | 0.0 | 0.8− | 2005 08 31 | 568 | 0.1+ | 0.1− | 2009 10 26 | 691 | 0.2+ | 0.1+ |
| 1998 11 15 | 691 | 0.2+ | 0.5− | 2005 08 31 | 568 | 0.1+ | 0.1− | 2009 10 26 | 691 | 0.0 | 0.6+ |
| 1998 11 15 | 691 | 0.0 | 0.3− | 2007 03 19 | G96 | 0.5+ | 0.9+ | 2009 10 26 | 691 | 0.5− | 0.2− |
| 1998 11 26 | 691 | 0.3+ | 0.4+ | 2007 03 19 | G96 | 0.8− | 0.1+ | 2009 11 11 | 691 | 0.2+ | 0.0 |
| 1998 11 26 | 691 | 0.2− | 0.2− | 2007 03 19 | G96 | 0.0 | 0.7+ | 2009 11 11 | 691 | 0.4+ | 0.3− |
| 1998 11 26 | 691 | 0.1− | 0.1+ | 2007 03 19 | G96 | 0.2− | 0.1− | 2009 11 11 | 691 | 0.1+ | 0.1− |
| 2003 01 25 | 645 | 0.0 | 0.0 | 2009 09 25 | 691 | 0.5− | 0.5+ | 2009 11 20 | 691 | 0.2+ | 0.3+ |
| 2003 01 25 | 645 | 0.0 | 0.0 | 2009 09 25 | 691 | 0.1+ | 0.1− | 2009 11 20 | 691 | 0.1+ | 0.2+ |
| 2005 08 31 | 568 | 0.3+ | 0.0 | 2009 09 25 | 691 | 0.0 | 0.1− | 2009 11 20 | 691 | 0.1+ | 0.4+ |
| 2005 08 31 | 568 | 0.1+ | 0.1− | 2009 09 27 | 691 | 0.4− | 0.5+ | 2009 12 15 | G96 | 0.1+ | 0.2+ |
| 2005 08 31 | 568 | 0.4+ | 0.1− | 2009 09 27 | 691 | 0.5− | 0.1− | 2009 12 15 | G96 | 0.1+ | 0.2+ |
| 2005 08 31 | 568 | 0.1+ | 0.1− | 2009 09 27 | 691 | 0.3− | 0.0 | 2009 12 15 | G96 | 0.0 | 0.3+ |
| 2005 08 31 | 568 | 0.0 | 0.1− | 2009 10 13 | J75 | 0.3− | 0.8− | 2009 12 15 | G96 | 0.5− | 0.6+ |
| 2005 08 31 | 568 | 0.1+ | 0.1− | 2009 10 13 | J75 | 0.4+ | 0.1+ | | | | |
| 2005 08 31 | 568 | 0.0 | 0.1− | 2009 10 13 | J75 | 0.1+ | 0.5− | | | | |

### 2009 $SL_{229}$ = 1996 $RT_{21}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 314.88760 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.08011103 | $\omega$ | 283.35180 | | +0.38497880 | | −0.92167575 |
| $a$ | 5.3293531 | $\Omega$ | 143.88740 | | +0.87516720 | | +0.34804563 |
| $e$ | 0.0832305 | $i$ | 4.67264 | | +0.29304214 | | +0.17140029 |
| $P$ | 12.30 | $H$ | 13.3 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 09 07 | 691 | 0.1+ | 0.8+ | 2009 09 23 | G96 | 0.3− | 0.1− | 2009 09 27 | H55 | 0.2+ | 0.1− |
| 1996 09 07 | 691 | 0.1− | 0.5− | 2009 09 23 | G96 | 0.2− | 0.1− | 2009 10 26 | G96 | 0.3− | 0.2+ |
| 1996 09 07 | 691 | 0.2+ | 0.4− | 2009 09 23 | G96 | 0.1+ | 0.3− | 2009 10 26 | G96 | 0.3+ | 0.1− |
| 1996 09 21 | 691 | 0.0 | 0.0 | 2009 09 23 | G96 | 0.1+ | 0.1− | 2009 10 26 | G96 | 0.2− | 0.3+ |
| 1996 09 21 | 691 | 0.1− | 0.1− | 2009 09 27 | H55 | 0.3+ | 0.1− | 2009 10 26 | G96 | 0.0 | 0.1+ |
| 1996 09 21 | 691 | 0.2− | 0.2+ | 2009 09 27 | H55 | 0.1+ | 0.1+ | | | | |

### 2009 $SJ_{233}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 336.24470 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.30329133 | $\omega$ | 48.23577 | | +0.15993267 | | −0.98581282 |
| $a$ | 2.1939634 | $\Omega$ | 32.66552 | | +0.87536535 | | +0.11778623 |
| $e$ | 0.0796325 | $i$ | 5.41537 | | +0.45624232 | | +0.11958050 |
| $P$ | 3.25 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 11 07 | 327 | 1.1− | 0.5− | 2009 09 27 | 691 | 0.1+ | 0.2+ | 2009 10 27 | G96 | 0.3+ | 0.1− |
| 1996 11 07 | 327 | 0.5+ | 0.2− | 2009 10 14 | G96 | 0.0 | 0.6− | 2009 10 27 | G96 | 0.0 | 0.8− |
| 1996 11 07 | 327 | 0.6+ | 0.5+ | 2009 10 14 | G96 | 0.4+ | 0.6− | 2009 10 27 | G96 | 0.3− | 0.2+ |
| 2006 12 13 | 703 | 0.1+ | 0.0 | 2009 10 14 | G96 | 0.3+ | 0.5− | 2009 10 27 | G96 | 0.2+ | 0.1− |
| 2006 12 13 | 703 | 0.4− | 0.1+ | 2009 10 14 | G96 | 0.3+ | 0.4− | 2009 11 25 | G96 | 0.0 | 0.1+ |
| 2006 12 13 | 703 | 0.9+ | 0.1− | 2009 10 17 | J75 | 0.3+ | 0.0 | 2009 11 25 | G96 | 0.1+ | 0.1− |
| 2006 12 13 | 703 | 0.6− | 0.1+ | 2009 10 17 | J75 | 0.6+ | 0.2− | 2009 11 25 | G96 | 0.3+ | 0.2− |
| 2009 09 19 | 691 | 0.2− | 0.1+ | 2009 10 17 | J75 | 0.5+ | 0.1+ | 2009 11 25 | G96 | 0.0 | 0.2− |
| 2009 09 19 | 691 | 0.1+ | 0.1− | 2009 10 22 | 704 | 0.2− | 0.8+ | 2009 12 16 | G96 | 0.4− | 0.2+ |
| 2009 09 19 | 691 | 0.0 | 0.0 | 2009 10 22 | 704 | 0.0 | 0.9+ | 2009 12 16 | G96 | 0.2− | 0.0 |
| 2009 09 27 | 691 | 0.0 | 0.2− | 2009 10 22 | 704 | 0.4− | 0.9+ | 2009 12 16 | G96 | 0.5+ | 0.4+ |
| 2009 09 27 | 691 | 0.3− | 0.0 | 2009 10 22 | 704 | 1.6− | 0.3+ | 2009 12 16 | G96 | 0.0 | 0.3− |

### 2009 $SS_{233}$ = 2006 $KT_{108}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 0.20885 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17724736 | $\omega$ | 34.28966 | | +0.25321559 | | −0.90825164 |
| $a$ | 3.1386980 | $\Omega$ | 43.87160 | | +0.74439064 | | −0.03699194 |
| $e$ | 0.2622235 | $i$ | 28.72748 | | +0.61787089 | | +0.41678599 |
| $P$ | 5.56 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 01 | 699 | 0.2+ | 0.0 | 2006 06 01 | G96 | 0.1− | 0.3− | 2009 10 27 | 703 | 1.3+ | 1.0+ |
| 2003 10 01 | 699 | 0.4− | 0.2+ | 2006 06 01 | G96 | 0.8− | 0.2+ | 2009 10 27 | 703 | 0.8− | 0.9+ |
| 2003 10 01 | 699 | 0.6− | 1.0+ | 2006 06 01 | G96 | 0.5− | 0.3− | 2009 11 10 | 703 | 0.7− | 0.8− |
| 2003 10 01 | 699 | 0.3− | 0.2− | 2009 09 21 | G96 | 0.1− | 0.1− | 2009 11 10 | 703 | 0.2+ | 0.4− |
| 2006 05 06 | 691 | 0.3+ | 0.3+ | 2009 09 21 | G96 | 0.2− | 0.3− | 2009 11 10 | 703 | 0.1+ | 0.3− |
| 2006 05 06 | 691 | 0.2+ | 0.2+ | 2009 09 21 | G96 | 0.1− | 0.1− | 2009 11 10 | 703 | 0.6− | 0.7+ |
| 2006 05 06 | 691 | 0.4+ | 0.4− | 2009 09 21 | G96 | 0.1+ | 0.2− | 2009 11 26 | 703 | 0.3− | 1.1+ |
| 2006 05 31 | G96 | 0.1− | 0.0 | 2009 09 27 | 703 | 1.5+ | 0.6− | 2009 11 26 | 703 | 0.2+ | 0.1+ |
| 2006 05 31 | G96 | 0.2− | 0.2+ | 2009 09 27 | 703 | 0.3+ | 0.1+ | 2009 11 26 | 703 | 0.6− | 0.1− |
| 2006 05 31 | G96 | 0.0 | 0.6+ | 2009 09 27 | 703 | 0.2− | 0.1+ | 2009 11 26 | 703 | 0.8− | 0.1− |
| 2006 05 31 | G96 | 0.2− | 0.2+ | 2009 09 27 | 703 | 0.6+ | 0.8− | 2009 11 26 | 703 | 0.5+ | 0.2− |
| 2006 06 01 | G96 | 0.6− | 0.3+ | 2009 10 27 | 703 | 0.3− | 0.1+ | | | | |

**2009 SL$_{234}$ = 2004 XL$_{76}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 19.77395 | | (2000.0) | | | |
| $n$ | 0.17449044 | $\omega$ | 290.74238 | | +0.94067324 | −0.29563912 |
| $a$ | 3.1716722 | $\Omega$ | 86.75081 | | +0.33851641 | +0.85129492 |
| $e$ | 0.0837167 | $i$ | 9.60155 | | −0.02324852 | +0.43346796 |
| $P$ | 5.65 | $H$ | 15.2 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 04 16 | 645 | 0.0 | 0.0 | 2004 12 16 | 704 | 0.1+ | 1.1+ | 2009 09 24 | 703 | (0.1− | 1.8+) |
| 2001 04 16 | 645 | 0.0 | 0.0 | 2004 12 16 | 704 | 0.6+ | 0.2− | 2009 09 24 | 703 | 0.2+ | 0.7+ |
| 2004 12 10 | 691 | 0.3− | 0.1− | 2004 12 16 | 704 | 0.3+ | 0.1− | 2009 10 15 | 703 | 0.0 | 0.3− |
| 2004 12 10 | 691 | 0.0 | 0.1− | 2004 12 16 | 704 | 0.1+ | 0.4− | 2009 10 15 | 703 | 0.4+ | 0.3+ |
| 2004 12 10 | 691 | 0.1− | 0.0 | 2004 12 16 | 704 | 0.0 | 0.6− | 2009 10 15 | 703 | 0.3+ | 0.8+ |
| 2004 12 14 | 704 | 0.1− | 0.5+ | 2004 12 18 | 691 | 0.0 | 0.0 | 2009 10 15 | 703 | 0.4− | 0.0 |
| 2004 12 14 | 704 | 0.2− | 0.2− | 2004 12 18 | 691 | 0.1+ | 0.2+ | 2009 10 26 | J75 | 0.7+ | 0.2− |
| 2004 12 14 | 704 | 0.4+ | 0.8+ | 2004 12 18 | 691 | 0.2− | 0.2− | 2009 10 26 | J75 | 0.3+ | 0.4− |
| 2004 12 14 | 704 | 0.1+ | 0.8+ | 2009 09 16 | 703 | 0.6+ | 0.4+ | 2009 10 26 | J75 | 0.2− | 0.3+ |
| 2004 12 14 | 704 | 0.0 | 1.0+ | 2009 09 16 | 703 | 0.5− | 0.4+ | 2009 11 18 | 703 | 0.9− | 1.0− |
| 2004 12 14 | 703 | 0.6− | 0.3− | 2009 09 16 | 703 | 0.8+ | 0.1− | 2009 11 18 | 703 | 0.2− | 0.3− |
| 2004 12 14 | 703 | 0.2+ | 0.1− | 2009 09 16 | 703 | 1.4+ | 0.2+ | 2009 11 18 | 703 | 0.1− | 0.0 |
| 2004 12 14 | 703 | 0.4+ | 0.7− | 2009 09 24 | 703 | 0.1+ | 0.6− | 2009 11 18 | 703 | 1.3− | 1.4− |
| 2004 12 14 | 703 | 0.4+ | 0.3− | 2009 09 24 | 703 | 0.9− | 0.5+ | | | | |

**2009 SP$_{234}$ = 2005 XO$_{92}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 341.30396 | | (2000.0) | | | |
| $n$ | 0.22501227 | $\omega$ | 335.30899 | | +0.34077353 | −0.90817686 |
| $a$ | 2.6771040 | $\Omega$ | 93.99962 | | +0.89798527 | +0.23786423 |
| $e$ | 0.0945198 | $i$ | 14.10349 | | +0.27838079 | +0.34443490 |
| $P$ | 4.38 | $H$ | 15.8 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 09 | 704 | 0.0 | 0.6− | 2006 01 22 | G96 | 0.0 | 0.1− | 2009 09 16 | 703 | 0.4+ | 0.1+ |
| 2005 12 09 | 704 | 0.5+ | 1.3− | 2006 01 22 | G96 | 0.2+ | 0.1− | 2009 09 25 | 703 | 0.4+ | 0.0 |
| 2005 12 09 | 704 | 0.5+ | 0.2+ | 2006 03 05 | G96 | 0.0 | 0.1+ | 2009 09 25 | 703 | 0.7− | 1.2− |
| 2005 12 27 | 703 | 0.6− | 0.7+ | 2006 03 05 | G96 | 0.3− | 0.1+ | 2009 09 25 | 703 | 0.3− | 1.1+ |
| 2005 12 27 | 703 | 0.2+ | 0.6+ | 2006 03 05 | G96 | 0.1+ | 0.2− | 2009 09 25 | 703 | 0.3+ | 0.6− |
| 2005 12 27 | 703 | 1.5− | 0.6+ | 2006 03 05 | G96 | 0.3+ | 0.5− | 2009 10 21 | 703 | (1.7+ | 1.1+) |
| 2005 12 27 | 703 | 0.3+ | 0.0 | 2009 09 16 | 703 | 0.9+ | 0.1− | 2009 10 21 | 703 | 0.1− | 0.4+ |
| 2006 01 22 | G96 | 0.2+ | 0.1− | 2009 09 16 | 703 | 0.5− | 0.3+ | 2009 10 21 | 703 | 0.4− | 0.1+ |
| 2006 01 22 | G96 | (0.4+ | 1.7+) | 2009 09 16 | 703 | 0.7+ | 0.0 | 2009 10 21 | 703 | 0.7− | 0.0 |

**2009 ST$_{235}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 314.62332 | | (2000.0) | | | |
| $n$ | 0.08430242 | $\omega$ | 225.73857 | | +0.10943182 | −0.98659736 |
| $a$ | 5.1512113 | $\Omega$ | 218.46941 | | +0.95839333 | +0.13702478 |
| $e$ | 0.0879154 | $i$ | 11.21934 | | +0.26364163 | −0.08859939 |
| $P$ | 11.69 | $H$ | 13.6 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 01 17 | 608 | 0.2+ | 0.0 | 2009 09 18 | 691 | 0.4− | 0.2+ | 2009 10 27 | G96 | 0.7+ | 0.1− |
| 2001 01 17 | 608 | 0.0 | 0.3+ | 2009 09 18 | 691 | 0.2− | 0.4+ | 2009 10 27 | G96 | 0.6+ | 0.3− |
| 2001 01 17 | 608 | 0.1− | 0.2+ | 2009 09 22 | 691 | 0.1+ | 0.0 | 2009 11 18 | G96 | 0.3+ | 0.9+ |
| 2003 05 06 | 691 | (0.8+ | 2.0+) | 2009 09 22 | 691 | 0.2− | 0.2+ | 2009 11 18 | G96 | 0.6+ | 0.5+ |
| 2003 05 06 | 691 | (0.4+ | 1.8+) | 2009 09 22 | 691 | 0.2− | 0.2− | 2009 11 18 | G96 | 0.3+ | 0.3− |
| 2003 05 06 | 691 | 0.3+ | 1.4+ | 2009 09 26 | 691 | 0.1− | 0.3+ | 2009 11 18 | G96 | 0.7+ | 0.2− |
| 2004 05 21 | 691 | 0.0 | 0.1+ | 2009 09 26 | 691 | 0.2− | 0.5+ | 2009 11 24 | G96 | 0.2+ | 0.1+ |
| 2004 05 21 | 691 | 0.0 | 0.0 | 2009 09 26 | 691 | 0.2− | 0.0 | 2009 11 24 | G96 | 0.4+ | 0.3− |
| 2004 05 21 | 691 | 0.0 | 0.1+ | 2009 10 27 | G96 | 0.8+ | 0.3+ | 2009 11 24 | G96 | 0.0 | 0.2+ |
| 2009 09 18 | 691 | 0.1− | 0.0 | 2009 10 27 | G96 | 0.1+ | 0.2+ | 2009 11 24 | G96 | 0.2+ | 0.0 |

**2009 SC$_{238}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 20.12589 | | (2000.0) | | | |
| $n$ | 0.22786992 | $\omega$ | 277.85459 | | +0.96229441 | −0.23415662 |
| $a$ | 2.6546752 | $\Omega$ | 95.76526 | | +0.26998089 | +0.88424168 |
| $e$ | 0.2727812 | $i$ | 7.99715 | | −0.03316293 | +0.40408828 |
| $P$ | 4.33 | $H$ | 17.0 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 01 | 691 | 0.1− | 0.0 | 2009 09 16 | 703 | 0.2− | 0.6− | 2009 10 16 | 703 | 0.1+ | 0.1− |
| 2005 12 01 | 691 | 0.0 | 0.1+ | 2009 09 16 | 703 | 0.9+ | 0.6− | 2009 10 16 | 703 | 0.1− | 0.1− |
| 2005 12 01 | 691 | 0.0 | 0.0 | 2009 09 16 | 703 | 0.1− | 0.4+ | 2009 10 16 | 703 | 0.2− | 0.8− |
| 2008 05 28 | G96 | 0.2− | 0.1+ | 2009 09 25 | 703 | 0.5+ | 0.3− | 2009 10 23 | 703 | 0.9− | 0.5− |
| 2008 05 28 | G96 | 0.1− | 0.0 | 2009 09 25 | 703 | 1.3− | 0.7− | 2009 10 23 | 703 | 1.1+ | 0.0 |
| 2008 05 28 | G96 | 0.4+ | 0.2− | 2009 09 25 | 703 | 0.2− | 0.5+ | 2009 10 23 | 703 | 0.1− | 0.5+ |
| 2008 05 28 | G96 | 0.1− | 0.0 | 2009 09 25 | 703 | 0.1− | 0.9+ | 2009 10 23 | 703 | 0.0 | 0.8+ |
| 2009 09 16 | 703 | 0.3+ | 0.6+ | 2009 10 16 | 703 | 0.3+ | 0.0 | | | | |

**2009 SM$_{238}$ = 2008 LO**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 26.54338 | | (2000.0) | | | |
| $n$ | 0.26939815 | $\omega$ | 317.78740 | | +0.97189418 | −0.17599365 |
| $a$ | 2.3743221 | $\Omega$ | 53.01594 | | +0.23145893 | +0.83564438 |
| $e$ | 0.2253298 | $i$ | 11.28800 | | −0.04299372 | +0.52031212 |
| $P$ | 3.66 | $H$ | 17.0 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 09 27 | 699 | 1.8+ | 0.3+ | 2008 06 03 | G96 | 0.4− | 0.0 | 2009 10 16 | 703 | 0.7+ | 0.4+ |
| 1998 09 27 | 699 | 0.0 | 0.3+ | 2009 08 17 | 703 | 0.5− | 0.5+ | 2009 10 16 | 703 | 0.3+ | 0.5+ |
| 1998 09 27 | 699 | 0.1+ | 0.7+ | 2009 08 17 | 703 | 0.1+ | 1.1+ | 2009 10 16 | 703 | 0.2− | 0.1+ |
| 1998 10 18 | 699 | 1.1− | 0.4− | 2009 08 17 | 703 | 0.5− | 0.4+ | 2009 10 16 | 703 | 0.9+ | 0.2− |
| 1998 10 18 | 699 | 0.5− | 0.6− | 2009 08 17 | 703 | (1.0+ | 1.5−) | 2009 10 27 | 703 | 0.6− | 0.4− |
| 1998 10 18 | 699 | 0.2− | 0.6− | 2009 09 16 | 703 | 0.2+ | 0.2+ | 2009 10 27 | 703 | 0.3+ | 0.5− |
| 2008 06 01 | G96 | 0.4+ | 0.1− | 2009 09 16 | 703 | 0.5− | 0.3− | 2009 10 27 | 703 | 0.1− | 0.6− |
| 2008 06 01 | G96 | 0.5+ | 0.4− | 2009 09 16 | 703 | 0.4− | 0.0 | 2009 10 27 | 703 | 0.2+ | 0.7− |
| 2008 06 01 | G96 | 0.4− | 0.1− | 2009 09 16 | 703 | 0.0 | 0.3+ | 2009 12 15 | G96 | 0.0 | 0.5+ |
| 2008 06 01 | G96 | 0.2+ | 0.2+ | 2009 09 24 | 703 | (0.7− | 1.7−) | 2009 12 15 | G96 | 0.5+ | 0.1− |
| 2008 06 03 | G96 | 0.2+ | 0.1− | 2009 09 24 | 703 | (0.1+ | 2.4−) | 2009 12 15 | G96 | 0.9− | 0.3+ |
| 2008 06 03 | G96 | 0.3− | 0.5− | 2009 09 24 | 703 | 0.2+ | 0.1− | 2009 12 15 | G96 | 0.0 | 0.6+ |
| 2008 06 03 | G96 | 0.9− | 0.1− | 2009 09 24 | 703 | 0.2− | 1.3− | | | | |

**2009 SU$_{239}$ = 2005 YF$_{259}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 16.42742 | | (2000.0) | | | |
| $n$ | 0.21899046 | $\omega$ | 282.13761 | | +0.95876785 | −0.21868007 |
| $a$ | 2.7259586 | $\Omega$ | 90.69906 | | +0.27424658 | +0.87940941 |
| $e$ | 0.2902699 | $i$ | 10.45809 | | −0.07451860 | +0.42286892 |
| $P$ | 4.50 | $H$ | 16.9 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 10 02 | 699 | 0.0 | 1.5− | 2005 12 28 | 691 | (2.4+ | 0.4−) | 2009 09 25 | 703 | 0.1− | 0.2− |
| 2000 10 02 | 699 | 0.0 | 0.0 | 2006 01 09 | 691 | 0.2+ | 0.0 | 2009 09 25 | 703 | 0.7+ | 0.2− |
| 2000 10 02 | 699 | 0.8+ | 0.2− | 2006 01 09 | 691 | 0.4− | 0.4+ | 2009 09 25 | 703 | 0.3− | 0.2+ |
| 2000 10 02 | 699 | 0.1+ | 0.6− | 2006 01 09 | 691 | 0.6− | 0.1+ | 2009 10 15 | 703 | 0.2− | 1.1+ |
| 2005 11 28 | G96 | 0.0 | 0.8− | 2009 08 20 | 703 | 0.5− | 1.4+ | 2009 10 15 | 703 | 0.2+ | 0.9− |
| 2005 11 28 | G96 | 0.0 | 0.1+ | 2009 08 20 | 703 | 1.2− | 1.4+ | 2009 10 15 | 703 | (1.5+ | 0.5−) |
| 2005 11 28 | G96 | 0.4+ | 0.1− | 2009 08 20 | 703 | (0.4− | 1.7+) | 2009 10 15 | 703 | 0.2− | 0.4− |
| 2005 11 28 | G96 | 0.2+ | 0.3+ | 2009 08 20 | 703 | (1.7− | 0.8+) | 2009 11 10 | 703 | 0.8+ | 0.2+ |
| 2005 12 24 | 691 | 0.2+ | 0.1+ | 2009 09 17 | 703 | 0.4− | 0.4− | 2009 11 10 | 703 | (1.5+ | 0.7−) |
| 2005 12 24 | 691 | 0.3+ | 0.1− | 2009 09 17 | 703 | 0.1− | 0.5+ | 2009 11 10 | 703 | 0.8− | 0.0 |
| 2005 12 24 | 691 | 0.2+ | 0.0 | 2009 09 17 | 703 | 0.2+ | 0.1+ | 2009 11 10 | 703 | (1.7− | 0.5+) |
| 2005 12 28 | 691 | 0.1− | 0.0 | 2009 09 17 | 703 | 0.1− | 0.5− | | | | |
| 2005 12 28 | 691 | 0.1+ | 0.2− | 2009 09 25 | 703 | 0.6+ | 0.4+ | | | | |

**2009 SO$_{240}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 97.58800 | | (2000.0) | | | |
| $n$ | 0.23702813 | $\omega$ | 5.68082 | | +0.28892179 | +0.92782204 |
| $a$ | 2.5858468 | $\Omega$ | 281.28333 | | −0.88755549 | +0.16721578 |
| $e$ | 0.0945869 | $i$ | 13.92173 | | −0.35884461 | +0.33344437 |
| $P$ | 4.16 | $H$ | 16.1 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 29 | 703 | 2.2+ | 0.7+ | 2006 12 27 | G96 | 0.6+ | 0.1+ | 2009 09 25 | 703 | 0.5− | 0.4− |
| 2005 09 29 | 703 | 0.4− | 0.0 | 2006 12 27 | G96 | 0.2+ | 0.1+ | 2009 09 25 | 703 | 1.3+ | 0.7− |
| 2005 09 29 | 703 | 1.3− | 0.0 | 2006 12 27 | G96 | 0.5+ | 0.2+ | 2009 09 25 | 703 | 0.2− | 0.2− |
| 2005 09 29 | 703 | 0.2− | 0.1+ | 2006 12 27 | G96 | 0.1+ | 0.2+ | 2009 09 25 | 703 | 0.8− | 0.3+ |
| 2005 11 04 | 699 | 0.5+ | 0.0 | 2007 01 25 | 703 | 1.2− | 0.3+ | 2009 10 14 | G96 | 0.3+ | 0.2− |
| 2005 11 04 | 699 | 0.7+ | 1.8− | 2007 01 25 | 703 | 0.4+ | 0.0 | 2009 10 14 | G96 | 0.2+ | 0.3− |
| 2005 11 04 | 699 | 1.4− | 0.6+ | 2007 01 25 | 703 | 0.6+ | 0.8− | 2009 10 14 | G96 | 0.3+ | 0.1− |
| 2005 11 04 | 699 | 0.3+ | 0.5− | 2007 01 25 | 703 | 1.4− | 0.1− | 2009 10 14 | G96 | 0.0 | 0.4− |
| 2006 11 23 | G96 | 0.4+ | 0.1+ | 2009 09 18 | 703 | 0.6+ | 0.0 | 2009 10 21 | 703 | 0.3+ | 0.6+ |
| 2006 11 23 | G96 | 0.1+ | 0.1+ | 2009 09 18 | 703 | 1.0+ | 0.0 | 2009 10 21 | 703 | 1.8− | 0.5+ |
| 2006 11 23 | G96 | 0.1− | 0.2+ | 2009 09 18 | 703 | 0.1− | 0.5+ | 2009 10 21 | 703 | 0.7− | 0.9+ |
| 2006 11 23 | G96 | 0.2+ | 0.3− | 2009 09 18 | 703 | 0.2− | 0.7− | 2009 10 21 | 703 | 0.3− | 0.8+ |

**2009 SR$_{240}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 331.05998 | | (2000.0) | | | |
| $n$ | 0.24300351 | $\omega$ | 110.20757 | | +0.23562592 | −0.95838798 |
| $a$ | 2.5432810 | $\Omega$ | 324.88571 | | +0.75380746 | +0.28489865 |
| $e$ | 0.1086630 | $i$ | 16.27084 | | +0.61339607 | +0.01803456 |
| $P$ | 4.06 | $H$ | 16.4 | $G$ | 0.15 | $U$ 5 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 03 | 644 | 0.1+ | 0.1− | 2009 09 18 | 703 | 1.4− | 0.5− | 2009 09 25 | 703 | 1.2+ | 0.1+ |
| 2005 09 03 | 644 | 0.3+ | 0.0 | 2009 09 18 | 703 | 0.5− | 0.8+ | 2009 10 26 | 703 | 1.7− | 0.5− |
| 2005 09 03 | 644 | 0.4+ | 0.1+ | 2009 09 18 | 703 | 0.5+ | 0.3− | 2009 10 26 | 703 | 0.5− | 0.0 |
| 2005 10 25 | 703 | 0.6− | 0.8− | 2009 09 18 | 703 | 0.5+ | 1.0− | 2009 10 26 | 703 | 0.2+ | 0.7+ |
| 2005 10 25 | 703 | 0.1− | 0.1+ | 2009 09 25 | 703 | 1.1+ | 0.2+ | 2009 10 26 | 703 | 0.0 | 0.5+ |
| 2005 10 25 | 703 | 0.6+ | 0.0 | 2009 09 25 | 703 | 0.3− | 1.3+ | | | | |
| 2005 10 25 | 703 | 0.2+ | 0.6− | 2009 09 25 | 703 | 0.2− | 0.3− | | | | |

**2009 SV$_{240}$ = 2005 YD$_{186}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 342.02919 | | (2000.0) | | | |
| $n$ | 0.22390825 | $\omega$ | 198.47269 | | +0.33187607 | −0.91892828 |
| $a$ | 2.6858968 | $\Omega$ | 232.70342 | | +0.89573903 | +0.37784142 |
| $e$ | 0.1945760 | $i$ | 15.54113 | | +0.29582065 | −0.11316656 |
| $P$ | 4.40 | $H$ | 16.0 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 11 09 | 691 | 0.0 | 0.1− | 2009 09 18 | 703 | 0.2− | 0.8+ | 2009 10 20 | 703 | 0.2− | 0.7− |
| 1996 11 09 | 691 | 0.0 | 0.1− | 2009 09 18 | 703 | 0.8− | 0.1− | 2009 11 06 | 703 | 0.5+ | 0.4− |
| 1996 11 09 | 691 | (2.7+ | 4.3−) | 2009 09 25 | 703 | 0.8+ | 1.3+ | 2009 11 06 | 703 | 0.7− | 0.5+ |
| 2005 12 28 | 703 | 0.4+ | 0.9− | 2009 09 25 | 703 | 0.1+ | 0.6+ | 2009 11 06 | 703 | 0.2+ | 0.1− |
| 2005 12 28 | 703 | 0.9− | 0.4+ | 2009 09 25 | 703 | 0.1− | 0.5− | 2009 11 06 | 703 | 0.5+ | 0.4+ |
| 2005 12 28 | 703 | (0.0 | 1.6+) | 2009 09 25 | 703 | 0.9+ | 0.1+ | 2009 12 11 | 703 | 0.6− | 0.6+ |
| 2005 12 28 | 703 | 0.1− | 0.7− | 2009 10 09 | 703 | 1.0− | 0.0 | 2009 12 11 | 703 | (0.7− | 2.8+) |
| 2006 01 04 | 703 | 0.9+ | 0.7+ | 2009 10 09 | 703 | 0.9− | 0.7+ | 2009 12 11 | 703 | 0.2+ | 0.4− |
| 2006 01 04 | 703 | (0.5+ | 1.6−) | 2009 10 09 | 703 | 0.1+ | 0.0 | 2009 12 11 | 703 | 1.2+ | 0.5+ |
| 2006 01 04 | 703 | 0.5+ | 0.7+ | 2009 10 09 | 703 | 1.4+ | 0.5+ | 2009 12 18 | G96 | 0.4− | 0.0 |
| 2006 01 04 | 703 | 0.6− | 0.3+ | 2009 10 20 | 703 | 0.3+ | 1.0− | 2009 12 18 | G96 | 0.8− | 0.1− |
| 2009 09 18 | 703 | 0.6− | 0.3− | 2009 10 20 | 703 | 0.1+ | 0.7− | 2009 12 18 | G96 | 0.6− | 0.8+ |
| 2009 09 18 | 703 | 0.1+ | 0.3− | 2009 10 20 | 703 | 0.0 | 0.7− | | | | |

**2009 SO$_{243}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 41.64677 | | (2000.0) | | | |
| $n$ | 0.23999951 | $\omega$ | 68.50499 | | +0.92829801 | +0.30070871 |
| $a$ | 2.5644593 | $\Omega$ | 273.46007 | | −0.36639916 | +0.83997417 |
| $e$ | 0.1950912 | $i$ | 12.65714 | | +0.06335976 | +0.45168315 |
| $P$ | 4.11 | $H$ | 16.9 | $G$ | 0.15 | $U$ 5 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 24 | 644 | 0.2+ | 0.2+ | 2005 11 02 | 703 | 0.2− | 1.0− | 2009 09 24 | J75 | 0.8+ | 0.4+ |
| 2005 10 24 | 644 | 0.1− | 0.2+ | 2009 09 18 | 703 | 0.1+ | 0.4− | 2009 09 25 | J75 | 0.4− | 1.2− |
| 2005 10 24 | 644 | 0.0 | 0.1+ | 2009 09 18 | 703 | 0.3+ | 1.3+ | 2009 10 15 | 703 | 0.8− | 0.4− |
| 2005 11 02 | 703 | 1.2+ | 0.5+ | 2009 09 18 | 703 | 0.1− | 0.1+ | 2009 10 15 | 703 | 0.5+ | 0.8+ |
| 2005 11 02 | 703 | 0.4− | 1.2− | 2009 09 18 | 703 | 0.9− | 0.0 | 2009 10 15 | 703 | 0.3+ | 0.5− |
| 2005 11 02 | 703 | 0.8− | 1.4+ | 2009 09 24 | J75 | 0.0 | 0.2− | 2009 10 15 | 703 | 0.1+ | 0.0 |

**2009 SZ$_{243}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 350.85050 | | (2000.0) | | | |
| $n$ | 0.27203004 | $\omega$ | 193.63627 | | +0.48226469 | −0.82651201 |
| $a$ | 2.3589830 | $\Omega$ | 228.43059 | | +0.83573582 | +0.53343667 |
| $e$ | 0.2398809 | $i$ | 22.83503 | | +0.26261455 | −0.17978659 |
| $P$ | 3.62 | $H$ | 16.8 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 05 30 | G96 | 0.1+ | 0.1+ | 2009 09 25 | J75 | 0.4+ | 0.0 | 2009 10 12 | J75 | 0.6− | 0.1+ |
| 2008 05 30 | G96 | 0.1− | 0.0 | 2009 09 25 | J75 | 0.1− | 0.4− | 2009 10 12 | J75 | 0.4− | 0.1− |
| 2008 05 30 | G96 | 0.3− | 0.1− | 2009 09 25 | J75 | 0.6+ | 0.0 | 2009 11 19 | 703 | 0.6+ | 0.2+ |
| 2008 05 30 | G96 | 0.2+ | 0.0 | 2009 09 26 | 703 | 0.5− | 0.2+ | 2009 11 19 | 703 | 0.8+ | 0.2+ |
| 2009 09 15 | 703 | 0.8+ | 0.7+ | 2009 09 26 | 703 | 0.4− | 0.0 | 2009 11 19 | 703 | 0.1+ | 0.3− |
| 2009 09 15 | 703 | 0.4− | 0.4+ | 2009 09 26 | 703 | 0.6− | 0.1− | 2009 11 19 | 703 | 1.2− | 0.1+ |
| 2009 09 15 | 703 | 0.2+ | 0.5− | 2009 09 26 | 703 | 1.1− | 0.0 | | | | |
| 2009 09 15 | 703 | 1.2+ | 0.2− | 2009 10 12 | J75 | 0.8+ | 0.3− | | | | |

**2009 SO$_{250}$ = 1998 TL$_8$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 357.23949 | | (2000.0) | | | |
| $n$ | 0.26833447 | $\omega$ | 33.83310 | | +0.46574247 | −0.88163558 |
| $a$ | 2.3805926 | $\Omega$ | 28.62809 | | +0.77261441 | +0.36315545 |
| $e$ | 0.2008724 | $i$ | 9.14822 | | +0.43145212 | +0.30139148 |
| $P$ | 3.67 | $H$ | 18.2 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 10 12 | 691 | 0.2− | 0.1− | 2009 09 19 | 691 | 0.1+ | 0.1− | 2009 10 21 | 703 | 0.1+ | 1.3+ |
| 1998 10 12 | 691 | 0.2− | 0.2− | 2009 09 27 | 691 | 0.1− | 0.0 | 2009 10 21 | 703 | 0.3− | 0.5+ |
| 1998 10 12 | 691 | 0.6− | 0.0 | 2009 09 27 | 691 | 0.1− | 0.2+ | 2009 10 21 | 703 | (0.3+ | 1.7+) |
| 1998 10 18 | 691 | 0.5+ | 0.2+ | 2009 09 27 | 691 | 0.0 | 0.1− | 2009 10 21 | 703 | 1.3− | 0.7− |
| 1998 10 18 | 691 | 0.4+ | 0.2− | 2009 10 14 | G96 | 0.5+ | 0.2+ | 2009 11 10 | 703 | 0.9+ | 0.1− |
| 1998 10 18 | 691 | 0.2+ | 0.1+ | 2009 10 14 | G96 | 0.3− | 0.3+ | 2009 11 10 | 703 | 0.2− | 0.5+ |
| 2009 09 19 | 691 | 0.1− | 0.3− | 2009 10 14 | G96 | 0.1+ | 0.4+ | 2009 11 10 | 703 | 0.2+ | 0.3− |
| 2009 09 19 | 691 | 0.3+ | 0.1+ | 2009 10 14 | G96 | 0.4+ | 0.3+ | 2009 11 10 | 703 | 1.0− | 1.1− |

**2009 SC$_{253}$ = 1995 SS$_{33}$ = 2006 AX$_{88}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 80.67244 | | (2000.0) | | | |
| $n$ | 0.22233545 | $\omega$ | 170.20896 | | +0.99241219 | +0.12294687 |
| $a$ | 2.6985486 | $\Omega$ | 182.73009 | | −0.11476897 | +0.92204031 |
| $e$ | 0.0487635 | $i$ | 1.74483 | | −0.04411485 | +0.36705004 |
| $P$ | 4.43 | $H$ | 16.9 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 09 22 | 691 | 0.2+ | 0.4+ | 2007 03 26 | G96 | 0.5− | 0.2+ | 2009 09 22 | G96 | 0.2+ | 0.0 |
| 1995 09 22 | 691 | 0.3− | 0.5+ | 2007 03 26 | G96 | 0.1+ | 0.0 | 2009 09 22 | G96 | 0.6+ | 0.1− |
| 1995 09 22 | 691 | 0.0 | 0.5+ | 2007 03 26 | G96 | 0.2− | 0.3+ | 2009 09 30 | G96 | 0.7+ | 0.1+ |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 09 27 | 691 | 0.1− | 0.3+ | 2007 03 26 | G96 | 0.5+ | 0.3− | 2009 09 30 | G96 | 0.4+ | 0.2− |
| 1995 09 27 | 691 | 0.3− | 0.3+ | 2007 03 26 | G96 | 0.1+ | 0.1+ | 2009 09 30 | G96 | 0.9+ | 0.6− |
| 1995 09 27 | 691 | 0.3− | 0.1− | 2007 03 26 | G96 | 0.2+ | 0.1+ | 2009 09 30 | G96 | 0.5+ | 0.0 |
| 2000 12 06 | 691 | 0.0 | 0.1− | 2007 03 26 | G96 | 0.7− | 0.4+ | 2009 11 08 | 691 | 0.1− | 0.1− |
| 2000 12 06 | 691 | 0.1+ | 0.6− | 2007 04 16 | G96 | 0.1− | 0.2− | 2009 11 08 | 691 | 0.4− | 0.0 |
| 2000 12 06 | 691 | 0.2+ | 0.3− | 2007 04 16 | G96 | 0.0 | 0.2+ | 2009 11 08 | 691 | 0.1− | 0.2+ |
| 2002 02 14 | 291 | 0.2+ | 0.8+ | 2007 04 16 | G96 | 0.6+ | 0.3− | 2009 11 20 | 691 | 0.8− | 0.2+ |
| 2002 02 14 | 291 | 0.2+ | 0.5+ | 2007 04 16 | G96 | 0.4− | 0.1+ | 2009 11 20 | 691 | 0.0 | 0.1+ |
| 2002 02 14 | 291 | 0.3− | 0.8+ | 2007 04 26 | G96 | 0.2+ | 0.3+ | 2009 11 20 | 691 | 0.3− | 0.2+ |
| 2006 01 05 | 691 | 0.2+ | 0.4+ | 2007 04 26 | G96 | 0.0 | 0.3+ | 2009 11 24 | 691 | 0.9− | 0.4+ |
| 2006 01 05 | 691 | 0.4+ | 0.2+ | 2007 04 26 | G96 | 0.1+ | 0.2+ | 2009 11 24 | 691 | 0.2− | 0.2+ |
| 2006 01 05 | 691 | 0.3+ | 0.3+ | 2007 04 26 | G96 | 0.5+ | 0.4+ | 2009 11 24 | 691 | 0.7+ | 0.4− |
| 2006 01 22 | G96 | 0.5+ | 0.6− | 2008 07 01 | 691 | 0.3+ | 0.4+ | 2009 12 11 | G96 | 0.2+ | 0.0 |
| 2006 01 22 | G96 | 0.3+ | 0.4− | 2008 07 01 | 691 | 0.0 | 0.4+ | 2009 12 11 | G96 | 0.4+ | 0.2− |
| 2006 01 22 | G96 | 0.6+ | 0.5− | 2008 07 01 | 691 | 0.4− | 0.0 | 2009 12 11 | G96 | 0.8+ | 0.3+ |
| 2006 01 22 | G96 | 0.3+ | 0.2− | 2009 09 22 | G96 | 0.6+ | 0.5− | 2009 12 11 | G96 | 0.9+ | 0.1+ |
| 2007 03 26 | G96 | 0.1− | 0.1− | 2009 09 22 | G96 | 0.1+ | 0.1+ | | | | |

**2009 SW$_{254}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 54.10558 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24326726 | $\omega$ | 199.95393 | | +0.66091804 | +0.71519617 | |
| $a$ | 2.5414424 | $\Omega$ | 112.15852 | | −0.65090768 | +0.69707955 | |
| $e$ | 0.1853140 | $i$ | 14.20934 | | −0.37350574 | +0.05073983 | |
| $P$ | 4.05 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 25 | 699 | 0.2+ | 0.2− | 2005 10 02 | E12 | 0.1− | 0.6+ | 2009 09 16 | 703 | 1.1+ | 0.5− |
| 2001 09 25 | 699 | 0.2− | 0.3+ | 2005 10 02 | E12 | 0.5− | 0.1+ | 2009 09 16 | 703 | 0.8+ | 0.3+ |
| 2001 09 25 | 699 | 0.3+ | 0.0 | 2007 01 08 | G96 | 0.4+ | 0.7− | 2009 09 16 | E12 | 0.4− | 0.4+ |
| 2001 09 25 | 699 | 0.1+ | 0.4+ | 2007 01 08 | G96 | 0.0 | 0.4− | 2009 09 16 | E12 | 0.2− | 0.3+ |
| 2002 12 31 | 291 | 0.5− | 0.4+ | 2007 01 08 | G96 | 0.2− | 0.6− | 2009 09 16 | E12 | 1.2+ | 0.3+ |
| 2002 12 31 | 291 | 0.3+ | 0.5+ | 2007 01 08 | G96 | 0.2− | 0.2− | 2009 09 16 | E12 | 0.1+ | 0.4+ |
| 2002 12 31 | 291 | 0.1+ | 0.4+ | 2007 01 17 | G96 | 0.1+ | 0.3− | 2009 09 25 | 703 | 0.2− | 0.1− |
| 2005 08 25 | 644 | 0.1− | 0.2− | 2007 01 17 | G96 | 0.2− | 0.3− | 2009 09 25 | 703 | 1.0− | 0.1+ |
| 2005 08 25 | 644 | 0.1+ | 0.1− | 2007 01 17 | G96 | 0.2− | 0.4− | 2009 09 25 | 703 | 0.9− | 0.6+ |
| 2005 08 25 | 644 | 0.2− | 0.1− | 2007 01 17 | G96 | 0.4+ | 0.2− | 2009 09 25 | 703 | 0.6− | 0.8+ |
| 2005 09 14 | E12 | 0.0 | 0.4− | 2007 01 27 | G96 | 0.1+ | 0.5− | 2009 10 22 | E12 | 1.1− | 0.7+ |
| 2005 09 14 | E12 | 0.5− | 0.6+ | 2007 01 27 | G96 | 0.2+ | 0.1− | 2009 10 22 | E12 | 1.2+ | 0.6− |
| 2005 09 14 | E12 | 0.6− | 0.2+ | 2007 01 27 | G96 | 0.2+ | 0.1+ | 2009 10 22 | E12 | 0.4− | 1.2− |
| 2005 09 14 | E12 | 0.4+ | 0.6+ | 2007 01 27 | G96 | 0.2+ | 1.3− | 2009 10 22 | E12 | 0.2− | 0.9− |
| 2005 10 02 | E12 | 0.0 | 0.8− | 2009 09 16 | 703 | 0.2+ | 0.8− | | | | |
| 2005 10 02 | E12 | 0.2+ | 0.1+ | 2009 09 16 | 703 | 0.9+ | 0.9− | | | | |

**2009 SU$_{258}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 334.84527 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21307680 | $\omega$ | 225.54253 | | −0.71885435 | −0.66669238 | |
| $a$ | 2.7761650 | $\Omega$ | 271.58188 | | +0.68054247 | −0.61713716 | |
| $e$ | 0.0665624 | $i$ | 11.36014 | | +0.14181103 | −0.41792702 | |
| $P$ | 4.63 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 02 20 | 645 | 0.0 | 0.0 | 2005 03 11 | G96 | 0.6+ | 0.1− | 2009 09 21 | 691 | 0.1− | 0.0 |
| 2001 02 20 | 645 | 0.0 | 0.0 | 2006 02 25 | 703 | 0.5+ | 0.9+ | 2009 09 21 | 691 | 0.0 | 0.0 |
| 2003 09 21 | 691 | 0.1+ | 0.1+ | 2006 02 25 | 703 | 0.2− | 0.2− | 2009 09 28 | 691 | 0.4− | 0.0 |
| 2003 09 21 | 691 | 0.1+ | 0.0 | 2006 02 25 | 703 | 0.3− | 0.7− | 2009 09 28 | 691 | 0.0 | 0.2− |
| 2003 09 21 | 691 | 0.3+ | 0.2+ | 2006 02 25 | 703 | 0.2+ | 0.6− | 2009 09 28 | 691 | 0.1+ | 0.1+ |
| 2003 10 24 | 645 | 0.1− | 0.1− | 2006 03 24 | 644 | 0.3+ | 0.1+ | 2009 12 17 | G96 | 0.7+ | 0.1− |
| 2003 10 24 | 645 | 0.1− | 0.1− | 2006 03 24 | 644 | 0.3+ | 0.3+ | 2009 12 17 | G96 | 0.3+ | 0.3− |
| 2004 11 11 | 691 | 0.2+ | 0.1+ | 2006 03 24 | 644 | 0.8+ | 0.3+ | 2009 12 17 | G96 | 0.2+ | 0.1− |
| 2004 11 11 | 691 | 0.2+ | 0.2+ | 2008 09 09 | 703 | 0.0 | 0.7− | 2009 12 17 | G96 | 0.2+ | 0.2− |
| 2004 11 11 | 691 | 0.4+ | 0.1+ | 2008 09 09 | 703 | 0.3− | 0.4+ | 2009 12 18 | 691 | 0.2+ | 0.1+ |
| 2004 12 02 | 703 | 0.2− | 0.2− | 2008 09 09 | 703 | 0.5+ | 0.6− | 2009 12 18 | 691 | 0.1− | 0.2− |
| 2004 12 02 | 703 | 0.1+ | 0.4+ | 2008 09 09 | 703 | 0.2+ | 0.6− | 2009 12 18 | 691 | 0.2− | 0.1+ |
| 2004 12 02 | 703 | 0.5− | 0.5− | 2008 09 28 | 703 | 0.6+ | 1.0+ | 2009 12 26 | 691 | 0.2+ | 0.1+ |
| 2004 12 02 | 703 | 0.9− | 0.1− | 2008 09 28 | 703 | 1.0− | 0.2+ | 2009 12 26 | 691 | 0.3− | 0.0 |
| 2005 03 11 | G96 | 1.0+ | 0.2+ | 2008 09 28 | 703 | 0.0 | 0.7+ | 2009 12 26 | 691 | 0.3− | 0.2− |
| 2005 03 11 | G96 | 0.1− | 0.2+ | 2008 09 28 | 703 | 0.7− | 1.1+ | | | | |
| 2005 03 11 | G96 | 0.0 | 0.0 | 2009 09 21 | 691 | 0.1− | 0.1− | | | | |

**2009 SF$_{273}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 4.43069 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.25987089 | $\omega$ | 177.89713 | | +0.85413246 | −0.51450677 | |
| $a$ | 2.4320041 | $\Omega$ | 213.41767 | | +0.47511113 | +0.83123718 | |
| $e$ | 0.1619809 | $i$ | 7.90738 | | +0.21148794 | +0.21054104 | |
| $P$ | 3.79 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 10 26 | 691 | 0.1− | 0.1− | 2009 09 14 | 703 | 0.4+ | 0.4− | 2009 09 28 | 691 | 0.0 | 0.1+ |
| 1994 10 26 | 691 | 0.1+ | 0.0 | 2009 09 14 | 703 | 0.6+ | 0.3+ | 2009 09 28 | 691 | 0.2+ | 0.0 |
| 1994 10 26 | 691 | 0.1+ | 0.1− | 2009 09 14 | 703 | 0.4− | 0.4− | 2009 09 28 | 691 | 0.2+ | 0.1+ |
| 2005 09 02 | 644 | 0.2+ | 0.0 | 2009 09 25 | 703 | 0.9− | 0.2− | 2009 11 12 | H21 | 0.1− | 0.1− |
| 2005 09 02 | 644 | 0.0 | 0.3− | 2009 09 25 | 703 | 0.5− | 1.1+ | 2009 11 12 | H21 | 0.3− | 0.3+ |
| 2005 09 02 | 644 | 0.2− | 0.1+ | 2009 09 25 | 703 | 0.5− | 0.1+ | 2009 11 12 | H21 | 0.0 | 0.3+ |
| 2009 09 14 | 703 | 0.9+ | 0.3+ | 2009 09 25 | 703 | 1.2− | 1.6− | | | | |

**2009 SQ$_{274}$ = 2004 TQ$_{268}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 43.85445 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18959054 | $\omega$ | 279.56050 | | +0.91867597 | +0.39377799 | |
| $a$ | 3.0009467 | $\Omega$ | 57.25571 | | −0.34630950 | +0.84088510 | |
| $e$ | 0.1680381 | $i$ | 2.12575 | | −0.19001101 | +0.37128312 | |
| $P$ | 5.20 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 09 | 691 | 0.1+ | 0.4− | 2006 01 07 | 691 | 0.0 | 0.2− | 2009 09 25 | 703 | 0.8+ | 0.1− |
| 2004 10 09 | 691 | 0.0 | 0.6− | 2006 01 07 | 691 | 0.5+ | 0.3+ | 2009 09 25 | 703 | 1.1− | 0.0 |
| 2004 10 09 | 691 | 0.2+ | 0.4− | 2006 01 27 | G96 | 0.5− | 0.2− | 2009 09 29 | 691 | 0.2− | 0.1− |
| 2004 10 13 | 691 | 0.2− | 0.2+ | 2006 01 27 | G96 | 0.5− | 0.0 | 2009 09 29 | 691 | 0.4− | 0.2− |
| 2004 10 13 | 691 | 0.0 | 0.3+ | 2006 01 27 | G96 | 0.0 | 0.2+ | 2009 09 29 | 691 | 0.1− | 0.2+ |
| 2004 10 13 | 691 | 0.1+ | 0.3+ | 2006 01 27 | G96 | 0.1+ | 0.2+ | 2009 10 16 | G96 | 0.3+ | 0.2− |
| 2004 11 04 | 703 | 0.7− | 0.3+ | 2009 09 17 | 691 | 0.1− | 0.0 | 2009 10 16 | G96 | 0.8+ | 0.1+ |
| 2004 11 04 | 703 | 0.0 | 0.1− | 2009 09 17 | 691 | 0.5+ | 0.1− | 2009 10 16 | G96 | 0.7+ | 0.2+ |
| 2004 11 04 | 703 | 0.9+ | 0.6+ | 2009 09 17 | 691 | 0.1− | 0.1− | 2009 10 16 | G96 | 0.5+ | 0.1+ |
| 2004 11 04 | 703 | 0.9− | 1.0+ | 2009 09 25 | 691 | 0.2− | 0.1+ | 2009 10 24 | G96 | 0.5+ | 0.3+ |
| 2005 12 29 | 691 | 0.6− | 0.5− | 2009 09 25 | 691 | 0.4− | 0.1− | 2009 10 24 | G96 | 0.1− | 0.3− |
| 2005 12 29 | 691 | 0.0 | 0.1− | 2009 09 25 | 691 | 0.2− | 0.1+ | 2009 10 24 | G96 | 1.2+ | 0.1+ |
| 2005 12 29 | 691 | 0.3+ | 0.5+ | 2009 09 25 | 703 | 0.5+ | 1.1+ | | | | |
| 2006 01 07 | 691 | 0.1+ | 0.1+ | 2009 09 25 | 703 | 0.6+ | 0.0 | | | | |

**2009 SJ$_{275}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 348.59701 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21946800 | $\omega$ | 20.48469 | | +0.56234301 | −0.82552125 | |
| $a$ | 2.7220028 | $\Omega$ | 35.34528 | | +0.74670310 | +0.48211709 | |
| $e$ | 0.1335235 | $i$ | 4.73976 | | +0.35525318 | +0.29339014 | |
| $P$ | 4.49 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 02 | 691 | 0.1+ | 0.1− | 2009 09 17 | 691 | 0.2− | 0.1− | 2009 09 29 | 691 | 0.3+ | 0.1− |
| 2005 12 02 | 691 | 0.0 | 0.0 | 2009 09 17 | 691 | 0.6− | 0.1− | 2009 09 29 | 691 | 0.3+ | 0.3− |
| 2005 12 02 | 691 | 0.1− | 0.2+ | 2009 09 17 | 691 | 0.0 | 0.3+ | 2009 10 14 | 703 | 0.4− | 0.2+ |
| 2007 03 15 | 691 | 0.2+ | 0.0 | 2009 09 25 | 691 | 0.0 | 0.1+ | 2009 10 14 | 703 | 0.8+ | 0.4+ |
| 2007 03 15 | 691 | 0.1− | 0.3+ | 2009 09 25 | 691 | 0.0 | 0.0 | 2009 10 14 | 703 | (1.7− | 0.2+) |
| 2007 03 15 | 691 | 0.3− | 0.4− | 2009 09 25 | 691 | 0.1− | 0.2+ | 2009 10 14 | 703 | (2.1− | 1.8+) |
| 2007 04 22 | G96 | 1.0+ | 0.1− | 2009 09 28 | 691 | 0.0 | 0.1+ | 2009 12 13 | G96 | 0.9+ | 0.6− |
| 2007 04 22 | G96 | 0.1− | 0.2+ | 2009 09 28 | 691 | 0.3+ | 0.0 | 2009 12 13 | G96 | 0.0 | 0.0 |
| 2007 04 22 | G96 | 1.3− | 0.8+ | 2009 09 28 | 691 | 0.1+ | 0.1+ | 2009 12 13 | G96 | 0.1+ | 0.6− |
| 2007 04 22 | G96 | 1.5+ | 0.3− | 2009 09 29 | 691 | 0.4− | 0.1− | 2009 12 13 | G96 | 0.2+ | 0.0 |

**2009 SP$_{275}$ = 1998 XU$_{14}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 346.57570 | | (2000.0) | | | |
| $n$ | 0.26332802 | $\omega$ | 288.01840 | | +0.36566979 | −0.93030192 |
| $a$ | 2.4106713 | $\Omega$ | 140.49486 | | +0.87010189 | +0.33073191 |
| $e$ | 0.1920455 | $i$ | 2.58619 | | +0.33046681 | +0.15860246 |
| $P$ | 3.74 | $H$ | 18.3 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 09 30 | 691 | 0.3− | 0.1− | 2005 08 30 | 568 | 0.8+ | 0.1+ | 2009 09 25 | 691 | 0.2− | 0.0 |
| 1994 09 30 | 691 | 0.2− | 0.2− | 2005 08 30 | 568 | 0.8+ | 0.1+ | 2009 09 25 | 691 | 0.0 | 0.1− |
| 1998 12 15 | 910 | 0.8+ | 0.8− | 2007 02 25 | 691 | 0.1− | 0.0 | 2009 09 25 | 691 | 0.2− | 0.0 |
| 1998 12 16 | 910 | 1.3+ | 0.6− | 2007 02 25 | 691 | 0.2+ | 0.2+ | 2009 09 29 | 691 | 0.2− | 0.3+ |
| 1998 12 16 | 910 | 0.8+ | 1.0− | 2007 02 25 | 691 | 0.1+ | 0.1+ | 2009 09 29 | 691 | 0.2− | 0.1− |
| 1998 12 16 | 910 | 0.4+ | 0.6− | 2007 03 11 | G96 | 0.2− | 0.1+ | 2009 09 29 | 691 | 0.0 | 0.2− |
| 1998 12 16 | 910 | 0.2+ | 0.6− | 2007 03 11 | G96 | 0.1+ | 0.1+ | 2009 10 24 | G96 | 0.0 | 0.3− |
| 1998 12 16 | 910 | 0.5+ | 0.3+ | 2007 03 11 | G96 | 0.1− | 0.1− | 2009 10 24 | G96 | 0.3+ | 0.2− |
| 2003 01 29 | 291 | 0.2+ | 0.5+ | 2007 03 11 | G96 | 0.4+ | 0.1− | 2009 10 24 | G96 | 0.5+ | 0.0 |
| 2003 01 29 | 291 | 0.1− | 0.2+ | 2009 09 17 | 691 | 0.2− | 0.9+ | 2009 10 24 | G96 | 0.5+ | 0.2− |
| 2003 01 29 | 291 | 0.5− | 0.3+ | 2009 09 17 | 691 | 0.1− | 0.1+ | | | | |
| 2005 08 30 | 568 | 0.8+ | 0.1+ | 2009 09 17 | 691 | 0.0 | 0.3+ | | | | |

**2009 SY$_{276}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 311.34790 | | (2000.0) | | | |
| $n$ | 0.18586234 | $\omega$ | 276.14327 | | +0.01439019 | −0.99974126 |
| $a$ | 3.0409442 | $\Omega$ | 172.95970 | | +0.96481262 | +0.00925715 |
| $e$ | 0.0974884 | $i$ | 8.26352 | | +0.26254433 | +0.02077766 |
| $P$ | 5.30 | $H$ | 16.0 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 02 21 | 691 | 0.3+ | 0.6+ | 2007 05 14 | G96 | 0.3+ | 0.3+ | 2009 09 29 | 691 | 0.2− | 0.2+ |
| 2001 02 21 | 691 | 0.2+ | 0.7+ | 2007 05 14 | G96 | 0.2+ | 0.3+ | 2009 09 29 | 691 | 0.3− | 0.2+ |
| 2001 02 21 | 691 | 0.6+ | 0.5+ | 2007 05 14 | G96 | 0.4− | 0.1+ | 2009 09 29 | 691 | 0.0 | 0.2+ |
| 2001 04 16 | 645 | 0.1− | 0.0 | 2009 09 17 | 691 | 0.1+ | 0.2+ | 2009 10 17 | G96 | 0.0 | 0.1+ |
| 2001 04 16 | 645 | 0.0 | 0.2+ | 2009 09 17 | 691 | 0.0 | 0.3+ | 2009 10 17 | G96 | 0.1− | 0.2+ |
| 2006 02 02 | 691 | 0.0 | 0.1+ | 2009 09 17 | 691 | 0.4− | 0.2+ | 2009 10 17 | G96 | 0.3+ | 0.2+ |
| 2006 02 02 | 691 | 0.2+ | 0.2+ | 2009 09 25 | 691 | 0.4+ | 0.2− | 2009 10 17 | G96 | 0.3+ | 0.0 |
| 2006 02 02 | 691 | 0.0 | 0.1+ | 2009 09 25 | 691 | 0.2− | 0.3+ | 2009 10 17 | G96 | 0.1+ | 0.5+ |
| 2007 04 25 | 691 | 0.0 | 0.6+ | 2009 09 25 | 691 | 0.2− | 0.1+ | 2009 10 17 | G96 | 0.3+ | 0.5+ |
| 2007 04 25 | 691 | 0.2+ | 0.5+ | 2009 09 28 | 691 | 0.5− | 1.7+ | 2009 10 17 | G96 | 0.1− | 0.1+ |
| 2007 04 25 | 691 | 0.1+ | 0.6+ | 2009 09 28 | 691 | 0.3+ | 0.3+ | 2009 10 17 | G96 | 0.0 | 0.2+ |
| 2007 05 14 | G96 | 0.5+ | 0.5+ | 2009 09 28 | 691 | 0.5− | 0.2+ | | | | |

**2009 SE$_{278}$ = 2005 PR$_{8}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 60.10972 | | (2000.0) | | | |
| $n$ | 0.26055247 | $\omega$ | 238.84541 | | +0.77460068 | +0.63096884 |
| $a$ | 2.4277609 | $\Omega$ | 81.99681 | | −0.56437347 | +0.72047955 |
| $e$ | 0.1973733 | $i$ | 2.50425 | | −0.28544066 | +0.28772825 |
| $P$ | 3.78 | $H$ | 18.5 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 10 31 | 691 | 0.4+ | 0.6+ | 2008 03 31 | G96 | 0.2+ | 0.0 | 2009 09 29 | 691 | 0.0 | 0.2+ |
| 1994 10 31 | 691 | 0.3− | 0.3− | 2008 03 31 | G96 | 0.5− | 0.5+ | 2009 09 29 | 691 | 0.1+ | 0.3− |
| 1994 10 31 | 691 | 0.3− | 0.2+ | 2008 03 31 | G96 | 0.5+ | 0.9+ | 2009 10 16 | G96 | 0.4+ | 0.5− |
| 2000 02 06 | 695 | 0.2+ | 0.7+ | 2008 03 31 | G96 | 0.4+ | 0.7+ | 2009 10 16 | G96 | 0.0 | 0.3− |
| 2000 02 06 | 695 | 0.7+ | 0.3+ | 2009 09 17 | 691 | 0.3− | 0.4+ | 2009 10 16 | G96 | 0.7+ | 0.3− |
| 2005 08 04 | 644 | 0.1− | 0.4+ | 2009 09 17 | 691 | 0.2− | 0.1+ | 2009 10 16 | G96 | 0.3+ | 0.2− |
| 2005 08 04 | 644 | 0.2− | 0.1+ | 2009 09 17 | 691 | 0.5+ | 0.4+ | 2009 10 24 | G96 | 0.4+ | 0.4− |
| 2005 08 04 | 644 | 0.0 | 0.1+ | 2009 09 25 | 691 | 0.4− | 0.1− | 2009 10 24 | G96 | 0.3+ | 0.5− |
| 2005 08 05 | 644 | 0.0 | 0.3+ | 2009 09 25 | 691 | 0.1− | 0.2− | 2009 10 24 | G96 | 0.5+ | 0.4− |
| 2005 08 05 | 644 | 0.3+ | 0.0 | 2009 09 25 | 691 | 0.3− | 0.2− | 2009 10 24 | G96 | 0.7+ | 0.5− |
| 2005 08 05 | 644 | 0.2− | 0.2− | 2009 09 29 | 691 | 0.2− | 0.5+ | | | | |

**2009 SE$_{281}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 53.11253 | | (2000.0) | | | |
| $n$ | 0.25696439 | $\omega$ | 257.43282 | | +0.87316024 | +0.48409628 |
| $a$ | 2.4503084 | $\Omega$ | 73.58980 | | −0.42099627 | +0.80786018 |
| $e$ | 0.2014152 | $i$ | 3.40287 | | −0.24566917 | +0.33617365 |
| $P$ | 3.84 | $H$ | 17.3 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 07 28 | 699 | 0.2+ | 0.2− | 2008 04 07 | 691 | 0.2+ | 0.3− | 2009 10 16 | G96 | 0.3+ | 0.1+ |
| 2001 07 28 | 699 | (3.0+ | 0.4−) | 2008 04 07 | 691 | 0.2+ | 0.4+ | 2009 10 16 | G96 | 0.8+ | 0.3+ |
| 2001 07 28 | 699 | 0.4+ | 0.3− | 2009 09 17 | 691 | 0.5− | 0.1+ | 2009 10 16 | G96 | 0.1+ | 0.1+ |
| 2001 07 28 | 699 | (2.7+ | 0.4+) | 2009 09 17 | 691 | 0.1− | 0.1+ | 2009 10 16 | G96 | 0.4+ | 0.1+ |
| 2005 07 29 | 644 | 0.4+ | 0.1− | 2009 09 17 | 691 | 0.2− | 0.2+ | 2009 10 16 | G96 | 0.1− | 0.1+ |
| 2005 07 29 | 644 | 0.0 | 0.2− | 2009 09 25 | 691 | 0.0 | 0.2− | 2009 10 16 | G96 | 0.2− | 0.1− |
| 2005 07 29 | 644 | 0.2+ | 0.3+ | 2009 09 25 | 691 | 0.1+ | 0.1− | 2009 10 16 | G96 | 0.2+ | 0.0 |
| 2005 08 28 | 699 | (1.5− | 2.1−) | 2009 09 25 | 691 | 0.2+ | 0.7+ | 2009 10 24 | G96 | 0.5+ | 0.3+ |
| 2005 08 28 | 699 | 0.0 | 0.9− | 2009 09 29 | 691 | 0.3− | 0.1− | 2009 10 24 | G96 | 0.3+ | 0.2+ |
| 2005 08 28 | 699 | 1.3− | 0.6+ | 2009 09 29 | 691 | 0.2− | 0.0 | 2009 10 24 | G96 | 0.1− | 0.1+ |
| 2005 08 28 | 699 | 0.1− | 0.1− | 2009 09 29 | 691 | 0.1− | 0.0 | 2009 10 24 | G96 | 0.2+ | 0.2+ |
| 2008 04 07 | 691 | 0.1+ | 1.0+ | 2009 10 16 | G96 | (0.7− | 1.8+) | | | | |

**2009 SR$_{282}$ = 2000 EQ$_{135}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 247.01160 | | (2000.0) | | | |
| $n$ | 0.26527959 | $\omega$ | 27.23644 | | −0.94726774 | −0.31453582 |
| $a$ | 2.3988338 | $\Omega$ | 134.28983 | | +0.27622133 | −0.89837507 |
| $e$ | 0.1036102 | $i$ | 4.90827 | | +0.16243646 | −0.30657700 |
| $P$ | 3.72 | $H$ | 16.7 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 03 11 | 699 | 0.2− | 0.3+ | 2005 09 11 | 691 | 0.2− | 0.0 | 2007 04 15 | G96 | 0.2− | 0.2+ |
| 2000 03 11 | 699 | 1.0+ | 0.2− | 2005 09 11 | 691 | 0.3− | 0.0 | 2007 04 15 | G96 | 0.0 | 0.4− |
| 2000 03 11 | 699 | 0.3+ | 0.9+ | 2005 09 11 | 691 | 0.1− | 0.1+ | 2009 09 25 | 691 | 0.7+ | 0.7+ |
| 2000 03 11 | 699 | 1.4+ | 1.3+ | 2006 12 27 | 691 | 0.2− | 0.3+ | 2009 09 25 | 691 | 0.4− | 0.1+ |
| 2000 03 12 | 704 | 0.6− | 1.1+ | 2006 12 27 | 691 | 0.2− | 0.2+ | 2009 09 25 | 691 | 0.3− | 0.2+ |
| 2000 03 12 | 704 | 0.4+ | 0.4+ | 2006 12 27 | 691 | 0.0 | 0.4+ | 2009 09 28 | G96 | 0.5+ | 0.3+ |
| 2000 03 12 | 704 | 0.7+ | 0.1+ | 2007 01 27 | G96 | 0.1− | 0.1− | 2009 09 28 | G96 | 0.7+ | 0.2+ |
| 2001 09 21 | 291 | 0.6− | 0.1+ | 2007 01 27 | G96 | 0.2+ | 0.0 | 2009 09 28 | G96 | 0.8+ | 0.2+ |
| 2001 09 21 | 291 | 0.1− | 0.3+ | 2007 01 27 | G96 | 0.0 | 0.2+ | 2009 09 29 | 691 | 0.7− | 0.1− |
| 2001 09 21 | 291 | 0.1+ | 0.2+ | 2007 01 27 | G96 | 0.3+ | 0.2− | 2009 09 29 | 691 | 0.1+ | 0.3+ |
| 2004 06 09 | 691 | 0.2+ | 0.3+ | 2007 03 09 | G96 | 0.1+ | 0.2− | 2009 09 29 | 691 | 0.2− | 0.1+ |
| 2004 06 09 | 691 | 0.1− | 0.1+ | 2007 03 09 | G96 | 0.1− | 0.2− | 2009 10 17 | G96 | 0.4+ | 0.1− |
| 2004 06 09 | 691 | 0.1− | 0.3+ | 2007 03 09 | G96 | 0.2+ | 0.7− | 2009 10 17 | G96 | 0.4+ | 0.2+ |
| 2005 08 28 | 691 | 0.1− | 0.2+ | 2007 03 09 | G96 | 0.1+ | 0.1− | 2009 10 17 | G96 | 0.0 | 0.0 |
| 2005 08 28 | 691 | 0.5+ | 0.3− | 2007 04 15 | G96 | 0.1− | 0.2− | 2009 10 17 | G96 | 0.1+ | 0.0 |
| 2005 08 28 | 691 | 0.1+ | 0.2− | 2007 04 15 | G96 | 0.0 | 0.2− | | | | |

**2009 SV$_{283}$ = 2007 EG$_{194}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 71.62954 | | (2000.0) | | | |
| $n$ | 0.21920985 | $\omega$ | 179.48087 | | +0.71543276 | +0.69599100 |
| $a$ | 2.7241395 | $\Omega$ | 136.19579 | | −0.64134636 | +0.68897706 |
| $e$ | 0.1117659 | $i$ | 5.07718 | | −0.27718374 | +0.20225514 |
| $P$ | 4.50 | $H$ | 16.8 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 04 09 | 691 | 0.1+ | 0.1− | 2007 02 26 | G96 | 1.2+ | 0.1+ | 2009 09 29 | 691 | 0.1+ | 0.2+ |
| 2003 04 09 | 691 | 0.2+ | 0.3− | 2007 02 26 | G96 | 0.5+ | 0.5− | 2009 09 29 | 691 | 0.2− | 0.6+ |
| 2003 04 09 | 691 | 0.5− | 0.5− | 2007 02 26 | G96 | 0.6+ | 0.1− | 2009 09 29 | 691 | 0.0 | 0.0 |
| 2004 08 21 | E12 | 0.3+ | 0.5− | 2007 03 15 | 691 | 0.2+ | 0.2+ | 2009 10 16 | G96 | 0.5+ | 0.0 |
| 2004 08 21 | E12 | 0.1+ | 0.1+ | 2007 03 15 | 691 | 0.0 | 0.1+ | 2009 10 16 | G96 | 0.5+ | 0.2− |
| 2004 08 21 | E12 | 0.3+ | 0.2+ | 2007 03 15 | 691 | 0.2− | 0.2+ | 2009 10 16 | G96 | 0.0 | 0.3− |
| 2004 08 21 | E12 | 0.9+ | 0.9+ | 2007 03 20 | 691 | 0.5− | 0.2− | 2009 10 16 | G96 | 0.1+ | 0.0 |
| 2004 08 22 | 691 | 0.1− | 0.1− | 2007 03 20 | 691 | 0.1− | 0.4+ | 2009 10 16 | G96 | 0.3+ | 0.1+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 08 22 | 691 | 0.2− | 0.1− | 2007 03 20 | 691 | 0.2− | 0.0 | 2009 10 16 | G96 | 0.5+ | 0.1− |
| 2004 08 22 | 691 | 0.2− | 0.2− | 2009 09 17 | 691 | 0.2− | 0.2− | 2009 10 16 | G96 | 0.3+ | 0.1− |
| 2005 11 04 | G96 | 0.2− | 0.4− | 2009 09 17 | 691 | 0.3− | 0.3− | 2009 10 16 | G96 | 0.1+ | 0.1− |
| 2005 11 04 | G96 | 0.3+ | 0.0 | 2009 09 17 | 691 | 0.3− | 0.3+ | 2009 10 24 | G96 | 0.7+ | 0.2− |
| 2005 11 04 | G96 | 0.2+ | 1.3− | 2009 09 25 | 691 | 0.1− | 0.0 | 2009 10 24 | G96 | 0.6+ | 0.3− |
| 2005 11 04 | G96 | 0.0 | 0.6− | 2009 09 25 | 691 | 0.2− | 0.1− | 2009 10 24 | G96 | 0.5+ | 0.1− |
| 2007 02 26 | G96 | 0.7+ | 0.0 | 2009 09 25 | 691 | 0.1+ | 0.3− | 2009 10 24 | G96 | 0.5+ | 0.4− |

**2009 SZ$_{283}$ = 2003 FT$_{64}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 261.04041 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23431944 | $\omega$ | 333.55411 | | −0.80471662 | −0.59271671 | |
| $a$ | 2.6057366 | $\Omega$ | 169.89085 | | +0.57282829 | −0.79003682 | |
| $e$ | 0.0444994 | $i$ | 10.98200 | | +0.15588106 | −0.15661650 | |
| $P$ | 4.21 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 03 26 | 644 | 0.4+ | 0.3+ | 2005 10 31 | G96 | 0.1+ | 0.3− | 2007 04 19 | G96 | 0.1+ | 0.4− |
| 2003 03 26 | 644 | 0.1+ | 0.7+ | 2007 02 21 | G96 | 0.0 | 0.3− | 2009 09 17 | 691 | 0.4− | 0.0 |
| 2003 03 26 | 644 | 0.3+ | 0.1+ | 2007 02 21 | G96 | 0.1+ | 0.5− | 2009 09 17 | 691 | 0.5− | 0.6+ |
| 2003 03 26 | 691 | 0.3+ | 1.3+ | 2007 02 21 | G96 | 0.1− | 0.3− | 2009 09 17 | 691 | 0.7− | 0.7+ |
| 2003 03 26 | 691 | 0.2+ | 1.3+ | 2007 02 21 | G96 | 0.6− | 0.3− | 2009 09 25 | 691 | 0.5+ | 0.1+ |
| 2003 03 26 | 691 | 0.3+ | 1.4+ | 2007 03 20 | G96 | 0.0 | 0.3− | 2009 09 25 | 691 | 0.0 | 0.6+ |
| 2003 03 27 | 644 | 0.0 | 0.1+ | 2007 03 20 | G96 | 0.1+ | 0.1− | 2009 09 25 | 691 | 0.3+ | 0.4+ |
| 2003 03 27 | 644 | 0.3− | 0.7+ | 2007 03 20 | G96 | 0.2− | 0.4− | 2009 09 29 | 691 | 0.2− | 0.9+ |
| 2003 03 27 | 644 | 0.0 | 0.9+ | 2007 03 20 | G96 | 0.1− | 0.4− | 2009 09 29 | 691 | 0.1− | 1.1+ |
| 2005 10 31 | G96 | 0.1− | 0.6− | 2007 04 19 | G96 | 0.2+ | 0.4− | 2009 09 29 | 691 | 0.1− | 0.2+ |
| 2005 10 31 | G96 | 0.7+ | 0.5− | 2007 04 19 | G96 | 0.2+ | 0.4− | | | | |
| 2005 10 31 | G96 | 0.3+ | 0.5− | 2007 04 19 | G96 | 0.1+ | 0.2− | | | | |

**2009 SC$_{292}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 66.16348 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22473861 | $\omega$ | 14.94026 | | +0.70716202 | +0.70407845 | |
| $a$ | 2.6792768 | $\Omega$ | 300.11497 | | −0.65614424 | +0.61935593 | |
| $e$ | 0.1589356 | $i$ | 4.29428 | | −0.26343237 | +0.34737842 | |
| $P$ | 4.39 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 24 | 691 | 0.1− | 0.0 | 2007 03 15 | G96 | 0.1− | 0.2− | 2009 10 09 | 703 | 0.4+ | 0.2+ |
| 2000 09 24 | 691 | 0.1− | 0.0 | 2007 03 15 | G96 | 0.7+ | 0.3− | 2009 10 09 | 703 | (1.9+ | 1.0+) |
| 2000 09 24 | 691 | 0.1+ | 0.0 | 2009 09 26 | 691 | 0.1− | 0.1+ | 2009 10 15 | 704 | 0.3+ | 0.2+ |
| 2005 11 29 | J95 | 0.2− | 0.2+ | 2009 09 26 | 691 | 0.0 | 0.3+ | 2009 10 15 | 704 | 0.9+ | 0.5− |
| 2005 11 29 | J95 | 0.3+ | 0.2− | 2009 09 26 | 691 | 0.2− | 0.1+ | 2009 10 15 | 704 | 1.2− | 0.5− |
| 2005 11 29 | J95 | 0.1− | 0.3− | 2009 09 30 | G96 | 0.2+ | 0.1− | 2009 10 15 | 704 | 0.2− | 0.4+ |
| 2007 02 06 | 691 | 0.1− | 0.4+ | 2009 09 30 | G96 | 0.3+ | 0.0 | 2009 10 15 | 704 | (1.9+ | 1.5+) |
| 2007 02 06 | 691 | 0.1− | 0.2+ | 2009 09 30 | G96 | 0.3+ | 0.0 | 2009 12 18 | G96 | 0.8− | 0.5− |
| 2007 02 06 | 691 | 0.1+ | 0.1+ | 2009 09 30 | G96 | 0.1− | 0.0 | 2009 12 18 | G96 | 0.4− | 0.2+ |
| 2007 03 15 | G96 | 0.6+ | 0.1+ | 2009 10 09 | 703 | 0.6+ | 1.1+ | 2009 12 18 | G96 | 0.0 | 0.2− |
| 2007 03 15 | G96 | 0.1+ | 0.3− | 2009 10 09 | 703 | 0.2− | 0.3− | 2009 12 18 | G96 | 0.1− | 0.1− |

**2009 SZ$_{292}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 153.98316 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.12418913 | $\omega$ | 50.97014 | | −0.58184683 | +0.81324560 | |
| $a$ | 3.9787531 | $\Omega$ | 183.48815 | | −0.78530876 | −0.56474930 | |
| $e$ | 0.1441289 | $i$ | 8.75984 | | −0.21152874 | −0.14032044 | |
| $P$ | 7.94 | $H$ | 14.5 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 04 20 | 691 | 0.2+ | 0.0 | 2006 05 30 | G96 | 0.1− | 0.2− | 2009 09 18 | 691 | 0.4+ | 0.0 |
| 2006 04 20 | 691 | 0.2− | 0.4+ | 2006 05 30 | G96 | 0.1+ | 0.2− | 2009 09 26 | 691 | 0.2− | 0.0 |
| 2006 04 20 | 691 | 0.3+ | 0.1+ | 2006 05 30 | G96 | 0.1+ | 0.3− | 2009 09 26 | 691 | 0.0 | 0.1− |
| 2006 04 30 | 699 | 1.5− | 0.3+ | 2006 05 30 | G96 | 0.2+ | 0.3− | 2009 09 26 | 691 | 0.2− | 0.3+ |
| 2006 04 30 | 699 | 0.9+ | 0.1+ | 2006 05 30 | G96 | 0.3+ | 0.1− | 2009 09 29 | 691 | 0.0 | 0.3+ |
| 2006 04 30 | 699 | 0.1+ | 0.1+ | 2008 09 04 | 691 | 0.2− | 0.1+ | 2009 09 29 | 691 | 0.0 | 0.1+ |
| 2006 04 30 | 699 | 0.5− | 0.1+ | 2008 09 04 | 691 | 0.2+ | 0.1− | 2009 09 29 | 691 | 0.1+ | 0.1+ |
| 2006 05 21 | 644 | 0.1+ | 0.1+ | 2008 09 04 | 691 | 0.1− | 0.2+ | 2009 10 16 | G96 | 0.4+ | 0.1+ |
| 2006 05 21 | 644 | 0.0 | 0.3+ | 2008 10 02 | 691 | 0.2+ | 0.1− | 2009 10 16 | G96 | 0.0 | 0.0 |
| 2006 05 21 | 644 | 0.2− | 0.3+ | 2008 10 02 | 691 | 0.1− | 0.2+ | 2009 10 16 | G96 | 0.4+ | 0.3− |
| 2006 05 30 | G96 | 0.1+ | 0.0 | 2008 10 02 | 691 | 0.0 | 0.3− | 2009 10 16 | G96 | 0.4+ | 0.1− |
| 2006 05 30 | G96 | 0.1+ | 0.1− | 2009 09 18 | 691 | 0.4− | 0.3− | | | | |
| 2006 05 30 | G96 | 0.1− | 0.3− | 2009 09 18 | 691 | 0.1− | 0.3+ | | | | |

**2009 SA$_{297}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 33.73131 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23344320 | $\omega$ | 20.97118 | | +0.99221920 | −0.11200711 | |
| $a$ | 2.6122529 | $\Omega$ | 345.14603 | | +0.06036008 | +0.81465674 | |
| $e$ | 0.1069299 | $i$ | 12.24339 | | +0.10889316 | +0.56902443 | |
| $P$ | 4.22 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 02 25 | 691 | 0.1− | 0.1− | 2009 09 21 | 703 | 1.4− | 0.3+ | 2009 09 30 | G96 | 0.3+ | 0.4− |
| 2007 02 25 | 691 | 0.1− | 0.0 | 2009 09 21 | 703 | 0.3+ | 0.2+ | 2009 10 16 | 703 | 0.7+ | 0.9+ |
| 2007 02 25 | 691 | 0.0 | 0.1+ | 2009 09 21 | 703 | 0.4+ | 0.3+ | 2009 10 16 | 703 | 1.0+ | 0.9− |
| 2007 03 09 | G96 | 0.0 | 0.2+ | 2009 09 21 | 703 | 0.6− | 0.0 | 2009 10 16 | 703 | 0.4+ | 0.1− |
| 2007 03 09 | G96 | 0.4+ | 0.0 | 2009 09 28 | 703 | 0.0 | 0.8− | 2009 10 16 | 703 | 0.2+ | 0.0 |
| 2007 03 09 | G96 | 0.3+ | 0.0 | 2009 09 28 | 703 | 0.5− | 1.5+ | 2009 10 26 | 703 | 1.5− | 0.7− |
| 2007 03 09 | G96 | 0.1+ | 0.1− | 2009 09 28 | 703 | 0.3+ | 0.1− | 2009 10 26 | 703 | 0.4− | 0.4− |
| 2007 03 20 | G96 | 0.2+ | 0.1+ | 2009 09 28 | 703 | 0.4− | 0.4+ | 2009 10 26 | 703 | 0.2− | 0.7+ |
| 2007 03 20 | G96 | 0.0 | 0.1+ | 2009 09 30 | G96 | 0.5+ | 0.3− | 2009 10 26 | 703 | 0.2− | 0.4+ |
| 2007 03 20 | G96 | 0.3− | 0.0 | 2009 09 30 | G96 | 0.6+ | 0.5− | | | | |
| 2007 03 20 | G96 | 0.0 | 0.0 | 2009 09 30 | G96 | 0.3+ | 0.5− | | | | |

**2009 SB$_{297}$ = 2005 UT$_{446}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 77.72966 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23905085 | $\omega$ | 14.28960 | | +0.63535735 | +0.76504590 | |
| $a$ | 2.5712394 | $\Omega$ | 295.26901 | | −0.71940847 | +0.53698837 | |
| $e$ | 0.1482138 | $i$ | 6.66791 | | −0.28066439 | +0.35545500 | |
| $P$ | 4.12 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 02 14 | 910 | 0.7+ | 0.1+ | 2006 11 24 | G96 | 0.4+ | 0.2− | 2009 09 28 | 703 | 0.1− | 0.6+ |
| 1999 02 14 | 910 | 0.8+ | 0.4− | 2006 11 24 | G96 | 0.1+ | 0.4− | 2009 09 28 | 703 | 0.8− | 0.5− |
| 1999 02 14 | 910 | 0.8+ | 0.2− | 2007 01 27 | G96 | (1.1+ | 2.5+) | 2009 09 28 | 703 | 0.1− | 0.5+ |
| 2003 01 28 | 645 | 0.1− | 0.0 | 2007 01 27 | G96 | 0.1+ | 0.0 | 2009 09 30 | G96 | 0.3+ | 0.1+ |
| 2003 01 28 | 645 | 0.1− | 0.1+ | 2007 01 27 | G96 | 0.2− | 0.1− | 2009 09 30 | G96 | 0.1− | 0.2+ |
| 2005 10 23 | 703 | 0.9− | 0.1+ | 2007 01 27 | G96 | 0.5+ | 0.4− | 2009 09 30 | G96 | 0.1+ | 0.0 |
| 2005 10 23 | 703 | 0.7+ | 0.5+ | 2007 02 17 | G96 | 0.0 | 0.2+ | 2009 10 16 | 703 | 1.0− | 0.3− |
| 2005 10 23 | 703 | 0.3− | 0.3− | 2007 02 17 | G96 | 0.1− | 0.2+ | 2009 10 16 | 703 | 0.7− | 0.4− |
| 2005 10 23 | 703 | 1.2− | 0.2− | 2007 02 17 | G96 | 0.1+ | 0.2− | 2009 10 16 | 703 | 0.4+ | 1.3− |
| 2005 10 29 | 703 | 0.4+ | 0.7+ | 2007 02 17 | G96 | 0.1− | 0.1− | 2009 10 16 | 703 | 0.4− | 0.9− |
| 2005 10 29 | 703 | 0.6− | 0.1− | 2007 03 16 | G96 | 0.2+ | 0.2− | 2009 10 24 | 703 | (1.8+ | 0.3+) |
| 2005 10 29 | 703 | (1.9− | 0.6−) | 2007 03 16 | G96 | 0.3+ | 0.1− | 2009 10 24 | 703 | 1.0+ | 1.2+ |
| 2005 10 29 | 703 | 0.1− | 0.2− | 2007 03 16 | G96 | 0.2+ | 0.1− | 2009 10 24 | 703 | 1.3+ | 0.6+ |
| 2005 11 02 | 704 | 0.1− | 1.3+ | 2007 03 16 | G96 | 0.2+ | 0.3− | 2009 10 24 | 703 | 0.5− | 0.4+ |
| 2005 11 02 | 704 | 1.3+ | 1.1− | 2008 05 10 | E12 | 0.3+ | 0.7+ | 2009 11 06 | 703 | (2.4+ | 1.7+) |
| 2005 11 02 | 704 | 0.2− | 0.4− | 2008 05 10 | E12 | 1.1− | 0.8+ | 2009 11 06 | 703 | 1.4+ | 0.3+ |
| 2005 11 02 | 704 | 0.1− | 0.4+ | 2008 05 10 | E12 | 1.0+ | 0.2− | 2009 11 06 | 703 | 0.8− | 0.8+ |
| 2006 11 24 | G96 | 0.1− | 0.0 | 2008 05 10 | E12 | 0.2+ | 0.4+ | 2009 11 06 | 703 | 0.2+ | 0.3+ |
| 2006 11 24 | G96 | 0.4− | 0.2+ | 2009 09 28 | 703 | (0.7+ | 2.0+) | | | | |

**2009 SO$_{299}$ = 2006 KC$_{45}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 13.68688 | | | (2000.0) | | |
| $n$ | 0.14805188 | $\omega$ | 283.08103 | | +0.70223340 | −0.69342789 |
| $a$ | 3.5388332 | $\Omega$ | 121.09767 | | +0.70412299 | +0.64294960 |
| $e$ | 0.1087916 | $i$ | 10.85950 | | +0.10525719 | +0.32522849 |
| $P$ | 6.66 | $H$ | 14.9 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 09 05 | 645 | 0.1− | 0.1+ | 2008 08 04 | J75 | 0.4− | 0.6+ | 2009 11 08 | 703 | 0.1+ | 0.1+ |
| 2002 09 05 | 645 | 0.1+ | 0.0 | 2008 08 04 | J75 | 0.1− | 0.3+ | 2009 11 08 | 703 | (2.2− | 0.1+) |
| 2003 12 17 | 691 | 0.0 | 0.1+ | 2009 09 29 | G96 | 0.1− | 0.1+ | 2009 11 21 | 703 | 0.5− | 0.3+ |
| 2003 12 17 | 691 | 0.1+ | 0.0 | 2009 09 29 | G96 | 0.3+ | 0.2+ | 2009 11 21 | 703 | 0.1+ | 0.1− |
| 2003 12 17 | 691 | 0.2− | 0.3+ | 2009 09 29 | G96 | 0.1+ | 0.1+ | 2009 11 21 | 703 | 0.9− | 1.2+ |
| 2006 05 21 | 691 | 0.9+ | 0.3− | 2009 09 29 | G96 | 0.1+ | 0.1+ | 2009 11 21 | 703 | 0.9− | 0.7+ |
| 2006 05 21 | 691 | 0.3+ | 0.4+ | 2009 09 30 | G96 | 0.1− | 0.3+ | 2009 12 13 | 703 | 0.6+ | 0.2− |
| 2006 05 21 | 691 | 0.3− | 0.8+ | 2009 09 30 | G96 | 0.3+ | 0.2+ | 2009 12 13 | 703 | 0.0 | 0.1− |
| 2006 05 25 | 691 | 0.2+ | 0.2− | 2009 09 30 | G96 | 0.2+ | 0.3+ | 2009 12 13 | 703 | 0.5− | 1.5+ |
| 2006 05 25 | 691 | 0.1+ | 0.6+ | 2009 09 30 | G96 | 0.1+ | 0.3+ | 2009 12 13 | 703 | 0.5+ | 0.1− |
| 2006 05 25 | 691 | 0.5− | 0.4+ | 2009 11 08 | 703 | 0.1− | 0.1− | | | | |
| 2008 08 04 | J75 | 0.8− | 0.5+ | 2009 11 08 | 703 | (0.6− | 1.7+) | | | | |

**2009 SE$_{300}$ = 2005 XR$_{117}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 24.06034 | | | (2000.0) | | |
| $n$ | 0.24552084 | $\omega$ | 262.70961 | | +0.63060041 | −0.77577528 |
| $a$ | 2.5258670 | $\Omega$ | 148.16013 | | +0.72797275 | +0.58109113 |
| $e$ | 0.1492003 | $i$ | 2.46745 | | +0.26907024 | +0.24597928 |
| $P$ | 4.01 | $H$ | 17.1 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 05 | 691 | 0.0 | 0.1+ | 2009 09 22 | G96 | 0.3+ | 0.2+ | 2009 11 16 | G96 | 0.5+ | 0.1− |
| 2005 12 05 | 691 | 0.2− | 0.0 | 2009 09 22 | G96 | 0.3+ | 0.1− | 2009 11 16 | G96 | 0.1+ | 0.0 |
| 2005 12 05 | 691 | 0.0 | 0.2+ | 2009 09 22 | G96 | 0.3+ | 0.4− | 2009 11 16 | G96 | 0.1− | 0.1− |
| 2006 01 28 | G96 | 0.5+ | 0.6− | 2009 09 30 | G96 | 0.4+ | 0.6− | 2009 11 27 | 691 | 0.1− | 0.3+ |
| 2006 01 28 | G96 | 0.0 | 0.3− | 2009 09 30 | G96 | 0.3− | 0.1− | 2009 11 27 | 691 | 0.1− | 0.1+ |
| 2006 01 28 | G96 | 0.5− | 0.8− | 2009 09 30 | G96 | 0.4+ | 0.4− | 2009 11 27 | 691 | 0.4− | 0.0 |
| 2006 01 28 | G96 | 0.1+ | 0.6− | 2009 09 30 | G96 | 0.5− | 0.2− | 2009 12 11 | G96 | 0.1+ | 0.1− |
| 2006 02 25 | G96 | 0.6+ | 0.1+ | 2009 10 01 | G96 | 0.1− | 0.3− | 2009 12 11 | G96 | 0.5+ | 0.2− |
| 2006 02 25 | G96 | 0.3+ | 0.0 | 2009 10 01 | G96 | 0.6− | 0.1+ | 2009 12 11 | G96 | 0.4+ | 0.0 |
| 2006 02 25 | G96 | 0.3− | 0.4+ | 2009 10 01 | G96 | 0.8+ | 0.3+ | 2009 12 11 | G96 | 0.3+ | 0.2− |
| 2006 02 25 | G96 | 0.4+ | 0.0 | 2009 10 01 | G96 | 0.1+ | 0.3+ | | | | |
| 2009 09 22 | G96 | 0.1− | 0.6− | 2009 11 16 | G96 | 0.3− | 0.1+ | | | | |

**2009 SF$_{300}$ = 1998 VB$_{43}$ = 2003 TN$_{25}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 343.36992 | | | (2000.0) | | |
| $n$ | 0.18515655 | $\omega$ | 239.84899 | | −0.15500543 | −0.98383652 |
| $a$ | 3.0486670 | $\Omega$ | 219.38753 | | +0.94803445 | −0.12260841 |
| $e$ | 0.0822176 | $i$ | 8.12279 | | +0.27785606 | −0.13051005 |
| $P$ | 5.32 | $H$ | 16.1 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 10 13 | 691 | (4.8+ | 5.0−) | 2003 10 16 | 691 | 0.1− | 0.7+ | 2009 09 30 | G96 | 0.4+ | 0.2− |
| 1998 10 13 | 691 | 0.4+ | 0.5+ | 2003 10 16 | 691 | 0.4− | 1.1+ | 2009 09 30 | G96 | 0.6+ | 0.2+ |
| 1998 10 13 | 691 | 0.5+ | 0.0 | 2008 10 01 | G96 | 0.6+ | 0.3− | 2009 09 30 | G96 | 0.7+ | 0.3+ |
| 1998 10 18 | 691 | (0.1+ | 4.2−) | 2008 10 01 | G96 | 0.4+ | 0.2+ | 2009 10 01 | 291 | 0.6− | 0.1+ |
| 1998 10 18 | 691 | 1.2− | 0.6+ | 2008 10 01 | G96 | 0.0 | 0.0 | 2009 10 01 | 291 | 0.4− | 0.5+ |
| 1998 11 15 | 691 | 0.7− | 0.3+ | 2008 10 01 | G96 | 0.2+ | 0.1− | 2009 10 01 | 291 | 0.3− | 1.1+ |
| 1998 11 15 | 691 | 0.8− | 0.2+ | 2008 10 01 | G96 | 0.0 | 0.2− | 2009 11 19 | 691 | 0.1+ | 0.4+ |
| 1998 11 15 | 691 | 0.7− | 0.1+ | 2008 10 01 | G96 | 0.2− | 0.0 | 2009 11 19 | 691 | 0.1− | 0.7+ |
| 1998 11 19 | 691 | 0.3− | 0.2− | 2008 10 01 | G96 | 0.3+ | 0.3− | 2009 11 19 | 691 | 0.3+ | 0.5+ |
| 1998 11 19 | 691 | 0.1− | 0.0 | 2008 10 01 | G96 | 0.4− | 0.2+ | 2009 12 11 | 703 | 1.0+ | 0.4+ |
| 1998 11 19 | 691 | 0.5− | 0.4− | 2009 09 22 | G96 | 0.8+ | 0.2+ | 2009 12 11 | 703 | 0.8− | 0.4+ |
| 2003 10 01 | 691 | 0.3− | 0.6+ | 2009 09 22 | G96 | 0.0 | 0.2− | 2009 12 11 | 703 | 0.1+ | 1.1+ |
| 2003 10 01 | 691 | 0.4− | 0.8+ | 2009 09 22 | G96 | 0.8+ | 0.0 | 2009 12 11 | 703 | 0.1− | 1.4+ |
| 2003 10 01 | 691 | 0.3− | 0.8+ | 2009 09 22 | G96 | 0.0 | 0.1+ | | | | |
| 2003 10 16 | 691 | 0.3− | 0.8+ | 2009 09 30 | G96 | 0.7+ | 0.4+ | | | | |

**2009 SD$_{306}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 65.90298 | | | (2000.0) | | |
| $n$ | 0.26289182 | $\omega$ | 286.65491 | | +0.65479688 | +0.75559002 |
| $a$ | 2.4133372 | $\Omega$ | 24.27805 | | −0.67566316 | +0.59588447 |
| $e$ | 0.2071107 | $i$ | 2.51209 | | −0.33870392 | +0.27203937 |
| $P$ | 3.75 | $H$ | 17.9 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 05 05 | 691 | 0.1+ | 1.2− | 2009 09 17 | 691 | 0.2− | 0.2+ | 2009 10 15 | G96 | 0.8+ | 0.4− |
| 1997 05 05 | 691 | 0.3− | 0.4+ | 2009 09 17 | 691 | 0.0 | 0.1+ | 2009 11 11 | G96 | 0.6+ | 0.5− |
| 1997 05 05 | 691 | 0.0 | 0.3+ | 2009 09 17 | 691 | 0.2− | 0.0 | 2009 11 11 | G96 | 0.4− | 0.0 |
| 2004 02 22 | 695 | 0.1+ | 0.1− | 2009 09 25 | 691 | 0.2− | 0.0 | 2009 11 11 | G96 | 0.3− | 0.5− |
| 2004 02 22 | 695 | 0.0 | 0.1+ | 2009 09 25 | 691 | 0.1+ | 0.1− | 2009 11 11 | G96 | 0.1− | 0.0 |
| 2008 04 03 | G96 | 0.1+ | 0.2+ | 2009 09 25 | 691 | 0.1− | 0.3+ | 2009 11 23 | G96 | 0.6− | 0.1− |
| 2008 04 03 | G96 | 0.1+ | 0.1+ | 2009 10 15 | G96 | 0.5+ | 0.2− | 2009 11 23 | G96 | 0.7+ | 0.4− |
| 2008 04 03 | G96 | 0.1+ | 0.3+ | 2009 10 15 | G96 | 0.4+ | 0.1− | 2009 11 23 | G96 | 0.5+ | 0.5− |
| 2008 04 03 | G96 | 0.0 | 0.2+ | 2009 10 15 | G96 | 0.5+ | 0.2− | 2009 11 23 | G96 | 0.2+ | 0.2− |

**2009 SY$_{322}$ = 1996 XR$_{37}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 32.18436 | | | (2000.0) | | |
| $n$ | 0.22851493 | $\omega$ | 280.53664 | | +0.90265668 | −0.42940631 |
| $a$ | 2.6496774 | $\Omega$ | 104.89818 | | +0.40553803 | +0.82641670 |
| $e$ | 0.3331410 | $i$ | 1.69920 | | +0.14404800 | +0.36420552 |
| $P$ | 4.31 | $H$ | 17.3 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1993 01 26 | 691 | 0.1+ | 0.5− | 2006 02 06 | G96 | 0.3− | 0.5− | 2009 11 21 | 291 | 0.1+ | 0.0 |
| 1993 01 26 | 691 | 0.1+ | 0.2− | 2009 09 22 | G96 | 0.6+ | 0.0 | 2009 11 21 | 291 | 0.0 | 0.0 |
| 1993 01 26 | 691 | 0.0 | 0.2− | 2009 09 22 | G96 | 0.9+ | 0.3+ | 2009 11 21 | 703 | 0.4− | 0.0 |
| 1996 12 14 | 695 | 0.3− | 1.0+ | 2009 09 22 | G96 | 0.7+ | 0.1+ | 2009 11 21 | 703 | 0.0 | 1.1− |
| 1996 12 14 | 695 | 1.0− | 0.0 | 2009 09 22 | G96 | 0.3+ | 0.0 | 2009 11 21 | 703 | 0.0 | 0.4+ |
| 2002 02 06 | 695 | 0.5+ | 0.1+ | 2009 09 30 | G96 | 0.7+ | 0.1+ | 2009 11 21 | 703 | 0.4+ | 0.5− |
| 2002 02 06 | 695 | 0.1+ | 0.2+ | 2009 09 30 | G96 | 0.7+ | 0.1− | 2009 11 21 | 703 | 0.8+ | 0.3+ |
| 2006 01 04 | 691 | 0.1+ | 0.1+ | 2009 09 30 | G96 | 0.2+ | 0.0 | 2009 12 10 | G96 | 0.4+ | 0.3− |
| 2006 01 04 | 691 | 0.6+ | 0.1+ | 2009 09 30 | G96 | 0.5+ | 0.2− | 2009 12 10 | G96 | 0.3+ | 0.1− |
| 2006 01 04 | 691 | 0.3+ | 0.2− | 2009 11 20 | 691 | 0.0 | 0.2− | 2009 12 10 | G96 | 0.4+ | 0.1− |
| 2006 01 25 | 691 | 0.2− | 0.1+ | 2009 11 20 | 691 | 0.0 | 0.0 | 2009 12 10 | G96 | 0.4+ | 0.4− |
| 2006 01 25 | 691 | 0.3− | 0.5+ | 2009 11 20 | 691 | 0.0 | 0.1− | 2009 12 17 | 704 | 0.0 | 0.5+ |
| 2006 01 25 | 691 | 0.4− | 0.2+ | 2009 11 20 | 291 | 0.5− | 0.0 | 2009 12 17 | 704 | 0.4− | 0.9+ |
| 2006 02 06 | G96 | 0.1− | 0.4− | 2009 11 20 | 291 | 0.4− | 0.1+ | 2009 12 17 | 704 | 0.2− | 0.1− |
| 2006 02 06 | G96 | 0.4− | 0.1+ | 2009 11 20 | 291 | 0.5− | 0.1+ | 2009 12 17 | 704 | 1.0+ | 0.5+ |
| 2006 02 06 | G96 | 0.4− | 0.2− | 2009 11 21 | 291 | 0.0 | 0.0 | | | | |

**2009 ST$_{325}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 13.37759 | | | (2000.0) | | |
| $n$ | 0.38239162 | $\omega$ | 223.81954 | | +0.64817671 | −0.76039697 |
| $a$ | 1.8798815 | $\Omega$ | 186.19209 | | +0.76020396 | +0.64926469 |
| $e$ | 0.0753923 | $i$ | 22.21720 | | +0.04423671 | −0.01586855 |
| $P$ | 2.58 | $H$ | 18.0 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 05 30 | 645 | 0.1− | 0.1− | 2009 10 01 | G96 | 0.3+ | 0.1− | 2009 11 10 | 703 | 0.6+ | 0.5+ |
| 2003 05 30 | 645 | 0.1+ | 0.0 | 2009 10 01 | G96 | 0.2− | 0.2− | 2009 11 10 | 703 | 0.3+ | 1.3+ |
| 2008 03 29 | G96 | 0.2+ | 0.1+ | 2009 10 01 | G96 | 0.2+ | 0.1+ | 2009 11 10 | 703 | 1.7− | 0.8− |
| 2008 03 29 | G96 | 0.1− | 0.1+ | 2009 10 01 | G96 | 0.3+ | 0.2− | 2009 11 16 | 703 | 1.0− | 0.2+ |
| 2008 03 29 | G96 | 0.2− | 0.1− | 2009 10 15 | 703 | 0.7− | 0.0 | 2009 11 16 | 703 | 0.8− | 1.5− |
| 2008 03 29 | G96 | 0.1+ | 0.0 | 2009 10 15 | 703 | 0.4− | 0.6− | 2009 11 16 | 703 | 0.1+ | 0.6− |
| 2009 09 27 | G96 | 0.1+ | 0.2+ | 2009 10 15 | 703 | 0.5+ | 0.7+ | 2009 11 16 | 703 | 0.4+ | 1.1+ |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 2009 09 27 | G96 | 0.2+ | 0.1+ | 2009 10 15 | 703 | 0.7+ | 0.3− | |
| 2009 09 27 | G96 | 0.0 | 0.2+ | 2009 11 10 | 703 | 1.1+ | 0.3− | |

**2009 SH$_{332}$ = 2004 QY$_{28}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 57.56365 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.19863397 | $\omega$ | 56.01587 | | +0.54893183 | | +0.81590162 |
| $a$ | 2.9091561 | $\Omega$ | 248.30247 | | −0.81680560 | | +0.47746790 |
| $e$ | 0.2441542 | $i$ | 11.27085 | | −0.17748929 | | +0.32608120 |
| $P$ | 4.96 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 08 20 | 703 | 0.1− | 0.6+ | 2009 09 21 | 703 | 0.6− | 0.4+ | 2009 10 15 | 703 | 0.3− | 0.1+ | | |
| 2004 08 20 | 703 | 0.6+ | 0.3+ | 2009 09 21 | 703 | 0.2+ | 0.3+ | 2009 10 15 | 703 | 0.2+ | 0.5− | | |
| 2004 08 20 | 703 | 0.1− | 0.5+ | 2009 09 21 | 703 | 0.3− | 0.0 | 2009 10 15 | 703 | 0.6+ | 0.3− | | |
| 2004 08 20 | 703 | 0.0 | 0.5− | 2009 09 21 | 703 | 0.4− | 0.0 | 2009 10 15 | 703 | 0.5− | 0.0 | | |
| 2004 09 22 | 699 | 0.2+ | 0.4− | 2009 09 28 | 703 | 0.7− | 0.3− | 2009 10 15 | J75 | 0.1− | 0.3+ | | |
| 2004 09 22 | 699 | 0.0 | 0.3+ | 2009 09 28 | 703 | 0.6− | 0.3− | 2009 10 15 | J75 | 0.4+ | 0.1− | | |
| 2004 09 22 | 699 | 0.4+ | 0.2− | 2009 09 28 | 703 | 0.1− | 2.0− | 2009 10 15 | J75 | 0.3+ | 0.6− | | |
| 2004 09 22 | 699 | 0.0 | 0.2+ | 2009 09 28 | 703 | 0.0 | 1.4− | 2009 10 24 | 703 | 0.2+ | 0.7+ | | |
| 2004 10 06 | 644 | 0.6− | 0.1+ | 2009 10 11 | J75 | 0.5− | 0.0 | 2009 10 24 | 703 | 1.9+ | 1.6+ | | |
| 2004 10 06 | 644 | 0.6− | 0.2+ | 2009 10 11 | J75 | 0.1− | 0.1+ | 2009 10 24 | 703 | 0.4+ | 0.7+ | | |
| 2004 10 06 | 644 | 0.4− | 0.1+ | 2009 10 11 | J75 | 0.4+ | 0.6− | 2009 10 24 | 703 | 0.1+ | 1.0+ | | |

**2009 SR$_{339}$ = 2004 TD$_{314}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 5.50732 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21499937 | $\omega$ | 214.49311 | | +0.25237012 | | −0.96346448 |
| $a$ | 2.7595902 | $\Omega$ | 221.09517 | | +0.91568770 | | +0.26775730 |
| $e$ | 0.1241724 | $i$ | 7.84306 | | +0.31277047 | | −0.00649814 |
| $P$ | 4.58 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 11 | 691 | 0.2− | 0.2+ | 2009 09 22 | G96 | 0.4− | 0.9− | 2009 11 16 | G96 | 0.0 | 0.2− | | |
| 2004 10 11 | 691 | 0.0 | 0.1− | 2009 09 22 | G96 | 0.2+ | 0.1− | 2009 11 27 | G96 | 0.2+ | 0.1+ | | |
| 2004 10 11 | 691 | 0.1+ | 0.1+ | 2009 09 22 | G96 | 0.0 | 0.3+ | 2009 11 27 | G96 | 0.0 | 0.2+ | | |
| 2004 10 15 | 691 | 0.0 | 0.0 | 2009 09 30 | G96 | 0.1+ | 0.0 | 2009 11 27 | G96 | 0.4+ | 0.0 | | |
| 2004 10 15 | 691 | 0.1+ | 0.0 | 2009 09 30 | G96 | 0.1− | 0.1+ | 2009 11 27 | G96 | 0.3+ | 0.2+ | | |
| 2004 10 15 | 691 | 0.1− | 0.1− | 2009 09 30 | G96 | 0.4+ | 0.3− | 2009 11 27 | G96 | 0.2+ | 0.0 | | |
| 2004 11 10 | 691 | 0.1+ | 0.2+ | 2009 09 30 | G96 | 0.3− | 0.4− | 2009 12 09 | J75 | 0.9− | 0.3+ | | |
| 2004 11 10 | 691 | 0.1+ | 0.0 | 2009 11 16 | G96 | 0.1− | 0.1− | 2009 12 09 | J75 | 0.0 | 0.2+ | | |
| 2004 11 10 | 691 | 0.2− | 0.1− | 2009 11 16 | G96 | 0.2+ | 0.1− | 2009 12 09 | J75 | 0.2− | 0.1− | | |
| 2009 09 22 | G96 | 0.5− | 0.3+ | 2009 11 16 | G96 | 0.2+ | 0.1− | | | | | | |

**2009 SA$_{343}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 80.53358 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17778103 | $\omega$ | 264.79044 | | +0.54589213 | | +0.83235318 |
| $a$ | 3.1324137 | $\Omega$ | 38.79902 | | −0.69529447 | | +0.51387641 |
| $e$ | 0.0669056 | $i$ | 8.80044 | | −0.46751191 | | +0.20765167 |
| $P$ | 5.54 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 11 11 | 691 | 0.4+ | 0.0 | 2009 09 17 | 691 | 0.1+ | 0.1− | 2009 10 24 | G96 | 0.7+ | 0.2− | | |
| 2004 11 11 | 691 | 0.0 | 0.2+ | 2009 09 25 | 691 | 0.0 | 0.1− | 2009 10 24 | G96 | 0.2− | 0.0 | | |
| 2004 11 11 | 691 | 0.2− | 0.1+ | 2009 09 25 | 691 | 0.1− | 0.1− | 2009 10 24 | G96 | 0.5+ | 0.0 | | |
| 2004 12 20 | G96 | 0.4− | 0.6− | 2009 09 25 | 691 | 0.1+ | 0.1− | 2009 12 13 | G96 | 0.1+ | 0.1+ | | |
| 2004 12 20 | G96 | 0.1− | 0.1− | 2009 10 16 | G96 | 0.2+ | 0.3− | 2009 12 13 | G96 | 0.1+ | 0.4+ | | |
| 2004 12 20 | G96 | 0.2+ | 0.2− | 2009 10 16 | G96 | 0.1+ | 0.1− | 2009 12 13 | G96 | 0.3+ | 0.0 | | |
| 2004 12 20 | G96 | 0.5− | 0.0 | 2009 10 16 | G96 | 0.2− | 0.1− | 2009 12 13 | G96 | 0.3+ | 0.0 | | |
| 2009 09 17 | 691 | 0.2− | 0.5+ | 2009 10 16 | G96 | 0.1+ | 0.2+ | | | | | | |
| 2009 09 17 | 691 | 0.5− | 0.1− | 2009 10 24 | G96 | 0.8+ | 0.1− | | | | | | |

**2009 SZ$_{348}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 57.61396 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22950473 | $\omega$ | 294.02419 | | +0.81146825 | | +0.57431408 |
| $a$ | 2.6420536 | $\Omega$ | 31.24797 | | −0.43124385 | | +0.71329677 |
| $e$ | 0.3153096 | $i$ | 12.02636 | | −0.39439577 | | +0.40171017 |
| $P$ | 4.29 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 04 06 | G96 | 0.6+ | 0.1+ | 2009 09 16 | G96 | 0.2+ | 0.1− | 2009 11 06 | 703 | 0.0 | 0.4+ | | |
| 2008 04 06 | G96 | 0.0 | 0.3− | 2009 09 16 | G96 | 0.1+ | 0.1− | 2009 11 06 | 703 | 1.0+ | 0.7− | | |
| 2008 04 06 | G96 | 0.4+ | 0.1+ | 2009 10 11 | G96 | 0.5+ | 0.4− | 2009 11 06 | 703 | 0.6− | 0.0 | | |
| 2008 04 06 | G96 | 0.2+ | 0.1− | 2009 10 11 | G96 | 0.5+ | 0.2− | 2009 11 06 | 703 | 0.1− | 1.4− | | |
| 2008 04 28 | 691 | 0.1+ | 0.1− | 2009 10 11 | G96 | 0.5+ | 0.1− | 2009 11 20 | G96 | 0.3+ | 0.1+ | | |
| 2008 04 28 | 691 | 0.5− | 0.7+ | 2009 10 11 | G96 | 0.1+ | 0.1− | 2009 11 20 | G96 | 0.3+ | 0.1− | | |
| 2008 04 28 | 691 | 0.0 | 0.7− | 2009 10 24 | 691 | 0.4− | 0.0 | 2009 11 20 | G96 | 0.7+ | 0.3+ | | |
| 2009 09 16 | G96 | 0.3+ | 0.1+ | 2009 10 24 | 691 | 0.3− | 0.3+ | 2009 11 20 | G96 | 0.2+ | 0.2+ | | |
| 2009 09 16 | G96 | 0.3+ | 0.3− | 2009 10 24 | 691 | 0.3− | 0.2+ | | | | | | |

**2009 SA$_{349}$ = 2007 EG$_{187}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 5.62624 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.28488521 | $\omega$ | 24.98924 | | +0.26684542 | | −0.96197067 |
| $a$ | 2.2874737 | $\Omega$ | 49.59037 | | +0.87083478 | | +0.21473804 |
| $e$ | 0.1956022 | $i$ | 4.39580 | | +0.41284417 | | +0.16881943 |
| $P$ | 3.46 | $H$ | 18.1 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 11 04 | 644 | 0.2− | 0.1− | 2009 09 19 | G96 | 0.3+ | 0.3− | 2009 11 24 | J75 | 0.9− | 0.0 | | |
| 2002 11 04 | 644 | 0.6− | 0.0 | 2009 09 19 | G96 | 0.2− | 0.2− | 2009 11 25 | J75 | 0.1+ | 0.2+ | | |
| 2002 11 04 | 644 | 0.2− | 0.1+ | 2009 10 16 | G96 | 0.5+ | 0.3− | 2009 11 25 | 691 | 0.0 | 0.1− | | |
| 2002 11 14 | 291 | 0.2− | 0.2+ | 2009 10 16 | G96 | 0.2+ | 0.3− | 2009 11 25 | 691 | 0.1+ | 0.2− | | |
| 2002 11 14 | 291 | 0.0 | 0.2+ | 2009 10 16 | G96 | 0.5+ | 0.2− | 2009 11 25 | 691 | 0.2− | 0.1− | | |
| 2002 11 14 | 291 | 0.2+ | 0.2+ | 2009 10 16 | G96 | 0.2+ | 0.2− | 2009 11 25 | 703 | 0.0 | 1.2+ | | |
| 2007 03 15 | G96 | 0.1+ | 0.2− | 2009 10 24 | 114 | 0.7+ | 0.1− | 2009 11 25 | 703 | 0.6+ | 0.5+ | | |
| 2007 03 15 | G96 | 0.6+ | 0.0 | 2009 10 24 | 114 | 0.4− | 0.1− | 2009 11 25 | 703 | 0.4− | 0.2− | | |
| 2007 03 15 | G96 | 0.1+ | 0.1+ | 2009 10 24 | 114 | 0.2− | 0.3− | 2009 11 25 | 703 | 0.4− | 0.2+ | | |
| 2007 03 15 | G96 | 0.1− | 0.0 | 2009 11 09 | 691 | 0.5− | 1.0+ | 2009 12 09 | J75 | 0.1− | 0.7− | | |
| 2007 03 19 | G96 | 0.3+ | 0.2− | 2009 11 09 | 691 | 0.1+ | 0.0 | 2009 12 09 | J75 | 0.8+ | 0.1+ | | |
| 2007 03 19 | G96 | 0.1− | 0.3+ | 2009 11 09 | 691 | 0.2− | 0.1− | 2009 12 09 | J75 | (1.6+ | 0.4−) | | |
| 2007 03 19 | G96 | 0.1+ | 0.1− | 2009 11 17 | 691 | 0.1+ | 0.3− | 2009 12 16 | G96 | 1.2+ | 0.7− | | |
| 2007 03 19 | G96 | 0.6− | 0.8+ | 2009 11 17 | 691 | 0.2+ | 0.1− | 2009 12 16 | G96 | 1.1+ | 0.8− | | |
| 2009 09 19 | G96 | 0.1− | 0.6− | 2009 11 17 | 691 | 0.2− | 0.0 | 2009 12 16 | G96 | 0.2+ | 0.4− | | |
| 2009 09 19 | G96 | 0.6+ | 0.2− | 2009 11 24 | J75 | 0.6− | 0.6+ | | | | | | |

**2009 SB$_{349}$ = 2009 WW$_{143}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 76.31945 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21601706 | $\omega$ | 295.99782 | | +0.83998225 | | +0.54229111 |
| $a$ | 2.7509162 | $\Omega$ | 31.17255 | | −0.48401966 | | +0.76441922 |
| $e$ | 0.0658197 | $i$ | 2.07182 | | −0.24526474 | | +0.34868842 |
| $P$ | 4.56 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 07 | 691 | 0.0 | 0.2+ | 2009 09 20 | G96 | 0.1− | 0.3+ | 2009 11 11 | G96 | 0.6+ | 0.2+ | | |
| 2004 09 07 | 691 | 0.2− | 0.0 | 2009 09 20 | G96 | 0.1− | 0.1+ | 2009 11 11 | G96 | 1.0+ | 0.3+ | | |
| 2004 09 07 | 691 | 0.0 | 0.2+ | 2009 09 20 | G96 | 0.2+ | 0.3+ | 2009 11 19 | G96 | 0.2+ | 0.1− | | |
| 2005 12 21 | 691 | 0.1+ | 0.7+ | 2009 09 20 | G96 | 0.2+ | 0.2− | 2009 11 19 | G96 | 0.3+ | 0.1+ | | |
| 2005 12 21 | 691 | 0.0 | 0.3− | 2009 10 11 | G96 | 0.2+ | 0.6+ | 2009 11 19 | G96 | 0.4− | 0.2+ | | |
| 2005 12 21 | 691 | 0.5+ | 0.9− | 2009 10 11 | G96 | 0.1− | 0.1+ | 2009 11 19 | G96 | 0.2− | 0.0 | | |
| 2005 12 31 | 691 | 0.2+ | 0.0 | 2009 10 11 | G96 | 0.1− | 0.4− | 2009 11 25 | G96 | 0.7− | 0.0 | | |
| 2005 12 31 | 691 | 0.6− | 0.3− | 2009 10 24 | 691 | 0.1− | 0.0 | 2009 11 25 | G96 | 0.9− | 0.1− | | |
| 2005 12 31 | 691 | 0.3− | 0.4+ | 2009 10 24 | 691 | 0.1− | 0.1+ | 2009 11 25 | G96 | 0.3+ | 0.1+ | | |
| 2007 03 10 | 691 | 0.3+ | 0.0 | 2009 10 24 | 691 | 0.4− | 0.1+ | 2009 11 25 | G96 | 0.5+ | 0.0 | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 2007 03 10 | 691 | 0.0 | 0.8+ | 2009 11 11 | G96 | 0.5+ | 0.4+ | |
| 2007 03 10 | 691 | 0.2+ | 0.4+ | 2009 11 11 | G96 | 0.1+ | 0.4+ | |

**2009 SF$_{349}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 96.11211 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18302897 | $\omega$ | 257.18193 | | +0.30438268 | | +0.95223407 |
| $a$ | 3.0722472 | $\Omega$ | 30.57379 | | −0.85418112 | | +0.28425371 |
| $e$ | 0.1248070 | $i$ | 2.76363 | | −0.42157538 | | +0.11158005 |
| $P$ | 5.38 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 09 25 | 645 | 0.1+ | 0.1− | 2009 09 23 | 691 | 0.4− | 0.7+ | 2009 11 11 | G96 | 0.7+ | 0.5− |
| 1998 09 25 | 645 | 0.0 | 0.1− | 2009 09 23 | 691 | 0.1− | 0.1− | 2009 11 11 | G96 | 0.0 | 0.8− |
| 2007 03 26 | G96 | 0.2− | 0.2− | 2009 10 14 | G96 | 0.5+ | 0.1− | 2009 11 11 | G96 | 0.0 | 0.3− |
| 2007 03 26 | G96 | 0.3+ | 0.3− | 2009 10 14 | G96 | 0.3− | 0.7− | 2009 11 11 | G96 | 0.9+ | 0.2− |
| 2007 03 26 | G96 | 0.3− | 0.3− | 2009 10 14 | G96 | 0.1− | 0.1+ | 2009 11 18 | G96 | 0.0 | 0.0 |
| 2007 03 26 | G96 | 0.6− | 0.3− | 2009 10 14 | G96 | 0.2+ | 0.3− | 2009 11 18 | G96 | 0.3+ | 0.3+ |
| 2007 04 18 | 691 | 0.3− | 0.3− | 2009 10 27 | G96 | 0.3− | 0.3+ | 2009 11 18 | G96 | 0.2− | 0.3+ |
| 2007 04 18 | 691 | 0.2+ | 0.2+ | 2009 10 27 | G96 | 0.4+ | 0.1− | 2009 11 18 | G96 | 0.2+ | 0.3+ |
| 2007 04 18 | 691 | 0.1+ | 0.0 | 2009 10 27 | G96 | 0.3− | 0.5− | | | | |
| 2009 09 23 | 691 | 0.2− | 0.1+ | 2009 10 27 | G96 | 0.1+ | 0.1+ | | | | |

**2009 SH$_{349}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 161.52361 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21539428 | $\omega$ | 208.18136 | | −0.46035285 | | +0.88719607 |
| $a$ | 2.7562161 | $\Omega$ | 34.43461 | | −0.80385170 | | −0.40180184 |
| $e$ | 0.0062063 | $i$ | 3.13838 | | −0.37669312 | | −0.22680039 |
| $P$ | 4.58 | $H$ | 17.5 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 11 | 691 | 0.1+ | 0.1+ | 2007 03 10 | G96 | 0.0 | 0.6+ | | 2009 10 14 | G96 | 0.4− | 0.0 | |
| 2004 09 11 | 691 | 0.1− | 0.1− | 2007 03 24 | 809 | 0.1+ | 0.3+ | Y | 2009 10 22 | G96 | 0.0 | 0.2− | |
| 2004 09 11 | 691 | 0.2− | 0.3− | 2007 03 24 | 809 | 1.2+ | 0.1− | Y | 2009 10 22 | G96 | 0.0 | 0.1− | |
| 2004 09 11 | 691 | 0.2+ | 0.0 | 2007 03 24 | 809 | 0.8− | 0.5+ | Y | 2009 10 22 | G96 | 0.4+ | 0.3− | |
| 2004 09 11 | 691 | 0.2− | 0.2+ | 2007 03 24 | 809 | 0.3+ | 0.1+ | Y | 2009 10 22 | G96 | 0.7+ | 0.7− | |
| 2004 09 11 | 691 | 0.3+ | 0.1− | 2007 03 24 | 809 | 0.1− | 0.7+ | Y | 2009 11 11 | G96 | 0.7+ | 0.3+ | |
| 2005 12 25 | 291 | 0.1+ | 0.0 | 2009 09 27 | 691 | 0.1− | 0.1+ | | 2009 11 11 | G96 | 0.1+ | 0.1+ | |
| 2005 12 25 | 291 | 0.1− | 0.3− | 2009 09 27 | 691 | 0.8− | 1.0+ | | 2009 11 11 | G96 | 0.1− | 0.1− | |
| 2005 12 25 | 291 | 0.0 | 0.2− | 2009 09 27 | 691 | 0.4− | 0.1− | | 2009 11 11 | G96 | 0.7+ | 0.2+ | |
| 2007 03 10 | G96 | 0.2− | 0.3+ | 2009 10 14 | G96 | 0.6+ | 0.1− | | 2009 11 20 | 691 | 0.3− | 0.1− | |
| 2007 03 10 | G96 | 0.2+ | 0.1− | 2009 10 14 | G96 | 0.6+ | 0.2− | | 2009 11 20 | 691 | 0.0 | 0.1+ | |
| 2007 03 10 | G96 | 0.6+ | 0.2+ | 2009 10 14 | G96 | 0.7+ | 0.2− | | 2009 11 20 | 691 | 0.1+ | 0.5+ | |

**2009 SK$_{349}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 280.48362 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21126146 | $\omega$ | 79.67930 | | −0.54638861 | | −0.83331357 |
| $a$ | 2.7920457 | $\Omega$ | 43.78502 | | +0.71309656 | | −0.51543868 |
| $e$ | 0.0671331 | $i$ | 6.96865 | | +0.43926391 | | −0.19977852 |
| $P$ | 4.67 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 03 11 | 644 | 0.0 | 0.0 | 2007 04 22 | G96 | 0.0 | 0.1+ | 2009 10 16 | G96 | 0.1− | 0.2− |
| 2002 03 11 | 644 | 0.1− | 0.2− | 2007 04 22 | G96 | 0.0 | 0.1− | 2009 11 08 | 291 | 0.1+ | 0.2+ |
| 2002 03 11 | 644 | 0.1− | 0.1− | 2009 09 17 | 691 | 0.3− | 0.1+ | 2009 11 08 | 291 | 0.4+ | 0.3+ |
| 2002 04 02 | 644 | 0.0 | 0.5+ | 2009 09 17 | 691 | 0.4− | 0.1+ | 2009 11 08 | 291 | 0.2− | 0.2+ |
| 2002 04 02 | 644 | 0.6+ | 0.9+ | 2009 09 17 | 691 | 0.4− | 0.1− | 2009 11 20 | G96 | 0.5+ | 0.6− |
| 2002 04 02 | 644 | 0.5+ | 0.7+ | 2009 09 25 | 691 | 0.2− | 0.0 | 2009 11 20 | G96 | 0.1+ | 0.7− |
| 2007 03 16 | 691 | 0.0 | 0.0 | 2009 09 25 | 691 | 0.3− | 0.1+ | 2009 11 20 | G96 | 0.0 | 0.6− |
| 2007 03 16 | 691 | 0.1+ | 0.0 | 2009 09 25 | 691 | 0.0 | 0.1+ | 2009 11 20 | G96 | 0.0 | 0.5− |
| 2007 03 16 | 691 | 0.2− | 0.2− | 2009 10 16 | G96 | 0.2+ | 0.2− | 2009 12 18 | 291 | 0.4+ | 0.2+ |
| 2007 04 22 | G96 | 0.0 | 0.0 | 2009 10 16 | G96 | 0.5+ | 0.2− | 2009 12 18 | 291 | 0.2+ | 0.2− |
| 2007 04 22 | G96 | 0.0 | 0.2− | 2009 10 16 | G96 | 0.3+ | 0.2− | 2009 12 18 | 291 | 0.2+ | 0.1− |

**2009 SM$_{349}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 284.66918 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.27969930 | $\omega$ | 292.61114 | | −0.85265836 | | −0.52221253 |
| $a$ | 2.3156618 | $\Omega$ | 215.91397 | | +0.48901747 | | −0.78664758 |
| $e$ | 0.1615970 | $i$ | 1.59867 | | +0.18394467 | | −0.32936250 |
| $P$ | 3.52 | $H$ | 18.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 12 15 | G96 | 0.2+ | 0.2− | 2007 03 13 | G96 | 0.3+ | 0.3+ | 2009 11 11 | G96 | 0.0 | 0.7+ |
| 2006 12 15 | G96 | 0.2− | 0.3− | 2007 03 13 | G96 | 0.2− | 0.2+ | 2009 11 11 | G96 | 0.1+ | 0.1+ |
| 2006 12 15 | G96 | 0.1− | 0.4− | 2009 09 21 | G96 | 0.4+ | 0.4+ | 2009 11 11 | G96 | 0.0 | 0.3+ |
| 2006 12 15 | G96 | 0.0 | 0.4− | 2009 09 21 | G96 | 0.2− | 0.2− | 2009 11 11 | G96 | 0.1− | 0.0 |
| 2007 01 27 | G96 | 0.2− | 0.2− | 2009 09 21 | G96 | 0.2+ | 0.2− | 2009 11 19 | G96 | 0.1+ | 0.3− |
| 2007 01 27 | G96 | 0.1− | 0.2− | 2009 09 21 | G96 | 0.2+ | 0.1− | 2009 11 19 | G96 | 0.3− | 0.1− |
| 2007 01 27 | G96 | 0.1− | 0.0 | 2009 10 11 | G96 | 0.1− | 1.0+ | 2009 11 19 | G96 | 0.2− | 0.4+ |
| 2007 01 27 | G96 | 0.1− | 0.0 | 2009 10 11 | G96 | 0.3− | 0.2− | 2009 11 19 | G96 | 0.0 | 0.1− |
| 2007 03 13 | G96 | 0.3+ | 0.5+ | 2009 10 11 | G96 | 0.2+ | 0.6− | | | | |
| 2007 03 13 | G96 | 0.3+ | 0.7+ | 2009 10 11 | G96 | 0.1− | 0.5− | | | | |

**2009 SN$_{349}$ = 2003 UL$_{374}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 16.90324 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17900736 | $\omega$ | 173.75922 | | +0.81888141 | | −0.56709187 |
| $a$ | 3.1180910 | $\Omega$ | 221.20288 | | +0.52061751 | | +0.79882890 |
| $e$ | 0.1212834 | $i$ | 7.72490 | | +0.24164155 | | +0.20069677 |
| $P$ | 5.51 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 10 14 | 691 | 0.0 | 0.2− | 2003 10 24 | 645 | 0.1− | 0.0 | 2009 10 11 | G96 | 0.1+ | 0.1+ |
| 1998 10 14 | 691 | 0.4+ | 0.5− | 2008 07 28 | G96 | 0.3+ | 0.5− | 2009 10 24 | 691 | 0.3− | 0.6+ |
| 1998 10 14 | 691 | 0.3− | 0.3− | 2008 07 28 | G96 | 0.1+ | 0.1− | 2009 10 24 | 691 | 0.3− | 0.1+ |
| 2003 09 20 | 691 | 0.1− | 0.2+ | 2008 07 28 | G96 | 0.0 | 0.2− | 2009 10 24 | 691 | 0.6− | 0.1+ |
| 2003 09 20 | 691 | 0.2− | 0.3+ | 2008 07 28 | G96 | 0.1− | 0.4− | 2009 11 08 | G96 | 0.3+ | 0.4+ |
| 2003 09 20 | 691 | 0.1− | 0.2+ | 2009 09 21 | G96 | 0.3+ | 0.1− | 2009 11 08 | G96 | 0.3+ | 0.4+ |
| 2003 09 23 | 644 | 0.2+ | 0.1+ | 2009 09 21 | G96 | 0.3+ | 0.3− | 2009 11 08 | G96 | 0.4+ | 0.4+ |
| 2003 09 23 | 644 | 0.2− | 0.3+ | 2009 09 21 | G96 | 1.2+ | 0.2− | 2009 11 08 | G96 | 0.1+ | 0.2+ |
| 2003 09 23 | 644 | 0.2+ | 0.2+ | 2009 09 21 | G96 | 0.1+ | 0.0 | 2009 11 18 | G96 | 0.1+ | 0.1− |
| 2003 10 22 | 645 | 0.0 | 0.0 | 2009 10 11 | G96 | 0.0 | 0.3− | 2009 11 18 | G96 | 0.6+ | 0.3− |
| 2003 10 22 | 645 | 0.1+ | 0.0 | 2009 10 11 | G96 | 0.3+ | 0.2+ | 2009 11 18 | G96 | 0.8+ | 0.2− |
| 2003 10 24 | 645 | 0.0 | 0.1− | 2009 10 11 | G96 | 0.0 | 0.3− | 2009 11 18 | G96 | 0.1+ | 0.1− |

**2009 SP$_{349}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 62.30031 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18240689 | $\omega$ | 288.46083 | | +0.73597752 | | +0.67442011 |
| $a$ | 3.0792283 | $\Omega$ | 29.21826 | | −0.56644104 | | +0.66125258 |
| $e$ | 0.2180343 | $i$ | 6.95578 | | −0.37078516 | | +0.32848523 |
| $P$ | 5.40 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 03 12 | G96 | 0.1+ | 0.2− | 2009 09 27 | 691 | 0.2− | 0.0 | 2009 10 22 | G96 | 0.2+ | 0.1− |
| 2007 03 12 | G96 | 0.4− | 0.5− | 2009 09 27 | 691 | 0.3− | 0.0 | 2009 11 09 | 691 | 0.0 | 0.2− |
| 2007 03 12 | G96 | 0.3− | 0.2− | 2009 09 27 | 691 | 0.1+ | 0.0 | 2009 11 09 | 691 | 0.1+ | 0.2+ |
| 2007 03 12 | G96 | 0.2− | 0.6+ | 2009 10 14 | G96 | 0.5+ | 0.3− | 2009 11 09 | 691 | 0.1− | 0.2+ |
| 2007 03 20 | 691 | 0.2− | 0.2+ | 2009 10 14 | G96 | 0.5+ | 0.4− | 2009 11 20 | 691 | 0.3+ | 0.2+ |
| 2007 03 20 | 691 | 0.5+ | 0.1− | 2009 10 14 | G96 | 0.8+ | 0.7− | 2009 11 20 | 691 | 0.5− | 0.2− |
| 2007 03 20 | 691 | 0.1− | 0.0 | 2009 10 14 | G96 | 0.9+ | 0.4− | 2009 11 20 | 691 | 0.2+ | 0.2+ |
| 2009 09 23 | 691 | 0.1− | 0.3+ | 2009 10 22 | G96 | 0.6+ | 0.1− | 2009 11 20 | 691 | 0.1+ | 0.1+ |
| 2009 09 23 | 691 | 0.2− | 0.0 | 2009 10 22 | G96 | 0.4+ | 0.1− | 2009 11 20 | 691 | 0.1− | 0.1+ |
| 2009 09 23 | 691 | (0.4− | 2.5−) | 2009 10 22 | G96 | 0.4+ | 0.1− | 2009 11 20 | 691 | 0.3− | 0.3− |

**2009 SQ$_{349}$ = 2005 UN$_{413}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 12.98100 | | (2000.0) | | | |
| $n$ | 0.24135333 | $\omega$ | 180.16151 | | +0.83578642 | −0.53055646 |
| $a$ | 2.5548605 | $\Omega$ | 213.14614 | | +0.50403720 | +0.84347816 |
| $e$ | 0.1979183 | $i$ | 14.97855 | | +0.21773280 | +0.08399064 |
| $P$ | 4.08 | $H$ | 18.3 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 12 | 691 | 0.2+ | 0.0 | 2005 11 01 | G96 | 0.1− | 0.0 | 2009 11 11 | G96 | 0.1+ | 0.0 |
| 2005 10 12 | 691 | 0.0 | 0.1+ | 2005 11 01 | G96 | 0.0 | 0.2− | 2009 11 11 | G96 | 0.0 | 0.1− |
| 2005 10 12 | 691 | 0.1+ | 0.0 | 2005 11 01 | G96 | 0.1+ | 0.1+ | 2009 11 11 | G96 | 0.1− | 0.2+ |
| 2005 10 25 | 691 | 0.0 | 0.2+ | 2009 09 25 | 691 | 0.0 | 0.1− | 2009 11 11 | G96 | 0.2+ | 0.2− |
| 2005 10 25 | 691 | 0.1− | 0.2+ | 2009 09 25 | 691 | 0.2− | 0.0 | 2009 11 18 | G96 | 0.4+ | 0.1+ |
| 2005 10 25 | 691 | 0.2+ | 0.2− | 2009 09 25 | 691 | 0.0 | 0.2+ | 2009 11 18 | G96 | 0.4+ | 0.5− |
| 2005 11 01 | 691 | 0.1− | 0.1− | 2009 10 15 | G96 | 0.4+ | 0.2− | 2009 11 18 | G96 | 0.6− | 0.2− |
| 2005 11 01 | 691 | 0.1− | 0.0 | 2009 10 15 | G96 | 0.3+ | 0.0 | 2009 11 18 | G96 | 1.1− | 0.2+ |
| 2005 11 01 | 691 | 0.1− | 0.1+ | 2009 10 15 | G96 | 0.4+ | 0.0 | | | | |
| 2005 11 01 | G96 | 0.2− | 0.0 | 2009 10 15 | G96 | 0.3+ | 0.3− | | | | |

**2009 SS$_{349}$ = 2005 LZ$_{11}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 71.96172 | | (2000.0) | | | |
| $n$ | 0.27627178 | $\omega$ | 227.95590 | | +0.79134329 | +0.58493046 |
| $a$ | 2.3347750 | $\Omega$ | 95.48458 | | −0.49477302 | +0.78360884 |
| $e$ | 0.2380614 | $i$ | 10.29243 | | −0.35913153 | +0.20931684 |
| $P$ | 3.57 | $H$ | 16.8 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 06 03 | 691 | 0.2+ | 0.2− | 2005 07 26 | 644 | 0.3+ | 0.5+ | 2009 10 18 | 703 | 0.5− | 0.8− |
| 2005 06 03 | 691 | 0.2+ | 0.0 | 2006 12 15 | 691 | 0.2− | 0.5+ | 2009 10 18 | 703 | 0.2+ | 0.2+ |
| 2005 06 03 | 691 | 0.0 | 0.1− | 2006 12 15 | 691 | 0.8+ | 0.3+ | 2009 10 18 | 703 | 0.3− | 0.6+ |
| 2005 06 08 | 691 | 0.0 | 0.2− | 2006 12 15 | 691 | 0.2− | 0.2+ | 2009 11 09 | 703 | 0.7− | 0.0 |
| 2005 06 08 | 691 | 0.1+ | 0.3− | 2006 12 25 | 691 | 0.0 | 0.2− | 2009 11 09 | 703 | 1.0+ | 0.5− |
| 2005 06 08 | 691 | 1.0− | 0.4+ | 2006 12 25 | 691 | 0.2− | 0.1− | 2009 11 09 | 703 | 1.8− | 0.6− |
| 2005 07 10 | E12 | 1.7+ | 0.8+ | 2006 12 25 | 691 | 0.2− | 0.2+ | 2009 11 09 | 703 | 0.4+ | 1.1− |
| 2005 07 10 | E12 | 0.2− | 0.4+ | 2009 09 30 | G96 | 0.2+ | 0.4+ | 2009 11 21 | 703 | 1.2+ | 0.3+ |
| 2005 07 10 | E12 | 0.1− | 0.2+ | 2009 09 30 | G96 | 0.2+ | 0.2+ | 2009 11 21 | 703 | 1.1+ | 0.7− |
| 2005 07 10 | E12 | 0.0 | 0.4+ | 2009 09 30 | G96 | 0.3+ | 0.3+ | 2009 11 21 | 703 | 0.2+ | 0.8+ |
| 2005 07 26 | 644 | 0.4+ | 0.6+ | 2009 09 30 | G96 | 0.5+ | 0.2+ | 2009 11 21 | 703 | 1.2− | 0.2+ |
| 2005 07 26 | 644 | 0.1+ | 0.5+ | 2009 10 18 | 703 | 0.2− | 0.4− | | | | |

**2009 SV$_{349}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 93.70080 | | (2000.0) | | | |
| $n$ | 0.27937825 | $\omega$ | 259.51331 | | +0.39403556 | +0.91354165 |
| $a$ | 2.3174355 | $\Omega$ | 34.25244 | | −0.75749653 | +0.38495592 |
| $e$ | 0.2104435 | $i$ | 10.32558 | | −0.52051415 | +0.13134151 |
| $P$ | 3.53 | $H$ | 18.1 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 04 05 | 291 | 0.1+ | 0.0 | 2009 09 19 | 691 | 0.2+ | 0.2− | 2009 11 11 | 691 | 0.0 | 0.2+ |
| 2008 04 05 | 291 | 0.1+ | 0.1− | 2009 09 19 | 691 | 1.5− | 0.0 | 2009 11 11 | 691 | 0.1− | 0.1+ |
| 2008 04 05 | 291 | 0.2− | 0.4+ | 2009 09 27 | 691 | 0.3+ | 0.0 | 2009 11 11 | 691 | 0.1− | 0.1+ |
| 2008 04 13 | G96 | 0.1+ | 0.0 | 2009 09 27 | 691 | 0.1+ | 0.3+ | 2009 11 19 | 691 | 0.2− | 0.6− |
| 2008 04 13 | G96 | 0.1− | 0.2− | 2009 09 27 | 691 | 0.3+ | 0.1+ | 2009 11 19 | 691 | 0.5+ | 0.2+ |
| 2008 04 13 | G96 | 0.9+ | 0.1+ | 2009 10 24 | 691 | 0.1− | 0.1− | 2009 11 19 | 691 | 0.0 | 0.2+ |
| 2008 04 13 | G96 | 0.9− | 0.9− | 2009 10 24 | 691 | 0.3+ | 0.0 | | | | |
| 2009 09 19 | 691 | 0.0 | 0.2− | 2009 10 24 | 691 | 0.3+ | 0.1+ | | | | |

**2009 SY$_{349}$ = 2002 TB$_{162}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 40.16923 | | (2000.0) | | | |
| $n$ | 0.28258732 | $\omega$ | 247.25219 | | +0.98387303 | −0.06625064 |
| $a$ | 2.2998576 | $\Omega$ | 116.20200 | | +0.11674652 | +0.94158807 |
| $e$ | 0.2330738 | $i$ | 10.67132 | | −0.13551427 | +0.33018594 |
| $P$ | 3.49 | $H$ | 17.5 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 10 05 | 644 | 0.0 | 0.0 | 2007 01 24 | G96 | 0.4− | 0.8+ | 2009 10 19 | 704 | 0.4+ | 0.5+ |
| 2002 10 05 | 644 | 0.1+ | 0.1− | 2009 09 16 | 703 | 0.2− | 0.5+ | 2009 10 19 | 704 | 1.8− | 0.6− |
| 2002 10 05 | 644 | 0.1− | 0.1+ | 2009 09 16 | 703 | (2.3+ | 0.1+) | 2009 10 19 | 704 | 0.0 | 1.9+ |
| 2002 10 06 | 644 | 0.2− | 0.1− | 2009 09 16 | 703 | 0.3− | 0.5− | 2009 10 19 | 704 | 0.3− | 0.1+ |
| 2002 10 06 | 644 | 0.0 | 0.2+ | 2009 09 16 | 703 | 0.4+ | 0.1− | 2009 10 19 | 704 | 0.5− | 0.8− |
| 2002 10 06 | 644 | 0.0 | 0.4+ | 2009 10 01 | G96 | 0.8+ | 0.0 | 2009 10 27 | 703 | 1.1− | 0.4− |
| 2006 11 28 | G96 | 0.9− | 1.3− | 2009 10 01 | G96 | 0.3+ | 0.3− | 2009 10 27 | 703 | 0.1− | 0.0 |
| 2006 11 28 | G96 | 0.2− | 0.6− | 2009 10 01 | G96 | 0.5+ | 0.3− | 2009 10 27 | 703 | (2.1− | 0.2+) |
| 2006 11 28 | G96 | 0.0 | 0.2− | 2009 10 01 | G96 | 0.6+ | 0.2− | 2009 10 27 | 703 | 0.2− | 0.1+ |
| 2006 11 28 | G96 | 0.2+ | 0.2+ | 2009 10 15 | 703 | 0.4+ | 1.2− | 2009 11 11 | 703 | 0.9+ | 0.4+ |
| 2007 01 24 | G96 | 0.5+ | 0.2+ | 2009 10 15 | 703 | 0.3− | 0.1− | 2009 11 11 | 703 | 0.9+ | 0.9+ |
| 2007 01 24 | G96 | 0.4+ | 0.2− | 2009 10 15 | 703 | 1.0+ | 1.5− | 2009 11 11 | 703 | 0.5− | 0.5+ |
| 2007 01 24 | G96 | 0.2+ | 0.0 | 2009 10 15 | 703 | 1.1− | 0.2− | 2009 11 11 | 703 | 0.5+ | 1.3+ |

**2009 SA$_{350}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 292.90617 | | (2000.0) | | | |
| $n$ | 0.21083187 | $\omega$ | 271.80927 | | −0.49766885 | −0.86466632 |
| $a$ | 2.7958372 | $\Omega$ | 208.36392 | | +0.84200477 | −0.46268324 |
| $e$ | 0.1004090 | $i$ | 8.27753 | | +0.20821548 | −0.19564348 |
| $P$ | 4.67 | $H$ | 17.2 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 04 18 | 691 | 0.4− | 0.2− | 2007 05 09 | G96 | 0.2+ | 0.0 | 2009 10 14 | G96 | 0.4+ | 0.2+ |
| 2007 04 18 | 691 | 0.3+ | 0.0 | 2009 09 20 | 691 | 0.1− | 0.0 | 2009 10 27 | G96 | 0.2+ | 0.4− |
| 2007 04 18 | 691 | 0.2− | 0.0 | 2009 09 20 | 691 | 0.0 | 0.1+ | 2009 10 27 | G96 | 0.1− | 0.1− |
| 2007 04 18 | G96 | 0.7+ | 0.3+ | 2009 09 20 | 691 | 0.3+ | 0.1+ | 2009 10 27 | G96 | 0.1− | 0.0 |
| 2007 04 18 | G96 | 0.2+ | 0.4− | 2009 09 28 | 691 | 0.1− | 0.1− | 2009 10 27 | G96 | 0.2− | 0.0 |
| 2007 04 18 | G96 | 0.3− | 0.3− | 2009 09 28 | 691 | 0.5− | 0.1+ | 2009 11 11 | G96 | 0.3+ | 0.0 |
| 2007 04 18 | G96 | 0.6− | 0.1− | 2009 09 28 | 691 | 0.3+ | 0.1− | 2009 11 11 | G96 | 0.2− | 0.2− |
| 2007 05 09 | G96 | 0.8+ | 0.1− | 2009 10 14 | G96 | 0.4+ | 0.4+ | 2009 11 11 | G96 | 0.2− | 0.1− |
| 2007 05 09 | G96 | 0.2+ | 0.0 | 2009 10 14 | G96 | 0.0 | 0.2− | 2009 11 11 | G96 | 0.1+ | 0.1− |
| 2007 05 09 | G96 | 0.3− | 0.4+ | 2009 10 14 | G96 | 0.3+ | 0.1+ | | | | |

**2009 SC$_{350}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 51.81552 | | (2000.0) | | | |
| $n$ | 0.26274922 | $\omega$ | 126.81717 | | +0.97117902 | +0.23734810 |
| $a$ | 2.4142103 | $\Omega$ | 219.46603 | | −0.22816519 | +0.89925664 |
| $e$ | 0.1907767 | $i$ | 1.96949 | | −0.06893439 | +0.36742806 |
| $P$ | 3.75 | $H$ | 18.6 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 08 29 | 691 | 0.1− | 0.1+ | 2009 09 21 | G96 | 0.5+ | 0.3− | 2009 10 25 | 691 | 0.6− | 0.3+ |
| 2005 08 29 | 691 | 0.2+ | 0.2+ | 2009 09 21 | G96 | 0.3+ | 0.4− | 2009 10 25 | 691 | 0.4− | 0.0 |
| 2005 08 29 | 691 | 0.1− | 0.0 | 2009 09 21 | G96 | 0.3− | 0.1− | 2009 10 25 | 691 | 0.6+ | 0.1− |
| 2005 09 13 | 691 | 0.1+ | 0.0 | 2009 10 11 | G96 | 0.1− | 0.1+ | 2009 11 11 | G96 | 0.1− | 0.2+ |
| 2005 09 13 | 691 | 0.1+ | 0.1+ | 2009 10 11 | G96 | 0.3− | 0.4− | 2009 11 11 | G96 | 0.4+ | 0.2+ |
| 2005 09 13 | 691 | 0.2− | 0.3− | 2009 10 11 | G96 | 0.2+ | 0.2+ | 2009 11 11 | G96 | 0.6+ | 0.2+ |
| 2009 09 21 | G96 | 0.1+ | 0.2− | 2009 10 11 | G96 | 0.4+ | 0.3− | 2009 11 11 | G96 | 0.4+ | 0.1+ |

**2009 SF$_{350}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 285.30106 | | (2000.0) | | | |
| $n$ | 0.19862180 | $\omega$ | 304.85382 | | −0.69858232 | −0.71534051 |
| $a$ | 2.9092750 | $\Omega$ | 189.51352 | | +0.68468668 | −0.66161497 |
| $e$ | 0.0731070 | $i$ | 5.71288 | | +0.20781457 | −0.22484124 |
| $P$ | 4.96 | $H$ | 16.0 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 05 02 | 691 | 0.2− | 0.3+ | 2006 02 02 | 699 | 0.8− | 0.8− | 2009 09 22 | G96 | 0.3+ | 0.1+ |
| 1997 05 02 | 691 | 0.4− | 0.1+ | 2006 02 02 | 699 | 0.4− | 1.0− | 2009 09 22 | G96 | 0.5+ | 0.1+ |
| 1997 05 02 | 691 | 0.2+ | 0.0 | 2006 02 02 | 699 | 0.4− | 0.6+ | 2009 10 14 | J75 | (1.8+ | 0.2+) |
| 2003 07 24 | 644 | 0.3+ | 0.6+ | 2006 02 02 | 699 | 0.9+ | 0.1+ | 2009 10 14 | J75 | 0.5− | 0.5− |
| 2003 07 24 | 644 | 0.2+ | 0.4+ | 2007 05 12 | 691 | 0.1+ | 0.3+ | 2009 10 14 | J75 | 0.1+ | 0.0 |
| 2003 07 24 | 644 | 0.6+ | 0.6+ | 2007 05 12 | 691 | 0.0 | 0.2− | 2009 10 26 | 691 | 0.3− | 0.3− |
| 2004 10 09 | 691 | 0.3+ | 0.2+ | 2007 05 12 | 691 | 0.2+ | 0.2+ | 2009 10 26 | 691 | 0.3− | 0.1− |
| 2004 10 09 | 691 | 0.1+ | 0.2+ | 2007 05 12 | G96 | 0.2− | 0.1+ | 2009 10 26 | 691 | 0.5− | 0.1+ |
| 2004 10 09 | 691 | 0.0 | 0.3+ | 2007 05 12 | G96 | 0.2− | 0.1− | 2009 11 16 | G96 | 0.4+ | 0.0 |
| 2006 01 22 | 699 | 0.6− | 1.2+ | 2007 05 12 | G96 | 0.3+ | 0.2− | 2009 11 16 | G96 | 0.0 | 0.1+ |
| 2006 01 22 | 699 | 0.6+ | 0.1+ | 2007 05 12 | G96 | 0.2− | 0.1+ | 2009 11 16 | G96 | 0.1+ | 0.2+ |
| 2006 01 22 | 699 | 1.6+ | 0.2+ | 2009 09 22 | G96 | 0.3+ | 0.0 | 2009 11 16 | G96 | 0.4− | 0.2+ |
| 2006 01 22 | 699 | 0.6+ | 1.3+ | 2009 09 22 | G96 | 0.6+ | 0.3+ | | | | |

**2009 SL$_{350}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 343.49004 | | (2000.0) | | | |
| $n$ | 0.17377413 | $\omega$ | 58.27332 | | +0.00636645 | −0.98492572 |
| $a$ | 3.1803821 | $\Omega$ | 32.74433 | | +0.77478871 | −0.10442638 |
| $e$ | 0.2179087 | $i$ | 18.63782 | | +0.63218820 | +0.13790016 |
| $P$ | 5.67 | $H$ | 15.8 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 05 | 691 | 0.0 | 0.1+ | 2009 10 14 | 703 | 0.0 | 0.2+ | 2009 11 09 | G96 | 0.1− | 0.4− |
| 2003 10 05 | 691 | 0.1− | 0.1− | 2009 10 14 | 703 | (2.1− | 0.2+) | 2009 11 09 | G96 | 0.2− | 0.6− |
| 2003 10 05 | 691 | 0.0 | 0.1+ | 2009 10 14 | 703 | 1.8− | 1.0+ | 2009 11 09 | G96 | 0.1+ | 0.6− |
| 2005 01 31 | 644 | 0.2+ | 0.2+ | 2009 10 14 | 703 | 1.0− | 0.2− | 2009 12 10 | 704 | 0.2+ | 0.3+ |
| 2005 01 31 | 644 | 0.1− | 0.5− | 2009 10 30 | G96 | 0.4+ | 0.0 | 2009 12 10 | 704 | 1.3+ | 0.2+ |
| 2005 01 31 | 644 | 0.1+ | 0.7+ | 2009 10 30 | G96 | 0.3+ | 0.0 | 2009 12 10 | 704 | 1.2+ | 0.6+ |
| 2009 09 23 | G96 | 0.1+ | 0.2− | 2009 10 30 | G96 | 0.0 | 0.1+ | 2009 12 10 | 704 | 0.1− | 0.8+ |
| 2009 09 23 | G96 | 0.1− | 0.3− | 2009 10 30 | G96 | 0.1+ | 0.4− | | | | |
| 2009 09 23 | G96 | 0.4− | 0.2− | 2009 11 09 | G96 | 0.0 | 0.5− | | | | |

**2009 SM$_{350}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 91.06037 | | (2000.0) | | | |
| $n$ | 0.21466037 | $\omega$ | 253.74574 | | +0.12491189 | +0.98688670 |
| $a$ | 2.7624948 | $\Omega$ | 24.15007 | | −0.78786310 | +0.16129138 |
| $e$ | 0.2139012 | $i$ | 14.47048 | | −0.60304954 | −0.00630403 |
| $P$ | 4.59 | $H$ | 16.9 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 03 31 | G96 | 0.1− | 0.3− | 2009 09 25 | 691 | 0.3− | 0.2+ | 2009 10 24 | G96 | 0.2+ | 0.1+ |
| 2008 03 31 | G96 | 0.1+ | 0.3− | 2009 09 25 | 691 | 0.0 | 0.1− | 2009 10 24 | G96 | 0.2+ | 0.5− |
| 2008 03 31 | G96 | 0.1− | 0.2+ | 2009 10 16 | G96 | 0.0 | 0.9− | 2009 11 11 | G96 | 0.3− | 0.4− |
| 2008 03 31 | G96 | 0.3− | 0.3− | 2009 10 16 | G96 | 0.3+ | 0.3− | 2009 11 11 | G96 | 1.2− | 0.6+ |
| 2008 04 08 | 691 | 0.1− | 0.0 | 2009 10 16 | G96 | 0.1+ | 0.3− | 2009 11 11 | G96 | 0.3+ | 0.2+ |
| 2008 04 08 | 691 | 0.0 | 0.1+ | 2009 10 16 | G96 | 0.7+ | 0.1+ | 2009 11 11 | G96 | 0.0 | 0.2+ |
| 2008 04 08 | 691 | 0.2+ | 0.0 | 2009 10 24 | G96 | 0.4+ | 0.1+ | | | | |
| 2009 09 25 | 691 | 0.1+ | 0.1+ | 2009 10 24 | G96 | 0.0 | 0.2+ | | | | |

**2009 SN$_{350}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 303.99885 | | (2000.0) | | | |
| $n$ | 0.18358642 | $\omega$ | 46.11948 | | −0.32876464 | −0.94283534 |
| $a$ | 3.0660249 | $\Omega$ | 63.14733 | | +0.84800775 | −0.32013422 |
| $e$ | 0.1296062 | $i$ | 3.50520 | | +0.41568817 | −0.09260456 |
| $P$ | 5.37 | $H$ | 16.1 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 19 | G96 | 0.7− | 0.5+ | 2009 09 26 | 691 | 0.1− | 0.0 | 2009 10 23 | G96 | 0.2+ | 0.1+ |
| 2004 12 19 | G96 | 0.6+ | 0.1+ | 2009 09 26 | 691 | 0.5− | 0.1− | 2009 10 23 | G96 | 0.3+ | 0.1+ |
| 2004 12 19 | G96 | 0.1− | 0.3− | 2009 09 26 | 691 | 0.4− | 0.1+ | 2009 10 23 | G96 | 0.1+ | 0.4+ |
| 2004 12 19 | G96 | 0.1+ | 0.2− | 2009 10 15 | G96 | 0.6+ | 0.0 | 2009 10 23 | G96 | 0.2+ | 0.1+ |
| 2006 02 02 | G96 | 0.3+ | 1.1− | 2009 10 15 | G96 | 0.0 | 0.1− | 2009 11 16 | G96 | 0.2+ | 0.2− |
| 2006 02 02 | G96 | 0.1+ | 0.3− | 2009 10 15 | G96 | 0.1+ | 0.0 | 2009 11 16 | G96 | 0.4+ | 0.1− |
| 2006 02 02 | G96 | 0.3+ | 0.1− | 2009 10 15 | G96 | 0.3+ | 0.1− | 2009 11 16 | G96 | 0.2+ | 0.0 |
| 2006 03 08 | 691 | 0.1− | 0.1− | 2009 10 15 | G96 | 0.3− | 0.1− | 2009 11 16 | G96 | 0.4+ | 0.3+ |
| 2006 03 08 | 691 | 0.2+ | 0.1− | 2009 10 15 | G96 | 0.9+ | 0.2− | | | | |
| 2006 03 08 | 691 | 0.2− | 0.5+ | 2009 10 15 | G96 | 0.3+ | 0.1− | | | | |

**2009 SR$_{350}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 39.64555 | | (2000.0) | | | |
| $n$ | 0.22839896 | $\omega$ | 264.35491 | | +0.96452391 | +0.25046677 |
| $a$ | 2.6505742 | $\Omega$ | 81.11941 | | −0.19618883 | +0.89150872 |
| $e$ | 0.2503516 | $i$ | 4.84376 | | −0.17664531 | +0.37746337 |
| $P$ | 4.32 | $H$ | 17.2 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 11 10 | G96 | 0.3+ | 0.4+ | 2009 09 27 | 703 | 0.4− | 0.1+ | 2009 10 20 | 704 | 0.8+ | 0.4− |
| 2005 11 10 | G96 | 0.4+ | 0.2− | 2009 09 27 | 703 | 0.5− | 1.0− | 2009 10 24 | G96 | 0.4+ | 0.1+ |
| 2005 11 10 | G96 | 0.1+ | 0.2− | 2009 09 27 | 703 | 0.1− | 0.6− | 2009 10 24 | G96 | 0.5+ | 0.1+ |
| 2005 11 10 | G96 | 0.2+ | 0.1− | 2009 10 16 | G96 | 0.4+ | 0.1− | 2009 10 24 | G96 | 0.3+ | 0.1+ |
| 2005 12 04 | G96 | 1.2− | 0.6− | 2009 10 16 | G96 | 0.8+ | 0.1+ | 2009 10 24 | G96 | 0.5+ | 0.3+ |
| 2005 12 04 | G96 | 0.3+ | 0.3− | 2009 10 16 | G96 | 0.3+ | 0.1− | 2009 11 09 | 703 | 1.7− | 0.4− |
| 2005 12 04 | G96 | 0.3+ | 0.0 | 2009 10 16 | G96 | 0.1+ | 0.2− | 2009 11 09 | 703 | 1.0− | 0.2− |
| 2005 12 04 | G96 | 0.2− | 0.4+ | 2009 10 20 | 704 | 0.1+ | 0.8+ | 2009 11 09 | 703 | 1.3− | 0.3+ |
| 2009 09 27 | 703 | 0.1− | 0.5− | 2009 10 20 | 704 | 0.3− | 1.3+ | 2009 11 09 | 703 | 0.6+ | 0.6+ |

**2009 SA$_{351}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 99.99527 | | (2000.0) | | | |
| $n$ | 0.18860805 | $\omega$ | 242.09494 | | +0.44058842 | +0.88517729 |
| $a$ | 3.0113592 | $\Omega$ | 54.82654 | | −0.74589543 | +0.45362077 |
| $e$ | 0.0235885 | $i$ | 10.53666 | | −0.49952162 | +0.10338933 |
| $P$ | 5.23 | $H$ | 16.1 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 04 04 | 291 | 0.4+ | 0.2+ | 2007 03 15 | G96 | 0.8+ | 0.3+ | 2009 10 16 | G96 | 0.2− | 0.0 |
| 2002 04 04 | 291 | 0.2+ | 0.0 | 2007 03 15 | G96 | 0.2− | 0.5+ | 2009 10 16 | G96 | 0.2− | 0.2+ |
| 2002 04 04 | 291 | 0.2+ | 0.3+ | 2007 03 15 | G96 | 0.2− | 0.1+ | 2009 10 16 | G96 | 0.2− | 0.1+ |
| 2002 06 03 | 291 | 0.3+ | 0.4+ | 2007 03 15 | G96 | 0.3+ | 0.1+ | 2009 10 24 | G96 | 0.2− | 0.1− |
| 2002 06 03 | 291 | 0.2− | 0.4+ | 2007 05 06 | 691 | 0.7+ | 0.1+ | 2009 10 24 | G96 | 0.3+ | 0.2− |
| 2002 06 03 | 291 | 0.1+ | 0.5+ | 2007 05 06 | 691 | 0.1− | 0.4− | 2009 10 24 | G96 | 0.3− | 0.1− |
| 2004 11 03 | 691 | 0.1− | 0.2+ | 2007 05 06 | 691 | 0.8− | 0.0 | 2009 10 24 | G96 | 0.1− | 0.1− |
| 2004 11 03 | 691 | 0.2− | 0.2+ | 2009 09 28 | G96 | 0.4+ | 0.1+ | 2009 11 16 | G96 | 0.0 | 0.2+ |
| 2004 11 03 | 691 | 0.1− | 0.2+ | 2009 09 28 | G96 | 0.1+ | 0.2− | 2009 11 16 | G96 | 0.4− | 0.0 |
| 2004 12 20 | 691 | 0.3− | 0.1+ | 2009 09 28 | G96 | 0.4+ | 0.0 | 2009 11 16 | G96 | 0.2+ | 0.3+ |
| 2004 12 20 | 691 | 0.2− | 0.7+ | 2009 09 28 | G96 | 0.1− | 0.0 | 2009 11 16 | G96 | 0.0 | 0.1+ |
| 2004 12 20 | 691 | 0.0 | 0.2+ | 2009 10 16 | G96 | 0.1+ | 0.2+ | | | | |

**2009 SE$_{351}$ = 2004 WX$_7$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 86.95424 | | (2000.0) | | | |
| $n$ | 0.18402451 | $\omega$ | 241.42295 | | +0.48468851 | +0.85934175 |
| $a$ | 3.0611570 | $\Omega$ | 58.47932 | | −0.72071577 | +0.49803505 |
| $e$ | 0.1178663 | $i$ | 11.03195 | | −0.49562670 | +0.11615871 |
| $P$ | 5.36 | $H$ | 15.3 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 07 | 691 | 0.1− | 0.0 | 2009 09 29 | G96 | 0.3+ | 0.0 | 2009 10 24 | G96 | 0.9− | 0.3+ |
| 2004 10 07 | 691 | 0.1− | 0.0 | 2009 09 29 | G96 | 0.3+ | 0.1+ | 2009 10 24 | G96 | 0.5− | 0.4+ |
| 2004 10 07 | 691 | 0.0 | 0.0 | 2009 09 29 | G96 | 0.3+ | 0.1− | 2009 10 24 | G96 | 0.9− | 0.4+ |
| 2004 11 19 | 703 | 0.6+ | 0.8− | 2009 10 14 | J75 | 0.5+ | 0.1− | 2009 10 24 | G96 | 0.9− | 0.2+ |
| 2004 11 19 | 703 | 1.2− | 0.2− | 2009 10 14 | J75 | 0.4− | 1.0− | 2009 11 09 | 703 | (1.0+ | 1.8+) |
| 2004 11 19 | 703 | 1.1− | 0.9+ | 2009 10 14 | J75 | 0.3+ | 0.4− | 2009 11 09 | 703 | 0.3+ | 0.2+ |
| 2004 11 19 | 703 | 0.4− | 0.5− | 2009 10 20 | 704 | 0.0 | 0.4+ | 2009 11 09 | 703 | 1.4+ | 0.3+ |
| 2004 11 20 | 691 | 0.0 | 0.1+ | 2009 10 20 | 704 | 1.2− | 0.7− | 2009 11 09 | 703 | (0.3− | 2.4+) |
| 2004 11 20 | 691 | 0.4+ | 0.1− | 2009 10 20 | 704 | 0.9+ | 0.4− | | | | |
| 2004 11 20 | 691 | 0.4+ | 0.2+ | 2009 10 20 | 704 | 0.5+ | 0.6+ | | | | |

**2009 SH$_{351}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 99.24241 | | (2000.0) | | | |
| $n$ | 0.28431247 | $\omega$ | 16.49713 | | +0.47137693 | +0.87759595 |
| $a$ | 2.2905447 | $\Omega$ | 281.69861 | | −0.81889827 | +0.39876557 |
| $e$ | 0.1752209 | $i$ | 5.11746 | | −0.32742848 | +0.26610406 |
| $P$ | 3.47 | $H$ | 16.9 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 01 03 | 691 | 0.1− | 0.4− | 2008 03 13 | 691 | 0.1+ | 0.1+ | 2009 10 27 | G96 | 0.2+ | 0.2+ |
| 1997 01 03 | 691 | 0.3+ | 0.2+ | 2008 03 13 | 691 | 0.2+ | 0.1+ | 2009 10 27 | G96 | 0.3+ | 0.0 |
| 1997 01 03 | 691 | 0.1+ | 0.4− | 2008 03 13 | 691 | 0.0 | 0.2− | 2009 10 27 | G96 | 0.1+ | 0.0 |
| 2002 10 30 | 608 | 0.4− | 0.3− | 2009 09 29 | G96 | 0.3+ | 0.2+ | 2009 11 08 | 703 | 0.5+ | 1.0+ |
| 2002 10 30 | 608 | 0.3− | 0.6+ | 2009 09 29 | G96 | 0.3+ | 0.0 | 2009 11 08 | 703 | 0.4+ | 0.2+ |
| 2002 10 30 | 608 | 0.2− | 0.7− | 2009 09 29 | G96 | 0.0 | 0.1− | 2009 11 08 | 703 | 1.3− | 0.0 |
| 2004 02 11 | 691 | 0.2− | 0.1+ | 2009 09 29 | G96 | 0.1− | 0.1+ | 2009 11 08 | 703 | 0.0 | 0.1+ |
| 2004 02 11 | 691 | 0.3− | 0.1+ | 2009 10 14 | 703 | 0.1+ | 0.1− | 2009 11 21 | G96 | 0.2+ | 0.0 |
| 2004 02 11 | 691 | 0.1+ | 0.1+ | 2009 10 14 | 703 | (1.1− | 1.7+) | 2009 11 21 | G96 | 0.1+ | 0.2− |
| 2008 03 01 | 691 | 0.0 | 0.2+ | 2009 10 14 | 703 | (0.9+ | 1.7+) | 2009 11 21 | G96 | 0.1− | 0.1− |
| 2008 03 01 | 691 | 0.0 | 0.2+ | 2009 10 14 | 703 | 0.5− | 0.8+ | 2009 11 21 | G96 | 0.3− | 0.4− |
| 2008 03 01 | 691 | 0.1− | 0.0 | 2009 10 27 | G96 | 0.3+ | 0.1+ | | | | |

**2009 SJ$_{351}$ = 2005 VV$_{68}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 24.38882 | | (2000.0) | | | |
| $n$ | 0.23545046 | $\omega$ | 165.16223 | | +0.95592540 | −0.28359818 |
| $a$ | 2.5973852 | $\Omega$ | 211.63298 | | +0.25245624 | +0.92610336 |
| $e$ | 0.1427274 | $i$ | 8.33383 | | +0.14990822 | +0.24880641 |
| $P$ | 4.19 | $H$ | 17.7 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 11 01 | G96 | 0.6+ | 0.4− | 2009 09 16 | 691 | 0.1+ | 0.1− | 2009 11 11 | G96 | 0.5+ | 0.0 |
| 2005 11 01 | G96 | 0.4+ | 0.3− | 2009 09 28 | 691 | 0.1+ | 0.1− | 2009 11 11 | G96 | 0.2+ | 0.0 |
| 2005 11 01 | G96 | (0.3− | 2.5−) | 2009 09 28 | 691 | 0.1− | 0.1− | 2009 11 11 | G96 | 0.1− | 0.3+ |
| 2005 11 01 | G96 | 0.7+ | 0.5− | 2009 09 28 | 691 | 0.5− | 0.0 | 2009 11 25 | G96 | 0.5− | 0.0 |
| 2005 11 04 | 691 | 0.2+ | 0.2− | 2009 10 27 | G96 | 0.3+ | 0.0 | 2009 11 25 | G96 | 0.1− | 0.2− |
| 2005 11 04 | 691 | 0.5− | 0.5+ | 2009 10 27 | G96 | 0.4+ | 0.2+ | 2009 11 25 | G96 | 0.1− | 0.2+ |
| 2005 11 04 | 691 | 0.1− | 0.0 | 2009 10 27 | G96 | 0.5+ | 0.1+ | 2009 11 25 | G96 | 0.4− | 0.5− |
| 2009 09 16 | 691 | 0.1+ | 0.1+ | 2009 10 27 | G96 | 0.3+ | 0.2− | | | | |
| 2009 09 16 | 691 | 0.1− | 0.3+ | 2009 11 11 | G96 | 0.2+ | 0.1+ | | | | |

**2009 SL$_{351}$ = 2005 UF$_{260}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 14.44445 | | (2000.0) | | | |
| $n$ | 0.22158844 | $\omega$ | 159.88368 | | +0.99487236 | −0.09458137 |
| $a$ | 2.7046100 | $\Omega$ | 205.62387 | | +0.07770237 | +0.94151753 |
| $e$ | 0.0786212 | $i$ | 4.75168 | | +0.06474053 | +0.32341786 |
| $P$ | 4.45 | $H$ | 16.7 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 25 | 691 | 0.1+ | 0.2+ | 2007 02 16 | G96 | 0.3+ | 0.2− | 2009 09 27 | 703 | (0.7+ | 1.7−) |
| 2005 10 25 | 691 | 0.5− | 0.2+ | 2007 02 16 | G96 | 0.5+ | 0.0 | 2009 09 27 | 703 | 0.2+ | 0.3− |
| 2005 10 25 | 691 | 0.1− | 0.7+ | 2007 02 16 | G96 | 0.3− | 0.4− | 2009 09 27 | 703 | 1.4+ | 0.0 |
| 2005 10 29 | G96 | 0.1+ | 0.5− | 2007 02 16 | G96 | 0.6− | 0.2− | 2009 10 23 | G96 | 0.0 | 0.5+ |
| 2005 10 29 | G96 | 0.2+ | 0.3− | 2007 03 16 | G96 | 0.3− | 0.0 | 2009 10 23 | G96 | 0.0 | 0.3− |
| 2005 10 29 | G96 | 0.3+ | 0.5− | 2007 03 16 | G96 | 0.2+ | 0.1− | 2009 10 23 | G96 | 0.1− | 0.1− |
| 2005 10 29 | G96 | 0.1− | 0.4− | 2007 03 16 | G96 | 0.1+ | 0.0 | 2009 10 23 | G96 | 0.1− | 0.2+ |
| 2005 10 31 | 691 | 0.1− | 0.3− | 2007 03 16 | G96 | 0.0 | 0.2+ | 2009 11 11 | G96 | 0.7− | 0.5− |
| 2005 10 31 | 691 | 0.3− | 0.2− | 2009 09 17 | G96 | 0.1− | 0.4+ | 2009 11 11 | G96 | 0.1+ | 0.0 |
| 2005 10 31 | 691 | 0.3+ | 0.2− | 2009 09 17 | G96 | 0.3− | 0.1+ | 2009 11 11 | G96 | 0.1− | 0.3+ |
| 2005 11 10 | 691 | 0.3+ | 0.1+ | 2009 09 17 | G96 | 0.5− | 0.2+ | 2009 11 11 | G96 | 1.1+ | 0.3− |
| 2005 11 10 | 691 | 0.1+ | 0.0 | 2009 09 17 | G96 | 0.5− | 0.1+ | | | | |
| 2005 11 10 | 691 | 0.1+ | 0.0 | 2009 09 27 | 703 | 0.2+ | 1.3− | | | | |

**2009 SR$_{351}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 158.39333 | | (2000.0) | | | |
| $n$ | 0.18113486 | $\omega$ | 224.01249 | | −0.38409925 | +0.92055960 |
| $a$ | 3.0936276 | $\Omega$ | 23.67206 | | −0.79071545 | −0.28828265 |
| $e$ | 0.0767275 | $i$ | 10.18225 | | −0.47669366 | −0.26355859 |
| $P$ | 5.44 | $H$ | 15.4 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 09 26 | 691 | 0.3− | 0.1+ | 2009 09 21 | G96 | 0.5+ | 0.4− | 2009 11 06 | 703 | 1.7− | 0.0 |
| 1998 09 26 | 691 | 0.1− | 0.2− | 2009 09 21 | G96 | 0.3+ | 0.1− | 2009 11 06 | 703 | 0.3+ | 0.6+ |
| 1998 09 26 | 691 | 0.1+ | 0.3+ | 2009 09 21 | G96 | 0.4− | 0.2− | 2009 11 06 | 703 | 1.1− | 0.9− |
| 1998 10 21 | 910 | 0.2+ | 0.4− | 2009 10 14 | 703 | 0.3− | 1.1+ | 2009 11 20 | G96 | 0.3+ | 0.3+ |
| 1998 10 21 | 910 | 0.4+ | 0.7− | 2009 10 14 | 703 | 0.5− | 0.1− | 2009 11 20 | G96 | 0.6+ | 0.1+ |
| 1998 10 22 | 910 | 0.7+ | 0.2+ | 2009 10 14 | 703 | 0.0 | 0.9+ | 2009 11 20 | G96 | 0.3+ | 0.0 |
| 2009 09 21 | G96 | 0.6+ | 0.5− | 2009 10 14 | 703 | 1.2+ | 1.0− | 2009 11 20 | G96 | 0.1+ | 0.0 |

**2009 SW$_{351}$ = 2008 GD$_{124}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 52.05510 | | (2000.0) | | | |
| $n$ | 0.36723213 | $\omega$ | 343.86765 | | +0.99404788 | −0.01238260 |
| $a$ | 1.9312668 | $\Omega$ | 17.92427 | | +0.08305688 | +0.72907187 |
| $e$ | 0.0929766 | $i$ | 20.59114 | | −0.07050089 | +0.68432513 |
| $P$ | 2.68 | $H$ | 17.9 | $G$ | 0.15 | $U$ 5 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 04 14 | G96 | 0.4+ | 0.4+ | 2008 04 15 | G96 | 0.3− | 0.2− | 2009 09 29 | G96 | 0.1− | 0.2+ |
| 2008 04 14 | G96 | 0.1+ | 0.1+ | 2008 04 15 | G96 | 0.1− | 0.1− | 2009 09 29 | G96 | 0.2+ | 0.2+ |
| 2008 04 14 | G96 | 0.2+ | 0.3− | 2009 09 20 | G96 | 0.1+ | 0.1− | 2009 09 29 | G96 | 0.1− | 0.2+ |
| 2008 04 14 | G96 | 0.1− | 0.2+ | 2009 09 20 | G96 | 0.0 | 0.0 | 2009 10 12 | J75 | 0.5− | 0.8− |
| 2008 04 15 | G96 | 0.1− | 0.4+ | 2009 09 20 | G96 | 0.1− | 0.1− | 2009 10 12 | J75 | 0.7+ | 0.1+ |
| 2008 04 15 | G96 | 0.0 | 0.5− | 2009 09 20 | G96 | 0.2+ | 0.2− | 2009 10 12 | J75 | 0.2− | 0.5+ |

**2009 SY$_{351}$ = 2005 EH$_{265}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 344.97888 | | (2000.0) | | | |
| $n$ | 0.17921750 | $\omega$ | 197.60206 | | −0.69501996 | −0.71726638 |
| $a$ | 3.1156532 | $\Omega$ | 296.46011 | | +0.66616673 | −0.61637501 |
| $e$ | 0.2059004 | $i$ | 3.18638 | | +0.27049795 | −0.32497813 |
| $P$ | 5.50 | $H$ | 16.5 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 18 | 691 | 0.2+ | 0.2− | 2005 03 17 | 703 | (0.7+ | 2.9−) | 2009 12 12 | A77 | 0.5− | 0.2− |
| 2003 10 18 | 691 | 0.4+ | 0.0 | 2005 03 17 | 703 | 0.5− | 0.1− | 2009 12 12 | A77 | 0.1− | 0.0 |
| 2003 10 18 | 691 | 0.2+ | 0.1+ | 2005 03 17 | 703 | 0.2+ | 0.3− | 2009 12 12 | A77 | 0.9+ | 1.1+ |
| 2003 11 18 | 691 | 0.6− | 0.2+ | 2008 10 08 | G96 | 0.3+ | 0.2+ | 2009 12 15 | G96 | 0.2+ | 0.3− |
| 2003 11 18 | 691 | 0.0 | 0.2− | 2008 10 08 | G96 | 0.3− | 0.5+ | 2009 12 15 | G96 | 0.3+ | 0.5− |
| 2003 11 18 | 691 | 0.3− | 0.4+ | 2008 10 08 | G96 | 0.6+ | 0.5+ | 2009 12 15 | G96 | 0.1− | 0.4− |
| 2003 12 18 | 691 | 0.0 | 0.0 | 2008 10 08 | G96 | 0.0 | 0.1− | 2009 12 15 | G96 | 0.1+ | 0.6− |
| 2003 12 18 | 691 | 0.1+ | 0.1− | 2008 10 29 | 691 | 0.2− | 0.2+ | 2009 12 16 | A77 | 0.2+ | 0.6+ |
| 2003 12 18 | 691 | 0.1+ | 0.3− | 2008 10 29 | 691 | 0.1− | 0.2+ | 2009 12 16 | A77 | 1.0+ | 0.2+ |
| 2005 03 13 | 691 | 0.3+ | 0.2+ | 2008 10 29 | 691 | 0.2− | 0.2+ | 2009 12 16 | A77 | 0.1+ | 0.0 |
| 2005 03 13 | 691 | 0.1+ | 0.3+ | 2009 09 17 | 691 | 0.2− | 0.3+ | 2009 12 18 | 691 | 0.8+ | 0.5+ |
| 2005 03 13 | 691 | 0.0 | 0.1+ | 2009 09 17 | 691 | 0.2− | 0.0 | 2009 12 18 | 691 | 0.3− | 0.1− |
| 2005 03 17 | 691 | 0.2+ | 0.0 | 2009 09 17 | 691 | 0.1+ | 0.1+ | 2009 12 18 | 691 | 0.1+ | 0.1− |
| 2005 03 17 | 691 | 0.1− | 0.1+ | 2009 09 28 | 691 | 0.1− | 0.2+ | 2009 12 26 | 691 | 0.3− | 0.2− |
| 2005 03 17 | 691 | 0.0 | 0.2+ | 2009 09 28 | 691 | 0.2− | 0.0 | 2009 12 26 | 691 | 0.1− | 0.3− |
| 2005 03 17 | 703 | 0.4− | 0.0 | 2009 09 28 | 691 | 0.4− | 0.3− | 2009 12 26 | 691 | 0.1− | 0.2− |

**2009 SC$_{352}$ = 2001 UF$_2$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 45.79182 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.37180572 | $\omega$ | 117.01597 | | +0.94697897 | +0.11324569 | |
| $a$ | 1.9153964 | $\Omega$ | 237.92405 | | −0.17842148 | +0.96361998 | |
| $e$ | 0.1508202 | $i$ | 20.78396 | | +0.26720144 | +0.24209905 | |
| $P$ | 2.65 | $H$ | 17.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 10 18 | 704 | 0.4+ | 0.4− | 2009 09 29 | G96 | 0.2+ | 0.1+ | 2009 10 27 | 703 | 0.3− | 0.8− |
| 2001 10 18 | 704 | 0.3− | 1.0− | 2009 09 29 | G96 | 0.1+ | 0.1+ | 2009 11 19 | 703 | 0.8− | 0.5+ |
| 2001 10 18 | 704 | (0.7+ | 1.8−) | 2009 09 29 | G96 | 0.1+ | 0.2+ | 2009 11 19 | 703 | 0.4+ | 0.4+ |
| 2001 10 18 | 704 | 0.2− | 0.1− | 2009 10 15 | 703 | 0.5+ | 0.0 | 2009 11 19 | 703 | 0.2+ | 0.1+ |
| 2001 10 18 | 704 | 1.3− | 1.4− | 2009 10 15 | 703 | 0.0 | 0.0 | 2009 11 19 | 703 | 0.6− | 0.4+ |
| 2001 10 20 | 704 | 0.5+ | 1.3+ | 2009 10 15 | 703 | 0.2− | 0.2+ | 2009 12 18 | G96 | 0.1+ | 0.4+ |
| 2001 10 20 | 704 | 1.0+ | 1.0+ | 2009 10 27 | 703 | 0.9− | 0.0 | 2009 12 18 | G96 | 0.2+ | 0.4− |
| 2001 10 20 | 704 | 0.1− | 0.9+ | 2009 10 27 | 703 | 0.1+ | 1.0− | 2009 12 18 | G96 | 0.2+ | 0.1− |
| 2009 09 29 | G96 | 0.0 | 0.1− | 2009 10 27 | 703 | 0.6+ | 0.2− | 2009 12 18 | G96 | 0.3+ | 0.3− |

**2009 SD$_{352}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 38.16645 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21381069 | $\omega$ | 225.27101 | | +0.94306338 | +0.29558311 | |
| $a$ | 2.7698087 | $\Omega$ | 116.98067 | | −0.23567947 | +0.91740247 | |
| $e$ | 0.3270311 | $i$ | 9.85451 | | −0.23470547 | +0.26646452 | |
| $P$ | 4.61 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 04 01 | 645 | 0.0 | 0.0 | 2008 04 05 | G96 | 0.6+ | 0.4− | 2009 11 11 | 703 | 0.3− | 1.1− |
| 2003 04 01 | 645 | 0.0 | 0.1+ | 2009 09 16 | 703 | 0.3− | 0.3+ | 2009 11 11 | 703 | 0.1− | 0.9+ |
| 2005 12 27 | G96 | 0.1− | 0.0 | 2009 09 16 | 703 | 0.5+ | 0.5+ | 2009 11 11 | 703 | 1.8− | 0.8− |
| 2005 12 27 | G96 | 0.5+ | 0.2− | 2009 09 16 | 703 | 0.4− | 0.1− | 2009 11 11 | 703 | 0.2− | 0.6+ |
| 2005 12 27 | G96 | 0.2+ | 0.1− | 2009 09 16 | 703 | 1.0+ | 0.0 | 2009 11 18 | 703 | 1.5+ | 0.3− |
| 2005 12 27 | G96 | 0.1− | 0.0 | 2009 10 15 | 703 | 0.0 | 0.3+ | 2009 11 18 | 703 | 1.2+ | 0.4− |
| 2008 04 05 | G96 | 0.9− | 0.2+ | 2009 10 15 | 703 | 0.1+ | 0.5+ | 2009 11 18 | 703 | 1.7− | 0.1+ |
| 2008 04 05 | G96 | 0.4+ | 0.3− | 2009 10 15 | 703 | 0.3+ | 0.1− | 2009 11 18 | 703 | 0.2+ | 0.4+ |
| 2008 04 05 | G96 | 0.0 | 0.3− | 2009 10 15 | 703 | 0.6− | 0.1+ | | | | |

**2009 SE$_{352}$ = 2000 CK$_{101}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 354.85838 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18274799 | $\omega$ | 94.24508 | | +0.59302713 | −0.78782254 | |
| $a$ | 3.0753955 | $\Omega$ | 317.88187 | | +0.60467878 | +0.57212937 | |
| $e$ | 0.2985648 | $i$ | 14.35675 | | +0.53167884 | +0.22804303 | |
| $P$ | 5.39 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 02 12 | 691 | 0.1+ | 0.2− | 2009 09 22 | 703 | 0.4+ | 0.8− | 2009 10 15 | 703 | 0.0 | 0.1+ |
| 2000 02 12 | 691 | 0.3+ | 0.0 | 2009 09 22 | 703 | 1.4− | 1.0+ | 2009 10 15 | 703 | 0.5− | 0.2+ |
| 2000 02 12 | 691 | 0.1+ | 0.1− | 2009 09 22 | 703 | 1.2+ | 0.6+ | 2009 10 26 | 703 | 0.0 | 0.5− |
| 2000 02 15 | 691 | 0.3− | 0.2+ | 2009 09 22 | 703 | 0.2− | 0.8− | 2009 10 26 | 703 | 0.6+ | 0.4+ |
| 2000 02 15 | 691 | 0.0 | 0.0 | 2009 10 15 | 703 | 0.4+ | 0.2+ | 2009 10 26 | 703 | 0.3+ | 0.6− |
| 2000 02 15 | 691 | 0.2− | 0.1+ | 2009 10 15 | 703 | 0.3− | 0.5+ | 2009 10 26 | 703 | 0.5− | 0.3− |

**2009 SF$_{352}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 335.10228 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.15638377 | $\omega$ | 101.60682 | | +0.32608834 | −0.94204334 | |
| $a$ | 3.4119940 | $\Omega$ | 329.00059 | | +0.79667249 | +0.31876224 | |
| $e$ | 0.1691546 | $i$ | 8.80895 | | +0.50890013 | +0.10461825 | |
| $P$ | 6.30 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 11 18 | 691 | 0.1− | 0.2− | 2004 12 20 | G96 | 0.6− | 0.2− | 2009 09 29 | G96 | 0.2+ | 0.3+ |
| 2003 11 18 | 691 | 0.3+ | 0.1− | 2004 12 20 | G96 | 0.3− | 0.3− | 2009 09 29 | G96 | 0.2+ | 0.2+ |
| 2003 11 18 | 691 | 0.3+ | 0.2− | 2005 02 14 | 691 | 0.2+ | 0.2+ | 2009 10 16 | 703 | (0.9− | 1.8+) |
| 2003 11 19 | 644 | 0.5− | 0.4+ | 2005 02 14 | 691 | 0.2+ | 0.2+ | 2009 10 16 | 703 | 0.1+ | 1.0+ |
| 2003 11 19 | 644 | 0.3− | 0.2+ | 2005 02 14 | 691 | 0.0 | 0.1− | 2009 10 16 | 703 | 0.5− | 0.9− |
| 2003 11 19 | 644 | 0.2− | 0.2+ | 2005 04 02 | G96 | 0.3+ | 0.2− | 2009 10 16 | 703 | 0.3+ | 0.2− |
| 2003 12 19 | 691 | 0.1− | 0.2+ | 2005 04 02 | G96 | 0.1+ | 0.1− | 2009 10 24 | 703 | 0.3+ | 1.3− |
| 2003 12 19 | 691 | 0.0 | 0.1+ | 2005 04 02 | G96 | 0.2− | 0.1+ | 2009 10 24 | 703 | 0.7+ | 0.8+ |
| 2003 12 19 | 691 | 0.1− | 0.1+ | 2005 04 02 | G96 | 0.3− | 0.2+ | 2009 10 24 | 703 | 1.2− | 0.9+ |
| 2004 12 20 | G96 | 0.5− | 0.1− | 2009 09 29 | G96 | 0.2+ | 0.1+ | 2009 10 24 | 703 | 0.8− | 0.5− |
| 2004 12 20 | G96 | 0.1− | 0.7− | 2009 09 29 | G96 | 0.1+ | 0.2+ | | | | |

**2009 SG$_{352}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 23.02563 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24253874 | $\omega$ | 66.79728 | | +0.95038353 | −0.30282716 | |
| $a$ | 2.5465291 | $\Omega$ | 310.75084 | | +0.23983848 | +0.85901655 | |
| $e$ | 0.3240100 | $i$ | 5.39162 | | +0.19811274 | +0.41277872 | |
| $P$ | 4.06 | $H$ | 18.3 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 29 | 644 | 0.4− | 0.1+ | 2009 09 30 | G96 | 0.2+ | 0.3− | 2009 10 16 | 703 | 0.0 | 0.3+ |
| 2005 10 29 | 644 | 0.4− | 0.1− | 2009 09 30 | G96 | 0.2+ | 0.1− | 2009 10 16 | 703 | 0.8− | 0.8+ |
| 2005 10 29 | 644 | 0.6− | 0.5+ | 2009 09 30 | G96 | 0.1+ | 0.3− | 2009 10 16 | 703 | 0.5− | 0.6− |
| 2005 11 02 | 703 | 1.3+ | 1.0− | 2009 10 16 | 704 | 1.0+ | 0.3+ | 2009 10 16 | 703 | 0.3− | 0.1+ |
| 2005 11 02 | 703 | 1.4+ | 0.1− | 2009 10 16 | 704 | 0.0 | 0.5+ | 2009 10 26 | 703 | 0.7+ | 0.7+ |
| 2005 11 02 | 703 | 1.3− | 0.1+ | 2009 10 16 | 704 | 0.7− | 0.4− | 2009 10 26 | 703 | 0.7− | 0.4− |
| 2005 11 02 | 703 | (2.7− | 0.1+) | 2009 10 16 | 704 | 0.7+ | 0.3− | 2009 10 26 | 703 | 0.1+ | 0.4+ |
| 2009 09 30 | G96 | 0.4+ | 0.1− | 2009 10 16 | 704 | 0.4− | 0.1− | 2009 10 26 | 703 | 0.2− | 0.1− |

**2009 SH$_{352}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 16.67307 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27572791 | $\omega$ | 10.29198 | | +0.43180380 | −0.89822182 | |
| $a$ | 2.3378442 | $\Omega$ | 54.17324 | | +0.82017475 | +0.35313362 | |
| $e$ | 0.1837470 | $i$ | 5.81282 | | +0.37531168 | +0.26171398 | |
| $P$ | 3.57 | $H$ | 17.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1991 11 06 | 691 | 0.2− | 0.4+ | 2009 09 20 | G96 | 0.2+ | 0.2− | 2009 11 27 | 691 | 0.0 | 0.2− |
| 1991 11 06 | 691 | 0.4+ | 0.1− | 2009 11 17 | 691 | 0.1+ | 0.5+ | 2009 12 13 | G96 | 0.3+ | 0.1− |
| 1991 11 06 | 691 | 0.3− | 0.1− | 2009 11 17 | 691 | 0.0 | 0.3− | 2009 12 13 | G96 | 0.1− | 0.1− |
| 2002 11 07 | 645 | 0.0 | 0.1− | 2009 11 17 | G96 | 0.1+ | 0.0 | 2009 12 13 | G96 | 0.5+ | 0.2+ |
| 2002 11 07 | 645 | 0.0 | 0.1− | 2009 11 17 | 691 | 0.0 | 0.2− | 2009 12 13 | G96 | 0.5+ | 0.1+ |
| 2002 12 13 | 645 | 0.0 | 0.0 | 2009 11 17 | G96 | 0.1+ | 0.2− | 2009 12 18 | G96 | 0.3+ | 0.3− |
| 2002 12 13 | 645 | 0.0 | 0.1+ | 2009 11 17 | G96 | 0.1+ | 0.3− | 2009 12 18 | G96 | 0.3+ | 0.2− |
| 2009 09 20 | G96 | 0.5+ | 0.3− | 2009 11 17 | G96 | 0.1+ | 0.2− | 2009 12 18 | G96 | 0.2+ | 0.3− |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2009 09 20 | G96 | 0.2− | 0.1− | 2009 11 27 | 691 | 0.5− | 0.5+ | 2009 12 18 | G96 | 0.2+ | 0.2− | | |
| 2009 09 20 | G96 | 0.2− | 0.0 | 2009 11 27 | 691 | 0.2− | 0.0 | | | | | | |

**2009 SJ$_{352}$ = 2007 EF$_{212}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 171.58051 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21851447 | $\omega$ | 8.44423 | | −0.63855786 | +0.76455314 | |
| $a$ | 2.7299158 | $\Omega$ | 221.93466 | | −0.71351951 | −0.63091077 | |
| $e$ | 0.0506649 | $i$ | 7.54624 | | −0.28832928 | −0.13194731 | |
| $P$ | 4.51 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 03 08 | 644 | 0.9+ | 0.2− | 2009 09 20 | 691 | 0.1+ | 0.1− | 2009 11 17 | 691 | 0.3+ | 0.1− | | |
| 2007 03 08 | 644 | 0.6+ | 0.6− | 2009 09 20 | 691 | 0.2+ | 0.1+ | 2009 11 17 | 691 | 0.3− | 0.0 | | |
| 2007 03 08 | 644 | 0.6+ | 0.3− | 2009 09 20 | 691 | 0.1+ | 0.1+ | 2009 11 25 | G96 | 0.9+ | 0.0 | | |
| 2007 03 13 | 703 | 0.2− | 0.1+ | 2009 09 28 | 691 | 0.2− | 0.1+ | 2009 11 25 | G96 | 0.4+ | 0.2− | | |
| 2007 03 13 | 703 | 0.9− | 0.7+ | 2009 09 28 | 691 | 0.2− | 0.2− | 2009 11 25 | G96 | 0.5− | 0.1− | | |
| 2007 03 13 | 703 | 0.1+ | 0.4+ | 2009 09 28 | 691 | 0.0 | 0.1− | 2009 11 25 | G96 | 0.1+ | 0.1− | | |
| 2007 03 13 | 703 | 1.1− | 0.1− | 2009 11 17 | 691 | 0.1− | 0.2+ | | | | | | |

**2009 SK$_{352}$ = 2008 TA$_{147}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 346.25404 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.08066043 | $\omega$ | 323.61987 | | +0.37935101 | −0.92442437 | |
| $a$ | 5.3051259 | $\Omega$ | 104.05761 | | +0.85813988 | +0.33570042 | |
| $e$ | 0.0346587 | $i$ | 2.31276 | | +0.34596064 | +0.18095527 | |
| $P$ | 12.22 | $H$ | 13.8 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 10 09 | G96 | 0.3− | 0.1− | 2009 09 22 | G96 | 0.4− | 0.1− | 2009 11 23 | G96 | 0.1− | 0.2+ | | |
| 2008 10 09 | G96 | 0.4+ | 0.1− | 2009 09 22 | G96 | 0.1− | 0.2+ | 2009 11 23 | G96 | 0.3− | 0.2− | | |
| 2008 10 09 | G96 | 0.0 | 0.4− | 2009 09 22 | G96 | 0.3+ | 0.2− | 2009 11 23 | G96 | 0.4− | 0.3+ | | |
| 2008 10 09 | G96 | 0.3+ | 0.1− | 2009 10 23 | G96 | 0.7+ | 0.3− | 2009 12 10 | G96 | 0.2− | 0.0 | | |
| 2008 10 10 | G96 | 0.8+ | 0.1− | 2009 10 23 | G96 | 0.5− | 0.1+ | 2009 12 10 | G96 | 0.4− | 0.0 | | |
| 2008 10 10 | G96 | 0.6+ | 0.4− | 2009 10 23 | G96 | 0.1+ | 0.4+ | 2009 12 10 | G96 | 0.3− | 0.0 | | |
| 2008 10 10 | G96 | 0.4+ | 0.1+ | 2009 10 23 | G96 | 0.0 | 0.0 | 2009 12 10 | G96 | 0.1+ | 0.5− | | |
| 2008 10 10 | G96 | (0.4− | 2.2−) | 2009 11 10 | G96 | 0.2+ | 0.4+ | 2009 12 19 | G96 | 0.4+ | 0.6− | | |
| 2008 10 20 | 691 | 0.1+ | 0.1− | 2009 11 10 | G96 | 0.5+ | 0.3+ | 2009 12 19 | G96 | 1.0+ | 0.6− | | |
| 2008 10 20 | 691 | 0.6− | 0.0 | 2009 11 10 | G96 | 0.3+ | 0.2+ | 2009 12 19 | G96 | 0.1− | 0.6+ | | |
| 2008 10 20 | 691 | 0.1− | 0.3+ | 2009 11 10 | G96 | 0.0 | 0.1− | 2009 12 19 | G96 | 0.1− | 0.3+ | | |
| 2009 09 22 | G96 | 0.4− | 0.3+ | 2009 11 23 | G96 | 0.1+ | 0.4− | | | | | | |

**2009 SL$_{352}$ = 1995 WU$_{30}$ = 2007 BZ$_{91}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 67.56274 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28279359 | $\omega$ | 261.71814 | | +0.96223837 | +0.27194758 | |
| $a$ | 2.2987391 | $\Omega$ | 82.50105 | | −0.24477964 | +0.88359089 | |
| $e$ | 0.2340965 | $i$ | 0.68826 | | −0.11908083 | +0.38119767 | |
| $P$ | 3.49 | $H$ | 18.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 11 19 | 691 | 0.1+ | 0.2− | 2008 04 28 | G96 | 0.1− | 0.2+ | 2009 11 08 | 691 | 0.0 | 0.3+ | | |
| 1995 11 19 | 691 | 0.2+ | 0.3− | 2008 04 28 | G96 | 0.1+ | 0.1+ | 2009 11 16 | 691 | 0.1+ | 0.2+ | | |
| 1995 11 19 | 691 | 0.0 | 0.1− | 2008 04 28 | G96 | 0.3+ | 0.6+ | 2009 11 16 | 691 | 0.2+ | 0.2+ | | |
| 1995 11 27 | 691 | 0.1− | 0.2− | 2009 09 20 | G96 | 0.2− | 0.3− | 2009 11 16 | 691 | 0.5− | 0.7+ | | |
| 1995 11 27 | 691 | 0.2+ | 0.3− | 2009 09 20 | G96 | 0.0 | 0.0 | 2009 11 24 | 691 | 0.4− | 0.2+ | | |
| 2007 01 19 | 568 | 0.2− | 0.5− | 2009 09 20 | G96 | 0.1+ | 0.0 | 2009 11 24 | 691 | 0.3− | 0.0 | | |
| 2007 01 19 | 568 | 0.2− | 0.4− | 2009 09 20 | G96 | 0.9+ | 0.2− | 2009 11 24 | 691 | 0.2− | 0.1+ | | |
| 2007 01 19 | 568 | 0.1− | 0.3− | 2009 10 30 | G96 | 0.6+ | 0.1+ | 2009 12 15 | G96 | 0.3+ | 0.2− | | |
| 2007 01 20 | 568 | 0.2+ | 0.8− | 2009 10 30 | G96 | 1.3+ | 0.0 | 2009 12 15 | G96 | 0.4+ | 0.0 | | |
| 2008 04 14 | 691 | 0.1+ | 0.1+ | 2009 10 30 | G96 | 0.2+ | 0.1− | 2009 12 15 | G96 | 0.4+ | 0.6− | | |
| 2008 04 14 | 691 | 0.2+ | 0.3+ | 2009 10 30 | G96 | 0.2− | 0.1− | 2009 12 15 | G96 | 0.1+ | 0.3− | | |
| 2008 04 14 | 691 | 0.0 | 0.1− | 2009 11 08 | 691 | 0.2+ | 0.3+ | | | | | | |
| 2008 04 28 | G96 | 0.0 | 0.1+ | 2009 11 08 | 691 | 0.2− | 0.3+ | | | | | | |

**2009 SQ$_{352}$ = 2003 YF$_{6}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 343.93361 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18058870 | $\omega$ | 213.94331 | | −0.59222506 | −0.75039754 | |
| $a$ | 3.0998619 | $\Omega$ | 274.14628 | | +0.78911369 | −0.46642632 | |
| $e$ | 0.0542536 | $i$ | 17.11693 | | +0.16300017 | −0.46834818 | |
| $P$ | 5.46 | $H$ | 15.2 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 12 17 | 704 | 0.6− | 0.6− | 2008 10 06 | 703 | 0.2+ | 0.3− | 2009 11 17 | G96 | 0.0 | 0.1− | | |
| 2003 12 17 | 704 | 0.1− | 0.1− | 2008 10 06 | 703 | 0.8− | 0.1+ | 2009 11 17 | G96 | 0.2− | 0.0 | | |
| 2003 12 17 | 704 | 0.2− | 0.7− | 2008 10 31 | 703 | 1.2+ | 0.3+ | 2009 11 17 | G96 | 0.4− | 0.1+ | | |
| 2003 12 17 | 704 | 0.2− | 1.2+ | 2008 10 31 | 703 | 0.2+ | 0.1+ | 2009 11 17 | G96 | 0.1+ | 0.3+ | | |
| 2003 12 18 | 691 | 0.1+ | 0.1+ | 2008 10 31 | 703 | 0.3− | 0.1+ | 2009 12 09 | J75 | 0.5+ | 0.9− | | |
| 2003 12 18 | 691 | 0.1+ | 0.0 | 2008 10 31 | 703 | 0.3− | 1.0− | 2009 12 10 | J75 | 0.1+ | 0.1− | | |
| 2003 12 18 | 691 | 0.1+ | 0.0 | 2009 09 27 | 691 | 0.5− | 0.1+ | 2009 12 10 | J75 | 0.1− | 0.1+ | | |
| 2008 09 20 | G96 | 0.4− | 0.0 | 2009 09 27 | 691 | 0.1+ | 0.5− | 2009 12 18 | G96 | 0.2− | 0.0 | | |
| 2008 09 20 | G96 | 0.0 | 0.6− | 2009 09 27 | 691 | 0.1+ | 0.4+ | 2009 12 18 | G96 | 0.3− | 0.3+ | | |
| 2008 09 20 | G96 | 0.0 | 0.2− | 2009 10 18 | G96 | 0.8+ | 0.4− | 2009 12 18 | G96 | 0.1+ | 0.2+ | | |
| 2008 09 20 | G96 | 0.5− | 0.2− | 2009 10 18 | G96 | 0.2− | 0.1+ | 2009 12 18 | G96 | 0.0 | 0.2+ | | |
| 2008 10 06 | 703 | 1.4+ | 0.9+ | 2009 10 18 | G96 | 0.3+ | 0.1− | | | | | | |
| 2008 10 06 | 703 | 0.6− | 0.6+ | 2009 10 18 | G96 | 0.5+ | 0.0 | | | | | | |

**2009 TT$_{1}$ = 2000 PZ$_{31}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 31.80376 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22648876 | $\omega$ | 263.70234 | | +0.99704510 | +0.06774278 | |
| $a$ | 2.6654566 | $\Omega$ | 92.40917 | | −0.04791032 | +0.91694904 | |
| $e$ | 0.2999296 | $i$ | 2.07762 | | −0.06004726 | +0.39321162 | |
| $P$ | 4.35 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 08 06 | 608 | 0.3− | 0.0 | 2009 10 11 | J75 | 0.3+ | 0.2− | 2009 10 23 | G96 | 0.1+ | 0.3− | | |
| 2000 08 06 | 608 | 0.4− | 0.0 | 2009 10 14 | 703 | 0.4+ | 0.1− | 2009 10 23 | G96 | 0.2− | 0.1− | | |
| 2000 08 06 | 608 | 0.2+ | 0.9+ | 2009 10 14 | 703 | 0.1− | 0.1+ | 2009 10 23 | G96 | 0.2+ | 0.1− | | |
| 2006 01 05 | G96 | 0.1+ | 0.3− | 2009 10 14 | 703 | 0.0 | 0.5+ | 2009 12 10 | 703 | (2.5+ | 1.3+) | | |
| 2006 01 05 | G96 | 0.7+ | 0.1− | 2009 10 14 | 703 | 0.0 | 0.3− | 2009 12 10 | 703 | 0.4+ | 0.8+ | | |
| 2006 01 05 | G96 | 0.1− | 0.3− | 2009 10 14 | 704 | 0.5− | 1.0+ | 2009 12 10 | 703 | (0.5− | 2.3+) | | |
| 2006 01 21 | G96 | 0.2− | 0.5+ | 2009 10 14 | 704 | 0.2− | 1.2+ | 2009 12 10 | 703 | 0.3− | 1.4+ | | |
| 2006 01 21 | G96 | 0.1+ | 0.2− | 2009 10 14 | 704 | 0.9− | 1.1+ | 2009 12 10 | 703 | 0.4+ | 0.6+ | | |
| 2006 01 21 | G96 | 0.6+ | 0.1− | 2009 10 14 | 704 | 0.0 | 0.3+ | 2009 12 10 | 703 | 1.3− | 0.2+ | | |
| 2006 01 21 | G96 | 0.4+ | 0.0 | 2009 10 17 | J75 | 0.1+ | 0.2− | 2009 12 10 | 703 | 0.1− | 0.1− | | |
| 2007 02 25 | 691 | 0.3− | 0.2+ | 2009 10 17 | J75 | 0.2+ | 0.4− | 2009 12 10 | 703 | 0.6− | 0.7− | | |
| 2007 02 25 | 691 | 0.3+ | 0.4+ | 2009 10 17 | J75 | 0.0 | 0.4+ | 2009 12 10 | 703 | 0.5− | 0.3− | | |
| 2007 02 25 | 691 | 0.1− | 0.0 | 2009 10 17 | J75 | 0.4+ | 0.4− | 2009 12 10 | 703 | 0.8− | 0.4− | | |
| 2008 04 13 | 691 | 0.2+ | 0.2− | 2009 10 17 | J75 | 0.1+ | 0.1− | 2009 12 10 | 703 | 1.0− | 0.0 | | |
| 2008 04 13 | 691 | 0.1+ | 0.4+ | 2009 10 17 | J75 | 0.3+ | 0.3− | 2009 12 10 | 703 | 0.3− | 0.0 | | |
| 2008 04 13 | 691 | 0.0 | 0.4+ | 2009 10 21 | 703 | 1.4+ | 0.2− | 2009 12 10 | 703 | 0.4− | 0.2+ | | |
| 2008 04 30 | G96 | 0.3+ | 0.1+ | 2009 10 21 | 703 | 0.5+ | 1.1− | 2009 12 10 | 703 | 0.1− | 0.6+ | | |
| 2008 04 30 | G96 | 0.3+ | 0.2+ | 2009 10 21 | 703 | 0.1− | 0.1+ | 2009 12 10 | 703 | 0.2− | 0.2+ | | |
| 2008 04 30 | G96 | 0.5+ | 0.1+ | 2009 10 21 | 703 | 0.1+ | 0.5+ | 2009 12 10 | 703 | 0.2+ | 0.6+ | | |
| 2008 04 30 | G96 | 0.1− | 0.0 | 2009 10 22 | 704 | 0.4+ | 0.1+ | 2009 12 10 | 703 | 0.4− | 0.5− | | |
| 2009 10 09 | J75 | 0.1+ | 0.2− | 2009 10 22 | 704 | 0.2+ | 0.5+ | 2009 12 10 | 703 | 0.5− | 0.7− | | |
| 2009 10 09 | J75 | 0.0 | 0.2− | 2009 10 22 | 704 | 0.4+ | 0.4+ | 2009 12 10 | 703 | 0.5− | 0.0 | | |
| 2009 10 09 | J75 | 0.0 | 0.4− | 2009 10 22 | 704 | 0.2− | 0.1+ | 2009 12 10 | 703 | 0.6− | 0.1+ | | |
| 2009 10 11 | J75 | 0.2− | 0.4− | 2009 10 22 | 704 | 0.3− | 0.3+ | | | | | | |
| 2009 10 11 | J75 | 0.3+ | 0.2+ | 2009 10 23 | G96 | 0.2+ | 0.1− | | | | | | |

**2009 TR$_5$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 351.47968 | | (2000.0) | | | |
| $n$ | 0.17103889 | $\omega$ | 53.15391 | | +0.40069614 | −0.91620840 |
| $a$ | 3.2141993 | $\Omega$ | 13.22491 | | +0.83753655 | +0.36532038 |
| $e$ | 0.1158470 | $i$ | 0.54743 | | +0.37145004 | +0.16463048 |
| $P$ | 5.76 | $H$ | 15.8 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 16 | 691 | 0.2+ | 0.0 | 2006 04 26 | G96 | 0.0 | 0.3− | 2009 10 14 | 703 | 1.1− | 1.0− |
| 2003 09 16 | 691 | 0.2− | 0.1− | 2006 04 26 | G96 | 0.1− | 0.1− | 2009 10 14 | 703 | 0.2+ | 0.2− |
| 2003 09 16 | 691 | 0.2− | 0.1− | 2006 04 26 | G96 | 0.6− | 0.2− | 2009 10 24 | 691 | 0.0 | 0.1+ |
| 2003 09 28 | 691 | 0.0 | 0.0 | 2006 04 26 | G96 | 0.6− | 0.3− | 2009 10 24 | 691 | 0.3+ | 0.2+ |
| 2003 09 28 | 691 | 0.1− | 0.2+ | 2009 10 11 | G96 | 0.5+ | 0.2− | 2009 10 24 | 691 | 0.1− | 0.1+ |
| 2003 09 28 | 691 | 0.1+ | 0.1+ | 2009 10 11 | G96 | 0.1− | 0.4− | 2009 11 23 | 703 | 0.3− | 0.7+ |
| 2006 03 23 | G96 | 0.5+ | 0.2+ | 2009 10 11 | G96 | 0.2+ | 0.1− | 2009 11 23 | 703 | 0.6− | 0.5− |
| 2006 03 23 | G96 | 0.0 | 0.2+ | 2009 10 11 | G96 | 0.0 | 0.1− | 2009 11 23 | 703 | 0.8+ | 0.1+ |
| 2006 03 23 | G96 | 0.2+ | 0.0 | 2009 10 14 | 703 | 0.1+ | 0.1− | 2009 11 23 | 703 | 0.1+ | 0.5+ |
| 2006 03 23 | G96 | 0.4+ | 0.2+ | 2009 10 14 | 703 | 0.5− | 1.2− | | | | |

**2009 TG$_8$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 4.18941 | | (2000.0) | | | |
| $n$ | 0.40399017 | $\omega$ | 245.24128 | | −0.22631765 | −0.95524963 |
| $a$ | 1.8122670 | $\Omega$ | 219.40654 | | +0.96638117 | −0.19570561 |
| $e$ | 0.3288040 | $i$ | 17.45982 | | +0.12201540 | −0.22180500 |
| $P$ | 2.44 | $H$ | 19.1 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 10 | 644 | 0.1− | 0.0 | 2009 10 14 | F65 | 0.0 | 0.1+ | 2009 10 18 | H01 | 0.1+ | 0.0 |
| 2004 10 10 | 644 | 0.2+ | 0.0 | 2009 10 14 | F65 | 0.1+ | 0.1+ | 2009 10 18 | H01 | 0.0 | 0.1− |
| 2004 10 10 | 644 | 0.0 | 0.1− | 2009 10 15 | H01 | 0.1+ | 0.0 | 2009 10 18 | H01 | 0.0 | 0.0 |
| 2009 10 14 | G96 | 0.4+ | 0.1− | 2009 10 15 | H01 | 0.0 | 0.0 | 2009 10 19 | 291 | 0.8− | 0.5+ |
| 2009 10 14 | G96 | 0.4+ | 0.6− | 2009 10 15 | H01 | 0.1+ | 0.1+ | 2009 10 19 | 291 | 0.2− | 0.6+ |
| 2009 10 14 | G96 | 0.1− | 0.5− | 2009 10 15 | G96 | 0.3+ | 0.3− | 2009 10 19 | 291 | 0.4− | 0.9+ |
| 2009 10 14 | G96 | 0.2+ | 0.2− | 2009 10 15 | G96 | 0.1− | 0.3− | 2009 10 19 | 926 | 0.1− | 1.1− |
| 2009 10 14 | G96 | 0.0 | 0.0 | 2009 10 15 | G96 | 0.0 | 0.3− | 2009 10 19 | 926 | 0.4+ | 0.1+ |
| 2009 10 14 | G96 | 0.3+ | 0.4+ | 2009 10 15 | 926 | 0.6+ | 0.2+ | 2009 10 19 | 926 | 0.6+ | 1.0− |
| 2009 10 14 | G96 | 0.1+ | 0.3− | 2009 10 15 | 926 | 0.1+ | 0.1− | 2009 10 30 | 926 | 0.6+ | 0.1− |
| 2009 10 14 | G96 | 0.6+ | 0.4− | 2009 10 15 | F65 | 0.0 | 0.0 | 2009 10 30 | 926 | 0.7+ | 1.1− |
| 2009 10 14 | G96 | 0.1+ | 0.2− | 2009 10 15 | F65 | 0.1+ | 0.1+ | 2009 11 23 | H36 | 0.8+ | 0.2+ |
| 2009 10 14 | G96 | 0.2+ | 0.3− | 2009 10 15 | F65 | 0.1+ | 0.0 | 2009 11 23 | H36 | 0.2+ | 0.2− |
| 2009 10 14 | G96 | 0.1+ | 0.6− | 2009 10 15 | F65 | 0.0 | 0.0 | 2009 11 23 | H36 | (2.5− | 0.4−) |
| 2009 10 14 | G96 | 0.0 | 0.3− | 2009 10 15 | F65 | 0.1+ | 0.0 | 2009 12 04 | H21 | 0.7+ | 0.4+ |
| 2009 10 14 | F65 | 0.0 | 0.3+ | 2009 10 18 | H36 | 0.1− | 0.1− | 2009 12 04 | H21 | 0.2− | 0.2− |
| 2009 10 14 | F65 | 0.1+ | 0.1+ | 2009 10 18 | H36 | 0.1+ | 0.3− | 2009 12 04 | H21 | 0.1− | 0.8− |
| 2009 10 14 | F65 | 0.3+ | 0.0 | 2009 10 18 | 291 | 0.4− | 0.2− | 2009 12 05 | H21 | 1.4− | 0.0 |
| 2009 10 14 | F65 | 0.2+ | 0.1− | 2009 10 18 | H01 | 0.1+ | 0.1+ | 2009 12 05 | H21 | 0.2+ | 0.5+ |

**2009 TG$_{10}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 162.97680 | | (2000.0) | | | |
| $n$ | 0.35547672 | $\omega$ | 12.11117 | | −0.75952839 | +0.55795775 |
| $a$ | 1.9736127 | $\Omega$ | 210.71846 | | −0.63797373 | −0.73927079 |
| $e$ | 0.4238225 | $i$ | 40.88666 | | −0.12690999 | +0.37704355 |
| $P$ | 2.77 | $H$ | 17.3 | $G$ | 0.15 | $U$ 5 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 10 04 | G96 | 0.2+ | 0.3− | 2009 10 15 | F65 | 0.4+ | 0.2+ | 2009 10 21 | 926 | 0.4+ | 0.2− |
| 2006 10 04 | G96 | 0.1− | 0.2+ | 2009 10 15 | F65 | 0.1+ | 0.0 | 2009 10 21 | 926 | 0.6+ | 0.8− |
| 2006 10 04 | G96 | 0.3+ | 0.2+ | 2009 10 15 | F65 | 0.2− | 0.1+ | 2009 10 21 | 926 | 0.6− | 0.7+ |
| 2006 10 04 | G96 | 0.2+ | 0.1+ | 2009 10 16 | H01 | 0.2+ | 0.1+ | 2009 10 22 | 926 | 0.5− | 0.3− |
| 2006 10 04 | G96 | 0.4− | 0.6+ | 2009 10 16 | H01 | 0.2+ | 0.1+ | 2009 10 22 | 926 | 0.1− | 0.2− |
| 2006 10 04 | G96 | 0.5− | 0.2− | 2009 10 16 | H01 | 0.2+ | 0.0 | 2009 10 22 | 926 | 0.1+ | 0.1− |
| 2006 10 04 | G96 | 0.0 | 0.2− | 2009 10 16 | H01 | 0.2+ | 0.0 | 2009 10 26 | 291 | 0.6+ | 0.3− |
| 2006 10 04 | G96 | 0.2+ | 0.7− | 2009 10 16 | H36 | 0.2+ | 0.8− | 2009 10 26 | 291 | 0.4− | 0.1− |
| 2009 10 15 | G96 | 0.1− | 0.1+ | 2009 10 16 | H36 | 0.0 | 0.9− | 2009 10 26 | 291 | 0.3+ | 0.5+ |
| 2009 10 15 | G96 | 0.5− | 0.1+ | 2009 10 16 | H36 | 0.0 | 0.6+ | 2009 11 10 | 291 | 0.1− | 0.3− |
| 2009 10 15 | G96 | 0.2+ | 0.0 | 2009 10 16 | 926 | 0.1− | 0.4+ | 2009 11 10 | 291 | 1.2− | 0.6+ |
| 2009 10 15 | G96 | 0.2+ | 0.1+ | 2009 10 16 | 926 | 0.1+ | 0.5+ | 2009 11 20 | G96 | 0.7+ | 0.4− |
| 2009 10 15 | G96 | 0.0 | 0.4+ | 2009 10 16 | 926 | 0.1− | 0.7− | 2009 11 20 | G96 | 0.5+ | 0.1− |
| 2009 10 15 | G96 | 0.1− | 0.1+ | 2009 10 16 | 673 | 0.6+ | 0.4+ | 2009 11 20 | G96 | 0.1− | 0.4− |
| 2009 10 15 | G96 | 0.3+ | 0.1+ | 2009 10 16 | 673 | 0.3− | 0.5+ | 2009 11 20 | G96 | 0.9+ | 0.1− |
| 2009 10 15 | G96 | 0.4+ | 0.2+ | 2009 10 16 | 673 | 0.4− | 1.0− | | | | |

**2009 TF$_{14}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 4.03775 | | (2000.0) | | | |
| $n$ | 0.30280136 | $\omega$ | 220.01664 | | +0.50406534 | −0.86362952 |
| $a$ | 2.1963295 | $\Omega$ | 199.71796 | | +0.79825576 | +0.46935608 |
| $e$ | 0.1599970 | $i$ | 1.33927 | | +0.32970574 | +0.18398077 |
| $P$ | 3.25 | $H$ | 18.1 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 10 12 | 691 | 0.1+ | 0.2+ | 2006 12 13 | G96 | 0.5− | 0.3− | 2009 11 11 | G96 | 0.3+ | 0.0 |
| 1996 10 12 | 691 | 0.1+ | 0.1+ | 2006 12 13 | 691 | 0.1+ | 0.1+ | 2009 11 11 | G96 | 0.2− | 0.1− |
| 1996 10 12 | 691 | 0.3− | 0.1+ | 2006 12 13 | 691 | 0.1+ | 0.2+ | 2009 11 11 | G96 | 0.0 | 0.2− |
| 2006 11 14 | G96 | 0.2− | 0.0 | 2009 10 11 | G96 | 0.1+ | 0.2− | 2009 11 19 | G96 | 0.2+ | 0.1− |
| 2006 11 14 | G96 | 0.2+ | 0.3− | 2009 10 11 | G96 | 0.2− | 0.1− | 2009 11 19 | G96 | 0.3− | 0.0 |
| 2006 11 14 | G96 | 0.4− | 0.2− | 2009 10 11 | G96 | 0.1+ | 0.1+ | 2009 11 19 | G96 | 0.0 | 0.1− |
| 2006 11 14 | G96 | 0.0 | 0.0 | 2009 10 11 | G96 | 0.2+ | 0.2− | 2009 11 19 | G96 | 0.0 | 0.1− |
| 2006 12 13 | G96 | 0.1− | 0.3− | 2009 10 14 | J75 | (0.8− | 2.1−) | 2009 12 19 | G96 | 0.1− | 0.1− |
| 2006 12 13 | 691 | 0.1+ | 0.0 | 2009 10 14 | J75 | 0.2+ | 0.3− | 2009 12 19 | G96 | 0.1− | 0.3− |
| 2006 12 13 | G96 | 0.1− | 0.1− | 2009 10 14 | J75 | 0.4− | 0.0 | 2009 12 19 | G96 | 0.4+ | 0.3+ |
| 2006 12 13 | G96 | 0.2− | 0.1− | 2009 11 11 | G96 | 0.2+ | 0.1+ | | | | |

**2009 TW$_{14}$ = 1998 QL$_{60}$ = 2004 YP$_8$ = 2007 HU$_9$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 34.56755 | | (2000.0) | | | |
| $n$ | 0.18909452 | $\omega$ | 191.82426 | | +0.99800096 | −0.06315255 |
| $a$ | 3.0061922 | $\Omega$ | 171.79538 | | +0.05927650 | +0.92211719 |
| $e$ | 0.1889940 | $i$ | 0.97026 | | +0.02191759 | +0.38172193 |
| $P$ | 5.21 | $H$ | 16.4 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 08 27 | 691 | 0.4− | 0.3+ | 2004 12 19 | G96 | 0.1− | 0.3− | 2009 10 18 | J75 | 0.5− | 0.1+ |
| 1998 08 27 | 691 | 0.3+ | 0.3+ | 2004 12 19 | G96 | 0.0 | 0.4− | 2009 10 18 | J75 | 0.2+ | 0.4− |
| 1998 08 27 | 691 | 0.3− | 0.3+ | 2005 11 07 | 568 | 0.2+ | 0.6+ | 2009 10 18 | J75 | 1.3− | 0.1− |
| 1998 08 30 | 691 | 0.6+ | 0.3+ | 2005 11 07 | 568 | 0.1+ | 0.6+ | 2009 10 18 | G96 | 0.1− | 0.1− |
| 1998 08 30 | 691 | 0.2+ | 0.0 | 2005 11 07 | 568 | 0.0 | 0.7+ | 2009 10 18 | G96 | 0.3+ | 0.0 |
| 1998 08 30 | 691 | 0.3+ | 0.0 | 2007 04 18 | G96 | 0.9− | 0.1− | 2009 10 18 | G96 | 0.4+ | 0.1− |
| 1998 09 14 | 691 | 0.5− | 0.4− | 2007 04 18 | G96 | 0.6+ | 0.1+ | 2009 10 18 | G96 | 0.5+ | 0.2+ |
| 1998 09 14 | 691 | 0.3− | 0.0 | 2007 04 18 | G96 | 0.5+ | 0.5+ | 2009 10 21 | 703 | 0.3− | 0.2+ |
| 1998 09 14 | 691 | 0.1− | 0.5− | 2007 04 18 | G96 | 0.0 | 0.3+ | 2009 10 21 | 703 | 0.9+ | 0.9− |
| 2002 04 06 | 807 | 0.5+ | 0.7+ | 2007 04 19 | G96 | 0.1− | 0.0 | 2009 10 21 | 703 | 0.1− | 0.5+ |
| 2002 04 06 | 807 | 0.8+ | 1.2+ | 2007 04 19 | G96 | 0.1− | 0.2+ | 2009 10 21 | 703 | 1.2− | 1.2+ |
| 2004 09 17 | 291 | 0.4+ | 0.2+ | 2007 04 19 | G96 | 0.1− | 0.1+ | 2009 11 19 | G96 | 0.3+ | 0.1+ |
| 2004 09 17 | 291 | 0.4+ | 0.6+ | 2007 04 19 | G96 | 0.3+ | 0.4+ | 2009 11 19 | G96 | 0.2− | 0.1− |
| 2004 09 17 | 291 | 0.1+ | 0.0 | 2009 10 14 | J75 | 0.0 | 0.6− | 2009 11 19 | G96 | 0.1− | 0.2− |
| 2004 12 18 | G96 | 0.1− | 0.2− | 2009 10 14 | J75 | 0.7+ | 0.8− | 2009 11 19 | G96 | 0.0 | 0.0 |
| 2004 12 18 | G96 | 0.4+ | 0.2− | 2009 10 14 | J75 | 0.0 | 0.7− | 2009 11 25 | G96 | 0.2− | 0.1− |
| 2004 12 18 | G96 | 0.3− | 0.2+ | 2009 10 14 | D29 | 0.7+ | 0.5− | 2009 11 25 | G96 | 0.5− | 1.4+ |
| 2004 12 18 | G96 | 0.8− | 0.2− | 2009 10 14 | D29 | 0.6− | 1.3+ | 2009 11 25 | G96 | 0.2− | 0.1− |
| 2004 12 19 | G96 | 0.8− | 0.5− | 2009 10 14 | D29 | 0.2− | 0.1+ | 2009 11 25 | G96 | 0.5+ | 0.0 |
| 2004 12 19 | G96 | 0.8− | 0.1+ | 2009 10 14 | D29 | 0.5+ | 1.2+ | | | | |

**2009 TE$_{17}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 32.88599 | | (2000.0) | | | |
| $n$ | 0.22334546 | $\omega$ | 262.66723 | | +0.92656834 | −0.34047020 |
| $a$ | 2.6904068 | $\Omega$ | 117.12578 | | +0.37479141 | +0.87152920 |
| $e$ | 0.1088193 | $i$ | 10.34659 | | −0.03166256 | +0.35286951 |
| $P$ | 4.41 | $H$ | 16.2 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 10 02 | 699 | 0.7− | 0.9− | 2006 01 30 | 691 | 0.0 | 0.1+ | 2009 10 27 | J75 | 0.6+ | 0.2− |
| 2000 10 02 | 699 | 0.3+ | 0.6+ | 2009 10 15 | J75 | 0.0 | 0.0 | 2009 11 08 | 703 | 0.5+ | 0.1+ |
| 2000 10 02 | 699 | 0.3+ | 0.7+ | 2009 10 15 | J75 | 0.6− | 1.0− | 2009 11 08 | 703 | 0.6+ | 0.7− |
| 2000 10 02 | 699 | 0.0 | 0.2+ | 2009 10 15 | J75 | 0.9+ | 0.8− | 2009 11 08 | 703 | 1.4− | 0.5− |
| 2004 08 22 | E12 | 0.2+ | 0.1+ | 2009 10 18 | 703 | 0.5− | 0.1+ | 2009 11 08 | 703 | 0.4+ | 0.4+ |
| 2004 08 22 | E12 | 0.1− | 0.5+ | 2009 10 18 | 703 | 0.8− | 0.0 | 2009 12 13 | G84 | 0.5+ | 0.1− |
| 2004 08 22 | E12 | 0.2+ | 0.7− | 2009 10 18 | 703 | 0.7− | 0.1− | 2009 12 13 | G84 | 0.1− | 0.2+ |
| 2004 08 22 | E12 | 0.3− | 0.4+ | 2009 10 18 | 703 | 0.3+ | 1.4+ | 2009 12 13 | G84 | 0.2+ | 0.0 |
| 2006 01 30 | 691 | 0.1− | 0.1− | 2009 10 26 | J75 | 0.2+ | 0.1− | 2009 12 13 | G84 | 0.1+ | 0.2+ |
| 2006 01 30 | 691 | 0.0 | 0.2+ | 2009 10 27 | J75 | 0.2+ | 0.3+ | | | | |

**2009 TJ$_{17}$ = 2006 DU$_{130}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 26.98237 | | (2000.0) | | | |
| $n$ | 0.18071982 | $\omega$ | 265.81887 | | +0.93870268 | −0.32843132 |
| $a$ | 3.0983622 | $\Omega$ | 113.32822 | | +0.34381496 | +0.86986180 |
| $e$ | 0.1660233 | $i$ | 6.54958 | | +0.02507115 | +0.36806699 |
| $P$ | 5.45 | $H$ | 15.7 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 21 | 691 | 0.0 | 0.1+ | 2006 02 25 | G96 | 0.6− | 0.1− | 2009 10 18 | 703 | 0.7− | 0.8+ |
| 2004 12 21 | 691 | 0.0 | 0.0 | 2006 02 25 | G96 | 0.2− | 0.3− | 2009 10 18 | 703 | 0.3+ | 0.3− |
| 2004 12 21 | 691 | 0.0 | 0.0 | 2006 02 25 | G96 | 0.2− | 0.2− | 2009 11 09 | 703 | 0.1+ | 0.7− |
| 2005 01 08 | 599 | 0.1− | 0.3+ | 2006 03 04 | 691 | 0.3+ | 0.1− | 2009 11 09 | 703 | 0.3+ | 0.5− |
| 2005 01 08 | 599 | 0.2+ | 0.3− | 2006 03 04 | 691 | 0.3− | 0.1− | 2009 11 09 | 703 | 0.4+ | 0.4− |
| 2005 01 08 | 599 | 0.2− | 0.3− | 2006 03 04 | 691 | 0.1− | 0.2+ | 2009 11 09 | 703 | 0.5+ | 0.3− |
| 2006 02 25 | 691 | 0.2− | 0.3+ | 2009 10 15 | J75 | 0.1− | 0.2+ | 2009 11 20 | 291 | 0.2− | 0.1+ |
| 2006 02 25 | 691 | 0.4+ | 0.2− | 2009 10 15 | J75 | 0.8+ | 0.2+ | 2009 11 20 | 291 | 0.2− | 0.1+ |
| 2006 02 25 | 691 | 0.1+ | 0.0 | 2009 10 15 | J75 | 0.9+ | 0.5+ | 2009 11 20 | 291 | 0.1− | 0.1+ |
| 2006 02 25 | G96 | 0.0 | 0.2− | 2009 10 18 | 703 | 0.1− | 0.6− | | | | |

**2009 TV$_{24}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 52.67691 | | (2000.0) | | | |
| $n$ | 0.21469609 | $\omega$ | 252.81237 | | +0.90400262 | +0.35679658 |
| $a$ | 2.7621884 | $\Omega$ | 85.77184 | | −0.24342553 | +0.88246112 |
| $e$ | 0.1923115 | $i$ | 13.66090 | | −0.35145879 | +0.30652664 |
| $P$ | 4.59 | $H$ | 15.9 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 06 27 | E12 | 0.8+ | 0.1− | 2008 03 15 | G96 | 0.1+ | 0.4+ | 2009 10 15 | 703 | 0.6+ | 0.3− |
| 2004 06 27 | E12 | 1.0+ | 0.5− | 2008 03 15 | G96 | 0.1− | 0.8+ | 2009 10 26 | J75 | 0.1+ | 0.2+ |
| 2004 06 27 | E12 | 1.4+ | 0.0 | 2008 03 15 | G96 | 0.1+ | 0.1+ | 2009 10 26 | J75 | 0.0 | 0.3− |
| 2004 06 27 | E12 | 1.5+ | 0.1+ | 2008 03 15 | G96 | 0.5+ | 0.1+ | 2009 10 26 | J75 | 0.5+ | 0.7− |
| 2004 07 25 | 699 | 0.5− | 0.7− | 2008 03 15 | G96 | 0.3− | 0.9+ | 2009 10 27 | 703 | 0.6+ | 0.4+ |
| 2004 07 25 | 699 | 0.8− | 0.1− | 2008 03 15 | G96 | 0.0 | 0.5+ | 2009 10 27 | 703 | 1.5− | 1.5+ |
| 2004 07 25 | 699 | 0.5− | 0.5+ | 2008 03 15 | G96 | 0.3+ | 0.4− | 2009 10 27 | 703 | 0.8+ | 0.3+ |
| 2004 07 25 | 699 | 0.4− | 0.8+ | 2008 03 15 | G96 | 0.1+ | 0.3+ | 2009 10 27 | 703 | 0.3− | 0.5− |
| 2004 08 09 | 644 | 0.7− | 0.3+ | 2009 10 14 | G92 | 0.6− | 0.1− | 2009 11 17 | 703 | 0.3+ | 0.3+ |
| 2004 08 09 | 644 | 0.7− | 0.0 | 2009 10 14 | G92 | 0.6− | 0.3− | 2009 11 17 | 703 | 0.6+ | 0.5+ |
| 2004 08 09 | 644 | 0.4− | 0.3− | 2009 10 14 | G92 | 0.6+ | 0.7− | 2009 11 17 | 703 | 0.3+ | 0.8+ |
| 2005 11 30 | 691 | 0.1− | 0.2+ | 2009 10 15 | 703 | 0.4− | 0.6− | 2009 11 17 | 703 | 1.1+ | 0.2− |
| 2005 11 30 | 691 | 0.1+ | 0.1− | 2009 10 15 | 703 | 2.0− | 1.0+ | | | | |
| 2005 11 30 | 691 | 0.0 | 0.1+ | 2009 10 15 | 703 | 0.4− | 0.2+ | | | | |

**2009 TY$_{24}$ = 2008 GC$_{60}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 65.36145 | | (2000.0) | | | |
| $n$ | 0.26715755 | $\omega$ | 290.72164 | | +0.89219428 | +0.44410997 |
| $a$ | 2.3875790 | $\Omega$ | 43.02432 | | −0.35646370 | +0.80415323 |
| $e$ | 0.1467178 | $i$ | 6.91884 | | −0.27734996 | +0.39509989 |
| $P$ | 3.69 | $H$ | 17.1 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 08 28 | E12 | 0.3+ | 0.1− | 2008 05 26 | G96 | 0.4− | 0.3− | 2009 10 18 | J75 | 0.3+ | 0.2+ |
| 2005 08 28 | E12 | 0.1+ | 0.1+ | 2008 05 26 | G96 | 0.1+ | 0.9+ | 2009 11 09 | 703 | 0.0 | 0.6+ |
| 2005 08 28 | E12 | 0.1+ | 0.3+ | 2008 05 26 | G96 | 0.4+ | 0.5− | 2009 11 09 | 703 | 0.5− | 0.1+ |
| 2005 08 28 | E12 | 0.5− | 0.2− | 2008 05 26 | G96 | 0.4+ | 0.1+ | 2009 11 09 | 703 | 0.6− | 0.8+ |
| 2008 04 05 | 691 | 0.2− | 0.2+ | 2009 10 14 | 703 | 1.2− | 1.1− | 2009 11 09 | 703 | 0.1+ | 0.2+ |
| 2008 04 05 | 691 | 0.1− | 0.1+ | 2009 10 14 | 703 | 0.0 | 0.4+ | 2009 11 19 | G96 | 0.5+ | 0.3+ |
| 2008 04 05 | 691 | 0.4+ | 0.2+ | 2009 10 14 | 703 | 0.7− | 0.5+ | 2009 11 19 | G96 | 0.3+ | 0.0 |
| 2008 04 09 | 691 | 0.1+ | 0.1− | 2009 10 14 | 703 | 0.1− | 0.5− | 2009 11 19 | G96 | 0.1+ | 0.1+ |
| 2008 04 09 | 691 | 0.1+ | 0.2− | 2009 10 18 | J75 | 0.5+ | 0.6+ | | | | |
| 2008 04 09 | 691 | 0.1− | 0.4+ | 2009 10 18 | J75 | 0.5+ | 0.4− | | | | |

**2009 TU$_{27}$ = 2005 XU$_{26}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 44.01138 | | (2000.0) | | | |
| $n$ | 0.21869131 | $\omega$ | 275.92797 | | +0.99329676 | +0.01587952 |
| $a$ | 2.7284439 | $\Omega$ | 83.20136 | | +0.03240022 | +0.91256431 |
| $e$ | 0.1587709 | $i$ | 6.62133 | | −0.11095842 | +0.40862480 |
| $P$ | 4.51 | $H$ | 16.1 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 08 08 | 644 | 0.1− | 0.0 | 2005 12 05 | G96 | 0.1+ | 0.4− | 2009 11 20 | G96 | 0.4− | 0.4− |
| 2004 08 08 | 644 | 0.2+ | 0.1+ | 2009 10 15 | J75 | 0.2+ | 0.0 | 2009 11 20 | G96 | 0.1+ | 0.1− |
| 2004 08 08 | 644 | 0.1− | 0.0 | 2009 10 15 | J75 | 0.1− | 0.1− | 2009 11 26 | G96 | 0.0 | 0.1− |
| 2005 12 04 | 691 | 0.0 | 0.1+ | 2009 10 15 | J75 | 0.5+ | 0.0 | 2009 11 26 | G96 | 0.3+ | 0.3− |
| 2005 12 04 | 691 | 0.0 | 0.1− | 2009 10 18 | J75 | 0.2+ | 0.1+ | 2009 11 26 | G96 | 0.3+ | 0.1+ |
| 2005 12 04 | 691 | 0.0 | 0.3+ | 2009 10 18 | J75 | 0.2+ | 0.2+ | 2009 11 26 | G96 | 0.3+ | 0.0 |
| 2005 12 05 | G96 | 0.1+ | 0.1− | 2009 10 19 | J75 | 0.4− | 0.5+ | 2009 11 26 | G96 | 0.4− | 0.1+ |
| 2005 12 05 | G96 | 0.1− | 0.4− | 2009 11 20 | G96 | 0.6− | 0.1− | | | | |
| 2005 12 05 | G96 | 0.0 | 0.2− | 2009 11 20 | G96 | 0.2− | 0.0 | | | | |

**2009 TP$_{29}$ = 2005 XQ$_{108}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 127.35181 | | (2000.0) | | | |
| $n$ | 0.21308039 | $\omega$ | 18.94094 | | −0.26122217 | +0.95946116 |
| $a$ | 2.7761338 | $\Omega$ | 236.04700 | | −0.90128171 | −0.28168449 |
| $e$ | 0.1756479 | $i$ | 7.32907 | | −0.34562156 | +0.00938758 |
| $P$ | 4.63 | $H$ | 17.0 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 08 25 | 691 | 0.1− | 0.1+ | 2005 12 02 | 695 | 0.0 | 0.1+ | 2009 10 15 | G96 | 0.2+ | 0.7+ |
| 2004 08 25 | 691 | 0.0 | 0.4− | 2005 12 02 | 695 | 0.1+ | 0.0 | 2009 10 17 | G96 | 0.3− | 0.2− |
| 2004 08 25 | 691 | 0.2− | 0.1− | 2005 12 02 | 695 | 0.1+ | 0.1+ | 2009 10 17 | G96 | 0.2+ | 0.0 |
| 2004 09 17 | 691 | 0.1+ | 0.2+ | 2009 09 25 | 691 | 0.2− | 0.0 | 2009 10 17 | G96 | 0.4+ | 0.0 |
| 2004 09 17 | 691 | 0.1+ | 0.0 | 2009 09 25 | 691 | 0.3+ | 0.2+ | 2009 10 27 | G96 | 0.0 | 0.7− |
| 2004 09 17 | 691 | 0.2+ | 0.0 | 2009 09 25 | 691 | 0.2− | 0.5+ | 2009 10 27 | G96 | 0.3+ | 0.7− |
| 2005 12 01 | 695 | 0.2− | 0.0 | 2009 10 15 | G96 | 0.1− | 0.0 | 2009 10 27 | G96 | 0.1− | 0.7− |
| 2005 12 01 | 695 | 0.0 | 0.0 | 2009 10 15 | G96 | 0.4− | 0.1− | 2009 10 27 | G96 | 0.1+ | 0.7− |
| 2005 12 01 | 695 | 0.1− | 0.1+ | 2009 10 15 | G96 | 0.1+ | 0.4− | | | | |

**2009 TZ$_{29}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 355.44082 | | (2000.0) | | | |
| $n$ | 0.18408940 | $\omega$ | 314.03830 | | +0.44645328 | −0.87751022 |
| $a$ | 3.0604376 | $\Omega$ | 108.69155 | | +0.86472150 | +0.37279083 |
| $e$ | 0.1987129 | $i$ | 10.65152 | | +0.23007866 | +0.30166670 |
| $P$ | 5.35 | $H$ | 15.1 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 07 08 | 644 | 0.2− | 0.2+ | 2009 10 01 | G96 | 0.2+ | 0.1− | 2009 12 08 | F85 | 0.0 | 0.4− |
| 2003 07 08 | 644 | 0.3+ | 0.2− | 2009 10 15 | 703 | 0.8+ | 0.7− | 2009 12 08 | F85 | 0.5− | 0.0 |
| 2003 07 08 | 644 | 0.2− | 0.2+ | 2009 10 15 | 703 | 0.5− | 0.4+ | 2009 12 09 | F85 | 0.2− | 0.2+ |
| 2007 06 19 | 691 | 0.2+ | 0.1+ | 2009 10 15 | 703 | 0.0 | 0.1+ | 2009 12 09 | F85 | 0.0 | 0.4+ |
| 2007 06 19 | 691 | 0.3− | 0.2+ | 2009 10 15 | 703 | 0.5− | 0.2− | 2009 12 09 | F85 | 0.3− | 0.1− |
| 2007 06 19 | 691 | 0.3+ | 0.1+ | 2009 10 18 | J75 | 0.1+ | 0.4+ | 2009 12 09 | F85 | 0.4− | 0.1− |
| 2009 08 17 | 703 | 0.4+ | 1.0+ | 2009 10 18 | J75 | 0.0 | 0.4− | 2009 12 18 | 704 | 0.2+ | 1.2+ |
| 2009 08 17 | 703 | 0.5+ | 0.5− | 2009 10 18 | J75 | 0.3+ | 0.2− | 2009 12 18 | 704 | 1.0+ | 1.1+ |
| 2009 08 17 | 703 | 0.4− | 0.4− | 2009 11 17 | 703 | 0.1− | 0.1− | 2009 12 18 | 704 | 0.4− | 0.4+ |
| 2009 08 17 | 703 | 0.2− | 0.4− | 2009 11 17 | 703 | 0.5− | 0.3+ | 2009 12 18 | 704 | 0.8+ | 0.2+ |
| 2009 10 01 | G96 | 0.2+ | 0.1− | 2009 11 17 | 703 | 0.8− | 0.0 | 2009 12 18 | 704 | 0.2− | 0.3− |
| 2009 10 01 | G96 | 0.4+ | 0.1− | 2009 11 17 | 703 | 0.1− | 0.0 | | | | |
| 2009 10 01 | G96 | 0.0 | 0.4− | 2009 12 08 | F85 | 0.2− | 0.0 | | | | |

**2009 TR$_{31}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 43.83563 | | (2000.0) | | | |
| $n$ | 0.18017131 | $\omega$ | 98.03986 | | +0.87725287 | +0.37013382 |
| $a$ | 3.1046474 | $\Omega$ | 240.71263 | | −0.44234159 | +0.87063113 |
| $e$ | 0.2824828 | $i$ | 20.51526 | | +0.18644385 | +0.32404073 |
| $P$ | 5.47 | $H$ | 14.9 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 10 02 | 699 | 0.7− | 0.4+ | 2009 10 15 | 106 | 0.6+ | 0.0 | 2009 11 25 | 703 | 0.7− | 0.4+ |
| 1998 10 02 | 699 | 0.8+ | 0.0 | 2009 10 15 | 106 | 0.5+ | 0.3− | 2009 11 25 | 703 | 0.9− | 0.1− |
| 1998 10 02 | 699 | 0.1− | 0.3+ | 2009 10 15 | 106 | 0.1+ | 0.6− | 2009 11 25 | 703 | 1.0− | 0.0 |
| 2008 05 27 | G96 | 0.2+ | 0.1− | 2009 10 17 | 703 | 0.0 | 0.0 | 2009 11 25 | 703 | 0.0 | 0.1+ |
| 2008 05 27 | G96 | 0.3+ | 0.0 | 2009 10 17 | 703 | 0.2− | 0.3− | 2009 12 06 | J75 | 0.5+ | 0.2+ |
| 2008 05 27 | G96 | 0.3+ | 0.0 | 2009 10 17 | 703 | 0.1− | 0.3+ | 2009 12 06 | J75 | 0.7− | 0.1− |
| 2008 05 27 | G96 | 0.5+ | 0.0 | 2009 10 17 | 703 | 0.3− | 0.3+ | 2009 12 06 | J75 | 0.6+ | 0.0 |
| 2008 06 12 | 691 | 0.3− | 0.1− | 2009 11 06 | 703 | 0.2+ | 0.1+ | 2009 12 12 | 704 | 0.4− | 0.6− |
| 2008 06 12 | 691 | 0.1+ | 0.1− | 2009 11 06 | 703 | 0.3+ | 0.1+ | 2009 12 12 | 704 | 0.1− | 0.0 |
| 2008 06 12 | 691 | 0.1− | 0.1+ | 2009 11 06 | 703 | 0.5+ | 0.1− | 2009 12 12 | 704 | 0.1+ | 0.7− |
| 2009 10 15 | 106 | 1.0+ | 0.2+ | 2009 11 06 | 703 | 0.1+ | 0.0 | 2009 12 12 | 704 | 0.4− | 0.5− |

**2009 TK$_{34}$ = 2005 QB$_{147}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 45.38153 | | (2000.0) | | | |
| $n$ | 0.26300179 | $\omega$ | 269.75777 | | +0.97782179 | +0.18310612 |
| $a$ | 2.4126644 | $\Omega$ | 79.69020 | | −0.12603281 | +0.90214403 |
| $e$ | 0.1484217 | $i$ | 5.93142 | | −0.16727307 | +0.39065113 |
| $P$ | 3.75 | $H$ | 17.5 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 08 28 | E12 | 1.0− | 0.2− | 2008 04 14 | 691 | 0.2+ | 0.2+ | 2009 10 15 | 703 | 0.4− | 0.2+ |
| 2005 08 28 | E12 | 0.0 | 0.3+ | 2008 04 14 | 691 | 0.0 | 0.5+ | 2009 10 15 | 703 | 0.2− | 0.8+ |
| 2005 08 28 | E12 | 0.6+ | 0.0 | 2008 04 14 | 691 | 0.4+ | 0.1+ | 2009 10 15 | 703 | 0.5− | 0.9+ |
| 2005 08 28 | E12 | 0.1+ | 0.3− | 2008 04 29 | G96 | 0.6− | 0.4+ | 2009 10 15 | 703 | 0.3− | 1.3+ |
| 2005 09 01 | 644 | 0.1− | 0.2+ | 2008 04 29 | G96 | 0.3+ | 0.1− | 2009 10 22 | G96 | 0.2+ | 0.3− |
| 2005 09 01 | 644 | 0.1+ | 0.4+ | 2008 04 29 | G96 | 0.1− | 0.3+ | 2009 10 22 | G96 | 0.1+ | 0.0 |
| 2005 09 01 | 644 | 0.0 | 0.5+ | 2008 04 29 | G96 | 0.3− | 0.1− | 2009 10 22 | G96 | 0.1− | 0.3− |
| 2006 12 26 | 691 | 0.4− | 0.1+ | 2009 10 11 | J75 | 0.5+ | 0.0 | 2009 10 22 | G96 | 0.1− | 0.1+ |
| 2006 12 26 | 691 | 0.0 | 0.2− | 2009 10 11 | J75 | 0.2− | 0.4+ | | | | |
| 2006 12 26 | 691 | 0.6+ | 0.6+ | 2009 10 11 | J75 | 0.3− | 0.2− | | | | |

**2009 TN$_{36}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 27.39666 | | (2000.0) | | | |
| $n$ | 0.29792680 | $\omega$ | 321.06330 | | +0.91808388 | −0.38433681 |
| $a$ | 2.2202217 | $\Omega$ | 61.79795 | | +0.38561053 | +0.80931150 |
| $e$ | 0.1780224 | $i$ | 6.31854 | | +0.09179601 | +0.44418479 |
| $P$ | 3.31 | $H$ | 17.8 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 02 16 | 691 | 0.2+ | 0.0 | 2008 05 31 | G96 | 0.5− | 0.0 | 2009 10 25 | G96 | 0.3+ | 0.1+ |
| 2004 02 16 | 691 | 0.3+ | 0.3+ | 2008 05 31 | G96 | 0.3+ | 0.2− | 2009 10 25 | G96 | 0.5+ | 0.2− |
| 2004 02 16 | 691 | 0.4− | 0.2+ | 2009 10 14 | J75 | 0.3+ | 0.6+ | 2009 11 09 | 703 | 0.6+ | 0.0 |
| 2006 12 16 | 691 | 0.4+ | 0.0 | 2009 10 14 | J75 | 1.5+ | 1.7− | 2009 11 09 | 703 | 0.8− | 0.6− |
| 2006 12 16 | 691 | 0.2+ | 0.2+ | 2009 10 14 | J75 | 0.5+ | 0.6− | 2009 11 09 | 703 | 0.7− | 1.0+ |
| 2006 12 16 | 691 | 0.0 | 0.2− | 2009 10 17 | 703 | 0.4− | 0.5+ | 2009 11 23 | 703 | 0.1+ | 1.0+ |
| 2006 12 26 | 691 | 0.2− | 0.0 | 2009 10 17 | 703 | 1.7− | 0.5+ | 2009 11 23 | 703 | 0.5− | 0.1+ |
| 2006 12 26 | 691 | 0.2− | 0.0 | 2009 10 17 | 703 | 0.1+ | 1.6+ | 2009 11 23 | 703 | 0.6− | 0.4− |
| 2006 12 26 | 691 | 0.1− | 0.4− | 2009 10 17 | 703 | 0.3+ | 0.3+ | 2009 11 23 | 703 | 0.6− | 0.1+ |
| 2008 05 31 | G96 | 0.1− | 0.6+ | 2009 10 25 | G96 | 0.4+ | 0.0 | 2009 11 23 | 703 | 1.1− | 0.5− |
| 2008 05 31 | G96 | 0.7+ | 0.3+ | 2009 10 25 | G96 | 0.6+ | 0.2− | | | | |

**2009 TA$_{38}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 27.47137 | | (2000.0) | | | |
| $n$ | 0.25228821 | $\omega$ | 133.28586 | | +0.95282585 | −0.28582970 |
| $a$ | 2.4804934 | $\Omega$ | 243.56215 | | +0.23483994 | +0.90737232 |
| $e$ | 0.2804998 | $i$ | 6.54735 | | +0.19228391 | +0.30818315 |
| $P$ | 3.91 | $H$ | 18.0 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 10 15 | 645 | 0.0 | 0.0 | 2009 10 16 | 704 | (0.1− | 1.6−) | 2009 11 17 | 704 | 1.3− | 1.2+ |
| 2001 10 15 | 645 | 0.0 | 0.0 | 2009 10 16 | 704 | 0.4+ | 0.8+ | 2009 11 17 | 704 | (1.5+ | 1.6+) |
| 2001 11 18 | 645 | 0.0 | 0.1− | 2009 10 16 | 704 | 0.1− | 0.3+ | 2009 11 20 | 704 | 0.8+ | 1.4+ |
| 2001 11 18 | 645 | 0.0 | 0.0 | 2009 10 22 | 703 | 0.5− | 0.5− | 2009 11 20 | 704 | 1.4− | 0.3− |
| 2001 12 10 | 645 | 0.0 | 0.1− | 2009 10 22 | 703 | 0.8− | 0.0 | 2009 11 20 | 704 | 0.7+ | 1.0− |
| 2001 12 10 | 645 | 0.1+ | 0.1− | 2009 10 22 | 703 | 0.4− | 0.4− | 2009 11 20 | 704 | 0.4− | 0.3+ |
| 2005 09 26 | 644 | 0.2− | 0.0 | 2009 11 06 | 703 | 1.0+ | 0.2− | 2009 11 20 | G96 | 0.2+ | 0.4− |
| 2005 09 26 | 644 | 0.2+ | 0.3+ | 2009 11 06 | 703 | 1.2+ | 1.3+ | 2009 11 20 | G96 | 0.0 | 0.4− |
| 2005 09 26 | 644 | 0.3− | 0.5+ | 2009 11 06 | 703 | 0.4+ | 1.1+ | 2009 11 20 | G96 | 0.2− | 0.5− |
| 2005 10 21 | 644 | 0.2+ | 0.4+ | 2009 11 06 | 703 | 0.5+ | 0.0 | 2009 11 20 | G96 | 0.1+ | 0.4− |
| 2005 10 21 | 644 | 0.1+ | 0.4+ | 2009 11 10 | J75 | 1.1− | 0.1− | 2009 12 10 | 703 | 0.4− | 0.5+ |
| 2005 10 21 | 644 | 0.3+ | 0.2− | 2009 11 10 | J75 | 0.2+ | 0.1+ | 2009 12 10 | 703 | 0.4− | 0.5− |
| 2009 10 14 | 703 | (3.3+ | 1.6+) | 2009 11 10 | J75 | 0.5+ | 0.2− | 2009 12 10 | 703 | 0.6− | 0.2+ |
| 2009 10 14 | 703 | 0.4+ | 1.4+ | 2009 11 13 | J75 | 0.2+ | 0.3− | 2009 12 10 | 703 | 0.3+ | 0.1− |
| 2009 10 14 | 703 | 0.1− | 0.5+ | 2009 11 13 | J75 | 0.1+ | 0.7− | 2009 12 19 | G96 | 0.3− | 0.4− |
| 2009 10 14 | 703 | 1.3+ | 0.6+ | 2009 11 13 | J75 | 0.4+ | 0.4− | 2009 12 19 | G96 | 0.1− | 0.5− |
| 2009 10 16 | 704 | 0.8− | 0.1+ | 2009 11 17 | 704 | 1.1− | 0.7+ | 2009 12 19 | G96 | 0.3+ | 0.6− |
| 2009 10 16 | 704 | 0.6− | 0.1+ | 2009 11 17 | 704 | 0.4+ | 0.1− | 2009 12 19 | G96 | 0.1− | 0.6− |

**2009 TE$_{38}$ = 2003 UU$_{303}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 284.08763 | | (2000.0) | | | |
| $n$ | 0.16905121 | $\omega$ | 245.03052 | | −0.67299493 | −0.72520711 |
| $a$ | 3.2393449 | $\Omega$ | 248.07893 | | +0.72250015 | −0.60246501 |
| $e$ | 0.0358036 | $i$ | 9.01968 | | +0.15833935 | −0.33333249 |
| $P$ | 5.83 | $H$ | 15.4 | $G$ | 0.15 | $U$ 5 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 17 | 691 | 0.4+ | 0.1− | 2009 10 14 | 703 | 0.4− | 1.0− | 2009 11 10 | G96 | 0.1+ | 0.0 |
| 2003 10 17 | 691 | 0.2+ | 0.1− | 2009 10 22 | 703 | 0.2− | 0.3− | 2009 11 10 | G96 | 0.2+ | 0.1+ |
| 2003 10 17 | 691 | 0.1+ | 0.1+ | 2009 10 22 | 703 | 1.1− | 1.4+ | 2009 11 10 | G96 | 0.4+ | 0.2+ |
| 2003 10 27 | 691 | 0.1+ | 0.2− | 2009 10 22 | 703 | 0.7+ | 0.5+ | 2009 11 10 | G96 | 0.0 | 0.1− |
| 2003 10 27 | 691 | 0.1− | 0.0 | 2009 10 22 | 703 | 0.1− | 0.6+ | 2009 11 19 | G96 | 0.5+ | 0.1+ |
| 2003 10 27 | 691 | 0.6− | 0.2+ | 2009 10 22 | 300 | 0.0 | 0.7+ | 2009 11 19 | G96 | 0.1+ | 0.0 |
| 2009 10 14 | 703 | 0.2+ | 1.1− | 2009 10 22 | 300 | 0.2− | 0.2+ | 2009 11 19 | G96 | 0.6+ | 0.8− |

2009 10 14 703 0.6− 1.2− 2009 10 22 300 0.2+ 1.1+ 2009 11 19 G96 0.6+ 0.0
2009 10 14 703 2.0− 0.2− 2009 10 22 300 0.9+ 0.1−

**2009 TY$_{38}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 21.71403 | | (2000.0) | | | |
| $n$ | 0.18090626 | $\omega$ | 256.67342 | | +0.93618478 | −0.31854896 |
| $a$ | 3.0962332 | $\Omega$ | 121.71961 | | +0.34989970 | +0.88492029 |
| $e$ | 0.1079526 | $i$ | 10.06145 | | −0.03358951 | +0.33976851 |
| $P$ | 5.45 | $H$ | 15.5 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

2002 07 07 291 0.3+ 0.6+ 2007 05 22 G96 0.3− 0.1+ 2009 10 26 J75 0.2− 0.1−
2002 07 07 291 0.1+ 0.4+ 2007 05 22 G96 0.3− 0.2+ 2009 10 26 J75 0.1+ 0.2−
2002 07 07 291 0.2+ 0.6+ 2007 05 22 G96 0.1+ 0.5+ 2009 10 26 J75 0.1− 0.4−
2003 07 25 644 0.4− 0.5+ 2007 05 22 G96 0.0 0.0 2009 10 27 703 0.2− 0.1+
2003 07 25 644 0.4− 0.5+ 2009 09 16 703 0.8− 1.4+ 2009 10 27 703 0.7− 0.5+
2003 07 25 644 0.2− 0.5+ 2009 09 16 703 0.2− 1.4+ 2009 10 27 703 0.4− 0.4−
2006 01 23 691 0.3+ 0.2+ 2009 09 16 703 0.9− 0.5+ 2009 10 27 703 0.2− 0.7+
2006 01 23 691 0.1+ 0.3+ 2009 09 16 703 (1.9− 0.1+) 2009 11 18 703 0.3− 0.9+
2006 01 23 691 0.1− 0.1+ 2009 10 15 703 0.5+ 1.3+ 2009 11 18 703 0.1+ 0.1+
2006 02 01 691 0.2+ 0.2+ 2009 10 15 703 0.4− 1.2+ 2009 11 18 703 0.0 0.2+
2006 02 01 691 0.2+ 0.4+ 2009 10 15 703 0.8+ 0.6+ 2009 11 18 703 0.2− 0.5−
2006 02 01 691 0.0 0.7+ 2009 10 15 703 0.4+ 0.3+

**2009 TH$_{39}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 23.10998 | | (2000.0) | | | |
| $n$ | 0.28331972 | $\omega$ | 331.56230 | | +0.81645730 | −0.44278200 |
| $a$ | 2.2958923 | $\Omega$ | 59.53010 | | +0.57677926 | +0.59552626 |
| $e$ | 0.2583922 | $i$ | 25.46617 | | +0.02689182 | +0.67029290 |
| $P$ | 3.48 | $H$ | 17.8 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

2002 10 08 644 0.2+ 0.1− 2009 10 27 J75 0.1+ 0.0 2009 11 08 703 0.2+ 0.8−
2002 10 08 644 0.5+ 0.4− 2009 10 27 J75 0.3+ 0.7+ 2009 11 19 704 0.7+ 0.9+
2002 10 08 644 0.1− 0.4− 2009 10 27 J75 0.5+ 0.4− 2009 11 19 704 0.8+ 1.3+
2002 11 05 644 0.2+ 0.3− 2009 10 27 703 0.7+ 0.7− 2009 11 19 704 0.6+ 1.0+
2002 11 05 644 0.0 0.1+ 2009 10 27 703 0.7− 0.2+ 2009 11 19 704 0.2+ 0.9+
2002 11 05 644 0.3+ 0.1− 2009 10 27 703 0.9− 0.5− 2009 12 18 G96 0.3− 0.4−
2009 10 15 703 0.1− 0.1+ 2009 10 27 703 0.1− 0.7+ 2009 12 18 G96 0.5− 0.3−
2009 10 15 703 1.6− 0.0 2009 11 08 703 1.1− 1.2− 2009 12 18 G96 0.3− 0.3−
2009 10 15 703 1.7− 0.2+ 2009 11 08 703 1.2+ 1.1− 2009 12 18 G96 0.1− 0.1−
2009 10 15 703 0.2− 0.5+ 2009 11 08 703 0.4+ 0.3+

**2009 TH$_{40}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 27.51421 | | (2000.0) | | | |
| $n$ | 0.17785610 | $\omega$ | 267.54222 | | +0.93788177 | −0.27914767 |
| $a$ | 3.1315321 | $\Omega$ | 108.60913 | | +0.33462600 | +0.88467755 |
| $e$ | 0.0916186 | $i$ | 12.55704 | | −0.09166914 | +0.37339283 |
| $P$ | 5.54 | $H$ | 15.2 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

2003 08 30 608 0.4− 1.0+ 2007 04 25 G96 0.1− 0.8+ 2009 10 15 703 0.9+ 1.3+
2003 08 30 608 0.6+ 2.0+ 2007 04 25 G96 0.1+ 0.4+ 2009 10 26 J75 1.1+ 0.2−
2003 08 30 608 0.8+ 1.5+ 2007 05 15 G96 0.0 0.3+ 2009 10 26 J75 0.9+ 0.0
2003 09 27 699 0.4− 0.4− 2007 05 15 G96 0.2+ 0.2+ 2009 10 27 J75 0.0 0.7−
2003 09 27 699 0.2− 0.9− 2007 05 15 G96 0.0 0.1+ 2009 10 27 703 0.4+ 1.6−
2003 09 27 699 1.0− 0.1+ 2007 05 15 G96 0.1− 0.0 2009 10 27 703 0.4− 0.1+
2003 09 27 699 0.4− 0.4− 2009 09 24 703 0.0 1.0− 2009 10 27 703 1.5− 0.6+
2006 02 22 699 0.8+ 1.0+ 2009 09 24 703 0.4+ 0.5− 2009 10 27 703 0.7− 1.1+
2006 02 22 699 0.7− 1.3+ 2009 09 24 703 0.4− 0.4+ 2009 11 17 703 0.1+ 1.1−
2006 02 22 699 0.2− 0.6+ 2009 09 24 703 0.8− 0.3+ 2009 11 17 703 0.7− 0.4−
2006 02 22 699 1.5+ 0.3+ 2009 10 15 703 0.0 0.6+ 2009 11 17 703 0.2− 0.0
2007 04 25 G96 0.2+ 0.1+ 2009 10 15 703 0.3− 0.8+ 2009 11 17 703 0.9− 1.5+
2007 04 25 G96 0.4+ 0.5+ 2009 10 15 703 1.2+ 0.9+

**2009 TC$_{42}$ = 1999 XE$_{201}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 315.86144 | | (2000.0) | | | |
| $n$ | 0.19059022 | $\omega$ | 129.41022 | | −0.56067547 | −0.82795451 |
| $a$ | 2.9904438 | $\Omega$ | 354.65362 | | +0.71634238 | −0.47797767 |
| $e$ | 0.1856860 | $i$ | 7.14585 | | +0.41532711 | −0.29330645 |
| $P$ | 5.17 | $H$ | 15.2 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

1998 09 14 691 0.5+ 0.4− 2004 12 15 703 0.2− 0.1− 2009 11 09 G96 0.2− 0.3+
1998 09 14 691 0.5+ 0.3− 2004 12 15 703 0.8− 0.6+ 2009 11 09 G96 0.3+ 0.0
1998 09 14 691 0.1+ 0.2− 2006 01 05 G96 0.3− 0.2− 2009 11 09 G96 0.2+ 0.1−
1999 12 12 704 0.5− 0.1+ 2006 01 05 G96 0.4− 0.0 2009 11 09 G96 0.2+ 0.0
1999 12 12 704 0.1− 0.3− 2006 01 05 G96 0.5− 0.5− 2009 11 09 G96 0.2+ 0.0
1999 12 12 704 0.7+ 0.6+ 2006 01 05 G96 0.3+ 0.4− 2009 11 09 G96 0.3+ 0.2+
1999 12 12 704 0.4− 1.0+ 2006 03 25 691 0.3+ 0.4+ 2009 11 09 G96 0.1+ 0.1−
1999 12 15 704 0.4+ 0.5− 2006 03 25 691 0.2+ 0.4+ 2009 11 09 G96 0.1+ 0.0
1999 12 15 704 0.2− 0.6− 2006 03 25 691 (0.2− 1.9−) 2009 12 10 704 0.8− 0.2−
1999 12 15 704 0.7+ 0.6− 2009 10 12 G96 0.1− 0.3− 2009 12 10 704 0.0 0.9+
1999 12 15 704 0.7− 0.7− 2009 10 12 G96 0.2− 0.1− 2009 12 10 704 0.7+ 1.2+
2003 09 21 691 0.3− 0.4+ 2009 10 12 G96 0.2+ 0.1− 2009 12 10 704 0.5− 0.1−
2003 09 21 691 0.3− 0.3+ 2009 10 12 G96 0.1+ 0.3− 2009 12 11 J75 0.5− 0.5+
2003 09 21 691 0.6− 0.5+ 2009 10 26 G96 0.6+ 0.0 2009 12 11 J75 0.1− 0.8+
2004 12 15 703 0.2− 0.2− 2009 10 26 G96 0.4+ 0.2− 2009 12 11 J75 0.2+ 0.2+
2004 12 15 703 0.2− 0.1− 2009 10 26 G96 0.4+ 0.4− 2009 12 20 G96 0.1− 0.2−
2004 12 15 703 0.8+ 0.6− 2009 10 26 G96 0.2+ 0.4− 2009 12 20 G96 0.4+ 0.5−
2004 12 15 703 0.2+ 0.3+ 2009 11 09 691 0.2− 0.4+ 2009 12 20 G96 0.0 0.3−
2004 12 15 703 0.4− 0.4+ 2009 11 09 691 0.3− 0.1+ 2009 12 20 G96 0.2+ 0.5−
2004 12 15 703 0.8− 0.0 2009 11 09 691 0.1− 0.2+

**2009 TD$_{42}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 359.92067 | | (2000.0) | | | |
| $n$ | 0.08236570 | $\omega$ | 294.17071 | | +0.68923838 | −0.70576209 |
| $a$ | 5.2316471 | $\Omega$ | 111.20305 | | +0.71204701 | +0.61800062 |
| $e$ | 0.1553943 | $i$ | 10.12282 | | +0.13393845 | +0.34637423 |
| $P$ | 11.97 | $H$ | 13.0 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

2008 09 03 J75 0.4+ 0.1+ 2009 09 27 G96 0.0 0.1− 2009 11 08 703 0.4− 1.5+
2008 09 03 J75 0.6+ 0.4− 2009 09 27 G96 0.1+ 0.2− 2009 11 08 703 0.7+ 0.9+
2008 09 03 J75 0.2− 0.1+ 2009 09 27 G96 0.1+ 0.2− 2009 11 23 703 0.2− 0.3−
2008 09 20 703 0.6+ 0.3+ 2009 10 15 J75 0.6− 0.5− 2009 11 23 703 0.9− 0.1+
2008 09 20 703 0.3+ 0.1− 2009 10 15 J75 0.2− 0.6− 2009 11 23 703 0.0 0.2+
2008 09 20 703 0.5− 0.1+ 2009 10 15 J75 0.2+ 0.8+ 2009 11 23 703 0.1− 0.4−
2008 09 20 703 1.2− 0.2+ 2009 11 08 703 0.2− 0.9− 2009 11 23 703 0.4+ 0.2+
2009 09 27 G96 0.0 0.3− 2009 11 08 703 1.1+ 0.4−

**2009 TE$_{42}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 63.37728 | | (2000.0) | | | |
| $n$ | 0.17867148 | $\omega$ | 269.46102 | | +0.82412610 | +0.51202588 |
| $a$ | 3.1219975 | $\Omega$ | 59.71836 | | −0.33996618 | +0.78913519 |
| $e$ | 0.1423706 | $i$ | 16.28596 | | −0.45303330 | +0.33925677 |
| $P$ | 5.52 | $H$ | 15.4 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

2002 06 07 291 0.2− 0.3− 2004 12 09 691 0.0 0.0 2009 11 08 703 0.2+ 0.6−
2002 06 07 291 0.1+ 0.1+ 2004 12 09 691 0.2− 0.3− 2009 11 08 703 0.1− 0.4+
2002 06 07 291 0.0 0.1− 2004 12 09 691 0.2+ 0.1+ 2009 11 08 703 1.3− 0.6+
2003 08 25 644 0.3− 0.1+ 2009 09 27 G96 0.1+ 0.2− 2009 11 08 703 0.0 0.3−
2003 08 25 644 0.4− 0.0 2009 09 27 G96 0.2+ 0.1− 2009 11 23 703 0.2− 1.4+

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 08 25 | 644 | 0.5+ | 0.1+ | 2009 09 27 | G96 | 0.3+ | 0.3− | 2009 11 23 | 703 | 0.3+ | 0.1+ |
| 2003 09 27 | 699 | 0.5+ | 0.9− | 2009 09 27 | G96 | 0.1+ | 0.2− | 2009 11 23 | 703 | 0.3+ | 0.9− |
| 2003 09 27 | 699 | 0.5− | 0.2+ | 2009 10 15 | J75 | 0.4+ | 0.3− | 2009 11 23 | 703 | 0.3+ | 0.3+ |
| 2003 09 27 | 699 | 1.5+ | 1.0+ | 2009 10 15 | J75 | 0.0 | 0.3− | | | | |
| 2003 09 27 | 699 | 1.5− | 0.1+ | 2009 10 15 | J75 | 0.2+ | 0.7− | | | | |

**2009 TF$_{42}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 355.64819 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21788511 | $\omega$ | 348.66456 | | +0.65400589 | −0.75215720 | |
| $a$ | 2.7351701 | $\Omega$ | 60.43505 | | +0.70113003 | +0.56254544 | |
| $e$ | 0.0620228 | $i$ | 5.33314 | | +0.28406510 | +0.34322322 | |
| $P$ | 4.52 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1991 11 02 | 691 | 0.2+ | 0.2− | 2007 03 15 | 691 | 0.3− | 0.5+ | 2009 10 16 | G96 | 0.2+ | 0.1− |
| 1991 11 02 | 691 | 1.1− | 0.5+ | 2007 03 15 | 691 | 0.6− | 0.2− | 2009 10 24 | G96 | 0.2+ | 0.0 |
| 1991 11 02 | 691 | 0.6+ | 0.0 | 2007 04 23 | G96 | 0.7+ | 0.6+ | 2009 10 24 | G96 | 0.0 | 0.1+ |
| 1998 04 27 | 691 | 0.5− | 0.8− | 2007 04 23 | G96 | 0.3+ | 0.2+ | 2009 10 24 | G96 | 0.3+ | 0.0 |
| 1998 04 27 | 691 | 0.3+ | 0.1− | 2007 04 23 | G96 | 0.6+ | 0.2+ | 2009 10 24 | G96 | 0.5+ | 0.1− |
| 1998 04 27 | 691 | 0.0 | 0.7− | 2007 04 23 | G96 | 0.2+ | 0.2+ | 2009 11 09 | 703 | (1.6− | 0.5−) |
| 2002 02 07 | 644 | 0.3+ | 0.9+ | 2009 10 02 | G96 | 0.2+ | 0.0 | 2009 11 09 | 703 | 0.2+ | 0.6− |
| 2002 02 07 | 644 | 0.1− | 0.6+ | 2009 10 02 | G96 | 0.1− | 0.3− | 2009 11 09 | 703 | 1.2− | 0.7− |
| 2002 02 07 | 644 | 0.1+ | 0.4+ | 2009 10 02 | G96 | 0.1+ | 0.0 | 2009 11 09 | 703 | 0.5− | 0.0 |
| 2005 11 29 | 691 | 0.2− | 0.1− | 2009 10 02 | G96 | 0.5+ | 0.2− | 2009 11 16 | G96 | 0.1− | 0.2− |
| 2005 11 29 | 691 | 0.1− | 0.2+ | 2009 10 16 | G96 | 0.5+ | 0.2− | 2009 11 16 | G96 | 0.0 | 0.4+ |
| 2005 11 29 | 691 | 0.6+ | 0.6− | 2009 10 16 | G96 | 0.3+ | 0.1− | 2009 11 16 | G96 | 0.1− | 0.2− |
| 2007 03 15 | 691 | 0.4+ | 0.2+ | 2009 10 16 | G96 | 0.1+ | 0.0 | 2009 11 16 | G96 | 0.1− | 0.0 |

**2009 TG$_{42}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 319.19922 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23428408 | $\omega$ | 253.72097 | | −0.37624595 | −0.92562956 | |
| $a$ | 2.6059987 | $\Omega$ | 218.45916 | | +0.87304748 | −0.33951740 | |
| $e$ | 0.1694779 | $i$ | 3.74342 | | +0.31020490 | −0.16714618 | |
| $P$ | 4.21 | $H$ | 17.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 25 | G96 | 0.1− | 0.3− | 2007 04 19 | 691 | 0.6+ | 0.1− | 2009 10 24 | 691 | 1.5− | 0.1+ |
| 2005 10 25 | G96 | 0.1− | 0.1− | 2009 10 11 | G96 | 0.1+ | 0.4− | 2009 10 24 | 691 | 0.1− | 0.6+ |
| 2005 10 25 | G96 | 0.1− | 0.4− | 2009 10 11 | G96 | 0.4+ | 0.1− | 2009 11 11 | G96 | 0.4+ | 0.2+ |
| 2005 10 25 | G96 | 0.1+ | 0.5− | 2009 10 11 | G96 | 0.4+ | 0.0 | 2009 11 11 | G96 | 0.9+ | 0.1− |
| 2005 12 01 | G96 | 0.1+ | 0.3+ | 2009 10 11 | G96 | 0.2+ | 0.1+ | 2009 11 11 | G96 | 0.1+ | 0.1+ |
| 2005 12 01 | G96 | 0.3− | 0.0 | 2009 10 11 | G96 | 0.0 | 0.3− | 2009 11 11 | G96 | 0.5+ | 0.3− |
| 2005 12 01 | G96 | 0.3+ | 0.4+ | 2009 10 11 | G96 | 0.9+ | 0.4+ | 2009 11 18 | G96 | 0.6− | 0.1+ |
| 2005 12 01 | G96 | 0.0 | 0.2+ | 2009 10 11 | G96 | 0.2+ | 0.3− | 2009 11 18 | G96 | 0.3+ | 0.2+ |
| 2007 04 19 | 691 | 0.3+ | 0.6+ | 2009 10 11 | G96 | 0.0 | 0.2− | 2009 11 18 | G96 | 0.3+ | 0.1+ |
| 2007 04 19 | 691 | 0.7− | 0.3+ | 2009 10 24 | 691 | 0.3+ | 0.3+ | 2009 11 18 | G96 | 0.6+ | 0.5− |

**2009 TH$_{42}$ = 2004 TY$_{257}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 27.61046 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.20058375 | $\omega$ | 166.06178 | | +0.92557298 | −0.36633288 | |
| $a$ | 2.8902731 | $\Omega$ | 215.89627 | | +0.32985949 | +0.90416256 | |
| $e$ | 0.0436185 | $i$ | 9.37134 | | +0.18576161 | +0.21975050 | |
| $P$ | 4.91 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 09 | 691 | 0.1− | 0.1− | 2007 04 22 | G96 | 0.4+ | 0.5+ | 2009 10 24 | 691 | 0.0 | 0.0 |
| 2004 10 09 | 691 | 0.6− | 0.1+ | 2007 04 22 | G96 | 0.3− | 0.1− | 2009 11 11 | G96 | 0.9+ | 0.1− |
| 2004 10 09 | 691 | 0.1− | 0.0 | 2009 10 11 | G96 | 0.3+ | 0.1+ | 2009 11 11 | G96 | 0.1− | 0.0 |
| 2004 10 13 | 691 | 0.2+ | 0.1− | 2009 10 11 | G96 | 0.5+ | 0.2− | 2009 11 11 | G96 | 0.1+ | 0.1− |
| 2004 10 13 | 691 | 0.3+ | 0.1+ | 2009 10 11 | G96 | 1.0+ | 0.1− | 2009 11 19 | G96 | 0.0 | 0.2+ |
| 2004 10 13 | 691 | 0.3+ | 0.0 | 2009 10 11 | G96 | 0.5+ | 0.2+ | 2009 11 19 | G96 | 0.3+ | 0.1− |
| 2007 04 22 | G96 | 0.2− | 0.0 | 2009 10 24 | 691 | 0.6− | 0.3+ | 2009 11 19 | G96 | 0.4− | 0.2+ |
| 2007 04 22 | G96 | 0.1+ | 0.3− | 2009 10 24 | 691 | 0.1− | 0.2− | 2009 11 19 | G96 | 0.1− | 0.1− |

**2009 TO$_{42}$ = 2003 SO$_{343}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 342.10601 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18214215 | $\omega$ | 80.69775 | | +0.07776434 | −0.99690642 | |
| $a$ | 3.0822113 | $\Omega$ | 4.88576 | | +0.85400961 | +0.06070137 | |
| $e$ | 0.1257056 | $i$ | 7.70203 | | +0.51441257 | +0.04992922 | |
| $P$ | 5.41 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 17 | 691 | 0.1− | 0.3− | 2006 03 09 | 691 | 0.3+ | 0.6+ | 2009 11 09 | 691 | 0.3+ | 0.0 |
| 2003 09 17 | 691 | 0.4− | 0.0 | 2006 05 06 | G96 | 0.1− | 0.1+ | 2009 11 09 | 691 | 0.0 | 0.1+ |
| 2003 09 17 | 691 | 0.1− | 0.2+ | 2006 05 06 | G96 | 0.1− | 0.6+ | 2009 11 09 | G96 | 0.2+ | 0.1− |
| 2003 09 27 | 691 | 0.0 | 0.2+ | 2006 05 06 | G96 | 0.2+ | 0.4+ | 2009 11 09 | G96 | 0.4+ | 0.5− |
| 2003 09 27 | 691 | 0.0 | 0.1+ | 2006 05 06 | G96 | 0.1+ | 0.2+ | 2009 11 09 | G96 | 0.3+ | 0.2− |
| 2003 09 27 | 691 | 0.1− | 0.5+ | 2009 10 12 | G96 | 0.0 | 0.0 | 2009 11 09 | G96 | 0.5+ | 0.5− |
| 2003 10 17 | 691 | 0.0 | 0.7+ | 2009 10 12 | G96 | 0.3+ | 0.5− | 2009 11 18 | 691 | 0.1− | 0.4+ |
| 2003 10 17 | 691 | 0.3− | 0.2+ | 2009 10 12 | G96 | 0.1+ | 0.0 | 2009 11 18 | 691 | 0.7− | 0.3+ |
| 2003 10 17 | 691 | 0.2− | 0.7+ | 2009 10 12 | G96 | 0.0 | 0.2− | 2009 11 18 | 691 | 0.2− | 0.0 |
| 2006 02 24 | 691 | 0.6+ | 0.1− | 2009 10 26 | G96 | 0.3+ | 0.3− | 2009 11 18 | 691 | 0.3+ | 0.1+ |
| 2006 02 24 | 691 | 0.6+ | 0.3+ | 2009 10 26 | G96 | 0.0 | 0.1− | 2009 11 18 | 691 | 0.0 | 0.0 |
| 2006 02 24 | 691 | 0.2+ | 0.5+ | 2009 10 26 | G96 | 0.4+ | 0.1+ | 2009 11 18 | 691 | 0.1− | 0.2− |
| 2006 03 09 | 691 | 0.2− | 0.4+ | 2009 10 26 | G96 | 0.2+ | 0.1− | | | | |
| 2006 03 09 | 691 | 0.1+ | 0.6+ | 2009 11 09 | 691 | 0.3− | 0.3+ | | | | |

**2009 TP$_{42}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 23.49956 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17259286 | $\omega$ | 22.97526 | | +0.86551312 | −0.50060795 | |
| $a$ | 3.1948771 | $\Omega$ | 7.13368 | | +0.43615226 | +0.73684769 | |
| $e$ | 0.1479690 | $i$ | 7.72591 | | +0.24628893 | +0.45436457 | |
| $P$ | 5.71 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 30 | 691 | 0.0 | 0.1+ | 2006 03 26 | G96 | 0.1− | 0.7+ | 2009 10 30 | G96 | 0.3+ | 0.7− |
| 2003 09 30 | 691 | 0.1− | 0.2+ | 2006 03 26 | G96 | 1.1+ | 0.0 | 2009 10 30 | G96 | 0.5− | 0.9− |
| 2003 09 30 | 691 | 0.0 | 0.1+ | 2009 10 12 | G96 | 0.1+ | 0.5− | 2009 11 09 | 691 | 0.1+ | 0.0 |
| 2003 10 19 | 691 | 0.0 | 0.0 | 2009 10 12 | G96 | 0.3− | 0.4+ | 2009 11 09 | 691 | 0.2− | 0.2− |
| 2003 10 19 | 691 | 0.0 | 0.1+ | 2009 10 12 | G96 | 0.6+ | 0.2− | 2009 11 09 | 691 | 0.0 | 0.1− |
| 2003 10 19 | 691 | 0.1− | 0.1− | 2009 10 12 | G96 | 0.1+ | 0.2+ | 2009 11 18 | 691 | 0.2− | 0.7− |
| 2006 03 26 | G96 | 0.4− | 0.1− | 2009 10 30 | G96 | 0.4− | 0.2− | 2009 11 18 | 691 | 0.4− | 0.1+ |
| 2006 03 26 | G96 | 0.1+ | 0.7+ | 2009 10 30 | G96 | 0.3+ | 0.3− | 2009 11 18 | 691 | 0.6+ | 1.3+ |

**2009 TT$_{42}$ = 2003 UN$_{253}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 83.56549 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18338820 | $\omega$ | 257.11641 | | +0.32598413 | +0.92601549 | |
| $a$ | 3.0682339 | $\Omega$ | 33.89940 | | −0.67955095 | +0.36949501 | |
| $e$ | 0.4040909 | $i$ | 19.95451 | | −0.65722511 | +0.07725765 | |
| $P$ | 5.37 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 22 | 644 | 0.1− | 0.1− | 2008 03 28 | 691 | 0.0 | 0.2− | 2009 10 12 | G96 | 0.3− | 0.1− |
| 2003 10 22 | 644 | 0.2− | 0.1− | 2008 03 28 | 691 | 0.0 | 0.0 | 2009 10 30 | G96 | 0.3− | 0.4+ |
| 2003 10 22 | 644 | 0.3+ | 0.4− | 2008 04 27 | 703 | 0.2+ | 0.2− | 2009 10 30 | G96 | 0.1− | 0.6+ |
| 2003 10 24 | 699 | 0.6+ | 1.1− | 2008 04 27 | 703 | 0.3+ | 0.5+ | 2009 10 30 | G96 | 0.2+ | 0.7− |
| 2003 10 24 | 699 | 1.4− | 0.9+ | 2008 04 27 | 703 | 0.4+ | 0.3− | 2009 10 30 | G96 | 0.0 | 0.1− |
| 2003 10 24 | 699 | 0.2+ | 0.1+ | 2008 06 28 | E12 | 1.2− | 0.4+ | 2009 11 09 | 691 | 0.0 | 0.2+ |
| 2003 10 24 | 699 | 0.7+ | 0.5+ | 2008 06 28 | E12 | 0.2+ | 0.8+ | 2009 11 09 | 691 | 0.1− | 0.1− |
| 2008 02 18 | G96 | 0.2+ | 0.3+ | 2008 06 28 | E12 | 0.6+ | 0.7− | 2009 11 09 | 691 | 0.1− | 0.2+ |
| 2008 02 18 | G96 | 0.2− | 0.5+ | 2008 06 28 | E12 | 1.0+ | 0.3+ | 2009 11 18 | 691 | 0.4+ | 0.6− |
| 2008 02 18 | G96 | 0.6− | 0.0 | 2009 10 12 | G96 | 1.1+ | 0.4+ | 2009 11 18 | 691 | 0.3− | 0.1+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 02 18 | G96 | 0.0 | 0.7+ | 2009 10 12 | G96 | 0.2− | 0.0 | 2009 11 18 | 691 | 0.1− | 0.3+ | | |
| 2008 03 28 | 691 | 0.1− | 0.1− | 2009 10 12 | G96 | 0.0 | 0.2+ | | | | | | |

**2009 TV$_{42}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 356.32679 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.28433515 | $\omega$ | 327.85852 | | +0.43560053 | | −0.90008316 |
| $a$ | 2.2904230 | $\Omega$ | 96.31622 | | +0.82800283 | | +0.39625476 |
| $e$ | 0.1882145 | $i$ | 0.58358 | | +0.35307717 | | +0.18119730 |
| $P$ | 3.47 | $H$ | 18.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 01 28 | 691 | 0.1+ | 0.0 | 2007 02 08 | G96 | 0.2− | 0.0 | 2009 10 21 | 703 | 0.5+ | 0.2− | | |
| 2000 01 28 | 691 | 0.1+ | 0.0 | 2007 02 21 | 695 | 0.1− | 0.1+ | 2009 10 21 | 703 | (1.6− | 0.2+) | | |
| 2000 01 28 | 691 | 0.2− | 0.2− | 2007 02 21 | 695 | 0.2+ | 0.1+ | 2009 11 11 | G96 | 0.6+ | 0.2− | | |
| 2002 10 07 | 291 | 0.0 | 0.2+ | 2009 10 14 | G96 | 0.3+ | 0.1− | 2009 11 11 | G96 | 0.2+ | 0.2− | | |
| 2002 10 07 | 291 | 0.0 | 0.1+ | 2009 10 14 | G96 | 0.2+ | 0.4− | 2009 11 11 | G96 | 0.3+ | 0.2− | | |
| 2002 10 07 | 291 | 0.0 | 0.1− | 2009 10 14 | G96 | 0.6+ | 0.5− | 2009 11 11 | G96 | 0.2+ | 0.1− | | |
| 2007 02 08 | G96 | 0.4− | 0.1+ | 2009 10 14 | G96 | 0.9+ | 0.1+ | 2009 11 20 | 691 | 0.7− | 0.2+ | | |
| 2007 02 08 | G96 | 0.1− | 0.2+ | 2009 10 21 | 703 | 0.6− | 0.3− | 2009 11 20 | 691 | 0.0 | 0.5+ | | |
| 2007 02 08 | G96 | 0.6+ | 0.0 | 2009 10 21 | 703 | 0.6− | 0.6− | 2009 11 20 | 691 | 0.1+ | 0.0 | | |

**2009 TY$_{42}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 9.05656 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.27864709 | $\omega$ | 135.01606 | | +0.56828672 | | −0.81961984 |
| $a$ | 2.3214876 | $\Omega$ | 280.22093 | | +0.73266465 | | +0.54420768 |
| $e$ | 0.0311638 | $i$ | 4.23170 | | +0.37450329 | | +0.17905673 |
| $P$ | 3.54 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1991 10 08 | 691 | 0.0 | 0.0 | 2007 01 27 | G96 | 0.2− | 0.4− | 2009 10 24 | 703 | 0.9+ | 0.3+ | | |
| 1991 10 08 | 691 | 0.1− | 0.2− | 2007 01 27 | G96 | 0.4− | 0.2− | 2009 10 30 | G96 | 0.1+ | 0.2+ | | |
| 1991 10 08 | 691 | 0.3+ | 0.3− | 2007 01 27 | G96 | 0.2+ | 0.2− | 2009 10 30 | G96 | 0.2+ | 0.9− | | |
| 2005 08 27 | 699 | (1.4− | 1.7+) | 2007 01 27 | G96 | 0.0 | 0.1+ | 2009 10 30 | G96 | 0.0 | 0.0 | | |
| 2005 08 27 | 699 | 0.4− | 0.5+ | 2009 10 12 | G96 | 0.4+ | 0.4− | 2009 10 30 | G96 | 0.0 | 0.2− | | |
| 2005 08 27 | 699 | 0.6− | 0.9+ | 2009 10 12 | G96 | 0.4+ | 0.1− | 2009 11 09 | 691 | 0.2− | 0.0 | | |
| 2005 08 27 | 699 | 0.9+ | 1.4− | 2009 10 12 | G96 | 0.3+ | 0.0 | 2009 11 09 | 691 | 0.0 | 0.1− | | |
| 2006 12 15 | G96 | 0.3− | 0.3− | 2009 10 12 | G96 | 0.3+ | 0.1− | 2009 11 09 | 691 | 0.0 | 0.2+ | | |
| 2006 12 15 | G96 | 0.1+ | 0.3− | 2009 10 24 | 703 | (1.6− | 1.2+) | 2009 11 23 | 691 | 0.2− | 0.5+ | | |
| 2006 12 15 | G96 | 0.0 | 0.2− | 2009 10 24 | 703 | 0.7+ | 0.3+ | 2009 11 23 | 691 | 0.2− | 0.0 | | |
| 2006 12 15 | G96 | 0.1− | 0.6− | 2009 10 24 | 703 | 0.1+ | 0.8− | 2009 11 23 | 691 | 0.4− | 0.2+ | | |

**2009 TJ$_{43}$ = 2007 EG$_{116}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 100.83557 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17448243 | $\omega$ | 241.26997 | | +0.31013945 | | +0.94265962 |
| $a$ | 3.1717692 | $\Omega$ | 47.34875 | | −0.80326671 | | +0.32921111 |
| $e$ | 0.0775844 | $i$ | 9.65192 | | −0.50850380 | | +0.05488969 |
| $P$ | 5.65 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 11 21 | 691 | 0.6+ | 0.4+ | 2007 03 26 | G96 | 0.0 | 0.1+ | 2009 10 16 | G96 | 0.2+ | 0.2+ | | |
| 1998 11 21 | 691 | 0.2− | 0.0 | 2007 03 26 | G96 | 0.4− | 0.1− | 2009 10 16 | G96 | 0.1− | 0.1− | | |
| 1998 11 21 | 691 | 0.4− | 0.4− | 2007 04 20 | G96 | 0.0 | 0.1− | 2009 10 24 | G96 | 0.3− | 0.1− | | |
| 2007 03 13 | G96 | 0.8− | 0.3+ | 2007 04 20 | G96 | 0.4+ | 0.5+ | 2009 10 24 | G96 | 0.1− | 0.2− | | |
| 2007 03 13 | G96 | 0.1− | 0.2− | 2007 04 20 | G96 | 0.4+ | 0.1+ | 2009 10 24 | G96 | 0.2+ | 0.2+ | | |
| 2007 03 13 | G96 | 0.5− | 0.1+ | 2007 04 20 | G96 | 0.3− | 0.1− | 2009 10 24 | G96 | 0.5+ | 0.2− | | |
| 2007 03 13 | G96 | 0.3+ | 0.1+ | 2009 10 02 | G96 | 0.2+ | 0.3− | 2009 11 16 | G96 | 0.1− | 0.1+ | | |
| 2007 03 15 | 691 | 0.2+ | 0.1+ | 2009 10 02 | G96 | 0.3− | 0.0 | 2009 11 16 | G96 | 1.2− | 0.0 | | |
| 2007 03 15 | 691 | 0.1+ | 0.3− | 2009 10 02 | G96 | 0.1− | 0.2+ | 2009 11 16 | G96 | 0.2− | 0.0 | | |
| 2007 03 15 | 691 | 0.0 | 0.2+ | 2009 10 02 | G96 | 0.0 | 0.0 | 2009 11 16 | G96 | 0.4+ | 0.3+ | | |
| 2007 03 26 | G96 | 0.3− | 0.0 | 2009 10 16 | G96 | 0.5+ | 0.1+ | | | | | | |
| 2007 03 26 | G96 | 0.2+ | 0.2− | 2009 10 16 | G96 | 0.3+ | 0.2+ | | | | | | |

**2009 TK$_{43}$ = 2003 UU$_{363}$ = 2006 FP$_{48}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 205.77890 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17377807 | $\omega$ | 124.64973 | | −0.83147060 | | +0.54337398 |
| $a$ | 3.1803340 | $\Omega$ | 88.52526 | | −0.54006882 | | −0.74165535 |
| $e$ | 0.0597494 | $i$ | 6.64992 | | −0.13031622 | | −0.39330911 |
| $P$ | 5.67 | $H$ | 15.3 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1992 11 18 | 691 | 0.1− | 0.2− | 2003 11 19 | 644 | 0.2+ | 0.2+ | 2009 10 14 | G96 | 0.3− | 0.5− | | |
| 1992 11 18 | 691 | 0.4+ | 0.3− | 2004 12 20 | 691 | 0.2+ | 0.0 | 2009 10 14 | G96 | 0.0 | 0.3+ | | |
| 1992 11 18 | 691 | 0.1+ | 0.3− | 2004 12 20 | 691 | 0.0 | 0.1+ | 2009 10 14 | G96 | 0.2+ | 0.4− | | |
| 1995 03 28 | 691 | 0.2+ | 0.4+ | 2004 12 20 | 691 | 0.2− | 0.5− | 2009 10 25 | 703 | 0.0 | 0.8+ | | |
| 1995 03 28 | 691 | 0.1− | 0.0 | 2006 03 03 | 703 | 0.5− | 0.5+ | 2009 10 25 | 703 | 0.4+ | 0.5− | | |
| 1995 03 28 | 691 | 0.1+ | 0.7− | 2006 03 03 | 703 | 0.6− | 1.1+ | 2009 10 25 | 703 | 0.1+ | 0.8+ | | |
| 1995 04 02 | 691 | 1.1− | 0.6− | 2006 03 03 | 703 | 0.3+ | 0.6+ | 2009 10 25 | 703 | (2.3− | 0.7+) | | |
| 1995 04 02 | 691 | 0.1− | 0.1− | 2006 03 03 | 703 | 0.7+ | 0.8+ | 2009 11 09 | 703 | 0.6+ | 0.6+ | | |
| 1995 04 02 | 691 | 0.4+ | 0.4− | 2006 03 24 | 699 | 0.9+ | 0.2+ | 2009 11 09 | 703 | 0.4− | 0.1− | | |
| 2003 10 20 | 691 | 0.3− | 0.1− | 2006 03 24 | 699 | 0.4− | 1.3− | 2009 11 09 | 703 | (1.6− | 0.3+) | | |
| 2003 10 20 | 691 | 0.0 | 0.2− | 2006 03 24 | 699 | (1.7− | 1.4+) | 2009 11 09 | 703 | 0.0 | 0.7− | | |
| 2003 10 20 | 691 | 0.0 | 0.0 | 2006 03 24 | 699 | 0.3− | 1.4+ | 2009 11 19 | G96 | 0.2+ | 0.1− | | |
| 2003 10 26 | 291 | 0.3+ | 0.5+ | 2006 04 02 | 703 | 1.0+ | 0.9+ | 2009 11 19 | G96 | 0.0 | 0.3− | | |
| 2003 10 26 | 291 | 0.3+ | 0.3+ | 2006 04 02 | 703 | 1.4+ | 0.7+ | 2009 11 19 | G96 | 0.1− | 0.3− | | |
| 2003 10 26 | 291 | 0.6− | 0.3+ | 2006 04 02 | 703 | 0.6+ | 1.3+ | 2009 11 19 | G96 | 0.3− | 0.2− | | |
| 2003 11 19 | 644 | 0.1+ | 0.5+ | 2006 04 02 | 703 | (2.4+ | 1.1−) | | | | | | |
| 2003 11 19 | 644 | 0.5− | 0.1+ | 2009 10 14 | G96 | 0.4− | 0.0 | | | | | | |

**2009 TL$_{43}$ = 2005 EU$_{119}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 345.87854 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18125361 | $\omega$ | 315.72366 | | +0.13767607 | | −0.95965795 |
| $a$ | 3.0922762 | $\Omega$ | 124.84670 | | +0.97132819 | | +0.08237849 |
| $e$ | 0.2329771 | $i$ | 17.38091 | | +0.19382167 | | +0.26883156 |
| $P$ | 5.44 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 01 13 | 703 | 0.1− | 0.0 | 2005 03 10 | G96 | 0.3− | 0.1− | 2009 10 21 | 703 | 1.3− | 0.4− | | |
| 2005 01 13 | 703 | 0.1+ | 0.2− | 2005 03 10 | G96 | 0.3− | 0.2− | 2009 10 21 | 703 | 1.1− | 1.0− | | |
| 2005 01 13 | 703 | 0.1− | 0.1+ | 2005 03 10 | G96 | 0.0 | 0.2+ | 2009 10 21 | 703 | 0.3− | 0.7− | | |
| 2005 01 13 | 703 | 0.3− | 0.2+ | 2005 03 10 | G96 | 0.7+ | 0.2+ | 2009 10 21 | 703 | 1.2− | 0.0 | | |
| 2005 03 08 | G96 | 0.0 | 0.1− | 2009 10 01 | G96 | 0.7+ | 0.3+ | 2009 11 10 | 703 | 0.8+ | 0.5+ | | |
| 2005 03 08 | G96 | 0.0 | 0.2− | 2009 10 01 | G96 | 0.6+ | 0.5+ | 2009 11 10 | 703 | 0.0 | 0.5+ | | |
| 2005 03 08 | G96 | 0.1+ | 0.1+ | 2009 10 01 | G96 | 0.4+ | 0.0 | 2009 11 10 | 703 | 0.1+ | 0.6+ | | |
| 2005 03 08 | G96 | 0.1+ | 0.1− | 2009 10 01 | G96 | 0.0 | 0.0 | 2009 11 10 | 703 | 1.4+ | 0.3− | | |

**2009 TO$_{43}$ = 2007 HP$_{26}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 295.86024 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21380337 | $\omega$ | 292.95022 | | −0.65112164 | | −0.75821146 |
| $a$ | 2.7698719 | $\Omega$ | 197.80792 | | +0.73070264 | | −0.61412630 |
| $e$ | 0.0079178 | $i$ | 6.38296 | | +0.20521759 | | −0.21900747 |
| $P$ | 4.61 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 06 16 | 691 | 0.5− | 0.3+ | 2007 04 18 | G96 | 0.9− | 0.1+ | 2009 10 23 | G96 | 0.1− | 0.0 | | |
| 1998 06 16 | 691 | 0.0 | 0.5− | 2007 04 18 | G96 | 0.2+ | 0.3− | 2009 10 23 | G96 | 0.1+ | 0.1+ | | |
| 1998 06 16 | 691 | 0.1+ | 0.7+ | 2007 04 18 | G96 | 0.1− | 0.2− | 2009 10 23 | G96 | 0.6− | 0.1+ | | |
| 2002 03 20 | 695 | 0.5+ | 0.4+ | 2007 04 22 | G96 | 0.5+ | 0.4− | 2009 11 17 | G96 | 0.1+ | 0.1+ | | |
| 2002 03 20 | 695 | 1.0+ | 0.3+ | 2007 04 22 | G96 | 0.4+ | 0.3− | 2009 11 17 | G96 | 0.2+ | 0.1+ | | |
| 2004 10 07 | 691 | 0.3+ | 0.2+ | 2007 04 22 | G96 | 0.2+ | 0.1− | 2009 11 17 | G96 | 0.1− | 0.0 | | |
| 2004 10 07 | 691 | 0.3+ | 0.2+ | 2007 04 22 | G96 | 0.1+ | 0.1− | 2009 11 17 | G96 | 0.1− | 0.3+ | | |
| 2004 10 07 | 691 | 0.2+ | 0.3+ | 2009 10 12 | G96 | 0.3− | 0.0 | 2009 11 25 | G96 | 0.3− | 0.2+ | | |
| 2004 11 05 | 691 | 0.2− | 0.4− | 2009 10 12 | G96 | 0.1− | 0.3− | 2009 11 25 | G96 | 0.2− | 0.2− | | |
| 2004 11 05 | 691 | 0.2+ | 0.2+ | 2009 10 12 | G96 | 0.4− | 0.1− | 2009 11 25 | G96 | 0.1− | 0.4+ | | |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 11 05 | 691 | 0.2− | 0.4− | 2009 10 12 | G96 | 0.3− | 0.2− | 2009 11 25 | G96 | 0.3− | 0.0 |
| 2007 04 18 | G96 | 0.2+ | 0.3− | 2009 10 23 | G96 | 0.4− | 0.1− | | | | |

**2009 TN$_{44}$ = 2005 YU$_{181}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 345.55098 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21801862 | $\omega$ | 299.24916 | | +0.18478449 | −0.97311945 | |
| $a$ | 2.7340534 | $\Omega$ | 139.35523 | | +0.95895502 | +0.14792419 | |
| $e$ | 0.1176985 | $i$ | 12.18224 | | +0.21508131 | +0.17651339 | |
| $P$ | 4.52 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 25 | 699 | 0.4− | 0.6+ | 2006 03 25 | G96 | 0.2− | 0.4+ | 2009 10 15 | 703 | 0.3− | 0.2− |
| 2005 12 25 | 699 | 0.2− | 0.2+ | 2006 03 25 | G96 | 0.0 | 0.3+ | 2009 10 15 | 703 | 0.0 | 1.1+ |
| 2005 12 25 | 699 | 0.6+ | 0.7− | 2006 03 25 | G96 | 0.2+ | 0.2+ | 2009 10 27 | J75 | 0.7+ | 0.1+ |
| 2005 12 25 | 699 | 0.1− | 1.2− | 2007 04 23 | G96 | 0.2− | 0.2+ | 2009 10 27 | J75 | 0.1− | 0.3− |
| 2006 01 03 | 704 | 0.6+ | 0.2− | 2007 04 23 | G96 | 0.2+ | 0.2+ | 2009 10 27 | J75 | 0.1+ | 0.8− |
| 2006 01 03 | 704 | 0.9+ | 0.7+ | 2007 04 23 | G96 | 0.5+ | 0.0 | 2009 11 17 | 703 | 0.2− | 0.1+ |
| 2006 01 03 | 704 | 0.5− | 0.2− | 2007 04 23 | G96 | 0.3− | 0.1+ | 2009 11 17 | 703 | 0.4− | 0.0 |
| 2006 01 03 | 704 | 1.1− | 0.2− | 2009 10 15 | 703 | 0.5+ | 0.2+ | 2009 11 17 | 703 | 0.2− | 0.9+ |
| 2006 03 25 | G96 | 0.2+ | 0.0 | 2009 10 15 | 703 | 0.5− | 0.3− | 2009 11 17 | 703 | 0.1+ | 0.1− |

**2009 TO$_{44}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 22.07121 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23578149 | $\omega$ | 109.49902 | | +0.94248610 | −0.29736787 | |
| $a$ | 2.5949535 | $\Omega$ | 268.03550 | | +0.21950728 | +0.89500434 | |
| $e$ | 0.3329409 | $i$ | 8.78388 | | +0.25206447 | +0.33247494 | |
| $P$ | 4.18 | $H$ | 18.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 02 | 691 | 0.0 | 0.0 | 2009 09 18 | 703 | 0.1+ | 0.5− | 2009 10 18 | 703 | 0.5− | 0.2+ |
| 2005 12 02 | 691 | 0.2+ | 0.1+ | 2009 09 18 | 703 | 0.8− | 0.4+ | 2009 10 26 | 703 | 0.2+ | 0.5+ |
| 2005 12 02 | 691 | 0.3+ | 0.1− | 2009 10 02 | G96 | 0.1+ | 0.3+ | 2009 10 26 | 703 | 0.7+ | 0.2+ |
| 2005 12 25 | G96 | 1.3− | 1.0− | 2009 10 02 | G96 | 0.1− | 0.4+ | 2009 10 26 | 703 | 0.2+ | 1.2− |
| 2005 12 25 | G96 | 0.5+ | 0.1− | 2009 10 02 | G96 | 0.3+ | 0.3+ | 2009 10 26 | 703 | 0.3+ | 1.4− |
| 2005 12 25 | G96 | 0.7− | 0.1− | 2009 10 02 | G96 | 0.1+ | 0.0 | 2009 11 06 | 703 | 0.3− | 1.3− |
| 2005 12 25 | G96 | 0.4− | 0.4+ | 2009 10 18 | 703 | 0.3− | 0.9+ | 2009 11 06 | 703 | 0.4− | 0.3− |
| 2009 09 18 | 703 | 0.4+ | 0.9− | 2009 10 18 | 703 | 0.6+ | 0.1+ | 2009 11 06 | 703 | 0.1− | 0.5+ |
| 2009 09 18 | 703 | 0.0 | 1.0− | 2009 10 18 | 703 | 0.1+ | 1.1+ | 2009 11 06 | 703 | 0.7− | 1.7+ |

**2009 TS$_{44}$ = 2005 YN$_{273}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 141.25400 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.20067436 | $\omega$ | 80.31504 | | +0.06965788 | +0.99731876 | |
| $a$ | 2.8894030 | $\Omega$ | 193.73939 | | −0.94828895 | +0.05922037 | |
| $e$ | 0.0320008 | $i$ | 5.41889 | | −0.30967054 | +0.04299115 | |
| $P$ | 4.91 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 10 26 | 691 | 0.3− | 0.2+ | 2006 01 10 | 691 | 0.4− | 0.1− | 2007 05 06 | 691 | 0.3+ | 0.1− |
| 1994 10 26 | 691 | 0.1+ | 0.0 | 2007 03 26 | G96 | 0.0 | 0.0 | 2007 05 06 | 691 | 0.3− | 0.4+ |
| 2002 04 08 | 644 | 0.6+ | 0.4+ | 2007 03 26 | G96 | 0.2− | 0.1+ | 2009 10 14 | 703 | 0.7− | 0.4+ |
| 2002 04 08 | 644 | 0.2+ | 0.5+ | 2007 03 26 | G96 | 0.1+ | 0.0 | 2009 10 14 | 703 | (1.6− | 1.3−) |
| 2002 04 08 | 644 | 0.2+ | 0.4+ | 2007 03 26 | G96 | 0.0 | 0.0 | 2009 10 14 | 703 | (0.4+ | 2.2+) |
| 2003 07 25 | 644 | 0.1+ | 0.4+ | 2007 03 26 | 691 | 0.3+ | 0.1− | 2009 10 14 | 703 | 0.1− | 0.7+ |
| 2003 07 25 | 644 | 0.1− | 0.8+ | 2007 03 26 | 691 | 0.1− | 0.2+ | 2009 10 26 | 691 | 0.2+ | 0.0 |
| 2003 07 25 | 644 | 0.1+ | 0.4+ | 2007 03 26 | 691 | 0.0 | 0.2+ | 2009 10 26 | 691 | 0.3− | 0.1+ |
| 2005 12 30 | 691 | 0.2+ | 0.3+ | 2007 04 22 | G96 | 0.4− | 0.2− | 2009 10 26 | 691 | 0.4− | 0.4+ |
| 2005 12 30 | 691 | 0.2+ | 0.4− | 2007 04 22 | G96 | 0.0 | 0.3− | 2009 11 09 | 703 | 0.3+ | 0.1− |
| 2005 12 30 | 691 | 0.1+ | 0.0 | 2007 04 22 | G96 | 0.2+ | 0.0 | 2009 11 09 | 703 | 0.1+ | 0.8+ |
| 2006 01 10 | 691 | 0.1+ | 0.2+ | 2007 04 22 | G96 | 0.0 | 0.1− | 2009 11 09 | 703 | 1.3+ | 1.2− |
| 2006 01 10 | 691 | 0.1− | 0.3+ | 2007 05 06 | 691 | 0.3− | 0.1+ | 2009 11 09 | 703 | 0.4+ | 0.6+ |

**2009 TT$_{44}$ = 2003 BN$_{57}$ = 2007 EH$_{93}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 343.94443 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26738251 | $\omega$ | 336.88192 | | −0.00330054 | −0.99872180 | |
| $a$ | 2.3862396 | $\Omega$ | 113.27601 | | +0.92583888 | −0.02211236 | |
| $e$ | 0.1740389 | $i$ | 3.14743 | | +0.37790405 | +0.04545112 | |
| $P$ | 3.69 | $H$ | 17.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 12 12 | 691 | 0.5+ | 0.9− | 2003 01 31 | 704 | 0.2− | 0.3+ | 2009 10 24 | 703 | 0.3+ | 0.7− |
| 1998 12 12 | 691 | 0.6+ | 1.0+ | 2003 01 31 | 704 | 0.5+ | 0.5+ | 2009 10 24 | 703 | 0.3− | 0.6+ |
| 1998 12 12 | 691 | 0.2+ | 0.2− | 2003 01 31 | 704 | 0.5− | 0.4+ | 2009 10 24 | 703 | 0.3− | 1.2+ |
| 1998 12 25 | 691 | 0.4− | 1.0− | 2007 03 10 | 691 | 0.3+ | 0.0 | 2009 10 24 | 703 | 0.4− | 0.7+ |
| 1998 12 25 | 691 | 0.4− | 0.2− | 2007 03 10 | 691 | 0.2+ | 0.1+ | 2009 10 24 | 703 | 0.2− | 0.1+ |
| 1998 12 25 | 691 | 0.3− | 0.4− | 2007 03 10 | 691 | 0.1− | 0.0 | 2009 10 24 | 703 | 0.1+ | 0.7+ |
| 2003 01 27 | 699 | 0.4+ | 0.1− | 2007 03 15 | 291 | 0.2− | 0.1+ | 2009 10 24 | 703 | 0.8− | 0.1+ |
| 2003 01 27 | 699 | 0.9− | 1.3+ | 2007 03 15 | 291 | 0.2− | 0.1+ | 2009 10 24 | 703 | 0.1+ | 0.4+ |
| 2003 01 27 | 699 | (1.7+ | 1.2+) | 2007 03 15 | 291 | 0.4− | 0.0 | 2009 11 09 | 703 | 0.2+ | 1.0+ |
| 2003 01 27 | 704 | 0.3+ | 0.6+ | 2007 04 18 | 691 | 0.2− | 0.1− | 2009 11 09 | 703 | (0.4− | 1.6+) |
| 2003 01 27 | 699 | 0.7− | 1.3− | 2007 04 18 | 691 | 0.2− | 0.3− | 2009 11 09 | 703 | (0.9− | 1.6+) |
| 2003 01 27 | 704 | 0.5+ | 0.0 | 2007 04 18 | 691 | 0.6+ | 0.1− | 2009 11 09 | 703 | 0.9− | 0.8− |
| 2003 01 27 | 704 | (1.9+ | 0.6−) | 2009 10 14 | G96 | 0.1+ | 0.3+ | 2009 11 21 | 703 | (0.9− | 2.5+) |
| 2003 01 27 | 704 | 1.1+ | 0.4+ | 2009 10 14 | G96 | 0.9+ | 0.0 | 2009 11 21 | 703 | 0.3− | 0.5+ |
| 2003 01 31 | 704 | 0.7+ | 0.8+ | 2009 10 14 | G96 | 0.1− | 0.5+ | 2009 11 21 | 703 | (1.8− | 1.9+) |
| 2003 01 31 | 704 | 0.0 | 0.0 | 2009 10 14 | G96 | 0.3+ | 0.3+ | 2009 11 21 | 703 | (2.4− | 1.2−) |

**2009 TW$_{44}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 15.08382 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18101661 | $\omega$ | 267.06985 | | +0.67793385 | −0.71271439 | |
| $a$ | 3.0949746 | $\Omega$ | 138.28272 | | +0.73473388 | +0.64895039 | |
| $e$ | 0.2261323 | $i$ | 15.70441 | | +0.02391289 | +0.26627353 | |
| $P$ | 5.44 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 19 | 699 | 1.3− | 1.4+ | 2008 06 12 | 691 | 0.1+ | 0.1− | 2009 10 26 | J75 | 0.1− | 0.1− |
| 2003 09 19 | 699 | 0.4+ | 0.3− | 2008 06 12 | 691 | 0.3− | 0.1− | 2009 10 26 | J75 | 0.2− | 0.2− |
| 2003 09 19 | 699 | 1.4+ | 0.5− | 2009 10 15 | 703 | 0.4+ | 0.4+ | 2009 10 26 | J75 | 0.2− | 0.6− |
| 2003 09 19 | 699 | 0.1+ | 0.6+ | 2009 10 15 | 703 | 0.0 | 1.0+ | 2009 10 26 | J75 | 0.1− | 0.6+ |
| 2003 09 25 | 644 | 0.1+ | 0.5− | 2009 10 15 | 703 | 0.2− | 0.7− | 2009 11 17 | 703 | 0.2− | 0.1+ |
| 2003 09 25 | 644 | 0.0 | 0.2− | 2009 10 15 | 703 | 1.2− | 1.0+ | 2009 11 17 | 703 | 0.4− | 0.2− |
| 2003 09 25 | 644 | 0.8− | 0.3− | 2009 10 19 | 704 | 1.0+ | 0.5− | 2009 11 17 | 703 | 0.7− | 0.5+ |
| 2007 05 13 | G96 | 0.1− | 0.5+ | 2009 10 19 | 704 | 0.4− | 0.9+ | 2009 11 17 | 703 | 0.5+ | 0.5− |
| 2007 05 13 | G96 | 0.4+ | 0.5+ | 2009 10 19 | 704 | 0.6+ | 0.7+ | 2009 12 17 | 703 | 0.1− | 0.4− |
| 2007 05 13 | G96 | 0.2+ | 0.6+ | 2009 10 19 | 704 | 0.0 | 0.5+ | 2009 12 17 | 703 | 0.2+ | 0.4− |
| 2007 05 13 | G96 | 0.2+ | 0.5+ | 2009 10 26 | J75 | 0.3− | 0.1− | 2009 12 17 | 703 | 0.1− | 0.3+ |
| 2008 06 12 | 691 | 0.1+ | 0.0 | 2009 10 26 | J75 | 1.0+ | 0.4− | 2009 12 17 | 703 | 0.2+ | 0.5− |

**2009 TV$_{45}$ = 2007 DL$_{52}$ = 2007 EX$_{157}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 27.79608 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27662434 | $\omega$ | 37.64326 | | +0.88315955 | −0.46876517 | |
| $a$ | 2.3327907 | $\Omega$ | 350.26700 | | +0.40226357 | +0.77549902 | |
| $e$ | 0.2267901 | $i$ | 5.76549 | | +0.24127418 | +0.42291900 | |
| $P$ | 3.56 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 07 | G96 | 0.2+ | 0.2− | 2007 02 23 | 691 | 0.4+ | 0.2− | 2009 10 26 | G96 | 0.3+ | 0.2− |
| 2005 10 07 | G96 | 0.1− | 0.1− | 2007 03 13 | G96 | 0.1− | 0.0 | 2009 10 26 | G96 | 0.3+ | 0.1− |
| 2005 10 07 | G96 | 0.2− | 0.1− | 2007 03 13 | G96 | 0.1+ | 0.2− | 2009 10 26 | G96 | 0.4+ | 0.0 |
| 2005 10 07 | G96 | 0.0 | 0.6+ | 2007 03 13 | G96 | 0.3+ | 0.3− | 2009 11 08 | G96 | 0.2+ | 0.0 |
| 2007 02 06 | 691 | 0.8+ | 0.0 | 2007 03 13 | G96 | 0.3+ | 0.1− | 2009 11 08 | G96 | 0.4+ | 0.0 |
| 2007 02 06 | 691 | 0.1+ | 0.4− | 2007 03 16 | 291 | 0.1+ | 0.1+ | 2009 11 08 | G96 | 0.2+ | 0.1+ |
| 2007 02 06 | 691 | 0.3− | 0.4− | 2007 03 16 | 291 | 0.2+ | 0.0 | 2009 11 08 | G96 | 0.5+ | 0.0 |
| 2007 02 19 | 691 | 1.4− | 1.1+ | 2007 03 16 | 291 | 0.0 | 0.2+ | 2009 11 26 | 703 | 0.1+ | 0.3+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 02 19 | 691 | 0.0 | 0.3+ | 2009 10 14 | 703 | 0.7+ | 1.0− | 2009 11 26 | 703 | 0.3− | 0.2+ | | |
| 2007 02 19 | 691 | 0.3− | 0.1+ | 2009 10 14 | 703 | 0.6− | 0.8+ | 2009 11 26 | 703 | 0.4+ | 0.5+ | | |
| 2007 02 23 | 691 | 0.2+ | 0.3− | 2009 10 14 | 703 | 0.3− | 0.2+ | 2009 11 26 | 703 | 0.3− | 0.4+ | | |
| 2007 02 23 | 691 | 0.0 | 0.4− | 2009 10 14 | 703 | 0.7− | 0.4− | 2009 11 26 | 703 | 1.5− | 0.5− | | |

**2009 TX$_{45}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 147.68824 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23616189 | $\omega$ | 244.28369 | | −0.04012478 | +0.99513673 | |
| $a$ | 2.5921662 | $\Omega$ | 23.93833 | | −0.81878036 | +0.01885741 | |
| $e$ | 0.0636469 | $i$ | 12.80963 | | −0.57270300 | −0.09668139 | |
| $P$ | 4.17 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 04 11 | 691 | 0.3+ | 0.1− | 2004 07 11 | 644 | 0.5− | 1.1+ | 2009 10 12 | G96 | 0.1+ | 0.2+ | | |
| 1999 04 11 | 691 | 0.4+ | 0.0 | 2007 02 09 | 291 | 0.3+ | 0.1− | 2009 10 30 | G96 | 0.6− | 0.5+ | | |
| 1999 04 11 | 691 | 0.5+ | 0.0 | 2007 02 09 | 291 | 0.3+ | 0.1+ | 2009 10 30 | G96 | 0.2− | 0.1+ | | |
| 1999 04 22 | 691 | 0.5− | 0.1− | 2007 02 09 | 291 | 0.0 | 0.1+ | 2009 10 30 | G96 | 0.3− | 0.1+ | | |
| 1999 04 22 | 691 | 0.2− | 0.0 | 2007 02 23 | 703 | 1.4− | 0.2− | 2009 10 30 | G96 | 0.8− | 0.6+ | | |
| 1999 04 22 | 691 | 0.2+ | 0.1+ | 2007 02 23 | 703 | 0.1− | 0.6− | 2009 11 09 | G92 | 0.8− | 0.7+ | | |
| 2003 03 26 | 691 | 0.6− | 0.3+ | 2007 02 23 | 703 | 0.5+ | 1.3− | 2009 11 09 | G92 | 0.2− | 0.2− | | |
| 2003 03 26 | 691 | 0.2− | 0.4+ | 2007 02 23 | 703 | 1.7+ | 0.9+ | 2009 11 09 | G92 | (0.6+ | 1.9+) | | |
| 2003 03 26 | 691 | 0.2− | 0.3+ | 2008 06 10 | E12 | 0.0 | 0.7− | 2009 11 26 | G96 | 0.2+ | 0.3+ | | |
| 2003 04 10 | 691 | 0.1+ | 0.1+ | 2008 06 10 | E12 | 0.9+ | 0.3+ | 2009 11 26 | G96 | 0.3+ | 0.1+ | | |
| 2003 04 10 | 691 | 0.1− | 0.0 | 2008 06 10 | E12 | 0.7− | 0.9+ | 2009 11 26 | G96 | 0.1− | 0.3+ | | |
| 2003 04 10 | 691 | 0.0 | 0.0 | 2009 10 12 | G96 | 0.1− | 0.3+ | 2009 11 26 | G96 | 0.3+ | 0.2+ | | |
| 2004 07 11 | 644 | 0.3− | 0.2+ | 2009 10 12 | G96 | 0.1− | 0.2+ | 2009 11 26 | G96 | 0.5+ | 0.2+ | | |
| 2004 07 11 | 644 | 0.9− | 0.7+ | 2009 10 12 | G96 | 0.2+ | 0.2+ | | | | | | |

**2009 TY$_{45}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 6.09240 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28956595 | $\omega$ | 281.58175 | | +0.38900939 | −0.89031303 | |
| $a$ | 2.2627560 | $\Omega$ | 142.56899 | | +0.92108726 | +0.38047469 | |
| $e$ | 0.2342310 | $i$ | 22.91656 | | −0.01643029 | +0.25016336 | |
| $P$ | 3.40 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 02 16 | 703 | 0.7+ | 0.3+ | 2007 02 26 | 703 | 0.7− | 1.0+ | 2009 11 24 | 703 | 0.1− | 0.3+ | | |
| 2007 02 16 | 703 | 0.3+ | 1.5− | 2007 02 26 | 703 | 1.5− | 1.2− | 2009 11 24 | 703 | 0.6− | 0.7+ | | |
| 2007 02 16 | 703 | (2.6+ | 1.8−) | 2007 02 26 | 703 | 0.4− | 0.0 | 2009 11 24 | 703 | 0.2+ | 1.7− | | |
| 2007 02 26 | 703 | 1.3− | 0.2+ | 2009 10 15 | E12 | 0.4+ | 0.7+ | 2009 11 24 | 703 | 0.9− | 0.0 | | |
| 2007 02 26 | 703 | (3.0+ | 1.6−) | 2009 10 15 | E12 | 0.4+ | 0.3− | 2009 12 12 | E12 | 0.3+ | 0.2+ | | |
| 2007 02 26 | 703 | 2.0+ | 0.7+ | 2009 11 11 | E12 | 0.3+ | 0.1− | 2009 12 12 | E12 | 0.1− | 0.3+ | | |
| 2007 02 26 | 703 | 1.1+ | 0.6− | 2009 11 11 | E12 | 0.2− | 0.3− | 2009 12 12 | E12 | 0.5+ | 0.3+ | | |
| 2007 02 26 | 703 | 0.3− | 0.7+ | 2009 11 11 | E12 | 0.4+ | 0.4− | 2009 12 12 | E12 | 0.4− | 0.3+ | | |

**2009 UM$_{3}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 37.21787 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.25985454 | $\omega$ | 128.41225 | | +0.36686309 | +0.92799025 | |
| $a$ | 2.4321060 | $\Omega$ | 162.76051 | | −0.90727374 | +0.37239253 | |
| $e$ | 0.7888725 | $i$ | 12.70060 | | −0.20558654 | +0.01256605 | |
| $P$ | 3.79 | $H$ | 17.9 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1956 03 10 | 261 | 0.3− | 0.9+ | 2009 10 20 | H01 | 0.3− | 0.3− | 2009 11 02 | 448 | 0.1+ | 0.1− | | |
| 1956 03 10 | 261 | 0.6+ | 0.4+ | 2009 10 20 | 704 | 0.0 | 0.0 | 2009 11 02 | 448 | 0.6+ | 0.4− | | |
| 2009 04 30 | G96 | 0.0 | 0.8− | 2009 10 20 | 704 | 0.5+ | 0.1+ | 2009 11 06 | 844 | 0.2− | 0.2− | | |
| 2009 04 30 | G96 | 0.1+ | 0.4− | 2009 10 20 | 704 | 0.1+ | 0.6− | 2009 11 06 | 844 | 0.1+ | 0.3− | | |
| 2009 04 30 | G96 | 0.1− | 0.7− | 2009 10 20 | 704 | 0.1+ | 0.2− | 2009 11 06 | 844 | 0.4+ | 0.5+ | | |
| 2009 04 30 | G96 | 0.3+ | 0.4− | 2009 10 20 | D21 | 0.6+ | 1.0− | 2009 11 06 | 844 | 0.3− | 0.5− | | |
| 2009 10 19 | 704 | 0.0 | 0.4+ | 2009 10 20 | D21 | 0.1+ | 0.2+ | 2009 11 06 | 844 | 0.3+ | 0.7− | | |
| 2009 10 19 | 704 | 0.1− | 0.0 | 2009 10 20 | D21 | 0.6+ | 0.5− | 2009 11 06 | H21 | 0.1− | 0.0 | | |
| 2009 10 19 | 704 | 0.1+ | 0.1+ | 2009 10 22 | 704 | 0.3+ | 1.0+ | 2009 11 06 | H21 | 0.1− | 0.1− | | |
| 2009 10 19 | 704 | 0.4+ | 0.2+ | 2009 10 22 | 704 | 0.1+ | 1.0+ | 2009 11 06 | H21 | 0.0 | 0.4− | | |
| 2009 10 19 | 704 | 0.6+ | 0.3+ | 2009 10 22 | 704 | 0.4+ | 0.5+ | 2009 11 08 | 703 | 0.7+ | 0.1+ | | |
| 2009 10 19 | B33 | 0.7− | 0.9+ | 2009 10 22 | 704 | 0.4− | 0.7+ | 2009 11 08 | 703 | 0.5− | 0.2+ | | |
| 2009 10 19 | B33 | 0.2− | 0.5+ | 2009 10 23 | 926 | 0.1− | 0.1+ | 2009 11 08 | 703 | 0.9− | 0.2+ | | |
| 2009 10 19 | B33 | 0.0 | 0.3+ | 2009 10 23 | 926 | 0.1+ | 0.1+ | 2009 11 08 | 703 | 0.0 | 0.6+ | | |
| 2009 10 20 | 114 | 0.2− | 0.1+ | 2009 10 23 | 926 | 0.1− | 0.2+ | 2009 11 16 | 448 | (1.6+ | 0.4−) | | |
| 2009 10 20 | 114 | 1.1− | 0.3− | 2009 10 26 | 204 | 0.2− | 0.2− | 2009 11 16 | 448 | 0.9+ | 0.5− | | |
| 2009 10 20 | 114 | 0.2+ | 0.0 | 2009 10 26 | 204 | 0.1+ | 0.1− | 2009 11 16 | 448 | (1.7+ | 0.4+) | | |
| 2009 10 20 | 114 | 0.5− | 0.0 | 2009 10 26 | 204 | 0.1− | 0.2− | 2009 11 17 | 703 | 0.5− | 0.5− | | |
| 2009 10 20 | 844 | (0.3+ | 1.8+) | 2009 10 29 | I20 | 0.2− | 0.3+ | 2009 11 17 | 703 | 0.7− | 0.6+ | | |
| 2009 10 20 | 844 | 0.2− | 0.4+ | 2009 10 29 | I20 | 0.1+ | 0.2+ | 2009 11 17 | 703 | 0.8− | 0.2− | | |
| 2009 10 20 | 844 | 1.0+ | 0.1+ | 2009 10 29 | I20 | 0.2− | 0.0 | 2009 11 17 | 703 | 0.1+ | 0.3− | | |
| 2009 10 20 | 844 | 0.5+ | 0.2+ | 2009 10 30 | 926 | 0.0 | 0.1+ | 2009 11 18 | 703 | 0.7+ | 0.3+ | | |
| 2009 10 20 | 844 | 0.3− | 0.0 | 2009 10 30 | 926 | 0.2− | 0.0 | 2009 11 18 | 703 | 1.4+ | 0.9+ | | |
| 2009 10 20 | 844 | 0.2+ | 0.1+ | 2009 10 30 | 926 | 0.3− | 0.0 | 2009 11 18 | 703 | 0.2+ | 0.3+ | | |
| 2009 10 20 | 844 | 0.1− | 0.0 | 2009 11 01 | H21 | 0.3− | 0.1− | 2009 11 21 | H21 | 0.4− | 0.3− | | |
| 2009 10 20 | 854 | 0.4− | 0.1+ | 2009 11 01 | H55 | 0.3− | 0.0 | 2009 11 21 | H21 | 0.4− | 0.0 | | |
| 2009 10 20 | 854 | 0.0 | 0.2− | 2009 11 01 | H21 | 0.4− | 0.1− | 2009 11 21 | H21 | 0.2− | 0.1+ | | |
| 2009 10 20 | 854 | 0.2+ | 0.0 | 2009 11 01 | H55 | 0.2+ | 0.2− | 2009 12 05 | H21 | 0.2− | 0.4− | | |
| 2009 10 20 | H01 | 0.1− | 0.1− | 2009 11 01 | H55 | 0.6+ | 0.5− | 2009 12 05 | H21 | 0.1− | 0.4− | | |
| 2009 10 20 | H01 | 0.1− | 0.1− | 2009 11 01 | H21 | 0.0 | 0.6− | 2009 12 05 | H21 | 0.0 | 0.2− | | |
| 2009 10 20 | H01 | 0.3− | 0.2− | 2009 11 02 | 448 | 0.2+ | 0.6− | | | | | | |

**2009 UO$_{4}$ = 2005 XM$_{62}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 69.80137 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22540366 | $\omega$ | 291.12094 | | +0.86367723 | +0.50293376 | |
| $a$ | 2.6740041 | $\Omega$ | 38.70616 | | −0.44032827 | +0.78513684 | |
| $e$ | 0.1157649 | $i$ | 3.06685 | | −0.24530117 | +0.36141080 | |
| $P$ | 4.37 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 11 08 | 691 | 0.2− | 0.3− | 2005 12 28 | G96 | 0.5+ | 0.1+ | 2009 10 19 | 300 | 0.6− | 1.3− | | |
| 1996 11 08 | 691 | 0.0 | 0.5− | 2005 12 28 | G96 | 0.2− | 0.5− | 2009 10 19 | 300 | 0.3+ | 0.5− | | |
| 1996 11 08 | 691 | 0.3+ | 0.2+ | 2009 09 20 | G96 | 0.0 | 0.2+ | 2009 10 24 | 691 | 0.6− | 0.2+ | | |
| 2003 04 29 | 291 | 0.0 | 0.2+ | 2009 09 20 | G96 | 0.3+ | 0.0 | 2009 10 24 | 691 | 0.1− | 0.4+ | | |
| 2003 04 29 | 291 | 0.1+ | 0.2+ | 2009 09 20 | G96 | 0.0 | 0.0 | 2009 10 24 | 691 | 0.1− | 0.5+ | | |
| 2003 04 29 | 291 | 0.3+ | 0.2+ | 2009 09 20 | G96 | 0.1− | 0.1+ | 2009 11 11 | G96 | 0.2+ | 0.1+ | | |
| 2005 12 05 | G96 | 0.1− | 0.1+ | 2009 10 11 | G96 | 0.1− | 0.3+ | 2009 11 11 | G96 | 0.1+ | 0.0 | | |
| 2005 12 05 | G96 | 0.5+ | 0.3+ | 2009 10 11 | G96 | 0.1− | 0.3+ | 2009 11 11 | G96 | 0.3+ | 0.0 | | |
| 2005 12 05 | G96 | 0.0 | 0.0 | 2009 10 11 | G96 | 0.2+ | 0.3+ | 2009 11 11 | G96 | 0.5+ | 0.0 | | |
| 2005 12 05 | G96 | 0.1+ | 0.0 | 2009 10 11 | G96 | 0.1− | 0.4+ | 2009 11 25 | G96 | 0.4− | 0.0 | | |
| 2005 12 07 | 691 | 0.0 | 0.1+ | 2009 10 18 | 300 | 0.0 | 0.6+ | 2009 11 25 | G96 | 0.1− | 0.4+ | | |
| 2005 12 07 | 691 | 0.1+ | 0.0 | 2009 10 18 | 300 | 0.6+ | 0.1− | 2009 11 25 | G96 | 0.2+ | 0.1+ | | |
| 2005 12 07 | 691 | 0.1− | 0.0 | 2009 10 18 | 300 | 0.1+ | 0.0 | 2009 11 25 | G96 | 0.0 | 0.3+ | | |
| 2005 12 28 | G96 | 0.7− | 0.2− | 2009 10 19 | 300 | (1.6+ | 0.3−) | | | | | | |
| 2005 12 28 | G96 | 0.1− | 0.1− | 2009 10 19 | 300 | 0.3+ | 0.8− | | | | | | |

**2009 UA$_{12}$ = 1998 WF$_{46}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 359.95056 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27223050 | $\omega$ | 45.54088 | | +0.13459995 | −0.99050613 | |
| $a$ | 2.3578248 | $\Omega$ | 36.75056 | | +0.89536244 | +0.10949586 | |
| $e$ | 0.1727325 | $i$ | 2.67618 | | +0.42451026 | +0.08311600 | |
| $P$ | 3.62 | $H$ | 17.9 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 11 16 | 691 | 0.5− | 0.0 | 2005 10 06 | G96 | 0.5+ | 0.2− | 2009 11 09 | 691 | 0.2− | 0.1+ | | |
| 1998 11 16 | 691 | 0.4+ | 0.2− | 2009 09 20 | G96 | 0.1− | 0.3+ | 2009 11 09 | 691 | 0.1+ | 0.0 | | |
| 1998 11 16 | 691 | 0.0 | 1.0− | 2009 09 20 | G96 | 0.0 | 0.1+ | 2009 11 09 | 691 | 0.0 | 0.0 | | |
| 1998 11 16 | 691 | 0.2+ | 0.2− | 2009 09 20 | G96 | 0.1+ | 0.3− | 2009 11 17 | 691 | 0.1− | 0.0 | | |
| 1998 11 21 | 691 | 0.2− | 0.3− | 2009 09 20 | G96 | 0.6+ | 0.7+ | 2009 11 17 | 691 | 0.1− | 0.1+ | | |
| 1998 11 21 | 691 | 0.6− | 0.0 | 2009 10 16 | G96 | 0.2+ | 0.1+ | 2009 11 17 | 691 | 0.2− | 0.1+ | | |
| 1998 11 25 | 691 | 0.3+ | 0.1− | 2009 10 16 | G96 | 0.5+ | 0.6+ | 2009 11 25 | 691 | 0.2− | 0.2+ | | |
| 1998 11 25 | 691 | 0.6+ | 0.2− | 2009 10 16 | G96 | 0.0 | 0.0 | 2009 11 25 | 691 | 0.2− | 0.2+ | | |
| 1998 11 25 | 691 | 0.6+ | 0.0 | 2009 10 16 | G96 | 0.5+ | 0.3− | 2009 11 25 | 691 | 0.3− | 0.2+ | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 01 29 | 645 | 0.0 | 0.0 | 2009 10 16 | G96 | 0.3+ | 0.3− | 2009 11 25 | 703 | 0.5+ | 1.1+ |
| 2003 01 29 | 645 | 0.0 | 0.1+ | 2009 10 16 | G96 | 0.2+ | 0.1+ | 2009 11 25 | 703 | 0.7− | 0.4− |
| 2005 08 30 | 691 | 0.5− | 0.4+ | 2009 10 16 | G96 | 0.2+ | 0.0 | 2009 11 25 | 703 | 0.6+ | 0.1+ |
| 2005 08 30 | 691 | 0.0 | 0.0 | 2009 10 16 | G96 | 0.2+ | 0.0 | 2009 11 25 | 703 | 0.4+ | 0.4+ |
| 2005 08 30 | 691 | 0.1− | 0.7+ | 2009 10 17 | G96 | 0.1+ | 0.1− | 2009 12 10 | 704 | 0.5+ | 0.7− |
| 2005 10 06 | G96 | 0.1− | 0.1+ | 2009 10 17 | G96 | 0.1+ | 0.1− | 2009 12 10 | 704 | 0.3+ | 0.3+ |
| 2005 10 06 | G96 | 0.1− | 0.0 | 2009 10 17 | G96 | 0.0 | 0.0 | 2009 12 10 | 704 | 0.1− | 0.6+ |
| 2005 10 06 | G96 | 0.1− | 0.1+ | 2009 10 17 | G96 | 0.0 | 0.4+ | | | | |

### 2009 $UG_{13}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 340.81252 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.35744650 | $\omega$ | 26.62837 | | −0.05688513 | | −0.92696295 |
| $a$ | 1.9663554 | $\Omega$ | 68.61611 | | +0.83024120 | | −0.25020331 |
| $e$ | 0.0678260 | $i$ | 23.46756 | | +0.55449403 | | +0.27953176 |
| $P$ | 2.76 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 04 12 | 703 | 1.4− | 0.8− | 2008 06 10 | 691 | 0.2− | 0.3+ | 2009 11 21 | 703 | 0.7− | 0.9+ |
| 2005 04 12 | 703 | 0.0 | 0.1+ | 2009 10 18 | 291 | 0.3− | 0.1+ | 2009 11 21 | 703 | 0.5+ | 0.3− |
| 2005 04 12 | 703 | 0.3+ | 0.6− | 2009 10 18 | 291 | 0.3− | 0.2+ | 2009 12 10 | 703 | 0.9− | 1.4+ |
| 2005 04 12 | 703 | 0.5+ | 0.3+ | 2009 10 18 | 291 | 0.1− | 0.1− | 2009 12 10 | 703 | 1.0− | 0.1+ |
| 2008 05 03 | 691 | 0.2+ | 0.3+ | 2009 10 19 | 291 | 0.7− | 0.0 | 2009 12 10 | 703 | 0.0 | 0.6+ |
| 2008 05 03 | 691 | 0.6+ | 0.2+ | 2009 10 19 | 291 | 0.1− | 0.3− | 2009 12 12 | 704 | 0.2+ | 0.9+ |
| 2008 05 03 | 691 | 0.1− | 0.2+ | 2009 10 19 | 291 | 0.3− | 0.0 | 2009 12 12 | 704 | 0.3− | 0.5+ |
| 2008 06 01 | 691 | 0.6+ | 0.1+ | 2009 11 19 | J75 | 0.3+ | 0.0 | 2009 12 12 | 704 | 1.3+ | 0.3− |
| 2008 06 01 | 691 | 0.3+ | 0.6+ | 2009 11 19 | J75 | 0.3+ | 0.3+ | 2009 12 17 | A77 | 0.6+ | 1.5+ |
| 2008 06 01 | 691 | 0.2− | 0.1+ | 2009 11 19 | J75 | 1.0+ | 0.5+ | 2009 12 17 | A77 | 0.1− | 0.5+ |
| 2008 06 10 | 691 | 0.3+ | 0.0 | 2009 11 21 | 703 | 0.0 | 0.3+ | 2009 12 17 | A77 | 0.5− | 0.2+ |
| 2008 06 10 | 691 | 0.1+ | 0.2+ | 2009 11 21 | 703 | 0.3− | 0.6+ | | | | |

### 2009 $UQ_{14}$ = 2005 $YH_{206}$ = 2007 $JA_{31}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 209.15063 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21944180 | $\omega$ | 347.40732 | | −0.66231981 | | +0.74083961 |
| $a$ | 2.7222195 | $\Omega$ | 240.99600 | | −0.67584022 | | −0.65514700 |
| $e$ | 0.0761881 | $i$ | 7.34134 | | −0.32337666 | | −0.14811847 |
| $P$ | 4.49 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 03 12 | 699 | 1.5+ | 0.7+ | 2007 05 16 | 699 | (2.2+ | 0.2+) | 2009 10 21 | 114 | 0.3− | 0.7− |
| 2002 03 12 | 699 | 0.9− | 0.1+ | 2007 05 16 | 699 | 1.3+ | 0.8− | 2009 10 22 | 114 | 0.2+ | 0.7+ |
| 2002 03 12 | 699 | 0.3+ | 0.7− | 2008 08 24 | J75 | 0.2+ | 0.4+ | 2009 10 22 | 114 | 0.1+ | 0.7+ |
| 2002 03 12 | 699 | 0.0 | 0.3+ | 2008 08 24 | J75 | 0.2+ | 0.7− | 2009 10 22 | 114 | 0.9+ | 0.5+ |
| 2005 12 27 | 691 | 0.3− | 0.2+ | 2008 08 24 | J75 | 0.9− | 0.6+ | 2009 10 22 | 114 | 0.2− | 0.7− |
| 2005 12 27 | 691 | 0.2− | 0.2+ | 2009 09 21 | G96 | 0.6− | 0.0 | 2009 10 25 | 114 | 0.2+ | 0.3+ |
| 2005 12 27 | 691 | 0.2+ | 0.3+ | 2009 09 21 | G96 | 0.1+ | 0.0 | 2009 10 25 | 114 | 0.5+ | 0.5+ |
| 2006 01 04 | 691 | 0.3− | 0.3− | 2009 09 21 | G96 | 0.4− | 0.1− | 2009 10 25 | 114 | 0.1− | 0.6− |
| 2006 01 04 | 691 | 0.0 | 0.2− | 2009 09 21 | G96 | 0.3+ | 0.2+ | 2009 10 25 | 114 | (2.3+ | 0.0 ) |
| 2006 01 04 | 691 | 0.2+ | 0.0 | 2009 09 21 | G96 | 0.1+ | 0.4− | 2009 12 04 | H21 | 0.0 | 0.8− |
| 2007 05 11 | E12 | 0.2− | 0.3+ | 2009 09 21 | G96 | 0.4+ | 0.0 | 2009 12 04 | H21 | 0.2− | 0.7− |
| 2007 05 11 | E12 | 0.5+ | 0.6− | 2009 09 21 | G96 | 0.6+ | 0.3+ | 2009 12 04 | H21 | 0.2+ | 0.4− |
| 2007 05 11 | E12 | 0.3− | 0.2− | 2009 09 21 | G96 | 0.4+ | 0.0 | 2009 12 11 | 703 | 0.6+ | 0.9− |
| 2007 05 11 | E12 | 0.2− | 0.1− | 2009 10 16 | G96 | 0.0 | 0.0 | 2009 12 11 | 703 | 0.6− | 0.9− |
| 2007 05 13 | G96 | 0.1+ | 0.1+ | 2009 10 16 | G96 | 0.1+ | 0.1− | 2009 12 11 | 703 | 1.2− | 0.2+ |
| 2007 05 13 | G96 | 0.1− | 0.0 | 2009 10 16 | G96 | 0.1+ | 0.3+ | 2009 12 11 | 703 | 0.5− | 0.4+ |
| 2007 05 13 | G96 | 0.4− | 0.0 | 2009 10 16 | G96 | 0.2+ | 0.0 | 2009 12 17 | G96 | 0.1− | 0.1− |
| 2007 05 13 | G96 | 0.2− | 0.0 | 2009 10 21 | 114 | 0.8− | 0.8+ | 2009 12 17 | G96 | 0.1+ | 0.0 |
| 2007 05 16 | 699 | (1.8− | 0.4+) | 2009 10 21 | 114 | 0.2+ | 0.2− | 2009 12 17 | G96 | 0.1+ | 0.0 |
| 2007 05 16 | 699 | 0.6− | 0.8+ | 2009 10 21 | 114 | 0.3+ | 0.8+ | 2009 12 17 | G96 | 1.0+ | 0.4+ |

### 2009 $UM_{15}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 61.55362 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.24374828 | $\omega$ | 104.15997 | | +0.91225676 | | +0.37464838 |
| $a$ | 2.5380977 | $\Omega$ | 234.09588 | | −0.40772914 | | +0.86931560 |
| $e$ | 0.3046659 | $i$ | 11.79761 | | +0.03930076 | | +0.32238017 |
| $P$ | 4.04 | $H$ | 18.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 25 | G96 | 0.4− | 0.6− | 2009 10 16 | G96 | 0.0 | 0.6+ | 2009 10 21 | G96 | 0.7+ | 0.1− |
| 2005 10 25 | G96 | 0.0 | 0.5− | 2009 10 16 | G96 | 0.1+ | 0.2+ | 2009 11 08 | 691 | 0.2− | 0.2− |
| 2005 10 25 | G96 | 0.3− | 0.2− | 2009 10 16 | G96 | 0.3+ | 0.3+ | 2009 11 08 | 691 | 0.2− | 0.1− |
| 2005 10 25 | G96 | 0.0 | 0.3− | 2009 10 16 | G96 | 0.1− | 0.5+ | 2009 11 08 | 691 | 0.4+ | 0.2+ |
| 2005 11 06 | 691 | 0.1+ | 0.3− | 2009 10 21 | G96 | 0.5− | 0.8− | 2009 11 18 | 691 | 0.5+ | 0.3+ |
| 2005 11 06 | 691 | 0.3+ | 0.3+ | 2009 10 21 | G96 | 0.0 | 0.1+ | 2009 11 18 | 691 | 0.2+ | 0.0 |
| 2005 11 06 | 691 | 0.2− | 0.4+ | 2009 10 21 | G96 | 0.4− | 0.2− | 2009 11 18 | 691 | 0.7− | 0.3− |

### 2009 $UT_{16}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 25.25254 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.25209821 | $\omega$ | 195.46492 | | +0.97450069 | | −0.22438404 |
| $a$ | 2.4817396 | $\Omega$ | 177.50160 | | +0.20697841 | | +0.89810770 |
| $e$ | 0.2829718 | $i$ | 0.60827 | | +0.08665074 | | +0.37822529 |
| $P$ | 3.91 | $H$ | 18.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 20 | 807 | 0.3− | 0.1− | 2009 10 15 | 300 | 0.3− | 1.9− | 2009 10 23 | G96 | 0.4− | 0.1− |
| 2001 08 20 | 807 | 0.1− | 0.0 | 2009 10 15 | 300 | 0.2+ | 1.4− | 2009 10 27 | G96 | 0.2+ | 0.0 |
| 2001 09 12 | 695 | 0.0 | 0.2− | 2009 10 15 | 300 | 0.7+ | 1.0− | 2009 10 27 | G96 | 0.1+ | 0.1+ |
| 2001 09 12 | 695 | 0.1− | 0.1− | 2009 10 15 | 300 | 0.6+ | 1.6− | 2009 10 27 | G96 | 0.4+ | 0.2− |
| 2005 09 13 | 691 | 0.1+ | 0.1+ | 2009 10 17 | J75 | 0.1− | 0.1+ | 2009 10 27 | G96 | 0.3+ | 0.1+ |
| 2005 09 13 | 691 | 0.3+ | 0.1− | 2009 10 17 | J75 | 0.4+ | 0.5− | 2009 11 25 | G96 | 0.3− | 0.1− |
| 2005 09 13 | 691 | 0.1+ | 0.0 | 2009 10 17 | J75 | 0.4+ | 0.4+ | 2009 11 25 | G96 | 0.0 | 0.2− |
| 2005 09 30 | G96 | 0.0 | 0.4− | 2009 10 21 | 703 | 0.7− | 1.9+ | 2009 11 25 | G96 | 0.0 | 0.0 |
| 2005 09 30 | G96 | 0.4− | 0.3+ | 2009 10 21 | 703 | 1.1− | 1.0+ | 2009 11 25 | G96 | 0.1− | 0.2− |
| 2005 09 30 | G96 | 0.4− | 0.3− | 2009 10 21 | 703 | 0.2+ | 1.0+ | 2009 12 15 | G96 | 1.0+ | 0.1− |
| 2005 09 30 | G96 | 0.3− | 0.4− | 2009 10 21 | 703 | 0.6− | 0.5− | 2009 12 15 | G96 | 0.2+ | 0.0 |
| 2009 09 27 | 691 | 0.1− | 0.1+ | 2009 10 23 | G96 | 0.9+ | 0.3+ | 2009 12 15 | G96 | 0.2− | 0.2+ |
| 2009 09 27 | 691 | 0.1− | 0.3+ | 2009 10 23 | G96 | 0.3+ | 0.1− | 2009 12 15 | G96 | 0.5− | 0.0 |
| 2009 09 27 | 691 | 0.5− | 0.7+ | 2009 10 23 | G96 | 0.3+ | 0.1− | | | | |

### 2009 $UM_{17}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 341.29947 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22529203 | $\omega$ | 233.00163 | | −0.06416621 | | −0.99642259 |
| $a$ | 2.6748874 | $\Omega$ | 220.78371 | | +0.94025838 | | −0.04190051 |
| $e$ | 0.2748446 | $i$ | 4.82981 | | +0.33436039 | | −0.07339194 |
| $P$ | 4.37 | $H$ | 17.8 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 01 08 | 703 | 0.9− | 0.7+ | 2009 10 19 | 300 | 0.3− | 0.2+ | 2009 11 19 | G96 | 0.6+ | 0.1− |
| 2006 01 08 | 703 | 0.4+ | 0.7− | 2009 10 20 | 300 | 0.5+ | 0.3− | 2009 11 25 | G96 | 0.2+ | 0.1− |
| 2006 01 08 | 703 | 0.9− | 0.6− | 2009 10 20 | 300 | 0.6− | 0.5− | 2009 11 25 | G96 | 0.2+ | 0.2+ |
| 2006 01 08 | 703 | (0.9+ | 2.5−) | 2009 10 20 | 300 | 0.6+ | 0.4− | 2009 11 25 | G96 | 0.1+ | 0.2+ |
| 2006 01 31 | 703 | 1.1+ | 0.4+ | 2009 10 20 | 300 | 0.6+ | 0.7+ | 2009 11 25 | G96 | 0.0 | 0.0 |
| 2006 01 31 | 703 | 0.0 | 0.3+ | 2009 10 24 | 691 | 0.5+ | 0.3+ | 2009 12 20 | G96 | 0.2− | 0.1+ |
| 2006 01 31 | 703 | 0.5− | 0.8+ | 2009 10 24 | 691 | 0.5− | 0.1− | 2009 12 20 | G96 | 0.4− | 0.2+ |
| 2006 01 31 | 703 | 0.6+ | 0.9− | 2009 10 24 | 691 | 0.3− | 0.1− | 2009 12 20 | G96 | 0.3− | 0.3+ |
| 2009 10 19 | 300 | 0.0 | 0.3− | 2009 11 19 | G96 | 0.4+ | 0.2− | 2009 12 20 | G96 | 0.5+ | 0.1+ |
| 2009 10 19 | 300 | 1.2− | 0.4+ | 2009 11 19 | G96 | 0.3+ | 0.2− | | | | |
| 2009 10 19 | 300 | 0.1+ | 0.1− | 2009 11 19 | G96 | 0.2+ | 0.1− | | | | |

**2009 UT$_{17}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 61.05392 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21677239 | $\omega$ | 335.29925 | | +0.69217688 | +0.71648820 | |
| $a$ | 2.7445221 | $\Omega$ | 338.16364 | | −0.61730506 | +0.52541373 | |
| $e$ | 0.2517832 | $i$ | 13.49644 | | −0.37393266 | +0.45889550 | |
| $P$ | 4.55 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 06 17 | E12 | 0.1− | 0.1− | 2009 09 21 | 703 | 0.0 | 0.5+ | 2009 10 23 | H06 | 0.2+ | 0.3+ |
| 2004 06 17 | E12 | 0.6+ | 0.3− | 2009 09 21 | 703 | 0.2− | 0.1+ | 2009 10 23 | H06 | 0.0 | 0.5− |
| 2004 06 17 | E12 | 0.5− | 0.7− | 2009 10 19 | H06 | 0.5+ | 0.0 | 2009 10 24 | H06 | 0.7+ | 0.1+ |
| 2004 06 17 | E12 | 0.3+ | 0.4+ | 2009 10 19 | H06 | 0.3+ | 0.6− | 2009 10 24 | H06 | 0.6+ | 0.2− |
| 2007 03 20 | G96 | 0.2− | 0.1− | 2009 10 19 | H06 | 1.0+ | 0.1− | 2009 10 24 | H06 | 0.1+ | 0.8− |
| 2007 03 20 | G96 | 0.2+ | 0.0 | 2009 10 20 | 703 | 0.9+ | 0.6+ | 2009 10 26 | 703 | 0.8− | 1.2− |
| 2007 03 20 | G96 | 0.4− | 0.4− | 2009 10 20 | 703 | 0.9+ | 0.1+ | 2009 10 26 | 703 | 1.8− | 0.6+ |
| 2007 03 20 | G96 | 0.0 | 0.5− | 2009 10 20 | 703 | 0.4− | 1.2+ | 2009 10 26 | 703 | 0.7− | 0.9+ |
| 2009 09 21 | 703 | 0.5− | 0.1− | 2009 10 20 | 703 | 0.7+ | 0.1+ | 2009 10 26 | 703 | 1.7− | 0.9− |
| 2009 09 21 | 703 | 0.1− | 0.1+ | 2009 10 23 | H06 | 0.5+ | 0.8− | | | | |

**2009 UP$_{20}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 15.59020 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21081142 | $\omega$ | 342.42134 | | +0.89498434 | −0.43103350 | |
| $a$ | 2.7960180 | $\Omega$ | 43.69621 | | +0.42667061 | +0.75188947 | |
| $e$ | 0.1508810 | $i$ | 9.57803 | | +0.13021218 | +0.49887108 | |
| $P$ | 4.68 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 10 21 | 691 | 0.1− | 0.2+ | 2004 10 09 | 644 | 0.3− | 0.1− | 2009 10 25 | D29 | 0.1+ | 0.3+ |
| 1995 10 21 | 691 | 0.0 | 0.1+ | 2009 10 02 | G96 | 0.3− | 0.0 | 2009 10 25 | D29 | 0.3+ | 0.0 |
| 1995 10 21 | 691 | 0.3− | 0.3+ | 2009 10 02 | G96 | 0.3+ | 0.1+ | 2009 10 25 | D29 | 0.0 | 0.2− |
| 2004 08 21 | E12 | 0.5+ | 0.1+ | 2009 10 02 | G96 | 0.2− | 0.1+ | 2009 10 25 | D29 | 0.4+ | 0.0 |
| 2004 08 21 | E12 | 0.3− | 0.5+ | 2009 10 02 | G96 | 0.5+ | 0.0 | 2009 11 09 | 703 | 1.4− | 1.6− |
| 2004 08 21 | E12 | 0.4− | 0.0 | 2009 10 16 | G96 | 0.5+ | 0.1− | 2009 11 09 | 703 | 1.5− | 1.3− |
| 2004 08 21 | E12 | 0.1− | 0.1− | 2009 10 16 | G96 | 0.3+ | 0.1− | 2009 11 09 | 703 | 0.5+ | 0.6− |
| 2004 09 17 | 699 | 0.7− | 0.7− | 2009 10 16 | G96 | 0.4+ | 0.1− | 2009 11 16 | G96 | 0.3− | 0.0 |
| 2004 09 17 | 699 | 0.6+ | 0.9+ | 2009 10 16 | G96 | 0.5+ | 0.2− | 2009 11 16 | G96 | 0.4+ | 0.2+ |
| 2004 09 17 | 699 | 0.9+ | 0.2+ | 2009 10 24 | G96 | 0.3+ | 0.0 | 2009 11 16 | G96 | 0.3− | 0.1+ |
| 2004 09 17 | 699 | 0.1+ | 0.9− | 2009 10 24 | G96 | 0.3− | 0.9+ | 2009 11 16 | G96 | 0.0 | 0.2+ |
| 2004 10 09 | 644 | 0.3− | 0.0 | 2009 10 24 | G96 | 0.5+ | 0.0 | | | | |
| 2004 10 09 | 644 | 0.3− | 0.0 | 2009 10 24 | G96 | 0.6+ | 0.0 | | | | |

**2009 UY$_{20}$ = 2006 DD$_{110}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 313.14447 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19704287 | $\omega$ | 104.11182 | | −0.44343563 | −0.89538202 | |
| $a$ | 2.9247959 | $\Omega$ | 12.45193 | | +0.73221302 | −0.38806359 | |
| $e$ | 0.1590263 | $i$ | 10.87825 | | +0.51694192 | −0.21839800 | |
| $P$ | 5.00 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 03 02 | 699 | 0.8− | 1.2− | 2006 02 25 | 704 | 1.1− | 1.1+ | 2009 10 22 | 300 | 0.5+ | 0.5+ |
| 2001 03 02 | 699 | (1.2+ | 1.9+) | 2006 02 28 | 704 | 1.3+ | 0.1− | 2009 10 22 | 300 | 0.5+ | 0.4− |
| 2001 03 02 | 699 | 0.6+ | 0.9+ | 2006 02 28 | 704 | 1.3+ | 0.7+ | 2009 10 22 | 300 | 0.4+ | 0.1− |
| 2001 03 02 | 699 | (2.8+ | 0.5−) | 2006 02 28 | 704 | 1.4+ | 0.6− | 2009 10 26 | 300 | 0.6+ | 0.0 |
| 2006 02 21 | 703 | 0.7− | 0.4− | 2006 02 28 | 704 | (1.8+ | 0.6+) | 2009 10 26 | 300 | 0.6+ | 0.6+ |
| 2006 02 21 | 703 | 0.3− | 0.1− | 2006 02 28 | 704 | 0.0 | 1.0− | 2009 11 08 | 703 | 0.4− | 0.7− |
| 2006 02 21 | 703 | 0.1− | 0.3− | 2006 05 05 | G96 | 0.1+ | 0.1+ | 2009 11 08 | 703 | 0.3− | 0.3+ |
| 2006 02 21 | 703 | 1.1− | 0.2− | 2006 05 05 | G96 | 0.1+ | 0.2+ | 2009 11 08 | 703 | 0.5− | 0.7+ |
| 2006 02 25 | 704 | 0.6− | 0.4+ | 2006 05 05 | G96 | 0.2+ | 0.0 | 2009 11 08 | 703 | 1.5− | 0.9− |
| 2006 02 25 | 704 | 0.4− | 0.9+ | 2006 05 05 | G96 | 0.3+ | 0.0 | | | | |

**2009 UH$_{21}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 284.07336 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26335226 | $\omega$ | 91.87038 | | −0.88043865 | −0.45018336 | |
| $a$ | 2.4105234 | $\Omega$ | 61.40079 | | +0.33888752 | −0.81703578 | |
| $e$ | 0.1380369 | $i$ | 9.76221 | | +0.33163690 | −0.36026028 | |
| $P$ | 3.74 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 02 23 | 703 | 1.2+ | 0.9− | 2009 10 23 | A13 | 0.8+ | 0.3− | 2009 11 16 | A13 | 0.3+ | 0.4− |
| 2007 02 23 | 703 | 0.0 | 0.7+ | 2009 10 26 | A13 | 0.1− | 0.6+ | 2009 11 17 | G96 | 0.1− | 0.2− |
| 2007 02 23 | 703 | 0.4+ | 0.1− | 2009 10 26 | A13 | 0.1+ | 0.0 | 2009 11 17 | G96 | 0.4− | 0.2− |
| 2007 02 23 | 703 | 0.2− | 1.5− | 2009 10 26 | A13 | 0.4− | 0.6+ | 2009 11 17 | G96 | 0.2− | 0.3− |
| 2007 03 09 | 703 | 1.5− | 0.9+ | 2009 10 26 | A13 | 0.1+ | 0.3− | 2009 11 17 | G96 | 0.0 | 0.2− |
| 2007 03 09 | 703 | 0.2+ | 0.0 | 2009 10 27 | A13 | 0.6+ | 0.0 | 2009 11 25 | G96 | 0.0 | 0.3− |
| 2007 03 09 | 703 | 0.1− | 1.3− | 2009 10 27 | A13 | 0.0 | 0.1+ | 2009 11 25 | G96 | 0.2− | 0.1− |
| 2007 03 09 | 703 | 0.4− | 0.2+ | 2009 11 09 | 703 | 0.5− | 1.0+ | 2009 11 25 | G96 | 0.0 | 0.4− |
| 2007 03 19 | 699 | 1.2− | 2.3+ | 2009 11 09 | 703 | 0.7− | 0.4+ | 2009 11 25 | G96 | 0.2− | 0.1+ |
| 2007 03 19 | 699 | 0.2+ | 0.2+ | 2009 11 09 | 703 | 0.5− | 1.3+ | 2009 12 15 | G96 | 0.3− | 0.0 |
| 2007 03 19 | 699 | 0.5+ | 0.3− | 2009 11 09 | 703 | 1.1− | 0.1+ | 2009 12 15 | G96 | 0.5+ | 0.3+ |
| 2007 03 19 | 699 | 1.1+ | 0.1− | 2009 11 11 | A13 | 0.8+ | 0.0 | 2009 12 15 | G96 | 0.1− | 0.3− |
| 2009 10 23 | A13 | 0.6+ | 0.1− | 2009 11 11 | A13 | 0.9+ | 0.4− | 2009 12 15 | G96 | 0.1− | 0.1+ |
| 2009 10 23 | A13 | 0.1+ | 0.4− | 2009 11 16 | A13 | 0.0 | 0.4− | | | | |

**2009 UQ$_{21}$ = 2007 EC$_{208}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 300.94947 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24552789 | $\omega$ | 341.95160 | | −0.53898004 | −0.83933401 | |
| $a$ | 2.5258187 | $\Omega$ | 140.57913 | | +0.78591029 | −0.53136479 | |
| $e$ | 0.1735988 | $i$ | 6.40548 | | +0.30306029 | −0.11476007 | |
| $P$ | 4.01 | $H$ | 17.5 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 03 14 | G96 | 0.1+ | 0.0 | 2009 09 28 | G96 | 0.3− | 0.2+ | 2009 10 22 | G96 | 0.1− | 0.0 |
| 2007 03 14 | G96 | 0.2− | 0.0 | 2009 09 28 | G96 | 0.2+ | 0.2− | 2009 10 22 | G96 | 0.4+ | 0.5+ |
| 2007 03 14 | G96 | 0.1+ | 0.2+ | 2009 09 28 | G96 | 0.3− | 0.1+ | 2009 10 22 | G96 | 0.1− | 0.6− |
| 2007 03 14 | G96 | 0.1− | 0.1+ | 2009 09 28 | G96 | 0.2− | 0.1+ | 2009 10 22 | G96 | 0.5− | 0.1+ |
| 2007 03 19 | G96 | 0.0 | 0.1− | 2009 10 16 | G96 | 0.0 | 0.1+ | 2009 10 24 | G96 | 0.1− | 0.2− |
| 2007 03 19 | G96 | 0.0 | 0.1+ | 2009 10 16 | G96 | 0.0 | 0.1− | 2009 10 24 | G96 | 0.0 | 0.2− |
| 2007 03 19 | G96 | 0.0 | 0.0 | 2009 10 16 | G96 | 0.8+ | 0.2− | 2009 10 24 | G96 | 0.3+ | 0.4+ |
| 2007 03 19 | G96 | 0.1+ | 0.3− | 2009 10 16 | G96 | 0.4+ | 0.0 | 2009 10 24 | G96 | 0.6− | 0.1− |

**2009 UW$_{21}$ = 2008 LZ$_{11}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 78.64366 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23834148 | $\omega$ | 183.01380 | | +0.71595353 | +0.69442563 | |
| $a$ | 2.5763387 | $\Omega$ | 132.72286 | | −0.63847116 | +0.69298212 | |
| $e$ | 0.1028279 | $i$ | 5.62417 | | −0.28242719 | +0.19377520 | |
| $P$ | 4.14 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 02 14 | 568 | 0.3− | 0.2− | 2008 05 26 | 691 | 0.3− | 0.5− | 2009 10 16 | 703 | 0.6− | 0.2− |
| 2007 02 14 | 568 | 0.1+ | 0.5− | 2008 05 26 | 691 | 0.2− | 0.3− | 2009 10 16 | 703 | 0.0 | 0.4+ |
| 2007 02 14 | 568 | 0.0 | 0.4− | 2008 06 07 | 691 | 0.2+ | 0.3+ | 2009 10 16 | 703 | 0.2+ | 0.3+ |
| 2007 02 25 | G96 | 0.1− | 0.2− | 2008 06 07 | 691 | 0.3+ | 0.1− | 2009 10 22 | G96 | 0.4− | 0.0 |
| 2007 02 25 | G96 | 0.3+ | 0.1− | 2008 06 07 | 691 | 0.1− | 0.2+ | 2009 10 22 | G96 | 0.3− | 0.1− |
| 2007 02 25 | G96 | 0.0 | 0.3+ | 2008 06 10 | 691 | 0.0 | 0.2+ | 2009 10 22 | G96 | 0.3− | 0.0 |
| 2007 02 25 | G96 | 0.4+ | 0.3+ | 2008 06 10 | 691 | 0.5+ | 0.1− | 2009 10 22 | G96 | 0.3− | 0.2− |
| 2007 02 25 | G96 | 0.0 | 0.0 | 2008 06 10 | 691 | 0.1+ | 0.1+ | 2009 10 24 | G96 | 0.1− | 0.3− |
| 2007 02 25 | G96 | 0.4+ | 0.6+ | 2008 06 14 | 691 | 0.0 | 0.0 | 2009 10 24 | G96 | 0.6+ | 0.1− |
| 2007 02 25 | G96 | 0.1+ | 0.1− | 2008 06 14 | 691 | 0.3+ | 0.1− | 2009 10 24 | G96 | 0.4+ | 0.1− |
| 2007 02 25 | G96 | 0.1+ | 0.4− | 2008 06 14 | 691 | 0.7− | 0.1− | 2009 10 24 | G96 | 0.5+ | 0.5− |
| 2007 03 11 | G96 | 0.0 | 0.2+ | 2009 09 29 | G96 | 0.3+ | 0.3− | 2009 11 09 | 703 | 1.3+ | 0.1− |
| 2007 03 11 | G96 | 0.4− | 0.3− | 2009 09 29 | G96 | 0.0 | 0.3− | 2009 11 09 | 703 | 0.5− | 0.2+ |
| 2007 03 11 | G96 | 1.0− | 0.3+ | 2009 09 29 | G96 | 0.3+ | 0.4− | 2009 11 09 | 703 | 1.1− | 1.2+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 03 11 | G96 | 0.0 | 0.1− | 2009 09 29 | G96 | 0.0 | 0.5− | 2009 11 09 | 703 | 0.2+ | 0.7+ | | |
| 2008 05 26 | 691 | 0.1− | 0.3+ | 2009 10 16 | 703 | (0.4+ | 1.7+) | | | | | | |

**2009 UV$_{22}$ = 2007 GA$_{52}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 59.59648 | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.18603907 | $\omega$ | 207.59865 | | +0.93419492 | | +0.34844593 | |
| $a$ | 3.0390180 | $\Omega$ | 131.79526 | | −0.30546809 | | +0.89212911 | |
| $e$ | 0.0479234 | $i$ | 5.89614 | | −0.18430707 | | +0.28756058 | |
| $P$ | 5.30 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 2 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 01 07 | G96 | 0.4+ | 0.0 | 2007 03 13 | G96 | 0.4+ | 0.2− | 2007 04 20 | H07 | 0.1− | 0.8− | | |
| 2006 01 07 | G96 | 0.2+ | 0.4− | 2007 03 13 | G96 | 0.3+ | 0.0 | 2009 10 02 | G96 | 1.0− | 0.1− | | |
| 2006 01 07 | G96 | 0.0 | 0.1− | 2007 04 15 | 691 | 0.1− | 0.0 | 2009 10 02 | G96 | 0.1− | 0.2− | | |
| 2006 01 07 | G96 | 0.3+ | 0.0 | 2007 04 15 | 691 | 0.1− | 0.1− | 2009 10 02 | G96 | 0.8+ | 0.3+ | | |
| 2006 02 02 | 691 | 0.2+ | 0.1− | 2007 04 15 | 691 | 0.3− | 0.1− | 2009 10 02 | G96 | 0.5+ | 0.1+ | | |
| 2006 02 02 | 691 | 0.1+ | 0.0 | 2007 04 19 | 691 | 0.1+ | 0.3+ | 2009 10 17 | G96 | 0.2− | 0.1− | | |
| 2006 02 02 | 691 | 0.2− | 0.0 | 2007 04 19 | 691 | 0.4+ | 0.1+ | 2009 10 17 | G96 | 0.1+ | 0.2+ | | |
| 2006 02 25 | G96 | 0.1− | 0.4+ | 2007 04 19 | H07 | 0.8− | 0.7+ | 2009 10 17 | G96 | 0.2− | 0.1+ | | |
| 2006 02 25 | G96 | 0.4− | 0.2+ | 2007 04 19 | H07 | 0.2+ | 0.3+ | 2009 10 17 | G96 | 0.1− | 0.3+ | | |
| 2006 02 25 | G96 | 0.1− | 0.3+ | 2007 04 19 | H07 | 0.1− | 0.7+ | 2009 10 22 | G96 | 0.1− | 0.0 | | |
| 2006 02 25 | G96 | 0.3− | 0.0 | 2007 04 19 | 691 | 0.2− | 0.1− | 2009 10 22 | G96 | 0.1+ | 0.3+ | | |
| 2007 03 13 | G96 | 0.0 | 0.1− | 2007 04 20 | H07 | 0.0 | 0.1+ | 2009 10 22 | G96 | 0.1− | 0.0 | | |
| 2007 03 13 | G96 | 0.3+ | 0.1+ | 2007 04 20 | H07 | 1.1+ | 0.0 | 2009 10 22 | G96 | 0.1− | 0.1+ | | |

**2009 UY$_{22}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 340.46923 | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.20856182 | $\omega$ | 45.12075 | | −0.07686654 | | −0.98001935 | |
| $a$ | 2.8160877 | $\Omega$ | 50.19334 | | +0.83418794 | | −0.16398994 | |
| $e$ | 0.0495859 | $i$ | 13.81579 | | +0.54609707 | | +0.11255827 | |
| $P$ | 4.73 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 3 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 02 04 | 703 | 0.3+ | 0.9− | 2009 10 17 | G96 | 0.4+ | 0.4− | 2009 11 23 | 691 | 0.1− | 0.1+ | | |
| 2006 02 04 | 703 | 0.1− | 1.3+ | 2009 10 17 | G96 | 0.5+ | 0.4− | 2009 11 23 | 691 | 0.1− | 0.1− | | |
| 2006 02 04 | 703 | 0.7+ | 0.7− | 2009 10 17 | G96 | 0.3+ | 0.1− | 2009 11 24 | J75 | 0.2− | 0.9− | | |
| 2006 02 04 | 703 | 1.2− | 0.4− | 2009 10 17 | G96 | 0.2− | 0.3− | 2009 11 24 | J75 | 0.1+ | 0.0 | | |
| 2007 03 14 | G96 | 0.5+ | 0.5+ | 2009 10 22 | G96 | 0.1+ | 0.3− | 2009 11 24 | J75 | 0.0 | 0.2− | | |
| 2007 03 14 | G96 | 0.0 | 0.1+ | 2009 10 22 | G96 | 0.0 | 0.2− | 2009 11 25 | 703 | 0.3− | 1.3− | | |
| 2007 03 14 | G96 | 0.2− | 0.3+ | 2009 10 22 | G96 | 0.1− | 0.3− | 2009 11 25 | 703 | 0.4− | 0.8+ | | |
| 2007 03 14 | G96 | 0.3− | 0.2+ | 2009 10 22 | G96 | 0.2+ | 0.4− | 2009 11 25 | 703 | 1.1+ | 0.4− | | |
| 2007 05 11 | D35 | 0.2− | 0.9− | 2009 11 09 | 691 | 0.2− | 0.0 | 2009 11 25 | 703 | 0.5+ | 0.3+ | | |
| 2007 05 11 | D35 | 1.1+ | 0.7+ | 2009 11 09 | 691 | 0.0 | 0.2+ | 2009 11 25 | 703 | 0.5− | 0.4− | | |
| 2007 05 11 | D35 | 0.4+ | 2.1+ | 2009 11 09 | 691 | 0.2− | 0.2+ | 2009 11 27 | 691 | 0.3− | 0.0 | | |
| 2009 09 20 | G96 | 0.1+ | 0.2− | 2009 11 17 | 691 | 0.8+ | 1.4+ | 2009 11 27 | 691 | 0.4− | 0.1+ | | |
| 2009 09 20 | G96 | 0.4+ | 0.2− | 2009 11 17 | 691 | 0.1− | 0.0 | 2009 11 27 | 691 | 0.1+ | 0.0 | | |
| 2009 09 20 | G96 | 0.1− | 0.1− | 2009 11 17 | 691 | 0.2− | 0.0 | | | | | | |
| 2009 09 20 | G96 | 0.4+ | 0.1− | 2009 11 23 | 691 | 0.2− | 0.0 | | | | | | |

**2009 UY$_{24}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 90.44415 | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.21671225 | $\omega$ | 274.10711 | | +0.67723776 | | +0.71937567 | |
| $a$ | 2.7450299 | $\Omega$ | 40.00103 | | −0.54293013 | | +0.63026268 | |
| $e$ | 0.1145915 | $i$ | 13.90073 | | −0.49656409 | | +0.29200616 | |
| $P$ | 4.55 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 4 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 05 01 | 691 | 0.2+ | 0.4+ | 2009 10 18 | G96 | 0.1+ | 0.1+ | 2009 11 08 | G96 | 0.1+ | 0.7+ | | |
| 2003 05 01 | 691 | 0.3+ | 0.4+ | 2009 10 18 | G96 | 0.4+ | 0.2+ | 2009 11 08 | G96 | 0.3− | 0.6+ | | |
| 2003 05 01 | 691 | 0.6+ | 0.5+ | 2009 10 18 | G96 | 0.0 | 0.2+ | 2009 11 08 | G96 | 0.1− | 0.4+ | | |
| 2003 05 24 | 691 | 0.1+ | 0.2+ | 2009 10 23 | G96 | 0.2+ | 0.3+ | 2009 11 22 | G96 | 0.1+ | 0.1− | | |
| 2003 05 24 | 691 | 0.1− | 0.5+ | 2009 10 23 | G96 | 0.4+ | 0.1+ | 2009 11 22 | G96 | 0.3+ | 0.1+ | | |
| 2003 05 24 | 691 | 0.1+ | 0.1− | 2009 10 23 | G96 | 0.0 | 0.3+ | 2009 11 22 | G96 | 0.0 | 0.4+ | | |
| 2009 09 22 | G96 | 0.2+ | 0.1+ | 2009 10 23 | G96 | 0.1+ | 0.2+ | 2009 11 22 | G96 | 0.0 | 0.2+ | | |
| 2009 09 22 | G96 | 0.7+ | 0.1+ | 2009 10 24 | 691 | 0.6− | 0.1+ | 2009 12 18 | G96 | 0.3− | 0.1+ | | |
| 2009 09 22 | G96 | 0.2+ | 0.0 | 2009 10 24 | 691 | 0.6− | 0.2+ | 2009 12 18 | G96 | 0.3− | 0.3− | | |
| 2009 09 22 | G96 | 0.7+ | 0.1+ | 2009 10 24 | 691 | 0.5− | 0.4+ | 2009 12 18 | G96 | 0.1− | 0.0 | | |
| 2009 10 18 | G96 | 0.0 | 0.2+ | 2009 11 08 | G96 | 0.5+ | 0.4+ | 2009 12 18 | G96 | 0.7− | 0.2+ | | |

**2009 UX$_{25}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 48.58531 | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.27134761 | $\omega$ | 291.24102 | | +0.97580938 | | +0.21311566 | |
| $a$ | 2.3629365 | $\Omega$ | 56.48430 | | −0.17256289 | | +0.88776528 | |
| $e$ | 0.2514647 | $i$ | 3.35296 | | −0.13423155 | | +0.40798840 | |
| $P$ | 3.63 | $H$ | 17.7 | $G$ | 0.15 | $U$ | 3 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 09 19 | 645 | 0.0 | 0.1− | 2009 10 21 | 703 | 0.3− | 0.7− | 2009 11 17 | 291 | 0.2− | 0.0 | | |
| 1998 09 19 | 645 | 0.0 | 0.1− | 2009 10 22 | G96 | 0.1+ | 0.1+ | 2009 11 17 | 291 | 0.3− | 0.0 | | |
| 1998 09 25 | 699 | 0.1− | 2.4+ | 2009 10 22 | G96 | 0.1+ | 0.3+ | 2009 11 17 | 291 | 0.4− | 0.1− | | |
| 1998 09 25 | 699 | 0.0 | 2.3+ | 2009 10 22 | G96 | 0.1+ | 0.3+ | 2009 11 17 | 704 | 0.5+ | 0.1+ | | |
| 1998 09 25 | 699 | 0.8+ | 1.0+ | 2009 10 22 | G96 | 0.2+ | 0.1+ | 2009 11 17 | 704 | 0.5+ | 0.2− | | |
| 2008 04 06 | G96 | 0.2− | 0.1− | 2009 10 26 | 691 | 0.4+ | 0.2− | 2009 11 17 | 704 | 0.6− | 1.5+ | | |
| 2008 04 06 | G96 | 0.5+ | 0.3+ | 2009 10 26 | 691 | 0.1− | 0.2− | 2009 12 19 | G96 | 0.5+ | 0.4+ | | |
| 2008 04 06 | G96 | 0.0 | 0.5+ | 2009 10 26 | 691 | 0.0 | 0.2− | 2009 12 19 | G96 | 0.6− | 0.1− | | |
| 2008 04 06 | G96 | 0.1+ | 0.3+ | 2009 11 06 | 703 | 0.9+ | 0.4+ | 2009 12 19 | G96 | 0.2− | 0.0 | | |
| 2009 10 21 | 703 | 0.3+ | 0.6− | 2009 11 06 | 703 | 0.1− | 0.9+ | 2009 12 19 | G96 | 0.2+ | 0.4− | | |
| 2009 10 21 | 703 | 0.6− | 0.5− | 2009 11 06 | 703 | 0.0 | 0.0 | | | | | | |
| 2009 10 21 | 703 | 0.1+ | 0.2− | 2009 11 06 | 703 | 1.0+ | 0.9+ | | | | | | |

**2009 UB$_{26}$ = 2007 EW$_{107}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 81.04743 | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.21175210 | $\omega$ | 268.05251 | | +0.84673621 | | +0.52413424 | |
| $a$ | 2.7877313 | $\Omega$ | 60.32653 | | −0.43678700 | | +0.78277281 | |
| $e$ | 0.0361341 | $i$ | 6.02648 | | −0.30373494 | | +0.33548478 | |
| $P$ | 4.65 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 0 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1993 03 23 | 809 | 0.4+ | 0.4+ | 2007 04 26 | G96 | 0.3+ | 0.1+ | 2009 11 16 | G96 | 0.3− | 0.2+ | | |
| 2004 10 09 | 699 | 0.8− | 0.7− | 2007 04 26 | G96 | 0.1− | 0.4− | 2009 11 16 | G96 | 0.4+ | 0.8+ | | |
| 2004 10 09 | 699 | 0.5+ | 0.5+ | 2007 04 26 | G96 | 0.3− | 0.1+ | 2009 11 16 | G96 | 0.1+ | 0.1− | | |
| 2004 10 09 | 699 | 0.2+ | 0.1− | 2007 05 22 | G96 | 0.5+ | 0.1+ | 2009 11 16 | G96 | 0.3− | 0.2− | | |
| 2004 10 09 | 699 | 0.3− | 0.6+ | 2007 05 22 | G96 | 0.2− | 0.1− | 2009 11 16 | G96 | 0.2− | 0.0 | | |
| 2005 11 10 | G96 | 0.3− | 0.3+ | 2007 05 22 | G96 | 0.3+ | 0.0 | 2009 11 16 | G96 | 0.2− | 0.1+ | | |
| 2005 11 10 | G96 | 0.2+ | 0.2− | 2007 05 22 | G96 | 0.2+ | 0.4− | 2009 11 16 | G96 | 0.2+ | 0.0 | | |
| 2005 11 10 | G96 | 0.3+ | 0.1− | 2009 10 21 | 703 | 0.6− | 0.0 | 2009 11 16 | G96 | 0.1+ | 0.0 | | |
| 2005 11 10 | G96 | 0.1− | 0.5+ | 2009 10 21 | 703 | 0.2− | 0.3− | 2009 11 16 | G96 | 0.3+ | 0.3− | | |
| 2006 01 07 | 691 | 0.2− | 0.1− | 2009 10 21 | 703 | 0.3+ | 0.9+ | 2009 11 16 | G96 | 0.2+ | 0.2− | | |
| 2006 01 07 | 691 | 0.2− | 0.1+ | 2009 10 21 | 703 | (0.5− | 1.6−) | 2009 11 16 | G96 | 0.2+ | 0.0 | | |
| 2006 01 07 | 691 | 0.3+ | 0.2− | 2009 10 22 | G96 | 0.1− | 0.1− | 2009 11 16 | G96 | 0.3+ | 0.0 | | |
| 2007 03 11 | 691 | 0.0 | 0.3+ | 2009 10 22 | G96 | 0.2+ | 0.1− | 2009 11 23 | G96 | 0.0 | 0.1+ | | |
| 2007 03 11 | 691 | 0.2− | 0.3+ | 2009 10 22 | G96 | 0.1+ | 0.1+ | 2009 11 23 | G96 | 0.1− | 0.2− | | |
| 2007 03 11 | 691 | 0.0 | 0.3− | 2009 10 22 | G96 | 0.2+ | 0.2− | 2009 11 23 | G96 | 0.4+ | 0.2− | | |
| 2007 03 15 | 691 | 0.1+ | 0.2− | 2009 10 24 | 703 | (0.0 | 2.0+) | 2009 11 23 | G96 | 0.3+ | 0.1− | | |
| 2007 03 15 | 691 | 0.0 | 0.1− | 2009 10 24 | 703 | 1.2− | 0.6− | 2009 12 19 | G96 | 0.1+ | 0.6− | | |
| 2007 03 15 | 691 | 0.1− | 0.2+ | 2009 10 24 | 703 | 0.3− | 0.8+ | 2009 12 19 | G96 | 0.4− | 0.1+ | | |
| 2007 04 26 | G96 | 0.6+ | 0.1+ | 2009 10 24 | 703 | 0.8+ | 0.5+ | 2009 12 19 | G96 | 0.2− | 0.3+ | | |

**2009 UF$_{26}$ = 2005 ND$_{26}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 90.13852 | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.27256483 | $\omega$ | 90.20419 | | +0.47537787 | | +0.87930306 | |
| $a$ | 2.3558963 | $\Omega$ | 208.23779 | | −0.82961592 | | +0.43704934 | |
| $e$ | 0.1353951 | $i$ | 3.51617 | | −0.29283666 | | +0.18924586 | |
| $P$ | 3.62 | $H$ | 18.0 | $G$ | 0.15 | $U$ | 2 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 07 04 | 691 | 0.0 | 0.1+ | 2008 04 26 | G96 | 0.6− | 0.6− | 2009 10 21 | G96 | 0.1+ | 0.3+ |
| 2005 07 04 | 691 | 0.0 | 0.2+ | 2008 04 26 | G96 | 0.4− | 0.1+ | 2009 10 23 | G96 | 0.4+ | 0.3− |
| 2005 07 04 | 691 | 0.0 | 0.1+ | 2008 04 26 | G96 | 0.1− | 0.2− | 2009 10 23 | G96 | 0.1+ | 0.1+ |
| 2005 07 08 | 691 | 0.1− | 0.1+ | 2008 04 26 | G96 | 0.2− | 0.1− | 2009 10 23 | G96 | 0.8+ | 0.2− |
| 2005 07 08 | 691 | 0.2− | 0.1− | 2009 09 15 | 691 | 0.2− | 0.3+ | 2009 11 11 | G96 | 0.3− | 0.1− |
| 2005 07 08 | 691 | 0.3+ | 0.4− | 2009 09 15 | 691 | 0.1− | 0.1− | 2009 11 11 | G96 | 0.6+ | 0.5− |
| 2005 07 30 | 644 | 0.3− | 0.2− | 2009 09 15 | 691 | 0.4+ | 0.1+ | 2009 11 11 | G96 | 0.0 | 0.2− |
| 2005 07 30 | 644 | 0.1− | 0.1− | 2009 09 27 | 691 | 0.1+ | 0.1+ | 2009 11 11 | G96 | 0.3− | 0.2− |
| 2005 07 30 | 644 | 0.1− | 0.0 | 2009 09 27 | 691 | 0.0 | 0.0 | 2009 11 20 | G96 | 0.3+ | 0.4− |
| 2008 04 07 | G96 | 0.5+ | 0.1− | 2009 09 27 | 691 | 0.6− | 0.0 | 2009 11 20 | G96 | 0.4− | 0.3− |
| 2008 04 07 | G96 | 0.4+ | 0.1+ | 2009 10 21 | G96 | 0.6+ | 0.6+ | 2009 11 20 | G96 | 0.4− | 0.2− |
| 2008 04 07 | G96 | 0.2− | 0.0 | 2009 10 21 | G96 | 0.9+ | 0.1− | 2009 11 20 | G96 | 0.0 | 0.3− |
| 2008 04 07 | G96 | 0.2+ | 0.0 | 2009 10 21 | G96 | 0.1− | 0.0 | | | | |

**2009 UV$_{26}$ = 2003 SP$_{212}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 73.14385 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18426392 | $\omega$ | 269.16044 | | +0.88667312 | | +0.42802862 |
| $a$ | 3.0585049 | $\Omega$ | 65.48127 | | −0.30935971 | | +0.83030497 |
| $e$ | 0.1397986 | $i$ | 11.08547 | | −0.34366750 | | +0.35691058 |
| $P$ | 5.35 | $H$ | 15.2 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1993 12 17 | 691 | 0.2− | 0.6− | 2007 03 15 | 291 | 0.1− | 0.0 | 2009 11 16 | G96 | 0.0 | 0.0 |
| 1993 12 17 | 691 | 0.3+ | 0.4− | 2007 04 19 | 691 | 0.0 | 0.1− | 2009 11 16 | G96 | 0.1− | 0.0 |
| 1993 12 17 | 691 | 0.0 | 0.0 | 2007 04 19 | 691 | 0.2+ | 0.1+ | 2009 11 16 | G96 | 0.2+ | 0.1− |
| 1998 10 20 | 699 | 0.4+ | 0.5+ | 2007 04 19 | 691 | 0.3− | 0.1− | 2009 11 18 | 704 | 0.4− | 0.8+ |
| 1998 10 20 | 699 | 0.6+ | 0.4+ | 2007 05 10 | 691 | 0.1− | 0.3+ | 2009 11 18 | 704 | 0.0 | 0.7+ |
| 1998 10 20 | 699 | 0.1− | 0.5+ | 2007 05 10 | 691 | 0.0 | 0.1− | 2009 11 18 | 704 | 0.1− | 0.9+ |
| 2002 05 18 | 644 | 0.3+ | 0.4+ | 2007 05 10 | 691 | 0.2+ | 0.1− | 2009 11 18 | 704 | 0.3+ | 0.2+ |
| 2002 05 18 | 644 | 0.4+ | 0.4+ | 2008 08 26 | E12 | 0.1− | 1.4+ | 2009 11 20 | 704 | 0.0 | 0.4+ |
| 2002 05 18 | 644 | 0.5+ | 0.3+ | 2008 08 26 | E12 | 0.3+ | 1.1+ | 2009 11 20 | 704 | 0.1+ | 0.1+ |
| 2003 09 25 | 644 | 0.4− | 0.4+ | 2008 08 26 | E12 | 0.1− | 0.6+ | 2009 11 20 | 704 | 0.2− | 0.3+ |
| 2003 09 25 | 644 | 0.7− | 0.5+ | 2008 08 26 | E12 | 0.2− | 0.2+ | 2009 11 20 | 704 | 0.7+ | 0.1+ |
| 2003 09 25 | 644 | 0.3− | 0.1− | 2009 10 21 | 703 | 1.2− | 0.3− | 2009 11 20 | 704 | 0.6+ | 0.4+ |
| 2003 09 25 | 608 | 0.0 | 0.9− | 2009 10 21 | 703 | 0.2− | 0.4+ | 2009 11 20 | J75 | 0.2+ | 0.1+ |
| 2003 09 25 | 608 | 0.6+ | 1.1− | 2009 10 21 | 703 | (1.8− | 0.1−) | 2009 11 20 | J75 | 0.1− | 0.4− |
| 2003 09 25 | 608 | 0.2− | 0.5− | 2009 10 21 | 703 | 0.7− | 0.8− | 2009 11 20 | J75 | 0.5− | 0.3− |
| 2003 09 27 | 699 | 0.3− | 0.1− | 2009 10 22 | 703 | 0.5− | 1.0+ | 2009 11 23 | G96 | 0.0 | 0.1− |
| 2003 09 27 | 699 | 0.7− | 0.6+ | 2009 10 22 | 703 | 0.9+ | 0.1+ | 2009 11 23 | G96 | 0.0 | 0.1− |
| 2003 09 27 | 699 | 0.2+ | 1.5+ | 2009 10 22 | 703 | 0.7+ | 1.2+ | 2009 11 23 | G96 | 0.1+ | 0.3− |
| 2003 09 27 | 699 | 0.0 | 0.7+ | 2009 10 22 | 703 | 0.1+ | 0.4+ | 2009 11 23 | G96 | 0.1+ | 0.2− |
| 2006 02 06 | 291 | 0.5+ | 0.7+ | 2009 10 22 | G96 | 0.3− | 0.2− | 2009 12 11 | G96 | 0.3+ | 0.4+ |
| 2006 02 06 | 291 | 0.1+ | 0.6+ | 2009 10 22 | G96 | 0.1− | 0.4− | 2009 12 11 | G96 | 0.2− | 0.1+ |
| 2006 02 06 | 291 | 0.1+ | 0.2+ | 2009 10 22 | G96 | 0.1− | 0.0 | 2009 12 11 | G96 | 0.3− | 0.2− |
| 2007 03 15 | 291 | 0.0 | 0.1− | 2009 10 22 | G96 | 0.6− | 0.2− | 2009 12 11 | G96 | 0.1+ | 0.0 |
| 2007 03 15 | 291 | 0.2− | 0.0 | 2009 11 16 | G96 | 0.2− | 0.1− | | | | |

**2009 UU$_{27}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 39.44297 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.30633548 | $\omega$ | 136.71494 | | +0.99755482 | | −0.04991046 |
| $a$ | 2.1794045 | $\Omega$ | 226.21521 | | +0.02941978 | | +0.93484209 |
| $e$ | 0.1754160 | $i$ | 3.88555 | | +0.06339443 | | +0.35153835 |
| $P$ | 3.22 | $H$ | 18.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 11 11 | 691 | 0.1+ | 0.1− | 2009 09 16 | 691 | 0.5− | 0.1− | 2009 10 24 | D29 | 0.1+ | 0.0 |
| 2006 11 11 | 691 | 0.2− | 0.1+ | 2009 10 14 | 703 | 0.1+ | 0.4+ | 2009 10 24 | D29 | 0.3− | 0.1− |
| 2006 11 11 | 691 | 0.1− | 0.2+ | 2009 10 14 | 703 | 1.2+ | 0.2− | 2009 10 24 | D29 | 0.7+ | 0.2+ |
| 2006 12 13 | G96 | 0.1− | 0.0 | 2009 10 14 | 703 | 0.9− | 0.4− | 2009 10 24 | D29 | 0.4+ | 0.4+ |
| 2006 12 13 | G96 | 0.0 | 0.1+ | 2009 10 14 | 703 | 1.2− | 0.1− | 2009 11 11 | G96 | 0.2− | 0.3− |
| 2006 12 13 | G96 | 0.5+ | 0.2− | 2009 10 14 | G96 | 0.0 | 0.4− | 2009 11 11 | G96 | 0.1+ | 0.2− |
| 2006 12 13 | G96 | 0.0 | 0.1+ | 2009 10 14 | G96 | 0.7+ | 0.1− | 2009 11 11 | G96 | 0.3+ | 0.2+ |
| 2006 12 21 | G96 | 0.4+ | 0.1+ | 2009 10 14 | G96 | 0.3+ | 0.2− | 2009 11 11 | G96 | 0.1− | 0.2+ |
| 2006 12 21 | G96 | 0.5− | 0.0 | 2009 10 14 | G96 | 0.1+ | 0.3− | 2009 11 25 | G96 | 0.1− | 0.2− |
| 2006 12 21 | G96 | 0.3+ | 0.1+ | 2009 10 22 | 703 | 0.2− | 0.3+ | 2009 11 25 | G96 | 0.1− | 0.4− |
| 2006 12 21 | G96 | 0.0 | 0.4+ | 2009 10 22 | 703 | 0.1+ | 0.4− | 2009 11 25 | G96 | 0.3− | 0.1− |
| 2009 09 16 | 691 | 0.5+ | 1.0+ | 2009 10 22 | 703 | 0.4+ | 1.4− | 2009 11 25 | G96 | 0.3− | 0.0 |
| 2009 09 16 | 691 | 0.3− | 0.1− | 2009 10 22 | 703 | 0.1+ | 0.1− | | | | |

**2009 UV$_{27}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 248.31747 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17713163 | $\omega$ | 119.13763 | | −0.95314959 | | −0.04813940 |
| $a$ | 3.1400650 | $\Omega$ | 59.59263 | | −0.12507281 | | −0.83620104 |
| $e$ | 0.0616881 | $i$ | 20.25964 | | +0.27543176 | | −0.54630616 |
| $P$ | 5.56 | $H$ | 14.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 27 | 699 | 0.0 | 0.3+ | 2009 10 23 | G96 | 0.3+ | 0.1− | 2009 11 23 | G96 | 0.3− | 0.2− |
| 2003 10 27 | 699 | 0.6− | 0.8− | 2009 10 23 | G96 | 0.4+ | 0.1+ | 2009 11 23 | G96 | 0.0 | 0.3− |
| 2003 10 27 | 699 | 0.4− | 1.4+ | 2009 10 23 | G96 | 0.6+ | 0.0 | 2009 11 23 | G96 | 0.2+ | 0.0 |
| 2003 10 27 | 699 | 0.6+ | 0.1− | 2009 10 23 | G96 | 0.2+ | 0.1− | 2009 11 23 | G96 | 0.2− | 0.2− |
| 2006 03 25 | 703 | 1.6+ | 1.3+ | 2009 10 24 | 703 | 0.7+ | 0.2− | 2009 11 23 | J75 | 0.5+ | 0.5+ |
| 2006 03 25 | 703 | 1.2+ | 0.5− | 2009 10 24 | 703 | 0.9− | 1.3− | 2009 11 23 | J75 | 0.6− | 0.2− |
| 2006 03 25 | 703 | 0.5− | 0.2− | 2009 10 24 | 703 | 0.6+ | 1.1+ | 2009 11 23 | J75 | 0.2− | 0.3− |
| 2006 03 25 | 703 | 0.9− | 0.2− | 2009 10 24 | 703 | (1.7+ | 0.3+) | 2009 11 24 | G96 | 0.2+ | 0.2+ |
| 2006 04 07 | 703 | 0.5− | 0.3+ | 2009 11 09 | 703 | 1.2− | 1.2+ | 2009 11 24 | G96 | 0.0 | 0.4+ |
| 2006 04 07 | 703 | 0.1− | 0.2− | 2009 11 09 | 703 | 0.0 | 0.0 | 2009 11 24 | G96 | 0.2+ | 0.1+ |
| 2006 04 07 | 703 | 0.2− | 0.0 | 2009 11 09 | 703 | 0.7− | 0.1− | 2009 11 24 | G96 | 0.3+ | 0.1+ |
| 2006 04 07 | 703 | 0.4− | 0.3− | 2009 11 09 | 703 | 1.0− | 0.0 | 2009 12 11 | G96 | 0.2+ | 0.2+ |
| 2009 10 22 | 703 | 0.6− | 1.1− | 2009 11 17 | G96 | 0.1+ | 0.0 | 2009 12 11 | G96 | 0.3+ | 0.4+ |
| 2009 10 22 | 703 | 0.2+ | 0.0 | 2009 11 17 | G96 | 0.3+ | 0.0 | 2009 12 11 | G96 | 0.0 | 0.2+ |
| 2009 10 22 | 703 | 0.8− | 1.0− | 2009 11 17 | G96 | 0.4+ | 0.0 | 2009 12 11 | G96 | 0.1+ | 0.1+ |
| 2009 10 22 | 703 | 0.9+ | 0.1− | 2009 11 17 | G96 | 0.2+ | 0.1− | | | | |

**2009 US$_{28}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 340.79243 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.08170806 | $\omega$ | 217.91883 | | +0.24408399 | | −0.96703142 |
| $a$ | 5.2596817 | $\Omega$ | 218.10907 | | +0.91601813 | | +0.25449211 |
| $e$ | 0.1010108 | $i$ | 6.75726 | | +0.31832970 | | +0.00916500 |
| $P$ | 12.06 | $H$ | 14.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 09 25 | G96 | 0.2− | 0.2− | 2009 10 18 | G96 | 0.9+ | 0.0 | 2009 11 08 | G96 | 0.3+ | 0.1− |
| 2008 09 25 | G96 | 0.2+ | 0.4− | 2009 10 18 | G96 | 0.1+ | 0.1+ | 2009 11 08 | G96 | 0.5+ | 0.0 |
| 2008 09 25 | G96 | 0.2− | 0.4+ | 2009 10 23 | 691 | 0.1+ | 0.2+ | 2009 11 24 | G96 | 0.2+ | 0.1+ |
| 2008 09 25 | G96 | 0.2− | 0.2+ | 2009 10 23 | 691 | 0.2− | 0.1+ | 2009 11 24 | G96 | 0.2+ | 0.1+ |
| 2008 10 26 | G96 | 0.1+ | 0.2+ | 2009 10 23 | 691 | 0.4− | 0.4+ | 2009 11 24 | G96 | 0.1+ | 0.4− |
| 2008 10 26 | G96 | 0.1+ | 0.3− | 2009 10 26 | 691 | 0.3− | 0.2− | 2009 11 24 | G96 | 0.2− | 0.4− |
| 2008 10 26 | G96 | 0.2− | 0.0 | 2009 10 26 | 691 | 0.1+ | 0.2− | 2009 12 10 | G96 | 0.2− | 0.1+ |
| 2008 10 26 | G96 | 0.3+ | 0.0 | 2009 10 26 | 691 | 0.1− | 0.1− | 2009 12 10 | G96 | 0.0 | 0.3− |
| 2009 10 18 | G96 | 0.2+ | 0.1− | 2009 11 08 | G96 | 0.1+ | 0.1− | 2009 12 10 | G96 | 0.1+ | 0.6+ |
| 2009 10 18 | G96 | 1.0+ | 0.8− | 2009 11 08 | G96 | 0.2+ | 0.1− | 2009 12 10 | G96 | 0.4− | 0.2+ |

**2009 US$_{29}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 251.33237 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.08265995 | $\omega$ | 117.92428 | | −0.94043415 | | −0.25213426 |
| $a$ | 5.2192241 | $\Omega$ | 48.45662 | | +0.08337550 | | −0.82137272 |
| $e$ | 0.0415230 | $i$ | 17.74071 | | +0.32959389 | | −0.51163968 |
| $P$ | 11.92 | $H$ | 13.0 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 03 26 | 291 | 0.4+ | 0.1− | 2009 09 22 | G96 | 0.4+ | 0.0 | 2009 11 24 | G96 | 0.2− | 0.2+ |
| 2003 03 26 | 291 | 0.4+ | 0.0 | 2009 10 18 | G96 | 0.5+ | 0.1− | 2009 11 24 | G96 | 0.1+ | 0.1+ |
| 2003 03 26 | 291 | 0.0 | 0.3− | 2009 10 18 | G96 | 0.1+ | 0.0 | 2009 11 24 | G96 | 0.1+ | 0.1+ |
| 2003 06 01 | 691 | 0.2+ | 0.9+ | 2009 10 18 | G96 | 0.1+ | 0.0 | 2009 11 25 | G96 | 0.3+ | 0.1+ |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 06 01 | 691 | 0.4− | 0.5+ | 2009 10 18 | G96 | 0.3+ | 0.2− | 2009 11 25 | G96 | 0.2− | 0.0 |
| 2003 06 01 | 691 | 0.3+ | 0.4+ | 2009 10 23 | 691 | 0.5− | 0.5+ | 2009 11 25 | G96 | 0.1− | 0.2+ |
| 2008 10 21 | G96 | 0.7− | 0.3+ | 2009 10 23 | 691 | 0.4− | 0.2+ | 2009 11 25 | G96 | 0.1+ | 0.2+ |
| 2008 10 21 | G96 | 0.3− | 0.5+ | 2009 10 23 | 691 | 0.6− | 0.2+ | 2009 12 10 | G96 | 0.4+ | 0.1− |
| 2008 10 21 | G96 | 0.2− | 0.2+ | 2009 11 08 | G96 | 0.2+ | 0.3+ | 2009 12 10 | G96 | 0.2− | 0.1− |
| 2008 10 21 | G96 | 0.2+ | 0.1− | 2009 11 08 | G96 | 0.5+ | 0.1+ | 2009 12 10 | G96 | 0.0 | 0.1− |
| 2009 09 22 | G96 | 0.0 | 0.1− | 2009 11 08 | G96 | 0.2+ | 0.2+ | 2009 12 10 | G96 | 0.0 | 0.5− |
| 2009 09 22 | G96 | 0.2+ | 0.1− | 2009 11 08 | G96 | 0.2+ | 0.2+ | | | | |
| 2009 09 22 | G96 | 0.0 | 0.0 | 2009 11 24 | G96 | 0.0 | 0.3+ | | | | |

**2009 UP$_{30}$ = 1992 SZ$_3$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 44.50543 | | (2000.0) | | **P** | | **Q** | | |
| $n$ | 0.17896727 | $\omega$ | 308.73511 | | +0.99961420 | | −0.01010726 | | |
| $a$ | 3.1185567 | $\Omega$ | 51.85926 | | +0.01996322 | | +0.90905363 | | |
| $e$ | 0.1752536 | $i$ | 1.88502 | | −0.01931138 | | +0.41655652 | | |
| $P$ | 5.51 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 4 | | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1992 09 24 | 691 | 0.2+ | 0.3+ | 2009 10 18 | G96 | 0.6+ | 0.1+ | 2009 11 24 | G96 | 0.4− | 0.4− |
| 1992 09 24 | 691 | 0.0 | 0.1− | 2009 10 18 | G96 | 0.5+ | 0.2− | 2009 11 24 | G96 | 0.0 | 0.0 |
| 1992 09 24 | 691 | 0.1− | 0.1+ | 2009 10 18 | G96 | 0.6+ | 0.1− | 2009 11 24 | G96 | 0.2+ | 0.2− |
| 1992 09 25 | 691 | 0.2− | 0.0 | 2009 10 23 | 691 | 0.4− | 0.3+ | 2009 12 10 | G96 | 0.1− | 0.2+ |
| 1992 09 25 | 691 | 0.1+ | 0.2− | 2009 10 23 | 691 | 0.3− | 0.1+ | 2009 12 10 | G96 | 0.5+ | 0.1− |
| 1992 09 25 | 691 | 0.0 | 0.1− | 2009 10 23 | 691 | 0.3− | 0.1− | 2009 12 10 | G96 | 0.7+ | 0.2− |
| 2009 10 18 | G96 | 1.2+ | 0.2− | 2009 11 24 | G96 | 0.1+ | 0.2+ | 2009 12 10 | G96 | 0.0 | 0.2− |

**2009 UM$_{31}$ = 2005 VX$_{81}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 295.67305 | | (2000.0) | | **P** | | **Q** | | |
| $n$ | 0.24239697 | $\omega$ | 274.11563 | | −0.64747855 | | −0.68479308 | | |
| $a$ | 2.5475219 | $\Omega$ | 223.15581 | | +0.73128487 | | −0.68178578 | | |
| $e$ | 0.1050510 | $i$ | 29.26925 | | −0.21446204 | | −0.25734527 | | |
| $P$ | 4.07 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 5 | | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 22 | 691 | 0.3− | 0.1+ | 2005 11 10 | 703 | 0.2− | 0.7− | 2009 10 23 | 691 | 0.6− | 0.0 |
| 2005 10 22 | 691 | 0.3+ | 0.0 | 2005 11 10 | 703 | 0.6− | 0.2+ | 2009 10 23 | 691 | 0.4− | 0.0 |
| 2005 10 22 | 691 | 0.2+ | 0.4+ | 2005 11 10 | 703 | 0.0 | 0.5+ | 2009 10 23 | 691 | 0.4− | 0.1− |
| 2005 11 06 | 691 | 0.1− | 0.3− | 2009 10 18 | G96 | 0.4+ | 0.3− | 2009 11 09 | 703 | 0.7+ | 0.5+ |
| 2005 11 06 | 691 | 0.2− | 0.1− | 2009 10 18 | G96 | 0.5+ | 0.2− | 2009 11 09 | 703 | 1.3+ | 0.5+ |
| 2005 11 06 | 691 | 0.0 | 0.3− | 2009 10 18 | G96 | 0.7+ | 0.1− | 2009 11 09 | 703 | 0.7+ | 0.3+ |
| 2005 11 10 | 703 | 0.8+ | 0.4+ | 2009 10 18 | G96 | 0.3+ | 0.1− | 2009 11 09 | 703 | 1.4+ | 0.4+ |

**2009 UU$_{31}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 300.29938 | | (2000.0) | | **P** | | **Q** | | |
| $n$ | 0.17889270 | $\omega$ | 268.84920 | | −0.71544447 | | −0.69122489 | | |
| $a$ | 3.1194233 | $\Omega$ | 227.41241 | | +0.68331041 | | −0.66190031 | | |
| $e$ | 0.1564017 | $i$ | 7.94159 | | +0.14569181 | | −0.28999334 | | |
| $P$ | 5.51 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 0 | | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 12 08 | 910 | 0.5+ | 0.2+ | 2009 10 18 | G96 | 0.2+ | 0.1− | 2009 11 20 | 704 | (1.9+ | 0.9+) |
| 1998 12 08 | 910 | 0.6+ | 0.7+ | 2009 10 18 | G96 | 0.4+ | 0.2− | 2009 11 20 | 704 | 0.2+ | 0.1− |
| 1998 12 08 | 910 | 0.4+ | 0.4− | 2009 10 18 | G96 | 0.2+ | 1.1− | 2009 11 20 | 704 | 0.1− | 1.1+ |
| 2000 03 03 | 703 | 0.8+ | 0.5+ | 2009 10 18 | G96 | 1.0+ | 0.4− | 2009 11 20 | 704 | 0.3+ | 0.4+ |
| 2000 03 03 | 703 | 0.4+ | 0.9+ | 2009 10 23 | 691 | 0.3− | 0.2+ | 2009 11 20 | J75 | 0.0 | 0.3− |
| 2000 03 03 | 703 | 1.8− | 0.7+ | 2009 10 23 | 691 | 0.6− | 0.3+ | 2009 11 20 | J75 | 0.2+ | 0.5− |
| 2000 03 03 | 703 | (4.3− | 0.6+) | 2009 10 23 | 691 | 0.4− | 0.1− | 2009 11 20 | J75 | 0.4+ | 0.4− |
| 2000 03 04 | 645 | 0.1− | 0.1− | 2009 11 08 | 703 | 0.7− | 0.7+ | 2009 11 24 | G96 | 0.5+ | 0.1− |
| 2000 03 04 | 645 | 0.1+ | 0.0 | 2009 11 08 | 703 | 0.4+ | 0.1− | 2009 11 24 | G96 | 0.3+ | 0.1− |
| 2003 10 01 | 691 | 0.2− | 0.0 | 2009 11 08 | 703 | 0.2− | 0.8− | 2009 11 24 | G96 | 0.1+ | 0.0 |
| 2003 10 01 | 691 | 0.2− | 0.1+ | 2009 11 08 | 703 | 0.6− | 0.6− | 2009 11 24 | G96 | 0.2+ | 0.3− |
| 2003 10 01 | 691 | 0.1− | 0.1+ | 2009 11 11 | J75 | 0.3+ | 0.1− | 2009 12 10 | G96 | 0.2+ | 0.0 |
| 2006 05 07 | G96 | 0.3+ | 0.0 | 2009 11 11 | J75 | 0.3+ | 0.2− | 2009 12 10 | G96 | 0.4+ | 0.0 |
| 2006 05 07 | G96 | 0.3+ | 0.2+ | 2009 11 11 | J75 | 0.0 | 0.1+ | 2009 12 10 | G96 | 0.2+ | 0.1− |
| 2006 05 07 | G96 | 0.2− | 0.3+ | 2009 11 14 | J75 | 1.3+ | 0.8+ | 2009 12 10 | 703 | 1.0− | 0.3− |
| 2006 05 07 | G96 | 0.2+ | 0.1+ | 2009 11 14 | J75 | 0.5+ | 0.2+ | 2009 12 10 | G96 | 0.0 | 0.3− |
| 2006 05 23 | G96 | 0.4+ | 0.3+ | 2009 11 14 | J75 | 0.8+ | 0.0 | 2009 12 10 | 703 | 0.1+ | 1.5− |
| 2006 05 23 | G96 | 0.2− | 0.4+ | 2009 11 18 | 704 | 0.5− | 0.8+ | 2009 12 10 | 703 | 0.3− | 0.5+ |
| 2006 05 23 | G96 | 0.2+ | 0.1+ | 2009 11 18 | 704 | 0.9+ | 0.7+ | 2009 12 10 | 703 | 0.8− | 0.2+ |
| 2006 05 23 | G96 | 0.4+ | 0.1+ | 2009 11 18 | 704 | 0.2− | 1.1+ | | | | |

**2009 UY$_{32}$ = 2006 DV$_{124}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 11.67646 | | (2000.0) | | **P** | | **Q** | | |
| $n$ | 0.17740265 | $\omega$ | 344.27085 | | +0.65274543 | | −0.75745324 | | |
| $a$ | 3.1368661 | $\Omega$ | 64.97811 | | +0.69668504 | | +0.59307191 | | |
| $e$ | 0.0843227 | $i$ | 0.86697 | | +0.29757917 | | +0.27300236 | | |
| $P$ | 5.56 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 0 | | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 01 13 | 691 | 0.2− | 0.1− | 2006 02 24 | 691 | 0.1+ | 0.3+ | 2009 10 27 | 691 | 0.3− | 0.1+ |
| 1994 01 13 | 691 | 0.3− | 0.3− | 2006 03 03 | G96 | 0.0 | 0.4+ | 2009 10 27 | 691 | 0.3− | 0.1+ |
| 1994 01 13 | 691 | 0.2− | 0.4+ | 2006 03 03 | G96 | 0.4− | 0.6+ | 2009 11 11 | 691 | 0.6− | 0.2+ |
| 1995 04 05 | 691 | 0.2− | 0.2− | 2006 03 03 | G96 | 0.7− | 0.0 | 2009 11 11 | 691 | 0.4− | 0.2+ |
| 1995 04 05 | 691 | 0.3− | 0.2− | 2006 03 03 | G96 | 0.7− | 0.4+ | 2009 11 11 | 691 | 0.2− | 0.1+ |
| 2000 02 05 | 695 | 0.2+ | 0.0 | 2006 03 24 | G96 | 0.5+ | 0.4− | 2009 11 11 | G96 | 0.9+ | 0.6+ |
| 2000 02 05 | 695 | 0.3+ | 0.1+ | 2006 03 24 | G96 | 0.0 | 0.1+ | 2009 11 11 | G96 | 0.1+ | 0.2+ |
| 2001 04 28 | 691 | 0.2− | 0.1+ | 2006 03 24 | G96 | 0.5− | 0.0 | 2009 11 11 | G96 | 0.2+ | 0.1+ |
| 2001 04 28 | 691 | 0.7+ | 0.0 | 2006 03 24 | G96 | 0.5− | 0.4+ | 2009 11 11 | G96 | 0.2+ | 0.4− |
| 2001 04 28 | 691 | 0.2+ | 0.3+ | 2008 09 22 | G96 | 0.3+ | 0.1+ | 2009 11 23 | G96 | 0.3+ | 0.2− |
| 2003 09 21 | 691 | 0.2+ | 0.1+ | 2008 09 22 | G96 | 0.4− | 0.0 | 2009 11 23 | G96 | 0.3− | 0.2− |
| 2003 09 21 | 691 | 0.3+ | 0.2+ | 2008 09 22 | G96 | 0.1− | 0.5+ | 2009 11 23 | G96 | 0.3+ | 0.1− |
| 2003 09 21 | 691 | 0.0 | 0.1+ | 2008 09 22 | G96 | 0.3− | 0.4− | 2009 11 23 | G96 | 0.3+ | 0.2+ |
| 2004 12 12 | 691 | 0.4+ | 0.3− | 2009 10 18 | G96 | 0.5+ | 0.0 | 2009 12 11 | G96 | 0.1+ | 0.1+ |
| 2004 12 12 | 691 | 0.1− | 0.2+ | 2009 10 18 | G96 | 0.5+ | 0.1− | 2009 12 11 | G96 | 0.0 | 0.1− |
| 2004 12 12 | 691 | 0.2+ | 0.1− | 2009 10 18 | G96 | 0.1− | 0.2− | 2009 12 11 | G96 | 0.3+ | 0.1− |
| 2005 01 18 | 691 | 0.4+ | 0.0 | 2009 10 18 | G96 | 0.1+ | 0.1+ | 2009 12 11 | G96 | 0.3− | 0.1+ |
| 2005 01 18 | 691 | 0.3+ | 0.1− | 2009 10 23 | 691 | 0.3− | 0.1− | 2009 12 17 | A77 | 0.5+ | 0.0 |
| 2005 01 18 | 691 | 0.4+ | 0.3− | 2009 10 23 | 691 | 0.1+ | 0.1− | 2009 12 17 | A77 | 0.6+ | 0.8+ |
| 2006 02 24 | 691 | 0.2+ | 0.4+ | 2009 10 23 | 691 | 0.1+ | 0.1− | 2009 12 17 | A77 | 0.1− | 1.0+ |
| 2006 02 24 | 691 | 0.1+ | 0.1+ | 2009 10 27 | 691 | 0.6− | 0.3− | | | | |

**2009 UY$_{33}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 68.06149 | | (2000.0) | | **P** | | **Q** | | |
| $n$ | 0.22092616 | $\omega$ | 286.79436 | | +0.93952961 | | +0.31397059 | | |
| $a$ | 2.7100125 | $\Omega$ | 55.10708 | | −0.21448312 | | +0.85080012 | | |
| $e$ | 0.1526075 | $i$ | 9.59890 | | −0.26698522 | | +0.42138061 | | |
| $P$ | 4.46 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 3 | | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 12 04 | 691 | 0.2− | 0.4− | 2009 10 18 | G96 | 0.3+ | 0.2− | 2009 11 25 | 691 | 0.1− | 0.2+ |
| 2000 12 04 | 691 | 0.5+ | 0.4− | 2009 10 18 | G96 | 0.3+ | 0.5− | 2009 11 25 | 691 | 0.4− | 0.0 |
| 2000 12 04 | 691 | 0.3+ | 0.3− | 2009 10 23 | 691 | 0.4+ | 0.2− | 2009 11 26 | G96 | 0.0 | 0.2− |
| 2004 08 21 | E12 | 0.3− | 0.0 | 2009 10 23 | 691 | 0.8− | 0.5+ | 2009 11 26 | G96 | 0.7+ | 0.3− |
| 2004 08 21 | E12 | 0.3+ | 0.1+ | 2009 10 23 | 691 | 0.1− | 0.2− | 2009 11 26 | G96 | 0.2+ | 0.3− |
| 2004 08 21 | E12 | 0.3+ | 0.3+ | 2009 11 08 | 691 | 0.2+ | 0.4+ | 2009 11 26 | G96 | 0.3+ | 0.2− |
| 2004 08 21 | E12 | 0.2+ | 0.1+ | 2009 11 08 | 691 | 0.2+ | 0.0 | 2009 11 26 | G96 | 0.3+ | 0.5− |
| 2004 09 04 | 644 | 0.0 | 0.0 | 2009 11 08 | 691 | 0.1− | 0.2+ | 2009 11 27 | 691 | 0.3− | 0.2+ |
| 2004 09 04 | 644 | 0.4− | 0.1+ | 2009 11 24 | G96 | 0.1+ | 0.3− | 2009 11 27 | 691 | 0.5− | 0.6+ |
| 2004 09 04 | 644 | 0.3− | 0.2− | 2009 11 24 | G96 | 0.4+ | 0.4− | 2009 11 27 | 691 | 0.0 | 0.1+ |
| 2009 10 18 | G96 | 0.6+ | 0.3− | 2009 11 24 | G96 | 0.6+ | 0.4− | | | | |
| 2009 10 18 | G96 | 0.1− | 0.4− | 2009 11 25 | 691 | 0.1+ | 0.3+ | | | | |

**2009 UB$_{35}$ = 2007 HT$_{27}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 281.53213 | | (2000.0) | | | |
| $n$ | 0.23714443 | $\omega$ | 107.74012 | | −0.95944967 | −0.25981437 |
| $a$ | 2.5850013 | $\Omega$ | 57.32970 | | +0.18318117 | −0.86948875 |
| $e$ | 0.1334459 | $i$ | 7.46246 | | +0.21424516 | −0.42010214 |
| $P$ | 4.16 | $H$ | 16.9 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 26 | 645 | 0.0 | 0.0 | 2007 04 22 | 691 | 0.8+ | 0.4− | 2009 10 23 | 691 | 0.3− | 0.1− |
| 2000 09 26 | 645 | 0.0 | 0.0 | 2007 05 13 | G96 | 0.2− | 0.8− | 2009 12 18 | G96 | 0.1− | 0.4− |
| 2005 12 30 | G96 | 0.7+ | 0.2− | 2007 05 13 | G96 | 0.1+ | 0.1− | 2009 12 18 | G96 | 0.3+ | 0.0 |
| 2005 12 30 | G96 | 0.3− | 0.5− | 2007 05 13 | G96 | 0.1− | 0.2− | 2009 12 18 | G96 | 0.2+ | 0.4+ |
| 2005 12 30 | G96 | 0.1− | 0.1− | 2007 05 13 | G96 | 0.2+ | 0.0 | 2009 12 18 | G96 | 0.3+ | 0.1− |
| 2005 12 30 | G96 | 0.1− | 0.1+ | 2009 10 21 | G96 | 0.4− | 0.3+ | 2009 12 19 | G96 | 0.0 | 0.3− |
| 2007 04 18 | 691 | 0.1− | 0.4+ | 2009 10 21 | G96 | 0.0 | 0.6+ | 2009 12 19 | G96 | 0.3+ | 0.4− |
| 2007 04 18 | 691 | 0.4− | 0.2− | 2009 10 21 | G96 | 0.3+ | 0.0 | 2009 12 19 | G96 | 0.2+ | 0.3− |
| 2007 04 18 | 691 | 0.4− | 0.2+ | 2009 10 21 | G96 | 0.8+ | 0.6+ | 2009 12 19 | G96 | 0.4+ | 0.2+ |
| 2007 04 22 | 691 | 0.0 | 0.1+ | 2009 10 23 | 691 | 0.1+ | 0.1+ | | | | |
| 2007 04 22 | 691 | 0.2− | 0.4− | 2009 10 23 | 691 | 0.3− | 0.5− | | | | |

**2009 US$_{35}$ = 2000 VU**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 4.12085 | | (2000.0) | | | |
| $n$ | 0.22123517 | $\omega$ | 19.71007 | | +0.35435916 | −0.92465010 |
| $a$ | 2.7074884 | $\Omega$ | 49.80088 | | +0.83158717 | +0.24339400 |
| $e$ | 0.1599955 | $i$ | 10.52114 | | +0.42765917 | +0.29288489 |
| $P$ | 4.46 | $H$ | 18.3 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 01 | 691 | 0.3− | 0.4− | 2009 10 21 | G96 | 0.8+ | 0.1+ | 2009 11 09 | 691 | 0.1− | 0.3+ |
| 2000 11 01 | 691 | 0.3+ | 0.3− | 2009 10 21 | G96 | 1.0+ | 0.2− | 2009 11 09 | 691 | 0.1− | 0.1− |
| 2000 11 01 | 691 | 0.0 | 0.1+ | 2009 10 23 | 691 | 0.0 | 0.2− | 2009 11 09 | 691 | 0.5+ | 0.3+ |
| 2000 11 02 | 691 | 0.2− | 1.3+ | 2009 10 23 | 691 | 0.0 | 0.1− | 2009 11 17 | 691 | 0.0 | 0.1− |
| 2000 11 02 | 691 | 0.1+ | 0.3− | 2009 10 23 | 691 | 1.0− | 0.1+ | 2009 11 17 | 691 | 0.0 | 0.1− |
| 2000 11 02 | 691 | 0.1+ | 0.5− | 2009 10 27 | 691 | 0.2− | 0.1+ | 2009 11 17 | 691 | 0.0 | 0.2− |
| 2009 10 21 | G96 | 0.6+ | 0.5− | 2009 10 27 | 691 | 0.0 | 0.2+ | | | | |
| 2009 10 21 | G96 | 0.7+ | 0.4− | 2009 10 27 | 691 | 0.3+ | 0.0 | | | | |

**2009 UR$_{37}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 123.12731 | | (2000.0) | | | |
| $n$ | 0.21276668 | $\omega$ | 89.23999 | | +0.44639136 | +0.89377352 |
| $a$ | 2.7788619 | $\Omega$ | 207.40517 | | −0.85408171 | +0.41100596 |
| $e$ | 0.0366718 | $i$ | 5.43933 | | −0.26698162 | +0.17956332 |
| $P$ | 4.63 | $H$ | 16.5 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 07 | 691 | 0.2+ | 0.1− | 2007 05 09 | G96 | 0.2− | 0.1+ | 2009 10 27 | 691 | 0.1− | 0.3− |
| 2004 10 07 | 691 | 0.2+ | 0.3− | 2007 05 09 | G96 | 0.2+ | 0.4+ | 2009 11 17 | G96 | 0.3+ | 0.3− |
| 2004 10 07 | 691 | 0.1− | 0.1+ | 2009 10 22 | G96 | 0.4+ | 0.3− | 2009 11 17 | G96 | 0.5+ | 0.5− |
| 2004 11 05 | 691 | 0.3+ | 0.2+ | 2009 10 22 | G96 | 0.2+ | 0.0 | 2009 11 17 | G96 | 0.3+ | 0.2− |
| 2004 11 05 | 691 | 0.6− | 0.4+ | 2009 10 22 | G96 | 0.0 | 0.6− | 2009 11 17 | G96 | 0.5+ | 0.0 |
| 2004 11 05 | 691 | 0.2− | 0.3+ | 2009 10 22 | G96 | 0.3+ | 0.1− | 2009 11 24 | G96 | 0.5+ | 0.4− |
| 2007 04 08 | 691 | 0.2− | 0.1+ | 2009 10 23 | 691 | 0.3− | 0.1− | 2009 11 24 | G96 | 0.4+ | 0.4− |
| 2007 04 08 | 691 | 0.1+ | 0.4+ | 2009 10 23 | 691 | 0.1− | 0.7+ | 2009 11 24 | G96 | 0.7+ | 0.5− |
| 2007 04 08 | 691 | 0.2+ | 0.0 | 2009 10 23 | 691 | 0.8− | 0.6+ | 2009 11 24 | G96 | 0.3+ | 0.3− |
| 2007 05 09 | G96 | 0.2+ | 0.1+ | 2009 10 27 | 691 | 0.1+ | 0.3+ | | | | |
| 2007 05 09 | G96 | 0.0 | 0.2+ | 2009 10 27 | 691 | 0.0 | 0.1− | | | | |

**2009 UA$_{46}$ = 2004 TN$_{335}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 320.51663 | | (2000.0) | | | |
| $n$ | 0.19555549 | $\omega$ | 55.25950 | | −0.18956132 | −0.98134310 |
| $a$ | 2.9396077 | $\Omega$ | 45.70228 | | +0.88553819 | −0.18500650 |
| $e$ | 0.0581605 | $i$ | 2.57283 | | +0.42413278 | −0.05232882 |
| $P$ | 5.04 | $H$ | 16.4 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 03 12 | 691 | 0.0 | 0.1+ | 2004 10 15 | G96 | 0.0 | 0.1− | 2009 10 18 | G96 | 0.4+ | 0.3+ |
| 1996 03 12 | 691 | 0.3− | 0.1+ | 2004 10 15 | G96 | 0.1− | 0.0 | 2009 10 18 | G96 | 0.5+ | 0.2+ |
| 1996 03 12 | 691 | 0.5+ | 0.2− | 2004 10 15 | G96 | 0.0 | 0.0 | 2009 10 18 | G96 | 0.0 | 0.2+ |
| 1999 11 17 | 691 | 0.2+ | 0.2− | 2004 11 19 | 703 | 1.7+ | 0.9− | 2009 10 18 | G96 | 0.5+ | 0.3+ |
| 1999 11 17 | 691 | 0.3+ | 0.3− | 2004 11 19 | 703 | 1.0− | 0.2− | 2009 10 24 | 691 | 0.5− | 0.5+ |
| 1999 11 17 | 691 | 0.0 | 0.6− | 2004 11 19 | 703 | 0.0 | 0.0 | 2009 10 24 | 691 | 0.0 | 0.3+ |
| 2002 06 18 | 291 | 0.2− | 0.3+ | 2004 11 19 | 703 | 1.9− | 0.1− | 2009 10 24 | 691 | 0.4− | 0.5+ |
| 2002 06 18 | 291 | 0.4+ | 0.3+ | 2006 02 01 | 691 | 0.1+ | 0.4+ | 2009 11 08 | G96 | 0.5+ | 0.2+ |
| 2002 06 18 | 291 | 0.2− | 0.3− | 2006 02 01 | 691 | 0.2+ | 0.2+ | 2009 11 08 | G96 | 0.2+ | 0.2+ |
| 2004 10 10 | 691 | 0.2− | 0.0 | 2006 02 01 | 691 | 0.0 | 0.5+ | 2009 11 08 | G96 | 0.5+ | 0.2+ |
| 2004 10 10 | 691 | 0.2+ | 0.2+ | 2006 02 20 | 691 | 0.4− | 0.2+ | 2009 11 08 | G96 | 0.4+ | 0.2+ |
| 2004 10 10 | 691 | 0.1− | 0.1− | 2006 02 20 | 691 | 0.3− | 0.1+ | | | | |
| 2004 10 15 | G96 | 0.1− | 0.1− | 2006 02 20 | 691 | 0.5+ | 0.9− | | | | |

**2009 UO$_{48}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 56.73301 | | (2000.0) | | | |
| $n$ | 0.25572374 | $\omega$ | 120.88739 | | +0.91630761 | +0.39984341 |
| $a$ | 2.4582272 | $\Omega$ | 215.55818 | | −0.37936474 | +0.84864742 |
| $e$ | 0.1887305 | $i$ | 2.21600 | | −0.12830729 | +0.34629872 |
| $P$ | 3.85 | $H$ | 17.9 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 08 29 | 691 | 0.0 | 0.3+ | 2009 10 02 | G96 | 0.6− | 0.9− | 2009 10 24 | 691 | 0.1− | 0.2+ |
| 2005 08 29 | 691 | 0.1− | 0.1− | 2009 10 02 | G96 | 0.2+ | 0.1− | 2009 11 11 | 691 | 0.2+ | 0.1− |
| 2005 08 29 | 691 | 0.0 | 0.1+ | 2009 10 02 | G96 | 1.5+ | 0.6− | 2009 11 11 | 691 | 0.1− | 0.2+ |
| 2005 10 27 | G96 | 0.2− | 0.8− | 2009 10 02 | G96 | 0.3+ | 0.2− | 2009 11 11 | 691 | 0.2+ | 0.2+ |
| 2005 10 27 | G96 | 0.3+ | 0.3− | 2009 10 22 | G96 | 0.6+ | 0.1− | 2009 11 19 | 691 | 0.2− | 0.1− |
| 2005 10 27 | G96 | 0.3+ | 0.3− | 2009 10 22 | G96 | 0.0 | 0.1− | 2009 11 19 | 691 | 0.0 | 0.3+ |
| 2005 10 27 | G96 | 0.3+ | 0.4− | 2009 10 22 | G96 | 0.6+ | 0.1+ | 2009 11 19 | 691 | 0.1+ | 0.0 |
| 2009 09 18 | 691 | 0.2− | 0.2+ | 2009 10 22 | G96 | 0.1− | 0.0 | 2009 11 21 | 691 | 0.3− | 0.6− |
| 2009 09 18 | 691 | 0.0 | 0.1− | 2009 10 24 | 691 | 0.3− | 0.0 | 2009 11 21 | 691 | 0.1+ | 0.1+ |
| 2009 09 18 | 691 | 0.0 | 0.1− | 2009 10 24 | 691 | 0.3− | 0.5+ | 2009 11 21 | 691 | 0.0 | 0.0 |

**2009 UC$_{50}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 338.62596 | | (2000.0) | | | |
| $n$ | 0.17578351 | $\omega$ | 352.32775 | | +0.20389776 | −0.97826355 |
| $a$ | 3.1560990 | $\Omega$ | 85.90168 | | +0.90020643 | +0.17218818 |
| $e$ | 0.1595670 | $i$ | 2.16979 | | +0.38477798 | +0.11554934 |
| $P$ | 5.61 | $H$ | 16.8 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 12 25 | 691 | 0.2+ | 0.3− | 2009 09 15 | 691 | 0.1− | 0.8+ | 2009 10 22 | G96 | 0.2+ | 0.1− |
| 1998 12 25 | 691 | 0.2− | 0.4+ | 2009 09 15 | 691 | 0.0 | 0.4− | 2009 10 22 | G96 | 0.2− | 0.1− |
| 1998 12 25 | 691 | 0.1+ | 0.3− | 2009 09 27 | 691 | 0.1− | 0.0 | 2009 10 24 | 691 | 0.2+ | 0.1+ |
| 2004 12 16 | 691 | 0.0 | 0.3+ | 2009 09 27 | 691 | 0.3− | 0.1− | 2009 10 24 | 691 | 0.2− | 0.0 |
| 2004 12 16 | 691 | 0.2− | 0.0 | 2009 09 27 | 691 | 0.1+ | 0.2− | 2009 10 24 | 691 | 0.0 | 0.1− |
| 2004 12 16 | 691 | 0.2+ | 0.2− | 2009 10 22 | G96 | 0.6+ | 0.1− | | | | |
| 2009 09 15 | 691 | 0.1+ | 0.0 | 2009 10 22 | G96 | 0.4+ | 0.1+ | | | | |

**2009 UF$_{51}$ = 2007 EU$_{141}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 35.60540 | | (2000.0) | | | |
| $n$ | 0.22760255 | $\omega$ | 118.07255 | | +0.94449519 | −0.32532992 |
| $a$ | 2.6567538 | $\Omega$ | 260.94319 | | +0.28283261 | +0.87600555 |
| $e$ | 0.1075892 | $i$ | 2.65292 | | +0.16713630 | +0.35605437 |
| $P$ | 4.33 | $H$ | 16.7 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 04 25 | 691 | 0.1− | 0.2+ | 2007 04 20 | G96 | 0.9− | 0.3+ | 2009 11 08 | G96 | 0.1+ | 0.1+ |
| 2003 04 25 | 691 | 0.1+ | 0.5+ | 2007 04 20 | G96 | 0.4− | 0.1+ | 2009 11 08 | G96 | 0.4− | 0.0 |
| 2003 04 25 | 691 | 0.4+ | 0.3+ | 2007 04 20 | G96 | 0.6− | 0.4+ | 2009 11 08 | G96 | 0.2+ | 0.2+ |
| 2007 03 12 | 691 | 0.2+ | 0.6− | 2007 04 20 | G96 | 0.6− | 0.3+ | 2009 11 08 | G96 | 0.1− | 0.2+ |
| 2007 03 12 | 691 | 0.1+ | 0.3+ | 2009 10 22 | 703 | 0.9+ | 0.7− | 2009 11 08 | G96 | 0.1+ | 0.2+ |
| 2007 03 12 | 691 | 0.1+ | 0.3+ | 2009 10 22 | 703 | 0.8+ | 0.7+ | 2009 11 08 | G96 | 0.2+ | 0.2+ |
| 2007 03 12 | 691 | 0.1+ | 0.0 | 2009 10 22 | 703 | 0.2− | 0.1− | 2009 11 08 | G96 | 0.7− | 0.3+ |
| 2007 03 12 | 691 | 0.4− | 0.3− | 2009 10 22 | 703 | 0.1− | 0.8+ | 2009 11 23 | 703 | (3.1− | 0.8+) |
| 2007 03 12 | 691 | 0.0 | 0.1+ | 2009 10 24 | 691 | 0.0 | 0.0 | 2009 11 23 | 703 | (2.1− | 0.9+) |
| 2007 03 16 | 691 | 0.1− | 0.1− | 2009 10 24 | 691 | 0.0 | 0.1− | 2009 11 23 | 703 | (2.0− | 0.4+) |
| 2007 03 16 | 691 | 0.2+ | 0.3− | 2009 10 24 | 691 | 0.1+ | 0.0 | 2009 11 23 | 703 | 1.4− | 1.3+ |
| 2007 03 16 | 691 | 0.1+ | 0.0 | 2009 11 08 | G96 | 0.4− | 0.2+ | 2009 11 23 | 703 | (2.7− | 1.6+) |

**2009 UW$_{59}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 30.10442 | | (2000.0) | | | |
| $n$ | 0.22720827 | $\omega$ | 147.61516 | | +0.89720541 | −0.32988426 |
| $a$ | 2.6598264 | $\Omega$ | 234.48081 | | +0.28748884 | +0.94096169 |
| $e$ | 0.0443582 | $i$ | 21.14433 | | +0.33522026 | +0.07594396 |
| $P$ | 4.34 | $H$ | 16.0 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 11 29 | 644 | 0.1+ | 0.1+ | 2009 10 27 | G96 | 0.1+ | 0.2− | 2009 11 20 | G96 | 0.0 | 0.4− |
| 2005 11 29 | 644 | 0.7+ | 0.1− | 2009 10 27 | G96 | 0.3+ | 0.3− | 2009 11 20 | G96 | 0.2− | 0.2− |
| 2005 11 29 | 644 | 0.5+ | 0.1− | 2009 10 27 | G96 | 0.1− | 0.3− | 2009 11 21 | B11 | 0.1+ | 0.3− |
| 2005 12 22 | 703 | 0.2− | 0.6− | 2009 10 27 | G96 | 0.1− | 0.1− | 2009 11 21 | B11 | 0.2− | 0.3− |
| 2005 12 22 | 703 | 0.1+ | 0.3+ | 2009 10 27 | B11 | 0.1− | 0.1− | 2009 12 09 | B11 | 0.1+ | 0.2− |
| 2005 12 22 | 703 | 0.4− | 0.2+ | 2009 10 27 | B11 | 0.5+ | 0.3+ | 2009 12 09 | B11 | 0.0 | 0.3− |
| 2005 12 22 | 703 | 0.8− | 0.2+ | 2009 11 08 | 703 | 0.5+ | 0.2− | 2009 12 09 | B11 | 0.0 | 0.5− |
| 2009 10 24 | B11 | 0.1− | 0.2+ | 2009 11 08 | 703 | 0.7+ | 0.2− | 2009 12 16 | 704 | 0.4− | 0.1+ |
| 2009 10 24 | B11 | 0.1− | 0.3+ | 2009 11 08 | 703 | 0.1+ | 0.5− | 2009 12 16 | 704 | 0.3− | 0.5− |
| 2009 10 24 | B11 | 0.2− | 0.2+ | 2009 11 16 | 704 | 0.5− | 0.4− | 2009 12 16 | 704 | 0.0 | 1.5+ |
| 2009 10 24 | B11 | 0.1+ | 0.3+ | 2009 11 16 | 704 | 0.1− | 0.4+ | 2009 12 16 | 704 | 0.6− | 1.0+ |
| 2009 10 26 | B11 | 0.6+ | 0.6− | 2009 11 16 | 704 | 0.3− | 0.1− | 2009 12 19 | F65 | 0.3+ | 0.5− |
| 2009 10 26 | B11 | 0.4− | 0.4+ | 2009 11 16 | 704 | 0.5+ | 1.0+ | 2009 12 19 | F65 | 0.2+ | 0.5− |
| 2009 10 26 | B11 | 0.2− | 0.3+ | 2009 11 20 | G96 | 0.1− | 0.1− | | | | |
| 2009 10 26 | B11 | 0.2+ | 0.5+ | 2009 11 20 | G96 | 0.3− | 0.0 | | | | |

**2009 UL$_{64}$ = 2007 HC$_{37}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 176.80303 | | (2000.0) | | | |
| $n$ | 0.19051862 | $\omega$ | 44.74823 | | −0.76288783 | +0.64638708 |
| $a$ | 2.9911930 | $\Omega$ | 175.45848 | | −0.63088025 | −0.73964295 |
| $e$ | 0.1867334 | $i$ | 9.91540 | | −0.14139402 | −0.18738211 |
| $P$ | 5.17 | $H$ | 16.3 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 19 | 691 | 0.3− | 0.1− | 2007 04 20 | 691 | 0.0 | 0.2− | 2009 10 17 | G96 | 0.3+ | 0.1− |
| 2003 09 19 | 691 | 0.1+ | 0.0 | 2007 04 20 | 691 | 0.3+ | 0.0 | 2009 10 17 | G96 | 0.2− | 0.2− |
| 2003 09 19 | 691 | 0.2+ | 0.1+ | 2007 04 22 | 691 | 0.1− | 0.0 | 2009 10 17 | G96 | 0.3+ | 0.2+ |
| 2007 04 15 | 703 | 0.3− | 0.7+ | 2007 04 22 | 691 | 0.0 | 0.1+ | 2009 10 17 | G96 | 0.0 | 0.3− |
| 2007 04 15 | 703 | 0.3− | 0.2+ | 2007 04 22 | 691 | 0.0 | 0.1+ | 2009 10 24 | G96 | 0.1+ | 0.4+ |
| 2007 04 15 | 703 | 0.4+ | 0.7− | 2009 09 29 | 691 | 0.1− | 0.1+ | 2009 10 24 | G96 | 0.4+ | 0.4+ |
| 2007 04 15 | 703 | (2.2− | 0.1+) | 2009 09 29 | 691 | 0.2− | 0.1+ | 2009 10 24 | G96 | 0.6+ | 0.0 |
| 2007 04 20 | 691 | 0.2− | 0.0 | 2009 09 29 | 691 | 0.1− | 0.3− | 2009 10 24 | G96 | 0.2+ | 0.1+ |

**2009 UU$_{71}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 65.91136 | | (2000.0) | | | |
| $n$ | 0.18895202 | $\omega$ | 68.61559 | | +0.84215235 | +0.53497389 |
| $a$ | 3.0077035 | $\Omega$ | 258.98447 | | −0.51676570 | +0.76480596 |
| $e$ | 0.2123011 | $i$ | 3.95446 | | −0.15405397 | +0.35899133 |
| $P$ | 5.22 | $H$ | 15.8 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 12 27 | 691 | 0.5− | 0.1− | 2006 02 03 | G96 | 0.3+ | 0.6+ | 2009 10 24 | 703 | 0.6+ | 1.0− |
| 1999 12 27 | 691 | 0.1+ | 0.2+ | 2006 02 03 | G96 | 0.1+ | 0.3+ | 2009 10 24 | 703 | 1.0− | 0.8+ |
| 1999 12 27 | 691 | 0.0 | 0.3+ | 2009 10 14 | 703 | 0.1− | 0.3− | 2009 10 24 | 703 | 0.5− | 0.0 |
| 2000 01 12 | 691 | 0.1− | 0.2− | 2009 10 14 | 703 | 0.4+ | 0.4− | 2009 11 08 | G96 | 0.2+ | 0.3− |
| 2000 01 12 | 691 | 0.6+ | 1.2− | 2009 10 14 | 703 | 1.0+ | 0.2− | 2009 11 08 | G96 | 0.1− | 0.2− |
| 2000 01 12 | 691 | 0.1+ | 0.3+ | 2009 10 14 | 703 | 0.5+ | 0.9+ | 2009 11 08 | G96 | 0.1− | 0.3− |
| 2004 11 04 | 691 | 0.3− | 0.1+ | 2009 10 22 | 703 | 0.5− | 0.4− | 2009 11 08 | G96 | 0.1− | 0.1+ |
| 2004 11 04 | 691 | 0.0 | 0.0 | 2009 10 22 | 703 | 0.3− | 0.8+ | 2009 12 18 | G96 | 0.4− | 0.5+ |
| 2004 11 04 | 691 | 0.2+ | 0.1+ | 2009 10 22 | 703 | 0.6+ | 0.9+ | 2009 12 18 | G96 | 0.1− | 0.2+ |
| 2006 02 03 | G96 | 0.4− | 0.0 | 2009 10 22 | 703 | 0.1− | 0.2− | 2009 12 18 | G96 | 0.2+ | 0.1+ |
| 2006 02 03 | G96 | 0.5+ | 0.6+ | 2009 10 24 | 703 | 0.3− | 0.1− | 2009 12 18 | G96 | 0.0 | 0.1+ |

**2009 UV$_{71}$ = 2004 PT$_{53}$ = 2007 ET$_{59}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 110.74299 | | (2000.0) | | | |
| $n$ | 0.22822909 | $\omega$ | 248.60705 | | +0.51314738 | +0.85621186 |
| $a$ | 2.6518892 | $\Omega$ | 52.40741 | | −0.75685671 | +0.48427758 |
| $e$ | 0.0463723 | $i$ | 4.33124 | | −0.40478103 | +0.17993466 |
| $P$ | 4.32 | $H$ | 15.9 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 04 25 | 691 | 0.2+ | 0.1+ | 2005 12 30 | G96 | 0.6+ | 0.2+ | 2009 10 23 | 691 | 0.7− | 0.6+ |
| 2003 04 25 | 691 | 0.1+ | 0.1+ | 2006 03 04 | G96 | 0.2+ | 0.5+ | 2009 10 23 | 691 | 0.3− | 0.5+ |
| 2003 04 25 | 691 | 0.1− | 0.3+ | 2006 03 04 | G96 | 0.6+ | 0.2+ | 2009 10 23 | 691 | 0.2− | 0.2+ |
| 2003 05 10 | 691 | 0.5+ | 0.6+ | 2006 03 04 | G96 | 0.5+ | 0.3+ | 2009 10 24 | 703 | 0.9+ | 0.5− |
| 2003 05 10 | 691 | 0.5+ | 0.5+ | 2006 03 04 | G96 | 0.4− | 0.2− | 2009 10 24 | 703 | 0.4+ | 1.3+ |
| 2003 05 10 | 691 | 0.5+ | 0.4+ | 2007 03 09 | 703 | 0.1− | 0.6− | 2009 10 24 | 703 | 1.0+ | 1.1− |
| 2004 08 08 | 704 | 0.5− | 0.2+ | 2007 03 09 | 703 | 0.1− | 0.3+ | 2009 10 24 | 703 | 0.5+ | 0.3+ |
| 2004 08 08 | 704 | 0.4− | 0.7+ | 2007 03 09 | 703 | (0.3− | 1.7+) | 2009 10 25 | 703 | 0.2− | 0.5+ |
| 2004 08 08 | 704 | 0.2+ | 0.2− | 2007 03 09 | 703 | 1.4− | 1.2− | 2009 10 25 | 703 | (1.1+ | 1.6+) |
| 2004 08 08 | 704 | 0.3− | 0.1+ | 2007 03 09 | 644 | 0.6− | 0.2+ | 2009 10 25 | 703 | 0.7− | 0.3+ |
| 2004 08 08 | 644 | 0.3− | 0.1− | 2007 03 09 | 644 | 0.0 | 0.4+ | 2009 10 25 | 703 | 0.8− | 0.3+ |
| 2004 08 08 | 644 | 0.1− | 0.2− | 2007 03 09 | 644 | 0.3− | 0.7+ | 2009 11 08 | G96 | 0.1+ | 0.1+ |
| 2004 08 08 | 644 | 0.1− | 0.2− | 2007 03 11 | D29 | 0.0 | 0.0 | 2009 11 08 | G96 | 0.2+ | 0.0 |
| 2004 08 11 | 704 | 0.5− | 1.3+ | 2007 03 11 | D29 | 0.4+ | 0.2+ | 2009 11 08 | G96 | 0.3+ | 0.1− |
| 2004 08 11 | 704 | 0.4− | 0.7+ | 2007 03 11 | D29 | 0.3− | 0.1− | 2009 11 08 | G96 | 0.4+ | 0.2+ |
| 2004 08 11 | 704 | 1.1+ | 0.3− | 2007 03 11 | D29 | 0.1+ | 0.4+ | 2009 11 18 | G96 | 0.8+ | 0.1− |
| 2004 08 11 | 704 | 0.0 | 0.5+ | 2007 03 14 | G96 | (0.0 | 4.9+) | 2009 11 18 | G96 | 0.1+ | 0.1+ |
| 2004 08 11 | 704 | 0.6− | 0.7− | 2007 03 14 | G96 | (0.3− | 5.7+) | 2009 11 18 | G96 | 0.7+ | 0.2+ |
| 2005 11 29 | 691 | 0.6− | 0.1+ | 2007 03 14 | G96 | (0.4− | 5.7+) | 2009 11 18 | G96 | 0.4+ | 0.1+ |
| 2005 11 29 | 691 | 0.2− | 0.2+ | 2007 03 14 | G96 | (0.4− | 5.5+) | 2009 12 17 | G96 | 0.2+ | 0.4+ |
| 2005 11 29 | 691 | 0.3+ | 0.1− | 2009 10 14 | 703 | 0.2− | 1.0− | 2009 12 17 | G96 | 0.4+ | 0.4+ |
| 2005 12 30 | G96 | 0.3− | 0.1− | 2009 10 14 | 703 | 0.7− | 0.7+ | 2009 12 17 | G96 | 0.1+ | 0.0 |
| 2005 12 30 | G96 | 0.1− | 0.0 | 2009 10 14 | 703 | 0.7− | 0.2+ | 2009 12 17 | G96 | 0.2+ | 0.5+ |
| 2005 12 30 | G96 | 0.0 | 0.4+ | 2009 10 14 | 703 | 0.8+ | 0.4+ | | | | |

**2009 UB$_{72}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 6.75345 | | (2000.0) | | | |
| $n$ | 0.15801565 | $\omega$ | 174.41595 | | +0.65625396 | −0.75045814 |
| $a$ | 3.3884623 | $\Omega$ | 234.54132 | | +0.68849916 | +0.63807538 |
| $e$ | 0.1073346 | $i$ | 5.52189 | | +0.30870641 | +0.17225677 |
| $P$ | 6.24 | $H$ | 15.4 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 03 22 | 645 | 0.0 | 0.0 | 2009 10 23 | G96 | 0.2− | 0.0 | 2009 11 11 | J75 | 0.4− | 0.3+ |
| 1999 03 22 | 645 | 0.0 | 0.0 | 2009 10 23 | G96 | 0.3+ | 0.1− | 2009 11 11 | J75 | 0.2− | 0.1+ |
| 2003 11 24 | 691 | 0.1+ | 0.1− | 2009 10 23 | G96 | 0.0 | 0.1− | 2009 11 11 | J75 | 0.8− | 0.3+ |
| 2003 11 24 | 691 | 0.3− | 0.7+ | 2009 10 23 | G96 | 0.1− | 0.1− | 2009 11 25 | G96 | 0.2+ | 0.3− |
| 2003 11 24 | 691 | 0.1− | 0.1+ | 2009 10 24 | 703 | 0.9+ | 0.2− | 2009 11 25 | G96 | 0.3+ | 0.4− |
| 2003 12 19 | 691 | 0.1+ | 0.1− | 2009 10 24 | 703 | 1.4+ | 0.8+ | 2009 11 25 | G96 | 0.2− | 0.2− |
| 2003 12 19 | 691 | 0.1− | 0.1− | 2009 10 24 | 703 | 0.3+ | 0.3+ | 2009 11 25 | G96 | 0.4+ | 0.3− |
| 2003 12 19 | 691 | 0.4+ | 0.1− | 2009 10 24 | 703 | (1.6+ | 0.6−) | 2009 12 15 | G96 | 0.8− | 0.3− |
| 2008 11 19 | G96 | 0.2+ | 0.1− | 2009 11 08 | G96 | 0.3− | 0.3+ | 2009 12 15 | G96 | 0.3− | 0.3− |
| 2008 11 19 | G96 | 0.2+ | 0.8− | 2009 11 08 | G96 | 0.0 | 0.0 | 2009 12 15 | G96 | 0.3− | 0.4− |
| 2008 11 19 | G96 | 0.1+ | 0.6− | 2009 11 08 | G96 | 0.3− | 0.1− | 2009 12 15 | G96 | 0.7+ | 1.0− |
| 2008 11 19 | G96 | 0.0 | 0.1+ | 2009 11 08 | G96 | 0.0 | 0.1− | | | | |

**2009 UF$_{72}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 327.19532 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17780229 | $\omega$ | 226.89339 | | −0.26700199 | | −0.95372047 |
| $a$ | 3.1321639 | $\Omega$ | 239.08021 | | +0.92437222 | | −0.21287871 |
| $e$ | 0.1973813 | $i$ | 9.27721 | | +0.27248106 | | −0.21236742 |
| $P$ | 5.54 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 12 10 | 691 | 0.5+ | 0.0 | 2009 10 23 | G96 | 0.0 | 0.1− | 2009 11 08 | G96 | 0.1+ | 0.1− |
| 1998 12 10 | 691 | 0.9+ | 0.2− | 2009 10 23 | G96 | 0.3− | 0.2− | 2009 11 08 | G96 | 0.3+ | 0.2+ |
| 1998 12 10 | 691 | 0.1− | 0.4− | 2009 10 24 | 703 | 1.1− | 0.4+ | 2009 11 08 | G96 | 0.5+ | 0.1− |
| 1998 12 23 | 691 | 0.6− | 0.2+ | 2009 10 24 | 703 | 0.2− | 0.2+ | 2009 11 22 | G96 | 0.3− | 0.4+ |
| 1998 12 23 | 691 | 0.6− | 0.3+ | 2009 10 24 | 703 | 0.0 | 0.3− | 2009 11 22 | G96 | 0.1+ | 0.2− |
| 1998 12 23 | 691 | 0.2− | 0.1− | 2009 10 24 | 703 | 1.3− | 0.1+ | 2009 11 22 | G96 | 0.1+ | 0.3− |
| 2003 09 20 | 691 | 0.1+ | 0.0 | 2009 10 27 | 300 | 0.8+ | 0.5− | 2009 11 22 | G96 | 0.1+ | 0.2+ |
| 2003 09 20 | 691 | 0.3− | 0.0 | 2009 10 27 | 300 | 0.6+ | 0.7− | 2009 12 18 | G96 | 0.3− | 0.3− |
| 2003 09 20 | 691 | 0.1+ | 0.1+ | 2009 10 27 | 300 | 0.4+ | 0.4+ | 2009 12 18 | G96 | 0.1− | 0.6+ |
| 2009 10 23 | G96 | 0.3+ | 0.0 | 2009 10 27 | 300 | 0.5+ | 0.2+ | 2009 12 18 | G96 | 0.6− | 0.3+ |
| 2009 10 23 | G96 | 0.0 | 0.0 | 2009 11 08 | G96 | 0.4+ | 0.0 | 2009 12 18 | G96 | 0.3− | 0.1− |

**2009 UY$_{73}$ = 2002 RJ$_{169}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 29.70405 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.28752132 | $\omega$ | 185.29761 | | +0.92147806 | | −0.38836819 |
| $a$ | 2.2734706 | $\Omega$ | 197.56035 | | +0.35721880 | | +0.85432765 |
| $e$ | 0.2187260 | $i$ | 1.32027 | | +0.15255461 | | +0.34539023 |
| $P$ | 3.43 | $H$ | 18.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 09 13 | 644 | 0.0 | 0.4+ | 2009 10 21 | 703 | 0.9− | 0.3− | 2009 11 18 | G96 | 0.2+ | 0.1− |
| 2002 09 13 | 644 | 0.2− | 0.9+ | 2009 10 21 | 703 | 0.6− | 0.0 | 2009 11 18 | G96 | 0.1+ | 0.1+ |
| 2002 09 13 | 644 | 0.4− | 0.7+ | 2009 10 25 | 703 | 0.0 | 0.0 | 2009 12 17 | G96 | 0.1+ | 0.1+ |
| 2002 09 14 | 644 | 0.1− | 0.2− | 2009 10 25 | 703 | (1.8+ | 1.4−) | 2009 12 17 | G96 | 0.3− | 0.4+ |
| 2002 09 14 | 644 | 0.1+ | 0.0 | 2009 10 25 | 703 | 0.6+ | 0.0 | 2009 12 17 | G96 | 0.1− | 0.1+ |
| 2002 09 14 | 644 | 0.1+ | 0.2− | 2009 10 25 | 703 | 0.9+ | 0.3− | 2009 12 17 | G96 | 0.0 | 0.6+ |
| 2009 09 16 | G96 | 0.1+ | 0.2− | 2009 11 08 | G96 | 0.3+ | 0.1− | 2009 12 19 | G96 | 0.3− | 0.0 |
| 2009 09 16 | G96 | 0.0 | 0.3− | 2009 11 08 | G96 | 0.1+ | 0.0 | 2009 12 19 | G96 | 0.0 | 0.6+ |
| 2009 09 16 | G96 | 0.0 | 0.4− | 2009 11 08 | G96 | 0.5+ | 0.1− | 2009 12 19 | G96 | 0.2− | 0.3+ |
| 2009 09 16 | G96 | 0.0 | 0.3− | 2009 11 08 | G96 | 0.3+ | 0.0 | 2009 12 19 | G96 | 0.4− | 0.4+ |
| 2009 10 21 | 703 | 0.0 | 0.2− | 2009 11 18 | G96 | 0.0 | 0.0 | | | | |
| 2009 10 21 | 703 | 0.2− | 1.0− | 2009 11 18 | G96 | 0.2− | 0.2− | | | | |

**2009 UB$_{77}$ = 2005 VX$_{9}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 60.84617 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23469957 | $\omega$ | 120.19153 | | +0.92099770 | | +0.36120299 |
| $a$ | 2.6029222 | $\Omega$ | 219.16159 | | −0.38631883 | | +0.89509600 |
| $e$ | 0.1027778 | $i$ | 13.36076 | | +0.05020955 | | +0.26141070 |
| $P$ | 4.20 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 24 | 691 | 0.1+ | 0.4+ | 2005 11 10 | 691 | 0.1− | 0.1+ | 2009 10 21 | G96 | 0.2+ | 0.1+ |
| 2005 10 24 | 691 | 0.3+ | 0.0 | 2008 05 30 | G96 | 0.0 | 0.1+ | 2009 10 25 | 691 | 0.3− | 0.1− |
| 2005 10 24 | 691 | 0.0 | 0.1− | 2008 05 30 | G96 | 0.2+ | 0.2+ | 2009 10 25 | 691 | 0.2− | 0.2+ |
| 2005 11 02 | G96 | 0.4+ | 0.1+ | 2008 05 30 | G96 | 0.0 | 0.2+ | 2009 10 25 | 691 | 0.1− | 0.2− |
| 2005 11 02 | G96 | 0.4− | 0.1+ | 2008 05 30 | G96 | 0.1− | 0.1+ | 2009 11 09 | 703 | (2.2− | 0.1−) |
| 2005 11 02 | G96 | 0.4− | 0.1− | 2009 09 29 | G96 | 0.1− | 0.1− | 2009 11 09 | 703 | 0.0 | 0.4+ |
| 2005 11 02 | G96 | 0.7− | 0.7− | 2009 09 29 | G96 | 0.2− | 0.1− | 2009 11 09 | 703 | 0.3+ | 0.4+ |
| 2005 11 04 | 691 | 0.1+ | 0.1− | 2009 09 29 | G96 | 0.1+ | 0.0 | 2009 11 09 | 703 | 0.4+ | 0.5+ |
| 2005 11 04 | 691 | 0.1− | 0.1+ | 2009 09 29 | G96 | 0.0 | 0.1− | 2009 11 24 | G96 | 0.4+ | 0.1− |
| 2005 11 04 | 691 | 0.2− | 0.1+ | 2009 10 21 | G96 | 0.2+ | 0.1− | 2009 11 24 | G96 | 0.2+ | 0.5− |
| 2005 11 10 | 691 | 0.1− | 0.0 | 2009 10 21 | G96 | 0.6+ | 0.0 | 2009 11 24 | G96 | 0.5+ | 0.0 |
| 2005 11 10 | 691 | 0.3+ | 0.1+ | 2009 10 21 | G96 | 0.2+ | 0.1− | 2009 11 24 | G96 | 0.3+ | 0.3− |

**2009 UA$_{83}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 140.13867 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21116808 | $\omega$ | 50.29031 | | +0.06508107 | | +0.98325879 |
| $a$ | 2.7928688 | $\Omega$ | 224.37053 | | −0.97375338 | | +0.02529895 |
| $e$ | 0.1442614 | $i$ | 14.08622 | | −0.21810277 | | +0.18044974 |
| $P$ | 4.67 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 11 30 | 691 | 0.1− | 0.1+ | 2008 07 30 | 703 | 0.3− | 0.2− | 2009 11 16 | G96 | 0.4+ | 0.0 |
| 1995 11 30 | 691 | 0.0 | 0.2− | 2009 09 19 | G96 | 0.3+ | 0.1− | 2009 11 16 | G96 | 0.4+ | 0.0 |
| 1995 11 30 | 691 | 0.1+ | 0.1+ | 2009 09 19 | G96 | 0.1− | 0.1+ | 2009 11 16 | G96 | 0.4+ | 0.1− |
| 2003 01 25 | 809 | 0.4− | 0.0 | 2009 09 19 | G96 | 0.1+ | 0.0 | 2009 11 16 | G96 | 0.3+ | 0.0 |
| 2003 01 25 | 809 | 0.3+ | 0.2+ | 2009 09 19 | G96 | 0.3− | 0.2− | 2009 11 22 | 703 | 0.1+ | 1.2+ |
| 2007 03 20 | 703 | 1.2+ | 0.2− | 2009 10 23 | G96 | 0.1+ | 0.0 | 2009 11 22 | 703 | 1.6− | 0.5− |
| 2007 03 20 | 703 | 0.2− | 0.9+ | 2009 10 23 | G96 | 0.1+ | 0.1− | 2009 11 22 | 703 | 0.7+ | 1.5+ |
| 2007 03 20 | 703 | 0.5− | 0.2+ | 2009 10 23 | G96 | 1.1+ | 0.6− | 2009 11 22 | 703 | 0.9− | 0.4− |
| 2007 03 20 | 703 | 0.4− | 0.5− | 2009 10 23 | G96 | 0.1+ | 0.1+ | 2009 11 24 | G96 | 0.1+ | 0.1+ |
| 2008 07 30 | 703 | 0.1+ | 0.2+ | 2009 10 25 | 691 | 0.1− | 0.2− | 2009 11 24 | G96 | 0.5+ | 0.2+ |
| 2008 07 30 | 703 | 0.1− | 0.2− | 2009 10 25 | 691 | 0.2− | 0.0 | 2009 11 24 | G96 | 0.2+ | 0.0 |
| 2008 07 30 | 703 | 0.1+ | 0.6+ | 2009 10 25 | 691 | 0.3− | 0.2+ | 2009 11 24 | G96 | 0.1+ | 0.1− |

**2009 UD$_{83}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 357.50295 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22689787 | $\omega$ | 271.88906 | | +0.19193143 | | −0.98137737 |
| $a$ | 2.6622517 | $\Omega$ | 167.03751 | | +0.91367763 | | +0.17578000 |
| $e$ | 0.2521528 | $i$ | 1.99172 | | +0.35826739 | | +0.07745867 |
| $P$ | 4.34 | $H$ | 17.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 01 08 | G96 | 0.8− | 0.6− | 2009 10 23 | G96 | 0.6+ | 0.3− | 2009 11 16 | G96 | 0.4+ | 0.1+ |
| 2006 01 08 | G96 | 0.8− | 0.5− | 2009 10 25 | 691 | 0.1− | 0.3+ | 2009 11 16 | G96 | 0.4+ | 0.1− |
| 2006 01 08 | G96 | 0.4+ | 0.7− | 2009 10 25 | 691 | 0.1− | 0.1+ | 2009 11 19 | J75 | 0.1+ | 0.6+ |
| 2006 01 08 | G96 | 0.5+ | 0.6− | 2009 10 25 | 691 | 0.1− | 0.1− | 2009 11 19 | J75 | 0.2+ | 0.3− |
| 2006 01 31 | G96 | 0.2− | 0.1+ | 2009 11 08 | 691 | 0.6− | 0.3+ | 2009 11 19 | J75 | 0.7+ | 0.1+ |
| 2006 01 31 | G96 | 0.3− | 0.3− | 2009 11 08 | 691 | 0.0 | 0.1− | 2009 12 11 | 703 | (1.0− | 3.2−) |
| 2006 01 31 | G96 | 0.5− | 0.1− | 2009 11 08 | 691 | 0.2− | 0.1+ | 2009 12 11 | 703 | 0.1+ | 1.3− |
| 2006 02 04 | 691 | 0.1+ | 0.4+ | 2009 11 15 | 703 | 0.7+ | 0.6+ | 2009 12 11 | 703 | 0.4− | 0.1+ |
| 2006 02 04 | 691 | 0.2+ | 0.3+ | 2009 11 15 | 703 | 0.1+ | 0.3+ | 2009 12 11 | 703 | 0.2− | 0.2+ |
| 2006 02 04 | 691 | 0.1+ | 0.0 | 2009 11 15 | 703 | 1.2− | 0.8− | 2009 12 19 | G96 | 0.0 | 0.1− |
| 2009 10 23 | G96 | 0.9+ | 0.6− | 2009 11 15 | 703 | 0.7− | 0.6+ | 2009 12 19 | G96 | 0.6+ | 0.0 |
| 2009 10 23 | G96 | 0.8+ | 0.4− | 2009 11 16 | G96 | 0.2+ | 0.0 | 2009 12 19 | G96 | 0.2+ | 0.0 |
| 2009 10 23 | G96 | 0.7+ | 0.3− | 2009 11 16 | G96 | 0.1+ | 0.2− | 2009 12 19 | G96 | 0.3+ | 0.2− |

**2009 UF$_{83}$ = 2005 TX$_{131}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 13.40625 | | (2000.0) | | | |
| $n$ | 0.25401558 | $\omega$ | 250.31693 | | +0.58616717 | −0.81014774 |
| $a$ | 2.4692353 | $\Omega$ | 163.78939 | | +0.75401092 | +0.54175067 |
| $e$ | 0.1767076 | $i$ | 1.70114 | | +0.29643816 | +0.22397956 |
| $P$ | 3.88 | $H$ | 18.1 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 09 23 | 691 | 0.6− | 0.7+ | 2005 10 29 | G96 | 0.0 | 0.2− | 2009 10 25 | 691 | 0.5− | 0.3+ |
| 1997 09 23 | 691 | 0.0 | 0.3+ | 2005 10 29 | G96 | 0.1− | 0.0 | 2009 10 25 | 691 | 0.0 | 0.4+ |
| 1997 09 23 | 691 | 0.3+ | 0.2− | 2005 10 29 | G96 | 0.3+ | 0.1− | 2009 11 08 | 691 | 0.2− | 0.4+ |
| 2005 10 07 | 691 | 0.2+ | 0.1− | 2005 10 29 | G96 | 0.1+ | 0.3− | 2009 11 08 | 691 | 0.4+ | 0.2+ |
| 2005 10 07 | 691 | 0.3+ | 0.2− | 2005 11 09 | 703 | 1.5+ | 0.1− | 2009 11 08 | 691 | 0.4− | 0.2+ |
| 2005 10 07 | 691 | 0.2+ | 0.3− | 2005 11 09 | 703 | (1.7− | 0.3−) | 2009 11 23 | G96 | 0.0 | 0.1− |
| 2005 10 11 | 691 | 0.0 | 0.1− | 2005 11 09 | 703 | (1.9+ | 0.1+) | 2009 11 23 | G96 | 0.5+ | 0.2+ |
| 2005 10 11 | 691 | 0.2+ | 0.2− | 2005 11 09 | 703 | 1.4− | 0.5− | 2009 11 23 | G96 | 0.2+ | 0.2+ |
| 2005 10 11 | 691 | 0.2− | 0.0 | 2009 10 23 | G96 | 0.3+ | 0.0 | 2009 11 23 | G96 | 0.5+ | 0.1+ |
| 2005 10 29 | G96 | 0.1+ | 0.4− | 2009 10 23 | G96 | 0.2− | 0.2− | 2009 12 19 | G96 | 0.0 | 0.1− |
| 2005 10 29 | G96 | 0.1− | 0.4− | 2009 10 23 | G96 | 0.3+ | 0.0 | 2009 12 19 | G96 | 0.4− | 0.3− |
| 2005 10 29 | G96 | 0.2− | 0.5− | 2009 10 23 | G96 | 0.5+ | 0.0 | 2009 12 19 | G96 | 0.1− | 0.3− |
| 2005 10 29 | G96 | 0.1− | 0.6− | 2009 10 25 | 691 | 0.3− | 0.2− | 2009 12 19 | G96 | 0.6+ | 0.1+ |

**2009 UT$_{83}$ = 1995 UG$_{55}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 12.96682 | | (2000.0) | | | |
| $n$ | 0.21526120 | $\omega$ | 206.98629 | | +0.59766702 | −0.80150515 |
| $a$ | 2.7573520 | $\Omega$ | 206.32475 | | +0.74332864 | +0.56310942 |
| $e$ | 0.2106054 | $i$ | 2.53145 | | +0.30042748 | +0.20123937 |
| $P$ | 4.58 | $H$ | 17.8 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 10 16 | 691 | 0.2+ | 0.5+ | 2009 10 23 | G96 | 0.1− | 0.5− | 2009 11 08 | 691 | 0.4− | 0.2+ |
| 1995 10 16 | 691 | 0.1+ | 0.1+ | 2009 10 23 | G96 | 1.4+ | 0.6− | 2009 11 20 | G96 | 0.1− | 0.0 |
| 1995 10 16 | 691 | 0.1+ | 0.1− | 2009 10 23 | G96 | (2.0+ | 0.2+) | 2009 11 20 | G96 | 0.6+ | 0.2− |
| 1995 10 21 | 691 | 0.8− | 0.4+ | 2009 10 23 | G96 | 1.1+ | 0.4+ | 2009 11 20 | G96 | 0.2+ | 0.1+ |
| 1995 10 21 | 691 | 0.3+ | 0.3− | 2009 10 25 | 691 | 0.2+ | 0.0 | 2009 11 20 | G96 | 0.4+ | 0.1+ |
| 1995 10 21 | 691 | 0.0 | 0.7− | 2009 10 25 | 691 | 0.5− | 0.7− | 2009 12 19 | G96 | 0.4+ | 0.4+ |
| 2004 09 07 | 691 | 0.1+ | 0.1+ | 2009 10 25 | 691 | 0.3+ | 0.1+ | 2009 12 19 | G96 | 0.5+ | 0.0 |
| 2004 09 07 | 691 | 0.1− | 0.1+ | 2009 11 08 | 691 | 0.3− | 0.3+ | 2009 12 19 | G96 | 0.0 | 0.3− |
| 2004 09 07 | 691 | 0.0 | 0.1− | 2009 11 08 | 691 | 0.5− | 0.2+ | 2009 12 19 | G96 | 0.6+ | 0.0 |

**2009 UP$_{85}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 32.40972 | | (2000.0) | | | |
| $n$ | 0.25722852 | $\omega$ | 321.17640 | | +0.89835168 | −0.43578394 |
| $a$ | 2.4486308 | $\Omega$ | 64.74271 | | +0.41673655 | +0.80567961 |
| $e$ | 0.2177899 | $i$ | 3.50472 | | +0.13890613 | +0.40121405 |
| $P$ | 3.83 | $H$ | 18.2 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 30 | G96 | 0.2+ | 0.2− | 2009 10 23 | G96 | 0.2+ | 0.2+ | 2009 11 08 | 691 | 0.2− | 0.2+ |
| 2005 10 30 | G96 | 0.2− | 0.3− | 2009 10 23 | G96 | 0.1+ | 0.5− | 2009 11 20 | G96 | 0.1+ | 0.3− |
| 2005 10 30 | G96 | 0.0 | 0.2− | 2009 10 25 | 691 | 0.1+ | 0.2− | 2009 11 20 | G96 | 0.5+ | 0.3− |
| 2005 10 30 | G96 | 0.2+ | 0.2− | 2009 10 25 | 691 | 0.2− | 0.2+ | 2009 11 20 | G96 | 0.5+ | 0.5− |
| 2005 11 30 | G96 | 0.1+ | 0.0 | 2009 10 25 | 691 | 0.3− | 0.2+ | 2009 11 20 | G96 | 0.4+ | 0.4− |
| 2005 11 30 | G96 | 0.6+ | 0.1+ | 2009 10 26 | 291 | 0.0 | 0.1+ | 2009 12 11 | G96 | 0.0 | 0.4− |
| 2005 11 30 | G96 | 0.2+ | 0.1− | 2009 10 26 | 291 | 0.0 | 0.1− | 2009 12 11 | G96 | 0.2+ | 0.2− |
| 2005 11 30 | G96 | 0.4− | 0.4− | 2009 10 26 | 291 | 0.0 | 0.1+ | 2009 12 11 | G96 | 0.1+ | 0.4− |
| 2009 10 23 | G96 | 0.2− | 0.1− | 2009 11 08 | 691 | 0.2− | 0.2+ | 2009 12 11 | G96 | 0.3+ | 0.5− |
| 2009 10 23 | G96 | 0.3+ | 0.5− | 2009 11 08 | 691 | 0.1+ | 0.4+ | | | | |

**2009 UB$_{87}$ = 2004 PZ$_{58}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 57.02256 | | (2000.0) | | | |
| $n$ | 0.21802413 | $\omega$ | 150.85106 | | +0.93069824 | +0.36571108 |
| $a$ | 2.7340074 | $\Omega$ | 187.70885 | | −0.34550005 | +0.87216440 |
| $e$ | 0.2042629 | $i$ | 3.20330 | | −0.12012700 | +0.32493794 |
| $P$ | 4.52 | $H$ | 16.6 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 04 05 | 691 | 0.1− | 0.3− | 2007 02 21 | G96 | 0.7− | 0.4− | 2009 10 25 | 703 | 0.3+ | 0.7− |
| 2003 04 05 | 691 | 0.1+ | 0.2− | 2007 02 21 | G96 | 0.2− | 0.4+ | 2009 10 25 | 703 | 0.9+ | 0.2− |
| 2003 04 05 | 691 | 0.2+ | 0.3+ | 2007 03 10 | G96 | 0.3+ | 0.2+ | 2009 10 27 | 704 | 0.1+ | 0.0 |
| 2004 08 09 | 704 | 1.0+ | 0.1− | 2007 03 10 | G96 | 0.2+ | 0.1+ | 2009 10 27 | 704 | 0.9+ | 0.6+ |
| 2004 08 09 | 704 | 0.2− | 0.2− | 2007 03 10 | G96 | 0.6+ | 0.2− | 2009 10 27 | 704 | 0.6− | 0.8− |
| 2004 08 09 | 704 | 0.2− | 0.8+ | 2007 03 10 | G96 | 0.0 | 0.4+ | 2009 10 27 | 704 | 0.4+ | 0.2− |
| 2004 08 11 | 704 | 0.0 | 0.7− | 2008 06 06 | 691 | 0.3− | 0.3+ | 2009 11 18 | G96 | 0.7− | 0.4− |
| 2004 08 11 | 704 | 0.1− | 0.5− | 2008 06 06 | 691 | 0.4− | 0.8+ | 2009 11 18 | G96 | 0.7− | 0.4− |
| 2004 08 11 | 704 | 0.4− | 0.4+ | 2008 06 06 | 691 | 0.9+ | 0.4+ | 2009 11 18 | G96 | 0.3− | 0.3− |
| 2004 08 11 | 704 | 0.0 | 0.2− | 2009 10 24 | 703 | 0.6− | 0.1− | 2009 11 18 | G96 | 0.5− | 0.1− |
| 2005 12 07 | 691 | 0.1− | 0.1+ | 2009 10 24 | 703 | 1.0− | 0.3+ | 2009 11 23 | 703 | 0.4+ | 0.1+ |
| 2005 12 07 | 691 | 0.1− | 0.3+ | 2009 10 24 | 703 | 1.2− | 0.5+ | 2009 11 23 | 703 | 1.1+ | 2.5+ |
| 2005 12 07 | 691 | 0.1+ | 0.2+ | 2009 10 24 | 703 | (1.6+ | 0.3+) | 2009 11 23 | 703 | 0.8+ | 0.2− |
| 2007 02 21 | G96 | 0.4+ | 0.2− | 2009 10 25 | 703 | (1.9− | 0.3+) | 2009 11 23 | 703 | 1.0− | 0.6+ |
| 2007 02 21 | G96 | 0.2− | 0.4+ | 2009 10 25 | 703 | 0.3+ | 1.1+ | 2009 11 23 | 703 | 0.8+ | 1.7+ |

**2009 UK$_{87}$ = 2006 UD$_{172}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 23.04786 | | (2000.0) | | | |
| $n$ | 0.30289324 | $\omega$ | 139.55159 | | +0.74284026 | −0.66312946 |
| $a$ | 2.1958854 | $\Omega$ | 262.23673 | | +0.58780052 | +0.71175817 |
| $e$ | 0.1493471 | $i$ | 5.32249 | | +0.32043549 | +0.23164548 |
| $P$ | 3.25 | $H$ | 17.6 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 01 12 | 691 | 0.0 | 0.8− | 2006 12 13 | 691 | 0.7+ | 0.4+ | 2009 11 08 | 703 | 0.7− | 0.0 |
| 1997 01 12 | 691 | 0.0 | 0.3+ | 2006 12 13 | 691 | 0.4+ | 0.2+ | 2009 11 08 | 703 | 0.6+ | 0.1+ |
| 1997 01 12 | 691 | 0.1+ | 0.2− | 2006 12 13 | 691 | 0.5+ | 0.2+ | 2009 11 08 | 703 | 0.1− | 0.3− |
| 2002 08 05 | 644 | 0.1− | 0.6+ | 2006 12 27 | 691 | 0.2− | 0.1+ | 2009 11 08 | 703 | 0.3+ | 0.9+ |
| 2002 08 05 | 644 | 0.2− | 0.6+ | 2006 12 27 | 691 | 0.4− | 0.0 | 2009 11 24 | G96 | 0.1− | 0.2+ |
| 2002 08 05 | 644 | 0.3− | 0.7+ | 2006 12 27 | 691 | 0.3− | 0.3+ | 2009 11 24 | G96 | 0.2+ | 0.2+ |
| 2006 10 21 | G96 | 0.8− | 0.4− | 2009 10 24 | 703 | 0.5− | 0.2+ | 2009 11 24 | G96 | 0.4− | 0.3− |
| 2006 10 21 | G96 | 1.0− | 0.5− | 2009 10 24 | 703 | 0.5− | 1.1+ | 2009 12 11 | J75 | 0.2+ | 0.2− |
| 2006 10 21 | G96 | 0.2− | 0.4− | 2009 10 24 | 703 | 1.0+ | 0.4+ | 2009 12 11 | J75 | 0.7+ | 0.0 |
| 2006 10 21 | G96 | 0.2− | 0.0 | 2009 10 24 | 703 | 0.1+ | 0.1+ | 2009 12 11 | J75 | 0.5+ | 0.1− |
| 2006 10 22 | G96 | 0.1+ | 0.0 | 2009 10 25 | 703 | 0.4− | 0.6− | 2009 12 18 | G96 | 0.2+ | 0.0 |
| 2006 10 22 | G96 | 0.5− | 0.1+ | 2009 10 25 | 703 | 0.1− | 0.0 | 2009 12 18 | G96 | 0.1− | 0.3− |
| 2006 10 22 | G96 | 0.1+ | 0.2− | 2009 10 25 | 703 | 0.2− | 0.4− | 2009 12 18 | G96 | 0.1− | 0.1− |
| 2006 10 22 | G96 | 0.2− | 0.1− | 2009 10 25 | 703 | 0.3− | 0.1− | 2009 12 18 | G96 | 0.0 | 0.3− |

**2009 UN$_{87}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 317.98830 | | (2000.0) | | | |
| $n$ | 0.08169627 | $\omega$ | 42.57454 | | −0.37826212 | −0.89849134 |
| $a$ | 5.2601876 | $\Omega$ | 70.77238 | | +0.77309373 | −0.43899022 |
| $e$ | 0.0985082 | $i$ | 13.64714 | | +0.50915995 | −0.00095186 |
| $P$ | 12.06 | $H$ | 13.1 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 01 17 | 910 | 0.0 | 0.1− | 2008 10 08 | 703 | 0.1− | 0.0 | 2009 11 08 | 691 | 0.0 | 0.1− |
| 1998 01 17 | 910 | 0.1+ | 0.4+ | 2008 10 08 | 703 | 0.3− | 0.0 | 2009 11 15 | 703 | 0.6+ | 0.0 |
| 1998 01 17 | 910 | 0.1− | 0.3− | 2008 10 21 | G96 | 0.2+ | 0.6− | 2009 11 15 | 703 | 0.4+ | 0.3+ |
| 2002 04 13 | 644 | 0.5+ | 0.6+ | 2008 10 21 | G96 | 0.1+ | 0.6− | 2009 11 15 | 703 | 0.2+ | 1.3+ |
| 2002 04 13 | 644 | 0.2− | 0.6+ | 2008 10 21 | G96 | 0.1− | 0.5− | 2009 11 15 | 703 | 0.3− | 1.1+ |
| 2002 04 13 | 644 | 0.1+ | 0.2+ | 2008 10 21 | G96 | 0.1− | 0.3− | 2009 11 23 | G96 | 0.5+ | 0.1− |
| 2002 05 07 | 644 | 0.2+ | 0.0 | 2009 10 24 | 703 | 0.2+ | 0.4− | 2009 11 23 | G96 | 0.6+ | 0.2− |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 05 07 | 644 | 0.2+ | 0.0 | 2009 10 24 | 703 | 0.7− | 0.2+ | 2009 11 23 | G96 | 0.5+ | 0.1− |
| 2002 05 07 | 644 | 0.1+ | 0.0 | 2009 10 24 | 703 | 0.5− | 0.8+ | 2009 11 23 | G96 | 0.4+ | 0.1− |
| 2008 09 29 | 703 | 0.1− | 0.5+ | 2009 10 24 | 703 | 1.3− | 1.1+ | 2009 11 26 | 691 | 0.3+ | 0.0 |
| 2008 09 29 | 703 | 1.0+ | 0.8+ | 2009 10 25 | 691 | 0.2− | 0.1+ | 2009 11 26 | 691 | 0.1+ | 0.0 |
| 2008 09 29 | 703 | 0.5− | 1.2+ | 2009 10 25 | 691 | 0.2− | 0.5− | 2009 11 26 | 691 | 0.1+ | 0.0 |
| 2008 09 29 | 703 | (0.1+ | 2.0+) | 2009 10 25 | 691 | 0.6− | 0.3+ | 2009 12 19 | 691 | 0.1+ | 0.3− |
| 2008 10 08 | 703 | 0.4+ | 0.5+ | 2009 11 08 | 691 | 0.1− | 0.3+ | 2009 12 19 | 691 | 0.2− | 0.2− |
| 2008 10 08 | 703 | 1.0− | 0.7− | 2009 11 08 | 691 | 0.2+ | 0.1− | 2009 12 19 | 691 | 0.2+ | 0.1− |

**2009 UC$_{88}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 11.88678 | | (2000.0) | | | |
| $n$ | 0.20466895 | $\omega$ | 350.88513 | | +0.68074240 | −0.68394413 |
| $a$ | 2.8516841 | $\Omega$ | 55.68101 | | +0.69050310 | +0.47959658 |
| $e$ | 0.1258049 | $i$ | 18.51840 | | +0.24453067 | +0.54973407 |
| $P$ | 4.82 | $H$ | 15.5 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 14 | 699 | 1.5− | 1.5+ | 2009 11 11 | A13 | 0.3+ | 0.4− | 2009 11 23 | 703 | 0.4+ | 0.1− |
| 2004 10 14 | 699 | 0.1+ | 0.3− | 2009 11 15 | 703 | 0.2− | 0.1+ | 2009 11 23 | 703 | 0.3+ | 0.4− |
| 2004 10 14 | 699 | 0.7+ | 0.1+ | 2009 11 15 | 703 | 1.2+ | 1.1+ | 2009 11 23 | 703 | 0.3− | 0.6− |
| 2004 10 14 | 699 | 0.3+ | 0.9− | 2009 11 15 | 703 | 0.6− | 0.9+ | 2009 11 23 | 703 | 0.3− | 0.7− |
| 2006 02 24 | 699 | 0.4+ | 0.0 | 2009 11 15 | 703 | 0.3− | 0.1+ | 2009 11 24 | G96 | 0.3+ | 0.3− |
| 2006 02 24 | 699 | 0.2− | 0.3− | 2009 11 17 | G96 | 0.1+ | 0.3− | 2009 11 24 | G96 | 0.2− | 0.3− |
| 2006 02 24 | 699 | 0.1+ | 0.6− | 2009 11 17 | G96 | 0.1+ | 0.3− | 2009 11 24 | G96 | 0.0 | 0.2− |
| 2006 02 24 | 699 | 0.3− | 1.1+ | 2009 11 17 | G96 | 0.3− | 0.0 | 2009 11 24 | G96 | 0.2− | 0.4− |
| 2009 10 19 | J75 | 0.2+ | 0.3− | 2009 11 17 | G96 | 0.0 | 0.3− | 2009 12 10 | 703 | 0.7− | 0.0 |
| 2009 10 19 | J75 | 0.4− | 0.3+ | 2009 11 18 | 704 | (2.0− | 0.9+) | 2009 12 10 | 703 | 0.4− | 0.4+ |
| 2009 10 19 | J75 | 0.1− | 1.3+ | 2009 11 18 | 704 | 0.4+ | 1.3+ | 2009 12 10 | 703 | 0.3− | 1.1+ |
| 2009 10 25 | 703 | 0.4− | 0.8− | 2009 11 18 | 704 | (1.6+ | 0.8+) | 2009 12 10 | 703 | 0.3+ | 0.0 |
| 2009 10 25 | 703 | 0.1+ | 0.1− | 2009 11 18 | 704 | (1.8− | 1.5+) | 2009 12 12 | 704 | 1.8+ | 0.8+ |
| 2009 10 25 | 703 | 1.1+ | 0.7− | 2009 11 18 | 704 | (0.5− | 2.0+) | 2009 12 12 | 704 | 0.6− | 0.0 |
| 2009 10 25 | 703 | 0.1− | 0.5− | 2009 11 20 | 704 | 0.1− | 0.5− | 2009 12 12 | 704 | 0.3+ | 0.8+ |
| 2009 11 09 | 703 | 0.6− | 0.0 | 2009 11 20 | 704 | 0.3− | 1.0+ | 2009 12 12 | 704 | 0.0 | 0.2− |
| 2009 11 09 | 703 | (1.8− | 0.1−) | 2009 11 20 | 704 | 0.2+ | 0.5− | 2009 12 15 | G96 | 0.1− | 0.6− |
| 2009 11 09 | 703 | 1.0− | 0.6− | 2009 11 20 | 704 | 0.2− | 0.6+ | 2009 12 15 | G96 | 0.3+ | 0.5− |
| 2009 11 09 | 703 | 0.3+ | 0.8− | 2009 11 20 | 704 | 0.2+ | 0.8+ | 2009 12 15 | G96 | 0.1+ | 0.3− |
| 2009 11 11 | A13 | 0.1+ | 0.4− | 2009 11 23 | 703 | 0.1+ | 0.3− | 2009 12 15 | G96 | 0.4− | 0.0 |

**2009 UP$_{88}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 35.90997 | | (2000.0) | | | |
| $n$ | 0.15056552 | $\omega$ | 302.00182 | | +0.96067450 | −0.24052598 |
| $a$ | 3.4993364 | $\Omega$ | 72.23388 | | +0.27730097 | +0.85701172 |
| $e$ | 0.0993298 | $i$ | 8.37776 | | −0.01444536 | +0.45571719 |
| $P$ | 6.55 | $H$ | 15.0 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 11 20 | 695 | 0.0 | 0.4+ | 2009 10 14 | G96 | 0.7+ | 0.2+ | 2009 11 12 | J75 | 0.6− | 0.2+ |
| 2003 11 20 | 695 | 0.1− | 0.4+ | 2009 10 14 | G96 | 0.4+ | 0.0 | 2009 11 12 | J75 | 0.4− | 0.2+ |
| 2008 08 04 | E12 | 0.3+ | 0.8− | 2009 10 14 | G96 | 0.5+ | 0.1+ | 2009 11 12 | J75 | 0.5+ | 0.7− |
| 2008 08 04 | E12 | 0.3+ | 0.1+ | 2009 10 21 | 703 | (1.9− | 0.7+) | 2009 11 19 | G96 | 0.4+ | 0.1− |
| 2008 08 04 | E12 | 0.1+ | 0.5+ | 2009 10 21 | 703 | 0.8− | 0.3+ | 2009 11 19 | G96 | 0.2+ | 0.2− |
| 2008 08 04 | E12 | 0.2− | 0.7+ | 2009 10 21 | 703 | 0.6− | 0.3− | 2009 11 19 | G96 | 0.5+ | 0.1+ |
| 2008 08 23 | E12 | 0.0 | 0.2+ | 2009 10 21 | 703 | (2.5− | 1.2−) | 2009 11 19 | G96 | 0.2+ | 0.1− |
| 2008 08 23 | E12 | 0.1− | 0.2− | 2009 10 24 | 703 | (1.7− | 0.4+) | 2009 12 19 | G96 | 0.1− | 0.1+ |
| 2008 08 23 | E12 | 0.5− | 0.2− | 2009 10 24 | 703 | 0.3− | 0.4− | 2009 12 19 | G96 | 0.1+ | 0.0 |
| 2008 08 23 | E12 | 0.1+ | 0.2+ | 2009 10 24 | 703 | 0.9− | 0.5− | 2009 12 19 | G96 | 0.3+ | 0.1− |
| 2009 10 14 | G96 | 0.1+ | 0.2+ | 2009 10 24 | 703 | 0.1+ | 0.3+ | 2009 12 19 | G96 | 0.0 | 0.2+ |

**2009 UA$_{89}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 31.08290 | | (2000.0) | | | |
| $n$ | 0.23785619 | $\omega$ | 214.73825 | | +0.90645935 | −0.42210725 |
| $a$ | 2.5798418 | $\Omega$ | 170.20546 | | +0.40221970 | +0.85395474 |
| $e$ | 0.1130745 | $i$ | 4.22287 | | +0.12864974 | +0.30428075 |
| $P$ | 4.14 | $H$ | 16.9 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 11 04 | G96 | 0.2− | 0.2+ | 2007 03 09 | G96 | 0.5− | 0.0 | 2009 10 24 | 703 | 0.1+ | 0.3− |
| 2005 11 04 | G96 | 0.1− | 0.4+ | 2007 03 26 | 691 | 0.4− | 0.2+ | 2009 10 24 | 703 | 0.7+ | 0.7− |
| 2005 11 04 | G96 | 0.0 | 0.2+ | 2007 03 26 | 691 | 0.2+ | 0.4− | 2009 10 25 | 703 | 0.3+ | 0.5− |
| 2005 11 04 | G96 | 0.1+ | 0.1+ | 2007 03 26 | 691 | 0.5− | 0.1+ | 2009 10 25 | 703 | 1.6+ | 0.4− |
| 2005 11 25 | 703 | 0.5+ | 0.6− | 2007 03 26 | G96 | 0.3+ | 0.5− | 2009 10 25 | 703 | 1.3− | 0.4− |
| 2005 11 25 | 703 | 0.1+ | 0.0 | 2007 03 26 | G96 | 0.1+ | 0.3− | 2009 10 25 | 703 | 0.0 | 0.7− |
| 2005 11 25 | 703 | 0.8− | 0.1+ | 2007 03 26 | G96 | 0.5+ | 0.5− | 2009 11 09 | 703 | 0.4− | 0.7+ |
| 2005 11 25 | 703 | 0.2+ | 0.4+ | 2007 03 26 | G96 | 0.3+ | 0.3− | 2009 11 09 | 703 | 0.1− | 1.5+ |
| 2007 03 09 | 691 | 0.3+ | 0.3+ | 2009 10 24 | 703 | 0.4− | 0.6− | 2009 11 09 | 703 | 0.3+ | 0.4+ |
| 2007 03 09 | 691 | 0.1− | 0.1+ | 2009 10 24 | 703 | 1.0+ | 0.8+ | 2009 11 21 | 703 | 0.3− | 1.1− |
| 2007 03 09 | 691 | 0.1+ | 0.1− | 2009 10 24 | 703 | 0.4− | 1.1+ | 2009 11 21 | 703 | 1.3+ | 0.7− |
| 2007 03 09 | G96 | 0.0 | 0.6− | 2009 10 24 | 703 | 0.6− | 0.7− | 2009 11 21 | 703 | 0.8− | 0.6+ |
| 2007 03 09 | G96 | 0.2+ | 0.4+ | 2009 10 24 | 703 | 0.6+ | 0.6− | 2009 11 21 | 703 | 1.6− | 0.3+ |
| 2007 03 09 | G96 | 0.2− | 0.4+ | 2009 10 24 | 703 | 0.1+ | 0.3− | | | | |

**2009 UF$_{89}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 326.31831 | | (2000.0) | | | |
| $n$ | 0.19708085 | $\omega$ | 224.94398 | | −0.25412736 | −0.94405620 |
| $a$ | 2.9244201 | $\Omega$ | 240.85479 | | +0.94116902 | −0.19133313 |
| $e$ | 0.2388751 | $i$ | 13.92510 | | +0.22275585 | −0.26860663 |
| $P$ | 5.00 | $H$ | 16.0 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 14 | 644 | 0.2+ | 0.0 | 2009 10 26 | G96 | 0.2+ | 0.4− | 2009 11 11 | G89 | 0.3+ | 0.4− |
| 2004 10 14 | 644 | 0.2− | 0.6+ | 2009 10 26 | G96 | 0.1+ | 0.3− | 2009 11 11 | 595 | 0.3+ | 0.4+ |
| 2004 10 14 | 644 | 0.4+ | 0.1+ | 2009 10 26 | 595 | 0.1+ | 0.5− | 2009 11 11 | 595 | 0.3+ | 0.0 |
| 2004 11 19 | 703 | 0.6+ | 0.7− | 2009 10 26 | 595 | 1.4− | 0.5− | 2009 11 11 | 595 | 0.1+ | 0.7+ |
| 2004 11 19 | 703 | 0.6− | 0.3+ | 2009 10 27 | 595 | 0.5− | 0.0 | 2009 11 18 | G89 | 0.1+ | 0.1− |
| 2004 11 19 | 703 | 0.0 | 0.7+ | 2009 10 27 | 595 | 0.1+ | 1.0+ | 2009 11 18 | G89 | 0.1+ | 0.2− |
| 2004 11 19 | 703 | 0.5− | 0.1+ | 2009 10 27 | 595 | 0.3− | 0.4+ | 2009 11 18 | G89 | 0.1+ | 0.2− |
| 2009 10 26 | G96 | 0.1− | 0.1− | 2009 11 11 | G89 | 0.3+ | 0.3− | 2009 12 13 | 595 | 0.1− | 0.1− |
| 2009 10 26 | G96 | 0.3+ | 0.1− | 2009 11 11 | G89 | 0.4+ | 0.3− | 2009 12 13 | 595 | 0.4− | 0.0 |

**2009 UY$_{91}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 152.57651 | | (2000.0) | | | |
| $n$ | 0.21856782 | $\omega$ | 277.48356 | | −0.03796715 | +0.99893245 |
| $a$ | 2.7294715 | $\Omega$ | 350.22393 | | −0.84479588 | −0.04615197 |
| $e$ | 0.0702858 | $i$ | 8.91543 | | −0.53374003 | +0.00199044 |
| $P$ | 4.51 | $H$ | 16.2 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 08 20 | 691 | 0.3+ | 0.3+ | 2007 04 11 | 703 | 0.4+ | 0.4− | 2009 10 27 | G96 | 0.0 | 0.3− |
| 1995 08 20 | 691 | 0.1+ | 0.1− | 2007 04 11 | 703 | (0.4− | 1.7−) | 2009 10 27 | G96 | 0.3+ | 0.1− |
| 1995 08 20 | 691 | 0.3− | 0.2− | 2007 04 11 | 703 | 0.4+ | 1.0+ | 2009 10 30 | H08 | 0.9+ | 0.6+ |
| 2002 02 07 | 644 | 0.1+ | 0.0 | 2009 10 25 | H08 | 0.2− | 0.8− | 2009 10 30 | H08 | 0.0 | 0.6+ |
| 2002 02 07 | 644 | 0.1− | 0.0 | 2009 10 25 | H08 | 0.1+ | 0.9− | 2009 11 16 | F85 | 0.4− | 0.3+ |
| 2002 02 07 | 644 | 0.2+ | 0.3+ | 2009 10 27 | H08 | 0.2+ | 0.0 | 2009 11 16 | F85 | 0.1− | 0.1+ |
| 2007 03 16 | 691 | 0.2+ | 0.3− | 2009 10 27 | H08 | 0.4− | 0.2− | 2009 12 11 | F85 | 0.1+ | 0.3− |
| 2007 03 16 | 691 | 0.0 | 0.5− | 2009 10 27 | H08 | 0.2+ | 0.5+ | 2009 12 11 | F85 | 0.7− | 0.3− |
| 2007 03 16 | 691 | 0.1− | 0.0 | 2009 10 27 | G96 | 0.2+ | 0.2+ | | | | |
| 2007 04 11 | 703 | 1.4− | 1.4+ | 2009 10 27 | G96 | 0.1− | 0.0 | | | | |

**2009 UZ$_{91}$ = 2001 UG$_2$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 318.52764 | | (2000.0) | | | |
| $n$ | 0.37517826 | $\omega$ | 207.29377 | | −0.30048232 | −0.90440011 |
| $a$ | 1.9039006 | $\Omega$ | 261.50712 | | +0.92141169 | −0.19320103 |
| $e$ | 0.1113036 | $i$ | 17.83614 | | +0.24639577 | −0.38043897 |
| $P$ | 2.63 | $H$ | 17.2 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 10 18 | 704 | 0.1− | 0.1+ | 2009 10 27 | G96 | 0.2+ | 0.1− | 2009 10 27 | 160 | 0.4+ | 0.1− |
| 2001 10 18 | 704 | 0.2− | 0.4+ | 2009 10 27 | H01 | 0.0 | 0.1+ | 2009 10 27 | 160 | 0.0 | 0.3+ |
| 2001 10 18 | 704 | 0.2+ | 0.5+ | 2009 10 27 | G96 | 0.0 | 0.2− | 2009 10 27 | 118 | 0.2− | 0.1+ |
| 2001 10 18 | 704 | 0.4+ | 0.5+ | 2009 10 27 | H01 | 0.0 | 0.1+ | 2009 10 27 | 473 | 0.1− | 0.3− |
| 2001 10 20 | 704 | 0.2− | 0.2− | 2009 10 27 | G96 | 0.3+ | 0.0 | 2009 10 27 | 473 | 0.2− | 0.5− |
| 2001 10 20 | 704 | 0.5− | 0.8+ | 2009 10 27 | H01 | 0.1− | 0.3− | 2009 10 27 | J28 | 0.1+ | 0.0 |
| 2001 10 20 | 704 | 0.4− | 0.7− | 2009 10 27 | H01 | 0.2+ | 0.0 | 2009 10 27 | 160 | 0.9− | 0.0 |
| 2008 05 04 | E12 | 0.1+ | 0.2− | 2009 10 27 | 926 | 0.1+ | 0.3+ | 2009 10 27 | J28 | 0.0 | 0.1− |
| 2008 05 04 | E12 | 0.2+ | 0.7+ | 2009 10 27 | 926 | 0.1− | 0.3+ | 2009 11 06 | 703 | 0.8− | 0.5+ |
| 2008 05 04 | E12 | 0.3+ | 1.3+ | 2009 10 27 | 926 | 0.2+ | 0.4+ | 2009 11 06 | 703 | 0.8− | 0.2− |
| 2008 05 04 | E12 | 0.2+ | 0.3+ | 2009 10 27 | B18 | 0.1+ | 0.2− | 2009 11 06 | 703 | 0.7+ | 0.1− |
| 2009 09 26 | 703 | 0.2− | 0.7− | 2009 10 27 | 160 | 0.1− | 0.3− | 2009 11 06 | 703 | 0.8+ | 0.7+ |
| 2009 09 26 | 703 | 0.7+ | 0.5+ | 2009 10 27 | B18 | 0.2+ | 0.0 | 2009 11 20 | 703 | 0.4− | 0.0 |
| 2009 09 26 | 703 | 1.0− | 0.5+ | 2009 10 27 | 118 | 0.3+ | 0.7− | 2009 11 20 | 703 | 0.2+ | 0.2+ |
| 2009 09 26 | 703 | 1.1+ | 0.0 | 2009 10 27 | B18 | 0.2+ | 0.1+ | 2009 11 20 | 703 | 0.3+ | 1.0+ |
| 2009 10 27 | 703 | 0.4+ | 0.0 | 2009 10 27 | 160 | 0.1+ | 0.3+ | 2009 12 18 | 703 | 1.3− | 0.9− |
| 2009 10 27 | 703 | 0.1− | 1.3− | 2009 10 27 | 118 | 1.1− | 0.2+ | 2009 12 18 | 703 | 0.2− | 0.3− |
| 2009 10 27 | 703 | 0.1− | 0.0 | 2009 10 27 | 160 | 0.6+ | 0.1− | 2009 12 18 | 703 | 0.4− | 0.2− |
| 2009 10 27 | 703 | 0.0 | 0.3− | 2009 10 27 | J28 | 0.2+ | 0.1+ | 2009 12 18 | 703 | 0.8− | 2.2+ |
| 2009 10 27 | G96 | 0.0 | 0.0 | 2009 10 27 | 118 | 0.5+ | 0.1+ | | | | |

**2009 UA$_{93}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 38.37052 | | (2000.0) | | | |
| $n$ | 0.18672941 | $\omega$ | 90.97112 | | +0.93868472 | −0.31157770 |
| $a$ | 3.0315233 | $\Omega$ | 287.19494 | | +0.22133173 | +0.87284886 |
| $e$ | 0.0965412 | $i$ | 8.88907 | | +0.26435440 | +0.37557185 |
| $P$ | 5.28 | $H$ | 16.1 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 01 13 | 691 | 0.0 | 0.2+ | 2008 07 30 | G96 | 0.1+ | 0.1− | 2009 11 16 | H08 | 0.1+ | 0.2− |
| 2000 01 13 | 691 | 0.1+ | 0.1+ | 2008 07 30 | G96 | 0.2− | 0.2+ | 2009 11 16 | H08 | 0.5− | 0.4+ |
| 2000 01 13 | 691 | 0.1+ | 0.2+ | 2008 07 30 | G96 | 0.2+ | 0.0 | 2009 11 17 | F85 | 0.6− | 0.1+ |
| 2003 08 22 | 644 | 0.6− | 1.0+ | 2009 10 25 | F85 | 0.3+ | 0.1− | 2009 11 17 | F85 | 0.1+ | 0.1− |
| 2003 08 22 | 644 | 0.4− | 0.4+ | 2009 10 25 | F85 | 0.5− | 0.3− | 2009 12 12 | F85 | 0.1+ | 0.3+ |
| 2003 08 22 | 644 | 0.2− | 0.6+ | 2009 10 25 | F85 | 0.1+ | 0.0 | 2009 12 12 | F85 | 0.3+ | 0.2− |
| 2004 12 02 | 691 | (2.9+ | 3.5−) | 2009 10 27 | G96 | 0.1+ | 0.3− | 2009 12 14 | F85 | 0.3− | 0.6− |
| 2004 12 02 | 691 | 0.1+ | 0.3− | 2009 10 27 | G96 | 0.4− | 0.1+ | 2009 12 14 | F85 | 0.2+ | 0.1+ |
| 2004 12 02 | 691 | 0.1− | 0.1+ | 2009 10 27 | G96 | 0.0 | 0.5− | 2009 12 14 | F85 | 0.4+ | 0.1− |
| 2004 12 20 | 691 | 0.0 | 0.2+ | 2009 10 27 | G96 | 0.3− | 0.3− | 2009 12 20 | G96 | 0.0 | 0.1+ |
| 2004 12 20 | 691 | 0.0 | 0.3+ | 2009 10 28 | F85 | 1.1+ | 0.3− | 2009 12 20 | G96 | 0.3− | 0.1+ |
| 2004 12 20 | 691 | 0.1− | 0.2+ | 2009 10 28 | F85 | 0.8+ | 0.7− | 2009 12 20 | G96 | 0.4− | 0.2+ |
| 2008 07 30 | G96 | (2.3+ | 0.2+) | 2009 10 28 | F85 | 0.6+ | 0.5− | 2009 12 20 | G96 | 0.3− | 0.0 |

**2009 US$_{93}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 27.80838 | | (2000.0) | | | |
| $n$ | 0.26862407 | $\omega$ | 0.00805 | | +0.87240215 | −0.48831579 |
| $a$ | 2.3788813 | $\Omega$ | 29.25296 | | +0.44845250 | +0.78213843 |
| $e$ | 0.2205066 | $i$ | 2.52148 | | +0.19443469 | +0.38704929 |
| $P$ | 3.67 | $H$ | 18.5 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 01 25 | 645 | 0.0 | 0.0 | 2009 10 26 | 300 | 0.0 | 0.1− | 2009 11 21 | 691 | 0.4− | 0.0 |
| 2003 01 25 | 645 | 0.0 | 0.0 | 2009 10 28 | 300 | 0.5+ | 0.1+ | 2009 11 21 | 691 | 0.8− | 0.0 |
| 2005 08 30 | 644 | 0.2+ | 0.0 | 2009 10 28 | 300 | 0.3+ | 0.2+ | 2009 11 21 | H21 | 1.4+ | 0.4+ |
| 2005 08 30 | 644 | 0.1+ | 0.4+ | 2009 10 28 | 300 | 1.3+ | 0.3+ | 2009 11 21 | H21 | 1.4+ | 0.9+ |
| 2005 08 30 | 644 | 0.5− | 0.3+ | 2009 11 08 | 691 | 0.0 | 0.1− | 2009 11 21 | H21 | 1.2+ | 0.6+ |
| 2009 09 18 | G96 | 0.2+ | 0.6− | 2009 11 08 | 691 | 0.1− | 0.0 | 2009 11 23 | 691 | 0.6− | 0.1+ |
| 2009 09 18 | G96 | 0.1+ | 0.3− | 2009 11 08 | 691 | 0.4− | 0.8− | 2009 11 23 | 691 | 0.2− | 0.1− |
| 2009 09 18 | G96 | 0.2− | 0.3− | 2009 11 14 | J75 | 0.5+ | 0.3+ | 2009 11 23 | 691 | 0.1+ | 0.7+ |
| 2009 09 18 | G96 | 0.0 | 0.3+ | 2009 11 14 | J75 | 0.3+ | 0.4− | 2009 11 25 | G68 | 1.0+ | 0.0 |
| 2009 10 26 | 300 | 0.6+ | 0.4+ | 2009 11 14 | J75 | 0.2− | 1.1− | 2009 11 25 | G68 | 0.9+ | 0.2+ |
| 2009 10 26 | 300 | 0.6+ | 0.6− | 2009 11 21 | 691 | 0.5− | 0.0 | 2009 11 25 | G68 | 1.2+ | 0.1− |

**2009 UH$_{94}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 31.34348 | | (2000.0) | | | |
| $n$ | 0.26934869 | $\omega$ | 308.16042 | | +0.96437608 | −0.26152763 |
| $a$ | 2.3746128 | $\Omega$ | 67.03184 | | +0.25420849 | +0.87459392 |
| $e$ | 0.2008894 | $i$ | 2.47595 | | +0.07319029 | +0.40827537 |
| $P$ | 3.66 | $H$ | 17.7 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 02 16 | G96 | 0.4+ | 0.4− | 2009 10 26 | 691 | 0.0 | 0.1− | 2009 11 19 | 621 | 0.1+ | 0.1+ |
| 2007 02 16 | G96 | 0.4+ | 0.2− | 2009 10 26 | 691 | 0.2− | 0.0 | 2009 11 25 | G96 | 0.0 | 0.1+ |
| 2007 02 16 | G96 | 0.6− | 0.4+ | 2009 11 19 | G96 | 0.1− | 0.1− | 2009 11 25 | G96 | 0.5+ | 0.1+ |
| 2007 02 16 | G96 | 0.0 | 0.8+ | 2009 11 19 | G96 | 0.1+ | 0.2− | 2009 11 25 | G96 | 0.0 | 0.1− |
| 2009 10 21 | 703 | 0.2− | 0.7+ | 2009 11 19 | G96 | 0.3− | 0.0 | 2009 11 25 | G96 | 0.0 | 0.0 |
| 2009 10 21 | 703 | 0.1+ | 0.1− | 2009 11 19 | G96 | 0.1− | 0.0 | 2009 12 20 | G96 | 0.1+ | 0.2− |
| 2009 10 21 | 703 | 0.1− | 0.6+ | 2009 11 19 | 621 | 0.2+ | 0.1− | 2009 12 20 | G96 | 0.3+ | 0.1− |
| 2009 10 21 | 703 | 0.3− | 0.5+ | 2009 11 19 | 621 | 0.3+ | 0.2+ | 2009 12 20 | G96 | 0.1+ | 0.0 |
| 2009 10 26 | 691 | 0.0 | 0.0 | 2009 11 19 | 621 | 0.2+ | 0.7− | 2009 12 20 | G96 | 0.1− | 0.3− |

**2009 UX$_{95}$ = 2001 UG$_{110}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 306.73629 | | (2000.0) | | | |
| $n$ | 0.24802411 | $\omega$ | 294.26036 | | −0.35587467 | −0.93452676 |
| $a$ | 2.5088428 | $\Omega$ | 176.58063 | | +0.87781240 | −0.33559363 |
| $e$ | 0.0552549 | $i$ | 3.45916 | | +0.32062221 | −0.11847637 |
| $P$ | 3.97 | $H$ | 16.6 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 10 21 | 704 | 0.5− | 0.5− | 2005 09 25 | 691 | 0.1+ | 0.0 | 2007 03 09 | G96 | 0.1− | 0.0 |
| 2001 10 21 | 704 | 0.5+ | 0.5+ | 2005 10 04 | G96 | 0.2+ | 0.1+ | 2007 03 09 | G96 | 0.1+ | 0.2− |
| 2001 10 21 | 704 | 0.9− | 0.4+ | 2005 10 04 | G96 | 0.1+ | 0.1− | 2007 03 20 | G96 | 0.0 | 0.1− |
| 2001 10 21 | 704 | 1.4+ | 0.7+ | 2005 10 04 | G96 | 0.0 | 0.0 | 2007 03 20 | G96 | 0.1− | 0.1− |
| 2001 10 21 | 704 | 0.1+ | 0.1− | 2005 10 04 | G96 | 0.4+ | 0.1− | 2007 03 20 | G96 | 0.1+ | 0.1− |
| 2001 10 21 | 704 | 0.4+ | 0.7+ | 2005 10 07 | 703 | 1.0− | 0.1− | 2007 03 20 | G96 | 0.7− | 0.2+ |
| 2001 10 21 | 704 | 0.5− | 0.2− | 2005 10 07 | 703 | 0.3− | 0.5+ | 2007 04 14 | G96 | 0.1− | 0.5− |
| 2001 10 21 | 704 | (0.3+ | 1.6−) | 2005 10 07 | 703 | (2.5+ | 0.9+) | 2007 04 14 | G96 | 0.1− | 0.5− |
| 2001 10 23 | 704 | 1.0− | 0.2+ | 2005 10 07 | 703 | (1.0− | 2.2−) | 2007 04 14 | G96 | 0.3+ | 0.5− |
| 2001 10 23 | 704 | 0.5− | 0.6+ | 2007 02 09 | 691 | 0.5− | 0.3+ | 2007 04 14 | G96 | 0.3+ | 0.4− |
| 2001 10 23 | 704 | (2.1− | 0.9−) | 2007 02 09 | 691 | 0.0 | 0.2− | 2009 10 22 | G96 | 0.2+ | 0.3− |
| 2001 10 23 | 704 | 0.1− | 0.1+ | 2007 02 09 | 691 | 0.0 | 0.1− | 2009 10 22 | G96 | 0.4+ | 0.3− |
| 2001 10 23 | 704 | 0.5− | 1.0+ | 2007 02 21 | G96 | 0.1+ | 0.1− | 2009 10 22 | G96 | 0.3+ | 0.2− |
| 2001 10 24 | 704 | 0.7− | 0.2+ | 2007 02 21 | G96 | 0.2+ | 0.6− | 2009 10 26 | 691 | 0.1+ | 0.2− |
| 2001 10 24 | 704 | 0.0 | 0.7− | 2007 02 21 | G96 | 0.2− | 0.4− | 2009 10 26 | 691 | 0.0 | 0.4− |
| 2001 10 24 | 704 | 0.2− | 0.6+ | 2007 02 21 | G96 | 0.1− | 0.4− | 2009 10 26 | 691 | 0.1+ | 0.0 |
| 2003 04 05 | 691 | 0.1+ | 0.3+ | 2007 03 09 | 644 | 0.3+ | 0.3− | 2009 11 23 | 703 | (0.3+ | 1.6+) |
| 2003 04 05 | 691 | 0.2+ | 0.3+ | 2007 03 09 | 644 | 0.1+ | 0.4+ | 2009 11 23 | 703 | 0.2+ | 0.6− |
| 2003 04 05 | 691 | 0.4+ | 0.4+ | 2007 03 09 | 644 | 0.1+ | 0.3+ | 2009 11 23 | 703 | 0.8− | 0.2+ |
| 2005 09 25 | 691 | 0.5+ | 0.0 | 2007 03 09 | G96 | 0.1− | 0.2− | 2009 11 23 | 703 | 0.4− | 0.4+ |
| 2005 09 25 | 691 | 0.1− | 0.2+ | 2007 03 09 | G96 | 0.4− | 0.0 | | | | |

**2009 UQ$_{97}$ = 2006 CF$_{35}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 65.51223 | | (2000.0) | | | |
| $n$ | 0.19212511 | $\omega$ | 154.85849 | | +0.92511791 | +0.37966911 |
| $a$ | 2.9744954 | $\Omega$ | 182.83299 | | −0.35741943 | +0.86830573 |
| $e$ | 0.1400692 | $i$ | 3.32600 | | −0.12809453 | +0.31921236 |
| $P$ | 5.13 | $H$ | 16.4 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 04 19 | 691 | 0.0 | 0.2− | 2006 02 04 | 691 | 0.0 | 0.4− | 2009 10 23 | G96 | 0.2+ | 0.1+ |
| 2002 04 19 | 691 | 0.0 | 0.6+ | 2007 03 20 | G96 | 0.3+ | 0.1− | 2009 10 23 | G96 | 0.4+ | 0.1+ |
| 2002 04 19 | 691 | 0.5+ | 0.8+ | 2007 03 20 | G96 | 0.3− | 0.1− | 2009 10 26 | 691 | 0.4− | 0.2+ |
| 2004 11 10 | 695 | 0.6− | 0.0 | 2007 03 20 | G96 | 0.1+ | 0.5− | 2009 10 26 | 691 | 0.2− | 0.3+ |
| 2004 11 10 | 695 | 0.2− | 0.1+ | 2007 03 20 | G96 | 0.5− | 0.4− | 2009 10 26 | 691 | 0.1− | 0.1+ |
| 2006 02 02 | G96 | 0.3− | 0.1− | 2007 04 16 | G96 | 0.1− | 0.0 | 2009 11 15 | 703 | 0.4+ | 0.9+ |
| 2006 02 02 | G96 | 0.1+ | 0.1− | 2007 04 16 | G96 | 0.1− | 1.2+ | 2009 11 15 | 703 | 1.2+ | 0.7+ |
| 2006 02 02 | G96 | 0.0 | 0.4− | 2007 04 16 | G96 | 0.2− | 0.1+ | 2009 11 15 | 703 | (0.1− | 1.9+) |
| 2006 02 02 | G96 | 0.7− | 0.4− | 2007 04 16 | G96 | 0.3− | 0.3− | 2009 11 15 | 703 | 0.4+ | 0.1− |
| 2006 02 04 | 691 | 0.2+ | 0.3+ | 2009 10 23 | G96 | 0.0 | 0.1− | | | | |
| 2006 02 04 | 691 | 0.2+ | 0.0 | 2009 10 23 | G96 | 0.2− | 0.1+ | | | | |

**2009 UY$_{97}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 290.69670 | | (2000.0) | | | |
| $n$ | 0.08284580 | $\omega$ | 61.39554 | | −0.60503936 | −0.78999615 |
| $a$ | 5.2114157 | $\Omega$ | 66.17747 | | +0.68740205 | −0.58114381 |
| $e$ | 0.0512926 | $i$ | 6.22305 | | +0.40175339 | −0.19539180 |
| $P$ | 11.90 | $H$ | 13.0 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 04 02 | 644 | 0.5+ | 0.5− | 2009 09 22 | G96 | 0.4+ | 0.3− | 2009 11 11 | J75 | 0.6+ | 0.2+ |
| 2002 04 02 | 644 | 0.2+ | 0.2+ | 2009 09 22 | G96 | 0.4+ | 0.0 | 2009 11 23 | G96 | 0.1+ | 0.0 |
| 2002 04 02 | 644 | 0.2− | 0.2+ | 2009 10 23 | G96 | 0.5+ | 0.1+ | 2009 11 23 | G96 | 0.0 | 0.1− |
| 2002 04 15 | 644 | 0.1− | 0.1+ | 2009 10 23 | G96 | 0.0 | 0.1− | 2009 11 23 | G96 | 0.1− | 0.1− |
| 2002 04 15 | 644 | 0.1− | 0.1− | 2009 10 23 | G96 | 0.0 | 0.3+ | 2009 11 23 | G96 | 0.2− | 0.1− |
| 2002 04 15 | 644 | 0.5− | 0.0 | 2009 10 23 | G96 | 0.0 | 0.1− | 2009 11 23 | 703 | 0.1− | 0.0 |
| 2002 04 15 | 644 | 0.4+ | 0.4+ | 2009 10 24 | 703 | 0.8− | 0.2+ | 2009 11 23 | 703 | 0.9+ | 0.1+ |
| 2002 04 15 | 644 | 0.4+ | 0.3+ | 2009 10 24 | 703 | 1.4− | 1.2+ | 2009 11 23 | 703 | 0.2− | 0.6− |
| 2002 04 15 | 644 | 0.3− | 0.0 | 2009 10 24 | 703 | 0.5+ | 0.1+ | 2009 11 23 | 703 | 0.7− | 0.3+ |
| 2008 10 06 | G96 | 0.1− | 0.4+ | 2009 10 24 | 703 | 0.3+ | 0.5− | 2009 11 23 | 703 | (0.2− | 1.6+) |
| 2008 10 06 | G96 | 0.1+ | 0.2+ | 2009 10 26 | 691 | 0.4− | 0.1+ | 2009 11 24 | G96 | 0.2− | 0.1− |
| 2008 10 06 | G96 | 0.1− | 0.0 | 2009 10 26 | 691 | 0.1− | 0.0 | 2009 11 24 | G96 | 0.1− | 0.0 |
| 2008 10 06 | G96 | 0.5− | 0.8− | 2009 10 26 | 691 | 0.5− | 0.1− | 2009 11 24 | G96 | 0.1+ | 0.1+ |
| 2008 10 25 | G96 | 0.1+ | 0.1+ | 2009 11 10 | G96 | 0.6+ | 0.1− | 2009 11 24 | G96 | 0.1− | 0.2− |
| 2008 10 25 | G96 | 0.3− | 0.4+ | 2009 11 10 | G96 | 0.1− | 0.1− | 2009 12 10 | G96 | 0.1+ | 0.2− |
| 2008 10 25 | G96 | 0.1+ | 0.3+ | 2009 11 10 | G96 | 0.3+ | 0.1− | 2009 12 10 | G96 | 0.0 | 0.2+ |
| 2008 10 25 | G96 | 0.3+ | 0.1+ | 2009 11 10 | G96 | 0.6+ | 0.1− | 2009 12 10 | G96 | 0.2− | 0.1− |
| 2009 09 22 | G96 | 0.3+ | 0.2− | 2009 11 11 | J75 | 1.4+ | 0.1+ | 2009 12 10 | G96 | 0.3+ | 0.1+ |
| 2009 09 22 | G96 | 0.3+ | 0.1− | 2009 11 11 | J75 | 0.4+ | 0.3+ | | | | |

**2009 UB$_{98}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 47.45696 | | (2000.0) | | | |
| $n$ | 0.25547974 | $\omega$ | 287.65074 | | +0.99588551 | +0.07509759 |
| $a$ | 2.4597921 | $\Omega$ | 68.06660 | | −0.04730101 | +0.90817020 |
| $e$ | 0.2222815 | $i$ | 3.13429 | | −0.07729599 | +0.41180971 |
| $P$ | 3.86 | $H$ | 17.9 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 08 31 | 644 | 0.1− | 0.2+ | 2005 11 30 | G96 | 0.3+ | 0.3− | 2009 11 08 | G96 | 0.1− | 0.2− |
| 2005 08 31 | 644 | 0.2− | 0.1− | 2005 11 30 | G96 | 0.3+ | 0.1+ | 2009 11 08 | G96 | 0.0 | 0.0 |
| 2005 08 31 | 644 | 0.0 | 0.2+ | 2009 10 23 | G96 | 0.4+ | 0.0 | 2009 11 08 | G96 | 0.0 | 0.1− |
| 2005 11 01 | G96 | 0.3+ | 0.2− | 2009 10 23 | G96 | 0.5+ | 0.3− | 2009 11 08 | G96 | 0.2+ | 0.1− |
| 2005 11 01 | G96 | 0.2+ | 0.3− | 2009 10 23 | G96 | 0.4− | 0.2− | 2009 11 25 | G96 | 0.0 | 0.0 |
| 2005 11 01 | G96 | 0.3− | 0.1− | 2009 10 23 | G96 | 0.1+ | 0.0 | 2009 11 25 | G96 | 0.0 | 0.1− |
| 2005 11 01 | G96 | 0.1+ | 0.0 | 2009 10 26 | 691 | 0.3− | 0.0 | 2009 11 25 | G96 | 0.1+ | 0.0 |
| 2005 11 30 | G96 | 0.2+ | 0.3− | 2009 10 26 | 691 | 0.1+ | 0.2+ | | | | |
| 2005 11 30 | G96 | 0.3− | 0.2− | 2009 10 26 | 691 | 0.1− | 0.3+ | | | | |

**2009 UC$_{98}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 29.92623 | | (2000.0) | | | |
| $n$ | 0.08401349 | $\omega$ | 157.61683 | | +0.93335033 | −0.29355858 |
| $a$ | 5.1630146 | $\Omega$ | 221.30183 | | +0.26324772 | +0.95102099 |
| $e$ | 0.0823099 | $i$ | 18.24054 | | +0.24404467 | +0.09686300 |
| $P$ | 11.73 | $H$ | 14.2 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 11 21 | 691 | 0.3− | 0.0 | 2008 10 29 | G96 | 0.1+ | 0.1− | 2009 10 26 | 691 | 0.7− | 0.1− |
| 1997 11 21 | 691 | 0.7+ | 0.0 | 2009 09 22 | G96 | 0.1+ | 0.6+ | 2009 10 26 | 691 | 0.2− | 0.0 |
| 1997 11 21 | 691 | 0.4− | 0.0 | 2009 09 22 | G96 | 0.3− | 0.2+ | 2009 11 10 | G96 | 0.1− | 0.1− |
| 2008 09 29 | G96 | 0.2+ | 0.1− | 2009 09 22 | G96 | 0.9+ | 0.3+ | 2009 11 10 | G96 | 0.1+ | 0.3− |
| 2008 09 29 | G96 | 0.0 | 0.3+ | 2009 09 22 | G96 | 0.4+ | 0.2− | 2009 11 10 | G96 | 0.4+ | 0.2− |
| 2008 09 29 | G96 | 0.2+ | 0.1+ | 2009 10 23 | G96 | 0.3+ | 0.3− | 2009 11 10 | G96 | 0.3+ | 0.3− |
| 2008 09 29 | G96 | 0.1− | 0.3− | 2009 10 23 | G96 | 0.3− | 0.1+ | 2009 11 24 | G96 | 0.4− | 0.2− |
| 2008 10 29 | G96 | 0.2− | 0.1− | 2009 10 23 | G96 | 0.3+ | 0.1+ | 2009 11 24 | G96 | 0.1+ | 0.0 |
| 2008 10 29 | G96 | 0.1− | 0.1+ | 2009 10 23 | G96 | 0.2+ | 0.6+ | 2009 11 24 | G96 | 0.2+ | 0.2+ |
| 2008 10 29 | G96 | 0.0 | 0.0 | 2009 10 26 | 691 | 0.2+ | 0.0 | 2009 11 24 | G96 | 0.8+ | 0.0 |

**2009 UH$_{98}$ = 2007 LA$_{5}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 271.10019 | | (2000.0) | | | |
| $n$ | 0.18932001 | $\omega$ | 317.40672 | | −0.86623178 | −0.49944490 |
| $a$ | 3.0038048 | $\Omega$ | 192.65195 | | +0.47394468 | −0.81245505 |
| $e$ | 0.0265767 | $i$ | 3.67692 | | +0.15817377 | −0.30078495 |
| $P$ | 5.21 | $H$ | 16.2 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 09 28 | 691 | 0.1− | 0.3+ | 2007 05 10 | G96 | 0.1− | 0.4− | 2008 09 24 | G96 | 0.8+ | 0.3+ |
| 1998 09 28 | 691 | 0.0 | 0.2+ | 2007 05 10 | G96 | 0.2+ | 0.4− | 2008 09 24 | G96 | 0.4+ | 0.3− |
| 1998 09 28 | 691 | 0.3− | 0.3+ | 2007 05 10 | G96 | 0.1− | 1.1− | 2009 10 23 | G96 | 0.1+ | 0.2+ |
| 2001 03 24 | 691 | 0.1− | 0.1+ | 2007 06 08 | 691 | 0.1− | 0.3+ | 2009 10 23 | G96 | 0.3+ | 0.6+ |
| 2001 03 24 | 691 | 0.0 | 0.3+ | 2007 06 08 | 691 | 0.0 | 0.4+ | 2009 10 23 | G96 | 0.5+ | 0.2+ |
| 2001 03 24 | 691 | 0.2+ | 0.2+ | 2007 06 08 | 691 | 0.2− | 0.3+ | 2009 10 23 | G96 | 0.3− | 0.2+ |
| 2006 03 03 | G96 | 0.4− | 0.2+ | 2007 06 10 | 691 | 0.2+ | 0.0 | 2009 10 26 | 691 | 0.4− | 0.6+ |
| 2006 03 03 | G96 | 0.3+ | 0.4+ | 2007 06 10 | 691 | 0.1− | 0.2+ | 2009 10 26 | 691 | 1.3− | 0.6+ |
| 2006 03 03 | G96 | 0.4− | 0.2+ | 2007 06 10 | 691 | 0.1− | 0.0 | 2009 10 26 | 691 | 0.5− | 0.1+ |
| 2006 03 03 | G96 | 1.2+ | 0.9+ | 2007 06 13 | 691 | 0.2− | 0.4+ | 2009 11 10 | G96 | 0.1− | 0.1− |
| 2006 03 24 | 691 | 0.3+ | 0.3− | 2007 06 13 | 691 | 0.0 | 0.2+ | 2009 11 10 | G96 | 0.0 | 0.1+ |
| 2006 03 24 | 691 | 0.4+ | 0.5+ | 2007 06 13 | 691 | 0.1+ | 0.3+ | 2009 11 10 | G96 | 0.8+ | 0.2− |
| 2006 03 24 | 691 | 0.1+ | 0.2+ | 2008 09 07 | G96 | 0.5+ | 0.1+ | 2009 11 24 | G96 | 0.1− | 0.3− |
| 2007 04 19 | G96 | 0.1+ | 0.4+ | 2008 09 07 | G96 | 0.9+ | 1.4+ | 2009 11 24 | G96 | 0.2+ | 0.2− |
| 2007 04 19 | G96 | 0.1− | 0.3+ | 2008 09 07 | G96 | 0.3+ | 0.2− | 2009 11 24 | G96 | 0.7+ | 0.3− |
| 2007 04 19 | G96 | 0.3+ | 0.1+ | 2008 09 07 | G96 | 0.3+ | 0.2+ | 2009 11 24 | G96 | 0.0 | 0.0 |
| 2007 04 19 | G96 | 0.9− | 0.0 | 2008 09 24 | G96 | 0.2+ | 0.0 | 2009 12 09 | A13 | 0.4+ | 0.0 |
| 2007 05 10 | G96 | 0.1+ | 0.3− | 2008 09 24 | G96 | 0.6+ | 0.3+ | 2009 12 09 | A13 | 2.2+ | 0.7+ |

**2009 UA$_{99}$ = 1997 UN$_{18}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 286.51687 | | (2000.0) | | | |
| $n$ | 0.08145450 | $\omega$ | 75.79094 | | −0.60175199 | −0.73430242 |
| $a$ | 5.2705914 | $\Omega$ | 55.65803 | | +0.50324189 | −0.65403446 |
| $e$ | 0.0395119 | $i$ | 22.36342 | | +0.62019525 | −0.18176599 |
| $P$ | 12.10 | $H$ | 14.0 | $G$ | 0.15 | $U$ 5 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 10 28 | 691 | 0.0 | 0.2− | 2009 10 23 | G96 | 0.6+ | 0.6− | 2009 11 23 | G96 | 0.5− | 0.0 |
| 1997 10 28 | 691 | 0.0 | 0.7− | 2009 10 26 | 691 | 0.7− | 0.1+ | 2009 11 23 | G96 | 0.3+ | 0.4+ |
| 1997 10 28 | 691 | 0.4+ | 0.4− | 2009 10 26 | 691 | 1.0− | 0.0 | 2009 11 23 | G96 | 0.5+ | 0.2+ |
| 1997 11 02 | 691 | 0.2+ | 0.4− | 2009 10 26 | 691 | 0.4− | 0.2+ | 2009 12 10 | G96 | 0.6+ | 0.9+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 11 02 | 691 | 0.2+ | 0.5+ | 2009 11 17 | G96 | 0.3+ | 0.3+ | 2009 12 10 | G96 | 0.8+ | 0.6+ | | |
| 1997 11 02 | 691 | 0.0 | 0.2+ | 2009 11 17 | G96 | 0.1+ | 0.1+ | 2009 12 10 | G96 | 0.2+ | 0.4+ | | |
| 2009 10 23 | G96 | 0.4+ | 0.2+ | 2009 11 17 | G96 | 0.1− | 0.5+ | 2009 12 10 | G96 | 0.5+ | 0.5+ | | |
| 2009 10 23 | G96 | 0.6+ | 0.6− | 2009 11 17 | G96 | 0.1− | 0.2+ | | | | | | |
| 2009 10 23 | G96 | 0.3+ | 0.3− | 2009 11 23 | G96 | 0.1− | 0.4+ | | | | | | |

**2009 UK$_{99}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 58.64999 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.17545056 | $\omega$ | 269.43125 | | | +0.99063131 | | +0.12749895 | |
| $a$ | 3.1600907 | $\Omega$ | 83.24297 | | | −0.09726162 | | +0.91018864 | |
| $e$ | 0.0780009 | $i$ | 2.82393 | | | −0.09586336 | | +0.39408204 | |
| $P$ | 5.62 | $H$ | 16.0 | $G$ | 0.15 | | $U$ | 1 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 03 20 | 691 | 0.4+ | 0.4+ | 2006 03 09 | G96 | 0.3− | 0.2− | 2009 10 26 | 691 | 0.3− | 0.0 | | |
| 2001 03 20 | 691 | 0.5+ | 0.9+ | 2006 03 09 | G96 | 0.7− | 1.0+ | 2009 11 08 | 703 | 0.9− | 0.9− | | |
| 2001 03 20 | 691 | 0.5+ | 0.4+ | 2007 04 18 | G96 | 0.3+ | 0.1− | 2009 11 08 | 703 | 2.1− | 1.0+ | | |
| 2001 04 29 | 691 | 0.4+ | 0.0 | 2007 04 18 | G96 | 0.0 | 0.1+ | 2009 11 08 | 703 | 0.6− | 0.2− | | |
| 2001 04 29 | 691 | 0.2+ | 0.5+ | 2007 04 18 | G96 | 0.3+ | 0.0 | 2009 11 08 | 703 | 1.2+ | 1.1+ | | |
| 2001 04 29 | 691 | 0.2+ | 0.4+ | 2007 04 18 | G96 | 0.5+ | 0.3− | 2009 11 10 | J75 | 0.8+ | 0.2+ | | |
| 2003 09 30 | 691 | 0.0 | 0.4+ | 2007 05 10 | 691 | 0.3− | 0.1− | 2009 11 10 | J75 | 1.1− | 0.3− | | |
| 2003 09 30 | 691 | 0.0 | 0.3+ | 2007 05 10 | 691 | 0.0 | 0.1+ | 2009 11 10 | J75 | 0.3− | 0.4+ | | |
| 2003 09 30 | 691 | 0.1+ | 0.6+ | 2007 05 10 | 691 | 0.6− | 0.1− | 2009 11 23 | G96 | 0.4+ | 0.2+ | | |
| 2003 10 02 | 327 | (4.8− | 2.3−) | 2008 10 26 | G96 | 0.1− | 0.1− | 2009 11 23 | G96 | 0.5+ | 0.0 | | |
| 2003 10 02 | 327 | (5.9− | 3.1−) | 2008 10 26 | G96 | 0.4+ | 0.6+ | 2009 11 23 | G96 | 0.6+ | 0.2+ | | |
| 2003 10 02 | 327 | (3.9− | 0.8−) | 2008 10 26 | G96 | 0.4+ | 0.1+ | 2009 11 23 | G96 | 0.2+ | 0.2+ | | |
| 2003 10 19 | 691 | 0.1+ | 0.5+ | 2008 10 26 | G96 | 0.4+ | 0.1− | 2009 12 10 | G96 | 0.6+ | 0.0 | | |
| 2003 10 19 | 691 | 0.3+ | 0.4+ | 2009 10 23 | G96 | 0.3+ | 0.0 | 2009 12 10 | G96 | 0.4+ | 0.0 | | |
| 2003 10 19 | 691 | 0.3+ | 0.6+ | 2009 10 23 | G96 | 0.0 | 0.0 | 2009 12 10 | G96 | 0.4+ | 0.3− | | |
| 2003 11 19 | 645 | 0.2+ | 0.0 | 2009 10 23 | G96 | 0.7+ | 0.1+ | 2009 12 10 | G96 | 0.2+ | 0.3− | | |
| 2003 11 19 | 645 | 0.1+ | 0.0 | 2009 10 23 | G96 | 0.2+ | 0.1− | 2009 12 10 | G96 | 0.6+ | 0.5− | | |
| 2006 03 09 | G96 | 0.8− | 0.0 | 2009 10 26 | 691 | 0.0 | 0.6+ | 2009 12 10 | G96 | 0.1+ | 0.2− | | |
| 2006 03 09 | G96 | 0.3− | 0.0 | 2009 10 26 | 691 | 0.0 | 0.4+ | 2009 12 10 | G96 | 0.3+ | 0.3− | | |

**2009 UX$_{99}$ = 2006 BB$_{53}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 281.87669 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.20093964 | $\omega$ | 67.68062 | | | −0.86737190 | | −0.49275167 | |
| $a$ | 2.8868595 | $\Omega$ | 82.73641 | | | +0.42681506 | | −0.80860793 | |
| $e$ | 0.1093319 | $i$ | 4.03067 | | | +0.25591970 | | −0.32147940 | |
| $P$ | 4.90 | $H$ | 16.3 | $G$ | 0.15 | | $U$ | 4 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 01 25 | 691 | 0.3− | 0.1+ | 2006 02 20 | 703 | 0.3− | 0.1+ | 2009 10 26 | 691 | 0.6− | 0.3+ | | |
| 1996 01 25 | 691 | 0.1− | 0.0 | 2006 02 20 | 703 | 0.0 | 0.2− | 2009 11 17 | G96 | 0.4+ | 0.0 | | |
| 1996 01 25 | 691 | 0.3+ | 0.4− | 2006 02 20 | 703 | 0.8− | 1.5+ | 2009 11 17 | G96 | 0.1+ | 0.0 | | |
| 2006 01 25 | 691 | 0.1+ | 0.1− | 2006 02 20 | 703 | 0.1+ | 0.6+ | 2009 11 17 | G96 | 0.4+ | 0.4+ | | |
| 2006 01 25 | 691 | 0.3+ | 0.1− | 2009 10 23 | G96 | 0.6+ | 0.4− | 2009 11 17 | G96 | 0.2+ | 0.2+ | | |
| 2006 01 25 | 691 | 0.3+ | 0.0 | 2009 10 23 | G96 | 0.5+ | 0.4+ | 2009 11 24 | G96 | 0.1− | 0.5+ | | |
| 2006 01 26 | 703 | 0.8− | 0.2− | 2009 10 23 | G96 | 0.2+ | 0.5− | 2009 11 24 | G96 | 0.0 | 0.3+ | | |
| 2006 01 26 | 703 | 0.9+ | 0.6+ | 2009 10 23 | G96 | 0.5+ | 0.4+ | 2009 11 24 | G96 | 0.0 | 0.2+ | | |
| 2006 01 26 | 703 | 0.6− | 0.0 | 2009 10 26 | 691 | 0.3− | 0.1+ | 2009 11 24 | G96 | 0.2+ | 0.3+ | | |
| 2006 01 26 | 703 | 0.5− | 0.5− | 2009 10 26 | 691 | 0.1+ | 0.7− | | | | | | |

**2009 UR$_{100}$ = 2006 FN$_{47}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 284.69146 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.17654869 | $\omega$ | 77.32480 | | | −0.71140343 | | −0.67120679 | |
| $a$ | 3.1469733 | $\Omega$ | 60.08264 | | | +0.51458708 | | −0.69935447 | |
| $e$ | 0.0262146 | $i$ | 13.90531 | | | +0.47864946 | | −0.24573314 | |
| $P$ | 5.58 | $H$ | 15.0 | $G$ | 0.15 | | $U$ | 3 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 05 17 | 691 | 0.2+ | 0.2+ | 2009 10 23 | G96 | 0.1+ | 0.2− | 2009 11 15 | 703 | 0.9+ | 0.0 | | |
| 2001 05 17 | 691 | 0.0 | 0.3+ | 2009 10 23 | G96 | 0.2+ | 0.0 | 2009 11 15 | 703 | 0.6+ | 0.3+ | | |
| 2001 05 17 | 691 | 0.2+ | 0.2+ | 2009 10 23 | G96 | 0.4+ | 0.0 | 2009 11 17 | G96 | 0.0 | 0.2+ | | |
| 2006 03 24 | 699 | 0.0 | 0.2− | 2009 10 25 | 703 | 1.6− | 0.1+ | 2009 11 17 | G96 | 0.4+ | 0.4+ | | |
| 2006 03 24 | 699 | 0.0 | 0.1− | 2009 10 25 | 703 | 0.1+ | 0.3+ | 2009 11 17 | G96 | 0.1+ | 0.2+ | | |
| 2006 03 24 | 699 | 1.4+ | 0.3− | 2009 10 25 | 703 | 0.2− | 0.4+ | 2009 11 17 | G96 | 0.1+ | 0.2+ | | |
| 2006 03 24 | 699 | 0.4+ | 0.8+ | 2009 10 25 | 703 | 0.6− | 0.2− | 2009 11 23 | G96 | 0.0 | 0.3+ | | |
| 2006 04 02 | 703 | 0.9− | 0.3− | 2009 10 26 | 691 | 0.1− | 0.1− | 2009 11 23 | G96 | 0.1+ | 0.1+ | | |
| 2006 04 02 | 703 | (2.0+ | 0.7+) | 2009 10 26 | 691 | 0.4− | 0.0 | 2009 11 23 | G96 | 0.2+ | 0.0 | | |
| 2006 04 02 | 703 | 0.3− | 0.4− | 2009 10 26 | 691 | 0.6− | 0.1+ | 2009 11 23 | G96 | 0.2+ | 0.1+ | | |
| 2006 04 02 | 703 | 0.4− | 0.1− | 2009 11 08 | 703 | 0.1+ | 0.0 | 2009 12 10 | G96 | 0.3+ | 0.6+ | | |
| 2006 04 02 | 703 | 0.6− | 0.0 | 2009 11 08 | 703 | 1.3− | 0.4+ | 2009 12 10 | G96 | 0.3− | 0.7+ | | |
| 2006 04 02 | 703 | 0.3− | 0.4+ | 2009 11 08 | 703 | 0.3+ | 1.4− | 2009 12 10 | G96 | 0.3+ | 0.5+ | | |
| 2006 04 02 | 703 | 0.6+ | 0.4− | 2009 11 08 | 703 | 0.1− | 0.1− | 2009 12 10 | G96 | 0.0 | 0.7+ | | |
| 2006 04 02 | 703 | 0.0 | 0.2+ | 2009 11 15 | 703 | 0.5+ | 0.8− | | | | | | |
| 2009 10 23 | G96 | 0.5+ | 0.3− | 2009 11 15 | 703 | 1.2+ | 0.8+ | | | | | | |

**2009 UB$_{101}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 318.18362 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.08174957 | $\omega$ | 19.48375 | | | −0.17700063 | | −0.98088989 | |
| $a$ | 5.2579008 | $\Omega$ | 80.77565 | | | +0.89179015 | | −0.19456350 | |
| $e$ | 0.0294182 | $i$ | 4.69438 | | | +0.41639057 | | −0.00026014 | |
| $P$ | 12.06 | $H$ | 13.6 | $G$ | 0.15 | | $U$ | 1 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 06 01 | 807 | 0.1+ | 0.3+ | 2008 10 24 | G96 | 0.0 | 0.3− | 2009 11 16 | G96 | 0.3+ | 0.0 | | |
| 2003 06 01 | 807 | 0.1+ | 0.2+ | 2008 10 24 | G96 | 0.3− | 0.3− | 2009 11 16 | G96 | 0.0 | 0.0 | | |
| 2007 09 12 | 691 | 0.5+ | 0.0 | 2009 10 23 | G96 | 0.0 | 0.3+ | 2009 11 24 | G96 | 0.3+ | 0.1+ | | |
| 2007 09 12 | 691 | 0.5− | 0.1+ | 2009 10 23 | G96 | 0.3+ | 0.1+ | 2009 11 24 | G96 | 0.1− | 0.4− | | |
| 2007 09 12 | 691 | 0.0 | 0.2+ | 2009 10 23 | G96 | 0.1+ | 0.0 | 2009 11 24 | G96 | 0.7+ | 0.2− | | |
| 2008 09 23 | G96 | 0.1+ | 0.5− | 2009 10 23 | G96 | 0.1+ | 0.5+ | 2009 11 24 | G96 | 0.2+ | 0.1+ | | |
| 2008 09 23 | G96 | 0.5+ | 0.1− | 2009 10 26 | 691 | 0.7− | 0.0 | 2009 12 19 | G96 | 0.8+ | 0.2+ | | |
| 2008 09 23 | G96 | 0.0 | 0.0 | 2009 10 26 | 691 | 0.2− | 0.0 | 2009 12 19 | G96 | 1.1+ | 0.1+ | | |
| 2008 09 23 | G96 | 0.0 | 0.1− | 2009 10 26 | 691 | 0.1− | 0.0 | 2009 12 19 | G96 | 0.3− | 0.5+ | | |
| 2008 10 24 | G96 | 0.2+ | 0.3− | 2009 11 16 | G96 | 0.3+ | 0.1+ | 2009 12 19 | G96 | 0.0 | 0.2− | | |
| 2008 10 24 | G96 | 0.1− | 0.2− | 2009 11 16 | G96 | 0.0 | 0.3+ | | | | | | |

**2009 UL$_{101}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 59.66707 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.23736120 | $\omega$ | 186.46452 | | | +0.96746476 | | +0.25256613 | |
| $a$ | 2.5834272 | $\Omega$ | 158.88790 | | | −0.23023514 | | +0.90329499 | |
| $e$ | 0.1830290 | $i$ | 2.37231 | | | −0.10489863 | | +0.34679749 | |
| $P$ | 4.15 | $H$ | 17.1 | $G$ | 0.15 | | $U$ | 1 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 03 20 | 645 | 0.0 | 0.0 | 2007 03 09 | G96 | 0.1+ | 0.3+ | 2009 11 17 | G96 | 0.2+ | 0.1− | | |
| 1999 03 20 | 645 | 0.0 | 0.0 | 2007 03 09 | G96 | 0.1+ | 0.1− | 2009 11 17 | G96 | 0.4+ | 0.1− | | |
| 2005 11 01 | G96 | 0.1− | 0.0 | 2007 03 09 | G96 | 0.2+ | 0.5− | 2009 11 17 | G96 | 0.1+ | 0.1− | | |
| 2005 11 01 | G96 | 0.4− | 0.3− | 2009 10 23 | G96 | 0.6+ | 0.1+ | 2009 11 17 | G96 | 0.3+ | 0.3− | | |
| 2005 11 01 | G96 | 0.3− | 0.0 | 2009 10 23 | G96 | 0.3+ | 0.3− | 2009 11 24 | G96 | 0.2+ | 0.2− | | |
| 2005 11 01 | G96 | 0.2− | 0.1+ | 2009 10 23 | G96 | 0.1+ | 0.1+ | 2009 11 24 | G96 | 0.4+ | 0.1− | | |
| 2005 11 10 | 691 | 0.0 | 0.0 | 2009 10 23 | G96 | 0.4+ | 0.2+ | 2009 11 24 | G96 | 0.7+ | 0.1− | | |
| 2005 11 10 | 691 | 0.2− | 0.2+ | 2009 10 26 | 691 | 0.1+ | 0.2+ | 2009 11 24 | G96 | 0.4+ | 0.0 | | |
| 2005 11 10 | 691 | 0.5+ | 0.1+ | 2009 10 26 | 691 | 0.7− | 0.2− | | | | | | |
| 2007 03 09 | G96 | 0.5− | 0.1+ | 2009 10 26 | 691 | 0.4− | 0.1+ | | | | | | |

**2009 UZ$_{101}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 20.45953 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26002885 | $\omega$ | 213.09827 | | +0.83748495 | −0.54646040 | |
| $a$ | 2.4310190 | $\Omega$ | 180.02631 | | +0.51555821 | +0.79014523 | |
| $e$ | 0.1944185 | $i$ | 4.08146 | | +0.18115932 | +0.27758163 | |
| $P$ | 3.79 | $H$ | 17.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 08 29 | 699 | 0.9− | 0.9+ | 2005 10 01 | G96 | 0.2+ | 0.3− | 2009 10 26 | 691 | 0.0 | 0.2+ | |
| 2005 08 29 | 699 | 0.8+ | 0.6− | 2005 10 01 | 703 | (2.0+ | 2.3−) | 2009 10 26 | 691 | 0.1+ | 0.2+ | |
| 2005 08 29 | 699 | 1.4− | 0.9+ | 2005 10 01 | 703 | 0.1+ | 0.7− | 2009 10 26 | 691 | 0.1− | 0.2+ | |
| 2005 08 29 | 699 | 1.8+ | 0.7+ | 2005 10 01 | 703 | 0.3− | 0.6− | 2009 11 06 | 703 | 0.4− | 0.4− | |
| 2005 09 06 | 699 | 0.1− | 0.7+ | 2005 10 01 | 703 | 0.8+ | 0.1− | 2009 11 06 | 703 | 0.6− | 0.8− | |
| 2005 09 06 | 699 | 0.1+ | 1.6+ | 2009 09 22 | G96 | 0.0 | 0.2− | 2009 11 06 | 703 | 0.9− | 0.6− | |
| 2005 09 06 | 699 | 1.0+ | 0.8− | 2009 09 22 | G96 | 0.0 | 0.3− | 2009 11 06 | 703 | 1.6+ | 1.9− | |
| 2005 09 06 | 699 | (0.6− | 2.3−) | 2009 09 22 | G96 | 0.2+ | 0.3− | 2009 11 16 | G96 | 0.1+ | 0.2+ | |
| 2005 09 13 | 691 | 0.1− | 0.3− | 2009 09 22 | G96 | 0.3+ | 0.1− | 2009 11 16 | G96 | 0.1+ | 0.1− | |
| 2005 09 13 | 691 | 0.2− | 0.0 | 2009 10 14 | J75 | 0.2− | 0.9+ | 2009 11 16 | G96 | 0.2+ | 0.0 | |
| 2005 09 13 | 691 | 0.1− | 0.3− | 2009 10 14 | J75 | 0.1+ | 0.1+ | 2009 11 16 | G96 | 0.2+ | 0.2+ | |
| 2005 10 01 | 691 | 0.1+ | 0.0 | 2009 10 14 | J75 | 0.6+ | 0.2+ | 2009 11 23 | G96 | 0.2+ | 0.1+ | |
| 2005 10 01 | 691 | 0.1− | 0.4+ | 2009 10 24 | 703 | 0.8− | 0.0 | 2009 11 23 | G96 | 0.0 | 0.0 | |
| 2005 10 01 | 691 | 0.1− | 0.2− | 2009 10 24 | 703 | 0.1+ | 1.1+ | 2009 11 23 | G96 | 0.0 | 0.3− | |
| 2005 10 01 | G96 | 0.1− | 0.2− | 2009 10 24 | 703 | 0.6− | 0.0 | 2009 11 23 | G96 | 0.4+ | 0.1+ | |
| 2005 10 01 | G96 | 0.1+ | 0.9− | 2009 10 24 | 703 | 1.3− | 0.4+ | | | | | |

**2009 UH$_{102}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 347.47782 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.08205168 | $\omega$ | 237.40980 | | +0.65332499 | −0.75694799 | |
| $a$ | 5.2449866 | $\Omega$ | 171.75370 | | +0.72322051 | +0.61852998 | |
| $e$ | 0.0581141 | $i$ | 5.60440 | | +0.22387172 | +0.21083267 | |
| $P$ | 12.01 | $H$ | 14.4 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 03 20 | 695 | 0.2+ | 0.0 | 2009 09 18 | 691 | 0.2− | 0.0 | 2009 10 16 | G96 | 0.1+ | 0.1− | |
| 2002 03 20 | 695 | 0.2− | 0.0 | 2009 09 18 | 691 | 0.0 | 0.1− | 2009 10 24 | G96 | 0.4+ | 0.5− | |
| 2008 09 06 | G96 | 0.0 | 0.2− | 2009 09 22 | 691 | 0.4+ | 0.0 | 2009 10 24 | G96 | 0.1+ | 0.3− | |
| 2008 09 06 | G96 | 0.3− | 0.1− | 2009 09 22 | 691 | 0.1+ | 0.1− | 2009 10 24 | G96 | 0.2− | 0.9− | |
| 2008 09 06 | G96 | 0.1+ | 0.1− | 2009 09 22 | 691 | 0.7− | 0.2− | 2009 10 24 | G96 | 0.0 | 0.7− | |
| 2008 09 06 | G96 | 0.2+ | 0.4− | 2009 09 26 | 691 | 0.1+ | 0.4+ | 2009 10 26 | G96 | 0.2+ | 0.0 | |
| 2008 10 02 | G96 | 0.4− | 0.2+ | 2009 09 26 | 691 | 0.1+ | 0.5+ | 2009 10 26 | G96 | 0.5+ | 0.1+ | |
| 2008 10 02 | G96 | 0.1− | 0.0 | 2009 09 26 | 691 | 0.2− | 0.0 | 2009 10 26 | G96 | 0.3− | 0.3− | |
| 2008 10 02 | G96 | 0.3− | 0.3+ | 2009 10 16 | G96 | 0.4+ | 0.1− | 2009 10 26 | G96 | 0.2− | 0.1+ | |
| 2008 10 02 | G96 | 0.8+ | 0.3+ | 2009 10 16 | G96 | 0.4+ | 0.1+ | | | | | |
| 2009 09 18 | 691 | 0.2− | 0.4+ | 2009 10 16 | G96 | 0.3+ | 0.1+ | | | | | |

**2009 UL$_{102}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 6.73548 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18207537 | $\omega$ | 203.46151 | | +0.80309388 | −0.59477867 | |
| $a$ | 3.0829649 | $\Omega$ | 193.21946 | | +0.56845485 | +0.78277394 | |
| $e$ | 0.0685937 | $i$ | 8.99575 | | +0.17860379 | +0.18303906 | |
| $P$ | 5.41 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 03 28 | 691 | 0.1+ | 0.4+ | 2009 09 23 | 691 | 0.3+ | 0.1− | 2009 11 11 | 691 | 0.3+ | 0.1+ | |
| 2001 03 28 | 691 | 0.0 | 0.2+ | 2009 09 23 | 691 | 0.6− | 0.4+ | 2009 11 11 | 691 | 0.2− | 0.1− | |
| 2001 03 28 | 691 | 0.1+ | 0.4+ | 2009 10 17 | 703 | (1.6+ | 2.6+) | 2009 11 11 | 691 | 0.1− | 0.1+ | |
| 2003 07 30 | 599 | 0.8+ | 0.1− | 2009 10 17 | 703 | 0.2− | 0.2+ | 2009 11 19 | 691 | 0.1+ | 0.0 | |
| 2003 07 30 | 599 | 0.4+ | 0.4− | 2009 10 17 | 703 | 0.8− | 1.3− | 2009 11 19 | 691 | 0.0 | 0.0 | |
| 2003 07 30 | 599 | 0.1− | 1.8+ | 2009 10 17 | 703 | 1.0− | 0.0 | 2009 11 19 | 691 | 0.0 | 0.2− | |
| 2003 09 29 | 691 | 0.1− | 0.0 | 2009 10 24 | G96 | 0.5+ | 0.1+ | 2009 11 21 | 691 | 0.3+ | 0.1+ | |
| 2003 09 29 | 691 | 0.0 | 0.2+ | 2009 10 24 | G96 | 0.2+ | 0.1+ | 2009 11 21 | 691 | 0.0 | 0.3+ | |
| 2003 09 29 | 691 | 0.4− | 0.3+ | 2009 10 24 | G96 | 0.3+ | 0.3+ | 2009 11 21 | 691 | 0.1− | 0.1− | |
| 2009 09 15 | 691 | 0.0 | 0.3− | 2009 10 24 | G96 | 0.1+ | 0.1+ | 2009 11 23 | 691 | 0.2+ | 0.1+ | |
| 2009 09 15 | 691 | 0.1− | 0.3− | 2009 10 26 | 691 | 0.0 | 0.2+ | 2009 11 23 | 691 | 0.1− | 0.1+ | |
| 2009 09 15 | 691 | 0.1+ | 0.2− | 2009 10 26 | 691 | 0.2+ | 0.3+ | 2009 11 23 | 691 | 0.0 | 0.1+ | |
| 2009 09 23 | 691 | 0.1+ | 0.2− | 2009 10 26 | 691 | 0.3− | 0.3+ | | | | | |

**2009 UB$_{107}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 11.74414 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.08168783 | $\omega$ | 345.17905 | | +0.68273927 | −0.72058853 | |
| $a$ | 5.2605499 | $\Omega$ | 61.59517 | | +0.68357928 | +0.57149660 | |
| $e$ | 0.0156588 | $i$ | 7.90084 | | +0.25804352 | +0.39261153 | |
| $P$ | 12.07 | $H$ | 13.2 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 04 29 | 691 | 0.2+ | 0.8+ | 2008 10 24 | G96 | 0.8+ | 0.3+ | 2009 11 08 | 691 | 0.1− | 0.5+ | |
| 2003 04 29 | 691 | 0.4+ | 0.3+ | 2009 08 01 | 691 | 0.1− | 0.3+ | 2009 11 08 | 691 | 0.2− | 0.1+ | |
| 2003 04 29 | 691 | 0.2+ | 0.4+ | 2009 08 01 | 691 | 0.2− | 0.3+ | 2009 11 08 | 691 | 0.5+ | 0.7− | |
| 2003 05 10 | 691 | 0.1+ | 0.4+ | 2009 08 01 | 691 | 0.1− | 0.1− | 2009 11 23 | G96 | 0.0 | 0.2− | |
| 2003 05 10 | 691 | 0.1+ | 0.1− | 2009 10 22 | G96 | 0.0 | 0.3+ | 2009 11 23 | G96 | 0.2− | 0.2− | |
| 2003 05 10 | 691 | 0.0 | 0.3+ | 2009 10 22 | G96 | 0.2+ | 0.5+ | 2009 11 23 | G96 | 0.1+ | 0.2+ | |
| 2008 10 08 | 691 | 0.4− | 0.4+ | 2009 10 22 | G96 | 0.8− | 0.2− | 2009 11 23 | G96 | 0.3+ | 0.2+ | |
| 2008 10 08 | 691 | 0.0 | 0.1+ | 2009 10 22 | G96 | 0.9+ | 0.2− | 2009 12 11 | G96 | 0.6+ | 0.1− | |
| 2008 10 08 | 691 | 0.4− | 0.1+ | 2009 10 27 | 691 | 0.5− | 0.4+ | 2009 12 11 | G96 | 0.5+ | 0.1+ | |
| 2008 10 24 | G96 | 0.1+ | 0.2+ | 2009 10 27 | 691 | 0.3− | 0.3+ | 2009 12 11 | G96 | 0.6+ | 0.2+ | |
| 2008 10 24 | G96 | 0.5+ | 0.3+ | 2009 10 27 | 691 | 0.3− | 0.3+ | 2009 12 11 | G96 | 0.7+ | 0.0 | |

**2009 UH$_{107}$ = 2004 TT$_{253}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 358.22131 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21139433 | $\omega$ | 266.38091 | | +0.36322616 | −0.93167325 | |
| $a$ | 2.7908757 | $\Omega$ | 162.31540 | | +0.86394074 | +0.33391029 | |
| $e$ | 0.0843559 | $i$ | 1.35631 | | +0.34881680 | +0.14313933 | |
| $P$ | 4.66 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 04 19 | 291 | 0.0 | 0.7+ | 2006 01 05 | G96 | 0.2− | 0.2− | 2009 10 22 | G96 | 0.2− | 0.4+ | |
| 2002 04 19 | 291 | 0.1+ | 0.1+ | 2006 01 22 | G96 | 0.5− | 0.0 | 2009 10 27 | 691 | 0.4− | 0.0 | |
| 2002 04 19 | 291 | 0.2+ | 0.0 | 2006 01 22 | G96 | 0.1+ | 0.2− | 2009 10 27 | 691 | 0.2− | 0.0 | |
| 2004 10 09 | 691 | 0.6+ | 0.2+ | 2006 01 22 | G96 | 0.2+ | 0.0 | 2009 10 27 | 691 | 0.0 | 0.0 | |
| 2004 10 09 | 691 | 0.3+ | 0.1− | 2006 01 22 | G96 | 0.2− | 0.2− | 2009 11 08 | 691 | 0.0 | 0.1+ | |
| 2004 10 09 | 691 | 0.3+ | 0.2− | 2006 03 05 | G96 | 0.6+ | 0.1+ | 2009 11 08 | 691 | 0.0 | 0.1+ | |
| 2004 10 13 | 691 | 0.5− | 0.3+ | 2006 03 05 | G96 | 0.7+ | 0.4− | 2009 11 08 | 691 | 0.0 | 0.2+ | |
| 2004 10 13 | 691 | 0.5− | 0.0 | 2006 03 05 | G96 | 0.0 | 0.3+ | 2009 11 23 | G96 | 0.3+ | 0.1− | |
| 2004 10 13 | 691 | 0.3− | 0.1+ | 2006 03 05 | G96 | 0.2− | 0.2+ | 2009 11 23 | G96 | 0.2+ | 0.1− | |
| 2006 01 05 | G96 | 0.2− | 0.5− | 2009 10 22 | G96 | 0.1− | 0.3+ | 2009 11 23 | G96 | 0.1+ | 0.0 | |
| 2006 01 05 | G96 | 0.1+ | 0.2− | 2009 10 22 | G96 | 0.7+ | 0.1− | 2009 11 23 | G96 | 0.7+ | 0.1− | |
| 2006 01 05 | G96 | 0.6− | 0.0 | 2009 10 22 | G96 | 0.5+ | 0.0 | | | | | |

**2009 UF$_{108}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 320.81632 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27458533 | $\omega$ | 72.63429 | | −0.50317338 | −0.86333687 | |
| $a$ | 2.3443251 | $\Omega$ | 47.63871 | | +0.77190296 | −0.46892167 | |
| $e$ | 0.1429493 | $i$ | 2.97025 | | +0.38856450 | −0.18644548 | |
| $P$ | 3.59 | $H$ | 18.1 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 13 | 691 | 0.3− | 0.1+ | 2009 10 23 | 691 | 0.2− | 0.2− | 2009 11 24 | G96 | 0.0 | 0.2+ | |
| 2005 09 13 | 691 | 0.0 | 0.1− | 2009 10 23 | 691 | 0.6− | 0.2+ | 2009 11 24 | G96 | 0.4+ | 0.0 | |
| 2005 09 13 | 691 | 0.4+ | 0.2− | 2009 10 27 | 691 | 0.0 | 0.1− | 2009 11 24 | G96 | 0.2+ | 0.1− | |
| 2005 10 06 | G96 | (3.1− | 2.2+) | 2009 10 27 | 691 | 0.1+ | 0.4+ | 2009 12 10 | G96 | 0.5+ | 0.0 | |
| 2005 10 06 | G96 | 0.4− | 0.0 | 2009 10 27 | 691 | 0.2+ | 0.0 | 2009 12 10 | G96 | 0.3− | 0.3− | |
| 2005 10 06 | G96 | 0.3+ | 0.9+ | 2009 11 11 | G96 | 0.1+ | 0.2+ | 2009 12 10 | G96 | 0.2− | 0.5− | |
| 2005 10 06 | G96 | 0.3− | 0.1− | 2009 11 11 | G96 | 0.1+ | 0.1− | 2009 12 10 | G96 | 0.7− | 0.3− | |
| 2009 10 23 | 691 | 0.2+ | 0.0 | 2009 11 24 | G96 | 0.7+ | 0.0 | | | | | |

**2009 UH$_{108}$ = 2007 HY$_{19}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 156.71079 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19653873 | $\omega$ | 64.02517 | | −0.12563484 | +0.99204837 | |
| $a$ | 2.9297953 | $\Omega$ | 198.76193 | | −0.91832470 | −0.11914377 | |
| $e$ | 0.0850034 | $i$ | 1.33228 | | −0.37536067 | −0.04055610 | |
| $P$ | 5.01 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 11 17 | 691 | 0.1− | 0.2− | 2007 04 22 | 691 | 0.2− | 0.3+ | 2009 10 23 | 691 | 0.1− | 0.2+ |
| 1999 11 17 | 691 | 0.3− | 0.2+ | 2007 04 22 | 691 | 0.1+ | 0.1+ | 2009 10 23 | 691 | 0.2− | 0.0 |
| 1999 11 17 | 691 | 0.0 | 0.4− | 2007 04 22 | 691 | 0.1− | 0.2+ | 2009 10 27 | 691 | 0.2− | 0.1− |
| 2003 08 04 | 691 | 0.1− | 0.4+ | 2007 05 09 | G96 | 0.0 | 0.0 | 2009 10 27 | 691 | 0.5− | 0.1− |
| 2003 08 04 | 691 | 0.2+ | 0.0 | 2007 05 09 | G96 | 0.2− | 0.1− | 2009 10 27 | 691 | 0.1− | 0.4+ |
| 2003 08 04 | 691 | 0.1− | 0.3+ | 2007 05 09 | G96 | 0.1+ | 0.0 | 2009 11 11 | 691 | 0.1− | 0.1+ |
| 2004 11 19 | 691 | 0.1+ | 0.1+ | 2007 05 09 | G96 | 0.1− | 0.0 | 2009 11 11 | 691 | 0.0 | 0.4+ |
| 2004 11 19 | 691 | 0.1+ | 0.3+ | 2008 09 06 | G96 | 0.1+ | 0.1− | 2009 11 11 | 691 | 0.2+ | 0.1− |
| 2004 11 19 | 691 | 0.1+ | 0.2+ | 2008 09 06 | G96 | 0.5− | 0.1− | 2009 11 23 | G96 | 1.0+ | 0.1+ |
| 2006 02 24 | G96 | 0.7+ | 0.4+ | 2008 09 06 | G96 | 0.3+ | 0.1+ | 2009 11 23 | G96 | 0.2+ | 0.5+ |
| 2006 02 24 | G96 | 1.0+ | 0.1+ | 2008 09 06 | G96 | 0.4− | 0.2+ | 2009 11 23 | G96 | 0.0 | 0.1+ |
| 2006 02 24 | G96 | 0.0 | 0.1+ | 2009 10 18 | G96 | 0.0 | 0.0 | 2009 11 23 | G96 | 0.6+ | 0.0 |
| 2006 02 24 | G96 | 0.2− | 0.1+ | 2009 10 18 | G96 | 0.1+ | 0.5− | 2009 12 11 | G96 | 0.2+ | 0.2+ |
| 2007 04 18 | 691 | 0.2+ | 0.0 | 2009 10 18 | G96 | 1.1+ | 0.1− | 2009 12 11 | G96 | 1.1+ | 0.4+ |
| 2007 04 18 | 691 | 0.1− | 0.4+ | 2009 10 18 | G96 | 0.2+ | 0.2− | 2009 12 11 | G96 | 0.4+ | 0.1+ |
| 2007 04 18 | 691 | 0.3+ | 0.3+ | 2009 10 23 | 691 | 0.9− | 0.0 | 2009 12 11 | G96 | 0.6+ | 0.2+ |

**2009 UO$_{108}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 358.07977 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17396429 | $\omega$ | 16.08703 | | +0.31534953 | −0.93508291 | |
| $a$ | 3.1780640 | $\Omega$ | 55.79817 | | +0.84768539 | +0.20092792 | |
| $e$ | 0.1964646 | $i$ | 11.28064 | | +0.42659602 | +0.29197246 | |
| $P$ | 5.67 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 30 | 645 | 0.0 | 0.0 | 2009 10 27 | 691 | 0.0 | 0.1− | 2009 11 25 | 691 | 0.0 | 0.1− |
| 2003 09 30 | 645 | 0.1− | 0.0 | 2009 11 08 | 691 | 0.4+ | 0.4+ | 2009 11 25 | 691 | 0.3− | 0.1+ |
| 2003 10 23 | 645 | 0.1+ | 0.0 | 2009 11 08 | 691 | 0.1+ | 0.5+ | 2009 11 25 | 291 | 0.1− | 0.1+ |
| 2003 10 23 | 645 | 0.1+ | 0.1− | 2009 11 08 | 691 | 0.2+ | 0.3+ | 2009 11 25 | 291 | 0.1+ | 0.0 |
| 2009 10 23 | 691 | 0.2− | 0.2− | 2009 11 24 | G96 | 0.3+ | 0.0 | 2009 11 25 | 291 | 0.1+ | 0.2− |
| 2009 10 23 | 691 | 0.7− | 0.0 | 2009 11 24 | G96 | 0.6+ | 0.1− | 2009 12 17 | G96 | 0.2+ | 0.3+ |
| 2009 10 23 | 691 | 0.0 | 0.0 | 2009 11 24 | G96 | 0.4+ | 0.2− | 2009 12 17 | G96 | 0.4+ | 0.1− |
| 2009 10 27 | 691 | 0.1− | 0.2− | 2009 11 24 | G96 | 0.8+ | 0.0 | 2009 12 17 | G96 | 0.5+ | 0.3+ |
| 2009 10 27 | 691 | 0.2− | 0.1− | 2009 11 25 | 691 | 0.3− | 0.3− | 2009 12 17 | G96 | 0.7+ | 0.4− |

**2009 UN$_{109}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 65.79748 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26769091 | $\omega$ | 67.60608 | | +0.95211130 | +0.30553900 | |
| $a$ | 2.3844065 | $\Omega$ | 274.60183 | | −0.28456052 | +0.87186515 | |
| $e$ | 0.2027456 | $i$ | 0.65537 | | −0.11184533 | +0.38274936 | |
| $P$ | 3.68 | $H$ | 18.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 09 12 | 691 | 0.2+ | 0.4− | 2005 10 27 | G96 | 0.3− | 0.2+ | 2009 10 27 | 691 | 0.1+ | 0.3− |
| 1994 09 12 | 691 | 0.2− | 0.1− | 2005 10 27 | G96 | 0.3+ | 0.4− | 2009 11 24 | G96 | 0.3+ | 0.3− |
| 1994 09 12 | 691 | 0.1+ | 0.4− | 2005 10 27 | G96 | 0.3− | 0.3+ | 2009 11 24 | G96 | 0.7+ | 0.1− |
| 1994 09 30 | 691 | 0.9− | 0.9− | 2005 10 27 | G96 | 0.3+ | 0.3− | 2009 11 24 | G96 | 0.4+ | 0.3+ |
| 1994 09 30 | 691 | 1.0+ | 2.1+ | 2009 09 21 | G96 | 0.1− | 0.5− | 2009 11 24 | G96 | 0.3+ | 0.1− |
| 1994 09 30 | 691 | 0.2− | 0.4− | 2009 09 21 | G96 | 0.4+ | 0.3− | 2009 11 25 | 291 | 0.2− | 0.1+ |
| 2005 08 25 | 644 | 0.2+ | 0.4+ | 2009 09 21 | G96 | 0.6− | 0.1− | 2009 11 25 | 291 | 0.1− | 0.3− |
| 2005 08 25 | 644 | 0.4− | 0.3+ | 2009 09 21 | G96 | 0.5+ | 0.3+ | 2009 11 25 | 291 | 0.6− | 0.2+ |
| 2005 08 25 | 644 | 0.0 | 0.0 | 2009 10 23 | 691 | 0.1− | 0.3+ | 2009 12 11 | G96 | 0.5+ | 0.4+ |
| 2005 09 30 | G96 | 0.1− | 0.3− | 2009 10 23 | 691 | 0.0 | 0.2− | 2009 12 11 | G96 | 0.1+ | 0.6− |
| 2005 09 30 | G96 | 0.2− | 0.1− | 2009 10 23 | 691 | 0.1− | 0.3+ | 2009 12 11 | G96 | 0.7+ | 0.1− |
| 2005 09 30 | G96 | 0.1+ | 0.1+ | 2009 10 27 | 691 | 0.0 | 0.2− | 2009 12 11 | G96 | 0.2+ | 0.5+ |
| 2005 09 30 | G96 | 0.4+ | 0.1− | 2009 10 27 | 691 | 0.2+ | 0.1+ | | | | |

**2009 UV$_{109}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 97.80168 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21960252 | $\omega$ | 258.89945 | | +0.79587956 | +0.59784241 | |
| $a$ | 2.7208911 | $\Omega$ | 64.31486 | | −0.50574843 | +0.74336034 | |
| $e$ | 0.0466268 | $i$ | 6.09647 | | −0.33285771 | +0.29999975 | |
| $P$ | 4.49 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 25 | 691 | 0.1+ | 0.1+ | 2007 04 25 | G96 | 0.4− | 0.1+ | 2009 11 08 | 691 | 0.1+ | 0.0 |
| 2000 11 25 | 691 | 0.1− | 0.2− | 2007 04 25 | G96 | 0.1− | 0.2+ | 2009 11 08 | 691 | 0.1− | 0.1+ |
| 2000 11 25 | 691 | 0.1− | 0.1− | 2007 05 16 | G96 | 0.3− | 0.1− | 2009 11 08 | 691 | 0.3+ | 0.1+ |
| 2004 09 17 | 699 | 0.5− | 1.3+ | 2007 05 16 | G96 | 0.9+ | 0.2+ | 2009 11 22 | 703 | 1.4− | 0.9+ |
| 2004 09 17 | 699 | 1.3+ | 1.2+ | 2007 05 16 | G96 | 0.4+ | 0.6+ | 2009 11 22 | 703 | 0.9− | 0.5+ |
| 2004 09 17 | 699 | 1.1− | 1.3+ | 2007 05 16 | G96 | 0.1− | 0.9+ | 2009 11 22 | 703 | 0.2+ | 0.3− |
| 2004 09 17 | 699 | 0.2− | 0.9− | 2009 10 23 | G96 | 0.4+ | 0.1+ | 2009 11 22 | 703 | 0.9+ | 0.1− |
| 2006 01 07 | 691 | 0.1+ | 0.2+ | 2009 10 23 | G96 | 0.2+ | 0.1− | 2009 11 23 | G96 | 0.1− | 0.0 |
| 2006 01 07 | 691 | 0.2+ | 0.0 | 2009 10 23 | G96 | 0.2− | 0.2+ | 2009 11 23 | G96 | 0.2+ | 0.3+ |
| 2006 01 07 | 691 | 0.0 | 0.1+ | 2009 10 23 | G96 | 0.0 | 1.0+ | 2009 11 23 | G96 | 0.5+ | 0.1− |
| 2007 03 14 | G96 | 0.0 | 0.0 | 2009 10 27 | 691 | 0.4− | 0.1− | 2009 11 23 | G96 | 0.3+ | 0.1− |
| 2007 03 14 | G96 | 0.2− | 0.4+ | 2009 10 27 | 691 | 0.1− | 0.1− | 2009 12 11 | G96 | 0.1+ | 0.2− |
| 2007 03 14 | G96 | 0.2+ | 0.3+ | 2009 10 27 | 691 | 0.0 | 0.2− | 2009 12 11 | G96 | 0.3+ | 0.3− |
| 2007 03 14 | G96 | 0.1+ | 0.3+ | 2009 11 08 | 691 | 0.1− | 0.1+ | 2009 12 11 | G96 | 0.6+ | 0.0 |
| 2007 04 25 | G96 | 0.3+ | 0.1+ | 2009 11 08 | 691 | 0.2− | 0.0 | 2009 12 11 | G96 | 0.2+ | 0.1− |
| 2007 04 25 | G96 | 0.0 | 0.1+ | 2009 11 08 | 691 | 0.0 | 0.1− | | | | |

**2009 UA$_{110}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 36.55160 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28501649 | $\omega$ | 50.93452 | | +0.91886353 | −0.39453985 | |
| $a$ | 2.2867712 | $\Omega$ | 332.30157 | | +0.35840084 | +0.84016880 | |
| $e$ | 0.1913974 | $i$ | 0.65375 | | +0.16504139 | +0.37209500 | |
| $P$ | 3.46 | $H$ | 18.7 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 02 21 | 695 | 0.1+ | 0.3+ | 2009 11 16 | 691 | 0.2+ | 0.1− | 2009 11 24 | 691 | 0.0 | 0.0 |
| 2007 02 21 | 695 | 0.1+ | 0.4+ | 2009 11 16 | 691 | 0.2+ | 0.2+ | 2009 11 24 | 691 | 0.5− | 0.6− |
| 2009 10 23 | 691 | 0.3− | 0.3− | 2009 11 20 | 691 | 0.1− | 0.1− | 2009 11 24 | 691 | 0.4− | 0.1− |
| 2009 10 23 | 691 | 0.0 | 0.0 | 2009 11 20 | 691 | 0.2+ | 0.0 | 2009 12 17 | G96 | 0.0 | 0.2− |
| 2009 10 23 | 691 | 0.3+ | 0.1+ | 2009 11 20 | 691 | 0.1+ | 0.1+ | 2009 12 17 | G96 | 0.3+ | 0.1− |
| 2009 10 27 | 691 | 0.1+ | 0.2+ | 2009 11 20 | G96 | 0.1+ | 0.1+ | 2009 12 17 | G96 | 0.0 | 0.1− |
| 2009 10 27 | 691 | 0.3− | 0.4+ | 2009 11 20 | G96 | 0.5+ | 0.2− | 2009 12 17 | G96 | 0.2+ | 0.3− |
| 2009 10 27 | 691 | 0.1− | 0.1+ | 2009 11 20 | G96 | 0.7+ | 0.0 | | | | |
| 2009 11 16 | 691 | 0.2+ | 0.3+ | 2009 11 20 | G96 | 0.6+ | 0.1− | | | | |

**2009 UN$_{110}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 82.87905 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28756095 | $\omega$ | 268.80139 | | +0.74887392 | +0.66124913 | |
| $a$ | 2.2732618 | $\Omega$ | 49.80138 | | −0.58280684 | +0.68874281 | |
| $e$ | 0.2494958 | $i$ | 3.30364 | | −0.31547431 | +0.29729267 | |
| $P$ | 3.43 | $H$ | 17.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 09 01 | 809 | (3.6− | 2.2−) | 2008 04 03 | G96 | 0.4− | 0.0 | 2009 11 24 | G96 | 0.7+ | 0.1− |
| 1995 09 23 | 809 | (4.0+ | 2.4−) | 2009 09 19 | G96 | 0.3+ | 0.3− | 2009 11 24 | G96 | 0.5+ | 0.1− |
| 2002 10 08 | 699 | (1.9− | 1.2+) | 2009 09 19 | G96 | 0.4+ | 0.1− | 2009 11 24 | G96 | 0.4+ | 0.2− |
| 2002 10 08 | 699 | 0.4+ | 1.5+ | 2009 09 19 | G96 | 0.4+ | 0.1− | 2009 11 25 | 691 | 0.4− | 0.3+ |
| 2002 10 08 | 699 | 0.1− | 0.7+ | 2009 09 19 | G96 | 0.3+ | 0.0 | 2009 11 25 | 691 | 0.1+ | 0.2− |
| 2002 10 08 | 699 | 0.6+ | 0.2+ | 2009 10 11 | G96 | 0.6+ | 0.2+ | 2009 11 25 | 691 | 0.2− | 0.1+ |
| 2002 10 31 | 608 | 0.2− | 0.3+ | 2009 10 11 | G96 | 0.3+ | 0.0 | 2009 11 25 | 291 | 0.0 | 0.1+ |
| 2002 10 31 | 608 | 0.6− | 0.1+ | 2009 10 11 | G96 | 0.1+ | 0.1− | 2009 11 25 | 291 | 0.1+ | 0.1+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 10 31 | 608 | 1.0− | 0.3− | 2009 10 11 | G96 | 0.3+ | 0.4− | 2009 11 25 | 291 | 0.0 | 0.1+ | | |
| 2005 02 16 | 809 | 0.2− | 0.2+ | 2009 10 23 | 691 | 0.2− | 0.0 | 2009 11 27 | 691 | 0.3− | 0.2+ | | |
| 2005 02 16 | 809 | 0.0 | 0.2+ | 2009 10 23 | 691 | 0.2+ | 0.1− | 2009 11 27 | 691 | 0.0 | 0.3− | | |
| 2005 02 16 | 809 | 0.1+ | 0.1+ | 2009 10 23 | 691 | 0.2− | 0.1− | 2009 11 27 | 691 | 0.0 | 0.3+ | | |
| 2008 03 11 | 691 | 0.3− | 0.2− | 2009 10 27 | 691 | 0.1+ | 0.1− | 2009 12 17 | G96 | 0.2− | 0.0 | | |
| 2008 03 11 | 691 | 0.1− | 0.3+ | 2009 10 27 | 691 | 0.2− | 0.2− | 2009 12 17 | G96 | 0.6+ | 0.1− | | |
| 2008 03 11 | 691 | 0.2+ | 0.1− | 2009 10 27 | 691 | 0.1− | 0.1− | 2009 12 17 | G96 | 0.6+ | 0.0 | | |
| 2008 04 03 | G96 | 0.6+ | 0.4+ | 2009 11 08 | 691 | 0.4− | 0.4− | 2009 12 17 | G96 | 0.3+ | 0.3+ | | |
| 2008 04 03 | G96 | 0.5+ | 0.0 | 2009 11 08 | 691 | 0.1+ | 0.0 | | | | | | |
| 2008 04 03 | G96 | 0.3+ | 0.5+ | 2009 11 08 | 691 | 0.3+ | 0.2+ | | | | | | |

**2009 UN$_{120}$ = 2001 HL$_{25}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $M$ | 291.81849 | | | (2000.0) | | | | **P** | | | **Q** | | |
| $n$ | 0.17852844 | | $\omega$ | 82.62427 | | | | −0.43873649 | | | −0.89334784 | | |
| $a$ | 3.1236649 | | $\Omega$ | 33.93895 | | | | +0.74046560 | | | −0.42066177 | | |
| $e$ | 0.0911743 | | $i$ | 10.02188 | | | | +0.50913749 | | | −0.15802946 | | |
| $P$ | 5.52 | | $H$ | 16.6 | $G$ | 0.15 | | $U$ | 3 | | | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 04 26 | 691 | 0.1− | 0.1− | 2009 09 26 | 691 | 0.2− | 0.3− | 2009 10 27 | G96 | 0.6+ | 0.3+ | | |
| 2001 04 26 | 691 | 0.1− | 0.4− | 2009 09 26 | 691 | 0.5− | 0.3+ | 2009 10 27 | G96 | 0.2+ | 0.2+ | | |
| 2001 04 26 | 691 | 0.1− | 0.2− | 2009 10 15 | G96 | 0.3+ | 0.2− | 2009 10 27 | G96 | 0.4+ | 0.1+ | | |
| 2001 04 29 | 691 | 0.3+ | 0.0 | 2009 10 15 | G96 | 0.6+ | 0.1− | 2009 10 27 | G96 | 0.5+ | 0.1+ | | |
| 2001 04 29 | 691 | 0.4+ | 0.2+ | 2009 10 15 | G96 | 0.4+ | 0.2− | 2009 12 17 | G96 | 0.3− | 0.2+ | | |
| 2001 04 29 | 691 | 0.9+ | 0.4+ | 2009 10 15 | G96 | 0.1+ | 0.0 | 2009 12 17 | G96 | 0.3− | 0.6+ | | |
| 2001 05 01 | 691 | 0.5− | 0.1− | 2009 10 23 | G96 | 0.5+ | 0.1+ | 2009 12 17 | G96 | 0.8− | 0.1+ | | |
| 2001 05 01 | 691 | 0.5− | 0.0 | 2009 10 23 | G96 | 0.1+ | 0.3− | 2009 12 17 | G96 | 0.2− | 0.1+ | | |
| 2001 05 01 | 691 | 0.3− | 0.3+ | 2009 10 23 | G96 | 0.4+ | 0.2+ | | | | | | |
| 2009 09 26 | 691 | 0.2− | 0.0 | 2009 10 23 | G96 | 0.5+ | 0.3+ | | | | | | |

**2009 UX$_{120}$ = 2006 BE$_{219}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $M$ | 5.51958 | | | (2000.0) | | | | **P** | | | **Q** | | |
| $n$ | 0.21101791 | | $\omega$ | 52.08589 | | | | +0.56279230 | | | −0.82659380 | | |
| $a$ | 2.7941937 | | $\Omega$ | 3.66820 | | | | +0.74431065 | | | +0.50532139 | | |
| $e$ | 0.1768899 | | $i$ | 2.45535 | | | | +0.35953649 | | | +0.24777606 | | |
| $P$ | 4.67 | | $H$ | 16.6 | $G$ | 0.15 | | $U$ | 3 | | | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 11 | 691 | 0.1− | 0.2+ | 2006 02 04 | 691 | 0.6+ | 0.6− | 2009 10 28 | J75 | 0.1+ | 0.2− | | |
| 2004 09 11 | 691 | 0.1− | 0.3+ | 2006 02 04 | 691 | 0.2− | 0.5+ | 2009 10 28 | J75 | 0.2+ | 0.4+ | | |
| 2004 09 11 | 691 | 0.1+ | 0.1+ | 2006 02 04 | 691 | 0.2− | 0.4+ | 2009 10 28 | J75 | 0.4− | 0.5− | | |
| 2004 09 14 | 699 | (0.8− | 3.6+) | 2009 09 21 | G96 | 0.1− | 0.2− | 2009 11 08 | G96 | 0.1+ | 0.0 | | |
| 2004 09 14 | 699 | (0.5+ | 2.0+) | 2009 09 21 | G96 | 0.3− | 0.2− | 2009 11 08 | G96 | 0.3+ | 0.1− | | |
| 2004 09 14 | 699 | (1.6− | 0.9−) | 2009 09 21 | G96 | 0.1− | 0.2− | 2009 11 08 | G96 | 0.1− | 0.1− | | |
| 2004 09 14 | 699 | 0.2− | 0.6− | 2009 09 21 | G96 | 0.3− | 0.3− | 2009 11 08 | G96 | 0.4+ | 0.0 | | |
| 2006 01 28 | G96 | 0.1− | 0.2+ | 2009 10 23 | G96 | 0.3− | 0.0 | 2009 11 22 | G96 | 0.1− | 0.1− | | |
| 2006 01 28 | G96 | 0.2− | 0.1+ | 2009 10 23 | G96 | 0.1− | 0.2− | 2009 11 22 | G96 | 0.1− | 0.2+ | | |
| 2006 01 28 | G96 | 0.3− | 0.3− | 2009 10 23 | G96 | 0.1+ | 0.1− | 2009 11 22 | G96 | 0.5+ | 0.6+ | | |
| 2006 01 28 | G96 | 0.2− | 0.1+ | 2009 10 23 | G96 | 0.2+ | 0.1− | 2009 11 22 | G96 | 0.0 | 0.1+ | | |

**2009 UN$_{121}$ = 2000 TS$_{65}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $M$ | 26.50128 | | | (2000.0) | | | | **P** | | | **Q** | | |
| $n$ | 0.22045033 | | $\omega$ | 2.54788 | | | | +0.93228460 | | | −0.36054152 | | |
| $a$ | 2.7139107 | | $\Omega$ | 18.66776 | | | | +0.33024024 | | | +0.81536025 | | |
| $e$ | 0.1223542 | | $i$ | 5.24222 | | | | +0.14760358 | | | +0.45298727 | | |
| $P$ | 4.47 | | $H$ | 16.8 | $G$ | 0.15 | | $U$ | 4 | | | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 10 01 | 704 | 0.9− | 0.3+ | 2009 10 14 | D29 | 0.4− | 0.0 | 2009 10 27 | J75 | 0.2+ | 0.0 | | |
| 2000 10 01 | 704 | 0.1− | 0.3+ | 2009 10 14 | D29 | 0.0 | 0.1− | 2009 10 27 | J75 | 0.4+ | 0.2− | | |
| 2000 10 01 | 704 | 0.9− | 0.7+ | 2009 10 14 | D29 | 0.0 | 0.6+ | 2009 10 27 | J75 | 0.9+ | 0.7+ | | |
| 2000 10 01 | 704 | 0.1− | 1.0+ | 2009 10 14 | D29 | 0.3+ | 0.1+ | 2009 11 06 | 703 | 0.3+ | 0.4− | | |
| 2000 10 07 | 691 | 0.2+ | 0.3− | 2009 10 22 | 703 | (2.3− | 0.2−) | 2009 11 06 | 703 | 1.1+ | 0.2+ | | |
| 2000 10 07 | 691 | 0.2+ | 0.3− | 2009 10 22 | 703 | 0.4− | 0.2+ | 2009 11 06 | 703 | 0.4− | 0.2+ | | |
| 2000 10 07 | 691 | 0.1+ | 0.1− | 2009 10 22 | 703 | 0.0 | 0.3+ | 2009 11 06 | 703 | 1.2− | 1.0− | | |
| 2009 09 21 | G96 | 0.0 | 0.3− | 2009 10 22 | 703 | 1.0+ | 0.6+ | 2009 11 19 | G96 | 0.0 | 0.4− | | |
| 2009 09 21 | G96 | 0.1+ | 0.1− | 2009 10 25 | 691 | 0.2− | 0.1+ | 2009 11 19 | G96 | 0.6+ | 0.0 | | |
| 2009 09 21 | G96 | 0.3− | 0.2− | 2009 10 25 | 691 | 0.3− | 0.0 | 2009 11 19 | G96 | 0.1− | 0.2− | | |
| 2009 09 21 | G96 | 0.3+ | 0.3− | 2009 10 25 | 691 | 0.3− | 0.2+ | 2009 11 19 | G96 | 0.2+ | 0.1− | | |

**2009 UR$_{122}$ = 2004 XG$_{43}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $M$ | 97.54532 | | | (2000.0) | | | | **P** | | | **Q** | | |
| $n$ | 0.18224543 | | $\omega$ | 54.19197 | | | | +0.59814484 | | | +0.78435658 | | |
| $a$ | 3.0810467 | | $\Omega$ | 253.37290 | | | | −0.77942751 | | | +0.52171209 | | |
| $e$ | 0.0307117 | | $i$ | 9.87568 | | | | −0.18632100 | | | +0.33556110 | | |
| $P$ | 5.41 | | $H$ | 14.8 | $G$ | 0.15 | | $U$ | 1 | | | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 30 | 699 | 0.9+ | 1.3− | 2004 12 20 | G96 | 0.0 | 0.1− | 2009 10 14 | D29 | 0.8+ | 0.0 | | |
| 2003 09 30 | 699 | 0.1− | 0.4+ | 2004 12 20 | G96 | 0.1− | 0.5− | 2009 10 14 | D29 | 0.5+ | 0.2+ | | |
| 2003 09 30 | 699 | 0.3+ | 1.2+ | 2004 12 20 | G96 | 0.1− | 0.2− | 2009 10 14 | D29 | 0.1+ | 0.0 | | |
| 2003 09 30 | 699 | 0.6+ | 0.4+ | 2006 01 23 | 703 | 0.1− | 1.3+ | 2009 10 16 | 704 | 0.0 | 0.0 | | |
| 2003 11 16 | 413 | 0.2− | 0.3− | 2006 01 23 | 703 | 1.0+ | 0.2+ | 2009 10 16 | 704 | 0.1− | 0.4+ | | |
| 2003 11 16 | 413 | 0.4− | 0.2− | 2006 01 23 | 703 | 1.2+ | 0.0 | 2009 10 16 | 704 | 0.6− | 0.6+ | | |
| 2003 11 16 | 413 | 0.3− | 0.2− | 2006 01 23 | 703 | 0.9− | 0.6− | 2009 10 16 | 704 | 0.2− | 0.2+ | | |
| 2004 12 10 | 704 | 0.3+ | 0.1+ | 2008 07 11 | 106 | 0.6+ | 0.6+ | 2009 10 16 | 704 | 0.1− | 1.0− | | |
| 2004 12 10 | 704 | 0.1+ | 0.2− | 2008 07 11 | 106 | 0.1− | 0.8− | 2009 10 26 | G96 | 0.2+ | 0.2− | | |
| 2004 12 10 | 704 | 0.1− | 0.1+ | 2008 07 11 | 106 | 0.5− | 0.0 | 2009 10 26 | G96 | 0.3+ | 0.2− | | |
| 2004 12 10 | 704 | 0.4+ | 0.4− | 2008 07 12 | 106 | 1.1− | 0.1− | 2009 10 26 | G96 | 0.0 | 0.1− | | |
| 2004 12 13 | 599 | 0.4− | 0.1+ | 2008 07 29 | G96 | 0.2− | 0.4+ | 2009 10 26 | G96 | 0.2+ | 0.1− | | |
| 2004 12 13 | 599 | 0.1− | 0.2− | 2008 07 29 | G96 | 0.1+ | 0.4+ | 2009 10 27 | G96 | 0.2− | 0.4− | | |
| 2004 12 13 | 599 | 0.1− | 0.2+ | 2008 07 29 | G96 | 0.6− | 1.0+ | 2009 10 27 | G96 | 0.1+ | 0.4− | | |
| 2004 12 13 | 599 | 0.1− | 0.2+ | 2008 07 29 | G96 | 0.1+ | 1.1+ | 2009 10 27 | G96 | 0.1− | 0.5− | | |
| 2004 12 14 | 704 | 0.2− | 0.6+ | 2008 10 30 | G96 | 0.0 | 0.0 | 2009 10 27 | G96 | 0.2+ | 0.3− | | |
| 2004 12 14 | 704 | (2.6− | 0.5+) | 2008 10 30 | G96 | 0.2− | 0.2− | 2009 11 08 | 703 | 0.5− | 0.3+ | | |
| 2004 12 14 | 704 | 1.0+ | 0.1− | 2008 10 30 | G96 | 0.1− | 0.1− | 2009 11 08 | 703 | 0.5− | 0.4+ | | |
| 2004 12 14 | 704 | 0.1+ | 0.4+ | 2008 10 30 | G96 | 0.3+ | 0.2− | 2009 11 08 | 703 | 0.5− | 0.0 | | |
| 2004 12 16 | 704 | 0.1− | 1.4+ | 2009 10 14 | 703 | (1.7+ | 0.2−) | 2009 11 08 | 703 | 0.6− | 0.5+ | | |
| 2004 12 16 | 704 | 0.1+ | 0.1− | 2009 10 14 | 703 | 0.3+ | 0.6− | 2009 11 21 | G96 | 0.7+ | 0.2− | | |
| 2004 12 16 | 704 | 0.7− | 0.5+ | 2009 10 14 | 703 | 0.2+ | 0.2+ | 2009 11 21 | G96 | 0.5+ | 0.0 | | |
| 2004 12 16 | 704 | 1.2− | 1.1+ | 2009 10 14 | 703 | 0.4− | 0.8+ | 2009 11 21 | G96 | 0.2+ | 0.2− | | |
| 2004 12 20 | G96 | 0.3− | 0.3− | 2009 10 14 | D29 | 0.1+ | 0.3− | 2009 11 21 | G96 | 0.6+ | 0.2− | | |

**2009 UU$_{123}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $M$ | 26.99576 | | | (2000.0) | | | | **P** | | | **Q** | | |
| $n$ | 0.17701971 | | $\omega$ | 308.14993 | | | | +0.92054293 | | | −0.34890746 | | |
| $a$ | 3.1413884 | | $\Omega$ | 72.88687 | | | | +0.39046526 | | | +0.80832245 | | |
| $e$ | 0.0911980 | | $i$ | 10.59240 | | | | +0.01172987 | | | +0.47421345 | | |
| $P$ | 5.57 | | $H$ | 15.8 | $G$ | 0.15 | | $U$ | 2 | | | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 19 | 691 | 0.1+ | 0.0 | 2007 05 12 | G96 | 0.5− | 0.1+ | 2009 11 09 | 703 | 0.6+ | 0.6− | | |
| 2004 12 19 | 691 | 0.1− | 0.2− | 2009 10 26 | G96 | 0.1+ | 0.1− | 2009 11 09 | 703 | 0.4+ | 0.7+ | | |
| 2004 12 19 | 691 | 0.0 | 0.2+ | 2009 10 26 | G96 | 0.3− | 0.0 | 2009 11 09 | 703 | 0.3+ | 0.4− | | |
| 2007 04 22 | 691 | 0.0 | 0.2− | 2009 10 26 | G96 | 0.0 | 0.1+ | 2009 11 09 | 703 | 1.0− | 0.2− | | |
| 2007 04 22 | 691 | 0.0 | 0.0 | 2009 10 26 | G96 | 0.2+ | 0.1− | 2009 11 20 | G96 | 0.5+ | 0.1− | | |
| 2007 04 22 | 691 | 0.2+ | 0.3+ | 2009 10 27 | G96 | 0.1− | 0.3− | 2009 11 20 | G96 | 0.2+ | 0.1− | | |
| 2007 05 12 | G96 | 0.1+ | 0.2− | 2009 10 27 | G96 | 0.2− | 0.1+ | 2009 11 20 | G96 | 0.2− | 0.1+ | | |
| 2007 05 12 | G96 | 0.2− | 0.4− | 2009 10 27 | G96 | 0.2− | 0.1+ | 2009 11 20 | G96 | 0.2+ | 0.2+ | | |
| 2007 05 12 | G96 | 0.1− | 0.4− | 2009 10 27 | G96 | 0.2− | 0.2+ | | | | | | |

**2009 UC$_{127}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 255.72072 | | (2000.0) | | | |
| $n$ | 0.21804632 | $\omega$ | 285.76797 | | −0.98487086 | −0.13962955 |
| $a$ | 2.7338218 | $\Omega$ | 246.29634 | | +0.16733992 | −0.92018006 |
| $e$ | 0.0852252 | $i$ | 6.43559 | | −0.04501937 | −0.36574888 |
| $P$ | 4.52 | $H$ | 16.0 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 19 | 691 | 0.1− | 0.4− | 2007 05 11 | G96 | 0.1− | 0.1+ | 2009 11 08 | 691 | 0.2− | 0.3+ |
| 2000 11 19 | 691 | 0.1+ | 0.5− | 2007 05 11 | G96 | 0.0 | 0.3+ | 2009 11 08 | 691 | 0.0 | 0.2+ |
| 2000 11 19 | 691 | 0.0 | 0.1− | 2007 05 11 | G96 | 0.1− | 0.2+ | 2009 11 08 | 691 | 0.1− | 0.1+ |
| 2002 02 15 | 807 | 0.1+ | 0.2+ | 2008 08 20 | 691 | 0.4− | 0.8+ | 2009 11 08 | G96 | 0.1+ | 0.2− |
| 2002 02 15 | 807 | 0.3+ | 0.2+ | 2008 08 20 | 691 | 0.1+ | 0.2+ | 2009 11 08 | G96 | 0.0 | 0.3− |
| 2002 02 15 | 807 | 0.0 | 0.4+ | 2008 08 20 | 691 | 0.2− | 0.3+ | 2009 11 08 | G96 | 0.0 | 0.1− |
| 2002 02 15 | 807 | 0.5− | 0.2+ | 2008 10 07 | G96 | 0.3+ | 0.7+ | 2009 11 08 | G96 | 0.2− | 0.3− |
| 2002 03 10 | 644 | 0.9+ | 1.2+ | 2008 10 07 | G96 | 0.1+ | 0.7+ | 2009 11 08 | G96 | 0.1+ | 0.1+ |
| 2002 03 10 | 644 | 0.5+ | 1.2+ | 2008 10 07 | G96 | 0.4+ | 0.2+ | 2009 11 08 | G96 | 0.1+ | 0.1+ |
| 2002 03 10 | 644 | 0.4+ | 1.2+ | 2008 10 07 | G96 | 0.3− | 0.1+ | 2009 11 08 | G96 | 0.2+ | 0.1− |
| 2005 12 07 | 691 | 0.0 | 0.1− | 2009 10 22 | 703 | 1.3− | 1.0− | 2009 11 08 | G96 | 0.2+ | 0.5+ |
| 2005 12 07 | 691 | 0.1+ | 0.2− | 2009 10 22 | 703 | 0.4− | 0.8− | 2009 11 23 | 703 | 0.6− | 0.0 |
| 2005 12 07 | 691 | 0.0 | 0.0 | 2009 10 22 | 703 | 0.6+ | 0.2+ | 2009 11 23 | 703 | 0.4+ | 1.3+ |
| 2005 12 27 | 691 | 0.4+ | 1.0+ | 2009 10 22 | 703 | 0.5+ | 0.0 | 2009 11 23 | 703 | 0.6+ | 0.4+ |
| 2005 12 27 | 691 | 0.1− | 0.1− | 2009 10 28 | J75 | 0.0 | 0.6+ | 2009 11 23 | 703 | 0.4− | 0.4− |
| 2005 12 27 | 691 | 0.1+ | 0.0 | 2009 10 28 | J75 | 0.1+ | 0.0 | 2009 11 23 | 703 | 0.8− | 1.1+ |
| 2007 05 11 | G96 | 0.1− | 0.3+ | 2009 10 28 | J75 | 0.1− | 0.6+ | | | | |

**2009 UN$_{127}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 345.46372 | | (2000.0) | | | |
| $n$ | 0.18147408 | $\omega$ | 308.88744 | | −0.00361802 | −0.98585934 |
| $a$ | 3.0897712 | $\Omega$ | 140.32205 | | +0.97937988 | −0.03733520 |
| $e$ | 0.1731782 | $i$ | 15.21260 | | +0.20199496 | +0.16336290 |
| $P$ | 5.43 | $H$ | 15.9 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 01 18 | 703 | 0.4+ | 0.9+ | 2008 07 30 | G96 | 0.1+ | 0.1+ | 2009 11 17 | 703 | 0.0 | 0.1+ |
| 2005 01 18 | 703 | 0.3− | 0.3− | 2009 10 26 | J75 | 0.8+ | 0.8− | 2009 11 17 | 703 | 0.6− | 0.9− |
| 2005 01 18 | 703 | 0.0 | 0.6− | 2009 10 26 | J75 | 0.2+ | 0.5+ | 2009 11 22 | J75 | 1.2+ | 0.3− |
| 2005 01 18 | 703 | 0.1− | 0.2+ | 2009 10 26 | J75 | 0.9− | 0.2+ | 2009 11 22 | J75 | 0.2+ | 0.5− |
| 2005 03 17 | G96 | 0.0 | 0.2− | 2009 10 27 | 114 | 0.9+ | 0.9+ | 2009 11 22 | J75 | 0.3+ | 0.6− |
| 2005 03 17 | G96 | 0.1− | 0.1+ | 2009 10 27 | 114 | 0.4− | 0.2+ | 2009 12 17 | 703 | (0.4+ | 1.8+) |
| 2005 03 17 | G96 | 0.1− | 0.2− | 2009 10 27 | 114 | 0.5+ | 0.4− | 2009 12 17 | 703 | 1.3− | 0.5+ |
| 2005 03 17 | G96 | 0.2+ | 0.1+ | 2009 10 27 | 114 | 0.8+ | 0.4− | 2009 12 17 | 703 | 0.8+ | 1.3+ |
| 2008 07 30 | G96 | 0.1− | 0.1+ | 2009 10 27 | 114 | 0.2+ | 0.2+ | 2009 12 17 | 703 | 1.3− | 0.8+ |
| 2008 07 30 | G96 | 0.1+ | 0.0 | 2009 11 17 | 703 | 1.2− | 0.4− | | | | |
| 2008 07 30 | G96 | 0.1− | 0.0 | 2009 11 17 | 703 | 0.3− | 0.3− | | | | |

**2009 UC$_{128}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 92.15913 | | (2000.0) | | | |
| $n$ | 0.26866512 | $\omega$ | 261.79653 | | +0.83250743 | +0.54834725 |
| $a$ | 2.3786389 | $\Omega$ | 64.91598 | | −0.46772505 | +0.77211308 |
| $e$ | 0.1054547 | $i$ | 5.00636 | | −0.29692535 | +0.32118015 |
| $P$ | 3.67 | $H$ | 17.4 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 04 14 | 691 | 0.1+ | 0.4+ | 2007 01 28 | 691 | 0.1+ | 0.2+ | 2009 11 20 | G96 | 0.7+ | 0.5− |
| 2004 04 14 | 691 | 0.4+ | 0.3+ | 2009 10 25 | 691 | 0.1+ | 0.1+ | 2009 11 20 | G96 | 0.3+ | 0.0 |
| 2004 04 14 | 691 | 0.0 | 0.4+ | 2009 10 25 | 691 | 0.3− | 0.1+ | 2009 12 11 | G96 | 0.5+ | 0.2+ |
| 2005 08 31 | 644 | 0.2− | 0.1+ | 2009 10 25 | 691 | 0.4− | 0.1− | 2009 12 11 | G96 | 0.8+ | 0.1− |
| 2005 08 31 | 644 | 0.0 | 0.2+ | 2009 10 29 | 291 | 0.0 | 0.6+ | 2009 12 11 | G96 | 1.1+ | 0.2− |
| 2005 08 31 | 644 | 0.3− | 0.3+ | 2009 10 29 | 291 | 0.6− | 0.1+ | 2009 12 11 | G96 | 0.8+ | 0.3− |
| 2005 10 10 | 703 | 0.8− | 0.8− | 2009 10 29 | 291 | 0.0 | 0.4+ | 2009 12 11 | G96 | 0.6+ | 0.2− |
| 2005 10 10 | 703 | 0.7+ | 1.4+ | 2009 10 29 | 291 | 0.5− | 0.1− | 2009 12 11 | G96 | 0.3+ | 0.4− |
| 2005 10 10 | 703 | 0.2+ | 1.5+ | 2009 10 29 | 291 | 0.4+ | 0.0 | 2009 12 11 | G96 | 0.5+ | 0.3− |
| 2005 10 10 | 703 | 0.9− | 0.1+ | 2009 10 29 | 291 | 0.6− | 0.0 | 2009 12 11 | G96 | 0.8+ | 0.1+ |
| 2007 01 28 | 691 | 0.2+ | 0.0 | 2009 11 20 | G96 | 0.4+ | 0.4− | | | | |
| 2007 01 28 | 691 | 0.1− | 0.0 | 2009 11 20 | G96 | 0.2+ | 0.1− | | | | |

**2009 UJ$_{129}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 65.06937 | | (2000.0) | | | |
| $n$ | 0.27758071 | $\omega$ | 333.25909 | | +0.94137250 | +0.33716099 |
| $a$ | 2.3274294 | $\Omega$ | 7.06796 | | −0.28974044 | +0.82595891 |
| $e$ | 0.1770583 | $i$ | 5.52364 | | −0.17282446 | +0.45179016 |
| $P$ | 3.55 | $H$ | 17.6 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 07 10 | E12 | 0.2− | 0.0 | 2007 01 10 | 691 | 0.2− | 0.1+ | 2009 10 24 | 703 | 0.5− | 0.8+ |
| 2005 07 10 | E12 | 0.3+ | 0.2+ | 2007 01 28 | 691 | 0.1− | 0.1+ | 2009 10 30 | G96 | 0.2− | 0.2− |
| 2005 07 10 | E12 | 0.2+ | 0.4− | 2007 01 28 | 691 | 0.2− | 0.1− | 2009 10 30 | G96 | 0.1+ | 0.0 |
| 2005 07 10 | E12 | 1.6− | 0.6+ | 2007 01 28 | 691 | 0.2+ | 0.0 | 2009 10 30 | G96 | 0.4− | 0.8− |
| 2005 08 12 | E12 | 0.3+ | 0.2− | 2008 04 03 | 291 | 0.4+ | 0.0 | 2009 10 30 | G96 | 0.2+ | 0.1+ |
| 2005 08 12 | E12 | 0.9+ | 0.0 | 2008 04 03 | 291 | 0.3+ | 0.0 | 2009 11 21 | G96 | 0.3+ | 0.1+ |
| 2005 08 12 | E12 | 1.0− | 0.1− | 2008 04 03 | 291 | 0.1+ | 0.1+ | 2009 11 21 | G96 | 0.1+ | 0.1− |
| 2005 08 12 | E12 | 0.0 | 0.6+ | 2008 04 25 | G96 | 0.8− | 0.4+ | 2009 11 21 | G96 | 0.3+ | 0.1+ |
| 2005 08 12 | E12 | 1.0+ | 0.5+ | 2008 04 25 | G96 | 0.8− | 0.6+ | 2009 11 21 | G96 | 0.1+ | 0.1+ |
| 2005 08 12 | E12 | 0.8− | 0.3− | 2008 04 25 | G96 | 0.7− | 0.1+ | 2009 11 26 | G96 | 0.4+ | 0.1+ |
| 2005 08 12 | E12 | 0.1+ | 0.2+ | 2008 04 25 | G96 | 0.1− | 0.5+ | 2009 11 26 | G96 | 0.2+ | 0.1+ |
| 2005 08 12 | E12 | 0.6+ | 0.6− | 2009 10 24 | 703 | 0.3+ | 0.8+ | 2009 11 26 | G96 | 0.1+ | 0.3+ |
| 2007 01 10 | 691 | 0.1+ | 0.1+ | 2009 10 24 | 703 | 0.3− | 0.3+ | 2009 11 26 | G96 | 0.1− | 0.0 |
| 2007 01 10 | 691 | 0.1+ | 0.1− | 2009 10 24 | 703 | 1.3− | 0.1+ | 2009 11 26 | G96 | 0.2+ | 0.1− |

**2009 UN$_{129}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 275.44720 | | (2000.0) | | | |
| $n$ | 0.22540360 | $\omega$ | 264.87176 | | −0.92765275 | −0.33017695 |
| $a$ | 2.6740046 | $\Omega$ | 255.76279 | | +0.37187588 | −0.85950265 |
| $e$ | 0.1366484 | $i$ | 10.37032 | | −0.03418637 | −0.39017735 |
| $P$ | 4.37 | $H$ | 15.9 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 12 31 | 691 | (6.4+ | 0.3−) | 2007 05 16 | E12 | 0.9+ | 0.8+ | 2009 10 30 | G96 | 0.8+ | 0.3− |
| 1996 12 31 | 691 | 0.2− | 0.7− | 2007 05 16 | E12 | 0.5− | 0.8+ | 2009 10 30 | G96 | 0.9+ | 0.0 |
| 1996 12 31 | 691 | 0.2+ | 0.5− | 2007 06 15 | 691 | 0.1+ | 0.6+ | 2009 10 30 | G96 | 0.6+ | 0.1+ |
| 2002 02 08 | 644 | 0.4+ | 0.2+ | 2007 06 15 | 691 | 0.0 | 0.4+ | 2009 11 09 | 691 | 0.0 | 0.5+ |
| 2002 02 08 | 644 | 0.1− | 0.2+ | 2007 06 15 | 691 | 0.1+ | 0.4+ | 2009 11 09 | 691 | 0.1+ | 0.3+ |
| 2002 02 08 | 644 | 0.1+ | 0.1+ | 2009 10 12 | G96 | 0.3+ | 0.3− | 2009 11 09 | 691 | 0.4+ | 0.1+ |
| 2004 09 07 | 644 | 0.1− | 0.3+ | 2009 10 12 | G96 | 0.3+ | 0.2− | 2009 11 18 | 691 | 0.9− | 0.1− |
| 2004 09 07 | 644 | 0.0 | 1.0+ | 2009 10 12 | G96 | 0.2+ | 0.3− | 2009 11 18 | 691 | 0.9− | 1.1+ |
| 2004 09 07 | 644 | 0.4− | 0.9+ | 2009 10 12 | G96 | 0.3+ | 0.3− | 2009 11 18 | 691 | 0.2+ | 0.0 |
| 2005 12 08 | 691 | 0.5− | 0.7+ | 2009 10 26 | G96 | 0.1− | 0.4− | 2009 11 22 | 691 | 0.1+ | 0.0 |
| 2005 12 08 | 691 | 0.3+ | 0.5+ | 2009 10 26 | G96 | 0.1+ | 0.4− | 2009 11 22 | 691 | 0.0 | 0.1+ |
| 2005 12 08 | 691 | 0.4+ | 0.2+ | 2009 10 26 | G96 | 0.6+ | 0.1− | 2009 11 22 | 691 | 0.3− | 0.2+ |
| 2007 05 16 | E12 | 0.5− | 0.5+ | 2009 10 26 | G96 | 0.5+ | 0.5− | | | | |
| 2007 05 16 | E12 | 0.5+ | 0.9+ | 2009 10 30 | G96 | 0.1+ | 0.0 | | | | |

**2009 US$_{130}$ = 2007 FW$_{38}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 153.28351 | | (2000.0) | | | |
| $n$ | 0.19323906 | $\omega$ | 338.18418 | | −0.39964748 | +0.88735114 |
| $a$ | 2.9630531 | $\Omega$ | 267.63503 | | −0.80333249 | −0.45987361 |
| $e$ | 0.0999694 | $i$ | 13.30731 | | −0.44151875 | +0.03352918 |
| $P$ | 5.10 | $H$ | 14.9 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 05 04 | 699 | 0.1+ | 0.5− | 2007 03 31 | 644 | 0.4+ | 0.2+ | 2009 10 16 | 703 | (1.2+ | 2.7+) |
| 2002 05 04 | 699 | 1.4− | 0.2+ | 2007 04 16 | E12 | 0.3− | 0.0 | 2009 10 26 | 703 | (1.5− | 1.9+) |
| 2002 05 04 | 699 | 0.7+ | 0.9− | 2007 04 16 | E12 | 0.0 | 0.2+ | 2009 10 26 | 703 | 1.0− | 0.3− |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 05 04 | 699 | 0.0 | 0.3− | 2007 04 16 | E12 | 0.8− | 0.0 | 2009 10 26 | 703 | (0.5+ | 2.3+) | | |
| 2005 12 01 | G96 | 0.5+ | 0.4− | 2008 06 30 | 691 | 0.1− | 0.1− | 2009 10 26 | 703 | 0.8− | 0.8+ | | |
| 2005 12 01 | G96 | 0.1− | 0.1− | 2008 06 30 | 691 | 0.4+ | 0.5+ | 2009 11 06 | 703 | 0.0 | 0.2− | | |
| 2005 12 01 | G96 | 0.1− | 0.2+ | 2008 06 30 | 691 | 0.2− | 0.0 | 2009 11 06 | 703 | 0.0 | 0.1+ | | |
| 2005 12 01 | G96 | 0.1− | 0.1− | 2008 07 29 | G96 | 0.1− | 0.3− | 2009 11 06 | 703 | 1.1+ | 0.7+ | | |
| 2007 03 27 | E12 | 0.0 | 0.0 | 2008 07 29 | G96 | 0.0 | 0.1− | 2009 11 06 | 703 | 0.1− | 0.1− | | |
| 2007 03 27 | E12 | 0.8− | 0.4+ | 2008 07 29 | G96 | 0.2+ | 0.2− | 2009 11 19 | 703 | (1.6− | 1.2+) | | |
| 2007 03 27 | E12 | 0.7+ | 0.4+ | 2008 07 29 | G96 | 0.3− | 0.3− | 2009 11 19 | 703 | 0.5+ | 0.0 | | |
| 2007 03 27 | E12 | 0.4+ | 0.0 | 2009 10 16 | 703 | 0.5− | 1.0− | 2009 11 19 | 703 | 0.6+ | 0.4+ | | |
| 2007 03 31 | 644 | 0.5+ | 0.1+ | 2009 10 16 | 703 | 0.1+ | 0.1− | 2009 11 19 | 703 | (1.6+ | 2.4+) | | |
| 2007 03 31 | 644 | 0.5+ | 0.4+ | 2009 10 16 | 703 | 0.3− | 0.3− | | | | | | |

**2009 UC$_{131}$ = 2003 BW$_{46}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 8.44557 | | (2000.0) | | **P** | | **Q** | | |
| $n$ | 0.26741517 | $\omega$ | 93.32771 | | +0.54597456 | | −0.83333238 | | |
| $a$ | 2.3860453 | $\Omega$ | 323.15257 | | +0.70002113 | | +0.51042808 | | |
| $e$ | 0.2278755 | $i$ | 8.28596 | | +0.46030663 | | +0.21217995 | | |
| $P$ | 3.69 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 3 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 01 28 | 608 | 0.2+ | 0.0 | 2009 10 16 | 703 | 0.4+ | 0.1+ | 2009 11 09 | 703 | 0.3− | 0.6− | | |
| 2003 01 28 | 608 | 0.2− | 0.5− | 2009 10 16 | 703 | 0.3− | 0.0 | 2009 11 09 | 703 | 0.1+ | 0.3+ | | |
| 2003 01 28 | 608 | 0.0 | 0.5− | 2009 10 16 | 703 | 0.3+ | 0.9− | 2009 11 09 | 703 | 0.8− | 0.5+ | | |
| 2003 01 31 | 644 | 0.0 | 0.4+ | 2009 10 16 | 703 | 0.1+ | 0.4+ | 2009 11 19 | 703 | 0.2− | 0.1+ | | |
| 2003 01 31 | 644 | 0.1− | 0.3+ | 2009 10 29 | 703 | (0.2+ | 1.8−) | 2009 11 19 | 703 | 0.1+ | 0.1+ | | |
| 2003 01 31 | 644 | 0.1− | 0.1+ | 2009 10 29 | 703 | 1.0+ | 0.3− | 2009 11 19 | 703 | 0.5− | 0.6− | | |
| 2005 08 09 | 807 | 0.2− | 0.0 | 2009 10 29 | 703 | 0.8+ | 0.3+ | 2009 11 19 | 703 | 0.3− | 0.3− | | |
| 2005 08 10 | 807 | 0.1+ | 0.1− | 2009 10 29 | 703 | 0.6+ | 0.3+ | | | | | | |
| 2005 08 10 | 807 | 0.1+ | 0.1− | 2009 11 09 | 703 | 1.0− | 0.5+ | | | | | | |

**2009 UN$_{131}$ = 2003 SN$_{187}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 27.92387 | | (2000.0) | | **P** | | **Q** | | |
| $n$ | 0.18384998 | $\omega$ | 243.67883 | | +0.87410147 | | −0.45861617 | | |
| $a$ | 3.0630940 | $\Omega$ | 143.00107 | | +0.48312496 | | +0.85500411 | | |
| $e$ | 0.1430073 | $i$ | 15.42410 | | −0.05036753 | | +0.24215528 | | |
| $P$ | 5.36 | $H$ | 15.3 | $G$ | 0.15 | $U$ | 1 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 08 25 | 644 | 0.4− | 0.2+ | 2007 04 23 | G96 | 0.5+ | 0.1− | 2009 10 19 | J75 | 0.8+ | 0.8− | | |
| 2003 08 25 | 644 | 0.5− | 0.2+ | 2007 04 23 | G96 | 0.5+ | 0.0 | 2009 10 27 | 703 | 0.0 | 0.3+ | | |
| 2003 08 25 | 644 | 0.4− | 0.3+ | 2007 06 25 | 691 | 0.1+ | 0.4+ | 2009 10 27 | 703 | 0.4− | 0.5− | | |
| 2003 09 21 | 608 | 0.3+ | 1.3+ | 2007 06 25 | 691 | 0.4− | 0.3+ | 2009 10 27 | 703 | 1.3+ | 0.2+ | | |
| 2003 09 21 | 608 | 0.1+ | 0.5+ | 2007 06 25 | 691 | 0.2− | 0.0 | 2009 10 27 | 703 | 0.3− | 0.7− | | |
| 2003 09 21 | 608 | 0.2+ | 0.7+ | 2008 06 13 | 691 | 0.3− | 0.0 | 2009 11 17 | 703 | 0.2− | 0.1+ | | |
| 2003 09 25 | 644 | 0.3− | 0.3− | 2008 06 13 | 691 | 0.2+ | 0.2− | 2009 11 17 | 703 | 0.9− | 0.9+ | | |
| 2003 09 25 | 644 | 0.1− | 0.0 | 2008 06 13 | 691 | 0.0 | 0.2− | 2009 11 17 | 703 | 0.2+ | 0.2+ | | |
| 2003 09 25 | 644 | 0.0 | 0.1+ | 2008 07 02 | G96 | 0.4+ | 0.2− | 2009 11 17 | 703 | 1.1− | 0.1− | | |
| 2003 10 03 | 608 | (1.0− | 1.5+) | 2008 07 02 | G96 | 0.0 | 0.2− | 2009 12 13 | 703 | 0.2− | 1.2+ | | |
| 2003 10 03 | 608 | 0.9+ | 0.5− | 2008 07 02 | G96 | 0.1+ | 0.3− | 2009 12 13 | 703 | 0.3+ | 0.4+ | | |
| 2003 10 03 | 608 | (1.2+ | 2.4−) | 2008 07 02 | G96 | 0.3− | 0.4− | 2009 12 13 | 703 | 0.4+ | 0.3− | | |
| 2007 04 23 | G96 | 0.6+ | 0.4− | 2009 10 19 | J75 | 0.1− | 0.8− | 2009 12 13 | 703 | 0.1− | 0.3+ | | |
| 2007 04 23 | G96 | 0.6+ | 0.3− | 2009 10 19 | J75 | 0.5+ | 0.8− | | | | | | |

**2009 UQ$_{132}$ = 2003 UR$_{87}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 346.63769 | | (2000.0) | | **P** | | **Q** | | |
| $n$ | 0.17699826 | $\omega$ | 170.61178 | | +0.20059328 | | −0.93798383 | | |
| $a$ | 3.1416421 | $\Omega$ | 267.42657 | | +0.87946981 | | +0.29957031 | | |
| $e$ | 0.1770970 | $i$ | 16.44157 | | +0.43161927 | | −0.17448198 | | |
| $P$ | 5.57 | $H$ | 15.2 | $G$ | 0.15 | $U$ | 1 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 28 | 699 | 0.3+ | 0.1+ | 2007 07 29 | 568 | 0.1− | 1.0+ | 2009 11 19 | 703 | 0.0 | 0.6− | | |
| 2003 09 28 | 699 | 0.3+ | 0.3− | 2007 07 29 | 568 | 0.1− | 1.0+ | 2009 11 19 | 703 | 0.7− | 0.2− | | |
| 2003 09 28 | 699 | 0.5− | 0.2− | 2007 07 29 | 568 | 0.2− | 0.9+ | 2009 11 19 | 703 | 0.4+ | 0.2− | | |
| 2003 09 28 | 699 | (1.7− | 0.0 ) | 2008 07 28 | G96 | 0.2+ | 0.2− | 2009 11 26 | 703 | 0.3− | 0.1− | | |
| 2003 10 19 | 699 | 1.1− | 1.0− | 2008 07 28 | G96 | 0.2− | 0.2+ | 2009 11 26 | 703 | 1.2+ | 0.9+ | | |
| 2003 10 19 | 699 | 0.5+ | 1.4+ | 2008 07 28 | G96 | 0.1− | 0.3+ | 2009 11 26 | 703 | 0.9+ | 0.7+ | | |
| 2003 10 19 | 699 | 0.8− | 0.5+ | 2008 07 28 | G96 | 0.1+ | 0.2+ | 2009 12 10 | 704 | 0.7+ | 1.1+ | | |
| 2003 10 19 | 699 | 0.4+ | 0.7− | 2009 10 16 | 703 | 0.6− | 0.3+ | 2009 12 10 | 704 | 0.2+ | 0.3− | | |
| 2003 10 20 | 644 | 0.1+ | 0.3+ | 2009 10 16 | 703 | 0.7− | 0.3− | 2009 12 10 | 704 | 1.0+ | 0.4− | | |
| 2003 10 20 | 644 | 0.1+ | 0.4+ | 2009 10 16 | 703 | 0.8− | 0.1+ | 2009 12 10 | 704 | 0.9− | 0.2− | | |
| 2003 10 20 | 644 | 0.0 | 0.4+ | 2009 10 16 | 703 | 0.4− | 0.3− | 2009 12 10 | 704 | 0.4+ | 0.0 | | |
| 2005 02 02 | 703 | 0.1+ | 1.3+ | 2009 10 27 | J75 | 1.1+ | 0.7+ | 2009 12 18 | 703 | 0.7+ | 0.5− | | |
| 2005 02 02 | 703 | 0.2+ | 0.4+ | 2009 10 27 | J75 | 0.3+ | 0.0 | 2009 12 18 | 703 | 0.4− | 0.7− | | |
| 2005 02 02 | 703 | 0.4+ | 0.7+ | 2009 10 28 | J75 | 0.1− | 0.5+ | 2009 12 18 | 703 | 1.0− | 0.5− | | |
| 2005 02 02 | 703 | 0.5+ | 0.2+ | 2009 11 19 | 703 | 1.2− | 0.3+ | 2009 12 18 | 703 | 0.3− | 0.1− | | |

**2009 UT$_{132}$ = 2006 EA$_{23}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 29.35272 | | (2000.0) | | **P** | | **Q** | | |
| $n$ | 0.18152484 | $\omega$ | 24.20575 | | +0.97601701 | | −0.20802197 | | |
| $a$ | 3.0891951 | $\Omega$ | 347.29012 | | +0.11932933 | | +0.75777069 | | |
| $e$ | 0.2088165 | $i$ | 16.95725 | | +0.18207501 | | +0.61847428 | | |
| $P$ | 5.43 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 3 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 08 24 | 644 | 0.2− | 0.2+ | 2006 03 04 | G96 | 0.0 | 0.3+ | 2009 10 29 | 703 | 0.2+ | 0.6− | | |
| 2003 08 24 | 644 | 0.0 | 0.2+ | 2009 09 26 | 703 | 0.1+ | 0.0 | 2009 10 29 | 703 | 0.4+ | 0.5− | | |
| 2003 08 24 | 644 | 0.0 | 0.1+ | 2009 09 26 | 703 | 0.4− | 0.0 | 2009 10 29 | 703 | 0.2+ | 0.2− | | |
| 2006 03 03 | 691 | 0.3+ | 0.2+ | 2009 09 26 | 703 | 0.2+ | 0.2− | 2009 10 29 | 703 | 0.6+ | 0.3+ | | |
| 2006 03 03 | 691 | 0.2− | 0.0 | 2009 09 26 | 703 | 0.2− | 0.1− | 2009 11 08 | 703 | 0.4+ | 0.6+ | | |
| 2006 03 03 | 691 | 0.1− | 0.2− | 2009 10 17 | 703 | 0.6− | 0.4− | 2009 11 08 | 703 | 1.3+ | 0.8+ | | |
| 2006 03 04 | G96 | 0.1+ | 0.1− | 2009 10 17 | 703 | 0.6− | 0.5+ | 2009 11 08 | 703 | 0.6− | 0.1− | | |
| 2006 03 04 | G96 | 0.2+ | 0.1+ | 2009 10 17 | 703 | 0.9− | 0.1+ | 2009 11 08 | 703 | (0.2+ | 1.7+) | | |
| 2006 03 04 | G96 | 0.4+ | 0.3+ | 2009 10 17 | 703 | 0.4− | 0.1+ | | | | | | |

**2009 UD$_{134}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 67.69607 | | (2000.0) | | **P** | | **Q** | | |
| $n$ | 0.17058829 | $\omega$ | 89.88809 | | +0.85707129 | | +0.45797176 | | |
| $a$ | 3.2198569 | $\Omega$ | 242.85159 | | −0.51074014 | | +0.81540485 | | |
| $e$ | 0.1156006 | $i$ | 15.37927 | | +0.06762635 | | +0.35408586 | | |
| $P$ | 5.78 | $H$ | 14.7 | $G$ | 0.15 | $U$ | 5 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 05 | 691 | 0.2+ | 0.1+ | 2009 10 22 | 703 | 1.0− | 0.1+ | 2009 11 08 | 703 | 1.0− | 0.6− | | |
| 2003 10 05 | 691 | 0.2+ | 0.0 | 2009 10 22 | 703 | 1.6− | 0.1+ | 2009 11 08 | 703 | 0.6+ | 0.9− | | |
| 2003 10 05 | 691 | 0.0 | 0.1+ | 2009 10 22 | 703 | 0.3+ | 0.8+ | 2009 11 08 | 703 | 1.4+ | 0.4+ | | |
| 2003 10 17 | 699 | 1.0− | 0.2− | 2009 10 30 | G96 | 0.4+ | 0.0 | 2009 11 21 | G96 | 0.3+ | 0.3+ | | |
| 2003 10 17 | 699 | 0.9+ | 0.6− | 2009 10 30 | G96 | 0.7+ | 0.4− | 2009 11 21 | G96 | 0.0 | 0.2+ | | |
| 2003 10 17 | 699 | 0.2− | 0.8− | 2009 10 30 | G96 | 0.3+ | 0.0 | 2009 11 21 | G96 | 0.3+ | 0.3+ | | |
| 2003 10 17 | 699 | 0.9− | 0.7+ | 2009 10 30 | G96 | 0.4+ | 0.1− | 2009 11 21 | G96 | 0.0 | 0.4+ | | |
| 2009 10 22 | 703 | 0.4− | 0.2− | 2009 11 08 | 703 | 0.6− | 0.4− | | | | | | |

**2009 UT$_{135}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 23.85984 | | (2000.0) | | **P** | | **Q** | | |
| $n$ | 0.21272510 | $\omega$ | 298.65381 | | +0.88190734 | | −0.45979474 | | |
| $a$ | 2.7792240 | $\Omega$ | 88.88817 | | +0.46065702 | | +0.79360753 | | |
| $e$ | 0.1663799 | $i$ | 5.97407 | | +0.10017261 | | +0.39846692 | | |
| $P$ | 4.63 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 3 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 15 | 699 | 0.1+ | 0.8+ | 2006 02 06 | 691 | 0.3+ | 0.4+ | 2009 11 09 | 703 | 0.2− | 0.1− | | |
| 2004 09 15 | 699 | 0.4+ | 0.1+ | 2009 10 18 | 703 | 1.4+ | 0.8+ | 2009 11 09 | 703 | 1.5− | 0.3− | | |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 15 | 699 | 1.1+ | 1.1− | 2009 10 18 | 703 | 0.1− | 0.6− | 2009 11 09 | 703 | 0.6− | 0.0 |
| 2004 09 15 | 699 | 1.6− | 0.5+ | 2009 10 18 | 703 | 0.4− | 0.0 | 2009 11 21 | 703 | 0.6+ | 0.3+ |
| 2005 12 25 | 691 | 0.3− | 0.1+ | 2009 10 18 | 703 | 0.2− | 0.1+ | 2009 11 21 | 703 | 0.4− | 0.8− |
| 2005 12 25 | 691 | 0.0 | 0.2+ | 2009 10 24 | 703 | 1.3− | 0.9+ | 2009 11 21 | 703 | 0.1+ | 0.7− |
| 2005 12 25 | 691 | 0.2− | 0.1+ | 2009 10 24 | 703 | 0.6+ | 0.9− | 2009 11 21 | 703 | 1.1+ | 1.6+ |
| 2006 02 06 | 691 | 0.1+ | 0.3− | 2009 10 24 | 703 | 0.2− | 0.1+ | | | | |
| 2006 02 06 | 691 | 0.2+ | 0.4− | 2009 10 24 | 703 | 1.2+ | 0.5− | | | | |

**2009 UM$_{136}$ = 1994 RR$_{19}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 36.21649 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.26753365 | $\omega$ | 27.13250 | | +0.96379084 | | −0.26644915 |
| $a$ | 2.3853408 | $\Omega$ | 348.30595 | | +0.23420289 | | +0.86479666 |
| $e$ | 0.2115742 | $i$ | 2.99377 | | +0.12749986 | | +0.42559558 |
| $P$ | 3.68 | $H$ | 18.0 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 09 05 | 809 | 0.1− | 0.2+ | 2009 10 22 | 703 | 0.7+ | 1.3− | 2009 11 08 | 691 | 0.3+ | 0.4− |
| 1994 09 05 | 809 | 0.4+ | 0.7− | 2009 10 22 | 703 | 0.2− | 0.4+ | 2009 11 08 | 691 | 0.1+ | 0.2+ |
| 1994 09 05 | 809 | 0.7+ | 0.3+ | 2009 10 22 | 703 | (1.9− | 1.0+) | 2009 11 08 | 691 | 0.1+ | 0.5− |
| 1994 09 06 | 809 | 1.1− | 0.0 | 2009 10 24 | 703 | 0.2+ | 0.6− | 2009 11 08 | 703 | 0.4+ | 1.0− |
| 1994 09 06 | 809 | 1.3− | 0.5+ | 2009 10 24 | 703 | 1.2+ | 1.1− | 2009 11 08 | 703 | 0.0 | 0.6+ |
| 1994 09 06 | 809 | 0.7+ | 1.1+ | 2009 10 24 | 703 | (0.2+ | 1.6+) | 2009 11 08 | 703 | 0.5− | 0.0 |
| 2005 08 27 | 644 | 0.2+ | 0.4− | 2009 10 24 | 703 | 0.2− | 1.2+ | 2009 11 08 | 703 | 0.5+ | 0.6− |
| 2005 08 27 | 644 | 0.2+ | 0.2− | 2009 10 24 | 691 | 0.3− | 0.1+ | 2009 11 21 | 691 | 0.4− | 0.4+ |
| 2005 08 27 | 644 | 0.0 | 0.4− | 2009 10 24 | 691 | 0.0 | 0.1+ | 2009 11 21 | 691 | 0.0 | 0.3+ |
| 2009 10 22 | 703 | (1.5+ | 1.2−) | 2009 10 24 | 691 | 0.2− | 0.1+ | 2009 11 21 | 691 | 0.1− | 0.3+ |

**2009 US$_{136}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 341.32306 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17095041 | $\omega$ | 30.03718 | | −0.04896715 | | −0.97209748 |
| $a$ | 3.2153082 | $\Omega$ | 63.62757 | | +0.85782032 | | −0.15858179 |
| $e$ | 0.1871429 | $i$ | 14.83632 | | +0.51161168 | | +0.17285344 |
| $P$ | 5.77 | $H$ | 15.3 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 25 | 608 | 0.1+ | 0.9− | 2009 11 15 | 703 | 1.2− | 0.6− | 2009 11 20 | 704 | 0.7− | 1.0+ |
| 2003 10 25 | 608 | 0.0 | 0.5− | 2009 11 15 | 703 | 0.6− | 0.4− | 2009 11 20 | 704 | 0.0 | 0.4+ |
| 2003 10 25 | 608 | 0.3− | 0.6− | 2009 11 15 | 703 | 0.4+ | 0.4+ | 2009 11 20 | J75 | 0.1+ | 0.5+ |
| 2003 11 19 | 644 | 0.3+ | 0.3+ | 2009 11 15 | 703 | 0.2+ | 0.5+ | 2009 11 20 | J75 | 0.3+ | 0.3+ |
| 2003 11 19 | 644 | 0.3+ | 0.1+ | 2009 11 15 | 703 | 0.1− | 0.7+ | 2009 11 20 | J75 | 0.4+ | 0.2− |
| 2003 11 19 | 644 | 0.5+ | 0.2+ | 2009 11 15 | 703 | 0.3− | 0.4+ | 2009 11 22 | 703 | 0.7− | 0.4− |
| 2005 03 08 | 703 | 0.7− | 0.1+ | 2009 11 16 | G96 | 0.1+ | 0.0 | 2009 11 22 | 703 | 1.3+ | 0.2− |
| 2005 03 08 | 703 | 0.0 | 1.5− | 2009 11 16 | G96 | 0.4− | 0.1− | 2009 11 22 | 703 | 0.8− | 0.7+ |
| 2005 03 08 | 703 | 0.4+ | 0.1− | 2009 11 16 | G96 | 0.1+ | 0.2− | 2009 11 22 | 703 | 0.3+ | 1.2+ |
| 2005 03 08 | 703 | 0.3− | 0.5− | 2009 11 16 | G96 | 0.1+ | 0.2− | 2009 11 23 | G96 | 0.2− | 0.3− |
| 2006 05 08 | 691 | 0.1+ | 0.3+ | 2009 11 16 | G96 | 0.2+ | 0.1− | 2009 11 23 | G96 | 0.3+ | 0.1− |
| 2006 05 08 | 691 | 0.2+ | 1.0+ | 2009 11 16 | G96 | 0.2+ | 0.2− | 2009 11 23 | G96 | 0.1+ | 0.2− |
| 2006 05 08 | 691 | 0.7+ | 0.3+ | 2009 11 16 | G96 | 0.1+ | 0.1− | 2009 11 23 | G96 | 0.1− | 0.2− |
| 2009 10 24 | 703 | 0.9− | 0.0 | 2009 11 16 | G96 | 0.1+ | 0.2− | 2009 12 11 | G96 | 0.4+ | 0.2− |
| 2009 10 24 | 703 | 0.4+ | 0.9− | 2009 11 18 | 704 | 1.0+ | 1.0+ | 2009 12 11 | G96 | 0.1+ | 0.1− |
| 2009 10 24 | 703 | 0.4+ | 0.3− | 2009 11 18 | 704 | 0.0 | 0.8+ | 2009 12 11 | G96 | 0.4+ | 0.1− |
| 2009 10 24 | 703 | 0.9− | 0.1− | 2009 11 18 | 704 | (1.5+ | 0.6−) | 2009 12 11 | G96 | 0.1+ | 0.0 |
| 2009 11 09 | 703 | 0.5− | 0.1− | 2009 11 18 | 704 | 0.5+ | 0.7+ | 2009 12 12 | 704 | 1.0− | 0.8+ |
| 2009 11 09 | 703 | 1.1− | 0.3+ | 2009 11 18 | 704 | 0.3− | 0.2+ | 2009 12 12 | 704 | 0.1− | 1.2+ |
| 2009 11 09 | 703 | 0.5− | 0.2− | 2009 11 20 | 704 | 1.3− | 0.4+ | 2009 12 12 | 704 | 1.0+ | 0.8− |
| 2009 11 15 | 703 | (2.1− | 1.5−) | 2009 11 20 | 704 | 0.1− | 1.3+ | | | | |
| 2009 11 15 | 703 | (0.6− | 1.6−) | 2009 11 20 | 704 | 0.7− | 0.4+ | | | | |

**2009 UZ$_{136}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 304.75771 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17469190 | $\omega$ | 231.99817 | | −0.64332099 | | −0.72939429 |
| $a$ | 3.1692333 | $\Omega$ | 259.70758 | | +0.75541596 | | −0.55536040 |
| $e$ | 0.0866280 | $i$ | 13.67689 | | +0.12443807 | | −0.39944811 |
| $P$ | 5.64 | $H$ | 14.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 04 | 691 | 0.1− | 0.1+ | 2009 10 26 | 703 | (0.4− | 2.1+) | 2009 12 06 | J75 | 0.0 | 0.6+ |
| 2003 10 04 | 691 | 0.3− | 0.2+ | 2009 10 26 | 703 | 1.3− | 0.3+ | 2009 12 06 | J75 | 0.1+ | 0.3+ |
| 2003 10 04 | 691 | 0.4− | 0.1+ | 2009 11 08 | 703 | 0.2− | 0.5− | 2009 12 06 | J75 | 0.8+ | 0.0 |
| 2003 10 29 | 699 | 2.5+ | 0.1− | 2009 11 08 | 703 | 1.4− | 0.2+ | 2009 12 10 | 704 | 0.6+ | 0.5+ |
| 2003 10 29 | 699 | 0.8+ | 0.4− | 2009 11 08 | 703 | 0.7− | 0.1− | 2009 12 10 | 704 | 0.2+ | 0.9+ |
| 2003 10 29 | 699 | 0.7+ | 1.7− | 2009 11 08 | 703 | 0.9− | 0.4− | 2009 12 10 | 704 | 0.6− | 1.2+ |
| 2003 10 29 | 699 | 0.4− | 0.2− | 2009 11 23 | 691 | 0.3− | 0.0 | 2009 12 10 | 704 | 0.9+ | 0.0 |
| 2005 01 13 | 703 | 0.0 | 0.3+ | 2009 11 23 | 691 | 0.1− | 0.0 | 2009 12 16 | 704 | 2.2+ | 0.1− |
| 2005 01 13 | 703 | 0.7+ | 0.9+ | 2009 11 23 | 691 | 0.2− | 0.1+ | 2009 12 16 | 704 | 1.7+ | 0.2+ |
| 2005 01 13 | 703 | 0.8+ | 0.2− | 2009 11 24 | D29 | 0.2− | 0.2− | 2009 12 16 | 704 | 0.3+ | 0.3+ |
| 2005 01 13 | 703 | 1.3− | 0.7− | 2009 11 24 | D29 | 0.2+ | 0.2− | 2009 12 16 | 704 | 0.0 | 1.2+ |
| 2005 02 01 | 644 | 0.2− | 0.2− | 2009 11 24 | D29 | 0.4+ | 0.1+ | 2009 12 16 | 704 | 0.6− | 0.9+ |
| 2005 02 01 | 644 | 0.0 | 0.4− | 2009 11 24 | D29 | 0.1− | 0.8− | 2009 12 19 | G96 | 0.5+ | 0.7− |
| 2005 02 01 | 644 | 0.0 | 0.4− | 2009 11 27 | 691 | 0.1− | 0.0 | 2009 12 19 | G96 | 1.0+ | 0.3− |
| 2009 10 26 | 703 | 0.5+ | 0.5− | 2009 11 27 | 691 | 0.2− | 0.1− | 2009 12 19 | G96 | 0.0 | 0.2− |
| 2009 10 26 | 703 | (1.9+ | 0.5−) | 2009 11 27 | 691 | 0.0 | 0.1− | 2009 12 19 | G96 | 0.1− | 0.1− |

**2009 UO$_{138}$ = 1998 XZ$_{11}$ = 2008 JV$_{34}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 16.20384 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.26420744 | $\omega$ | 312.67365 | | +0.75183471 | | −0.51127606 |
| $a$ | 2.4053190 | $\Omega$ | 82.31619 | | +0.65732352 | | +0.63068453 |
| $e$ | 0.2665501 | $i$ | 24.84185 | | −0.05167555 | | +0.58380974 |
| $P$ | 3.73 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 12 14 | 704 | 0.7+ | 0.9− | 2005 08 10 | E12 | 0.0 | 0.5− | 2008 05 29 | 691 | 0.1+ | 0.1+ |
| 1998 12 14 | 704 | 1.3− | 1.3− | 2005 08 10 | E12 | 0.4− | 0.7− | 2008 05 29 | G96 | 0.2− | 0.3− |
| 1998 12 14 | 704 | 0.3+ | 0.1− | 2005 08 25 | E12 | 0.6+ | 0.3− | 2008 05 29 | G96 | 0.4− | 0.5− |
| 1998 12 14 | 704 | 0.1− | 0.1+ | 2005 08 25 | E12 | 0.2− | 0.2− | 2008 05 29 | G96 | 0.1− | 0.0 |
| 1998 12 14 | 704 | 0.0 | 0.3− | 2005 08 25 | E12 | 0.2+ | 0.6− | 2008 05 29 | G96 | 0.3− | 0.0 |
| 1998 12 16 | 704 | 0.7− | 1.8− | 2005 08 25 | E12 | 0.5+ | 0.4+ | 2009 08 27 | E12 | 0.7− | 0.1− |
| 1998 12 16 | 704 | (0.4− | 4.2−) | 2005 09 06 | I10 | (0.1− | 3.3−) | 2009 08 27 | E12 | 0.9+ | 0.8+ |
| 1998 12 16 | 704 | (1.3+ | 2.8−) | 2005 09 06 | I10 | (0.1− | 3.1−) | 2009 08 27 | E12 | 0.3+ | 0.6+ |
| 1998 12 16 | 704 | (0.1− | 4.0−) | 2005 09 06 | I10 | (1.4− | 2.5−) | 2009 08 27 | E12 | 0.4− | 0.0 |
| 1998 12 16 | 704 | (0.6− | 2.7−) | 2007 02 25 | 703 | (1.4+ | 2.2+) | 2009 10 18 | E12 | 0.1− | 0.5+ |
| 1998 12 17 | 704 | 0.8+ | 0.1+ | 2007 02 25 | 703 | (0.3− | 2.1+) | 2009 10 18 | E12 | 0.4− | 0.3− |
| 1998 12 17 | 704 | 1.3+ | 1.9+ | 2007 02 25 | 703 | 0.9− | 1.3− | 2009 10 18 | E12 | 0.5+ | 0.6+ |
| 1998 12 17 | 704 | 0.3+ | 0.6− | 2007 02 25 | 703 | 0.9+ | 0.3+ | 2009 10 18 | E12 | 0.2+ | 0.2− |
| 1998 12 17 | 704 | 0.0 | 1.6− | 2008 05 07 | 691 | 0.1+ | 0.1+ | 2009 11 11 | 703 | 0.2+ | 0.4− |
| 1998 12 17 | 704 | 0.3+ | 1.1− | 2008 05 07 | 691 | 0.3+ | 0.0 | 2009 11 11 | 703 | 0.6− | 0.5− |
| 2003 02 07 | 699 | (1.6+ | 0.5+) | 2008 05 07 | 691 | 0.2− | 0.1− | 2009 11 11 | 703 | 0.1− | 0.0 |
| 2003 02 07 | 699 | 1.1+ | 0.1+ | 2008 05 15 | 691 | 0.1+ | 0.1− | 2009 11 11 | 703 | 0.2− | 0.3+ |
| 2003 02 07 | 699 | (2.2+ | 0.4+) | 2008 05 15 | 691 | 0.3− | 0.3+ | 2009 11 25 | 703 | 0.3− | 0.6− |
| 2003 02 07 | 699 | 0.0 | 0.8+ | 2008 05 15 | 691 | 0.2− | 0.1− | 2009 11 25 | 703 | 0.3− | 0.2− |
| 2003 03 10 | 644 | 0.7+ | 0.3+ | 2008 05 16 | 691 | 0.1− | 0.1+ | 2009 12 20 | 704 | 1.0− | 1.2+ |
| 2003 03 10 | 644 | 0.4+ | 0.5+ | 2008 05 16 | 691 | 0.2− | 0.2+ | 2009 12 20 | 704 | 0.3− | 0.3+ |
| 2003 03 10 | 644 | 0.5+ | 0.7+ | 2008 05 16 | 691 | 0.1− | 0.3− | 2009 12 20 | 704 | 0.1− | 0.2+ |
| 2005 08 10 | E12 | 0.8+ | 0.5− | 2008 05 29 | 691 | 0.2− | 0.1+ | 2009 12 20 | 704 | 0.6− | 0.7+ |
| 2005 08 10 | E12 | 0.7+ | 0.0 | 2008 05 29 | 691 | 0.1+ | 0.2− | | | | |

**2009 UQ$_{138}$ = 2009 TS$_5$ = 2006 AF$_{28}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 13.54134 | | (2000.0) | | | |
| $n$ | 0.23368359 | $\omega$ | 196.08399 | | +0.73931908 | −0.67278281 |
| $a$ | 2.6104612 | $\Omega$ | 206.26311 | | +0.62449903 | +0.70051073 |
| $e$ | 0.1961040 | $i$ | 3.59678 | | +0.25180997 | +0.23800842 |
| $P$ | 4.22 | $H$ | 17.3 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 01 06 | G96 | 0.4− | 0.4− | 2009 09 16 | G96 | 0.2− | 0.2− | 2009 10 22 | G96 | 0.3− | 0.4− |
| 2006 01 06 | G96 | 0.1− | 0.1+ | 2009 09 16 | G96 | 0.1− | 0.2+ | 2009 10 25 | 703 | 0.5− | 0.4+ |
| 2006 01 06 | G96 | 0.9+ | 0.2+ | 2009 09 16 | G96 | 0.2+ | 0.3− | 2009 10 25 | 703 | (2.1− | 0.2+) |
| 2006 01 06 | G96 | 0.2− | 0.0 | 2009 10 11 | G96 | 0.1− | 0.1− | 2009 10 25 | 703 | 0.0 | 0.6+ |
| 2006 01 07 | G96 | 0.2+ | 0.1+ | 2009 10 11 | G96 | 0.0 | 0.3− | 2009 10 25 | 703 | 1.1− | 1.5− |
| 2006 01 07 | G96 | 0.2+ | 0.1− | 2009 10 11 | G96 | 0.3+ | 0.1− | 2009 11 15 | 703 | 0.9+ | 0.4+ |
| 2006 01 07 | G96 | 0.2− | 0.2− | 2009 10 11 | G96 | 0.5+ | 0.1− | 2009 11 15 | 703 | 0.1+ | 0.6+ |
| 2006 01 07 | G96 | 0.2− | 0.0 | 2009 10 14 | J75 | 0.1+ | 0.5+ | 2009 11 15 | 703 | 1.0− | 0.0 |
| 2009 09 16 | G96 | 0.1+ | 0.0 | 2009 10 14 | J75 | 0.0 | 0.0 | 2009 11 15 | 703 | 0.1+ | 0.3− |
| 2009 09 16 | G96 | 0.0 | 0.0 | 2009 10 14 | J75 | 0.1− | 0.2− | 2009 11 23 | G96 | 0.2+ | 0.1+ |
| 2009 09 16 | G96 | 0.0 | 0.0 | 2009 10 22 | G96 | 0.1+ | 0.0 | 2009 11 23 | G96 | 0.4+ | 0.2+ |
| 2009 09 16 | G96 | 0.1− | 0.0 | 2009 10 22 | G96 | 0.0 | 0.2+ | 2009 11 23 | G96 | 0.2+ | 0.3+ |
| 2009 09 16 | G96 | 0.0 | 0.1− | 2009 10 22 | G96 | 0.5+ | 0.2+ | 2009 11 23 | G96 | 0.2− | 0.1− |

**2009 UE$_{139}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 354.27533 | | (2000.0) | | | |
| $n$ | 0.21408999 | $\omega$ | 258.33714 | | +0.32351343 | −0.94607422 |
| $a$ | 2.7673992 | $\Omega$ | 172.72088 | | +0.91160741 | +0.30686721 |
| $e$ | 0.2083648 | $i$ | 7.62484 | | +0.25359613 | +0.10380794 |
| $P$ | 4.60 | $H$ | 16.9 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 09 30 | 691 | 0.1+ | 0.3− | 2009 10 20 | 704 | 0.3− | 1.4+ | 2009 11 08 | 703 | 0.2+ | 0.7− |
| 1995 09 30 | 691 | 0.1+ | 0.1− | 2009 10 20 | 704 | 0.8− | 0.2− | 2009 11 08 | 703 | 0.8+ | 0.7+ |
| 1995 09 30 | 691 | 0.1− | 0.2− | 2009 10 20 | 704 | 0.2+ | 0.3+ | 2009 11 21 | 703 | (2.6+ | 1.2−) |
| 2004 09 12 | 691 | 0.0 | 0.1− | 2009 10 27 | G96 | 0.0 | 0.0 | 2009 11 21 | 703 | 1.0+ | 0.1+ |
| 2004 09 12 | 691 | 0.0 | 0.1− | 2009 10 27 | G96 | 0.0 | 0.1− | 2009 11 21 | 703 | 1.1− | 0.1− |
| 2004 09 12 | 691 | 0.1− | 0.1+ | 2009 10 27 | G96 | 0.1− | 0.0 | 2009 11 23 | 703 | 0.3+ | 0.2− |
| 2004 10 08 | 691 | 0.0 | 0.3+ | 2009 10 27 | G96 | 0.2− | 0.2− | 2009 11 23 | 703 | 0.2+ | 0.2+ |
| 2004 10 08 | 691 | 0.2− | 0.1+ | 2009 11 08 | 703 | 0.6+ | 0.6+ | 2009 11 23 | 703 | 1.2− | 0.5− |
| 2004 10 08 | 691 | 0.1+ | 0.1+ | 2009 11 08 | 703 | 1.0− | 0.3+ | 2009 11 23 | 703 | 1.3+ | 0.6− |

**2009 UJ$_{139}$ = 2000 TV$_{49}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 46.05841 | | (2000.0) | | | |
| $n$ | 0.22657978 | $\omega$ | 342.87504 | | +0.99307200 | −0.07468025 |
| $a$ | 2.6647427 | $\Omega$ | 22.01987 | | +0.11407256 | +0.79799410 |
| $e$ | 0.1761634 | $i$ | 14.00326 | | −0.02820365 | +0.59802030 |
| $P$ | 4.35 | $H$ | 16.2 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 23 | 699 | 0.4− | 0.4+ | 2004 08 20 | E12 | 0.7− | 0.5+ | 2009 11 09 | J75 | 0.1− | 0.4− |
| 2000 09 23 | 699 | 0.6− | 0.7− | 2004 08 20 | E12 | 0.4+ | 0.3+ | 2009 11 09 | J75 | 0.2− | 0.7− |
| 2000 09 23 | 699 | 0.2− | 0.4− | 2004 08 20 | E12 | 0.5− | 0.5− | 2009 11 09 | J75 | 0.5+ | 0.2+ |
| 2000 09 23 | 699 | 0.2+ | 0.4+ | 2004 08 20 | E12 | 0.5+ | 0.4− | 2009 11 10 | 703 | 0.3− | 0.1− |
| 2000 10 01 | 699 | 0.1− | 1.4+ | 2007 03 11 | 691 | 0.3+ | 0.1− | 2009 11 10 | 703 | 0.7− | 0.2− |
| 2000 10 01 | 699 | 0.3+ | 0.4+ | 2007 03 11 | 691 | 0.2+ | 0.3+ | 2009 11 10 | 703 | 0.3+ | 0.4− |
| 2000 10 01 | 699 | 1.1− | 0.5+ | 2007 03 11 | 691 | 0.4− | 0.5+ | 2009 11 10 | 703 | 0.4− | 0.1+ |
| 2000 10 01 | 699 | 0.8+ | 0.2− | 2009 10 14 | 703 | 0.0 | 0.7+ | 2009 11 19 | 703 | 0.5− | 0.3− |
| 2000 10 02 | 704 | 1.3− | 0.1− | 2009 10 14 | 703 | 0.4+ | 1.1+ | 2009 11 19 | 703 | 1.0+ | 1.1+ |
| 2000 10 02 | 704 | 0.0 | 0.6+ | 2009 10 14 | 703 | 1.2− | 0.8+ | 2009 11 19 | 703 | 0.3− | 0.3+ |
| 2000 10 02 | 704 | 0.1− | 1.2+ | 2009 10 14 | 703 | 0.1+ | 0.8+ | 2009 11 19 | 703 | 0.3− | 0.5− |
| 2000 10 02 | 704 | 0.2− | 0.2− | 2009 10 27 | G96 | 0.2+ | 0.0 | 2009 11 19 | 703 | 0.3+ | 0.2− |
| 2003 05 05 | 691 | 0.1+ | 0.4+ | 2009 10 27 | G96 | 0.2+ | 0.0 | 2009 11 19 | 703 | 0.0 | 0.4+ |
| 2003 05 05 | 691 | 0.4+ | 0.4+ | 2009 10 27 | G96 | 0.1+ | 0.0 | 2009 11 19 | 703 | 0.1+ | 0.4+ |
| 2003 05 05 | 691 | 0.7+ | 0.2+ | 2009 10 27 | G96 | 0.0 | 0.1+ | | | | |

**2009 UB$_{140}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 232.94645 | | (2000.0) | | | |
| $n$ | 0.35945277 | $\omega$ | 313.12649 | | −0.84347334 | +0.43033349 |
| $a$ | 1.9590318 | $\Omega$ | 254.77972 | | −0.34271919 | −0.89198708 |
| $e$ | 0.0392322 | $i$ | 19.46268 | | −0.41363788 | −0.13846347 |
| $P$ | 2.74 | $H$ | 16.6 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 07 20 | 644 | 0.1+ | 0.4+ | 2009 10 18 | 704 | 1.3+ | 0.1− | 2009 11 27 | 854 | 0.1− | 0.1− |
| 2003 07 20 | 644 | 0.1+ | 0.1+ | 2009 10 18 | 704 | 0.2+ | 0.9+ | 2009 11 27 | 291 | 0.3− | 0.0 |
| 2003 07 20 | 644 | 0.3+ | 0.4+ | 2009 10 18 | 704 | 0.3− | 0.8+ | 2009 11 27 | H10 | 0.2− | 0.1− |
| 2003 08 25 | 644 | 0.0 | 0.2− | 2009 10 18 | 704 | 0.8− | 0.5+ | 2009 11 27 | H10 | 0.3+ | 0.1− |
| 2003 08 25 | 644 | 0.1− | 0.1− | 2009 10 27 | 703 | (0.4+ | 1.9−) | 2009 11 27 | 291 | 0.2− | 0.1+ |
| 2003 08 25 | 644 | 0.0 | 0.0 | 2009 10 27 | 703 | 0.3− | 1.0− | 2009 11 27 | H10 | 0.5− | 0.5− |
| 2006 09 25 | 703 | 0.0 | 0.6− | 2009 10 27 | 703 | 0.4+ | 0.2+ | 2009 11 27 | 291 | 0.1− | 0.1+ |
| 2006 09 25 | 703 | 0.6+ | 0.5+ | 2009 10 27 | 703 | 0.2− | 0.4− | 2009 11 27 | H10 | 0.2− | 1.3− |
| 2006 09 25 | 703 | 0.7+ | 0.6− | 2009 11 08 | 703 | 0.3− | 0.5+ | 2009 11 27 | H10 | 1.5+ | 0.1+ |
| 2006 09 25 | 703 | 0.4− | 0.4+ | 2009 11 08 | 703 | 0.3− | 0.4− | 2009 12 11 | 704 | 0.7+ | 0.2− |
| 2006 10 23 | 703 | 0.7− | 0.1− | 2009 11 08 | 703 | 0.6+ | 0.3+ | 2009 12 11 | 704 | 0.4+ | 0.3+ |
| 2006 10 23 | 703 | 0.1+ | 0.2+ | 2009 11 08 | 703 | 0.2+ | 0.0 | 2009 12 11 | 704 | 1.2+ | 1.3+ |
| 2006 10 23 | 703 | 0.1+ | 0.1− | 2009 11 24 | J75 | 0.6+ | 0.7− | 2009 12 16 | 704 | 0.0 | 0.8+ |
| 2006 10 23 | 703 | 0.1+ | 0.1+ | 2009 11 24 | J75 | 0.3+ | 0.4− | 2009 12 16 | 704 | 0.2− | 0.1+ |
| 2006 11 22 | 703 | 0.3− | 0.4− | 2009 11 24 | J75 | 0.4+ | 0.5− | 2009 12 16 | 704 | 0.0 | 0.5+ |
| 2006 11 22 | 703 | 0.4− | 0.2− | 2009 11 27 | 691 | 0.3+ | 0.1+ | 2009 12 16 | 704 | 0.0 | 0.3+ |
| 2006 11 22 | 703 | 0.4− | 0.3− | 2009 11 27 | 691 | 0.1− | 0.1+ | 2009 12 16 | 704 | 0.7+ | 0.7+ |
| 2006 11 22 | 703 | 0.6− | 0.4+ | 2009 11 27 | 691 | 0.2− | 0.0 | 2009 12 18 | G96 | 0.2+ | 0.3− |
| 2008 06 25 | E12 | 0.9− | 0.5+ | 2009 11 27 | 291 | 0.2− | 0.1+ | 2009 12 18 | G96 | 0.0 | 0.3− |
| 2008 06 25 | E12 | 0.3+ | 0.2+ | 2009 11 27 | 291 | 0.2− | 0.1+ | 2009 12 18 | G96 | 0.0 | 0.2− |
| 2008 06 25 | E12 | 0.2+ | 0.2− | 2009 11 27 | 854 | 0.0 | 0.4− | 2009 12 18 | G96 | 0.2+ | 0.3− |
| 2008 06 25 | E12 | 0.3+ | 1.5+ | 2009 11 27 | 854 | 0.4− | 0.1− | | | | |

**2009 UC$_{140}$ = 2002 UX$_{18}$ = 2004 GO$_{53}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 21.25433 | | (2000.0) | | | |
| $n$ | 0.28807464 | $\omega$ | 199.48201 | | +0.57585182 | −0.81737241 |
| $a$ | 2.2705585 | $\Omega$ | 215.36468 | | +0.75398616 | +0.53910882 |
| $e$ | 0.1379771 | $i$ | 1.70634 | | +0.31606892 | +0.20313546 |
| $P$ | 3.42 | $H$ | 17.5 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 05 22 | 807 | 0.8− | 0.4+ | 2007 01 28 | G96 | 0.1− | 0.1− | 2009 10 30 | G96 | 0.5+ | 0.2+ |
| 2001 05 22 | 807 | 1.1− | 0.5+ | 2007 01 28 | G96 | 0.3− | 0.1− | 2009 10 30 | G96 | 0.5+ | 0.0 |
| 2002 10 30 | 291 | 0.3− | 0.3+ | 2007 01 28 | G96 | 0.3+ | 0.7− | 2009 10 30 | G96 | 0.7+ | 0.0 |
| 2002 10 30 | 291 | 0.1− | 0.2+ | 2007 02 09 | 291 | 0.0 | 0.2+ | 2009 10 30 | G96 | 0.2+ | 0.1+ |
| 2002 10 30 | 291 | 0.1− | 0.2+ | 2007 02 09 | 291 | 0.3− | 0.3+ | 2009 11 08 | 691 | 0.6− | 0.1+ |
| 2002 10 31 | 644 | 0.2+ | 0.4+ | 2007 02 09 | 291 | 0.1− | 0.2+ | 2009 11 08 | 691 | 0.6− | 0.2− |
| 2002 10 31 | 644 | 0.2− | 0.7+ | 2007 03 15 | G96 | 0.2+ | 0.1− | 2009 11 08 | 691 | 0.1− | 0.0 |
| 2002 10 31 | 644 | 0.4+ | 0.2+ | 2007 03 15 | G96 | 0.2+ | 0.0 | 2009 11 24 | J75 | 0.7+ | 0.2− |
| 2002 10 31 | 608 | 0.2− | 1.3+ | 2007 03 15 | G96 | 0.3+ | 0.0 | 2009 11 24 | J75 | 0.1+ | 0.3+ |
| 2002 10 31 | 608 | 0.5− | 1.5+ | 2007 03 15 | G96 | 0.2− | 0.1− | 2009 11 24 | J75 | 0.9+ | 0.1− |
| 2002 10 31 | 608 | 0.0 | 1.2+ | 2009 09 20 | G96 | 0.3− | 0.1− | 2009 11 24 | 691 | 0.1+ | 0.0 |
| 2004 04 13 | 691 | 0.2+ | 0.2+ | 2009 09 20 | G96 | 0.4+ | 0.2+ | 2009 11 24 | 691 | 0.0 | 0.1+ |
| 2004 04 13 | 691 | 0.3+ | 0.2+ | 2009 09 20 | G96 | 0.3+ | 0.0 | 2009 11 24 | 691 | 0.3− | 0.0 |
| 2004 04 13 | 691 | 0.3+ | 0.6+ | 2009 09 20 | G96 | 0.3+ | 0.3− | 2009 12 11 | 703 | 0.3+ | 0.3− |
| 2004 04 19 | 691 | 0.5+ | 0.2− | 2009 10 16 | G96 | 0.2+ | 0.1− | 2009 12 11 | 703 | 1.6+ | 1.6− |
| 2004 04 19 | 691 | 0.0 | 0.3+ | 2009 10 16 | G96 | 0.2+ | 0.1+ | 2009 12 11 | 703 | 1.0− | 0.1− |
| 2004 04 19 | 691 | 0.1+ | 0.0 | 2009 10 16 | G96 | 0.2+ | 0.0 | 2009 12 11 | 703 | 1.3+ | 1.1− |
| 2007 01 28 | G96 | 0.0 | 0.1− | 2009 10 16 | G96 | 0.1+ | 0.2− | | | | |

**2009 UE$_{140}$ = 2006 HO$_{14}$ = 2008 PD$_{7}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 327.41390 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17922946 | $\omega$ | 265.73424 | | −0.35647763 | −0.93367613 | |
| $a$ | 3.1155146 | $\Omega$ | 205.23406 | | +0.88591296 | −0.32614502 | |
| $e$ | 0.1296126 | $i$ | 4.60711 | | +0.29678601 | −0.14791315 | |
| $P$ | 5.50 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 12 25 | 691 | 0.5− | 0.4− | 2006 03 25 | G96 | 0.3− | 0.4+ | 2008 09 25 | 691 | 0.1+ | 0.0 |
| 1998 12 25 | 691 | 0.4− | 0.8− | 2006 03 25 | G96 | 0.8− | 0.4+ | 2009 09 22 | G96 | 0.3− | 0.2+ |
| 1998 12 25 | 691 | 0.2− | 0.4− | 2006 04 19 | G96 | 1.2+ | 0.0 | 2009 09 22 | G96 | 0.1+ | 0.7+ |
| 2000 02 12 | 645 | 0.1+ | 0.1− | 2006 04 19 | G96 | 0.2− | 0.2− | 2009 09 22 | G96 | 0.2− | 0.0 |
| 2000 02 12 | 645 | 0.1+ | 0.1− | 2006 04 19 | G96 | 0.3− | 0.4+ | 2009 09 22 | G96 | 0.7+ | 0.3+ |
| 2003 09 30 | 691 | 0.1+ | 0.0 | 2006 04 19 | G96 | 0.4− | 0.4+ | 2009 10 25 | 691 | 0.1− | 0.2+ |
| 2003 09 30 | 691 | 0.4+ | 0.2− | 2006 04 21 | G96 | 0.2− | 0.1+ | 2009 10 25 | 691 | 0.1− | 0.3+ |
| 2003 09 30 | 691 | 0.2+ | 0.1+ | 2006 04 21 | G96 | 0.4− | 0.3+ | 2009 10 25 | 691 | 0.3− | 0.1+ |
| 2003 10 19 | 691 | 0.0 | 0.4+ | 2006 04 21 | G96 | 0.4− | 0.3+ | 2009 11 10 | 691 | 0.2− | 0.3+ |
| 2003 10 19 | 691 | 0.2− | 0.1+ | 2006 04 21 | G96 | 0.8− | 0.2+ | 2009 11 10 | 691 | 0.3− | 0.4+ |
| 2003 10 19 | 691 | 0.3+ | 0.5+ | 2006 05 22 | G96 | 0.9− | 0.4− | 2009 11 10 | 691 | 0.3− | 0.3+ |
| 2004 12 12 | 599 | 0.7+ | 1.0+ | 2006 05 22 | G96 | 0.4− | 0.3+ | 2009 11 23 | G96 | 0.5+ | 0.0 |
| 2004 12 12 | 599 | 0.3− | 0.3+ | 2006 05 22 | G96 | 0.5− | 0.1− | 2009 11 23 | G96 | 0.3+ | 0.1− |
| 2004 12 12 | 599 | 0.0 | 0.5+ | 2006 05 22 | G96 | 0.6− | 0.1+ | 2009 11 23 | G96 | 0.5+ | 0.0 |
| 2004 12 12 | 599 | 1.0+ | 0.9+ | 2008 08 02 | 621 | 0.2− | 0.3+ | 2009 11 23 | G96 | 0.2+ | 0.0 |
| 2006 03 25 | 691 | 0.4+ | 0.0 | 2008 08 02 | 621 | 0.1− | 0.2+ | 2009 11 23 | J75 | 0.7+ | 0.2− |
| 2006 03 25 | 691 | 0.2+ | 0.0 | 2008 08 02 | 621 | 0.3− | 0.4+ | 2009 11 23 | J75 | 0.1− | 0.4− |
| 2006 03 25 | 691 | 0.1+ | 0.3+ | 2008 08 07 | 621 | 1.2+ | 0.2+ | 2009 11 23 | J75 | 1.1+ | 0.7− |
| 2006 03 25 | 691 | 0.1− | 0.6+ | 2008 08 07 | 621 | 0.1− | 0.7+ | 2009 12 19 | G96 | 0.3+ | 0.2+ |
| 2006 03 25 | 691 | 0.3+ | 0.2+ | 2008 08 07 | 621 | 0.0 | 0.2+ | 2009 12 19 | G96 | 0.3− | 0.6+ |
| 2006 03 25 | 691 | 0.1+ | 0.2+ | 2008 08 07 | 621 | 0.7+ | 1.1− | 2009 12 19 | G96 | 0.2+ | 0.4+ |
| 2006 03 25 | G96 | 0.7− | 0.3+ | 2008 09 25 | 691 | 0.1− | 0.1+ | 2009 12 19 | G96 | 0.1+ | 0.4+ |
| 2006 03 25 | G96 | 0.5− | 0.8+ | 2008 09 25 | 691 | 0.4− | 0.1+ | | | | |

**2009 UH$_{140}$ = 2004 VQ$_{74}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 15.66625 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19470636 | $\omega$ | 328.86747 | | +0.76160050 | −0.61077121 | |
| $a$ | 2.9481481 | $\Omega$ | 70.35876 | | +0.63177716 | +0.62534304 | |
| $e$ | 0.0812154 | $i$ | 13.29707 | | +0.14429934 | +0.48570012 | |
| $P$ | 5.06 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 11 28 | 691 | 0.4− | 0.2− | 2004 11 18 | E12 | 0.1− | 0.3− | 2009 10 18 | 703 | 0.1− | 0.3+ |
| 1999 11 28 | 691 | 0.2− | 0.0 | 2004 11 18 | E12 | 0.4− | 0.1+ | 2009 10 18 | 703 | 0.8+ | 0.0 |
| 1999 11 28 | 691 | 0.3− | 0.4− | 2004 11 19 | 703 | 0.1− | 0.1− | 2009 10 18 | 703 | 0.0 | 0.7− |
| 1999 12 09 | 691 | 1.2+ | 0.7+ | 2004 11 19 | 703 | 0.2− | 0.3− | 2009 10 18 | 703 | 1.8− | 0.5− |
| 1999 12 09 | 691 | 0.3+ | 0.2− | 2004 11 19 | 703 | 0.1+ | 0.2− | 2009 11 09 | 703 | 0.7+ | 0.5+ |
| 1999 12 09 | 691 | 0.2− | 0.0 | 2004 11 19 | 703 | 0.6− | 0.3+ | 2009 11 09 | 703 | 0.3+ | 0.6− |
| 2004 11 12 | 703 | 1.0+ | 0.2+ | 2007 04 25 | 691 | 0.1+ | 0.0 | 2009 11 09 | 703 | 0.2− | 0.4+ |
| 2004 11 12 | 703 | 1.3+ | 0.3− | 2007 04 25 | 691 | 0.0 | 0.1− | 2009 11 09 | 703 | 0.2− | 0.4+ |
| 2004 11 12 | 703 | 1.5− | 1.0+ | 2007 04 25 | 691 | 0.1− | 0.0 | 2009 11 21 | 703 | 0.6+ | 0.8+ |
| 2004 11 12 | 703 | 0.3− | 0.5+ | 2009 10 18 | J75 | 0.2− | 0.8− | 2009 11 21 | 703 | 0.7− | 1.7+ |
| 2004 11 18 | E12 | 1.6− | 0.2+ | 2009 10 18 | J75 | 0.0 | 0.2− | 2009 11 21 | 703 | 0.5+ | 0.3− |
| 2004 11 18 | E12 | 0.4− | 0.6− | 2009 10 18 | J75 | 1.0+ | 0.2− | 2009 11 21 | 703 | 0.5+ | 0.8− |

**2009 UJ$_{140}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 0.68913 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.08216437 | $\omega$ | 330.32646 | | +0.52384382 | −0.85128695 | |
| $a$ | 5.2401899 | $\Omega$ | 88.06813 | | +0.78731070 | +0.47044563 | |
| $e$ | 0.0608085 | $i$ | 1.71836 | | +0.32516073 | +0.23236057 | |
| $P$ | 12.00 | $H$ | 14.3 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 09 11 | G96 | 0.6+ | 0.3− | 2008 10 02 | G96 | 0.2+ | 0.0 | 2009 11 08 | 691 | 0.1+ | 0.1+ |
| 2007 09 11 | G96 | 0.1− | 0.5− | 2008 10 02 | G96 | 0.4+ | 0.0 | 2009 11 08 | 691 | 0.3− | 0.1− |
| 2007 09 11 | G96 | 0.3+ | 0.4− | 2008 10 02 | G96 | 0.1+ | 0.5− | 2009 11 23 | G96 | 0.3+ | 0.2− |
| 2007 09 11 | G96 | 0.1+ | 0.7− | 2009 10 18 | G96 | 0.3+ | 0.3+ | 2009 11 23 | G96 | 0.0 | 0.2− |
| 2008 09 24 | 691 | 0.1− | 0.1+ | 2009 10 18 | G96 | 0.2+ | 0.3− | 2009 11 23 | G96 | 0.3+ | 0.4− |
| 2008 09 24 | 691 | 0.4− | 0.0 | 2009 10 18 | G96 | 0.6+ | 0.1+ | 2009 11 23 | G96 | 0.0 | 0.0 |
| 2008 09 24 | 691 | 0.2− | 0.3+ | 2009 10 18 | G96 | 0.1+ | 0.1+ | 2009 12 11 | G96 | 0.0 | 0.1+ |
| 2008 10 02 | 691 | 0.1+ | 0.1− | 2009 10 27 | 691 | 0.4+ | 0.1− | 2009 12 11 | G96 | 0.5+ | 0.4+ |
| 2008 10 02 | 691 | 0.2− | 0.0 | 2009 10 27 | 691 | 0.0 | 0.4− | 2009 12 11 | G96 | 0.0 | 0.0 |
| 2008 10 02 | 691 | 0.3+ | 0.5+ | 2009 10 27 | 691 | 0.5− | 0.3+ | 2009 12 11 | G96 | 0.5− | 0.1− |
| 2008 10 02 | G96 | 0.0 | 0.2+ | 2009 11 08 | 691 | 0.1− | 0.2− | | | | |

**2009 UK$_{140}$ = 2003 YE$_{140}$ = 2009 WD$_{121}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 169.52692 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.31107369 | $\omega$ | 206.54538 | | −0.15331986 | +0.98351655 | |
| $a$ | 2.1572171 | $\Omega$ | 54.78145 | | −0.88449901 | −0.09333327 | |
| $e$ | 0.1259370 | $i$ | 6.73814 | | −0.44062969 | −0.15486799 | |
| $P$ | 3.17 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 09 08 | 703 | 1.1+ | 0.2+ | 2008 05 01 | 703 | 0.0 | 0.4+ | 2009 11 24 | 691 | 0.0 | 0.0 |
| 1999 09 08 | 703 | 0.1+ | 1.1+ | 2008 05 01 | 703 | (2.2+ | 0.3+) | 2009 11 24 | 691 | 0.1− | 0.0 |
| 1999 09 08 | 703 | 1.1− | 1.9+ | 2008 05 01 | 703 | 0.4+ | 1.3+ | 2009 11 25 | 291 | 0.3− | 0.0 |
| 1999 09 08 | 703 | 1.2− | 1.1− | 2009 09 20 | G96 | 0.7+ | 0.2− | 2009 11 25 | 291 | 0.2− | 0.0 |
| 2002 08 13 | 644 | 0.4+ | 0.8− | 2009 09 20 | G96 | 0.0 | 0.1− | 2009 11 25 | 291 | 0.2− | 0.1+ |
| 2002 08 13 | 644 | 0.3+ | 0.6− | 2009 09 20 | G96 | 0.3− | 0.1− | 2009 12 11 | 703 | 0.8+ | 0.5+ |
| 2002 08 13 | 644 | 0.0 | 0.7− | 2009 09 20 | G96 | 0.0 | 0.2− | 2009 12 11 | 703 | 0.9+ | 0.7− |
| 2003 12 28 | 704 | 1.3+ | 0.1− | 2009 10 21 | G96 | 0.6+ | 0.6− | 2009 12 11 | 703 | 1.4+ | 1.7+ |
| 2003 12 28 | 704 | 0.4− | 0.7− | 2009 10 21 | G96 | 0.2+ | 0.1− | 2009 12 11 | 703 | 0.1+ | 1.5+ |
| 2003 12 28 | 704 | 0.1− | 0.3− | 2009 10 21 | G96 | 0.3− | 0.2− | 2009 12 18 | G96 | 0.4+ | 0.4− |
| 2003 12 28 | 704 | (1.9− | 0.9−) | 2009 10 21 | G96 | 0.3+ | 0.5+ | 2009 12 18 | G96 | 0.0 | 0.2+ |
| 2003 12 30 | 704 | 0.1− | 0.9+ | 2009 11 08 | 691 | 0.5− | 0.0 | 2009 12 18 | G96 | 0.2+ | 0.1− |
| 2003 12 30 | 704 | 0.9− | 0.3+ | 2009 11 08 | 691 | 0.4− | 0.1− | 2009 12 18 | G96 | 0.4+ | 0.4− |
| 2003 12 30 | 704 | 1.0− | 1.0− | 2009 11 08 | 691 | 0.1− | 0.3+ | 2009 12 18 | G96 | 0.2− | 0.1+ |
| 2006 11 18 | 691 | 0.6+ | 0.1− | 2009 11 20 | 691 | 0.1+ | 0.2− | 2009 12 18 | G96 | 0.5+ | 0.0 |
| 2006 11 18 | 691 | 0.1− | 0.0 | 2009 11 20 | 691 | 0.0 | 0.0 | 2009 12 18 | G96 | 0.0 | 0.3+ |
| 2006 11 18 | 691 | 0.2+ | 0.2− | 2009 11 20 | 691 | 0.1− | 0.1+ | 2009 12 18 | G96 | 0.3− | 0.2+ |
| 2008 05 01 | 703 | 0.3+ | 0.3+ | 2009 11 24 | 691 | 0.0 | 0.1− | | | | |

**2009 UP$_{140}$ = 1995 CR$_{5}$ = 2004 XR$_{64}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 358.32320 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18901760 | $\omega$ | 137.15644 | | +0.32256918 | −0.94229351 | |
| $a$ | 3.0070077 | $\Omega$ | 293.84393 | | +0.83978090 | +0.32858379 | |
| $e$ | 0.1465798 | $i$ | 5.62314 | | +0.43671177 | +0.06415319 | |
| $P$ | 5.21 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 02 01 | 691 | 0.3− | 0.3− | 2004 12 02 | 691 | 0.3+ | 0.4+ | 2009 10 26 | 691 | 0.0 | 0.1+ |
| 1995 02 01 | 691 | 0.4+ | 0.2+ | 2004 12 02 | 691 | 0.1− | 0.3+ | 2009 10 26 | 691 | 0.5− | 0.3+ |
| 1995 02 01 | 691 | 0.1− | 0.2− | 2004 12 16 | 704 | 0.3+ | 0.1+ | 2009 10 26 | 691 | 0.4− | 0.0 |
| 1995 02 08 | 691 | 0.3+ | 0.3+ | 2004 12 16 | 704 | 1.4+ | 0.2− | 2009 11 09 | G96 | 0.2+ | 0.0 |
| 1995 02 08 | 691 | 0.2− | 0.6− | 2004 12 16 | 704 | 0.4+ | 0.4+ | 2009 11 09 | G96 | 0.2+ | 0.0 |
| 1999 12 12 | 691 | 0.2− | 0.0 | 2006 03 09 | 691 | 0.0 | 0.5+ | 2009 11 09 | G96 | 0.1+ | 0.1+ |
| 1999 12 12 | 691 | 0.5− | 0.1+ | 2006 03 09 | 691 | 0.4+ | 0.8+ | 2009 11 09 | G96 | 0.0 | 0.1+ |
| 1999 12 12 | 691 | 0.3− | 0.2+ | 2006 03 09 | 691 | 0.3+ | 0.3+ | 2009 11 22 | G96 | 0.4+ | 0.0 |
| 2003 09 29 | 691 | 0.4− | 0.4+ | 2008 07 29 | G96 | 0.1− | 0.4+ | 2009 11 22 | G96 | 0.2− | 0.4+ |
| 2003 09 29 | 691 | 0.0 | 0.3+ | 2008 07 29 | G96 | 0.1− | 0.2+ | 2009 11 22 | G96 | 0.0 | 0.2+ |
| 2003 09 29 | 691 | 0.1− | 0.1− | 2008 07 29 | G96 | 0.4+ | 0.2+ | 2009 11 22 | G96 | 0.4+ | 0.2+ |
| 2004 12 02 | 691 | 0.3+ | 0.6− | 2008 07 29 | G96 | 0.2+ | 0.6+ | | | | |

**2009 UQ$_{140}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 22.88954 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.20222538 | $\omega$ | 126.59831 | | +0.73287003 | −0.67088417 | |
| $a$ | 2.8746101 | $\Omega$ | 275.83542 | | +0.58223153 | +0.70450408 | |
| $e$ | 0.0854722 | $i$ | 6.53426 | | +0.35200563 | +0.23149178 | |
| $P$ | 4.87 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 11 09 | 703 | 0.3− | 0.5+ | 2008 08 01 | 691 | 0.1+ | 0.2− | 2009 11 09 | G96 | 0.5+ | 0.2− |
| 2004 11 09 | 703 | 0.0 | 0.4− | 2008 08 01 | 691 | 0.0 | 0.2+ | 2009 11 21 | 691 | 0.1− | 0.1− |
| 2004 11 09 | 703 | 0.3+ | 0.3− | 2009 10 26 | 691 | 0.1+ | 0.1− | 2009 11 21 | 691 | 0.4− | 0.2− |
| 2004 11 09 | 703 | 0.0 | 0.2+ | 2009 10 26 | 691 | 0.0 | 0.8+ | 2009 11 21 | 691 | 0.1− | 0.1− |
| 2008 07 02 | 691 | 0.1+ | 0.0 | 2009 10 26 | 691 | 0.2+ | 0.1− | 2009 12 19 | G96 | 0.1− | 0.1+ |
| 2008 07 02 | 691 | 0.0 | 0.3− | 2009 11 09 | G96 | 0.3+ | 0.3− | 2009 12 19 | G96 | 0.1+ | 0.2+ |
| 2008 07 02 | 691 | 0.2+ | 0.4+ | 2009 11 09 | G96 | 0.2+ | 0.1− | 2009 12 19 | G96 | 0.0 | 0.3− |
| 2008 08 01 | 691 | 0.3− | 0.1− | 2009 11 09 | G96 | 0.6+ | 0.2− | | | | |

**2009 US$_{140}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 88.31241 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17540825 | $\omega$ | 67.44671 | | +0.82969355 | +0.53473140 | |
| $a$ | 3.1605988 | $\Omega$ | 259.88560 | | −0.55302891 | +0.74834442 | |
| $e$ | 0.1080789 | $i$ | 9.36660 | | −0.07594491 | +0.39248307 | |
| $P$ | 5.62 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 30 | 691 | 0.2+ | 0.0 | 2003 11 02 | 691 | 0.2− | 0.1− | 2009 11 25 | 691 | 0.0 | 0.0 |
| 2003 09 30 | 691 | 0.1− | 0.1+ | 2003 11 02 | 691 | 0.4− | 0.4− | 2009 11 25 | 691 | 0.1− | 0.0 |
| 2003 09 30 | 691 | 0.1− | 0.1− | 2003 11 02 | 691 | 0.3+ | 0.3+ | 2009 11 25 | 691 | 0.1− | 0.3+ |
| 2003 09 30 | 691 | 0.1+ | 0.0 | 2009 10 26 | 691 | 0.0 | 0.3− | 2009 12 18 | G96 | 0.3+ | 0.1+ |
| 2003 09 30 | 691 | 0.1− | 0.2− | 2009 10 26 | 691 | 0.1− | 0.1+ | 2009 12 18 | G96 | 0.5+ | 0.2− |
| 2003 09 30 | 691 | 0.1− | 0.2+ | 2009 10 26 | 691 | 0.3+ | 0.1+ | 2009 12 18 | G96 | 0.2+ | 0.2− |
| 2003 10 17 | 691 | 0.1+ | 0.0 | 2009 11 09 | 691 | 0.2− | 0.1− | 2009 12 18 | G96 | 1.0+ | 0.1+ |
| 2003 10 17 | 691 | 0.1+ | 0.1+ | 2009 11 09 | 691 | 0.1− | 0.3− | | | | |
| 2003 10 17 | 691 | 0.1+ | 0.1+ | 2009 11 09 | 691 | 0.1− | 0.1+ | | | | |

**2009 UY$_{140}$ = 2004 XC$_{25}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 77.67684 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21131909 | $\omega$ | 279.80594 | | +0.92680902 | −0.29196727 | |
| $a$ | 2.7915381 | $\Omega$ | 97.46123 | | +0.36231940 | +0.86057933 | |
| $e$ | 0.1712075 | $i$ | 13.78004 | | −0.09874057 | +0.41732281 | |
| $P$ | 4.66 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 10 13 | 645 | 0.0 | 0.2− | 2007 05 10 | 691 | 0.1− | 0.1− | 2009 10 30 | G96 | 0.1− | 0.0 |
| 1999 10 13 | 645 | 0.0 | 0.1− | 2007 05 10 | 691 | 0.4+ | 0.0 | 2009 10 30 | G96 | 0.4+ | 0.3+ |
| 1999 11 06 | 703 | 0.6− | 1.4+ | 2007 06 20 | 691 | 0.2+ | 0.2+ | 2009 10 30 | G96 | 0.3− | 0.1+ |
| 1999 11 06 | 703 | (2.2− | 0.6+) | 2007 06 20 | 691 | 0.1− | 0.0 | 2009 11 11 | G96 | 0.3+ | 0.1+ |
| 1999 11 06 | 703 | 0.8− | 1.1+ | 2007 06 20 | 691 | 0.2+ | 0.8− | 2009 11 11 | G96 | 0.3+ | 0.1− |
| 1999 11 06 | 703 | 0.8+ | 0.1− | 2008 08 23 | E12 | 0.0 | 0.6+ | 2009 11 11 | G96 | 0.1− | 0.0 |
| 2004 12 09 | 704 | 0.3+ | 0.8+ | 2008 08 23 | E12 | 0.1+ | 0.1− | 2009 11 11 | G96 | 0.1− | 0.1− |
| 2004 12 09 | 704 | 0.2− | 0.4+ | 2008 08 23 | E12 | 0.1− | 1.0+ | 2009 11 21 | G96 | 0.2− | 0.6− |
| 2004 12 09 | 704 | 0.2− | 0.1+ | 2008 08 23 | E12 | 0.4− | 0.1− | 2009 11 21 | G96 | 0.1+ | 0.5− |
| 2004 12 09 | 704 | 1.2+ | 0.4+ | 2008 09 21 | E12 | 0.1+ | 0.4+ | 2009 11 21 | G96 | 0.1− | 0.3− |
| 2004 12 09 | 704 | 0.2− | 0.2− | 2008 09 21 | E12 | 0.7+ | 0.4+ | 2009 11 21 | G96 | 0.2− | 0.7+ |
| 2004 12 10 | 704 | 0.3− | 1.4+ | 2008 09 21 | E12 | 0.9− | 0.0 | 2009 12 11 | 703 | 0.9+ | 1.3− |
| 2004 12 10 | 704 | (0.3+ | 1.5+) | 2008 09 21 | E12 | 0.1− | 0.2+ | 2009 12 11 | 703 | (1.8+ | 1.1−) |
| 2004 12 10 | 704 | (0.1+ | 2.1+) | 2009 10 18 | G96 | 0.3− | 0.4+ | 2009 12 11 | 703 | 0.7+ | 1.5− |
| 2004 12 13 | 691 | 0.0 | 0.0 | 2009 10 18 | G96 | 0.4− | 0.7− | 2009 12 11 | 703 | (0.0 | 2.3−) |
| 2004 12 13 | 691 | 0.1+ | 0.0 | 2009 10 18 | G96 | 0.0 | 0.1+ | 2009 12 19 | 691 | 0.2− | 0.1+ |
| 2004 12 13 | 691 | 0.1+ | 0.1− | 2009 10 18 | G96 | 0.1− | 0.5− | 2009 12 19 | 691 | 0.0 | 0.0 |
| 2007 05 10 | 691 | 0.6− | 0.5+ | 2009 10 30 | G96 | 0.1− | 0.0 | 2009 12 19 | 691 | 0.4− | 0.4+ |

**2009 UZ$_{140}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 316.15964 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18064368 | $\omega$ | 221.96309 | | −0.49591530 | −0.82283738 | |
| $a$ | 3.0992328 | $\Omega$ | 259.54629 | | +0.85273379 | −0.40107783 | |
| $e$ | 0.1527137 | $i$ | 16.39063 | | +0.16405210 | −0.40258567 | |
| $P$ | 5.46 | $H$ | 15.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 29 | 645 | 0.0 | 0.1− | 2008 09 28 | G96 | 0.1+ | 0.1− | 2009 11 20 | G96 | 0.1+ | 0.0 |
| 2003 09 29 | 645 | 0.0 | 0.1− | 2008 09 28 | G96 | 0.2− | 0.3− | 2009 11 20 | G96 | 0.1− | 0.1− |
| 2003 10 14 | 644 | 0.1+ | 0.3+ | 2009 10 27 | G96 | 0.1+ | 0.1− | 2009 11 20 | G96 | 0.3+ | 0.0 |
| 2003 10 14 | 644 | 0.1− | 0.6+ | 2009 10 27 | G96 | 0.1− | 0.2− | 2009 11 20 | G96 | 0.0 | 0.3− |
| 2003 10 14 | 644 | 0.1− | 0.6+ | 2009 10 27 | G96 | 0.2+ | 0.0 | 2009 12 20 | G96 | 0.0 | 0.1− |
| 2003 10 27 | 691 | 0.2+ | 0.6+ | 2009 10 27 | G96 | 0.1+ | 0.2− | 2009 12 20 | G96 | 0.3+ | 0.0 |
| 2003 10 27 | 691 | 0.1− | 0.1+ | 2009 11 10 | 703 | 0.1− | 0.7+ | 2009 12 20 | G96 | 0.0 | 0.0 |
| 2003 10 27 | 691 | 0.1− | 0.0 | 2009 11 10 | 703 | 1.1− | 0.0 | 2009 12 20 | G96 | 0.2+ | 0.0 |
| 2008 09 28 | G96 | 0.3+ | 0.0 | 2009 11 10 | 703 | 0.8+ | 0.6+ | | | | |
| 2008 09 28 | G96 | 0.1− | 0.2− | 2009 11 10 | 703 | 0.6− | 0.7− | | | | |

**2009 UC$_{141}$ = 2003 UW$_{177}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 231.46840 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17210610 | $\omega$ | 345.27319 | | −0.99494714 | +0.04854206 | |
| $a$ | 3.2008983 | $\Omega$ | 198.20916 | | −0.03623226 | −0.98996271 | |
| $e$ | 0.0290049 | $i$ | 16.33456 | | −0.09363448 | −0.13273092 | |
| $P$ | 5.73 | $H$ | 15.3 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 16 | 691 | 0.2+ | 0.2+ | 2003 10 24 | 704 | 0.4− | 0.3+ | 2009 10 27 | G96 | 0.1+ | 0.3− |
| 2003 10 16 | 691 | 0.1− | 0.4+ | 2006 06 23 | 291 | 0.1+ | 0.1+ | 2009 10 27 | G96 | 0.3+ | 0.1− |
| 2003 10 16 | 691 | 0.2+ | 0.3+ | 2006 06 23 | 291 | 0.1+ | 0.2+ | 2009 11 09 | 703 | 0.5+ | 0.1− |
| 2003 10 21 | 644 | 0.2− | 0.3+ | 2006 06 23 | 291 | 0.2− | 0.1+ | 2009 11 09 | 703 | 0.2− | 0.3− |
| 2003 10 21 | 644 | 0.3+ | 0.3+ | 2008 09 27 | G96 | 0.0 | 0.2− | 2009 11 09 | 703 | 0.5− | 0.6− |
| 2003 10 21 | 644 | 0.2+ | 0.1+ | 2008 09 27 | G96 | 0.0 | 0.3− | 2009 11 09 | 703 | 1.1+ | 0.7+ |
| 2003 10 24 | 704 | 0.4+ | 0.2− | 2008 09 27 | G96 | 0.1+ | 0.1− | 2009 11 23 | 703 | 0.6− | 0.9− |
| 2003 10 24 | 704 | 1.0− | 0.4− | 2008 09 27 | G96 | 0.1+ | 0.3− | 2009 11 23 | 703 | 0.1+ | 0.2− |
| 2003 10 24 | 704 | 0.2+ | 0.1+ | 2009 10 27 | G96 | 0.2− | 0.0 | 2009 11 23 | 703 | 0.1+ | 1.1− |
| 2003 10 24 | 704 | 1.1− | 0.0 | 2009 10 27 | G96 | 0.0 | 0.1− | 2009 11 23 | 703 | 0.6− | 0.4+ |

**2009 UD$_{141}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 24.33359 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18503377 | $\omega$ | 77.20826 | | +0.95060075 | −0.28738581 | |
| $a$ | 3.0500155 | $\Omega$ | 299.38816 | | +0.20582272 | +0.86649206 | |
| $e$ | 0.1505877 | $i$ | 7.73924 | | +0.23236873 | +0.40816774 | |
| $P$ | 5.33 | $H$ | 15.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 09 16 | 699 | 0.1− | 0.9+ | 2006 02 02 | 691 | 0.0 | 0.1+ | 2009 10 16 | 703 | 0.3+ | 0.0 |
| 1998 09 16 | 699 | 1.0− | 1.3+ | 2006 02 02 | G96 | 0.7− | 0.1+ | 2009 10 16 | 703 | 1.0− | 1.3+ |
| 1998 09 16 | 699 | 0.6− | 0.7+ | 2006 02 02 | G96 | 0.9+ | 1.2+ | 2009 10 26 | 703 | 0.2+ | 0.2− |
| 2003 07 08 | 644 | 0.5+ | 0.1+ | 2006 02 02 | G96 | 0.8− | 0.3+ | 2009 10 26 | 703 | 0.5− | 1.0− |
| 2003 07 08 | 644 | 0.1− | 0.2+ | 2006 02 02 | G96 | 0.2− | 0.1+ | 2009 10 26 | 703 | (2.3− | 1.0−) |
| 2003 07 08 | 644 | 0.2− | 0.0 | 2006 02 23 | 699 | 1.6+ | 0.8+ | 2009 10 26 | 703 | 1.2− | 0.6− |
| 2003 07 08 | 644 | 0.2+ | 0.0 | 2006 02 23 | 699 | 0.4+ | 0.9+ | 2009 11 06 | 703 | (1.6− | 0.0 ) |
| 2003 07 08 | 644 | 0.0 | 0.1− | 2006 02 23 | 699 | 0.3+ | 0.1+ | 2009 11 06 | 703 | 0.9− | 0.7+ |
| 2003 07 08 | 644 | 0.0 | 0.4+ | 2006 02 23 | 699 | 0.1+ | 0.8− | 2009 11 06 | 703 | (1.8− | 2.6+) |
| 2003 08 19 | 599 | 0.5− | 0.7+ | 2009 10 02 | G96 | 0.3+ | 0.5− | 2009 11 06 | 703 | (0.1− | 2.4+) |
| 2003 08 19 | 599 | 0.4− | 0.2− | 2009 10 02 | G96 | 0.3+ | 0.6− | 2009 11 16 | J75 | 0.2+ | 0.7+ |
| 2003 08 19 | 599 | 0.2− | 0.2− | 2009 10 02 | G96 | 0.1− | 0.5− | 2009 11 16 | J75 | 1.2+ | 0.6+ |
| 2003 08 19 | 599 | 0.1+ | 0.7+ | 2009 10 02 | G96 | 0.5+ | 0.5− | 2009 11 16 | J75 | 0.3+ | 0.5− |
| 2006 02 02 | 691 | 0.1− | 0.0 | 2009 10 16 | 703 | 0.6+ | 0.1+ | | | | |
| 2006 02 02 | 691 | 0.2+ | 0.3+ | 2009 10 16 | 703 | 0.0 | 0.4+ | | | | |

**2009 UE$_{141}$ = 2006 BP$_{150}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 5.79190 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23408763 | $\omega$ | 139.50115 | | +0.60544066 | −0.79046898 | |
| $a$ | 2.6074565 | $\Omega$ | 273.03626 | | +0.70412484 | +0.58630272 | |
| $e$ | 0.3042665 | $i$ | 5.32866 | | +0.37101189 | +0.17722277 | |
| $P$ | 4.21 | $H$ | 17.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 21 | 691 | 0.1+ | 0.0 | 2006 01 31 | 691 | 0.1+ | 0.0 | 2009 11 06 | 703 | 0.6− | 1.0− |
| 2005 12 21 | 691 | 0.1+ | 0.1− | 2006 01 31 | 691 | 0.3+ | 0.3− | 2009 11 06 | 703 | 0.5+ | 0.7− |
| 2005 12 21 | 691 | 0.1− | 0.0 | 2009 10 27 | J75 | 0.3+ | 0.1+ | 2009 11 25 | 703 | 0.1+ | 0.3+ |
| 2006 01 25 | 691 | 0.2− | 0.1+ | 2009 10 27 | J75 | 0.0 | 0.5+ | 2009 11 25 | 703 | 0.0 | 0.3+ |
| 2006 01 25 | 691 | 0.1+ | 0.1− | 2009 10 27 | J75 | 0.1− | 0.2+ | 2009 11 25 | 703 | 0.5+ | 0.2+ |
| 2006 01 25 | 691 | 0.5− | 0.3+ | 2009 11 06 | 703 | (1.8+ | 0.0 ) | 2009 11 25 | 703 | 0.7− | 0.2− |
| 2006 01 31 | 691 | 0.1+ | 0.0 | 2009 11 06 | 703 | 0.1− | 0.3+ | | | | |

**2009 UJ$_{141}$ = 2002 XZ$_{101}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 322.77217 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27680602 | $\omega$ | 216.21522 | | −0.46070432 | −0.86767544 | |
| $a$ | 2.3317699 | $\Omega$ | 261.89763 | | +0.85220772 | −0.37364935 | |
| $e$ | 0.1469369 | $i$ | 10.87543 | | +0.24797891 | −0.32791079 | |
| $P$ | 3.56 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 12 05 | 704 | 0.2+ | 0.2− | 2007 03 20 | 703 | 0.6− | 0.2+ | 2009 11 10 | 703 | 0.6+ | 0.2+ |
| 2002 12 05 | 704 | 0.4− | 0.6− | 2007 03 20 | 703 | 0.6− | 0.1− | 2009 11 10 | 703 | 0.2− | 0.1+ |
| 2002 12 05 | 704 | 0.1+ | 0.6− | 2007 03 20 | 703 | 0.3+ | 0.2− | 2009 11 10 | 703 | 1.1− | 1.3+ |
| 2002 12 05 | 704 | 0.1+ | 0.0 | 2007 03 20 | 703 | 0.9+ | 0.3+ | 2009 11 22 | 703 | 0.9− | 0.3− |
| 2002 12 05 | 704 | 0.1+ | 0.3+ | 2009 10 27 | G96 | 0.0 | 0.1+ | 2009 11 22 | 703 | 0.6− | 0.2+ |
| 2002 12 10 | 704 | 0.1− | 0.5+ | 2009 10 27 | G96 | 0.0 | 1.5− | 2009 11 22 | 703 | 0.5+ | 0.3− |
| 2002 12 10 | 704 | 0.7+ | 0.7+ | 2009 10 27 | G96 | 0.6+ | 0.1− | 2009 11 22 | 703 | 0.3+ | 0.4+ |
| 2002 12 10 | 704 | 0.7− | 0.1− | 2009 10 27 | G96 | 0.6+ | 0.1+ | | | | |
| 2002 12 10 | 704 | 0.0 | 0.8− | 2009 11 10 | 703 | 0.1+ | 0.6+ | | | | |

**2009 UK$_{141}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 330.39300 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26719603 | $\omega$ | 30.56862 | | −0.08207609 | −0.98881585 | |
| $a$ | 2.3873497 | $\Omega$ | 64.39193 | | +0.88417817 | −0.12990073 | |
| $e$ | 0.0690510 | $i$ | 7.93736 | | +0.45988311 | +0.07327352 | |
| $P$ | 3.69 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 11 15 | 691 | (5.4+ | 0.1−) | 2009 10 21 | 703 | 0.9+ | 0.1+ | 2009 11 18 | G96 | 0.1− | 0.3− |
| 1998 11 15 | 691 | 0.2− | 0.0 | 2009 10 26 | 691 | 0.3+ | 0.1− | 2009 11 18 | G96 | 0.7− | 0.2+ |
| 1998 11 15 | 691 | 0.1− | 0.0 | 2009 10 26 | 691 | 0.3− | 0.1− | 2009 11 18 | G96 | 0.1+ | 0.3− |
| 1998 11 21 | 691 | 0.3+ | 0.0 | 2009 10 26 | 691 | 0.2− | 0.8+ | 2009 12 17 | G96 | 0.2− | 0.0 |
| 1998 11 21 | 691 | 0.2− | 0.1− | 2009 11 08 | G96 | 0.2+ | 0.1− | 2009 12 17 | G96 | 0.0 | 0.0 |
| 1998 11 21 | 691 | 0.2+ | 0.2+ | 2009 11 08 | G96 | 0.0 | 0.4− | 2009 12 17 | G96 | 0.3− | 0.1+ |
| 2009 10 21 | 703 | 1.2− | 0.5− | 2009 11 08 | G96 | 0.3+ | 0.3− | 2009 12 17 | G96 | 0.5+ | 0.3+ |
| 2009 10 21 | 703 | 0.4+ | 0.1− | 2009 11 08 | G96 | 0.2+ | 0.1− | | | | |
| 2009 10 21 | 703 | 0.6+ | 0.5− | 2009 11 18 | G96 | 0.4+ | 0.3− | | | | |

**2009 UM$_{141}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 340.08245 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.30893688 | $\omega$ | 43.48769 | | −0.22286642 | −0.97390264 | |
| $a$ | 2.1671529 | $\Omega$ | 59.43311 | | +0.88019864 | −0.21996757 | |
| $e$ | 0.1274634 | $i$ | 2.85881 | | +0.41902377 | −0.05592772 | |
| $P$ | 3.19 | $H$ | 18.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 02 11 | 926 | 0.3− | 0.0 | 2009 10 23 | 691 | 0.3− | 0.2+ | 2009 11 20 | 691 | 0.3− | 0.4− |
| 2004 02 11 | 926 | 0.5− | 0.3− | 2009 10 23 | 691 | 0.2− | 0.0 | 2009 12 11 | G96 | 0.8+ | 0.3− |
| 2004 02 11 | 926 | 0.4− | 0.2− | 2009 10 27 | 691 | 0.2+ | 0.3− | 2009 12 11 | G96 | 0.4+ | 0.7− |
| 2004 02 16 | 691 | 0.1+ | 0.2− | 2009 10 27 | 691 | 0.2− | 0.1+ | 2009 12 11 | G96 | 0.5+ | 0.4− |
| 2004 02 16 | 691 | 0.1+ | 0.3− | 2009 10 27 | 691 | 0.5+ | 0.9+ | 2009 12 11 | G96 | 0.6+ | 0.4− |
| 2004 02 16 | 691 | 0.1− | 0.1− | 2009 11 08 | 691 | 0.2− | 0.1− | 2009 12 19 | 691 | 0.3+ | 0.0 |
| 2004 03 18 | 291 | 0.2+ | 0.3+ | 2009 11 08 | 691 | 0.2− | 0.0 | 2009 12 19 | 691 | 0.3− | 0.1− |
| 2004 03 18 | 291 | 0.1+ | 0.4+ | 2009 11 08 | 691 | 0.1− | 0.1+ | 2009 12 19 | 691 | 0.2− | 0.4+ |
| 2004 03 18 | 291 | 0.0 | 0.3+ | 2009 11 20 | 691 | 0.1+ | 0.2− | | | | |
| 2009 10 23 | 691 | 0.5− | 0.3+ | 2009 11 20 | 691 | 0.6+ | 0.1− | | | | |

**2009 UN$_{141}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 289.15355 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17232915 | $\omega$ | 228.60024 | | −0.64086515 | −0.71465290 | |
| $a$ | 3.1981357 | $\Omega$ | 263.55431 | | +0.76119099 | −0.54431759 | |
| $e$ | 0.1042013 | $i$ | 16.38404 | | +0.09939884 | −0.43930581 | |
| $P$ | 5.72 | $H$ | 14.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 04 19 | 644 | 0.0 | 0.5+ | 2009 10 16 | 703 | 0.4− | 0.2+ | 2009 11 19 | 703 | 0.3+ | 0.9+ |
| 2006 04 19 | 644 | 0.2+ | 0.2+ | 2009 10 16 | 703 | 0.9+ | 0.3− | 2009 11 19 | 703 | 1.5− | 0.5+ |
| 2006 04 19 | 644 | 0.0 | 0.1+ | 2009 10 16 | 703 | 0.7+ | 0.1− | 2009 11 19 | 703 | 0.3− | 0.5− |
| 2008 09 06 | 691 | 0.3− | 0.6− | 2009 10 30 | G96 | 0.4+ | 0.1− | 2009 11 19 | 703 | 0.7− | 0.7− |
| 2008 09 06 | 691 | 0.1− | 0.4+ | 2009 10 30 | G96 | 0.4+ | 0.1− | 2009 11 26 | 703 | (2.7− | 0.8−) |
| 2008 09 06 | 691 | 0.1+ | 0.4+ | 2009 10 30 | G96 | 0.0 | 0.1+ | 2009 11 26 | 703 | 0.2+ | 0.2− |
| 2008 09 27 | G96 | 0.1+ | 0.3− | 2009 10 30 | G96 | 0.9+ | 0.3− | 2009 11 26 | 703 | 0.7+ | 0.4+ |
| 2008 09 27 | G96 | 0.3+ | 0.2− | 2009 11 06 | 703 | 0.7− | 1.3− | 2009 11 26 | 703 | 0.6+ | 0.7− |
| 2008 09 27 | G96 | 0.5+ | 0.2− | 2009 11 06 | 703 | 0.6+ | 0.5+ | 2009 12 10 | 704 | 0.8− | 0.6+ |
| 2008 09 27 | G96 | 0.6+ | 0.1+ | 2009 11 06 | 703 | 0.3− | 0.9+ | 2009 12 10 | 704 | 0.2− | 0.3+ |
| 2009 10 16 | 703 | 0.1− | 0.1+ | 2009 11 06 | 703 | 0.2− | 0.9+ | 2009 12 10 | 704 | 0.8− | 0.7− |

**2009 UO$_{141}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 12.95739 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27175881 | $\omega$ | 3.19893 | | +0.42759998 | −0.89844795 | |
| $a$ | 2.3605523 | $\Omega$ | 61.50581 | | +0.82683485 | +0.34412513 | |
| $e$ | 0.2026897 | $i$ | 6.51686 | | +0.36537979 | +0.27270715 | |
| $P$ | 3.63 | $H$ | 17.6 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 02 01 | 645 | 0.0 | 0.0 | 2009 10 30 | G96 | 0.4+ | 0.0 | 2009 12 10 | 704 | 0.5+ | 1.6+ |
| 2003 02 01 | 645 | 0.0 | 0.0 | 2009 10 30 | G96 | 0.0 | 0.3− | 2009 12 10 | 704 | 0.1+ | 0.3+ |
| 2005 08 27 | 644 | 0.0 | 0.0 | 2009 10 30 | G96 | 0.2+ | 0.1+ | 2009 12 10 | 704 | 0.5− | 0.9+ |
| 2005 08 27 | 644 | 0.3− | 0.4+ | 2009 11 08 | 691 | 0.2− | 0.1− | 2009 12 10 | 704 | 0.1− | 0.4+ |
| 2005 08 27 | 644 | 0.3+ | 0.0 | 2009 11 08 | 691 | 0.3− | 0.2− | 2009 12 10 | 704 | 0.3− | 0.7+ |
| 2009 10 16 | G96 | 0.3+ | 0.2− | 2009 11 08 | 691 | 0.1+ | 0.2− | 2009 12 18 | G96 | 0.4+ | 0.0 |
| 2009 10 16 | G96 | 0.5+ | 0.1+ | 2009 11 21 | 691 | 0.3− | 0.0 | 2009 12 18 | G96 | 0.1+ | 0.1+ |
| 2009 10 16 | G96 | 0.1+ | 0.0 | 2009 11 21 | 691 | 0.2− | 0.1− | 2009 12 18 | G96 | 0.6+ | 0.0 |
| 2009 10 16 | G96 | 0.7+ | 0.2− | 2009 11 21 | 691 | 0.2+ | 0.3− | 2009 12 18 | G96 | 0.1+ | 0.0 |

**2009 UP$_{141}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 78.04639 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22303039 | $\omega$ | 324.62072 | | +0.82534346 | +0.56462916 | |
| $a$ | 2.6929401 | $\Omega$ | 1.00610 | | −0.49724798 | +0.72805653 | |
| $e$ | 0.1219510 | $i$ | 4.71837 | | −0.26749320 | +0.38875133 | |
| $P$ | 4.42 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 03 02 | 691 | 0.1− | 0.1− | 2007 03 10 | G96 | 0.1+ | 0.1− | 2009 10 23 | G96 | 0.1+ | 0.1+ |
| 1998 03 02 | 691 | 0.1+ | 0.2− | 2007 03 10 | G96 | 0.2− | 0.2− | 2009 11 10 | G96 | 0.2− | 0.3+ |
| 1998 03 02 | 691 | 0.3− | 0.2− | 2007 03 10 | G96 | 0.4+ | 0.5− | 2009 11 10 | G96 | 0.2− | 0.3+ |
| 2003 04 05 | 691 | 0.0 | 0.7+ | 2007 03 25 | G96 | 0.2+ | 0.3− | 2009 11 10 | G96 | 0.3− | 0.2+ |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 04 05 | 691 | 0.3+ | 0.1+ | 2007 03 25 | G96 | 0.3+ | 0.1+ | 2009 11 10 | G96 | 0.2− | 0.3+ |
| 2003 04 05 | 691 | 0.3+ | 0.4+ | 2007 03 25 | G96 | 0.2− | 0.1− | 2009 11 19 | G96 | 0.2+ | 0.4+ |
| 2007 02 21 | 691 | 0.0 | 0.2+ | 2007 03 25 | G96 | 0.1+ | 0.3− | 2009 11 19 | G96 | 0.0 | 0.3+ |
| 2007 02 21 | 691 | 0.1− | 0.1+ | 2009 10 23 | G96 | 0.1− | 0.2+ | 2009 11 19 | G96 | 0.3− | 0.4+ |
| 2007 02 21 | 691 | 0.1− | 0.2+ | 2009 10 23 | G96 | 0.6− | 0.6+ | 2009 11 19 | G96 | 0.0 | 0.3+ |
| 2007 03 10 | G96 | 0.1+ | 0.4− | 2009 10 23 | G96 | 0.3+ | 0.4+ | | | | |

**2009 UQ$_{141}$ = 2005 VD$_{76}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 78.73002 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24652337 | $\omega$ | 38.14400 | | +0.82416469 | +0.56528805 | |
| $a$ | 2.5190144 | $\Omega$ | 287.39928 | | −0.52813431 | +0.74500488 | |
| $e$ | 0.1256086 | $i$ | 2.08213 | | −0.20451583 | +0.35414283 | |
| $P$ | 4.00 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 27 | 691 | 0.1− | 0.1+ | 2007 02 13 | G96 | 0.1+ | 0.3− | 2009 10 23 | G96 | 0.2− | 0.4− |
| 2005 10 27 | 691 | 0.1+ | 0.1+ | 2007 02 13 | G96 | 0.2− | 0.1− | 2009 10 23 | G96 | 0.1+ | 0.4− |
| 2005 10 27 | 691 | 0.2− | 0.0 | 2007 02 13 | G96 | 0.2+ | 0.0 | 2009 11 08 | G96 | 0.2+ | 0.1− |
| 2005 11 03 | G96 | 0.1− | 0.3− | 2007 02 13 | G96 | 0.3− | 0.0 | 2009 11 08 | G96 | 0.4+ | 0.2+ |
| 2005 11 03 | G96 | 0.1+ | 0.1+ | 2007 03 14 | G96 | 0.2+ | 0.0 | 2009 11 08 | G96 | 0.0 | 0.2+ |
| 2005 11 03 | G96 | 0.1+ | 0.2− | 2007 03 14 | G96 | 0.4− | 0.3+ | 2009 11 08 | G96 | 0.2+ | 0.1− |
| 2005 11 03 | G96 | 0.2− | 0.2− | 2007 03 14 | G96 | 0.2+ | 0.2− | 2009 11 19 | G96 | 0.6− | 0.1− |
| 2005 11 07 | 704 | 0.8+ | 0.1+ | 2007 03 14 | G96 | 0.3+ | 0.3+ | 2009 11 19 | G96 | 0.1+ | 0.1+ |
| 2005 11 07 | 704 | 0.8− | 0.8+ | 2009 10 23 | G96 | 0.0 | 0.1− | 2009 11 19 | G96 | 0.0 | 0.6− |
| 2005 11 07 | 704 | 0.1+ | 0.7+ | 2009 10 23 | G96 | 0.3+ | 0.2− | 2009 11 19 | G96 | 0.1+ | 0.3− |

**2009 UT$_{141}$ = 1995 VM$_{9}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 201.02511 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28454875 | $\omega$ | 358.18966 | | −0.77294831 | +0.63124151 | |
| $a$ | 2.2892766 | $\Omega$ | 221.18209 | | −0.58088735 | −0.74458916 | |
| $e$ | 0.0755321 | $i$ | 5.57033 | | −0.25518776 | −0.21707404 | |
| $P$ | 3.46 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 11 15 | 691 | 0.5+ | 0.4− | 2004 02 14 | 644 | 0.1+ | 0.7+ | 2009 11 08 | G96 | 0.1− | 0.5+ |
| 1995 11 15 | 691 | 0.3+ | 0.4− | 2005 07 31 | 644 | 0.1− | 0.1− | 2009 11 08 | G96 | 0.5+ | 0.2+ |
| 1995 11 15 | 691 | 0.3+ | 0.3− | 2005 07 31 | 644 | 0.0 | 0.1− | 2009 11 08 | G96 | 0.1+ | 0.4+ |
| 1995 11 19 | 691 | 0.1+ | 0.9− | 2005 07 31 | 644 | 0.2− | 0.1− | 2009 11 08 | G96 | 0.3+ | 0.4+ |
| 1995 11 19 | 691 | 0.2− | 1.9− | 2005 08 26 | 644 | 0.3+ | 0.2+ | 2009 11 08 | G96 | 0.3+ | 0.3+ |
| 1995 11 19 | 691 | 0.0 | 0.0 | 2005 08 26 | 644 | 0.0 | 0.0 | 2009 11 08 | G96 | 0.0 | 0.1+ |
| 1997 03 16 | 691 | 0.3− | 0.6− | 2005 08 26 | 644 | 0.2+ | 0.1+ | 2009 11 08 | G96 | 0.3+ | 0.6+ |
| 1997 03 16 | 691 | 0.1+ | 0.1− | 2009 10 24 | 691 | 0.4− | 0.5+ | 2009 11 08 | G96 | 0.0 | 0.3+ |
| 1997 03 16 | 691 | 0.2− | 0.4− | 2009 10 24 | 691 | 0.4− | 0.4+ | 2009 11 18 | G96 | 0.3− | 0.6+ |
| 2002 10 28 | 644 | 0.4+ | 0.6+ | 2009 10 24 | 691 | 0.5− | 0.6+ | 2009 11 18 | G96 | 0.2+ | 0.4+ |
| 2002 10 28 | 644 | 0.0 | 0.5+ | 2009 11 08 | G96 | 0.1− | 0.4+ | 2009 11 18 | G96 | 0.3+ | 0.2+ |
| 2002 10 28 | 644 | 0.5+ | 0.6+ | 2009 11 08 | G96 | 0.2+ | 0.5+ | 2009 11 18 | G96 | 0.2+ | 0.0 |
| 2004 02 14 | 644 | 0.2+ | 1.0+ | 2009 11 08 | G96 | 0.1− | 0.0 | | | | |
| 2004 02 14 | 644 | 0.3+ | 0.7+ | 2009 11 08 | G96 | 0.3+ | 0.6+ | | | | |

**2009 UW$_{141}$ = 2005 YH$_{72}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 32.41181 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23854194 | $\omega$ | 333.43031 | | +0.87804627 | −0.47558863 | |
| $a$ | 2.5748952 | $\Omega$ | 55.06879 | | +0.44985671 | +0.78214119 | |
| $e$ | 0.2485437 | $i$ | 3.73369 | | +0.16329021 | +0.40257994 | |
| $P$ | 4.13 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 24 | 691 | 0.1− | 0.0 | 2009 09 19 | G96 | 0.3+ | 0.1− | 2009 10 30 | G96 | 1.0+ | 0.5+ |
| 2005 12 24 | 691 | 0.3− | 0.1+ | 2009 09 19 | G96 | 0.1− | 0.0 | 2009 10 30 | G96 | 0.2+ | 0.3+ |
| 2005 12 24 | 691 | 0.2− | 0.1+ | 2009 10 16 | G96 | 0.0 | 0.3− | 2009 11 08 | 691 | 0.2− | 0.1− |
| 2005 12 28 | 691 | 0.4+ | 0.5− | 2009 10 16 | G96 | 0.3+ | 0.2− | 2009 11 08 | 691 | 0.2− | 0.3− |
| 2005 12 28 | 691 | 0.2+ | 0.6+ | 2009 10 16 | G96 | 0.1− | 0.0 | 2009 11 08 | 691 | 0.2− | 0.0 |
| 2005 12 28 | 691 | 0.1+ | 0.2− | 2009 10 16 | G96 | 0.3+ | 0.1− | 2009 11 25 | 691 | 0.1+ | 0.0 |
| 2009 09 19 | G96 | 0.3− | 0.0 | 2009 10 30 | G96 | 0.0 | 0.9+ | 2009 11 25 | 691 | 0.0 | 0.1− |
| 2009 09 19 | G96 | 0.2− | 0.0 | 2009 10 30 | G96 | 0.3+ | 0.5+ | 2009 11 25 | 691 | 0.0 | 0.1+ |

**2009 UN$_{142}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 7.15476 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19296204 | $\omega$ | 217.17165 | | +0.56773043 | −0.82319849 | |
| $a$ | 2.9658884 | $\Omega$ | 198.23801 | | +0.75917496 | +0.52596853 | |
| $e$ | 0.1698332 | $i$ | 0.94057 | | +0.31833243 | +0.21377872 | |
| $P$ | 5.11 | $H$ | 17.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 03 26 | 695 | 0.1+ | 0.3+ | 2009 10 18 | G96 | 0.4+ | 0.3− | 2009 11 11 | 691 | 0.4− | 0.1+ |
| 2001 03 26 | 695 | 0.1+ | 0.4+ | 2009 10 18 | G96 | 0.1+ | 0.0 | 2009 11 11 | G96 | 0.4+ | 0.4− |
| 2004 11 20 | 691 | 0.1+ | 0.1− | 2009 10 18 | G96 | 0.4+ | 0.1− | 2009 11 11 | G96 | 0.7+ | 0.2− |
| 2004 11 20 | 691 | 0.3− | 0.1+ | 2009 10 18 | G96 | 0.2− | 0.3− | 2009 11 11 | G96 | 0.3+ | 0.0 |
| 2004 11 20 | 691 | 0.2+ | 0.3− | 2009 10 27 | 691 | 0.0 | 0.0 | 2009 11 11 | G96 | 0.3− | 0.0 |
| 2009 09 18 | G96 | 0.3+ | 0.9+ | 2009 10 27 | 691 | 0.0 | 0.0 | 2009 12 10 | G96 | 0.1− | 0.2+ |
| 2009 09 18 | G96 | 0.3+ | 0.2+ | 2009 10 27 | 691 | 0.5− | 0.1+ | 2009 12 10 | G96 | 0.3+ | 0.4− |
| 2009 09 18 | G96 | 0.4− | 0.5− | 2009 11 11 | 691 | 0.0 | 0.4+ | 2009 12 10 | G96 | 0.5+ | 0.2+ |
| 2009 09 18 | G96 | 0.0 | 0.0 | 2009 11 11 | 691 | 0.1− | 0.0 | 2009 12 10 | G96 | 0.6+ | 0.2− |

**2009 UU$_{142}$ = 2003 UE$_{402}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 24.47486 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18011398 | $\omega$ | 173.44719 | | +0.82777922 | −0.55915732 | |
| $a$ | 3.1053063 | $\Omega$ | 220.66250 | | +0.51149253 | +0.78586610 | |
| $e$ | 0.1006565 | $i$ | 4.05646 | | +0.23055792 | +0.26411658 | |
| $P$ | 5.47 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 11 14 | 691 | 0.4+ | 0.2− | 2009 09 18 | G96 | 0.3− | 0.3+ | 2009 10 27 | 691 | 0.1− | 0.1+ |
| 1998 11 14 | 691 | 0.2− | 0.2+ | 2009 09 18 | G96 | 0.2+ | 0.4− | 2009 11 11 | G96 | 0.1+ | 0.2− |
| 1998 11 14 | 691 | 0.3− | 0.0 | 2009 09 18 | G96 | 0.0 | 0.5+ | 2009 11 11 | G96 | 0.2+ | 0.0 |
| 2003 09 29 | 691 | 0.1− | 0.1+ | 2009 09 18 | G96 | 0.5+ | 0.6+ | 2009 11 11 | G96 | 0.2+ | 0.1− |
| 2003 09 29 | 691 | 0.2+ | 0.3+ | 2009 10 18 | G96 | 0.2+ | 0.3+ | 2009 11 11 | G96 | 0.2+ | 0.3+ |
| 2003 09 29 | 691 | 0.1+ | 0.2+ | 2009 10 18 | G96 | 0.4+ | 0.2+ | 2009 11 23 | G96 | 0.5+ | 0.0 |
| 2003 10 23 | 645 | 0.0 | 0.1− | 2009 10 18 | G96 | 0.2+ | 0.2+ | 2009 11 23 | G96 | 0.2− | 0.4− |
| 2003 10 23 | 645 | 0.0 | 0.1− | 2009 10 18 | G96 | 0.0 | 0.8− | 2009 11 23 | G96 | 0.3− | 0.4− |
| 2003 10 24 | 645 | 0.0 | 0.0 | 2009 10 27 | 691 | 0.3− | 0.0 | 2009 11 23 | G96 | 0.2+ | 0.0 |
| 2003 10 24 | 645 | 0.0 | 0.0 | 2009 10 27 | 691 | 0.1− | 0.1− | | | | |

**2009 UF$_{143}$ = 2004 RD$_{12}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 80.54773 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21401612 | $\omega$ | 204.21348 | | +0.91402117 | +0.40545097 | |
| $a$ | 2.7680360 | $\Omega$ | 131.86042 | | −0.36923553 | +0.84499459 | |
| $e$ | 0.0797593 | $i$ | 1.01721 | | −0.16801914 | +0.34870282 | |
| $P$ | 4.61 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 03 12 | 645 | 0.0 | 0.1+ | 2004 10 08 | 691 | 0.1+ | 0.4+ | 2009 10 27 | 691 | 0.3− | 0.1+ |
| 2002 03 12 | 645 | 0.0 | 0.0 | 2009 10 18 | G96 | 0.8+ | 0.2− | 2009 11 23 | G96 | 0.6+ | 0.1− |
| 2004 09 08 | 615 | 0.6− | 0.2− | 2009 10 18 | G96 | 0.2+ | 0.4− | 2009 11 23 | G96 | 0.6+ | 0.2− |
| 2004 09 08 | 615 | 0.2− | 0.1− | 2009 10 18 | G96 | 0.7+ | 0.7− | 2009 11 23 | G96 | 0.5+ | 0.0 |
| 2004 09 08 | 615 | 0.1+ | 0.3− | 2009 10 18 | G96 | 1.2+ | 0.3− | 2009 11 23 | G96 | 0.1+ | 0.2− |
| 2004 09 09 | 615 | 0.3− | 0.1− | 2009 10 27 | 691 | 0.7− | 0.2− | 2009 12 11 | G96 | 0.0 | 0.1+ |
| 2004 09 09 | 615 | 1.2− | 0.4+ | 2009 10 27 | 691 | 0.6− | 0.2− | 2009 12 11 | G96 | 0.4+ | 0.4+ |
| 2004 09 09 | 615 | 1.0− | 0.1− | 2009 10 27 | 691 | 0.1+ | 0.0 | 2009 12 11 | G96 | 0.3− | 0.4+ |
| 2004 10 08 | 691 | 0.2+ | 0.2+ | 2009 10 27 | 691 | 0.2+ | 0.1− | 2009 12 11 | G96 | 0.6+ | 0.1+ |
| 2004 10 08 | 691 | 0.1+ | 0.3+ | 2009 10 27 | 691 | 0.1− | 0.3+ | | | | |

**2009 UY$_{143}$ = 2004 TB$_{181}$ = 2005 YE$_{188}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 44.60678 | | (2000.0) | | | |
| $n$ | 0.21440606 | $\omega$ | 271.13750 | | +0.96946678 | −0.24319464 |
| $a$ | 2.7646788 | $\Omega$ | 102.93826 | | +0.23587162 | +0.88968177 |
| $e$ | 0.0844453 | $i$ | 1.85056 | | +0.06707273 | +0.38642298 |
| $P$ | 4.60 | $H$ | 17.2 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 07 | 691 | 0.0 | 0.4+ | 2006 01 04 | 691 | 0.9− | 0.1+ | 2009 10 27 | 691 | 0.2− | 0.1− |
| 2004 10 07 | 691 | 0.1− | 0.3+ | 2006 01 04 | 691 | 0.1+ | 0.3− | 2009 11 08 | 691 | 0.1− | 0.1− |
| 2004 10 07 | 691 | 0.2− | 0.3+ | 2006 01 04 | 691 | 0.2− | 0.4+ | 2009 11 08 | 691 | 0.2+ | 0.1+ |
| 2004 10 11 | 691 | 0.3− | 0.1+ | 2007 04 19 | G96 | 0.1− | 0.1+ | 2009 11 08 | 691 | 0.4− | 0.1+ |
| 2004 10 11 | 691 | 0.1+ | 0.2+ | 2007 04 19 | G96 | 0.2− | 0.3+ | 2009 11 23 | G96 | 0.4+ | 0.1− |
| 2004 10 11 | 691 | 0.1− | 0.2+ | 2007 04 19 | G96 | 0.5+ | 0.6+ | 2009 11 23 | G96 | 0.3+ | 0.0 |
| 2005 12 28 | 691 | 0.0 | 0.1− | 2007 04 19 | G96 | 0.4+ | 0.7+ | 2009 11 23 | G96 | 0.3+ | 0.1+ |
| 2005 12 28 | 691 | 0.1+ | 0.3+ | 2009 10 22 | G96 | 0.2− | 0.3+ | 2009 11 23 | G96 | 0.3+ | 0.2+ |
| 2005 12 28 | 691 | 1.0+ | 0.9+ | 2009 10 22 | G96 | 0.4+ | 0.4− | 2009 12 11 | G96 | 0.3+ | 0.6+ |
| 2006 01 04 | G96 | 0.2+ | 0.2− | 2009 10 22 | G96 | 0.5+ | 0.5− | 2009 12 11 | G96 | 0.5+ | 0.2− |
| 2006 01 04 | G96 | 0.6+ | 0.3− | 2009 10 22 | G96 | 0.3+ | 0.3− | 2009 12 11 | G96 | 0.1+ | 0.0 |
| 2006 01 04 | G96 | 0.4− | 0.6− | 2009 10 27 | 691 | 0.4− | 0.8− | 2009 12 11 | G96 | 0.3+ | 0.0 |
| 2006 01 04 | G96 | 0.4+ | 0.1− | 2009 10 27 | 691 | 0.3+ | 0.2− | | | | |

**2009 US$_{144}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 81.24785 | | (2000.0) | | | |
| $n$ | 0.28220171 | $\omega$ | 44.92423 | | +0.72048350 | +0.68886884 |
| $a$ | 2.3019521 | $\Omega$ | 271.35648 | | −0.65655798 | +0.64057397 |
| $e$ | 0.1808637 | $i$ | 4.57663 | | −0.22323787 | +0.33930031 |
| $P$ | 3.49 | $H$ | 17.2 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 10 16 | 644 | 0.2− | 1.5+ | 2006 11 27 | G96 | 0.4+ | 0.3− | 2009 10 22 | 703 | 0.3+ | 0.3+ |
| 2002 10 16 | 644 | 0.2− | 0.4+ | 2006 12 26 | 691 | 0.1− | 0.1− | 2009 10 22 | 703 | 0.0 | 1.1+ |
| 2002 10 16 | 644 | 0.4− | 1.3+ | 2006 12 26 | 691 | 0.5− | 0.0 | 2009 10 22 | 703 | 1.5+ | 0.2+ |
| 2002 10 16 | 644 | 0.2− | 0.7+ | 2006 12 26 | 691 | 0.1− | 0.0 | 2009 11 08 | 703 | 0.7− | 0.1− |
| 2002 10 16 | 644 | 0.5− | 1.1+ | 2008 03 11 | 691 | 0.1+ | 0.2+ | 2009 11 08 | 703 | 0.0 | 0.1− |
| 2002 10 16 | 644 | 0.3− | 0.4+ | 2008 03 11 | 691 | 0.0 | 0.3+ | 2009 11 08 | 703 | 0.3+ | 0.2+ |
| 2004 02 18 | 691 | 0.2+ | 0.2+ | 2008 03 11 | 691 | 0.1− | 0.2+ | 2009 11 08 | 703 | 0.4+ | 0.7− |
| 2004 02 18 | 691 | 0.3+ | 0.2− | 2009 10 15 | 704 | 0.1+ | 0.1− | 2009 11 20 | G96 | 0.2− | 0.3− |
| 2004 02 18 | 691 | 0.4+ | 0.1+ | 2009 10 15 | 704 | 1.0− | 0.1− | 2009 11 20 | G96 | 0.3− | 0.1− |
| 2006 11 27 | G96 | 0.2− | 0.5− | 2009 10 15 | 704 | 0.2− | 1.2− | 2009 11 20 | G96 | 0.1+ | 0.3− |
| 2006 11 27 | G96 | 0.3− | 0.2− | 2009 10 15 | 704 | 0.0 | 1.0− | 2009 11 20 | G96 | 0.0 | 0.3− |
| 2006 11 27 | G96 | 0.4− | 0.5− | 2009 10 22 | 703 | 1.4+ | 1.0+ | | | | |

**2009 UT$_{144}$ = 1996 TS$_{42}$ = 2008 HM$_{40}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 74.32917 | | (2000.0) | | | |
| $n$ | 0.30896187 | $\omega$ | 316.83152 | | +0.92375416 | +0.37909617 |
| $a$ | 2.1670360 | $\Omega$ | 21.07784 | | −0.29708995 | +0.79901171 |
| $e$ | 0.1990618 | $i$ | 8.70758 | | −0.24169365 | +0.46676159 |
| $P$ | 3.19 | $H$ | 17.6 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 10 08 | 809 | 1.6− | 0.2+ | 2008 04 26 | G96 | 0.3− | 1.2+ | 2009 10 24 | 703 | 0.1+ | 0.7+ |
| 1996 10 08 | 809 | 1.6− | 0.3− | 2008 04 26 | G96 | 0.6+ | 0.7+ | 2009 10 24 | 703 | 0.6− | 0.0 |
| 1996 10 08 | 809 | 1.1− | 0.9+ | 2008 04 26 | G96 | 0.6+ | 0.6+ | 2009 10 24 | 703 | 0.9− | 0.1+ |
| 1996 10 10 | 809 | (2.4+ | 0.6+) | 2008 05 02 | G96 | 0.5+ | 0.6+ | 2009 11 08 | 703 | 0.7+ | 0.0 |
| 1996 10 10 | 809 | 1.5+ | 0.8+ | 2008 05 02 | G96 | 0.7+ | 0.7+ | 2009 11 08 | 703 | 1.0− | 0.4− |
| 1996 10 10 | 809 | 1.0+ | 1.3+ | 2008 05 02 | G96 | 0.3+ | 0.8+ | 2009 11 08 | 703 | 0.8− | 1.4+ |
| 2008 04 03 | G96 | 0.2− | 0.4− | 2008 05 02 | G96 | 0.4+ | 0.3+ | 2009 11 08 | 703 | 0.7− | 1.0− |
| 2008 04 03 | G96 | 0.6+ | 0.6+ | 2009 08 01 | 691 | 0.3− | 0.5+ | 2009 11 24 | D29 | 0.1+ | 0.1+ |
| 2008 04 03 | G96 | 0.3+ | 1.1+ | 2009 08 01 | 691 | 0.4+ | 0.5+ | 2009 11 24 | D29 | 0.9+ | 0.3+ |
| 2008 04 03 | G96 | 0.6+ | 0.8+ | 2009 08 01 | 691 | 0.5− | 0.1− | 2009 11 24 | D29 | 1.0+ | 0.5+ |
| 2008 04 26 | G96 | 0.3+ | 0.6+ | 2009 10 24 | 703 | 0.4− | 0.7− | 2009 11 24 | D29 | 1.0+ | 0.8+ |

**2009 UF$_{146}$ = 2004 FU$_{83}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 294.34307 | | (2000.0) | | | |
| $n$ | 0.29471863 | $\omega$ | 79.61614 | | −0.78456165 | −0.61120967 |
| $a$ | 2.2363047 | $\Omega$ | 62.62655 | | +0.51294754 | −0.73432200 |
| $e$ | 0.0516662 | $i$ | 6.74729 | | +0.34835018 | −0.29528620 |
| $P$ | 3.34 | $H$ | 17.4 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 11 10 | 691 | 0.4+ | 0.6− | 2004 03 23 | 704 | 0.1− | 0.3− | 2009 11 23 | G96 | 0.6+ | 0.4+ |
| 1999 11 10 | 691 | 0.7+ | 0.4− | 2004 03 23 | 704 | 0.1+ | 0.7+ | 2009 11 23 | G96 | 0.0 | 0.3+ |
| 1999 11 10 | 691 | 0.4+ | 0.6− | 2004 03 23 | 704 | 0.3− | 0.5+ | 2009 11 23 | G96 | 0.3+ | 0.4+ |
| 1999 12 14 | 691 | 0.7− | 0.1− | 2009 10 23 | G96 | 0.1+ | 0.3+ | 2009 12 11 | G96 | 0.1+ | 0.4+ |
| 1999 12 14 | 691 | 0.4− | 0.0 | 2009 10 23 | G96 | 0.3+ | 0.0 | 2009 12 11 | G96 | 0.0 | 0.4+ |
| 1999 12 14 | 691 | 0.3+ | 0.6− | 2009 10 23 | G96 | 0.6− | 0.1+ | 2009 12 11 | G96 | 0.1+ | 0.6+ |
| 2004 03 18 | 691 | 0.0 | 0.3− | 2009 10 23 | G96 | 0.2+ | 0.0 | 2009 12 11 | G96 | 0.0 | 0.6+ |
| 2004 03 18 | 691 | 0.1+ | 0.2+ | 2009 11 08 | 691 | 0.5− | 0.2+ | 2009 12 17 | G96 | 0.0 | 0.5+ |
| 2004 03 18 | 691 | 0.0 | 0.0 | 2009 11 08 | 691 | 0.6− | 0.1+ | 2009 12 17 | G96 | 0.1− | 0.5+ |
| 2004 03 23 | 704 | 0.0 | 0.2+ | 2009 11 08 | 691 | 0.1− | 0.6+ | 2009 12 17 | G96 | 0.2+ | 0.5+ |
| 2004 03 23 | 704 | 0.1+ | 0.2− | 2009 11 23 | G96 | 0.0 | 0.3+ | 2009 12 17 | G96 | 0.2+ | 0.6+ |

**2009 VG$_{1}$ = 2003 SK$_{109}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 350.28315 | | (2000.0) | | | |
| $n$ | 0.17210183 | $\omega$ | 199.45059 | | +0.26481704 | −0.94075146 |
| $a$ | 3.2009513 | $\Omega$ | 235.73869 | | +0.91520001 | +0.31438816 |
| $e$ | 0.0485556 | $i$ | 14.84863 | | +0.30377767 | −0.12707000 |
| $P$ | 5.73 | $H$ | 15.7 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 20 | 291 | 0.4+ | 0.0 | 2008 09 27 | G96 | 0.1− | 0.3+ | 2009 11 14 | H10 | 0.7− | 0.2− |
| 2003 09 20 | 291 | 0.1+ | 0.1+ | 2008 09 27 | G96 | 0.1+ | 0.2+ | 2009 11 14 | H10 | 0.0 | 0.6+ |
| 2003 09 20 | 291 | 0.3+ | 0.0 | 2009 10 24 | 691 | 0.3− | 0.2− | 2009 11 14 | H10 | 0.2− | 0.4− |
| 2003 09 21 | 291 | 0.0 | 0.3+ | 2009 10 24 | 691 | 0.3− | 0.2− | 2009 11 20 | H10 | 0.8+ | 0.3+ |
| 2003 09 21 | 291 | 0.4+ | 0.3+ | 2009 10 24 | 691 | 0.3− | 0.2+ | 2009 11 20 | H10 | 0.6+ | 0.0 |
| 2003 09 21 | 291 | 0.6− | 0.1+ | 2009 11 09 | 691 | 0.1+ | 0.3+ | 2009 11 20 | H10 | 1.0+ | 0.4− |
| 2003 10 21 | 691 | 0.2− | 0.0 | 2009 11 09 | 691 | 0.0 | 0.1− | 2009 11 24 | G96 | 0.0 | 0.1− |
| 2003 10 21 | 691 | 0.1− | 0.2+ | 2009 11 09 | H10 | 1.2+ | 0.8+ | 2009 11 24 | G96 | 0.3+ | 0.2− |
| 2003 10 21 | 691 | 0.2− | 0.2+ | 2009 11 09 | H10 | 0.7+ | 0.9+ | 2009 11 24 | G96 | 0.3+ | 0.2− |
| 2006 04 21 | 291 | 0.2+ | 0.6+ | 2009 11 09 | H10 | (1.7+ | 0.6+) | 2009 11 24 | G96 | 0.3+ | 0.4− |
| 2006 04 21 | 291 | 0.1+ | 0.4+ | 2009 11 09 | 691 | 0.3− | 0.2− | 2009 12 11 | G96 | 0.0 | 0.1− |
| 2006 04 21 | 291 | 0.0 | 0.3+ | 2009 11 10 | H10 | 0.9+ | 0.9+ | 2009 12 11 | G96 | 0.1+ | 0.3+ |
| 2008 09 27 | G96 | 0.4− | 0.5+ | 2009 11 10 | H10 | 0.0 | 0.9− | 2009 12 11 | G96 | 0.1+ | 0.2− |
| 2008 09 27 | G96 | 0.3+ | 0.3+ | 2009 11 10 | H10 | 1.3− | 0.1− | 2009 12 11 | G96 | 0.1+ | 0.1+ |

**2009 VS$_{2}$ = 2004 XT$_{136}$ = 2008 LV$_{14}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 12.94480 | | (2000.0) | | | |
| $n$ | 0.18175134 | $\omega$ | 122.27060 | | +0.74087305 | −0.57007441 |
| $a$ | 3.0866281 | $\Omega$ | 274.95956 | | +0.43079368 | +0.80899963 |
| $e$ | 0.1115519 | $i$ | 20.88366 | | +0.51529013 | +0.14329954 |
| $P$ | 5.42 | $H$ | 15.3 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 15 | 704 | 0.0 | 0.5+ | 2009 09 15 | G96 | 0.2+ | 0.3− | 2009 11 10 | 704 | 0.8+ | 0.4− |
| 2004 12 15 | 704 | 0.2+ | 0.0 | 2009 09 15 | G96 | 0.5+ | 0.3− | 2009 11 10 | 704 | 0.1− | 1.2− |
| 2004 12 15 | 704 | 0.1+ | 0.9+ | 2009 09 15 | G96 | 0.3+ | 0.4− | 2009 11 10 | 704 | 0.5− | 0.9− |
| 2004 12 17 | 704 | 0.5+ | 0.3+ | 2009 09 15 | G96 | 0.4+ | 0.0 | 2009 11 21 | 703 | 1.4− | 0.8− |
| 2004 12 17 | 704 | 1.0+ | 0.8+ | 2009 11 09 | 703 | 0.9+ | 0.2− | 2009 11 21 | 703 | 0.7− | 0.7+ |
| 2004 12 17 | 704 | 0.5− | 1.4+ | 2009 11 09 | 704 | 0.2− | 0.0 | 2009 11 21 | 703 | 0.1+ | 0.0 |
| 2008 06 08 | 691 | 0.1− | 0.1+ | 2009 11 09 | 703 | 1.2+ | 0.5+ | 2009 11 21 | 703 | 0.1+ | 0.8− |
| 2008 06 08 | 691 | 0.0 | 0.2+ | 2009 11 09 | 703 | 0.2+ | 0.6+ | 2009 11 25 | G96 | 0.2+ | 0.3− |
| 2008 06 08 | 691 | 0.3− | 0.4+ | 2009 11 09 | 703 | 0.1+ | 0.6+ | 2009 11 25 | G96 | 0.2− | 0.2− |
| 2008 06 12 | 691 | 0.0 | 0.0 | 2009 11 09 | 704 | 0.2+ | 1.0+ | 2009 11 25 | G96 | 0.2+ | 0.0 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 06 12 | 691 | 0.0 | 0.0 | 2009 11 09 | 704 | 1.3− | 1.2+ | 2009 11 25 | G96 | 0.4− | 0.2− | | |
| 2008 06 12 | 691 | 0.1− | 0.0 | 2009 11 10 | 704 | 0.2− | 0.8− | | | | | | |

**2009 VZ$_3$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 119.55812 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22569789 | $\omega$ | 43.80700 | | +0.29269497 | | +0.93787515 |
| $a$ | 2.6716797 | $\Omega$ | 244.02393 | | −0.92444217 | | +0.22773874 |
| $e$ | 0.1484193 | $i$ | 11.96252 | | −0.24441015 | | +0.26177331 |
| $P$ | 4.37 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 12 04 | 691 | 0.1+ | 0.3+ | 2004 08 20 | 703 | 0.2+ | 1.1− | 2009 11 11 | J75 | 0.4− | 0.5+ | | |
| 1996 12 04 | 691 | 0.2− | 0.1+ | 2004 08 20 | 703 | 0.9− | 0.6− | 2009 11 11 | J75 | 0.7+ | 1.2+ | | |
| 1996 12 04 | 691 | 0.3− | 0.2− | 2009 11 08 | 691 | 0.1+ | 0.1+ | 2009 11 11 | J75 | 0.3+ | 0.2− | | |
| 1996 12 13 | 691 | 0.1+ | 0.0 | 2009 11 08 | 691 | 0.2− | 0.3+ | 2009 11 21 | 691 | 0.3− | 0.3+ | | |
| 1996 12 13 | 691 | 0.4− | 0.2− | 2009 11 08 | 691 | 0.6− | 0.3+ | 2009 11 21 | 691 | 0.1+ | 0.2+ | | |
| 1996 12 13 | 691 | 0.1+ | 0.2− | 2009 11 10 | G96 | 0.1− | 0.1− | 2009 11 21 | 691 | 0.2− | 0.6+ | | |
| 1999 06 10 | 691 | 0.1+ | 0.6+ | 2009 11 10 | G96 | 0.7+ | 0.6− | 2009 11 23 | 691 | 0.1− | 0.1− | | |
| 1999 06 10 | 691 | 0.0 | 1.0+ | 2009 11 10 | G96 | 0.6+ | 0.1− | 2009 11 23 | 691 | 0.2− | 0.2+ | | |
| 1999 06 10 | 691 | 0.1+ | 0.2+ | 2009 11 10 | G96 | 0.0 | 0.1− | 2009 11 23 | 691 | 0.2+ | 0.1− | | |
| 2000 11 30 | 645 | 0.1+ | 0.0 | 2009 11 11 | G96 | 0.6+ | 0.1− | 2009 12 16 | G96 | 0.7+ | 0.2+ | | |
| 2000 11 30 | 645 | 0.1+ | 0.0 | 2009 11 11 | G96 | 0.6+ | 0.4+ | 2009 12 16 | G96 | 0.1+ | 0.4+ | | |
| 2004 08 20 | 703 | 0.7− | 0.2− | 2009 11 11 | G96 | 0.6+ | 0.1− | 2009 12 16 | G96 | 0.1+ | 0.3+ | | |
| 2004 08 20 | 703 | 0.0 | 0.3− | 2009 11 11 | G96 | 0.1+ | 0.1+ | 2009 12 16 | G96 | 0.1+ | 0.7+ | | |

**2009 VG$_5$ = 2008 TC$_{145}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 340.39984 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.08390603 | $\omega$ | 51.00948 | | +0.17942253 | | −0.98254864 |
| $a$ | 5.1674220 | $\Omega$ | 28.76781 | | +0.86815296 | | +0.13468784 |
| $e$ | 0.0934980 | $i$ | 5.84950 | | +0.46272885 | | +0.12828619 |
| $P$ | 11.75 | $H$ | 14.4 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 11 23 | 691 | 0.2+ | 0.0 | 2008 10 10 | G96 | 0.0 | 0.0 | 2009 11 08 | 691 | 0.1− | 0.2+ | | |
| 1997 11 23 | 691 | 0.5− | 0.3+ | 2008 10 10 | G96 | 0.0 | 0.2− | 2009 11 08 | 691 | 0.2− | 0.1− | | |
| 1997 11 23 | 691 | 0.1+ | 0.1+ | 2008 10 10 | G96 | 0.4+ | 0.1+ | 2009 11 08 | 691 | 0.1+ | 0.6− | | |
| 2008 10 09 | G96 | 0.3+ | 0.5− | 2008 10 10 | G96 | 0.0 | 0.1+ | 2009 11 10 | G96 | 0.4+ | 0.1− | | |
| 2008 10 09 | G96 | 0.1+ | 0.0 | 2009 10 24 | 691 | 0.1− | 0.4+ | 2009 11 10 | G96 | 0.4+ | 0.4− | | |
| 2008 10 09 | G96 | 0.4+ | 0.4+ | 2009 10 24 | 691 | 0.0 | 0.1− | 2009 11 10 | G96 | 0.0 | 0.0 | | |
| 2008 10 09 | G96 | 0.8− | 0.5− | 2009 10 24 | 691 | 0.2+ | 0.1− | 2009 11 10 | G96 | 0.1+ | 0.1+ | | |

**2009 VK$_5$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 25.41780 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18221952 | $\omega$ | 74.11876 | | +0.94988087 | | +0.17248422 |
| $a$ | 3.0813387 | $\Omega$ | 275.39543 | | −0.27006474 | | +0.87283055 |
| $e$ | 0.2558684 | $i$ | 15.18173 | | +0.15745278 | | +0.45652603 |
| $P$ | 5.41 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 01 06 | 691 | 0.0 | 0.2− | 2009 09 15 | 703 | 0.1+ | 0.0 | 2009 11 08 | 703 | 0.1+ | 0.9+ | | |
| 2000 01 06 | 691 | 0.2+ | 0.1+ | 2009 09 15 | 703 | 0.1− | 0.5+ | 2009 11 08 | 703 | 1.0+ | 1.3− | | |
| 2000 01 06 | 691 | 0.1− | 0.2+ | 2009 09 15 | 703 | 0.7− | 0.3− | 2009 11 08 | 703 | 0.5+ | 0.0 | | |
| 2004 12 01 | 703 | 0.1− | 0.0 | 2009 09 26 | 703 | 0.5+ | 0.0 | 2009 11 09 | G96 | 0.6+ | 0.3− | | |
| 2004 12 01 | 703 | 0.1+ | 0.0 | 2009 09 26 | 703 | 1.0+ | 0.1+ | 2009 11 09 | G96 | 0.3− | 0.3− | | |
| 2004 12 01 | 703 | 0.5+ | 0.4− | 2009 09 26 | 703 | 0.2− | 0.6− | 2009 11 09 | G96 | 0.3+ | 0.4− | | |
| 2004 12 01 | 703 | 0.4− | 0.2+ | 2009 09 26 | 703 | 0.6− | 0.2+ | 2009 11 09 | G96 | 0.3+ | 0.2+ | | |
| 2009 08 15 | 703 | 0.3+ | 0.2− | 2009 10 15 | 703 | 0.5− | 0.5− | 2009 11 20 | 703 | 0.1− | 0.8− | | |
| 2009 08 15 | 703 | 0.5− | 0.0 | 2009 10 15 | 703 | 0.2− | 0.3+ | 2009 11 20 | 703 | 1.3− | 1.2+ | | |
| 2009 08 15 | 703 | 0.0 | 0.5+ | 2009 10 15 | 703 | 1.0+ | 1.2+ | 2009 11 20 | 703 | 0.3− | 0.1+ | | |
| 2009 08 15 | 703 | 0.4− | 0.8− | 2009 10 15 | 703 | 0.3− | 0.3+ | 2009 11 20 | 703 | 0.5− | 0.4− | | |
| 2009 09 15 | 703 | 0.2+ | 0.3+ | 2009 11 08 | 703 | (2.2+ | 0.7+) | | | | | | |

**2009 VR$_7$ = 2003 SP$_{353}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 325.88098 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18398217 | $\omega$ | 221.62228 | | −0.24334895 | | −0.95649598 |
| $a$ | 3.0616267 | $\Omega$ | 243.03746 | | +0.93077638 | | −0.18361808 |
| $e$ | 0.0848256 | $i$ | 10.40179 | | +0.27283075 | | −0.22671534 |
| $P$ | 5.36 | $H$ | 14.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1993 12 17 | 691 | 0.2− | 0.1− | 2009 11 08 | 703 | 0.7− | 0.1+ | 2009 11 21 | 704 | 1.0+ | 0.4− | | |
| 1993 12 17 | 691 | 0.2− | 0.0 | 2009 11 08 | 703 | 1.3+ | 0.3− | 2009 11 22 | 703 | 0.3+ | 0.4− | | |
| 2003 09 21 | 699 | 0.3+ | 1.3− | 2009 11 08 | 703 | 0.5+ | 0.8+ | 2009 11 22 | 703 | 0.2− | 0.0 | | |
| 2003 09 21 | 699 | 0.4+ | 1.4− | 2009 11 08 | 703 | 0.6− | 0.2+ | 2009 11 22 | 703 | 0.5− | 0.1+ | | |
| 2003 09 21 | 699 | 0.1+ | 0.2+ | 2009 11 08 | 703 | 1.0+ | 1.0+ | 2009 11 22 | 703 | 0.4− | 0.2− | | |
| 2003 09 21 | 644 | 0.2− | 0.6+ | 2009 11 08 | 703 | 1.0+ | 0.1+ | 2009 11 23 | 703 | 0.7− | 0.2− | | |
| 2003 09 21 | 699 | 0.2+ | 1.0− | 2009 11 09 | 691 | 0.2− | 0.0 | 2009 11 23 | 703 | 0.1− | 0.6− | | |
| 2003 09 21 | 644 | 0.3− | 0.3+ | 2009 11 09 | 691 | 0.3− | 0.1− | 2009 11 23 | 703 | 0.1+ | 0.4− | | |
| 2003 09 21 | 644 | 0.0 | 0.4+ | 2009 11 09 | 691 | 0.3− | 0.0 | 2009 11 23 | 703 | 0.4+ | 0.7+ | | |
| 2003 09 30 | 704 | 0.7+ | 1.2+ | 2009 11 11 | J75 | 0.1+ | 0.7− | 2009 11 23 | 703 | 0.6+ | 0.9− | | |
| 2003 09 30 | 704 | 0.1+ | 0.6+ | 2009 11 11 | J75 | 0.2+ | 0.7− | 2009 11 24 | G96 | 0.4+ | 0.3− | | |
| 2003 09 30 | 704 | 0.5+ | 1.4+ | 2009 11 11 | J75 | 0.3+ | 0.5− | 2009 11 24 | G96 | 0.0 | 0.3− | | |
| 2004 12 02 | 691 | 0.3+ | 0.2− | 2009 11 13 | J75 | 0.4+ | 0.4− | 2009 11 24 | G96 | 0.0 | 0.4− | | |
| 2004 12 02 | 691 | 0.2+ | 0.3− | 2009 11 13 | J75 | (1.9+ | 0.4−) | 2009 11 24 | G96 | 0.1+ | 0.3− | | |
| 2004 12 02 | 691 | 0.2+ | 0.2− | 2009 11 13 | J75 | 0.1− | 0.1− | 2009 11 24 | 291 | 0.3− | 0.2+ | | |
| 2006 03 04 | 703 | 0.2+ | 1.3+ | 2009 11 14 | J75 | 0.1− | 0.5− | 2009 11 24 | 291 | 0.3− | 0.2+ | | |
| 2006 03 04 | 703 | 0.1− | 0.8+ | 2009 11 14 | J75 | 0.1− | 0.4− | 2009 11 24 | 291 | 0.4− | 0.2+ | | |
| 2006 03 04 | 703 | 0.8− | 0.7+ | 2009 11 14 | J75 | 0.1− | 0.0 | 2009 11 25 | 691 | 0.3− | 0.0 | | |
| 2006 03 04 | 703 | 0.6+ | 0.7− | 2009 11 15 | 703 | 0.4− | 0.5− | 2009 11 25 | 691 | 0.6− | 0.1+ | | |
| 2009 10 19 | 188 | 0.1+ | 0.3− | 2009 11 15 | 703 | 0.3− | 0.1− | 2009 11 25 | 691 | 0.1+ | 0.3+ | | |
| 2009 10 19 | 188 | 0.3+ | 0.0 | 2009 11 15 | 703 | 0.7+ | 0.0 | 2009 11 27 | 691 | 0.5− | 0.0 | | |
| 2009 10 19 | 188 | 0.2− | 0.1− | 2009 11 15 | 703 | 0.9− | 0.3+ | 2009 11 27 | 691 | 0.5− | 0.0 | | |
| 2009 10 19 | 188 | 0.1− | 0.5− | 2009 11 17 | 704 | 0.9+ | 1.3+ | 2009 11 27 | 691 | 0.2− | 0.3+ | | |
| 2009 10 19 | 188 | 0.2+ | 0.4+ | 2009 11 17 | 704 | 0.7+ | 0.4+ | 2009 12 11 | 703 | 0.8− | 0.4+ | | |
| 2009 10 19 | 188 | 0.4+ | 0.0 | 2009 11 17 | 704 | 1.2+ | 1.2+ | 2009 12 11 | 703 | 1.2− | 1.4− | | |
| 2009 10 19 | 188 | 0.5+ | 0.1− | 2009 11 17 | 704 | 1.0+ | 0.6+ | 2009 12 11 | 703 | 0.3− | 0.7− | | |
| 2009 10 19 | 188 | 0.8+ | 0.0 | 2009 11 17 | 704 | 0.8+ | 0.1+ | 2009 12 11 | 703 | 0.2+ | 0.4− | | |
| 2009 10 19 | 188 | 0.9+ | 0.7+ | 2009 11 20 | J75 | (1.7+ | 0.1−) | 2009 12 16 | 704 | 1.0+ | 0.3+ | | |
| 2009 10 19 | 188 | 0.4− | 0.3− | 2009 11 20 | J75 | 1.1+ | 1.1− | 2009 12 16 | 704 | 0.9+ | 0.2+ | | |
| 2009 10 19 | 188 | 0.6+ | 0.2+ | 2009 11 20 | J75 | 0.3− | 0.2− | 2009 12 16 | 704 | 0.5+ | 1.2+ | | |
| 2009 11 08 | 703 | 0.2− | 0.4+ | 2009 11 21 | 704 | (0.0 | 1.5+) | | | | | | |
| 2009 11 08 | 703 | 1.3− | 0.6+ | 2009 11 21 | 704 | 1.2+ | 1.0+ | | | | | | |

**2009 VV$_7$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 329.57078 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.27047984 | $\omega$ | 259.99706 | | −0.28370763 | | −0.95848569 |
| $a$ | 2.3679877 | $\Omega$ | 206.53830 | | +0.90291916 | | −0.25699794 |
| $e$ | 0.1435545 | $i$ | 3.66380 | | +0.32287301 | | −0.12352020 |
| $P$ | 3.64 | $H$ | 17.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 10 17 | 691 | 0.1+ | 0.8− | 2007 03 13 | G96 | 0.2− | 0.2+ | 2009 11 08 | 703 | 0.8− | 0.1− | | |
| 1998 10 17 | 691 | 0.2+ | 0.3− | 2007 03 13 | G96 | 0.1− | 0.2+ | 2009 11 08 | 703 | 0.0 | 0.4+ | | |
| 1998 10 17 | 691 | 0.3+ | 1.1− | 2007 03 13 | G96 | 0.1− | 0.3+ | 2009 11 08 | 703 | 0.1+ | 0.5+ | | |
| 2005 08 31 | 691 | 0.0 | 0.1− | 2007 04 20 | G96 | 0.1− | 0.3+ | 2009 11 08 | 703 | 0.2− | 0.4− | | |
| 2005 08 31 | 691 | 0.1− | 0.2− | 2007 04 20 | G96 | 0.3+ | 0.2− | 2009 11 10 | G96 | 0.5+ | 0.1+ | | |
| 2005 08 31 | 691 | 0.3+ | 0.0 | 2007 04 20 | G96 | 0.6+ | 0.1− | 2009 11 10 | G96 | 0.6+ | 0.1+ | | |
| 2005 09 14 | 691 | 0.1− | 0.4+ | 2007 04 20 | G96 | 0.0 | 0.1− | 2009 11 10 | G96 | 0.2+ | 0.1+ | | |
| 2005 09 14 | 691 | 0.2− | 0.5+ | 2009 09 22 | G96 | 0.0 | 0.3+ | 2009 11 10 | G96 | 0.4+ | 0.0 | | |
| 2005 09 14 | 691 | 0.0 | 0.2+ | 2009 09 22 | G96 | 0.0 | 0.4+ | 2009 11 24 | G96 | 0.2+ | 0.2+ | | |
| 2005 10 27 | G96 | 0.2− | 0.1− | 2009 09 22 | G96 | 0.4+ | 0.4+ | 2009 11 24 | G96 | 0.6+ | 0.1− | | |
| 2005 10 27 | G96 | 0.1− | 0.2− | 2009 09 22 | G96 | 0.2− | 0.1+ | 2009 11 24 | G96 | 0.6+ | 0.2+ | | |
| 2005 10 27 | G96 | 0.1− | 0.4− | 2009 10 23 | 691 | 0.4− | 0.5+ | 2009 11 24 | G96 | 0.7+ | 0.2+ | | |
| 2005 10 27 | G96 | 0.4− | 0.1+ | 2009 10 23 | 691 | 0.3− | 0.5+ | | | | | | |
| 2007 03 13 | G96 | 0.2+ | 0.0 | 2009 10 23 | 691 | 0.5− | 0.3+ | | | | | | |

**2009 VD$_8$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 346.56193 | | (2000.0) | | | |
| $n$ | 0.17527658 | $\omega$ | 207.83061 | | +0.05656071 | −0.98856285 |
| $a$ | 3.1621815 | $\Omega$ | 239.23367 | | +0.94357273 | +0.09869154 |
| $e$ | 0.1895373 | $i$ | 9.36361 | | +0.32629953 | −0.11403274 |
| $P$ | 5.62 | $H$ | 15.7 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 20 | 691 | 0.1+ | 0.2− | 2009 11 09 | J75 | 0.6− | 0.1+ | 2009 11 22 | 703 | 0.1− | 0.4+ |
| 2003 09 20 | 691 | 0.1+ | 0.1+ | 2009 11 09 | J75 | 1.1+ | 0.7− | 2009 11 24 | G96 | 0.2+ | 0.2− |
| 2003 09 20 | 691 | 0.1+ | 0.1+ | 2009 11 09 | J75 | 0.1+ | 0.1− | 2009 11 24 | G96 | 0.7+ | 0.2− |
| 2003 10 16 | 691 | 0.1− | 0.1− | 2009 11 10 | J75 | 0.2+ | 0.1− | 2009 11 24 | G96 | 0.1+ | 0.2− |
| 2003 10 16 | 691 | 0.1− | 0.1+ | 2009 11 10 | J75 | 0.6+ | 0.1+ | 2009 11 24 | G96 | 0.6+ | 0.3− |
| 2003 10 16 | 691 | 0.1− | 0.1+ | 2009 11 10 | J75 | 0.9+ | 0.7− | 2009 11 25 | 691 | 0.2− | 0.1+ |
| 2005 02 04 | 703 | 1.1+ | 0.5+ | 2009 11 10 | J75 | 0.0 | 0.1+ | 2009 11 25 | 691 | 0.2− | 0.2+ |
| 2005 02 04 | 703 | 1.0− | 0.1− | 2009 11 10 | J75 | 0.3− | 0.5+ | 2009 11 25 | 691 | 0.3− | 0.0 |
| 2005 02 04 | 703 | 0.8− | 0.0 | 2009 11 10 | J75 | 0.3+ | 0.3− | 2009 11 27 | 691 | 0.4− | 0.5+ |
| 2005 02 04 | 703 | 0.4+ | 0.5− | 2009 11 11 | J75 | 0.2+ | 0.3− | 2009 11 27 | 691 | 0.6− | 0.2+ |
| 2005 02 14 | 703 | 1.9+ | 1.0− | 2009 11 11 | J75 | 0.5+ | 0.2− | 2009 11 27 | 691 | 0.0 | 0.0 |
| 2005 02 14 | 703 | 0.7− | 0.3+ | 2009 11 11 | J75 | 0.2+ | 0.4− | 2009 12 05 | J75 | 0.5+ | 0.6− |
| 2005 02 14 | 703 | 0.2+ | 0.4− | 2009 11 14 | J75 | 0.3+ | 0.3− | 2009 12 05 | J75 | 0.2− | 0.1+ |
| 2005 02 14 | 703 | 0.8− | 0.4− | 2009 11 14 | J75 | 0.4+ | 0.1+ | 2009 12 05 | J75 | 0.3+ | 0.3+ |
| 2005 02 14 | 703 | 0.3+ | 0.1+ | 2009 11 14 | J75 | 0.1+ | 0.5− | 2009 12 11 | G96 | 0.4+ | 0.2− |
| 2005 02 14 | 703 | 0.5+ | 1.0+ | 2009 11 15 | 703 | 0.7+ | 0.4− | 2009 12 11 | G96 | 0.3+ | 0.1− |
| 2005 02 14 | 703 | 0.6− | 0.3+ | 2009 11 15 | 703 | 0.4− | 1.1− | 2009 12 11 | G96 | 0.1+ | 0.1− |
| 2005 02 14 | 703 | 0.5− | 0.4+ | 2009 11 15 | 703 | 0.0 | 0.1+ | 2009 12 11 | G96 | 0.5+ | 0.2− |
| 2009 10 24 | 691 | 0.3− | 0.0 | 2009 11 15 | 703 | 0.8+ | 0.4+ | 2009 12 11 | 703 | 0.2− | 0.8− |
| 2009 10 24 | 691 | 0.1− | 0.2+ | 2009 11 17 | 704 | 0.3+ | 0.8+ | 2009 12 11 | 703 | 0.5− | 0.6+ |
| 2009 10 24 | 691 | 0.3− | 0.0 | 2009 11 17 | 704 | 0.4+ | 0.1− | 2009 12 11 | 703 | 0.3+ | 0.5+ |
| 2009 11 08 | 703 | 1.1− | 0.1− | 2009 11 17 | 704 | 0.3+ | 0.9+ | 2009 12 11 | 703 | 0.3− | 0.5+ |
| 2009 11 08 | 703 | 0.3+ | 0.2+ | 2009 11 20 | J75 | 1.4+ | 0.2+ | 2009 12 12 | 704 | (1.9+ | 0.8+) |
| 2009 11 08 | 703 | 0.4− | 0.7+ | 2009 11 20 | J75 | 0.4+ | 0.7− | 2009 12 12 | 704 | 0.0 | 0.6+ |
| 2009 11 08 | 703 | 0.5− | 0.1+ | 2009 11 20 | J75 | 0.3+ | 0.8− | 2009 12 12 | 704 | 0.3− | 1.1− |
| 2009 11 09 | 691 | 0.1+ | 0.0 | 2009 11 22 | 703 | 0.3+ | 0.5+ | 2009 12 12 | 704 | 0.3− | 0.2+ |
| 2009 11 09 | 691 | 0.3+ | 0.4− | 2009 11 22 | 703 | 0.3+ | 0.5+ | | | | |
| 2009 11 09 | 691 | 0.2− | 0.0 | 2009 11 22 | 703 | 0.3+ | 0.9− | | | | |

**2009 VH$_8$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 314.40861 | | (2000.0) | | | |
| $n$ | 0.17792139 | $\omega$ | 242.81467 | | −0.43825921 | −0.89176977 |
| $a$ | 3.1307660 | $\Omega$ | 233.62757 | | +0.86621951 | −0.38558163 |
| $e$ | 0.0201343 | $i$ | 8.03783 | | +0.23998465 | −0.23679843 |
| $P$ | 5.54 | $H$ | 15.5 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 03 04 | 645 | 0.1+ | 0.0 | 2003 11 02 | 691 | 0.0 | 0.1+ | 2009 11 08 | 691 | 0.0 | 0.1+ |
| 2000 03 04 | 645 | 0.1+ | 0.0 | 2008 10 01 | G96 | 0.5+ | 0.3+ | 2009 11 08 | 691 | 0.1+ | 0.2+ |
| 2001 05 26 | 291 | 0.2− | 0.6+ | 2008 10 01 | G96 | 0.4+ | 0.1− | 2009 11 08 | 691 | 0.4− | 0.3+ |
| 2001 05 26 | 291 | 0.3− | 0.1+ | 2008 10 01 | G96 | 0.3+ | 0.1− | 2009 11 10 | 691 | 0.1− | 0.0 |
| 2001 05 26 | 291 | 0.3− | 0.5+ | 2008 10 01 | G96 | 0.3+ | 0.1− | 2009 11 10 | 691 | 0.1+ | 0.1+ |
| 2002 08 05 | 644 | 0.6+ | 1.6+ | 2008 10 30 | G96 | 0.7+ | 0.1+ | 2009 11 10 | 691 | 0.0 | 0.1+ |
| 2002 08 05 | 644 | 0.4+ | 1.5+ | 2008 10 30 | G96 | 0.4+ | 0.3− | 2009 11 18 | 691 | 0.1− | 0.1+ |
| 2002 08 05 | 644 | 0.1+ | 1.6+ | 2008 10 30 | G96 | 0.1+ | 0.0 | 2009 11 18 | 691 | 0.0 | 0.2+ |
| 2003 10 18 | 691 | 0.0 | 0.0 | 2008 10 30 | G96 | 0.3+ | 0.2− | 2009 11 18 | 691 | 0.4− | 0.1+ |
| 2003 10 18 | 691 | 0.4− | 0.1− | 2009 09 21 | G96 | 0.2+ | 0.0 | 2009 12 19 | 691 | 0.0 | 0.0 |
| 2003 10 18 | 691 | 0.2− | 0.2− | 2009 09 21 | G96 | 0.1+ | 0.2− | 2009 12 19 | 691 | 0.2+ | 0.1+ |
| 2003 11 02 | 691 | 0.1− | 0.1+ | 2009 09 21 | G96 | 0.1+ | 0.2− | 2009 12 19 | 691 | 0.3+ | 0.2+ |
| 2003 11 02 | 691 | 0.2− | 0.2+ | 2009 09 21 | G96 | 0.2+ | 0.0 | | | | |

**2009 VU$_8$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 70.26576 | | (2000.0) | | | |
| $n$ | 0.18792936 | $\omega$ | 346.09585 | | +0.91106652 | +0.41217183 |
| $a$ | 3.0186050 | $\Omega$ | 349.55065 | | −0.37362237 | +0.81679604 |
| $e$ | 0.0796127 | $i$ | 2.68472 | | −0.17425302 | +0.40368132 |
| $P$ | 5.24 | $H$ | 16.3 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 09 12 | 691 | 0.4− | 0.3+ | 2006 03 05 | G96 | (0.6− | 2.9+) | 2009 11 08 | G96 | 0.2+ | 0.5− |
| 1998 09 12 | 691 | 0.4− | 0.5+ | 2006 05 01 | 695 | 0.1+ | 0.1+ | 2009 11 10 | G96 | 0.5+ | 0.1− |
| 1998 09 12 | 691 | 0.1+ | 0.6+ | 2006 05 01 | 695 | 0.2+ | 0.1+ | 2009 11 10 | G96 | 0.3+ | 0.2− |
| 2006 01 25 | 691 | 0.0 | 0.7+ | 2007 05 16 | G96 | 0.1+ | 0.3+ | 2009 11 10 | G96 | 0.4− | 1.1+ |
| 2006 01 25 | 691 | 0.1− | 0.1+ | 2007 05 16 | G96 | 0.0 | 0.2+ | 2009 11 10 | G96 | 0.6+ | 0.3− |
| 2006 01 25 | 691 | 0.0 | 0.4+ | 2007 05 16 | G96 | 0.3+ | 0.3+ | 2009 11 19 | G96 | 0.2+ | 0.5− |
| 2006 02 25 | G96 | 0.5+ | 0.4+ | 2007 05 16 | G96 | 0.0 | 0.2+ | 2009 11 19 | G96 | 0.1+ | 0.0 |
| 2006 02 25 | G96 | 0.3− | 0.4− | 2009 10 24 | 691 | 0.3− | 0.4+ | 2009 11 19 | G96 | 0.4+ | 0.3− |
| 2006 02 25 | G96 | 0.7+ | 0.3+ | 2009 10 24 | 691 | 0.3− | 0.1− | 2009 11 19 | G96 | 0.2+ | 0.1− |
| 2006 02 25 | G96 | 0.4+ | 0.3− | 2009 10 24 | 691 | 0.1− | 0.0 | 2009 11 19 | G96 | 0.3+ | 0.2− |
| 2006 03 05 | G96 | 0.5+ | 0.3− | 2009 11 08 | G96 | 0.1− | 0.1− | 2009 11 19 | G96 | 0.4+ | 0.4− |
| 2006 03 05 | G96 | 0.1+ | 0.5+ | 2009 11 08 | G96 | 0.4+ | 0.6− | 2009 11 19 | G96 | 0.1− | 0.4− |
| 2006 03 05 | G96 | 0.2+ | 0.6+ | 2009 11 08 | G96 | 0.3+ | 0.3− | 2009 11 19 | G96 | 0.7+ | 0.2− |

**2009 VO$_{12}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 16.57270 | | (2000.0) | | | |
| $n$ | 0.17364441 | $\omega$ | 161.95425 | | +0.78404283 | −0.60615954 |
| $a$ | 3.1819658 | $\Omega$ | 236.10301 | | +0.54781468 | +0.77695063 |
| $e$ | 0.1199914 | $i$ | 9.26198 | | +0.29184913 | +0.17005389 |
| $P$ | 5.68 | $H$ | 16.4 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 01 | 691 | 0.3− | 0.5+ | 2009 11 08 | G96 | 0.0 | 0.0 | 2009 11 25 | G96 | 0.0 | 0.3+ |
| 2003 10 01 | 691 | 0.1− | 0.3+ | 2009 11 08 | G96 | 0.4+ | 0.1− | 2009 11 25 | G96 | 0.0 | 0.0 |
| 2003 10 01 | 691 | 0.2− | 0.4+ | 2009 11 09 | G96 | 0.1+ | 0.3+ | 2009 11 25 | G96 | 0.2+ | 0.1+ |
| 2003 10 26 | 691 | 0.2− | 0.6− | 2009 11 09 | G96 | 0.1− | 0.3+ | 2009 11 25 | G96 | 0.2+ | 0.3+ |
| 2003 10 26 | 691 | 0.3+ | 0.3+ | 2009 11 09 | G96 | 0.3+ | 0.1+ | 2009 12 15 | G96 | 0.5− | 0.3− |
| 2003 10 26 | 691 | 0.7+ | 1.1− | 2009 11 09 | G96 | 0.5− | 0.2− | 2009 12 15 | G96 | 0.3+ | 0.1+ |
| 2008 07 01 | 691 | 0.0 | 0.1− | 2009 11 22 | G96 | 0.1+ | 0.2− | 2009 12 15 | G96 | 0.3− | 0.5+ |
| 2008 07 01 | 691 | 0.2+ | 0.3+ | 2009 11 22 | G96 | 0.0 | 0.1+ | 2009 12 15 | G96 | 0.0 | 0.3− |
| 2008 07 01 | 691 | 0.3− | 0.2− | 2009 11 22 | G96 | 0.0 | 0.1+ | | | | |
| 2009 11 08 | G96 | 0.3− | 0.2+ | 2009 11 22 | G96 | 0.0 | 0.1− | | | | |

**2009 VL$_{16}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 297.01754 | | (2000.0) | | | |
| $n$ | 0.22941892 | $\omega$ | 93.04962 | | −0.89169647 | −0.44563337 |
| $a$ | 2.6427124 | $\Omega$ | 60.49884 | | +0.37061647 | −0.81940407 |
| $e$ | 0.0872171 | $i$ | 5.22758 | | +0.25984772 | −0.36053831 |
| $P$ | 4.30 | $H$ | 16.8 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 05 11 | 691 | 0.3− | 0.1− | 2007 06 20 | 691 | 0.1− | 0.6− | 2009 11 21 | 691 | 0.2+ | 0.0 |
| 1994 05 11 | 691 | 0.0 | 0.2− | 2007 06 20 | 691 | 0.2− | 0.1+ | 2009 11 21 | 691 | 0.1− | 0.2− |
| 1994 05 11 | 691 | 0.4+ | 0.8+ | 2007 06 20 | 691 | 0.1− | 0.4− | 2009 11 21 | 691 | 0.3+ | 0.1− |
| 2002 03 11 | 644 | 0.2+ | 0.3− | 2009 11 08 | G96 | 0.1+ | 0.0 | 2009 11 25 | 691 | 0.1− | 0.2− |
| 2002 03 11 | 644 | 0.0 | 0.0 | 2009 11 08 | G96 | 0.4+ | 0.2+ | 2009 11 25 | 691 | 0.1− | 0.1− |
| 2002 03 11 | 644 | 0.2− | 0.1+ | 2009 11 08 | G96 | 0.2− | 0.0 | 2009 11 25 | 691 | 0.1− | 0.0 |
| 2007 05 25 | G96 | 0.1− | 0.1− | 2009 11 08 | G96 | 0.4+ | 0.7+ | 2009 12 10 | G96 | 0.0 | 0.2− |
| 2007 05 25 | G96 | 0.3− | 0.4− | 2009 11 09 | 691 | 0.2− | 0.2+ | 2009 12 10 | G96 | 0.3+ | 0.2− |
| 2007 05 25 | G96 | 0.0 | 0.1− | 2009 11 09 | 691 | 0.1− | 0.2− | 2009 12 10 | G96 | 0.5+ | 0.4− |
| 2007 05 25 | G96 | 0.1+ | 0.0 | 2009 11 09 | 691 | 0.0 | 0.2− | | | | |

**2009 VX$_{16}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 235.53608 | | (2000.0) | | −0.85536911 | +0.50176064 |
| $n$ | 0.15924924 | $\omega$ | 305.70871 | | −0.42364160 | −0.82062285 |
| $a$ | 3.3709409 | $\Omega$ | 264.73159 | | −0.29811319 | −0.27352220 |
| $e$ | 0.0732885 | $i$ | 7.42969 | | | |
| $P$ | 6.19 | $H$ | 14.7 | $G$ 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 01 28 | 691 | 0.0 | 0.2− | 2008 10 02 | 703 | 0.1− | 0.7− | 2009 11 09 | 691 | 0.5− | 0.6+ |
| 2004 01 28 | 691 | 0.1− | 0.0 | 2008 10 30 | G96 | 0.3+ | 0.0 | 2009 11 21 | 691 | 0.2+ | 0.2− |
| 2004 01 28 | 691 | 0.2+ | 0.0 | 2008 10 30 | G96 | 0.5+ | 0.1− | 2009 11 21 | 691 | 0.1+ | 0.1− |
| 2005 03 17 | 703 | (0.1− | 2.3−) | 2008 10 30 | G96 | 0.1+ | 0.1− | 2009 11 21 | 691 | 0.0 | 0.3− |
| 2005 03 17 | 703 | 0.6− | 0.2+ | 2008 10 30 | G96 | 0.8+ | 0.1+ | 2009 12 10 | G96 | 0.1+ | 0.2− |
| 2005 03 17 | 703 | 0.0 | 0.0 | 2009 08 28 | 691 | 0.1+ | 0.5+ | 2009 12 10 | G96 | 0.1+ | 0.3− |
| 2005 03 17 | 703 | 0.5+ | 1.0+ | 2009 08 28 | 691 | 0.0 | 0.1− | 2009 12 10 | G96 | 0.5+ | 0.1− |
| 2006 05 22 | E12 | 0.6+ | 0.4+ | 2009 08 28 | 691 | 0.3− | 0.4+ | 2009 12 10 | G96 | 0.4+ | 0.3− |
| 2006 05 22 | E12 | 0.4− | 0.6− | 2009 11 08 | G96 | 0.2+ | 0.1+ | 2009 12 19 | G96 | 0.3+ | 0.3− |
| 2006 05 22 | E12 | 0.4− | 0.7+ | 2009 11 08 | G96 | 0.6− | 0.0 | 2009 12 19 | G96 | 0.0 | 0.2− |
| 2006 05 22 | E12 | 0.5+ | 0.8− | 2009 11 08 | G96 | 0.0 | 0.2+ | 2009 12 19 | G96 | 0.2+ | 0.2− |
| 2008 10 02 | 703 | 0.6− | 0.4− | 2009 11 08 | G96 | 0.1+ | 0.0 | 2009 12 19 | G96 | 0.0 | 0.2− |
| 2008 10 02 | 703 | 0.7− | 0.4+ | 2009 11 09 | 691 | 0.2+ | 0.2− | | | | |
| 2008 10 02 | 703 | 0.6− | 0.9+ | 2009 11 09 | 691 | 0.0 | 0.1+ | | | | |

**2009 VZ$_{16}$ = 2005 YA$_{153}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 33.62613 | | (2000.0) | | +0.81807215 | −0.57416630 |
| $n$ | 0.23116989 | $\omega$ | 346.56212 | | +0.53164951 | +0.73309240 |
| $a$ | 2.6293508 | $\Omega$ | 48.52875 | | +0.21933251 | +0.36456632 |
| $e$ | 0.1639083 | $i$ | 2.52656 | | | |
| $P$ | 4.26 | $H$ | 17.4 | $G$ 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 28 | G96 | 0.6+ | 0.1− | 2009 10 26 | G96 | 0.6+ | 0.0 | 2009 11 17 | 691 | 0.5− | 0.0 |
| 2005 12 28 | G96 | 0.0 | 0.1− | 2009 10 26 | G96 | 0.1− | 0.6+ | 2009 11 17 | 691 | 0.4− | 0.0 |
| 2005 12 28 | G96 | 0.1− | 0.1− | 2009 10 26 | G96 | 0.3+ | 0.6+ | 2009 12 15 | G96 | 0.6+ | 0.4+ |
| 2005 12 28 | G96 | 0.2− | 0.1− | 2009 11 08 | G96 | 0.2− | 0.1− | 2009 12 15 | G96 | 0.5+ | 0.4+ |
| 2005 12 30 | G96 | 1.0− | 0.1+ | 2009 11 08 | G96 | 0.2+ | 0.2+ | 2009 12 15 | G96 | 0.2− | 0.2+ |
| 2005 12 30 | G96 | 0.5+ | 0.0 | 2009 11 08 | G96 | 0.3− | 0.2− | 2009 12 15 | G96 | 0.2− | 0.5+ |
| 2005 12 30 | G96 | 0.3− | 0.1+ | 2009 11 08 | G96 | 0.0 | 0.4− | 2009 12 16 | G96 | 0.1− | 0.2+ |
| 2005 12 30 | G96 | 0.3− | 0.0 | 2009 11 09 | G96 | 0.9+ | 0.3− | 2009 12 16 | G96 | 0.2+ | 0.1+ |
| 2006 01 07 | 691 | 0.0 | 0.2+ | 2009 11 09 | G96 | 0.4+ | 0.6− | 2009 12 16 | G96 | 0.4+ | 0.6+ |
| 2006 01 07 | 691 | 0.1− | 0.1− | 2009 11 09 | G96 | 0.6+ | 0.2+ | 2009 12 16 | G96 | 0.2+ | 0.1+ |
| 2006 01 07 | 691 | 0.3+ | 0.2− | 2009 11 09 | G96 | 0.2+ | 0.4− | | | | |
| 2009 10 26 | G96 | 0.3− | 0.5+ | 2009 11 17 | 691 | 0.0 | 0.6− | | | | |

**2009 VA$_{17}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 329.94225 | | (2000.0) | | −0.50529082 | −0.85677478 |
| $n$ | 0.17572934 | $\omega$ | 222.27710 | | +0.81722934 | −0.43674467 |
| $a$ | 3.1567476 | $\Omega$ | 258.31668 | | +0.27715950 | −0.27420990 |
| $e$ | 0.1640952 | $i$ | 6.04010 | | | |
| $P$ | 5.61 | $H$ | 15.8 | $G$ 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 22 | 691 | 0.1− | 0.1+ | 2009 11 08 | G96 | 0.4− | 0.2− | 2009 11 24 | D29 | 1.0+ | 0.3− |
| 2003 10 22 | 691 | 0.0 | 0.0 | 2009 11 08 | G96 | 0.1− | 0.1− | 2009 12 09 | J75 | 0.2+ | 0.2− |
| 2003 10 22 | 691 | 0.2− | 0.0 | 2009 11 09 | G96 | 0.0 | 0.2− | 2009 12 09 | J75 | 0.7+ | 0.2− |
| 2003 11 21 | 691 | 0.5+ | 0.2+ | 2009 11 09 | G96 | 0.4− | 0.1+ | 2009 12 09 | J75 | 0.6+ | 1.0− |
| 2003 11 21 | 691 | 0.1− | 0.1− | 2009 11 09 | G96 | 0.1+ | 0.1+ | 2009 12 15 | G96 | 0.4+ | 0.4− |
| 2003 11 21 | 691 | 0.0 | 0.2− | 2009 11 09 | G96 | 0.2+ | 0.1+ | 2009 12 15 | G96 | 0.4+ | 0.3− |
| 2006 05 26 | G96 | 0.2+ | 0.5+ | 2009 11 21 | 691 | 0.0 | 0.0 | 2009 12 15 | G96 | 0.3+ | 0.3− |
| 2006 05 26 | G96 | 0.1− | 0.0 | 2009 11 21 | 691 | 0.2− | 0.0 | 2009 12 15 | G96 | 0.3+ | 0.1− |
| 2006 05 26 | G96 | 0.1+ | 0.0 | 2009 11 21 | 691 | 0.4− | 0.1− | 2009 12 20 | 291 | 0.3− | 0.3+ |
| 2006 05 26 | G96 | 0.1− | 0.3+ | 2009 11 24 | D29 | 0.4+ | 0.2− | 2009 12 20 | 291 | 0.3− | 0.3+ |
| 2009 11 08 | G96 | 0.1+ | 0.2+ | 2009 11 24 | D29 | 1.0+ | 0.1− | 2009 12 20 | 291 | 0.3− | 0.1+ |
| 2009 11 08 | G96 | 0.1− | 0.1− | 2009 11 24 | D29 | 1.3+ | 0.9+ | | | | |

**2009 VG$_{18}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 324.55368 | | (2000.0) | | −0.36118805 | −0.93005193 |
| $n$ | 0.23329714 | $\omega$ | 200.64482 | | +0.86472454 | −0.30699964 |
| $a$ | 2.6133431 | $\Omega$ | 270.57767 | | +0.34899093 | −0.20187777 |
| $e$ | 0.1226841 | $i$ | 3.86650 | | | |
| $P$ | 4.22 | $H$ | 17.4 | $G$ 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 08 22 | 691 | 0.2+ | 0.1+ | 2006 01 22 | G96 | 0.5+ | 0.3− | 2009 11 10 | G96 | 0.0 | 0.4− |
| 2004 08 22 | 691 | 0.2− | 0.0 | 2006 01 22 | G96 | 0.3− | 0.2− | 2009 11 10 | G96 | 0.8+ | 0.6− |
| 2004 08 22 | 691 | 0.0 | 0.1− | 2006 01 22 | G96 | 0.4+ | 0.0 | 2009 11 10 | G96 | 0.2− | 0.7− |
| 2005 12 03 | 691 | 0.1+ | 0.1+ | 2009 11 09 | 691 | 0.0 | 0.6− | 2009 11 25 | 691 | 0.4− | 0.4− |
| 2005 12 03 | 691 | 0.0 | 0.2+ | 2009 11 09 | 691 | 0.6− | 0.1+ | 2009 11 25 | 691 | 0.2+ | 0.9+ |
| 2005 12 03 | 691 | 0.1− | 0.1+ | 2009 11 09 | 691 | 0.2− | 0.2+ | 2009 11 25 | 691 | 0.1− | 0.3+ |
| 2005 12 25 | G96 | 0.0 | 0.3− | 2009 11 10 | G96 | 0.5+ | 0.4− | 2009 11 27 | 691 | 0.2+ | 0.2+ |
| 2005 12 25 | G96 | 0.4− | 0.4− | 2009 11 10 | G96 | 0.2− | 0.9− | 2009 11 27 | 691 | 0.3+ | 0.0 |
| 2005 12 25 | G96 | 0.2− | 0.2− | 2009 11 10 | G96 | 0.0 | 0.3− | 2009 11 27 | 691 | 0.3+ | 0.1+ |
| 2005 12 25 | G96 | 0.2− | 0.3+ | 2009 11 10 | G96 | 0.5+ | 0.6− | | | | |
| 2006 01 22 | G96 | 0.2− | 0.4− | 2009 11 10 | G96 | 0.1+ | 0.1− | | | | |

**2009 VQ$_{18}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 78.99271 | | (2000.0) | | +0.88422861 | +0.46567122 |
| $n$ | 0.22347277 | $\omega$ | 38.29418 | | −0.43761668 | +0.79917341 |
| $a$ | 2.6893850 | $\Omega$ | 293.91627 | | −0.16319132 | +0.38009495 |
| $e$ | 0.1164795 | $i$ | 2.25181 | | | |
| $P$ | 4.41 | $H$ | 16.8 | $G$ 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 03 11 | G96 | 0.3− | 0.2+ | 2009 11 10 | G96 | 0.3+ | 0.2− | 2009 11 27 | 691 | 0.1− | 0.2+ |
| 2007 03 11 | G96 | 1.0+ | 0.1− | 2009 11 10 | G96 | 0.4+ | 0.5− | 2009 11 27 | 691 | 0.5− | 0.1+ |
| 2007 03 11 | G96 | 0.2− | 0.4− | 2009 11 10 | G96 | 0.1− | 0.0 | 2009 11 27 | 691 | 0.4+ | 0.2+ |
| 2007 03 11 | G96 | 0.5− | 0.1− | 2009 11 10 | G96 | 0.1+ | 0.1− | 2009 12 18 | G96 | 0.4− | 0.5+ |
| 2007 04 20 | G96 | 0.4− | 0.1+ | 2009 11 24 | G96 | 0.3+ | 0.0 | 2009 12 18 | G96 | 0.3+ | 0.4+ |
| 2007 04 20 | G96 | 0.4− | 0.0 | 2009 11 24 | G96 | 0.5+ | 0.2− | 2009 12 18 | G96 | 0.5+ | 0.3− |
| 2007 04 20 | G96 | 0.1+ | 0.3+ | 2009 11 24 | G96 | 0.4+ | 0.3− | 2009 12 18 | G96 | 0.5− | 0.3+ |
| 2007 04 20 | G96 | 0.6+ | 0.2− | 2009 11 24 | G96 | 0.1+ | 0.1+ | 2009 12 18 | G96 | 0.2+ | 0.1− |
| 2009 11 09 | 691 | 0.4+ | 0.1+ | 2009 11 25 | 691 | 0.3− | 0.2− | 2009 12 18 | G96 | 0.4+ | 0.1+ |
| 2009 11 09 | 691 | 0.3− | 0.5− | 2009 11 25 | 691 | 0.3− | 0.3+ | 2009 12 18 | G96 | 0.0 | 0.3− |
| 2009 11 09 | 691 | 0.0 | 0.0 | 2009 11 25 | 691 | 0.1+ | 0.0 | 2009 12 18 | G96 | 0.2+ | 0.4− |

**2009 VJ$_{19}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 31.48776 | | (2000.0) | | +0.86345660 | −0.49037290 |
| $n$ | 0.27455993 | $\omega$ | 133.64916 | | +0.42061533 | +0.82931424 |
| $a$ | 2.3444696 | $\Omega$ | 256.04446 | | +0.27843391 | +0.26790356 |
| $e$ | 0.2322345 | $i$ | 6.99719 | | | |
| $P$ | 3.59 | $H$ | 17.7 | $G$ 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 07 15 | 691 | 0.1− | 0.2− | 2009 11 09 | 691 | 1.1− | 1.4+ | 2009 11 24 | J75 | 0.4− | 0.7− |
| 2005 07 15 | 691 | 0.2+ | 0.1− | 2009 11 09 | 691 | 0.1− | 0.1+ | 2009 11 24 | J75 | 0.4− | 0.2+ |
| 2005 07 15 | 691 | 0.2− | 0.3+ | 2009 11 10 | G92 | 0.3− | 0.3− | 2009 11 24 | J75 | 0.2− | 0.8− |
| 2005 07 30 | 644 | 0.2+ | 0.2+ | 2009 11 10 | G92 | (0.0 | 1.5+) | 2009 11 24 | J75 | 0.3+ | 0.1+ |
| 2005 07 30 | 644 | 0.2+ | 0.1− | 2009 11 10 | G92 | 0.6− | 0.8+ | 2009 11 24 | J75 | 0.2− | 0.3− |
| 2005 07 30 | 644 | 0.0 | 0.1− | 2009 11 17 | 691 | 0.0 | 0.1+ | 2009 11 25 | 691 | 0.1+ | 0.2+ |
| 2005 08 24 | 644 | 0.3− | 0.3− | 2009 11 17 | 691 | 0.0 | 0.1+ | 2009 11 25 | 691 | 0.1+ | 0.1+ |
| 2005 08 24 | 644 | 0.1− | 0.4+ | 2009 11 17 | 691 | 0.2− | 0.0 | 2009 11 25 | 691 | 0.1+ | 0.0 |
| 2005 08 24 | 644 | 0.2+ | 0.2+ | 2009 11 17 | 704 | 0.5+ | 0.8+ | 2009 11 25 | 703 | 0.1− | 0.3− |
| 2009 10 26 | 691 | 0.2+ | 0.1− | 2009 11 17 | 704 | 1.3+ | 0.0 | 2009 11 25 | 703 | 0.6+ | 0.5− |
| 2009 10 26 | 691 | 0.0 | 0.9− | 2009 11 17 | 704 | 0.1− | 0.2− | 2009 11 25 | 703 | 0.2− | 0.1+ |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2009 10 26 | 691 | 0.4+ | 0.2− | 2009 11 17 | 704 | 1.5+ | 0.8− | 2009 11 25 | 703 | 0.9− | 1.0− |
| 2009 11 08 | 703 | 0.7− | 0.2− | 2009 11 22 | 704 | 0.2+ | 0.7+ | 2009 11 25 | 703 | 0.2− | 0.3+ |
| 2009 11 08 | 703 | 0.5− | 0.3− | 2009 11 22 | 704 | 0.6+ | 0.3− | 2009 12 11 | G96 | 0.0 | 0.1− |
| 2009 11 08 | 703 | 0.1− | 0.1+ | 2009 11 22 | 704 | 1.2+ | 0.8+ | 2009 12 11 | G96 | 0.1+ | 0.0 |
| 2009 11 08 | 703 | (1.6+ | 1.6−) | 2009 11 22 | 704 | (0.5+ | 1.6+) | 2009 12 11 | G96 | 0.6+ | 0.0 |
| 2009 11 09 | 691 | 0.0 | 0.2− | 2009 11 24 | J75 | 0.3+ | 0.9− | 2009 12 11 | G96 | 0.0 | 0.0 |

**2009 VF$_{20}$ = 1993 TD$_{41}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 20.99023 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18733519 | $\omega$ | 3.81429 | | +0.85097616 | −0.51824555 | |
| $a$ | 3.0249844 | $\Omega$ | 27.92440 | | +0.47692270 | +0.69455671 | |
| $e$ | 0.0994370 | $i$ | 10.48385 | | +0.21996434 | +0.49901154 | |
| $P$ | 5.26 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1993 10 09 | 809 | (0.9− | 2.6−) | 2009 09 21 | G96 | 0.2− | 0.0 | 2009 11 19 | G96 | 0.0 | 0.0 |
| 1993 10 09 | 809 | 1.2− | 1.8− | 2009 09 21 | G96 | 0.5− | 0.1+ | 2009 11 19 | G96 | 0.1− | 0.0 |
| 1993 10 09 | 809 | (2.4− | 2.5−) | 2009 09 21 | G96 | 0.2− | 0.1+ | 2009 12 05 | J75 | 0.3+ | 0.2+ |
| 1993 10 11 | 809 | 0.9+ | 0.7− | 2009 11 09 | G96 | 0.1+ | 0.2− | 2009 12 05 | J75 | 0.2+ | 0.8+ |
| 1993 10 11 | 809 | 0.6+ | 0.3− | 2009 11 09 | G96 | 0.0 | 0.2− | 2009 12 05 | J75 | 0.1− | 0.5+ |
| 1993 10 11 | 809 | 0.8+ | 1.0+ | 2009 11 09 | G96 | 0.2− | 0.0 | 2009 12 11 | A77 | 0.1− | 0.6+ |
| 2004 12 03 | 291 | 0.1− | 0.2− | 2009 11 09 | G96 | 0.3− | 0.1− | 2009 12 11 | A77 | 0.4+ | 0.6+ |
| 2004 12 03 | 291 | 0.1+ | 0.1− | 2009 11 10 | G96 | 0.0 | 0.2− | 2009 12 11 | A77 | 0.5− | 0.1+ |
| 2004 12 03 | 291 | 0.0 | 0.2− | 2009 11 10 | G96 | 0.0 | 0.0 | 2009 12 15 | A77 | 0.2+ | 0.0 |
| 2006 02 06 | 291 | 0.0 | 0.2− | 2009 11 10 | G96 | 0.2− | 0.1+ | 2009 12 15 | A77 | 0.8− | 0.4+ |
| 2006 02 06 | 291 | 0.1− | 0.0 | 2009 11 10 | G96 | 0.2− | 0.2− | 2009 12 15 | A77 | 0.2+ | 0.6+ |
| 2006 02 06 | 291 | 0.0 | 0.0 | 2009 11 19 | G96 | 0.2− | 0.1− | | | | |
| 2009 09 21 | G96 | 0.1+ | 0.1+ | 2009 11 19 | G96 | 0.2+ | 0.0 | | | | |

**2009 VK$_{21}$ = 2006 DB$_{17}$ = 2007 KM$_{9}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 91.53056 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18804078 | $\omega$ | 225.05884 | | +0.83893453 | +0.53899027 | |
| $a$ | 3.0174125 | $\Omega$ | 102.18635 | | −0.47510116 | +0.79285084 | |
| $e$ | 0.0928861 | $i$ | 4.42143 | | −0.26545762 | +0.28438888 | |
| $P$ | 5.24 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 04 14 | 691 | 0.0 | 0.1− | 2006 02 01 | 691 | 0.2+ | 0.0 | 2008 10 28 | G96 | 0.3+ | 0.7− |
| 1996 04 14 | 691 | 0.1− | 0.3− | 2006 02 01 | 691 | 0.1− | 0.2− | 2009 11 09 | G96 | 0.2+ | 0.1− |
| 1996 04 14 | 691 | 0.4− | 0.3− | 2006 02 20 | 691 | 0.1− | 0.1+ | 2009 11 09 | G96 | 0.0 | 0.1− |
| 1998 09 19 | 645 | 0.0 | 0.1− | 2006 02 20 | 691 | 0.2− | 0.4+ | 2009 11 09 | G96 | 0.6+ | 0.0 |
| 1998 09 19 | 645 | 0.1− | 0.0 | 2006 02 20 | 691 | 0.2+ | 0.3+ | 2009 11 09 | G96 | 0.4+ | 0.4− |
| 1998 09 25 | 645 | 0.1+ | 0.1+ | 2006 02 24 | 691 | 0.1+ | 0.1− | 2009 11 10 | 691 | 0.0 | 0.3+ |
| 1998 09 25 | 645 | 0.1+ | 0.0 | 2006 02 24 | 691 | 0.2+ | 0.4+ | 2009 11 10 | 691 | 0.4− | 0.2+ |
| 2002 06 03 | 809 | 0.4+ | 0.7+ | 2006 02 24 | 691 | 0.3− | 0.0 | 2009 11 10 | 691 | 0.2− | 0.3+ |
| 2002 06 03 | 809 | 0.3+ | 0.7+ | 2007 04 24 | 691 | 0.4− | 0.2+ | 2009 11 22 | 291 | 0.0 | 0.1+ |
| 2002 06 03 | 809 | 0.4+ | 0.7+ | 2007 04 24 | 691 | 0.2− | 0.2+ | 2009 11 22 | 291 | 0.1+ | 0.1+ |
| 2002 06 03 | 809 | 0.2+ | 0.8+ | 2007 04 24 | 691 | 0.4+ | 0.1+ | 2009 11 22 | 291 | 0.1− | 0.1+ |
| 2004 12 14 | 691 | 0.2+ | 0.0 | 2007 05 16 | G96 | 0.1+ | 0.4+ | 2009 11 26 | 691 | 0.3− | 0.0 |
| 2004 12 14 | 691 | 0.0 | 0.0 | 2007 05 16 | G96 | 0.1+ | 0.3+ | 2009 11 26 | 691 | 0.2+ | 0.5− |
| 2004 12 14 | 691 | 0.1+ | 0.0 | 2007 05 16 | G96 | 0.3+ | 0.1+ | 2009 11 26 | 691 | 0.4− | 0.2+ |
| 2006 01 23 | 691 | 0.4+ | 0.3− | 2007 05 16 | G96 | 0.4+ | 0.4+ | 2009 12 19 | 691 | 0.1+ | 0.0 |
| 2006 01 23 | 691 | 0.3+ | 0.3− | 2008 10 28 | G96 | 0.3+ | 0.2+ | 2009 12 19 | 691 | 0.2+ | 0.3+ |
| 2006 01 23 | 691 | 0.3+ | 0.3− | 2008 10 28 | G96 | 0.1+ | 0.2+ | 2009 12 19 | 691 | 0.2− | 0.0 |
| 2006 02 01 | 691 | 0.7− | 0.1− | 2008 10 28 | G96 | 0.6+ | 0.1+ | | | | |

**2009 VC$_{22}$ = 2002 BR$_{28}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 350.93808 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23567918 | $\omega$ | 17.28861 | | +0.08097588 | −0.96858892 | |
| $a$ | 2.5957044 | $\Omega$ | 68.58211 | | +0.88201733 | −0.04022652 | |
| $e$ | 0.1244469 | $i$ | 14.62873 | | +0.46420721 | +0.24539220 | |
| $P$ | 4.18 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 01 19 | 699 | 0.4− | 1.0+ | 2009 11 09 | G96 | 0.6+ | 0.3− | 2009 11 25 | 703 | 0.6+ | 0.0 |
| 2002 01 19 | 699 | 0.2+ | 1.3− | 2009 11 10 | 691 | 0.5− | 0.2+ | 2009 11 26 | 691 | 0.3− | 0.1+ |
| 2002 01 19 | 699 | 0.0 | 1.1+ | 2009 11 10 | 691 | 0.2− | 0.0 | 2009 11 26 | 691 | 0.1− | 0.1− |
| 2002 01 19 | 699 | 0.4+ | 0.7− | 2009 11 10 | 691 | 0.1− | 0.0 | 2009 11 26 | 691 | 0.2− | 0.0 |
| 2002 01 23 | 704 | 1.1− | 1.3− | 2009 11 18 | 691 | 0.1− | 0.1+ | 2009 12 11 | G96 | 0.4+ | 0.1+ |
| 2002 01 23 | 704 | 0.3+ | 0.9+ | 2009 11 18 | 691 | 0.1+ | 0.2+ | 2009 12 11 | G96 | 0.3+ | 0.1+ |
| 2002 01 23 | 704 | 0.3+ | 0.6+ | 2009 11 18 | 691 | 0.1− | 0.1+ | 2009 12 11 | G96 | 0.6+ | 0.2+ |
| 2002 01 23 | 704 | 0.4+ | 0.8+ | 2009 11 19 | J75 | 0.1+ | 1.0− | 2009 12 11 | G96 | 0.5+ | 0.0 |
| 2007 04 22 | 691 | 0.1+ | 0.2− | 2009 11 19 | J75 | 0.5+ | 0.2− | 2009 12 15 | A77 | 0.2+ | 0.1− |
| 2007 04 22 | 691 | 0.2− | 0.3− | 2009 11 20 | J75 | 0.4+ | 0.2− | 2009 12 15 | A77 | 0.2+ | 0.1− |
| 2007 04 22 | 691 | 0.1− | 0.3+ | 2009 11 25 | 703 | 0.4− | 0.4+ | 2009 12 15 | A77 | 0.7+ | 0.3− |
| 2009 11 09 | G96 | 0.4+ | 0.1− | 2009 11 25 | 703 | 0.6− | 0.1+ | 2009 12 19 | 691 | 0.3− | 0.1+ |
| 2009 11 09 | G96 | 0.2+ | 0.1− | 2009 11 25 | 703 | 0.8+ | 0.3− | 2009 12 19 | 691 | 0.2+ | 0.1− |
| 2009 11 09 | G96 | 0.3+ | 0.1− | 2009 11 25 | 703 | 0.8+ | 0.5− | 2009 12 19 | 691 | 0.2+ | 0.2− |

**2009 VS$_{22}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 23.97221 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18195231 | $\omega$ | 260.67445 | | +0.76802563 | −0.64008961 | |
| $a$ | 3.0843549 | $\Omega$ | 139.12016 | | +0.59920498 | +0.70690929 | |
| $e$ | 0.1878651 | $i$ | 1.79855 | | +0.22603103 | +0.30093945 | |
| $P$ | 5.42 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 10 29 | 691 | 0.0 | 0.1+ | 2009 09 22 | G96 | 0.3+ | 0.1+ | 2009 11 18 | 691 | 0.3− | 0.2+ |
| 1998 10 29 | 691 | 0.1+ | 0.4− | 2009 11 09 | G96 | 0.4+ | 0.0 | 2009 11 18 | 691 | 0.1− | 0.0 |
| 2003 08 26 | 807 | 0.0 | 0.2+ | 2009 11 09 | G96 | 0.8+ | 0.0 | 2009 11 22 | 691 | 0.1+ | 0.1− |
| 2003 08 26 | 807 | 0.2− | 0.7+ | 2009 11 09 | G96 | 0.3+ | 0.2− | 2009 11 22 | 691 | 0.4+ | 0.2+ |
| 2003 10 23 | 695 | 0.2− | 0.4+ | 2009 11 09 | G96 | 1.3+ | 0.1− | 2009 11 22 | 691 | 0.0 | 0.0 |
| 2003 10 23 | 695 | 0.3− | 0.3+ | 2009 11 10 | 691 | 0.0 | 0.1− | 2009 11 26 | 691 | 0.0 | 0.2− |
| 2005 01 16 | 691 | 0.1− | 0.1− | 2009 11 10 | 691 | 0.4− | 0.1+ | 2009 11 26 | 691 | 0.2− | 0.1− |
| 2005 01 16 | 691 | 0.1− | 0.2+ | 2009 11 10 | 691 | 0.0 | 0.1− | 2009 11 26 | 691 | 0.1− | 0.1− |
| 2005 01 16 | 691 | 0.2+ | 0.3+ | 2009 11 16 | 291 | 0.0 | 0.1+ | 2009 12 11 | 703 | (1.1− | 1.9−) |
| 2009 09 22 | G96 | 0.2+ | 0.1− | 2009 11 16 | 291 | 0.1− | 0.0 | 2009 12 11 | 703 | 1.4− | 1.1− |
| 2009 09 22 | G96 | 0.4− | 0.2+ | 2009 11 16 | 291 | 0.0 | 0.2+ | 2009 12 11 | 703 | 0.4+ | 0.4− |
| 2009 09 22 | G96 | 0.0 | 0.2+ | 2009 11 18 | 691 | 0.1+ | 0.0 | 2009 12 11 | 703 | 1.1+ | 0.0 |

**2009 VL$_{23}$ = 2003 SV$_{144}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 46.37837 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17838481 | $\omega$ | 130.55758 | | +0.97752115 | −0.00974534 | |
| $a$ | 3.1253414 | $\Omega$ | 231.08315 | | −0.03918825 | +0.97312609 | |
| $e$ | 0.2709150 | $i$ | 15.70528 | | +0.20716343 | +0.23006660 | |
| $P$ | 5.53 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 08 27 | 644 | 0.3+ | 0.4+ | 2009 09 21 | G96 | 0.1+ | 0.2+ | 2009 11 25 | G96 | 0.4+ | 0.2− |
| 2003 08 27 | 644 | 0.2+ | 0.6+ | 2009 09 21 | G96 | 0.1+ | 0.1− | 2009 12 10 | 703 | 0.4− | 0.7+ |
| 2003 08 27 | 644 | 0.1+ | 0.4+ | 2009 11 09 | 703 | 0.9− | 0.5− | 2009 12 10 | 703 | 0.4− | 0.0 |
| 2003 09 19 | 608 | 0.5− | 0.7− | 2009 11 09 | 703 | (0.3− | 1.8−) | 2009 12 10 | 703 | 0.1− | 0.3+ |
| 2003 09 19 | 608 | 0.2− | 0.9− | 2009 11 09 | 703 | 0.3− | 0.7+ | 2009 12 10 | 703 | 0.5− | 1.0+ |
| 2003 09 19 | 608 | 0.3− | 1.2− | 2009 11 09 | 703 | 0.9− | 0.8− | 2009 12 12 | 704 | 0.4− | 0.1+ |
| 2003 09 22 | 704 | 1.1+ | 0.2+ | 2009 11 10 | 691 | 0.2− | 0.0 | 2009 12 12 | 704 | 0.4− | 0.0 |
| 2003 09 22 | 704 | 1.2− | 0.2+ | 2009 11 10 | 691 | 0.0 | 0.1+ | 2009 12 12 | 704 | 0.5+ | 1.0− |
| 2003 09 22 | 704 | 0.1− | 0.7+ | 2009 11 10 | 691 | 0.1+ | 0.3+ | 2009 12 12 | 704 | 0.1+ | 0.1+ |
| 2003 09 22 | 704 | 0.1− | 0.1+ | 2009 11 24 | J75 | 0.5+ | 0.5− | 2009 12 21 | F85 | 0.1− | 0.2+ |
| 2003 10 14 | 644 | 0.2+ | 0.2+ | 2009 11 25 | J75 | 0.2+ | 0.4− | 2009 12 21 | F85 | 0.3+ | 0.1+ |
| 2003 10 14 | 644 | 0.2+ | 0.1+ | 2009 11 25 | J75 | 0.3+ | 0.2− | 2009 12 21 | F85 | 0.2+ | 0.5− |
| 2003 10 14 | 644 | 0.4+ | 0.1+ | 2009 11 25 | G96 | 0.5+ | 0.2− | 2009 12 21 | F85 | 0.9+ | 0.0 |
| 2009 09 21 | G96 | 0.0 | 0.1+ | 2009 11 25 | G96 | 0.5+ | 0.1− | 2009 12 21 | F85 | 0.0 | 0.2− |
| 2009 09 21 | G96 | 0.1+ | 0.2− | 2009 11 25 | G96 | 0.4+ | 0.3− | | | | |

**2009 VV$_{23}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 263.99461 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23246633 | $\omega$ | 282.90640 | | −0.97398304 | +0.14013864 | |
| $a$ | 2.6195660 | $\Omega$ | 265.35685 | | −0.06374670 | −0.92356538 | |
| $e$ | 0.1384841 | $i$ | 10.29303 | | −0.21747047 | −0.35691476 | |
| $P$ | 4.24 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 02 07 | 644 | 0.1− | 0.1+ | 2009 11 09 | G96 | 0.8+ | 0.2− | 2009 11 18 | 691 | 0.0 | 0.1− |
| 2002 02 07 | 644 | 0.5− | 0.1− | 2009 11 09 | G96 | 0.2+ | 0.3− | 2009 11 18 | 691 | 0.1− | 0.1− |
| 2002 02 07 | 644 | 0.2+ | 0.0 | 2009 11 09 | G96 | 0.3+ | 0.3− | 2009 11 18 | 691 | 0.4− | 0.1− |
| 2002 02 17 | 644 | 0.1+ | 0.3− | 2009 11 09 | G96 | 0.4+ | 0.1+ | 2009 11 26 | 691 | 0.2+ | 0.1+ |
| 2002 02 17 | 644 | 0.4+ | 0.3+ | 2009 11 10 | 691 | 0.1− | 0.5+ | 2009 11 26 | 691 | 0.2− | 0.1+ |
| 2002 02 17 | 644 | 0.0 | 0.0 | 2009 11 10 | 691 | 0.3− | 0.1− | 2009 11 26 | 691 | 0.0 | 0.2+ |
| 2007 06 10 | E12 | 0.9− | 0.7+ | 2009 11 10 | 691 | 0.2− | 0.2− | 2009 12 16 | G96 | 0.4+ | 0.1+ |
| 2007 06 10 | E12 | 0.3+ | 0.8− | 2009 11 18 | 691 | 0.1+ | 0.1− | 2009 12 16 | G96 | 0.3+ | 0.3− |
| 2007 06 10 | E12 | 0.6+ | 0.1− | 2009 11 18 | 691 | 0.0 | 0.2+ | 2009 12 16 | G96 | 0.2+ | 0.0 |
| 2007 06 10 | E12 | 0.0 | 0.2+ | 2009 11 18 | 691 | 0.1+ | 0.1− | 2009 12 16 | G96 | 0.6+ | 0.2− |

**2009 VB$_{24}$ = 2003 UB$_{230}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 346.05793 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17302139 | $\omega$ | 53.16858 | | −0.21905317 | −0.96114885 | |
| $a$ | 3.1895997 | $\Omega$ | 50.35775 | | +0.81131130 | −0.27504881 | |
| $e$ | 0.2357449 | $i$ | 12.59805 | | +0.54202369 | +0.02326006 | |
| $P$ | 5.70 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 23 | 691 | 0.1− | 0.3+ | 2009 11 09 | G96 | 0.5− | 0.1− | 2009 11 24 | J75 | 0.2+ | 0.9+ |
| 2003 10 23 | 691 | 0.3− | 0.2+ | 2009 11 09 | G96 | 0.8+ | 1.1− | 2009 12 10 | 704 | 0.4− | 0.1+ |
| 2003 10 23 | 691 | 0.2− | 0.1+ | 2009 11 10 | 691 | 0.1− | 0.5− | 2009 12 10 | 704 | (0.4− | 1.7+) |
| 2003 10 25 | 704 | (2.1+ | 0.5+) | 2009 11 10 | 691 | 0.4− | 0.3− | 2009 12 10 | 704 | 0.9+ | 0.6+ |
| 2003 10 25 | 704 | 0.5+ | 0.4+ | 2009 11 10 | 691 | 0.4− | 0.5− | 2009 12 10 | 704 | 0.5+ | 1.1+ |
| 2003 10 25 | 704 | 0.8+ | 0.5− | 2009 11 20 | 152 | 0.9− | 0.3− | 2009 12 10 | 704 | 0.8+ | 0.7+ |
| 2005 03 17 | G96 | 0.3+ | 0.4− | 2009 11 20 | 152 | (1.2+ | 2.3−) | 2009 12 15 | 704 | (1.5+ | 3.0+) |
| 2005 03 17 | G96 | 0.4− | 0.0 | 2009 11 20 | 152 | (1.2+ | 1.7+) | 2009 12 15 | 704 | (0.6+ | 2.4+) |
| 2005 03 17 | G96 | 0.5+ | 0.7+ | 2009 11 21 | 152 | (0.2+ | 2.2+) | 2009 12 15 | 704 | (1.2+ | 2.7+) |
| 2005 03 17 | G96 | 0.0 | 0.6+ | 2009 11 21 | 152 | 0.6+ | 0.2+ | 2009 12 15 | 704 | (0.8+ | 3.2+) |
| 2009 11 09 | G96 | 0.2+ | 0.6− | 2009 11 24 | J75 | 0.8+ | 0.8+ | | | | |
| 2009 11 09 | G96 | 0.5+ | 0.5− | 2009 11 24 | J75 | 0.5+ | 1.3+ | | | | |

**2009 VH$_{24}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 16.38380 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27129036 | $\omega$ | 123.35537 | | +0.51046262 | −0.85932871 | |
| $a$ | 2.3632689 | $\Omega$ | 295.91959 | | +0.77691403 | +0.47651324 | |
| $e$ | 0.2136244 | $i$ | 1.99677 | | +0.36855462 | +0.18571295 | |
| $P$ | 3.63 | $H$ | 18.3 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 01 29 | 291 | 0.0 | 0.3+ | 2009 11 12 | 926 | 0.2− | 0.1+ | 2009 11 25 | 691 | 0.2− | 0.1+ |
| 2003 01 29 | 291 | 0.1+ | 0.2+ | 2009 11 12 | 926 | 0.6+ | 0.0 | 2009 11 25 | 926 | 0.1− | 0.8+ |
| 2003 01 29 | 291 | 0.2+ | 0.3+ | 2009 11 17 | 691 | 0.1− | 0.1+ | 2009 11 25 | 926 | 0.2+ | 0.7− |
| 2005 09 01 | 691 | 0.3− | 0.2+ | 2009 11 17 | 691 | 0.8− | 0.1+ | 2009 11 25 | 926 | 0.6+ | 0.3− |
| 2005 09 01 | 691 | 0.2− | 0.3+ | 2009 11 17 | 691 | 0.4− | 0.1+ | 2009 11 26 | 926 | 0.6− | 1.0− |
| 2005 09 01 | 691 | 0.1− | 0.2+ | 2009 11 18 | 926 | 0.1+ | 0.1+ | 2009 11 26 | 926 | 0.2+ | 0.3+ |
| 2005 09 11 | 691 | 0.2+ | 0.0 | 2009 11 18 | 926 | 0.0 | 0.1− | 2009 11 26 | 926 | 1.2+ | 0.6− |
| 2005 09 11 | 691 | 0.1− | 0.5− | 2009 11 18 | 926 | 0.5+ | 0.1− | 2009 12 05 | 926 | 1.0+ | 0.4− |
| 2005 09 11 | 691 | 0.3+ | 0.4+ | 2009 11 19 | 926 | 0.5+ | 0.1− | 2009 12 05 | 926 | 0.6+ | 0.3− |
| 2009 11 09 | 691 | 0.5− | 0.2+ | 2009 11 19 | 926 | 0.5+ | 0.0 | 2009 12 05 | 926 | 1.0+ | 0.4− |
| 2009 11 09 | 691 | 0.1+ | 0.1+ | 2009 11 19 | 926 | 0.3+ | 0.2− | 2009 12 10 | 926 | 0.7+ | 0.0 |
| 2009 11 09 | 691 | 0.4− | 0.2− | 2009 11 20 | 926 | 0.1− | 0.1− | 2009 12 10 | 926 | 0.7+ | 0.1+ |
| 2009 11 10 | 926 | 0.5+ | 0.0 | 2009 11 20 | 926 | 0.5+ | 0.1− | 2009 12 10 | 926 | 0.1− | 0.7+ |
| 2009 11 10 | 926 | 1.3+ | 0.5− | 2009 11 20 | 926 | 0.1+ | 0.1− | 2009 12 15 | G96 | 0.3+ | 0.2− |
| 2009 11 10 | 926 | 0.8+ | 0.2− | 2009 11 21 | 691 | 0.2− | 0.0 | 2009 12 15 | G96 | 0.1− | 0.1+ |
| 2009 11 11 | 926 | 0.1+ | 0.0 | 2009 11 21 | 691 | 0.2− | 0.0 | 2009 12 15 | G96 | 0.2+ | 0.4+ |
| 2009 11 11 | 926 | 0.8+ | 0.2+ | 2009 11 21 | 691 | 0.2− | 0.0 | 2009 12 15 | G96 | 0.3+ | 0.2− |
| 2009 11 11 | 926 | 0.3+ | 0.1+ | 2009 11 25 | 691 | 0.1− | 0.1+ | | | | |
| 2009 11 12 | 926 | 0.6+ | 0.1− | 2009 11 25 | 691 | 0.4− | 0.1− | | | | |

**2009 VK$_{26}$ = 2005 VG$_{20}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 37.17121 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24126575 | $\omega$ | 304.24537 | | +0.99299526 | +0.01466827 | |
| $a$ | 2.5554787 | $\Omega$ | 55.18549 | | +0.04227925 | +0.88245069 | |
| $e$ | 0.2007411 | $i$ | 8.20995 | | −0.11033073 | +0.47017615 | |
| $P$ | 4.09 | $H$ | 17.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 11 16 | 291 | 0.1+ | 0.1+ | 2009 10 02 | G96 | 0.2+ | 0.2− | 2009 11 08 | 691 | 0.3− | 0.1+ |
| 2001 11 16 | 291 | 0.1+ | 0.1− | 2009 10 02 | G96 | 0.5+ | 0.3− | 2009 11 08 | 691 | 0.7− | 0.6+ |
| 2001 11 16 | 291 | 0.0 | 0.1− | 2009 10 17 | G96 | 0.3+ | 0.2+ | 2009 11 11 | 691 | 0.5+ | 0.1+ |
| 2005 11 01 | 691 | 0.0 | 0.1− | 2009 10 17 | G96 | 0.2+ | 0.2+ | 2009 11 11 | 691 | 0.0 | 0.0 |
| 2005 11 01 | 691 | 0.3+ | 0.1− | 2009 10 17 | G96 | 0.7+ | 0.1+ | 2009 11 11 | 691 | 0.3− | 0.1− |
| 2005 11 01 | 691 | 0.1+ | 0.0 | 2009 10 17 | G96 | 0.5− | 0.6− | 2009 11 20 | 691 | 0.1− | 0.1+ |
| 2005 11 05 | 691 | 0.3− | 0.2+ | 2009 10 24 | G96 | 0.6+ | 0.2+ | 2009 11 20 | 691 | 0.0 | 0.7− |
| 2005 11 05 | 691 | 0.1− | 0.1− | 2009 10 24 | G96 | 0.2+ | 0.1− | 2009 11 20 | 691 | 0.1+ | 0.2− |
| 2005 11 05 | 691 | 0.2− | 0.0 | 2009 10 24 | G96 | 0.3+ | 0.1− | 2009 11 24 | 691 | 0.5+ | 0.4+ |
| 2009 10 02 | G96 | 0.3+ | 0.2− | 2009 10 24 | G96 | 0.1− | 0.3+ | 2009 11 24 | 691 | 0.1− | 0.0 |
| 2009 10 02 | G96 | 0.1− | 0.1+ | 2009 11 08 | 691 | 0.0 | 0.1− | 2009 11 24 | 691 | 0.3− | 0.1+ |

**2009 VQ$_{26}$ = 2009 SE$_{136}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 332.18806 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.08255369 | $\omega$ | 55.50913 | | +0.32204206 | −0.94581808 | |
| $a$ | 5.2237020 | $\Omega$ | 15.86192 | | +0.81129889 | +0.25315189 | |
| $e$ | 0.0804650 | $i$ | 8.72012 | | +0.48793751 | +0.20332800 | |
| $P$ | 11.94 | $H$ | 13.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 09 22 | G96 | 0.1+ | 0.3− | 2009 09 22 | 691 | 0.0 | 0.2+ | 2009 10 21 | G96 | 0.8+ | 0.2− |
| 2008 09 22 | G96 | 0.2− | 0.4− | 2009 09 22 | 691 | 0.0 | 0.5+ | 2009 10 21 | G96 | 0.1+ | 0.2+ |
| 2008 09 22 | G96 | 0.0 | 0.6+ | 2009 10 21 | G96 | 0.3+ | 0.1− | 2009 11 08 | 691 | 0.1+ | 0.2+ |
| 2008 09 22 | G96 | 0.2+ | 0.1− | 2009 10 21 | G96 | 0.7+ | 0.1+ | 2009 11 08 | 691 | 0.2− | 0.2+ |
| 2009 09 18 | 691 | 0.2− | 0.1+ | 2009 10 21 | G96 | 0.6+ | 0.3− | 2009 11 08 | 691 | 0.1+ | 0.0 |
| 2009 09 18 | 691 | 0.1+ | 0.2− | 2009 10 21 | G96 | 0.3+ | 0.0 | 2009 11 11 | 691 | 0.3− | 0.2− |
| 2009 09 18 | 691 | 0.0 | 0.2− | 2009 10 21 | G96 | 0.5+ | 0.5− | 2009 11 11 | 691 | 0.2− | 0.1− |
| 2009 09 22 | 691 | 0.4− | 0.1+ | 2009 10 21 | G96 | 0.3+ | 0.7− | 2009 11 11 | 691 | 0.1+ | 0.1− |

**2009 VX$_{26}$ = 2007 DN$_{76}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 277.20369 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.25893999 | $\omega$ | 207.83942 | | −0.88499779 | −0.46417710 | |
| $a$ | 2.4378293 | $\Omega$ | 304.45784 | | +0.43493892 | −0.79637700 | |
| $e$ | 0.0446825 | $i$ | 2.52403 | | +0.16615370 | −0.38771547 | |
| $P$ | 3.81 | $H$ | 17.5 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 24 | 691 | 0.1+ | 0.1+ | 2007 02 25 | 291 | 0.4− | 0.1+ | 2009 11 08 | 691 | 0.1+ | 0.0 |
| 2005 10 24 | 691 | 0.0 | 0.3+ | 2007 02 25 | 291 | 0.4− | 0.1− | 2009 11 11 | G96 | 0.4+ | 0.4− |
| 2005 10 24 | 691 | 0.3− | 0.2+ | 2007 02 25 | 291 | 0.3− | 0.0 | 2009 11 11 | G96 | 0.4+ | 0.3− |
| 2005 11 01 | 691 | 0.3− | 0.5+ | 2007 03 12 | G96 | 0.4+ | 0.0 | 2009 11 11 | G96 | 0.5+ | 0.5− |
| 2005 11 01 | 691 | 0.2+ | 0.2− | 2007 03 12 | G96 | 0.4+ | 0.1− | 2009 11 11 | G96 | 0.5+ | 0.1+ |
| 2005 11 01 | 691 | 0.3+ | 0.7− | 2007 03 12 | G96 | 0.4+ | 0.0 | 2009 11 23 | 691 | 0.0 | 0.0 |
| 2007 02 22 | 691 | 0.4+ | 0.4+ | 2007 03 12 | G96 | 0.3+ | 0.1+ | 2009 11 23 | 691 | 0.2− | 0.0 |
| 2007 02 22 | 691 | 0.0 | 0.1+ | 2009 11 08 | 691 | 0.0 | 0.5+ | 2009 11 23 | 691 | 0.2− | 0.2− |
| 2007 02 22 | 691 | 0.3+ | 0.3− | 2009 11 08 | 691 | 0.1− | 0.2− | | | | |

**2009 VY$_{26}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 40.81873 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17356271 | $\omega$ | 102.34967 | | +0.99366393 | −0.05564304 | |
| $a$ | 3.1829643 | $\Omega$ | 260.89950 | | +0.01426776 | +0.92426873 | |
| $e$ | 0.2164344 | $i$ | 5.67563 | | +0.11148288 | +0.37766543 | |
| $P$ | 5.68 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 19 | 691 | 0.3− | 0.2+ | 2003 10 18 | 691 | 0.1+ | 0.2− | 2009 11 11 | G96 | 0.5+ | 0.3− |
| 2003 09 19 | 691 | 0.1+ | 0.2+ | 2003 10 18 | 691 | 0.2+ | 0.2− | 2009 11 25 | 691 | 0.3+ | 0.1− |
| 2003 09 19 | 691 | 0.2+ | 0.2+ | 2009 11 08 | 691 | 0.6− | 0.1+ | 2009 11 25 | 691 | 0.0 | 0.1+ |
| 2003 09 22 | 699 | 0.1+ | 0.8− | 2009 11 08 | 691 | 0.0 | 0.0 | 2009 11 25 | 691 | 0.2− | 0.1+ |
| 2003 09 22 | 699 | (0.1+ | 1.6−) | 2009 11 08 | 691 | 0.3− | 0.3− | 2009 11 27 | 691 | 0.1+ | 0.0 |
| 2003 09 22 | 699 | 1.0− | 0.6+ | 2009 11 11 | G96 | 0.0 | 0.2− | 2009 11 27 | 691 | 0.2+ | 0.0 |
| 2003 09 22 | 699 | (0.7− | 2.5+) | 2009 11 11 | G96 | 0.1+ | 0.6− | 2009 11 27 | 691 | 0.1+ | 0.4+ |
| 2003 10 18 | 691 | 0.1− | 0.2− | 2009 11 11 | G96 | 0.3+ | 0.1− | | | | |

**2009 VO$_{27}$ = 2005 WX$_{113}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 87.53484 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23695856 | $\omega$ | 265.68241 | | +0.76709623 | +0.60204850 | |
| $a$ | 2.5863529 | $\Omega$ | 57.13993 | | −0.43220679 | +0.74024542 | |
| $e$ | 0.1288272 | $i$ | 15.29537 | | −0.47408930 | +0.29928969 | |
| $P$ | 4.16 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 30 | G96 | 0.4+ | 0.2− | 2009 10 27 | 691 | 0.1− | 0.2− | 2009 11 23 | G96 | 0.5+ | 0.8− |
| 2005 10 30 | G96 | 0.1+ | 0.2− | 2009 11 08 | 691 | 0.1+ | 0.0 | 2009 11 23 | G96 | 0.6+ | 0.4− |
| 2005 10 30 | G96 | 0.1+ | 0.1+ | 2009 11 08 | 691 | 0.0 | 0.0 | 2009 12 11 | G96 | 0.1− | 0.5+ |
| 2005 10 30 | G96 | 0.4+ | 0.3+ | 2009 11 08 | 691 | 0.1+ | 0.3− | 2009 12 11 | G96 | 0.4+ | 0.0 |
| 2005 11 28 | 691 | 0.1− | 0.0 | 2009 11 11 | 691 | 0.4− | 0.1− | 2009 12 11 | G96 | 0.3− | 0.5+ |
| 2005 11 28 | 691 | 0.2− | 0.2− | 2009 11 11 | 691 | 0.2+ | 0.2+ | 2009 12 11 | G96 | 0.5+ | 0.5+ |
| 2005 11 28 | 691 | 0.1− | 0.2− | 2009 11 11 | 691 | 0.4− | 0.2+ | 2009 12 18 | G96 | 0.3+ | 0.3− |
| 2005 12 01 | 691 | 0.2− | 0.2+ | 2009 11 11 | J75 | 0.2+ | 0.8+ | 2009 12 18 | G96 | 0.4− | 0.4− |
| 2005 12 01 | 691 | 0.1+ | 0.0 | 2009 11 11 | J75 | 0.3+ | 0.6− | 2009 12 18 | G96 | 0.1− | 0.1+ |
| 2005 12 01 | 691 | 0.2+ | 0.2+ | 2009 11 11 | J75 | 0.1− | 0.1+ | 2009 12 18 | G96 | 0.3+ | 0.0 |
| 2009 10 27 | 691 | 0.2− | 0.1+ | 2009 11 23 | G96 | 0.4+ | 0.1− | | | | |
| 2009 10 27 | 691 | 0.2+ | 0.1+ | 2009 11 23 | G96 | 0.1− | 0.2+ | | | | |

**2009 VD$_{28}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 51.06834 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19324251 | $\omega$ | 306.57944 | | +0.98721136 | −0.00366291 | |
| $a$ | 2.9630178 | $\Omega$ | 54.17057 | | +0.08321557 | +0.86456097 | |
| $e$ | 0.1276742 | $i$ | 11.33667 | | −0.13597390 | +0.50251459 | |
| $P$ | 5.10 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 02 | 703 | 0.2− | 0.0 | 2009 11 08 | 703 | 1.1− | 0.1− | 2009 11 15 | 703 | 0.5+ | 0.2− |
| 2004 12 02 | 703 | 0.7+ | 0.1− | 2009 11 08 | 703 | 0.0 | 0.5+ | 2009 11 15 | 703 | 0.4− | 0.4+ |
| 2004 12 02 | 703 | 0.0 | 0.2+ | 2009 11 10 | J75 | 0.8+ | 0.2+ | 2009 11 23 | 703 | 0.9− | 0.1− |
| 2004 12 02 | 703 | 0.3− | 0.6− | 2009 11 10 | J75 | 1.2+ | 1.5− | 2009 11 23 | G96 | 0.0 | 0.1− |
| 2007 03 15 | G96 | 0.3+ | 0.1+ | 2009 11 10 | J75 | 0.2+ | 0.0 | 2009 11 23 | 703 | 0.2+ | 0.1+ |
| 2007 03 15 | G96 | 0.3+ | 0.2+ | 2009 11 11 | 691 | 0.1− | 0.2+ | 2009 11 23 | G96 | 0.3+ | 0.1− |
| 2007 03 15 | G96 | 0.2+ | 0.1− | 2009 11 11 | 691 | 0.3− | 0.2+ | 2009 11 23 | 703 | 0.7+ | 0.7− |
| 2007 03 15 | G96 | 0.4− | 0.3+ | 2009 11 11 | 691 | 0.1− | 0.2+ | 2009 11 23 | G96 | 0.0 | 0.0 |
| 2007 05 10 | 691 | 0.0 | 0.1+ | 2009 11 11 | G96 | 0.1− | 0.0 | 2009 11 23 | 703 | 0.2+ | 0.0 |
| 2007 05 10 | 691 | 0.2− | 0.1− | 2009 11 11 | G96 | 0.0 | 0.1− | 2009 11 23 | G96 | 0.2+ | 0.1− |
| 2007 05 10 | 691 | 0.1+ | 0.1− | 2009 11 11 | G96 | 0.0 | 0.2− | 2009 11 23 | 703 | 0.1+ | 0.8+ |
| 2009 10 22 | G96 | 0.0 | 0.3− | 2009 11 11 | G96 | 0.1− | 0.2− | 2009 12 18 | G96 | 0.3− | 0.4− |
| 2009 10 22 | G96 | 0.5+ | 0.2− | 2009 11 11 | J75 | 0.1+ | 0.2− | 2009 12 18 | G96 | 0.6+ | 0.2+ |
| 2009 10 22 | G96 | 0.1− | 0.0 | 2009 11 11 | J75 | 0.1− | 0.1+ | 2009 12 18 | G96 | 0.3+ | 0.3+ |
| 2009 10 22 | G96 | 0.3+ | 0.1− | 2009 11 11 | J75 | 0.2+ | 0.1− | 2009 12 18 | G96 | 0.1+ | 0.1+ |
| 2009 11 08 | 703 | 0.6− | 0.9− | 2009 11 15 | 703 | 0.5− | 0.7+ | | | | |
| 2009 11 08 | 703 | 0.2− | 0.6− | 2009 11 15 | 703 | 0.3− | 0.6+ | | | | |

**2009 VE$_{28}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 348.59914 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27419165 | $\omega$ | 222.15893 | | +0.01707360 | −0.99848288 | |
| $a$ | 2.3465685 | $\Omega$ | 226.93501 | | +0.93541702 | +0.03444300 | |
| $e$ | 0.1757530 | $i$ | 4.10901 | | +0.35313381 | −0.04296069 | |
| $P$ | 3.59 | $H$ | 17.5 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 12 | 691 | 0.6+ | 0.1+ | 2009 11 10 | J75 | 0.5+ | 0.8+ | 2009 11 20 | 704 | 0.3+ | 0.8− |
| 2005 09 12 | 691 | 0.0 | 0.0 | 2009 11 10 | J75 | 0.2+ | 0.4+ | 2009 11 20 | 704 | 0.2− | 0.0 |
| 2005 09 12 | 691 | 0.6− | 0.1+ | 2009 11 11 | 691 | 0.2− | 0.2+ | 2009 11 20 | 704 | 0.7+ | 0.6− |
| 2005 11 01 | G96 | 0.1− | 0.4− | 2009 11 11 | 691 | 0.3− | 0.3+ | 2009 11 20 | 704 | 0.2+ | 0.2+ |
| 2005 11 01 | G96 | 0.0 | 0.3− | 2009 11 11 | 691 | 0.3− | 0.3+ | 2009 11 20 | 704 | 0.8− | 0.5− |
| 2005 11 01 | G96 | 0.0 | 0.2− | 2009 11 11 | G96 | 1.0+ | 0.2− | 2009 11 22 | 703 | 0.4− | 0.1+ |
| 2005 11 01 | G96 | 0.0 | 0.2− | 2009 11 11 | G96 | 0.2− | 0.0 | 2009 11 22 | 703 | 0.5− | 0.4− |
| 2007 04 22 | G96 | 0.1− | 0.0 | 2009 11 11 | G96 | 0.2+ | 0.3− | 2009 11 22 | 703 | 1.1− | 0.4− |
| 2007 04 22 | G96 | 0.2− | 0.1+ | 2009 11 11 | G96 | 0.1− | 0.0 | 2009 11 22 | 703 | 0.4− | 1.3− |
| 2007 04 22 | G96 | 0.2+ | 0.2+ | 2009 11 11 | J75 | 0.3+ | 0.3+ | 2009 11 23 | G96 | 0.3− | 0.2+ |
| 2007 04 22 | G96 | 0.1+ | 0.2− | 2009 11 11 | J75 | 0.5+ | 0.0 | 2009 11 23 | G96 | 0.4+ | 0.1+ |
| 2009 10 18 | G96 | 0.1+ | 0.1− | 2009 11 11 | J75 | 0.1+ | 0.3+ | 2009 11 23 | G96 | 0.1+ | 0.1− |
| 2009 10 18 | G96 | 0.2− | 0.1+ | 2009 11 14 | J75 | 0.5+ | 0.3− | 2009 12 11 | G96 | 0.4+ | 0.1+ |
| 2009 10 18 | G96 | 0.1+ | 0.1− | 2009 11 14 | J75 | 0.2− | 0.8− | 2009 12 11 | G96 | 0.3+ | 0.0 |
| 2009 10 18 | G96 | 0.4+ | 0.3− | 2009 11 14 | J75 | 0.5+ | 0.9− | 2009 12 11 | G96 | 0.1+ | 0.2+ |
| 2009 11 08 | 703 | 0.3+ | 0.3− | 2009 11 18 | 704 | 0.5− | 0.2+ | 2009 12 11 | G96 | 0.0 | 0.3+ |
| 2009 11 08 | 703 | 0.3− | 0.6− | 2009 11 18 | 704 | 0.6+ | 0.1+ | 2009 12 19 | G96 | 0.0 | 0.0 |
| 2009 11 08 | 703 | 0.4+ | 0.1− | 2009 11 18 | 704 | 0.2− | 0.6+ | 2009 12 19 | G96 | 0.0 | 0.2+ |
| 2009 11 08 | 703 | 0.3− | 1.2+ | 2009 11 18 | 704 | 0.1+ | 0.1+ | 2009 12 19 | G96 | 0.2− | 0.2− |
| 2009 11 10 | J75 | 0.5+ | 0.3+ | 2009 11 18 | 704 | 0.1− | 0.4− | 2009 12 19 | G96 | 0.2+ | 0.1+ |

**2009 VA$_{29}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 19.82243 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23563152 | $\omega$ | 175.65074 | | +0.90560784 | −0.42296766 | |
| $a$ | 2.5960544 | $\Omega$ | 209.43383 | | +0.38717924 | +0.85451522 | |
| $e$ | 0.1766227 | $i$ | 3.63894 | | +0.17310886 | +0.30149976 | |
| $P$ | 4.18 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 01 | G96 | 0.2− | 0.1− | 2009 09 16 | 691 | 0.1− | 0.1− | 2009 11 11 | G96 | 0.0 | 0.0 |
| 2005 10 01 | G96 | 0.1+ | 0.3− | 2009 09 16 | 691 | 0.0 | 0.2− | 2009 11 11 | G96 | 0.5+ | 0.2− |
| 2005 10 01 | G96 | 0.5+ | 0.1− | 2009 09 26 | 691 | 0.2− | 0.1− | 2009 11 11 | G96 | 0.4+ | 0.1− |
| 2005 10 01 | G96 | 0.1− | 0.0 | 2009 09 26 | 691 | 0.1− | 0.1− | 2009 11 17 | 691 | 0.1+ | 0.1+ |
| 2005 12 01 | G96 | 0.1− | 0.2− | 2009 09 26 | 691 | 0.1+ | 0.3− | 2009 11 17 | 691 | 0.3− | 0.2+ |
| 2005 12 01 | G96 | 0.2− | 0.2− | 2009 10 14 | G96 | 0.4+ | 0.2− | 2009 11 17 | 691 | 0.2− | 0.5+ |
| 2005 12 01 | G96 | 0.4− | 0.2− | 2009 10 14 | G96 | 0.4+ | 0.2− | 2009 11 17 | 691 | 0.0 | 0.1− |
| 2005 12 01 | G96 | 0.2− | 0.3− | 2009 10 14 | G96 | 0.7+ | 0.0 | 2009 11 17 | 691 | (0.3− | 1.9−) |
| 2005 12 29 | G96 | 0.4+ | 0.6− | 2009 10 14 | G96 | 0.4+ | 0.3− | 2009 11 17 | 691 | 0.1− | 0.0 |
| 2005 12 29 | G96 | 0.1+ | 0.2− | 2009 10 21 | 703 | (0.5+ | 1.6+) | 2009 11 20 | 691 | 0.0 | 0.3+ |
| 2005 12 29 | G96 | 0.2+ | 0.5− | 2009 10 21 | 703 | 0.3+ | 0.4+ | 2009 11 20 | 691 | 0.0 | 0.1− |
| 2005 12 29 | G96 | 0.4+ | 0.1− | 2009 10 21 | 703 | 0.5− | 1.3+ | 2009 11 20 | 691 | 0.1+ | 0.0 |
| 2007 03 13 | G96 | 0.1+ | 0.2+ | 2009 10 21 | 703 | (0.8− | 2.1−) | 2009 12 15 | G96 | 0.4+ | 0.0 |
| 2007 03 13 | G96 | 0.4− | 0.4+ | 2009 11 09 | 691 | 0.3− | 0.1+ | 2009 12 15 | G96 | 0.1− | 0.1+ |
| 2007 03 13 | G96 | 0.3+ | 0.2+ | 2009 11 09 | 691 | 0.1+ | 0.1+ | 2009 12 15 | G96 | 0.0 | 0.2− |
| 2007 03 13 | G96 | 0.2+ | 0.1− | 2009 11 09 | 691 | 0.2− | 0.1+ | 2009 12 15 | G96 | 0.0 | 0.4+ |
| 2009 09 16 | 691 | 0.1− | 0.0 | 2009 11 11 | G96 | 0.1+ | 0.1− | | | | |

**2009 VO$_{29}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 13.43705 | | (2000.0) | | | |
| $n$ | 0.17966292 | $\omega$ | 3.47764 | | +0.64822854 | −0.75088276 |
| $a$ | 3.1105014 | $\Omega$ | 46.16510 | | +0.69431703 | +0.51473532 |
| $e$ | 0.0932665 | $i$ | 10.09135 | | +0.31260776 | +0.41379056 |
| $P$ | 5.49 | $H$ | 15.5 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 04 30 | 691 | 0.5+ | 0.5+ | 2009 11 09 | 691 | 0.3− | 0.1− | 2009 11 24 | G96 | 0.0 | 0.1− |
| 2001 04 30 | 691 | 0.6+ | 0.7+ | 2009 11 09 | 691 | 0.4− | 0.2− | 2009 11 24 | G96 | 0.4+ | 0.0 |
| 2001 04 30 | 691 | 0.2+ | 1.0+ | 2009 11 09 | J75 | 0.0 | 0.1− | 2009 11 24 | G96 | 0.5+ | 0.2+ |
| 2001 08 19 | 807 | 0.2− | 0.6+ | 2009 11 09 | J75 | 0.1+ | 0.0 | 2009 11 24 | G96 | 0.4+ | 0.2− |
| 2001 08 20 | 807 | 0.2+ | 0.5+ | 2009 11 09 | J75 | 0.1− | 0.0 | 2009 11 25 | 691 | 0.4− | 0.2+ |
| 2003 09 19 | 644 | 0.4− | 0.5+ | 2009 11 10 | J75 | 0.2+ | 0.8− | 2009 11 25 | 691 | 0.2− | 0.6+ |
| 2003 09 19 | 644 | 0.1− | 0.5+ | 2009 11 10 | J75 | 0.3− | 0.2− | 2009 11 25 | 691 | 0.4− | 0.3+ |
| 2003 09 19 | 644 | 0.3− | 0.5+ | 2009 11 10 | J75 | 0.9+ | 0.3− | 2009 11 26 | G96 | 0.4− | 0.6− |
| 2003 09 22 | 699 | 0.1+ | 0.4+ | 2009 11 11 | J75 | 0.2+ | 0.1− | 2009 11 26 | G96 | 0.1+ | 0.1+ |
| 2003 09 22 | 699 | 0.4− | 0.9+ | 2009 11 11 | J75 | 0.7+ | 0.5+ | 2009 11 26 | G96 | 0.4− | 0.4− |
| 2003 09 22 | 699 | 0.7− | 1.3+ | 2009 11 11 | J75 | 0.1+ | 0.2− | 2009 11 26 | G96 | 0.1+ | 0.2+ |
| 2003 09 22 | 699 | 0.7− | 0.1+ | 2009 11 15 | 703 | (2.8− | 0.5+) | 2009 11 26 | G96 | 0.3+ | 0.6− |
| 2005 01 06 | 703 | 0.1− | 0.0 | 2009 11 15 | 703 | 0.1+ | 0.5+ | 2009 11 26 | G96 | 0.3+ | 0.1+ |
| 2005 01 06 | 703 | 0.2+ | 0.1+ | 2009 11 15 | 703 | 1.5+ | 0.2+ | 2009 11 26 | G96 | 0.1− | 0.5− |
| 2005 01 06 | 703 | 0.2+ | 0.3− | 2009 11 15 | 703 | 1.3+ | 0.0 | 2009 11 26 | G96 | 0.4+ | 0.2+ |
| 2005 01 06 | 703 | 0.3− | 0.4+ | 2009 11 17 | 704 | 0.7+ | 1.3+ | 2009 11 26 | G96 | 0.0 | 0.4− |
| 2009 09 18 | G96 | 0.3+ | 0.3− | 2009 11 17 | 704 | 0.2+ | 1.0+ | 2009 11 26 | G96 | 0.5+ | 0.1+ |
| 2009 09 18 | G96 | 0.3+ | 0.3− | 2009 11 17 | 704 | 0.1− | 0.3+ | 2009 11 27 | 691 | 0.3− | 0.1+ |
| 2009 09 18 | G96 | 0.3+ | 0.2− | 2009 11 17 | 704 | 0.9+ | 1.4+ | 2009 11 27 | 691 | 0.7− | 0.2+ |
| 2009 10 22 | 703 | 0.8+ | 0.2− | 2009 11 17 | 704 | 0.2+ | 0.6+ | 2009 11 27 | 691 | 0.5− | 0.0 |
| 2009 10 22 | 703 | 0.4+ | 0.3+ | 2009 11 22 | 703 | 0.5− | 0.2− | 2009 12 18 | G96 | 0.2− | 0.2− |
| 2009 10 22 | 703 | (0.6− | 2.3−) | 2009 11 22 | 703 | (1.3− | 1.6+) | 2009 12 18 | G96 | 0.4+ | 0.3− |
| 2009 10 22 | 703 | (0.0 | 4.6−) | 2009 11 22 | 703 | 0.6+ | 0.3− | 2009 12 18 | G96 | 0.0 | 0.2− |
| 2009 11 09 | 691 | 0.4− | 0.1+ | 2009 11 22 | 703 | 1.0+ | 0.6+ | 2009 12 18 | G96 | 0.0 | 0.2− |

**2009 VS$_{29}$ = 2001 FU$_{183}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 335.65901 | | (2000.0) | | | |
| $n$ | 0.18377065 | $\omega$ | 247.08966 | | +0.31571298 | −0.94882966 |
| $a$ | 3.0639755 | $\Omega$ | 184.52329 | | +0.89946528 | +0.30158696 |
| $e$ | 0.0526068 | $i$ | 5.01872 | | +0.30213824 | +0.09363541 |
| $P$ | 5.36 | $H$ | 16.7 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 03 25 | 695 | 0.1− | 0.1+ | 2009 09 27 | 691 | 0.1− | 0.1− | 2009 11 09 | 703 | 0.2+ | 1.0− |
| 2001 03 25 | 695 | 0.2+ | 0.0 | 2009 10 26 | 691 | 0.5− | 0.1+ | 2009 11 11 | 691 | 0.0 | 0.3+ |
| 2001 03 26 | 691 | 0.2− | 0.0 | 2009 10 26 | 691 | 0.1− | 0.0 | 2009 11 11 | 691 | 0.0 | 0.0 |
| 2001 03 26 | 691 | 0.1− | 0.0 | 2009 10 26 | 691 | 0.7+ | 0.4− | 2009 11 11 | 691 | 0.1+ | 0.0 |
| 2001 03 26 | 691 | 0.3+ | 0.0 | 2009 11 09 | 703 | 0.0 | 0.2+ | 2009 11 17 | 691 | 0.1+ | 0.1− |
| 2009 09 27 | 691 | 0.1+ | 0.1+ | 2009 11 09 | 703 | 1.1− | 0.7+ | 2009 11 17 | 691 | 0.0 | 0.0 |
| 2009 09 27 | 691 | 0.0 | 0.1+ | 2009 11 09 | 703 | (1.6+ | 0.9−) | 2009 11 17 | 691 | 0.0 | 0.0 |

**2009 VU$_{33}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 282.95816 | | (2000.0) | | | |
| $n$ | 0.23584474 | $\omega$ | 272.00902 | | −0.83163744 | −0.52002365 |
| $a$ | 2.5944895 | $\Omega$ | 236.71126 | | +0.55516269 | −0.78688315 |
| $e$ | 0.0861572 | $i$ | 13.47736 | | −0.01317387 | −0.33225038 |
| $P$ | 4.18 | $H$ | 16.3 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 30 | G96 | 0.3+ | 0.3− | 2007 04 13 | E12 | 0.4+ | 0.2+ | 2009 11 11 | J75 | 0.3+ | 0.3− |
| 2005 09 30 | G96 | 0.2+ | 0.9− | 2009 10 24 | 691 | 0.6− | 0.2+ | 2009 11 15 | 703 | (0.5+ | 1.7−) |
| 2005 09 30 | G96 | 0.2− | 0.5− | 2009 10 24 | 691 | 0.8− | 0.2− | 2009 11 15 | 703 | 0.3− | 0.4− |
| 2005 09 30 | G96 | 0.2− | 0.2+ | 2009 10 24 | 691 | 0.1+ | 0.1+ | 2009 11 15 | 703 | 0.2+ | 1.2+ |
| 2005 11 10 | 691 | 0.1+ | 0.3+ | 2009 11 10 | G96 | 0.3+ | 0.0 | 2009 11 15 | 703 | 0.8− | 0.2+ |
| 2005 11 10 | 691 | 0.2+ | 0.1+ | 2009 11 10 | G96 | 0.0 | 0.3− | 2009 11 24 | G96 | 0.8+ | 0.2− |
| 2005 11 10 | 691 | 0.2− | 0.2+ | 2009 11 10 | G96 | 0.4+ | 0.2− | 2009 11 24 | G96 | 0.1+ | 0.0 |
| 2005 11 28 | 703 | 0.8+ | 0.3− | 2009 11 10 | G96 | 0.5+ | 0.2+ | 2009 11 24 | G96 | 0.7+ | 0.0 |
| 2005 11 28 | 703 | 1.1− | 0.2+ | 2009 11 11 | G96 | 0.1+ | 0.1− | 2009 11 24 | G96 | 0.6+ | 0.0 |
| 2005 11 28 | 703 | 1.0− | 0.6− | 2009 11 11 | G96 | 0.1+ | 0.2+ | 2009 12 15 | G96 | 0.4+ | 0.4− |
| 2005 11 28 | 703 | 0.8+ | 0.7− | 2009 11 11 | G96 | 0.5+ | 0.3− | 2009 12 15 | G96 | 0.0 | 0.2+ |
| 2007 04 13 | E12 | 0.2− | 0.9− | 2009 11 11 | G96 | 0.0 | 0.1− | 2009 12 15 | G96 | 0.0 | 0.1− |
| 2007 04 13 | E12 | 0.4+ | 0.3+ | 2009 11 11 | J75 | 0.3+ | 0.6+ | 2009 12 15 | G96 | 0.4− | 0.3+ |
| 2007 04 13 | E12 | 0.6− | 0.4+ | 2009 11 11 | J75 | 1.0+ | 0.4− | | | | |

**2009 VZ$_{33}$ = 2007 EO$_{74}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 118.68458 | | (2000.0) | | | |
| $n$ | 0.22627431 | $\omega$ | 325.67964 | | +0.51276339 | +0.85839435 |
| $a$ | 2.6671404 | $\Omega$ | 335.15801 | | −0.77931564 | +0.45792147 |
| $e$ | 0.0219201 | $i$ | 2.08155 | | −0.36019557 | +0.23122948 |
| $P$ | 4.36 | $H$ | 16.8 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1991 09 10 | 691 | 0.1− | 0.4+ | 2007 03 10 | 691 | 0.1− | 0.3+ | 2009 10 24 | 691 | 0.0 | 0.3+ |
| 1991 09 10 | 691 | 1.0− | 0.9+ | 2007 03 10 | 691 | 0.1− | 0.3+ | 2009 10 24 | 691 | 0.2− | 0.7+ |
| 1991 09 10 | 691 | 0.0 | 0.5+ | 2007 03 10 | 691 | 0.3+ | 0.0 | 2009 11 10 | G96 | 0.8+ | 0.2− |
| 2004 08 22 | 097 | (1.9+ | 0.1+) | 2007 03 14 | 691 | 0.2+ | 0.5+ | 2009 11 10 | G96 | 0.7+ | 0.2+ |
| 2004 08 22 | 097 | 0.5− | 1.0+ | 2007 03 14 | 691 | 0.5+ | 0.6+ | 2009 11 10 | G96 | 0.3+ | 0.0 |
| 2004 08 22 | 097 | 0.1− | 0.3+ | 2007 03 14 | 691 | 0.1+ | 0.7+ | 2009 11 10 | G96 | 0.5+ | 0.2− |
| 2004 08 22 | 097 | 0.0 | 0.5+ | 2007 03 18 | 691 | 0.1+ | 0.1+ | 2009 11 11 | G96 | 0.6+ | 0.2+ |
| 2004 08 22 | 097 | 0.0 | 1.1+ | 2007 03 18 | 691 | 0.1− | 0.7+ | 2009 11 11 | G96 | 0.2+ | 0.1− |
| 2004 08 22 | 097 | (4.2+ | 2.2−) | 2007 03 18 | 691 | 0.4+ | 0.5+ | 2009 11 11 | G96 | 0.0 | 0.2− |
| 2004 08 23 | 097 | 0.8+ | 0.1− | 2007 04 19 | G96 | 0.2+ | 0.2− | 2009 11 11 | G96 | 0.6+ | 0.1+ |
| 2004 08 23 | 097 | (0.2+ | 16.7+) | 2007 04 19 | G96 | 0.3+ | 0.4+ | 2009 11 23 | 691 | 0.0 | 0.4+ |
| 2005 11 29 | 691 | 0.3+ | 0.1+ | 2007 04 19 | G96 | 0.5+ | 0.1+ | 2009 11 23 | 691 | 0.2− | 0.4+ |
| 2005 11 29 | 691 | 0.1+ | 0.0 | 2007 04 19 | G96 | 0.1+ | 0.1+ | 2009 11 23 | 691 | 0.3− | 0.2+ |
| 2005 11 29 | 691 | 0.0 | 0.5− | 2009 10 24 | 691 | 1.2− | 0.3− | | | | |

**2009 VY$_{34}$ = 2002 DZ$_{19}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 121.55231 | | (2000.0) | | | |
| $n$ | 0.21792648 | $\omega$ | 25.42870 | | +0.35808348 | +0.93110342 |
| $a$ | 2.7348240 | $\Omega$ | 265.61766 | | −0.86809995 | +0.30462212 |
| $e$ | 0.1012687 | $i$ | 3.99382 | | −0.34377128 | +0.20062845 |
| $P$ | 4.52 | $H$ | 16.2 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 02 06 | 644 | 0.1− | 0.3+ | 2002 02 16 | 644 | 0.2− | 0.1− | 2009 11 10 | G96 | 0.3+ | 0.0 |
| 2002 02 06 | 644 | 0.3− | 0.2+ | 2005 12 01 | 691 | 0.2− | 0.0 | 2009 11 10 | G96 | 0.1+ | 0.0 |
| 2002 02 06 | 644 | 0.1+ | 0.6+ | 2005 12 01 | 691 | 0.3+ | 0.1+ | 2009 11 10 | G96 | 0.4+ | 0.0 |
| 2002 02 06 | 644 | 0.1+ | 0.4+ | 2005 12 01 | 691 | 0.0 | 0.1− | 2009 11 10 | G96 | 0.4+ | 0.0 |
| 2002 02 06 | 644 | 0.4+ | 0.3+ | 2008 07 23 | 620 | 0.3− | 1.5+ | 2009 11 11 | G96 | 0.0 | 0.2+ |
| 2002 02 06 | 644 | 0.2− | 0.3+ | 2008 07 23 | 620 | 0.0 | 0.1+ | 2009 11 11 | G96 | 0.6+ | 0.1+ |
| 2002 02 16 | 644 | 0.3+ | 0.1+ | 2009 10 24 | 691 | 0.2− | 0.1− | 2009 11 11 | G96 | 0.6+ | 0.0 |
| 2002 02 16 | 644 | 0.1− | 0.2+ | 2009 10 24 | 691 | 0.6− | 0.0 | 2009 11 11 | G96 | 0.1+ | 0.1− |
| 2002 02 16 | 644 | 0.4+ | 0.6− | 2009 10 24 | 691 | 0.1− | 0.1+ | | | | |

**2009 VX$_{37}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 59.53077 | | (2000.0) | | | |
| $n$ | 0.23704490 | $\omega$ | 297.23713 | | +0.98953137 | +0.03023954 |
| $a$ | 2.5857249 | $\Omega$ | 61.32965 | | +0.03902932 | +0.88529227 |
| $e$ | 0.1481020 | $i$ | 9.25527 | | −0.13894023 | +0.46405083 |
| $P$ | 4.16 | $H$ | 16.4 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 12 19 | 644 | 0.2+ | 0.4+ | 2009 11 08 | 703 | 0.9+ | 1.2− | 2009 11 17 | 704 | 1.2− | 0.3− |
| 2001 12 19 | 644 | 0.1+ | 0.2+ | 2009 11 08 | 703 | 0.2+ | 1.3− | 2009 11 17 | 704 | (0.5+ | 2.2+) |
| 2001 12 19 | 644 | 0.1+ | 0.6+ | 2009 11 08 | 691 | 0.1− | 0.0 | 2009 11 20 | 691 | 0.2− | 0.1+ |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 04 01 | 645 | 0.1+ | 0.0 | 2009 11 08 | 691 | 0.2+ | 0.1+ | 2009 11 20 | 691 | 0.0 | 0.0 |
| 2003 04 01 | 645 | 0.2+ | 0.0 | 2009 11 08 | 691 | 0.3− | 0.1− | 2009 11 20 | 691 | 0.2− | 0.1+ |
| 2003 04 09 | 691 | 0.3− | 0.4− | 2009 11 11 | J75 | 0.7+ | 0.1− | 2009 12 11 | 703 | 0.3+ | 0.0 |
| 2003 04 09 | 691 | 0.5− | 0.1+ | 2009 11 12 | J75 | 0.4+ | 0.3− | 2009 12 11 | 703 | 1.1− | 0.6− |
| 2003 04 09 | 691 | 0.6− | 0.2+ | 2009 11 12 | J75 | 0.1+ | 0.3− | 2009 12 11 | 703 | 0.3− | 0.9+ |
| 2005 11 28 | 691 | 0.2+ | 0.2− | 2009 11 15 | J75 | 0.3+ | 0.1+ | 2009 12 11 | 703 | 0.5− | 0.8+ |
| 2005 11 28 | 691 | 0.3− | 0.1− | 2009 11 15 | J75 | 1.1+ | 0.0 | 2009 12 18 | G96 | 0.3+ | 0.2− |
| 2005 11 28 | 691 | 0.0 | 0.4− | 2009 11 15 | J75 | 1.0+ | 0.1+ | 2009 12 18 | G96 | 0.5+ | 0.1− |
| 2009 11 08 | 703 | (0.2+ | 1.9+) | 2009 11 17 | 704 | (1.2− | 1.7+) | 2009 12 18 | G96 | 0.0 | 0.2− |
| 2009 11 08 | 703 | 0.9− | 1.3+ | 2009 11 17 | 704 | 0.6+ | 1.5+ | 2009 12 18 | G96 | 0.3+ | 0.2− |

**2009 VG$_{38}$ = 2001 YD$_{158}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 50.87321 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23179563 | $\omega$ | 345.43234 | | +0.98993355 | +0.14133008 | |
| $a$ | 2.6246167 | $\Omega$ | 6.45715 | | −0.12218144 | +0.88037056 | |
| $e$ | 0.1937651 | $i$ | 3.86207 | | −0.07143714 | +0.45273997 | |
| $P$ | 4.25 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 12 18 | 645 | 0.0 | 0.0 | 2007 03 11 | G96 | 0.8+ | 0.3− | 2009 11 11 | J75 | 0.0 | 0.0 |
| 2001 12 18 | 645 | 0.1+ | 0.1+ | 2009 10 28 | J75 | 0.4+ | 0.3− | 2009 11 17 | 704 | 0.9+ | 0.7+ |
| 2001 12 19 | 645 | 0.1− | 0.1− | 2009 10 28 | J75 | 0.4− | 0.3− | 2009 11 17 | 704 | (1.8+ | 1.0+) |
| 2001 12 19 | 645 | 0.1− | 0.1− | 2009 10 28 | J75 | 0.5+ | 0.1+ | 2009 11 17 | 704 | 0.2+ | 0.3+ |
| 2005 11 28 | 691 | 0.6− | 1.2+ | 2009 11 08 | G96 | 0.3+ | 0.1− | 2009 11 17 | 704 | 0.8− | 1.2− |
| 2005 11 28 | 691 | 0.0 | 0.1+ | 2009 11 08 | G96 | 0.2+ | 0.1+ | 2009 11 22 | G96 | 0.2− | 0.0 |
| 2005 11 28 | 691 | 0.5+ | 0.1− | 2009 11 08 | G96 | 0.1+ | 0.1− | 2009 11 22 | G96 | 0.4− | 0.6− |
| 2007 03 11 | G96 | 0.4− | 0.0 | 2009 11 08 | G96 | 0.1+ | 0.1− | 2009 11 22 | G96 | 0.3− | 0.1− |
| 2007 03 11 | G96 | 0.4− | 0.1+ | 2009 11 11 | J75 | 0.5+ | 0.8− | 2009 11 22 | G96 | 0.2− | 0.1− |
| 2007 03 11 | G96 | 0.2− | 0.0 | 2009 11 11 | J75 | 0.1− | 0.1+ | | | | |

**2009 VH$_{38}$ = 2002 YS$_{30}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 19.52521 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27607256 | $\omega$ | 153.29221 | | +0.54863051 | −0.83307183 | |
| $a$ | 2.3358981 | $\Omega$ | 263.35709 | | +0.75379149 | +0.52944224 | |
| $e$ | 0.1758335 | $i$ | 4.08057 | | +0.36166690 | +0.16025677 | |
| $P$ | 3.57 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 12 20 | 691 | 0.1− | 0.2+ | 2005 10 06 | 691 | 0.2− | 0.3+ | 2009 12 08 | J75 | 0.3− | 0.8− |
| 1995 12 20 | 691 | 0.1+ | 0.0 | 2005 10 06 | 691 | 0.2− | 0.0 | 2009 12 09 | J75 | 0.1− | 0.6− |
| 1995 12 20 | 691 | 0.1+ | 0.1− | 2005 10 06 | 691 | 0.2− | 0.3+ | 2009 12 09 | J75 | 0.3+ | 0.0 |
| 2002 12 31 | 704 | 0.1− | 0.8+ | 2009 11 08 | G96 | 0.2+ | 0.3− | 2009 12 09 | J75 | 0.2+ | 0.1− |
| 2002 12 31 | 704 | 0.3+ | 1.5+ | 2009 11 08 | G96 | 0.3+ | 0.0 | 2009 12 15 | G96 | 0.2+ | 0.1− |
| 2002 12 31 | 704 | 0.2− | 0.5− | 2009 11 08 | G96 | 0.2− | 0.2− | 2009 12 15 | G96 | 0.1+ | 0.1− |
| 2002 12 31 | 704 | 0.5− | 0.2− | 2009 11 08 | G96 | 0.1− | 0.1− | 2009 12 15 | G96 | 0.6+ | 0.5− |
| 2003 01 04 | 704 | 0.1− | 1.0+ | 2009 11 12 | J75 | 0.5− | 0.0 | 2009 12 15 | G96 | 0.1+ | 0.4− |
| 2003 01 04 | 704 | 0.1− | 0.2+ | 2009 11 12 | J75 | 0.7− | 0.6− | 2009 12 16 | 704 | 0.9+ | 0.8+ |
| 2003 01 04 | 704 | 0.9+ | 1.0+ | 2009 11 12 | J75 | 0.6+ | 0.0 | 2009 12 16 | 704 | 0.9− | 0.0 |
| 2003 01 04 | 704 | 0.4− | 0.8+ | 2009 11 17 | 691 | 0.2− | 0.1− | 2009 12 16 | 704 | 0.8+ | 1.1+ |
| 2003 01 08 | 704 | 0.5+ | 0.6− | 2009 11 17 | 691 | 0.2− | 0.1− | 2009 12 16 | 704 | 0.8+ | 0.8+ |
| 2003 01 08 | 704 | 0.2− | 0.2− | 2009 11 17 | 691 | 0.3− | 0.4− | 2009 12 16 | 704 | 0.1+ | 0.1+ |
| 2003 01 08 | 704 | 0.2− | 0.1+ | 2009 12 06 | J75 | 0.5− | 0.6− | 2009 12 18 | I15 | 0.3+ | 0.0 |
| 2003 01 08 | 704 | 0.2+ | 0.2+ | 2009 12 06 | J75 | 0.1+ | 0.3+ | 2009 12 18 | I15 | 0.2− | 0.1− |
| 2005 08 26 | 644 | 0.3+ | 0.2+ | 2009 12 06 | J75 | 0.5+ | 0.2+ | 2009 12 18 | I15 | 0.1− | 0.8− |
| 2005 08 26 | 644 | 0.3+ | 0.3+ | 2009 12 08 | J75 | 0.9+ | 0.0 | | | | |
| 2005 08 26 | 644 | 0.4+ | 0.1+ | 2009 12 08 | J75 | 0.1− | 0.1+ | | | | |

**2009 VP$_{39}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 12.77618 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21331535 | $\omega$ | 338.89048 | | +0.63156227 | −0.77137809 | |
| $a$ | 2.7740949 | $\Omega$ | 71.85836 | | +0.72260695 | +0.54909690 | |
| $e$ | 0.0598539 | $i$ | 4.71626 | | +0.28101299 | +0.32166509 | |
| $P$ | 4.62 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1993 04 22 | 691 | 0.2+ | 0.1− | 2009 11 10 | J75 | 1.1− | 0.5− | 2009 11 16 | G96 | 0.0 | 0.1+ |
| 1993 04 22 | 691 | 0.1− | 0.1+ | 2009 11 10 | J75 | 0.3− | 0.5+ | 2009 11 18 | 704 | 1.2− | 0.1+ |
| 1993 04 22 | 691 | 0.1− | 0.1− | 2009 11 11 | J75 | (1.6− | 0.0 ) | 2009 11 18 | 704 | 1.1+ | 1.1+ |
| 1997 02 03 | 691 | 0.2+ | 0.3+ | 2009 11 11 | J75 | 1.0− | 0.3+ | 2009 11 18 | 704 | 0.4+ | 0.7− |
| 1997 02 03 | 691 | 0.0 | 0.1− | 2009 11 11 | J75 | 0.1+ | 0.2+ | 2009 11 18 | 704 | 0.4+ | 0.5− |
| 1997 02 03 | 691 | 0.2− | 0.3− | 2009 11 14 | J75 | 0.5− | 0.8− | 2009 11 20 | 704 | 0.9+ | 0.3+ |
| 2007 03 15 | G96 | 0.1− | 0.4+ | 2009 11 14 | J75 | (2.0+ | 1.1−) | 2009 11 20 | 704 | 1.0+ | 0.6+ |
| 2007 03 15 | G96 | 0.3+ | 0.0 | 2009 11 14 | J75 | 1.2+ | 0.2− | 2009 11 20 | 704 | 0.3− | 1.0+ |
| 2007 03 15 | G96 | 0.1+ | 0.2+ | 2009 11 15 | 703 | 0.1− | 1.1+ | 2009 11 20 | 704 | 0.5− | 1.3+ |
| 2007 03 15 | G96 | 0.5+ | 0.5+ | 2009 11 15 | 703 | 0.2+ | 0.6− | 2009 11 23 | G96 | 0.3− | 0.2− |
| 2007 04 22 | G96 | 0.2− | 0.0 | 2009 11 15 | 703 | 1.1+ | 1.4+ | 2009 11 23 | G96 | 0.1− | 0.5− |
| 2007 04 22 | G96 | 0.1− | 0.2+ | 2009 11 15 | 703 | 0.4− | 0.6+ | 2009 11 23 | G96 | 0.0 | 0.3− |
| 2007 04 22 | G96 | 0.2+ | 0.0 | 2009 11 16 | G96 | 0.2− | 0.0 | 2009 11 23 | G96 | 0.2+ | 0.4− |
| 2007 04 22 | G96 | 0.1− | 0.1− | 2009 11 16 | G96 | 0.4+ | 0.1− | 2009 12 11 | G96 | 0.2− | 0.2− |
| 2009 10 22 | G96 | 0.2− | 0.3− | 2009 11 16 | G96 | 0.3+ | 0.1+ | 2009 12 11 | G96 | 0.3− | 0.3− |
| 2009 10 22 | G96 | 0.1+ | 0.3− | 2009 11 16 | G96 | 0.2− | 0.0 | 2009 12 11 | G96 | 0.0 | 0.3− |
| 2009 10 22 | G96 | 0.4− | 0.2− | 2009 11 16 | G96 | 1.0− | 0.7− | 2009 12 11 | G96 | 0.4− | 0.3− |
| 2009 10 22 | G96 | 0.1− | 0.0 | 2009 11 16 | G96 | 0.9+ | 0.1− | | | | |
| 2009 11 10 | J75 | 0.1− | 0.4− | 2009 11 16 | G96 | 0.2+ | 0.1− | | | | |

**2009 VR$_{39}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 359.71559 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22691930 | $\omega$ | 30.16081 | | +0.38729064 | −0.92136103 | |
| $a$ | 2.6620840 | $\Omega$ | 37.08166 | | +0.83450722 | +0.33503700 | |
| $e$ | 0.1631113 | $i$ | 3.15296 | | +0.39192304 | +0.19708896 | |
| $P$ | 4.34 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 06 01 | 807 | 0.3+ | 0.3+ | 2009 09 18 | G96 | 0.2+ | 0.1− | 2009 11 11 | 691 | 0.0 | 0.0 |
| 2003 06 01 | 807 | 0.1− | 0.4+ | 2009 09 18 | G96 | 0.4+ | 0.1− | 2009 11 11 | 691 | 0.3+ | 0.1− |
| 2005 12 26 | 691 | 0.1+ | 0.1+ | 2009 10 18 | G96 | 0.0 | 0.1− | 2009 11 11 | J75 | 0.1− | 0.0 |
| 2005 12 26 | 691 | 0.1− | 0.2− | 2009 10 18 | G96 | 0.3+ | 0.0 | 2009 11 11 | J75 | 0.2− | 0.2− |
| 2005 12 26 | 691 | 0.1− | 0.0 | 2009 10 18 | G96 | 0.2+ | 0.0 | 2009 11 11 | J75 | 0.7+ | 0.3+ |
| 2006 01 30 | 691 | 0.1− | 0.2+ | 2009 10 18 | G96 | 0.2+ | 0.1− | 2009 11 14 | J75 | (1.6+ | 0.2−) |
| 2006 01 30 | 691 | 0.1+ | 0.0 | 2009 10 23 | 691 | 0.2− | 0.0 | 2009 11 14 | J75 | 0.6+ | 0.6+ |
| 2006 01 30 | 691 | (2.5+ | 0.8−) | 2009 10 23 | 691 | 0.1− | 0.1+ | 2009 11 14 | J75 | 0.6+ | 0.5− |
| 2009 09 18 | G96 | 0.0 | 0.2− | 2009 10 23 | 691 | 0.8− | 0.4+ | | | | |
| 2009 09 18 | G96 | 0.1− | 0.2− | 2009 11 11 | 691 | 0.0 | 0.1− | | | | |

**2009 VU$_{39}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 31.58709 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28946029 | $\omega$ | 150.98642 | | +0.88232841 | −0.46958429 | |
| $a$ | 2.2633066 | $\Omega$ | 237.05429 | | +0.42425363 | +0.82250027 | |
| $e$ | 0.1743471 | $i$ | 2.14567 | | +0.20372885 | +0.32091104 | |
| $P$ | 3.40 | $H$ | 18.4 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 01 27 | G96 | 0.1− | 0.5+ | 2009 11 08 | 703 | 0.9+ | 0.9+ | 2009 11 14 | J75 | 0.1+ | 1.0− |
| 2007 01 27 | G96 | 0.3− | 0.0 | 2009 11 08 | 703 | 1.6− | 0.5+ | 2009 11 14 | J75 | 0.6+ | 0.3− |
| 2007 01 27 | G96 | 0.1− | 0.1− | 2009 11 08 | 703 | 1.8+ | 0.5− | 2009 11 14 | J75 | 0.3− | 0.1+ |
| 2007 01 27 | G96 | 0.2+ | 0.3− | 2009 11 11 | 691 | 0.3− | 0.2+ | 2009 11 23 | G96 | 0.1+ | 0.3− |
| 2007 02 17 | G96 | 0.1− | 0.0 | 2009 11 11 | 691 | 0.1− | 0.0 | 2009 11 23 | G96 | 0.7+ | 0.1− |
| 2007 02 17 | G96 | 0.7+ | 0.1− | 2009 11 11 | 691 | 0.3− | 0.3+ | 2009 11 23 | G96 | 0.2+ | 0.1− |
| 2007 02 17 | G96 | 0.2− | 0.1+ | 2009 11 11 | G96 | 0.7+ | 0.2− | 2009 11 23 | G96 | 0.4+ | 0.2− |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 02 17 | G96 | 0.0 | 0.2− | 2009 11 11 | G96 | 0.3+ | 0.2− | 2009 12 11 | G96 | 0.3+ | 0.0 |
| 2009 09 21 | G96 | 0.6+ | 0.4− | 2009 11 11 | G96 | 0.5+ | 0.2− | 2009 12 11 | G96 | 0.0 | 0.3− |
| 2009 09 21 | G96 | 0.1+ | 0.4− | 2009 11 11 | G96 | 0.5+ | 0.3− | 2009 12 11 | G96 | 0.2− | 0.2+ |
| 2009 09 21 | G96 | 0.3− | 0.2− | 2009 11 11 | J75 | 0.8− | 0.2+ | 2009 12 11 | G96 | 0.6+ | 0.6− |
| 2009 09 21 | G96 | 0.2+ | 0.2− | 2009 11 11 | J75 | 0.2− | 0.1+ | | | | |
| 2009 11 08 | 703 | 1.4− | 0.7+ | 2009 11 11 | J75 | 0.7− | 0.9+ | | | | |

**2009 VW$_{39}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 317.34305 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.24290723 | $\omega$ | 246.12096 | | −0.40720924 | | −0.89404238 |
| $a$ | 2.5439530 | $\Omega$ | 229.25655 | | +0.90170343 | | −0.36100625 |
| $e$ | 0.0732167 | $i$ | 14.26846 | | +0.14529815 | | −0.26525970 |
| $P$ | 4.06 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 30 | G96 | 0.0 | 0.0 | 2009 10 24 | 703 | 0.6− | 0.1+ | 2009 11 15 | 703 | 0.6+ | 0.3+ |
| 2005 09 30 | G96 | 0.3− | 0.0 | 2009 10 24 | 691 | 0.2+ | 0.4+ | 2009 11 15 | 703 | 0.3+ | 0.1− |
| 2005 09 30 | G96 | 0.1+ | 0.1+ | 2009 10 24 | 691 | 0.5− | 0.2+ | 2009 11 15 | 703 | 0.5− | 0.1+ |
| 2005 09 30 | G96 | 0.2− | 0.1− | 2009 10 24 | 691 | 0.3− | 0.1− | 2009 11 15 | 703 | 0.2− | 1.4− |
| 2005 10 25 | G96 | 0.1− | 0.3− | 2009 11 11 | 691 | 0.1− | 0.2+ | 2009 11 18 | 704 | 0.1− | 0.3+ |
| 2005 10 25 | G96 | 0.5− | 0.4− | 2009 11 11 | 691 | 0.2− | 0.1+ | 2009 11 18 | 704 | 0.4− | 0.1− |
| 2005 10 25 | G96 | 0.2+ | 0.1− | 2009 11 11 | 691 | 0.2− | 0.1+ | 2009 11 18 | 704 | 0.1+ | 0.4− |
| 2005 10 25 | G96 | 0.2− | 0.1− | 2009 11 11 | G96 | 0.4+ | 0.0 | 2009 11 18 | 704 | 0.8+ | 0.6− |
| 2005 11 26 | 703 | 0.7+ | 0.1− | 2009 11 11 | G96 | 0.0 | 0.2− | 2009 11 18 | 704 | 0.7+ | 0.1− |
| 2005 11 26 | 703 | 0.9− | 1.0− | 2009 11 11 | G96 | 0.1+ | 0.4− | 2009 11 20 | 704 | 0.6− | 0.8+ |
| 2005 11 26 | 703 | 1.1− | 0.2+ | 2009 11 11 | G96 | 0.2+ | 0.3− | 2009 11 20 | 704 | 0.3− | 0.8+ |
| 2005 11 26 | 703 | 0.4+ | 0.9+ | 2009 11 11 | J75 | 0.3+ | 0.1− | 2009 11 20 | 704 | 0.1− | 0.7+ |
| 2005 12 03 | 734 | 0.8+ | 0.7− | 2009 11 11 | J75 | 0.2− | 0.3− | 2009 11 22 | 703 | 0.1+ | 0.2− |
| 2005 12 03 | 734 | 0.0 | 0.3− | 2009 11 11 | J75 | 0.3− | 0.2+ | 2009 11 22 | 703 | 0.5− | 1.0+ |
| 2005 12 03 | 734 | 0.6+ | 0.7− | 2009 11 11 | J75 | 0.3− | 0.6− | 2009 11 22 | 703 | 0.3− | 0.3− |
| 2005 12 03 | 734 | 0.4+ | 1.8+ | 2009 11 11 | J75 | 0.7− | 0.2+ | 2009 11 22 | 703 | 0.6− | 0.4+ |
| 2005 12 03 | 734 | 0.1− | 0.1+ | 2009 11 11 | J75 | 0.1− | 0.0 | 2009 11 23 | G96 | 0.6+ | 0.2− |
| 2009 10 24 | 703 | 1.8+ | 0.8− | 2009 11 14 | J75 | 0.4− | 0.5+ | 2009 11 23 | G96 | 0.6+ | 0.1− |
| 2009 10 24 | 703 | 0.5+ | 0.1+ | 2009 11 14 | J75 | 0.6+ | 0.7− | 2009 11 23 | G96 | 0.1+ | 0.3− |
| 2009 10 24 | 703 | 1.8+ | 0.7− | 2009 11 14 | J75 | 1.3+ | 0.3− | 2009 11 23 | G96 | 0.0 | 0.3− |

**2009 VD$_{40}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 84.87212 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17521953 | $\omega$ | 152.01727 | | +0.79470405 | | +0.60620559 |
| $a$ | 3.1628678 | $\Omega$ | 170.48051 | | −0.58600748 | | +0.77953217 |
| $e$ | 0.0324691 | $i$ | 10.79942 | | −0.15824256 | | +0.15762103 |
| $P$ | 5.62 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 28 | 645 | 0.0 | 0.1+ | 2006 03 02 | G96 | 0.3+ | 0.2+ | 2009 11 12 | F84 | 0.0 | 0.4+ |
| 2003 09 28 | 645 | 0.0 | 0.0 | 2006 03 02 | G96 | 0.8− | 0.1− | 2009 11 12 | F84 | 0.3− | 0.2+ |
| 2006 01 28 | G96 | 0.3− | 0.3− | 2006 03 02 | G96 | 0.3− | 0.3− | 2009 11 16 | F85 | 0.0 | 0.0 |
| 2006 01 28 | G96 | 0.4− | 0.0 | 2006 04 21 | G96 | 0.1− | 0.0 | 2009 11 16 | F85 | 0.0 | 0.0 |
| 2006 01 28 | G96 | 0.0 | 0.3− | 2006 04 21 | G96 | 0.5− | 0.6+ | 2009 11 16 | F85 | 0.1+ | 0.9− |
| 2006 01 28 | G96 | 1.1− | 0.8− | 2006 04 21 | G96 | 0.8− | 0.1+ | 2009 11 20 | F85 | 0.4+ | 0.1− |
| 2006 02 02 | 691 | 0.5+ | 0.1+ | 2006 04 21 | G96 | 0.6− | 0.7+ | 2009 11 20 | F85 | 0.3− | 0.2− |
| 2006 02 02 | 691 | 0.4+ | 0.3+ | 2009 11 11 | F84 | 0.6+ | 0.4− | 2009 12 07 | F85 | 0.2− | 0.2+ |
| 2006 02 02 | 691 | 0.4+ | 0.1− | 2009 11 11 | F84 | 1.1+ | 0.4− | 2009 12 07 | F85 | 0.2+ | 0.2− |
| 2006 03 02 | G96 | 0.3− | 0.1− | 2009 11 12 | F84 | 1.0− | 0.7+ | 2009 12 07 | F85 | 0.6− | 0.1− |

**2009 VY$_{40}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 44.84619 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.26587062 | $\omega$ | 83.11174 | | +0.99528441 | | +0.02398604 |
| $a$ | 2.3952774 | $\Omega$ | 275.48326 | | −0.06017170 | | +0.91265481 |
| $e$ | 0.1821674 | $i$ | 5.41790 | | +0.07608092 | | +0.40802680 |
| $P$ | 3.71 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 08 06 | 644 | 0.1+ | 0.1− | 2009 10 14 | 703 | 0.1− | 0.1− | 2009 11 12 | J75 | 0.2− | 0.4− |
| 2005 08 06 | 644 | 0.0 | 0.2+ | 2009 10 14 | 703 | 0.7− | 0.5+ | 2009 11 12 | J75 | 0.9+ | 0.1− |
| 2005 08 06 | 644 | 0.2− | 0.3+ | 2009 10 14 | 703 | 0.2− | 0.3− | 2009 11 16 | 850 | 0.1− | 0.6− |
| 2005 08 24 | 644 | 0.1+ | 0.1− | 2009 10 14 | 703 | 0.0 | 0.5+ | 2009 11 16 | 850 | 0.3+ | 0.0 |
| 2005 08 24 | 644 | 0.1− | 0.1− | 2009 10 26 | G96 | 0.2+ | 0.3− | 2009 11 16 | 850 | 1.4+ | 0.7− |
| 2005 08 24 | 644 | 0.0 | 0.2− | 2009 10 26 | G96 | 0.3+ | 0.1− | 2009 11 16 | 850 | 0.6− | 0.8− |
| 2005 08 24 | 644 | 0.0 | 0.0 | 2009 10 26 | G96 | 0.1+ | 0.4− | 2009 11 16 | J75 | (1.0− | 2.0−) |
| 2005 08 24 | 644 | 0.1− | 0.1− | 2009 10 26 | G96 | 0.4+ | 0.1− | 2009 11 16 | J75 | 0.1+ | 0.3+ |
| 2005 08 24 | 644 | 0.2+ | 0.2− | 2009 11 08 | 703 | 1.0− | 0.5+ | 2009 11 16 | J75 | 0.0 | 0.8+ |
| 2007 02 10 | G96 | 0.0 | 0.1+ | 2009 11 08 | 703 | 0.1− | 0.6+ | 2009 11 21 | G96 | 0.4− | 0.1− |
| 2007 02 10 | G96 | 0.1− | 0.4− | 2009 11 08 | 703 | 0.7− | 0.1+ | 2009 11 21 | G96 | 0.4+ | 0.7− |
| 2007 02 10 | G96 | 0.2+ | 0.1+ | 2009 11 08 | 703 | 0.1+ | 0.6+ | 2009 11 21 | G96 | 0.2− | 0.2− |
| 2007 02 10 | G96 | 0.0 | 0.3+ | 2009 11 12 | J75 | 0.8+ | 0.8+ | 2009 11 21 | G96 | 0.6− | 0.2+ |

**2009 VM$_{41}$ = 2002 XM$_{89}$ = 2005 NO$_{110}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 28.11094 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.27896734 | $\omega$ | 99.69943 | | +0.85448596 | | −0.51460192 |
| $a$ | 2.3197106 | $\Omega$ | 291.30191 | | +0.44172894 | | +0.79169370 |
| $e$ | 0.2373560 | $i$ | 4.36950 | | +0.27336657 | | +0.32925057 |
| $P$ | 3.53 | $H$ | 18.3 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 12 09 | 621 | 0.3+ | 0.0 | 2002 12 10 | 644 | 0.1− | 0.5+ | 2009 11 09 | G96 | 0.1− | 0.3− |
| 2002 12 09 | 621 | 0.3− | 0.1+ | 2002 12 10 | 644 | 0.4− | 0.5+ | 2009 11 12 | J75 | 0.1− | 0.3− |
| 2002 12 09 | 621 | 0.1+ | 0.5+ | 2005 07 07 | 568 | 0.5− | 0.3+ | 2009 11 12 | J75 | 0.4− | 0.4− |
| 2002 12 09 | 621 | 0.2− | 0.3+ | 2005 07 07 | 568 | 0.5− | 0.3+ | 2009 11 12 | J75 | 0.7+ | 0.2− |
| 2002 12 09 | 621 | 0.3− | 0.7− | 2005 07 07 | 568 | 0.5− | 0.3+ | 2009 11 22 | 703 | 0.5− | 0.2+ |
| 2002 12 09 | 621 | 0.1− | 0.9+ | 2005 07 08 | 568 | 0.5− | 0.3+ | 2009 11 22 | 703 | 0.3+ | 0.7− |
| 2002 12 09 | 621 | 0.0 | 0.2+ | 2005 07 15 | 691 | 0.0 | 0.4+ | 2009 11 22 | 703 | 0.4− | 0.3− |
| 2002 12 10 | 621 | 0.3+ | 1.3+ | 2005 07 15 | 691 | 0.3+ | 0.2+ | 2009 11 22 | 703 | 0.0 | 0.1− |
| 2002 12 10 | 621 | 0.6+ | 0.8− | 2005 07 15 | 691 | 0.1+ | 0.4− | 2009 11 22 | G96 | 0.1+ | 0.1− |
| 2002 12 10 | 621 | 0.7− | 0.6+ | 2009 11 09 | G96 | 0.1+ | 0.2− | 2009 11 22 | G96 | 0.1+ | 0.2− |
| 2002 12 10 | 621 | 0.9+ | 0.3+ | 2009 11 09 | G96 | 0.1+ | 0.2− | 2009 11 22 | G96 | 0.2+ | 0.1− |
| 2002 12 10 | 644 | 0.3− | 0.4+ | 2009 11 09 | G96 | 0.1− | 0.1+ | 2009 11 22 | G96 | 0.5+ | 0.0 |

**2009 VS$_{41}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 12.34878 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.25710127 | $\omega$ | 309.47713 | | +0.54215309 | | −0.83843945 |
| $a$ | 2.4494386 | $\Omega$ | 107.60714 | | +0.78773901 | | +0.48411748 |
| $e$ | 0.1744709 | $i$ | 3.34301 | | +0.29246757 | | +0.25029892 |
| $P$ | 3.83 | $H$ | 17.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 29 | 691 | 0.0 | 0.1+ | 2009 11 09 | G96 | 0.6+ | 0.1+ | 2009 11 19 | J75 | 0.7− | 0.5− |
| 2005 09 29 | 691 | 0.0 | 0.1+ | 2009 11 12 | J75 | 0.0 | 0.2− | 2009 11 23 | G96 | 0.1− | 0.1+ |
| 2005 09 29 | 691 | 0.0 | 0.2− | 2009 11 12 | J75 | 0.6− | 0.0 | 2009 11 23 | G96 | 0.0 | 0.1+ |
| 2005 12 01 | G96 | 0.2− | 0.2− | 2009 11 13 | J75 | 0.4− | 0.2+ | 2009 11 23 | G96 | 0.0 | 0.1− |
| 2005 12 01 | G96 | 0.1− | 0.0 | 2009 11 16 | G96 | 0.0 | 0.3− | 2009 12 19 | G96 | 0.1− | 0.1+ |
| 2005 12 01 | G96 | 0.0 | 0.1− | 2009 11 16 | G96 | 0.3− | 0.1+ | 2009 12 19 | G96 | 0.7+ | 0.1+ |
| 2005 12 01 | G96 | 0.5+ | 0.1− | 2009 11 16 | G96 | 0.1− | 0.2+ | 2009 12 19 | G96 | 0.3− | 0.2− |
| 2009 11 09 | G96 | 0.1+ | 0.4+ | 2009 11 16 | G96 | 0.2+ | 0.0 | 2009 12 19 | G96 | 0.1+ | 0.2+ |
| 2009 11 09 | G96 | 0.2+ | 0.2+ | 2009 11 19 | J75 | 0.2− | 0.2− | | | | |
| 2009 11 09 | G96 | 0.2+ | 0.2+ | 2009 11 19 | J75 | 0.6+ | 0.0 | | | | |

**2009 VM$_{42}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 317.79279 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17844290 | $\omega$ | 95.77388 | | −0.78824607 | | −0.59152410 |
| $a$ | 3.1246631 | $\Omega$ | 48.10074 | | +0.43468500 | | −0.73033623 |
| $e$ | 0.1179524 | $i$ | 13.17180 | | +0.43556525 | | −0.34162586 |
| $P$ | 5.52 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 05 04 | 645 | 0.0 | 0.1+ | 2006 04 28 | 807 | 0.3+ | 0.4+ | 2009 11 19 | J47 | 0.5+ | 0.5− |
| 2000 05 04 | 645 | 0.0 | 0.0 | 2009 11 14 | J47 | 0.2− | 0.4− | 2009 11 19 | J47 | 0.6+ | 0.3− |
| 2003 10 20 | 291 | 0.0 | 0.1− | 2009 11 14 | J47 | 0.2− | 0.7− | 2009 11 19 | J47 | 1.2− | 0.8+ |
| 2003 10 20 | 291 | 0.3− | 0.0 | 2009 11 14 | J47 | 0.0 | 0.6− | 2009 11 26 | J47 | 0.4+ | 0.6− |
| 2003 10 20 | 291 | 0.6− | 1.0+ | 2009 11 14 | J47 | 0.2− | 0.3− | 2009 11 26 | J47 | 0.5+ | 0.1− |
| 2003 11 21 | 291 | 0.0 | 0.3+ | 2009 11 15 | J47 | 0.1− | 0.3− | 2009 11 26 | J47 | 1.0+ | 0.1− |
| 2003 11 21 | 291 | 0.4+ | 0.4+ | 2009 11 15 | J47 | 0.7− | 0.5− | 2009 12 08 | J47 | 0.0 | 0.5− |
| 2003 11 21 | 291 | 0.5− | 0.3+ | 2009 11 15 | J47 | 0.4− | 0.2− | 2009 12 08 | J47 | 0.1− | 0.4− |
| 2005 03 08 | 703 | 0.5+ | 0.6+ | 2009 11 15 | J47 | 0.1− | 0.1− | 2009 12 08 | J47 | 1.0− | 0.5− |
| 2005 03 08 | 703 | 1.1+ | 0.7+ | 2009 11 16 | J47 | 0.6− | 0.0 | 2009 12 17 | J47 | 0.1− | 0.2− |
| 2005 03 08 | 703 | 0.5− | 0.5+ | 2009 11 16 | J47 | 0.2+ | 0.3− | 2009 12 17 | J47 | 0.1+ | 0.2− |
| 2005 03 08 | 703 | 0.7+ | 0.9+ | 2009 11 16 | J47 | 0.4+ | 0.3− | 2009 12 17 | J47 | 0.2+ | 0.3− |
| 2006 04 28 | 807 | 0.2+ | 0.4+ | 2009 11 16 | J47 | 1.4+ | 0.1− | | | | |

**2009 VP$_{42}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 25.73671 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18260338 | $\omega$ | 287.36993 | | +0.81516191 | −0.55795480 | |
| $a$ | 3.0770189 | $\Omega$ | 106.80720 | | +0.57372314 | +0.74079315 | |
| $e$ | 0.2558638 | $i$ | 9.35185 | | +0.07970455 | +0.37404806 | |
| $P$ | 5.40 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 08 23 | 644 | 0.5− | 0.0 | 2009 11 14 | H06 | 0.3+ | 0.2+ | 2009 11 19 | 704 | 0.3+ | 0.2− |
| 2003 08 23 | 644 | 0.3− | 0.0 | 2009 11 14 | H06 | 0.1+ | 0.2+ | 2009 11 19 | 704 | 0.3+ | 0.4+ |
| 2003 08 23 | 644 | 0.3− | 0.1− | 2009 11 14 | H06 | 0.0 | 0.2+ | 2009 11 24 | H06 | 0.2+ | 0.1− |
| 2003 09 19 | 699 | 0.3+ | 0.5+ | 2009 11 15 | H06 | 0.2− | 0.8+ | 2009 11 24 | H06 | 0.1+ | 0.1− |
| 2003 09 19 | 699 | 0.9+ | 0.8+ | 2009 11 15 | H06 | 0.2+ | 1.4+ | 2009 11 24 | H06 | 0.4+ | 0.4+ |
| 2003 09 19 | 699 | 0.3− | 0.2− | 2009 11 15 | H06 | 0.0 | 0.5+ | 2009 12 10 | 703 | 1.1+ | 0.7− |
| 2003 09 19 | 699 | 0.3+ | 0.9− | 2009 11 16 | H06 | 0.3+ | 0.4+ | 2009 12 10 | 703 | 0.4+ | 0.1− |
| 2004 12 18 | G96 | 0.0 | 0.2+ | 2009 11 16 | H06 | 0.5− | 0.0 | 2009 12 10 | 703 | 0.4− | 0.4− |
| 2004 12 18 | G96 | 0.1+ | 0.0 | 2009 11 16 | H06 | 0.4− | 0.3+ | 2009 12 10 | 703 | 0.0 | 0.9+ |
| 2004 12 18 | G96 | 0.0 | 0.1+ | 2009 11 16 | J75 | 0.6+ | 0.4+ | 2009 12 13 | 704 | 0.3+ | 0.2− |
| 2004 12 18 | G96 | 0.0 | 0.1+ | 2009 11 16 | J75 | 0.2+ | 0.1− | 2009 12 13 | 704 | 0.0 | 0.3− |
| 2009 11 09 | 703 | 1.1− | 1.1− | 2009 11 17 | J75 | 0.0 | 0.2− | 2009 12 13 | 704 | 0.2− | 0.2+ |
| 2009 11 09 | 703 | 0.6− | 0.7− | 2009 11 19 | 704 | 0.2+ | 0.2+ | 2009 12 13 | 704 | 0.1− | 0.2− |
| 2009 11 09 | 703 | 1.5− | 0.5− | 2009 11 19 | 704 | 0.4+ | 0.8− | 2009 12 13 | 704 | 0.6− | 0.2− |
| 2009 11 09 | 703 | 0.3− | 0.8− | 2009 11 19 | 704 | 0.4+ | 0.1+ | | | | |

**2009 VE$_{44}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 25.25448 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.29365083 | $\omega$ | 252.05194 | | +0.76452576 | −0.64417140 | |
| $a$ | 2.2417227 | $\Omega$ | 148.03978 | | +0.60681960 | +0.70705326 | |
| $e$ | 0.1641886 | $i$ | 2.52446 | | +0.21741743 | +0.29175143 | |
| $P$ | 3.36 | $H$ | 18.0 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 01 25 | 691 | 0.3− | 0.2+ | 2009 11 15 | 703 | 0.3+ | 0.5− | 2009 11 20 | 704 | 0.2− | 0.5+ |
| 2007 01 25 | 691 | 0.1+ | 0.3+ | 2009 11 15 | 703 | 0.9+ | 0.4+ | 2009 11 20 | 704 | 0.5− | 0.3+ |
| 2007 01 25 | 691 | 0.3− | 0.0 | 2009 11 15 | 703 | 0.0 | 0.2+ | 2009 11 20 | 704 | 0.9− | 0.3− |
| 2007 02 08 | G96 | 0.3+ | 0.7− | 2009 11 15 | 703 | 0.5− | 0.7− | 2009 11 20 | 704 | 0.1+ | 0.7+ |
| 2007 02 08 | G96 | 0.7+ | 0.5− | 2009 11 16 | G96 | 0.1− | 0.1− | 2009 11 23 | D29 | 0.2+ | 0.2− |
| 2007 02 08 | G96 | 0.2+ | 0.1− | 2009 11 16 | G96 | 0.0 | 0.3− | 2009 11 23 | D29 | 0.3+ | 0.3− |
| 2007 02 08 | G96 | 0.1+ | 0.1− | 2009 11 16 | G96 | 0.1− | 0.2− | 2009 11 23 | D29 | 0.0 | 0.6− |
| 2007 03 09 | G96 | 0.1+ | 0.3− | 2009 11 16 | G96 | 0.5+ | 0.2− | 2009 11 23 | D29 | 0.2− | 0.4+ |
| 2007 03 09 | G96 | 0.2+ | 0.2− | 2009 11 18 | 704 | 0.4− | 0.3− | 2009 11 24 | G96 | 0.3+ | 0.3− |
| 2007 03 09 | G96 | 0.3+ | 0.3− | 2009 11 18 | 704 | (1.8− | 1.5−) | 2009 11 24 | G96 | 0.2− | 0.1− |
| 2007 03 09 | G96 | 0.1− | 0.3− | 2009 11 18 | 704 | 0.0 | 0.4+ | 2009 11 24 | G96 | 0.3+ | 0.2− |
| 2009 11 09 | 703 | 0.3+ | 0.2− | 2009 11 18 | 704 | 0.1− | 1.0+ | 2009 11 24 | G96 | 0.1− | 0.1− |
| 2009 11 09 | 703 | 0.4− | 0.7+ | 2009 11 18 | 204 | 0.2+ | 0.0 | 2009 12 10 | 703 | 0.7− | 0.9+ |
| 2009 11 09 | 703 | 0.1+ | 0.3+ | 2009 11 18 | 204 | 0.1+ | 0.2− | 2009 12 10 | 703 | 1.3+ | 0.1− |
| 2009 11 09 | 703 | (2.1− | 0.4+) | 2009 11 19 | J75 | 0.8− | 0.3− | 2009 12 10 | 703 | 0.5+ | 0.1+ |
| 2009 11 12 | J75 | 0.5+ | 0.3− | 2009 11 19 | J75 | 0.1− | 0.7− | 2009 12 10 | 703 | 0.7− | 0.1+ |
| 2009 11 12 | J75 | 0.5+ | 0.1+ | 2009 11 19 | J75 | 0.4− | 0.4− | | | | |
| 2009 11 13 | J75 | 0.2+ | 0.1− | 2009 11 20 | 704 | 0.2+ | 0.4+ | | | | |

**2009 VK$_{44}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 38.74717 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24233674 | $\omega$ | 223.07744 | | +0.99599612 | +0.02378577 | |
| $a$ | 2.5479440 | $\Omega$ | 135.33764 | | +0.00456744 | +0.94915491 | |
| $e$ | 0.2665184 | $i$ | 7.04178 | | −0.08927968 | +0.31390954 | |
| $P$ | 4.07 | $H$ | 17.5 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 11 10 | 703 | 0.7+ | 0.1− | 2009 11 12 | F84 | 1.0− | 0.1+ | 2009 11 17 | F84 | 0.8+ | 0.9+ |
| 2005 11 10 | 703 | 0.2− | 0.7+ | 2009 11 12 | F84 | 0.8− | 0.3− | 2009 11 28 | F85 | 0.4− | 0.5− |
| 2005 11 10 | 703 | 0.0 | 0.3− | 2009 11 15 | F84 | 0.2− | 1.2− | 2009 11 28 | F85 | 0.4− | 0.2+ |
| 2005 11 10 | 703 | 0.2+ | 1.4− | 2009 11 15 | F84 | 0.3+ | 0.1− | 2009 11 28 | F85 | 0.3− | 0.4+ |
| 2005 11 29 | 703 | 1.7− | 1.0− | 2009 11 16 | F84 | 0.3+ | 0.1+ | 2009 12 07 | F85 | 0.1− | 0.1− |
| 2005 11 29 | 703 | 0.0 | 1.1+ | 2009 11 16 | F84 | 0.5+ | 0.0 | 2009 12 07 | F85 | 0.1− | 0.4+ |
| 2005 11 29 | 703 | 0.1+ | 0.1+ | 2009 11 16 | F84 | 0.1+ | 1.2+ | 2009 12 07 | F85 | 0.1+ | 0.2+ |
| 2005 11 29 | 703 | 1.2+ | 0.1− | 2009 11 17 | F84 | 0.2+ | 0.2− | | | | |
| 2009 11 12 | F84 | 0.5+ | 0.0 | 2009 11 17 | F84 | 0.1+ | 0.2+ | | | | |

**2009 VN$_{44}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 120.49109 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23735940 | $\omega$ | 237.08490 | | +0.59233073 | +0.76307756 | |
| $a$ | 2.5834402 | $\Omega$ | 71.41472 | | −0.61763014 | +0.63613213 | |
| $e$ | 0.1388677 | $i$ | 15.83054 | | −0.51737541 | +0.11423023 | |
| $P$ | 4.15 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 28 | 699 | 0.5+ | 0.5− | 2004 08 15 | E12 | 0.2+ | 0.2+ | 2008 08 26 | E12 | 0.6+ | 0.4+ |
| 2000 09 28 | 699 | 0.2− | 0.9− | 2004 09 14 | E12 | 0.0 | 0.1+ | 2008 08 26 | E12 | 0.2− | 0.7+ |
| 2000 09 28 | 699 | 0.9− | 1.5− | 2004 09 14 | E12 | 0.2+ | 0.7+ | 2008 09 23 | E12 | 0.6+ | 1.4+ |
| 2000 09 28 | 699 | 0.6− | 0.8− | 2004 09 14 | E12 | 0.3+ | 0.1+ | 2008 09 23 | E12 | 0.1+ | 1.5+ |
| 2001 12 19 | 644 | 0.4+ | 0.3+ | 2004 09 14 | E12 | 0.1− | 0.1− | 2008 09 23 | E12 | 0.1+ | 0.1+ |
| 2001 12 19 | 644 | 0.4+ | 0.1+ | 2005 11 28 | 691 | 0.5+ | 0.1+ | 2009 11 15 | H06 | 0.2+ | 0.6− |
| 2001 12 19 | 644 | 0.2+ | 0.3+ | 2005 11 28 | 691 | 0.4+ | 0.0 | 2009 11 15 | H06 | 0.1− | 0.0 |
| 2002 01 04 | 644 | 0.2+ | 0.1+ | 2005 11 28 | 691 | 0.3+ | 0.2+ | 2009 11 15 | H06 | 0.2+ | 0.5− |
| 2002 01 04 | 644 | 0.4+ | 0.0 | 2005 12 10 | 691 | 0.2+ | 0.2+ | 2009 11 16 | H06 | 0.6− | 0.4+ |
| 2002 01 04 | 644 | 0.4+ | 0.4+ | 2005 12 10 | 691 | 1.1− | 0.5− | 2009 11 16 | H06 | 0.5− | 0.0 |
| 2002 02 03 | 644 | 0.2+ | 0.3+ | 2005 12 10 | 691 | 0.7+ | 0.0 | 2009 11 16 | H06 | 0.4+ | 0.1− |
| 2002 02 03 | 644 | 0.4− | 0.4+ | 2007 04 14 | 703 | 0.6− | 2.1+ | 2009 11 21 | H06 | 0.8+ | 0.3+ |
| 2002 02 03 | 644 | 0.1+ | 0.3− | 2007 04 14 | 703 | 1.2− | 0.1+ | 2009 11 21 | H06 | 0.1− | 0.3− |
| 2003 03 09 | 699 | 0.4+ | 0.2+ | 2007 04 14 | 703 | 1.1+ | 1.1+ | 2009 11 21 | H06 | 0.2− | 0.2+ |
| 2003 03 09 | 699 | 1.0+ | 0.7+ | 2007 04 14 | 703 | 1.1− | 0.1+ | 2009 11 21 | 691 | 0.4− | 0.3+ |
| 2003 03 09 | 699 | 0.1+ | 1.3+ | 2007 04 24 | 703 | 1.3− | 0.8+ | 2009 11 21 | 691 | 0.2− | 0.2+ |
| 2003 03 09 | 699 | 0.6+ | 1.6+ | 2007 04 24 | 703 | 0.7− | 0.2− | 2009 11 21 | 691 | 0.0 | 0.0 |
| 2003 03 25 | 644 | 0.4+ | 0.6− | 2007 04 24 | 703 | 0.0 | 0.3+ | 2009 11 25 | 691 | 0.6− | 0.0 |
| 2003 03 25 | 644 | 0.2+ | 0.8− | 2007 04 24 | 703 | 0.1+ | 1.9− | 2009 11 25 | 691 | 0.0 | 0.0 |
| 2003 03 25 | 644 | 0.0 | 0.5− | 2008 06 28 | E12 | 0.1+ | 0.4+ | 2009 11 25 | 691 | 0.1− | 0.1+ |
| 2004 07 15 | E12 | 0.1+ | 0.3− | 2008 06 28 | E12 | 0.1− | 0.5+ | 2009 12 10 | 704 | 0.9+ | 0.1+ |
| 2004 07 15 | E12 | 0.1+ | 0.1− | 2008 06 28 | E12 | 0.2− | 0.7+ | 2009 12 10 | 704 | 0.6+ | 0.9+ |
| 2004 07 15 | E12 | 0.1− | 0.2− | 2008 06 28 | E12 | 0.3− | 0.5+ | 2009 12 10 | G96 | 0.1+ | 0.1− |
| 2004 07 15 | E12 | 0.1+ | 0.0 | 2008 08 03 | E12 | 0.2− | 0.3+ | 2009 12 10 | G96 | 0.1+ | 0.1+ |
| 2004 08 15 | E12 | 0.2+ | 0.4+ | 2008 08 03 | E12 | 0.2− | 0.5+ | 2009 12 10 | 704 | 0.7− | 0.1+ |
| 2004 08 15 | E12 | 0.2+ | 0.4+ | 2008 08 03 | E12 | 0.5+ | 0.7− | 2009 12 10 | 704 | 0.5− | 0.2+ |
| 2004 08 15 | E12 | 0.1− | 0.2+ | 2008 08 26 | E12 | 0.4+ | 0.6+ | 2009 12 10 | G96 | 0.6+ | 0.0 |

**2009 VO$_{44}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 65.37543 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23353798 | $\omega$ | 307.65745 | | +0.97552536 | −0.11533059 | |
| $a$ | 2.6115462 | $\Omega$ | 59.68974 | | +0.19434321 | +0.85051704 | |
| $e$ | 0.2070161 | $i$ | 12.52452 | | −0.10286393 | +0.51314678 | |
| $P$ | 4.22 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 02 12 | 644 | 0.4+ | 0.1− | 2004 08 23 | E12 | 0.9+ | 0.1+ | 2009 11 22 | H06 | 0.7− | 0.2+ |
| 2002 02 12 | 644 | 0.0 | 0.5+ | 2004 09 10 | E12 | 0.1+ | 0.2+ | 2009 11 23 | H06 | 0.2+ | 0.2− |
| 2002 02 12 | 644 | 0.0 | 0.0 | 2004 09 10 | E12 | 0.3+ | 0.6+ | 2009 11 23 | H06 | 0.2+ | 1.1+ |
| 2002 02 12 | 644 | 0.6− | 0.3+ | 2004 09 10 | E12 | 0.4+ | 0.0 | 2009 11 23 | 704 | 0.3− | 0.9− |
| 2002 02 12 | 644 | 0.0 | 0.1− | 2004 09 10 | E12 | 0.4+ | 0.6− | 2009 11 23 | H06 | 0.2− | 0.4+ |
| 2002 02 12 | 644 | 0.7+ | 0.5+ | 2009 11 15 | H06 | 0.2− | 0.0 | 2009 11 23 | 704 | 0.8+ | 0.2− |
| 2004 07 09 | 644 | 0.6− | 0.5+ | 2009 11 15 | H06 | 0.6+ | 0.3− | 2009 11 23 | 704 | 0.2+ | 1.1+ |
| 2004 07 09 | 644 | 0.5− | 0.1+ | 2009 11 15 | H06 | 0.1− | 0.2+ | 2009 12 15 | 704 | 0.1+ | 0.0 |
| 2004 07 09 | 644 | 0.2− | 0.1+ | 2009 11 16 | H06 | 0.5− | 0.5− | 2009 12 15 | 704 | 0.3+ | 0.2+ |
| 2004 08 09 | E12 | 0.2− | 0.4− | 2009 11 16 | H06 | 0.4+ | 0.1− | 2009 12 15 | 704 | 0.5− | 0.8− |
| 2004 08 09 | E12 | 0.5− | 0.2− | 2009 11 16 | H06 | 0.6+ | 0.4+ | 2009 12 15 | 704 | 0.0 | 0.1− |
| 2004 08 09 | E12 | 0.3− | 0.3− | 2009 11 21 | H06 | 0.3− | 0.1− | 2009 12 17 | H10 | 0.2+ | 0.3+ |
| 2004 08 09 | E12 | 0.1− | 0.2+ | 2009 11 21 | H06 | 1.1+ | 0.3− | 2009 12 17 | H10 | 0.4+ | 0.0 |
| 2004 08 23 | E12 | 0.5+ | 0.1− | 2009 11 21 | H06 | 1.0− | 0.0 | 2009 12 20 | H06 | 0.0 | 0.7− |
| 2004 08 23 | E12 | 0.3− | 0.1+ | 2009 11 22 | H06 | 0.2− | 0.9+ | 2009 12 20 | H06 | 0.0 | 0.0 |
| 2004 08 23 | E12 | 0.1+ | 0.5+ | 2009 11 22 | H06 | 0.0 | 0.0 | 2009 12 20 | H06 | 1.1− | 0.4− |

**2009 VT$_{44}$ = 2004 VY$_{29}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 57.30048 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19309906 | $\omega$ | 113.04192 | | +0.85657788 | +0.50887842 | |
| $a$ | 2.9644851 | $\Omega$ | 216.52975 | | −0.51022901 | +0.81048997 | |
| $e$ | 0.2474577 | $i$ | 8.26240 | | −0.07707591 | +0.29008406 | |
| $P$ | 5.10 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 15 | G96 | 0.2− | 0.6− | 2008 07 01 | 691 | 0.0 | 0.2+ | 2009 11 17 | 926 | 0.1− | 0.0 |
| 2004 10 15 | G96 | 0.4− | 0.1+ | 2009 10 24 | 691 | 0.8− | 0.1+ | 2009 11 17 | G96 | 0.1− | 0.2− |
| 2004 10 15 | G96 | 0.1− | 0.5− | 2009 10 24 | 691 | 0.0 | 0.2− | 2009 11 17 | 926 | 0.3+ | 0.3+ |
| 2004 10 15 | G96 | 0.6− | 0.4− | 2009 10 24 | 691 | 0.3− | 0.4− | 2009 11 17 | G96 | 0.1+ | 0.4− |
| 2004 11 03 | 691 | 0.2− | 0.2+ | 2009 11 15 | 926 | 0.5+ | 0.3− | 2009 11 17 | G96 | 0.3+ | 0.3− |
| 2004 11 03 | 691 | 0.0 | 0.1− | 2009 11 15 | 926 | 0.2− | 0.3+ | 2009 11 17 | 926 | 0.7+ | 0.4− |
| 2004 11 03 | 691 | 0.0 | 0.3+ | 2009 11 15 | 926 | 0.2+ | 0.3+ | 2009 11 17 | G96 | 0.0 | 0.1− |
| 2004 11 10 | 691 | 0.2+ | 0.5+ | 2009 11 15 | 926 | 0.2+ | 0.1+ | 2009 11 20 | 926 | 1.0+ | 0.0 |
| 2004 11 10 | 691 | 0.3− | 0.4+ | 2009 11 16 | G96 | 0.2+ | 0.0 | 2009 11 20 | 926 | 0.0 | 0.3− |
| 2004 11 10 | 691 | 0.4+ | 0.4+ | 2009 11 16 | G96 | 0.0 | 0.0 | 2009 11 20 | 926 | 0.2+ | 0.2+ |
| 2008 05 28 | G96 | 0.0 | 0.0 | 2009 11 16 | 926 | 0.4− | 0.3+ | 2009 11 20 | 926 | 0.6+ | 0.1− |
| 2008 05 28 | G96 | 0.2− | 0.4+ | 2009 11 16 | G96 | 0.0 | 0.1− | 2009 12 05 | 926 | 0.8+ | 0.1− |
| 2008 05 28 | G96 | 0.2+ | 0.2+ | 2009 11 16 | G96 | 0.4+ | 0.2− | 2009 12 05 | 926 | 1.2+ | 0.7− |
| 2008 05 28 | G96 | 0.4− | 0.0 | 2009 11 16 | 926 | 0.8− | 1.0+ | 2009 12 05 | 926 | 0.1+ | 0.7− |
| 2008 07 01 | 691 | 0.2+ | 0.0 | 2009 11 16 | 926 | 0.7+ | 0.6− | | | | |
| 2008 07 01 | 691 | 0.0 | 0.0 | 2009 11 16 | 926 | 0.0 | 0.2+ | | | | |

**2009 VU$_{44}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 218.69685 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28501167 | $\omega$ | 341.58018 | | −0.83575258 | +0.54597052 | |
| $a$ | 2.2867971 | $\Omega$ | 231.65319 | | −0.49393807 | −0.79411220 | |
| $e$ | 0.0531974 | $i$ | 4.28500 | | −0.23988083 | −0.26702435 | |
| $P$ | 3.46 | $H$ | 17.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 10 15 | 691 | 0.1− | 0.3− | 2005 08 29 | 691 | 0.2− | 0.2+ | 2009 11 19 | A79 | 0.0 | 0.1− |
| 1995 10 15 | 691 | 0.2+ | 0.1+ | 2005 08 29 | 691 | 0.1− | 0.3+ | 2009 11 19 | A79 | 0.0 | 0.8+ |
| 1995 10 15 | 691 | 0.2+ | 0.0 | 2005 09 12 | 691 | 0.2+ | 0.1+ | 2009 11 23 | G96 | 0.7+ | 0.1− |
| 2002 10 31 | 644 | 0.7− | 0.1+ | 2005 09 12 | 691 | 0.0 | 0.3+ | 2009 11 23 | G96 | 0.1− | 0.3− |
| 2002 10 31 | 644 | 0.7− | 0.4+ | 2005 09 12 | 691 | 0.1− | 0.2+ | 2009 11 23 | G96 | 0.5+ | 0.0 |
| 2002 11 12 | 644 | 0.9− | 0.4− | 2009 11 14 | A79 | 0.4− | 0.1− | 2009 11 23 | G96 | 0.2− | 0.1− |
| 2002 11 12 | 644 | 0.7+ | 0.7− | 2009 11 14 | A79 | 0.5− | 0.4+ | 2009 12 11 | G96 | 0.4+ | 0.3− |
| 2002 12 10 | 644 | 0.0 | 0.7− | 2009 11 14 | A79 | 0.6− | 0.0 | 2009 12 11 | G96 | 0.2+ | 0.3+ |
| 2002 12 10 | 644 | 0.1− | 0.8+ | 2009 11 14 | A79 | 0.0 | 0.3− | 2009 12 11 | G96 | 0.5+ | 0.2+ |
| 2004 03 14 | 644 | 0.1+ | 0.4+ | 2009 11 16 | A79 | 0.2+ | 1.0+ | 2009 12 11 | G96 | 0.3+ | 0.1+ |
| 2004 03 14 | 644 | 0.5− | 1.1+ | 2009 11 16 | A79 | 0.8− | 0.6+ | 2009 12 20 | H11 | 0.4− | 0.1+ |
| 2004 03 14 | 644 | 0.2− | 0.4+ | 2009 11 16 | A79 | 0.6+ | 0.0 | 2009 12 20 | H11 | 0.1+ | 0.9+ |
| 2004 04 28 | 691 | 0.5+ | 0.5+ | 2009 11 17 | A79 | 0.7+ | 1.2+ | 2009 12 20 | H11 | 0.7− | 0.4+ |
| 2004 04 28 | 691 | 0.2+ | 0.7+ | 2009 11 17 | A79 | 0.3+ | 0.4+ | 2009 12 20 | H11 | 1.1− | 0.8+ |
| 2004 04 28 | 691 | 0.3+ | 0.2+ | 2009 11 17 | A79 | 0.1+ | 0.1+ | | | | |
| 2005 08 29 | 691 | 0.3− | 0.4+ | 2009 11 19 | A79 | 0.1− | 0.1− | | | | |

**2009 VX$_{44}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 52.65819 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19185465 | $\omega$ | 289.86286 | | +0.96294445 | −0.19756715 | |
| $a$ | 2.9772902 | $\Omega$ | 81.87311 | | +0.25811363 | +0.87247361 | |
| $e$ | 0.0776362 | $i$ | 10.68750 | | −0.07820063 | +0.44694186 | |
| $P$ | 5.14 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 06 11 | 644 | 0.1+ | 0.3+ | 2007 04 24 | 691 | 0.0 | 0.1+ | 2009 11 17 | H06 | 1.1+ | 0.6− |
| 2002 06 11 | 644 | 0.1+ | 0.1− | 2007 04 24 | 691 | 0.2+ | 0.4+ | 2009 11 17 | H06 | 0.1+ | 0.5− |
| 2002 06 11 | 644 | 0.1− | 0.2+ | 2008 08 04 | E12 | 0.0 | 0.3− | 2009 11 18 | H06 | 0.6− | 0.1+ |
| 2002 06 16 | 644 | 0.5+ | 0.0 | 2008 08 04 | E12 | 0.4+ | 0.3− | 2009 11 18 | H06 | 0.5+ | 0.7− |
| 2002 06 16 | 644 | 0.1− | 0.3− | 2008 08 04 | E12 | 0.2− | 0.6+ | 2009 11 18 | H06 | 0.6+ | 1.0− |
| 2002 06 16 | 644 | 0.0 | 0.5− | 2008 08 04 | E12 | 0.5+ | 0.7+ | 2009 11 23 | G96 | 0.3+ | 0.1− |
| 2003 07 08 | 644 | 0.4− | 0.2− | 2009 11 14 | H06 | 0.4+ | 0.8+ | 2009 11 23 | G96 | 0.1+ | 0.1+ |
| 2003 07 08 | 644 | 0.4− | 0.2− | 2009 11 14 | H06 | 0.2− | 0.3− | 2009 11 23 | G96 | 0.1− | 0.2− |
| 2003 07 08 | 644 | 0.3− | 0.2+ | 2009 11 14 | H06 | 0.6− | 0.4− | 2009 11 23 | G96 | 0.1+ | 0.2− |
| 2004 11 11 | 691 | 0.1− | 0.1− | 2009 11 16 | H06 | 0.3− | 0.6+ | 2009 12 11 | 703 | 0.8− | 1.2+ |
| 2004 11 11 | 691 | 0.3+ | 0.1+ | 2009 11 16 | H06 | 0.3− | 0.5+ | 2009 12 11 | 703 | 0.6− | 0.8+ |
| 2004 11 11 | 691 | 0.0 | 0.1− | 2009 11 16 | H06 | 1.1− | 0.8+ | 2009 12 11 | 703 | 0.4− | 0.0 |
| 2007 04 24 | 691 | 0.1− | 0.1+ | 2009 11 17 | H06 | 0.0 | 0.0 | 2009 12 11 | 703 | 0.4+ | 1.3+ |

**2009 VD$_{45}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 3.19424 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26529972 | $\omega$ | 92.22299 | | +0.35099092 | −0.93596580 | |
| $a$ | 2.3987125 | $\Omega$ | 337.16805 | | +0.82810757 | +0.32413284 | |
| $e$ | 0.1777202 | $i$ | 4.10987 | | +0.43708492 | +0.13749879 | |
| $P$ | 3.72 | $H$ | 17.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 02 09 | 291 | 0.4+ | 0.2+ | 2007 04 20 | G96 | 0.2− | 0.1+ | 2009 11 16 | 704 | 0.2+ | 1.4+ |
| 2003 02 09 | 291 | 0.4− | 0.3+ | 2009 10 26 | 691 | 0.3+ | 0.3− | 2009 11 16 | 704 | 0.4+ | 0.4+ |
| 2003 02 09 | 291 | 0.5+ | 0.5+ | 2009 10 26 | 691 | 0.3− | 0.2− | 2009 11 22 | 703 | 1.1− | 0.6+ |
| 2005 08 31 | 691 | 0.3− | 0.5+ | 2009 10 26 | 691 | 0.2− | 0.1− | 2009 11 22 | 703 | 0.5− | 0.0 |
| 2005 08 31 | 691 | 0.4− | 0.6+ | 2009 11 09 | G96 | 0.2+ | 0.1− | 2009 11 22 | 703 | 0.0 | 0.3− |
| 2005 08 31 | 691 | 0.1− | 0.3+ | 2009 11 09 | G96 | 0.0 | 0.2− | 2009 11 22 | 703 | 0.9+ | 0.3− |
| 2005 10 30 | G96 | 0.5+ | 0.6− | 2009 11 09 | G96 | 0.4− | 0.2+ | 2009 11 22 | G96 | 0.2+ | 0.4− |
| 2005 10 30 | G96 | 0.3+ | 0.3− | 2009 11 09 | G96 | 0.1− | 0.4− | 2009 11 22 | G96 | 0.3− | 0.1− |
| 2005 10 30 | G96 | 0.0 | 0.3− | 2009 11 11 | 704 | 0.1+ | 0.3+ | 2009 11 22 | G96 | 0.3+ | 0.3− |
| 2005 10 30 | G96 | 0.2− | 0.3− | 2009 11 11 | 704 | 0.7+ | 0.0 | 2009 11 22 | G96 | 0.2− | 0.3− |
| 2007 04 20 | G96 | 0.3+ | 0.3− | 2009 11 11 | 704 | 0.9+ | 0.6+ | 2009 11 22 | G96 | 0.1+ | 0.4− |
| 2007 04 20 | G96 | 0.1− | 0.2− | 2009 11 16 | 704 | 0.2− | 0.6+ | 2009 11 22 | G96 | 0.0 | 0.2− |
| 2007 04 20 | G96 | 0.3− | 0.1+ | 2009 11 16 | 704 | 0.2− | 0.2− | 2009 11 22 | G96 | 0.4+ | 0.2− |

**2009 VN$_{45}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 294.87132 | | (2000.0) | | | |
| $n$ | 0.27940784 | $\omega$ | 105.66804 | | −0.78061132 | −0.62364671 |
| $a$ | 2.3172719 | $\Omega$ | 35.77802 | | +0.54293069 | −0.70938744 |
| $e$ | 0.1047293 | $i$ | 4.05681 | | +0.30963241 | −0.32838123 |
| $P$ | 3.53 | $H$ | 17.6 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 04 21 | 691 | 0.0 | 0.5− | 2007 02 16 | 703 | 0.3+ | 0.2+ | 2009 11 15 | G89 | 0.0 | 0.3+ |
| 2004 04 21 | 691 | 0.3− | 0.1− | 2007 02 16 | 703 | 0.7− | 0.6+ | 2009 11 15 | G89 | 0.0 | 0.2+ |
| 2004 04 21 | 691 | 0.0 | 0.1− | 2009 09 18 | G96 | 0.3− | 0.1+ | 2009 11 16 | G89 | 0.0 | 0.2− |
| 2004 05 21 | 691 | 0.1+ | 0.2− | 2009 09 18 | G96 | 0.1− | 0.3− | 2009 11 16 | G89 | 0.0 | 0.3− |
| 2004 05 21 | 691 | 0.4+ | 0.1+ | 2009 09 18 | G96 | 0.3+ | 0.5+ | 2009 11 16 | G89 | 0.1+ | 0.2− |
| 2004 05 21 | 691 | 0.0 | 0.0 | 2009 09 18 | G96 | 0.6− | 0.2+ | 2009 11 20 | G89 | 0.1− | 0.2− |
| 2004 06 13 | 691 | 0.0 | 0.3+ | 2009 11 08 | G96 | 0.1− | 0.0 | 2009 11 20 | G89 | 0.0 | 0.2− |
| 2004 06 13 | 691 | 0.1− | 0.3+ | 2009 11 08 | G96 | 0.4+ | 0.0 | 2009 11 20 | G89 | 0.2+ | 0.2− |
| 2004 06 13 | 691 | 0.2− | 0.2+ | 2009 11 08 | G96 | 0.4− | 0.2− | 2009 12 17 | G89 | 0.2+ | 0.1− |
| 2007 02 16 | 703 | 0.6+ | 0.2+ | 2009 11 08 | G96 | 0.1+ | 0.0 | 2009 12 17 | G89 | 0.2+ | 0.0 |
| 2007 02 16 | 703 | 0.0 | 0.4− | 2009 11 15 | G89 | 0.0 | 0.2+ | 2009 12 17 | G89 | 0.1+ | 0.0 |

**2009 VV$_{45}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 74.48926 | | (2000.0) | | | |
| $n$ | 0.19567255 | $\omega$ | 286.42654 | | +0.84759777 | +0.52898493 |
| $a$ | 2.9384352 | $\Omega$ | 41.66176 | | −0.45965478 | +0.77134744 |
| $e$ | 0.2203639 | $i$ | 3.61119 | | −0.26513301 | +0.35383340 |
| $P$ | 5.04 | $H$ | 15.9 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 04 07 | 807 | 0.1+ | 0.4+ | 2009 09 19 | G96 | 0.0 | 0.1− | 2009 11 16 | 691 | 0.1− | 0.2− |
| 2002 04 07 | 807 | 0.3+ | 0.2+ | 2009 10 23 | 691 | 1.3− | 0.8− | 2009 11 17 | 704 | (1.8+ | 2.0+) |
| 2002 04 11 | 695 | 0.2− | 0.1+ | 2009 10 23 | 691 | 0.1− | 0.2+ | 2009 11 17 | 704 | 1.2+ | 0.2− |
| 2002 04 11 | 695 | 0.1+ | 0.0 | 2009 10 23 | 691 | 0.1+ | 1.1− | 2009 11 17 | 704 | 1.4+ | 0.8+ |
| 2007 03 10 | G96 | 0.1+ | 0.0 | 2009 10 27 | 691 | 0.2− | 0.2− | 2009 11 17 | 704 | 0.1+ | 0.7+ |
| 2007 03 10 | G96 | 0.4− | 0.1+ | 2009 10 27 | 691 | 0.1− | 0.2+ | 2009 11 20 | 691 | 0.3+ | 0.0 |
| 2007 03 10 | G96 | 0.5− | 0.0 | 2009 10 27 | 691 | 0.0 | 0.1+ | 2009 11 20 | 691 | 0.1+ | 0.0 |
| 2007 03 10 | G96 | 0.2− | 0.1+ | 2009 11 08 | 691 | 0.3+ | 0.1+ | 2009 11 20 | 691 | 0.3+ | 0.2+ |
| 2007 04 23 | G96 | 0.1+ | 0.2− | 2009 11 08 | 691 | 0.8− | 0.2+ | 2009 11 24 | 691 | 0.0 | 0.1− |
| 2007 04 23 | G96 | 0.1− | 0.3− | 2009 11 08 | 691 | 0.3+ | 0.0 | 2009 11 24 | 691 | 0.1− | 0.2+ |
| 2007 04 23 | G96 | 0.4+ | 0.3− | 2009 11 15 | J75 | 0.1− | 0.5− | 2009 11 24 | 691 | 0.1+ | 0.1+ |
| 2007 04 23 | G96 | 0.0 | 0.6− | 2009 11 15 | J75 | 1.3− | 0.4+ | 2009 12 17 | G96 | 0.6+ | 0.0 |
| 2009 09 19 | G96 | 0.0 | 0.1− | 2009 11 15 | J75 | 0.0 | 0.2− | 2009 12 17 | G96 | 0.4+ | 0.0 |
| 2009 09 19 | G96 | 0.3+ | 0.4− | 2009 11 16 | 691 | 0.2+ | 0.5+ | 2009 12 17 | G96 | 0.8+ | 0.1− |
| 2009 09 19 | G96 | 0.2+ | 0.1− | 2009 11 16 | 691 | 0.2+ | 0.5+ | 2009 12 17 | G96 | 0.1− | 0.0 |

**2009 VY$_{45}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 295.67683 | | (2000.0) | | | |
| $n$ | 0.08147222 | $\omega$ | 89.35807 | | −0.28036758 | −0.95826439 |
| $a$ | 5.2698269 | $\Omega$ | 17.24165 | | +0.78853209 | −0.26312607 |
| $e$ | 0.0634278 | $i$ | 10.86827 | | +0.54736749 | −0.11177669 |
| $P$ | 12.10 | $H$ | 13.3 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 11 29 | 691 | 0.3+ | 0.3− | 2009 09 26 | 691 | 0.0 | 0.1+ | 2009 11 16 | 691 | 0.2− | 0.2+ |
| 1997 11 29 | 691 | 0.3− | 0.3− | 2009 09 26 | 691 | 0.0 | 0.1− | 2009 11 16 | 691 | 0.1− | 0.3+ |
| 1997 11 29 | 691 | 0.4+ | 0.0 | 2009 10 14 | 703 | (2.0+ | 0.6+) | 2009 11 16 | 691 | 0.1+ | 0.1+ |
| 2003 04 25 | 691 | 0.1+ | 0.5+ | 2009 10 14 | 703 | (2.0+ | 1.3−) | 2009 11 20 | 691 | 0.1+ | 0.0 |
| 2003 04 25 | 691 | 0.3+ | 0.3+ | 2009 10 14 | 703 | 1.1+ | 0.3+ | 2009 11 20 | 691 | 0.1− | 0.1+ |
| 2003 04 25 | 691 | 0.4+ | 0.5+ | 2009 10 14 | 703 | 0.1+ | 0.3+ | 2009 11 20 | 691 | 0.0 | 0.1+ |
| 2009 09 16 | 691 | 0.8− | 0.3+ | 2009 10 14 | G96 | 0.2+ | 0.2− | 2009 11 23 | 691 | 0.1+ | 0.1− |
| 2009 09 16 | 691 | 0.1+ | 0.1− | 2009 10 14 | G96 | 0.4+ | 0.3− | 2009 11 23 | 691 | 0.2+ | 0.3+ |
| 2009 09 16 | 691 | 0.0 | 0.3+ | 2009 10 14 | G96 | 0.4+ | 0.6− | 2009 11 23 | 691 | 0.5+ | 0.2+ |
| 2009 09 22 | 691 | 0.1+ | 0.1− | 2009 10 14 | G96 | 0.1+ | 0.6− | 2009 11 26 | 691 | 0.1+ | 0.1+ |
| 2009 09 22 | 691 | 1.1− | 0.7− | 2009 11 09 | 691 | 0.1− | 0.4+ | 2009 11 26 | 691 | 0.3+ | 0.0 |
| 2009 09 22 | 691 | 0.3+ | 0.3− | 2009 11 09 | 691 | 0.6− | 0.5+ | 2009 11 26 | 691 | 0.1− | 0.4+ |
| 2009 09 26 | 691 | 0.1− | 0.0 | 2009 11 09 | 691 | 0.4− | 0.2+ | | | | |

**2009 VE$_{46}$ = 2007 TJ$_{297}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 60.71390 | | (2000.0) | | | |
| $n$ | 0.08304399 | $\omega$ | 72.47252 | | +0.99421195 | +0.09949151 |
| $a$ | 5.2031209 | $\Omega$ | 281.80302 | | −0.10737934 | +0.90789590 |
| $e$ | 0.0701810 | $i$ | 2.37401 | | −0.00350276 | +0.40721796 |
| $P$ | 11.87 | $H$ | 14.0 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 08 21 | 807 | 0.1− | 0.1+ | 2008 10 23 | G96 | 0.4− | 0.5− | 2009 11 09 | 691 | 0.4+ | 0.4+ |
| 2006 08 21 | 807 | 0.2− | 0.1+ | 2008 10 23 | G96 | 0.3+ | 0.1+ | 2009 11 09 | 691 | 0.5− | 0.3+ |
| 2007 10 11 | G96 | 0.1+ | 0.0 | 2008 10 23 | G96 | 0.5+ | 0.2+ | 2009 11 09 | 691 | 0.0 | 0.0 |
| 2007 10 11 | G96 | 0.3+ | 0.2− | 2008 10 23 | G96 | 0.6+ | 0.1− | 2009 11 16 | 691 | 0.3+ | 0.1− |
| 2007 10 11 | G96 | 0.0 | 0.5− | 2008 10 23 | G96 | 0.2− | 0.0 | 2009 11 16 | 691 | 0.1− | 0.4− |
| 2007 10 11 | G96 | 0.4− | 0.3− | 2008 10 23 | G96 | 0.3+ | 0.0 | 2009 11 16 | 691 | 0.1− | 0.2− |
| 2007 10 14 | G96 | 0.0 | 0.1+ | 2008 10 23 | G96 | 0.1+ | 0.1+ | 2009 11 24 | 691 | 0.5+ | 0.2− |
| 2007 10 14 | G96 | 0.2+ | 0.6+ | 2008 11 08 | G96 | (0.3− | 1.6+) | 2009 11 24 | 691 | 0.2− | 0.1− |
| 2007 10 14 | G96 | 0.2+ | 0.1+ | 2008 11 08 | G96 | 0.2− | 0.0 | 2009 11 24 | 691 | 0.1− | 0.1− |
| 2007 10 14 | G96 | 0.2+ | 0.0 | 2008 11 08 | G96 | 0.3+ | 0.5− | 2009 12 17 | G96 | 0.2+ | 0.1− |
| 2008 09 25 | 691 | 0.1+ | 0.2− | 2008 11 08 | G96 | (2.4− | 2.1−) | 2009 12 17 | G96 | 0.0 | 0.0 |
| 2008 09 25 | 691 | 0.3− | 0.3+ | 2009 10 27 | 691 | 0.0 | 0.3− | 2009 12 17 | G96 | 0.2+ | 0.2+ |
| 2008 09 25 | 691 | 0.3− | 0.0 | 2009 10 27 | 691 | 0.2− | 0.2+ | 2009 12 17 | G96 | 0.2− | 0.1− |
| 2008 10 23 | G96 | 0.0 | 0.1+ | 2009 10 27 | 691 | 0.2− | 0.5+ | | | | |

**2009 VL$_{46}$ = 2005 WH$_{158}$ = 2005 XU$_{92}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 12.92161 | | (2000.0) | | | |
| $n$ | 0.23143971 | $\omega$ | 328.00704 | | +0.63064131 | −0.77078647 |
| $a$ | 2.6273068 | $\Omega$ | 82.73371 | | +0.72986856 | +0.54944199 |
| $e$ | 0.2111349 | $i$ | 5.23116 | | +0.26378670 | +0.32249298 |
| $P$ | 4.26 | $H$ | 17.5 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 11 26 | G96 | 0.2− | 0.2− | 2006 01 09 | 691 | 0.1+ | 0.5− | 2009 11 19 | J75 | 0.7− | 0.0 |
| 2005 11 26 | G96 | 0.2+ | 0.1− | 2009 10 22 | 703 | 0.6− | 0.1+ | 2009 11 19 | J75 | 0.5+ | 0.1− |
| 2005 11 26 | G96 | 0.2− | 0.2+ | 2009 10 22 | 703 | 0.6+ | 1.0− | 2009 11 19 | J75 | 0.5− | 0.1− |
| 2005 12 02 | G96 | 0.0 | 0.4+ | 2009 10 22 | 703 | 0.2+ | 0.8− | 2009 11 24 | G96 | 0.3+ | 0.0 |
| 2005 12 02 | G96 | 0.2+ | 0.4+ | 2009 10 22 | 703 | 0.2− | 0.6− | 2009 11 24 | G96 | 0.3+ | 0.1+ |
| 2005 12 02 | G96 | 0.3− | 0.0 | 2009 11 09 | 703 | 0.5− | 1.5+ | 2009 11 24 | G96 | 0.2+ | 0.0 |
| 2005 12 02 | G96 | 0.4− | 0.2+ | 2009 11 09 | 703 | 1.3+ | 0.4+ | 2009 11 24 | G96 | 0.1− | 0.3− |
| 2005 12 29 | G96 | 0.1− | 0.3− | 2009 11 09 | 703 | 1.3− | 0.4+ | 2009 12 19 | G96 | 0.3+ | 0.2− |
| 2005 12 29 | G96 | 0.5+ | 0.3− | 2009 11 09 | 703 | 0.5− | 0.5+ | 2009 12 19 | G96 | 0.3+ | 0.1+ |
| 2005 12 29 | G96 | 0.1− | 0.1+ | 2009 11 16 | G96 | 0.3+ | 0.0 | 2009 12 19 | G96 | 0.2− | 0.2+ |
| 2005 12 29 | G96 | 0.9+ | 0.1− | 2009 11 16 | G96 | 0.2+ | 0.0 | 2009 12 19 | G96 | 0.2− | 0.7− |
| 2006 01 09 | 691 | 0.0 | 0.7+ | 2009 11 16 | G96 | 0.1+ | 0.0 | | | | |
| 2006 01 09 | 691 | 0.2− | 0.2− | 2009 11 16 | G96 | 0.2+ | 0.2+ | | | | |

**2009 VP$_{47}$ = 1996 RV$_{17}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 111.74594 | | (2000.0) | | | |
| $n$ | 0.23843444 | $\omega$ | 142.98342 | | +0.47142277 | +0.88161076 |
| $a$ | 2.5756690 | $\Omega$ | 155.11894 | | −0.82159434 | +0.44846013 |
| $e$ | 0.1796802 | $i$ | 3.11597 | | −0.32053598 | +0.14712570 |
| $P$ | 4.13 | $H$ | 16.8 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 09 14 | 691 | 0.0 | 0.4− | 2007 02 07 | G96 | 0.5+ | 0.8− | 2009 11 09 | G96 | 0.0 | 0.0 |
| 1996 09 14 | 691 | 0.0 | 0.1− | 2007 02 07 | G96 | 0.1− | 0.5+ | 2009 11 09 | G96 | 0.2+ | 0.2− |
| 1996 09 14 | 691 | 0.0 | 0.6+ | 2007 02 23 | G96 | 0.8− | 0.3− | 2009 11 16 | G96 | 0.2− | 0.2+ |
| 1996 09 21 | 691 | 0.3+ | 0.3− | 2007 02 23 | G96 | 0.6+ | 0.2− | 2009 11 16 | G96 | 0.1− | 0.2− |
| 1996 09 21 | 691 | 0.1− | 0.1+ | 2007 02 23 | G96 | 0.3− | 0.0 | 2009 11 16 | G96 | 0.4− | 0.2+ |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 09 21 | 691 | 0.1− | 0.0 | 2007 02 23 | G96 | 0.1+ | 0.1+ | 2009 11 16 | G96 | 0.0 | 0.1− |
| 2005 11 01 | G96 | 0.1+ | 0.1− | 2007 03 09 | G96 | 0.5+ | 0.1− | 2009 11 23 | G96 | 0.2+ | 0.1+ |
| 2005 11 01 | G96 | 0.2− | 0.4− | 2007 03 09 | G96 | 0.2+ | 0.2+ | 2009 11 23 | G96 | 0.1+ | 0.4+ |
| 2005 11 01 | G96 | 0.5+ | 0.2− | 2007 03 09 | G96 | 0.2− | 0.0 | 2009 11 23 | G96 | 0.1+ | 0.0 |
| 2005 11 01 | G96 | 0.4− | 0.5− | 2007 03 09 | G96 | 0.0 | 0.3+ | 2009 11 23 | G96 | 0.1− | 0.2+ |
| 2007 02 07 | G96 | 0.1− | 0.0 | 2009 11 09 | G96 | 0.3− | 0.1+ | | | | |
| 2007 02 07 | G96 | 0.3− | 0.4+ | 2009 11 09 | G96 | 0.2+ | 0.4+ | | | | |

**2009 VU$_{47}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 356.26766 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.25646147 | $\omega$ | 283.54130 | | +0.16566323 | | −0.98600788 |
| $a$ | 2.4535108 | $\Omega$ | 156.89814 | | +0.92210544 | | +0.14820184 |
| $e$ | 0.1766384 | $i$ | 2.70996 | | +0.34968164 | | +0.07631951 |
| $P$ | 3.84 | $H$ | 17.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 01 31 | 691 | 0.2+ | 0.1+ | 2009 11 09 | G96 | 0.1+ | 0.2− | 2009 11 23 | G96 | 0.3+ | 0.4− |
| 1995 01 31 | 691 | 0.5+ | 0.0 | 2009 11 16 | G96 | 0.7+ | 0.5− | 2009 11 23 | G96 | 0.2+ | 0.1− |
| 1995 01 31 | 691 | 0.7− | 0.1− | 2009 11 16 | G96 | 0.9− | 0.3− | 2009 11 23 | G96 | 1.2+ | 0.7− |
| 2005 10 01 | 691 | 0.2− | 0.0 | 2009 11 16 | G96 | 0.1+ | 0.3− | 2009 11 23 | G96 | 0.1+ | 0.2− |
| 2005 10 01 | 691 | 0.1+ | 0.0 | 2009 11 16 | G96 | 0.1− | 0.2− | 2009 12 19 | 691 | 0.6− | 0.5+ |
| 2005 10 01 | 691 | 0.1+ | 0.2+ | 2009 11 22 | 703 | 0.2+ | 0.6− | 2009 12 19 | 691 | 0.0 | 0.1+ |
| 2009 11 09 | G96 | 0.3+ | 0.2− | 2009 11 22 | 703 | 0.8− | 0.5− | 2009 12 19 | 691 | 0.2+ | 0.5+ |
| 2009 11 09 | G96 | 0.4− | 0.2− | 2009 11 22 | 703 | 1.0+ | 0.1− | | | | |
| 2009 11 09 | G96 | 0.1− | 0.4− | 2009 11 22 | 703 | (0.6+ | 1.7+) | | | | |

**2009 VV$_{47}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 42.97233 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.19697004 | $\omega$ | 203.45296 | | +0.94414685 | | −0.32949042 |
| $a$ | 2.9255168 | $\Omega$ | 175.77627 | | +0.31166688 | | +0.88818205 |
| $e$ | 0.0780580 | $i$ | 3.71636 | | +0.10700695 | | +0.32026349 |
| $P$ | 5.00 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 12 01 | 691 | 0.4+ | 0.2+ | 2006 01 26 | 691 | 0.2+ | 0.1− | 2009 11 09 | G96 | 0.0 | 0.0 |
| 1994 12 01 | 691 | 0.2+ | 0.3− | 2006 01 26 | 691 | 0.0 | 0.2+ | 2009 11 09 | G96 | 0.1− | 0.0 |
| 1994 12 01 | 691 | 0.4− | 0.3− | 2006 01 26 | 691 | 0.2− | 0.1+ | 2009 11 16 | G96 | 0.3+ | 0.1− |
| 1999 11 01 | 691 | 0.1+ | 0.2− | 2006 01 31 | G96 | 0.1− | 0.1− | 2009 11 16 | G96 | 0.2+ | 0.4+ |
| 1999 11 01 | 691 | 0.1− | 0.1− | 2006 01 31 | G96 | 0.1− | 0.0 | 2009 11 16 | G96 | 0.0 | 0.6+ |
| 1999 11 01 | 691 | 0.1− | 0.1− | 2006 01 31 | G96 | 0.3− | 0.2− | 2009 11 16 | G96 | 0.0 | 0.3+ |
| 2004 11 04 | 691 | 0.0 | 0.5+ | 2006 01 31 | G96 | 0.3+ | 0.3− | 2009 11 23 | G96 | 0.1− | 0.0 |
| 2004 11 04 | 691 | 0.1+ | 0.0 | 2009 11 09 | G96 | 0.1− | 0.1+ | 2009 11 23 | G96 | 0.1− | 0.2+ |
| 2004 11 04 | 691 | 0.1− | 0.1− | 2009 11 09 | G96 | 0.1− | 0.1+ | 2009 11 23 | G96 | 0.4− | 0.2+ |

**2009 VD$_{48}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 1.35556 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17596893 | $\omega$ | 309.37402 | | +0.36208978 | | −0.92984835 |
| $a$ | 3.1538816 | $\Omega$ | 119.28079 | | +0.87661585 | | +0.31583966 |
| $e$ | 0.1271102 | $i$ | 4.29799 | | +0.31691584 | | +0.18875209 |
| $P$ | 5.60 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 23 | 691 | 0.0 | 0.3+ | 2009 11 09 | G96 | 0.2+ | 0.3+ | 2009 11 23 | G96 | 0.4+ | 0.1+ |
| 2003 10 23 | 691 | 0.0 | 0.3+ | 2009 11 09 | G96 | 0.2− | 0.3− | 2009 11 23 | G96 | 0.1+ | 0.0 |
| 2003 10 23 | 691 | 0.4− | 0.3− | 2009 11 09 | G96 | 0.1− | 0.0 | 2009 11 23 | G96 | 0.2+ | 0.0 |
| 2003 11 20 | 645 | 0.0 | 0.0 | 2009 11 09 | G96 | 0.1+ | 0.2− | 2009 11 23 | G96 | 0.3+ | 0.2+ |
| 2003 11 20 | 645 | 0.1+ | 0.0 | 2009 11 16 | G96 | 0.2+ | 0.4− | 2009 12 19 | 691 | 0.2− | 0.0 |
| 2005 01 15 | 691 | 0.0 | 0.1− | 2009 11 16 | G96 | 0.3− | 0.6− | 2009 12 19 | 691 | 0.1− | 0.3− |
| 2005 01 15 | 691 | 0.2+ | 0.1+ | 2009 11 16 | G96 | 0.3+ | 0.1+ | 2009 12 19 | 691 | 0.1+ | 0.1+ |
| 2005 01 15 | 691 | 0.2− | 0.1+ | 2009 11 16 | G96 | 0.1− | 0.5+ | | | | |

**2009 VV$_{48}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 33.48010 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17347293 | $\omega$ | 268.80513 | | +0.89707051 | | +0.03769167 |
| $a$ | 3.1840624 | $\Omega$ | 88.91264 | | +0.14036824 | | +0.92044409 |
| $e$ | 0.2850372 | $i$ | 26.12662 | | −0.41900030 | | +0.38905271 |
| $P$ | 5.68 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 10 | 691 | 0.3+ | 0.5+ | 2009 10 23 | 703 | 0.1− | 0.4+ | 2009 11 16 | 703 | 0.5+ | 0.5+ |
| 2004 12 10 | 691 | 0.2+ | 0.1− | 2009 11 10 | 703 | 0.0 | 1.3+ | 2009 11 16 | 703 | 0.2+ | 0.9− |
| 2004 12 10 | 691 | 0.5− | 0.4− | 2009 11 10 | 703 | 0.3− | 0.6− | 2009 11 25 | 703 | 0.3− | 0.4+ |
| 2009 10 23 | 703 | 0.2+ | 0.1+ | 2009 11 10 | 703 | 0.9− | 0.3+ | 2009 11 25 | 703 | 0.3− | 0.1+ |
| 2009 10 23 | 703 | 0.1− | 0.3− | 2009 11 16 | 703 | 0.3+ | 0.2− | 2009 11 25 | 703 | 0.4− | 0.4− |
| 2009 10 23 | 703 | 0.1+ | 0.4− | 2009 11 16 | 703 | 0.6+ | 0.5− | 2009 11 25 | 703 | 0.6+ | 0.1+ |

**2009 VZ$_{48}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 219.32514 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.27942164 | $\omega$ | 164.27495 | | −0.85468777 | | +0.51599699 |
| $a$ | 2.3171956 | $\Omega$ | 46.93297 | | −0.48432798 | | −0.75296742 |
| $e$ | 0.0953505 | $i$ | 4.47970 | | −0.18690965 | | −0.40839585 |
| $P$ | 3.53 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 05 06 | 691 | 0.1+ | 0.6+ | 2007 01 10 | 691 | 0.2+ | 0.2− | 2009 11 14 | J75 | 0.1− | 0.5+ |
| 1997 05 06 | 691 | 0.3+ | 0.0 | 2007 01 10 | 691 | 0.2+ | 0.1− | 2009 11 14 | J75 | 1.0+ | 0.2+ |
| 1997 05 06 | 691 | 0.2− | 0.3− | 2007 01 28 | 691 | 0.1+ | 0.1+ | 2009 11 14 | J75 | 0.8− | 0.3+ |
| 1998 09 19 | 645 | 0.1+ | 0.1− | 2007 01 28 | 691 | 0.3+ | 0.1+ | 2009 11 24 | G96 | 0.2+ | 0.2+ |
| 1998 09 19 | 645 | 0.0 | 0.0 | 2007 01 28 | 691 | 0.2+ | 0.0 | 2009 11 24 | G96 | 0.5+ | 0.1− |
| 2005 10 13 | 691 | 0.3− | 0.1+ | 2009 11 11 | 691 | 0.6− | 0.2+ | 2009 11 24 | G96 | 0.2+ | 0.0 |
| 2005 10 13 | 691 | 0.0 | 0.3+ | 2009 11 11 | 691 | 0.1− | 0.3+ | 2009 11 24 | G96 | 0.5+ | 0.1− |
| 2005 10 13 | 691 | 0.0 | 0.0 | 2009 11 11 | 691 | 0.3− | 0.4+ | 2009 12 10 | G96 | 0.1+ | 0.0 |
| 2006 12 26 | 691 | 0.1− | 0.1− | 2009 11 11 | G96 | 0.1+ | 0.1− | 2009 12 10 | G96 | 0.2− | 0.1− |
| 2006 12 26 | 691 | 0.5− | 0.1+ | 2009 11 11 | G96 | 0.3+ | 0.2− | 2009 12 10 | G96 | 0.5+ | 0.5+ |
| 2006 12 26 | 691 | 0.5− | 0.1− | 2009 11 11 | G96 | 0.2+ | 0.5− | 2009 12 10 | G96 | 0.4+ | 0.1+ |
| 2007 01 10 | 691 | 0.0 | 0.2− | 2009 11 11 | G96 | 0.3+ | 0.1− | | | | |

**2009 VF$_{49}$ = 2007 BK$_{49}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 295.36609 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.28176475 | $\omega$ | 271.25228 | | −0.74651783 | | −0.66072255 |
| $a$ | 2.3043314 | $\Omega$ | 227.39972 | | +0.64497120 | | −0.68961311 |
| $e$ | 0.0568713 | $i$ | 6.11919 | | +0.16347254 | | −0.29644471 |
| $P$ | 3.50 | $H$ | 17.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 11 25 | 291 | 0.1+ | 0.5+ | 2007 01 25 | D35 | 0.4+ | 0.6+ | 2009 11 11 | G96 | 0.0 | 0.0 |
| 2002 11 25 | 291 | 0.7− | 0.5+ | 2007 01 25 | D35 | 0.2+ | 0.2+ | 2009 11 14 | J75 | 0.5+ | 0.1− |
| 2002 11 25 | 291 | 0.1+ | 0.9+ | 2009 09 21 | G96 | 0.2+ | 0.1− | 2009 11 14 | J75 | 0.8− | 0.9− |
| 2004 05 13 | 691 | 0.2− | 0.4+ | 2009 09 21 | G96 | 0.2− | 0.1+ | 2009 11 14 | J75 | 0.1− | 0.0 |
| 2004 05 13 | 691 | 0.2− | 0.8+ | 2009 09 21 | G96 | 0.3+ | 0.2+ | 2009 11 22 | 703 | 0.3− | 0.6+ |
| 2004 05 13 | 691 | 0.1+ | 0.1+ | 2009 09 21 | G96 | 0.3+ | 0.1− | 2009 11 22 | 703 | 0.4− | 0.3+ |
| 2004 05 21 | 691 | 0.3+ | 0.4+ | 2009 10 18 | G96 | 0.2+ | 0.2− | 2009 11 22 | 703 | 0.7− | 0.1− |
| 2004 05 21 | 691 | 0.2+ | 0.5+ | 2009 10 18 | G96 | 0.2+ | 0.2− | 2009 11 22 | 703 | 0.4− | 0.7+ |
| 2004 05 21 | 691 | 0.3+ | 0.5+ | 2009 10 18 | G96 | 0.4− | 0.1− | 2009 11 23 | G96 | 0.2− | 0.2− |
| 2005 09 12 | 691 | 0.0 | 0.6+ | 2009 10 18 | G96 | 0.1+ | 0.0 | 2009 11 23 | G96 | 0.2+ | 0.2− |
| 2005 09 12 | 691 | 0.2− | 0.2+ | 2009 11 11 | 691 | 0.7+ | 0.5+ | 2009 11 23 | G96 | 0.4− | 0.0 |
| 2005 09 12 | 691 | 0.2+ | 0.6+ | 2009 11 11 | 691 | 0.5− | 0.1− | 2009 11 23 | G96 | 0.4− | 0.1− |
| 2007 01 22 | D35 | 0.3+ | 0.3+ | 2009 11 11 | 691 | 0.5− | 0.1− | 2009 12 19 | G96 | 0.2+ | 0.1+ |
| 2007 01 22 | D35 | 0.6+ | 0.2+ | 2009 11 11 | G96 | 0.4+ | 0.5− | 2009 12 19 | G96 | 0.3+ | 0.2− |
| 2007 01 22 | D35 | 0.5+ | 0.1+ | 2009 11 11 | G96 | 0.2+ | 0.0 | 2009 12 19 | G96 | 0.4+ | 0.1− |
| 2007 01 25 | D35 | 0.4+ | 0.2+ | 2009 11 11 | G96 | 0.4+ | 0.1− | 2009 12 19 | G96 | 0.5+ | 0.3− |

**2009 VB$_{50}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 72.45231 | | (2000.0) | | +0.65094833 | +0.67128627 |
| $n$ | 0.17464801 | $\omega$ | 75.14889 | | −0.75251179 | +0.63210235 |
| $a$ | 3.1697641 | $\Omega$ | 241.18267 | | +0.09996133 | +0.38706763 |
| $e$ | 0.3277692 | $i$ | 23.86349 | | | |
| $P$ | 5.64 | $H$ | 15.1 | $G$ 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 18 | 644 | 0.0 | 0.2+ | 2009 11 15 | J75 | 0.0 | 0.7− | 2009 11 20 | 691 | 0.0 | 0.0 |
| 2003 10 18 | 644 | 0.0 | 0.3+ | 2009 11 15 | J75 | 1.2+ | 0.5− | 2009 11 20 | 691 | 0.0 | 0.2+ |
| 2003 10 18 | 644 | 0.0 | 0.0 | 2009 11 16 | 691 | 0.1+ | 0.0 | 2009 12 11 | G96 | 0.3+ | 0.1+ |
| 2003 11 18 | 691 | 0.1− | 0.2− | 2009 11 16 | 691 | 0.2− | 0.3+ | 2009 12 11 | G96 | 0.3+ | 0.2+ |
| 2003 11 18 | 691 | 0.1+ | 0.0 | 2009 11 16 | 691 | 0.5− | 0.1+ | 2009 12 11 | G96 | 0.2+ | 0.1− |
| 2003 11 18 | 691 | 0.1+ | 0.1+ | 2009 11 17 | 704 | 0.5+ | 0.1+ | 2009 12 11 | G96 | 0.3+ | 0.0 |
| 2009 11 11 | J75 | 0.1− | 0.0 | 2009 11 17 | 704 | (0.3+ | 2.1−) | 2009 12 19 | G96 | 0.1+ | 0.2+ |
| 2009 11 11 | J75 | 0.0 | 0.4− | 2009 11 17 | 704 | 1.1+ | 1.4− | 2009 12 19 | G96 | 0.4+ | 0.1+ |
| 2009 11 12 | J75 | 0.3− | 0.3− | 2009 11 17 | 704 | (1.8+ | 2.3−) | 2009 12 19 | G96 | 0.0 | 0.0 |
| 2009 11 15 | J75 | 0.4− | 0.1− | 2009 11 20 | 691 | 0.3− | 0.2+ | 2009 12 19 | G96 | 0.4+ | 0.2− |

**2009 VC$_{50}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 54.14872 | | (2000.0) | | +0.99987444 | +0.00327381 |
| $n$ | 0.19563334 | $\omega$ | 84.68835 | | −0.00918932 | +0.91690297 |
| $a$ | 2.9388278 | $\Omega$ | 275.12343 | | +0.01290995 | +0.39909676 |
| $e$ | 0.1453917 | $i$ | 0.89195 | | | |
| $P$ | 5.04 | $H$ | 16.0 | $G$ 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 04 12 | 691 | 0.3+ | 0.5+ | 2007 03 14 | 691 | 0.1+ | 0.1− | 2009 09 21 | G96 | 0.0 | 0.0 |
| 2002 04 12 | 691 | 0.3+ | 0.9+ | 2007 04 22 | G96 | 0.5− | 0.1− | 2009 11 11 | J75 | 0.3− | 0.7+ |
| 2002 04 12 | 691 | 0.3+ | 0.4+ | 2007 04 22 | G96 | 0.5+ | 0.3− | 2009 11 11 | J75 | 0.3+ | 1.0+ |
| 2005 11 07 | 568 | 0.0 | 0.2+ | 2007 04 22 | G96 | 0.1− | 0.1− | 2009 11 12 | J75 | 0.6+ | 0.3− |
| 2005 11 07 | 568 | 0.0 | 0.2+ | 2007 04 22 | G96 | 0.1− | 0.3− | 2009 11 16 | 691 | 0.0 | 0.1+ |
| 2005 11 07 | 568 | 0.1− | 0.2+ | 2007 05 10 | G96 | 0.5− | 0.1+ | 2009 11 16 | 691 | 0.2− | 0.2+ |
| 2006 01 07 | G96 | 0.5− | 0.3− | 2007 05 10 | G96 | 0.1+ | 0.2+ | 2009 11 16 | 691 | 0.2− | 0.0 |
| 2006 01 07 | G96 | 0.5+ | 0.0 | 2007 05 10 | G96 | 0.4− | 0.0 | 2009 11 24 | 691 | 0.2− | 0.1+ |
| 2006 01 07 | G96 | 0.3+ | 0.0 | 2007 05 10 | G96 | 0.4+ | 0.6− | 2009 11 24 | 691 | 0.0 | 0.0 |
| 2006 01 07 | G96 | 0.2+ | 0.0 | 2008 06 24 | 691 | 0.2− | 0.7+ | 2009 11 24 | 691 | 0.1− | 0.1+ |
| 2006 01 30 | 691 | 0.1+ | 0.1+ | 2008 06 24 | 691 | 0.2− | 0.2+ | 2009 12 09 | J75 | 0.4+ | 0.6+ |
| 2006 01 30 | 691 | 0.0 | 0.1+ | 2008 06 24 | 691 | 0.0 | 0.1+ | 2009 12 09 | J75 | 0.1+ | 0.4− |
| 2006 01 30 | 691 | 0.2+ | 0.5+ | 2009 07 31 | 691 | 0.5− | 0.4+ | 2009 12 09 | J75 | 0.3+ | 0.5+ |
| 2006 02 07 | 691 | 0.1− | 0.0 | 2009 07 31 | 691 | 0.4− | 0.1+ | 2009 12 10 | 114 | 0.2− | 0.0 |
| 2006 02 07 | 691 | 0.3− | 0.1+ | 2009 07 31 | 691 | 0.3− | 0.7+ | 2009 12 10 | 114 | 0.3+ | 0.2+ |
| 2006 02 07 | 691 | 0.5− | 0.1− | 2009 09 21 | G96 | 0.5+ | 0.2− | 2009 12 10 | 114 | 0.6+ | 0.6+ |
| 2007 03 14 | 691 | 0.3+ | 0.3+ | 2009 09 21 | G96 | 0.3+ | 0.0 | 2009 12 10 | 114 | 0.5+ | 1.1+ |
| 2007 03 14 | 691 | 0.1− | 0.1− | 2009 09 21 | G96 | 0.4+ | 0.0 | 2009 12 10 | 114 | 1.0+ | 0.1− |

**2009 VH$_{50}$ = 2006 JF$_{28}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 358.62350 | | (2000.0) | | +0.46471692 | −0.88208886 |
| $n$ | 0.15165925 | $\omega$ | 219.75295 | | +0.85450447 | +0.46961064 |
| $a$ | 3.4824919 | $\Omega$ | 202.87495 | | +0.23207822 | +0.03721690 |
| $e$ | 0.0463305 | $i$ | 11.45275 | | | |
| $P$ | 6.50 | $H$ | 14.8 | $G$ 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 03 04 | 703 | 1.0− | 0.7+ | 2006 05 07 | G96 | 0.5− | 0.6− | 2009 11 12 | J75 | 0.3− | 0.4+ |
| 2005 03 04 | 703 | 0.8+ | 1.4− | 2006 05 07 | G96 | 0.4− | 0.3− | 2009 11 12 | J75 | 0.6+ | 0.1+ |
| 2005 03 04 | 703 | 0.6+ | 0.8+ | 2006 05 07 | G96 | 0.2− | 0.2− | 2009 11 12 | J75 | 0.1− | 0.9+ |
| 2005 03 04 | 703 | 0.4− | 0.3− | 2006 05 30 | G96 | 0.0 | 0.0 | 2009 11 16 | G96 | 0.1+ | 0.1− |
| 2006 05 03 | 691 | 0.3+ | 0.3+ | 2006 05 30 | G96 | 0.2− | 0.4− | 2009 11 16 | G96 | 0.3− | 0.3− |
| 2006 05 03 | 691 | 0.4+ | 0.0 | 2006 05 30 | G96 | 0.3− | 0.2− | 2009 11 16 | G96 | 0.1+ | 0.2− |
| 2006 05 03 | 691 | 0.2+ | 0.0 | 2006 05 30 | G96 | 0.5− | 0.2− | 2009 11 16 | G96 | 0.1− | 0.1+ |
| 2006 05 07 | 691 | 0.6− | 0.4+ | 2009 10 24 | 703 | 0.4− | 0.5+ | 2009 11 19 | J75 | 0.5+ | 0.3− |
| 2006 05 07 | 691 | 0.4+ | 0.1+ | 2009 10 24 | 703 | 0.0 | 0.2− | 2009 11 19 | J75 | 0.4+ | 0.2− |
| 2006 05 07 | 691 | 0.0 | 0.1− | 2009 10 24 | 703 | 0.2− | 0.1+ | 2009 11 19 | J75 | 0.4− | 0.1− |
| 2006 05 07 | G96 | 0.5− | 0.1− | 2009 10 24 | 703 | 0.1+ | 0.0 | | | | |

**2009 VM$_{50}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 4.71101 | | (2000.0) | | +0.27379201 | −0.95148013 |
| $n$ | 0.19294604 | $\omega$ | 202.07060 | | +0.90682337 | +0.30403420 |
| $a$ | 2.9660523 | $\Omega$ | 232.32031 | | +0.32048293 | −0.04742112 |
| $e$ | 0.1020846 | $i$ | 10.22121 | | | |
| $P$ | 5.11 | $H$ | 15.1 | $G$ 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 08 24 | 644 | 0.0 | 0.3− | 2009 11 16 | G96 | 0.2+ | 0.2+ | 2009 11 23 | 691 | 0.8− | 0.3+ |
| 2003 08 24 | 644 | 0.1− | 0.1− | 2009 11 16 | G96 | 0.3− | 0.1+ | 2009 11 23 | 691 | 0.1− | 0.0 |
| 2003 08 24 | 644 | 0.2+ | 0.1+ | 2009 11 16 | J75 | 0.4+ | 0.1− | 2009 11 23 | 691 | 0.3− | 0.2− |
| 2008 07 30 | 703 | 1.2+ | 0.3− | 2009 11 16 | J75 | 0.3− | 0.4− | 2009 11 27 | 691 | 0.1− | 0.1+ |
| 2008 07 30 | 703 | 0.3+ | 0.1+ | 2009 11 16 | J75 | 0.9+ | 0.7− | 2009 11 27 | 691 | 0.1− | 0.0 |
| 2008 07 30 | 703 | 0.9− | 0.6+ | 2009 11 18 | 704 | 1.0+ | 0.6+ | 2009 11 27 | 691 | 0.1− | 0.2+ |
| 2008 07 30 | 703 | 0.7− | 0.1+ | 2009 11 18 | 704 | 0.3+ | 0.0 | 2009 12 08 | J75 | (0.6+ | 1.9−) |
| 2009 09 20 | G96 | 0.2− | 0.4− | 2009 11 18 | 704 | 0.7+ | 0.8+ | 2009 12 08 | J75 | (0.4− | 1.9−) |
| 2009 09 20 | G96 | 0.1− | 0.2− | 2009 11 18 | 704 | 0.8+ | 0.7+ | 2009 12 08 | J75 | 0.1− | 0.6− |
| 2009 09 20 | G96 | 0.1− | 0.3− | 2009 11 18 | 704 | (0.5+ | 1.6+) | 2009 12 11 | 703 | 0.1− | 0.1+ |
| 2009 09 20 | G96 | 0.0 | 0.2− | 2009 11 19 | 691 | 0.3− | 0.1− | 2009 12 11 | 703 | 0.1− | 0.2+ |
| 2009 09 30 | G96 | 0.0 | 0.4− | 2009 11 19 | 691 | 0.3− | 0.0 | 2009 12 11 | 703 | 0.3− | 0.1− |
| 2009 09 30 | G96 | 0.3− | 0.1− | 2009 11 19 | 691 | (1.5− | 2.2−) | 2009 12 12 | 704 | 0.3− | 0.7− |
| 2009 09 30 | G96 | 0.1+ | 0.2− | 2009 11 20 | 704 | 1.1+ | 0.5− | 2009 12 12 | 704 | 0.4+ | 0.0 |
| 2009 09 30 | G96 | 0.3+ | 0.3− | 2009 11 20 | 704 | 0.5+ | 0.8+ | 2009 12 12 | 704 | 0.2+ | 0.2− |
| 2009 11 13 | J75 | 0.0 | 0.5− | 2009 11 20 | 704 | 1.1− | 0.3+ | 2009 12 12 | 704 | 1.5+ | 0.0 |
| 2009 11 13 | J75 | 0.2+ | 0.4− | 2009 11 20 | 704 | 0.1+ | 0.9+ | 2009 12 18 | 704 | 0.3− | 1.2− |
| 2009 11 13 | J75 | 0.2+ | 0.3− | 2009 11 20 | A50 | 0.2+ | 0.1+ | 2009 12 18 | 704 | 0.6+ | 0.1+ |
| 2009 11 16 | G96 | 0.3− | 0.1+ | 2009 11 21 | A50 | 0.7+ | 0.9+ | 2009 12 18 | 704 | 1.1+ | 0.4− |
| 2009 11 16 | G96 | 0.2+ | 0.1+ | 2009 11 21 | A50 | 0.7+ | 0.3+ | | | | |

**2009 VN$_{50}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 66.50300 | | (2000.0) | | +0.97424142 | +0.20269789 |
| $n$ | 0.23972070 | $\omega$ | 249.31142 | | −0.15101902 | +0.91190850 |
| $a$ | 2.5664473 | $\Omega$ | 98.89136 | | −0.16747214 | +0.35684234 |
| $e$ | 0.2253883 | $i$ | 5.74098 | | | |
| $P$ | 4.11 | $H$ | 16.2 | $G$ 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 01 22 | G96 | 0.0 | 0.2+ | 2007 03 19 | G96 | 0.2+ | 0.1− | 2009 11 24 | J75 | 0.3− | 0.3− |
| 2006 01 22 | G96 | 0.2+ | 0.0 | 2007 03 19 | G96 | 0.6+ | 0.2− | 2009 11 24 | J75 | 0.1− | 0.5+ |
| 2006 01 22 | G96 | 0.2+ | 0.2+ | 2007 03 19 | G96 | 0.9+ | 0.3+ | 2009 11 24 | J75 | 0.1− | 0.4− |
| 2006 01 22 | G96 | 0.1− | 0.0 | 2009 11 13 | J75 | 0.2− | 0.3− | 2009 12 11 | G96 | 0.0 | 0.2+ |
| 2006 01 22 | G96 | 0.2+ | 0.3+ | 2009 11 13 | J75 | 0.1− | 0.1− | 2009 12 11 | G96 | 0.3− | 0.2− |
| 2006 01 22 | G96 | 0.5− | 0.2− | 2009 11 13 | J75 | 0.2− | 0.2+ | 2009 12 11 | G96 | 0.4+ | 0.1− |
| 2006 01 22 | G96 | 0.2− | 0.2+ | 2009 11 16 | G96 | 0.4+ | 0.0 | 2009 12 11 | G96 | 0.0 | 0.0 |
| 2006 01 22 | G96 | 0.0 | 0.2− | 2009 11 16 | G96 | 0.1− | 0.1+ | 2009 12 11 | 703 | 0.6− | 0.3− |
| 2007 02 27 | 691 | 0.4− | 0.3− | 2009 11 16 | G96 | 0.2+ | 0.1+ | 2009 12 11 | 703 | 0.1− | 0.8− |
| 2007 02 27 | 691 | 0.2+ | 0.2+ | 2009 11 20 | A50 | (2.3+ | 0.3−) | 2009 12 11 | 703 | (0.9+ | 1.8−) |
| 2007 02 27 | 691 | 0.4− | 0.1+ | 2009 11 21 | A50 | 1.0+ | 0.5+ | 2009 12 11 | 703 | 0.4+ | 0.1− |
| 2007 03 19 | G96 | 0.6+ | 0.1+ | 2009 11 21 | A50 | 0.2− | 0.6+ | | | | |

**2009 VS$_{50}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 71.43055 | | (2000.0) | | +0.91656652 | +0.32302630 |
| $n$ | 0.17636645 | $\omega$ | 286.98321 | | −0.15578354 | +0.83132485 |
| $a$ | 3.1491407 | $\Omega$ | 54.78400 | | −0.36828971 | +0.45227536 |
| $e$ | 0.1220924 | $i$ | 16.76902 | | | |
| $P$ | 5.59 | $H$ | 15.6 | $G$ 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 04 16 | 645 | 0.0 | 0.0 | 2009 10 11 | G96 | 0.6+ | 0.1+ | 2009 11 20 | 691 | 0.1− | 0.3+ |
| 2001 04 16 | 645 | 0.0 | 0.0 | 2009 10 11 | G96 | 0.2− | 0.1− | 2009 11 20 | 691 | 0.4− | 0.1− |
| 2007 04 26 | 691 | 0.2− | 0.0 | 2009 11 08 | 691 | 0.1− | 0.4+ | 2009 11 20 | 691 | 0.1+ | 0.1+ |
| 2007 04 26 | 691 | 0.0 | 0.2+ | 2009 11 08 | 691 | 0.3− | 0.4+ | 2009 11 20 | G96 | 0.2+ | 0.1− |
| 2007 04 26 | 691 | 0.2+ | 0.1+ | 2009 11 08 | 703 | 0.4+ | 0.2+ | 2009 11 20 | G96 | 0.2+ | 0.1− |
| 2007 05 10 | G96 | 0.4+ | 0.0 | 2009 11 08 | 703 | 0.2− | 0.6− | 2009 11 20 | G96 | 0.4+ | 0.0 |
| 2007 05 10 | G96 | 0.4+ | 0.2+ | 2009 11 08 | 691 | 0.1+ | 0.0 | 2009 11 20 | G96 | 0.4+ | 0.1− |
| 2007 05 10 | G96 | 0.5+ | 0.2+ | 2009 11 08 | 703 | 0.1+ | 1.3− | 2009 11 24 | 691 | 0.1− | 0.1+ |
| 2007 05 10 | G96 | 0.1− | 0.0 | 2009 11 08 | 703 | 0.9+ | 0.4+ | 2009 11 24 | 691 | 0.2− | 0.1+ |
| 2009 09 22 | G96 | 0.1+ | 0.2− | 2009 11 15 | J75 | 0.3− | 1.0− | 2009 11 24 | 691 | 0.4− | 0.2− |
| 2009 09 22 | G96 | 0.2− | 0.1− | 2009 11 15 | J75 | 0.0 | 0.2+ | 2009 12 17 | G96 | 0.5+ | 0.1+ |
| 2009 09 22 | G96 | 0.0 | 0.1− | 2009 11 15 | J75 | 0.1− | 0.7− | 2009 12 17 | G96 | 0.4+ | 0.1− |
| 2009 09 22 | G96 | 0.7+ | 0.1− | 2009 11 16 | 691 | 0.1+ | 0.1− | 2009 12 17 | G96 | 0.1+ | 0.3− |
| 2009 10 11 | G96 | 0.0 | 0.2+ | 2009 11 16 | 691 | 0.2+ | 0.0 | 2009 12 17 | G96 | 0.2+ | 0.1− |
| 2009 10 11 | G96 | 0.2− | 0.4− | 2009 11 16 | 691 | 0.1− | 0.4+ | | | | |

**2009 VA$_{51}$ = 1998 RG$_{11}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 27.65941 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.27352883 | $\omega$ | 224.51244 | | +0.82570697 | | −0.56408677 |
| $a$ | 2.3503578 | $\Omega$ | 169.82448 | | +0.52329979 | | +0.76348278 |
| $e$ | 0.1733762 | $i$ | 1.21837 | | +0.21063079 | | +0.31448396 |
| $P$ | 3.60 | $H$ | 18.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 09 13 | 691 | 0.1− | 0.4+ | 2009 09 22 | G96 | 0.1+ | 0.5− | 2009 11 15 | 703 | 1.1+ | 0.2+ |
| 1998 09 13 | 691 | 0.0 | 0.3− | 2009 09 22 | G96 | 0.7+ | 0.3− | 2009 11 15 | 703 | 0.8− | 0.2− |
| 1998 09 13 | 691 | 0.5− | 0.1+ | 2009 10 18 | G96 | 0.3+ | 0.5− | 2009 11 15 | 703 | 0.6+ | 0.6− |
| 1998 09 18 | 691 | 0.0 | 0.2+ | 2009 10 18 | G96 | 0.5+ | 0.3− | 2009 11 16 | G96 | 0.7+ | 0.1− |
| 1998 09 18 | 691 | 0.2+ | 0.3− | 2009 10 18 | G96 | 0.2+ | 0.6− | 2009 11 16 | G96 | 0.4+ | 0.3− |
| 1998 09 18 | 691 | 0.2+ | 0.1+ | 2009 10 18 | G96 | 0.4+ | 0.0 | 2009 11 16 | G96 | 0.7+ | 0.3− |
| 2005 08 27 | 644 | 0.4− | 0.1− | 2009 10 23 | 691 | 1.0− | 0.2+ | 2009 11 16 | G96 | 0.3+ | 0.3− |
| 2005 08 27 | 644 | 0.1+ | 0.2+ | 2009 10 23 | 691 | 0.3+ | 0.1+ | 2009 11 18 | 704 | 0.6+ | 1.0+ |
| 2005 08 27 | 644 | 0.2+ | 0.1+ | 2009 10 23 | 691 | 0.8− | 0.3− | 2009 11 18 | 704 | 1.5+ | 0.1+ |
| 2007 02 21 | G96 | 0.2− | 0.2+ | 2009 10 23 | 691 | 0.2− | 0.8+ | 2009 11 18 | 704 | 0.2− | 0.2− |
| 2007 02 21 | G96 | 0.2+ | 0.2+ | 2009 10 23 | 691 | 0.3− | 0.6+ | 2009 11 18 | 704 | (1.0+ | 1.5+) |
| 2007 02 21 | G96 | 0.1− | 0.2+ | 2009 10 23 | 691 | 0.1+ | 0.2− | 2009 11 22 | 703 | 1.4− | 0.0 |
| 2007 02 21 | G96 | 0.6− | 0.5+ | 2009 10 27 | 691 | 0.1+ | 0.4+ | 2009 11 22 | 703 | 0.3− | 0.7− |
| 2007 03 09 | G96 | 0.4− | 0.4− | 2009 10 27 | 691 | 0.1− | 0.5− | 2009 11 22 | 703 | 0.8− | 0.9+ |
| 2007 03 09 | G96 | 0.3− | 0.4+ | 2009 10 27 | 691 | 0.1+ | 0.1− | 2009 11 22 | 703 | 1.0+ | 0.8− |
| 2007 03 09 | G96 | 1.4+ | 0.5+ | 2009 11 08 | 691 | 0.5− | 0.5+ | 2009 11 23 | G96 | 0.4+ | 0.2− |
| 2007 03 09 | G96 | 0.5+ | 0.1− | 2009 11 08 | 691 | 0.2+ | 0.1− | 2009 11 23 | G96 | 0.6+ | 0.2− |
| 2009 09 22 | G96 | 0.7+ | 0.2− | 2009 11 08 | 691 | 0.1− | 0.1− | 2009 11 23 | G96 | 0.4+ | 0.0 |
| 2009 09 22 | G96 | 0.5+ | 0.6− | 2009 11 15 | 703 | 0.2+ | 1.3− | 2009 11 23 | G96 | 0.3+ | 0.1− |

**2009 VC$_{51}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 72.55021 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17779538 | $\omega$ | 267.75209 | | +0.86131308 | | +0.42537100 |
| $a$ | 3.1322451 | $\Omega$ | 66.96708 | | −0.25507390 | | +0.83497822 |
| $e$ | 0.1575737 | $i$ | 17.57274 | | −0.43940537 | | +0.34910009 |
| $P$ | 5.54 | $H$ | 15.1 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 25 | 644 | 0.8− | 0.2− | 2009 10 12 | G96 | 0.2+ | 0.3+ | 2009 11 19 | J75 | 0.9+ | 0.5− |
| 2003 09 25 | 644 | 0.1− | 0.2− | 2009 10 12 | G96 | 0.4+ | 0.2+ | 2009 11 19 | J75 | 0.5+ | 0.7+ |
| 2003 09 25 | 644 | 0.2+ | 0.4+ | 2009 10 12 | G96 | 0.4+ | 0.3+ | 2009 11 19 | J75 | 0.4− | 0.5− |
| 2003 10 01 | 699 | 1.1− | 0.7− | 2009 10 12 | G96 | 0.6+ | 0.2+ | 2009 11 20 | 704 | 1.1− | 0.3− |
| 2003 10 01 | 699 | 1.0+ | 0.4+ | 2009 11 09 | 703 | (1.6+ | 0.1+) | 2009 11 20 | 704 | 0.1− | 1.0+ |
| 2003 10 01 | 699 | 1.3+ | 0.1− | 2009 11 09 | 703 | 0.4− | 1.2− | 2009 11 20 | 704 | 0.2− | 0.8+ |
| 2003 10 01 | 699 | 0.6− | 0.4+ | 2009 11 09 | 703 | 0.0 | 0.4− | 2009 11 20 | 704 | 0.2+ | 0.1+ |
| 2008 08 03 | E12 | 1.1+ | 0.6− | 2009 11 09 | 703 | 1.3− | 0.0 | 2009 11 22 | 703 | 0.1+ | 0.3− |
| 2008 08 03 | E12 | 0.1− | 0.0 | 2009 11 12 | J75 | 1.0+ | 0.4− | 2009 11 22 | 703 | 0.4− | 0.5− |
| 2008 08 03 | E12 | 0.2+ | 0.0 | 2009 11 12 | J75 | 1.2+ | 0.2− | 2009 11 22 | 703 | 1.4− | 0.5+ |
| 2008 08 03 | E12 | 0.3+ | 0.1+ | 2009 11 13 | J75 | 1.4− | 0.9− | 2009 11 22 | 703 | 0.2− | 0.7− |
| 2008 08 26 | E12 | 0.9− | 0.3+ | 2009 11 15 | 703 | 0.9− | 0.2+ | 2009 11 23 | D29 | 0.6− | 0.2+ |
| 2008 08 26 | E12 | 0.7− | 0.3− | 2009 11 15 | 703 | 0.5+ | 0.1+ | 2009 11 23 | D29 | 0.2− | 0.8+ |
| 2008 08 26 | E12 | 0.4− | 0.1− | 2009 11 15 | 703 | 0.3+ | 0.4+ | 2009 11 23 | D29 | 0.0 | 0.2+ |
| 2008 08 26 | E12 | 0.4+ | 0.8+ | 2009 11 15 | 703 | 0.7+ | 0.2− | 2009 11 23 | D29 | 0.8+ | 0.4− |
| 2009 10 12 | G96 | 0.6+ | 0.1+ | 2009 11 16 | G96 | 0.2− | 0.0 | 2009 12 11 | 703 | 0.7− | 0.0 |
| 2009 10 12 | G96 | 0.2+ | 0.0 | 2009 11 16 | G96 | 0.1− | 0.1+ | 2009 12 11 | 703 | 0.6− | 0.5+ |
| 2009 10 12 | G96 | 0.2+ | 0.2+ | 2009 11 16 | G96 | 0.0 | 0.1− | 2009 12 11 | 703 | 0.7+ | 0.6+ |
| 2009 10 12 | G96 | 0.4+ | 0.1+ | 2009 11 16 | G96 | 0.2+ | 0.1− | 2009 12 11 | 703 | 0.4+ | 0.8− |

**2009 VF$_{52}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 4.81730 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.28739585 | $\omega$ | 356.97773 | | +0.32937217 | | −0.93553333 |
| $a$ | 2.2741323 | $\Omega$ | 73.76433 | | +0.86905092 | | +0.24752500 |
| $e$ | 0.0784722 | $i$ | 7.63947 | | +0.36914019 | | +0.25200946 |
| $P$ | 3.43 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 04 14 | 691 | 0.2+ | 0.1+ | 2009 11 10 | 691 | 0.1− | 0.2− | 2009 11 26 | 691 | 0.1+ | 0.3+ |
| 2004 04 14 | 691 | 0.0 | 0.2+ | 2009 11 16 | J75 | 0.2− | 0.7− | 2009 12 11 | G96 | 0.4+ | 0.3− |
| 2004 04 14 | 691 | 0.1+ | 0.1+ | 2009 11 16 | J75 | 0.1− | 0.5+ | 2009 12 11 | G96 | 0.3+ | 0.0 |
| 2007 02 09 | 703 | 1.6− | 0.6+ | 2009 11 16 | J75 | 0.2+ | 0.5− | 2009 12 11 | G96 | 0.1+ | 0.1+ |
| 2007 02 09 | 703 | 0.0 | 1.7+ | 2009 11 18 | 691 | 0.3+ | 0.1− | 2009 12 11 | G96 | 0.6+ | 0.1− |
| 2007 02 09 | 703 | 1.1+ | 1.1+ | 2009 11 18 | 691 | 0.1+ | 0.2− | 2009 12 11 | 703 | 0.5− | 0.1− |
| 2007 02 09 | 703 | 0.3− | 0.1− | 2009 11 18 | 691 | 0.0 | 0.0 | 2009 12 11 | 703 | 0.1+ | 0.5− |
| 2007 02 16 | 703 | 0.4+ | 2.3− | 2009 11 20 | 704 | (1.6+ | 0.6+) | 2009 12 11 | 703 | 0.7− | 0.2− |
| 2007 02 16 | 703 | 0.2− | 0.6− | 2009 11 20 | 704 | 0.6+ | 0.5+ | 2009 12 11 | 703 | 0.1− | 1.0+ |
| 2007 02 16 | 703 | 0.1− | 1.1− | 2009 11 20 | 704 | 1.0+ | 0.5− | 2009 12 18 | 691 | 0.0 | 0.0 |
| 2007 02 16 | 703 | 0.9+ | 0.1− | 2009 11 25 | 703 | 0.6+ | 0.1+ | 2009 12 18 | 691 | 0.6− | 0.1+ |
| 2007 02 21 | 703 | 0.0 | 1.5− | 2009 11 25 | 703 | 0.4− | 0.1+ | 2009 12 18 | 691 | 0.6− | 0.1+ |
| 2007 02 21 | 703 | 0.9− | 0.1− | 2009 11 25 | 703 | 0.4− | 0.1− | 2009 12 25 | 291 | 0.1− | 0.3+ |
| 2007 02 21 | 703 | 0.7− | 0.2+ | 2009 11 25 | 703 | 0.2+ | 0.6− | 2009 12 25 | 291 | 0.3+ | 0.2+ |
| 2007 02 21 | 703 | 0.8+ | 0.1− | 2009 11 25 | 703 | 0.2+ | 0.4+ | 2009 12 25 | 291 | 0.0 | 0.3+ |
| 2009 11 10 | 691 | 0.0 | 0.1+ | 2009 11 26 | 691 | 0.0 | 0.1+ | | | | |
| 2009 11 10 | 691 | 0.0 | 0.3− | 2009 11 26 | 691 | 0.1− | 0.0 | | | | |

**2009 VC$_{55}$ = 2005 YZ$_{59}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 323.58086 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.20448174 | $\omega$ | 3.27726 | | +0.09582762 | | −0.99388442 |
| $a$ | 2.8534244 | $\Omega$ | 81.22880 | | +0.91199258 | | +0.06557612 |
| $e$ | 0.0409517 | $i$ | 3.18272 | | +0.39885661 | | +0.08884556 |
| $P$ | 4.82 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 12 06 | 691 | 0.1− | 0.2− | 2006 01 10 | G96 | 0.2+ | 1.0− | 2009 11 11 | 691 | 0.3+ | 0.4+ |
| 2000 12 06 | 691 | 0.4+ | 0.4− | 2006 01 10 | G96 | 0.0 | 0.3− | 2009 11 11 | 691 | 0.2− | 0.2+ |
| 2000 12 06 | 691 | 0.3− | 0.5− | 2007 03 13 | 691 | 0.2+ | 0.5+ | 2009 11 11 | 691 | 0.0 | 0.2− |
| 2005 12 22 | 691 | 0.3− | 0.2+ | 2007 03 13 | 691 | 0.2+ | 0.0 | 2009 11 16 | 291 | 0.1− | 0.3+ |
| 2005 12 22 | 691 | 0.3− | 0.2+ | 2007 03 13 | 691 | 0.2+ | 0.0 | 2009 11 16 | 291 | 0.6− | 0.6+ |
| 2005 12 22 | 691 | 0.2− | 0.1+ | 2007 03 26 | 691 | 0.2+ | 0.1+ | 2009 11 16 | 291 | 0.3− | 0.6+ |
| 2005 12 28 | G96 | 0.3− | 0.3+ | 2007 03 26 | 691 | 0.0 | 0.3+ | 2009 11 16 | 291 | 0.1− | 0.2+ |
| 2005 12 28 | G96 | 0.6− | 0.0 | 2007 03 26 | 691 | 0.2− | 0.5+ | 2009 11 16 | 291 | 0.2− | 0.2+ |
| 2005 12 28 | G96 | 0.2+ | 0.5− | 2007 04 18 | 691 | 0.1− | 0.4+ | 2009 11 16 | 291 | 0.0 | 0.0 |
| 2005 12 28 | G96 | 0.1− | 0.1+ | 2007 04 18 | 691 | 0.1+ | 0.1+ | 2009 11 17 | 691 | 0.5− | 0.1+ |
| 2005 12 30 | 691 | 0.3+ | 0.4+ | 2007 04 18 | 691 | 0.1+ | 0.1− | 2009 11 17 | 691 | 0.1+ | 0.1+ |
| 2005 12 30 | 691 | 0.4+ | 0.1+ | 2009 10 24 | G96 | 0.6+ | 0.7− | 2009 11 17 | 691 | 0.0 | 0.1+ |
| 2005 12 30 | 691 | 0.3+ | 0.0 | 2009 10 24 | G96 | 0.7+ | 0.5− | 2009 11 24 | 691 | 0.3− | 0.2− |
| 2006 01 10 | G96 | 0.2− | 0.3− | 2009 10 24 | G96 | 1.2+ | 0.7− | 2009 11 24 | 691 | 0.0 | 0.3+ |
| 2006 01 10 | G96 | 0.0 | 0.1− | 2009 10 24 | G96 | 0.5+ | 0.3− | 2009 11 24 | 691 | 0.3+ | 0.1− |

**2009 VM$_{55}$ = 2006 DW$_{178}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 82.91086 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17165510 | $\omega$ | 318.98268 | | +0.87813912 | | +0.47803427 |
| $a$ | 3.2065024 | $\Omega$ | 12.50065 | | −0.41306663 | | +0.77748434 |
| $e$ | 0.1071306 | $i$ | 4.99321 | | −0.24134548 | | +0.40865798 |
| $P$ | 5.74 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 07 06 | 644 | 0.5− | 0.1+ | 2006 02 27 | G96 | 0.2− | 0.1+ | 2009 11 11 | 691 | 0.0 | 0.1− |
| 2002 07 06 | 644 | 0.0 | 0.2+ | 2006 02 27 | G96 | 0.1− | 0.2+ | 2009 11 11 | 691 | 0.2− | 0.1− |
| 2002 07 06 | 644 | 0.8− | 0.3+ | 2006 03 03 | 691 | 0.2+ | 0.3+ | 2009 11 11 | 691 | 0.3− | 0.0 |
| 2003 11 19 | 691 | 0.2+ | 0.2− | 2006 03 03 | 691 | 0.1+ | 0.3+ | 2009 11 17 | 691 | 0.3+ | 0.1+ |
| 2003 11 19 | 691 | 0.0 | 0.1− | 2006 03 03 | 691 | 0.1− | 0.2+ | 2009 11 17 | 691 | 0.1+ | 0.3− |
| 2003 11 19 | 691 | 0.2+ | 0.1+ | 2008 11 22 | 291 | 0.3− | 0.6+ | 2009 11 17 | 691 | 0.1+ | 0.0 |
| 2006 02 27 | 691 | 0.5+ | 0.1− | 2008 11 22 | 291 | 0.0 | 0.6+ | 2009 11 25 | 691 | 0.2− | 0.2− |
| 2006 02 27 | 691 | 0.2+ | 0.0 | 2008 11 22 | 291 | 0.0 | 0.3+ | 2009 11 25 | 691 | 0.2+ | 0.0 |
| 2006 02 27 | 691 | 0.1+ | 0.4+ | 2009 10 26 | 691 | 1.0− | 1.0+ | 2009 11 25 | 691 | 0.1+ | 0.2− |
| 2006 02 27 | G96 | 0.3− | 0.1+ | 2009 10 26 | 691 | 0.1+ | 0.2+ | | | | |
| 2006 02 27 | G96 | 0.3− | 0.0 | 2009 10 26 | 691 | 0.2+ | 0.1+ | | | | |

**2009 VK$_{56}$ = 2005 WF$_{70}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 84.08699 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23576398 | $\omega$ | 51.20646 | | +0.75452432 | | +0.65626205 |
| $a$ | 2.5950819 | $\Omega$ | 267.77782 | | −0.60323843 | | +0.69136214 |
| $e$ | 0.1130851 | $i$ | 0.20812 | | −0.25845009 | | +0.30222262 |
| $P$ | 4.18 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 11 26 | G96 | 0.2+ | 0.1+ | 2005 12 02 | G96 | 0.4+ | 0.1+ | 2009 10 11 | G96 | 0.2+ | 0.2+ |
| 2005 11 26 | G96 | 0.3− | 0.0 | 2005 12 02 | G96 | 0.1− | 0.4− | 2009 10 22 | G96 | 0.4+ | 0.3− |
| 2005 11 26 | G96 | 0.3− | 0.3+ | 2005 12 02 | G96 | 0.3+ | 0.0 | 2009 10 22 | G96 | 0.2− | 0.1− |
| 2005 11 26 | G96 | 0.5+ | 0.3+ | 2007 02 22 | 691 | 0.6− | 0.0 | 2009 10 22 | G96 | 0.0 | 0.1− |
| 2005 11 26 | G96 | 0.0 | 0.3− | 2007 02 22 | 691 | 0.5+ | 0.3+ | 2009 10 22 | G96 | 0.2+ | 0.0 |
| 2005 11 26 | G96 | 0.3+ | 0.1− | 2007 02 22 | 691 | 0.0 | 0.3− | 2009 11 11 | G96 | 0.1+ | 0.0 |
| 2005 11 26 | G96 | 0.2− | 0.1+ | 2007 04 07 | G96 | 0.2+ | 0.8− | 2009 11 11 | G96 | 0.3− | 0.1+ |
| 2005 11 26 | G96 | 0.7− | 0.0 | 2007 04 07 | G96 | 0.5+ | 0.4+ | 2009 11 11 | G96 | 0.3− | 0.1+ |
| 2005 11 28 | G96 | 0.2− | 0.2− | 2007 04 07 | G96 | 0.3− | 0.4+ | 2009 11 11 | G96 | 0.0 | 0.0 |
| 2005 11 28 | G96 | 0.0 | 0.5− | 2007 04 07 | G96 | 0.1+ | 0.0 | 2009 11 17 | G96 | 0.0 | 0.3+ |
| 2005 11 28 | G96 | 0.1+ | 0.3+ | 2009 10 11 | G96 | 0.4+ | 0.1+ | 2009 11 17 | G96 | 0.5− | 0.0 |
| 2005 11 28 | G96 | 0.2+ | 0.3− | 2009 10 11 | G96 | 0.3− | 0.4+ | 2009 11 17 | G96 | 0.2+ | 0.1− |
| 2005 12 02 | G96 | 0.1+ | 0.0 | 2009 10 11 | G96 | 0.2+ | 0.0 | 2009 11 17 | G96 | 0.3− | 0.1+ |

**2009 VM$_{57}$ = 2008 RV$_{98}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 78.42449 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17673170 | $\omega$ | 277.67127 | | +0.84451201 | | +0.34028653 |
| $a$ | 3.1448004 | $\Omega$ | 63.25796 | | −0.07072209 | | +0.83627461 |
| $e$ | 0.1388867 | $i$ | 27.58439 | | −0.53084635 | | +0.42994169 |
| $P$ | 5.58 | $H$ | 14.8 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 24 | 699 | 0.3− | 1.1+ | 2008 09 07 | E12 | 0.9− | 1.1+ | 2009 11 09 | 691 | 0.3+ | 0.6− |
| 2003 10 24 | 699 | 0.4+ | 0.8+ | 2008 09 07 | E12 | 0.2+ | 0.2+ | 2009 11 09 | 691 | 0.2− | 0.2+ |
| 2003 10 24 | 699 | 0.4+ | 1.1− | 2008 09 07 | E12 | 0.4− | 0.3− | 2009 11 09 | 691 | 0.5− | 0.0 |
| 2003 10 24 | 699 | 1.3+ | 2.6− | 2008 09 07 | E12 | 0.2− | 0.4− | 2009 11 12 | J75 | 0.4− | 0.5+ |
| 2007 04 20 | 691 | 0.1− | 0.1+ | 2008 09 07 | E12 | 0.8− | 0.4− | 2009 11 12 | J75 | 0.3− | 0.7+ |
| 2007 04 20 | 691 | 0.0 | 0.1+ | 2009 09 30 | G96 | 0.3+ | 0.4− | 2009 11 12 | J75 | 0.4+ | 0.9− |
| 2007 04 20 | 691 | 0.1+ | 0.2+ | 2009 09 30 | G96 | 0.3− | 0.1+ | 2009 11 17 | 691 | 0.1− | 0.2+ |
| 2007 04 28 | 691 | 0.0 | 0.2+ | 2009 09 30 | G96 | 0.1+ | 0.2− | 2009 11 17 | 691 | 0.2− | 0.0 |
| 2007 04 28 | 691 | 0.1+ | 0.2− | 2009 09 30 | G96 | 0.2+ | 0.0 | 2009 11 17 | 691 | 0.3− | 0.3+ |
| 2007 04 28 | 691 | 0.1+ | 0.2− | 2009 10 16 | G96 | 0.3+ | 0.1− | 2009 11 17 | 691 | 0.0 | 0.1+ |
| 2008 07 03 | E12 | (0.6− | 2.0+) | 2009 10 16 | G96 | 0.5+ | 0.0 | 2009 11 17 | 691 | 0.2+ | 0.1+ |
| 2008 07 03 | E12 | 0.2+ | 0.5+ | 2009 10 16 | G96 | 0.2+ | 0.1+ | 2009 11 17 | 691 | 0.0 | 0.0 |
| 2008 07 03 | E12 | 0.1+ | 0.6+ | 2009 10 16 | G96 | 0.4+ | 0.0 | 2009 11 26 | 291 | 0.6+ | 0.1+ |
| 2008 07 03 | E12 | 0.4+ | 0.1+ | 2009 10 30 | G96 | 0.8− | 1.0− | 2009 11 26 | 291 | 0.4− | 0.1+ |
| 2008 09 07 | E12 | 0.1− | 0.3− | 2009 10 30 | G96 | 0.7+ | 0.4− | 2009 11 26 | 291 | 0.1− | 0.4+ |
| 2008 09 07 | E12 | 0.1− | 0.8+ | 2009 10 30 | G96 | 0.2+ | 0.0 | | | | |
| 2008 09 07 | E12 | 0.7+ | 0.3+ | 2009 10 30 | G96 | 0.1+ | 0.1+ | | | | |

**2009 VQ$_{57}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 0.99437 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22310599 | $\omega$ | 219.54751 | | +0.39214846 | | −0.91970660 |
| $a$ | 2.6923317 | $\Omega$ | 207.37974 | | +0.85408980 | | +0.37167010 |
| $e$ | 0.1961147 | $i$ | 2.36240 | | +0.34168727 | | +0.12649546 |
| $P$ | 4.42 | $H$ | 18.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 01 09 | 691 | 0.0 | 0.2+ | 2009 10 18 | G96 | 0.4+ | 0.2− | 2009 11 17 | G96 | 0.5+ | 0.2+ |
| 2006 01 09 | 691 | 0.0 | 0.1+ | 2009 10 18 | G96 | 0.4+ | 0.0 | 2009 11 17 | G96 | 0.2+ | 0.0 |
| 2006 01 09 | 691 | 0.1+ | 0.1+ | 2009 10 27 | 691 | 0.1− | 0.0 | 2009 11 17 | G96 | 0.4+ | 0.1+ |
| 2006 01 31 | G96 | 0.1− | 0.2− | 2009 10 27 | 691 | 0.5− | 0.1+ | 2009 11 23 | G96 | 0.1− | 0.6− |
| 2006 01 31 | G96 | 0.1− | 0.1− | 2009 10 27 | 691 | 0.2− | 0.3+ | 2009 11 23 | G96 | 0.3+ | 0.0 |
| 2006 01 31 | G96 | 0.0 | 0.3− | 2009 11 12 | 114 | 0.1− | 0.7+ | 2009 11 23 | G96 | 0.2− | 0.3− |
| 2006 01 31 | G96 | 0.0 | 0.7− | 2009 11 12 | 114 | 1.2− | 0.5− | 2009 11 23 | G96 | 0.2+ | 0.0 |
| 2009 09 18 | G96 | 0.0 | 0.7− | 2009 11 12 | 114 | 0.7+ | 0.1− | 2009 12 10 | G96 | 0.2+ | 0.2+ |
| 2009 09 18 | G96 | 0.1+ | 0.6− | 2009 11 17 | G96 | 0.2+ | 0.1+ | 2009 12 10 | G96 | 0.3− | 0.6− |
| 2009 09 18 | G96 | 0.0 | 0.3+ | 2009 11 17 | G96 | 0.4+ | 0.0 | 2009 12 10 | G96 | 0.1+ | 0.3− |
| 2009 09 18 | G96 | 0.1+ | 0.1− | 2009 11 17 | G96 | 0.4− | 0.1+ | 2009 12 10 | G96 | 0.0 | 0.4− |
| 2009 10 18 | G96 | 0.5+ | 0.1− | 2009 11 17 | G96 | 0.5+ | 0.3+ | | | | |
| 2009 10 18 | G96 | 0.4+ | 0.0 | 2009 11 17 | G96 | 0.4+ | 0.0 | | | | |

**2009 VT$_{57}$ = 2004 QM$_{8}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 64.99218 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22083062 | $\omega$ | 266.21674 | | +0.87628778 | | +0.43051896 |
| $a$ | 2.7107941 | $\Omega$ | 68.17572 | | −0.29470756 | | +0.83409681 |
| $e$ | 0.2404861 | $i$ | 13.47189 | | −0.38113933 | | +0.34487091 |
| $P$ | 4.46 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 04 01 | 645 | 0.0 | 0.1− | 2008 06 12 | 691 | 0.3− | 0.2+ | 2009 11 20 | 704 | 0.6+ | 0.4+ |
| 2003 04 01 | 645 | 0.2+ | 0.0 | 2008 06 12 | 691 | 0.5− | 0.3+ | 2009 11 20 | 704 | 0.3− | 0.4+ |
| 2003 04 27 | 645 | 0.1+ | 0.0 | 2008 06 23 | 691 | 0.2+ | 0.1− | 2009 11 20 | 704 | 0.2+ | 1.1+ |
| 2003 04 27 | 645 | 0.1+ | 0.0 | 2008 06 23 | 691 | 0.3− | 0.2− | 2009 11 22 | 703 | 0.1− | 1.3− |
| 2004 08 16 | E12 | 0.3− | 0.2+ | 2008 06 23 | 691 | 0.1+ | 0.1− | 2009 11 22 | 703 | 1.2+ | 0.7+ |
| 2004 08 16 | E12 | 0.3+ | 0.1+ | 2009 11 09 | 703 | (1.1+ | 3.1+) | 2009 11 22 | 703 | 1.1− | 1.1− |
| 2004 08 16 | E12 | 0.9− | 0.5− | 2009 11 09 | 703 | (2.9+ | 1.9+) | 2009 11 22 | 703 | 0.8− | 0.1+ |
| 2004 08 16 | E12 | 0.3+ | 0.1− | 2009 11 09 | 703 | (1.6+ | 2.0+) | 2009 11 24 | G96 | 0.5+ | 0.2+ |
| 2004 08 23 | E12 | 0.0 | 1.4+ | 2009 11 09 | 703 | 1.1+ | 0.2+ | 2009 11 24 | G96 | 0.3+ | 0.3+ |
| 2004 08 23 | E12 | 0.0 | 0.5− | 2009 11 12 | J75 | 0.9+ | 0.1+ | 2009 11 24 | G96 | 0.3+ | 0.1+ |
| 2004 08 23 | E12 | 0.3− | 0.3+ | 2009 11 12 | J75 | 0.9+ | 0.2+ | 2009 11 24 | G96 | 0.4+ | 0.0 |
| 2004 08 23 | E12 | 0.1+ | 1.7+ | 2009 11 12 | J75 | 0.6+ | 0.0 | 2009 12 11 | 703 | 1.1− | 0.7+ |
| 2005 12 22 | 291 | 0.6− | 0.1+ | 2009 11 17 | G96 | 0.3+ | 0.1+ | 2009 12 11 | 703 | 0.4− | 1.0+ |
| 2005 12 22 | 291 | 0.6− | 0.2+ | 2009 11 17 | G96 | 0.2+ | 0.0 | 2009 12 11 | 703 | 0.7+ | 0.2− |
| 2005 12 22 | 291 | 0.6− | 0.1− | 2009 11 17 | G96 | 0.1+ | 0.0 | 2009 12 11 | 703 | 1.2− | 0.1− |
| 2008 06 12 | 691 | 0.1− | 0.2+ | 2009 11 17 | G96 | 0.1+ | 0.0 | | | | |

**2009 VJ$_{59}$ = 2006 DW$_{43}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 14.58094 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22303274 | $\omega$ | 268.68891 | | +0.62740760 | | −0.76513192 |
| $a$ | 2.6929211 | $\Omega$ | 141.19536 | | +0.77414090 | | +0.59282386 |
| $e$ | 0.3145912 | $i$ | 13.34861 | | +0.08405693 | | +0.25126285 |
| $P$ | 4.42 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 29 | 699 | 0.4− | 0.3− | 2006 02 25 | G96 | 0.1− | 0.5− | 2009 11 08 | 703 | 0.4− | 0.4+ |
| 2000 09 29 | 699 | 0.2+ | 0.6− | 2006 02 25 | G96 | 0.5− | 0.1− | 2009 11 17 | 703 | 0.4− | 0.3− |
| 2000 09 29 | 699 | 0.0 | 0.2− | 2006 02 25 | G96 | 0.2− | 0.2− | 2009 11 17 | 703 | 0.7+ | 0.3− |
| 2000 09 29 | 699 | 0.3+ | 0.5+ | 2006 03 08 | 691 | 0.3+ | 0.1− | 2009 11 17 | 703 | 0.6+ | 0.7+ |
| 2002 03 12 | 645 | 0.0 | 0.0 | 2006 03 08 | 691 | 0.2+ | 0.0 | 2009 11 17 | 703 | 0.0 | 0.1− |
| 2002 03 12 | 645 | 0.0 | 0.0 | 2006 03 08 | 691 | 0.5+ | 0.3+ | 2009 12 17 | 703 | 0.1+ | 0.1− |
| 2004 08 12 | 807 | 0.1+ | 0.4+ | 2009 10 15 | 703 | 0.2+ | 0.9+ | 2009 12 17 | 703 | 0.3+ | 0.6+ |
| 2004 08 12 | 807 | 0.1+ | 0.1+ | 2009 10 15 | 703 | 0.2+ | 1.4− | 2009 12 17 | 703 | 0.8− | 0.2− |
| 2006 02 20 | 703 | 0.5− | 0.2+ | 2009 10 15 | 703 | 0.2− | 0.3− | 2009 12 17 | 703 | 0.2− | 0.0 |
| 2006 02 20 | 703 | (1.8− | 1.6−) | 2009 10 15 | 703 | 0.4+ | 0.4− | 2009 12 20 | 704 | 0.4+ | 0.5+ |
| 2006 02 20 | 703 | 0.1− | 0.2− | 2009 11 08 | 703 | 0.2− | 0.4− | 2009 12 20 | 704 | 0.4− | 0.6+ |
| 2006 02 20 | 703 | 0.9− | 0.6− | 2009 11 08 | 703 | 0.1− | 0.8+ | 2009 12 20 | 704 | 0.5+ | 0.2+ |
| 2006 02 25 | G96 | 0.7− | 0.0 | 2009 11 08 | 703 | 1.0− | 0.4− | | | | |

**2009 VC$_{60}$ = 2006 AB$_{7}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 51.79310 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21745233 | $\omega$ | 288.75750 | | +0.93562163 | | −0.29759548 |
| $a$ | 2.7387980 | $\Omega$ | 88.90718 | | +0.35023368 | | +0.84982891 |
| $e$ | 0.0711267 | $i$ | 10.94698 | | −0.04414207 | | +0.43500315 |
| $P$ | 4.53 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 12 25 | 691 | 0.0 | 0.2− | 2007 04 24 | G96 | 0.0 | 0.1− | 2009 11 18 | G96 | 0.8− | 0.3− |
| 2000 12 25 | 691 | 0.1+ | 0.0 | 2007 04 24 | G96 | 0.1+ | 0.2+ | 2009 11 19 | 704 | 0.4+ | 0.2− |
| 2000 12 25 | 691 | 0.0 | 0.0 | 2007 05 22 | G96 | 0.1+ | 0.3− | 2009 11 19 | 704 | 0.0 | 0.0 |
| 2006 01 05 | 703 | 0.7− | 0.3− | 2007 05 22 | G96 | 0.1+ | 0.3− | 2009 11 19 | 704 | 0.4+ | 0.2+ |
| 2006 01 05 | 703 | 0.2+ | 0.4+ | 2007 05 22 | G96 | 0.5− | 0.4− | 2009 11 19 | 704 | 0.8+ | 0.3+ |
| 2006 01 05 | 703 | 0.9+ | 0.5+ | 2007 05 22 | G96 | 0.0 | 0.3− | 2009 11 19 | 704 | (1.9+ | 0.2−) |
| 2006 01 05 | 703 | (1.4+ | 1.8−) | 2009 11 09 | 703 | 0.6− | 0.2+ | 2009 11 20 | 704 | 1.0+ | 0.5+ |
| 2006 01 06 | 704 | 0.5+ | 0.1− | 2009 11 09 | 703 | 0.5− | 0.2+ | 2009 11 20 | 704 | 0.6+ | 0.1+ |
| 2006 01 06 | 704 | 0.3− | 0.4+ | 2009 11 09 | 703 | 0.2+ | 0.0 | 2009 11 20 | 704 | 0.9+ | 0.1− |
| 2006 01 06 | 704 | 0.2+ | 0.9+ | 2009 11 09 | 703 | 0.3− | 0.2+ | 2009 11 20 | 704 | 1.4+ | 0.2+ |
| 2006 02 02 | 703 | 0.0 | 0.3− | 2009 11 17 | 703 | 1.1− | 0.7− | 2009 11 25 | H10 | 1.2+ | 1.5+ |
| 2006 02 02 | 703 | 0.6− | 0.7− | 2009 11 17 | 703 | 0.2− | 0.9− | 2009 11 25 | H10 | (0.3− | 1.8+) |
| 2006 02 02 | 703 | 0.2− | 0.5+ | 2009 11 17 | 703 | 0.6− | 0.4+ | 2009 12 11 | 703 | 0.1+ | 0.0 |
| 2006 02 02 | 703 | 0.2+ | 0.1+ | 2009 11 17 | 703 | 0.4− | 0.9− | 2009 12 11 | 703 | 1.1− | 0.2− |
| 2007 04 24 | G96 | 0.3− | 0.2− | 2009 11 18 | G96 | 0.2− | 0.5− | 2009 12 11 | 703 | 0.1− | 0.1+ |
| 2007 04 24 | G96 | 0.2− | 0.2− | 2009 11 18 | G96 | 0.6− | 0.4− | 2009 12 11 | 703 | 0.2− | 0.6− |

**2009 VE$_{60}$ = 2004 QS$_{28}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 24.86290 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22191910 | $\omega$ | 305.51954 | | +0.73954018 | | −0.64669462 |
| $a$ | 2.7019228 | $\Omega$ | 95.54903 | | +0.66220700 | | +0.64927123 |
| $e$ | 0.2723685 | $i$ | 10.81302 | | +0.12067396 | | +0.40029107 |
| $P$ | 4.44 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 26 | 699 | 0.4+ | 0.5+ | 2009 11 09 | 703 | 0.7− | 0.1+ | 2009 11 27 | G96 | 0.2+ | 0.7− |
| 2000 09 26 | 699 | 0.4+ | 0.2+ | 2009 11 09 | 703 | 0.7− | 0.3+ | 2009 11 27 | G96 | 0.1+ | 0.5− |
| 2000 09 26 | 699 | 0.2+ | 0.8+ | 2009 11 09 | 703 | 0.6+ | 0.0 | 2009 12 11 | 703 | 0.2+ | 0.1− |
| 2000 09 26 | 699 | 0.1+ | 0.4+ | 2009 11 17 | 703 | 0.6− | 0.1− | 2009 12 11 | 703 | 0.5− | 0.4− |
| 2000 12 19 | 699 | 0.7− | 0.2− | 2009 11 17 | 703 | 0.4− | 0.5− | 2009 12 11 | 703 | 0.4+ | 0.1− |
| 2000 12 19 | 699 | 0.2− | 0.8+ | 2009 11 17 | 703 | 1.2− | 0.6− | 2009 12 11 | 703 | 0.2− | 0.6− |
| 2000 12 19 | 699 | 0.6− | 0.6+ | 2009 11 17 | 703 | 0.5− | 0.3− | 2009 12 12 | 704 | 0.7+ | 0.3+ |
| 2000 12 19 | 699 | 0.5− | 0.1+ | 2009 11 19 | 704 | 0.2+ | 0.3+ | 2009 12 12 | 704 | 0.6+ | 0.2+ |
| 2004 08 16 | E12 | 0.0 | 0.2− | 2009 11 19 | 704 | 0.6+ | 0.5+ | 2009 12 12 | 704 | 0.5+ | 0.1+ |
| 2004 08 16 | E12 | 0.4− | 0.0 | 2009 11 19 | 704 | 0.5+ | 0.2+ | 2009 12 12 | 704 | 0.7− | 0.4− |
| 2004 08 16 | E12 | 0.0 | 0.3+ | 2009 11 19 | 704 | 0.3+ | 0.1+ | 2009 12 12 | 704 | 0.7− | 0.2− |
| 2004 08 16 | E12 | 0.7− | 0.1+ | 2009 11 19 | 704 | 0.9+ | 0.5+ | 2009 12 17 | 704 | 0.6− | 0.3− |
| 2005 11 04 | 691 | 0.1− | 0.5+ | 2009 11 20 | 704 | 0.3+ | 0.2+ | 2009 12 17 | 704 | 0.7− | 0.5− |
| 2005 11 04 | 691 | 0.3+ | 0.1+ | 2009 11 20 | 704 | 0.3+ | 0.5+ | 2009 12 17 | 704 | 0.3+ | 0.2− |
| 2005 11 04 | 691 | 0.4− | 0.0 | 2009 11 20 | 704 | 0.1+ | 1.5+ | 2009 12 17 | 704 | 0.2+ | 0.4− |
| 2007 04 24 | G96 | 0.6+ | 0.6+ | 2009 11 20 | 704 | 0.1+ | 0.4+ | 2009 12 17 | 704 | 0.5− | 0.4− |
| 2007 04 24 | G96 | 0.8+ | 0.9+ | 2009 11 20 | 704 | 0.2+ | 0.8+ | 2009 12 21 | 704 | 0.5− | 0.1+ |
| 2007 04 24 | G96 | 0.2+ | 0.0 | 2009 11 27 | G96 | 0.3+ | 0.5− | 2009 12 21 | 704 | 0.3+ | 0.2− |
| 2007 04 24 | G96 | 0.3+ | 0.0 | 2009 11 27 | G96 | 0.3− | 0.3− | 2009 12 21 | 704 | 1.3+ | 0.1− |
| 2009 11 09 | 703 | 0.2+ | 0.3− | 2009 11 27 | G96 | 0.4+ | 0.4− | | | | |

**2009 VE$_{61}$ = 2008 JF$_{1}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 136.20226 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.28437617 | $\omega$ | 32.81025 | | +0.12320335 | | +0.98776763 |
| $a$ | 2.2902027 | $\Omega$ | 244.42567 | | −0.93180637 | | +0.08200974 |
| $e$ | 0.2138961 | $i$ | 6.08273 | | −0.34140565 | | +0.13262546 |
| $P$ | 3.47 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 12 27 | 691 | 0.1− | 0.0 | 2008 06 25 | E12 | 0.7+ | 0.0 | 2009 11 20 | G96 | 0.1− | 0.2− |
| 2006 12 27 | 691 | 0.0 | 0.2− | 2008 06 25 | E12 | 0.6+ | 0.9+ | 2009 11 20 | G96 | 0.9+ | 0.0 |
| 2006 12 27 | 691 | 0.1+ | 0.0 | 2009 11 08 | 691 | 0.0 | 0.1+ | 2009 11 24 | 691 | 0.2− | 0.0 |
| 2008 05 01 | 703 | 0.3+ | 0.2+ | 2009 11 08 | 691 | 0.1− | 0.3+ | 2009 11 24 | 691 | 0.3+ | 0.1+ |
| 2008 05 01 | 703 | 0.4− | 0.7+ | 2009 11 08 | 691 | 0.2+ | 0.1+ | 2009 11 24 | 691 | 0.0 | 0.0 |
| 2008 05 01 | 703 | 1.0+ | 0.1+ | 2009 11 16 | 691 | 0.0 | 0.1− | 2009 11 24 | G96 | 0.2+ | 0.0 |
| 2008 05 01 | 703 | 0.1− | 0.8+ | 2009 11 16 | 691 | 0.4− | 0.4− | 2009 11 24 | G96 | 0.3+ | 0.2+ |
| 2008 05 03 | G96 | 0.2− | 0.2− | 2009 11 16 | 691 | 0.4− | 0.2+ | 2009 11 24 | G96 | 0.0 | 0.4+ |
| 2008 05 03 | G96 | 0.1− | 0.1− | 2009 11 20 | 691 | 0.1− | 0.1+ | 2009 12 11 | G96 | 0.5+ | 0.4− |
| 2008 05 03 | G96 | 0.2− | 0.1− | 2009 11 20 | 691 | 0.1− | 0.1+ | 2009 12 11 | G96 | 0.1+ | 0.4+ |
| 2008 05 03 | G96 | 0.1− | 0.2− | 2009 11 20 | 691 | 0.2− | 0.0 | 2009 12 11 | G96 | 0.2+ | 0.2+ |
| 2008 06 25 | E12 | 0.5− | 0.2+ | 2009 11 20 | G96 | 0.5+ | 0.1− | 2009 12 11 | G96 | 0.3+ | 0.3+ |
| 2008 06 25 | E12 | 0.4− | 0.0 | 2009 11 20 | G96 | 0.6+ | 0.0 | | | | |

**2009 VK$_{61}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 105.42011 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18544113 | $\omega$ | 254.98554 | | +0.59685960 | | +0.79015940 |
| $a$ | 3.0455473 | $\Omega$ | 52.51457 | | −0.65206108 | | +0.57886697 |
| $e$ | 0.1479671 | $i$ | 10.11123 | | −0.46752002 | | +0.20139801 |
| $P$ | 5.31 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 05 30 | 644 | 0.5− | 0.4+ | 2007 04 18 | 691 | 0.2+ | 0.3+ | 2009 11 08 | 691 | 0.0 | 0.2− |
| 2002 05 30 | 644 | 0.2− | 0.2+ | 2007 04 18 | 691 | 0.1− | 0.3+ | 2009 11 08 | 691 | 0.1− | 0.2+ |
| 2002 05 30 | 644 | 0.2− | 0.1+ | 2008 08 28 | E12 | 0.3+ | 0.9− | 2009 11 16 | 691 | 0.2+ | 0.0 |
| 2003 09 19 | 699 | 0.7− | 0.5+ | 2008 08 28 | E12 | 0.5+ | 0.4+ | 2009 11 16 | 691 | 0.2+ | 0.2− |
| 2003 09 19 | 699 | 0.1+ | 0.6+ | 2008 08 28 | E12 | 0.1+ | 0.7− | 2009 11 16 | 691 | 0.5− | 0.4+ |
| 2003 09 19 | 699 | 1.0+ | 0.2+ | 2008 08 28 | E12 | 1.1− | 0.7+ | 2009 11 21 | 291 | 0.2− | 0.1+ |
| 2003 09 19 | 699 | 0.5− | 0.7+ | 2009 09 19 | G96 | 0.3− | 0.3− | 2009 11 21 | 291 | 0.2− | 0.0 |
| 2007 03 15 | G96 | 0.1− | 0.4+ | 2009 09 19 | G96 | 0.2+ | 0.1+ | 2009 11 21 | 291 | 0.3− | 0.1+ |
| 2007 03 15 | G96 | 0.3− | 0.6+ | 2009 09 19 | G96 | 0.2− | 0.0 | 2009 12 18 | G96 | 0.5+ | 0.1− |
| 2007 03 15 | G96 | 0.6− | 0.4+ | 2009 09 19 | G96 | 0.3+ | 0.1− | 2009 12 18 | G96 | 0.3+ | 0.0 |
| 2007 03 15 | G96 | 0.3− | 0.6+ | 2009 10 21 | G96 | 0.2+ | 0.2− | 2009 12 18 | G96 | 0.0 | 0.4− |
| 2007 04 14 | 691 | 0.0 | 0.5+ | 2009 10 21 | G96 | 0.6+ | 0.2− | 2009 12 18 | G96 | 0.5+ | 0.1− |
| 2007 04 14 | 691 | 0.2− | 0.2+ | 2009 10 21 | G96 | 0.4+ | 0.1+ | 2009 12 19 | 691 | 0.0 | 0.1− |
| 2007 04 14 | 691 | 0.6+ | 1.7− | 2009 10 21 | G96 | 0.2+ | 0.0 | 2009 12 19 | 691 | 0.2− | 0.2+ |
| 2007 04 18 | 691 | 0.2+ | 0.3+ | 2009 11 08 | 691 | 0.3+ | 0.3− | 2009 12 19 | 691 | 0.1− | 0.4+ |

**2009 VL$_{61}$ = 2009 SE$_{96}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 20.67489 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22114245 | $\omega$ | 37.37838 | | +0.79084858 | | −0.61201185 |
| $a$ | 2.7082451 | $\Omega$ | 0.35682 | | +0.55602975 | | +0.71841374 |
| $e$ | 0.3336677 | $i$ | 1.26826 | | +0.25571360 | | +0.33064058 |
| $P$ | 4.46 | $H$ | 18.4 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1991 10 05 | 691 | 0.4− | 0.2+ | 2006 02 04 | 691 | 0.8+ | 0.6− | 2009 11 17 | 691 | 0.1+ | 0.1+ |
| 1991 10 05 | 691 | 0.5− | 0.2− | 2006 03 02 | 695 | 0.2+ | 0.2+ | 2009 11 17 | 691 | 0.2− | 0.2− |
| 1991 10 05 | 691 | 0.8− | 0.3− | 2006 03 02 | 695 | 0.1+ | 0.2+ | 2009 11 25 | 691 | 0.3− | 0.0 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 10 06 | 699 | 0.4− | 0.2− | 2006 03 02 | 695 | 0.2+ | 0.1+ | 2009 11 25 | 691 | 0.5− | 0.1+ | | |
| 2000 10 06 | 699 | 0.7+ | 0.5+ | 2009 09 19 | G96 | 0.6+ | 0.3− | 2009 11 25 | 691 | 0.4− | 0.1− | | |
| 2000 10 06 | 699 | 0.8− | 1.4+ | 2009 09 19 | G96 | 0.8− | 0.1+ | 2009 11 25 | 703 | 0.2− | 0.2− | | |
| 2000 10 06 | 699 | 0.1+ | 0.4+ | 2009 09 19 | G96 | 0.7+ | 0.2− | 2009 11 25 | 703 | 1.3+ | 0.4+ | | |
| 2000 10 07 | 699 | 0.3+ | 0.1+ | 2009 09 19 | G96 | 0.4+ | 0.3− | 2009 11 25 | 703 | 0.2− | 0.1+ | | |
| 2000 10 07 | 699 | 0.2+ | 1.3+ | 2009 09 21 | G96 | 0.2− | 0.1− | 2009 11 25 | 703 | 0.3+ | 0.6+ | | |
| 2000 10 07 | 699 | 0.3+ | 1.1− | 2009 09 21 | G96 | 0.0 | 0.2+ | 2009 11 25 | 703 | 0.3− | 0.1− | | |
| 2000 10 07 | 699 | 2.0+ | 0.1+ | 2009 09 21 | G96 | 0.6+ | 0.3− | 2009 12 18 | G96 | 0.0 | 0.6− | | |
| 2000 12 04 | 691 | 0.6+ | 0.1− | 2009 09 21 | G96 | 0.0 | 0.3+ | 2009 12 18 | G96 | 0.1+ | 0.0 | | |
| 2000 12 04 | 691 | 0.9+ | 0.3+ | 2009 11 08 | 691 | 0.1− | 0.2− | 2009 12 18 | G96 | 0.2+ | 0.2− | | |
| 2000 12 04 | 691 | 1.4+ | 0.4+ | 2009 11 08 | 691 | 0.4− | 0.1− | 2009 12 18 | G96 | 0.2+ | 0.1+ | | |
| 2006 02 04 | 691 | 0.1+ | 0.2+ | 2009 11 08 | 691 | 0.2− | 0.2− | | | | | | |
| 2006 02 04 | 691 | 0.4− | 0.7+ | 2009 11 17 | 691 | 0.3− | 0.0 | | | | | | |

**2009 VM$_{61}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 78.31011 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.19933799 | $\omega$ | 96.05707 | | +0.95442063 | | +0.27700166 |
| $a$ | 2.9023024 | $\Omega$ | 247.90368 | | −0.29846424 | | +0.88653851 |
| $e$ | 0.0697942 | $i$ | 6.88901 | | +0.00060431 | | +0.37056653 |
| $P$ | 4.94 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 01 14 | 691 | 0.2+ | 0.5+ | 2008 08 21 | 691 | 0.3− | 0.1+ | 2009 11 24 | 691 | 0.4− | 0.3− |
| 1996 01 14 | 691 | 0.0 | 0.0 | 2009 11 08 | 691 | 0.2− | 0.2+ | 2009 12 11 | G96 | 0.3+ | 0.2− |
| 1996 01 14 | 691 | 0.1− | 0.1− | 2009 11 08 | 691 | 0.5+ | 0.0 | 2009 12 11 | G96 | 0.5+ | 0.1− |
| 2007 05 13 | G96 | 0.1+ | 0.3+ | 2009 11 08 | 691 | 0.2− | 0.3+ | 2009 12 11 | G96 | 0.1− | 0.2− |
| 2007 05 13 | G96 | 0.1+ | 0.2− | 2009 11 16 | 691 | 0.0 | 0.1+ | 2009 12 11 | G96 | 0.1+ | 0.2− |
| 2007 05 13 | G96 | 0.2+ | 0.2+ | 2009 11 16 | 691 | 0.2− | 0.2+ | 2009 12 15 | A77 | 0.1+ | 0.8− |
| 2007 05 13 | G96 | 0.2− | 0.4+ | 2009 11 16 | 691 | 0.1− | 0.3+ | 2009 12 15 | A77 | 0.0 | 0.4− |
| 2008 08 21 | 691 | 0.0 | 0.2+ | 2009 11 24 | 691 | 0.0 | 0.1− | 2009 12 15 | A77 | 1.7+ | 0.7− |
| 2008 08 21 | 691 | 0.2+ | 0.0 | 2009 11 24 | 691 | 0.0 | 0.1+ | | | | |

**2009 VW$_{61}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 22.75669 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23183263 | $\omega$ | 346.44560 | | +0.72723086 | | −0.68239985 |
| $a$ | 2.6243374 | $\Omega$ | 56.83562 | | +0.63770028 | | +0.63186604 |
| $e$ | 0.1500406 | $i$ | 5.06679 | | +0.25391656 | | +0.36752655 |
| $P$ | 4.25 | $H$ | 17.4 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 11 10 | G96 | 0.2− | 0.2+ | 2009 10 27 | 691 | 0.0 | 0.3− | 2009 11 24 | 691 | 1.0− | 0.5− |
| 2005 11 10 | G96 | 0.3− | 0.2− | 2009 11 08 | 691 | 0.0 | 0.2+ | 2009 12 11 | A77 | 1.2+ | 0.6− |
| 2005 11 10 | G96 | 0.5− | 0.5− | 2009 11 08 | 691 | 0.4− | 0.1− | 2009 12 11 | A77 | 0.2+ | 0.6+ |
| 2005 11 10 | G96 | 0.3+ | 1.0− | 2009 11 08 | 691 | 0.1+ | 0.1+ | 2009 12 11 | A77 | (1.6+ | 0.9+) |
| 2005 12 10 | 691 | 0.1− | 0.2+ | 2009 11 16 | 691 | 0.1+ | 0.2+ | 2009 12 18 | G96 | 0.4+ | 0.0 |
| 2005 12 10 | 691 | 0.1+ | 0.2+ | 2009 11 16 | 691 | 0.1+ | 0.3− | 2009 12 18 | G96 | 0.4+ | 0.1+ |
| 2005 12 10 | 691 | 0.1+ | 0.0 | 2009 11 16 | 691 | 0.6− | 0.0 | 2009 12 18 | G96 | 0.5+ | 0.2− |
| 2005 12 28 | 691 | 0.1− | 0.2− | 2009 11 20 | 691 | 0.3+ | 0.3+ | 2009 12 18 | G96 | 0.6+ | 0.3− |
| 2005 12 28 | 691 | 0.1− | 0.0 | 2009 11 20 | 691 | 0.3+ | 0.1+ | 2009 12 19 | 691 | 0.4− | 0.0 |
| 2005 12 28 | 691 | 0.2+ | 0.0 | 2009 11 20 | 691 | 0.0 | 0.1+ | 2009 12 19 | 691 | 0.0 | 0.0 |
| 2009 10 27 | 691 | 0.4+ | 0.6+ | 2009 11 24 | 691 | 0.1− | 0.0 | 2009 12 19 | 691 | 0.2− | 0.2+ |
| 2009 10 27 | 691 | 0.5+ | 0.3− | 2009 11 24 | 691 | 0.1+ | 0.1+ | | | | |

**2009 VX$_{61}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 206.41098 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18049376 | $\omega$ | 162.71760 | | −0.69764947 | | +0.69157623 |
| $a$ | 3.1009487 | $\Omega$ | 62.56788 | | −0.67971550 | | −0.55637932 |
| $e$ | 0.0480889 | $i$ | 12.16963 | | −0.22643332 | | −0.46061303 |
| $P$ | 5.46 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 30 | 645 | 0.0 | 0.0 | 2009 10 27 | 691 | 0.3− | 0.0 | 2009 11 20 | 691 | 0.2+ | 0.4+ |
| 2003 09 30 | 645 | 0.0 | 0.0 | 2009 10 27 | 691 | 0.3− | 0.2+ | 2009 11 20 | 691 | 0.2+ | 0.2− |
| 2003 10 23 | 645 | 0.0 | 0.0 | 2009 10 27 | 691 | 0.1− | 0.3− | 2009 11 24 | 691 | 0.1− | 0.0 |
| 2003 10 23 | 645 | 0.0 | 0.0 | 2009 11 08 | 691 | 0.6− | 0.0 | 2009 11 24 | 691 | 0.0 | 0.0 |
| 2003 11 20 | 645 | 0.0 | 0.0 | 2009 11 08 | 691 | 0.1− | 0.1+ | 2009 11 24 | 691 | 0.2− | 0.1+ |
| 2003 11 20 | 645 | 0.0 | 0.0 | 2009 11 08 | 691 | 0.2− | 0.2− | 2009 12 11 | G96 | 0.5+ | 0.1− |
| 2009 10 21 | G96 | 0.5+ | 0.2− | 2009 11 16 | 691 | 0.7+ | 0.1− | 2009 12 11 | G96 | 0.6+ | 0.0 |
| 2009 10 21 | G96 | 0.4+ | 0.4− | 2009 11 16 | 691 | 0.1− | 0.0 | 2009 12 11 | G96 | 0.7+ | 0.1+ |
| 2009 10 21 | G96 | 0.9− | 0.2+ | 2009 11 16 | 691 | 0.3+ | 0.1+ | 2009 12 11 | G96 | 0.3+ | 0.1− |
| 2009 10 21 | G96 | 0.4− | 0.1+ | 2009 11 20 | 691 | 0.3+ | 0.2+ | | | | |

**2009 VY$_{61}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 28.25383 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18385685 | $\omega$ | 156.90715 | | +0.80159435 | | −0.57526329 |
| $a$ | 3.0630177 | $\Omega$ | 239.22075 | | +0.51470410 | | +0.80257856 |
| $e$ | 0.1243608 | $i$ | 10.92615 | | +0.30418117 | | +0.15792342 |
| $P$ | 5.36 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 08 25 | 644 | 0.2− | 0.1+ | 2008 07 03 | G96 | 0.7+ | 0.0 | 2009 11 16 | 691 | 0.2+ | 0.1+ |
| 2003 08 25 | 644 | 0.1− | 0.0 | 2008 07 03 | G96 | 0.1+ | 0.1+ | 2009 11 20 | 691 | 0.1+ | 0.1+ |
| 2003 08 25 | 644 | 0.2− | 0.2+ | 2008 07 03 | G96 | 0.9− | 0.1+ | 2009 11 20 | 691 | 0.1− | 0.0 |
| 2003 09 21 | 644 | 0.2+ | 0.1− | 2008 07 03 | G96 | 0.1+ | 0.2− | 2009 11 20 | 691 | 0.8+ | 0.1+ |
| 2003 09 21 | 644 | 0.2− | 0.2+ | 2009 10 22 | G96 | 0.3+ | 0.2+ | 2009 12 11 | 703 | 0.9+ | 0.1− |
| 2003 09 21 | 644 | 0.1+ | 0.1− | 2009 10 22 | G96 | 0.6+ | 0.1+ | 2009 12 11 | 703 | 0.7− | 0.1+ |
| 2003 10 05 | 691 | 0.2+ | 0.1− | 2009 10 22 | G96 | 0.9+ | 0.1− | 2009 12 11 | 703 | 0.1+ | 0.3− |
| 2003 10 05 | 691 | 0.1+ | 0.0 | 2009 10 22 | G96 | 0.7+ | 0.2− | 2009 12 11 | 703 | 0.7+ | 1.0− |
| 2003 10 05 | 691 | 0.1− | 0.0 | 2009 11 08 | 691 | 0.5− | 0.1+ | 2009 12 19 | 691 | 0.0 | 0.0 |
| 2007 05 25 | G96 | 0.3+ | 0.0 | 2009 11 08 | 691 | 0.1− | 0.0 | 2009 12 19 | 691 | 0.1+ | 0.2− |
| 2007 05 25 | G96 | 0.2− | 0.0 | 2009 11 08 | 691 | 0.2− | 0.0 | 2009 12 19 | 691 | 0.1− | 0.2+ |
| 2007 05 25 | G96 | 0.1− | 0.5− | 2009 11 16 | 691 | 0.5− | 0.2− | | | | |
| 2007 05 25 | G96 | 0.0 | 1.0− | 2009 11 16 | 691 | 0.5− | 0.3− | | | | |

**2009 VC$_{62}$ = 2005 YY$_{258}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 352.72424 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22484954 | $\omega$ | 359.57104 | | +0.35458274 | | −0.93328331 |
| $a$ | 2.6783956 | $\Omega$ | 69.66029 | | +0.85804939 | | +0.30054812 |
| $e$ | 0.1163587 | $i$ | 3.48752 | | +0.37151355 | | +0.19660391 |
| $P$ | 4.38 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 11 30 | 691 | 0.0 | 0.4+ | 2009 10 23 | 691 | 0.0 | 0.0 | 2009 11 18 | G96 | 0.3− | 0.1+ |
| 2005 11 30 | 691 | 0.0 | 0.0 | 2009 10 23 | 691 | 0.0 | 0.2+ | 2009 11 18 | G96 | 0.1+ | 0.1− |
| 2005 11 30 | 691 | 0.2− | 0.2+ | 2009 11 08 | G96 | 0.3+ | 0.1− | 2009 11 18 | G96 | 0.5+ | 0.2− |
| 2005 12 24 | 691 | 0.2− | 0.0 | 2009 11 08 | G96 | 0.3+ | 0.0 | 2009 11 18 | G96 | 0.1+ | 0.2+ |
| 2005 12 24 | 691 | 0.3− | 0.1+ | 2009 11 08 | G96 | 0.5+ | 0.3− | 2009 12 17 | G96 | 0.0 | 0.1+ |
| 2005 12 24 | 691 | 0.1− | 0.1+ | 2009 11 08 | G96 | 0.5+ | 0.1+ | 2009 12 17 | G96 | 0.6+ | 0.1+ |
| 2006 01 09 | 691 | 0.3+ | 0.3− | 2009 11 15 | 703 | 0.3− | 0.1+ | 2009 12 17 | G96 | 0.5− | 0.2+ |
| 2006 01 09 | 691 | 0.1+ | 0.1− | 2009 11 15 | 703 | (1.5+ | 1.5+) | 2009 12 17 | G96 | 0.4− | 0.4+ |
| 2006 01 09 | 691 | 0.5+ | 0.2− | 2009 11 15 | 703 | (1.2+ | 1.7+) | | | | |
| 2009 10 23 | 691 | 0.3− | 0.5− | 2009 11 15 | 703 | 0.1− | 0.5+ | | | | |

**2009 VM$_{62}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 38.05561 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.19166393 | $\omega$ | 324.47376 | | +0.87899979 | | −0.44373758 |
| $a$ | 2.9792649 | $\Omega$ | 62.77226 | | +0.47014286 | | +0.74550513 |
| $e$ | 0.1018452 | $i$ | 11.31860 | | +0.07953023 | | +0.49731183 |
| $P$ | 5.14 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 02 | 691 | 0.2+ | 0.2+ | 2009 11 08 | 691 | 0.3+ | 0.5+ | 2009 11 24 | 691 | 0.1− | 0.6− |
| 2004 12 02 | 691 | 0.4− | 0.0 | 2009 11 08 | 691 | 0.1− | 0.1− | 2009 11 24 | 691 | 0.1− | 0.0 |
| 2004 12 02 | 691 | 0.1− | 0.2− | 2009 11 08 | 691 | 0.1− | 0.1+ | 2009 11 26 | A13 | 0.0 | 0.6+ |
| 2004 12 15 | 691 | 0.1− | 0.1− | 2009 11 16 | 691 | 0.3+ | 0.2− | 2009 11 26 | A13 | 0.5+ | 0.4+ |
| 2004 12 15 | 691 | 0.0 | 0.1+ | 2009 11 16 | 691 | 0.4+ | 0.1+ | 2009 12 16 | G96 | 0.3+ | 0.2− |
| 2004 12 15 | 691 | 0.3+ | 0.1+ | 2009 11 16 | 691 | 0.1− | 0.2− | 2009 12 16 | G96 | 0.6+ | 0.1+ |
| 2009 10 21 | G96 | 0.1+ | 0.2− | 2009 11 20 | 691 | 0.1+ | 0.1− | 2009 12 16 | G96 | 0.3+ | 0.1+ |
| 2009 10 21 | G96 | 0.1− | 0.2− | 2009 11 20 | 691 | 0.3− | 0.2+ | 2009 12 16 | G96 | 0.5+ | 0.2+ |
| 2009 10 21 | G96 | 0.1− | 0.0 | 2009 11 20 | 691 | (1.1− | 2.2+) | | | | |
| 2009 10 21 | G96 | 0.3− | 0.4− | 2009 11 24 | 691 | 0.6− | 0.1+ | | | | |

**2009 VR$_{62}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 36.18377 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.27246394 | $\omega$ | 317.41644 | | +0.87548825 | | −0.48156851 | | |
| $a$ | 2.3564779 | $\Omega$ | 71.41241 | | +0.45398467 | | +0.79117313 | | |
| $e$ | 0.1890011 | $i$ | 2.42781 | | +0.16558456 | | +0.37701041 | | |
| $P$ | 3.62 | $H$ | 17.6 | $G$ | 0.15 | $U$ | 3 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 08 27 | 644 | 0.0 | 0.2+ | 2009 10 30 | G96 | 0.1− | 0.4− | 2009 12 15 | G96 | 0.4+ | 0.2− |
| 2005 08 27 | 644 | 0.0 | 0.3+ | 2009 10 30 | G96 | 0.6+ | 0.7− | 2009 12 15 | G98 | 1.0+ | 0.2+ |
| 2005 08 27 | 644 | 0.1+ | 0.1+ | 2009 11 08 | 691 | 0.2− | 0.2− | 2009 12 15 | G96 | 0.3+ | 0.2− |
| 2005 09 05 | 703 | (1.5+ | 2.4−) | 2009 11 08 | 691 | 0.3− | 0.3− | 2009 12 15 | G98 | 0.4+ | 0.5+ |
| 2005 09 05 | 703 | 0.0 | 0.2− | 2009 11 08 | 691 | 0.2− | 0.1− | 2009 12 15 | G96 | 0.4+ | 0.0 |
| 2005 09 05 | 703 | 0.2− | 0.5+ | 2009 11 16 | 691 | 0.4− | 0.0 | 2009 12 15 | G98 | 0.5+ | 0.8+ |
| 2005 09 05 | 703 | 0.7− | 1.0+ | 2009 11 16 | 691 | 0.1+ | 0.2+ | 2009 12 15 | G98 | 0.6+ | 0.4+ |
| 2005 09 30 | G96 | 0.1− | 0.0 | 2009 11 16 | 691 | 0.3− | 0.1− | 2009 12 17 | G98 | 0.3+ | 0.8+ |
| 2005 09 30 | G96 | 0.1+ | 0.1+ | 2009 11 20 | 691 | 0.2− | 0.2+ | 2009 12 17 | G98 | 0.9+ | 0.9+ |
| 2005 09 30 | G96 | 0.0 | 0.0 | 2009 11 20 | 691 | 0.2− | 0.1− | 2009 12 17 | G98 | 0.1+ | 0.2+ |
| 2005 09 30 | G96 | 0.1+ | 0.1+ | 2009 11 20 | 691 | 0.1− | 0.1− | 2009 12 17 | G98 | 0.4+ | 0.9+ |
| 2007 02 23 | 691 | 0.3+ | 0.1− | 2009 11 24 | 691 | 0.0 | 0.1− | 2009 12 17 | G98 | 0.4+ | 0.3+ |
| 2007 02 23 | 691 | 0.1+ | 0.4+ | 2009 11 24 | 691 | 0.2− | 0.1− | 2009 12 20 | G98 | (0.6+ | 2.1+) |
| 2007 02 23 | 691 | 0.3− | 0.1+ | 2009 11 24 | 691 | 0.1− | 0.3− | 2009 12 20 | G98 | 0.8+ | 1.0+ |
| 2009 10 30 | G96 | 0.4+ | 0.3− | 2009 12 15 | G98 | 0.0 | 0.9+ | 2009 12 20 | G98 | 0.7+ | 0.3− |
| 2009 10 30 | G96 | 0.4+ | 0.8− | 2009 12 15 | G96 | 0.2+ | 0.3− | | | | |

**2009 VS$_{63}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 9.36285 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.18307420 | $\omega$ | 28.52906 | | +0.36770599 | | −0.92986312 | | |
| $a$ | 3.0717412 | $\Omega$ | 39.90010 | | +0.84957550 | | +0.33059999 | | |
| $e$ | 0.1695429 | $i$ | 1.08262 | | +0.37817163 | | +0.16142562 | | |
| $P$ | 5.38 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 3 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 11 18 | 691 | 0.2+ | 0.0 | 2005 01 18 | 691 | 0.3− | 0.2− | 2009 11 25 | 691 | 0.3− | 0.0 |
| 1998 11 18 | 691 | 0.3+ | 0.1− | 2009 11 08 | G96 | 0.9+ | 0.4− | 2009 11 25 | 691 | 0.1− | 0.0 |
| 1998 11 18 | 691 | 0.6+ | 0.4− | 2009 11 08 | G96 | 0.6+ | 0.0 | 2009 11 25 | 691 | 0.3− | 0.1+ |
| 1998 11 26 | 691 | 0.5− | 0.2+ | 2009 11 08 | G96 | (1.8+ | 0.5+) | 2009 12 10 | G96 | 0.0 | 0.1− |
| 1998 11 26 | 691 | 0.2− | 0.0 | 2009 11 08 | G96 | 0.6+ | 0.2+ | 2009 12 10 | G96 | 0.2− | 0.2− |
| 1998 11 26 | 691 | 0.3− | 0.1− | 2009 11 17 | 691 | 0.0 | 0.3+ | 2009 12 10 | G96 | 0.4− | 0.2− |
| 2005 01 18 | 691 | 0.2+ | 0.1− | 2009 11 17 | 691 | 0.3+ | 0.0 | | | | |
| 2005 01 18 | 691 | 0.0 | 0.2+ | 2009 11 17 | 691 | 0.1+ | 0.1+ | | | | |

**2009 VB$_{64}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 53.60576 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.23446396 | $\omega$ | 121.58539 | | +0.99961120 | | −0.00689238 | | |
| $a$ | 2.6046657 | $\Omega$ | 238.82233 | | −0.00396995 | | +0.92391395 | | |
| $e$ | 0.2529490 | $i$ | 1.80962 | | +0.02759879 | | +0.38253825 | | |
| $P$ | 4.20 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 1 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 09 12 | 691 | 0.5− | 0.1− | 2008 06 04 | G96 | 0.2− | 0.0 | 2009 11 16 | 691 | 0.2− | 0.2+ |
| 1996 09 12 | 691 | 0.3+ | 0.0 | 2008 06 04 | G96 | 0.0 | 0.1+ | 2009 11 16 | 691 | 0.4− | 0.1+ |
| 1996 09 12 | 691 | 0.2+ | 0.2+ | 2009 09 30 | G96 | 0.6+ | 0.0 | 2009 11 16 | 691 | 0.2+ | 0.2− |
| 1996 10 12 | 809 | 1.4+ | 0.2− | 2009 09 30 | G96 | 0.0 | 0.4− | 2009 11 27 | G96 | 0.4+ | 0.5− |
| 1996 10 30 | 809 | 1.4− | 0.3+ | 2009 09 30 | G96 | 0.3+ | 0.3− | 2009 11 27 | G96 | 0.1+ | 0.3− |
| 2005 12 29 | 691 | 1.3+ | 1.2+ | 2009 09 30 | G96 | 0.7+ | 1.5+ | 2009 11 27 | G96 | 0.1+ | 0.1− |
| 2005 12 29 | 691 | 0.2− | 0.4− | 2009 10 26 | G96 | 0.2+ | 0.2− | 2009 11 27 | G96 | 0.4+ | 0.2− |
| 2005 12 29 | 691 | 0.4− | 0.2− | 2009 10 26 | G96 | 0.2− | 0.0 | 2009 11 27 | G96 | 0.0 | 0.2− |
| 2006 01 06 | 691 | 0.2− | 0.1+ | 2009 10 26 | G96 | 0.2− | 0.2− | 2009 12 10 | G96 | 0.0 | 0.3− |
| 2006 01 06 | 691 | 0.2− | 0.1− | 2009 10 26 | G96 | 0.3− | 0.1+ | 2009 12 10 | G96 | 0.1+ | 0.1− |
| 2006 01 06 | 691 | 0.2− | 0.2− | 2009 11 08 | 691 | 0.0 | 0.2− | 2009 12 10 | G96 | 0.3+ | 0.5− |
| 2008 06 04 | G96 | 0.3− | 0.6− | 2009 11 08 | 691 | 0.0 | 0.1+ | 2009 12 10 | G96 | 0.0 | 0.1− |
| 2008 06 04 | G96 | 0.4+ | 0.1+ | 2009 11 08 | 691 | 0.1− | 0.0 | | | | |

**2009 VE$_{64}$ = 1994 RO$_{9}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 34.09763 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.26847167 | $\omega$ | 211.32500 | | +0.79462898 | | −0.60709150 | | |
| $a$ | 2.3797815 | $\Omega$ | 186.05587 | | +0.56116240 | | +0.73586505 | | |
| $e$ | 0.1737749 | $i$ | 1.17745 | | +0.23164961 | | +0.29990423 | | |
| $P$ | 3.67 | $H$ | 18.2 | $G$ | 0.15 | $U$ | 1 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 09 12 | 691 | 0.3+ | 0.2+ | 2005 09 14 | 691 | 0.0 | 0.0 | 2009 11 16 | 691 | 0.0 | 0.0 |
| 1994 09 12 | 691 | 0.5+ | 0.1+ | 2005 09 14 | 691 | 0.1− | 0.0 | 2009 11 20 | 691 | 0.1+ | 0.2− |
| 1994 09 12 | 691 | 0.0 | 0.0 | 2005 10 13 | 691 | 0.1− | 0.0 | 2009 11 20 | 691 | 1.2− | 1.2+ |
| 1994 09 14 | 691 | 0.0 | 0.4+ | 2005 10 13 | 691 | 0.1+ | 0.3+ | 2009 11 20 | 691 | 0.2+ | 0.1+ |
| 1994 09 14 | 691 | 0.1+ | 0.1+ | 2005 10 13 | 691 | 0.3+ | 0.1+ | 2009 12 11 | G96 | 0.4+ | 0.2− |
| 1994 09 14 | 691 | 0.9− | 0.6− | 2009 11 08 | 691 | 0.0 | 0.2+ | 2009 12 11 | G96 | 0.6+ | 0.3− |
| 2005 08 31 | 691 | 0.1− | 0.0 | 2009 11 08 | 691 | 0.2+ | 0.3− | 2009 12 11 | G96 | 0.3+ | 1.0− |
| 2005 08 31 | 691 | 0.1− | 0.2− | 2009 11 08 | 691 | 0.1+ | 0.3− | 2009 12 11 | G96 | 1.1+ | 0.7− |
| 2005 08 31 | 691 | 0.3+ | 0.2− | 2009 11 16 | 691 | 0.2+ | 0.1− | | | | |
| 2005 09 14 | 691 | 0.1− | 0.2− | 2009 11 16 | 691 | 0.2− | 0.1− | | | | |

**2009 VJ$_{64}$ = 2005 YU$_{213}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 41.67143 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.23160513 | $\omega$ | 296.75134 | | +0.89087731 | | −0.44121863 | | |
| $a$ | 2.6260557 | $\Omega$ | 89.59853 | | +0.44562169 | | +0.80280174 | | |
| $e$ | 0.2189982 | $i$ | 6.20012 | | +0.08808481 | | +0.40104299 | | |
| $P$ | 4.26 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 4 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 29 | 704 | 1.4+ | 0.2+ | 2009 11 08 | 691 | 0.4− | 1.2+ | 2009 12 10 | G96 | 0.2− | 0.1+ |
| 2005 12 29 | 704 | 0.0 | 0.0 | 2009 11 08 | 691 | 0.5+ | 0.2− | 2009 12 10 | G96 | 0.2+ | 0.2− |
| 2005 12 29 | 704 | 0.3− | 0.3+ | 2009 11 16 | 691 | 0.2+ | 0.1− | 2009 12 10 | G96 | 0.2+ | 0.0 |
| 2005 12 29 | 704 | 0.6+ | 0.2+ | 2009 11 16 | 691 | 0.1− | 0.4− | 2009 12 10 | G96 | 0.3+ | 0.1− |
| 2006 01 05 | 703 | 1.1− | 0.4− | 2009 11 16 | 691 | 0.1− | 0.4− | 2009 12 19 | G96 | 0.2+ | 0.1+ |
| 2006 01 05 | 703 | 0.6+ | 1.0− | 2009 11 21 | 704 | 0.4− | 0.3− | 2009 12 19 | G96 | 0.0 | 0.1+ |
| 2006 01 05 | 703 | 1.1− | 1.0+ | 2009 11 21 | 704 | 1.0− | 0.1+ | 2009 12 19 | G96 | 0.1− | 0.3+ |
| 2006 01 05 | 703 | 0.0 | 0.1− | 2009 11 21 | 704 | 0.2+ | 0.6+ | 2009 12 19 | G96 | 0.0 | 0.0 |
| 2009 11 08 | 691 | 0.1− | 0.3− | 2009 11 21 | 704 | 0.2+ | 0.2− | | | | |

**2009 VG$_{65}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 83.71308 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.17768686 | $\omega$ | 298.62116 | | +0.93792774 | | +0.30488395 | | |
| $a$ | 3.1335202 | $\Omega$ | 44.19993 | | −0.17170204 | | +0.82237260 | | |
| $e$ | 0.0253398 | $i$ | 13.71903 | | −0.30134691 | | +0.48036350 | | |
| $P$ | 5.55 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 3 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 20 | 644 | 0.2+ | 0.1+ | 2009 09 21 | G96 | 0.1+ | 0.2− | 2009 11 25 | 703 | 1.1+ | 0.4+ |
| 2003 10 20 | 644 | 0.2+ | 0.0 | 2009 09 21 | G96 | 0.6+ | 0.3− | 2009 11 25 | 703 | (1.7+ | 0.7−) |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 20 | 644 | 0.3+ | 0.3+ | 2009 10 26 | 691 | 0.0 | 0.0 | 2009 11 25 | 703 | 0.2− | 0.6− |
| 2003 11 19 | 644 | 0.1+ | 0.6+ | 2009 10 26 | 691 | 0.2− | 0.3+ | 2009 11 27 | 691 | 0.0 | 0.0 |
| 2003 11 19 | 644 | 0.1+ | 0.4+ | 2009 10 26 | 691 | 0.1+ | 0.2+ | 2009 11 27 | 691 | 0.1+ | 0.2− |
| 2003 11 19 | 644 | 0.4− | 0.9+ | 2009 11 09 | 691 | 0.1+ | 0.0 | 2009 11 27 | 691 | 0.1− | 0.0 |
| 2003 11 24 | 691 | 0.1+ | 0.2− | 2009 11 09 | 691 | 0.0 | 0.3− | 2009 12 10 | 704 | 1.0− | 0.2− |
| 2003 11 24 | 691 | 0.4− | 0.2− | 2009 11 09 | 691 | 0.2− | 0.2− | 2009 12 10 | 704 | 0.0 | 1.4+ |
| 2003 11 24 | 691 | 0.1+ | 0.0 | 2009 11 17 | 691 | 0.1− | 0.1− | 2009 12 10 | 704 | 1.4+ | 0.9+ |
| 2009 09 21 | G96 | 0.1− | 0.2+ | 2009 11 17 | 691 | 0.2+ | 0.2+ | | | | |
| 2009 09 21 | G96 | 0.4+ | 0.7− | 2009 11 17 | 691 | 0.5− | 0.1− | | | | |

**2009 VH$_{65}$ = 2005 WF$_{150}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 21.16176 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.24167545 | $\omega$ | 40.06495 | | +0.68576043 | | −0.72779647 |
| $a$ | 2.5525898 | $\Omega$ | 6.64945 | | +0.65207200 | | +0.61026639 |
| $e$ | 0.1332501 | $i$ | 3.31855 | | +0.32331833 | | +0.31286934 |
| $P$ | 4.08 | $H$ | 18.2 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 11 28 | 691 | 0.4− | 0.1− | 2009 10 26 | 691 | 0.1− | 0.5− | 2009 11 17 | 691 | 0.0 | 0.0 |
| 2005 11 28 | 691 | 0.3+ | 0.2− | 2009 10 26 | 691 | 0.2+ | 0.1+ | 2009 11 17 | 691 | 0.2− | 0.1− |
| 2005 11 28 | 691 | 0.2− | 0.1+ | 2009 10 26 | 691 | 0.2− | 0.5+ | 2009 11 17 | 691 | 0.2− | 0.0 |
| 2005 12 02 | 691 | 0.0 | 0.1− | 2009 11 09 | 691 | 0.5+ | 0.1+ | 2009 11 25 | 691 | 0.6− | 0.1+ |
| 2005 12 02 | 691 | 0.1+ | 0.1+ | 2009 11 09 | 691 | 0.6− | 0.1− | 2009 11 25 | 691 | 0.0 | 0.1− |
| 2005 12 02 | 691 | 0.2+ | 0.1+ | 2009 11 09 | 691 | 0.8+ | 0.1− | 2009 11 25 | 691 | 0.3+ | 0.2+ |

**2009 VK$_{65}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 108.24802 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18896902 | $\omega$ | 269.36560 | | +0.63556527 | | +0.76324287 |
| $a$ | 3.0075231 | $\Omega$ | 40.87325 | | −0.61866324 | | +0.59357563 |
| $e$ | 0.1047520 | $i$ | 10.23390 | | −0.46185775 | | +0.25520247 |
| $P$ | 5.22 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 04 11 | G96 | 0.4+ | 0.0 | 2009 09 21 | G96 | 0.3+ | 0.2− | 2009 11 17 | 691 | 0.2+ | 0.1+ |
| 2007 04 11 | G96 | 0.2+ | 0.0 | 2009 09 21 | G96 | 0.3+ | 0.3− | 2009 11 17 | 691 | 0.1− | 0.1+ |
| 2007 04 11 | G96 | 0.1− | 0.2+ | 2009 09 21 | G96 | 0.3+ | 0.2− | 2009 11 25 | 691 | 0.1− | 0.0 |
| 2007 04 11 | G96 | 0.1+ | 0.1+ | 2009 09 21 | G96 | 0.3+ | 0.1− | 2009 11 25 | 691 | 0.1+ | 0.1+ |
| 2007 04 22 | 691 | 0.1− | 0.1− | 2009 10 26 | 691 | 0.1+ | 0.2− | 2009 11 25 | 691 | 0.1− | 0.3+ |
| 2007 04 22 | 691 | 0.0 | 0.1+ | 2009 10 26 | 691 | 0.3− | 0.1− | 2009 12 19 | G96 | 0.3+ | 0.1+ |
| 2007 04 22 | 691 | 0.0 | 0.1− | 2009 10 26 | 691 | 0.1+ | 0.2+ | 2009 12 19 | G96 | 0.5+ | 0.4− |
| 2007 05 11 | G96 | 0.2− | 0.1− | 2009 11 09 | 691 | 0.0 | 0.1− | 2009 12 19 | G96 | 0.2− | 0.1− |
| 2007 05 11 | G96 | 0.2− | 0.1+ | 2009 11 09 | 691 | 0.4− | 0.1− | 2009 12 19 | G96 | 0.5+ | 0.3− |
| 2007 05 11 | G96 | 0.3+ | 0.2− | 2009 11 09 | 691 | 0.4+ | 0.1− | | | | |
| 2007 05 11 | G96 | 0.3− | 0.0 | 2009 11 17 | 691 | 0.5− | 0.0 | | | | |

**2009 VO$_{65}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 130.45159 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18952691 | $\omega$ | 29.68328 | | +0.31531340 | | +0.93200006 |
| $a$ | 3.0016183 | $\Omega$ | 259.18756 | | −0.90259200 | | +0.23635312 |
| $e$ | 0.1319944 | $i$ | 10.48545 | | −0.29309580 | | +0.27479644 |
| $P$ | 5.20 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 06 07 | 644 | 0.3− | 0.1+ | 2008 08 11 | 106 | 0.5+ | 0.3+ | 2009 11 09 | 691 | 0.2− | 0.2+ |
| 2002 06 07 | 644 | 0.1− | 0.3+ | 2008 08 11 | 106 | 0.6+ | 1.0− | 2009 11 09 | 691 | 0.1− | 0.1+ |
| 2002 06 07 | 644 | 0.5+ | 0.9+ | 2008 08 11 | 106 | 0.5+ | 0.3− | 2009 11 17 | 691 | 0.1− | 0.1+ |
| 2003 09 20 | 644 | 0.3− | 0.2+ | 2008 08 11 | 106 | 0.1− | 0.1+ | 2009 11 17 | 691 | 0.2+ | 0.2+ |
| 2003 09 20 | 644 | 0.2− | 0.2+ | 2008 08 24 | 106 | 0.3+ | 0.1− | 2009 11 17 | 691 | 0.4− | 0.2− |
| 2003 09 20 | 644 | 0.4− | 0.2+ | 2008 08 24 | 106 | 0.3− | 0.2− | 2009 11 25 | 691 | 0.3+ | 0.0 |
| 2003 10 23 | 691 | 0.2+ | 0.0 | 2008 08 24 | 106 | 0.5− | 0.5+ | 2009 11 25 | 691 | 0.1+ | 0.1+ |
| 2003 10 23 | 691 | 0.1+ | 0.2+ | 2008 08 24 | 106 | 0.6+ | 0.3+ | 2009 11 25 | 691 | 0.2− | 0.3− |
| 2003 10 23 | 691 | 0.2− | 0.1+ | 2008 08 24 | 106 | 0.2+ | 0.7− | 2009 12 18 | G96 | 0.4+ | 0.3− |
| 2008 07 30 | 703 | 1.6− | 1.3− | 2008 08 24 | 106 | 0.5+ | 0.2+ | 2009 12 18 | G96 | 0.1+ | 0.2− |
| 2008 07 30 | 703 | 1.6− | 0.1+ | 2008 08 24 | 106 | 0.7+ | 0.0 | 2009 12 18 | G96 | 0.5+ | 0.1− |
| 2008 07 30 | 703 | 0.4+ | 0.2+ | 2008 08 24 | 106 | 0.1+ | 0.1+ | 2009 12 18 | G96 | 0.8+ | 0.2− |
| 2008 07 30 | 703 | 0.3+ | 0.3+ | 2009 11 09 | 691 | 0.1− | 0.1+ | | | | |

**2009 VC$_{66}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 54.80330 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18475654 | $\omega$ | 321.50260 | | +0.99120816 | | −0.06531126 |
| $a$ | 3.0530658 | $\Omega$ | 42.68427 | | +0.11510254 | | +0.85453599 |
| $e$ | 0.0997211 | $i$ | 9.77203 | | −0.06525168 | | +0.51526952 |
| $P$ | 5.33 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 04 16 | 645 | 0.1+ | 0.0 | 2007 05 11 | 691 | 0.2+ | 0.7− | 2009 11 24 | D29 | 1.2+ | 0.1+ |
| 2001 04 16 | 645 | 0.1− | 0.0 | 2009 09 21 | G96 | 0.4+ | 0.6− | 2009 11 24 | D29 | 0.4+ | 0.2+ |
| 2007 03 13 | G96 | 0.1− | 0.3+ | 2009 09 21 | G96 | 0.2+ | 0.7− | 2009 11 24 | D29 | 0.9− | 0.5+ |
| 2007 03 13 | G96 | 0.3+ | 0.4+ | 2009 09 21 | G96 | 0.1− | 0.4− | 2009 11 25 | 691 | 0.3− | 0.1+ |
| 2007 03 13 | G96 | 0.4− | 0.0 | 2009 09 21 | G96 | 0.1+ | 0.1− | 2009 11 25 | 691 | 0.1− | 0.1− |
| 2007 03 13 | G96 | 0.1− | 0.2− | 2009 11 09 | 691 | 0.1− | 0.1− | 2009 11 25 | 691 | 0.1+ | 0.0 |
| 2007 04 18 | G96 | 0.1+ | 0.2+ | 2009 11 09 | 691 | 0.0 | 0.0 | 2009 12 19 | G96 | 0.3+ | 0.2− |
| 2007 04 18 | G96 | 0.5− | 0.6+ | 2009 11 09 | 691 | 0.2− | 0.0 | 2009 12 19 | G96 | 0.2+ | 0.1− |
| 2007 04 18 | G96 | 0.5+ | 0.4+ | 2009 11 17 | 691 | 0.4+ | 0.1+ | 2009 12 19 | G96 | 0.6+ | 0.1+ |
| 2007 04 18 | G96 | 0.6− | 0.3+ | 2009 11 17 | 691 | 0.3− | 0.0 | 2009 12 19 | G96 | 0.1− | 0.0 |
| 2007 05 11 | 691 | 0.3− | 0.0 | 2009 11 17 | 691 | 0.1− | 0.0 | | | | |
| 2007 05 11 | 691 | 0.2+ | 0.2− | 2009 11 24 | D29 | 0.7+ | 0.2+ | | | | |

**2009 VM$_{66}$ = 1993 TX$_{10}$ = 2004 XX$_{154}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 343.48509 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18894790 | $\omega$ | 178.08384 | | −0.11725100 | | −0.99169669 |
| $a$ | 3.0077472 | $\Omega$ | 278.64691 | | +0.91044148 | | −0.08609545 |
| $e$ | 0.1891928 | $i$ | 3.06258 | | +0.39667179 | | −0.09552621 |
| $P$ | 5.22 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1993 10 15 | 691 | 0.2+ | 0.3+ | 2009 11 09 | 691 | 0.1+ | 0.2+ | 2009 12 14 | A77 | 0.5+ | 0.2− |
| 1993 10 15 | 691 | 0.3− | 0.6+ | 2009 11 09 | 691 | 0.0 | 0.1− | 2009 12 14 | A77 | 1.3+ | 0.2− |
| 1993 10 15 | 691 | 0.0 | 0.1− | 2009 11 09 | 691 | 0.2− | 0.2+ | 2009 12 15 | A77 | 0.6+ | 0.2+ |
| 1993 10 16 | 691 | 0.2+ | 0.1+ | 2009 11 17 | 691 | 0.0 | 0.1− | 2009 12 15 | A77 | (1.9+ | 0.7+) |
| 1993 10 16 | 691 | 0.0 | 0.4− | 2009 11 17 | 691 | 0.1+ | 0.0 | 2009 12 15 | A77 | 1.1+ | 1.3+ |
| 1993 10 16 | 691 | 0.1− | 0.3− | 2009 11 17 | 691 | 0.6+ | 0.1− | 2009 12 18 | G96 | 0.3+ | 0.1− |
| 2004 12 15 | 691 | 0.1+ | 0.0 | 2009 11 25 | 691 | 0.6− | 0.1+ | 2009 12 18 | G96 | 0.1+ | 0.4− |
| 2004 12 15 | 691 | 0.0 | 0.0 | 2009 11 25 | 691 | 0.1− | 0.0 | 2009 12 18 | G96 | 0.4+ | 0.3− |
| 2004 12 15 | 691 | 0.2+ | 0.0 | 2009 11 25 | 691 | 0.1− | 0.1+ | 2009 12 18 | G96 | 0.2+ | 0.5− |
| 2004 12 20 | 691 | 0.1− | 0.0 | 2009 12 11 | A77 | 0.0 | 0.5− | 2009 12 19 | 691 | 0.5− | 0.3− |
| 2004 12 20 | 691 | 0.1− | 0.1+ | 2009 12 11 | A77 | 0.4− | 1.2− | 2009 12 19 | 691 | 0.1− | 0.2+ |
| 2004 12 20 | 691 | 0.0 | 0.1+ | 2009 12 11 | A77 | 0.2− | 0.7− | 2009 12 19 | 691 | 0.2− | 0.1+ |

**2009 VT$_{66}$ = 2006 EL$_{46}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 339.83445 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21834169 | $\omega$ | 83.46361 | | −0.29121398 | | −0.95649301 |
| $a$ | 2.7313557 | $\Omega$ | 23.49060 | | +0.85916439 | | −0.26965765 |
| $e$ | 0.2218116 | $i$ | 2.55422 | | +0.42075048 | | −0.11138165 |
| $P$ | 4.51 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 03 04 | 691 | 0.0 | 0.3− | 2009 09 21 | G96 | 0.1− | 0.1− | 2009 11 25 | 703 | 0.1+ | 1.4− |
| 2006 03 04 | 691 | 0.5+ | 0.2− | 2009 09 21 | G96 | 0.1+ | 0.1+ | 2009 11 25 | 703 | 0.5− | 0.4− |
| 2006 03 04 | 691 | 0.1− | 0.3+ | 2009 11 09 | 691 | 0.1+ | 0.0 | 2009 11 25 | 703 | 0.5+ | 0.2+ |
| 2006 03 08 | 691 | 0.3− | 0.1+ | 2009 11 09 | 691 | 0.3− | 0.0 | 2009 12 18 | G96 | 0.9+ | 0.1− |
| 2006 03 08 | 691 | 0.1+ | 0.2+ | 2009 11 09 | 691 | 0.6− | 0.5+ | 2009 12 18 | G96 | 0.5+ | 0.1− |
| 2006 03 08 | 691 | 0.3− | 0.1− | 2009 11 17 | 691 | 0.4− | 0.1+ | 2009 12 18 | G96 | 0.8+ | 0.2− |
| 2006 04 26 | 807 | 0.3+ | 0.2− | 2009 11 17 | 691 | 0.2+ | 0.1+ | 2009 12 18 | G96 | 0.6+ | 0.1− |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 04 26 | 807 | 0.2+ | 0.3− | 2009 11 17 | 691 | 0.5+ | 0.3− | 2009 12 19 | 691 | 0.1− | 0.2+ |
| 2009 09 21 | G96 | 0.8+ | 0.4+ | 2009 11 25 | 703 | 0.6− | 0.3− | 2009 12 19 | 691 | 0.1+ | 0.1+ |
| 2009 09 21 | G96 | 0.5− | 0.0 | 2009 11 25 | 703 | 0.7− | 0.4− | 2009 12 19 | 691 | 0.0 | 0.1+ |

**2009 VV$_{66}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 215.65807 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17188517 | $\omega$ | 304.77201 | | −0.79389565 | | +0.60327872 |
| $a$ | 3.2036406 | $\Omega$ | 272.45195 | | −0.53004713 | | −0.74790450 |
| $e$ | 0.0712408 | $i$ | 4.36590 | | −0.29795929 | | −0.27693618 |
| $P$ | 5.73 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 24 | 691 | 0.3+ | 0.1− | 2008 09 03 | 691 | 0.4+ | 0.5− | 2009 11 17 | 691 | 0.1+ | 1.0+ |
| 2003 10 24 | 691 | 0.4+ | 0.2+ | 2008 09 03 | 691 | 0.2− | 0.5+ | 2009 11 17 | 691 | 0.0 | 0.1− |
| 2003 10 24 | 691 | 0.4− | 0.0 | 2008 09 28 | G96 | 0.0 | 0.1− | 2009 11 25 | 691 | 0.0 | 0.1− |
| 2003 11 21 | 691 | 0.3− | 0.1+ | 2008 09 28 | G96 | 0.3+ | 0.1− | 2009 11 25 | 691 | 0.1− | 0.1− |
| 2003 11 21 | 691 | 0.2− | 0.2+ | 2008 09 28 | G96 | 0.7+ | 0.0 | 2009 11 25 | 691 | 0.3− | 0.3− |
| 2003 11 21 | 691 | 0.1+ | 0.1− | 2008 09 28 | G96 | 0.0 | 0.1− | 2009 12 18 | G96 | 0.0 | 0.2− |
| 2005 01 16 | 691 | 0.0 | 0.3− | 2009 11 09 | 691 | 0.3+ | 0.3− | 2009 12 18 | G96 | 0.1+ | 0.4− |
| 2005 01 16 | 691 | 0.1− | 0.0 | 2009 11 09 | 691 | 0.4− | 0.2+ | 2009 12 18 | G96 | 0.3+ | 0.2− |
| 2005 01 16 | 691 | 0.0 | 0.1− | 2009 11 09 | 691 | 0.1+ | 0.2+ | 2009 12 18 | G96 | 0.3+ | 0.2− |
| 2008 09 03 | 691 | 0.2− | 0.4− | 2009 11 17 | 691 | 0.2+ | 0.1− | | | | |

**2009 VA$_{67}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 347.42110 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17441652 | $\omega$ | 102.16120 | | −0.13177663 | | −0.99127023 |
| $a$ | 3.1725683 | $\Omega$ | 355.40463 | | +0.88749151 | | −0.11605883 |
| $e$ | 0.2479753 | $i$ | 3.05619 | | +0.44158096 | | −0.06255936 |
| $P$ | 5.65 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 10 | 807 | 0.0 | 0.0 | 2005 03 04 | G96 | 0.1− | 0.1− | 2009 11 09 | 691 | 0.0 | 0.2− |
| 2002 08 10 | 807 | 0.0 | 0.1− | 2005 03 04 | G96 | 0.1− | 0.3+ | 2009 11 09 | 691 | 0.1− | 0.2− |
| 2003 09 18 | 691 | 0.1− | 0.3− | 2005 04 04 | G96 | 0.4+ | 0.1− | 2009 11 09 | 691 | 0.0 | 0.1− |
| 2003 09 18 | 691 | 0.1− | 0.1− | 2005 04 04 | G96 | 0.1+ | 0.1+ | 2009 11 17 | 691 | 0.0 | 0.2+ |
| 2003 09 18 | 691 | 0.3− | 0.0 | 2005 04 04 | G96 | 0.1+ | 0.3+ | 2009 11 17 | 691 | 0.0 | 0.1− |
| 2003 09 29 | 691 | 0.2+ | 0.2+ | 2005 04 04 | G96 | 0.1+ | 0.1+ | 2009 11 17 | 691 | 0.1− | 0.0 |
| 2003 09 29 | 691 | 0.2+ | 0.2+ | 2009 10 22 | G96 | 0.2+ | 0.3− | 2009 11 25 | 691 | 0.1+ | 0.1+ |
| 2003 09 29 | 691 | 0.0 | 0.4+ | 2009 10 22 | G96 | 0.4+ | 0.4− | 2009 11 25 | 691 | 0.1− | 0.1+ |
| 2005 03 04 | G96 | 0.1+ | 0.1− | 2009 10 22 | G96 | 0.7+ | 0.2− | 2009 11 25 | 691 | 0.1+ | 0.1+ |
| 2005 03 04 | G96 | 0.1− | 0.2+ | 2009 10 22 | G96 | 0.1− | 0.1− | | | | |

**2009 VF$_{67}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 330.71717 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18301161 | $\omega$ | 99.19733 | | −0.37753738 | | −0.92589914 |
| $a$ | 3.0724415 | $\Omega$ | 13.00784 | | +0.82473789 | | −0.34273937 |
| $e$ | 0.1206390 | $i$ | 3.38191 | | +0.42103792 | | −0.15887261 |
| $P$ | 5.39 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 15 | 691 | 0.0 | 0.2+ | 2009 11 09 | G96 | 0.4+ | 0.0 | 2009 11 25 | 691 | 0.3− | 0.2+ |
| 2004 12 15 | 691 | 0.0 | 0.0 | 2009 11 09 | G96 | 0.1+ | 0.1− | 2009 12 16 | G96 | 0.1− | 0.1− |
| 2004 12 15 | 691 | 0.0 | 0.1+ | 2009 11 09 | G96 | 0.5+ | 0.1− | 2009 12 16 | G96 | 0.1− | 0.4− |
| 2005 01 18 | 691 | 0.0 | 0.0 | 2009 11 09 | G96 | 0.4+ | 0.1− | 2009 12 16 | G96 | 0.3+ | 0.7− |
| 2005 01 18 | 691 | 0.0 | 0.2− | 2009 11 17 | 691 | 0.1− | 0.1+ | 2009 12 16 | G96 | 0.2+ | 0.0 |
| 2005 01 18 | 691 | 0.0 | 0.0 | 2009 11 17 | 691 | 0.6− | 0.1+ | 2009 12 19 | G96 | 0.3+ | 0.8− |
| 2009 11 09 | 691 | 0.2− | 0.1+ | 2009 11 17 | 691 | 0.6+ | 0.2+ | 2009 12 19 | G96 | 0.4− | 0.4+ |
| 2009 11 09 | 691 | 0.2+ | 0.3− | 2009 11 25 | 691 | 0.1+ | 0.0 | 2009 12 19 | G96 | 0.2− | 0.1+ |
| 2009 11 09 | 691 | 0.1− | 0.2− | 2009 11 25 | 691 | 0.0 | 0.0 | 2009 12 19 | G96 | 0.2+ | 0.3+ |

**2009 VO$_{67}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 316.82115 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23151737 | $\omega$ | 70.69267 | | −0.48125679 | | −0.86665739 |
| $a$ | 2.6267192 | $\Omega$ | 48.79196 | | +0.72424613 | | −0.47764454 |
| $e$ | 0.0395221 | $i$ | 10.06792 | | +0.49382128 | | −0.14408561 |
| $P$ | 4.26 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 12 18 | 695 | 0.4+ | 0.2+ | 2007 03 15 | G96 | 0.7− | 0.1+ | 2009 11 17 | 691 | 0.2+ | 0.0 |
| 2001 12 18 | 695 | 0.1+ | 0.1− | 2007 04 18 | 691 | 0.2− | 0.2− | 2009 11 25 | 691 | 0.0 | 0.0 |
| 2001 12 18 | 695 | 0.7+ | 0.5− | 2007 04 18 | 691 | 0.0 | 0.1− | 2009 11 25 | 691 | 0.0 | 0.1− |
| 2001 12 18 | 695 | 1.1+ | 0.1− | 2007 04 18 | 691 | 0.2+ | 0.2+ | 2009 11 25 | 691 | 0.1− | 0.1− |
| 2002 02 08 | 645 | 0.1− | 0.0 | 2009 11 09 | 691 | 0.0 | 0.1+ | 2009 12 19 | G96 | 0.1+ | 0.0 |
| 2002 02 08 | 645 | 0.0 | 0.1+ | 2009 11 09 | 691 | 0.0 | 0.1− | 2009 12 19 | G96 | 0.5+ | 0.2− |
| 2007 03 15 | G96 | 0.1+ | 0.0 | 2009 11 09 | 691 | 0.2− | 0.1+ | 2009 12 19 | G96 | 0.1− | 0.3+ |
| 2007 03 15 | G96 | 0.0 | 0.1− | 2009 11 17 | 691 | 0.1− | 0.1− | 2009 12 19 | G96 | 0.4+ | 0.4− |
| 2007 03 15 | G96 | 0.1− | 0.2− | 2009 11 17 | 691 | 0.2+ | 0.1+ | | | | |

**2009 VS$_{67}$ = 2006 AT$_{47}$ = 2006 BW$_{200}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 316.45526 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22116898 | $\omega$ | 216.56338 | | −0.51657449 | | −0.85273482 |
| $a$ | 2.7080286 | $\Omega$ | 264.65962 | | +0.80286234 | | −0.45095958 |
| $e$ | 0.0545028 | $i$ | 4.45978 | | +0.29759514 | | −0.26358829 |
| $P$ | 4.46 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 01 07 | 691 | 0.2− | 0.5+ | 2008 09 04 | 691 | 0.1− | 0.2+ | 2009 11 25 | 691 | 0.2+ | 0.2− |
| 2006 01 07 | 691 | 0.2+ | 0.0 | 2008 09 04 | 691 | 0.1− | 0.1− | 2009 11 25 | 703 | 0.1+ | 0.6− |
| 2006 01 07 | 691 | 0.0 | 0.1+ | 2008 09 04 | 691 | 0.1+ | 0.1+ | 2009 11 25 | 703 | 0.3+ | 0.7+ |
| 2006 01 09 | G96 | 0.7− | 0.2+ | 2009 10 22 | G96 | 0.3− | 0.1− | 2009 11 25 | 703 | 0.5+ | 1.2− |
| 2006 01 09 | G96 | 0.2− | 0.4+ | 2009 10 22 | G96 | 0.0 | 0.9+ | 2009 11 25 | 703 | (2.2+ | 1.9−) |
| 2006 01 09 | G96 | 0.1+ | 0.2+ | 2009 10 22 | G96 | 0.5+ | 0.2+ | 2009 12 16 | G96 | 0.5+ | 0.7− |
| 2006 01 09 | G96 | 0.1+ | 0.2+ | 2009 10 22 | G96 | 0.1− | 0.1− | 2009 12 16 | G96 | 0.1− | 0.8− |
| 2006 01 31 | G96 | 0.5+ | 0.2− | 2009 11 09 | 691 | 0.2− | 0.4+ | 2009 12 16 | G96 | (1.8+ | 0.6−) |
| 2006 01 31 | G96 | 0.1− | 0.3− | 2009 11 09 | 691 | 0.1− | 0.1+ | 2009 12 16 | G96 | 0.2+ | 0.3− |
| 2006 01 31 | G96 | 0.0 | 0.5− | 2009 11 09 | 691 | 0.3− | 0.3+ | 2009 12 18 | G96 | 0.4+ | 0.3− |
| 2006 01 31 | G96 | 0.4+ | 0.3− | 2009 11 17 | 691 | 0.2− | 0.1− | 2009 12 18 | G96 | 0.4+ | 0.0 |
| 2006 02 01 | G96 | 0.2+ | 0.3− | 2009 11 17 | 691 | 0.1+ | 0.2+ | 2009 12 18 | G96 | 0.6+ | 0.1− |
| 2006 02 01 | G96 | 0.1+ | 0.1+ | 2009 11 17 | 691 | 0.1− | 0.2+ | 2009 12 18 | G96 | 0.1+ | 0.3− |
| 2006 02 01 | G96 | 0.1+ | 0.2− | 2009 11 25 | 691 | 0.0 | 0.2− | | | | |
| 2006 02 01 | G96 | 0.0 | 0.2− | 2009 11 25 | 691 | 0.1− | 0.1− | | | | |

**2009 VT$_{67}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 309.18011 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.24735102 | $\omega$ | 132.00687 | | −0.65055821 | | −0.75945585 |
| $a$ | 2.5133921 | $\Omega$ | 358.57589 | | +0.68551319 | | −0.58670136 |
| $e$ | 0.0544281 | $i$ | 2.09920 | | +0.32687257 | | −0.28108420 |
| $P$ | 3.98 | $H$ | 17.5 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 11 21 | 691 | 0.1+ | 0.3− | 2007 05 16 | G96 | 0.4− | 0.5− | 2009 12 16 | G96 | 0.4+ | 0.2+ |
| 2005 11 21 | 691 | 0.1− | 0.0 | 2007 05 16 | G96 | 0.1+ | 0.1+ | 2009 12 16 | G96 | 0.3+ | 0.4− |
| 2005 11 21 | 691 | 0.0 | 0.1+ | 2009 11 09 | 691 | 0.0 | 0.3+ | 2009 12 16 | G96 | 0.6+ | 0.0 |
| 2007 04 16 | G96 | 0.2+ | 0.4+ | 2009 11 09 | 691 | 0.1+ | 0.1+ | 2009 12 18 | G96 | 0.0 | 0.5− |
| 2007 04 16 | G96 | 0.1− | 0.1+ | 2009 11 09 | 691 | 0.2− | 0.2− | 2009 12 18 | G96 | 0.4+ | 0.4− |
| 2007 04 16 | G96 | 0.1− | 0.1+ | 2009 11 17 | 691 | 0.0 | 0.2+ | 2009 12 18 | G96 | 0.0 | 0.2+ |
| 2007 04 16 | G96 | 0.4− | 0.4+ | 2009 11 17 | 691 | 0.1− | 0.1− | 2009 12 18 | G96 | 0.1+ | 0.3− |
| 2007 05 16 | G96 | 0.2+ | 0.3− | 2009 11 17 | 691 | 0.3− | 0.2+ | | | | |
| 2007 05 16 | G96 | 0.7+ | 0.0 | 2009 12 16 | G96 | 0.5+ | 0.0 | | | | |

**2009 VV$_{67}$ = 2003 UV$_{400}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 24.33985 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18644169 | $\omega$ | 150.48084 | | +0.73342202 | −0.66589468 | |
| $a$ | 3.0346412 | $\Omega$ | 251.93346 | | +0.59211206 | +0.72455111 | |
| $e$ | 0.1451540 | $i$ | 8.26484 | | +0.33390934 | +0.17779189 | |
| $P$ | 5.29 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 28 | 691 | 0.0 | 0.2+ | 2009 11 09 | 691 | 0.2− | 0.1+ | 2009 11 25 | 691 | 0.4− | 0.1− |
| 2003 09 28 | 691 | 0.3+ | 0.2+ | 2009 11 09 | 691 | 0.1− | 0.1− | 2009 11 25 | 691 | 0.2− | 0.0 |
| 2003 09 28 | 691 | 0.3− | 0.3+ | 2009 11 09 | 691 | 0.0 | 0.2− | 2009 11 25 | 703 | 0.5+ | 0.7+ |
| 2003 10 23 | 645 | 0.0 | 0.0 | 2009 11 09 | G96 | 0.1+ | 0.1− | 2009 11 25 | 703 | 0.6− | 1.3+ |
| 2003 10 23 | 645 | 0.0 | 0.0 | 2009 11 09 | G96 | 0.7+ | 0.3− | 2009 11 25 | 703 | 1.1+ | 0.7− |
| 2003 10 24 | 645 | 0.0 | 0.1− | 2009 11 09 | G96 | 0.5+ | 0.3− | 2009 11 25 | 703 | 0.3− | 0.7− |
| 2003 10 24 | 645 | 0.0 | 0.1− | 2009 11 09 | G96 | 0.5+ | 0.2+ | 2009 11 25 | 703 | 0.7− | 0.0 |
| 2009 10 22 | G96 | 0.4+ | 0.6+ | 2009 11 17 | 691 | 0.1+ | 0.1+ | 2009 12 16 | G96 | 0.4+ | 0.1− |
| 2009 10 22 | G96 | 0.7+ | 0.3+ | 2009 11 17 | 691 | 0.3− | 0.0 | 2009 12 16 | G96 | 0.4+ | 0.1− |
| 2009 10 22 | G96 | 0.4+ | 0.3+ | 2009 11 17 | 691 | 0.2− | 0.0 | 2009 12 16 | G96 | 0.5+ | 0.1+ |
| 2009 10 22 | G96 | 0.5+ | 0.0 | 2009 11 25 | 691 | 0.1− | 0.1− | 2009 12 16 | G96 | 0.6+ | 0.2− |

**2009 VC$_{68}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 281.26535 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21597089 | $\omega$ | 125.10725 | | −0.98309678 | −0.17096972 | |
| $a$ | 2.7513082 | $\Omega$ | 45.14993 | | +0.12293372 | −0.88152285 | |
| $e$ | 0.1487474 | $i$ | 5.30098 | | +0.13567617 | −0.44009865 | |
| $P$ | 4.56 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 04 19 | 291 | 0.1− | 0.2+ | 2006 02 04 | 703 | 0.2− | 1.2− | 2009 11 17 | 691 | 0.2+ | 0.0 |
| 2002 04 19 | 291 | 0.1+ | 0.1+ | 2006 02 04 | 703 | 1.2− | 0.9− | 2009 11 17 | 691 | 0.4− | 0.0 |
| 2002 04 19 | 291 | 0.2+ | 0.2+ | 2009 11 09 | 691 | 0.5+ | 0.3+ | 2009 11 17 | 691 | 0.3− | 0.4+ |
| 2006 01 26 | 703 | 0.6− | 0.0 | 2009 11 09 | 691 | 0.3+ | 0.2+ | 2009 11 25 | 691 | 0.2− | 0.0 |
| 2006 01 26 | 703 | 0.7− | 0.7+ | 2009 11 09 | 691 | 0.6+ | 0.1+ | 2009 11 25 | 691 | 0.4− | 0.1+ |
| 2006 01 26 | 703 | 0.3+ | 1.1+ | 2009 11 09 | G96 | 0.1+ | 0.4− | 2009 11 25 | 691 | 0.3− | 0.0 |
| 2006 01 26 | 703 | 1.2+ | 0.5− | 2009 11 09 | G96 | 0.0 | 0.0 | 2009 12 16 | G96 | 0.1− | 0.0 |
| 2006 02 04 | 703 | (1.8+ | 0.4−) | 2009 11 09 | G96 | 0.1− | 0.2− | 2009 12 16 | G96 | 0.5− | 0.5− |
| 2006 02 04 | 703 | 0.8+ | 0.2− | 2009 11 09 | G96 | 0.3+ | 0.4− | 2009 12 16 | G96 | 0.2− | 0.2− |

**2009 VK$_{68}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 37.23926 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18564748 | $\omega$ | 138.55006 | | +0.84339179 | −0.50826785 | |
| $a$ | 3.0432901 | $\Omega$ | 252.80076 | | +0.43233333 | +0.83449322 | |
| $e$ | 0.0962642 | $i$ | 10.50841 | | +0.31902692 | +0.21280240 | |
| $P$ | 5.31 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 17 | 699 | 0.4− | 0.1+ | 2009 11 09 | 691 | 0.4− | 0.3− | 2009 11 25 | 703 | 0.8+ | 0.1+ |
| 2003 10 17 | 699 | 0.0 | 0.6+ | 2009 11 17 | 691 | 0.1+ | 0.1+ | 2009 11 25 | 703 | 0.5− | 0.2− |
| 2003 10 17 | 699 | 0.2− | 0.9+ | 2009 11 17 | 691 | 0.1− | 0.0 | 2009 11 25 | 703 | 0.5− | 0.6− |
| 2003 10 17 | 699 | 0.1+ | 0.5− | 2009 11 17 | 691 | 0.1+ | 0.1+ | 2009 11 25 | 703 | 0.1+ | 0.7− |
| 2007 06 22 | G96 | 0.1− | 0.3+ | 2009 11 17 | 691 | 0.4+ | 0.1− | 2009 12 11 | 703 | 0.4− | 0.7+ |
| 2007 06 22 | G96 | 0.4+ | 0.7− | 2009 11 17 | 691 | 1.3− | 0.4− | 2009 12 11 | 703 | 0.3− | 0.3− |
| 2007 06 22 | G96 | 0.1− | 0.3+ | 2009 11 17 | 691 | 0.0 | 0.1+ | 2009 12 11 | 703 | 0.1− | 0.7− |
| 2007 06 22 | G96 | 0.2− | 0.4+ | 2009 11 21 | 704 | 0.4+ | 0.5+ | 2009 12 11 | 703 | 0.5+ | 1.2− |
| 2008 07 25 | G96 | 0.4+ | 0.2− | 2009 11 21 | 704 | 0.9+ | 0.2− | 2009 12 15 | G96 | 0.3+ | 0.0 |
| 2008 07 25 | G96 | 0.5+ | 0.0 | 2009 11 21 | 704 | 0.7+ | 0.2− | 2009 12 15 | G96 | 1.0+ | 0.0 |
| 2008 07 25 | G96 | 0.0 | 0.0 | 2009 11 21 | 691 | 0.2+ | 0.2+ | 2009 12 15 | G96 | 0.2+ | 0.2− |
| 2008 07 25 | G96 | 0.1+ | 0.3− | 2009 11 21 | 691 | 0.3+ | 0.0 | 2009 12 15 | G96 | 0.4+ | 0.1− |
| 2008 08 20 | 691 | 0.2− | 0.0 | 2009 11 21 | 691 | 0.1+ | 0.3+ | 2009 12 16 | 704 | 0.3+ | 0.3+ |
| 2008 08 20 | 691 | 0.2+ | 0.0 | 2009 11 25 | 691 | 0.2+ | 0.1+ | 2009 12 16 | 704 | 0.6+ | 0.8+ |
| 2008 08 20 | 691 | 0.1− | 0.2− | 2009 11 25 | 691 | 0.2+ | 0.0 | 2009 12 16 | 704 | 0.2− | 0.6− |
| 2009 11 09 | 691 | 0.1− | 0.1− | 2009 11 25 | 691 | 0.8− | 0.7+ | | | | |
| 2009 11 09 | 691 | 0.0 | 0.1− | 2009 11 25 | 703 | 0.2+ | 0.7− | | | | |

**2009 VT$_{68}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 285.99512 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17319283 | $\omega$ | 120.36236 | | −0.98161541 | −0.11821808 | |
| $a$ | 3.1874944 | $\Omega$ | 53.26047 | | +0.02937339 | −0.86931344 | |
| $e$ | 0.2040784 | $i$ | 10.77756 | | +0.18859582 | −0.47991523 | |
| $P$ | 5.69 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 06 02 | 691 | 0.2+ | 0.0 | 2003 11 21 | 291 | 0.1+ | 0.1+ | 2009 11 09 | 691 | 0.5+ | 0.2+ |
| 2000 06 02 | 691 | 0.3− | 0.2− | 2008 10 27 | G96 | 0.9+ | 0.1− | 2009 11 17 | 691 | 0.2+ | 0.1− |
| 2000 06 02 | 691 | 0.0 | 0.1− | 2008 10 27 | G96 | 0.4+ | 0.1− | 2009 11 17 | 691 | 0.4+ | 0.1+ |
| 2003 10 24 | 695 | 0.1− | 0.2− | 2008 10 27 | G96 | 0.1− | 0.0 | 2009 11 17 | 691 | 0.2+ | 0.2− |
| 2003 10 24 | 695 | 0.0 | 0.1− | 2008 10 27 | G96 | 0.8− | 0.7− | 2009 11 26 | 691 | 0.3− | 0.7− |
| 2003 11 21 | 291 | 0.1− | 0.2+ | 2009 11 09 | 691 | 0.0 | 0.3− | 2009 11 26 | 691 | 0.7− | 0.4+ |
| 2003 11 21 | 291 | 0.1− | 0.1+ | 2009 11 09 | 691 | 0.0 | 0.2− | 2009 11 26 | 691 | 0.1− | 0.3+ |

**2009 VA$_{69}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 23.66394 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18113315 | $\omega$ | 147.70125 | | +0.63785744 | −0.75684829 | |
| $a$ | 3.0936470 | $\Omega$ | 262.25559 | | +0.67249888 | +0.63755692 | |
| $e$ | 0.1120614 | $i$ | 8.27099 | | +0.37534404 | +0.14388134 | |
| $P$ | 5.44 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 16 | 691 | 0.1− | 0.0 | 2009 11 09 | 691 | 0.3− | 0.1− | 2009 11 25 | 691 | 0.2− | 0.2− |
| 2003 10 16 | 691 | 0.2+ | 0.0 | 2009 11 09 | 691 | 0.2− | 0.4+ | 2009 12 10 | G96 | 0.1− | 0.2+ |
| 2003 10 16 | 691 | 0.1+ | 0.2− | 2009 11 09 | G96 | 0.7+ | 0.3− | 2009 12 10 | G96 | 0.0 | 0.1+ |
| 2003 10 18 | 644 | 0.1− | 0.7+ | 2009 11 09 | G96 | 0.1+ | 0.1+ | 2009 12 10 | G96 | 0.4+ | 0.3+ |
| 2003 10 18 | 644 | 0.5− | 0.2+ | 2009 11 09 | G96 | 0.4− | 0.2− | 2009 12 10 | G96 | 0.5+ | 0.0 |
| 2003 10 18 | 644 | 0.1− | 0.2+ | 2009 11 09 | G96 | 0.4+ | 0.2+ | 2009 12 15 | G96 | 0.8+ | 0.4− |
| 2009 10 26 | G96 | 0.4+ | 0.3− | 2009 11 17 | 691 | 0.3+ | 0.1− | 2009 12 15 | G96 | 0.8+ | 0.4− |
| 2009 10 26 | G96 | 0.0 | 0.2− | 2009 11 17 | 691 | 0.1− | 0.2+ | 2009 12 15 | G96 | 0.2+ | 0.3+ |
| 2009 10 26 | G96 | 0.3− | 0.2− | 2009 11 17 | 691 | 0.0 | 0.1− | 2009 12 15 | G96 | 0.1+ | 0.4− |
| 2009 10 26 | G96 | 0.3+ | 0.4− | 2009 11 25 | 691 | 0.4− | 0.1+ | | | | |
| 2009 11 09 | 691 | 0.2+ | 0.0 | 2009 11 25 | 691 | 0.2− | 0.2+ | | | | |

**2009 VG$_{69}$ = 2005 YC$_{99}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 84.18125 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23843083 | $\omega$ | 270.07046 | | +0.93987528 | +0.29979087 | |
| $a$ | 2.5756950 | $\Omega$ | 72.48554 | | −0.20271081 | +0.87519849 | |
| $e$ | 0.0600366 | $i$ | 9.87718 | | −0.27485048 | +0.37967492 | |
| $P$ | 4.13 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 28 | G96 | 0.5+ | 0.1+ | 2009 11 09 | G96 | 0.4+ | 0.0 | 2009 11 26 | 691 | 0.3− | 0.2+ |
| 2005 12 28 | G96 | 0.1− | 0.3− | 2009 11 09 | G96 | 0.1− | 0.2− | 2009 11 26 | 691 | 0.3− | 0.2− |
| 2005 12 28 | G96 | 0.5+ | 0.2− | 2009 11 09 | G96 | 0.0 | 0.1− | 2009 11 26 | 691 | 0.1+ | 0.1+ |
| 2005 12 28 | G96 | 0.4+ | 0.4− | 2009 11 16 | 291 | 0.2+ | 0.2+ | 2009 12 11 | G96 | 0.8+ | 0.2+ |
| 2005 12 29 | G96 | 0.3− | 0.0 | 2009 11 16 | 291 | 0.0 | 0.0 | 2009 12 11 | G96 | 0.6+ | 0.2− |
| 2005 12 29 | G96 | 0.5− | 0.4+ | 2009 11 16 | 291 | 0.1− | 0.0 | 2009 12 11 | G96 | 0.3+ | 0.2+ |
| 2005 12 29 | G96 | 0.0 | 0.2+ | 2009 11 18 | 691 | 0.0 | 0.2− | 2009 12 11 | G96 | 0.4+ | 0.0 |
| 2005 12 29 | G96 | 0.5− | 0.2+ | 2009 11 18 | 691 | 0.2− | 0.3+ | | | | |
| 2009 11 09 | G96 | 0.2− | 0.0 | 2009 11 18 | 691 | 0.0 | 0.2− | | | | |

**2009 VK$_{69}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 72.59618 | | (2000.0) | | | |
| $n$ | 0.26824350 | $\omega$ | 281.61748 | | +0.94636404 | +0.30130188 |
| $a$ | 2.3811307 | $\Omega$ | 60.94132 | | −0.21908364 | +0.86380634 |
| $e$ | 0.2381414 | $i$ | 7.67032 | | −0.23748151 | +0.40380166 |
| $P$ | 3.67 | $H$ | 17.8 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 28 | 644 | 0.0 | 0.2− | 2009 11 09 | G96 | 0.3+ | 0.4+ | 2009 12 11 | G96 | 0.3+ | 0.1+ |
| 2005 09 28 | 644 | 0.4− | 0.2− | 2009 11 09 | G96 | 0.5+ | 0.7+ | 2009 12 11 | G96 | 0.0 | 0.1+ |
| 2005 09 28 | 644 | 0.3+ | 0.2− | 2009 11 09 | G96 | 0.5+ | 0.4+ | 2009 12 11 | G96 | 0.2− | 0.0 |
| 2005 10 03 | 703 | 0.8+ | 0.2+ | 2009 11 09 | G96 | 0.6+ | 0.1+ | 2009 12 11 | G96 | 0.1− | 0.3− |
| 2005 10 03 | 703 | 0.4− | 0.7+ | 2009 11 17 | 691 | 0.0 | 0.1− | 2009 12 11 | G96 | 0.1+ | 0.2+ |
| 2005 10 03 | 703 | 0.6+ | 0.5− | 2009 11 17 | 691 | 0.3− | 0.0 | 2009 12 11 | G96 | 0.3+ | 0.0 |
| 2005 10 03 | 703 | 1.0− | 0.1+ | 2009 11 17 | 691 | 0.2+ | 0.5− | 2009 12 11 | G96 | 0.1+ | 0.1+ |
| 2009 11 09 | 691 | 0.0 | 0.0 | 2009 11 21 | 691 | 0.1+ | 0.1+ | 2009 12 11 | G96 | 0.1+ | 0.0 |
| 2009 11 09 | 691 | 0.2− | 0.2− | 2009 11 21 | 691 | 0.2− | 0.0 | | | | |
| 2009 11 09 | 691 | 0.2− | 0.1+ | 2009 11 21 | 691 | 0.0 | 0.1+ | | | | |

**2009 VC$_{71}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 351.19897 | | (2000.0) | | | |
| $n$ | 0.19355542 | $\omega$ | 170.72540 | | −0.02933853 | −0.99685607 |
| $a$ | 2.9598236 | $\Omega$ | 280.93029 | | +0.91221447 | +0.00340222 |
| $e$ | 0.1149854 | $i$ | 4.29902 | | +0.40866125 | −0.07916055 |
| $P$ | 5.09 | $H$ | 15.9 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 18 | 691 | 0.1− | 0.0 | 2009 11 09 | G96 | 0.2+ | 0.0 | 2009 11 25 | 691 | 0.1− | 0.0 |
| 2003 09 18 | 691 | 0.1− | 0.2+ | 2009 11 09 | G96 | 0.1+ | 0.1+ | 2009 11 25 | 691 | 0.2+ | 0.0 |
| 2003 09 18 | 691 | 0.1+ | 0.3+ | 2009 11 09 | G96 | 0.4+ | 0.7+ | 2009 11 25 | 691 | 0.1− | 0.0 |
| 2003 09 30 | 691 | 0.1− | 0.1+ | 2009 11 09 | G96 | 0.1+ | 0.3− | 2009 12 09 | J75 | 0.3+ | 0.2+ |
| 2003 09 30 | 691 | 0.3− | 0.0 | 2009 11 17 | 691 | 0.1− | 0.1− | 2009 12 09 | J75 | 0.7− | 0.1− |
| 2003 09 30 | 691 | 0.3+ | 0.3− | 2009 11 17 | 691 | 0.1− | 0.2− | 2009 12 09 | J75 | 0.3− | 0.1− |
| 2004 12 14 | 291 | 0.4− | 0.0 | 2009 11 17 | 691 | 0.0 | 0.3− | 2009 12 10 | 704 | (2.3+ | 1.0+) |
| 2004 12 14 | 291 | 0.4+ | 0.8+ | 2009 11 21 | 691 | 0.2+ | 0.1− | 2009 12 10 | 704 | 0.5+ | 0.4+ |
| 2004 12 14 | 291 | 0.1+ | 0.0 | 2009 11 21 | 691 | 0.3− | 0.1− | 2009 12 10 | 704 | 0.3− | 0.9+ |
| 2008 09 24 | G96 | 0.5− | 0.1− | 2009 11 21 | 691 | 0.1+ | 0.3− | 2009 12 10 | 704 | 0.4− | 0.6+ |
| 2008 09 24 | G96 | 0.5+ | 0.1− | 2009 11 25 | J75 | 0.2+ | 0.4− | 2009 12 10 | 704 | 0.5+ | 1.0+ |
| 2008 09 24 | G96 | 0.2+ | 0.1− | 2009 11 25 | J75 | 0.2+ | 0.8− | | | | |
| 2008 09 24 | G96 | 0.3+ | 0.2− | 2009 11 25 | J75 | 0.0 | 0.6− | | | | |

**2009 VK$_{71}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 6.25529 | | (2000.0) | | | |
| $n$ | 0.27891103 | $\omega$ | 181.33059 | | +0.21578313 | −0.97588613 |
| $a$ | 2.3200228 | $\Omega$ | 256.20870 | | +0.89618023 | +0.21132063 |
| $e$ | 0.1952410 | $i$ | 1.94270 | | +0.38768369 | +0.05467962 |
| $P$ | 3.53 | $H$ | 17.5 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 31 | G96 | 0.0 | 0.2− | 2009 10 26 | G96 | 0.3+ | 0.3+ | 2009 12 08 | J75 | 0.8+ | 0.3− |
| 2005 10 31 | G96 | 0.3+ | 0.6− | 2009 10 26 | G96 | 0.1+ | 0.4− | 2009 12 08 | J75 | 0.5+ | 0.5− |
| 2005 10 31 | G96 | 0.1− | 0.3− | 2009 11 09 | G96 | 0.5+ | 0.2+ | 2009 12 09 | J75 | 0.8− | 0.4− |
| 2005 10 31 | G96 | 0.2+ | 0.0 | 2009 11 09 | G96 | 0.5+ | 0.0 | 2009 12 09 | J75 | 0.4− | 0.0 |
| 2007 03 12 | 691 | 0.3− | 0.3+ | 2009 11 09 | G96 | 0.4+ | 0.1+ | 2009 12 09 | J75 | 0.1+ | 0.1+ |
| 2007 03 12 | 691 | 0.2+ | 0.1− | 2009 11 09 | G96 | 0.3+ | 0.2+ | 2009 12 10 | G96 | 0.2+ | 0.1− |
| 2007 03 12 | 691 | 0.0 | 0.2− | 2009 11 17 | 691 | 0.4+ | 0.1− | 2009 12 10 | G96 | 0.3+ | 0.1− |
| 2007 04 20 | G96 | 0.0 | 0.1+ | 2009 11 17 | 691 | 0.0 | 0.2− | 2009 12 10 | G96 | 0.5+ | 0.1− |
| 2007 04 20 | G96 | 0.5+ | 0.2− | 2009 11 17 | 691 | 0.2− | 0.1− | 2009 12 10 | G96 | 0.1+ | 0.1− |
| 2007 04 20 | G96 | 0.2− | 0.0 | 2009 11 21 | 691 | 0.7− | 0.3+ | 2009 12 19 | G96 | 0.3+ | 0.2− |
| 2007 04 20 | G96 | 0.3+ | 0.1− | 2009 11 21 | 691 | 0.4− | 0.8+ | 2009 12 19 | G96 | 0.4+ | 0.2− |
| 2009 10 26 | G96 | 0.2+ | 0.1+ | 2009 11 21 | 691 | 0.2− | 0.2− | 2009 12 19 | G96 | 0.3+ | 0.1− |
| 2009 10 26 | G96 | 0.0 | 0.0 | 2009 12 08 | J75 | 0.1− | 0.1− | 2009 12 19 | G96 | 0.3+ | 0.2− |

**2009 VL$_{71}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 343.14027 | | (2000.0) | | | |
| $n$ | 0.23321521 | $\omega$ | 229.94798 | | −0.14697708 | −0.98529204 |
| $a$ | 2.6139552 | $\Omega$ | 228.72872 | | +0.93916702 | −0.11135389 |
| $e$ | 0.1562906 | $i$ | 6.65960 | | +0.31042399 | −0.12961449 |
| $P$ | 4.23 | $H$ | 17.0 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 03 05 | 645 | 0.0 | 0.0 | 2009 10 21 | G96 | 0.1+ | 0.2− | 2009 11 25 | 703 | 0.9+ | 0.6+ |
| 2002 03 05 | 645 | 0.0 | 0.1+ | 2009 10 21 | G96 | 0.9+ | 0.2− | 2009 11 25 | 703 | (1.6− | 0.0 ) |
| 2004 08 22 | 691 | 0.2+ | 0.4+ | 2009 11 09 | 926 | 0.1+ | 0.8− | 2009 11 25 | 703 | 1.2− | 0.2+ |
| 2004 08 22 | 691 | 0.4− | 0.2+ | 2009 11 09 | 926 | 0.3− | 0.1− | 2009 11 25 | 703 | 0.4+ | 0.7+ |
| 2004 08 22 | 691 | 0.1− | 0.1+ | 2009 11 09 | 926 | 0.0 | 0.2+ | 2009 11 26 | 691 | 0.1− | 0.3+ |
| 2007 05 09 | G96 | 0.0 | 0.5− | 2009 11 10 | 691 | 0.4− | 0.0 | 2009 11 26 | 691 | 0.2+ | 0.3+ |
| 2007 05 09 | G96 | 0.3− | 0.3+ | 2009 11 10 | 691 | 0.1− | 0.2− | 2009 11 26 | 691 | 0.0 | 0.2+ |
| 2007 05 09 | G96 | 0.3+ | 0.2+ | 2009 11 10 | 691 | 0.0 | 0.1− | 2009 12 11 | 703 | (2.1+ | 0.5+) |
| 2007 05 09 | G96 | 0.3+ | 0.2+ | 2009 11 22 | 691 | 0.9− | 0.3− | 2009 12 11 | 703 | 0.6+ | 1.1− |
| 2009 09 21 | G96 | 0.2+ | 0.0 | 2009 11 22 | 691 | 0.4+ | 0.1− | 2009 12 11 | 703 | 0.6− | 0.6+ |
| 2009 09 21 | G96 | 0.0 | 0.4+ | 2009 11 22 | 691 | 0.1+ | 0.2− | 2009 12 11 | 703 | 0.9+ | 0.5− |
| 2009 09 21 | G96 | 0.3+ | 0.1− | 2009 11 25 | 703 | 0.1+ | 0.0 | 2009 12 19 | 691 | 0.5− | 0.5+ |
| 2009 09 21 | G96 | 0.3+ | 0.1+ | 2009 11 25 | 703 | 0.5+ | 0.0 | 2009 12 19 | 691 | 0.0 | 0.2− |
| 2009 10 21 | G96 | 0.6+ | 0.4− | 2009 11 25 | 703 | 0.3+ | 0.6− | 2009 12 19 | 691 | 0.0 | 0.1+ |
| 2009 10 21 | G96 | 0.9+ | 0.2− | 2009 11 25 | 703 | 0.4+ | 0.0 | | | | |

**2009 VM$_{71}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 326.81900 | | (2000.0) | | | |
| $n$ | 0.08200489 | $\omega$ | 24.70867 | | −0.30518973 | −0.94472190 |
| $a$ | 5.2469815 | $\Omega$ | 83.24350 | | +0.85241977 | −0.32711090 |
| $e$ | 0.0821304 | $i$ | 6.93079 | | +0.42454654 | −0.02233825 |
| $P$ | 12.02 | $H$ | 14.1 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 09 29 | 691 | 0.4− | 0.1+ | 2009 11 10 | 691 | 0.3+ | 0.3+ | 2009 11 26 | 691 | 0.6− | 0.2− |
| 2008 09 29 | 691 | 1.0− | 0.5+ | 2009 11 10 | 691 | 0.3− | 0.5− | 2009 11 26 | 691 | 0.3+ | 0.3+ |
| 2008 09 29 | 691 | 0.1+ | 0.4+ | 2009 11 10 | 691 | 0.3+ | 0.1− | 2009 11 26 | 691 | 0.4+ | 0.2+ |
| 2008 09 29 | 291 | 0.4+ | 0.2− | 2009 11 16 | 291 | 0.3− | 0.0 | 2009 11 26 | 691 | 0.6− | 0.2+ |
| 2008 09 29 | 291 | 0.4+ | 0.3− | 2009 11 16 | 291 | 0.3− | 0.3+ | 2009 11 26 | 691 | 0.5+ | 0.3− |
| 2008 09 29 | 291 | 0.4+ | 0.1− | 2009 11 16 | 291 | 0.4+ | 0.1+ | 2009 12 17 | G96 | 0.2+ | 0.3− |
| 2008 10 23 | G96 | 0.1− | 0.6− | 2009 11 22 | 691 | 0.4− | 0.2+ | 2009 12 17 | G96 | 0.2+ | 0.0 |
| 2008 10 23 | G96 | 0.2+ | 0.3− | 2009 11 22 | 691 | 0.1+ | 0.2+ | 2009 12 17 | G96 | 0.3+ | 0.0 |
| 2008 10 23 | G96 | 0.3+ | 0.4− | 2009 11 22 | 691 | 0.1+ | 0.3− | 2009 12 17 | G96 | 0.2− | 0.3− |
| 2008 10 23 | G96 | 0.3+ | 0.5− | 2009 11 26 | 691 | 0.1− | 0.2− | | | | |

**2009 VV$_{71}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 84.42108 | | (2000.0) | | | |
| $n$ | 0.29549123 | $\omega$ | 54.16404 | | +0.75836483 | +0.64750348 |
| $a$ | 2.2324050 | $\Omega$ | 265.35788 | | −0.61967825 | +0.68049076 |
| $e$ | 0.2229059 | $i$ | 4.31426 | | −0.20219211 | +0.34303290 |
| $P$ | 3.34 | $H$ | 17.7 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 18 | 608 | 0.4+ | 0.6+ | 2008 03 12 | 691 | 0.1+ | 0.1+ | 2009 11 25 | 691 | 0.4+ | 0.2+ |
| 2002 08 18 | 608 | 0.3+ | 0.2+ | 2009 11 11 | 691 | 0.2+ | 0.2+ | 2009 11 25 | 691 | 0.9− | 0.1+ |
| 2002 08 18 | 608 | 0.0 | 0.7+ | 2009 11 11 | 691 | 0.3+ | 0.1+ | 2009 11 25 | 691 | 0.4− | 0.1− |
| 2002 09 13 | 644 | 0.5− | 0.3− | 2009 11 11 | 691 | 0.2− | 0.1− | 2009 11 27 | 691 | 0.0 | 0.0 |
| 2002 09 13 | 644 | 0.3− | 0.3− | 2009 11 16 | 291 | 0.4+ | 0.3− | 2009 11 27 | 691 | 0.3+ | 0.1− |
| 2002 09 13 | 644 | 0.1− | 0.4− | 2009 11 16 | 291 | 0.1− | 0.0 | 2009 11 27 | 691 | 0.3− | 0.0 |
| 2005 02 14 | 809 | 0.1− | 0.4+ | 2009 11 16 | 291 | 0.2− | 0.2+ | 2009 12 18 | G96 | 1.2+ | 0.2− |
| 2005 02 14 | 809 | 0.2+ | 0.2+ | 2009 11 24 | G96 | 0.0 | 0.1+ | 2009 12 18 | G96 | 0.6+ | 0.3+ |
| 2005 02 14 | 809 | 0.3+ | 0.2+ | 2009 11 24 | G96 | 0.5+ | 0.0 | 2009 12 18 | G96 | 0.1+ | 0.2− |
| 2008 03 12 | 691 | 0.1− | 0.3+ | 2009 11 24 | G96 | 0.3+ | 0.1+ | 2009 12 18 | G96 | 0.1+ | 0.3+ |
| 2008 03 12 | 691 | 0.0 | 0.2− | 2009 11 24 | G96 | 0.2+ | 0.1− | | | | |

**2009 VQ$_{72}$ = 2009 VV$_{113}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 27.89436 | | (2000.0) | | | |
| $n$ | 0.22600691 | $\omega$ | 305.61004 | | +0.90818666 | −0.36353373 |
| $a$ | 2.6692438 | $\Omega$ | 76.51132 | | +0.41849621 | +0.79766221 |
| $e$ | 0.1664107 | $i$ | 12.31853 | | −0.00761000 | +0.48122576 |
| $P$ | 4.36 | $H$ | 16.2 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 07 13 | E12 | 0.1− | 2.0+ | | 2005 12 10 | 691 | 0.0 | 0.0 | | 2009 11 15 | 704 | 0.8+ | 1.3+ | | |
| 2004 07 13 | E12 | 0.7+ | 0.1− | | 2005 12 10 | 691 | 0.1− | 0.0 | | 2009 11 19 | 704 | 0.3+ | 1.5+ | | |
| 2004 07 13 | E12 | 0.6+ | 1.3− | | 2009 10 18 | 703 | 0.0 | 0.0 | | 2009 11 19 | 704 | 0.9+ | 1.4+ | | |
| 2004 07 13 | E12 | 0.8− | 0.6− | | 2009 10 18 | 703 | 0.3− | 0.4− | | 2009 11 19 | 704 | 0.3+ | 0.8+ | | |
| 2004 08 09 | E12 | 0.1+ | 0.1− | | 2009 10 18 | 703 | 0.5+ | 0.6− | | 2009 11 21 | 703 | 0.8− | 0.0 | | |
| 2004 08 09 | E12 | 0.4− | 0.6+ | | 2009 10 18 | 703 | 0.0 | 1.2− | | 2009 11 21 | 703 | 0.2+ | 0.6+ | | |
| 2004 08 09 | E12 | 0.4− | 0.1− | | 2009 11 08 | 703 | 0.3− | 0.4+ | | 2009 11 21 | 703 | 0.6− | 0.0 | | |
| 2004 08 09 | E12 | 0.3+ | 0.4+ | | 2009 11 08 | 703 | 0.5− | 0.7− | | 2009 11 21 | 703 | 0.3+ | 0.2− | | |
| 2005 11 06 | G96 | 0.2+ | 0.1− | | 2009 11 08 | 703 | 0.0 | 0.8− | | 2009 12 10 | 703 | 0.8− | 1.0− | | |
| 2005 11 06 | G96 | 0.4+ | 0.1+ | | 2009 11 08 | 703 | 0.2− | 1.3− | | 2009 12 10 | 703 | 0.1+ | 2.1− | | |
| 2005 11 06 | G96 | 0.0 | 0.1+ | | 2009 11 15 | 704 | 1.2− | 1.5+ | | 2009 12 10 | 703 | 0.2− | 0.3+ | | |
| 2005 11 06 | G96 | 0.1+ | 0.2+ | | 2009 11 15 | 704 | 0.9+ | 0.5+ | | 2009 12 10 | 703 | 0.6+ | 0.5− | | |
| 2005 12 10 | 691 | 0.0 | 0.1+ | | 2009 11 15 | 704 | 0.0 | 0.1− | | | | | | | |

**2009 VL$_{73}$ = 1999 XG$_{265}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 75.14625 | | (2000.0) | | | |
| $n$ | 0.19253935 | $\omega$ | 123.46812 | | +0.76296087 | +0.64639706 |
| $a$ | 2.9702276 | $\Omega$ | 196.26592 | | −0.60200806 | +0.70604073 |
| $e$ | 0.1403919 | $i$ | 1.60504 | | −0.23553556 | +0.28927033 |
| $P$ | 5.12 | $H$ | 16.5 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1993 08 14 | 691 | 0.0 | 0.8+ | | 2004 11 04 | 691 | 0.1− | 0.1+ | | 2009 10 11 | G96 | 0.1+ | 0.2− | | |
| 1993 08 14 | 691 | 0.0 | 0.2− | | 2006 01 05 | 691 | 0.1− | 0.1+ | | 2009 10 11 | G96 | 0.4+ | 0.2+ | | |
| 1993 08 14 | 691 | 0.1− | 0.2+ | | 2006 01 05 | 691 | 0.2+ | 0.3+ | | 2009 10 24 | 691 | 0.6− | 0.3+ | | |
| 1999 12 07 | 691 | 0.0 | 0.5− | | 2006 01 05 | 691 | 0.0 | 0.3+ | | 2009 10 24 | 691 | 0.3− | 0.2+ | | |
| 1999 12 07 | 691 | 0.4+ | 0.7− | | 2007 03 26 | G96 | 0.1+ | 0.2− | | 2009 10 24 | 691 | 0.1+ | 0.1+ | | |
| 1999 12 07 | 691 | 0.0 | 0.3− | | 2007 03 26 | G96 | 0.4+ | 0.4− | | 2009 11 11 | G96 | 0.0 | 0.4+ | | |
| 2002 04 08 | 691 | 0.4+ | 0.6+ | | 2007 03 26 | G96 | 0.2+ | 0.1− | | 2009 11 11 | G96 | 0.3+ | 0.4+ | | |
| 2002 04 08 | 691 | 0.2+ | 0.8+ | | 2007 03 26 | G96 | 0.2+ | 0.1− | | 2009 11 11 | G96 | 0.5− | 0.6+ | | |
| 2002 04 08 | 691 | 0.0 | 0.5+ | | 2007 04 15 | G96 | 0.4− | 0.2− | | 2009 11 11 | G96 | 0.3+ | 1.1+ | | |
| 2004 10 15 | G96 | 0.0 | 0.1− | | 2007 04 15 | G96 | 0.4− | 0.4+ | | 2009 11 18 | G96 | 0.2− | 0.4+ | | |
| 2004 10 15 | G96 | 0.1+ | 0.1− | | 2007 04 15 | G96 | 0.2+ | 0.1− | | 2009 11 18 | G96 | 0.1− | 0.2+ | | |
| 2004 10 15 | G96 | 0.0 | 1.3− | | 2007 04 15 | G96 | 0.2+ | 0.0 | | 2009 11 18 | G96 | 0.2− | 0.1− | | |
| 2004 10 15 | G96 | 0.0 | 0.0 | | 2009 09 20 | G96 | 0.3+ | 0.3+ | | 2009 11 18 | G96 | 0.3− | 0.2− | | |
| 2004 10 23 | 691 | 0.0 | 0.2+ | | 2009 09 20 | G96 | 0.0 | 0.1+ | | 2009 11 19 | G96 | 0.3+ | 0.5+ | | |
| 2004 10 23 | 691 | 0.0 | 0.1+ | | 2009 09 20 | G96 | 0.1+ | 0.1+ | | 2009 11 19 | G96 | 0.3− | 0.4+ | | |
| 2004 10 23 | 691 | 0.2+ | 0.3+ | | 2009 09 20 | G96 | 0.2+ | 0.1+ | | 2009 11 19 | G96 | 0.1+ | 0.1+ | | |
| 2004 11 04 | 691 | 0.1− | 0.2+ | | 2009 10 11 | G96 | 0.2− | 0.1+ | | 2009 11 19 | G96 | 0.0 | 0.3+ | | |
| 2004 11 04 | 691 | 0.1− | 0.3+ | | 2009 10 11 | G96 | 0.3+ | 0.3+ | | | | | | | |

**2009 VZ$_{73}$ = 2001 YF$_{30}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 106.22467 | | (2000.0) | | | |
| $n$ | 0.23630371 | $\omega$ | 258.13666 | | +0.44187534 | +0.89598091 |
| $a$ | 2.5911289 | $\Omega$ | 38.18641 | | −0.79262219 | +0.41308507 |
| $e$ | 0.0982120 | $i$ | 4.11117 | | −0.42011456 | +0.16303047 |
| $P$ | 4.17 | $H$ | 16.5 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 12 18 | 704 | (0.3+ | 1.6−) | | 2005 12 30 | G96 | 0.3− | 0.4− | | 2009 11 11 | G96 | 0.3+ | 0.1+ | | |
| 2001 12 18 | 704 | 1.4+ | 1.2− | | 2005 12 30 | G96 | 0.1− | 0.4+ | | 2009 11 11 | G96 | 0.0 | 0.0 | | |
| 2001 12 18 | 704 | 0.2+ | 0.6− | | 2007 02 25 | 691 | 0.0 | 0.6+ | | 2009 11 11 | G96 | 0.1+ | 0.3+ | | |
| 2001 12 19 | 704 | 0.7+ | 0.6− | | 2007 02 25 | 691 | 0.1+ | 0.0 | | 2009 11 11 | G96 | 0.2− | 0.1− | | |
| 2001 12 19 | 704 | 0.6− | 0.9− | | 2007 02 25 | 691 | 0.1+ | 0.0 | | 2009 11 18 | G96 | 0.2+ | 0.0 | | |
| 2001 12 19 | 704 | 0.1+ | 0.4− | | 2009 09 16 | G96 | 0.5+ | 0.0 | | 2009 11 18 | G96 | 0.3+ | 0.1− | | |
| 2001 12 19 | 704 | 0.9− | 0.5− | | 2009 09 16 | G96 | 0.2− | 0.2− | | 2009 11 18 | G96 | 0.4+ | 0.1− | | |
| 2001 12 19 | 704 | 0.6− | 1.2− | | 2009 09 16 | G96 | 0.1+ | 0.1− | | 2009 11 18 | G96 | 0.1− | 0.1− | | |
| 2005 10 28 | 691 | 0.0 | 0.0 | | 2009 09 16 | G96 | 1.0− | 0.1− | | 2009 11 18 | G96 | 0.0 | 0.2+ | | |
| 2005 10 28 | 691 | 0.3+ | 0.0 | | 2009 10 11 | G96 | 0.2+ | 0.0 | | 2009 11 18 | G96 | 0.1+ | 0.3− | | |
| 2005 10 28 | 691 | 0.1+ | 0.1+ | | 2009 10 11 | G96 | 0.4+ | 0.1− | | 2009 11 18 | G96 | 0.1− | 0.3− | | |
| 2005 11 11 | 691 | 0.0 | 0.3+ | | 2009 10 11 | G96 | 0.9+ | 0.2+ | | 2009 11 18 | G96 | 0.3+ | 0.1+ | | |
| 2005 11 11 | 691 | 0.3− | 0.2+ | | 2009 10 11 | G96 | 0.2+ | 0.3− | | 2009 11 18 | G96 | 0.4+ | 0.1+ | | |
| 2005 11 11 | 691 | 0.2+ | 0.2+ | | 2009 10 24 | 691 | 0.3− | 0.0 | | 2009 11 18 | G96 | 0.4+ | 0.0 | | |
| 2005 12 30 | G96 | 0.2− | 0.4+ | | 2009 10 24 | 691 | 0.7− | 0.3+ | | 2009 11 18 | G96 | 0.4+ | 0.1− | | |
| 2005 12 30 | G96 | 0.1+ | 0.0 | | 2009 10 24 | 691 | 0.2− | 0.3+ | | 2009 11 18 | G96 | 0.0 | 0.2+ | | |

**2009 VN$_{75}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 10.81456 | | (2000.0) | | | |
| $n$ | 0.18470938 | $\omega$ | 298.98991 | | +0.52189554 | −0.85184880 |
| $a$ | 3.0535855 | $\Omega$ | 119.48376 | | +0.79932527 | +0.47017709 |
| $e$ | 0.2190839 | $i$ | 2.92909 | | +0.29783243 | +0.23084005 |
| $P$ | 5.34 | $H$ | 16.5 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 10 01 | 691 | 0.2+ | 0.1− | | 2008 07 30 | G96 | 0.0 | 0.0 | | 2009 11 26 | 691 | 0.0 | 0.0 | | |
| 1998 10 01 | 691 | 0.1+ | 0.6− | | 2008 07 30 | G96 | 0.1+ | 0.1+ | | 2009 11 26 | 691 | 0.1− | 0.1− | | |
| 1998 10 01 | 691 | 0.1+ | 0.1− | | 2008 07 30 | G96 | 0.8+ | 0.1+ | | 2009 11 26 | 691 | 0.1− | 0.3− | | |
| 2003 09 04 | 691 | 0.1− | 0.4+ | | 2008 07 30 | G96 | 0.1− | 0.1− | | 2009 12 11 | 703 | 0.5+ | 0.2+ | | |
| 2003 09 04 | 691 | 0.4− | 0.3+ | | 2009 11 13 | J75 | 0.3− | 0.1− | | 2009 12 11 | 703 | 0.7+ | 0.0 | | |
| 2003 09 04 | 691 | 0.2− | 0.2+ | | 2009 11 13 | J75 | 0.2− | 0.3− | | 2009 12 11 | 703 | 0.4+ | 0.3+ | | |
| 2004 12 18 | G96 | 0.2− | 0.4− | | 2009 11 13 | J75 | 0.0 | 0.4− | | 2009 12 11 | 703 | 0.6+ | 0.2+ | | |
| 2004 12 18 | G96 | 0.0 | 0.1− | | 2009 11 18 | 691 | 0.1− | 0.2+ | | 2009 12 13 | D39 | 0.4− | 0.2− | | |
| 2004 12 18 | G96 | 0.0 | 0.0 | | 2009 11 18 | 691 | 0.7+ | 1.0+ | | 2009 12 13 | D39 | 0.5− | 0.3− | | |
| 2004 12 18 | G96 | 0.1− | 0.5+ | | 2009 11 18 | 691 | 0.1− | 0.0 | | 2009 12 13 | D39 | 0.3− | 0.2− | | |
| 2005 01 16 | 691 | 0.3+ | 0.1+ | | 2009 11 22 | 691 | 0.4− | 0.1− | | 2009 12 13 | D39 | 0.5− | 0.1− | | |
| 2005 01 16 | 691 | 0.3− | 0.1+ | | 2009 11 22 | 691 | 0.1+ | 0.1+ | | | | | | | |
| 2005 01 16 | 691 | 0.1+ | 0.3+ | | 2009 11 22 | 691 | 0.1− | 0.1− | | | | | | | |

**2009 VR$_{75}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 351.03292 | | (2000.0) | | | |
| $n$ | 0.22521742 | $\omega$ | 24.59364 | | −0.09045923 | −0.96154284 |
| $a$ | 2.6754781 | $\Omega$ | 71.46271 | | +0.86245123 | −0.20584519 |
| $e$ | 0.2450780 | $i$ | 15.87396 | | +0.49799096 | +0.18183266 |
| $P$ | 4.38 | $H$ | 16.5 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 03 12 | 645 | 0.0 | 0.0 | | 2009 11 18 | 691 | 0.0 | 0.1+ | | 2009 12 11 | 703 | 0.1+ | 0.1+ | | |
| 2002 03 12 | 645 | 0.0 | 0.0 | | 2009 11 18 | 691 | 0.1+ | 0.1+ | | 2009 12 11 | 703 | 0.3− | 0.1− | | |
| 2006 02 04 | 703 | 0.8+ | 1.3+ | | 2009 11 18 | 691 | 0.2− | 0.1+ | | 2009 12 11 | 703 | 0.3+ | 0.0 | | |
| 2006 02 04 | 703 | 0.1− | 0.6+ | | 2009 11 21 | A13 | 0.5+ | 0.1− | | 2009 12 15 | G96 | 0.5+ | 0.1− | | |
| 2006 02 04 | 703 | 0.0 | 0.3− | | 2009 11 21 | A13 | 0.2+ | 0.2− | | 2009 12 15 | G96 | 0.1+ | 0.1+ | | |
| 2006 02 04 | 703 | 0.5− | 0.3− | | 2009 11 21 | A13 | 0.5+ | 0.5− | | 2009 12 15 | G96 | 0.4+ | 0.0 | | |
| 2006 03 02 | 703 | 0.3− | 0.2+ | | 2009 11 22 | 691 | 0.3− | 0.1+ | | 2009 12 15 | G96 | 0.6+ | 0.0 | | |
| 2006 03 02 | 703 | 0.1− | 0.6− | | 2009 11 22 | 691 | 0.3− | 0.1+ | | 2009 12 16 | 704 | (1.8+ | 0.2+) | | |
| 2006 03 02 | 703 | 0.1+ | 0.1− | | 2009 11 22 | 691 | 0.1+ | 0.2− | | 2009 12 16 | 704 | 0.1+ | 0.0 | | |
| 2006 03 02 | 703 | 0.0 | 1.1− | | 2009 12 11 | 704 | 1.2− | 1.0− | | 2009 12 16 | 704 | 0.0 | 0.5+ | | |
| 2009 11 13 | J75 | 0.4+ | 1.0− | | 2009 12 11 | 704 | 1.1− | 0.9+ | | 2009 12 16 | 704 | 1.0+ | 0.3+ | | |
| 2009 11 13 | J75 | 0.1+ | 0.2− | | 2009 12 11 | 704 | 0.5− | 0.4− | | 2009 12 16 | 704 | 1.1+ | 0.3+ | | |
| 2009 11 13 | J75 | 0.3+ | 0.3+ | | 2009 12 11 | 703 | 0.5− | 0.2− | | | | | | | |

**2009 VL$_{76}$ = 1996 VB$_{17}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 326.92182 | | (2000.0) | | | |
| $n$ | 0.22981716 | $\omega$ | 251.84365 | | −0.41152558 | −0.89191199 |
| $a$ | 2.6396585 | $\Omega$ | 224.00596 | | +0.90440834 | −0.37421380 |
| $e$ | 0.1229682 | $i$ | 15.65381 | | +0.11265985 | −0.25388389 |
| $P$ | 4.29 | $H$ | 16.1 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 11 06 | 691 | 0.5− | 0.2− | 2007 05 26 | G96 | 0.2+ | 0.3+ | 2009 11 19 | J75 | 0.3+ | 0.6− |
| 1996 11 06 | 691 | 0.7− | 0.1+ | 2007 05 26 | G96 | 0.3+ | 0.2+ | 2009 11 20 | J75 | 0.6+ | 0.7− |
| 1996 11 06 | 691 | 0.5− | 0.0 | 2007 05 26 | G96 | 0.5+ | 0.1+ | 2009 11 20 | J75 | 0.3+ | 0.3− |
| 1996 11 07 | 691 | 0.2+ | 0.6+ | 2007 05 26 | G96 | 0.6+ | 0.0 | 2009 11 23 | G96 | 0.1+ | 0.2− |
| 1996 11 07 | 691 | 0.9+ | 0.5+ | 2008 07 31 | G96 | 0.8+ | 0.1− | 2009 11 23 | G96 | 0.3+ | 0.8− |
| 1996 11 07 | 691 | 0.6+ | 0.1− | 2008 07 31 | G96 | 0.5− | 0.3− | 2009 11 23 | G96 | 0.4+ | 0.2− |
| 2004 09 13 | 644 | 0.4− | 0.3− | 2008 07 31 | G96 | 0.1+ | 0.4− | 2009 11 23 | G96 | 0.6+ | 0.1− |
| 2004 09 13 | 644 | 0.2− | 0.0 | 2008 07 31 | G96 | 0.5− | 0.1− | 2009 12 10 | 703 | 0.7+ | 1.1− |
| 2004 09 13 | 644 | 0.8+ | 0.8+ | 2009 09 19 | G96 | 0.4+ | 0.3+ | 2009 12 10 | 703 | 0.1+ | 1.2+ |
| 2007 04 14 | G96 | 0.2+ | 0.3− | 2009 09 19 | G96 | 0.2+ | 0.2− | 2009 12 10 | 703 | 0.1+ | 0.2− |
| 2007 04 14 | G96 | 0.2+ | 0.0 | 2009 09 19 | G96 | 0.0 | 0.0 | 2009 12 10 | 703 | 0.3− | 0.1− |
| 2007 04 14 | G96 | 0.2+ | 0.0 | 2009 09 19 | G96 | 0.3− | 0.1− | 2009 12 13 | 704 | 0.8− | 0.9− |
| 2007 04 14 | G96 | 0.3− | 0.1+ | 2009 11 15 | 703 | 0.6− | 0.5+ | 2009 12 13 | 704 | 0.1− | 0.1+ |
| 2007 05 10 | 691 | 0.0 | 0.2+ | 2009 11 15 | 703 | 0.3− | 1.0+ | 2009 12 13 | 704 | 0.1− | 0.5+ |
| 2007 05 10 | 691 | 0.2− | 0.2+ | 2009 11 15 | 703 | 0.6+ | 0.7+ | 2009 12 13 | 704 | 0.2− | 0.1+ |
| 2007 05 10 | 691 | 0.3− | 0.4+ | 2009 11 15 | 703 | 1.2− | 0.1+ | 2009 12 13 | 704 | 0.7− | 0.7+ |

**2009 VN$_{76}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 30.80088 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.28317818 | | $\omega$ | 205.94603 | | +0.84096432 | | −0.54105083 | |
| $a$ | 2.2966573 | | $\Omega$ | 186.82027 | | +0.50555628 | | +0.78999871 | |
| $e$ | 0.1703285 | | $i$ | 3.16555 | | +0.19285190 | | +0.28838521 | |
| $P$ | 3.48 | | $H$ | 17.9 | $G$ | 0.15 | $U$ | 4 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 02 10 | G96 | 0.2− | 0.4+ | 2009 10 25 | 691 | 0.2− | 0.4− | 2009 11 19 | J75 | 0.1− | 0.8− |
| 2007 02 10 | G96 | 0.2+ | 0.2− | 2009 10 25 | 691 | 0.6− | 0.3+ | 2009 11 19 | J75 | 0.4− | 0.4+ |
| 2007 02 10 | G96 | 0.2+ | 0.5− | 2009 10 25 | 691 | 0.4+ | 0.0 | 2009 11 22 | 703 | 0.9+ | 0.4+ |
| 2007 02 10 | G96 | 0.6+ | 0.3+ | 2009 11 09 | G96 | 0.4+ | 0.2− | 2009 11 22 | 703 | 0.1+ | 1.4− |
| 2007 03 15 | G96 | 0.3− | 0.6− | 2009 11 09 | G96 | 0.5+ | 0.1+ | 2009 11 22 | 703 | 0.3+ | 0.0 |
| 2007 03 15 | G96 | 0.3− | 0.3+ | 2009 11 09 | G96 | 0.6+ | 0.1− | 2009 11 22 | 703 | 0.7+ | 0.7− |
| 2007 03 15 | G96 | 0.2+ | 0.1− | 2009 11 09 | G96 | 0.1+ | 0.1+ | 2009 11 23 | G96 | 0.1+ | 0.2− |
| 2007 03 15 | G96 | 0.5− | 0.2+ | 2009 11 15 | 703 | 0.6− | 1.3+ | 2009 11 23 | G96 | 0.2+ | 0.0 |
| 2009 09 22 | G96 | 0.4+ | 0.1− | 2009 11 15 | 703 | 0.2− | 0.8+ | 2009 11 23 | G96 | 0.2+ | 0.2− |
| 2009 09 22 | G96 | 0.2+ | 0.5− | 2009 11 15 | 703 | 0.7− | 0.0 | 2009 11 23 | G96 | 0.3+ | 0.1− |
| 2009 09 22 | G96 | 0.2+ | 0.1− | 2009 11 15 | 703 | 0.3+ | 0.0 | | | | |
| 2009 09 22 | G96 | 0.3− | 0.2+ | 2009 11 19 | J75 | 1.3− | 1.2+ | | | | |

**2009 VQ$_{78}$ = 2005 WW$_{54}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 60.26410 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.24387004 | | $\omega$ | 252.73221 | | +0.96463301 | | +0.01093537 | |
| $a$ | 2.5372528 | | $\Omega$ | 106.01549 | | +0.07477766 | | +0.94674043 | |
| $e$ | 0.1547739 | | $i$ | 15.90270 | | −0.25276761 | | +0.32181201 | |
| $P$ | 4.04 | | $H$ | 16.0 | $G$ | 0.15 | $U$ | 3 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 01 28 | 645 | 0.0 | 0.1+ | 2005 11 26 | 703 | 1.0− | 0.2− | 2009 11 09 | 703 | 0.2+ | 0.1+ |
| 2003 01 28 | 645 | 0.0 | 0.0 | 2005 11 26 | 703 | (0.8− | 1.7−) | 2009 11 09 | 703 | 0.9+ | 0.2− |
| 2005 11 24 | 644 | 0.3− | 0.4− | 2005 11 27 | J95 | 0.1− | 0.1+ | 2009 11 19 | J75 | 0.4+ | 0.2− |
| 2005 11 24 | 644 | 0.2− | 0.1− | 2005 11 27 | J95 | 0.1+ | 0.2+ | 2009 11 19 | J75 | 0.0 | 0.1− |
| 2005 11 24 | 644 | 0.1− | 0.2− | 2005 11 27 | J95 | 0.5+ | 0.2+ | 2009 11 19 | J75 | 0.1− | 0.5+ |
| 2005 11 25 | 703 | (2.8− | 1.9−) | 2009 09 21 | 703 | 1.0− | 1.0+ | 2009 11 24 | G96 | 0.4− | 0.6− |
| 2005 11 25 | 703 | (1.1− | 2.5−) | 2009 09 21 | 703 | 0.9− | 0.2− | 2009 11 24 | G96 | 0.3− | 0.5− |
| 2005 11 25 | 703 | (0.2+ | 2.1−) | 2009 09 21 | 703 | 0.2− | 0.4+ | 2009 11 24 | G96 | 0.2− | 0.5− |
| 2005 11 25 | 703 | 0.2− | 1.2− | 2009 09 21 | 703 | 0.9+ | 0.7+ | 2009 12 14 | 704 | 0.1+ | 0.8+ |
| 2005 11 26 | 703 | 0.1− | 0.5− | 2009 11 09 | 703 | 0.1− | 0.4− | 2009 12 14 | 704 | 0.8+ | 0.1+ |
| 2005 11 26 | 703 | 0.1+ | 0.5− | 2009 11 09 | 703 | 0.4− | 0.1− | 2009 12 14 | 704 | 0.3− | 0.1+ |

**2009 VT$_{78}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 16.27322 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.25972282 | | $\omega$ | 321.99361 | | +0.57773939 | | −0.81395383 | |
| $a$ | 2.4329283 | | $\Omega$ | 92.63461 | | +0.76298565 | | +0.51209761 | |
| $e$ | 0.1847722 | | $i$ | 3.48930 | | +0.28994844 | | +0.27429037 | |
| $P$ | 3.79 | | $H$ | 17.7 | $G$ | 0.15 | $U$ | 2 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 03 30 | 645 | 0.1+ | 0.0 | 2009 11 10 | 691 | 0.3− | 0.1− | 2009 11 23 | J75 | 0.3+ | 0.7− |
| 2003 03 30 | 645 | 0.1− | 0.0 | 2009 11 10 | 691 | 0.5− | 0.1+ | 2009 11 26 | 691 | 0.2+ | 0.2− |
| 2005 10 27 | 691 | 0.1− | 0.0 | 2009 11 16 | J75 | 1.0+ | 0.6− | 2009 11 26 | 691 | 0.0 | 0.2+ |
| 2005 10 27 | 691 | 0.1− | 0.0 | 2009 11 16 | J75 | 0.5− | 0.5+ | 2009 11 26 | 691 | 0.3− | 0.1+ |
| 2005 10 27 | 691 | 0.1+ | 0.0 | 2009 11 16 | J75 | 0.3+ | 0.2− | 2009 12 11 | 703 | 1.3− | 1.1− |
| 2005 12 01 | G96 | 0.2+ | 0.2− | 2009 11 20 | A50 | 0.9+ | 0.2+ | 2009 12 11 | 703 | 0.1− | 0.8− |
| 2005 12 01 | G96 | 0.1− | 0.0 | 2009 11 20 | A50 | 0.2+ | 0.6+ | 2009 12 11 | 703 | 0.1+ | 0.9− |
| 2005 12 01 | G96 | 0.2− | 0.2+ | 2009 11 20 | A50 | 1.0+ | 0.5+ | 2009 12 11 | 703 | 0.9+ | 0.0 |
| 2005 12 01 | G96 | 0.8+ | 0.1− | 2009 11 23 | J75 | 0.5− | 0.3− | | | | |
| 2009 11 10 | 691 | 0.2+ | 0.8+ | 2009 11 23 | J75 | 0.5+ | 0.3− | | | | |

**2009 VM$_{79}$ = 2004 RL$_{211}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 159.16382 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.22210685 | | $\omega$ | 350.74497 | | −0.18401196 | | +0.95880988 | |
| $a$ | 2.7003999 | | $\Omega$ | 268.42922 | | −0.88740093 | | −0.25672159 | |
| $e$ | 0.0963626 | | $i$ | 12.50167 | | −0.42268096 | | +0.12156331 | |
| $P$ | 4.44 | | $H$ | 15.8 | $G$ | 0.15 | $U$ | 1 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 11 | 704 | 0.5+ | 0.8+ | 2007 03 20 | 703 | 0.7+ | 0.7− | 2009 11 19 | 291 | 0.8+ | 0.1+ |
| 2004 09 11 | 704 | 0.7+ | 0.3+ | 2007 03 20 | 703 | (0.4− | 1.7+) | 2009 11 19 | 291 | 0.1− | 0.0 |
| 2004 09 11 | 704 | 1.4− | 0.6+ | 2009 10 27 | G96 | 0.2+ | 0.4− | 2009 11 19 | 291 | 0.3− | 0.1+ |
| 2004 09 11 | 704 | 0.3− | 0.8− | 2009 10 27 | G96 | 0.2+ | 0.6− | 2009 11 19 | 291 | 0.2− | 0.1− |
| 2004 09 14 | 704 | 0.8− | 0.5− | 2009 10 27 | G96 | 0.0 | 0.3− | 2009 11 19 | 291 | 0.2− | 0.0 |
| 2004 09 14 | 704 | 0.7+ | 0.6− | 2009 10 27 | G96 | 0.0 | 0.3− | 2009 11 19 | 703 | 0.0 | 0.7− |
| 2004 09 14 | 704 | 0.2+ | 0.6− | 2009 11 10 | 703 | 1.0− | 0.8+ | 2009 11 19 | 703 | 0.5+ | 0.3− |
| 2004 09 14 | 704 | 0.8+ | 0.1− | 2009 11 10 | 703 | 0.6− | 0.8+ | 2009 11 19 | 703 | 0.8+ | 0.5− |
| 2005 12 25 | G96 | 0.0 | 0.0 | 2009 11 10 | 703 | 1.1− | 0.2− | 2009 11 19 | 703 | 0.4+ | 0.7− |
| 2005 12 25 | G96 | (0.4− | 2.2−) | 2009 11 10 | 703 | 1.3+ | 0.0 | 2009 12 20 | G96 | 0.6+ | 0.2− |
| 2005 12 25 | G96 | 0.2+ | 0.1+ | 2009 11 19 | 291 | 0.2− | 0.0 | 2009 12 20 | G96 | 0.0 | 0.1− |
| 2005 12 25 | G96 | (2.7− | 0.3−) | 2009 11 19 | 291 | 0.2+ | 0.2+ | 2009 12 20 | G96 | 0.1+ | 0.3− |
| 2007 03 20 | 703 | 0.6− | 0.3− | 2009 11 19 | 291 | 0.3− | 0.2+ | 2009 12 20 | G96 | 0.5− | 0.0 |
| 2007 03 20 | 703 | 0.6− | 0.0 | 2009 11 19 | 291 | 0.0 | 0.1+ | | | | |

**2009 VZ$_{79}$ = 2005 PS$_{9}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 20.37933 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.27361167 | | $\omega$ | 273.14058 | | +0.57526878 | | −0.78330776 | |
| $a$ | 2.3498833 | | $\Omega$ | 138.64365 | | +0.81727069 | | +0.56228681 | |
| $e$ | 0.2559420 | | $i$ | 20.88721 | | −0.03368166 | | +0.26507075 | |
| $P$ | 3.60 | | $H$ | 17.1 | $G$ | 0.15 | $U$ | 3 | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 08 04 | 644 | 0.3+ | 0.0 | 2005 08 22 | 644 | 0.2− | 0.7+ | 2009 11 19 | E12 | 0.2− | 0.7− |
| 2005 08 04 | 644 | 0.2+ | 0.2− | 2005 08 22 | 644 | 0.1− | 0.8+ | 2009 11 19 | E12 | 0.2+ | 0.4− |
| 2005 08 04 | 644 | 0.2+ | 0.1+ | 2009 11 10 | 703 | 0.5+ | 0.1+ | 2009 11 19 | E12 | 0.5− | 0.4+ |
| 2005 08 05 | 644 | 0.4− | 0.5− | 2009 11 10 | 703 | (0.6+ | 2.0−) | 2009 11 30 | E12 | 0.1− | 0.6+ |
| 2005 08 05 | 644 | 0.0 | 0.0 | 2009 11 10 | 703 | 0.2+ | 0.8− | 2009 11 30 | E12 | 0.1+ | 0.2+ |
| 2005 08 05 | 644 | 0.1+ | 0.5− | 2009 11 10 | 703 | 1.3+ | 0.9− | 2009 11 30 | E12 | 0.1− | 0.3− |
| 2005 08 22 | 644 | 0.1+ | 0.0 | 2009 11 19 | E12 | 0.5− | 0.2− | | | | |

**2009 VC$_{80}$ = 2003 DY$_{6}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 352.35797 | | (2000.0) | | | |
| $n$ | 0.26445241 | $\omega$ | 308.10552 | | +0.23668303 | −0.96085118 |
| $a$ | 2.4038334 | $\Omega$ | 127.59026 | | +0.93859614 | +0.18781629 |
| $e$ | 0.2326482 | $i$ | 10.47301 | | +0.25103470 | +0.20369106 |
| $P$ | 3.73 | $H$ | 17.6 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 12 07 | 645 | 0.0 | 0.0 | 2003 02 24 | 599 | 0.5+ | 0.1+ | 2009 11 11 | 703 | 0.1+ | 0.3+ |
| 2002 12 07 | 645 | 0.0 | 0.0 | 2003 02 24 | 599 | 0.1+ | 0.1− | 2009 11 11 | 703 | 0.9+ | 0.2+ |
| 2003 02 23 | 599 | 0.0 | 0.1− | 2009 10 27 | 703 | 0.6+ | 0.6− | 2009 11 18 | 703 | 0.3+ | 0.2+ |
| 2003 02 23 | 599 | 0.2− | 0.0 | 2009 10 27 | 703 | 0.2+ | 0.1− | 2009 11 18 | 703 | 1.2− | 0.4− |
| 2003 02 23 | 599 | 0.2+ | 0.2+ | 2009 10 27 | 703 | 0.0 | 0.8− | 2009 11 18 | 703 | 0.2− | 0.4+ |
| 2003 02 23 | 599 | 0.1− | 0.3+ | 2009 10 27 | 703 | 0.8− | 1.2+ | 2009 11 18 | 703 | 0.5+ | 0.1+ |
| 2003 02 24 | 599 | 0.0 | 0.5− | 2009 11 11 | 703 | 0.3− | 0.3+ | | | | |
| 2003 02 24 | 599 | 0.4− | 0.3+ | 2009 11 11 | 703 | 0.1− | 0.8− | | | | |

**2009 VD$_{80}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 348.24342 | | (2000.0) | | | |
| $n$ | 0.17818766 | $\omega$ | 292.45011 | | +0.25258229 | −0.95540189 |
| $a$ | 3.1276463 | $\Omega$ | 141.86319 | | +0.95359960 | +0.21902279 |
| $e$ | 0.1803226 | $i$ | 14.34493 | | +0.16385967 | +0.19808140 |
| $P$ | 5.53 | $H$ | 15.6 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 07 14 | 691 | 0.1+ | 0.4+ | 2008 09 06 | G96 | 0.1+ | 0.1− | 2009 10 15 | 703 | 1.4− | 0.1− |
| 1997 07 14 | 691 | 0.1− | 0.6+ | 2008 09 06 | G96 | 0.0 | 0.2+ | 2009 10 15 | 703 | 0.1− | 0.1− |
| 1997 07 14 | 691 | 0.0 | 0.1− | 2008 09 06 | G96 | 0.2− | 0.2+ | 2009 10 15 | 703 | 0.0 | 0.2− |
| 2003 09 24 | 644 | 0.1+ | 0.4+ | 2008 09 06 | G96 | 0.3+ | 0.1+ | 2009 11 11 | 703 | 0.9+ | 0.3+ |
| 2003 09 24 | 644 | 0.2− | 0.0 | 2008 09 23 | G96 | 0.1+ | 0.2− | 2009 11 11 | 703 | 0.4+ | 0.0 |
| 2003 09 24 | 644 | 0.1+ | 0.2− | 2008 09 23 | G96 | 0.1− | 0.4− | 2009 11 11 | 703 | 1.2+ | 0.3+ |
| 2003 09 24 | 644 | 0.2− | 0.2+ | 2008 09 23 | G96 | 0.3+ | 0.1− | 2009 11 11 | 703 | 0.1+ | 1.1+ |
| 2003 09 24 | 644 | 0.0 | 0.3+ | 2008 09 23 | G96 | 0.2− | 0.5− | 2009 11 18 | 703 | 0.7− | 0.1− |
| 2003 09 24 | 644 | 0.0 | 0.2+ | 2009 10 01 | G96 | 0.1− | 0.3− | 2009 11 18 | 703 | 0.8− | 0.1+ |
| 2008 07 30 | G96 | 0.3− | 0.6− | 2009 10 01 | G96 | 0.2+ | 0.4− | 2009 11 18 | 703 | 0.1+ | 0.9− |
| 2008 07 30 | G96 | 0.0 | 0.6− | 2009 10 01 | G96 | 0.2+ | 0.2− | 2009 11 18 | 703 | 0.1− | 0.5+ |
| 2008 07 30 | G96 | 0.4+ | 0.9− | 2009 10 01 | G96 | 0.1+ | 0.6− | | | | |
| 2008 07 30 | G96 | 0.4− | 0.8− | 2009 10 15 | 703 | 0.2+ | 0.1+ | | | | |

**2009 VP$_{80}$ = 2003 US$_{253}$ = 2005 EM$_{74}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 3.59704 | | (2000.0) | | | |
| $n$ | 0.17017648 | $\omega$ | 263.44489 | | +0.46919258 | −0.86464770 |
| $a$ | 3.2250494 | $\Omega$ | 155.86121 | | +0.87799396 | +0.47856209 |
| $e$ | 0.2559523 | $i$ | 26.04542 | | −0.09478886 | +0.15284856 |
| $P$ | 5.79 | $H$ | 15.1 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 22 | 704 | 1.0+ | 0.4+ | 2005 03 09 | G96 | 0.1+ | 0.2+ | 2009 11 11 | 703 | 0.4− | 0.1− |
| 2003 10 22 | 704 | 0.3− | 0.5− | 2005 03 09 | G96 | 0.0 | 0.1− | 2009 11 11 | 703 | 0.1− | 0.4− |
| 2003 10 22 | 704 | 0.2− | 0.2+ | 2005 03 09 | G96 | 0.0 | 0.3+ | 2009 11 11 | 703 | 0.1− | 0.4− |
| 2003 10 26 | 699 | 0.1+ | 0.6− | 2005 04 04 | G96 | 0.3+ | 0.1+ | 2009 11 18 | 703 | 0.5+ | 0.0 |
| 2003 10 26 | 699 | 0.4+ | 0.2− | 2005 04 04 | G96 | 0.1+ | 0.1+ | 2009 11 18 | 703 | 0.4− | 0.4− |
| 2003 10 26 | 699 | 0.3− | 0.2+ | 2005 04 04 | G96 | 0.0 | 0.0 | 2009 11 18 | 703 | (0.5− | 2.2−) |
| 2003 10 26 | 699 | 0.6− | 1.3+ | 2005 04 04 | G96 | 0.0 | 0.2+ | 2009 11 18 | 703 | 0.7+ | 0.3− |
| 2005 03 03 | 703 | 0.4− | 0.1+ | 2009 10 23 | 703 | 0.2− | 0.9− | 2009 12 12 | E12 | 1.5+ | 0.7+ |
| 2005 03 03 | 703 | 0.0 | 0.4+ | 2009 10 23 | 703 | 0.9− | 0.4+ | 2009 12 12 | E12 | 0.5+ | 0.5+ |
| 2005 03 03 | 703 | 0.6+ | 0.0 | 2009 10 23 | 703 | 0.6− | 0.5+ | 2009 12 12 | E12 | 0.0 | 0.1− |
| 2005 03 03 | 703 | 0.5− | 1.1− | 2009 10 23 | 703 | 1.4− | 0.1+ | | | | |
| 2005 03 09 | G96 | 0.0 | 0.3+ | 2009 11 11 | 703 | 1.1+ | 0.2− | | | | |

**2009 VN$_{81}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 22.92244 | | (2000.0) | | | |
| $n$ | 0.23913705 | $\omega$ | 125.98526 | | +0.59195474 | −0.80535787 |
| $a$ | 2.5706215 | $\Omega$ | 287.68904 | | +0.72843750 | +0.55129447 |
| $e$ | 0.0667505 | $i$ | 1.89094 | | +0.34491794 | +0.21788327 |
| $P$ | 4.12 | $H$ | 17.2 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 12 07 | 691 | 0.3− | 0.7+ | 2007 03 14 | G96 | 0.0 | 0.5+ | 2009 11 09 | G96 | 0.6+ | 0.1− |
| 2001 12 07 | 691 | 0.0 | 0.8+ | 2007 03 14 | G96 | 0.2− | 0.1+ | 2009 11 17 | 691 | 0.2− | 0.2+ |
| 2001 12 07 | 691 | 0.1+ | 1.1+ | 2007 03 14 | 691 | 0.2+ | 0.1− | 2009 11 17 | 691 | 0.5− | 0.1+ |
| 2003 04 25 | 691 | (0.7+ | 1.8+) | 2007 03 18 | 691 | 0.7+ | 0.2− | 2009 11 17 | 691 | 0.8− | 0.1− |
| 2003 04 25 | 691 | (0.9+ | 2.0+) | 2007 03 18 | 691 | 0.3− | 0.0 | 2009 11 25 | 691 | 0.2+ | 0.2− |
| 2003 04 25 | 691 | (0.8+ | 1.8+) | 2007 03 18 | 691 | 0.5− | 0.2− | 2009 11 25 | 691 | 0.1+ | 0.2− |
| 2005 12 21 | 691 | 0.3+ | 0.2− | 2008 07 30 | G96 | 0.1− | 0.3+ | 2009 11 25 | 691 | 0.1− | 0.2− |
| 2005 12 21 | 691 | 0.4+ | 0.2− | 2008 07 30 | G96 | 0.0 | 0.5+ | 2009 12 16 | G96 | 0.1+ | 0.5− |
| 2005 12 21 | 691 | 0.5+ | 1.2− | 2008 07 30 | G96 | 0.2+ | 0.1+ | 2009 12 16 | G96 | 0.4+ | 0.1− |
| 2007 03 14 | 691 | 0.2− | 0.2− | 2008 07 30 | G96 | 0.2− | 0.1+ | 2009 12 16 | G96 | 0.3+ | 0.5− |
| 2007 03 14 | G96 | 0.2− | 0.0 | 2009 11 09 | G96 | 0.3+ | 0.2− | 2009 12 16 | G96 | 0.1+ | 0.1− |
| 2007 03 14 | G96 | 0.0 | 0.1− | 2009 11 09 | G96 | 0.5+ | 0.1+ | | | | |
| 2007 03 14 | 691 | 0.1+ | 0.1+ | 2009 11 09 | G96 | 0.4+ | 0.1− | | | | |

**2009 VZ$_{82}$ = 2004 RD$_{219}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 81.29514 | | (2000.0) | | | |
| $n$ | 0.21302265 | $\omega$ | 61.04708 | | +0.76083790 | +0.62235755 |
| $a$ | 2.7766354 | $\Omega$ | 259.84805 | | −0.64120963 | +0.67737376 |
| $e$ | 0.1631523 | $i$ | 10.76394 | | −0.09987943 | +0.39221917 |
| $P$ | 4.63 | $H$ | 16.1 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 11 | 704 | 0.5+ | 0.8+ | 2004 10 06 | 644 | 0.2+ | 0.2+ | 2009 11 09 | 691 | 0.2+ | 0.2+ |
| 2004 09 11 | 704 | 0.2+ | 0.6− | 2004 10 06 | 644 | 0.2+ | 0.1+ | 2009 11 09 | G96 | 0.0 | 0.1+ |
| 2004 09 11 | 704 | 0.7+ | 0.3− | 2009 10 26 | G96 | 0.1+ | 0.5− | 2009 11 09 | G96 | 0.6+ | 0.1− |
| 2004 09 14 | 704 | 0.4+ | 0.1+ | 2009 10 26 | G96 | 0.1+ | 0.7− | 2009 11 09 | G96 | 0.5+ | 0.3− |
| 2004 09 14 | 704 | 0.3− | 0.3− | 2009 10 26 | G96 | 0.1+ | 0.0 | 2009 11 09 | G96 | 0.5+ | 0.1+ |
| 2004 09 14 | 704 | 0.4− | 0.0 | 2009 10 26 | G96 | 0.3+ | 0.2− | 2009 11 18 | 691 | 0.1+ | 0.2+ |
| 2004 09 14 | 704 | 1.5− | 0.1− | 2009 11 09 | 691 | 0.3+ | 0.3+ | 2009 11 18 | 691 | 0.0 | 0.3− |
| 2004 10 06 | 644 | 0.1− | 0.3+ | 2009 11 09 | 691 | 1.2− | 0.2+ | 2009 11 18 | 691 | 0.0 | 0.3− |

**2009 VF$_{84}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 348.45899 | | (2000.0) | | | |
| $n$ | 0.21156471 | $\omega$ | 49.10859 | | −0.03163417 | −0.99753200 |
| $a$ | 2.7893771 | $\Omega$ | 42.82972 | | +0.88706405 | −0.05691872 |
| $e$ | 0.1362015 | $i$ | 5.29050 | | +0.46056123 | +0.04111170 |
| $P$ | 4.66 | $H$ | 16.3 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 01 26 | 645 | 0.0 | 0.1− | 2006 02 01 | 691 | 0.2− | 0.1+ | 2009 11 09 | G96 | 0.2+ | 0.1+ |
| 2001 01 26 | 645 | 0.0 | 0.1− | 2006 03 03 | 699 | 1.3+ | 0.4− | 2009 11 25 | 691 | 0.1− | 0.5− |
| 2002 04 09 | 291 | 0.0 | 0.5+ | 2006 03 03 | 699 | 0.3+ | 0.9+ | 2009 11 25 | 691 | 0.3− | 0.6+ |
| 2002 04 09 | 291 | 0.1+ | 1.4+ | 2006 03 03 | 699 | 0.8+ | 0.3− | 2009 11 25 | 691 | 0.4− | 0.5+ |
| 2002 04 09 | 291 | 0.3− | 0.3+ | 2006 03 03 | 699 | 0.7+ | 0.7+ | 2009 11 25 | 703 | 0.3− | 0.4− |
| 2002 05 14 | 291 | 0.1+ | 0.5+ | 2009 09 20 | G96 | 0.0 | 0.4+ | 2009 11 25 | 703 | 0.1+ | 0.3− |
| 2002 05 14 | 291 | 0.4+ | 0.3− | 2009 09 20 | G96 | 0.2+ | 0.2+ | 2009 11 25 | 703 | 0.4− | 0.1− |
| 2002 05 14 | 291 | 0.6+ | 0.5+ | 2009 09 20 | G96 | 0.1− | 0.3+ | 2009 11 25 | 703 | 1.0− | 0.1+ |
| 2004 09 07 | 691 | 0.1− | 0.2+ | 2009 09 20 | G96 | 0.2+ | 0.4+ | 2009 11 25 | 703 | 0.0 | 0.1− |
| 2004 09 07 | 691 | 0.1+ | 0.2+ | 2009 10 17 | G96 | 0.1+ | 0.3+ | 2009 12 10 | 704 | 0.9+ | 0.9+ |
| 2004 09 07 | 691 | 0.2− | 0.7+ | 2009 10 17 | G96 | 0.4+ | 0.2+ | 2009 12 10 | 704 | 1.4+ | 0.6− |
| 2004 11 10 | 695 | 0.1− | 0.5+ | 2009 10 17 | G96 | 0.0 | 0.3+ | 2009 12 10 | 704 | 0.4+ | 0.1+ |
| 2004 11 10 | 695 | 0.2− | 0.5+ | 2009 11 09 | 691 | 0.2− | 0.3+ | 2009 12 10 | 704 | 0.3+ | 0.2+ |
| 2006 01 23 | 691 | 0.2− | 0.1− | 2009 11 09 | 691 | 0.1− | 0.1+ | 2009 12 16 | G96 | 0.1+ | 0.2+ |
| 2006 01 23 | 691 | 0.2+ | 0.2− | 2009 11 09 | 691 | 0.3− | 0.4+ | 2009 12 16 | G96 | 0.0 | 0.1+ |

2006 01 23 691 0.1− 0.1+ 2009 11 09 G96 0.0 0.3+ 2009 12 16 G96 0.0 0.1−
2006 02 01 691 0.1+ 0.1− 2009 11 09 G96 0.2+ 0.2+ 2009 12 16 G96 0.1− 0.1−
2006 02 01 691 0.1+ 0.1+ 2009 11 09 G96 0.1− 0.0

**2009 VV$_{85}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 47.75625 | | (2000.0) | | +0.96477933 | −0.26196207 |
| $n$ | 0.17610203 | $\omega$ | 166.60414 | | +0.23649713 | +0.90371243 |
| $a$ | 3.1522923 | $\Omega$ | 208.61718 | | +0.11519530 | +0.33864393 |
| $e$ | 0.1150262 | $i$ | 2.87405 | | | |
| $P$ | 5.60 | $H$ | 16.0 | $G$ 0.15 | $U$ | 2 |

Residuals in seconds of arc

2003 09 19 291 0.0 0.2− 2009 09 20 G96 0.1− 0.0 2009 11 18 691 0.3− 0.1−
2003 09 19 291 0.1− 0.0 2009 09 20 G96 0.2+ 0.1+ 2009 11 18 691 0.0 0.0
2003 09 19 291 0.1− 0.1− 2009 09 20 G96 0.0 0.1+ 2009 11 26 691 0.1+ 0.4+
2003 09 29 691 0.1+ 0.2+ 2009 10 21 G96 0.3+ 0.1− 2009 11 26 691 0.2− 0.0
2003 09 29 691 0.1+ 0.0 2009 10 21 G96 0.2− 0.2+ 2009 11 26 691 0.0 0.0
2003 09 29 691 0.0 0.1+ 2009 10 21 G96 0.3− 0.2+ 2009 12 17 G96 0.5+ 0.2+
2007 05 11 G96 0.5+ 0.2+ 2009 10 21 G96 0.3+ 0.3+ 2009 12 17 G96 0.1+ 0.3−
2007 05 11 G96 0.2+ 0.3+ 2009 11 10 691 0.1+ 0.0 2009 12 17 G96 0.2+ 0.1+
2007 05 11 G96 0.1− 0.2+ 2009 11 10 691 0.1+ 0.2− 2009 12 17 G96 0.3+ 0.1+
2007 05 11 G96 0.4− 0.2+ 2009 11 10 691 0.0 0.2+
2009 09 20 G96 0.0 0.1− 2009 11 18 691 0.1− 0.2−

**2009 VZ$_{85}$ = 2005 UD$_{202}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 160.52488 | | (2000.0) | | −0.02599521 | +0.99964160 |
| $n$ | 0.25641974 | $\omega$ | 77.08790 | | −0.92923397 | −0.02652248 |
| $a$ | 2.4537769 | $\Omega$ | 191.42828 | | −0.36857629 | −0.00363646 |
| $e$ | 0.1422140 | $i$ | 1.84996 | | | |
| $P$ | 3.84 | $H$ | 17.0 | $G$ 0.15 | $U$ | 1 |

Residuals in seconds of arc

2005 10 25 691 0.1+ 0.1− 2005 12 04 G96 0.2+ 0.5− 2008 10 02 G96 0.7+ 1.2+
2005 10 25 691 0.1− 0.1+ 2005 12 04 G96 (0.8− 2.9−) 2008 10 02 G96 0.9− 0.7+
2005 10 25 691 0.2− 0.2− 2005 12 04 G96 (1.8+ 1.9−) 2008 10 02 G96 0.0 0.0
2005 10 28 G96 0.3− 0.6− 2007 01 27 G96 0.5+ 0.2+ 2008 10 02 G96 0.1− 0.0
2005 10 28 G96 0.8+ 0.1− 2007 01 27 G96 0.2+ 0.3+ 2009 11 10 691 0.1− 0.2+
2005 10 28 G96 0.1− 0.1+ 2007 01 27 G96 0.0 0.0 2009 11 10 691 0.3− 0.2+
2005 10 28 G96 0.1− 0.5− 2007 01 27 G96 0.1− 0.4+ 2009 11 10 691 0.4+ 0.1−
2005 10 29 691 0.2− 0.0 2007 02 13 G96 0.5− 0.1+ 2009 11 18 691 0.0 0.0
2005 10 29 691 0.2+ 0.2− 2007 02 13 G96 0.0 0.0 2009 11 18 691 0.3− 0.6+
2005 10 29 691 0.2− 0.0 2007 02 13 G96 0.0 0.3+ 2009 11 18 691 0.0 0.2−
2005 11 29 G96 0.3+ 1.1+ 2007 02 13 G96 0.3− 0.2− 2009 11 26 691 0.1− 0.1+
2005 11 29 G96 0.4+ 0.4+ 2007 02 25 G96 0.2+ 0.6+ 2009 11 26 691 0.2+ 0.0
2005 11 29 G96 0.9+ 0.3− 2007 02 25 G96 0.1+ 0.1+ 2009 11 26 691 0.0 0.1−
2005 11 29 G96 0.2− 0.5− 2007 02 25 G96 0.0 1.1−
2005 12 04 G96 0.3+ 0.5− 2007 02 25 G96 0.1+ 0.1+

**2009 VC$_{86}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 54.62262 | | (2000.0) | | +0.99456224 | +0.10413856 |
| $n$ | 0.27139972 | $\omega$ | 172.00583 | | −0.09712733 | +0.92386209 |
| $a$ | 2.3626340 | $\Omega$ | 182.01753 | | −0.03757963 | +0.36828521 |
| $e$ | 0.2712086 | $i$ | 1.71263 | | | |
| $P$ | 3.63 | $H$ | 18.6 | $G$ 0.15 | $U$ | 3 |

Residuals in seconds of arc

2005 07 09 691 0.2+ 0.1− 2005 09 01 691 0.1− 0.5− 2009 11 26 691 0.3− 0.1+
2005 07 09 691 0.1− 0.0 2009 11 10 691 0.0 0.0 2009 11 26 691 0.3− 0.0
2005 07 09 691 0.0 0.2+ 2009 11 10 691 0.0 0.0 2009 12 17 G96 0.1− 0.6+
2005 08 06 644 0.1− 0.2− 2009 11 10 691 0.1− 0.2− 2009 12 17 G96 0.2− 0.1−
2005 08 06 644 0.1− 0.1− 2009 11 18 691 0.1− 0.1+ 2009 12 17 G96 0.1− 0.5−
2005 08 06 644 0.2− 0.3− 2009 11 18 691 0.3+ 0.1+ 2009 12 17 G96 1.0+ 0.1−
2005 09 01 691 0.1+ 0.6+ 2009 11 18 691 0.3+ 0.0
2005 09 01 691 0.0 0.2− 2009 11 26 691 0.0 0.0

**2009 VX$_{86}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 265.93194 | | (2000.0) | | −0.99084894 | +0.12274494 |
| $n$ | 0.26723992 | $\omega$ | 331.77689 | | −0.09825793 | −0.94112762 |
| $a$ | 2.3870884 | $\Omega$ | 215.41235 | | −0.09254057 | −0.31498015 |
| $e$ | 0.1756739 | $i$ | 5.56007 | | | |
| $P$ | 3.69 | $H$ | 17.5 | $G$ 0.15 | $U$ | 4 |

Residuals in seconds of arc

2005 10 25 G96 0.6+ 0.5− 2005 11 25 G96 0.4+ 0.1− 2009 11 10 691 0.0 0.3−
2005 10 25 G96 0.4+ 0.6− 2005 11 25 G96 0.7+ 0.5− 2009 11 10 691 0.5+ 0.5−
2005 10 25 G96 0.3+ 0.5− 2005 11 25 G96 0.2+ 0.8− 2009 11 22 691 0.9− 0.4−
2005 10 25 G96 0.6+ 0.0 2007 03 19 699 0.2− 0.1− 2009 11 22 691 0.3− 0.5+
2005 10 25 291 0.5− 0.1+ 2007 03 19 699 0.3− 0.5− 2009 11 22 691 0.0 0.1−
2005 10 25 291 0.0 0.5+ 2007 03 19 699 0.0 0.5+ 2009 11 26 691 0.1+ 0.1+
2005 10 25 291 0.3− 0.1+ 2007 03 19 699 0.6+ 0.0 2009 11 26 691 0.1+ 0.3+
2005 11 25 G96 0.5+ 0.0 2009 11 10 691 0.6+ 0.3+ 2009 11 26 691 0.1− 0.2+

**2009 VC$_{87}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 34.75998 | | (2000.0) | | +0.90274333 | −0.43014381 |
| $n$ | 0.21710145 | $\omega$ | 200.05704 | | +0.40224993 | +0.84863352 |
| $a$ | 2.7417482 | $\Omega$ | 185.42936 | | +0.15247777 | +0.30789195 |
| $e$ | 0.2021536 | $i$ | 3.36164 | | | |
| $P$ | 4.54 | $H$ | 17.2 | $G$ 0.15 | $U$ | 0 |

Residuals in seconds of arc

1995 09 02 691 0.2+ 0.6− 2006 01 09 691 0.3+ 0.1+ 2009 11 10 691 0.0 0.1−
1995 09 02 691 0.1+ 0.5− 2006 02 01 G96 0.1− 0.4− 2009 11 18 691 0.2− 0.0
1995 09 02 691 0.1+ 0.6− 2006 02 01 G96 0.6+ 0.4− 2009 11 18 691 0.1− 0.0
2004 09 07 691 0.1+ 0.5+ 2006 02 01 G96 0.2− 0.4− 2009 11 18 691 0.1− 0.0
2004 09 07 691 0.0 0.4+ 2006 02 01 G96 0.2− 0.1+ 2009 11 18 691 0.1− 0.0
2004 09 07 691 0.2− 0.4+ 2007 04 18 G96 0.1+ 0.7+ 2009 11 18 691 0.1− 0.0
2004 10 07 691 0.2− 0.0 2007 04 18 G96 0.7− 0.3− 2009 11 18 691 0.0 0.1+
2004 10 07 691 0.1+ 0.1+ 2007 04 18 G96 0.2− 0.4+ 2009 11 26 691 0.1− 0.1−
2004 10 07 691 0.0 0.3+ 2007 04 18 G96 0.5− 0.2+ 2009 11 26 691 0.1− 0.2+
2006 01 09 691 0.0 0.1− 2009 11 10 691 0.0 0.1− 2009 11 26 691 0.1+ 0.1+
2006 01 09 691 0.1+ 0.1+ 2009 11 10 691 0.2+ 0.1−

**2009 VJ$_{87}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 34.45045 | | (2000.0) | | +0.82782029 | −0.55546180 |
| $n$ | 0.21144610 | $\omega$ | 285.94433 | | +0.54110043 | +0.75361917 |
| $a$ | 2.7904201 | $\Omega$ | 107.85973 | | +0.14806717 | +0.35145461 |
| $e$ | 0.0992300 | $i$ | 4.73600 | | | |
| $P$ | 4.66 | $H$ | 17.1 | $G$ 0.15 | $U$ | 4 |

Residuals in seconds of arc

2006 01 30 691 0.1− 0.2− 2009 11 10 691 0.4+ 0.2+ 2009 11 26 691 0.1− 0.3−
2006 01 30 691 0.1+ 0.2− 2009 11 10 691 0.1+ 0.1+ 2009 12 17 G96 0.3+ 0.5+
2006 01 30 691 0.4− 0.1− 2009 11 18 691 0.6− 0.4− 2009 12 17 G96 0.5+ 0.3+
2006 02 07 691 0.2+ 0.3+ 2009 11 18 691 0.1+ 0.3+ 2009 12 17 G96 0.5+ 0.3+
2006 02 07 691 0.2+ 0.2+ 2009 11 18 691 0.3+ 0.3− 2009 12 17 G96 0.1+ 0.3+
2006 02 07 691 0.1− 0.0 2009 11 26 691 0.2− 0.3−
2009 11 10 691 0.3− 0.4+ 2009 11 26 691 0.0 0.0

**2009 VN$_{87}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 68.13137 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21548455 | $\omega$ | 179.53589 | | +0.99735923 | +0.07250080 | |
| $a$ | 2.7554464 | $\Omega$ | 176.29837 | | −0.06684427 | +0.93933723 | |
| $e$ | 0.1098951 | $i$ | 3.78816 | | −0.02839725 | +0.33524499 | |
| $P$ | 4.57 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 09 | 691 | 0.1− | 0.2− | 2007 04 19 | G96 | 0.3+ | 0.1− | 2009 11 18 | 691 | 0.0 | 0.2+ |
| 2004 10 09 | 691 | 0.2− | 0.1− | 2007 04 19 | G96 | 0.2− | 0.2+ | 2009 11 18 | 691 | 0.2− | 0.2− |
| 2004 10 09 | 691 | 0.1− | 0.1− | 2007 04 19 | G96 | 0.1+ | 0.2− | 2009 11 26 | 691 | 0.7+ | 0.2+ |
| 2004 11 05 | 691 | 0.5+ | 0.2+ | 2009 11 10 | 691 | 0.2− | 0.1− | 2009 11 26 | 691 | 0.1+ | 0.4− |
| 2004 11 05 | 691 | 0.1− | 0.2+ | 2009 11 10 | 691 | 0.1+ | 0.1+ | 2009 11 26 | 691 | 0.3− | 0.2− |
| 2004 11 05 | 691 | 0.1− | 0.3+ | 2009 11 10 | 691 | 0.0 | 0.2+ | | | | |
| 2007 04 19 | G96 | 0.0 | 1.0+ | 2009 11 18 | 691 | 0.3− | 0.2+ | | | | |

**2009 VB$_{88}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 33.72351 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23683796 | $\omega$ | 66.18637 | | +0.87348665 | −0.48611692 | |
| $a$ | 2.5872308 | $\Omega$ | 322.88370 | | +0.42904570 | +0.79451565 | |
| $e$ | 0.2409696 | $i$ | 2.53335 | | +0.23008882 | +0.36391650 | |
| $P$ | 4.16 | $H$ | 17.4 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 04 | 691 | 0.1− | 0.3− | 2009 11 22 | 691 | 0.3− | 0.2− | 2009 12 18 | G96 | 0.1− | 0.0 |
| 2005 12 04 | 691 | 0.2+ | 0.4+ | 2009 11 22 | 691 | 0.2− | 0.0 | 2009 12 18 | G96 | 0.3− | 0.2− |
| 2005 12 04 | 691 | 0.0 | 0.1+ | 2009 11 22 | 691 | 0.6− | 0.0 | 2009 12 18 | G96 | 0.0 | 0.0 |
| 2005 12 24 | 691 | 0.0 | 0.1− | 2009 12 09 | J75 | 1.2+ | 0.5− | 2009 12 18 | G96 | 0.2− | 0.1+ |
| 2005 12 24 | 691 | 0.1+ | 0.0 | 2009 12 09 | J75 | 1.3+ | 0.3+ | 2009 12 18 | G96 | 0.3+ | 0.1+ |
| 2005 12 24 | 691 | 0.2− | 0.1− | 2009 12 09 | J75 | 0.3− | 0.0 | 2009 12 18 | G96 | 0.2− | 0.2− |
| 2009 11 10 | 691 | 0.2+ | 0.1+ | 2009 12 10 | 704 | 1.4+ | 0.2− | 2009 12 18 | G96 | 0.2− | 0.2+ |
| 2009 11 10 | 691 | 0.3+ | 0.1− | 2009 12 10 | 704 | 0.9+ | 1.0+ | 2009 12 18 | G96 | 0.3− | 0.1− |
| 2009 11 10 | 691 | 0.0 | 0.1+ | 2009 12 10 | 704 | 1.0− | 0.2− | | | | |

**2009 VG$_{88}$ = 2005 WH$_{78}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 186.04137 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24216411 | $\omega$ | 343.34657 | | −0.26756994 | +0.95359722 | |
| $a$ | 2.5491547 | $\Omega$ | 270.97045 | | −0.86754376 | −0.30076980 | |
| $e$ | 0.1268434 | $i$ | 7.93635 | | −0.41925429 | +0.01377924 | |
| $P$ | 4.07 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 11 25 | 691 | 0.3+ | 0.4− | 2007 03 20 | 703 | 0.7+ | 0.2+ | 2009 11 18 | 691 | 0.3− | 0.0 |
| 2005 11 25 | 691 | 0.4+ | 0.2− | 2007 03 20 | 703 | 0.4− | 0.5− | 2009 12 11 | G96 | 0.3+ | 0.3+ |
| 2005 11 25 | 691 | 0.1+ | 0.2− | 2007 03 20 | 703 | 0.4− | 0.4+ | 2009 12 11 | G96 | 0.1− | 0.0 |
| 2005 11 29 | 691 | 0.0 | 0.1− | 2007 03 20 | 703 | 0.0 | 0.2− | 2009 12 11 | G96 | 0.0 | 0.3+ |
| 2005 11 29 | 691 | 0.7+ | 0.1+ | 2009 11 10 | 691 | 0.1− | 0.3− | 2009 12 11 | G96 | 0.0 | 0.1+ |
| 2005 11 29 | 691 | 0.0 | 0.2− | 2009 11 10 | 691 | 0.2+ | 0.4+ | 2009 12 18 | G96 | 0.0 | 0.2− |
| 2005 12 07 | 691 | 0.2− | 0.1− | 2009 11 10 | 691 | 0.1+ | 0.1− | 2009 12 18 | G96 | 0.6+ | 0.2− |
| 2005 12 07 | 691 | 0.1+ | 0.1+ | 2009 11 18 | 691 | 0.2− | 0.1+ | 2009 12 18 | G96 | 0.1+ | 0.9− |
| 2005 12 07 | 691 | 1.5− | 1.0+ | 2009 11 18 | 691 | 0.1− | 0.0 | 2009 12 18 | G96 | 0.4+ | 0.1− |

**2009 VQ$_{88}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 162.60322 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.20396274 | $\omega$ | 336.25119 | | +0.19330620 | +0.97894200 | |
| $a$ | 2.8582628 | $\Omega$ | 304.83283 | | −0.88688657 | +0.14574461 | |
| $e$ | 0.0358936 | $i$ | 4.58498 | | −0.41960092 | +0.14293729 | |
| $P$ | 4.83 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 01 26 | 691 | 0.1− | 0.3+ | 2006 01 26 | 691 | 0.4+ | 0.2+ | 2008 10 08 | G96 | 0.4+ | 0.2+ |
| 2001 01 26 | 691 | 0.1+ | 0.4+ | 2006 01 26 | 691 | 0.2+ | 0.1+ | 2008 10 08 | G96 | 0.1+ | 0.2+ |
| 2001 01 26 | 691 | 0.1+ | 0.4+ | 2006 01 26 | 691 | 0.4+ | 0.5+ | 2009 11 10 | 691 | 0.0 | 0.0 |
| 2003 07 25 | 644 | 0.6− | 1.1+ | 2006 03 03 | G96 | 0.2+ | 0.0 | 2009 11 10 | 691 | 0.3− | 0.2− |
| 2003 07 25 | 644 | 0.2− | 0.5+ | 2006 03 03 | G96 | 0.0 | 0.2+ | 2009 11 10 | 691 | 0.2− | 0.2+ |
| 2003 07 25 | 644 | 0.0 | 0.6+ | 2006 03 03 | G96 | 0.1− | 0.0 | 2009 11 18 | 691 | 0.0 | 0.2+ |
| 2003 10 01 | 691 | 0.2− | 0.0 | 2006 03 03 | G96 | 0.2+ | 0.1+ | 2009 11 18 | 691 | 0.1− | 0.1+ |
| 2003 10 01 | 691 | 0.9− | 0.0 | 2008 09 05 | 691 | 0.2− | 0.2+ | 2009 11 18 | 691 | 0.0 | 0.1+ |
| 2003 10 01 | 691 | 0.1+ | 0.1− | 2008 09 05 | 691 | 0.2+ | 0.7+ | 2009 11 26 | 691 | 0.2+ | 0.2+ |
| 2004 11 11 | 691 | 0.4+ | 0.7− | 2008 09 05 | 691 | 0.3− | 0.5+ | 2009 11 26 | 691 | 0.4+ | 0.1− |
| 2004 11 11 | 691 | 0.5+ | 0.6− | 2008 09 25 | G96 | 0.1− | 0.2− | 2009 11 26 | 691 | 1.4− | 0.6+ |
| 2004 11 11 | 691 | 0.0 | 0.0 | 2008 09 25 | G96 | 0.1+ | 0.2+ | 2009 12 11 | G96 | 0.1+ | 0.0 |
| 2004 12 14 | 703 | 1.8+ | 0.3− | 2008 09 25 | G96 | 0.2− | 0.5+ | 2009 12 11 | G96 | 0.1+ | 0.0 |
| 2004 12 14 | 703 | 0.6− | 0.0 | 2008 09 25 | G96 | 0.6+ | 0.2+ | 2009 12 11 | G96 | 0.0 | 0.2+ |
| 2004 12 14 | 703 | 0.1+ | 0.9− | 2008 10 08 | G96 | 0.1+ | 0.5+ | 2009 12 11 | G96 | 0.0 | 0.1+ |
| 2004 12 14 | 703 | 0.3+ | 1.0− | 2008 10 08 | G96 | 0.4+ | 0.3− | | | | |

**2009 VU$_{88}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 335.68679 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26608742 | $\omega$ | 213.61926 | | +0.00391734 | −0.99983843 | |
| $a$ | 2.3939761 | $\Omega$ | 236.16217 | | +0.92206385 | +0.01040113 | |
| $e$ | 0.1597767 | $i$ | 1.21021 | | +0.38701797 | −0.01466030 | |
| $P$ | 3.70 | $H$ | 18.3 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 09 13 | 691 | 0.5+ | 0.1+ | 2007 02 25 | G96 | 0.5+ | 0.4− | 2009 10 25 | 691 | 0.3− | 1.1− |
| 1994 09 13 | 691 | 0.0 | 0.7− | 2007 03 09 | 691 | 0.1− | 0.2− | 2009 11 11 | 691 | 0.4− | 0.2+ |
| 1994 09 13 | 691 | 0.1− | 0.5− | 2007 03 09 | 691 | 0.2− | 0.1+ | 2009 11 11 | 691 | 0.0 | 0.3+ |
| 1998 11 27 | 691 | 1.2+ | 0.4− | 2007 03 09 | 691 | 0.1+ | 0.1+ | 2009 11 11 | 691 | 0.2− | 0.2+ |
| 1998 11 27 | 691 | 0.5− | 0.6− | 2009 10 21 | G96 | 0.4+ | 0.2− | 2009 11 19 | 691 | 0.0 | 0.5+ |
| 1998 11 27 | 691 | 0.3− | 0.8− | 2009 10 21 | G96 | 0.3+ | 0.0 | 2009 11 19 | 691 | 0.6− | 0.7+ |
| 2007 02 25 | G96 | 0.1− | 0.3+ | 2009 10 21 | G96 | 0.4+ | 0.9+ | 2009 11 19 | 691 | 0.3− | 0.4+ |
| 2007 02 25 | G96 | 0.3+ | 0.2− | 2009 10 25 | 691 | 1.0+ | 0.9+ | | | | |
| 2007 02 25 | G96 | 0.2+ | 0.0 | 2009 10 25 | 691 | 0.3− | 0.2+ | | | | |

**2009 VD$_{89}$ = 2006 AU$_{41}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 13.37024 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21299087 | $\omega$ | 144.73151 | | +0.59677802 | −0.79706913 | |
| $a$ | 2.7769116 | $\Omega$ | 268.45237 | | +0.71333432 | +0.57973117 | |
| $e$ | 0.0399124 | $i$ | 5.30333 | | +0.36743726 | +0.16909336 | |
| $P$ | 4.63 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 28 | 691 | 0.1+ | 0.1− | 2006 01 08 | G96 | 0.3+ | 0.1− | 2009 11 11 | 691 | 0.2+ | 0.1− |
| 2005 12 28 | 691 | 0.3− | 0.1+ | 2008 07 29 | G96 | 0.1− | 0.1+ | 2009 11 11 | 691 | 0.1+ | 0.1− |
| 2005 12 28 | 691 | 0.0 | 0.4+ | 2008 07 29 | G96 | 0.2+ | 0.2+ | 2009 11 26 | 691 | 0.0 | 0.3+ |
| 2006 01 05 | 691 | 0.2+ | 0.0 | 2008 07 29 | G96 | 0.1− | 0.0 | 2009 11 26 | 691 | 0.2− | 0.4− |
| 2006 01 05 | 691 | 0.2+ | 0.1− | 2008 07 29 | G96 | 0.3− | 0.5+ | 2009 11 26 | 691 | 0.0 | 0.2+ |
| 2006 01 05 | 691 | 0.2− | 0.1+ | 2009 10 26 | 691 | 0.3− | 0.1− | 2009 12 17 | G96 | 0.8+ | 0.2+ |
| 2006 01 08 | G96 | 0.1+ | 0.3− | 2009 10 26 | 691 | 0.4− | 0.2+ | 2009 12 17 | G96 | 0.2+ | 0.2− |
| 2006 01 08 | G96 | 0.0 | 0.3− | 2009 10 26 | 691 | 0.1− | 0.1+ | 2009 12 17 | G96 | 0.4+ | 0.1− |
| 2006 01 08 | G96 | 0.4+ | 0.2− | 2009 11 11 | 691 | 0.3+ | 0.1− | 2009 12 17 | G96 | 0.2+ | 0.3− |

**2009 VT$_{89}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 209.15950 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23306613 | $\omega$ | 286.22268 | | −0.73239125 | +0.67560225 | |
| $a$ | 2.6150697 | $\Omega$ | 296.36532 | | −0.58304817 | −0.68649338 | |
| $e$ | 0.0567965 | $i$ | 5.42088 | | −0.35165024 | −0.26886508 | |
| $P$ | 4.23 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 02 | 691 | 0.0 | 0.3+ | 2006 01 27 | G96 | 0.3− | 0.5+ | 2009 11 11 | 691 | 0.1+ | 0.3+ |
| 2005 12 02 | 691 | 0.2− | 0.1− | 2006 01 27 | G96 | 0.0 | 0.1+ | 2009 11 19 | 691 | 0.0 | 0.1− |
| 2005 12 02 | 691 | 0.2+ | 0.2− | 2006 01 27 | G96 | 0.1+ | 0.3− | 2009 11 19 | 691 | 0.2− | 0.1− |
| 2005 12 29 | G96 | 0.0 | 0.1+ | 2007 03 20 | 691 | 0.1− | 0.3+ | 2009 11 19 | 691 | 0.3− | 0.0 |
| 2005 12 29 | G96 | 0.5+ | 0.3− | 2007 03 20 | 691 | 0.1+ | 0.1− | 2009 11 27 | 691 | 0.3+ | 0.1− |
| 2005 12 29 | G96 | 0.0 | 0.1− | 2007 03 20 | 691 | 0.0 | 0.2− | 2009 11 27 | 691 | 0.0 | 0.3+ |
| 2005 12 29 | G96 | 0.2− | 0.1+ | 2009 11 11 | 691 | 0.1− | 0.1− | 2009 11 27 | 691 | 0.1− | 0.2− |
| 2006 01 27 | G96 | 0.1− | 0.0 | 2009 11 11 | 691 | 0.2+ | 0.1+ | | | | |

**2009 VA$_{91}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 299.11431 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23952334 | $\omega$ | 132.62931 | | −0.74954359 | | −0.66191290 |
| $a$ | 2.5678569 | $\Omega$ | 5.93873 | | +0.58426101 | | −0.66682808 |
| $e$ | 0.0285014 | $i$ | 4.13732 | | +0.31116471 | | −0.34236184 |
| $P$ | 4.11 | $H$ | 17.7 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 10 | 691 | 0.1+ | 0.0 | 2007 04 18 | G96 | 0.1− | 0.2+ | 2009 11 19 | 691 | 0.2− | 0.2− |
| 2005 12 10 | 691 | 0.0 | 0.1− | 2007 04 18 | G96 | 0.1+ | 0.3− | 2009 11 19 | 691 | 0.1+ | 0.1+ |
| 2005 12 10 | 691 | 0.1− | 0.3− | 2007 04 18 | G96 | 0.2− | 0.1− | 2009 11 27 | 691 | 0.2+ | 0.0 |
| 2007 03 26 | 691 | 0.1+ | 0.0 | 2009 11 11 | 691 | 0.2+ | 0.7+ | 2009 11 27 | 691 | 0.3− | 0.1− |
| 2007 03 26 | 691 | 0.0 | 0.4+ | 2009 11 11 | 691 | 0.1+ | 0.3− | 2009 11 27 | 691 | 0.2− | 0.2− |
| 2007 03 26 | 691 | 0.1− | 0.2− | 2009 11 11 | 691 | 0.1− | 0.3+ | | | | |
| 2007 04 18 | G96 | 0.4+ | 0.3+ | 2009 11 19 | 691 | 0.2+ | 0.1+ | | | | |

**2009 VR$_{91}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 356.04148 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.20596886 | $\omega$ | 75.71586 | | +0.33764169 | | −0.94100398 |
| $a$ | 2.8396730 | $\Omega$ | 354.39481 | | +0.74970588 | | +0.28334875 |
| $e$ | 0.2691644 | $i$ | 13.36304 | | +0.56915656 | | +0.18499999 |
| $P$ | 4.79 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 15 | 691 | 0.1− | 0.1− | 2006 02 27 | 691 | 0.2− | 0.0 | 2009 11 08 | 703 | 0.6− | 0.6− |
| 2004 09 15 | 691 | 0.0 | 0.2+ | 2006 03 24 | G96 | 0.0 | 0.4+ | 2009 11 08 | 703 | 0.8+ | 1.0+ |
| 2004 09 15 | 691 | 0.1− | 0.2+ | 2006 03 24 | G96 | 0.2+ | 0.7+ | 2009 11 08 | 703 | 0.5+ | 0.5− |
| 2006 02 01 | G96 | 0.3− | 0.6− | 2006 03 24 | G96 | 0.4+ | 0.3− | 2009 11 08 | 703 | 0.3− | 0.2+ |
| 2006 02 01 | G96 | 0.0 | 0.4− | 2006 03 24 | G96 | 0.1− | 0.3+ | 2009 11 18 | J75 | 0.3+ | 0.0 |
| 2006 02 01 | G96 | 0.1− | 0.2− | 2009 10 30 | G96 | 0.3− | 0.1+ | 2009 11 18 | J75 | 0.8− | 0.1+ |
| 2006 02 01 | G96 | 0.1+ | 0.6+ | 2009 10 30 | G96 | 0.3− | 0.1+ | 2009 11 18 | J75 | 0.0 | 0.3− |
| 2006 02 27 | 691 | 0.3+ | 0.0 | 2009 10 30 | G96 | 0.7+ | 0.2− | | | | |
| 2006 02 27 | 691 | 0.1+ | 0.1+ | 2009 10 30 | G96 | 0.0 | 0.2− | | | | |

**2009 VG$_{92}$ = 2002 AS$_{142}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 17.76206 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23759293 | $\omega$ | 177.73093 | | +0.58837830 | | −0.80747257 |
| $a$ | 2.5817472 | $\Omega$ | 236.22402 | | +0.74105701 | | +0.55948358 |
| $e$ | 0.1338128 | $i$ | 2.92493 | | +0.32348954 | | +0.18699246 |
| $P$ | 4.15 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 01 13 | 704 | 0.2+ | 0.7− | 2005 12 28 | 691 | 0.1+ | 0.1− | 2009 11 23 | J75 | 0.1+ | 0.1− |
| 2002 01 13 | 704 | 0.2+ | 0.5+ | 2009 11 08 | 691 | 0.0 | 0.2− | 2009 11 24 | J75 | 0.5+ | 0.5− |
| 2002 01 13 | 704 | 0.0 | 0.9+ | 2009 11 08 | 691 | 0.1− | 0.1+ | 2009 12 16 | G96 | 0.1− | 0.3+ |
| 2002 01 15 | 704 | 0.0 | 0.2− | 2009 11 08 | 691 | 0.3+ | 0.6+ | 2009 12 16 | G96 | 0.3− | 0.2− |
| 2002 01 15 | 704 | 0.2− | 0.3+ | 2009 11 16 | 691 | 0.0 | 0.2− | 2009 12 16 | G96 | 0.2− | 0.0 |
| 2002 01 15 | 704 | 0.2+ | 0.7+ | 2009 11 16 | 691 | 0.3+ | 0.1+ | 2009 12 16 | G96 | 0.1+ | 0.2+ |
| 2005 12 28 | 691 | 0.0 | 0.3− | 2009 11 16 | 691 | 0.7− | 0.0 | | | | |
| 2005 12 28 | 691 | 0.1− | 0.1− | 2009 11 23 | J75 | 0.6+ | 0.4− | | | | |

**2009 VJ$_{92}$ = 2003 UM$_{219}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 312.07089 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.16969210 | $\omega$ | 248.40387 | | −0.46269102 | | −0.86555766 |
| $a$ | 3.2311835 | $\Omega$ | 230.61725 | | +0.87708545 | | −0.41548973 |
| $e$ | 0.1249851 | $i$ | 14.35594 | | +0.12898886 | | −0.27960369 |
| $P$ | 5.81 | $H$ | 15.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 21 | 691 | 0.1− | 0.2+ | 2009 10 24 | 691 | 0.1− | 0.0 | 2009 11 24 | G96 | 0.1+ | 0.1− |
| 2003 10 21 | 691 | 0.1− | 0.1+ | 2009 11 08 | 703 | 0.0 | 0.6+ | 2009 11 24 | G96 | 0.2+ | 0.2− |
| 2003 10 21 | 691 | 0.1− | 0.2+ | 2009 11 08 | 703 | 0.3+ | 0.3+ | 2009 11 24 | G96 | 0.4+ | 0.1+ |
| 2003 10 25 | 704 | 0.3− | 1.3+ | 2009 11 08 | 703 | 0.2+ | 0.3− | 2009 11 24 | G96 | 0.1+ | 0.1− |
| 2003 10 25 | 704 | 0.7+ | 0.4+ | 2009 11 08 | G96 | 0.7+ | 0.0 | 2009 12 10 | G96 | 0.1+ | 0.4− |
| 2003 10 25 | 704 | 0.5+ | 0.1+ | 2009 11 08 | G96 | 0.5+ | 0.1− | 2009 12 10 | G96 | 0.2+ | 0.4− |
| 2003 10 25 | 704 | 0.1− | 1.0+ | 2009 11 08 | G96 | 0.2+ | 0.1− | 2009 12 10 | G96 | 0.2+ | 0.3− |
| 2006 06 01 | G96 | 0.1− | 0.1+ | 2009 11 08 | G96 | 0.1− | 0.2+ | 2009 12 10 | 703 | 1.0− | 2.0− |
| 2006 06 01 | G96 | 0.0 | 0.1+ | 2009 11 15 | 703 | (0.0 | 1.9+) | 2009 12 10 | G96 | 0.1+ | 0.2− |
| 2006 06 01 | G96 | 0.0 | 0.3+ | 2009 11 15 | 703 | 0.9+ | 0.0 | 2009 12 10 | 703 | 0.2+ | 0.1− |
| 2006 06 01 | G96 | 0.0 | 0.2− | 2009 11 15 | 703 | (1.9+ | 0.2+) | 2009 12 10 | 703 | 1.0− | 0.6− |
| 2008 09 26 | G96 | 0.2+ | 0.4− | 2009 11 15 | 703 | 0.3+ | 0.2+ | 2009 12 10 | 703 | 0.2− | 0.5− |
| 2008 09 26 | G96 | 0.1+ | 0.3− | 2009 11 23 | 703 | 1.1+ | 1.4+ | 2009 12 15 | G96 | 0.1+ | 0.3− |
| 2008 09 26 | G96 | 0.0 | 0.5− | 2009 11 23 | 703 | 0.4− | 0.1+ | 2009 12 15 | G96 | 0.2+ | 0.2− |
| 2008 09 26 | G96 | 0.5+ | 0.5− | 2009 11 23 | 703 | 0.7− | 0.5+ | 2009 12 15 | G96 | 0.7+ | 0.1− |
| 2009 10 24 | 691 | 0.2− | 0.1− | 2009 11 23 | 703 | 1.0− | 0.0 | 2009 12 15 | G96 | 0.2+ | 0.3− |
| 2009 10 24 | 691 | 0.2− | 0.0 | 2009 11 23 | 703 | 0.5− | 0.9− | | | | |

**2009 VM$_{92}$ = 2006 BD$_{189}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 44.07072 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17799227 | $\omega$ | 234.98796 | | +0.99373668 | | −0.04781662 |
| $a$ | 3.1299348 | $\Omega$ | 127.54023 | | +0.07823954 | | +0.94304670 |
| $e$ | 0.1397538 | $i$ | 7.31800 | | −0.07978717 | | +0.32920586 |
| $P$ | 5.54 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 11 | 691 | 0.1+ | 0.2− | 2006 02 01 | 691 | 0.5+ | 0.2− | 2009 11 10 | G96 | 0.7+ | 0.3− |
| 2004 12 11 | 691 | 0.2+ | 0.2+ | 2009 10 18 | 703 | 1.0− | 0.4+ | 2009 11 19 | J75 | 0.3+ | 0.4− |
| 2004 12 11 | 691 | 0.3− | 0.2+ | 2009 10 18 | 703 | 0.1− | 0.2+ | 2009 11 19 | J75 | 0.1− | 0.1+ |
| 2006 01 28 | 691 | 0.2+ | 0.4+ | 2009 10 18 | 703 | 0.3− | 0.1− | 2009 11 19 | J75 | 0.0 | 0.0 |
| 2006 01 28 | 691 | 0.4− | 0.0 | 2009 10 18 | 703 | 0.0 | 0.7+ | 2009 11 26 | 291 | 0.3− | 0.6− |
| 2006 01 28 | 691 | 0.6− | 0.3+ | 2009 11 10 | G96 | 0.3+ | 0.0 | 2009 11 26 | 291 | 0.2+ | 0.1+ |
| 2006 02 01 | 691 | 0.3+ | 0.2− | 2009 11 10 | G96 | 0.4+ | 0.1− | 2009 11 26 | 291 | 0.1+ | 0.2+ |
| 2006 02 01 | 691 | 0.0 | 0.4− | 2009 11 10 | G96 | 0.2+ | 0.1− | | | | |

**2009 VN$_{92}$ = 2003 SX$_{88}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 27.32808 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18334483 | $\omega$ | 3.15831 | | +0.83714001 | | −0.53855597 |
| $a$ | 3.0687177 | $\Omega$ | 30.05555 | | +0.49757278 | | +0.67711895 |
| $e$ | 0.0777495 | $i$ | 11.01308 | | +0.22719579 | | +0.50146525 |
| $P$ | 5.38 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 18 | 699 | (1.6− | 0.3+) | 2009 11 10 | 703 | 0.2− | 0.4+ | 2009 11 22 | 691 | 0.2− | 0.2+ |
| 2003 09 18 | 699 | (0.3− | 1.5−) | 2009 11 10 | 703 | 0.2− | 0.1+ | 2009 11 22 | 691 | 0.1− | 0.0 |
| 2003 09 18 | 699 | (1.6+ | 2.1+) | 2009 11 10 | 703 | 0.9+ | 0.4+ | 2009 11 22 | 691 | 1.2+ | 0.9− |
| 2003 09 18 | 699 | 0.7− | 0.3+ | 2009 11 10 | 703 | 0.5− | 0.1+ | 2009 12 20 | G96 | 0.1− | 0.1+ |
| 2003 09 20 | 644 | 0.3+ | 0.1− | 2009 11 18 | 691 | 0.5− | 0.0 | 2009 12 20 | G96 | 0.0 | 0.2+ |
| 2003 09 20 | 644 | 0.3+ | 0.2− | 2009 11 18 | 691 | 0.1− | 0.1+ | 2009 12 20 | G96 | 0.1+ | 0.3+ |
| 2003 09 20 | 644 | 0.2+ | 0.1+ | 2009 11 18 | 691 | 0.3− | 0.1+ | 2009 12 20 | G96 | 0.1− | 0.3+ |

**2009 VO$_{92}$ = 2002 XZ$_{28}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 343.61946 | | (2000.0) | | | |
| $n$ | 0.27608724 | $\omega$ | 15.27360 | | −0.06054694 | −0.99102528 |
| $a$ | 2.3358153 | $\Omega$ | 78.30768 | | +0.90257371 | −0.10534345 |
| $e$ | 0.1842363 | $i$ | 6.99031 | | +0.42625668 | +0.08229005 |
| $P$ | 3.57 | $H$ | 17.5 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 12 05 | 704 | 0.6− | 0.3− | 2009 10 14 | G96 | 0.2+ | 0.3+ | 2009 11 19 | G96 | 0.2− | 0.0 |
| 2002 12 05 | 704 | 0.7− | 0.3− | 2009 10 14 | G96 | 0.2+ | 0.3+ | 2009 11 19 | G96 | 0.1− | 0.0 |
| 2002 12 05 | 704 | 0.1− | 0.4− | 2009 10 14 | G96 | 0.3− | 0.5− | 2009 11 19 | J75 | 0.1+ | 0.2− |
| 2002 12 05 | 704 | 0.9− | 0.9− | 2009 11 12 | J75 | (0.6− | 1.9+) | 2009 11 19 | J75 | 1.2+ | 0.3− |
| 2002 12 08 | 291 | 0.4− | 0.3+ | 2009 11 12 | J75 | 1.5− | 0.2+ | 2009 11 19 | J75 | 0.9+ | 0.5+ |
| 2002 12 08 | 291 | 0.1+ | 0.0 | 2009 11 12 | J75 | 0.6− | 0.4− | 2009 12 19 | G96 | 0.0 | 0.1− |
| 2002 12 08 | 291 | 0.8+ | 0.2+ | 2009 11 19 | G96 | 0.1+ | 0.0 | 2009 12 19 | G96 | 0.1− | 0.2− |
| 2009 10 14 | G96 | 0.1+ | 0.1+ | 2009 11 19 | G96 | 0.2− | 0.0 | 2009 12 19 | G96 | 0.3+ | 0.2− |

**2009 VP$_{92}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 43.75894 | | (2000.0) | | | |
| $n$ | 0.26016588 | $\omega$ | 93.63667 | | +0.99273479 | −0.06190417 |
| $a$ | 2.4301654 | $\Omega$ | 269.93188 | | +0.01615348 | +0.91830597 |
| $e$ | 0.1463755 | $i$ | 5.92216 | | +0.11923384 | +0.39100130 |
| $P$ | 3.79 | $H$ | 17.2 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 08 29 | 644 | 0.3− | 0.2+ | 2009 10 16 | 704 | 0.1+ | 1.7+ | 2009 11 08 | 703 | 0.4− | 0.5+ |
| 2005 08 29 | 644 | 0.3+ | 0.0 | 2009 10 16 | 704 | 0.4+ | 0.4− | 2009 11 08 | 703 | 0.2+ | 0.2+ |
| 2005 08 29 | 644 | 0.1+ | 0.1− | 2009 10 16 | 704 | 0.3− | 0.1− | 2009 11 08 | 703 | 0.5− | 0.4+ |
| 2005 10 01 | 703 | 0.6+ | 0.3+ | 2009 10 16 | 704 | 0.7− | 0.1+ | 2009 11 08 | 703 | 0.0 | 0.3+ |
| 2005 10 01 | 703 | 0.3+ | 0.5+ | 2009 10 27 | G96 | 0.5+ | 0.6− | 2009 11 21 | G96 | 0.1− | 0.3− |
| 2005 10 01 | 703 | 0.7− | 0.9− | 2009 10 27 | G96 | 0.0 | 0.5− | 2009 11 21 | G96 | 0.2+ | 0.5− |
| 2005 10 01 | 703 | 0.0 | 0.6− | 2009 10 27 | G96 | 0.3− | 0.6− | 2009 11 21 | G96 | 0.0 | 0.4− |
| 2009 10 16 | 704 | 0.8+ | 2.0+ | 2009 10 27 | G96 | 0.3+ | 0.5− | 2009 11 21 | G96 | 0.3− | 0.6− |

**2009 VZ$_{92}$ = 1998 SX$_{114}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 29.37353 | | (2000.0) | | | |
| $n$ | 0.18497381 | $\omega$ | 209.94096 | | +0.84353790 | −0.53704194 |
| $a$ | 3.0506746 | $\Omega$ | 182.56122 | | +0.51380987 | +0.80992108 |
| $e$ | 0.1921559 | $i$ | 7.01316 | | +0.15634332 | +0.23582577 |
| $P$ | 5.33 | $H$ | 15.8 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 09 26 | 704 | 0.7− | 0.0 | 2003 09 19 | 691 | 0.2+ | 0.2+ | 2009 11 17 | 703 | 0.2+ | 0.2− |
| 1998 09 26 | 704 | 1.3+ | 0.7− | 2006 03 04 | 691 | 0.3+ | 0.0 | 2009 11 17 | 703 | 0.6+ | 1.4− |
| 1998 09 26 | 704 | 1.6+ | 2.0− | 2006 03 04 | 691 | 0.1− | 0.3+ | 2009 11 17 | 703 | 1.1+ | 0.9− |
| 1998 09 26 | 704 | 1.3+ | 1.0+ | 2006 03 04 | 691 | 0.0 | 0.3+ | 2009 11 25 | G96 | 0.4+ | 0.4− |
| 1998 09 27 | 704 | 0.6− | 1.1+ | 2008 07 29 | G96 | 0.0 | 0.3− | 2009 11 25 | G96 | 0.5+ | 0.3− |
| 1998 09 27 | 704 | 1.6− | 0.1+ | 2008 07 29 | G96 | 0.1− | 0.2− | 2009 11 25 | G96 | 0.3+ | 0.5− |
| 1998 09 27 | 704 | 0.9− | 1.0− | 2008 07 29 | G96 | 0.2+ | 0.3− | 2009 11 25 | G96 | 0.5+ | 0.2− |
| 1998 09 27 | 704 | 0.5− | 0.1+ | 2008 07 29 | G96 | 0.5− | 0.6− | 2009 12 13 | 704 | 1.2− | 0.9+ |
| 2003 08 22 | 599 | 0.0 | 0.1− | 2009 11 09 | 703 | 0.0 | 1.3− | 2009 12 13 | 704 | 1.1+ | 1.6+ |
| 2003 08 22 | 599 | 0.2− | 0.3+ | 2009 11 09 | 703 | 1.3− | 0.3− | 2009 12 13 | 704 | 1.7− | 1.7+ |
| 2003 08 22 | 599 | 0.0 | 0.2+ | 2009 11 09 | 703 | 0.0 | 0.5+ | 2009 12 13 | 704 | 0.4− | 1.3+ |
| 2003 09 19 | 691 | 0.1− | 0.5+ | 2009 11 09 | 703 | 0.3− | 0.1− | | | | |
| 2003 09 19 | 691 | 0.1− | 0.4+ | 2009 11 17 | 703 | 0.1− | 0.3+ | | | | |

**2009 VA$_{93}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 339.35041 | | (2000.0) | | | |
| $n$ | 0.12606781 | $\omega$ | 24.78724 | | −0.05169044 | −0.99654809 |
| $a$ | 3.9391263 | $\Omega$ | 68.23044 | | +0.90419492 | −0.07431792 |
| $e$ | 0.1678342 | $i$ | 4.01113 | | +0.42398071 | +0.03699666 |
| $P$ | 7.82 | $H$ | 15.5 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 05 | 645 | 0.1+ | 0.0 | 2008 09 25 | G96 | 0.4+ | 0.3− | 2009 11 08 | 691 | 0.1+ | 0.0 |
| 2000 09 05 | 645 | 0.1+ | 0.2− | 2009 10 18 | G96 | 0.1+ | 0.0 | 2009 11 15 | 703 | 1.0+ | 1.3− |
| 2000 09 26 | 691 | 0.4− | 0.5+ | 2009 10 18 | G96 | 0.3− | 0.1+ | 2009 11 15 | 703 | 0.8− | 0.5− |
| 2000 09 26 | 691 | 0.1− | 0.5+ | 2009 10 18 | G96 | 0.4+ | 0.2+ | 2009 11 15 | 703 | 1.5+ | 0.6+ |
| 2000 09 26 | 691 | 0.7− | 0.4+ | 2009 10 18 | G96 | 0.1+ | 0.3+ | 2009 11 15 | 703 | 0.7+ | 0.2− |
| 2003 01 25 | 645 | 0.0 | 0.0 | 2009 10 23 | 691 | 0.2− | 0.1− | 2009 11 23 | G96 | 0.2− | 0.0 |
| 2003 01 25 | 645 | 0.0 | 0.0 | 2009 10 23 | 691 | 0.6− | 0.1+ | 2009 11 23 | G96 | 0.4+ | 0.1− |
| 2004 04 16 | 691 | 0.2+ | 0.2+ | 2009 10 23 | 691 | 0.0 | 0.1− | 2009 11 23 | G96 | 0.6+ | 0.1− |
| 2004 04 16 | 691 | 0.1+ | 0.5+ | 2009 10 27 | 691 | 0.1− | 0.1+ | 2009 11 23 | G96 | 0.3+ | 0.1− |
| 2004 04 16 | 691 | 0.1− | 0.2− | 2009 10 27 | 691 | 0.1− | 0.1+ | 2009 12 11 | G96 | 0.4+ | 0.1− |
| 2008 09 25 | G96 | 0.8+ | 0.3− | 2009 10 27 | 691 | 0.3− | 0.0 | 2009 12 11 | G96 | 0.5+ | 0.1− |
| 2008 09 25 | G96 | 0.2− | 0.4− | 2009 11 08 | 691 | 0.0 | 0.4+ | 2009 12 11 | G96 | 0.0 | 0.0 |
| 2008 09 25 | G96 | 0.2− | 0.4− | 2009 11 08 | 691 | 0.1− | 0.1+ | 2009 12 11 | G96 | 0.1+ | 0.2− |

**2009 VB$_{93}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 30.51557 | | (2000.0) | | | |
| $n$ | 0.18271685 | $\omega$ | 161.72409 | | +0.85089349 | −0.48558318 |
| $a$ | 3.0757449 | $\Omega$ | 229.02751 | | +0.44277503 | +0.86826198 |
| $e$ | 0.0989160 | $i$ | 15.39773 | | +0.28271991 | +0.10163713 |
| $P$ | 5.39 | $H$ | 16.0 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 03 04 | 645 | 0.0 | 0.0 | 2009 09 21 | G96 | 0.3+ | 0.1− | 2009 11 08 | 703 | 0.5+ | 1.0+ |
| 2000 03 04 | 645 | 0.0 | 0.0 | 2009 09 21 | G96 | 0.3+ | 0.0 | 2009 11 23 | G96 | 0.3+ | 0.0 |
| 2007 05 25 | 291 | 0.3− | 0.2+ | 2009 09 21 | G96 | 0.2+ | 0.0 | 2009 11 23 | G96 | 0.6+ | 0.1− |
| 2007 05 25 | 291 | 0.1+ | 0.2+ | 2009 10 25 | 691 | 0.1− | 0.3− | 2009 11 23 | G96 | 0.1+ | 0.0 |
| 2007 05 25 | 291 | 0.1+ | 0.3+ | 2009 10 25 | 691 | 0.1+ | 0.4− | 2009 11 23 | G96 | 0.2+ | 0.0 |
| 2007 06 13 | 691 | 0.0 | 0.1− | 2009 10 25 | 691 | 0.4− | 0.5+ | 2009 11 23 | G96 | 0.2+ | 0.1+ |
| 2007 06 13 | 691 | 0.1− | 0.8− | 2009 11 08 | 703 | 0.1+ | 0.6+ | 2009 11 23 | G96 | 0.2+ | 0.1+ |
| 2007 06 13 | 691 | 0.3+ | 0.1+ | 2009 11 08 | 703 | 0.7− | 0.7− | 2009 11 23 | G96 | 0.2+ | 0.1+ |
| 2009 09 21 | G96 | 0.1− | 0.1+ | 2009 11 08 | 703 | 0.7− | 0.2− | 2009 11 23 | G96 | 0.2+ | 0.1− |

**2009 VC$_{93}$ = 2003 TQ$_{50}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 71.92369 | | (2000.0) | | | |
| $n$ | 0.17979136 | $\omega$ | 92.03932 | | +0.85945016 | +0.47550251 |
| $a$ | 3.1090200 | $\Omega$ | 239.61652 | | −0.51098445 | +0.81017127 |
| $e$ | 0.1718111 | $i$ | 12.56919 | | +0.01550183 | +0.34281173 |
| $P$ | 5.48 | $H$ | 16.3 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 04 | 691 | 0.0 | 0.0 | 2009 10 24 | 691 | 0.1− | 0.1− | 2009 11 24 | G96 | 0.6+ | 0.4+ |
| 2003 10 04 | 691 | 0.2+ | 0.0 | 2009 11 09 | 691 | 0.0 | 0.1+ | 2009 11 24 | G96 | 0.0 | 0.1− |
| 2003 10 04 | 691 | 0.1− | 0.0 | 2009 11 09 | 691 | 0.3− | 0.1+ | 2009 11 24 | G96 | 0.1+ | 0.1+ |
| 2003 10 19 | 691 | 0.0 | 0.1+ | 2009 11 09 | 691 | 0.1− | 0.1+ | 2009 11 24 | G96 | 0.4+ | 0.2− |
| 2003 10 19 | 691 | 0.1− | 0.0 | 2009 11 15 | 703 | 0.2+ | 1.2− | 2009 12 11 | G96 | 0.1− | 0.3+ |
| 2003 10 19 | 691 | 0.0 | 0.0 | 2009 11 15 | 703 | 0.4+ | 0.8− | 2009 12 11 | G96 | 0.3− | 0.3+ |
| 2009 10 24 | 691 | 0.2+ | 0.1+ | 2009 11 15 | 703 | 0.7− | 0.2− | 2009 12 11 | G96 | 0.5+ | 0.1+ |
| 2009 10 24 | 691 | 0.2+ | 0.2+ | 2009 11 15 | 703 | 0.3− | 0.0 | 2009 12 11 | G96 | 0.1− | 0.2− |

**2009 VT$_{93}$ = 2003 KP$_{24}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 330.59170 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23751249 | $\omega$ | 41.91102 | | −0.20084441 | | −0.97851627 |
| $a$ | 2.5823301 | $\Omega$ | 59.72439 | | +0.88385558 | | −0.20149912 |
| $e$ | 0.0897718 | $i$ | 3.09020 | | +0.42244625 | | −0.04363492 |
| $P$ | 4.15 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 05 01 | 291 | 0.4− | 0.7+ | 2005 12 27 | G96 | 0.1+ | 0.1− | 2009 10 18 | G96 | 0.7+ | 0.5− |
| 2003 05 01 | 291 | 0.2− | 0.7+ | 2005 12 27 | G96 | 0.2− | 0.3− | 2009 10 27 | 691 | 0.5− | 0.1+ |
| 2003 05 01 | 291 | 0.2− | 0.9+ | 2007 03 13 | G96 | 0.8+ | 0.1+ | 2009 10 27 | 691 | 0.2+ | 0.2+ |
| 2003 05 01 | 691 | 0.8+ | 0.2+ | 2007 03 13 | G96 | 0.4− | 0.2− | 2009 10 27 | 691 | 0.3− | 0.2+ |
| 2003 05 01 | 691 | 0.6+ | 0.1− | 2007 03 13 | G96 | 0.3− | 0.0 | 2009 11 11 | G96 | 0.0 | 0.0 |
| 2003 05 01 | 691 | 1.4+ | 0.2+ | 2007 03 13 | G96 | 0.4− | 0.1− | 2009 11 11 | G96 | 0.2+ | 0.3+ |
| 2003 05 30 | 807 | 0.6− | 0.2− | 2007 03 26 | 691 | 0.1− | 0.2− | 2009 11 11 | G96 | 0.2− | 0.3+ |
| 2003 05 30 | 807 | 0.6− | 0.0 | 2007 03 26 | 691 | 0.2− | 0.2− | 2009 11 11 | G96 | 0.3+ | 0.0 |
| 2003 05 31 | 807 | 0.2− | 0.3+ | 2007 03 26 | 691 | 0.3− | 0.4− | 2009 11 23 | 703 | 0.0 | 0.2− |
| 2004 08 13 | 807 | 0.6− | 0.1+ | 2007 04 19 | G96 | 0.2− | 0.3− | 2009 11 23 | G96 | 0.4+ | 0.3+ |
| 2004 08 13 | 807 | 0.5− | 0.1+ | 2007 04 19 | G96 | 0.6− | 0.0 | 2009 11 23 | 703 | 0.0 | 0.3+ |
| 2005 11 26 | G96 | 0.1− | 0.2− | 2007 04 19 | G96 | 0.3− | 0.2− | 2009 11 23 | G96 | 0.3+ | 0.2+ |
| 2005 11 26 | G96 | 0.1+ | 0.1− | 2007 04 19 | G96 | 0.4− | 0.0 | 2009 11 23 | 703 | 0.2+ | 0.3− |
| 2005 11 26 | G96 | 0.4− | 0.1+ | 2009 09 22 | G96 | 0.7+ | 0.1+ | 2009 11 23 | G96 | 0.1+ | 0.1+ |
| 2005 11 26 | G96 | 0.1+ | 0.2+ | 2009 09 22 | G96 | 0.1+ | 0.6+ | 2009 11 23 | 703 | 0.4+ | 0.6− |
| 2005 12 10 | 691 | 0.2− | 0.3+ | 2009 09 22 | G96 | 0.1+ | 0.2+ | 2009 11 23 | G96 | 0.6+ | 0.3+ |
| 2005 12 10 | 691 | 0.1− | 0.3+ | 2009 09 22 | G96 | 0.6− | 0.3− | 2009 12 11 | G96 | 0.4− | 0.2+ |
| 2005 12 10 | 691 | 0.1+ | 0.3+ | 2009 10 18 | G96 | 0.2+ | 0.1+ | 2009 12 11 | G96 | 0.0 | 0.0 |
| 2005 12 27 | G96 | 0.5− | 0.1− | 2009 10 18 | G96 | 0.1− | 0.5+ | 2009 12 11 | G96 | 0.1− | 0.6+ |
| 2005 12 27 | G96 | 0.2+ | 0.3− | 2009 10 18 | G96 | 0.5− | 0.1+ | 2009 12 11 | G96 | 0.1+ | 0.2+ |

**2009 VW$_{93}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 15.49875 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.30536923 | $\omega$ | 245.80351 | | +0.57770610 | | −0.81620408 |
| $a$ | 2.1839995 | $\Omega$ | 168.89605 | | +0.76342058 | | +0.53675491 |
| $e$ | 0.0472040 | $i$ | 2.42788 | | +0.28886793 | | +0.21378743 |
| $P$ | 3.23 | $H$ | 17.6 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 07 22 | 644 | 0.3− | 0.2+ | 2002 08 17 | 644 | 0.1+ | 0.0 | 2009 11 15 | 703 | 0.1+ | 0.7− |
| 2002 07 22 | 644 | 0.0 | 0.0 | 2002 08 19 | 608 | 0.6+ | 0.1+ | 2009 11 15 | 703 | 0.7+ | 0.8+ |
| 2002 07 22 | 644 | 0.1+ | 0.3− | 2002 08 27 | 644 | 0.2− | 0.0 | 2009 11 16 | G96 | 0.2+ | 0.3− |
| 2002 07 29 | 644 | 0.2+ | 0.2+ | 2002 08 27 | 644 | 0.6− | 0.2+ | 2009 11 16 | G96 | 0.4+ | 0.2− |
| 2002 07 29 | 644 | 0.1− | 0.2− | 2002 08 27 | 644 | 0.1+ | 0.3+ | 2009 11 16 | G96 | 0.2+ | 0.1− |
| 2002 07 29 | 644 | 0.2− | 0.5− | 2009 10 23 | G96 | 0.0 | 0.4+ | 2009 11 16 | G96 | 0.2+ | 0.2+ |
| 2002 08 07 | 644 | 0.2+ | 0.1+ | 2009 10 23 | G96 | 0.1− | 0.1+ | 2009 11 24 | G96 | 0.2+ | 0.1− |
| 2002 08 07 | 644 | 0.1+ | 0.2+ | 2009 10 23 | G96 | 0.3+ | 0.1+ | 2009 11 24 | G96 | 0.0 | 0.0 |
| 2002 08 07 | 644 | 0.2+ | 0.2+ | 2009 10 23 | G96 | 0.2+ | 0.2− | 2009 11 24 | G96 | 0.1+ | 0.0 |
| 2002 08 17 | 644 | 0.0 | 0.3− | 2009 11 15 | 703 | 1.3− | 0.5+ | 2009 11 24 | G96 | 0.1+ | 0.2− |
| 2002 08 17 | 644 | 0.2− | 0.3− | 2009 11 15 | 703 | 1.3− | 0.3− | | | | |

**2009 VX$_{93}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 64.76512 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.26933205 | $\omega$ | 128.57289 | | +0.93816628 | | +0.34285612 |
| $a$ | 2.3747106 | $\Omega$ | 211.45985 | | −0.33926101 | | +0.88303093 |
| $e$ | 0.2292993 | $i$ | 5.26520 | | −0.06889114 | | +0.32047786 |
| $P$ | 3.66 | $H$ | 17.4 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 07 31 | 644 | 0.1− | 0.0 | 2005 11 01 | G96 | 0.2+ | 0.4− | 2009 11 15 | 703 | (0.1− | 1.8+) |
| 2005 07 31 | 644 | 0.3+ | 0.1− | 2009 09 19 | G96 | 0.0 | 0.1− | 2009 11 15 | 703 | 0.4− | 0.2− |
| 2005 07 31 | 644 | 0.0 | 0.0 | 2009 09 19 | G96 | 0.3+ | 0.1+ | 2009 11 15 | 703 | 0.2− | 0.2− |
| 2005 08 26 | 644 | 0.0 | 0.1+ | 2009 09 19 | G96 | 0.0 | 0.0 | 2009 11 15 | 703 | 0.7+ | 0.5− |
| 2005 08 26 | 644 | 0.0 | 0.0 | 2009 09 19 | G96 | 0.3− | 0.0 | 2009 11 16 | G96 | 0.5+ | 0.0 |
| 2005 08 26 | 644 | 0.0 | 0.1− | 2009 10 23 | G96 | 0.3+ | 0.2− | 2009 11 16 | G96 | 0.3+ | 0.1− |
| 2005 08 26 | 644 | 0.0 | 0.0 | 2009 10 23 | G96 | 0.5+ | 0.1− | 2009 11 16 | G96 | 0.4+ | 0.1+ |
| 2005 08 26 | 644 | 0.3− | 0.2+ | 2009 10 23 | G96 | 0.0 | 0.3− | 2009 11 16 | G96 | 0.3+ | 0.0 |
| 2005 08 26 | 644 | 0.0 | 0.4+ | 2009 10 23 | G96 | 0.3+ | 0.1− | 2009 11 24 | G96 | 0.7+ | 0.1− |
| 2005 11 01 | G96 | 0.0 | 0.1− | 2009 11 08 | 691 | 0.4− | 0.0 | 2009 11 24 | G96 | 0.1− | 0.3− |
| 2005 11 01 | G96 | 0.2+ | 0.1− | 2009 11 08 | 691 | 0.1− | 0.5+ | 2009 11 24 | G96 | 0.0 | 0.0 |
| 2005 11 01 | G96 | 0.1− | 0.3− | 2009 11 08 | 691 | 0.4− | 0.1+ | 2009 11 24 | G96 | 0.2+ | 0.3− |

**2009 VF$_{94}$ = 2006 EH$_{51}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 345.99387 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.19739091 | $\omega$ | 39.98432 | | −0.00472615 | | −0.99919908 |
| $a$ | 2.9213569 | $\Omega$ | 50.32425 | | +0.90377115 | | −0.02127449 |
| $e$ | 0.0790238 | $i$ | 2.95925 | | +0.42798993 | | +0.03389078 |
| $P$ | 4.99 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 11 20 | 691 | 0.1− | 0.1+ | 2009 09 20 | G96 | 0.2− | 0.4+ | 2009 11 16 | 691 | 0.5− | 0.2− |
| 2004 11 20 | 691 | 0.1+ | 0.5− | 2009 09 20 | G96 | 0.7+ | 0.1+ | 2009 11 25 | 291 | 0.1+ | 0.3+ |
| 2004 11 20 | 691 | 0.1+ | 0.3− | 2009 09 20 | G96 | 0.3− | 0.3− | 2009 11 25 | 291 | 0.0 | 0.2+ |
| 2006 03 04 | 691 | 0.1− | 0.1+ | 2009 09 20 | G96 | 0.1− | 0.5− | 2009 11 25 | 291 | 0.3− | 0.1+ |
| 2006 03 04 | 691 | 0.1− | 0.1− | 2009 11 08 | 691 | 0.1− | 0.2+ | 2009 12 16 | G96 | 0.7+ | 0.3− |
| 2006 03 04 | 691 | 0.0 | 0.2− | 2009 11 08 | 691 | 0.2+ | 0.1+ | 2009 12 16 | G96 | 0.3+ | 0.2− |
| 2006 03 08 | 691 | 0.1− | 0.2+ | 2009 11 08 | 691 | 0.1− | 0.2+ | 2009 12 16 | G96 | 0.4+ | 0.0 |
| 2006 03 08 | 691 | 0.4− | 0.4− | 2009 11 16 | 691 | (1.9− | 0.0 ) | | | | |
| 2006 03 08 | 691 | 0.7+ | 0.4+ | 2009 11 16 | 691 | 0.1+ | 0.1+ | | | | |

**2009 VK$_{94}$ = 1999 TD$_{68}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 96.64153 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.19970403 | $\omega$ | 256.01051 | | +0.66916546 | | +0.72900436 |
| $a$ | 2.8987550 | $\Omega$ | 56.93326 | | −0.59800319 | | +0.64340230 |
| $e$ | 0.1974448 | $i$ | 9.90251 | | −0.44114598 | | +0.23363674 |
| $P$ | 4.94 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 10 08 | 691 | 0.2− | 0.2− | 2008 06 27 | E12 | 1.2+ | 0.3+ | 2009 11 08 | 691 | 0.2+ | 0.3+ |
| 1999 10 08 | 691 | 0.2+ | 0.3− | 2008 06 27 | E12 | 1.0− | 0.8+ | 2009 11 08 | 691 | 0.2− | 0.4+ |
| 1999 10 08 | 691 | 0.0 | 0.1− | 2008 06 27 | E12 | 0.2− | 0.1+ | 2009 11 16 | 691 | 0.5− | 0.2− |
| 1999 10 14 | 691 | 0.0 | 0.5− | 2008 06 27 | E12 | 0.5+ | 0.7+ | 2009 11 16 | 691 | 0.1− | 0.6+ |
| 1999 10 14 | 691 | 0.2− | 0.5− | 2008 07 30 | E12 | 0.5− | 0.3− | 2009 11 16 | 691 | 0.0 | 0.0 |
| 1999 10 14 | 691 | 0.1+ | 0.2− | 2008 07 30 | E12 | 0.3+ | 0.2− | 2009 11 25 | 291 | 0.3− | 0.2+ |
| 1999 12 05 | 691 | 0.1+ | 0.1− | 2008 07 30 | E12 | 0.2− | 0.4+ | 2009 11 25 | 291 | 0.2− | 0.2+ |
| 1999 12 05 | 691 | 0.3+ | 0.4+ | 2008 07 30 | E12 | 0.3− | 0.1+ | 2009 11 25 | 291 | 0.1− | 0.4+ |
| 1999 12 05 | 691 | 0.2+ | 0.4− | 2009 09 20 | G96 | 0.6+ | 0.0 | 2009 11 25 | 703 | 0.3− | 1.1− |
| 2004 10 15 | G96 | 0.3+ | 0.1+ | 2009 09 20 | G96 | 0.3− | 0.2− | 2009 11 25 | 703 | 0.1+ | 0.4+ |
| 2004 10 15 | G96 | 0.6+ | 0.2+ | 2009 09 20 | G96 | 0.4+ | 0.4− | 2009 11 25 | 703 | 1.1− | 0.5− |
| 2004 10 15 | G96 | 0.1+ | 0.2− | 2009 09 20 | G96 | 0.2+ | 0.1− | 2009 11 25 | 703 | (1.2+ | 1.6+) |
| 2004 10 15 | G96 | 0.4+ | 0.1− | 2009 10 21 | G96 | 0.3+ | 0.3+ | 2009 12 18 | G96 | 0.2+ | 0.0 |
| 2007 04 15 | G96 | 0.5− | 0.4− | 2009 10 21 | G96 | 0.2+ | 0.3+ | 2009 12 18 | G96 | 0.5+ | 0.3+ |
| 2007 04 15 | G96 | 0.1+ | 0.1+ | 2009 10 21 | G96 | 0.2+ | 0.3+ | 2009 12 18 | G96 | 0.4+ | 0.1+ |
| 2007 04 15 | G96 | 0.0 | 0.0 | 2009 10 21 | G96 | 0.3− | 0.1− | 2009 12 18 | G96 | 0.7+ | 0.1+ |
| 2007 04 15 | G96 | 0.0 | 0.0 | 2009 11 08 | 691 | 0.0 | 0.3+ | | | | |

**2009 VO$_{94}$ = 2003 SK$_{384}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 6.15281 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17777431 | $\omega$ | 19.06771 | | +0.49591487 | | −0.86620057 |
| $a$ | 3.1324926 | $\Omega$ | 41.26384 | | +0.78413697 | | +0.41633148 |
| $e$ | 0.1515591 | $i$ | 5.33828 | | +0.37309201 | | +0.27634159 |
| $P$ | 5.54 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 26 | 645 | 0.0 | 0.0 | 2009 10 23 | 691 | 0.0 | 0.2+ | 2009 11 25 | 691 | 1.0− | 0.2+ |
| 2003 09 26 | 645 | 0.0 | 0.0 | 2009 10 23 | 691 | 0.3+ | 0.4− | 2009 11 25 | 691 | 0.1− | 0.1− |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 28 | 645 | 0.1− | 0.0 | 2009 11 09 | 691 | 0.1+ | 0.0 | 2009 11 25 | 691 | 0.1− | 0.0 |
| 2003 09 28 | 645 | 0.0 | 0.0 | 2009 11 09 | 691 | 0.2+ | 0.5+ | 2009 12 17 | G96 | 0.4+ | 0.3− |
| 2003 09 30 | 691 | 0.2+ | 0.0 | 2009 11 09 | 691 | 0.4+ | 0.0 | 2009 12 17 | G96 | 0.1− | 0.5− |
| 2003 09 30 | 691 | 0.2+ | 0.2+ | 2009 11 20 | G96 | 0.2+ | 0.1− | 2009 12 17 | G96 | 0.2− | 0.2− |
| 2003 09 30 | 691 | 0.1+ | 0.1− | 2009 11 20 | G96 | 0.3+ | 0.1− | 2009 12 17 | G96 | 0.3+ | 0.2+ |
| 2009 10 23 | 691 | 0.4− | 0.1− | 2009 11 20 | G96 | 0.7+ | 0.5− | | | | |

**2009 VU$_{94}$ = 2004 TH$_{193}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 22.99610 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21591121 | $\omega$ | 14.87542 | | +0.63076341 | −0.77495588 | |
| $a$ | 2.7518152 | $\Omega$ | 36.04360 | | +0.70486497 | +0.55077990 | |
| $e$ | 0.0514222 | $i$ | 3.87466 | | +0.32450408 | +0.30997562 | |
| $P$ | 4.56 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1993 04 18 | 691 | 0.0 | 0.4− | 2007 05 10 | G96 | 0.4− | 0.2+ | 2009 11 09 | G96 | 0.1− | 0.6− |
| 1993 04 18 | 691 | 0.3− | 0.4+ | 2007 05 10 | G96 | 0.1+ | 0.3+ | 2009 11 17 | 691 | 0.5− | 0.1− |
| 1993 04 18 | 691 | 0.4− | 0.2− | 2007 05 10 | G96 | 0.1+ | 0.2− | 2009 11 17 | 691 | 0.2− | 0.2− |
| 2004 10 07 | 691 | 0.1− | 0.2+ | 2007 05 10 | G96 | 0.3+ | 0.2+ | 2009 11 17 | 691 | 0.2+ | 0.0 |
| 2004 10 07 | 691 | 0.2+ | 0.0 | 2007 05 10 | G96 | 0.3+ | 0.3+ | 2009 11 25 | 691 | 0.2− | 0.1+ |
| 2004 10 07 | 691 | 0.1+ | 0.1− | 2007 05 10 | G96 | 0.4− | 0.2+ | 2009 11 25 | 691 | 0.2− | 0.0 |
| 2004 10 11 | 691 | 0.2+ | 0.1− | 2007 05 10 | G96 | 0.2+ | 0.1+ | 2009 11 25 | 691 | 0.2− | 0.1+ |
| 2004 10 11 | 691 | 0.3+ | 0.2− | 2009 11 09 | 691 | 0.1− | 0.3+ | 2009 12 16 | G96 | 1.1+ | 0.3− |
| 2004 10 11 | 691 | 0.1+ | 0.0 | 2009 11 09 | 691 | 0.5− | 0.1+ | 2009 12 16 | G96 | 0.0 | 0.2− |
| 2006 01 07 | 691 | 0.4+ | 0.3− | 2009 11 09 | 691 | 0.2− | 0.5+ | 2009 12 16 | G96 | 0.8+ | 0.3− |
| 2006 01 07 | 691 | 0.3+ | 0.0 | 2009 11 09 | G96 | 0.3+ | 0.3− | 2009 12 16 | G96 | 0.2+ | 0.2− |
| 2006 01 07 | 691 | 0.2+ | 0.2− | 2009 11 09 | G96 | 0.0 | 0.4− | | | | |
| 2007 05 10 | G96 | 0.3+ | 0.1+ | 2009 11 09 | G96 | 0.2+ | 0.4− | | | | |

**2009 VW$_{94}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 146.76907 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26238446 | $\omega$ | 353.23050 | | +0.12550752 | +0.99091405 | |
| $a$ | 2.4164472 | $\Omega$ | 283.97136 | | −0.90787538 | +0.09506892 | |
| $e$ | 0.2195015 | $i$ | 2.85557 | | −0.40001269 | +0.09513806 | |
| $P$ | 3.76 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 10 19 | 644 | 1.4− | 0.8+ | 2006 12 27 | G96 | 0.1− | 0.0 | 2009 11 09 | G96 | 0.4− | 0.7+ |
| 2001 10 19 | 644 | 0.8− | 0.5+ | 2007 01 27 | G96 | 1.1+ | 0.7+ | 2009 11 09 | G96 | 0.3+ | 0.0 |
| 2001 10 19 | 644 | 1.0− | 0.6+ | 2007 01 27 | G96 | 0.1− | 0.0 | 2009 11 09 | G96 | 0.7+ | 0.6− |
| 2004 05 23 | 691 | 0.1+ | 0.3+ | 2007 01 27 | G96 | 0.2+ | 0.1+ | 2009 11 09 | G96 | 0.6+ | 0.3− |
| 2004 05 23 | 691 | 0.2+ | 0.3+ | 2007 01 27 | 691 | 0.3− | 0.0 | 2009 11 17 | 691 | 0.5− | 0.0 |
| 2004 05 23 | 691 | 0.0 | 0.3+ | 2007 01 27 | G96 | 0.2+ | 0.1+ | 2009 11 17 | 691 | 0.2− | 0.0 |
| 2004 06 06 | 644 | 0.5+ | 0.7+ | 2007 01 27 | 691 | 0.1− | 0.1− | 2009 11 17 | 691 | 0.4− | 0.2+ |
| 2004 06 06 | 644 | 0.3+ | 0.7+ | 2007 01 27 | 691 | 0.2− | 0.1+ | 2009 11 25 | 691 | 0.1− | 0.1− |
| 2004 06 06 | 644 | 0.3+ | 0.9+ | 2007 02 08 | G96 | 0.7+ | 0.2− | 2009 11 25 | 691 | 0.2− | 0.2− |
| 2005 11 10 | 691 | 0.6+ | 0.4+ | 2007 02 08 | G96 | 0.1− | 0.1+ | 2009 11 25 | 691 | 0.1− | 0.2+ |
| 2005 11 10 | 691 | 0.2+ | 0.6+ | 2007 02 08 | G96 | 0.3+ | 0.2+ | 2009 12 16 | G96 | 0.3+ | 0.4+ |
| 2005 11 10 | 691 | 0.3+ | 0.3+ | 2007 02 08 | G96 | 0.1+ | 0.1+ | 2009 12 16 | G96 | 0.6+ | 0.3− |
| 2006 12 27 | G96 | 0.0 | 0.1− | 2009 11 09 | 691 | 0.1− | 0.3+ | 2009 12 16 | G96 | 0.0 | 0.1+ |
| 2006 12 27 | G96 | 0.2+ | 0.6+ | 2009 11 09 | 691 | 0.1+ | 0.0 | 2009 12 16 | G96 | 0.5+ | 0.0 |
| 2006 12 27 | G96 | 0.0 | 0.3+ | 2009 11 09 | 691 | 0.0 | 0.3− | | | | |

**2009 VX$_{94}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 137.18188 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17511369 | $\omega$ | 130.11854 | | +0.25446157 | +0.96682862 | |
| $a$ | 3.1641421 | $\Omega$ | 154.59716 | | −0.90226366 | +0.24559709 | |
| $e$ | 0.0832178 | $i$ | 2.96306 | | −0.34809424 | +0.07017465 | |
| $P$ | 5.63 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 05 17 | 691 | 0.4+ | 1.1+ | 2008 07 30 | G96 | 0.3+ | 0.1− | 2008 09 22 | G96 | 0.3+ | 0.3+ |
| 2001 05 17 | 691 | 0.1+ | 0.8+ | 2008 07 30 | G96 | 0.6+ | 0.2+ | 2008 09 22 | G96 | 0.1+ | 0.1+ |
| 2001 05 17 | 691 | 0.4+ | 1.1+ | 2008 07 30 | 691 | 0.4− | 0.1− | 2009 11 09 | G96 | 0.7+ | 0.6+ |
| 2006 03 05 | G96 | 0.2+ | 0.2+ | 2008 07 30 | 691 | 0.6− | 0.4+ | 2009 11 09 | G96 | 0.2+ | 0.6+ |
| 2006 03 05 | G96 | 0.0 | 0.1+ | 2008 07 30 | G96 | 0.1+ | 0.2+ | 2009 11 09 | G96 | 0.3+ | 0.2− |
| 2006 03 05 | G96 | 0.3+ | 0.1− | 2008 07 30 | G96 | 0.5+ | 0.3+ | 2009 11 09 | G96 | 0.4+ | 0.4+ |
| 2006 03 05 | G96 | 0.6+ | 0.2− | 2008 07 30 | G96 | 0.3− | 0.4+ | 2009 11 22 | 291 | 0.2− | 0.4+ |
| 2007 06 21 | G96 | 0.6− | 0.2+ | 2008 07 30 | G96 | 0.2+ | 0.3+ | 2009 11 22 | 291 | 0.3− | 0.4+ |
| 2007 06 21 | G96 | 0.4+ | 0.5− | 2008 09 06 | G96 | 0.0 | 0.2+ | 2009 11 22 | 291 | 0.1− | 0.5+ |
| 2007 06 21 | G96 | 0.2− | 0.1− | 2008 09 06 | G96 | 0.0 | 0.0 | 2009 11 26 | 691 | 0.2− | 0.1+ |
| 2007 06 21 | G96 | 0.2− | 0.1+ | 2008 09 06 | G96 | 0.1+ | 0.1+ | 2009 11 26 | 691 | 0.1− | 0.4+ |
| 2008 07 30 | G96 | 0.7+ | 0.0 | 2008 09 06 | G96 | 0.4+ | 0.2+ | 2009 11 26 | 691 | 0.2− | 0.4+ |
| 2008 07 30 | G96 | 1.1+ | 0.3+ | 2008 09 22 | G96 | 0.1+ | 0.1+ | | | | |
| 2008 07 30 | 691 | 0.4− | 0.2+ | 2008 09 22 | G96 | 0.3+ | 0.2+ | | | | |

**2009 VZ$_{94}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 113.53836 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22518679 | $\omega$ | 142.22404 | | +0.48348327 | +0.87517950 | |
| $a$ | 2.6757207 | $\Omega$ | 156.67367 | | −0.81348181 | +0.45658502 | |
| $e$ | 0.1895329 | $i$ | 2.52689 | | −0.32325110 | +0.15997173 | |
| $P$ | 4.38 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1991 10 06 | 691 | 0.0 | 0.3+ | 2004 09 22 | 691 | 0.1− | 0.6+ | 2009 11 09 | G96 | 0.7− | 0.0 |
| 1991 10 06 | 691 | 0.4− | 1.0− | 2004 09 22 | 691 | 0.2− | 0.7+ | 2009 11 09 | G96 | 0.1+ | 0.3+ |
| 1991 10 06 | 691 | 0.5+ | 0.2+ | 2007 02 21 | 691 | 0.4− | 0.2− | 2009 11 22 | 691 | 0.0 | 0.4+ |
| 2003 04 26 | 691 | 0.7+ | 1.1+ | 2007 02 21 | 691 | 0.3− | 0.2− | 2009 11 22 | 691 | 0.5− | 0.4− |
| 2003 04 26 | 691 | 0.4+ | 1.2+ | 2007 02 21 | 691 | 0.1+ | 0.1+ | 2009 11 22 | 691 | 1.3+ | 0.1+ |
| 2003 04 26 | 691 | 0.6+ | 0.9+ | 2007 03 11 | G96 | 0.6− | 0.3− | 2009 11 26 | 691 | 0.0 | 0.8+ |
| 2004 09 14 | 699 | 0.1− | 1.3+ | 2007 03 11 | G96 | 0.3− | 0.2+ | 2009 11 26 | 691 | 0.2− | 0.1+ |
| 2004 09 14 | 699 | 1.3− | 0.4− | 2007 03 11 | G96 | 0.0 | 0.3− | 2009 11 26 | 691 | 0.7− | 0.0 |
| 2004 09 14 | 699 | 0.4+ | 0.4+ | 2007 03 11 | G96 | 0.1− | 0.1− | 2009 12 19 | 691 | 0.4+ | 0.0 |
| 2004 09 14 | 699 | 0.8+ | 0.1+ | 2009 11 09 | G96 | 0.2+ | 0.0 | 2009 12 19 | 691 | 0.1+ | 0.0 |
| 2004 09 22 | 691 | 0.7− | 0.2+ | 2009 11 09 | G96 | 0.4+ | 0.5+ | 2009 12 19 | 691 | 0.3− | 0.9+ |

**2009 VA$_{95}$ = 2004 TT$_{182}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 48.90810 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21625682 | $\omega$ | 89.56784 | | +0.91165530 | −0.40791970 | |
| $a$ | 2.7488825 | $\Omega$ | 294.50573 | | +0.35188125 | +0.83751297 | |
| $e$ | 0.1020615 | $i$ | 3.14123 | | +0.21228332 | +0.36355680 | |
| $P$ | 4.56 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 07 | 691 | 0.0 | 0.0 | 2006 02 04 | 691 | 0.1+ | 0.4+ | 2009 11 17 | 691 | 0.3− | 0.1− |
| 2004 10 07 | 691 | 0.2− | 0.0 | 2006 02 04 | 691 | 0.4+ | 0.4+ | 2009 11 17 | 691 | 0.1− | 0.0 |
| 2004 10 07 | 691 | 0.0 | 0.2+ | 2006 02 04 | 691 | 0.3+ | 0.1+ | 2009 11 25 | 691 | (0.7− | 1.8−) |
| 2004 10 11 | 691 | 0.0 | 0.1− | 2008 07 02 | 691 | 0.1+ | 0.1+ | 2009 11 25 | 691 | 0.3− | 0.0 |
| 2004 10 11 | 691 | 0.0 | 0.2+ | 2008 07 02 | 691 | 0.0 | 0.1− | 2009 11 25 | 691 | 0.1− | 0.3− |
| 2004 10 11 | 691 | 0.0 | 0.1+ | 2008 07 02 | 691 | 0.2− | 0.3+ | 2009 11 25 | 691 | 1.4+ | 0.5+ |
| 2006 01 22 | G96 | 0.2− | 0.2+ | 2009 11 09 | 691 | 0.3− | 0.3− | 2009 11 25 | 691 | 0.3− | 0.1− |
| 2006 01 22 | G96 | 0.5− | 0.3− | 2009 11 09 | 691 | 0.3+ | 0.0 | 2009 11 25 | 691 | 0.2+ | 0.2− |
| 2006 01 22 | G96 | 0.3− | 0.4− | 2009 11 09 | 691 | 0.2− | 0.0 | | | | |
| 2006 01 22 | G96 | 1.1− | 0.3− | 2009 11 17 | 691 | 0.3− | 0.1+ | | | | |

**2009 VB$_{95}$ = 2005 YN$_{245}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 1.78154 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23061872 | $\omega$ | 35.59711 | | +0.12586777 | −0.99114411 | |
| $a$ | 2.6335386 | $\Omega$ | 47.21307 | | +0.89631361 | +0.09533619 | |
| $e$ | 0.1173236 | $i$ | 3.30554 | | +0.42518138 | +0.09243577 | |
| $P$ | 4.27 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 11 08 | 691 | 0.3+ | 0.2− | 2007 05 13 | G96 | 0.1+ | 0.1− | 2009 11 17 | 691 | (1.3− | 2.5−) |
| 1996 11 08 | 691 | 0.0 | 0.6− | 2007 05 13 | G96 | 0.0 | 0.3+ | 2009 11 27 | 291 | 0.3+ | 0.0 |
| 1996 11 08 | 691 | 0.2+ | 0.8− | 2007 05 13 | G96 | 0.6− | 0.1+ | 2009 11 27 | 291 | 0.5+ | 0.1+ |
| 1998 03 25 | 691 | 0.3− | 0.4− | 2009 09 22 | G96 | 0.6+ | 0.4− | 2009 11 27 | 291 | 0.6+ | 0.0 |
| 1998 03 25 | 691 | 0.6+ | 0.1− | 2009 09 22 | G96 | 0.4− | 0.1− | 2009 12 10 | 704 | (1.7+ | 0.0 ) |
| 1998 03 25 | 691 | 0.6− | 0.9− | 2009 09 22 | G96 | 1.2+ | 0.3− | 2009 12 10 | 704 | 0.6− | 0.4+ |
| 2005 12 30 | G96 | 0.3− | 0.4+ | 2009 09 22 | G96 | 0.4− | 0.0 | 2009 12 10 | 704 | 0.0 | 0.3− |
| 2005 12 30 | G96 | 0.3− | 0.1− | 2009 11 09 | 691 | 0.3− | 0.0 | 2009 12 10 | 704 | 0.7+ | 0.4+ |
| 2005 12 30 | G96 | 0.0 | 0.1− | 2009 11 09 | 691 | 0.1− | 0.1− | 2009 12 10 | 704 | 0.3− | 0.9− |
| 2005 12 30 | G96 | 0.1+ | 0.3+ | 2009 11 09 | 691 | 0.5− | 0.2+ | 2009 12 11 | G96 | 0.1− | 0.0 |
| 2006 01 05 | 703 | (0.7− | 1.8+) | 2009 11 17 | 691 | 0.1− | 0.0 | 2009 12 11 | G96 | 0.2+ | 0.0 |
| 2006 01 05 | 703 | 0.4− | 1.1+ | 2009 11 17 | 691 | 0.1− | 0.1+ | 2009 12 11 | G96 | 0.1− | 0.0 |
| 2006 01 05 | 703 | 0.9+ | 0.9+ | 2009 11 17 | 691 | 0.0 | 0.6+ | 2009 12 11 | G96 | 0.1+ | 0.1− |
| 2006 01 05 | 703 | 0.3− | 0.9+ | 2009 11 17 | 691 | 0.4− | 0.0 | | | | |
| 2007 05 13 | G96 | 0.0 | 0.2+ | 2009 11 17 | 691 | 0.0 | 0.0 | | | | |

**2009 VG$_{95}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 43.83678 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27082361 | $\omega$ | 333.00896 | | +0.88710273 | −0.46050721 | |
| $a$ | 2.3659834 | $\Omega$ | 54.44561 | | +0.43013348 | +0.80014775 | |
| $e$ | 0.1890284 | $i$ | 2.20730 | | +0.16743336 | +0.38431327 | |
| $P$ | 3.64 | $H$ | 17.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 11 25 | 699 | 0.1− | 0.5+ | 2005 12 01 | G96 | 0.1− | 0.2− | 2009 11 09 | 691 | 0.3− | 0.0 |
| 1998 11 25 | 699 | 0.0 | 0.5− | 2005 12 01 | G96 | 0.3+ | 0.3− | 2009 11 09 | 691 | 0.1− | 0.0 |
| 1998 11 25 | 699 | 0.1+ | 0.4+ | 2005 12 01 | G96 | 0.0 | 0.2− | 2009 11 21 | 691 | 0.6− | 0.1− |
| 2005 09 13 | 691 | 0.2− | 0.0 | 2007 02 25 | 691 | 0.3+ | 0.3+ | 2009 11 21 | 691 | 0.1− | 0.0 |
| 2005 09 13 | 691 | 0.1− | 0.1+ | 2007 02 25 | 691 | 0.0 | 0.1+ | 2009 11 21 | 691 | 0.3+ | 0.2+ |
| 2005 09 13 | 691 | 0.2− | 0.1+ | 2007 02 25 | 691 | 0.3− | 0.0 | 2009 11 25 | 691 | 0.1− | 0.3− |
| 2005 09 14 | 703 | 1.1+ | 2.3+ | 2007 03 11 | G96 | 0.1+ | 0.2+ | 2009 11 25 | 691 | 0.0 | 0.1− |
| 2005 09 14 | 703 | 0.6− | 1.8+ | 2007 03 11 | G96 | 0.3+ | 0.0 | 2009 11 25 | 691 | 0.0 | 0.1+ |
| 2005 09 14 | 703 | 0.8− | 0.6− | 2007 03 11 | G96 | 0.4+ | 0.2+ | 2009 12 16 | 704 | 0.4+ | 0.1− |
| 2005 09 14 | 703 | 0.4+ | 0.3− | 2007 03 11 | G96 | 0.4+ | 0.2+ | 2009 12 16 | 704 | 0.7+ | 0.1+ |
| 2005 10 01 | 703 | 0.5+ | 0.6− | 2009 09 22 | G96 | 0.3+ | 0.4− | 2009 12 16 | 704 | (0.1− | 1.6+) |
| 2005 10 01 | 703 | 0.5− | 0.1− | 2009 09 22 | G96 | 0.0 | 0.4+ | 2009 12 20 | G96 | 0.6+ | 0.1+ |
| 2005 10 01 | 703 | 0.4+ | 0.0 | 2009 09 22 | G96 | 0.2+ | 0.3− | 2009 12 20 | G96 | 0.5+ | 0.2+ |
| 2005 10 01 | 703 | 0.0 | 0.9− | 2009 09 22 | G96 | 0.3+ | 0.2− | 2009 12 20 | G96 | 0.9+ | 0.1+ |
| 2005 12 01 | G96 | 0.3+ | 0.6− | 2009 11 09 | 691 | 0.1− | 0.1+ | | | | |

**2009 VK$_{95}$ = 2007 BC$_{72}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 304.08501 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28351798 | $\omega$ | 63.08501 | | −0.75315332 | −0.64959446 | |
| $a$ | 2.2948219 | $\Omega$ | 76.21369 | | +0.55925518 | −0.71538471 | |
| $e$ | 0.0973068 | $i$ | 6.13906 | | +0.34640109 | −0.25739415 | |
| $P$ | 3.48 | $H$ | 17.7 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 01 28 | 691 | 0.2− | 0.1− | 2009 10 25 | 691 | 0.3+ | 0.2− | 2009 11 18 | 691 | 0.1− | 0.2− |
| 2007 01 28 | 691 | 0.2+ | 0.3+ | 2009 10 25 | 691 | 0.2+ | 0.2+ | 2009 11 18 | 691 | 0.3− | 0.1+ |
| 2007 01 28 | 691 | 0.2+ | 0.1+ | 2009 10 25 | 691 | 0.6− | 0.1+ | 2009 11 26 | 691 | 0.3+ | 0.1+ |
| 2007 01 29 | G96 | 0.5− | 0.4− | 2009 11 10 | 691 | 0.0 | 0.4+ | 2009 11 26 | 691 | 0.0 | 0.0 |
| 2007 01 29 | G96 | 0.1− | 0.4− | 2009 11 10 | 691 | 0.3+ | 0.0 | 2009 11 26 | 691 | 0.2− | 0.0 |
| 2007 01 29 | G96 | 0.2+ | 0.4− | 2009 11 10 | 691 | 0.1− | 0.4− | | | | |
| 2007 01 29 | G96 | 0.0 | 0.2− | 2009 11 18 | 691 | 0.3+ | 0.0 | | | | |

**2009 VQ$_{95}$ = 2006 GU$_{32}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 243.69026 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18613732 | $\omega$ | 53.82449 | | −0.88115012 | +0.47138070 | |
| $a$ | 3.0379485 | $\Omega$ | 154.23873 | | −0.45658561 | −0.82786463 | |
| $e$ | 0.1061746 | $i$ | 4.89377 | | −0.12289852 | −0.30404012 | |
| $P$ | 5.30 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 04 15 | 691 | 0.2− | 0.5+ | 2006 04 07 | 691 | 0.5+ | 0.1+ | 2008 10 17 | 691 | 0.0 | 0.4+ |
| 2001 04 15 | 691 | 0.2− | 0.5+ | 2006 04 07 | 691 | 0.0 | 0.2+ | 2009 11 10 | 691 | 0.1− | 0.2+ |
| 2001 04 15 | 691 | 0.2− | 0.2+ | 2006 04 07 | 691 | 0.1+ | 0.1+ | 2009 11 10 | 691 | 0.7− | 0.4+ |
| 2003 10 27 | 291 | 0.1+ | 0.4+ | 2006 04 08 | G96 | 0.3− | 0.1+ | 2009 11 10 | 691 | 0.2− | 0.0 |
| 2003 10 27 | 291 | 0.2− | 0.1− | 2006 04 08 | G96 | 0.0 | 0.1+ | 2009 11 18 | 691 | 0.8− | 0.0 |
| 2003 10 27 | 291 | 0.2+ | 0.3+ | 2006 04 08 | G96 | 0.3− | 0.2+ | 2009 11 18 | 691 | 0.1+ | 0.1+ |
| 2004 12 11 | 691 | 0.2+ | 0.0 | 2006 04 08 | G96 | 0.5− | 0.0 | 2009 11 18 | 691 | 0.6− | 0.0 |
| 2004 12 11 | 691 | 0.2+ | 0.2− | 2008 09 28 | G96 | 0.6+ | 0.2+ | 2009 11 27 | G96 | 0.3+ | 0.0 |
| 2004 12 11 | 691 | 0.4+ | 0.2− | 2008 09 28 | G96 | 0.4+ | 0.1+ | 2009 11 27 | G96 | 0.5+ | 0.2+ |
| 2006 03 26 | 699 | 0.8+ | 0.4+ | 2008 09 28 | G96 | 0.7+ | 0.4+ | 2009 11 27 | G96 | 0.1+ | 0.0 |
| 2006 03 26 | 699 | 1.2− | 1.3+ | 2008 09 28 | G96 | 0.4+ | 0.2+ | 2009 11 27 | G96 | 0.8+ | 0.2− |
| 2006 03 26 | 699 | 3.0+ | 0.2− | 2008 10 17 | 691 | 0.3− | 0.2+ | 2009 11 27 | G96 | 0.4+ | 0.1+ |
| 2006 03 26 | 699 | 0.6+ | 0.6− | 2008 10 17 | 691 | 0.2− | 0.4+ | | | | |

**2009 VQ$_{96}$ = 2005 WV$_{173}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 63.75593 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24599184 | $\omega$ | 228.26839 | | +0.99933681 | +0.02941722 | |
| $a$ | 2.5226418 | $\Omega$ | 130.03440 | | −0.01902612 | +0.92434667 | |
| $e$ | 0.1686003 | $i$ | 1.60615 | | −0.03104737 | +0.38041800 | |
| $P$ | 4.01 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 28 | G96 | 0.2− | 0.0 | 2007 02 25 | 691 | 0.2− | 0.0 | 2009 11 16 | 691 | 0.4− | 0.1− |
| 2005 10 28 | G96 | 0.4− | 0.3− | 2007 02 25 | 691 | 0.3+ | 0.1− | 2009 11 16 | 691 | 0.7− | 0.2+ |
| 2005 10 28 | G96 | 0.4+ | 0.0 | 2007 03 10 | 691 | 0.1− | 0.0 | 2009 11 16 | 691 | 0.2− | 0.1+ |
| 2005 10 28 | G96 | 0.0 | 0.4− | 2007 03 10 | 691 | 0.3+ | 0.2− | 2009 12 11 | G96 | 0.6+ | 0.0 |
| 2005 11 30 | G96 | 1.4+ | 1.1− | 2007 03 10 | 691 | 0.1− | 0.0 | 2009 12 11 | G96 | 0.7+ | 0.1+ |
| 2005 11 30 | G96 | 0.0 | 0.2− | 2009 09 30 | G96 | 0.2− | 0.0 | 2009 12 11 | G96 | 0.6+ | 0.1+ |
| 2005 11 30 | G96 | 0.3− | 0.3− | 2009 09 30 | G96 | 0.3+ | 0.3+ | 2009 12 11 | G96 | 0.7+ | 0.1+ |
| 2005 11 30 | G96 | 0.0 | 0.1− | 2009 09 30 | G96 | 0.5− | 0.2− | 2009 12 15 | G96 | 0.7+ | 0.2+ |
| 2005 12 04 | 691 | 0.5− | 0.2+ | 2009 09 30 | G96 | 0.1+ | 0.1− | 2009 12 15 | G96 | 0.0 | 0.0 |
| 2005 12 04 | 691 | 0.3+ | 0.2− | 2009 11 08 | 691 | 0.2− | 0.1+ | 2009 12 15 | G96 | 0.3+ | 0.0 |
| 2005 12 04 | 691 | 0.0 | 0.0 | 2009 11 08 | 691 | 0.3+ | 0.3− | 2009 12 15 | G96 | 0.5+ | 0.5+ |
| 2007 02 25 | 691 | 0.2− | 0.3+ | 2009 11 08 | 691 | 0.1+ | 0.3+ | | | | |

**2009 VY$_{96}$ = 2005 VY$_{19}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 200.26509 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26719730 | $\omega$ | 185.56857 | | −0.43320543 | +0.89424777 | |
| $a$ | 2.3873422 | $\Omega$ | 58.80609 | | −0.82176342 | −0.34062771 | |
| $e$ | 0.1299039 | $i$ | 7.55644 | | −0.37018635 | −0.29033376 | |
| $P$ | 3.69 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 5 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 11 01 | 691 | 0.1− | 0.2+ | 2009 11 08 | G96 | 0.1− | 0.4+ | 2009 12 11 | G96 | 0.2+ | 0.3+ |
| 2005 11 01 | 691 | 0.1+ | 0.3+ | 2009 11 08 | G96 | 0.1+ | 0.1+ | 2009 12 11 | G96 | 0.3+ | 0.3+ |
| 2005 11 01 | 691 | 0.4− | 0.0 | 2009 11 17 | 691 | 0.0 | 0.4− | 2009 12 11 | G96 | 0.3+ | 0.0 |
| 2005 11 05 | 691 | 0.1+ | 0.0 | 2009 11 17 | 691 | 0.2+ | 0.4− | 2009 12 11 | G96 | 0.4+ | 0.1+ |
| 2005 11 05 | 691 | 0.1+ | 0.1− | 2009 11 17 | 691 | 0.4+ | 0.7+ | 2009 12 18 | G96 | 0.1+ | 0.0 |
| 2005 11 05 | 691 | 0.1+ | 0.4− | 2009 11 25 | 691 | 0.2− | 0.1− | 2009 12 18 | G96 | 0.1− | 0.1+ |
| 2009 11 08 | G96 | 0.2+ | 0.1+ | 2009 11 25 | 691 | 0.2+ | 0.6− | 2009 12 18 | G96 | 0.1− | 0.4+ |
| 2009 11 08 | G96 | 0.4+ | 0.1+ | 2009 11 25 | 691 | 1.0− | 0.2+ | 2009 12 18 | G96 | 0.2− | 0.3+ |

**2009 VG$_{100}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 104.25461 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17691298 | $\omega$ | 238.34707 | | +0.42772884 | | +0.82372650 |
| $a$ | 3.1426517 | $\Omega$ | 61.52791 | | −0.61717847 | | +0.56697564 |
| $e$ | 0.2148131 | $i$ | 25.04920 | | −0.66040804 | | +0.00364384 |
| $P$ | 5.57 | $H$ | 15.3 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 03 26 | 703 | 0.1+ | 0.2− | 2008 08 13 | E12 | 0.2+ | 0.1− | 2009 11 10 | 691 | 0.1+ | 0.1− |
| 2007 03 26 | 703 | 1.5− | 1.2− | 2008 09 02 | E12 | 0.4− | 0.2− | 2009 11 10 | 691 | 0.1+ | 0.2+ |
| 2007 03 26 | 703 | 0.4− | 1.1− | 2008 09 02 | E12 | 0.1− | 0.5− | 2009 11 20 | G96 | 0.1− | 0.2+ |
| 2007 03 26 | 703 | 0.3+ | 0.2+ | 2008 09 02 | E12 | 0.3− | 0.3− | 2009 11 20 | G96 | 0.1+ | 0.0 |
| 2007 04 18 | 703 | 0.2+ | 1.4+ | 2008 09 28 | E12 | 0.2− | 0.1− | 2009 11 20 | G96 | 0.3+ | 0.1+ |
| 2007 04 18 | 703 | 0.5− | 2.5+ | 2008 09 28 | E12 | 0.9− | 0.7+ | 2009 11 20 | G96 | 0.5+ | 0.3− |
| 2007 04 18 | 703 | 1.9+ | 1.0+ | 2008 09 28 | E12 | 0.6+ | 0.2− | 2009 12 11 | G96 | 0.1+ | 0.0 |
| 2007 04 18 | 703 | 1.2+ | 0.9− | 2008 09 28 | E12 | 0.0 | 1.3− | 2009 12 11 | G96 | 0.4+ | 0.1− |
| 2008 06 30 | E12 | 0.3− | 0.5+ | 2008 09 28 | E12 | 0.2− | 0.1− | 2009 12 11 | G96 | 0.1+ | 0.3− |
| 2008 06 30 | E12 | 0.3+ | 0.4+ | 2009 10 25 | 691 | 0.3− | 0.1+ | 2009 12 11 | G96 | 0.5+ | 0.1− |
| 2008 06 30 | E12 | 0.3− | 0.5+ | 2009 10 25 | 691 | 0.3− | 0.0 | 2009 12 17 | G96 | 0.3+ | 0.0 |
| 2008 06 30 | E12 | 0.2+ | 0.8+ | 2009 10 25 | 691 | 0.4− | 0.2+ | 2009 12 17 | G96 | 0.1+ | 0.2− |
| 2008 08 13 | E12 | 0.4+ | 0.7+ | 2009 11 10 | 691 | 0.3− | 0.4+ | 2009 12 17 | G96 | 0.2+ | 0.0 |

**2009 VN$_{100}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 102.79945 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18429339 | $\omega$ | 246.22767 | | +0.75709581 | | +0.63064146 |
| $a$ | 3.0581788 | $\Omega$ | 74.21988 | | −0.51609492 | | +0.73743262 |
| $e$ | 0.0847616 | $i$ | 10.21019 | | −0.40056456 | | +0.24183563 |
| $P$ | 5.35 | $H$ | 15.2 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 01 | 699 | 1.3+ | 1.9− | 2008 08 23 | E12 | 0.6− | 0.4+ | 2009 11 18 | 691 | 0.0 | 0.0 |
| 2003 10 01 | 699 | 0.1− | 1.1− | 2008 08 23 | E12 | 0.3+ | 0.8+ | 2009 11 18 | 691 | 0.0 | 0.1+ |
| 2003 10 01 | 699 | 0.7+ | 0.1− | 2008 08 23 | E12 | 0.4− | 0.9+ | 2009 12 11 | 703 | 0.2+ | 0.4− |
| 2003 10 01 | 699 | 0.1+ | 0.7− | 2008 08 23 | E12 | 0.0 | 1.0+ | 2009 12 11 | 703 | 0.5− | 0.8+ |
| 2007 04 15 | 691 | 0.1+ | 0.3+ | 2008 09 08 | E12 | 0.4− | 1.3− | 2009 12 11 | 703 | 0.3+ | 0.1− |
| 2007 04 15 | 691 | 0.3− | 0.1− | 2008 09 08 | E12 | 0.3− | 0.1− | 2009 12 11 | 703 | 0.5+ | 0.2− |
| 2007 04 15 | 691 | 0.2+ | 0.2− | 2008 09 08 | E12 | 0.5+ | 0.1+ | 2009 12 17 | G96 | 0.3+ | 0.2+ |
| 2008 08 05 | E12 | 0.5+ | 0.2− | 2009 11 10 | 691 | 0.1− | 0.1+ | 2009 12 17 | G96 | 0.4+ | 0.0 |
| 2008 08 05 | E12 | 0.2− | 0.2− | 2009 11 10 | 691 | 0.2− | 0.2+ | 2009 12 17 | G96 | 0.0 | 0.0 |
| 2008 08 05 | E12 | 0.4− | 0.9+ | 2009 11 10 | 691 | 0.0 | 0.2+ | 2009 12 17 | G96 | 0.1+ | 0.1+ |
| 2008 08 05 | E12 | 0.2− | 0.9+ | 2009 11 18 | 691 | 0.2− | 0.0 | | | | |

**2009 VV$_{100}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 286.98067 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18020247 | $\omega$ | 80.23507 | | −0.86834864 | | −0.45695774 |
| $a$ | 3.1042895 | $\Omega$ | 72.35852 | | +0.33735350 | | −0.82912950 |
| $e$ | 0.0336945 | $i$ | 11.67050 | | +0.36354266 | | −0.32207747 |
| $P$ | 5.47 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 05 24 | 691 | 0.0 | 0.3+ | 2005 01 06 | 703 | 0.2+ | 0.1+ | 2009 12 11 | 703 | 1.3− | 0.1− |
| 2001 05 24 | 691 | 0.1+ | 0.1+ | 2005 01 06 | 703 | 0.5− | 0.6− | 2009 12 11 | 703 | 1.2+ | 0.5− |
| 2001 05 24 | 691 | 0.2+ | 0.1+ | 2005 01 06 | 703 | 1.2− | 0.0 | 2009 12 11 | 703 | 0.1− | 0.7− |
| 2003 11 28 | 645 | 0.0 | 0.0 | 2009 11 10 | 291 | 0.3− | 0.3+ | 2009 12 11 | 703 | 0.9+ | 0.1− |
| 2003 11 28 | 645 | 0.0 | 0.0 | 2009 11 10 | 291 | 0.4− | 0.1+ | 2009 12 15 | G96 | 0.8+ | 0.1+ |
| 2004 12 10 | 691 | 0.1− | 0.0 | 2009 11 10 | 291 | 0.2− | 0.2+ | 2009 12 15 | G96 | 0.3+ | 0.2+ |
| 2004 12 10 | 691 | 0.1+ | 0.3+ | 2009 11 20 | 691 | 0.1− | 0.0 | 2009 12 15 | G96 | 0.4+ | 0.2+ |
| 2004 12 10 | 691 | 0.4+ | 0.0 | 2009 11 20 | 691 | 0.2+ | 0.1− | 2009 12 15 | G96 | 0.4+ | 0.2+ |
| 2005 01 06 | 703 | 0.1− | 0.1− | 2009 11 20 | 691 | 0.1+ | 0.1− | | | | |

**2009 VH$_{101}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 6.82781 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.26524419 | $\omega$ | 242.53593 | | +0.19680646 | | −0.98016513 |
| $a$ | 2.3990472 | $\Omega$ | 196.16450 | | +0.92650798 | | +0.19370550 |
| $e$ | 0.2002012 | $i$ | 4.80372 | | +0.32070264 | | +0.04188659 |
| $P$ | 3.72 | $H$ | 17.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 27 | 691 | 0.2+ | 0.0 | 2007 04 18 | G96 | 0.0 | 0.2+ | 2009 12 08 | J75 | 0.6+ | 0.3+ |
| 2005 09 27 | 691 | 0.1− | 0.1+ | 2007 04 18 | G96 | 0.1− | 0.1+ | 2009 12 09 | J75 | 0.3+ | 0.7+ |
| 2005 09 27 | 691 | 0.0 | 0.0 | 2007 04 18 | G96 | 0.0 | 0.0 | 2009 12 15 | 703 | 0.1− | 0.3+ |
| 2005 10 10 | 691 | 0.2+ | 0.1− | 2009 11 10 | 691 | 0.3− | 0.1− | 2009 12 15 | 703 | 0.2+ | 0.4+ |
| 2005 10 10 | 691 | 0.2− | 0.3+ | 2009 11 10 | 691 | 0.1+ | 0.1− | 2009 12 15 | 703 | 0.5− | 0.1+ |
| 2005 10 10 | 691 | 0.0 | 0.1− | 2009 11 10 | 691 | 0.1+ | 0.1− | 2009 12 15 | 703 | 0.9− | 0.1− |
| 2005 10 26 | G96 | 0.0 | 0.3− | 2009 11 23 | 703 | 0.2+ | 0.6+ | 2009 12 17 | G96 | 0.4+ | 0.2− |
| 2005 10 26 | G96 | 0.2− | 0.1− | 2009 11 23 | 703 | 0.8− | 0.2+ | 2009 12 17 | G96 | 0.4+ | 0.2− |
| 2005 10 26 | G96 | 0.3− | 0.3− | 2009 11 23 | 703 | 0.2+ | 0.1− | 2009 12 17 | G96 | 0.1+ | 0.6− |
| 2005 10 26 | G96 | 0.1− | 0.0 | 2009 11 23 | 703 | 0.2− | 0.4+ | 2009 12 17 | G96 | 0.4+ | 0.6− |
| 2007 04 18 | G96 | 0.2+ | 0.1− | 2009 12 08 | J75 | 0.1− | 0.4+ | | | | |

**2009 VD$_{103}$ = 2005 YC$_{212}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 342.67933 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.24086756 | $\omega$ | 44.14529 | | −0.66639683 | | −0.73026881 |
| $a$ | 2.5582943 | $\Omega$ | 88.25637 | | +0.63559116 | | −0.66185984 |
| $e$ | 0.1462729 | $i$ | 8.65464 | | +0.38979372 | | −0.16926017 |
| $P$ | 4.09 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 27 | 645 | 0.0 | 0.1− | 2006 02 02 | 703 | 0.4+ | 0.1− | 2009 12 18 | G96 | 0.2− | 0.1− |
| 2000 09 27 | 645 | 0.0 | 0.1+ | 2006 02 02 | 703 | 0.5− | 1.0− | 2009 12 18 | G96 | 0.1− | 0.0 |
| 2002 02 22 | 644 | 0.6+ | 0.6+ | 2006 02 02 | 703 | 0.9− | 0.1− | 2009 12 18 | G96 | 0.2+ | 0.1+ |
| 2002 02 22 | 644 | 0.5+ | 0.6+ | 2006 02 02 | 703 | 0.4− | 0.9− | 2009 12 18 | G96 | 0.0 | 0.2+ |
| 2002 02 22 | 644 | 0.3+ | 0.7+ | 2009 10 18 | G96 | 0.3+ | 0.1+ | 2009 12 19 | G96 | 0.2+ | 0.1+ |
| 2005 10 28 | G96 | 0.4+ | 0.8− | 2009 10 18 | G96 | 0.7+ | 1.4− | 2009 12 19 | G96 | 0.0 | 0.2+ |
| 2005 10 28 | G96 | 0.2+ | 0.3− | 2009 10 18 | G96 | 0.8+ | 0.3− | 2009 12 19 | G96 | 0.3+ | 0.0 |
| 2005 10 28 | G96 | 0.2− | 0.7− | 2009 10 18 | G96 | 0.2− | 0.1− | 2009 12 19 | G96 | 0.1+ | 0.1+ |
| 2005 10 28 | G96 | 0.2− | 0.4− | 2009 11 11 | G96 | 0.1+ | 0.3− | 2009 12 19 | 691 | 0.0 | 0.2+ |
| 2005 12 28 | 703 | 0.6− | 0.9− | 2009 11 11 | G96 | 0.2+ | 0.1+ | 2009 12 19 | 691 | 0.0 | 0.1+ |
| 2005 12 28 | 703 | 0.1+ | 0.2+ | 2009 11 11 | G96 | 0.2+ | 0.5− | 2009 12 19 | 691 | 0.2− | 0.6+ |
| 2005 12 28 | 703 | 1.4− | 0.5+ | 2009 11 11 | G96 | 0.2+ | 0.4+ | 2009 12 27 | 691 | 0.0 | 0.1− |
| 2005 12 28 | 703 | 0.7− | 0.3− | 2009 11 23 | G96 | 0.2+ | 0.0 | 2009 12 27 | 691 | 0.1− | 0.1− |
| 2006 01 05 | 704 | 0.9+ | 1.0− | 2009 11 23 | G96 | 0.1+ | 0.1− | 2009 12 27 | 691 | 0.0 | 0.1+ |
| 2006 01 05 | 704 | 0.5+ | 0.8+ | 2009 11 23 | G96 | 0.4− | 0.1− | | | | |
| 2006 01 05 | 704 | 0.4+ | 0.2+ | 2009 11 23 | G96 | 0.1+ | 0.2− | | | | |

**2009 VP$_{103}$ = 2006 DW$_{56}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 330.83249 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22376367 | $\omega$ | 215.12843 | | −0.83224526 | | −0.51562801 |
| $a$ | 2.6870536 | $\Omega$ | 292.57953 | | +0.54564100 | | −0.69670946 |
| $e$ | 0.0989527 | $i$ | 12.74518 | | +0.09820244 | | −0.49872204 |
| $P$ | 4.40 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 07 24 | 644 | 0.1+ | 0.3+ | 2006 03 04 | 703 | 0.1− | 0.4+ | 2009 11 21 | G96 | 0.1+ | 0.1− |
| 2003 07 24 | 644 | 0.1− | 0.3+ | 2006 03 04 | 703 | 1.3− | 1.3+ | 2009 12 15 | G96 | 0.3− | 0.3− |
| 2003 07 24 | 644 | 0.3− | 0.1− | 2006 03 04 | 703 | 0.8+ | 0.1+ | 2009 12 15 | G96 | 0.0 | 0.0 |
| 2006 02 24 | 703 | 0.1− | 0.7+ | 2006 03 04 | 703 | 1.0+ | 0.8− | 2009 12 15 | G96 | 0.3− | 0.1+ |
| 2006 02 24 | 703 | 0.4− | 0.1+ | 2009 11 11 | G96 | 0.2− | 0.1+ | 2009 12 15 | G96 | 0.4+ | 0.0 |
| 2006 02 24 | 703 | 0.8− | 0.3− | 2009 11 11 | G96 | 0.2− | 0.2+ | 2009 12 18 | 691 | 0.2+ | 0.1+ |
| 2006 02 24 | 703 | 0.5+ | 0.1− | 2009 11 11 | G96 | 0.1− | 0.2− | 2009 12 18 | 691 | 0.0 | 0.0 |
| 2006 02 25 | 703 | 0.6+ | 1.0− | 2009 11 11 | G96 | 0.2− | 0.1− | 2009 12 18 | 691 | 0.1+ | 0.1+ |
| 2006 02 25 | 703 | 0.2+ | 0.0 | 2009 11 21 | G96 | 0.2− | 0.3− | 2009 12 26 | 691 | 0.0 | 0.0 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 02 25 | 703 | 0.3+ | 0.0 | 2009 11 21 | G96 | 0.2+ | 0.0 | 2009 12 26 | 691 | 0.1− | 0.1− | | |
| 2006 02 25 | 703 | 0.6− | 0.5− | 2009 11 21 | G96 | 0.1+ | 0.0 | 2009 12 26 | 691 | 0.1− | 0.1+ | | |

**2009 VQ$_{103}$ = 2006 BX$_{201}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 48.28275 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23383742 | $\omega$ | 36.91739 | | +0.69531463 | −0.71867309 | |
| $a$ | 2.6093162 | $\Omega$ | 9.03741 | | +0.64858674 | +0.62335982 | |
| $e$ | 0.1825714 | $i$ | 2.48945 | | +0.30963335 | +0.30810960 | |
| $P$ | 4.21 | $H$ | 17.5 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 02 13 | 291 | 0.3− | 0.2− | 2006 02 25 | G96 | 0.1+ | 0.1− | 2009 11 21 | G96 | 0.0 | 0.3− | | |
| 2002 02 13 | 291 | 0.2+ | 0.2+ | 2006 03 05 | 691 | 0.2− | 0.3+ | 2009 11 21 | G96 | 0.5+ | 0.1− | | |
| 2002 02 13 | 291 | 0.0 | 0.5+ | 2006 03 05 | 691 | 0.5+ | 0.2− | 2009 12 15 | G96 | 0.7− | 0.1+ | | |
| 2006 01 31 | 691 | 0.0 | 0.1+ | 2006 03 05 | 691 | 0.3+ | 0.4− | 2009 12 15 | G96 | 1.1+ | 0.4+ | | |
| 2006 01 31 | 691 | 0.1+ | 0.0 | 2007 05 11 | G96 | 0.1− | 0.3− | 2009 12 15 | G96 | 0.4+ | 0.4+ | | |
| 2006 01 31 | 691 | 0.2− | 0.0 | 2007 05 11 | G96 | 0.6+ | 0.0 | 2009 12 15 | G96 | 0.4+ | 0.6+ | | |
| 2006 02 02 | G96 | 0.2− | 0.3− | 2007 05 11 | G96 | 0.4+ | 0.2− | 2009 12 19 | 691 | 0.1+ | 0.5− | | |
| 2006 02 02 | G96 | 0.2− | 0.2− | 2007 05 11 | G96 | 1.0− | 0.0 | 2009 12 19 | 691 | 0.3− | 0.2− | | |
| 2006 02 02 | G96 | 0.1− | 0.2− | 2009 11 11 | G96 | 0.5+ | 0.1+ | 2009 12 19 | 691 | 0.0 | 0.2+ | | |
| 2006 02 02 | G96 | 0.1− | 0.5− | 2009 11 11 | G96 | 0.4+ | 0.2− | 2009 12 27 | 691 | 0.0 | 0.2− | | |
| 2006 02 25 | G96 | 0.2− | 0.2− | 2009 11 11 | G96 | 0.0 | 0.1− | 2009 12 27 | 691 | 0.4− | 0.3+ | | |
| 2006 02 25 | G96 | 0.2+ | 0.0 | 2009 11 11 | G96 | 0.3+ | 0.1+ | 2009 12 27 | 691 | 0.3− | 0.1+ | | |
| 2006 02 25 | G96 | 0.3− | 0.1− | 2009 11 21 | G96 | 0.4+ | 0.3− | | | | | | |

**2009 VX$_{103}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 82.54489 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18853787 | $\omega$ | 249.86778 | | +0.94557109 | +0.25538809 | |
| $a$ | 3.0121065 | $\Omega$ | 94.91455 | | −0.16675701 | +0.91246408 | |
| $e$ | 0.1276122 | $i$ | 11.67838 | | −0.27944126 | +0.31966581 | |
| $P$ | 5.23 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 19 | 699 | 0.0 | 0.5+ | 2007 06 18 | 691 | 0.1− | 0.0 | 2009 11 18 | 691 | 0.2− | 0.2+ | | |
| 2003 09 19 | 699 | 0.0 | 0.1− | 2007 06 18 | 691 | 0.2+ | 0.4+ | 2009 11 18 | 691 | 0.3− | 0.0 | | |
| 2003 09 19 | 699 | 0.9− | 1.0− | 2007 06 18 | 691 | 0.2+ | 0.3+ | 2009 11 26 | 691 | 0.3− | 0.2+ | | |
| 2003 09 19 | 699 | 1.3− | 0.5+ | 2008 08 05 | E12 | 0.6+ | 0.3+ | 2009 11 26 | 691 | 0.0 | 0.3+ | | |
| 2003 09 28 | 608 | 0.6+ | 0.3− | 2008 08 05 | E12 | 0.1− | 0.9+ | 2009 11 26 | 691 | 0.2− | 0.2+ | | |
| 2003 09 28 | 608 | 0.3− | 0.3− | 2008 08 23 | E12 | 0.4− | 0.4+ | 2009 12 08 | J75 | 0.4+ | 0.4− | | |
| 2003 09 28 | 608 | 0.4+ | 0.1− | 2008 08 23 | E12 | 0.5+ | 0.2+ | 2009 12 09 | J75 | 0.2+ | 0.2− | | |
| 2004 12 10 | 691 | 0.3+ | 0.1+ | 2008 08 23 | E12 | 0.4+ | 0.6+ | 2009 12 09 | J75 | 0.3+ | 0.2+ | | |
| 2004 12 10 | 691 | 0.4+ | 0.0 | 2008 08 23 | E12 | 0.3+ | 0.7+ | 2009 12 11 | G96 | 0.2+ | 0.1− | | |
| 2004 12 10 | 691 | 0.1+ | 0.2− | 2009 11 10 | 691 | 0.4− | 0.0 | 2009 12 11 | G96 | 0.4+ | 0.1− | | |
| 2007 04 25 | 691 | 0.1+ | 0.6+ | 2009 11 10 | 691 | 0.5− | 0.0 | 2009 12 11 | G96 | 0.5+ | 0.0 | | |
| 2007 04 25 | 691 | 0.1+ | 0.3+ | 2009 11 10 | 691 | 0.3+ | 1.2+ | 2009 12 11 | G96 | 0.2+ | 0.0 | | |
| 2007 04 25 | 691 | 0.1+ | 0.4+ | 2009 11 18 | 691 | 0.2− | 0.1+ | | | | | | |

**2009 VC$_{104}$ = 2004 RB$_{185}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 78.58108 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22269922 | $\omega$ | 137.86405 | | +0.95530105 | +0.29280192 | |
| $a$ | 2.6956092 | $\Omega$ | 205.19735 | | −0.29033077 | +0.90312985 | |
| $e$ | 0.0286475 | $i$ | 5.50310 | | −0.05574891 | +0.31404379 | |
| $P$ | 4.43 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 05 23 | 691 | 0.2− | 1.7+ | 2007 03 14 | 691 | 0.3+ | 0.0 | 2009 11 15 | 703 | 0.7− | 0.5− | | |
| 2003 05 23 | 691 | 0.1+ | 1.8+ | 2007 03 14 | 691 | 0.3+ | 0.2− | 2009 11 15 | 703 | 1.2− | 1.6+ | | |
| 2003 05 23 | 691 | 0.3− | 2.1+ | 2007 03 14 | 691 | 0.1− | 0.1− | 2009 11 15 | 703 | (0.8+ | 2.7+) | | |
| 2003 07 04 | 691 | 0.2− | 0.4− | 2007 04 16 | G96 | 0.1+ | 0.5− | 2009 11 15 | 703 | (0.3− | 2.3+) | | |
| 2003 07 04 | 691 | 0.2+ | 0.7− | 2007 04 16 | G96 | 0.1+ | 0.3− | 2009 11 15 | 703 | 1.3− | 1.2+ | | |
| 2003 07 04 | 691 | 0.2+ | 0.8− | 2007 04 16 | G96 | 0.1+ | 0.4− | 2009 11 15 | 703 | 0.8− | 0.0 | | |
| 2004 08 23 | 691 | 0.4+ | 0.1+ | 2007 04 16 | G96 | 0.2+ | 0.6− | 2009 11 16 | G96 | 0.8− | 1.1+ | | |
| 2004 08 23 | 691 | 0.1+ | 0.2+ | 2008 06 12 | 691 | 0.1+ | 0.4− | 2009 11 16 | G96 | 0.2+ | 0.8+ | | |
| 2004 08 23 | 691 | 0.5+ | 0.1− | 2008 06 12 | 691 | 0.3+ | 0.2− | 2009 11 16 | G96 | 0.3− | 0.5− | | |
| 2004 09 10 | 704 | 0.6− | 1.4+ | 2008 06 12 | 691 | 0.3− | 0.5− | 2009 11 16 | G96 | 0.2+ | 0.6+ | | |
| 2004 09 10 | 704 | 1.3+ | 0.2+ | 2009 10 22 | G96 | 0.3+ | 0.6+ | 2009 11 24 | G96 | 0.2− | 0.8+ | | |
| 2004 09 10 | 704 | 0.0 | 0.8+ | 2009 10 22 | G96 | 0.2− | 0.8+ | 2009 11 24 | G96 | 0.1+ | 0.8+ | | |
| 2004 09 10 | 704 | (0.3− | 1.7+) | 2009 10 22 | G96 | 0.0 | 0.8+ | 2009 11 24 | G96 | 0.3+ | 0.7+ | | |
| 2004 09 13 | 704 | 0.9− | 0.4− | 2009 10 22 | G96 | 0.1+ | 0.8+ | 2009 11 24 | G96 | 0.3+ | 0.9+ | | |
| 2004 09 13 | 704 | 0.7− | 0.6− | 2009 11 15 | 703 | 0.3+ | 0.0 | | | | | | |
| 2004 09 13 | 704 | 1.3− | 0.1+ | 2009 11 15 | 703 | 0.2+ | 0.5+ | | | | | | |

**2009 VM$_{104}$ = 1999 AR$_{38}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 35.05420 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17771983 | $\omega$ | 296.56174 | | +0.96108261 | +0.04147789 | |
| $a$ | 3.1331327 | $\Omega$ | 62.16937 | | +0.10830221 | +0.85295663 | |
| $e$ | 0.2518486 | $i$ | 17.99020 | | −0.25414729 | +0.52033122 | |
| $P$ | 5.55 | $H$ | 15.0 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 01 13 | 910 | 1.0+ | 0.5− | 2009 10 01 | G96 | 0.1+ | 0.4− | 2009 11 23 | 703 | 0.0 | 1.0+ | | |
| 1999 01 19 | 910 | 0.4+ | 0.3− | 2009 10 01 | G96 | 0.0 | 0.2− | 2009 11 23 | 703 | 0.3− | 0.6+ | | |
| 1999 01 19 | 910 | 0.1− | 0.3− | 2009 10 14 | J75 | 0.3− | 0.5+ | 2009 11 23 | 703 | 0.8+ | 0.8+ | | |
| 1999 01 19 | 910 | 0.0 | 0.8− | 2009 10 14 | J75 | 0.0 | 0.4− | 2009 11 23 | 703 | 0.8+ | 0.6+ | | |
| 2002 05 17 | 644 | 0.2+ | 0.4+ | 2009 10 14 | J75 | 0.1+ | 0.4+ | 2009 12 10 | 703 | 0.4− | 0.2− | | |
| 2002 05 17 | 644 | 0.2+ | 0.2+ | 2009 11 08 | 703 | (1.7− | 1.1−) | 2009 12 10 | 703 | 0.8+ | 0.2+ | | |
| 2002 05 17 | 644 | 0.4+ | 0.5+ | 2009 11 08 | 703 | 0.8− | 1.4− | 2009 12 10 | 703 | 0.3+ | 0.0 | | |
| 2009 08 18 | 703 | 0.2+ | 0.3+ | 2009 11 08 | 703 | 0.6− | 0.7− | 2009 12 10 | 703 | 0.3− | 0.1+ | | |
| 2009 08 18 | 703 | 0.1− | 0.7+ | 2009 11 08 | 703 | 0.8− | 0.2− | 2009 12 13 | 704 | 0.4+ | 0.9+ | | |
| 2009 08 18 | 703 | 1.5+ | 0.1− | 2009 11 08 | 703 | 0.7− | 0.2+ | 2009 12 13 | 704 | 0.2− | 1.5+ | | |
| 2009 08 18 | 703 | 0.1+ | 1.1− | 2009 11 08 | 703 | 0.0 | 0.0 | 2009 12 13 | 704 | 0.0 | 0.2− | | |
| 2009 10 01 | G96 | 0.5+ | 0.4− | 2009 11 08 | 703 | 0.3− | 0.1− | 2009 12 13 | 704 | 0.3− | 0.3− | | |
| 2009 10 01 | G96 | 0.3+ | 0.3− | 2009 11 08 | 703 | 0.8− | 0.1+ | 2009 12 13 | 704 | 0.7− | 0.2+ | | |

**2009 VS$_{104}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 10.10409 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21738253 | $\omega$ | 235.24633 | | +0.59362036 | −0.80471314 | |
| $a$ | 2.7393843 | $\Omega$ | 178.28801 | | +0.79433960 | +0.58448998 | |
| $e$ | 0.1584940 | $i$ | 13.91771 | | +0.12899407 | +0.10396262 | |
| $P$ | 4.53 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 09 24 | 691 | 0.4− | 0.2+ | 2009 09 29 | G96 | 0.3− | 0.2− | 2009 11 08 | 703 | 0.9+ | 0.7− | | |
| 1995 09 24 | 691 | 0.1+ | 0.0 | 2009 09 29 | G96 | 0.4− | 0.0 | 2009 11 08 | 703 | 0.9+ | 0.1− | | |
| 1995 09 24 | 691 | 0.3+ | 0.2+ | 2009 10 16 | 703 | 0.0 | 0.8− | 2009 11 24 | 703 | 0.4− | 0.3− | | |
| 2004 09 23 | 691 | 0.0 | 0.2− | 2009 10 16 | 703 | 0.9+ | 0.4+ | 2009 11 24 | 703 | 0.6− | 0.2+ | | |
| 2004 09 23 | 691 | 0.0 | 0.1− | 2009 10 16 | 703 | 0.6+ | 0.1− | 2009 11 24 | 703 | 0.3− | 0.5+ | | |
| 2004 09 23 | 691 | 0.1+ | 0.1− | 2009 10 16 | 703 | 0.1− | 0.3+ | 2009 11 24 | 703 | 0.7− | 0.3+ | | |
| 2009 09 29 | G96 | 0.2− | 0.1− | 2009 11 08 | 703 | 0.2+ | 0.4+ | 2009 11 24 | 703 | 0.2+ | 0.3− | | |
| 2009 09 29 | G96 | 0.2− | 0.0 | 2009 11 08 | 703 | 0.5− | 0.1+ | | | | | | |

**2009 VU$_{104}$ = 2006 HK$_{5}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 309.61273 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17606673 | $\omega$ | 60.39049 | | −0.33484319 | −0.91025567 | |
| $a$ | 3.1527136 | $\Omega$ | 51.24830 | | +0.71985172 | −0.41389328 | |
| $e$ | 0.1909373 | $i$ | 18.19742 | | +0.60802429 | −0.01126785 | |
| $P$ | 5.60 | $H$ | 14.9 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 04 19 | 703 | 0.9− | 0.7− | 2009 09 29 | G96 | 0.3+ | 0.3− | 2009 11 09 | 703 | 0.0 | 0.4− | | |
| 2006 04 19 | 703 | 0.3− | 0.4+ | 2009 10 11 | J75 | 0.3+ | 0.1− | 2009 11 23 | 703 | 1.2+ | 1.2+ | | |
| 2006 04 19 | 703 | 1.2− | 1.1− | 2009 10 11 | J75 | 0.2+ | 1.3+ | 2009 11 23 | 703 | 1.3− | 0.5+ | | |
| 2006 04 19 | 703 | 1.5− | 0.6+ | 2009 10 12 | J75 | 0.4− | 0.1− | 2009 11 23 | 703 | 0.6− | 0.1− | | |
| 2006 04 20 | 699 | 1.8+ | 0.5+ | 2009 10 22 | G96 | 0.6+ | 0.0 | 2009 11 23 | 703 | 0.1+ | 0.7− | | |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 04 20 | 699 | 1.6+ | 0.2− | 2009 10 22 | G96 | 0.3+ | 0.0 | 2009 11 23 | 703 | 0.4− | 0.0 |
| 2006 04 20 | 699 | (1.1+ | 2.4+) | 2009 10 22 | G96 | 0.2− | 0.0 | 2009 12 13 | G96 | 0.3+ | 0.3− |
| 2006 04 20 | 699 | 0.5+ | 0.6+ | 2009 10 22 | G96 | 0.3+ | 0.1+ | 2009 12 13 | G96 | 0.2+ | 0.3− |
| 2009 09 29 | G96 | 0.0 | 0.3− | 2009 11 09 | 703 | 0.3− | 0.2− | 2009 12 13 | G96 | 0.1+ | 0.1− |
| 2009 09 29 | G96 | 0.1− | 0.3− | 2009 11 09 | 703 | 0.5− | 0.2− | 2009 12 13 | G96 | 0.4+ | 0.2− |
| 2009 09 29 | G96 | 0.2− | 0.2− | 2009 11 09 | 703 | 0.2− | 0.6+ | | | | |

**2009 VY$_{104}$ = 2001 XW$_{257}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 47.26342 | | | (2000.0) | | |
| $n$ | 0.37066250 | $\omega$ | 122.53467 | | +0.92286173 | −0.13403203 |
| $a$ | 1.9193328 | $\Omega$ | 247.46012 | | +0.05173592 | +0.97213519 |
| $e$ | 0.1299437 | $i$ | 23.01159 | | +0.38164071 | +0.19232416 |
| $P$ | 2.66 | $H$ | 17.2 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 12 07 | 644 | 0.1− | 0.3− | 2009 10 17 | 703 | 0.6− | 0.1− | 2009 12 11 | J75 | 0.2+ | 0.2− |
| 2001 12 07 | 644 | 0.1− | 0.1+ | 2009 11 09 | 703 | 0.5− | 0.1+ | 2009 12 11 | J75 | 0.1+ | 0.1− |
| 2001 12 07 | 644 | 0.2− | 0.2− | 2009 11 09 | 703 | 1.1− | 0.1− | 2009 12 12 | J75 | 0.1+ | 0.2− |
| 2001 12 10 | 704 | 0.7− | 0.4+ | 2009 11 09 | 703 | 1.3+ | 0.5− | 2009 12 12 | J75 | 0.1− | 0.1− |
| 2001 12 10 | 704 | 0.4+ | 0.3+ | 2009 11 09 | 703 | 0.2− | 0.6− | 2009 12 12 | J75 | 0.1+ | 0.3− |
| 2001 12 10 | 704 | 0.1+ | 0.7+ | 2009 11 19 | 703 | 0.2+ | 0.9+ | 2009 12 12 | J75 | 0.3+ | 0.2− |
| 2001 12 10 | 704 | 0.4+ | 1.2+ | 2009 11 19 | 703 | 0.9+ | 0.0 | 2009 12 13 | 703 | 0.2+ | 0.2+ |
| 2001 12 10 | 704 | (0.3+ | 1.8+) | 2009 11 19 | 703 | 0.3− | 0.3− | 2009 12 13 | 703 | 0.7+ | 1.4− |
| 2009 10 17 | 703 | 0.6+ | 0.7+ | 2009 12 11 | J75 | 0.2− | 0.1+ | 2009 12 13 | 703 | 0.8− | 1.3+ |
| 2009 10 17 | 703 | 0.3+ | 0.2− | 2009 12 11 | J75 | 0.1+ | 0.3− | 2009 12 13 | 703 | 0.8− | 0.2+ |
| 2009 10 17 | 703 | 0.9− | 0.6− | 2009 12 11 | J75 | 0.0 | 0.5− | | | | |
| 2009 10 17 | 703 | 0.0 | 0.3+ | 2009 12 11 | J75 | 0.2+ | 0.2− | | | | |

**2009 VJ$_{105}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 46.67551 | | | (2000.0) | | |
| $n$ | 0.24061201 | $\omega$ | 52.71246 | | +0.99402238 | −0.06108785 |
| $a$ | 2.5601054 | $\Omega$ | 310.60163 | | +0.01193681 | +0.88465012 |
| $e$ | 0.1962313 | $i$ | 6.84467 | | +0.10852195 | +0.46223634 |
| $P$ | 4.10 | $H$ | 16.0 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 02 | 703 | 0.3− | 0.2− | 2009 10 18 | 704 | 0.3+ | 0.4− | 2009 11 26 | 703 | 1.2+ | 0.4− |
| 2005 12 02 | 703 | 0.7+ | 0.2− | 2009 10 18 | 704 | 0.6+ | 0.1− | 2009 11 26 | 703 | 0.7+ | 0.4− |
| 2005 12 02 | 703 | 0.8− | 0.4− | 2009 10 18 | 704 | 0.4− | 0.8+ | 2009 12 06 | J75 | 0.5− | 0.1+ |
| 2005 12 02 | 703 | 0.4+ | 0.2− | 2009 11 10 | 703 | 0.1− | 0.3+ | 2009 12 06 | J75 | 0.6+ | 0.2− |
| 2005 12 22 | 703 | 0.5− | 0.1+ | 2009 11 10 | 703 | 1.0+ | 0.1+ | 2009 12 06 | J75 | 0.3− | 0.2− |
| 2005 12 22 | 703 | 0.5+ | 0.5− | 2009 11 10 | 703 | 0.2+ | 0.0 | 2009 12 15 | 704 | 1.9− | 1.2+ |
| 2005 12 22 | 703 | (1.9+ | 3.5+) | 2009 11 10 | 703 | 0.7+ | 0.3+ | 2009 12 15 | 704 | 0.6− | 0.5+ |
| 2009 08 28 | 704 | 0.2+ | 0.6− | 2009 11 26 | 703 | 0.4+ | 0.3+ | 2009 12 15 | 704 | 1.0− | 0.1− |
| 2009 08 28 | 704 | 0.1+ | 0.7− | 2009 11 26 | 703 | 0.4− | 0.5− | 2009 12 15 | 704 | 0.2+ | 0.8+ |
| 2009 08 28 | 704 | 1.1− | 0.8+ | 2009 11 26 | 703 | 0.5+ | 0.1− | 2009 12 15 | 704 | 1.6− | 0.3− |

**2009 VP$_{105}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 20.90754 | | | (2000.0) | | |
| $n$ | 0.21770579 | $\omega$ | 248.02724 | | +0.81037371 | −0.58472122 |
| $a$ | 2.7366719 | $\Omega$ | 147.72150 | | +0.56006412 | +0.75431671 |
| $e$ | 0.1995457 | $i$ | 4.01123 | | +0.17211223 | +0.29850862 |
| $P$ | 4.53 | $H$ | 16.8 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 01 02 | 691 | 0.3− | 0.2− | 2006 01 23 | G96 | 1.0− | 0.1+ | 2009 11 12 | J75 | 0.6+ | 0.0 |
| 1997 01 02 | 691 | 0.1− | 0.2− | 2006 01 23 | G96 | 0.2+ | 0.0 | 2009 11 12 | J75 | 0.3+ | 0.3+ |
| 1997 01 02 | 691 | 0.4+ | 0.3− | 2006 01 23 | G96 | 0.1− | 0.3+ | 2009 11 12 | J75 | 0.1+ | 0.6− |
| 1997 01 16 | 691 | 1.0+ | 0.2+ | 2009 10 14 | G96 | 0.0 | 0.1+ | 2009 11 21 | 703 | (1.7+ | 0.8+) |
| 1997 01 16 | 691 | 0.4− | 0.3− | 2009 10 14 | G96 | 0.0 | 0.2+ | 2009 11 21 | 703 | 0.4+ | 0.4+ |
| 1997 01 16 | 691 | 0.7− | 0.3+ | 2009 10 14 | G96 | 0.3− | 0.2− | 2009 11 21 | 703 | 0.5+ | 0.2+ |
| 2006 01 23 | G96 | 0.4+ | 0.4+ | 2009 10 14 | G96 | 0.0 | 0.0 | 2009 11 21 | 703 | 0.9− | 0.5− |
| 2006 01 23 | G96 | 0.2+ | 0.3+ | 2009 10 25 | 703 | 1.1− | 0.8+ | 2009 12 10 | 703 | 0.4+ | 0.1+ |
| 2006 01 23 | G96 | 0.2+ | 0.3+ | 2009 10 25 | 703 | 1.0+ | 0.1− | 2009 12 10 | 703 | 0.3+ | 0.0 |
| 2006 01 23 | G96 | 0.0 | 0.2+ | 2009 10 25 | 703 | 0.4+ | 0.6− | 2009 12 10 | 703 | 0.9− | 0.2+ |
| 2006 01 23 | G96 | 0.3+ | 0.0 | 2009 10 25 | 703 | 0.5− | 1.1− | 2009 12 10 | 703 | 0.5− | 0.9+ |

**2009 VR$_{105}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 348.48526 | | | (2000.0) | | |
| $n$ | 0.29993367 | $\omega$ | 206.17430 | | +0.13848942 | −0.98880056 |
| $a$ | 2.2103069 | $\Omega$ | 235.91298 | | +0.92001925 | +0.14923964 |
| $e$ | 0.1369772 | $i$ | 3.85116 | | +0.36658596 | −0.00099547 |
| $P$ | 3.29 | $H$ | 18.0 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 11 01 | G96 | 0.5+ | 0.2− | 2009 10 14 | 703 | 0.6+ | 1.0− | 2009 11 15 | 703 | (1.6− | 0.9−) |
| 2006 11 01 | G96 | 0.2− | 0.2+ | 2009 10 14 | 703 | 0.3− | 0.8+ | 2009 11 15 | 703 | (2.2− | 0.2+) |
| 2006 11 01 | G96 | 0.0 | 0.1+ | 2009 10 14 | 703 | 0.4+ | 0.8+ | 2009 11 23 | 703 | (1.2+ | 1.7−) |
| 2006 11 01 | G96 | 0.4− | 0.4− | 2009 10 23 | G96 | 0.2− | 0.0 | 2009 11 23 | 703 | 0.7+ | 0.4− |
| 2006 11 18 | G96 | 0.0 | 0.0 | 2009 10 23 | G96 | 0.3− | 0.1− | 2009 11 23 | 703 | 0.5+ | 0.6+ |
| 2006 11 18 | G96 | 0.1− | 0.1+ | 2009 10 23 | G96 | 0.7− | 0.2− | 2009 11 23 | 703 | 0.6+ | 0.9− |
| 2006 11 18 | G96 | 0.3+ | 0.2+ | 2009 10 23 | G96 | 0.7− | 0.1− | 2009 11 23 | 703 | 0.5+ | 0.8− |
| 2006 11 18 | G96 | 0.0 | 0.4+ | 2009 11 08 | G96 | 0.0 | 0.2+ | 2009 12 17 | G96 | 0.4− | 0.3+ |
| 2006 12 16 | G96 | 0.4− | 0.3− | 2009 11 08 | G96 | 0.1− | 0.0 | 2009 12 17 | G96 | 0.2− | 0.0 |
| 2006 12 16 | G96 | 0.3+ | 0.1+ | 2009 11 08 | G96 | 0.4− | 0.2− | 2009 12 17 | G96 | 0.2− | 0.1− |
| 2006 12 16 | G96 | 0.3+ | 0.1− | 2009 11 08 | G96 | 0.1− | 0.2− | 2009 12 17 | G96 | 0.0 | 0.3+ |
| 2006 12 16 | G96 | 0.2− | 0.2+ | 2009 11 15 | 703 | (0.6+ | 1.6+) | | | | |
| 2009 10 14 | 703 | 0.5+ | 0.6+ | 2009 11 15 | 703 | 0.1+ | 0.5+ | | | | |

**2009 VV$_{105}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 80.52440 | | | (2000.0) | | |
| $n$ | 0.30089554 | $\omega$ | 37.30170 | | +0.72701511 | +0.68405672 |
| $a$ | 2.2055939 | $\Omega$ | 279.42530 | | −0.64356409 | +0.64878156 |
| $e$ | 0.2311362 | $i$ | 3.44570 | | −0.23932050 | +0.33338999 |
| $P$ | 3.28 | $H$ | 17.3 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 10 09 | 703 | 0.1+ | 1.5+ | 2008 03 01 | 691 | 0.1+ | 0.0 | 2009 11 10 | J75 | 0.1+ | 0.4+ |
| 1999 10 09 | 703 | 0.3− | 0.4+ | 2008 03 01 | 691 | 0.3+ | 0.2− | 2009 11 10 | J75 | 0.8+ | 0.1− |
| 1999 10 09 | 703 | 0.0 | 0.3+ | 2009 10 12 | G96 | 0.0 | 0.4− | 2009 11 11 | J75 | 0.5+ | 0.5− |
| 1999 10 09 | 703 | 0.7− | 0.3− | 2009 10 12 | G96 | 0.1− | 0.4− | 2009 11 11 | J75 | 0.1+ | 0.2+ |
| 2006 12 13 | 691 | 0.3+ | 0.3− | 2009 10 12 | G96 | 0.2+ | 0.3− | 2009 11 11 | J75 | 0.4− | 1.2+ |
| 2006 12 13 | 691 | 0.2+ | 0.0 | 2009 10 12 | G96 | 0.2− | 0.3− | 2009 11 22 | G96 | 0.0 | 0.0 |
| 2006 12 13 | 691 | 0.1+ | 0.1+ | 2009 10 25 | 703 | 1.2− | 0.4− | 2009 11 22 | G96 | 0.2+ | 0.2− |
| 2006 12 25 | 691 | 0.0 | 0.3+ | 2009 10 25 | 703 | 0.6+ | 0.5− | 2009 11 22 | G96 | 0.2+ | 0.2− |
| 2006 12 25 | 691 | 0.5− | 0.1− | 2009 10 25 | 703 | 0.2+ | 0.5− | 2009 11 22 | G96 | 0.1+ | 0.1− |
| 2006 12 25 | 691 | 0.1− | 0.2+ | 2009 10 25 | 703 | 1.0− | 1.2− | | | | |
| 2008 03 01 | 691 | 0.3− | 0.4+ | 2009 11 10 | J75 | 0.5+ | 1.3+ | | | | |

**2009 VG$_{106}$ = 2000 SC$_{37}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 55.50511 | | | (2000.0) | | |
| $n$ | 0.22661235 | $\omega$ | 178.07463 | | +0.97999763 | +0.19737988 |
| $a$ | 2.6644874 | $\Omega$ | 170.42746 | | −0.18456889 | +0.94920309 |
| $e$ | 0.2390826 | $i$ | 8.79032 | | −0.07442427 | +0.24506054 |
| $P$ | 4.35 | $H$ | 16.7 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 24 | 704 | 0.3− | 0.9+ | 2000 10 02 | 704 | 0.4− | 0.6+ | 2008 07 01 | 691 | 0.1− | 0.6− |
| 2000 09 24 | 704 | 0.4+ | 0.4+ | 2000 10 02 | 704 | 0.2+ | 0.1+ | 2009 09 28 | G96 | 0.1+ | 0.1+ |
| 2000 09 24 | 704 | 0.2+ | 1.1+ | 2000 10 02 | 704 | 0.2+ | 0.1+ | 2009 09 28 | G96 | 0.1− | 0.1− |
| 2000 09 24 | 704 | 0.2+ | 0.8+ | 2000 10 02 | 704 | 0.6− | 0.5− | 2009 09 28 | G96 | 0.2+ | 0.0 |
| 2000 09 25 | 704 | 0.0 | 0.0 | 2000 10 02 | 704 | 0.7− | 0.5− | 2009 09 28 | G96 | 0.6+ | 0.2+ |
| 2000 09 25 | 704 | 0.3+ | 0.2+ | 2007 03 20 | G96 | 0.2+ | 0.1+ | 2009 10 25 | G96 | 0.4+ | 0.2+ |
| 2000 09 25 | 704 | 1.7+ | 1.0+ | 2007 03 20 | G96 | 0.3+ | 0.2+ | 2009 10 25 | G96 | 0.3+ | 0.1+ |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 25 | 704 | 0.3+ | 0.7− | 2007 03 20 | G96 | 0.2− | 0.7+ | 2009 10 25 | G96 | 0.6+ | 0.2+ |
| 2000 09 25 | 704 | 0.2+ | 0.5+ | 2007 03 20 | G96 | 0.0 | 0.4+ | 2009 10 25 | G96 | 0.1− | 0.3+ |
| 2000 10 01 | 699 | 0.4− | 0.7− | 2008 05 05 | 691 | 0.1+ | 0.2− | 2009 11 09 | 703 | 0.4− | 0.6− |
| 2000 10 01 | 699 | 0.1+ | 0.6− | 2008 05 05 | 691 | 0.1+ | 0.3+ | 2009 11 09 | 703 | 0.4− | 0.1− |
| 2000 10 01 | 699 | 0.1− | 0.2− | 2008 05 05 | 691 | 0.1− | 0.1+ | 2009 11 09 | 703 | 0.4− | 0.3− |
| 2000 10 01 | 699 | 0.2+ | 0.7− | 2008 06 03 | 691 | 0.2− | 0.1+ | 2009 11 09 | 703 | 1.0− | 0.0 |
| 2000 10 02 | 704 | 0.3− | 0.2+ | 2008 06 03 | 691 | 0.1+ | 0.2+ | 2009 11 21 | 703 | 0.2− | 0.3− |
| 2000 10 02 | 704 | 1.3− | 0.3− | 2008 06 03 | 691 | 0.1+ | 0.0 | 2009 11 21 | 703 | 0.3+ | 0.8− |
| 2000 10 02 | 704 | 0.3− | 0.2+ | 2008 07 01 | 691 | 0.2+ | 0.1− | 2009 11 21 | 703 | 0.1+ | 0.3− |
| 2000 10 02 | 704 | 0.0 | 0.1− | 2008 07 01 | 691 | 0.4− | 0.3− | 2009 11 21 | 703 | 0.5+ | 0.3− |

**2009 VE$_{108}$ = 2003 WT$_{127}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 324.57855 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.15598808 | $\omega$ | 50.73985 | | −0.45788663 | | −0.85353546 |
| $a$ | 3.4177616 | $\Omega$ | 68.21617 | | +0.71069885 | | −0.51945612 |
| $e$ | 0.1071977 | $i$ | 15.53044 | | +0.53408517 | | −0.04052838 |
| $P$ | 6.32 | $H$ | 14.5 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1993 05 25 | 691 | 0.1+ | 0.5+ | 2005 04 02 | 699 | 0.6+ | 0.2+ | 2009 10 30 | G96 | 0.3− | 0.4− |
| 1993 05 25 | 691 | 0.3− | 0.4+ | 2005 04 02 | 703 | 0.0 | 0.1+ | 2009 10 30 | G96 | 0.0 | 0.1− |
| 1993 05 25 | 691 | 0.3+ | 0.4+ | 2005 04 02 | 703 | 0.9− | 0.6− | 2009 10 30 | G96 | 0.2− | 0.4− |
| 2002 10 16 | 644 | 0.2+ | 1.0+ | 2005 04 02 | 703 | 0.5− | 0.6+ | 2009 10 30 | G96 | 0.1+ | 0.3− |
| 2002 10 16 | 644 | 0.3+ | 1.1+ | 2005 04 02 | 699 | 1.2+ | 0.3− | 2009 11 08 | 691 | 0.4− | 0.2− |
| 2002 10 16 | 644 | 0.2+ | 1.5+ | 2005 04 02 | 703 | 0.5− | 0.2+ | 2009 11 08 | 691 | 0.3− | 0.0 |
| 2003 11 20 | 704 | 0.5− | 1.1+ | 2005 04 02 | 699 | (2.1+ | 0.9+) | 2009 11 08 | 691 | 0.2− | 0.0 |
| 2003 11 20 | 704 | 0.1+ | 0.9+ | 2005 04 02 | 699 | 0.5+ | 0.3− | 2009 11 24 | J75 | 0.5+ | 0.1− |
| 2003 11 20 | 704 | 0.4+ | 0.2+ | 2005 05 10 | 703 | 0.4+ | 0.4− | 2009 11 24 | J75 | 0.5− | 0.5− |
| 2003 11 24 | 704 | 0.2+ | 0.6+ | 2005 05 10 | 703 | 0.0 | 0.3+ | 2009 11 24 | J75 | 0.1+ | 0.3− |
| 2003 11 24 | 704 | 0.2+ | 0.2+ | 2005 05 10 | 703 | 0.9− | 0.0 | 2009 11 24 | 691 | 0.1− | 0.2+ |
| 2003 11 24 | 704 | 0.0 | 0.0 | 2005 05 10 | 703 | (1.7− | 0.3+) | 2009 11 24 | 691 | 0.3− | 0.8+ |
| 2005 03 04 | 703 | 0.9+ | 0.3+ | 2006 06 04 | G96 | 0.1+ | 0.1− | 2009 11 24 | 691 | 0.1− | 0.1+ |
| 2005 03 04 | 703 | 0.6+ | 0.2− | 2006 06 04 | G96 | 0.4+ | 0.1+ | 2009 12 09 | J75 | 0.2+ | 0.0 |
| 2005 03 04 | 703 | (0.3− | 1.6+) | 2006 06 04 | G96 | 0.3+ | 1.4+ | 2009 12 09 | J75 | 0.1+ | 0.0 |
| 2005 03 04 | 703 | (2.1− | 0.0 ) | 2006 06 04 | G96 | 0.1− | 0.1+ | 2009 12 09 | J75 | 0.7+ | 0.5+ |
| 2005 03 15 | 703 | (0.2− | 2.7−) | 2009 09 30 | G96 | 0.2− | 0.5− | 2009 12 16 | G96 | 1.0+ | 0.3− |
| 2005 03 15 | 703 | 0.3− | 1.0− | 2009 09 30 | G96 | 0.2− | 0.7− | 2009 12 16 | G96 | 0.3+ | 0.1− |
| 2005 03 15 | 703 | 0.2− | 0.1− | 2009 09 30 | G96 | 0.2− | 0.6− | 2009 12 16 | G96 | 0.1+ | 0.1+ |
| 2005 03 15 | 703 | 0.7+ | 0.7− | 2009 09 30 | G96 | 0.3− | 0.4− | 2009 12 16 | G96 | 0.3+ | 0.1− |

**2009 VL$_{108}$ = 2000 SK$_{311}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 63.40904 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22543574 | $\omega$ | 94.97132 | | +0.92789056 | | +0.25162031 |
| $a$ | 2.6737504 | $\Omega$ | 250.66553 | | −0.32999849 | | +0.89771161 |
| $e$ | 0.1995036 | $i$ | 16.95336 | | +0.17355144 | | +0.36166434 |
| $P$ | 4.37 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 26 | 704 | 0.4− | 0.3+ | 2004 07 11 | 644 | 0.0 | 0.2+ | 2009 11 17 | 691 | 0.2− | 0.0 |
| 2000 09 26 | 704 | 0.4− | 0.2+ | 2004 07 11 | 644 | 0.0 | 0.0 | 2009 12 18 | G96 | 0.3+ | 0.1− |
| 2000 09 26 | 704 | 0.3− | 0.3− | 2004 07 11 | 644 | 0.0 | 0.0 | 2009 12 18 | G96 | 0.1− | 0.2− |
| 2000 09 26 | 704 | 0.1+ | 0.1− | 2009 11 08 | 703 | (0.0 | 1.7+) | 2009 12 18 | G96 | 0.1− | 0.2− |
| 2000 10 04 | 704 | 0.1+ | 0.2+ | 2009 11 08 | 703 | 1.5+ | 0.5+ | 2009 12 19 | 691 | 0.4+ | 0.1− |
| 2000 10 04 | 704 | 0.8+ | 0.4+ | 2009 11 08 | 703 | (0.2+ | 1.7+) | 2009 12 19 | 691 | 0.1− | 0.0 |
| 2000 10 04 | 704 | 0.2+ | 0.3− | 2009 11 08 | 703 | (1.8+ | 0.8+) | 2009 12 19 | 691 | 0.3− | 0.1+ |
| 2000 10 04 | 704 | 0.2+ | 0.1− | 2009 11 17 | 691 | (2.1+ | 1.7+) | | | | |
| 2000 10 04 | 704 | 0.3− | 0.7− | 2009 11 17 | 691 | 0.1− | 0.1+ | | | | |

**2009 VM$_{108}$ = 2007 GA$_{42}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 93.28913 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17513631 | $\omega$ | 89.56318 | | +0.56859310 | | +0.80939819 |
| $a$ | 3.1638697 | $\Omega$ | 216.38590 | | −0.81822914 | | +0.53804704 |
| $e$ | 0.0715057 | $i$ | 14.33632 | | −0.08487020 | | +0.23532948 |
| $P$ | 5.63 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 20 | 691 | 0.0 | 0.1+ | 2007 06 11 | G96 | 0.2+ | 0.1+ | 2009 11 11 | G96 | 0.1+ | 0.0 |
| 2003 09 20 | 691 | 0.1− | 0.1− | 2007 06 11 | G96 | 0.1− | 0.0 | 2009 11 11 | G96 | 0.2+ | 0.3− |
| 2003 09 20 | 691 | 0.1+ | 0.1+ | 2007 06 11 | G96 | 0.5− | 0.2− | 2009 11 11 | G96 | 0.2+ | 0.0 |
| 2007 04 14 | 691 | 0.3− | 0.1+ | 2009 09 23 | G96 | 0.2− | 0.5+ | 2009 11 11 | G96 | 0.3+ | 0.0 |
| 2007 04 14 | 691 | 0.3− | 0.1− | 2009 09 23 | G96 | 0.3+ | 0.4− | 2009 11 19 | G96 | 1.1+ | 1.1− |
| 2007 04 14 | 691 | 0.1+ | 0.2− | 2009 09 23 | G96 | 0.4+ | 0.6− | 2009 11 19 | G96 | 0.0 | 0.1− |
| 2007 04 18 | 691 | 0.2+ | 0.2− | 2009 09 23 | G96 | 0.6+ | 0.2− | 2009 11 19 | G96 | 0.4+ | 0.0 |
| 2007 04 18 | 691 | 0.1− | 0.3+ | 2009 10 25 | 691 | 0.7− | 0.0 | 2009 11 19 | G96 | 0.3+ | 0.1+ |
| 2007 04 18 | 691 | 0.1+ | 0.1− | 2009 10 25 | 691 | 0.2− | 0.1− | 2009 11 25 | G96 | 0.5+ | 0.1− |
| 2007 05 09 | G96 | 0.6+ | 0.1− | 2009 10 25 | 691 | 0.2− | 0.1+ | 2009 11 25 | G96 | 0.2+ | 0.5− |
| 2007 05 09 | G96 | 0.2− | 0.1− | 2009 11 09 | 703 | (1.6+ | 0.0 ) | 2009 11 25 | G96 | 0.4+ | 0.3+ |
| 2007 05 09 | G96 | 0.0 | 0.4− | 2009 11 09 | 703 | 1.2+ | 0.8+ | 2009 11 25 | G96 | 0.1+ | 0.0 |
| 2007 05 09 | G96 | 0.8+ | 0.1+ | 2009 11 09 | 703 | 0.2− | 0.2− | | | | |
| 2007 06 11 | G96 | 0.6+ | 0.2+ | 2009 11 09 | 703 | 1.1− | 0.4+ | | | | |

**2009 VS$_{108}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 150.30363 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.19287318 | $\omega$ | 6.52106 | | +0.04239970 | | +0.98677237 |
| $a$ | 2.9667992 | $\Omega$ | 265.98941 | | −0.92359711 | | −0.02101220 |
| $e$ | 0.0760552 | $i$ | 9.02429 | | −0.38101265 | | +0.16074443 |
| $P$ | 5.11 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 30 | 645 | 0.1+ | 0.0 | 2007 06 11 | E12 | 1.6+ | 1.0+ | 2009 10 26 | 691 | 0.1− | 0.0 |
| 2000 11 30 | 645 | 0.0 | 0.1+ | 2007 06 14 | E12 | 0.0 | 1.2+ | 2009 10 26 | 691 | 0.6− | 0.1+ |
| 2002 05 30 | 644 | 0.3− | 0.1+ | 2007 06 14 | E12 | 0.0 | 0.1− | 2009 11 09 | 691 | 1.3− | 0.3− |
| 2002 05 30 | 644 | 0.7− | 0.0 | 2008 07 30 | 703 | 0.4− | 1.0− | 2009 11 09 | 691 | 0.2+ | 0.2+ |
| 2002 05 30 | 644 | 0.2− | 0.4− | 2008 07 30 | 703 | 0.9+ | 0.5+ | 2009 11 09 | 691 | 0.2− | 0.1− |
| 2006 01 30 | 703 | 2.2+ | 0.7+ | 2008 07 30 | 703 | 1.1− | 1.2+ | 2009 11 17 | 691 | 0.2+ | 0.1+ |
| 2006 01 30 | 703 | 0.6− | 0.3+ | 2008 07 30 | 703 | 0.7+ | 0.1− | 2009 11 17 | 691 | 0.2+ | 0.0 |
| 2006 01 30 | 703 | 0.3+ | 0.2− | 2008 08 11 | 106 | 0.8+ | 0.3+ | 2009 11 17 | 691 | (2.6+ | 1.2−) |
| 2006 01 30 | 703 | 0.2+ | 1.3− | 2008 08 11 | 106 | 0.6− | 0.6+ | 2009 11 25 | 691 | 0.0 | 0.1+ |
| 2006 02 22 | 703 | 1.5− | 0.6+ | 2008 08 12 | 106 | 0.4− | 0.5+ | 2009 11 25 | 691 | 0.2+ | 0.1+ |
| 2006 02 22 | 703 | 0.4+ | 0.6− | 2008 08 12 | 106 | 0.5− | 0.1− | 2009 11 25 | 691 | 0.3+ | 0.0 |
| 2006 02 22 | 703 | 0.2+ | 0.4+ | 2008 08 12 | 106 | 0.2− | 0.4− | 2009 12 19 | G96 | 0.2− | 0.1− |
| 2006 02 22 | 703 | 0.0 | 0.4− | 2008 08 12 | 106 | 0.3+ | 0.2− | 2009 12 19 | G96 | 0.5+ | 0.3+ |
| 2007 05 11 | E12 | 1.1− | 0.3+ | 2008 08 12 | 106 | 0.3+ | 0.1− | 2009 12 19 | G96 | 0.5+ | 0.3− |
| 2007 05 11 | E12 | 0.8− | 0.6+ | 2008 08 12 | 106 | 0.1− | 0.2− | 2009 12 19 | G96 | 0.6+ | 0.0 |
| 2007 05 11 | E12 | 0.6+ | 0.2− | 2008 08 24 | J75 | 0.3+ | 0.7+ | 2009 12 19 | 198 | 0.3+ | 0.1− |
| 2007 05 11 | E12 | 0.4− | 0.4+ | 2008 08 24 | J75 | 0.2+ | 0.6+ | 2009 12 19 | 198 | 0.0 | 0.1− |
| 2007 06 11 | E12 | 0.4+ | 0.7+ | 2008 08 24 | J75 | 0.7+ | 0.1+ | 2009 12 19 | 198 | 0.3− | 0.3− |
| 2007 06 11 | E12 | 0.0 | 0.4− | 2009 10 26 | 691 | 0.2+ | 0.5+ | 2009 12 19 | 198 | 0.4− | 0.2+ |

**2009 VD$_{110}$ = 1996 JS$_{9}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 56.45785 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18168719 | $\omega$ | 309.23736 | | +0.96436082 | | −0.18369882 |
| $a$ | 3.0873546 | $\Omega$ | 62.11420 | | +0.25476877 | | +0.83895213 |
| $e$ | 0.1310672 | $i$ | 12.44167 | | −0.07142193 | | +0.51226367 |
| $P$ | 5.42 | $H$ | 15.2 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 05 13 | 691 | 0.1+ | 0.3− | 2007 04 19 | G96 | 0.3+ | 0.1+ | 2009 09 30 | G96 | 0.2− | 0.0 |
| 1996 05 13 | 691 | 0.1+ | 0.0 | 2007 04 19 | G96 | 0.5+ | 0.2+ | 2009 09 30 | G96 | 0.4+ | 0.3− |
| 1996 05 13 | 691 | 0.1+ | 0.4− | 2007 05 11 | G96 | 0.1− | 0.2+ | 2009 11 09 | 691 | 0.2+ | 0.0 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 05 21 | 691 | 0.2− | 0.2− | 2007 05 11 | G96 | 0.4− | 0.1− | 2009 11 09 | 691 | 0.3− | 0.0 | | |
| 1996 05 21 | 691 | 0.4− | 0.3− | 2007 05 11 | G96 | 0.1− | 0.1+ | 2009 11 09 | 691 | 0.1+ | 0.1− | | |
| 1996 05 21 | 691 | 0.4− | 0.1+ | 2007 05 11 | G96 | 0.3+ | 0.2+ | 2009 11 17 | 691 | 0.2− | 0.1− | | |
| 2003 09 28 | 699 | 0.4− | 0.2− | 2007 05 24 | G96 | 0.1+ | 0.0 | 2009 11 17 | 691 | 0.2− | 0.1+ | | |
| 2003 09 28 | 699 | 0.5− | 0.4+ | 2007 05 24 | G96 | 0.1+ | 0.9+ | 2009 11 17 | 691 | 0.2− | 0.1− | | |
| 2003 09 28 | 699 | 0.1+ | 0.3− | 2007 05 24 | G96 | 1.1+ | 0.1− | 2009 12 08 | J75 | 1.4+ | 1.2+ | | |
| 2003 09 28 | 699 | 0.0 | 0.6− | 2007 05 24 | G96 | 0.4− | 0.1+ | 2009 12 08 | J75 | 0.2+ | 0.3+ | | |
| 2003 10 18 | 699 | 0.3+ | 0.3− | 2008 08 02 | E12 | 0.4− | 0.9− | 2009 12 08 | J75 | 0.1− | 0.0 | | |
| 2003 10 18 | 699 | 0.4− | 0.4+ | 2008 08 02 | E12 | 0.0 | 0.7+ | 2009 12 13 | G96 | 0.2− | 0.0 | | |
| 2003 10 18 | 699 | 0.7+ | 0.1− | 2008 08 02 | E12 | 0.1+ | 0.9+ | 2009 12 13 | G96 | 0.1− | 0.0 | | |
| 2003 10 18 | 699 | 0.6+ | 0.2+ | 2008 08 02 | E12 | 0.3− | 1.1+ | 2009 12 13 | G96 | 0.1− | 0.1+ | | |
| 2003 11 23 | 699 | 0.6+ | 1.7− | 2008 08 28 | E12 | 0.1+ | 0.1− | 2009 12 13 | G96 | 0.3− | 0.0 | | |
| 2003 11 23 | 699 | 1.1+ | 0.3− | 2008 08 28 | E12 | 0.6− | 0.3− | 2009 12 16 | 704 | 0.9+ | 0.1− | | |
| 2003 11 23 | 699 | 0.7− | 0.0 | 2008 08 28 | E12 | 0.3+ | 0.7− | 2009 12 16 | 704 | 0.7+ | 0.2− | | |
| 2003 11 23 | 699 | 0.7+ | 0.0 | 2008 08 28 | E12 | 0.0 | 0.0 | 2009 12 16 | 704 | 0.0 | 0.1− | | |
| 2007 04 19 | G96 | 0.0 | 0.0 | 2009 09 30 | G96 | 0.2+ | 0.0 | | | | | | |
| 2007 04 19 | G96 | 0.2+ | 0.1+ | 2009 09 30 | G96 | 0.3− | 0.0 | | | | | | |

## 2009 $VL_{110}$ = 2007 $DC_{73}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 46.68178 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24035767 | $\omega$ | 7.30850 | | +0.99361619 | −0.11280138 | |
| $a$ | 2.5619111 | $\Omega$ | 359.16299 | | +0.09695128 | +0.86129026 | |
| $e$ | 0.1642824 | $i$ | 6.48063 | | +0.05768292 | +0.49543409 | |
| $P$ | 4.10 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 02 21 | 691 | 0.0 | 0.2− | 2007 03 25 | G96 | 0.2+ | 0.6− | 2009 11 22 | 703 | 0.3− | 0.7+ | | |
| 2007 02 21 | 691 | 0.1− | 0.1+ | 2007 03 25 | G96 | 0.2+ | 0.4− | 2009 11 22 | 703 | 0.7+ | 0.2+ | | |
| 2007 02 21 | 691 | 0.1+ | 0.3+ | 2007 03 25 | G96 | 0.1+ | 0.2− | 2009 11 22 | 703 | 0.0 | 1.0+ | | |
| 2007 02 25 | 691 | 0.4+ | 0.0 | 2009 10 26 | 691 | 0.9− | 0.0 | 2009 11 22 | 703 | 1.3− | 0.2− | | |
| 2007 02 25 | 691 | 0.3− | 0.1+ | 2009 10 26 | 691 | 0.9+ | 0.7− | 2009 12 12 | F85 | 0.3− | 0.1− | | |
| 2007 02 25 | 691 | 0.0 | 0.1+ | 2009 10 26 | 691 | 0.0 | 0.3+ | 2009 12 12 | F85 | 0.2+ | 0.1− | | |
| 2007 03 09 | 691 | 0.5+ | 0.1+ | 2009 11 10 | G96 | 0.2+ | 0.1+ | 2009 12 12 | F85 | 0.3+ | 0.2− | | |
| 2007 03 09 | 691 | 0.5− | 0.1− | 2009 11 10 | G96 | 0.2− | 0.1+ | 2009 12 14 | F85 | 0.3− | 0.2− | | |
| 2007 03 09 | 691 | 0.5− | 0.1+ | 2009 11 10 | G96 | 0.0 | 0.0 | 2009 12 14 | F85 | 0.4+ | 0.2− | | |
| 2007 03 25 | G96 | 0.7+ | 0.8− | 2009 11 10 | G96 | 0.4+ | 0.0 | | | | | | |

## 2009 $VZ_{110}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 359.98218 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17978342 | $\omega$ | 66.36355 | | +0.16531016 | −0.98597388 | |
| $a$ | 3.1091114 | $\Omega$ | 14.17869 | | +0.86722979 | +0.13422637 | |
| $e$ | 0.1678127 | $i$ | 5.38313 | | +0.46966481 | +0.09919071 | |
| $P$ | 5.48 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 30 | 691 | 0.0 | 0.2+ | 2008 09 25 | G96 | 0.0 | 0.5− | 2009 11 26 | 691 | 0.1− | 0.0 | | |
| 2003 09 30 | 691 | 0.0 | 0.2− | 2008 09 25 | G96 | 0.6− | 0.1+ | 2009 12 10 | 704 | 1.7+ | 0.7+ | | |
| 2003 09 30 | 691 | 0.1+ | 0.0 | 2008 09 25 | G96 | 0.5+ | 0.2− | 2009 12 10 | 704 | 0.9+ | 0.4− | | |
| 2003 10 19 | 691 | 0.2− | 0.0 | 2009 08 28 | 291 | 0.5− | 0.0 | 2009 12 10 | 704 | 0.5+ | 0.2− | | |
| 2003 10 19 | 691 | 0.1+ | 0.1+ | 2009 08 28 | 291 | 0.6− | 0.2+ | 2009 12 10 | 704 | 0.8+ | 0.8+ | | |
| 2003 10 19 | 691 | 0.0 | 0.1+ | 2009 08 28 | 291 | 0.5− | 0.3+ | 2009 12 10 | 704 | 1.1+ | 0.4+ | | |
| 2006 04 25 | G96 | 0.0 | 1.4+ | 2009 11 10 | 691 | 0.4− | 0.1− | 2009 12 15 | 704 | 1.0+ | 0.8− | | |
| 2006 04 25 | G96 | 0.1− | 0.0 | 2009 11 10 | 691 | 0.1− | 0.3− | 2009 12 15 | 704 | 1.4+ | 1.4+ | | |
| 2006 04 25 | G96 | 0.2+ | 0.0 | 2009 11 10 | 691 | 0.3+ | 0.0 | 2009 12 15 | 704 | (2.1+ | 1.2−) | | |
| 2006 04 25 | G96 | 0.0 | 0.2− | 2009 11 26 | 691 | 0.2− | 0.1+ | 2009 12 15 | 704 | 0.6+ | 0.5− | | |
| 2008 09 25 | G96 | 1.0+ | 0.1+ | 2009 11 26 | 691 | 0.6− | 0.3− | | | | | | |

## 2009 $VL_{111}$ = 2003 $YF_{170}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 19.13082 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.15637848 | $\omega$ | 341.54261 | | +0.59757300 | −0.78016871 | |
| $a$ | 3.4120711 | $\Omega$ | 71.34720 | | +0.75805596 | +0.47450951 | |
| $e$ | 0.1231994 | $i$ | 11.26273 | | +0.26126169 | +0.40764875 | |
| $P$ | 6.30 | $H$ | 14.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 12 18 | 704 | 0.7+ | 0.2+ | 2009 09 30 | G96 | 0.4+ | 0.2+ | 2009 12 08 | J75 | 0.7+ | 0.0 | | |
| 2003 12 18 | 704 | 0.2− | 0.2+ | 2009 10 30 | G96 | 0.2+ | 0.1+ | 2009 12 08 | J75 | 0.4+ | 1.0+ | | |
| 2003 12 18 | 704 | 0.2+ | 0.0 | 2009 10 30 | G96 | 0.4− | 0.1− | 2009 12 08 | J75 | 0.6− | 0.1− | | |
| 2003 12 18 | 691 | 0.2− | 0.2− | 2009 10 30 | G96 | 0.2+ | 0.2− | 2009 12 09 | J75 | 0.3+ | 0.3+ | | |
| 2003 12 18 | 704 | 0.4− | 0.3+ | 2009 10 30 | G96 | 0.1+ | 0.5− | 2009 12 09 | J75 | 0.3− | 0.3+ | | |
| 2003 12 18 | 691 | 0.2− | 0.2− | 2009 11 12 | J75 | 0.6+ | 0.8− | 2009 12 09 | J75 | 0.4+ | 0.3− | | |
| 2003 12 18 | 691 | 0.3− | 0.1− | 2009 11 12 | J75 | 0.3+ | 1.0− | 2009 12 16 | 704 | 0.4+ | 0.7+ | | |
| 2003 12 28 | 704 | 0.7+ | 0.0 | 2009 11 12 | J75 | 0.3+ | 0.4− | 2009 12 16 | G96 | 0.4+ | 0.2− | | |
| 2003 12 28 | 704 | 0.5+ | 0.2+ | 2009 11 24 | 691 | 0.5− | 0.2+ | 2009 12 16 | G96 | 0.0 | 0.1− | | |
| 2003 12 28 | 704 | 0.7+ | 0.5+ | 2009 11 24 | 691 | 0.5− | 0.1+ | 2009 12 16 | 704 | 0.4− | 1.0− | | |
| 2003 12 28 | 704 | 0.5+ | 0.4+ | 2009 11 24 | 691 | 0.3− | 0.1+ | 2009 12 16 | G96 | 0.1+ | 0.2− | | |
| 2009 09 30 | G96 | 0.1+ | 0.2+ | 2009 12 06 | J75 | 0.1+ | 0.1− | 2009 12 16 | G96 | 0.2− | 0.2− | | |
| 2009 09 30 | G96 | 0.1+ | 0.0 | 2009 12 06 | J75 | 0.8+ | 0.4+ | 2009 12 16 | 704 | 0.3+ | 0.3+ | | |
| 2009 09 30 | G96 | 0.0 | 0.2− | 2009 12 07 | J75 | 0.9+ | 0.3+ | 2009 12 16 | 704 | 0.3− | 0.1+ | | |

## 2009 $VR_{111}$ = 2009 $WE_{247}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 358.75788 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27345224 | $\omega$ | 189.17437 | | +0.26506252 | −0.96364662 | |
| $a$ | 2.3507967 | $\Omega$ | 245.46083 | | +0.88698895 | +0.25733536 | |
| $e$ | 0.1792816 | $i$ | 2.11498 | | +0.37814345 | +0.07185892 | |
| $P$ | 3.60 | $H$ | 17.8 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 08 29 | 691 | 0.1+ | 0.5+ | 2009 09 21 | G96 | 0.4+ | 0.0 | 2009 11 23 | 703 | 0.3+ | 1.0+ | | |
| 2005 08 29 | 691 | 0.0 | 0.1− | 2009 09 21 | G96 | 0.6+ | 0.3− | 2009 11 23 | 703 | 0.3− | 0.1+ | | |
| 2005 08 29 | 691 | 0.3− | 0.0 | 2009 09 21 | G96 | 0.4+ | 0.0 | 2009 11 24 | G96 | 0.0 | 0.2+ | | |
| 2007 02 23 | 691 | 0.3+ | 0.2+ | 2009 10 24 | 691 | 0.1− | 0.0 | 2009 11 24 | G96 | 0.1+ | 0.1+ | | |
| 2007 02 23 | 691 | 0.4+ | 0.2− | 2009 10 24 | 691 | 0.0 | 0.0 | 2009 11 24 | G96 | 0.4+ | 0.0 | | |
| 2007 02 23 | 691 | 0.5− | 0.1+ | 2009 10 24 | 691 | 0.3− | 0.1− | 2009 11 24 | G96 | 0.4+ | 0.0 | | |
| 2007 03 13 | G96 | 0.4− | 0.3+ | 2009 11 14 | J75 | 0.1− | 0.4− | 2009 12 11 | G96 | 0.1− | 0.1− | | |
| 2007 03 13 | G96 | 0.1+ | 0.0 | 2009 11 14 | J75 | 0.1+ | 0.3− | 2009 12 11 | G96 | 0.0 | 0.0 | | |
| 2007 03 13 | G96 | 0.0 | 0.3+ | 2009 11 14 | J75 | 0.7+ | 0.1− | 2009 12 11 | G96 | 0.2+ | 0.2− | | |
| 2007 03 13 | G96 | 0.1+ | 0.3+ | 2009 11 14 | J75 | 0.0 | 0.4− | 2009 12 11 | G96 | 0.2+ | 0.1− | | |
| 2007 04 20 | G96 | 0.3+ | 0.3+ | 2009 11 14 | J75 | 0.1− | 0.2+ | 2009 12 17 | A77 | 0.3+ | 0.0 | | |
| 2007 04 20 | G96 | 0.2− | 0.4− | 2009 11 14 | J75 | 0.3− | 0.3− | 2009 12 17 | A77 | 0.8− | 0.5+ | | |
| 2007 04 20 | G96 | 0.7+ | 0.5+ | 2009 11 23 | 703 | 0.4− | 0.3+ | 2009 12 17 | A77 | 0.2+ | 0.0 | | |
| 2007 04 20 | G96 | 0.5− | 0.0 | 2009 11 23 | 703 | 0.6− | 0.2+ | | | | | | |
| 2009 09 21 | G96 | 0.7+ | 0.1− | 2009 11 23 | 703 | 0.1− | 0.3+ | | | | | | |

## 2009 $VS_{112}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 16.60012 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23183388 | $\omega$ | 247.58741 | | +0.56979045 | −0.81253844 | |
| $a$ | 2.6243280 | $\Omega$ | 165.55950 | | +0.80867379 | +0.58101066 | |
| $e$ | 0.3438574 | $i$ | 29.54385 | | −0.14623800 | +0.04698814 | |
| $P$ | 4.25 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 09 15 | 809 | 0.0 | 0.5− | 2006 01 21 | 644 | 0.0 | 0.4− | 2009 11 15 | E12 | 0.5− | 0.6− | | |
| 2002 02 20 | 291 | 0.1− | 0.0 | 2009 09 20 | 703 | 0.2− | 0.5+ | 2009 11 15 | E12 | 0.7+ | 0.2− | | |
| 2002 02 20 | 291 | 0.3− | 0.3+ | 2009 09 20 | 703 | 1.2− | 0.3− | 2009 11 15 | E12 | 0.1+ | 0.8+ | | |
| 2002 02 20 | 291 | 0.4− | 0.0 | 2009 09 20 | 703 | 0.5− | 0.1+ | 2009 11 15 | E12 | 0.0 | 0.2+ | | |
| 2002 03 12 | 691 | 0.4+ | 0.1+ | 2009 09 20 | 703 | 0.4− | 0.2− | 2009 12 15 | E12 | 1.6+ | 0.5+ | | |
| 2002 03 12 | 691 | 0.1+ | 0.2− | 2009 09 29 | 703 | 0.9− | 0.8+ | 2009 12 15 | E12 | 0.3− | 0.3+ | | |
| 2002 03 12 | 691 | 0.4+ | 0.3− | 2009 09 29 | 703 | 0.3− | 1.1− | 2009 12 15 | E12 | 0.2+ | 0.2+ | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 2006 01 21 | 644 | 0.4− | 0.4− | 2009 09 29 | 703 | 1.0+ | 1.0− | |
| 2006 01 21 | 644 | 0.1− | 0.2− | 2009 09 29 | 703 | 0.7+ | 0.5+ | |

**2009 VV$_{112}$ = 2003 XV$_{26}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 53.34692 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17142948 | $\omega$ | 165.15253 | | +0.94128445 | −0.33745676 | |
| $a$ | 3.2093153 | $\Omega$ | 214.57500 | | +0.30787198 | +0.87050581 | |
| $e$ | 0.0775045 | $i$ | 1.04211 | | +0.13855842 | +0.35824931 | |
| $P$ | 5.75 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 12 14 | 691 | 0.1− | 0.4− | 2005 02 04 | 691 | 0.3+ | 0.3+ | 2009 08 27 | 691 | 0.1+ | 0.0 |
| 1998 12 14 | 691 | 0.3− | 0.4− | 2006 04 19 | G96 | 0.4− | 0.3+ | 2009 08 27 | 691 | 0.3− | 0.0 |
| 1998 12 14 | 691 | 0.9+ | 0.0 | 2006 04 19 | G96 | 0.1+ | 0.5+ | 2009 08 27 | 691 | 0.5− | 0.1− |
| 2000 03 03 | 645 | 0.1− | 0.1− | 2006 04 19 | G96 | 0.1+ | 0.1+ | 2009 11 08 | 691 | 0.3− | 0.0 |
| 2000 03 03 | 645 | 0.1− | 0.1− | 2006 04 19 | G96 | 0.1+ | 0.2+ | 2009 11 08 | 691 | 0.2+ | 0.1+ |
| 2001 05 24 | 807 | 0.5− | 0.2+ | 2008 09 06 | G96 | 0.1− | 0.3+ | 2009 11 08 | 691 | 0.2− | 0.2+ |
| 2001 05 24 | 807 | 0.5− | 0.2+ | 2008 09 06 | G96 | 0.1− | 0.2+ | 2009 11 24 | 691 | 0.1− | 0.1− |
| 2002 08 10 | 807 | 0.1+ | 0.1+ | 2008 09 06 | G96 | 0.0 | 0.2+ | 2009 11 24 | 691 | 0.4− | 0.2− |
| 2002 08 10 | 807 | 0.1+ | 0.1− | 2008 09 06 | G96 | 0.3+ | 0.4+ | 2009 11 24 | 691 | 0.1− | 0.0 |
| 2003 12 01 | 291 | 0.4− | 0.1− | 2008 09 20 | G96 | 0.6+ | 0.2− | 2009 12 10 | G96 | 0.5+ | 0.1− |
| 2003 12 01 | 291 | 0.4− | 0.0 | 2008 09 20 | G96 | 0.4+ | 0.6− | 2009 12 10 | G96 | 0.7+ | 0.1− |
| 2003 12 01 | 291 | 0.2− | 0.1+ | 2008 09 20 | G96 | 0.8+ | 0.9− | 2009 12 10 | G96 | 0.2+ | 0.1+ |
| 2003 12 18 | 691 | 0.0 | 0.0 | 2008 09 20 | G96 | 0.6+ | 0.6− | 2009 12 10 | G96 | 0.4+ | 0.1+ |
| 2003 12 18 | 691 | 0.0 | 0.0 | 2008 11 21 | G96 | 0.2+ | 0.2− | 2009 12 19 | G96 | 0.3+ | 0.2+ |
| 2003 12 18 | 691 | 0.1+ | 0.0 | 2008 11 21 | G96 | 1.4+ | 0.0 | 2009 12 19 | G96 | 0.2+ | 0.1− |
| 2005 02 04 | 691 | 0.1+ | 0.4− | 2008 11 21 | G96 | 0.6− | 0.0 | 2009 12 19 | G96 | 0.7+ | 0.1− |
| 2005 02 04 | 691 | 0.3+ | 0.4+ | 2008 11 21 | G96 | 0.7+ | 0.7− | 2009 12 19 | G96 | 0.5+ | 0.1+ |

**2009 VY$_{112}$ = 2006 AW$_{80}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 76.16122 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21888340 | $\omega$ | 88.52684 | | +0.99450709 | +0.01633828 | |
| $a$ | 2.7268474 | $\Omega$ | 270.52911 | | −0.05627471 | +0.91629905 | |
| $e$ | 0.0502131 | $i$ | 5.93445 | | +0.08825421 | +0.40016136 | |
| $P$ | 4.50 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 01 08 | G96 | 0.6− | 0.6− | 2006 02 03 | G96 | 0.8+ | 0.1− | 2009 11 09 | 691 | 0.2+ | 0.2− |
| 2006 01 08 | G96 | 0.1− | 0.4− | 2006 02 03 | G96 | 1.1+ | 0.1− | 2009 11 21 | 691 | 0.2− | 0.1+ |
| 2006 01 08 | G96 | 0.5+ | 0.6− | 2006 02 03 | G96 | 0.3+ | 0.1− | 2009 11 21 | 691 | 0.1− | 0.2+ |
| 2006 01 08 | G96 | 0.9+ | 0.3− | 2006 02 04 | 291 | 0.0 | 0.6+ | 2009 11 21 | 691 | 0.4+ | 0.4− |
| 2006 01 10 | 691 | 0.2+ | 0.2− | 2006 02 04 | 291 | 0.0 | 0.6+ | 2009 12 10 | G96 | 0.4+ | 0.6+ |
| 2006 01 10 | 691 | 0.0 | 0.0 | 2006 02 04 | 291 | 1.2− | 0.6− | 2009 12 10 | G96 | 0.0 | 0.3+ |
| 2006 01 10 | 691 | 0.0 | 0.0 | 2009 11 09 | 691 | 0.0 | 0.1+ | 2009 12 10 | G96 | 0.1+ | 0.2+ |
| 2006 02 03 | G96 | 0.7+ | 0.2+ | 2009 11 09 | 691 | 0.6− | 0.1− | 2009 12 10 | G96 | 0.5+ | 0.3+ |

**2009 VQ$_{113}$ = 2007 JZ$_{7}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 339.70132 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19971613 | $\omega$ | 30.73630 | | +0.12221611 | −0.98755311 | |
| $a$ | 2.8986378 | $\Omega$ | 52.42681 | | +0.88332296 | +0.06274460 | |
| $e$ | 0.0229302 | $i$ | 7.17592 | | +0.45255251 | +0.14422889 | |
| $P$ | 4.94 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 06 03 | 291 | 0.6− | 0.4+ | 2007 05 09 | G96 | 0.2− | 0.0 | 2009 11 11 | G96 | 0.2− | 0.0 |
| 2002 06 03 | 291 | 0.0 | 0.1+ | 2007 05 09 | G96 | 0.1− | 0.1+ | 2009 11 11 | G96 | 0.1− | 0.2− |
| 2002 06 03 | 291 | 0.8+ | 0.2+ | 2007 05 09 | G96 | 0.0 | 0.0 | 2009 11 11 | G96 | 0.2+ | 0.1+ |
| 2004 10 09 | 691 | 0.0 | 0.3− | 2007 05 09 | G96 | 0.0 | 0.0 | 2009 11 23 | G96 | 0.1+ | 0.2− |
| 2004 10 09 | 691 | 0.0 | 0.4− | 2007 05 10 | 691 | 0.1+ | 0.1+ | 2009 11 23 | G96 | 0.2− | 0.0 |
| 2004 10 09 | 691 | 0.3+ | 0.2− | 2007 05 10 | 691 | 0.1− | 0.1+ | 2009 11 23 | G96 | 0.6+ | 0.1+ |
| 2004 11 03 | 691 | 0.1− | 0.6+ | 2007 05 10 | 691 | 0.3− | 0.0 | 2009 11 23 | G96 | 0.3− | 0.5− |
| 2004 11 03 | 691 | 0.6− | 0.3+ | 2009 10 18 | G96 | 0.1+ | 0.0 | 2009 12 10 | G96 | 0.8− | 0.0 |
| 2004 11 03 | 691 | 0.3+ | 0.4+ | 2009 10 18 | G96 | 0.3− | 0.0 | 2009 12 10 | G96 | 0.1+ | 0.3− |
| 2007 04 26 | 691 | 0.1− | 0.1+ | 2009 10 18 | G96 | 0.1+ | 0.4+ | 2009 12 10 | G96 | 0.1+ | 0.1+ |
| 2007 04 26 | 691 | 0.2− | 0.0 | 2009 10 18 | G96 | 0.3+ | 0.3+ | 2009 12 10 | G96 | 0.1+ | 0.1− |
| 2007 04 26 | 691 | 0.6+ | 0.6− | 2009 11 11 | G96 | 0.0 | 0.2− | | | | |

**2009 VU$_{113}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 31.66056 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27542036 | $\omega$ | 342.06626 | | +0.81299096 | −0.58190677 | |
| $a$ | 2.3395842 | $\Omega$ | 53.53644 | | +0.53733723 | +0.73604731 | |
| $e$ | 0.2142098 | $i$ | 1.47784 | | +0.22430871 | +0.34585961 | |
| $P$ | 3.58 | $H$ | 17.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 11 03 | G96 | 0.3− | 0.3+ | 2009 09 20 | G96 | 0.1+ | 0.1+ | 2009 11 21 | 691 | 0.2− | 0.1+ |
| 2005 11 03 | G96 | 0.4+ | 0.3+ | 2009 09 20 | G96 | 0.1− | 0.1+ | 2009 11 21 | 691 | 0.4− | 0.1+ |
| 2005 11 03 | G96 | 0.0 | 0.1− | 2009 09 20 | G96 | 0.3− | 0.2− | 2009 11 21 | 691 | 0.4− | 0.4− |
| 2005 11 03 | G96 | 0.3− | 0.2+ | 2009 09 20 | G96 | 0.1+ | 0.4− | 2009 12 09 | J75 | 0.7+ | 0.0 |
| 2007 02 25 | 691 | 0.1+ | 0.3+ | 2009 10 16 | G96 | 0.4+ | 0.0 | 2009 12 09 | J75 | 0.5+ | 0.1+ |
| 2007 02 25 | 691 | 0.4+ | 0.0 | 2009 10 16 | G96 | 0.1+ | 0.1+ | 2009 12 09 | J75 | 0.5+ | 0.2+ |
| 2007 02 25 | 691 | 0.0 | 0.1− | 2009 10 16 | G96 | 0.2+ | 0.0 | 2009 12 16 | G96 | 0.4+ | 0.2− |
| 2007 03 12 | G96 | 0.4− | 0.1+ | 2009 10 16 | G96 | 0.5+ | 0.1+ | 2009 12 16 | G96 | 0.5+ | 0.2− |
| 2007 03 12 | G96 | 0.1+ | 0.1+ | 2009 11 08 | 691 | 0.2− | 0.1+ | 2009 12 16 | G96 | 0.6+ | 0.1+ |
| 2007 03 12 | G96 | 0.4− | 0.1− | 2009 11 08 | 691 | 0.3+ | 0.1− | 2009 12 16 | G96 | 0.2+ | 0.2− |
| 2007 03 12 | G96 | 1.0− | 0.0 | 2009 11 08 | 691 | 0.1− | 0.4+ | | | | |

**2009 WE$_{1}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 67.21420 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18467722 | $\omega$ | 266.28607 | | +0.96180426 | +0.17235507 | |
| $a$ | 3.0539400 | $\Omega$ | 83.70242 | | −0.07224695 | +0.90917516 | |
| $e$ | 0.1318111 | $i$ | 12.35428 | | −0.26403209 | +0.37907024 | |
| $P$ | 5.34 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 5 |

Residuals in seconds of arc (or two decimals in units of degrees)

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 09 19 | 645(0.23+ | 0.12+) | | 2009 11 18 | 704 | 0.6− | 0.4+ | 2009 11 21 | H06 | 1.2+ | 0.6− |
| 1998 09 19 | 645(0.23+ | 0.12+) | | 2009 11 18 | H06 | 0.4− | 0.4+ | 2009 11 22 | H06 | 0.1− | 0.7− |
| 1998 09 25 | 645(0.24+ | 0.13+) | | 2009 11 18 | 704 | 0.3− | 0.2+ | 2009 11 22 | H06 | 0.5+ | 0.2+ |
| 1998 09 25 | 645(0.24+ | 0.13+) | | 2009 11 18 | H06 | 0.1− | 1.0+ | 2009 11 22 | H06 | 0.6+ | 0.8− |
| 2002 05 23 | 644 | 0.2+ | 0.1− | 2009 11 18 | 704 | 0.0 | 1.2− | 2009 11 23 | H06 | 0.3− | 0.2+ |
| 2002 05 23 | 644 | 0.6− | 0.5− | 2009 11 18 | 704 | 0.0 | 0.6+ | 2009 11 23 | H06 | 0.2− | 0.0 |
| 2002 06 16 | 644 | 0.1+ | 0.2+ | 2009 11 19 | H06 | 0.8+ | 0.3+ | 2009 11 23 | H06 | 0.1− | 1.0+ |
| 2002 06 16 | 644 | 0.3+ | 0.3− | 2009 11 20 | 704 | 0.0 | 0.2+ | 2009 11 23 | H06 | 0.4− | 0.4− |
| 2002 06 16 | 644 | 0.3+ | 0.1+ | 2009 11 20 | 704 | 0.3+ | 0.7+ | 2009 11 24 | H06 | 0.2− | 0.0 |
| 2002 06 25 | 644 | 0.9+ | 0.7+ | 2009 11 20 | H06 | 0.3− | 0.1− | 2009 11 24 | H06 | 0.4+ | 0.6− |
| 2002 06 25 | 644 | 0.2− | 0.5− | 2009 11 20 | 704 | 0.0 | 0.8+ | 2009 11 24 | H06 | 0.2− | 0.1+ |
| 2002 07 04 | 644 | 0.5− | 0.3− | 2009 11 20 | H06 | 0.1+ | 0.8+ | 2009 11 26 | H06 | 0.0 | 0.2+ |
| 2002 07 04 | 644 | 0.8− | 0.0 | 2009 11 20 | 704 | 0.1− | 0.0 | 2009 11 26 | H06 | 0.2− | 0.4− |
| 2004 12 20 | 691(0.10+ | 0.02+) | | 2009 11 20 | H06 | 0.3− | 0.1− | 2009 11 26 | H06 | 0.9− | 0.4− |
| 2004 12 20 | 691(0.10+ | 0.02+) | | 2009 11 20 | G96 | 0.0 | 0.3+ | 2009 12 11 | 703 | 0.2− | 0.0 |
| 2004 12 20 | 691(0.10+ | 0.02+) | | 2009 11 20 | G96 | 0.5+ | 0.1+ | 2009 12 11 | 703 | 0.0 | 0.3− |
| 2009 11 17 | H06 | 1.4+ | 0.7− | 2009 11 20 | G96 | 0.3+ | 0.0 | 2009 12 11 | 703 | 0.2+ | 1.0− |
| 2009 11 17 | H06 | 0.3+ | 0.5− | 2009 11 20 | G96 | 0.2+ | 0.0 | 2009 12 11 | 703 | 1.2− | 0.5− |
| 2009 11 17 | H06 | 0.6− | 0.0 | 2009 11 21 | H06 | 0.1+ | 0.1+ | | | | |
| 2009 11 18 | H06 | 0.4+ | 0.1− | 2009 11 21 | H06 | 0.0 | 0.0 | | | | |

**2009 WG$_{1}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 46.58817 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.30236844 | $\omega$ | 236.64748 | | +0.94829579 | −0.31545110 | |
| $a$ | 2.1984255 | $\Omega$ | 141.70771 | | +0.30673288 | +0.88252623 | |
| $e$ | 0.1426089 | $i$ | 3.23880 | | +0.08154779 | +0.34876650 | |
| $P$ | 3.26 | $H$ | 17.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 07 18 | 644 | 0.0 | 0.0 | 2009 11 17 | H06 | 0.8− | 0.1+ | 2009 11 22 | H06 | (1.8+ | 1.0−) |
| 2002 07 18 | 644 | 0.1+ | 0.1+ | 2009 11 17 | H06 | 0.1− | 0.8− | 2009 11 22 | H06 | 0.7+ | 0.0 |
| 2002 08 07 | 644 | 0.2+ | 0.4− | 2009 11 18 | H06 | 0.6− | 0.1− | 2009 11 23 | H06 | 0.4− | 0.2+ |
| 2002 08 07 | 644 | 0.6− | 0.3+ | 2009 11 18 | H06 | 0.3− | 0.2+ | 2009 11 23 | H06 | 0.5− | 0.5+ |
| 2002 08 07 | 644 | 0.6− | 0.6+ | 2009 11 18 | H06 | 0.3− | 0.0 | 2009 11 23 | H06 | 0.0 | 0.2− |
| 2002 08 08 | 644 | 0.9+ | 0.0 | 2009 11 19 | H06 | 1.1+ | 0.6+ | 2009 11 23 | G96 | 0.0 | 0.1− |
| 2002 08 08 | 644 | 0.3− | 0.0 | 2009 11 19 | H06 | (2.0+ | 0.4+) | 2009 11 23 | G96 | 0.2− | 0.1+ |
| 2002 08 08 | 644 | 0.1+ | 0.0 | 2009 11 19 | H06 | 0.5+ | 0.3+ | 2009 11 23 | G96 | 0.3+ | 0.2+ |
| 2007 02 10 | G96 | 0.5− | 0.4− | 2009 11 20 | G96 | 0.1− | 0.1+ | 2009 11 23 | G96 | 0.3− | 0.1+ |
| 2007 02 10 | G96 | 0.1− | 0.2+ | 2009 11 20 | G96 | 0.3+ | 0.2+ | 2009 11 24 | H06 | 0.4− | 0.2− |
| 2007 02 10 | G96 | 0.2+ | 0.4− | 2009 11 20 | G96 | 0.0 | 0.3+ | 2009 11 24 | H06 | 0.3+ | 0.4+ |
| 2007 02 10 | G96 | 0.5+ | 0.3+ | 2009 11 20 | G96 | 0.3+ | 0.0 | 2009 11 24 | H06 | 0.3+ | 0.6+ |
| 2008 05 02 | 691 | 0.5+ | 0.4− | 2009 11 21 | H06 | 0.4+ | 0.0 | 2009 12 11 | 703 | 0.9+ | 1.0+ |
| 2008 05 02 | 691 | 0.3− | 0.6+ | 2009 11 21 | H06 | 0.3+ | 0.2+ | 2009 12 11 | 703 | 0.5− | 0.8− |
| 2008 05 02 | 691 | 0.0 | 0.5+ | 2009 11 21 | H06 | 0.4− | 0.7− | 2009 12 11 | 703 | 0.1+ | 0.1− |
| 2009 11 17 | H06 | 0.2− | 0.3− | 2009 11 22 | H06 | 0.4+ | 0.0 | 2009 12 11 | 703 | 1.5− | 0.8+ |

## 2009 WE$_2$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 339.81616 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26689899 | $\omega$ | 350.86830 | | +0.13833634 | −0.98951680 | |
| $a$ | 2.3891208 | $\Omega$ | 91.17222 | | +0.91125903 | +0.11077315 | |
| $e$ | 0.1572684 | $i$ | 2.37709 | | +0.38790467 | +0.09265961 | |
| $P$ | 3.69 | $H$ | 17.8 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 01 28 | G96 | 0.5− | 0.0 | 2009 09 27 | 691 | 0.3− | 0.3+ | 2009 11 16 | G96 | 0.1− | 0.1+ |
| 2007 01 28 | G96 | 0.2− | 0.0 | 2009 10 24 | G96 | 0.2+ | 0.1− | 2009 11 16 | G96 | 0.4+ | 0.3− |
| 2007 01 28 | G96 | 0.7+ | 0.8+ | 2009 10 24 | G96 | 0.2+ | 0.2+ | 2009 11 16 | G96 | 0.3+ | 0.3− |
| 2007 01 28 | G96 | 0.1+ | 0.3− | 2009 10 24 | G96 | 0.4+ | 0.0 | 2009 11 17 | 691 | 0.1− | 0.0 |
| 2007 02 23 | 691 | 0.4+ | 0.1− | 2009 10 24 | G96 | 0.3+ | 0.2+ | 2009 11 17 | 691 | 0.2+ | 0.1− |
| 2007 02 23 | 691 | 0.1− | 0.0 | 2009 11 09 | 691 | 0.1− | 0.7+ | 2009 11 17 | 691 | 0.0 | 0.2+ |
| 2007 02 23 | 691 | 0.3− | 0.0 | 2009 11 09 | 691 | 0.3+ | 0.1+ | 2009 11 20 | 691 | 0.2− | 0.1− |
| 2009 09 27 | 691 | 0.0 | 0.2− | 2009 11 09 | 691 | 0.1− | 0.2− | 2009 11 20 | 691 | 0.0 | 0.2− |
| 2009 09 27 | 691 | 0.0 | 0.2− | 2009 11 16 | G96 | 0.7+ | 0.1− | 2009 11 20 | 691 | 0.2− | 0.2− |

## 2009 WR$_4$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 66.78425 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18610478 | $\omega$ | 275.21532 | | +0.90929029 | +0.31308226 | |
| $a$ | 3.0383026 | $\Omega$ | 66.76897 | | −0.14915085 | +0.86021315 | |
| $e$ | 0.1487445 | $i$ | 17.35934 | | −0.38851667 | +0.40250817 | |
| $P$ | 5.30 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 15 | 691 | 0.0 | 0.1− | 2009 10 12 | G96 | 0.0 | 0.0 | 2009 11 17 | G96 | 0.3+ | 0.1− |
| 2004 12 15 | 691 | 0.3− | 0.2+ | 2009 10 12 | G96 | 0.1+ | 0.1+ | 2009 11 24 | G96 | 0.2+ | 0.3− |
| 2004 12 15 | 691 | 0.3+ | 0.0 | 2009 10 12 | G96 | 0.3+ | 0.3− | 2009 11 24 | G96 | 0.3+ | 0.0 |
| 2007 03 25 | G96 | 0.0 | 0.1+ | 2009 10 12 | G96 | 0.0 | 0.2+ | 2009 11 24 | G96 | 0.2− | 0.3− |
| 2007 03 25 | G96 | 0.8+ | 0.4+ | 2009 11 16 | G96 | 0.0 | 0.0 | 2009 11 24 | G96 | 0.0 | 0.1− |
| 2007 03 25 | G96 | 0.1− | 0.3+ | 2009 11 16 | G96 | 0.1− | 0.2− | 2009 12 19 | G96 | 0.0 | 0.1+ |
| 2007 03 25 | G96 | 0.0 | 0.1+ | 2009 11 16 | G96 | 0.3− | 0.2+ | 2009 12 19 | G96 | 0.3+ | 0.0 |
| 2007 04 23 | G96 | 0.0 | 0.2− | 2009 11 16 | G96 | 0.4− | 0.4+ | 2009 12 19 | G96 | 0.0 | 0.2− |
| 2007 04 23 | G96 | 0.5− | 0.6− | 2009 11 17 | G96 | 0.1− | 0.1− | 2009 12 19 | G96 | 0.6+ | 0.2− |
| 2007 04 23 | G96 | 0.2− | 0.3− | 2009 11 17 | G96 | 0.3− | 0.0 | | | | |
| 2007 04 23 | G96 | 0.2− | 0.1− | 2009 11 17 | G96 | 0.1− | 0.1+ | | | | |

## 2009 WR$_5$ = 2005 VT$_{119}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 0.52150 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23062917 | $\omega$ | 351.64630 | | +0.13612356 | −0.98340717 | |
| $a$ | 2.6334590 | $\Omega$ | 90.46947 | | +0.91573189 | +0.07870979 | |
| $e$ | 0.3444039 | $i$ | 6.88770 | | +0.37802842 | +0.16344757 | |
| $P$ | 4.27 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 11 04 | 691 | 0.1− | 0.1− | 2009 11 17 | J75 | 0.2+ | 0.3− | 2009 11 24 | J75 | 0.2+ | 0.5− |
| 2005 11 04 | 691 | 0.1+ | 0.1− | 2009 11 17 | J75 | 0.1− | 0.3− | 2009 11 24 | J75 | 0.2− | 0.1+ |
| 2005 11 04 | 691 | 0.4− | 0.2+ | 2009 11 17 | J75 | 0.5− | 0.2− | 2009 11 24 | J75 | 0.1+ | 0.3− |
| 2005 11 12 | 691 | 0.3+ | 0.2− | 2009 11 17 | J75 | 0.1+ | 0.3− | 2009 12 11 | 703 | 0.7− | 0.4+ |
| 2005 11 12 | 691 | 0.1− | 0.1+ | 2009 11 18 | J75 | 0.1+ | 0.3− | 2009 12 11 | 703 | 0.6+ | 0.5− |
| 2005 11 12 | 691 | 0.3+ | 0.4− | 2009 11 18 | J75 | 0.1+ | 0.2− | 2009 12 11 | 703 | 1.2+ | 0.4− |
| 2006 02 22 | 699 | 1.4− | 0.8+ | 2009 11 18 | J75 | 0.1+ | 0.2− | 2009 12 11 | 703 | 0.4+ | 0.4− |
| 2006 02 22 | 699 | 0.6+ | 0.5− | 2009 11 18 | J75 | 0.2+ | 0.2− | 2009 12 11 | 703 | 0.2− | 0.1− |
| 2006 02 22 | 699 | 0.1+ | 0.2+ | 2009 11 19 | 704 | 0.0 | 0.8+ | 2009 12 11 | 703 | 0.7− | 0.0 |
| 2006 02 22 | 699 | 0.6+ | 0.3− | 2009 11 19 | 704 | 1.2− | 0.8+ | 2009 12 11 | 703 | 0.1− | 0.3− |
| 2009 09 28 | G96 | 0.0 | 0.2− | 2009 11 19 | 704 | 0.9− | 0.4+ | 2009 12 11 | 703 | 0.1− | 0.0 |
| 2009 09 28 | G96 | 0.1− | 0.1− | 2009 11 19 | 704 | 0.8− | 0.1+ | 2009 12 12 | 704 | 0.1+ | 0.3+ |
| 2009 09 28 | G96 | 0.0 | 0.1+ | 2009 11 19 | 704 | 0.6+ | 0.6+ | 2009 12 12 | 704 | 0.0 | 0.3+ |
| 2009 09 28 | G96 | 0.4+ | 0.0 | 2009 11 20 | 704 | 0.2+ | 0.3+ | 2009 12 12 | 704 | 0.1+ | 0.3+ |
| 2009 10 15 | J75 | 0.5+ | 0.0 | 2009 11 20 | 704 | 0.5− | 0.0 | 2009 12 12 | 704 | 0.3− | 0.7+ |
| 2009 10 15 | J75 | 0.3+ | 0.3− | 2009 11 20 | 704 | 0.5− | 0.1+ | 2009 12 12 | 704 | 0.0 | 0.2+ |
| 2009 10 15 | J75 | 0.2+ | 0.2− | 2009 11 20 | 704 | 0.2− | 0.1− | 2009 12 13 | D39 | 0.5− | 0.1− |
| 2009 11 13 | J75 | 0.6+ | 0.8+ | 2009 11 20 | 704 | 1.0− | 0.2− | 2009 12 13 | D39 | 0.0 | 0.1+ |
| 2009 11 13 | J75 | 0.1+ | 0.4+ | 2009 11 22 | 703 | 0.3+ | 0.0 | 2009 12 13 | D39 | 0.3− | 0.1− |
| 2009 11 13 | J75 | 0.8+ | 0.3+ | 2009 11 22 | 703 | 0.1+ | 0.2+ | 2009 12 13 | D39 | 0.4− | 0.1− |
| 2009 11 15 | 703 | 0.1+ | 1.3− | 2009 11 22 | 703 | 0.5− | 0.0 | 2009 12 13 | D39 | 0.4− | 0.2− |
| 2009 11 15 | 703 | 0.7+ | 0.0 | 2009 11 22 | 703 | 0.1− | 0.5+ | 2009 12 21 | 704 | 0.5+ | 0.0 |
| 2009 11 15 | 703 | 0.2− | 0.2+ | 2009 11 22 | 703 | 0.1− | 0.1+ | 2009 12 21 | 704 | 0.4+ | 0.4+ |
| 2009 11 15 | 703 | 1.0+ | 1.0+ | 2009 11 23 | G96 | 0.0 | 0.4− | 2009 12 21 | 704 | 0.5+ | 0.1+ |
| 2009 11 16 | J75 | 0.2+ | 0.0 | 2009 11 23 | G96 | 0.0 | 0.4− | 2009 12 21 | 704 | 0.0 | 0.6+ |
| 2009 11 16 | J75 | 0.1+ | 0.6− | 2009 11 23 | G96 | 0.1− | 0.4− | | | | |
| 2009 11 16 | J75 | 0.6− | 0.2+ | 2009 11 23 | G96 | 0.3+ | 0.4− | | | | |

## 2009 WZ$_5$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 320.60870 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22512820 | $\omega$ | 250.75488 | | −0.59527665 | −0.78622117 | |
| $a$ | 2.6761849 | $\Omega$ | 236.90181 | | +0.79133961 | −0.53782952 | |
| $e$ | 0.1890946 | $i$ | 11.41762 | | +0.13938200 | −0.30429540 | |
| $P$ | 4.38 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 30 | 645 | 0.0 | 0.0 | 2009 11 16 | 691 | 0.4− | 0.1− | 2009 11 20 | A79 | 1.0+ | 0.3+ |
| 2000 11 30 | 645 | 0.0 | 0.1− | 2009 11 16 | 691 | 1.0− | 0.1− | 2009 11 20 | A79 | 0.4+ | 0.3+ |
| 2002 04 08 | 644 | 0.3+ | 0.1− | 2009 11 18 | A79 | 0.4+ | 0.3− | 2009 11 23 | A79 | 0.3+ | 0.2+ |
| 2002 04 08 | 644 | 0.5− | 0.0 | 2009 11 18 | A79 | 0.6+ | 0.7+ | 2009 11 23 | A79 | 0.2+ | 0.7− |
| 2002 04 08 | 644 | 0.2+ | 0.2− | 2009 11 18 | A79 | 0.2+ | 0.8+ | 2009 11 25 | A79 | 1.4+ | 0.4− |
| 2002 04 19 | 644 | 0.0 | 0.3+ | 2009 11 18 | A79 | 1.4+ | 0.5+ | 2009 11 25 | A79 | 0.4− | 0.3+ |
| 2002 04 19 | 644 | 0.6+ | 0.5+ | 2009 11 18 | A79 | 0.5+ | 0.1− | 2009 12 19 | 691 | 0.0 | 0.6− |
| 2002 05 11 | 644 | 0.6− | 1.6− | 2009 11 18 | A79 | 0.2+ | 0.6+ | 2009 12 19 | 691 | 0.8− | 1.1+ |
| 2002 05 11 | 644 | 0.4− | 0.7− | 2009 11 20 | 691 | 0.1+ | 0.2+ | 2009 12 19 | 691 | 0.3− | 0.2+ |
| 2002 05 16 | 644 | 0.0 | 0.6+ | 2009 11 20 | 691 | 0.7− | 0.1+ | 2009 12 19 | H11 | 0.1− | 0.5− |
| 2002 05 16 | 644 | 0.1+ | 0.6+ | 2009 11 20 | 691 | 0.5+ | 0.6− | 2009 12 19 | H11 | 0.1− | 0.3− |
| 2009 10 27 | 691 | 0.2− | 0.1+ | 2009 11 20 | G96 | 0.4+ | 0.1− | 2009 12 19 | G96 | 0.8+ | 0.2− |
| 2009 10 27 | 691 | 0.1+ | 0.0 | 2009 11 20 | G96 | 0.3+ | 0.4− | 2009 12 19 | G96 | 0.6+ | 0.6− |
| 2009 10 27 | 691 | 0.2+ | 0.2+ | 2009 11 20 | G96 | 0.2+ | 0.2− | 2009 12 19 | G96 | 0.1+ | 0.6− |
| 2009 11 16 | 691 | 0.3+ | 0.1+ | 2009 11 20 | G96 | 0.5+ | 0.1− | 2009 12 19 | G96 | 0.5+ | 0.4− |

**2009 WH$_6$ = 2008 RC$_{51}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 308.98209 | | (2000.0) | | | |
| $n$ | 0.18783034 | $\omega$ | 283.13298 | | −0.68146490 | −0.72879018 |
| $a$ | 3.0196658 | $\Omega$ | 210.16683 | | +0.71239344 | −0.63964666 |
| $e$ | 0.0955168 | $i$ | 7.64602 | | +0.16763404 | −0.24437067 |
| $P$ | 5.25 | $H$ | 15.4 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 20 | 691 | 0.0 | 0.0 | 2008 09 06 | 691 | 0.3− | 0.5+ | 2009 11 20 | H06 | 0.3+ | 0.3− |
| 2003 09 20 | 691 | 0.0 | 0.1− | 2008 09 26 | G96 | 0.4+ | 0.3− | 2009 11 20 | H06 | 0.1+ | 0.6+ |
| 2003 09 20 | 691 | 0.3+ | 0.2+ | 2008 09 26 | G96 | 0.2+ | 0.5− | 2009 11 20 | G96 | 0.1+ | 0.0 |
| 2003 10 16 | 644 | 0.8− | 0.3+ | 2008 09 26 | G96 | 0.4+ | 0.2− | 2009 11 20 | G96 | 0.0 | 0.0 |
| 2003 10 16 | 644 | 0.4− | 0.1+ | 2008 09 26 | G96 | 0.3+ | 0.3− | 2009 11 20 | G96 | 0.2− | 0.2− |
| 2003 10 16 | 644 | 0.5− | 0.0 | 2009 11 18 | H06 | 0.0 | 0.1+ | 2009 11 20 | G96 | 0.3− | 0.1− |
| 2006 05 31 | G96 | 0.1+ | 0.0 | 2009 11 18 | H06 | 0.2− | 0.8− | 2009 11 23 | H06 | 0.4+ | 0.4− |
| 2006 05 31 | G96 | 0.2− | 0.0 | 2009 11 18 | H06 | 0.6+ | 0.8− | 2009 11 23 | H06 | 0.4+ | 0.6− |
| 2006 05 31 | G96 | 0.2+ | 0.0 | 2009 11 19 | H06 | 0.1− | 0.1− | 2009 11 23 | H06 | 0.0 | 0.3− |
| 2006 05 31 | G96 | 0.1− | 0.1+ | 2009 11 19 | 704 | 0.4− | 1.4+ | 2009 12 09 | A13 | 0.2− | 1.3+ |
| 2008 09 03 | 691 | 0.2+ | 0.3− | 2009 11 19 | H06 | 0.5+ | 0.2− | 2009 12 09 | A13 | 0.0 | 0.2− |
| 2008 09 03 | 691 | 0.1− | 0.1− | 2009 11 19 | 704 | (0.5+ | 2.1+) | 2009 12 11 | 703 | 0.0 | 1.2− |
| 2008 09 03 | 691 | 0.3− | 0.1− | 2009 11 19 | H06 | 0.3+ | 0.3− | 2009 12 11 | 703 | 1.3− | 0.7− |
| 2008 09 06 | 691 | 0.1− | 0.1+ | 2009 11 19 | 704 | (0.5− | 2.8+) | 2009 12 11 | 703 | 0.1− | 1.5+ |
| 2008 09 06 | 691 | 0.4+ | 0.1+ | 2009 11 20 | H06 | 0.8− | 0.2+ | 2009 12 11 | 703 | 0.8+ | 0.9+ |

**2009 WY$_6$ = 1999 FL$_{81}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 63.50329 | | (2000.0) | | | |
| $n$ | 0.23950546 | $\omega$ | 293.83733 | | +0.99010127 | +0.00567434 |
| $a$ | 2.5679847 | $\Omega$ | 66.08812 | | +0.05864912 | +0.89104084 |
| $e$ | 0.1408355 | $i$ | 8.82442 | | −0.12751377 | +0.45388769 |
| $P$ | 4.12 | $H$ | 16.5 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 03 20 | 645 | 0.0 | 0.0 | 2009 09 30 | G96 | 0.3+ | 0.3− | 2009 11 19 | 291 | 0.2− | 0.2+ |
| 1999 03 20 | 645 | 0.0 | 0.1− | 2009 09 30 | G96 | 0.3+ | 0.0 | 2009 11 19 | 291 | 0.2− | 0.2+ |
| 1999 03 21 | 645 | 0.1− | 0.1− | 2009 11 17 | 114 | 0.3+ | 0.2− | 2009 11 19 | 291 | 0.3− | 0.1+ |
| 1999 03 21 | 645 | 0.1− | 0.1− | 2009 11 17 | 114 | 1.4+ | 0.1− | 2009 11 20 | 691 | 0.2− | 0.0 |
| 2003 04 01 | 645 | 0.0 | 0.1+ | 2009 11 17 | 114 | 0.0 | 0.1− | 2009 11 20 | 691 | 0.4− | 0.1− |
| 2003 04 01 | 645 | 0.1− | 0.1+ | 2009 11 17 | 114 | 0.9+ | 0.1− | 2009 11 20 | 691 | 0.2− | 0.1− |
| 2003 04 09 | 691 | 0.4+ | 0.0 | 2009 11 17 | 114 | 0.4+ | 0.1− | 2009 11 24 | 691 | 0.0 | 0.0 |
| 2003 04 09 | 691 | 0.4+ | 0.0 | 2009 11 18 | 291 | 0.0 | 0.1+ | 2009 11 24 | 691 | 0.0 | 0.0 |
| 2003 04 09 | 691 | 0.3+ | 0.3+ | 2009 11 18 | 291 | 0.1− | 0.0 | 2009 11 24 | 691 | 0.2− | 0.1+ |
| 2005 12 06 | 691 | 0.6+ | 0.2− | 2009 11 18 | 291 | 0.2− | 0.1+ | 2009 12 16 | G96 | 0.4+ | 0.4− |
| 2005 12 06 | 691 | 0.0 | 0.3− | 2009 11 18 | 114 | 0.5+ | 0.1− | 2009 12 16 | G96 | 0.5+ | 0.2− |
| 2005 12 06 | 691 | 0.5− | 0.5+ | 2009 11 18 | 114 | 0.5+ | 0.1− | 2009 12 16 | G96 | 0.6+ | 0.4− |
| 2009 09 30 | G96 | 0.7+ | 0.2− | 2009 11 18 | 114 | 1.4+ | 0.3− | 2009 12 16 | G96 | 0.3+ | 0.2− |
| 2009 09 30 | G96 | 0.8+ | 0.3+ | 2009 11 18 | 114 | 0.3+ | 0.4− | | | | |

**2009 WB$_7$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 15.37759 | | (2000.0) | | | |
| $n$ | 0.27830236 | $\omega$ | 7.82991 | | +0.48945326 | −0.86793343 |
| $a$ | 2.3234043 | $\Omega$ | 52.90553 | | +0.79422661 | +0.40371750 |
| $e$ | 0.1513416 | $i$ | 6.07553 | | +0.36005499 | +0.28931599 |
| $P$ | 3.54 | $H$ | 17.1 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1991 10 14 | 691 | 0.1+ | 0.4+ | 2009 11 19 | A13 | 0.1− | 0.1+ | 2009 12 09 | J75 | 0.2− | 0.7− |
| 1991 10 14 | 691 | 0.1+ | 0.1− | 2009 11 19 | A13 | 0.1− | 0.2− | 2009 12 09 | J75 | 0.4− | 0.4− |
| 1991 10 14 | 691 | 0.5− | 0.1+ | 2009 11 20 | J75 | 1.1− | 0.7+ | 2009 12 10 | 704 | 0.0 | 1.5+ |
| 2004 05 09 | 691 | 0.3+ | 0.3+ | 2009 11 21 | J75 | 0.1− | 0.8+ | 2009 12 10 | 704 | 0.2+ | 1.1+ |
| 2004 05 09 | 691 | 0.1+ | 0.3+ | 2009 11 21 | J75 | 0.4− | 1.0+ | 2009 12 10 | 704 | 0.6+ | 0.1+ |
| 2004 05 09 | 691 | 0.1+ | 0.5+ | 2009 11 21 | A13 | 0.1− | 0.1+ | 2009 12 10 | 704 | 0.1+ | 0.2− |
| 2009 09 22 | G96 | 0.2+ | 0.1+ | 2009 11 21 | A13 | 0.1− | 0.0 | 2009 12 10 | 704 | 0.1− | 0.7+ |
| 2009 09 22 | G96 | 0.3+ | 0.0 | 2009 11 21 | A13 | 0.0 | 0.1− | 2009 12 16 | 704 | 0.3+ | 0.7+ |
| 2009 09 22 | G96 | 0.3+ | 0.2+ | 2009 11 24 | J75 | (2.4+ | 1.2+) | 2009 12 16 | 704 | 0.7+ | 0.3+ |
| 2009 09 22 | G96 | 0.4+ | 0.1− | 2009 11 24 | J75 | 0.3+ | 0.1− | 2009 12 16 | 704 | 0.2+ | 0.1− |
| 2009 11 09 | 691 | 1.2− | 0.4− | 2009 11 25 | J75 | 0.7+ | 0.3− | 2009 12 16 | 704 | 0.8+ | 0.3+ |
| 2009 11 09 | 691 | 0.0 | 0.1+ | 2009 11 25 | 703 | (2.5− | 0.0 ) | 2009 12 16 | 704 | 0.9+ | 0.2− |
| 2009 11 09 | 691 | 0.1+ | 0.0 | 2009 11 25 | 703 | 0.3− | 0.3− | 2009 12 16 | G96 | 0.5+ | 0.0 |
| 2009 11 17 | 691 | 0.1+ | 0.0 | 2009 11 25 | 703 | 0.4− | 0.0 | 2009 12 16 | G96 | 0.5+ | 0.0 |
| 2009 11 17 | 691 | 0.1+ | 0.1+ | 2009 11 25 | 703 | 0.6− | 0.1+ | 2009 12 16 | G96 | 0.4+ | 0.0 |
| 2009 11 17 | 691 | 0.2+ | 0.2− | 2009 12 05 | A13 | 0.7− | 0.6− | 2009 12 16 | G96 | 0.0 | 0.1− |
| 2009 11 18 | A13 | 0.2+ | 0.2+ | 2009 12 05 | A13 | (2.5+ | 0.8−) | | | | |
| 2009 11 18 | A13 | 0.4+ | 0.0 | 2009 12 09 | J75 | 0.4− | 0.2− | | | | |

**2009 WC$_7$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 46.46352 | | (2000.0) | | | |
| $n$ | 0.18971941 | $\omega$ | 308.25913 | | +0.95965580 | −0.14055877 |
| $a$ | 2.9995875 | $\Omega$ | 61.06168 | | +0.24928038 | +0.82597043 |
| $e$ | 0.0426916 | $i$ | 16.15688 | | −0.13007708 | +0.54590849 |
| $P$ | 5.20 | $H$ | 15.8 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 15 | G96 | 0.6− | 0.1+ | 2007 05 12 | G96 | 0.1− | 0.0 | 2009 11 19 | G96 | 0.3+ | 0.1− |
| 2004 10 15 | G96 | 0.0 | 0.2− | 2007 05 12 | G96 | 0.2+ | 0.3+ | 2009 11 19 | G96 | 0.1+ | 0.1− |
| 2004 10 15 | G96 | 0.4− | 0.5− | 2009 10 14 | G96 | 0.1− | 0.3+ | 2009 11 19 | G96 | 0.0 | 0.1− |
| 2004 10 15 | G96 | 0.0 | 0.7− | 2009 10 14 | G96 | 0.1+ | 0.3+ | 2009 11 19 | A13 | 0.1+ | 0.5− |
| 2004 11 10 | 691 | 0.1+ | 0.1+ | 2009 10 14 | G96 | 0.2+ | 0.4+ | 2009 11 19 | A13 | 0.0 | 0.2− |
| 2004 11 10 | 691 | 0.1+ | 0.1+ | 2009 10 14 | G96 | 0.2+ | 0.4+ | 2009 11 21 | A13 | 0.0 | 0.1+ |
| 2004 11 10 | 691 | 0.1− | 0.2+ | 2009 11 18 | A13 | 0.1+ | 0.2− | 2009 11 21 | A13 | 0.1− | 0.2− |
| 2007 05 12 | G96 | 0.4+ | 0.0 | 2009 11 18 | A13 | 0.2+ | 0.0 | 2009 11 26 | A13 | 0.3− | 0.2+ |
| 2007 05 12 | G96 | 0.4− | 0.0 | 2009 11 19 | G96 | 0.0 | 0.1− | 2009 11 26 | A13 | 0.8− | 0.1− |

**2009 WT$_7$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 29.34894 | | (2000.0) | | | |
| $n$ | 0.22840056 | $\omega$ | 14.38366 | | +0.92797072 | −0.37263013 |
| $a$ | 2.6505618 | $\Omega$ | 7.49819 | | +0.33869200 | +0.83871715 |
| $e$ | 0.1418306 | $i$ | 1.81759 | | +0.15542867 | +0.39711501 |
| $P$ | 4.32 | $H$ | 16.8 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 04 25 | 691 | 0.2+ | 0.7+ | 2007 03 26 | G96 | 0.2− | 0.2− | 2009 11 14 | J75 | 0.1− | 1.3− |
| 2003 04 25 | 691 | 0.7+ | 0.7+ | 2009 09 16 | G96 | 0.2+ | 0.2+ | 2009 11 14 | J75 | 0.4+ | 0.1+ |
| 2003 04 25 | 691 | 0.3+ | 0.7+ | 2009 09 16 | G96 | 0.3+ | 0.2+ | 2009 11 14 | J75 | (2.1+ | 0.3−) |
| 2004 07 21 | E12 | 0.4− | 0.0 | 2009 09 16 | G96 | 0.4+ | 0.2+ | 2009 11 18 | 185 | 0.4+ | 0.2+ |
| 2004 07 21 | E12 | 0.2+ | 0.6+ | 2009 09 16 | G96 | 0.1+ | 0.3+ | 2009 11 18 | 185 | 0.4+ | 0.0 |
| 2004 07 21 | E12 | 0.1− | 0.2− | 2009 10 24 | 691 | 0.9− | 0.1+ | 2009 11 20 | 926 | 0.4− | 0.5+ |
| 2004 07 21 | E12 | 0.1− | 0.5+ | 2009 10 24 | 691 | 0.4− | 0.2+ | 2009 11 20 | 926 | 0.2+ | 0.9+ |
| 2004 08 14 | 807 | 0.1− | 0.4+ | 2009 10 24 | 691 | 0.6− | 0.2+ | 2009 11 20 | 926 | 0.3+ | 0.4+ |
| 2004 08 14 | 807 | 0.1− | 0.3+ | 2009 11 08 | G96 | 0.6+ | 0.2+ | 2009 11 20 | 926 | 0.0 | 0.3+ |
| 2006 01 27 | G96 | 0.2− | 0.0 | 2009 11 08 | G96 | 0.6+ | 0.1+ | 2009 11 20 | 926 | 0.5+ | 0.4+ |
| 2006 01 27 | G96 | 0.1+ | 0.1+ | 2009 11 08 | G96 | 0.0 | 0.2+ | 2009 11 23 | 703 | (0.8+ | 2.3−) |
| 2006 01 27 | G96 | 0.1− | 0.1− | 2009 11 08 | G96 | 0.6+ | 0.3+ | 2009 11 23 | 703 | 0.1− | 0.3+ |
| 2006 01 27 | G96 | 0.2− | 0.2− | 2009 11 11 | 106 | 0.7+ | 0.3+ | 2009 11 23 | 703 | 0.5+ | 0.7+ |
| 2007 03 26 | G96 | 0.2− | 0.1− | 2009 11 11 | 106 | 0.3− | 0.1− | 2009 11 23 | 703 | 0.0 | 1.2+ |
| 2007 03 26 | G96 | 0.3+ | 0.3+ | 2009 11 11 | 106 | 0.2+ | 0.5+ | 2009 12 13 | 926 | 0.5+ | 0.0 |
| 2007 03 26 | G96 | 0.5− | 0.4+ | 2009 11 11 | 106 | 0.6− | 0.4+ | 2009 12 13 | 926 | 0.1+ | 0.0 |

**2009 WE$_8$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 129.45686 | | (2000.0) | | | |
| $n$ | 0.17690670 | $\omega$ | 262.45570 | | +0.31881776 | +0.94388719 |
| $a$ | 3.1427261 | $\Omega$ | 26.63786 | | −0.77601247 | +0.31217049 |
| $e$ | 0.0240027 | $i$ | 11.08607 | | −0.54420574 | +0.10782651 |
| $P$ | 5.57 | $H$ | 16.0 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 16 | 691 | 0.1− | 0.3− | 2009 10 30 | G96 | 0.2+ | 0.3+ | 2009 11 19 | 947 | 0.3+ | 0.1+ |
| 2003 09 16 | 691 | 0.3− | 0.3+ | 2009 11 09 | 691 | 0.4− | 0.8− | 2009 12 14 | 947 | 0.3+ | 0.3− |
| 2003 09 16 | 691 | 0.2+ | 0.1− | 2009 11 09 | 691 | 0.4− | 0.2+ | 2009 12 14 | 947 | 0.5− | 0.1− |
| 2003 10 18 | 691 | 0.3+ | 0.0 | 2009 11 09 | 691 | 0.5− | 0.3+ | 2009 12 14 | 947 | 0.2+ | 0.2− |
| 2003 10 18 | 691 | 0.1− | 0.1− | 2009 11 18 | 947 | 0.5+ | 0.2− | 2009 12 20 | G96 | 0.2− | 0.7+ |
| 2003 10 18 | 691 | 0.1− | 0.1+ | 2009 11 18 | 947 | 0.6+ | 0.2− | 2009 12 20 | G96 | 0.4+ | 0.1+ |
| 2009 10 30 | G96 | 0.2+ | 0.3+ | 2009 11 18 | 947 | 0.5+ | 0.4+ | 2009 12 20 | G96 | 0.3+ | 0.0 |
| 2009 10 30 | G96 | 0.3− | 0.2− | 2009 11 19 | 947 | 0.9+ | 0.3+ | 2009 12 20 | G96 | 0.2− | 0.3+ |
| 2009 10 30 | G96 | 1.0+ | 0.0 | 2009 11 19 | 947 | 1.1+ | 0.0 | | | | |

**2009 WL$_8$ = 2003 UA$_{303}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 346.61440 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17693785 | $\omega$ | 106.31490 | | −0.24325771 | | −0.96995351 |
| $a$ | 3.1423572 | $\Omega$ | 357.75249 | | +0.84662971 | | −0.21032090 |
| $e$ | 0.2634089 | $i$ | 5.83104 | | +0.47333268 | | −0.12229189 |
| $P$ | 5.57 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 19 | 291 | 0.0 | 0.1− | 2009 11 19 | H10 | 0.0 | 0.9+ | 2009 11 27 | H10 | 0.8− | 0.5− |
| 2003 09 19 | 291 | 0.3+ | 0.1− | 2009 11 19 | H10 | 0.1+ | 0.3+ | 2009 11 27 | H10 | 0.8− | 0.2− |
| 2003 09 19 | 291 | 0.7+ | 0.2+ | 2009 11 19 | H10 | 0.4+ | 0.4+ | 2009 11 27 | H10 | (1.7− | 0.7−) |
| 2003 10 17 | 691 | 0.1− | 0.1− | 2009 11 19 | H10 | 0.6− | 0.8+ | 2009 11 27 | H10 | 0.8− | 0.8− |
| 2003 10 17 | 691 | 0.2− | 0.0 | 2009 11 19 | H10 | 0.4− | 0.5+ | 2009 12 12 | H10 | 0.1+ | 0.1− |
| 2003 10 17 | 691 | 0.1− | 0.1+ | 2009 11 19 | H10 | 0.6− | 0.1− | 2009 12 12 | H10 | 0.2− | 0.0 |
| 2003 10 27 | 291 | 0.2+ | 0.0 | 2009 11 19 | H10 | 0.3− | 0.1− | 2009 12 12 | H10 | 0.4+ | 0.1− |
| 2003 10 27 | 291 | 0.0 | 0.3+ | 2009 11 20 | H10 | 0.3+ | 0.6+ | 2009 12 12 | H10 | 0.2− | 0.4− |
| 2003 10 27 | 291 | 0.0 | 0.2+ | 2009 11 20 | H10 | 0.3− | 0.1+ | 2009 12 12 | H10 | 0.2− | 0.3− |
| 2003 10 27 | 691 | 0.1− | 0.2− | 2009 11 20 | H10 | 0.1− | 0.0 | 2009 12 12 | H10 | 0.0 | 0.5− |
| 2003 10 27 | 691 | 0.3− | 0.3+ | 2009 11 20 | H10 | 0.1+ | 0.2+ | 2009 12 17 | H10 | 0.3− | 0.1− |
| 2003 10 27 | 691 | 0.4− | 0.3− | 2009 11 20 | H10 | 0.4− | 0.2− | 2009 12 17 | H10 | 0.1− | 0.4− |
| 2005 03 10 | G96 | 0.9+ | 0.0 | 2009 11 21 | 703 | 0.6+ | 0.6− | 2009 12 17 | H10 | 0.6+ | 0.0 |
| 2005 03 10 | G96 | 0.0 | 0.5+ | 2009 11 21 | 703 | 0.9+ | 0.1− | 2009 12 17 | H10 | 0.5+ | 0.3− |
| 2005 03 10 | G96 | 0.2− | 0.1+ | 2009 11 21 | 703 | 0.1+ | 0.3− | 2009 12 17 | H10 | 0.0 | 0.4− |
| 2005 03 10 | G96 | 0.3− | 0.1+ | 2009 11 21 | 703 | 0.4+ | 0.1− | | | | |
| 2009 11 19 | H10 | 0.8+ | 0.9+ | 2009 11 21 | 703 | 1.0+ | 0.2+ | | | | |

**2009 WZ$_8$ = 2000 XQ$_{55}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 252.41141 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21796389 | $\omega$ | 106.64677 | | −0.98998904 | | −0.08044246 |
| $a$ | 2.7345110 | $\Omega$ | 68.85842 | | +0.02205202 | | −0.89975506 |
| $e$ | 0.0072485 | $i$ | 7.14303 | | +0.13941096 | | −0.42891705 |
| $P$ | 4.52 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 03 | 691 | 0.5+ | 0.4− | 2007 04 16 | 703 | 0.4+ | 0.8− | 2009 11 18 | 704 | (0.0 | 2.0+) |
| 2000 11 03 | 691 | 0.4+ | 0.0 | 2007 04 16 | 703 | (1.8− | 0.2−) | 2009 11 18 | 704 | 1.1− | 0.2+ |
| 2000 11 03 | 691 | 0.8+ | 0.1− | 2007 04 16 | 703 | (3.0− | 1.3+) | 2009 11 18 | 704 | 0.0 | 1.1+ |
| 2000 12 01 | 691 | 0.1− | 0.4− | 2007 05 10 | 691 | 0.2+ | 0.5+ | 2009 11 20 | 704 | 0.5+ | 0.1+ |
| 2000 12 01 | 691 | 0.1− | 0.2− | 2007 05 10 | 691 | 0.1+ | 0.4+ | 2009 11 20 | 704 | 1.1+ | 0.4− |
| 2000 12 01 | 691 | 0.3− | 0.2− | 2007 05 10 | 691 | 0.0 | 0.2+ | 2009 11 20 | 704 | 0.6+ | 0.8+ |
| 2000 12 20 | 691 | 0.0 | 0.0 | 2009 10 23 | G96 | 0.1+ | 0.2+ | 2009 11 20 | G96 | 0.1+ | 0.3− |
| 2000 12 20 | 691 | 0.4− | 0.2− | 2009 10 23 | G96 | 0.0 | 0.1− | 2009 11 20 | G96 | 0.5− | 0.0 |
| 2000 12 20 | 691 | 0.4− | 0.0 | 2009 10 23 | G96 | 0.0 | 0.1+ | 2009 11 20 | G96 | 0.1+ | 0.2− |
| 2004 12 14 | 291 | 0.6− | 0.4+ | 2009 10 23 | G96 | 0.0 | 0.4+ | 2009 11 23 | G96 | 0.1+ | 0.3+ |
| 2004 12 14 | 291 | 0.0 | 0.2+ | 2009 11 08 | 691 | 0.2− | 0.4+ | 2009 11 23 | G96 | 0.0 | 0.1+ |
| 2004 12 14 | 291 | 0.1+ | 0.3+ | 2009 11 08 | 691 | 0.3− | 0.4+ | 2009 11 23 | G96 | 0.2+ | 0.0 |
| 2007 03 15 | G96 | 0.4+ | 0.4+ | 2009 11 08 | 691 | 0.4− | 0.3+ | 2009 12 11 | G96 | 0.4+ | 0.1+ |
| 2007 03 15 | G96 | 0.2− | 0.5+ | 2009 11 08 | 703 | 0.5+ | 0.9+ | 2009 12 11 | G96 | 0.7− | 0.2+ |
| 2007 03 15 | G96 | 0.0 | 0.4+ | 2009 11 08 | 703 | 0.6− | 1.3− | 2009 12 11 | G96 | 0.2+ | 0.2+ |
| 2007 03 15 | G96 | 0.4+ | 0.6+ | 2009 11 08 | 703 | 0.6− | 0.7+ | 2009 12 11 | G96 | 0.2+ | 0.6+ |
| 2007 04 16 | 703 | (2.3− | 3.1+) | 2009 11 08 | 703 | 0.3+ | 0.3+ | | | | |

**2009 WA$_9$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 45.30409 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.27041475 | $\omega$ | 310.06924 | | +0.92952808 | | −0.12299705 |
| $a$ | 2.3683677 | $\Omega$ | 59.72017 | | +0.30848817 | | +0.77585336 |
| $e$ | 0.1913508 | $i$ | 23.73787 | | −0.20202127 | | +0.61880795 |
| $P$ | 3.64 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 05 11 | 691 | 1.0− | 0.1− | 2009 11 09 | G96 | 0.2− | 0.2− | 2009 11 20 | G96 | 0.3+ | 0.3− |
| 2008 05 11 | 691 | 0.2− | 0.0 | 2009 11 09 | G96 | 0.3+ | 0.2− | 2009 11 23 | G96 | 0.6+ | 0.1− |
| 2008 05 11 | 691 | 0.1+ | 0.3+ | 2009 11 09 | G96 | 0.2+ | 0.3− | 2009 11 23 | G96 | 0.3+ | 0.1− |
| 2008 05 26 | 691 | 0.7− | 0.5− | 2009 11 09 | G96 | 0.1− | 0.2− | 2009 11 23 | G96 | 0.5+ | 0.2− |
| 2008 05 26 | 691 | 1.2+ | 0.1+ | 2009 11 18 | 704 | 0.5+ | 0.6+ | 2009 11 23 | G96 | 0.1+ | 0.2− |
| 2008 05 26 | 691 | 0.2+ | 0.2− | 2009 11 18 | 704 | 0.5− | 0.0 | 2009 11 23 | J75 | 0.5+ | 0.1− |
| 2009 10 26 | 703 | 0.9+ | 0.5+ | 2009 11 18 | 704 | 0.2− | 0.4+ | 2009 11 23 | J75 | 0.5+ | 0.6− |
| 2009 10 26 | 703 | 1.0− | 0.4+ | 2009 11 18 | 704 | 0.9+ | 0.9+ | 2009 11 23 | J75 | 0.6+ | 0.2− |
| 2009 10 26 | 703 | 0.3− | 0.7− | 2009 11 20 | 704 | 0.0 | 0.6− | 2009 11 27 | 691 | 0.1− | 0.2− |
| 2009 10 26 | 703 | 0.1− | 0.5+ | 2009 11 20 | 704 | 0.6+ | 0.3+ | 2009 11 27 | 691 | 0.5− | 0.1+ |
| 2009 11 09 | 703 | (1.8+ | 0.6+) | 2009 11 20 | 704 | 0.2− | 0.1− | 2009 11 27 | 691 | 0.4− | 0.0 |
| 2009 11 09 | 703 | 0.8+ | 0.8+ | 2009 11 20 | G96 | 0.2− | 0.4− | 2009 12 11 | 703 | 1.1− | 0.8+ |
| 2009 11 09 | 703 | 1.0+ | 0.4− | 2009 11 20 | G96 | 0.3+ | 0.5− | 2009 12 11 | 703 | 0.2+ | 0.1+ |
| 2009 11 09 | 703 | 0.4− | 0.1− | 2009 11 20 | G96 | 0.3+ | 0.4− | 2009 12 11 | 703 | 0.2+ | 0.4− |

**2009 WC$_9$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 338.09687 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23110206 | $\omega$ | 244.19765 | | −0.21735034 | | −0.97370377 |
| $a$ | 2.6298653 | $\Omega$ | 218.55404 | | +0.93019052 | | −0.18542767 |
| $e$ | 0.1597255 | $i$ | 6.28802 | | +0.29581145 | | −0.13235386 |
| $P$ | 4.26 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 11 19 | 691 | 0.1− | 0.1+ | 2009 09 19 | G96 | 0.8+ | 0.3− | 2009 11 22 | 703 | 0.2− | 0.0 |
| 1996 11 19 | 691 | 0.1− | 0.2− | 2009 09 19 | G96 | 0.7− | 0.2+ | 2009 11 22 | 703 | 0.2+ | 0.2+ |
| 1996 11 19 | 691 | 0.1− | 1.3− | 2009 09 19 | G96 | 0.4− | 0.0 | 2009 11 23 | G96 | 0.7+ | 0.2− |
| 1998 03 30 | 910 | 0.6+ | 0.2+ | 2009 11 08 | 691 | 0.3− | 0.1− | 2009 11 23 | G96 | 0.4+ | 0.2− |
| 1998 03 30 | 910 | 0.7+ | 0.2− | 2009 11 08 | 691 | 0.5− | 0.2+ | 2009 11 23 | G96 | 0.7+ | 0.3− |
| 1998 03 30 | 910 | 0.4+ | 0.3− | 2009 11 08 | 691 | 0.2− | 0.1− | 2009 11 23 | G96 | 0.3+ | 0.3− |
| 2000 10 30 | 691 | 0.0 | 0.4− | 2009 11 15 | 703 | 0.7− | 0.7+ | 2009 11 23 | G96 | 0.6+ | 0.1− |
| 2000 10 30 | 691 | 0.0 | 0.0 | 2009 11 15 | 703 | 0.4+ | 1.5+ | 2009 11 23 | G96 | 0.4+ | 0.0 |
| 2000 10 30 | 691 | 0.1+ | 0.1+ | 2009 11 15 | 703 | 0.7− | 0.8+ | 2009 11 23 | G96 | 0.3+ | 0.0 |
| 2002 03 06 | 644 | 0.2+ | 0.2+ | 2009 11 15 | 703 | 0.8+ | 0.0 | 2009 11 23 | G96 | 0.6+ | 0.1− |
| 2002 03 06 | 644 | 0.4+ | 0.5+ | 2009 11 18 | 704 | 0.6+ | 1.5+ | 2009 12 10 | 703 | 0.8− | 0.5− |
| 2002 03 06 | 644 | 0.3+ | 0.4+ | 2009 11 18 | 704 | 0.6+ | 0.3− | 2009 12 10 | 703 | (0.3− | 1.7+) |
| 2004 10 12 | 291 | 0.0 | 0.8+ | 2009 11 18 | 704 | 0.2− | 0.3− | 2009 12 10 | 703 | 1.0− | 0.6+ |
| 2004 10 12 | 291 | 0.2+ | 0.4+ | 2009 11 18 | 704 | 0.4+ | 0.7+ | 2009 12 10 | 703 | 1.2− | 0.8+ |
| 2004 10 12 | 291 | 0.3+ | 0.4+ | 2009 11 18 | 704 | 0.4+ | 0.4+ | 2009 12 11 | 703 | 0.3+ | 1.0− |
| 2007 04 26 | 691 | 0.1+ | 0.4+ | 2009 11 20 | 704 | 0.8+ | 0.7+ | 2009 12 11 | 703 | 0.9− | 0.1− |
| 2007 04 26 | 691 | 0.4− | 0.3+ | 2009 11 20 | 704 | 0.8+ | 0.3+ | 2009 12 11 | 703 | 0.1+ | 0.6+ |
| 2007 04 26 | 691 | 0.4− | 0.4− | 2009 11 20 | 704 | 0.8+ | 0.2− | 2009 12 11 | 703 | 0.1− | 0.0 |
| 2007 05 10 | 691 | 0.3+ | 0.1+ | 2009 11 20 | 704 | 0.5− | 1.5+ | 2009 12 19 | 691 | 0.2− | 0.1− |
| 2007 05 10 | 691 | 0.2− | 0.0 | 2009 11 20 | 704 | 0.6+ | 0.1− | 2009 12 19 | 691 | 0.2− | 0.1− |
| 2007 05 10 | 691 | 0.1− | 0.2+ | 2009 11 22 | 703 | 0.1+ | 0.4+ | 2009 12 19 | 691 | 0.2− | 0.0 |
| 2009 09 19 | G96 | 0.1− | 0.1+ | 2009 11 22 | 703 | 0.5+ | 0.1+ | | | | |

**2009 WE$_9$ = 2005 TN$_9$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 338.28531 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.26196637 | $\omega$ | 321.62777 | | −0.20197672 | | −0.97911340 |
| $a$ | 2.4190176 | $\Omega$ | 140.00948 | | +0.90728405 | | −0.19600853 |
| $e$ | 0.1148106 | $i$ | 2.07672 | | +0.36883745 | | −0.05401484 |
| $P$ | 3.76 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 04 18 | 691 | 0.4− | 0.1+ | 2007 04 23 | G96 | 0.0 | 0.3− | 2009 11 20 | 704 | 0.9+ | 1.2+ |
| 1996 04 18 | 691 | 0.1− | 0.0 | 2007 04 23 | G96 | 0.3− | 0.4− | 2009 11 22 | 691 | 0.2− | 0.1+ |
| 1996 04 18 | 691 | 0.0 | 0.7+ | 2007 04 23 | G96 | 0.1+ | 0.5− | 2009 11 22 | 691 | 0.1− | 0.1− |
| 2003 02 22 | 699 | 0.8+ | 0.4+ | 2007 05 22 | G96 | 0.3+ | 0.4− | 2009 11 22 | 691 | 0.5− | 0.2− |
| 2003 02 22 | 699 | 0.9+ | 1.2+ | 2007 05 22 | G96 | 0.4+ | 0.3− | 2009 11 23 | 291 | 0.3− | 0.0 |
| 2003 02 22 | 699 | 0.0 | 0.5+ | 2007 05 22 | G96 | 0.8+ | 0.7+ | 2009 11 23 | 291 | 0.2− | 0.1+ |
| 2003 02 22 | 699 | 0.1+ | 0.3− | 2007 05 22 | G96 | 0.3+ | 0.1− | 2009 11 23 | 291 | 0.3− | 0.0 |
| 2003 03 06 | 644 | 0.3+ | 0.3+ | 2009 09 22 | G96 | 0.1+ | 0.3− | 2009 11 23 | J75 | 0.1+ | 0.0 |
| 2003 03 06 | 644 | 0.3+ | 1.0+ | 2009 09 22 | G96 | 0.7+ | 0.3− | 2009 11 23 | J75 | 0.3+ | 0.7− |
| 2003 03 06 | 644 | 0.6+ | 0.8+ | 2009 09 22 | G96 | 0.1− | 0.1− | 2009 11 23 | J75 | 0.3− | 0.3− |
| 2005 10 01 | 691 | 0.2+ | 0.2+ | 2009 09 22 | G96 | 0.2+ | 0.1− | 2009 11 26 | 691 | 0.1− | 0.1− |
| 2005 10 01 | 691 | 0.1− | 0.6+ | 2009 11 18 | 691 | 0.2− | 0.1− | 2009 11 26 | 691 | 0.1− | 0.0 |
| 2005 10 01 | 691 | 0.1+ | 0.1+ | 2009 11 18 | 691 | 0.0 | 0.3− | 2009 11 26 | 691 | 0.0 | 0.3− |
| 2005 10 02 | G96 | 0.0 | 0.1+ | 2009 11 18 | 691 | 0.1− | 0.1− | 2009 12 11 | 703 | 0.5− | 0.7+ |
| 2005 10 02 | G96 | 0.1+ | 0.3+ | 2009 11 18 | 704 | 0.2+ | 0.7+ | 2009 12 11 | 703 | 1.2+ | 1.1− |
| 2005 10 02 | G96 | 0.4− | 0.2+ | 2009 11 18 | 704 | 0.4+ | 0.4− | 2009 12 11 | 703 | 0.4+ | 0.8− |
| 2005 10 02 | G96 | 0.2− | 0.2+ | 2009 11 18 | 704 | 0.7+ | 1.4+ | 2009 12 11 | 703 | 0.0 | 0.7+ |
| 2005 10 25 | 691 | 0.1− | 0.1+ | 2009 11 18 | 704 | 0.8+ | 0.3+ | 2009 12 18 | 691 | 0.0 | 0.2− |
| 2005 10 25 | 691 | 0.2+ | 0.4+ | 2009 11 20 | 704 | 0.3+ | 1.2+ | 2009 12 18 | 691 | 0.0 | 0.3− |
| 2005 10 25 | 691 | 0.0 | 0.4+ | 2009 11 20 | 704 | 0.1− | 0.4− | 2009 12 18 | 691 | 0.1− | 0.3− |
| 2007 04 23 | G96 | 0.2− | 0.6− | 2009 11 20 | 704 | 0.3+ | 1.3+ | | | | |

**2009 WJ$_9$ = 2005 YL$_{135}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 66.22946 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22352760 | $\omega$ | 278.96682 | | +0.97967628 | +0.15401883 | |
| $a$ | 2.6889451 | $\Omega$ | 72.25198 | | −0.08452479 | +0.89796423 | |
| $e$ | 0.1189930 | $i$ | 7.75415 | | −0.18190640 | +0.41223591 | |
| $P$ | 4.41 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 03 31 | 691 | 0.3+ | 1.0+ | 2005 12 26 | 691 | 0.0 | 0.1− | 2009 11 20 | 704 | 0.4+ | 0.9+ |
| 2003 03 31 | 691 | 0.5+ | 0.0 | 2005 12 30 | 691 | 0.2+ | 0.1+ | 2009 11 20 | 704 | 0.3+ | 0.7+ |
| 2003 03 31 | 691 | 0.9+ | 0.4+ | 2005 12 30 | 691 | 0.4− | 0.9− | 2009 11 22 | 691 | 0.1− | 0.3+ |
| 2003 04 30 | 691 | 0.5− | 0.3+ | 2005 12 30 | 691 | 0.2+ | 0.3− | 2009 11 22 | 691 | 0.1− | 0.2+ |
| 2003 04 30 | 691 | 0.1+ | 0.2+ | 2009 11 10 | 691 | 0.2− | 0.4+ | 2009 11 22 | 691 | 0.3− | 0.1+ |
| 2003 04 30 | 691 | 0.1− | 0.5+ | 2009 11 10 | 691 | 0.1− | 0.3+ | 2009 11 26 | 691 | 0.0 | 0.3+ |
| 2004 08 21 | E12 | 0.1− | 0.1+ | 2009 11 10 | 691 | 0.1− | 0.3+ | 2009 11 26 | 691 | 0.2− | 0.3+ |
| 2004 08 21 | E12 | 0.6− | 0.5+ | 2009 11 18 | 704 | 0.2+ | 0.6+ | 2009 11 26 | 691 | 0.1− | 0.2+ |
| 2004 08 21 | E12 | 0.0 | 0.1+ | 2009 11 18 | 704 | (0.8+ | 1.6+) | 2009 12 11 | 703 | 0.1+ | 0.6− |
| 2004 08 21 | E12 | 0.0 | 0.4+ | 2009 11 18 | 704 | (0.3+ | 1.6+) | 2009 12 11 | 703 | 1.1− | 0.7− |
| 2005 12 26 | 691 | 0.0 | 0.0 | 2009 11 20 | 704 | 0.7+ | 1.0+ | 2009 12 11 | 703 | 0.2+ | 0.7− |
| 2005 12 26 | 691 | 0.1+ | 0.5+ | 2009 11 20 | 704 | 0.0 | 0.2+ | 2009 12 11 | 703 | (1.7+ | 1.4+) |

**2009 WL$_9$ = 2007 FY$_{14}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 30.53339 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23768851 | $\omega$ | 319.29957 | | +0.76660881 | −0.62524258 | |
| $a$ | 2.5810550 | $\Omega$ | 80.01063 | | +0.62090665 | +0.66376731 | |
| $e$ | 0.1246424 | $i$ | 8.53880 | | +0.16366389 | +0.41046885 | |
| $P$ | 4.15 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 12 20 | 645 | 0.1− | 0.2− | 2007 03 20 | G96 | 0.1+ | 0.0 | 2009 11 20 | 704 | 1.4+ | 0.5− |
| 2001 12 20 | 645 | 0.1− | 0.1− | 2007 03 20 | G96 | 0.3+ | 0.2+ | 2009 11 20 | 704 | 0.9+ | 0.9− |
| 2003 04 30 | 691 | 0.1− | 0.4+ | 2007 03 20 | G96 | 0.3+ | 0.0 | 2009 11 20 | 704 | 0.6− | 0.1− |
| 2003 04 30 | 691 | 0.4+ | 0.5+ | 2007 05 10 | G96 | 0.0 | 0.1+ | 2009 11 26 | 691 | 0.3− | 0.0 |
| 2003 04 30 | 691 | 0.3+ | 0.4+ | 2007 05 10 | G96 | 0.3− | 0.1+ | 2009 11 26 | 691 | 0.2− | 0.4− |
| 2005 12 07 | 691 | 0.2+ | 0.1− | 2007 05 10 | G96 | 0.1− | 0.1+ | 2009 11 26 | 691 | 0.1− | 0.2− |
| 2005 12 07 | 691 | 0.6+ | 0.6+ | 2007 05 10 | G96 | 0.2+ | 0.3− | 2009 12 11 | 703 | 0.2− | 0.5+ |
| 2005 12 07 | 691 | 0.3+ | 0.1+ | 2009 11 10 | 691 | 1.3− | 0.8+ | 2009 12 11 | 703 | 1.5+ | 0.4+ |
| 2005 12 31 | 691 | 0.2+ | 0.0 | 2009 11 10 | 691 | 0.2− | 0.0 | 2009 12 11 | 703 | 1.2+ | 0.1+ |
| 2005 12 31 | 691 | 0.1+ | 0.1+ | 2009 11 10 | 691 | 0.8− | 0.9+ | 2009 12 11 | 703 | 0.9− | 0.5+ |
| 2005 12 31 | 691 | 0.1+ | 0.1+ | 2009 11 18 | 691 | 0.3− | 0.1− | 2009 12 17 | 704 | 1.0+ | 0.3+ |
| 2006 02 01 | G96 | 0.2− | 0.5− | 2009 11 18 | 691 | 0.3− | 0.2+ | 2009 12 17 | 704 | 1.6+ | 1.2+ |
| 2006 02 01 | G96 | 0.2+ | 0.0 | 2009 11 18 | 691 | 0.2− | 0.0 | 2009 12 17 | 704 | 1.0+ | 0.2+ |
| 2006 02 01 | G96 | 0.0 | 0.1− | 2009 11 18 | 704 | 0.5− | 0.6+ | 2009 12 17 | G96 | 0.2+ | 0.2− |
| 2006 02 01 | G96 | 0.1− | 0.2− | 2009 11 18 | 704 | 0.2+ | 0.3+ | 2009 12 17 | G96 | 0.6+ | 0.2− |
| 2007 03 19 | G96 | 0.0 | 0.3+ | 2009 11 18 | 704 | 0.7+ | 0.3+ | 2009 12 17 | G96 | 0.3+ | 0.3− |
| 2007 03 19 | G96 | 0.0 | 0.0 | 2009 11 18 | 704 | 0.5+ | 1.1+ | 2009 12 17 | G96 | 0.2+ | 0.2+ |
| 2007 03 19 | G96 | 0.0 | 0.0 | 2009 11 20 | 704 | 1.1+ | 0.5− | | | | |
| 2007 03 19 | G96 | 0.0 | 0.1+ | 2009 11 20 | 704 | 0.1− | 1.0− | | | | |

**2009 WM$_9$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 327.97301 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24206173 | $\omega$ | 313.08369 | | −0.47129420 | −0.88185142 | |
| $a$ | 2.5498734 | $\Omega$ | 165.01446 | | +0.82494328 | −0.44670297 | |
| $e$ | 0.1024321 | $i$ | 3.28724 | | +0.31201018 | −0.15097856 | |
| $P$ | 4.07 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 01 | 691 | (2.0+ | 3.2−) | 2009 11 17 | 703 | 0.2− | 0.2+ | 2009 11 26 | 691 | 0.1− | 0.0 |
| 2005 12 01 | 691 | 0.0 | 0.2+ | 2009 11 17 | 703 | (1.6+ | 0.7+) | 2009 11 26 | 691 | 0.2− | 0.1− |
| 2005 12 01 | 691 | 0.1− | 0.2+ | 2009 11 17 | 703 | 1.4+ | 0.8+ | 2009 11 26 | 691 | 0.2− | 0.1− |
| 2006 01 31 | G96 | 0.4+ | 0.0 | 2009 11 18 | 704 | 0.6+ | 0.5+ | 2009 12 11 | 703 | (1.6+ | 0.1−) |
| 2006 01 31 | G96 | 0.0 | 0.2− | 2009 11 18 | 704 | 0.1− | 0.4− | 2009 12 11 | 703 | 0.5+ | 0.6+ |
| 2006 01 31 | G96 | 0.2− | 0.3− | 2009 11 18 | 704 | 0.0 | 0.9+ | 2009 12 11 | 703 | 0.1+ | 0.8− |
| 2006 01 31 | G96 | 0.0 | 0.2− | 2009 11 18 | 704 | 0.8+ | 0.7+ | 2009 12 11 | 703 | 0.0 | 0.1+ |
| 2009 11 10 | 691 | 0.3− | 0.3− | 2009 11 20 | 704 | 0.7+ | 0.4+ | 2009 12 17 | A77 | 0.6− | 0.3− |
| 2009 11 10 | 691 | 0.1− | 0.2− | 2009 11 20 | 704 | 0.4+ | 0.1+ | 2009 12 17 | A77 | 0.4+ | 0.4− |
| 2009 11 10 | 691 | 0.2− | 0.3− | 2009 11 20 | 704 | 0.2+ | 0.5+ | 2009 12 17 | A77 | 0.1+ | 0.4+ |
| 2009 11 17 | 703 | 0.6+ | 0.7− | 2009 11 20 | 704 | 0.2− | 0.8+ | | | | |

**2009 WT$_9$ = 2003 BJ$_{39}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 2.24119 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27125810 | $\omega$ | 302.74424 | | +0.23741888 | −0.96986809 | |
| $a$ | 2.3634563 | $\Omega$ | 133.41930 | | +0.91453395 | +0.20419219 | |
| $e$ | 0.2015839 | $i$ | 4.31613 | | +0.32750561 | +0.13289637 | |
| $P$ | 3.63 | $H$ | 17.4 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 12 28 | 291 | 0.2− | 0.1+ | 2005 08 26 | 644 | 0.3− | 0.5+ | 2009 11 19 | 704 | 0.7+ | 0.2− |
| 2002 12 28 | 291 | 0.1+ | 0.3+ | 2005 08 26 | 644 | 0.7− | 0.5+ | 2009 11 19 | 704 | 0.1+ | 0.5− |
| 2002 12 28 | 291 | 0.2+ | 0.3+ | 2005 08 26 | 644 | 0.8− | 0.3+ | 2009 11 20 | 704 | 0.4− | 0.4− |
| 2003 01 27 | 704 | 0.4− | 0.7+ | 2005 09 11 | 691 | 0.1− | 0.3+ | 2009 11 20 | 704 | 0.2+ | 0.0 |
| 2003 01 27 | 704 | 0.6+ | 0.2− | 2005 09 11 | 691 | 0.1− | 0.3+ | 2009 11 20 | 704 | 0.2+ | 0.7+ |
| 2003 01 27 | 704 | 0.5− | 0.3+ | 2005 09 11 | 691 | 0.4+ | 0.1+ | 2009 11 23 | G96 | 0.2+ | 0.5− |
| 2003 01 27 | 704 | 0.0 | 0.3+ | 2009 11 09 | 703 | 0.2− | 1.3+ | 2009 11 23 | G96 | 0.0 | 0.6− |
| 2003 01 27 | 704 | 0.6+ | 0.2+ | 2009 11 09 | 703 | 0.5+ | 0.1+ | 2009 11 23 | G96 | 0.5+ | 0.4− |
| 2003 01 30 | 644 | 0.1− | 0.1+ | 2009 11 09 | 703 | 0.5+ | 0.1+ | 2009 11 23 | G96 | 0.3− | 0.6− |
| 2003 01 30 | 644 | 0.1+ | 0.1+ | 2009 11 09 | 703 | 0.5− | 0.9− | | | | |
| 2003 01 30 | 644 | 0.0 | 0.1− | 2009 11 19 | 704 | 0.9− | 0.8− | | | | |

**2009 WU$_9$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 43.54076 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18766838 | $\omega$ | 282.98085 | | +0.96320701 | −0.12442366 | |
| $a$ | 3.0214030 | $\Omega$ | 84.54196 | | +0.21534786 | +0.88763301 | |
| $e$ | 0.2373778 | $i$ | 13.84580 | | −0.16080285 | +0.44342574 | |
| $P$ | 5.25 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 04 23 | G96 | 0.7− | 0.1− | 2009 11 16 | J75 | 0.6+ | 0.2− | 2009 11 25 | G96 | 0.1+ | 0.2− |
| 2007 04 23 | G96 | 0.2+ | 0.1− | 2009 11 19 | 704 | 0.4+ | 0.1+ | 2009 12 11 | 703 | 0.9− | 0.9− |
| 2007 04 23 | G96 | 0.1− | 0.2+ | 2009 11 19 | 704 | 0.2− | 0.4− | 2009 12 11 | 703 | 0.4− | 1.4− |
| 2007 04 23 | G96 | 0.7− | 0.2− | 2009 11 19 | 704 | 0.2− | 0.1− | 2009 12 11 | 703 | 0.1+ | 0.3+ |
| 2007 05 22 | G96 | 0.9+ | 0.5+ | 2009 11 20 | 704 | 1.6+ | 1.4+ | 2009 12 11 | 703 | 0.0 | 0.3− |
| 2007 05 22 | G96 | 0.2+ | 0.1+ | 2009 11 20 | 704 | 0.2+ | 0.3+ | 2009 12 11 | 703 | (2.3− | 0.7−) |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 05 22 | G96 | 0.2+ | 0.5− | 2009 11 20 | 704 | 0.0 | 0.1− | 2009 12 11 | 703 | 1.2− | 0.7+ | | |
| 2007 05 22 | G96 | 0.1− | 0.0 | 2009 11 20 | 704 | 0.2− | 0.4+ | 2009 12 11 | 703 | 0.2− | 0.8+ | | |
| 2009 11 16 | J75 | 0.9+ | 0.2+ | 2009 11 25 | G96 | 0.2+ | 0.1− | 2009 12 11 | 703 | 0.8− | 0.4− | | |
| 2009 11 16 | J75 | 0.4+ | 0.0 | 2009 11 25 | G96 | 0.2− | 0.1− | | | | | | |

**2009 WD$_{10}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 17.89552 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22681370 | $\omega$ | 296.61885 | | +0.59094512 | −0.80285117 | |
| $a$ | 2.6629103 | $\Omega$ | 116.93502 | | +0.76802516 | +0.53001635 | |
| $e$ | 0.2806057 | $i$ | 5.07270 | | +0.24682225 | +0.27297008 | |
| $P$ | 4.35 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 27 | 645 | 0.0 | 0.0 | 2009 10 17 | 703 | 0.9− | 1.1− | 2009 11 20 | 704 | 0.3− | 1.0+ | | |
| 2000 11 27 | 645 | 0.0 | 0.1− | 2009 10 17 | 703 | 0.9− | 1.0− | 2009 11 27 | G96 | 0.3− | 0.8− | | |
| 2006 01 25 | 691 | 0.0 | 0.1− | 2009 11 17 | 703 | 0.8+ | 0.2+ | 2009 11 27 | G96 | 0.1+ | 0.6− | | |
| 2006 01 25 | 691 | 0.2+ | 0.0 | 2009 11 17 | 703 | 0.1+ | 0.4− | 2009 11 27 | G96 | 0.2+ | 0.7− | | |
| 2006 01 25 | 691 | 0.8− | 0.1− | 2009 11 17 | 703 | 0.4+ | 0.8− | 2009 12 11 | 703 | 0.2+ | 0.2− | | |
| 2006 02 07 | 691 | 0.2− | 0.0 | 2009 11 19 | 704 | 0.2+ | 1.0+ | 2009 12 11 | 703 | 0.6− | 0.3− | | |
| 2006 02 07 | 691 | 0.2+ | 0.0 | 2009 11 19 | 704 | 0.6+ | 0.4+ | 2009 12 11 | 703 | 0.2− | 0.7− | | |
| 2006 02 07 | 691 | 0.1+ | 0.1+ | 2009 11 19 | 704 | 0.3− | 0.7+ | 2009 12 11 | 703 | 0.5− | 0.6− | | |
| 2006 02 24 | 691 | 0.0 | 0.0 | 2009 11 19 | 704 | 0.9+ | 1.0+ | 2009 12 17 | 704 | 0.6− | 0.1+ | | |
| 2006 02 24 | 691 | 0.3+ | 0.0 | 2009 11 20 | 704 | 0.5+ | 1.1+ | 2009 12 17 | 704 | 0.7+ | 0.0 | | |
| 2006 02 24 | 691 | 0.1+ | 0.0 | 2009 11 20 | 704 | 0.2− | 0.7+ | 2009 12 17 | 704 | 0.2− | 1.2+ | | |
| 2009 10 17 | 703 | 0.4− | 0.4+ | 2009 11 20 | 704 | 0.2− | 0.2+ | 2009 12 17 | 704 | 0.3+ | 0.4− | | |
| 2009 10 17 | 703 | 0.4− | 0.3− | 2009 11 20 | 704 | 0.4+ | 0.0 | | | | | | |

**2009 WE$_{10}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 33.79923 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21274068 | $\omega$ | 307.67176 | | +0.80638972 | −0.40630390 | |
| $a$ | 2.7790883 | $\Omega$ | 80.14153 | | +0.57786222 | +0.69584837 | |
| $e$ | 0.2419904 | $i$ | 25.85867 | | −0.12574128 | +0.59220958 | |
| $P$ | 4.63 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 07 14 | E12 | 0.0 | 0.3+ | 2009 11 20 | 704 | 0.1+ | 0.5+ | 2009 12 11 | G96 | 0.2+ | 0.3− | | |
| 2004 07 14 | E12 | 0.7− | 0.4− | 2009 11 20 | 704 | 0.7− | 0.1− | 2009 12 11 | G96 | 0.1− | 0.1− | | |
| 2004 07 14 | E12 | 0.6+ | 0.3+ | 2009 11 20 | 704 | 0.1+ | 0.3+ | 2009 12 11 | 703 | 0.3− | 0.4− | | |
| 2004 07 14 | E12 | 0.6− | 1.0− | 2009 11 20 | 704 | 0.6+ | 0.4+ | 2009 12 11 | 703 | 0.7− | 0.8− | | |
| 2004 09 14 | E12 | 0.1− | 0.6+ | 2009 11 20 | 704 | 0.4+ | 0.5+ | 2009 12 11 | 703 | 0.4− | 1.2− | | |
| 2004 09 14 | E12 | 0.7+ | 0.1− | 2009 11 24 | D29 | 0.2+ | 0.1− | 2009 12 11 | 703 | 1.3+ | 0.6− | | |
| 2004 09 14 | E12 | 0.2− | 0.1− | 2009 11 24 | D29 | 0.3− | 0.6− | 2009 12 12 | 704 | 0.0 | 0.3− | | |
| 2004 09 14 | E12 | 0.2+ | 0.5+ | 2009 11 27 | G96 | 0.1− | 0.1− | 2009 12 12 | 704 | 0.8+ | 0.1+ | | |
| 2005 02 10 | 809 | 0.4− | 0.3− | 2009 11 27 | G96 | 0.2− | 0.1− | 2009 12 12 | 704 | 0.4− | 0.1− | | |
| 2005 02 10 | 809 | 0.0 | 0.3+ | 2009 11 27 | G96 | 0.0 | 0.2− | 2009 12 12 | 704 | 0.1− | 0.2− | | |
| 2005 02 10 | 809 | 0.1− | 0.0 | 2009 11 27 | G96 | 0.1− | 0.1− | 2009 12 12 | 704 | 0.2+ | 0.5+ | | |
| 2009 09 21 | 703 | 0.3− | 0.1+ | 2009 11 27 | G96 | 0.0 | 0.2− | 2009 12 17 | 704 | 0.4+ | 0.7+ | | |
| 2009 09 21 | 703 | 0.0 | 0.1− | 2009 12 08 | J75 | 0.4− | 0.8− | 2009 12 17 | 704 | 0.5+ | 0.3− | | |
| 2009 09 21 | 703 | 0.1− | 1.3− | 2009 12 08 | J75 | 0.1− | 0.1− | 2009 12 17 | 704 | 0.8+ | 0.6+ | | |
| 2009 09 21 | 703 | 0.2+ | 0.1+ | 2009 12 08 | B74 | 0.6− | 0.9+ | 2009 12 17 | 704 | 1.1+ | 0.4+ | | |
| 2009 11 19 | 704 | 0.1+ | 0.6+ | 2009 12 08 | B74 | 0.6− | 0.8+ | 2009 12 17 | 704 | 0.0 | 0.4− | | |
| 2009 11 19 | 704 | 0.0 | 0.7+ | 2009 12 08 | J75 | 0.3− | 0.4+ | 2009 12 21 | 704 | 0.3− | 0.3+ | | |
| 2009 11 19 | 704 | 0.1− | 0.3+ | 2009 12 08 | B74 | 0.4− | 0.7+ | 2009 12 21 | 704 | 0.0 | 0.2− | | |
| 2009 11 19 | 704 | 0.5+ | 0.1+ | 2009 12 11 | G96 | 0.0 | 0.2− | 2009 12 21 | 704 | 0.1− | 0.2− | | |
| 2009 11 19 | 704 | 0.2+ | 0.1− | 2009 12 11 | G96 | 0.2+ | 0.3− | 2009 12 21 | 704 | 0.8− | 0.1− | | |

**2009 WF$_{10}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 32.83489 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24280144 | $\omega$ | 233.77166 | | +0.80465859 | −0.59298199 | |
| $a$ | 2.5446919 | $\Omega$ | 162.53428 | | +0.57173249 | +0.76024480 | |
| $e$ | 0.2015880 | $i$ | 5.72667 | | +0.16014529 | +0.26533035 | |
| $P$ | 4.06 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 01 09 | G96 | 0.2+ | 0.1− | 2009 11 17 | 703 | 0.2− | 0.4− | 2009 11 27 | G96 | 0.3− | 0.3− | | |
| 2006 01 09 | G96 | 0.2− | 0.3+ | 2009 11 17 | 703 | 1.1+ | 0.4− | 2009 11 27 | G96 | 0.6− | 0.3− | | |
| 2006 01 09 | G96 | 0.0 | 0.1− | 2009 11 19 | 704 | 0.3− | 0.2− | 2009 11 27 | G96 | 0.2− | 0.3− | | |
| 2006 01 09 | G96 | 0.3− | 0.2− | 2009 11 19 | 704 | 0.2+ | 0.8+ | 2009 11 27 | G96 | 0.3− | 0.3− | | |
| 2006 02 04 | G96 | 0.6− | 0.1− | 2009 11 19 | 704 | 0.3+ | 0.0 | 2009 11 27 | G96 | 0.1− | 0.2− | | |
| 2006 02 04 | G96 | 0.0 | 0.1− | 2009 11 19 | 704 | 1.3+ | 0.5+ | 2009 12 08 | J75 | 1.2− | 0.7+ | | |
| 2006 02 04 | G96 | 0.7+ | 0.1+ | 2009 11 20 | 704 | 0.7− | 0.7− | 2009 12 08 | J75 | 0.1− | 0.0 | | |
| 2006 02 04 | G96 | 0.3+ | 0.4− | 2009 11 20 | 704 | 0.0 | 0.3+ | 2009 12 08 | J75 | 0.3− | 0.3− | | |
| 2009 09 15 | 291 | 0.1+ | 0.0 | 2009 11 20 | 704 | 0.3− | 0.9+ | 2009 12 13 | 704 | 0.4+ | 0.5+ | | |
| 2009 09 15 | 291 | 0.1− | 0.1− | 2009 11 20 | 704 | 0.4+ | 0.8+ | 2009 12 13 | 704 | 0.7+ | 0.4+ | | |
| 2009 09 15 | 291 | 0.0 | 0.0 | 2009 11 24 | J75 | 0.0 | 0.0 | 2009 12 13 | 704 | 0.2− | 0.1+ | | |
| 2009 11 17 | 703 | 0.5− | 0.8− | 2009 11 24 | J75 | 0.1− | 0.6+ | 2009 12 13 | 704 | 0.4+ | 0.6− | | |
| 2009 11 17 | 703 | 0.1− | 0.8− | 2009 11 24 | J75 | 0.2+ | 0.4+ | 2009 12 13 | 704 | 0.6+ | 0.2+ | | |

**2009 WJ$_{10}$ = 2003 QQ$_{107}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 42.24332 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17892779 | $\omega$ | 290.64474 | | +0.90361754 | −0.31010252 | |
| $a$ | 3.1190154 | $\Omega$ | 88.37249 | | +0.41008769 | +0.82553868 | |
| $e$ | 0.2392898 | $i$ | 17.19381 | | −0.12370701 | +0.47151067 | |
| $P$ | 5.51 | $H$ | 15.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 08 31 | 704 | 0.3− | 0.3− | 2007 05 16 | G96 | 0.6+ | 0.3+ | 2009 12 09 | J75 | 0.3− | 0.5− | | |
| 2003 08 31 | 704 | 0.1+ | 0.6− | 2007 05 16 | G96 | 0.1+ | 0.2+ | 2009 12 09 | J75 | 0.1+ | 0.2− | | |
| 2003 08 31 | 704 | 0.4+ | 0.2+ | 2008 06 27 | E12 | 0.0 | 0.8+ | 2009 12 11 | 704 | 0.4− | 0.5+ | | |
| 2003 09 03 | 608 | 0.0 | 1.0− | 2008 06 27 | E12 | 0.3− | 0.4− | 2009 12 11 | 704 | (2.1− | 0.1+) | | |
| 2003 09 03 | 608 | 0.1+ | 1.3− | 2008 06 27 | E12 | 0.0 | 1.1+ | 2009 12 11 | 704 | 0.3+ | 0.3+ | | |
| 2003 09 03 | 608 | 0.2+ | 0.7− | 2008 07 30 | E12 | 0.5+ | 0.4+ | 2009 12 11 | 704 | 0.4− | 0.3+ | | |
| 2003 09 27 | 699 | 0.3+ | 0.1+ | 2008 07 30 | E12 | 0.3+ | 0.0 | 2009 12 17 | 704 | 0.1− | 0.1− | | |
| 2003 09 27 | 699 | 0.6+ | 0.1− | 2008 07 30 | E12 | 0.7− | 0.3+ | 2009 12 17 | 704 | 0.1+ | 0.2− | | |
| 2003 09 27 | 699 | 0.2+ | 0.8+ | 2009 11 19 | 704 | 0.4+ | 0.8+ | 2009 12 17 | 704 | 0.3− | 0.0 | | |
| 2003 09 27 | 699 | 0.2− | 0.4+ | 2009 11 19 | 704 | 0.5+ | 1.1+ | 2009 12 17 | 704 | 0.5− | 0.2− | | |
| 2005 01 07 | 703 | 0.1+ | 0.9− | 2009 11 19 | 704 | 0.4+ | 0.8+ | 2009 12 17 | 704 | 0.2+ | 0.4− | | |
| 2005 01 07 | 703 | 0.3− | 0.6− | 2009 11 20 | 704 | 0.1+ | 0.9+ | 2009 12 21 | 704 | (1.7− | 0.6+) | | |
| 2005 01 07 | 703 | 0.3+ | 0.4− | 2009 11 20 | 704 | 0.5+ | 0.1− | 2009 12 21 | 704 | 1.3− | 0.5+ | | |
| 2005 01 07 | 703 | 0.6− | 0.5− | 2009 11 20 | 704 | 0.4− | 0.9+ | 2009 12 21 | 704 | 0.7− | 0.0 | | |
| 2007 05 16 | G96 | 0.0 | 0.1+ | 2009 11 20 | 704 | 0.4+ | 0.7+ | 2009 12 21 | 704 | (2.4− | 0.4+) | | |
| 2007 05 16 | G96 | 0.5+ | 0.2+ | 2009 12 09 | J75 | 0.3− | 0.8− | | | | | | |

**2009 WL$_{10}$ = 2006 BB$_{149}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 8.82520 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23613576 | $\omega$ | 277.83699 | | +0.26743222 | −0.96278418 | |
| $a$ | 2.5923574 | $\Omega$ | 156.53825 | | +0.91822511 | +0.24234216 | |
| $e$ | 0.2354585 | $i$ | 5.63192 | | +0.29213465 | +0.11965323 | |
| $P$ | 4.17 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 01 23 | 704 | 0.7− | 0.4− | 2006 03 03 | G96 | 0.4− | 0.2+ | 2009 12 09 | J75 | 0.4+ | 0.1+ | | |
| 2006 01 23 | 704 | 0.0 | 0.5+ | 2006 03 03 | G96 | 0.2− | 0.3+ | 2009 12 12 | D25 | 0.5− | 0.3− | | |
| 2006 01 23 | 704 | 0.1− | 0.5− | 2009 09 15 | 291 | 0.0 | 0.2+ | 2009 12 12 | D25 | 1.0− | 0.8− | | |
| 2006 01 23 | 704 | 0.2+ | 0.3− | 2009 09 15 | 291 | 0.1+ | 0.4+ | 2009 12 12 | D25 | 0.3− | 0.8− | | |
| 2006 01 23 | 704 | 0.1+ | 0.5+ | 2009 09 15 | 291 | 0.1− | 0.5+ | 2009 12 12 | D25 | 0.0 | 0.4− | | |
| 2006 01 28 | 699 | 0.1+ | 0.7+ | 2009 11 19 | 704 | 0.2− | 0.1− | 2009 12 12 | D25 | 0.2− | 0.5− | | |
| 2006 01 28 | 699 | 0.4+ | 0.5+ | 2009 11 19 | 704 | 0.8− | 0.1+ | 2009 12 15 | 703 | 0.3+ | 0.8− | | |
| 2006 01 28 | 699 | (2.0+ | 0.0 ) | 2009 11 19 | 704 | 0.5− | 0.5− | 2009 12 15 | 703 | 0.8− | 0.4− | | |
| 2006 01 28 | 699 | 0.5+ | 0.1− | 2009 11 19 | 704 | 0.4+ | 0.2− | 2009 12 15 | 703 | 0.8+ | 0.3− | | |
| 2006 03 03 | G96 | 0.5+ | 0.1− | 2009 11 20 | 704 | 0.6+ | 0.7+ | 2009 12 16 | D25 | 0.3+ | 0.4+ | | |
| 2006 03 03 | G96 | 0.1+ | 0.2+ | 2009 11 20 | 704 | 0.3+ | 0.3+ | 2009 12 16 | D25 | 0.3+ | 0.0 | | |
| 2006 03 03 | G96 | 0.1+ | 0.1+ | 2009 11 20 | 704 | (1.8+ | 0.9+) | 2009 12 16 | D25 | 0.2+ | 0.0 | | |
| 2006 03 03 | G96 | 0.4− | 0.4+ | 2009 11 20 | 704 | 0.4+ | 0.3− | 2009 12 16 | D25 | 0.3− | 0.1− | | |
| 2006 03 03 | G96 | 0.1− | 0.3+ | 2009 12 09 | J75 | 0.1+ | 0.1+ | 2009 12 16 | D25 | 0.3+ | 0.2+ | | |
| 2006 03 03 | G96 | 0.0 | 0.0 | 2009 12 09 | J75 | 0.2+ | 0.1+ | | | | | | |

**2009 WP$_{10}$ = 2006 BQ$_{159}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 338.70215 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22320869 | $\omega$ | 250.20641 | | −0.32725313 | −0.93577942 | |
| $a$ | 2.6915057 | $\Omega$ | 219.67540 | | +0.92554198 | −0.28943646 | |
| $e$ | 0.1237692 | $i$ | 11.86196 | | +0.19046637 | −0.20135396 | |
| $P$ | 4.42 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 10 29 | 691 | 0.3− | 0.3− | 2007 06 19 | 691 | 0.2+ | 0.1+ | 2009 11 19 | 704 | 0.0 | 0.0 | |
| 2000 10 29 | 691 | 0.2− | 0.0 | 2008 07 25 | G96 | 0.5+ | 0.1+ | 2009 11 19 | 704 | 0.5+ | 0.2− | |
| 2000 10 29 | 691 | 0.7− | 0.2+ | 2008 07 25 | G96 | 0.5+ | 0.0 | 2009 11 19 | 704 | 0.7+ | 0.5+ | |
| 2000 11 16 | 691 | 0.5+ | 0.3− | 2008 07 25 | G96 | 0.4+ | 0.3+ | 2009 11 20 | 704 | 0.3+ | 1.2− | |
| 2000 11 16 | 691 | 0.5+ | 0.4− | 2008 07 25 | G96 | 0.5+ | 0.2+ | 2009 11 20 | 704 | 0.5+ | 0.2− | |
| 2000 11 16 | 691 | 0.3+ | 0.3− | 2008 09 03 | 691 | 0.1− | 0.3+ | 2009 11 20 | 704 | 0.4− | 1.3− | |
| 2006 01 26 | 699 | 0.9+ | 0.6+ | 2008 09 03 | 691 | 0.5+ | 0.3+ | 2009 11 20 | 704 | 1.0+ | 0.4+ | |
| 2006 01 26 | 699 | 0.2− | 0.2+ | 2008 09 03 | 691 | 1.4− | 0.3− | 2009 11 27 | G96 | 0.1+ | 0.0 | |
| 2006 01 26 | 699 | 0.5− | 1.1+ | 2008 09 05 | 691 | 0.4− | 0.6+ | 2009 11 27 | G96 | 0.4− | 0.1− | |
| 2006 01 26 | 699 | 0.2+ | 0.8+ | 2008 09 05 | 691 | 0.2− | 0.2− | 2009 11 27 | G96 | 0.0 | 0.0 | |
| 2006 01 28 | 703 | 1.2− | 0.3+ | 2008 09 05 | 691 | 0.4+ | 0.3+ | 2009 11 27 | G96 | 0.4+ | 0.0 | |
| 2006 01 28 | 703 | 0.3− | 0.1+ | 2009 09 30 | G96 | 0.2− | 0.1+ | 2009 12 11 | 703 | (0.9− | 2.6+) | |
| 2006 01 28 | 703 | 1.1+ | 0.1+ | 2009 09 30 | G96 | 0.0 | 0.2− | 2009 12 11 | 703 | 1.1− | 0.6+ | |
| 2006 01 28 | 703 | (1.7− | 0.4−) | 2009 09 30 | G96 | 0.5+ | 0.1− | 2009 12 11 | 703 | 0.3− | 0.5+ | |
| 2007 06 07 | 691 | 0.3+ | 0.0 | 2009 09 30 | G96 | 0.0 | 0.0 | 2009 12 11 | 703 | 0.3− | 0.0 | |
| 2007 06 07 | 691 | 0.1− | 0.3+ | 2009 11 17 | 703 | 0.6− | 0.8+ | 2009 12 13 | 704 | 0.4+ | 0.5+ | |
| 2007 06 07 | 691 | (2.4− | 1.9+) | 2009 11 17 | 703 | 0.2− | 0.7+ | 2009 12 13 | 704 | 0.9+ | 0.9+ | |
| 2007 06 19 | 691 | 0.2+ | 0.3+ | 2009 11 17 | 703 | 0.3− | 1.4+ | 2009 12 13 | 704 | 0.2− | 1.2+ | |
| 2007 06 19 | 691 | 0.3− | 0.3− | 2009 11 17 | 703 | 0.5− | 1.0+ | 2009 12 13 | 704 | (0.3+ | 1.8+) | |

**2009 WQ$_{10}$ = 2002 CY$_{223}$ = 2006 AL$_{1}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 11.29200 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23560455 | $\omega$ | 228.83041 | | +0.32528949 | −0.94469140 | |
| $a$ | 2.5962525 | $\Omega$ | 202.29167 | | +0.89721860 | +0.32229110 | |
| $e$ | 0.1811646 | $i$ | 6.32241 | | +0.29863946 | +0.06071741 | |
| $P$ | 4.18 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 02 11 | 704 | 0.1+ | 0.4+ | 2006 01 04 | G96 | 0.1− | 0.0 | 2009 12 08 | J75 | 0.6− | 0.3+ | |
| 2002 02 11 | 704 | 0.2− | 0.2− | 2006 01 04 | G96 | 0.4− | 0.1− | 2009 12 08 | J75 | 0.6+ | 1.0+ | |
| 2002 02 11 | 704 | 0.4+ | 0.2− | 2006 01 04 | G96 | 0.2− | 0.3− | 2009 12 09 | J75 | 0.2− | 0.1− | |
| 2002 02 12 | 704 | 0.4− | 0.7+ | 2006 01 04 | G96 | 0.1− | 0.2− | 2009 12 15 | 703 | 0.2− | 0.6− | |
| 2002 02 12 | 704 | 0.6+ | 1.3+ | 2006 01 04 | G96 | 0.3− | 0.1− | 2009 12 15 | 703 | 0.6− | 0.7− | |
| 2002 02 12 | 704 | 0.3+ | 0.9− | 2006 01 04 | G96 | 0.4− | 0.3+ | 2009 12 15 | 703 | 1.0+ | 0.2− | |
| 2002 02 12 | 704 | 0.5+ | 0.7+ | 2007 04 22 | 691 | 0.5+ | 0.2+ | 2009 12 15 | 703 | 0.6− | 0.3+ | |
| 2002 02 12 | 704 | 0.5− | 0.7− | 2007 04 22 | 691 | 0.6− | 0.5− | 2009 12 15 | 703 | 0.4− | 0.4+ | |
| 2002 02 12 | 704 | 0.1+ | 0.8+ | 2007 04 22 | 691 | 0.3+ | 0.1+ | 2009 12 16 | H10 | 0.0 | 0.2+ | |
| 2002 02 12 | 704 | 0.6+ | 0.2− | 2007 05 12 | G96 | 0.0 | 0.5− | 2009 12 16 | H10 | 0.7− | 0.1+ | |
| 2002 02 12 | 704 | 0.4+ | 0.6+ | 2007 05 12 | G96 | 0.1− | 0.1− | 2009 12 16 | H10 | 0.1− | 0.2− | |
| 2002 02 12 | 704 | 0.3− | 0.9− | 2007 05 12 | G96 | 0.4+ | 0.8+ | 2009 12 17 | H10 | 0.0 | 0.2− | |
| 2003 05 26 | 291 | 0.5+ | 0.0 | 2007 05 12 | G96 | 0.6− | 0.1− | 2009 12 17 | H10 | 0.1− | 0.3+ | |
| 2003 05 26 | 291 | 0.2− | 0.2− | 2009 11 19 | 704 | 0.2− | 0.6+ | 2009 12 17 | H10 | 0.4+ | 0.0 | |
| 2003 05 26 | 291 | 0.5− | 0.3+ | 2009 11 19 | 704 | 0.0 | 0.8− | 2009 12 17 | H10 | 0.4+ | 0.6+ | |
| 2006 01 02 | 704 | 0.2+ | 1.1− | 2009 11 19 | 704 | 0.1− | 0.2− | 2009 12 18 | H10 | 0.1+ | 0.0 | |
| 2006 01 02 | 704 | 0.6− | 0.1− | 2009 11 20 | 704 | 0.1− | 0.1− | 2009 12 18 | H10 | 0.0 | 0.0 | |
| 2006 01 02 | 704 | 0.1− | 0.1− | 2009 11 20 | 704 | 1.1+ | 0.2+ | 2009 12 18 | H10 | 0.1+ | 0.0 | |
| 2006 01 02 | 704 | 0.2+ | 0.4− | 2009 11 20 | 704 | 0.2+ | 0.3− | 2009 12 18 | H10 | 0.0 | 0.0 | |
| 2006 01 02 | 704 | 0.3− | 0.1+ | 2009 11 20 | 704 | 0.8+ | 0.7+ | 2009 12 18 | H10 | 0.1+ | 0.4− | |

**2009 WM$_{11}$ = 2003 SL$_{358}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 7.81840 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17976037 | $\omega$ | 195.89965 | | +0.44822899 | −0.89218533 | |
| $a$ | 3.1093773 | $\Omega$ | 227.50715 | | +0.82815836 | +0.43788278 | |
| $e$ | 0.1938050 | $i$ | 4.32777 | | +0.33651820 | +0.11074302 | |
| $P$ | 5.48 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 20 | 691 | 0.4− | 0.0 | 2009 10 21 | G96 | 0.7+ | 0.3+ | 2009 11 18 | 691 | 0.2− | 0.3− | |
| 2003 09 20 | 691 | 0.0 | 0.1− | 2009 10 21 | G96 | 0.1+ | 0.1− | 2009 11 18 | 691 | 0.3− | 0.1+ | |
| 2003 09 20 | 691 | 0.0 | 0.2− | 2009 10 21 | G96 | 0.3+ | 0.6− | 2009 11 20 | 691 | 0.0 | 0.1+ | |
| 2003 09 27 | 291 | 0.3− | 0.1+ | 2009 11 08 | 691 | 0.7− | 0.2− | 2009 11 20 | 691 | 0.2− | 0.1− | |
| 2003 09 27 | 291 | 0.2+ | 0.0 | 2009 11 08 | 691 | 0.1− | 0.3− | 2009 11 20 | 691 | 0.1+ | 0.1+ | |
| 2003 09 27 | 291 | 0.6+ | 0.2+ | 2009 11 08 | 691 | (2.2+ | 1.2+) | 2009 11 22 | 691 | 0.1+ | 0.2+ | |
| 2005 01 17 | 691 | 0.0 | 0.2− | 2009 11 16 | 691 | 0.4− | 0.0 | 2009 11 22 | 691 | 0.6+ | 0.3+ | |
| 2005 01 17 | 691 | 0.1− | 0.1+ | 2009 11 16 | 691 | 0.2+ | 0.3+ | 2009 11 22 | 691 | 0.2− | 0.1− | |
| 2005 01 17 | 691 | 0.0 | 0.0 | 2009 11 16 | 691 | 0.2+ | 0.1− | | | | | |
| 2009 10 21 | G96 | 0.1+ | 0.1+ | 2009 11 18 | 691 | 0.3+ | 0.0 | | | | | |

**2009 WK$_{15}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 79.79819 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.31018721 | $\omega$ | 174.06877 | | +0.98222841 | +0.18763487 | |
| $a$ | 2.1613252 | $\Omega$ | 175.10946 | | −0.17431113 | +0.92089494 | |
| $e$ | 0.1217639 | $i$ | 3.04438 | | −0.06959149 | +0.34168066 | |
| $P$ | 3.18 | $H$ | 17.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 01 28 | 691 | 0.2− | 0.0 | 2006 12 13 | 691 | 0.0 | 0.0 | 2009 11 16 | G96 | 0.6+ | 0.1− | |
| 2004 01 28 | 691 | 0.2+ | 0.1− | 2006 12 13 | 691 | 0.1+ | 0.6+ | 2009 11 16 | G96 | 0.4+ | 0.1+ | |
| 2004 01 28 | 691 | 0.1− | 0.2− | 2006 12 13 | 691 | 0.0 | 0.2+ | 2009 11 16 | G96 | 0.5+ | 0.0 | |
| 2005 06 17 | G96 | 0.7+ | 0.9+ | 2008 06 03 | G96 | 0.3+ | 0.2+ | 2009 11 16 | G96 | 0.7+ | 0.1+ | |
| 2005 06 17 | G96 | 0.4− | 0.2+ | 2008 06 03 | G96 | 0.1− | 0.1+ | 2009 11 18 | 691 | 0.1− | 0.1+ | |
| 2005 06 17 | G96 | 0.6− | 0.5+ | 2008 06 03 | G96 | 0.0 | 0.2+ | 2009 11 18 | 691 | 0.1− | 0.1− | |
| 2005 06 17 | G96 | 0.2− | 0.3+ | 2008 06 03 | G96 | 0.3+ | 0.1+ | 2009 11 18 | 691 | 0.2− | 0.2+ | |
| 2005 07 05 | G96 | 0.1− | 0.2+ | 2009 09 30 | G96 | 0.1+ | 0.2+ | 2009 12 11 | 703 | (1.8− | 0.1+) | |
| 2005 07 05 | G96 | 0.0 | 0.3+ | 2009 09 30 | G96 | 0.2− | 0.1− | 2009 12 11 | 703 | 0.4− | 0.7+ | |
| 2005 07 05 | G96 | 0.4+ | 0.3+ | 2009 09 30 | G96 | 0.0 | 0.1+ | 2009 12 11 | 703 | 0.1− | 0.2− | |
| 2005 07 05 | G96 | 0.4+ | 1.3+ | 2009 09 30 | G96 | 0.2+ | 0.1− | 2009 12 11 | 703 | 0.5− | 0.4+ | |

**2009 WV$_{20}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 45.58497 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28844891 | $\omega$ | 234.64268 | | +0.94163421 | −0.33522188 | |
| $a$ | 2.2685940 | $\Omega$ | 144.91421 | | +0.32364579 | +0.87627760 | |
| $e$ | 0.1700499 | $i$ | 3.07590 | | +0.09261975 | +0.34606916 | |
| $P$ | 3.42 | $H$ | 17.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 10 31 | 608 | 0.1− | 0.4+ | 2007 02 06 | G96 | 0.0 | 0.2+ | 2009 11 17 | 703 | 0.2− | 1.0+ | |
| 2002 10 31 | 608 | 0.1+ | 0.3+ | 2007 02 06 | G96 | 0.2− | 0.2− | 2009 11 18 | 691 | 0.1+ | 0.2− | |
| 2002 10 31 | 608 | 0.6− | 0.9+ | 2009 10 12 | G96 | 0.3+ | 0.4− | 2009 11 18 | 691 | 0.2− | 0.2+ | |
| 2005 07 10 | 691 | 0.2+ | 0.0 | 2009 10 12 | G96 | 0.8+ | 0.6− | 2009 11 18 | 691 | 0.0 | 0.0 | |
| 2005 07 10 | 691 | 0.0 | 0.2− | 2009 10 12 | G96 | 0.8+ | 0.1− | 2009 11 22 | 691 | 0.1− | 0.0 | |
| 2005 07 10 | 691 | 0.2− | 0.2− | 2009 10 12 | G96 | 0.7+ | 0.4− | 2009 11 22 | 691 | 0.2− | 0.1− | |
| 2007 01 27 | G96 | 0.1+ | 0.3− | 2009 11 10 | 691 | 0.0 | 0.1− | 2009 11 22 | 691 | 0.1− | 0.1− | |
| 2007 01 27 | G96 | 0.0 | 0.1− | 2009 11 10 | 691 | 0.1+ | 0.2− | 2009 12 11 | 703 | 0.8+ | 0.0 | |
| 2007 01 27 | G96 | 0.2− | 0.0 | 2009 11 10 | 691 | 0.1− | 0.1+ | 2009 12 11 | 703 | 0.6− | 0.6+ | |
| 2007 01 27 | G96 | 0.3− | 0.2− | 2009 11 17 | 703 | 0.1+ | 0.7+ | 2009 12 11 | 703 | 0.4− | 0.9− | |
| 2007 02 06 | G96 | 0.4+ | 0.1+ | 2009 11 17 | 703 | 0.4− | 0.2+ | 2009 12 11 | 703 | 0.7+ | 1.4− | |
| 2007 02 06 | G96 | 0.2+ | 0.3+ | 2009 11 17 | 703 | (1.8+ | 0.3+) | | | | | |

**2009 WO$_{21}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 339.16241 | | (2000.0) | | | |
| $n$ | 0.18551437 | $\omega$ | 187.96912 | | −0.14631068 | −0.97802786 |
| $a$ | 3.0447457 | $\Omega$ | 270.53312 | | +0.91560236 | −0.07704898 |
| $e$ | 0.0441174 | $i$ | 8.54086 | | +0.37452038 | −0.19371360 |
| $P$ | 5.31 | $H$ | 15.6 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 18 | 691 | 0.2+ | 0.2+ | 2009 11 19 | 691 | 0.1− | 0.0 | 2009 11 25 | 703 | 1.1− | 0.7− |
| 2003 10 18 | 691 | 0.2+ | 0.1+ | 2009 11 22 | 691 | 0.2+ | 0.0 | 2009 11 25 | 703 | 0.9− | 0.7+ |
| 2003 10 18 | 691 | 0.6− | 0.3− | 2009 11 22 | 691 | 0.3+ | 0.1+ | 2009 11 25 | 703 | 0.8+ | 0.6+ |
| 2003 10 20 | 644 | 0.1− | 0.4+ | 2009 11 22 | 691 | 0.2+ | 0.3− | 2009 11 27 | 691 | 0.0 | 0.1+ |
| 2003 10 20 | 644 | 0.1+ | 0.0 | 2009 11 23 | 691 | 0.3− | 0.1− | 2009 11 27 | 691 | 0.1− | 0.1+ |
| 2003 10 20 | 644 | 0.6+ | 0.0 | 2009 11 23 | 691 | 0.1+ | 0.1− | 2009 11 27 | 691 | 0.3− | 0.0 |
| 2009 11 18 | 691 | 0.3+ | 0.0 | 2009 11 23 | 691 | 0.1− | 0.2− | 2009 12 16 | G96 | 0.2− | 0.1− |
| 2009 11 18 | 691 | 0.1+ | 0.2+ | 2009 11 24 | J75 | 1.1+ | 0.2− | 2009 12 16 | G96 | 0.1+ | 0.2+ |
| 2009 11 18 | 691 | 0.4− | 0.0 | 2009 11 24 | J75 | 0.3+ | 0.1− | 2009 12 16 | G96 | 0.0 | 0.1− |
| 2009 11 19 | 691 | 0.0 | 0.1− | 2009 11 25 | J75 | 0.7+ | 0.2+ | 2009 12 16 | G96 | 0.1+ | 0.1− |
| 2009 11 19 | 691 | 0.2− | 0.1+ | 2009 11 25 | 703 | 0.2+ | 0.7− | | | | |

**2009 WD$_{22}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 62.68745 | | (2000.0) | | | |
| $n$ | 0.22284369 | $\omega$ | 262.96549 | | +0.95191739 | +0.21882429 |
| $a$ | 2.6944440 | $\Omega$ | 84.22637 | | −0.11616696 | +0.90541660 |
| $e$ | 0.1673783 | $i$ | 12.44472 | | −0.28347580 | +0.36378113 |
| $P$ | 4.42 | $H$ | 16.9 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 10 01 | 645 | 0.0 | 0.0 | 2009 11 18 | G89 | 0.2− | 0.1+ | 2009 11 25 | G96 | 0.2+ | 0.2− |
| 2000 10 01 | 645 | 0.0 | 0.0 | 2009 11 18 | G89 | 0.0 | 0.0 | 2009 11 25 | G96 | 0.3+ | 0.2− |
| 2004 08 09 | 644 | 0.3− | 0.3+ | 2009 11 18 | G89 | 0.2+ | 0.1− | 2009 11 25 | G96 | 0.0 | 0.1+ |
| 2004 08 09 | 644 | 0.2+ | 0.3+ | 2009 11 19 | G96 | 0.1− | 0.1− | 2009 12 15 | G89 | 0.2− | 0.1+ |
| 2004 08 09 | 644 | 0.1− | 0.1− | 2009 11 19 | G96 | 0.5− | 0.4− | 2009 12 15 | G89 | 0.1− | 0.1+ |
| 2005 12 04 | 691 | 0.3+ | 0.1− | 2009 11 19 | G96 | 0.1− | 0.0 | 2009 12 15 | G89 | 0.0 | 0.1+ |
| 2005 12 04 | 691 | 0.1− | 0.5− | 2009 11 19 | G96 | 0.0 | 0.1+ | 2009 12 20 | G89 | 0.1+ | 0.0 |
| 2005 12 04 | 691 | 0.3− | 0.1+ | 2009 11 24 | G89 | 0.3+ | 0.1− | 2009 12 20 | G89 | 0.1+ | 0.0 |
| 2006 01 07 | 691 | 0.1− | 0.2+ | 2009 11 24 | G89 | 0.2+ | 0.1− | 2009 12 20 | G89 | 0.1+ | 0.1+ |
| 2006 01 07 | 691 | 0.4+ | 0.1− | 2009 11 24 | G89 | 0.0 | 0.1− | | | | |
| 2006 01 07 | 691 | 0.3− | 0.4+ | 2009 11 25 | G96 | 0.0 | 0.0 | | | | |

**2009 WO$_{22}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 47.01516 | | (2000.0) | | | |
| $n$ | 0.23676693 | $\omega$ | 280.33062 | | +0.95323690 | −0.28265216 |
| $a$ | 2.5877482 | $\Omega$ | 96.14979 | | +0.30182789 | +0.87221515 |
| $e$ | 0.2140949 | $i$ | 6.17760 | | +0.01547057 | +0.39918479 |
| $P$ | 4.16 | $H$ | 16.8 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 02 08 | 645 | 0.0 | 0.0 | 2006 01 05 | 691 | 0.0 | 0.2+ | 2009 11 27 | 691 | 0.0 | 0.0 |
| 2002 02 08 | 645 | 0.0 | 0.0 | 2006 01 05 | 691 | 0.0 | 0.1+ | 2009 11 27 | 691 | 0.3+ | 0.1− |
| 2005 10 30 | G96 | 0.1+ | 0.1+ | 2009 11 18 | 691 | 0.0 | 0.3+ | 2009 11 27 | 691 | 0.4+ | 0.0 |
| 2005 10 30 | G96 | 0.1+ | 0.4− | 2009 11 18 | 691 | 0.3− | 0.1− | 2009 12 11 | G96 | 0.4+ | 0.3− |
| 2005 10 30 | G96 | 0.2+ | 0.2− | 2009 11 18 | 691 | 0.2− | 0.0 | 2009 12 11 | G96 | 0.2+ | 0.2− |
| 2005 10 30 | G96 | 0.3+ | 0.1− | 2009 11 19 | 691 | 0.2+ | 0.6+ | 2009 12 11 | G96 | 0.6+ | 0.2− |
| 2005 11 29 | G96 | 0.5− | 0.2− | 2009 11 19 | 691 | 0.1+ | 0.1− | 2009 12 11 | G96 | 0.5+ | 0.2− |
| 2005 11 29 | G96 | 0.0 | 0.3− | 2009 11 19 | 691 | 0.2− | 0.1+ | 2009 12 17 | 704 | 0.6+ | 0.4+ |
| 2005 11 29 | G96 | 0.0 | 0.1− | 2009 11 26 | 691 | 0.1− | 0.1+ | 2009 12 17 | 704 | 0.1− | 0.1− |
| 2005 11 29 | G96 | 0.0 | 0.0 | 2009 11 26 | 691 | 0.3− | 0.3− | 2009 12 17 | 704 | 0.0 | 0.4− |
| 2006 01 05 | 691 | 0.1+ | 0.2+ | 2009 11 26 | 691 | 0.3− | 0.2− | 2009 12 17 | 704 | 0.2− | 0.2− |

**2009 WJ$_{23}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 23.97744 | | (2000.0) | | | |
| $n$ | 0.29204562 | $\omega$ | 37.38102 | | +0.56835759 | −0.82250839 |
| $a$ | 2.2499295 | $\Omega$ | 18.01397 | | +0.73736249 | +0.49774883 |
| $e$ | 0.1698774 | $i$ | 3.93158 | | +0.36505644 | +0.27518367 |
| $P$ | 3.37 | $H$ | 17.8 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 02 08 | 691 | 0.1− | 0.1+ | 2009 11 18 | 691 | 0.4+ | 0.1− | 2009 12 10 | 704 | 0.1+ | 0.7+ |
| 2007 02 08 | 691 | 0.2− | 0.1− | 2009 11 19 | 691 | 0.2+ | 0.1− | 2009 12 10 | 704 | 0.4+ | 0.3+ |
| 2007 02 08 | 691 | 0.0 | 0.1− | 2009 11 19 | 691 | 0.0 | 0.1− | 2009 12 10 | 704 | 0.3− | 1.1+ |
| 2007 03 12 | G96 | 0.7+ | 0.5+ | 2009 11 19 | 691 | 1.4− | 0.2+ | 2009 12 18 | G96 | 0.1+ | 0.0 |
| 2007 03 12 | G96 | 0.2+ | 0.0 | 2009 11 22 | 691 | 0.0 | 0.2− | 2009 12 18 | G96 | 0.5− | 0.4− |
| 2007 03 12 | G96 | 0.2+ | 0.2− | 2009 11 22 | 691 | 0.1+ | 0.1− | 2009 12 18 | G96 | 0.1+ | 0.2− |
| 2007 03 12 | G96 | 0.3+ | 0.0 | 2009 11 22 | 691 | 0.1− | 0.2− | 2009 12 18 | G96 | 0.2− | 0.2− |
| 2009 11 18 | 691 | 0.4+ | 0.1− | 2009 12 10 | 704 | 0.4+ | 0.1+ | | | | |
| 2009 11 18 | 691 | 0.2+ | 0.1+ | 2009 12 10 | 704 | 0.1− | 1.0+ | | | | |

**2009 WL$_{23}$ = 2005 NB$_{37}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 55.01482 | | (2000.0) | | | |
| $n$ | 0.29002178 | $\omega$ | 97.56194 | | +0.94025788 | −0.32039637 |
| $a$ | 2.2603844 | $\Omega$ | 281.17895 | | +0.24727082 | +0.87514482 |
| $e$ | 0.1300629 | $i$ | 6.74120 | | +0.23403476 | +0.36258476 |
| $P$ | 3.40 | $H$ | 17.8 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 07 06 | 691 | 0.1− | 0.1− | 2005 09 12 | 691 | 0.0 | 0.4− | 2009 11 22 | 691 | 1.0− | 1.0+ |
| 2005 07 06 | 691 | 0.0 | 0.1− | 2009 11 10 | 691 | 0.0 | 0.4− | 2009 11 22 | 691 | 0.1+ | 0.0 |
| 2005 07 06 | 691 | 0.2− | 0.2+ | 2009 11 10 | 691 | 0.0 | 0.2− | 2009 11 26 | 691 | 0.1+ | 0.0 |
| 2005 07 09 | 691 | 0.1− | 0.1− | 2009 11 10 | 691 | 0.1+ | 0.2− | 2009 11 26 | 691 | 0.1− | 0.2− |
| 2005 07 09 | 691 | 0.1+ | 0.2+ | 2009 11 18 | 691 | 0.2+ | 0.1− | 2009 11 26 | 691 | 0.1− | 0.0 |
| 2005 07 09 | 691 | 0.1+ | 0.2+ | 2009 11 18 | 691 | 0.5+ | 0.4− | 2009 12 13 | G96 | 0.8+ | 0.0 |
| 2005 07 28 | 644 | 0.2+ | 0.2− | 2009 11 18 | 691 | 0.2+ | 0.0 | 2009 12 13 | G96 | 0.2+ | 0.0 |
| 2005 07 28 | 644 | 0.5− | 0.1− | 2009 11 19 | 691 | 0.2− | 0.2− | 2009 12 13 | G96 | 0.5+ | 0.1− |
| 2005 07 28 | 644 | 0.1− | 0.2− | 2009 11 19 | 691 | 0.1− | 1.3+ | 2009 12 13 | G96 | 0.5+ | 0.3− |
| 2005 09 12 | 691 | 0.3+ | 0.2− | 2009 11 19 | 691 | 0.3− | 0.2− | | | | |
| 2005 09 12 | 691 | 0.0 | 0.5+ | 2009 11 22 | 691 | 0.2+ | 0.2− | | | | |

**2009 WZ$_{23}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 2.56027 | | (2000.0) | | | |
| $n$ | 0.23050521 | $\omega$ | 108.63807 | | +0.42373859 | −0.89858263 |
| $a$ | 2.6344030 | $\Omega$ | 315.72812 | | +0.75727373 | +0.42049726 |
| $e$ | 0.2346881 | $i$ | 9.39859 | | +0.49697295 | +0.12542455 |
| $P$ | 4.28 | $H$ | 18.0 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 27 | 645 | 0.0 | 0.0 | 2009 11 19 | 703 | (0.5− | 1.7+) | 2009 11 24 | G89 | 0.0 | 0.1+ |
| 2000 09 27 | 645 | 0.0 | 0.0 | 2009 11 19 | 703 | 0.2− | 0.6− | 2009 11 24 | G89 | 0.1− | 0.1+ |
| 2002 02 13 | 645 | 0.0 | 0.0 | 2009 11 19 | 703 | 1.0− | 1.2+ | 2009 12 15 | G89 | 0.0 | 0.1− |
| 2002 02 13 | 645 | 0.0 | 0.0 | 2009 11 20 | G89 | 0.0 | 0.1− | 2009 12 15 | G89 | 0.1− | 0.1− |
| 2002 03 12 | 645 | 0.0 | 0.0 | 2009 11 20 | G89 | 0.1+ | 0.1− | 2009 12 15 | G89 | 0.1− | 0.0 |
| 2002 03 12 | 645 | 0.1− | 0.0 | 2009 11 20 | G89 | 0.1+ | 0.1− | 2009 12 20 | G89 | 0.4+ | 0.0 |
| 2009 11 19 | G89 | 0.0 | 0.1− | 2009 11 21 | G89 | 0.1+ | 0.2− | 2009 12 20 | G89 | 0.4+ | 0.1− |
| 2009 11 19 | G89 | 0.0 | 0.1− | 2009 11 21 | G89 | 0.0 | 0.2− | 2009 12 20 | G89 | 0.4+ | 0.0 |
| 2009 11 19 | G89 | 0.1+ | 0.1− | 2009 11 21 | G89 | 0.1+ | 0.1− | | | | |
| 2009 11 19 | 703 | 0.1+ | 0.5+ | 2009 11 24 | G89 | 0.0 | 0.1+ | | | | |

**2009 WA$_{24}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 329.72474 | | (2000.0) | | | |
| $n$ | 0.21071579 | $\omega$ | 225.12058 | | −0.25159252 | −0.91511710 |
| $a$ | 2.7968639 | $\Omega$ | 241.90611 | | +0.95774072 | −0.18851910 |
| $e$ | 0.1191267 | $i$ | 20.92451 | | +0.13940557 | −0.35640039 |
| $P$ | 4.68 | $H$ | 15.7 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 05 | 644 | 0.0 | 0.2− | 2009 11 17 | 704 | 0.1+ | 0.2+ | 2009 11 25 | 691 | 0.1− | 0.1+ |
| 2004 10 05 | 644 | 0.0 | 0.0 | 2009 11 17 | 704 | 0.5+ | 0.7+ | 2009 11 25 | 691 | 0.1− | 0.2+ |
| 2004 10 05 | 644 | 0.1+ | 0.1− | 2009 11 17 | 704 | 0.6+ | 0.4+ | 2009 11 27 | 691 | 0.2− | 0.1− |
| 2004 11 09 | 703 | 0.5+ | 0.8− | 2009 11 17 | 704 | 0.3+ | 0.5+ | 2009 11 27 | 691 | 0.3− | 0.2+ |
| 2004 11 09 | 703 | 0.7− | 0.5− | 2009 11 17 | 704 | 0.6+ | 0.7+ | 2009 11 27 | 691 | 0.4− | 0.1+ |
| 2004 11 09 | 703 | 0.5+ | 1.0+ | 2009 11 20 | G96 | 0.5+ | 0.2− | 2009 12 05 | J75 | 0.0 | 0.2+ |
| 2004 11 09 | 703 | 0.4− | 1.0+ | 2009 11 20 | G96 | 0.6+ | 0.0 | 2009 12 05 | J75 | 0.6+ | 0.1− |
| 2006 01 09 | E12 | 1.3− | 0.9+ | 2009 11 20 | G96 | 0.1+ | 0.1+ | 2009 12 05 | J75 | 0.2− | 0.7+ |
| 2006 01 09 | E12 | 0.0 | 0.3+ | 2009 11 20 | G96 | 0.1+ | 0.1− | 2009 12 11 | G96 | 0.1+ | 0.1− |
| 2006 01 09 | E12 | 0.1− | 0.2− | 2009 11 21 | 704 | 1.2+ | 1.2+ | 2009 12 11 | G96 | 0.1− | 0.0 |
| 2006 01 09 | E12 | 0.1− | 0.5− | 2009 11 21 | 704 | 0.2+ | 0.5+ | 2009 12 11 | G96 | 0.2− | 0.4− |
| 2006 01 31 | 703 | 0.8− | 0.2+ | 2009 11 21 | 704 | 0.7+ | 1.5+ | 2009 12 11 | G96 | 0.3+ | 0.1− |
| 2006 01 31 | 703 | 1.3+ | 0.2− | 2009 11 23 | D29 | 0.2+ | 0.4− | 2009 12 11 | 703 | 0.0 | 0.4− |
| 2006 01 31 | 703 | 0.7+ | 0.2+ | 2009 11 23 | D29 | 0.2+ | 0.2− | 2009 12 11 | 703 | 0.5− | 0.2+ |
| 2006 01 31 | 703 | 0.2+ | 0.4− | 2009 11 23 | D29 | 0.3+ | 0.5− | 2009 12 11 | 703 | 0.0 | 0.6− |
| 2009 10 26 | 691 | 0.1+ | 0.2− | 2009 11 23 | D29 | 0.0 | 0.1+ | 2009 12 11 | 703 | 1.0− | 0.5+ |
| 2009 10 26 | 691 | 0.0 | 0.1− | 2009 11 24 | G96 | 0.2+ | 0.1− | 2009 12 16 | 704 | 0.3+ | 1.1− |
| 2009 10 26 | 691 | 0.2− | 0.0 | 2009 11 24 | G96 | 0.6+ | 0.3− | 2009 12 16 | 704 | 0.3+ | 0.6+ |
| 2009 11 11 | 691 | 0.1− | 0.1+ | 2009 11 24 | G96 | 0.3+ | 0.2− | 2009 12 16 | 704 | 0.3+ | 0.0 |
| 2009 11 11 | 691 | 0.2− | 0.1+ | 2009 11 24 | G96 | 0.3+ | 0.2− | 2009 12 16 | 704 | 0.2− | 1.8− |
| 2009 11 11 | 691 | 0.0 | 0.7− | 2009 11 25 | 691 | 0.5− | 0.3− | 2009 12 16 | 704 | 1.1+ | 0.3− |

**2009 WC$_{24}$ = 2007 ED$_{115}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 22.24097 | | (2000.0) | | | |
| $n$ | 0.23543911 | $\omega$ | 342.28686 | | +0.67817344 | −0.73007682 |
| $a$ | 2.5974686 | $\Omega$ | 64.91923 | | +0.68499560 | +0.58652978 |
| $e$ | 0.1807442 | $i$ | 5.32630 | | +0.26619882 | +0.35067172 |
| $P$ | 4.19 | $H$ | 16.6 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 04 29 | 691 | 0.8+ | 1.1+ | 2007 03 15 | 691 | 0.2− | 0.1− | 2009 11 21 | 704 | 0.7+ | 0.5+ |
| 2003 04 29 | 691 | 0.3+ | 1.1+ | 2009 08 17 | 291 | 0.5− | 0.3+ | 2009 11 21 | 704 | 1.2+ | 0.1+ |
| 2003 04 29 | 691 | 1.0+ | 1.2+ | 2009 08 17 | 291 | 0.4− | 0.5+ | 2009 11 21 | 704 | 0.1+ | 0.4+ |
| 2005 10 30 | G96 | 0.2− | 0.7− | 2009 08 17 | 291 | 0.2− | 0.1+ | 2009 11 24 | 691 | 0.1− | 0.1+ |
| 2005 10 30 | G96 | 0.4− | 0.3− | 2009 08 17 | 291 | 0.3− | 0.2+ | 2009 11 24 | 691 | 0.2− | 0.1+ |
| 2005 10 30 | G96 | 0.1− | 0.1+ | 2009 08 17 | 291 | 0.3− | 0.3+ | 2009 11 24 | 691 | 0.1− | 0.2+ |
| 2005 10 30 | G96 | 0.1+ | 0.4− | 2009 08 17 | 291 | 0.4− | 0.3+ | 2009 12 11 | 703 | 0.7+ | 0.2− |
| 2005 12 04 | 691 | 0.2− | 0.1+ | 2009 10 30 | G96 | 0.6+ | 0.0 | 2009 12 11 | 703 | 0.0 | 0.5− |
| 2005 12 04 | 691 | 0.2− | 0.1− | 2009 10 30 | G96 | 0.1+ | 0.1− | 2009 12 11 | 703 | 0.9+ | 0.8+ |
| 2005 12 04 | 691 | 0.7− | 1.2+ | 2009 10 30 | G96 | 0.2+ | 0.2+ | 2009 12 11 | 703 | 0.3+ | 0.1+ |
| 2005 12 10 | 691 | 0.1+ | 0.2− | 2009 10 30 | G96 | 0.3+ | 0.0 | 2009 12 15 | G96 | 0.4+ | 0.2− |
| 2005 12 10 | 691 | 0.1− | 0.0 | 2009 11 18 | 704 | 0.1+ | 0.2+ | 2009 12 15 | G96 | 0.5+ | 0.1− |
| 2005 12 10 | 691 | 0.8+ | 2.0− | 2009 11 18 | 704 | 0.4− | 0.5+ | 2009 12 15 | G96 | 0.2+ | 0.1− |
| 2007 03 13 | G96 | 0.5− | 0.1+ | 2009 11 18 | 704 | 0.7+ | 0.4+ | 2009 12 16 | 704 | 0.0 | 0.9+ |
| 2007 03 13 | G96 | 0.5− | 0.4− | 2009 11 18 | 704 | 0.1+ | 1.1+ | 2009 12 16 | 704 | 0.7+ | 0.1+ |
| 2007 03 13 | G96 | 0.3− | 0.3+ | 2009 11 18 | 704 | 0.3− | 1.2+ | 2009 12 16 | 704 | 0.0 | 0.8+ |
| 2007 03 13 | G96 | 0.3+ | 0.2− | 2009 11 20 | 691 | 0.2− | 0.2+ | 2009 12 16 | 704 | 0.3+ | 0.6+ |
| 2007 03 15 | 691 | 0.2− | 0.0 | 2009 11 20 | 691 | 0.6− | 0.3+ | | | | |
| 2007 03 15 | 691 | 0.1− | 0.2+ | 2009 11 20 | 691 | 0.2− | 0.2+ | | | | |

**2009 WD$_{24}$ = 2002 XV$_{94}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 358.97938 | | (2000.0) | | | |
| $n$ | 0.28108525 | $\omega$ | 11.24412 | | +0.09488407 | −0.99398403 |
| $a$ | 2.3080436 | $\Omega$ | 73.32878 | | +0.90885622 | +0.06407381 |
| $e$ | 0.1948236 | $i$ | 3.27375 | | +0.40617408 | +0.08882737 |
| $P$ | 3.51 | $H$ | 17.3 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 11 28 | 608 | 0.9− | 1.1− | 2009 10 30 | G96 | 0.1+ | 0.0 | 2009 11 24 | 691 | 0.1+ | 0.0 |
| 2002 11 28 | 608 | 0.9− | 1.1− | 2009 10 30 | G96 | 0.1+ | 0.2− | 2009 11 24 | 691 | 0.1− | 0.1− |
| 2002 11 28 | 608 | 1.1− | 1.2− | 2009 11 08 | 691 | 0.2− | 0.2+ | 2009 12 09 | J75 | 0.3+ | 0.2− |
| 2002 12 05 | 695 | 0.2+ | 0.2+ | 2009 11 08 | 691 | 0.1− | 0.0 | 2009 12 09 | J75 | 0.3+ | 0.0 |
| 2002 12 05 | 704 | 0.3+ | 0.4+ | 2009 11 08 | 691 | 0.0 | 0.1− | 2009 12 09 | J75 | 0.1− | 0.0 |
| 2002 12 05 | 695 | 0.3+ | 0.2+ | 2009 11 16 | 691 | 0.0 | 0.1− | 2009 12 11 | 703 | 0.0 | 0.2+ |
| 2002 12 05 | 704 | 0.6+ | 0.2+ | 2009 11 16 | 691 | 0.1− | 0.1+ | 2009 12 11 | 703 | 0.2+ | 0.6− |
| 2002 12 05 | 704 | 0.5+ | 0.4+ | 2009 11 16 | 691 | 0.1− | 0.1+ | 2009 12 11 | 703 | 0.5− | 0.9+ |
| 2002 12 05 | 704 | 0.4+ | 0.8+ | 2009 11 18 | 704 | (1.6+ | 0.5+) | 2009 12 11 | 703 | 0.1+ | 0.4− |
| 2002 12 05 | 704 | 0.1+ | 0.8+ | 2009 11 18 | 704 | 0.2+ | 0.3+ | 2009 12 15 | G96 | 0.0 | 0.2− |
| 2002 12 10 | 704 | 0.3+ | 0.4+ | 2009 11 18 | 704 | 0.5+ | 0.7− | 2009 12 15 | G96 | 0.2+ | 0.2− |
| 2002 12 10 | 704 | 0.0 | 0.1+ | 2009 11 18 | 704 | (0.6+ | 2.0+) | 2009 12 15 | G96 | 0.1− | 0.0 |
| 2002 12 10 | 704 | 0.1− | 0.3− | 2009 11 18 | 704 | 1.3+ | 1.1+ | 2009 12 15 | G96 | 0.0 | 0.0 |
| 2002 12 10 | 704 | 0.4+ | 0.2+ | 2009 11 20 | 691 | 0.1− | 0.0 | 2009 12 16 | 704 | 0.5− | 0.4+ |
| 2002 12 10 | 704 | 0.1− | 0.2− | 2009 11 20 | 691 | 0.1− | 0.0 | 2009 12 16 | 704 | 0.5+ | 0.2− |
| 2007 03 16 | 691 | 0.0 | 0.1− | 2009 11 20 | 691 | 0.0 | 0.1− | 2009 12 16 | 704 | 0.6− | 0.3− |
| 2007 03 16 | 691 | 0.0 | 0.1+ | 2009 11 21 | 704 | 0.1− | 0.5+ | 2009 12 16 | 704 | 0.5− | 0.3− |
| 2007 03 16 | 691 | 0.0 | 0.0 | 2009 11 21 | 704 | 0.5+ | 0.0 | 2009 12 16 | 704 | 0.0 | 0.3− |
| 2009 10 30 | G96 | 0.1− | 0.3− | 2009 11 21 | 704 | 0.4+ | 0.4+ | | | | |
| 2009 10 30 | G96 | 0.1+ | 0.3− | 2009 11 24 | 691 | 0.1− | 0.0 | | | | |

**2009 WE$_{24}$ = 1999 RZ$_{108}$ = 2002 NO$_{8}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 61.98606 | | (2000.0) | | | |
| $n$ | 0.30398430 | $\omega$ | 119.45284 | | +0.99775909 | −0.01483373 |
| $a$ | 2.1906279 | $\Omega$ | 241.46545 | | −0.00996504 | +0.93129459 |
| $e$ | 0.2027425 | $i$ | 4.25899 | | +0.06616268 | +0.36396477 |
| $P$ | 3.24 | $H$ | 16.7 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 04 28 | 691 | 0.5− | 0.2− | 2005 06 27 | G96 | 1.1+ | 0.2+ | 2009 11 18 | 704 | 0.7+ | 0.4− |
| 1998 04 28 | 691 | 0.4− | 0.3+ | 2005 06 27 | G96 | 1.0+ | 0.1+ | 2009 11 18 | 704 | 0.5− | 0.1− |
| 1998 04 28 | 691 | 0.1− | 0.9+ | 2005 06 27 | G96 | 0.4+ | 0.2+ | 2009 11 21 | 704 | 0.1+ | 0.8+ |
| 1999 09 08 | 699 | (2.0+ | 2.9+) | 2005 06 27 | G96 | 1.2− | 0.2+ | 2009 11 21 | 704 | 0.2+ | 0.2− |
| 1999 09 08 | 699 | (1.2+ | 3.0+) | 2006 11 20 | G96 | 0.0 | 0.2− | 2009 11 21 | 704 | 0.2+ | 0.6− |
| 1999 09 08 | 704 | 1.0− | 0.4+ | 2006 11 20 | G96 | 0.1+ | 0.2− | 2009 11 21 | 704 | 0.6− | 0.6+ |
| 1999 09 08 | 704 | 0.4− | 1.0+ | 2006 11 20 | G96 | 0.3+ | 0.2− | 2009 11 21 | 704 | 0.8+ | 0.7− |
| 1999 09 08 | 704 | 0.2+ | 0.3+ | 2006 11 20 | G96 | 0.4+ | 0.0 | 2009 11 21 | 703 | 0.0 | 0.0 |
| 1999 09 08 | 699 | 0.5− | 0.3+ | 2006 12 21 | G96 | 0.4+ | 0.6− | 2009 11 21 | 703 | (2.0− | 0.3+) |
| 1999 09 08 | 704 | 0.8+ | 1.0− | 2006 12 21 | G96 | 0.4+ | 0.7− | 2009 11 21 | 703 | 0.5+ | 0.4+ |
| 1999 09 09 | 704 | (0.3+ | 2.3−) | 2006 12 21 | G96 | 0.4+ | 0.6− | 2009 11 21 | 703 | 0.5+ | 1.2+ |
| 1999 09 09 | 704 | 0.2+ | 1.5− | 2006 12 21 | G96 | 0.8+ | 0.6− | 2009 11 21 | 703 | 0.0 | 0.3+ |
| 1999 09 09 | 704 | 0.7+ | 1.2− | 2007 01 18 | 644 | 1.1+ | 0.1− | 2009 12 08 | J75 | 1.1+ | 0.1− |
| 1999 09 18 | 703 | 0.2− | 0.3+ | 2007 01 18 | 644 | 0.6+ | 0.2+ | 2009 12 08 | J75 | 0.0 | 0.2+ |
| 1999 09 18 | 703 | 0.1− | 0.9+ | 2007 01 18 | 644 | 0.2+ | 0.4+ | 2009 12 08 | J75 | 0.5+ | 0.2+ |
| 1999 09 18 | 703 | 0.5+ | 0.3+ | 2009 08 10 | 291 | 0.7− | 0.0 | 2009 12 11 | G96 | 0.3+ | 0.2− |
| 1999 09 18 | 703 | 0.7+ | 0.7− | 2009 08 10 | 291 | 0.6− | 0.2+ | 2009 12 11 | G96 | 0.1+ | 0.3− |
| 2002 07 01 | 644 | 0.1+ | 0.6+ | 2009 08 10 | 291 | 0.6− | 0.0 | 2009 12 11 | G96 | 0.1− | 0.3− |
| 2002 07 01 | 644 | 0.3+ | 0.5+ | 2009 11 16 | 691 | 0.3− | 0.3+ | 2009 12 11 | G96 | 0.2+ | 0.1− |
| 2002 07 01 | 644 | 0.3+ | 0.6+ | 2009 11 16 | 691 | 0.2− | 0.0 | 2009 12 17 | 704 | 0.1− | 0.5+ |
| 2002 07 05 | 704 | 0.0 | 0.5+ | 2009 11 16 | 691 | 0.3− | 0.1+ | 2009 12 17 | 704 | 0.3− | 0.8+ |
| 2002 07 05 | 704 | (0.9− | 1.6+) | 2009 11 18 | 704 | (1.7+ | 0.6−) | 2009 12 17 | 704 | 0.5− | 0.1− |
| 2002 07 05 | 704 | 0.2− | 0.6+ | 2009 11 18 | 704 | 0.7+ | 0.4+ | 2009 12 17 | 704 | 0.0 | 1.0+ |

**2009 WH$_{24}$ = 2001 XJ$_{189}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 51.62257 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23967988 | $\omega$ | 190.81976 | | +0.99313977 | −0.11688525 | |
| $a$ | 2.5667388 | $\Omega$ | 175.88818 | | +0.11047201 | +0.92848143 | |
| $e$ | 0.2481654 | $i$ | 2.67911 | | +0.03833185 | +0.35250543 | |
| $P$ | 4.11 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 12 14 | 704 | 0.4− | 0.4+ | 2007 03 16 | G96 | 0.0 | 0.3− | 2009 11 22 | 691 | 0.5− | 0.2− |
| 2001 12 14 | 704 | 0.7+ | 0.1+ | 2007 04 07 | G96 | 0.1+ | 0.2− | 2009 11 22 | 691 | 0.7+ | 0.6+ |
| 2001 12 14 | 704 | 0.4− | 0.3− | 2007 04 07 | G96 | 0.1+ | 0.6− | 2009 11 22 | 691 | 0.6− | 0.6− |
| 2001 12 17 | 704 | 0.0 | 0.3− | 2007 04 07 | G96 | 0.1+ | 0.5+ | 2009 11 26 | 691 | 0.4− | 0.2− |
| 2001 12 17 | 644 | 0.1+ | 0.5+ | 2007 04 07 | G96 | 0.3− | 0.1+ | 2009 11 26 | 691 | 0.5− | 0.4+ |
| 2001 12 17 | 704 | 0.5+ | 0.7+ | 2008 05 29 | G96 | 0.3+ | 0.3+ | 2009 11 26 | 691 | 0.0 | 0.2− |
| 2001 12 17 | 644 | 1.0+ | 0.3+ | 2008 05 29 | G96 | 0.2− | 0.5+ | 2009 12 08 | J75 | 0.3+ | 0.7− |
| 2001 12 17 | 644 | 0.5+ | 0.2+ | 2008 05 29 | G96 | 0.1+ | 0.4+ | 2009 12 09 | J75 | 0.1+ | 0.4+ |
| 2001 12 17 | 704 | 0.5+ | 1.1− | 2008 05 29 | G96 | 0.1+ | 0.4+ | 2009 12 09 | J75 | 0.4+ | 0.8− |
| 2001 12 17 | 704 | 0.9− | 0.1− | 2009 11 10 | 691 | 0.2− | 0.1− | 2009 12 11 | G96 | 0.3+ | 0.4− |
| 2001 12 17 | 704 | 0.2+ | 0.5− | 2009 11 10 | 691 | 0.1− | 0.1− | 2009 12 11 | G96 | 0.5+ | 0.4− |
| 2002 01 22 | 691 | 0.3− | 0.0 | 2009 11 10 | 691 | 0.2− | 0.3− | 2009 12 11 | G96 | 0.4+ | 0.3− |
| 2002 01 22 | 691 | 1.0− | 0.4+ | 2009 11 18 | 691 | 0.3− | 0.1− | 2009 12 11 | G96 | 0.0 | 0.4− |
| 2002 01 22 | 691 | 0.1+ | 0.2+ | 2009 11 18 | 691 | 0.6− | 1.5+ | 2009 12 12 | 704 | 0.3+ | 0.4+ |
| 2005 12 04 | 691 | 0.3+ | 0.2− | 2009 11 18 | 704 | 0.4+ | 0.6+ | 2009 12 12 | 704 | 0.5+ | 0.8+ |
| 2005 12 04 | 691 | 0.3+ | 0.2− | 2009 11 18 | 691 | 0.4− | 0.2− | 2009 12 12 | 704 | 0.7+ | 0.3+ |
| 2005 12 04 | 691 | 0.2+ | 0.1− | 2009 11 18 | 704 | 0.1+ | 0.5− | 2009 12 12 | 704 | 1.0+ | 0.5+ |
| 2005 12 26 | 691 | (1.7− | 1.5+) | 2009 11 18 | 704 | 0.7+ | 0.1+ | 2009 12 12 | 704 | 1.2+ | 0.0 |
| 2005 12 26 | 691 | 0.4+ | 0.0 | 2009 11 18 | 704 | 1.0+ | 0.2+ | 2009 12 17 | 704 | 0.4− | 0.5+ |
| 2005 12 26 | 691 | 0.3+ | 0.1− | 2009 11 21 | 704 | 0.1− | 0.6− | 2009 12 17 | 704 | 0.4+ | 0.2+ |
| 2007 03 16 | G96 | 0.1+ | 0.1+ | 2009 11 21 | 704 | 1.3+ | 0.2− | 2009 12 17 | 704 | 0.6− | 0.2+ |
| 2007 03 16 | G96 | 0.3− | 0.2− | 2009 11 21 | 704 | 0.3− | 0.5+ | 2009 12 17 | 704 | 0.5+ | 0.0 |
| 2007 03 16 | G96 | 0.2− | 0.0 | 2009 11 21 | 704 | 0.7+ | 0.0 | 2009 12 17 | 704 | 0.1+ | 0.1+ |

**2009 WQ$_{24}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 41.83528 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28778549 | $\omega$ | 317.50023 | | +0.94021994 | −0.30849258 | |
| $a$ | 2.2720792 | $\Omega$ | 61.00117 | | +0.33959253 | +0.81718857 | |
| $e$ | 0.2383207 | $i$ | 9.49546 | | +0.02575621 | +0.48686258 | |
| $P$ | 3.42 | $H$ | 18.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 10 15 | 644 | 0.3− | 0.4+ | 2009 11 20 | G98 | 0.4+ | 0.4− | 2009 11 22 | G98 | 0.4+ | 0.8+ |
| 2002 10 15 | 644 | 0.4− | 0.2+ | 2009 11 20 | G98 | 0.3+ | 0.5+ | 2009 11 22 | G98 | 0.2− | 0.9+ |
| 2002 10 15 | 644 | 0.4− | 0.2+ | 2009 11 20 | G98 | 1.0+ | 0.0 | 2009 11 22 | G98 | 0.2+ | 0.2+ |
| 2002 10 28 | 644 | 0.2− | 0.1+ | 2009 11 20 | G98 | 0.4+ | 0.5+ | 2009 11 22 | G98 | 0.2+ | 0.7+ |
| 2002 10 28 | 644 | 0.1+ | 0.5+ | 2009 11 20 | G98 | 0.2+ | 0.4+ | 2009 11 22 | G98 | 0.2+ | 0.4− |
| 2002 10 28 | 644 | 0.6+ | 0.7+ | 2009 11 21 | 691 | 0.4− | 0.0 | 2009 11 24 | G98 | 0.8+ | 0.2− |
| 2002 11 07 | 645 | 0.0 | 0.0 | 2009 11 21 | G98 | 0.5+ | 0.2+ | 2009 11 24 | G98 | 0.0 | 0.7+ |
| 2002 11 07 | 645 | 0.0 | 0.1− | 2009 11 21 | 691 | 0.0 | 0.0 | 2009 11 24 | G98 | 0.2+ | 0.5+ |
| 2009 10 12 | G96 | 0.1+ | 0.3− | 2009 11 21 | G98 | 0.2+ | 0.4+ | 2009 11 24 | G98 | 0.5+ | 0.8+ |
| 2009 10 12 | G96 | 0.3+ | 0.3− | 2009 11 21 | 691 | 0.3− | 0.5− | 2009 11 24 | G98 | 1.0+ | 0.1+ |
| 2009 10 12 | G96 | 0.1+ | 0.3− | 2009 11 21 | H01 | 0.0 | 0.2+ | 2009 11 25 | 691 | 0.2+ | 0.0 |
| 2009 10 12 | G96 | 0.4+ | 0.1+ | 2009 11 21 | H01 | 0.0 | 0.2+ | 2009 11 25 | 691 | 0.2− | 0.1+ |
| 2009 10 30 | G96 | 0.2+ | 0.5− | 2009 11 21 | H01 | 0.1+ | 0.2+ | 2009 11 25 | 691 | 0.3+ | 0.1+ |
| 2009 10 30 | G96 | 0.4− | 0.5− | 2009 11 22 | H01 | 0.1+ | 0.0 | 2009 11 25 | 691 | 0.2+ | 0.2− |
| 2009 10 30 | G96 | 0.2+ | 0.7− | 2009 11 22 | H01 | 0.0 | 0.1+ | 2009 11 25 | 691 | 0.9− | 0.3− |
| 2009 10 30 | G96 | 0.6+ | 0.3− | 2009 11 22 | H01 | 0.1+ | 0.1+ | 2009 11 25 | 691 | 0.7− | 0.3− |

**2009 WR$_{24}$ = 2005 WS$_{47}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 3.94273 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24277580 | $\omega$ | 5.90845 | | +0.34350124 | −0.93622824 | |
| $a$ | 2.5448710 | $\Omega$ | 64.02040 | | +0.85824719 | +0.28091614 | |
| $e$ | 0.1289803 | $i$ | 4.72510 | | +0.38133799 | +0.21109902 | |
| $P$ | 4.06 | $H$ | 17.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 28 | G96 | 0.1+ | 0.4− | 2005 12 02 | G96 | 0.2+ | 0.3+ | 2009 11 23 | A79 | 0.5− | 0.7+ |
| 2005 10 28 | G96 | 0.2− | 0.2− | 2005 12 02 | G96 | 0.3− | 0.0 | 2009 11 23 | A79 | 0.1− | 0.1+ |
| 2005 10 28 | G96 | 0.5+ | 0.4− | 2009 10 27 | 691 | 0.1+ | 0.1− | 2009 11 25 | A79 | 0.5+ | 0.9− |
| 2005 10 28 | G96 | 0.2+ | 0.2− | 2009 10 27 | 691 | 0.0 | 0.1+ | 2009 11 25 | A79 | 0.2+ | 0.1− |
| 2005 11 25 | 691 | 0.2+ | 0.2+ | 2009 10 27 | 691 | 0.5− | 0.3+ | 2009 11 25 | A79 | 0.5+ | 0.3− |
| 2005 11 25 | 691 | 0.2− | 0.0 | 2009 11 20 | A79 | 0.2+ | 0.9+ | 2009 11 27 | A79 | 0.3+ | 0.2− |
| 2005 11 25 | 691 | 0.0 | 0.2+ | 2009 11 20 | A79 | 0.4− | 0.7+ | 2009 11 27 | A79 | 0.0 | 0.1− |
| 2005 11 26 | G96 | 0.3− | 0.1+ | 2009 11 20 | A79 | 0.2− | 0.4− | 2009 12 11 | G96 | 0.0 | 0.2− |
| 2005 11 26 | G96 | 0.2+ | 0.3+ | 2009 11 21 | A79 | 1.0+ | 0.3− | 2009 12 11 | G96 | 0.7+ | 0.1− |
| 2005 11 26 | G96 | 0.1+ | 0.0 | 2009 11 21 | A79 | 0.8+ | 0.4− | 2009 12 11 | G96 | 0.5− | 0.0 |
| 2005 11 26 | G96 | 0.1+ | 0.0 | 2009 11 21 | A79 | 0.8− | 0.9− | 2009 12 11 | G96 | 0.3+ | 0.0 |
| 2005 12 02 | G96 | 0.4− | 0.2− | 2009 11 21 | A79 | 0.1− | 0.4− | | | | |
| 2005 12 02 | G96 | 0.3− | 0.3− | 2009 11 23 | A79 | (1.8− | 1.2−) | | | | |

**2009 WU$_{24}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 75.65724 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17641886 | $\omega$ | 105.15300 | | +0.98050160 | +0.14770962 | |
| $a$ | 3.1485170 | $\Omega$ | 246.49216 | | −0.18403390 | +0.92148082 | |
| $e$ | 0.0893356 | $i$ | 8.12535 | | +0.06890666 | +0.35924222 | |
| $P$ | 5.59 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 02 12 | 645 | 0.0 | 0.0 | 2009 11 20 | 691 | 0.4− | 0.2+ | 2009 11 27 | G96 | 0.3+ | 0.3− |
| 2000 02 12 | 645 | 0.1+ | 0.1+ | 2009 11 20 | 691 | 0.5− | 0.3+ | 2009 11 27 | G96 | 0.4+ | 0.1− |
| 2003 10 23 | 608 | 0.2+ | 1.1+ | 2009 11 21 | B67 | 0.8+ | 1.3− | 2009 12 09 | B67 | 0.6+ | 0.0 |
| 2003 10 23 | 608 | (0.1− | 1.8+) | 2009 11 21 | B67 | 0.3+ | 1.5− | 2009 12 09 | B67 | 0.7− | 0.3− |
| 2003 10 23 | 608 | 0.4+ | 1.1+ | 2009 11 21 | B67 | (0.5+ | 1.9−) | 2009 12 09 | B67 | 1.5− | 0.8− |
| 2003 11 21 | 691 | 0.2− | 0.2+ | 2009 11 22 | B67 | 0.0 | 0.2− | 2009 12 10 | G96 | 0.2+ | 0.2− |
| 2003 11 21 | 691 | 0.0 | 0.2+ | 2009 11 22 | B67 | 0.4+ | 0.8+ | 2009 12 10 | G96 | 0.2+ | 0.3− |
| 2003 11 21 | 691 | 0.3− | 0.3+ | 2009 11 22 | B67 | 0.2+ | 0.2− | 2009 12 10 | G96 | 0.3+ | 0.1− |
| 2008 10 30 | G96 | 0.2+ | 0.2− | 2009 11 24 | 691 | 0.1− | 0.1+ | 2009 12 10 | G96 | 0.7+ | 0.5− |
| 2008 10 30 | G96 | 0.4+ | 0.5− | 2009 11 24 | 691 | 0.1+ | 0.3+ | 2009 12 11 | 703 | 0.5+ | 0.5− |
| 2008 10 30 | G96 | 0.1+ | 0.1− | 2009 11 24 | 691 | 0.3− | 0.1+ | 2009 12 11 | 703 | 0.3− | 0.3− |
| 2008 10 30 | G96 | 0.1− | 0.0 | 2009 11 26 | B67 | 0.1+ | 0.1− | 2009 12 11 | 703 | 0.1− | 0.9− |
| 2009 10 26 | G96 | 0.1+ | 0.1+ | 2009 11 26 | B67 | 0.0 | 0.1− | 2009 12 11 | 703 | 0.1+ | 0.5− |
| 2009 10 26 | G96 | 0.7+ | 0.1− | 2009 11 26 | B67 | 0.1+ | 0.2− | 2009 12 15 | G96 | 0.1+ | 0.0 |
| 2009 10 26 | G96 | 0.0 | 0.2− | 2009 11 27 | G96 | 0.7+ | 0.2− | 2009 12 15 | G96 | 0.7+ | 0.1− |
| 2009 10 26 | G96 | 0.0 | 0.3− | 2009 11 27 | G96 | 0.3+ | 0.3− | 2009 12 15 | G96 | 0.5+ | 0.0 |
| 2009 11 20 | 691 | 0.3− | 0.0 | 2009 11 27 | G96 | 0.4+ | 0.3− | 2009 12 15 | G96 | 0.1+ | 0.1− |

**2009 WW$_{24}$ = 2005 XS$_{74}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 74.33980 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22612272 | $\omega$ | 270.27646 | | +0.95588723 | +0.17714310 | |
| $a$ | 2.6683323 | $\Omega$ | 79.52810 | | −0.06281767 | +0.90251424 | |
| $e$ | 0.0771376 | $i$ | 13.78481 | | −0.28693822 | +0.39254091 | |
| $P$ | 4.36 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 05 27 | 691 | 0.0 | 0.1− | 2005 12 10 | 691 | 0.2+ | 0.5− | 2009 11 23 | H06 | 0.0 | 0.1+ |
| 2003 05 27 | 691 | 0.2+ | 0.2+ | 2005 12 10 | 691 | 0.2+ | 0.1− | 2009 11 23 | H06 | 0.2− | 0.6+ |
| 2003 05 27 | 691 | 0.1+ | 0.6+ | 2009 11 18 | H06 | 0.6− | 0.1+ | 2009 11 23 | H06 | 0.3+ | 0.2+ |
| 2005 10 30 | G96 | 0.3− | 0.2− | 2009 11 18 | H06 | 0.7− | 0.2+ | 2009 11 23 | G96 | 0.1− | 0.1+ |
| 2005 10 30 | G96 | 0.1+ | 0.1− | 2009 11 18 | H06 | 0.9− | 0.2+ | 2009 11 23 | G96 | 0.1+ | 0.2+ |
| 2005 10 30 | G96 | 0.7− | 0.2+ | 2009 11 20 | G96 | 0.0 | 0.2+ | 2009 11 23 | G96 | 0.3− | 0.0 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 30 | G96 | 0.6− | 0.4− | 2009 11 20 | G96 | 0.0 | 0.1+ | 2009 11 23 | G96 | 0.1+ | 0.0 |
| 2005 11 10 | G96 | 0.3− | 0.0 | 2009 11 20 | G96 | 0.1+ | 0.2+ | 2009 11 24 | H06 | 0.6− | 0.1− |
| 2005 11 10 | G96 | 0.1− | 0.1− | 2009 11 20 | G96 | 0.0 | 0.1+ | 2009 11 24 | H06 | 0.2− | 0.5+ |
| 2005 11 10 | G96 | 0.1+ | 0.5+ | 2009 11 21 | H06 | 0.4+ | 0.1+ | 2009 11 24 | H06 | 0.8+ | 0.5− |
| 2005 11 10 | G96 | 0.1− | 0.2− | 2009 11 21 | H06 | 0.6+ | 0.2− | 2009 12 11 | 703 | 0.7− | 0.3+ |
| 2005 12 06 | 691 | 0.2+ | 0.1+ | 2009 11 21 | H06 | 0.2+ | 0.4− | 2009 12 11 | 703 | 0.8− | 0.5+ |
| 2005 12 06 | 691 | 0.0 | 0.1+ | 2009 11 22 | H06 | 0.4+ | 0.5+ | 2009 12 11 | 703 | 0.5+ | 0.6+ |
| 2005 12 06 | 691 | 0.2+ | 0.0 | 2009 11 22 | H06 | 0.2+ | 0.0 | 2009 12 11 | 703 | 0.7− | 0.1+ |
| 2005 12 10 | 691 | 0.2− | 0.1+ | 2009 11 22 | H06 | 0.3+ | 0.1+ | | | | |

### 2009 WY$_{24}$ = 2005 YD$_{97}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 27.09084 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22379003 | $\omega$ | 55.03178 | | +0.91519732 | | −0.40237655 |
| $a$ | 2.6868426 | $\Omega$ | 328.67755 | | +0.35419543 | | +0.82974811 |
| $e$ | 0.1697132 | $i$ | 2.48243 | | +0.19224847 | | +0.38679606 |
| $P$ | 4.40 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 24 | 691 | 0.1+ | 0.1+ | 2009 10 25 | 703 | 0.7− | 1.1− | 2009 11 19 | G96 | 0.1+ | 0.2− |
| 2005 12 24 | 691 | 0.0 | 0.1+ | 2009 10 25 | 703 | 0.0 | 0.8+ | 2009 11 20 | 291 | 0.2− | 0.1+ |
| 2005 12 24 | 691 | 0.1+ | 0.2− | 2009 11 10 | G96 | 0.2− | 0.1− | 2009 11 20 | 291 | 0.2− | 0.1+ |
| 2005 12 29 | G96 | 0.3− | 0.1− | 2009 11 10 | G96 | 0.2+ | 0.4− | 2009 11 20 | 291 | 0.0 | 0.3+ |
| 2005 12 29 | G96 | 0.1− | 0.2− | 2009 11 10 | G96 | 0.3+ | 0.0 | 2009 11 20 | H21 | 0.3+ | 0.3− |
| 2005 12 29 | G96 | 0.1− | 0.0 | 2009 11 10 | G96 | 0.2+ | 0.3− | 2009 11 20 | H21 | 0.3+ | 0.2− |
| 2005 12 29 | G96 | 0.1− | 0.2+ | 2009 11 19 | G96 | 0.0 | 0.2− | 2009 11 20 | H21 | 0.1− | 0.5− |
| 2009 10 25 | 703 | 0.5− | 0.0 | 2009 11 19 | G96 | 0.0 | 0.2− | 2009 11 22 | G68 | 0.2− | 0.7+ |
| 2009 10 25 | 703 | 1.1+ | 0.4+ | 2009 11 19 | G96 | 0.6+ | 0.2− | 2009 11 22 | G68 | (1.9+ | 0.5+) |

### 2009 WZ$_{24}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 20.44405 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17876708 | $\omega$ | 294.54767 | | +0.69076243 | | −0.71690200 |
| $a$ | 3.1208844 | $\Omega$ | 111.41547 | | +0.69466623 | | +0.62173208 |
| $e$ | 0.1697053 | $i$ | 5.81573 | | +0.20071396 | | +0.31543740 |
| $P$ | 5.51 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 30 | 691 | 0.0 | 0.3+ | 2008 10 27 | G96 | 0.5+ | 0.8− | 2009 11 22 | H06 | 0.1− | 0.1− |
| 2003 09 30 | 691 | 0.2− | 0.3+ | 2009 11 20 | G96 | 0.1− | 0.1− | 2009 11 22 | H06 | 1.3− | 0.2− |
| 2003 09 30 | 691 | 0.1− | 0.2+ | 2009 11 20 | G96 | 0.0 | 0.1− | 2009 11 23 | H06 | 0.3− | 0.4− |
| 2005 01 18 | 691 | 0.2+ | 0.3+ | 2009 11 20 | G96 | 0.0 | 0.0 | 2009 11 23 | H06 | 0.0 | 0.2− |
| 2005 01 18 | 691 | 0.0 | 0.2+ | 2009 11 20 | G96 | 0.1− | 0.2− | 2009 11 23 | H06 | 0.3+ | 0.3+ |
| 2005 01 18 | 691 | 0.1− | 0.3+ | 2009 11 21 | H06 | 1.1+ | 0.1+ | 2009 11 25 | G96 | 0.3+ | 0.1− |
| 2008 10 27 | G96 | 0.6− | 0.0 | 2009 11 21 | H06 | 1.1+ | 1.0− | 2009 11 25 | G96 | 0.2+ | 0.2− |
| 2008 10 27 | G96 | 0.1− | 0.6+ | 2009 11 21 | H06 | 1.1+ | 0.2− | 2009 11 25 | G96 | 0.1+ | 0.1− |
| 2008 10 27 | G96 | 0.1+ | 0.4− | 2009 11 22 | H06 | 1.4− | 0.9− | 2009 11 25 | G96 | 0.0 | 0.2− |

### 2009 WB$_{25}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 64.98280 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.24218147 | $\omega$ | 318.04578 | | +0.94956280 | | −0.26284716 |
| $a$ | 2.5490329 | $\Omega$ | 57.96433 | | +0.31337969 | | +0.81478273 |
| $e$ | 0.1392938 | $i$ | 11.63762 | | −0.01112020 | | +0.51675959 |
| $P$ | 4.07 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 12 15 | 645 | 0.0 | 0.1− | 2003 04 10 | 691 | 0.0 | 0.1− | 2009 11 21 | H06 | 0.2− | 0.7+ |
| 2001 12 15 | 645 | 0.1− | 0.1− | 2003 04 10 | 691 | 0.1+ | 0.5+ | 2009 11 21 | H06 | 0.4− | 0.7+ |
| 2001 12 19 | 644 | 0.2+ | 0.4+ | 2004 08 20 | E12 | 0.4+ | 0.2− | 2009 11 21 | H06 | 0.3+ | 0.1− |
| 2001 12 19 | 644 | 0.3+ | 0.4+ | 2004 08 20 | E12 | 0.3− | 0.3− | 2009 11 22 | H06 | 0.1− | 0.6+ |
| 2001 12 19 | 644 | 0.1+ | 0.9+ | 2004 08 20 | E12 | 0.5− | 0.5+ | 2009 11 22 | H06 | 0.2− | 0.2+ |
| 2002 02 02 | 644 | 0.1+ | 0.5+ | 2004 08 20 | E12 | 0.4+ | 0.4− | 2009 11 22 | H06 | 0.2+ | 0.0 |
| 2002 02 02 | 644 | 0.1+ | 0.1− | 2007 03 19 | G96 | 0.2+ | 0.6− | 2009 11 23 | H06 | 0.6− | 0.2− |
| 2002 02 02 | 644 | 0.3− | 0.5+ | 2007 03 19 | G96 | 0.3− | 0.4− | 2009 11 23 | H06 | 0.5− | 0.3− |
| 2002 02 03 | 644 | 0.1+ | 0.3+ | 2007 03 19 | G96 | 0.1− | 0.3− | 2009 11 23 | H06 | 0.4− | 0.4− |
| 2002 02 03 | 644 | 0.6+ | 0.5+ | 2007 03 19 | G96 | 0.0 | 0.3− | 2009 12 20 | H06 | 0.8+ | 0.5+ |
| 2002 02 03 | 644 | 0.2+ | 0.5− | 2007 04 26 | G96 | 0.5− | 0.3− | 2009 12 20 | H06 | 0.2− | 0.2+ |
| 2002 02 13 | 644 | 0.3+ | 0.2+ | 2007 04 26 | G96 | 0.4− | 0.2− | 2009 12 20 | H06 | 1.0+ | 0.4+ |
| 2002 02 13 | 644 | 0.1+ | 0.1− | 2007 04 26 | G96 | 0.2− | 0.3− | | | | |
| 2003 04 10 | 691 | 0.2+ | 0.3+ | 2007 04 26 | G96 | 0.2− | 0.4− | | | | |

### 2009 WC$_{25}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 337.63778 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17434531 | $\omega$ | 331.24601 | | −0.55972925 | | −0.80379991 |
| $a$ | 3.1734321 | $\Omega$ | 151.32775 | | +0.81771863 | | −0.57516248 |
| $e$ | 0.2299692 | $i$ | 24.83472 | | +0.13431089 | | +0.15196651 |
| $P$ | 5.65 | $H$ | 15.3 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 18 | 644 | 0.3+ | 0.3+ | 2005 03 02 | 703 | 0.6+ | 0.4− | 2009 11 21 | H06 | 0.1− | 0.3− |
| 2002 08 18 | 644 | 0.1+ | 0.2+ | 2005 03 02 | 703 | 0.4− | 0.7+ | 2009 11 21 | H06 | 0.0 | 0.1+ |
| 2002 08 18 | 644 | 0.0 | 0.8+ | 2005 03 02 | 703 | 0.1+ | 0.7− | 2009 11 22 | H06 | 0.4+ | 0.4+ |
| 2002 08 29 | 644 | 0.1+ | 0.3− | 2005 03 16 | 703 | 0.1+ | 0.0 | 2009 11 22 | H06 | 0.3− | 0.2− |
| 2002 08 29 | 644 | 0.1− | 0.1+ | 2005 03 16 | 703 | 0.5− | 0.2+ | 2009 11 22 | H06 | 0.1− | 0.1+ |
| 2002 08 29 | 644 | 0.3+ | 0.2− | 2005 03 16 | 703 | 0.0 | 0.3− | 2009 11 23 | H06 | 0.3− | 0.2− |
| 2002 09 01 | 644 | 0.1− | 0.3− | 2005 03 16 | 703 | 0.2− | 0.4+ | 2009 11 23 | H06 | 0.5+ | 0.6− |
| 2002 09 01 | 644 | 0.1− | 0.0 | 2005 04 02 | 703 | 0.6+ | 0.3+ | 2009 11 23 | H06 | 0.2+ | 0.4− |
| 2002 09 04 | 644 | 0.2− | 0.3− | 2005 04 02 | 703 | 0.8− | 0.1− | 2009 12 15 | 703 | 0.0 | 0.2− |
| 2002 09 04 | 644 | 0.1− | 0.1+ | 2005 04 02 | 703 | 0.2− | 0.1+ | 2009 12 15 | 703 | 0.7+ | 0.2− |
| 2002 09 04 | 644 | 0.4− | 0.5− | 2005 04 02 | 703 | 0.8− | 0.4+ | 2009 12 15 | 703 | 0.9− | 0.3− |
| 2002 09 15 | 644 | 0.4− | 0.8− | 2006 05 26 | 691 | 0.2+ | 0.3+ | 2009 12 15 | 703 | 0.3+ | 0.1+ |
| 2002 09 15 | 644 | 0.9+ | 0.1− | 2006 05 26 | 691 | 0.1− | 0.2+ | 2009 12 15 | 703 | 0.3− | 0.2− |
| 2002 09 15 | 644 | 0.1− | 0.4+ | 2006 05 26 | 691 | 0.2− | 0.9− | | | | |
| 2005 03 02 | 703 | 1.3+ | 0.9− | 2009 11 21 | H06 | 0.2+ | 0.5+ | | | | |

### 2009 WZ$_{25}$ = 2005 YC$_{44}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 20.06208 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.24201336 | $\omega$ | 292.52463 | | +0.69218750 | | −0.71876384 |
| $a$ | 2.5502132 | $\Omega$ | 113.50127 | | +0.68554902 | | +0.62655432 |
| $e$ | 0.2380213 | $i$ | 4.07893 | | +0.22560809 | | +0.30134402 |
| $P$ | 4.07 | $H$ | 17.8 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 05 | 691 | 0.1− | 0.0 | 2006 01 22 | G96 | 0.6+ | 0.5+ | 2009 11 23 | G96 | 0.2− | 0.2− |
| 2005 12 05 | 691 | 0.5− | 0.5+ | 2006 01 22 | G96 | 0.1− | 0.4+ | 2009 11 23 | G96 | 0.4− | 0.1− |
| 2005 12 05 | 691 | 0.8+ | 0.0 | 2006 01 22 | G96 | 0.0 | 0.0 | 2009 11 24 | H06 | 0.4+ | 0.5+ |
| 2005 12 25 | 691 | 0.1− | 0.0 | 2006 01 22 | G96 | 0.3+ | 0.3+ | 2009 11 24 | H06 | 0.2− | 0.5+ |
| 2005 12 25 | 691 | 0.1+ | 0.2+ | 2009 11 16 | G96 | 0.4− | 0.2− | 2009 11 24 | H06 | 0.4+ | 0.5+ |
| 2005 12 25 | 691 | 0.0 | 0.2+ | 2009 11 16 | G96 | 0.3− | 0.2− | 2009 11 25 | H06 | 0.3− | 0.5+ |
| 2005 12 25 | 691 | 0.1+ | 0.0 | 2009 11 16 | G96 | 0.7− | 0.1+ | 2009 11 25 | H06 | 0.0 | 0.5− |
| 2005 12 25 | 691 | 0.0 | 0.2− | 2009 11 16 | G96 | 0.2− | 0.2− | 2009 11 25 | H06 | 0.7+ | 0.2+ |
| 2005 12 25 | 691 | 0.2+ | 0.1− | 2009 11 22 | H06 | 0.7+ | 0.6− | 2009 12 11 | 703 | 0.3+ | 0.7+ |
| 2005 12 27 | 691 | 0.1+ | 0.2− | 2009 11 22 | H06 | 0.2+ | 0.5− | 2009 12 11 | 703 | 0.3− | 0.6+ |
| 2005 12 27 | 691 | 0.7− | 0.0 | 2009 11 22 | H06 | 0.3+ | 0.0 | 2009 12 11 | 703 | 1.1− | 0.7− |
| 2005 12 27 | 691 | 0.2− | 0.2− | 2009 11 23 | H06 | 0.7+ | 0.4− | 2009 12 11 | 703 | 0.4− | 0.5− |
| 2005 12 27 | G96 | 0.1− | 0.2− | 2009 11 23 | H06 | 0.3+ | 0.5+ | 2009 12 11 | 703 | 0.5+ | 0.5+ |
| 2005 12 27 | G96 | 0.1+ | 0.4− | 2009 11 23 | H06 | 0.0 | 0.3+ | 2009 12 11 | 703 | 0.2+ | 0.4− |
| 2005 12 27 | G96 | 0.2+ | 0.3− | 2009 11 23 | G96 | 0.3+ | 0.2− | 2009 12 11 | 703 | (1.7− | 1.0+) |
| 2005 12 27 | G96 | 0.4+ | 0.4− | 2009 11 23 | G96 | 0.0 | 0.2− | 2009 12 11 | 703 | 0.4− | 0.1+ |

### 2009 WW$_{26}$ = 2004 YW$_{29}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 343.01285 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18281210 | $\omega$ | 199.81397 | | +0.07434072 | | −0.98647794 |
| $a$ | 3.0746765 | $\Omega$ | 246.15127 | | +0.93512718 | | +0.11984065 |
| $e$ | 0.0428037 | $i$ | 9.18948 | | +0.34642549 | | −0.11180116 |
| $P$ | 5.39 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 16 | 691 | 0.0 | 0.2− | 2009 11 16 | 691 | 0.0 | 0.3− | 2009 12 10 | 114 | 0.4− | 0.5+ |
| 2004 12 16 | 691 | 0.2+ | 0.2− | 2009 11 16 | 691 | 0.2+ | 0.0 | 2009 12 10 | 114 | 0.2+ | 0.5+ |
| 2004 12 16 | 691 | 0.2+ | 0.1+ | 2009 11 16 | 691 | 0.3+ | 0.2+ | 2009 12 10 | 114 | 0.4− | 0.0 |
| 2004 12 21 | 691 | 0.0 | 0.3+ | 2009 11 20 | 691 | 0.1− | 0.1− | 2009 12 10 | 114 | 0.0 | 1.0− |
| 2004 12 21 | 691 | 0.3− | 0.6+ | 2009 11 20 | 691 | 0.3− | 0.1− | | | | |
| 2004 12 21 | 691 | 0.1− | 0.6− | 2009 11 20 | 691 | 0.0 | 0.3+ | | | | |

**2009 WF$_{27}$ = 2005 WD$_{200}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 116.73133 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23201426 | $\omega$ | 17.84564 | | +0.58436800 | | +0.81097016 |
| $a$ | 2.6229676 | $\Omega$ | 287.92228 | | −0.74819344 | | +0.52460298 |
| $e$ | 0.0713682 | $i$ | 1.74706 | | −0.31419836 | | +0.25907357 |
| $P$ | 4.25 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 25 | 691 | 0.0 | 0.3− | 2005 12 03 | 691 | 0.4+ | 0.0 | 2009 11 24 | 691 | 0.3− | 0.1+ |
| 2000 09 25 | 691 | 0.1− | 0.2− | 2005 12 03 | 691 | 0.5+ | 0.0 | 2009 11 24 | 691 | 0.4− | 0.1+ |
| 2000 09 25 | 691 | 0.1+ | 0.4− | 2007 02 19 | G96 | 0.0 | 0.1+ | 2009 11 24 | 691 | 0.1− | 0.3+ |
| 2003 05 06 | 691 | 0.1+ | 0.5+ | 2007 02 19 | G96 | 0.2− | 0.7− | 2009 12 17 | G96 | 0.1+ | 0.1− |
| 2003 05 06 | 691 | 0.2− | 0.4+ | 2007 02 19 | G96 | 0.5+ | 0.5+ | 2009 12 17 | G96 | 0.4+ | 0.0 |
| 2003 05 06 | 691 | 0.1− | 0.4+ | 2007 02 19 | G96 | 0.7+ | 0.6− | 2009 12 17 | G96 | 0.5− | 0.1− |
| 2004 08 22 | 691 | 0.0 | 0.2+ | 2007 03 20 | G96 | 0.0 | 0.0 | 2009 12 17 | G96 | 0.1+ | 0.1+ |
| 2004 08 22 | 691 | 0.2− | 0.3+ | 2007 03 20 | G96 | 0.2+ | 0.1+ | 2009 12 19 | 691 | 0.0 | 0.1+ |
| 2004 08 22 | 691 | 0.2− | 0.1+ | 2007 03 20 | G96 | 0.4+ | 0.1− | 2009 12 19 | 691 | 0.0 | 0.2+ |
| 2004 09 10 | 691 | 0.1+ | 0.3+ | 2007 03 20 | G96 | 0.3+ | 0.1− | 2009 12 19 | 691 | 0.6+ | 0.8+ |
| 2004 09 10 | 691 | 0.1+ | 0.4+ | 2009 11 16 | 691 | 0.6− | 0.3+ | 2009 12 19 | G96 | 0.3+ | 0.2+ |
| 2004 09 10 | 691 | 0.2+ | 0.3+ | 2009 11 16 | 691 | 0.0 | 0.1+ | 2009 12 19 | G96 | 0.3+ | 0.2− |
| 2005 11 25 | 691 | 0.1− | 0.3+ | 2009 11 16 | 691 | 0.8− | 0.3− | 2009 12 19 | G96 | 0.6+ | 0.3+ |
| 2005 11 25 | 691 | 0.4+ | 0.0 | 2009 11 20 | 691 | 0.2− | 0.1+ | 2009 12 19 | G96 | 0.5+ | 0.1− |
| 2005 11 25 | 691 | 0.4− | 0.4− | 2009 11 20 | 691 | 0.3− | 0.2− | | | | |
| 2005 12 03 | 691 | 0.0 | 0.3+ | 2009 11 20 | 691 | 0.6+ | 0.6− | | | | |

**2009 WG$_{27}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 24.17715 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.26969606 | $\omega$ | 35.89334 | | +0.73661376 | | −0.67630672 |
| $a$ | 2.3725734 | $\Omega$ | 6.66492 | | +0.61418531 | | +0.66704203 |
| $e$ | 0.1640951 | $i$ | 1.51305 | | +0.28315469 | | +0.31251264 |
| $P$ | 3.65 | $H$ | 18.1 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 01 25 | 645 | 0.1+ | 0.1+ | 2009 09 21 | G96 | 0.3+ | 0.0 | 2009 11 21 | 291 | 0.2+ | 0.1− |
| 2003 01 25 | 645 | 0.0 | 0.1+ | 2009 09 21 | G96 | 0.3+ | 0.4− | 2009 11 24 | 691 | 0.0 | 0.1− |
| 2005 09 11 | 691 | 0.1− | 0.0 | 2009 09 21 | G96 | 0.5+ | 0.2− | 2009 11 24 | 691 | 0.2− | 0.1− |
| 2005 09 11 | 691 | 0.1− | 0.4+ | 2009 09 21 | G96 | 0.2+ | 0.2− | 2009 11 24 | 691 | 0.2+ | 0.1+ |
| 2005 09 11 | 691 | 0.1− | 0.0 | 2009 11 16 | 691 | 0.6− | 0.2+ | 2009 12 17 | G96 | 1.1+ | 0.5+ |
| 2005 09 29 | 691 | 0.1+ | 0.1+ | 2009 11 16 | 691 | 0.3+ | 0.1− | 2009 12 17 | G96 | 0.3+ | 0.2+ |
| 2005 09 29 | 691 | 0.1− | 0.5+ | 2009 11 16 | 691 | 0.2− | 0.4+ | 2009 12 17 | G96 | 0.4+ | 0.0 |
| 2005 09 29 | 691 | 0.2− | 0.1+ | 2009 11 20 | 691 | 0.4− | 0.2− | 2009 12 17 | G96 | 0.4+ | 0.0 |
| 2007 03 11 | G96 | 0.3+ | 0.3+ | 2009 11 20 | 691 | 0.3− | 0.2− | 2009 12 19 | G96 | 0.2+ | 0.3− |
| 2007 03 11 | G96 | 0.2+ | 0.5+ | 2009 11 20 | 691 | 0.1− | 0.1− | 2009 12 19 | G96 | 0.4+ | 0.2− |
| 2007 03 11 | G96 | 0.3+ | 0.4+ | 2009 11 21 | 291 | 0.1+ | 0.2− | 2009 12 19 | G96 | 0.7+ | 0.1− |
| 2007 03 11 | G96 | 0.1− | 0.2+ | 2009 11 21 | 291 | 0.1+ | 0.1− | 2009 12 19 | G96 | 0.3+ | 0.2− |

**2009 WK$_{27}$ = 2004 EQ$_{83}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 288.22287 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.29237098 | $\omega$ | 99.88838 | | −0.87474650 | | −0.47924857 |
| $a$ | 2.2482601 | $\Omega$ | 51.51216 | | +0.40092914 | | −0.79886928 |
| $e$ | 0.0759542 | $i$ | 5.25495 | | +0.27216610 | | −0.36349510 |
| $P$ | 3.37 | $H$ | 17.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 03 14 | 691 | 0.3+ | 0.1+ | 2007 01 17 | 703 | 0.4− | 1.2− | 2009 11 20 | 691 | 0.0 | 0.1− |
| 2004 03 14 | 691 | 0.0 | 0.1− | 2009 09 19 | G96 | 0.4− | 0.2+ | 2009 11 20 | 691 | 0.1+ | 0.6− |
| 2004 03 14 | 691 | 0.0 | 0.1+ | 2009 09 19 | G96 | 0.4− | 0.6+ | 2009 11 20 | G96 | 0.2+ | 0.0 |
| 2004 03 20 | 704 | 0.3− | 0.6+ | 2009 09 19 | G96 | 0.5− | 0.2− | 2009 11 20 | G96 | 0.5+ | 0.1+ |
| 2004 03 20 | 704 | 0.4− | 0.8+ | 2009 09 19 | G96 | 0.1− | 0.2+ | 2009 11 20 | G96 | 0.5+ | 0.0 |
| 2004 03 20 | 704 | 0.6− | 1.2+ | 2009 11 08 | 691 | 0.2− | 0.2+ | 2009 11 24 | G96 | 0.0 | 0.3+ |
| 2004 03 21 | 691 | 0.1+ | 0.1+ | 2009 11 08 | 691 | 0.0 | 0.3+ | 2009 11 24 | G96 | 0.5+ | 0.3+ |
| 2004 03 21 | 691 | 0.1+ | 0.1− | 2009 11 08 | 691 | 0.2+ | 0.2+ | 2009 11 24 | G96 | 0.4+ | 0.1+ |
| 2004 03 21 | 691 | 0.1+ | 0.2− | 2009 11 16 | 691 | 0.4+ | 0.0 | 2009 11 24 | G96 | 0.3+ | 0.3+ |
| 2007 01 17 | 703 | (2.0− | 0.6−) | 2009 11 16 | 691 | 0.2− | 0.2+ | 2009 12 17 | G96 | 0.2+ | 0.4− |
| 2007 01 17 | 703 | (0.2+ | 1.9−) | 2009 11 16 | 691 | 1.0− | 0.1+ | 2009 12 17 | G96 | 0.0 | 0.1− |
| 2007 01 17 | 703 | 0.2+ | 0.4− | 2009 11 20 | 691 | 0.1− | 0.0 | 2009 12 17 | G96 | 0.0 | 0.4− |

**2009 WL$_{27}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 60.56303 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.25113394 | $\omega$ | 324.18073 | | +0.97262766 | | +0.23232779 |
| $a$ | 2.4880882 | $\Omega$ | 22.38632 | | −0.21042396 | | +0.88862184 |
| $e$ | 0.2160307 | $i$ | 0.65985 | | −0.09857584 | | +0.39544282 |
| $P$ | 3.92 | $H$ | 18.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1993 09 20 | 691 | 0.1+ | 0.3+ | 2005 12 05 | 701 | 0.0 | 0.3+ | 2009 11 16 | 691 | 0.5+ | 0.3+ |
| 1993 09 20 | 691 | 0.0 | 0.1− | 2005 12 05 | 701 | 0.9+ | 0.5+ | 2009 11 16 | 691 | 0.1− | 0.1+ |
| 1993 09 20 | 691 | 0.2+ | 0.4− | 2005 12 05 | 701 | 0.1+ | 0.3+ | 2009 11 16 | 691 | 0.1− | 0.8− |
| 1997 10 21 | 691 | 0.5− | 0.4− | 2009 09 19 | G96 | 0.2+ | 0.1− | 2009 11 20 | 691 | 0.1− | 0.1+ |
| 1997 10 21 | 691 | 0.0 | 0.0 | 2009 09 19 | G96 | 0.3− | 0.1− | 2009 11 20 | 691 | 0.2− | 0.3− |
| 1997 10 21 | 691 | 0.4− | 0.5+ | 2009 09 19 | G96 | 0.2− | 0.1− | 2009 11 20 | 691 | 0.1− | 0.1+ |
| 2001 10 16 | 691 | 0.1− | 0.2− | 2009 09 19 | G96 | 0.2− | 0.3+ | 2009 11 24 | G96 | 0.4+ | 0.3− |
| 2001 10 16 | 691 | 0.4+ | 0.2+ | 2009 10 14 | 291 | 0.4− | 0.0 | 2009 11 24 | G96 | 0.3+ | 0.2− |
| 2001 10 16 | 691 | 0.1− | 0.1− | 2009 10 14 | 291 | 0.3− | 0.0 | 2009 11 24 | G96 | 0.5+ | 0.2− |
| 2005 09 30 | G96 | 0.2+ | 0.3− | 2009 10 14 | 291 | 0.6− | 0.2− | 2009 11 24 | G96 | 0.2+ | 0.2− |
| 2005 09 30 | G96 | 0.3+ | 0.3− | 2009 10 27 | 691 | 0.1+ | 0.2− | 2009 12 11 | G96 | 0.2+ | 0.1− |
| 2005 09 30 | G96 | 0.1+ | 0.5− | 2009 10 27 | 691 | 0.0 | 0.0 | 2009 12 11 | G96 | 0.3+ | 0.1− |
| 2005 09 30 | G96 | 0.2+ | 0.1− | 2009 10 27 | 691 | 0.2+ | 0.1− | 2009 12 11 | G96 | 0.0 | 0.2− |
| 2005 10 30 | 691 | 0.2+ | 0.2+ | 2009 11 08 | 691 | 0.2− | 0.5+ | 2009 12 11 | G96 | 0.1+ | 0.0 |
| 2005 10 30 | 691 | 0.2+ | 0.5+ | 2009 11 08 | 691 | 0.1− | 0.3+ | | | | |
| 2005 10 30 | 691 | 0.3+ | 0.1+ | 2009 11 08 | 691 | 0.0 | 0.3− | | | | |

**2009 WO$_{27}$ = 2002 YJ$_{14}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 349.87274 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.27317473 | $\omega$ | 152.24043 | | +0.02949291 | | −0.99953335 |
| $a$ | 2.3523884 | $\Omega$ | 296.06856 | | +0.91543492 | | +0.03020454 |
| $e$ | 0.1457483 | $i$ | 0.50726 | | +0.40138396 | | +0.00455638 |
| $P$ | 3.61 | $H$ | 17.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 12 31 | 704 | 0.5− | 0.0 | 2007 03 10 | G96 | 0.4+ | 0.0 | 2009 11 20 | G96 | 0.6+ | 0.2− |
| 2002 12 31 | 704 | 0.7+ | 1.2+ | 2007 03 10 | G96 | 0.3+ | 0.2− | 2009 11 20 | G96 | 0.6+ | 0.1− |
| 2002 12 31 | 704 | 0.1− | 0.6+ | 2007 03 10 | G96 | 0.2+ | 0.1+ | 2009 11 20 | G96 | 0.6+ | 0.1− |
| 2005 09 13 | 691 | 0.5− | 0.3+ | 2007 03 10 | G96 | 0.5+ | 0.0 | 2009 11 20 | G96 | 0.5+ | 0.2− |
| 2005 09 13 | 691 | 0.3− | 0.6+ | 2009 10 14 | 291 | 0.4− | 0.1− | 2009 11 24 | 691 | 0.2+ | 0.1− |
| 2005 09 13 | 691 | 0.0 | 0.5+ | 2009 10 14 | 291 | 0.5− | 0.1− | 2009 11 24 | 691 | 0.3+ | 0.2+ |
| 2005 09 30 | G96 | 0.1+ | 0.2− | 2009 10 14 | 291 | 0.9− | 0.1− | 2009 11 24 | 691 | 0.3+ | 0.1− |
| 2005 09 30 | G96 | 0.3+ | 0.4− | 2009 11 16 | 691 | 0.0 | 0.0 | 2009 12 11 | G96 | 0.5+ | 0.2− |
| 2005 09 30 | G96 | 0.6+ | 0.1− | 2009 11 16 | 691 | 0.2− | 0.1+ | 2009 12 11 | G96 | 0.4+ | 0.1+ |
| 2005 09 30 | G96 | 0.4+ | 0.2− | 2009 11 16 | 691 | 0.5− | 0.1+ | 2009 12 11 | G96 | 0.6+ | 0.3− |
| 2007 02 21 | 691 | 0.4+ | 0.2+ | 2009 11 20 | 691 | 0.2+ | 0.1+ | 2009 12 11 | G96 | 0.5+ | 0.3− |
| 2007 02 21 | 691 | 0.2− | 0.2+ | 2009 11 20 | 691 | 0.2+ | 0.0 | | | | |
| 2007 02 21 | 691 | 0.2− | 0.7+ | 2009 11 20 | 691 | 0.2+ | 0.1− | | | | |

**2009 WV$_{27}$ = 2006 CH$_{22}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 38.41823 | | (2000.0) | | +0.90145501 | −0.43127620 |
| $n$ | 0.19684087 | $\omega$ | 332.84195 | | +0.40514385 | +0.81037968 |
| $a$ | 2.9267965 | $\Omega$ | 52.75563 | | +0.15243793 | +0.39659250 |
| $e$ | 0.0746349 | $i$ | 2.67441 | | | |
| $P$ | 5.01 | $H$ | 16.8 | $G$ 0.15 | $U$ 1 | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 11 17 | 599 | 0.6+ | 0.9− | 2006 02 24 | 691 | 0.0 | 0.0 | 2009 11 08 | 691 | 0.0 | 0.2− |
| 2004 11 17 | 599 | 0.1− | 0.6− | 2007 04 19 | 691 | 0.1− | 0.2− | 2009 11 16 | 691 | 0.8+ | 0.1+ |
| 2004 11 17 | 599 | 0.3− | 0.6+ | 2007 04 19 | 691 | 0.0 | 0.1− | 2009 11 16 | 691 | 0.9− | 0.1− |
| 2006 01 23 | 691 | 0.1− | 0.4− | 2007 04 19 | 691 | 0.3+ | 0.2− | 2009 11 16 | 691 | 0.2− | 0.0 |
| 2006 01 23 | 691 | 0.2− | 0.3+ | 2007 05 09 | G96 | 0.5− | 0.5+ | 2009 11 20 | 691 | 0.2+ | 0.2+ |
| 2006 01 23 | 691 | 0.1− | 0.1− | 2007 05 09 | G96 | 0.2− | 0.1+ | 2009 11 20 | 691 | 0.4+ | 0.0 |
| 2006 02 01 | 691 | 0.0 | 0.3− | 2007 05 09 | G96 | 0.6+ | 0.3+ | 2009 11 20 | 691 | 0.0 | 0.2+ |
| 2006 02 01 | 691 | 0.2− | 0.0 | 2007 05 09 | G96 | 0.7− | 0.5+ | 2009 11 24 | 691 | 0.1+ | 0.1+ |
| 2006 02 01 | 691 | 0.3− | 0.0 | 2009 09 19 | G96 | 0.4+ | 0.0 | 2009 11 24 | 691 | 0.6+ | 0.2+ |
| 2006 02 04 | 691 | 0.5− | 0.3− | 2009 09 19 | G96 | 0.1+ | 0.2+ | 2009 11 24 | 691 | 0.6− | 0.1− |
| 2006 02 04 | 691 | 0.5+ | 0.0 | 2009 09 19 | G96 | 1.2+ | 0.4− | 2009 12 11 | G96 | 0.5+ | 0.1+ |
| 2006 02 04 | 691 | 0.3+ | 0.2+ | 2009 09 19 | G96 | 0.3+ | 0.0 | 2009 12 11 | G96 | 0.2+ | 0.0 |
| 2006 02 24 | 691 | 0.4+ | 0.1+ | 2009 11 08 | 691 | 0.5− | 0.3− | 2009 12 11 | G96 | 0.0 | 0.3− |
| 2006 02 24 | 691 | 0.1+ | 0.5+ | 2009 11 08 | 691 | 0.4− | 0.0 | 2009 12 11 | G96 | 0.1− | 0.0 |

**2009 WX$_{27}$ = 2005 WC$_{178}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 57.47071 | | (2000.0) | | +0.99440684 | +0.09982693 |
| $n$ | 0.22811901 | $\omega$ | 297.58178 | | −0.07635876 | +0.90513111 |
| $a$ | 2.6527423 | $\Omega$ | 56.70800 | | −0.07296838 | +0.41324600 |
| $e$ | 0.1851935 | $i$ | 2.36486 | | | |
| $P$ | 4.32 | $H$ | 17.1 | $G$ 0.15 | $U$ 1 | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 10 01 | 699 | 0.9− | 0.4+ | 2006 01 05 | 691 | 0.1− | 0.2+ | 2009 11 16 | 691 | 0.3+ | 1.0− |
| 2000 10 01 | 699 | 0.4+ | 1.0− | 2006 01 05 | 691 | 0.2+ | 0.2+ | 2009 11 16 | 691 | 0.1− | 0.0 |
| 2000 10 01 | 699 | 0.4+ | 0.5+ | 2006 01 05 | 691 | 0.1− | 0.0 | 2009 11 16 | 691 | 0.5+ | 0.5+ |
| 2000 10 01 | 699 | 1.4− | 1.0+ | 2007 03 11 | G96 | 0.0 | 0.4+ | 2009 11 20 | 691 | 0.0 | 0.1− |
| 2004 07 21 | E12 | 0.3− | 0.9+ | 2007 03 11 | G96 | 0.7− | 1.1+ | 2009 11 20 | 691 | 0.0 | 0.1+ |
| 2004 07 21 | E12 | 0.7+ | 0.8+ | 2007 03 11 | G96 | 0.3− | 0.1− | 2009 11 20 | 691 | 0.0 | 0.0 |
| 2004 07 21 | E12 | 0.5+ | 0.4− | 2007 03 11 | G96 | 0.1− | 0.1− | 2009 11 24 | 691 | 0.0 | 0.0 |
| 2005 11 30 | 691 | 0.3+ | 0.2+ | 2009 10 27 | 691 | 0.1− | 0.0 | 2009 11 24 | 691 | 0.1+ | 0.1+ |
| 2005 11 30 | 691 | 0.6+ | 0.1+ | 2009 10 27 | 691 | 0.2− | 0.1− | 2009 11 24 | 691 | 0.1− | 0.1+ |
| 2005 11 30 | 691 | 0.0 | 0.0 | 2009 10 27 | 691 | 0.2− | 0.2+ | 2009 12 11 | G96 | 0.1+ | 0.1+ |
| 2005 12 04 | 691 | 0.3− | 0.2− | 2009 11 08 | 691 | 0.0 | 0.2− | 2009 12 11 | G96 | 0.0 | 0.0 |
| 2005 12 04 | 691 | 0.1+ | 0.3+ | 2009 11 08 | 691 | 0.2− | 0.3− | 2009 12 11 | G96 | 0.4+ | 0.2− |
| 2005 12 04 | 691 | 0.1− | 0.0 | 2009 11 08 | 691 | 0.2− | 0.1+ | 2009 12 11 | G96 | 0.1− | 0.0 |

**2009 WB$_{28}$ = 2003 TK$_{22}$ = 2008 SF$_{199}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 340.70246 | | (2000.0) | | −0.04061299 | −0.98871709 |
| $n$ | 0.18099812 | $\omega$ | 204.52568 | | +0.94047626 | +0.01090461 |
| $a$ | 3.0951855 | $\Omega$ | 248.07029 | | +0.33742404 | −0.14939744 |
| $e$ | 0.0655083 | $i$ | 8.94178 | | | |
| $P$ | 5.45 | $H$ | 16.0 | $G$ 0.15 | $U$ 3 | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 01 | 691 | 0.0 | 0.0 | 2008 09 29 | G96 | 0.0 | 0.1− | 2009 11 24 | 691 | 0.2+ | 0.0 |
| 2003 10 01 | 691 | 0.2+ | 0.1− | 2008 09 29 | G96 | 0.0 | 0.1− | 2009 11 24 | 691 | 0.0 | 0.1− |
| 2003 10 01 | 691 | 0.2− | 0.0 | 2008 09 29 | G96 | 0.3+ | 0.2+ | 2009 11 24 | 691 | 0.1+ | 0.0 |
| 2003 10 16 | 691 | 0.1+ | 0.1+ | 2008 09 29 | G96 | 0.2− | 0.1− | 2009 12 11 | G96 | 0.0 | 0.0 |
| 2003 10 16 | 691 | 0.1− | 0.0 | 2009 11 16 | 691 | 0.1− | 0.2+ | 2009 12 11 | G96 | 0.2+ | 0.0 |
| 2003 10 16 | 691 | 0.1− | 0.1+ | 2009 11 16 | 691 | 0.1− | 0.0 | 2009 12 11 | G96 | 0.3+ | 0.1− |
| 2008 09 26 | G96 | 0.2+ | 0.3− | 2009 11 16 | 691 | 1.0− | 0.2− | 2009 12 11 | G96 | 0.0 | 0.0 |
| 2008 09 26 | G96 | 0.2− | 0.1− | 2009 11 20 | 691 | 0.1+ | 0.1− | 2009 12 25 | 291 | 0.2+ | 0.0 |
| 2008 09 26 | G96 | 0.2− | 0.0 | 2009 11 20 | 691 | 0.2+ | 0.1− | 2009 12 25 | 291 | 0.0 | 0.1+ |
| 2008 09 26 | G96 | 0.3+ | 0.1+ | 2009 11 20 | 691 | 0.1+ | 0.0 | 2009 12 25 | 291 | 0.2+ | 0.1+ |

**2009 WD$_{28}$ = 2004 CL$_{63}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 262.44488 | | (2000.0) | | −0.99662432 | +0.01255727 |
| $n$ | 0.30303399 | $\omega$ | 125.04622 | | −0.04760125 | −0.89354787 |
| $a$ | 2.1952053 | $\Omega$ | 55.80453 | | +0.06688866 | −0.44879228 |
| $e$ | 0.0864832 | $i$ | 5.62910 | | | |
| $P$ | 3.25 | $H$ | 17.9 | $G$ 0.15 | $U$ 3 | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 02 12 | 644 | 0.4− | 0.0 | 2006 12 24 | 691 | 0.3− | 0.2− | 2009 11 24 | 691 | 0.3− | 0.3+ |
| 2004 02 12 | 644 | 0.2− | 0.0 | 2006 12 24 | 691 | 0.1+ | 0.4− | 2009 12 18 | G96 | 0.6+ | 0.2− |
| 2004 02 12 | 644 | 0.1+ | 0.0 | 2009 10 27 | 691 | 0.0 | 0.2− | 2009 12 18 | G96 | 0.4+ | 0.1− |
| 2004 02 15 | 704 | 0.6− | 0.3+ | 2009 10 27 | 691 | 0.2− | 0.2+ | 2009 12 18 | G96 | 0.6+ | 0.1− |
| 2004 02 15 | 704 | 0.0 | 0.6+ | 2009 10 27 | 691 | 0.3− | 0.3+ | 2009 12 18 | G96 | 0.1+ | 0.3− |
| 2004 02 15 | 704 | 1.1− | 0.1+ | 2009 11 16 | 691 | 0.4+ | 0.1+ | 2009 12 19 | 691 | 0.3− | 0.1− |
| 2004 02 16 | 691 | 0.1+ | 0.2− | 2009 11 16 | 691 | 0.3− | 0.1+ | 2009 12 19 | 691 | 0.3+ | 0.2+ |
| 2004 02 16 | 691 | 0.2− | 0.0 | 2009 11 16 | 691 | 0.0 | 0.0 | 2009 12 19 | 691 | 0.1+ | 0.5+ |
| 2004 02 16 | 691 | 0.2− | 0.2− | 2009 11 20 | 691 | 0.1− | 0.2+ | 2009 12 19 | G96 | 0.1+ | 0.0 |
| 2004 03 16 | 691 | 1.2+ | 0.9+ | 2009 11 20 | 691 | 0.1+ | 0.0 | 2009 12 19 | G96 | 0.3+ | 0.3− |
| 2004 03 16 | 691 | 0.2− | 0.0 | 2009 11 20 | 691 | 1.2− | 0.5− | 2009 12 19 | G96 | 0.4+ | 0.3− |
| 2004 03 16 | 691 | 0.2+ | 0.2− | 2009 11 24 | 691 | 0.9+ | 0.2+ | 2009 12 19 | G96 | 0.4+ | 0.3− |
| 2006 12 24 | 691 | 0.2+ | 0.4− | 2009 11 24 | 691 | 0.1− | 0.2+ | | | | |

**2009 WF$_{28}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 349.91422 | | (2000.0) | | +0.04547902 | −0.99669918 |
| $n$ | 0.21909559 | $\omega$ | 192.65114 | | +0.92249758 | +0.06773335 |
| $a$ | 2.7250865 | $\Omega$ | 254.77168 | | +0.38331433 | −0.04475427 |
| $e$ | 0.1347794 | $i$ | 3.99653 | | | |
| $P$ | 4.50 | $H$ | 17.0 | $G$ 0.15 | $U$ 3 | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 12 16 | 691 | 0.2− | 0.4− | 2006 02 03 | G96 | 0.4− | 0.1+ | 2009 11 20 | 691 | 0.0 | 0.2− |
| 2000 12 16 | 691 | 0.0 | 0.4− | 2009 10 22 | G96 | 0.4+ | 0.3− | 2009 11 24 | 691 | 0.5− | 0.2+ |
| 2000 12 16 | 691 | 0.4+ | 0.2− | 2009 10 22 | G96 | 0.5+ | 0.2− | 2009 11 24 | 691 | 0.1+ | 0.0 |
| 2006 01 30 | 703 | 0.7− | 0.0 | 2009 10 22 | G96 | 0.5+ | 0.3− | 2009 11 24 | 691 | 0.0 | 0.0 |
| 2006 01 30 | 703 | 0.9+ | 0.1− | 2009 10 22 | G96 | 0.6+ | 0.4− | 2009 12 11 | G96 | 0.5− | 0.2+ |
| 2006 01 30 | 703 | 0.4+ | 1.2+ | 2009 11 16 | 691 | 0.1− | 0.0 | 2009 12 11 | G96 | 0.1+ | 0.1+ |
| 2006 01 30 | 703 | 0.5+ | 1.0+ | 2009 11 16 | 691 | 0.6+ | 1.0+ | 2009 12 11 | G96 | 0.0 | 0.1− |
| 2006 02 03 | G96 | 0.9− | 0.5− | 2009 11 16 | 691 | 0.1− | 0.1− | 2009 12 11 | G96 | 0.1− | 0.3− |
| 2006 02 03 | G96 | 0.4− | 0.9− | 2009 11 20 | 691 | 0.2− | 0.1− | | | | |
| 2006 02 03 | G96 | 0.8+ | 0.3− | 2009 11 20 | 691 | 0.3− | 0.4+ | | | | |

**2009 WK$_{28}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 121.73783 | | (2000.0) | | +0.56518824 | +0.82268075 |
| $n$ | 0.30104210 | $\omega$ | 63.13080 | | −0.77950107 | +0.50823645 |
| $a$ | 2.2048780 | $\Omega$ | 241.41743 | | −0.27007469 | +0.25473929 |
| $e$ | 0.0827402 | $i$ | 4.00344 | | | |
| $P$ | 3.27 | $H$ | 17.3 | $G$ 0.15 | $U$ 1 | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 28 | 644 | 0.3− | 0.6+ | 2008 06 23 | 691 | 0.7− | 0.9+ | 2009 11 16 | 691 | 0.1+ | 0.3+ |
| 2002 08 28 | 644 | 0.3− | 0.3+ | 2008 06 23 | 691 | 0.4+ | 0.1+ | 2009 11 16 | 691 | 0.1− | 0.2− |
| 2002 08 28 | 644 | 0.0 | 0.5+ | 2009 09 21 | G96 | 0.1+ | 0.0 | 2009 11 16 | 691 | 0.0 | 0.3− |
| 2004 01 28 | 645 | 0.0 | 0.1+ | 2009 09 21 | G96 | 0.4+ | 0.1+ | 2009 11 20 | 691 | 0.0 | 0.1− |
| 2004 01 28 | 645 | 0.1+ | 0.0 | 2009 09 21 | G96 | 0.3+ | 0.2− | 2009 11 20 | 691 | 0.5− | 0.1− |
| 2006 12 14 | 691 | 0.2− | 0.1+ | 2009 09 21 | G96 | 1.1+ | 0.3+ | 2009 11 20 | 691 | 0.3− | 0.0 |
| 2006 12 14 | 691 | 0.2+ | 0.1− | 2009 10 22 | G96 | 0.0 | 0.1− | 2009 11 24 | 691 | 0.2− | 0.1− |
| 2006 12 14 | 691 | 0.3− | 0.1− | 2009 10 22 | G96 | 0.1+ | 0.3− | 2009 11 24 | 691 | 0.2− | 0.3− |
| 2008 05 08 | G96 | 0.4+ | 0.4+ | 2009 10 22 | G96 | 0.1+ | 0.1+ | 2009 11 24 | 691 | 0.6+ | 0.5+ |
| 2008 05 08 | G96 | 0.5+ | 0.4+ | 2009 10 22 | G96 | 0.3+ | 0.2− | 2009 12 11 | G96 | 0.4+ | 0.0 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 05 08 | G96 | 0.5+ | 0.6+ | 2009 11 08 | 691 | 0.2+ | 0.7+ | 2009 12 11 | G96 | 0.5+ | 0.2− |
| 2008 05 08 | G96 | 0.4+ | 0.4+ | 2009 11 08 | 691 | 0.3− | 0.4− | 2009 12 11 | G96 | 0.6+ | 0.0 |
| 2008 06 23 | 691 | 0.3− | 1.7− | 2009 11 08 | 691 | 0.0 | 0.1− | 2009 12 11 | G96 | 0.6+ | 0.1− |

**2009 WL$_{28}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 40.35229 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23097843 | $\omega$ | 108.99279 | | +0.91005183 | −0.41414454 | |
| $a$ | 2.6308036 | $\Omega$ | 275.47565 | | +0.37356744 | +0.83730130 | |
| $e$ | 0.1129636 | $i$ | 0.98018 | | +0.17959131 | +0.35694653 | |
| $P$ | 4.27 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 08 27 | 807 | 0.1+ | 0.3− | 2009 09 20 | G96 | 0.2+ | 0.2+ | 2009 11 20 | 691 | 0.4− | 0.1+ |
| 2000 08 27 | 807 | 0.0 | 0.0 | 2009 10 22 | G96 | 0.1+ | 0.2+ | 2009 11 20 | 691 | 0.0 | 0.2− |
| 2000 09 27 | 691 | 0.4+ | 0.3+ | 2009 10 22 | G96 | 0.5+ | 0.3+ | 2009 11 23 | J75 | (1.6− | 1.1−) |
| 2000 09 27 | 691 | 0.1− | 0.2− | 2009 10 22 | G96 | 0.2+ | 0.1− | 2009 11 23 | J75 | 0.6− | 1.0− |
| 2000 09 27 | 691 | 0.2− | 0.4− | 2009 10 22 | G96 | 0.2+ | 0.0 | 2009 11 23 | J75 | 1.1+ | 1.0− |
| 2004 08 21 | E12 | 0.5+ | 0.8+ | 2009 11 08 | 691 | 0.3− | 0.2− | 2009 11 24 | 691 | 1.2+ | 1.0+ |
| 2004 08 21 | E12 | 0.4− | 0.5− | 2009 11 08 | 691 | 0.1+ | 0.2− | 2009 11 24 | 691 | 0.2+ | 0.2− |
| 2004 08 21 | E12 | 0.3− | 0.8+ | 2009 11 08 | 691 | 0.1− | 0.2+ | 2009 11 24 | 691 | 0.0 | 0.1+ |
| 2004 08 21 | E12 | 0.1− | 0.0 | 2009 11 16 | 691 | 0.6− | 0.6+ | 2009 12 11 | G96 | 0.1+ | 0.3− |
| 2009 09 20 | G96 | 0.7− | 0.1+ | 2009 11 16 | 691 | 0.3− | 0.1+ | 2009 12 11 | G96 | 0.2+ | 0.1− |
| 2009 09 20 | G96 | 0.2+ | 0.1− | 2009 11 16 | 691 | 0.2− | 0.3− | 2009 12 11 | G96 | 0.2− | 0.4− |
| 2009 09 20 | G96 | 0.2+ | 0.2+ | 2009 11 20 | 691 | 0.1− | 0.1− | 2009 12 11 | G96 | 0.5+ | 0.3− |

**2009 WX$_{28}$ = 2007 ES$_{11}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 307.79170 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28349876 | $\omega$ | 72.28799 | | −0.73828977 | −0.66736692 | |
| $a$ | 2.2949256 | $\Omega$ | 65.72477 | | +0.57107221 | −0.69559314 | |
| $e$ | 0.1006922 | $i$ | 6.15397 | | +0.35889378 | −0.26602928 | |
| $P$ | 3.48 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 10 19 | 691 | 0.1− | 0.1+ | 2007 03 10 | 644 | 0.3+ | 0.2+ | 2009 11 20 | 691 | 0.0 | 0.1+ |
| 1995 10 19 | 691 | 0.4+ | 0.1− | 2007 03 10 | 644 | 0.5+ | 0.1− | 2009 11 20 | 691 | 0.0 | 0.2+ |
| 1995 10 19 | 691 | 0.2− | 0.2− | 2007 03 10 | 644 | 0.1+ | 0.3+ | 2009 11 24 | 691 | 0.8+ | 0.3+ |
| 2007 02 16 | 703 | 0.6− | 0.1− | 2009 11 08 | 691 | 1.0− | 1.3− | 2009 11 24 | 691 | 0.1− | 0.0 |
| 2007 02 16 | 703 | 1.2− | 0.1− | 2009 11 08 | 691 | 0.2+ | 0.1+ | 2009 11 24 | 691 | 0.0 | 0.1+ |
| 2007 02 16 | 703 | 0.3− | 1.3− | 2009 11 08 | 691 | 0.2− | 0.3+ | 2009 12 11 | G96 | 0.2+ | 0.4− |
| 2007 02 16 | 703 | 0.1+ | 0.4+ | 2009 11 16 | 691 | 0.2+ | 0.5+ | 2009 12 11 | G96 | 0.1+ | 0.5− |
| 2007 03 09 | 644 | 0.0 | 0.5+ | 2009 11 16 | 691 | 0.0 | 0.1+ | 2009 12 11 | G96 | 0.3+ | 0.7− |
| 2007 03 09 | 644 | 0.8+ | 0.4+ | 2009 11 16 | 691 | 0.1− | 0.2+ | 2009 12 11 | G96 | 0.2+ | 0.6− |
| 2007 03 09 | 644 | 0.4+ | 0.2− | 2009 11 20 | 691 | 0.1− | 0.1+ | | | | |

**2009 WD$_{29}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 29.24750 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.25460884 | $\omega$ | 331.58778 | | +0.74877877 | −0.65169392 | |
| $a$ | 2.4653981 | $\Omega$ | 69.60425 | | +0.62993142 | +0.64291965 | |
| $e$ | 0.1242983 | $i$ | 7.41321 | | +0.20619592 | +0.40242932 | |
| $P$ | 3.87 | $H$ | 17.9 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 21 | 645 | 0.0 | 0.1+ | 2009 10 30 | G96 | 0.3+ | 0.2− | 2009 11 23 | 300 | (1.8+ | 0.3+) |
| 2001 09 21 | 645 | 0.0 | 0.0 | 2009 10 30 | G96 | 0.3+ | 0.0 | 2009 11 23 | 300 | 0.9+ | 0.2+ |
| 2001 10 14 | 645 | 0.0 | 0.0 | 2009 10 30 | G96 | 0.8+ | 0.0 | 2009 11 24 | 691 | 0.9− | 0.1+ |
| 2001 10 14 | 645 | 0.0 | 0.0 | 2009 11 16 | 691 | 0.7− | 0.2+ | 2009 11 24 | 691 | 0.6− | 0.3+ |
| 2001 11 12 | 645 | 0.1− | 0.0 | 2009 11 16 | 691 | 0.4+ | 0.1+ | 2009 11 24 | 691 | 0.2− | 0.0 |
| 2001 11 12 | 645 | 0.1− | 0.0 | 2009 11 16 | 691 | 0.1+ | 0.2− | 2009 12 15 | G96 | 0.8+ | 0.1+ |
| 2001 11 21 | 645 | 0.0 | 0.1− | 2009 11 20 | 691 | 0.1− | 0.0 | 2009 12 15 | G96 | 0.9+ | 0.4− |
| 2001 11 21 | 645 | 0.2+ | 0.1− | 2009 11 20 | 691 | 0.6+ | 0.1+ | 2009 12 15 | G96 | 1.1+ | 0.4+ |
| 2005 12 04 | G96 | 0.1+ | 0.2+ | 2009 11 20 | 691 | 0.3− | 0.0 | 2009 12 15 | G96 | 0.1+ | 0.0 |
| 2005 12 04 | G96 | 0.6+ | 0.1− | 2009 11 22 | 300 | 0.3− | 1.3− | 2009 12 16 | G96 | 0.6+ | 0.2+ |
| 2005 12 04 | G96 | 0.0 | 0.2− | 2009 11 22 | 300 | 0.4+ | 0.1− | 2009 12 16 | G96 | 0.5+ | 0.3+ |
| 2005 12 04 | G96 | 0.5+ | 0.1− | 2009 11 22 | 300 | 0.9− | 0.4− | 2009 12 16 | G96 | 0.3+ | 0.5+ |
| 2009 10 30 | G96 | 0.7− | 0.0 | 2009 11 23 | 300 | 0.0 | 1.2− | 2009 12 16 | G96 | 0.7+ | 0.3+ |

**2009 WE$_{29}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 46.65053 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.29089942 | $\omega$ | 284.36946 | | +0.92716554 | −0.37354698 | |
| $a$ | 2.2558358 | $\Omega$ | 97.57147 | | +0.35394521 | +0.84817769 | |
| $e$ | 0.1175272 | $i$ | 1.66214 | | +0.12282857 | +0.37557591 | |
| $P$ | 3.39 | $H$ | 18.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 07 09 | 691 | 0.2+ | 0.2− | 2009 10 30 | G96 | 0.8+ | 0.5− | 2009 11 22 | 300 | 0.4− | 0.1+ |
| 2005 07 09 | 691 | 0.2+ | 0.1+ | 2009 10 30 | G96 | 0.6+ | 0.0 | 2009 11 23 | 300 | 1.0+ | 0.4+ |
| 2005 07 09 | 691 | 0.5− | 0.4+ | 2009 10 30 | G96 | 0.4+ | 0.1− | 2009 11 23 | 300 | 0.9+ | 0.3+ |
| 2006 12 21 | 695 | 0.1+ | 0.1+ | 2009 10 30 | G96 | 0.4+ | 0.2+ | 2009 11 23 | 300 | 1.0+ | 0.4+ |
| 2006 12 21 | 695 | 0.3+ | 0.4+ | 2009 11 08 | 691 | 0.3− | 0.1+ | 2009 11 23 | 300 | 1.1+ | 0.1+ |
| 2007 01 25 | 691 | 0.2− | 0.1+ | 2009 11 08 | 691 | 0.4− | 0.1− | 2009 11 23 | 300 | 0.5+ | 0.3− |
| 2007 01 25 | 691 | 0.1− | 0.4+ | 2009 11 08 | 691 | 0.3− | 0.1− | 2009 11 23 | 300 | 0.9+ | 0.7+ |
| 2007 01 25 | 691 | 0.3+ | 0.3− | 2009 11 16 | 691 | 0.8− | 0.2− | 2009 11 23 | 300 | 1.1+ | 0.5− |
| 2007 03 09 | G96 | 0.1+ | 0.1+ | 2009 11 16 | 691 | 0.5+ | 0.0 | 2009 11 23 | 300 | 0.5+ | 0.0 |
| 2007 03 09 | G96 | 0.2− | 0.4+ | 2009 11 16 | 691 | 0.3− | 0.0 | 2009 11 24 | 691 | 0.5− | 0.1− |
| 2007 03 09 | G96 | 0.6+ | 0.2− | 2009 11 20 | 691 | 0.3+ | 0.3− | 2009 11 24 | 691 | 0.6− | 0.2+ |
| 2007 03 09 | G96 | 0.3− | 0.1+ | 2009 11 20 | 691 | 0.2+ | 0.1+ | 2009 11 24 | 691 | 0.4− | 0.3+ |
| 2009 09 22 | G96 | 0.1− | 0.3+ | 2009 11 20 | 691 | 0.3− | 0.1+ | 2009 12 15 | G96 | 0.4+ | 0.2− |
| 2009 09 22 | G96 | 0.1− | 0.4+ | 2009 11 22 | 300 | 0.7+ | 0.7− | 2009 12 15 | G96 | 0.2+ | 0.1− |
| 2009 09 22 | G96 | 0.2− | 0.0 | 2009 11 22 | 300 | 0.5+ | 0.0 | 2009 12 15 | G96 | 0.2+ | 0.0 |
| 2009 09 22 | G96 | 0.4+ | 0.2+ | 2009 11 22 | 300 | 0.7+ | 0.2− | 2009 12 15 | G96 | 0.1+ | 0.2− |

**2009 WL$_{30}$ = 2008 OK$_{14}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 148.81720 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22997206 | $\omega$ | 36.36699 | | +0.17969846 | +0.95778750 | |
| $a$ | 2.6384731 | $\Omega$ | 244.96162 | | −0.95084881 | +0.11063891 | |
| $e$ | 0.0975186 | $i$ | 14.33945 | | −0.25218050 | +0.26533401 | |
| $P$ | 4.29 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 07 27 | 106 | 0.5+ | 0.7+ | 2008 07 31 | G96 | 0.2− | 0.1+ | 2009 11 20 | 691 | 0.1− | 0.1− |
| 2008 07 27 | 106 | 0.2− | 0.1+ | 2008 07 31 | G96 | 0.5+ | 0.2− | 2009 11 20 | 691 | 0.1− | 0.0 |
| 2008 07 28 | 106 | 0.5+ | 0.9− | 2008 07 31 | G96 | 0.0 | 0.1+ | 2009 11 20 | 691 | 0.3− | 0.3− |
| 2008 07 28 | 106 | 0.3+ | 0.2+ | 2009 11 08 | 691 | 0.0 | 0.0 | 2009 12 17 | G96 | 0.5+ | 0.2− |
| 2008 07 30 | 703 | 0.5− | 0.1− | 2009 11 08 | 691 | 0.0 | 0.2+ | 2009 12 17 | G96 | 0.6+ | 0.3+ |
| 2008 07 30 | 703 | 1.0− | 0.2− | 2009 11 08 | 691 | 0.5+ | 0.0 | 2009 12 17 | G96 | 0.2− | 0.1+ |
| 2008 07 30 | 703 | 0.2− | 0.4− | 2009 11 16 | 691 | 0.2+ | 0.1+ | 2009 12 17 | G96 | 0.1− | 0.0 |
| 2008 07 30 | 703 | 0.8+ | 1.0+ | 2009 11 16 | 691 | 0.4− | 0.1+ | | | | |
| 2008 07 31 | G96 | 0.4− | 0.5− | 2009 11 16 | 691 | 0.0 | 0.0 | | | | |

**2009 WV$_{30}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 345.36889 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.29325403 | $\omega$ | 37.18353 | | −0.22174809 | −0.97076111 | |
| $a$ | 2.2437444 | $\Omega$ | 65.79318 | | +0.86866275 | −0.23949282 | |
| $e$ | 0.1603510 | $i$ | 5.78465 | | +0.44300431 | −0.01631119 | |
| $P$ | 3.36 | $H$ | 17.7 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 02 16 | 703 | 0.0 | 0.3+ | 2009 11 08 | 691 | 0.1− | 0.3− | 2009 11 24 | J75 | 0.6+ | 0.3− |
| 2007 02 16 | 703 | 0.1− | 0.5+ | 2009 11 08 | 691 | 0.2+ | 0.2+ | 2009 11 24 | J75 | 1.3+ | 0.3− |
| 2007 02 16 | 703 | 0.2− | 0.1− | 2009 11 16 | 691 | 0.2− | 0.4− | 2009 11 24 | 691 | 0.0 | 0.1+ |
| 2007 02 16 | 703 | 0.7+ | 0.6+ | 2009 11 16 | 691 | 0.1+ | 0.2+ | 2009 11 24 | 691 | 0.0 | 0.0 |
| 2007 03 15 | 703 | 0.3+ | 0.6+ | 2009 11 16 | 691 | 0.1+ | 0.2+ | 2009 11 24 | 691 | 0.1+ | 0.0 |
| 2007 03 15 | 703 | 0.4+ | 0.6− | 2009 11 20 | 691 | 0.0 | 0.2+ | 2009 12 16 | G96 | 0.2+ | 0.3− |
| 2007 03 15 | 703 | 1.1− | 0.2− | 2009 11 20 | 691 | 0.1− | 0.2+ | 2009 12 16 | G96 | 0.2+ | 0.3− |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 03 15 | 703 | 0.1+ | 1.2− | 2009 11 20 | 691 | 1.0− | 0.3+ | 2009 12 16 | G96 | 0.2+ | 0.3− | | |
| 2009 11 08 | 691 | 0.3+ | 0.3− | 2009 11 24 | J75 | 0.3− | 0.0 | | | | | | |

**2009 WD$_{31}$ = 2003 SB$_{380}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | |
|---|---|---|---|---|---|
| $M$ | 19.27923 | (2000.0) | | **P** | **Q** |
| $n$ | 0.18087019 | $\omega$ | 308.67253 | +0.63661831 | −0.77020257 |
| $a$ | 3.0966447 | $\Omega$ | 101.74274 | +0.71927930 | +0.57487912 |
| $e$ | 0.1521577 | $i$ | 2.27096 | +0.27812662 | +0.27622818 |
| $P$ | 5.45 | $H$ | 16.9 $G$ 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 05 24 | 807 | 0.1+ | 0.3+ | 2005 01 18 | 691 | 0.2+ | 0.3+ | 2009 11 24 | 691 | 0.1− | 0.1− |
| 2001 05 24 | 807 | 0.2+ | 0.4+ | 2009 11 16 | 691 | 0.2+ | 0.1+ | 2009 11 24 | 691 | 0.1− | 0.3− |
| 2003 09 26 | 645 | 0.0 | 0.0 | 2009 11 16 | 691 | 0.0 | 0.1+ | 2009 12 17 | G96 | 0.3+ | 0.1− |
| 2003 09 26 | 645 | 0.0 | 0.0 | 2009 11 16 | 691 | 0.1− | 0.1+ | 2009 12 17 | G96 | 0.4+ | 0.0 |
| 2003 09 28 | 645 | 0.0 | 0.1+ | 2009 11 20 | 691 | 0.4− | 0.3+ | 2009 12 17 | G96 | 0.2+ | 0.0 |
| 2003 09 28 | 645 | 0.1− | 0.0 | 2009 11 20 | 691 | 0.1− | 0.1+ | 2009 12 17 | G96 | 0.3+ | 0.1− |
| 2005 01 18 | 691 | 0.3− | 0.2− | 2009 11 20 | 691 | 0.3+ | 0.2+ | | | | |
| 2005 01 18 | 691 | 0.2+ | 0.0 | 2009 11 24 | 691 | 0.0 | 0.4− | | | | |

**2009 WM$_{31}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | |
|---|---|---|---|---|---|
| $M$ | 24.22473 | (2000.0) | | **P** | **Q** |
| $n$ | 0.17265871 | $\omega$ | 231.16223 | +0.71529832 | −0.69881568 |
| $a$ | 3.1940648 | $\Omega$ | 173.16879 | +0.64681420 | +0.66085752 |
| $e$ | 0.1461788 | $i$ | 1.07254 | +0.26453679 | +0.27372246 |
| $P$ | 5.71 | $H$ | 16.1 $G$ 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 21 | 691 | 0.2− | 0.1− | 2008 07 30 | G96 | 0.0 | 0.2− | 2009 11 24 | 691 | 0.0 | 0.1+ |
| 2003 10 21 | 691 | 0.2− | 0.3+ | 2008 07 30 | G96 | 0.1− | 0.3− | 2009 11 24 | 691 | 0.2− | 0.2+ |
| 2003 10 21 | 691 | 0.1+ | 0.2− | 2009 09 20 | G96 | 0.4+ | 0.2− | 2009 11 24 | 691 | 0.0 | 0.1− |
| 2003 11 30 | 691 | 0.5+ | 0.1− | 2009 09 20 | G96 | 0.3+ | 0.3− | 2009 12 09 | J75 | 0.2+ | 0.2+ |
| 2003 11 30 | 691 | 0.1+ | 0.2− | 2009 09 20 | G96 | 0.8+ | 0.2+ | 2009 12 09 | J75 | 0.7+ | 0.9− |
| 2003 11 30 | 691 | 0.3− | 0.3+ | 2009 09 20 | G96 | 0.2− | 0.0 | 2009 12 09 | J75 | 0.9+ | 0.2− |
| 2005 03 08 | G96 | 0.0 | 0.3− | 2009 11 16 | 691 | 0.2− | 0.2+ | 2009 12 15 | G96 | 0.4+ | 0.0 |
| 2005 03 08 | G96 | 0.3+ | 0.1+ | 2009 11 16 | 691 | 0.5− | 0.6− | 2009 12 15 | G96 | 0.7+ | 1.1+ |
| 2005 03 08 | G96 | 0.0 | 0.1+ | 2009 11 16 | 691 | 0.1+ | 0.1+ | 2009 12 15 | G96 | 0.2+ | 0.5− |
| 2005 03 08 | G96 | 0.3− | 0.2− | 2009 11 20 | 691 | 0.0 | 0.0 | 2009 12 15 | G96 | 0.4− | 0.4− |
| 2008 07 30 | G96 | 0.2+ | 0.0 | 2009 11 20 | 691 | 0.2− | 0.1+ | | | | |
| 2008 07 30 | G96 | 0.1+ | 0.2+ | 2009 11 20 | 691 | 0.1− | 0.1+ | | | | |

**2009 WZ$_{31}$ = 2007 HG$_{25}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | |
|---|---|---|---|---|---|
| $M$ | 18.42635 | (2000.0) | | **P** | **Q** |
| $n$ | 0.21140911 | $\omega$ | 335.94515 | +0.53230564 | −0.84114308 |
| $a$ | 2.7907456 | $\Omega$ | 81.76585 | +0.79150994 | +0.45448235 |
| $e$ | 0.0585401 | $i$ | 5.54003 | +0.30027107 | +0.29312816 |
| $P$ | 4.66 | $H$ | 17.0 $G$ 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 02 01 | 691 | 0.4− | 0.2− | 2007 04 22 | 691 | 0.3− | 0.2− | 2009 11 24 | 691 | 0.4− | 0.0 |
| 2006 02 01 | 691 | 0.4+ | 0.0 | 2009 11 16 | 691 | 0.1− | 0.3− | 2009 11 24 | 691 | 0.3− | 0.0 |
| 2006 02 01 | 691 | 0.0 | 0.3+ | 2009 11 16 | 691 | 0.1+ | 0.1+ | 2009 12 15 | G96 | 1.0+ | 0.4+ |
| 2007 04 18 | 691 | 0.3+ | 0.1+ | 2009 11 16 | 691 | 0.2+ | 0.2+ | 2009 12 15 | G96 | 0.3+ | 0.2+ |
| 2007 04 18 | 691 | 0.3− | 0.2− | 2009 11 20 | 691 | 0.5− | 0.3+ | 2009 12 15 | G96 | 1.2+ | 0.3− |
| 2007 04 18 | 691 | 0.2− | 0.2− | 2009 11 20 | 691 | 0.2+ | 0.1− | 2009 12 15 | G96 | 1.2+ | 0.1+ |
| 2007 04 22 | 691 | 0.1+ | 0.1− | 2009 11 20 | 691 | 0.1+ | 0.0 | | | | |
| 2007 04 22 | 691 | 0.3+ | 0.3+ | 2009 11 24 | 691 | 0.3− | 0.3− | | | | |

**2009 WC$_{32}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | |
|---|---|---|---|---|---|
| $M$ | 47.66743 | (2000.0) | | **P** | **Q** |
| $n$ | 0.27755869 | $\omega$ | 154.36779 | +0.91230842 | −0.40515354 |
| $a$ | 2.3275526 | $\Omega$ | 229.66457 | +0.36099294 | +0.86432354 |
| $e$ | 0.1079466 | $i$ | 4.47921 | +0.19333245 | +0.29798561 |
| $P$ | 3.55 | $H$ | 18.1 $G$ 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 08 29 | 691 | 0.1− | 0.1− | 2009 11 16 | 691 | 0.1+ | 0.1− | 2009 11 24 | 691 | 0.1− | 0.0 |
| 2005 08 29 | 691 | 0.0 | 0.2+ | 2009 11 16 | 691 | 0.3+ | 0.1+ | 2009 12 11 | G96 | 0.2+ | 0.5+ |
| 2005 08 29 | 691 | 0.0 | 0.2+ | 2009 11 20 | 691 | 0.1+ | 0.4− | 2009 12 11 | G96 | 0.2+ | 0.2+ |
| 2005 09 27 | 691 | 0.1+ | 0.3− | 2009 11 20 | 691 | 0.1− | 0.2− | 2009 12 11 | G96 | 0.3+ | 0.5+ |
| 2005 09 27 | 691 | 0.0 | 0.1− | 2009 11 20 | 691 | 0.8− | 0.2− | 2009 12 11 | G96 | 0.3+ | 0.4+ |
| 2005 09 27 | 691 | 0.1− | 0.1+ | 2009 11 24 | 691 | 0.1+ | 0.1− | | | | |
| 2009 11 16 | 691 | 0.4− | 0.3+ | 2009 11 24 | 691 | 0.6+ | 0.2+ | | | | |

**2009 WE$_{32}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | |
|---|---|---|---|---|---|
| $M$ | 94.41527 | (2000.0) | | **P** | **Q** |
| $n$ | 0.19991015 | $\omega$ | 238.62582 | +0.94744458 | +0.31491770 |
| $a$ | 2.8967620 | $\Omega$ | 102.96707 | −0.27036535 | +0.88233703 |
| $e$ | 0.0248755 | $i$ | 3.31510 | −0.17103024 | +0.34972590 |
| $P$ | 4.93 | $H$ | 17.0 $G$ 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 11 29 | 691 | 0.1+ | 0.2− | 2007 06 14 | 691 | 0.1− | 0.4+ | 2009 11 24 | 691 | 0.0 | 0.2+ |
| 1999 11 29 | 691 | 0.2+ | 0.0 | 2007 06 14 | 691 | 0.1− | 0.1+ | 2009 11 24 | 691 | 0.2+ | 0.0 |
| 1999 11 29 | 691 | 0.2− | 0.1− | 2007 06 14 | 691 | 0.3+ | 0.1+ | 2009 11 24 | 691 | 0.6+ | 0.4+ |
| 2006 01 31 | 691 | 0.2− | 0.6+ | 2009 11 16 | 691 | 0.4− | 0.2+ | 2009 12 11 | G96 | 1.1+ | 0.1+ |
| 2006 01 31 | 691 | 0.1+ | 0.6− | 2009 11 16 | 691 | 0.5− | 0.0 | 2009 12 11 | G96 | 1.1+ | 0.3− |
| 2006 01 31 | 691 | 0.2+ | 0.2− | 2009 11 16 | 691 | 1.5− | 0.1+ | 2009 12 11 | G96 | 1.1+ | 0.4− |
| 2006 02 04 | 691 | 0.3+ | 0.2− | 2009 11 20 | 691 | 0.1+ | 0.1− | 2009 12 11 | G96 | 1.1+ | 0.2+ |
| 2006 02 04 | 691 | 0.3− | 0.1+ | 2009 11 20 | 691 | 0.1− | 0.2+ | | | | |
| 2006 02 04 | 691 | 0.2− | 0.3+ | 2009 11 20 | 691 | 0.3+ | 0.0 | | | | |

**2009 WM$_{32}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | |
|---|---|---|---|---|---|
| $M$ | 61.95534 | (2000.0) | | **P** | **Q** |
| $n$ | 0.08291929 | $\omega$ | 235.23429 | +0.95344523 | +0.27371421 |
| $a$ | 5.2083360 | $\Omega$ | 108.59169 | −0.21408214 | +0.90996609 |
| $e$ | 0.0904899 | $i$ | 7.67480 | −0.21239360 | +0.31151605 |
| $P$ | 11.89 | $H$ | 13.1 $G$ 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 09 11 | 809 | 0.3− | 0.7+ | 2008 10 27 | G96 | 0.3+ | 0.0 | 2009 11 16 | G96 | 0.1+ | 0.2− |
| 2008 10 08 | 703 | (0.4+ | 1.7+) | 2008 10 27 | G96 | 0.4+ | 0.3− | 2009 11 16 | G96 | 0.4− | 0.2− |
| 2008 10 08 | 703 | 0.0 | 0.4− | 2009 10 14 | G96 | 0.2+ | 0.0 | 2009 11 16 | G96 | 0.3− | 0.4− |
| 2008 10 08 | 703 | (2.0− | 0.6−) | 2009 10 14 | G96 | 0.2− | 0.1+ | 2009 11 19 | J75 | 0.2− | 0.3+ |
| 2008 10 08 | 703 | 0.8− | 0.1+ | 2009 10 14 | G96 | 0.1− | 0.3+ | 2009 11 19 | J75 | 0.1+ | 0.7+ |
| 2008 10 27 | G96 | 0.3+ | 0.3− | 2009 10 14 | G96 | 0.2+ | 0.1− | 2009 11 19 | J75 | 0.3+ | 0.2− |
| 2008 10 27 | G96 | 0.2+ | 0.0 | 2009 11 16 | G96 | 0.0 | 0.1− | | | | |

**2009 WT$_{32}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | |
|---|---|---|---|---|---|
| $M$ | 84.57845 | (2000.0) | | **P** | **Q** |
| $n$ | 0.24146283 | $\omega$ | 90.98872 | +0.91407673 | +0.38999584 |
| $a$ | 2.5540880 | $\Omega$ | 246.06433 | −0.40333211 | +0.84566566 |
| $e$ | 0.1602737 | $i$ | 6.98851 | −0.04227227 | +0.36435261 |
| $P$ | 4.08 | $H$ | 17.1 $G$ 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 25 | 691 | 0.0 | 0.1+ | 2009 11 08 | G96 | 0.1+ | 0.4+ | 2009 11 27 | G96 | 0.2+ | 0.1− |
| 2005 12 25 | 691 | 0.1− | 0.1− | 2009 11 16 | 691 | 0.1− | 0.1+ | 2009 11 27 | G96 | 0.3+ | 0.1− |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 25 | 691 | 0.1+ | 0.0 | 2009 11 16 | 691 | 0.1+ | 0.1+ | 2009 11 27 | G96 | 0.1+ | 0.2− |
| 2007 03 14 | G96 | 1.1− | 0.3+ | 2009 11 16 | 691 | 0.1− | 0.4− | 2009 11 27 | G96 | 0.1− | 0.4− |
| 2007 03 14 | G96 | 0.3− | 0.0 | 2009 11 20 | 691 | 0.1+ | 0.5+ | 2009 11 27 | G96 | 0.2+ | 0.1+ |
| 2007 03 14 | G96 | 0.5+ | 0.0 | 2009 11 20 | 691 | 0.0 | 0.3− | 2009 12 11 | G96 | 0.5+ | 0.4− |
| 2007 03 14 | G96 | 0.9+ | 0.3− | 2009 11 20 | 691 | 0.1− | 0.1− | 2009 12 11 | G96 | 0.5+ | 0.1+ |
| 2009 11 08 | G96 | 0.3+ | 0.1+ | 2009 11 24 | 691 | 0.4− | 0.1− | 2009 12 11 | G96 | 0.1− | 0.4+ |
| 2009 11 08 | G96 | 0.1+ | 0.1+ | 2009 11 24 | 691 | 0.2− | 0.0 | 2009 12 11 | G96 | 0.3+ | 0.1− |
| 2009 11 08 | G96 | 0.6+ | 0.1+ | 2009 11 24 | 691 | 0.1− | 0.1+ | | | | |

### 2009 WW$_{32}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 16.18151 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.25635211 | $\omega$ | 350.43416 | | +0.49651193 | −0.86156298 | |
| $a$ | 2.4542085 | $\Omega$ | 69.73072 | | +0.80366887 | +0.41023204 | |
| $e$ | 0.2119512 | $i$ | 6.47336 | | +0.32801258 | +0.29902994 | |
| $P$ | 3.84 | $H$ | 18.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 01 | G96 | 0.0 | 0.2− | 2009 11 16 | 691 | 0.1− | 0.1+ | 2009 11 24 | 691 | 0.2− | 0.0 |
| 2005 12 01 | G96 | 0.1+ | 0.1− | 2009 11 16 | 691 | 0.3− | 0.3− | 2009 11 24 | 691 | 0.1+ | 0.1− |
| 2005 12 01 | G96 | 0.2+ | 0.0 | 2009 11 16 | 691 | 0.0 | 0.0 | 2009 12 10 | G96 | 0.2+ | 0.0 |
| 2005 12 01 | G96 | 0.2− | 0.2+ | 2009 11 20 | 691 | 0.1− | 0.0 | 2009 12 10 | G96 | 0.3+ | 0.2− |
| 2009 11 08 | 691 | 0.5+ | 0.5− | 2009 11 20 | 691 | 0.1− | 0.2+ | 2009 12 10 | G96 | 0.3+ | 0.0 |
| 2009 11 08 | 691 | 0.1− | 0.6+ | 2009 11 20 | 691 | 0.0 | 0.0 | 2009 12 10 | G96 | 0.2+ | 0.1+ |
| 2009 11 08 | 691 | 0.1− | 0.0 | 2009 11 24 | 691 | 0.1+ | 0.0 | | | | |

### 2009 WY$_{32}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 359.36627 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.25997765 | $\omega$ | 14.75413 | | +0.10224967 | −0.99249482 | |
| $a$ | 2.4313382 | $\Omega$ | 69.41243 | | +0.90526136 | +0.06488692 | |
| $e$ | 0.1070598 | $i$ | 4.10880 | | +0.41236740 | +0.10365187 | |
| $P$ | 3.79 | $H$ | 17.4 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 25 | 691 | 0.3− | 0.1+ | 2005 12 31 | G96 | 1.4+ | 0.4+ | 2009 11 16 | 691 | 0.3+ | 0.0 |
| 2005 10 25 | 691 | 0.4− | 0.1+ | 2007 03 15 | 691 | 0.3+ | 0.0 | 2009 11 20 | 691 | 0.6− | 0.1− |
| 2005 10 25 | 691 | 0.0 | 0.1+ | 2007 03 15 | 691 | 0.1− | 0.1− | 2009 11 20 | 691 | 0.3− | 0.3− |
| 2005 11 05 | 699 | 1.5+ | 0.0 | 2007 03 15 | 691 | 0.0 | 0.5+ | 2009 11 20 | 691 | 0.6− | 0.0 |
| 2005 11 05 | 699 | 0.6+ | 0.0 | 2007 04 25 | G96 | 0.2− | 0.2+ | 2009 12 10 | G96 | 0.0 | 0.0 |
| 2005 11 05 | 699 | 0.3− | 0.2+ | 2007 04 25 | G96 | 0.1− | 0.5− | 2009 12 10 | G96 | 0.7− | 0.4− |
| 2005 11 05 | 699 | 0.1− | 0.5+ | 2007 04 25 | G96 | 0.1+ | 0.3− | 2009 12 10 | G96 | 0.5+ | 0.0 |
| 2005 11 30 | G96 | 0.1+ | 0.3− | 2007 04 25 | G96 | (1.9+ | 0.3−) | 2009 12 10 | G96 | 0.5+ | 0.0 |
| 2005 11 30 | G96 | 0.2− | 0.2− | 2009 10 16 | G96 | 0.4+ | 0.2+ | 2009 12 15 | G96 | 0.6+ | 0.0 |
| 2005 11 30 | G96 | 0.4− | 0.6− | 2009 10 16 | G96 | 0.2+ | 0.0 | 2009 12 15 | G96 | 0.2+ | 0.2+ |
| 2005 11 30 | G96 | 0.3− | 0.3− | 2009 10 16 | G96 | 0.2+ | 0.5+ | 2009 12 15 | G96 | 0.2+ | 0.1+ |
| 2005 12 31 | G96 | 0.3− | 0.2+ | 2009 10 16 | G96 | 0.4+ | 0.1+ | 2009 12 15 | G96 | 0.4+ | 0.2− |
| 2005 12 31 | G96 | 0.3− | 0.2+ | 2009 11 16 | 691 | 0.2+ | 0.1+ | | | | |
| 2005 12 31 | G96 | 0.4+ | 0.0 | 2009 11 16 | 691 | 0.3+ | 0.0 | | | | |

### 2009 WM$_{33}$ = 2008 TB$_{38}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 279.43877 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17105094 | $\omega$ | 294.83835 | | −0.99487942 | −0.07852622 | |
| $a$ | 3.2140483 | $\Omega$ | 240.71390 | | +0.09640002 | −0.92640636 | |
| $e$ | 0.1113008 | $i$ | 4.18360 | | −0.03036415 | −0.36824570 | |
| $P$ | 5.76 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 12 21 | 691 | 0.0 | 0.1− | 2008 09 04 | 691 | 0.1+ | 0.5+ | 2009 11 16 | 691 | 0.1− | 0.0 |
| 2003 12 21 | 691 | 0.4− | 0.1− | 2008 09 04 | 691 | 0.4− | 0.3+ | 2009 11 16 | 691 | 0.1+ | 0.3− |
| 2003 12 21 | 691 | 0.1− | 0.2+ | 2008 09 04 | 691 | 0.3− | 0.5+ | 2009 11 16 | 691 | 0.7− | 0.4− |
| 2005 02 14 | 691 | 0.1+ | 0.0 | 2008 10 01 | G96 | 0.6+ | 0.1− | 2009 11 20 | 691 | 0.0 | 0.5+ |
| 2005 02 14 | 691 | 0.2+ | 0.0 | 2008 10 01 | G96 | 0.8+ | 0.1− | 2009 11 20 | 691 | 0.3+ | 0.2+ |
| 2005 02 14 | 691 | 0.1+ | 0.0 | 2008 10 01 | G96 | 0.3+ | 0.1+ | 2009 11 20 | 691 | 0.1− | 0.2+ |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 03 17 | G96 | 0.2− | 0.1+ | 2008 10 01 | G96 | 0.3+ | 0.4− | 2009 11 24 | 691 | 0.4− | 0.3+ |
| 2005 03 17 | G96 | 0.0 | 0.1− | 2008 10 08 | G96 | 0.5+ | 0.2+ | 2009 11 24 | 691 | 0.6− | 0.0 |
| 2005 03 17 | G96 | 0.0 | 0.2+ | 2008 10 08 | G96 | 0.6+ | 0.2+ | 2009 11 24 | 691 | 0.4+ | 0.0 |
| 2005 03 17 | G96 | 0.0 | 0.1− | 2008 10 08 | G96 | 0.5+ | 0.1− | 2009 12 10 | G96 | 1.2+ | 0.1+ |
| 2006 05 07 | G96 | 0.4− | 0.5+ | 2008 10 08 | G96 | 0.5+ | 0.1− | 2009 12 10 | G96 | 0.6+ | 0.2− |
| 2006 05 07 | G96 | 0.1+ | 0.3+ | 2008 10 17 | 691 | 0.1+ | 0.6− | 2009 12 10 | G96 | 0.9+ | 0.2− |
| 2006 05 07 | G96 | 0.1+ | 0.4+ | 2008 10 17 | 691 | 0.0 | 0.2− | | | | |
| 2006 05 07 | G96 | 0.5− | 0.2+ | 2008 10 17 | 691 | 0.0 | 0.1− | | | | |

### 2009 WY$_{34}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 45.17523 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17513589 | $\omega$ | 313.35815 | | +0.38060661 | −0.90988695 | |
| $a$ | 3.1638747 | $\Omega$ | 113.59377 | | +0.89197080 | +0.31413192 | |
| $e$ | 0.0653817 | $i$ | 10.37647 | | +0.24398096 | +0.27097394 | |
| $P$ | 5.63 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 01 28 | 691 | 0.1− | 0.1− | 2008 11 19 | 703 | 0.6+ | 1.3+ | 2009 12 15 | G96 | 0.6+ | 0.2+ |
| 2004 01 28 | 691 | 0.1+ | 0.1− | 2008 11 19 | 703 | 1.0+ | 1.3+ | 2009 12 15 | G96 | 0.3+ | 0.2− |
| 2004 01 28 | 691 | 0.1+ | 0.1− | 2008 11 19 | 703 | 0.6− | 0.4+ | 2009 12 15 | G96 | 0.1− | 0.0 |
| 2006 05 23 | 691 | 0.2+ | 0.6+ | 2009 10 30 | G96 | 0.0 | 0.3+ | 2009 12 15 | G96 | 0.0 | 0.0 |
| 2006 05 23 | 691 | 0.1+ | 0.5+ | 2009 10 30 | G96 | 0.3− | 0.3+ | 2009 12 17 | 691 | 0.2− | 0.0 |
| 2006 05 23 | 691 | 0.2+ | 0.4+ | 2009 10 30 | G96 | 0.9+ | 0.4+ | 2009 12 17 | 691 | 0.2− | 0.1+ |
| 2008 10 07 | G96 | 0.7− | 0.1+ | 2009 10 30 | G96 | 0.5+ | 0.1− | 2009 12 17 | 691 | 0.0 | 0.2+ |
| 2008 10 07 | G96 | 0.8− | 0.1− | 2009 11 16 | G96 | 0.2+ | 0.0 | 2009 12 19 | F84 | 0.3+ | 0.5− |
| 2008 10 07 | G96 | 0.7− | 0.1+ | 2009 11 16 | G96 | 0.1+ | 0.4− | 2009 12 19 | F84 | 0.1+ | 0.1− |
| 2008 10 07 | G96 | 0.2− | 0.3+ | 2009 11 16 | G96 | 0.1− | 0.1− | 2009 12 19 | F84 | 0.9+ | 0.4− |
| 2008 10 26 | G96 | 0.2+ | 0.2− | 2009 11 16 | G96 | 0.2+ | 0.3− | 2009 12 25 | 691 | 0.5− | 0.5+ |
| 2008 10 26 | G96 | 0.0 | 0.2− | 2009 11 21 | G96 | 0.3+ | 0.0 | 2009 12 25 | 691 | 0.2− | 0.1+ |
| 2008 10 26 | G96 | 0.1− | 0.1− | 2009 11 21 | G96 | 0.4+ | 0.5+ | 2009 12 25 | 691 | 0.0 | 0.1+ |
| 2008 10 26 | G96 | 0.2− | 0.1− | 2009 11 21 | G96 | 0.2+ | 0.0 | | | | |
| 2008 11 19 | 703 | 0.6− | 2.1+ | 2009 11 21 | G96 | 0.5+ | 0.3+ | | | | |

### 2009 WD$_{35}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 313.88898 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27743063 | $\omega$ | 252.10022 | | −0.53819343 | −0.83800863 | |
| $a$ | 2.3282688 | $\Omega$ | 230.79995 | | +0.81053742 | −0.48537015 | |
| $e$ | 0.0645046 | $i$ | 6.66484 | | +0.23103446 | −0.24931375 | |
| $P$ | 3.55 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 03 07 | 807 | 0.0 | 0.2+ | 2009 09 21 | G96 | 0.6+ | 0.1− | 2009 11 20 | G96 | 0.2+ | 0.0 |
| 2000 03 07 | 807 | 0.3− | 0.4+ | 2009 10 14 | 291 | 0.2− | 0.1− | 2009 11 20 | G96 | 0.2+ | 0.2− |
| 2000 03 07 | 807 | 0.4+ | 0.3+ | 2009 10 14 | 291 | 0.3− | 0.5+ | 2009 11 23 | G96 | 0.3+ | 0.1− |
| 2002 12 03 | 644 | 0.2+ | 0.7− | 2009 10 14 | 291 | 0.3− | 0.0 | 2009 11 23 | G96 | 0.5+ | 0.0 |
| 2002 12 03 | 644 | 0.3+ | 0.5− | 2009 10 24 | 691 | 0.4− | 0.1− | 2009 11 23 | G96 | 0.2+ | 0.1− |
| 2002 12 03 | 644 | (0.6+ | 1.9+) | 2009 10 24 | 691 | 0.2− | 0.1+ | 2009 11 23 | G96 | 0.4+ | 0.2− |
| 2002 12 10 | 644 | 0.1− | 0.1− | 2009 10 24 | 691 | 0.8− | 0.1− | 2009 11 23 | J75 | 0.7+ | 0.6+ |
| 2002 12 10 | 644 | 0.3+ | 0.0 | 2009 11 08 | 691 | 0.0 | 0.0 | 2009 11 23 | J75 | 0.7+ | 0.4+ |
| 2002 12 10 | 644 | 0.5− | 0.3− | 2009 11 08 | 691 | 0.3− | 0.2+ | 2009 11 23 | J75 | 0.7+ | 0.0 |
| 2004 05 21 | 691 | 0.0 | 0.1+ | 2009 11 08 | 691 | 0.4+ | 1.4+ | 2009 12 19 | G96 | 0.3+ | 0.2− |
| 2004 05 21 | 691 | 0.2+ | 0.3+ | 2009 11 16 | J75 | 0.1− | 0.2− | 2009 12 19 | G96 | 0.0 | 0.2− |
| 2004 05 21 | 691 | 0.0 | 0.4+ | 2009 11 16 | J75 | 0.1+ | 0.7− | 2009 12 19 | G96 | 0.2+ | 0.5− |
| 2009 09 21 | G96 | 0.0 | 0.4− | 2009 11 16 | J75 | 0.3+ | 0.4− | 2009 12 19 | G96 | 0.3+ | 0.2− |
| 2009 09 21 | G96 | 0.2+ | 0.0 | 2009 11 20 | G96 | 0.7+ | 0.1+ | | | | |
| 2009 09 21 | G96 | 0.5+ | 0.0 | 2009 11 20 | G96 | 0.4+ | 0.2+ | | | | |

**2009 WK$_{35}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 317.66852 | | (2000.0) | | | |
| $n$ | 0.18314252 | $\omega$ | 256.10055 | | −0.21039377 | −0.97192913 |
| $a$ | 3.0709772 | $\Omega$ | 206.75632 | | +0.96273552 | −0.18726373 |
| $e$ | 0.1811139 | $i$ | 13.52674 | | +0.16992579 | −0.14242917 |
| $P$ | 5.38 | $H$ | 15.9 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 08 23 | 644 | 0.0 | 0.1+ | 2009 09 28 | 691 | 0.6− | 0.3− | 2009 11 09 | 703 | 0.5+ | 0.1+ |
| 2003 08 23 | 644 | 0.0 | 0.1+ | 2009 10 13 | J75 | 0.6+ | 0.7+ | 2009 11 09 | 703 | 0.9+ | 0.2+ |
| 2003 08 23 | 644 | 0.1+ | 0.2+ | 2009 10 13 | J75 | 0.6+ | 0.0 | 2009 11 17 | 691 | 0.1+ | 0.7+ |
| 2003 10 17 | 645 | 0.0 | 0.0 | 2009 10 13 | J75 | 0.4− | 0.1+ | 2009 11 17 | 691 | 0.0 | 0.1− |
| 2003 10 17 | 645 | 0.0 | 0.0 | 2009 10 21 | 703 | 1.7− | 0.4− | 2009 11 17 | 691 | 0.4− | 0.1− |
| 2009 09 16 | 691 | 0.1− | 0.1+ | 2009 10 21 | 703 | 0.1+ | 0.3− | 2009 11 20 | 691 | 0.3− | 0.6− |
| 2009 09 16 | 691 | 0.5+ | 0.1+ | 2009 10 21 | 703 | 1.0+ | 0.7+ | 2009 11 20 | 691 | 0.3− | 0.2− |
| 2009 09 16 | 691 | 0.2− | 0.1− | 2009 10 21 | 703 | 1.9+ | 0.8+ | 2009 11 20 | 691 | 0.2+ | 0.0 |
| 2009 09 28 | 691 | 0.0 | 0.1− | 2009 11 09 | 703 | (0.0 | 2.8−) | | | | |
| 2009 09 28 | 691 | 0.1− | 0.1− | 2009 11 09 | 703 | 1.0+ | 0.7+ | | | | |

**2009 WY$_{35}$ = 2005 UY$_{87}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 264.30747 | | (2000.0) | | | |
| $n$ | 0.24357658 | $\omega$ | 115.32659 | | −0.87741173 | −0.45763648 |
| $a$ | 2.5392904 | $\Omega$ | 37.90903 | | +0.31072572 | −0.77070853 |
| $e$ | 0.1001694 | $i$ | 13.54841 | | +0.36551084 | −0.44337029 |
| $P$ | 4.05 | $H$ | 16.9 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1993 12 13 | 691 | 0.5− | 0.4− | 2005 10 22 | 691 | 0.3+ | 0.2− | 2009 11 17 | 691 | 0.0 | 0.5− |
| 1993 12 13 | 691 | 0.3+ | 0.2+ | 2005 10 27 | 691 | 0.1+ | 0.2+ | 2009 11 17 | 691 | 0.0 | 0.1− |
| 1993 12 13 | 691 | 0.2− | 0.2− | 2005 10 27 | 691 | 0.2+ | 0.2− | 2009 11 17 | 691 | 0.5− | 0.1− |
| 1997 11 08 | 910 | 1.9+ | 0.7+ | 2005 10 27 | 691 | 0.0 | 0.1− | 2009 11 20 | 691 | 0.1+ | 0.1+ |
| 1997 11 08 | 910 | 1.8+ | 0.4+ | 2005 12 05 | G96 | 1.4+ | 0.5+ | 2009 11 20 | 691 | 0.3+ | 0.2− |
| 1997 11 08 | 910 | 1.9+ | 0.5+ | 2005 12 05 | G96 | 0.0 | 0.1+ | 2009 11 20 | 691 | 0.0 | 0.0 |
| 2001 11 11 | 691 | 1.2− | 0.3− | 2005 12 05 | G96 | 0.3+ | 0.5− | 2009 11 26 | 691 | 0.2− | 0.1+ |
| 2001 11 11 | 691 | 0.7− | 0.2+ | 2005 12 05 | G96 | (1.5− | 2.3+) | 2009 11 26 | 691 | 0.2− | 0.1− |
| 2001 11 11 | 691 | 0.5− | 0.2+ | 2009 09 27 | 691 | 0.0 | 0.1+ | 2009 11 26 | 691 | 0.0 | 0.1+ |
| 2005 10 22 | 691 | 0.6+ | 0.4+ | 2009 09 27 | 691 | 0.1+ | 0.2+ | | | | |
| 2005 10 22 | 691 | 0.3+ | 0.4+ | 2009 09 27 | 691 | 0.2− | 0.3− | | | | |

**2009 WB$_{36}$ = 2007 DT$_{92}$ = 2007 DU$_{114}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 339.18047 | | (2000.0) | | | |
| $n$ | 0.26991319 | $\omega$ | 315.74407 | | +0.10477745 | −0.99418642 |
| $a$ | 2.3713008 | $\Omega$ | 128.22584 | | +0.92097145 | +0.08759077 |
| $e$ | 0.1531541 | $i$ | 1.80908 | | +0.37527759 | +0.06261957 |
| $P$ | 3.65 | $H$ | 18.2 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 01 27 | G96 | 0.5+ | 0.4+ | 2007 03 11 | G96 | 0.1− | 0.4− | 2009 11 08 | 691 | 0.1+ | 0.2− |
| 2007 01 27 | G96 | 0.5− | 0.3+ | 2007 03 11 | G96 | 1.0− | 0.6− | 2009 11 08 | 691 | 0.1+ | 0.2+ |
| 2007 01 27 | G96 | 0.2+ | 0.3− | 2009 09 19 | 691 | 0.1+ | 0.4+ | 2009 11 08 | 691 | 0.2+ | 0.0 |
| 2007 01 27 | G96 | 0.3+ | 0.3− | 2009 09 19 | 691 | 0.1+ | 0.2− | 2009 11 11 | 691 | 0.0 | 0.6− |
| 2007 02 23 | 691 | 0.0 | 0.3− | 2009 09 19 | 691 | 0.2+ | 0.2− | 2009 11 11 | 691 | 0.2+ | 0.3− |
| 2007 02 23 | 691 | 0.1+ | 0.0 | 2009 09 27 | 691 | 0.2− | 0.1− | 2009 11 11 | 691 | 0.1+ | 0.5+ |
| 2007 02 23 | 691 | 0.1− | 0.0 | 2009 09 27 | 691 | 0.5− | 0.3− | 2009 11 17 | 691 | 0.1+ | 0.2− |
| 2007 02 27 | 691 | 0.2+ | 0.0 | 2009 09 27 | 691 | 0.3+ | 0.1+ | 2009 11 17 | 691 | 0.3− | 0.2+ |
| 2007 02 27 | 691 | 0.2− | 0.3+ | 2009 10 22 | G96 | 0.6+ | 0.0 | 2009 11 17 | 691 | 1.4− | 0.6+ |
| 2007 02 27 | 691 | 0.1+ | 0.3+ | 2009 10 22 | G96 | 0.2+ | 0.0 | 2009 11 20 | 691 | 0.2+ | 0.1+ |
| 2007 03 11 | G96 | 0.0 | 0.6− | 2009 10 22 | G96 | 0.4+ | 0.1− | 2009 11 20 | 691 | 0.4+ | 0.0 |
| 2007 03 11 | G96 | 0.2+ | 0.6− | 2009 10 22 | G96 | 0.1− | 0.0 | 2009 11 20 | 691 | 0.0 | 0.2− |

**2009 WG$_{36}$ = 2008 PL**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 80.95191 | | (2000.0) | | | |
| $n$ | 0.17984916 | $\omega$ | 81.67036 | | +0.91982936 | +0.35546638 |
| $a$ | 3.1083537 | $\Omega$ | 257.38125 | | −0.39208747 | +0.84745947 |
| $e$ | 0.0818724 | $i$ | 9.79444 | | +0.01346720 | +0.39427921 |
| $P$ | 5.48 | $H$ | 15.2 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 20 | 644 | 0.8− | 0.0 | 2008 08 01 | 704 | 0.8+ | 0.4+ | 2009 11 21 | 691 | 0.1− | 0.1− |
| 2003 09 20 | 644 | 0.4− | 0.0 | 2008 08 01 | 704 | 0.1+ | 0.0 | 2009 11 25 | 691 | 0.2+ | 0.1− |
| 2003 09 20 | 644 | 0.5− | 0.3+ | 2008 08 01 | 704 | 0.1− | 1.0+ | 2009 11 25 | 691 | 0.0 | 0.2+ |
| 2003 10 17 | 699 | 0.2− | 0.3+ | 2008 08 01 | 704 | 0.1− | 0.6+ | 2009 11 25 | 691 | 0.1− | 0.1+ |
| 2003 10 17 | 699 | 0.0 | 0.1+ | 2008 08 02 | 704 | 0.7+ | 0.4− | 2009 11 25 | 703 | 0.3+ | 0.1− |
| 2003 10 17 | 699 | 0.0 | 0.1+ | 2008 08 02 | 704 | 0.5+ | 0.3− | 2009 11 25 | 703 | 0.1− | 0.1+ |
| 2003 10 17 | 699 | 1.0+ | 0.4+ | 2008 08 02 | 704 | 0.5− | 0.4+ | 2009 11 25 | 703 | 0.2+ | 0.2+ |
| 2006 02 27 | G96 | 0.8+ | 0.3+ | 2009 10 26 | 691 | 0.3− | 0.1+ | 2009 11 25 | 703 | 0.5+ | 0.9− |
| 2006 02 27 | G96 | 0.5+ | 0.3+ | 2009 10 26 | 691 | 0.3− | 0.1+ | 2009 12 18 | G96 | 0.2+ | 0.1− |
| 2006 02 27 | G96 | 0.7+ | 0.5+ | 2009 10 26 | 691 | 0.2− | 0.3+ | 2009 12 18 | G96 | 0.2+ | 0.3− |
| 2006 02 27 | G96 | 0.3+ | 0.3+ | 2009 11 17 | 691 | 0.0 | 0.1+ | 2009 12 18 | G96 | 0.2+ | 0.2− |
| 2007 06 15 | 691 | 0.3− | 0.0 | 2009 11 17 | 691 | 0.0 | 0.2− | 2009 12 18 | G96 | 0.2+ | 0.2− |
| 2007 06 15 | 691 | 0.0 | 0.1+ | 2009 11 17 | 691 | (1.9− | 0.1−) | 2009 12 18 | G96 | 0.2+ | 0.1− |
| 2007 06 15 | 691 | 0.2− | 0.2− | 2009 11 21 | 691 | 0.1+ | 0.1− | 2009 12 18 | G96 | 0.2+ | 0.1− |
| 2008 08 01 | 704 | 0.2− | 0.3− | 2009 11 21 | 691 | 0.1− | 0.1− | 2009 12 18 | G96 | 0.1− | 0.1+ |

**2009 WS$_{36}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 74.16411 | | (2000.0) | | | |
| $n$ | 0.19566602 | $\omega$ | 331.29521 | | +0.95956373 | +0.28140681 |
| $a$ | 2.9385006 | $\Omega$ | 12.36643 | | −0.25171365 | +0.86877603 |
| $e$ | 0.1273513 | $i$ | 1.84732 | | −0.12600672 | +0.40747811 |
| $P$ | 5.04 | $H$ | 16.4 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 11 04 | 691 | 0.1− | 0.2− | 2007 05 07 | 691 | 0.1− | 0.4+ | 2009 11 21 | 691 | 0.2− | 0.2+ |
| 2004 11 04 | 691 | 0.1− | 0.1− | 2007 05 07 | 691 | 0.2− | 0.1− | 2009 11 21 | 691 | 0.3− | 0.3+ |
| 2004 11 04 | 691 | 0.2+ | 0.1− | 2007 05 07 | 691 | 0.5+ | 0.3+ | 2009 11 25 | 691 | 0.1− | 0.0 |
| 2006 01 27 | G96 | 0.5− | 0.2− | 2009 09 21 | G96 | 0.4+ | 0.3− | 2009 11 25 | 691 | 0.3− | 0.1− |
| 2006 01 27 | G96 | 0.1− | 0.1− | 2009 09 21 | G96 | 0.0 | 1.2− | 2009 11 25 | 691 | 0.1− | 0.2+ |
| 2006 01 27 | G96 | 0.1+ | 0.3− | 2009 09 21 | G96 | 0.2+ | 0.2+ | 2009 11 25 | 703 | 0.4+ | 0.2− |
| 2006 01 27 | G96 | 0.1− | 0.3− | 2009 09 21 | G96 | 0.8+ | 0.3+ | 2009 11 25 | 703 | 0.8+ | 0.9− |
| 2006 02 25 | G96 | 0.0 | 0.3+ | 2009 10 22 | G96 | 0.3+ | 0.3+ | 2009 11 25 | 703 | 0.7+ | 0.5− |
| 2006 02 25 | G96 | 0.1− | 0.2− | 2009 10 22 | G96 | 0.5+ | 0.1− | 2009 11 25 | 703 | 0.1+ | 0.9+ |
| 2006 02 25 | G96 | 0.1− | 0.2− | 2009 10 22 | G96 | 0.2+ | 0.2+ | 2009 12 16 | G96 | 1.2+ | 0.4− |
| 2006 02 25 | G96 | 0.3+ | 0.3− | 2009 10 22 | G96 | 0.3+ | 0.2− | 2009 12 16 | G96 | 0.1+ | 0.1− |
| 2007 04 19 | G96 | 0.1+ | 0.2+ | 2009 11 17 | 691 | (1.7− | 0.1+) | 2009 12 16 | G96 | 0.3+ | 0.5− |
| 2007 04 19 | G96 | 0.3− | 0.1+ | 2009 11 17 | 691 | 0.3− | 0.4+ | 2009 12 16 | G96 | 0.0 | 0.1+ |
| 2007 04 19 | G96 | 0.5+ | 0.0 | 2009 11 17 | 691 | 0.2− | 0.3+ | | | | |
| 2007 04 19 | G96 | 0.2+ | 0.0 | 2009 11 21 | 691 | 0.0 | 0.1+ | | | | |

**2009 WX$_{36}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 265.69081 | | (2000.0) | | | |
| $n$ | 0.27597858 | $\omega$ | 276.53852 | | −0.99601944 | −0.00865893 |
| $a$ | 2.3364284 | $\Omega$ | 262.99127 | | +0.04240727 | −0.92144876 |
| $e$ | 0.0917189 | $i$ | 5.12809 | | −0.07840216 | −0.38840341 |
| $P$ | 3.57 | $H$ | 17.2 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 01 03 | 291 | 0.2+ | 0.2− | 2009 10 22 | G96 | 0.5+ | 0.1− | 2009 11 21 | 691 | 0.3− | 0.1− |
| 2003 01 03 | 291 | 0.2− | 0.1+ | 2009 10 22 | G96 | 0.4+ | 0.1− | 2009 11 25 | 703 | 0.6+ | 1.2− |
| 2003 01 03 | 291 | 0.0 | 0.0 | 2009 10 22 | G96 | 0.3− | 0.3− | 2009 11 25 | 703 | 0.3+ | 0.4− |
| 2005 10 13 | 691 | 0.3− | 0.4+ | 2009 11 09 | 691 | 0.3+ | 0.4+ | 2009 11 25 | 703 | 0.2− | 0.0 |
| 2005 10 13 | 691 | 0.5+ | 0.1+ | 2009 11 09 | 691 | 0.2− | 0.6− | 2009 11 25 | 703 | (1.4+ | 2.3+) |
| 2005 10 13 | 691 | 0.3− | 0.3− | 2009 11 09 | 691 | 0.3− | 1.1+ | 2009 12 16 | G96 | 0.5+ | 0.1+ |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 11 03 | G96 | 0.1− | 0.3− | 2009 11 17 | 691 | 0.2− | 0.1+ | 2009 12 16 | G96 | 0.7+ | 0.0 |
| 2005 11 03 | G96 | 0.2+ | 0.3− | 2009 11 17 | 691 | 0.5− | 0.2+ | 2009 12 16 | G96 | 0.3+ | 0.3− |
| 2005 11 03 | G96 | 0.4+ | 0.6− | 2009 11 17 | 691 | 0.4+ | 0.1+ | 2009 12 16 | G96 | 0.4+ | 0.0 |
| 2005 11 03 | G96 | 0.1+ | 0.4− | 2009 11 21 | 691 | 0.1+ | 0.2− | | | | |
| 2009 10 22 | G96 | 0.2+ | 0.2− | 2009 11 21 | 691 | 0.2− | 0.0 | | | | |

**2009 WZ$_{36}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 36.34529 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22040692 | $\omega$ | 114.16717 | | +0.85292294 | | −0.51796670 |
| $a$ | 2.7142670 | $\Omega$ | 277.08736 | | +0.45201152 | | +0.79510521 |
| $e$ | 0.1328522 | $i$ | 3.75913 | | +0.26116670 | | +0.31546507 |
| $P$ | 4.47 | $H$ | 17.4 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 08 23 | 691 | 0.0 | 0.1+ | 2009 11 09 | G96 | 0.3+ | 0.2− | 2009 11 17 | 291 | 0.4+ | 0.0 |
| 2004 08 23 | 691 | 0.1− | 0.2− | 2009 11 09 | G96 | 0.8+ | 0.4− | 2009 11 21 | 691 | 0.4+ | 0.1− |
| 2004 08 23 | 691 | 0.1+ | 0.2− | 2009 11 09 | G96 | 0.9+ | 0.5− | 2009 11 21 | 691 | 0.0 | 0.2+ |
| 2004 09 12 | 691 | 0.2− | 0.0 | 2009 11 09 | G96 | 0.4+ | 0.0 | 2009 11 21 | 691 | 0.0 | 0.2+ |
| 2004 09 12 | 691 | 0.1− | 0.2+ | 2009 11 17 | 691 | 0.0 | 0.1+ | 2009 12 16 | G96 | 0.4− | 0.1+ |
| 2004 09 12 | 691 | 0.2+ | 0.1+ | 2009 11 17 | 691 | 0.2+ | 0.1+ | 2009 12 16 | G96 | 0.1+ | 0.0 |
| 2009 11 09 | 691 | 0.1− | 0.1− | 2009 11 17 | 691 | 0.3− | 0.6− | 2009 12 16 | G96 | 0.3− | 0.0 |
| 2009 11 09 | 691 | 0.7− | 0.1− | 2009 11 17 | 291 | 0.3− | 0.1+ | 2009 12 16 | G96 | 0.1− | 0.3+ |
| 2009 11 09 | 691 | 0.2− | 0.3+ | 2009 11 17 | 291 | 0.1+ | 0.1+ | | | | |

**2009 WB$_{37}$ = 2007 FK$_{39}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 7.63277 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.27156242 | $\omega$ | 52.90626 | | +0.32252041 | | −0.94644445 |
| $a$ | 2.3616902 | $\Omega$ | 18.29552 | | +0.85264443 | | +0.28362485 |
| $e$ | 0.1717778 | $i$ | 2.72962 | | +0.41106941 | | +0.15427201 |
| $P$ | 3.63 | $H$ | 18.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 11 25 | 691 | 0.0 | 0.2− | 2009 10 17 | G96 | 0.2+ | 0.2− | 2009 11 21 | 691 | 0.0 | 0.1+ |
| 1998 11 25 | 691 | 0.2+ | 0.6− | 2009 11 09 | 691 | 0.7− | 0.1+ | 2009 11 24 | J75 | 1.1+ | 0.4+ |
| 1998 11 25 | 691 | 0.2+ | 0.3− | 2009 11 09 | 691 | 0.2− | 0.5+ | 2009 11 24 | J75 | 0.9+ | 0.6+ |
| 2007 03 16 | G96 | 0.5− | 0.1− | 2009 11 09 | 691 | 0.0 | 0.1+ | 2009 11 25 | J75 | 0.2− | 0.1+ |
| 2007 03 16 | G96 | 0.1− | 0.2+ | 2009 11 09 | G96 | 0.3− | 0.1+ | 2009 11 25 | 691 | 0.0 | 0.2+ |
| 2007 03 16 | G96 | 0.4− | 0.2+ | 2009 11 09 | G96 | 0.0 | 0.3− | 2009 11 25 | 691 | 0.1− | 0.1− |
| 2007 03 16 | G96 | 0.0 | 0.2+ | 2009 11 09 | G96 | 0.2+ | 0.1+ | 2009 11 25 | 691 | 0.0 | 0.3+ |
| 2007 03 17 | 291 | 0.0 | 0.3− | 2009 11 09 | G96 | 0.6+ | 0.0 | 2009 12 16 | G96 | 0.3+ | 0.2− |
| 2007 03 17 | 291 | 0.1− | 0.4− | 2009 11 17 | 691 | 0.1+ | 0.3+ | 2009 12 16 | G96 | 0.4+ | 0.1− |
| 2007 03 17 | 291 | 0.2+ | 0.4+ | 2009 11 17 | 691 | 0.0 | 0.2+ | 2009 12 16 | G96 | 0.4+ | 0.8− |
| 2009 10 17 | G96 | 0.2+ | 0.2− | 2009 11 17 | 691 | 0.0 | 0.1+ | 2009 12 16 | G96 | 0.5+ | 0.4− |
| 2009 10 17 | G96 | 0.2+ | 0.2− | 2009 11 21 | 691 | 0.4− | 0.4− | | | | |
| 2009 10 17 | G96 | 0.2+ | 0.5− | 2009 11 21 | 691 | 0.1− | 0.1− | | | | |

**2009 WF$_{37}$ = 2005 SX$_{61}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 4.77920 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.26230731 | $\omega$ | 54.85208 | | +0.25501953 | | −0.96680018 |
| $a$ | 2.4169210 | $\Omega$ | 20.39143 | | +0.87133785 | | +0.22251054 |
| $e$ | 0.1792933 | $i$ | 2.66493 | | +0.41920804 | | +0.12564424 |
| $P$ | 3.76 | $H$ | 17.8 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 26 | 691 | 0.2− | 0.2+ | 2009 09 21 | G96 | 0.1+ | 0.2+ | 2009 11 17 | 691 | 0.0 | 0.3+ |
| 2005 09 26 | 691 | 0.0 | 0.0 | 2009 09 21 | G96 | 0.0 | 0.3+ | 2009 11 17 | 691 | 0.2+ | 0.0 |
| 2005 09 26 | 691 | 0.0 | 0.0 | 2009 10 17 | G96 | 0.2+ | 0.1+ | 2009 11 17 | 691 | 0.0 | 0.0 |
| 2005 09 29 | G96 | 0.0 | 0.0 | 2009 10 17 | G96 | 0.4− | 0.2− | 2009 11 21 | 691 | 0.2− | 0.0 |
| 2005 09 29 | G96 | 0.8+ | 0.0 | 2009 10 17 | G96 | 0.3− | 0.2− | 2009 11 21 | 691 | 0.0 | 0.1+ |
| 2005 09 29 | G96 | 0.1− | 0.1− | 2009 10 17 | G96 | 0.1+ | 0.1− | 2009 11 21 | 691 | 0.3− | 0.0 |
| 2005 09 29 | G96 | 0.6+ | 0.1− | 2009 11 09 | 691 | 0.1− | 0.1− | 2009 12 16 | G96 | 0.1+ | 0.0 |
| 2005 10 07 | 691 | 0.2− | 0.1+ | 2009 11 09 | 691 | 0.0 | 0.2− | 2009 12 16 | G96 | 0.2+ | 0.2− |
| 2005 10 07 | 691 | 0.1− | 0.0 | 2009 11 09 | 691 | 0.1+ | 0.1− | 2009 12 16 | G96 | 0.2+ | 0.0 |
| 2005 10 07 | 691 | 0.2+ | 0.1− | 2009 11 09 | G96 | 0.3+ | 0.3− | 2009 12 16 | G96 | 0.3+ | 0.1+ |
| 2009 09 21 | G96 | 0.5+ | 0.3+ | 2009 11 09 | G96 | 0.1− | 0.3− | | | | |
| 2009 09 21 | G96 | 0.5− | 0.2− | 2009 11 09 | G96 | 0.4+ | 0.1+ | | | | |

**2009 WL$_{37}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 139.60463 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.31818232 | $\omega$ | 351.93051 | | +0.32411063 | | +0.94533951 |
| $a$ | 2.1249662 | $\Omega$ | 296.97506 | | −0.86569377 | | +0.28109465 |
| $e$ | 0.1453122 | $i$ | 2.30569 | | −0.38147949 | | +0.16528464 |
| $P$ | 3.10 | $H$ | 17.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1993 09 14 | 691 | 0.1− | 0.2− | 2008 04 25 | G96 | 0.3+ | 0.0 | 2009 11 25 | 691 | 0.4+ | 0.1− |
| 1993 09 14 | 691 | 0.1− | 0.0 | 2009 11 17 | 691 | 0.3+ | 0.0 | 2009 11 25 | 691 | 0.1− | 0.3− |
| 1993 09 14 | 691 | 0.1+ | 0.4+ | 2009 11 17 | 691 | 0.0 | 0.0 | 2009 12 16 | G96 | 0.1+ | 0.1+ |
| 2008 03 31 | 691 | 0.3− | 0.2− | 2009 11 17 | 691 | 0.9− | 0.5+ | 2009 12 16 | G96 | 0.1+ | 0.1+ |
| 2008 03 31 | 691 | 0.4− | 0.4+ | 2009 11 21 | 691 | 0.4+ | 0.1+ | 2009 12 16 | G96 | 0.3+ | 0.4− |
| 2008 03 31 | 691 | 0.2+ | 0.0 | 2009 11 21 | 691 | 0.4− | 0.0 | 2009 12 16 | G96 | 0.5+ | 0.0 |
| 2008 04 25 | G96 | 1.1+ | 0.2+ | 2009 11 21 | 691 | 0.2− | 0.2+ | | | | |
| 2008 04 25 | G96 | 0.5+ | 0.2+ | 2009 11 25 | 691 | 0.2+ | 0.1− | | | | |

**2009 WR$_{37}$ = 2002 QB$_{114}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 20.69311 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.30015836 | $\omega$ | 153.09391 | | +0.55948129 | | −0.82396968 |
| $a$ | 2.2092037 | $\Omega$ | 262.75880 | | +0.74323534 | | +0.54667119 |
| $e$ | 0.1379375 | $i$ | 5.19060 | | +0.36685408 | | +0.14907910 |
| $P$ | 3.28 | $H$ | 17.4 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 16 | 644 | 0.2− | 0.2+ | 2007 02 10 | G96 | 0.2+ | 0.3+ | 2009 11 24 | J75 | 0.2+ | 0.4− |
| 2002 08 16 | 644 | 0.3+ | 0.4− | 2007 02 10 | G96 | 0.2− | 0.2+ | 2009 11 24 | J75 | 0.6− | 0.4− |
| 2002 08 16 | 644 | 0.3+ | 0.2+ | 2007 02 10 | G96 | 0.2+ | 0.3+ | 2009 11 25 | J75 | 0.2− | 0.2− |
| 2002 08 17 | 608 | 0.3+ | 0.0 | 2007 02 10 | G96 | 0.4+ | 0.2+ | 2009 11 25 | 691 | 0.2− | 0.1+ |
| 2002 08 17 | 608 | 0.5− | 0.3+ | 2009 11 17 | 691 | 0.1− | 0.2+ | 2009 11 25 | 691 | 0.0 | 0.1+ |
| 2002 08 17 | 608 | 0.2− | 0.3− | 2009 11 17 | 691 | 0.1− | 0.1− | 2009 11 25 | 691 | 0.2− | 0.4+ |
| 2006 11 22 | G96 | 0.1+ | 0.0 | 2009 11 17 | 691 | 0.1− | 0.1− | 2009 12 12 | 926 | 0.5+ | 0.0 |
| 2006 11 22 | G96 | 0.6− | 0.3− | 2009 11 21 | 691 | 0.2− | 0.1− | 2009 12 12 | 926 | 0.7+ | 0.3− |
| 2006 11 22 | G96 | 0.2− | 0.5− | 2009 11 21 | 691 | 0.2+ | 0.0 | 2009 12 12 | 926 | 0.3+ | 0.6− |
| 2006 12 21 | G96 | 0.2+ | 0.0 | 2009 11 21 | 691 | 0.1+ | 0.0 | 2009 12 16 | G96 | 0.8+ | 0.0 |
| 2006 12 21 | G96 | 0.3− | 0.2+ | 2009 11 23 | 291 | 0.0 | 0.1+ | 2009 12 16 | G96 | 0.5+ | 0.2− |
| 2006 12 21 | G96 | 0.1− | 0.6− | 2009 11 23 | 291 | 0.0 | 0.1+ | 2009 12 16 | G96 | 0.6+ | 0.3− |
| 2006 12 21 | G96 | 0.1+ | 0.1+ | 2009 11 23 | 291 | 0.1− | 0.1+ | | | | |

**2009 WV$_{37}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 34.83530 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21373453 | $\omega$ | 118.89084 | | +0.80576854 | | −0.58880117 |
| $a$ | 2.7704666 | $\Omega$ | 277.25117 | | +0.51856832 | | +0.75336445 |
| $e$ | 0.1146787 | $i$ | 3.67832 | | +0.28604887 | | +0.29283988 |
| $P$ | 4.61 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 01 08 | G96 | 0.5− | 0.2+ | 2009 11 09 | 691 | 0.1+ | 0.1+ | 2009 11 21 | 691 | 0.5− | 0.1+ |
| 2006 01 08 | G96 | 0.8− | 0.0 | 2009 11 09 | 691 | 0.3− | 0.1+ | 2009 11 21 | 691 | 0.0 | 0.0 |
| 2006 01 08 | G96 | 0.1+ | 0.0 | 2009 11 09 | 691 | 0.2− | 0.2− | 2009 11 21 | 691 | 0.3− | 0.0 |
| 2006 01 08 | G96 | 0.8− | 0.5− | 2009 11 09 | G96 | 0.3+ | 0.6− | 2009 11 21 | 291 | 0.1+ | 0.0 |
| 2006 02 02 | 691 | 0.2− | 0.1+ | 2009 11 09 | G96 | 0.4+ | 0.4− | 2009 11 21 | 291 | 0.3+ | 0.1+ |
| 2006 02 02 | 691 | 0.3+ | 0.2− | 2009 11 09 | G96 | 0.5+ | 0.2− | 2009 11 21 | 291 | 0.0 | 0.0 |
| 2006 02 02 | 691 | 0.4+ | 0.2+ | 2009 11 09 | G96 | 0.6+ | 0.2− | 2009 12 15 | G96 | 0.3+ | 0.2− |
| 2009 08 28 | 291 | 0.1+ | 0.3+ | 2009 11 17 | 691 | 0.1+ | 0.0 | 2009 12 15 | G96 | 0.4+ | 0.6+ |
| 2009 08 28 | 291 | 0.0 | 0.2+ | 2009 11 17 | 691 | 0.2− | 0.1− | 2009 12 15 | G96 | 0.6+ | 0.2− |
| 2009 08 28 | 291 | 0.1− | 0.3− | 2009 11 17 | 691 | 0.1− | 0.1+ | 2009 12 15 | G96 | 0.9+ | 0.2− |

**2009 WB$_{38}$ = 2004 NO$_{11}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 95.87475 | | (2000.0) | | | |
| $n$ | 0.23697939 | $\omega$ | 50.00135 | | +0.75565231 | +0.64536602 |
| $a$ | 2.5862013 | $\Omega$ | 269.50275 | | −0.62982838 | +0.66915552 |
| $e$ | 0.2158863 | $i$ | 6.41754 | | −0.17973813 | +0.36842039 |
| $P$ | 4.16 | $H$ | 16.5 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 08 21 | 699 | 0.3− | 1.1+ | 2005 12 25 | G96 | 0.4− | 0.2− | 2009 11 21 | 691 | 0.2− | 0.4+ |
| 2000 08 21 | 699 | 0.1− | 0.3− | 2005 12 25 | G96 | 0.1− | 0.2− | 2009 11 21 | 691 | 0.7− | 0.1− |
| 2000 08 21 | 699 | 0.1+ | 0.2+ | 2005 12 25 | G96 | 0.2+ | 0.4− | 2009 11 21 | 691 | 0.1+ | 0.0 |
| 2000 08 21 | 699 | 0.2− | 0.2+ | 2005 12 25 | G96 | 0.3+ | 0.2+ | 2009 11 25 | 691 | 0.2+ | 0.1− |
| 2004 07 11 | 704 | 0.6+ | 0.6− | 2009 10 26 | G96 | 0.6+ | 0.8− | 2009 11 25 | 691 | 0.0 | 0.1+ |
| 2004 07 11 | 704 | 0.5+ | 1.1− | 2009 10 26 | G96 | 0.7+ | 0.4− | 2009 11 25 | 691 | 0.2− | 0.2+ |
| 2004 07 11 | 704 | 0.4+ | 0.7− | 2009 10 26 | G96 | 0.8+ | 0.4− | 2009 12 15 | G96 | 0.6+ | 0.1+ |
| 2004 07 16 | 704 | 0.7+ | 0.4+ | 2009 10 26 | G96 | 0.9+ | 0.5− | 2009 12 15 | G96 | 0.3− | 1.0− |
| 2004 07 16 | 704 | 0.0 | 0.1− | 2009 11 17 | 691 | 0.1+ | 0.1+ | 2009 12 15 | G96 | 0.2+ | 0.8− |
| 2004 07 16 | 704 | 0.8− | 0.2− | 2009 11 17 | 691 | 0.2− | 0.1+ | 2009 12 15 | G96 | 0.6− | 0.4+ |
| 2004 07 16 | 704 | 0.7− | 0.3+ | 2009 11 17 | 691 | 0.1+ | 0.2− | | | | |

**2009 WH$_{38}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 44.19150 | | (2000.0) | | | |
| $n$ | 0.28062995 | $\omega$ | 104.80469 | | +0.92525674 | −0.37724244 |
| $a$ | 2.3105394 | $\Omega$ | 277.37095 | | +0.33075574 | +0.85372554 |
| $e$ | 0.1861867 | $i$ | 2.30294 | | +0.18574339 | +0.35894405 |
| $P$ | 3.51 | $H$ | 17.6 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 07 09 | 691 | 0.1+ | 0.1+ | 2007 01 28 | G96 | 0.0 | 0.1− | 2009 11 21 | 691 | 0.5− | 0.3+ |
| 2005 07 09 | 691 | 0.0 | 0.0 | 2009 11 08 | G96 | 0.5+ | 0.1+ | 2009 11 21 | 691 | 0.1+ | 0.1+ |
| 2005 07 09 | 691 | 0.0 | 0.1− | 2009 11 08 | G96 | 0.4− | 0.0 | 2009 11 25 | 691 | 0.1+ | 0.3− |
| 2005 08 06 | 644 | 0.1+ | 0.1+ | 2009 11 08 | G96 | 0.5+ | 0.3+ | 2009 11 25 | 691 | 0.3+ | 0.2− |
| 2005 08 06 | 644 | 0.2− | 0.1− | 2009 11 08 | G96 | 0.2+ | 0.3+ | 2009 11 25 | 691 | 0.5+ | 0.1− |
| 2005 08 06 | 644 | 0.1− | 0.3+ | 2009 11 17 | 691 | 0.1+ | 0.2− | 2009 12 10 | G96 | 0.2+ | 0.3+ |
| 2007 01 28 | G96 | 0.0 | 0.3+ | 2009 11 17 | 691 | 0.4− | 0.2+ | 2009 12 10 | G96 | 0.4− | 0.0 |
| 2007 01 28 | G96 | 0.1+ | 0.1− | 2009 11 17 | 691 | 0.4− | 0.4+ | 2009 12 10 | G96 | 0.0 | 0.0 |
| 2007 01 28 | G96 | 0.2+ | 0.5+ | 2009 11 21 | 691 | 0.1+ | 0.3− | | | | |

**2009 WS$_{38}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 175.44139 | | (2000.0) | | | |
| $n$ | 0.27318952 | $\omega$ | 249.57929 | | −0.18914224 | +0.98194370 |
| $a$ | 2.3523035 | $\Omega$ | 9.51993 | | −0.89300685 | −0.17055519 |
| $e$ | 0.1559312 | $i$ | 1.18935 | | −0.40836746 | −0.08183826 |
| $P$ | 3.61 | $H$ | 17.6 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1993 03 19 | 809 | 0.3− | 0.7− | 2007 01 17 | 691 | 0.2− | 0.8+ | 2009 11 17 | 691 | 0.3+ | 0.2− |
| 2005 09 24 | 691 | 0.2− | 0.2− | 2007 01 17 | 691 | 0.2+ | 0.2+ | 2009 11 21 | 691 | 0.0 | 0.3− |
| 2005 09 24 | 691 | 0.1− | 0.4+ | 2007 01 24 | G96 | 0.2+ | 0.7− | 2009 11 21 | 691 | 0.4+ | 0.1+ |
| 2005 09 24 | 691 | 0.1− | 0.0 | 2007 01 24 | G96 | 0.0 | 0.4− | 2009 11 21 | 691 | 0.4− | 0.1− |
| 2005 10 07 | 691 | 0.1+ | 0.1+ | 2007 01 24 | G96 | 0.1− | 0.6− | 2009 11 25 | 691 | 0.0 | 0.0 |
| 2005 10 07 | 691 | 0.1− | 0.0 | 2007 01 24 | G96 | 0.1+ | 0.0 | 2009 11 25 | 691 | 0.1+ | 0.2− |
| 2005 10 07 | 691 | 0.0 | 0.2+ | 2009 11 17 | 691 | 0.1+ | 0.2+ | 2009 11 25 | 691 | 0.1+ | 0.4− |
| 2007 01 17 | 691 | 0.1+ | 0.0 | 2009 11 17 | 691 | 0.5− | 0.2+ | | | | |

**2009 WZ$_{38}$ = 2005 NP$_{69}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 55.24321 | | (2000.0) | | | |
| $n$ | 0.27922741 | $\omega$ | 101.12726 | | +0.99940991 | −0.00805195 |
| $a$ | 2.3182700 | $\Omega$ | 259.34036 | | −0.00567742 | +0.92004096 |
| $e$ | 0.2294334 | $i$ | 1.94717 | | +0.03387623 | +0.39173945 |
| $P$ | 3.53 | $H$ | 17.7 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 08 01 | 910 | 0.6+ | 0.3− | 2005 07 30 | E12 | 0.3+ | 0.6− | 2009 11 09 | 691 | 0.1+ | 0.0 |
| 1998 08 02 | 910 | 0.4+ | 0.4− | 2005 07 30 | E12 | 0.7− | 0.4+ | 2009 11 09 | 691 | 0.3− | 0.1+ |
| 1998 08 02 | 910 | 0.4+ | 0.2− | 2005 07 30 | E12 | 0.3+ | 0.2+ | 2009 11 17 | 691 | 0.1+ | 0.1+ |
| 2003 01 02 | 291 | 0.0 | 0.0 | 2005 07 30 | E12 | 0.2− | 0.2+ | 2009 11 17 | 691 | 0.1+ | 0.1− |
| 2003 01 02 | 291 | 0.2+ | 0.1+ | 2005 10 27 | G96 | 0.4− | 0.4− | 2009 11 17 | 691 | 0.1− | 0.0 |
| 2003 01 02 | 291 | 0.6− | 0.5+ | 2005 10 27 | G96 | 0.5+ | 0.3− | 2009 11 21 | 691 | 0.0 | 0.0 |
| 2005 07 04 | G96 | 0.4− | 0.3− | 2005 10 27 | G96 | 0.0 | 0.0 | 2009 11 21 | 691 | 0.2+ | 0.0 |
| 2005 07 04 | G96 | 0.1− | 0.1− | 2005 10 27 | G96 | 0.7− | 0.0 | 2009 11 21 | 691 | 0.0 | 0.3+ |
| 2005 07 04 | G96 | 0.0 | 0.4− | 2008 05 03 | G96 | 0.1− | 0.0 | 2009 12 15 | G96 | 0.3+ | 0.1− |
| 2005 07 04 | G96 | 0.4− | 0.1− | 2008 05 03 | G96 | 0.4+ | 0.5+ | 2009 12 15 | G96 | 0.3+ | 0.0 |
| 2005 07 09 | 691 | 0.1+ | 0.3+ | 2008 05 03 | G96 | 0.1− | 0.2− | 2009 12 15 | G96 | 0.2+ | 0.0 |
| 2005 07 09 | 691 | 0.1− | 0.4+ | 2008 05 03 | G96 | 0.5+ | 0.3+ | 2009 12 15 | G96 | 0.1+ | 0.3− |
| 2005 07 09 | 691 | 0.2− | 0.2+ | 2009 11 09 | 691 | 0.1+ | 0.2− | | | | |

**2009 WM$_{39}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 41.83203 | | (2000.0) | | | |
| $n$ | 0.17429105 | $\omega$ | 132.83204 | | +0.86484729 | −0.47911098 |
| $a$ | 3.1740907 | $\Omega$ | 256.31335 | | +0.40371979 | +0.84129018 |
| $e$ | 0.0750352 | $i$ | 8.87944 | | +0.29841162 | +0.25036673 |
| $P$ | 5.65 | $H$ | 15.8 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 23 | 691 | 0.3− | 0.2− | 2009 11 09 | G96 | 0.0 | 0.2+ | 2009 11 21 | 691 | 0.2− | 0.3− |
| 2003 10 23 | 691 | 0.1+ | 0.1+ | 2009 11 09 | G96 | 0.5+ | 0.5+ | 2009 11 21 | 691 | 0.1− | 0.2− |
| 2003 10 23 | 691 | 0.3− | 0.0 | 2009 11 09 | G96 | 0.1− | 0.1− | 2009 12 15 | G96 | 0.4+ | 0.1− |
| 2003 11 24 | 691 | 0.3+ | 0.1+ | 2009 11 17 | 691 | 0.3− | 0.1− | 2009 12 15 | G96 | 0.4+ | 0.3− |
| 2003 11 24 | 691 | 0.2+ | 0.2+ | 2009 11 17 | 691 | 0.0 | 0.3− | 2009 12 15 | G96 | 0.2+ | 0.3+ |
| 2003 11 24 | 691 | 0.0 | 0.1− | 2009 11 17 | 691 | 0.2+ | 0.1− | 2009 12 15 | G96 | 0.8+ | 0.1+ |
| 2009 11 09 | G96 | 0.1+ | 0.2− | 2009 11 21 | 691 | 0.1− | 0.8+ | | | | |

**2009 WO$_{39}$ = 2007 EG$_{145}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 7.02793 | | (2000.0) | | | |
| $n$ | 0.28413445 | $\omega$ | 26.32301 | | +0.26946220 | −0.96228160 |
| $a$ | 2.2915014 | $\Omega$ | 48.06964 | | +0.87442300 | +0.22818651 |
| $e$ | 0.2121834 | $i$ | 2.88721 | | +0.40345327 | +0.14813856 |
| $P$ | 3.47 | $H$ | 18.4 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 03 12 | G96 | 0.0 | 0.0 | 2009 11 09 | 691 | 0.3+ | 0.1+ | 2009 11 21 | 691 | 0.1+ | 0.0 |
| 2007 03 12 | G96 | 0.4+ | 0.0 | 2009 11 09 | 691 | 0.6− | 0.3− | 2009 11 21 | 691 | 0.8+ | 1.0+ |
| 2007 03 12 | G96 | 0.2− | 0.0 | 2009 11 09 | 691 | 0.3− | 0.4− | 2009 11 25 | 691 | 0.0 | 0.0 |
| 2007 03 12 | G96 | 0.1+ | 0.1− | 2009 11 09 | G96 | 0.6+ | 0.3− | 2009 11 25 | 691 | 0.3+ | 0.0 |
| 2007 03 16 | 691 | 0.1− | 0.4+ | 2009 11 09 | G96 | 0.1− | 0.0 | 2009 11 25 | 691 | 0.0 | 0.2− |
| 2007 03 16 | 691 | 0.4+ | 0.0 | 2009 11 09 | G96 | 0.1+ | 0.1− | 2009 12 15 | G96 | 0.1+ | 0.0 |
| 2007 03 16 | 691 | 0.3− | 0.2− | 2009 11 09 | G96 | 0.4+ | 0.2− | 2009 12 15 | G96 | 0.4+ | 0.4− |
| 2009 10 16 | G96 | 0.5+ | 0.4+ | 2009 11 17 | 691 | 0.1+ | 0.3− | 2009 12 15 | G96 | 0.4+ | 0.5− |
| 2009 10 16 | G96 | 0.0 | 0.4+ | 2009 11 17 | 691 | 1.0− | 0.4+ | 2009 12 15 | G96 | 0.4+ | 0.2− |
| 2009 10 16 | G96 | 0.2+ | 0.0 | 2009 11 17 | 691 | 0.2− | 0.1− | | | | |
| 2009 10 16 | G96 | 0.2+ | 0.5+ | 2009 11 21 | 691 | 0.2− | 0.1− | | | | |

**2009 WX$_{39}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 32.95336 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21940613 | $\omega$ | 134.52849 | | +0.69363856 | −0.71576960 | |
| $a$ | 2.7225146 | $\Omega$ | 271.36663 | | +0.63582403 | +0.66115791 | |
| $e$ | 0.0600696 | $i$ | 4.63971 | | +0.33851639 | +0.22482016 | |
| $P$ | 4.49 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 03 04 | 691 | 0.0 | 0.0 | 2006 01 30 | 703 | 0.0 | 0.9+ | 2009 11 21 | 691 | 1.0− | 1.0+ |
| 1997 03 04 | 691 | 0.3− | 0.2− | 2006 02 03 | G96 | 0.4+ | 0.1+ | 2009 11 25 | 691 | 0.2+ | 0.1+ |
| 1997 03 04 | 691 | 0.2− | 0.3+ | 2006 02 03 | G96 | 0.3+ | 0.1− | 2009 11 25 | 691 | 0.4+ | 0.2− |
| 2000 12 27 | 691 | 0.2+ | 0.2+ | 2006 02 03 | G96 | 0.3+ | 0.1− | 2009 11 25 | 691 | 0.7− | 0.2+ |
| 2000 12 27 | 691 | 0.1+ | 0.9− | 2006 02 03 | G96 | 0.6+ | 0.8− | 2009 12 10 | G96 | 0.6+ | 0.3− |
| 2000 12 27 | 691 | 0.1+ | 0.3+ | 2009 11 09 | 691 | 0.2+ | 0.1− | 2009 12 10 | G96 | 0.1+ | 0.3− |
| 2005 11 29 | G96 | 0.1+ | 0.2− | 2009 11 09 | 691 | 0.3+ | 0.1− | 2009 12 10 | G96 | 1.4− | 1.0+ |
| 2005 11 29 | G96 | 0.3+ | 0.4− | 2009 11 09 | 691 | 0.3+ | 0.2− | 2009 12 10 | G96 | 0.6+ | 0.2− |
| 2005 11 29 | G96 | 0.1− | 0.1+ | 2009 11 17 | 691 | 0.1− | 0.0 | 2009 12 19 | G96 | 0.3+ | 0.1− |
| 2005 11 29 | G96 | 0.5+ | 0.1+ | 2009 11 17 | 691 | 0.1− | 0.0 | 2009 12 19 | G96 | 0.3+ | 0.2− |
| 2006 01 30 | 703 | (1.6+ | 5.4−) | 2009 11 17 | 691 | 0.1+ | 0.1− | 2009 12 19 | G96 | 0.1+ | 0.1− |
| 2006 01 30 | 703 | 0.3− | 0.0 | 2009 11 21 | 691 | 0.1+ | 0.0 | 2009 12 19 | G96 | 0.6+ | 0.1+ |
| 2006 01 30 | 703 | 0.2− | 0.3+ | 2009 11 21 | 691 | 0.2− | 0.2− | | | | |

**2009 WC$_{40}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 50.22381 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27855101 | $\omega$ | 333.65073 | | +0.98099900 | −0.19170761 | |
| $a$ | 2.3220214 | $\Omega$ | 37.44000 | | +0.18553876 | +0.88207753 | |
| $e$ | 0.2347609 | $i$ | 2.81146 | | +0.05671268 | +0.43033408 | |
| $P$ | 3.54 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 04 10 | 695 | 0.2+ | 0.3+ | 2007 02 25 | 691 | 0.1− | 0.1+ | 2009 11 21 | 691 | 0.0 | 0.0 |
| 2000 04 10 | 695 | 0.4+ | 0.2+ | 2007 02 25 | 691 | 0.0 | 0.3+ | 2009 11 21 | 691 | 0.0 | 0.1− |
| 2001 05 23 | 807 | 0.3− | 0.2+ | 2007 03 13 | G96 | 0.1+ | 0.1+ | 2009 11 25 | J75 | 0.3+ | 0.3− |
| 2001 05 23 | 807 | 0.5− | 0.3+ | 2007 03 13 | G96 | 0.4− | 0.2+ | 2009 11 25 | J75 | 0.1− | 0.1+ |
| 2005 06 28 | 644 | 0.1− | 0.2+ | 2007 03 13 | G96 | 0.7+ | 1.5+ | 2009 11 25 | J75 | 0.2+ | 0.4+ |
| 2005 06 28 | 644 | 0.3− | 0.0 | 2007 03 13 | G96 | 0.2+ | 0.2+ | 2009 11 25 | 691 | 0.2− | 0.0 |
| 2005 06 28 | 644 | 0.3− | 0.2+ | 2009 07 27 | 691 | 0.8− | 0.8+ | 2009 11 25 | 691 | 0.0 | 0.0 |
| 2005 07 31 | E12 | 0.0 | 0.4− | 2009 07 27 | 691 | 0.2− | 0.0 | 2009 11 25 | 691 | 0.1− | 0.2+ |
| 2005 07 31 | E12 | 0.0 | 0.2+ | 2009 07 27 | 691 | 0.2+ | 0.3+ | 2009 12 08 | J75 | 1.1+ | 0.1− |
| 2005 07 31 | E12 | 0.3+ | 0.9+ | 2009 11 09 | 691 | 0.3− | 0.1− | 2009 12 08 | J75 | 0.6+ | 0.3− |
| 2005 07 31 | E12 | 0.3+ | 0.7+ | 2009 11 09 | 691 | 0.2+ | 0.1+ | 2009 12 09 | J75 | 0.3+ | 0.1+ |
| 2005 08 27 | E12 | 0.3− | 0.0 | 2009 11 09 | 691 | 0.2− | 0.0 | 2009 12 10 | 704 | 0.1+ | 0.5− |
| 2005 08 27 | E12 | 0.6− | 0.5+ | 2009 11 09 | G96 | 0.4+ | 0.3− | 2009 12 10 | 704 | 0.0 | 0.5+ |
| 2005 08 27 | E12 | 0.7+ | 0.6+ | 2009 11 09 | G96 | 0.4+ | 0.2− | 2009 12 10 | 704 | 0.3+ | 1.1+ |
| 2005 08 27 | E12 | 0.4+ | 0.1− | 2009 11 09 | G96 | 0.2+ | 0.0 | 2009 12 10 | 704 | 1.0+ | 0.9+ |
| 2005 11 06 | G96 | 0.3− | 0.0 | 2009 11 09 | G96 | 0.0 | 0.3− | 2009 12 10 | 704 | 0.1+ | 1.5+ |
| 2005 11 06 | G96 | 0.0 | 0.1+ | 2009 11 17 | 691 | 0.2− | 0.1+ | 2009 12 11 | G96 | 0.7+ | 0.0 |
| 2005 11 06 | G96 | 0.2− | 0.2− | 2009 11 17 | 691 | 0.2− | 0.1− | 2009 12 11 | G96 | 0.3+ | 0.0 |
| 2005 11 06 | G96 | 0.1+ | 0.3− | 2009 11 17 | 691 | 0.1− | 0.0 | 2009 12 11 | G96 | 0.2+ | 0.0 |
| 2007 02 25 | 691 | 0.2+ | 0.0 | 2009 11 21 | 691 | 0.5− | 0.8− | 2009 12 11 | G96 | 0.4+ | 0.1+ |

**2009 WB$_{41}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 332.66213 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21845834 | $\omega$ | 51.03599 | | −0.53519479 | −0.84387475 | |
| $a$ | 2.7303834 | $\Omega$ | 71.36129 | | +0.76210131 | −0.50174685 | |
| $e$ | 0.1544320 | $i$ | 2.29673 | | +0.36437361 | −0.19006709 | |
| $P$ | 4.51 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 24 | 691 | 0.1− | 0.2− | 2006 03 03 | 699 | 0.5− | 0.1+ | 2009 11 25 | 691 | 0.4− | 0.2− |
| 2000 11 24 | 691 | 0.1− | 0.3+ | 2006 03 03 | 699 | 0.3− | 0.4+ | 2009 11 25 | 691 | 0.0 | 0.0 |
| 2000 11 24 | 691 | 0.2+ | 0.3− | 2006 03 26 | 691 | 0.5+ | 0.0 | 2009 11 25 | 691 | 0.2+ | 0.1+ |
| 2004 10 10 | 691 | 0.2+ | 0.1+ | 2006 03 26 | 691 | 0.0 | 0.3+ | 2009 12 10 | G96 | 0.2+ | 0.1− |
| 2004 10 10 | 691 | 0.3− | 0.1+ | 2006 03 26 | 691 | 0.5− | 0.1+ | 2009 12 10 | G96 | 0.4+ | 0.1+ |
| 2004 10 10 | 691 | 0.0 | 0.1+ | 2009 11 17 | 691 | 0.4− | 0.1+ | 2009 12 10 | G96 | 0.6+ | 0.0 |
| 2006 01 31 | 691 | 0.2+ | 0.1− | 2009 11 17 | 691 | 0.1− | 0.1− | 2009 12 10 | G96 | 0.6+ | 0.1− |
| 2006 01 31 | 691 | 0.1− | 0.2− | 2009 11 17 | 691 | 0.1− | 0.2+ | 2009 12 19 | G96 | 0.9+ | 0.1− |
| 2006 01 31 | 691 | 0.0 | 0.1− | 2009 11 21 | 691 | 0.1− | 0.0 | 2009 12 19 | G96 | 0.3+ | 0.1+ |
| 2006 03 03 | 699 | 0.8+ | 0.6+ | 2009 11 21 | 691 | 0.3− | 0.1+ | 2009 12 19 | G96 | 0.4+ | 0.6− |
| 2006 03 03 | 699 | 0.3− | 0.4− | 2009 11 21 | 691 | 0.1− | 0.3+ | 2009 12 19 | G96 | 0.8+ | 0.0 |

**2009 WR$_{41}$ = 2005 ND$_{50}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 51.22242 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.30090051 | $\omega$ | 125.38372 | | +0.87661022 | −0.47172551 | |
| $a$ | 2.2055696 | $\Omega$ | 262.93435 | | +0.40459238 | +0.82943932 | |
| $e$ | 0.0791759 | $i$ | 5.49455 | | +0.26049860 | +0.29917463 | |
| $P$ | 3.28 | $H$ | 17.9 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 07 05 | 691 | 0.1+ | 0.1+ | 2007 02 10 | G96 | 0.6+ | 0.0 | 2009 11 25 | 691 | 0.1− | 0.0 |
| 2005 07 05 | 691 | 0.0 | 0.1+ | 2007 02 10 | G96 | 0.2− | 0.3+ | 2009 11 25 | 691 | 0.0 | 0.1− |
| 2005 07 05 | 691 | 0.2+ | 0.2+ | 2007 02 10 | G96 | 0.1+ | 0.1+ | 2009 12 10 | G96 | 0.1+ | 0.2+ |
| 2005 07 11 | G96 | 0.4− | 0.4− | 2007 02 10 | G96 | 0.3− | 0.2+ | 2009 12 10 | G96 | 0.8+ | 0.1+ |
| 2005 07 11 | G96 | 0.4− | 0.1− | 2009 11 17 | 691 | 0.0 | 0.2− | 2009 12 10 | G96 | 0.3+ | 0.2+ |
| 2005 07 11 | G96 | 0.5− | 0.1− | 2009 11 17 | 691 | 0.4− | 0.4+ | 2009 12 10 | G96 | 0.3+ | 0.1+ |
| 2005 07 11 | G96 | 0.0 | 0.2− | 2009 11 17 | 691 | 0.1− | 0.1+ | 2009 12 19 | G96 | 0.1+ | 0.1+ |
| 2006 12 21 | G96 | 0.0 | 0.3+ | 2009 11 21 | 691 | 0.2+ | 0.2− | 2009 12 19 | G96 | 0.2+ | 0.1− |
| 2006 12 21 | G96 | 0.0 | 0.2+ | 2009 11 21 | 691 | 0.0 | 0.0 | 2009 12 19 | G96 | 0.1− | 0.1− |
| 2006 12 21 | G96 | 0.0 | 0.1− | 2009 11 21 | 691 | 0.0 | 0.1− | 2009 12 19 | G96 | 0.0 | 0.0 |
| 2006 12 21 | G96 | 0.0 | 0.4− | 2009 11 25 | 691 | 0.0 | 0.1+ | | | | |

**2009 WY$_{41}$ = 2006 BL$_{257}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 158.39316 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.20388387 | $\omega$ | 245.66095 | | +0.30114936 | +0.95311177 | |
| $a$ | 2.8589999 | $\Omega$ | 41.90208 | | −0.85793312 | +0.28444525 | |
| $e$ | 0.0331900 | $i$ | 2.55592 | | −0.41624491 | +0.10329015 | |
| $P$ | 4.83 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 5 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 01 31 | 691 | 0.1− | 0.1+ | 2006 02 04 | 691 | 0.4− | 0.1+ | 2009 11 21 | 691 | 0.7− | 0.2− |
| 2006 01 31 | 691 | 0.1+ | 0.3− | 2009 11 17 | 691 | 0.3+ | 0.3+ | 2009 11 21 | 691 | 0.0 | 0.1+ |
| 2006 01 31 | 691 | 0.0 | 0.3− | 2009 11 17 | 691 | 0.1+ | 0.1− | 2009 11 25 | 691 | 0.3+ | 0.1+ |
| 2006 02 04 | 691 | 0.2+ | 0.0 | 2009 11 17 | 691 | 0.1+ | 0.1− | 2009 11 25 | 691 | 0.6+ | 0.7+ |
| 2006 02 04 | 691 | 0.1+ | 0.4+ | 2009 11 21 | 691 | 0.7− | 0.1− | 2009 11 25 | 691 | 0.1− | 0.5− |

**2009 WZ$_{41}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 24.13783 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23712088 | $\omega$ | 344.77179 | | +0.57539858 | −0.78178708 | |
| $a$ | 2.5851724 | $\Omega$ | 69.52203 | | +0.77463052 | +0.42667495 | |
| $e$ | 0.1566313 | $i$ | 14.86060 | | +0.26241959 | +0.45470589 | |
| $P$ | 4.16 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 04 24 | G96 | 0.0 | 0.1− | 2009 11 17 | 691 | 0.7− | 0.5+ | 2009 12 13 | G96 | 0.1+ | 0.0 |
| 2007 04 24 | G96 | 0.3− | 0.2− | 2009 11 17 | 691 | 0.0 | 0.2− | 2009 12 13 | G96 | 0.2+ | 0.2+ |
| 2007 04 24 | G96 | 0.2+ | 0.3+ | 2009 11 17 | 691 | 0.0 | 0.1− | 2009 12 18 | G96 | 0.3+ | 0.1− |
| 2007 04 24 | G96 | 0.1+ | 0.2+ | 2009 11 21 | 691 | 0.1+ | 0.0 | 2009 12 18 | G96 | 0.2+ | 0.0 |
| 2007 05 23 | G96 | 0.4+ | 0.5+ | 2009 11 21 | 691 | 0.0 | 0.0 | 2009 12 18 | G96 | 0.2+ | 0.1+ |
| 2007 05 23 | G96 | 0.4− | 0.1+ | 2009 11 21 | 691 | 0.1+ | 0.1− | 2009 12 18 | G96 | 0.6+ | 0.0 |
| 2007 05 23 | G96 | 0.2− | 0.2− | 2009 12 13 | G96 | 0.5+ | 0.0 | | | | |
| 2007 05 23 | G96 | 0.2+ | 0.4− | 2009 12 13 | G96 | 0.2+ | 0.0 | | | | |

**2009 WB$_{42}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 86.87667 | | (2000.0) | | | |
| $n$ | 0.20667048 | $\omega$ | 280.03198 | | +0.96576384 | +0.25538067 |
| $a$ | 2.8332426 | $\Omega$ | 65.18372 | | −0.21395887 | +0.88354006 |
| $e$ | 0.1130755 | $i$ | 2.88078 | | −0.14670312 | +0.39260372 |
| $P$ | 4.77 | $H$ | 16.7 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 11 19 | 691 | 0.0 | 0.3+ | 2008 10 28 | G96 | 0.3+ | 0.3+ | 2009 11 25 | 691 | 0.0 | 0.0 |
| 2004 11 19 | 691 | 0.1− | 0.0 | 2008 10 28 | G96 | 0.1+ | 0.7+ | 2009 11 25 | 691 | 0.2+ | 0.5+ |
| 2004 11 19 | 691 | 0.1− | 0.1+ | 2008 10 28 | G96 | 0.6+ | 0.1− | 2009 11 25 | 691 | 0.6+ | 0.1+ |
| 2006 01 31 | 691 | 0.7+ | 0.1− | 2008 10 28 | G96 | 0.2− | 0.1− | 2009 12 10 | G96 | 0.1+ | 0.2+ |
| 2006 01 31 | 691 | 0.4+ | 0.2− | 2009 11 17 | 691 | 0.4− | 0.3− | 2009 12 10 | G96 | 0.3− | 0.1− |
| 2006 01 31 | 691 | 0.9− | 0.1− | 2009 11 17 | 691 | 0.0 | 0.1− | 2009 12 10 | G96 | 0.1+ | 0.0 |
| 2007 04 22 | 691 | 0.1+ | 0.3+ | 2009 11 17 | 691 | 0.1− | 0.2+ | 2009 12 10 | G96 | 0.6+ | 0.2− |
| 2007 04 22 | 691 | 0.2− | 0.1+ | 2009 11 21 | 691 | 0.0 | 0.0 | 2009 12 19 | G96 | 0.0 | 0.3− |
| 2007 04 22 | 691 | 0.0 | 0.6+ | 2009 11 21 | 691 | 0.1+ | 0.2− | 2009 12 19 | G96 | 0.3+ | 0.1− |
| 2007 05 09 | G96 | 0.4+ | 0.2+ | 2009 11 21 | 691 | 0.2− | 0.1+ | 2009 12 19 | G96 | 0.1+ | 0.0 |
| 2007 05 09 | G96 | 0.3+ | 0.7− | 2009 11 25 | 691 | 0.2− | 0.2+ | 2009 12 19 | G96 | 0.0 | 0.2− |
| 2007 05 09 | G96 | 0.3− | 0.1+ | 2009 11 25 | 691 | 0.5− | 0.1+ | | | | |
| 2007 05 09 | G96 | 0.0 | 0.1+ | 2009 11 25 | 691 | 0.1+ | 0.0 | | | | |

**2009 WM$_{42}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 60.75992 | | (2000.0) | | | |
| $n$ | 0.22143390 | $\omega$ | 323.08065 | | +0.93115561 | −0.35081910 |
| $a$ | 2.7058683 | $\Omega$ | 57.74364 | | +0.35628349 | +0.81746552 |
| $e$ | 0.0388934 | $i$ | 6.74838 | | +0.07753255 | +0.45681078 |
| $P$ | 4.45 | $H$ | 16.2 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 04 14 | 691 | 0.0 | 0.1+ | 2009 08 27 | 691 | 0.2+ | 0.4+ | 2009 11 21 | 691 | 0.1+ | 0.5+ |
| 2007 04 14 | 691 | 0.2+ | 0.8+ | 2009 08 27 | 691 | 0.2− | 0.4+ | 2009 11 21 | 691 | 0.0 | 0.1+ |
| 2007 04 14 | 691 | 0.1+ | 0.2+ | 2009 08 27 | 691 | 0.1− | 0.2+ | 2009 11 21 | 691 | 0.0 | 0.1+ |
| 2007 04 26 | 691 | 0.0 | 0.1− | 2009 11 09 | 691 | 0.0 | 0.0 | 2009 11 25 | 691 | 0.1+ | 0.0 |
| 2007 04 26 | 691 | 0.2+ | 0.1+ | 2009 11 09 | 691 | 0.1− | 0.1− | 2009 11 25 | 691 | 0.0 | 0.1+ |
| 2007 04 26 | 691 | 0.1+ | 0.1+ | 2009 11 09 | 691 | 0.1− | 0.3+ | 2009 11 25 | 691 | 0.1− | 0.2+ |
| 2008 08 23 | E12 | 0.3− | 0.6− | 2009 11 17 | G96 | 0.2− | 0.0 | 2009 12 11 | G96 | 0.2− | 0.4− |
| 2008 08 23 | E12 | 1.0− | 0.9+ | 2009 11 17 | G96 | 0.1− | 0.0 | 2009 12 11 | G96 | 0.1+ | 0.4− |
| 2008 08 23 | E12 | 0.8+ | 0.5+ | 2009 11 17 | G96 | 0.3+ | 0.1+ | 2009 12 11 | G96 | 0.2− | 0.4− |
| 2008 08 23 | E12 | 0.4− | 1.0+ | 2009 11 17 | G96 | 0.2+ | 0.0 | 2009 12 11 | G96 | 0.1+ | 0.4− |

**2009 WY$_{42}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 349.34815 | | (2000.0) | | | |
| $n$ | 0.21596389 | $\omega$ | 220.96683 | | −0.00182656 | −0.94387379 |
| $a$ | 2.7513676 | $\Omega$ | 231.87019 | | +0.99153517 | +0.04117222 |
| $e$ | 0.1397169 | $i$ | 24.82844 | | +0.12982551 | −0.32773025 |
| $P$ | 4.56 | $H$ | 16.1 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 05 11 | G96 | 0.1− | 0.0 | 2009 11 17 | 703 | 0.9− | 0.4+ | 2009 11 25 | G96 | 0.1− | 0.1− |
| 2007 05 11 | G96 | 0.4+ | 0.1+ | 2009 11 17 | 703 | 0.5− | 0.8+ | 2009 11 25 | G96 | 0.1+ | 0.2− |
| 2007 05 11 | G96 | 0.7− | 0.4+ | 2009 11 17 | 703 | 0.4+ | 0.3+ | 2009 11 25 | G96 | 0.4+ | 0.1− |
| 2007 05 11 | G96 | 0.3+ | 0.3− | 2009 11 17 | 703 | 0.3− | 0.8− | 2009 12 10 | 703 | 0.0 | 0.2+ |
| 2007 06 19 | 691 | 0.1− | 0.3+ | 2009 11 20 | J75 | 0.1− | 0.3− | 2009 12 10 | 703 | 0.1+ | 0.6− |
| 2007 06 19 | 691 | 0.0 | 0.1+ | 2009 11 20 | J75 | 0.2− | 0.5− | 2009 12 10 | 703 | 0.8+ | 0.8− |
| 2007 06 19 | 691 | 0.1+ | 0.2− | 2009 11 20 | J75 | 0.2+ | 0.4− | 2009 12 10 | 703 | 0.7− | 0.2+ |
| 2009 11 09 | 703 | (2.9+ | 1.5−) | 2009 11 24 | H06 | 0.3+ | 0.3+ | 2009 12 13 | 704 | 0.9+ | 1.5+ |
| 2009 11 09 | 703 | 1.3+ | 0.8+ | 2009 11 24 | H06 | 0.1− | 0.0 | 2009 12 13 | 704 | 0.4+ | 0.2− |
| 2009 11 09 | 703 | 0.7+ | 0.0 | 2009 11 24 | H06 | 0.4− | 0.4+ | 2009 12 13 | 704 | 0.3− | 0.1− |
| 2009 11 09 | 703 | 1.7− | 0.0 | 2009 11 25 | G96 | 0.1+ | 0.2− | | | | |

**2009 WB$_{43}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 8.54254 | | (2000.0) | | | |
| $n$ | 0.22728834 | $\omega$ | 344.58209 | | +0.34459079 | −0.90478842 |
| $a$ | 2.6592017 | $\Omega$ | 84.74175 | | +0.88567944 | +0.22498955 |
| $e$ | 0.1393700 | $i$ | 14.55372 | | +0.31117377 | +0.36157657 |
| $P$ | 4.34 | $H$ | 16.4 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 08 21 | E12 | 1.0− | 0.7− | 2007 05 15 | G96 | 0.1− | 0.0 | 2009 11 24 | D29 | 0.2− | 0.1+ |
| 2004 08 21 | E12 | 0.3− | 0.6+ | 2009 11 09 | 703 | (0.2− | 2.1−) | 2009 11 24 | D29 | 0.4− | 0.3+ |
| 2004 08 21 | E12 | 0.4+ | 0.6+ | 2009 11 09 | 703 | (1.7− | 0.9−) | 2009 11 24 | D29 | 0.2− | 1.0− |
| 2004 08 21 | E12 | 0.7+ | 0.1− | 2009 11 09 | 703 | (2.6− | 1.5−) | 2009 11 24 | D29 | 0.2+ | 0.2+ |
| 2006 01 24 | 699 | 0.8− | 1.1+ | 2009 11 09 | 703 | 1.4− | 0.4+ | 2009 11 26 | G96 | 0.3− | 0.3− |
| 2006 01 24 | 699 | 0.4− | 0.2+ | 2009 11 17 | 703 | 0.8+ | 1.1− | 2009 11 26 | G96 | 0.1− | 0.0 |
| 2006 01 24 | 699 | 1.1+ | 0.4+ | 2009 11 17 | 703 | 0.3− | 0.3+ | 2009 11 26 | G96 | 0.4− | 0.0 |
| 2006 01 24 | 699 | 0.2+ | 0.5− | 2009 11 17 | 703 | 0.8+ | 0.3− | 2009 11 26 | G96 | 0.0 | 0.1− |
| 2007 04 25 | G96 | (2.1− | 0.3−) | 2009 11 17 | 703 | 0.1− | 0.3+ | 2009 11 26 | G96 | 0.1+ | 0.3− |
| 2007 04 25 | G96 | 0.0 | 0.7− | 2009 11 20 | J75 | 0.3− | 0.4− | 2009 12 17 | 704 | 0.7+ | 0.4− |
| 2007 04 25 | G96 | 0.5+ | 0.2+ | 2009 11 20 | J75 | 0.3+ | 0.2− | 2009 12 17 | 704 | 0.6+ | 0.1+ |
| 2007 04 25 | G96 | 0.4− | 0.4+ | 2009 11 20 | J75 | 0.4− | 0.4− | 2009 12 17 | 704 | 0.8+ | 0.3+ |
| 2007 05 15 | G96 | 0.0 | 0.6− | 2009 11 24 | D29 | 0.2− | 0.1+ | 2009 12 17 | 704 | 0.7+ | 0.5+ |
| 2007 05 15 | G96 | 0.2− | 0.0 | 2009 11 24 | D29 | 0.1+ | 0.1+ | | | | |
| 2007 05 15 | G96 | 0.4− | 0.1− | 2009 11 24 | D29 | 0.5− | 0.4+ | | | | |

**2009 WG$_{43}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 1.57806 | | (2000.0) | | | |
| $n$ | 0.26160073 | $\omega$ | 328.57243 | | +0.13554064 | −0.98310358 |
| $a$ | 2.4212711 | $\Omega$ | 113.38786 | | +0.93455224 | +0.08562616 |
| $e$ | 0.2215102 | $i$ | 7.70322 | | +0.32899978 | +0.16178847 |
| $P$ | 3.77 | $H$ | 17.5 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 03 31 | 645 | 0.0 | 0.0 | 2007 04 23 | G96 | 0.0 | 0.1− | 2009 11 24 | D29 | 0.4− | 0.1− |
| 2003 03 31 | 645 | 0.0 | 0.0 | 2007 04 23 | G96 | 0.9− | 0.0 | 2009 11 26 | G96 | 0.2+ | 0.0 |
| 2005 10 03 | 703 | 0.0 | 1.9− | 2009 11 17 | 703 | 0.5+ | 0.5+ | 2009 11 26 | G96 | 0.2− | 0.4− |
| 2005 10 03 | 703 | 0.0 | 0.6+ | 2009 11 17 | 703 | (1.6− | 0.2+) | 2009 11 26 | G96 | 0.1− | 0.0 |
| 2005 10 03 | 703 | 0.5+ | 0.4− | 2009 11 17 | 703 | 0.0 | 1.2+ | 2009 11 26 | G96 | 0.1+ | 0.1− |
| 2005 10 03 | 703 | 0.3+ | 0.7+ | 2009 11 17 | 703 | 0.6− | 0.1− | 2009 11 26 | G96 | 0.3+ | 0.2− |
| 2005 11 05 | 703 | 0.3+ | 0.9+ | 2009 11 20 | J75 | 0.0 | 0.4− | 2009 12 11 | 703 | 0.2+ | 0.2− |
| 2005 11 05 | 703 | 0.8+ | 1.0− | 2009 11 20 | J75 | 0.4− | 0.2− | 2009 12 11 | 703 | 0.3− | 0.6+ |
| 2005 11 05 | 703 | 0.3− | 0.8+ | 2009 11 20 | J75 | 0.1− | 0.3− | 2009 12 11 | 703 | 0.1− | 0.8− |
| 2005 11 05 | 703 | 1.5− | 0.1+ | 2009 11 24 | D29 | 0.7+ | 0.0 | 2009 12 11 | 703 | 0.4− | 0.5− |
| 2007 04 23 | G96 | 0.3+ | 0.6− | 2009 11 24 | D29 | 0.6+ | 0.2+ | | | | |
| 2007 04 23 | G96 | 0.1+ | 0.4− | 2009 11 24 | D29 | 0.1+ | 0.3+ | | | | |

**2009 WL$_{43}$ = 2005 QN$_{140}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 28.71376 | | (2000.0) | | | |
| $n$ | 0.27491014 | $\omega$ | 270.63583 | | +0.59775149 | −0.80148125 |
| $a$ | 2.3424781 | $\Omega$ | 142.63624 | | +0.74677169 | +0.54854214 |
| $e$ | 0.1723746 | $i$ | 1.69169 | | +0.29159082 | +0.23817919 |
| $P$ | 3.59 | $H$ | 18.1 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 12 07 | 291 | 0.3− | 0.1+ | 2005 09 01 | 691 | 0.0 | 0.3+ | 2009 11 17 | 691 | 0.0 | 0.2− |
| 2002 12 07 | 291 | 0.4+ | 0.9+ | 2005 09 22 | 644 | 0.5+ | 0.3− | 2009 11 17 | 691 | 0.1− | 0.1− |
| 2002 12 07 | 291 | 0.2+ | 0.2+ | 2005 09 22 | 644 | 0.2+ | 0.2− | 2009 11 21 | 691 | 0.0 | 0.1− |
| 2005 08 28 | 691 | 0.4− | 0.1− | 2005 09 22 | 644 | 0.2− | 0.1+ | 2009 11 21 | 691 | 0.2− | 0.1− |
| 2005 08 28 | 691 | 0.2− | 0.0 | 2005 10 11 | 691 | 0.1− | 0.3− | 2009 11 21 | 691 | 0.2− | 0.1− |
| 2005 08 28 | 691 | 0.1− | 0.3+ | 2005 10 11 | 691 | 0.6+ | 0.3− | 2009 12 17 | 704 | 0.6+ | 0.1− |
| 2005 09 01 | 691 | 0.1− | 0.4+ | 2005 10 11 | 691 | 0.1+ | 0.1+ | 2009 12 17 | 704 | 1.2+ | 0.4+ |
| 2005 09 01 | 691 | 0.0 | 0.3+ | 2009 11 17 | 691 | 0.1− | 0.3− | 2009 12 17 | 704 | 0.8+ | 0.5+ |

**2009 WD$_{44}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 28.05263 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17974887 | $\omega$ | 138.54515 | | +0.88307677 | −0.40145886 | |
| $a$ | 3.1095099 | $\Omega$ | 246.66736 | | +0.32973132 | +0.89924214 | |
| $e$ | 0.1016160 | $i$ | 15.33999 | | +0.33384529 | +0.17376522 | |
| $P$ | 5.48 | $H$ | 14.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 08 27 | 644 | 0.2− | 0.1+ | 2009 10 16 | 704 | 0.3+ | 0.5− | 2009 11 22 | 691 | 0.4− | 0.4+ |
| 2003 08 27 | 644 | 0.1+ | 0.2+ | 2009 10 16 | 704 | 0.8+ | 1.1− | 2009 11 22 | 691 | 0.1− | 0.4− |
| 2003 08 27 | 644 | 0.2− | 0.3+ | 2009 10 16 | 704 | 0.2+ | 0.4+ | 2009 12 11 | J75 | 0.6+ | 0.3+ |
| 2003 10 14 | 644 | 0.2+ | 0.2− | 2009 10 26 | G96 | 0.1+ | 0.3− | 2009 12 11 | J75 | 0.0 | 0.3− |
| 2003 10 14 | 644 | 0.3+ | 0.1+ | 2009 10 26 | G96 | 0.3+ | 0.1− | 2009 12 11 | J75 | 0.6+ | 0.3− |
| 2003 10 14 | 644 | 0.2+ | 0.3− | 2009 10 26 | G96 | 0.1− | 0.2− | 2009 12 13 | 703 | 1.1− | 0.2+ |
| 2003 10 14 | 644 | 0.4+ | 0.0 | 2009 10 26 | G96 | 0.3+ | 0.1− | 2009 12 13 | 703 | 1.0− | 0.7− |
| 2003 10 14 | 644 | 0.1+ | 0.1− | 2009 11 08 | 703 | 0.1+ | 0.2− | 2009 12 13 | 703 | 0.3+ | 1.2− |
| 2003 10 14 | 644 | 0.1+ | 0.1+ | 2009 11 08 | 703 | 0.2+ | 0.4+ | 2009 12 13 | 703 | (1.5− | 1.1−) |
| 2003 10 19 | 699 | 0.3− | 0.5− | 2009 11 08 | 703 | 0.2− | 0.5+ | 2009 12 13 | 703 | 0.3− | 0.3+ |
| 2003 10 19 | 699 | 0.8+ | 0.2− | 2009 11 08 | 703 | 0.1− | 0.7+ | 2009 12 13 | 703 | (1.1− | 1.6−) |
| 2003 10 19 | 699 | 0.2− | 0.1− | 2009 11 18 | 691 | 0.2− | 0.1+ | 2009 12 13 | 703 | 0.3− | 0.2− |
| 2003 10 19 | 699 | 1.1− | 0.2+ | 2009 11 18 | 691 | 0.2− | 0.2+ | 2009 12 13 | 703 | 0.7− | 1.1− |
| 2009 10 14 | 703 | 0.7+ | 0.4+ | 2009 11 18 | 691 | 0.2− | 0.1+ | 2009 12 16 | 704 | 0.3+ | 0.8+ |
| 2009 10 14 | 703 | (1.2+ | 1.8+) | 2009 11 21 | G96 | 0.3+ | 0.2− | 2009 12 16 | 704 | 0.4+ | 0.2− |
| 2009 10 14 | 703 | 0.0 | 0.5+ | 2009 11 21 | G96 | 0.5+ | 0.2− | 2009 12 16 | 704 | 0.6+ | 0.7− |
| 2009 10 14 | 703 | 0.6+ | 1.0+ | 2009 11 21 | G96 | 0.3+ | 0.4− | 2009 12 16 | 704 | 0.6− | 0.8+ |
| 2009 10 16 | 704 | (4.2+ | 1.3−) | 2009 11 21 | G96 | 0.1+ | 0.1+ | | | | |
| 2009 10 16 | 704 | 1.0+ | 0.5− | 2009 11 22 | 691 | 0.0 | 0.1+ | | | | |

**2009 WM$_{44}$ = 2006 DO$_{13}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 325.31081 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.20567919 | $\omega$ | 201.62315 | | −0.26956312 | −0.95222407 | |
| $a$ | 2.8423386 | $\Omega$ | 264.24347 | | +0.90331944 | −0.19838400 | |
| $e$ | 0.1245367 | $i$ | 8.29513 | | +0.33369103 | −0.23219195 | |
| $P$ | 4.79 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 10 20 | 691 | 0.1+ | 0.6− | 2006 03 04 | 703 | 0.2+ | 0.4− | 2009 11 18 | 691 | 0.1+ | 0.0 |
| 1999 10 20 | 691 | 0.0 | 0.0 | 2008 08 06 | 185 | 0.5− | 0.2+ | 2009 11 18 | 691 | 0.0 | 0.1+ |
| 1999 10 20 | 691 | 0.3+ | 0.2− | 2008 08 07 | 185 | 0.1+ | 0.3+ | 2009 11 21 | G96 | 0.8+ | 0.2+ |
| 2006 02 22 | 703 | 0.2+ | 1.1− | 2009 10 12 | G96 | 0.3+ | 0.2− | 2009 11 21 | G96 | 0.5+ | 0.1− |
| 2006 02 22 | 703 | 1.3− | 1.0− | 2009 10 12 | G96 | 0.5+ | 0.3− | 2009 11 21 | G96 | 0.3+ | 0.4− |
| 2006 02 22 | 703 | 0.1+ | 1.0− | 2009 10 12 | G96 | 0.2+ | 0.3− | 2009 11 21 | G96 | 0.6+ | 0.0 |
| 2006 02 22 | 703 | 0.3+ | 0.8− | 2009 10 12 | G96 | 0.1+ | 0.4− | 2009 11 22 | 691 | 0.2− | 0.2+ |
| 2006 02 23 | 699 | 1.1+ | 0.8+ | 2009 10 26 | G96 | 0.5+ | 0.1− | 2009 11 22 | 691 | 0.2− | 0.6+ |
| 2006 02 23 | 699 | 0.5− | 0.3− | 2009 10 26 | G96 | 0.2+ | 0.2− | 2009 11 22 | 691 | 0.6− | 0.2− |
| 2006 02 23 | 699 | 0.3− | 0.9+ | 2009 10 26 | G96 | 0.1− | 0.1+ | 2009 12 15 | 704 | 0.5− | 0.0 |
| 2006 02 23 | 699 | 0.8+ | 0.5− | 2009 11 09 | 691 | 0.2+ | 0.1− | 2009 12 15 | 704 | 0.7− | 1.1+ |
| 2006 03 04 | 703 | 0.8− | 0.7+ | 2009 11 09 | 691 | 0.0 | 0.0 | 2009 12 15 | 704 | 0.0 | 1.2+ |
| 2006 03 04 | 703 | 0.0 | 0.1+ | 2009 11 09 | 691 | 0.1− | 0.0 | | | | |
| 2006 03 04 | 703 | 0.6− | 0.7+ | 2009 11 18 | 691 | 0.1− | 0.2− | | | | |

**2009 WN$_{44}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 70.56891 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27629988 | $\omega$ | 318.43142 | | +0.84749306 | +0.53055575 | |
| $a$ | 2.3346167 | $\Omega$ | 9.56615 | | −0.45741749 | +0.74556634 | |
| $e$ | 0.2334318 | $i$ | 5.63330 | | −0.26930420 | +0.40328827 | |
| $P$ | 3.57 | $H$ | 17.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 07 06 | E12 | 0.2− | 0.1+ | 2008 04 30 | G96 | 0.1+ | 0.1+ | 2009 11 18 | 691 | 1.1− | 0.6+ |
| 2005 07 06 | E12 | 0.6− | 0.4+ | 2008 04 30 | G96 | 0.2− | 0.2+ | 2009 11 18 | 691 | 0.2− | 0.1+ |
| 2005 07 06 | E12 | 0.7+ | 0.1− | 2009 10 30 | G96 | 1.0+ | 0.0 | 2009 11 21 | G96 | 0.3+ | 0.2− |
| 2005 07 06 | E12 | 0.0 | 0.2− | 2009 10 30 | G96 | 0.2+ | 0.2− | 2009 11 21 | G96 | 0.0 | 0.3− |
| 2008 04 15 | G96 | 0.1− | 0.5− | 2009 10 30 | G96 | 1.0+ | 0.1+ | 2009 11 21 | G96 | 0.9+ | 0.4− |
| 2008 04 15 | G96 | 0.4+ | 0.2− | 2009 10 30 | G96 | 0.9+ | 0.1+ | 2009 11 21 | G96 | 0.0 | 0.5− |
| 2008 04 15 | G96 | 0.2− | 0.0 | 2009 11 09 | 691 | 0.2− | 0.4− | 2009 11 22 | 691 | 0.0 | 0.0 |
| 2008 04 15 | G96 | 0.1− | 0.0 | 2009 11 09 | 691 | 0.1+ | 0.2+ | 2009 11 22 | 691 | 0.4− | 0.2+ |
| 2008 04 30 | G96 | 0.3+ | 0.3+ | 2009 11 09 | 691 | 0.3+ | 0.0 | 2009 11 22 | 691 | 0.1+ | 0.1− |
| 2008 04 30 | G96 | 0.0 | 0.1+ | 2009 11 18 | 691 | 0.3+ | 0.4− | | | | |

**2009 WA$_{45}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 14.59117 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26151934 | $\omega$ | 335.08924 | | +0.56283649 | −0.82512039 | |
| $a$ | 2.4217734 | $\Omega$ | 80.62316 | | +0.76642395 | +0.49881303 | |
| $e$ | 0.1200955 | $i$ | 2.84100 | | +0.30953095 | +0.26525818 | |
| $P$ | 3.77 | $H$ | 18.0 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 01 | 691 | 0.1− | 0.2+ | 2007 03 12 | G96 | 0.2+ | 0.5+ | 2009 11 20 | G96 | 0.9− | 0.3− |
| 2005 10 01 | 691 | 0.2− | 0.1+ | 2007 03 12 | G96 | 0.1+ | 0.3+ | 2009 11 20 | G96 | 0.7+ | 0.9− |
| 2005 10 01 | 691 | 0.2− | 0.1− | 2007 03 12 | G96 | 0.1+ | 0.1+ | 2009 11 22 | 691 | 0.0 | 0.2− |
| 2005 10 12 | 691 | 0.0 | 0.1+ | 2007 03 12 | G96 | 0.0 | 0.1+ | 2009 11 22 | 691 | 0.0 | 0.1− |
| 2005 10 12 | 691 | 0.0 | 0.1− | 2009 10 25 | 691 | 0.1− | 0.0 | 2009 11 22 | 691 | 0.1− | 0.0 |
| 2005 10 12 | 691 | 0.1+ | 0.2+ | 2009 10 25 | 691 | 0.2− | 0.6+ | 2009 11 26 | 691 | 0.2+ | 0.0 |
| 2005 11 01 | G96 | 0.2+ | 0.1+ | 2009 10 25 | 691 | 0.4− | 0.4+ | 2009 11 26 | 691 | 0.1+ | 0.3+ |
| 2005 11 01 | G96 | 0.1− | 0.5− | 2009 11 10 | 691 | 0.2+ | 0.2− | 2009 11 26 | 691 | 0.2− | 0.0 |
| 2005 11 01 | G96 | 0.1+ | 0.6− | 2009 11 10 | 691 | 0.3− | 0.2+ | 2009 12 11 | G96 | 0.1− | 0.1+ |
| 2005 11 01 | G96 | 0.4+ | 0.8− | 2009 11 10 | 691 | 0.0 | 0.1+ | 2009 12 11 | G96 | 0.3+ | 0.0 |
| 2005 11 30 | G96 | 0.1+ | 0.1+ | 2009 11 18 | 691 | 0.5+ | 0.0 | 2009 12 11 | G96 | 0.4+ | 0.1− |
| 2005 11 30 | G96 | 0.3+ | 0.2− | 2009 11 18 | 691 | 0.1+ | 0.3− | 2009 12 11 | G96 | 0.5+ | 0.2− |
| 2005 11 30 | G96 | 0.6+ | 0.2− | 2009 11 18 | 691 | 0.1− | 0.0 | | | | |
| 2005 11 30 | G96 | 0.3− | 0.0 | 2009 11 20 | G96 | 0.3− | 0.3− | | | | |

**2009 WB$_{45}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 335.66260 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28073695 | $\omega$ | 254.66526 | | −0.32004160 | −0.94715040 | |
| $a$ | 2.3099522 | $\Omega$ | 214.02518 | | +0.88354798 | −0.29004906 | |
| $e$ | 0.1531389 | $i$ | 2.24276 | | +0.34193032 | −0.13703163 | |
| $P$ | 3.51 | $H$ | 18.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 02 12 | 645 | 0.0 | 0.1+ | 2007 02 23 | 691 | 0.1− | 0.6+ | 2009 11 18 | 691 | 0.1− | 0.1− |
| 2000 02 12 | 645 | 0.0 | 0.0 | 2007 02 23 | 691 | 0.5+ | 0.4− | 2009 11 18 | 691 | 0.1− | 0.1− |
| 2000 03 03 | 645 | 0.0 | 0.1− | 2009 10 27 | 691 | 0.3+ | 0.3+ | 2009 11 20 | G96 | 0.4+ | 0.4− |
| 2000 03 03 | 645 | 0.0 | 0.0 | 2009 10 27 | 691 | 0.0 | 0.1+ | 2009 11 20 | G96 | 0.4+ | 0.1− |
| 2007 02 17 | G96 | 0.0 | 0.3+ | 2009 10 27 | 691 | 0.2− | 0.2− | 2009 11 20 | G96 | 0.2+ | 0.1− |
| 2007 02 17 | G96 | 1.1− | 0.4+ | 2009 11 10 | 691 | 0.0 | 0.2+ | 2009 12 19 | G96 | 0.4+ | 0.2+ |
| 2007 02 17 | G96 | 0.2+ | 0.1+ | 2009 11 10 | 691 | 0.0 | 0.0 | 2009 12 19 | G96 | 1.1+ | 0.1− |
| 2007 02 17 | G96 | 0.9− | 0.3+ | 2009 11 10 | 691 | 0.3− | 0.1− | 2009 12 19 | G96 | 0.2+ | 0.0 |
| 2007 02 23 | 691 | 0.3+ | 0.1− | 2009 11 18 | 691 | 0.1− | 0.1− | 2009 12 19 | G96 | 0.1− | 0.3+ |

**2009 WH$_{45}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 275.81594 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23042097 | $\omega$ | 96.52809 | | −0.92797014 | −0.27655740 | |
| $a$ | 2.6350450 | $\Omega$ | 67.64988 | | +0.13054398 | −0.86903461 | |
| $e$ | 0.0865434 | $i$ | 15.66799 | | +0.34904111 | −0.41023755 | |
| $P$ | 4.28 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 05 09 | 703 | 0.5− | 0.1+ | 2009 11 10 | 691 | 0.1+ | 0.1− | 2009 11 22 | 691 | 0.3+ | 0.2+ |
| 2007 05 09 | 703 | 0.6+ | 0.1− | 2009 11 10 | 691 | 0.3+ | 0.2+ | 2009 11 22 | 691 | 0.2+ | 0.1− |
| 2007 05 09 | 703 | (1.7+ | 2.3+) | 2009 11 18 | 691 | 0.1− | 0.1+ | 2009 11 25 | 703 | 0.1+ | 0.7− |
| 2007 05 09 | 703 | 1.1− | 0.4+ | 2009 11 18 | 691 | 0.3− | 0.1+ | 2009 11 25 | 703 | 1.1− | 1.2− |
| 2007 05 10 | 699 | (4.6+ | 1.9−) | 2009 11 18 | 691 | 0.4− | 0.1+ | 2009 11 25 | 703 | 0.5− | 0.3+ |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 05 10 | 699 | 1.1+ | 0.2+ | 2009 11 19 | J75 | 1.4+ | 1.1− | 2009 11 25 | 703 | 0.4− | 0.5− |
| 2007 05 10 | 699 | 1.0− | 0.8+ | 2009 11 19 | J75 | 0.1+ | 0.0 | 2009 11 26 | 691 | 0.2+ | 0.2+ |
| 2007 05 10 | 699 | 0.9+ | 1.4− | 2009 11 20 | J75 | 0.5− | 0.8− | 2009 11 26 | 691 | 0.0 | 0.3+ |
| 2009 11 10 | 691 | 0.1− | 0.1− | 2009 11 22 | 691 | 0.0 | 0.1− | 2009 11 26 | 691 | 0.1+ | 0.1+ |

**2009 WL$_{45}$ = 1995 UL$_{81}$ = 2004 SY$_{45}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 34.24041 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21859630 | $\omega$ | 178.45445 | | +0.81987547 | −0.56992907 | |
| $a$ | 2.7292344 | $\Omega$ | 216.46643 | | +0.52430575 | +0.78571276 | |
| $e$ | 0.0464888 | $i$ | 5.27437 | | +0.23001673 | +0.24049182 | |
| $P$ | 4.51 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 08 28 | 691 | 0.2− | 0.0 | 2004 09 22 | 704 | (0.3+ | 1.9+) | 2008 07 29 | G96 | 0.6+ | 0.1+ |
| 1995 08 28 | 691 | 0.3− | 0.2− | 2004 09 22 | 704 | (1.1− | 2.4+) | 2009 11 09 | G96 | 0.3+ | 0.1− |
| 1995 08 28 | 691 | 0.2− | 0.0 | 2004 09 22 | 704 | 0.3+ | 0.7+ | 2009 11 09 | G96 | 0.2+ | 0.1− |
| 1995 10 23 | 691 | 0.3+ | 0.2− | 2006 02 02 | G96 | 0.3− | 0.4− | 2009 11 09 | G96 | 0.2+ | 0.0 |
| 1995 10 23 | 691 | 0.1+ | 0.3− | 2006 02 02 | G96 | 0.1− | 0.3− | 2009 11 09 | G96 | 0.3− | 0.5+ |
| 1995 10 23 | 691 | 0.4+ | 0.1− | 2006 02 02 | G96 | 0.2+ | 0.1+ | 2009 11 18 | 691 | 0.3− | 0.1+ |
| 1995 10 28 | 691 | 0.3− | 0.0 | 2007 03 26 | 691 | 0.0 | 0.1+ | 2009 11 18 | 691 | 0.2+ | 0.0 |
| 1995 10 28 | 691 | 0.6− | 0.1− | 2007 03 26 | 691 | 0.4+ | 0.7+ | 2009 11 18 | 691 | 0.0 | 0.0 |
| 1995 10 28 | 691 | 0.2− | 0.1− | 2007 03 26 | 691 | 0.6− | 0.5− | 2009 11 19 | J75 | 0.9+ | 1.1− |
| 2000 12 29 | 691 | 0.5+ | 0.8+ | 2007 05 07 | 691 | 0.1+ | 0.4+ | 2009 11 19 | J75 | 0.6+ | 0.2+ |
| 2000 12 29 | 691 | 0.3+ | 0.8+ | 2007 05 07 | 691 | 0.2+ | 0.2+ | 2009 11 20 | J75 | 1.3+ | 0.5− |
| 2000 12 29 | 691 | 0.7+ | 0.8+ | 2007 05 07 | 691 | 0.1− | 0.6+ | 2009 11 22 | 691 | 0.1+ | 0.1− |
| 2004 09 18 | 704 | 0.8− | 0.2+ | 2008 06 02 | G96 | 0.5+ | 0.3+ | 2009 11 22 | 691 | 0.3− | 0.2+ |
| 2004 09 18 | 704 | 0.9− | 0.0 | 2008 06 02 | G96 | 0.4+ | 0.3+ | 2009 11 22 | 691 | 0.1− | 0.1− |
| 2004 09 18 | 704 | 1.2+ | 0.2− | 2008 06 02 | G96 | 0.2+ | 0.3+ | 2009 11 26 | 691 | 0.2− | 0.0 |
| 2004 09 18 | 704 | (0.5− | 1.7+) | 2008 06 02 | G96 | 0.0 | 0.3+ | 2009 11 26 | 691 | 0.3− | 0.2+ |
| 2004 09 18 | 704 | 0.3+ | 0.2− | 2008 06 30 | 691 | 0.1− | 0.1+ | 2009 11 26 | 691 | 0.1− | 0.2+ |
| 2004 09 18 | 704 | (0.2− | 1.9+) | 2008 06 30 | 691 | 0.3− | 0.6+ | 2009 12 19 | 691 | 0.6− | 0.4− |
| 2004 09 18 | 704 | 0.4− | 0.7− | 2008 06 30 | 691 | 0.0 | 0.4+ | 2009 12 19 | 691 | 0.1− | 0.1− |
| 2004 09 18 | 704 | 0.4+ | 0.0 | 2008 07 29 | G96 | 0.4+ | 0.1− | 2009 12 19 | 691 | 0.2− | 0.0 |
| 2004 09 22 | 704 | 0.1− | 0.6+ | 2008 07 29 | G96 | 0.7+ | 0.2− | | | | |
| 2004 09 22 | 704 | 0.4− | 1.1+ | 2008 07 29 | G96 | 0.9+ | 0.0 | | | | |

**2009 WG$_{46}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 23.05143 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19538839 | $\omega$ | 315.79832 | | +0.74378851 | −0.61909795 | |
| $a$ | 2.9412835 | $\Omega$ | 84.16937 | | +0.66171381 | +0.62875518 | |
| $e$ | 0.1166824 | $i$ | 14.67260 | | +0.09441130 | +0.47051530 | |
| $P$ | 5.04 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 02 28 | G96 | 0.1− | 0.1+ | 2009 11 09 | 703 | 0.5+ | 0.5− | 2009 11 22 | 703 | 0.0 | 0.4− |
| 2006 02 28 | G96 | 0.1+ | 0.0 | 2009 11 09 | 703 | 0.0 | 0.3+ | 2009 11 22 | G96 | 0.6+ | 0.0 |
| 2006 02 28 | G96 | 0.3+ | 0.1+ | 2009 11 09 | 703 | 0.6− | 0.6− | 2009 11 22 | G96 | 0.1− | 0.1− |
| 2007 04 25 | 691 | 0.1+ | 0.3+ | 2009 11 09 | 703 | 0.4+ | 0.3− | 2009 11 22 | G96 | 0.4+ | 0.1+ |
| 2007 04 25 | 691 | 0.3+ | 0.2+ | 2009 11 18 | 683 | 0.5− | 0.7+ | 2009 11 23 | 683 | 0.6+ | 0.7− |
| 2007 04 25 | 691 | 0.0 | 0.2+ | 2009 11 18 | 683 | 0.9− | 0.5+ | 2009 11 23 | 683 | 0.2− | 0.3− |
| 2007 05 16 | G96 | 0.2− | 0.5− | 2009 11 18 | 683 | (0.1− | 1.8+) | 2009 11 23 | 683 | (0.7+ | 2.0−) |
| 2007 05 16 | G96 | 0.2+ | 0.0 | 2009 11 19 | J75 | 0.1+ | 0.4+ | 2009 11 24 | 683 | (1.2+ | 2.3−) |
| 2007 05 16 | G96 | 0.0 | 0.2+ | 2009 11 20 | J75 | 0.1+ | 0.1− | 2009 11 24 | 683 | (3.0+ | 1.6+) |
| 2007 05 16 | G96 | 0.2− | 0.2+ | 2009 11 20 | J75 | 0.4+ | 1.0+ | 2009 12 13 | 704 | 0.1+ | 0.8+ |
| 2008 08 03 | E12 | 0.3+ | 0.2+ | 2009 11 22 | 683 | (1.3− | 3.7+) | 2009 12 13 | 704 | 0.7− | 0.2+ |
| 2008 08 03 | E12 | 0.8− | 0.3+ | 2009 11 22 | 683 | 0.6+ | 0.1+ | 2009 12 13 | 704 | 0.3+ | 0.6+ |
| 2008 08 03 | E12 | 0.6+ | 0.6+ | 2009 11 22 | 683 | 0.8− | 0.4+ | 2009 12 13 | 704 | 1.2− | 1.7+ |
| 2008 08 03 | E12 | 0.2− | 0.5+ | 2009 11 22 | 703 | 0.8− | 0.1+ | 2009 12 18 | 691 | 0.1− | 0.0 |
| 2009 10 17 | 703 | 0.2+ | 0.5− | 2009 11 22 | 703 | 0.1− | 1.2+ | 2009 12 18 | 691 | 0.2− | 0.1+ |
| 2009 10 17 | 703 | 1.1+ | 0.4− | 2009 11 22 | 703 | 1.5+ | 0.3+ | 2009 12 18 | 691 | 0.3− | 0.3− |
| 2009 10 17 | 703 | 0.3+ | 0.1+ | 2009 11 22 | 703 | 0.1− | 0.0 | | | | |
| 2009 10 17 | 703 | 0.0 | 1.0− | 2009 11 22 | G96 | 0.0 | 0.1− | | | | |

**2009 WW$_{46}$ = 2006 DJ$_{64}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 161.61538 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19166753 | $\omega$ | 168.29614 | | −0.18334972 | +0.96706036 | |
| $a$ | 2.9792277 | $\Omega$ | 90.95308 | | −0.91557915 | −0.10259461 | |
| $e$ | 0.0572456 | $i$ | 10.17149 | | −0.35790740 | −0.23295622 | |
| $P$ | 5.14 | $H$ | 15.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 08 23 | 644 | 0.1− | 0.2+ | 2007 05 07 | 703 | 1.7− | 0.2+ | 2009 10 14 | G96 | 0.0 | 0.2+ |
| 2003 08 23 | 644 | 0.1− | 0.2+ | 2007 05 07 | 703 | 1.1+ | 0.3− | 2009 10 14 | G96 | 0.3− | 0.1+ |
| 2003 08 23 | 644 | 0.2+ | 0.4+ | 2007 05 07 | 703 | 0.7+ | 0.7+ | 2009 11 18 | G96 | 0.5+ | 0.1− |
| 2004 12 09 | 703 | 0.5− | 0.6+ | 2007 05 07 | 703 | 1.5+ | 0.8+ | 2009 11 18 | G96 | 0.1− | 0.1− |
| 2004 12 09 | 703 | 0.4− | 0.5+ | 2007 05 17 | 703 | 1.2− | 0.3− | 2009 11 18 | G96 | 0.1− | 0.2− |
| 2004 12 09 | 703 | 0.7− | 1.1+ | 2007 05 17 | 703 | 0.2− | 0.7+ | 2009 11 18 | G96 | 0.1− | 0.1− |
| 2004 12 09 | 703 | 0.3+ | 0.7− | 2007 05 17 | 703 | 1.1− | 0.2+ | 2009 11 19 | J75 | 0.4+ | 0.4+ |
| 2006 02 20 | 704 | 0.8+ | 0.7− | 2007 05 17 | 703 | 0.7− | 1.0+ | 2009 11 19 | J75 | 0.4+ | 0.2+ |
| 2006 02 20 | 704 | 0.1+ | 0.3+ | 2007 05 24 | 703 | 0.2− | 0.9− | 2009 11 19 | J75 | 0.5+ | 0.1+ |
| 2006 02 20 | 704 | 0.3+ | 0.9+ | 2007 05 24 | 703 | 0.4− | 0.2− | 2009 11 25 | G96 | 0.1+ | 0.1− |
| 2006 02 20 | 704 | (1.8− | 1.5+) | 2007 05 24 | 703 | 0.6− | 0.7+ | 2009 11 25 | G96 | 0.3− | 0.6− |
| 2006 02 24 | 699 | 0.2+ | 1.2+ | 2007 05 24 | 703 | 0.7+ | 0.4+ | 2009 11 25 | G96 | 0.6+ | 0.2− |
| 2006 02 24 | 699 | (0.2+ | 2.8+) | 2008 08 05 | E12 | 0.0 | 0.7+ | 2009 11 25 | G96 | 0.1+ | 0.1+ |
| 2006 02 24 | 699 | 0.5− | 0.3− | 2008 08 05 | E12 | 0.1− | 0.1− | 2009 12 10 | 703 | 0.3− | 0.6+ |
| 2006 02 24 | 699 | 0.4+ | 0.3+ | 2008 08 05 | E12 | 0.0 | 0.2+ | 2009 12 10 | 703 | 0.3+ | 1.5− |
| 2007 04 20 | 691 | 0.2+ | 0.1+ | 2008 08 05 | E12 | 0.1− | 0.8+ | 2009 12 10 | 703 | 0.1− | 0.7+ |
| 2007 04 20 | 691 | 0.2+ | 0.0 | 2009 10 14 | G96 | 0.0 | 0.0 | 2009 12 10 | 703 | 2.2− | 0.6+ |
| 2007 04 20 | 691 | 0.2+ | 0.2− | 2009 10 14 | G96 | 0.3+ | 0.3+ | | | | |

**2009 WY$_{46}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 348.83652 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18182916 | $\omega$ | 243.01997 | | +0.23385140 | −0.97152215 | |
| $a$ | 3.0857474 | $\Omega$ | 193.61974 | | +0.93961927 | +0.23591656 | |
| $e$ | 0.0671762 | $i$ | 9.33277 | | +0.24985827 | +0.02209279 | |
| $P$ | 5.42 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 04 15 | 691 | 0.3+ | 0.5+ | 2008 08 05 | J75 | 0.2− | 0.3+ | 2009 11 18 | G96 | 0.4+ | 0.1− |
| 2001 04 15 | 691 | 0.2+ | 0.6+ | 2008 08 05 | J75 | 0.5+ | 0.5+ | 2009 11 18 | G96 | 0.8+ | 0.2− |
| 2001 04 15 | 691 | 0.2+ | 0.6+ | 2009 10 14 | G96 | 0.0 | 0.1− | 2009 11 18 | G96 | 0.7+ | 0.2− |
| 2003 10 24 | 645 | 0.1− | 0.2+ | 2009 10 14 | G96 | 0.1+ | 0.0 | 2009 11 18 | G96 | 0.0 | 0.1− |
| 2003 10 24 | 645 | 0.1− | 0.1+ | 2009 10 14 | G96 | 0.2+ | 0.1− | 2009 11 19 | J75 | (1.8+ | 0.4+) |
| 2006 03 09 | 691 | 0.0 | 0.5+ | 2009 10 14 | G96 | 0.4+ | 0.3− | 2009 11 19 | J75 | 0.3+ | 0.5+ |
| 2006 03 09 | 691 | 0.2− | 0.1+ | 2009 11 09 | 703 | 0.8− | 0.0 | 2009 11 19 | J75 | 0.4+ | 0.7− |
| 2006 03 09 | 691 | 0.0 | 0.3+ | 2009 11 09 | 703 | 0.2− | 0.7+ | 2009 12 10 | 703 | 0.3+ | 0.6− |
| 2008 07 28 | G96 | 0.1+ | 0.0 | 2009 11 09 | 703 | 0.2+ | 0.9+ | 2009 12 10 | 703 | 0.0 | 1.9+ |
| 2008 07 28 | G96 | 0.6− | 0.3+ | 2009 11 09 | 703 | 0.5− | 0.7− | 2009 12 10 | 703 | 0.7− | 2.1+ |
| 2008 07 28 | G96 | 0.3− | 0.0 | 2009 11 18 | 683 | (1.7− | 3.2+) | 2009 12 10 | 703 | 0.4− | 0.9+ |
| 2008 07 28 | G96 | 0.4− | 0.0 | 2009 11 18 | 683 | 0.6− | 0.1+ | | | | |
| 2008 08 05 | J75 | 0.6+ | 0.0 | 2009 11 18 | 683 | (3.5− | 1.4−) | | | | |

**2009 WN$_{47}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 15.12371 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.25661906 | $\omega$ | 8.15083 | | +0.81084484 | −0.58475889 | |
| $a$ | 2.4525062 | $\Omega$ | 27.67939 | | +0.53398053 | +0.72220802 | |
| $e$ | 0.2004527 | $i$ | 2.99148 | | +0.23957347 | +0.36942200 | |
| $P$ | 3.84 | $H$ | 18.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 13 | 691 | 0.0 | 0.1+ | 2009 10 02 | G96 | 0.0 | 0.0 | 2009 11 19 | 691 | 0.0 | 0.1+ |
| 2005 09 13 | 691 | 0.1+ | 0.0 | 2009 10 24 | 691 | 0.1− | 0.0 | 2009 11 21 | 691 | 0.0 | 0.0 |
| 2005 09 13 | 691 | 0.0 | 0.1− | 2009 10 24 | 691 | 0.2+ | 0.0 | 2009 11 21 | 691 | 0.2− | 0.1+ |
| 2005 10 11 | 691 | 0.3− | 0.5+ | 2009 10 24 | 691 | 0.3− | 0.1+ | 2009 11 21 | 691 | 0.1− | 0.1+ |
| 2005 10 11 | 691 | 0.0 | 0.2+ | 2009 11 08 | 691 | 0.1− | 0.1+ | 2009 11 23 | 691 | 0.4+ | 0.2− |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 11 | 691 | 0.1+ | 0.5− | 2009 11 08 | 691 | 0.6+ | 0.2+ | 2009 11 23 | 691 | 0.2+ | 0.8− | | |
| 2009 10 02 | G96 | 0.2+ | 0.4− | 2009 11 08 | 691 | 0.4− | 0.3− | 2009 11 23 | 691 | 0.4− | 0.5+ | | |
| 2009 10 02 | G96 | 0.2+ | 0.5− | 2009 11 19 | 691 | 0.1+ | 0.0 | | | | | | |
| 2009 10 02 | G96 | 0.4+ | 0.1− | 2009 11 19 | 691 | 0.0 | 0.1+ | | | | | | |

**2009 WD$_{48}$ = 2006 HC$_{88}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 324.25112 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18234273 | $\omega$ | 267.86064 | | −0.46076739 | −0.88714122 | |
| $a$ | 3.0799506 | $\Omega$ | 209.62001 | | +0.83373702 | −0.42263245 | |
| $e$ | 0.0451346 | $i$ | 3.01069 | | +0.30426305 | −0.18537060 | |
| $P$ | 5.41 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 11 23 | 691 | 0.0 | 0.1− | 2006 04 30 | 691 | 0.4+ | 0.2+ | 2009 09 22 | G96 | 0.3+ | 0.3+ |
| 1998 11 23 | 691 | 0.2+ | 0.0 | 2006 04 30 | 691 | 0.3+ | 0.1+ | 2009 09 22 | G96 | 0.2+ | 0.3+ |
| 1998 11 23 | 691 | 0.5+ | 0.1− | 2006 05 01 | 691 | 0.3+ | 0.1+ | 2009 11 19 | 691 | 0.2− | 0.0 |
| 1998 12 13 | 691 | 0.1− | 0.3− | 2006 05 01 | 691 | 0.4+ | 0.3+ | 2009 11 19 | 691 | 0.1− | 0.1+ |
| 1998 12 13 | 691 | 0.1− | 0.4+ | 2006 05 01 | 691 | 0.2− | 0.1+ | 2009 11 19 | 691 | 0.7− | 0.7− |
| 1998 12 13 | 691 | 0.1− | 0.4− | 2008 09 07 | G96 | 0.2+ | 0.6+ | 2009 11 20 | 691 | 0.6− | 0.1+ |
| 2001 04 24 | 291 | 0.8− | 0.5+ | 2008 09 07 | G96 | 0.5+ | 0.7+ | 2009 11 20 | 691 | 0.6− | 0.2− |
| 2001 04 24 | 291 | 0.8− | 0.2+ | 2008 09 07 | G96 | 0.5+ | 1.0+ | 2009 11 20 | 691 | 0.1− | 0.3+ |
| 2001 04 24 | 291 | (2.0− | 0.4+) | 2008 09 07 | G96 | 0.3+ | 1.0+ | 2009 11 23 | 691 | 0.1− | 0.1+ |
| 2004 12 03 | 691 | 0.4+ | 0.3+ | 2008 09 22 | G96 | 0.3+ | 0.2+ | 2009 11 23 | 691 | 0.1− | 1.1+ |
| 2004 12 03 | 691 | 0.2+ | 0.1+ | 2008 09 22 | G96 | 0.1− | 0.4+ | 2009 11 23 | 691 | 0.0 | 0.1+ |
| 2004 12 03 | 691 | 0.1− | 0.2+ | 2008 09 22 | G96 | 0.2+ | 0.5+ | 2009 11 27 | 691 | 0.1+ | 0.3+ |
| 2004 12 18 | 691 | 0.1+ | 0.0 | 2008 09 22 | G96 | 0.1− | 0.6+ | 2009 11 27 | 691 | 0.2+ | 0.0 |
| 2004 12 18 | 691 | 0.1+ | 0.2+ | 2008 11 24 | G96 | 0.1+ | 0.7+ | 2009 11 27 | 691 | 0.2− | 0.1+ |
| 2004 12 18 | 691 | 0.3− | 0.1− | 2008 11 24 | G96 | 0.1− | 0.2+ | 2009 12 11 | G96 | 0.5+ | 0.1− |
| 2005 01 16 | 691 | 0.0 | 0.2− | 2008 11 24 | G96 | 0.1+ | 0.7+ | 2009 12 11 | G96 | 0.6+ | 0.2− |
| 2005 01 16 | 691 | 0.0 | 0.1− | 2008 11 24 | G96 | 0.3− | 0.5+ | 2009 12 11 | G96 | 0.4+ | 0.1− |
| 2005 01 16 | 691 | 0.2+ | 0.2− | 2009 09 22 | G96 | 0.2+ | 0.4− | | | | |
| 2006 04 30 | 691 | 0.6+ | 0.1+ | 2009 09 22 | G96 | 0.7+ | 0.0 | | | | |

**2009 WZ$_{48}$ = 2003 TQ$_{23}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 283.43507 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17750901 | $\omega$ | 163.85080 | | −0.78805299 | −0.61112095 | |
| $a$ | 3.1356129 | $\Omega$ | 337.96179 | | +0.54067628 | −0.62946667 | |
| $e$ | 0.0850430 | $i$ | 11.40324 | | +0.29434952 | −0.47989884 | |
| $P$ | 5.55 | $H$ | 15.3 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 01 | 691 | 0.2− | 0.0 | 2008 10 02 | G96 | 0.3− | 0.7+ | 2009 10 30 | G96 | 0.3+ | 0.1− |
| 2003 10 01 | 691 | 0.2− | 0.1+ | 2008 10 02 | G96 | 0.5− | 0.5+ | 2009 10 30 | G96 | 0.1− | 0.1− |
| 2003 10 01 | 691 | 0.2− | 0.1+ | 2008 10 02 | G96 | 0.2− | 0.5+ | 2009 11 08 | 703 | 1.3− | 0.3− |
| 2003 10 16 | 691 | 0.1+ | 0.2+ | 2009 09 17 | 114 | 0.1− | 0.2− | 2009 11 08 | 703 | 0.1− | 0.1+ |
| 2003 10 16 | 691 | 0.3− | 0.0 | 2009 09 17 | 114 | 0.4+ | 0.5− | 2009 11 08 | 703 | 0.3− | 0.1+ |
| 2003 10 16 | 691 | 0.4+ | 0.3+ | 2009 09 17 | 114 | 0.4− | 0.6+ | 2009 11 08 | 703 | (2.8− | 2.4+) |
| 2006 03 09 | 691 | 0.0 | 0.8+ | 2009 09 17 | 114 | 0.2+ | 0.4− | 2009 11 19 | 703 | 0.1− | 0.2− |
| 2006 03 09 | 691 | 0.6+ | 0.4+ | 2009 09 18 | 114 | 0.2− | 0.1− | 2009 11 19 | 703 | 1.2+ | 0.1− |
| 2006 03 09 | 691 | 0.3+ | 0.3+ | 2009 10 16 | 703 | 0.1+ | 1.1− | 2009 11 19 | 703 | 0.6+ | 1.2− |
| 2008 09 06 | G96 | 0.5− | 0.5+ | 2009 10 16 | 703 | 1.3+ | 0.8+ | 2009 11 19 | 703 | 0.9+ | 0.8+ |
| 2008 09 06 | G96 | 0.2− | 0.2+ | 2009 10 16 | 703 | 1.5− | 0.1+ | 2009 11 20 | 291 | 0.0 | 0.3+ |
| 2008 09 06 | G96 | 0.0 | 0.2+ | 2009 10 16 | 703 | 0.6− | 0.3− | 2009 11 20 | 291 | 0.1− | 0.3+ |
| 2008 09 06 | G96 | 0.2− | 0.4+ | 2009 10 30 | G96 | 0.3+ | 0.2+ | 2009 11 20 | 291 | 0.2− | 0.2+ |
| 2008 10 02 | G96 | 0.1+ | 0.3+ | 2009 10 30 | G96 | 0.2− | 0.4− | | | | |

**2009 WF$_{49}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 27.26384 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18910580 | $\omega$ | 316.31403 | | +0.89840102 | −0.40020896 | |
| $a$ | 3.0060728 | $\Omega$ | 68.08443 | | +0.43709097 | +0.77472071 | |
| $e$ | 0.1447747 | $i$ | 11.24134 | | +0.04274440 | +0.48953101 | |
| $P$ | 5.21 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 11 11 | 691 | 0.1+ | 0.1+ | 2009 11 09 | 703 | 0.0 | 0.2+ | 2009 11 21 | 703 | 0.5− | 0.9+ |
| 2004 11 11 | 691 | 0.2− | 0.1+ | 2009 11 09 | 703 | 0.5− | 0.3+ | 2009 11 21 | 703 | 0.3− | 0.1+ |
| 2004 11 11 | 691 | 0.0 | 0.2+ | 2009 11 09 | 703 | 0.6+ | 0.7− | 2009 12 13 | 704 | 0.3+ | 0.5− |
| 2004 11 20 | 691 | 0.1+ | 0.2− | 2009 11 09 | 703 | 0.6+ | 0.0 | 2009 12 13 | 704 | 0.3− | 0.0 |
| 2004 11 20 | 691 | 0.1+ | 0.1− | 2009 11 19 | G96 | 0.1+ | 0.4− | 2009 12 13 | 704 | 1.6− | 1.1+ |
| 2004 11 20 | 691 | 0.1− | 0.0 | 2009 11 19 | G96 | 0.2+ | 0.5− | 2009 12 13 | 704 | 0.6− | 0.7− |
| 2009 10 24 | 703 | 0.3− | 0.4+ | 2009 11 19 | G96 | 0.3+ | 0.4− | 2009 12 19 | G96 | 0.1+ | 0.5+ |
| 2009 10 24 | 703 | 0.2− | 0.0 | 2009 11 19 | G96 | 0.3+ | 0.2− | 2009 12 19 | G96 | 0.3+ | 0.1+ |
| 2009 10 24 | 703 | 0.6− | 0.1+ | 2009 11 21 | 703 | 0.0 | 0.5+ | 2009 12 19 | G96 | 0.3+ | 0.3− |
| 2009 10 24 | 703 | 1.3+ | 0.5− | 2009 11 21 | 703 | 0.1+ | 0.4+ | 2009 12 19 | G96 | 0.3+ | 0.2− |

**2009 WP$_{50}$ = 2004 PF$_{109}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 26.18099 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21555561 | $\omega$ | 221.91477 | | +0.92359095 | −0.38241577 | |
| $a$ | 2.7548408 | $\Omega$ | 160.51751 | | +0.36982648 | +0.87002803 | |
| $e$ | 0.3047756 | $i$ | 4.67190 | | +0.10103532 | +0.31114211 | |
| $P$ | 4.57 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 08 11 | 704 | 0.0 | 0.8+ | 2009 10 14 | G96 | 0.0 | 0.0 | 2009 11 21 | 703 | 0.2+ | 0.3+ |
| 2004 08 11 | 704 | 0.9− | 0.2− | 2009 10 14 | G96 | 0.3+ | 0.2− | 2009 11 21 | 703 | 0.5− | 0.7− |
| 2004 08 11 | 704 | 0.8− | 0.4+ | 2009 10 14 | G96 | 0.6+ | 0.2− | 2009 11 21 | 703 | 0.1− | 0.3+ |
| 2004 08 11 | 599 | 0.7+ | 0.4− | 2009 10 25 | 291 | 0.2− | 0.1+ | 2009 11 21 | 703 | 0.3− | 0.2+ |
| 2004 08 11 | 599 | 0.2+ | 0.1− | 2009 10 25 | 291 | 0.1− | 0.1+ | 2009 12 10 | 703 | 0.3+ | 0.2+ |
| 2004 08 11 | 599 | 0.4+ | 0.4− | 2009 10 25 | 291 | 0.1− | 0.1+ | 2009 12 10 | 703 | 0.2− | 1.1− |
| 2004 08 13 | 807 | 0.3+ | 0.0 | 2009 11 19 | J75 | 0.0 | 0.1+ | 2009 12 10 | 703 | 0.2− | 0.4+ |
| 2004 08 13 | 807 | 0.1+ | 0.2− | 2009 11 19 | J75 | 0.6+ | 0.4− | 2009 12 10 | 703 | 0.7+ | 0.1− |
| 2009 10 14 | G96 | 0.3+ | 0.4− | 2009 11 19 | J75 | 0.2− | 0.2+ | | | | |

**2009 WA$_{51}$ = 2006 FS$_{11}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 306.17434 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18839383 | $\omega$ | 100.63137 | | −0.54005652 | −0.83872721 | |
| $a$ | 3.0136416 | $\Omega$ | 22.48723 | | +0.68305508 | −0.48526256 | |
| $e$ | 0.1781864 | $i$ | 10.51899 | | +0.49170592 | −0.24709697 | |
| $P$ | 5.23 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 03 23 | 691 | 0.2+ | 0.1+ | 2009 09 21 | G96 | 1.0+ | 0.2− | 2009 10 25 | 291 | 0.3− | 0.3− |
| 2006 03 23 | 691 | 0.3− | 0.2− | 2009 09 21 | G96 | 0.7+ | 0.3− | 2009 10 25 | 291 | 0.1+ | 0.1− |
| 2006 03 23 | 691 | 0.2− | 0.1+ | 2009 09 21 | G96 | 0.3+ | 0.4− | 2009 11 20 | G96 | 0.2− | 0.0 |
| 2006 03 25 | 691 | 0.1+ | 0.2− | 2009 09 29 | G96 | 0.3− | 0.3+ | 2009 11 20 | G96 | 0.2+ | 0.1+ |
| 2006 03 25 | 691 | 0.1+ | 0.1+ | 2009 09 29 | G96 | 0.8+ | 0.2+ | 2009 11 20 | G96 | 0.3+ | 0.0 |
| 2006 03 25 | 691 | 0.2+ | 0.0 | 2009 09 29 | G96 | 0.5+ | 0.2− | 2009 11 20 | G96 | 0.2+ | 0.1− |
| 2006 05 19 | G96 | 0.5− | 0.2+ | 2009 09 29 | G96 | 0.1− | 0.0 | 2009 11 21 | G96 | 0.0 | 0.0 |
| 2006 05 19 | G96 | 0.2− | 0.1− | 2009 10 25 | 691 | 0.0 | 0.2+ | 2009 11 21 | G96 | 0.3+ | 0.1+ |
| 2006 05 19 | G96 | 0.0 | 0.1− | 2009 10 25 | 691 | 0.1− | 0.4+ | 2009 11 21 | G96 | 0.6+ | 0.2− |
| 2006 05 19 | G96 | 0.2− | 0.3− | 2009 10 25 | 691 | 0.3+ | 0.3+ | 2009 11 21 | G96 | 0.3+ | 0.1− |
| 2009 09 21 | G96 | 0.1+ | 0.1− | 2009 10 25 | 291 | 0.9− | 0.3− | | | | |

**2009 WK$_{51}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 77.29948 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18434993 | $\omega$ | 280.46713 | | +0.96764281 | +0.16714655 | |
| $a$ | 3.0575535 | $\Omega$ | 70.11349 | | −0.06526473 | +0.88942845 | |
| $e$ | 0.1333364 | $i$ | 11.59596 | | −0.24373737 | +0.42541633 | |
| $P$ | 5.35 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 01 | 699 | 0.4− | 0.9+ | 2008 08 23 | E12 | 0.5+ | 0.5− | 2009 11 21 | 691 | 0.0 | 0.1+ |
| 2003 10 01 | 699 | 0.0 | 0.6+ | 2008 08 23 | E12 | 0.1+ | 0.8+ | 2009 11 21 | 691 | 0.2− | 0.1+ |
| 2003 10 01 | 699 | 0.1− | 0.3− | 2008 08 23 | E12 | 0.7− | 1.2+ | 2009 11 21 | 691 | 0.2+ | 0.4− |
| 2003 10 01 | 699 | 0.9+ | 0.7− | 2008 08 23 | E12 | 0.7− | 0.6+ | 2009 12 10 | 704 | 0.1− | 0.3+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 29 | 699 | 1.2− | 0.6− | 2009 11 09 | 691 | 0.6− | 0.7+ | 2009 12 10 | 704 | 0.3− | 1.0+ | | |
| 2003 10 29 | 699 | 0.6+ | 0.1+ | 2009 11 09 | 691 | 0.1− | 0.1+ | 2009 12 10 | 704 | 0.2− | 0.5+ | | |
| 2003 10 29 | 699 | 0.9+ | 0.5− | 2009 11 09 | 691 | 0.2− | 0.0 | 2009 12 10 | 704 | 0.3− | 0.4− | | |
| 2003 10 29 | 699 | 0.3+ | 1.2− | 2009 11 20 | G96 | 0.4+ | 0.0 | 2009 12 11 | G96 | 0.6+ | 0.1+ | | |
| 2007 06 13 | 691 | 0.2+ | 0.2+ | 2009 11 20 | G96 | 0.6+ | 0.1− | 2009 12 11 | G96 | 0.4+ | 0.1− | | |
| 2007 06 13 | 691 | 0.0 | 0.4+ | 2009 11 20 | G96 | 0.4+ | 0.0 | 2009 12 11 | G96 | 0.4+ | 0.2+ | | |
| 2007 06 13 | 691 | 0.1+ | 0.1− | 2009 11 20 | G96 | 0.0 | 0.0 | 2009 12 11 | G96 | 0.4+ | 0.2+ | | |

**2009 WE$_{52}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 52.84055 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23202746 | $\omega$ | 359.72541 | | +0.96309693 | | +0.26791555 |
| $a$ | 2.6228682 | $\Omega$ | 344.65932 | | −0.24675844 | | +0.84061248 |
| $e$ | 0.3194309 | $i$ | 5.59615 | | −0.10749225 | | +0.47073551 |
| $P$ | 4.25 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 10 18 | 809 | (1.2+ | 2.2−) | 2009 11 16 | G80 | 0.4+ | 0.0 | 2009 11 22 | 704 | 0.6+ | 0.8+ | | |
| 1996 10 18 | 809 | 0.4+ | 0.7− | 2009 11 16 | 704 | 0.5− | 0.4− | 2009 11 22 | 704 | 0.8+ | 0.5+ | | |
| 2002 01 09 | 645 | 0.0 | 0.0 | 2009 11 16 | 704 | 0.3+ | 0.2+ | 2009 11 24 | D29 | 0.1+ | 0.2− | | |
| 2002 01 09 | 645 | 0.0 | 0.0 | 2009 11 16 | 704 | 0.1+ | 0.1+ | 2009 11 24 | D29 | 0.1+ | 0.3− | | |
| 2009 10 11 | 703 | 0.6+ | 0.0 | 2009 11 16 | 704 | 0.1− | 0.2− | 2009 11 24 | D29 | 0.5+ | 0.1+ | | |
| 2009 10 11 | 703 | 1.2− | 0.6+ | 2009 11 19 | G96 | 0.0 | 0.2− | 2009 11 24 | D29 | 0.1− | 0.3− | | |
| 2009 10 11 | 703 | 0.2+ | 0.4− | 2009 11 19 | G96 | 0.0 | 0.1− | 2009 11 25 | G96 | 0.0 | 0.3− | | |
| 2009 10 11 | 703 | 1.8− | 1.0+ | 2009 11 19 | G96 | 0.6− | 0.3− | 2009 11 25 | G96 | 0.0 | 0.3− | | |
| 2009 10 24 | 703 | 1.6+ | 0.7+ | 2009 11 19 | G96 | 0.9+ | 0.1− | 2009 11 25 | G96 | 0.1− | 0.2− | | |
| 2009 10 24 | 703 | 0.9+ | 0.3− | 2009 11 20 | 621 | 0.3− | 0.1− | 2009 11 25 | G96 | 0.3− | 0.5− | | |
| 2009 10 24 | 703 | 1.1+ | 0.6+ | 2009 11 20 | 621 | 0.3− | 0.1− | 2009 12 10 | 704 | 0.3− | 0.4+ | | |
| 2009 10 24 | 703 | 0.5− | 0.4− | 2009 11 20 | 621 | 0.1+ | 0.1− | 2009 12 10 | 704 | 0.4− | 0.1− | | |
| 2009 11 16 | G80 | 0.9− | 0.1− | 2009 11 20 | 621 | 0.8− | 0.1+ | 2009 12 10 | 704 | 0.5− | 0.8+ | | |
| 2009 11 16 | G80 | 0.3+ | 0.2− | 2009 11 22 | 704 | 0.0 | 0.8+ | 2009 12 10 | 704 | 0.3− | 0.9+ | | |
| 2009 11 16 | G80 | 0.2+ | 0.2− | 2009 11 22 | 704 | 0.4+ | 0.6− | 2009 12 10 | 704 | 0.5− | 0.3− | | |

**2009 WF$_{52}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 19.92006 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23110115 | $\omega$ | 324.39926 | | +0.62071633 | | −0.71103961 |
| $a$ | 2.6298722 | $\Omega$ | 84.79150 | | +0.77399192 | | +0.48848956 |
| $e$ | 0.2785878 | $i$ | 19.37344 | | +0.12509096 | | +0.50576737 |
| $P$ | 4.26 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 13 | 691 | 0.2+ | 0.5+ | 2009 11 27 | G96 | 0.2+ | 0.0 | 2009 12 08 | J75 | 0.8+ | 0.1− | | |
| 2005 10 13 | 691 | 0.0 | 0.1+ | 2009 11 27 | G96 | 0.2+ | 0.3− | 2009 12 08 | J75 | 0.5+ | 0.1− | | |
| 2005 10 13 | 691 | 0.2− | 0.1+ | 2009 11 27 | G96 | 0.1+ | 0.3− | 2009 12 08 | J75 | 0.1+ | 0.0 | | |
| 2005 12 22 | 703 | 0.1− | 0.2− | 2009 11 27 | G96 | 0.3+ | 0.3− | 2009 12 11 | 703 | 0.2+ | 0.0 | | |
| 2005 12 22 | 703 | 0.6+ | 0.8− | 2009 11 27 | G96 | 0.2+ | 0.1− | 2009 12 11 | 703 | 0.1− | 0.6+ | | |
| 2005 12 22 | 703 | 0.6− | 1.0− | 2009 11 27 | G96 | 0.2+ | 0.1− | 2009 12 11 | 703 | 1.2+ | 0.4− | | |
| 2005 12 22 | 703 | 1.4− | 0.3− | 2009 11 27 | G96 | 0.1− | 0.0 | 2009 12 12 | 704 | 0.0 | 0.3+ | | |
| 2006 02 04 | 703 | 0.1− | 0.2− | 2009 11 27 | G96 | 0.1+ | 0.0 | 2009 12 12 | 704 | 0.4+ | 0.5− | | |
| 2006 02 04 | 703 | 1.1+ | 0.8+ | 2009 11 27 | G96 | 0.2+ | 0.3− | 2009 12 12 | 704 | 0.6− | 0.2+ | | |
| 2006 02 04 | 703 | 0.2− | 0.6+ | 2009 11 27 | 291 | 0.7− | 0.2+ | 2009 12 12 | 704 | 0.5+ | 0.4+ | | |
| 2009 11 17 | 703 | 0.1− | 0.6+ | 2009 11 27 | 291 | 0.7− | 0.5− | 2009 12 12 | 704 | 0.6+ | 0.1− | | |
| 2009 11 17 | 703 | 0.5+ | 0.7+ | 2009 11 27 | 291 | 0.5− | 0.4− | 2009 12 17 | 704 | 0.9+ | 0.7+ | | |
| 2009 11 17 | 703 | 0.0 | 0.3+ | 2009 11 27 | G96 | 0.0 | 0.2− | 2009 12 17 | 704 | 0.1+ | 0.4+ | | |
| 2009 11 17 | 703 | 0.1+ | 0.0 | 2009 11 27 | G96 | 0.1+ | 0.1− | 2009 12 17 | 704 | 0.9+ | 0.8+ | | |
| 2009 11 20 | 621 | 0.7+ | 0.0 | 2009 11 27 | G96 | 0.0 | 0.1− | 2009 12 17 | 704 | 0.4− | 1.1+ | | |
| 2009 11 20 | 621 | 0.2+ | 0.1− | 2009 11 27 | G96 | 0.1+ | 0.1− | 2009 12 17 | 704 | 0.3− | 0.2− | | |
| 2009 11 20 | 621 | 0.3+ | 0.5+ | 2009 11 27 | G96 | 0.0 | 0.2− | | | | | | |

**2009 WH$_{52}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 33.93980 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22524343 | $\omega$ | 244.05550 | | +0.81441039 | | −0.57762460 |
| $a$ | 2.6752721 | $\Omega$ | 151.12975 | | +0.56502695 | | +0.76753913 |
| $e$ | 0.1781548 | $i$ | 6.60630 | | +0.13221291 | | +0.27790918 |
| $P$ | 4.38 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 02 13 | 645 | 0.1− | 0.1− | 2009 11 17 | 703 | 1.9+ | 0.1− | 2009 12 08 | J75 | 0.6+ | 1.6+ | | |
| 2002 02 13 | 645 | 0.1− | 0.2− | 2009 11 17 | 703 | 0.2− | 0.8− | 2009 12 08 | J75 | 0.0 | 0.2− | | |
| 2002 03 20 | 691 | 0.4+ | 0.1+ | 2009 11 17 | 703 | 0.2− | 0.2+ | 2009 12 08 | J75 | 0.1− | 0.2− | | |
| 2002 03 20 | 691 | 0.2+ | 0.2+ | 2009 11 17 | 703 | 0.3− | 0.9+ | 2009 12 11 | 703 | 0.6− | 1.1− | | |
| 2002 03 20 | 691 | 0.0 | 0.6+ | 2009 11 20 | 621 | 0.1+ | 0.1− | 2009 12 11 | 703 | 0.1− | 0.5− | | |
| 2006 01 10 | 691 | 0.1− | 0.3+ | 2009 11 20 | 621 | 0.5− | 0.2− | 2009 12 11 | 703 | 0.1− | 0.1− | | |
| 2006 01 10 | 691 | 0.1− | 0.2+ | 2009 11 20 | 621 | 0.4+ | 1.0+ | 2009 12 11 | 703 | 0.2− | 1.2− | | |
| 2006 01 10 | 691 | 0.2+ | 0.2+ | 2009 11 27 | G96 | 0.1+ | 0.2− | 2009 12 13 | 704 | 0.0 | 0.3+ | | |
| 2006 03 03 | G96 | 0.7+ | 0.3− | 2009 11 27 | G96 | 0.1− | 0.2− | 2009 12 13 | 704 | 0.1− | 0.3− | | |
| 2006 03 03 | G96 | 0.0 | 0.0 | 2009 11 27 | G96 | 0.0 | 0.1− | 2009 12 13 | 704 | 0.6− | 0.4+ | | |
| 2006 03 03 | G96 | 0.2+ | 0.2− | 2009 11 27 | G96 | 0.0 | 0.1− | | | | | | |
| 2006 03 03 | G96 | 0.1− | 0.1− | 2009 11 27 | G96 | 0.1+ | 0.1− | | | | | | |

**2009 WY$_{52}$ = 2004 RW$_{215}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 330.72448 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22123848 | $\omega$ | 226.08676 | | −0.32689404 | | −0.92294379 |
| $a$ | 2.7074614 | $\Omega$ | 244.01366 | | +0.91889543 | | −0.26014556 |
| $e$ | 0.0677193 | $i$ | 13.06889 | | +0.22084263 | | −0.28372355 |
| $P$ | 4.45 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 01 19 | 691 | 0.1+ | 0.3+ | 2007 06 14 | 691 | 0.1− | 0.1− | 2009 11 23 | 300 | (0.1+ | 1.7−) | | |
| 2001 01 19 | 691 | 0.2− | 0.2+ | 2007 06 14 | 691 | 0.1+ | 0.0 | 2009 11 24 | J75 | 0.5+ | 0.2+ | | |
| 2001 01 19 | 691 | 0.1+ | 0.1+ | 2009 10 17 | G96 | 0.0 | 0.2− | 2009 11 24 | J75 | 0.6+ | 1.0+ | | |
| 2004 09 11 | 704 | 0.3− | 0.1+ | 2009 10 17 | G96 | 0.2+ | 0.1− | 2009 11 24 | J75 | 0.6− | 0.4− | | |
| 2004 09 11 | 704 | 0.6− | 0.3+ | 2009 10 17 | G96 | 0.2+ | 0.3− | 2009 11 24 | 691 | 0.0 | 0.0 | | |
| 2004 09 11 | 704 | 1.1− | 0.3+ | 2009 10 17 | G96 | 0.3+ | 0.4− | 2009 11 24 | 691 | 0.1− | 0.0 | | |
| 2004 09 14 | 704 | 0.5+ | 0.0 | 2009 11 08 | 691 | 0.4− | 0.3− | 2009 11 24 | 691 | 0.0 | 0.1− | | |
| 2004 09 14 | 704 | 0.4− | 0.5− | 2009 11 08 | 691 | 0.0 | 0.2+ | 2009 12 11 | 703 | 0.2+ | 0.1+ | | |
| 2004 09 14 | 704 | 0.1− | 0.4− | 2009 11 08 | 691 | 0.4− | 0.0 | 2009 12 11 | 703 | 0.2− | 0.4− | | |
| 2004 09 14 | 704 | 0.1− | 0.0 | 2009 11 22 | 300 | 0.8+ | 1.1+ | 2009 12 11 | 703 | 1.3− | 0.5+ | | |
| 2004 09 14 | 704 | 0.1+ | 0.0 | 2009 11 22 | 300 | 0.9+ | 1.5+ | 2009 12 11 | 703 | 0.4− | 0.6+ | | |
| 2004 10 15 | 699 | 0.7+ | 0.3− | 2009 11 22 | 300 | 0.5+ | 0.4+ | 2009 12 17 | G96 | 0.3+ | 0.6− | | |
| 2004 10 15 | 699 | 0.0 | 0.6+ | 2009 11 22 | 300 | 0.1+ | 0.3− | 2009 12 17 | G96 | 0.2+ | 0.6− | | |
| 2004 10 15 | 699 | 1.2+ | 0.9+ | 2009 11 23 | 300 | (0.9+ | 2.2−) | 2009 12 17 | G96 | 0.2+ | 0.1− | | |
| 2004 10 15 | 699 | 0.3− | 0.5− | 2009 11 23 | 300 | 0.4+ | 0.9− | 2009 12 17 | G96 | 0.1+ | 0.4− | | |
| 2007 06 14 | 691 | 0.1+ | 0.1+ | 2009 11 23 | 300 | 0.4+ | 1.4− | | | | | | |

**2009 WZ$_{52}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 320.86666 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17519684 | $\omega$ | 250.13994 | | −0.65323727 | | −0.71882569 |
| $a$ | 3.1631409 | $\Omega$ | 242.98953 | | +0.75524181 | | −0.59629730 |
| $e$ | 0.1941199 | $i$ | 15.48378 | | +0.05376680 | | −0.35737816 |
| $P$ | 5.63 | $H$ | 15.3 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 22 | 691 | 0.0 | 0.2− | 2009 11 20 | 691 | 0.3− | 0.1− | 2009 12 11 | 703 | 0.8− | 0.6+ | | |
| 2003 10 22 | 691 | 0.1+ | 0.0 | 2009 11 22 | 300 | 0.3+ | 0.4+ | 2009 12 11 | 703 | 0.6− | 0.9− | | |
| 2003 10 22 | 691 | 0.0 | 0.0 | 2009 11 22 | 300 | 0.1+ | 0.7− | 2009 12 17 | 704 | 0.2+ | 0.3+ | | |
| 2003 11 21 | 691 | 0.1− | 0.1+ | 2009 11 22 | 300 | 0.3− | 0.6− | 2009 12 17 | 704 | 0.5+ | 0.2− | | |
| 2003 11 21 | 691 | 0.0 | 0.1+ | 2009 11 22 | 300 | 0.8+ | 0.0 | 2009 12 17 | 704 | 0.3− | 0.7+ | | |
| 2003 11 21 | 691 | 0.0 | 0.0 | 2009 11 22 | 300 | 0.0 | 0.2− | 2009 12 17 | G96 | 0.0 | 0.2− | | |
| 2009 10 30 | G96 | 0.6+ | 0.7− | 2009 11 23 | 300 | 1.0+ | 0.0 | 2009 12 17 | G96 | 0.3− | 0.1− | | |
| 2009 10 30 | G96 | 0.1+ | 1.0− | 2009 11 23 | 300 | 0.5− | 0.5− | 2009 12 17 | G96 | 0.1− | 0.2− | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2009 10 30 | G96 | 0.1− | 0.6− | 2009 11 23 | 300 | 0.1− | 1.0− | 2009 12 17 | G96 | 0.0 | 0.0 | | |
| 2009 11 08 | 691 | 0.9+ | 2.4+ | 2009 11 24 | 691 | 0.3− | 0.1− | 2009 12 19 | A77 | 1.1+ | 0.4+ | | |
| 2009 11 08 | 691 | 0.1− | 0.0 | 2009 11 24 | 691 | 0.4− | 0.2− | 2009 12 19 | A77 | 0.8+ | 0.6− | | |
| 2009 11 08 | 691 | 0.3− | 0.5− | 2009 11 24 | 691 | 0.2− | 0.2− | 2009 12 19 | A77 | 0.5+ | 1.1+ | | |
| 2009 11 20 | 691 | 0.1− | 0.2− | 2009 12 11 | 703 | 0.4+ | 0.2+ | | | | | | |
| 2009 11 20 | 691 | 0.2+ | 0.0 | 2009 12 11 | 703 | 0.0 | 0.0 | | | | | | |

**2009 WM$_{53}$ = 2000 SW$_{350}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 19.33600 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22208594 | $\omega$ | 305.48447 | | +0.75265109 | −0.63507179 | |
| $a$ | 2.7005694 | $\Omega$ | 94.60127 | | +0.64634922 | +0.66234655 | |
| $e$ | 0.4184294 | $i$ | 10.04047 | | +0.12549511 | +0.39746807 | |
| $P$ | 4.44 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 29 | 699 | 0.2+ | 0.2+ | 2009 10 21 | 703 | 0.2− | 0.2+ | 2009 12 11 | 703 | 0.4− | 0.3− | | |
| 2000 09 29 | 699 | 0.2+ | 0.2− | 2009 11 09 | 703 | 0.3+ | 0.9− | 2009 12 11 | 703 | 0.0 | 0.0 | | |
| 2000 09 29 | 699 | 0.2+ | 0.1+ | 2009 11 09 | 703 | 0.2+ | 0.2− | 2009 12 11 | 703 | 0.2+ | 0.4+ | | |
| 2000 09 29 | 699 | 0.2− | 0.0 | 2009 11 09 | 703 | 0.2− | 0.2+ | 2009 12 12 | 704 | 0.4+ | 0.1+ | | |
| 2000 09 30 | 699 | 0.2− | 0.0 | 2009 11 09 | 703 | 0.4− | 0.0 | 2009 12 12 | 704 | 0.3+ | 0.6− | | |
| 2000 09 30 | 699 | 0.1+ | 0.4− | 2009 11 17 | 703 | 0.3− | 0.6+ | 2009 12 12 | 704 | 0.2+ | 0.4− | | |
| 2000 09 30 | 699 | 0.6+ | 0.2− | 2009 11 17 | 703 | 0.7− | 0.4+ | 2009 12 12 | 704 | 0.4− | 0.4+ | | |
| 2000 09 30 | 699 | 0.6− | 0.5− | 2009 11 17 | 703 | 0.6− | 0.5+ | 2009 12 12 | 704 | 0.2− | 0.6+ | | |
| 2009 08 27 | 703 | 1.2+ | 0.4+ | 2009 11 17 | 703 | (1.7− | 1.1+) | 2009 12 17 | 704 | 0.1− | 0.1+ | | |
| 2009 08 27 | 703 | 0.4− | 0.7− | 2009 11 18 | 683 | 0.1− | 1.2− | 2009 12 17 | 704 | 0.3− | 0.2+ | | |
| 2009 08 27 | 703 | 0.0 | 1.3+ | 2009 11 18 | 683 | 0.4+ | 0.4+ | 2009 12 17 | 704 | 0.7− | 0.1+ | | |
| 2009 08 28 | 703 | 0.0 | 0.4+ | 2009 11 18 | 683 | (2.9− | 1.3+) | 2009 12 17 | 704 | 0.3− | 0.1+ | | |
| 2009 08 28 | 703 | 0.0 | 0.1+ | 2009 11 27 | G96 | 0.2+ | 0.1− | 2009 12 17 | 704 | 0.2− | 0.2+ | | |
| 2009 08 28 | 703 | 0.3+ | 0.1+ | 2009 11 27 | G96 | 0.0 | 0.1− | 2009 12 21 | 704 | 1.3+ | 0.1− | | |
| 2009 08 28 | 703 | 1.4− | 0.2+ | 2009 11 27 | G96 | 0.2+ | 0.2− | 2009 12 21 | 704 | 0.2+ | 0.6− | | |
| 2009 10 21 | 703 | 0.7− | 0.1− | 2009 11 27 | G96 | 0.4+ | 0.0 | 2009 12 21 | 704 | 0.2+ | 0.2+ | | |
| 2009 10 21 | 703 | 0.2+ | 0.2+ | 2009 11 27 | G96 | 0.2+ | 0.1− | 2009 12 21 | 704 | 0.2+ | 0.3+ | | |
| 2009 10 21 | 703 | 0.5+ | 0.1− | 2009 12 11 | 703 | 0.3− | 0.1− | 2009 12 21 | 704 | 0.5+ | 0.6− | | |

**2009 WS$_{53}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 4.36955 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19277000 | $\omega$ | 56.32666 | | +0.30270429 | −0.95205127 | |
| $a$ | 2.9678577 | $\Omega$ | 16.23045 | | +0.81344930 | +0.23381694 | |
| $e$ | 0.0898888 | $i$ | 9.13370 | | +0.49665919 | +0.19730185 | |
| $P$ | 5.11 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 03 24 | 691 | 0.2+ | 0.1+ | 2006 04 25 | G96 | 0.0 | 0.3− | 2009 12 19 | H10 | 0.6− | 0.3+ | | |
| 2001 03 24 | 691 | 0.0 | 0.3+ | 2009 11 16 | 704 | 1.4+ | 0.7− | 2009 12 19 | H10 | 0.5− | 0.3− | | |
| 2001 03 24 | 691 | 0.3+ | 0.4+ | 2009 11 16 | 704 | 0.2− | 1.0− | 2009 12 19 | H10 | 0.4− | 0.1+ | | |
| 2006 03 03 | 691 | 0.0 | 0.1+ | 2009 11 16 | 704 | 0.7+ | 0.2− | 2009 12 19 | H10 | 0.1+ | 0.1− | | |
| 2006 03 03 | 691 | 0.4− | 0.1− | 2009 11 21 | 703 | (1.8+ | 1.4−) | 2009 12 19 | H10 | 0.1− | 0.0 | | |
| 2006 03 03 | 691 | 0.0 | 0.3− | 2009 11 21 | 703 | 0.2− | 0.3+ | 2009 12 19 | H10 | 0.7− | 0.1+ | | |
| 2006 03 26 | G96 | 0.1− | 0.5− | 2009 11 21 | 703 | 0.3− | 0.7+ | 2009 12 21 | H10 | 0.1− | 0.8− | | |
| 2006 03 26 | G96 | 0.1− | 0.4− | 2009 11 21 | 703 | 0.9− | 0.4+ | 2009 12 21 | H10 | 0.5− | 0.5− | | |
| 2006 03 26 | G96 | 0.3− | 0.2− | 2009 11 21 | 703 | 0.6− | 0.3+ | 2009 12 21 | H10 | 0.6+ | 0.3+ | | |
| 2006 03 26 | G96 | 0.1+ | 0.3− | 2009 11 23 | 704 | 0.7+ | 0.5+ | 2009 12 21 | H10 | 0.7− | 0.2− | | |
| 2006 04 25 | G96 | 0.1+ | 0.1− | 2009 11 23 | 704 | 1.3+ | 0.5+ | 2009 12 21 | H10 | 0.3+ | 0.2− | | |
| 2006 04 25 | G96 | 0.3− | 0.2− | 2009 11 23 | 704 | 0.0 | 0.2− | 2009 12 21 | H10 | 0.0 | 0.3− | | |
| 2006 04 25 | G96 | 0.4+ | 0.7− | 2009 11 23 | 704 | 0.3+ | 1.1+ | 2009 12 21 | H10 | 0.3+ | 0.1+ | | |

**2009 WW$_{53}$ = 2003 TR$_{34}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 1.39377 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17542325 | $\omega$ | 167.44658 | | +0.26035007 | −0.95774064 | |
| $a$ | 3.1604186 | $\Omega$ | 267.36568 | | +0.87492317 | +0.28757984 | |
| $e$ | 0.2053890 | $i$ | 7.03077 | | +0.40832253 | −0.00554078 | |
| $P$ | 5.62 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 01 | 691 | 0.3+ | 0.0 | 2009 11 20 | J75 | 0.2+ | 0.1− | 2009 12 09 | J75 | 0.6+ | 0.8− | | |
| 2003 10 01 | 691 | 0.1+ | 0.1+ | 2009 11 20 | J75 | 0.0 | 0.1− | 2009 12 09 | J75 | 0.3− | 0.1− | | |
| 2003 10 01 | 691 | 0.1+ | 0.0 | 2009 11 21 | J75 | 0.3+ | 0.5− | 2009 12 10 | 704 | 0.6+ | 0.7+ | | |
| 2003 10 18 | 691 | 0.3+ | 0.0 | 2009 11 22 | 704 | 1.3− | 1.4+ | 2009 12 10 | 704 | 0.1+ | 0.5+ | | |
| 2003 10 18 | 691 | 0.9− | 0.1+ | 2009 11 22 | 704 | 1.0+ | 0.5− | 2009 12 10 | 704 | 0.4+ | 0.8+ | | |
| 2003 10 18 | 691 | 0.2+ | 0.1− | 2009 11 22 | 704 | 0.0 | 0.5+ | 2009 12 10 | 704 | 0.6+ | 0.3+ | | |
| 2005 02 13 | 809 | 0.0 | 0.0 | 2009 11 22 | 704 | 0.2+ | 0.0 | 2009 12 10 | 704 | 0.3− | 0.3− | | |
| 2005 02 13 | 809 | 0.1− | 0.1+ | 2009 11 22 | 704 | 0.5− | 0.7+ | 2009 12 16 | 704 | 0.2− | 0.4+ | | |
| 2005 02 13 | 809 | 0.2+ | 0.1+ | 2009 11 25 | 703 | 0.1− | 0.3− | 2009 12 16 | 704 | 1.4− | 0.1− | | |
| 2009 11 17 | 704 | 0.8+ | 0.5− | 2009 11 25 | 703 | 0.6− | 0.0 | 2009 12 16 | 704 | 0.4− | 0.5+ | | |
| 2009 11 17 | 704 | 0.1+ | 0.6− | 2009 11 25 | 703 | 0.2− | 0.7− | 2009 12 16 | G96 | 0.0 | 0.4− | | |
| 2009 11 17 | 704 | 1.0+ | 0.0 | 2009 11 25 | 703 | 0.7− | 0.2− | 2009 12 16 | G96 | 0.2− | 0.1− | | |
| 2009 11 17 | 704 | 0.8+ | 0.7+ | 2009 11 25 | 703 | 0.1− | 0.6− | 2009 12 16 | G96 | 0.2+ | 0.3− | | |
| 2009 11 17 | 704 | 0.1+ | 0.6− | 2009 12 09 | J75 | 0.6− | 0.1+ | 2009 12 16 | G96 | 0.1+ | 0.3− | | |

**2009 WX$_{53}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 339.70198 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22761077 | $\omega$ | 57.56905 | | −0.65124464 | −0.72301032 | |
| $a$ | 2.6566898 | $\Omega$ | 74.87077 | | +0.59107139 | −0.67378493 | |
| $e$ | 0.1843445 | $i$ | 13.81514 | | +0.47593596 | −0.15254489 | |
| $P$ | 4.33 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 04 12 | 644 | 0.1+ | 0.4+ | 2006 02 09 | 644 | 0.3+ | 0.3− | 2009 11 26 | 703 | 0.7− | 0.9− | | |
| 2002 04 12 | 644 | 0.1+ | 0.2+ | 2006 02 09 | 644 | 0.1+ | 0.3+ | 2009 12 10 | 704 | (1.8− | 1.0+) | | |
| 2002 04 12 | 644 | 0.1+ | 0.3+ | 2006 02 09 | 644 | 0.1− | 0.1+ | 2009 12 10 | 704 | 0.5− | 0.1− | | |
| 2004 10 04 | 644 | 0.1− | 0.3− | 2009 11 17 | 704 | 0.4+ | 0.5+ | 2009 12 10 | 704 | 0.3+ | 0.1+ | | |
| 2004 10 04 | 644 | 0.2− | 0.5+ | 2009 11 17 | 704 | 0.4+ | 0.1+ | 2009 12 10 | 704 | 0.5− | 0.9+ | | |
| 2004 10 04 | 644 | 0.1− | 0.5+ | 2009 11 17 | 704 | 0.1− | 0.9+ | 2009 12 10 | 704 | 0.1− | 0.3− | | |
| 2006 02 02 | 703 | 0.5− | 0.6+ | 2009 11 17 | 704 | 0.6− | 0.3+ | 2009 12 15 | 704 | 0.1+ | 0.5− | | |
| 2006 02 02 | 703 | 0.1− | 0.3− | 2009 11 22 | 704 | 1.0+ | 1.7+ | 2009 12 15 | 704 | 0.3+ | 0.3+ | | |
| 2006 02 02 | 703 | 0.0 | 0.4+ | 2009 11 22 | 704 | 1.0+ | 0.4+ | 2009 12 15 | 704 | 0.0 | 0.1+ | | |
| 2006 02 02 | 703 | 0.0 | 0.1− | 2009 11 22 | 704 | 0.7+ | 1.3+ | 2009 12 20 | G96 | 0.4− | 0.6− | | |
| 2006 02 09 | 644 | 0.4+ | 0.4− | 2009 11 26 | 703 | 0.1− | 0.5− | 2009 12 20 | G96 | 0.4− | 0.9− | | |
| 2006 02 09 | 644 | 0.2+ | 0.1− | 2009 11 26 | 703 | 0.4− | 0.8− | 2009 12 20 | G96 | 0.2− | 0.7− | | |
| 2006 02 09 | 644 | 0.3+ | 0.1− | 2009 11 26 | 703 | (1.7− | 0.5−) | 2009 12 20 | G96 | 0.1− | 0.7− | | |

**2009 WE$_{54}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 39.66542 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28123026 | $\omega$ | 112.03347 | | +0.76686302 | −0.64086333 | |
| $a$ | 2.3072501 | $\Omega$ | 287.84064 | | +0.57452206 | +0.70966185 | |
| $e$ | 0.1911424 | $i$ | 2.09877 | | +0.28608655 | +0.29270165 | |
| $P$ | 3.50 | $H$ | 17.7 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 08 06 | 644 | 0.1+ | 0.0 | 2009 11 22 | J47 | 0.4+ | 0.1− | 2009 11 29 | J47 | 0.0 | 0.0 | | |
| 2005 08 06 | 644 | 0.2+ | 0.3+ | 2009 11 22 | J47 | 0.2+ | 0.2+ | 2009 11 29 | J47 | 0.1+ | 0.1+ | | |
| 2005 08 06 | 644 | 0.0 | 0.2+ | 2009 11 22 | J47 | 0.3− | 0.4+ | 2009 12 08 | J47 | 0.1− | 0.1+ | | |
| 2005 08 24 | 644 | 0.4− | 0.2+ | 2009 11 24 | J47 | 0.1− | 0.1+ | 2009 12 08 | J47 | 0.0 | 0.0 | | |
| 2005 08 24 | 644 | 0.3− | 0.2+ | 2009 11 24 | J47 | 0.6− | 0.2+ | 2009 12 08 | J47 | 0.5+ | 0.5− | | |
| 2005 08 24 | 644 | 0.2− | 0.2+ | 2009 11 24 | J47 | 0.4− | 1.0− | 2009 12 17 | J47 | 0.2− | 0.4− | | |
| 2005 08 24 | 644 | 0.0 | 0.0 | 2009 11 25 | J47 | 0.3− | 0.1+ | 2009 12 17 | J47 | 0.0 | 0.2− | | |
| 2005 08 24 | 644 | 0.1+ | 0.5+ | 2009 11 25 | J47 | 0.2+ | 0.2+ | 2009 12 17 | J47 | 0.9+ | 0.1− | | |
| 2005 08 24 | 644 | 0.2− | 0.1− | 2009 11 25 | J47 | 0.4+ | 0.2+ | 2009 12 19 | 691 | 0.1+ | 0.2+ | | |
| 2005 10 25 | G96 | 0.9+ | 1.2− | 2009 11 28 | J47 | 0.0 | 0.5+ | 2009 12 19 | 691 | 0.2− | 0.1− | | |
| 2005 10 25 | G96 | 0.2+ | 0.0 | 2009 11 28 | J47 | 0.0 | 0.4+ | 2009 12 19 | 691 | 0.1− | 0.1− | | |
| 2005 10 25 | G96 | 0.0 | 0.4− | 2009 11 28 | J47 | 0.3+ | 0.2+ | | | | | | |
| 2005 10 25 | G96 | 0.2− | 0.2− | 2009 11 29 | J47 | 0.1− | 0.1− | | | | | | |

**2009 WA$_{57}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 75.21332 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.08215632 | $\omega$ | 231.54413 | | +0.92494461 | +0.37463570 | |
| $a$ | 5.2405323 | $\Omega$ | 106.37133 | | −0.32455103 | +0.86636666 | |
| $e$ | 0.0656750 | $i$ | 3.83852 | | −0.19784867 | +0.33023765 | |
| $P$ | 12.00 | $H$ | 13.9 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 09 12 | G96 | 0.4+ | 0.4− | 2008 10 24 | G96 | 0.1− | 0.2− | 2009 11 16 | G96 | 0.6+ | 0.1+ | |
| 2007 09 12 | G96 | 0.5+ | 0.0 | 2008 10 24 | G96 | 0.4+ | 0.3− | 2009 11 16 | G96 | 0.3+ | 0.2− | |
| 2007 09 12 | G96 | 0.1− | 0.2− | 2008 10 24 | G96 | 0.4− | 0.6− | 2009 11 23 | G96 | 0.5+ | 0.3− | |
| 2007 09 12 | G96 | 0.0 | 0.0 | 2009 08 17 | 291 | 0.2− | 0.1+ | 2009 11 23 | G96 | 0.2− | 0.1− | |
| 2007 10 09 | G96 | 0.5− | 0.5− | 2009 08 17 | 291 | 0.3− | 0.1− | 2009 11 23 | G96 | 0.4+ | 0.0 | |
| 2007 10 09 | G96 | 0.4− | 0.1− | 2009 08 17 | 291 | 0.3− | 0.0 | 2009 11 23 | G96 | 0.3− | 0.2+ | |
| 2007 10 09 | G96 | 0.2− | 0.4− | 2009 10 22 | G96 | 0.2+ | 0.6− | 2009 12 19 | G96 | 0.0 | 0.3− | |
| 2007 10 09 | G96 | 0.7+ | 0.1− | 2009 10 22 | G96 | 0.6+ | 0.2+ | 2009 12 19 | G96 | 0.1− | 0.2+ | |
| 2008 09 22 | 691 | 0.1− | 0.1+ | 2009 10 22 | G96 | 0.1− | 0.1+ | 2009 12 19 | G96 | 0.6− | 0.6− | |
| 2008 09 22 | 691 | 0.3− | 0.4+ | 2009 10 22 | G96 | 0.8+ | 0.1− | 2009 12 19 | G96 | 0.3+ | 0.3− | |
| 2008 09 22 | 691 | 0.2+ | 0.5+ | 2009 11 16 | G96 | 0.0 | 0.2+ | | | | | |
| 2008 10 24 | G96 | 0.1+ | 0.3− | 2009 11 16 | G96 | 0.3+ | 0.0 | | | | | |

**2009 WC$_{57}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 33.92427 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.08279343 | $\omega$ | 304.37468 | | +0.91404731 | −0.37821578 | |
| $a$ | 5.2136129 | $\Omega$ | 78.23442 | | +0.40359696 | +0.81216868 | |
| $e$ | 0.0634700 | $i$ | 8.60793 | | +0.04033621 | +0.44422387 | |
| $P$ | 11.90 | $H$ | 13.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 10 07 | G96 | 0.3− | 0.0 | 2009 10 22 | G96 | 0.1+ | 0.2+ | 2009 11 23 | G96 | 0.3+ | 0.1− | |
| 2008 10 07 | G96 | 0.7+ | 0.9− | 2009 10 22 | G96 | 0.1+ | 0.2− | 2009 11 23 | G96 | 0.1+ | 0.2− | |
| 2008 10 07 | G96 | 0.1+ | 0.1+ | 2009 10 22 | G96 | 0.1− | 0.1+ | 2009 11 23 | G96 | 0.0 | 0.0 | |
| 2008 10 07 | G96 | 0.1+ | 0.0 | 2009 10 22 | G96 | 0.0 | 0.1− | 2009 11 23 | G96 | 0.2− | 0.3− | |
| 2008 10 21 | G96 | 0.0 | 0.3+ | 2009 11 16 | G96 | 0.1− | 0.1+ | 2009 12 19 | G96 | 0.2+ | 0.2+ | |
| 2008 10 21 | G96 | 0.1− | 0.4+ | 2009 11 16 | G96 | 0.3+ | 0.1− | 2009 12 19 | G96 | 0.3− | 0.1− | |
| 2008 10 21 | G96 | 0.2− | 0.2+ | 2009 11 16 | G96 | 0.3− | 0.3− | 2009 12 19 | G96 | 0.3− | 0.6+ | |
| 2008 10 21 | G96 | 0.3− | 0.0 | 2009 11 16 | G96 | 0.0 | 0.2+ | 2009 12 19 | G96 | 0.4+ | 0.1+ | |

**2009 WM$_{58}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 46.66060 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26168319 | $\omega$ | 288.91627 | | +0.99515592 | +0.01266951 | |
| $a$ | 2.4207624 | $\Omega$ | 70.45172 | | +0.03036666 | +0.90355167 | |
| $e$ | 0.2567284 | $i$ | 5.93801 | | −0.09350164 | +0.42829179 | |
| $P$ | 3.77 | $H$ | 17.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 08 27 | 644 | 0.1+ | 0.2+ | 2009 10 12 | G96 | 0.0 | 0.3+ | 2009 11 23 | G96 | 0.0 | 0.1− | |
| 2005 08 27 | 644 | 0.3− | 0.0 | 2009 10 23 | G96 | 0.2− | 0.1− | 2009 11 23 | G96 | 0.2− | 0.1− | |
| 2005 08 27 | 644 | 0.1+ | 0.2+ | 2009 10 23 | G96 | 0.3− | 0.1− | 2009 11 23 | G96 | 0.2+ | 0.2− | |
| 2005 09 27 | 644 | 0.3− | 0.1− | 2009 10 23 | G96 | 0.0 | 0.0 | 2009 11 23 | G96 | 0.0 | 0.0 | |
| 2005 09 27 | 644 | 0.1+ | 0.0 | 2009 10 23 | G96 | 0.1− | 0.2− | 2009 12 11 | G96 | 0.1+ | 0.0 | |
| 2005 09 27 | 644 | 0.3+ | 0.3− | 2009 11 16 | G96 | 0.1+ | 0.2+ | 2009 12 11 | G96 | 0.4+ | 0.2+ | |
| 2009 10 12 | G96 | 0.0 | 0.2− | 2009 11 16 | G96 | 0.3− | 0.0 | 2009 12 11 | G96 | 0.2+ | 0.0 | |
| 2009 10 12 | G96 | 0.1− | 0.0 | 2009 11 16 | G96 | 0.3− | 0.1+ | 2009 12 11 | G96 | 0.1− | 0.1+ | |
| 2009 10 12 | G96 | 0.7+ | 0.3+ | 2009 11 16 | G96 | 0.0 | 0.0 | | | | | |

**2009 WF$_{59}$ = 2005 CS$_{55}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 344.32474 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.16987941 | $\omega$ | 352.25031 | | +0.03413074 | −0.99811823 | |
| $a$ | 3.2288080 | $\Omega$ | 95.78367 | | +0.91967207 | +0.01141474 | |
| $e$ | 0.1827604 | $i$ | 2.93498 | | +0.39120120 | +0.06024700 | |
| $P$ | 5.80 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 03 | 291 | 0.1− | 0.3+ | 2009 10 22 | G96 | 0.3+ | 0.3− | 2009 11 16 | G96 | 0.2+ | 0.3− | |
| 2003 10 03 | 291 | 0.2− | 0.4+ | 2009 10 22 | G96 | 0.4+ | 0.4− | 2009 11 23 | G96 | 0.2+ | 0.1− | |
| 2003 10 03 | 291 | 0.0 | 0.2+ | 2009 10 22 | G96 | 0.4+ | 0.3− | 2009 11 23 | G96 | 0.1− | 0.2+ | |
| 2005 02 04 | G96 | 0.4− | 0.1− | 2009 10 22 | G96 | 0.5+ | 0.3− | 2009 11 23 | G96 | 0.5+ | 0.1− | |
| 2005 02 04 | G96 | 0.5− | 0.0 | 2009 10 27 | 691 | 0.4− | 0.0 | 2009 11 23 | G96 | 0.6+ | 0.4− | |
| 2005 02 04 | G96 | 0.4− | 0.1− | 2009 10 27 | 691 | 0.6− | 0.1+ | 2009 12 19 | G96 | 0.3+ | 0.3+ | |
| 2005 02 04 | G96 | 0.1+ | 0.2− | 2009 10 27 | 691 | 0.0 | 0.5− | 2009 12 19 | G96 | 0.9+ | 0.4+ | |
| 2005 02 09 | 691 | 0.3− | 0.4+ | 2009 11 16 | G96 | 0.2+ | 0.1− | 2009 12 19 | G96 | 0.2− | 0.1+ | |
| 2005 02 09 | 691 | 1.0+ | 0.0 | 2009 11 16 | G96 | 0.1+ | 0.1+ | 2009 12 19 | G96 | 0.0 | 0.1+ | |
| 2005 02 09 | 691 | 0.3− | 0.1− | 2009 11 16 | G96 | 0.5+ | 0.2− | | | | | |

**2009 WE$_{60}$ = 2000 SE$_{374}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 327.10350 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.12451417 | $\omega$ | 40.95975 | | −0.45655315 | −0.87424995 | |
| $a$ | 3.9718259 | $\Omega$ | 76.80178 | | +0.76567728 | −0.48057543 | |
| $e$ | 0.1802782 | $i$ | 9.76123 | | +0.45309770 | −0.06880609 | |
| $P$ | 7.92 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 26 | 645 | 0.0 | 0.0 | 2009 11 16 | 291 | 0.1+ | 0.5− | 2009 11 26 | 691 | 0.1− | 0.1+ | |
| 2000 09 26 | 645 | 0.1+ | 0.0 | 2009 11 16 | 291 | 0.2+ | 0.2+ | 2009 11 26 | 691 | 0.1− | 0.2− | |
| 2000 09 27 | 645 | 0.0 | 0.0 | 2009 11 16 | 291 | 0.1+ | 0.2− | 2009 12 16 | G96 | 0.5− | 0.1− | |
| 2000 09 27 | 645 | 0.0 | 0.0 | 2009 11 22 | 691 | 0.4− | 0.2+ | 2009 12 16 | G96 | 0.0 | 0.0 | |
| 2001 11 21 | 691 | 0.3+ | 0.0 | 2009 11 22 | 691 | 0.1− | 0.2+ | 2009 12 16 | G96 | (2.0+ | 0.1+) | |
| 2001 11 21 | 691 | 0.2− | 0.1− | 2009 11 22 | 691 | 0.0 | 0.4+ | 2009 12 16 | G96 | 0.5+ | 0.6− | |
| 2001 11 21 | 691 | 0.0 | 0.0 | 2009 11 26 | 691 | 0.2+ | 0.1+ | | | | | |

**2009 WS$_{60}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 359.42076 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.08162950 | $\omega$ | 346.04737 | | +0.45446644 | −0.85614492 | |
| $a$ | 5.2630556 | $\Omega$ | 76.43053 | | +0.83960525 | +0.31950352 | |
| $e$ | 0.0523154 | $i$ | 14.65396 | | +0.29752864 | +0.40611989 | |
| $P$ | 12.07 | $H$ | 13.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 04 12 | 644 | 0.6+ | 0.4+ | 2008 10 27 | G96 | 0.4+ | 0.4+ | 2009 11 19 | J75 | 0.6+ | 0.7+ | |
| 2002 04 12 | 644 | 0.1+ | 0.6+ | 2008 10 27 | G96 | 0.3− | 0.2+ | 2009 11 19 | J75 | 0.7− | 0.2− | |
| 2002 04 12 | 644 | 0.3+ | 0.7+ | 2008 10 27 | G96 | 0.0 | 0.2+ | 2009 11 19 | J75 | 0.4+ | 0.1− | |
| 2003 03 31 | 691 | 0.1+ | 0.0 | 2008 10 27 | G96 | 0.7− | 0.1− | 2009 11 23 | G96 | 0.4+ | 0.2+ | |
| 2003 03 31 | 691 | 0.1− | 0.1− | 2009 10 12 | G96 | 0.1+ | 0.2+ | 2009 11 23 | G96 | 0.2+ | 0.2+ | |
| 2003 03 31 | 691 | 0.0 | 0.2− | 2009 10 12 | G96 | 0.2+ | 0.1+ | 2009 11 23 | G96 | 0.1+ | 0.1+ | |
| 2003 05 02 | 691 | 0.6− | 0.1+ | 2009 10 12 | G96 | 0.2+ | 0.5+ | 2009 11 23 | G96 | 0.0 | 0.2+ | |
| 2003 05 02 | 691 | 0.3− | 0.1− | 2009 10 12 | G96 | 0.1+ | 0.1+ | 2009 12 11 | 703 | (1.6+ | 0.4−) | |
| 2003 05 02 | 691 | 0.2+ | 0.0 | 2009 10 24 | 703 | 0.3+ | 0.2+ | 2009 12 11 | 703 | 0.2+ | 0.4− | |
| 2003 05 27 | 691 | (1.9+ | 1.0+) | 2009 10 24 | 703 | (2.0− | 1.5−) | 2009 12 11 | 703 | 1.3− | 0.3− | |
| 2003 05 27 | 691 | (1.1+ | 1.7+) | 2009 10 24 | 703 | 0.7− | 0.8− | 2009 12 11 | 703 | 1.0− | 0.4− | |
| 2003 05 27 | 691 | 1.1+ | 1.0+ | 2009 10 24 | 703 | (2.7− | 0.7−) | 2009 12 18 | 691 | 0.2− | 0.3+ | |
| 2008 10 01 | 703 | 0.6− | 0.6+ | 2009 11 16 | G96 | 0.4+ | 0.2− | 2009 12 18 | 691 | 0.1− | 0.1+ | |
| 2008 10 01 | 703 | (0.5− | 1.9+) | 2009 11 16 | G96 | 0.3+ | 0.0 | 2009 12 18 | 691 | 0.1− | 0.0 | |
| 2008 10 01 | 703 | 0.3− | 1.0+ | 2009 11 16 | G96 | 0.4+ | 0.1+ | | | | | |
| 2008 10 01 | 703 | 0.1− | 0.5+ | 2009 11 16 | G96 | 0.1+ | 0.1− | | | | | |

**2009 WR$_{64}$ = 2005 YK$_{197}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 31.98005 | | (2000.0) | | | |
| $n$ | 0.23881139 | $\omega$ | 277.25074 | | +0.82095697 | −0.56925627 |
| $a$ | 2.5729580 | $\Omega$ | 117.45744 | | +0.54165650 | +0.75177927 |
| $e$ | 0.2308194 | $i$ | 2.87214 | | +0.18065958 | +0.33282913 |
| $P$ | 4.13 | $H$ | 18.0 | $G$ | 0.15 | $U$ 5 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 25 | 691 | 0.1+ | 0.1+ | 2009 11 16 | G96 | 0.5+ | 0.2+ | 2009 11 27 | 691 | 0.2− | 0.0 |
| 2005 12 25 | 691 | 0.1+ | 0.1+ | 2009 11 16 | G96 | 0.5+ | 0.3+ | 2009 11 27 | 691 | 0.4+ | 0.2+ |
| 2005 12 25 | 691 | 0.1+ | 0.1+ | 2009 11 16 | G96 | 0.2+ | 0.0 | 2009 12 11 | G96 | 0.5+ | 0.3− |
| 2005 12 29 | 691 | 0.3+ | 0.1+ | 2009 11 23 | 691 | 0.5− | 0.0 | 2009 12 11 | G96 | 0.4+ | 0.0 |
| 2005 12 29 | 691 | 0.3+ | 0.2− | 2009 11 23 | 691 | 0.3− | 0.4− | 2009 12 11 | G96 | 0.4+ | 0.0 |
| 2005 12 29 | 691 | 0.9− | 0.2− | 2009 11 23 | 691 | 0.3− | 0.1− | | | | |
| 2009 11 16 | G96 | 0.9+ | 0.5+ | 2009 11 27 | 691 | 0.1+ | 0.0 | | | | |

**2009 WZ$_{64}$ = 2005 YF$_{288}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 341.69660 | | (2000.0) | | | |
| $n$ | 0.22675522 | $\omega$ | 55.59379 | | −0.20001906 | −0.96335904 |
| $a$ | 2.6633681 | $\Omega$ | 47.01557 | | +0.79955209 | −0.26590066 |
| $e$ | 0.1897878 | $i$ | 14.13882 | | +0.56631161 | +0.03515954 |
| $P$ | 4.35 | $H$ | 16.7 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 30 | 703 | (0.4+ | 1.8−) | 2006 02 03 | 703 | 0.0 | 0.1+ | 2009 11 23 | 691 | 0.1− | 0.1− |
| 2005 12 30 | 703 | 0.7+ | 0.1− | 2006 02 03 | 703 | 1.2− | 0.0 | 2009 11 23 | 691 | 0.1+ | 0.0 |
| 2005 12 30 | 703 | 0.2− | 0.8+ | 2006 02 03 | 703 | 0.5+ | 0.2− | 2009 11 23 | 691 | 0.0 | 0.1+ |
| 2005 12 30 | 703 | 0.6+ | 1.2− | 2006 02 03 | 703 | 0.5+ | 0.5+ | 2009 11 25 | 703 | 0.9+ | 0.1− |
| 2005 12 30 | 703 | 0.0 | 0.2− | 2009 09 19 | G96 | 0.1− | 0.0 | 2009 11 25 | 703 | 0.3+ | 0.0 |
| 2005 12 30 | 703 | 0.9− | 0.0 | 2009 09 19 | G96 | 0.4+ | 0.0 | 2009 11 25 | 703 | 0.6+ | 0.3− |
| 2005 12 30 | 703 | 0.2− | 0.4+ | 2009 09 19 | G96 | 0.4+ | 0.1− | 2009 11 25 | 703 | 0.9+ | 0.6− |
| 2005 12 30 | 703 | 1.2− | 0.4− | 2009 09 19 | G96 | 0.3+ | 0.1− | 2009 11 25 | 703 | 0.7+ | 0.4− |
| 2006 01 22 | 704 | 0.1− | 0.6− | 2009 11 09 | 691 | 0.0 | 0.0 | 2009 12 09 | J75 | 0.4− | 0.6− |
| 2006 01 22 | 703 | 0.0 | 0.1− | 2009 11 09 | 691 | 0.4+ | 0.1+ | 2009 12 09 | J75 | 0.1+ | 0.7+ |
| 2006 01 22 | 704 | 0.3− | 0.5+ | 2009 11 09 | 691 | 0.4− | 0.0 | 2009 12 09 | J75 | 0.1− | 0.8+ |
| 2006 01 22 | 703 | 0.6+ | 0.0 | 2009 11 17 | 691 | 0.2+ | 0.1+ | 2009 12 10 | 704 | 0.1+ | 0.8+ |
| 2006 01 22 | 703 | 0.2− | 0.3+ | 2009 11 17 | 691 | 1.5− | 0.4− | 2009 12 10 | 704 | 0.7+ | 0.2+ |
| 2006 01 22 | 704 | 0.3+ | 0.4− | 2009 11 17 | 691 | 0.0 | 0.1+ | 2009 12 10 | 704 | 0.6+ | 0.1+ |
| 2006 01 22 | 703 | 0.6+ | 0.8+ | 2009 11 23 | 691 | 0.1− | 0.1− | 2009 12 10 | 704 | 1.1+ | 0.5+ |
| 2006 01 22 | 704 | 0.2− | 0.3+ | 2009 11 23 | 691 | 0.1− | 0.1+ | | | | |
| 2006 01 22 | 704 | 0.8+ | 0.4− | 2009 11 23 | 691 | 0.0 | 0.1− | | | | |

**2009 WG$_{65}$ = 2004 SC$_{62}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 49.57564 | | (2000.0) | | | |
| $n$ | 0.22441299 | $\omega$ | 348.71932 | | +0.93831526 | −0.34241776 |
| $a$ | 2.6818680 | $\Omega$ | 31.43796 | | +0.32399289 | +0.82203187 |
| $e$ | 0.0654993 | $i$ | 5.29245 | | +0.12080183 | +0.45498756 |
| $P$ | 4.39 | $H$ | 16.5 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 04 04 | 691 | 0.0 | 0.5− | 2007 04 07 | G96 | 0.3+ | 0.1+ | 2009 11 23 | 691 | 0.2− | 0.0 |
| 1998 04 04 | 691 | 0.0 | 0.1− | 2007 04 07 | G96 | 0.0 | 0.5+ | 2009 11 23 | 691 | 0.4− | 0.0 |
| 1998 04 04 | 691 | 0.3− | 0.3− | 2007 04 07 | G96 | 0.6+ | 0.5+ | 2009 11 27 | 691 | 0.2− | 0.1− |
| 2004 09 17 | 704 | 0.1− | 0.2− | 2007 04 18 | G96 | 0.3− | 0.4+ | 2009 11 27 | 691 | 0.0 | 0.0 |
| 2004 09 17 | 704 | 0.2− | 0.6− | 2007 04 18 | G96 | 0.3+ | 0.4+ | 2009 11 27 | 691 | 0.1− | 0.0 |
| 2004 09 17 | 704 | 0.0 | 0.7+ | 2007 04 18 | G96 | 0.4+ | 0.6+ | 2009 12 15 | 704 | 0.2+ | 0.8+ |
| 2005 12 26 | 691 | 0.4− | 0.3+ | 2007 04 18 | G96 | 0.2− | 0.5+ | 2009 12 15 | 704 | 0.6+ | 0.6+ |
| 2005 12 26 | 691 | 0.3+ | 0.2+ | 2009 10 17 | G96 | 0.7+ | 0.1− | 2009 12 15 | 704 | 1.0+ | 0.4+ |
| 2005 12 26 | 691 | 0.1− | 0.2− | 2009 10 17 | G96 | 0.7+ | 0.1+ | 2009 12 19 | G96 | 1.0+ | 0.5− |
| 2007 03 26 | G96 | 0.6+ | 0.3+ | 2009 10 17 | G96 | 0.3+ | 0.1+ | 2009 12 19 | G96 | 0.5+ | 0.1− |
| 2007 03 26 | G96 | 0.1+ | 0.2+ | 2009 11 17 | 691 | 0.0 | 0.2+ | 2009 12 19 | G96 | 0.5+ | 0.3− |
| 2007 03 26 | G96 | 0.0 | 0.2+ | 2009 11 17 | 691 | 0.2− | 0.1− | 2009 12 19 | G96 | 0.5+ | 0.4− |
| 2007 03 26 | G96 | 0.4+ | 0.0 | 2009 11 17 | 691 | 0.2+ | 0.1− | | | | |
| 2007 04 07 | G96 | 0.5− | 0.0 | 2009 11 23 | 691 | 0.2− | 0.1+ | | | | |

**2009 WX$_{66}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 30.78228 | | (2000.0) | | | |
| $n$ | 0.17682543 | $\omega$ | 227.05945 | | +0.95557794 | −0.29444808 |
| $a$ | 3.1436889 | $\Omega$ | 150.05799 | | +0.27747570 | +0.88375686 |
| $e$ | 0.1684199 | $i$ | 1.50183 | | +0.09938828 | +0.36369512 |
| $P$ | 5.57 | $H$ | 16.6 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1992 09 28 | 691 | 0.0 | 0.1− | 2006 03 02 | 695 | 0.3− | 0.9+ | 2009 11 17 | G96 | 0.4+ | 0.3− |
| 1992 09 28 | 691 | 0.5− | 0.4+ | 2006 03 02 | 695 | 0.0 | 0.7+ | 2009 11 17 | G96 | 0.1+ | 0.4− |
| 1992 09 28 | 691 | 0.2+ | 0.1+ | 2006 03 02 | 695 | 0.0 | 0.7+ | 2009 11 17 | G96 | 0.2+ | 0.2− |
| 1994 01 18 | 691 | 0.1+ | 0.2− | 2009 10 26 | 691 | 0.2− | 0.1− | 2009 11 23 | 703 | 0.1− | 0.1− |
| 1994 01 18 | 691 | 0.0 | 0.2+ | 2009 10 26 | 691 | 0.2− | 0.1+ | 2009 11 23 | 703 | 0.1+ | 0.2+ |
| 2003 09 27 | 691 | 0.0 | 0.2− | 2009 10 26 | 691 | 0.2− | 0.1− | 2009 11 23 | 703 | 0.7+ | 0.9+ |
| 2003 09 27 | 691 | 0.2+ | 0.0 | 2009 11 08 | G96 | 0.1+ | 0.4− | 2009 11 23 | 703 | 0.8− | 0.4+ |
| 2003 09 27 | 691 | 0.1+ | 0.0 | 2009 11 08 | G96 | 0.2+ | 0.1− | 2009 12 15 | G96 | 0.4+ | 0.1− |
| 2005 12 03 | 568 | 0.1+ | 0.7− | 2009 11 08 | G96 | 0.3+ | 0.1+ | 2009 12 15 | G96 | 0.3− | 0.4+ |
| 2005 12 03 | 568 | 0.1− | 1.0− | 2009 11 08 | G96 | 0.4+ | 0.0 | 2009 12 15 | G96 | 0.2+ | 0.1+ |
| 2005 12 03 | 568 | 0.3− | 1.1− | 2009 11 17 | G96 | 0.2− | 0.3− | 2009 12 15 | G96 | 0.2+ | 0.2− |

**2009 WA$_{69}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 245.98161 | | (2000.0) | | | |
| $n$ | 0.23025299 | $\omega$ | 144.26119 | | −0.88265612 | +0.44502219 |
| $a$ | 2.6363265 | $\Omega$ | 62.83800 | | −0.46099728 | −0.75692902 |
| $e$ | 0.0769166 | $i$ | 9.78699 | | −0.09164976 | −0.47855377 |
| $P$ | 4.28 | $H$ | 16.5 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 04 15 | 691 | 0.1+ | 0.1− | 2007 06 14 | 691 | 0.3− | 0.2+ | 2009 11 23 | 691 | 1.3− | 0.0 |
| 2007 04 15 | 691 | 0.2+ | 0.4− | 2009 11 17 | 691 | 0.0 | 0.1− | 2009 11 23 | 691 | 0.7− | 0.3− |
| 2007 04 15 | 691 | 0.1− | 0.1+ | 2009 11 17 | 691 | 0.3+ | 0.1+ | 2009 12 11 | G96 | 0.5+ | 0.7+ |
| 2007 05 07 | 691 | 0.2− | 0.2+ | 2009 11 17 | G96 | 0.7+ | 0.3+ | 2009 12 11 | G96 | 0.4+ | 0.3+ |
| 2007 05 07 | 691 | 0.4+ | 0.1+ | 2009 11 17 | 691 | 0.2+ | 0.3− | 2009 12 11 | G96 | 0.8+ | 0.3+ |
| 2007 05 07 | 691 | 0.1− | 0.4+ | 2009 11 17 | G96 | 0.1− | 0.6+ | 2009 12 11 | G96 | 0.8+ | 0.0 |
| 2007 05 26 | G96 | 0.2+ | 0.3− | 2009 11 17 | G96 | 0.2+ | 0.1+ | 2009 12 13 | G96 | 0.3+ | 0.3− |
| 2007 05 26 | G96 | 0.3+ | 0.3− | 2009 11 17 | G96 | 0.2+ | 0.2+ | 2009 12 13 | G96 | 0.4+ | 0.2− |
| 2007 05 26 | G96 | 0.1− | 0.1+ | 2009 11 21 | 691 | 0.2+ | 0.0 | 2009 12 13 | G96 | 0.2+ | 0.2+ |
| 2007 05 26 | G96 | 0.1− | 0.0 | 2009 11 21 | 691 | 0.4+ | 0.0 | 2009 12 13 | G96 | 0.9+ | 0.2+ |
| 2007 06 14 | 691 | 0.3− | 0.5− | 2009 11 21 | 691 | (2.1+ | 0.8+) | | | | |
| 2007 06 14 | 691 | 0.1+ | 0.0 | 2009 11 23 | 691 | 0.4− | 0.1+ | | | | |

**2009 WC$_{69}$ = 2005 UB$_{482}$ = 2007 EM$_{114}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 7.89315 | | (2000.0) | | | |
| $n$ | 0.27509864 | $\omega$ | 161.23743 | | +0.21269520 | −0.97090360 |
| $a$ | 2.3414080 | $\Omega$ | 276.36697 | | +0.88172797 | +0.23923874 |
| $e$ | 0.0774853 | $i$ | 6.35650 | | +0.42108971 | −0.01053685 |
| $P$ | 3.58 | $H$ | 16.7 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 11 30 | 691 | 0.5− | 0.2− | 2007 03 15 | 703 | 0.0 | 0.2− | 2009 11 26 | 691 | 0.2− | 0.1+ |
| 1995 11 30 | 691 | 0.0 | 0.5− | 2007 03 15 | 703 | 0.2− | 1.4− | 2009 11 26 | 691 | 0.1− | 0.0 |
| 1995 11 30 | 691 | 0.1+ | 0.1− | 2007 03 15 | 703 | 0.5+ | 0.5+ | 2009 11 27 | 691 | 0.3− | 0.0 |
| 2005 10 22 | 644 | 0.2+ | 0.1+ | 2008 06 03 | G96 | 0.3+ | 0.2− | 2009 11 27 | 691 | 0.6− | 0.0 |
| 2005 10 22 | 644 | 0.3+ | 0.3+ | 2008 06 03 | G96 | 0.2+ | 0.1− | 2009 11 27 | 691 | 0.1− | 0.2+ |
| 2005 10 22 | 644 | 0.4+ | 0.0 | 2008 06 03 | G96 | 0.3− | 0.3− | 2009 12 10 | 704 | 0.5+ | 0.5− |
| 2005 10 28 | 703 | 0.2− | 1.4− | 2008 06 03 | G96 | 0.1+ | 0.4− | 2009 12 10 | 704 | 1.3+ | 1.3+ |
| 2005 10 28 | 703 | 1.2+ | 0.4+ | 2009 11 17 | G96 | 0.2− | 0.2− | 2009 12 10 | 704 | 0.9+ | 0.1+ |
| 2005 10 28 | 703 | 0.6− | 0.5− | 2009 11 17 | G96 | 0.2+ | 0.3− | 2009 12 10 | 704 | 0.9+ | 0.5+ |
| 2005 10 28 | 703 | 0.8− | 0.4+ | 2009 11 17 | G96 | 0.0 | 0.3− | 2009 12 10 | 704 | 1.2+ | 0.4− |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 03 13 | 703 | 0.1+ | 1.0+ | 2009 11 17 | G96 | 0.4+ | 0.3+ | 2009 12 11 | G96 | 0.5+ | 0.1+ | | |
| 2007 03 13 | 703 | 0.5+ | 0.5+ | 2009 11 22 | 691 | 0.1− | 0.0 | 2009 12 11 | G96 | 0.1+ | 0.1+ | | |
| 2007 03 13 | 703 | 0.7− | 0.7+ | 2009 11 22 | 691 | 0.0 | 0.2+ | 2009 12 11 | G96 | 0.3+ | 0.1+ | | |
| 2007 03 13 | 703 | 0.7− | 0.1− | 2009 11 22 | 691 | 0.3− | 0.1− | 2009 12 11 | G96 | 0.0 | 0.0 | | |
| 2007 03 15 | 703 | 1.0+ | 0.3− | 2009 11 26 | 691 | 0.0 | 0.1+ | | | | | | |

**2009 WQ$_{69}$ = 2003 NX$_5$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 43.19919 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19280944 | $\omega$ | 101.86739 | | +0.97961031 | −0.00966684 | |
| $a$ | 2.9674530 | $\Omega$ | 258.93083 | | −0.06317450 | +0.93335433 | |
| $e$ | 0.1970836 | $i$ | 11.79897 | | +0.19071610 | +0.35882620 | |
| $P$ | 5.11 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 07 06 | 461 | 0.7+ | 0.6+ | 2003 07 08 | 461 | 0.8− | 0.1+ | 2009 11 18 | 691 | 0.0 | 0.0 | | |
| 2003 07 06 | 461 | 1.2− | 0.2+ | 2003 07 08 | 461 | 1.1+ | 0.6− | 2009 11 18 | 691 | 0.1− | 0.1− | | |
| 2003 07 06 | 461 | (1.7− | 0.5+) | 2003 07 08 | 461 | 0.7+ | 0.1− | 2009 11 18 | 691 | 0.1− | 0.0 | | |
| 2003 07 07 | 461 | 1.1− | 0.0 | 2003 07 09 | 461 | 0.1+ | 0.4− | 2009 11 22 | 691 | 0.1− | 0.1+ | | |
| 2003 07 07 | 461 | 0.8− | 0.1− | 2003 07 09 | 461 | 0.4+ | 0.0 | 2009 11 22 | 691 | 0.2− | 0.1+ | | |
| 2003 07 07 | 461 | 0.9+ | 0.3+ | 2003 07 09 | 461 | 0.6+ | 0.3− | 2009 11 22 | 691 | 0.2− | 0.0 | | |
| 2003 07 07 | 461 | 0.5+ | 0.6+ | 2009 10 26 | G96 | 0.0 | 0.1− | 2009 12 13 | 703 | 0.2+ | 0.4− | | |
| 2003 07 07 | 461 | 0.1+ | 0.2− | 2009 10 26 | G96 | 0.3+ | 0.0 | 2009 12 13 | 703 | 0.6− | 0.2− | | |
| 2003 07 07 | 461 | (1.6− | 0.1−) | 2009 10 26 | G96 | 0.5− | 0.0 | 2009 12 13 | 703 | 0.7+ | 0.8− | | |
| 2003 07 08 | 461 | 0.0 | 0.2+ | 2009 10 26 | G96 | 0.2+ | 0.1+ | 2009 12 13 | 703 | (0.0 | 1.9−) | | |
| 2003 07 08 | 461 | 0.8− | 0.6− | 2009 11 09 | G96 | 0.4+ | 0.6− | 2009 12 15 | 704 | 0.1+ | 0.5+ | | |
| 2003 07 08 | 461 | 0.7+ | 0.3− | 2009 11 09 | G96 | 0.7+ | 0.2− | 2009 12 15 | 704 | 0.1− | 0.4+ | | |
| 2003 07 08 | 461 | 1.0− | 0.4+ | 2009 11 09 | G96 | 0.2+ | 0.1− | 2009 12 15 | 704 | 0.5+ | 0.3+ | | |
| 2003 07 08 | 461 | 0.1− | 0.2+ | 2009 11 09 | G96 | 0.4+ | 0.0 | 2009 12 15 | 704 | (0.9+ | 2.1−) | | |

**2009 WV$_{69}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 97.25123 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.20083497 | $\omega$ | 39.94310 | | +0.65532362 | +0.74038163 | |
| $a$ | 2.8878624 | $\Omega$ | 271.55178 | | −0.72561178 | +0.56202007 | |
| $e$ | 0.1089603 | $i$ | 8.60806 | | −0.20985352 | +0.36873906 | |
| $P$ | 4.91 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 06 01 | 807 | 0.2− | 0.2+ | 2008 06 11 | 691 | 0.2− | 0.3+ | 2009 11 09 | G96 | 0.9+ | 0.0 | | |
| 2003 06 01 | 807 | 0.1− | 0.5+ | 2008 06 11 | 691 | 0.4+ | 0.5+ | 2009 11 09 | G96 | 0.3+ | 0.2− | | |
| 2006 01 31 | 291 | 0.0 | 0.2+ | 2008 06 11 | 691 | 0.1− | 0.2+ | 2009 11 18 | 691 | 0.5− | 0.1+ | | |
| 2006 01 31 | 291 | 0.1+ | 0.1+ | 2009 10 26 | G96 | 0.0 | 0.2− | 2009 11 18 | 691 | 0.2+ | 0.2+ | | |
| 2006 01 31 | 291 | 0.2+ | 0.2+ | 2009 10 26 | G96 | 0.7+ | 0.4− | 2009 11 18 | 691 | 0.0 | 0.0 | | |
| 2008 06 07 | 691 | 0.2− | 0.7− | 2009 10 26 | G96 | 0.4+ | 0.4− | 2009 11 22 | 691 | 0.2− | 0.1− | | |
| 2008 06 07 | 691 | 0.0 | 0.0 | 2009 10 26 | G96 | 0.6+ | 0.2− | 2009 11 22 | 691 | 0.6− | 0.7+ | | |
| 2008 06 07 | 691 | (0.4+ | 2.6+) | 2009 11 09 | G96 | 0.7+ | 0.0 | 2009 11 22 | 691 | 0.3+ | 0.4− | | |

**2009 WK$_{70}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 328.73692 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26034103 | $\omega$ | 38.94207 | | −0.42641292 | −0.90361636 | |
| $a$ | 2.4290753 | $\Omega$ | 76.33187 | | +0.81908858 | −0.40479475 | |
| $e$ | 0.1429699 | $i$ | 2.39552 | | +0.38375242 | −0.14006669 | |
| $P$ | 3.79 | $H$ | 18.1 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 01 | 691 | 0.0 | 0.4+ | 2007 04 22 | G96 | 0.1+ | 0.2+ | 2009 11 18 | 691 | 0.2− | 0.2− | | |
| 2005 10 01 | 691 | 0.0 | 0.4+ | 2007 04 22 | G96 | 0.2− | 0.1− | 2009 11 18 | 691 | 0.0 | 0.1− | | |
| 2005 10 01 | 691 | (2.2− | 4.5+) | 2007 04 22 | G96 | 0.0 | 0.2+ | 2009 11 18 | 691 | 0.2+ | 0.3− | | |
| 2005 10 12 | 691 | 0.2− | 0.1− | 2007 04 22 | G96 | 0.2− | 0.3+ | 2009 11 22 | 691 | 0.4+ | 0.1+ | | |
| 2005 10 12 | 691 | 0.1− | 0.4− | 2007 04 22 | G96 | 0.1+ | 0.3+ | 2009 11 22 | 691 | 0.2− | 0.2− | | |
| 2005 10 12 | 691 | 0.2− | 0.2+ | 2007 04 22 | G96 | 0.1− | 0.3+ | 2009 11 22 | 691 | 0.0 | 0.2+ | | |
| 2005 10 29 | G96 | 0.5+ | 0.6− | 2009 10 25 | 691 | 0.4− | 0.2+ | 2009 12 11 | G96 | 0.8+ | 0.7+ | | |
| 2005 10 29 | G96 | 0.0 | 0.1− | 2009 10 25 | 691 | 0.1+ | 0.5+ | 2009 12 11 | G96 | 0.1+ | 0.1+ | | |
| 2005 10 29 | G96 | 0.3+ | 0.2− | 2009 10 25 | 691 | 0.5− | 0.4+ | 2009 12 11 | G96 | 0.3+ | 0.2+ | | |
| 2005 10 29 | G96 | 0.4+ | 0.6− | 2009 11 10 | 691 | 0.1+ | 0.0 | 2009 12 11 | G96 | 0.2− | 0.2+ | | |
| 2007 04 22 | G96 | 0.4+ | 0.1+ | 2009 11 10 | 691 | 0.2− | 0.5− | | | | | | |
| 2007 04 22 | G96 | 0.5+ | 0.4+ | 2009 11 10 | 691 | 0.2+ | 0.0 | | | | | | |

**2009 WU$_{70}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 320.25991 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26588396 | $\omega$ | 279.78980 | | −0.59563860 | −0.80310634 | |
| $a$ | 2.3951973 | $\Omega$ | 206.78669 | | +0.74965791 | −0.54894284 | |
| $e$ | 0.1435493 | $i$ | 1.94876 | | +0.28849209 | −0.23169369 | |
| $P$ | 3.71 | $H$ | 18.1 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 01 28 | 645 | 0.1− | 0.0 | 2005 10 11 | 691 | 0.2− | 0.4+ | 2009 11 10 | 691 | 0.1− | 0.4− | | |
| 2003 01 28 | 645 | 0.1− | 0.1− | 2007 03 13 | 691 | 0.4+ | 0.9− | 2009 11 10 | 691 | 0.6− | 0.0 | | |
| 2003 02 07 | 644 | 2.0+ | 0.6+ | 2007 03 13 | 691 | 0.1− | 0.1+ | 2009 11 10 | 691 | 0.1− | 0.4+ | | |
| 2003 02 07 | 644 | 0.5+ | 0.8+ | 2007 03 13 | 691 | 0.6− | 0.0 | 2009 11 18 | 691 | 0.1+ | 0.3+ | | |
| 2003 02 07 | 644 | 1.2+ | 0.7+ | 2007 03 26 | 691 | 0.0 | 0.2+ | 2009 11 18 | 691 | 0.2+ | 0.0 | | |
| 2003 02 22 | 644 | 0.7+ | 0.3+ | 2007 03 26 | 691 | 0.1− | 0.3+ | 2009 11 18 | 691 | 0.2+ | 0.1− | | |
| 2003 02 22 | 644 | 0.5+ | 0.2+ | 2007 03 26 | 691 | 0.2+ | 0.4+ | 2009 11 22 | 691 | 0.2+ | 0.3− | | |
| 2003 02 22 | 644 | 0.4− | 0.7+ | 2007 05 10 | G96 | 0.5+ | 0.1+ | 2009 11 22 | 691 | 0.3+ | 0.2+ | | |
| 2005 09 30 | G96 | 0.1− | 0.7− | 2007 05 10 | G96 | 0.8+ | 0.6+ | 2009 11 22 | 691 | 0.0 | 0.1− | | |
| 2005 09 30 | G96 | 0.4− | 0.1− | 2007 05 10 | G96 | 0.4+ | 0.0 | 2009 11 26 | 691 | 0.0 | 0.0 | | |
| 2005 09 30 | G96 | 0.2− | 0.2+ | 2007 05 10 | G96 | 0.6+ | 0.5+ | 2009 11 26 | 691 | 0.1+ | 0.2+ | | |
| 2005 09 30 | G96 | 0.1− | 0.0 | 2009 10 27 | 691 | 0.1− | 0.0 | 2009 11 26 | 691 | 0.3+ | 0.0 | | |
| 2005 10 11 | 691 | 0.1− | 0.2− | 2009 10 27 | 691 | 0.2− | 0.1+ | | | | | | |
| 2005 10 11 | 691 | 0.3+ | 0.5+ | 2009 10 27 | 691 | 0.4− | 0.1− | | | | | | |

**2009 WZ$_{70}$ = 1998 XG$_6$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 1.22006 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26913603 | $\omega$ | 242.83842 | | +0.23894994 | −0.97099673 | |
| $a$ | 2.3758635 | $\Omega$ | 193.34477 | | +0.90309499 | +0.22535108 | |
| $e$ | 0.1721573 | $i$ | 2.05164 | | +0.35682260 | +0.07988895 | |
| $P$ | 3.66 | $H$ | 18.3 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 12 08 | 691 | 0.1+ | 0.0 | 2007 03 26 | G96 | 0.5− | 0.2+ | 2009 11 10 | 691 | 0.6− | 0.2+ | | |
| 1998 12 08 | 691 | 0.2+ | 0.6− | 2007 03 26 | G96 | 0.2− | 0.2− | 2009 11 10 | 691 | 0.1+ | 0.0 | | |
| 1998 12 08 | 691 | 0.7+ | 0.5+ | 2007 03 26 | G96 | 0.0 | 0.0 | 2009 11 18 | 691 | 0.3+ | 0.1+ | | |
| 1998 12 13 | 691 | 0.0 | 0.0 | 2009 09 19 | G96 | 0.4+ | 0.3− | 2009 11 18 | 691 | 0.2− | 0.3− | | |
| 1998 12 13 | 691 | 0.6− | 0.1− | 2009 09 19 | G96 | 0.2+ | 0.1+ | 2009 11 18 | 691 | 0.0 | 0.1− | | |
| 1998 12 13 | 691 | 0.3− | 0.1− | 2009 09 19 | G96 | 0.0 | 0.2− | 2009 11 22 | 691 | 0.1− | 0.4− | | |
| 2007 03 11 | G96 | 0.4+ | 0.4− | 2009 09 19 | G96 | 0.1+ | 0.1− | 2009 11 22 | 691 | 0.1+ | 0.1+ | | |
| 2007 03 11 | G96 | 0.5+ | 0.3+ | 2009 10 25 | 691 | 0.1− | 0.1+ | 2009 11 22 | 691 | 0.3+ | 0.2+ | | |
| 2007 03 11 | G96 | 0.4+ | 0.2+ | 2009 10 25 | 691 | 0.2− | 0.0 | 2009 11 26 | 691 | 0.0 | 0.1+ | | |
| 2007 03 11 | G96 | 0.8− | 0.2+ | 2009 10 25 | 691 | 0.1− | 0.0 | 2009 11 26 | 691 | 0.0 | 0.1+ | | |
| 2007 03 26 | G96 | 0.3+ | 0.0 | 2009 11 10 | 691 | 0.2− | 0.2+ | 2009 11 26 | 691 | 0.4+ | 0.1+ | | |

**2009 WE$_{71}$ = 2000 SC$_{374}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 89.46020 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23153622 | $\omega$ | 261.16754 | | +0.88712609 | +0.44404044 | |
| $a$ | 2.6265767 | $\Omega$ | 72.38854 | | −0.35427886 | +0.82992348 | |
| $e$ | 0.0779788 | $i$ | 7.58673 | | −0.29579348 | +0.33772046 | |
| $P$ | 4.26 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 26 | 645 | 0.0 | 0.0 | 2009 11 10 | 691 | 0.1− | 0.1− | 2009 11 26 | 691 | 0.3− | 0.2− | | |
| 2000 09 26 | 645 | 0.0 | 0.1− | 2009 11 10 | 691 | 0.0 | 0.3+ | 2009 11 26 | 691 | 0.3− | 0.2− | | |
| 2000 09 27 | 645 | 0.0 | 0.0 | 2009 11 18 | 691 | 0.3+ | 0.2− | 2009 11 26 | 691 | 0.0 | 0.3− | | |
| 2000 09 27 | 645 | 0.0 | 0.1+ | 2009 11 18 | 691 | 1.0− | 0.7+ | 2009 12 11 | G96 | 0.5+ | 0.5− | | |
| 2007 04 11 | 691 | 0.5+ | 0.8+ | 2009 11 18 | 691 | 0.2+ | 0.6+ | 2009 12 11 | G96 | 0.5+ | 0.2− | | |
| 2007 04 11 | 691 | 0.1− | 0.0 | 2009 11 22 | 691 | 0.4+ | 0.2− | 2009 12 11 | G96 | 0.8+ | 0.3− | | |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 04 11 | 691 | 0.4− | 0.9− | | 2009 11 22 | 691 | 0.1+ | 0.3+ | | | | | | |
| 2009 11 10 | 691 | 0.1+ | 0.0 | | 2009 11 22 | 691 | 0.2+ | 0.3− | | | | | | |

**2009 WK$_{71}$ = 2003 SC$_{412}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 350.91280 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18205633 | $\omega$ | 273.78815 | | −0.01669396 | | −0.99985967 |
| $a$ | 3.0831798 | $\Omega$ | 177.16726 | | +0.92820535 | | −0.01601680 |
| $e$ | 0.2443260 | $i$ | 1.61930 | | +0.37169360 | | −0.00490926 |
| $P$ | 5.41 | $H$ | 17.4 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 02 06 | 695 | 0.1+ | 0.3+ | 2005 01 17 | 691 | 0.0 | 0.2+ | 2009 11 10 | 691 | 0.1+ | 0.1− |
| 2000 02 06 | 695 | 0.2+ | 0.5+ | 2005 01 17 | 691 | 0.2+ | 0.0 | 2009 11 10 | 691 | 0.0 | 0.1+ |
| 2000 02 06 | 695 | 0.0 | 0.3+ | 2005 01 17 | 691 | 0.1− | 0.6+ | 2009 11 18 | 691 | 0.1− | 0.3− |
| 2000 02 06 | 695 | 0.2+ | 0.2+ | 2005 03 01 | 691 | 0.3+ | 0.2+ | 2009 11 18 | 691 | 0.2+ | 0.2− |
| 2003 09 27 | 568 | 0.5− | 1.4− | 2005 03 01 | 691 | 0.1− | 0.0 | 2009 11 18 | 691 | 0.3− | 0.2− |
| 2003 09 27 | 568 | (0.5− | 1.5−) | 2005 03 01 | 691 | 0.0 | 0.1+ | 2009 11 22 | 691 | 0.4+ | 0.1− |
| 2003 09 27 | 568 | (0.5− | 1.5−) | 2005 03 09 | G96 | 0.1+ | 0.2− | 2009 11 22 | 691 | 0.5+ | 0.0 |
| 2003 09 28 | 645 | 0.0 | 0.1+ | 2005 03 09 | G96 | 0.0 | 0.1− | 2009 11 22 | 691 | 0.2− | 0.0 |
| 2003 09 28 | 645 | 0.1− | 0.0 | 2005 03 09 | G96 | 0.1− | 0.4− | 2009 11 26 | 691 | 0.1+ | 0.0 |
| 2003 09 29 | 645 | 0.1− | 0.1+ | 2005 03 09 | G96 | 0.1− | 0.1+ | 2009 11 26 | 691 | 0.2− | 0.0 |
| 2003 09 29 | 645 | 0.2+ | 0.1+ | 2009 11 10 | 691 | 0.5− | 0.1− | 2009 11 26 | 691 | 0.1− | 0.2+ |

**2009 WM$_{71}$ = 2005 MB$_{55}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 96.81076 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.31082801 | $\omega$ | 248.83840 | | +0.82130074 | | +0.56463136 |
| $a$ | 2.1583537 | $\Omega$ | 76.69900 | | −0.48738149 | | +0.76876700 |
| $e$ | 0.1175268 | $i$ | 4.80912 | | −0.29652045 | | +0.30031437 |
| $P$ | 3.17 | $H$ | 17.4 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 05 22 | 644 | 0.4+ | 0.2+ | 2008 03 29 | 691 | 0.1− | 0.5+ | 2009 11 23 | J75 | 0.7− | 0.4− |
| 2005 05 22 | 644 | 0.4− | 0.1− | 2008 03 29 | 691 | 0.1+ | 0.2+ | 2009 11 23 | J75 | 0.6+ | 0.5+ |
| 2005 05 22 | 644 | 0.1+ | 0.3+ | 2008 04 14 | 691 | 0.0 | 0.1+ | 2009 11 24 | J75 | 0.1+ | 0.2+ |
| 2005 06 13 | G96 | 0.0 | 0.2+ | 2008 04 14 | 691 | 0.1+ | 0.1+ | 2009 11 26 | 691 | 0.1− | 0.2− |
| 2005 06 13 | G96 | 0.2− | 0.2+ | 2008 04 14 | 691 | 0.0 | 0.1− | 2009 11 26 | 691 | 0.1− | 0.0 |
| 2005 06 17 | 691 | 0.2+ | 0.2+ | 2008 04 28 | G96 | 0.1− | 0.2− | 2009 11 26 | 691 | 0.1− | 0.2+ |
| 2005 06 17 | 691 | 0.0 | 0.4+ | 2008 04 28 | G96 | 0.2+ | 0.1− | 2009 12 11 | G96 | 0.5+ | 0.4− |
| 2005 06 17 | 691 | 0.1+ | 0.2+ | 2008 04 28 | G96 | 0.2− | 0.3− | 2009 12 11 | G96 | 0.1− | 0.1+ |
| 2006 12 01 | 691 | 0.2+ | 0.1− | 2008 04 28 | G96 | 0.0 | 0.1− | 2009 12 11 | G96 | 0.5+ | 0.3+ |
| 2006 12 01 | 691 | 0.8− | 0.1+ | 2009 11 18 | 691 | 0.1− | 0.4+ | 2009 12 11 | G96 | 0.1− | 0.1− |
| 2006 12 01 | 691 | 0.4+ | 0.4+ | 2009 11 18 | 691 | 0.0 | 0.3+ | 2009 12 25 | 291 | 0.2+ | 0.0 |
| 2006 12 09 | 691 | 0.0 | 0.2− | 2009 11 18 | 691 | 0.2− | 0.2+ | 2009 12 25 | 291 | 0.0 | 0.0 |
| 2006 12 09 | 691 | 0.1+ | 0.2− | 2009 11 22 | 691 | 0.1− | 0.1+ | 2009 12 25 | 291 | 0.2+ | 0.1+ |
| 2006 12 09 | 691 | 0.0 | 0.1− | 2009 11 22 | 691 | 0.2− | 0.2+ | | | | |
| 2008 03 29 | 691 | 0.0 | 0.0 | 2009 11 22 | 691 | 0.0 | 0.2+ | | | | |

**2009 WY$_{71}$ = 2004 GL$_{47}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 319.57939 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.12448180 | $\omega$ | 288.84354 | | −0.56678924 | | −0.82368244 |
| $a$ | 3.9725143 | $\Omega$ | 195.71924 | | +0.77781204 | | −0.52809280 |
| $e$ | 0.1949068 | $i$ | 3.64831 | | +0.27158496 | | −0.20655564 |
| $P$ | 7.92 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 04 12 | 691 | 0.1+ | 0.3+ | 2008 10 01 | G96 | 0.1− | 0.2− | 2009 11 22 | 691 | 0.0 | 0.0 |
| 2004 04 12 | 691 | 0.1+ | 0.1+ | 2008 10 01 | G96 | 0.1− | 0.3+ | 2009 11 22 | 691 | 0.3− | 0.2+ |
| 2004 04 12 | 691 | 0.2− | 0.2− | 2009 10 23 | G96 | 0.9+ | 0.0 | 2009 11 22 | 691 | 0.4− | 0.2− |
| 2004 04 19 | 691 | 0.2+ | 0.1+ | 2009 10 23 | G96 | 0.7+ | 0.4+ | 2009 11 23 | G96 | 0.4+ | 0.1− |
| 2004 04 19 | 691 | 0.0 | 0.2+ | 2009 10 23 | G96 | 0.3− | 0.3+ | 2009 11 23 | G96 | 0.1+ | 0.1+ |
| 2004 04 19 | 691 | 0.0 | 0.0 | 2009 10 23 | G96 | 1.5− | 1.3+ | 2009 11 23 | G96 | 0.1+ | 0.0 |
| 2008 10 01 | G96 | 0.2+ | 0.3+ | 2009 10 25 | 691 | 0.2− | 0.1+ | 2009 11 23 | G96 | 0.2+ | 0.1− |
| 2008 10 01 | G96 | 0.8− | 0.2+ | 2009 10 25 | 691 | 0.1+ | 0.4− | 2009 11 26 | 691 | 0.1− | 0.0 |
| 2008 10 01 | G96 | 0.1+ | 0.3+ | 2009 10 25 | 691 | 0.7+ | 0.9− | 2009 11 26 | 691 | 0.0 | 0.0 |
| 2008 10 01 | G96 | 0.4+ | 0.3+ | 2009 11 18 | 691 | 0.2− | 0.1+ | 2009 11 26 | 691 | 0.7+ | 0.0 |
| 2008 10 01 | G96 | 0.2− | 0.4+ | 2009 11 18 | 691 | 0.1+ | 0.2+ | | | | |
| 2008 10 01 | G96 | 0.2− | 0.1+ | 2009 11 18 | 691 | 0.8− | 0.6+ | | | | |

**2009 WH$_{72}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 8.73051 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.26557068 | $\omega$ | 317.17773 | | +0.44174070 | | −0.89635685 |
| $a$ | 2.3970806 | $\Omega$ | 106.57533 | | +0.83334107 | | +0.39446665 |
| $e$ | 0.1742022 | $i$ | 2.24495 | | +0.33227671 | | +0.20233749 |
| $P$ | 3.71 | $H$ | 17.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 10 09 | 691 | 0.3+ | 0.9+ | 2009 10 25 | 691 | 0.3− | 0.1− | 2009 11 23 | G96 | 0.1+ | 0.2− |
| 1994 10 09 | 691 | 0.6− | 0.5+ | 2009 10 25 | 691 | (1.6+ | 1.2−) | 2009 11 23 | G96 | 0.2+ | 0.3− |
| 1994 10 09 | 691 | 0.2− | 0.1+ | 2009 11 10 | 691 | 0.0 | 0.2+ | 2009 11 23 | J75 | 0.1+ | 0.4− |
| 2005 09 11 | 691 | 0.2− | 0.2+ | 2009 11 10 | 691 | 0.0 | 0.0 | 2009 11 23 | J75 | 0.1+ | 0.2− |
| 2005 09 11 | 691 | 0.3− | 0.3+ | 2009 11 10 | 691 | 0.2− | 0.0 | 2009 11 23 | J75 | 0.0 | 0.4− |
| 2005 09 11 | 691 | 0.0 | 0.5+ | 2009 11 18 | 691 | 0.2− | 0.0 | 2009 11 26 | 691 | 0.0 | 0.0 |
| 2007 02 21 | 691 | 0.1− | 0.2+ | 2009 11 18 | 691 | 0.8+ | 0.4+ | 2009 11 26 | 691 | 0.1− | 0.1− |
| 2007 02 21 | 691 | 0.0 | 0.0 | 2009 11 18 | 691 | 0.2− | 0.1− | 2009 11 26 | 691 | 0.0 | 0.1− |
| 2007 02 21 | 691 | 0.4+ | 0.5+ | 2009 11 22 | 691 | 0.0 | 0.1− | 2009 12 11 | 703 | 0.4− | 1.1− |
| 2007 03 14 | 691 | 0.3+ | 0.4+ | 2009 11 22 | 691 | 0.0 | 0.1+ | 2009 12 11 | 703 | 0.7+ | 0.3+ |
| 2007 03 14 | 691 | 0.2+ | 0.2+ | 2009 11 22 | 691 | 0.1− | 0.3− | 2009 12 11 | 703 | 0.3+ | 0.9+ |
| 2007 03 14 | 691 | 0.2+ | 1.0+ | 2009 11 23 | G96 | 0.4+ | 0.2− | 2009 12 11 | 703 | 0.1− | 0.4+ |
| 2009 10 25 | 691 | 0.0 | 0.0 | 2009 11 23 | G96 | 0.0 | 0.3− | | | | |

**2009 WJ$_{72}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 89.43868 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.24260554 | $\omega$ | 198.98102 | | +0.86786992 | | +0.49617079 |
| $a$ | 2.5460616 | $\Omega$ | 131.24641 | | −0.45141882 | | +0.80848557 |
| $e$ | 0.0944182 | $i$ | 1.89219 | | −0.20741951 | | +0.31648953 |
| $P$ | 4.06 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 04 01 | 645 | 0.0 | 0.0 | 2007 02 25 | 691 | 0.0 | 0.1+ | 2009 11 22 | 691 | 0.1+ | 0.1− |
| 2003 04 01 | 645 | 0.0 | 0.0 | 2007 02 25 | 691 | 0.0 | 0.2− | 2009 11 22 | 691 | 0.1− | 0.1− |
| 2005 10 25 | G96 | 0.5+ | 0.1− | 2007 02 25 | 691 | 0.1− | 0.0 | 2009 11 23 | G96 | 0.5+ | 0.0 |
| 2005 10 25 | G96 | 0.1− | 0.1− | 2009 10 25 | 691 | 0.1− | 0.0 | 2009 11 23 | G96 | 0.1+ | 0.1− |
| 2005 10 25 | G96 | 0.3− | 0.1− | 2009 10 25 | 691 | 0.1+ | 0.0 | 2009 11 23 | G96 | 0.1+ | 0.3− |
| 2005 10 25 | G96 | 0.4− | 0.2+ | 2009 10 25 | 691 | 0.3− | 0.2+ | 2009 11 23 | G96 | 0.2+ | 0.0 |
| 2005 11 05 | 691 | 0.3+ | 0.3− | 2009 11 10 | 691 | 0.1+ | 0.1− | 2009 11 26 | 691 | 0.2+ | 0.0 |
| 2005 11 05 | 691 | 0.5− | 0.4− | 2009 11 10 | 691 | 0.0 | 0.3+ | 2009 11 26 | 691 | 0.3+ | 0.1− |
| 2005 11 05 | 691 | 0.4+ | 0.1− | 2009 11 10 | 691 | 0.1+ | 0.2− | 2009 11 26 | 691 | 0.0 | 0.0 |
| 2005 11 30 | G96 | 0.6− | 0.3− | 2009 11 18 | 691 | 0.1+ | 0.1− | 2009 12 19 | 691 | 0.5− | 0.3+ |
| 2005 11 30 | G96 | 0.3+ | 0.2− | 2009 11 18 | 691 | 0.1− | 0.1+ | 2009 12 19 | 691 | 0.0 | 0.3+ |
| 2005 11 30 | G96 | 0.3+ | 0.2− | 2009 11 18 | 691 | 0.0 | 0.0 | 2009 12 19 | 691 | 0.2− | 0.2+ |
| 2005 11 30 | G96 | 0.3+ | 0.0 | 2009 11 22 | 691 | 0.1− | 0.1+ | | | | |

**2009 WZ$_{72}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 52.58219 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18220345 | $\omega$ | 258.69294 | | +0.99546164 | | −0.07864136 |
| $a$ | 3.0815200 | $\Omega$ | 105.80071 | | +0.09322628 | | +0.91892921 |
| $e$ | 0.1337062 | $i$ | 3.19258 | | −0.01910437 | | +0.38650309 |
| $P$ | 5.41 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 08 25 | 807 | 0.1− | 0.0 | 2006 03 06 | G96 | 0.2− | 0.2+ | 2009 11 22 | 691 | 0.5− | 0.0 |
| 2003 08 25 | 807 | 0.1− | 0.2+ | 2006 03 06 | G96 | 0.4+ | 0.2+ | 2009 11 22 | 691 | 0.3− | 0.4− |
| 2003 09 22 | 699 | 0.7− | 0.0 | 2006 03 06 | G96 | 0.0 | 0.0 | 2009 11 22 | 691 | 0.8− | 0.5− |
| 2003 09 22 | 699 | 0.7− | 0.2+ | 2006 03 06 | G96 | 0.2+ | 0.1+ | 2009 11 25 | 703 | (0.7+ | 2.3−) |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 22 | 699 | 0.3− | 0.1− | 2007 05 11 | G96 | 0.5+ | 0.0 | 2009 11 25 | 703 | 0.3− | 0.0 | | | |
| 2003 09 22 | 699 | 1.6+ | 0.5+ | 2007 05 11 | G96 | 0.3+ | 0.4+ | 2009 11 25 | 703 | 0.2+ | 0.2+ | | | |
| 2006 03 05 | G96 | 0.2+ | 0.7+ | 2007 05 11 | G96 | 0.1+ | 0.5+ | 2009 11 25 | 703 | 1.2+ | 1.0+ | | | |
| 2006 03 05 | G96 | 0.3− | 0.1+ | 2007 05 11 | G96 | 0.6− | 0.0 | 2009 11 26 | 691 | 0.2− | 0.4+ | | | |
| 2006 03 05 | G96 | 0.0 | 0.0 | 2009 10 25 | 691 | 0.2+ | 0.1− | 2009 11 26 | 691 | 0.2+ | 0.0 | | | |
| 2006 03 05 | G96 | 0.2+ | 0.2+ | 2009 10 25 | 691 | 0.1− | 0.1− | 2009 11 26 | 691 | 0.1− | 0.1− | | | |
| 2006 03 05 | G96 | 0.1− | 0.2+ | 2009 10 25 | 691 | 0.1− | 0.0 | 2009 12 19 | 691 | 0.2+ | 0.3+ | | | |
| 2006 03 05 | G96 | 0.6− | 0.4+ | 2009 11 18 | 691 | 0.2+ | 0.4+ | 2009 12 19 | 691 | 0.5+ | 0.1− | | | |
| 2006 03 05 | G96 | 0.1− | 0.0 | 2009 11 18 | 691 | 0.2+ | 0.3− | 2009 12 19 | 691 | 0.2+ | 0.2+ | | | |
| 2006 03 05 | G96 | 0.5+ | 1.7− | 2009 11 18 | 691 | 0.0 | 0.3+ | | | | | | | |

**2009 WG$_{73}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 85.72492 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24028174 | $\omega$ | 259.69044 | | +0.95031587 | +0.28569031 | |
| $a$ | 2.5624508 | $\Omega$ | 83.62684 | | −0.21392648 | +0.88786075 | |
| $e$ | 0.0336587 | $i$ | 7.14519 | | −0.22613093 | +0.36067206 | |
| $P$ | 4.10 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 05 02 | 691 | 0.4+ | 0.3− | 2005 12 26 | G96 | 0.0 | 0.1− | 2009 11 18 | 691 | 0.2+ | 0.0 | | | |
| 2003 05 02 | 691 | 0.3− | 0.3+ | 2005 12 26 | G96 | 0.0 | 0.3− | 2009 11 22 | 691 | 0.6− | 0.6+ | | | |
| 2003 05 02 | 691 | 0.0 | 0.0 | 2005 12 26 | G96 | (3.2− | 0.9−) | 2009 11 22 | 691 | 0.1− | 0.0 | | | |
| 2005 12 04 | G96 | 0.2+ | 0.3− | 2009 11 10 | 691 | 0.2− | 0.1− | 2009 11 22 | 691 | 0.3+ | 0.1+ | | | |
| 2005 12 04 | G96 | 0.1− | 0.2− | 2009 11 10 | 691 | 0.4+ | 0.3− | 2009 12 19 | 691 | 0.6+ | 0.4+ | | | |
| 2005 12 04 | G96 | 0.0 | 0.1− | 2009 11 10 | 691 | 0.2− | 0.1− | 2009 12 19 | 691 | 0.1+ | 0.1− | | | |
| 2005 12 04 | G96 | 0.2+ | 0.4− | 2009 11 18 | 691 | 0.3− | 0.2− | 2009 12 19 | 691 | 0.0 | 0.0 | | | |
| 2005 12 26 | G96 | 0.1+ | 0.0 | 2009 11 18 | 691 | 0.2− | 0.1+ | | | | | | | |

**2009 WN$_{73}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 336.98315 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27124360 | $\omega$ | 68.58539 | | −0.13374074 | −0.98903898 | |
| $a$ | 2.3635405 | $\Omega$ | 29.31656 | | +0.85533978 | −0.14708875 | |
| $e$ | 0.0583238 | $i$ | 7.34214 | | +0.50050702 | −0.01291479 | |
| $P$ | 3.63 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 23 | 691 | 0.1− | 0.1+ | 2009 11 09 | 691 | 0.0 | 0.1− | 2009 11 22 | 703 | 1.0− | 1.4− | | | |
| 2005 09 23 | 691 | 0.1− | 0.1− | 2009 11 09 | 691 | 0.2+ | 0.1− | 2009 11 22 | 703 | 0.8+ | 0.4+ | | | |
| 2005 09 23 | 691 | 0.1− | 0.0 | 2009 11 09 | G96 | 0.5+ | 0.3− | 2009 11 22 | G96 | 0.3+ | 0.2− | | | |
| 2005 10 29 | G96 | 0.3+ | 0.0 | 2009 11 09 | G96 | 0.7+ | 0.3− | 2009 11 22 | G96 | 0.3− | 0.1+ | | | |
| 2005 10 29 | G96 | 0.2+ | 0.0 | 2009 11 09 | G96 | 0.3+ | 0.1− | 2009 11 22 | G96 | 0.3+ | 0.2− | | | |
| 2005 10 29 | G96 | 0.2+ | 0.2− | 2009 11 09 | G96 | 0.4+ | 0.4− | 2009 11 22 | G96 | 0.2+ | 0.2− | | | |
| 2005 10 29 | G96 | 0.4+ | 0.2+ | 2009 11 18 | 291 | 0.2+ | 0.0 | 2009 11 23 | 291 | 0.5− | 0.3+ | | | |
| 2009 10 26 | 691 | 0.0 | 0.1− | 2009 11 18 | 291 | 0.0 | 0.0 | 2009 11 23 | 291 | 0.4− | 0.2+ | | | |
| 2009 10 26 | 691 | 0.1− | 0.2+ | 2009 11 18 | 291 | 0.1− | 0.0 | 2009 11 23 | 291 | 0.3− | 0.3+ | | | |
| 2009 10 26 | 691 | 0.2+ | 0.0 | 2009 11 22 | 703 | 1.1+ | 0.9− | | | | | | | |
| 2009 11 09 | 691 | 0.0 | 0.1+ | 2009 11 22 | 703 | 0.4− | 1.1+ | | | | | | | |

**2009 WQ$_{73}$ = 2004 RM$_{263}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 23.99801 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21322151 | $\omega$ | 41.13571 | | +0.80243583 | −0.59671334 | |
| $a$ | 2.7749087 | $\Omega$ | 355.48891 | | +0.52768260 | +0.71382764 | |
| $e$ | 0.2049038 | $i$ | 3.98871 | | +0.27865358 | +0.36658326 | |
| $P$ | 4.62 | $H$ | 17.7 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 10 | 691 | 0.0 | 0.1− | 2009 10 26 | 691 | 0.2− | 0.2− | 2009 11 18 | 291 | 0.1− | 0.1− | | | |
| 2004 09 10 | 691 | 0.2− | 0.2+ | 2009 11 09 | 691 | 0.4− | 0.6+ | 2009 11 18 | 291 | 0.1− | 0.0 | | | |
| 2004 09 10 | 691 | 0.1− | 0.1+ | 2009 11 09 | 691 | 0.3+ | 0.0 | 2009 11 18 | 291 | 0.1− | 0.3− | | | |
| 2004 09 16 | 691 | 0.2+ | 0.1− | 2009 11 09 | 691 | 0.0 | 0.2− | 2009 11 22 | G96 | 0.3+ | 0.2+ | | | |
| 2004 09 16 | 691 | 0.1− | 0.1− | 2009 11 09 | G96 | 0.2+ | 0.0 | 2009 11 22 | G96 | 0.2+ | 0.1+ | | | |
| 2004 09 16 | 691 | 0.2+ | 0.0 | 2009 11 09 | G96 | 0.1− | 0.1− | 2009 11 22 | G96 | 0.2+ | 0.4− | | | |
| 2009 10 26 | 691 | 0.5+ | 0.0 | 2009 11 09 | G96 | 0.1+ | 0.1+ | 2009 11 22 | G96 | 0.1+ | 0.1+ | | | |
| 2009 10 26 | 691 | 0.4− | 0.2+ | 2009 11 09 | G96 | 0.3+ | 0.0 | | | | | | | |

**2009 WT$_{73}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 63.31256 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18528848 | $\omega$ | 127.90725 | | +0.98908906 | −0.03199355 | |
| $a$ | 3.0472197 | $\Omega$ | 234.37777 | | −0.01229133 | +0.95480814 | |
| $e$ | 0.0746724 | $i$ | 10.18962 | | +0.14680518 | +0.29549591 | |
| $P$ | 5.32 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 17 | 644 | 0.1− | 0.0 | 2009 09 20 | G96 | 0.0 | 0.1− | 2009 11 22 | 691 | 0.1− | 0.0 | | | |
| 2003 09 17 | 644 | 0.1− | 0.1− | 2009 09 20 | G96 | 0.2+ | 0.2+ | 2009 11 22 | 691 | 0.2− | 0.0 | | | |
| 2003 09 17 | 644 | 0.2+ | 0.2+ | 2009 09 20 | G96 | 0.0 | 0.0 | 2009 11 26 | 691 | 0.1+ | 0.0 | | | |
| 2007 05 11 | G96 | 0.5− | 0.2+ | 2009 09 20 | G96 | 0.1− | 0.2+ | 2009 11 26 | 691 | 0.0 | 0.0 | | | |
| 2007 05 11 | G96 | 0.0 | 0.4+ | 2009 11 18 | 691 | 0.2+ | 0.2+ | 2009 11 26 | 691 | 0.3− | 0.0 | | | |
| 2007 05 11 | G96 | 0.0 | 0.1+ | 2009 11 18 | 691 | 0.1− | 0.1− | 2009 12 17 | G96 | 0.1− | 0.1+ | | | |
| 2007 05 11 | G96 | 0.0 | 0.1− | 2009 11 18 | 691 | 0.1− | 0.0 | 2009 12 17 | G96 | 0.1+ | 0.5− | | | |
| 2007 05 25 | G96 | 0.3+ | 0.3+ | 2009 11 20 | A50 | (2.6+ | 1.3+) | 2009 12 17 | G96 | 0.3+ | 0.2− | | | |
| 2007 05 25 | G96 | 0.1− | 0.6+ | 2009 11 20 | A50 | 1.2+ | 0.9+ | 2009 12 17 | G96 | 0.4+ | 0.0 | | | |
| 2007 05 25 | G96 | 0.4+ | 0.4+ | 2009 11 20 | A50 | 0.1− | 1.0+ | | | | | | | |
| 2007 05 25 | G96 | 0.1− | 0.1+ | 2009 11 22 | 691 | 0.0 | 0.0 | | | | | | | |

**2009 WX$_{73}$ = 2007 BU$_{21}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 304.03570 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.29532443 | $\omega$ | 51.10800 | | −0.77090225 | −0.63387716 | |
| $a$ | 2.2332455 | $\Omega$ | 89.46418 | | +0.56332608 | −0.72431307 | |
| $e$ | 0.0684154 | $i$ | 3.58495 | | +0.29727671 | −0.27123849 | |
| $P$ | 3.34 | $H$ | 17.7 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 05 24 | 291 | 0.1+ | 0.3+ | 2007 01 24 | 704 | 0.4+ | 0.4+ | 2009 11 18 | 691 | 0.0 | 0.1+ | | | |
| 2001 05 24 | 291 | 0.3+ | 0.3+ | 2007 01 24 | 704 | 0.6+ | 0.1+ | 2009 11 18 | 691 | 0.1− | 0.0 | | | |
| 2001 05 24 | 291 | 0.1− | 0.5+ | 2007 01 24 | 704 | 0.4+ | 0.1+ | 2009 11 22 | 691 | 0.1+ | 0.4− | | | |
| 2002 10 30 | 645 | 0.1− | 0.0 | 2007 01 24 | 704 | 0.5+ | 0.1− | 2009 11 22 | 691 | 0.1− | 0.0 | | | |
| 2002 10 30 | 645 | 0.0 | 0.1+ | 2007 01 24 | 704 | 0.6+ | 0.4+ | 2009 11 22 | 691 | 0.2+ | 0.1+ | | | |
| 2006 11 28 | G96 | 0.0 | 0.4− | 2007 01 25 | 691 | 0.2+ | 0.0 | 2009 11 26 | 691 | 0.0 | 0.1+ | | | |
| 2006 11 28 | G96 | 0.3+ | 0.3− | 2007 01 25 | 691 | 0.3− | 0.2+ | 2009 11 26 | 691 | 0.2− | 0.1+ | | | |
| 2006 11 28 | G96 | 0.1− | 0.3− | 2007 01 25 | 691 | 0.2− | 0.1+ | 2009 11 26 | 691 | 0.1+ | 0.2+ | | | |
| 2006 11 28 | G96 | 0.5− | 0.1− | 2009 11 10 | 691 | 0.6− | 0.3+ | 2009 12 16 | G96 | 0.3+ | 0.2− | | | |
| 2007 01 17 | 691 | 0.0 | 0.0 | 2009 11 10 | 691 | 0.1+ | 0.1+ | 2009 12 16 | G96 | 0.5+ | 0.1− | | | |
| 2007 01 17 | 691 | 0.0 | 0.0 | 2009 11 10 | 691 | 0.0 | 0.2+ | 2009 12 16 | G96 | 0.3+ | 0.2− | | | |
| 2007 01 17 | 691 | 0.1− | 0.1+ | 2009 11 18 | 691 | 0.0 | 0.1+ | 2009 12 16 | G96 | 0.4+ | 0.5− | | | |

**2009 WB$_{74}$ = 2004 XF$_{173}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 116.68443 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18277437 | $\omega$ | 228.73139 | | +0.57296319 | +0.79369939 | |
| $a$ | 3.0750996 | $\Omega$ | 77.37060 | | −0.67534654 | +0.59847813 | |
| $e$ | 0.1139551 | $i$ | 12.08753 | | −0.46434926 | +0.10892749 | |
| $P$ | 5.39 | $H$ | 15.3 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 28 | 699 | 0.6− | 0.3+ | 2004 12 19 | 691 | 0.1+ | 0.1+ | 2009 11 18 | 691 | 0.1+ | 0.1− | | | |
| 2003 09 28 | 699 | 0.6+ | 0.4− | 2007 04 22 | G96 | 0.3− | 0.2+ | 2009 11 18 | 691 | 0.5− | 0.1+ | | | |
| 2003 09 28 | 699 | 0.5− | 0.5+ | 2007 04 22 | G96 | 0.3+ | 0.1+ | 2009 11 22 | 691 | 0.0 | 0.1− | | | |
| 2003 09 28 | 699 | 0.5− | 0.6+ | 2007 04 22 | G96 | 0.1+ | 0.2+ | 2009 11 22 | 691 | 0.1− | 0.2+ | | | |
| 2003 10 16 | 644 | 0.0 | 0.1+ | 2007 04 22 | G96 | 0.4− | 0.9− | 2009 11 22 | 691 | 0.3− | 0.2− | | | |
| 2003 10 16 | 644 | 0.1− | 0.2+ | 2007 05 12 | 691 | 0.0 | 0.4+ | 2009 11 26 | 691 | 0.2− | 0.1+ | | | |
| 2003 10 16 | 644 | 0.1+ | 0.1+ | 2007 05 12 | 691 | 0.7+ | 0.5+ | 2009 11 26 | 691 | 0.0 | 0.1− | | | |
| 2004 12 10 | 691 | 0.1− | 0.2− | 2007 05 12 | 691 | 0.1− | 0.4+ | 2009 11 26 | 691 | 0.2− | 0.1+ | | | |
| 2004 12 10 | 691 | 0.3− | 0.1− | 2009 11 10 | 691 | 0.2+ | 0.2+ | 2009 12 17 | G96 | 0.6+ | 0.1+ | | | |
| 2004 12 10 | 691 | 0.2+ | 0.0 | 2009 11 10 | 691 | 0.0 | 0.0 | 2009 12 17 | G96 | 0.5+ | 0.0 | | | |

2004 12 19 691 0.1+ 0.3+ 2009 11 10 691 0.1− 0.4+ 2009 12 17 G96 0.6+ 0.1−
2004 12 19 691 0.1+ 0.0 2009 11 18 691 0.2+ 0.2+ 2009 12 17 G96 0.5+ 0.1+

**2009 WE$_{74}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 331.76714 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26950654 | $\omega$ | 343.87713 | | −0.46657807 | −0.88410135 | |
| $a$ | 2.3736855 | $\Omega$ | 133.92690 | | +0.81541196 | −0.44129419 | |
| $e$ | 0.1412293 | $i$ | 2.05916 | | +0.34264886 | −0.15370180 | |
| $P$ | 3.66 | $H$ | 17.6 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

2003 01 26 291 0.1+ 0.2+ 2007 02 26 G96 0.2+ 1.0− 2009 11 10 691 (2.0+ 1.0+)
2003 01 26 291 0.2− 0.2+ 2007 02 26 G96 0.3+ 0.0 2009 11 10 691 0.1− 0.2−
2003 01 26 291 0.6− 0.5+ 2007 03 11 691 0.1− 0.1− 2009 11 18 691 0.1+ 0.3+
2003 02 02 608 0.8+ 0.9− 2007 03 11 691 0.1− 0.0 2009 11 18 691 0.0 0.1+
2003 02 02 608 1.2+ 0.9− 2007 03 11 691 0.1− 0.1+ 2009 11 18 691 0.4− 0.1−
2003 02 02 608 1.1+ 1.6− 2007 04 25 G96 0.7+ 0.3+ 2009 11 22 691 0.2+ 0.1+
2005 10 01 691 0.3+ 0.2+ 2007 04 25 G96 0.0 0.1+ 2009 11 22 691 0.1− 0.1+
2005 10 01 691 0.1+ 0.3+ 2007 04 25 G96 0.4+ 0.0 2009 11 22 691 0.3− 0.1−
2005 10 01 691 0.4+ 0.3+ 2007 04 25 G96 0.2− 0.3+ 2009 12 17 G96 0.5+ 0.1−
2005 10 12 691 0.3− 0.4− 2009 09 22 G96 0.4+ 0.1− 2009 12 17 G96 0.2+ 0.2−
2005 10 12 691 0.2− 0.1− 2009 09 22 G96 0.0 0.1+ 2009 12 17 G96 0.2+ 0.0
2005 10 12 691 0.3− 0.4− 2009 09 22 G96 0.8+ 0.2− 2009 12 17 G96 0.4+ 0.2−
2007 02 26 G96 0.3− 0.3+ 2009 09 22 G96 0.1− 0.2+
2007 02 26 G96 0.1− 0.3− 2009 11 10 691 (2.3+ 0.2+)

**2009 WH$_{75}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 16.81305 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23276307 | $\omega$ | 284.45424 | | +0.59417431 | −0.80363613 | |
| $a$ | 2.6173391 | $\Omega$ | 129.04193 | | +0.75360591 | +0.54163380 | |
| $e$ | 0.1755083 | $i$ | 2.47603 | | +0.28113169 | +0.24658019 | |
| $P$ | 4.23 | $H$ | 18.3 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

2002 01 13 291 0.0 0.4− 2005 12 26 G96 0.3+ 0.4− 2009 11 22 691 0.4− 0.4−
2002 01 13 291 0.2+ 0.2+ 2005 12 26 G96 0.1− 0.7− 2009 11 22 691 0.1− 0.1−
2002 01 13 291 0.0 0.3+ 2009 11 10 691 0.3+ 0.1− 2009 11 22 691 0.2+ 0.1+
2002 02 08 291 0.1− 0.2− 2009 11 10 691 0.0 0.2− 2009 11 26 691 0.1+ 0.1+
2002 02 08 291 0.1+ 0.3+ 2009 11 10 691 0.3+ 0.1+ 2009 11 26 691 0.1− 0.2+
2002 02 08 291 0.1− 0.3+ 2009 11 18 691 0.0 0.3+ 2009 11 26 691 0.1+ 0.2+
2005 12 26 G96 0.4− 0.9− 2009 11 18 691 0.3− 0.1+
2005 12 26 G96 0.1+ 0.7− 2009 11 18 691 0.1− 0.0

**2009 WV$_{75}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 61.98999 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19824605 | $\omega$ | 270.54826 | | +0.99185723 | −0.02894852 | |
| $a$ | 2.9129499 | $\Omega$ | 91.11483 | | +0.07582951 | +0.91662475 | |
| $e$ | 0.1024888 | $i$ | 7.12558 | | −0.10231876 | +0.39869919 | |
| $P$ | 4.97 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

1994 12 10 691 0.1+ 0.0 2007 04 25 691 0.0 0.6+ 2009 11 18 691 0.2+ 0.2−
1994 12 10 691 0.4+ 0.4− 2007 04 25 691 0.1+ 0.3+ 2009 11 18 691 0.0 0.4−
1994 12 10 691 0.4− 0.0 2007 04 25 691 0.3+ 0.1+ 2009 11 22 691 0.1− 0.1+
2003 07 08 644 0.2− 0.4+ 2008 08 04 E12 0.3− 0.2+ 2009 11 22 691 0.2− 0.1−
2003 07 08 644 0.1− 0.2+ 2008 08 04 E12 0.0 0.5+ 2009 11 22 691 0.2− 0.2−
2003 07 08 644 0.0 0.0 2008 08 04 E12 0.2+ 0.1− 2009 12 11 703 0.1+ 0.9−
2004 11 05 644 0.5+ 0.4+ 2009 11 10 691 0.2− 0.6+ 2009 12 11 703 0.5+ 0.1+
2004 11 05 644 1.0+ 0.2− 2009 11 10 691 0.0 0.9+ 2009 12 11 703 0.1− 0.8+
2004 11 05 644 0.4+ 0.0 2009 11 10 691 0.1− 0.1+ 2009 12 11 703 0.2+ 0.9−
2004 11 17 E12 1.2− 0.3+ 2009 11 10 691 0.0 0.3+ 2009 12 17 G96 0.4+ 0.1−
2004 11 17 E12 1.1+ 0.9+ 2009 11 10 691 0.2− 0.1+ 2009 12 17 G96 0.1+ 0.5−
2004 11 17 E12 0.5− 0.6+ 2009 11 10 691 0.1− 0.3+ 2009 12 17 G96 0.3+ 0.1−
2004 11 17 E12 1.0− 0.7− 2009 11 18 691 0.1+ 0.0 2009 12 17 G96 0.1+ 0.2−

**2009 WX$_{75}$ = 2007 JC$_{34}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 332.92659 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24103014 | $\omega$ | 248.11151 | | −0.38631933 | −0.91584579 | |
| $a$ | 2.5571437 | $\Omega$ | 225.10554 | | +0.89300245 | −0.34166966 | |
| $e$ | 0.1315320 | $i$ | 8.88958 | | +0.23087661 | −0.21092258 | |
| $P$ | 4.09 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

2007 05 09 G96 0.5− 0.2− 2009 09 20 G96 0.1− 0.0 2009 11 22 691 0.1− 0.0
2007 05 09 G96 0.1+ 0.2− 2009 09 20 G96 0.1− 0.5− 2009 11 26 691 0.3+ 0.1+
2007 05 09 G96 0.1+ 0.8+ 2009 11 10 691 0.1− 0.1+ 2009 11 26 691 0.1+ 0.1+
2007 05 09 G96 0.2+ 0.0 2009 11 10 691 0.3+ 0.3+ 2009 11 26 691 0.0 0.1−
2007 05 14 G96 0.4− 0.2− 2009 11 10 691 0.1− 0.2+ 2009 12 11 703 0.3− 0.1−
2007 05 14 G96 0.4+ 0.2− 2009 11 18 691 0.1+ 0.1+ 2009 12 11 703 0.2− 0.3+
2007 05 14 G96 0.1− 0.3+ 2009 11 18 691 0.1+ 0.2+ 2009 12 11 703 0.9+ 1.3−
2007 05 14 G96 0.3+ 0.2− 2009 11 18 691 0.0 0.1− 2009 12 11 703 0.9+ 0.8−
2009 09 20 G96 0.1− 0.7− 2009 11 22 691 0.4− 0.1−
2009 09 20 G96 0.6+ 0.3− 2009 11 22 691 0.7− 0.0

**2009 WY$_{75}$ = 2006 DX$_{61}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 328.22625 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21607764 | $\omega$ | 37.81209 | | −0.51755781 | −0.84270807 | |
| $a$ | 2.7504019 | $\Omega$ | 83.81389 | | +0.74418428 | −0.52883521 | |
| $e$ | 0.1727943 | $i$ | 8.57563 | | +0.42228387 | −0.10087833 | |
| $P$ | 4.56 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

2002 05 09 644 0.3+ 0.6+ 2006 02 26 703 0.5− 0.8− 2009 11 22 691 0.7− 0.2−
2002 05 09 644 0.1+ 0.2+ 2006 02 26 703 0.4− 0.4− 2009 11 22 691 0.1− 0.1+
2002 05 09 644 0.1+ 0.8+ 2006 02 26 703 0.7− 1.0− 2009 12 09 106 0.8+ 0.4−
2006 01 28 699 0.0 0.8− 2006 02 26 703 1.1− 0.5− 2009 12 09 106 1.1+ 0.1−
2006 01 28 699 0.0 0.6− 2006 03 03 699 0.9+ 0.4+ 2009 12 09 106 0.0 0.1−
2006 01 28 699 0.5− 0.5+ 2006 03 03 699 (2.0+ 2.9+) 2009 12 09 106 0.9+ 0.1−
2006 01 28 699 0.7− 0.1− 2006 03 03 699 1.1+ 0.0 2009 12 11 703 0.7− 0.1+
2006 02 22 703 0.9+ 0.1+ 2006 03 03 699 0.1+ 0.5+ 2009 12 11 703 0.6− 0.8−
2006 02 22 699 0.3+ 0.3− 2009 11 10 691 0.1+ 0.1+ 2009 12 11 703 0.5− 0.3+
2006 02 22 703 0.3+ 0.3+ 2009 11 10 691 0.1+ 0.1+ 2009 12 11 703 0.5− 0.4−
2006 02 22 703 0.9+ 0.8+ 2009 11 10 691 0.2+ 0.2+ 2009 12 17 G96 0.3+ 0.2−
2006 02 22 699 0.7− 0.6+ 2009 11 18 691 0.2+ 0.1+ 2009 12 17 G96 0.1+ 0.2+
2006 02 22 703 0.4+ 1.2+ 2009 11 18 691 0.1+ 0.1+ 2009 12 17 G96 0.1− 0.2−
2006 02 22 699 0.2+ 0.1+ 2009 11 18 691 0.1+ 0.0 2009 12 17 G96 0.2− 0.2−
2006 02 22 699 0.6− 0.6− 2009 11 22 691 0.2− 0.2+

**2009 WZ$_{75}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 332.47712 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21002016 | $\omega$ | 335.55256 | | −0.32553803 | −0.94452985 | |
| $a$ | 2.8030363 | $\Omega$ | 133.41299 | | +0.87705639 | −0.31881537 | |
| $e$ | 0.0841638 | $i$ | 3.42955 | | +0.35326631 | −0.07886778 | |
| $P$ | 4.69 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

2005 10 24 568 0.0 0.0 2006 03 02 G96 0.5+ 0.5+ 2009 11 22 691 0.7+ 0.0
2005 10 24 568 0.1− 0.1+ 2006 03 02 G96 0.7− 0.2+ 2009 11 22 691 0.5− 0.2−
2005 10 24 568 0.1− 0.0 2006 03 02 G96 0.1− 0.1+ 2009 11 26 691 0.1+ 0.0
2005 11 07 568 0.1+ 0.1− 2009 11 10 691 0.1− 0.3+ 2009 11 26 691 0.1+ 0.1−
2005 11 07 568 0.1+ 0.0 2009 11 10 691 0.4+ 0.0 2009 11 26 691 0.1+ 0.1−
2005 11 07 568 0.2+ 0.0 2009 11 10 691 0.1+ 0.2− 2009 12 17 G96 0.1+ 0.3−
2006 01 25 691 0.8− 0.0 2009 11 18 691 0.0 0.2+ 2009 12 17 G96 0.1+ 0.1−
2006 01 25 691 0.1− 0.1− 2009 11 18 691 0.1+ 0.0 2009 12 17 G96 0.5+ 0.2−

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 01 25 | 691 | 1.1+ | 0.3− | 2009 11 18 | 691 | 0.6− | 0.3+ | 2009 12 17 | G96 | 0.4+ | 0.3− | | |
| 2006 03 02 | G96 | 0.0 | 0.8+ | 2009 11 22 | 691 | 0.7− | 0.1− | | | | | | |

**2009 WA$_{76}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 342.81631 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.12562483 | $\omega$ | 298.54526 | | −0.18494191 | −0.98258448 | |
| $a$ | 3.9483811 | $\Omega$ | 162.08548 | | +0.92087483 | −0.17966747 | |
| $e$ | 0.1933095 | $i$ | 3.35598 | | +0.34319970 | −0.04740623 | |
| $P$ | 7.85 | $H$ | 15.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 02 03 | 691 | 0.1− | 0.2+ | 2008 11 02 | G96 | 0.1+ | 0.2− | 2009 11 22 | 691 | 0.2+ | 0.2− | | |
| 1995 02 03 | 691 | 0.5+ | 1.2− | 2008 11 02 | G96 | 0.3− | 0.3− | 2009 11 22 | 691 | 0.2− | 0.1+ | | |
| 1995 02 03 | 691 | 0.5− | 0.5+ | 2009 11 10 | 691 | 0.3− | 0.5+ | 2009 12 17 | G96 | 0.0 | 0.2− | | |
| 2008 09 24 | G96 | 0.0 | 0.4− | 2009 11 10 | 691 | 0.0 | 0.1− | 2009 12 17 | G96 | 0.2+ | 0.3− | | |
| 2008 09 24 | G96 | 0.1− | 0.6− | 2009 11 10 | 691 | 0.0 | 0.0 | 2009 12 17 | G96 | 0.1+ | 0.3− | | |
| 2008 09 24 | G96 | 0.3+ | 0.2+ | 2009 11 18 | 691 | 0.2− | 0.4+ | 2009 12 17 | A77 | 0.7− | 0.2+ | | |
| 2008 09 24 | G96 | 0.2+ | 0.4− | 2009 11 18 | 691 | 0.2+ | 0.1+ | 2009 12 17 | A77 | 0.4+ | 0.6− | | |
| 2008 11 02 | G96 | 0.3+ | 0.1− | 2009 11 18 | 691 | 0.0 | 0.1− | 2009 12 17 | A77 | 0.2− | 0.0 | | |
| 2008 11 02 | G96 | 0.5+ | 0.6− | 2009 11 22 | 691 | 0.3+ | 0.1+ | | | | | | |

**2009 WP$_{76}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 1.28184 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23609142 | $\omega$ | 157.50681 | | +0.13840373 | −0.98690045 | |
| $a$ | 2.5926820 | $\Omega$ | 284.45901 | | +0.89512730 | +0.16047025 | |
| $e$ | 0.2775853 | $i$ | 4.91102 | | +0.42378239 | −0.01663731 | |
| $P$ | 4.17 | $H$ | 18.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 25 | G96 | 0.1− | 0.5− | 2009 11 10 | 691 | 0.0 | 0.3− | 2009 11 23 | 291 | 0.1+ | 0.2− | | |
| 2005 12 25 | G96 | 0.4− | 0.2− | 2009 11 10 | 691 | 0.0 | 0.4+ | 2009 11 23 | 291 | 0.0 | 0.1+ | | |
| 2005 12 25 | G96 | 0.2− | 0.4− | 2009 11 18 | 691 | 0.1− | 0.2+ | 2009 11 23 | 291 | 0.0 | 0.0 | | |
| 2006 01 09 | G96 | 0.4+ | 0.1+ | 2009 11 18 | 691 | 0.3− | 0.0 | 2009 11 26 | 691 | 0.0 | 0.3+ | | |
| 2006 01 09 | G96 | 0.3+ | 0.3+ | 2009 11 18 | 691 | 0.2+ | 0.5− | 2009 11 26 | 691 | 0.2+ | 0.1− | | |
| 2006 01 09 | G96 | 0.3− | 0.1+ | 2009 11 23 | 291 | 0.1+ | 0.2+ | 2009 11 26 | 691 | 0.1− | 0.1− | | |
| 2006 01 09 | G96 | 0.2+ | 0.4+ | 2009 11 23 | 291 | 0.1+ | 0.0 | | | | | | |
| 2009 11 10 | 691 | 0.0 | 0.2− | 2009 11 23 | 291 | 0.1− | 0.0 | | | | | | |

**2009 WU$_{76}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 28.52091 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18713898 | $\omega$ | 40.20455 | | +0.70996075 | −0.70421465 | |
| $a$ | 3.0270984 | $\Omega$ | 4.57608 | | +0.62483020 | +0.62587161 | |
| $e$ | 0.0809353 | $i$ | 4.39992 | | +0.32487375 | +0.33521107 | |
| $P$ | 5.27 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 17 | 691 | 0.3− | 0.3+ | 2006 02 20 | 691 | 0.1+ | 0.2+ | 2009 11 22 | 691 | 0.1− | 0.0 | | |
| 2003 09 17 | 691 | 0.2− | 0.3+ | 2006 03 21 | G96 | 0.2− | 0.4+ | 2009 11 22 | 691 | 0.2− | 0.1− | | |
| 2003 09 17 | 691 | 0.1+ | 0.5+ | 2006 03 21 | G96 | 0.6+ | 0.3+ | 2009 11 22 | 691 | 0.6+ | 0.0 | | |
| 2003 09 29 | 691 | 0.0 | 0.0 | 2006 03 21 | G96 | 0.2+ | 0.1+ | 2009 11 24 | J75 | 0.4+ | 1.4+ | | |
| 2003 09 29 | 691 | 0.4− | 0.1+ | 2006 03 21 | G96 | 0.4+ | 0.1+ | 2009 11 24 | J75 | 0.7+ | 0.6− | | |
| 2003 09 29 | 691 | 0.4− | 0.1− | 2006 03 24 | 691 | 0.5+ | 0.0 | 2009 11 24 | J75 | 0.1− | 0.2+ | | |
| 2003 10 24 | 691 | 0.0 | 0.2+ | 2006 03 24 | 691 | 0.4− | 0.2+ | 2009 11 26 | 691 | 0.2+ | 0.2− | | |
| 2003 10 24 | 691 | 0.4+ | 0.1− | 2006 03 24 | 691 | 0.1+ | 1.2+ | 2009 11 26 | 691 | 0.2+ | 0.2− | | |
| 2003 10 24 | 691 | 0.0 | 0.2+ | 2009 11 18 | 691 | 0.2− | 0.2+ | 2009 11 26 | 691 | 1.1− | 0.2+ | | |
| 2006 02 20 | 691 | 0.2+ | 0.1− | 2009 11 18 | 691 | 0.3+ | 0.0 | | | | | | |
| 2006 02 20 | 691 | 0.0 | 0.2− | 2009 11 18 | 691 | 0.1+ | 0.0 | | | | | | |

**2009 WF$_{77}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 71.36516 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23597370 | $\omega$ | 323.57521 | | +0.98374282 | +0.17354266 | |
| $a$ | 2.5935442 | $\Omega$ | 26.54294 | | −0.13043549 | +0.86725399 | |
| $e$ | 0.1685656 | $i$ | 5.93221 | | −0.12343684 | +0.46664062 | |
| $P$ | 4.18 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1992 10 25 | 691 | 0.3− | 0.3− | 2007 02 26 | G96 | 0.3− | 0.0 | 2009 11 18 | 691 | 0.1+ | 0.0 | | |
| 1992 10 25 | 691 | 0.4+ | 0.2− | 2007 02 26 | G96 | 0.2− | 0.3+ | 2009 11 18 | 691 | 0.1− | 0.3+ | | |
| 1992 10 25 | 691 | 0.1− | 0.3+ | 2007 02 26 | G96 | 0.6− | 0.1− | 2009 11 22 | 691 | 0.0 | 0.2+ | | |
| 2001 12 20 | 645 | 0.0 | 0.2− | 2007 02 26 | G96 | 0.4− | 0.6+ | 2009 11 22 | 691 | 0.2+ | 0.2+ | | |
| 2001 12 20 | 645 | 0.1− | 0.1− | 2007 03 15 | 691 | 0.2+ | 0.2+ | 2009 11 22 | 691 | 0.0 | 0.1+ | | |
| 2003 04 04 | 691 | 0.4− | 0.1+ | 2007 03 15 | 691 | 0.4− | 0.2+ | 2009 11 26 | 691 | 0.2− | 0.1+ | | |
| 2003 04 04 | 691 | 0.0 | 0.3− | 2007 03 15 | 691 | 0.2+ | 0.2+ | 2009 11 26 | 691 | 0.1− | 0.3+ | | |
| 2003 04 04 | 691 | 1.2+ | 0.1+ | 2009 11 18 | 691 | 0.0 | 0.2+ | 2009 11 26 | 691 | 0.0 | 0.2+ | | |

**2009 WQ$_{77}$ = 2005 XK$_{10}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 77.55326 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24494270 | $\omega$ | 4.35305 | | +0.93930695 | +0.34234434 | |
| $a$ | 2.5298399 | $\Omega$ | 335.59016 | | −0.31638338 | +0.83909136 | |
| $e$ | 0.1791949 | $i$ | 3.11039 | | −0.13268014 | +0.42276004 | |
| $P$ | 4.02 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 03 06 | 691 | 0.3− | 0.1+ | 2005 12 05 | 691 | 0.0 | 0.2− | 2009 11 09 | G96 | 0.4+ | 0.2+ | | |
| 1999 03 06 | 691 | 0.3+ | 0.2+ | 2007 03 09 | G96 | 0.0 | 0.1− | 2009 11 18 | 691 | 0.1+ | 0.1− | | |
| 1999 03 06 | 691 | 0.1+ | 0.1− | 2007 03 09 | G96 | 0.1− | 0.2+ | 2009 11 18 | 691 | 0.1− | 0.1+ | | |
| 2005 11 06 | G96 | 0.2+ | 0.0 | 2007 03 09 | G96 | 0.3− | 0.1− | 2009 11 18 | 691 | 0.2+ | 0.0 | | |
| 2005 11 06 | G96 | 0.0 | 0.0 | 2007 03 09 | G96 | 0.1+ | 0.2− | 2009 11 22 | 691 | 0.2+ | 0.0 | | |
| 2005 11 06 | G96 | 0.3− | 0.1+ | 2007 03 20 | G96 | 0.1− | 0.3− | 2009 11 22 | 691 | 0.1− | 0.2+ | | |
| 2005 12 01 | 691 | 0.0 | 0.2− | 2007 03 20 | G96 | 0.2+ | 0.2+ | 2009 11 22 | 691 | 0.0 | 0.2− | | |
| 2005 12 01 | 691 | 0.1+ | 0.1+ | 2007 03 20 | G96 | 0.1− | 0.2− | 2009 11 26 | 691 | 0.0 | 0.0 | | |
| 2005 12 01 | 691 | 0.0 | 0.2+ | 2007 03 20 | G96 | 0.1− | 0.1− | 2009 11 26 | 691 | 0.1− | 0.4+ | | |
| 2005 12 05 | 691 | 0.1− | 0.0 | 2009 11 09 | G96 | 0.1− | 0.2− | 2009 11 26 | 691 | 0.2− | 0.1− | | |
| 2005 12 05 | 691 | 0.1+ | 0.1− | 2009 11 09 | G96 | 0.2+ | 0.1+ | | | | | | |

**2009 WS$_{77}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 13.57442 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27226279 | $\omega$ | 64.13860 | | +0.45745302 | −0.88923326 | |
| $a$ | 2.3576384 | $\Omega$ | 358.63738 | | +0.80058425 | +0.41232241 | |
| $e$ | 0.2154466 | $i$ | 2.33425 | | +0.38704212 | +0.19812731 | |
| $P$ | 3.62 | $H$ | 18.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 08 26 | 644 | 0.3+ | 0.1− | 2007 03 26 | G96 | 0.6− | 0.5− | 2009 11 22 | 691 | 0.1− | 0.0 | | |
| 2005 08 26 | 644 | 0.4− | 0.3+ | 2007 03 26 | G96 | 0.1+ | 0.1+ | 2009 11 22 | 691 | 0.1− | 0.2+ | | |
| 2005 08 26 | 644 | 0.3− | 0.2+ | 2007 03 26 | G96 | 0.3+ | 0.0 | 2009 11 22 | 691 | 0.0 | 0.0 | | |
| 2005 10 01 | G96 | 0.7+ | 0.2+ | 2007 03 26 | G96 | 0.2− | 0.1− | 2009 11 24 | J75 | 0.1− | 0.3− | | |
| 2005 10 01 | G96 | 0.2+ | 0.1+ | 2009 10 17 | G96 | 0.1+ | 0.5− | 2009 11 24 | J75 | 0.1+ | 0.6− | | |
| 2005 10 01 | G96 | 0.6− | 0.3− | 2009 10 17 | G96 | 0.1− | 0.4− | 2009 11 25 | J75 | 0.8+ | 0.0 | | |
| 2005 10 01 | G96 | 0.0 | 0.2− | 2009 10 17 | G96 | 0.1+ | 0.3− | 2009 11 26 | 691 | 0.1− | 0.0 | | |
| 2007 03 16 | G96 | 0.3+ | 0.3+ | 2009 10 17 | G96 | 0.3+ | 0.4− | 2009 11 26 | 691 | 0.2+ | 0.2+ | | |
| 2007 03 16 | G96 | 0.0 | 0.1+ | 2009 11 18 | 691 | 0.0 | 0.0 | 2009 11 26 | 691 | 0.0 | 0.0 | | |
| 2007 03 16 | G96 | 0.4+ | 0.3− | 2009 11 18 | 691 | 0.3− | 0.2+ | | | | | | |
| 2007 03 16 | G96 | 0.3− | 0.2+ | 2009 11 18 | 691 | 0.1− | 0.0 | | | | | | |

**2009 WY$_{77}$ = 2005 YD$_{75}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 69.61166 | | (2000.0) | | | |
| $n$ | 0.23016169 | $\omega$ | 47.78068 | | +0.99800035 | −0.04117705 |
| $a$ | 2.6370237 | $\Omega$ | 314.51705 | | +0.01589282 | +0.89778872 |
| $e$ | 0.0631194 | $i$ | 3.85635 | | +0.06117785 | +0.43849728 |
| $P$ | 4.28 | $H$ | 17.0 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 02 08 | 691 | 0.4+ | 0.6+ | 2005 12 28 | 691 | 0.2+ | 0.1− | 2009 11 10 | 691 | 0.1− | 0.0 | |
| 2002 02 08 | 691 | 0.1+ | 0.6+ | 2005 12 28 | 691 | 0.0 | 0.8− | 2009 11 10 | 691 | 0.0 | 0.2− | |
| 2002 02 08 | 691 | 0.2− | 0.1+ | 2005 12 29 | G96 | 0.9− | 0.1− | 2009 11 18 | 691 | 0.2+ | 0.0 | |
| 2004 10 04 | 691 | 0.1− | 0.4+ | 2005 12 29 | G96 | 0.3− | 0.1− | 2009 11 18 | 691 | 0.0 | 0.0 | |
| 2004 10 04 | 691 | 0.1− | 0.2+ | 2005 12 29 | G96 | 0.9− | 0.1− | 2009 11 18 | 691 | 0.1− | 0.4+ | |
| 2004 10 04 | 691 | 0.1− | 0.2+ | 2005 12 29 | G96 | 0.5− | 0.0 | 2009 11 22 | 691 | 0.2− | 0.1− | |
| 2005 12 24 | 691 | 0.2+ | 0.1+ | 2007 03 18 | 691 | 0.0 | 0.0 | 2009 11 22 | 691 | 0.1+ | 0.3− | |
| 2005 12 24 | 691 | 0.3+ | 0.1+ | 2007 03 18 | 691 | 0.0 | 0.0 | 2009 11 22 | 691 | 0.2− | 0.2− | |
| 2005 12 24 | 691 | 0.1+ | 0.0 | 2007 03 18 | 691 | 0.1+ | 0.1+ | | | | | |
| 2005 12 28 | 691 | 0.2− | 0.0 | 2009 11 10 | 691 | 0.2+ | 0.4+ | | | | | |

**2009 WW$_{78}$ = 2007 HY$_{91}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 78.01203 | | (2000.0) | | | |
| $n$ | 0.21016375 | $\omega$ | 194.41488 | | +0.85026603 | +0.52614307 |
| $a$ | 2.8017594 | $\Omega$ | 133.82989 | | −0.48085539 | +0.78794972 |
| $e$ | 0.0763901 | $i$ | 1.18118 | | −0.21406955 | +0.31985732 |
| $P$ | 4.69 | $H$ | 16.8 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 08 08 | 691 | 0.2− | 0.4+ | 2005 12 25 | 691 | 0.2+ | 0.3− | 2009 11 09 | G96 | 0.4+ | 0.0 | |
| 1999 08 08 | 691 | 0.4− | 0.3+ | 2007 04 20 | G96 | 0.3− | 0.2+ | 2009 11 09 | G96 | 0.1+ | 0.3− | |
| 1999 08 08 | 691 | 0.2+ | 0.0 | 2007 04 20 | G96 | 0.3+ | 0.3+ | 2009 11 18 | G96 | 0.2+ | 0.5− | |
| 2002 02 13 | 645 | 0.1− | 0.0 | 2007 04 20 | G96 | 0.4+ | 0.7+ | 2009 11 18 | G96 | 0.3+ | 0.2− | |
| 2002 02 13 | 645 | 0.1− | 0.0 | 2007 04 20 | G96 | 0.5+ | 0.9+ | 2009 11 18 | G96 | 0.5+ | 0.1− | |
| 2002 03 05 | 645 | 0.0 | 0.1+ | 2007 04 21 | 807 | 0.7+ | 0.1+ | 2009 11 18 | G96 | 0.1− | 0.1− | |
| 2002 03 05 | 645 | 0.1+ | 0.1+ | 2007 04 21 | 807 | 0.6+ | 0.1+ | 2009 11 23 | G96 | 0.2+ | 0.2− | |
| 2004 10 11 | 691 | 0.0 | 0.4+ | 2009 10 23 | 691 | 0.0 | 0.1+ | 2009 11 23 | G96 | 0.5+ | 0.0 | |
| 2004 10 11 | 691 | 0.1− | 0.2+ | 2009 10 23 | 691 | 1.0− | 0.2+ | 2009 11 23 | G96 | 0.3+ | 0.1+ | |
| 2004 10 11 | 691 | 0.0 | 0.4+ | 2009 10 23 | 691 | 0.3− | 0.1+ | 2009 11 23 | G96 | 0.6+ | 0.2− | |
| 2005 12 25 | 691 | 0.0 | 0.2+ | 2009 11 09 | G96 | 0.1+ | 0.1− | | | | | |
| 2005 12 25 | 691 | 0.3+ | 0.0 | 2009 11 09 | G96 | 0.5+ | 0.2− | | | | | |

**2009 WX$_{78}$ = 2008 FQ$_{25}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 122.43164 | | (2000.0) | | | |
| $n$ | 0.28284323 | $\omega$ | 215.82461 | | +0.15209904 | +0.98635309 |
| $a$ | 2.2984701 | $\Omega$ | 62.99974 | | −0.88953992 | +0.16441062 |
| $e$ | 0.1744814 | $i$ | 4.05686 | | −0.43079532 | +0.00875950 |
| $P$ | 3.48 | $H$ | 17.5 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 02 01 | 691 | 0.2− | 0.3− | 2008 04 28 | G96 | 0.2+ | 0.0 | 2009 11 09 | G96 | 0.8+ | 0.4+ | |
| 1997 02 01 | 691 | 0.1+ | 0.3− | 2008 04 28 | G96 | 0.3− | 0.1− | 2009 11 09 | G96 | 0.4+ | 0.2+ | |
| 1997 02 01 | 691 | 0.1+ | 0.4+ | 2008 04 28 | G96 | 0.4+ | 0.1+ | 2009 11 09 | G96 | 0.1− | 0.2+ | |
| 2005 07 03 | 644 | 0.0 | 0.1+ | 2009 09 22 | G96 | 0.2+ | 0.4− | 2009 11 09 | G96 | 0.3+ | 0.2+ | |
| 2005 07 03 | 644 | 0.1− | 0.4+ | 2009 09 22 | G96 | 0.5+ | 0.3− | 2009 11 09 | G96 | 0.1− | 0.5+ | |
| 2005 07 03 | 644 | 0.3− | 0.2+ | 2009 09 22 | G96 | 0.2+ | 0.2− | 2009 11 18 | G96 | 0.2+ | 0.0 | |
| 2008 03 27 | 691 | 0.3− | 0.1+ | 2009 09 22 | G96 | (1.7− | 0.7−) | 2009 11 18 | G96 | 0.1+ | 0.1+ | |
| 2008 03 27 | 691 | 0.0 | 0.1+ | 2009 10 23 | 691 | 0.1− | 0.5+ | 2009 11 18 | G96 | 0.0 | 0.7− | |
| 2008 03 27 | 691 | 0.1− | 0.2− | 2009 10 23 | 691 | 0.5− | 0.3+ | 2009 11 18 | G96 | 0.3+ | 0.3+ | |
| 2008 03 31 | 691 | 0.2+ | 0.4+ | 2009 10 23 | 691 | 0.7− | 0.1− | 2009 11 23 | G96 | 0.0 | 0.2+ | |
| 2008 03 31 | 691 | 0.1+ | 0.3+ | 2009 11 09 | G96 | 0.3− | 0.2+ | 2009 11 23 | G96 | 0.1− | 0.0 | |
| 2008 03 31 | 691 | 0.2+ | 0.2+ | 2009 11 09 | G96 | 0.3+ | 0.2− | 2009 11 23 | G96 | 0.7+ | 0.5+ | |
| 2008 04 28 | G96 | 0.5+ | 0.0 | 2009 11 09 | G96 | 0.1− | 0.3+ | 2009 11 23 | G96 | 0.3+ | 0.1+ | |

**2009 WL$_{79}$ = 2005 BB$_{34}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 344.04211 | | (2000.0) | | | |
| $n$ | 0.17749208 | $\omega$ | 323.51345 | | −0.15133604 | −0.98744213 |
| $a$ | 3.1358123 | $\Omega$ | 135.14065 | | +0.92143958 | −0.15752684 |
| $e$ | 0.0300125 | $i$ | 3.68518 | | +0.35783587 | −0.01197229 |
| $P$ | 5.55 | $H$ | 16.4 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 01 16 | 568 | 0.1− | 0.1+ | 2008 09 25 | G96 | 0.5+ | 0.2+ | 2009 11 27 | 691 | 0.2− | 0.1+ | |
| 2005 01 16 | 568 | 0.1− | 0.2+ | 2008 09 25 | G96 | 0.1+ | 0.0 | 2009 11 27 | 691 | 0.0 | 0.0 | |
| 2005 01 16 | 568 | 0.1− | 0.1+ | 2008 09 25 | G96 | 0.2− | 0.4+ | 2009 11 27 | 691 | 0.0 | 0.0 | |
| 2005 01 17 | 568 | 0.5+ | 0.5+ | 2009 11 18 | 691 | 0.3+ | 0.1+ | 2009 12 11 | G96 | 0.3+ | 0.0 | |
| 2008 09 07 | G96 | 0.2+ | 0.3− | 2009 11 18 | 691 | 0.1+ | 0.2+ | 2009 12 11 | G96 | 0.6+ | 0.1− | |
| 2008 09 07 | G96 | 0.7− | 0.1− | 2009 11 18 | 691 | 0.3+ | 0.0 | 2009 12 11 | G96 | 0.5+ | 0.1− | |
| 2008 09 07 | G96 | 0.0 | 0.1+ | 2009 11 23 | 691 | 0.5+ | 0.2− | 2009 12 11 | G96 | 0.2+ | 0.1− | |
| 2008 09 07 | G96 | (3.0− | 0.4−) | 2009 11 23 | 691 | 0.7− | 0.2− | | | | | |
| 2008 09 25 | G96 | 0.2− | 0.2+ | 2009 11 23 | 691 | 0.6− | 0.2− | | | | | |

**2009 WN$_{79}$ = 2006 BQ$_{243}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 53.46357 | | (2000.0) | | | |
| $n$ | 0.20912040 | $\omega$ | 275.84518 | | +0.94887947 | −0.30273857 |
| $a$ | 2.8110708 | $\Omega$ | 101.80198 | | +0.31346592 | +0.87069013 |
| $e$ | 0.1188066 | $i$ | 5.23515 | | +0.03697123 | +0.38761844 |
| $P$ | 4.71 | $H$ | 16.7 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 01 31 | 691 | 0.9− | 0.4− | 2009 11 18 | 691 | 0.0 | 0.1+ | 2009 11 27 | 691 | 0.3− | 0.0 | |
| 2006 01 31 | 691 | 0.4+ | 0.2+ | 2009 11 18 | 691 | 0.0 | 0.2− | 2009 12 11 | G96 | 0.5+ | 0.3+ | |
| 2006 01 31 | 691 | 0.2+ | 0.1+ | 2009 11 22 | 691 | 0.1− | 0.0 | 2009 12 11 | G96 | 0.4+ | 0.5+ | |
| 2006 02 04 | 691 | 0.2+ | 0.0 | 2009 11 22 | 691 | 0.0 | 0.1+ | 2009 12 11 | G96 | 0.3+ | 0.4+ | |
| 2006 02 04 | 691 | 0.1+ | 0.2+ | 2009 11 22 | 691 | 0.1+ | 0.1− | 2009 12 11 | G96 | 0.2+ | 0.2− | |
| 2006 02 04 | 691 | 0.1+ | 0.1− | 2009 11 27 | 691 | 0.2− | 0.1− | | | | | |
| 2009 11 18 | 691 | 0.1+ | 0.1− | 2009 11 27 | 691 | 0.0 | 0.0 | | | | | |

**2009 WS$_{79}$ = 2006 BL$_{210}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 325.30345 | | (2000.0) | | | |
| $n$ | 0.21203523 | $\omega$ | 293.05087 | | −0.51742442 | −0.85569402 |
| $a$ | 2.7852490 | $\Omega$ | 188.12181 | | +0.80377766 | −0.48289315 |
| $e$ | 0.0458812 | $i$ | 3.13562 | | +0.29362124 | −0.18601602 |
| $P$ | 4.65 | $H$ | 16.8 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 04 07 | 691 | 0.2− | 0.5− | 2006 01 31 | G96 | 0.3− | 0.1+ | 2009 11 10 | 691 | 0.1− | 0.3+ | |
| 1997 04 07 | 691 | 0.2− | 0.5− | 2006 01 31 | G96 | 0.5− | 0.5+ | 2009 11 10 | 691 | 0.3− | 0.3− | |
| 1997 04 07 | 691 | 1.0− | 0.3− | 2006 01 31 | G96 | 0.1− | 0.5+ | 2009 11 10 | 691 | 0.0 | 0.1− | |
| 2002 04 09 | 807 | 0.1− | 0.5+ | 2006 02 02 | 691 | 0.3+ | 0.0 | 2009 11 18 | 691 | 0.1− | 0.1+ | |
| 2002 04 09 | 807 | 0.2+ | 0.7+ | 2006 02 02 | 691 | 0.3− | 0.0 | 2009 11 18 | 691 | 0.2− | 0.1+ | |
| 2002 04 09 | 807 | 0.1+ | 0.7+ | 2006 02 02 | 691 | 0.5+ | 0.4+ | 2009 11 18 | 691 | 0.3− | 0.2− | |
| 2004 10 14 | 691 | 0.4+ | 0.1− | 2006 02 06 | 691 | 0.4+ | 0.3+ | 2009 11 23 | 691 | 0.3− | 0.2− | |
| 2004 10 14 | 691 | 0.3+ | 0.4+ | 2006 02 06 | 691 | 0.6+ | 0.1− | 2009 11 23 | 691 | 0.5− | 0.1− | |
| 2004 10 14 | 691 | 0.4+ | 0.2+ | 2006 02 06 | 691 | 0.5+ | 0.2− | 2009 11 23 | 691 | 0.6− | 0.2− | |
| 2005 11 07 | 568 | 0.0 | 0.1+ | 2008 09 23 | G96 | 0.1+ | 0.4− | 2009 12 11 | G96 | 0.8+ | 0.3− | |
| 2005 11 07 | 568 | 0.1+ | 0.1+ | 2008 09 23 | G96 | 0.1− | 0.2− | 2009 12 11 | G96 | 0.4+ | 0.2− | |
| 2005 11 07 | 568 | 0.1+ | 0.1+ | 2008 09 23 | G96 | 0.2+ | 0.3− | 2009 12 11 | G96 | 0.8+ | 0.1− | |
| 2006 01 31 | G96 | 0.0 | 0.3+ | 2008 09 23 | G96 | 0.1+ | 0.2− | 2009 12 11 | G96 | 0.6+ | 0.5− | |

**2009 WU$_{79}$ = 2006 FT$_{48}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 252.88674 | | (2000.0) | | | |
| $n$ | 0.19220396 | $\omega$ | 104.93398 | | −0.95323565 | +0.23787602 |
| $a$ | 2.9736818 | $\Omega$ | 89.09395 | | −0.29430106 | −0.87094168 |
| $e$ | 0.0359067 | $i$ | 10.74598 | | +0.06876536 | −0.42997162 |
| $P$ | 5.13 | $H$ | 15.4 | $G$ | 0.15 | $U$ 5 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 03 24 | 699 | 0.5− | 1.7+ | 2009 11 10 | 691 | 0.1+ | 0.2− | 2009 11 22 | 691 | 0.7− | 0.2− |
| 2006 03 24 | 699 | 1.4+ | 0.1+ | 2009 11 10 | 691 | 0.3+ | 0.0 | 2009 11 26 | 691 | 0.1− | 0.2− |
| 2006 03 24 | 699 | 1.1+ | 0.2− | 2009 11 10 | 691 | 0.3+ | 0.0 | 2009 11 26 | 691 | 0.1+ | 0.0 |
| 2006 03 24 | 699 | 0.1+ | 1.3+ | 2009 11 18 | 691 | 0.4+ | 0.2− | 2009 11 26 | 691 | 0.2− | 0.1− |
| 2006 04 02 | 703 | 0.3+ | 1.6− | 2009 11 18 | 691 | 0.0 | 0.0 | 2009 12 11 | G96 | 1.1+ | 0.3− |
| 2006 04 02 | 703 | 1.3− | 0.6− | 2009 11 18 | 691 | 0.2− | 0.0 | 2009 12 11 | G96 | 0.2− | 0.0 |
| 2006 04 02 | 703 | 0.9− | 0.4− | 2009 11 22 | 691 | 1.0+ | 0.0 | 2009 12 11 | G96 | 0.1+ | 0.1+ |
| 2006 04 02 | 703 | 0.3− | 0.5− | 2009 11 22 | 691 | 1.3− | 0.8+ | 2009 12 11 | G96 | 0.3+ | 0.0 |

**2009 WW$_{79}$ = 2005 NM$_{110}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 27.31485 | | (2000.0) | | | |
| $n$ | 0.29461190 | $\omega$ | 283.78564 | | +0.63943204 | −0.76814816 |
| $a$ | 2.2368449 | $\Omega$ | 126.41650 | | +0.72020950 | +0.58350860 |
| $e$ | 0.1820112 | $i$ | 2.33516 | | +0.26911881 | +0.26356428 |
| $P$ | 3.35 | $H$ | 19.6 | $G$ | 0.15 | $U$ 5 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 07 07 | 568 | 0.1+ | 0.3− | 2009 11 18 | 691 | 0.2+ | 0.1− | 2009 12 11 | G96 | 0.0 | 0.2− |
| 2005 07 07 | 568 | 0.1+ | 0.3− | 2009 11 18 | 691 | 0.9− | 0.1+ | 2009 12 11 | G96 | 0.4− | 0.4+ |
| 2005 07 07 | 568 | 0.2+ | 0.2− | 2009 11 22 | 691 | 0.0 | 0.2− | 2009 12 11 | G96 | 0.3− | 0.1− |
| 2005 07 08 | 568 | 0.4− | 0.8+ | 2009 11 22 | 691 | 0.5+ | 0.0 | 2009 12 11 | G96 | 0.2+ | 0.4+ |
| 2009 11 18 | 691 | 0.4+ | 0.3+ | 2009 11 22 | 691 | 0.1− | 0.3− | | | | |

**2009 WB$_{80}$ = 1997 UO$_{17}$ = 2007 RL$_{282}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 1.69078 | | (2000.0) | | | |
| $n$ | 0.08342138 | $\omega$ | 8.20579 | | +0.51943752 | −0.75929206 |
| $a$ | 5.1874166 | $\Omega$ | 51.50163 | | +0.75281103 | +0.18957914 |
| $e$ | 0.0663999 | $i$ | 30.05769 | | +0.40430214 | +0.62252335 |
| $P$ | 11.81 | $H$ | 13.1 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 10 25 | 691 | 0.3− | 0.6− | 2007 09 14 | E12 | 0.4− | 0.4− | 2009 11 09 | 691 | 0.2− | 0.2+ |
| 1997 10 25 | 691 | 0.1− | 0.8− | 2008 10 26 | 703 | 0.7− | 0.6+ | 2009 11 09 | 691 | 0.5− | 0.3+ |
| 1997 10 25 | 691 | 0.2+ | 0.5− | 2008 10 26 | 703 | 0.5+ | 0.5+ | 2009 11 18 | 291 | 0.0 | 0.2+ |
| 1997 11 02 | 691 | 0.6+ | 1.0− | 2008 10 26 | 703 | 1.1+ | 1.7+ | 2009 11 18 | 291 | 0.0 | 0.2+ |
| 1997 11 02 | 691 | 0.5+ | 0.1+ | 2008 10 26 | 703 | 0.4− | 1.4+ | 2009 11 18 | 291 | 0.2− | 0.3+ |
| 1997 11 02 | 691 | 1.3+ | 0.1− | 2009 09 19 | G96 | 0.1+ | 0.0 | 2009 11 18 | 291 | 0.2+ | 0.1+ |
| 2000 04 06 | 645 | 0.1+ | 0.1− | 2009 09 19 | G96 | 0.2− | 0.0 | 2009 11 18 | 291 | 0.0 | 0.2+ |
| 2000 04 06 | 645 | 0.1+ | 0.2− | 2009 09 19 | G96 | 0.1− | 0.0 | 2009 11 18 | 291 | 0.3+ | 0.0 |
| 2002 05 05 | 644 | 0.8+ | 1.8+ | 2009 09 19 | G96 | 0.2+ | 0.1+ | 2009 11 18 | 291 | 0.4+ | 0.1+ |
| 2002 05 05 | 644 | 0.6+ | 1.3+ | 2009 10 14 | 291 | 0.6− | 0.1+ | 2009 11 18 | 291 | 0.4+ | 0.0 |
| 2002 05 05 | 644 | 1.0+ | 1.4+ | 2009 10 14 | 291 | 0.7− | 0.2+ | 2009 11 18 | 291 | 0.7+ | 0.0 |
| 2007 09 10 | 807 | 0.2− | 0.2+ | 2009 10 14 | 291 | 0.8− | 0.1− | 2009 11 22 | G96 | 0.2+ | 0.1− |
| 2007 09 10 | 807 | 0.1− | 0.1+ | 2009 10 24 | 691 | 0.6− | 0.2+ | 2009 11 22 | G96 | 0.3+ | 0.1+ |
| 2007 09 10 | 807 | 0.1− | 0.4+ | 2009 10 24 | 691 | 0.5− | 0.0 | 2009 11 26 | 691 | 0.2− | 0.2+ |
| 2007 09 14 | E12 | 0.5+ | 0.6− | 2009 10 24 | 691 | 0.6− | 0.3+ | 2009 11 26 | 691 | 0.2− | 0.0 |
| 2007 09 14 | E12 | 0.1+ | 0.2+ | 2009 11 09 | 691 | 0.3− | 0.2− | 2009 11 26 | 691 | 0.2− | 0.3+ |

**2009 WE$_{80}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 164.53989 | | (2000.0) | | | |
| $n$ | 0.26311040 | $\omega$ | 309.65176 | | +0.19012658 | +0.98112116 |
| $a$ | 2.4120004 | $\Omega$ | 331.24980 | | −0.87670486 | +0.15344292 |
| $e$ | 0.0097261 | $i$ | 4.22066 | | −0.44186024 | +0.11771381 |
| $P$ | 3.75 | $H$ | 17.6 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 02 21 | 691 | 0.4+ | 0.1− | 2009 11 10 | 691 | 0.0 | 0.3− | 2009 11 22 | 691 | 0.2+ | 0.0 |
| 2007 02 21 | 691 | 0.2− | 0.2+ | 2009 11 10 | 691 | 0.1− | 0.1− | 2009 11 22 | 691 | 0.1− | 0.0 |
| 2007 02 21 | 691 | 0.3− | 0.1− | 2009 11 10 | 691 | 0.0 | 0.3+ | 2009 12 18 | G96 | 0.0 | 0.3− |
| 2007 03 13 | G96 | 0.1+ | 0.2− | 2009 11 18 | 691 | 0.2− | 0.2+ | 2009 12 18 | G96 | 0.0 | 0.1− |
| 2007 03 13 | G96 | 0.0 | 0.1− | 2009 11 18 | 691 | 0.3− | 0.4+ | 2009 12 18 | G96 | 0.1+ | 0.2+ |
| 2007 03 13 | G96 | 0.0 | 0.0 | 2009 11 18 | 691 | 0.2+ | 0.2− | 2009 12 18 | G96 | 0.2+ | 0.2+ |
| 2007 03 13 | G96 | 0.1+ | 0.1+ | 2009 11 22 | 691 | 0.2+ | 0.2− | | | | |

**2009 WP$_{80}$ = 2005 WB$_{80}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 67.00310 | | (2000.0) | | | |
| $n$ | 0.24186888 | $\omega$ | 90.10925 | | +0.97553222 | +0.05855239 |
| $a$ | 2.5512287 | $\Omega$ | 266.53652 | | −0.13686696 | +0.91606892 |
| $e$ | 0.1965532 | $i$ | 12.25741 | | +0.17205904 | +0.39672326 |
| $P$ | 4.07 | $H$ | 16.2 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 11 25 | 691 | 0.9+ | 1.1+ | 2009 11 18 | 691 | 0.2+ | 0.2+ | 2009 12 10 | 704 | 0.7+ | 0.1− |
| 2005 11 25 | 691 | 0.1− | 0.2− | 2009 11 18 | 691 | 0.2− | 0.0 | 2009 12 10 | 704 | 0.9+ | 0.6− |
| 2005 11 25 | 691 | 0.0 | 0.2− | 2009 11 18 | 691 | 0.0 | 0.3+ | 2009 12 11 | G96 | 0.2+ | 0.3+ |
| 2005 11 29 | 691 | 0.6− | 0.0 | 2009 11 18 | 691 | 0.0 | 0.2+ | 2009 12 11 | G96 | 0.2+ | 0.3+ |
| 2005 11 29 | 691 | 0.2+ | 0.2− | 2009 11 22 | 691 | 0.1− | 0.1+ | 2009 12 11 | G96 | 0.2− | 0.1+ |
| 2005 11 29 | 691 | 0.2+ | 0.2− | 2009 11 22 | 691 | 0.2− | 1.0− | 2009 12 11 | G96 | 0.1− | 0.1+ |
| 2006 01 28 | G96 | 0.3− | 0.3+ | 2009 11 22 | 691 | 0.7+ | 0.8− | 2009 12 19 | G96 | 0.0 | 0.0 |
| 2006 01 28 | G96 | 0.4− | 0.5− | 2009 11 23 | 691 | (2.5+ | 0.6−) | 2009 12 19 | G96 | 0.1− | 0.2− |
| 2006 01 28 | G96 | 0.8− | 0.2− | 2009 11 23 | 691 | 0.4− | 0.3+ | 2009 12 19 | G96 | 0.0 | 0.5+ |
| 2006 01 28 | G96 | 0.8− | 0.0 | 2009 11 23 | 691 | 0.3− | 0.2+ | 2009 12 19 | G96 | 0.0 | 0.1+ |
| 2009 11 18 | 691 | 0.0 | 0.1+ | 2009 12 10 | 704 | (2.0+ | 0.2−) | | | | |
| 2009 11 18 | 691 | 0.4− | 0.1+ | 2009 12 10 | 704 | 1.4+ | 0.1− | | | | |

**2009 WQ$_{80}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 93.40952 | | (2000.0) | | | |
| $n$ | 0.25234916 | $\omega$ | 9.70511 | | +0.89380017 | +0.44712238 |
| $a$ | 2.4800940 | $\Omega$ | 323.67151 | | −0.41528505 | +0.79599924 |
| $e$ | 0.1693876 | $i$ | 3.35621 | | −0.16929140 | +0.40800343 |
| $P$ | 3.91 | $H$ | 17.1 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 11 30 | 691 | 0.0 | 0.4− | 2007 03 10 | G96 | 0.5+ | 0.4− | 2009 11 23 | 691 | 0.9− | 0.1+ |
| 1997 11 30 | 691 | 0.0 | 0.1− | 2007 03 10 | G96 | 0.6− | 0.4− | 2009 12 11 | G96 | 0.2+ | 0.0 |
| 1997 11 30 | 691 | 0.3− | 0.0 | 2007 03 10 | G96 | 0.1− | 0.2− | 2009 12 11 | G96 | 1.1+ | 0.0 |
| 2005 11 10 | 691 | 0.2+ | 0.3− | 2007 03 10 | G96 | 0.2− | 0.1− | 2009 12 11 | G96 | 0.3+ | 0.7+ |
| 2005 11 10 | 691 | 0.4+ | 0.0 | 2009 11 18 | 691 | 0.2+ | 0.2+ | 2009 12 11 | G96 | 0.9+ | 0.3+ |
| 2005 11 10 | 691 | 0.0 | 0.0 | 2009 11 18 | 691 | 0.2+ | 0.1+ | 2009 12 13 | G96 | 0.0 | 0.5+ |
| 2005 12 10 | 691 | 0.5+ | 0.0 | 2009 11 18 | 691 | 0.2+ | 0.1+ | 2009 12 13 | G96 | 0.6+ | 0.2+ |
| 2005 12 10 | 691 | 0.3+ | 0.2+ | 2009 11 23 | 691 | 0.9− | 0.0 | 2009 12 13 | G96 | 0.6+ | 0.2+ |
| 2005 12 10 | 691 | 0.1+ | 0.0 | 2009 11 23 | 691 | 1.0− | 0.2− | 2009 12 13 | G96 | 0.5+ | 0.2+ |

**2009 WU$_{82}$ = 2007 DR$_{115}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 97.71047 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23735222 | $\omega$ | 340.23757 | | +0.76747481 | +0.64020304 | |
| $a$ | 2.5834924 | $\Omega$ | 339.84080 | | −0.57432969 | +0.66340605 | |
| $e$ | 0.1230263 | $i$ | 5.57886 | | −0.28482944 | +0.38734027 | |
| $P$ | 4.15 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 07 29 | 807 | 0.4− | 0.9+ | 2007 02 21 | G96 | 0.2− | 0.8− | 2007 03 10 | G96 | 0.4− | 0.6− |
| 2000 07 29 | 807 | 0.2− | 1.0+ | 2007 02 21 | G96 | (0.6− | 1.9−) | 2007 03 10 | G96 | 0.9− | 0.4− |
| 2003 03 23 | 691 | 0.2− | 0.3+ | 2007 02 21 | G96 | 0.2− | 0.8− | 2009 11 11 | 691 | 0.2− | 0.3+ |
| 2003 03 23 | 691 | 0.2+ | 0.1+ | 2007 02 21 | G96 | 0.3− | 0.8− | 2009 11 11 | 691 | 0.2+ | 0.1+ |
| 2003 03 23 | 691 | 0.2+ | 0.2+ | 2007 02 21 | G96 | 0.3− | 0.7− | 2009 11 11 | 691 | 0.0 | 0.0 |
| 2003 04 05 | 691 | 0.8+ | 1.1+ | 2007 02 23 | G96 | 0.0 | 0.8− | 2009 11 19 | 691 | 0.0 | 0.3+ |
| 2003 04 05 | 691 | 0.3+ | 0.9+ | 2007 02 23 | G96 | 0.1− | 0.6− | 2009 11 19 | 691 | 0.4+ | 0.7+ |
| 2003 04 05 | 691 | 0.4+ | 1.0+ | 2007 02 23 | G96 | 0.1− | 0.7− | 2009 11 19 | 691 | 0.2+ | 0.4+ |
| 2007 02 21 | G96 | 0.2− | 0.8− | 2007 02 23 | G96 | 0.2− | 0.9− | 2009 11 23 | 691 | 0.1− | 0.8− |
| 2007 02 21 | G96 | 0.5− | 1.1− | 2007 03 10 | G96 | 0.0 | 0.5− | 2009 11 23 | 691 | 0.7− | 0.1+ |
| 2007 02 21 | G96 | 0.4− | 0.9− | 2007 03 10 | G96 | 0.6− | 0.6− | 2009 11 23 | 691 | 0.2− | 0.1+ |

**2009 WL$_{83}$ = 2005 UE$_{244}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 8.26878 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24401550 | $\omega$ | 118.46303 | | +0.46326220 | −0.88344210 | |
| $a$ | 2.5362444 | $\Omega$ | 303.77059 | | +0.78073777 | +0.44428522 | |
| $e$ | 0.0625152 | $i$ | 4.83949 | | +0.41932883 | +0.14879750 | |
| $P$ | 4.04 | $H$ | 17.9 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 25 | 691 | 0.0 | 0.1+ | 2005 11 06 | 691 | 0.3− | 0.4+ | 2009 11 19 | 691 | 0.0 | 0.1+ |
| 2005 10 25 | 691 | 0.3− | 0.2+ | 2005 11 06 | 691 | 0.1+ | 0.1− | 2009 11 22 | G96 | 0.3+ | 0.2− |
| 2005 10 25 | 691 | 0.0 | 0.3− | 2009 11 11 | 691 | 0.3− | 0.3+ | 2009 11 22 | G96 | 0.2+ | 0.3− |
| 2005 10 29 | 691 | 0.2+ | 0.0 | 2009 11 11 | 691 | 0.2+ | 0.1+ | 2009 11 22 | G96 | 0.0 | 0.4− |
| 2005 10 29 | 691 | 0.2+ | 0.3− | 2009 11 11 | 691 | 0.1+ | 0.2− | 2009 11 23 | 691 | 0.2− | 0.0 |
| 2005 10 29 | 691 | 0.0 | 0.2− | 2009 11 19 | 691 | 0.1+ | 0.5+ | 2009 11 23 | 691 | 0.3+ | 0.0 |
| 2005 11 06 | 691 | 0.0 | 0.2− | 2009 11 19 | 691 | 0.4− | 0.1+ | 2009 11 23 | 691 | 0.1+ | 0.1− |

**2009 WN$_{83}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 297.60629 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18237992 | $\omega$ | 191.49855 | | −0.84285239 | −0.53532474 | |
| $a$ | 3.0795318 | $\Omega$ | 315.99035 | | +0.49980516 | −0.74080187 | |
| $e$ | 0.1543752 | $i$ | 4.54210 | | +0.19948596 | −0.40575855 | |
| $P$ | 5.40 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 09 | 691 | 0.0 | 0.0 | 2008 10 01 | G96 | 0.0 | 0.3+ | 2009 11 19 | 691 | 0.1− | 0.2+ |
| 2004 12 09 | 691 | 0.2− | 0.0 | 2008 10 01 | G96 | 0.2+ | 0.4− | 2009 11 19 | 691 | 0.1− | 0.2− |
| 2004 12 09 | 691 | 0.1+ | 0.7− | 2008 10 01 | G96 | 0.3+ | 0.5− | 2009 11 23 | 691 | 0.3− | 0.4+ |
| 2008 09 22 | G96 | 0.2− | 0.2− | 2009 11 09 | G96 | 0.5+ | 0.3+ | 2009 11 23 | 691 | 0.1− | 0.0 |
| 2008 09 22 | G96 | 0.2+ | 0.7− | 2009 11 09 | G96 | 0.2+ | 0.4+ | 2009 11 23 | 691 | 0.0 | 0.0 |
| 2008 09 22 | G96 | 0.1+ | 0.0 | 2009 11 09 | G96 | 0.0 | 0.4+ | 2009 11 27 | 691 | 0.1− | 0.2− |
| 2008 09 22 | G96 | 0.5+ | 0.2+ | 2009 11 09 | G96 | 0.2+ | 0.2− | 2009 11 27 | 691 | 0.0 | 0.0 |
| 2008 10 01 | G96 | 0.1− | 0.8− | 2009 11 19 | 691 | 0.1+ | 0.3+ | 2009 11 27 | 691 | 0.1+ | 0.1+ |

**2009 WP$_{83}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 104.25774 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17675954 | $\omega$ | 279.75287 | | +0.69398072 | +0.70978574 | |
| $a$ | 3.1444701 | $\Omega$ | 35.20574 | | −0.55067226 | +0.63134917 | |
| $e$ | 0.0782877 | $i$ | 12.09609 | | −0.46384352 | +0.31241387 | |
| $P$ | 5.58 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 22 | 644 | 0.1− | 0.4+ | 2008 08 23 | E12 | 0.7+ | 0.1− | 2009 11 19 | 691 | 0.2− | 0.3+ |
| 2003 09 22 | 644 | 0.4− | 0.2+ | 2008 08 23 | E12 | 0.5− | 1.1+ | 2009 11 22 | G96 | 0.2+ | 0.2− |
| 2003 09 22 | 644 | 0.1+ | 0.2− | 2008 08 23 | E12 | 0.2− | 0.1− | 2009 11 22 | G96 | 0.0 | 0.1+ |
| 2003 10 16 | 691 | 0.0 | 0.0 | 2008 08 23 | E12 | 0.1− | 0.8− | 2009 11 22 | G96 | 0.4+ | 0.1− |
| 2003 10 16 | 691 | 0.1− | 0.0 | 2009 11 11 | 691 | 0.2− | 0.1+ | 2009 11 22 | G96 | 0.1+ | 0.3− |
| 2003 10 16 | 691 | 0.1+ | 0.2+ | 2009 11 11 | 691 | 0.0 | 0.1− | 2009 11 27 | 691 | 0.1− | 0.1− |
| 2003 11 24 | 691 | 0.3+ | 0.2− | 2009 11 11 | 691 | 0.1+ | 0.1− | 2009 11 27 | 691 | 0.0 | 0.3+ |
| 2003 11 24 | 691 | 0.4− | 0.0 | 2009 11 19 | 691 | 0.1+ | 0.0 | 2009 11 27 | 691 | 0.1− | 0.2− |
| 2003 11 24 | 691 | 0.3+ | 0.2− | 2009 11 19 | 691 | 0.2+ | 0.0 | | | | |

**2009 WR$_{83}$ = 2002 XM$_{112}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 22.88064 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27748418 | $\omega$ | 120.22128 | | +0.71223350 | −0.69665738 | |
| $a$ | 2.3279692 | $\Omega$ | 284.09185 | | +0.60970582 | +0.67467914 | |
| $e$ | 0.1639488 | $i$ | 5.08560 | | +0.34782503 | +0.24387814 | |
| $P$ | 3.55 | $H$ | 17.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 09 19 | 645 | 0.0 | 0.1− | 2007 02 17 | G96 | 0.2+ | 0.4− | 2009 12 19 | G96 | 0.1− | 0.1− |
| 1998 09 19 | 645 | 0.0 | 0.0 | 2007 02 17 | G96 | 0.4− | 0.1− | 2009 12 19 | G96 | 0.0 | 0.2− |
| 2002 12 06 | 704 | 0.4− | 1.0− | 2007 02 17 | G96 | 0.1+ | 0.1+ | 2009 12 24 | G80 | 0.6− | 1.4− |
| 2002 12 06 | 704 | 0.1− | 0.1+ | 2009 11 19 | 691 | 0.0 | 0.2+ | 2009 12 24 | G80 | 0.5− | 0.7− |
| 2002 12 06 | 704 | 0.5+ | 0.5+ | 2009 11 19 | 691 | 0.2+ | 0.1+ | 2009 12 24 | G80 | 0.3− | 0.2− |
| 2002 12 06 | 704 | 0.3+ | 0.5− | 2009 11 19 | 691 | 0.1− | 0.4+ | 2009 12 24 | G80 | 0.6− | 0.2− |
| 2002 12 11 | 704 | 0.0 | 1.0− | 2009 11 23 | 691 | 0.0 | 0.1+ | 2009 12 24 | G80 | 0.2+ | 0.4+ |
| 2002 12 11 | 704 | 0.4+ | 0.5+ | 2009 11 23 | 691 | 0.1+ | 0.2+ | 2009 12 26 | G80 | 0.1− | 0.1− |
| 2002 12 11 | 704 | 0.4− | 0.1+ | 2009 11 23 | 691 | 0.1+ | 0.1+ | 2009 12 26 | G80 | 0.1− | 0.4+ |
| 2002 12 11 | 704 | 0.2− | 0.5− | 2009 12 19 | G96 | 0.6+ | 0.0 | 2009 12 26 | G80 | 0.1+ | 0.1− |
| 2007 02 17 | G96 | 0.3− | 0.3− | 2009 12 19 | G96 | 0.3+ | 0.2− | 2009 12 26 | G80 | 0.6− | 0.2− |

**2009 WT$_{83}$ = 2003 UU$_{304}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 243.80562 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18047643 | $\omega$ | 279.94998 | | −0.95868388 | +0.24720509 | |
| $a$ | 3.1011473 | $\Omega$ | 274.46427 | | −0.17236605 | −0.89842892 | |
| $e$ | 0.1231850 | $i$ | 8.11692 | | −0.22630769 | −0.36292576 | |
| $P$ | 5.46 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 18 | 691 | 0.1− | 0.3+ | 2006 03 25 | 644 | 0.3+ | 0.3+ | 2009 11 19 | 691 | 0.1− | 0.2+ |
| 2003 10 18 | 691 | 0.3+ | 0.1+ | 2006 03 25 | 644 | 0.4+ | 0.2+ | 2009 11 19 | 691 | 0.3− | 0.0 |
| 2003 10 18 | 691 | 0.1+ | 0.0 | 2008 10 31 | G96 | 1.1− | 0.0 | 2009 11 23 | 691 | 0.3+ | 0.1− |
| 2003 10 27 | 691 | 0.1− | 0.1+ | 2008 10 31 | G96 | 0.4− | 0.3+ | 2009 11 23 | 691 | 0.1− | 0.2− |
| 2003 10 27 | 691 | 0.2− | 0.2+ | 2008 10 31 | G96 | 0.0 | 0.1− | 2009 11 23 | 691 | 0.1− | 0.3− |
| 2003 10 27 | 691 | 0.1+ | 0.0 | 2008 10 31 | G96 | 0.3− | 0.2− | 2009 12 19 | G96 | 0.2+ | 0.0 |
| 2004 12 11 | 691 | 0.1− | 0.2+ | 2009 11 11 | 691 | 0.1+ | 0.0 | 2009 12 19 | G96 | 0.5+ | 0.1− |
| 2004 12 11 | 691 | 0.1− | 0.2+ | 2009 11 11 | 691 | 0.2+ | 0.1− | 2009 12 19 | G96 | 0.7+ | 0.3− |
| 2004 12 11 | 691 | 0.1− | 0.2+ | 2009 11 11 | 691 | 0.2− | 0.0 | 2009 12 19 | G96 | 0.4+ | 0.0 |
| 2006 03 25 | 644 | 0.2+ | 0.3+ | 2009 11 19 | 691 | 0.1+ | 0.2− | | | | |

**2009 WE$_{84}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 330.01463 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17557033 | $\omega$ | 125.46387 | | −0.34964566 | −0.93661352 | |
| $a$ | 3.1586534 | $\Omega$ | 344.95343 | | +0.82915451 | −0.29820773 | |
| $e$ | 0.1433618 | $i$ | 4.95618 | | +0.43617739 | −0.18392189 | |
| $P$ | 5.61 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 09 28 | 691 | 0.0 | 0.2− | 2005 01 15 | 691 | 0.2− | 0.0 | 2009 11 11 | 691 | 0.3+ | 0.0 |
| 1997 09 28 | 691 | 0.2− | 0.4− | 2005 01 15 | 691 | 0.1− | 0.0 | 2009 11 11 | 691 | 0.0 | 0.1+ |
| 1997 09 28 | 691 | 0.1− | 0.2− | 2005 01 15 | 691 | 0.1− | 0.1+ | 2009 11 11 | 691 | 0.5+ | 0.2− |
| 2002 08 12 | 807 | 0.3− | 0.2+ | 2005 02 09 | 699 | 0.7+ | 0.1+ | 2009 11 19 | 691 | 0.0 | 0.0 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 12 | 807 | 0.2− | 0.2+ | 2005 02 09 | 699 | 1.3+ | 0.7+ | 2009 11 19 | 691 | 0.1− | 0.1+ | | |
| 2003 09 30 | 691 | 0.2+ | 0.3+ | 2005 02 09 | 699 | 0.5+ | 0.6+ | 2009 11 19 | 691 | 0.2− | 0.2− | | |
| 2003 09 30 | 691 | 0.1− | 0.2+ | 2005 02 09 | 699 | 0.6+ | 1.8+ | 2009 11 23 | 691 | 0.5+ | 0.4− | | |
| 2003 09 30 | 691 | 0.1+ | 0.1+ | 2008 08 07 | 691 | 0.5− | 0.0 | 2009 11 23 | 691 | 0.1+ | 0.1− | | |
| 2003 10 17 | 691 | 0.1+ | 0.1− | 2008 08 07 | 691 | 0.4+ | 0.1+ | 2009 11 23 | 691 | 1.4− | 0.5+ | | |
| 2003 10 17 | 691 | 0.3+ | 0.1+ | 2008 08 07 | 691 | 0.6− | 0.5+ | 2009 11 27 | 691 | 0.4+ | 0.2+ | | |
| 2003 10 17 | 691 | 0.1+ | 0.0 | 2008 09 09 | G96 | 0.1− | 0.4+ | 2009 11 27 | 691 | 0.0 | 0.3− | | |
| 2003 11 02 | 691 | 0.4− | 0.1+ | 2008 09 09 | G96 | 0.5+ | 0.6+ | 2009 11 27 | 691 | 0.5− | 0.2− | | |
| 2003 11 02 | 691 | 0.2+ | 0.1+ | 2008 09 09 | G96 | 0.6+ | 0.7+ | | | | | | |
| 2003 11 02 | 691 | 0.2+ | 0.1− | 2008 09 09 | G96 | 0.6+ | 0.2+ | | | | | | |

**2009 WF$_{84}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 41.90532 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.27034941 | $\omega$ | 15.83909 | | +0.98335632 | | −0.18160071 | | |
| $a$ | 2.3687493 | $\Omega$ | 354.61449 | | +0.15952552 | | +0.87778688 | | |
| $e$ | 0.2591277 | $i$ | 3.42971 | | +0.08695949 | | +0.44329604 | | |
| $P$ | 3.65 | $H$ | 17.4 | $G$ | 0.15 | $U$ | 2 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 07 26 | 644 | 0.0 | 0.4+ | 2007 03 09 | G96 | 0.4+ | 0.2+ | 2009 11 25 | 703 | 0.4+ | 0.5− | | |
| 2005 07 26 | 644 | 0.4− | 0.3+ | 2007 03 09 | G96 | 0.1− | 0.7+ | 2009 11 25 | 703 | 0.5− | 0.0 | | |
| 2005 07 26 | 644 | 0.6+ | 0.4+ | 2007 03 09 | G96 | 0.1− | 0.3+ | 2009 11 25 | 703 | 0.5+ | 0.6+ | | |
| 2005 09 06 | 699 | 0.2+ | 0.4− | 2009 11 11 | 691 | 0.2− | 0.1+ | 2009 11 25 | 703 | 0.0 | 0.9+ | | |
| 2005 09 06 | 699 | 0.2− | 1.0+ | 2009 11 11 | 691 | 0.1+ | 0.1− | 2009 11 27 | 691 | 0.2+ | 0.0 | | |
| 2005 09 06 | 699 | 0.4− | 0.0 | 2009 11 11 | 691 | 0.1+ | 0.0 | 2009 11 27 | 691 | 0.1− | 0.0 | | |
| 2005 09 06 | 699 | 0.7− | 0.0 | 2009 11 19 | 691 | 0.2+ | 0.0 | 2009 11 27 | 691 | 0.2− | 0.0 | | |
| 2005 10 25 | G96 | 0.5+ | 0.1− | 2009 11 19 | 691 | 0.4− | 0.4+ | 2009 12 10 | 704 | 0.1− | 1.1− | | |
| 2005 10 25 | G96 | 0.3+ | 0.1− | 2009 11 19 | 691 | 0.1− | 0.2+ | 2009 12 10 | 704 | 0.6+ | 0.0 | | |
| 2005 10 25 | G96 | 0.2− | 0.1+ | 2009 11 23 | 691 | 0.0 | 0.1− | 2009 12 10 | 704 | 0.1− | 1.0+ | | |
| 2005 10 25 | G96 | 0.3+ | 0.1− | 2009 11 23 | 691 | 0.7− | 0.3− | 2009 12 10 | 704 | 1.1+ | 0.5+ | | |
| 2005 11 25 | G96 | 0.4+ | 0.3− | 2009 11 23 | 691 | 0.0 | 0.0 | 2009 12 10 | 704 | 0.9+ | 0.4+ | | |
| 2005 11 25 | G96 | 0.3− | 0.2− | 2009 11 24 | J75 | 0.4− | 0.8− | 2009 12 19 | G96 | 0.4+ | 0.0 | | |
| 2005 11 25 | G96 | 0.1+ | 0.2+ | 2009 11 24 | J75 | 1.4+ | 0.2− | 2009 12 19 | G96 | 0.4+ | 0.2− | | |
| 2005 11 25 | G96 | 0.0 | 0.4− | 2009 11 24 | J75 | 0.3− | 0.9− | 2009 12 19 | G96 | 0.4+ | 0.1+ | | |
| 2007 03 09 | G96 | 0.3+ | 0.4+ | 2009 11 25 | 703 | 0.0 | 0.4+ | 2009 12 19 | G96 | 0.3+ | 0.2− | | |

**2009 WM$_{84}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 318.74263 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.18261767 | $\omega$ | 77.73508 | | −0.57531069 | | −0.78943485 | | |
| $a$ | 3.0768585 | $\Omega$ | 49.51852 | | +0.59738616 | | −0.58428320 | | |
| $e$ | 0.1535649 | $i$ | 16.34346 | | +0.55870151 | | −0.18816418 | | |
| $P$ | 5.40 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 4 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 11 14 | 691 | 0.5− | 0.0 | 2009 09 20 | G96 | 0.0 | 0.4+ | 2009 11 19 | 691 | 0.3− | 0.2+ | | |
| 1998 11 14 | 691 | 0.4− | 0.0 | 2009 10 22 | G96 | 0.4+ | 0.1+ | 2009 11 19 | 691 | 0.0 | 0.2− | | |
| 1998 11 14 | 691 | 0.6− | 0.2− | 2009 10 22 | G96 | 0.0 | 0.7− | 2009 11 23 | 691 | 0.1− | 0.4+ | | |
| 1998 11 21 | 691 | 0.4+ | 0.7+ | 2009 10 22 | G96 | 0.0 | 0.2− | 2009 11 23 | 691 | 0.2− | 0.0 | | |
| 1998 11 21 | 691 | 1.0+ | 0.1− | 2009 10 22 | G96 | 0.6+ | 0.1− | 2009 11 23 | 691 | 0.0 | 0.1− | | |
| 1998 11 21 | 691 | 0.1− | 0.2− | 2009 11 09 | 691 | 0.5+ | 0.0 | 2009 11 27 | 691 | 0.3− | 0.3− | | |
| 2009 09 20 | G96 | 0.1+ | 0.0 | 2009 11 09 | 691 | 0.1+ | 0.3− | 2009 11 27 | 691 | 0.1+ | 0.1− | | |
| 2009 09 20 | G96 | 0.0 | 0.1+ | 2009 11 09 | 691 | 0.2+ | 0.1− | 2009 11 27 | 691 | 0.0 | 0.5+ | | |
| 2009 09 20 | G96 | 0.1− | 0.4+ | 2009 11 19 | 691 | 0.3− | 0.2− | | | | | | |

**2009 WW$_{84}$ = 2004 JK$_{45}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 186.98231 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.27121486 | $\omega$ | 221.79257 | | −0.39594687 | | +0.91624700 | | |
| $a$ | 2.3637075 | $\Omega$ | 25.06565 | | −0.79973986 | | −0.31144593 | | |
| $e$ | 0.1785959 | $i$ | 8.27457 | | −0.45126737 | | −0.25197791 | | |
| $P$ | 3.63 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 2 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1993 04 21 | 691 | 0.1+ | 0.1− | 2004 05 13 | 699 | 1.1− | 0.4+ | 2009 11 11 | 691 | 0.2+ | 0.1+ | | |
| 1993 04 21 | 691 | 0.2+ | 0.1+ | 2004 05 13 | 699 | 0.2− | 0.7+ | 2009 11 11 | 691 | 0.4+ | 0.1− | | |
| 1993 04 21 | 691 | 0.1− | 0.3+ | 2004 05 14 | 703 | (0.2+ | 2.1−) | 2009 11 11 | 691 | 0.1− | 0.1+ | | |
| 2004 05 12 | E12 | 0.8+ | 0.6− | 2004 05 14 | 703 | 0.7− | 0.8− | 2009 11 19 | 691 | 0.3− | 0.3− | | |
| 2004 05 12 | E12 | 0.5+ | 0.4− | 2004 05 14 | 703 | 0.3− | 0.1+ | 2009 11 19 | 691 | 0.4− | 0.1+ | | |
| 2004 05 12 | E12 | 0.8+ | 0.6− | 2004 05 14 | 703 | 0.7− | 0.4− | 2009 11 19 | 691 | 0.2+ | 0.2+ | | |
| 2004 05 12 | E12 | 0.6+ | 0.5− | 2005 09 30 | G96 | 0.3− | 0.5+ | 2009 11 23 | 691 | 0.0 | 0.4− | | |
| 2004 05 13 | 699 | 0.4+ | 0.1+ | 2005 09 30 | G96 | 0.3− | 0.2+ | 2009 11 23 | 691 | 0.1+ | 0.0 | | |
| 2004 05 13 | 699 | 0.8− | 0.9+ | 2005 09 30 | G96 | 0.1− | 0.1+ | 2009 11 23 | 691 | 0.1+ | 0.0 | | |

**2009 WM$_{85}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 74.83502 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.20475502 | $\omega$ | 319.34121 | | +0.94752442 | | +0.31620801 | | |
| $a$ | 2.8508848 | $\Omega$ | 22.35858 | | −0.25181904 | | +0.82885456 | | |
| $e$ | 0.1511221 | $i$ | 7.09880 | | −0.19693818 | | +0.46153289 | | |
| $P$ | 4.81 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 3 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 08 | 691 | 0.1+ | 0.2+ | 2007 04 16 | G96 | 0.4+ | 0.3+ | 2009 11 11 | 691 | 0.2+ | 0.1− | | |
| 2004 10 08 | 691 | 0.1+ | 0.1− | 2007 04 16 | G96 | 0.1− | 0.2+ | 2009 11 19 | 691 | 0.3− | 0.1+ | | |
| 2004 10 08 | 691 | 0.2+ | 0.1+ | 2007 04 16 | G96 | 0.3+ | 0.4− | 2009 11 19 | 691 | 0.1+ | 0.1− | | |
| 2004 11 09 | 703 | 0.1− | 0.3+ | 2007 04 16 | G96 | 0.2− | 0.4+ | 2009 11 19 | 691 | 0.1+ | 0.1− | | |
| 2004 11 09 | 703 | 1.0+ | 0.6+ | 2007 04 16 | G96 | 0.4+ | 0.3+ | 2009 11 23 | 691 | 0.5− | 0.2− | | |
| 2004 11 09 | 703 | 0.2− | 0.9− | 2007 04 16 | G96 | 0.0 | 0.2− | 2009 11 23 | 691 | 0.6+ | 0.0 | | |
| 2004 11 09 | 703 | 1.2− | 0.5− | 2007 04 16 | G96 | 0.9− | 0.8− | 2009 11 23 | 691 | 0.1+ | 0.0 | | |
| 2004 12 10 | 691 | 0.3− | 0.0 | 2007 04 16 | G96 | 0.2+ | 0.3+ | 2009 11 27 | 691 | 0.2− | 0.0 | | |
| 2004 12 10 | 691 | 0.0 | 0.0 | 2009 11 11 | 691 | 0.2+ | 0.0 | 2009 11 27 | 691 | 0.4− | 0.2+ | | |
| 2004 12 10 | 691 | 0.1− | 0.3+ | 2009 11 11 | 691 | 0.2+ | 0.2− | 2009 11 27 | 691 | 0.1− | 0.1+ | | |

**2009 WE$_{86}$ = 1992 WT$_{7}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 312.45669 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.17618552 | $\omega$ | 208.22671 | | −0.72775274 | | −0.67723358 | | |
| $a$ | 3.1512963 | $\Omega$ | 288.71768 | | +0.64880000 | | −0.62861549 | | |
| $e$ | 0.1442477 | $i$ | 6.56649 | | +0.22233871 | | −0.38235748 | | |
| $P$ | 5.59 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 1 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1992 11 29 | 691 | (2.8+ | 1.0−) | 2005 01 17 | 691 | 0.1+ | 0.0 | 2009 11 19 | 691 | 0.7− | 0.0 | | |
| 1992 11 29 | 691 | 0.1+ | 0.3− | 2005 02 02 | 703 | 0.8− | 0.5− | 2009 11 23 | 691 | 0.1− | 0.0 | | |
| 1992 11 29 | 691 | 0.2+ | 0.3− | 2005 02 02 | 703 | 0.3+ | 0.5+ | 2009 11 23 | 691 | 0.2+ | 0.2− | | |
| 1992 12 01 | 691 | 0.1+ | 0.0 | 2005 02 02 | 703 | 0.6− | 0.8+ | 2009 11 23 | 691 | 0.1− | 0.2− | | |
| 1992 12 01 | 691 | 0.1+ | 1.1− | 2005 02 02 | 703 | 0.0 | 0.2− | 2009 11 24 | J75 | 0.1+ | 0.2+ | | |
| 1992 12 01 | 691 | 0.3− | 0.9+ | 2008 09 29 | G96 | 0.2− | 0.0 | 2009 11 24 | J75 | 0.1+ | 0.4− | | |
| 2003 10 21 | 691 | 0.2+ | 0.2+ | 2008 09 29 | G96 | 0.2− | 0.1+ | 2009 11 24 | J75 | 0.1− | 0.5+ | | |
| 2003 10 21 | 691 | 0.5− | 0.3+ | 2008 09 29 | G96 | 0.2− | 0.3+ | 2009 12 09 | J75 | 0.1+ | 0.1+ | | |
| 2003 10 21 | 691 | 0.2+ | 0.5+ | 2008 09 29 | G96 | 0.3+ | 0.2− | 2009 12 09 | J75 | 1.3+ | 0.2+ | | |
| 2005 01 17 | 691 | 0.2+ | 0.2+ | 2009 11 19 | 691 | 0.1+ | 0.1− | 2009 12 09 | J75 | 0.7+ | 0.7+ | | |
| 2005 01 17 | 691 | 0.1+ | 0.0 | 2009 11 19 | 691 | 0.1− | 0.1− | | | | | | |

**2009 WW$_{86}$ = 2006 BZ$_{148}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 301.62513 | | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.21481042 | $\omega$ | 238.37796 | | −0.79144805 | | −0.58178538 | | |
| $a$ | 2.7612082 | $\Omega$ | 265.38625 | | +0.60490862 | | −0.70150270 | | |
| $e$ | 0.1070683 | $i$ | 10.83928 | | +0.08772429 | | −0.41160628 | | |
| $P$ | 4.59 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 3 | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 01 23 | 703 | 1.0+ | 0.1+ | 2006 01 30 | 703 | 0.9− | 0.5+ | 2009 11 19 | 691 | 0.2− | 0.0 | | |
| 2006 01 23 | 703 | 0.9− | 0.7+ | 2006 01 30 | 703 | (2.1− | 0.4+) | 2009 11 19 | 691 | 0.1− | 0.2− | | |
| 2006 01 23 | 703 | 0.5− | 0.4− | 2008 10 01 | G96 | 0.0 | 0.1+ | 2009 11 19 | 691 | 0.1− | 0.1− | | |
| 2006 01 23 | 703 | 0.3+ | 0.6− | 2008 10 01 | G96 | 0.1+ | 0.5− | 2009 11 23 | 691 | 0.0 | 0.3+ | | |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 01 25 | 699 | (0.8− | 2.3+) | 2008 10 01 | G96 | 0.1− | 0.1+ | 2009 11 23 | 691 | 0.0 | 0.1+ | | | |
| 2006 01 25 | 699 | 0.7+ | 0.7− | 2008 10 01 | G96 | 0.0 | 0.1+ | 2009 11 23 | 691 | 0.0 | 0.1+ | | | |
| 2006 01 25 | 699 | (1.9− | 1.1+) | 2009 11 11 | 691 | 0.3+ | 0.2− | 2009 11 27 | 691 | 0.1− | 0.4+ | | | |
| 2006 01 25 | 699 | 0.3+ | 0.1+ | 2009 11 11 | 691 | 0.2+ | 0.2− | 2009 11 27 | 691 | 0.0 | 0.1+ | | | |
| 2006 01 30 | 703 | (1.8+ | 1.5+) | 2009 11 11 | 691 | 0.0 | 0.2− | 2009 11 27 | 691 | 0.1− | 0.0 | | | |

**2009 WF$_{88}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 14.21278 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24073396 | $\omega$ | 139.10115 | | +0.46455951 | −0.87623852 | |
| $a$ | 2.5592407 | $\Omega$ | 282.85889 | | +0.77443035 | +0.47211619 | |
| $e$ | 0.0656778 | $i$ | 7.54581 | | +0.42946722 | +0.09650057 | |
| $P$ | 4.09 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 02 | 691 | 0.1+ | 0.3− | 2006 01 25 | G96 | 0.1+ | 0.8− | 2009 11 23 | G92 | 0.2− | 0.5+ | | | |
| 2000 09 02 | 691 | 0.1+ | 0.3− | 2006 01 25 | G96 | 0.2+ | 0.4− | 2009 11 23 | G92 | 0.7+ | 1.0− | | | |
| 2000 09 02 | 691 | 0.3+ | 0.0 | 2006 01 25 | G96 | 0.4+ | 0.1+ | 2009 11 23 | 691 | 0.6+ | 1.1+ | | | |
| 2000 09 27 | 645 | 0.0 | 0.0 | 2008 07 27 | J75 | 0.3− | 0.1+ | 2009 11 23 | 691 | 0.2− | 0.1− | | | |
| 2000 09 27 | 645 | 0.1− | 0.0 | 2008 07 27 | J75 | 0.5− | 0.3+ | 2009 11 26 | 691 | 0.1+ | 0.2− | | | |
| 2004 08 10 | 599 | 0.0 | 0.4+ | 2008 07 27 | J75 | 0.4− | 0.1− | 2009 11 26 | 691 | 0.1− | 0.6+ | | | |
| 2004 08 10 | 599 | 0.7+ | 0.3+ | 2009 11 19 | 691 | 0.4− | 0.0 | 2009 11 26 | 691 | 0.1+ | 0.1− | | | |
| 2004 08 10 | 599 | 0.3+ | 0.5+ | 2009 11 19 | 691 | 0.5− | 0.1+ | 2009 11 27 | 691 | 0.0 | 0.1− | | | |
| 2004 08 10 | 599 | 0.1+ | 0.4+ | 2009 11 19 | G92 | 0.4+ | 0.3+ | 2009 11 27 | 691 | 0.3− | 0.2− | | | |
| 2005 12 02 | 691 | 0.0 | 0.1− | 2009 11 19 | 691 | 0.0 | 0.2− | 2009 11 27 | 691 | 0.2− | 0.0 | | | |
| 2005 12 02 | 691 | 0.1− | 0.0 | 2009 11 19 | G92 | 0.4− | 0.9− | 2009 12 09 | J75 | 0.0 | 0.6− | | | |
| 2005 12 02 | 691 | 0.1− | 0.1− | 2009 11 19 | G92 | 0.4+ | 0.8− | 2009 12 09 | J75 | 0.2− | 0.6+ | | | |
| 2005 12 21 | 703 | (1.1+ | 1.6+) | 2009 11 22 | 691 | 0.1+ | 0.2− | 2009 12 09 | J75 | 1.2+ | 0.6− | | | |
| 2005 12 21 | 703 | (3.4− | 1.0+) | 2009 11 22 | 691 | 0.1+ | 0.2− | 2009 12 10 | 704 | (1.8+ | 0.3−) | | | |
| 2005 12 21 | 703 | (0.7− | 1.6+) | 2009 11 22 | 691 | 0.1− | 0.1+ | 2009 12 10 | 704 | 0.6+ | 0.9+ | | | |
| 2005 12 21 | 703 | 0.1+ | 1.0+ | 2009 11 23 | G92 | 0.2− | 1.0+ | 2009 12 10 | 704 | 0.8+ | 1.1+ | | | |
| 2006 01 25 | G96 | 0.2− | 0.4− | 2009 11 23 | 691 | 0.1− | 0.1− | 2009 12 10 | 704 | 0.1+ | 1.0− | | | |

**2009 WK$_{88}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 242.66550 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27884717 | $\omega$ | 353.14583 | | −0.89089709 | +0.45224946 | |
| $a$ | 2.3203770 | $\Omega$ | 213.84397 | | −0.41305400 | −0.84524879 | |
| $e$ | 0.1099096 | $i$ | 4.33575 | | −0.18891470 | −0.28464875 | |
| $P$ | 3.53 | $H$ | 17.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 06 22 | 691 | 0.0 | 0.1+ | 2007 02 17 | G96 | 0.1+ | 0.1− | 2009 11 26 | G96 | 0.1− | 0.3− | | | |
| 2004 06 22 | 691 | 0.0 | 0.3+ | 2007 02 17 | G96 | 0.5− | 0.3− | 2009 11 26 | G96 | 0.1+ | 0.4+ | | | |
| 2004 06 22 | 691 | 0.1+ | 0.2+ | 2007 02 17 | G96 | 0.1− | 0.5− | 2009 11 26 | G96 | 0.8+ | 0.1+ | | | |
| 2005 10 13 | 691 | 0.2+ | 0.4+ | 2007 02 17 | G96 | 0.2+ | 0.6− | 2009 11 26 | G96 | 0.2+ | 0.4− | | | |
| 2005 10 13 | 691 | 0.1+ | 1.2− | 2009 11 19 | 691 | 0.0 | 0.1+ | 2009 11 26 | G96 | 0.5+ | 0.4+ | | | |
| 2005 10 13 | 691 | 0.4− | 0.1− | 2009 11 19 | 691 | 0.0 | 0.1+ | 2009 12 11 | G96 | 0.1+ | 0.1− | | | |
| 2005 10 27 | G96 | 0.2+ | 0.3+ | 2009 11 19 | 691 | 0.1+ | 0.0 | 2009 12 11 | G96 | 0.2− | 0.5+ | | | |
| 2005 10 27 | G96 | 0.1+ | 0.2+ | 2009 11 23 | 691 | 0.5− | 0.5+ | 2009 12 11 | G96 | 0.5+ | 0.2+ | | | |
| 2005 10 27 | G96 | 0.2+ | 0.1+ | 2009 11 23 | 691 | 0.1− | 0.2+ | 2009 12 11 | G96 | 0.7+ | 0.4− | | | |
| 2005 10 27 | G96 | 0.6+ | 0.4+ | 2009 11 23 | 691 | 0.2− | 0.3+ | | | | | | | |

**2009 WP$_{88}$ = 2003 TV$_{35}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 10.00856 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17958119 | $\omega$ | 192.21185 | | +0.38521789 | −0.91435302 | |
| $a$ | 3.1114451 | $\Omega$ | 235.25594 | | +0.85893844 | +0.40468587 | |
| $e$ | 0.0846890 | $i$ | 8.73321 | | +0.33738988 | +0.01370785 | |
| $P$ | 5.49 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 01 | 691 | 0.1− | 0.3− | 2008 10 30 | G96 | 0.3− | 0.2− | 2009 11 21 | A50 | 0.3+ | 0.8− | | | |
| 2003 10 01 | 691 | 0.1− | 0.2− | 2008 10 30 | G96 | 0.1− | 0.1− | 2009 11 21 | A50 | 0.4+ | 0.5− | | | |
| 2003 10 01 | 691 | 0.1− | 0.1− | 2008 10 30 | G96 | 0.3− | 0.1+ | 2009 11 23 | 691 | 0.2− | 0.1− | | | |
| 2003 10 18 | 691 | 0.1− | 0.4+ | 2009 09 30 | G96 | 0.1+ | 0.1− | 2009 11 23 | 691 | 0.1+ | 0.1− | | | |
| 2003 10 18 | 691 | 0.2− | 0.3+ | 2009 09 30 | G96 | 0.9+ | 0.2− | 2009 11 23 | 691 | 0.0 | 0.1+ | | | |
| 2003 10 18 | 691 | 0.2− | 0.3+ | 2009 09 30 | G96 | 0.0 | 0.6− | 2009 11 23 | J75 | 0.3+ | 0.2− | | | |
| 2003 10 27 | 691 | 0.2+ | 0.1+ | 2009 09 30 | G96 | 0.1+ | 0.1+ | 2009 11 24 | J75 | 0.2+ | 0.2− | | | |
| 2003 10 27 | 691 | 0.1+ | 0.1+ | 2009 11 08 | 691 | 0.2− | 0.0 | 2009 11 24 | J75 | 0.1− | 0.2+ | | | |
| 2003 10 27 | 691 | 0.3+ | 0.0 | 2009 11 08 | 691 | 0.5− | 0.3+ | 2009 12 11 | G96 | 0.5+ | 0.2− | | | |
| 2005 02 02 | 644 | 0.1+ | 0.4+ | 2009 11 08 | 691 | 0.3− | 0.3− | 2009 12 11 | G96 | 0.3+ | 0.3− | | | |
| 2005 02 02 | 644 | 0.1− | 0.3+ | 2009 11 19 | 691 | 0.2− | 0.1− | 2009 12 11 | G96 | 0.5+ | 0.3− | | | |
| 2005 02 02 | 644 | 0.2+ | 0.4+ | 2009 11 19 | 691 | 0.2− | 0.1− | 2009 12 11 | G96 | 0.2+ | 0.2− | | | |
| 2008 10 01 | G96 | 0.8+ | 0.4− | 2009 11 19 | 691 | 0.2− | 0.1− | 2009 12 11 | 703 | 0.4− | 0.1− | | | |
| 2008 10 01 | G96 | 0.6+ | 0.0 | 2009 11 20 | A50 | 1.0+ | 0.3+ | 2009 12 11 | 703 | 0.9+ | 0.4+ | | | |
| 2008 10 01 | G96 | 0.3+ | 0.1− | 2009 11 20 | A50 | 0.8+ | 0.9+ | 2009 12 11 | 703 | 0.2+ | 0.1− | | | |
| 2008 10 01 | G96 | 0.0 | 0.0 | 2009 11 20 | A50 | 0.9+ | 0.7+ | 2009 12 11 | 703 | 1.1− | 0.7− | | | |
| 2008 10 30 | G96 | 0.7− | 0.5− | 2009 11 20 | A50 | 0.9+ | 0.4+ | | | | | | | |

**2009 WV$_{88}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 42.23671 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27502355 | $\omega$ | 158.59733 | | +0.84741446 | −0.52192333 | |
| $a$ | 2.3418341 | $\Omega$ | 233.23636 | | +0.46777062 | +0.82070729 | |
| $e$ | 0.1020924 | $i$ | 6.98262 | | +0.25115609 | +0.23245554 | |
| $P$ | 3.58 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 05 23 | 691 | 0.1− | 0.3+ | 2009 09 20 | G96 | 0.8− | 0.7− | 2009 11 23 | 691 | 0.3− | 0.6+ | | | |
| 2004 05 23 | 691 | 0.4+ | 0.4+ | 2009 09 20 | G96 | 0.1+ | 0.3− | 2009 11 23 | J75 | 0.4+ | 0.5− | | | |
| 2004 05 23 | 691 | 0.0 | 0.4+ | 2009 09 20 | G96 | 0.6+ | 0.2− | 2009 11 24 | J75 | 0.5+ | 0.0 | | | |
| 2005 08 31 | 699 | 0.3− | 0.9+ | 2009 10 16 | G96 | 0.4+ | 0.1+ | 2009 11 24 | J75 | 0.7+ | 0.5− | | | |
| 2005 08 31 | 699 | 0.3+ | 0.1+ | 2009 10 16 | G96 | 0.2− | 0.1+ | 2009 11 27 | 691 | 0.2− | 0.2+ | | | |
| 2005 08 31 | 699 | 0.1− | 0.4+ | 2009 10 16 | G96 | 0.3+ | 0.1− | 2009 11 27 | 691 | 0.1− | 0.0 | | | |
| 2005 08 31 | 699 | 0.7+ | 0.7+ | 2009 10 16 | G96 | 0.2+ | 0.1+ | 2009 11 27 | 691 | 0.5+ | 0.1+ | | | |
| 2005 10 01 | 703 | 0.3− | 0.2+ | 2009 11 19 | 691 | 0.3− | 0.1+ | 2009 12 11 | G96 | 0.6+ | 0.2− | | | |
| 2005 10 01 | 703 | 0.8− | 0.5− | 2009 11 19 | 691 | 0.3− | 0.4+ | 2009 12 11 | G96 | 0.2+ | 0.3− | | | |
| 2005 10 01 | 703 | (2.0− | 0.5+) | 2009 11 19 | 691 | 0.3+ | 0.2+ | 2009 12 11 | G96 | 0.3+ | 0.1− | | | |
| 2005 10 01 | 703 | 0.1+ | 0.1− | 2009 11 23 | 691 | 0.1− | 0.1+ | 2009 12 11 | G96 | 0.3+ | 0.2− | | | |
| 2009 09 20 | G96 | (0.1+ | 1.8−) | 2009 11 23 | 691 | 0.4− | 0.2− | | | | | | | |

**2009 WW$_{88}$ = 2003 AG$_{62}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 344.26933 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27994774 | $\omega$ | 5.25227 | | −0.27962237 | −0.95843989 | |
| $a$ | 2.3142915 | $\Omega$ | 100.99432 | | +0.87877069 | −0.27923726 | |
| $e$ | 0.1536705 | $i$ | 3.30579 | | +0.38674720 | −0.05847675 | |
| $P$ | 3.52 | $H$ | 17.5 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 05 04 | 645 | 0.0 | 0.1+ | 2007 04 18 | 691 | 0.2− | 0.3+ | 2009 11 27 | 691 | 0.1− | 0.1− | | | |
| 2000 05 04 | 645 | 0.0 | 0.0 | 2007 04 18 | 691 | 0.1+ | 0.5− | 2009 12 11 | G96 | 0.8+ | 0.5− | | | |
| 2003 01 08 | 704 | 0.9+ | 0.8− | 2009 11 19 | 691 | 0.0 | 0.1− | 2009 12 11 | G96 | 0.7+ | 0.3− | | | |
| 2003 01 08 | 704 | (2.2+ | 1.5−) | 2009 11 19 | 691 | 0.1+ | 0.1− | 2009 12 11 | G96 | 0.5+ | 0.3− | | | |
| 2003 01 08 | 704 | (2.1+ | 1.1−) | 2009 11 19 | 691 | 0.8− | 0.3+ | 2009 12 11 | G96 | 0.8+ | 0.4− | | | |
| 2003 01 09 | 704 | 0.6− | 0.4− | 2009 11 23 | 691 | 0.0 | 0.2− | 2009 12 17 | 704 | 0.8− | 0.6+ | | | |
| 2003 01 09 | 704 | 0.2+ | 0.1+ | 2009 11 23 | 691 | 0.4− | 0.1+ | 2009 12 17 | 704 | 0.1− | 0.6+ | | | |
| 2003 01 09 | 704 | 0.2− | 0.7+ | 2009 11 23 | 691 | 0.0 | 0.1− | 2009 12 17 | 704 | 1.4+ | 1.6+ | | | |
| 2003 01 09 | 704 | 0.6− | 0.6+ | 2009 11 27 | 691 | 0.4+ | 0.1+ | | | | | | | |
| 2007 04 18 | 691 | 0.1− | 0.2− | 2009 11 27 | 691 | 0.0 | 0.2− | | | | | | | |

**2009 WN$_{89}$ = 2008 QV$_{23}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 134.15656 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19320823 | $\omega$ | 177.28143 | | +0.47686115 | +0.87651352 | |
| $a$ | 2.9633683 | $\Omega$ | 121.19134 | | −0.80789104 | +0.46655057 | |
| $e$ | 0.0646528 | $i$ | 4.41041 | | −0.34628820 | +0.11855217 | |
| $P$ | 5.10 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 5 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 08 28 | H55 | 0.0 | 0.4− | 2009 11 19 | 691 | 0.1+ | 0.3− | 2009 11 26 | G96 | 0.1− | 0.9− |
| 2008 08 28 | H55 | 0.3+ | 0.1+ | 2009 11 19 | 691 | 0.4− | 0.2+ | 2009 11 26 | G96 | 0.4+ | 0.1− |
| 2008 08 28 | H55 | 0.2+ | 0.3− | 2009 11 23 | 691 | 0.1+ | 0.3+ | 2009 11 26 | G96 | 0.1+ | 0.0 |
| 2008 08 30 | H55 | 0.2− | 0.2+ | 2009 11 23 | 691 | 0.2+ | 0.1− | 2009 12 11 | G96 | 0.2− | 0.1− |
| 2008 08 30 | H55 | 0.1− | 0.4+ | 2009 11 23 | 691 | 0.1− | 0.2+ | 2009 12 11 | G96 | 0.2− | 0.1− |
| 2008 08 30 | H55 | 0.2− | 0.1− | 2009 11 26 | G96 | 0.2+ | 0.0 | 2009 12 11 | G96 | 0.1+ | 0.1− |
| 2009 11 19 | 691 | 0.0 | 0.0 | 2009 11 26 | G96 | 0.1+ | 0.1− | 2009 12 11 | G96 | 0.0 | 0.1− |

**2009 WP$_{89}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 129.49790 | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.24009752 | $\omega$ | 188.91530 | | +0.57530500 | | +0.81403800 | |
| $a$ | 2.5637614 | $\Omega$ | 116.24431 | | −0.74485382 | | +0.56170696 | |
| $e$ | 0.0493485 | $i$ | 5.10373 | | −0.33795997 | | +0.14774105 | |
| $P$ | 4.11 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 0 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 01 12 | 691 | 0.3− | 0.1− | 2004 08 08 | 644 | 0.7− | 0.6+ | 2007 03 11 | 691 | 0.4− | 0.0 |
| 1994 01 12 | 691 | 0.8+ | 0.9− | 2005 12 08 | G96 | 0.6+ | 0.0 | 2009 11 19 | 691 | 0.2− | 0.0 |
| 1994 01 12 | 691 | 1.1− | 0.3− | 2005 12 08 | G96 | 0.2+ | 0.1+ | 2009 11 19 | 691 | 0.1− | 0.1+ |
| 2003 04 09 | 644 | 0.3− | 0.6+ | 2005 12 08 | G96 | 0.0 | 0.3− | 2009 11 19 | 691 | 0.3− | 0.1+ |
| 2003 04 09 | 644 | 0.0 | 0.5+ | 2005 12 08 | G96 | 0.3+ | 0.5+ | 2009 11 23 | 691 | 0.0 | 0.2+ |
| 2003 04 09 | 644 | 0.1+ | 0.5+ | 2005 12 08 | G96 | 0.6+ | 0.3+ | 2009 11 23 | 691 | 0.0 | 0.2+ |
| 2003 05 02 | 691 | 0.6+ | 0.5+ | 2005 12 08 | G96 | 0.0 | 0.2+ | 2009 11 23 | 691 | 0.1− | 0.3+ |
| 2003 05 02 | 691 | 0.8+ | 0.1+ | 2005 12 08 | G96 | 0.6+ | 0.1− | 2009 11 27 | 691 | 0.1+ | 0.6+ |
| 2003 05 02 | 691 | 0.8+ | 0.5+ | 2005 12 08 | G96 | 0.2+ | 0.2+ | 2009 11 27 | 691 | 0.1+ | 0.3+ |
| 2004 08 08 | 644 | 0.3− | 0.4+ | 2007 03 11 | 691 | 0.3− | 0.2+ | 2009 11 27 | 691 | 0.0 | 0.4+ |
| 2004 08 08 | 644 | 0.6− | 0.3+ | 2007 03 11 | 691 | 0.5− | 0.0 | | | | |

**2009 WW$_{89}$ = 2006 BO$_{235}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 96.19484 | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.21017105 | $\omega$ | 239.97124 | | +0.93380753 | | +0.33358044 | |
| $a$ | 2.8016946 | $\Omega$ | 100.28265 | | −0.26593601 | | +0.88898793 | |
| $e$ | 0.0376412 | $i$ | 7.55318 | | −0.23933563 | | +0.31372687 | |
| $P$ | 4.69 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 4 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 01 23 | 691 | 0.3+ | 0.2+ | 2006 02 04 | 691 | 0.4− | 0.2+ | 2009 11 26 | 691 | 0.4+ | 0.3+ |
| 2006 01 23 | 691 | 0.2+ | 0.1− | 2009 11 19 | 691 | 0.3− | 0.2+ | 2009 11 26 | 691 | 0.3+ | 0.3− |
| 2006 01 23 | 691 | 0.2− | 0.2+ | 2009 11 19 | 691 | 0.2+ | 0.0 | 2009 12 11 | G96 | 0.7+ | 0.6+ |
| 2006 01 31 | 691 | 0.6+ | 0.2− | 2009 11 19 | 691 | 0.4− | 0.1+ | 2009 12 11 | G96 | 0.5+ | 0.4+ |
| 2006 01 31 | 691 | 0.4+ | 0.2− | 2009 11 22 | 691 | 0.0 | 0.4− | 2009 12 11 | G96 | 0.2+ | 0.1+ |
| 2006 01 31 | 691 | 0.4− | 0.3− | 2009 11 22 | 691 | 0.3+ | 0.1− | 2009 12 11 | G96 | 0.6− | 0.8− |
| 2006 02 04 | 691 | 0.1+ | 0.5+ | 2009 11 22 | 691 | 0.7− | 0.1− | | | | |
| 2006 02 04 | 691 | 0.5− | 0.4− | 2009 11 26 | 691 | 0.1+ | 0.3+ | | | | |

**2009 WU$_{90}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 63.19646 | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.21271678 | $\omega$ | 327.10202 | | +0.96931000 | | −0.23272411 | |
| $a$ | 2.7792965 | $\Omega$ | 46.57002 | | +0.24247627 | | +0.85188464 | |
| $e$ | 0.0749260 | $i$ | 6.26354 | | +0.04053860 | | +0.46918233 | |
| $P$ | 4.63 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 3 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 13 | 691 | 0.2− | 0.1+ | 2007 05 09 | G96 | 0.4− | 0.4+ | 2009 11 26 | 691 | 0.2− | 0.1+ |
| 2004 10 13 | 691 | 0.2+ | 0.1− | 2007 05 09 | G96 | 0.3+ | 0.1+ | 2009 11 26 | 691 | 0.4+ | 0.1+ |
| 2004 10 13 | 691 | 0.1− | 0.1− | 2009 11 19 | 691 | 0.1+ | 0.0 | 2009 11 27 | 691 | 0.2− | 0.1− |
| 2007 04 11 | G96 | 0.4− | 0.1− | 2009 11 19 | 691 | 0.2+ | 0.1− | 2009 11 27 | 691 | 1.1− | 0.2− |
| 2007 04 11 | G96 | 0.5+ | 0.5− | 2009 11 19 | 691 | 0.2− | 0.0 | 2009 11 27 | 691 | 0.5− | 0.0 |
| 2007 04 11 | G96 | 0.6+ | 0.7+ | 2009 11 22 | 691 | 0.2+ | 0.1− | 2009 12 18 | G96 | 0.3+ | 0.3+ |
| 2007 04 11 | G96 | 0.5+ | 0.5− | 2009 11 22 | 691 | 0.2+ | 0.1− | 2009 12 18 | G96 | 0.6+ | 0.1− |
| 2007 05 09 | G96 | 1.1− | 0.0 | 2009 11 22 | 691 | 0.3+ | 0.1+ | 2009 12 18 | G96 | 0.9+ | 0.1+ |
| 2007 05 09 | G96 | 0.0 | 0.3− | 2009 11 26 | 691 | 0.2+ | 0.1+ | 2009 12 18 | G96 | 0.7+ | 0.2+ |

**2009 WD$_{93}$ = 2004 VX$_{68}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 210.25406 | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.19065484 | $\omega$ | 148.11935 | | −0.79675470 | | +0.57876336 | |
| $a$ | 2.9897680 | $\Omega$ | 68.22951 | | −0.58629094 | | −0.67063221 | |
| $e$ | 0.0499378 | $i$ | 10.78792 | | −0.14644074 | | −0.46398859 | |
| $P$ | 5.17 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 4 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 11 10 | 691 | 0.4+ | 0.3− | 2009 10 12 | G96 | 0.0 | 0.1+ | 2009 11 19 | J75 | 0.5+ | 0.9− |
| 2004 11 10 | 691 | 0.0 | 0.2+ | 2009 10 12 | G96 | 0.1+ | 0.0 | 2009 11 23 | G96 | 0.2− | 0.0 |
| 2004 11 10 | 691 | 0.0 | 0.1+ | 2009 10 12 | G96 | 0.1+ | 0.1+ | 2009 11 23 | G96 | 0.2− | 0.4+ |
| 2004 11 11 | 695 | 0.2− | 0.2+ | 2009 10 23 | G96 | 0.0 | 0.2− | 2009 11 23 | G96 | 0.7− | 0.0 |
| 2004 11 11 | 695 | 0.3− | 0.2+ | 2009 10 23 | G96 | 0.0 | 0.3− | 2009 11 23 | G96 | 0.1− | 0.1− |
| 2004 11 20 | 691 | 0.3− | 0.0 | 2009 10 23 | G96 | 0.4− | 0.1+ | 2009 12 19 | G96 | 0.1− | 0.0 |
| 2004 11 20 | 691 | 0.2+ | 0.2− | 2009 10 23 | G96 | 0.3− | 0.1+ | 2009 12 19 | G96 | 0.0 | 0.1− |
| 2004 11 20 | 691 | 0.1− | 0.1+ | 2009 11 19 | J75 | 1.1+ | 0.1+ | 2009 12 19 | G96 | 0.1+ | 0.4+ |
| 2009 10 12 | G96 | 0.2− | 0.1+ | 2009 11 19 | J75 | 0.2+ | 0.2+ | | | | |

**2009 WE$_{93}$ = 1998 VC$_{40}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 31.44443 | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.18010911 | $\omega$ | 169.10040 | | +0.85902099 | | −0.50234519 | |
| $a$ | 3.1053622 | $\Omega$ | 221.53624 | | +0.45779623 | | +0.84002338 | |
| $e$ | 0.0664163 | $i$ | 8.55598 | | +0.22914091 | | +0.20496348 | |
| $P$ | 5.47 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 0 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 11 14 | 691 | 0.1− | 0.4− | 2007 04 19 | G96 | 0.8+ | 0.0 | 2009 09 19 | G96 | 0.4+ | 0.3− |
| 1998 11 14 | 691 | 0.1− | 0.0 | 2007 04 19 | G96 | 0.6+ | 0.1+ | 2009 09 19 | G96 | 0.5+ | 0.1+ |
| 1998 11 14 | 691 | 0.0 | 0.2− | 2007 04 19 | G96 | 0.1− | 0.3+ | 2009 09 19 | G96 | 0.5+ | 0.3− |
| 1998 11 16 | 691 | 0.0 | 0.2− | 2007 05 26 | G96 | 0.0 | 0.4− | 2009 09 19 | G96 | 0.6+ | 0.2− |
| 1998 11 16 | 691 | 0.3− | 0.3+ | 2007 05 26 | G96 | 0.2+ | 0.1+ | 2009 10 27 | 691 | 0.4− | 0.0 |
| 1998 11 16 | 691 | 0.5+ | 0.0 | 2007 05 26 | G96 | 0.3+ | 0.2− | 2009 10 27 | 691 | 0.0 | 0.1+ |
| 2003 09 19 | 691 | 0.0 | 0.5− | 2007 05 26 | G96 | 0.5+ | 0.1+ | 2009 10 27 | 691 | 0.4− | 0.3− |
| 2003 09 19 | 691 | 0.5+ | 0.2− | 2007 05 26 | G96 | 0.1+ | 0.3+ | 2009 11 08 | 691 | 0.0 | 0.1+ |
| 2003 09 19 | 691 | 0.4+ | 0.1− | 2007 05 26 | G96 | 0.1+ | 0.3− | 2009 11 08 | 691 | 0.3+ | 0.3+ |
| 2003 10 18 | 691 | 0.4− | 0.2+ | 2007 05 26 | G96 | 0.7+ | 0.1+ | 2009 11 08 | 691 | 0.2+ | 0.1+ |
| 2003 10 18 | 691 | 0.5− | 0.9+ | 2007 05 26 | G96 | 0.2+ | 0.5+ | 2009 11 19 | J75 | 0.5− | 0.7+ |
| 2003 10 18 | 691 | 0.1− | 0.2+ | 2007 06 13 | 691 | 0.1− | 0.2+ | 2009 11 19 | J75 | 0.2+ | 0.1− |
| 2006 04 08 | G96 | 0.0 | 1.0+ | 2007 06 13 | 691 | 0.4− | 0.0 | 2009 11 19 | J75 | 0.8− | 1.0+ |
| 2006 04 08 | G96 | 0.1+ | 0.7+ | 2007 06 13 | 691 | 0.3− | 0.0 | 2009 11 23 | G96 | 0.3+ | 0.0 |
| 2006 04 08 | G96 | 0.2+ | 0.8+ | 2008 08 20 | 691 | 0.1+ | 0.3− | 2009 11 23 | G96 | 0.2− | 0.2− |
| 2006 04 08 | G96 | 0.2+ | 0.5+ | 2008 08 20 | 691 | 0.2+ | 0.0 | 2009 11 23 | G96 | 0.4+ | 0.1+ |
| 2007 04 19 | G96 | 0.5+ | 0.1− | 2008 08 20 | 691 | 0.5− | 0.7+ | 2009 11 23 | G96 | 0.5+ | 0.1+ |

**2009 WG$_{93}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $M$ | 9.18392 | | (2000.0) | | **P** | | **Q** | |
| $n$ | 0.25095025 | $\omega$ | 327.94323 | | +0.47922216 | | −0.87534699 | |
| $a$ | 2.4893022 | $\Omega$ | 93.35067 | | +0.81822456 | | +0.41911622 | |
| $e$ | 0.1858901 | $i$ | 3.68371 | | +0.31757628 | | +0.24105859 | |
| $P$ | 3.93 | $H$ | 17.7 | $G$ | 0.15 | $U$ | 3 | |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 11 05 | 703 | 1.0+ | 1.3+ | 2009 10 23 | G96 | 0.3+ | 0.1− | 2009 11 23 | G96 | 0.2+ | 0.1− |
| 2005 11 05 | 703 | 0.1− | 1.2+ | 2009 11 09 | G96 | 0.2+ | 0.5− | 2009 12 11 | 703 | 1.0− | 1.0+ |
| 2005 11 05 | 703 | 1.1− | 0.3+ | 2009 11 09 | G96 | 0.2+ | 0.3− | 2009 12 11 | 703 | (1.7− | 0.7−) |
| 2005 11 05 | 703 | 0.6− | 0.9− | 2009 11 09 | G96 | 0.2+ | 0.1− | 2009 12 11 | 703 | 0.3+ | 0.5+ |
| 2005 12 29 | G96 | 0.6− | 0.8+ | 2009 11 09 | G96 | 0.2+ | 0.1− | 2009 12 11 | 703 | 1.4− | 0.4− |
| 2005 12 29 | G96 | 0.3+ | 0.4− | 2009 11 19 | J75 | 0.3+ | 0.7− | 2009 12 19 | G96 | 0.1− | 0.2+ |
| 2005 12 29 | G96 | 0.3− | 0.3+ | 2009 11 19 | J75 | 0.1+ | 0.8− | 2009 12 19 | G96 | 0.3− | 0.1− |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 29 | G96 | 0.5+ | 0.1− | 2009 11 19 | J75 | 0.3+ | 0.1− | 2009 12 19 | G96 | 0.7+ | 0.1− |
| 2009 10 23 | G96 | 0.3+ | 0.3− | 2009 11 23 | G96 | 0.1+ | 0.1− | 2009 12 19 | G96 | 0.1− | 0.3+ |
| 2009 10 23 | G96 | 0.0 | 0.2− | 2009 11 23 | G96 | 0.1+ | 0.0 | | | | |
| 2009 10 23 | G96 | 0.2+ | 0.3− | 2009 11 23 | G96 | 0.3− | 0.2− | | | | |

**2009 WK$_{93}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 57.21427 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.26806276 | $\omega$ | 251.52776 | | +0.99208431 | | −0.00737512 |
| $a$ | 2.3822010 | $\Omega$ | 108.74351 | | +0.05182663 | | +0.93333370 |
| $e$ | 0.1326654 | $i$ | 7.60698 | | −0.11437970 | | +0.35893427 |
| $P$ | 3.68 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 13 | 703 | 0.1+ | 1.1+ | 2009 11 09 | 703 | 0.0 | 0.2+ | 2009 11 22 | G96 | 0.1+ | 0.4− |
| 2005 09 13 | 703 | 0.4+ | 1.3− | 2009 11 09 | 703 | 0.4− | 0.0 | 2009 11 22 | 703 | (0.1+ | 1.7−) |
| 2005 09 13 | 703 | 0.4− | 0.4+ | 2009 11 09 | 703 | 0.4− | 0.1− | 2009 11 22 | G96 | 0.1− | 0.0 |
| 2005 09 13 | 703 | 0.0 | 0.6− | 2009 11 09 | 703 | 1.0− | 0.4+ | 2009 11 22 | 703 | 1.0− | 0.0 |
| 2008 06 13 | 691 | 0.3− | 0.3− | 2009 11 19 | J75 | 0.5+ | 0.1− | 2009 11 22 | G96 | 0.2+ | 0.2− |
| 2008 06 13 | 691 | 0.2− | 0.3+ | 2009 11 19 | J75 | 0.0 | 0.8+ | 2009 11 22 | G96 | 0.0 | 0.2+ |
| 2008 06 13 | 691 | 0.4+ | 0.2− | 2009 11 19 | J75 | 0.5+ | 0.7− | 2009 12 15 | G89 | 0.4+ | 0.2+ |
| 2008 07 01 | 691 | 0.2+ | 0.2+ | 2009 11 22 | 703 | 0.2− | 0.8+ | 2009 12 15 | G89 | 0.3+ | 0.1+ |
| 2008 07 01 | 691 | 0.2+ | 0.0 | 2009 11 22 | 703 | 0.6− | 0.1+ | 2009 12 15 | G89 | 0.4+ | 0.1+ |
| 2008 07 01 | 691 | 0.2− | 0.2+ | 2009 11 22 | 703 | 1.0+ | 0.5− | | | | |

**2009 WE$_{94}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 328.53094 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.25836803 | $\omega$ | 68.21358 | | −0.44970845 | | −0.89030082 |
| $a$ | 2.4414258 | $\Omega$ | 48.71525 | | +0.78024639 | | −0.43060202 |
| $e$ | 0.1510990 | $i$ | 5.46776 | | +0.43471586 | | −0.14814303 |
| $P$ | 3.81 | $H$ | 18.1 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 04 01 | 645 | 0.0 | 0.0 | 2007 04 19 | G96 | 0.4+ | 0.0 | 2009 11 21 | 291 | 0.1+ | 0.0 |
| 2003 04 01 | 645 | 0.1+ | 0.0 | 2007 04 19 | G96 | 0.1+ | 0.2+ | 2009 11 21 | 291 | (0.4+ | 2.2−) |
| 2005 10 29 | G96 | 0.2− | 0.2− | 2007 04 19 | G96 | 0.2− | 0.5− | 2009 11 22 | 291 | 0.2− | 0.0 |
| 2005 10 29 | G96 | 0.4+ | 0.1− | 2009 11 08 | 691 | 0.4+ | 0.2− | 2009 11 22 | 291 | 0.1− | 0.0 |
| 2005 10 29 | G96 | 0.2+ | 0.2− | 2009 11 08 | 691 | 0.2− | 0.0 | 2009 11 22 | 291 | 0.1+ | 0.1− |
| 2005 10 29 | G96 | 0.1− | 0.3− | 2009 11 08 | 691 | 0.3− | 0.3+ | 2009 12 18 | G96 | 0.1− | 0.5− |
| 2007 03 15 | 691 | 0.1− | 0.1− | 2009 11 20 | 691 | 0.3+ | 0.1+ | 2009 12 18 | G96 | 0.6+ | 0.1− |
| 2007 03 15 | 691 | 0.4− | 0.0 | 2009 11 20 | 691 | 0.3+ | 0.0 | 2009 12 18 | G96 | 0.8+ | 0.4− |
| 2007 03 15 | 691 | 0.2+ | 0.3− | 2009 11 20 | 691 | 0.3− | 0.1− | 2009 12 18 | G96 | 0.5+ | 0.3− |
| 2007 04 19 | G96 | 0.0 | 0.0 | 2009 11 21 | 291 | 0.4− | 0.3+ | | | | |

**2009 WR$_{94}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 60.48665 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.29081507 | $\omega$ | 253.66284 | | +0.92232064 | | +0.36741697 |
| $a$ | 2.2562720 | $\Omega$ | 84.65555 | | −0.29247449 | | +0.86619805 |
| $e$ | 0.2148922 | $i$ | 6.90527 | | −0.25255357 | | +0.33868230 |
| $P$ | 3.39 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 08 20 | 644 | 0.1+ | 0.2− | 2006 11 27 | G96 | 0.8− | 0.1− | 2009 10 18 | 703 | 0.4− | 0.6+ |
| 2002 08 20 | 644 | 0.1− | 0.0 | 2006 11 27 | G96 | 0.8+ | 0.8+ | 2009 10 18 | 703 | 0.4− | 0.5+ |
| 2002 08 20 | 644 | 0.1+ | 0.2+ | 2006 11 27 | G96 | 0.3+ | 0.0 | 2009 10 18 | 703 | 0.9+ | 0.1− |
| 2002 09 09 | 644 | 0.4+ | 0.4− | 2006 11 27 | G96 | 0.1− | 0.3− | 2009 11 09 | 703 | 1.3+ | 1.2+ |
| 2002 09 09 | 644 | 0.2− | 0.1− | 2006 12 14 | 691 | 0.1+ | 0.3+ | 2009 11 09 | 703 | 0.2− | 0.6− |
| 2002 09 09 | 644 | 0.1− | 0.0 | 2006 12 14 | 691 | 1.0+ | 0.4− | 2009 11 09 | 703 | 0.6− | 0.5+ |
| 2002 09 17 | 608 | 0.1+ | 0.0 | 2006 12 14 | 691 | 0.1+ | 0.6+ | 2009 11 09 | 703 | 0.4− | 0.5+ |
| 2002 09 17 | 608 | 0.3+ | 0.1− | 2006 12 25 | 691 | 0.3− | 0.3+ | 2009 11 12 | J75 | 0.8− | 1.2− |
| 2002 09 17 | 608 | 0.2+ | 0.3+ | 2006 12 25 | 691 | 0.8− | 0.5+ | 2009 11 12 | J75 | 1.1− | 0.6+ |
| 2005 05 15 | G96 | 0.6− | 0.4− | 2006 12 25 | 691 | 0.4− | 0.2+ | 2009 11 12 | J75 | 0.1+ | 0.2+ |
| 2005 05 15 | G96 | 0.2+ | 0.1− | 2008 04 12 | G96 | 0.0 | 0.8− | 2009 11 20 | G96 | 0.1− | 0.1+ |
| 2005 05 15 | G96 | 0.0 | 0.3− | 2008 04 12 | G96 | 0.4+ | 1.1− | 2009 11 20 | G96 | 0.8+ | 0.1+ |
| 2005 05 15 | G96 | 0.3− | 0.1− | 2008 04 12 | G96 | 0.3+ | 0.7− | 2009 11 20 | G96 | 0.6+ | 0.2− |
| 2005 06 10 | 691 | 0.1+ | 0.2+ | 2008 04 12 | G96 | 0.4− | 0.2+ | 2009 11 20 | G96 | 0.6+ | 0.9− |
| 2005 06 10 | 691 | 0.2+ | 0.2+ | 2008 05 07 | G96 | 0.1− | 0.8− | 2009 11 23 | 703 | 0.6− | 0.1− |
| 2005 06 10 | 691 | 0.8− | 0.3+ | 2008 05 07 | G96 | 0.4+ | 0.5− | 2009 11 23 | 703 | 1.0− | 0.7+ |
| 2005 06 17 | 691 | 0.2+ | 0.6+ | 2008 05 07 | G96 | 0.1+ | 0.1+ | 2009 11 23 | 703 | 0.2+ | 0.6+ |
| 2005 06 17 | 691 | 0.5+ | 0.8+ | 2008 05 07 | G96 | 0.5+ | 0.5− | 2009 11 23 | 703 | 0.2− | 1.2− |
| 2005 06 17 | 691 | 0.1+ | 0.2+ | 2009 10 18 | 703 | 0.3+ | 0.4− | 2009 11 23 | 703 | 0.5+ | 0.5+ |

**2009 WR$_{96}$ = 2006 YX$_{18}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 333.21975 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.29018003 | $\omega$ | 40.53929 | | −0.28350857 | | −0.95738609 |
| $a$ | 2.2595625 | $\Omega$ | 65.99500 | | +0.86351096 | | −0.27985145 |
| $e$ | 0.1071544 | $i$ | 3.45729 | | +0.41709916 | | −0.07137960 |
| $P$ | 3.40 | $H$ | 18.0 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 12 23 | G96 | 0.2+ | 0.2− | 2009 09 22 | G96 | 0.4− | 0.3− | 2009 11 20 | G96 | 0.2+ | 0.2+ |
| 2006 12 23 | G96 | 0.4+ | 0.1− | 2009 10 23 | G96 | 0.3− | 0.2− | 2009 11 20 | G96 | 0.4+ | 0.1− |
| 2006 12 23 | G96 | 1.4+ | 0.3− | 2009 10 23 | G96 | 0.3− | 0.1+ | 2009 11 23 | G96 | 0.0 | 0.0 |
| 2006 12 23 | G96 | 0.2+ | 0.7− | 2009 10 23 | G96 | 0.7+ | 0.1− | 2009 11 23 | G96 | 0.4+ | 0.0 |
| 2006 12 25 | 291 | 0.1− | 0.0 | 2009 10 23 | G96 | 0.3− | 0.4+ | 2009 11 23 | G96 | 0.0 | 0.2− |
| 2006 12 25 | 291 | 0.2− | 0.2+ | 2009 11 08 | 691 | 0.0 | 0.1− | 2009 11 23 | G96 | 0.2+ | 0.3− |
| 2006 12 25 | 291 | 0.2− | 0.3+ | 2009 11 08 | 691 | 0.4− | 0.2+ | 2009 12 11 | G96 | 0.7+ | 0.1− |
| 2009 09 22 | G96 | 0.6− | 0.7+ | 2009 11 08 | 691 | 0.1+ | 0.1+ | 2009 12 11 | G96 | 0.1− | 0.6− |
| 2009 09 22 | G96 | 0.2− | 0.4+ | 2009 11 20 | G96 | 0.3+ | 0.2− | 2009 12 11 | G96 | 0.1+ | 0.3− |
| 2009 09 22 | G96 | 0.6+ | 0.2+ | 2009 11 20 | G96 | 0.2+ | 0.1− | 2009 12 11 | G96 | 0.6− | 0.3− |

**2009 WO$_{97}$ = 2005 YG$_{182}$ = 2007 HQ$_{38}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 56.50413 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23853944 | $\omega$ | 148.89014 | | +0.98455724 | | −0.16274465 |
| $a$ | 2.5749132 | $\Omega$ | 220.63538 | | +0.13324251 | | +0.93563454 |
| $e$ | 0.1754356 | $i$ | 5.68464 | | +0.11354947 | | +0.31321270 |
| $P$ | 4.13 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 03 27 | 691 | 0.1+ | 0.0 | 2007 04 22 | G96 | 0.3− | 0.4− | 2009 11 26 | 691 | 0.3+ | 0.4+ |
| 2003 03 27 | 691 | 0.1− | 0.7+ | 2007 04 22 | G96 | 0.1− | 0.2− | 2009 11 26 | 691 | 0.2− | 0.1+ |
| 2003 03 27 | 691 | 0.3+ | 0.1+ | 2007 04 22 | G96 | 0.1− | 0.5− | 2009 12 08 | J75 | 0.1+ | 0.3+ |
| 2005 12 30 | 704 | 0.1+ | 0.9− | 2009 11 10 | 691 | 0.0 | 0.3+ | 2009 12 09 | J75 | 0.2+ | 0.3− |
| 2005 12 30 | 704 | 0.7+ | 0.1+ | 2009 11 10 | 691 | 0.2+ | 0.0 | 2009 12 09 | J75 | 0.3+ | 0.1− |
| 2005 12 30 | 704 | 0.4− | 0.1− | 2009 11 10 | 691 | 0.1− | 0.1+ | 2009 12 12 | 704 | 0.1+ | 1.4+ |
| 2006 01 03 | 704 | 1.3− | 0.5− | 2009 11 20 | G96 | 0.2+ | 0.0 | 2009 12 12 | 704 | 0.1− | 1.1− |
| 2006 01 03 | 704 | 0.5+ | 0.4− | 2009 11 20 | G96 | 0.5+ | 0.0 | 2009 12 12 | 704 | 0.1− | 0.6+ |
| 2006 01 03 | 704 | 0.2+ | 0.0 | 2009 11 20 | G96 | 0.5+ | 0.0 | 2009 12 12 | 704 | 0.5− | 0.4− |
| 2007 04 20 | G96 | 0.4− | 0.1− | 2009 11 20 | G96 | 0.3+ | 0.1+ | 2009 12 12 | 704 | 0.6− | 0.5− |
| 2007 04 20 | G96 | 0.0 | 0.1− | 2009 11 22 | 691 | 0.1− | 0.1+ | 2009 12 12 | J75 | 0.7+ | 0.2+ |
| 2007 04 20 | G96 | 0.2− | 0.1− | 2009 11 22 | 691 | 0.1+ | 0.1+ | 2009 12 12 | J75 | 0.1− | 0.5+ |
| 2007 04 20 | G96 | 0.1+ | 0.3− | 2009 11 22 | 691 | 0.7− | 0.5− | 2009 12 12 | J75 | 0.7+ | 0.4− |
| 2007 04 22 | G96 | 0.2+ | 0.4− | 2009 11 26 | 691 | 0.0 | 0.1− | | | | |

**2009 WU$_{97}$ = 2003 UV$_{319}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 174.52124 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18007921 | $\omega$ | 210.90497 | | −0.35258876 | | +0.92846397 |
| $a$ | 3.1057059 | $\Omega$ | 38.79415 | | −0.81597708 | | −0.24395723 |
| $e$ | 0.0266190 | $i$ | 10.74169 | | −0.45810759 | | −0.28007057 |
| $P$ | 5.47 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 21 | 644 | 0.1− | 0.3+ | 2009 11 11 | 691 | 0.5− | 0.3− | 2009 11 22 | G96 | 0.1+ | 0.3− |
| 2003 10 21 | 644 | 0.3− | 0.3+ | 2009 11 11 | 691 | 0.4− | 0.1− | 2009 11 22 | G96 | 0.3+ | 0.3− |
| 2003 10 21 | 644 | 0.2− | 0.1+ | 2009 11 11 | 691 | 0.5− | 0.5− | 2009 11 22 | G96 | 0.0 | 0.4− |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 22 | 645 | 0.0 | 0.0 | 2009 11 20 | J75 | 0.9+ | 1.0+ | 2009 11 25 | 291 | 0.6+ | 0.4+ | | |
| 2003 10 22 | 645 | 0.0 | 0.0 | 2009 11 20 | J75 | 0.7− | 0.2+ | 2009 11 25 | 291 | 0.5+ | 0.3+ | | |
| 2003 10 24 | 645 | 0.0 | 0.1− | 2009 11 20 | J75 | 0.2− | 0.6+ | 2009 11 25 | 291 | 0.1+ | 0.2+ | | |
| 2003 10 24 | 645 | 0.0 | 0.0 | 2009 11 22 | G96 | 0.1+ | 0.5− | | | | | | |

**2009 WA$_{98}$ = 2003 SO$_{287}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 255.11794 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17751544 | $\omega$ | 294.90199 | | −0.85372271 | | −0.50301382 |
| $a$ | 3.1355372 | $\Omega$ | 215.34109 | | +0.52070931 | | −0.82683586 |
| $e$ | 0.0225977 | $i$ | 13.46232 | | −0.00439848 | | −0.25163378 |
| $P$ | 5.55 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 30 | 691 | 0.1− | 0.0 | 2009 09 16 | 691 | 0.1− | 0.0 | 2009 11 09 | 691 | 0.1+ | 0.2+ | | |
| 2003 09 30 | 691 | 0.0 | 0.2+ | 2009 09 16 | 691 | 0.6− | 0.3+ | 2009 11 09 | 691 | 0.3+ | 0.1− | | |
| 2003 09 30 | 691 | 0.5− | 0.2− | 2009 09 28 | 691 | 0.2− | 0.0 | 2009 11 09 | 691 | 0.1− | 0.8− | | |
| 2003 10 02 | 291 | 0.1− | 0.0 | 2009 09 28 | 691 | 0.1+ | 0.1− | 2009 11 21 | 691 | 0.3− | 0.3+ | | |
| 2003 10 02 | 291 | 0.1− | 0.0 | 2009 09 28 | 691 | 0.0 | 0.0 | 2009 11 21 | 691 | 0.1− | 0.4+ | | |
| 2003 10 02 | 291 | 0.3− | 0.0 | 2009 10 22 | G96 | 0.3+ | 0.1− | 2009 11 21 | 691 | 0.2− | 0.3− | | |
| 2003 10 20 | 691 | 0.1+ | 0.2− | 2009 10 22 | G96 | 0.5+ | 0.1+ | 2009 11 23 | 691 | 0.1+ | 0.1+ | | |
| 2003 10 20 | 691 | 0.6+ | 0.2+ | 2009 10 22 | G96 | 0.8+ | 0.3− | 2009 11 23 | 691 | 0.4+ | 0.1− | | |
| 2003 10 20 | 691 | 0.5+ | 0.1+ | 2009 10 22 | G96 | 0.6+ | 0.1− | 2009 11 23 | 691 | 0.4+ | 0.3+ | | |
| 2007 05 12 | 691 | 0.2− | 0.0 | 2009 10 22 | G96 | 0.3+ | 0.2− | 2009 11 26 | 691 | 0.1− | 0.0 | | |
| 2007 05 12 | 691 | 0.6+ | 0.1+ | 2009 10 22 | G96 | 0.3+ | 0.0 | 2009 11 26 | 691 | 0.3− | 0.2+ | | |
| 2007 05 12 | 691 | 0.4− | 0.1+ | 2009 10 22 | G96 | 0.5+ | 0.1− | 2009 11 26 | 691 | 0.1− | 0.2+ | | |
| 2009 09 16 | 691 | 0.2− | 0.1− | 2009 10 22 | G96 | 0.0 | 0.1− | | | | | | |

**2009 WB$_{98}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 265.59822 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.27931488 | $\omega$ | 301.85567 | | −0.89721141 | | −0.43986424 |
| $a$ | 2.3177860 | $\Omega$ | 212.09768 | | +0.42595682 | | −0.83864583 |
| $e$ | 0.0793397 | $i$ | 4.22308 | | +0.11650095 | | −0.32123608 |
| $P$ | 3.53 | $H$ | 18.1 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 04 15 | 691 | 0.1− | 0.0 | 2009 09 14 | 691 | 0.1− | 0.0 | 2009 11 21 | 691 | 0.2+ | 0.3− | | |
| 1997 04 15 | 691 | 0.1− | 0.1− | 2009 09 22 | 691 | 0.2− | 0.1− | 2009 11 21 | 691 | 0.0 | 0.3− | | |
| 1997 04 15 | 691 | 0.2− | 0.0 | 2009 09 22 | 691 | 0.4+ | 0.0 | 2009 11 21 | 691 | 0.1− | 0.3+ | | |
| 1997 04 30 | 691 | 0.3+ | 0.4+ | 2009 09 22 | 691 | 0.9− | 0.4− | 2009 11 23 | 691 | 0.2− | 0.5+ | | |
| 1997 04 30 | 691 | 0.1+ | 0.4+ | 2009 10 18 | G96 | 0.4+ | 0.7+ | 2009 11 23 | 691 | 0.3+ | 0.2+ | | |
| 1997 04 30 | 691 | 0.2+ | 0.0 | 2009 10 18 | G96 | 0.7+ | 1.0+ | 2009 11 23 | 691 | 0.3− | 0.2+ | | |
| 2009 09 14 | 691 | 0.1− | 0.1− | 2009 10 18 | G96 | 1.0+ | 0.5+ | | | | | | |
| 2009 09 14 | 691 | 0.2+ | 0.4+ | 2009 10 18 | G96 | 0.1+ | 0.2+ | | | | | | |

**2009 WF$_{98}$ = 2005 YV$_{71}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 335.25483 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22337368 | $\omega$ | 92.00730 | | −0.00238779 | | −0.99999495 |
| $a$ | 2.6901803 | $\Omega$ | 358.12566 | | +0.89011282 | | −0.00116992 |
| $e$ | 0.0665184 | $i$ | 3.67521 | | +0.45573398 | | −0.00295440 |
| $P$ | 4.41 | $H$ | 17.4 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 10 | 691 | 1.2− | 0.1+ | 2007 04 20 | 691 | 0.4+ | 0.7− | 2009 11 23 | 691 | 0.3+ | 0.3+ | | |
| 2005 12 10 | 691 | 1.4− | 0.0 | 2007 04 20 | 691 | 0.0 | 0.3+ | 2009 11 23 | 691 | 0.1− | 0.2− | | |
| 2005 12 10 | 691 | 1.2− | 0.1− | 2007 04 20 | 691 | 0.2− | 0.7+ | 2009 11 23 | 691 | 0.0 | 0.1− | | |
| 2005 12 24 | 691 | 0.3− | 0.3− | 2009 11 21 | 691 | 0.3− | 0.2+ | 2009 11 26 | G96 | 0.5− | 0.5− | | |
| 2005 12 24 | 691 | 0.8+ | 0.2+ | 2009 11 21 | 691 | 0.4+ | 0.3+ | 2009 11 26 | G96 | 0.8− | 0.2− | | |
| 2005 12 24 | 691 | 0.8+ | 0.2+ | 2009 11 21 | 691 | 0.0 | 0.3+ | 2009 11 26 | G96 | 0.2− | 0.3− | | |
| 2005 12 28 | 691 | 0.6+ | 0.1− | 2009 11 22 | 291 | 0.1− | 0.0 | 2009 11 26 | G96 | 0.0 | 0.2+ | | |
| 2005 12 28 | 691 | 0.8+ | 0.2− | 2009 11 22 | 291 | 0.1− | 0.0 | 2009 11 26 | G96 | 0.1+ | 0.8− | | |
| 2005 12 28 | 691 | 0.8+ | 0.1+ | 2009 11 22 | 291 | 0.1− | 0.0 | | | | | | |

**2009 WF$_{99}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 16.97504 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17963334 | $\omega$ | 354.94381 | | +0.78034058 | | −0.59811561 |
| $a$ | 3.1108429 | $\Omega$ | 43.56520 | | +0.58263805 | | +0.58932834 |
| $e$ | 0.1506556 | $i$ | 15.36026 | | +0.22715962 | | +0.54309283 |
| $P$ | 5.49 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 10 18 | 691 | 0.1− | 0.2+ | 2009 10 23 | 691 | 0.5+ | 0.1+ | 2009 11 21 | 691 | 0.0 | 0.0 | | |
| 1998 10 18 | 691 | 0.1− | 0.0 | 2009 10 23 | 691 | 0.4− | 0.1− | 2009 11 21 | 691 | 0.5− | 0.2+ | | |
| 1998 10 18 | 691 | 0.1− | 0.0 | 2009 10 23 | 691 | 0.4+ | 0.1+ | 2009 11 21 | 691 | 0.1+ | 0.2− | | |
| 1998 11 17 | 691 | 0.2− | 0.0 | 2009 10 23 | 691 | 0.1− | 0.0 | 2009 11 23 | 691 | 0.0 | 0.1+ | | |
| 1998 11 17 | 691 | 0.1+ | 0.2− | 2009 11 08 | G96 | 0.7+ | 0.2− | 2009 11 23 | 691 | 0.2− | 0.1− | | |
| 1998 11 17 | 691 | 0.3+ | 0.1+ | 2009 11 08 | G96 | 0.3+ | 0.0 | 2009 11 23 | 691 | 0.2− | 0.0 | | |
| 2009 10 23 | 691 | 0.2+ | 0.1− | 2009 11 08 | G96 | 0.2+ | 0.0 | | | | | | |
| 2009 10 23 | 691 | 0.1− | 0.2− | 2009 11 08 | G96 | 0.7+ | 0.1− | | | | | | |

**2009 WR$_{99}$ = 2008 TN$_{37}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 10.87180 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.08058818 | $\omega$ | 155.80734 | | +0.72221230 | | −0.68955609 |
| $a$ | 5.3082963 | $\Omega$ | 247.90163 | | +0.62470697 | | +0.68384185 |
| $e$ | 0.1061771 | $i$ | 3.34449 | | +0.29690167 | | +0.23848004 |
| $P$ | 12.23 | $H$ | 13.9 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 09 13 | G96 | 0.5− | 0.1+ | 2008 10 07 | 691 | 0.0 | 0.1− | 2009 11 21 | 691 | 0.1− | 0.4+ | | |
| 2007 09 13 | G96 | 0.1+ | 0.1− | 2008 10 08 | G96 | 0.6+ | 0.1+ | 2009 11 23 | 691 | 0.1− | 0.3+ | | |
| 2007 09 13 | G96 | 0.3+ | 0.1+ | 2008 10 08 | G96 | 1.0+ | 0.2− | 2009 11 23 | 691 | 0.1+ | 0.2− | | |
| 2007 09 13 | G96 | 0.1+ | 0.1+ | 2008 10 08 | G96 | 0.8+ | 0.2+ | 2009 11 23 | 691 | 0.5− | 0.3− | | |
| 2008 09 21 | 691 | 0.4− | 0.5+ | 2008 10 08 | G96 | 0.5+ | 0.3+ | 2009 11 23 | 703 | 0.5− | 0.2+ | | |
| 2008 09 21 | 691 | 0.1+ | 0.2+ | 2009 10 24 | 691 | 0.5− | 0.2+ | 2009 11 23 | 703 | (1.9− | 1.0+) | | |
| 2008 09 21 | 691 | 0.1+ | 0.1+ | 2009 10 24 | 691 | 0.1+ | 0.3+ | 2009 11 23 | 703 | 0.8+ | 0.6− | | |
| 2008 10 01 | G96 | 0.6+ | 0.6− | 2009 10 24 | 691 | 0.4+ | 0.0 | 2009 11 23 | 703 | 1.3+ | 0.2+ | | |
| 2008 10 01 | G96 | 0.2+ | 1.0− | 2009 11 11 | 691 | 0.2+ | 0.3− | 2009 12 11 | G96 | 0.6+ | 0.4− | | |
| 2008 10 01 | G96 | 0.3+ | 0.6− | 2009 11 11 | 691 | 0.1+ | 0.1− | 2009 12 11 | G96 | 0.3+ | 0.4− | | |
| 2008 10 01 | G96 | 0.7+ | 0.5− | 2009 11 11 | 691 | 0.2− | 0.0 | 2009 12 11 | G96 | 0.1+ | 0.4− | | |
| 2008 10 07 | 691 | 0.4− | 0.2− | 2009 11 21 | 691 | 0.2− | 0.2+ | 2009 12 11 | G96 | 0.3+ | 0.3− | | |
| 2008 10 07 | 691 | 0.5− | 0.1− | 2009 11 21 | 691 | 0.0 | 0.0 | | | | | | |

**2009 WD$_{100}$ = 2004 XC$_{142}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 17.99627 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18999889 | $\omega$ | 351.22804 | | +0.47118404 | | −0.86642422 |
| $a$ | 2.9966453 | $\Omega$ | 70.51615 | | +0.81951042 | | +0.36077023 |
| $e$ | 0.0963473 | $i$ | 10.09299 | | +0.32617214 | | +0.34518676 |
| $P$ | 5.19 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 15 | 704 | 0.8− | 0.4− | 2009 11 21 | 691 | 0.1− | 0.0 | 2009 11 25 | 691 | 0.0 | 0.0 | | |
| 2004 12 15 | 704 | 0.5+ | 1.1+ | 2009 11 21 | 691 | 0.0 | 0.1+ | 2009 12 10 | 704 | 0.0 | 0.1− | | |
| 2004 12 15 | 704 | 0.0 | 0.8+ | 2009 11 22 | 703 | 0.3− | 0.6− | 2009 12 10 | 704 | 0.1+ | 0.3+ | | |
| 2004 12 15 | 704 | 0.9+ | 0.1+ | 2009 11 22 | 703 | 0.1+ | 0.0 | 2009 12 10 | G96 | 0.1− | 0.1− | | |
| 2004 12 18 | 691 | 0.0 | 0.0 | 2009 11 22 | 703 | 0.0 | 0.5− | 2009 12 10 | G96 | 0.0 | 0.0 | | |
| 2004 12 18 | 691 | 0.0 | 0.1− | 2009 11 22 | 703 | 0.1− | 0.1− | 2009 12 10 | G96 | 0.0 | 0.1− | | |
| 2004 12 18 | 691 | 0.2− | 0.3− | 2009 11 25 | 691 | 0.1− | 0.0 | 2009 12 10 | 704 | 1.0+ | 0.6+ | | |
| 2009 11 21 | 691 | 0.1+ | 0.1+ | 2009 11 25 | 691 | 0.1− | 0.1− | 2009 12 10 | G96 | 0.2− | 0.0 | | |

**2009 WQ$_{100}$ = 1998 UA$_{13}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 66.26724 | | (2000.0) | | | |
| $n$ | 0.18136134 | $\omega$ | 161.27936 | | +0.90666219 | +0.42185178 |
| $a$ | 3.0910515 | $\Omega$ | 173.76778 | | −0.38956441 | +0.83922872 |
| $e$ | 0.1759322 | $i$ | 1.15030 | | −0.16187416 | +0.34312713 |
| $P$ | 5.43 | $H$ | 17.0 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 10 18 | 691 | 0.3− | 0.3− | 2009 10 18 | G96 | 0.9+ | 0.5+ | 2009 11 12 | 114 | 0.4+ | 0.2+ |
| 1998 10 18 | 691 | 0.2− | 0.1− | 2009 10 18 | G96 | 0.8+ | 0.2+ | 2009 11 21 | 114 | 0.2− | 0.9+ |
| 1998 10 18 | 691 | 0.2− | 0.3− | 2009 10 18 | G96 | 0.6+ | 0.3− | 2009 11 21 | 114 | 0.7− | 0.3+ |
| 1998 10 23 | 691 | 0.5+ | 0.0 | 2009 10 18 | G96 | 0.5+ | 0.1+ | 2009 11 21 | 114 | 0.1− | 0.2− |
| 1998 10 23 | 691 | 0.2+ | 0.4− | 2009 10 23 | 691 | 0.5− | 0.9+ | 2009 11 23 | G96 | 0.1+ | 0.0 |
| 1998 10 23 | 691 | 0.3+ | 0.2+ | 2009 10 23 | 691 | 0.3− | 0.1+ | 2009 11 23 | G96 | 0.2− | 0.0 |
| 2003 09 21 | 691 | 0.0 | 0.0 | 2009 10 23 | 691 | 0.3− | 0.2− | 2009 11 23 | G96 | 0.0 | 0.0 |
| 2003 09 21 | 691 | 0.0 | 0.1+ | 2009 11 12 | 114 | 0.7+ | 1.0− | 2009 11 23 | G96 | 0.3+ | 0.1− |
| 2003 09 21 | 691 | 0.1− | 0.2+ | 2009 11 12 | 114 | 0.2+ | 0.1− | | | | |

**2009 WC$_{101}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 123.47048 | | (2000.0) | | | |
| $n$ | 0.24530425 | $\omega$ | 96.18229 | | +0.38957817 | +0.92077616 |
| $a$ | 2.5273536 | $\Omega$ | 196.78886 | | −0.87001696 | +0.36080295 |
| $e$ | 0.1489974 | $i$ | 3.97098 | | −0.30215781 | +0.14829866 |
| $P$ | 4.02 | $H$ | 16.7 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 03 30 | 645 | 0.1− | 0.1+ | 2007 03 16 | G96 | 0.0 | 0.2− | 2009 11 22 | 691 | 0.3− | 0.0 |
| 2003 03 30 | 645 | 0.1+ | 0.0 | 2007 03 16 | G96 | 0.3+ | 0.2− | 2009 11 22 | 691 | 0.0 | 0.0 |
| 2005 10 31 | G96 | 0.2+ | 0.3− | 2007 03 16 | G96 | 0.1− | 0.2− | 2009 11 22 | 691 | 0.1+ | 0.1− |
| 2005 10 31 | G96 | 0.3− | 0.5− | 2007 03 16 | G96 | 0.1− | 0.1− | 2009 11 23 | G96 | 0.1+ | 0.0 |
| 2005 10 31 | G96 | 0.6+ | 0.1+ | 2009 10 25 | 691 | 0.0 | 0.3− | 2009 11 23 | G96 | 0.1+ | 0.3− |
| 2005 10 31 | G96 | 0.1+ | 0.2− | 2009 10 25 | 691 | 0.1− | 0.2+ | 2009 11 23 | G96 | 0.0 | 0.0 |
| 2005 12 01 | G96 | 0.2− | 0.2− | 2009 10 25 | 691 | 0.3− | 0.3+ | 2009 11 23 | G96 | 0.4+ | 0.1− |
| 2005 12 01 | G96 | 0.3− | 0.3− | 2009 11 10 | 691 | 0.1+ | 0.2− | 2009 11 26 | 691 | 0.0 | 0.2+ |
| 2005 12 01 | G96 | 0.2+ | 0.3− | 2009 11 10 | 691 | 0.1− | 0.2+ | 2009 11 26 | 691 | 0.3+ | 0.2+ |
| 2005 12 01 | G96 | 0.1+ | 0.3− | 2009 11 10 | 691 | 0.1− | 0.1+ | 2009 11 26 | 691 | 0.0 | 0.0 |

**2009 WO$_{101}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 303.69020 | | (2000.0) | | | |
| $n$ | 0.22102325 | $\omega$ | 266.82763 | | −0.68942294 | −0.70312952 |
| $a$ | 2.7092188 | $\Omega$ | 228.40206 | | +0.72189906 | −0.64715503 |
| $e$ | 0.1280587 | $i$ | 13.46119 | | +0.05964696 | −0.29461712 |
| $P$ | 4.46 | $H$ | 16.5 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 29 | 691 | 0.1− | 0.2− | 2007 05 26 | G96 | 0.2+ | 0.1+ | 2009 11 11 | 691 | 0.0 | 0.0 |
| 2000 11 29 | 691 | 0.1+ | 0.1− | 2009 09 23 | G96 | 0.1− | 0.0 | 2009 11 11 | G96 | 0.8+ | 0.4− |
| 2000 11 29 | 691 | 0.0 | 0.1+ | 2009 09 23 | G96 | 0.0 | 0.4− | 2009 11 11 | G96 | 0.1+ | 0.1− |
| 2007 04 19 | G96 | 0.3+ | 0.1+ | 2009 09 23 | G96 | 0.3+ | 0.6− | 2009 11 11 | G96 | 0.1+ | 0.1− |
| 2007 04 19 | G96 | 0.3+ | 0.1+ | 2009 09 23 | G96 | 0.1− | 0.7− | 2009 11 11 | G96 | 0.4+ | 0.0 |
| 2007 04 19 | G96 | 0.3+ | 0.5+ | 2009 10 18 | G96 | 0.1+ | 0.1+ | 2009 11 22 | 703 | 1.0+ | 0.2− |
| 2007 04 19 | G96 | 0.3+ | 0.0 | 2009 10 18 | G96 | 0.3+ | 0.1− | 2009 11 22 | 703 | 0.2− | 0.3+ |
| 2007 05 10 | G96 | 0.4− | 0.6+ | 2009 10 18 | G96 | 0.4+ | 0.2+ | 2009 11 22 | 703 | 1.3− | 1.1+ |
| 2007 05 10 | G96 | 0.2− | 0.1+ | 2009 10 18 | G96 | 0.6+ | 0.3− | 2009 11 22 | 703 | 0.4+ | 0.7+ |
| 2007 05 10 | G96 | 0.4− | 0.1− | 2009 10 27 | 691 | 0.3− | 0.2+ | 2009 11 23 | G96 | 0.3+ | 0.1− |
| 2007 05 10 | G96 | 0.2− | 0.4+ | 2009 10 27 | 691 | 0.5− | 0.6+ | 2009 11 23 | G96 | 0.3+ | 0.3− |
| 2007 05 26 | G96 | 0.2− | 0.1− | 2009 10 27 | 691 | 0.2− | 0.0 | 2009 11 23 | G96 | 0.2+ | 0.1− |
| 2007 05 26 | G96 | 0.1− | 0.2+ | 2009 11 11 | 691 | 0.2− | 0.0 | 2009 11 23 | G96 | 0.6+ | 0.3− |
| 2007 05 26 | G96 | 0.0 | 0.1− | 2009 11 11 | 691 | 0.1+ | 0.0 | | | | |

**2009 WT$_{102}$ = 2006 BZ$_{199}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 13.77396 | | (2000.0) | | | |
| $n$ | 0.19942400 | $\omega$ | 239.09320 | | +0.54030724 | −0.84146192 |
| $a$ | 2.9014679 | $\Omega$ | 178.19304 | | +0.80210242 | +0.51389584 |
| $e$ | 0.0919913 | $i$ | 5.73148 | | +0.25436155 | +0.16689185 |
| $P$ | 4.94 | $H$ | 16.6 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 02 20 | 645 | 0.1− | 0.1− | 2006 02 02 | 691 | 0.3− | 0.3+ | 2009 11 22 | 703 | 0.7+ | 0.5+ |
| 2001 02 20 | 645 | 0.0 | 0.1− | 2006 02 02 | 691 | 0.1− | 0.1+ | 2009 11 22 | 703 | 1.0− | 0.3+ |
| 2002 05 05 | 291 | 0.1− | 0.2+ | 2006 02 07 | 691 | 0.0 | 0.1− | 2009 11 22 | 703 | 1.0− | 1.1+ |
| 2002 05 05 | 291 | 0.1− | 0.4+ | 2006 02 07 | 691 | 0.1− | 0.3+ | 2009 11 22 | 703 | (0.9+ | 1.7+) |
| 2002 05 05 | 291 | 0.4+ | 0.4+ | 2006 02 07 | 691 | 0.3+ | 0.2+ | 2009 11 22 | 703 | 0.0 | 0.2+ |
| 2006 01 30 | 691 | 0.3+ | 0.2+ | 2009 11 17 | 703 | (0.7+ | 1.6+) | 2009 11 23 | G96 | 0.0 | 0.0 |
| 2006 01 30 | 691 | 0.2+ | 0.1− | 2009 11 17 | 703 | 0.9+ | 0.7+ | 2009 11 23 | G96 | 0.0 | 0.4+ |
| 2006 01 30 | 691 | 0.2+ | 0.2+ | 2009 11 17 | 703 | 0.1− | 0.1+ | 2009 11 23 | G96 | 0.6+ | 0.1− |
| 2006 02 02 | 691 | 0.3− | 0.1+ | 2009 11 17 | 703 | 1.0− | 0.2− | 2009 11 23 | G96 | 0.5+ | 0.2+ |

**2009 WG$_{103}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 59.67500 | | (2000.0) | | | |
| $n$ | 0.27627370 | $\omega$ | 152.48127 | | +0.99730950 | −0.06123438 |
| $a$ | 2.3347642 | $\Omega$ | 211.10953 | | +0.04423266 | +0.94107438 |
| $e$ | 0.1905423 | $i$ | 4.47356 | | +0.05845707 | +0.33260994 |
| $P$ | 3.57 | $H$ | 18.2 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1991 11 05 | 691 | 0.3− | 0.0 | 2005 08 27 | 699 | 0.3− | 1.2+ | 2009 11 26 | 691 | 0.5+ | 0.5+ |
| 1991 11 05 | 691 | 0.2+ | 0.1+ | 2005 08 27 | 699 | 1.2− | 0.5+ | 2009 11 26 | 691 | 0.2+ | 0.1− |
| 1991 11 05 | 691 | (3.0− | 2.7+) | 2009 11 22 | 691 | 0.0 | 0.0 | 2009 11 26 | 691 | 0.2− | 0.3− |
| 2005 08 24 | 644 | 0.0 | 0.3− | 2009 11 22 | 691 | 0.0 | 0.0 | 2009 12 11 | 703 | 0.1− | 0.1− |
| 2005 08 24 | 644 | 0.1+ | 0.4− | 2009 11 22 | 691 | 0.1− | 0.3− | 2009 12 11 | 703 | (1.7+ | 0.7−) |
| 2005 08 24 | 644 | 0.5+ | 0.7− | 2009 11 23 | 691 | 0.2+ | 0.0 | 2009 12 11 | 703 | 0.4− | 0.4− |
| 2005 08 27 | 699 | 0.4+ | 0.4+ | 2009 11 23 | 691 | 0.1+ | 0.0 | 2009 12 11 | 703 | 1.1− | 0.4+ |
| 2005 08 27 | 699 | 0.5+ | 0.8− | 2009 11 23 | 691 | 0.5− | 0.0 | | | | |

**2009 WH$_{103}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 15.97238 | | (2000.0) | | | |
| $n$ | 0.23614465 | $\omega$ | 345.29783 | | +0.48793402 | −0.86535188 |
| $a$ | 2.5922923 | $\Omega$ | 75.38418 | | +0.81231390 | +0.40219410 |
| $e$ | 0.2649459 | $i$ | 6.78950 | | +0.31947852 | +0.29900841 |
| $P$ | 4.17 | $H$ | 17.4 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 30 | G96 | 0.7+ | 0.3− | 2009 11 22 | 703 | 0.0 | 0.8+ | 2009 12 10 | G96 | 0.3+ | 0.4− |
| 2005 10 30 | G96 | 0.1+ | 0.0 | 2009 11 22 | 703 | 0.1+ | 0.3− | 2009 12 11 | 704 | 0.3+ | 0.2+ |
| 2005 10 30 | G96 | 0.2− | 0.3+ | 2009 11 22 | 703 | 0.0 | 0.1+ | 2009 12 11 | 704 | 1.0− | 0.6+ |
| 2005 10 30 | G96 | 0.4− | 0.4− | 2009 11 23 | 291 | 0.1+ | 0.1+ | 2009 12 11 | 704 | 0.0 | 0.2− |
| 2006 01 30 | 703 | 0.1+ | 0.8+ | 2009 11 23 | 291 | 0.0 | 0.1+ | 2009 12 16 | 704 | 0.0 | 0.1− |
| 2006 01 30 | 703 | 1.1− | 1.4− | 2009 11 23 | 291 | 0.0 | 0.1+ | 2009 12 16 | 704 | 1.7+ | 0.0 |
| 2006 01 30 | 703 | 0.1+ | 0.4+ | 2009 11 24 | 691 | 0.1− | 0.1− | 2009 12 16 | 704 | 0.0 | 0.4− |
| 2006 01 30 | 703 | 0.8+ | 0.6+ | 2009 11 24 | 691 | 0.0 | 0.0 | 2009 12 16 | 704 | 0.1+ | 0.8+ |
| 2009 11 08 | 691 | 0.1− | 0.2− | 2009 11 24 | 691 | 0.2− | 0.1+ | 2009 12 19 | G96 | 0.5− | 0.4− |
| 2009 11 08 | 691 | 0.1− | 0.1+ | 2009 12 10 | G96 | 0.1+ | 0.4− | 2009 12 19 | G96 | 0.2− | 0.4− |
| 2009 11 08 | 691 | 0.0 | 0.3− | 2009 12 10 | G96 | 0.4+ | 0.3− | 2009 12 19 | G96 | 0.1+ | 0.3− |
| 2009 11 22 | 703 | 0.0 | 1.4+ | 2009 12 10 | G96 | 0.2+ | 0.3− | 2009 12 19 | G96 | 0.1− | 0.4− |

**2009 WN$_{103}$ = 2005 US$_{243}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 25.85739 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24453652 | $\omega$ | 3.88657 | | +0.82225348 | −0.56515035 | |
| $a$ | 2.5326406 | $\Omega$ | 30.83251 | | +0.51856464 | +0.69539270 | |
| $e$ | 0.2324947 | $i$ | 7.52429 | | +0.23449932 | +0.44388520 | |
| $P$ | 4.03 | $H$ | 18.2 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 25 | 691 | 0.0 | 0.1− | 2009 10 26 | 691 | 0.0 | 0.0 | 2009 11 22 | G96 | 0.2+ | 0.3+ |
| 2005 10 25 | 691 | 0.0 | 0.1− | 2009 10 26 | 691 | 0.0 | 0.1− | 2009 11 22 | G96 | 0.1− | 0.1− |
| 2005 10 25 | 691 | 0.4+ | 0.2− | 2009 10 26 | 691 | 0.0 | 0.3+ | 2009 11 22 | G96 | 0.5− | 0.6+ |
| 2005 10 29 | 691 | 0.1− | 0.2− | 2009 11 09 | 691 | 0.1+ | 0.1− | 2009 11 23 | 691 | 0.2− | 0.0 |
| 2005 10 29 | 691 | 0.0 | 0.0 | 2009 11 09 | 691 | 0.4− | 0.0 | 2009 11 23 | 691 | 0.2+ | 0.1− |
| 2005 10 29 | 691 | 0.1− | 0.2− | 2009 11 09 | 691 | 0.0 | 0.1− | 2009 11 23 | 691 | 0.1− | 0.0 |
| 2009 09 19 | G96 | 0.3− | 0.2+ | 2009 11 09 | G96 | 0.3+ | 0.0 | 2009 11 27 | 691 | 0.0 | 0.1+ |
| 2009 09 19 | G96 | 0.0 | 0.3+ | 2009 11 09 | G96 | 0.1− | 0.2− | 2009 11 27 | 691 | 0.0 | 0.4+ |
| 2009 09 19 | G96 | 0.3+ | 0.2+ | 2009 11 09 | G96 | 0.3+ | 0.1+ | 2009 11 27 | 691 | 0.0 | 0.1− |
| 2009 09 19 | G96 | 0.1+ | 0.2+ | 2009 11 09 | G96 | 0.0 | 0.3+ | | | | |

**2009 WZ$_{103}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 280.39894 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17581743 | $\omega$ | 287.80989 | | −0.86296495 | −0.49232346 | |
| $a$ | 3.1556931 | $\Omega$ | 222.88882 | | +0.50326024 | −0.81752342 | |
| $e$ | 0.0194968 | $i$ | 9.61017 | | +0.04495143 | −0.29878598 | |
| $P$ | 5.61 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 05 22 | 691 | 0.2− | 0.0 | 2003 10 19 | 691 | 0.0 | 0.1+ | 2009 11 23 | G96 | 0.9+ | 0.2+ |
| 2001 05 22 | 691 | 0.2+ | 0.1+ | 2009 11 10 | 691 | 0.2+ | 0.0 | 2009 11 23 | G96 | 0.7+ | 0.1− |
| 2001 05 22 | 691 | 0.0 | 0.1+ | 2009 11 10 | 691 | 0.0 | 0.2+ | 2009 11 23 | G96 | 0.5+ | 0.2− |
| 2003 09 27 | 691 | 0.1− | 0.1− | 2009 11 10 | 691 | 0.2− | 0.6+ | 2009 12 19 | 691 | 0.0 | 0.2− |
| 2003 09 27 | 691 | 0.1+ | 0.1+ | 2009 11 22 | 291 | 0.1− | 0.1− | 2009 12 19 | 691 | 0.2+ | 0.3− |
| 2003 09 27 | 691 | 0.0 | 0.1− | 2009 11 22 | 291 | 0.1+ | 0.0 | 2009 12 19 | 691 | 0.7− | 0.1+ |
| 2003 10 19 | 691 | 0.1+ | 0.1− | 2009 11 22 | 291 | 0.1− | 0.1− | | | | |
| 2003 10 19 | 691 | 0.1− | 0.0 | 2009 11 23 | G96 | 0.5+ | 0.2− | | | | |

**2009 WO$_{104}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 68.24534 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17749482 | $\omega$ | 241.73593 | | +0.98439590 | +0.05922007 | |
| $a$ | 3.1357801 | $\Omega$ | 114.45556 | | −0.00275414 | +0.94673929 | |
| $e$ | 0.1023454 | $i$ | 10.48834 | | −0.17594638 | +0.31650860 | |
| $P$ | 5.55 | $H$ | 14.8 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 16 | 699 | 0.4− | 0.1− | 2007 05 10 | G96 | 0.2+ | 0.0 | 2009 11 23 | 703 | 0.8+ | 0.1− |
| 2003 10 16 | 699 | 1.2− | 0.3+ | 2007 05 10 | G96 | 0.1+ | 0.2− | 2009 11 23 | 703 | 0.6− | 0.4+ |
| 2003 10 16 | 699 | 0.8+ | 0.1− | 2007 05 10 | G96 | 0.1+ | 0.1− | 2009 11 23 | 703 | 1.1+ | 0.7+ |
| 2003 10 16 | 699 | 2.2+ | 0.2− | 2007 05 10 | G96 | 0.6+ | 0.2− | 2009 11 26 | G96 | 0.1− | 0.0 |
| 2003 10 16 | 644 | 0.4− | 0.5+ | 2007 06 07 | 691 | 0.2+ | 0.9+ | 2009 11 26 | G96 | 0.1+ | 0.1− |
| 2003 10 16 | 644 | 0.4− | 0.6+ | 2007 06 07 | 691 | 0.4+ | 0.1− | 2009 11 26 | G96 | 0.2+ | 0.1− |
| 2003 10 16 | 644 | 0.3− | 0.8+ | 2007 06 07 | 691 | 0.1− | 0.3+ | 2009 11 26 | G96 | 0.0 | 0.5− |
| 2003 10 27 | 699 | 0.5+ | 0.7+ | 2007 06 12 | 691 | 0.3+ | 0.1− | 2009 11 26 | G96 | 0.2+ | 0.7− |
| 2003 10 27 | 699 | 0.6− | 0.0 | 2007 06 12 | 691 | 1.2− | 0.3+ | 2009 12 13 | 704 | 0.4− | 1.0+ |
| 2003 10 27 | 699 | 0.4− | 0.2+ | 2007 06 12 | 691 | 0.3+ | 0.6− | 2009 12 13 | 704 | 0.2+ | 1.3+ |
| 2003 10 27 | 699 | 0.6− | 0.9− | 2009 11 20 | J75 | 0.4− | 1.0− | 2009 12 13 | 704 | 1.1− | 0.9+ |
| 2005 01 16 | 691 | 0.3+ | 0.1+ | 2009 11 20 | J75 | 0.0 | 0.7− | 2009 12 13 | 704 | 0.5+ | 0.2+ |
| 2005 01 16 | 691 | 0.4+ | 0.0 | 2009 11 20 | J75 | 0.1− | 0.1− | | | | |
| 2005 01 16 | 691 | 0.7− | 0.3+ | 2009 11 23 | 703 | 0.5− | 1.2− | | | | |

**2009 WE$_{105}$ = 2001 XM$_{260}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 158.85167 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.37160063 | $\omega$ | 207.99418 | | +0.06304054 | +0.92589001 | |
| $a$ | 1.9161011 | $\Omega$ | 67.73249 | | −0.82394665 | +0.25889280 | |
| $e$ | 0.0447939 | $i$ | 23.73544 | | −0.56314990 | −0.27514034 | |
| $P$ | 2.65 | $H$ | 17.6 | $G$ | 0.15 | $U$ | 5 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 12 10 | 691 | 0.1− | 0.1+ | 2009 11 23 | J75 | 0.2+ | 0.2− | 2009 12 11 | G96 | 0.3+ | 0.0 |
| 2001 12 10 | 691 | 0.0 | 0.0 | 2009 11 23 | J75 | 0.1+ | 0.1− | 2009 12 11 | 703 | 0.8− | 0.5+ |
| 2001 12 10 | 691 | 0.2− | 0.6− | 2009 11 25 | J75 | 0.6+ | 0.2− | 2009 12 11 | 703 | 0.4+ | 0.7− |
| 2001 12 14 | 704 | 0.0 | 0.4+ | 2009 11 25 | J75 | 0.6+ | 0.3− | 2009 12 11 | 703 | 0.4+ | 0.8− |
| 2001 12 14 | 704 | 0.1− | 1.3+ | 2009 11 25 | J75 | 0.7+ | 0.1− | 2009 12 11 | 703 | 0.7+ | 0.6+ |
| 2001 12 14 | 704 | 1.0+ | 0.8+ | 2009 11 26 | 691 | 0.5− | 0.1− | 2009 12 16 | 704 | 0.4− | 0.1− |
| 2009 11 16 | G96 | 0.0 | 0.5+ | 2009 11 26 | 691 | 0.2− | 0.2+ | 2009 12 16 | 704 | 0.9− | 0.5+ |
| 2009 11 16 | G96 | 0.1+ | 0.6+ | 2009 11 26 | 691 | 0.2− | 0.3− | 2009 12 16 | 704 | 0.4+ | 0.0 |
| 2009 11 16 | G96 | 0.5+ | 0.6+ | 2009 12 11 | G96 | 0.6+ | 0.4− | 2009 12 16 | 704 | 0.4− | 0.6+ |
| 2009 11 16 | G96 | 0.5+ | 0.3+ | 2009 12 11 | G96 | 0.3− | 0.3− | | | | |
| 2009 11 23 | J75 | 0.7+ | 0.1− | 2009 12 11 | G96 | 0.1− | 0.4− | | | | |

**2009 WK$_{105}$ = 2000 SN$_{181}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 59.31479 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23159558 | $\omega$ | 314.75071 | | +0.98703676 | −0.05933306 | |
| $a$ | 2.6261279 | $\Omega$ | 49.24997 | | +0.12794056 | +0.85187089 | |
| $e$ | 0.1969881 | $i$ | 11.35263 | | −0.09690015 | +0.52038022 | |
| $P$ | 4.26 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 5 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 19 | 608 | 0.3+ | 0.2+ | 2009 11 24 | H10 | 0.2− | 0.0 | 2009 11 26 | H10 | 0.6− | 0.7− |
| 2000 09 19 | 608 | 0.1+ | 0.0 | 2009 11 24 | H10 | 0.1+ | 0.3+ | 2009 11 26 | H10 | 0.2+ | 0.9− |
| 2000 09 19 | 608 | 0.3− | 0.3+ | 2009 11 24 | H10 | 0.3− | 0.9+ | 2009 12 09 | J75 | 1.1+ | 0.1− |
| 2000 09 20 | 704 | 0.7− | 0.8− | 2009 11 24 | H10 | 0.6+ | 0.6+ | 2009 12 09 | J75 | 1.0+ | 0.5− |
| 2000 09 20 | 704 | 0.3− | 0.2− | 2009 11 24 | H10 | 0.1+ | 0.8+ | 2009 12 09 | J75 | 0.5+ | 0.8− |
| 2000 09 20 | 704 | 0.4− | 1.1− | 2009 11 24 | H10 | 0.1+ | 0.6+ | 2009 12 10 | H10 | 0.0 | 0.5− |
| 2000 09 20 | 704 | 0.8+ | 1.3− | 2009 11 25 | H10 | 0.1+ | 0.4+ | 2009 12 10 | H10 | 1.1− | 0.5+ |
| 2000 09 21 | 699 | 0.2+ | 1.0+ | 2009 11 25 | H10 | 0.2− | 0.3− | 2009 12 10 | H10 | 1.2− | 0.3− |
| 2000 09 21 | 699 | 0.6+ | 0.1+ | 2009 11 25 | H10 | 0.3+ | 0.7+ | 2009 12 10 | H10 | 0.2− | 0.5− |
| 2000 09 21 | 699 | 0.9− | 0.3+ | 2009 11 25 | H10 | 0.2+ | 0.0 | 2009 12 10 | H10 | 0.9− | 0.3+ |
| 2000 09 21 | 699 | 0.6+ | 1.5+ | 2009 11 25 | H10 | 0.1+ | 0.3+ | 2009 12 10 | H10 | 0.8− | 0.1+ |
| 2009 11 24 | H10 | 0.1− | 0.5− | 2009 11 25 | H10 | 0.1− | 0.6+ | 2009 12 15 | 704 | 1.0+ | 0.7+ |
| 2009 11 24 | H10 | 0.1+ | 0.6− | 2009 11 26 | H10 | 0.0 | 0.3− | 2009 12 15 | 704 | 0.8+ | 0.5+ |
| 2009 11 24 | H10 | 0.3− | 0.5− | 2009 11 26 | H10 | 0.0 | 0.4− | 2009 12 15 | 704 | 0.8+ | 0.1+ |
| 2009 11 24 | H10 | 0.3− | 0.6− | 2009 11 26 | H10 | 0.1− | 0.3− | 2009 12 15 | 704 | 0.3− | 0.3+ |

**2009 WQ$_{105}$ = 2000 SB$_{374}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 20.14819 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23301611 | $\omega$ | 11.12707 | | +0.13954433 | −0.98311136 | |
| $a$ | 2.6154439 | $\Omega$ | 70.93459 | | +0.89861763 | +0.07549946 | |
| $e$ | 0.2883336 | $i$ | 7.19667 | | +0.41594920 | +0.16670899 | |
| $P$ | 4.23 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 26 | 645 | 0.1+ | 0.1− | 2009 11 19 | G96 | 0.1+ | 0.1+ | 2009 12 10 | 703 | 0.7− | 0.3+ |
| 2000 09 26 | 645 | 0.0 | 0.1− | 2009 11 19 | G96 | 0.2+ | 0.0 | 2009 12 10 | 703 | 0.4− | 0.0 |
| 2000 09 27 | 645 | 0.0 | 0.0 | 2009 11 19 | G96 | 0.2− | 0.1− | 2009 12 11 | 704 | 0.1+ | 0.4+ |
| 2000 09 27 | 645 | 0.0 | 0.1+ | 2009 11 19 | G96 | 0.2− | 0.0 | 2009 12 11 | 704 | 0.9+ | 0.6− |
| 2006 04 02 | 703 | 1.6− | 0.6+ | 2009 11 25 | J75 | 1.1+ | 0.4+ | 2009 12 11 | 704 | 0.6+ | 0.1+ |
| 2006 04 02 | 703 | 0.1+ | 0.1− | 2009 11 25 | J75 | 0.4− | 0.7− | 2009 12 11 | 704 | 0.0 | 0.4− |
| 2006 04 02 | 703 | 0.0 | 0.7− | 2009 11 26 | J95 | 0.1+ | 0.0 | 2009 12 11 | 704 | 0.1+ | 0.3− |
| 2006 04 02 | 703 | 0.3− | 0.6− | 2009 11 26 | J95 | 0.0 | 0.1− | 2009 12 15 | 704 | 0.9− | 0.7+ |
| 2009 09 27 | 691 | 0.4− | 0.0 | 2009 11 26 | J95 | 0.0 | 0.1− | 2009 12 15 | 704 | 0.3− | 1.4+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2009 09 27 | 691 | 0.5− | 0.3+ | 2009 12 10 | 703 | 0.8+ | 0.7− | 2009 12 15 | 704 | 1.4+ | 0.5− | | |
| 2009 09 27 | 691 | 0.3− | 0.0 | 2009 12 10 | 703 | 0.0 | 1.0− | 2009 12 15 | 704 | 0.7+ | 0.6+ | | |

**2009 WT$_{105}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 16.30373 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28210899 | $\omega$ | 22.67031 | | +0.50023363 | −0.86532090 | |
| $a$ | 2.3024565 | $\Omega$ | 37.33498 | | +0.78628978 | +0.43876034 | |
| $e$ | 0.1824870 | $i$ | 2.96794 | | +0.36264955 | +0.24229959 | |
| $P$ | 3.49 | $H$ | 18.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 11 24 | 644 | 0.0 | 0.1+ | 2009 10 17 | G96 | 0.1− | 0.1− | 2009 11 26 | H06 | (0.1+ | 1.9−) | | |
| 2002 11 24 | 644 | 0.1− | 0.3+ | 2009 10 17 | G96 | 0.4+ | 0.4+ | 2009 11 26 | H06 | (0.5− | 1.7−) | | |
| 2002 11 24 | 644 | 0.0 | 0.2+ | 2009 11 17 | 691 | 0.5− | 0.4− | 2009 11 26 | H06 | (0.3+ | 1.8−) | | |
| 2007 02 21 | 691 | 0.2− | 0.5+ | 2009 11 17 | 691 | 0.0 | 0.1+ | 2009 11 26 | H06 | 0.3+ | 1.3− | | |
| 2007 02 21 | 691 | 0.0 | 0.1− | 2009 11 17 | 691 | 0.5− | 0.1− | 2009 11 26 | H06 | 0.9+ | 0.8− | | |
| 2007 02 21 | 691 | 0.3+ | 0.0 | 2009 11 25 | 691 | 0.7− | 0.2− | 2009 11 28 | H06 | 1.1+ | 1.1− | | |
| 2007 03 19 | G96 | 0.9− | 0.2− | 2009 11 25 | 691 | 0.3− | 0.6+ | 2009 11 28 | H06 | 1.1+ | 0.3− | | |
| 2007 03 19 | G96 | 1.2+ | 1.3− | 2009 11 25 | 691 | 0.1+ | 0.3+ | 2009 11 28 | H06 | 1.1+ | 0.2+ | | |
| 2007 03 19 | G96 | 0.2− | 0.3+ | 2009 11 25 | H06 | 0.1− | 0.3+ | 2009 12 16 | G96 | 0.3+ | 0.1− | | |
| 2007 03 19 | G96 | 0.4− | 0.0 | 2009 11 25 | H06 | 0.9+ | 0.2+ | 2009 12 16 | G96 | 0.6+ | 0.1+ | | |
| 2009 10 17 | G96 | 0.5+ | 0.1− | 2009 11 25 | H06 | 0.3+ | 0.5+ | 2009 12 16 | G96 | 0.4+ | 0.1− | | |
| 2009 10 17 | G96 | 0.4+ | 0.4− | 2009 11 26 | H06 | (0.1− | 2.1−) | 2009 12 16 | G96 | 0.2+ | 0.1− | | |

**2009 WA$_{106}$ = 1995 WF$_{40}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 139.50714 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21206298 | $\omega$ | 175.62663 | | +0.27517131 | +0.95763634 | |
| $a$ | 2.7850061 | $\Omega$ | 110.32808 | | −0.88478741 | +0.28681173 | |
| $e$ | 0.0745372 | $i$ | 5.19655 | | −0.37607444 | +0.02591678 | |
| $P$ | 4.65 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 11 23 | 691 | 0.1− | 0.0 | 2006 01 07 | G96 | 0.1− | 0.1+ | 2007 05 06 | 691 | 0.0 | 0.1− | | |
| 1995 11 23 | 691 | 0.2− | 0.1+ | 2006 01 07 | G96 | 0.0 | 0.2+ | 2009 11 15 | 703 | 0.5− | 0.6+ | | |
| 1995 11 23 | 691 | 0.2− | 0.1− | 2006 01 07 | G96 | 0.4+ | 0.1+ | 2009 11 15 | 703 | 0.4+ | 0.1+ | | |
| 1995 11 30 | 691 | 0.2+ | 0.3− | 2006 01 23 | G96 | 0.5− | 0.1+ | 2009 11 15 | 703 | 0.4+ | 0.4− | | |
| 1995 11 30 | 691 | 0.3+ | 0.2+ | 2006 01 23 | G96 | 0.1− | 0.3+ | 2009 11 15 | 703 | 2.8+ | 0.3+ | | |
| 1995 11 30 | 691 | 0.1− | 0.0 | 2006 01 23 | G96 | 0.2− | 0.2+ | 2009 11 23 | G96 | 0.6− | 0.1− | | |
| 2002 03 12 | 645 | 0.1+ | 0.0 | 2006 01 23 | G96 | 0.2− | 0.2+ | 2009 11 23 | G96 | 0.4− | 0.4− | | |
| 2002 03 12 | 645 | 0.1+ | 0.1− | 2007 03 15 | G96 | 0.3− | 0.1− | 2009 11 23 | G96 | 0.1− | 0.3− | | |
| 2006 01 07 | G96 | 0.1+ | 0.1− | 2007 03 15 | G96 | 0.2− | 0.1− | 2009 11 23 | G96 | 0.5− | 0.1− | | |
| 2006 01 07 | G96 | 0.3+ | 0.1− | 2007 03 15 | G96 | 0.1+ | 0.0 | 2009 11 25 | H06 | 0.5+ | 0.1− | | |
| 2006 01 07 | G96 | 0.1− | 0.1− | 2007 03 15 | G96 | 0.2− | 0.2+ | 2009 11 25 | H06 | 0.6+ | 0.5− | | |
| 2006 01 07 | G96 | 0.0 | 0.0 | 2007 04 26 | G96 | 0.0 | 0.2+ | 2009 11 25 | H06 | 0.1+ | 0.5+ | | |
| 2006 01 07 | G96 | 0.2− | 0.0 | 2007 04 26 | G96 | 0.2− | 0.0 | 2009 11 26 | H06 | 0.5− | 0.8+ | | |
| 2006 01 07 | G96 | 0.2− | 0.1− | 2007 04 26 | G96 | 0.0 | 0.1− | 2009 11 26 | H06 | 0.2− | 0.6− | | |
| 2006 01 07 | G96 | 0.1− | 0.1− | 2007 04 26 | G96 | 0.4− | 0.5+ | 2009 11 26 | H06 | 0.6− | 0.2+ | | |
| 2006 01 07 | G96 | 0.7− | 0.1+ | 2007 05 06 | 691 | 0.2− | 0.1− | | | | | | |
| 2006 01 07 | G96 | 0.5− | 0.1− | 2007 05 06 | 691 | 0.1+ | 0.0 | | | | | | |

**2009 WD$_{106}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 38.37231 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.36653226 | $\omega$ | 16.61274 | | +0.65468808 | +0.73576105 | |
| $a$ | 1.9337244 | $\Omega$ | 294.64568 | | −0.71340390 | +0.52562626 | |
| $e$ | 0.7760257 | $i$ | 10.99301 | | −0.24987677 | +0.42705118 | |
| $P$ | 2.69 | $H$ | 18.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 03 19 | 645 | 0.0 | 0.0 | 2009 11 26 | 926 | 0.0 | 0.1+ | 2009 11 29 | H21 | 0.5− | 0.1+ | | |
| 2001 03 19 | 645 | 0.0 | 0.0 | 2009 11 26 | 926 | 0.3− | 0.1+ | 2009 11 29 | H21 | 0.2+ | 0.1+ | | |
| 2001 12 19 | 644 | 0.1+ | 0.3+ | 2009 11 26 | 926 | 0.1+ | 0.1+ | 2009 12 04 | H21 | 0.2+ | 0.1− | | |
| 2001 12 19 | 644 | 0.0 | 0.2+ | 2009 11 26 | 926 | 0.0 | 0.1+ | 2009 12 04 | H21 | 0.2+ | 0.1+ | | |
| 2001 12 19 | 644 | 0.2+ | 0.1+ | 2009 11 26 | 926 | 0.1− | 0.0 | 2009 12 04 | H21 | 0.2+ | 0.0 | | |
| 2009 11 25 | 704 | 0.2+ | 0.1+ | 2009 11 26 | 926 | 0.2− | 0.2+ | 2009 12 04 | H21 | 0.1+ | 0.1+ | | |
| 2009 11 25 | 704 | 0.5+ | 0.4+ | 2009 11 26 | 900 | 0.4+ | 0.0 | 2009 12 05 | H21 | 0.2+ | 0.1+ | | |
| 2009 11 25 | 704 | 0.2+ | 0.3− | 2009 11 26 | 900 | 0.1− | 0.1− | 2009 12 05 | H21 | 0.1+ | 0.1+ | | |
| 2009 11 25 | 704 | 0.3+ | 0.5− | 2009 11 27 | 932 | 0.3+ | 0.4+ | 2009 12 05 | H21 | 0.1+ | 0.2+ | | |
| 2009 11 25 | 704 | 0.1+ | 0.1+ | 2009 11 27 | 932 | 0.1− | 0.6+ | 2009 12 05 | H21 | 0.0 | 0.2+ | | |
| 2009 11 26 | J95 | 0.3− | 0.0 | 2009 11 27 | 932 | 0.5− | 0.1+ | 2009 12 05 | H21 | 0.1+ | 0.1+ | | |
| 2009 11 26 | J95 | 0.1− | 0.1− | 2009 11 27 | 682 | (1.8− | 0.1−) | 2009 12 05 | A48 | 0.4+ | 0.5− | | |
| 2009 11 26 | J95 | 0.2− | 0.1− | 2009 11 27 | 682 | (2.0− | 0.0 ) | 2009 12 05 | A48 | 0.1+ | 0.2− | | |
| 2009 11 26 | A79 | 0.1− | 0.1+ | 2009 11 27 | 926 | 0.0 | 0.1− | 2009 12 05 | A48 | 0.3+ | 0.4+ | | |
| 2009 11 26 | A79 | 0.1− | 0.0 | 2009 11 27 | 926 | 0.0 | 0.0 | 2009 12 09 | 204 | 0.0 | 0.4− | | |
| 2009 11 26 | A79 | 0.0 | 0.2+ | 2009 11 27 | 926 | 0.1− | 0.1− | 2009 12 09 | 204 | 0.6+ | 0.4− | | |
| 2009 11 26 | 850 | 0.5− | 0.4+ | 2009 11 27 | 900 | 0.2+ | 0.3− | 2009 12 09 | 204 | 0.2+ | 0.3− | | |
| 2009 11 26 | 850 | 0.2− | 0.3+ | 2009 11 27 | 900 | 0.5+ | 0.0 | 2009 12 10 | 926 | 0.3− | 0.0 | | |
| 2009 11 26 | 854 | 0.4+ | 0.4+ | 2009 11 29 | 932 | 0.2− | 0.1− | 2009 12 10 | 926 | 0.5+ | 0.3− | | |
| 2009 11 26 | 854 | 0.2+ | 0.0 | 2009 11 29 | 932 | 0.0 | 0.1+ | 2009 12 10 | 926 | 0.0 | 0.3− | | |
| 2009 11 26 | 854 | 0.0 | 0.1− | 2009 11 29 | 932 | 0.2− | 0.2+ | 2009 12 10 | A48 | 0.2− | 0.6− | | |
| 2009 11 26 | 850 | 0.5+ | 0.1− | 2009 11 29 | 932 | 0.0 | 0.1+ | 2009 12 10 | A48 | 0.0 | 0.3+ | | |
| 2009 11 26 | H36 | 0.3+ | 0.3+ | 2009 11 29 | H21 | 0.3+ | 0.1+ | 2009 12 10 | A48 | 0.5+ | 1.1− | | |
| 2009 11 26 | H36 | 0.1− | 0.1− | 2009 11 29 | H21 | 0.2− | 0.3− | 2009 12 10 | A48 | 0.6− | 0.0 | | |
| 2009 11 26 | H36 | 0.0 | 0.1− | 2009 11 29 | H21 | 0.1− | 0.2+ | | | | | | |

**2009 WN$_{113}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 312.50220 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.08363198 | $\omega$ | 240.14942 | | +0.06969554 | −0.99605671 | |
| $a$ | 5.1787043 | $\Omega$ | 206.02580 | | +0.95298386 | +0.08274738 | |
| $e$ | 0.0928276 | $i$ | 7.18719 | | +0.29489710 | −0.03199833 | |
| $P$ | 11.79 | $H$ | 14.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 09 05 | 691 | 0.1− | 0.3+ | 2009 09 19 | 691 | 0.5+ | 0.0 | 2009 11 11 | G96 | 0.4− | 0.4− | | |
| 2008 09 05 | 691 | 0.1− | 0.0 | 2009 09 19 | 691 | 0.1+ | 0.2− | 2009 11 18 | G96 | 0.2+ | 0.0 | | |
| 2008 09 05 | 691 | 0.4+ | 0.2− | 2009 09 19 | 691 | 0.3− | 0.4+ | 2009 11 18 | G96 | 0.0 | 0.2− | | |
| 2008 10 08 | G96 | 0.5− | 0.0 | 2009 10 27 | G96 | 0.2+ | 0.4+ | 2009 11 18 | G96 | 0.3+ | 0.0 | | |
| 2008 10 08 | G96 | 0.1− | 0.4− | 2009 10 27 | G96 | 0.1+ | 0.1+ | 2009 11 18 | G96 | 0.1+ | 0.3+ | | |
| 2008 10 08 | G96 | 0.1− | 0.1− | 2009 10 27 | G96 | 0.1+ | 0.6+ | 2009 11 24 | G96 | 0.3− | 0.1− | | |
| 2008 10 08 | G96 | 0.2+ | 0.2+ | 2009 10 27 | G96 | 0.5+ | 0.1+ | 2009 11 24 | G96 | 0.1− | 0.1− | | |
| 2009 09 15 | 691 | 0.2− | 0.0 | 2009 11 11 | G96 | 0.3− | 0.4− | 2009 11 24 | G96 | 0.5− | 0.3+ | | |
| 2009 09 15 | 691 | 0.1− | 0.4+ | 2009 11 11 | G96 | 0.5+ | 0.2− | 2009 11 24 | G96 | 0.2+ | 0.3− | | |
| 2009 09 15 | 691 | 0.1− | 0.6− | 2009 11 11 | G96 | 0.0 | 0.1+ | | | | | | |

**2009 WW$_{119}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 243.15651 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17983727 | $\omega$ | 135.58837 | | −0.94707274 | +0.29516608 | |
| $a$ | 3.1084907 | $\Omega$ | 61.96808 | | −0.31965854 | −0.83095121 | |
| $e$ | 0.1311611 | $i$ | 8.22088 | | −0.02952373 | −0.47158995 | |
| $P$ | 5.48 | $H$ | 15.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 10 | 691 | 0.0 | 0.1+ | 2006 05 24 | G96 | 0.2+ | 0.3+ | 2009 11 20 | 691 | 0.1+ | 0.0 | | |
| 2004 12 10 | 691 | 0.1+ | 0.0 | 2006 05 24 | G96 | 0.2− | 0.3+ | 2009 11 20 | 691 | 0.2+ | 0.0 | | |
| 2004 12 10 | 691 | 0.0 | 0.0 | 2009 10 23 | 691 | 0.2− | 0.0 | 2009 11 20 | 691 | 0.3+ | 0.2− | | |
| 2004 12 19 | 691 | 0.1+ | 0.3− | 2009 10 23 | 691 | 0.6− | 0.6+ | 2009 11 20 | 691 | 0.8− | 0.2+ | | |
| 2004 12 19 | 691 | 0.2− | 0.1+ | 2009 10 23 | 691 | 0.2+ | 0.6− | 2009 11 20 | 691 | 0.9− | 0.3+ | | |
| 2004 12 19 | 691 | 0.1+ | 0.1− | 2009 10 27 | 691 | 0.3+ | 0.1− | 2009 11 24 | 691 | 0.2+ | 0.2− | | |
| 2006 04 08 | G96 | 0.3+ | 0.2− | 2009 10 27 | 691 | 0.2+ | 0.2+ | 2009 11 24 | 691 | 0.3+ | 0.1− | | |
| 2006 04 08 | G96 | 0.1− | 0.3− | 2009 10 27 | 691 | 0.5+ | 0.1− | 2009 11 24 | 691 | 0.1+ | 0.2− | | |
| 2006 04 08 | G96 | 0.0 | 0.1− | 2009 11 08 | 691 | 0.3− | 0.1− | 2009 12 11 | G96 | 0.4+ | 0.0 | | |
| 2006 04 08 | G96 | 0.3+ | 0.0 | 2009 11 08 | 691 | 0.3− | 0.3+ | 2009 12 11 | G96 | 0.8+ | 0.0 | | |
| 2006 05 24 | G96 | 0.3− | 0.3+ | 2009 11 08 | 691 | 0.1+ | 0.0 | 2009 12 11 | G96 | 0.2− | 0.3+ | | |
| 2006 05 24 | G96 | 0.0 | 0.4+ | 2009 11 20 | 691 | 0.2+ | 0.0 | 2009 12 11 | G96 | 0.2+ | 0.0 | | |

**2009 WM$_{126}$ = 2007 EP$_{164}$ = 2007 HZ$_{96}$ = 2009 WM$_{258}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 289.88242 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26945653 | $\omega$ | 98.20522 | | −0.97344886 | −0.22053056 | |
| $a$ | 2.3739792 | $\Omega$ | 69.07149 | | +0.17550922 | −0.89112363 | |
| $e$ | 0.1435644 | $i$ | 3.76597 | | +0.14694842 | −0.39656645 | |
| $P$ | 3.66 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 02 04 | 644 | 0.0 | 0.3+ | 2007 03 16 | 699 | 0.3+ | 0.7+ | 2009 11 27 | G96 | 0.7+ | 0.0 |
| 2003 02 04 | 644 | 0.0 | 0.1− | 2007 03 16 | 699 | 1.3+ | 0.6+ | 2009 12 10 | G96 | 0.1− | 0.0 |
| 2003 02 04 | 644 | 0.2+ | 0.2+ | 2007 03 16 | 699 | 0.6+ | 1.1+ | 2009 12 10 | G96 | 0.6+ | 0.0 |
| 2005 10 01 | 691 | 0.0 | 0.0 | 2007 04 16 | 703 | 0.1− | 0.3− | 2009 12 10 | G96 | 0.0 | 0.2− |
| 2005 10 01 | 691 | 0.0 | 0.3+ | 2007 04 16 | 703 | 0.3− | 0.4− | 2009 12 15 | G96 | 0.2+ | 0.2− |
| 2005 10 01 | 691 | 0.0 | 0.3+ | 2007 04 16 | 703 | 0.1+ | 0.3− | 2009 12 15 | G96 | 0.2+ | 0.4− |
| 2005 10 12 | 691 | 0.3− | 0.2+ | 2007 04 16 | 703 | 0.4− | 0.0 | 2009 12 15 | G96 | 0.4+ | 0.1− |
| 2005 10 12 | 691 | 0.0 | 0.5+ | 2007 04 26 | G96 | 0.3− | 0.1− | 2009 12 15 | G96 | 0.8− | 0.6− |
| 2005 10 12 | 691 | 0.3− | 0.7+ | 2007 04 26 | G96 | 0.4− | 0.1− | 2009 12 15 | G96 | 0.0 | 0.3− |
| 2005 11 01 | G96 | 0.1− | 0.2− | 2007 04 26 | G96 | 0.1+ | 0.0 | 2009 12 15 | G96 | 0.1− | 0.3− |
| 2005 11 01 | G96 | 0.2− | 0.0 | 2007 04 26 | G96 | 0.0 | 0.1+ | 2009 12 15 | G96 | 0.3+ | 0.2− |
| 2005 11 01 | G96 | 0.4+ | 0.1− | 2009 11 20 | 691 | 0.1− | 0.0 | 2009 12 15 | G96 | 0.3+ | 0.0 |
| 2005 11 01 | G96 | 0.3+ | 0.1− | 2009 11 20 | 691 | 0.0 | 0.1+ | 2009 12 15 | G96 | 0.1+ | 0.0 |
| 2005 12 01 | G96 | 0.0 | 0.2− | 2009 11 20 | 691 | 0.5− | 0.1− | 2009 12 15 | G96 | 0.1− | 0.2+ |
| 2005 12 01 | G96 | 0.0 | 0.2− | 2009 11 24 | 691 | 0.2− | 0.2+ | 2009 12 15 | G96 | 0.2+ | 0.0 |
| 2005 12 01 | G96 | 0.8− | 0.4− | 2009 11 24 | 691 | 0.0 | 0.2− | 2009 12 15 | G96 | 0.6+ | 0.3− |
| 2005 12 01 | G96 | 0.3+ | 0.3− | 2009 11 24 | 691 | 0.0 | 0.2− | 2009 12 16 | G96 | 0.3− | 0.1− |
| 2007 03 15 | 691 | 0.1+ | 0.2+ | 2009 11 27 | G96 | 0.5+ | 0.1− | 2009 12 16 | G96 | 0.5+ | 0.1+ |
| 2007 03 15 | 691 | 0.1+ | 0.2− | 2009 11 27 | G96 | 0.2+ | 0.3− | 2009 12 16 | G96 | 0.0 | 0.0 |
| 2007 03 15 | 691 | 0.1− | 0.3+ | 2009 11 27 | G96 | 0.3+ | 0.1− | 2009 12 16 | G96 | 0.0 | 0.1− |
| 2007 03 16 | 699 | 0.3+ | 1.5+ | 2009 11 27 | G96 | 0.5+ | 0.2+ | | | | |

**2009 WF$_{129}$ = 1995 HJ$_2$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 162.44771 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23877529 | $\omega$ | 209.16612 | | −0.15537667 | +0.97507693 | |
| $a$ | 2.5732173 | $\Omega$ | 52.34728 | | −0.86313696 | −0.05602615 | |
| $e$ | 0.0914426 | $i$ | 11.53923 | | −0.48047131 | −0.21467664 | |
| $P$ | 4.13 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 04 25 | 691 | 0.0 | 0.5+ | 2005 11 21 | 691 | 0.5− | 0.2+ | 2009 11 09 | 691 | 0.4− | 0.1+ |
| 1995 04 25 | 691 | 0.2− | 0.8+ | 2005 11 21 | 691 | 0.1− | 0.3+ | 2009 11 20 | G96 | 0.5+ | 0.4− |
| 1995 04 25 | 691 | 0.5+ | 0.3+ | 2007 02 23 | 703 | 0.0 | 1.2− | 2009 11 20 | G96 | 0.5+ | 0.1+ |
| 1995 05 04 | 691 | 0.1− | 0.3− | 2007 02 23 | 703 | 0.4− | 0.2+ | 2009 11 20 | G96 | 0.2+ | 0.1+ |
| 1995 05 04 | 691 | 0.0 | 0.5− | 2007 02 23 | 703 | 0.7− | 0.4+ | 2009 11 20 | G96 | 0.1+ | 0.1− |
| 1995 05 04 | 691 | 0.3+ | 0.1+ | 2007 02 23 | 703 | 0.4+ | 1.2+ | 2009 11 24 | G96 | 0.7+ | 0.2− |
| 2005 10 30 | G96 | 1.0+ | 0.6− | 2007 03 15 | 703 | 0.5+ | 1.1− | 2009 11 24 | G96 | 0.6+ | 0.1− |
| 2005 10 30 | G96 | 0.4+ | 0.5− | 2007 03 15 | 703 | 0.5− | 0.9− | 2009 11 24 | G96 | 0.4+ | 0.1+ |
| 2005 10 30 | G96 | 0.3+ | 0.0 | 2007 03 15 | 703 | 0.0 | 0.2− | 2009 11 24 | G96 | 0.7+ | 0.0 |
| 2005 10 30 | G96 | 0.1+ | 0.5− | 2007 03 15 | 703 | (2.4− | 0.7−) | 2009 11 27 | 691 | 0.1− | 0.2+ |
| 2005 11 06 | G96 | 0.3+ | 0.2− | 2009 10 24 | 691 | 0.2− | 0.1+ | 2009 11 27 | 691 | 0.1+ | 0.2+ |
| 2005 11 06 | G96 | 0.4+ | 0.0 | 2009 10 24 | 691 | 0.2− | 0.0 | 2009 11 27 | 691 | 0.1+ | 0.4+ |
| 2005 11 06 | G96 | 0.1+ | 0.1− | 2009 10 24 | 691 | 0.2− | 0.1+ | 2009 12 17 | G96 | 0.8+ | 0.2− |
| 2005 11 06 | G96 | 0.2− | 0.0 | 2009 11 09 | 691 | 0.2− | 0.1+ | 2009 12 17 | G96 | 0.6+ | 0.5− |
| 2005 11 21 | 691 | 0.0 | 0.2+ | 2009 11 09 | 691 | 0.7− | 0.2− | 2009 12 17 | G96 | 0.5+ | 0.2− |

**2009 WG$_{132}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 353.60205 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24225841 | $\omega$ | 17.66464 | | +0.01134980 | −0.94585732 | |
| $a$ | 2.5484931 | $\Omega$ | 72.67266 | | +0.87151657 | −0.14968768 | |
| $e$ | 0.1619968 | $i$ | 19.86499 | | +0.49023469 | +0.28800612 | |
| $P$ | 4.07 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 12 19 | 644 | 0.6+ | 0.3− | 2007 04 25 | G96 | 0.0 | 0.2+ | 2009 12 11 | 703 | 1.2− | 0.2+ |
| 2001 12 19 | 644 | 0.6+ | 0.1+ | 2007 04 25 | G96 | 0.2− | 0.1− | 2009 12 11 | 703 | 0.8− | 0.7+ |
| 2001 12 19 | 644 | 0.5+ | 0.3− | 2009 11 20 | A50 | 0.1− | 0.7− | 2009 12 11 | 703 | 0.5− | 0.1+ |
| 2005 11 21 | 691 | 0.3− | 0.0 | 2009 11 20 | A50 | 1.2+ | 1.3− | 2009 12 11 | 703 | 0.1− | 0.0 |
| 2005 11 21 | 691 | 0.0 | 0.1+ | 2009 11 21 | A50 | 1.3+ | 0.7− | 2009 12 16 | 704 | 0.4+ | 0.4+ |
| 2005 11 21 | 691 | 0.2+ | 0.1+ | 2009 11 23 | J75 | 0.1− | 0.3− | 2009 12 16 | G96 | 0.2+ | 0.1− |
| 2005 12 02 | 691 | 1.2− | 0.3− | 2009 11 24 | J75 | 0.8− | 0.5+ | 2009 12 16 | G96 | 0.1− | 0.1+ |
| 2005 12 02 | 691 | 0.6− | 0.4− | 2009 11 24 | J75 | 0.2− | 0.0 | 2009 12 16 | 704 | 1.1+ | 0.2+ |
| 2005 12 02 | 691 | 0.2+ | 0.2+ | 2009 11 27 | A50 | 0.1− | 0.4+ | 2009 12 16 | G96 | 0.0 | 0.1+ |
| 2005 12 02 | 691 | 0.3+ | 0.0 | 2009 11 27 | A50 | 0.1− | 0.2+ | 2009 12 16 | 704 | 0.7+ | 0.6+ |
| 2005 12 02 | 691 | 0.3+ | 0.2+ | 2009 11 27 | A50 | 0.1+ | 0.4+ | 2009 12 16 | G96 | 0.2− | 0.0 |
| 2005 12 02 | 691 | 0.2+ | 0.1+ | 2009 12 06 | J75 | 0.3+ | 0.4− | 2009 12 16 | 704 | (0.8+ | 1.7+) |
| 2007 04 25 | G96 | 0.2+ | 0.1− | 2009 12 06 | J75 | 0.3+ | 0.0 | | | | |
| 2007 04 25 | G96 | 0.0 | 0.1+ | 2009 12 07 | J75 | 0.2− | 0.3+ | | | | |

**2009 WN$_{132}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 54.96429 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24127980 | $\omega$ | 126.58506 | | +0.97392464 | −0.22554922 | |
| $a$ | 2.5553795 | $\Omega$ | 246.46156 | | +0.19869850 | +0.90004670 | |
| $e$ | 0.1811790 | $i$ | 1.52890 | | +0.10949749 | +0.37288536 | |
| $P$ | 4.08 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 01 10 | 691 | 0.3− | 0.3− | 2007 03 26 | G96 | 0.1+ | 0.4− | 2009 12 09 | J75 | 0.5+ | 0.4− |
| 1994 01 10 | 691 | 0.2+ | 0.1− | 2007 04 19 | G96 | 0.4+ | 0.5− | 2009 12 09 | J75 | 1.0+ | 0.4+ |
| 1994 01 10 | 691 | 0.0 | 0.0 | 2007 04 19 | G96 | 0.0 | 0.4− | 2009 12 09 | J75 | 0.7+ | 0.2+ |
| 2003 03 24 | 691 | 0.3− | 0.3+ | 2007 04 19 | G96 | 0.1− | 0.8− | 2009 12 09 | J75 | 0.5+ | 0.4− |
| 2003 03 24 | 691 | 0.4+ | 0.1+ | 2007 04 19 | G96 | 0.1− | 0.5− | 2009 12 17 | 704 | 0.3+ | 0.7+ |
| 2003 03 24 | 691 | 0.4+ | 0.1− | 2009 11 21 | 703 | 0.1− | 0.3− | 2009 12 17 | 704 | (0.8− | 2.1+) |
| 2003 04 04 | 691 | 0.1− | 0.1+ | 2009 11 21 | 703 | 0.8+ | 0.1− | 2009 12 17 | 704 | 0.5− | 0.6+ |
| 2003 04 04 | 691 | 0.1+ | 0.4+ | 2009 11 21 | 703 | 0.9− | 0.2− | 2009 12 17 | 704 | 0.3+ | 0.7+ |
| 2003 04 04 | 691 | 0.1+ | 0.3+ | 2009 11 21 | 703 | 0.0 | 0.9− | 2009 12 17 | 704 | 0.4− | 0.7+ |
| 2007 03 13 | 691 | 0.4− | 0.1− | 2009 11 21 | 703 | 0.3− | 0.2+ | 2009 12 19 | G96 | 0.1+ | 0.0 |
| 2007 03 13 | 691 | 0.3− | 0.6+ | 2009 11 24 | 691 | 0.3− | 0.1+ | 2009 12 19 | G96 | 0.2+ | 0.1− |
| 2007 03 13 | 691 | 0.4+ | 0.6− | 2009 11 24 | 691 | 0.2− | 0.1+ | 2009 12 19 | G96 | 0.1− | 0.0 |
| 2007 03 26 | G96 | 0.3+ | 0.0 | 2009 11 24 | 691 | 0.1− | 0.2+ | 2009 12 19 | G96 | 0.0 | 0.0 |
| 2007 03 26 | G96 | 0.6− | 0.0 | 2009 12 09 | J75 | 0.2− | 0.6− | | | | |
| 2007 03 26 | G96 | 0.1− | 0.4− | 2009 12 09 | J75 | 0.6+ | 0.1− | | | | |

**2009 WV$_{133}$ = 2009 WZ$_{195}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 19.58652 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23579242 | $\omega$ | 117.93541 | | +0.74463921 | −0.66731275 | |
| $a$ | 2.5948733 | $\Omega$ | 283.92842 | | +0.60707336 | +0.68604705 | |
| $e$ | 0.2322512 | $i$ | 0.84757 | | +0.27744256 | +0.28988469 | |
| $P$ | 4.18 | $H$ | 18.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 04 | 691 | 0.2− | 0.2+ | 2009 11 22 | 703 | 1.1+ | 0.0 | 2009 11 26 | G96 | 0.2+ | 0.1− |
| 2005 12 04 | 691 | 0.1+ | 0.1+ | 2009 11 22 | 703 | 0.1− | 0.2+ | 2009 11 26 | G96 | 0.0 | 0.3− |
| 2005 12 04 | 691 | 0.1+ | 0.1+ | 2009 11 22 | 703 | 0.4− | 0.1+ | 2009 11 26 | G96 | 0.1− | 0.3− |
| 2006 01 25 | G96 | 0.0 | 0.2− | 2009 11 24 | G96 | 0.3− | 0.2− | 2009 12 11 | G96 | 0.8+ | 0.0 |
| 2006 01 25 | G96 | 0.1− | 0.2− | 2009 11 24 | G96 | 0.4+ | 0.2− | 2009 12 11 | G96 | 0.0 | 0.1− |
| 2006 01 25 | G96 | 0.5+ | 0.1− | 2009 11 24 | G96 | 0.3+ | 0.3− | 2009 12 11 | G96 | 0.4+ | 0.1+ |
| 2006 01 25 | G96 | 0.1− | 0.5− | 2009 11 24 | G96 | 0.3+ | 0.4− | 2009 12 11 | G96 | 0.1+ | 0.3− |
| 2009 09 21 | G96 | 0.1− | 0.1+ | 2009 11 25 | 691 | 0.1− | 0.4+ | 2009 12 17 | G96 | 0.1− | 0.2+ |
| 2009 09 21 | G96 | 0.2+ | 0.1− | 2009 11 25 | 691 | 0.0 | 0.0 | 2009 12 17 | G96 | 0.4+ | 0.0 |
| 2009 09 21 | G96 | 0.4+ | 0.2− | 2009 11 25 | 691 | 0.8− | 0.2+ | 2009 12 17 | G96 | 0.4+ | 0.3− |
| 2009 09 21 | G96 | 0.0 | 0.3− | 2009 11 26 | G96 | 0.1− | 0.4− | 2009 12 17 | G96 | 0.2− | 0.4− |
| 2009 11 22 | 703 | 0.0 | 0.4+ | 2009 11 26 | G96 | 0.3+ | 0.4− | | | | |

**2009 WF$_{139}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 25.68867 | | (2000.0) | | | |
| $n$ | 0.30732369 | $\omega$ | 231.00811 | | +0.61754630 | −0.78653383 |
| $a$ | 2.1747301 | $\Omega$ | 180.85682 | | +0.74166688 | +0.58276406 |
| $e$ | 0.0941082 | $i$ | 4.04108 | | +0.26185266 | +0.20432960 |
| $P$ | 3.21 | $H$ | 17.6 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 09 12 | 691 | 0.1− | 0.2+ | 2004 03 20 | 691 | 0.5+ | 0.5− | 2009 11 26 | D25 | 0.0 | 0.2+ |
| 1996 09 12 | 691 | 0.0 | 0.2+ | 2006 12 27 | G96 | 0.0 | 0.1− | 2009 11 27 | D25 | 0.7− | 0.5− |
| 2004 02 11 | 644 | 0.3− | 0.1+ | 2006 12 27 | G96 | 0.1− | 0.0 | 2009 11 27 | D25 | 0.1+ | 0.4− |
| 2004 02 11 | 644 | 0.0 | 0.8+ | 2006 12 27 | G96 | 0.1− | 0.2− | 2009 11 27 | D25 | 0.1+ | 0.4− |
| 2004 02 11 | 644 | 0.1+ | 0.4+ | 2006 12 27 | G96 | 0.1+ | 0.0 | 2009 11 27 | D25 | 0.6− | 0.3− |
| 2004 03 20 | 691 | 0.0 | 0.2+ | 2009 11 20 | J75 | 0.7− | 0.0 | 2009 11 27 | D25 | 0.1− | 0.1− |
| 2004 03 20 | 691 | 0.2− | 0.0 | 2009 11 20 | J75 | 0.8+ | 0.4+ | 2009 12 05 | D25 | 0.1+ | 0.4− |
| 2004 03 20 | 691 | 0.1− | 0.2+ | 2009 11 20 | J75 | 0.3− | 0.2− | 2009 12 05 | D25 | 0.6+ | 0.2− |
| 2004 03 20 | 691 | 0.0 | 0.1+ | 2009 11 26 | D25 | 0.2− | 0.0 | | | | |
| 2004 03 20 | 691 | 0.1− | 0.1+ | 2009 11 26 | D25 | 1.2+ | 1.1+ | | | | |

**2009 WL$_{140}$ = 2003 SJ$_{405}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 34.49579 | | (2000.0) | | | |
| $n$ | 0.17331827 | $\omega$ | 302.27671 | | +0.89640907 | −0.40524333 |
| $a$ | 3.1859563 | $\Omega$ | 82.17976 | | +0.44252927 | +0.79556662 |
| $e$ | 0.0617831 | $i$ | 10.44017 | | +0.02487239 | +0.45039050 |
| $P$ | 5.69 | $H$ | 15.7 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1992 11 21 | 691 | 0.0 | 0.1− | 2009 11 09 | 703 | (1.6− | 0.9−) | 2009 11 25 | G96 | 0.3+ | 0.1+ |
| 1992 11 21 | 691 | 0.0 | 0.1− | 2009 11 09 | 703 | 0.2+ | 0.3+ | 2009 11 25 | G96 | 0.2− | 0.0 |
| 1992 11 21 | 691 | 0.1+ | 0.3− | 2009 11 09 | 703 | 1.1− | 0.6− | 2009 11 25 | G96 | 0.1− | 0.1− |
| 2003 09 27 | 645 | 0.0 | 0.0 | 2009 11 09 | 703 | 1.0− | 0.3− | 2009 11 26 | G96 | 0.1+ | 0.3+ |
| 2003 09 27 | 645 | 0.0 | 0.1− | 2009 11 18 | G96 | 0.4+ | 0.2+ | 2009 11 26 | G96 | 0.0 | 0.4+ |
| 2003 09 30 | 645 | 0.0 | 0.1+ | 2009 11 18 | G96 | 0.2+ | 0.2+ | 2009 11 26 | G96 | 0.2+ | 0.3+ |
| 2003 09 30 | 645 | 0.0 | 0.0 | 2009 11 18 | G96 | 0.3+ | 0.2+ | 2009 11 26 | G96 | 0.4+ | 0.7+ |
| 2003 10 23 | 645 | 0.0 | 0.0 | 2009 11 18 | G96 | 0.2+ | 0.2+ | 2009 11 26 | G96 | 0.5− | 0.1+ |
| 2003 10 23 | 645 | 0.0 | 0.0 | 2009 11 25 | G96 | 0.3− | 0.0 | | | | |

**2009 WM$_{140}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 88.18202 | | (2000.0) | | | |
| $n$ | 0.23593400 | $\omega$ | 160.35445 | | +0.74124899 | +0.67048553 |
| $a$ | 2.5938351 | $\Omega$ | 157.44605 | | −0.62633764 | +0.70783833 |
| $e$ | 0.1724121 | $i$ | 4.72707 | | −0.24135266 | +0.22229269 |
| $P$ | 4.18 | $H$ | 17.0 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 08 07 | 608 | 0.5− | 0.6− | 2005 12 07 | 691 | 0.2+ | 0.1+ | 2009 11 18 | G96 | 0.4+ | 0.1− |
| 2000 08 07 | 608 | 0.3− | 0.5− | 2007 02 23 | G96 | 0.5− | 0.1− | 2009 11 18 | G96 | 0.1− | 0.1− |
| 2000 08 07 | 608 | 0.4− | 0.5− | 2007 02 23 | G96 | 0.2+ | 0.3− | 2009 11 18 | G96 | 0.0 | 0.1+ |
| 2000 08 27 | 807 | 0.7+ | 0.6+ | 2007 02 23 | G96 | 0.3− | 0.1+ | 2009 11 18 | G96 | 0.3+ | 0.0 |
| 2000 08 27 | 807 | 0.7+ | 0.7+ | 2007 02 23 | G96 | 0.4+ | 0.1− | 2009 11 25 | G96 | 0.3− | 0.0 |
| 2003 03 30 | 695 | 0.2+ | 0.2+ | 2007 03 09 | G96 | 0.2+ | 0.4− | 2009 11 25 | G96 | 0.3+ | 0.1− |
| 2003 03 30 | 695 | 0.4+ | 0.1+ | 2007 03 09 | G96 | 0.3+ | 0.2− | 2009 11 25 | G96 | 0.1+ | 0.1+ |
| 2005 11 03 | G96 | 0.0 | 0.2+ | 2007 03 09 | G96 | 0.5− | 0.6− | 2009 11 25 | G96 | 0.1+ | 0.1+ |
| 2005 11 03 | G96 | 0.0 | 0.2− | 2007 03 09 | G96 | 0.4− | 0.0 | 2009 11 26 | G96 | 0.1− | 0.2− |
| 2005 11 03 | G96 | 0.0 | 0.2− | 2007 03 20 | G96 | 0.5+ | 0.2− | 2009 11 26 | G96 | 0.1+ | 0.4− |
| 2005 11 03 | G96 | 0.0 | 0.1+ | 2007 03 20 | G96 | 0.0 | 0.6+ | 2009 11 26 | G96 | 0.1+ | 0.3− |
| 2005 12 07 | 691 | 0.2− | 0.0 | 2007 03 20 | G96 | 1.0− | 0.2+ | 2009 11 26 | G96 | 0.4− | 0.2+ |
| 2005 12 07 | 691 | 0.0 | 0.0 | 2007 03 20 | G96 | 0.2+ | 0.0 | 2009 11 26 | G96 | 0.3− | 0.1+ |

**2009 WO$_{140}$ = 2004 XS$_{75}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 309.27940 | | (2000.0) | | | |
| $n$ | 0.18928963 | $\omega$ | 61.75522 | | −0.63569069 | −0.71730451 |
| $a$ | 3.0041262 | $\Omega$ | 70.66664 | | +0.55883169 | −0.68255128 |
| $e$ | 0.1736160 | $i$ | 17.59607 | | +0.53254530 | −0.13999281 |
| $P$ | 5.21 | $H$ | 15.5 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 10 | 691 | 0.0 | 0.2− | 2006 04 18 | 703 | 0.9− | 0.0 | 2009 11 18 | G96 | 0.0 | 0.1− |
| 2004 12 10 | 691 | 0.3− | 0.2+ | 2006 04 18 | 703 | 0.4− | 0.9+ | 2009 11 18 | G96 | 0.0 | 0.2− |
| 2004 12 10 | 691 | 0.3− | 0.2+ | 2006 04 18 | 703 | 1.5+ | 1.1+ | 2009 11 18 | G96 | 0.0 | 0.0 |
| 2004 12 14 | 704 | 1.2+ | 0.3+ | 2006 04 18 | 703 | 0.1− | 1.9− | 2009 11 25 | G96 | 0.1+ | 0.0 |
| 2004 12 14 | 704 | 1.2+ | 0.5+ | 2009 10 14 | G96 | 0.0 | 0.2− | 2009 11 25 | G96 | 0.2− | 0.2− |
| 2004 12 14 | 704 | 1.3+ | 0.6− | 2009 10 14 | G96 | 0.3+ | 0.3− | 2009 11 25 | G96 | 0.4− | 0.1− |
| 2004 12 14 | 704 | 0.9+ | 0.5+ | 2009 10 14 | G96 | 0.7+ | 0.0 | 2009 11 25 | G96 | 0.1+ | 0.3− |
| 2004 12 14 | 704 | 0.3+ | 0.4− | 2009 10 14 | G96 | 0.1− | 0.3− | 2009 11 26 | G96 | 0.0 | 0.3− |
| 2004 12 16 | 691 | 0.0 | 0.1− | 2009 11 09 | 703 | 0.4− | 0.2+ | 2009 11 26 | G96 | 0.2+ | 0.3− |
| 2004 12 16 | 691 | 0.1− | 0.0 | 2009 11 09 | 703 | 1.5+ | 0.5+ | 2009 11 26 | G96 | 0.1+ | 0.2− |
| 2004 12 16 | 691 | 0.2− | 0.1+ | 2009 11 09 | 703 | (0.5+ | 1.9+) | 2009 11 26 | G96 | 0.1+ | 0.1− |
| 2004 12 17 | 704 | 0.3− | 0.5− | 2009 11 09 | 703 | (1.9+ | 0.8+) | 2009 11 26 | G96 | 0.0 | 0.4− |
| 2004 12 17 | 704 | 0.7− | 0.6+ | 2009 11 12 | J75 | 0.3+ | 0.5+ | 2009 12 10 | 703 | 0.6− | 1.1+ |
| 2004 12 17 | 704 | 0.6− | 0.6− | 2009 11 12 | J75 | 1.3− | 1.5+ | 2009 12 10 | 703 | 0.2− | 0.0 |
| 2004 12 17 | 704 | 0.1− | 0.7− | 2009 11 12 | J75 | (1.9− | 0.0 ) | 2009 12 10 | 703 | 0.2+ | 0.4− |
| 2004 12 17 | 704 | 0.2+ | 0.3− | 2009 11 18 | G96 | 0.1+ | 0.1− | 2009 12 10 | 703 | 0.5− | 0.1− |

**2009 WM$_{141}$ = 2003 KZ$_{5}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 274.76008 | | (2000.0) | | | |
| $n$ | 0.22616370 | $\omega$ | 78.02933 | | −0.87642351 | −0.40835757 |
| $a$ | 2.6680100 | $\Omega$ | 77.42616 | | +0.27258016 | −0.85759056 |
| $e$ | 0.0455546 | $i$ | 15.15723 | | +0.39696584 | −0.31270197 |
| $P$ | 4.36 | $H$ | 15.9 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 12 08 | 691 | 0.2+ | 0.1+ | 2005 12 10 | 691 | 0.2+ | 0.4+ | 2009 10 25 | G96 | 0.1− | 0.2+ |
| 1996 12 08 | 691 | 0.2− | 0.5− | 2005 12 10 | 691 | 0.1+ | 0.1+ | 2009 11 09 | 703 | 0.4− | 0.1+ |
| 1996 12 08 | 691 | 0.3+ | 0.7− | 2005 12 10 | 691 | 0.2+ | 0.1+ | 2009 11 09 | 703 | 1.4− | 0.2+ |
| 2002 01 20 | 699 | 0.9+ | 0.5+ | 2007 04 16 | 703 | 0.9+ | 0.3− | 2009 11 09 | 703 | 0.2+ | 1.2− |
| 2002 01 20 | 699 | 0.5− | 0.1+ | 2007 04 16 | 703 | 0.3− | 0.1− | 2009 11 09 | 703 | 0.1+ | 0.2+ |
| 2002 01 20 | 699 | 0.4− | 0.1+ | 2007 04 16 | 703 | 0.0 | 0.4− | 2009 11 18 | G96 | 0.2− | 0.0 |
| 2002 01 20 | 699 | 0.2− | 0.2+ | 2007 04 16 | 703 | 0.7− | 0.4− | 2009 11 18 | G96 | 0.1− | 0.1− |
| 2002 02 11 | 699 | 0.6− | 0.7+ | 2007 04 23 | 703 | 0.1+ | 0.7− | 2009 11 18 | G96 | 0.2+ | 0.1− |
| 2002 02 11 | 699 | 0.4− | 1.0+ | 2007 04 23 | 703 | 0.1− | 0.7+ | 2009 11 18 | G96 | 0.2− | 0.1− |
| 2002 02 11 | 699 | 0.6+ | 1.0+ | 2007 04 23 | 703 | 0.3− | 0.3+ | 2009 11 25 | G96 | 0.1− | 0.1+ |
| 2002 02 11 | 699 | 0.2− | 0.5− | 2007 04 23 | 703 | 2.6− | 1.1− | 2009 11 25 | G96 | 0.3− | 0.1+ |
| 2003 05 24 | 291 | 0.1+ | 0.3− | 2008 08 08 | E12 | 0.2+ | 0.5+ | 2009 11 25 | G96 | 0.2− | 0.2− |
| 2003 05 24 | 291 | 0.0 | 0.1+ | 2008 08 08 | E12 | 0.4− | 0.9+ | 2009 11 25 | G96 | 0.3− | 0.0 |
| 2003 05 24 | 291 | 0.1− | 0.3− | 2008 08 08 | E12 | 1.0− | 0.5− | 2009 12 10 | 703 | 0.3+ | 0.6+ |
| 2003 05 26 | 291 | 0.3+ | 0.3+ | 2009 10 25 | G96 | 0.0 | 0.3+ | 2009 12 10 | 703 | 0.7+ | 0.8+ |
| 2003 05 26 | 291 | 0.2+ | 0.2+ | 2009 10 25 | G96 | 0.1+ | 0.3+ | 2009 12 10 | 703 | 0.2+ | 0.4− |
| 2003 05 26 | 291 | 0.3+ | 0.2+ | 2009 10 25 | G96 | 0.5− | 0.6+ | 2009 12 10 | 703 | 1.0+ | 0.2− |

**2009 WY$_{143}$ = 2006 DX$_{148}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 67.34392 | | (2000.0) | | | |
| $n$ | 0.17291473 | $\omega$ | 7.61054 | | +0.99487416 | +0.09826420 |
| $a$ | 3.1909112 | $\Omega$ | 346.67951 | | −0.09737555 | +0.86732987 |
| $e$ | 0.0866963 | $i$ | 5.94550 | | −0.02726534 | +0.48793753 |
| $P$ | 5.70 | $H$ | 16.1 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 02 04 | G96 | 0.8+ | 0.2+ | 2006 03 04 | 691 | 0.3− | 0.1+ | 2009 11 11 | 691 | 0.1+ | 0.1− |
| 2005 02 04 | G96 | 0.2+ | 0.8− | 2006 04 02 | G96 | 0.4− | 0.1− | 2009 11 19 | 691 | 0.2+ | 0.1− |
| 2005 02 04 | G96 | 0.9− | 0.1+ | 2006 04 02 | G96 | 0.2− | 0.1+ | 2009 11 19 | 691 | 0.1− | 0.1+ |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 02 04 | G96 | 0.4− | 0.9− | 2006 04 02 | G96 | 0.6− | 0.3− | 2009 11 19 | 691 | 0.3− | 0.2− |
| 2006 02 25 | 691 | 0.4+ | 0.3− | 2006 04 02 | G96 | 0.4+ | 0.4− | 2009 11 25 | G96 | 0.5+ | 0.4+ |
| 2006 02 25 | 691 | 0.4+ | 0.1+ | 2008 11 21 | G96 | 0.3+ | 0.4+ | 2009 11 25 | G96 | 0.6+ | 0.4+ |
| 2006 02 25 | 691 | 0.3+ | 0.2+ | 2008 11 21 | G96 | 0.0 | 0.9− | 2009 11 25 | G96 | 0.3+ | 0.0 |
| 2006 03 04 | 691 | 0.1+ | 0.1+ | 2009 11 11 | 691 | 0.2+ | 0.1+ | 2009 11 25 | G96 | 0.5+ | 0.1+ |
| 2006 03 04 | 691 | 0.6− | 0.2+ | 2009 11 11 | 691 | 0.5− | 0.4+ | | | | |

### 2009 WK$_{144}$ = 2005 UX$_{175}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 33.05301 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23909612 | $\omega$ | 329.58280 | | +0.97635623 | −0.16425164 | |
| $a$ | 2.5709149 | $\Omega$ | 40.64035 | | +0.21459470 | +0.81475765 | |
| $e$ | 0.1968464 | $i$ | 12.46084 | | −0.02603105 | +0.55604979 | |
| $P$ | 4.12 | $H$ | 17.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 30 | G96 | 0.2+ | 0.1+ | 2005 10 28 | 691 | 0.1− | 0.5− | 2009 11 19 | G96 | 0.3− | 0.2− |
| 2005 09 30 | G96 | 0.1+ | 0.4− | 2005 10 28 | 691 | 0.2− | 0.2+ | 2009 11 19 | G96 | 0.1− | 0.1+ |
| 2005 09 30 | G96 | 0.2− | 0.2− | 2009 11 11 | G96 | 0.2+ | 0.1+ | 2009 11 25 | G96 | 0.3− | 0.2− |
| 2005 09 30 | G96 | 0.3− | 0.1+ | 2009 11 11 | G96 | 0.1+ | 0.1+ | 2009 11 25 | G96 | 0.2− | 0.0 |
| 2005 10 24 | 691 | 0.2+ | 0.3+ | 2009 11 11 | G96 | 0.4+ | 0.2+ | 2009 11 25 | G96 | 0.0 | 0.2+ |
| 2005 10 24 | 691 | 0.0 | 0.1− | 2009 11 11 | G96 | 0.1+ | 0.2+ | 2009 11 25 | G96 | 0.1+ | 0.2− |
| 2005 10 24 | 691 | 0.3+ | 0.3+ | 2009 11 19 | G96 | 0.5− | 0.0 | | | | |
| 2005 10 28 | 691 | 0.1− | 0.1− | 2009 11 19 | G96 | 0.3+ | 0.1− | | | | |

### 2009 WB$_{145}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 337.96187 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17346770 | $\omega$ | 84.07402 | | +0.15115368 | −0.98850845 | |
| $a$ | 3.1841264 | $\Omega$ | 357.23004 | | +0.89067875 | +0.13702748 | |
| $e$ | 0.1425878 | $i$ | 2.25273 | | +0.42877024 | +0.06383192 | |
| $P$ | 5.68 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 27 | 691 | 0.1+ | 0.1+ | 2009 09 23 | G96 | 0.2− | 0.3− | 2009 11 19 | G96 | 0.1+ | 0.1− |
| 2003 09 27 | 691 | 0.4− | 0.2+ | 2009 09 29 | G96 | 0.2− | 0.3− | 2009 11 19 | G96 | 0.7− | 0.2− |
| 2003 09 27 | 691 | 0.1− | 0.3+ | 2009 09 29 | G96 | 0.1+ | 0.4− | 2009 11 19 | G96 | 0.2− | 0.1− |
| 2003 10 20 | 691 | 0.1− | 0.1− | 2009 09 29 | G96 | 0.0 | 0.5− | 2009 11 25 | G96 | 0.3+ | 0.1− |
| 2003 10 20 | 691 | 0.1+ | 0.2− | 2009 09 29 | G96 | 0.2+ | 0.6− | 2009 11 25 | G96 | 0.0 | 0.2+ |
| 2003 10 20 | 691 | 0.2+ | 0.2− | 2009 10 25 | 691 | 0.2− | 0.1+ | 2009 11 25 | G96 | 0.2+ | 0.1− |
| 2009 09 23 | G96 | 0.6+ | 0.5− | 2009 10 25 | 691 | 0.0 | 0.6+ | 2009 11 25 | G96 | 0.4+ | 0.0 |
| 2009 09 23 | G96 | 0.8+ | 0.2+ | 2009 10 25 | 691 | 0.2− | 0.1+ | | | | |
| 2009 09 23 | G96 | 0.0 | 0.7− | 2009 11 19 | G96 | 0.1+ | 0.2− | | | | |

### 2009 WZ$_{145}$ = 2005 TW$_{89}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 323.95824 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27596076 | $\omega$ | 97.49221 | | −0.66788214 | −0.74262972 | |
| $a$ | 2.3365289 | $\Omega$ | 34.57585 | | +0.64396642 | −0.60984219 | |
| $e$ | 0.1868774 | $i$ | 4.98790 | | +0.37314970 | −0.27675550 | |
| $P$ | 3.57 | $H$ | 17.4 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 05 | G96 | 0.3− | 0.2+ | 2007 03 29 | 691 | 0.0 | 0.1− | 2009 11 19 | 691 | 0.9+ | 0.4− |
| 2005 10 05 | G96 | 0.2+ | 0.3+ | 2007 05 10 | G96 | 0.1− | 0.0 | 2009 11 19 | 691 | 0.5− | 0.1+ |
| 2005 10 05 | G96 | 0.0 | 0.0 | 2007 05 10 | G96 | 0.0 | 0.1+ | 2009 11 19 | 691 | 0.1− | 0.1− |
| 2005 10 05 | G96 | 0.5+ | 0.2− | 2007 05 10 | G96 | 0.2+ | 0.1+ | 2009 11 25 | 703 | 0.3+ | 0.2+ |
| 2005 10 09 | 691 | 0.0 | 0.4+ | 2007 05 10 | G96 | 0.3+ | 0.1+ | 2009 11 25 | 703 | 0.7+ | 0.3− |
| 2005 10 09 | 691 | 0.2+ | 0.1+ | 2009 10 17 | G96 | 0.8+ | 0.1− | 2009 11 25 | 703 | 0.3+ | 0.4+ |
| 2005 10 09 | 691 | 0.3− | 0.4− | 2009 10 17 | G96 | 0.5+ | 0.1+ | 2009 11 25 | 703 | 0.8+ | 0.8− |
| 2005 10 29 | G96 | 0.2+ | 0.3+ | 2009 10 17 | G96 | 0.2+ | 0.0 | 2009 11 25 | 703 | 0.6− | 0.7− |
| 2005 10 29 | G96 | 0.6+ | 0.3− | 2009 10 17 | G96 | 0.3+ | 0.0 | 2009 11 27 | 691 | 0.0 | 0.1+ |
| 2005 10 29 | G96 | 0.9− | 0.0 | 2009 11 09 | 691 | 0.3− | 0.2+ | 2009 11 27 | 691 | 0.0 | 0.2+ |
| 2005 10 29 | G96 | 0.3− | 0.3− | 2009 11 09 | 691 | 0.2− | 0.1− | 2009 11 27 | 691 | 0.4− | 0.3+ |
| 2007 03 11 | 691 | 0.1+ | 0.0 | 2009 11 09 | 691 | 0.1+ | 0.3− | 2009 12 15 | 704 | 0.1+ | 1.4+ |
| 2007 03 11 | 691 | 0.3+ | 0.1− | 2009 11 09 | G96 | 0.1+ | 0.6− | 2009 12 15 | 704 | 0.2+ | 0.8+ |
| 2007 03 11 | 691 | 0.2− | 0.0 | 2009 11 09 | G96 | 0.2+ | 0.4− | 2009 12 15 | 704 | 1.6− | 0.0 |
| 2007 03 29 | 691 | 0.4− | 0.1− | 2009 11 09 | G96 | 0.3+ | 0.2− | 2009 12 15 | 704 | 0.1+ | 0.4+ |
| 2007 03 29 | 691 | 0.1+ | 0.0 | 2009 11 09 | G96 | 0.1+ | 0.2− | 2009 12 15 | 704 | 0.3− | 0.0 |

### 2009 WH$_{146}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 36.52816 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17295323 | $\omega$ | 254.26031 | | +0.94753410 | −0.30632374 | |
| $a$ | 3.1904377 | $\Omega$ | 123.49559 | | +0.31880431 | +0.88477072 | |
| $e$ | 0.1448341 | $i$ | 6.28893 | | +0.02330097 | +0.35120725 | |
| $P$ | 5.70 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 24 | 645 | 0.0 | 0.0 | 2007 04 22 | G96 | 0.3− | 0.5− | 2009 11 09 | 703 | 1.0− | 0.6− |
| 2003 10 24 | 645 | 0.0 | 0.0 | 2007 04 22 | G96 | 1.7+ | 0.2+ | 2009 11 19 | G96 | 0.1+ | 0.1− |
| 2003 10 27 | 699 | 0.2− | 0.6− | 2007 04 22 | G96 | 0.3+ | 0.3+ | 2009 11 19 | G96 | 0.1− | 0.1+ |
| 2003 10 27 | 699 | 0.3+ | 1.3+ | 2007 06 18 | 291 | 0.2+ | 0.6+ | 2009 11 19 | G96 | 0.6+ | 0.1− |
| 2003 10 27 | 699 | 0.4− | 0.7− | 2007 06 18 | 291 | 0.0 | 0.4+ | 2009 11 19 | G96 | 0.4+ | 0.2+ |
| 2003 10 27 | 699 | (2.4− | 0.6+) | 2007 06 18 | 291 | 0.3− | 0.1+ | 2009 11 19 | J75 | 0.9+ | 0.9− |
| 2003 11 28 | 291 | 0.3+ | 0.5+ | 2009 10 14 | G96 | 0.2− | 0.4− | 2009 11 19 | J75 | 0.4+ | 0.1− |
| 2003 11 28 | 291 | 0.2− | 0.5+ | 2009 10 14 | G96 | 0.6+ | 0.0 | 2009 11 19 | J75 | 1.7+ | 0.3− |
| 2003 11 28 | 291 | 1.0− | 0.9+ | 2009 10 14 | G96 | 0.2− | 0.1+ | 2009 11 25 | G96 | 0.1− | 0.0 |
| 2005 01 13 | 691 | 0.1− | 0.2+ | 2009 10 14 | G96 | 0.5+ | 0.2− | 2009 11 25 | G96 | 0.3+ | 0.1− |
| 2005 01 13 | 691 | 0.1− | 0.2+ | 2009 11 09 | 703 | 0.8− | 0.2+ | 2009 11 25 | G96 | 0.2+ | 0.0 |
| 2005 01 13 | 691 | 0.2+ | 0.2+ | 2009 11 09 | 703 | 0.8− | 0.1+ | 2009 11 25 | G96 | 0.1− | 0.0 |
| 2007 04 22 | G96 | 0.1+ | 0.2+ | 2009 11 09 | 703 | 1.9− | 0.4+ | | | | |

### 2009 WA$_{147}$ = 2005 XT$_{72}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 23.66637 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23306416 | $\omega$ | 318.18139 | | +0.77763613 | −0.58744258 | |
| $a$ | 2.6150845 | $\Omega$ | 79.17273 | | +0.62020022 | +0.65830181 | |
| $e$ | 0.1855033 | $i$ | 13.18519 | | +0.10312001 | +0.47069092 | |
| $P$ | 4.23 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 06 | 691 | 0.2− | 0.1− | 2009 11 19 | G96 | 0.2− | 0.1− | 2009 11 25 | G96 | 0.0 | 0.0 |
| 2005 12 06 | 691 | 0.2− | 0.1+ | 2009 11 19 | G96 | 0.2− | 0.1− | 2009 11 25 | G96 | 0.0 | 0.0 |
| 2005 12 06 | 691 | 0.1+ | 0.1+ | 2009 11 19 | G96 | 0.2− | 0.0 | 2009 11 25 | G96 | 0.4+ | 0.1+ |
| 2005 12 10 | 691 | 0.2+ | 0.1− | 2009 11 19 | J75 | 0.2− | 0.7− | 2009 12 10 | 703 | 0.3+ | 0.6+ |
| 2005 12 10 | 691 | 0.1+ | 0.1+ | 2009 11 19 | J75 | 0.4− | 0.5+ | 2009 12 10 | 703 | 0.9+ | 0.3− |
| 2005 12 10 | 691 | 0.0 | 0.0 | 2009 11 19 | J75 | 0.3− | 0.0 | 2009 12 10 | 703 | 0.8+ | 0.9− |
| 2009 11 19 | G96 | 0.1− | 0.1+ | 2009 11 25 | G96 | 0.2+ | 0.0 | 2009 12 10 | 703 | 0.9− | 0.4+ |

### 2009 WE$_{149}$ = 2004 YP$_{35}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 315.26801 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18026014 | $\omega$ | 62.01656 | | −0.53620160 | −0.73152207 | |
| $a$ | 3.1036274 | $\Omega$ | 66.77142 | | +0.51862989 | −0.67916606 | |
| $e$ | 0.2011781 | $i$ | 27.27716 | | +0.66596613 | −0.06007435 | |
| $P$ | 5.47 | $H$ | 15.1 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 16 | 704 | 0.4− | 0.2+ | 2009 10 25 | G96 | 0.2− | 0.0 | 2009 11 25 | G96 | 0.6+ | 0.1+ |
| 2004 12 16 | 704 | 0.2+ | 0.1− | 2009 10 25 | G96 | 0.7− | 0.1− | 2009 11 25 | G96 | 0.4+ | 0.1− |
| 2004 12 16 | 704 | 0.1− | 0.2+ | 2009 11 19 | G96 | 0.2− | 0.3− | 2009 11 25 | G96 | 0.5+ | 0.3− |
| 2004 12 22 | 699 | 0.1− | 0.1− | 2009 11 19 | G96 | 0.3+ | 0.3− | 2009 11 25 | G96 | 0.4+ | 0.3− |
| 2004 12 22 | 699 | 0.1+ | 0.2+ | 2009 11 19 | G96 | 0.1− | 0.1− | 2009 12 10 | 703 | 0.5− | 0.5+ |
| 2004 12 22 | 699 | 0.9+ | 1.2− | 2009 11 19 | G96 | 0.1− | 0.2− | 2009 12 10 | 703 | 0.0 | 0.0 |
| 2004 12 22 | 699 | 0.5− | 0.9+ | 2009 11 19 | J75 | 0.7+ | 0.6+ | 2009 12 10 | 703 | 0.3+ | 0.7− |
| 2009 10 25 | G96 | 0.5− | 0.0 | 2009 11 19 | J75 | 0.0 | 0.1+ | 2009 12 10 | 703 | 0.9− | 0.9+ |
| 2009 10 25 | G96 | 0.3− | 0.1+ | 2009 11 19 | J75 | 0.2+ | 0.2+ | | | | |

**2009 WQ$_{150}$ = 2006 AQ$_{34}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 111.16403 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21470036 | $\omega$ | 214.01991 | | +0.67705695 | +0.72748893 | |
| $a$ | 2.7621518 | $\Omega$ | 98.86796 | | −0.64769450 | +0.66075084 | |
| $e$ | 0.0204472 | $i$ | 6.45899 | | −0.34940766 | +0.18484641 | |
| $P$ | 4.59 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 01 | G96 | 0.2+ | 0.2− | 2006 01 25 | G96 | 0.2+ | 0.3− | 2009 11 12 | J75 | 0.3+ | 0.7+ |
| 2005 10 01 | G96 | 0.4+ | 0.2+ | 2007 03 15 | G96 | 0.2+ | 0.0 | 2009 11 12 | J75 | 0.1+ | 0.7− |
| 2005 10 01 | G96 | 0.2− | 0.2− | 2007 03 15 | G96 | 0.4− | 0.1+ | 2009 11 12 | J75 | 1.3− | 0.2+ |
| 2005 10 01 | G96 | 0.5− | 0.4− | 2007 03 15 | G96 | 0.0 | 0.2− | 2009 11 19 | G96 | 0.1+ | 0.1− |
| 2006 01 04 | 691 | 0.1− | 0.0 | 2007 03 15 | G96 | 0.0 | 0.2+ | 2009 11 19 | G96 | 0.3+ | 0.1− |
| 2006 01 04 | 691 | 0.0 | 0.1+ | 2007 04 26 | G96 | 0.2+ | 0.5− | 2009 11 19 | G96 | 0.0 | 0.1− |
| 2006 01 04 | 691 | 0.1+ | 0.6+ | 2007 04 26 | G96 | 0.1− | 0.1− | 2009 11 19 | G96 | 0.3+ | 0.1+ |
| 2006 01 08 | 691 | 0.4− | 0.2+ | 2007 04 26 | G96 | 0.2− | 0.2+ | 2009 11 25 | G96 | 0.2+ | 0.0 |
| 2006 01 08 | 691 | 0.2+ | 0.3− | 2007 04 26 | G96 | 0.2+ | 0.0 | 2009 11 25 | G96 | 0.1+ | 0.1+ |
| 2006 01 08 | 691 | 0.4+ | 0.1+ | 2009 10 12 | G96 | 0.1+ | 0.1+ | 2009 11 25 | G96 | 0.1+ | 0.3− |
| 2006 01 25 | G96 | 0.1− | 0.7− | 2009 10 12 | G96 | 0.3− | 0.1+ | 2009 11 25 | G96 | 0.1+ | 0.1+ |
| 2006 01 25 | G96 | 0.1− | 0.7− | 2009 10 12 | G96 | 0.0 | 0.4− | | | | |
| 2006 01 25 | G96 | 0.4− | 0.4− | 2009 10 12 | G96 | 0.1+ | 0.0 | | | | |

**2009 WL$_{152}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 343.82187 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.08113045 | $\omega$ | 117.02003 | | +0.16145064 | −0.98365277 | |
| $a$ | 5.2846163 | $\Omega$ | 323.41154 | | +0.85140209 | +0.17969810 | |
| $e$ | 0.0651385 | $i$ | 7.68944 | | +0.49904727 | +0.01165427 | |
| $P$ | 12.15 | $H$ | 13.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 10 20 | 691 | 0.0 | 0.3− | 2008 09 24 | G96 | 0.5+ | 0.2− | 2009 11 19 | G96 | 0.1+ | 0.2− |
| 1995 10 20 | 691 | 0.5− | 0.4+ | 2008 10 08 | G96 | 0.9+ | 0.1+ | 2009 11 19 | G96 | 0.2+ | 0.1− |
| 1995 10 20 | 691 | 0.2+ | 0.5+ | 2008 10 08 | G96 | 0.2− | 0.0 | 2009 11 19 | G96 | 0.1+ | 0.1− |
| 2000 01 11 | 691 | 0.2− | 0.9+ | 2008 10 08 | G96 | 0.3− | 0.1− | 2009 11 19 | G96 | 0.3− | 0.1− |
| 2000 01 11 | 691 | 0.2+ | 0.2− | 2008 10 08 | G96 | 0.3+ | 0.1+ | 2009 11 25 | G96 | 0.1− | 0.0 |
| 2000 01 11 | 691 | 0.1+ | 0.4− | 2009 10 27 | G96 | 0.2− | 0.1+ | 2009 11 25 | G96 | 0.2+ | 0.1− |
| 2008 09 24 | G96 | 0.1+ | 0.5− | 2009 10 27 | G96 | 0.3+ | 0.0 | 2009 11 25 | G96 | 0.2− | 0.0 |
| 2008 09 24 | G96 | 0.1− | 0.4− | 2009 10 27 | G96 | 0.2− | 0.2− | 2009 11 25 | G96 | 0.2+ | 0.0 |
| 2008 09 24 | G96 | 0.6− | 0.0 | 2009 10 27 | G96 | 0.0 | 0.4+ | | | | |

**2009 WB$_{153}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 343.65174 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.20007158 | $\omega$ | 57.17563 | | −0.06676681 | −0.98683332 | |
| $a$ | 2.8952036 | $\Omega$ | 37.52575 | | +0.81539962 | −0.13905697 | |
| $e$ | 0.1650156 | $i$ | 13.99589 | | +0.57503534 | +0.08260237 | |
| $P$ | 4.93 | $H$ | 17.4 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 10 10 | 691 | 0.3+ | 0.3+ | 2004 11 11 | 691 | 0.1+ | 0.2− | 2009 11 19 | G96 | 0.3− | 0.1+ |
| 1999 10 10 | 691 | 0.1− | 0.0 | 2009 11 09 | G96 | 0.1− | 0.0 | 2009 11 25 | G96 | 0.0 | 0.1− |
| 1999 10 10 | 691 | 0.2− | 0.2− | 2009 11 09 | G96 | 0.1+ | 0.3− | 2009 11 25 | G96 | 0.6+ | 0.1− |
| 1999 10 30 | 691 | 0.1+ | 0.3− | 2009 11 09 | G96 | 0.1− | 0.1− | 2009 11 25 | G96 | 0.0 | 0.1+ |
| 1999 10 30 | 691 | 0.1+ | 0.2+ | 2009 11 09 | G96 | 0.1+ | 0.1+ | 2009 11 25 | G96 | 0.1+ | 0.2− |
| 1999 10 30 | 691 | 0.1− | 0.1+ | 2009 11 19 | G96 | 0.0 | 0.1− | 2009 11 25 | G96 | 0.1− | 0.1+ |
| 2004 11 11 | 691 | 0.1+ | 0.0 | 2009 11 19 | G96 | 0.2− | 0.1+ | 2009 11 25 | G96 | 0.0 | 0.1− |
| 2004 11 11 | 691 | 0.2− | 0.2+ | 2009 11 19 | G96 | 0.1− | 0.1+ | 2009 11 25 | G96 | 0.0 | 0.2+ |

**2009 WJ$_{153}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 5.45029 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23127752 | $\omega$ | 128.33590 | | +0.36018482 | −0.92932028 | |
| $a$ | 2.6285350 | $\Omega$ | 300.36691 | | +0.82375566 | +0.35780437 | |
| $e$ | 0.2726744 | $i$ | 5.41547 | | +0.43782817 | +0.09132279 | |
| $P$ | 4.26 | $H$ | 18.2 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 11 05 | 691 | 0.1− | 0.4+ | 2009 11 19 | G96 | 0.3− | 0.3− | 2009 11 25 | G96 | 0.1+ | 0.0 |
| 1996 11 05 | 691 | 0.2− | 0.0 | 2009 11 19 | G96 | 0.1− | 0.0 | 2009 11 25 | G96 | 0.1− | 0.0 |
| 1996 11 05 | 691 | 0.1+ | 0.0 | 2009 11 19 | G96 | 0.1+ | 0.2− | 2009 11 25 | G96 | 0.0 | 0.2− |
| 2006 01 04 | 691 | 0.2− | 0.1+ | 2009 11 20 | 621 | 0.1+ | 0.3− | 2009 11 25 | G96 | 0.6+ | 0.3− |
| 2006 01 04 | 691 | 0.2+ | 0.5+ | 2009 11 20 | 621 | 0.7− | 0.3+ | 2009 12 10 | H36 | 0.1− | 0.0 |
| 2006 01 04 | 691 | 0.1+ | 0.1− | 2009 11 20 | 621 | 0.1+ | 0.4− | 2009 12 10 | H36 | 0.0 | 0.3− |
| 2006 02 04 | G96 | 0.0 | 0.2− | 2009 11 20 | 621 | 0.6+ | 1.1− | 2009 12 10 | H36 | (0.5− | 2.0−) |
| 2006 02 04 | G96 | 0.4− | 0.1− | 2009 11 24 | D29 | 0.2+ | 0.0 | 2009 12 15 | 704 | (1.3− | 1.8+) |
| 2006 02 04 | G96 | 0.1+ | 0.2− | 2009 11 24 | D29 | 0.1+ | 0.2+ | 2009 12 15 | 704 | 0.7− | 0.1− |
| 2006 02 04 | G96 | 0.3+ | 0.1− | 2009 11 24 | D29 | 0.3+ | 0.4+ | 2009 12 15 | 704 | 0.2− | 0.1− |
| 2009 11 19 | G96 | 0.1− | 0.0 | 2009 11 24 | D29 | 0.2+ | 0.4+ | | | | |

**2009 WD$_{155}$ = 2004 XW$_{131}$ = 2008 OT$_{16}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 15.49855 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19978266 | $\omega$ | 121.08576 | | +0.56833027 | −0.80212341 | |
| $a$ | 2.8979942 | $\Omega$ | 293.17209 | | +0.67054895 | +0.58062890 | |
| $e$ | 0.1056140 | $i$ | 11.50097 | | +0.47682786 | +0.13952818 | |
| $P$ | 4.93 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 11 | 703 | 0.1− | 0.4+ | 2008 07 28 | G96 | 0.5− | 0.1− | 2009 11 10 | 703 | 0.1− | 1.1+ |
| 2004 12 11 | 703 | 0.6+ | 0.6− | 2008 08 01 | 691 | 0.1− | 0.1+ | 2009 11 19 | 703 | 0.7− | 0.1+ |
| 2004 12 11 | 703 | 0.5− | 0.3− | 2008 08 01 | 691 | 0.2+ | 0.0 | 2009 11 19 | 703 | 0.6+ | 0.3+ |
| 2004 12 11 | 703 | 0.2+ | 0.8− | 2008 08 01 | 691 | 0.1− | 0.0 | 2009 11 19 | 703 | 0.0 | 0.0 |
| 2004 12 17 | 699 | 0.3+ | 0.3+ | 2008 10 31 | G96 | 0.1+ | 0.1+ | 2009 11 19 | 703 | 1.0− | 1.0− |
| 2004 12 17 | 699 | 0.9− | 1.2− | 2008 10 31 | G96 | 0.2+ | 0.1− | 2009 11 26 | 703 | 0.4+ | 0.3+ |
| 2004 12 17 | 699 | 0.2− | 0.3+ | 2008 10 31 | G96 | 0.2+ | 0.0 | 2009 11 26 | 703 | 0.9− | 0.1− |
| 2004 12 17 | 699 | 1.4+ | 1.1− | 2008 10 31 | G96 | 0.3+ | 0.1+ | 2009 11 26 | 703 | 0.1− | 0.2+ |
| 2008 07 28 | G96 | 0.2+ | 0.3− | 2009 11 10 | 703 | 0.8+ | 0.7+ | 2009 11 26 | 703 | 1.2+ | 0.3− |
| 2008 07 28 | G96 | 0.2− | 0.2− | 2009 11 10 | 703 | 0.1+ | 0.7+ | 2009 11 26 | 703 | 0.2− | 0.4+ |
| 2008 07 28 | G96 | 0.1− | 0.1− | 2009 11 10 | 703 | 0.2− | 0.7+ | | | | |

**2009 WC$_{156}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 100.10570 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17185101 | $\omega$ | 83.85776 | | +0.78750774 | +0.56800580 | |
| $a$ | 3.2040651 | $\Omega$ | 241.28298 | | −0.61563997 | +0.74302876 | |
| $e$ | 0.0857608 | $i$ | 15.82557 | | +0.02861805 | +0.35394587 | |
| $P$ | 5.74 | $H$ | 15.3 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 07 09 | 644 | 0.1− | 0.3+ | 2008 09 27 | 703 | 0.8− | 1.0+ | 2009 11 08 | 691 | 0.1− | 0.0 |
| 2002 07 09 | 644 | 0.1+ | 0.3+ | 2009 09 30 | G96 | 0.5+ | 0.3− | 2009 11 08 | 691 | 0.0 | 0.2+ |
| 2002 07 09 | 644 | 0.1− | 0.6+ | 2009 09 30 | G96 | 0.5+ | 0.3− | 2009 11 20 | 691 | 0.0 | 0.2+ |
| 2002 08 14 | 644 | 0.2− | 0.6+ | 2009 09 30 | G96 | 0.6+ | 0.2− | 2009 11 20 | 691 | 0.0 | 0.1+ |
| 2002 08 14 | 644 | 0.1− | 0.0 | 2009 09 30 | G96 | 0.1+ | 0.4− | 2009 11 20 | 691 | 0.2− | 0.2+ |
| 2002 08 14 | 644 | 0.4+ | 0.4+ | 2009 10 16 | G96 | 0.4+ | 0.5+ | 2009 11 26 | 691 | 0.2− | 0.3− |
| 2002 08 14 | 644 | 0.3+ | 0.2+ | 2009 10 16 | G96 | 0.3+ | 0.1+ | 2009 11 26 | 691 | 0.1− | 0.0 |
| 2002 08 14 | 644 | 0.3+ | 0.5+ | 2009 10 16 | G96 | 0.2+ | 0.1+ | 2009 11 26 | 691 | 0.0 | 0.3+ |
| 2002 08 14 | 644 | 0.3+ | 0.4+ | 2009 10 16 | G96 | 0.6+ | 0.1+ | 2009 12 17 | G96 | 0.2+ | 0.2− |
| 2002 10 30 | 645 | 0.0 | 0.1− | 2009 10 30 | G96 | 0.1+ | 0.5− | 2009 12 17 | G96 | 0.1+ | 0.1− |
| 2002 10 30 | 645 | 0.0 | 0.1− | 2009 10 30 | G96 | 0.5− | 0.2− | 2009 12 17 | G96 | 0.3+ | 0.1+ |
| 2008 09 27 | 703 | 0.0 | 0.2− | 2009 10 30 | G96 | 0.3+ | 0.1− | 2009 12 17 | G96 | 0.2+ | 0.1+ |
| 2008 09 27 | 703 | 0.9+ | 0.3+ | 2009 10 30 | G96 | 0.3+ | 0.0 | | | | |
| 2008 09 27 | 703 | 0.5− | 0.5− | 2009 11 08 | 691 | 0.2− | 0.0 | | | | |

**2009 WT$_{156}$ = 1996 XP$_{36}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 83.38367 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22738432 | $\omega$ | 82.62336 | | +0.81107617 | | +0.53737557 |
| $a$ | 2.6584534 | $\Omega$ | 244.60902 | | −0.58448655 | | +0.76010383 |
| $e$ | 0.1489973 | $i$ | 14.81818 | | +0.02304169 | | +0.36533501 |
| $P$ | 4.33 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 12 14 | 691 | 0.1+ | 0.3+ | 2000 11 30 | 645 | 0.0 | 0.0 | 2009 11 27 | 691 | 0.0 | 0.2− |
| 1996 12 14 | 691 | 1.1+ | 0.5− | 2009 11 20 | G96 | 0.7+ | 0.0 | 2009 11 27 | 691 | 0.5− | 0.1− |
| 1996 12 14 | 691 | 0.5+ | 0.0 | 2009 11 20 | G96 | 0.5+ | 0.3− | 2009 12 11 | G96 | 0.1+ | 0.3+ |
| 1996 12 17 | 691 | 0.5− | 0.0 | 2009 11 25 | 691 | 0.4+ | 0.4+ | 2009 12 11 | G96 | 0.1+ | 0.2+ |
| 1996 12 17 | 691 | 0.5− | 0.0 | 2009 11 25 | 691 | 0.3− | 0.1− | 2009 12 11 | G96 | 0.5+ | 0.3− |
| 1996 12 17 | 691 | 0.7− | 0.0 | 2009 11 25 | 691 | 0.3− | 0.2+ | 2009 12 11 | G96 | 0.3+ | 0.1− |
| 2000 11 30 | 645 | 0.0 | 0.0 | 2009 11 27 | 691 | 0.1+ | 0.0 | | | | |

**2009 WJ$_{159}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 78.64088 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.24505098 | $\omega$ | 130.52696 | | +0.94636249 | | +0.32185578 |
| $a$ | 2.5290947 | $\Omega$ | 210.72891 | | −0.31070686 | | +0.88239828 |
| $e$ | 0.1423258 | $i$ | 3.18679 | | −0.08865259 | | +0.34319401 |
| $P$ | 4.02 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 11 20 | 691 | 0.1− | 0.1+ | 2005 12 01 | G96 | 0.0 | 0.0 | 2009 11 20 | A50 | 1.1+ | 0.1− |
| 2001 11 20 | 691 | 0.1− | 0.0 | 2009 09 20 | G96 | 0.1+ | 0.4− | 2009 11 26 | 691 | 0.1− | 0.2+ |
| 2001 11 20 | 691 | 0.0 | 0.1+ | 2009 09 20 | G96 | 0.0 | 0.4+ | 2009 11 26 | 691 | 0.4− | 0.1− |
| 2005 10 29 | G96 | 0.7+ | 0.3− | 2009 09 20 | G96 | 0.4− | 0.0 | 2009 11 26 | 691 | 0.0 | 0.0 |
| 2005 10 29 | G96 | 0.1− | 0.2− | 2009 09 20 | G96 | 0.2+ | 0.1− | 2009 11 27 | A50 | (2.6+ | 1.2+) |
| 2005 10 29 | G96 | 0.1+ | 0.5− | 2009 11 10 | 691 | 0.1− | 0.1− | 2009 11 27 | A50 | (2.3+ | 1.0+) |
| 2005 10 29 | G96 | 0.3+ | 0.1− | 2009 11 10 | 691 | 0.1+ | 0.2+ | 2009 11 27 | A50 | (3.2+ | 0.8+) |
| 2005 11 10 | 691 | 0.2+ | 0.0 | 2009 11 10 | 691 | 0.1+ | 0.0 | 2009 12 17 | G96 | 0.1+ | 0.0 |
| 2005 11 10 | 691 | 0.0 | 0.0 | 2009 11 18 | 691 | 0.1− | 0.0 | 2009 12 17 | G96 | 0.0 | 0.2− |
| 2005 11 10 | 691 | 0.2− | 0.1− | 2009 11 18 | 691 | 0.3− | 0.0 | 2009 12 17 | G96 | 0.3+ | 0.2− |
| 2005 12 01 | G96 | 0.1+ | 0.1− | 2009 11 18 | 691 | 0.2− | 0.1+ | 2009 12 17 | G96 | 0.2+ | 0.2− |
| 2005 12 01 | G96 | 0.0 | 0.2− | 2009 11 20 | A50 | 0.7+ | 0.6+ | | | | |
| 2005 12 01 | G96 | 0.0 | 0.5− | 2009 11 20 | A50 | 1.2+ | 0.9+ | | | | |

**2009 WS$_{159}$ = 2003 UC$_{301}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 133.42313 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17829361 | $\omega$ | 18.02050 | | +0.34267069 | | +0.92918422 |
| $a$ | 3.1264071 | $\Omega$ | 272.20136 | | −0.87809564 | | +0.26436595 |
| $e$ | 0.0394509 | $i$ | 7.96932 | | −0.33395337 | | +0.25831632 |
| $P$ | 5.53 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 17 | 691 | 0.1− | 0.1− | 2008 10 01 | G96 | 0.1+ | 0.1+ | 2009 11 21 | 691 | 0.1− | 0.0 |
| 2003 10 17 | 691 | 0.1+ | 0.2+ | 2008 10 30 | G96 | 0.1+ | 0.1+ | 2009 11 21 | 691 | 0.2− | 0.0 |
| 2003 10 17 | 691 | 0.1− | 0.0 | 2008 10 30 | G96 | 1.0+ | 0.0 | 2009 11 21 | 691 | 0.1− | 0.0 |
| 2003 10 27 | 691 | 0.0 | 0.1− | 2008 10 30 | G96 | 0.3− | 0.2− | 2009 11 25 | 691 | 0.1− | 0.1− |
| 2003 10 27 | 691 | 0.1− | 0.3+ | 2008 10 30 | G96 | 0.1+ | 0.0 | 2009 11 25 | 691 | 0.0 | 0.1− |
| 2003 10 27 | 691 | 0.1− | 0.3+ | 2009 10 26 | 691 | 0.4+ | 0.2− | 2009 11 25 | 691 | 0.0 | 0.1− |
| 2006 02 24 | 644 | 0.6+ | 0.4+ | 2009 10 26 | 691 | 0.6− | 0.2− | 2009 12 19 | G96 | 1.4+ | 1.4+ |
| 2006 02 24 | 644 | 0.4+ | 0.3+ | 2009 10 26 | 691 | 0.1− | 0.1− | 2009 12 19 | G96 | 0.0 | 0.0 |
| 2006 02 24 | 644 | 0.5− | 0.2+ | 2009 11 09 | G96 | 0.5+ | 0.2− | 2009 12 19 | G96 | 0.5+ | 0.5+ |
| 2008 10 01 | G96 | 0.2− | 0.1− | 2009 11 09 | G96 | 0.8− | 0.3+ | 2009 12 19 | G96 | 0.0 | 0.1− |
| 2008 10 01 | G96 | 0.4− | 0.1+ | 2009 11 09 | G96 | 1.2+ | 0.5+ | | | | |
| 2008 10 01 | G96 | 0.2− | 0.1− | 2009 11 09 | G96 | 0.4+ | 0.2− | | | | |

**2009 WA$_{160}$ = 2003 SL$_{425}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 316.52979 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18708167 | $\omega$ | 129.57049 | | −0.53432638 | | −0.84526000 |
| $a$ | 3.0277166 | $\Omega$ | 352.72139 | | +0.76146390 | | −0.47848136 |
| $e$ | 0.1179757 | $i$ | 2.51288 | | +0.36697145 | | −0.23788888 |
| $P$ | 5.27 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 02 04 | 691 | 0.2− | 0.2− | 2004 12 21 | 691 | 0.2+ | 0.1+ | 2009 11 09 | 691 | 0.1+ | 0.0 |
| 1995 02 04 | 691 | 0.5− | 0.2− | 2004 12 21 | 691 | 0.1− | 0.1− | 2009 11 21 | 691 | 0.2− | 0.1− |
| 1995 02 04 | 691 | 0.5+ | 0.5− | 2006 03 25 | G96 | 0.1− | 0.4+ | 2009 11 21 | 691 | 0.0 | 0.2− |
| 2003 09 26 | 645 | 0.0 | 0.1− | 2006 03 25 | G96 | 0.2+ | 0.7+ | 2009 11 21 | 691 | 0.1− | 0.3+ |
| 2003 09 26 | 645 | 0.0 | 0.1+ | 2006 03 25 | G96 | 0.1+ | 0.9+ | 2009 11 25 | 691 | 0.1+ | 0.2− |
| 2003 09 27 | 568 | 0.4− | 0.6− | 2006 03 25 | G96 | 0.2+ | 0.5+ | 2009 11 25 | 691 | 0.0 | 0.0 |
| 2003 09 27 | 568 | 0.3− | 0.6− | 2006 04 26 | G96 | 0.2+ | 0.0 | 2009 11 25 | 691 | 0.1− | 0.1+ |
| 2003 09 27 | 568 | 0.4− | 0.6− | 2006 04 26 | G96 | 0.3+ | 0.3− | 2009 12 17 | G96 | 0.0 | 0.0 |
| 2004 12 12 | 691 | 0.1− | 0.0 | 2006 04 26 | G96 | 0.2− | 0.0 | 2009 12 17 | G96 | 1.0+ | 0.4+ |
| 2004 12 12 | 691 | 0.1− | 0.2+ | 2006 04 26 | G96 | 0.0 | 0.4+ | 2009 12 17 | G96 | 0.2+ | 0.0 |
| 2004 12 12 | 691 | 0.2− | 0.2+ | 2009 11 09 | 691 | 0.2+ | 0.2+ | 2009 12 17 | G96 | 0.5+ | 0.2+ |
| 2004 12 21 | 691 | 0.4− | 0.1+ | 2009 11 09 | 691 | 0.2+ | 0.0 | | | | |

**2009 WC$_{160}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 357.28162 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.19324791 | $\omega$ | 100.09781 | | +0.28435068 | | −0.95862215 |
| $a$ | 2.9629626 | $\Omega$ | 333.36979 | | +0.86718620 | | +0.26327866 |
| $e$ | 0.1146289 | $i$ | 1.75417 | | +0.40881877 | | +0.10829553 |
| $P$ | 5.10 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 03 26 | 695 | 0.3+ | 0.3+ | 2005 12 03 | 568 | 0.2+ | 0.1+ | 2009 11 21 | 691 | 0.2− | 0.1+ |
| 2001 03 26 | 695 | 0.4+ | 0.2+ | 2006 03 04 | 691 | 0.1− | 0.2+ | 2009 11 25 | 691 | 0.1− | 0.1+ |
| 2003 08 25 | 807 | 0.2− | 0.7+ | 2006 03 04 | 691 | 0.2− | 0.4+ | 2009 11 25 | 691 | 0.1− | 0.0 |
| 2003 08 25 | 807 | 0.5− | 1.0+ | 2006 03 04 | 691 | 0.3+ | 0.2− | 2009 11 25 | 691 | 0.0 | 0.0 |
| 2004 12 10 | 691 | 0.0 | 0.1− | 2009 11 08 | 691 | 0.2+ | 0.1− | 2009 12 17 | G96 | 0.3+ | 0.3− |
| 2004 12 10 | 691 | 0.3+ | 0.0 | 2009 11 08 | 691 | 0.1+ | 0.1− | 2009 12 17 | G96 | 0.0 | 0.1− |
| 2004 12 10 | 691 | 0.4− | 0.1− | 2009 11 08 | 691 | 0.2− | 0.2+ | 2009 12 17 | G96 | 0.6+ | 0.1+ |
| 2005 12 03 | 568 | 0.2+ | 0.1+ | 2009 11 21 | 691 | 0.1+ | 0.1+ | 2009 12 17 | G96 | 0.2+ | 0.2+ |
| 2005 12 03 | 568 | 0.3+ | 0.1+ | 2009 11 21 | 691 | 0.0 | 0.1+ | | | | |

**2009 WV$_{160}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 313.10975 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17887560 | $\omega$ | 69.81227 | | −0.56112881 | | −0.79327480 |
| $a$ | 3.1196221 | $\Omega$ | 56.57139 | | +0.61349577 | | −0.59025090 |
| $e$ | 0.0822345 | $i$ | 16.44942 | | +0.55565942 | | −0.14939531 |
| $P$ | 5.51 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 26 | 645 | 0.1+ | 0.0 | 2009 11 09 | 691 | 0.2+ | 0.1+ | 2009 11 21 | 691 | 0.1− | 0.1− |
| 2003 09 26 | 645 | 0.0 | 0.0 | 2009 11 09 | 691 | 0.0 | 0.3− | 2009 11 25 | 691 | 0.3+ | 0.2+ |
| 2003 09 30 | 645 | 0.0 | 0.0 | 2009 11 09 | 691 | 0.7− | 0.1+ | 2009 11 25 | 691 | 0.2− | 0.1+ |
| 2003 09 30 | 645 | 0.0 | 0.1+ | 2009 11 17 | 691 | 0.3− | 0.0 | 2009 11 25 | 691 | 0.2+ | 0.2+ |
| 2003 10 23 | 645 | 0.0 | 0.0 | 2009 11 17 | 691 | 0.0 | 0.0 | 2009 11 25 | 691 | 0.0 | 0.2− |
| 2003 10 23 | 645 | 0.1+ | 0.0 | 2009 11 17 | 691 | 0.1− | 0.1+ | 2009 11 25 | 691 | 0.3+ | 0.1− |
| 2003 11 20 | 645 | 0.0 | 0.0 | 2009 11 21 | 691 | 0.2− | 0.8− | 2009 11 25 | 691 | 0.1− | 0.1− |
| 2003 11 20 | 645 | 0.1− | 0.0 | 2009 11 21 | 691 | 0.7+ | 0.8+ | | | | |

**2009 WK$_{161}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 65.80905 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.26907139 | $\omega$ | 318.61208 | | +0.99744991 | −0.01929529 | |
| $a$ | 2.3762440 | $\Omega$ | 42.64374 | | +0.04908426 | +0.88438055 | |
| $e$ | 0.1110153 | $i$ | 5.82149 | | −0.05181123 | +0.46636760 | |
| $P$ | 3.66 | $H$ | 18.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 25 | 691 | 0.2+ | 0.0 | 2005 10 27 | 691 | 0.4− | 0.7+ | 2009 11 21 | 691 | 0.1− | 0.1+ |
| 2005 09 25 | 691 | 0.5+ | 0.1− | 2009 11 09 | 691 | 0.1+ | 0.3− | 2009 11 21 | 691 | 0.0 | 0.1+ |
| 2005 09 25 | 691 | 0.2+ | 0.4− | 2009 11 09 | 691 | 0.1+ | 0.5− | 2009 11 26 | 691 | 0.1+ | 0.3+ |
| 2005 10 27 | 691 | 0.5− | 0.3+ | 2009 11 09 | 691 | 0.4− | 0.5+ | 2009 11 26 | 691 | 0.1+ | 0.3− |
| 2005 10 27 | 691 | 0.2− | 0.4− | 2009 11 21 | 691 | 0.2− | 0.2− | 2009 11 26 | 691 | 0.2+ | 0.1+ |

**2009 WA$_{163}$ = 2003 TG$_{52}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 96.61288 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18092133 | $\omega$ | 268.38888 | | +0.78961691 | +0.60834903 | |
| $a$ | 3.0960612 | $\Omega$ | 54.13285 | | −0.51631643 | +0.72927866 | |
| $e$ | 0.1500953 | $i$ | 5.67280 | | −0.33154559 | +0.31315187 | |
| $P$ | 5.45 | $H$ | 16.2 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 05 | 691 | 0.1− | 0.2− | 2007 05 09 | G96 | 0.1+ | 0.1− | 2009 11 21 | 691 | 0.3+ | 0.2+ |
| 2003 10 05 | 691 | 0.5+ | 0.0 | 2009 11 09 | 691 | 0.2− | 0.2− | 2009 11 21 | 691 | 0.0 | 0.1+ |
| 2003 10 05 | 691 | 0.7− | 0.3+ | 2009 11 09 | 691 | 0.6− | 0.3− | 2009 11 25 | 691 | 0.2+ | 0.2+ |
| 2003 10 23 | 691 | 0.0 | 0.0 | 2009 11 09 | 691 | 0.1+ | 0.1− | 2009 11 25 | 691 | 0.2− | 0.0 |
| 2003 10 23 | 691 | 0.1+ | 0.1− | 2009 11 09 | G96 | 0.3− | 0.7− | 2009 11 25 | 691 | 0.2+ | 0.0 |
| 2003 10 23 | 691 | 0.1+ | 0.1+ | 2009 11 09 | G96 | 0.3− | 0.1− | 2009 12 16 | G96 | 0.4+ | 0.2+ |
| 2007 05 09 | G96 | 0.3− | 0.1+ | 2009 11 09 | G96 | 0.3− | 0.2+ | 2009 12 16 | G96 | 0.0 | 0.1+ |
| 2007 05 09 | G96 | 0.0 | 0.2− | 2009 11 09 | G96 | 0.1+ | 0.4− | 2009 12 16 | G96 | 0.7+ | 0.0 |
| 2007 05 09 | G96 | 0.3+ | 0.3+ | 2009 11 21 | 691 | 0.0 | 0.3+ | 2009 12 16 | G96 | 0.3+ | 0.2− |

**2009 WD$_{163}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 102.59382 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18293777 | $\omega$ | 254.44359 | | +0.68512145 | +0.72332173 | |
| $a$ | 3.0732682 | $\Omega$ | 59.13056 | | −0.62397033 | +0.64375227 | |
| $e$ | 0.1875640 | $i$ | 5.75744 | | −0.37585853 | +0.24977727 | |
| $P$ | 5.39 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 28 | 699 | 0.1+ | 1.5− | 2007 04 22 | G96 | 0.6− | 0.1− | 2009 11 09 | 691 | 0.2− | 0.1+ |
| 2003 09 28 | 699 | 0.9+ | 0.7− | 2007 05 10 | 691 | 0.3+ | 0.1− | 2009 11 09 | 691 | 0.3− | 0.1+ |
| 2003 09 28 | 699 | 0.6− | 0.3− | 2007 05 10 | 691 | 0.1+ | 0.1+ | 2009 11 21 | 691 | 0.3− | 0.0 |
| 2003 09 28 | 699 | 0.4+ | 0.6− | 2007 05 10 | 691 | 0.2− | 0.0 | 2009 11 21 | 691 | 0.4+ | 0.0 |
| 2003 10 23 | 645 | 0.0 | 0.0 | 2008 08 05 | E12 | 0.5− | 0.5− | 2009 11 21 | 691 | 0.2− | 0.2− |
| 2003 10 23 | 645 | 0.0 | 0.0 | 2008 08 05 | E12 | 0.5− | 0.3− | 2009 11 25 | 691 | 0.0 | 0.2− |
| 2007 03 26 | G96 | 0.1− | 0.4− | 2008 08 05 | E12 | 0.3− | 0.0 | 2009 11 25 | 691 | 0.2+ | 0.2+ |
| 2007 03 26 | G96 | 0.1− | 0.1− | 2008 08 05 | E12 | 0.2− | 0.2+ | 2009 11 25 | 691 | 0.2+ | 0.2+ |
| 2007 03 26 | G96 | 0.5+ | 0.5− | 2008 08 23 | E12 | 1.2+ | 0.8+ | 2009 12 16 | G96 | 1.0+ | 0.2+ |
| 2007 03 26 | G96 | 0.1− | 0.6− | 2008 08 23 | E12 | 0.3− | 0.4+ | 2009 12 16 | G96 | 0.2+ | 0.4+ |
| 2007 04 22 | G96 | 0.0 | 0.2+ | 2008 08 23 | E12 | 0.4− | 0.9+ | 2009 12 16 | G96 | 0.4+ | 0.0 |
| 2007 04 22 | G96 | 0.0 | 0.5+ | 2008 08 23 | E12 | 0.3+ | 0.7+ | 2009 12 16 | G96 | 0.5+ | 0.1+ |
| 2007 04 22 | G96 | 0.6− | 0.2+ | 2009 11 09 | 691 | 0.5− | 0.2+ | | | | |

**2009 WM$_{163}$ = 2007 EQ$_{221}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 34.66656 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27383714 | $\omega$ | 108.34630 | | +0.85220183 | −0.52281575 | |
| $a$ | 2.3485933 | $\Omega$ | 283.17953 | | +0.47178565 | +0.78470220 | |
| $e$ | 0.2112815 | $i$ | 1.19993 | | +0.22620863 | +0.33302576 | |
| $P$ | 3.60 | $H$ | 18.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 10 15 | 327 | 0.7− | 0.5+ | 2007 03 10 | G96 | 1.2− | 0.4+ | 2009 11 09 | G96 | 0.2+ | 0.0 |
| 1998 10 15 | 327 | 0.4+ | 0.1− | 2007 03 13 | G96 | 0.2+ | 0.1+ | 2009 11 09 | G96 | 0.2+ | 0.1+ |
| 1998 10 15 | 327 | 0.1+ | 0.1+ | 2007 03 13 | G96 | 0.1+ | 0.1+ | 2009 11 09 | G96 | 0.2− | 0.2+ |
| 2005 08 27 | 644 | 0.2− | 0.2+ | 2007 03 13 | G96 | 0.6− | 0.2− | 2009 11 21 | 691 | 0.3− | 0.0 |
| 2005 08 27 | 644 | 0.3+ | 0.0 | 2007 03 13 | G96 | 1.0+ | 0.1+ | 2009 11 21 | 691 | 1.0+ | 0.6+ |
| 2005 08 27 | 644 | 0.2+ | 0.0 | 2009 09 21 | G96 | 0.2+ | 0.2+ | 2009 11 21 | 691 | 0.4− | 0.1− |
| 2005 10 25 | G96 | 0.1− | 0.4− | 2009 09 21 | G96 | 0.6+ | 0.3+ | 2009 11 25 | 691 | 0.1− | 0.2− |
| 2005 10 25 | G96 | 0.6− | 0.1− | 2009 09 21 | G96 | 0.5+ | 0.4+ | 2009 11 25 | 691 | 0.2− | 0.0 |
| 2005 10 25 | G96 | 0.1+ | 0.2− | 2009 09 21 | G96 | 0.8+ | 0.5+ | 2009 11 25 | 691 | 0.2− | 0.1+ |
| 2005 10 25 | G96 | 0.1+ | 0.1+ | 2009 11 09 | 691 | 0.4− | 0.1− | 2009 12 16 | G96 | 1.0+ | 0.3− |
| 2007 03 10 | G96 | 0.1− | 0.0 | 2009 11 09 | 691 | 0.3− | 0.0 | 2009 12 16 | G96 | 0.5+ | 0.1− |
| 2007 03 10 | G96 | 0.3+ | 0.0 | 2009 11 09 | 691 | 0.1− | 0.2− | 2009 12 16 | G96 | 0.1+ | 0.6− |
| 2007 03 10 | G96 | 0.7+ | 0.1+ | 2009 11 09 | G96 | 0.2+ | 0.0 | 2009 12 16 | G96 | 0.8+ | 0.1− |

**2009 WN$_{163}$ = 2000 WP$_{101}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 6.72451 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21966553 | $\omega$ | 176.17203 | | +0.30790045 | −0.94246649 | |
| $a$ | 2.7203708 | $\Omega$ | 255.85991 | | +0.86930488 | +0.33429886 | |
| $e$ | 0.1682993 | $i$ | 7.71680 | | +0.38666050 | −0.00109082 | |
| $P$ | 4.49 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 25 | 704 | 0.5+ | 1.2+ | 2009 11 09 | G96 | 0.2+ | 0.2− | 2009 12 15 | G96 | 0.1+ | 0.1+ |
| 2000 11 25 | 704 | 0.5+ | 0.4+ | 2009 11 09 | G96 | 0.3+ | 0.3− | 2009 12 15 | G96 | 0.2+ | 0.1− |
| 2000 11 25 | 704 | 0.4+ | 0.7+ | 2009 11 21 | 691 | 0.1− | 0.1− | 2009 12 15 | G96 | 0.3+ | 0.1− |
| 2000 11 25 | 704 | 0.4+ | 1.0+ | 2009 11 21 | 691 | 0.5− | 0.3− | 2009 12 15 | G96 | 0.1+ | 0.0 |
| 2000 11 29 | 704 | 1.1− | 0.2+ | 2009 11 21 | 691 | 0.0 | 0.3− | 2009 12 15 | G96 | 0.1− | 0.1− |
| 2000 11 29 | 704 | 0.1− | 0.3+ | 2009 11 25 | 691 | 0.1+ | 0.1− | 2009 12 15 | G96 | 0.0 | 0.0 |
| 2000 11 29 | 704 | 0.8− | 0.0 | 2009 11 25 | 691 | 0.0 | 0.2+ | 2009 12 15 | G96 | 0.4+ | 0.1+ |
| 2009 11 09 | 691 | 0.0 | 0.1+ | 2009 11 25 | 691 | 0.2− | 0.0 | 2009 12 15 | G96 | 0.4+ | 0.0 |
| 2009 11 09 | 691 | 0.1+ | 0.0 | 2009 12 09 | J75 | 0.3+ | 0.2− | 2009 12 15 | G96 | 0.2+ | 0.1− |
| 2009 11 09 | 691 | 0.1− | 0.1− | 2009 12 09 | J75 | 0.1+ | 0.3+ | 2009 12 15 | G96 | 0.3+ | 0.1− |
| 2009 11 09 | 691 | 0.0 | 0.1− | 2009 12 09 | J75 | 0.3− | 0.9− | 2009 12 15 | G96 | 0.2+ | 0.2− |
| 2009 11 09 | 691 | 0.0 | 0.0 | 2009 12 10 | G96 | 0.2+ | 0.0 | 2009 12 15 | G96 | 0.4+ | 0.1− |
| 2009 11 09 | 691 | 0.3− | 0.0 | 2009 12 10 | G96 | 0.0 | 0.2− | 2009 12 17 | 704 | 0.2− | 0.1+ |
| 2009 11 09 | G96 | 0.5+ | 0.3− | 2009 12 10 | G96 | 0.3+ | 0.1+ | 2009 12 17 | 704 | 0.2+ | 0.8+ |
| 2009 11 09 | G96 | 0.6+ | 0.0 | 2009 12 10 | G96 | 0.1− | 0.0 | 2009 12 17 | 704 | 0.4− | 0.3+ |

**2009 WZ$_{163}$ = 2003 TO$_{41}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 33.07599 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17946178 | $\omega$ | 127.41361 | | +0.77204489 | −0.63110719 | |
| $a$ | 3.1128252 | $\Omega$ | 271.84540 | | +0.55677948 | +0.72862694 | |
| $e$ | 0.1584182 | $i$ | 4.31319 | | +0.30650172 | +0.26609491 | |
| $P$ | 5.49 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 01 19 | 691 | 0.1+ | 0.3+ | 2005 01 17 | 691 | 0.0 | 0.0 | 2009 11 09 | G96 | 0.7+ | 0.4− |
| 1994 01 19 | 691 | 0.6+ | 0.9+ | 2005 01 17 | 691 | 0.1+ | 0.1+ | 2009 11 21 | 691 | 0.2− | 0.2− |
| 1994 01 19 | 691 | 0.2− | 0.5+ | 2008 09 05 | 691 | 0.2− | 0.3+ | 2009 11 21 | 691 | 0.3− | 0.2− |
| 2003 10 02 | 691 | 0.1+ | 0.2− | 2008 09 05 | 691 | 0.3− | 0.4+ | 2009 11 21 | 691 | 0.3− | 0.3− |
| 2003 10 02 | 691 | 0.1− | 0.0 | 2008 09 05 | 691 | 0.0 | 0.4+ | 2009 11 25 | 691 | 0.1+ | 0.3− |
| 2003 10 02 | 691 | 0.2− | 0.0 | 2008 09 24 | G96 | 0.1+ | 0.2+ | 2009 11 25 | 691 | 0.1− | 0.0 |
| 2003 10 16 | 691 | 0.1+ | 0.1+ | 2008 09 24 | G96 | 0.2+ | 0.0 | 2009 11 25 | 691 | 0.2+ | 0.2− |
| 2003 10 16 | 691 | 0.1+ | 0.4+ | 2008 09 24 | G96 | 0.4+ | 0.1+ | 2009 12 10 | G96 | 0.2+ | 0.1− |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 16 | 691 | 0.1− | 0.1+ | 2008 09 24 | G96 | 0.1− | 0.1− | 2009 12 10 | G96 | 0.1+ | 0.4− |
| 2003 10 28 | 695 | 0.1− | 0.0 | 2009 11 09 | G96 | 0.5− | 0.5+ | 2009 12 10 | G96 | 0.1− | 0.3− |
| 2003 10 28 | 695 | (2.0+ | 1.1+) | 2009 11 09 | G96 | 0.5+ | 0.1+ | | | | |
| 2005 01 17 | 691 | 0.1+ | 0.1+ | 2009 11 09 | G96 | 1.0+ | 0.7+ | | | | |

**2009 WK$_{164}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 18.49914 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18666309 | $\omega$ | 32.69212 | | +0.57205656 | −0.82016792 | |
| $a$ | 3.0322412 | $\Omega$ | 22.41787 | | +0.74753908 | +0.51696944 | |
| $e$ | 0.1658055 | $i$ | 1.30886 | | +0.33754499 | +0.24508608 | |
| $P$ | 5.28 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 10 14 | 691 | 1.3− | 0.2+ | 2004 12 20 | G96 | 0.4− | 0.2− | 2009 11 25 | 691 | 0.2+ | 0.2+ |
| 1998 10 14 | 691 | 0.0 | 0.3+ | 2004 12 20 | G96 | 0.1+ | 0.4− | 2009 11 25 | 691 | 0.2+ | 0.1+ |
| 1998 10 14 | 691 | 0.2− | 0.2+ | 2005 01 17 | 691 | 0.5+ | 0.1+ | 2009 11 25 | 691 | 0.2+ | 0.1+ |
| 1998 10 20 | 691 | 1.0− | 0.4+ | 2005 01 17 | 691 | 0.2− | 0.3+ | 2009 12 10 | G96 | 0.6+ | 0.2− |
| 1998 10 20 | 691 | 1.0− | 0.3+ | 2005 01 17 | 691 | 0.1+ | 0.1− | 2009 12 10 | G96 | 0.4+ | 0.1+ |
| 1998 10 20 | 691 | (4.7+ | 4.2−) | 2009 11 21 | 691 | 0.2+ | 0.1+ | 2009 12 10 | G96 | 1.0+ | 0.2− |
| 2003 09 19 | 691 | 0.2− | 0.8+ | 2009 11 21 | 691 | 0.3+ | 0.1− | 2009 12 10 | G96 | 0.4+ | 0.3+ |
| 2003 09 19 | 691 | 0.4− | 0.6+ | 2009 11 21 | 691 | 0.2+ | 0.1− | 2009 12 15 | G96 | 0.1+ | 0.0 |
| 2003 09 19 | 691 | 0.5− | 0.8+ | 2009 11 25 | 291 | 0.8− | 0.5+ | 2009 12 15 | G96 | 0.1+ | 0.0 |
| 2004 12 20 | G96 | 0.5− | 0.2− | 2009 11 25 | 291 | 0.8− | 0.4+ | 2009 12 15 | G96 | 0.2+ | 0.1+ |
| 2004 12 20 | G96 | 0.6− | 0.3− | 2009 11 25 | 291 | 0.6− | 0.4+ | 2009 12 15 | G96 | 0.5+ | 0.3− |

**2009 WM$_{164}$ = 2005 WE$_{128}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 0.58235 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.25098399 | $\omega$ | 16.66279 | | +0.14946590 | −0.98183332 | |
| $a$ | 2.4890791 | $\Omega$ | 64.86712 | | +0.89181328 | +0.08281210 | |
| $e$ | 0.0946115 | $i$ | 7.41839 | | +0.42700002 | +0.17072052 | |
| $P$ | 3.93 | $H$ | 17.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 12 14 | 291 | 0.1− | 0.4− | 2005 11 25 | G96 | 0.1+ | 0.0 | 2009 11 25 | 291 | 0.2− | 0.1− |
| 2001 12 14 | 291 | 0.1+ | 0.3+ | 2005 12 02 | G96 | 0.1− | 0.1− | 2009 11 25 | 691 | 0.2− | 0.1+ |
| 2001 12 14 | 291 | 0.0 | 0.1+ | 2005 12 02 | G96 | 0.1− | 0.1− | 2009 11 25 | 691 | 0.1+ | 0.0 |
| 2005 10 31 | G96 | 0.1+ | 0.0 | 2005 12 02 | G96 | 0.1+ | 0.0 | 2009 11 25 | 691 | 0.2+ | 0.1+ |
| 2005 10 31 | G96 | 0.1− | 0.2− | 2005 12 02 | G96 | 0.1− | 0.2+ | 2009 12 10 | G96 | 0.5+ | 0.1− |
| 2005 10 31 | G96 | 0.6− | 0.0 | 2009 11 21 | 691 | 0.0 | 0.1− | 2009 12 10 | G96 | 0.2+ | 0.1− |
| 2005 10 31 | G96 | 0.2+ | 0.1+ | 2009 11 21 | 691 | 0.2+ | 0.2− | 2009 12 10 | G96 | 0.3+ | 0.1− |
| 2005 11 25 | G96 | 0.2+ | 0.1− | 2009 11 21 | 691 | 0.2+ | 0.3+ | 2009 12 10 | G96 | 0.1+ | 0.3− |
| 2005 11 25 | G96 | 0.3+ | 0.1− | 2009 11 25 | 291 | 0.4− | 0.1+ | | | | |
| 2005 11 25 | G96 | 0.1+ | 0.0 | 2009 11 25 | 291 | 0.1− | 0.0 | | | | |

**2009 WW$_{164}$ = 2006 EQ$_{57}$ = 2008 RS$_{54}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 104.11909 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17853166 | $\omega$ | 59.28280 | | +0.76637878 | +0.63871475 | |
| $a$ | 3.1236273 | $\Omega$ | 260.93033 | | −0.61058594 | +0.69108286 | |
| $e$ | 0.1393113 | $i$ | 3.98392 | | −0.19962056 | +0.33830157 | |
| $P$ | 5.52 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 03 26 | 695 | 0.2+ | 0.5− | 2008 09 03 | 691 | 0.1− | 0.4+ | 2009 11 08 | G96 | 0.2+ | 0.0 |
| 2001 03 26 | 695 | 0.2+ | 0.6+ | 2008 09 03 | 691 | 0.0 | 0.3+ | 2009 11 17 | 691 | 0.1− | 0.3− |
| 2002 06 11 | 644 | 0.4− | 0.2− | 2008 09 03 | 691 | 0.1− | 0.4+ | 2009 11 17 | 691 | 0.2+ | 0.3− |
| 2002 06 11 | 644 | 0.6− | 0.1+ | 2008 09 06 | 691 | 0.1− | 0.4+ | 2009 11 17 | 691 | 0.7+ | 1.1+ |
| 2002 06 11 | 644 | 0.5− | 0.2+ | 2008 09 06 | 691 | 0.5− | 0.1+ | 2009 11 21 | 691 | 0.1− | 0.1− |
| 2006 02 06 | 691 | 0.1+ | 0.4+ | 2008 09 06 | 691 | 0.1+ | 0.5+ | 2009 11 21 | 691 | 0.8− | 1.0+ |
| 2006 02 06 | 691 | 0.2+ | 0.4+ | 2008 09 07 | 703 | 0.9− | 1.5+ | 2009 11 21 | 691 | 0.1+ | 0.2− |
| 2006 02 06 | 691 | 0.6+ | 0.6+ | 2008 09 07 | 703 | 0.3+ | 1.1+ | 2009 11 25 | 691 | 0.5− | 0.2+ |
| 2006 03 05 | 691 | 0.2+ | 0.4+ | 2008 09 07 | 703 | 1.0+ | 1.0+ | 2009 11 25 | 691 | 0.1+ | 0.1− |
| 2006 03 05 | 691 | 0.3+ | 0.1+ | 2008 09 07 | 703 | (0.1+ | 2.1+) | 2009 11 25 | 691 | 0.4− | 0.2− |
| 2006 03 05 | 691 | 0.1− | 0.2+ | 2008 10 07 | G96 | 0.4+ | 0.5+ | 2009 12 10 | G96 | 0.2− | 0.1− |
| 2006 03 09 | 691 | 0.4+ | 0.0 | 2008 10 07 | G96 | 0.2+ | 0.0 | 2009 12 10 | G96 | 0.2− | 0.1− |
| 2006 03 09 | 691 | 0.4+ | 0.3+ | 2008 10 07 | G96 | 0.4+ | 0.0 | 2009 12 10 | G96 | 0.1+ | 0.3− |
| 2006 03 09 | 691 | 0.3+ | 0.3+ | 2008 10 07 | G96 | 0.8+ | 0.1+ | 2009 12 10 | G96 | 0.5+ | 0.1+ |
| 2007 05 12 | D35 | 0.2+ | 0.5+ | 2009 09 21 | 291 | 0.4− | 0.0 | 2009 12 10 | 114 | 0.6+ | 0.2+ |
| 2007 05 12 | D35 | 0.4− | 0.6+ | 2009 09 21 | 291 | 0.1− | 0.1− | 2009 12 10 | 114 | 0.1+ | 0.3− |
| 2007 05 12 | D35 | 0.2− | 0.8+ | 2009 09 21 | 291 | 0.2− | 0.2− | 2009 12 10 | 114 | 0.2− | 0.2− |
| 2007 06 15 | 691 | 0.4− | 0.1− | 2009 11 08 | G96 | 0.0 | 0.2− | 2009 12 10 | 114 | 0.2+ | 0.8− |
| 2007 06 15 | 691 | 0.0 | 0.2− | 2009 11 08 | G96 | 0.2+ | 0.2− | 2009 12 10 | 114 | 0.6− | 0.4− |
| 2007 06 15 | 691 | 0.3− | 0.1+ | 2009 11 08 | G96 | 0.2− | 0.1+ | | | | |

**2009 WJ$_{165}$ = 2005 XB$_{89}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 43.82545 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23835906 | $\omega$ | 314.15313 | | +0.88525422 | −0.43569812 | |
| $a$ | 2.5762121 | $\Omega$ | 72.29934 | | +0.46040090 | +0.77122814 | |
| $e$ | 0.1694981 | $i$ | 9.83739 | | +0.06599980 | +0.46408437 | |
| $P$ | 4.13 | $H$ | 17.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 06 | 691 | 0.2− | 0.2+ | 2009 11 21 | 691 | 0.1+ | 0.4− | 2009 11 25 | 691 | 0.3+ | 0.0 |
| 2005 12 06 | 691 | 0.0 | 0.1+ | 2009 11 21 | 691 | 0.0 | 0.2+ | 2009 11 25 | 691 | 0.4+ | 0.1− |
| 2005 12 06 | 691 | 0.2+ | 0.0 | 2009 11 21 | 691 | 0.4− | 0.1+ | 2009 11 25 | 691 | 0.2− | 0.0 |
| 2005 12 24 | 691 | 0.0 | 0.1− | 2009 11 25 | 691 | 0.2− | 0.1+ | 2009 12 10 | G96 | 0.1+ | 0.3+ |
| 2005 12 24 | 691 | 0.2+ | 0.2+ | 2009 11 25 | 691 | 0.1− | 0.1− | 2009 12 10 | G96 | 0.1+ | 0.2+ |
| 2005 12 24 | 691 | 0.1− | 0.4− | 2009 11 25 | 691 | 0.1− | 0.0 | 2009 12 10 | G96 | 0.1+ | 0.2+ |

**2009 WL$_{165}$ = 2003 HU$_{51}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 184.08848 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24061103 | $\omega$ | 193.48822 | | −0.16983506 | +0.96730732 | |
| $a$ | 2.5601124 | $\Omega$ | 66.99754 | | −0.88410875 | −0.06513261 | |
| $e$ | 0.0875870 | $i$ | 11.80671 | | −0.43532489 | −0.24510058 | |
| $P$ | 4.10 | $H$ | 16.1 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 03 31 | 699 | 0.5− | 0.9+ | 2005 12 02 | 691 | 0.1− | 0.1− | 2009 11 17 | 691 | 0.2− | 0.2+ |
| 2003 03 31 | 699 | 1.1− | 0.6+ | 2005 12 02 | 691 | 0.1− | 0.0 | 2009 11 21 | 691 | 0.9+ | 0.2+ |
| 2003 03 31 | 699 | 0.5+ | 0.5− | 2007 04 15 | G96 | 0.2− | 0.0 | 2009 11 21 | 691 | 0.1+ | 0.2− |
| 2003 03 31 | 699 | 0.6− | 0.2+ | 2007 04 15 | G96 | 0.1+ | 0.1− | 2009 11 21 | 691 | 0.6− | 0.1+ |
| 2003 04 30 | 608 | 0.5+ | 0.4− | 2007 04 15 | G96 | 0.0 | 0.2− | 2009 11 25 | 691 | 0.1− | 0.1− |
| 2003 04 30 | 608 | 0.6+ | 0.3− | 2007 04 15 | G96 | 0.1− | 0.2− | 2009 11 25 | 691 | 0.0 | 0.1− |
| 2003 04 30 | 608 | 0.0 | 0.6− | 2009 11 17 | 691 | 0.7− | 0.3+ | 2009 11 25 | 691 | 0.2− | 0.0 |
| 2003 05 02 | 704 | 0.2− | 0.7+ | 2009 11 17 | 691 | 0.6− | 0.0 | 2009 12 11 | G96 | 0.0 | 0.1− |
| 2003 05 02 | 704 | 0.1+ | 0.5+ | 2009 11 17 | 691 | 1.2+ | 0.0 | 2009 12 11 | G96 | 0.1+ | 0.1− |
| 2003 05 02 | 704 | 0.8+ | 0.3− | 2009 11 17 | 691 | 0.1+ | 0.0 | 2009 12 11 | G96 | 0.2+ | 0.4+ |
| 2005 12 02 | 691 | 0.2+ | 0.1− | 2009 11 17 | 691 | 0.1− | 0.1− | 2009 12 11 | G96 | 0.3+ | 0.1− |

**2009 WO$_{165}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 33.61601 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23538175 | $\omega$ | 141.96996 | | +0.66211714 | −0.72917284 | |
| $a$ | 2.5978906 | $\Omega$ | 265.85293 | | +0.63804854 | +0.66955654 | |
| $e$ | 0.0754829 | $i$ | 9.98515 | | +0.39305846 | +0.14142492 | |
| $P$ | 4.19 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 11 30 | G96 | 0.2− | 0.1+ | 2008 06 30 | 691 | 0.1− | 0.1+ | 2009 12 10 | G96 | 0.0 | 0.0 |
| 2005 11 30 | G96 | 0.0 | 0.1+ | 2008 06 30 | 691 | 0.6− | 0.2− | 2009 12 10 | G96 | 0.2+ | 0.0 |
| 2005 11 30 | G96 | 0.1+ | 0.1− | 2009 11 21 | 691 | 0.1− | 0.0 | 2009 12 10 | G96 | 0.3+ | 0.0 |
| 2005 11 30 | G96 | 0.2+ | 0.1− | 2009 11 21 | 691 | 0.3− | 0.2+ | 2009 12 10 | G96 | 0.3+ | 0.1+ |
| 2005 12 31 | 691 | 0.1+ | 0.0 | 2009 11 21 | 691 | 0.1− | 0.1+ | 2009 12 19 | G96 | 0.3+ | 0.2− |
| 2005 12 31 | 691 | 0.0 | 0.1+ | 2009 11 25 | 691 | 0.1+ | 0.4− | 2009 12 19 | G96 | 0.4+ | 0.1− |
| 2005 12 31 | 691 | 0.0 | 0.1+ | 2009 11 25 | 691 | 0.1− | 0.3+ | 2009 12 19 | G96 | 0.4+ | 0.2− |
| 2008 06 30 | 691 | 0.6+ | 0.2+ | 2009 11 25 | 691 | 0.1− | 0.1− | 2009 12 19 | G96 | 0.3+ | 0.4− |

**2009 WQ$_{165}$ = 2005 WH$_{58}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| $M$ | 18.59218 | | | (2000.0) | | **P** | | **Q** | | | |
| $n$ | 0.24442128 | | $\omega$ | 358.32364 | | +0.46163381 | | −0.88125027 | | | |
| $a$ | 2.5334366 | | $\Omega$ | 64.17294 | | +0.81517727 | | +0.37633517 | | | |
| $e$ | 0.1782871 | | $i$ | 6.47148 | | +0.34982889 | | +0.28595421 | | | |
| $P$ | 4.03 | | $H$ | 17.4 | $G$ | 0.15 | $U$ | 4 | | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 11 22 | 291 | 0.1+ | 0.2+ | 2009 11 09 | 691 | 0.4− | 0.2− | 2009 12 10 | 704 | 0.2+ | 1.1+ |
| 2005 11 22 | 291 | 0.1− | 0.2+ | 2009 11 21 | 691 | 0.2+ | 0.1+ | 2009 12 10 | 704 | (0.4+ | 2.1+) |
| 2005 11 22 | 291 | 0.2+ | 0.1+ | 2009 11 21 | 691 | 0.0 | 0.1+ | 2009 12 11 | G96 | 0.1+ | 0.3− |
| 2005 11 25 | 691 | 0.1− | 0.1− | 2009 11 21 | 691 | 0.4− | 0.2− | 2009 12 11 | G96 | 0.1+ | 0.0 |
| 2005 11 25 | 691 | 0.1− | 0.2− | 2009 11 25 | 691 | 0.2+ | 0.1+ | 2009 12 11 | G96 | 0.1+ | 0.3− |
| 2005 11 25 | 691 | 0.1+ | 0.2− | 2009 11 25 | 691 | 0.1+ | 0.1+ | 2009 12 11 | G96 | 0.1+ | 0.1− |
| 2009 11 09 | 691 | 0.2+ | 0.0 | 2009 11 25 | 691 | 0.2+ | 0.2+ | | | | |
| 2009 11 09 | 691 | 0.1+ | 0.1− | 2009 12 10 | 704 | 0.8− | 1.3− | | | | |

**2009 WT$_{165}$ = 2006 BA$_{212}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| $M$ | 202.58979 | | | (2000.0) | | **P** | | **Q** | | | |
| $n$ | 0.20133473 | | $\omega$ | 209.44943 | | −0.41041063 | | +0.91153198 | | | |
| $a$ | 2.8830815 | | $\Omega$ | 36.33748 | | −0.82786014 | | −0.36051143 | | | |
| $e$ | 0.0173946 | | $i$ | 2.50848 | | −0.38237508 | | −0.19784075 | | | |
| $P$ | 4.90 | | $H$ | 16.3 | $G$ | 0.15 | $U$ | 0 | | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 19 | 691 | 0.3− | 0.4+ | 2006 02 02 | G96 | 0.2+ | 0.2− | 2009 11 21 | 691 | 0.3− | 0.0 |
| 2003 09 19 | 691 | 0.7− | 0.3+ | 2006 02 02 | G96 | 0.2− | 0.2− | 2009 11 21 | 691 | 1.2− | 0.4+ |
| 2003 09 19 | 691 | 0.7− | 0.4+ | 2006 03 29 | 691 | 0.0 | 0.5+ | 2009 11 25 | 691 | 0.0 | 0.1+ |
| 2004 12 16 | 691 | 0.2+ | 0.1− | 2006 03 29 | 691 | 0.1− | 0.2+ | 2009 11 25 | 691 | 0.3− | 0.0 |
| 2004 12 16 | 691 | 0.1+ | 0.2− | 2006 03 29 | 691 | 0.0 | 0.1+ | 2009 11 25 | 691 | 0.3− | 0.0 |
| 2004 12 16 | 691 | 0.1+ | 0.2+ | 2008 09 07 | G96 | 0.3+ | 0.3+ | 2009 12 11 | G96 | 1.0+ | 0.2− |
| 2005 01 18 | 691 | 0.5+ | 0.0 | 2008 09 07 | G96 | 0.4+ | 0.3+ | 2009 12 11 | G96 | 0.8+ | 0.8− |
| 2005 01 18 | 691 | 0.3+ | 0.3+ | 2008 09 07 | G96 | 0.4+ | 0.2+ | 2009 12 11 | G96 | 0.6+ | 0.2− |
| 2005 01 18 | 691 | 0.1− | 0.1− | 2008 09 07 | G96 | 2.0+ | 0.1+ | 2009 12 11 | G96 | 0.7+ | 0.2− |
| 2006 01 31 | 691 | 0.2+ | 0.5+ | 2008 09 22 | G96 | 0.2+ | 0.4+ | 2009 12 20 | G96 | 0.4+ | 0.1+ |
| 2006 01 31 | 691 | 0.4+ | 0.1+ | 2008 09 22 | G96 | 0.1+ | 0.4+ | 2009 12 20 | G96 | 0.6+ | 0.2− |
| 2006 01 31 | 691 | 0.5+ | 0.3+ | 2008 09 22 | G96 | 0.1− | 0.1+ | 2009 12 20 | G96 | 0.3+ | 0.1+ |
| 2006 02 02 | G96 | 0.5+ | 0.3− | 2008 09 22 | G96 | 0.7+ | 0.4+ | | | | |
| 2006 02 02 | G96 | 0.5− | 0.2− | 2009 11 21 | 691 | 0.2− | 0.2− | | | | |

**2009 WE$_{166}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| $M$ | 149.42986 | | | (2000.0) | | **P** | | **Q** | | | |
| $n$ | 0.18999707 | | $\omega$ | 28.40805 | | +0.41104276 | | +0.91001862 | | | |
| $a$ | 2.9966644 | | $\Omega$ | 265.90596 | | −0.84629275 | | +0.35892379 | | | |
| $e$ | 0.0302623 | | $i$ | 3.10018 | | −0.33886934 | | +0.20746040 | | | |
| $P$ | 5.19 | | $H$ | 16.0 | $G$ | 0.15 | $U$ | 0 | | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 02 03 | 691 | 0.1+ | 0.1+ | 2006 03 05 | 691 | 0.3+ | 0.5+ | 2009 11 21 | 691 | 0.1+ | 0.1+ |
| 1995 02 03 | 691 | 0.3− | 0.4+ | 2008 09 03 | 691 | 0.4− | 0.3+ | 2009 11 21 | 691 | 0.3− | 0.0 |
| 1995 02 03 | 691 | 0.4− | 0.1+ | 2008 09 03 | 691 | 0.4− | 0.2+ | 2009 11 21 | 691 | 0.2− | 0.1+ |
| 1999 12 15 | 691 | 0.1+ | 0.5− | 2008 09 03 | 691 | 0.5− | 0.0 | 2009 11 25 | 691 | 0.0 | 0.3+ |
| 1999 12 15 | 691 | 0.2+ | 0.3− | 2008 09 28 | G96 | 0.0 | 0.0 | 2009 11 25 | 691 | 0.1+ | 0.1+ |
| 1999 12 15 | 691 | 0.3+ | 0.5− | 2008 09 28 | G96 | 0.2+ | 0.1− | 2009 11 25 | 691 | 0.1− | 0.0 |
| 2003 09 28 | 699 | 0.9− | 0.3+ | 2008 09 28 | G96 | 0.3+ | 0.1+ | 2009 12 10 | G96 | 0.1− | 0.3− |
| 2003 09 28 | 699 | 0.1− | 0.0 | 2008 09 28 | G96 | 0.3+ | 0.2+ | 2009 12 10 | G96 | 0.3+ | 0.4− |
| 2003 09 28 | 699 | (1.9+ | 1.6−) | 2008 11 20 | G96 | 0.9+ | 0.1− | 2009 12 10 | G96 | 0.0 | 0.0 |
| 2003 09 28 | 699 | 1.1+ | 0.7− | 2008 11 20 | G96 | 0.7+ | 0.0 | 2009 12 19 | G96 | 0.1+ | 0.2− |
| 2003 10 19 | 691 | 0.1+ | 0.5+ | 2008 11 20 | G96 | 0.4+ | 0.2+ | 2009 12 19 | G96 | 0.1+ | 0.2− |
| 2003 10 19 | 691 | 0.1+ | 0.3+ | 2008 11 20 | G96 | 0.1+ | 0.1+ | 2009 12 19 | G96 | 0.1+ | 0.5− |
| 2003 10 19 | 691 | 0.1− | 0.2+ | 2009 11 09 | 691 | 0.1− | 0.0 | 2009 12 19 | G96 | 0.2+ | 0.2+ |
| 2006 03 05 | 691 | 0.5+ | 0.5+ | 2009 11 09 | 691 | 0.2− | 0.3+ | | | | |
| 2006 03 05 | 691 | 0.2+ | 0.5+ | 2009 11 09 | 691 | 0.1+ | 0.1+ | | | | |

**2009 WO$_{166}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| $M$ | 117.85552 | | | (2000.0) | | **P** | | **Q** | | | |
| $n$ | 0.22395823 | | $\omega$ | 235.24346 | | +0.98114928 | | +0.14672582 | | | |
| $a$ | 2.6854972 | | $\Omega$ | 116.02713 | | −0.09675979 | | +0.93633402 | | | |
| $e$ | 0.1167834 | | $i$ | 8.04566 | | −0.16728310 | | +0.31898296 | | | |
| $P$ | 4.40 | | $H$ | 16.1 | $G$ | 0.15 | $U$ | 1 | | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 01 23 | 691 | 0.2− | 0.3+ | 2008 10 01 | 703 | 0.1− | 1.0+ | 2009 11 26 | G96 | 0.1+ | 0.1− |
| 2006 01 23 | 691 | 0.1+ | 0.4+ | 2008 10 01 | 703 | 0.2+ | 0.6− | 2009 11 26 | G96 | 0.1+ | 0.2− |
| 2006 01 23 | 691 | 0.4+ | 0.2+ | 2008 10 01 | 703 | 0.5− | 0.1− | 2009 11 26 | G96 | 0.1+ | 0.5+ |
| 2007 06 08 | 691 | 0.1+ | 0.0 | 2008 10 27 | 703 | 0.2+ | 0.3− | 2009 11 26 | G96 | 0.3− | 0.1+ |
| 2007 06 08 | 691 | 0.1− | 0.1+ | 2008 10 27 | 703 | 0.9+ | 1.5− | 2009 11 26 | G96 | 0.3− | 0.1− |
| 2007 06 08 | 691 | 0.0 | 0.2+ | 2008 10 27 | 703 | 1.1− | 1.0+ | 2009 12 15 | G96 | 0.3− | 0.6− |
| 2008 09 07 | 703 | 0.4− | 0.9+ | 2008 10 27 | 703 | 1.2+ | 0.9+ | 2009 12 15 | G96 | 0.1− | 0.5− |
| 2008 09 07 | 703 | 0.4+ | 0.4+ | 2009 11 21 | G96 | 1.0+ | 0.4− | 2009 12 15 | G96 | 0.0 | 0.3− |
| 2008 09 07 | 703 | 1.6− | 1.2+ | 2009 11 21 | G96 | 0.4− | 0.0 | 2009 12 15 | G96 | 0.2+ | 0.2− |
| 2008 09 07 | 703 | 0.7− | 1.3− | 2009 11 21 | G96 | 0.6− | 0.1+ | | | | |
| 2008 10 01 | 703 | 0.2+ | 1.2+ | 2009 11 21 | G96 | 0.4+ | 0.4+ | | | | |

**2009 WL$_{167}$ = 2003 AT$_{24}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| $M$ | 12.12728 | | | (2000.0) | | **P** | | **Q** | | | |
| $n$ | 0.27562564 | | $\omega$ | 143.13348 | | +0.58811268 | | −0.80161202 | | | |
| $a$ | 2.3384224 | | $\Omega$ | 270.59694 | | +0.71404009 | | +0.57700359 | | | |
| $e$ | 0.2094930 | | $i$ | 6.16764 | | +0.37982921 | | +0.15647690 | | | |
| $P$ | 3.58 | | $H$ | 17.3 | $G$ | 0.15 | $U$ | 4 | | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 01 04 | 704 | 0.3− | 1.2− | 2009 10 26 | G96 | 0.0 | 0.4− | 2009 11 22 | 691 | 0.2− | 0.1+ |
| 2003 01 04 | 704 | 0.2+ | 0.6− | 2009 11 09 | 691 | 0.8+ | 1.1+ | 2009 11 22 | 691 | 0.4− | 0.0 |
| 2003 01 04 | 704 | 0.2+ | 0.0 | 2009 11 09 | 691 | 0.2− | 0.1+ | 2009 11 24 | J75 | 0.5− | 0.1− |
| 2003 01 08 | 704 | 0.7− | 0.2+ | 2009 11 09 | 691 | 0.1− | 0.9− | 2009 11 24 | J75 | 0.0 | 0.6− |
| 2003 01 08 | 704 | 0.3+ | 0.5+ | 2009 11 09 | G96 | 0.3+ | 0.3− | 2009 11 24 | J75 | 0.3+ | 0.1+ |
| 2003 01 08 | 704 | 0.3+ | 1.3+ | 2009 11 09 | G96 | 0.5+ | 0.1− | 2009 12 13 | 703 | 0.3− | 0.8− |
| 2009 10 26 | G96 | 0.5− | 0.4− | 2009 11 09 | G96 | 0.1− | 0.1− | 2009 12 13 | 703 | 0.4+ | 0.9− |
| 2009 10 26 | G96 | (1.7− | 0.0 ) | 2009 11 09 | G96 | 0.4+ | 0.3− | 2009 12 13 | 703 | 0.6+ | 0.4+ |
| 2009 10 26 | G96 | 0.4− | 0.5+ | 2009 11 22 | 691 | 0.2− | 0.4+ | 2009 12 13 | 703 | (0.6− | 1.7−) |

**2009 WR$_{167}$ = 2007 KC$_{6}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| $M$ | 152.80360 | | | (2000.0) | | **P** | | **Q** | | | |
| $n$ | 0.18693475 | | $\omega$ | 202.88632 | | +0.02033980 | | +0.98434368 | | | |
| $a$ | 3.0293029 | | $\Omega$ | 68.64924 | | −0.88575606 | | +0.09896154 | | | |
| $e$ | 0.0781228 | | $i$ | 10.83515 | | −0.46370518 | | −0.14585654 | | | |
| $P$ | 5.27 | | $H$ | 16.1 | $G$ | 0.15 | $U$ | 2 | | | |

Residuals in seconds of arc

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 11 | 691 | 0.1+ | 0.1+ | 2007 05 24 | G96 | 0.1− | 0.6+ | 2009 11 10 | 691 | 0.2+ | 0.0 |
| 2004 12 11 | 691 | 0.0 | 0.1− | 2007 05 24 | G96 | 0.1+ | 0.5+ | 2009 11 10 | 691 | 0.0 | 0.1+ |
| 2004 12 11 | 691 | 0.0 | 0.0 | 2007 05 26 | G96 | 0.4− | 0.5+ | 2009 11 10 | 691 | 0.7+ | 0.0 |
| 2007 04 19 | G96 | 0.5+ | 0.2− | 2007 05 26 | G96 | 0.1− | 0.4+ | 2009 11 22 | 691 | 0.4− | 0.1+ |
| 2007 04 19 | G96 | 0.6+ | 0.1+ | 2007 05 26 | G96 | 0.2+ | 0.2+ | 2009 11 22 | 691 | 0.1− | 0.1+ |
| 2007 04 19 | G96 | 0.1− | 0.0 | 2007 05 26 | G96 | 0.1+ | 0.0 | 2009 11 22 | 691 | 0.3− | 0.0 |
| 2007 04 19 | G96 | 0.1+ | 0.1− | 2009 10 25 | 691 | 0.3+ | 0.2+ | 2009 11 26 | 691 | 0.3− | 0.0 |
| 2007 05 24 | G96 | 0.1+ | 0.4+ | 2009 10 25 | 691 | 0.0 | 0.2+ | 2009 11 26 | 691 | 0.3− | 0.2+ |
| 2007 05 24 | G96 | 0.2+ | 0.5+ | 2009 10 25 | 691 | 0.2+ | 0.0 | 2009 11 26 | 691 | 0.2− | 0.0 |

**2009 WT$_{167}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 18.44478 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21115223 | $\omega$ | 335.64588 | | +0.62414269 | −0.77585449 | |
| $a$ | 2.7930086 | $\Omega$ | 75.60178 | | +0.73154312 | +0.53887503 | |
| $e$ | 0.0629636 | $i$ | 5.46059 | | +0.27439127 | +0.32812118 | |
| $P$ | 4.67 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 04 22 | 691 | 0.0 | 0.2− | 2009 11 10 | 691 | 0.1− | 0.1− | 2009 11 26 | 691 | 0.2+ | 0.0 | |
| 2007 04 22 | 691 | 0.2+ | 0.1+ | 2009 11 10 | 691 | 0.5+ | 0.0 | 2009 11 26 | 691 | 0.3− | 0.1+ | |
| 2007 04 22 | 691 | 0.2− | 0.2− | 2009 11 10 | 691 | 0.2+ | 0.1+ | 2009 12 11 | G96 | 0.7+ | 0.1− | |
| 2007 05 12 | G96 | 0.2+ | 0.1+ | 2009 11 22 | 691 | 0.3− | 0.1− | 2009 12 11 | G96 | 0.3+ | 0.3− | |
| 2007 05 12 | G96 | 0.1+ | 0.3+ | 2009 11 22 | 691 | 0.1+ | 0.0 | 2009 12 11 | G96 | 0.1− | 0.1+ | |
| 2007 05 12 | G96 | 0.1− | 0.5+ | 2009 11 22 | 691 | 0.2− | 0.1− | 2009 12 11 | G96 | 0.6+ | 0.2− | |
| 2007 05 12 | G96 | 0.1− | 0.1+ | 2009 11 26 | 691 | 0.4− | 0.2+ | | | | | |

**2009 WX$_{167}$ = 2002 UO$_{17}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 6.73248 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28649285 | $\omega$ | 206.53046 | | +0.34147846 | −0.93928336 | |
| $a$ | 2.2789083 | $\Omega$ | 223.52510 | | +0.87080600 | +0.32968844 | |
| $e$ | 0.1943152 | $i$ | 2.80925 | | +0.35367975 | +0.09514361 | |
| $P$ | 3.44 | $H$ | 17.9 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 10 29 | 291 | 0.0 | 0.2+ | 2009 09 19 | G96 | 0.3+ | 0.3− | 2009 11 25 | 703 | 0.6+ | 0.6+ | |
| 2002 10 29 | 291 | 0.3+ | 0.7+ | 2009 10 23 | 691 | 0.3− | 0.1− | 2009 11 25 | 703 | 0.3+ | 0.4− | |
| 2002 10 29 | 291 | 0.2− | 0.1+ | 2009 10 23 | 691 | 0.1− | 0.0 | 2009 11 25 | 703 | 0.5+ | 0.4+ | |
| 2002 10 31 | 608 | 0.7− | 0.5− | 2009 10 23 | 691 | 0.1− | 0.2− | 2009 11 26 | 691 | 0.5− | 0.5− | |
| 2002 10 31 | 608 | 0.1− | 0.4− | 2009 11 08 | 691 | 0.3+ | 0.2+ | 2009 11 26 | 691 | 0.2+ | 0.1+ | |
| 2002 10 31 | 608 | 0.5− | 0.4− | 2009 11 08 | 691 | 0.1− | 0.1+ | 2009 11 26 | 691 | 0.3+ | 0.0 | |
| 2007 03 12 | 291 | 0.1− | 0.1+ | 2009 11 08 | 691 | 0.1+ | 0.0 | 2009 12 09 | J75 | 0.2+ | 0.2− | |
| 2007 03 12 | 291 | 0.2+ | 0.0 | 2009 11 22 | 691 | 0.6− | 0.1+ | 2009 12 09 | J75 | 1.0− | 0.2− | |
| 2007 03 12 | 291 | 0.1+ | 0.4+ | 2009 11 22 | 691 | 0.2+ | 0.2− | 2009 12 09 | J75 | 0.1+ | 0.0 | |
| 2009 09 19 | G96 | 0.2+ | 0.4+ | 2009 11 22 | 691 | 0.0 | 0.1− | 2009 12 19 | 691 | 0.0 | 0.0 | |
| 2009 09 19 | G96 | 0.5+ | 0.0 | 2009 11 25 | 703 | 1.1+ | 1.0+ | 2009 12 19 | 691 | 0.1− | 0.0 | |
| 2009 09 19 | G96 | 0.2− | 0.2+ | 2009 11 25 | 703 | 0.2+ | 0.1− | 2009 12 19 | 691 | 0.0 | 0.3− | |

**2009 WZ$_{167}$ = 2005 YV$_{73}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 334.78338 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22811538 | $\omega$ | 24.08474 | | −0.17782552 | −0.98011443 | |
| $a$ | 2.6527704 | $\Omega$ | 76.25343 | | +0.88750568 | −0.19838885 | |
| $e$ | 0.0423827 | $i$ | 5.20113 | | +0.42510204 | +0.00419162 | |
| $P$ | 4.32 | $H$ | 17.4 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 04 | 691 | 0.1− | 0.4− | 2005 12 29 | 291 | 0.6− | 0.4+ | 2009 11 26 | 691 | 0.1− | 0.1+ | |
| 2005 12 04 | 691 | 0.2+ | 0.0 | 2005 12 29 | 291 | 0.5− | 0.2+ | 2009 11 26 | 691 | 0.5− | 0.1− | |
| 2005 12 04 | 691 | 0.2+ | 0.2− | 2005 12 29 | 291 | 0.5− | 0.1+ | 2009 11 26 | 691 | 0.1+ | 0.2+ | |
| 2005 12 24 | 691 | 0.2+ | 0.0 | 2009 11 10 | 691 | 0.3− | 0.0 | 2009 12 11 | G96 | 0.5+ | 0.7− | |
| 2005 12 24 | 691 | 0.3+ | 0.0 | 2009 11 10 | 691 | 0.3+ | 0.0 | 2009 12 11 | G96 | 0.1− | 0.4− | |
| 2005 12 24 | 691 | 0.0 | 0.1+ | 2009 11 10 | 691 | 0.3+ | 0.3+ | 2009 12 11 | G96 | 0.3+ | 0.6− | |
| 2005 12 28 | 691 | 0.3+ | 0.0 | 2009 11 22 | 691 | 0.2+ | 0.1− | 2009 12 11 | G96 | 0.5+ | 0.3− | |
| 2005 12 28 | 691 | 0.1+ | 0.1− | 2009 11 22 | 691 | 0.0 | 0.2− | | | | | |
| 2005 12 28 | 691 | 0.5+ | 0.1− | 2009 11 22 | 691 | 0.4− | 0.4+ | | | | | |

**2009 WB$_{168}$ = 2005 WB$_{178}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 3.32792 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23388501 | $\omega$ | 351.41337 | | +0.31744013 | −0.94432717 | |
| $a$ | 2.6089622 | $\Omega$ | 80.04413 | | +0.87515950 | +0.25662864 | |
| $e$ | 0.1326290 | $i$ | 5.03690 | | +0.36514055 | +0.20588331 | |
| $P$ | 4.21 | $H$ | 17.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 01 07 | 691 | 0.1− | 0.0 | 2005 12 28 | 691 | 0.1+ | 0.2+ | 2009 11 26 | 691 | 0.0 | 0.2+ | |
| 2002 01 07 | 691 | 0.2+ | 0.0 | 2005 12 28 | 691 | 0.1− | 0.1+ | 2009 11 26 | 691 | 0.3+ | 0.0 | |
| 2002 01 07 | 691 | 0.1− | 0.2− | 2005 12 28 | 691 | 0.5− | 0.3+ | 2009 11 26 | 691 | 0.2+ | 0.0 | |
| 2005 11 30 | 691 | 0.1− | 0.1− | 2009 11 10 | 691 | 0.5− | 0.2− | 2009 12 11 | G96 | 0.1+ | 0.1− | |
| 2005 11 30 | 691 | 0.0 | 0.1− | 2009 11 10 | 691 | 0.4+ | 0.1− | 2009 12 11 | G96 | 0.1− | 0.2− | |
| 2005 11 30 | 691 | 0.2+ | 0.2− | 2009 11 10 | 691 | 0.1+ | 0.1+ | 2009 12 11 | G96 | 0.3+ | 0.2− | |
| 2005 12 04 | 691 | 0.0 | 0.0 | 2009 11 22 | 691 | 0.2− | 0.1+ | 2009 12 11 | G96 | 0.2+ | 0.3− | |
| 2005 12 04 | 691 | 0.1+ | 0.1− | 2009 11 22 | 691 | 0.2− | 0.0 | | | | | |
| 2005 12 04 | 691 | 0.2+ | 0.1− | 2009 11 22 | 691 | 0.3− | 0.1+ | | | | | |

**2009 WR$_{168}$ = 2007 EP$_{65}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 2.03855 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27411353 | $\omega$ | 346.67868 | | +0.18158275 | −0.98181734 | |
| $a$ | 2.3470143 | $\Omega$ | 92.83875 | | +0.90723170 | +0.14554455 | |
| $e$ | 0.1614794 | $i$ | 3.17622 | | +0.37941844 | +0.12186668 | |
| $P$ | 3.60 | $H$ | 18.0 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 02 25 | G96 | 0.7+ | 0.1+ | 2007 03 14 | 691 | 0.2+ | 0.2+ | 2009 11 26 | 691 | 0.8+ | 0.9− | |
| 2007 02 25 | G96 | 0.3+ | 0.1− | 2009 11 10 | 691 | 0.1− | 0.1+ | 2009 12 06 | 300 | 0.8+ | 0.5+ | |
| 2007 02 25 | G96 | 0.0 | 0.4− | 2009 11 10 | 691 | 0.2− | 0.3+ | 2009 12 06 | 300 | 1.0+ | 0.4+ | |
| 2007 02 25 | G96 | 0.3+ | 0.0 | 2009 11 10 | 691 | 0.0 | 0.1+ | 2009 12 06 | 300 | 0.2− | 0.2+ | |
| 2007 03 10 | 691 | 0.0 | 0.7+ | 2009 11 22 | 691 | 0.1− | 0.3+ | 2009 12 08 | 300 | 0.3+ | 0.6− | |
| 2007 03 10 | 691 | 0.3− | 0.6+ | 2009 11 22 | 691 | 0.1− | 0.2+ | 2009 12 08 | 300 | 1.3+ | 1.0− | |
| 2007 03 10 | 691 | 0.8− | 0.2− | 2009 11 22 | 691 | 0.4− | 0.3+ | 2009 12 08 | 300 | 0.8+ | 1.5− | |
| 2007 03 14 | 691 | 0.1− | 0.2− | 2009 11 26 | 691 | 0.2− | 0.1+ | 2009 12 08 | 300 | (1.4+ | 1.9−) | |
| 2007 03 14 | 691 | 0.8+ | 0.8− | 2009 11 26 | 691 | 0.7− | 0.1+ | | | | | |

**2009 WU$_{168}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 0.29968 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23867470 | $\omega$ | 263.27857 | | +0.25559623 | −0.96676870 | |
| $a$ | 2.5739403 | $\Omega$ | 171.90648 | | +0.90139546 | +0.23629700 | |
| $e$ | 0.0905125 | $i$ | 2.18626 | | +0.34950936 | +0.09758077 | |
| $P$ | 4.13 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 08 12 | 807 | 0.0 | 0.0 | 2007 03 26 | G96 | 0.0 | 0.2+ | 2009 11 10 | 691 | 0.1− | 0.3+ | |
| 2004 08 12 | 807 | 0.0 | 0.0 | 2007 04 19 | G96 | 0.6+ | 0.2+ | 2009 11 10 | 691 | 0.2− | 0.2− | |
| 2005 12 27 | G96 | 0.3+ | 0.3− | 2007 04 19 | G96 | 0.4− | 0.1+ | 2009 11 10 | 691 | 0.4− | 0.1+ | |
| 2005 12 27 | G96 | 0.1+ | 0.3− | 2007 04 19 | G96 | 0.3+ | 0.6+ | 2009 11 22 | 691 | 0.2+ | 0.2+ | |
| 2005 12 27 | G96 | 0.1− | 0.3− | 2007 04 19 | G96 | 0.2− | 0.1+ | 2009 11 22 | 691 | 0.1+ | 0.2− | |
| 2005 12 27 | G96 | 0.1− | 0.3− | 2009 09 22 | G96 | 0.0 | 0.0 | 2009 11 22 | 691 | 0.1+ | 0.0 | |
| 2007 03 26 | G96 | 0.2− | 0.1+ | 2009 09 22 | G96 | 0.1+ | 0.1+ | 2009 11 26 | 691 | 0.0 | 0.1− | |
| 2007 03 26 | G96 | 0.1+ | 0.1+ | 2009 09 22 | G96 | 0.3+ | 0.0 | 2009 11 26 | 691 | 0.2+ | 0.1+ | |
| 2007 03 26 | G96 | 0.3+ | 0.3− | 2009 09 22 | G96 | 0.0 | 0.5+ | 2009 11 26 | 691 | 0.1− | 0.0 | |

**2009 WH$_{169}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 81.39086 | | (2000.0) | | | |
| $n$ | 0.26697257 | $\omega$ | 239.15969 | | +0.90992288 | +0.40214110 |
| $a$ | 2.3886817 | $\Omega$ | 96.96085 | | −0.33695299 | +0.85951782 |
| $e$ | 0.1735801 | $i$ | 5.87486 | | −0.24187403 | +0.31545468 |
| $P$ | 3.69 | $H$ | 17.7 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 01 | 699 | 0.1− | 0.0 | 2008 04 14 | G96 | 0.2− | 0.1+ | 2009 11 22 | 691 | 0.2− | 0.3+ |
| 2005 10 01 | 699 | 0.2+ | 0.0 | 2008 04 14 | G96 | 0.1+ | 0.2+ | 2009 11 26 | 691 | 0.6+ | 0.0 |
| 2005 10 01 | 699 | 0.2− | 0.4− | 2009 11 10 | 691 | 0.0 | 0.3− | 2009 11 26 | 691 | 0.3+ | 0.2− |
| 2005 10 01 | 699 | (0.7+ | 2.5+) | 2009 11 10 | 691 | 0.2− | 0.2+ | 2009 11 26 | 691 | 0.2− | 0.0 |
| 2005 10 10 | 703 | 0.8+ | 1.3+ | 2009 11 10 | 691 | 0.0 | 0.0 | 2009 12 17 | G96 | 0.7+ | 0.1+ |
| 2005 10 10 | 703 | (0.8+ | 1.6−) | 2009 11 18 | 691 | 0.2− | 0.1− | 2009 12 17 | G96 | 0.3+ | 0.3+ |
| 2005 10 10 | 703 | 0.4− | 0.3− | 2009 11 18 | 691 | 0.1− | 0.0 | 2009 12 17 | G96 | 0.6+ | 0.5+ |
| 2005 10 10 | 703 | 0.4− | 0.4− | 2009 11 18 | 691 | 0.1− | 0.2− | 2009 12 17 | G96 | 0.2+ | 0.1+ |
| 2008 04 14 | G96 | 0.3− | 0.0 | 2009 11 22 | 691 | (1.7− | 0.2+) | | | | |
| 2008 04 14 | G96 | 0.5+ | 0.2+ | 2009 11 22 | 691 | 0.4− | 0.0 | | | | |

**2009 WJ$_{169}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 5.93780 | | (2000.0) | | | |
| $n$ | 0.21914082 | $\omega$ | 230.11422 | | +0.33284031 | −0.94271551 |
| $a$ | 2.7247116 | $\Omega$ | 200.47819 | | +0.88358968 | +0.32011010 |
| $e$ | 0.0521464 | $i$ | 3.68210 | | +0.32937304 | +0.09389884 |
| $P$ | 4.50 | $H$ | 17.3 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 08 | 691 | 0.0 | 0.0 | 2007 05 11 | G96 | 0.4+ | 0.3+ | 2009 11 22 | 691 | 0.7− | 0.1+ |
| 2004 10 08 | 691 | 0.1+ | 0.0 | 2007 05 11 | G96 | 0.6− | 0.2+ | 2009 11 22 | 691 | 0.2+ | 0.2− |
| 2004 10 08 | 691 | 0.1− | 0.0 | 2009 11 10 | 691 | 0.5+ | 0.0 | 2009 11 26 | 691 | 0.0 | 0.1+ |
| 2004 10 15 | G96 | 0.0 | 0.1− | 2009 11 10 | 691 | 0.2+ | 0.2− | 2009 11 26 | 691 | 0.1− | 0.1+ |
| 2004 10 15 | G96 | 0.1+ | 0.3+ | 2009 11 10 | 691 | 0.0 | 0.3− | 2009 11 26 | 691 | 0.2+ | 0.1− |
| 2004 10 15 | G96 | 0.3− | 0.3− | 2009 11 18 | 691 | 0.4+ | 0.1− | 2009 12 17 | G96 | 0.6+ | 0.0 |
| 2004 10 15 | G96 | 0.2+ | 0.4+ | 2009 11 18 | 691 | 0.3+ | 0.1+ | 2009 12 17 | G96 | 0.6+ | 0.7− |
| 2007 05 11 | G96 | 0.1+ | 0.0 | 2009 11 18 | 691 | 0.3− | 0.9+ | 2009 12 17 | G96 | 1.0+ | 0.5− |
| 2007 05 11 | G96 | 0.2+ | 0.2+ | 2009 11 22 | 691 | 1.3− | 0.2− | 2009 12 17 | G96 | 0.9+ | 0.2− |

**2009 WQ$_{169}$ = 2006 CR$_6$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 8.87441 | | (2000.0) | | | |
| $n$ | 0.21143859 | $\omega$ | 150.91312 | | +0.37411014 | −0.92568539 |
| $a$ | 2.7904862 | $\Omega$ | 277.06987 | | +0.83955164 | +0.36375857 |
| $e$ | 0.0498498 | $i$ | 3.24114 | | +0.39394751 | +0.10385694 |
| $P$ | 4.66 | $H$ | 16.1 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 09 01 | 691 | 0.8− | 0.8+ | 2007 06 15 | 691 | 0.0 | 0.1+ | 2009 11 25 | 703 | 0.4+ | 0.3+ |
| 1994 09 01 | 691 | 0.0 | 0.2− | 2008 09 24 | G96 | 0.3+ | 0.0 | 2009 11 25 | 703 | 0.6− | 0.1− |
| 1994 09 01 | 691 | 0.1+ | 0.9+ | 2008 09 24 | G96 | 0.4+ | 0.3+ | 2009 11 25 | 703 | 0.4+ | 0.2+ |
| 2000 12 31 | 691 | 0.1+ | 0.8+ | 2008 09 24 | G96 | 0.4+ | 0.1− | 2009 11 25 | 703 | 0.9+ | 1.1+ |
| 2000 12 31 | 691 | 0.2+ | 0.6+ | 2008 09 24 | G96 | 0.5+ | 0.2+ | 2009 12 09 | J75 | 0.5− | 0.5− |
| 2000 12 31 | 691 | 0.3+ | 0.8+ | 2008 11 20 | G96 | 0.0 | 0.4+ | 2009 12 09 | J75 | 0.4− | 0.4− |
| 2006 01 08 | G96 | 0.1+ | 0.2− | 2008 11 20 | G96 | 0.3+ | 0.2− | 2009 12 09 | J75 | 0.1+ | 0.4− |
| 2006 01 08 | G96 | 0.1− | 0.2− | 2008 11 20 | G96 | 0.5− | 0.1+ | 2009 12 12 | 300 | 1.3+ | 0.5− |
| 2006 01 08 | G96 | 0.2− | 0.5− | 2008 11 20 | G96 | 0.3− | 0.2+ | 2009 12 12 | 300 | 1.6+ | 0.4+ |
| 2006 01 08 | G96 | 0.4− | 0.3− | 2009 11 09 | 691 | 0.2− | 0.1− | 2009 12 12 | 300 | 1.5+ | 0.1− |
| 2006 02 01 | G96 | 0.1− | 0.1+ | 2009 11 09 | 691 | 0.2− | 0.2− | 2009 12 12 | 300 | 1.5+ | 0.3+ |
| 2006 02 01 | G96 | 0.4− | 0.0 | 2009 11 09 | 691 | 0.3− | 0.1− | 2009 12 16 | G96 | 0.2+ | 0.4− |
| 2006 02 01 | G96 | 0.1− | 0.1+ | 2009 11 22 | 291 | 0.5− | 0.1− | 2009 12 16 | G96 | 0.0 | 0.5− |
| 2006 02 01 | G96 | 0.3+ | 0.0 | 2009 11 22 | 291 | 0.4− | 0.1− | 2009 12 16 | G96 | 0.5+ | 0.4− |
| 2006 02 02 | 691 | 0.1− | 0.2+ | 2009 11 22 | 291 | 0.4− | 0.2− | 2009 12 16 | G96 | 0.1− | 0.4− |
| 2006 02 02 | 691 | 0.2+ | 0.1+ | 2009 11 24 | J75 | 0.4+ | 0.1− | 2009 12 16 | 300 | 0.5− | 0.2− |
| 2006 02 02 | 691 | 0.3+ | 0.2+ | 2009 11 24 | J75 | 0.4+ | 0.3− | 2009 12 16 | 300 | 0.7− | 1.2− |
| 2007 06 15 | 691 | 0.2+ | 0.2− | 2009 11 25 | J75 | 0.5+ | 0.2+ | | | | |
| 2007 06 15 | 691 | 0.4− | 0.0 | 2009 11 25 | 703 | 0.4+ | 0.7− | | | | |

**2009 WG$_{170}$ = 2006 BV$_{145}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 284.66406 | | (2000.0) | | | |
| $n$ | 0.21157718 | $\omega$ | 233.92860 | | −0.94520938 | −0.30163284 |
| $a$ | 2.7892675 | $\Omega$ | 288.22369 | | +0.32548438 | −0.84106693 |
| $e$ | 0.0714723 | $i$ | 7.55525 | | +0.02528149 | −0.44902566 |
| $P$ | 4.66 | $H$ | 16.1 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 12 29 | 691 | 0.0 | 0.4+ | 2008 07 29 | G96 | 0.1+ | 0.3+ | 2009 11 22 | 691 | 0.5− | 0.4− |
| 2000 12 29 | 691 | 0.1+ | 0.4+ | 2008 09 03 | 691 | 0.5− | 0.0 | 2009 11 26 | 691 | 0.1+ | 0.1− |
| 2000 12 29 | 691 | 0.3+ | 0.5+ | 2008 09 03 | 691 | 0.0 | 0.1− | 2009 11 26 | 691 | 0.1+ | 0.2+ |
| 2006 01 29 | G92 | 0.2+ | 0.3− | 2008 09 03 | 691 | 0.0 | 0.1+ | 2009 11 26 | 691 | 0.4+ | 0.1+ |
| 2006 01 29 | G92 | (1.8+ | 0.1−) | 2008 10 01 | G96 | 0.2+ | 0.1+ | 2009 12 18 | G96 | 0.9+ | 0.1+ |
| 2006 01 29 | G92 | 0.2+ | 0.4− | 2008 10 01 | G96 | 0.3− | 0.1+ | 2009 12 18 | G96 | 0.4+ | 0.2− |
| 2006 01 30 | 703 | 0.0 | 0.9− | 2008 10 01 | G96 | 0.3− | 0.1+ | 2009 12 18 | G96 | 0.4+ | 0.3− |
| 2006 01 30 | 703 | 0.6− | 0.3− | 2008 10 01 | G96 | 0.2+ | 0.1+ | 2009 12 18 | G96 | 0.7+ | 0.4− |
| 2006 01 30 | 703 | 0.3+ | 0.3− | 2009 11 10 | 691 | 0.2+ | 0.1− | 2009 12 19 | H10 | 0.9+ | 0.2+ |
| 2006 01 30 | 703 | 0.9− | 0.3+ | 2009 11 10 | 691 | 0.1− | 0.1− | 2009 12 19 | H10 | 0.6+ | 0.0 |
| 2008 07 29 | G96 | 0.6+ | 0.0 | 2009 11 10 | 691 | 0.7− | 0.1+ | 2009 12 19 | H10 | 0.5+ | 0.1− |
| 2008 07 29 | G96 | 0.2+ | 0.2+ | 2009 11 22 | 691 | 0.9− | 0.1− | 2009 12 19 | H10 | 0.9+ | 0.8− |
| 2008 07 29 | G96 | 0.5+ | 0.4+ | 2009 11 22 | 691 | 0.1− | 0.0 | 2009 12 19 | H10 | 0.7+ | 0.7− |

**2009 WN$_{173}$ = 2003 UM$_{303}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 298.82975 | | (2000.0) | | | |
| $n$ | 0.18230132 | $\omega$ | 276.21678 | | −0.87169822 | −0.43215292 |
| $a$ | 3.0804169 | $\Omega$ | 238.39850 | | +0.48267154 | −0.83863209 |
| $e$ | 0.0939540 | $i$ | 15.74055 | | −0.08467815 | −0.33157211 |
| $P$ | 5.41 | $H$ | 15.5 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 17 | 691 | 0.2− | 0.1+ | 2009 11 22 | 691 | 0.3− | 0.0 | 2009 11 27 | G96 | 0.4+ | 0.1− |
| 2003 10 17 | 691 | 0.1− | 0.1+ | 2009 11 22 | 691 | 0.1+ | 0.1+ | 2009 11 27 | G96 | 0.6+ | 0.2− |
| 2003 10 17 | 691 | 0.0 | 0.2− | 2009 11 22 | 691 | 0.1− | 0.1+ | 2009 12 09 | J75 | 0.6− | 0.4+ |
| 2003 10 27 | 691 | 0.2+ | 0.0 | 2009 11 27 | G96 | 0.5+ | 0.2− | 2009 12 09 | J75 | 0.1+ | 0.2− |
| 2003 10 27 | 691 | 0.0 | 0.0 | 2009 11 27 | G96 | 0.6+ | 0.2− | 2009 12 09 | J75 | 0.3− | 0.2+ |
| 2003 10 27 | 691 | 0.1+ | 0.0 | 2009 11 27 | G96 | 0.4+ | 0.1− | | | | |

**2009 WY$_{173}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | **P** | **Q** |
|---|---|---|---|---|---|---|
| $M$ | 322.95757 | | (2000.0) | | | |
| $n$ | 0.18307915 | $\omega$ | 118.12582 | | −0.63172296 | −0.77502138 |
| $a$ | 3.0716858 | $\Omega$ | 11.09701 | | +0.67805418 | −0.56267299 |
| $e$ | 0.0844423 | $i$ | 4.87883 | | +0.37572415 | −0.28764729 |
| $P$ | 5.38 | $H$ | 16.8 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 02 06 | 695 | 0.2+ | 0.6+ | 2008 09 21 | G96 | 0.6+ | 0.1+ | 2009 11 19 | 691 | 0.1− | 0.3+ |
| 2000 02 06 | 695 | 0.3+ | 0.5+ | 2008 09 21 | G96 | 0.4+ | 0.6− | 2009 11 19 | 691 | 1.4+ | 0.5− |
| 2003 10 19 | 291 | 0.1− | 0.0 | 2008 09 21 | G96 | 0.2− | 0.4− | 2009 11 22 | 691 | 0.7− | 0.4+ |
| 2003 10 19 | 291 | 0.0 | 0.1− | 2008 09 21 | G96 | 0.2+ | 0.0 | 2009 11 22 | 691 | 0.2− | 0.3− |
| 2003 10 19 | 291 | 0.2+ | 0.1− | 2009 11 10 | 691 | 0.1+ | 0.1− | 2009 11 22 | 691 | 0.3− | 0.0 |
| 2008 09 03 | 691 | 0.3− | 0.2− | 2009 11 10 | 691 | 0.2+ | 0.2+ | 2009 11 26 | 691 | 0.1− | 0.2− |
| 2008 09 03 | 691 | 0.2− | 0.3+ | 2009 11 10 | 691 | 0.2− | 0.1+ | 2009 11 26 | 691 | 0.3+ | 0.2− |
| 2008 09 03 | 691 | 0.0 | 0.5+ | 2009 11 19 | 691 | 0.3− | 0.0 | 2009 11 26 | 691 | 0.2− | 0.2+ |

**2009 WE$_{175}$ = 2006 DZ$_{81}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 347.16335 | | (2000.0) | | | |
| $n$ | 0.18863587 | $\omega$ | 92.97411 | | +0.12184859 | −0.99237425 |
| $a$ | 3.0110631 | $\Omega$ | 349.96962 | | +0.86292777 | +0.11518062 |
| $e$ | 0.0438079 | $i$ | 6.13316 | | +0.49041675 | +0.04389502 |
| $P$ | 5.22 | $H$ | 16.0 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1993 10 12 | 691 | 0.1+ | 0.0 | 2006 02 24 | 691 | 0.0 | 0.5+ | 2008 09 23 | G96 | 0.1+ | 0.3+ |
| 1993 10 12 | 691 | 0.1+ | 0.4− | 2006 02 24 | 691 | 0.1+ | 0.4+ | 2009 11 23 | 691 | 0.1+ | 0.2− |
| 1993 10 12 | 691 | 0.1− | 0.2+ | 2006 02 24 | 691 | 0.0 | 0.1+ | 2009 11 23 | 691 | 0.0 | 0.2− |
| 2003 09 16 | 691 | 0.3− | 0.3+ | 2006 03 02 | 691 | 0.5+ | 0.3+ | 2009 11 23 | 691 | 0.1+ | 0.3− |
| 2003 09 16 | 691 | 0.3− | 0.1+ | 2006 03 02 | 691 | 0.3+ | 0.6+ | 2009 11 25 | G96 | 0.2+ | 0.2− |
| 2003 09 16 | 691 | 0.3− | 0.7+ | 2006 03 02 | 691 | 0.1+ | 0.5+ | 2009 11 25 | G96 | 0.2− | 0.1− |
| 2003 09 28 | 691 | 0.3− | 0.9+ | 2006 03 25 | G96 | 0.2− | 0.4+ | 2009 11 25 | G96 | 0.7+ | 0.2+ |
| 2003 09 28 | 691 | 0.1− | 0.4+ | 2006 03 25 | G96 | 0.2− | 0.4+ | 2009 11 25 | G96 | 0.0 | 0.2− |
| 2003 09 28 | 691 | 0.1− | 0.3+ | 2006 03 25 | G96 | 0.3− | 0.2− | 2009 11 27 | 691 | 0.7− | 1.4+ |
| 2006 02 07 | G96 | 0.6+ | 0.6− | 2006 03 25 | G96 | 0.1− | 0.5+ | 2009 11 27 | 691 | 0.0 | 0.1− |
| 2006 02 07 | G96 | 0.9+ | 0.1− | 2008 09 23 | G96 | 0.1+ | 0.2− | 2009 11 27 | 691 | 0.3+ | 0.4− |
| 2006 02 07 | G96 | 0.8+ | 0.1− | 2008 09 23 | G96 | 0.5− | 0.1+ | | | | |
| 2006 02 07 | G96 | 0.2+ | 0.3− | 2008 09 23 | G96 | 0.1+ | 0.0 | | | | |

**2009 WS$_{175}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 358.19484 | | (2000.0) | | | |
| $n$ | 0.23544931 | $\omega$ | 173.41327 | | +0.20421263 | −0.95889705 |
| $a$ | 2.5973936 | $\Omega$ | 264.67113 | | +0.88887787 | +0.26594708 |
| $e$ | 0.1612242 | $i$ | 11.41225 | | +0.41011381 | −0.09893738 |
| $P$ | 4.19 | $H$ | 17.0 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 01 | 691 | 0.1+ | 0.2− | 2009 11 11 | 691 | 0.2− | 0.1− | 2009 11 27 | 691 | 0.1− | 0.1+ |
| 2005 12 01 | 691 | 0.3+ | 0.2− | 2009 11 11 | 691 | 0.2+ | 0.1− | 2009 12 18 | G96 | 0.1− | 0.2− |
| 2005 12 01 | 691 | 0.1− | 0.3− | 2009 11 23 | 691 | 0.3+ | 0.1+ | 2009 12 18 | G96 | 0.4− | 0.5− |
| 2005 12 05 | 691 | 0.8− | 0.9+ | 2009 11 23 | 691 | 0.1+ | 0.0 | 2009 12 18 | G96 | 0.2− | 0.6− |
| 2005 12 05 | 691 | 0.4+ | 0.2− | 2009 11 23 | 691 | 0.1− | 0.0 | 2009 12 18 | G96 | 0.0 | 0.1− |
| 2005 12 05 | 691 | 0.2+ | 0.0 | 2009 11 27 | 691 | 0.2− | 0.0 | | | | |
| 2009 11 11 | 691 | 0.1+ | 0.1+ | 2009 11 27 | 691 | 0.0 | 0.1+ | | | | |

**2009 WF$_{176}$ = 2003 UO$_{321}$ = 2005 AS$_{76}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 354.21792 | | (2000.0) | | | |
| $n$ | 0.17520163 | $\omega$ | 75.17048 | | +0.18199604 | −0.98328103 |
| $a$ | 3.1630833 | $\Omega$ | 4.35679 | | +0.86913616 | +0.15801486 |
| $e$ | 0.1555494 | $i$ | 4.52102 | | +0.45986930 | +0.09049707 |
| $P$ | 5.63 | $H$ | 16.1 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 19 | 291 | 0.3− | 0.1+ | 2005 01 15 | 691 | 0.4+ | 0.0 | 2009 11 25 | 703 | 1.1+ | 0.5+ |
| 2003 09 19 | 291 | 0.4− | 0.0 | 2005 01 15 | 691 | 0.0 | 0.2+ | 2009 11 25 | 703 | 0.4+ | 0.3+ |
| 2003 09 19 | 291 | 0.1− | 0.1− | 2005 01 19 | 691 | 0.1+ | 0.2+ | 2009 11 25 | 703 | 0.2+ | 0.7− |
| 2003 10 16 | 691 | 0.3+ | 0.1− | 2005 01 19 | 691 | 0.3− | 0.0 | 2009 11 25 | 703 | 0.5− | 0.1− |
| 2003 10 16 | 691 | 0.3+ | 0.1− | 2005 01 19 | 691 | 0.1− | 0.2+ | 2009 11 27 | 691 | 0.3+ | 0.0 |
| 2003 10 16 | 691 | 0.2+ | 0.2+ | 2009 11 09 | 691 | 0.1− | 0.2− | 2009 11 27 | 691 | 0.3− | 0.5− |
| 2003 10 24 | 704 | 0.1+ | 0.0 | 2009 11 09 | 691 | 0.0 | 0.1+ | 2009 11 27 | 691 | 0.4+ | 0.4+ |
| 2003 10 24 | 704 | 0.1− | 0.4+ | 2009 11 09 | 691 | 0.1− | 0.1− | 2009 12 19 | G96 | 0.5+ | 0.1− |
| 2003 10 24 | 704 | 0.4− | 0.7+ | 2009 11 23 | 691 | 0.5− | 0.2− | 2009 12 19 | G96 | 0.3− | 0.1+ |
| 2003 10 24 | 704 | 0.4− | 0.1+ | 2009 11 23 | 691 | 0.0 | 0.1− | 2009 12 19 | G96 | 0.4+ | 0.7− |
| 2003 10 24 | 704 | 0.4− | 1.3+ | 2009 11 23 | 691 | 0.1− | 0.1+ | 2009 12 19 | G96 | 0.7+ | 0.3− |
| 2005 01 15 | 691 | 0.0 | 0.1− | 2009 11 25 | 703 | 0.5− | 0.5− | | | | |

**2009 WN$_{176}$ = 2008 RU$_{6}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 91.88407 | | (2000.0) | | | |
| $n$ | 0.18856891 | $\omega$ | 54.01625 | | +0.83901524 | +0.52386343 |
| $a$ | 3.0117759 | $\Omega$ | 273.96037 | | −0.53451036 | +0.74301613 |
| $e$ | 0.0913036 | $i$ | 8.47577 | | −0.10174530 | +0.41652626 |
| $P$ | 5.23 | $H$ | 16.3 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 11 | 691 | 0.0 | 0.0 | 2008 09 03 | 691 | 0.3− | 0.2− | 2009 11 11 | 691 | 0.5− | 0.7+ |
| 2004 12 11 | 691 | 0.2− | 0.1+ | 2008 09 03 | 691 | 0.2− | 0.0 | 2009 11 23 | 691 | 0.4− | 0.2− |
| 2004 12 11 | 691 | 0.2+ | 0.0 | 2008 09 05 | 691 | 0.1+ | 0.1− | 2009 11 23 | 691 | 0.0 | 0.1− |
| 2008 08 20 | 691 | 0.3− | 0.2+ | 2008 09 05 | 691 | 0.8+ | 0.0 | 2009 11 23 | 691 | 0.2− | 0.1− |
| 2008 08 20 | 691 | 0.1− | 0.0 | 2008 09 05 | 691 | 0.2− | 0.2+ | 2009 11 27 | 691 | 0.0 | 0.0 |
| 2008 08 20 | 691 | 0.0 | 0.1+ | 2009 11 11 | 691 | 0.2+ | 0.4− | 2009 11 27 | 691 | 0.5+ | 0.1+ |
| 2008 09 03 | 691 | 0.1+ | 0.1− | 2009 11 11 | 691 | 0.2+ | 0.1+ | 2009 11 27 | 691 | 0.3+ | 0.1− |

**2009 WC$_{178}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 346.16138 | | (2000.0) | | | |
| $n$ | 0.17963304 | $\omega$ | 231.54687 | | +0.10122253 | −0.99401985 |
| $a$ | 3.1108464 | $\Omega$ | 212.71369 | | +0.93475791 | +0.10912360 |
| $e$ | 0.1138590 | $i$ | 4.34768 | | +0.34056079 | −0.00407253 |
| $P$ | 5.49 | $H$ | 16.1 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 18 | 291 | 0.0 | 0.0 | 2009 09 18 | G96 | 0.0 | 0.1+ | 2009 11 23 | G96 | 0.2+ | 0.0 |
| 2003 09 18 | 291 | 0.1+ | 0.3− | 2009 10 18 | G96 | 0.2− | 0.1− | 2009 11 23 | G96 | 0.3+ | 0.4− |
| 2003 09 18 | 291 | 0.2+ | 0.2− | 2009 10 18 | G96 | 0.4+ | 0.1+ | 2009 11 23 | G96 | 0.4+ | 0.1+ |
| 2003 10 24 | 691 | 1.2− | 0.6− | 2009 10 18 | G96 | 0.1− | 0.1− | 2009 11 26 | G96 | 0.3+ | 0.1+ |
| 2003 10 24 | 691 | 0.5+ | 0.5+ | 2009 10 18 | G96 | 0.5+ | 0.1+ | 2009 11 26 | G96 | 0.0 | 0.3+ |
| 2003 10 24 | 691 | 0.6+ | 0.3+ | 2009 10 27 | 691 | 0.6− | 0.1+ | 2009 11 26 | G96 | 0.1+ | 0.1− |
| 2008 07 29 | 691 | 0.2+ | 0.2+ | 2009 10 27 | 691 | 0.4− | 0.0 | 2009 11 26 | G96 | 0.7+ | 0.3+ |
| 2008 07 29 | 691 | 0.2− | 0.1+ | 2009 10 27 | 691 | 0.2− | 0.3+ | 2009 11 26 | G96 | 0.3− | 0.0 |
| 2008 07 29 | 691 | 0.1− | 0.0 | 2009 11 08 | 691 | 0.3+ | 0.3− | 2009 12 19 | G96 | 0.0 | 0.5− |
| 2009 09 18 | G96 | 0.4+ | 0.2+ | 2009 11 08 | 691 | 0.2− | 0.0 | 2009 12 19 | G96 | 0.4+ | 0.2− |
| 2009 09 18 | G96 | 0.3+ | 0.0 | 2009 11 08 | 691 | 0.0 | 0.2+ | 2009 12 19 | G96 | 0.7+ | 0.0 |
| 2009 09 18 | G96 | 0.4− | 0.7+ | 2009 11 23 | G96 | 0.5+ | 0.2− | 2009 12 19 | G96 | 0.1− | 0.3− |

**2009 WP$_{178}$ = 2004 TJ$_{186}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 39.36940 | | (2000.0) | | | |
| $n$ | 0.21035543 | $\omega$ | 168.49314 | | +0.92393581 | −0.38076362 |
| $a$ | 2.8000572 | $\Omega$ | 213.96195 | | +0.34553073 | +0.87203633 |
| $e$ | 0.0789598 | $i$ | 3.78743 | | +0.16416803 | +0.30752514 |
| $P$ | 4.69 | $H$ | 16.6 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 10 | 691 | 0.2+ | 0.2− | 2007 04 26 | G96 | 0.2− | 0.3+ | 2009 11 08 | 691 | 0.3− | 0.2+ |
| 2004 09 10 | 691 | 0.1+ | 0.1− | 2007 04 26 | G96 | 0.1− | 0.1− | 2009 11 08 | 691 | 0.2− | 0.1− |
| 2004 09 10 | 691 | 0.6− | 0.0 | 2009 09 19 | G96 | 0.0 | 0.2− | 2009 11 08 | 703 | 0.9+ | 0.5+ |
| 2004 10 07 | 691 | 0.1− | 0.1− | 2009 09 19 | G96 | 0.4+ | 0.2+ | 2009 11 08 | 703 | (1.6− | 0.1−) |
| 2004 10 07 | 691 | 0.0 | 0.3− | 2009 09 19 | G96 | 0.1+ | 0.2− | 2009 11 08 | 703 | 0.1+ | 0.6+ |
| 2004 10 07 | 691 | 0.1− | 0.2− | 2009 09 19 | G96 | 0.1− | 0.0 | 2009 11 08 | 703 | (0.1+ | 1.6−) |
| 2004 10 11 | 691 | 0.3− | 0.4+ | 2009 10 11 | G96 | 0.3+ | 0.2+ | 2009 11 23 | G96 | 0.3+ | 0.0 |
| 2004 10 11 | 691 | 0.0 | 0.2+ | 2009 10 11 | G96 | 1.5+ | 0.2+ | 2009 11 23 | G96 | 0.2+ | 0.2− |
| 2004 10 11 | 691 | 0.1− | 0.3+ | 2009 10 11 | G96 | 0.5+ | 0.4− | 2009 11 23 | G96 | 0.2+ | 0.1− |
| 2004 10 15 | 691 | 0.4+ | 0.0 | 2009 10 11 | G96 | 0.6+ | 0.1− | 2009 11 23 | G96 | 0.1+ | 0.1− |
| 2004 10 15 | 691 | 0.0 | 0.2− | 2009 10 23 | 691 | 0.1− | 0.2+ | 2009 11 26 | G96 | 0.7+ | 0.0 |
| 2004 10 15 | 691 | 0.4+ | 0.1+ | 2009 10 23 | 691 | 0.2+ | 0.5+ | 2009 11 26 | G96 | 0.1+ | 0.1+ |
| 2007 03 14 | G96 | 0.1− | 0.2+ | 2009 10 23 | 691 | 0.4− | 0.2− | 2009 11 26 | G96 | 0.1− | 0.2− |
| 2007 03 14 | G96 | 0.3+ | 0.1+ | 2009 10 23 | G96 | 0.2+ | 0.0 | 2009 11 26 | G96 | 0.1− | 0.1− |
| 2007 03 14 | G96 | 0.1+ | 0.2+ | 2009 10 23 | G96 | 0.2− | 0.0 | 2009 12 19 | G96 | 0.2+ | 0.2− |
| 2007 03 14 | G96 | 0.0 | 0.0 | 2009 10 23 | G96 | 0.1− | 0.4− | 2009 12 19 | G96 | 0.2+ | 0.5− |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 04 26 | G96 | 0.2+ | 0.3+ | 2009 10 23 | G96 | 0.0 | 0.1− | 2009 12 19 | G96 | 0.1+ | 0.1− | | |
| 2007 04 26 | G96 | 0.2+ | 0.3+ | 2009 11 08 | 691 | 0.5− | 0.1− | 2009 12 19 | G96 | 0.1− | 0.0 | | |

**2009 WS$_{178}$ = 2006 BS$_{14}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 100.77090 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21402527 | $\omega$ | 24.82204 | | +0.84767696 | | +0.52522879 |
| $a$ | 2.7679571 | $\Omega$ | 303.28976 | | −0.50043831 | | +0.74492961 |
| $e$ | 0.0597685 | $i$ | 5.12629 | | −0.17608314 | | +0.41135702 |
| $P$ | 4.61 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 22 | 691 | 0.1− | 0.1− | 2006 01 24 | 704 | 0.2− | 1.3+ | 2009 11 11 | 691 | 0.1+ | 0.1− | | |
| 2005 12 22 | 691 | 0.8− | 0.3+ | 2006 01 24 | 704 | 1.2− | 1.3+ | 2009 11 11 | 691 | 0.2− | 0.0 | | |
| 2005 12 22 | 691 | 0.3+ | 0.2+ | 2006 02 20 | G96 | 0.1+ | 0.6− | 2009 11 11 | 691 | 0.0 | 0.1− | | |
| 2006 01 22 | G96 | 0.2− | 0.7− | 2006 02 20 | G96 | 0.0 | 0.4− | 2009 11 23 | 691 | 0.1+ | 0.2+ | | |
| 2006 01 22 | G96 | 0.5− | 0.6− | 2006 02 20 | G96 | 0.2+ | 0.7− | 2009 11 23 | 691 | 0.1− | 0.1+ | | |
| 2006 01 22 | G96 | 0.3− | 0.6− | 2006 02 20 | G96 | 0.1+ | 0.5− | 2009 11 23 | 691 | 0.2− | 0.1− | | |
| 2006 01 23 | 691 | 0.3+ | 0.0 | 2008 09 07 | G96 | 0.2− | 0.1− | 2009 11 27 | 691 | 0.1+ | 0.1+ | | |
| 2006 01 23 | 691 | 0.4+ | 0.2− | 2008 09 07 | G96 | 0.6+ | 0.3+ | 2009 11 27 | 691 | 0.3+ | 0.0 | | |
| 2006 01 23 | 691 | 0.2+ | 0.0 | 2008 09 07 | G96 | 0.1− | 0.5+ | 2009 11 27 | 691 | 0.2− | 0.1− | | |
| 2006 01 24 | 704 | 0.7+ | 1.4+ | 2008 09 07 | G96 | 0.3− | 0.5− | | | | | | |

**2009 WT$_{178}$ = 2004 VD$_{88}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 52.96571 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.20154886 | $\omega$ | 354.79180 | | +0.96597926 | | −0.25637030 |
| $a$ | 2.8810391 | $\Omega$ | 20.16245 | | +0.24070160 | | +0.84310278 |
| $e$ | 0.0858087 | $i$ | 5.66667 | | +0.09458756 | | +0.47270706 |
| $P$ | 4.89 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 07 | 691 | 0.1+ | 0.1− | 2004 11 20 | 691 | 0.2− | 0.2+ | 2009 11 19 | 691 | 0.5− | 1.0+ | | |
| 2004 10 07 | 691 | 0.2+ | 0.1− | 2004 11 20 | 691 | 0.1− | 0.2+ | 2009 11 23 | 691 | 0.2− | 0.0 | | |
| 2004 10 07 | 691 | 0.2+ | 0.0 | 2006 02 24 | 291 | 0.0 | 0.0 | 2009 11 23 | 691 | 0.3+ | 0.2− | | |
| 2004 11 11 | 691 | 0.0 | 0.1+ | 2006 02 24 | 291 | 0.2− | 0.0 | 2009 11 23 | 691 | 0.1+ | 0.2− | | |
| 2004 11 11 | 691 | 0.1− | 0.0 | 2006 02 24 | 291 | 0.2+ | 0.1+ | 2009 11 27 | 691 | 0.4+ | 0.2− | | |
| 2004 11 11 | 691 | 0.2− | 0.1− | 2009 11 19 | 691 | 0.3− | 0.4− | 2009 11 27 | 691 | 0.1+ | 0.1− | | |
| 2004 11 20 | 691 | 0.1+ | 0.1+ | 2009 11 19 | 691 | 0.2+ | 0.1− | 2009 11 27 | 691 | 0.1+ | 0.3− | | |

**2009 WA$_{180}$ = 2004 RB$_{297}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 138.93875 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22885931 | $\omega$ | 118.43054 | | +0.41905083 | | +0.90796011 |
| $a$ | 2.6470186 | $\Omega$ | 176.34203 | | −0.84464027 | | +0.39071381 |
| $e$ | 0.0621722 | $i$ | 1.97669 | | −0.33313544 | | +0.15149640 |
| $P$ | 4.31 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 02 | 691 | 0.1+ | 0.4− | 2007 03 13 | 691 | 0.7+ | 0.3+ | 2009 11 26 | G96 | 0.7+ | 0.4+ | | |
| 2000 11 02 | 691 | 0.3+ | 0.1− | 2007 03 13 | 691 | 0.1− | 0.2+ | 2009 11 26 | G96 | 0.1+ | 0.5+ | | |
| 2000 11 02 | 691 | 0.0 | 0.4− | 2007 03 13 | 691 | 0.0 | 0.3+ | 2009 11 26 | G96 | 0.4+ | 0.1− | | |
| 2003 06 01 | 807 | 0.3− | 0.2+ | 2007 03 26 | 691 | 0.2− | 0.3+ | 2009 11 27 | 691 | 0.1− | 0.2− | | |
| 2003 06 01 | 807 | 0.2− | 0.1+ | 2007 03 26 | 691 | 0.1− | 0.3− | 2009 11 27 | 691 | 0.3− | 0.6+ | | |
| 2004 09 11 | 691 | 0.2− | 0.1+ | 2007 03 26 | 691 | 0.1+ | 0.0 | 2009 11 27 | 691 | 0.1− | 0.1+ | | |
| 2004 09 11 | 691 | 0.2+ | 0.3+ | 2009 11 23 | 691 | 0.6− | 0.1− | 2009 12 11 | G96 | 0.3+ | 0.2+ | | |
| 2004 09 11 | 691 | 0.3− | 0.0 | 2009 11 23 | 691 | 0.0 | 0.1− | 2009 12 11 | G96 | 0.5+ | 0.1+ | | |
| 2004 09 17 | 691 | 0.3− | 0.5+ | 2009 11 23 | 691 | 0.4+ | 0.4+ | 2009 12 11 | G96 | 0.2+ | 0.1+ | | |
| 2004 09 17 | 691 | 0.1+ | 0.1+ | 2009 11 26 | G96 | 0.0 | 0.2− | 2009 12 11 | G96 | 0.0 | 0.4+ | | |
| 2004 09 17 | 691 | 0.0 | 0.2+ | 2009 11 26 | G96 | 0.2− | 0.3− | | | | | | |

**2009 WJ$_{180}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 76.48731 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22746284 | $\omega$ | 152.20120 | | +0.96189780 | | +0.27324776 |
| $a$ | 2.6578415 | $\Omega$ | 191.95242 | | −0.25851244 | | +0.89776203 |
| $e$ | 0.1667849 | $i$ | 2.60042 | | −0.08901656 | | +0.34548373 |
| $P$ | 4.33 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 5 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 08 27 | 703 | 0.7+ | 0.1− | 2004 09 23 | 691 | 0.1− | 0.3− | 2009 11 27 | 691 | 0.3+ | 0.1+ | | |
| 2004 08 27 | 703 | 0.0 | 0.3− | 2009 11 23 | 691 | 0.4− | 0.0 | 2009 11 27 | 691 | 0.1+ | 0.1+ | | |
| 2004 08 27 | 703 | 0.9− | 0.1+ | 2009 11 23 | 691 | 0.3− | 0.2− | 2009 11 27 | 691 | 0.5− | 0.2+ | | |
| 2004 08 27 | 703 | (0.0 | 1.9−) | 2009 11 23 | 691 | 0.1+ | 0.2− | 2009 12 11 | G96 | 0.3+ | 0.2+ | | |
| 2004 09 10 | 691 | 0.5+ | 0.0 | 2009 11 26 | G96 | 0.7+ | 0.4− | 2009 12 11 | G96 | 0.2+ | 0.3+ | | |
| 2004 09 10 | 691 | 0.3+ | 0.1+ | 2009 11 26 | G96 | 0.1+ | 0.0 | 2009 12 11 | G96 | 0.4+ | 0.4+ | | |
| 2004 09 10 | 691 | 0.9− | 0.4+ | 2009 11 26 | G96 | 0.0 | 0.0 | 2009 12 11 | G96 | 0.3+ | 0.0 | | |
| 2004 09 23 | 691 | 0.2+ | 0.0 | 2009 11 26 | G96 | 0.6+ | 0.5− | | | | | | |
| 2004 09 23 | 691 | 0.0 | 0.0 | 2009 11 26 | G96 | 0.1− | 0.2− | | | | | | |

**2009 WO$_{180}$ = 2008 HO$_{44}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 96.70240 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.27166310 | $\omega$ | 200.35856 | | +0.77794675 | | +0.62671653 |
| $a$ | 2.3611067 | $\Omega$ | 120.75183 | | −0.56899272 | | +0.73305387 |
| $e$ | 0.2173201 | $i$ | 3.00172 | | −0.26654480 | | +0.26430743 |
| $P$ | 3.63 | $H$ | 17.8 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 24 | 644 | 0.0 | 0.2+ | 2005 12 01 | G96 | 0.9+ | 0.3− | 2008 06 03 | G96 | 0.4− | 0.4+ | | |
| 2005 09 24 | 644 | 0.1− | 0.2+ | 2008 04 07 | 691 | 0.0 | 0.0 | 2008 06 03 | G96 | 0.1− | 0.1+ | | |
| 2005 09 24 | 644 | 0.2− | 0.3+ | 2008 04 07 | 691 | 0.1+ | 0.0 | 2008 06 03 | G96 | 0.1+ | 0.6+ | | |
| 2005 10 07 | 703 | 0.8− | 0.5+ | 2008 04 07 | 691 | 0.1+ | 0.2+ | 2009 11 23 | 691 | 0.0 | 0.3− | | |
| 2005 10 07 | 703 | 2.0− | 0.1− | 2008 04 27 | G96 | 0.3− | 0.5− | 2009 11 23 | 691 | 0.2− | 0.3+ | | |
| 2005 10 07 | 703 | 1.1+ | 1.0− | 2008 04 27 | G96 | 0.3+ | 0.4− | 2009 11 23 | 691 | 0.4− | 0.2+ | | |
| 2005 10 07 | 703 | 0.1− | 0.8+ | 2008 04 27 | G96 | 0.3+ | 0.1+ | 2009 11 27 | 691 | 0.2− | 0.1+ | | |
| 2005 10 20 | 644 | 0.1− | 0.1+ | 2008 04 27 | G96 | 0.4+ | 0.9+ | 2009 11 27 | 691 | 0.1+ | 0.1+ | | |
| 2005 10 20 | 644 | 0.4+ | 0.3+ | 2008 05 03 | G96 | 0.2− | 0.2+ | 2009 11 27 | 691 | 0.2− | 0.1+ | | |
| 2005 10 20 | 644 | 0.4+ | 0.0 | 2008 05 03 | G96 | 0.2− | 0.4+ | 2009 12 11 | G96 | 0.3+ | 0.0 | | |
| 2005 12 01 | G96 | 0.5+ | 0.2− | 2008 05 03 | G96 | 0.0 | 0.0 | 2009 12 11 | G96 | 0.8+ | 0.1+ | | |
| 2005 12 01 | G96 | 0.0 | 0.1− | 2008 05 03 | G96 | 0.1+ | 0.0 | 2009 12 11 | G96 | 0.9+ | 0.0 | | |
| 2005 12 01 | G96 | 0.2+ | 0.1− | 2008 06 03 | G96 | 0.2− | 0.2+ | 2009 12 11 | G96 | 0.8+ | 0.3+ | | |

**2009 WQ$_{180}$ = 2006 AO$_{44}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 50.33966 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22034312 | $\omega$ | 285.19332 | | +0.92669861 | | −0.36142019 |
| $a$ | 2.7147909 | $\Omega$ | 96.08025 | | +0.37213333 | | +0.84430422 |
| $e$ | 0.1232475 | $i$ | 5.94443 | | +0.05240671 | | +0.39563345 |
| $P$ | 4.47 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 5 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 01 07 | 691 | 0.5+ | 0.2+ | 2006 01 08 | G96 | 0.5− | 0.2− | 2009 11 27 | 691 | 0.3+ | 0.1+ | | |
| 2006 01 07 | 691 | 0.3+ | 0.4+ | 2009 11 23 | 691 | 0.3− | 0.8+ | 2009 12 11 | G96 | 0.1+ | 0.2+ | | |
| 2006 01 07 | 691 | 0.1− | 0.1− | 2009 11 23 | 691 | 0.1+ | 0.4− | 2009 12 11 | G96 | 0.1+ | 0.1− | | |
| 2006 01 08 | G96 | 1.1− | 0.6− | 2009 11 23 | 691 | 0.3− | 0.3− | 2009 12 11 | G96 | 0.3− | 0.0 | | |
| 2006 01 08 | G96 | 0.5− | 0.5− | 2009 11 27 | 691 | 0.1− | 0.2− | 2009 12 11 | G96 | 0.3− | 0.1− | | |
| 2006 01 08 | G96 | 0.7− | 0.4− | 2009 11 27 | 691 | 0.4+ | 0.1− | | | | | | |

**2009 WV$_{180}$ = 2005 YH$_{108}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 159.26973 | | (2000.0) | | | |
| $n$ | 0.22348123 | $\omega$ | 149.98958 | | +0.12086444 | +0.99081702 |
| $a$ | 2.6893171 | $\Omega$ | 126.88604 | | −0.92516786 | +0.13456584 |
| $e$ | 0.0472634 | $i$ | 4.34586 | | −0.35980025 | −0.01317799 |
| $P$ | 4.41 | $H$ | 17.1 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 25 | 691 | 0.1− | 0.4+ | 2006 01 04 | 691 | 0.2− | 0.3− | 2009 11 23 | 691 | 0.4− | 0.2− |
| 2005 12 25 | 691 | 0.3+ | 0.4+ | 2006 01 06 | 691 | 0.1− | 0.3− | 2009 11 23 | 691 | 0.1− | 0.1+ |
| 2005 12 25 | 691 | 0.2+ | 0.2− | 2006 01 06 | 691 | 0.1+ | 0.1+ | 2009 11 23 | 691 | 0.7+ | 0.3− |
| 2005 12 25 | 691 | 0.0 | 0.1+ | 2006 01 06 | 691 | 0.0 | 0.3+ | 2009 11 26 | G96 | 0.5+ | 0.4− |
| 2005 12 25 | 691 | 0.0 | 0.0 | 2007 03 13 | G96 | 0.1+ | 0.1− | 2009 11 26 | G96 | 0.2+ | 0.4− |
| 2005 12 25 | 691 | 0.0 | 0.1− | 2007 03 13 | G96 | 0.2− | 0.1− | 2009 11 26 | G96 | 0.9+ | 0.8− |
| 2005 12 29 | 691 | 0.5− | 0.2+ | 2007 03 13 | G96 | 0.1+ | 0.4+ | 2009 11 26 | G96 | 0.1+ | 0.5− |
| 2005 12 29 | 691 | 0.1− | 0.2+ | 2007 03 13 | G96 | 0.1− | 0.4− | 2009 11 26 | G96 | 0.3+ | 0.7− |
| 2005 12 29 | 691 | 0.2− | 0.3− | 2009 11 19 | 691 | 0.4− | 0.1+ | 2009 11 27 | 691 | 0.1− | 0.0 |
| 2006 01 04 | 691 | 0.2+ | 0.0 | 2009 11 19 | 691 | 0.1+ | 1.0+ | 2009 11 27 | 691 | 0.2− | 0.2+ |
| 2006 01 04 | 691 | 0.4+ | 0.3− | 2009 11 19 | 691 | 0.0 | 0.2− | 2009 11 27 | 691 | 0.1− | 0.2− |

**2009 WN$_{181}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 176.87019 | | (2000.0) | | | |
| $n$ | 0.19055379 | $\omega$ | 174.30954 | | −0.33066080 | +0.92370251 |
| $a$ | 2.9908249 | $\Omega$ | 76.26435 | | −0.87353979 | −0.22196239 |
| $e$ | 0.0381976 | $i$ | 11.48919 | | −0.35719977 | −0.31226009 |
| $P$ | 5.17 | $H$ | 15.7 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 12 | 691 | 0.1− | 0.1+ | 2007 06 20 | 291 | 0.0 | 0.3+ | 2009 11 23 | J75 | 0.6+ | 0.1− |
| 2004 12 12 | 691 | 0.2− | 0.2+ | 2009 11 09 | G96 | 0.2+ | 0.4+ | 2009 11 23 | J75 | 0.6− | 0.4− |
| 2004 12 12 | 691 | 0.1+ | 0.2+ | 2009 11 09 | G96 | 0.3+ | 0.9+ | 2009 11 26 | 691 | 0.3− | 0.3+ |
| 2007 05 25 | G96 | 0.4+ | 0.0 | 2009 11 09 | G96 | 0.5+ | 0.1+ | 2009 11 26 | 691 | 0.1+ | 0.0 |
| 2007 05 25 | G96 | 0.5+ | 0.0 | 2009 11 09 | G96 | 0.2+ | 0.1− | 2009 11 26 | 691 | 0.0 | 0.1+ |
| 2007 05 25 | G96 | 0.0 | 0.1+ | 2009 11 23 | G96 | 0.2+ | 0.2− | 2009 12 18 | 691 | 0.4+ | 0.1− |
| 2007 05 25 | G96 | 0.4+ | 0.0 | 2009 11 23 | G96 | 0.3+ | 0.1+ | 2009 12 18 | 691 | 0.3− | 0.2− |
| 2007 06 20 | 291 | 0.2− | 0.3+ | 2009 11 23 | G96 | 0.3− | 0.0 | 2009 12 18 | 691 | 0.3− | 0.2− |
| 2007 06 20 | 291 | 0.1+ | 0.2+ | 2009 11 23 | J75 | 0.2− | 0.0 | | | | |

**2009 WJ$_{182}$ = 2001 MO$_4$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 200.81188 | | (2000.0) | | | |
| $n$ | 0.17956337 | $\omega$ | 333.83244 | | −0.37209617 | +0.89158679 |
| $a$ | 3.1116510 | $\Omega$ | 273.39553 | | −0.79979561 | −0.44909131 |
| $e$ | 0.1538607 | $i$ | 14.98448 | | −0.47103229 | +0.05822365 |
| $P$ | 5.49 | $H$ | 14.8 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 06 17 | 644 | 0.2+ | 0.0 | 2009 11 17 | G96 | 0.9+ | 0.0 | 2009 11 26 | 691 | 0.1+ | 0.2− |
| 2001 06 17 | 644 | 0.4+ | 0.1− | 2009 11 17 | G96 | 1.0+ | 0.4− | 2009 11 26 | 691 | 0.0 | 0.2+ |
| 2001 06 17 | 644 | 0.5+ | 0.2+ | 2009 11 17 | G96 | 0.7+ | 0.0 | 2009 12 13 | G96 | 0.1− | 0.3+ |
| 2001 06 22 | 644 | 0.3− | 0.1− | 2009 11 23 | 691 | 0.4− | 0.2− | 2009 12 13 | G96 | 0.3− | 0.1+ |
| 2001 06 22 | 644 | 0.5− | 0.1+ | 2009 11 23 | 691 | 0.0 | 0.1+ | 2009 12 13 | G96 | 0.2− | 0.3+ |
| 2001 06 22 | 644 | 0.4− | 0.2− | 2009 11 23 | 691 | 0.4− | 0.2− | 2009 12 13 | G96 | 0.5− | 0.0 |
| 2009 11 17 | G96 | 0.6+ | 0.1− | 2009 11 26 | 691 | 0.1+ | 0.1+ | | | | |

**2009 WK$_{182}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 48.77654 | | (2000.0) | | | |
| $n$ | 0.17565269 | $\omega$ | 327.95027 | | +0.89555093 | −0.41846429 |
| $a$ | 3.1576659 | $\Omega$ | 57.52049 | | +0.43664584 | +0.76109154 |
| $e$ | 0.0860360 | $i$ | 10.32859 | | +0.08560926 | +0.49560802 |
| $P$ | 5.61 | $H$ | 16.3 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 24 | 691 | 0.0 | 0.1− | 2009 11 09 | 691 | 0.1− | 0.3+ | 2009 11 27 | 691 | 0.1− | 0.2+ |
| 2003 10 24 | 691 | 0.2− | 0.1+ | 2009 11 09 | 691 | 0.0 | 0.0 | 2009 12 13 | G96 | 0.1− | 0.3− |
| 2003 10 24 | 691 | 0.1+ | 0.0 | 2009 11 23 | 691 | 0.0 | 0.1− | 2009 12 13 | G96 | 0.4+ | 0.4− |
| 2003 11 21 | 691 | 0.2− | 0.3− | 2009 11 23 | 691 | 0.0 | 0.3+ | 2009 12 13 | G96 | 0.1+ | 0.5+ |
| 2003 11 21 | 691 | 0.2+ | 0.1+ | 2009 11 23 | 691 | 0.1− | 0.1− | 2009 12 13 | G96 | 0.5+ | 0.0 |
| 2003 11 21 | 691 | 0.1+ | 0.2+ | 2009 11 27 | 691 | 0.1− | 0.0 | | | | |
| 2009 11 09 | 691 | 0.3+ | 0.5− | 2009 11 27 | 691 | 0.1− | 0.1− | | | | |

**2009 WO$_{182}$ = 2007 EB$_{154}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 315.45866 | | (2000.0) | | | |
| $n$ | 0.28227860 | $\omega$ | 202.39412 | | −0.83689237 | −0.54548329 |
| $a$ | 2.3015341 | $\Omega$ | 304.46916 | | +0.51017234 | −0.74729975 |
| $e$ | 0.1755057 | $i$ | 3.15523 | | +0.19833141 | −0.37946153 |
| $P$ | 3.49 | $H$ | 18.3 | $G$ | 0.15 | $U$ 5 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 03 12 | 691 | 0.1− | 0.1+ | 2009 11 23 | 691 | 0.0 | 0.2− | 2009 12 11 | G96 | 0.3+ | 0.1− |
| 2007 03 12 | 691 | 0.3− | 0.0 | 2009 11 23 | 691 | 0.1+ | 0.1− | 2009 12 11 | G96 | 0.0 | 0.2− |
| 2007 03 12 | 691 | 0.1+ | 0.1+ | 2009 11 23 | 691 | 0.0 | 0.1− | 2009 12 11 | G96 | 0.4+ | 0.1+ |
| 2007 03 16 | 691 | 0.1− | 0.1+ | 2009 11 27 | 691 | 0.0 | 0.1+ | 2009 12 11 | G96 | 0.3+ | 0.1+ |
| 2007 03 16 | 691 | 0.0 | 0.1+ | 2009 11 27 | 691 | 0.5− | 0.1+ | | | | |
| 2007 03 16 | 691 | 0.2+ | 0.3− | 2009 11 27 | 691 | 0.1+ | 0.2+ | | | | |

**2009 WG$_{183}$ = 2006 XX$_{58}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 37.52838 | | (2000.0) | | | |
| $n$ | 0.30719833 | $\omega$ | 308.60462 | | +0.82844344 | −0.54517610 |
| $a$ | 2.1753216 | $\Omega$ | 84.78678 | | +0.54553651 | +0.73362160 |
| $e$ | 0.0956812 | $i$ | 7.40297 | | +0.12677293 | +0.40568754 |
| $P$ | 3.21 | $H$ | 17.5 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 07 17 | 644 | 0.1+ | 0.2+ | 2006 12 01 | G96 | 0.5− | 0.6− | 2009 11 23 | J75 | 0.7+ | 0.1+ |
| 2002 07 17 | 644 | 0.2+ | 0.3+ | 2006 12 01 | G96 | 0.1− | 0.4− | 2009 11 23 | J75 | 0.6+ | 0.3− |
| 2002 07 17 | 644 | 0.2+ | 0.2+ | 2006 12 01 | G96 | 0.2+ | 0.3− | 2009 11 23 | J75 | 0.6+ | 0.2− |
| 2002 08 06 | 644 | 0.2− | 0.3+ | 2006 12 14 | 691 | 0.0 | 0.3+ | 2009 11 26 | 691 | 0.3− | 0.1− |
| 2002 08 06 | 644 | 0.2− | 0.4+ | 2006 12 14 | 691 | 0.2+ | 0.2+ | 2009 11 26 | 691 | 0.0 | 0.3+ |
| 2002 08 06 | 644 | 0.3− | 0.3+ | 2006 12 14 | 691 | 0.1− | 0.3+ | 2009 11 26 | 691 | 0.0 | 0.1+ |
| 2004 03 18 | 645 | 0.0 | 0.1+ | 2006 12 21 | 691 | 0.4− | 0.9+ | 2009 12 09 | J75 | 0.3− | 0.1− |
| 2004 03 18 | 645 | 0.0 | 0.0 | 2006 12 21 | 691 | 0.2+ | 0.3− | 2009 12 09 | J75 | 0.3− | 0.6− |
| 2006 11 27 | G96 | 0.2+ | 0.1− | 2006 12 21 | 691 | 0.1− | 0.2− | 2009 12 09 | J75 | 0.5+ | 0.8− |
| 2006 11 27 | G96 | 0.4+ | 0.0 | 2009 11 23 | G96 | 0.6+ | 0.1− | 2009 12 11 | 703 | 0.4− | 0.3− |
| 2006 11 27 | G96 | 0.4+ | 0.8− | 2009 11 23 | G96 | 0.4+ | 0.2− | 2009 12 11 | 703 | 1.0− | 0.4+ |
| 2006 11 27 | G96 | 1.0+ | 1.3− | 2009 11 23 | G96 | 0.1+ | 0.2− | 2009 12 11 | 703 | 0.6− | 0.6+ |
| 2006 12 01 | G96 | 0.3+ | 0.4− | 2009 11 23 | G96 | 0.4+ | 0.1− | 2009 12 11 | 703 | 0.2− | 0.8+ |

**2009 WH$_{183}$ = 2007 HR$_{62}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 304.83607 | | (2000.0) | | | |
| $n$ | 0.27019155 | $\omega$ | 334.96171 | | −0.94897334 | −0.31530403 |
| $a$ | 2.3696718 | $\Omega$ | 186.66690 | | +0.29702202 | −0.88753551 |
| $e$ | 0.1725202 | $i$ | 2.83494 | | +0.10596002 | −0.33595252 |
| $P$ | 3.65 | $H$ | 18.0 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 04 22 | G96 | 0.1+ | 0.2+ | 2007 04 25 | 691 | 0.2− | 0.2− | 2009 11 27 | 691 | 0.1+ | 0.0 |
| 2007 04 22 | G96 | 0.1− | 0.0 | 2007 04 25 | 691 | 0.1− | 0.1+ | 2009 12 13 | G96 | 0.1+ | 0.0 |
| 2007 04 22 | G96 | 1.2+ | 0.5+ | 2007 04 25 | 691 | 0.1+ | 0.1− | 2009 12 13 | G96 | 0.1− | 0.1+ |
| 2007 04 22 | G96 | 0.2+ | 0.0 | 2009 11 23 | 691 | 0.1+ | 0.1− | 2009 12 13 | G96 | 0.1− | 0.2+ |
| 2007 04 22 | G96 | 0.4+ | 0.0 | 2009 11 23 | 691 | 0.1− | 0.2+ | 2009 12 13 | G96 | 0.3− | 0.1− |
| 2007 04 22 | G96 | 0.3− | 0.1− | 2009 11 23 | 691 | 0.1+ | 0.2− | 2009 12 13 | G96 | 0.1+ | 0.1− |
| 2007 04 22 | G96 | 0.1− | 0.0 | 2009 11 27 | 691 | 0.3+ | 0.3+ | | | | |
| 2007 04 22 | G96 | 0.7− | 0.0 | 2009 11 27 | 691 | 0.4− | 0.2− | | | | |

## 2009 WY$_{183}$ = 2006 BH$_{63}$ = 2009 WW$_{133}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 358.28168 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.22421789 | $\omega$ | 113.69740 | | +0.27052700 | −0.96260163 | |
| $a$ | 2.6834235 | $\Omega$ | 320.59781 | | +0.87468051 | +0.25209804 | |
| $e$ | 0.1839715 | $i$ | 1.31822 | | +0.40218048 | +0.09922035 | |
| $P$ | 4.40 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 03 10 | 291 | 0.0 | 0.3+ | 2007 05 11 | G96 | 0.1− | 0.1− | 2009 11 23 | D29 | 0.5+ | 0.2− |
| 2002 03 10 | 291 | 0.2+ | 0.2+ | 2007 05 11 | G96 | 0.1− | 0.5− | 2009 11 23 | D29 | 1.0+ | 0.3+ |
| 2002 03 10 | 291 | 0.1+ | 0.1+ | 2007 05 11 | G96 | 0.5+ | 0.6− | 2009 11 23 | D29 | 0.3− | 0.0 |
| 2006 01 22 | G96 | 0.5− | 0.9− | 2007 05 11 | G96 | 0.5− | 0.3+ | 2009 11 23 | D29 | 0.9+ | 0.3− |
| 2006 01 22 | G96 | 1.1− | 0.6− | 2009 10 24 | 691 | 0.1− | 0.0 | 2009 11 24 | G96 | 0.2+ | 0.3− |
| 2006 01 22 | G96 | 0.5− | 0.7− | 2009 10 24 | 691 | 0.2− | 0.0 | 2009 11 24 | G96 | 0.2+ | 0.3− |
| 2006 01 22 | G96 | 0.0 | 0.6− | 2009 10 24 | 691 | 0.2− | 0.0 | 2009 11 24 | G96 | 0.3+ | 0.3− |
| 2006 01 27 | 704 | 0.7+ | 0.2+ | 2009 11 09 | 691 | 0.2+ | 0.1+ | 2009 11 24 | G96 | 0.3+ | 0.3− |
| 2006 01 27 | 704 | 1.1+ | 0.1+ | 2009 11 09 | 691 | 0.2− | 0.1+ | 2009 11 25 | 691 | 0.1− | 0.2+ |
| 2006 01 27 | 704 | 0.5+ | 1.2+ | 2009 11 09 | 691 | 0.3− | 0.2− | 2009 11 25 | 691 | 0.0 | 0.1+ |
| 2006 02 25 | G96 | 0.1+ | 0.1+ | 2009 11 22 | 703 | 0.7+ | 0.0 | 2009 11 25 | 691 | 0.0 | 0.2− |
| 2006 02 25 | G96 | 0.3− | 0.0 | 2009 11 22 | 703 | 0.0 | 0.2+ | 2009 11 27 | 691 | 0.1+ | 0.2+ |
| 2006 02 25 | G96 | 0.2− | 0.5− | 2009 11 22 | 703 | 0.5+ | 0.3− | 2009 11 27 | 691 | 0.0 | 0.1+ |
| 2006 02 25 | G96 | 0.6− | 0.1− | 2009 11 22 | 703 | 1.1− | 0.1+ | 2009 11 27 | 691 | 0.1− | 0.1+ |

## 2009 WP$_{184}$ = 2004 VN$_{68}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 28.96810 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.19929627 | $\omega$ | 226.48843 | | +0.86473835 | −0.50211988 | |
| $a$ | 2.9027074 | $\Omega$ | 163.64355 | | +0.47056213 | +0.80298975 | |
| $e$ | 0.2125805 | $i$ | 2.06751 | | +0.17549607 | +0.32106555 | |
| $P$ | 4.95 | $H$ | 17.7 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 11 10 | 691 | 0.0 | 0.2+ | 2009 11 10 | 691 | 0.1+ | 0.0 | 2009 11 26 | 691 | 0.3− | 0.0 |
| 2004 11 10 | 691 | 0.1− | 0.0 | 2009 11 10 | 691 | 0.1+ | 0.0 | 2009 11 26 | 691 | 0.1− | 0.2+ |
| 2004 11 10 | 691 | 0.1+ | 0.2+ | 2009 11 23 | J75 | 1.5+ | 0.7− | 2009 12 19 | 691 | 0.1+ | 0.2+ |
| 2004 11 11 | 695 | 0.0 | 0.3− | 2009 11 23 | J75 | 0.8+ | 0.1− | 2009 12 19 | 691 | 0.1+ | 0.1− |
| 2004 11 11 | 695 | 0.1+ | 0.3− | 2009 11 23 | J75 | 1.5+ | 0.3− | 2009 12 19 | 691 | 0.2− | 0.1+ |
| 2009 11 10 | 691 | 0.2− | 0.2− | 2009 11 26 | 691 | 0.4− | 0.1− | | | | |

## 2009 WA$_{185}$ = 2000 SF$_{131}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 350.61972 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23638804 | $\omega$ | 212.53971 | | −0.04009957 | −0.98014222 | |
| $a$ | 2.5905127 | $\Omega$ | 240.43582 | | +0.95786859 | +0.01760991 | |
| $e$ | 0.0461411 | $i$ | 12.90103 | | +0.28439373 | −0.19751232 | |
| $P$ | 4.17 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1992 09 24 | 691 | 0.1− | 0.6− | 2007 04 12 | D35 | 0.4− | 0.2+ | 2009 11 24 | J75 | 0.1− | 0.2− |
| 1992 09 24 | 691 | 0.1− | 0.4− | 2007 04 12 | D35 | 0.1− | 0.3− | 2009 11 24 | J75 | 0.1+ | 0.3− |
| 1992 09 24 | 691 | 0.1− | 0.2+ | 2008 07 29 | G96 | 0.3+ | 0.7− | 2009 11 24 | J75 | 0.4+ | 0.2− |
| 2000 09 22 | 704 | 1.4+ | 0.4− | 2008 07 29 | G96 | 0.1− | 0.6− | 2009 11 27 | 691 | 0.2− | 0.1− |
| 2000 09 22 | 704 | 0.3+ | 0.3+ | 2008 07 29 | G96 | 0.2+ | 0.6− | 2009 11 27 | 691 | 0.2− | 0.1− |
| 2000 09 22 | 704 | 0.0 | 1.6+ | 2008 07 29 | G96 | 0.1− | 0.8− | 2009 11 27 | 691 | 0.2− | 0.1− |
| 2000 09 22 | 704 | 1.2+ | 1.1+ | 2009 09 30 | G96 | 0.1+ | 0.1+ | 2009 12 08 | J75 | 0.2+ | 0.2− |
| 2000 09 28 | 704 | 1.0− | 0.6− | 2009 09 30 | G96 | 0.2+ | 0.2+ | 2009 12 09 | J75 | 0.2+ | 0.4− |
| 2000 09 28 | 704 | 0.1− | 0.1+ | 2009 09 30 | G96 | 0.4+ | 0.1+ | 2009 12 09 | J75 | 0.2− | 0.2+ |
| 2000 09 28 | 704 | 0.2− | 0.1− | 2009 09 30 | G96 | 0.1− | 0.3+ | 2009 12 11 | 703 | 0.3− | 0.3− |
| 2001 12 27 | 644 | 0.5+ | 0.4− | 2009 11 08 | 691 | 0.2− | 0.0 | 2009 12 11 | 703 | 0.4+ | 0.1+ |
| 2001 12 27 | 644 | 0.0 | 1.0− | 2009 11 08 | 691 | 0.1− | 0.1− | 2009 12 11 | 703 | 0.3+ | 0.1− |
| 2001 12 27 | 644 | 0.2+ | 0.7− | 2009 11 08 | 691 | 0.1+ | 0.1− | 2009 12 11 | 703 | 0.0 | 0.4− |
| 2004 09 08 | 644 | 0.3− | 0.5+ | 2009 11 23 | 691 | 0.4− | 0.0 | 2009 12 17 | 704 | 0.6+ | 0.3+ |
| 2004 09 08 | 644 | 0.2− | 0.5+ | 2009 11 23 | 691 | 0.8+ | 0.0 | 2009 12 17 | 704 | 0.2− | 1.6+ |
| 2004 09 08 | 644 | 0.2− | 0.7+ | 2009 11 23 | 691 | 0.6− | 0.6+ | 2009 12 17 | 704 | 1.6+ | 0.3+ |

## 2009 WT$_{185}$ = 1995 VZ$_{14}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 332.69566 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21112250 | $\omega$ | 57.55682 | | −0.34045758 | −0.92754479 | |
| $a$ | 2.7932708 | $\Omega$ | 53.12049 | | +0.78500164 | −0.37061272 | |
| $e$ | 0.2459078 | $i$ | 11.10802 | | +0.51755296 | −0.04802998 | |
| $P$ | 4.67 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 11 15 | 691 | 0.0 | 0.1+ | 2009 11 11 | J75 | 0.2− | 0.2− | 2009 11 24 | G96 | 0.1− | 0.1+ |
| 1995 11 15 | 691 | 0.2+ | 0.2+ | 2009 11 11 | J75 | 0.8+ | 0.2+ | 2009 11 24 | G96 | 0.2− | 0.2+ |
| 1995 11 15 | 691 | 0.0 | 0.1− | 2009 11 11 | J75 | 0.1− | 0.1− | 2009 11 25 | G96 | 0.1+ | 0.2+ |
| 1995 11 21 | 691 | 0.1+ | 0.0 | 2009 11 23 | 703 | 0.1− | 0.3+ | 2009 11 25 | G96 | 0.4− | 0.1+ |
| 1995 11 21 | 691 | 0.1+ | 0.0 | 2009 11 23 | 703 | 0.3+ | 0.1+ | 2009 11 25 | G96 | 0.1− | 0.2+ |
| 1995 11 21 | 691 | 0.4− | 0.1− | 2009 11 23 | 703 | (0.7− | 2.0−) | 2009 11 25 | G96 | 0.3+ | 0.3+ |
| 2009 10 23 | G96 | 0.4+ | 0.1+ | 2009 11 23 | 703 | 0.2− | 1.2− | 2009 12 16 | G96 | 0.0 | 0.0 |
| 2009 10 23 | G96 | 0.4+ | 0.2+ | 2009 11 23 | 703 | (1.9+ | 1.1−) | 2009 12 16 | G96 | 0.2+ | 0.1− |
| 2009 10 23 | G96 | 0.2− | 0.2+ | 2009 11 24 | G96 | 0.3+ | 0.1+ | 2009 12 16 | G96 | 0.1− | 0.0 |
| 2009 10 23 | G96 | 0.6− | 0.5− | 2009 11 24 | G96 | 0.4− | 0.1− | 2009 12 16 | G96 | 0.2+ | 0.0 |

## 2009 WW$_{185}$ = 2007 EY$_{193}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 150.70418 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21914956 | $\omega$ | 34.95458 | | −0.01025187 | +0.99684340 | |
| $a$ | 2.7246391 | $\Omega$ | 234.58315 | | −0.93804324 | −0.03685905 | |
| $e$ | 0.0162104 | $i$ | 5.54365 | | −0.34636653 | +0.07031820 | |
| $P$ | 4.50 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 03 14 | 691 | 0.1− | 0.0 | 2009 11 24 | G96 | 0.4+ | 0.1− | 2009 12 10 | G96 | 0.1+ | 0.2− |
| 2007 03 14 | 691 | 0.3− | 0.0 | 2009 11 24 | G96 | 0.2+ | 0.2− | 2009 12 10 | G96 | 0.0 | 0.2− |
| 2007 03 14 | 691 | 0.3− | 0.0 | 2009 11 24 | G96 | 0.4+ | 0.2+ | 2009 12 10 | G96 | 0.0 | 0.0 |
| 2007 03 20 | 691 | 0.3+ | 0.3− | 2009 11 24 | G96 | 0.2+ | 0.1+ | 2009 12 15 | G96 | 0.8− | 0.2+ |
| 2007 03 20 | 691 | 0.4+ | 0.6+ | 2009 11 25 | G96 | 0.4+ | 0.1+ | 2009 12 15 | G96 | 0.5− | 0.4− |
| 2007 03 20 | 691 | 0.1+ | 0.2− | 2009 11 25 | G96 | 0.2+ | 0.2+ | 2009 12 15 | G96 | 0.1− | 0.0 |
| 2009 10 24 | 691 | 0.3− | 0.0 | 2009 11 25 | G96 | 0.0 | 0.1− | 2009 12 15 | G96 | 0.3− | 0.0 |
| 2009 10 24 | 691 | 0.4− | 0.4+ | 2009 11 25 | G96 | 0.4+ | 0.2− | | | | |
| 2009 10 24 | 691 | 0.4+ | 0.1− | 2009 12 10 | G96 | 0.3+ | 0.1− | | | | |

## 2009 WG$_{186}$ = 2007 ER$_{140}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 305.28076 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24481251 | $\omega$ | 183.00519 | | −0.55912703 | −0.82797964 | |
| $a$ | 2.5307368 | $\Omega$ | 300.99413 | | +0.76170383 | −0.49264823 | |
| $e$ | 0.0337966 | $i$ | 2.85787 | | +0.32739004 | −0.26785714 | |
| $P$ | 4.03 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 03 26 | 691 | 0.2− | 0.8+ | 2007 03 16 | 691 | 0.0 | 0.5− | 2009 11 24 | G96 | 0.4+ | 0.0 |
| 2003 03 26 | 691 | 0.2+ | 0.7+ | 2007 03 16 | 691 | 0.1+ | 0.4− | 2009 11 24 | G96 | 0.1+ | 0.1− |
| 2003 03 26 | 691 | 0.8+ | 0.2+ | 2009 11 10 | G96 | 0.4+ | 0.4− | 2009 11 24 | G96 | 0.2+ | 0.1− |
| 2005 12 10 | 691 | 0.1− | 0.0 | 2009 11 10 | G96 | 0.3− | 0.2− | 2009 11 27 | 691 | 0.7− | 0.5+ |
| 2005 12 10 | 691 | 0.0 | 0.0 | 2009 11 10 | G96 | 0.1+ | 0.4− | 2009 11 27 | 691 | 0.5+ | 0.2+ |
| 2005 12 10 | 691 | 0.0 | 0.1+ | 2009 11 10 | G96 | 0.0 | 0.0 | 2009 11 27 | 691 | 0.0 | 0.3+ |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 03 12 | 691 | 0.3− | 0.1− | 2009 11 10 | G96 | 0.4+ | 0.2− | 2009 12 18 | G96 | 0.2− | 0.4− |
| 2007 03 12 | 691 | 0.2− | 0.3− | 2009 11 10 | G96 | 0.0 | 0.1+ | 2009 12 18 | G96 | 0.1− | 1.3− |
| 2007 03 12 | 691 | 0.5− | 0.0 | 2009 11 10 | G96 | 0.7− | 0.2+ | 2009 12 18 | G96 | 0.5+ | 0.2− |
| 2007 03 16 | 691 | 0.2+ | 0.3− | 2009 11 24 | G96 | 0.3− | 0.3− | 2009 12 18 | G96 | 0.4+ | 0.5− |

**2009 WK$_{186}$ = 2003 UF$_{301}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 13.37095 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17400918 | $\omega$ | 154.10223 | | +0.66776019 | | −0.73174326 |
| $a$ | 3.1775174 | $\Omega$ | 253.67419 | | +0.65584559 | | +0.66512819 |
| $e$ | 0.0798657 | $i$ | 8.18071 | | +0.35208366 | | +0.14884993 |
| $P$ | 5.66 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 17 | 691 | 0.0 | 0.1− | 2008 09 05 | 691 | 0.3+ | 0.1+ | 2009 11 24 | G96 | 0.4+ | 0.1− |
| 2003 10 17 | 691 | 0.1+ | 0.1− | 2009 11 10 | G96 | 0.8+ | 0.2− | 2009 11 27 | 691 | 0.3− | 0.0 |
| 2003 10 17 | 691 | 0.3− | 0.1+ | 2009 11 10 | G96 | 0.1+ | 0.3− | 2009 11 27 | 691 | 0.4− | 0.3+ |
| 2003 10 27 | 691 | 0.1+ | 0.3− | 2009 11 10 | G96 | 0.0 | 0.4− | 2009 11 27 | 691 | 0.3− | 0.2− |
| 2003 10 27 | 691 | 0.1+ | 0.4+ | 2009 11 10 | G96 | 0.4+ | 0.1+ | 2009 12 18 | G96 | 0.6+ | 0.3+ |
| 2003 10 27 | 691 | 0.0 | 0.1+ | 2009 11 24 | G96 | 0.5+ | 0.0 | 2009 12 18 | G96 | 0.2+ | 0.1− |
| 2008 09 05 | 691 | 0.3− | 0.1+ | 2009 11 24 | G96 | 0.1+ | 0.1− | 2009 12 18 | G96 | 0.1− | 0.2− |
| 2008 09 05 | 691 | 0.0 | 0.1− | 2009 11 24 | G96 | 0.8+ | 0.1+ | 2009 12 18 | G96 | 0.0 | 0.0 |

**2009 WM$_{186}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 158.08676 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23762661 | $\omega$ | 216.52162 | | −0.11205921 | | +0.97386935 |
| $a$ | 2.5815032 | $\Omega$ | 47.96153 | | −0.83709886 | | +0.01460185 |
| $e$ | 0.0645481 | $i$ | 15.42486 | | −0.53545143 | | −0.22663909 |
| $P$ | 4.15 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 04 27 | 645 | 0.1+ | 0.1+ | 2008 08 03 | E12 | 0.3− | 0.9+ | 2009 11 25 | 691 | 0.1− | 0.0 |
| 2003 04 27 | 645 | 0.1+ | 0.2+ | 2009 11 09 | 691 | 0.0 | 0.1+ | 2009 11 25 | 691 | 0.1− | 0.5+ |
| 2004 07 16 | E12 | 0.0 | 0.5+ | 2009 11 09 | 691 | 0.3− | 0.1+ | 2009 11 27 | 691 | 0.2− | 0.0 |
| 2004 07 16 | E12 | 0.6+ | 0.7− | 2009 11 09 | 691 | 0.3− | 0.2+ | 2009 11 27 | 691 | 0.2− | 0.0 |
| 2004 07 16 | E12 | 0.2− | 0.3− | 2009 11 15 | 703 | 0.7− | 0.7+ | 2009 11 27 | 691 | 0.3− | 0.1+ |
| 2004 07 16 | E12 | 1.4+ | 0.2+ | 2009 11 15 | 703 | 0.2+ | 0.5+ | 2009 12 18 | G96 | 0.2+ | 0.7− |
| 2004 08 16 | E12 | 0.0 | 0.6+ | 2009 11 15 | 703 | (0.0 | 1.9+) | 2009 12 18 | G96 | 0.4+ | 0.2+ |
| 2004 08 16 | E12 | 1.1− | 0.2+ | 2009 11 15 | 703 | 0.3− | 0.1− | 2009 12 18 | G96 | 0.4+ | 1.0− |
| 2004 08 16 | E12 | 0.4− | 0.4− | 2009 11 24 | G96 | 0.2+ | 0.2− | 2009 12 18 | G96 | 1.1+ | 0.3+ |
| 2004 08 16 | E12 | 0.6− | 1.6+ | 2009 11 24 | G96 | 0.7+ | 0.1+ | 2009 12 18 | G96 | 0.6+ | 0.3− |
| 2008 08 03 | E12 | 0.4− | 0.8+ | 2009 11 24 | G96 | 0.6+ | 0.1− | 2009 12 18 | G96 | 0.3+ | 0.4+ |
| 2008 08 03 | E12 | 0.1+ | 0.3+ | 2009 11 24 | G96 | 0.0 | 0.0 | 2009 12 18 | G96 | 0.3+ | 0.0 |
| 2008 08 03 | E12 | 0.2− | 0.8+ | 2009 11 25 | 691 | 0.4− | 0.4+ | 2009 12 18 | G96 | 0.9+ | 0.1− |

**2009 WJ$_{188}$ = 2005 YS$_{90}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 22.24749 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21411448 | $\omega$ | 130.47755 | | +0.75094660 | | −0.65786523 |
| $a$ | 2.7671881 | $\Omega$ | 270.74114 | | +0.58718271 | | +0.70496063 |
| $e$ | 0.0701751 | $i$ | 3.28976 | | +0.30215174 | | +0.26503558 |
| $P$ | 4.60 | $H$ | 17.2 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 26 | G96 | 0.1+ | 0.6− | 2006 01 09 | 691 | 0.2+ | 0.2− | 2009 11 24 | G96 | 0.4+ | 0.1− |
| 2005 12 26 | G96 | 0.3+ | 0.4− | 2006 02 04 | G96 | 0.2− | 0.4− | 2009 11 24 | G96 | 0.2+ | 0.2+ |
| 2005 12 26 | G96 | 0.1− | 0.5− | 2006 02 04 | G96 | 0.3− | 0.0 | 2009 11 24 | G96 | 0.5+ | 0.2+ |
| 2005 12 26 | G96 | 0.5− | 0.1− | 2006 02 04 | G96 | 0.1− | 0.4− | 2009 11 26 | G96 | 0.6+ | 0.4− |
| 2005 12 28 | 691 | 0.5+ | 0.3+ | 2006 02 04 | G96 | 0.3− | 0.2− | 2009 11 26 | G96 | 0.1+ | 0.2− |
| 2005 12 28 | 691 | 0.3− | 0.0 | 2009 11 09 | 691 | 0.5− | 0.4+ | 2009 11 26 | G96 | 0.5+ | 0.4− |
| 2005 12 28 | 691 | 0.2− | 0.0 | 2009 11 09 | 691 | 0.6− | 0.2− | 2009 11 26 | G96 | 0.5+ | 0.3+ |
| 2006 01 09 | 691 | 0.0 | 0.1+ | 2009 11 09 | 691 | 0.1− | 0.2− | 2009 11 26 | G96 | 0.9+ | 0.3+ |
| 2006 01 09 | 691 | 0.1+ | 0.4+ | 2009 11 24 | G96 | 0.7+ | 0.0 | | | | |

**2009 WT$_{188}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 115.53138 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.20181777 | $\omega$ | 269.48963 | | +0.54076601 | | +0.83887857 |
| $a$ | 2.8784793 | $\Omega$ | 33.48519 | | −0.72006238 | | +0.49980044 |
| $e$ | 0.0445282 | $i$ | 6.46143 | | −0.43483594 | | +0.21559746 |
| $P$ | 4.88 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 10 15 | 691 | 0.2+ | 0.2− | 2009 09 21 | G96 | 0.5+ | 0.0 | 2009 11 10 | G96 | 0.2+ | 0.3− |
| 1999 10 15 | 691 | 0.0 | 0.2− | 2009 09 21 | G96 | 0.2+ | 0.2+ | 2009 11 10 | G96 | 0.2+ | 0.1+ |
| 1999 10 15 | 691 | 0.2+ | 0.1+ | 2009 09 21 | G96 | 0.1− | 0.1− | 2009 11 24 | G96 | 0.4+ | 0.2− |
| 1999 11 05 | 691 | 0.0 | 0.1− | 2009 09 21 | G96 | 0.9− | 0.5+ | 2009 11 24 | G96 | 0.1+ | 0.5− |
| 1999 11 05 | 691 | 0.4− | 0.3− | 2009 10 24 | 691 | 0.4− | 0.0 | 2009 11 24 | G96 | 0.4+ | 0.2− |
| 1999 11 05 | 691 | 0.3+ | 0.3+ | 2009 10 24 | 691 | 0.1− | 0.0 | 2009 11 24 | G96 | 0.3+ | 0.3+ |
| 2002 04 08 | 691 | 0.1− | 0.1− | 2009 10 24 | 691 | 0.0 | 0.2+ | 2009 11 27 | 691 | 0.2− | 0.3+ |
| 2002 04 08 | 691 | 0.1+ | 0.0 | 2009 11 10 | G96 | 0.3+ | 0.1− | 2009 11 27 | 691 | 0.1+ | 0.2− |
| 2002 04 08 | 691 | 0.2− | 0.1− | 2009 11 10 | G96 | 0.2+ | 0.3− | 2009 11 27 | 691 | 0.1+ | 0.1+ |

**2009 WM$_{190}$ = 2001 HD$_{31}$ = 2006 DZ$_{164}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 122.14018 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17703354 | $\omega$ | 225.42334 | | +0.59352632 | | +0.80285842 |
| $a$ | 3.1412247 | $\Omega$ | 81.06513 | | −0.72138561 | | +0.56160092 |
| $e$ | 0.0976888 | $i$ | 3.25432 | | −0.35683233 | | +0.20005693 |
| $P$ | 5.57 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 04 27 | 691 | 0.0 | 0.0 | 2006 02 27 | 691 | 0.0 | 0.1+ | 2009 11 27 | G96 | 0.7+ | 0.1− |
| 2001 04 27 | 691 | 0.2+ | 0.1− | 2006 02 27 | 691 | 0.1− | 0.1+ | 2009 11 27 | G96 | 1.1+ | 0.2− |
| 2001 04 27 | 691 | 0.0 | 0.1+ | 2006 03 04 | G96 | 0.5− | 0.0 | 2009 11 27 | G96 | 0.6+ | 0.0 |
| 2001 04 29 | 691 | 0.1+ | 0.0 | 2006 03 04 | G96 | 0.4+ | 0.3− | 2009 11 27 | G96 | 0.7+ | 0.0 |
| 2001 04 29 | 691 | 0.2+ | 0.2+ | 2006 03 04 | G96 | 0.1+ | 0.5+ | 2009 12 10 | G96 | 1.0+ | 0.1− |
| 2001 04 29 | 691 | 0.4+ | 0.0 | 2006 03 04 | G96 | 0.1− | 0.3− | 2009 12 10 | G96 | 0.7+ | 0.0 |
| 2001 04 30 | 691 | 0.4− | 0.4− | 2009 11 24 | 691 | 0.3− | 0.0 | 2009 12 10 | G96 | 0.5+ | 0.3+ |
| 2001 04 30 | 691 | 0.2− | 0.4− | 2009 11 24 | 691 | 0.5− | 0.3− | 2009 12 10 | G96 | 0.5+ | 0.2− |
| 2001 04 30 | 691 | 0.4− | 0.1− | 2009 11 24 | 691 | 0.7− | 0.1− | | | | |
| 2006 02 27 | 691 | 0.3+ | 0.3+ | 2009 11 27 | G96 | 0.5+ | 0.0 | | | | |

**2009 WL$_{191}$ = 2003 QT$_{108}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 21.32862 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18524411 | $\omega$ | 148.37765 | | +0.77303211 | | −0.63388803 |
| $a$ | 3.0477063 | $\Omega$ | 250.98018 | | +0.57644858 | | +0.71814042 |
| $e$ | 0.1517383 | $i$ | 1.49370 | | +0.26481766 | | +0.28715902 |
| $P$ | 5.32 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 03 26 | 695 | 0.5+ | 0.4+ | 2009 09 19 | G96 | 0.3+ | 0.0 | 2009 11 09 | 691 | 0.0 | 0.1+ |
| 2001 03 26 | 695 | 0.0 | 0.6+ | 2009 09 19 | G96 | 0.5+ | 0.3+ | 2009 11 24 | G96 | 0.3+ | 0.1+ |
| 2003 08 31 | 691 | 0.2− | 0.3− | 2009 09 19 | G96 | 0.7+ | 0.4− | 2009 11 24 | G96 | 0.6+ | 0.1+ |
| 2003 08 31 | 691 | 0.1+ | 0.0 | 2009 09 19 | G96 | 0.1+ | 0.0 | 2009 11 24 | G96 | 0.4+ | 0.2− |
| 2003 08 31 | 691 | 0.2− | 0.1− | 2009 09 19 | G96 | 0.4+ | 0.1− | 2009 11 24 | G96 | 0.3+ | 0.2+ |
| 2003 09 04 | 291 | 0.0 | 0.4+ | 2009 09 19 | G96 | 0.2+ | 0.1+ | 2009 11 25 | 691 | 0.3− | 0.2− |
| 2003 09 04 | 291 | 0.1+ | 0.2+ | 2009 09 19 | G96 | 0.5+ | 0.1− | 2009 11 25 | 691 | 0.2− | 0.1+ |
| 2003 09 04 | 291 | 0.1− | 0.4+ | 2009 09 19 | G96 | 0.3+ | 0.2− | 2009 11 25 | 691 | 0.0 | 0.3− |
| 2003 10 24 | 695 | 0.0 | 0.3− | 2009 10 24 | 691 | 0.1+ | 0.1+ | 2009 12 11 | G96 | 0.3− | 0.0 |
| 2003 10 24 | 695 | 0.1− | 0.5− | 2009 10 24 | 691 | 0.2− | 0.1− | 2009 12 11 | G96 | 0.0 | 0.9+ |
| 2004 12 13 | 691 | 0.1+ | 0.1+ | 2009 10 24 | 691 | 0.2− | 0.1− | 2009 12 11 | G96 | 0.2+ | 0.0 |
| 2004 12 13 | 691 | 0.1− | 0.1+ | 2009 11 09 | 691 | 0.0 | 0.1+ | 2009 12 11 | G96 | 0.4+ | 0.2− |
| 2004 12 13 | 691 | 0.1+ | 0.1+ | 2009 11 09 | 691 | 0.2− | 0.1+ | | | | |

**2009 WW$_{192}$ = 2007 BL$_{57}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 295.31167 | | (2000.0) | | | |
| $n$ | 0.29122435 | $\omega$ | 104.69166 | | −0.81839732 | −0.57283873 |
| $a$ | 2.2541575 | $\Omega$ | 40.38843 | | +0.49642455 | −0.74474886 |
| $e$ | 0.1039282 | $i$ | 4.03767 | | +0.28946243 | −0.34235206 |
| $P$ | 3.38 | $H$ | 17.7 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 04 13 | 691 | 0.2− | 0.1− | 2009 10 24 | 691 | 0.2− | 0.2− | 2009 11 25 | 691 | 0.0 | 0.2− |
| 2004 04 13 | 691 | 0.0 | 0.1− | 2009 10 24 | 691 | 0.3− | 0.0 | 2009 11 25 | 691 | 0.3− | 0.3+ |
| 2004 04 13 | 691 | 0.1+ | 0.0 | 2009 11 15 | 703 | 0.5+ | 0.4− | 2009 11 27 | 691 | 0.2− | 0.1− |
| 2007 01 24 | 704 | 0.9− | 0.4+ | 2009 11 15 | 703 | (0.6+ | 1.5+) | 2009 11 27 | 691 | 0.3− | 0.1+ |
| 2007 01 24 | 704 | 0.5− | 1.1+ | 2009 11 15 | 703 | (2.7+ | 0.5−) | 2009 11 27 | 691 | 0.3+ | 0.2+ |
| 2007 01 24 | 704 | 0.6+ | 0.6+ | 2009 11 15 | 703 | (2.7+ | 0.3−) | 2009 12 18 | G96 | 0.6+ | 0.2+ |
| 2007 01 28 | G96 | 0.3+ | 0.5− | 2009 11 24 | G96 | 0.2+ | 0.1+ | 2009 12 18 | G96 | 0.3+ | 0.3+ |
| 2007 01 28 | G96 | 0.1+ | 0.3− | 2009 11 24 | G96 | 0.4+ | 0.2− | 2009 12 18 | G96 | 0.4+ | 0.2+ |
| 2007 01 28 | G96 | 0.4+ | 0.4− | 2009 11 24 | G96 | 0.5+ | 0.2− | 2009 12 18 | G96 | 0.6+ | 0.1− |
| 2007 01 28 | G96 | 0.1+ | 0.5− | 2009 11 24 | G96 | 0.8+ | 0.4− | | | | |
| 2009 10 24 | 691 | 0.1+ | 0.0 | 2009 11 25 | 691 | 0.1− | 0.1− | | | | |

**2009 WY$_{192}$ = 1996 HK**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 90.27472 | | (2000.0) | | | |
| $n$ | 0.18504329 | $\omega$ | 272.94342 | | +0.77539433 | +0.61295415 |
| $a$ | 3.0499109 | $\Omega$ | 49.31032 | | −0.47001146 | +0.72076829 |
| $e$ | 0.0935899 | $i$ | 11.55043 | | −0.42172606 | +0.32369783 |
| $P$ | 5.33 | $H$ | 16.1 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 04 17 | 608 | 0.3+ | 0.4+ | 2007 04 26 | 691 | 0.5− | 0.1+ | 2009 11 24 | G96 | 0.7+ | 0.2− |
| 1996 04 17 | 608 | 0.2− | 0.2+ | 2007 04 26 | 691 | 0.1− | 0.0 | 2009 11 24 | G96 | 0.2+ | 0.1+ |
| 1996 04 19 | 608 | 1.2− | 0.1− | 2009 10 18 | G96 | 0.9+ | 0.2− | 2009 11 24 | G96 | 0.8+ | 0.0 |
| 1996 04 19 | 608 | 0.8− | 0.8+ | 2009 10 18 | G96 | 0.5+ | 0.3− | 2009 11 25 | 691 | 0.0 | 0.1+ |
| 1996 04 20 | 608 | 0.8+ | 0.9− | 2009 10 18 | G96 | 0.7+ | 0.1− | 2009 11 25 | 691 | 0.0 | 0.2+ |
| 1996 04 20 | 608 | 0.8+ | 0.7− | 2009 10 18 | G96 | 0.3+ | 0.3− | 2009 11 25 | 691 | 0.2− | 0.1+ |
| 2007 04 14 | 691 | 0.3− | 0.0 | 2009 10 24 | 691 | 0.3− | 0.1+ | 2009 11 27 | 691 | 0.2− | 0.1+ |
| 2007 04 14 | 691 | 0.5− | 0.2− | 2009 10 24 | 691 | 0.3− | 0.2+ | 2009 11 27 | 691 | 0.4− | 0.0 |
| 2007 04 14 | 691 | 0.2− | 0.2− | 2009 10 24 | 691 | 0.0 | 0.0 | 2009 11 27 | 691 | 0.3+ | 0.1− |
| 2007 04 18 | 691 | 0.7+ | 0.7+ | 2009 11 09 | 691 | 0.2− | 0.0 | 2009 12 18 | G96 | 0.8− | 0.2+ |
| 2007 04 18 | 691 | 0.3+ | 0.3+ | 2009 11 09 | 691 | 0.2+ | 0.0 | 2009 12 18 | G96 | 0.2+ | 0.2− |
| 2007 04 18 | 691 | 0.4+ | 0.6− | 2009 11 09 | 691 | 0.1− | 0.1− | 2009 12 18 | G96 | 0.4+ | 0.2− |
| 2007 04 26 | 691 | 0.2+ | 0.2+ | 2009 11 24 | G96 | 0.5+ | 0.3− | 2009 12 18 | G96 | 0.9+ | 0.3− |

**2009 WA$_{193}$ = 2005 YL$_{266}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 14.14435 | | (2000.0) | | | |
| $n$ | 0.22545143 | $\omega$ | 165.48661 | | +0.65096202 | −0.75466076 |
| $a$ | 2.6736264 | $\Omega$ | 243.82805 | | +0.68703678 | +0.63168360 |
| $e$ | 0.1911516 | $i$ | 5.24681 | | +0.32284504 | +0.17737806 |
| $P$ | 4.37 | $H$ | 17.8 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 27 | 691 | 0.0 | 0.2+ | 2009 11 09 | 691 | 0.4− | 0.2− | 2009 11 27 | 691 | 0.0 | 0.2− |
| 2005 12 27 | 691 | 0.2+ | 0.2− | 2009 11 24 | G96 | 1.1+ | 0.6− | 2009 11 27 | 691 | 0.2+ | 0.0 |
| 2005 12 27 | 691 | 0.3− | 0.1− | 2009 11 24 | G96 | 0.3+ | 0.1+ | 2009 11 27 | 691 | 0.2− | 0.0 |
| 2006 01 07 | 691 | 0.1− | 0.1+ | 2009 11 24 | G96 | 0.5+ | 0.3− | 2009 12 11 | G96 | 0.8− | 0.0 |
| 2006 01 07 | 691 | 0.1+ | 0.0 | 2009 11 24 | G96 | 0.7+ | 0.1− | 2009 12 11 | G96 | 0.2+ | 0.4− |
| 2006 01 07 | 691 | 0.1+ | 0.0 | 2009 11 25 | 691 | 0.2+ | 0.2+ | 2009 12 11 | G96 | 0.3+ | 0.0 |
| 2009 11 09 | 691 | 0.2+ | 0.2+ | 2009 11 25 | 691 | 0.3− | 0.0 | 2009 12 11 | G96 | 0.4+ | 0.1+ |
| 2009 11 09 | 691 | 0.0 | 0.1− | 2009 11 25 | 691 | 0.2− | 0.4+ | | | | |

**2009 WK$_{193}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 56.37265 | | (2000.0) | | | |
| $n$ | 0.27657794 | $\omega$ | 308.02500 | | +0.99038956 | +0.13208605 |
| $a$ | 2.3330517 | $\Omega$ | 44.42765 | | −0.10126331 | +0.89448521 |
| $e$ | 0.1967596 | $i$ | 3.35858 | | −0.09420332 | +0.42714106 |
| $P$ | 3.56 | $H$ | 17.7 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 01 17 | 691 | 0.3+ | 0.0 | 2009 10 18 | G96 | 0.4+ | 0.1− | 2009 11 24 | G96 | 0.2+ | 0.1− |
| 2007 01 17 | 691 | 0.1− | 0.2− | 2009 10 18 | G96 | 0.5+ | 0.3− | 2009 11 24 | G96 | 0.3+ | 0.3− |
| 2007 01 17 | 691 | 0.1+ | 0.0 | 2009 10 18 | G96 | 0.5+ | 0.1− | 2009 11 24 | G96 | 0.5+ | 0.1− |
| 2007 01 28 | 691 | 0.2+ | 0.1+ | 2009 10 18 | G96 | 0.6+ | 0.3− | 2009 11 24 | G96 | 0.6+ | 0.2− |
| 2007 01 28 | 691 | 0.6− | 0.1− | 2009 10 24 | 691 | 0.1− | 0.2− | 2009 11 25 | 691 | 0.1− | 0.2+ |
| 2007 01 28 | 691 | 0.1+ | 0.1+ | 2009 10 24 | 691 | 0.1− | 0.0 | 2009 11 25 | 691 | 0.1− | 0.1− |
| 2008 05 02 | G96 | 0.5− | 0.2− | 2009 10 24 | 691 | 0.1− | 0.1− | 2009 11 25 | 691 | 0.0 | 0.1− |
| 2008 05 02 | G96 | 0.1− | 0.4+ | 2009 11 11 | 691 | 0.3− | 0.2− | 2009 11 27 | 691 | 0.0 | 0.1+ |
| 2008 05 02 | G96 | 0.4+ | 0.1+ | 2009 11 11 | 691 | 0.3− | 0.1− | 2009 11 27 | 691 | 0.1− | 0.1− |
| 2008 05 02 | G96 | 0.4+ | 0.1− | 2009 11 11 | 691 | 0.0 | 0.3+ | 2009 11 27 | 691 | 0.0 | 0.1+ |
| 2009 09 22 | G96 | 0.1− | 0.2− | 2009 11 15 | 703 | 1.4− | 0.0 | 2009 12 18 | G96 | 0.0 | 0.0 |
| 2009 09 22 | G96 | 0.7+ | 0.2− | 2009 11 15 | 703 | 0.5− | 0.9+ | 2009 12 18 | G96 | 0.4+ | 0.3+ |
| 2009 09 22 | G96 | 0.7+ | 0.3− | 2009 11 15 | 703 | 1.2+ | 0.5+ | 2009 12 18 | G96 | 0.3+ | 0.3− |
| 2009 09 22 | G96 | 0.1− | 0.2− | 2009 11 15 | 703 | 0.5− | 1.5+ | 2009 12 18 | G96 | 0.7+ | 0.1− |

**2009 WB$_{195}$ = 2003 AV$_{6}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 356.00021 | | (2000.0) | | | |
| $n$ | 0.27942188 | $\omega$ | 207.68433 | | +0.03806414 | −0.99613044 |
| $a$ | 2.3171942 | $\Omega$ | 240.23071 | | +0.93285702 | +0.06384128 |
| $e$ | 0.1064798 | $i$ | 5.23610 | | +0.35823023 | −0.06040232 |
| $P$ | 3.53 | $H$ | 16.6 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 01 02 | 704 | 0.2+ | 0.0 | 2009 10 26 | G96 | 0.2+ | 0.3+ | 2009 12 08 | J75 | 0.1− | 0.4− |
| 2003 01 02 | 704 | 0.9− | 0.9+ | 2009 10 26 | G96 | 0.1− | 0.3+ | 2009 12 11 | G96 | 0.1+ | 0.3− |
| 2003 01 02 | 704 | 0.5+ | 0.1− | 2009 10 26 | G96 | 0.3− | 0.2+ | 2009 12 11 | G96 | 0.3+ | 0.2− |
| 2003 01 02 | 704 | 0.3− | 0.1− | 2009 10 26 | G96 | 0.2− | 0.2+ | 2009 12 11 | G96 | 0.3+ | 0.8− |
| 2003 01 02 | 704 | 0.4+ | 0.3− | 2009 11 24 | D29 | 0.0 | 0.2− | 2009 12 11 | G96 | 0.4+ | 0.3− |
| 2003 01 02 | 704 | 0.0 | 0.1+ | 2009 11 24 | D29 | 0.1+ | 0.2+ | 2009 12 11 | 703 | 0.6− | 0.3+ |
| 2003 01 02 | 704 | 0.5+ | 0.2+ | 2009 11 24 | D29 | 0.4+ | 0.3− | 2009 12 11 | 703 | 0.2− | 0.2− |
| 2003 01 02 | 704 | 1.2− | 0.5− | 2009 11 24 | D29 | 0.5+ | 0.9− | 2009 12 11 | 703 | 0.7− | 0.1+ |
| 2003 01 02 | 704 | 0.3+ | 0.6+ | 2009 11 27 | G96 | 0.4+ | 0.2− | 2009 12 11 | 703 | (0.8+ | 2.3−) |
| 2003 01 04 | 704 | 0.3+ | 0.5− | 2009 11 27 | G96 | 0.1− | 0.2− | 2009 12 17 | 704 | 0.2+ | 1.1+ |
| 2003 01 04 | 704 | 0.2− | 0.3− | 2009 11 27 | G96 | 0.1+ | 0.3− | 2009 12 17 | 704 | 0.3− | 0.8+ |
| 2003 01 04 | 704 | 0.1− | 0.4− | 2009 12 08 | J75 | 0.6− | 0.2+ | 2009 12 17 | 704 | 0.6− | 0.7+ |
| 2003 01 04 | 704 | 0.4+ | 0.3+ | 2009 12 08 | J75 | 0.7+ | 0.1+ | | | | |

**2009 WC$_{195}$ = 2000 SS$_{250}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 47.90498 | | (2000.0) | | | |
| $n$ | 0.22726338 | $\omega$ | 331.13592 | | +0.98055276 | −0.18120191 |
| $a$ | 2.6593964 | $\Omega$ | 39.53249 | | +0.19499264 | +0.85600749 |
| $e$ | 0.1802767 | $i$ | 6.80128 | | +0.02222971 | +0.48416635 |
| $P$ | 4.34 | $H$ | 16.2 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 24 | 704 | 0.6− | 0.8+ | 2006 01 05 | 703 | 0.3+ | 1.3− | 2009 10 24 | 703 | 0.2+ | 0.1+ |
| 2000 09 24 | 704 | 0.1+ | 0.5+ | 2006 01 05 | 703 | 0.9− | 0.4+ | 2009 11 08 | 703 | 0.2− | 0.9+ |
| 2000 09 24 | 704 | 0.3+ | 1.2+ | 2006 01 05 | 703 | 0.3− | 0.2+ | 2009 11 08 | 703 | 0.7+ | 0.7+ |
| 2000 09 24 | 704 | 0.9− | 0.8− | 2007 04 23 | G96 | 1.6+ | 0.9− | 2009 11 08 | 703 | 0.0 | 0.1+ |
| 2000 09 24 | 704 | 0.3− | 0.8+ | 2007 04 23 | G96 | 1.0+ | 1.0− | 2009 11 08 | 703 | 1.7− | 0.7+ |
| 2000 10 01 | 699 | 0.1+ | 2.1+ | 2007 04 23 | G96 | 0.8+ | 0.8− | 2009 11 24 | J75 | 0.1+ | 0.4− |
| 2000 10 01 | 699 | 0.6− | 1.7+ | 2007 04 23 | G96 | 0.6+ | 1.4− | 2009 11 24 | J75 | 0.4+ | 0.2+ |
| 2000 10 01 | 699 | (0.0 | 2.2+) | 2009 09 21 | G96 | 0.0 | 0.4+ | 2009 11 24 | J75 | 0.2− | 0.2+ |
| 2000 10 01 | 699 | 0.6− | 0.8+ | 2009 09 21 | G96 | 0.1− | 0.3+ | 2009 11 27 | 691 | 0.5− | 0.4+ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 10 02 | 704 | 0.3− | 0.8+ | 2009 09 21 | G96 | 0.4− | 0.2+ | 2009 11 27 | 691 | 0.5− | 0.4+ |
| 2000 10 02 | 704 | 0.3− | 0.1+ | 2009 09 21 | G96 | 0.1− | 0.2+ | 2009 11 27 | 691 | 0.3− | 0.5+ |
| 2000 10 02 | 704 | 0.8− | 1.5+ | 2009 10 17 | G96 | 0.0 | 0.0 | 2009 12 15 | 704 | 1.9+ | 1.1+ |
| 2000 10 02 | 704 | 0.9− | 1.4+ | 2009 10 17 | G96 | 0.0 | 0.4+ | 2009 12 15 | 704 | 1.4+ | 0.1+ |
| 2000 10 02 | 704 | 0.9− | 1.5+ | 2009 10 17 | G96 | 0.1+ | 0.3+ | 2009 12 15 | 704 | 0.0 | 0.7+ |
| 2003 04 25 | 691 | 1.0+ | 2.7+ | 2009 10 17 | G96 | 0.1− | 0.2+ | 2009 12 15 | 704 | 0.4+ | 1.7+ |
| 2003 04 25 | 691 | 0.8+ | 2.6+ | 2009 10 24 | 703 | 1.0− | 1.9+ | 2009 12 15 | 704 | 0.2− | 0.3+ |
| 2003 04 25 | 691 | 0.7+ | 2.5+ | 2009 10 24 | 703 | 0.5− | 0.4+ | | | | |
| 2006 01 05 | 703 | 0.2+ | 0.5− | 2009 10 24 | 703 | 1.2− | 0.3+ | | | | |

**2009 WO$_{195}$ = 2009 WU$_{133}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 40.38516 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22940525 | $\omega$ | 110.09313 | | +0.95828756 | | −0.27341425 |
| $a$ | 2.6428173 | $\Omega$ | 265.84564 | | +0.22098817 | | +0.89353620 |
| $e$ | 0.1431636 | $i$ | 4.78768 | | +0.18124343 | | +0.35614282 |
| $P$ | 4.30 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 07 18 | 599 | 0.3− | 0.0 | 2009 11 22 | 703 | 0.4− | 0.6− | 2009 11 27 | 691 | 0.0 | 0.1− |
| 2004 07 18 | 599 | 0.0 | 0.0 | 2009 11 22 | 703 | 0.3+ | 0.2− | 2009 11 27 | 691 | 0.2− | 0.2+ |
| 2004 07 18 | 599 | 0.0 | 0.3+ | 2009 11 22 | 703 | 1.1+ | 0.6− | 2009 12 13 | 703 | 0.8− | 0.5− |
| 2004 07 18 | 599 | 0.3+ | 0.1+ | 2009 11 22 | 703 | 0.9+ | 0.3+ | 2009 12 13 | 703 | 1.0− | 0.9+ |
| 2004 08 15 | 807 | 0.1+ | 0.1+ | 2009 11 24 | G96 | 0.3+ | 0.1− | 2009 12 13 | 703 | 0.4+ | 0.6− |
| 2004 08 15 | 807 | 0.3− | 0.0 | 2009 11 24 | G96 | 0.3+ | 0.1− | 2009 12 13 | 703 | 0.9− | 1.0− |
| 2005 12 05 | 691 | 0.1− | 0.0 | 2009 11 24 | G96 | 0.6+ | 0.1− | 2009 12 18 | G96 | 0.3+ | 0.3− |
| 2005 12 05 | 691 | 0.1− | 0.3+ | 2009 11 24 | G96 | 0.3+ | 0.1+ | 2009 12 18 | G96 | 0.2+ | 0.3− |
| 2005 12 05 | 691 | 0.3+ | 0.0 | 2009 11 25 | 691 | 0.0 | 0.1+ | 2009 12 18 | G96 | 0.3+ | 0.4− |
| 2009 11 11 | J75 | 0.4+ | 0.5+ | 2009 11 25 | 691 | 0.2− | 0.1− | 2009 12 18 | G96 | 0.8+ | 0.1+ |
| 2009 11 11 | J75 | 0.1− | 0.1− | 2009 11 25 | 691 | 0.4− | 0.1− | | | | |
| 2009 11 11 | J75 | 0.6+ | 0.4− | 2009 11 27 | 691 | 0.1− | 0.6+ | | | | |

**2009 WJ$_{196}$ = 2008 GK$_{109}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 103.82114 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.27272336 | $\omega$ | 219.08293 | | +0.64039751 | | +0.76008478 |
| $a$ | 2.3549833 | $\Omega$ | 91.02606 | | −0.67411152 | | +0.62506127 |
| $e$ | 0.1221777 | $i$ | 6.33260 | | −0.36805527 | | +0.17767820 |
| $P$ | 3.61 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 04 13 | G96 | 0.0 | 0.2− | 2009 10 12 | G96 | 0.3− | 0.3− | 2009 11 25 | G96 | 0.2+ | 0.8− |
| 2008 04 13 | G96 | 0.3− | 0.0 | 2009 10 12 | G96 | 0.3+ | 0.1− | 2009 11 25 | G96 | 0.2− | 0.0 |
| 2008 04 13 | G96 | 0.1+ | 0.1− | 2009 11 17 | G96 | 0.0 | 0.1− | 2009 11 25 | G96 | 0.1− | 0.3− |
| 2008 04 13 | G96 | 0.1− | 0.0 | 2009 11 17 | G96 | 0.0 | 0.0 | 2009 11 26 | G96 | 0.1+ | 0.2+ |
| 2008 04 14 | G96 | 0.2+ | 0.1− | 2009 11 17 | G96 | 0.3+ | 0.3+ | 2009 11 26 | G96 | 0.1− | 0.1− |
| 2008 04 14 | G96 | 0.2− | 0.3+ | 2009 11 17 | G96 | 0.4+ | 0.3+ | 2009 11 26 | G96 | 0.1+ | 0.1− |
| 2008 04 14 | G96 | 0.1− | 0.0 | 2009 11 17 | G96 | 0.1+ | 0.1+ | 2009 11 26 | G96 | 0.1− | 0.0 |
| 2008 04 14 | G96 | 0.5+ | 0.2+ | 2009 11 17 | G96 | 0.2+ | 0.2+ | 2009 11 26 | G96 | 0.5− | 0.3+ |
| 2009 10 12 | G96 | 0.2− | 0.1+ | 2009 11 17 | G96 | 0.1− | 0.0 | | | | |
| 2009 10 12 | G96 | 0.4− | 0.1+ | 2009 11 25 | G96 | 0.2+ | 0.3+ | | | | |

**2009 WE$_{197}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 61.89357 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.24207779 | $\omega$ | 158.65332 | | +0.99016095 | | +0.13900750 |
| $a$ | 2.5497607 | $\Omega$ | 193.38635 | | −0.13632615 | | +0.93235131 |
| $e$ | 0.2010627 | $i$ | 3.97998 | | −0.03156708 | | +0.33376330 |
| $P$ | 4.07 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 03 20 | 645 | 0.0 | 0.0 | 2007 02 25 | G96 | 0.2+ | 0.1− | 2009 11 25 | G96 | 0.7+ | 0.3− |
| 1999 03 20 | 645 | 0.0 | 0.1+ | 2007 02 25 | G96 | 0.3− | 0.5− | 2009 11 25 | G96 | 0.4+ | 0.2− |
| 2004 06 12 | 926 | 0.2− | 0.1+ | 2007 03 12 | G96 | 0.2+ | 0.1+ | 2009 11 26 | 691 | 0.0 | 0.1+ |
| 2004 06 12 | 926 | 0.1+ | 0.0 | 2007 03 12 | G96 | 0.3+ | 0.1+ | 2009 11 26 | 691 | 0.5− | 0.1+ |
| 2004 06 12 | 926 | 0.3+ | 0.6+ | 2007 03 12 | G96 | 0.3− | 0.2− | 2009 11 26 | 691 | 0.1+ | 0.2+ |
| 2006 02 04 | G96 | 0.2+ | 0.2− | 2007 03 12 | G96 | 0.3+ | 0.1+ | 2009 12 11 | 703 | 0.3− | 0.9− |
| 2006 02 04 | G96 | 0.1+ | 0.5− | 2009 11 18 | 691 | 0.0 | 0.1+ | 2009 12 11 | 703 | 0.1+ | 0.9+ |
| 2006 02 04 | G96 | 0.7+ | 0.1− | 2009 11 18 | 691 | 0.3− | 0.1− | 2009 12 11 | 703 | 0.0 | 0.1− |
| 2006 02 04 | G96 | 0.0 | 0.5− | 2009 11 18 | 691 | 0.1+ | 0.1+ | 2009 12 11 | 703 | 0.6− | 0.7+ |
| 2007 02 25 | G96 | (2.3− | 0.8−) | 2009 11 25 | G96 | 0.7+ | 0.3− | | | | |
| 2007 02 25 | G96 | 0.1− | 0.4− | 2009 11 25 | G96 | 0.5+ | 0.2− | | | | |

**2009 WG$_{198}$ = 2005 UW$_{351}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 305.46909 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.25867245 | $\omega$ | 166.69419 | | −0.72465307 | | −0.68719905 |
| $a$ | 2.4395099 | $\Omega$ | 329.69572 | | +0.62257067 | | −0.62092099 |
| $e$ | 0.0864398 | $i$ | 5.83925 | | +0.29543812 | | −0.37711350 |
| $P$ | 3.81 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 09 28 | 644 | 1.0− | 0.5− | 2003 03 26 | 699 | 1.6− | 1.2+ | 2009 11 25 | G96 | 0.1− | 0.5− |
| 2001 09 28 | 644 | (0.7− | 2.1+) | 2003 03 26 | 699 | 1.1− | 0.1+ | 2009 11 25 | G96 | 0.2− | 0.1− |
| 2001 09 28 | 644 | 0.7+ | 0.6+ | 2005 10 29 | 703 | (2.2+ | 0.0 ) | 2009 11 25 | G96 | 0.2+ | 0.5− |
| 2001 09 28 | 644 | 1.0− | 0.7− | 2005 10 29 | 703 | 0.4+ | 1.0− | 2009 11 25 | G96 | 0.1− | 0.4− |
| 2001 09 28 | 644 | (0.8− | 2.0+) | 2005 10 29 | 703 | 0.5− | 0.5+ | 2009 11 26 | H36 | 0.1− | 0.5− |
| 2001 09 28 | 644 | 1.0+ | 0.6+ | 2005 10 29 | 703 | 0.1+ | 0.1− | 2009 11 26 | H36 | 0.1+ | 0.3− |
| 2001 09 28 | 644 | 0.9− | 0.9− | 2005 10 30 | 704 | 0.7+ | 0.6+ | 2009 11 26 | H36 | 0.2+ | 0.4− |
| 2001 09 28 | 644 | (1.0− | 1.9+) | 2005 10 30 | 704 | 0.0 | 0.1− | 2009 11 26 | H36 | 0.3+ | 0.2− |
| 2001 09 28 | 644 | 0.7+ | 0.9+ | 2005 10 30 | 704 | 0.0 | 0.1+ | 2009 12 10 | 704 | 0.1+ | 0.4+ |
| 2003 02 28 | 608 | 0.4+ | 0.6− | 2007 03 14 | 703 | 0.3− | 0.1− | 2009 12 10 | 704 | 0.8− | 0.6+ |
| 2003 02 28 | 608 | 0.3+ | 0.6− | 2007 03 14 | 703 | 0.8+ | 0.3− | 2009 12 10 | 704 | 0.6− | 0.1+ |
| 2003 02 28 | 608 | 0.1− | 1.1− | 2007 03 14 | 703 | 0.6− | 0.5− | 2009 12 10 | 704 | 0.1− | 1.2+ |
| 2003 03 06 | 644 | 0.4+ | 0.7+ | 2007 03 14 | 703 | 0.1− | 0.2+ | 2009 12 15 | 704 | 0.6− | 0.9+ |
| 2003 03 06 | 644 | 0.4+ | 0.4+ | 2009 11 24 | D29 | 0.1+ | 0.3− | 2009 12 15 | 704 | 0.2+ | 0.7+ |
| 2003 03 06 | 644 | 0.6+ | 0.4+ | 2009 11 24 | D29 | 0.2+ | 0.9− | 2009 12 15 | 704 | 0.1− | 0.3− |
| 2003 03 26 | 699 | 0.7+ | 0.0 | 2009 11 24 | D29 | 0.3+ | 0.5− | 2009 12 15 | 704 | 0.1− | 1.1+ |
| 2003 03 26 | 699 | 0.0 | 0.0 | 2009 11 24 | D29 | 0.5+ | 0.3− | 2009 12 15 | 704 | 0.0 | 0.1− |

**2009 WM$_{200}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 64.13527 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22423465 | $\omega$ | 139.90415 | | +0.99483498 | | −0.07311524 |
| $a$ | 2.6832897 | $\Omega$ | 224.44477 | | +0.04594959 | | +0.94289792 |
| $e$ | 0.1002038 | $i$ | 5.77104 | | +0.09050963 | | +0.32495796 |
| $P$ | 4.40 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 01 | 691 | 0.0 | 0.4− | 2006 01 05 | G96 | 0.3+ | 0.1− | 2009 11 26 | G96 | 0.3+ | 0.3− |
| 2000 11 01 | 691 | 1.1− | 0.0 | 2006 01 05 | G96 | 0.1+ | 0.4− | 2009 11 26 | G96 | 0.6+ | 0.0 |
| 2000 11 01 | 691 | 0.8− | 0.5+ | 2006 01 05 | G96 | 0.2+ | 0.1− | 2009 11 26 | G96 | 0.1− | 0.2− |
| 2000 11 29 | 691 | 0.5+ | 0.3− | 2006 01 05 | G96 | 0.6+ | 0.4− | 2009 11 27 | 691 | 0.1− | 0.1+ |
| 2000 11 29 | 691 | 0.7+ | 0.1− | 2008 06 12 | 691 | 0.1− | 0.0 | 2009 11 27 | 691 | 0.2− | 0.5+ |
| 2000 11 29 | 691 | 0.3+ | 0.2− | 2008 06 12 | 691 | 0.0 | 0.5− | 2009 11 27 | 691 | 0.2+ | 0.1− |
| 2004 08 23 | 691 | 0.2+ | 0.0 | 2008 06 12 | 691 | 0.3− | 0.0 | 2009 12 11 | G96 | 0.1+ | 0.2+ |
| 2004 08 23 | 691 | 0.3+ | 0.3+ | 2009 11 19 | 691 | 0.1− | 0.0 | 2009 12 11 | G96 | 0.3+ | 0.1+ |
| 2004 08 23 | 691 | 0.2+ | 0.0 | 2009 11 19 | 691 | 0.0 | 0.0 | 2009 12 11 | G96 | 0.4+ | 0.1+ |
| 2004 09 12 | 691 | 0.1− | 0.1+ | 2009 11 19 | 691 | 0.3− | 0.0 | 2009 12 11 | G96 | 0.1− | 0.0 |
| 2004 09 12 | 691 | 0.0 | 0.1− | 2009 11 26 | G96 | 0.3+ | 0.4− | | | | |
| 2004 09 12 | 691 | 0.1+ | 0.0 | 2009 11 26 | G96 | 0.0 | 0.3− | | | | |

**2009 WX$_{200}$ = 2007 BF$_{64}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 268.42110 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.29078219 | $\omega$ | 7.41532 | | −0.99868386 | | −0.05063330 |
| $a$ | 2.2564420 | $\Omega$ | 169.67176 | | +0.04440529 | | −0.93334992 |
| $e$ | 0.0401148 | $i$ | 2.61318 | | +0.02566551 | | −0.35537895 |
| $P$ | 3.39 | $H$ | 18.1 | $G$ | 0.15 | $U$ | 5 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 01 27 | G96 | 0.5− | 0.3− | 2007 01 28 | G96 | 0.3+ | 0.1+ | 2009 11 27 | 691 | 0.3− | 0.1+ |
| 2007 01 27 | G96 | 0.6+ | 0.1− | 2009 11 26 | G96 | 0.0 | 0.0 | 2009 11 27 | 691 | 0.0 | 0.0 |
| 2007 01 27 | G96 | 0.1+ | 0.2+ | 2009 11 26 | G96 | 0.3+ | 0.1+ | 2009 12 11 | G96 | 0.0 | 0.2+ |
| 2007 01 27 | G96 | 0.3− | 0.2+ | 2009 11 26 | G96 | 0.3+ | 0.5− | 2009 12 11 | G96 | 0.0 | 0.2− |
| 2007 01 28 | G96 | 0.2− | 0.0 | 2009 11 26 | G96 | 0.8+ | 0.1+ | 2009 12 11 | G96 | 0.2− | 0.1+ |
| 2007 01 28 | G96 | 0.4+ | 0.2+ | 2009 11 26 | G96 | 0.0 | 0.6− | 2009 12 11 | G96 | 0.2+ | 0.2− |
| 2007 01 28 | G96 | 0.4− | 0.3− | 2009 11 27 | 691 | 0.0 | 0.2+ | | | | |

**2009 WR$_{202}$ = 2003 WF$_{88}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 27.98313 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17838468 | $\omega$ | 312.57648 | | +0.27640086 | | −0.89372647 |
| $a$ | 3.1253430 | $\Omega$ | 118.10652 | | +0.95651405 | | +0.22017884 |
| $e$ | 0.2929756 | $i$ | 23.61502 | | +0.09318499 | | +0.39086351 |
| $P$ | 5.53 | $H$ | 15.2 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 11 20 | 644 | 0.0 | 0.2+ | 2008 09 02 | E12 | 0.4+ | 0.6+ | 2009 12 10 | 703 | 1.3− | 0.2− |
| 2003 11 20 | 644 | 0.1+ | 0.2+ | 2008 09 02 | E12 | 0.2− | 1.4+ | 2009 12 10 | 703 | 0.8+ | 0.4+ |
| 2003 11 20 | 644 | 0.2+ | 0.3+ | 2008 09 02 | E12 | 0.1+ | 0.8+ | 2009 12 17 | 704 | 0.0 | 0.7+ |
| 2003 11 26 | 704 | 0.1+ | 0.6− | 2009 11 26 | 703 | 0.6− | 0.4+ | 2009 12 17 | 704 | 0.3− | 0.1+ |
| 2003 11 26 | 704 | 0.5− | 0.5− | 2009 11 26 | 703 | 0.6+ | 0.9+ | 2009 12 17 | 704 | 0.7+ | 0.6+ |
| 2003 11 26 | 704 | 0.5+ | 0.5− | 2009 11 26 | 703 | 0.7+ | 0.7+ | 2009 12 17 | 704 | 0.2− | 0.7+ |
| 2003 11 26 | 704 | 0.3− | 0.5− | 2009 11 27 | 703 | 0.5− | 0.3− | 2009 12 17 | 704 | 0.9+ | 0.4+ |
| 2003 11 26 | 704 | 0.6+ | 0.2− | 2009 11 27 | 703 | 0.2− | 0.1− | 2009 12 17 | G96 | 0.1+ | 0.1− |
| 2003 12 14 | 644 | 0.2+ | 0.2− | 2009 11 27 | 703 | 0.5− | 0.1+ | 2009 12 17 | G96 | 0.2− | 0.3− |
| 2003 12 14 | 644 | 0.0 | 0.1− | 2009 11 27 | 703 | 0.8− | 0.2+ | 2009 12 17 | G96 | 0.2+ | 0.3− |
| 2003 12 14 | 644 | 0.0 | 0.4− | 2009 12 10 | 703 | 0.6+ | 0.1+ | | | | |
| 2008 09 02 | E12 | 0.5− | 0.4+ | 2009 12 10 | 703 | 0.9− | 0.1− | | | | |

**2009 WX$_{202}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 13.69662 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17873061 | $\omega$ | 166.86518 | | +0.57293893 | | −0.80409658 |
| $a$ | 3.1213090 | $\Omega$ | 247.96182 | | +0.73564826 | | +0.58986636 |
| $e$ | 0.1144493 | $i$ | 9.85499 | | +0.36133449 | | +0.07407006 |
| $P$ | 5.51 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 20 | 644 | 0.1+ | 0.1+ | 2009 10 22 | G96 | 0.3+ | 0.3− | 2009 12 11 | G96 | 0.5+ | 0.0 |
| 2003 09 20 | 644 | 0.2+ | 0.4+ | 2009 11 16 | 691 | 0.1+ | 0.0 | 2009 12 11 | G96 | 0.6+ | 0.2− |
| 2003 09 20 | 644 | 0.2+ | 0.2+ | 2009 11 16 | 691 | 1.3− | 0.3− | 2009 12 11 | G96 | 0.2+ | 0.4− |
| 2003 10 01 | 691 | 0.0 | 0.1− | 2009 11 16 | 691 | 0.3+ | 0.2+ | 2009 12 18 | 691 | 0.0 | 0.1+ |
| 2003 10 01 | 691 | 0.0 | 0.2− | 2009 11 20 | 691 | 0.2+ | 0.1+ | 2009 12 18 | 691 | 0.0 | 0.0 |
| 2003 10 01 | 691 | 0.1− | 0.1+ | 2009 11 20 | 691 | 0.2+ | 0.0 | 2009 12 18 | 691 | 0.1− | 0.1− |
| 2009 10 22 | G96 | 0.2+ | 0.3− | 2009 11 20 | 691 | 0.1+ | 0.3+ | | | | |
| 2009 10 22 | G96 | 0.1+ | 0.0 | 2009 12 11 | G96 | 0.2+ | 0.1− | | | | |

**2009 WM$_{203}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 316.64923 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17618059 | $\omega$ | 271.08476 | | −0.85961102 | | −0.36833512 |
| $a$ | 3.1513550 | $\Omega$ | 247.38463 | | +0.46229200 | | −0.85583952 |
| $e$ | 0.3384254 | $i$ | 22.55767 | | −0.21761206 | | −0.36313627 |
| $P$ | 5.59 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 11 24 | 691 | 0.0 | 0.3− | 2009 10 26 | G96 | 0.2+ | 0.3− | 2009 11 16 | 691 | 0.5− | 0.2− |
| 2003 11 24 | 691 | 0.2− | 0.3− | 2009 10 26 | G96 | 0.5+ | 0.3− | 2009 11 24 | 691 | 0.0 | 0.4+ |
| 2003 11 24 | 691 | 0.2− | 0.2− | 2009 10 26 | G96 | 0.9+ | 0.0 | 2009 11 24 | 691 | 0.1+ | 0.1− |
| 2003 12 18 | 291 | 0.1+ | 0.3+ | 2009 10 26 | G96 | 0.6+ | 0.1+ | 2009 11 24 | 691 | 0.1− | 0.1− |
| 2003 12 18 | 291 | 0.1+ | 0.2+ | 2009 11 08 | G96 | 1.1− | 1.4+ | 2009 12 11 | G96 | 0.5+ | 0.1− |
| 2003 12 18 | 291 | 0.2+ | 0.6+ | 2009 11 08 | G96 | 0.7+ | 0.1+ | 2009 12 11 | G96 | 0.4+ | 0.2− |
| 2005 04 10 | E12 | 0.2+ | 0.1+ | 2009 11 08 | G96 | 0.8+ | 0.1− | 2009 12 11 | G96 | 0.7+ | 0.2− |
| 2005 04 10 | E12 | 0.1+ | 0.2− | 2009 11 08 | G96 | 0.7+ | 0.2− | 2009 12 11 | G96 | 0.4+ | 0.2− |
| 2005 04 10 | E12 | 0.3− | 0.1+ | 2009 11 16 | 691 | 0.5− | 0.0 | | | | |
| 2005 04 10 | E12 | 0.3+ | 0.3+ | 2009 11 16 | 691 | 0.3− | 0.2− | | | | |

**2009 WQ$_{203}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 295.70028 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17931190 | $\omega$ | 288.57670 | | −0.96464554 | | −0.20548689 |
| $a$ | 3.1145596 | $\Omega$ | 239.86153 | | +0.24781241 | | −0.92035042 |
| $e$ | 0.2488092 | $i$ | 11.00089 | | −0.08971062 | | −0.33276153 |
| $P$ | 5.50 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 01 16 | 703 | 0.6− | 0.6− | 2008 10 09 | G96 | 1.0− | 0.1+ | 2009 11 16 | 691 | 0.0 | 0.1− |
| 2005 01 16 | 703 | 0.0 | 0.2− | 2008 10 29 | G96 | 0.2+ | 0.1+ | 2009 11 24 | 691 | 0.4− | 0.5+ |
| 2005 01 16 | 703 | 0.1+ | 0.1+ | 2008 10 29 | G96 | 0.1+ | 0.2− | 2009 11 24 | 691 | 0.3− | 0.2+ |
| 2005 01 16 | 703 | 0.3+ | 0.2+ | 2008 10 29 | G96 | 0.1+ | 0.3+ | 2009 11 24 | 691 | 0.0 | 0.0 |
| 2008 09 29 | G96 | 0.0 | 0.2− | 2008 10 29 | G96 | 0.4− | 0.5− | 2009 12 13 | 300 | (0.9+ | 2.0−) |
| 2008 09 29 | G96 | 0.5+ | 0.1+ | 2009 09 30 | G96 | 0.2− | 0.1+ | 2009 12 13 | 300 | (0.7+ | 2.2−) |
| 2008 09 29 | G96 | 0.4+ | 0.1+ | 2009 09 30 | G96 | 0.0 | 0.5− | 2009 12 13 | 300 | (1.3+ | 2.2−) |
| 2008 09 29 | G96 | 0.1− | 0.3− | 2009 09 30 | G96 | 0.8+ | 0.0 | 2009 12 18 | 300 | 0.9+ | 0.1+ |
| 2008 10 09 | G96 | 0.1− | 0.2− | 2009 09 30 | G96 | 0.5+ | 0.1− | 2009 12 18 | 300 | 0.3+ | 0.3− |
| 2008 10 09 | G96 | 0.6+ | 0.1+ | 2009 11 16 | 691 | 0.2+ | 0.1− | | | | |
| 2008 10 09 | G96 | 0.2− | 0.0 | 2009 11 16 | 691 | 0.0 | 0.2− | | | | |

**2009 WD$_{204}$ = 1995 WD$_{19}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 81.18890 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.28477340 | $\omega$ | 270.09165 | | +0.97628050 | | +0.17333186 |
| $a$ | 2.2880724 | $\Omega$ | 79.92755 | | −0.10520171 | | +0.90351071 |
| $e$ | 0.1404636 | $i$ | 7.57194 | | −0.18923264 | | +0.39194957 |
| $P$ | 3.46 | $H$ | 17.4 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 11 17 | 691 | 0.1+ | 0.1− | 2005 08 30 | 699 | 0.9+ | 0.1+ | 2009 11 24 | 691 | 0.1+ | 0.2+ |
| 1995 11 17 | 691 | 0.2+ | 0.1− | 2005 09 02 | 644 | 0.1− | 0.1− | 2009 12 10 | G96 | 0.5+ | 0.2− |
| 1995 11 17 | 691 | 0.4+ | 0.0 | 2005 09 02 | 644 | 0.1+ | 0.1+ | 2009 12 10 | G96 | 0.5+ | 0.4− |
| 1995 11 30 | 691 | 0.5− | 0.1+ | 2005 09 02 | 644 | 0.1− | 0.2+ | 2009 12 10 | G96 | 0.3+ | 0.2− |
| 1995 11 30 | 691 | 0.3− | 0.2+ | 2009 11 16 | 691 | 0.3− | 0.2− | 2009 12 19 | G96 | 0.7+ | 0.4− |
| 1995 11 30 | 691 | 0.0 | 0.2+ | 2009 11 16 | 691 | 0.1− | 0.0 | 2009 12 19 | G96 | 0.7+ | 0.3− |
| 2005 08 30 | 699 | (3.7− | 1.3+) | 2009 11 16 | 691 | 0.1− | 0.0 | 2009 12 19 | G96 | 0.7+ | 0.1− |
| 2005 08 30 | 699 | 0.7− | 0.1+ | 2009 11 24 | 691 | 0.2− | 0.2+ | 2009 12 19 | G96 | 0.4+ | 0.2− |
| 2005 08 30 | 699 | 0.1+ | 0.7− | 2009 11 24 | 691 | 0.3− | 0.0 | | | | |

**2009 WG$_{204}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 37.12962 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.19060670 | $\omega$ | 5.06151 | | +0.95020004 | | −0.30786160 |
| $a$ | 2.9902714 | $\Omega$ | 13.18066 | | +0.27796156 | | +0.76703022 |
| $e$ | 0.1543503 | $i$ | 12.25102 | | +0.14091579 | | +0.56292618 |
| $P$ | 5.17 | $H$ | 15.1 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 07 30 | E12 | 0.2− | 0.2+ | 2009 10 18 | 704 | 0.1+ | 1.9− | 2009 11 10 | 703 | 0.6+ | 1.1+ |
| 2008 07 30 | E12 | 0.4− | 0.1− | 2009 10 18 | 704 | 0.1+ | 0.4+ | 2009 11 16 | J75 | 0.1− | 0.2− |
| 2008 07 30 | E12 | 0.2+ | 0.5+ | 2009 10 18 | 704 | 0.8+ | 0.5+ | 2009 11 16 | J75 | 0.4+ | 0.2− |
| 2008 07 30 | E12 | 0.4− | 0.3+ | 2009 10 18 | 704 | 0.5+ | 0.1− | 2009 11 16 | J75 | 0.4+ | 0.4− |
| 2008 08 26 | E12 | 0.3− | 0.1+ | 2009 10 27 | G96 | 0.2− | 0.5− | 2009 11 26 | 703 | 1.2+ | 1.1+ |
| 2008 08 26 | E12 | 0.6+ | 0.9− | 2009 10 27 | G96 | 0.0 | 0.3− | 2009 11 26 | 703 | 0.3+ | 1.2+ |
| 2008 08 26 | E12 | 0.2− | 0.4− | 2009 10 27 | G96 | 0.3+ | 0.3− | 2009 11 26 | 703 | 0.7− | 0.0 |
| 2008 08 26 | E12 | 0.8+ | 0.2+ | 2009 10 27 | G96 | 0.1+ | 0.4− | 2009 11 26 | 703 | 1.2− | 1.2− |
| 2009 10 16 | 704 | 0.4+ | 1.3+ | 2009 11 10 | 703 | (2.2+ | 2.2−) | 2009 11 26 | 703 | 1.2− | 0.7− |
| 2009 10 16 | 704 | 0.7− | 1.0+ | 2009 11 10 | 703 | 0.4+ | 0.3− | | | | |
| 2009 10 16 | 704 | 1.2− | 0.2+ | 2009 11 10 | 703 | 0.4− | 0.1− | | | | |

**2009 WK$_{204}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 275.74541 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18276373 | $\omega$ | 160.73387 | | −0.96241085 | −0.27156037 | |
| $a$ | 3.0752190 | $\Omega$ | 3.51830 | | +0.23855265 | −0.85313174 | |
| $e$ | 0.1117049 | $i$ | 4.21186 | | +0.12983829 | −0.44544494 | |
| $P$ | 5.39 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 30 | 691 | 0.1− | 0.3+ | 2008 09 06 | G96 | 0.1+ | 0.3+ | 2008 10 20 | G96 | 0.0 | 1.0+ |
| 2003 09 30 | 691 | 0.0 | 0.1+ | 2008 09 06 | G96 | 0.1− | 0.1− | 2009 11 09 | 691 | 0.6− | 0.6− |
| 2003 09 30 | 691 | 0.0 | 0.1− | 2008 09 06 | G96 | 0.0 | 0.1+ | 2009 11 09 | 691 | 0.3+ | 0.2+ |
| 2004 12 10 | 691 | 0.1+ | 0.1+ | 2008 09 22 | G96 | 0.2+ | 0.1+ | 2009 11 09 | 691 | 0.2+ | 0.1− |
| 2004 12 10 | 691 | 0.3+ | 0.1+ | 2008 09 22 | G96 | 0.6− | 0.2+ | 2009 11 17 | 691 | 0.1+ | 0.0 |
| 2004 12 10 | 691 | 0.4− | 0.0 | 2008 09 22 | G96 | 0.4− | 0.5+ | 2009 11 17 | 691 | 0.2+ | 0.1+ |
| 2006 04 19 | 691 | 0.2+ | 0.3+ | 2008 09 22 | G96 | 0.2− | 0.3+ | 2009 11 17 | 691 | 0.3− | 0.2+ |
| 2006 04 19 | 691 | 0.2+ | 0.3+ | 2008 10 20 | G96 | 0.0 | 0.4+ | 2009 11 25 | 691 | 0.1+ | 0.4+ |
| 2006 04 19 | 691 | 0.1+ | 0.5+ | 2008 10 20 | G96 | 0.2− | 0.3+ | 2009 11 25 | 691 | 0.1− | 0.1− |
| 2008 09 06 | G96 | 0.1− | 0.1− | 2008 10 20 | G96 | 0.3− | 0.4+ | 2009 11 25 | 691 | 0.1− | 0.1+ |

**2009 WS$_{204}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 125.55925 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21174022 | $\omega$ | 352.48352 | | +0.50453072 | +0.86213532 | |
| $a$ | 2.7878355 | $\Omega$ | 307.80475 | | −0.78904780 | +0.43850374 | |
| $e$ | 0.0442526 | $i$ | 3.38115 | | −0.35050296 | +0.25384477 | |
| $P$ | 4.65 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 10 13 | 645 | 0.1+ | 0.1− | 2006 01 07 | G96 | 0.5− | 0.0 | 2009 11 09 | 691 | 0.2− | 0.0 |
| 1999 10 13 | 645 | 0.0 | 0.0 | 2006 02 20 | G96 | 0.0 | 0.2+ | 2009 11 17 | 691 | 0.7− | 0.8− |
| 1999 10 16 | 645 | 0.0 | 0.1− | 2006 02 20 | G96 | 0.2+ | 0.1− | 2009 11 17 | 691 | 0.2+ | 0.1− |
| 1999 10 16 | 645 | 0.2− | 0.0 | 2006 02 20 | G96 | 0.2− | 0.0 | 2009 11 17 | 691 | 0.4− | 0.3+ |
| 2000 12 30 | 691 | 0.3+ | 0.0 | 2006 02 20 | G96 | 0.3+ | 0.1− | 2009 11 21 | 691 | 0.1− | 1.4+ |
| 2000 12 30 | 691 | 0.0 | 0.4+ | 2008 07 30 | G96 | 0.6+ | 0.1− | 2009 11 21 | 691 | 0.4+ | 0.2+ |
| 2000 12 30 | 691 | 0.3+ | 0.1+ | 2008 07 30 | G96 | 0.2+ | 0.2− | 2009 11 21 | 691 | 0.7− | 0.9− |
| 2005 12 26 | G96 | 0.4+ | 0.1+ | 2008 07 30 | G96 | 0.2+ | 0.1+ | 2009 11 25 | 691 | 0.5+ | 0.1− |
| 2005 12 26 | G96 | 0.6− | 0.2− | 2008 07 30 | G96 | 0.3+ | 0.1+ | 2009 11 25 | 691 | 0.3+ | 0.0 |
| 2005 12 26 | G96 | 0.0 | 0.4− | 2009 10 26 | 691 | 0.2− | 0.2+ | 2009 11 25 | 691 | 0.6+ | 0.2− |
| 2005 12 26 | G96 | 1.5− | 0.1+ | 2009 10 26 | 691 | 0.2− | 0.3+ | 2009 12 18 | G96 | 0.9+ | 0.1− |
| 2006 01 07 | G96 | 0.2− | 0.1− | 2009 10 26 | 691 | 0.4− | 0.0 | 2009 12 18 | G96 | 0.1+ | 0.0 |
| 2006 01 07 | G96 | 1.0− | 0.5− | 2009 11 09 | 691 | 0.6+ | 0.3+ | 2009 12 18 | G96 | 0.8+ | 0.2− |
| 2006 01 07 | G96 | 0.4+ | 0.9− | 2009 11 09 | 691 | 0.5− | 0.4− | 2009 12 18 | G96 | 1.1+ | 0.1− |

**2009 WQ$_{206}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 65.49898 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18441937 | $\omega$ | 93.65211 | | +0.98957555 | +0.06141574 | |
| $a$ | 3.0567859 | $\Omega$ | 262.85822 | | −0.10697533 | +0.91904432 | |
| $e$ | 0.1048912 | $i$ | 7.54363 | | +0.09641844 | +0.38934001 | |
| $P$ | 5.34 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 18 | 691 | 0.0 | 0.4+ | 2008 08 22 | 691 | 0.3+ | 0.1+ | 2009 11 17 | 691 | 0.1+ | 0.0 |
| 2003 09 18 | 691 | 0.1− | 0.0 | 2008 08 22 | 691 | 0.0 | 0.1+ | 2009 11 17 | 691 | 0.1− | 0.2− |
| 2003 09 18 | 691 | 0.1− | 0.0 | 2008 08 22 | 691 | 0.2− | 0.4− | 2009 11 17 | 691 | 0.1− | 0.1+ |
| 2003 10 03 | 691 | 0.2+ | 0.1− | 2009 11 09 | 691 | 0.3+ | 0.1+ | 2009 11 25 | 691 | 0.1− | 0.1+ |
| 2003 10 03 | 691 | 0.4− | 0.0 | 2009 11 09 | 691 | 0.1+ | 0.0 | 2009 11 25 | 691 | 0.2+ | 0.0 |
| 2003 10 03 | 691 | 0.2+ | 0.1− | 2009 11 09 | 691 | 0.1− | 0.3− | 2009 11 25 | 691 | 0.3− | 0.0 |

**2009 WT$_{206}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 350.55799 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27533842 | $\omega$ | 72.59242 | | −0.06894468 | −0.99744856 | |
| $a$ | 2.3400484 | $\Omega$ | 21.38675 | | +0.89494141 | −0.07004116 | |
| $e$ | 0.1529602 | $i$ | 2.91117 | | +0.44082480 | −0.01380603 | |
| $P$ | 3.58 | $H$ | 18.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 10 20 | 691 | 0.3− | 0.0 | 2009 09 21 | G96 | 0.8+ | 0.2− | 2009 11 17 | 691 | 0.6− | 0.0 |
| 1998 10 20 | 691 | 0.2+ | 0.2+ | 2009 09 21 | G96 | 0.8+ | 0.2+ | 2009 11 25 | 691 | 0.1+ | 0.1+ |
| 1998 10 20 | 691 | 0.1− | 0.1+ | 2009 09 21 | G96 | 0.6+ | 0.0 | 2009 11 25 | 691 | 0.0 | 0.0 |
| 2005 08 09 | 807 | 0.0 | 0.3+ | 2009 09 21 | G96 | 0.1+ | 0.0 | 2009 11 25 | 691 | 0.4− | 0.1− |
| 2005 08 10 | 807 | 0.1− | 0.3+ | 2009 11 09 | 691 | 0.1− | 0.3+ | 2009 11 25 | 703 | (2.4− | 1.2−) |
| 2005 08 10 | 807 | 0.1− | 0.1+ | 2009 11 09 | 691 | 0.0 | 0.1− | 2009 11 25 | 703 | (1.9− | 0.3+) |
| 2005 09 01 | 691 | 0.1+ | 0.2− | 2009 11 09 | 691 | 0.1− | 0.0 | 2009 11 25 | 703 | 1.3− | 0.3− |
| 2005 09 01 | 691 | 0.2− | 0.1− | 2009 11 09 | G96 | 0.3+ | 0.2+ | 2009 11 25 | 703 | 0.3+ | 1.0− |
| 2005 09 01 | 691 | 0.2+ | 0.2− | 2009 11 09 | G96 | 0.9+ | 0.5+ | 2009 12 16 | G96 | 0.5+ | 0.1− |
| 2007 03 26 | G96 | 0.2+ | 0.4− | 2009 11 09 | G96 | 1.0+ | 0.3− | 2009 12 16 | G96 | 0.7+ | 0.2− |
| 2007 03 26 | G96 | 0.4+ | 0.2− | 2009 11 09 | G96 | 0.6+ | 0.3+ | 2009 12 16 | G96 | 0.4+ | 0.1− |
| 2007 03 26 | G96 | 0.6− | 0.2+ | 2009 11 17 | 691 | 0.2− | 0.1− | 2009 12 16 | G96 | 0.8+ | 0.0 |
| 2007 03 26 | G96 | 0.1+ | 0.2+ | 2009 11 17 | 691 | 0.0 | 0.0 | | | | |

**2009 WO$_{209}$ = 2006 AN$_{90}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 60.90747 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23116118 | $\omega$ | 100.17356 | | +0.99699766 | −0.06762273 | |
| $a$ | 2.6294169 | $\Omega$ | 263.71116 | | +0.04737213 | +0.91802752 | |
| $e$ | 0.1994968 | $i$ | 2.17482 | | +0.06124983 | +0.39070788 | |
| $P$ | 4.26 | $H$ | 17.4 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 01 06 | 691 | 0.1+ | 0.8+ | 2009 11 17 | 691 | 0.2+ | 0.1− | 2009 12 10 | G96 | 0.0 | 0.3− |
| 2006 01 06 | 691 | 0.6− | 0.1− | 2009 11 17 | 691 | 0.5− | 0.5− | 2009 12 10 | G96 | 0.1+ | 0.0 |
| 2006 01 06 | 691 | 0.5+ | 0.5− | 2009 11 17 | 691 | 0.1+ | 0.1− | 2009 12 10 | G96 | 0.4− | 0.1− |
| 2006 01 22 | G96 | 0.4+ | 0.4− | 2009 11 25 | 691 | 0.1+ | 0.3+ | 2009 12 19 | G96 | 0.2− | 0.1− |
| 2006 01 22 | G96 | 0.2− | 0.3− | 2009 11 25 | 691 | 0.0 | 0.1+ | 2009 12 19 | G96 | 0.1+ | 0.0 |
| 2006 01 22 | G96 | 0.3− | 0.2− | 2009 11 25 | 691 | 0.1+ | 0.3+ | 2009 12 19 | G96 | 0.1+ | 0.0 |
| 2006 01 22 | G96 | 0.0 | 0.2− | 2009 12 10 | G96 | 0.2− | 0.2+ | 2009 12 19 | G96 | 0.1− | 0.0 |

**2009 WX$_{209}$ = 2004 EK$_{30}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 296.27405 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.12255958 | $\omega$ | 290.09747 | | −0.71760743 | −0.69591685 | |
| $a$ | 4.0139431 | $\Omega$ | 205.82549 | | +0.66002715 | −0.66710172 | |
| $e$ | 0.0567099 | $i$ | 3.57850 | | +0.22226951 | −0.26584777 | |
| $P$ | 8.04 | $H$ | 15.3 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 03 15 | 691 | 0.2− | 0.3+ | 2005 05 07 | G96 | 0.1− | 0.2+ | 2009 09 19 | G96 | 0.0 | 0.1− |
| 2004 03 15 | 691 | 0.0 | 0.1+ | 2005 05 07 | G96 | 0.1+ | 0.2− | 2009 09 19 | G96 | 0.2+ | 0.1+ |
| 2004 03 15 | 691 | 0.2− | 0.0 | 2005 05 07 | G96 | 0.3+ | 0.1− | 2009 11 18 | 691 | 0.1− | 0.1+ |
| 2004 03 16 | 291 | 0.3+ | 0.1+ | 2005 05 07 | G96 | 0.5− | 0.5− | 2009 11 18 | 691 | 0.8+ | 0.5− |
| 2004 03 16 | 291 | 0.4+ | 0.4+ | 2008 10 01 | G96 | 0.2+ | 0.0 | 2009 11 18 | 691 | 0.3− | 0.1+ |
| 2004 03 16 | 291 | 0.4+ | 0.1+ | 2008 10 01 | G96 | 0.6+ | 0.3− | 2009 11 26 | 691 | 0.6+ | 0.1− |
| 2004 03 23 | 691 | 0.0 | 0.1− | 2008 10 01 | G96 | 0.1+ | 0.2− | 2009 11 26 | 691 | 0.5− | 0.5− |
| 2004 03 23 | 691 | 0.4− | 0.1− | 2008 10 01 | G96 | 0.0 | 0.1+ | 2009 11 26 | 691 | 0.1+ | 0.2+ |
| 2004 03 23 | 691 | 0.3− | 0.1− | 2008 10 10 | 691 | 0.4− | 0.6+ | 2009 12 19 | 691 | 0.1− | 0.1+ |
| 2005 04 11 | G96 | 0.6+ | 0.4+ | 2008 10 10 | 691 | 0.0 | 0.1− | 2009 12 19 | 691 | 0.7− | 0.3+ |
| 2005 04 11 | G96 | 0.3− | 0.1− | 2008 10 10 | 691 | 0.1− | 0.3+ | 2009 12 19 | 691 | 0.1− | 0.2+ |
| 2005 04 11 | G96 | 0.1+ | 0.3+ | 2009 09 19 | G96 | 0.3+ | 0.2+ | | | | |
| 2005 04 11 | G96 | 0.2− | 0.6+ | 2009 09 19 | G96 | 0.4+ | 0.0 | | | | |

**2009 WD$_{211}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 70.69638 | | (2000.0) | | | |
| $n$ | 0.22435365 | $\omega$ | 259.93830 | | +0.99240250 | +0.08282835 |
| $a$ | 2.6823408 | $\Omega$ | 95.26871 | | −0.04122498 | +0.92056140 |
| $e$ | 0.0937326 | $i$ | 5.24200 | | −0.11592147 | +0.38171477 |
| $P$ | 4.39 | $H$ | 17.2 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 24 | 691 | 0.2− | 0.1+ | 2007 03 26 | 291 | 0.2+ | 0.1− | 2009 11 26 | 691 | 0.1+ | 0.0 |
| 2005 12 24 | 691 | 0.4− | 0.2− | 2007 03 26 | 291 | 0.2+ | 0.1− | 2009 11 26 | 691 | 0.0 | 0.2− |
| 2005 12 24 | 691 | 0.6+ | 0.1+ | 2009 11 10 | 691 | 0.2+ | 0.1+ | 2009 11 26 | 691 | 0.5− | 0.1+ |
| 2007 03 14 | G96 | 0.3− | 0.2− | 2009 11 10 | 691 | 0.5+ | 0.1− | 2009 12 17 | G96 | 0.4+ | 0.0 |
| 2007 03 14 | G96 | 1.0− | 0.1− | 2009 11 10 | 691 | 0.3− | 0.2+ | 2009 12 17 | G96 | 0.5+ | 0.3+ |
| 2007 03 14 | G96 | 0.3− | 0.1− | 2009 11 18 | 691 | 0.0 | 0.6− | 2009 12 17 | G96 | 0.1− | 0.1− |
| 2007 03 14 | G96 | 0.1+ | 0.4+ | 2009 11 18 | 691 | 0.3− | 0.2+ | 2009 12 17 | G96 | 0.6+ | 0.1+ |
| 2007 03 26 | 291 | 0.1− | 0.1+ | 2009 11 18 | 691 | 0.0 | 0.3+ | | | | |

**2009 WH$_{211}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 69.44338 | | (2000.0) | | | |
| $n$ | 0.22566920 | $\omega$ | 132.92110 | | +0.96098535 | +0.27240288 |
| $a$ | 2.6719061 | $\Omega$ | 211.36153 | | −0.27295849 | +0.90588593 |
| $e$ | 0.1747766 | $i$ | 5.29174 | | −0.04473059 | +0.32429515 |
| $P$ | 4.37 | $H$ | 16.9 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 10 06 | 699 | (2.8− | 1.2−) | 2007 03 13 | G96 | 0.5− | 0.1+ | 2009 11 18 | 691 | 0.1− | 0.0 |
| 2000 10 06 | 699 | 1.0− | 0.0 | 2007 03 13 | G96 | 0.1− | 0.1− | 2009 11 18 | 691 | 0.1+ | 0.3+ |
| 2000 10 06 | 699 | 1.2− | 0.0 | 2007 03 13 | G96 | 0.6+ | 0.1− | 2009 11 26 | 691 | 0.1− | 0.1+ |
| 2000 10 06 | 699 | 0.6− | 0.1− | 2009 09 22 | G96 | 0.2+ | 0.4− | 2009 11 26 | 691 | 0.1− | 0.1− |
| 2000 11 18 | 691 | 0.5+ | 0.4+ | 2009 09 22 | G96 | 0.4+ | 0.4− | 2009 11 26 | 691 | 0.0 | 0.0 |
| 2000 11 18 | 691 | 0.3+ | 0.5+ | 2009 09 22 | G96 | 0.4+ | 0.4− | 2009 12 11 | 703 | 0.4− | 0.4− |
| 2000 11 18 | 691 | 0.2− | 0.1− | 2009 09 22 | G96 | (2.1+ | 1.3−) | 2009 12 11 | 703 | 0.6+ | 0.1− |
| 2003 04 29 | 691 | 0.1− | 0.4+ | 2009 11 10 | 691 | 0.2− | 0.3− | 2009 12 11 | 703 | 0.6+ | 0.5+ |
| 2003 04 29 | 691 | 0.2+ | 0.2+ | 2009 11 10 | 691 | 0.0 | 0.0 | 2009 12 11 | 703 | 0.5− | 0.3− |
| 2003 04 29 | 691 | 0.1+ | 0.2+ | 2009 11 10 | 691 | 0.0 | 0.0 | | | | |
| 2007 03 13 | G96 | 0.1− | 0.0 | 2009 11 18 | 691 | 0.0 | 0.1+ | | | | |

**2009 WS$_{211}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 47.02390 | | (2000.0) | | | |
| $n$ | 0.27264074 | $\omega$ | 231.54318 | | +0.96285153 | −0.26863228 |
| $a$ | 2.3554590 | $\Omega$ | 144.01598 | | +0.26001790 | +0.89491438 |
| $e$ | 0.1682635 | $i$ | 2.67799 | | +0.07285343 | +0.35632142 |
| $P$ | 3.62 | $H$ | 18.6 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 08 28 | 691 | 0.3− | 0.0 | 2005 10 06 | G96 | 0.1− | 0.3+ | 2009 11 18 | 691 | 0.3+ | 0.3+ |
| 2005 08 28 | 691 | 0.0 | 0.1− | 2005 10 06 | G96 | 0.2+ | 0.1− | 2009 11 18 | 691 | 0.3− | 0.2− |
| 2005 08 28 | 691 | 0.2+ | 0.0 | 2009 11 10 | 691 | 0.3+ | 0.5+ | 2009 11 18 | 691 | 0.4+ | 0.0 |
| 2005 09 11 | 691 | 0.0 | 0.1− | 2009 11 10 | 691 | 0.3+ | 0.1+ | 2009 11 26 | 691 | 0.2+ | 0.5− |
| 2005 09 11 | 691 | 0.1− | 0.0 | 2009 11 10 | 691 | 0.9− | 0.4− | 2009 11 26 | 691 | 0.3− | 0.1− |
| 2005 09 11 | 691 | 0.2+ | 0.1+ | 2009 11 18 | 691 | 0.0 | 0.2− | 2009 11 26 | 691 | 0.2− | 0.1− |
| 2005 10 06 | G96 | 0.1+ | 0.6− | 2009 11 18 | 691 | 0.1+ | 0.1+ | | | | |
| 2005 10 06 | G96 | 0.3− | 0.1+ | 2009 11 18 | 691 | 0.1+ | 0.4+ | | | | |

**2009 WK$_{213}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 10.52589 | | (2000.0) | | | |
| $n$ | 0.22391417 | $\omega$ | 56.95982 | | +0.64039163 | −0.76760769 |
| $a$ | 2.6858494 | $\Omega$ | 353.04212 | | +0.61341365 | +0.53155114 |
| $e$ | 0.2618378 | $i$ | 12.40291 | | +0.46219288 | +0.35809470 |
| $P$ | 4.40 | $H$ | 17.1 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 03 10 | 691 | 0.3+ | 0.1+ | 2009 09 28 | 703 | 0.0 | 0.4− | 2009 11 09 | 703 | 0.8− | 0.2− |
| 2002 03 10 | 691 | 0.0 | 0.1+ | 2009 09 28 | 703 | 0.0 | 0.7+ | 2009 11 18 | J75 | 0.0 | 0.3+ |
| 2002 03 10 | 691 | 0.1+ | 0.2+ | 2009 10 16 | 703 | 1.1+ | 0.3+ | 2009 11 18 | J75 | 0.3+ | 0.6+ |
| 2006 01 27 | 703 | 0.0 | 0.9− | 2009 10 16 | 703 | 0.0 | 0.6+ | 2009 11 18 | J75 | 0.5+ | 1.1+ |
| 2006 01 27 | 703 | 0.9− | 0.1+ | 2009 10 16 | 703 | 0.6− | 0.4+ | 2009 11 26 | 703 | 0.2+ | 0.1− |
| 2006 01 27 | 703 | 0.3− | 1.2− | 2009 10 16 | 703 | 0.1+ | 0.7− | 2009 11 26 | 703 | 0.1+ | 0.2− |
| 2006 01 27 | 703 | 0.2− | 0.3+ | 2009 11 09 | 703 | 0.0 | 0.9− | 2009 11 26 | 703 | 0.0 | 0.0 |
| 2009 09 28 | 703 | 0.2− | 0.9− | 2009 11 09 | 703 | 0.2− | 0.0 | 2009 11 26 | 703 | 0.6− | 0.0 |
| 2009 09 28 | 703 | 0.6− | 0.3− | 2009 11 09 | 703 | 0.2+ | 0.6+ | 2009 11 26 | 703 | 0.3− | 0.1+ |

**2009 WU$_{214}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 26.74753 | | (2000.0) | | | |
| $n$ | 0.22552069 | $\omega$ | 36.25626 | | +0.70854924 | −0.70563794 |
| $a$ | 2.6730790 | $\Omega$ | 8.63203 | | +0.63808439 | +0.63719442 |
| $e$ | 0.1250879 | $i$ | 2.19582 | | +0.30134082 | +0.30993284 |
| $P$ | 4.37 | $H$ | 17.6 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 29 | 691 | 0.3+ | 0.1− | 2006 01 27 | G96 | 0.1− | 0.4− | 2009 11 21 | 691 | 0.4− | 0.1+ |
| 2000 11 29 | 691 | 0.2− | 0.0 | 2009 11 09 | 691 | 0.1+ | 0.3+ | 2009 11 21 | 691 | 1.1− | 0.0 |
| 2000 11 29 | 691 | 0.0 | 0.2− | 2009 11 09 | 691 | 0.2+ | 0.2− | 2009 11 25 | 691 | 0.1+ | 0.1− |
| 2006 01 07 | 691 | 0.1− | 0.1+ | 2009 11 09 | 691 | 0.1+ | 0.3+ | 2009 11 25 | 691 | 0.1+ | 0.1+ |
| 2006 01 07 | 691 | 0.1− | 0.4+ | 2009 11 09 | G96 | 0.1+ | 0.7− | 2009 11 25 | 691 | 0.3+ | 0.1− |
| 2006 01 07 | 691 | 0.1+ | 0.0 | 2009 11 09 | G96 | 0.0 | 0.5− | 2009 12 16 | G96 | 0.6+ | 0.0 |
| 2006 01 27 | G96 | 0.1− | 0.5− | 2009 11 09 | G96 | 0.0 | 0.0 | 2009 12 16 | G96 | 0.0 | 0.2+ |
| 2006 01 27 | G96 | 0.4− | 0.9− | 2009 11 09 | G96 | 0.3+ | 0.1− | 2009 12 16 | G96 | 0.5+ | 0.1+ |
| 2006 01 27 | G96 | 0.7+ | 0.7− | 2009 11 21 | 691 | 0.0 | 0.1+ | 2009 12 16 | G96 | 0.6+ | 0.0 |

**2009 WL$_{215}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 19.95236 | | (2000.0) | | | |
| $n$ | 0.23013701 | $\omega$ | 326.84751 | | +0.00570185 | −0.97924552 |
| $a$ | 2.6372122 | $\Omega$ | 122.05584 | | +0.96159346 | −0.05022904 |
| $e$ | 0.2434151 | $i$ | 13.83013 | | +0.27441849 | +0.19635494 |
| $P$ | 4.28 | $H$ | 15.8 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 20 | 699 | (2.2+ | 0.9+) | 2009 11 26 | 703 | 0.2− | 0.1+ | 2009 12 15 | 704 | 0.4+ | 0.9+ |
| 2000 11 20 | 699 | (2.1+ | 0.1+) | 2009 11 27 | 703 | 0.3− | 0.8+ | 2009 12 15 | 704 | 0.1− | 0.8+ |
| 2000 11 20 | 699 | 1.0+ | 1.8+ | 2009 11 27 | 703 | 0.0 | 1.2− | 2009 12 15 | 704 | 0.4− | 0.4+ |
| 2000 11 20 | 699 | 1.5+ | 1.5+ | 2009 11 27 | 703 | 0.2− | 0.5+ | 2009 12 15 | 704 | (0.7− | 1.6+) |
| 2000 11 27 | 645 | 0.0 | 0.1− | 2009 11 27 | 703 | (2.4− | 0.1−) | 2009 12 15 | 704 | 0.2− | 0.4− |
| 2000 11 27 | 645 | 0.1− | 0.1− | 2009 12 10 | J75 | 0.4− | 0.1− | 2009 12 15 | 704 | 0.9− | 0.4+ |
| 2004 09 06 | 644 | 0.5− | 0.9+ | 2009 12 10 | J75 | 0.2− | 0.7− | 2009 12 15 | G96 | 0.0 | 0.0 |
| 2004 09 06 | 644 | 0.3− | 0.9+ | 2009 12 10 | J75 | 0.1+ | 0.4+ | 2009 12 15 | G96 | 0.0 | 0.5− |
| 2004 09 06 | 644 | 0.0 | 0.8+ | 2009 12 14 | 704 | 0.1+ | 0.2− | 2009 12 15 | G96 | 0.4− | 0.3− |
| 2009 11 15 | 703 | 0.1+ | 0.7− | 2009 12 14 | 704 | 0.6+ | 0.3− | 2009 12 15 | G96 | 0.4− | 0.5− |
| 2009 11 15 | 703 | 0.3− | 0.8− | 2009 12 14 | 704 | 0.9+ | 0.4+ | 2009 12 17 | 704 | 0.0 | 0.2+ |
| 2009 11 15 | 703 | 1.2+ | 0.3+ | 2009 12 14 | 704 | 0.3+ | 0.1+ | 2009 12 17 | 704 | 0.4+ | 0.1+ |
| 2009 11 15 | 703 | 0.2+ | 0.0 | 2009 12 15 | 704 | 0.1− | 1.0+ | 2009 12 17 | 704 | 0.2− | 0.1+ |
| 2009 11 26 | 703 | 0.7− | 0.3+ | 2009 12 15 | 704 | (0.3+ | 2.0+) | 2009 12 17 | 704 | 0.1− | 0.8+ |
| 2009 11 26 | 703 | (2.1− | 0.2+) | 2009 12 15 | 704 | 0.4+ | 0.1+ | 2009 12 17 | 704 | 0.7+ | 0.6− |
| 2009 11 26 | 703 | 0.4− | 0.9+ | 2009 12 15 | 704 | 0.3+ | 0.2+ | | | | |

**2009 WQ$_{215}$ = 2005 XN$_{61}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 359.65680 | | (2000.0) | | | |
| $n$ | 0.23628072 | $\omega$ | 352.30156 | | +0.20673425 | −0.95233798 |
| $a$ | 2.5912970 | $\Omega$ | 85.56681 | | +0.90922407 | +0.10232963 |
| $e$ | 0.1158387 | $i$ | 13.00167 | | +0.36134823 | +0.28736912 |
| $P$ | 4.17 | $H$ | 16.7 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 04 | 691 | 0.4− | 0.9+ | 2005 12 21 | 691 | 0.0 | 0.0 | 2009 12 11 | 703 | 0.5+ | 0.0 | |
| 2005 12 04 | 691 | 1.0+ | 1.2− | 2009 11 17 | 703 | 0.3+ | 0.1− | 2009 12 11 | 703 | 0.1− | 0.1+ | |
| 2005 12 04 | 691 | 0.1− | 0.2− | 2009 11 17 | 703 | 0.7− | 0.0 | 2009 12 11 | 703 | 0.8+ | 0.6+ | |
| 2005 12 07 | 691 | 0.1− | 0.1− | 2009 11 17 | 703 | 0.1− | 0.9+ | 2009 12 11 | 703 | 0.0 | 1.1− | |
| 2005 12 07 | 691 | 0.0 | 0.5+ | 2009 11 17 | 703 | 0.0 | 0.2+ | 2009 12 19 | 291 | 0.2− | 0.1+ | |
| 2005 12 07 | 691 | 0.1− | 0.0 | 2009 11 25 | J75 | 0.1+ | 0.5− | 2009 12 19 | 291 | 0.1− | 0.0 | |
| 2005 12 21 | 691 | 0.2− | 0.0 | 2009 11 25 | J75 | 0.1+ | 0.1− | 2009 12 19 | 291 | 0.0 | 0.0 | |
| 2005 12 21 | 691 | 0.1− | 0.0 | 2009 11 25 | J75 | 0.2+ | 0.2− | | | | | |

**2009 WY$_{215}$ = 2005 WY$_{117}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 38.04845 | | (2000.0) | | | |
| $n$ | 0.24550172 | $\omega$ | 327.56432 | | +0.89341474 | −0.35830982 |
| $a$ | 2.5259981 | $\Omega$ | 55.81573 | | +0.44922087 | +0.70817856 |
| $e$ | 0.1877798 | $i$ | 19.12074 | | +0.00327224 | +0.60835615 |
| $P$ | 4.01 | $H$ | 17.2 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 25 | G96 | 0.1− | 0.2− | 2005 12 01 | 644 | 0.0 | 0.1+ | 2009 11 25 | 703 | 0.6− | 0.5− | |
| 2005 10 25 | G96 | 0.2+ | 0.1− | 2005 12 01 | 644 | 0.1− | 0.1+ | 2009 11 25 | 703 | 1.2+ | 0.6− | |
| 2005 10 25 | G96 | 0.0 | 0.2− | 2005 12 01 | 644 | 0.2+ | 0.2− | 2009 11 25 | 703 | 0.6+ | 0.5+ | |
| 2005 10 25 | G96 | 0.2− | 0.3− | 2009 10 21 | G96 | 0.0 | 0.0 | 2009 11 25 | 703 | 1.0+ | 0.3− | |
| 2005 11 03 | 691 | 0.2+ | 0.1− | 2009 10 21 | G96 | 0.6+ | 0.4− | 2009 11 25 | 703 | 1.0− | 0.3− | |
| 2005 11 03 | 691 | 0.1+ | 0.1+ | 2009 10 21 | G96 | 0.2− | 0.3+ | 2009 11 27 | 691 | (1.8− | 1.3+) | |
| 2005 11 03 | 691 | 0.2− | 0.2+ | 2009 10 21 | G96 | 0.1− | 0.1− | 2009 11 27 | 691 | 0.2+ | 0.1− | |
| 2005 11 28 | 704 | 0.1− | 0.0 | 2009 11 17 | 691 | 0.2− | 0.1− | 2009 11 27 | 691 | 0.0 | 0.1+ | |
| 2005 11 28 | 704 | 0.4− | 1.0+ | 2009 11 17 | 691 | 0.1− | 0.1+ | | | | | |
| 2005 11 28 | 704 | 0.1+ | 0.5− | 2009 11 17 | 691 | 0.3− | 0.2+ | | | | | |

**2009 WB$_{216}$ = 2005 YA$_{103}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 7.00774 | | (2000.0) | | | |
| $n$ | 0.23110002 | $\omega$ | 180.28350 | | +0.50086162 | −0.86482604 |
| $a$ | 2.6298808 | $\Omega$ | 239.65971 | | +0.79418526 | +0.47520655 |
| $e$ | 0.1576372 | $i$ | 2.31335 | | +0.34410377 | +0.16203290 |
| $P$ | 4.26 | $H$ | 17.3 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 25 | 691 | 0.0 | 0.1+ | 2009 09 21 | G96 | 0.1+ | 0.1− | 2009 11 24 | G96 | 0.1+ | 0.1− | |
| 2005 12 25 | 691 | 0.0 | 0.1− | 2009 10 24 | 691 | 0.3− | 0.1+ | 2009 11 24 | G96 | 0.1+ | 0.0 | |
| 2005 12 25 | 691 | 0.2+ | 0.0 | 2009 10 24 | 691 | 0.1+ | 0.3+ | 2009 11 24 | G96 | 0.0 | 0.3− | |
| 2005 12 29 | 691 | 0.0 | 0.0 | 2009 10 24 | 691 | 0.2− | 0.1− | 2009 12 11 | G96 | 0.2− | 0.2− | |
| 2005 12 29 | 691 | 0.0 | 0.1+ | 2009 11 22 | 703 | 0.0 | 0.6− | 2009 12 11 | G96 | 0.3+ | 0.0 | |
| 2005 12 29 | 691 | 0.0 | 0.1− | 2009 11 22 | 703 | 0.0 | 0.8− | 2009 12 11 | G96 | 0.1+ | 0.0 | |
| 2009 09 21 | G96 | 0.2+ | 0.0 | 2009 11 22 | 703 | 0.7+ | 0.1− | 2009 12 11 | G96 | 0.1− | 0.2+ | |
| 2009 09 21 | G96 | 0.2+ | 0.2− | 2009 11 22 | 703 | 0.4+ | 1.4+ | | | | | |
| 2009 09 21 | G96 | 0.1+ | 0.4− | 2009 11 24 | G96 | 0.1+ | 0.1− | | | | | |

**2009 WC$_{216}$ = 2000 BX$_{18}$ = 2007 DY$_{103}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 3.22469 | | (2000.0) | | | |
| $n$ | 0.28809584 | $\omega$ | 314.17739 | | +0.27868544 | −0.87582280 |
| $a$ | 2.2704471 | $\Omega$ | 115.71638 | | +0.95758242 | +0.22209889 |
| $e$ | 0.2997668 | $i$ | 25.93562 | | +0.07328252 | +0.42849330 |
| $P$ | 3.42 | $H$ | 16.8 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 01 29 | 704 | 0.5− | 1.8+ | 2006 11 01 | G96 | 0.6+ | 0.2+ | 2009 11 10 | E12 | 0.5− | 0.8+ | |
| 2000 01 29 | 704 | 0.5+ | 0.5+ | 2006 11 01 | G96 | 0.1− | 0.2+ | 2009 11 27 | E12 | 0.1+ | 0.0 | |
| 2000 01 29 | 704 | 0.4+ | 0.3+ | 2006 11 01 | G96 | 0.6+ | 0.1− | 2009 11 27 | E12 | 0.0 | 0.0 | |
| 2000 02 02 | 704 | 0.2+ | 0.1+ | 2007 02 25 | 703 | 0.8− | 0.4− | 2009 11 27 | E12 | 0.0 | 0.1− | |
| 2000 02 02 | 704 | 0.4− | 0.1− | 2007 02 25 | 703 | 1.3− | 0.0 | 2009 11 27 | E12 | 0.1− | 0.1− | |
| 2000 02 02 | 704 | 0.4+ | 0.2+ | 2007 02 25 | 703 | 0.4+ | 0.2− | 2009 11 27 | E12 | 0.0 | 0.2− | |
| 2000 02 02 | 704 | 0.4− | 0.8+ | 2007 02 25 | 703 | 1.0− | 1.3− | 2009 11 27 | E12 | 0.2+ | 0.0 | |
| 2000 02 02 | 704 | 0.4− | 0.7+ | 2007 03 17 | 703 | (0.5− | 1.8−) | 2009 11 28 | E12 | 0.1− | 0.1− | |
| 2005 07 04 | G96 | 1.1+ | 0.5+ | 2007 03 17 | 703 | 0.5+ | 0.2+ | 2009 11 28 | E12 | 0.2+ | 0.0 | |
| 2005 07 04 | G96 | 0.2+ | 0.5+ | 2007 03 17 | 703 | (1.8+ | 0.7+) | 2009 12 12 | E12 | 0.1− | 0.0 | |
| 2005 07 04 | G96 | 0.1+ | 0.5+ | 2007 03 17 | 703 | 0.3+ | 1.4− | 2009 12 12 | E12 | 0.3+ | 0.2+ | |
| 2005 07 04 | G96 | 0.3− | 0.8+ | 2009 11 10 | E12 | 0.3− | 0.5+ | 2009 12 12 | E12 | 0.5− | 0.0 | |
| 2006 11 01 | G96 | 0.5+ | 0.1− | 2009 11 10 | E12 | 0.3− | 0.0 | 2009 12 12 | E12 | 0.0 | 0.1+ | |

**2009 WK$_{217}$ = 2005 SU$_{205}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 15.70827 | | (2000.0) | | | |
| $n$ | 0.26733903 | $\omega$ | 303.22128 | | +0.42186778 | −0.90518646 |
| $a$ | 2.3864983 | $\Omega$ | 121.74322 | | +0.85073636 | +0.37551813 |
| $e$ | 0.2048438 | $i$ | 3.48026 | | +0.31348880 | +0.19905678 |
| $P$ | 3.69 | $H$ | 17.6 | $G$ | 0.15 | $U$ 5 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 30 | 699 | 0.0 | 0.1− | 2009 11 18 | 809 | 0.2+ | 0.0 | 2009 11 19 | 809 | 0.1+ | 0.2+ | |
| 2005 09 30 | 699 | 0.2− | 1.7+ | 2009 11 18 | 809 | 0.3+ | 0.1− | 2009 12 09 | J75 | 0.0 | 0.0 | |
| 2005 09 30 | 699 | 0.8− | 0.2− | 2009 11 18 | 691 | 0.3− | 0.1− | 2009 12 09 | J75 | 0.3+ | 0.1− | |
| 2005 09 30 | 699 | 0.8− | 0.7− | 2009 11 18 | 691 | 0.2− | 0.2+ | 2009 12 09 | J75 | 0.1− | 0.4− | |
| 2005 10 01 | G96 | 0.4+ | 0.2− | 2009 11 18 | 691 | 0.2+ | 0.1− | 2009 12 11 | G96 | 0.3+ | 0.0 | |
| 2005 10 01 | G96 | 0.6+ | 0.2− | 2009 11 19 | 809 | 0.3+ | 0.4+ | 2009 12 11 | G96 | 0.1+ | 0.2− | |
| 2005 10 01 | G96 | 0.3+ | 0.2− | 2009 11 19 | 809 | 0.0 | 0.2+ | 2009 12 11 | G96 | 0.2− | 0.0 | |
| 2005 10 01 | G96 | 0.5+ | 0.3− | 2009 11 19 | 809 | 0.0 | 0.1+ | 2009 12 11 | G96 | 0.3− | 0.2− | |
| 2009 11 18 | 809 | 0.1+ | 0.1− | 2009 11 19 | 809 | 0.3+ | 0.2+ | | | | | |

**2009 WL$_{217}$ = 2004 TQ$_{142}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 308.20331 | | (2000.0) | | | |
| $n$ | 0.22153084 | $\omega$ | 290.44159 | | −0.73868515 | −0.67294498 |
| $a$ | 2.7050788 | $\Omega$ | 207.30761 | | +0.64554036 | −0.68980550 |
| $e$ | 0.0108786 | $i$ | 4.82543 | | +0.19396366 | −0.26704576 |
| $P$ | 4.45 | $H$ | 17.0 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 10 28 | 691 | 0.5− | 0.6+ | 2004 10 04 | 691 | 0.9+ | 0.6− | 2009 11 18 | 809 | 0.4+ | 0.3+ | |
| 1995 10 28 | 691 | 0.1− | 0.8+ | 2004 10 10 | 691 | 0.2− | 0.3− | 2009 11 18 | 691 | 0.1− | 0.1+ | |
| 1995 10 28 | 691 | 0.2− | 0.6+ | 2004 10 10 | 691 | 0.4− | 0.1+ | 2009 11 19 | 809 | 0.3+ | 0.6+ | |
| 2000 11 25 | 691 | 0.0 | 0.2− | 2004 10 10 | 691 | 0.5− | 0.1+ | 2009 11 19 | 809 | 0.2+ | 0.1− | |
| 2000 11 25 | 691 | 0.1− | 0.1+ | 2007 04 18 | G96 | 0.0 | 0.8+ | 2009 11 19 | 809 | 0.4+ | 0.2+ | |
| 2000 11 25 | 691 | 0.2+ | 0.2+ | 2007 04 18 | G96 | 0.3+ | 0.3+ | 2009 11 19 | 809 | 0.5+ | 0.1+ | |
| 2004 09 09 | 691 | 0.5+ | 0.0 | 2007 04 18 | G96 | 0.1+ | 0.5+ | 2009 11 19 | 809 | 0.2+ | 0.0 | |
| 2004 09 09 | 691 | 0.4+ | 0.3+ | 2007 04 18 | G96 | 0.0 | 0.3+ | 2009 11 26 | 691 | 0.2+ | 0.2+ | |
| 2004 09 09 | 691 | 0.3− | 0.1+ | 2009 11 18 | 809 | 0.0 | 0.1+ | 2009 11 26 | 691 | 0.3+ | 0.1+ | |
| 2004 09 22 | 691 | 0.2+ | 0.2+ | 2009 11 18 | 809 | 0.2+ | 0.3+ | 2009 11 26 | 691 | 0.3− | 0.4− | |
| 2004 09 22 | 691 | 0.5− | 0.0 | 2009 11 18 | 809 | 0.3+ | 0.3+ | 2009 12 17 | G96 | 0.4+ | 0.0 | |
| 2004 09 22 | 691 | 0.0 | 0.1− | 2009 11 18 | 691 | 0.5− | 0.1− | 2009 12 17 | G96 | 0.3+ | 0.2+ | |
| 2004 10 04 | 691 | 0.4+ | 1.1− | 2009 11 18 | 809 | 0.3+ | 0.2+ | 2009 12 17 | G96 | 0.3+ | 0.2− | |
| 2004 10 04 | 691 | 0.1+ | 0.6− | 2009 11 18 | 691 | 0.7− | 0.0 | 2009 12 17 | G96 | 0.2+ | 0.0 | |

**2009 WQ$_{217}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 334.61205 | | (2000.0) | | | |
| $n$ | 0.27193068 | $\omega$ | 208.39271 | | −0.33529538 | −0.93944793 |
| $a$ | 2.3595576 | $\Omega$ | 261.27126 | | +0.87735775 | −0.28398025 |
| $e$ | 0.1391625 | $i$ | 4.10839 | | +0.34324975 | −0.19181448 |
| $P$ | 3.62 | $H$ | 17.1 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 03 27 | 691 | 0.1+ | 0.5− | 2009 11 09 | 691 | 0.1+ | 0.1− | 2009 11 25 | 703 | 0.6− | 0.9− |
| 1996 03 27 | 691 | 0.3− | 0.1+ | 2009 11 09 | 691 | 0.1− | 0.1+ | 2009 12 11 | G96 | 0.2+ | 0.0 |
| 1996 03 27 | 691 | 0.0 | 0.1− | 2009 11 17 | 691 | 0.1− | 0.2− | 2009 12 11 | G96 | 0.0 | 0.1− |
| 2007 03 13 | 703 | (0.3+ | 2.5+) | 2009 11 17 | 691 | 0.2− | 0.2− | 2009 12 11 | G96 | 0.1− | 0.2+ |
| 2007 03 13 | 703 | 1.0− | 0.1+ | 2009 11 17 | 691 | 0.3+ | 0.3+ | 2009 12 11 | G96 | 0.2+ | 0.2− |
| 2007 03 13 | 703 | 0.3− | 0.6+ | 2009 11 17 | 691 | 0.0 | 0.1+ | 2009 12 11 | 703 | 0.7+ | 0.5− |
| 2007 03 13 | 703 | 0.0 | 0.8+ | 2009 11 17 | 691 | 0.0 | 0.0 | 2009 12 11 | 703 | (1.5− | 0.6−) |
| 2007 03 19 | 703 | 0.3− | 0.1− | 2009 11 17 | 691 | 0.1+ | 0.0 | 2009 12 11 | 703 | 0.2− | 0.5+ |
| 2007 03 19 | 703 | 1.0+ | 0.2+ | 2009 11 25 | 691 | 0.1+ | 0.1+ | 2009 12 11 | 703 | 0.3− | 0.3+ |
| 2007 03 19 | 703 | 1.0+ | 0.3− | 2009 11 25 | 691 | 0.0 | 0.1+ | 2009 12 18 | G96 | 0.0 | 0.2+ |
| 2007 03 19 | 703 | 0.2+ | 0.7+ | 2009 11 25 | 691 | 0.3− | 0.3+ | 2009 12 18 | G96 | 0.1+ | 0.1+ |
| 2009 11 09 | 691 | 0.1− | 0.0 | 2009 11 25 | 703 | 0.4− | 0.1− | 2009 12 18 | G96 | 0.5− | 0.1+ |
| 2009 11 09 | 691 | 0.1+ | 0.1− | 2009 11 25 | 703 | 0.6− | 0.0 | 2009 12 18 | G96 | 0.0 | 0.3+ |
| 2009 11 09 | 691 | 0.2− | 0.1+ | 2009 11 25 | 703 | 1.3+ | 0.4− | | | | |
| 2009 11 09 | 691 | 0.1+ | 0.1− | 2009 11 25 | 703 | 1.1+ | 0.8− | | | | |

**2009 WR$_{217}$ = 2005 XV$_{71}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 34.28857 | | (2000.0) | | | |
| $n$ | 0.23855598 | $\omega$ | 17.29672 | | +0.89288755 | −0.45023338 |
| $a$ | 2.5747942 | $\Omega$ | 9.46971 | | +0.40834102 | +0.80359526 |
| $e$ | 0.2217175 | $i$ | 2.25026 | | +0.18976153 | +0.38926156 |
| $P$ | 4.13 | $H$ | 17.5 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 12 20 | 645 | 0.0 | 0.0 | 2007 04 20 | G96 | 0.1+ | 0.5+ | 2009 11 24 | J75 | 0.3+ | 0.3− |
| 2001 12 20 | 645 | 0.1− | 0.0 | 2009 09 21 | G96 | 0.3+ | 0.1+ | 2009 11 24 | J75 | 0.8+ | 0.1− |
| 2005 12 06 | 691 | 0.0 | 0.1+ | 2009 09 21 | G96 | 0.6+ | 0.1+ | 2009 11 25 | 703 | 0.3− | 0.1− |
| 2005 12 06 | 691 | 0.2+ | 0.0 | 2009 09 21 | G96 | 0.6+ | 0.4+ | 2009 11 25 | 703 | 0.2− | 0.5+ |
| 2005 12 06 | 691 | 0.2− | 0.2− | 2009 11 09 | 691 | 0.5− | 0.1+ | 2009 11 25 | 703 | 0.1+ | 0.7+ |
| 2005 12 10 | 691 | 0.5+ | 0.3− | 2009 11 09 | 691 | 0.4− | 0.1+ | 2009 11 25 | 703 | 0.8− | 0.4− |
| 2005 12 10 | 691 | 0.0 | 0.2+ | 2009 11 09 | 691 | 0.1+ | 0.1+ | 2009 12 16 | 704 | 0.2+ | 0.2+ |
| 2005 12 10 | 691 | 0.1+ | 0.2+ | 2009 11 09 | G96 | 0.3+ | 0.2− | 2009 12 16 | 704 | 0.1+ | 0.1− |
| 2007 04 14 | G96 | 0.3− | 0.1− | 2009 11 09 | G96 | 0.5+ | 0.3− | 2009 12 16 | G96 | 0.0 | 0.2− |
| 2007 04 14 | G96 | 0.0 | 1.2+ | 2009 11 09 | G96 | 0.2+ | 0.0 | 2009 12 16 | G96 | 0.1+ | 0.1+ |
| 2007 04 14 | G96 | 0.8− | 0.7+ | 2009 11 09 | G96 | 0.3− | 0.2− | 2009 12 16 | 704 | 0.9+ | 0.3− |
| 2007 04 14 | G96 | 1.0+ | 0.7− | 2009 11 17 | 691 | 0.6+ | 0.1+ | 2009 12 16 | G96 | 0.2+ | 0.4− |
| 2007 04 20 | G96 | 0.3+ | 0.3− | 2009 11 17 | 691 | 0.3− | 0.1− | 2009 12 16 | G96 | 0.1+ | 0.1− |
| 2007 04 20 | G96 | 0.3− | 0.1+ | 2009 11 17 | 691 | 0.5− | 0.2+ | | | | |
| 2007 04 20 | G96 | 0.8+ | 0.1+ | 2009 11 24 | J75 | 0.2+ | 0.0 | | | | |

**2009 WX$_{217}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 357.45404 | | (2000.0) | | | |
| $n$ | 0.17259250 | $\omega$ | 303.91436 | | +0.21107045 | −0.97379326 |
| $a$ | 3.1948816 | $\Omega$ | 133.65836 | | +0.93102162 | +0.17388631 |
| $e$ | 0.1273812 | $i$ | 6.72418 | | +0.29773816 | +0.14659546 |
| $P$ | 5.71 | $H$ | 15.4 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 05 04 | 645 | 0.0 | 0.0 | 2005 03 10 | G96 | 0.2− | 0.2− | 2009 12 10 | 703 | 0.1+ | 0.3− |
| 2000 05 04 | 645 | 0.0 | 0.0 | 2005 03 10 | G96 | 0.4− | 0.3− | 2009 12 10 | 703 | 1.3+ | 0.0 |
| 2003 10 24 | 691 | 0.1+ | 0.0 | 2005 03 10 | G96 | 0.0 | 0.4− | 2009 12 10 | 703 | 0.1+ | 1.0− |
| 2003 10 24 | 691 | 0.0 | 0.1+ | 2005 03 10 | G96 | 0.4+ | 0.3− | 2009 12 10 | 703 | 1.3+ | 1.0− |
| 2003 10 24 | 691 | 0.2− | 0.3+ | 2009 11 17 | 703 | 0.5− | 0.1+ | 2009 12 18 | F84 | 0.4− | 0.3− |
| 2004 12 18 | G96 | 0.4− | 0.1− | 2009 11 17 | 703 | 0.3− | 0.7− | 2009 12 18 | F84 | 0.6− | 0.2+ |
| 2004 12 18 | G96 | 0.6− | 0.0 | 2009 11 17 | 703 | 0.4+ | 0.1− | 2009 12 18 | F84 | 0.5− | 0.5+ |
| 2004 12 18 | G96 | 0.2− | 0.3+ | 2009 11 17 | 703 | 0.9− | 0.2− | 2009 12 19 | F84 | 0.7+ | 0.8+ |
| 2004 12 18 | G96 | 0.1+ | 0.1+ | 2009 11 25 | G96 | 0.0 | 0.0 | 2009 12 19 | F84 | 0.5− | 0.1+ |
| 2005 03 09 | 691 | 0.1+ | 0.3+ | 2009 11 25 | G96 | 0.4− | 0.2+ | 2009 12 19 | F84 | 0.2+ | 0.8− |
| 2005 03 09 | 691 | 0.1+ | 0.2+ | 2009 11 25 | G96 | 0.1+ | 0.4+ | | | | |
| 2005 03 09 | 691 | 0.1+ | 0.0 | 2009 11 25 | G96 | 0.2+ | 0.2+ | | | | |

**2009 WZ$_{217}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 8.07106 | | (2000.0) | | | |
| $n$ | 0.18524132 | $\omega$ | 321.87639 | | +0.35285145 | −0.91782331 |
| $a$ | 3.0477369 | $\Omega$ | 106.80085 | | +0.89836142 | +0.27795112 |
| $e$ | 0.0554575 | $i$ | 10.95485 | | +0.26161539 | +0.28344938 |
| $P$ | 5.32 | $H$ | 15.0 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 19 | 691 | 0.1+ | 0.1+ | 2009 11 17 | 703 | 0.9− | 0.2− | 2009 11 26 | G96 | 0.3+ | 0.2− |
| 2004 12 19 | 691 | 0.0 | 0.0 | 2009 11 17 | 703 | 0.1− | 0.3+ | 2009 11 26 | G96 | 0.0 | 0.2− |
| 2004 12 19 | 691 | 0.1− | 0.1− | 2009 11 17 | 703 | 0.0 | 0.1+ | 2009 11 26 | G96 | 0.3+ | 0.5− |
| 2005 01 17 | 691 | 0.0 | 0.0 | 2009 11 17 | 703 | 0.4− | 0.3+ | 2009 12 13 | H10 | 0.1− | 0.1− |
| 2005 01 17 | 691 | 0.0 | 0.1− | 2009 11 26 | G96 | 0.1+ | 0.3− | 2009 12 13 | H10 | 0.5+ | 0.9+ |
| 2005 01 17 | 691 | 0.1+ | 0.1+ | 2009 11 26 | G96 | 0.4+ | 0.1− | | | | |

**2009 WA$_{218}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 60.40190 | | (2000.0) | | | |
| $n$ | 0.27961712 | $\omega$ | 230.89027 | | +0.99538122 | −0.05212337 |
| $a$ | 2.3161155 | $\Omega$ | 131.93897 | | +0.07593512 | +0.94127993 |
| $e$ | 0.1859057 | $i$ | 6.22190 | | −0.05873737 | +0.33357946 |
| $P$ | 3.52 | $H$ | 17.2 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 06 17 | G96 | 0.2− | 0.1− | 2005 07 28 | 644 | 0.2+ | 0.1+ | 2009 11 17 | 703 | 0.8+ | 0.4+ |
| 2005 06 17 | G96 | 0.6− | 0.2+ | 2007 01 28 | G96 | 0.7− | 0.1+ | 2009 11 17 | 703 | 0.4− | 0.7− |
| 2005 06 17 | G96 | 0.4− | 0.1− | 2007 01 28 | G96 | 0.1+ | 0.0 | 2009 11 27 | G96 | 0.1+ | 0.3− |
| 2005 06 17 | G96 | 0.2− | 0.0 | 2007 01 28 | G96 | 0.4+ | 0.2− | 2009 11 27 | G96 | 1.0+ | 0.1+ |
| 2005 07 04 | G96 | 0.1+ | 0.1− | 2007 01 28 | G96 | 0.2+ | 0.0 | 2009 11 27 | G96 | 0.0 | 0.1− |
| 2005 07 04 | G96 | 0.3+ | 0.0 | 2008 06 01 | 691 | 0.1+ | 0.3+ | 2009 11 27 | G96 | 0.3+ | 0.1− |
| 2005 07 04 | G96 | 0.4+ | 0.1− | 2008 06 01 | 691 | 0.1+ | 0.0 | 2009 12 11 | 703 | 0.9+ | 0.2+ |
| 2005 07 04 | G96 | 0.1− | 0.2− | 2008 06 01 | 691 | 0.2− | 0.4− | 2009 12 11 | 703 | 0.4− | 0.8+ |
| 2005 07 28 | 644 | 0.0 | 0.1+ | 2009 11 17 | 703 | 0.0 | 0.4− | 2009 12 11 | 703 | 0.3− | 0.4+ |
| 2005 07 28 | 644 | 0.2+ | 0.2+ | 2009 11 17 | 703 | 0.7− | 0.2− | 2009 12 11 | 703 | 1.4− | 0.1− |

**2009 WB$_{218}$ = 2003 UU$_{372}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 9.39215 | | (2000.0) | | | |
| $n$ | 0.18772349 | $\omega$ | 200.81807 | | +0.31594799 | −0.93789219 |
| $a$ | 3.0208115 | $\Omega$ | 231.04945 | | +0.89445901 | +0.34481397 |
| $e$ | 0.2579998 | $i$ | 10.61828 | | +0.31641738 | −0.03823054 |
| $P$ | 5.25 | $H$ | 16.5 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 22 | 645 | 0.1+ | 0.1− | 2009 11 22 | 703 | 0.5+ | 0.5− | 2009 12 12 | 106 | 0.0 | 0.8+ |
| 2003 10 22 | 645 | 0.0 | 0.0 | 2009 11 22 | 703 | 1.0+ | 0.3− | 2009 12 12 | 106 | 0.4+ | 0.3+ |
| 2003 10 23 | 645 | 0.0 | 0.0 | 2009 11 22 | 703 | 0.5− | 0.4− | 2009 12 17 | G96 | 0.2+ | 0.1− |
| 2003 10 23 | 645 | 0.0 | 0.1+ | 2009 11 22 | 703 | 1.0− | 0.3+ | 2009 12 17 | G96 | 0.1+ | 0.0 |
| 2009 11 18 | 691 | 0.6+ | 0.3+ | 2009 11 22 | 703 | 0.1− | 0.2+ | 2009 12 17 | G96 | 0.1+ | 0.0 |
| 2009 11 18 | 691 | 0.4− | 0.3− | 2009 12 12 | 106 | 0.4+ | 0.0 | 2009 12 17 | G96 | 0.2− | 0.1+ |
| 2009 11 18 | 691 | 0.5− | 0.1− | 2009 12 12 | 106 | 0.3+ | 0.2− | | | | |

**2009 WK$_{218}$ = 2002 LA$_{28}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 250.58153 | | (2000.0) | | | |
| $n$ | 0.21159698 | $\omega$ | 133.06242 | | −0.76331857 | +0.47973373 |
| $a$ | 2.7890935 | $\Omega$ | 80.17198 | | −0.64207568 | −0.63729147 |
| $e$ | 0.1735129 | $i$ | 26.04715 | | +0.07129920 | −0.60308799 |
| $P$ | 4.66 | $H$ | 15.7 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 06 09 | 704 | 0.1+ | 0.8− | 2002 07 04 | 644 | 0.1− | 0.5+ | 2009 11 20 | 809 | 0.3+ | 0.1− |
| 2002 06 09 | 704 | 0.5− | 0.4− | 2006 03 05 | 703 | 0.2− | 0.3− | 2009 11 24 | 691 | 0.0 | 0.1+ |
| 2002 06 09 | 704 | 0.2+ | 0.4− | 2006 03 05 | 703 | 0.1− | 0.6+ | 2009 11 24 | 691 | 0.1− | 0.2− |
| 2002 06 09 | 704 | 0.1− | 0.0 | 2006 03 05 | 703 | 0.4+ | 0.2+ | 2009 11 24 | 691 | 0.7− | 0.2+ |
| 2002 06 09 | 704 | 0.6+ | 0.3+ | 2006 03 05 | 703 | 0.1− | 0.2− | 2009 12 10 | G96 | 0.7+ | 0.2− |
| 2002 06 09 | 608 | 0.3− | 0.1− | 2009 11 17 | 809 | 0.3+ | 0.2+ | 2009 12 10 | G96 | 0.0 | 0.2− |
| 2002 06 09 | 608 | 0.0 | 0.5− | 2009 11 17 | 809 | 0.3+ | 0.0 | 2009 12 10 | G96 | 0.3− | 0.3− |
| 2002 06 09 | 608 | 0.1− | 0.0 | 2009 11 17 | 809 | 0.1+ | 0.2− | 2009 12 10 | G96 | 0.1+ | 0.2− |
| 2002 06 10 | 704 | 0.3+ | 0.5− | 2009 11 17 | 809 | 0.1+ | 0.1− | 2009 12 20 | G96 | 0.3+ | 0.2+ |
| 2002 06 10 | 704 | 0.2+ | 0.5+ | 2009 11 17 | 809 | 0.3+ | 0.3− | 2009 12 20 | G96 | 0.1+ | 0.2+ |
| 2002 06 10 | 704 | 0.1− | 0.4+ | 2009 11 20 | 809 | 0.4+ | 0.0 | 2009 12 20 | G96 | 0.6+ | 0.1+ |
| 2002 07 04 | 644 | 0.3− | 0.5+ | 2009 11 20 | 809 | 0.2+ | 0.0 | 2009 12 20 | G96 | 0.3+ | 0.2− |
| 2002 07 04 | 644 | 0.3− | 0.2+ | 2009 11 20 | 809 | 0.2+ | 0.0 | | | | |

**2009 WN$_{218}$ = 2007 DJ$_{9}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 310.58358 | | (2000.0) | | | |
| $n$ | 0.29123995 | $\omega$ | 85.94712 | | −0.67391004 | −0.73366015 |
| $a$ | 2.2540770 | $\Omega$ | 46.82764 | | +0.62158319 | −0.62675414 |
| $e$ | 0.1013452 | $i$ | 6.85993 | | +0.39934895 | −0.26253005 |
| $P$ | 3.38 | $H$ | 17.4 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 03 16 | 691 | 0.0 | 0.1+ | 2007 02 21 | 703 | 0.9+ | 0.1− | 2009 11 08 | 691 | 0.2+ | 0.1+ |
| 2004 03 16 | 691 | 0.2+ | 0.2+ | 2007 02 21 | 703 | 0.4− | 0.8− | 2009 11 08 | 691 | 0.1− | 0.1− |
| 2004 03 16 | 691 | 0.2+ | 0.2+ | 2007 02 21 | 703 | 1.2− | 0.9+ | 2009 11 16 | 691 | 0.3+ | 0.5− |
| 2004 05 10 | 691 | 0.2− | 0.1+ | 2007 02 21 | 703 | 0.7− | 0.5− | 2009 11 16 | 691 | 0.6+ | 0.1+ |
| 2004 05 10 | 691 | 0.1− | 0.2+ | 2009 09 19 | G96 | 0.7+ | 0.0 | 2009 11 16 | 691 | 0.1+ | 0.0 |
| 2004 05 10 | 691 | 0.3− | 0.2+ | 2009 09 19 | G96 | 0.3− | 0.2+ | 2009 11 20 | 291 | 0.1− | 0.5+ |
| 2004 05 28 | 691 | 0.3+ | 0.4− | 2009 09 19 | G96 | 0.3+ | 0.0 | 2009 11 20 | 291 | 0.1− | 0.2+ |
| 2004 05 28 | 691 | 0.0 | 0.2+ | 2009 09 19 | G96 | 0.2+ | 0.2− | 2009 11 20 | 291 | 0.2− | 0.1+ |
| 2004 05 28 | 691 | 0.4+ | 0.3− | 2009 10 23 | 691 | 0.2− | 0.1+ | 2009 11 20 | 291 | 0.2− | 0.0 |
| 2007 02 17 | 644 | 0.1+ | 0.2− | 2009 10 23 | 691 | 0.3− | 0.1+ | 2009 11 20 | 291 | 0.3− | 0.1− |
| 2007 02 17 | 644 | 0.6+ | 0.4− | 2009 10 23 | 691 | 0.1+ | 0.2+ | 2009 11 20 | 291 | 0.6− | 0.1− |
| 2007 02 17 | 644 | 0.5+ | 0.5− | 2009 11 08 | 691 | 0.2+ | 0.0 | | | | |

**2009 WG$_{220}$ = 2004 FZ$_{133}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 272.41649 | | (2000.0) | | | |
| $n$ | 0.29546941 | $\omega$ | 309.12147 | | −0.98068272 | −0.18434174 |
| $a$ | 2.2325149 | $\Omega$ | 220.37755 | | +0.19560435 | −0.92520640 |
| $e$ | 0.1334538 | $i$ | 5.79570 | | −0.00058382 | −0.33167942 |
| $P$ | 3.34 | $H$ | 18.0 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 02 17 | I03 | 0.3− | 0.2+ | 2009 10 18 | G96 | 0.9+ | 0.4− | 2009 11 16 | G96 | 0.2+ | 0.0 |
| 2004 02 17 | I03 | 0.2− | 0.1+ | 2009 10 18 | G96 | 1.2+ | 0.0 | 2009 11 16 | G96 | 0.0 | 0.1− |
| 2004 02 17 | I03 | 0.3− | 0.2+ | 2009 10 18 | G96 | 0.4− | 0.9+ | 2009 11 16 | G96 | 0.1+ | 0.0 |
| 2004 03 16 | 691 | 0.1+ | 0.1+ | 2009 10 23 | 691 | 0.2− | 0.0 | 2009 11 16 | G96 | 0.1+ | 0.1− |
| 2004 03 16 | 691 | 0.0 | 0.2− | 2009 10 23 | 691 | 0.3− | 0.0 | 2009 11 24 | G96 | 0.6+ | 0.3− |
| 2004 03 16 | 691 | 0.1+ | 0.0 | 2009 10 23 | 691 | 0.6− | 0.2− | 2009 11 24 | G96 | 0.1− | 0.5− |
| 2004 03 26 | 699 | 0.9+ | 0.1+ | 2009 11 16 | G96 | 0.3+ | 0.0 | 2009 11 24 | G96 | 0.2+ | 0.1− |
| 2004 03 26 | 699 | (1.5− | 1.6−) | 2009 11 16 | G96 | 0.3+ | 0.1+ | 2009 11 24 | G96 | 0.1− | 0.0 |
| 2004 03 26 | 699 | 1.5+ | 0.7− | 2009 11 16 | G96 | 0.4+ | 0.0 | 2009 12 19 | G96 | 0.1+ | 0.1− |
| 2004 03 26 | 699 | 0.4− | 0.6+ | 2009 11 16 | G96 | 0.4+ | 0.0 | 2009 12 19 | G96 | 0.0 | 0.4+ |
| 2004 03 28 | 691 | 0.0 | 0.2+ | 2009 11 16 | G96 | 0.0 | 0.1+ | 2009 12 19 | G96 | 0.2− | 0.1+ |
| 2004 03 28 | 691 | 0.1− | 0.1+ | 2009 11 16 | G96 | 0.3− | 0.3+ | 2009 12 19 | G96 | 0.8+ | 0.6− |
| 2004 03 28 | 691 | 0.4− | 0.1− | 2009 11 16 | G96 | 0.3+ | 0.2+ | | | | |
| 2009 10 18 | G96 | 0.0 | 0.2− | 2009 11 16 | G96 | 0.5− | 1.0+ | | | | |

**2009 WU$_{220}$ = 2004 TC$_{289}$ = 2007 GM$_{70}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 91.47731 | | (2000.0) | | | |
| $n$ | 0.21401674 | $\omega$ | 153.39826 | | +0.79006616 | +0.61298670 |
| $a$ | 2.7680306 | $\Omega$ | 168.78883 | | −0.56825784 | +0.73633447 |
| $e$ | 0.0827825 | $i$ | 1.92760 | | −0.22995323 | +0.28645916 |
| $P$ | 4.61 | $H$ | 16.8 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 02 14 | 291 | 0.2+ | 0.7+ | 2007 04 15 | G96 | 0.1− | 0.3− | 2009 10 27 | 691 | 0.3− | 0.0 |
| 2002 02 14 | 291 | 0.1− | 0.7+ | 2007 04 15 | G96 | 0.7+ | 0.1− | 2009 10 27 | 691 | 0.3− | 0.0 |
| 2002 02 14 | 291 | 0.2− | 0.2+ | 2007 04 15 | G96 | 0.4+ | 0.1+ | 2009 10 27 | 691 | 0.1− | 0.1− |
| 2002 03 12 | 645 | 0.1− | 0.0 | 2007 04 15 | G96 | 0.0 | 0.2− | 2009 11 16 | G96 | 0.3− | 0.1+ |
| 2002 03 12 | 645 | 0.0 | 0.0 | 2007 04 20 | G96 | 0.3+ | 0.0 | 2009 11 16 | G96 | 0.0 | 0.2− |
| 2004 10 10 | 691 | 0.1− | 0.5+ | 2007 04 20 | G96 | 0.0 | 0.1+ | 2009 11 16 | G96 | 0.1+ | 0.5− |
| 2004 10 10 | 691 | 0.1+ | 0.2+ | 2007 04 20 | G96 | 0.3− | 0.4+ | 2009 11 16 | G96 | 0.3+ | 0.2− |
| 2004 10 10 | 691 | 0.4+ | 0.4+ | 2007 04 20 | G96 | 0.1+ | 0.1− | 2009 11 24 | G96 | 0.2+ | 0.3− |
| 2004 10 14 | 691 | 0.1+ | 0.1+ | 2008 06 10 | 691 | 0.2− | 0.3+ | 2009 11 24 | G96 | 0.2+ | 0.2− |
| 2004 10 14 | 691 | 0.2− | 0.6+ | 2008 06 10 | 691 | 0.3− | 0.4+ | 2009 11 24 | G96 | 0.0 | 0.1− |
| 2004 10 14 | 691 | 0.8− | 0.8+ | 2008 06 10 | 691 | 0.3− | 0.8+ | 2009 11 24 | G96 | 0.3+ | 0.1− |
| 2006 01 04 | 691 | 0.3+ | 0.4+ | 2008 07 09 | 620 | 0.0 | 0.4− | 2009 12 19 | G96 | 0.4+ | 0.4+ |
| 2006 01 04 | 691 | 0.3+ | 0.1+ | 2008 07 09 | 620 | 0.4+ | 0.2+ | 2009 12 19 | G96 | 0.1− | 0.1− |
| 2006 01 04 | 691 | 0.0 | 0.4+ | 2009 10 22 | G96 | 0.0 | 0.4− | 2009 12 19 | G96 | 0.5+ | 0.6− |
| 2007 03 26 | 691 | 0.2+ | 0.0 | 2009 10 22 | G96 | 0.4− | 0.1− | 2009 12 19 | G96 | 0.6− | 0.4+ |
| 2007 03 26 | 691 | 0.5+ | 0.8+ | 2009 10 22 | G96 | 0.7+ | 0.2− | | | | |
| 2007 03 26 | 691 | 0.1+ | 0.0 | 2009 10 22 | G96 | 0.3+ | 0.1− | | | | |

**2009 WV$_{220}$ = 2007 HJ$_{51}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 122.42755 | | (2000.0) | | | |
| $n$ | 0.17455409 | $\omega$ | 223.61040 | | +0.24978051 | +0.95405885 |
| $a$ | 3.1709011 | $\Omega$ | 61.49664 | | −0.82870991 | +0.29901896 |
| $e$ | 0.1388051 | $i$ | 10.85341 | | −0.50084886 | −0.01895714 |
| $P$ | 5.65 | $H$ | 16.1 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 04 20 | 691 | 0.1+ | 0.3+ | 2007 05 12 | G96 | 0.2− | 0.0 | 2009 11 24 | G96 | 0.1+ | 0.3− |
| 2007 04 20 | 691 | 0.1+ | 0.2+ | 2007 05 12 | G96 | 0.0 | 0.0 | 2009 11 24 | G96 | 0.2− | 0.0 |
| 2007 04 20 | 691 | 0.0 | 0.1− | 2007 05 12 | G96 | 0.2+ | 0.0 | 2009 11 24 | G96 | 0.1+ | 0.2− |
| 2007 04 20 | D35 | 0.0 | 0.5− | 2009 10 22 | G96 | 0.2− | 0.0 | 2009 11 24 | G96 | 0.7+ | 0.3+ |
| 2007 04 20 | D35 | 0.7+ | 0.0 | 2009 10 22 | G96 | 0.5− | 0.2− | 2009 12 11 | G96 | 0.5+ | 0.1− |
| 2007 04 20 | D35 | 0.4+ | 0.2− | 2009 10 22 | G96 | 0.2+ | 0.1− | 2009 12 11 | G96 | 0.2+ | 0.1+ |
| 2007 04 24 | 691 | 0.6− | 0.3− | 2009 10 22 | G96 | 0.2+ | 0.0 | 2009 12 11 | G96 | 0.6− | 0.1− |
| 2007 04 24 | 691 | 0.0 | 0.1+ | 2009 11 16 | G96 | 0.1− | 0.2− | 2009 12 11 | G96 | 0.5− | 0.1− |
| 2007 04 24 | 691 | 0.0 | 0.0 | 2009 11 16 | G96 | 0.2+ | 0.8+ | | | | |
| 2007 05 12 | G96 | 0.3+ | 0.1− | 2009 11 16 | G96 | 0.0 | 0.1− | | | | |

**2009 WC$_{221}$ = 2003 KK$_{22}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 356.49584 | | (2000.0) | | | |
| $n$ | 0.08416256 | $\omega$ | 294.49883 | | +0.49823483 | −0.86551762 |
| $a$ | 5.1569165 | $\Omega$ | 125.52016 | | +0.81660281 | +0.44850316 |
| $e$ | 0.0135406 | $i$ | 3.62030 | | +0.29141363 | +0.22298916 |
| $P$ | 11.71 | $H$ | 13.9 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 01 26 | 691 | 0.1− | 0.3+ | 2008 09 03 | 691 | 0.3− | 0.4+ | 2009 10 23 | G96 | 0.1− | 1.0− |
| 2001 01 26 | 691 | 0.3+ | 0.4+ | 2008 09 03 | 691 | 0.4− | 0.7+ | 2009 10 23 | G96 | 0.3+ | 0.3− |
| 2001 01 26 | 691 | 0.1+ | 0.1+ | 2008 09 23 | G96 | 0.4+ | 0.1− | 2009 10 23 | G96 | 0.0 | 0.1− |
| 2003 05 30 | 807 | 0.0 | 0.2+ | 2008 09 23 | G96 | 0.4+ | 0.7+ | 2009 11 16 | G96 | 0.1+ | 0.2− |
| 2003 05 30 | 807 | 0.0 | 0.1+ | 2008 09 23 | G96 | 0.4+ | 0.3+ | 2009 11 16 | G96 | 0.1+ | 0.1− |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 05 31 | 807 | 0.0 | 0.3+ | 2008 09 23 | G96 | 0.2− | 0.1+ | 2009 11 16 | G96 | 0.2+ | 0.6− |
| 2007 10 08 | G96 | 0.2− | 0.6− | 2008 10 06 | G96 | 1.2− | 0.5+ | 2009 11 16 | G96 | 0.3+ | 0.2− |
| 2007 10 08 | G96 | 0.4+ | 0.5+ | 2008 10 06 | G96 | 0.5− | 0.3+ | 2009 11 24 | G96 | 0.3+ | 0.3− |
| 2007 10 08 | G96 | 0.2+ | 0.3+ | 2008 10 06 | G96 | 0.9− | 0.2+ | 2009 11 24 | G96 | 0.0 | 0.2− |
| 2007 10 08 | G96 | 0.2+ | 0.2+ | 2008 10 06 | G96 | 0.7− | 0.2+ | 2009 11 24 | G96 | 0.3+ | 0.9− |
| 2008 09 03 | 691 | 0.5+ | 0.4− | 2009 10 23 | G96 | 0.2+ | 0.1+ | 2009 11 24 | G96 | 0.1− | 0.1+ |

**2009 WX$_{222}$ = 2002 ER$_{76}$ = 2004 TK$_{191}$ = 2005 YN$_{166}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 119.31893 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21288909 | $\omega$ | 118.41181 | | +0.48688054 | | +0.87346810 |
| $a$ | 2.7777966 | $\Omega$ | 180.72581 | | −0.82431124 | | +0.45913679 |
| $e$ | 0.0488081 | $i$ | 4.09698 | | −0.28889154 | | +0.16200891 |
| $P$ | 4.63 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 03 11 | 691 | 0.1+ | 0.2+ | 2005 12 27 | 691 | 0.1+ | 0.0 | 2008 07 30 | G96 | 0.1− | 0.0 |
| 2002 03 11 | 691 | 0.2+ | 0.6+ | 2005 12 27 | 691 | 0.3− | 0.4+ | 2009 10 22 | G96 | 0.2+ | 0.2+ |
| 2002 03 11 | 691 | 0.4+ | 0.2− | 2006 01 02 | G96 | 0.5− | 0.6− | 2009 10 22 | G96 | 0.1− | 0.2− |
| 2002 03 16 | 291 | 0.1− | 0.1+ | 2006 01 02 | G96 | 0.4− | 0.3− | 2009 10 22 | G96 | 0.2+ | 0.0 |
| 2002 03 16 | 291 | 0.1+ | 0.3+ | 2006 01 02 | G96 | 0.4+ | 0.3− | 2009 10 22 | G96 | 0.1+ | 0.0 |
| 2002 03 16 | 291 | 0.3+ | 0.2+ | 2006 01 02 | G96 | 0.4− | 0.2− | 2009 11 16 | G96 | 0.1+ | 0.0 |
| 2004 10 07 | 691 | 0.0 | 0.2+ | 2007 04 19 | G96 | 0.4− | 0.3+ | 2009 11 16 | G96 | 0.1− | 0.0 |
| 2004 10 07 | 691 | 0.2+ | 0.3+ | 2007 04 19 | G96 | 0.1− | 0.2+ | 2009 11 16 | G96 | 0.4+ | 0.2− |
| 2004 10 07 | 691 | 0.0 | 0.1+ | 2007 04 19 | G96 | 0.0 | 0.3+ | 2009 11 16 | G96 | 0.1+ | 0.2− |
| 2004 10 11 | 691 | 0.1− | 0.2+ | 2007 04 19 | G96 | 0.4− | 0.2+ | 2009 11 24 | G96 | 0.1+ | 0.6− |
| 2004 10 11 | 691 | 0.3− | 0.2+ | 2008 07 30 | G96 | 0.8+ | 1.0+ | 2009 11 24 | G96 | 0.2+ | 0.0 |
| 2004 10 11 | 691 | 0.5− | 0.4+ | 2008 07 30 | G96 | 0.1− | 0.2− | 2009 11 24 | G96 | 0.3+ | 0.3− |
| 2005 12 27 | 691 | 0.0 | 0.3− | 2008 07 30 | G96 | 0.3− | 0.3− | 2009 11 24 | G96 | 0.5+ | 0.1− |

**2009 WB$_{226}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 79.18023 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.12459129 | $\omega$ | 109.53241 | | +0.65637599 | | +0.75420366 |
| $a$ | 3.9701866 | $\Omega$ | 201.52557 | | −0.70982778 | | +0.60901008 |
| $e$ | 0.2401637 | $i$ | 2.91173 | | −0.25556815 | | +0.24552710 |
| $P$ | 7.91 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 03 | 645 | 0.0 | 0.1− | 2008 09 19 | 691 | 0.1+ | 0.3+ | 2009 10 27 | 691 | 0.3− | 0.2+ |
| 2000 09 03 | 645 | 0.0 | 0.1− | 2008 09 19 | 691 | 0.1+ | 0.4+ | 2009 11 17 | G96 | 0.1+ | 0.3− |
| 2001 11 11 | 691 | 0.1− | 0.0 | 2008 09 19 | 691 | 0.8− | 0.3+ | 2009 11 17 | G96 | 0.1− | 0.1− |
| 2001 11 11 | 691 | 0.2+ | 0.1+ | 2009 10 18 | G96 | 0.0 | 0.4− | 2009 11 17 | G96 | 0.1− | 1.1+ |
| 2001 11 11 | 691 | 0.4+ | 0.1+ | 2009 10 18 | G96 | 0.1− | 0.1+ | 2009 11 17 | G96 | 0.4+ | 0.3+ |
| 2008 09 09 | G96 | 0.4+ | 0.1+ | 2009 10 18 | G96 | 0.2− | 0.7− | 2009 11 24 | G96 | 0.5+ | 0.2− |
| 2008 09 09 | G96 | 0.5+ | 0.1+ | 2009 10 18 | G96 | 0.1+ | 0.4− | 2009 11 24 | G96 | 0.4+ | 0.3− |
| 2008 09 09 | G96 | 0.3+ | 0.2+ | 2009 10 27 | 691 | 0.2− | 0.3− | 2009 11 24 | G96 | 0.2+ | 0.3− |
| 2008 09 09 | G96 | 0.4+ | 0.1− | 2009 10 27 | 691 | 0.3− | 0.0 | 2009 11 24 | G96 | 0.4+ | 0.0 |

**2009 WD$_{226}$ = 2008 TJ$_{181}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 29.91379 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.08110609 | $\omega$ | 287.00030 | | +0.91844944 | | −0.38898573 |
| $a$ | 5.2856746 | $\Omega$ | 95.93817 | | +0.38476648 | | +0.83661980 |
| $e$ | 0.0609616 | $i$ | 4.13379 | | +0.09168086 | | +0.38569082 |
| $P$ | 12.15 | $H$ | 14.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 09 03 | 691 | 0.3− | 0.3+ | 2008 10 10 | G96 | 0.4+ | 0.3+ | 2009 10 23 | G96 | 0.0 | 0.2+ |
| 2008 09 03 | 691 | 0.2+ | 0.2+ | 2008 10 10 | G96 | 0.2− | 0.0 | 2009 11 17 | G96 | 0.2− | 0.3− |
| 2008 09 03 | 691 | 0.2− | 0.1− | 2008 10 24 | G96 | 0.1− | 0.3− | 2009 11 17 | G96 | 0.1− | 0.0 |
| 2008 10 06 | G96 | 0.1+ | 0.2− | 2008 10 24 | G96 | 0.0 | 0.6− | 2009 11 17 | G96 | 0.2− | 0.0 |
| 2008 10 06 | G96 | 0.4+ | 0.2− | 2008 10 24 | G96 | 0.1− | 0.3− | 2009 11 17 | G96 | 0.1− | 0.0 |
| 2008 10 06 | G96 | 0.0 | 0.3− | 2008 10 24 | G96 | 0.0 | 0.4− | 2009 11 24 | G96 | 0.3− | 0.1+ |
| 2008 10 06 | G96 | 0.3− | 0.3− | 2009 10 23 | G96 | 0.3+ | 0.3+ | 2009 11 24 | G96 | 0.4+ | 0.2− |
| 2008 10 10 | G96 | 0.2+ | 0.1− | 2009 10 23 | G96 | 0.3− | 0.3+ | 2009 11 24 | G96 | 0.1+ | 0.0 |
| 2008 10 10 | G96 | 0.5+ | 0.7+ | 2009 10 23 | G96 | 0.0 | 0.2− | 2009 11 24 | G96 | 0.3+ | 0.1− |

**2009 WU$_{229}$ = 2005 UN$_{431}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 260.21605 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.24204630 | $\omega$ | 109.14818 | | −0.94389901 | | −0.20626409 |
| $a$ | 2.5499818 | $\Omega$ | 59.70431 | | +0.04518645 | | −0.85427027 |
| $e$ | 0.0674761 | $i$ | 17.37866 | | +0.32712818 | | −0.47715556 |
| $P$ | 4.07 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 11 12 | 691 | 0.4− | 0.0 | 2005 11 04 | 691 | 0.1− | 0.3+ | 2009 11 24 | G96 | 0.2− | 0.0 |
| 2001 11 12 | 691 | 0.2− | 0.6− | 2005 11 25 | G96 | 0.1− | 0.4− | 2009 11 24 | G96 | 0.1− | 0.1− |
| 2001 11 12 | 691 | 0.2+ | 0.3+ | 2005 11 25 | G96 | 0.1− | 0.3− | 2009 11 24 | G96 | 0.0 | 0.3− |
| 2003 03 31 | 645 | 0.0 | 0.0 | 2005 11 25 | G96 | 0.3+ | 0.2− | 2009 11 24 | G96 | 0.0 | 0.1− |
| 2003 03 31 | 645 | 0.0 | 0.0 | 2005 11 25 | G96 | 0.1+ | 0.3− | 2009 12 10 | G96 | 0.5− | 0.4− |
| 2005 10 28 | 691 | 0.1+ | 0.0 | 2009 10 14 | G96 | 0.2+ | 0.1− | 2009 12 10 | G96 | 0.1− | 0.7− |
| 2005 10 28 | 691 | 0.2+ | 0.1− | 2009 10 14 | G96 | 0.1− | 0.5− | 2009 12 10 | G96 | 0.0 | 0.2− |
| 2005 10 28 | 691 | 0.2+ | 0.1+ | 2009 10 14 | G96 | 0.1+ | 0.6− | 2009 12 10 | G96 | 0.1+ | 0.3− |
| 2005 11 01 | 691 | 0.1− | 0.3− | 2009 10 14 | G96 | 0.1− | 0.4− | 2009 12 15 | G96 | 0.7+ | 0.6+ |
| 2005 11 01 | 691 | 0.0 | 0.3+ | 2009 11 17 | G96 | 0.2− | 0.1− | 2009 12 15 | G96 | 0.2− | 0.7+ |
| 2005 11 01 | 691 | 0.5+ | 0.0 | 2009 11 17 | G96 | 0.2+ | 0.2− | 2009 12 15 | G96 | 0.0 | 0.3− |
| 2005 11 04 | 691 | 0.3− | 1.0+ | 2009 11 17 | G96 | 0.1+ | 0.1− | 2009 12 15 | G96 | 0.0 | 0.4− |
| 2005 11 04 | 691 | 0.0 | 0.0 | 2009 11 17 | G96 | 0.0 | 0.4− | | | | |

**2009 WC$_{230}$ = 2005 QG$_{98}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 44.95281 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.26605502 | $\omega$ | 267.20574 | | +0.99618699 | | −0.07533596 |
| $a$ | 2.3941705 | $\Omega$ | 97.11206 | | +0.08658094 | | +0.91573246 |
| $e$ | 0.1918608 | $i$ | 2.54137 | | −0.01073391 | | +0.39466259 |
| $P$ | 3.70 | $H$ | 17.9 | $G$ | 0.15 | $U$ | 5 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 08 27 | 644 | 0.3− | 0.0 | 2009 10 23 | G96 | 0.0 | 0.1− | 2009 11 17 | G96 | 0.1+ | 0.2− |
| 2005 08 27 | 644 | 0.0 | 0.2+ | 2009 10 23 | G96 | 0.1+ | 0.4− | 2009 11 17 | G96 | 0.0 | 0.4− |
| 2005 08 27 | 644 | 0.3− | 0.1− | 2009 11 09 | 703 | 0.6+ | 1.1+ | 2009 11 24 | G96 | 0.2+ | 0.2− |
| 2005 08 31 | 691 | 0.0 | 0.4− | 2009 11 09 | 703 | 0.8+ | 0.3+ | 2009 11 24 | G96 | 0.1− | 0.0 |
| 2005 08 31 | 691 | 0.1+ | 0.3+ | 2009 11 09 | 703 | 0.1− | 0.3+ | 2009 11 24 | G96 | 0.1+ | 0.5− |
| 2005 08 31 | 691 | 0.0 | 0.1+ | 2009 11 09 | 703 | 0.5− | 0.8+ | 2009 11 24 | G96 | 0.0 | 0.1− |
| 2009 10 23 | G96 | 0.2+ | 0.4− | 2009 11 17 | G96 | 0.3− | 0.2− | | | | |
| 2009 10 23 | G96 | 0.7− | 0.0 | 2009 11 17 | G96 | 0.4− | 0.2− | | | | |

**2009 WJ$_{230}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 60.03459 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.28022086 | $\omega$ | 267.09284 | | +0.96230370 | | +0.26434857 |
| $a$ | 2.3127876 | $\Omega$ | 77.57260 | | −0.21618880 | | +0.88616081 |
| $e$ | 0.1958372 | $i$ | 3.75550 | | −0.16502722 | | +0.38057700 |
| $P$ | 3.52 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 04 01 | 691 | 0.2− | 0.0 | 2009 10 21 | 703 | 0.9− | 0.8− | 2009 11 24 | G96 | 0.5− | 0.1+ |
| 2008 04 01 | 691 | 0.2− | 0.0 | 2009 10 23 | G96 | 0.4+ | 0.2− | 2009 11 24 | G96 | 0.2+ | 0.1− |
| 2008 04 01 | 691 | 0.0 | 0.4− | 2009 10 23 | G96 | 0.1+ | 0.2+ | 2009 11 24 | G96 | 0.6+ | 0.0 |
| 2008 04 09 | 691 | (1.9− | 0.6+) | 2009 10 23 | G96 | 0.2+ | 0.0 | 2009 11 24 | G96 | 0.1− | 0.1− |
| 2008 04 09 | 691 | 0.2− | 0.1− | 2009 10 23 | G96 | 0.5+ | 0.1+ | 2009 12 15 | G96 | 0.5− | 0.3+ |
| 2008 04 09 | 691 | 0.4+ | 0.3+ | 2009 11 09 | 703 | 0.8− | 0.4+ | 2009 12 15 | G96 | 1.5− | 0.2+ |
| 2008 04 28 | G96 | 0.2− | 0.1+ | 2009 11 09 | 703 | 0.1− | 0.7− | 2009 12 15 | G96 | 0.4− | 0.8− |
| 2008 04 28 | G96 | 0.2+ | 0.1+ | 2009 11 09 | 703 | 0.8− | 0.9+ | 2009 12 15 | G96 | 0.3+ | 0.1− |
| 2008 04 28 | G96 | 0.2+ | 0.5− | 2009 11 09 | 703 | 0.4+ | 0.1− | 2009 12 15 | G96 | 1.0+ | 0.2− |
| 2008 04 28 | G96 | 0.0 | 0.1− | 2009 11 17 | G96 | 0.1− | 0.2− | 2009 12 15 | G96 | 0.2+ | 0.9+ |
| 2009 10 21 | 703 | 1.2+ | 1.1+ | 2009 11 17 | G96 | 0.2− | 0.1− | 2009 12 15 | G96 | 0.3+ | 0.1+ |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 2009 10 21 | 703 | 0.6− | 0.3− | 2009 11 17 | G96 | 0.1+ | 0.2− | |
| 2009 10 21 | 703 | 0.8+ | 0.6− | 2009 11 17 | G96 | 0.0 | 0.2− | |

**2009 WO$_{230}$ = 2006 DU$_{175}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 93.08220 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18609680 | $\omega$ | 287.73853 | | +0.92568833 | | +0.37567383 |
| $a$ | 3.0383895 | $\Omega$ | 50.21966 | | −0.32149907 | | +0.84312505 |
| $e$ | 0.1046089 | $i$ | 3.31118 | | −0.19934760 | | +0.38471979 |
| $P$ | 5.30 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 10 12 | 691 | 0.4− | 0.4+ | 2006 02 27 | G96 | 0.0 | 0.4− | 2008 09 03 | J75 | 0.5+ | 0.3− |
| 1998 10 12 | 691 | 0.2− | 0.4+ | 2006 02 27 | G96 | 0.1+ | 0.0 | 2008 09 03 | J75 | 0.2− | 0.3+ |
| 1998 10 12 | 691 | 0.4− | 0.3+ | 2006 02 27 | G96 | 0.0 | 0.0 | 2009 11 09 | G96 | 1.1+ | 0.1− |
| 1998 11 18 | 691 | 0.1+ | 0.3− | 2006 02 27 | G96 | 0.2+ | 0.0 | 2009 11 09 | G96 | 0.9− | 0.9− |
| 1998 11 18 | 691 | (4.4− | 6.0−) | 2006 03 04 | 691 | 0.1+ | 0.4+ | 2009 11 09 | G96 | 1.1+ | 0.6− |
| 1998 11 18 | 691 | 0.1+ | 0.4− | 2006 03 04 | 691 | 0.6+ | 0.1+ | 2009 11 09 | G96 | 0.6+ | 0.1− |
| 2003 09 20 | 599 | 0.6− | 0.1+ | 2006 03 04 | 691 | 0.6+ | 0.5+ | 2009 11 17 | 691 | 0.4− | 0.0 |
| 2003 09 20 | 599 | 0.7+ | 0.3+ | 2007 05 24 | G96 | 0.3− | 0.1+ | 2009 11 17 | 691 | 0.1− | 0.2+ |
| 2003 09 20 | 599 | 0.2− | 0.2− | 2007 05 24 | G96 | 1.0− | 0.2+ | 2009 11 17 | 691 | 0.3− | 0.9− |
| 2003 09 20 | 599 | 0.2− | 0.1+ | 2007 05 24 | G96 | 0.6− | 0.1+ | 2009 11 21 | 691 | 0.1− | 0.2− |
| 2003 11 16 | 645 | 0.0 | 0.1+ | 2007 05 24 | G96 | 0.7− | 0.1+ | 2009 11 21 | 691 | 0.3+ | 0.2+ |
| 2003 11 16 | 645 | 0.1+ | 0.1+ | 2008 09 03 | J75 | 0.1+ | 0.2+ | 2009 11 21 | 691 | 0.2− | 0.0 |

**2009 WB$_{234}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 22.81769 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23528599 | $\omega$ | 0.56017 | | +0.87690298 | | −0.47936228 |
| $a$ | 2.5985954 | $\Omega$ | 28.17038 | | +0.44071164 | | +0.77243061 |
| $e$ | 0.1199881 | $i$ | 4.30003 | | +0.19187085 | | +0.41660863 |
| $P$ | 4.19 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 30 | G96 | 0.1− | 0.6− | 2009 10 13 | J75 | 0.4+ | 0.6+ | 2009 11 18 | 114 | 0.5+ | 0.3− |
| 2005 10 30 | G96 | 0.3+ | 0.6− | 2009 10 24 | 691 | 0.2− | 0.1+ | 2009 11 18 | 114 | 0.6+ | 0.4+ |
| 2005 10 30 | G96 | 0.1− | 0.5− | 2009 10 24 | 691 | 0.5− | 0.0 | 2009 11 18 | 114 | 0.2− | 0.2− |
| 2005 10 30 | G96 | 0.3+ | 0.4− | 2009 10 24 | 691 | 0.2− | 0.2+ | 2009 11 18 | 114 | 0.5− | 0.2+ |
| 2005 11 25 | 691 | 0.1+ | 0.3+ | 2009 11 18 | G96 | 0.0 | 0.3− | 2009 11 21 | 114 | 0.4+ | 0.3+ |
| 2005 11 25 | 691 | 0.1− | 0.2+ | 2009 11 18 | G96 | 0.6+ | 0.2− | 2009 11 21 | 114 | 0.2− | 0.6− |
| 2005 11 25 | 691 | 0.2− | 0.2+ | 2009 11 18 | G96 | 0.1+ | 0.2− | 2009 11 21 | 114 | 0.1+ | 0.8− |
| 2009 10 13 | J75 | 1.0+ | 0.3+ | 2009 11 18 | G96 | 0.0 | 0.1+ | 2009 11 21 | 114 | 0.7+ | 0.4− |
| 2009 10 13 | J75 | 0.0 | 0.2− | 2009 11 18 | 114 | 0.5+ | 0.3− | 2009 11 21 | 114 | 0.4+ | 0.3+ |

**2009 WY$_{234}$ = 2005 UF$_{335}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 40.57518 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.25689293 | $\omega$ | 97.85307 | | +0.97031274 | | −0.15852293 |
| $a$ | 2.4507628 | $\Omega$ | 271.40156 | | +0.07518029 | | +0.91552147 |
| $e$ | 0.2726217 | $i$ | 10.52776 | | +0.22987195 | | +0.36971734 |
| $P$ | 3.84 | $H$ | 17.4 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 08 23 | 699 | 0.2+ | 0.6+ | 2005 10 30 | 644 | 0.5+ | 0.4+ | 2009 11 25 | G96 | 0.3+ | 0.2− |
| 2001 08 23 | 699 | 0.7+ | 1.1+ | 2005 10 30 | 644 | 0.6+ | 0.1+ | 2009 11 25 | G96 | 0.1+ | 0.2− |
| 2001 08 23 | 699 | 0.3+ | 0.5− | 2005 10 30 | 644 | 0.3+ | 0.3+ | 2009 11 25 | G96 | 0.0 | 0.2− |
| 2001 08 23 | 699 | 0.5− | 0.0 | 2005 11 04 | 703 | 0.6− | 0.6+ | 2009 12 09 | J75 | 0.4− | 0.1+ |
| 2001 10 15 | 645 | 0.0 | 0.1− | 2005 11 04 | 703 | 1.0− | 0.1− | 2009 12 09 | J75 | 0.4+ | 0.6+ |
| 2001 10 15 | 645 | 0.0 | 0.1− | 2005 11 04 | 703 | 0.0 | 1.5+ | 2009 12 09 | J75 | 0.1+ | 0.7+ |
| 2005 09 03 | 644 | 0.1− | 0.2+ | 2005 11 04 | 703 | 0.1+ | 0.1+ | 2009 12 15 | 704 | 0.5+ | 0.2+ |
| 2005 09 03 | 644 | 0.3− | 0.1+ | 2009 11 19 | 703 | 0.2+ | 0.5+ | 2009 12 15 | 704 | 0.6+ | 0.8− |
| 2005 09 03 | 644 | 0.1− | 0.2+ | 2009 11 19 | 703 | 0.4+ | 0.2+ | 2009 12 15 | 704 | 1.1− | 0.2+ |
| 2005 09 03 | 644 | 0.3− | 0.1+ | 2009 11 19 | 703 | 0.1+ | 0.1− | 2009 12 15 | 704 | 0.0 | 1.4− |
| 2005 09 03 | 644 | 0.5− | 0.1+ | 2009 11 19 | 703 | 1.1− | 0.8− | 2009 12 19 | G96 | 0.4− | 0.2− |
| 2005 09 03 | 644 | 0.4− | 0.2− | 2009 11 24 | D29 | 0.2+ | 0.1+ | 2009 12 19 | G96 | 0.3− | 0.2− |
| 2005 10 11 | 699 | 0.0 | 0.3− | 2009 11 24 | D29 | 0.1+ | 0.1+ | 2009 12 19 | G96 | 0.2− | 0.1+ |
| 2005 10 11 | 699 | 0.5+ | 0.2+ | 2009 11 24 | D29 | 0.1− | 0.0 | 2009 12 19 | G96 | 0.1+ | 0.2− |
| 2005 10 11 | 699 | 0.4+ | 0.4− | 2009 11 24 | D29 | 0.0 | 0.4+ | | | | |
| 2005 10 11 | 699 | 0.4+ | 0.4+ | 2009 11 25 | G96 | 0.1− | 0.1− | | | | |

**2009 WF$_{235}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 328.51065 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.19075601 | $\omega$ | 44.46333 | | −0.15390640 | | −0.97743253 |
| $a$ | 2.9887109 | $\Omega$ | 54.91421 | | +0.85012952 | | −0.20562702 |
| $e$ | 0.0080962 | $i$ | 10.18536 | | +0.50357981 | | +0.04840638 |
| $P$ | 5.17 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 11 18 | 599 | 0.1− | 0.3+ | 2009 10 11 | G96 | 0.2− | 0.1+ | 2009 11 20 | 691 | 0.3+ | 0.2+ |
| 2004 11 18 | 599 | 0.2− | 0.2+ | 2009 10 11 | G96 | 0.3− | 0.0 | 2009 11 20 | 691 | 0.1+ | 0.0 |
| 2004 11 18 | 599 | 0.1+ | 0.1+ | 2009 10 27 | 691 | 0.2− | 0.1+ | 2009 11 24 | 691 | 1.3− | 0.4− |
| 2004 11 18 | 599 | 0.1− | 0.2− | 2009 10 27 | 691 | 0.0 | 0.1− | 2009 11 24 | 691 | 0.5+ | 0.1− |
| 2004 12 09 | 691 | 0.1+ | 0.1− | 2009 10 27 | 691 | 0.1− | 0.1− | 2009 11 24 | 691 | 0.2+ | 0.3+ |
| 2004 12 09 | 691 | 0.0 | 0.1+ | 2009 11 08 | 691 | 0.0 | 0.7+ | 2009 12 17 | G96 | 0.2+ | 0.1+ |
| 2004 12 09 | 691 | 0.0 | 0.0 | 2009 11 08 | 691 | 0.0 | 0.1− | 2009 12 17 | G96 | 0.1+ | 0.2− |
| 2009 10 11 | G96 | 0.2− | 0.0 | 2009 11 08 | 691 | 0.1− | 0.5− | 2009 12 17 | G96 | 0.2+ | 0.1− |
| 2009 10 11 | G96 | 0.3+ | 0.4− | 2009 11 20 | 691 | 0.3+ | 0.3+ | 2009 12 17 | G96 | 0.3+ | 0.1− |

**2009 WE$_{237}$ = 2003 QZ$_{21}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 292.62352 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.19652223 | $\omega$ | 302.48061 | | −0.79559916 | | −0.60391466 |
| $a$ | 2.9299593 | $\Omega$ | 200.49639 | | +0.59163916 | | −0.75746055 |
| $e$ | 0.0239296 | $i$ | 7.88789 | | +0.13032684 | | −0.24807376 |
| $P$ | 5.02 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 09 30 | 691 | 0.1+ | 0.5+ | 2006 02 22 | 699 | 1.2+ | 1.0+ | 2008 11 17 | 291 | 0.3− | 0.3− |
| 1998 09 30 | 691 | 0.8− | 1.2+ | 2006 02 22 | 699 | 0.1+ | 0.3− | 2009 11 16 | J75 | 0.7+ | 0.5+ |
| 1998 09 30 | 691 | 0.5− | 0.1− | 2006 02 22 | 699 | 1.1− | 1.2+ | 2009 11 16 | J75 | 0.6− | 0.5+ |
| 2001 02 22 | 645 | 0.1+ | 0.2+ | 2006 02 22 | 699 | 0.1− | 0.9+ | 2009 11 16 | J75 | 0.4− | 0.2+ |
| 2001 02 22 | 645 | 0.1+ | 0.2+ | 2007 06 09 | 703 | 1.1+ | 1.4+ | 2009 11 25 | G96 | 0.2+ | 0.1− |
| 2003 08 20 | 644 | 0.2+ | 0.2+ | 2007 06 09 | 703 | 0.6− | 0.4+ | 2009 11 25 | G96 | 0.0 | 0.1+ |
| 2003 08 20 | 644 | 0.0 | 0.5+ | 2007 06 09 | 703 | 0.7− | 0.2+ | 2009 11 25 | G96 | 0.2− | 0.2+ |
| 2003 08 20 | 644 | 0.0 | 0.1+ | 2007 06 09 | 703 | 0.2+ | 0.8+ | 2009 11 25 | G96 | 0.2+ | 0.1+ |
| 2003 08 24 | 704 | 0.5− | 1.2+ | 2008 10 01 | 703 | 0.8+ | 1.3+ | 2009 12 17 | F84 | 0.0 | 0.0 |
| 2003 08 24 | 704 | 0.2+ | 0.2− | 2008 10 01 | 703 | (0.1+ | 1.5+) | 2009 12 17 | F84 | 0.6− | 0.1− |
| 2003 08 24 | 704 | 0.6− | 0.1− | 2008 10 01 | 703 | (0.1− | 2.1+) | 2009 12 17 | F84 | 0.0 | 0.3+ |
| 2003 09 23 | 644 | 0.3+ | 0.2+ | 2008 10 01 | 703 | (1.0+ | 2.5+) | 2009 12 18 | F85 | 0.1+ | 0.1− |
| 2003 09 23 | 644 | 0.3+ | 0.6+ | 2008 11 02 | 291 | 0.0 | 0.1− | 2009 12 18 | F85 | 0.1+ | 0.1+ |
| 2003 09 23 | 644 | 0.0 | 0.4+ | 2008 11 02 | 291 | 0.0 | 0.1+ | 2009 12 18 | F85 | 0.6− | 0.3+ |
| 2003 09 27 | 691 | 0.3+ | 0.0 | 2008 11 02 | 291 | 0.0 | 0.1− | 2009 12 19 | F85 | 0.0 | 0.0 |
| 2003 09 27 | 691 | 0.3+ | 0.0 | 2008 11 17 | 291 | 0.2− | 0.1+ | 2009 12 19 | F85 | 0.2+ | 0.1+ |
| 2003 09 27 | 691 | 0.4+ | 0.0 | 2008 11 17 | 291 | 0.2− | 0.2+ | 2009 12 19 | F85 | 0.3+ | 0.2+ |

**2009 WJ$_{237}$ = 2006 AF$_{46}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 3.51377 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.22059010 | $\omega$ | 165.04280 | | +0.37684068 | | −0.92346146 |
| $a$ | 2.7127641 | $\Omega$ | 262.77709 | | +0.84219916 | | +0.37403271 |
| $e$ | 0.0454372 | $i$ | 4.17241 | | +0.38560560 | | +0.08554808 |
| $P$ | 4.47 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 11 26 | 691 | 0.2+ | 0.1− | 2006 01 09 | G96 | 0.2− | 0.2− | 2009 11 25 | 691 | 0.4+ | 0.1+ |
| 2000 11 26 | 691 | 0.0 | 0.5− | 2006 01 09 | 691 | 0.2− | 0.0 | 2009 11 25 | 691 | 0.1+ | 0.0 |
| 2000 11 26 | 691 | 0.1− | 0.3− | 2006 01 09 | 691 | 0.0 | 0.1+ | 2009 11 25 | 691 | 0.1− | 0.1− |
| 2005 12 28 | 691 | 0.2+ | 0.1+ | 2006 02 04 | G96 | 0.5+ | 0.3− | 2009 12 18 | G96 | 0.5+ | 0.1− |
| 2005 12 28 | 691 | 0.3+ | 0.2+ | 2006 02 04 | G96 | 0.8+ | 0.2+ | 2009 12 18 | G96 | 0.0 | 0.0 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 28 | 691 | 0.3+ | 0.1− | 2006 02 04 | G96 | 0.5+ | 0.2− | 2009 12 18 | G96 | 0.2+ | 0.0 |
| 2006 01 05 | 691 | 0.1+ | 0.1− | 2006 02 04 | G96 | 0.1+ | 0.2− | 2009 12 18 | G96 | 0.2+ | 0.1+ |
| 2006 01 05 | 691 | 0.2− | 0.2− | 2007 04 15 | 691 | 0.0 | 0.1− | 2009 12 19 | G96 | 0.8+ | 0.7+ |
| 2006 01 05 | 691 | 0.0 | 0.2+ | 2007 04 15 | 691 | 0.1+ | 0.1− | 2009 12 19 | G96 | 0.2+ | 0.3+ |
| 2006 01 09 | G96 | 0.8− | 0.0 | 2007 04 15 | 691 | 0.0 | 0.1+ | 2009 12 19 | G96 | 0.2+ | 0.0 |
| 2006 01 09 | G96 | 0.2− | 0.1− | 2009 11 17 | 691 | 1.1− | 0.1− | 2009 12 19 | G96 | 0.6+ | 0.3+ |
| 2006 01 09 | 691 | 0.4− | 0.1+ | 2009 11 17 | 691 | 0.2+ | 0.4+ | | | | |
| 2006 01 09 | G96 | 0.3− | 0.5− | 2009 11 17 | 691 | 0.3− | 0.4+ | | | | |

**2009 WA$_{238}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 41.20470 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24810884 | $\omega$ | 353.73314 | | +0.82882116 | −0.55795586 | |
| $a$ | 2.5082716 | $\Omega$ | 40.27396 | | +0.51610547 | +0.73359309 | |
| $e$ | 0.0949847 | $i$ | 3.70052 | | +0.21608016 | +0.38797738 | |
| $P$ | 3.97 | $H$ | 17.4 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 03 22 | 645 | 0.0 | 0.1+ | 2005 11 29 | 691 | 0.6+ | 0.6+ | 2009 12 11 | G96 | 0.5+ | 0.4− |
| 1999 03 22 | 645 | 0.0 | 0.0 | 2009 11 17 | 691 | 0.4− | 0.1+ | 2009 12 11 | G96 | 0.4+ | 0.8− |
| 2005 10 28 | G96 | 0.1− | 0.3− | 2009 11 17 | 691 | 0.1+ | 0.2+ | 2009 12 11 | G96 | 0.8+ | 0.5− |
| 2005 10 28 | G96 | 0.3− | 0.1+ | 2009 11 17 | 691 | 0.2− | 0.5− | 2009 12 18 | G96 | 0.1− | 0.1− |
| 2005 10 28 | G96 | 0.2− | 0.2− | 2009 11 25 | 691 | 0.2+ | 0.3− | 2009 12 18 | G96 | 0.1− | 0.2− |
| 2005 10 28 | G96 | 0.2+ | 0.2+ | 2009 11 25 | 691 | 0.2− | 0.3− | 2009 12 18 | G96 | 0.3+ | 0.3− |
| 2005 11 29 | 691 | 0.1+ | 0.6+ | 2009 11 25 | 691 | 0.3+ | 0.1− | 2009 12 18 | G96 | 0.7− | 0.6− |
| 2005 11 29 | 691 | 0.9− | 0.5+ | 2009 12 11 | G96 | 0.7+ | 0.5− | | | | |

**2009 WO$_{239}$ = 2005 CJ$_3$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 9.02492 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18373634 | $\omega$ | 1.43007 | | +0.32731679 | −0.94226471 | |
| $a$ | 3.0643569 | $\Omega$ | 69.46798 | | +0.86619088 | +0.26929907 | |
| $e$ | 0.3203094 | $i$ | 4.33077 | | +0.37759380 | +0.19903574 | |
| $P$ | 5.36 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 02 01 | 691 | 0.2+ | 0.0 | 2009 11 25 | 691 | 0.2− | 0.1− | 2009 12 10 | G96 | 0.0 | 0.1− |
| 2005 02 01 | 691 | 0.1− | 0.1− | 2009 11 25 | 691 | 0.0 | 0.3+ | 2009 12 12 | J75 | 0.7− | 0.2+ |
| 2005 02 01 | 691 | 0.1− | 0.2+ | 2009 11 25 | 691 | 0.2+ | 0.2− | 2009 12 12 | J75 | 0.1+ | 0.2− |
| 2005 02 02 | 691 | 0.1− | 0.2− | 2009 12 09 | J75 | 0.0 | 0.6− | 2009 12 12 | J75 | 0.4+ | 0.8+ |
| 2005 02 02 | 691 | 0.1− | 0.0 | 2009 12 09 | J75 | 0.1− | 0.2− | 2009 12 12 | J75 | 0.4+ | 1.0+ |
| 2005 02 02 | 691 | 0.2+ | 0.1+ | 2009 12 09 | J75 | 0.0 | 0.0 | 2009 12 12 | J75 | 0.2+ | 0.0 |
| 2009 11 17 | 691 | 0.0 | 0.1− | 2009 12 10 | G96 | 0.1− | 0.1− | 2009 12 12 | J75 | 0.2− | 0.5+ |
| 2009 11 17 | 691 | 0.1+ | 0.2+ | 2009 12 10 | G96 | 0.7− | 0.6− | | | | |
| 2009 11 17 | 691 | 0.1− | 0.1− | 2009 12 10 | G96 | 0.7+ | 0.9− | | | | |

**2009 WR$_{243}$ = 2007 DT$_{17}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 35.67606 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.28139540 | $\omega$ | 56.53480 | | +0.83151712 | −0.55519247 | |
| $a$ | 2.3063474 | $\Omega$ | 337.17249 | | +0.49257253 | +0.75227573 | |
| $e$ | 0.2075475 | $i$ | 2.72665 | | +0.25681041 | +0.35474293 | |
| $P$ | 3.50 | $H$ | 18.1 | $G$ | 0.15 | $U$ | 5 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 02 17 | 691 | 0.4− | 0.5+ | 2007 02 21 | G96 | 0.3+ | 0.5− | 2009 12 10 | 704 | 1.2+ | 1.1− |
| 2007 02 17 | 691 | 0.3− | 0.1− | 2007 02 21 | G96 | 0.0 | 0.5− | 2009 12 10 | 704 | (2.1+ | 0.1+) |
| 2007 02 17 | 691 | 0.1− | 0.1+ | 2007 02 21 | G96 | 0.1+ | 0.7− | 2009 12 10 | 704 | 0.9+ | 1.0− |
| 2007 02 21 | 691 | 0.0 | 0.1+ | 2007 02 21 | G96 | 0.3+ | 0.6− | 2009 12 10 | 704 | (2.0+ | 0.6+) |
| 2007 02 21 | 691 | 0.1− | 0.3− | 2009 11 19 | 691 | 0.2+ | 0.2+ | 2009 12 13 | G96 | 0.1− | 0.1+ |
| 2007 02 21 | 691 | 0.6+ | 0.7+ | 2009 11 19 | 691 | 0.4+ | 0.2+ | 2009 12 13 | G96 | 0.2− | 0.2+ |
| 2007 02 21 | G96 | 0.3+ | 0.4− | 2009 11 19 | 691 | 0.7− | 0.2− | 2009 12 13 | G96 | 0.3− | 0.4+ |
| 2007 02 21 | G96 | 0.3+ | 0.3− | 2009 11 27 | 691 | 0.1− | 0.0 | 2009 12 13 | G96 | 0.5− | 0.2+ |
| 2007 02 21 | G96 | 0.0 | 0.3− | 2009 11 27 | 691 | 0.2+ | 0.1+ | | | | |
| 2007 02 21 | G96 | 0.4− | 0.8− | 2009 11 27 | 691 | 0.2− | 0.0 | | | | |

**2009 WN$_{244}$ = 6015 P-L**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 25.67002 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24280039 | $\omega$ | 198.47327 | | +0.66603115 | −0.74499859 | |
| $a$ | 2.5446993 | $\Omega$ | 209.79907 | | +0.69344715 | +0.63675357 | |
| $e$ | 0.2454672 | $i$ | 4.28632 | | +0.27483368 | +0.19880139 | |
| $P$ | 4.06 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 5 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1960 09 24 | 675 | 0.2− | 0.1+ | 2009 11 27 | 691 | 0.2− | 0.0 | 2009 12 15 | 703 | 0.2− | 0.1+ |
| 1960 09 24 | 675 | 0.3+ | 0.5+ | 2009 11 27 | 691 | 0.1+ | 0.2+ | 2009 12 15 | 703 | 0.9− | 1.0− |
| 1960 09 26 | 675 | 0.1− | 0.5− | 2009 11 27 | 691 | 0.2+ | 0.1− | 2009 12 17 | G96 | 0.3+ | 0.1+ |
| 1960 09 26 | 675 | 0.1− | 0.2+ | 2009 12 13 | G96 | 0.1+ | 0.1+ | 2009 12 17 | G96 | 0.3+ | 0.2+ |
| 1960 09 28 | 675 | 0.0 | 0.2− | 2009 12 13 | G96 | (2.0− | 1.1+) | 2009 12 17 | G96 | 0.2+ | 0.1+ |
| 1960 09 28 | 675 | 0.1+ | 0.0 | 2009 12 13 | G96 | 0.4+ | 1.4+ | 2009 12 17 | G96 | 0.1+ | 0.1+ |
| 2009 11 19 | 691 | 0.1− | 0.2− | 2009 12 13 | G96 | 0.1− | 0.2+ | 2009 12 17 | G96 | 0.0 | 0.1+ |
| 2009 11 19 | 691 | 0.0 | 0.1− | 2009 12 13 | G96 | 0.2+ | 0.0 | | | | |
| 2009 11 19 | 691 | 0.1− | 0.1+ | 2009 12 15 | 703 | 0.4− | 0.9− | | | | |

**2009 WN$_{245}$ = 2005 YS$_{101}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 23.27819 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.23835304 | $\omega$ | 139.76098 | | +0.67930537 | −0.73296894 | |
| $a$ | 2.5762554 | $\Omega$ | 267.41678 | | +0.66368263 | +0.63457829 | |
| $e$ | 0.2258497 | $i$ | 2.06898 | | +0.31316063 | +0.24508555 | |
| $P$ | 4.14 | $H$ | 18.6 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 25 | 691 | 0.4− | 0.1+ | 2009 11 21 | 691 | 0.3+ | 0.1− | 2009 12 10 | G96 | 0.1− | 0.5− |
| 2005 12 25 | 691 | 0.2+ | 0.2− | 2009 11 25 | 291 | 0.1+ | 0.2+ | 2009 12 10 | G96 | 0.2+ | 0.2+ |
| 2005 12 25 | 691 | 0.0 | 0.1+ | 2009 11 25 | 291 | 0.1− | 0.2+ | 2009 12 10 | G96 | 0.2+ | 0.1+ |
| 2005 12 29 | 691 | 0.2− | 0.2− | 2009 11 25 | 291 | 0.2− | 0.1+ | 2009 12 15 | G96 | 0.4− | 0.2− |
| 2005 12 29 | 691 | 0.5+ | 0.0 | 2009 11 25 | 291 | 0.2− | 0.2− | 2009 12 15 | G96 | 0.2− | 0.4+ |
| 2005 12 29 | 691 | 0.0 | 0.3+ | 2009 11 25 | 291 | 0.3− | 0.0 | 2009 12 15 | G96 | 0.5+ | 0.3− |
| 2009 11 21 | 691 | 0.1+ | 0.1− | 2009 11 25 | 291 | 0.2− | 0.0 | 2009 12 15 | G96 | 0.3+ | 0.1− |
| 2009 11 21 | 691 | 0.3+ | 0.1− | 2009 12 10 | G96 | 0.2+ | 0.4+ | | | | |

**2009 WZ$_{247}$ = 2004 XR$_{51}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 14.90578 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.20193769 | $\omega$ | 353.34648 | | +0.36385134 | −0.91428499 | |
| $a$ | 2.8773396 | $\Omega$ | 75.19873 | | +0.86285770 | +0.25884952 | |
| $e$ | 0.1045059 | $i$ | 10.61109 | | +0.35084012 | +0.31157644 | |
| $P$ | 4.88 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1997 05 05 | 691 | 0.2− | 0.4+ | 2004 12 14 | 599 | 0.4+ | 0.2− | 2009 12 11 | G96 | 0.4− | 0.2− |
| 1997 05 05 | 691 | 0.4− | 0.5+ | 2009 11 16 | 691 | 0.8+ | 0.8− | 2009 12 11 | G96 | 0.2− | 0.2− |
| 1997 05 05 | 691 | 0.5− | 0.2+ | 2009 11 16 | 691 | 0.4− | 0.2+ | 2009 12 11 | G96 | 0.2− | 0.2− |
| 1997 05 29 | 691 | 0.1+ | 0.8− | 2009 11 16 | 691 | 0.1− | 0.2− | 2009 12 16 | 704 | 0.0 | 0.6+ |
| 1997 05 29 | 691 | 0.9+ | 0.4− | 2009 11 25 | 691 | 0.5− | 0.8+ | 2009 12 16 | 704 | 0.5+ | 0.2+ |
| 1997 05 29 | 691 | 0.1+ | 0.0 | 2009 11 25 | 691 | 0.1+ | 0.0 | 2009 12 16 | 704 | 0.1+ | 0.9− |
| 2004 12 10 | 704 | 0.2+ | 0.3− | 2009 11 25 | 691 | 0.0 | 0.1+ | 2009 12 20 | G96 | 0.1+ | 0.3+ |
| 2004 12 10 | 704 | 0.5− | 0.2− | 2009 12 10 | G96 | 0.3+ | 0.1+ | 2009 12 20 | G96 | 0.1+ | 0.1− |
| 2004 12 10 | 704 | 0.2− | 0.2− | 2009 12 10 | G96 | 0.2− | 0.2+ | 2009 12 20 | G96 | 0.5+ | 0.1− |
| 2004 12 14 | 599 | 0.2+ | 0.1+ | 2009 12 10 | G96 | 0.1+ | 0.1+ | 2009 12 20 | G96 | 0.0 | 0.1− |
| 2004 12 14 | 599 | 0.0 | 0.0 | 2009 12 10 | G96 | (0.0 | 1.6+) | | | | |
| 2004 12 14 | 599 | 0.1+ | 0.1+ | 2009 12 11 | G96 | 0.1+ | 0.4− | | | | |

**2009 WB$_{248}$ = 2001 UX$_{57}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 4.64889 | | (2000.0) | | | |
| $n$ | 0.25195277 | $\omega$ | 80.61567 | | +0.29514915 | −0.95543933 |
| $a$ | 2.4826946 | $\Omega$ | 352.21290 | | +0.86224003 | +0.26849889 |
| $e$ | 0.2171084 | $i$ | 2.01395 | | +0.41161769 | +0.12265414 |
| $P$ | 3.91 | $H$ | 17.4 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 10 17 | 704 | 0.0 | 0.0 | 2005 11 04 | 691 | 0.1+ | 0.3− | 2009 11 25 | 703 | 0.8− | 0.3+ | |
| 2001 10 17 | 704 | 0.4+ | 0.9+ | 2005 11 04 | 691 | 0.2+ | 0.4− | 2009 11 25 | 703 | 0.2+ | 0.0 | |
| 2001 10 17 | 704 | 0.2+ | 0.2+ | 2009 11 09 | 691 | 0.0 | 0.1− | 2009 12 06 | J75 | 0.2− | 0.2− | |
| 2001 10 17 | 704 | 0.6+ | 1.1+ | 2009 11 09 | 691 | 0.1+ | 0.0 | 2009 12 06 | J75 | 0.5− | 0.1+ | |
| 2001 10 19 | 644 | 0.2+ | 0.5− | 2009 11 09 | 691 | 0.2+ | 0.2+ | 2009 12 06 | J75 | 0.3− | 0.1+ | |
| 2001 10 19 | 644 | 0.2+ | 0.3− | 2009 11 17 | 691 | 0.2− | 0.1+ | 2009 12 16 | 704 | 0.2− | 0.1+ | |
| 2001 10 19 | 644 | 0.2− | 0.2− | 2009 11 17 | 691 | 0.5− | 0.1+ | 2009 12 16 | 704 | 0.4− | 0.1− | |
| 2001 10 21 | 704 | 0.5− | 0.7+ | 2009 11 17 | 691 | 0.4− | 0.1+ | 2009 12 16 | 704 | 0.9+ | 1.2+ | |
| 2001 10 21 | 704 | 0.6− | 0.5+ | 2009 11 17 | 291 | 0.0 | 0.2− | 2009 12 16 | 704 | 0.1− | 0.7+ | |
| 2001 10 21 | 704 | 1.1− | 0.5+ | 2009 11 17 | 291 | 0.2+ | 0.3− | 2009 12 16 | G96 | 0.3− | 0.3− | |
| 2001 10 21 | 704 | 0.1+ | 0.0 | 2009 11 17 | 291 | 0.2+ | 0.2− | 2009 12 16 | G96 | 0.1− | 0.2− | |
| 2001 10 21 | 704 | 1.0− | 0.3+ | 2009 11 24 | J75 | 0.2+ | 0.7− | 2009 12 16 | G96 | 0.5− | 0.3− | |
| 2005 10 29 | 703 | 0.6− | 1.3− | 2009 11 24 | J75 | 0.9+ | 0.4− | 2009 12 16 | G96 | 0.3− | 0.3− | |
| 2005 10 29 | 703 | 0.6+ | 0.1+ | 2009 11 24 | J75 | 0.1+ | 0.8+ | 2009 12 19 | 291 | 0.1− | 0.1+ | |
| 2005 10 29 | 703 | 0.1+ | 0.0 | 2009 11 25 | 703 | 0.8+ | 0.7+ | 2009 12 19 | 291 | 0.1+ | 0.1+ | |
| 2005 10 29 | 703 | 0.2+ | 0.5+ | 2009 11 25 | 703 | 0.2+ | 0.1+ | 2009 12 19 | 291 | 0.3+ | 0.2+ | |
| 2005 11 04 | 691 | 0.1+ | 0.3− | 2009 11 25 | 703 | 0.3+ | 0.4+ | | | | | |

**2009 WV$_{248}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 110.09460 | | (2000.0) | | | |
| $n$ | 0.18473367 | $\omega$ | 211.01073 | | +0.80037171 | +0.57428684 |
| $a$ | 3.0533178 | $\Omega$ | 112.96094 | | −0.50460499 | +0.80029078 |
| $e$ | 0.0433479 | $i$ | 10.76899 | | −0.32369573 | +0.17242187 |
| $P$ | 5.34 | $H$ | 15.0 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 03 19 | 645 | 0.1− | 0.1+ | 2005 03 11 | G96 | 0.7− | 0.1− | 2008 09 06 | 703 | 0.4+ | 1.2+ | |
| 2001 03 19 | 645 | 0.1− | 0.0 | 2005 03 11 | G96 | 0.4− | 0.2+ | 2008 09 06 | 703 | 0.0 | 0.4+ | |
| 2003 09 28 | 699 | 0.8− | 1.0+ | 2005 03 11 | G96 | 0.0 | 0.1− | 2009 11 17 | 703 | 1.7− | 0.0 | |
| 2003 09 28 | 699 | 0.6+ | 1.4+ | 2006 02 23 | 699 | 0.6+ | 1.3+ | 2009 11 17 | 703 | 0.4− | 0.6+ | |
| 2003 09 28 | 699 | 0.6+ | 0.1+ | 2006 02 23 | 699 | 0.5+ | 0.0 | 2009 11 17 | 703 | 0.9− | 0.2+ | |
| 2003 09 28 | 699 | 0.8− | 0.5+ | 2006 02 23 | 699 | 0.8+ | 0.6− | 2009 11 17 | 703 | 0.6− | 0.0 | |
| 2003 10 18 | 699 | 0.4− | 0.4− | 2006 02 23 | 699 | (2.2+ | 3.5+) | 2009 11 27 | G96 | 0.6− | 0.2− | |
| 2003 10 18 | 699 | 0.4+ | 0.4− | 2006 03 03 | 703 | 0.5− | 0.9+ | 2009 11 27 | G96 | 0.3− | 0.0 | |
| 2003 10 18 | 699 | 0.1− | 0.9− | 2006 03 03 | 703 | 0.2− | 0.3+ | 2009 11 27 | G96 | 0.0 | 0.0 | |
| 2003 10 18 | 699 | 1.0− | 0.1+ | 2006 03 03 | 703 | 1.5+ | 0.7+ | 2009 11 27 | G96 | 0.2+ | 0.0 | |
| 2004 12 02 | 691 | 0.3+ | 0.5− | 2006 03 03 | 703 | 0.2+ | 0.2− | 2009 11 27 | G96 | 0.1− | 0.3− | |
| 2004 12 02 | 691 | 0.2+ | 0.3+ | 2008 08 06 | E12 | 0.3− | 0.2− | 2009 12 11 | 703 | 0.1− | 0.8− | |
| 2004 12 02 | 691 | 0.3+ | 0.2− | 2008 08 06 | E12 | 0.5+ | 0.7+ | 2009 12 11 | 703 | 0.2− | 0.6− | |
| 2004 12 15 | 691 | 0.2+ | 0.2+ | 2008 08 06 | E12 | 0.8− | 0.4+ | 2009 12 11 | 703 | 0.7− | 0.1− | |
| 2004 12 15 | 691 | 0.3+ | 0.2+ | 2008 08 06 | E12 | 0.6− | 0.0 | 2009 12 11 | 703 | 0.2− | 0.4− | |
| 2004 12 15 | 691 | 0.3+ | 0.1+ | 2008 09 06 | 703 | 1.0+ | 1.4+ | | | | | |
| 2005 03 11 | G96 | 0.1− | 0.0 | 2008 09 06 | 703 | 0.2+ | 2.4+ | | | | | |

**2009 WK$_{249}$ = 2005 XY$_{35}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 30.13327 | | (2000.0) | | | |
| $n$ | 0.24280713 | $\omega$ | 144.71072 | | +0.72186878 | −0.66188602 |
| $a$ | 2.5446522 | $\Omega$ | 258.06233 | | +0.57797110 | +0.73718160 |
| $e$ | 0.1765191 | $i$ | 11.91652 | | +0.38059805 | +0.13590503 |
| $P$ | 4.06 | $H$ | 16.6 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 12 04 | 704 | 1.2+ | 0.3− | 2009 12 06 | J75 | 0.3+ | 0.2− | 2009 12 10 | G96 | 0.1+ | 0.0 | |
| 2005 12 04 | 704 | (1.7+ | 1.3−) | 2009 12 07 | J75 | 0.0 | 0.1+ | 2009 12 10 | G96 | 0.1− | 0.1− | |
| 2005 12 04 | 704 | 0.2+ | 0.3− | 2009 12 07 | J75 | 0.3+ | 0.9− | 2009 12 16 | 704 | 0.0 | 0.4− | |
| 2005 12 04 | 704 | 0.4− | 0.2− | 2009 12 07 | J75 | 0.3− | 0.3+ | 2009 12 16 | 704 | 0.1+ | 0.3+ | |
| 2005 12 08 | 691 | 0.0 | 0.1+ | 2009 12 08 | J75 | 0.0 | 0.4− | 2009 12 16 | 704 | 0.9+ | 1.1+ | |
| 2005 12 08 | 691 | 0.1+ | 0.2+ | 2009 12 08 | J75 | 0.3− | 0.4+ | 2009 12 16 | 704 | 0.3− | 0.5− | |
| 2005 12 08 | 691 | 0.3− | 0.0 | 2009 12 08 | J75 | 0.3− | 0.6− | 2009 12 19 | G96 | 0.2− | 0.3+ | |
| 2009 11 21 | 691 | 0.1− | 0.0 | 2009 12 09 | J75 | 0.9+ | 0.4− | 2009 12 19 | G96 | 0.0 | 0.2+ | |
| 2009 11 21 | 691 | 0.1− | 0.0 | 2009 12 09 | J75 | 0.2+ | 0.1− | 2009 12 19 | G96 | 0.6− | 0.3+ | |
| 2009 11 21 | 691 | 0.0 | 0.2+ | 2009 12 09 | J75 | 0.2+ | 0.3− | 2009 12 19 | G96 | 0.4− | 0.1+ | |
| 2009 12 06 | J75 | 0.3+ | 0.1− | 2009 12 10 | G96 | 0.0 | 0.1− | | | | | |
| 2009 12 06 | J75 | 0.1+ | 0.1+ | 2009 12 10 | G96 | 0.1− | 0.1+ | | | | | |

**2009 WL$_{249}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 1.10720 | | (2000.0) | | | |
| $n$ | 0.21505119 | $\omega$ | 175.21651 | | +0.19591780 | −0.97797163 |
| $a$ | 2.7591469 | $\Omega$ | 263.47241 | | +0.89727971 | +0.20841427 |
| $e$ | 0.0679868 | $i$ | 4.15734 | | +0.39560756 | +0.01161798 |
| $P$ | 4.58 | $H$ | 15.9 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 10 04 | 691 | 0.0 | 0.1− | 2009 10 26 | G96 | 0.0 | 0.3− | 2009 12 06 | J75 | 0.5+ | 0.2− | |
| 2004 10 04 | 691 | 0.1− | 0.1− | 2009 10 26 | G96 | 0.1+ | 0.1+ | 2009 12 06 | J75 | 0.4+ | 0.1+ | |
| 2004 10 04 | 691 | 0.1+ | 0.1+ | 2009 11 08 | G96 | 0.3+ | 0.1− | 2009 12 06 | J75 | 0.7+ | 0.4+ | |
| 2004 11 04 | 703 | 0.5− | 0.5+ | 2009 11 08 | G96 | 0.0 | 0.3− | 2009 12 15 | G96 | 0.0 | 0.2− | |
| 2004 11 04 | 703 | 0.9+ | 0.3+ | 2009 11 08 | G96 | 0.4+ | 0.1− | 2009 12 15 | G96 | 0.3+ | 0.0 | |
| 2004 11 04 | 703 | 0.6− | 0.2+ | 2009 11 08 | G96 | 0.0 | 0.2− | 2009 12 15 | G96 | 0.1+ | 0.1− | |
| 2004 11 04 | 703 | 0.2+ | 0.4− | 2009 11 25 | 691 | 0.1− | 0.1+ | 2009 12 15 | G96 | 0.1− | 0.1+ | |
| 2009 10 26 | G96 | 0.2− | 0.2+ | 2009 11 25 | 691 | 0.1− | 0.2− | | | | | |
| 2009 10 26 | G96 | 0.2− | 0.1− | 2009 11 25 | 691 | 0.4− | 0.2+ | | | | | |

**2009 WU$_{249}$ = 2003 UJ$_{319}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 71.91408 | | (2000.0) | | | |
| $n$ | 0.17905221 | $\omega$ | 287.51103 | | +0.97229388 | +0.16055120 |
| $a$ | 3.1175703 | $\Omega$ | 63.53417 | | −0.06372512 | +0.88134688 |
| $e$ | 0.1556128 | $i$ | 10.94089 | | −0.22490826 | +0.44435457 |
| $P$ | 5.50 | $H$ | 16.2 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 30 | 645 | 0.0 | 0.0 | 2007 05 10 | 691 | 0.1+ | 0.1− | 2009 11 25 | 691 | 0.4− | 0.3+ | |
| 2003 09 30 | 645 | 0.1− | 0.0 | 2007 05 10 | 691 | 0.1+ | 0.1+ | 2009 11 25 | 691 | 0.1+ | 0.1− | |
| 2003 10 20 | 704 | 1.2+ | 0.6− | 2007 05 10 | 691 | 0.2+ | 0.2− | 2009 11 25 | 691 | 0.2+ | 0.1+ | |
| 2003 10 20 | 704 | (1.7+ | 0.1−) | 2008 08 02 | E12 | 0.0 | 0.3+ | 2009 12 11 | G96 | 0.3+ | 0.3− | |
| 2003 10 20 | 704 | 0.6+ | 0.6+ | 2008 08 02 | E12 | 0.3+ | 0.4+ | 2009 12 11 | G96 | 0.2+ | 0.1+ | |
| 2003 10 20 | 704 | 1.1+ | 0.3− | 2008 08 02 | E12 | 0.2− | 0.9− | 2009 12 11 | G96 | 0.4+ | 0.0 | |
| 2003 10 22 | 645 | 0.0 | 0.0 | 2009 09 30 | G96 | 0.5+ | 0.0 | 2009 12 11 | G96 | 0.3+ | 0.1− | |
| 2003 10 22 | 645 | 0.0 | 0.0 | 2009 09 30 | G96 | 0.1− | 0.3− | 2009 12 18 | G96 | 0.4+ | 0.0 | |
| 2003 10 23 | 645 | 0.0 | 0.0 | 2009 09 30 | G96 | 0.7− | 0.1+ | 2009 12 18 | G96 | 0.2+ | 0.0 | |
| 2003 10 23 | 645 | 0.0 | 0.0 | 2009 09 30 | G96 | 0.2+ | 0.1− | 2009 12 18 | G96 | 0.0 | 0.4− | |
| 2007 04 22 | 691 | 0.0 | 0.5+ | 2009 11 17 | 691 | 0.8− | 0.4+ | 2009 12 18 | G96 | 0.4+ | 0.1− | |
| 2007 04 22 | 691 | 0.2− | 0.2− | 2009 11 17 | 691 | 0.2+ | 0.2− | | | | | |
| 2007 04 22 | 691 | 0.2− | 0.1− | 2009 11 17 | 691 | 0.1+ | 0.1− | | | | | |

**2009 WX$_{249}$ = 2006 DQ$_{178}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 252.39497 | | (2000.0) | | | |
| $n$ | 0.19488915 | $\omega$ | 79.59038 | | −0.97561881 | +0.21389141 |
| $a$ | 2.9463043 | $\Omega$ | 112.74621 | | −0.21638979 | −0.90003814 |
| $e$ | 0.0610497 | $i$ | 3.05672 | | −0.03665247 | −0.37971281 |
| $P$ | 5.06 | $H$ | 16.7 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 02 27 | 691 | 0.3+ | 0.4− | 2006 03 04 | 691 | 0.4− | 0.1− | 2009 11 27 | 691 | 0.0 | 0.3− | |
| 2006 02 27 | 691 | 0.3+ | 0.2+ | 2006 03 04 | 691 | 0.0 | 0.2− | 2009 11 27 | 691 | 0.2+ | 0.3− | |
| 2006 02 27 | 691 | 0.5+ | 0.0 | 2006 03 08 | 691 | 0.3− | 0.2− | 2009 11 27 | 691 | 0.1− | 0.4+ | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 02 27 | G96 | 0.4+ | 0.2+ | 2006 03 08 | 691 | 0.3− | 0.1+ | 2009 12 11 | G96 | 0.3+ | 0.0 | | |
| 2006 02 27 | G96 | 0.1+ | 0.1+ | 2006 03 08 | 691 | 0.1− | 0.5+ | 2009 12 11 | G96 | 0.2+ | 0.0 | | |
| 2006 02 27 | G96 | 0.3+ | 0.2+ | 2009 11 19 | 691 | 0.2+ | 0.3− | 2009 12 11 | G96 | 0.2+ | 0.1+ | | |
| 2006 02 27 | G96 | 0.2− | 0.5+ | 2009 11 19 | 691 | 0.6− | 0.0 | 2009 12 11 | G96 | 0.2+ | 0.1− | | |
| 2006 03 04 | 691 | 0.2− | 0.0 | 2009 11 19 | 691 | 0.0 | 0.5+ | | | | | | |

**2009 WE$_{250}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 71.72063 | | (2000.0) | | | |
| $n$ | 0.18503196 | $\omega$ | 92.41122 | | +0.97881568 | +0.16595110 |
| $a$ | 3.0500354 | $\Omega$ | 258.05432 | | −0.19925467 | +0.90679910 |
| $e$ | 0.1627663 | $i$ | 7.04053 | | +0.04708966 | +0.38752499 |
| $P$ | 5.33 | $H$ | 16.3 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 21 | 644 | 0.4+ | 0.0 | 2008 08 21 | 691 | 0.0 | 0.2− | 2009 12 10 | G96 | 0.4+ | 0.0 | | |
| 2003 09 21 | 644 | 0.0 | 0.3+ | 2009 11 17 | 691 | 0.2+ | 0.2+ | 2009 12 10 | G96 | 0.2+ | 0.3+ | | |
| 2003 09 21 | 644 | 0.2+ | 0.1+ | 2009 11 17 | 691 | 0.0 | 0.2− | 2009 12 10 | G96 | 0.7+ | 0.1+ | | |
| 2003 10 20 | 691 | 0.2− | 0.0 | 2009 11 17 | 691 | 0.7− | 0.1− | 2009 12 19 | G96 | 0.7+ | 0.0 | | |
| 2003 10 20 | 691 | 0.1− | 0.2− | 2009 11 25 | 691 | 0.5− | 0.2+ | 2009 12 19 | G96 | 0.8+ | 0.0 | | |
| 2003 10 20 | 691 | 0.1+ | 0.0 | 2009 11 25 | 691 | 0.2− | 0.1− | 2009 12 19 | G96 | 0.4+ | 0.2+ | | |
| 2008 08 21 | 691 | 0.1− | 0.2− | 2009 11 25 | 691 | 0.2+ | 0.2− | 2009 12 19 | G96 | 0.4+ | 0.2+ | | |
| 2008 08 21 | 691 | 0.0 | 0.5+ | 2009 12 10 | G96 | 0.8+ | 0.2+ | | | | | | |

**2009 WP$_{250}$ = 2005 YJ$_{182}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 3.88077 | | (2000.0) | | | |
| $n$ | 0.23540980 | $\omega$ | 176.05393 | | +0.18250907 | −0.95423446 |
| $a$ | 2.5976842 | $\Omega$ | 263.31514 | | +0.89541685 | +0.26084142 |
| $e$ | 0.0648898 | $i$ | 13.79998 | | +0.40610234 | −0.14628175 |
| $P$ | 4.19 | $H$ | 15.8 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 02 08 | 644 | 0.2+ | 0.4− | 2006 01 03 | 704 | 0.0 | 1.1+ | 2009 12 11 | G96 | 0.4+ | 0.2− | | |
| 2002 02 08 | 644 | 0.2+ | 0.8− | 2006 01 03 | 704 | 0.3+ | 0.8+ | 2009 12 11 | G96 | 0.1+ | 0.2− | | |
| 2002 02 08 | 644 | 0.1− | 0.1− | 2006 01 03 | 704 | 0.1− | 0.6+ | 2009 12 11 | G96 | 0.1− | 0.1− | | |
| 2005 10 28 | G96 | 0.1− | 0.3− | 2006 01 03 | 704 | 0.8− | 0.6+ | 2009 12 16 | 704 | 0.1+ | 0.2+ | | |
| 2005 10 28 | G96 | 0.3− | 0.3− | 2008 07 03 | G96 | 0.2+ | 0.2− | 2009 12 16 | 704 | 0.6− | 1.0+ | | |
| 2005 10 28 | G96 | 0.1+ | 0.6− | 2008 07 03 | G96 | 0.0 | 0.0 | 2009 12 16 | 704 | 0.7+ | 0.6+ | | |
| 2005 10 28 | G96 | 0.1− | 0.2− | 2008 07 03 | G96 | 0.0 | 0.2− | 2009 12 16 | 704 | 1.4+ | 0.8− | | |
| 2005 12 30 | 704 | 0.5− | 0.6− | 2008 07 03 | G96 | 0.2− | 0.2− | 2009 12 19 | G96 | 0.0 | 0.2− | | |
| 2005 12 30 | 704 | 0.2+ | 0.0 | 2009 11 23 | 691 | 0.1− | 0.1+ | 2009 12 19 | G96 | 0.2− | 0.2− | | |
| 2005 12 30 | 704 | 0.3− | 0.1− | 2009 11 23 | 691 | 0.0 | 0.1+ | 2009 12 19 | G96 | 0.3+ | 0.2− | | |
| 2005 12 30 | 704 | 0.1+ | 0.7− | 2009 11 23 | 691 | 0.3− | 0.1− | 2009 12 19 | G96 | 0.3+ | 0.2− | | |
| 2006 01 03 | 704 | (0.3+ | 1.7+) | 2009 12 11 | G96 | 0.2+ | 0.2− | | | | | | |

**2009 WR$_{250}$ = 2004 XQ$_{173}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 237.58490 | | (2000.0) | | | |
| $n$ | 0.19042097 | $\omega$ | 123.01375 | | −0.88271377 | +0.41813349 |
| $a$ | 2.9922155 | $\Omega$ | 82.51212 | | −0.46987214 | −0.77951325 |
| $e$ | 0.0220945 | $i$ | 12.49038 | | −0.00604773 | −0.46639413 |
| $P$ | 5.18 | $H$ | 14.8 | $G$ | 0.15 | $U$ 5 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 12 10 | 704 | 0.4+ | 0.5− | 2009 11 24 | 691 | 0.5− | 0.2+ | 2009 12 17 | 704 | 0.4+ | 0.5+ | | |
| 2004 12 10 | 704 | 0.8+ | 0.0 | 2009 11 24 | 691 | 0.0 | 0.3− | 2009 12 17 | 704 | 0.3− | 0.8+ | | |
| 2004 12 10 | 704 | 1.0+ | 1.0+ | 2009 12 10 | G96 | 0.6+ | 0.0 | 2009 12 17 | 704 | 0.1+ | 0.3− | | |
| 2004 12 20 | 691 | 0.2− | 0.1− | 2009 12 10 | G96 | 0.8+ | 0.2− | 2009 12 19 | G96 | 0.1− | 0.1+ | | |
| 2004 12 20 | 691 | 0.1− | 0.1− | 2009 12 10 | G96 | 0.5+ | 0.1− | 2009 12 19 | G96 | 0.1− | 0.3+ | | |
| 2004 12 20 | 691 | 0.2− | 0.0 | 2009 12 10 | G96 | 0.6+ | 0.2− | 2009 12 19 | G96 | 0.4+ | 0.0 | | |
| 2009 11 24 | 691 | 0.4− | 0.2− | 2009 12 17 | 704 | 0.3+ | 0.1+ | 2009 12 19 | G96 | 0.1− | 0.0 | | |

**2009 WO$_{251}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 333.69927 | | (2000.0) | | | |
| $n$ | 0.20843779 | $\omega$ | 231.16401 | | −0.31825001 | −0.94792049 |
| $a$ | 2.8172047 | $\Omega$ | 237.39769 | | +0.87441705 | −0.28830565 |
| $e$ | 0.0625556 | $i$ | 0.87016 | | +0.36621272 | −0.13537576 |
| $P$ | 4.73 | $H$ | 16.5 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 09 11 | 691 | 0.5− | 0.3− | 2006 01 30 | 691 | 0.5+ | 0.0 | 2009 11 27 | G96 | 0.1+ | 0.4− | | |
| 1994 09 11 | 691 | 0.1+ | 0.2+ | 2006 01 30 | 691 | 0.5− | 0.4− | 2009 11 27 | G96 | 0.5− | 0.1− | | |
| 1994 09 11 | 691 | 0.2+ | 0.2− | 2006 01 30 | 691 | 0.8+ | 0.4+ | 2009 11 27 | G96 | 0.0 | 0.0 | | |
| 2004 10 14 | 691 | 0.3+ | 0.1− | 2006 02 24 | G96 | 0.0 | 0.1+ | 2009 12 10 | G96 | 1.0− | 0.4+ | | |
| 2004 10 14 | 691 | 0.2+ | 0.3+ | 2006 02 24 | G96 | 0.7− | 0.1+ | 2009 12 10 | G96 | 0.1+ | 0.3− | | |
| 2004 10 14 | 691 | 0.1+ | 0.3− | 2006 02 24 | G96 | 0.8− | 0.1− | 2009 12 10 | G96 | 0.1− | 0.1− | | |
| 2004 11 09 | 568 | 0.2− | 0.9+ | 2006 02 24 | G96 | 0.4− | 0.1− | 2009 12 10 | G96 | 0.4− | 0.1+ | | |
| 2004 11 09 | 568 | 0.1− | 0.8+ | 2008 09 25 | 691 | 0.6− | 0.6+ | 2009 12 15 | G96 | 0.3+ | 0.0 | | |
| 2004 11 09 | 568 | 0.1− | 0.8+ | 2008 09 25 | 691 | 0.6+ | 0.1− | 2009 12 15 | G96 | 0.6+ | 0.3− | | |
| 2005 10 24 | 568 | 0.4− | 0.2+ | 2008 09 25 | 691 | 0.1− | 0.2− | 2009 12 15 | G96 | 0.1− | 0.3− | | |
| 2005 10 24 | 568 | 0.2− | 0.1+ | 2009 11 27 | G96 | 0.3− | 0.3− | 2009 12 15 | G96 | 0.2− | 0.2− | | |
| 2005 10 24 | 568 | 0.3− | 0.0 | 2009 11 27 | G96 | (0.1+ | 1.9−) | | | | | | |

**2009 WZ$_{251}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 39.87897 | | (2000.0) | | | |
| $n$ | 0.21226817 | $\omega$ | 317.28020 | | +0.78587150 | −0.61287398 |
| $a$ | 2.7832110 | $\Omega$ | 80.70125 | | +0.58751080 | +0.69838388 |
| $e$ | 0.0994609 | $i$ | 4.79022 | | +0.19296903 | +0.36965584 |
| $P$ | 4.64 | $H$ | 16.4 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 04 18 | 691 | 0.2− | 0.4+ | 2009 11 24 | 691 | 0.2− | 0.4− | 2009 12 13 | H10 | 0.3− | 0.2− | | |
| 2007 04 18 | 691 | 0.2+ | 0.1− | 2009 12 09 | J75 | 0.0 | 0.1+ | 2009 12 16 | H10 | 0.5− | 0.2+ | | |
| 2007 04 18 | 691 | 0.1− | 0.0 | 2009 12 09 | J75 | 0.5+ | 0.3− | 2009 12 16 | H10 | 0.3− | 0.0 | | |
| 2007 04 22 | 691 | 0.0 | 0.1− | 2009 12 09 | J75 | 0.2+ | 0.4+ | 2009 12 16 | H10 | 0.1− | 0.2+ | | |
| 2007 04 22 | 691 | 0.2− | 0.0 | 2009 12 10 | G96 | 0.0 | 0.1+ | 2009 12 16 | H10 | 0.1+ | 0.5− | | |
| 2007 04 22 | 691 | 0.1+ | 0.3− | 2009 12 10 | G96 | 0.2− | 0.1− | 2009 12 16 | H10 | 0.1+ | 0.3− | | |
| 2007 05 10 | G96 | 0.0 | 0.2+ | 2009 12 10 | G96 | 0.3− | 0.1− | 2009 12 16 | H10 | 0.3− | 0.4− | | |
| 2007 05 10 | G96 | 0.5+ | 0.2+ | 2009 12 10 | G96 | 0.1− | 0.1− | 2009 12 19 | G96 | 0.1+ | 0.2+ | | |
| 2007 05 10 | G96 | 0.2− | 0.3+ | 2009 12 13 | H10 | 1.2− | 0.3− | 2009 12 19 | G96 | 0.0 | 0.4+ | | |
| 2007 05 10 | G96 | 0.3+ | 0.0 | 2009 12 13 | H10 | 0.1+ | 0.5− | 2009 12 19 | G96 | 0.1− | 0.3+ | | |
| 2009 11 24 | 691 | 0.8+ | 0.6+ | 2009 12 13 | H10 | 1.1+ | 0.2+ | 2009 12 19 | G96 | 0.0 | 0.4+ | | |
| 2009 11 24 | 691 | 0.3− | 0.1− | 2009 12 13 | H10 | 0.0 | 0.0 | | | | | | |

**2009 WC$_{252}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 280.55494 | | (2000.0) | | | |
| $n$ | 0.17477037 | $\omega$ | 299.85786 | | −0.99301532 | +0.00616026 |
| $a$ | 3.1682845 | $\Omega$ | 240.72315 | | +0.03372920 | −0.94213771 |
| $e$ | 0.1406280 | $i$ | 7.76316 | | −0.11306154 | −0.33516950 |
| $P$ | 5.64 | $H$ | 15.7 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 11 18 | 291 | 0.1− | 0.2+ | 2006 05 20 | G96 | 0.1+ | 0.4+ | 2009 11 08 | 691 | 0.1+ | 0.0 | | |
| 2003 11 18 | 291 | 0.4− | 0.5+ | 2008 10 03 | G96 | 0.5+ | 0.3+ | 2009 11 24 | 691 | 0.1− | 0.2− | | |
| 2003 11 18 | 291 | 0.6+ | 0.2+ | 2008 10 03 | G96 | 0.4+ | 0.1+ | 2009 11 24 | 691 | 0.6− | 0.3− | | |
| 2005 02 14 | 703 | 0.6+ | 0.4+ | 2008 10 03 | G96 | 0.4+ | 0.4+ | 2009 11 24 | 691 | 0.2− | 0.1− | | |
| 2005 02 14 | 703 | 0.2+ | 0.8+ | 2008 10 03 | G96 | 0.6+ | 0.1+ | 2009 12 11 | G96 | 0.1+ | 0.5− | | |
| 2005 02 14 | 703 | 0.2− | 1.8+ | 2008 10 06 | 691 | 0.5− | 0.3− | 2009 12 11 | G96 | 0.5+ | 0.1− | | |
| 2005 02 14 | 703 | 0.3− | 0.2− | 2008 10 06 | 691 | 0.2− | 0.1+ | 2009 12 11 | G96 | 0.5+ | 0.0 | | |
| 2006 05 20 | G96 | 0.3+ | 0.4+ | 2008 10 06 | 691 | 0.1− | 0.3+ | 2009 12 11 | G96 | 0.1+ | 0.5− | | |
| 2006 05 20 | G96 | 0.1+ | 0.2+ | 2009 11 08 | 691 | 0.4+ | 0.1− | | | | | | |
| 2006 05 20 | G96 | 0.0 | 0.1+ | 2009 11 08 | 691 | 0.2+ | 0.1− | | | | | | |

**2009 WD$_{252}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 340.83186 | | (2000.0) | | | |
| $n$ | 0.24010545 | $\omega$ | 205.72112 | | −0.14819744 | −0.92436303 |
| $a$ | 2.5637049 | $\Omega$ | 254.47542 | | +0.95863198 | −0.04691436 |
| $e$ | 0.0264078 | $i$ | 21.39935 | | +0.24302725 | −0.37861857 |
| $P$ | 4.10 | $H$ | 16.4 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 11 26 | 691 | 0.2− | 0.2+ | 2006 01 28 | G96 | 0.2− | 0.1− | 2009 12 10 | G96 | 0.0 | 0.0 |
| 2005 11 26 | 691 | 0.1+ | 0.0 | 2006 01 28 | G96 | 0.2− | 0.2− | 2009 12 10 | G96 | 0.5+ | 0.1− |
| 2005 11 26 | 691 | 0.1− | 0.1− | 2009 11 10 | 691 | 0.2+ | 0.0 | 2009 12 10 | G96 | 0.7+ | 0.0 |
| 2005 12 05 | 691 | 0.2− | 0.9− | 2009 11 10 | 691 | 0.0 | 0.1+ | 2009 12 10 | G96 | 0.6+ | 0.4− |
| 2005 12 05 | 691 | 0.7+ | 0.7+ | 2009 11 10 | 691 | (1.8+ | 2.0−) | 2009 12 15 | G96 | 0.7+ | 0.1+ |
| 2005 12 05 | 691 | 0.2− | 0.1+ | 2009 11 25 | 691 | 0.4− | 0.1− | 2009 12 15 | G96 | 0.4+ | 0.3+ |
| 2006 01 28 | G96 | 0.3− | 0.1+ | 2009 11 25 | 691 | 0.1− | 0.1+ | 2009 12 15 | G96 | 0.1− | 0.3+ |
| 2006 01 28 | G96 | 0.3+ | 0.3+ | 2009 11 25 | 691 | 0.3− | 0.1− | | | | |

**2009 WK$_{252}$ = 2006 DX$_{178}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 35.05384 | | (2000.0) | | | |
| $n$ | 0.19971088 | $\omega$ | 14.28188 | | +0.65872524 | −0.75201786 |
| $a$ | 2.8986887 | $\Omega$ | 34.52451 | | +0.68617365 | +0.58767712 |
| $e$ | 0.0545341 | $i$ | 2.37197 | | +0.30862077 | +0.29850418 |
| $P$ | 4.94 | $H$ | 16.2 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 11 20 | 691 | 0.1+ | 0.2+ | 2006 03 03 | 691 | 0.0 | 0.2+ | 2009 11 25 | 691 | 0.1− | 0.0 |
| 2004 11 20 | 691 | 0.2− | 0.0 | 2006 03 03 | 691 | 0.1+ | 0.4+ | 2009 11 25 | 691 | 0.4− | 0.2− |
| 2004 11 20 | 691 | 0.1+ | 0.1+ | 2008 07 30 | 691 | 0.1+ | 0.5− | 2009 11 25 | 691 | 0.1− | 0.2+ |
| 2006 02 27 | 691 | 0.4+ | 0.1+ | 2008 07 30 | 691 | 0.4− | 0.2+ | 2009 12 11 | G96 | 0.5+ | 0.0 |
| 2006 02 27 | 691 | 0.1− | 0.3+ | 2008 07 30 | 691 | 0.2− | 0.0 | 2009 12 11 | G96 | 0.3+ | 0.5− |
| 2006 02 27 | 691 | 0.0 | 0.1− | 2008 09 19 | 691 | 0.2+ | 0.4+ | 2009 12 11 | G96 | 0.2+ | 0.3− |
| 2006 02 27 | G96 | 0.0 | 0.1− | 2008 09 19 | 691 | 0.1+ | 0.5+ | 2009 12 11 | G96 | 0.3+ | 0.1− |
| 2006 02 27 | G96 | 0.5+ | 0.0 | 2008 09 19 | 691 | 0.2− | 0.4+ | 2009 12 20 | G96 | 1.1+ | 0.4+ |
| 2006 02 27 | G96 | 0.1− | 0.0 | 2009 11 17 | 691 | 0.2− | 0.2+ | 2009 12 20 | G96 | 0.8+ | 0.1+ |
| 2006 02 27 | G96 | 0.4− | 0.0 | 2009 11 17 | 691 | 0.4− | 0.1− | 2009 12 20 | G96 | 0.6+ | 0.0 |
| 2006 03 03 | 691 | 0.1+ | 0.1+ | 2009 11 17 | 691 | 0.0 | 0.2− | 2009 12 20 | G96 | 0.4+ | 0.1+ |

**2009 WO$_{252}$ = 2008 SF$_{25}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 344.34050 | | (2000.0) | | | |
| $n$ | 0.12438042 | $\omega$ | 311.19390 | | −0.09070064 | −0.99521096 |
| $a$ | 3.9746726 | $\Omega$ | 143.96109 | | +0.93124260 | −0.09772781 |
| $e$ | 0.1587103 | $i$ | 3.55192 | | +0.35293145 | +0.00210248 |
| $P$ | 7.92 | $H$ | 15.6 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 11 21 | 691 | 0.3+ | 0.1+ | 2008 09 03 | 691 | 0.1− | 0.2+ | 2009 11 26 | 691 | 0.1+ | 0.1− |
| 2001 11 21 | 691 | 0.2+ | 0.3− | 2008 09 19 | 691 | 0.2− | 0.1+ | 2009 11 26 | 691 | 0.4− | 0.1− |
| 2001 11 21 | 691 | 0.4− | 0.1− | 2008 09 19 | 691 | 0.0 | 0.2+ | 2009 11 26 | 691 | 0.1− | 0.1+ |
| 2003 01 28 | 291 | 0.2− | 0.2− | 2008 09 19 | 691 | 0.1− | 0.1+ | 2009 12 11 | 703 | 0.7− | 1.4− |
| 2003 01 28 | 291 | 0.2− | 0.3− | 2008 09 24 | G96 | 0.6+ | 0.3+ | 2009 12 11 | 703 | 0.1+ | 0.2+ |
| 2003 01 28 | 291 | 0.2+ | 0.1+ | 2008 09 24 | G96 | 0.3+ | 0.1+ | 2009 12 11 | 703 | 0.5+ | 0.5− |
| 2003 03 11 | 291 | 0.2+ | 0.6+ | 2008 09 24 | G96 | 0.1+ | 0.1+ | 2009 12 11 | 703 | 0.9− | 0.0 |
| 2003 03 11 | 291 | 0.3+ | 0.6+ | 2008 09 24 | G96 | 0.6+ | 0.1− | 2009 12 17 | G96 | 0.5+ | 0.1− |
| 2003 03 11 | 291 | 0.1− | 0.3+ | 2009 11 10 | 691 | 0.1− | 0.3+ | 2009 12 17 | G96 | 0.4+ | 0.2− |
| 2008 09 03 | 691 | 0.1− | 0.6+ | 2009 11 10 | 691 | 0.1+ | 0.2+ | 2009 12 17 | G96 | 0.7+ | 0.1− |
| 2008 09 03 | 691 | 0.4− | 0.1− | 2009 11 10 | 691 | 0.1+ | 0.2− | 2009 12 17 | G96 | 0.6+ | 0.2− |

**2009 WW$_{252}$ = 2003 WE$_{57}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 36.13615 | | (2000.0) | | | |
| $n$ | 0.17229052 | $\omega$ | 175.77061 | | +0.86410185 | −0.50220042 |
| $a$ | 3.1986138 | $\Omega$ | 214.44074 | | +0.46002885 | +0.81504243 |
| $e$ | 0.1704925 | $i$ | 3.39658 | | +0.20420933 | +0.28896465 |
| $P$ | 5.72 | $H$ | 16.1 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 11 18 | 644 | 0.2+ | 0.4− | 2009 11 16 | 691 | 0.4− | 0.1+ | 2009 12 11 | G96 | 0.1− | 0.3+ |
| 2003 11 18 | 644 | 0.0 | 0.1− | 2009 11 16 | 691 | 0.3− | 0.4− | 2009 12 11 | G96 | 0.1+ | 0.4− |
| 2003 11 18 | 644 | 0.5+ | 0.4− | 2009 11 16 | 691 | 0.9+ | 0.4+ | 2009 12 11 | G96 | 0.9+ | 0.2− |
| 2003 11 21 | 704 | 0.5− | 0.3+ | 2009 11 27 | 691 | 0.3− | 0.1− | 2009 12 11 | G96 | 0.3− | 0.3− |
| 2003 11 21 | 704 | 0.1− | 0.4+ | 2009 11 27 | 691 | 0.0 | 0.3+ | | | | |
| 2003 11 21 | 704 | 0.2− | 0.0 | 2009 11 27 | 691 | 0.0 | 0.1− | | | | |

**2009 WE$_{253}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 27.95541 | | (2000.0) | | | |
| $n$ | 0.23613633 | $\omega$ | 105.62120 | | +0.85101430 | −0.48520401 |
| $a$ | 2.5923532 | $\Omega$ | 283.77585 | | +0.36657265 | +0.82277188 |
| $e$ | 0.5491860 | $i$ | 11.93646 | | +0.37603079 | +0.29601268 |
| $P$ | 4.17 | $H$ | 17.7 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 07 | 568 | 0.2− | 0.0 | 2009 12 17 | 704 | 0.0 | 0.2− | 2009 12 17 | H01 | 0.3− | 0.2+ |
| 2005 10 07 | 568 | 0.1+ | 0.0 | 2009 12 17 | 704 | 0.6+ | 1.1− | 2009 12 17 | H01 | 0.1− | 0.2+ |
| 2005 10 07 | 568 | 0.1+ | 0.0 | 2009 12 17 | 704 | 1.0+ | 1.3+ | 2009 12 20 | 448 | 0.3− | 0.1− |
| 2009 11 19 | G96 | 0.0 | 0.0 | 2009 12 17 | G96 | 0.1− | 0.6− | 2009 12 20 | 448 | 0.3− | 0.2− |
| 2009 11 19 | G96 | 0.2− | 0.1− | 2009 12 17 | G96 | 0.2− | 0.2− | 2009 12 20 | 448 | 0.1+ | 0.5− |
| 2009 11 19 | G96 | 0.1− | 0.0 | 2009 12 17 | G96 | 0.2− | 0.0 | 2009 12 26 | 448 | 0.1+ | 0.0 |
| 2009 11 19 | G96 | 0.2+ | 0.0 | 2009 12 17 | G96 | 0.2− | 0.1− | 2009 12 26 | 448 | 1.0− | 0.6− |
| 2009 12 10 | J75 | 0.0 | 0.0 | 2009 12 17 | H01 | 0.1− | 0.2+ | 2009 12 26 | 448 | 0.4+ | 0.0 |
| 2009 12 10 | J75 | 0.0 | 0.6+ | 2009 12 17 | H01 | 0.4− | 0.3+ | 2009 12 27 | 448 | 0.0 | 0.3− |
| 2009 12 10 | J75 | 0.5+ | 0.7− | 2009 12 17 | H01 | 0.3− | 0.3+ | 2009 12 27 | 448 | 0.8+ | 1.1+ |
| 2009 12 17 | 704 | 0.2+ | 0.2+ | 2009 12 17 | H01 | 0.3− | 0.3+ | 2009 12 27 | 448 | 0.1− | 0.3− |
| 2009 12 17 | 704 | 0.6+ | 0.1+ | 2009 12 17 | H01 | 0.1− | 0.2+ | | | | |

**2009 WT$_{255}$ = 2003 WK$_{183}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 282.61017 | | (2000.0) | | | |
| $n$ | 0.16978075 | $\omega$ | 81.57993 | | −0.93500946 | −0.29695594 |
| $a$ | 3.2300588 | $\Omega$ | 80.97636 | | +0.19503339 | −0.88713067 |
| $e$ | 0.0419915 | $i$ | 11.31895 | | +0.29617442 | −0.35329356 |
| $P$ | 5.81 | $H$ | 15.7 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 05 05 | 645 | 0.0 | 0.0 | 2003 12 19 | 691 | 0.2− | 0.1+ | 2009 12 10 | G96 | 0.1+ | 0.0 |
| 2000 05 05 | 645 | 0.0 | 0.0 | 2003 12 19 | 691 | 0.0 | 0.2+ | 2009 12 10 | G96 | 0.0 | 0.1− |
| 2003 11 23 | 695 | 0.4+ | 0.1− | 2009 11 20 | 691 | 0.2− | 0.0 | 2009 12 10 | G96 | 0.1+ | 0.2− |
| 2003 11 23 | 695 | 0.4− | 0.4− | 2009 11 20 | 691 | 0.3+ | 0.0 | 2009 12 10 | G96 | 0.1− | 0.0 |
| 2003 11 26 | 691 | 0.0 | 0.1− | 2009 11 20 | 691 | 0.3− | 0.0 | 2009 12 19 | G96 | 0.1+ | 0.0 |
| 2003 11 26 | 691 | 0.0 | 0.1+ | 2009 12 10 | G96 | 0.4+ | 0.2− | 2009 12 19 | G96 | 0.3+ | 0.2− |
| 2003 11 26 | 691 | 0.1− | 0.1+ | 2009 12 10 | G96 | 0.2− | 0.0 | 2009 12 19 | G96 | 0.1− | 0.1+ |
| 2003 12 19 | 691 | 0.3+ | 0.1+ | 2009 12 10 | G96 | 0.4+ | 0.1− | 2009 12 19 | G96 | 0.3− | 0.1+ |

**2009 WK$_{258}$ = 2009 WU$_{124}$ = 2004 SL$_{25}$ = 2006 CX$_{58}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 13.51106 | | (2000.0) | | | |
| $n$ | 0.21484376 | $\omega$ | 315.01197 | | +0.43529984 | −0.90022128 |
| $a$ | 2.7609225 | $\Omega$ | 109.18090 | | +0.82916525 | +0.39622956 |
| $e$ | 0.0542766 | $i$ | 0.65250 | | +0.35071218 | +0.18056516 |
| $P$ | 4.59 | $H$ | 17.0 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 09 21 | 291 | 0.1+ | 0.2+ | 2006 01 22 | G96 | 0.3− | 0.4− | 2009 11 20 | 691 | 0.7− | 0.0 |
| 2004 09 21 | 291 | 0.2+ | 0.4+ | 2006 01 22 | G96 | 0.7− | 0.3− | 2009 11 24 | 691 | 0.3− | 0.1− |
| 2004 09 21 | 291 | 0.0 | 0.7+ | 2006 02 06 | G96 | 0.2+ | 0.2+ | 2009 11 24 | 691 | 0.2− | 0.1+ |
| 2004 09 22 | 291 | 0.0 | 0.3+ | 2006 02 06 | G96 | 0.3+ | 0.4+ | 2009 11 24 | 691 | 0.2+ | 0.2+ |
| 2004 09 22 | 291 | 0.4− | 0.2+ | 2006 02 06 | G96 | 0.1− | 0.3+ | 2009 11 27 | G96 | 0.4+ | 0.1− |
| 2004 09 22 | 291 | 0.1− | 0.4+ | 2006 02 06 | G96 | 1.0− | 0.1+ | 2009 11 27 | G96 | 0.5+ | 0.4− |
| 2004 09 22 | 691 | 0.0 | 0.1+ | 2006 02 07 | G96 | 0.8+ | 0.1+ | 2009 11 27 | G96 | 1.0+ | 0.1− |
| 2004 09 22 | 291 | 0.1+ | 0.1+ | 2006 02 07 | G96 | 0.8+ | 0.1+ | 2009 11 27 | G96 | 1.0+ | 0.1− |
| 2004 09 22 | 691 | 0.4− | 0.1+ | 2006 02 07 | G96 | 0.1+ | 0.2+ | 2009 11 27 | G96 | 0.6+ | 0.4− |
| 2004 09 22 | 291 | 0.3+ | 1.3− | 2006 02 07 | G96 | 0.1+ | 0.0 | 2009 12 10 | G96 | 0.8+ | 0.1+ |
| 2004 09 22 | 691 | 0.1+ | 0.4+ | 2006 05 01 | 695 | 0.4+ | 0.5+ | 2009 12 10 | G96 | 0.4+ | 0.2+ |
| 2004 09 22 | 291 | 0.0 | 0.6− | 2006 05 01 | 695 | 0.6+ | 0.6+ | 2009 12 10 | G96 | 0.5+ | 0.3− |
| 2004 10 15 | G96 | 0.3− | 1.0− | 2007 05 09 | G96 | 0.0 | 1.1+ | 2009 12 10 | G96 | 0.8+ | 0.2− |
| 2004 10 15 | G96 | 0.1− | 0.4− | 2007 05 09 | G96 | 0.1− | 0.4+ | 2009 12 15 | G96 | 0.7+ | 0.4− |
| 2004 10 15 | G96 | 0.2+ | 0.4− | 2007 05 09 | G96 | 0.4+ | 0.2+ | 2009 12 15 | G96 | 0.9+ | 0.2+ |
| 2004 10 15 | G96 | 0.4− | 0.3− | 2007 05 09 | G96 | 0.3+ | 0.5+ | 2009 12 15 | G96 | 0.4+ | 0.0 |
| 2006 01 22 | G96 | (2.2− | 0.2−) | 2009 11 20 | 691 | 0.4− | 0.2+ | 2009 12 15 | G96 | 0.3+ | 0.1− |
| 2006 01 22 | G96 | 0.6− | 0.3− | 2009 11 20 | 691 | 0.7− | 0.1+ | | | | |

**2009 WL$_{259}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 348.86600 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21799681 | $\omega$ | 216.04426 | | −0.55104973 | −0.82479022 | |
| $a$ | 2.7342357 | $\Omega$ | 267.72152 | | +0.79223452 | −0.46937577 | |
| $e$ | 0.1522511 | $i$ | 7.28756 | | +0.26212335 | −0.31528951 | |
| $P$ | 4.52 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 11 24 | 691 | 0.0 | 0.2− | 2009 11 18 | G96 | 0.3− | 0.2− | 2009 12 17 | F85 | 0.2+ | 0.3− |
| 1995 11 24 | 691 | 0.1+ | 0.2− | 2009 11 18 | G96 | 0.2− | 0.4− | 2009 12 17 | F85 | 0.6+ | 0.0 |
| 1995 11 24 | 691 | 0.0 | 0.0 | 2009 11 18 | G96 | 0.1− | 0.3− | 2009 12 17 | F85 | 0.4+ | 0.1− |
| 2004 12 20 | 691 | 0.2− | 0.2+ | 2009 11 18 | G96 | 0.0 | 0.3− | 2009 12 18 | 691 | 0.0 | 0.0 |
| 2004 12 20 | 691 | 0.1+ | 0.2+ | 2009 12 09 | J75 | 0.2+ | 0.7− | 2009 12 18 | 691 | 0.1+ | 0.1+ |
| 2004 12 20 | 691 | 0.0 | 0.1+ | 2009 12 10 | J75 | 0.4− | 0.3− | 2009 12 18 | 691 | 0.1− | 0.1+ |
| 2009 10 18 | G96 | 0.2− | 0.1+ | 2009 12 10 | J75 | 0.5+ | 0.6− | 2009 12 26 | 691 | 0.0 | 0.1+ |
| 2009 10 18 | G96 | 0.1+ | 0.3+ | 2009 12 16 | F84 | 0.5+ | 0.3+ | 2009 12 26 | 691 | 0.1− | 0.2+ |
| 2009 10 18 | G96 | 0.1− | 0.1− | 2009 12 16 | F84 | 0.5+ | 0.2+ | 2009 12 26 | 691 | 0.3− | 0.0 |
| 2009 10 18 | G96 | 0.2− | 0.4− | 2009 12 16 | F84 | 0.3+ | 0.3+ | | | | |

**2009 XB**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 1.48081 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.25966033 | $\omega$ | 154.06301 | | +0.55932954 | −0.81365140 | |
| $a$ | 2.4333186 | $\Omega$ | 261.54026 | | +0.72994014 | +0.57405598 | |
| $e$ | 0.0433229 | $i$ | 9.22096 | | +0.39285858 | +0.09182125 | |
| $P$ | 3.80 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 06 13 | 644 | 0.1+ | 0.0 | 2007 02 23 | 703 | 1.5− | 0.1− | 2009 12 06 | 941 | 0.1+ | 0.0 |
| 2004 06 13 | 644 | 0.1− | 0.2− | 2007 02 23 | 703 | 0.7− | 0.1− | 2009 12 07 | 941 | 0.3+ | 0.4+ |
| 2004 06 13 | 644 | 0.1+ | 0.3+ | 2009 10 14 | 703 | 1.0− | 0.6− | 2009 12 07 | 941 | 0.1+ | 0.1+ |
| 2005 09 25 | 644 | 0.2+ | 0.5+ | 2009 10 14 | 703 | 0.0 | 0.5+ | 2009 12 07 | 941 | 0.2+ | 0.2− |
| 2005 09 25 | 644 | 0.2− | 0.2+ | 2009 10 14 | 703 | 0.8− | 0.1− | 2009 12 11 | 941 | 0.0 | 0.2+ |
| 2005 09 25 | 644 | 0.4+ | 0.4+ | 2009 10 14 | 703 | 1.1− | 0.2+ | 2009 12 11 | 941 | 0.2+ | 0.1+ |
| 2005 10 05 | 703 | 0.5− | 1.0+ | 2009 10 27 | G96 | 0.4− | 0.1− | 2009 12 11 | 941 | 0.2+ | 0.1− |
| 2005 10 05 | 703 | 0.3+ | 0.7− | 2009 10 27 | G96 | 0.1− | 0.1− | 2009 12 11 | 941 | 0.4+ | 0.5− |
| 2005 10 05 | 703 | 0.2+ | 1.9− | 2009 10 27 | G96 | 0.2− | 0.0 | 2009 12 11 | 941 | 0.4+ | 0.5− |
| 2005 10 05 | 703 | 0.4− | 0.3+ | 2009 10 27 | G96 | 0.2− | 0.0 | 2009 12 19 | 941 | 0.2+ | 0.1− |
| 2007 02 10 | 703 | 0.7− | 0.7+ | 2009 12 05 | 941 | 0.6+ | 0.1+ | 2009 12 19 | 941 | 0.2+ | 0.1− |
| 2007 02 10 | 703 | 2.4+ | 1.1− | 2009 12 05 | 941 | 0.2+ | 0.2+ | 2009 12 19 | 941 | 0.3+ | 0.1− |
| 2007 02 10 | 703 | 0.6+ | 1.1+ | 2009 12 05 | 941 | 0.0 | 0.2+ | 2009 12 19 | 941 | 0.2+ | 0.1+ |
| 2007 02 10 | 703 | 1.0+ | 0.1+ | 2009 12 06 | 941 | 0.2+ | 0.2+ | 2009 12 19 | 941 | 0.3+ | 0.1+ |
| 2007 02 23 | 703 | 1.2− | 0.5− | 2009 12 06 | 941 | 0.1+ | 0.2+ | | | | |
| 2007 02 23 | 703 | 0.0 | 0.1+ | 2009 12 06 | 941 | 0.2+ | 0.2+ | | | | |

**2009 XH**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 358.63816 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18002260 | $\omega$ | 277.57753 | | +0.15213162 | −0.98834916 | |
| $a$ | 3.1063570 | $\Omega$ | 163.66975 | | +0.91324127 | +0.13875624 | |
| $e$ | 0.1666669 | $i$ | 0.95398 | | +0.37795021 | +0.06255117 | |
| $P$ | 5.47 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 10 19 | 691 | 0.2− | 0.0 | 2008 09 19 | 691 | 0.1− | 0.0 | 2009 12 06 | 941 | 0.5+ | 0.1+ |
| 2003 10 19 | 691 | 0.0 | 0.4+ | 2008 09 19 | 691 | 0.4− | 0.3+ | 2009 12 06 | 941 | 0.0 | 0.4− |
| 2003 10 19 | 691 | 0.0 | 0.2+ | 2009 11 08 | 691 | 0.7− | 0.3− | 2009 12 06 | 941 | 0.1+ | 0.3− |
| 2005 03 08 | G96 | 1.0+ | 0.2+ | 2009 11 08 | 691 | 0.6− | 0.2+ | 2009 12 08 | 941 | 0.4+ | 0.5− |
| 2005 03 08 | G96 | 0.1− | 0.2+ | 2009 11 08 | 691 | 0.7− | 0.3− | 2009 12 08 | 941 | 0.3+ | 0.3− |
| 2005 03 08 | G96 | 0.5− | 0.2+ | 2009 11 27 | G96 | 0.6+ | 0.1+ | 2009 12 08 | 941 | 0.2+ | 0.3− |
| 2005 03 08 | G96 | 0.3− | 0.1− | 2009 11 27 | G96 | 0.7+ | 0.1− | 2009 12 08 | 941 | 0.2+ | 0.1− |
| 2008 09 06 | G96 | 0.1− | 0.3− | 2009 11 27 | G96 | 0.9+ | 0.1− | 2009 12 08 | 941 | 0.2+ | 0.0 |
| 2008 09 06 | G96 | 0.3+ | 0.3− | 2009 11 27 | G96 | 0.9+ | 0.3+ | 2009 12 15 | G96 | 0.6+ | 0.5+ |
| 2008 09 06 | G96 | 0.2+ | 0.4− | 2009 11 27 | G96 | 0.5+ | 0.2− | 2009 12 15 | G96 | 0.4+ | 0.2+ |
| 2008 09 06 | G96 | 0.1+ | 0.4− | 2009 12 06 | 941 | 0.2+ | 0.2+ | 2009 12 15 | G96 | 0.2+ | 0.2+ |
| 2008 09 19 | 691 | 0.5+ | 0.3− | 2009 12 06 | 941 | 0.7+ | 0.1+ | 2009 12 15 | G96 | 0.0 | 0.5+ |

**2009 XJ = 2005 BS$_5$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 321.42712 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18177625 | $\omega$ | 46.24286 | | −0.59765567 | −0.79842762 | |
| $a$ | 3.0863461 | $\Omega$ | 80.59883 | | +0.71271728 | −0.57075237 | |
| $e$ | 0.1242664 | $i$ | 4.24024 | | +0.36720810 | −0.19171613 | |
| $P$ | 5.42 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 12 15 | 691 | 0.2+ | 1.7− | 2006 03 25 | 691 | 0.2− | 0.2+ | 2009 12 07 | 941 | 0.1− | 0.1+ |
| 1998 12 15 | 691 | 0.3+ | 0.3+ | 2006 03 25 | 691 | 0.0 | 0.1− | 2009 12 07 | 941 | 0.0 | 0.0 |
| 1998 12 15 | 691 | 0.2− | 0.5− | 2006 03 25 | 691 | 0.2+ | 0.0 | 2009 12 07 | 941 | 0.6+ | 0.0 |
| 1998 12 23 | 691 | 0.0 | 0.3− | 2006 04 02 | 691 | 0.1+ | 0.3+ | 2009 12 07 | 941 | 0.2− | 0.4+ |
| 1998 12 23 | 691 | 0.1− | 0.0 | 2006 04 02 | 691 | 0.1+ | 0.3+ | 2009 12 07 | 941 | 0.1− | 0.5+ |
| 1998 12 23 | 691 | 0.2+ | 0.3+ | 2006 04 02 | 691 | 0.3+ | 0.3+ | 2009 12 07 | 941 | 0.2− | 0.2+ |
| 2003 10 05 | 691 | 0.2− | 0.4+ | 2006 05 24 | G96 | 0.4− | 0.3− | 2009 12 08 | 941 | 0.6− | 0.1+ |
| 2003 10 05 | 691 | 0.0 | 0.6+ | 2006 05 24 | G96 | 0.5− | 0.3− | 2009 12 10 | G96 | 0.1− | 0.1+ |
| 2003 10 05 | 691 | 0.5− | 1.1+ | 2006 05 24 | G96 | 0.6− | 0.0 | 2009 12 10 | G96 | 0.2− | 0.0 |
| 2005 01 16 | 704 | 0.2− | 0.8+ | 2006 05 24 | G96 | 0.5− | 0.2− | 2009 12 10 | G96 | 0.1− | 0.1+ |
| 2005 01 16 | 704 | 0.9+ | 0.9+ | 2009 09 22 | G96 | 0.3− | 0.1− | 2009 12 10 | G96 | 0.2− | 2.2− |
| 2005 01 16 | 704 | 0.5− | 0.1− | 2009 09 22 | G96 | 0.2+ | 0.4− | 2009 12 12 | 941 | 0.3− | 0.4+ |
| 2005 01 16 | 704 | 0.4− | 0.8+ | 2009 09 22 | G96 | 1.4− | 0.3− | 2009 12 12 | 941 | 0.0 | 0.3+ |
| 2005 01 16 | 704 | 0.2+ | 0.1− | 2009 09 22 | G96 | 0.4+ | 0.3− | 2009 12 12 | 941 | 0.0 | 0.2+ |
| 2005 01 17 | 691 | 0.2+ | 0.3+ | 2009 11 27 | G96 | 0.2+ | 0.1− | 2009 12 12 | 941 | 0.1− | 0.1− |
| 2005 01 17 | 691 | 0.3+ | 0.1+ | 2009 11 27 | G96 | 0.2− | 0.1+ | 2009 12 12 | 941 | 0.2− | 0.4− |
| 2005 01 17 | 691 | 0.1+ | 0.2+ | 2009 11 27 | G96 | 0.2+ | 0.1+ | 2009 12 15 | G96 | 0.2+ | 0.3+ |
| 2005 03 16 | G96 | 0.6− | 0.1− | 2009 11 27 | G96 | 0.2− | 0.2+ | 2009 12 15 | G96 | 0.3+ | 0.1− |
| 2005 03 16 | G96 | 0.4− | 0.1− | 2009 11 27 | G96 | 1.1+ | 0.1+ | 2009 12 15 | G96 | 0.2− | 0.0 |
| 2005 03 16 | G96 | 0.3− | 0.1− | 2009 12 07 | 941 | 0.1+ | 0.1− | 2009 12 15 | G96 | 0.1+ | 0.4+ |
| 2005 03 16 | G96 | 0.1+ | 0.1− | 2009 12 07 | 941 | 0.1+ | 0.0 | | | | |

**2009 XL = 2005 AU$_{63}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 339.83926 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18172143 | $\omega$ | 311.43809 | | −0.23763441 | −0.97127305 | |
| $a$ | 3.0869667 | $\Omega$ | 152.30133 | | +0.89908396 | −0.22484218 | |
| $e$ | 0.1335721 | $i$ | 1.55233 | | +0.36766549 | −0.07794012 | |
| $P$ | 5.42 | $H$ | 17.1 | $G$ | 0.15 | $U$ | 5 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 01 13 | 691 | 0.2+ | 0.3− | 2005 01 19 | 691 | 0.1+ | 0.3+ | 2009 12 06 | 300 | 0.9+ | 0.5− |
| 2005 01 13 | 691 | 0.5− | 0.2− | 2009 11 16 | 691 | 0.1+ | 0.2− | 2009 12 06 | 300 | 0.1− | 0.3− |
| 2005 01 13 | 691 | 0.0 | 0.5− | 2009 11 16 | 691 | 0.5− | 1.3+ | 2009 12 06 | 300 | 0.2− | 0.6− |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 01 19 | 691 | 0.2− | 0.9+ | 2009 11 16 | 691 | 0.1− | 0.1+ | 2009 12 09 | 300 | 1.0+ | 0.9− |
| 2005 01 19 | 691 | 0.3+ | 0.1− | 2009 12 06 | 300 | 0.1− | 0.5− | 2009 12 09 | 300 | 0.6+ | 1.9− |

**2009 XW = 2001 YN$_{128}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 289.37318 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.24178585 | $\omega$ | 230.92788 | | −0.96994930 | | −0.20387311 |
| $a$ | 2.5518127 | $\Omega$ | 296.94144 | | +0.24240330 | | −0.85672529 |
| $e$ | 0.1899282 | $i$ | 8.56667 | | −0.02095209 | | −0.47376949 |
| $P$ | 4.08 | $H$ | 16.4 | $G$ | 0.15 | $U$ | 5 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 12 17 | 704 | 0.0 | 0.2− | 2009 12 10 | J47 | 0.3+ | 0.0 | 2009 12 13 | J47 | 0.1+ | 0.1− |
| 2001 12 17 | 704 | 0.3− | 0.7+ | 2009 12 10 | J47 | 0.1+ | 0.0 | 2009 12 15 | J47 | 0.2+ | 0.5+ |
| 2001 12 17 | 704 | 0.6+ | 0.1+ | 2009 12 10 | J47 | 0.1− | 0.2− | 2009 12 15 | J47 | 0.1+ | 0.3+ |
| 2001 12 22 | 704 | 0.5+ | 0.3+ | 2009 12 10 | 213 | 0.1− | 0.1− | 2009 12 15 | J47 | 0.2+ | 0.1− |
| 2001 12 22 | 704 | 0.8− | 0.3− | 2009 12 10 | 213 | 0.2+ | 0.1+ | 2009 12 16 | J47 | 0.1+ | 0.7+ |
| 2001 12 22 | 704 | 0.3− | 0.6− | 2009 12 11 | 213 | 0.5− | 0.1+ | 2009 12 16 | J47 | 0.0 | 0.5+ |
| 2001 12 22 | 704 | 0.2+ | 0.1+ | 2009 12 11 | 213 | 0.2+ | 0.8− | 2009 12 16 | J47 | 0.0 | 0.4+ |
| 2009 12 09 | 213 | 0.7− | 0.1− | 2009 12 11 | 213 | 0.1+ | 0.3+ | 2009 12 17 | 213 | 0.6+ | 0.6− |
| 2009 12 09 | 213 | 0.3+ | 0.3− | 2009 12 11 | 213 | 0.0 | 0.3+ | 2009 12 17 | 213 | 0.5+ | 0.7− |
| 2009 12 10 | 213 | 0.5− | 0.3+ | 2009 12 11 | 213 | 0.1− | 0.3+ | 2009 12 17 | 213 | 0.4− | 0.0 |
| 2009 12 10 | 213 | 0.5+ | 0.9− | 2009 12 13 | J47 | 0.4− | 0.2+ | 2009 12 18 | 213 | 0.8− | 1.0− |
| 2009 12 10 | 213 | 0.0 | 0.2+ | 2009 12 13 | J47 | 0.1− | 0.0 | 2009 12 18 | 213 | 0.1+ | 0.6+ |

**2009 XC$_1$ = 2004 XL$_{108}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 17.00841 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.19296872 | $\omega$ | 350.27813 | | +0.37435135 | | −0.88842986 |
| $a$ | 2.9658199 | $\Omega$ | 77.35262 | | +0.86800861 | | +0.23496269 |
| $e$ | 0.1654862 | $i$ | 15.79666 | | +0.32622404 | | +0.39431575 |
| $P$ | 5.11 | $H$ | 15.7 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 03 19 | 645 | 0.0 | 0.1− | 2006 03 06 | G96 | 0.1− | 0.1+ | 2009 12 16 | 704 | 1.0− | 1.1− |
| 2001 03 19 | 645 | 0.0 | 0.2+ | 2006 03 06 | G96 | 0.1− | 0.2− | 2009 12 16 | 704 | 0.8+ | 0.7− |
| 2004 12 11 | 704 | 0.6− | 0.2− | 2006 03 06 | G96 | 0.1+ | 0.2− | 2009 12 20 | H06 | 0.2+ | 0.3− |
| 2004 12 11 | 704 | 0.0 | 0.0 | 2006 03 06 | G96 | 0.4− | 0.2− | 2009 12 20 | H06 | 0.5− | 0.3+ |
| 2004 12 11 | 704 | (0.9+ | 1.6−) | 2009 12 10 | H06 | 0.5+ | 0.5+ | 2009 12 20 | H06 | 0.1+ | 0.6− |
| 2004 12 15 | 704 | 0.1+ | 0.0 | 2009 12 10 | H06 | 0.3− | 0.9+ | 2009 12 25 | H06 | 0.8− | 0.0 |
| 2004 12 15 | 704 | 0.3− | 0.1− | 2009 12 10 | H06 | 0.1+ | 0.0 | 2009 12 25 | H06 | 0.4− | 0.1− |
| 2004 12 15 | 704 | 0.2− | 0.1− | 2009 12 11 | H06 | 0.3− | 0.0 | 2009 12 25 | H06 | 0.2− | 0.4+ |
| 2004 12 15 | 704 | 0.6− | 0.8− | 2009 12 11 | H06 | 0.4− | 0.8+ | 2009 12 26 | 691 | 1.5+ | 0.6+ |
| 2004 12 15 | 704 | 0.7− | 0.2+ | 2009 12 11 | H06 | 0.8− | 0.4+ | 2009 12 26 | 691 | 0.4− | 0.1− |
| 2005 01 06 | 703 | 0.5− | 0.8+ | 2009 12 13 | H06 | 0.1+ | 0.4− | 2009 12 26 | 691 | 0.4− | 0.1− |
| 2005 01 06 | 703 | 0.8+ | 0.6+ | 2009 12 13 | H06 | 0.2− | 0.3− | 2009 12 26 | H06 | 0.3+ | 0.1+ |
| 2005 01 06 | 703 | 1.3+ | 0.2− | 2009 12 13 | H06 | 0.2+ | 0.6− | 2009 12 26 | H06 | 0.1− | 0.2− |
| 2005 01 06 | 703 | 0.6+ | 0.9− | 2009 12 16 | 704 | 0.0 | 0.4− | 2009 12 26 | H06 | 0.4− | 0.4+ |

**2009 XE$_1$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 6.23763 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.27525801 | $\omega$ | 16.21101 | | +0.10041311 | | −0.98951172 |
| $a$ | 2.3405041 | $\Omega$ | 68.11973 | | +0.89996769 | | +0.04582818 |
| $e$ | 0.2044078 | $i$ | 6.42521 | | +0.42423504 | | +0.13699027 |
| $P$ | 3.58 | $H$ | 17.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 03 14 | G96 | 0.2− | 0.0 | 2009 12 10 | 704 | 0.1− | 0.8− | 2009 12 20 | H06 | 0.4+ | 1.0− |
| 2007 03 14 | G96 | 0.3+ | 0.6+ | 2009 12 10 | H06 | 0.2− | 0.4+ | 2009 12 20 | H06 | 0.3+ | 0.7− |
| 2007 03 14 | G96 | 0.2+ | 0.0 | 2009 12 10 | 704 | 0.5+ | 0.5+ | 2009 12 25 | H06 | 0.1+ | 0.1− |
| 2007 03 14 | G96 | 0.2− | 0.1− | 2009 12 10 | H06 | 0.3− | 0.2− | 2009 12 25 | H06 | 0.6+ | 0.4− |
| 2007 04 23 | G96 | 0.3+ | 0.3+ | 2009 12 10 | 704 | 0.8+ | 0.8+ | 2009 12 25 | H06 | 0.3− | 0.6+ |
| 2007 04 23 | G96 | 0.0 | 0.3+ | 2009 12 11 | H06 | 0.9+ | 1.2− | 2009 12 26 | 691 | 0.1− | 0.0 |
| 2007 04 23 | G96 | 0.5− | 1.0− | 2009 12 11 | H06 | 0.6+ | 0.1+ | 2009 12 26 | 691 | 0.1+ | 0.0 |
| 2007 04 23 | G96 | 0.1+ | 0.1− | 2009 12 11 | H06 | 0.1+ | 0.1+ | 2009 12 26 | 691 | 0.1+ | 0.1+ |
| 2009 11 24 | 691 | 0.1− | 0.1− | 2009 12 13 | H06 | 1.4− | 1.1+ | 2009 12 26 | H06 | 0.2− | 0.4− |
| 2009 11 24 | 691 | 0.2+ | 0.2− | 2009 12 13 | H06 | 1.0− | 0.8+ | 2009 12 26 | H06 | 0.2− | 0.0 |
| 2009 11 24 | 691 | 0.0 | 0.0 | 2009 12 13 | H06 | 1.4− | 0.5+ | 2009 12 26 | H06 | 0.3+ | 0.1− |
| 2009 12 10 | H06 | 0.2− | 0.9+ | 2009 12 20 | H06 | 0.0 | 0.0 | | | | |

**2009 XF$_1$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 347.67377 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.17762141 | $\omega$ | 50.50253 | | −0.48925627 | | −0.82492499 |
| $a$ | 3.1342900 | $\Omega$ | 71.01219 | | +0.67970926 | | −0.56402938 |
| $e$ | 0.1687773 | $i$ | 17.41892 | | +0.54646466 | | −0.03700831 |
| $P$ | 5.55 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 11 19 | 599 | 0.2− | 0.0 | 2005 04 01 | 703 | 0.1+ | 0.2− | 2009 12 11 | H06 | 0.0 | 0.3+ |
| 2003 11 19 | 599 | 0.0 | 0.4− | 2005 04 01 | 703 | 0.9− | 1.2+ | 2009 12 11 | H06 | 0.3− | 0.3+ |
| 2003 11 19 | 599 | 0.1− | 0.3+ | 2005 04 10 | 703 | 0.2+ | 0.3− | 2009 12 13 | H06 | 0.4+ | 0.1− |
| 2003 11 19 | 599 | 0.1+ | 0.4+ | 2005 04 10 | 703 | 0.7+ | 0.2+ | 2009 12 13 | H06 | 0.2− | 0.5+ |
| 2005 03 01 | 703 | 0.5− | 0.5− | 2005 04 10 | 703 | 1.2− | 1.2+ | 2009 12 13 | H06 | 0.4+ | 0.2− |
| 2005 03 01 | 703 | 0.2− | 0.9− | 2005 04 10 | 703 | 1.1+ | 0.1+ | 2009 12 25 | H06 | 0.4− | 0.5− |
| 2005 03 01 | 703 | 0.1− | 0.2− | 2009 12 10 | H06 | 0.1− | 0.4+ | 2009 12 25 | H06 | 0.6− | 0.1− |
| 2005 03 01 | 703 | 0.2− | 0.1− | 2009 12 10 | H06 | 0.4+ | 0.2− | 2009 12 25 | H06 | 0.5− | 0.3− |
| 2005 04 01 | 703 | 0.3− | 0.2− | 2009 12 10 | H06 | 0.3+ | 0.1+ | | | | |
| 2005 04 01 | 703 | 1.3+ | 0.0 | 2009 12 11 | H06 | 0.7+ | 0.1− | | | | |

**2009 XH$_1$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 3.89118 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.21065052 | $\omega$ | 8.32685 | | −0.25119890 | | −0.95517021 |
| $a$ | 2.7974416 | $\Omega$ | 96.32818 | | +0.87873529 | | −0.29291579 |
| $e$ | 0.1752354 | $i$ | 9.07004 | | +0.40586132 | | +0.04301405 |
| $P$ | 4.68 | $H$ | 15.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 03 18 | 608 | 0.1+ | 0.0 | 2004 12 14 | 699 | 0.2+ | 0.2+ | 2009 12 11 | H06 | 0.5+ | 0.1+ |
| 2001 03 18 | 608 | 0.3− | 1.1+ | 2004 12 14 | 699 | 0.7− | 0.1+ | 2009 12 11 | H06 | 0.8− | 0.3+ |
| 2001 03 18 | 608 | 0.8− | 0.2+ | 2006 03 25 | G92 | 1.4− | 0.5+ | 2009 12 11 | H06 | 0.1− | 0.2− |
| 2001 03 24 | 699 | 0.6+ | 0.1− | 2006 03 25 | G92 | 0.0 | 0.7+ | 2009 12 11 | 704 | 0.8+ | 1.0+ |
| 2001 03 24 | 699 | 0.9+ | 0.8+ | 2006 03 25 | G92 | 0.2− | 1.1+ | 2009 12 11 | 704 | 0.5+ | 0.6+ |
| 2001 03 24 | 699 | 0.1− | 0.1+ | 2008 09 06 | 703 | 0.3+ | 1.8+ | 2009 12 11 | 704 | (1.8+ | 1.8+) |
| 2001 03 24 | 699 | 1.5+ | 0.5+ | 2008 09 06 | 703 | 0.6− | 0.5+ | 2009 12 13 | H06 | 0.1− | 0.3+ |
| 2001 03 26 | 608 | 0.2+ | 0.1− | 2008 09 06 | 703 | 0.6+ | 0.3+ | 2009 12 13 | H06 | 0.3− | 0.4+ |
| 2001 03 26 | 608 | 0.3+ | 0.3− | 2008 09 06 | 703 | 0.1+ | 0.1+ | 2009 12 13 | H06 | 0.1+ | 0.1+ |
| 2001 03 26 | 608 | 0.1− | 1.0− | 2009 11 10 | G96 | 0.1− | 0.2− | 2009 12 16 | 704 | (0.9+ | 1.6+) |
| 2004 11 04 | 703 | 0.1+ | 0.4− | 2009 11 10 | G96 | 0.0 | 0.3− | 2009 12 16 | 704 | 1.0+ | 1.1+ |
| 2004 11 04 | 703 | 0.8− | 0.4− | 2009 11 10 | G96 | 0.3− | 0.7− | 2009 12 16 | 704 | 0.5− | 0.8+ |
| 2004 11 04 | 703 | 0.6+ | 0.5+ | 2009 11 10 | G96 | 0.2+ | 0.5− | 2009 12 18 | 691 | 0.1− | 0.3− |
| 2004 11 04 | 703 | 0.9− | 0.5− | 2009 11 25 | G96 | 0.2+ | 0.3− | 2009 12 18 | G96 | 0.0 | 0.4− |
| 2004 12 02 | 699 | 0.3+ | 0.2+ | 2009 11 25 | G96 | 0.3− | 0.3− | 2009 12 18 | G96 | 0.4+ | 0.2− |
| 2004 12 02 | 699 | 0.5− | 0.1+ | 2009 11 25 | G96 | 0.3− | 0.5− | 2009 12 18 | 691 | 0.0 | 0.2− |
| 2004 12 02 | 699 | 0.4+ | 0.8+ | 2009 11 25 | G96 | 0.1− | 0.6− | 2009 12 18 | G96 | 0.3+ | 0.3− |
| 2004 12 02 | 699 | 1.0− | 0.9+ | 2009 12 10 | H06 | 0.2− | 0.0 | 2009 12 18 | G96 | 0.1+ | 0.4− |
| 2004 12 14 | 699 | 0.4− | 0.3+ | 2009 12 10 | H06 | 0.5+ | 0.3+ | 2009 12 18 | 691 | 0.0 | 0.2− |
| 2004 12 14 | 699 | 0.2+ | 0.3+ | 2009 12 10 | H06 | 0.0 | 0.2+ | | | | |

**2009 XG$_2$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 36.09513 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.19974468 | $\omega$ | 166.24330 | | +0.38404415 | | −0.88464870 |
| $a$ | 2.8983616 | $\Omega$ | 260.63876 | | +0.81975746 | | +0.45845893 |
| $e$ | 0.0474427 | $i$ | 15.54336 | | +0.42486209 | | −0.08492395 |
| $P$ | 4.93 | $H$ | 15.5 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 20 | 644 | 0.3+ | 0.1+ | 2008 09 23 | 703 | 0.2− | 0.4+ | 2009 12 11 | H06 | 1.1− | 0.0 |
| 2003 09 20 | 644 | 0.0 | 0.0 | 2008 10 25 | 703 | 1.1+ | 1.3− | 2009 12 11 | H06 | 0.7− | 0.6− |
| 2003 09 20 | 644 | 0.3− | 0.1− | 2008 10 25 | 703 | 0.7− | 0.0 | 2009 12 12 | H06 | 0.7− | 0.2+ |
| 2008 09 09 | 703 | 0.5+ | 0.5− | 2008 10 25 | 703 | 1.0− | 0.6− | 2009 12 12 | H06 | 1.1− | 0.4− |
| 2008 09 09 | 703 | 0.3+ | 0.3+ | 2008 10 25 | 703 | 0.3− | 0.5− | 2009 12 12 | H06 | 0.7− | 0.6− |
| 2008 09 09 | 703 | 0.4− | 0.3− | 2009 11 22 | G96 | 0.4+ | 0.5+ | 2009 12 18 | 704 | 1.3+ | 0.9+ |
| 2008 09 09 | 703 | 0.7− | 1.1+ | 2009 11 22 | G96 | 0.5+ | 0.2+ | 2009 12 18 | 704 | 1.0+ | 0.2− |
| 2008 09 23 | 703 | 1.0+ | 0.6+ | 2009 11 22 | G96 | 0.3+ | 0.5+ | 2009 12 18 | 704 | 0.2+ | 0.1− |
| 2008 09 23 | 703 | 0.6+ | 0.3+ | 2009 11 22 | G96 | 0.3+ | 0.6+ | 2009 12 18 | 704 | 1.2+ | 0.1− |
| 2008 09 23 | 703 | 0.2− | 0.4+ | 2009 12 11 | H06 | 0.8− | 0.3− | | | | |

## 2009 $XH_2$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 75.08232 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24206102 | $\omega$ | 339.74062 | | +0.98679156 | −0.11890378 | |
| $a$ | 2.5498785 | $\Omega$ | 27.80129 | | +0.16084208 | +0.80003352 | |
| $e$ | 0.1766406 | $i$ | 13.64396 | | −0.01929379 | +0.58805463 | |
| $P$ | 4.07 | $H$ | 16.3 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 04 17 | 691 | 0.1+ | 0.2+ | 2004 08 20 | E12 | 0.2+ | 0.0 | 2008 08 26 | E12 | 0.2− | 0.5+ |
| 1999 04 17 | 691 | 0.3− | 0.8+ | 2004 08 20 | E12 | 0.7− | 0.4− | 2008 08 26 | E12 | 0.8+ | 0.6+ |
| 1999 04 17 | 691 | 0.5− | 0.4− | 2006 01 25 | 699 | 1.2+ | 1.7− | 2009 09 24 | G96 | 0.0 | 0.1+ |
| 2002 01 09 | 645 | 0.1+ | 0.1+ | 2006 01 25 | 699 | 0.5+ | 1.4+ | 2009 09 24 | G96 | 0.2− | 0.1− |
| 2002 01 09 | 645 | 0.0 | 0.1+ | 2006 01 25 | 699 | 0.4+ | 0.5+ | 2009 09 24 | G96 | 0.2+ | 0.7− |
| 2004 07 14 | E12 | 0.1− | 0.0 | 2006 01 25 | 699 | 0.3+ | 0.8+ | 2009 09 24 | G96 | 0.4− | 0.1− |
| 2004 07 14 | E12 | 0.4+ | 0.9− | 2007 04 22 | G96 | 0.2+ | 0.5− | 2009 12 11 | H06 | 0.6− | 0.3+ |
| 2004 07 14 | E12 | 0.4+ | 0.5− | 2007 04 22 | G96 | 0.1+ | 0.0 | 2009 12 11 | H06 | 0.2− | 0.1− |
| 2004 07 14 | E12 | 0.5+ | 0.6+ | 2007 04 22 | G96 | 0.9+ | 0.7− | 2009 12 11 | H06 | 0.3− | 0.1+ |
| 2004 08 09 | E12 | 0.1− | 0.2+ | 2007 04 22 | G96 | 0.3+ | 0.6− | 2009 12 12 | H06 | 0.6− | 0.0 |
| 2004 08 09 | E12 | 0.2− | 0.3+ | 2008 07 31 | E12 | 0.4+ | 0.4+ | 2009 12 12 | H06 | 0.9− | 0.5+ |
| 2004 08 09 | E12 | 0.0 | 0.7+ | 2008 07 31 | E12 | 0.6− | 1.3+ | 2009 12 12 | H06 | 0.3− | 0.5− |
| 2004 08 09 | E12 | 0.4+ | 0.2+ | 2008 07 31 | E12 | 0.4− | 0.2+ | 2009 12 16 | H06 | 0.1+ | 0.2− |
| 2004 08 20 | E12 | 0.2+ | 0.0 | 2008 07 31 | E12 | 0.6− | 1.0+ | 2009 12 16 | H06 | 0.5− | 0.2+ |
| 2004 08 20 | E12 | 0.1+ | 0.6− | 2008 08 26 | E12 | 0.0 | 0.7+ | 2009 12 16 | H06 | 0.4+ | 0.3− |

## 2009 $XK_2$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 345.04891 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.29511274 | $\omega$ | 222.50161 | | −0.64863170 | −0.75534800 | |
| $a$ | 2.2343133 | $\Omega$ | 268.15978 | | +0.72100793 | −0.57050554 | |
| $e$ | 0.1015268 | $i$ | 5.36286 | | +0.24377137 | −0.32244820 | |
| $P$ | 3.34 | $H$ | 17.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 11 24 | 644 | 0.3− | 0.0 | 2007 03 13 | 703 | 0.7+ | 1.0+ | 2009 12 11 | H06 | 0.0 | 0.3+ |
| 2002 11 24 | 644 | 0.2− | 0.1+ | 2007 03 20 | 703 | 0.9+ | 0.7+ | 2009 12 12 | H06 | 0.1+ | 0.5+ |
| 2002 11 24 | 644 | 0.2− | 0.4+ | 2007 03 20 | 703 | 0.3− | 1.2− | 2009 12 12 | H06 | 0.0 | 0.2− |
| 2002 12 02 | 608 | 0.6+ | 0.1− | 2007 03 20 | 703 | 0.3− | 0.4+ | 2009 12 12 | H06 | 0.4+ | 0.2− |
| 2002 12 02 | 608 | 0.3+ | 0.3− | 2007 03 20 | 703 | 0.1+ | 0.2+ | 2009 12 15 | G96 | 0.2+ | 0.3− |
| 2002 12 11 | 644 | 0.3− | 0.2− | 2007 04 16 | 703 | 0.9− | 0.3+ | 2009 12 15 | G96 | 0.3+ | 0.5− |
| 2002 12 11 | 644 | 0.1− | 0.4+ | 2007 04 16 | 703 | 0.8− | 0.2+ | 2009 12 15 | G96 | 0.0 | 0.3− |
| 2005 08 30 | 291 | 0.2+ | 0.3+ | 2007 04 16 | 703 | 0.8+ | 1.3+ | 2009 12 15 | G96 | 0.2− | 0.2− |
| 2005 08 30 | 291 | 0.1+ | 0.1+ | 2007 04 16 | 703 | 0.1− | 0.9+ | 2009 12 16 | H06 | 0.4+ | 0.2+ |
| 2005 08 30 | 291 | 0.1+ | 0.2+ | 2009 09 28 | 691 | (1.6− | 0.1+) | 2009 12 16 | H06 | 0.1+ | 0.3− |
| 2005 10 01 | 703 | 0.8− | 0.5+ | 2009 09 28 | 691 | 0.2− | 0.3+ | 2009 12 16 | H06 | 0.7+ | 0.5+ |
| 2005 10 01 | 703 | 0.9− | 0.5+ | 2009 09 28 | 691 | 0.4− | 0.6+ | 2009 12 20 | 691 | 0.3− | 0.1+ |
| 2005 10 01 | 703 | 0.3− | 0.5+ | 2009 11 16 | G96 | 0.5+ | 0.3− | 2009 12 20 | 691 | 0.2− | 0.0 |
| 2005 10 01 | 703 | 0.8− | 0.6+ | 2009 11 16 | G96 | 0.1+ | 0.1− | 2009 12 20 | 691 | 0.2− | 0.1− |
| 2007 03 13 | 703 | 0.5+ | 0.8+ | 2009 11 16 | G96 | 0.1+ | 0.1+ | 2009 12 27 | 691 | 0.0 | 0.2− |
| 2007 03 13 | 703 | 0.8+ | 0.2− | 2009 12 11 | H06 | 0.0 | 0.3+ | 2009 12 27 | 691 | 0.1+ | 0.2− |
| 2007 03 13 | 703 | 0.6+ | 0.5+ | 2009 12 11 | H06 | 0.6+ | 0.2− | 2009 12 27 | 691 | 0.1+ | 0.1+ |

## 2009 $XX_2$ = 2007 $ER_{61}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 49.10567 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.27948548 | $\omega$ | 339.96657 | | +0.84896836 | −0.52668474 | |
| $a$ | 2.3168427 | $\Omega$ | 51.88992 | | +0.49199290 | +0.75802499 | |
| $e$ | 0.2073425 | $i$ | 3.13862 | | +0.19286187 | +0.38470937 | |
| $P$ | 3.53 | $H$ | 17.3 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 09 24 | 699 | 0.7− | 1.8+ | 2005 11 03 | G96 | 0.3+ | 0.1+ | 2009 11 17 | G96 | 0.1+ | 0.0 |
| 1998 09 24 | 699 | 1.2− | 1.1+ | 2005 11 03 | G96 | 0.1− | 0.5+ | 2009 11 17 | G96 | 0.1+ | 0.1− |
| 1998 09 24 | 699 | 0.1+ | 1.0+ | 2005 12 01 | G96 | 0.0 | 0.5+ | 2009 11 17 | G96 | 0.1+ | 0.0 |
| 2005 08 27 | 644 | 0.2+ | 0.6+ | 2005 12 01 | G96 | 0.2− | 0.3− | 2009 11 17 | G96 | 0.4+ | 0.2+ |
| 2005 08 27 | 644 | 0.2+ | 0.5+ | 2005 12 01 | G96 | 0.5− | 0.3− | 2009 12 12 | H06 | 0.8+ | 0.2+ |
| 2005 08 27 | 644 | 0.1+ | 0.5+ | 2005 12 01 | G96 | 0.2− | 0.2− | 2009 12 12 | H06 | 0.6+ | 0.3+ |
| 2005 09 13 | 703 | 1.4+ | 1.1− | 2007 03 10 | 691 | 0.2+ | 0.1+ | 2009 12 12 | H06 | 0.6+ | 0.2− |
| 2005 09 13 | 703 | (0.1− | 1.7−) | 2007 03 10 | 691 | 0.0 | 0.3+ | 2009 12 13 | H06 | 1.0+ | 0.3+ |
| 2005 09 13 | 703 | 0.6− | 1.0− | 2007 03 10 | 691 | 0.3− | 0.4+ | 2009 12 13 | H06 | 0.8+ | 0.2− |
| 2005 09 13 | 703 | 0.1− | 1.0+ | 2007 03 14 | G96 | 0.1+ | 0.0 | 2009 12 13 | H06 | 0.3+ | 0.7+ |
| 2005 09 26 | 703 | (0.2+ | 1.8+) | 2007 03 14 | G96 | 0.2+ | 0.1− | 2009 12 16 | H06 | 0.2+ | 0.6+ |
| 2005 09 26 | 703 | 0.7− | 0.1+ | 2007 03 14 | G96 | 0.3+ | 0.1− | 2009 12 16 | H06 | 1.2+ | 0.2− |
| 2005 09 26 | 703 | 0.1− | 0.6− | 2007 03 14 | G96 | 0.4− | 0.1+ | 2009 12 16 | H06 | 0.5+ | 0.0 |
| 2005 09 26 | 703 | 0.5+ | 0.9− | 2009 08 18 | 691 | 0.9− | 0.1+ | 2009 12 27 | 691 | 0.1+ | 0.1− |
| 2005 11 03 | G96 | 0.1+ | 0.1− | 2009 08 18 | 691 | 0.4− | 0.7− | 2009 12 27 | 691 | 0.5− | 0.1+ |
| 2005 11 03 | G96 | 0.2+ | 0.0 | 2009 08 18 | 691 | 0.1− | 0.8− | 2009 12 27 | 691 | 0.3− | 0.1− |

## 2009 $XZ_2$ = 2006 $AK_2$ = 2007 $DY_{100}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 14.85276 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.24583052 | $\omega$ | 309.26344 | | +0.41671722 | −0.89691632 | |
| $a$ | 2.5237453 | $\Omega$ | 115.51182 | | +0.87634140 | +0.35311755 | |
| $e$ | 0.0891067 | $i$ | 9.43504 | | +0.24160402 | +0.26617497 | |
| $P$ | 4.01 | $H$ | 16.0 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 07 31 | 807 | 0.0 | 0.3+ | 2006 02 04 | G96 | 0.1+ | 0.0 | 2009 11 27 | G96 | 0.0 | 0.1− |
| 2000 07 31 | 807 | 0.0 | 0.0 | 2006 02 04 | G96 | 0.4+ | 0.1− | 2009 11 27 | G96 | 0.1− | 0.1+ |
| 2006 01 03 | 704 | 0.0 | 0.2+ | 2007 02 25 | 291 | 0.3+ | 0.1+ | 2009 12 08 | J75 | 0.1+ | 0.0 |
| 2006 01 03 | 704 | 0.4+ | 0.5− | 2007 02 25 | 291 | 0.0 | 0.2− | 2009 12 08 | J75 | 0.1+ | 0.6− |
| 2006 01 03 | 704 | 0.8− | 0.2+ | 2007 02 25 | 291 | 0.2− | 0.5− | 2009 12 08 | J75 | 0.4− | 0.8+ |
| 2006 01 04 | 699 | 1.2+ | 0.2− | 2007 02 27 | 291 | 0.2− | 0.1+ | 2009 12 11 | 703 | 0.6+ | 0.2+ |
| 2006 01 04 | 699 | 1.4− | 0.8+ | 2007 02 27 | 291 | 0.4− | 0.2− | 2009 12 11 | 703 | 0.4− | 0.1+ |
| 2006 01 04 | 699 | 0.3− | 0.9+ | 2007 02 27 | 291 | 0.6+ | 0.8+ | 2009 12 11 | 703 | 0.2+ | 0.9− |
| 2006 01 04 | 699 | 0.4+ | 0.1+ | 2009 11 27 | G96 | 0.0 | 0.0 | 2009 12 11 | 703 | 0.2+ | 0.0 |
| 2006 02 04 | G96 | 0.2− | 0.0 | 2009 11 27 | G96 | 0.0 | 0.0 | | | | |
| 2006 02 04 | G96 | 0.2+ | 0.4− | 2009 11 27 | G96 | 0.1− | 0.0 | | | | |

## 2009 $XP_3$ = 2003 $SU_{136}$

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 4.35163 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18946868 | $\omega$ | 202.01429 | | +0.16462416 | −0.98352795 | |
| $a$ | 3.0022333 | $\Omega$ | 238.58151 | | +0.91750583 | +0.18047148 | |
| $e$ | 0.1849827 | $i$ | 5.01795 | | +0.36205241 | −0.01013991 | |
| $P$ | 5.20 | $H$ | 16.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 20 | 691 | 0.1− | 0.1− | 2003 09 26 | 645 | 0.0 | 0.1+ | 2009 12 09 | J75 | 0.0 | 0.2+ |
| 2003 09 20 | 691 | 0.3+ | 0.1+ | 2003 10 17 | 645 | 0.1+ | 0.0 | 2009 12 09 | J75 | 0.2+ | 0.3+ |
| 2003 09 20 | 691 | 0.4+ | 0.1− | 2003 10 17 | 645 | 0.1− | 0.0 | 2009 12 11 | G96 | 0.1− | 0.1+ |
| 2003 09 22 | 691 | 0.1+ | 0.3− | 2009 11 16 | 691 | 0.2− | 0.0 | 2009 12 11 | G96 | 0.0 | 0.1+ |
| 2003 09 22 | 691 | 0.2− | 0.3+ | 2009 11 16 | 691 | 0.3− | 0.2− | 2009 12 11 | G96 | 0.2+ | 0.4+ |
| 2003 09 22 | 691 | 0.2− | 0.1− | 2009 11 16 | 691 | 0.2+ | 0.2− | 2009 12 11 | G96 | 0.1+ | 0.2+ |
| 2003 09 26 | 645 | 0.1− | 0.0 | 2009 12 09 | J75 | 0.5+ | 0.0 | | | | |

**2009 XL$_6$ = 2003 SO$_{48}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 22.30406 | | (2000.0) | | +0.18010941 | −0.97399021 |
| $n$ | 0.19571952 | $\omega$ | 195.36846 | | +0.91778637 | +0.21668641 |
| $a$ | 2.9379650 | $\Omega$ | 244.41808 | | +0.35387678 | −0.06625762 |
| $e$ | 0.0818790 | $i$ | 8.76800 | | | |
| $P$ | 5.04 | $H$ | 15.7 | $G$ 0.15 | $U$ 3 | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 18 | 644 | 0.2− | 0.3+ | 2008 10 30 | G96 | 0.1− | 0.1− | 2009 12 12 | H06 | 0.2− | 0.4+ |
| 2003 09 18 | 644 | 0.1− | 0.1+ | 2008 10 30 | G96 | 0.1+ | 0.2+ | 2009 12 14 | H06 | 0.0 | 0.8− |
| 2003 09 18 | 644 | 0.1− | 0.4− | 2008 10 30 | G96 | 0.5+ | 0.2− | 2009 12 14 | H06 | 0.5+ | 0.0 |
| 2003 09 20 | 691 | 0.0 | 0.0 | 2008 10 30 | G96 | 0.1+ | 0.4− | 2009 12 14 | H06 | 0.1− | 0.3+ |
| 2003 09 20 | 691 | 0.1− | 0.1− | 2009 11 22 | G96 | 0.3− | 0.2+ | 2009 12 20 | H06 | 0.4+ | 0.0 |
| 2003 09 20 | 691 | 0.1+ | 0.0 | 2009 11 22 | G96 | 0.4+ | 0.0 | 2009 12 20 | H06 | 0.5+ | 0.0 |
| 2008 09 22 | 703 | 1.2− | 0.4− | 2009 11 22 | G96 | 0.4− | 0.2+ | 2009 12 20 | H06 | 0.9+ | 0.5+ |
| 2008 09 22 | 703 | 1.1− | 0.2+ | 2009 11 22 | G96 | 0.2+ | 0.5+ | 2009 12 20 | 691 | 0.0 | 0.0 |
| 2008 09 22 | 703 | 0.5+ | 0.0 | 2009 12 12 | H06 | 0.0 | 0.4− | 2009 12 20 | 691 | 0.2− | 0.1− |
| 2008 09 22 | 703 | 1.4+ | 0.7+ | 2009 12 12 | H06 | 0.3− | 0.2− | 2009 12 20 | 691 | 0.2− | 0.0 |

**2009 XM$_6$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 277.59381 | | (2000.0) | | −0.83112411 | +0.48786695 |
| $n$ | 0.17735922 | $\omega$ | 309.02941 | | −0.38927003 | −0.85313790 |
| $a$ | 3.1373781 | $\Omega$ | 261.69812 | | −0.39711656 | −0.18477438 |
| $e$ | 0.1913899 | $i$ | 15.64607 | | | |
| $P$ | 5.56 | $H$ | 14.9 | $G$ 0.15 | $U$ 2 | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 11 29 | 691 | 0.2− | 0.0 | 2005 04 11 | 699 | 1.0+ | 0.3+ | 2009 12 14 | H06 | 0.8+ | 0.6− |
| 2003 11 29 | 691 | 0.1− | 0.1+ | 2008 11 30 | 703 | 0.1+ | 0.0 | 2009 12 14 | H06 | 1.2+ | 0.4− |
| 2003 11 29 | 691 | 0.0 | 0.2+ | 2008 11 30 | 703 | 0.9+ | 0.6− | 2009 12 20 | H06 | 0.9+ | 0.4+ |
| 2003 12 29 | 691 | 0.3+ | 0.3+ | 2008 11 30 | 703 | 1.3− | 0.4− | 2009 12 20 | H06 | 0.2+ | 0.2− |
| 2003 12 29 | 691 | 0.3+ | 0.0 | 2008 11 30 | 703 | 0.4+ | 0.6− | 2009 12 20 | H06 | 0.5+ | 0.2+ |
| 2003 12 29 | 691 | 0.1− | 0.3+ | 2009 11 22 | G96 | 0.0 | 0.4− | 2009 12 20 | 691 | 0.3− | 0.2− |
| 2005 01 19 | 703 | 0.0 | 0.7+ | 2009 11 22 | G96 | 0.2+ | 0.5− | 2009 12 20 | 691 | 0.4− | 0.0 |
| 2005 01 19 | 703 | 1.1− | 0.0 | 2009 11 22 | G96 | 0.3− | 0.1− | 2009 12 20 | 691 | 0.3− | 0.1− |
| 2005 01 19 | 703 | 0.0 | 0.7− | 2009 11 22 | G96 | 0.3+ | 0.0 | 2009 12 25 | H06 | 0.4+ | 0.5− |
| 2005 01 19 | 703 | 0.6+ | 0.5+ | 2009 12 13 | H06 | 0.2+ | 0.9+ | 2009 12 25 | H06 | 0.4− | 0.4+ |
| 2005 04 11 | 699 | 0.1− | 0.7− | 2009 12 13 | H06 | 0.0 | 0.2+ | 2009 12 25 | H06 | 0.2+ | 0.8− |
| 2005 04 11 | 699 | 0.2− | 0.4+ | 2009 12 13 | H06 | 1.1− | 1.2+ | | | | |
| 2005 04 11 | 699 | 0.2− | 0.5− | 2009 12 14 | H06 | 0.3+ | 0.5− | | | | |

**2009 XB$_7$ = 2005 BM$_{33}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 32.38665 | | (2000.0) | | +0.70355087 | −0.69394940 |
| $n$ | 0.17838092 | $\omega$ | 282.56675 | | +0.70162191 | +0.64406924 |
| $a$ | 3.1253869 | $\Omega$ | 121.61765 | | +0.11288432 | +0.32188359 |
| $e$ | 0.0778611 | $i$ | 10.35974 | | | |
| $P$ | 5.53 | $H$ | 15.7 | $G$ 0.15 | $U$ 0 | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 04 16 | 691 | 0.1− | 0.6− | 2005 01 16 | 568 | 0.3− | 0.4+ | 2009 12 12 | D25 | 0.4+ | 0.5+ |
| 2001 04 16 | 691 | 0.2+ | 0.3+ | 2005 01 16 | 568 | 0.3− | 0.4+ | 2009 12 12 | D25 | 0.0 | 0.1+ |
| 2001 04 16 | 691 | 0.3+ | 0.3+ | 2005 01 17 | 568 | 0.4+ | 0.8− | 2009 12 12 | D25 | 0.4+ | 0.4+ |
| 2002 07 04 | 291 | 0.3− | 0.0 | 2008 09 06 | 703 | 0.6− | 1.2+ | 2009 12 13 | D25 | 0.0 | 0.9+ |
| 2002 07 04 | 291 | 0.2− | 0.1+ | 2008 09 06 | 703 | 0.1+ | 0.0 | 2009 12 13 | D25 | 0.9+ | 0.3+ |
| 2002 07 04 | 291 | 0.3− | 0.2+ | 2008 09 06 | 703 | 0.7+ | 0.2+ | 2009 12 13 | D25 | 0.4+ | 0.3+ |
| 2003 09 27 | 645 | 0.1+ | 0.0 | 2008 09 06 | 703 | 0.8+ | 0.4+ | 2009 12 13 | D25 | 0.9+ | 0.9+ |
| 2003 09 27 | 645 | 0.1+ | 0.0 | 2009 11 27 | G96 | 0.1+ | 0.3− | 2009 12 15 | 703 | 1.6− | 0.2− |
| 2003 10 27 | 699 | 0.2+ | 0.3− | 2009 11 27 | G96 | 0.4− | 0.2− | 2009 12 15 | 703 | 0.1+ | 0.1+ |
| 2003 10 27 | 699 | 1.2− | 0.3− | 2009 11 27 | G96 | 0.7− | 0.1− | 2009 12 15 | 703 | 0.9− | 0.4+ |
| 2003 10 27 | 699 | 0.3− | 0.2− | 2009 11 27 | G96 | 0.6− | 0.3− | 2009 12 15 | 703 | 0.3− | 0.6− |
| 2003 10 27 | 699 | 0.3− | 0.2+ | 2009 11 27 | G96 | 0.4− | 0.2− | | | | |
| 2005 01 16 | 568 | 0.1− | 0.3+ | 2009 12 12 | D25 | 0.1+ | 0.6+ | | | | |

**2009 XO$_7$ = 2000 OY$_{30}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 51.51219 | | (2000.0) | | +0.98296807 | −0.18127425 |
| $n$ | 0.23477253 | $\omega$ | 162.83465 | | +0.16004586 | +0.92521539 |
| $a$ | 2.6023829 | $\Omega$ | 207.66416 | | +0.09032769 | +0.33334085 |
| $e$ | 0.2463217 | $i$ | 3.73230 | | | |
| $P$ | 4.20 | $H$ | 16.0 | $G$ 0.15 | $U$ 1 | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1992 11 18 | 691 | 0.1+ | 0.5+ | 2003 04 26 | 691 | 1.1+ | 0.9+ | 2009 12 12 | J75 | 0.2+ | 0.4− |
| 1992 11 18 | 691 | 0.4− | 0.3+ | 2003 04 26 | 691 | 0.5+ | 0.8+ | 2009 12 12 | J75 | 0.2+ | 0.2− |
| 1992 11 18 | 691 | 0.1− | 0.4+ | 2007 03 26 | G96 | 0.8− | 0.2− | 2009 12 12 | J75 | 0.3+ | 0.2− |
| 2000 07 30 | 704 | 0.4− | 1.5+ | 2007 03 26 | G96 | 0.5− | 0.3− | 2009 12 13 | G96 | 0.2+ | 0.1+ |
| 2000 07 30 | 704 | 0.4+ | 0.7+ | 2007 03 26 | G96 | 0.1− | 0.5− | 2009 12 13 | G96 | 0.2− | 0.1+ |
| 2000 07 30 | 704 | 0.1− | 0.1+ | 2007 03 26 | G96 | 0.9− | 0.0 | 2009 12 13 | G96 | 0.4− | 0.7+ |
| 2000 07 30 | 704 | 0.4− | 0.9+ | 2007 04 19 | G96 | 0.7− | 0.4− | 2009 12 13 | G96 | 1.3+ | 0.8+ |
| 2000 07 30 | 704 | 0.2+ | 0.1+ | 2007 04 19 | G96 | 0.8− | 0.0 | 2009 12 17 | 704 | 0.0 | 0.8+ |
| 2000 08 02 | 704 | 0.8+ | 1.4+ | 2007 04 19 | G96 | 1.4− | 0.0 | 2009 12 17 | 704 | 0.2+ | 0.2− |
| 2000 08 02 | 704 | 0.1− | 0.1+ | 2007 04 19 | G96 | 0.1+ | 0.4− | 2009 12 17 | 704 | 0.1+ | 0.1− |
| 2000 08 02 | 704 | 1.4− | 0.5− | 2009 11 23 | 691 | 0.3− | 0.1+ | 2009 12 17 | 704 | 0.1+ | 0.3+ |
| 2000 08 02 | 704 | 0.5− | 0.5+ | 2009 11 23 | 691 | 0.0 | 0.2+ | 2009 12 17 | 704 | 0.3+ | 0.1− |
| 2003 04 26 | 691 | 0.6+ | 1.4+ | 2009 11 23 | 691 | 0.2− | 0.2+ | | | | |

**2009 XZ$_7$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 332.49166 | | (2000.0) | | −0.52413884 | −0.75758205 |
| $n$ | 0.23607682 | $\omega$ | 27.98956 | | +0.68992936 | −0.64553316 |
| $a$ | 2.5927889 | $\Omega$ | 96.15915 | | +0.49927543 | +0.09672837 |
| $e$ | 0.1289032 | $i$ | 23.03499 | | | |
| $P$ | 4.17 | $H$ | 16.6 | $G$ 0.15 | $U$ 2 | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 11 26 | G96 | 0.2+ | 0.1+ | 2006 01 24 | 703 | 0.6+ | 0.2+ | 2009 12 17 | H06 | 0.3+ | 0.5− |
| 2005 11 26 | G96 | 0.1+ | 0.0 | 2007 04 25 | G96 | 0.3− | 0.2+ | 2009 12 17 | H06 | 0.3− | 0.2+ |
| 2005 11 26 | G96 | 0.4− | 0.1+ | 2007 04 25 | G96 | 0.2+ | 0.1− | 2009 12 17 | H06 | 0.1+ | 0.4− |
| 2005 11 26 | G96 | 0.1+ | 0.0 | 2007 04 25 | G96 | 0.1+ | 0.1− | 2009 12 20 | H06 | 0.0 | 0.2− |
| 2005 12 29 | 703 | 0.6+ | 0.4− | 2007 04 25 | G96 | 0.1+ | 0.0 | 2009 12 20 | H06 | 0.2+ | 0.4− |
| 2005 12 29 | 703 | 0.1+ | 0.6− | 2009 12 15 | H06 | 0.2− | 0.0 | 2009 12 20 | H06 | 0.2− | 0.1− |
| 2005 12 29 | 703 | 0.1+ | 1.7+ | 2009 12 15 | H06 | 0.6+ | 0.5− | 2009 12 25 | H06 | 0.1− | 1.1+ |
| 2005 12 29 | 703 | 0.4− | 0.3− | 2009 12 15 | H06 | 0.8− | 0.3+ | 2009 12 25 | H06 | 0.3+ | 0.3+ |
| 2006 01 24 | 703 | 0.4− | 0.8− | 2009 12 16 | H06 | 0.4+ | 0.4− | 2009 12 25 | H06 | 0.1− | 1.0+ |
| 2006 01 24 | 703 | 0.4− | 0.1− | 2009 12 16 | H06 | 0.1+ | 0.3− | | | | |
| 2006 01 24 | 703 | 0.3− | 0.1+ | 2009 12 16 | H06 | 0.5− | 0.0 | | | | |

**2009 XG$_9$ = 2005 SA$_{293}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 41.00212 | | (2000.0) | | +0.82856440 | −0.55768966 |
| $n$ | 0.27478912 | $\omega$ | 130.58920 | | +0.49741817 | +0.77390284 |
| $a$ | 2.3431658 | $\Omega$ | 263.36272 | | +0.25701401 | +0.30009437 |
| $e$ | 0.1287728 | $i$ | 2.86405 | | | |
| $P$ | 3.59 | $H$ | 17.4 | $G$ 0.15 | $U$ 3 | |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 09 23 | 703 | 0.1+ | 0.5+ | 2009 11 09 | 691 | 0.1− | 0.2− | 2009 12 13 | 857 | 0.6− | 0.4+ |
| 2005 09 23 | 703 | (1.1+ | 1.8−) | 2009 11 09 | 691 | 0.0 | 0.2− | 2009 12 17 | H11 | 0.6+ | 0.1+ |
| 2005 09 23 | 703 | 0.6− | 0.9+ | 2009 11 09 | 691 | 0.1− | 0.2− | 2009 12 17 | H11 | 0.4− | 0.7+ |
| 2005 09 23 | 703 | 0.7− | 0.5+ | 2009 11 25 | 691 | 0.1− | 0.1− | 2009 12 19 | G96 | 0.2+ | 0.2+ |
| 2005 10 01 | 703 | 0.3+ | 0.5+ | 2009 11 25 | 691 | 0.0 | 0.1− | 2009 12 19 | G96 | 0.4+ | 0.2+ |
| 2005 10 01 | 703 | 0.1− | 0.6+ | 2009 11 25 | 691 | 0.0 | 0.1+ | 2009 12 19 | G96 | 0.2− | 0.1+ |
| 2005 10 01 | 703 | 0.2+ | 0.3− | 2009 12 10 | G96 | 0.3− | 0.2+ | 2009 12 19 | G96 | 0.1+ | 0.3+ |
| 2005 10 01 | 703 | 0.0 | 0.0 | 2009 12 10 | G96 | 0.0 | 0.1+ | 2009 12 23 | 114 | 0.4+ | 0.1+ |
| 2005 11 01 | G96 | 0.5+ | 0.7− | 2009 12 10 | G96 | 0.3+ | 0.1+ | 2009 12 23 | 114 | 0.4+ | 0.1− |
| 2005 11 01 | G96 | 0.3+ | 0.8− | 2009 12 10 | G96 | 0.2− | 0.2+ | 2009 12 23 | 114 | 0.2+ | 0.1+ |
| 2005 11 01 | G96 | 0.1− | 0.5− | 2009 12 13 | 857 | 0.4+ | 0.6+ | 2009 12 23 | 114 | 0.5− | 0.3+ |
| 2005 11 01 | G96 | 0.1+ | 0.7− | 2009 12 13 | 857 | 0.3+ | 0.0 | 2009 12 23 | 114 | 0.4− | 0.2− |

**2009 XL$_9$ = 2000 SP$_{348}$ = 2006 AH**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 353.65467 | | (2000.0) | | | |
| $n$ | 0.23612845 | $\omega$ | 199.04116 | | −0.10675681 | −0.95518909 |
| $a$ | 2.5924109 | $\Omega$ | 257.83590 | | +0.94496362 | −0.01110647 |
| $e$ | 0.1207682 | $i$ | 16.40437 | | +0.30926808 | −0.29578784 |
| $P$ | 4.17 | $H$ | 15.5 | $G$ | 0.15 | $U$ 1 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 20 | 608 | 0.5− | 0.9− | 2006 01 02 | 704 | 0.2− | 0.8+ | 2009 12 10 | G96 | 0.1+ | 0.2− |
| 2000 09 20 | 608 | 0.6− | 0.9− | 2006 01 02 | 704 | 0.7+ | 1.1− | 2009 12 10 | G96 | 0.1+ | 0.1− |
| 2000 09 20 | 608 | 0.9− | 0.6− | 2006 01 03 | 704 | 1.1+ | 0.8+ | 2009 12 10 | G96 | 0.1+ | 0.0 |
| 2000 09 30 | 704 | 0.5+ | 1.1+ | 2006 01 03 | 704 | 0.2+ | 1.2+ | 2009 12 10 | G96 | 0.1+ | 0.0 |
| 2000 09 30 | 704 | 0.5+ | 0.0 | 2006 01 03 | 704 | 0.1+ | 0.3+ | 2009 12 11 | 704 | 0.0 | 0.4− |
| 2000 09 30 | 704 | 0.6+ | 1.0+ | 2006 01 03 | 704 | 0.3+ | 0.6+ | 2009 12 11 | 704 | 0.5− | 0.4+ |
| 2002 02 21 | 644 | 0.1+ | 0.4+ | 2006 01 03 | 704 | 0.0 | 0.4+ | 2009 12 11 | 704 | 0.9− | 0.6− |
| 2002 02 21 | 644 | 0.3− | 0.1− | 2008 07 31 | G96 | 0.2+ | 0.0 | 2009 12 11 | 704 | 0.5+ | 0.3+ |
| 2002 02 21 | 644 | 0.2− | 0.3+ | 2008 07 31 | G96 | 0.0 | 0.0 | 2009 12 17 | 704 | 0.3+ | 0.8− |
| 2004 09 07 | 644 | 0.3+ | 0.8+ | 2008 07 31 | G96 | 0.3+ | 0.0 | 2009 12 17 | 704 | 0.6− | 0.1+ |
| 2004 09 07 | 644 | 0.2+ | 0.6+ | 2008 07 31 | G96 | 0.6− | 0.2+ | 2009 12 17 | 704 | 0.4− | 0.0 |
| 2004 09 07 | 644 | 0.6− | 0.3+ | 2009 11 21 | 691 | 0.0 | 0.2− | 2009 12 17 | 704 | 0.2− | 0.1+ |
| 2006 01 02 | 704 | 0.2+ | 1.0− | 2009 11 21 | 691 | 0.1+ | 0.1− | | | | |
| 2006 01 02 | 704 | 0.0 | 0.2− | 2009 11 21 | 691 | 0.0 | 0.2+ | | | | |

**2009 XW$_{10}$ = 2005 YD$_{113}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 268.91460 | | (2000.0) | | | |
| $n$ | 0.24706310 | $\omega$ | 316.74270 | | −0.92816062 | +0.37155785 |
| $a$ | 2.5153444 | $\Omega$ | 245.08049 | | −0.33467776 | −0.85852251 |
| $e$ | 0.0450676 | $i$ | 1.35899 | | −0.16281478 | −0.35338911 |
| $P$ | 3.99 | $H$ | 16.9 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 09 28 | 691 | 0.1− | 0.1− | 2007 03 15 | G96 | 0.0 | 0.3− | 2009 11 10 | G96 | 0.4− | 0.4− |
| 2000 09 28 | 691 | 0.3− | 0.3− | 2007 03 15 | G96 | 0.4− | 0.0 | 2009 11 10 | G96 | 0.5+ | 0.5+ |
| 2000 09 28 | 691 | 0.5− | 0.5− | 2007 04 22 | G96 | 0.0 | 0.2− | 2009 11 10 | G96 | 0.0 | 0.6− |
| 2004 09 15 | 691 | 0.6+ | 0.3+ | 2007 04 22 | G96 | 0.2+ | 0.2− | 2009 12 10 | G96 | 0.1+ | 0.2− |
| 2004 09 15 | 691 | 0.5+ | 0.2+ | 2007 04 22 | G96 | 0.1− | 0.2− | 2009 12 10 | G96 | 0.2+ | 0.2+ |
| 2004 09 15 | 691 | 0.1+ | 0.3+ | 2007 04 22 | G96 | 0.0 | 0.1− | 2009 12 10 | G96 | 0.2− | 0.0 |
| 2005 12 25 | G96 | 0.1− | 0.5− | 2008 10 21 | G96 | 0.3− | 0.3+ | 2009 12 10 | G96 | 0.0 | 0.2− |
| 2005 12 25 | G96 | 0.1− | 0.2− | 2008 10 21 | G96 | 0.7− | 0.3+ | 2009 12 17 | 691 | 0.1+ | 0.2+ |
| 2005 12 25 | G96 | 0.5+ | 0.2− | 2008 10 21 | G96 | 0.4− | 0.4+ | 2009 12 17 | 691 | 0.2− | 0.3− |
| 2005 12 25 | G96 | 0.5+ | 0.3− | 2008 10 21 | G96 | 0.1− | 0.1+ | 2009 12 17 | 691 | 0.3− | 0.0 |
| 2005 12 29 | 691 | 0.3+ | 0.1+ | 2008 11 24 | G96 | 0.3+ | 0.5− | 2009 12 25 | 691 | 0.3− | 0.1− |
| 2005 12 29 | 691 | 0.1− | 0.1+ | 2008 11 24 | G96 | 0.2− | 0.3− | 2009 12 25 | 691 | 0.1− | 0.3+ |
| 2005 12 29 | 691 | 0.4+ | 0.1− | 2008 11 24 | G96 | 0.3− | 0.7− | 2009 12 25 | 691 | 0.1+ | 0.1+ |
| 2007 03 15 | G96 | 0.2− | 0.3+ | 2008 11 24 | G96 | 0.3+ | 0.4− | | | | |
| 2007 03 15 | G96 | 0.4+ | 0.2− | 2009 11 10 | G96 | 0.1− | 0.2− | | | | |

**2009 XH$_{11}$ = 1999 RZ$_{192}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 318.43673 | | (2000.0) | | | |
| $n$ | 0.21280434 | $\omega$ | 56.85445 | | −0.90108442 | −0.42114149 |
| $a$ | 2.7785341 | $\Omega$ | 98.05182 | | +0.35491979 | −0.85320914 |
| $e$ | 0.0996158 | $i$ | 5.99293 | | +0.24915620 | −0.30769143 |
| $P$ | 4.63 | $H$ | 15.9 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 09 15 | 691 | 0.1− | 0.1+ | 2006 03 22 | 703 | 1.1− | 1.0− | 2009 12 10 | G96 | 0.5+ | 0.4− |
| 1999 09 15 | 691 | 0.5− | 0.2+ | 2006 03 22 | 703 | 0.5+ | 0.1+ | 2009 12 10 | G96 | 0.9+ | 0.4− |
| 1999 09 15 | 691 | 0.6+ | 0.1− | 2009 10 15 | G96 | 0.4− | 0.3+ | 2009 12 16 | 691 | 0.0 | 0.0 |
| 1999 09 18 | 691 | 0.0 | 0.1− | 2009 10 15 | G96 | 0.0 | 0.1+ | 2009 12 16 | 691 | 0.3+ | 0.5− |
| 1999 09 18 | 691 | 0.0 | 0.1− | 2009 10 15 | G96 | 0.0 | 0.4− | 2009 12 16 | 691 | 0.3− | 1.0+ |
| 1999 09 18 | 691 | 0.2+ | 0.2− | 2009 10 15 | G96 | 0.3+ | 0.1+ | 2009 12 20 | 691 | 0.1+ | 0.0 |
| 2004 12 09 | 703 | 0.4+ | 0.6− | 2009 11 10 | G96 | 0.2− | 0.3− | 2009 12 20 | 691 | 0.3+ | 0.5+ |
| 2004 12 09 | 703 | 1.4− | 0.2+ | 2009 11 10 | G96 | 0.4+ | 0.1− | 2009 12 20 | 691 | 0.1+ | 0.2+ |
| 2004 12 09 | 703 | 0.1+ | 0.5− | 2009 11 10 | G96 | 0.4− | 0.4+ | 2009 12 25 | 691 | 0.2− | 0.1− |
| 2004 12 09 | 703 | 0.8+ | 1.0− | 2009 11 10 | G96 | 0.7+ | 0.1+ | 2009 12 25 | 691 | 0.2− | 0.2− |
| 2006 03 22 | 703 | 0.6− | 0.3− | 2009 12 10 | G96 | 0.1+ | 0.5− | 2009 12 25 | 691 | 0.6− | 0.2− |
| 2006 03 22 | 703 | 0.5+ | 0.4− | 2009 12 10 | G96 | 0.5+ | 0.5− | | | | |

**2009 XP$_{14}$ = 2005 NO$_{90}$ = 2007 CK$_{20}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 40.94687 | | (2000.0) | | | |
| $n$ | 0.31481034 | $\omega$ | 156.51944 | | +0.47700913 | −0.87638372 |
| $a$ | 2.1401131 | $\Omega$ | 264.93268 | | +0.79543389 | +0.46262657 |
| $e$ | 0.0667018 | $i$ | 3.82433 | | +0.37382780 | +0.13389636 |
| $P$ | 3.13 | $H$ | 17.7 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1993 10 16 | 691 | 0.1− | 0.5+ | 2007 02 06 | 644 | 0.1+ | 0.1− | 2009 12 18 | 691 | 0.1+ | 0.0 |
| 1993 10 16 | 691 | 0.2− | 0.5+ | 2007 02 10 | G96 | 0.1− | 0.0 | 2009 12 18 | 691 | 0.1− | 0.0 |
| 1993 10 16 | 691 | 0.1− | 0.2+ | 2007 02 10 | G96 | 0.3+ | 0.1− | 2009 12 18 | 691 | 0.5+ | 0.2− |
| 1999 10 13 | 645 | 0.1+ | 0.0 | 2007 02 10 | G96 | 0.1+ | 0.2− | 2009 12 18 | 691 | 0.0 | 0.2+ |
| 1999 10 13 | 645 | 0.1+ | 0.1− | 2007 02 10 | G96 | 0.1− | 0.0 | 2009 12 18 | G96 | 0.2+ | 0.1− |
| 1999 10 16 | 645 | 0.0 | 0.0 | 2007 02 10 | G96 | 0.0 | 0.2+ | 2009 12 18 | G96 | 0.1+ | 0.0 |
| 1999 10 16 | 645 | 0.0 | 0.1− | 2007 02 10 | G96 | 0.2− | 0.2+ | 2009 12 18 | 691 | 0.0 | 0.0 |
| 2002 08 17 | 644 | 0.0 | 0.4+ | 2007 02 10 | G96 | 0.2+ | 0.1− | 2009 12 18 | G96 | 0.2+ | 0.2− |
| 2002 08 17 | 644 | 0.0 | 0.4+ | 2007 02 10 | G96 | 0.0 | 0.1− | 2009 12 18 | 691 | 0.0 | 0.1+ |
| 2002 08 17 | 644 | 0.3− | 0.4+ | 2009 11 10 | G96 | 0.3+ | 0.2+ | 2009 12 18 | G96 | 0.1+ | 0.1+ |
| 2005 07 05 | 691 | 0.1− | 0.4+ | 2009 11 10 | G96 | 0.3+ | 0.1+ | 2009 12 26 | 691 | 0.2− | 0.1+ |
| 2005 07 05 | 691 | 0.3+ | 0.5+ | 2009 11 10 | G96 | 0.0 | 0.4− | 2009 12 26 | 691 | 0.6− | 0.1+ |
| 2005 07 05 | 691 | 0.1− | 0.3+ | 2009 11 10 | G96 | 0.4+ | 0.2+ | 2009 12 26 | 691 | 0.1+ | 0.3+ |
| 2005 07 10 | 691 | 0.0 | 0.1− | 2009 12 15 | G96 | 0.4+ | 0.3− | 2009 12 26 | 691 | 0.5− | 0.4− |
| 2005 07 10 | 691 | 0.1− | 0.4− | 2009 12 15 | G96 | 0.3+ | 0.1+ | 2009 12 26 | 691 | 0.1− | 0.0 |
| 2005 07 10 | 691 | 0.4− | 0.1− | 2009 12 15 | G96 | 0.3+ | 0.2+ | 2009 12 26 | 691 | 0.1− | 0.2− |
| 2007 02 06 | 644 | 0.2+ | 0.2+ | 2009 12 15 | G96 | 0.3+ | 0.1+ | | | | |
| 2007 02 06 | 644 | 0.3+ | 0.7+ | 2009 12 15 | G96 | 0.3+ | 0.2− | | | | |

**2009 XR$_{17}$ = 2005 YJ$_{224}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 278.10939 | | (2000.0) | | | |
| $n$ | 0.25301234 | $\omega$ | 111.80565 | | −0.89243772 | +0.43553001 |
| $a$ | 2.4757583 | $\Omega$ | 94.17845 | | −0.44514292 | −0.80746564 |
| $e$ | 0.1018351 | $i$ | 6.78123 | | −0.07350303 | −0.39788548 |
| $P$ | 3.90 | $H$ | 16.7 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 10 29 | G96 | 0.0 | 0.4− | 2005 12 24 | 691 | 0.3+ | 0.0 | 2009 12 15 | G96 | 0.2+ | 0.1− |
| 2005 10 29 | G96 | 0.2− | 0.2+ | 2005 12 24 | 691 | 0.1− | 0.0 | 2009 12 15 | G96 | 0.1− | 0.4+ |
| 2005 10 29 | G96 | 0.6+ | 0.1+ | 2005 12 24 | 691 | 0.3+ | 0.1− | 2009 12 18 | 691 | 0.2− | 0.2− |
| 2005 10 29 | G96 | 0.1− | 0.3− | 2006 01 05 | 691 | 0.1− | 0.1+ | 2009 12 18 | 691 | 0.3+ | 0.1+ |
| 2005 11 25 | G96 | 0.0 | 0.2+ | 2006 01 05 | 691 | 0.3− | 0.2+ | 2009 12 18 | 691 | 0.0 | 0.0 |
| 2005 11 25 | G96 | 0.2− | 0.1+ | 2006 01 05 | 691 | 0.0 | 0.1+ | 2009 12 26 | 691 | 0.0 | 0.1+ |
| 2005 11 25 | G96 | 0.2− | 0.0 | 2009 12 15 | G96 | 0.1+ | 0.1+ | 2009 12 26 | 691 | 0.3− | 0.2− |
| 2005 11 25 | G96 | 0.3− | 0.1− | 2009 12 15 | G96 | 0.1+ | 0.6− | 2009 12 26 | 691 | 0.1+ | 0.0 |

**2009 XQ$_{18}$ = 2005 EK$_{286}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 322.87010 | | (2000.0) | | | |
| $n$ | 0.18402954 | $\omega$ | 60.24168 | | −0.93778260 | −0.15170682 |
| $a$ | 3.0611012 | $\Omega$ | 109.49719 | | +0.06403671 | −0.95963811 |
| $e$ | 0.2110110 | $i$ | 19.34934 | | +0.34126688 | −0.23681159 |
| $P$ | 5.36 | $H$ | 16.4 | $G$ | 0.15 | $U$ 4 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 03 08 | 703 | 0.4+ | 0.9+ | 2009 12 15 | G96 | 0.0 | 0.4− | 2009 12 18 | 291 | 0.1− | 0.2+ |
| 2005 03 08 | 703 | (2.6+ | 1.0−) | 2009 12 15 | G96 | 0.2+ | 0.1− | 2009 12 18 | 291 | 0.1− | 0.0 |
| 2005 03 08 | 703 | 0.3+ | 0.2+ | 2009 12 15 | G96 | 0.3+ | 0.6− | 2009 12 19 | 291 | 0.3− | 0.1− |
| 2005 03 08 | 703 | 0.4− | 1.5− | 2009 12 15 | G96 | 0.5+ | 0.4− | 2009 12 19 | 291 | 0.2− | 0.2+ |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 03 14 | 703 | 0.1+ | 0.3+ | 2009 12 15 | G96 | 0.7+ | 0.4− | 2009 12 19 | 291 | 0.5− | 0.2+ |
| 2005 03 14 | 703 | 0.7− | 0.8+ | 2009 12 15 | G96 | 0.4+ | 0.2− | 2009 12 26 | 691 | 0.0 | 0.0 |
| 2005 03 14 | 703 | 0.2− | 0.1− | 2009 12 17 | 691 | 0.3+ | 0.1− | 2009 12 26 | 691 | 0.1+ | 0.1− |
| 2005 03 14 | 703 | 0.5+ | 0.6− | 2009 12 17 | 691 | 0.0 | 0.1+ | 2009 12 26 | 691 | 0.3+ | 0.2− |
| 2009 12 15 | G96 | 0.2− | 0.1+ | 2009 12 17 | 691 | 0.1+ | 0.1− | | | | |
| 2009 12 15 | G96 | 0.2− | 0.2+ | 2009 12 18 | 291 | 0.0 | 0.2+ | | | | |

**2009 XV$_{18}$ = 2008 SY$_{294}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 78.86774 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.18624254 | $\omega$ | 94.70474 | | +0.91208520 | −0.35513215 | |
| $a$ | 3.0368042 | $\Omega$ | 286.20802 | | +0.23702390 | +0.86448828 | |
| $e$ | 0.1369441 | $i$ | 12.32022 | | +0.33454486 | +0.35572625 | |
| $P$ | 5.29 | $H$ | 15.2 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 06 16 | 644 | 0.2− | 0.0 | 2008 10 06 | 703 | 0.5− | 0.3+ | 2009 11 16 | G96 | 0.1+ | 0.2− |
| 2002 06 16 | 644 | 0.0 | 0.3+ | 2008 10 06 | 703 | 0.5+ | 0.1− | 2009 11 16 | G96 | 0.2+ | 0.3− |
| 2002 06 16 | 644 | 0.1+ | 0.1− | 2008 10 06 | 703 | 0.6+ | 0.3− | 2009 12 15 | G96 | 0.1− | 0.2− |
| 2003 10 22 | 699 | 0.2− | 0.4+ | 2009 09 17 | 691 | 0.0 | 0.1+ | 2009 12 15 | G96 | 0.2+ | 0.1+ |
| 2003 10 22 | 699 | 0.6+ | 0.2− | 2009 09 17 | 691 | 0.3− | 0.3− | 2009 12 15 | G96 | 0.5+ | 0.1− |
| 2003 10 22 | 699 | 0.6− | 0.7+ | 2009 09 17 | 691 | 0.3− | 0.2− | 2009 12 15 | G96 | 0.2+ | 0.1− |
| 2003 10 22 | 699 | 0.0 | 0.1+ | 2009 10 30 | G96 | 0.6+ | 1.3− | 2009 12 17 | 691 | 0.1+ | 0.0 |
| 2008 09 22 | 703 | 0.3− | 0.0 | 2009 10 30 | G96 | 0.1− | 0.2− | 2009 12 17 | 691 | 0.1+ | 0.1− |
| 2008 09 22 | 703 | 0.1− | 0.0 | 2009 10 30 | G96 | 0.2− | 0.5− | 2009 12 17 | 691 | 0.2+ | 0.1− |
| 2008 09 22 | 703 | 0.1+ | 0.0 | 2009 10 30 | G96 | 0.0 | 0.4− | 2009 12 25 | 691 | 0.1− | 0.6+ |
| 2008 09 22 | 703 | 0.1− | 0.0 | 2009 11 16 | G96 | 0.1− | 0.3− | 2009 12 25 | 691 | 0.3− | 0.1+ |
| 2008 10 06 | 703 | 0.1− | 0.0 | 2009 11 16 | G96 | 0.0 | 0.2− | 2009 12 25 | 691 | 0.1+ | 0.4+ |

**2009 XW$_{18}$ = 2008 TN$_{178}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 107.78363 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.21530379 | $\omega$ | 234.92447 | | +0.99313808 | +0.06567575 | |
| $a$ | 2.7569884 | $\Omega$ | 121.12881 | | −0.02883766 | +0.93939890 | |
| $e$ | 0.1074853 | $i$ | 6.49071 | | −0.11333638 | +0.33647646 | |
| $P$ | 4.58 | $H$ | 16.8 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 06 13 | 691 | 0.4+ | 0.6− | 2008 10 01 | 703 | 1.4+ | 0.4+ | 2009 12 17 | 691 | 0.1+ | 0.2− |
| 2007 06 13 | 691 | 0.3− | 0.1− | 2008 10 08 | 703 | 0.3− | 0.9− | 2009 12 17 | 691 | 0.2+ | 0.1− |
| 2007 06 13 | 691 | 0.1+ | 0.2− | 2008 10 08 | 703 | 0.1+ | 1.0− | 2009 12 17 | 691 | 0.1+ | 0.5+ |
| 2007 06 21 | 691 | 0.0 | 0.2+ | 2008 10 08 | 703 | 0.0 | 0.4− | 2009 12 25 | 691 | 0.1− | 0.0 |
| 2007 06 21 | 691 | 0.1+ | 0.3+ | 2008 10 08 | 703 | 1.1− | 0.8+ | 2009 12 25 | 691 | 0.6− | 0.3+ |
| 2007 06 21 | 691 | 0.1− | 0.7+ | 2009 12 15 | G96 | 0.5+ | 0.2− | 2009 12 25 | 691 | 0.1− | 0.0 |
| 2008 10 01 | 703 | 0.3+ | 0.5− | 2009 12 15 | G96 | 0.4+ | 0.3+ | 2009 12 25 | 691 | 0.1+ | 0.1+ |
| 2008 10 01 | 703 | 0.4+ | 1.2+ | 2009 12 15 | G96 | 0.7+ | 0.3+ | 2009 12 25 | 691 | 0.1− | 0.4− |
| 2008 10 01 | 703 | 1.0− | 0.8+ | 2009 12 15 | G96 | 0.5− | 0.2+ | 2009 12 25 | 691 | 0.2+ | 0.0 |

**2009 XC$_{19}$ = 2006 JB$_{1}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 329.37660 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.20110479 | $\omega$ | 36.75173 | | −0.85205593 | −0.49907895 | |
| $a$ | 2.8852787 | $\Omega$ | 112.58629 | | +0.43030093 | −0.83954490 | |
| $e$ | 0.0381341 | $i$ | 9.84464 | | +0.29806343 | −0.21467318 | |
| $P$ | 4.90 | $H$ | 16.6 | $G$ | 0.15 | $U$ | 2 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 03 19 | 645 | 0.0 | 0.0 | 2009 11 16 | G96 | 0.9− | 0.2+ | 2009 12 17 | 691 | 0.1− | 0.2− |
| 2001 03 19 | 645 | 0.0 | 0.0 | 2009 11 16 | G96 | 0.4+ | 0.2− | 2009 12 17 | 691 | 0.1− | 0.1− |
| 2006 05 02 | 621 | 0.1+ | 0.1− | 2009 11 16 | G96 | 0.5+ | 0.5+ | 2009 12 17 | 691 | 0.1+ | 0.4+ |
| 2006 05 02 | 621 | 0.5− | 0.4− | 2009 11 16 | G96 | 0.1+ | 0.1− | 2009 12 25 | 691 | 0.1+ | 0.1− |
| 2006 05 02 | 621 | 0.3− | 0.0 | 2009 12 15 | G96 | 0.1+ | 0.1+ | 2009 12 25 | 691 | 0.2− | 0.4− |
| 2006 05 04 | 621 | 0.2+ | 0.1− | 2009 12 15 | G96 | 0.3− | 0.3+ | 2009 12 25 | 691 | 0.1+ | 0.1+ |
| 2006 05 04 | 621 | 0.1+ | 0.1+ | 2009 12 15 | G96 | 0.0 | 0.0 | | | | |
| 2006 05 04 | 621 | 0.1+ | 0.2− | 2009 12 15 | G96 | 0.2+ | 0.0 | | | | |

**2009 XQ$_{19}$ = 2000 JC$_{92}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 321.68624 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.17970212 | $\omega$ | 47.56392 | | −0.93635832 | −0.31218958 | |
| $a$ | 3.1100491 | $\Omega$ | 113.66689 | | +0.24795818 | −0.91189033 | |
| $e$ | 0.0920144 | $i$ | 10.09462 | | +0.24849514 | −0.26644643 | |
| $P$ | 5.48 | $H$ | 15.2 | $G$ | 0.15 | $U$ | 0 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 12 10 | 691 | 0.2+ | 0.2− | 2002 09 10 | 644 | 0.1+ | 1.4+ | 2009 10 30 | G96 | 0.1+ | 0.2+ |
| 1998 12 10 | 691 | 0.3+ | 0.5− | 2003 12 28 | 691 | 0.3− | 0.1− | 2009 11 16 | G96 | 0.2+ | 0.1+ |
| 1998 12 10 | 691 | 0.5+ | 0.2− | 2003 12 28 | 691 | 0.0 | 0.3+ | 2009 11 16 | G96 | 0.2+ | 0.1− |
| 1998 12 24 | 691 | 0.3− | 0.4− | 2003 12 28 | 691 | 0.3− | 0.1− | 2009 11 16 | G96 | 0.1+ | 0.0 |
| 1998 12 24 | 691 | 0.2− | 0.4− | 2005 03 16 | 703 | 0.2− | 0.8+ | 2009 11 16 | G96 | 0.4+ | 0.0 |
| 1998 12 24 | 691 | 0.1− | 0.3− | 2005 03 16 | 703 | 0.5− | 0.0 | 2009 12 15 | G96 | 0.5+ | 0.0 |
| 2000 05 04 | 645 | 0.0 | 0.0 | 2005 03 16 | 703 | 0.4− | 0.9− | 2009 12 15 | G96 | 0.2+ | 0.1− |
| 2000 05 04 | 645 | 0.1+ | 0.0 | 2005 03 16 | 703 | 0.1+ | 0.1− | 2009 12 15 | G96 | 0.4+ | 0.2+ |
| 2000 05 05 | 645 | 0.0 | 0.0 | 2005 04 02 | 703 | 0.9− | 0.2+ | 2009 12 17 | 691 | 0.1+ | 0.0 |
| 2000 05 05 | 645 | 0.1− | 0.0 | 2005 04 02 | 703 | 0.7+ | 0.1+ | 2009 12 17 | 691 | 0.0 | 0.1+ |
| 2001 06 29 | 691 | 0.0 | 0.3− | 2005 04 02 | 703 | 0.5+ | 0.4− | 2009 12 17 | 691 | 0.1+ | 0.4+ |
| 2001 06 29 | 691 | 0.0 | 0.6− | 2005 04 02 | 703 | 1.5+ | 1.0+ | 2009 12 25 | 691 | 0.3+ | 0.3+ |
| 2001 06 29 | 691 | 0.1+ | 0.3− | 2009 10 30 | G96 | 0.1+ | 0.3+ | 2009 12 25 | 691 | 0.6− | 0.2− |
| 2002 09 10 | 644 | 0.5− | 1.2+ | 2009 10 30 | G96 | 0.3− | 0.2− | 2009 12 25 | 691 | 0.1− | 0.1+ |
| 2002 09 10 | 644 | 0.3− | 1.0+ | 2009 10 30 | G96 | 0.1− | 0.3− | | | | |

**2009 XY$_{19}$ = 2008 TQ$_{152}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 12.36535 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.20702689 | $\omega$ | 3.57197 | | −0.18638047 | −0.98095575 | |
| $a$ | 2.8299899 | $\Omega$ | 97.17513 | | +0.90003472 | −0.19278624 | |
| $e$ | 0.0420981 | $i$ | 3.15833 | | +0.39395409 | −0.02364918 | |
| $P$ | 4.76 | $H$ | 16.9 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 02 20 | 645 | 0.0 | 0.0 | 2008 10 09 | G96 | 0.0 | 0.1− | 2009 12 15 | G96 | 0.3− | 0.2+ |
| 2001 02 20 | 645 | 0.0 | 0.0 | 2008 10 09 | G96 | 0.3+ | 0.2+ | 2009 12 15 | G96 | 0.1+ | 0.2+ |
| 2005 01 08 | 599 | 0.1− | 0.3− | 2008 10 09 | G96 | 0.3+ | 0.0 | 2009 12 18 | 691 | 0.0 | 0.1+ |
| 2005 01 08 | 599 | 0.2+ | 0.1− | 2008 10 10 | G96 | 0.4+ | 0.7− | 2009 12 18 | 691 | 0.2+ | 0.2− |
| 2005 01 08 | 599 | 0.0 | 0.3− | 2008 10 10 | G96 | 0.3+ | 0.3− | 2009 12 18 | 691 | 0.0 | 0.0 |
| 2008 09 03 | 691 | 0.1− | 0.1+ | 2008 10 10 | G96 | 0.9+ | 1.2+ | 2009 12 26 | 691 | 0.4+ | 0.2− |
| 2008 09 03 | 691 | 0.5− | 0.3− | 2008 10 10 | G96 | 0.1+ | 0.8+ | 2009 12 26 | 691 | 0.5− | 0.3+ |
| 2008 09 03 | 691 | 0.2− | 0.2+ | 2009 12 15 | G96 | 0.1+ | 0.3− | 2009 12 26 | 691 | 0.1− | 0.1− |
| 2008 10 09 | G96 | 0.1+ | 0.2+ | 2009 12 15 | G96 | 0.1+ | 0.2+ | | | | |

**2009 XY$_{20}$ = 2001 YB$_{37}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 355.95195 | | (2000.0) | | **P** | **Q** | |
| $n$ | 0.25306391 | $\omega$ | 137.92107 | | −0.45103479 | −0.89247207 | |
| $a$ | 2.4754220 | $\Omega$ | 338.88537 | | +0.81295967 | −0.40720155 | |
| $e$ | 0.1303727 | $i$ | 1.24458 | | +0.36832620 | −0.19411466 | |
| $P$ | 3.89 | $H$ | 17.7 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 07 29 | 807 | 0.1+ | 0.2− | 2001 12 19 | 704 | 0.5+ | 0.6− | 2009 12 15 | G96 | 0.2− | 0.1+ |
| 2000 07 29 | 807 | 0.0 | 0.0 | 2001 12 19 | 704 | 0.3− | 0.5+ | 2009 12 15 | G96 | 0.2+ | 0.8+ |
| 2001 12 18 | 704 | 0.2− | 0.5+ | 2009 11 11 | G96 | 0.4− | 0.9+ | 2009 12 18 | 691 | 0.2+ | 0.0 |
| 2001 12 18 | 704 | 1.0+ | 0.4− | 2009 11 11 | G96 | 0.2+ | 0.3+ | 2009 12 18 | 691 | 0.1+ | 0.0 |
| 2001 12 18 | 704 | 0.8− | 0.4+ | 2009 11 11 | G96 | 0.1+ | 0.3− | 2009 12 18 | 691 | 0.0 | 0.0 |
| 2001 12 18 | 704 | 1.0− | 0.4− | 2009 11 11 | G96 | 0.1+ | 0.1+ | 2009 12 26 | 691 | 0.2− | 0.0 |
| 2001 12 19 | 704 | 0.5− | 0.4− | 2009 12 15 | G96 | 0.0 | 0.1− | 2009 12 26 | 691 | 0.0 | 0.2− |
| 2001 12 19 | 704 | 1.3+ | 0.1+ | 2009 12 15 | G96 | 0.7+ | 0.4− | 2009 12 26 | 691 | 0.2− | 0.1− |

**2009 XO$_{21}$ = 2003 ST$_{341}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 267.86942 | | (2000.0) | | | |
| $n$ | 0.21901432 | $\omega$ | 284.78885 | | −0.86045661 | +0.44189331 |
| $a$ | 2.7257606 | $\Omega$ | 281.98272 | | −0.30723386 | −0.84712938 |
| $e$ | 0.0857928 | $i$ | 15.02930 | | −0.40647483 | −0.29513067 |
| $P$ | 4.50 | $H$ | 15.7 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 12 20 | 691 | 0.0 | 0.0 | 2006 01 07 | 703 | 1.1− | 0.0 | 2009 11 23 | G96 | 0.1+ | 0.1− |
| 2000 12 20 | 691 | 0.0 | 0.2− | 2006 01 07 | 703 | 0.7+ | 0.5− | 2009 11 23 | G96 | 0.5+ | 0.2− |
| 2000 12 20 | 691 | 0.2− | 0.2− | 2006 01 28 | 703 | 0.9− | 0.8+ | 2009 11 23 | G96 | 0.2+ | 0.1− |
| 2003 08 20 | 644 | 0.1+ | 0.2+ | 2006 01 28 | 703 | 0.2+ | 0.1+ | 2009 12 10 | G96 | 0.1+ | 0.1+ |
| 2003 08 20 | 644 | 0.1+ | 0.2+ | 2006 01 28 | 703 | 0.3+ | 1.2+ | 2009 12 10 | G96 | 0.4+ | 0.0 |
| 2003 08 20 | 644 | 0.0 | 0.1− | 2006 01 28 | 703 | 0.2− | 0.4− | 2009 12 10 | G96 | 0.1+ | 0.1− |
| 2003 09 17 | 691 | 0.1+ | 0.1− | 2006 02 24 | 644 | 0.5+ | 0.1− | 2009 12 10 | G96 | 0.4+ | 0.1− |
| 2003 09 17 | 691 | 0.3− | 0.1− | 2006 02 24 | 644 | 0.5+ | 0.3+ | 2009 12 16 | 691 | 0.1+ | 0.0 |
| 2003 09 17 | 691 | 0.2+ | 0.1+ | 2006 02 24 | 644 | 0.4+ | 0.4+ | 2009 12 16 | 691 | 0.4− | 0.3+ |
| 2003 09 22 | 644 | 0.2+ | 0.1+ | 2008 09 23 | 703 | 0.1− | 1.1+ | 2009 12 16 | 691 | 0.3+ | 0.3− |
| 2003 09 22 | 644 | 0.1− | 0.3+ | 2008 09 23 | 703 | 0.4− | 0.2+ | 2009 12 20 | 691 | 0.1+ | 0.1+ |
| 2003 09 22 | 644 | 0.1− | 0.2+ | 2008 09 23 | 703 | 0.1− | 0.8− | 2009 12 20 | 691 | 0.5− | 0.4+ |
| 2006 01 07 | 703 | 0.3+ | 0.7− | 2008 09 23 | 703 | 0.0 | 0.1− | 2009 12 20 | 691 | 0.2+ | 0.0 |
| 2006 01 07 | 703 | 0.3− | 0.3− | 2009 11 23 | G96 | 0.0 | 0.3− | | | | |

**2009 XA$_{22}$ = 2003 SY$_{421}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 354.44354 | | (2000.0) | | | |
| $n$ | 0.18925765 | $\omega$ | 26.33491 | | −0.37116758 | −0.90369347 |
| $a$ | 3.0044646 | $\Omega$ | 86.08666 | | +0.80972090 | −0.42752569 |
| $e$ | 0.0604429 | $i$ | 12.35549 | | +0.45451809 | +0.02366191 |
| $P$ | 5.21 | $H$ | 14.9 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 09 30 | 645 | 0.0 | 0.1− | 2006 05 26 | 703 | 0.0 | 0.2+ | 2009 09 27 | 691 | 0.3+ | 0.2+ |
| 2003 09 30 | 645 | 0.1+ | 0.1− | 2008 09 22 | 703 | 1.0+ | 0.3− | 2009 09 27 | 691 | 0.1− | 0.0 |
| 2003 10 01 | 699 | 0.9+ | 1.0− | 2008 09 22 | 703 | 0.7− | 0.7+ | 2009 09 27 | 691 | 0.1− | 0.2+ |
| 2003 10 01 | 699 | 0.1+ | 0.7− | 2008 09 22 | 703 | 1.1− | 0.9+ | 2009 11 11 | G96 | 0.0 | 0.1− |
| 2003 10 01 | 699 | 0.2− | 0.6+ | 2008 09 22 | 703 | 0.6− | 0.3+ | 2009 11 11 | G96 | 0.1+ | 0.0 |
| 2003 10 01 | 699 | 0.1− | 1.0− | 2008 10 23 | 304 | 0.1+ | 0.0 | 2009 11 11 | G96 | 0.3+ | 0.0 |
| 2003 10 22 | 645 | 0.1+ | 0.0 | 2008 10 23 | 304 | 0.2− | 0.0 | 2009 12 09 | J75 | 0.3+ | 0.7− |
| 2003 10 22 | 645 | 0.0 | 0.0 | 2008 10 23 | 304 | 0.1− | 0.0 | 2009 12 09 | J75 | 0.2+ | 0.2− |
| 2004 12 09 | 703 | 0.5− | 0.2− | 2008 10 23 | 304 | 0.0 | 0.1− | 2009 12 09 | J75 | 0.5− | 0.7+ |
| 2004 12 09 | 703 | 0.8− | 0.0 | 2008 10 23 | 304 | 0.0 | 0.1− | 2009 12 18 | G96 | 0.1− | 0.1+ |
| 2004 12 09 | 703 | 0.3− | 0.3+ | 2008 10 23 | 304 | 0.0 | 0.1+ | 2009 12 18 | G96 | 0.0 | 0.2− |
| 2004 12 09 | 703 | 0.5− | 0.8+ | 2008 10 26 | 703 | 0.3− | 0.4+ | 2009 12 18 | G96 | 0.1+ | 0.0 |
| 2006 04 27 | 703 | 0.6− | 0.4− | 2008 10 26 | 703 | 0.2+ | 0.3+ | 2009 12 18 | G96 | 0.2+ | 0.0 |
| 2006 04 27 | 703 | 1.5− | 0.8+ | 2008 10 26 | 703 | 1.0− | 0.7+ | 2009 12 19 | G96 | 0.1− | 0.1− |
| 2006 04 27 | 703 | 1.0+ | 0.1− | 2008 10 26 | 703 | 0.1+ | 1.5− | 2009 12 19 | G96 | 0.1+ | 0.0 |
| 2006 04 27 | 703 | 1.2+ | 0.7− | 2008 12 01 | 703 | 0.4− | 0.7+ | 2009 12 19 | G96 | 0.2+ | 0.0 |
| 2006 05 26 | 703 | 0.3+ | 0.0 | 2008 12 01 | 703 | 0.1+ | 0.4− | 2009 12 19 | G96 | 0.1+ | 0.0 |
| 2006 05 26 | 703 | 0.9+ | 0.3− | 2008 12 01 | 703 | 0.4− | 1.5+ | | | | |
| 2006 05 26 | 703 | 1.1− | 0.4− | 2008 12 01 | 703 | 1.1− | 2.0+ | | | | |

**2009 YM**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 325.17715 | | (2000.0) | | | |
| $n$ | 0.08157030 | $\omega$ | 185.59462 | | +0.56492031 | −0.81544908 |
| $a$ | 5.2656020 | $\Omega$ | 230.07928 | | +0.76329067 | +0.57449700 |
| $e$ | 0.0821918 | $i$ | 9.46560 | | +0.31345238 | +0.07068233 |
| $P$ | 12.08 | $H$ | 12.6 | $G$ | 0.15 | $U$ 2 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 11 27 | 691 | 0.1+ | 0.1+ | 2005 06 17 | 691 | 0.3+ | 0.1+ | 2009 12 18 | G96 | 0.1+ | 0.2− |
| 1998 11 27 | 691 | 0.2+ | 0.1− | 2009 09 25 | 703 | 0.4+ | 0.3− | 2009 12 18 | G96 | 0.2+ | 0.2− |
| 1998 11 27 | 691 | 0.3− | 0.5+ | 2009 09 25 | 703 | 0.0 | 0.1− | 2009 12 18 | G96 | 0.2+ | 0.2− |
| 2005 05 19 | G96 | 0.1− | 0.3− | 2009 09 25 | 703 | 0.8− | 0.0 | 2009 12 18 | G96 | 0.1+ | 0.2− |
| 2005 05 19 | G96 | 0.1− | 0.4− | 2009 09 25 | G96 | 0.1− | 0.0 | 2009 12 19 | G96 | 0.4+ | 0.1+ |
| 2005 05 19 | G96 | 0.4− | 0.2− | 2009 09 25 | G96 | 0.8+ | 0.6− | 2009 12 19 | G96 | 0.2+ | 0.2− |
| 2005 06 17 | 691 | 0.0 | 0.2+ | 2009 09 25 | G96 | 1.0− | 0.4+ | | | | |
| 2005 06 17 | 691 | 0.2− | 0.3+ | 2009 09 25 | G96 | 0.1− | 0.8+ | | | | |

**2009 YR$_2$ = 2004 VU$_{11}$ = 2008 QL$_4$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 48.86669 | | (2000.0) | | | |
| $n$ | 0.21293319 | $\omega$ | 130.16041 | | +0.73053147 | −0.65121981 |
| $a$ | 2.7774131 | $\Omega$ | 271.52126 | | +0.54722189 | +0.73829902 |
| $e$ | 0.1751277 | $i$ | 11.86391 | | +0.40849966 | +0.17557710 |
| $P$ | 4.63 | $H$ | 16.4 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 02 20 | 645 | 0.1+ | 0.2+ | 2004 11 04 | 704 | 0.3+ | 0.1− | 2009 12 17 | G96 | 0.4+ | 0.1+ |
| 2001 02 20 | 645 | 0.1+ | 0.1+ | 2008 08 20 | 691 | 0.0 | 0.2+ | 2009 12 17 | G96 | 0.3+ | 0.1− |
| 2004 11 03 | 703 | 0.3− | 0.6− | 2008 08 20 | 691 | 0.2+ | 0.2+ | 2009 12 17 | G96 | 0.1+ | 0.3− |
| 2004 11 03 | 703 | 0.8− | 0.8+ | 2008 08 20 | 691 | 0.0 | 0.1+ | 2009 12 18 | 691 | 0.2− | 0.0 |
| 2004 11 03 | 703 | 1.0+ | 0.8+ | 2008 08 22 | 691 | 0.0 | 0.0 | 2009 12 18 | 691 | 0.1+ | 0.0 |
| 2004 11 03 | 703 | 0.2− | 0.9− | 2008 08 22 | 691 | 0.0 | 0.1− | 2009 12 18 | 691 | 0.1− | 0.1− |
| 2004 11 04 | 704 | 0.7− | 0.3− | 2008 08 22 | 691 | 0.6− | 0.6+ | 2009 12 26 | 691 | 0.4− | 0.2− |
| 2004 11 04 | 704 | 0.3+ | 0.5+ | 2009 12 17 | G96 | 0.2+ | 0.0 | 2009 12 26 | 691 | 0.0 | 0.0 |
| 2004 11 04 | 704 | 0.0 | 0.6+ | 2009 12 17 | G96 | 0.0 | 0.1− | 2009 12 26 | 691 | 0.2+ | 0.1− |

**2009 YC$_5$ = 2006 AJ$_{42}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 17.88917 | | (2000.0) | | | |
| $n$ | 0.24264976 | $\omega$ | 149.57170 | | +0.07215447 | −0.97965597 |
| $a$ | 2.5457522 | $\Omega$ | 295.71787 | | +0.86810556 | +0.15413272 |
| $e$ | 0.2132174 | $i$ | 11.99662 | | +0.49110738 | −0.12851958 |
| $P$ | 4.06 | $H$ | 17.6 | $G$ | 0.15 | $U$ 3 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 01 14 | 291 | 0.0 | 0.3+ | 2006 01 06 | 691 | 0.1+ | 0.1+ | 2009 12 17 | G96 | 0.2+ | 0.8− |
| 2002 01 14 | 291 | 0.0 | 0.2+ | 2006 01 06 | G96 | 0.2− | 0.4− | 2009 12 17 | G96 | 0.6+ | 0.3− |
| 2002 01 14 | 291 | 0.3− | 0.3+ | 2006 01 06 | G96 | 0.2+ | 0.2− | 2009 12 18 | 691 | 0.2+ | 0.0 |
| 2002 03 05 | 645 | 0.0 | 0.0 | 2006 01 06 | G96 | 0.0 | 0.2− | 2009 12 18 | 691 | 0.1+ | 0.3− |
| 2002 03 05 | 645 | 0.1+ | 0.0 | 2006 01 06 | 691 | 0.0 | 0.0 | 2009 12 18 | 691 | 0.3+ | 0.1+ |
| 2005 12 26 | G96 | 0.5− | 0.5− | 2006 01 06 | 691 | 0.2− | 0.0 | 2009 12 26 | 691 | 0.7− | 0.0 |
| 2005 12 26 | G96 | 0.5+ | 0.5− | 2006 01 08 | G96 | 0.3+ | 0.2− | 2009 12 26 | 691 | 0.3+ | 1.0+ |
| 2005 12 26 | G96 | 0.2− | 0.1− | 2006 01 08 | G96 | 0.2+ | 0.2− | 2009 12 26 | 691 | 0.4− | 0.1− |
| 2005 12 26 | G96 | 0.2+ | 0.7− | 2009 12 17 | G96 | 0.1− | 0.3− | | | | |
| 2006 01 06 | G96 | 0.6− | 0.4− | 2009 12 17 | G96 | 0.2− | 0.5− | | | | |

**2009 YL$_6$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | P | Q |
|---|---|---|---|---|---|---|
| $M$ | 338.21083 | | (2000.0) | | | |
| $n$ | 0.08367126 | $\omega$ | 351.37790 | | +0.76264698 | −0.64409379 |
| $a$ | 5.1770834 | $\Omega$ | 48.89298 | | +0.59803323 | +0.66725273 |
| $e$ | 0.0456596 | $i$ | 4.51152 | | +0.24642614 | +0.37405478 |
| $P$ | 11.78 | $H$ | 13.1 | $G$ | 0.15 | $U$ 0 |

Residuals in seconds of arc

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 10 17 | 691 | 0.5+ | 0.4− | 2005 05 10 | G96 | 0.1+ | 0.2− | 2009 09 23 | G96 | 0.0 | 0.6+ |
| 1998 10 17 | 691 | 0.5+ | 0.1+ | 2005 05 10 | G96 | 0.1+ | 0.0 | 2009 09 23 | G96 | 0.3+ | 0.3+ |
| 1998 10 17 | 691 | 0.6+ | 0.6− | 2005 05 10 | G96 | 0.1+ | 0.3− | 2009 09 23 | G96 | 0.3+ | 0.2+ |
| 1998 11 15 | 691 | 0.7− | 0.1+ | 2005 05 10 | G96 | 0.2+ | 0.4− | 2009 09 23 | G96 | 0.6− | 0.0 |
| 1998 11 15 | 691 | 0.7− | 0.2+ | 2005 06 14 | G96 | 0.6− | 0.4+ | 2009 10 18 | G96 | 0.2+ | 0.1+ |
| 1998 11 15 | 691 | 0.3− | 0.8+ | 2005 06 14 | G96 | 0.1+ | 0.3+ | 2009 10 18 | G96 | 0.2− | 0.0 |
| 2002 02 07 | 644 | 0.0 | 0.5+ | 2005 06 14 | G96 | 0.3+ | 0.3+ | 2009 10 18 | G96 | 0.6− | 0.2+ |
| 2002 02 07 | 644 | 0.1+ | 0.4+ | 2005 06 14 | G96 | 0.1− | 0.0 | 2009 10 18 | G96 | 0.0 | 0.3+ |
| 2002 02 07 | 644 | 0.2− | 0.4+ | 2007 07 15 | E12 | 0.0 | 0.1− | 2009 12 19 | G96 | 0.3+ | 0.0 |
| 2004 04 12 | 691 | 0.3+ | 0.2+ | 2007 07 15 | E12 | 0.1+ | 0.7+ | 2009 12 19 | G96 | 0.4+ | 0.4− |
| 2004 04 12 | 691 | 0.0 | 0.1+ | 2007 07 15 | E12 | 0.8+ | 0.4+ | 2009 12 20 | G96 | 0.2+ | 0.1− |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 04 12 | 691 | 0.3+ | 0.2+ | 2007 07 15 | E12 | 0.4− | 0.4− | 2009 12 20 | G96 | 0.1− | 0.1+ | | | |
| 2005 04 11 | G96 | 0.3− | 0.4− | 2008 09 06 | 703 | 0.5+ | 1.1+ | 2009 12 20 | G96 | 0.1+ | 0.0 | | | |
| 2005 04 11 | G96 | 0.5− | 0.2− | 2008 09 06 | 703 | 0.9− | 0.3− | 2009 12 20 | G96 | 0.8− | 0.1+ | | | |
| 2005 04 11 | G96 | 0.2− | 0.1+ | 2008 09 06 | 703 | 0.6− | 0.8− | | | | | | | |
| 2005 04 11 | G96 | 0.4− | 0.5+ | 2008 09 06 | 703 | 0.1+ | 0.7+ | | | | | | | |

**2009 YO$_6$ = 1994 XE$_4$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 57.26672 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.19809932 | $\omega$ | 245.30542 | | +0.98350992 | | −0.14721313 |
| $a$ | 2.9143882 | $\Omega$ | 123.00020 | | +0.17422771 | | +0.92703164 |
| $e$ | 0.0791722 | $i$ | 7.19600 | | −0.04850713 | | +0.34487772 |
| $P$ | 4.98 | $H$ | 16.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1994 12 04 | 691 | 0.4+ | 0.1+ | 2006 02 24 | 691 | 0.1+ | 0.1+ | 2009 11 25 | G96 | 0.5+ | 0.3− |
| 1994 12 04 | 691 | 0.3+ | 0.2− | 2006 02 24 | 691 | 0.1+ | 0.0 | 2009 11 25 | G96 | 0.2− | 0.3− |
| 1994 12 04 | 691 | 0.0 | 0.2− | 2006 02 24 | 691 | 0.0 | 0.3− | 2009 12 17 | F84 | 0.7− | 0.2+ |
| 1994 12 10 | 691 | 0.4− | 0.1+ | 2008 07 29 | G96 | 0.1− | 0.1+ | 2009 12 17 | F84 | 0.2− | 1.2+ |
| 1994 12 10 | 691 | 0.2− | 0.4− | 2008 07 29 | G96 | 0.1+ | 0.3+ | 2009 12 18 | F84 | 0.9+ | 0.1− |
| 1994 12 10 | 691 | 0.1+ | 0.3+ | 2008 07 29 | G96 | 0.4− | 0.2− | 2009 12 18 | F84 | 0.4− | 1.1+ |
| 2006 01 23 | 691 | 0.1+ | 0.1− | 2008 07 29 | G96 | 0.3+ | 0.1+ | 2009 12 20 | F85 | 0.0 | 0.0 |
| 2006 01 23 | 691 | 0.1− | 0.2+ | 2009 11 25 | G96 | 0.5+ | 0.2− | 2009 12 20 | F85 | 0.2− | 0.1− |
| 2006 01 23 | 691 | 0.3− | 0.1+ | 2009 11 25 | G96 | 0.1− | 0.1− | 2009 12 20 | F85 | 0.4− | 0.2− |

**2009 YQ$_{16}$ = 1999 XM$_{145}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 182.01255 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.30029517 | $\omega$ | 66.25286 | | −0.21124236 | | +0.97742483 |
| $a$ | 2.2085326 | $\Omega$ | 191.55430 | | −0.90418399 | | −0.19702950 |
| $e$ | 0.0639303 | $i$ | 1.19233 | | −0.37125191 | | −0.07628944 |
| $P$ | 3.28 | $H$ | 17.5 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 12 07 | 691 | 0.2− | 0.1− | 2005 08 10 | 185 | 0.5− | 0.5+ | 2009 11 27 | G96 | 1.0− | 0.1− |
| 1999 12 07 | 691 | 0.0 | 0.1+ | 2006 11 16 | G96 | 1.4− | 1.0− | 2009 11 27 | G96 | 0.1− | 0.2+ |
| 1999 12 07 | 691 | 0.1− | 0.1− | 2006 11 16 | G96 | 0.4− | 0.3− | 2009 12 15 | G96 | 0.3− | 0.0 |
| 1999 12 13 | 691 | 0.2+ | 0.1+ | 2006 11 16 | G96 | 0.4− | 0.6− | 2009 12 15 | G96 | 0.1− | 0.0 |
| 1999 12 13 | 691 | 0.2+ | 0.3+ | 2006 11 16 | G96 | 0.3− | 1.2− | 2009 12 15 | G96 | 0.7− | 0.5− |
| 1999 12 13 | 691 | 0.2− | 0.5+ | 2006 12 13 | 691 | 0.5+ | 0.1+ | 2009 12 15 | G96 | 0.7− | 0.0 |
| 2004 02 12 | 691 | 0.2− | 0.1− | 2006 12 13 | 691 | 0.2+ | 0.5+ | 2009 12 19 | 300 | 0.6+ | 0.4+ |
| 2004 02 12 | 691 | 0.1− | 0.1− | 2006 12 13 | 691 | 0.3+ | 0.1+ | 2009 12 19 | 300 | 0.3− | 0.1− |
| 2004 02 12 | 691 | 0.0 | 0.1+ | 2007 01 10 | G96 | 0.5− | 0.3− | 2009 12 19 | 300 | (1.6+ | 0.2−) |
| 2004 03 20 | 691 | 0.3+ | 0.2+ | 2007 01 10 | G96 | 0.7− | 0.3− | 2009 12 19 | 300 | 0.3+ | 0.2+ |
| 2004 03 20 | 691 | 0.1+ | 0.1+ | 2007 01 10 | G96 | 0.1− | 0.2− | 2009 12 21 | 300 | 0.3+ | 0.5+ |
| 2004 03 20 | 691 | 0.0 | 0.4+ | 2009 09 20 | G96 | 0.4− | 0.2− | 2009 12 21 | 300 | 0.4+ | 0.4− |
| 2005 07 31 | 644 | 0.3− | 0.5+ | 2009 09 20 | G96 | 0.0 | 0.3− | 2009 12 21 | 300 | 1.1+ | 0.6− |
| 2005 07 31 | 644 | 0.4− | 0.5+ | 2009 09 20 | G96 | 0.4+ | 0.2+ | 2009 12 21 | 300 | (1.8+ | 1.2−) |
| 2005 07 31 | 644 | 0.0 | 0.2+ | 2009 09 20 | G96 | 0.7− | 0.0 | 2009 12 21 | 300 | 0.6+ | 0.2+ |
| 2005 08 09 | 185 | 0.2− | 0.0 | 2009 11 27 | G96 | 0.6− | 0.2− | 2009 12 21 | 300 | 1.4+ | 0.5− |
| 2005 08 10 | 185 | 0.8+ | 0.4+ | 2009 11 27 | G96 | 0.2− | 0.1− | | | | |
| 2005 08 10 | 185 | 0.2+ | 1.0− | 2009 11 27 | G96 | 0.3− | 0.3− | | | | |

**2009 YU$_{17}$ = 2005 QZ$_{27}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 24.91269 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.27906493 | $\omega$ | 335.29397 | | +0.27400725 | | −0.95944979 |
| $a$ | 2.3191698 | $\Omega$ | 98.74798 | | +0.89312215 | | +0.22834430 |
| $e$ | 0.1816013 | $i$ | 3.83773 | | +0.35672517 | | +0.16527247 |
| $P$ | 3.53 | $H$ | 18.0 | $G$ | 0.15 | $U$ | 3 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 08 27 | 691 | 0.1− | 0.0 | 2009 11 10 | G96 | 0.1− | 0.4− | 2009 12 21 | F84 | 0.5+ | 0.2+ |
| 2005 08 27 | 691 | 0.1+ | 0.2+ | 2009 11 10 | G96 | 0.1− | 0.2− | 2009 12 21 | F84 | 0.1+ | 0.1− |
| 2005 08 27 | 691 | 0.1+ | 0.2+ | 2009 11 10 | G96 | 0.2− | 0.0 | 2009 12 23 | F84 | 0.4+ | 0.2+ |
| 2005 08 28 | 691 | 0.2+ | 0.1+ | 2009 11 25 | G96 | 0.6+ | 0.2− | 2009 12 23 | F84 | 0.8+ | 0.3+ |
| 2005 08 28 | 691 | 0.0 | 0.2− | 2009 11 25 | G96 | 0.0 | 0.3− | 2009 12 24 | F84 | 0.6+ | 0.8+ |
| 2005 08 28 | 691 | 0.3− | 0.3+ | 2009 11 25 | G96 | 0.0 | 0.4− | 2009 12 24 | F84 | 0.6+ | 0.7+ |
| 2005 10 01 | G96 | 0.1+ | 0.4− | 2009 11 25 | G96 | 0.0 | 0.4− | 2009 12 24 | F84 | 0.5+ | 0.6+ |
| 2005 10 01 | G96 | 0.2− | 0.2− | 2009 12 18 | 691 | 0.2+ | 0.1− | 2009 12 26 | 691 | 0.5− | 0.1− |
| 2005 10 01 | G96 | 0.1+ | 0.3− | 2009 12 18 | 691 | 0.0 | 0.1− | 2009 12 26 | 691 | 0.4− | 0.2+ |
| 2005 10 01 | G96 | 0.1− | 0.5− | 2009 12 18 | 691 | 0.0 | 0.1− | 2009 12 26 | 691 | 0.4− | 0.1− |
| 2009 11 10 | G96 | 0.1− | 0.0 | 2009 12 21 | F84 | 0.5+ | 0.2+ | | | | |

**4285 T-2 = 2006 SN$_{413}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 229.58992 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.18169616 | $\omega$ | 0.75341 | | +0.96094021 | | −0.25421075 |
| $a$ | 3.0872530 | $\Omega$ | 15.37747 | | +0.25171189 | | +0.63845082 |
| $e$ | 0.1794575 | $i$ | 24.36808 | | +0.11504366 | | +0.72646916 |
| $P$ | 5.42 | $H$ | 15.4 | $G$ | 0.15 | $U$ | 4 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1973 09 29 | 675 | 0.3− | 0.7− | 1973 10 05 | 675 | 0.8− | 0.6− | 2006 10 29 | 703 | 0.2− | 1.0+ |
| 1973 09 29 | 675 | 0.8− | 0.4− | 2006 09 28 | 703 | 0.0 | 0.0 | 2006 10 29 | 703 | 0.4− | 0.4− |
| 1973 09 30 | 675 | 0.2+ | 0.1− | 2006 09 28 | 703 | 0.4+ | 0.3+ | 2006 11 22 | 703 | 0.5− | 0.5+ |
| 1973 09 30 | 675 | 0.2− | 1.1+ | 2006 09 28 | 703 | 1.1− | 0.2+ | 2006 11 22 | 703 | 0.3− | 0.2− |
| 1973 10 04 | 675 | 1.4+ | 0.5+ | 2006 09 28 | 703 | 0.7+ | 0.7− | 2006 11 22 | 703 | 0.3+ | 0.3− |
| 1973 10 04 | 675 | 0.6+ | 0.3+ | 2006 10 29 | 703 | 0.2− | 0.5+ | 2006 11 22 | 703 | 0.5+ | 0.4− |
| 1973 10 05 | 675 | 0.0 | 0.0 | 2006 10 29 | 703 | 0.9+ | 0.5− | | | | |

**5449 T-2 = 2009 WE$_{194}$**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 72.58496 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.19477302 | $\omega$ | 98.63985 | | +0.97446412 | | +0.18686316 |
| $a$ | 2.9474754 | $\Omega$ | 250.66265 | | −0.21957145 | | +0.90902272 |
| $e$ | 0.1524844 | $i$ | 7.58231 | | +0.04698998 | | +0.37250483 |
| $P$ | 5.06 | $H$ | 15.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1973 09 29 | 675 | 0.7− | 0.9− | 2008 06 30 | 691 | 0.1+ | 0.0 | 2009 11 24 | 691 | 0.3− | 0.2− |
| 1973 09 29 | 675 | 0.2+ | 0.2+ | 2008 07 29 | G96 | 0.2− | 0.1− | 2009 11 24 | 691 | 0.3− | 0.2− |
| 1973 09 30 | 675 | 0.5+ | 0.2− | 2008 07 29 | G96 | 0.3+ | 0.3− | 2009 11 24 | 691 | 0.3− | 0.3− |
| 1973 09 30 | 675 | 0.5+ | 1.2+ | 2008 07 29 | G96 | 0.1+ | 0.3− | 2009 11 27 | G96 | 0.1+ | 0.3− |
| 1973 10 04 | 675 | (2.0+ | 3.0+) | 2008 07 29 | G96 | 0.1− | 0.2− | 2009 11 27 | G96 | 0.1+ | 0.2− |
| 1973 10 04 | 675 | 1.4− | 2.1+ | 2008 10 30 | G96 | 0.7+ | 0.1− | 2009 11 27 | G96 | 0.0 | 0.3− |
| 1973 10 05 | 675 | 0.3− | 0.7+ | 2008 10 30 | G96 | 0.2+ | 0.3− | 2009 11 27 | G96 | 0.2+ | 0.2− |
| 1973 10 05 | 675 | (2.0+ | 4.4+) | 2008 10 30 | G96 | 0.2+ | 0.4− | 2009 11 27 | G96 | 0.0 | 0.5− |
| 2004 12 12 | 691 | 0.1+ | 0.5+ | 2008 10 30 | G96 | 0.3+ | 0.1+ | 2009 12 10 | G96 | 0.0 | 0.2− |
| 2004 12 12 | 691 | 0.2+ | 0.2+ | 2009 10 26 | G96 | 0.2+ | 0.2− | 2009 12 10 | G96 | 0.1− | 0.1− |
| 2004 12 12 | 691 | 0.0 | 0.4+ | 2009 10 26 | G96 | 0.2+ | 0.1+ | 2009 12 10 | G96 | 0.0 | 0.3− |
| 2008 06 02 | G96 | 0.0 | 0.2− | 2009 10 26 | G96 | 0.3+ | 0.1− | 2009 12 10 | G96 | 0.2+ | 0.3− |
| 2008 06 02 | G96 | 0.0 | 0.2− | 2009 10 26 | G96 | 0.2+ | 0.1− | 2009 12 15 | G96 | 0.4− | 0.5− |
| 2008 06 02 | G96 | 0.1+ | 0.1− | 2009 11 08 | G96 | 0.5+ | 0.5− | 2009 12 15 | G96 | 0.3− | 0.4− |
| 2008 06 02 | G96 | 0.5− | 0.6+ | 2009 11 08 | G96 | 0.3+ | 0.1− | 2009 12 15 | G96 | 0.7+ | 0.0 |
| 2008 06 30 | 691 | (1.7+ | 2.8−) | 2009 11 08 | G96 | 0.6+ | 0.1− | 2009 12 15 | G96 | 0.3+ | 0.0 |
| 2008 06 30 | 691 | 0.0 | 0.4− | 2009 11 08 | G96 | 0.2+ | 0.1− | | | | |

**2639 T-3**

Epoch 2010 Jan. 4.0 TT = JDT 2455200.5 MPC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $M$ | 234.71032 | | (2000.0) | | **P** | | **Q** |
| $n$ | 0.23374358 | $\omega$ | 161.41808 | | +0.98557795 | | −0.16467176 |
| $a$ | 2.6100145 | $\Omega$ | 208.14891 | | +0.14289466 | | +0.93325194 |
| $e$ | 0.2724322 | $i$ | 4.73931 | | +0.09064884 | | +0.31925544 |
| $P$ | 4.22 | $H$ | 17.6 | $G$ | 0.15 | $U$ | 1 |

Residuals in seconds of arc

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1977 10 11 | 675 | 0.9+ | 0.4+ | 1977 10 22 | 675 | 2.3+ | 0.1− | 2002 07 21 | 644 | 0.5− | 0.1+ |
| 1977 10 11 | 675 | 0.5+ | 0.1+ | 1977 10 22 | 675 | 1.5+ | 0.3+ | 2002 07 21 | 644 | 0.0 | 0.1+ |
| 1977 10 12 | 675 | 1.9− | 0.2+ | 1998 09 16 | 699 | 0.2− | 0.4+ | 2002 07 21 | 644 | 0.1+ | 0.0 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1977 | 10 | 12 | 675 | (1.8+ | 2.9+) | 1998 | 09 | 16 | 699 | 0.4+ | 0.9− | 2002 | 08 | 05 | 644 | 0.1+ | 0.3+ |
| 1977 | 10 | 12 | 675 | 0.4− | 1.7+ | 1998 | 09 | 16 | 699 | 0.5− | 0.1− | 2002 | 08 | 05 | 644 | 0.2− | 0.5+ |
| 1977 | 10 | 12 | 675 | 1.4+ | 0.9− | 2002 | 06 | 24 | 644 | 0.8− | 0.2− | 2002 | 08 | 05 | 644 | 0.1− | 0.5+ |
| 1977 | 10 | 16 | 675 | 0.6+ | 1.3− | 2002 | 06 | 24 | 644 | 0.1− | 0.4+ | 2002 | 08 | 16 | 644 | 0.1+ | 0.1+ |
| 1977 | 10 | 16 | 675 | 0.2+ | 0.8− | 2002 | 06 | 24 | 644 | 0.3− | 0.6− | 2002 | 08 | 16 | 644 | 0.0 | 0.4+ |
| 1977 | 10 | 16 | 675 | 0.8+ | 1.9− | 2002 | 07 | 03 | 644 | 0.0 | 0.3+ | 2002 | 08 | 16 | 644 | 0.2+ | 0.2+ |
| 1977 | 10 | 16 | 675 | 0.5− | 0.1+ | 2002 | 07 | 03 | 644 | 0.0 | 0.1+ | 2002 | 09 | 22 | 644 | 0.3+ | 0.4+ |
| 1977 | 10 | 17 | 675 | 0.6+ | 1.6− | 2002 | 07 | 03 | 644 | 0.2− | 0.8+ | 2002 | 09 | 22 | 644 | 0.2+ | 0.3+ |
| 1977 | 10 | 17 | 675 | 0.8− | 2.1+ | 2002 | 07 | 09 | 644 | 0.1− | 0.5+ | 2002 | 09 | 22 | 644 | 0.8+ | 0.0 |
| 1977 | 10 | 17 | 675 | 1.7− | 0.1− | 2002 | 07 | 09 | 644 | 0.2− | 0.2+ | 2004 | 01 | 28 | 291 | 0.2+ | 0.3+ |
| 1977 | 10 | 17 | 675 | 1.0− | 1.0+ | 2002 | 07 | 09 | 644 | 0.1− | 0.2+ | 2004 | 01 | 28 | 291 | 0.1− | 0.5+ |
| 1977 | 10 | 21 | 675 | 1.6− | 0.5− | 2002 | 07 | 12 | 644 | 0.5+ | 0.2− | 2004 | 01 | 28 | 291 | 0.1+ | 0.3+ |
| 1977 | 10 | 21 | 675 | 0.9− | 1.9+ | 2002 | 07 | 12 | 644 | 0.1− | 0.1+ | | | | | | |

| Object | $H$ | $G$ | Epoch | $M$ | $\omega$ | $\Omega$ | $i$ | $e$ | $a$ | Obs. | Opp. | & Arc | rms | Perts | $U$ | Computer | Ref. | Object |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (313) | 8.90 | 0.15 | 20100104 | 335.84075 | 316.21031 | 176.69510 | 11.65324 | 0.1810594 | 2.3751430 | 1082 | 58 | 1893–2009 | 0.63 | M-v | 0 | MPC | *31778* | (313) |
| (1229) | 11.3 | 0.15 | 20100104 | 171.43265 | 163.40589 | 198.34453 | 1.02094 | 0.1576612 | 3.2327759 | 1221 | 25 | 1931–2009 | 0.52 | M-v | 0 | MPC | *35406* | (1229) |
| (1369) | 10.7 | 0.15 | 20100104 | 225.03203 | 124.72581 | 181.15704 | 14.26385 | 0.2125639 | 3.1184579 | 818 | 24 | 1928–2009 | 0.56 | M-v | 0 | MPC | *34277* | (1369) |
| (2043) | 10.7 | 0.15 | 20100104 | 140.86351 | 58.98428 | 321.38627 | 3.07716 | 0.1056325 | 3.1107135 | 877 | 27 | 1908–2009 | 0.56 | M-v | 0 | MPC | *34277* | (2043) |
| (2059) | 15.7 | 0.15 | 20100104 | 256.49592 | 191.21154 | 201.01231 | 11.03939 | 0.5300261 | 2.6442466 | 236 | 12 | 1963–2009 | 0.60 | M-v | 0 | MPC | 13522 | (2059) |
| (2095) | 12.7 | 0.15 | 20100104 | 191.23526 | 10.32514 | 332.54034 | 3.58406 | 0.0087875 | 2.6418132 | 889 | 21 | 1960–2009 | 0.51 | M-v | 0 | MPC | 2607 | (2095) |
| (2320) | 10.4 | 0.15 | 20100104 | 135.11930 | 258.85972 | 118.34080 | 11.51293 | 0.1264706 | 3.1706176 | 692 | 25 | 1942–2009 | 0.57 | M-v | 0 | MPC | *35408* | (2320) |
| (2349) | 11.2 | 0.15 | 20100104 | 170.06795 | 218.14215 | 133.23612 | 17.46115 | 0.1168335 | 2.7711682 | 634 | 21 | 1957–2009 | 0.55 | M-v | 0 | MPC | 10820 | (2349) |
| (2415) | 12.1 | 0.15 | 20100104 | 161.74102 | 205.31207 | 89.82396 | 2.37462 | 0.0385681 | 2.6591277 | 869 | 26 | 1952–2009 | 0.60 | M-v | 0 | MPC | *32039* | (2415) |
| (2601) | 11.3 | 0.15 | 20100104 | 35.22149 | 197.16625 | 288.29650 | 9.59638 | 0.0633482 | 3.1290979 | 802 | 21 | 1965–2009 | 0.60 | M-v | 0 | MPC | 2608 | (2601) |
| (2731) | 10.7 | 0.15 | 20100104 | 278.68242 | 129.32515 | 151.31746 | 13.24647 | 0.1940962 | 3.1841099 | 703 | 22 | 1964–2009 | 0.57 | M-v | 0 | MPC | 2608 | (2731) |
| (2929) | 11.6 | 0.15 | 20100104 | 3.26661 | 26.36938 | 142.79966 | 14.88058 | 0.0700824 | 3.1219139 | 760 | 19 | 1938–2009 | 0.57 | M-v | 0 | MPC | 14996 | (2929) |
| (2948) | 12.5 | 0.15 | 20100104 | 51.10030 | 246.74788 | 208.94954 | 12.32662 | 0.1071607 | 2.8636874 | 652 | 18 | 1969–2009 | 0.56 | M-v | 0 | MPC | 10820 | (2948) |
| (2980) | 13.3 | 0.15 | 20100104 | 85.09503 | 254.52554 | 172.30531 | 7.27622 | 0.1808893 | 2.5684673 | 616 | 18 | 1977–2009 | 0.56 | M-v | 0 | MPC | 6175 | (2980) |
| (3012) | 10.9 | 0.15 | 20100104 | 5.43359 | 88.45225 | 355.09327 | 18.23203 | 0.0652765 | 3.2245700 | 609 | 16 | 1950–2009 | 0.55 | M-v | 0 | MPC | 73856 | (3012) |
| (3102) | 16.1 | 0.15 | 20100104 | 355.18236 | 154.46596 | 172.24707 | 8.41975 | 0.4484897 | 2.1513683 | 568 | 13 | 1981–2009 | 0.57 | M-v | 0 | MPC | 73856 | (3102) |
| (3361) | 19.03 | 0.15 | 20100104 | 345.74438 | 301.69760 | 189.54964 | 2.68453 | 0.3229891 | 1.2098270 | 407 | 11 | 1982–2009 | 0.58 | M-v | 1 | MPC | 162225 | (3361) |
| (3411) | 13.3 | 0.15 | 20100104 | 39.31634 | 50.48209 | 69.35341 | 5.38598 | 0.1182873 | 2.2430071 | 734 | 18 | 1954–2009 | 0.56 | M-v | 0 | MPC | *40287* | (3411) |
| (3591) | 12.1 | 0.15 | 20100104 | 258.80203 | 257.36371 | 27.89898 | 1.14653 | 0.1439972 | 3.1637504 | 1070 | 22 | 1951–2009 | 0.54 | M-v | 0 | MPC | 2609 | (3591) |
| (3971) | 11.2 | 0.15 | 20100104 | 161.21241 | 83.66142 | 284.89924 | 13.00013 | 0.1811543 | 2.8523658 | 571 | 15 | 1955–2009 | 0.56 | M-v | 0 | MPC | 47597 | (3971) |
| (4217) | 12.1 | 0.15 | 20100104 | 208.28913 | 348.67159 | 355.48232 | 23.15110 | 0.2125349 | 2.3141806 | 568 | 16 | 1944–2009 | 0.50 | M-v | 0 | MPC | 23408 | (4217) |
| (4294) | 12.8 | 0.15 | 20100104 | 176.01086 | 30.17775 | 339.94469 | 4.86888 | 0.0208474 | 2.8026596 | 773 | 18 | 1951–2009 | 0.58 | M-v | 0 | MPC | 9657 | (4294) |
| (4565) | 12.7 | 0.15 | 20100104 | 330.76726 | 36.99006 | 174.63960 | 14.74447 | 0.1290111 | 2.5684191 | 630 | 16 | 1954–2009 | 0.56 | M-v | 0 | MPC | 47600 | (4565) |
| (4583) | 13.1 | 0.15 | 20100104 | 260.62191 | 142.43703 | 164.53916 | 3.74546 | 0.1918987 | 2.3530719 | 850 | 19 | 1953–2009 | 0.59 | M-v | 0 | MPC | 6175 | (4583) |
| (4885) | 13.9 | 0.15 | 20100104 | 278.33287 | 100.88906 | 169.71750 | 3.17061 | 0.1698627 | 2.4316557 | 777 | 18 | 1953–2009 | 0.58 | M-v | 0 | MPC | 25662 | (4885) |
| (5203) | 13.3 | 0.15 | 20100104 | 242.60216 | 11.92002 | 293.47680 | 2.79877 | 0.1839830 | 2.2353306 | 766 | 19 | 1933–2009 | 0.55 | M-v | 0 | MPC | *40287* | (5203) |
| (5300) | 13.7 | 0.15 | 20100104 | 101.23358 | 350.70258 | 10.60589 | 6.43974 | 0.1616008 | 2.2751764 | 663 | 15 | 1974–2009 | 0.57 | M-v | 0 | MPC | 77285 | (5300) |
| (5621) | 13.8 | 0.15 | 20100104 | 221.82502 | 5.00094 | 279.10064 | 5.52850 | 0.3835152 | 2.3048291 | 655 | 15 | 1955–2009 | 0.54 | M-v | 0 | MPC | 18124 | (5621) |
| (5928) | 11.4 | 0.15 | 20100104 | 285.50407 | 109.07226 | 164.40922 | 9.27538 | 0.1244320 | 3.9788807 | 708 | 18 | 1973–2009 | 0.57 | M-v | 0 | MPC | 41499 | (5928) |
| (5931) | 11.8 | 0.15 | 20100104 | 51.87322 | 266.55576 | 195.90507 | 16.88387 | 0.1919512 | 3.1857390 | 603 | 16 | 1976–2009 | 0.58 | M-v | 0 | MPC | 47610 | (5931) |
| (6058) | 13.3 | 0.15 | 20100104 | 212.75117 | 53.51969 | 265.81655 | 4.59253 | 0.1699699 | 2.2300661 | 758 | 15 | 1955–2009 | 0.53 | M-v | 0 | MPC | *38748* | (6058) |
| (6208) | 13.8 | 0.15 | 20100104 | 36.97449 | 242.43373 | 250.01969 | 0.85698 | 0.0961408 | 2.2533218 | 796 | 13 | 1981–2009 | 0.56 | M-v | 0 | MPC | 18124 | (6208) |
| (6283) | 13.6 | 0.15 | 20100104 | 69.50258 | 85.25509 | 359.56652 | 7.29882 | 0.2068166 | 2.7889259 | 538 | 16 | 1952–2009 | 0.55 | M-v | 0 | MPC | 47612 | (6283) |
| (6361) | 13.1 | 0.15 | 20100104 | 327.49914 | 143.33132 | 75.26064 | 5.71624 | 0.1631106 | 2.4160632 | 884 | 15 | 1978–2009 | 0.50 | M-v | 0 | MPC | 23408 | (6361) |
| (6390) | 12.6 | 0.15 | 20100104 | 9.69443 | 79.35233 | 75.29507 | 6.07613 | 0.1781730 | 2.8811840 | 656 | 16 | 1964–2009 | 0.57 | M-v | 0 | MPC | 33741 | (6390) |
| (6394) | 13.6 | 0.15 | 20100104 | 51.60499 | 193.38964 | 161.74195 | 22.82110 | 0.0928561 | 1.9383081 | 564 | 13 | 1990–2009 | 0.51 | M-v | 0 | MPC | 47613 | (6394) |
| (6456) | 15.8 | 0.15 | 20100104 | 136.52301 | 346.89017 | 313.76411 | 8.20842 | 0.4078416 | 2.1939351 | 478 | 13 | 1979–2009 | 0.50 | M-v | 0 | MPC | 47614 | (6456) |
| (6553) | 12.3 | 0.15 | 20100104 | 269.67116 | 140.72216 | 135.07965 | 13.32763 | 0.0780895 | 3.0537613 | 699 | 15 | 1975–2009 | 0.53 | M-v | 0 | MPC | 47615 | (6553) |
| (6646) | 14.2 | 0.15 | 20100104 | 72.15807 | 106.06312 | 340.80936 | 17.59322 | 0.1003849 | 1.9250976 | 414 | 12 | 1983–2009 | 0.50 | M-v | 1 | MPC | 27568 | (6646) |
| (6766) | 14.1 | 0.15 | 20100104 | 76.21910 | 61.86863 | 308.77143 | 3.19477 | 0.1710828 | 2.6935019 | 474 | 15 | 1960–2009 | 0.56 | M-v | 0 | MPC | 47616 | (6766) |
| (6795) | 13.5 | 0.15 | 20100104 | 198.84329 | 192.90134 | 134.05561 | 5.05210 | 0.1221435 | 2.6414412 | 724 | 15 | 1954–2009 | 0.58 | M-v | 0 | MPC | 47617 | (6795) |
| (6907) | 12.7 | 0.15 | 20100104 | 31.36240 | 3.73238 | 90.99144 | 9.09029 | 0.1970765 | 2.7402460 | 461 | 14 | 1990–2009 | 0.52 | M-v | 0 | MPC | 50332 | (6907) |
| (6925) | 12.1 | 0.15 | 20100104 | 250.78950 | 82.93450 | 207.77088 | 14.22689 | 0.0986653 | 2.8350835 | 626 | 19 | 1964–2009 | 0.53 | M-v | 0 | MPC | 47618 | (6925) |
| (7082) | 12.3 | 0.15 | 20100104 | 140.58289 | 160.20570 | 141.37024 | 15.82659 | 0.1434757 | 3.1127095 | 503 | 15 | 1987–2009 | 0.55 | M-v | 0 | MPC | 47620 | (7082) |
| (7342) | 12.9 | 0.15 | 20100104 | 31.75188 | 347.68264 | 160.81881 | 13.85872 | 0.1015278 | 2.7006582 | 663 | 16 | 1954–2009 | 0.53 | M-v | 0 | MPC | 47622 | (7342) |
| (7455) | 13.3 | 0.15 | 20100104 | 68.21990 | 300.32109 | 164.63016 | 2.39839 | 0.0144549 | 2.8505083 | 632 | 15 | 1981–2009 | 0.54 | M-v | 0 | MPC | 47623 | (7455) |
| (7714) | 14.6 | 0.15 | 20100104 | 182.72117 | 249.85902 | 74.08494 | 1.48126 | 0.1503071 | 2.2748113 | 643 | 13 | 1987–2009 | 0.55 | M-v | 0 | MPC | 47625 | (7714) |
| (7817) | 13.1 | 0.15 | 20100104 | 253.03267 | 175.06005 | 120.06913 | 0.55691 | 0.0421806 | 2.7848444 | 804 | 15 | 1988–2009 | 0.53 | M-v | 0 | MPC | 47626 | (7817) |
| (7898) | 13.6 | 0.15 | 20100104 | 195.62927 | 250.60094 | 92.42269 | 7.05789 | 0.2186727 | 2.2065248 | 666 | 13 | 1972–2009 | 0.60 | M-v | 0 | MPC | 47626 | (7898) |
| (8021) | 13.1 | 0.15 | 20100104 | 91.12956 | 162.23759 | 236.97883 | 23.78601 | 0.2240807 | 2.3690624 | 350 | 13 | 1939–2009 | 0.58 | M-v | 1 | MPC | 47627 | (8021) |
| (8133) | 12.4 | 0.15 | 20100104 | 220.13619 | 177.69186 | 89.85924 | 2.31483 | 0.1532787 | 3.1520466 | 766 | 19 | 1977–2009 | 0.55 | M-v | 0 | MPC | 73858 | (8133) |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (8212) | 13.5 | 0.15 | 20100104 | 31.07797 | 92.41728 | 50.61075 | 2.98037 | 0.1513941 | 2.3851015 | 848 | 15 | 1958–2009 | 0.53 | M-v | 0 | MPC | 47629 | (8212) |
| (8755) | 12.9 | 0.15 | 20100104 | 136.41232 | 335.24900 | 65.58390 | 1.38785 | 0.1341424 | 3.2243520 | 851 | 15 | 1960–2009 | 0.53 | M-v | 0 | MPC | 47632 | (8755) |
| (8812) | 13.3 | 0.15 | 20100104 | 181.34672 | 296.74341 | 33.80284 | 6.60795 | 0.2504983 | 2.6337234 | 574 | 16 | 1969–2009 | 0.56 | M-v | 0 | MPC | 47632 | (8812) |
| (8949) | 13.9 | 0.15 | 20100104 | 180.76946 | 159.04590 | 163.54892 | 2.81086 | 0.0908303 | 2.6389356 | 595 | 13 | 1984–2009 | 0.58 | M-v | 0 | MPC | 47633 | (8949) |
| (8989) | 14.2 | 0.15 | 20100104 | 138.83741 | 246.59108 | 106.98128 | 6.06460 | 0.2387663 | 2.1925437 | 639 | 12 | 1979–2009 | 0.55 | M-v | 0 | MPC | 47633 | (8989) |
| (9003) | 12.9 | 0.15 | 20100104 | 28.72835 | 273.69601 | 125.00354 | 5.34516 | 0.0739184 | 2.7808006 | 722 | 15 | 1955–2009 | 0.54 | M-v | 0 | MPC | 140638 | (9003) |
| (9274) | 14.6 | 0.15 | 20100104 | 305.07135 | 248.51355 | 351.03907 | 6.81223 | 0.1588097 | 2.6302927 | 282 | 15 | 1950–2009 | 0.52 | M-v | 0 | MPC | 31793 | (9274) |
| (9302) | 14.2 | 0.15 | 20100104 | 167.90616 | 188.51367 | 176.51594 | 3.87425 | 0.1500537 | 2.1971969 | 590 | 13 | 1985–2009 | 0.54 | M-v | 0 | MPC | 47635 | (9302) |
| (9423) | 12.3 | 0.15 | 20100104 | 210.80377 | 218.70314 | 106.24238 | 8.83688 | 0.0988582 | 2.6949489 | 684 | 15 | 1983–2009 | 0.53 | M-v | 0 | MPC | *38015* | (9423) |
| (9680) | 14.3 | 0.15 | 20100104 | 63.26643 | 150.47760 | 312.57651 | 4.65681 | 0.1089412 | 2.2711756 | 549 | 12 | 1953–2009 | 0.53 | M-v | 0 | MPC | 599 | (9680) |
| (9926) | 15.6 | 0.15 | 20100104 | 13.58690 | 242.95680 | 203.18303 | 2.13829 | 0.1676072 | 2.3827054 | 347 | 11 | 1981–2009 | 0.55 | M-v | 0 | MPC | 47637 | (9926) |
| (10146) | 13.4 | 0.15 | 20100104 | 345.97007 | 74.25402 | 66.43244 | 3.89750 | 0.1831918 | 3.0764516 | 551 | 12 | 1992–2009 | 0.57 | M-v | 0 | MPC | 73860 | (10146) |
| (10321) | 14.0 | 0.15 | 20100104 | 203.12606 | 278.85373 | 53.97367 | 6.05843 | 0.0943039 | 2.3296342 | 546 | 12 | 1990–2009 | 0.55 | M-v | 0 | MPC | 47638 | (10321) |
| (10387) | 13.3 | 0.15 | 20100104 | 37.43617 | 326.16248 | 0.82991 | 12.67285 | 0.1645461 | 2.6828855 | 561 | 11 | 1990–2009 | 0.55 | M-v | 0 | MPC | 47639 | (10387) |
| (10404) | 13.9 | 0.15 | 20100104 | 68.61336 | 300.34686 | 130.85109 | 2.58073 | 0.0870763 | 3.0940210 | 405 | 13 | 1991–2009 | 0.56 | M-v | 0 | MPC | 53556 | (10404) |
| (10554) | 13.2 | 0.15 | 20100104 | 278.60724 | 94.59940 | 173.27025 | 7.38412 | 0.1583131 | 3.1987417 | 555 | 14 | 1993–2009 | 0.52 | M-v | 0 | MPC | 57627 | (10554) |
| (10929) | 12.8 | 0.15 | 20100104 | 327.37958 | 182.48499 | 34.23660 | 1.53874 | 0.1103630 | 3.1556228 | 846 | 16 | 1978–2009 | 0.55 | M-v | 0 | MPC | 47641 | (10929) |
| (10971) | 14.8 | 0.15 | 20100104 | 267.31735 | 34.47146 | 213.77224 | 1.76195 | 0.1621375 | 2.4493069 | 503 | 13 | 1973–2009 | 0.57 | M-v | 0 | MPC | 70182 | (10971) |
| (11232) | 12.2 | 0.15 | 20100104 | 291.20770 | 155.65288 | 91.33488 | 11.32542 | 0.0771132 | 3.1869211 | 696 | 15 | 1978–2009 | 0.57 | M-v | 0 | MPC | 38160 | (11232) |
| (11566) | 14.6 | 0.15 | 20100104 | 154.18348 | 266.07350 | 26.84797 | 7.11905 | 0.1100018 | 2.7359642 | 274 | 13 | 1984–2009 | 0.61 | M-v | 0 | MPC | 47644 | (11566) |
| (11771) | 13.9 | 0.15 | 20100104 | 117.74121 | 305.59750 | 32.24286 | 7.48763 | 0.2151441 | 2.9176371 | 428 | 16 | 1973–2009 | 0.55 | M-v | 0 | MPC | 47644 | (11771) |
| (11840) | 13.7 | 0.15 | 20100104 | 164.00591 | 213.42433 | 145.34434 | 13.02056 | 0.2920807 | 2.6262176 | 425 | 12 | 1986–2009 | 0.58 | M-v | 0 | MPC | 47644 | (11840) |
| (11884) | 13.5 | 0.15 | 20100104 | 207.28255 | 320.19935 | 343.31336 | 12.36665 | 0.1699305 | 2.6394567 | 465 | 12 | 1990–2009 | 0.57 | M-v | 0 | MPC | 50337 | (11884) |
| (12145) | 15.1 | 0.15 | 20100104 | 159.47856 | 289.52611 | 26.24039 | 4.74861 | 0.0861869 | 2.6642355 | 202 | 10 | 1960–2009 | 0.59 | M-v | 0 | MPC | 73863 | (12145) |
| (12262) | 13.0 | 0.15 | 20100104 | 118.50986 | 191.08264 | 217.87378 | 5.44687 | 0.1389033 | 2.7780370 | 694 | 12 | 1980–2009 | 0.59 | M-v | 0 | MPC | 73863 | (12262) |
| (12269) | 13.0 | 0.15 | 20100104 | 234.33727 | 123.11125 | 169.03943 | 13.54542 | 0.1729227 | 2.6195841 | 611 | 13 | 1990–2009 | 0.60 | M-v | 0 | MPC | 70184 | (12269) |
| (12276) | 13.4 | 0.15 | 20100104 | 147.85181 | 231.13819 | 153.09577 | 7.01832 | 0.1435725 | 2.6866381 | 602 | 12 | 1990–2009 | 0.58 | M-v | 0 | MPC | 50338 | (12276) |
| (12320) | 15.1 | 0.15 | 20100104 | 202.11343 | 320.95698 | 305.45318 | 4.16466 | 0.1014711 | 2.1710568 | 487 | 11 | 1991–2009 | 0.58 | M-v | 0 | MPC | 57628 | (12320) |
| (12473) | 13.7 | 0.15 | 20100104 | 220.98869 | 217.29066 | 81.17424 | 13.54219 | 0.1664326 | 2.6817150 | 442 | 12 | 1990–2009 | 0.52 | M-v | 0 | MPC | 50338 | (12473) |
| (12525) | 14.4 | 0.15 | 20100104 | 195.86948 | 105.48989 | 183.87397 | 14.11923 | 0.1959751 | 2.6723459 | 333 | 10 | 1990–2008 | 0.61 | M-v | 0 | MPC | 73864 | (12525) |
| (12693) | 12.3 | 0.15 | 20100104 | 274.70972 | 257.79453 | 20.49696 | 7.07913 | 0.2095357 | 2.5545818 | 970 | 15 | 1949–2009 | 0.48 | M-v | 0 | MPC | 47647 | (12693) |
| (12697) | 13.1 | 0.15 | 20100104 | 45.07963 | 293.84751 | 179.16280 | 7.60215 | 0.1831918 | 2.7983951 | 663 | 15 | 1975–2009 | 0.54 | M-v | 0 | MPC | 47647 | (12697) |
| (12891) | 13.4 | 0.15 | 20100104 | 147.62214 | 166.16042 | 189.72391 | 3.63340 | 0.1072426 | 2.7961114 | 666 | 14 | 1991–2009 | 0.54 | M-v | 0 | MPC | 50339 | (12891) |
| (13052) | 13.6 | 0.15 | 20100104 | 325.52290 | 143.55443 | 59.89930 | 4.13548 | 0.0396568 | 2.6494161 | 552 | 12 | 1990–2009 | 0.52 | M-v | 0 | MPC | 50339 | (13052) |
| (13396) | 13.6 | 0.15 | 20100104 | 107.96723 | 255.22759 | 163.29531 | 9.21595 | 0.1800961 | 2.5925050 | 456 | 12 | 1962–2009 | 0.56 | M-v | 0 | MPC | 50340 | (13396) |
| (13652) | 15.1 | 0.15 | 20100104 | 125.67301 | 194.41323 | 140.39926 | 6.03673 | 0.1894317 | 2.2159251 | 397 | 10 | 1995–2009 | 0.59 | M-v | 1 | MPC | 62181 | (13652) |
| (13900) | 12.8 | 0.15 | 20100104 | 70.68838 | 208.54280 | 228.54161 | 9.21077 | 0.2141535 | 2.9025456 | 666 | 12 | 1973–2009 | 0.53 | M-v | 0 | MPC | 50341 | (13900) |
| (14252) | 15.0 | 0.15 | 20100104 | 205.41695 | 181.87746 | 87.88515 | 2.12707 | 0.1176656 | 2.2625034 | 467 | 11 | 1978–2009 | 0.50 | M-v | 0 | MPC | 62182 | (14252) |
| (14277) | 14.6 | 0.15 | 20100104 | 39.89760 | 303.33827 | 187.84897 | 3.88556 | 0.0517284 | 2.8020059 | 425 | 11 | 1993–2009 | 0.55 | M-v | 0 | MPC | 73866 | (14277) |
| (14369) | 14.8 | 0.15 | 20100104 | 68.17454 | 207.41391 | 212.53410 | 7.46159 | 0.0968649 | 2.2511644 | 497 | 12 | 1978–2009 | 0.58 | M-v | 0 | MPC | 41501 | (14369) |
| (14446) | 12.2 | 0.15 | 20100104 | 146.13407 | 156.79997 | 218.44689 | 12.84405 | 0.1597985 | 2.9749996 | 607 | 12 | 1992–2009 | 0.53 | M-v | 0 | MPC | 53560 | (14446) |
| (14451) | 12.2 | 0.15 | 20100104 | 110.16385 | 110.15681 | 261.72829 | 9.55559 | 0.1372295 | 3.0623198 | 551 | 13 | 1976–2009 | 0.54 | M-v | 0 | MPC | 73867 | (14451) |
| (14797) | 13.2 | 0.15 | 20100104 | 255.38772 | 311.56182 | 343.99379 | 1.25325 | 0.0853245 | 2.9465852 | 919 | 16 | 1977–2009 | 0.54 | M-v | 0 | MPC | 38161 | (14797) |
| (14836) | 12.8 | 0.15 | 20100104 | 247.17967 | 80.79269 | 143.99465 | 15.24993 | 0.1101064 | 3.1858462 | 524 | 12 | 1984–2009 | 0.56 | M-v | 0 | MPC | 57631 | (14836) |
| (14866) | 13.2 | 0.15 | 20100104 | 205.88085 | 56.16840 | 225.26549 | 0.86293 | 0.2017248 | 3.1680069 | 764 | 12 | 1990–2009 | 0.54 | M-v | 0 | MPC | 57631 | (14866) |
| (15065) | 15.5 | 0.15 | 20100104 | 59.96378 | 161.33686 | 217.15234 | 1.52327 | 0.2243059 | 2.3807881 | 398 | 10 | 1983–2009 | 0.56 | M-v | 0 | MPC | 62183 | (15065) |
| (15260) | 14.6 | 0.15 | 20100104 | 222.71379 | 240.45625 | 56.76760 | 4.23777 | 0.1644930 | 2.3120541 | 658 | 12 | 1990–2009 | 0.53 | M-v | 0 | MPC | 62183 | (15260) |
| (15465) | 14.1 | 0.15 | 20100104 | 20.58013 | 358.17222 | 130.92174 | 1.52577 | 0.0901826 | 3.0698760 | 423 | 11 | 1988–2009 | 0.59 | M-v | 0 | MPC | 57632 | (15465) |
| (15799) | 12.6 | 0.15 | 20100104 | 182.75831 | 280.48447 | 268.32974 | 12.14305 | 0.1257045 | 2.6474538 | 611 | 11 | 1993–2009 | 0.54 | M-v | 0 | MPC | 66003 | (15799) |
| (16347) | 13.3 | 0.15 | 20100104 | 154.59592 | 210.20190 | 152.95606 | 2.35687 | 0.0708313 | 2.9423826 | 634 | 12 | 1977–2009 | 0.59 | M-v | 0 | MPC | 53562 | (16347) |
| (16632) | 15.7 | 0.15 | 20100104 | 306.58198 | 178.00076 | 68.86801 | 1.22007 | 0.0712712 | 2.2971823 | 295 | 10 | 1993–2009 | 0.60 | M-v | 0 | MPC | 70186 | (16632) |
| (16842) | 13.5 | 0.15 | 20100104 | 323.79605 | 120.64871 | 102.67027 | 5.44843 | 0.1816739 | 3.1727811 | 446 | 13 | 1989–2009 | 0.53 | M-v | 0 | MPC | 47653 | (16842) |
| (16856) | 14.8 | 0.15 | 20100104 | 135.01152 | 191.14237 | 180.98774 | 7.30511 | 0.1622430 | 2.4354747 | 470 | 12 | 1991–2009 | 0.55 | M-v | 0 | MPC | 47653 | (16856) |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (16970) | 11.6 | 0.15 | 20100104 | 268.82346 | 46.34493 | 233.49624 | 8.78292 | 0.1164251 | 3.9769680 | 657 | 15 | 1951–2009 | 0.54 | M-v | 0 | MPC | 47653 | (16970) |
| (17030) | 12.9 | 0.15 | 20100104 | 292.69893 | 106.95464 | 104.29203 | 2.90640 | 0.0508551 | 3.1754508 | 663 | 13 | 1990–2009 | 0.56 | M-v | 0 | MPC | 73869 | (17030) |
| (17069) | 13.7 | 0.15 | 20100104 | 206.87508 | 176.61476 | 162.92841 | 6.70981 | 0.0970309 | 2.3786526 | 688 | 12 | 1989–2009 | 0.58 | M-v | 0 | MPC | 47653 | (17069) |
| (17132) | 13.0 | 0.15 | 20100104 | 38.80263 | 207.42998 | 129.10110 | 10.13363 | 0.1332848 | 2.7513972 | 742 | 11 | 1993–2009 | 0.56 | M-v | 0 | MPC | 62185 | (17132) |
| (17265) | 14.6 | 0.15 | 20100104 | 145.22815 | 277.12607 | 97.81574 | 3.93116 | 0.1306281 | 2.2958593 | 490 | 13 | 1973–2009 | 0.56 | M-v | 0 | MPC | 47654 | (17265) |
| (17646) | 14.2 | 0.15 | 20100104 | 228.12506 | 293.87897 | 345.87768 | 12.50778 | 0.2134760 | 2.4451321 | 305 | 11 | 1991–2009 | 0.56 | M-v | 0 | MPC | 47654 | (17646) |
| (17889) | 13.7 | 0.15 | 20100104 | 325.59748 | 56.58490 | 161.20492 | 4.64922 | 0.1063810 | 2.4067793 | 716 | 13 | 1977–2009 | 0.56 | M-v | 0 | MPC | 47655 | (17889) |
| (18506) | 14.0 | 0.15 | 20100104 | 301.77365 | 283.70639 | 30.10574 | 23.19883 | 0.2333504 | 2.3096280 | 422 | 10 | 1992–2009 | 0.58 | M-v | 0 | MPC | 73871 | (18506) |
| (18586) | 13.7 | 0.15 | 20100104 | 349.34518 | 33.27291 | 131.26977 | 6.48724 | 0.1762860 | 2.4731844 | 771 | 11 | 1991–2009 | 0.52 | M-v | 0 | MPC | 70188 | (18586) |
| (18718) | 13.2 | 0.15 | 20100104 | 56.90202 | 247.59467 | 159.90384 | 14.59016 | 0.0933532 | 2.6043760 | 668 | 11 | 1989–2009 | 0.52 | M-v | 0 | MPC | 66010 | (18718) |
| (19175) | 14.1 | 0.15 | 20100104 | 76.34834 | 114.65209 | 336.24970 | 3.17176 | 0.0309012 | 2.5234699 | 470 | 12 | 1991–2009 | 0.54 | M-v | 0 | MPC | 50344 | (19175) |
| (19301) | 15.3 | 0.15 | 20100104 | 96.28574 | 170.47517 | 194.87225 | 0.98059 | 0.2715279 | 2.5561969 | 373 | 12 | 1991–2009 | 0.50 | M-v | 0 | MPC | 47657 | (19301) |
| (19694) | 12.4 | 0.15 | 20100104 | 238.99043 | 189.60044 | 121.65744 | 12.34802 | 0.0911833 | 3.5436898 | 559 | 12 | 1982–2009 | 0.54 | M-v | 0 | MPC | 62187 | (19694) |
| (19940) | 14.4 | 0.15 | 20100104 | 206.84298 | 267.18473 | 358.45891 | 11.28262 | 0.1676355 | 2.6239261 | 334 | 12 | 1981–2009 | 0.64 | M-v | 0 | MPC | 47658 | (19940) |
| (20298) | 14.7 | 0.15 | 20100104 | 255.04474 | 191.80717 | 50.74896 | 7.89778 | 0.0978252 | 2.5936951 | 229 | 10 | 1994–2008 | 0.56 | M-v | 0 | MPC | 73875 | (20298) |
| (20306) | 14.7 | 0.15 | 20100104 | 239.29039 | 13.13229 | 259.75664 | 4.64586 | 0.1040529 | 2.5649110 | 378 | 12 | 1991–2009 | 0.61 | M-v | 0 | MPC | 50345 | (20306) |
| (20425) | 20.4 | 0.15 | 20100104 | 193.41320 | 296.06512 | 227.44316 | 6.97851 | 0.4765400 | 1.5650371 | 51 | 4 | 1998–2005 | 0.55 | M-v | 1 | MPC | 7830 | (20425) |
| (20742) | 13.6 | 0.15 | 20100104 | 59.76617 | 332.75972 | 131.75834 | 22.35066 | 0.0398135 | 2.7116433 | 354 | 11 | 1986–2009 | 0.57 | M-v | 0 | MPC | 73876 | (20742) |
| (20790) | 16.4 | 0.15 | 20100104 | 348.61679 | 168.81292 | 303.01665 | 8.32936 | 0.5607569 | 2.7412974 | 506 | 3 | 1992–2009 | 0.44 | M-v | 0 | MPC | 166030 | (20790) |
| (20903) | 13.3 | 0.15 | 20100104 | 171.73338 | 289.55207 | 53.35979 | 14.21104 | 0.1839973 | 2.5864391 | 315 | 12 | 1987–2009 | 0.55 | M-v | 1 | MPC | 57634 | (20903) |
| (20918) | 14.0 | 0.15 | 20100104 | 174.24684 | 119.32329 | 170.19651 | 7.77398 | 0.0691655 | 2.6680320 | 492 | 12 | 1951–2009 | 0.57 | M-v | 0 | MPC | 47660 | (20918) |
| (21695) | 14.9 | 0.15 | 20100104 | 257.56132 | 212.82742 | 112.61613 | 3.33106 | 0.2164923 | 2.4398806 | 497 | 12 | 1976–2009 | 0.59 | M-v | 0 | MPC | 73879 | (21695) |
| (22075) | 14.0 | 0.15 | 20100104 | 197.22638 | 237.37474 | 79.88815 | 10.26416 | 0.0754069 | 2.6431512 | 464 | 11 | 1995–2009 | 0.55 | M-v | 0 | MPC | 73880 | (22075) |
| (22117) | 14.0 | 0.15 | 20100104 | 355.43322 | 86.91639 | 37.37843 | 13.44266 | 0.1418245 | 2.5663819 | 387 | 9 | 1988–2009 | 0.57 | M-v | 1 | MPC | 89992 | (22117) |
| (22295) | 13.3 | 0.15 | 20100104 | 313.57979 | 214.45209 | 2.43306 | 12.29226 | 0.1605450 | 2.3816446 | 623 | 11 | 1978–2009 | 0.54 | M-v | 0 | MPC | 164086 | (22295) |
| (22516) | 15.0 | 0.15 | 20100104 | 170.83310 | 142.15810 | 139.37923 | 4.68957 | 0.0994548 | 2.6491909 | 269 | 11 | 1995–2009 | 0.57 | M-v | 0 | MPC | 66017 | (22516) |
| (22615) | 14.0 | 0.15 | 20100104 | 201.76198 | 190.26682 | 124.53393 | 14.27214 | 0.1407904 | 2.7149851 | 410 | 11 | 1995–2009 | 0.58 | M-v | 0 | MPC | 73882 | (22615) |
| (22788) | 13.7 | 0.15 | 20100104 | 317.63006 | 266.55081 | 256.22065 | 8.46541 | 0.2087394 | 2.4452106 | 577 | 11 | 1991–2009 | 0.54 | M-v | 0 | MPC | 66018 | (22788) |
| (22828) | 14.1 | 0.15 | 20100104 | 177.63559 | 108.77241 | 173.07911 | 6.16132 | 0.1669857 | 2.6441787 | 449 | 11 | 1994–2009 | 0.56 | M-v | 0 | MPC | 66018 | (22828) |
| (23023) | 13.7 | 0.15 | 20100104 | 224.97150 | 85.68257 | 141.70769 | 2.78927 | 0.0175267 | 2.8800135 | 557 | 11 | 1991–2009 | 0.56 | M-v | 0 | MPC | 50348 | (23023) |
| (23066) | 14.9 | 0.15 | 20100104 | 157.69693 | 144.10384 | 162.18455 | 2.31017 | 0.0625889 | 2.8282690 | 316 | 11 | 1992–2009 | 0.55 | M-v | 0 | MPC | 50348 | (23066) |
| (23098) | 14.4 | 0.15 | 20100104 | 179.04491 | 127.27633 | 196.64147 | 3.67674 | 0.0972570 | 2.7458586 | 399 | 12 | 1992–2009 | 0.55 | M-v | 0 | MPC | 50348 | (23098) |
| (23951) | 13.5 | 0.15 | 20100104 | 168.05871 | 72.95134 | 198.14097 | 12.75752 | 0.1436043 | 3.0081335 | 329 | 12 | 1991–2009 | 0.52 | M-v | 0 | MPC | 50350 | (23951) |
| (24083) | 15.7 | 0.15 | 20100104 | 203.30617 | 187.15296 | 81.71123 | 5.91861 | 0.1460539 | 2.1365441 | 300 | 11 | 1992–2009 | 0.51 | M-v | 0 | MPC | 57636 | (24083) |
| (24295) | 13.5 | 0.15 | 20100104 | 280.36531 | 279.74504 | 327.16128 | 8.29816 | 0.1127130 | 2.7657336 | 468 | 11 | 1993–2009 | 0.56 | M-v | 0 | MPC | 73886 | (24295) |
| (24374) | 13.0 | 0.15 | 20100104 | 175.12658 | 147.05316 | 155.57653 | 11.40213 | 0.0926760 | 2.9874613 | 543 | 13 | 1991–2009 | 0.54 | M-v | 0 | MPC | 73887 | (24374) |
| (25079) | 13.7 | 0.15 | 20100104 | 109.19030 | 305.47331 | 107.01394 | 4.98176 | 0.0976978 | 2.7855242 | 511 | 12 | 1980–2009 | 0.52 | M-v | 0 | MPC | 50351 | (25079) |
| (25143) | 19.2 | 0.15 | 20100104 | 249.64049 | 162.76861 | 69.08551 | 1.62192 | 0.2801084 | 1.3240565 | 937 | 3 | 1998–2007 | 0.53 | M-v | 0 | MPC | 135438 | (25143) |
| (25214) | 14.0 | 0.15 | 20100104 | 301.92417 | 147.33393 | 8.16476 | 10.23423 | 0.0287051 | 2.9754720 | 275 | 11 | 1993–2009 | 0.59 | M-v | 0 | MPC | 73889 | (25214) |
| (25288) | 13.9 | 0.15 | 20100104 | 8.95179 | 335.67691 | 126.50992 | 3.65010 | 0.0645470 | 2.9969374 | 454 | 11 | 1995–2009 | 0.56 | M-v | 0 | MPC | 73889 | (25288) |
| (25779) | 14.9 | 0.15 | 20100104 | 128.26375 | 172.16176 | 150.18529 | 3.67829 | 0.2019327 | 2.2707820 | 388 | 9 | 1997–2009 | 0.53 | M-v | 0 | MPC | 77311 | (25779) |
| (25870) | 15.5 | 0.15 | 20100104 | 160.74185 | 99.72078 | 233.78421 | 2.28641 | 0.1962159 | 2.3618872 | 316 | 13 | 1975–2009 | 0.56 | M-v | 0 | MPC | 66019 | (25870) |
| (25969) | 14.2 | 0.15 | 20100104 | 324.13642 | 67.56122 | 170.01269 | 14.00065 | 0.1564861 | 2.6363368 | 263 | 12 | 1977–2009 | 0.63 | M-v | 0 | MPC | 53566 | (25969) |
| (26055) | 14.1 | 0.15 | 20100104 | 176.26723 | 245.39253 | 71.33509 | 3.12282 | 0.0590924 | 2.8954449 | 496 | 12 | 1973–2009 | 0.58 | M-v | 0 | MPC | 50352 | (26055) |
| (26293) | 14.0 | 0.15 | 20100104 | 283.63292 | 328.69124 | 224.75863 | 8.34186 | 0.0366672 | 2.2756076 | 651 | 10 | 1997–2009 | 0.55 | M-v | 0 | MPC | 87266 | (26293) |
| (26697) | 13.9 | 0.15 | 20100104 | 351.98561 | 46.62656 | 134.83925 | 10.14358 | 0.0876701 | 2.7445337 | 433 | 11 | 1996–2009 | 0.56 | M-v | 0 | MPC | 73892 | (26697) |
| (26950) | 15.5 | 0.15 | 20100104 | 274.49666 | 324.79177 | 202.83288 | 2.37620 | 0.0882605 | 2.3073217 | 481 | 10 | 1997–2009 | 0.54 | M-v | 0 | MPC | 87268 | (26950) |
| (26953) | 14.6 | 0.15 | 20100104 | 69.71056 | 317.23692 | 90.33460 | 6.56055 | 0.1271902 | 2.2852960 | 446 | 10 | 1997–2009 | 0.56 | M-v | 0 | MPC | 87268 | (26953) |
| (27122) | 14.6 | 0.15 | 20100104 | 124.84647 | 306.30213 | 25.29623 | 2.32316 | 0.2032451 | 2.3105154 | 542 | 10 | 1997–2009 | 0.55 | M-v | 0 | MPC | 87269 | (27122) |
| (27189) | 12.7 | 0.15 | 20100104 | 180.78858 | 107.12538 | 140.99447 | 9.26135 | 0.0312172 | 3.3850156 | 392 | 11 | 1995–2009 | 0.58 | M-v | 0 | MPC | 73893 | (27189) |
| (27292) | 14.1 | 0.15 | 20100104 | 126.17104 | 327.82771 | 294.83339 | 7.72234 | 0.2290339 | 2.4206916 | 502 | 10 | 1997–2009 | 0.58 | M-v | 0 | MPC | 87269 | (27292) |
| (27485) | 13.0 | 0.15 | 20100104 | 213.35333 | 191.16561 | 114.47707 | 12.28966 | 0.1067986 | 3.0507885 | 444 | 11 | 1995–2009 | 0.54 | M-v | 0 | MPC | 73894 | (27485) |
| (28475) | 15.1 | 0.15 | 20100104 | 308.19906 | 350.16694 | 164.60659 | 4.74701 | 0.1224562 | 2.2825660 | 520 | 10 | 1997–2009 | 0.50 | M-v | 0 | MPC | 87273 | (28475) |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (28581) | 15.4 | 0.15 | 20100104 | 44.75361 | 13.26832 | 97.56883 | 6.94921 | 0.1209277 | 2.2260849 | 356 | 9 | 1997–2009 | 0.57 | M-v | 0 | MPC | 89992 | (28581) |
| (28887) | 13.6 | 0.15 | 20100104 | 51.66188 | 291.09359 | 100.52668 | 13.78959 | 0.2570162 | 2.4046798 | 496 | 10 | 1988–2009 | 0.51 | M-v | 0 | MPC | 87275 | (28887) |
| (29049) | 16.5 | 0.15 | 20100104 | 50.01646 | 41.29427 | 8.20306 | 6.29406 | 0.0729568 | 2.3216349 | 193 | 9 | 1973–2009 | 0.64 | M-v | 1 | MPC | 15548 | (29049) |
| (29254) | 12.3 | 0.15 | 20100104 | 243.55345 | 216.69740 | 75.10887 | 5.92806 | 0.0978972 | 3.1912244 | 761 | 12 | 1993–2009 | 0.50 | M-v | 0 | MPC | 57640 | (29254) |
| (29262) | 14.4 | 0.15 | 20100104 | 250.40192 | 249.97482 | 38.14742 | 7.35145 | 0.1687627 | 2.2647680 | 498 | 15 | 1955–2009 | 0.57 | M-v | 0 | MPC | 41505 | (29262) |
| (29647) | 15.6 | 0.15 | 20100104 | 347.66649 | 289.99054 | 197.40778 | 2.02778 | 0.1621444 | 2.3484842 | 386 | 10 | 1997–2009 | 0.55 | M-v | 0 | MPC | 87277 | (29647) |
| (29707) | 15.3 | 0.15 | 20100104 | 311.24733 | 22.58244 | 153.56660 | 3.59105 | 0.0516504 | 2.3118339 | 414 | 11 | 1994–2009 | 0.58 | M-v | 0 | MPC | 66021 | (29707) |
| (29753) | 13.7 | 0.15 | 20100104 | 101.18877 | 244.06500 | 107.45257 | 10.05246 | 0.1411800 | 2.3860616 | 618 | 10 | 1997–2009 | 0.55 | M-v | 0 | MPC | 87277 | (29753) |
| (29771) | 13.4 | 0.15 | 20100104 | 249.61538 | 177.13391 | 70.35398 | 3.06403 | 0.1375453 | 3.1608775 | 410 | 10 | 1994–2009 | 0.56 | M-v | 0 | MPC | 73896 | (29771) |
| (29796) | 13.7 | 0.15 | 20100104 | 15.68593 | 300.32432 | 208.02074 | 7.87042 | 0.0762370 | 2.3436269 | 676 | 9 | 1997–2009 | 0.54 | M-v | 0 | MPC | 89992 | (29796) |
| (29922) | 12.6 | 0.15 | 20100104 | 210.89615 | 247.51322 | 80.74444 | 3.32407 | 0.0410868 | 3.1985240 | 820 | 12 | 1982–2009 | 0.53 | M-v | 0 | MPC | 57640 | (29922) |
| (30423) | 13.1 | 0.15 | 20100104 | 9.94836 | 40.19840 | 118.16452 | 17.73671 | 0.0578903 | 3.1104039 | 379 | 12 | 1982–2009 | 0.57 | M-v | 0 | MPC | 57640 | (30423) |
| (30435) | 13.1 | 0.15 | 20100104 | 89.09222 | 102.61775 | 195.68457 | 3.09620 | 0.2345229 | 3.9516810 | 423 | 11 | 1998–2009 | 0.56 | M-v | 0 | MPC | 97257 | (30435) |
| (30526) | 14.7 | 0.15 | 20100104 | 57.28840 | 284.07795 | 104.12385 | 8.90422 | 0.2373868 | 2.3490563 | 323 | 9 | 1997–2009 | 0.53 | M-v | 0 | MPC | 87280 | (30526) |
| (30926) | 14.1 | 0.15 | 20100104 | 166.95211 | 247.83338 | 48.06710 | 9.14878 | 0.1928523 | 2.4297046 | 381 | 11 | 1993–2009 | 0.56 | M-v | 0 | MPC | 66022 | (30926) |
| (31244) | 14.1 | 0.15 | 20100104 | 302.43607 | 201.76464 | 58.31905 | 3.35679 | 0.1541221 | 3.2047301 | 346 | 11 | 1992–2009 | 0.56 | M-v | 0 | MPC | 77319 | (31244) |
| (31457) | 15.1 | 0.15 | 20100104 | 291.06310 | 38.40599 | 171.70806 | 2.59558 | 0.1623054 | 2.4170733 | 287 | 10 | 1995–2009 | 0.56 | M-v | 1 | MPC | 70195 | (31457) |
| (31481) | 14.0 | 0.15 | 20100104 | 295.99114 | 8.20020 | 225.74307 | 0.22954 | 0.0908715 | 3.0781371 | 422 | 10 | 1996–2009 | 0.57 | M-v | 0 | MPC | 73896 | (31481) |
| (31615) | 13.3 | 0.15 | 20100104 | 98.94572 | 26.71078 | 31.71901 | 2.96778 | 0.0793627 | 3.1682109 | 561 | 12 | 1992–2009 | 0.58 | M-v | 0 | MPC | 57641 | (31615) |
| (31726) | 13.7 | 0.15 | 20100104 | 317.78986 | 113.55930 | 106.18733 | 6.32364 | 0.1247693 | 3.1668806 | 354 | 11 | 1995–2009 | 0.61 | M-v | 0 | MPC | 77320 | (31726) |
| (32011) | 13.1 | 0.15 | 20100104 | 232.38465 | 253.58785 | 51.65716 | 11.73308 | 0.1065269 | 3.0133499 | 572 | 12 | 1981–2009 | 0.52 | M-v | 0 | MPC | 57641 | (32011) |
| (32804) | 14.2 | 0.15 | 20100104 | 227.82406 | 194.59591 | 111.90606 | 6.89293 | 0.2203212 | 2.3054286 | 451 | 10 | 1990–2009 | 0.55 | M-v | 0 | MPC | 66025 | (32804) |
| (33114) | 15.1 | 0.15 | 20100104 | 108.90799 | 226.75791 | 124.55181 | 5.02466 | 0.0711249 | 2.5521976 | 363 | 10 | 1998–2009 | 0.57 | M-v | 0 | MPC | 87288 | (33114) |
| (33177) | 15.1 | 0.15 | 20100104 | 163.34370 | 298.67550 | 291.95231 | 2.61608 | 0.0465194 | 2.7580250 | 297 | 9 | 1998–2009 | 0.62 | M-v | 0 | MPC | 97262 | (33177) |
| (33249) | 14.2 | 0.15 | 20100104 | 111.03516 | 76.03592 | 196.67996 | 2.70563 | 0.0539458 | 2.7939194 | 411 | 10 | 1998–2009 | 0.59 | M-v | 0 | MPC | 97262 | (33249) |
| (33340) | 6.5 | 0.15 | 20100104 | 354.50202 | 323.87062 | 127.90850 | 3.03999 | 0.2514209 | 39.2336030 | 54 | 7 | 1998–2009 | 0.40 | M-v | 2 | MPC | 66025 | (33340) |
| (33735) | 13.2 | 0.15 | 20100104 | 3.68930 | 353.41831 | 118.74332 | 13.56359 | 0.1244862 | 2.6148380 | 500 | 10 | 1998–2009 | 0.54 | M-v | 0 | MPC | 97264 | (33735) |
| (33935) | 13.1 | 0.15 | 20100104 | 121.65821 | 259.30365 | 113.28412 | 22.47444 | 0.1444325 | 3.3803764 | 207 | 10 | 1997–2009 | 0.56 | M-v | 0 | MPC | 77321 | (33935) |
| (33957) | 14.6 | 0.15 | 20100104 | 140.77052 | 30.25340 | 285.70776 | 3.14427 | 0.2052820 | 2.5354302 | 496 | 11 | 1994–2009 | 0.51 | M-v | 0 | MPC | 66026 | (33957) |
| (34012) | 15.4 | 0.15 | 20100104 | 267.33231 | 342.42639 | 266.14295 | 3.44369 | 0.1238992 | 2.3548603 | 275 | 12 | 1978–2009 | 0.58 | M-v | 0 | MPC | 43320 | (34012) |
| (34030) | 14.6 | 0.15 | 20100104 | 68.63882 | 262.80847 | 105.04542 | 5.51409 | 0.1309689 | 2.5418800 | 216 | 11 | 1994–2009 | 0.52 | M-v | 0 | MPC | 66026 | (34030) |
| (34182) | 14.8 | 0.15 | 20100104 | 103.72203 | 318.58900 | 329.99118 | 2.13942 | 0.0714433 | 2.6380357 | 414 | 11 | 1994–2009 | 0.54 | M-v | 0 | MPC | 66026 | (34182) |
| (34237) | 14.4 | 0.15 | 20100104 | 63.17317 | 264.45198 | 144.12225 | 8.06409 | 0.1542258 | 2.5433828 | 519 | 11 | 1994–2009 | 0.54 | M-v | 0 | MPC | 66026 | (34237) |
| (34365) | 15.2 | 0.15 | 20100104 | 128.75308 | 40.51431 | 286.48405 | 3.90096 | 0.1250803 | 2.5613584 | 276 | 11 | 1994–2009 | 0.52 | M-v | 0 | MPC | 70195 | (34365) |
| (34575) | 13.5 | 0.15 | 20100104 | 308.67294 | 359.76164 | 125.64983 | 13.62679 | 0.2171138 | 2.6733941 | 329 | 10 | 1998–2009 | 0.57 | M-v | 0 | MPC | 97266 | (34575) |
| (34664) | 13.8 | 0.15 | 20100104 | 359.32176 | 345.31916 | 121.26293 | 15.97395 | 0.0425332 | 2.5948958 | 411 | 10 | 1998–2009 | 0.53 | M-v | 0 | MPC | 87293 | (34664) |
| (34694) | 15.1 | 0.15 | 20100104 | 39.25363 | 116.23959 | 285.91045 | 3.57929 | 0.2935308 | 2.3773984 | 341 | 9 | 1992–2009 | 0.59 | M-v | 0 | MPC | 87293 | (34694) |
| (34826) | 16.1 | 0.15 | 20100104 | 98.65238 | 31.63972 | 301.50855 | 0.15562 | 0.2293347 | 2.4170241 | 199 | 10 | 1997–2009 | 0.52 | M-v | 1 | MPC | 87293 | (34826) |
| (35194) | 14.2 | 0.15 | 20100104 | 107.38339 | 213.38646 | 161.79347 | 23.92671 | 0.1003537 | 1.9425658 | 352 | 10 | 1994–2009 | 0.57 | M-v | 1 | MPC | 73897 | (35194) |
| (35280) | 15.5 | 0.15 | 20100104 | 113.09916 | 120.12842 | 211.60585 | 3.58324 | 0.1342966 | 2.5570845 | 183 | 11 | 1994–2009 | 0.58 | M-v | 1 | MPC | 66028 | (35280) |
| (35378) | 15.5 | 0.15 | 20100104 | 288.87774 | 358.94277 | 270.67403 | 1.32997 | 0.2160083 | 2.2965581 | 398 | 10 | 1990–2008 | 0.56 | M-v | 0 | MPC | 70196 | (35378) |
| (35432) | 19.3 | 0.15 | 20100104 | 359.34509 | 1.31359 | 115.45999 | 13.07278 | 0.5402095 | 2.5114115 | 195 | 4 | 1998–2009 | 0.60 | M-v | 1 | MPC | 101892 | (35432) |
| (35442) | 13.8 | 0.15 | 20100104 | 29.70671 | 143.06631 | 10.61975 | 9.34274 | 0.0509937 | 2.4531891 | 548 | 12 | 1983–2009 | 0.53 | M-v | 0 | MPC | 50354 | (35442) |
| (35508) | 14.5 | 0.15 | 20100104 | 143.63000 | 266.96857 | 4.06805 | 7.25940 | 0.1630276 | 2.7364919 | 358 | 10 | 1998–2009 | 0.54 | M-v | 0 | MPC | 97268 | (35508) |
| (35520) | 14.4 | 0.15 | 20100104 | 97.10189 | 277.74453 | 9.14448 | 3.71051 | 0.0716767 | 2.7935938 | 450 | 9 | 1998–2009 | 0.55 | M-v | 0 | MPC | 97268 | (35520) |
| (35524) | 14.2 | 0.15 | 20100104 | 358.87283 | 227.23016 | 174.84272 | 9.29431 | 0.1849173 | 2.7272519 | 373 | 9 | 1998–2009 | 0.56 | M-v | 0 | MPC | 97268 | (35524) |
| (35562) | 13.5 | 0.15 | 20100104 | 30.47652 | 101.65174 | 26.46040 | 16.02968 | 0.0567515 | 2.5561159 | 542 | 10 | 1998–2009 | 0.53 | M-v | 0 | MPC | 97269 | (35562) |
| (35617) | 13.4 | 0.15 | 20100104 | 268.31969 | 194.85720 | 56.84467 | 15.02324 | 0.0769892 | 2.5975967 | 556 | 10 | 1998–2009 | 0.55 | M-v | 0 | MPC | 97269 | (35617) |
| (35638) | 14.1 | 0.15 | 20100104 | 204.63647 | 200.07829 | 92.88548 | 9.95782 | 0.0681916 | 2.6516858 | 337 | 10 | 1998–2009 | 0.60 | M-v | 0 | MPC | 97269 | (35638) |
| (35922) | 15.1 | 0.15 | 20100104 | 166.45608 | 182.58452 | 119.87466 | 3.64404 | 0.1003132 | 2.5274910 | 392 | 12 | 1991–2009 | 0.55 | M-v | 0 | MPC | 47670 | (35922) |
| (35985) | 13.9 | 0.15 | 20100104 | 105.62320 | 157.51439 | 125.51712 | 9.93327 | 0.1242430 | 2.7965270 | 408 | 10 | 1998–2009 | 0.56 | M-v | 0 | MPC | 97271 | (35985) |
| (36001) | 14.4 | 0.15 | 20100104 | 96.28250 | 176.45898 | 125.87497 | 10.41175 | 0.1359224 | 2.7597449 | 244 | 9 | 1998–2009 | 0.60 | M-v | 0 | MPC | 97271 | (36001) |
| (36102) | 14.0 | 0.15 | 20100104 | 145.98692 | 159.96413 | 155.36996 | 14.41952 | 0.2023278 | 2.6590475 | 418 | 16 | 1982–2009 | 0.57 | M-v | 0 | MPC | 24452 | (36102) |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (36188) | 12.7 | 0.15 | 20100104 | 231.54327 | 194.89572 | 61.30201 | 13.26518 | 0.1507900 | 2.6997583 | 617 | 10 | 1998–2009 | 0.51 | M-v | 0 | MPC | 97271 | (36188) |
| (36218) | 13.9 | 0.15 | 20100104 | 271.41634 | 280.76649 | 342.78291 | 7.05397 | 0.1809464 | 2.5745877 | 503 | 10 | 1998–2009 | 0.60 | M-v | 0 | MPC | 97271 | (36218) |
| (36390) | 14.3 | 0.15 | 20100104 | 48.12585 | 218.63867 | 165.67884 | 17.79201 | 0.2058543 | 2.5689958 | 119 | 10 | 1992–2009 | 0.60 | M-v | 1 | MPC | 47671 | (36390) |
| (36684) | 15.7 | 0.15 | 20100104 | 155.45188 | 111.45983 | 193.32123 | 2.32440 | 0.2003550 | 2.5282569 | 308 | 11 | 1994–2009 | 0.48 | M-v | 0 | MPC | 66030 | (36684) |
| (36909) | 15.5 | 0.15 | 20100104 | 287.61411 | 42.20279 | 185.96868 | 1.92489 | 0.1608777 | 2.3944520 | 241 | 11 | 1995–2009 | 0.53 | M-v | 0 | MPC | 70197 | (36909) |
| (37046) | 14.8 | 0.15 | 20100104 | 83.94251 | 272.34970 | 32.05540 | 3.66007 | 0.0789484 | 2.7639632 | 300 | 9 | 1998–2009 | 0.57 | M-v | 0 | MPC | 97274 | (37046) |
| (37173) | 14.5 | 0.15 | 20100104 | 52.81249 | 221.56377 | 97.32988 | 11.62023 | 0.1285819 | 2.8681257 | 230 | 10 | 1998–2009 | 0.59 | M-v | 0 | MPC | 97274 | (37173) |
| (37174) | 14.1 | 0.15 | 20100104 | 40.59982 | 276.39999 | 102.30862 | 12.77142 | 0.1733799 | 2.7580058 | 317 | 9 | 1998–2009 | 0.53 | M-v | 0 | MPC | 97274 | (37174) |
| (37271) | 13.7 | 0.15 | 20100104 | 163.60470 | 303.20830 | 46.74082 | 14.54523 | 0.1858588 | 2.5736587 | 264 | 12 | 1950–2009 | 0.56 | M-v | 1 | MPC | 24847 | (37271) |
| (37278) | 14.3 | 0.15 | 20100104 | 154.74305 | 210.81714 | 88.72374 | 14.21171 | 0.1477783 | 2.7371839 | 252 | 10 | 1998–2009 | 0.60 | M-v | 0 | MPC | 97275 | (37278) |
| (37354) | 14.4 | 0.15 | 20100104 | 108.44971 | 274.51295 | 109.93159 | 3.98043 | 0.1744078 | 2.4115372 | 483 | 10 | 1976–2009 | 0.60 | M-v | 0 | MPC | 66031 | (37354) |
| (37366) | 15.0 | 0.15 | 20100104 | 272.16586 | 8.18716 | 220.84963 | 4.48140 | 0.0818830 | 2.3662185 | 364 | 11 | 1990–2009 | 0.56 | M-v | 0 | MPC | 47673 | (37366) |
| (37543) | 15.3 | 0.15 | 20100104 | 346.83685 | 156.11689 | 319.17783 | 4.52148 | 0.1172379 | 2.6105649 | 266 | 9 | 1979–2009 | 0.65 | M-v | 1 | MPC | 26194 | (37543) |
| (37872) | 15.7 | 0.15 | 20100104 | 313.49276 | 108.72622 | 45.29322 | 3.06050 | 0.0978927 | 2.5909463 | 190 | 9 | 1977–2009 | 0.56 | M-v | 1 | MPC | 26311 | (37872) |
| (37920) | 14.2 | 0.15 | 20100104 | 32.48996 | 211.11173 | 258.86910 | 4.25622 | 0.0849126 | 2.5490377 | 377 | 9 | 1998–2009 | 0.54 | M-v | 0 | MPC | 97276 | (37920) |
| (37970) | 14.1 | 0.15 | 20100104 | 297.38331 | 162.88734 | 52.57896 | 15.11360 | 0.1003030 | 2.5824866 | 438 | 10 | 1998–2009 | 0.56 | M-v | 0 | MPC | 97277 | (37970) |
| (38006) | 13.8 | 0.15 | 20100104 | 283.99165 | 142.05023 | 84.85490 | 13.56166 | 0.1099347 | 2.6249671 | 407 | 10 | 1998–2009 | 0.55 | M-v | 0 | MPC | 97277 | (38006) |
| (38338) | 14.9 | 0.15 | 20100104 | 187.61020 | 141.46910 | 177.25633 | 4.02722 | 0.2545349 | 2.5832092 | 250 | 13 | 1991–2009 | 0.54 | M-v | 1 | MPC | 50356 | (38338) |
| (38607) | 11.5 | 0.15 | 20100104 | 302.61035 | 5.18899 | 112.56809 | 13.89718 | 0.0299332 | 5.2110645 | 262 | 11 | 1998–2009 | 0.58 | M-v | 0 | MPC | 147078 | (38607) |
| (38799) | 14.6 | 0.15 | 20100104 | 76.62916 | 301.25872 | 65.82710 | 7.02392 | 0.0512147 | 2.7089272 | 302 | 9 | 1998–2009 | 0.59 | M-v | 0 | MPC | 97279 | (38799) |
| (38852) | 15.1 | 0.15 | 20100104 | 71.21537 | 241.56781 | 143.91404 | 3.24897 | 0.1185094 | 2.5907882 | 311 | 10 | 1998–2009 | 0.55 | M-v | 0 | MPC | 87301 | (38852) |
| (38881) | 15.6 | 0.15 | 20100104 | 148.13522 | 187.00720 | 142.93766 | 4.57048 | 0.1798355 | 2.5323799 | 254 | 10 | 1998–2009 | 0.54 | M-v | 0 | MPC | 97280 | (38881) |
| (39485) | 14.1 | 0.15 | 20100104 | 204.24824 | 342.64336 | 324.55852 | 15.15757 | 0.2029593 | 2.6010512 | 284 | 10 | 1981–2009 | 0.56 | M-v | 1 | MPC | 97281 | (39485) |
| (39573) | 14.9 | 0.15 | 20100104 | 3.53218 | 314.89812 | 172.49908 | 11.93342 | 0.1464954 | 2.6499278 | 218 | 9 | 1980–2009 | 0.59 | M-v | 0 | MPC | 27908 | (39573) |
| (40027) | 14.9 | 0.15 | 20100104 | 173.78962 | 207.46003 | 85.59807 | 3.74604 | 0.0451740 | 2.6921305 | 224 | 10 | 1998–2009 | 0.58 | M-v | 0 | MPC | 97282 | (40027) |
| (40042) | 14.8 | 0.15 | 20100104 | 315.93605 | 200.62050 | 13.41449 | 5.15515 | 0.1376985 | 2.5692026 | 312 | 11 | 1991–2009 | 0.57 | M-v | 0 | MPC | 73900 | (40042) |
| (40051) | 14.9 | 0.15 | 20100104 | 215.13488 | 91.43222 | 166.67449 | 4.14010 | 0.0544286 | 2.6885201 | 279 | 12 | 1971–2009 | 0.57 | M-v | 0 | MPC | 28081 | (40051) |
| (40061) | 14.1 | 0.15 | 20100104 | 325.25149 | 55.46339 | 159.66756 | 4.02035 | 0.1436488 | 2.5669158 | 528 | 10 | 1998–2009 | 0.54 | M-v | 0 | MPC | 97283 | (40061) |
| (40092) | 14.5 | 0.15 | 20100104 | 227.27054 | 314.67028 | 287.63590 | 7.86077 | 0.0992868 | 2.7544928 | 212 | 9 | 1998–2009 | 0.56 | M-v | 0 | MPC | 97283 | (40092) |
| (40112) | 14.1 | 0.15 | 20100104 | 251.36315 | 136.24886 | 129.97761 | 13.76523 | 0.1715030 | 2.6848683 | 301 | 10 | 1998–2009 | 0.56 | M-v | 0 | MPC | 97283 | (40112) |
| (40159) | 13.5 | 0.15 | 20100104 | 127.36391 | 62.35559 | 246.71345 | 10.77601 | 0.1678357 | 2.9346782 | 367 | 10 | 1998–2009 | 0.52 | M-v | 0 | MPC | 101899 | (40159) |
| (40299) | 14.2 | 0.15 | 20100104 | 7.67959 | 299.20302 | 130.75950 | 15.42644 | 0.0357761 | 2.5592732 | 341 | 11 | 1994–2009 | 0.55 | M-v | 0 | MPC | 66034 | (40299) |
| (40369) | 15.1 | 0.15 | 20100104 | 312.47355 | 174.56745 | 94.55255 | 2.46275 | 0.1572073 | 2.4039064 | 489 | 10 | 1991–2009 | 0.56 | M-v | 0 | MPC | 73901 | (40369) |
| (40434) | 14.0 | 0.15 | 20100104 | 47.74536 | 211.00261 | 169.09353 | 9.66890 | 0.1644864 | 2.8069545 | 367 | 10 | 1998–2009 | 0.56 | M-v | 0 | MPC | 97284 | (40434) |
| (40567) | 14.0 | 0.15 | 20100104 | 7.01461 | 311.82912 | 171.16224 | 15.38290 | 0.1137150 | 2.6442773 | 410 | 10 | 1998–2009 | 0.57 | M-v | 0 | MPC | 97284 | (40567) |
| (40645) | 14.0 | 0.15 | 20100104 | 3.79036 | 89.10288 | 88.09938 | 2.53981 | 0.0750461 | 2.5575824 | 601 | 10 | 1998–2009 | 0.50 | M-v | 0 | MPC | 97284 | (40645) |
| (40649) | 14.3 | 0.15 | 20100104 | 343.63960 | 233.34436 | 317.51720 | 2.34099 | 0.1791643 | 2.5523513 | 489 | 10 | 1998–2009 | 0.55 | M-v | 0 | MPC | 97284 | (40649) |
| (40683) | 13.8 | 0.15 | 20100104 | 156.26872 | 61.51224 | 252.21473 | 10.11619 | 0.1125842 | 2.7275066 | 425 | 10 | 1998–2009 | 0.51 | M-v | 0 | MPC | 97284 | (40683) |
| (40709) | 13.8 | 0.15 | 20100104 | 74.69898 | 299.46405 | 135.60161 | 14.43423 | 0.1469310 | 2.6491257 | 318 | 10 | 1998–2009 | 0.55 | M-v | 0 | MPC | 97285 | (40709) |
| (40721) | 13.9 | 0.15 | 20100104 | 314.91604 | 153.27923 | 55.05133 | 13.80885 | 0.0995461 | 2.5917163 | 440 | 10 | 1998–2009 | 0.54 | M-v | 0 | MPC | 97285 | (40721) |
| (40759) | 13.8 | 0.15 | 20100104 | 331.10922 | 266.87814 | 246.57360 | 7.11663 | 0.1534923 | 2.7000435 | 385 | 10 | 1990–2009 | 0.51 | M-v | 0 | MPC | 70200 | (40759) |
| (40807) | 14.4 | 0.15 | 20100104 | 280.86232 | 221.04463 | 36.65515 | 3.98481 | 0.1120977 | 2.5656348 | 498 | 10 | 1998–2009 | 0.55 | M-v | 0 | MPC | 97285 | (40807) |
| (41030) | 13.5 | 0.15 | 20100104 | 287.66286 | 88.76364 | 167.53123 | 14.57516 | 0.0620005 | 2.5873561 | 560 | 10 | 1998–2009 | 0.52 | M-v | 0 | MPC | 97286 | (41030) |
| (41100) | 14.1 | 0.15 | 20100104 | 218.75031 | 37.18872 | 222.25421 | 7.18158 | 0.1898935 | 2.7467379 | 343 | 10 | 1998–2009 | 0.52 | M-v | 0 | MPC | 97286 | (41100) |
| (41116) | 14.2 | 0.15 | 20100104 | 172.60606 | 19.94134 | 262.04697 | 3.03136 | 0.0725602 | 2.7968111 | 383 | 10 | 1998–2009 | 0.54 | M-v | 0 | MPC | 97286 | (41116) |
| (41304) | 13.8 | 0.15 | 20100104 | 188.12236 | 214.75276 | 108.80215 | 9.78403 | 0.3030507 | 2.7666947 | 328 | 10 | 1998–2009 | 0.54 | M-v | 0 | MPC | 97287 | (41304) |
| (41509) | 14.8 | 0.15 | 20100104 | 300.58139 | 289.87052 | 215.41619 | 4.46484 | 0.1161221 | 2.5739416 | 298 | 10 | 1998–2009 | 0.51 | M-v | 0 | MPC | 97288 | (41509) |
| (41717) | 14.5 | 0.15 | 20100104 | 36.34592 | 91.67539 | 27.51453 | 4.11310 | 0.1366683 | 2.5558263 | 439 | 10 | 1998–2009 | 0.57 | M-v | 0 | MPC | 97288 | (41717) |
| (41769) | 13.9 | 0.15 | 20100104 | 60.25193 | 335.74662 | 89.48688 | 14.37114 | 0.1540592 | 2.6358016 | 402 | 9 | 1998–2009 | 0.55 | M-v | 1 | MPC | 97288 | (41769) |
| (41862) | 14.6 | 0.15 | 20100104 | 53.17307 | 182.41578 | 250.13609 | 5.76114 | 0.2117388 | 2.6228368 | 290 | 8 | 1995–2009 | 0.54 | M-v | 1 | MPC | 66035 | (41862) |
| (41994) | 13.9 | 0.15 | 20100104 | 14.37745 | 22.88522 | 111.46389 | 11.81985 | 0.0693097 | 2.6263863 | 376 | 10 | 1998–2009 | 0.56 | M-v | 0 | MPC | 97288 | (41994) |
| (42038) | 14.1 | 0.15 | 20100104 | 212.66498 | 132.42743 | 125.66575 | 14.21764 | 0.1123136 | 2.7764105 | 260 | 9 | 1998–2009 | 0.60 | M-v | 0 | MPC | 97288 | (42038) |
| (42042) | 14.5 | 0.15 | 20100104 | 348.43375 | 327.72610 | 151.30846 | 8.85929 | 0.1468670 | 2.7082413 | 236 | 12 | 1951–2009 | 0.54 | M-v | 0 | MPC | 28788 | (42042) |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (42722) | 13.9 | 0.15 | 20100104 | 28.88545 | 130.16684 | 263.49526 | 9.53040 | 0.1207598 | 2.9893412 | 323 | 10 | 1998–2009 | 0.51 | M-v | 0 | MPC | 101907 | (42722) |
| (42986) | 14.1 | 0.15 | 20100104 | 247.95520 | 76.20608 | 144.43446 | 11.86567 | 0.1567514 | 2.7072980 | 337 | 9 | 1998–2009 | 0.54 | M-v | 1 | MPC | 97290 | (42986) |
| (43134) | 13.8 | 0.15 | 20100104 | 81.39580 | 313.10636 | 92.63442 | 8.18839 | 0.2150211 | 2.7959112 | 304 | 11 | 1991–2009 | 0.51 | M-v | 0 | MPC | 50361 | (43134) |
| (43430) | 14.2 | 0.15 | 20100104 | 229.29490 | 122.84696 | 105.44463 | 14.90317 | 0.0861961 | 2.7675015 | 184 | 10 | 1998–2009 | 0.54 | M-v | 0 | MPC | 97291 | (43430) |
| (43555) | 13.9 | 0.15 | 20100104 | 135.42114 | 159.73567 | 148.68723 | 10.97009 | 0.0966954 | 2.9697276 | 230 | 10 | 1998–2009 | 0.55 | M-v | 0 | MPC | 97292 | (43555) |
| (43587) | 15.5 | 0.15 | 20100104 | 195.89790 | 158.78050 | 107.44289 | 4.27989 | 0.1493416 | 2.2809611 | 340 | 10 | 1994–2009 | 0.54 | M-v | 0 | MPC | 62200 | (43587) |
| (44737) | 15.0 | 0.15 | 20100104 | 101.36475 | 124.11089 | 196.97180 | 8.68730 | 0.1593480 | 2.8118009 | 153 | 8 | 1997–2009 | 0.62 | M-v | 0 | MPC | 137877 | (44737) |
| (45156) | 13.0 | 0.15 | 20100104 | 335.32977 | 234.30328 | 322.68173 | 11.89723 | 0.1043263 | 2.6784108 | 525 | 10 | 1998–2009 | 0.53 | M-v | 0 | MPC | 97293 | (45156) |
| (45370) | 14.0 | 0.15 | 20100104 | 171.94827 | 105.94517 | 182.52450 | 1.73982 | 0.0854073 | 2.9410665 | 410 | 10 | 1998–2009 | 0.53 | M-v | 0 | MPC | 97293 | (45370) |
| (45508) | 14.4 | 0.15 | 20100104 | 61.60705 | 353.19236 | 94.98663 | 3.36782 | 0.0325962 | 2.8357731 | 346 | 10 | 1998–2009 | 0.56 | M-v | 0 | MPC | 97294 | (45508) |
| (45525) | 14.8 | 0.15 | 20100104 | 34.77445 | 192.44144 | 220.87850 | 2.28647 | 0.2151741 | 2.2322842 | 512 | 9 | 1972–2009 | 0.53 | M-v | 0 | MPC | 77327 | (45525) |
| (45564) | 14.1 | 0.15 | 20100104 | 74.24038 | 249.93896 | 126.86988 | 11.01434 | 0.1147675 | 3.0578960 | 227 | 9 | 1996–2009 | 0.59 | M-v | 0 | MPC | 97294 | (45564) |
| (45968) | 14.3 | 0.15 | 20100104 | 280.75453 | 106.39473 | 125.97010 | 8.78553 | 0.0627419 | 2.6668903 | 278 | 10 | 1998–2009 | 0.55 | M-v | 0 | MPC | 97295 | (45968) |
| (46028) | 14.7 | 0.15 | 20100104 | 11.64127 | 39.99674 | 112.05710 | 11.23336 | 0.1541658 | 2.7032600 | 199 | 10 | 1997–2009 | 0.57 | M-v | 1 | MPC | 97295 | (46028) |
| (46068) | 16.3 | 0.15 | 20100104 | 134.51083 | 126.06975 | 172.99002 | 1.05849 | 0.0960273 | 2.1586619 | 154 | 9 | 1992–2009 | 0.56 | M-v | 0 | MPC | 57644 | (46068) |
| (46226) | 13.1 | 0.15 | 20100104 | 174.22697 | 69.16104 | 219.18742 | 8.61119 | 0.0762282 | 3.0449139 | 479 | 10 | 1998–2009 | 0.56 | M-v | 0 | MPC | 97295 | (46226) |
| (46351) | 14.5 | 0.15 | 20100104 | 300.78544 | 165.64571 | 74.59611 | 2.20081 | 0.1261629 | 3.1275223 | 281 | 12 | 1990–2009 | 0.51 | M-v | 0 | MPC | 57644 | (46351) |
| (46356) | 15.2 | 0.15 | 20100104 | 345.36909 | 110.89721 | 44.00377 | 7.99731 | 0.0620452 | 2.3522549 | 255 | 10 | 1992–2009 | 0.61 | M-v | 1 | MPC | 89995 | (46356) |
| (46502) | 16.6 | 0.15 | 20100104 | 104.34343 | 299.10369 | 36.40617 | 0.98214 | 0.1633200 | 2.1535800 | 175 | 9 | 1977–2009 | 0.57 | M-v | 0 | MPC | 57645 | (46502) |
| (46732) | 14.0 | 0.15 | 20100104 | 214.93802 | 141.43120 | 169.91106 | 2.21658 | 0.1013833 | 2.9441778 | 422 | 10 | 1997–2009 | 0.52 | M-v | 0 | MPC | 34132 | (46732) |
| (47105) | 12.8 | 0.15 | 20100104 | 95.69310 | 348.64107 | 74.73870 | 11.22386 | 0.0898262 | 2.9859824 | 504 | 12 | 1979–2009 | 0.61 | M-v | 0 | MPC | 34263 | (47105) |
| (47298) | 16.2 | 0.15 | 20100104 | 79.81610 | 230.00518 | 124.39885 | 1.42808 | 0.1804216 | 2.2102406 | 192 | 9 | 1979–2009 | 0.51 | M-v | 0 | MPC | 34333 | (47298) |
| (47655) | 13.8 | 0.15 | 20100104 | 239.33201 | 64.04283 | 162.27595 | 17.09049 | 0.1817595 | 3.0894745 | 300 | 10 | 1998–2009 | 0.57 | M-v | 0 | MPC | 97297 | (47655) |
| (47741) | 14.0 | 0.15 | 20100104 | 61.14475 | 99.46781 | 346.12586 | 11.52976 | 0.0232036 | 2.9503646 | 336 | 10 | 1992–2009 | 0.59 | M-v | 0 | MPC | 57646 | (47741) |
| (47900) | 14.3 | 0.15 | 20100104 | 59.53090 | 61.80925 | 31.03148 | 1.45593 | 0.1454926 | 2.9721607 | 316 | 11 | 1992–2009 | 0.56 | M-v | 0 | MPC | 53571 | (47900) |
| (48070) | 13.8 | 0.15 | 20100104 | 237.32468 | 77.07866 | 190.73309 | 3.33978 | 0.2010345 | 2.8552275 | 522 | 10 | 1998–2009 | 0.54 | M-v | 0 | MPC | 97297 | (48070) |
| (48359) | 17.9 | 0.15 | 20100104 | 78.60120 | 353.83337 | 8.67348 | 2.43325 | 0.1421072 | 2.1867572 | 55 | 6 | 1973–2006 | 0.59 | M-v | 1 | MPC | 34671 | (48359) |
| (48759) | 15.0 | 0.15 | 20100104 | 349.47237 | 56.53530 | 66.75290 | 6.97460 | 0.1612119 | 2.2522980 | 373 | 9 | 1997–2009 | 0.55 | M-v | 0 | MPC | 110621 | (48759) |
| (49520) | 14.5 | 0.15 | 20100104 | 61.64094 | 134.89880 | 322.78163 | 2.18783 | 0.1076621 | 3.0320906 | 346 | 10 | 1991–2009 | 0.56 | M-v | 0 | MPC | 53572 | (49520) |
| (49524) | 13.7 | 0.15 | 20100104 | 18.71093 | 93.06559 | 349.22258 | 8.67578 | 0.0548060 | 3.2159678 | 273 | 10 | 1999–2009 | 0.63 | M-v | 0 | MPC | 101927 | (49524) |
| (49872) | 15.9 | 0.15 | 20100104 | 149.20169 | 306.59976 | 4.38820 | 5.43300 | 0.1875676 | 2.1666906 | 242 | 8 | 1998–2009 | 0.57 | M-v | 1 | MPC | 112698 | (49872) |
| (49913) | 15.3 | 0.15 | 20100104 | 24.05993 | 87.52427 | 347.41404 | 3.92981 | 0.1048465 | 2.2272734 | 377 | 8 | 1977–2009 | 0.54 | M-v | 0 | MPC | 110625 | (49913) |
| (50582) | 13.8 | 0.15 | 20100104 | 186.35770 | 302.40711 | 342.17311 | 5.01404 | 0.1536368 | 3.1525966 | 379 | 12 | 1991–2009 | 0.58 | M-v | 0 | MPC | 57648 | (50582) |
| (50786) | 13.3 | 0.15 | 20100104 | 204.67996 | 227.24986 | 61.18729 | 11.89509 | 0.0829921 | 3.0464546 | 347 | 10 | 1992–2009 | 0.50 | M-v | 0 | MPC | 73911 | (50786) |
| (50935) | 14.2 | 0.15 | 20100104 | 248.25521 | 189.89393 | 69.11303 | 2.20918 | 0.1171138 | 3.0881992 | 272 | 10 | 1991–2009 | 0.62 | M-v | 0 | MPC | 77333 | (50935) |
| (50947) | 14.3 | 0.15 | 20100104 | 158.14928 | 171.07166 | 187.85278 | 4.13757 | 0.1117468 | 3.0682157 | 342 | 10 | 1991–2009 | 0.55 | M-v | 0 | MPC | 57649 | (50947) |
| (51086) | 13.1 | 0.15 | 20100104 | 175.85588 | 158.43587 | 137.68581 | 24.27760 | 0.1418705 | 3.1582479 | 312 | 10 | 1999–2009 | 0.54 | M-v | 0 | MPC | 97299 | (51086) |
| (51185) | 13.8 | 0.15 | 20100104 | 215.18780 | 266.04560 | 357.52788 | 8.74046 | 0.0571997 | 3.1654892 | 246 | 10 | 1996–2009 | 0.53 | M-v | 0 | MPC | 73911 | (51185) |
| (51636) | 15.4 | 0.15 | 20100104 | 127.40493 | 76.56135 | 257.31674 | 7.32376 | 0.2226296 | 2.2225473 | 276 | 9 | 1998–2009 | 0.55 | M-v | 1 | MPC | 87308 | (51636) |
| (52301) | 16.0 | 0.15 | 20100104 | 53.43958 | 186.51972 | 203.34653 | 5.40258 | 0.2292191 | 2.3136112 | 175 | 9 | 1977–2009 | 0.54 | M-v | 1 | MPC | 38566 | (52301) |
| (52440) | 14.4 | 0.15 | 20100104 | 90.87968 | 293.95628 | 67.06387 | 23.54484 | 0.2806032 | 2.3341751 | 259 | 9 | 1994–2009 | 0.53 | M-v | 1 | MPC | 38615 | (52440) |
| (52813) | 15.9 | 0.15 | 20100104 | 49.08667 | 161.86978 | 227.76365 | 1.34179 | 0.2042057 | 2.3100301 | 199 | 9 | 1977–2009 | 0.55 | M-v | 1 | MPC | 38759 | (52813) |
| (52843) | 15.2 | 0.15 | 20100104 | 144.48464 | 166.99914 | 118.33479 | 2.76850 | 0.1957372 | 2.2909071 | 490 | 11 | 1991–2009 | 0.52 | M-v | 0 | MPC | 57650 | (52843) |
| (52965) | 15.7 | 0.15 | 20100104 | 345.30404 | 170.75069 | 15.74153 | 5.29560 | 0.1229084 | 2.2244925 | 254 | 8 | 1998–2009 | 0.60 | M-v | 1 | MPC | 135486 | (52965) |
| (53540) | 15.4 | 0.15 | 20100104 | 191.91431 | 164.63452 | 110.05298 | 7.07988 | 0.1067902 | 2.2544181 | 314 | 10 | 1991–2009 | 0.54 | M-v | 0 | MPC | 62203 | (53540) |
| (53626) | 16.2 | 0.15 | 20100104 | 326.06367 | 142.55970 | 351.58721 | 2.31340 | 0.1700933 | 2.2921998 | 266 | 9 | 1976–2009 | 0.56 | M-v | 0 | MPC | 39093 | (53626) |
| (53763) | 15.9 | 0.15 | 20100104 | 297.90248 | 152.53399 | 21.33218 | 3.29226 | 0.0903796 | 2.2814810 | 265 | 9 | 1960–2009 | 0.53 | M-v | 1 | MPC | 39145 | (53763) |
| (54037) | 14.9 | 0.15 | 20100104 | 58.96988 | 271.00139 | 112.49560 | 3.77047 | 0.1862013 | 2.3595109 | 352 | 9 | 1992–2009 | 0.57 | M-v | 0 | MPC | 39254 | (54037) |
| (54525) | 14.1 | 0.15 | 20100104 | 346.80659 | 272.92476 | 346.61937 | 8.53609 | 0.1948355 | 3.0060893 | 353 | 10 | 1990–2009 | 0.54 | M-v | 0 | MPC | 77337 | (54525) |
| (54789) | 14.8 | 0.15 | 20100104 | 336.98947 | 19.93714 | 130.14443 | 24.47001 | 0.2874617 | 1.7759421 | 956 | 11 | 1978–2009 | 0.44 | M-v | 1 | MPC | 39543 | (54789) |
| (55384) | 15.1 | 0.15 | 20100104 | 221.68092 | 127.05522 | 118.35092 | 3.54852 | 0.1459681 | 2.4047222 | 447 | 10 | 1992–2009 | 0.57 | M-v | 0 | MPC | 66038 | (55384) |
| (55789) | 15.4 | 0.15 | 20100104 | 210.92498 | 68.87613 | 174.59930 | 7.33444 | 0.0871629 | 2.4290851 | 243 | 10 | 1993–2009 | 0.56 | M-v | 0 | MPC | 66039 | (55789) |
| (56064) | 15.1 | 0.15 | 20100104 | 59.43335 | 215.16659 | 209.65019 | 6.86584 | 0.1591806 | 2.3320020 | 381 | 8 | 1998–2009 | 0.58 | M-v | 0 | MPC | 87311 | (56064) |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (56383) | 15.0 | 0.15 | 20100104 | 266.30531 | 268.14222 | 11.04289 | 5.32236 | 0.1768757 | 2.2316807 | 379 | 9 | 1998–2009 | 0.57 | M-v | 0 | MPC | 120702 | (56383) |
| (56539) | 15.8 | 0.15 | 20100104 | 244.01732 | 296.57845 | 3.35692 | 6.37000 | 0.1845327 | 2.2611155 | 165 | 7 | 1993–2009 | 0.50 | M-v | 0 | MPC | 42297 | (56539) |
| (56817) | 14.4 | 0.15 | 20100104 | 236.94209 | 271.97024 | 339.21774 | 21.13936 | 0.2681383 | 2.4070417 | 282 | 9 | 1999–2009 | 0.58 | M-v | 0 | MPC | 97302 | (56817) |
| (57068) | 16.4 | 0.15 | 20100104 | 52.31434 | 199.54422 | 189.77783 | 2.35522 | 0.1813707 | 2.3620664 | 190 | 10 | 1976–2009 | 0.49 | M-v | 0 | MPC | 42501 | (57068) |
| (57239) | 15.3 | 0.15 | 20100104 | 172.51210 | 34.74528 | 289.36055 | 6.40463 | 0.1321434 | 2.2992976 | 241 | 10 | 1980–2009 | 0.52 | M-v | 1 | MPC | 42576 | (57239) |
| (57591) | 14.6 | 0.15 | 20100104 | 176.41583 | 349.23626 | 73.83684 | 3.54169 | 0.1896352 | 3.0612811 | 386 | 8 | 1971–2009 | 0.52 | M-v | 0 | MPC | 77339 | (57591) |
| (57733) | 15.3 | 0.15 | 20100104 | 189.95438 | 107.65929 | 166.19192 | 3.39111 | 0.1676285 | 2.4168359 | 292 | 10 | 1993–2009 | 0.51 | M-v | 0 | MPC | 66041 | (57733) |
| (57922) | 14.0 | 0.15 | 20100104 | 38.94447 | 194.42589 | 200.17175 | 10.66999 | 0.1266583 | 2.7182561 | 386 | 10 | 1998–2009 | 0.55 | M-v | 0 | MPC | 97303 | (57922) |
| (57968) | 13.5 | 0.15 | 20100104 | 54.80164 | 230.81413 | 118.65356 | 16.80658 | 0.1805682 | 3.1104834 | 217 | 10 | 1998–2009 | 0.56 | M-v | 0 | MPC | 101937 | (57968) |
| (57998) | 14.7 | 0.15 | 20100104 | 84.13691 | 0.15734 | 71.64079 | 2.63331 | 0.1027664 | 3.0364861 | 244 | 9 | 1997–2009 | 0.56 | M-v | 0 | MPC | 101938 | (57998) |
| (58088) | 15.4 | 0.15 | 20100104 | 276.17974 | 250.45657 | 357.06427 | 6.75234 | 0.0879695 | 2.2706852 | 254 | 10 | 1977–2009 | 0.60 | M-v | 0 | MPC | 42885 | (58088) |
| (58142) | 15.5 | 0.15 | 20100104 | 208.00065 | 332.32123 | 352.39986 | 13.44531 | 0.1706196 | 2.3034010 | 232 | 10 | 1983–2009 | 0.67 | M-v | 1 | MPC | 43543 | (58142) |
| (58465) | 14.9 | 0.15 | 20100104 | 98.62490 | 212.31774 | 146.95700 | 9.74802 | 0.0655001 | 2.5116746 | 321 | 12 | 1991–2009 | 0.56 | M-v | 1 | MPC | 43661 | (58465) |
| (58598) | 15.6 | 0.15 | 20100104 | 286.42342 | 110.15600 | 148.50634 | 3.80321 | 0.1481768 | 2.2951461 | 296 | 10 | 1990–2009 | 0.53 | M-v | 0 | MPC | 43708 | (58598) |
| (58823) | 16.3 | 0.15 | 20100104 | 347.34117 | 328.95073 | 150.66575 | 4.79028 | 0.2193373 | 2.6007427 | 212 | 10 | 1981–2009 | 0.61 | M-v | 0 | MPC | 147083 | (58823) |
| (58872) | 14.9 | 0.15 | 20100104 | 348.05614 | 51.99502 | 70.40861 | 12.55891 | 0.2295910 | 2.6025423 | 204 | 9 | 1950–2009 | 0.62 | M-v | 0 | MPC | 70205 | (58872) |
| (59163) | 15.8 | 0.15 | 20100104 | 8.47231 | 46.84339 | 97.01883 | 5.01676 | 0.1442459 | 2.3258001 | 173 | 9 | 1992–2009 | 0.63 | M-v | 0 | MPC | 43929 | (59163) |
| (59191) | 14.7 | 0.15 | 20100104 | 81.99266 | 70.88998 | 331.80992 | 6.40860 | 0.1152047 | 2.3839675 | 379 | 9 | 1990–2009 | 0.58 | M-v | 0 | MPC | 66042 | (59191) |
| (59266) | 14.9 | 0.15 | 20100104 | 303.90079 | 150.13177 | 58.73453 | 7.74322 | 0.0626331 | 2.3541677 | 339 | 9 | 1990–2009 | 0.57 | M-v | 1 | MPC | 43972 | (59266) |
| (59326) | 15.3 | 0.15 | 20100104 | 289.33803 | 213.10125 | 347.15800 | 4.79341 | 0.1542178 | 2.4135504 | 241 | 8 | 1998–2009 | 0.61 | M-v | 1 | MPC | 135504 | (59326) |
| (59564) | 14.5 | 0.15 | 20100104 | 355.45022 | 75.05747 | 71.08272 | 6.52045 | 0.0694477 | 2.4544534 | 404 | 8 | 1999–2009 | 0.58 | M-v | 0 | MPC | 135505 | (59564) |
| (60003) | 16.1 | 0.15 | 20100104 | 101.85840 | 325.60937 | 34.11236 | 3.56916 | 0.1720298 | 2.1537270 | 237 | 8 | 1996–2009 | 0.54 | M-v | 1 | MPC | 110652 | (60003) |
| (60116) | 13.5 | 0.15 | 20100104 | 311.86798 | 329.55011 | 109.79269 | 11.17803 | 0.0704998 | 2.9946342 | 447 | 9 | 1997–2009 | 0.53 | M-v | 0 | MPC | 87316 | (60116) |
| (60834) | 16.4 | 0.15 | 20100104 | 325.20768 | 143.41319 | 58.27882 | 4.46344 | 0.1822295 | 2.2542937 | 196 | 8 | 1998–2009 | 0.49 | M-v | 0 | MPC | 135508 | (60834) |
| (61058) | 15.9 | 0.15 | 20100104 | 156.98323 | 171.92034 | 180.75234 | 4.83117 | 0.1925780 | 2.3437918 | 225 | 10 | 1990–2009 | 0.54 | M-v | 0 | MPC | 66043 | (61058) |
| (61227) | 16.0 | 0.15 | 20100104 | 274.12838 | 97.53960 | 144.05383 | 4.19644 | 0.1519561 | 2.3437485 | 154 | 11 | 1990–2009 | 0.53 | M-v | 0 | MPC | 44728 | (61227) |
| (61361) | 15.4 | 0.15 | 20100104 | 65.17957 | 260.06624 | 112.28170 | 4.87113 | 0.2253425 | 2.5701393 | 222 | 9 | 1991–2009 | 0.50 | M-v | 0 | MPC | 44781 | (61361) |
| (61493) | 15.2 | 0.15 | 20100104 | 86.91623 | 195.75379 | 155.16468 | 8.35636 | 0.1841496 | 2.5711097 | 159 | 9 | 1994–2009 | 0.54 | M-v | 1 | MPC | 44832 | (61493) |
| (62841) | 14.6 | 0.15 | 20100104 | 141.68307 | 316.23299 | 355.01959 | 6.21964 | 0.1473583 | 2.5915330 | 344 | 9 | 1991–2009 | 0.53 | M-v | 0 | MPC | 45340 | (62841) |
| (62959) | 14.2 | 0.15 | 20100104 | 49.56699 | 91.36936 | 319.69839 | 3.35662 | 0.1428796 | 3.9402485 | 144 | 9 | 1999–2009 | 0.58 | M-v | 0 | MPC | 101942 | (62959) |
| (63184) | 12.5 | 0.15 | 20100104 | 183.19818 | 222.29501 | 102.10386 | 9.39727 | 0.1444696 | 3.9738603 | 345 | 11 | 1998–2009 | 0.54 | M-v | 0 | MPC | 97305 | (63184) |
| (63538) | 13.0 | 0.15 | 20100104 | 307.97789 | 159.83209 | 39.77835 | 16.89783 | 0.1217346 | 3.1125677 | 453 | 11 | 1991–2009 | 0.52 | M-v | 0 | MPC | 73914 | (63538) |
| (63580) | 14.8 | 0.15 | 20100104 | 77.93546 | 301.57075 | 110.25251 | 3.05906 | 0.2032054 | 2.3733953 | 506 | 12 | 1990–2009 | 0.52 | M-v | 0 | MPC | 45588 | (63580) |
| (63728) | 16.2 | 0.15 | 20100104 | 18.14041 | 273.61562 | 160.71178 | 2.31426 | 0.1802535 | 2.4172697 | 138 | 7 | 1990–2009 | 0.56 | M-v | 0 | MPC | 143043 | (63728) |
| (63814) | 15.3 | 0.15 | 20100104 | 63.69007 | 196.77383 | 222.12507 | 4.29611 | 0.2136886 | 2.3780282 | 254 | 12 | 1990–2009 | 0.54 | M-v | 0 | MPC | 45684 | (63814) |
| (63894) | 15.9 | 0.15 | 20100104 | 25.04247 | 178.81943 | 248.27288 | 1.06010 | 0.1656107 | 2.4200974 | 258 | 9 | 1990–2009 | 0.52 | M-v | 0 | MPC | 45717 | (63894) |
| (63950) | 15.4 | 0.15 | 20100104 | 53.52378 | 30.05913 | 34.62332 | 1.82997 | 0.1686675 | 2.3849679 | 274 | 8 | 1995–2009 | 0.54 | M-v | 0 | MPC | 89996 | (63950) |
| (64078) | 15.1 | 0.15 | 20100104 | 345.88073 | 135.85446 | 333.03680 | 2.17755 | 0.1414539 | 2.4593377 | 354 | 11 | 1991–2009 | 0.59 | M-v | 0 | MPC | 66045 | (64078) |
| (64462) | 15.0 | 0.15 | 20100104 | 50.73889 | 11.70673 | 79.58841 | 7.44393 | 0.0491214 | 2.3944423 | 349 | 10 | 1997–2009 | 0.57 | M-v | 0 | MPC | 87319 | (64462) |
| (64690) | 15.9 | 0.15 | 20100104 | 234.92091 | 50.56840 | 201.08316 | 4.38603 | 0.0482845 | 2.4047147 | 198 | 8 | 1997–2009 | 0.54 | M-v | 0 | MPC | 135519 | (64690) |
| (64742) | 16.5 | 0.15 | 20100104 | 256.02760 | 56.20065 | 216.60294 | 1.73492 | 0.1116906 | 2.3440379 | 163 | 11 | 1990–2009 | 0.52 | M-v | 0 | MPC | 46034 | (64742) |
| (64743) | 15.4 | 0.15 | 20100104 | 284.32533 | 0.83002 | 202.87662 | 2.58750 | 0.1320007 | 2.4607536 | 182 | 8 | 1999–2009 | 0.59 | M-v | 0 | MPC | 135520 | (64743) |
| (65499) | 16.8 | 0.15 | 20100104 | 73.29910 | 221.96236 | 166.39162 | 1.77031 | 0.1903030 | 2.2878749 | 208 | 10 | 1960–2009 | 0.46 | M-v | 1 | MPC | 46265 | (65499) |
| (65523) | 14.9 | 0.15 | 20100104 | 178.15793 | 77.16167 | 190.59066 | 8.20875 | 0.2092739 | 2.6702998 | 237 | 10 | 1960–2009 | 0.55 | M-v | 0 | MPC | 46273 | (65523) |
| (65581) | 16.2 | 0.15 | 20100104 | 186.14286 | 155.00739 | 158.29779 | 6.91405 | 0.1694241 | 2.2988012 | 139 | 9 | 1973–2009 | 0.52 | M-v | 0 | MPC | 46293 | (65581) |
| (65630) | 15.7 | 0.15 | 20100104 | 83.79593 | 290.27813 | 135.46231 | 6.49880 | 0.1523297 | 2.2860399 | 155 | 9 | 1977–2009 | 0.64 | M-v | 1 | MPC | 46311 | (65630) |
| (65694) | 16.1 | 0.15 | 20100104 | 53.70612 | 239.85779 | 153.14549 | 2.71764 | 0.1821595 | 2.3097269 | 162 | 7 | 1991–2009 | 0.61 | M-v | 1 | MPC | 48418 | (65694) |
| (65717) | 20.9 | 0.15 | 20100104 | 114.08090 | 289.95980 | 175.58790 | 2.79012 | 0.2807281 | 1.3945042 | 53 | 4 | 1992–2005 | 0.75 | M-v | 2 | MPC | 48426 | (65717) |
| (65851) | 14.8 | 0.15 | 20100104 | 272.67300 | 256.59438 | 304.06442 | 10.75461 | 0.0200310 | 2.6671726 | 182 | 9 | 1984–2009 | 0.56 | M-v | 1 | MPC | 48468 | (65851) |
| (66002) | 15.8 | 0.15 | 20100104 | 128.20935 | 196.93217 | 161.61491 | 4.67577 | 0.1546674 | 2.2146162 | 261 | 9 | 1998–2009 | 0.53 | M-v | 0 | MPC | 87320 | (66002) |
| (66178) | 13.5 | 0.15 | 20100104 | 23.06595 | 111.67644 | 259.93174 | 12.10065 | 0.1348038 | 3.1812097 | 225 | 9 | 1998–2009 | 0.57 | M-v | 0 | MPC | 101944 | (66178) |
| (66413) | 14.8 | 0.15 | 20100104 | 192.56741 | 12.01228 | 297.83319 | 13.39607 | 0.1682068 | 2.5719644 | 114 | 8 | 1999–2009 | 0.59 | M-v | 1 | MPC | 135525 | (66413) |
| (66476) | 14.4 | 0.15 | 20100104 | 271.54563 | 58.87061 | 138.20221 | 4.83669 | 0.0345283 | 2.7238439 | 295 | 8 | 1999–2009 | 0.54 | M-v | 0 | MPC | 135526 | (66476) |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (66527) | 14.8 | 0.15 | 20100104 | 140.73052 | 68.25492 | 278.01946 | 9.25823 | 0.1053021 | 2.6575939 | 169 | 8 | 1999–2009 | 0.54 | M-v | 0 | MPC | 135526 | (66527) |
| (66612) | 13.8 | 0.15 | 20100104 | 49.66577 | 213.94918 | 228.61847 | 7.94244 | 0.2233413 | 2.7261417 | 423 | 8 | 1999–2009 | 0.54 | M-v | 0 | MPC | 135526 | (66612) |
| (66693) | 14.4 | 0.15 | 20100104 | 202.94239 | 57.43628 | 212.31181 | 4.48157 | 0.0668461 | 2.7378750 | 310 | 8 | 1999–2009 | 0.57 | M-v | 0 | MPC | 135527 | (66693) |
| (66725) | 14.5 | 0.15 | 20100104 | 204.62947 | 312.12363 | 306.57156 | 12.36244 | 0.1307272 | 2.6876890 | 218 | 8 | 1999–2009 | 0.54 | M-v | 0 | MPC | 135527 | (66725) |
| (66754) | 15.5 | 0.15 | 20100104 | 99.02151 | 202.81891 | 181.69069 | 3.19110 | 0.1292667 | 2.7439619 | 197 | 8 | 1999–2009 | 0.54 | M-v | 0 | MPC | 135527 | (66754) |
| (66787) | 15.0 | 0.15 | 20100104 | 219.55305 | 48.32920 | 179.72887 | 9.52927 | 0.0713184 | 2.7657113 | 186 | 9 | 1990–2009 | 0.52 | M-v | 0 | MPC | 48819 | (66787) |
| (66860) | 14.7 | 0.15 | 20100104 | 109.88281 | 116.14058 | 239.41277 | 7.96484 | 0.1704781 | 2.7966982 | 192 | 7 | 1999–2009 | 0.48 | M-v | 0 | MPC | 120711 | (66860) |
| (66877) | 14.6 | 0.15 | 20100104 | 341.95245 | 60.05882 | 55.83305 | 5.67894 | 0.0069218 | 2.8100972 | 243 | 8 | 1999–2009 | 0.56 | M-v | 0 | MPC | 135528 | (66877) |
| (66957) | 14.9 | 0.15 | 20100104 | 123.12751 | 200.04463 | 165.18778 | 6.59654 | 0.1428551 | 2.7451057 | 199 | 8 | 1999–2009 | 0.52 | M-v | 0 | MPC | 140068 | (66957) |
| (67002) | 14.3 | 0.15 | 20100104 | 157.42627 | 283.21313 | 37.26853 | 7.39781 | 0.1253763 | 2.7593239 | 373 | 8 | 1999–2009 | 0.57 | M-v | 0 | MPC | 135528 | (67002) |
| (67012) | 13.7 | 0.15 | 20100104 | 142.52894 | 297.08270 | 29.78139 | 9.33712 | 0.1606758 | 2.7719516 | 383 | 8 | 1999–2009 | 0.55 | M-v | 0 | MPC | 135528 | (67012) |
| (67236) | 15.8 | 0.15 | 20100104 | 65.69542 | 23.20868 | 7.92168 | 6.27400 | 0.1502112 | 2.2809465 | 215 | 7 | 1981–2009 | 0.53 | M-v | 1 | MPC | 48973 | (67236) |
| (67256) | 15.5 | 0.15 | 20100104 | 323.67492 | 25.63376 | 113.88059 | 2.25525 | 0.1431764 | 2.3108812 | 269 | 10 | 1993–2009 | 0.50 | M-v | 0 | MPC | 87320 | (67256) |
| (68084) | 14.4 | 0.15 | 20100104 | 359.40959 | 349.86085 | 143.04624 | 14.93450 | 0.0565755 | 2.6972346 | 255 | 8 | 1999–2009 | 0.60 | M-v | 0 | MPC | 135533 | (68084) |
| (68398) | 15.9 | 0.15 | 20100104 | 45.87532 | 57.03191 | 7.04955 | 3.91505 | 0.1875223 | 2.3930386 | 217 | 8 | 1990–2009 | 0.54 | M-v | 0 | MPC | 87320 | (68398) |
| (68797) | 14.8 | 0.15 | 20100104 | 260.89353 | 48.28077 | 169.02585 | 8.59593 | 0.0713194 | 2.7393335 | 264 | 8 | 1999–2009 | 0.51 | M-v | 0 | MPC | 135535 | (68797) |
| (68808) | 15.2 | 0.15 | 20100104 | 256.72216 | 8.62366 | 223.26025 | 11.92586 | 0.1209243 | 2.6380632 | 144 | 9 | 1991–2009 | 0.57 | M-v | 1 | MPC | 49511 | (68808) |
| (68920) | 14.8 | 0.15 | 20100104 | 158.65356 | 185.00119 | 171.36783 | 14.57267 | 0.0877107 | 2.6735341 | 157 | 10 | 1990–2009 | 0.58 | M-v | 0 | MPC | 49543 | (68920) |
| (69159) | 15.3 | 0.15 | 20100104 | 180.85702 | 154.92683 | 103.27611 | 14.57577 | 0.2301159 | 2.6432653 | 78 | 8 | 1999–2009 | 0.58 | M-v | 1 | MPC | 97309 | (69159) |
| (69295) | 13.9 | 0.15 | 20100104 | 36.02474 | 42.74881 | 356.06244 | 14.19438 | 0.1958465 | 3.2209883 | 202 | 8 | 1991–2009 | 0.57 | M-v | 0 | MPC | 50841 | (69295) |
| (69307) | 15.8 | 0.15 | 20100104 | 205.42304 | 288.59905 | 341.76726 | 25.83078 | 0.2029943 | 1.9346233 | 119 | 7 | 1992–2009 | 0.57 | M-v | 1 | MPC | 50844 | (69307) |
| (69372) | 14.6 | 0.15 | 20100104 | 92.13861 | 9.80003 | 26.54623 | 8.61086 | 0.2246323 | 2.7912130 | 234 | 10 | 1992–2009 | 0.53 | M-v | 0 | MPC | 50868 | (69372) |
| (69998) | 14.6 | 0.15 | 20100104 | 67.09839 | 344.35514 | 107.43398 | 8.78954 | 0.2649172 | 2.9745908 | 225 | 8 | 1982–2009 | 0.51 | M-v | 1 | MPC | 51104 | (69998) |
| (70023) | 14.1 | 0.15 | 20100104 | 46.30023 | 268.20631 | 115.24699 | 11.26098 | 0.0829879 | 3.2239788 | 175 | 9 | 1998–2009 | 0.57 | M-v | 0 | MPC | 135540 | (70023) |
| (70232) | 15.2 | 0.15 | 20100104 | 185.64328 | 24.93042 | 293.01580 | 3.53205 | 0.1649269 | 2.5796746 | 161 | 9 | 1991–2009 | 0.59 | M-v | 0 | MPC | 51199 | (70232) |
| (70552) | 15.2 | 0.15 | 20100104 | 335.00667 | 178.08997 | 308.57132 | 0.78310 | 0.0653387 | 2.7975203 | 200 | 10 | 1992–2009 | 0.51 | M-v | 0 | MPC | 51326 | (70552) |
| (70670) | 13.9 | 0.15 | 20100104 | 351.71624 | 59.64395 | 95.06263 | 8.95941 | 0.1982063 | 2.7726667 | 309 | 8 | 1999–2009 | 0.56 | M-v | 0 | MPC | 135544 | (70670) |
| (71287) | 15.3 | 0.15 | 20100104 | 83.97354 | 2.11599 | 39.05902 | 10.46107 | 0.1744972 | 2.7498991 | 336 | 8 | 1999–2009 | 0.51 | M-v | 0 | MPC | 135547 | (71287) |
| (71361) | 13.9 | 0.15 | 20100104 | 210.58378 | 95.45938 | 138.02551 | 10.81013 | 0.0584158 | 3.0670036 | 270 | 8 | 2000–2009 | 0.54 | M-v | 0 | MPC | 135547 | (71361) |
| (71557) | 14.2 | 0.15 | 20100104 | 107.38261 | 209.19130 | 142.86693 | 11.56492 | 0.0758003 | 3.0091320 | 228 | 8 | 2000–2009 | 0.59 | M-v | 0 | MPC | 121283 | (71557) |
| (71570) | 14.1 | 0.15 | 20100104 | 216.28267 | 70.85536 | 161.87953 | 10.17235 | 0.0530009 | 3.1106072 | 189 | 8 | 2000–2009 | 0.57 | M-v | 0 | MPC | 135548 | (71570) |
| (71691) | 13.8 | 0.15 | 20100104 | 7.03544 | 258.82522 | 166.26427 | 10.56558 | 0.1629169 | 3.2043333 | 291 | 11 | 1991–2009 | 0.57 | M-v | 0 | MPC | 51741 | (71691) |
| (71723) | 14.7 | 0.15 | 20100104 | 293.86277 | 326.06337 | 217.02014 | 4.12378 | 0.1669044 | 3.0619331 | 179 | 9 | 1992–2009 | 0.56 | M-v | 0 | MPC | 51752 | (71723) |
| (72623) | 13.7 | 0.15 | 20100104 | 174.35318 | 289.32257 | 345.52584 | 11.36849 | 0.1299170 | 3.0123014 | 279 | 8 | 2000–2009 | 0.51 | M-v | 0 | MPC | 97311 | (72623) |
| (72702) | 13.7 | 0.15 | 20100104 | 170.75834 | 92.64089 | 187.46404 | 11.21084 | 0.0473351 | 3.0738438 | 322 | 8 | 2000–2009 | 0.56 | M-v | 0 | MPC | 101948 | (72702) |
| (72715) | 14.0 | 0.15 | 20100104 | 121.73503 | 185.02610 | 144.47012 | 11.54281 | 0.1106984 | 3.0024154 | 176 | 12 | 1982–2009 | 0.57 | M-v | 0 | MPC | 52109 | (72715) |
| (72721) | 15.0 | 0.15 | 20100104 | 334.29954 | 127.90145 | 25.49899 | 12.79296 | 0.0567944 | 2.7767013 | 137 | 6 | 1994–2009 | 0.55 | M-v | 1 | MPC | 101948 | (72721) |
| (72817) | 15.0 | 0.15 | 20100104 | 45.64635 | 16.72650 | 97.42443 | 12.05499 | 0.1132893 | 2.7533221 | 143 | 8 | 1999–2009 | 0.66 | M-v | 1 | MPC | 135554 | (72817) |
| (72914) | 16.7 | 0.15 | 20100104 | 70.29090 | 190.77469 | 177.61117 | 2.39891 | 0.2310917 | 2.3751090 | 196 | 9 | 1993–2009 | 0.50 | M-v | 0 | MPC | 52172 | (72914) |
| (73169) | 15.2 | 0.15 | 20100104 | 162.60847 | 154.58929 | 158.04409 | 5.62263 | 0.1737133 | 2.7778087 | 159 | 6 | 1992–2008 | 0.50 | M-v | 1 | MPC | 52260 | (73169) |
| (73260) | 15.2 | 0.15 | 20100104 | 255.16628 | 325.16529 | 291.45995 | 4.80025 | 0.1820176 | 2.6513989 | 187 | 8 | 1997–2009 | 0.56 | M-v | 0 | MPC | 97312 | (73260) |
| (73409) | 14.5 | 0.15 | 20100104 | 84.47710 | 121.84588 | 257.90952 | 8.96454 | 0.1078519 | 2.9949654 | 177 | 7 | 1997–2009 | 0.52 | M-v | 0 | MPC | 97312 | (73409) |
| (73419) | 13.4 | 0.15 | 20100104 | 71.86174 | 102.13552 | 264.36270 | 10.00757 | 0.0899573 | 3.1673433 | 338 | 11 | 1991–2009 | 0.57 | M-v | 0 | MPC | 52339 | (73419) |
| (73468) | 14.2 | 0.15 | 20100104 | 7.04915 | 144.92392 | 278.87647 | 2.97886 | 0.1304816 | 3.1993450 | 260 | 8 | 1991–2009 | 0.49 | M-v | 0 | MPC | 52353 | (73468) |
| (73553) | 15.1 | 0.15 | 20100104 | 156.92029 | 236.51604 | 62.90454 | 8.52703 | 0.2095989 | 2.7625278 | 148 | 9 | 1993–2009 | 0.59 | M-v | 0 | MPC | 52378 | (73553) |
| (73689) | 14.6 | 0.15 | 20100104 | 355.30246 | 174.37569 | 358.87722 | 19.70061 | 0.0538235 | 1.9387745 | 389 | 9 | 1975–2009 | 0.55 | M-v | 1 | MPC | 53891 | (73689) |
| (75969) | 14.3 | 0.15 | 20100104 | 256.04121 | 1.40020 | 203.82535 | 9.15165 | 0.0958775 | 3.0728900 | 233 | 8 | 2000–2009 | 0.57 | M-v | 0 | MPC | 135569 | (75969) |
| (76278) | 14.5 | 0.15 | 20100104 | 112.33430 | 154.62112 | 172.00639 | 9.43585 | 0.0828269 | 3.1719770 | 107 | 7 | 2000–2009 | 0.58 | M-v | 0 | MPC | 135571 | (76278) |
| (76521) | 13.8 | 0.15 | 20100104 | 214.05357 | 44.13250 | 212.22497 | 4.82186 | 0.1295011 | 3.1914108 | 338 | 9 | 2000–2009 | 0.57 | M-v | 0 | MPC | 101951 | (76521) |
| (76573) | 15.1 | 0.15 | 20100104 | 290.88903 | 314.95939 | 250.52377 | 3.56571 | 0.1392422 | 3.0692881 | 130 | 11 | 1992–2009 | 0.51 | M-v | 0 | MPC | 54956 | (76573) |
| (76592) | 14.8 | 0.15 | 20100104 | 78.15274 | 34.93555 | 342.65163 | 4.62057 | 0.1412725 | 3.1034348 | 175 | 7 | 1992–2009 | 0.46 | M-v | 0 | MPC | 54963 | (76592) |
| (76606) | 14.8 | 0.15 | 20100104 | 315.20883 | 102.87219 | 77.53246 | 7.59575 | 0.1412089 | 3.0579321 | 94 | 7 | 1992–2009 | 0.61 | M-v | 1 | MPC | 54967 | (76606) |
| (76788) | 13.6 | 0.15 | 20100104 | 267.84198 | 156.48062 | 122.12457 | 18.56185 | 0.1860034 | 3.1057841 | 268 | 11 | 1993–2009 | 0.54 | M-v | 0 | MPC | 77345 | (76788) |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (77364) | 14.1 | 0.15 | 20100104 | 192.21675 | 46.73785 | 207.90343 | 10.89185 | 0.1732887 | 3.0904734 | 210 | 8 | 2000–2009 | 0.57 | M-v | 0 | MPC | 114574 | (77364) |
| (77728) | 14.3 | 0.15 | 20100104 | 127.65268 | 322.94093 | 69.91492 | 10.85532 | 0.0689531 | 3.1238265 | 180 | 9 | 1992–2009 | 0.56 | M-v | 0 | MPC | 55358 | (77728) |
| (78211) | 14.1 | 0.15 | 20100104 | 91.06892 | 109.51173 | 249.30520 | 10.30788 | 0.0964568 | 3.0750093 | 167 | 7 | 1998–2009 | 0.56 | M-v | 0 | MPC | 140649 | (78211) |
| (78246) | 13.8 | 0.15 | 20100104 | 84.94548 | 123.17870 | 240.68213 | 12.31390 | 0.0386817 | 3.1572300 | 179 | 8 | 2000–2009 | 0.54 | M-v | 0 | MPC | 143059 | (78246) |
| (78268) | 14.7 | 0.15 | 20100104 | 211.27600 | 275.93385 | 313.78237 | 8.88811 | 0.0347164 | 3.1064493 | 79 | 8 | 2000–2009 | 0.52 | M-v | 0 | MPC | 135580 | (78268) |
| (78496) | 14.1 | 0.15 | 20100104 | 311.63127 | 262.78458 | 292.65126 | 8.65470 | 0.0731096 | 3.0028460 | 173 | 9 | 1994–2009 | 0.54 | M-v | 0 | MPC | 55612 | (78496) |
| (78717) | 14.0 | 0.15 | 20100104 | 116.71118 | 300.58016 | 82.13089 | 10.98104 | 0.0935811 | 3.0574002 | 280 | 10 | 1995–2009 | 0.51 | M-v | 0 | MPC | 97315 | (78717) |
| (78830) | 14.2 | 0.15 | 20100104 | 147.76077 | 331.44479 | 336.95738 | 8.17722 | 0.0780626 | 2.9853529 | 197 | 8 | 2000–2009 | 0.48 | M-v | 0 | MPC | 97315 | (78830) |
| (78951) | 15.1 | 0.15 | 20100104 | 199.86962 | 130.73325 | 183.78575 | 5.94703 | 0.0617795 | 2.7297054 | 220 | 9 | 1998–2009 | 0.54 | M-v | 0 | MPC | 55758 | (78951) |
| (79058) | 15.0 | 0.15 | 20100104 | 166.85361 | 329.18313 | 358.05996 | 15.72643 | 0.2319441 | 2.6767582 | 112 | 6 | 1977–2008 | 0.58 | M-v | 1 | MPC | 55792 | (79058) |
| (79071) | 15.0 | 0.15 | 20100104 | 82.04365 | 98.32263 | 343.11295 | 1.22561 | 0.0527882 | 2.9433212 | 237 | 9 | 1977–2009 | 0.61 | M-v | 0 | MPC | 55796 | (79071) |
| (79107) | 16.5 | 0.15 | 20100104 | 218.52028 | 37.84782 | 202.70738 | 3.72876 | 0.0653186 | 2.2103485 | 168 | 9 | 1981–2009 | 0.61 | M-v | 1 | MPC | 58151 | (79107) |
| (79150) | 16.7 | 0.15 | 20100104 | 223.77997 | 147.54363 | 123.94016 | 7.89917 | 0.2695613 | 2.1790649 | 144 | 7 | 1992–2009 | 0.49 | M-v | 1 | MPC | 58169 | (79150) |
| (79271) | 15.8 | 0.15 | 20100104 | 145.15848 | 332.10731 | 335.60502 | 5.06793 | 0.1936218 | 2.2313178 | 192 | 9 | 1994–2009 | 0.50 | M-v | 1 | MPC | 58213 | (79271) |
| (79507) | 16.6 | 0.15 | 20100104 | 35.75975 | 279.63729 | 132.51374 | 4.25079 | 0.1164343 | 2.1637911 | 135 | 7 | 1998–2009 | 0.51 | M-v | 1 | MPC | 58302 | (79507) |
| (79525) | 15.8 | 0.15 | 20100104 | 151.71770 | 12.54551 | 307.07637 | 6.55260 | 0.2408573 | 2.2325533 | 227 | 10 | 1997–2009 | 0.54 | M-v | 1 | MPC | 87322 | (79525) |
| (79530) | 15.8 | 0.15 | 20100104 | 110.59423 | 294.42416 | 47.98881 | 6.05822 | 0.1283128 | 2.2727998 | 230 | 8 | 1993–2009 | 0.50 | M-v | 1 | MPC | 58311 | (79530) |
| (79591) | 15.6 | 0.15 | 20100104 | 216.04117 | 129.85311 | 164.77908 | 3.54584 | 0.1927856 | 2.1892949 | 277 | 10 | 1988–2009 | 0.58 | M-v | 0 | MPC | 58337 | (79591) |
| (79592) | 16.1 | 0.15 | 20100104 | 104.95013 | 289.60060 | 47.03091 | 2.34053 | 0.1627538 | 2.2841793 | 178 | 7 | 1998–2009 | 0.58 | M-v | 1 | MPC | 87322 | (79592) |
| (79600) | 15.2 | 0.15 | 20100104 | 123.52350 | 294.53086 | 31.84950 | 3.74416 | 0.1794586 | 2.2743934 | 325 | 8 | 1998–2009 | 0.52 | M-v | 1 | MPC | 87322 | (79600) |
| (79670) | 15.2 | 0.15 | 20100104 | 158.72006 | 287.85166 | 6.87951 | 6.13116 | 0.1942034 | 2.2765419 | 329 | 9 | 1991–2009 | 0.59 | M-v | 0 | MPC | 58369 | (79670) |
| (79692) | 15.7 | 0.15 | 20100104 | 129.14427 | 144.93391 | 158.06986 | 5.00048 | 0.1765524 | 2.2999495 | 239 | 9 | 1991–2009 | 0.55 | M-v | 0 | MPC | 58378 | (79692) |
| (79760) | 16.5 | 0.15 | 20100104 | 123.33942 | 133.03459 | 168.32019 | 0.72187 | 0.2186209 | 2.3130107 | 247 | 9 | 1991–2009 | 0.43 | M-v | 0 | MPC | 58404 | (79760) |
| (79989) | 14.7 | 0.15 | 20100104 | 324.95734 | 175.27083 | 25.57464 | 5.05258 | 0.1095550 | 3.1829447 | 168 | 7 | 1999–2007 | 0.65 | M-v | 0 | MPC | 77346 | (79989) |
| (80172) | 16.9 | 0.15 | 20100104 | 33.36673 | 345.35582 | 66.09239 | 2.68185 | 0.1739354 | 2.2044894 | 190 | 7 | 1996–2009 | 0.49 | M-v | 0 | MPC | 58568 | (80172) |
| (80231) | 16.4 | 0.15 | 20100104 | 60.70759 | 197.06690 | 187.07774 | 3.50333 | 0.0883961 | 2.1986867 | 146 | 7 | 1994–2009 | 0.56 | M-v | 1 | MPC | 58591 | (80231) |
| (80256) | 15.2 | 0.15 | 20100104 | 28.30905 | 347.00920 | 71.26105 | 6.46802 | 0.1699243 | 2.2292022 | 280 | 7 | 1999–2009 | 0.61 | M-v | 1 | MPC | 135590 | (80256) |
| (80516) | 14.9 | 0.15 | 20100104 | 190.10521 | 320.05431 | 306.98357 | 5.42950 | 0.2078568 | 2.2907091 | 393 | 9 | 1991–2009 | 0.56 | M-v | 0 | MPC | 58705 | (80516) |
| (80639) | 16.9 | 0.15 | 20100104 | 189.88833 | 221.51835 | 53.47171 | 1.28051 | 0.2596495 | 2.2589548 | 188 | 9 | 1994–2009 | 0.52 | M-v | 0 | MPC | 58756 | (80639) |
| (80656) | 15.7 | 0.15 | 20100104 | 233.82106 | 214.51584 | 61.19017 | 6.75729 | 0.1272947 | 2.1791408 | 386 | 9 | 1991–2009 | 0.53 | M-v | 0 | MPC | 58762 | (80656) |
| (80881) | 15.9 | 0.15 | 20100104 | 134.58220 | 130.63915 | 161.87688 | 2.29110 | 0.2006276 | 2.3684289 | 237 | 10 | 1993–2009 | 0.51 | M-v | 0 | MPC | 58853 | (80881) |
| (80894) | 16.2 | 0.15 | 20100104 | 179.46359 | 100.98604 | 155.87567 | 4.30449 | 0.1930998 | 2.3656093 | 172 | 10 | 1993–2009 | 0.49 | M-v | 0 | MPC | 58858 | (80894) |
| (80939) | 16.2 | 0.15 | 20100104 | 22.60473 | 349.64399 | 71.47203 | 5.25096 | 0.0881028 | 2.2912020 | 160 | 8 | 1993–2009 | 0.59 | M-v | 1 | MPC | 58875 | (80939) |
| (80977) | 15.7 | 0.15 | 20100104 | 96.00293 | 33.71561 | 291.97964 | 1.05796 | 0.2488286 | 2.3759969 | 269 | 10 | 1993–2009 | 0.51 | M-v | 0 | MPC | 58890 | (80977) |
| (80998) | 15.6 | 0.15 | 20100104 | 225.60503 | 119.28216 | 140.17996 | 6.68741 | 0.1604486 | 2.2568704 | 289 | 9 | 1991–2009 | 0.58 | M-v | 0 | MPC | 58898 | (80998) |
| (81576) | 14.3 | 0.15 | 20100104 | 307.30017 | 27.78746 | 146.64207 | 10.34432 | 0.1758805 | 3.1130560 | 180 | 9 | 1994–2009 | 0.59 | M-v | 0 | MPC | 59139 | (81576) |
| (81914) | 14.2 | 0.15 | 20100104 | 150.01334 | 212.23127 | 155.05615 | 6.19572 | 0.0876559 | 3.3259905 | 284 | 12 | 1994–2009 | 0.55 | M-v | 0 | MPC | 59275 | (81914) |
| (82143) | 16.1 | 0.15 | 20100104 | 208.39509 | 48.53046 | 202.83279 | 3.78855 | 0.1522400 | 2.1995660 | 257 | 9 | 1991–2009 | 0.51 | M-v | 0 | MPC | 59360 | (82143) |
| (82148) | 16.4 | 0.15 | 20100104 | 180.22942 | 228.10352 | 30.40497 | 4.41063 | 0.0709167 | 2.2114674 | 120 | 7 | 1992–2009 | 0.57 | M-v | 1 | MPC | 59362 | (82148) |
| (82178) | 16.5 | 0.15 | 20100104 | 264.49922 | 16.34550 | 190.20475 | 4.02495 | 0.0750490 | 2.1827347 | 252 | 9 | 1991–2009 | 0.55 | M-v | 0 | MPC | 59372 | (82178) |
| (82244) | 16.3 | 0.15 | 20100104 | 122.63443 | 140.75413 | 171.80071 | 4.37693 | 0.1576309 | 2.2789204 | 163 | 9 | 1995–2009 | 0.55 | M-v | 0 | MPC | 59396 | (82244) |
| (82325) | 15.1 | 0.15 | 20100104 | 113.88568 | 210.08808 | 112.87518 | 8.79486 | 0.2486497 | 2.3342782 | 217 | 8 | 1998–2009 | 0.54 | M-v | 0 | MPC | 87323 | (82325) |
| (82330) | 16.1 | 0.15 | 20100104 | 101.89623 | 147.31040 | 197.41140 | 6.61937 | 0.1344764 | 2.2764231 | 140 | 9 | 1994–2009 | 0.59 | M-v | 1 | MPC | 59426 | (82330) |
| (82451) | 16.0 | 0.15 | 20100104 | 212.65807 | 155.51435 | 106.39586 | 5.18227 | 0.1535911 | 2.2438472 | 210 | 9 | 1994–2009 | 0.58 | M-v | 0 | MPC | 59469 | (82451) |
| (82767) | 14.3 | 0.15 | 20100104 | 115.83255 | 275.54784 | 121.78487 | 2.09472 | 0.1764730 | 3.2291345 | 280 | 9 | 1992–2009 | 0.49 | M-v | 0 | MPC | 59588 | (82767) |
| (82913) | 14.8 | 0.15 | 20100104 | 126.70439 | 307.81848 | 347.61638 | 4.15883 | 0.3364602 | 2.3607473 | 452 | 11 | 1993–2009 | 0.55 | M-v | 0 | MPC | 59649 | (82913) |
| (82951) | 14.7 | 0.15 | 20100104 | 216.05395 | 179.38851 | 139.46199 | 10.27569 | 0.0839729 | 3.0658260 | 153 | 9 | 2000–2009 | 0.53 | M-v | 0 | MPC | 101954 | (82951) |
| (83175) | 14.1 | 0.15 | 20100104 | 299.05102 | 94.23112 | 129.05851 | 17.28249 | 0.0820036 | 3.1290145 | 218 | 9 | 1995–2009 | 0.59 | M-v | 0 | MPC | 59752 | (83175) |
| (84151) | 16.9 | 0.15 | 20100104 | 119.40871 | 3.92823 | 330.53061 | 3.81300 | 0.1147263 | 2.1575973 | 109 | 8 | 1996–2009 | 0.48 | M-v | 1 | MPC | 60119 | (84151) |
| (84314) | 16.2 | 0.15 | 20100104 | 69.00790 | 244.74225 | 134.12137 | 3.38764 | 0.1341577 | 2.2379154 | 231 | 9 | 1994–2009 | 0.54 | M-v | 0 | MPC | 60177 | (84314) |
| (84715) | 16.2 | 0.15 | 20100104 | 39.41232 | 269.67284 | 117.25471 | 6.66379 | 0.0778293 | 2.2982033 | 198 | 8 | 1993–2009 | 0.60 | M-v | 1 | MPC | 60316 | (84715) |
| (84792) | 15.3 | 0.15 | 20100104 | 124.07984 | 350.20909 | 340.26170 | 5.17417 | 0.1679532 | 2.2663516 | 315 | 9 | 1993–2009 | 0.51 | M-v | 1 | MPC | 60340 | (84792) |
| (85041) | 13.6 | 0.15 | 20100104 | 275.55530 | 241.45884 | 1.44162 | 21.36714 | 0.0487934 | 3.2438345 | 261 | 9 | 1960–2009 | 0.56 | M-v | 0 | MPC | 97317 | (85041) |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (85083) | 16.1 | 0.15 | 20100104 | 116.59005 | 145.20370 | 175.57103 | 1.77880 | 0.2389250 | 2.3233381 | 224 | 11 | 1973–2009 | 0.58 | M-v | 0 | MPC | 60436 | (85083) |
| (85135) | 15.5 | 0.15 | 20100104 | 108.22086 | 199.78240 | 149.92824 | 6.48830 | 0.2092792 | 2.3670198 | 176 | 9 | 1979–2009 | 0.61 | M-v | 1 | MPC | 62586 | (85135) |
| (85154) | 14.5 | 0.15 | 20100104 | 136.89614 | 20.68495 | 350.25290 | 10.78455 | 0.2953297 | 2.3710483 | 297 | 9 | 1986–2009 | 0.57 | M-v | 0 | MPC | 62593 | (85154) |
| (85237) | 15.8 | 0.15 | 20100104 | 112.27561 | 49.89900 | 278.89657 | 5.15295 | 0.1799490 | 2.4186218 | 160 | 8 | 1993–2009 | 0.55 | M-v | 0 | MPC | 62623 | (85237) |
| (85241) | 15.4 | 0.15 | 20100104 | 173.83557 | 38.84340 | 265.55991 | 3.84936 | 0.2356931 | 2.3832039 | 287 | 10 | 1993–2009 | 0.57 | M-v | 0 | MPC | 62624 | (85241) |
| (85246) | 15.3 | 0.15 | 20100104 | 165.18973 | 55.39153 | 245.24867 | 2.04073 | 0.1266984 | 2.4221488 | 278 | 9 | 1993–2009 | 0.53 | M-v | 0 | MPC | 62626 | (85246) |
| (85253) | 16.3 | 0.15 | 20100104 | 165.26802 | 10.43496 | 294.72782 | 3.46260 | 0.1815679 | 2.4390085 | 144 | 7 | 1993–2009 | 0.43 | M-v | 0 | MPC | 62628 | (85253) |
| (85380) | 15.1 | 0.15 | 20100104 | 179.33299 | 58.69955 | 231.52450 | 3.76824 | 0.1967608 | 2.4254936 | 285 | 9 | 1985–2009 | 0.54 | M-v | 0 | MPC | 62670 | (85380) |
| (85401) | 14.9 | 0.15 | 20100104 | 88.93252 | 39.89044 | 2.34224 | 3.50208 | 0.1251182 | 2.5313275 | 533 | 9 | 1994–2009 | 0.51 | M-v | 1 | MPC | 62678 | (85401) |
| (85504) | 15.2 | 0.15 | 20100104 | 80.15713 | 306.42570 | 43.81013 | 5.57160 | 0.2082317 | 2.4558727 | 310 | 8 | 1997–2009 | 0.53 | M-v | 1 | MPC | 62714 | (85504) |
| (85554) | 15.2 | 0.15 | 20100104 | 9.95196 | 156.18640 | 294.22191 | 5.11692 | 0.1620104 | 2.5391746 | 327 | 9 | 1994–2009 | 0.52 | M-v | 1 | MPC | 62734 | (85554) |
| (85751) | 16.0 | 0.15 | 20100104 | 69.29636 | 329.21373 | 30.76431 | 3.68368 | 0.1559555 | 2.3375317 | 195 | 9 | 1993–2009 | 0.54 | M-v | 0 | MPC | 62810 | (85751) |
| (85990) | 19.9 | 0.15 | 20100104 | 92.82568 | 235.53056 | 124.59652 | 5.31384 | 0.3112267 | 1.0077327 | 318 | 11 | 1999–2009 | 0.61 | M-v | 4 | MPC | 155880 | (85990) |
| (86381) | 15.9 | 0.15 | 20100104 | 115.61630 | 21.57167 | 17.55583 | 3.78811 | 0.0874614 | 2.1677477 | 283 | 10 | 1994–2009 | 0.50 | M-v | 1 | MPC | 63062 | (86381) |
| (86430) | 15.4 | 0.15 | 20100104 | 343.64496 | 112.10142 | 317.27202 | 6.47376 | 0.0842104 | 2.3503405 | 318 | 8 | 1993–2009 | 0.53 | M-v | 0 | MPC | 63080 | (86430) |
| (86449) | 16.3 | 0.15 | 20100104 | 287.12342 | 18.92764 | 151.96492 | 5.58229 | 0.0949488 | 2.2936244 | 177 | 10 | 1993–2009 | 0.54 | M-v | 1 | MPC | 63087 | (86449) |
| (86479) | 16.0 | 0.15 | 20100104 | 51.75850 | 244.98548 | 147.32646 | 1.96915 | 0.1220618 | 2.2790972 | 293 | 8 | 1997–2009 | 0.53 | M-v | 0 | MPC | 63099 | (86479) |
| (86589) | 16.4 | 0.15 | 20100104 | 171.99007 | 228.56740 | 72.95894 | 1.66107 | 0.2009477 | 2.3278064 | 220 | 10 | 1994–2009 | 0.57 | M-v | 0 | MPC | 63142 | (86589) |
| (86733) | 16.2 | 0.15 | 20100104 | 167.16564 | 353.28768 | 257.92518 | 0.72891 | 0.0954927 | 2.4228377 | 222 | 9 | 1993–2009 | 0.54 | M-v | 0 | MPC | 63199 | (86733) |
| (86803) | 15.6 | 0.15 | 20100104 | 180.27445 | 105.28676 | 163.32855 | 6.77002 | 0.0992985 | 2.3490220 | 297 | 9 | 1993–2009 | 0.60 | M-v | 0 | MPC | 63232 | (86803) |
| (86870) | 16.1 | 0.15 | 20100104 | 179.79166 | 109.02894 | 227.24682 | 5.71425 | 0.1359133 | 2.2943771 | 196 | 9 | 1993–2009 | 0.53 | M-v | 0 | MPC | 63258 | (86870) |
| (86909) | 15.7 | 0.15 | 20100104 | 163.49226 | 85.05617 | 210.57467 | 0.88303 | 0.2862276 | 2.4169162 | 338 | 10 | 1989–2009 | 0.53 | M-v | 0 | MPC | 63275 | (86909) |
| (87126) | 16.2 | 0.15 | 20100104 | 223.98902 | 44.90364 | 223.84365 | 1.81853 | 0.2013097 | 2.3684196 | 182 | 10 | 1990–2009 | 0.51 | M-v | 0 | MPC | 63360 | (87126) |
| (87146) | 15.2 | 0.15 | 20100104 | 76.41744 | 252.08938 | 112.43688 | 8.33033 | 0.2208936 | 2.5652343 | 181 | 10 | 1994–2009 | 0.50 | M-v | 1 | MPC | 63368 | (87146) |
| (87159) | 15.8 | 0.15 | 20100104 | 178.47817 | 197.30393 | 123.14363 | 7.14653 | 0.2164423 | 2.4087037 | 199 | 9 | 1995–2009 | 0.50 | M-v | 0 | MPC | 63373 | (87159) |
| (87166) | 14.9 | 0.15 | 20100104 | 83.82520 | 61.83867 | 277.02208 | 12.02940 | 0.1978274 | 2.5626008 | 130 | 8 | 1997–2009 | 0.54 | M-v | 1 | MPC | 63376 | (87166) |
| (87311) | 16.3 | 0.15 | 20100104 | 358.75711 | 343.31937 | 191.50518 | 7.68812 | 0.5128177 | 1.5899324 | 247 | 12 | 1982–2009 | 0.54 | M-v | 3 | MPC | 164103 | (87311) |
| (87325) | 15.7 | 0.15 | 20100104 | 71.25180 | 57.73483 | 319.15908 | 7.01673 | 0.2115547 | 2.5504818 | 208 | 8 | 1994–2009 | 0.54 | M-v | 1 | MPC | 63442 | (87325) |
| (87371) | 15.7 | 0.15 | 20100104 | 63.26379 | 238.44072 | 159.28495 | 3.22554 | 0.1507940 | 2.5391220 | 200 | 10 | 1994–2009 | 0.57 | M-v | 0 | MPC | 63460 | (87371) |
| (87435) | 15.7 | 0.15 | 20100104 | 85.41537 | 342.80187 | 3.79601 | 5.12780 | 0.1136658 | 2.5641939 | 140 | 8 | 1996–2009 | 0.52 | M-v | 1 | MPC | 63484 | (87435) |
| (87640) | 15.4 | 0.15 | 20100104 | 119.77930 | 180.80958 | 151.61495 | 5.67477 | 0.1639284 | 2.5635386 | 281 | 9 | 1991–2009 | 0.48 | M-v | 0 | MPC | 63561 | (87640) |
| (87741) | 15.2 | 0.15 | 20100104 | 53.41663 | 274.38618 | 125.23974 | 3.36785 | 0.0835425 | 2.5954533 | 318 | 10 | 1994–2009 | 0.52 | M-v | 0 | MPC | 63599 | (87741) |
| (87874) | 14.8 | 0.15 | 20100104 | 9.19796 | 326.10541 | 58.68043 | 9.92156 | 0.1510353 | 2.7651246 | 147 | 8 | 1998–2009 | 0.61 | M-v | 1 | MPC | 97317 | (87874) |
| (87984) | 15.6 | 0.15 | 20100104 | 123.65516 | 219.03102 | 113.96243 | 8.03881 | 0.2576009 | 2.5332348 | 177 | 9 | 1994–2009 | 0.48 | M-v | 1 | MPC | 63685 | (87984) |
| (88004) | 15.6 | 0.15 | 20100104 | 70.71017 | 176.38150 | 199.70933 | 4.46984 | 0.1980045 | 2.6384680 | 175 | 9 | 1994–2009 | 0.51 | M-v | 1 | MPC | 63693 | (88004) |
| (88092) | 15.5 | 0.15 | 20100104 | 57.98950 | 203.48117 | 173.38293 | 9.56168 | 0.2731161 | 2.6829256 | 161 | 7 | 1998–2009 | 0.51 | M-v | 1 | MPC | 63721 | (88092) |
| (88338) | 15.5 | 0.15 | 20100104 | 156.22622 | 91.93298 | 223.79709 | 5.22643 | 0.1372165 | 2.3115788 | 288 | 9 | 1991–2009 | 0.56 | M-v | 0 | MPC | 63810 | (88338) |
| (88362) | 15.8 | 0.15 | 20100104 | 194.56856 | 63.21574 | 214.52604 | 4.27674 | 0.1087829 | 2.2830955 | 244 | 9 | 1994–2009 | 0.59 | M-v | 0 | MPC | 63820 | (88362) |
| (88363) | 15.1 | 0.15 | 20100104 | 151.67391 | 63.27262 | 232.76570 | 5.26366 | 0.2158012 | 2.3568387 | 372 | 9 | 1990–2009 | 0.53 | M-v | 0 | MPC | 63820 | (88363) |
| (88381) | 16.6 | 0.15 | 20100104 | 223.36746 | 211.20443 | 25.94291 | 6.10834 | 0.1275248 | 2.2856641 | 111 | 9 | 1991–2009 | 0.50 | M-v | 0 | MPC | 63827 | (88381) |
| (88489) | 15.8 | 0.15 | 20100104 | 106.02727 | 214.95765 | 127.84309 | 5.92807 | 0.2019919 | 2.3763860 | 114 | 7 | 1997–2009 | 0.52 | M-v | 1 | MPC | 63873 | (88489) |
| (88491) | 15.7 | 0.15 | 20100104 | 115.91935 | 82.86713 | 248.93494 | 6.95806 | 0.2255918 | 2.3861674 | 146 | 7 | 1997–2009 | 0.54 | M-v | 1 | MPC | 63874 | (88491) |
| (88524) | 15.5 | 0.15 | 20100104 | 130.51304 | 211.45107 | 103.16088 | 8.14164 | 0.1327077 | 2.3494128 | 194 | 9 | 1993–2009 | 0.54 | M-v | 0 | MPC | 63888 | (88524) |
| (88551) | 15.7 | 0.15 | 20100104 | 140.66580 | 40.81783 | 289.33289 | 3.88129 | 0.2460231 | 2.3577102 | 222 | 9 | 1990–2009 | 0.54 | M-v | 0 | MPC | 63898 | (88551) |
| (88619) | 16.1 | 0.15 | 20100104 | 183.52739 | 36.08340 | 264.40628 | 2.46228 | 0.1517352 | 2.2896152 | 278 | 9 | 1994–2009 | 0.51 | M-v | 0 | MPC | 63926 | (88619) |
| (88684) | 15.8 | 0.15 | 20100104 | 164.02221 | 153.34869 | 114.39378 | 5.38491 | 0.1327693 | 2.3749921 | 191 | 9 | 1996–2009 | 0.54 | M-v | 0 | MPC | 63953 | (88684) |
| (88697) | 16.4 | 0.15 | 20100104 | 139.56570 | 258.28114 | 56.98026 | 5.10891 | 0.2657078 | 2.3434686 | 136 | 7 | 1994–2009 | 0.48 | M-v | 0 | MPC | 63957 | (88697) |
| (88728) | 16.3 | 0.15 | 20100104 | 154.54795 | 288.58355 | 21.91351 | 2.38941 | 0.2246181 | 2.3339359 | 195 | 9 | 1993–2009 | 0.52 | M-v | 0 | MPC | 63971 | (88728) |
| (88812) | 16.3 | 0.15 | 20100104 | 239.55279 | 91.47694 | 184.85284 | 3.15701 | 0.1750896 | 2.2377238 | 176 | 9 | 1991–2009 | 0.49 | M-v | 0 | MPC | 64004 | (88812) |
| (88907) | 16.5 | 0.15 | 20100104 | 249.85504 | 51.94962 | 220.40352 | 3.41327 | 0.2195475 | 2.2332490 | 185 | 7 | 1991–2009 | 0.41 | M-v | 0 | MPC | 64040 | (88907) |
| (88990) | 15.5 | 0.15 | 20100104 | 334.74122 | 311.40663 | 182.36483 | 6.18763 | 0.0508957 | 2.4181224 | 229 | 9 | 1992–2009 | 0.61 | M-v | 0 | MPC | 64073 | (88990) |
| (89179) | 15.3 | 0.15 | 20100104 | 129.55049 | 70.68283 | 292.40403 | 4.33607 | 0.0994025 | 2.3553570 | 232 | 9 | 1990–2009 | 0.52 | M-v | 0 | MPC | 64146 | (89179) |
| (89232) | 15.6 | 0.15 | 20100104 | 232.60008 | 194.71098 | 44.47461 | 2.85398 | 0.1497936 | 2.3798287 | 253 | 9 | 1990–2009 | 0.53 | M-v | 0 | MPC | 64167 | (89232) |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (89417) | 15.8 | 0.15 | 20100104 | 80.78984 | 315.54469 | 107.36358 | 3.20672 | 0.1942343 | 2.3698397 | 216 | 7 | 2001–2009 | 0.49 | M-v | 0 | MPC | 64233 | (89417) |
| (89534) | 15.5 | 0.15 | 20100104 | 68.78696 | 269.64985 | 152.49066 | 7.31606 | 0.0751727 | 2.4079984 | 227 | 9 | 1995–2009 | 0.58 | M-v | 0 | MPC | 64273 | (89534) |
| (89561) | 15.5 | 0.15 | 20100104 | 93.83316 | 116.08830 | 288.93673 | 5.89442 | 0.1533021 | 2.4166066 | 254 | 7 | 1991–2009 | 0.56 | M-v | 0 | MPC | 64282 | (89561) |
| (89961) | 14.2 | 0.15 | 20100104 | 94.18016 | 92.76522 | 259.84940 | 13.25019 | 0.1080301 | 3.1129451 | 126 | 7 | 1992–2009 | 0.49 | M-v | 0 | MPC | 64409 | (89961) |
| (89999) | 14.4 | 0.15 | 20100104 | 62.82358 | 164.85628 | 261.40455 | 4.14382 | 0.1306880 | 3.1936859 | 226 | 9 | 1991–2009 | 0.52 | M-v | 0 | MPC | 64424 | (89999) |
| (90220) | 15.2 | 0.15 | 20100104 | 133.06826 | 315.37995 | 303.90737 | 10.82957 | 0.2636146 | 2.5734071 | 108 | 9 | 1975–2009 | 0.57 | M-v | 1 | MPC | 64495 | (90220) |
| (90254) | 15.3 | 0.15 | 20100104 | 203.25078 | 284.18640 | 332.83021 | 4.24843 | 0.1503448 | 2.4564852 | 275 | 10 | 1993–2009 | 0.60 | M-v | 0 | MPC | 64505 | (90254) |
| (90266) | 16.6 | 0.15 | 20100104 | 39.42615 | 310.87440 | 91.36265 | 3.30755 | 0.2106054 | 2.3401240 | 94 | 8 | 1996–2009 | 0.47 | M-v | 0 | MPC | 64509 | (90266) |
| (90344) | 15.1 | 0.15 | 20100104 | 308.77408 | 152.21133 | 23.56045 | 6.44993 | 0.0486238 | 2.4292355 | 228 | 10 | 1993–2009 | 0.66 | M-v | 1 | MPC | 64533 | (90344) |
| (90416) | 18.4 | 0.15 | 20100104 | 225.14787 | 232.87516 | 327.06365 | 7.85173 | 0.4923879 | 1.6938058 | 218 | 4 | 1993–2004 | 0.50 | M-v | 1 | MPC | 160680 | (90416) |
| (90621) | 15.3 | 0.15 | 20100104 | 93.25832 | 135.82752 | 215.92371 | 3.21838 | 0.1020851 | 2.4890368 | 203 | 10 | 1973–2009 | 0.61 | M-v | 0 | MPC | 64618 | (90621) |
| (90641) | 14.7 | 0.15 | 20100104 | 16.85420 | 52.81032 | 26.89966 | 5.05478 | 0.1064583 | 3.2306287 | 145 | 9 | 1973–2009 | 0.61 | M-v | 0 | MPC | 64626 | (90641) |
| (90651) | 15.1 | 0.15 | 20100104 | 207.31702 | 283.66136 | 333.29484 | 5.67876 | 0.1735026 | 2.2931676 | 364 | 9 | 1977–2009 | 0.60 | M-v | 0 | MPC | 64629 | (90651) |
| (90659) | 14.6 | 0.15 | 20100104 | 141.64955 | 350.23044 | 24.68482 | 2.19370 | 0.0603926 | 2.9457200 | 306 | 9 | 1977–2009 | 0.64 | M-v | 0 | MPC | 64632 | (90659) |
| (90698) | 14.0 | 0.15 | 20100104 | 30.20327 | 142.53654 | 348.22186 | 24.04071 | 0.2535447 | 2.3782917 | 354 | 7 | 1984–2009 | 0.55 | M-v | 1 | MPC | 66436 | (90698) |
| (90708) | 14.6 | 0.15 | 20100104 | 16.35211 | 211.37912 | 275.61846 | 6.52923 | 0.0490450 | 2.5260780 | 251 | 6 | 2000–2009 | 0.54 | M-v | 1 | MPC | 66440 | (90708) |
| (90715) | 15.1 | 0.15 | 20100104 | 320.08826 | 43.27828 | 153.00875 | 2.81856 | 0.1433630 | 2.4509704 | 409 | 10 | 1991–2009 | 0.54 | M-v | 0 | MPC | 66442 | (90715) |
| (90906) | 14.9 | 0.15 | 20100104 | 17.60403 | 318.14775 | 131.82885 | 18.05563 | 0.0942927 | 2.6858742 | 123 | 7 | 1997–2009 | 0.59 | M-v | 1 | MPC | 97318 | (90906) |
| (91029) | 16.0 | 0.15 | 20100104 | 13.03791 | 278.23803 | 187.36866 | 4.71497 | 0.1973445 | 2.5422687 | 175 | 7 | 1992–2009 | 0.55 | M-v | 1 | MPC | 66559 | (91029) |
| (91082) | 15.1 | 0.15 | 20100104 | 343.70890 | 274.79406 | 226.04547 | 10.65836 | 0.2114489 | 2.5660095 | 222 | 8 | 1994–2009 | 0.62 | M-v | 1 | MPC | 66585 | (91082) |
| (91327) | 14.7 | 0.15 | 20100104 | 357.04895 | 189.20862 | 347.99330 | 7.15845 | 0.0903784 | 2.3805764 | 417 | 8 | 1999–2009 | 0.56 | M-v | 1 | MPC | 97318 | (91327) |
| (91390) | 15.2 | 0.15 | 20100104 | 142.15916 | 177.95187 | 163.42058 | 6.84464 | 0.3118483 | 2.5762518 | 206 | 9 | 1994–2009 | 0.57 | M-v | 1 | MPC | 66713 | (91390) |
| (91486) | 14.8 | 0.15 | 20100104 | 86.14760 | 134.04174 | 211.11258 | 12.33847 | 0.1964145 | 2.7501803 | 148 | 7 | 1998–2009 | 0.58 | M-v | 1 | MPC | 66751 | (91486) |
| (91491) | 14.7 | 0.15 | 20100104 | 89.83217 | 64.17740 | 279.66994 | 6.17587 | 0.2255938 | 2.7749760 | 248 | 9 | 1994–2009 | 0.55 | M-v | 0 | MPC | 66753 | (91491) |
| (92381) | 16.7 | 0.15 | 20100104 | 265.05816 | 261.04806 | 349.80744 | 2.57914 | 0.1222508 | 2.2741958 | 90 | 7 | 1994–2008 | 0.58 | M-v | 1 | MPC | 67100 | (92381) |
| (92425) | 16.5 | 0.15 | 20100104 | 223.06511 | 136.27400 | 121.79134 | 1.68559 | 0.2192627 | 2.3574843 | 113 | 10 | 1993–2009 | 0.58 | M-v | 0 | MPC | 67117 | (92425) |
| (92460) | 16.2 | 0.15 | 20100104 | 304.37542 | 101.72512 | 117.82841 | 3.96152 | 0.0950728 | 2.2781338 | 138 | 8 | 1996–2009 | 0.58 | M-v | 0 | MPC | 67130 | (92460) |
| (92470) | 15.3 | 0.15 | 20100104 | 279.57039 | 120.56575 | 136.49058 | 7.04912 | 0.0812939 | 2.2620942 | 199 | 9 | 1995–2009 | 0.57 | M-v | 0 | MPC | 67133 | (92470) |
| (92500) | 15.6 | 0.15 | 20100104 | 257.47992 | 328.59902 | 301.91781 | 6.42137 | 0.1160543 | 2.3600400 | 152 | 10 | 1995–2009 | 0.55 | M-v | 0 | MPC | 67144 | (92500) |
| (92613) | 15.2 | 0.15 | 20100104 | 36.88650 | 0.69556 | 60.68443 | 2.82566 | 0.1602200 | 2.5545964 | 256 | 9 | 1994–2009 | 0.55 | M-v | 0 | MPC | 67190 | (92613) |
| (92689) | 16.3 | 0.15 | 20100104 | 164.57561 | 84.40707 | 220.43067 | 1.57559 | 0.1908464 | 2.4820982 | 270 | 9 | 1996–2009 | 0.55 | M-v | 0 | MPC | 67222 | (92689) |
| (92715) | 15.9 | 0.15 | 20100104 | 152.00384 | 94.51290 | 198.31328 | 4.66460 | 0.2147212 | 2.5241236 | 221 | 10 | 1960–2009 | 0.47 | M-v | 1 | MPC | 152285 | (92715) |
| (92819) | 15.7 | 0.15 | 20100104 | 244.59774 | 14.64575 | 251.92754 | 4.25871 | 0.1329579 | 2.3934965 | 143 | 9 | 1993–2009 | 0.56 | M-v | 1 | MPC | 67275 | (92819) |
| (92859) | 15.8 | 0.15 | 20100104 | 191.46439 | 346.81497 | 351.35918 | 6.29446 | 0.1168227 | 2.4076229 | 116 | 7 | 1991–2009 | 0.49 | M-v | 1 | MPC | 67292 | (92859) |
| (93011) | 16.3 | 0.15 | 20100104 | 109.29920 | 219.12855 | 156.47794 | 2.83621 | 0.1654500 | 2.5166446 | 220 | 9 | 1994–2009 | 0.47 | M-v | 1 | MPC | 67360 | (93011) |
| (93086) | 15.4 | 0.15 | 20100104 | 4.72617 | 289.47690 | 176.45652 | 2.64112 | 0.1470233 | 2.5638253 | 350 | 7 | 1998–2009 | 0.60 | M-v | 1 | MPC | 97319 | (93086) |
| (93140) | 15.5 | 0.15 | 20100104 | 19.09551 | 329.82238 | 102.60169 | 4.57519 | 0.1894351 | 2.6351057 | 128 | 7 | 1993–2009 | 0.60 | M-v | 0 | MPC | 67414 | (93140) |
| (93149) | 16.3 | 0.15 | 20100104 | 125.45271 | 210.11354 | 138.38660 | 3.73258 | 0.1650475 | 2.5299391 | 174 | 10 | 1992–2009 | 0.52 | M-v | 1 | MPC | 67417 | (93149) |
| (93172) | 15.7 | 0.15 | 20100104 | 80.69301 | 28.40693 | 304.91610 | 10.67218 | 0.1600538 | 2.6737585 | 102 | 6 | 1998–2009 | 0.54 | M-v | 1 | MPC | 67427 | (93172) |
| (93175) | 15.8 | 0.15 | 20100104 | 67.86817 | 44.56712 | 345.56734 | 2.52665 | 0.0749271 | 2.5779875 | 252 | 9 | 1994–2009 | 0.47 | M-v | 0 | MPC | 67428 | (93175) |
| (93370) | 16.2 | 0.15 | 20100104 | 83.60386 | 242.96513 | 142.26146 | 4.74697 | 0.2507028 | 2.5821995 | 139 | 7 | 1994–2009 | 0.46 | M-v | 1 | MPC | 67507 | (93370) |
| (93460) | 15.8 | 0.15 | 20100104 | 27.67250 | 215.99381 | 223.86910 | 3.30039 | 0.0733518 | 2.5332027 | 217 | 10 | 1992–2009 | 0.52 | M-v | 0 | MPC | 67541 | (93460) |
| (93567) | 15.9 | 0.15 | 20100104 | 41.86084 | 331.14157 | 69.06041 | 3.31556 | 0.0909998 | 2.6608394 | 130 | 9 | 1994–2009 | 0.54 | M-v | 0 | MPC | 67581 | (93567) |
| (93607) | 14.4 | 0.15 | 20100104 | 220.36069 | 280.63566 | 335.25941 | 5.22930 | 0.1671529 | 2.5468967 | 379 | 10 | 1994–2009 | 0.55 | M-v | 0 | MPC | 67597 | (93607) |
| (93689) | 15.2 | 0.15 | 20100104 | 304.67029 | 301.10608 | 220.36026 | 3.18476 | 0.0518285 | 2.6254125 | 247 | 9 | 1991–2009 | 0.57 | M-v | 1 | MPC | 67627 | (93689) |
| (93842) | 14.4 | 0.15 | 20100104 | 62.48967 | 298.00866 | 87.03844 | 14.14235 | 0.1709231 | 2.7399667 | 274 | 8 | 1998–2009 | 0.56 | M-v | 0 | MPC | 143069 | (93842) |
| (93852) | 15.2 | 0.15 | 20100104 | 42.43013 | 309.53956 | 88.66360 | 5.03319 | 0.1972810 | 2.7093875 | 121 | 7 | 1991–2009 | 0.54 | M-v | 0 | MPC | 67686 | (93852) |
| (93857) | 14.7 | 0.15 | 20100104 | 83.32459 | 269.23154 | 98.19212 | 13.71692 | 0.0636481 | 2.6617486 | 170 | 9 | 1994–2009 | 0.60 | M-v | 0 | MPC | 67688 | (93857) |
| (93980) | 15.1 | 0.15 | 20100104 | 31.83865 | 270.62400 | 146.94185 | 10.09599 | 0.1302098 | 2.6718139 | 228 | 9 | 1994–2009 | 0.57 | M-v | 0 | MPC | 67732 | (93980) |
| (94014) | 15.0 | 0.15 | 20100104 | 352.63905 | 85.00857 | 30.61736 | 13.60138 | 0.1316664 | 2.7118392 | 185 | 8 | 1993–2009 | 0.56 | M-v | 0 | MPC | 67744 | (94014) |
| (94067) | 15.1 | 0.15 | 20100104 | 71.51994 | 187.52976 | 193.47083 | 11.83660 | 0.1935397 | 2.6634800 | 214 | 9 | 1995–2009 | 0.50 | M-v | 0 | MPC | 67763 | (94067) |
| (94095) | 15.6 | 0.15 | 20100104 | 356.71211 | 279.69311 | 193.08653 | 9.21275 | 0.1682847 | 2.6970427 | 97 | 9 | 1995–2009 | 0.57 | M-v | 0 | MPC | 67773 | (94095) |
| (94156) | 14.8 | 0.15 | 20100104 | 86.28265 | 104.12351 | 254.14143 | 8.11047 | 0.2394145 | 2.7243494 | 206 | 8 | 1995–2009 | 0.54 | M-v | 0 | MPC | 67793 | (94156) |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (94165) | 15.0 | 0.15 | 20100104 | 36.55711 | 94.49902 | 355.12353 | 2.89284 | 0.2090656 | 2.6592411 | 210 | 7 | 1995–2009 | 0.52 | M-v | 1 | MPC | 67796 | (94165) |
| (94205) | 15.6 | 0.15 | 20100104 | 21.23705 | 222.75935 | 206.39048 | 1.12045 | 0.2213474 | 2.7546344 | 194 | 8 | 1995–2009 | 0.46 | M-v | 0 | MPC | 67810 | (94205) |
| (94461) | 15.7 | 0.15 | 20100104 | 39.79037 | 70.54450 | 21.98712 | 5.48280 | 0.1642288 | 2.4172385 | 186 | 7 | 1995–2008 | 0.56 | M-v | 0 | MPC | 67907 | (94461) |
| (94512) | 15.4 | 0.15 | 20100104 | 337.76197 | 126.73666 | 62.14623 | 5.03812 | 0.1557677 | 2.3160547 | 294 | 9 | 1994–2009 | 0.52 | M-v | 0 | MPC | 67927 | (94512) |
| (94599) | 15.6 | 0.15 | 20100104 | 306.69288 | 93.92023 | 132.70174 | 7.40761 | 0.0679644 | 2.3123427 | 268 | 7 | 1999–2009 | 0.54 | M-v | 0 | MPC | 97320 | (94599) |
| (94674) | 15.1 | 0.15 | 20100104 | 87.17036 | 344.19109 | 50.35770 | 9.30864 | 0.1145144 | 2.4494655 | 237 | 9 | 1989–2009 | 0.52 | M-v | 0 | MPC | 67989 | (94674) |
| (94675) | 15.5 | 0.15 | 20100104 | 152.11919 | 7.13398 | 350.75939 | 6.99709 | 0.1566406 | 2.3775487 | 199 | 7 | 1999–2009 | 0.46 | M-v | 1 | MPC | 147100 | (94675) |
| (94832) | 15.8 | 0.15 | 20100104 | 35.10202 | 281.22241 | 135.36707 | 4.27535 | 0.1537881 | 2.5377420 | 204 | 9 | 1994–2009 | 0.49 | M-v | 0 | MPC | 68047 | (94832) |
| (94904) | 16.9 | 0.15 | 20100104 | 186.55881 | 327.21655 | 318.38888 | 1.37121 | 0.1280439 | 2.4200346 | 106 | 9 | 1995–2009 | 0.50 | M-v | 0 | MPC | 68072 | (94904) |
| (94940) | 16.3 | 0.15 | 20100104 | 314.38512 | 199.63858 | 309.96783 | 5.86116 | 0.2032044 | 2.5570348 | 101 | 7 | 1993–2009 | 0.56 | M-v | 1 | MPC | 68084 | (94940) |
| (95011) | 15.6 | 0.15 | 20100104 | 56.40954 | 8.18053 | 129.23117 | 3.01646 | 0.0434483 | 2.3616643 | 196 | 8 | 1993–2009 | 0.55 | M-v | 0 | MPC | 68110 | (95011) |
| (95082) | 15.3 | 0.15 | 20100104 | 316.56259 | 14.33132 | 160.00888 | 7.50534 | 0.0786560 | 2.4826001 | 184 | 9 | 1995–2009 | 0.54 | M-v | 1 | MPC | 68137 | (95082) |
| (95161) | 14.6 | 0.15 | 20100104 | 175.75400 | 325.96142 | 331.14230 | 10.86364 | 0.1595825 | 2.5956024 | 261 | 9 | 1991–2009 | 0.58 | M-v | 0 | MPC | 68166 | (95161) |
| (95223) | 15.6 | 0.15 | 20100104 | 172.34192 | 308.29141 | 332.46308 | 2.86526 | 0.0679675 | 2.6558590 | 159 | 10 | 1995–2009 | 0.53 | M-v | 0 | MPC | 68188 | (95223) |
| (95404) | 14.9 | 0.15 | 20100104 | 121.30353 | 322.74901 | 357.71239 | 4.48641 | 0.2320943 | 2.6851655 | 255 | 9 | 1995–2009 | 0.59 | M-v | 0 | MPC | 68250 | (95404) |
| (95474) | 16.1 | 0.15 | 20100104 | 77.08321 | 23.09615 | 350.38478 | 3.37821 | 0.1751645 | 2.6522700 | 133 | 9 | 1991–2009 | 0.47 | M-v | 0 | MPC | 68273 | (95474) |
| (95525) | 15.1 | 0.15 | 20100104 | 174.83264 | 78.45475 | 192.68335 | 9.08522 | 0.0272168 | 2.7371214 | 188 | 10 | 1993–2009 | 0.68 | M-v | 0 | MPC | 68290 | (95525) |
| (95668) | 15.4 | 0.15 | 20100104 | 344.45296 | 307.33100 | 154.83874 | 8.90137 | 0.0794517 | 2.7125773 | 134 | 9 | 1993–2009 | 0.49 | M-v | 0 | MPC | 68333 | (95668) |
| (95762) | 16.5 | 0.15 | 20100104 | 261.17749 | 101.99572 | 160.02206 | 6.34378 | 0.0702589 | 2.3169949 | 116 | 7 | 1996–2009 | 0.52 | M-v | 0 | MPC | 68363 | (95762) |
| (95859) | 15.3 | 0.15 | 20100104 | 351.17366 | 318.78736 | 155.39334 | 14.74941 | 0.0379544 | 2.4609081 | 134 | 8 | 1995–2008 | 0.56 | M-v | 0 | MPC | 68395 | (95859) |
| (95970) | 16.0 | 0.15 | 20100104 | 186.21147 | 174.44500 | 118.19033 | 5.62249 | 0.2273261 | 2.3881182 | 183 | 9 | 1992–2009 | 0.57 | M-v | 1 | MPC | 68429 | (95970) |
| (96005) | 15.9 | 0.15 | 20100104 | 134.26014 | 211.63583 | 143.69877 | 7.29701 | 0.1355289 | 2.3899725 | 155 | 9 | 1995–2009 | 0.50 | M-v | 0 | MPC | 68440 | (96005) |
| (96093) | 15.1 | 0.15 | 20100104 | 62.68258 | 43.38202 | 1.89749 | 4.56162 | 0.1005492 | 2.6807362 | 203 | 7 | 1973–2009 | 0.62 | M-v | 0 | MPC | 68468 | (96093) |
| (96177) | 16.0 | 0.15 | 20100104 | 343.93666 | 43.77604 | 129.44522 | 21.33969 | 0.5326321 | 3.5015556 | 84 | 5 | 1984–2009 | 0.57 | M-v | 0 | MPC | 70506 | (96177) |
| (96263) | 15.2 | 0.15 | 20100104 | 99.62745 | 56.01474 | 339.76623 | 12.36597 | 0.1781033 | 2.6302761 | 125 | 7 | 1995–2009 | 0.54 | M-v | 1 | MPC | 70536 | (96263) |
| (96275) | 16.2 | 0.15 | 20100104 | 228.68699 | 241.09356 | 350.76985 | 2.52920 | 0.1172794 | 2.7068207 | 119 | 8 | 1995–2009 | 0.50 | M-v | 0 | MPC | 70540 | (96275) |
| (96279) | 15.2 | 0.15 | 20100104 | 0.49215 | 70.45381 | 73.14467 | 14.40074 | 0.0921573 | 2.6846896 | 159 | 9 | 1993–2009 | 0.51 | M-v | 0 | MPC | 70541 | (96279) |
| (96319) | 15.4 | 0.15 | 20100104 | 286.32336 | 73.74868 | 131.05369 | 2.65009 | 0.2819702 | 2.7012638 | 249 | 11 | 1994–2009 | 0.49 | M-v | 0 | MPC | 70556 | (96319) |
| (96320) | 15.5 | 0.15 | 20100104 | 94.89306 | 26.56329 | 330.02762 | 3.64491 | 0.1079192 | 2.7329914 | 200 | 10 | 1993–2009 | 0.50 | M-v | 0 | MPC | 70556 | (96320) |
| (96321) | 15.0 | 0.15 | 20100104 | 85.59428 | 261.16586 | 137.22011 | 17.66953 | 0.1525270 | 2.6406162 | 105 | 9 | 1997–2009 | 0.61 | M-v | 1 | MPC | 70556 | (96321) |
| (96590) | 16.2 | 0.15 | 20100104 | 125.05984 | 202.67619 | 75.79642 | 13.59699 | 0.3511987 | 0.9080085 | 1203 | 8 | 1997–2009 | 0.41 | M-v | 1 | MPC | 70659 | (96590) |
| (96690) | 15.7 | 0.15 | 20100104 | 219.73424 | 213.37219 | 91.40077 | 6.01362 | 0.1103563 | 2.4405959 | 169 | 9 | 1995–2009 | 0.59 | M-v | 1 | MPC | 70703 | (96690) |
| (96806) | 15.6 | 0.15 | 20100104 | 93.15446 | 238.76669 | 118.74534 | 5.32518 | 0.1217132 | 2.7515993 | 119 | 9 | 1993–2009 | 0.60 | M-v | 0 | MPC | 70750 | (96806) |
| (96856) | 14.8 | 0.15 | 20100104 | 51.67787 | 56.59065 | 32.48650 | 14.66423 | 0.0793240 | 2.6791984 | 204 | 10 | 1993–2009 | 0.52 | M-v | 0 | MPC | 70770 | (96856) |
| (97123) | 16.1 | 0.15 | 20100104 | 293.50754 | 234.71728 | 52.95097 | 2.49128 | 0.0193335 | 2.5498235 | 172 | 8 | 1991–2009 | 0.54 | M-v | 1 | MPC | 70879 | (97123) |
| (97137) | 15.8 | 0.15 | 20100104 | 234.48954 | 40.85151 | 170.10674 | 2.09243 | 0.0113010 | 2.8696954 | 117 | 10 | 1995–2009 | 0.46 | M-v | 0 | MPC | 70884 | (97137) |
| (97477) | 14.5 | 0.15 | 20100104 | 292.73471 | 232.07038 | 299.57144 | 3.68425 | 0.1803961 | 3.0614857 | 161 | 9 | 1989–2009 | 0.62 | M-v | 0 | MPC | 101957 | (97477) |
| (97626) | 14.5 | 0.15 | 20100104 | 179.65419 | 135.56553 | 149.18354 | 1.14040 | 0.1616220 | 3.1395691 | 272 | 9 | 1996–2009 | 0.54 | M-v | 0 | MPC | 71072 | (97626) |
| (97634) | 14.5 | 0.15 | 20100104 | 287.25691 | 35.90003 | 137.19579 | 6.33878 | 0.1382414 | 3.1441927 | 177 | 9 | 1991–2009 | 0.54 | M-v | 0 | MPC | 71075 | (97634) |
| (97665) | 14.0 | 0.15 | 20100104 | 243.98119 | 122.34860 | 101.95312 | 3.19885 | 0.0914542 | 3.1359121 | 287 | 9 | 1991–2009 | 0.58 | M-v | 0 | MPC | 71086 | (97665) |
| (97702) | 14.3 | 0.15 | 20100104 | 320.18679 | 2.92186 | 207.73016 | 6.53113 | 0.2026297 | 2.9828656 | 299 | 9 | 1992–2009 | 0.54 | M-v | 0 | MPC | 71101 | (97702) |
| (97716) | 14.3 | 0.15 | 20100104 | 230.90902 | 5.17891 | 244.02393 | 4.68377 | 0.1493195 | 3.1554026 | 219 | 9 | 2000–2009 | 0.57 | M-v | 0 | MPC | 101957 | (97716) |
| (98233) | 15.2 | 0.15 | 20100104 | 114.80317 | 303.85650 | 65.16489 | 1.20226 | 0.1595959 | 2.5368326 | 413 | 9 | 1994–2009 | 0.47 | M-v | 1 | MPC | 71320 | (98233) |
| (98560) | 14.8 | 0.15 | 20100104 | 8.80533 | 39.80950 | 76.41135 | 13.93619 | 0.1334121 | 2.6910681 | 183 | 7 | 1993–2009 | 0.62 | M-v | 0 | MPC | 71452 | (98560) |
| (98587) | 15.7 | 0.15 | 20100104 | 109.07766 | 227.90180 | 99.89000 | 3.44090 | 0.2097199 | 2.6364759 | 172 | 9 | 1994–2009 | 0.46 | M-v | 0 | MPC | 71462 | (98587) |
| (98616) | 15.7 | 0.15 | 20100104 | 53.07519 | 86.87435 | 350.40346 | 2.74074 | 0.1670848 | 2.6000998 | 167 | 7 | 1991–2009 | 0.58 | M-v | 0 | MPC | 71474 | (98616) |
| (98631) | 16.2 | 0.15 | 20100104 | 333.78201 | 189.16546 | 306.18145 | 1.26479 | 0.0730054 | 2.6783542 | 117 | 9 | 1995–2009 | 0.50 | M-v | 0 | MPC | 71480 | (98631) |
| (98634) | 14.9 | 0.15 | 20100104 | 350.11815 | 123.29788 | 36.62382 | 5.20054 | 0.1759843 | 2.6080491 | 275 | 9 | 1991–2009 | 0.52 | M-v | 0 | MPC | 71481 | (98634) |
| (98740) | 14.6 | 0.15 | 20100104 | 15.79220 | 331.08911 | 115.42700 | 10.33061 | 0.0778992 | 2.7304234 | 214 | 10 | 1992–2009 | 0.56 | M-v | 0 | MPC | 71522 | (98740) |
| (98931) | 15.4 | 0.15 | 20100104 | 323.88347 | 229.26457 | 351.95535 | 12.66412 | 0.2085191 | 2.6761170 | 112 | 7 | 1998–2009 | 0.53 | M-v | 1 | MPC | 71593 | (98931) |
| (98946) | 15.1 | 0.15 | 20100104 | 202.17657 | 177.85869 | 93.21944 | 2.98933 | 0.0355454 | 2.7515011 | 214 | 9 | 1992–2009 | 0.57 | M-v | 0 | MPC | 71600 | (98946) |
| (99169) | 15.0 | 0.15 | 20100104 | 195.21968 | 166.09634 | 121.90740 | 6.74796 | 0.2513641 | 2.9491101 | 155 | 10 | 1991–2009 | 0.51 | M-v | 0 | MPC | 71679 | (99169) |
| (99303) | 15.5 | 0.15 | 20100104 | 323.61320 | 85.01151 | 347.46650 | 0.98034 | 0.0387365 | 2.5249076 | 333 | 9 | 1993–2009 | 0.52 | M-v | 0 | MPC | 71725 | (99303) |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (99420) | 14.7 | 0.15 | 20100104 | 237.31952 | 304.25700 | 300.08516 | 14.42904 | 0.1188841 | 2.5694981 | 184 | 7 | 1999–2009 | 0.56 | M-v | 1 | MPC | 120720 | (99420) |
| (99551) | 16.0 | 0.15 | 20100104 | 230.04676 | 328.44970 | 313.23867 | 3.97656 | 0.1420899 | 2.5835886 | 102 | 9 | 1995–2009 | 0.44 | M-v | 0 | MPC | 71817 | (99551) |
| (99571) | 15.4 | 0.15 | 20100104 | 274.36921 | 162.73638 | 85.86816 | 4.80673 | 0.0534490 | 2.5669934 | 216 | 9 | 1994–2009 | 0.58 | M-v | 0 | MPC | 71825 | (99571) |
| (99575) | 14.9 | 0.15 | 20100104 | 212.48361 | 177.25000 | 77.72506 | 16.46054 | 0.0939945 | 2.6457802 | 153 | 10 | 1994–2009 | 0.69 | M-v | 1 | MPC | 71826 | (99575) |
| (99623) | 15.0 | 0.15 | 20100104 | 111.12132 | 236.44420 | 111.66674 | 7.43753 | 0.0322177 | 2.7766918 | 125 | 9 | 1997–2009 | 0.58 | M-v | 1 | MPC | 71842 | (99623) |
| (99867) | 15.2 | 0.15 | 20100104 | 247.79450 | 62.16530 | 172.23403 | 2.44254 | 0.0229256 | 2.9421867 | 145 | 10 | 1996–2009 | 0.46 | M-v | 0 | MPC | 71923 | (99867) |
| (100259) | 16.2 | 0.15 | 20100104 | 47.45007 | 172.85093 | 21.25556 | 5.21811 | 0.1364352 | 2.5970728 | 145 | 8 | 1990–2009 | 0.55 | M-v | 1 | MPC | 78026 | (100259) |
| (100273) | 15.8 | 0.15 | 20100104 | 43.71954 | 318.01621 | 69.02371 | 8.65427 | 0.2491357 | 2.4057120 | 167 | 6 | 1994–2009 | 0.50 | M-v | 1 | MPC | 78031 | (100273) |
| (100342) | 16.5 | 0.15 | 20100104 | 332.64274 | 123.39218 | 9.61736 | 5.10943 | 0.0001194 | 2.2422961 | 118 | 8 | 1995–2009 | 0.50 | M-v | 1 | MPC | 78053 | (100342) |
| (100360) | 16.5 | 0.15 | 20100104 | 132.44556 | 85.78691 | 4.03278 | 2.55914 | 0.1241974 | 2.5358339 | 140 | 7 | 1995–2009 | 0.52 | M-v | 0 | MPC | 78058 | (100360) |
| (100563) | 16.6 | 0.15 | 20100104 | 130.65341 | 94.13245 | 166.59307 | 1.21365 | 0.0957898 | 2.3494594 | 107 | 9 | 1997–2009 | 0.47 | M-v | 0 | MPC | 78128 | (100563) |
| (100576) | 15.9 | 0.15 | 20100104 | 46.03417 | 11.87697 | 53.07502 | 5.28370 | 0.0949258 | 2.2697747 | 218 | 9 | 1997–2009 | 0.54 | M-v | 1 | MPC | 78131 | (100576) |
| (100785) | 16.1 | 0.15 | 20100104 | 176.18482 | 308.80970 | 332.10692 | 4.10152 | 0.1513567 | 2.1657341 | 268 | 8 | 1998–2009 | 0.60 | M-v | 0 | MPC | 78210 | (100785) |
| (101010) | 16.0 | 0.15 | 20100104 | 76.46041 | 216.21474 | 154.69248 | 4.47967 | 0.2243245 | 2.2960548 | 203 | 7 | 1998–2009 | 0.55 | M-v | 1 | MPC | 78295 | (101010) |
| (101045) | 15.1 | 0.15 | 20100104 | 90.35976 | 38.37376 | 4.86350 | 5.10313 | 0.1846180 | 2.2516536 | 394 | 8 | 1998–2009 | 0.57 | M-v | 0 | MPC | 78308 | (101045) |
| (101084) | 16.1 | 0.15 | 20100104 | 65.11177 | 12.23759 | 8.21342 | 5.62591 | 0.1770503 | 2.2979865 | 159 | 6 | 1998–2009 | 0.57 | M-v | 1 | MPC | 78323 | (101084) |
| (101150) | 16.1 | 0.15 | 20100104 | 43.69865 | 49.32271 | 21.04918 | 6.07307 | 0.0537325 | 2.2722102 | 252 | 9 | 1998–2009 | 0.58 | M-v | 0 | MPC | 78346 | (101150) |
| (101190) | 16.0 | 0.15 | 20100104 | 77.49520 | 215.31184 | 154.19226 | 6.86836 | 0.1408567 | 2.2999867 | 140 | 7 | 1998–2009 | 0.59 | M-v | 1 | MPC | 78361 | (101190) |
| (101225) | 15.3 | 0.15 | 20100104 | 95.85510 | 254.63929 | 88.60317 | 4.70231 | 0.1638260 | 2.3171489 | 196 | 7 | 1998–2009 | 0.58 | M-v | 1 | MPC | 78373 | (101225) |
| (101237) | 16.1 | 0.15 | 20100104 | 53.26042 | 270.02709 | 139.22632 | 7.07319 | 0.0983642 | 2.2837271 | 117 | 7 | 1998–2009 | 0.62 | M-v | 1 | MPC | 78377 | (101237) |
| (101280) | 16.0 | 0.15 | 20100104 | 110.00499 | 76.32815 | 284.79179 | 3.99351 | 0.1546838 | 2.2791572 | 202 | 7 | 1998–2009 | 0.47 | M-v | 0 | MPC | 78392 | (101280) |
| (101295) | 15.4 | 0.15 | 20100104 | 156.01467 | 249.40225 | 52.85412 | 7.15755 | 0.1427453 | 2.2767228 | 299 | 7 | 1998–2009 | 0.54 | M-v | 0 | MPC | 78397 | (101295) |
| (101402) | 15.8 | 0.15 | 20100104 | 107.78408 | 274.02839 | 61.83320 | 8.42587 | 0.2988614 | 2.3044251 | 212 | 7 | 1998–2009 | 0.55 | M-v | 0 | MPC | 78434 | (101402) |
| (101448) | 16.1 | 0.15 | 20100104 | 90.44096 | 354.23804 | 356.14704 | 5.88188 | 0.2043353 | 2.3269114 | 156 | 7 | 1998–2009 | 0.52 | M-v | 1 | MPC | 78451 | (101448) |
| (101574) | 13.4 | 0.15 | 20100104 | 290.81636 | 167.00915 | 50.64168 | 29.50648 | 0.0884096 | 3.1662837 | 243 | 9 | 1994–2009 | 0.56 | M-v | 0 | MPC | 78499 | (101574) |
| (101588) | 14.5 | 0.15 | 20100104 | 285.95984 | 256.89756 | 313.28146 | 15.43184 | 0.2012730 | 3.1552468 | 73 | 6 | 1999–2009 | 0.68 | M-v | 0 | MPC | 78505 | (101588) |
| (102122) | 15.9 | 0.15 | 20100104 | 223.66468 | 16.11137 | 354.59372 | 5.44969 | 0.1443292 | 2.4663312 | 211 | 6 | 1999–2009 | 0.50 | M-v | 1 | MPC | 135683 | (102122) |
| (102561) | 15.9 | 0.15 | 20100104 | 35.91195 | 231.77410 | 197.93802 | 9.18967 | 0.1584921 | 2.7505007 | 87 | 7 | 1997–2009 | 0.50 | M-v | 0 | MPC | 78891 | (102561) |
| (102750) | 15.9 | 0.15 | 20100104 | 314.80896 | 281.83160 | 345.26985 | 3.00983 | 0.0450228 | 2.5244971 | 172 | 6 | 1999–2009 | 0.55 | M-v | 1 | MPC | 140076 | (102750) |
| (102761) | 17.0 | 0.15 | 20100104 | 186.71692 | 47.30301 | 234.32027 | 1.36133 | 0.1025134 | 2.1482930 | 192 | 9 | 1998–2009 | 0.52 | M-v | 1 | MPC | 78964 | (102761) |
| (103051) | 16.5 | 0.15 | 20100104 | 23.04640 | 132.94661 | 297.72915 | 6.94108 | 0.0527188 | 2.2171760 | 134 | 7 | 1997–2009 | 0.52 | M-v | 1 | MPC | 110675 | (103051) |
| (103253) | 15.3 | 0.15 | 20100104 | 100.95449 | 3.98266 | 42.25481 | 4.58975 | 0.0939650 | 2.7552290 | 206 | 10 | 1994–2009 | 0.52 | M-v | 0 | MPC | 79156 | (103253) |
| (103278) | 16.5 | 0.15 | 20100104 | 351.08525 | 121.85826 | 357.38281 | 3.12294 | 0.1334810 | 2.2395979 | 172 | 8 | 1995–2009 | 0.56 | M-v | 0 | MPC | 117886 | (103278) |
| (103378) | 16.0 | 0.15 | 20100104 | 68.14414 | 233.66609 | 167.59749 | 5.81624 | 0.1471175 | 2.2192241 | 214 | 6 | 2000–2007 | 0.51 | M-v | 1 | MPC | 79206 | (103378) |
| (103437) | 16.3 | 0.15 | 20100104 | 333.24113 | 263.96772 | 237.50861 | 7.53829 | 0.1119688 | 2.2342840 | 99 | 7 | 2000–2009 | 0.55 | M-v | 1 | MPC | 116115 | (103437) |
| (103649) | 15.5 | 0.15 | 20100104 | 73.87652 | 9.48644 | 17.24448 | 4.77660 | 0.1616999 | 2.2413888 | 258 | 6 | 2000–2009 | 0.54 | M-v | 1 | MPC | 79312 | (103649) |
| (103650) | 16.4 | 0.15 | 20100104 | 76.77086 | 267.90102 | 118.67810 | 3.48141 | 0.1423207 | 2.2294329 | 124 | 7 | 2000–2009 | 0.56 | M-v | 1 | MPC | 79312 | (103650) |
| (103973) | 16.1 | 0.15 | 20100104 | 212.05316 | 239.09667 | 355.27271 | 6.41611 | 0.0753064 | 2.3100885 | 177 | 8 | 1998–2009 | 0.57 | M-v | 0 | MPC | 79429 | (103973) |
| (103985) | 16.0 | 0.15 | 20100104 | 83.71103 | 26.88623 | 334.54977 | 2.89572 | 0.1672136 | 2.2862154 | 168 | 7 | 1998–2009 | 0.44 | M-v | 1 | MPC | 79434 | (103985) |
| (104008) | 16.2 | 0.15 | 20100104 | 31.12508 | 29.43500 | 34.84213 | 4.83748 | 0.1624322 | 2.2760552 | 141 | 7 | 1997–2009 | 0.55 | M-v | 1 | MPC | 79442 | (104008) |
| (104080) | 15.5 | 0.15 | 20100104 | 20.47137 | 33.31939 | 72.69349 | 5.01313 | 0.0930620 | 2.2438980 | 279 | 9 | 1997–2009 | 0.59 | M-v | 0 | MPC | 79469 | (104080) |
| (104117) | 16.2 | 0.15 | 20100104 | 88.48315 | 4.89569 | 347.04488 | 5.39804 | 0.1628869 | 2.3289401 | 221 | 8 | 1998–2009 | 0.52 | M-v | 1 | MPC | 79483 | (104117) |
| (104145) | 15.2 | 0.15 | 20100104 | 255.16068 | 148.83048 | 52.64006 | 1.41007 | 0.1522415 | 3.1607171 | 143 | 9 | 1992–2009 | 0.52 | M-v | 0 | MPC | 79494 | (104145) |
| (104286) | 14.2 | 0.15 | 20100104 | 213.72616 | 161.40312 | 135.19055 | 18.65069 | 0.1845584 | 3.0911921 | 151 | 9 | 1999–2009 | 0.61 | M-v | 0 | MPC | 79547 | (104286) |
| (104331) | 15.4 | 0.15 | 20100104 | 337.02854 | 278.28006 | 212.13520 | 4.40392 | 0.1148101 | 3.1254865 | 81 | 9 | 1992–2009 | 0.59 | M-v | 0 | MPC | 79563 | (104331) |
| (104347) | 15.5 | 0.15 | 20100104 | 300.44076 | 104.04016 | 72.12682 | 4.79244 | 0.1289644 | 2.2887339 | 258 | 8 | 1998–2009 | 0.56 | M-v | 1 | MPC | 79569 | (104347) |
| (104482) | 15.0 | 0.15 | 20100104 | 195.07703 | 303.88486 | 31.79500 | 3.61026 | 0.1175766 | 2.9697482 | 245 | 8 | 1997–2009 | 0.54 | M-v | 0 | MPC | 79619 | (104482) |
| (104501) | 16.3 | 0.15 | 20100104 | 13.90900 | 353.35704 | 85.68879 | 1.54552 | 0.1758003 | 2.3193187 | 155 | 6 | 1998–2009 | 0.54 | M-v | 0 | MPC | 79627 | (104501) |
| (104515) | 17.0 | 0.15 | 20100104 | 2.03903 | 267.30037 | 191.75406 | 4.46155 | 0.1987419 | 2.3039601 | 89 | 6 | 1998–2009 | 0.45 | M-v | 0 | MPC | 79633 | (104515) |
| (104553) | 16.4 | 0.15 | 20100104 | 31.39705 | 22.26474 | 37.85982 | 3.41894 | 0.1359847 | 2.3371135 | 170 | 7 | 1998–2009 | 0.48 | M-v | 0 | MPC | 79648 | (104553) |
| (104574) | 14.9 | 0.15 | 20100104 | 303.15989 | 304.36565 | 215.46129 | 9.19419 | 0.1824151 | 3.1537499 | 87 | 7 | 1997–2009 | 0.55 | M-v | 0 | MPC | 79656 | (104574) |
| (104643) | 15.8 | 0.15 | 20100104 | 185.78032 | 233.30497 | 41.27991 | 22.69121 | 0.0400652 | 1.9058647 | 215 | 7 | 1998–2009 | 0.55 | M-v | 1 | MPC | 79683 | (104643) |
| (104828) | 15.3 | 0.15 | 20100104 | 260.65899 | 197.37687 | 69.12890 | 2.19168 | 0.0950291 | 3.0328064 | 84 | 10 | 1991–2009 | 0.50 | M-v | 0 | MPC | 79754 | (104828) |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (104953) | 14.7 | 0.15 | 20100104 | 221.54115 | 135.13763 | 156.45201 | 1.26189 | 0.1868796 | 3.1563894 | 166 | 9 | 1996–2009 | 0.54 | M-v | 0 | MPC | 79800 (104953) |
| (105072) | 14.1 | 0.15 | 20100104 | 331.91786 | 19.59516 | 114.50821 | 23.71542 | 0.0892446 | 3.1660158 | 80 | 6 | 1999–2009 | 0.60 | M-v | 0 | MPC | 79848 (105072) |
| (105211) | 16.4 | 0.15 | 20100104 | 141.76415 | 304.73665 | 28.83778 | 23.40460 | 0.1094956 | 1.9510718 | 149 | 6 | 2000–2009 | 0.50 | M-v | 1 | MPC | 79902 (105211) |
| (105255) | 14.3 | 0.15 | 20100104 | 235.46158 | 165.38886 | 146.63976 | 5.25109 | 0.2069126 | 3.1875376 | 268 | 10 | 1993–2009 | 0.49 | M-v | 0 | MPC | 79919 (105255) |
| (106140) | 15.5 | 0.15 | 20100104 | 42.48282 | 240.51077 | 147.69493 | 15.19409 | 0.1244220 | 2.6302491 | 98 | 5 | 2000–2009 | 0.69 | M-v | 1 | MPC | 164113 (106140) |
| (106851) | 15.0 | 0.15 | 20100104 | 92.72183 | 99.71126 | 338.79884 | 21.87803 | 0.1067386 | 2.5619009 | 94 | 8 | 1995–2009 | 0.48 | M-v | 1 | MPC | 80517 (106851) |
| (106876) | 14.7 | 0.15 | 20100104 | 0.85567 | 16.05632 | 153.15605 | 9.91898 | 0.2583486 | 2.6766764 | 199 | 7 | 2000–2009 | 0.49 | M-v | 1 | MPC | 135695 (106876) |
| (107384) | 15.1 | 0.15 | 20100104 | 51.81620 | 5.74466 | 86.83188 | 13.16995 | 0.1482334 | 2.6849994 | 139 | 9 | 1993–2009 | 0.50 | M-v | 0 | MPC | 80713 (107384) |
| (107494) | 16.2 | 0.15 | 20100104 | 170.95008 | 129.07119 | 140.37144 | 5.35965 | 0.1120525 | 2.1747549 | 110 | 7 | 1998–2009 | 0.60 | M-v | 1 | MPC | 80752 (107494) |
| (107615) | 16.7 | 0.15 | 20100104 | 172.85810 | 208.89310 | 63.10837 | 3.57839 | 0.2074872 | 2.2035387 | 115 | 8 | 1998–2009 | 0.56 | M-v | 1 | MPC | 80794 (107615) |
| (107721) | 16.6 | 0.15 | 20100104 | 175.59034 | 175.12412 | 86.94016 | 6.57941 | 0.1817917 | 2.2405388 | 87 | 7 | 1999–2009 | 0.56 | M-v | 1 | MPC | 80834 (107721) |
| (107996) | 14.8 | 0.15 | 20100104 | 183.57350 | 170.73076 | 103.99888 | 11.36323 | 0.1069510 | 3.0126671 | 79 | 8 | 2001–2009 | 0.53 | M-v | 0 | MPC | 120721 (107996) |
| (108271) | 16.4 | 0.15 | 20100104 | 135.84710 | 180.49274 | 119.99732 | 3.78618 | 0.1310120 | 2.2560410 | 122 | 6 | 2001–2009 | 0.55 | M-v | 1 | MPC | 81030 (108271) |
| (108333) | 16.3 | 0.15 | 20100104 | 149.90302 | 208.94368 | 81.00968 | 4.59556 | 0.1686617 | 2.2616383 | 127 | 7 | 1998–2009 | 0.47 | M-v | 1 | MPC | 81051 (108333) |
| (108354) | 15.9 | 0.15 | 20100104 | 194.43123 | 176.94898 | 88.06411 | 4.41112 | 0.1464650 | 2.2314638 | 237 | 8 | 1998–2009 | 0.56 | M-v | 0 | MPC | 81058 (108354) |
| (108368) | 16.1 | 0.15 | 20100104 | 140.22658 | 137.91087 | 154.99005 | 3.48223 | 0.1818115 | 2.2791583 | 163 | 8 | 1998–2009 | 0.58 | M-v | 1 | MPC | 81063 (108368) |
| (108436) | 16.4 | 0.15 | 20100104 | 123.14603 | 172.91374 | 130.73931 | 7.34977 | 0.1295336 | 2.2875314 | 118 | 8 | 1998–2009 | 0.55 | M-v | 1 | MPC | 81087 (108436) |
| (108546) | 14.9 | 0.15 | 20100104 | 248.30313 | 96.95112 | 110.82205 | 10.88570 | 0.1070202 | 3.0623574 | 103 | 8 | 2000–2009 | 0.52 | M-v | 0 | MPC | 81126 (108546) |
| (108559) | 15.6 | 0.15 | 20100104 | 113.65130 | 208.56043 | 122.90177 | 6.72203 | 0.1382031 | 2.3180637 | 138 | 8 | 1998–2009 | 0.50 | M-v | 1 | MPC | 81131 (108559) |
| (108579) | 14.1 | 0.15 | 20100104 | 223.29009 | 49.81482 | 216.39668 | 11.36688 | 0.1761705 | 3.0946296 | 184 | 8 | 2000–2009 | 0.63 | M-v | 0 | MPC | 101959 (108579) |
| (108656) | 15.6 | 0.15 | 20100104 | 52.51830 | 57.13272 | 285.20078 | 13.84174 | 0.2173738 | 2.4477164 | 166 | 7 | 1997–2009 | 0.50 | M-v | 1 | MPC | 81166 (108656) |
| (108662) | 15.2 | 0.15 | 20100104 | 87.37069 | 49.61459 | 307.00286 | 6.06397 | 0.1532612 | 2.3831215 | 249 | 6 | 2001–2009 | 0.53 | M-v | 1 | MPC | 81168 (108662) |
| (108704) | 15.9 | 0.15 | 20100104 | 91.56417 | 189.09169 | 169.58170 | 9.04039 | 0.2298434 | 2.3421235 | 151 | 8 | 1998–2009 | 0.48 | M-v | 0 | MPC | 81185 (108704) |
| (108726) | 15.9 | 0.15 | 20100104 | 77.29695 | 184.34971 | 177.12368 | 2.35199 | 0.2333911 | 2.3715758 | 201 | 8 | 2000–2009 | 0.50 | M-v | 1 | MPC | 81193 (108726) |
| (108736) | 16.4 | 0.15 | 20100104 | 305.79172 | 48.04034 | 121.53868 | 7.23579 | 0.0486597 | 2.2515452 | 102 | 8 | 2000–2009 | 0.53 | M-v | 1 | MPC | 81196 (108736) |
| (108806) | 14.1 | 0.15 | 20100104 | 203.62457 | 326.81122 | 359.10104 | 17.14296 | 0.2329719 | 3.1161295 | 207 | 10 | 1990–2009 | 0.52 | M-v | 0 | MPC | 81226 (108806) |
| (108835) | 15.4 | 0.15 | 20100104 | 92.59391 | 23.02135 | 325.44727 | 6.02943 | 0.1512224 | 2.3741797 | 240 | 7 | 2000–2009 | 0.53 | M-v | 1 | MPC | 81236 (108835) |
| (108837) | 15.4 | 0.15 | 20100104 | 141.67840 | 297.86630 | 348.47092 | 5.53722 | 0.2102094 | 2.3532115 | 236 | 6 | 2001–2009 | 0.56 | M-v | 0 | MPC | 140077 (108837) |
| (108981) | 14.8 | 0.15 | 20100104 | 169.36452 | 337.08653 | 7.94483 | 13.83266 | 0.1623990 | 3.1045994 | 175 | 7 | 1996–2009 | 0.47 | M-v | 0 | MPC | 81293 (108981) |
| (109008) | 15.7 | 0.15 | 20100104 | 84.93705 | 228.37053 | 134.02704 | 5.02658 | 0.1543371 | 2.3709074 | 217 | 7 | 2000–2009 | 0.52 | M-v | 1 | MPC | 81301 (109008) |
| (109041) | 16.0 | 0.15 | 20100104 | 82.78395 | 200.51410 | 149.10545 | 6.92814 | 0.1047677 | 2.3999744 | 188 | 8 | 1997–2009 | 0.56 | M-v | 1 | MPC | 81315 (109041) |
| (109389) | 15.6 | 0.15 | 20100104 | 70.16514 | 128.59473 | 243.10644 | 3.82162 | 0.1610477 | 2.3634496 | 184 | 7 | 1998–2009 | 0.54 | M-v | 1 | MPC | 81465 (109389) |
| (109403) | 14.0 | 0.15 | 20100104 | 168.26330 | 299.17805 | 62.29201 | 27.26294 | 0.2269647 | 3.1668199 | 182 | 9 | 1990–2009 | 0.47 | M-v | 0 | MPC | 81470 (109403) |
| (109860) | 14.4 | 0.15 | 20100104 | 302.20545 | 9.81157 | 161.81501 | 8.12438 | 0.0754551 | 3.4063836 | 142 | 6 | 2001–2008 | 0.48 | M-v | 0 | MPC | 122652 (109860) |
| (111564) | 16.4 | 0.15 | 20100104 | 316.94719 | 174.02427 | 345.63435 | 19.12378 | 0.0614821 | 1.9232925 | 134 | 7 | 1998–2009 | 0.57 | M-v | 1 | MPC | 82289 (111564) |
| (111691) | 15.8 | 0.15 | 20100104 | 289.39168 | 71.69316 | 123.51674 | 24.19250 | 0.0842323 | 1.9418232 | 172 | 7 | 1997–2009 | 0.54 | M-v | 1 | MPC | 82333 (111691) |
| (112522) | 14.7 | 0.15 | 20100104 | 43.84326 | 99.52384 | 313.76289 | 5.77760 | 0.1065771 | 3.1152164 | 127 | 6 | 1997–2009 | 0.51 | M-v | 0 | MPC | 82601 (112522) |
| (112538) | 14.9 | 0.15 | 20100104 | 20.64029 | 267.05164 | 165.10271 | 7.02328 | 0.1834700 | 3.1512073 | 129 | 6 | 1997–2009 | 0.45 | M-v | 0 | MPC | 82605 (112538) |
| (112756) | 15.4 | 0.15 | 20100104 | 113.82552 | 14.39673 | 21.78178 | 2.19587 | 0.0926189 | 2.9254826 | 110 | 9 | 1995–2009 | 0.58 | M-v | 0 | MPC | 82678 (112756) |
| (112875) | 16.4 | 0.15 | 20100104 | 162.83131 | 197.75307 | 77.30056 | 3.43145 | 0.1530145 | 2.1562796 | 122 | 10 | 1993–2009 | 0.52 | M-v | 1 | MPC | 82714 (112875) |
| (112953) | 15.0 | 0.15 | 20100104 | 265.41637 | 131.26463 | 150.65893 | 7.14213 | 0.1758558 | 2.7339943 | 130 | 9 | 1991–2009 | 0.53 | M-v | 0 | MPC | 82735 (112953) |
| (112966) | 15.0 | 0.15 | 20100104 | 172.82979 | 180.84728 | 133.24154 | 4.70598 | 0.0953449 | 3.0363274 | 113 | 10 | 1992–2009 | 0.54 | M-v | 0 | MPC | 82739 (112966) |
| (113145) | 14.5 | 0.15 | 20100104 | 140.99233 | 15.08785 | 304.97983 | 8.48140 | 0.0969974 | 3.1437877 | 122 | 10 | 1994–2009 | 0.56 | M-v | 1 | MPC | 82800 (113145) |
| (113186) | 16.0 | 0.15 | 20100104 | 106.41517 | 312.46310 | 29.66644 | 5.75991 | 0.2110592 | 2.2205850 | 215 | 6 | 1999–2009 | 0.53 | M-v | 1 | MPC | 82816 (113186) |
| (113497) | 16.5 | 0.15 | 20100104 | 173.63728 | 91.69677 | 179.61123 | 4.78347 | 0.1461066 | 2.1903584 | 110 | 6 | 1998–2009 | 0.54 | M-v | 1 | MPC | 82916 (113497) |
| (113611) | 16.1 | 0.15 | 20100104 | 145.20399 | 223.77944 | 89.70386 | 4.67551 | 0.1929702 | 2.1927363 | 166 | 8 | 1998–2009 | 0.57 | M-v | 1 | MPC | 82958 (113611) |
| (113661) | 14.3 | 0.15 | 20100104 | 9.62627 | 127.89457 | 3.84046 | 13.75607 | 0.1109154 | 3.1116356 | 154 | 7 | 1991–2009 | 0.50 | M-v | 0 | MPC | 82974 (113661) |
| (113751) | 14.0 | 0.15 | 20100104 | 89.04078 | 161.68153 | 222.32112 | 22.11916 | 0.0470991 | 3.1321076 | 227 | 9 | 1995–2009 | 0.53 | M-v | 0 | MPC | 83004 (113751) |
| (113790) | 15.0 | 0.15 | 20100104 | 151.09064 | 131.00497 | 181.09804 | 0.78901 | 0.2194383 | 3.1943699 | 165 | 9 | 1994–2009 | 0.45 | M-v | 0 | MPC | 83016 (113790) |
| (113815) | 17.0 | 0.15 | 20100104 | 65.15876 | 217.66355 | 152.26210 | 6.37416 | 0.1249763 | 2.2442848 | 79 | 6 | 2001–2009 | 0.48 | M-v | 0 | MPC | 83025 (113815) |
| (113984) | 16.2 | 0.15 | 20100104 | 166.59471 | 13.08199 | 280.89493 | 4.02009 | 0.1853844 | 2.1737800 | 148 | 7 | 1998–2009 | 0.48 | M-v | 1 | MPC | 83084 (113984) |
| (114054) | 14.5 | 0.15 | 20100104 | 328.93300 | 146.12010 | 54.45531 | 3.82854 | 0.0321717 | 3.0987064 | 224 | 10 | 1996–2009 | 0.48 | M-v | 0 | MPC | 83106 (114054) |
| (114246) | 16.4 | 0.15 | 20100104 | 181.01511 | 153.84171 | 162.60632 | 3.23544 | 0.1711318 | 2.1458099 | 253 | 8 | 1998–2009 | 0.50 | M-v | 1 | MPC | 83169 (114246) |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (114320) | 16.2 | 0.15 | 20100104 | 58.31191 | 164.84760 | 224.15974 | 3.30671 | 0.1646915 | 2.2831837 | 119 | 6 | 1998–2009 | 0.54 | M-v | 0 | MPC | 83193 (114320) |
| (114364) | 15.7 | 0.15 | 20100104 | 76.83105 | 9.23476 | 352.21260 | 5.01275 | 0.1874225 | 2.2888253 | 148 | 6 | 1998–2009 | 0.53 | M-v | 1 | MPC | 83207 (114364) |
| (114407) | 15.5 | 0.15 | 20100104 | 37.01213 | 308.30109 | 105.53883 | 7.86730 | 0.0939868 | 2.2987260 | 155 | 8 | 1998–2009 | 0.60 | M-v | 1 | MPC | 83221 (114407) |
| (114462) | 16.9 | 0.15 | 20100104 | 26.72755 | 232.10306 | 187.70500 | 4.23078 | 0.2099105 | 2.3039689 | 85 | 6 | 1998–2009 | 0.54 | M-v | 0 | MPC | 83239 (114462) |
| (114478) | 15.7 | 0.15 | 20100104 | 13.41363 | 350.03827 | 90.41425 | 6.53785 | 0.1262654 | 2.3159310 | 131 | 7 | 1998–2009 | 0.53 | M-v | 0 | MPC | 83245 (114478) |
| (114508) | 15.6 | 0.15 | 20100104 | 59.74706 | 244.07477 | 114.28757 | 4.03996 | 0.2228331 | 2.3862665 | 270 | 9 | 1997–2009 | 0.52 | M-v | 0 | MPC | 83254 (114508) |
| (114510) | 15.9 | 0.15 | 20100104 | 49.98724 | 160.87673 | 227.35525 | 9.00418 | 0.1160172 | 2.3024694 | 120 | 6 | 1998–2009 | 0.64 | M-v | 1 | MPC | 83255 (114510) |
| (114688) | 15.2 | 0.15 | 20100104 | 168.07506 | 275.88821 | 351.69869 | 5.15138 | 0.2157232 | 2.6409209 | 195 | 9 | 1991–2009 | 0.52 | M-v | 0 | MPC | 83315 (114688) |
| (114763) | 15.0 | 0.15 | 20100104 | 195.44995 | 171.91210 | 97.51687 | 14.87562 | 0.1033135 | 2.5654651 | 184 | 9 | 1999–2009 | 0.59 | M-v | 1 | MPC | 83339 (114763) |
| (114769) | 16.0 | 0.15 | 20100104 | 169.98526 | 143.43105 | 152.95415 | 4.25668 | 0.2368997 | 2.6168519 | 142 | 10 | 1995–2009 | 0.51 | M-v | 0 | MPC | 83340 (114769) |
| (114770) | 14.7 | 0.15 | 20100104 | 62.32788 | 295.42175 | 68.57300 | 9.81984 | 0.3046148 | 2.7379133 | 167 | 8 | 1995–2009 | 0.51 | M-v | 1 | MPC | 83341 (114770) |
| (114815) | 15.4 | 0.15 | 20100104 | 63.25712 | 295.13020 | 156.15140 | 10.81877 | 0.1218191 | 2.5965846 | 109 | 10 | 1995–2009 | 0.55 | M-v | 1 | MPC | 83354 (114815) |
| (114888) | 15.9 | 0.15 | 20100104 | 74.82640 | 233.67576 | 151.80553 | 3.88326 | 0.1646892 | 2.8653378 | 117 | 9 | 1996–2009 | 0.48 | M-v | 0 | MPC | 83378 (114888) |
| (115015) | 14.9 | 0.15 | 20100104 | 41.15296 | 252.91789 | 152.08084 | 17.52797 | 0.2916417 | 3.0056939 | 148 | 10 | 1995–2009 | 0.60 | M-v | 0 | MPC | 83424 (115015) |
| (115053) | 14.4 | 0.15 | 20100104 | 57.62915 | 218.37397 | 138.41791 | 11.84335 | 0.2661194 | 3.0931891 | 121 | 7 | 2000–2009 | 0.50 | M-v | 0 | MPC | 83437 (115053) |
| (115149) | 14.0 | 0.15 | 20100104 | 66.98685 | 62.48608 | 277.27109 | 14.69788 | 0.0768347 | 3.0328194 | 183 | 9 | 1998–2009 | 0.51 | M-v | 0 | MPC | 117887 (115149) |
| (115277) | 16.1 | 0.15 | 20100104 | 143.02117 | 119.16263 | 268.25689 | 4.09944 | 0.0411919 | 2.6177335 | 86 | 6 | 1993–2009 | 0.52 | M-v | 0 | MPC | 83515 (115277) |
| (115571) | 14.2 | 0.15 | 20100104 | 86.59956 | 305.13552 | 66.06535 | 9.44004 | 0.1530704 | 3.0464881 | 181 | 8 | 2000–2009 | 0.56 | M-v | 0 | MPC | 143078 (115571) |
| (115656) | 14.2 | 0.15 | 20100104 | 335.40606 | 306.25233 | 178.41932 | 10.31537 | 0.2070292 | 3.1454443 | 195 | 10 | 1997–2009 | 0.50 | M-v | 0 | MPC | 83644 (115656) |
| (115737) | 14.8 | 0.15 | 20100104 | 79.77843 | 355.97630 | 16.04528 | 6.32267 | 0.0580158 | 3.0613859 | 145 | 7 | 1992–2009 | 0.45 | M-v | 0 | MPC | 83672 (115737) |
| (115876) | 14.8 | 0.15 | 20100104 | 58.67875 | 276.18275 | 112.36504 | 6.92234 | 0.1400998 | 3.1255848 | 119 | 7 | 1992–2009 | 0.51 | M-v | 0 | MPC | 83719 (115876) |
| (116008) | 14.3 | 0.15 | 20100104 | 133.38026 | 271.01301 | 37.62305 | 7.81844 | 0.0647646 | 3.1642034 | 171 | 8 | 2000–2009 | 0.56 | M-v | 0 | MPC | 120721 (116008) |
| (116031) | 14.5 | 0.15 | 20100104 | 243.46777 | 78.39509 | 130.29527 | 5.75655 | 0.0452777 | 3.1546421 | 166 | 10 | 1991–2009 | 0.60 | M-v | 0 | MPC | 83767 (116031) |
| (116226) | 14.7 | 0.15 | 20100104 | 31.57585 | 317.26667 | 109.53762 | 10.94056 | 0.0647864 | 3.1456053 | 111 | 9 | 1995–2009 | 0.50 | M-v | 0 | MPC | 83827 (116226) |
| (116356) | 14.7 | 0.15 | 20100104 | 103.96357 | 221.52991 | 126.19308 | 11.94472 | 0.1179368 | 3.0194951 | 120 | 10 | 1997–2009 | 0.60 | M-v | 0 | MPC | 83865 (116356) |
| (116570) | 16.5 | 0.15 | 20100104 | 261.40894 | 226.52735 | 282.73812 | 3.66985 | 0.0696743 | 2.2554742 | 135 | 8 | 1996–2009 | 0.48 | M-v | 0 | MPC | 83930 (116570) |
| (116747) | 15.9 | 0.15 | 20100104 | 147.17937 | 288.91713 | 11.40738 | 5.84248 | 0.1796935 | 2.2481746 | 149 | 6 | 2001–2009 | 0.54 | M-v | 1 | MPC | 83985 (116747) |
| (116749) | 16.7 | 0.15 | 20100104 | 293.71435 | 22.71364 | 134.71766 | 5.75404 | 0.0199009 | 2.2179071 | 140 | 6 | 2001–2009 | 0.49 | M-v | 1 | MPC | 83986 (116749) |
| (116754) | 16.5 | 0.15 | 20100104 | 133.17516 | 144.41708 | 160.12049 | 6.74798 | 0.1476980 | 2.2339685 | 96 | 7 | 1995–2009 | 0.48 | M-v | 1 | MPC | 83988 (116754) |
| (116768) | 16.4 | 0.15 | 20100104 | 186.98188 | 191.94711 | 84.24361 | 3.76080 | 0.0857813 | 2.1961317 | 123 | 8 | 1999–2009 | 0.53 | M-v | 1 | MPC | 83992 (116768) |
| (116847) | 16.2 | 0.15 | 20100104 | 146.52841 | 168.61635 | 114.07662 | 6.21736 | 0.1517346 | 2.2707110 | 99 | 7 | 1998–2009 | 0.55 | M-v | 1 | MPC | 84018 (116847) |
| (116877) | 15.9 | 0.15 | 20100104 | 171.24883 | 358.38337 | 285.13359 | 6.99471 | 0.1145593 | 2.2683742 | 190 | 7 | 1998–2009 | 0.56 | M-v | 0 | MPC | 84027 (116877) |
| (117122) | 15.6 | 0.15 | 20100104 | 40.15934 | 230.44623 | 143.76685 | 8.00154 | 0.1366390 | 2.7210544 | 139 | 9 | 1994–2009 | 0.59 | M-v | 0 | MPC | 84102 (117122) |
| (117338) | 14.8 | 0.15 | 20100104 | 28.19110 | 115.66665 | 230.47284 | 4.14056 | 0.1658392 | 3.1875883 | 116 | 9 | 1995–2009 | 0.59 | M-v | 0 | MPC | 84168 (117338) |
| (117598) | 14.5 | 0.15 | 20100104 | 15.19288 | 246.77742 | 211.89947 | 4.38072 | 0.1289403 | 3.1896357 | 149 | 7 | 1997–2009 | 0.51 | M-v | 0 | MPC | 84242 (117598) |
| (117867) | 15.5 | 0.15 | 20100104 | 109.98465 | 27.58836 | 315.21145 | 2.55806 | 0.1723338 | 3.0508451 | 127 | 7 | 1960–2009 | 0.41 | M-v | 0 | MPC | 84316 (117867) |
| (117965) | 15.9 | 0.15 | 20100104 | 68.90942 | 151.39643 | 218.55618 | 5.09094 | 0.2084159 | 2.2909819 | 143 | 10 | 1960–2009 | 0.55 | M-v | 1 | MPC | 84349 (117965) |
| (118241) | 16.8 | 0.15 | 20100104 | 90.75889 | 219.06371 | 106.40617 | 2.43541 | 0.1860757 | 2.3776339 | 148 | 8 | 1997–2009 | 0.44 | M-v | 0 | MPC | 87860 (118241) |
| (118286) | 15.6 | 0.15 | 20100104 | 196.48935 | 300.07128 | 338.48397 | 5.25805 | 0.1846942 | 2.2424634 | 296 | 8 | 1998–2009 | 0.55 | M-v | 0 | MPC | 87878 (118286) |
| (118292) | 15.9 | 0.15 | 20100104 | 166.29423 | 262.77860 | 29.21898 | 3.90928 | 0.0971670 | 2.2673888 | 288 | 7 | 1998–2009 | 0.56 | M-v | 0 | MPC | 87880 (118292) |
| (118338) | 15.6 | 0.15 | 20100104 | 56.08101 | 96.63289 | 336.82958 | 11.98940 | 0.1287290 | 2.3636697 | 164 | 7 | 1999–2009 | 0.51 | M-v | 0 | MPC | 87898 (118338) |
| (118515) | 15.5 | 0.15 | 20100104 | 127.42531 | 193.38413 | 143.36648 | 6.70015 | 0.1591645 | 2.2891236 | 210 | 9 | 1998–2009 | 0.53 | M-v | 0 | MPC | 87964 (118515) |
| (118529) | 15.6 | 0.15 | 20100104 | 196.81063 | 107.51363 | 151.14061 | 2.60854 | 0.1891154 | 2.3668781 | 317 | 9 | 1996–2009 | 0.55 | M-v | 0 | MPC | 87969 (118529) |
| (118539) | 15.8 | 0.15 | 20100104 | 328.19331 | 288.44438 | 212.10931 | 3.89078 | 0.0861459 | 2.2921705 | 181 | 7 | 1998–2009 | 0.56 | M-v | 0 | MPC | 87973 (118539) |
| (118544) | 15.7 | 0.15 | 20100104 | 229.33990 | 200.34600 | 40.17772 | 5.92717 | 0.1213872 | 2.2861875 | 194 | 7 | 2000–2009 | 0.58 | M-v | 0 | MPC | 87975 (118544) |
| (118548) | 16.0 | 0.15 | 20100104 | 349.27861 | 57.98692 | 60.62828 | 7.86612 | 0.0528048 | 2.3035187 | 112 | 7 | 1999–2009 | 0.57 | M-v | 1 | MPC | 87976 (118548) |
| (118567) | 15.7 | 0.15 | 20100104 | 332.52786 | 33.40999 | 93.55274 | 6.53476 | 0.0530457 | 2.3179660 | 140 | 8 | 2000–2009 | 0.58 | M-v | 1 | MPC | 87983 (118567) |
| (118580) | 16.2 | 0.15 | 20100104 | 349.62483 | 73.18832 | 42.47857 | 2.40324 | 0.1488014 | 2.3068164 | 220 | 7 | 1998–2009 | 0.47 | M-v | 0 | MPC | 87988 (118580) |
| (118629) | 15.7 | 0.15 | 20100104 | 92.10384 | 323.57221 | 19.45339 | 1.68220 | 0.1926380 | 2.4068719 | 242 | 6 | 2000–2009 | 0.54 | M-v | 1 | MPC | 88007 (118629) |
| (118631) | 15.8 | 0.15 | 20100104 | 112.86097 | 277.94459 | 55.85219 | 3.31545 | 0.1571700 | 2.4189344 | 195 | 8 | 2000–2009 | 0.49 | M-v | 0 | MPC | 88008 (118631) |
| (118646) | 15.7 | 0.15 | 20100104 | 304.28967 | 247.09995 | 297.41695 | 4.82633 | 0.2121168 | 2.2981151 | 174 | 10 | 1994–2009 | 0.50 | M-v | 1 | MPC | 88014 (118646) |
| (118830) | 15.2 | 0.15 | 20100104 | 69.05577 | 130.91274 | 263.39566 | 1.92184 | 0.1465236 | 2.5969853 | 325 | 8 | 1997–2009 | 0.48 | M-v | 0 | MPC | 88082 (118830) |
| (118992) | 14.4 | 0.15 | 20100104 | 273.50597 | 257.35104 | 309.39220 | 6.91614 | 0.2227957 | 2.7423496 | 268 | 9 | 1998–2009 | 0.52 | M-v | 0 | MPC | 88142 (118992) |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (119039) | 13.2 | 0.15 | 20100104 | 316.65586 | 185.70836 | 27.75524 | 11.76269 | 0.2393825 | 4.3790714 | 119 | 7 | 1999–2009 | 0.46 | M-v | 0 | MPC | 143079 (119039) |
| (119046) | 16.7 | 0.15 | 20100104 | 173.41734 | 240.09907 | 25.39422 | 4.95333 | 0.1236016 | 2.2363548 | 60 | 5 | 2001–2009 | 0.58 | M-v | 1 | MPC | 88160 (119046) |
| (119085) | 15.9 | 0.15 | 20100104 | 94.62121 | 353.48397 | 345.85818 | 6.66654 | 0.1475591 | 2.3522262 | 156 | 7 | 2000–2009 | 0.45 | M-v | 0 | MPC | 88174 (119085) |
| (119100) | 16.2 | 0.15 | 20100104 | 93.72628 | 61.25537 | 268.40799 | 5.57014 | 0.1196223 | 2.4300704 | 150 | 5 | 1997–2009 | 0.61 | M-v | 2 | MPC | 88179 (119100) |
| (119112) | 15.9 | 0.15 | 20100104 | 228.91768 | 207.55761 | 39.15998 | 6.66537 | 0.1489267 | 2.2503861 | 256 | 7 | 1998–2009 | 0.49 | M-v | 0 | MPC | 88184 (119112) |
| (119118) | 17.4 | 0.15 | 20100104 | 166.18667 | 60.37673 | 230.56476 | 2.77923 | 0.1768932 | 2.2974945 | 85 | 7 | 1998–2009 | 0.45 | M-v | 0 | MPC | 88186 (119118) |
| (119188) | 15.6 | 0.15 | 20100104 | 62.67871 | 64.84203 | 315.08496 | 3.73979 | 0.2063429 | 2.4288014 | 198 | 6 | 1999–2009 | 0.46 | M-v | 1 | MPC | 88213 (119188) |
| (119203) | 15.7 | 0.15 | 20100104 | 58.26905 | 142.47262 | 246.92014 | 5.80609 | 0.1214462 | 2.3695963 | 177 | 6 | 1998–2009 | 0.52 | M-v | 1 | MPC | 88219 (119203) |
| (119221) | 16.4 | 0.15 | 20100104 | 48.17427 | 169.78880 | 226.57095 | 0.44107 | 0.1890009 | 2.4090045 | 211 | 6 | 1999–2009 | 0.47 | M-v | 0 | MPC | 88226 (119221) |
| (119239) | 15.4 | 0.15 | 20100104 | 67.18909 | 356.36915 | 49.24477 | 10.48188 | 0.2120755 | 2.3608083 | 134 | 7 | 1999–2009 | 0.55 | M-v | 0 | MPC | 88233 (119239) |
| (119255) | 16.9 | 0.15 | 20100104 | 168.78319 | 38.65247 | 231.96121 | 1.59584 | 0.1744325 | 2.3446109 | 136 | 7 | 1998–2009 | 0.47 | M-v | 0 | MPC | 88240 (119255) |
| (119260) | 15.6 | 0.15 | 20100104 | 82.51844 | 47.43037 | 324.44590 | 6.03988 | 0.1442198 | 2.3822461 | 175 | 7 | 1990–2009 | 0.56 | M-v | 1 | MPC | 88241 (119260) |
| (119278) | 16.2 | 0.15 | 20100104 | 72.02948 | 324.34331 | 34.07089 | 2.99418 | 0.2020332 | 2.4221251 | 185 | 6 | 2001–2009 | 0.50 | M-v | 1 | MPC | 88249 (119278) |
| (119307) | 15.5 | 0.15 | 20100104 | 281.41883 | 26.21258 | 163.84336 | 2.78721 | 0.1150994 | 2.3716224 | 337 | 8 | 1998–2009 | 0.55 | M-v | 0 | MPC | 88260 (119307) |
| (119308) | 16.3 | 0.15 | 20100104 | 48.79566 | 240.31285 | 157.42720 | 7.31271 | 0.1119221 | 2.4190034 | 102 | 6 | 2000–2009 | 0.53 | M-v | 1 | MPC | 88261 (119308) |
| (119335) | 16.1 | 0.15 | 20100104 | 325.98358 | 182.29811 | 320.35751 | 3.59292 | 0.1207663 | 2.3654236 | 177 | 8 | 1998–2009 | 0.58 | M-v | 0 | MPC | 88272 (119335) |
| (119337) | 16.2 | 0.15 | 20100104 | 270.22937 | 202.24779 | 336.36144 | 2.11331 | 0.1344135 | 2.3915599 | 225 | 8 | 1997–2009 | 0.53 | M-v | 0 | MPC | 88273 (119337) |
| (119352) | 16.7 | 0.15 | 20100104 | 22.06418 | 244.32731 | 164.28980 | 6.15311 | 0.1202221 | 2.4594540 | 110 | 6 | 1997–2009 | 0.59 | M-v | 1 | MPC | 88278 (119352) |
| (119385) | 15.0 | 0.15 | 20100104 | 219.45267 | 198.03916 | 33.07416 | 5.85176 | 0.1116056 | 2.4299225 | 351 | 8 | 1997–2009 | 0.54 | M-v | 0 | MPC | 88290 (119385) |
| (119386) | 15.8 | 0.15 | 20100104 | 14.65235 | 66.30078 | 28.20712 | 4.31640 | 0.0675092 | 2.4047164 | 217 | 8 | 1999–2009 | 0.52 | M-v | 0 | MPC | 88291 (119386) |
| (119410) | 15.5 | 0.15 | 20100104 | 319.02651 | 325.32170 | 188.80184 | 4.25091 | 0.1384196 | 2.4215548 | 263 | 8 | 1999–2009 | 0.57 | M-v | 0 | MPC | 88301 (119410) |
| (119416) | 16.2 | 0.15 | 20100104 | 324.64686 | 239.73365 | 268.81501 | 3.63127 | 0.1672459 | 2.3944891 | 158 | 8 | 1998–2009 | 0.57 | M-v | 0 | MPC | 88303 (119416) |
| (119440) | 16.4 | 0.15 | 20100104 | 55.33141 | 242.38936 | 128.94400 | 6.05639 | 0.2487626 | 2.4388328 | 120 | 7 | 1994–2009 | 0.47 | M-v | 1 | MPC | 88312 (119440) |
| (119452) | 16.3 | 0.15 | 20100104 | 295.90158 | 291.79133 | 259.26962 | 1.97583 | 0.1025299 | 2.3571410 | 150 | 8 | 1997–2009 | 0.50 | M-v | 0 | MPC | 88316 (119452) |
| (119509) | 15.7 | 0.15 | 20100104 | 252.52590 | 320.00127 | 241.21553 | 1.78118 | 0.1146252 | 2.4135467 | 266 | 8 | 1997–2009 | 0.50 | M-v | 0 | MPC | 88338 (119509) |
| (119797) | 15.2 | 0.15 | 20100104 | 277.05366 | 88.76619 | 117.19521 | 5.59894 | 0.1922736 | 2.5761399 | 215 | 7 | 1998–2009 | 0.52 | M-v | 1 | MPC | 110678 (119797) |
| (119846) | 15.6 | 0.15 | 20100104 | 276.69976 | 274.95372 | 287.64736 | 6.12675 | 0.1459208 | 2.6011787 | 157 | 7 | 1998–2009 | 0.59 | M-v | 1 | MPC | 88459 (119846) |
| (119907) | 15.5 | 0.15 | 20100104 | 301.65725 | 355.16967 | 188.34703 | 3.26556 | 0.1745055 | 2.6230218 | 257 | 8 | 1998–2009 | 0.53 | M-v | 1 | MPC | 88478 (119907) |
| (119940) | 14.8 | 0.15 | 20100104 | 60.27813 | 274.10877 | 119.89077 | 15.69605 | 0.0820718 | 2.7159342 | 101 | 8 | 1998–2009 | 0.56 | M-v | 1 | MPC | 88488 (119940) |
| (119996) | 16.1 | 0.15 | 20100104 | 3.28077 | 326.25079 | 151.09602 | 5.40021 | 0.1059164 | 2.2923577 | 169 | 8 | 1993–2009 | 0.57 | M-v | 0 | MPC | 88507 (119996) |
| (120015) | 17.1 | 0.15 | 20100104 | 25.35131 | 1.73457 | 67.12689 | 1.41997 | 0.0441341 | 2.2957098 | 107 | 7 | 1998–2009 | 0.53 | M-v | 0 | MPC | 88513 (120015) |
| (120021) | 16.5 | 0.15 | 20100104 | 63.74831 | 265.51127 | 170.31358 | 4.49138 | 0.1297198 | 2.2481323 | 224 | 7 | 1998–2009 | 0.53 | M-v | 0 | MPC | 88515 (120021) |
| (120047) | 16.4 | 0.15 | 20100104 | 35.66891 | 299.59417 | 150.74371 | 5.82859 | 0.1515039 | 2.3039981 | 144 | 7 | 1998–2009 | 0.57 | M-v | 0 | MPC | 88524 (120047) |
| (120064) | 16.0 | 0.15 | 20100104 | 42.67326 | 323.02902 | 73.09493 | 4.95385 | 0.2141734 | 2.3604219 | 135 | 6 | 1998–2009 | 0.50 | M-v | 1 | MPC | 88529 (120064) |
| (120134) | 15.7 | 0.15 | 20100104 | 296.35558 | 35.37127 | 137.92654 | 5.61602 | 0.1495059 | 2.4661643 | 153 | 8 | 1999–2009 | 0.62 | M-v | 1 | MPC | 88551 (120134) |
| (120174) | 15.6 | 0.15 | 20100104 | 109.05739 | 215.54481 | 105.14791 | 14.15809 | 0.1726763 | 2.6529936 | 120 | 8 | 1999–2009 | 0.47 | M-v | 0 | MPC | 88563 (120174) |
| (120244) | 16.5 | 0.15 | 20100104 | 212.17485 | 54.89157 | 181.52447 | 6.47147 | 0.1688810 | 2.3031710 | 110 | 7 | 1997–2009 | 0.48 | M-v | 1 | MPC | 88586 (120244) |
| (120304) | 17.1 | 0.15 | 20100104 | 177.48179 | 55.54121 | 206.55069 | 2.35295 | 0.1712777 | 2.3562946 | 89 | 7 | 1993–2009 | 0.50 | M-v | 1 | MPC | 88605 (120304) |
| (120352) | 16.1 | 0.15 | 20100104 | 109.58310 | 199.00950 | 109.46020 | 6.16354 | 0.2817050 | 2.2795305 | 151 | 9 | 1998–2009 | 0.50 | M-v | 1 | MPC | 88618 (120352) |
| (120365) | 15.9 | 0.15 | 20100104 | 80.94321 | 213.27704 | 136.92034 | 10.01885 | 0.2401614 | 2.2962713 | 186 | 9 | 1998–2009 | 0.46 | M-v | 0 | MPC | 88622 (120365) |
| (120638) | 16.9 | 0.15 | 20100104 | 18.61967 | 332.12044 | 145.35838 | 4.59117 | 0.0881736 | 2.3451261 | 74 | 7 | 1996–2009 | 0.52 | M-v | 0 | MPC | 90452 (120638) |
| (120766) | 14.8 | 0.15 | 20100104 | 262.43603 | 54.87156 | 120.35792 | 30.18025 | 0.1748062 | 2.6119064 | 114 | 7 | 1997–2009 | 0.55 | M-v | 1 | MPC | 90497 (120766) |
| (120777) | 16.5 | 0.15 | 20100104 | 43.78832 | 329.97427 | 23.14369 | 3.17877 | 0.1274541 | 2.6942725 | 115 | 7 | 1998–2009 | 0.46 | M-v | 0 | MPC | 90502 (120777) |
| (120856) | 14.7 | 0.15 | 20100104 | 60.43134 | 29.53128 | 341.30696 | 11.50410 | 0.0695676 | 2.9326289 | 174 | 8 | 1996–2009 | 0.55 | M-v | 1 | MPC | 166058 (120856) |
| (120857) | 15.4 | 0.15 | 20100104 | 70.65600 | 256.50205 | 91.57341 | 2.80519 | 0.2578022 | 2.9804774 | 88 | 8 | 1998–2009 | 0.53 | M-v | 0 | MPC | 90535 (120857) |
| (120862) | 14.4 | 0.15 | 20100104 | 70.43675 | 77.09274 | 274.73134 | 8.88857 | 0.1252274 | 2.9833360 | 178 | 8 | 1998–2009 | 0.64 | M-v | 0 | MPC | 90537 (120862) |
| (120890) | 15.0 | 0.15 | 20100104 | 162.41105 | 272.08058 | 38.44859 | 2.30172 | 0.0601097 | 2.9122315 | 185 | 8 | 1998–2009 | 0.48 | M-v | 0 | MPC | 90547 (120890) |
| (120924) | 15.8 | 0.15 | 20100104 | 251.10863 | 190.70494 | 53.18696 | 6.52598 | 0.0937478 | 2.2294155 | 216 | 8 | 1998–2009 | 0.56 | M-v | 1 | MPC | 90558 (120924) |
| (120934) | 14.5 | 0.15 | 20100104 | 137.32830 | 140.72320 | 155.40104 | 1.87380 | 0.0476202 | 2.9663977 | 270 | 8 | 1998–2009 | 0.53 | M-v | 0 | MPC | 90562 (120934) |
| (120936) | 15.2 | 0.15 | 20100104 | 95.63725 | 153.89402 | 166.41868 | 2.33463 | 0.2506636 | 2.9893587 | 215 | 8 | 1998–2009 | 0.54 | M-v | 0 | MPC | 90563 (120936) |
| (120948) | 15.0 | 0.15 | 20100104 | 69.38191 | 303.60186 | 48.24678 | 1.72828 | 0.0746994 | 3.0187737 | 202 | 9 | 1998–2009 | 0.54 | M-v | 0 | MPC | 90567 (120948) |
| (121020) | 16.1 | 0.15 | 20100104 | 337.31410 | 337.41958 | 150.84112 | 4.42266 | 0.1759939 | 2.4196428 | 159 | 7 | 1999–2009 | 0.58 | M-v | 0 | MPC | 90596 (121020) |
| (121030) | 16.9 | 0.15 | 20100104 | 326.68690 | 177.81940 | 319.56075 | 2.20228 | 0.1155653 | 2.4166951 | 73 | 7 | 1999–2009 | 0.51 | M-v | 0 | MPC | 90600 (121030) |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (121040) | 16.0 | 0.15 | 20100104 | 266.30459 | 328.49820 | 302.39540 | 5.65899 | 0.1026249 | 2.3403298 | 79 | 5 | 1999–2008 | 0.55 | M-v | 1 | MPC | 121746 | (121040) |
| (121083) | 17.3 | 0.15 | 20100104 | 305.70370 | 253.21108 | 260.20584 | 0.29667 | 0.1300595 | 2.4554626 | 73 | 7 | 1999–2009 | 0.38 | M-v | 0 | MPC | 90622 | (121083) |
| (121102) | 16.0 | 0.15 | 20100104 | 317.73738 | 59.24072 | 115.01946 | 6.63547 | 0.1305566 | 2.4240599 | 68 | 5 | 1999–2009 | 0.65 | M-v | 1 | MPC | 90630 | (121102) |
| (121119) | 15.7 | 0.15 | 20100104 | 11.21246 | 104.79211 | 20.62714 | 9.68109 | 0.1927794 | 2.3882900 | 114 | 6 | 1999–2009 | 0.58 | M-v | 1 | MPC | 90636 | (121119) |
| (121141) | 15.3 | 0.15 | 20100104 | 223.73911 | 15.96155 | 220.98707 | 5.88331 | 0.1791741 | 2.5370475 | 247 | 8 | 1999–2009 | 0.55 | M-v | 1 | MPC | 90643 | (121141) |
| (121171) | 16.4 | 0.15 | 20100104 | 322.13199 | 335.44511 | 217.03973 | 1.71174 | 0.1569933 | 2.4214714 | 130 | 8 | 1999–2009 | 0.52 | M-v | 1 | MPC | 90654 | (121171) |
| (121215) | 15.6 | 0.15 | 20100104 | 167.06206 | 167.95800 | 162.08435 | 4.52279 | 0.1387913 | 2.6479363 | 152 | 7 | 1999–2009 | 0.57 | M-v | 0 | MPC | 90670 | (121215) |
| (121232) | 14.8 | 0.15 | 20100104 | 318.68570 | 215.40593 | 296.07587 | 11.89642 | 0.1102712 | 2.7359658 | 105 | 7 | 1999–2009 | 0.56 | M-v | 1 | MPC | 90677 | (121232) |
| (121243) | 15.6 | 0.15 | 20100104 | 215.46467 | 185.80687 | 124.71154 | 7.56586 | 0.1845742 | 2.5314568 | 128 | 8 | 1999–2009 | 0.56 | M-v | 1 | MPC | 90681 | (121243) |
| (121316) | 15.3 | 0.15 | 20100104 | 133.38186 | 203.47011 | 123.51281 | 5.88291 | 0.1418004 | 2.7101545 | 124 | 9 | 1999–2009 | 0.54 | M-v | 0 | MPC | 90708 | (121316) |
| (121352) | 15.6 | 0.15 | 20100104 | 346.28997 | 283.54912 | 185.97270 | 3.29281 | 0.0692845 | 2.7780889 | 102 | 8 | 1999–2009 | 0.53 | M-v | 0 | MPC | 90721 | (121352) |
| (121402) | 15.1 | 0.15 | 20100104 | 329.58495 | 150.81412 | 0.57752 | 13.27885 | 0.1140205 | 2.7142531 | 176 | 5 | 1999–2008 | 0.53 | M-v | 1 | MPC | 90738 | (121402) |
| (121412) | 15.5 | 0.15 | 20100104 | 107.32230 | 317.01670 | 19.27749 | 3.97288 | 0.1052580 | 2.7800766 | 117 | 8 | 1999–2009 | 0.48 | M-v | 0 | MPC | 90741 | (121412) |
| (121503) | 15.0 | 0.15 | 20100104 | 12.71935 | 110.54082 | 7.48688 | 12.45371 | 0.0876508 | 2.7315242 | 129 | 7 | 1999–2009 | 0.62 | M-v | 1 | MPC | 90773 | (121503) |
| (121561) | 14.4 | 0.15 | 20100104 | 190.73453 | 245.01511 | 30.24122 | 8.85398 | 0.1834827 | 2.7590395 | 243 | 7 | 1999–2009 | 0.54 | M-v | 0 | MPC | 90794 | (121561) |
| (121662) | 15.3 | 0.15 | 20100104 | 40.59848 | 46.36443 | 353.94026 | 1.60910 | 0.1652476 | 2.8564365 | 149 | 6 | 1999–2009 | 0.55 | M-v | 0 | MPC | 90831 | (121662) |
| (121672) | 15.4 | 0.15 | 20100104 | 15.72831 | 18.25900 | 7.19232 | 1.45087 | 0.1048136 | 2.9821146 | 169 | 8 | 1998–2009 | 0.52 | M-v | 0 | MPC | 90835 | (121672) |
| (121791) | 14.1 | 0.15 | 20100104 | 57.82607 | 260.95010 | 131.70643 | 15.90759 | 0.0152666 | 2.9804574 | 81 | 7 | 1999–2009 | 0.61 | M-v | 1 | MPC | 90877 | (121791) |
| (121805) | 16.0 | 0.15 | 20100104 | 266.04306 | 304.86773 | 312.88804 | 6.08494 | 0.0847975 | 2.1849051 | 118 | 8 | 1998–2009 | 0.56 | M-v | 1 | MPC | 90882 | (121805) |
| (121835) | 14.5 | 0.15 | 20100104 | 113.16079 | 217.28785 | 121.83031 | 12.46155 | 0.1197419 | 2.9682520 | 105 | 7 | 1998–2009 | 0.61 | M-v | 1 | MPC | 90892 | (121835) |
| (121847) | 14.4 | 0.15 | 20100104 | 222.67362 | 69.91801 | 148.33081 | 17.09051 | 0.0358900 | 3.0800345 | 91 | 7 | 2000–2009 | 0.64 | M-v | 1 | MPC | 90896 | (121847) |
| (121879) | 16.0 | 0.15 | 20100104 | 106.37715 | 346.51955 | 342.25799 | 1.86448 | 0.2319923 | 2.3345740 | 148 | 7 | 1998–2009 | 0.50 | M-v | 1 | MPC | 90908 | (121879) |
| (121880) | 16.4 | 0.15 | 20100104 | 174.18347 | 139.72973 | 144.07099 | 2.78916 | 0.2293781 | 2.3079712 | 212 | 7 | 2000–2009 | 0.51 | M-v | 0 | MPC | 90908 | (121880) |
| (121948) | 15.8 | 0.15 | 20100104 | 230.82304 | 246.08004 | 347.16081 | 5.34426 | 0.1098276 | 2.3257988 | 225 | 7 | 2000–2009 | 0.59 | M-v | 1 | MPC | 90934 | (121948) |
| (121965) | 16.8 | 0.15 | 20100104 | 123.51506 | 351.73820 | 334.94258 | 3.15465 | 0.2499130 | 2.3353931 | 128 | 6 | 2000–2009 | 0.48 | M-v | 1 | MPC | 90941 | (121965) |
| (121997) | 15.2 | 0.15 | 20100104 | 123.76585 | 266.29377 | 60.55178 | 8.17135 | 0.2499320 | 2.3874782 | 280 | 7 | 2000–2009 | 0.63 | M-v | 0 | MPC | 90952 | (121997) |
| (122051) | 15.9 | 0.15 | 20100104 | 142.88880 | 195.53423 | 112.86046 | 7.68668 | 0.1417336 | 2.4143408 | 102 | 8 | 1998–2009 | 0.56 | M-v | 1 | MPC | 90975 | (122051) |
| (122052) | 14.7 | 0.15 | 20100104 | 163.83543 | 152.63557 | 148.60479 | 7.13038 | 0.1181504 | 2.3784078 | 339 | 8 | 2000–2009 | 0.58 | M-v | 0 | MPC | 90975 | (122052) |
| (122064) | 16.8 | 0.15 | 20100104 | 218.25843 | 344.54763 | 276.54322 | 4.37441 | 0.2425394 | 2.3383378 | 77 | 7 | 2000–2009 | 0.53 | M-v | 1 | MPC | 90980 | (122064) |
| (122100) | 15.8 | 0.15 | 20100104 | 155.61557 | 221.37491 | 79.07961 | 6.44973 | 0.0667631 | 2.3815423 | 139 | 7 | 2000–2009 | 0.54 | M-v | 0 | MPC | 90994 | (122100) |
| (122123) | 15.8 | 0.15 | 20100104 | 199.41678 | 169.40563 | 104.03443 | 3.22405 | 0.1800601 | 2.3654576 | 234 | 8 | 2000–2009 | 0.57 | M-v | 0 | MPC | 91002 | (122123) |
| (122154) | 15.2 | 0.15 | 20100104 | 139.79159 | 4.12369 | 318.14345 | 5.17904 | 0.1336131 | 2.3799660 | 311 | 8 | 2000–2009 | 0.59 | M-v | 0 | MPC | 91014 | (122154) |
| (122170) | 16.0 | 0.15 | 20100104 | 304.43032 | 105.52671 | 58.08937 | 7.75502 | 0.0548013 | 2.3574553 | 197 | 7 | 2000–2009 | 0.56 | M-v | 0 | MPC | 91020 | (122170) |
| (122226) | 14.9 | 0.15 | 20100104 | 75.52307 | 238.69349 | 126.84543 | 14.66159 | 0.2173077 | 2.5614785 | 228 | 6 | 2000–2009 | 0.53 | M-v | 1 | MPC | 91042 | (122226) |
| (122303) | 15.1 | 0.15 | 20100104 | 101.81005 | 18.55943 | 335.39501 | 5.44515 | 0.1394698 | 2.5469862 | 307 | 9 | 1996–2009 | 0.54 | M-v | 1 | MPC | 91073 | (122303) |
| (122440) | 17.0 | 0.15 | 20100104 | 81.78962 | 56.00253 | 313.43368 | 2.81942 | 0.2064777 | 2.5706776 | 88 | 6 | 2000–2009 | 0.54 | M-v | 1 | MPC | 91130 | (122440) |
| (122454) | 15.4 | 0.15 | 20100104 | 56.62585 | 224.77690 | 162.78866 | 4.40610 | 0.1758490 | 2.6122574 | 226 | 7 | 2000–2009 | 0.56 | M-v | 0 | MPC | 91136 | (122454) |
| (122571) | 14.9 | 0.15 | 20100104 | 55.53040 | 147.83427 | 268.66760 | 12.16313 | 0.2402122 | 2.5397525 | 177 | 6 | 2000–2009 | 0.56 | M-v | 1 | MPC | 91184 | (122571) |
| (122587) | 16.4 | 0.15 | 20100104 | 174.90031 | 343.51867 | 315.64923 | 6.01985 | 0.1726355 | 2.4960089 | 121 | 8 | 2000–2009 | 0.56 | M-v | 0 | MPC | 91190 | (122587) |
| (122602) | 15.7 | 0.15 | 20100104 | 99.49101 | 39.05546 | 309.93227 | 9.03310 | 0.1556906 | 2.5782860 | 154 | 6 | 2000–2009 | 0.46 | M-v | 1 | MPC | 91197 | (122602) |
| (122612) | 15.0 | 0.15 | 20100104 | 78.00485 | 43.37475 | 325.61841 | 10.67587 | 0.2172671 | 2.6162005 | 286 | 6 | 2000–2009 | 0.54 | M-v | 1 | MPC | 91203 | (122612) |
| (122641) | 15.5 | 0.15 | 20100104 | 21.05972 | 81.97215 | 325.56183 | 10.08287 | 0.1949364 | 2.6011765 | 161 | 6 | 1998–2009 | 0.64 | M-v | 1 | MPC | 91216 | (122641) |
| (122647) | 16.0 | 0.15 | 20100104 | 165.45632 | 9.09747 | 349.88458 | 8.32937 | 0.1311760 | 2.4309082 | 113 | 6 | 2000–2009 | 0.51 | M-v | 1 | MPC | 91218 | (122647) |
| (122801) | 15.4 | 0.15 | 20100104 | 44.96867 | 107.62114 | 285.76289 | 8.55888 | 0.0613821 | 2.6016676 | 103 | 5 | 2000–2009 | 0.49 | M-v | 0 | MPC | 91280 | (122801) |
| (122854) | 15.2 | 0.15 | 20100104 | 117.17789 | 23.02609 | 294.54990 | 14.66393 | 0.1373006 | 2.5880575 | 129 | 7 | 2000–2009 | 0.56 | M-v | 1 | MPC | 91302 | (122854) |
| (122855) | 15.1 | 0.15 | 20100104 | 4.09035 | 136.37850 | 287.55529 | 20.94610 | 0.1027415 | 2.6329585 | 106 | 7 | 2000–2009 | 0.55 | M-v | 0 | MPC | 91302 | (122855) |
| (122858) | 15.8 | 0.15 | 20100104 | 73.30353 | 87.87992 | 290.17792 | 11.95286 | 0.1201419 | 2.5889811 | 172 | 6 | 2000–2009 | 0.56 | M-v | 1 | MPC | 91303 | (122858) |
| (122898) | 16.0 | 0.15 | 20100104 | 47.04462 | 99.44868 | 298.90121 | 4.07493 | 0.0908206 | 2.6095626 | 143 | 6 | 2000–2009 | 0.47 | M-v | 0 | MPC | 91319 | (122898) |
| (122908) | 16.2 | 0.15 | 20100104 | 66.69002 | 64.81680 | 322.23976 | 6.48219 | 0.2011514 | 2.6014593 | 122 | 6 | 2000–2009 | 0.43 | M-v | 0 | MPC | 91324 | (122908) |
| (122920) | 15.6 | 0.15 | 20100104 | 16.31581 | 152.88686 | 303.15496 | 11.13353 | 0.1160372 | 2.5792854 | 166 | 6 | 2000–2009 | 0.53 | M-v | 1 | MPC | 91329 | (122920) |
| (123006) | 15.9 | 0.15 | 20100104 | 38.78754 | 296.25218 | 113.78131 | 5.45454 | 0.1559007 | 2.6376967 | 93 | 7 | 2000–2009 | 0.57 | M-v | 0 | MPC | 91362 | (123006) |
| (123013) | 15.3 | 0.15 | 20100104 | 3.08906 | 309.23197 | 149.93280 | 3.50941 | 0.1698423 | 2.6087530 | 264 | 7 | 2000–2009 | 0.53 | M-v | 0 | MPC | 91364 | (123013) |
| (123137) | 15.8 | 0.15 | 20100104 | 54.51394 | 346.47563 | 40.02640 | 5.87144 | 0.1425588 | 2.6445797 | 126 | 7 | 2000–2009 | 0.52 | M-v | 1 | MPC | 91412 | (123137) |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (123156) | 16.3 | 0.15 | 20100104 | 93.79650 | 251.88767 | 99.57881 | 5.96062 | 0.2242901 | 2.5826719 | 89 | 6 | 2000–2009 | 0.49 | M-v | 1 | MPC | 91419 (123156) |
| (123202) | 16.2 | 0.15 | 20100104 | 121.57655 | 233.32356 | 90.73502 | 4.76980 | 0.2642565 | 2.5858674 | 139 | 7 | 2000–2009 | 0.51 | M-v | 1 | MPC | 91436 (123202) |
| (123204) | 16.3 | 0.15 | 20100104 | 12.06678 | 94.79370 | 349.19264 | 5.04021 | 0.1510104 | 2.6227109 | 135 | 6 | 2000–2009 | 0.55 | M-v | 0 | MPC | 91437 (123204) |
| (123257) | 15.3 | 0.15 | 20100104 | 54.88432 | 358.04362 | 35.67347 | 3.73306 | 0.1829769 | 2.6440935 | 197 | 7 | 2000–2009 | 0.50 | M-v | 0 | MPC | 91457 (123257) |
| (123260) | 15.6 | 0.15 | 20100104 | 10.43578 | 32.19633 | 53.44024 | 3.01987 | 0.1825621 | 2.6306350 | 114 | 5 | 2000–2009 | 0.63 | M-v | 0 | MPC | 91458 (123260) |
| (123283) | 15.6 | 0.15 | 20100104 | 41.84827 | 57.93305 | 345.42037 | 3.01279 | 0.1779642 | 2.6643335 | 205 | 7 | 2000–2009 | 0.55 | M-v | 0 | MPC | 91466 (123283) |
| (123337) | 15.5 | 0.15 | 20100104 | 334.15308 | 254.86185 | 247.62266 | 11.66640 | 0.2138397 | 2.6428382 | 100 | 5 | 2000–2009 | 0.60 | M-v | 1 | MPC | 91486 (123337) |
| (123338) | 16.6 | 0.15 | 20100104 | 71.08698 | 244.03649 | 129.62802 | 2.13597 | 0.2202153 | 2.6365418 | 115 | 6 | 2000–2009 | 0.51 | M-v | 0 | MPC | 91487 (123338) |
| (123463) | 15.1 | 0.15 | 20100104 | 353.22533 | 296.91495 | 161.72969 | 14.45975 | 0.0640787 | 2.6858447 | 181 | 7 | 2000–2009 | 0.58 | M-v | 0 | MPC | 91535 (123463) |
| (123636) | 14.7 | 0.15 | 20100104 | 292.69775 | 63.40850 | 97.85856 | 16.81456 | 0.0601290 | 2.7735110 | 119 | 6 | 2000–2009 | 0.54 | M-v | 1 | MPC | 91604 (123636) |
| (123692) | 14.7 | 0.15 | 20100104 | 352.98276 | 345.66925 | 112.28821 | 18.02565 | 0.1085299 | 2.7239013 | 157 | 7 | 2000–2009 | 0.51 | M-v | 0 | MPC | 91624 (123692) |
| (123718) | 15.9 | 0.15 | 20100104 | 355.18780 | 45.18475 | 57.04137 | 3.94531 | 0.1053856 | 2.7761402 | 76 | 6 | 2000–2009 | 0.55 | M-v | 0 | MPC | 91634 (123718) |
| (123755) | 14.6 | 0.15 | 20100104 | 310.99070 | 245.31077 | 313.02930 | 11.78481 | 0.2038937 | 2.6781457 | 196 | 8 | 1998–2009 | 0.52 | M-v | 0 | MPC | 91647 (123755) |
| (123823) | 15.3 | 0.15 | 20100104 | 57.84016 | 257.71812 | 124.83891 | 7.26426 | 0.2464292 | 2.7703682 | 115 | 6 | 1999–2009 | 0.54 | M-v | 0 | MPC | 91671 (123823) |
| (123879) | 15.2 | 0.15 | 20100104 | 293.13227 | 55.57967 | 137.30066 | 10.14116 | 0.1159151 | 2.7414332 | 121 | 9 | 1998–2009 | 0.52 | M-v | 0 | MPC | 91691 (123879) |
| (123891) | 14.6 | 0.15 | 20100104 | 263.24535 | 136.22442 | 106.01262 | 15.87592 | 0.1366949 | 2.7510625 | 142 | 9 | 1999–2009 | 0.63 | M-v | 1 | MPC | 91695 (123891) |
| (123962) | 15.2 | 0.15 | 20100104 | 258.97092 | 165.60235 | 16.92805 | 5.55850 | 0.1808001 | 2.9690826 | 223 | 8 | 1998–2009 | 0.50 | M-v | 1 | MPC | 91720 (123962) |
| (123996) | 14.5 | 0.15 | 20100104 | 212.39406 | 60.53337 | 162.16258 | 11.67786 | 0.0509822 | 2.9996328 | 200 | 9 | 1998–2009 | 0.55 | M-v | 0 | MPC | 91732 (123996) |
| (124034) | 14.5 | 0.15 | 20100104 | 295.71464 | 194.79136 | 274.86059 | 3.90693 | 0.0673064 | 3.0308309 | 213 | 9 | 1998–2009 | 0.56 | M-v | 0 | MPC | 91746 (124034) |
| (124038) | 15.0 | 0.15 | 20100104 | 273.57062 | 143.09070 | 23.27785 | 2.10647 | 0.1800772 | 2.9945520 | 183 | 8 | 1998–2009 | 0.52 | M-v | 1 | MPC | 91748 (124038) |
| (124057) | 15.0 | 0.15 | 20100104 | 286.94743 | 156.25105 | 353.54046 | 1.74762 | 0.2033525 | 2.9961807 | 233 | 7 | 1998–2009 | 0.58 | M-v | 0 | MPC | 91754 (124057) |
| (124068) | 14.7 | 0.15 | 20100104 | 191.50229 | 123.76328 | 133.93121 | 12.53716 | 0.1062769 | 2.9748958 | 60 | 9 | 1998–2009 | 0.61 | M-v | 0 | MPC | 91758 (124068) |
| (124096) | 14.6 | 0.15 | 20100104 | 242.08842 | 107.73443 | 91.95691 | 16.02096 | 0.1883552 | 3.0439843 | 124 | 7 | 1998–2009 | 0.56 | M-v | 0 | MPC | 91767 (124096) |
| (124143) | 16.3 | 0.15 | 20100104 | 107.84045 | 152.81272 | 200.68874 | 1.75948 | 0.2508021 | 2.3279791 | 147 | 7 | 2000–2009 | 0.50 | M-v | 0 | MPC | 91783 (124143) |
| (124157) | 16.4 | 0.15 | 20100104 | 128.01800 | 221.79969 | 107.51408 | 3.82488 | 0.1849832 | 2.3405855 | 141 | 7 | 1993–2009 | 0.47 | M-v | 0 | MPC | 91788 (124157) |
| (124173) | 16.4 | 0.15 | 20100104 | 175.00563 | 58.35375 | 263.99682 | 3.29399 | 0.1723091 | 2.2438525 | 195 | 8 | 1998–2009 | 0.49 | M-v | 0 | MPC | 91795 (124173) |
| (124219) | 16.2 | 0.15 | 20100104 | 85.82905 | 214.71581 | 128.77957 | 3.21942 | 0.1821743 | 2.3988735 | 157 | 7 | 2000–2009 | 0.56 | M-v | 1 | MPC | 91812 (124219) |
| (124222) | 16.3 | 0.15 | 20100104 | 173.48149 | 105.60962 | 189.03571 | 3.42451 | 0.1532451 | 2.2829730 | 163 | 7 | 1991–2009 | 0.51 | M-v | 0 | MPC | 91814 (124222) |
| (124348) | 15.7 | 0.15 | 20100104 | 84.02432 | 45.17983 | 19.70484 | 4.82697 | 0.1515882 | 2.2907576 | 179 | 7 | 1998–2009 | 0.56 | M-v | 0 | MPC | 91864 (124348) |
| (124373) | 16.2 | 0.15 | 20100104 | 111.56571 | 73.00585 | 262.34949 | 1.40651 | 0.1348761 | 2.3806682 | 184 | 7 | 2000–2009 | 0.49 | M-v | 0 | MPC | 91874 (124373) |
| (124388) | 16.0 | 0.15 | 20100104 | 226.40916 | 195.04945 | 74.76814 | 7.84215 | 0.1826294 | 2.2379963 | 166 | 8 | 1998–2009 | 0.57 | M-v | 1 | MPC | 91880 (124388) |
| (124404) | 17.2 | 0.15 | 20100104 | 184.79188 | 85.87618 | 199.15947 | 2.02408 | 0.1648232 | 2.2941213 | 123 | 7 | 1994–2009 | 0.46 | M-v | 0 | MPC | 91887 (124404) |
| (124411) | 16.4 | 0.15 | 20100104 | 120.58736 | 176.19523 | 159.72134 | 2.48653 | 0.1456654 | 2.3531626 | 164 | 7 | 2000–2009 | 0.50 | M-v | 0 | MPC | 91890 (124411) |
| (124423) | 16.9 | 0.15 | 20100104 | 53.15973 | 55.74196 | 333.98298 | 0.71789 | 0.1753681 | 2.4135261 | 169 | 6 | 1999–2009 | 0.44 | M-v | 0 | MPC | 91895 (124423) |
| (124431) | 15.7 | 0.15 | 20100104 | 114.94080 | 164.63415 | 169.72773 | 5.76913 | 0.2326922 | 2.3836719 | 184 | 7 | 1996–2009 | 0.55 | M-v | 1 | MPC | 91898 (124431) |
| (124446) | 15.9 | 0.15 | 20100104 | 196.05371 | 23.58390 | 248.81907 | 6.82295 | 0.0898412 | 2.3361239 | 172 | 7 | 2000–2009 | 0.52 | M-v | 0 | MPC | 91905 (124446) |
| (124459) | 16.5 | 0.15 | 20100104 | 80.40589 | 316.77792 | 27.57163 | 1.05684 | 0.2113750 | 2.4146885 | 130 | 6 | 2000–2009 | 0.54 | M-v | 1 | MPC | 91911 (124459) |
| (124530) | 16.0 | 0.15 | 20100104 | 125.64955 | 282.87540 | 18.08167 | 6.37337 | 0.1357333 | 2.4079230 | 129 | 6 | 2000–2009 | 0.56 | M-v | 1 | MPC | 91942 (124530) |
| (124606) | 16.7 | 0.15 | 20100104 | 118.50892 | 225.84885 | 107.62604 | 3.17043 | 0.2304052 | 2.3756752 | 85 | 8 | 1998–2009 | 0.55 | M-v | 0 | MPC | 91974 (124606) |
| (124651) | 15.6 | 0.15 | 20100104 | 82.18492 | 201.00316 | 159.09957 | 6.59860 | 0.1258454 | 2.4406111 | 135 | 6 | 2000–2009 | 0.51 | M-v | 1 | MPC | 91995 (124651) |
| (124689) | 16.8 | 0.15 | 20100104 | 108.85834 | 82.56559 | 256.87046 | 3.67165 | 0.1960267 | 2.3735609 | 107 | 5 | 2001–2009 | 0.49 | M-v | 0 | MPC | 92012 (124689) |
| (124704) | 16.1 | 0.15 | 20100104 | 0.72807 | 220.39776 | 238.04113 | 3.83508 | 0.1857455 | 2.4178701 | 132 | 7 | 1999–2009 | 0.52 | M-v | 0 | MPC | 92017 (124704) |
| (124787) | 16.2 | 0.15 | 20100104 | 331.49865 | 356.09892 | 132.38563 | 1.93658 | 0.1390132 | 2.4445837 | 160 | 7 | 1999–2009 | 0.51 | M-v | 0 | MPC | 92052 (124787) |
| (124821) | 16.5 | 0.15 | 20100104 | 333.73231 | 99.42471 | 21.04877 | 6.86539 | 0.0644273 | 2.4000036 | 119 | 7 | 1990–2009 | 0.58 | M-v | 0 | MPC | 92068 (124821) |
| (124825) | 15.4 | 0.15 | 20100104 | 354.65138 | 331.16490 | 139.11006 | 11.33592 | 0.2384608 | 2.4294960 | 129 | 7 | 1999–2009 | 0.52 | M-v | 1 | MPC | 92069 (124825) |
| (124900) | 15.7 | 0.15 | 20100104 | 61.26492 | 352.19715 | 79.52688 | 4.88085 | 0.1962055 | 2.3683552 | 212 | 7 | 1994–2009 | 0.48 | M-v | 0 | MPC | 92101 (124900) |
| (124951) | 15.8 | 0.15 | 20100104 | 1.52003 | 238.95927 | 255.24880 | 3.43875 | 0.0894885 | 2.3404416 | 209 | 8 | 1998–2009 | 0.50 | M-v | 0 | MPC | 92123 (124951) |
| (125065) | 16.2 | 0.15 | 20100104 | 146.30660 | 251.00462 | 56.72228 | 7.00279 | 0.1287715 | 2.3650670 | 103 | 7 | 2000–2009 | 0.54 | M-v | 0 | MPC | 92167 (125065) |
| (125083) | 16.9 | 0.15 | 20100104 | 31.49093 | 84.98759 | 330.28051 | 1.88956 | 0.1897297 | 2.4591351 | 122 | 5 | 1999–2009 | 0.53 | M-v | 1 | MPC | 92174 (125083) |
| (125107) | 16.4 | 0.15 | 20100104 | 137.08969 | 241.56629 | 81.20485 | 2.40899 | 0.1989420 | 2.3703108 | 137 | 7 | 1990–2009 | 0.52 | M-v | 0 | MPC | 92184 (125107) |
| (125177) | 16.7 | 0.15 | 20100104 | 102.17924 | 134.03730 | 236.70606 | 0.46088 | 0.0406412 | 2.3625785 | 149 | 8 | 1998–2009 | 0.43 | M-v | 0 | MPC | 92213 (125177) |
| (125186) | 16.2 | 0.15 | 20100104 | 4.38889 | 359.51149 | 139.68262 | 1.79769 | 0.1273683 | 2.3793444 | 146 | 7 | 1999–2009 | 0.52 | M-v | 0 | MPC | 92216 (125186) |
| (125200) | 16.5 | 0.15 | 20100104 | 215.26737 | 180.57642 | 80.28546 | 1.54047 | 0.0596602 | 2.3685280 | 136 | 8 | 2000–2009 | 0.52 | M-v | 0 | MPC | 92223 (125200) |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (125205) | 16.4 | 0.15 | 20100104 | 130.21894 | 245.64307 | 58.75885 | 2.01519 | 0.1855775 | 2.4446738 | 88 | 7 | 1999–2009 | 0.44 | M-v | 1 | MPC | 92225 (125205) |
| (125379) | 15.6 | 0.15 | 20100104 | 345.85994 | 187.68894 | 247.18786 | 5.29304 | 0.0267723 | 2.5387546 | 203 | 5 | 2001–2009 | 0.54 | M-v | 2 | MPC | 133283 (125379) |
| (125504) | 16.3 | 0.15 | 20100104 | 327.30116 | 27.67942 | 137.56018 | 3.17369 | 0.1097604 | 2.4158295 | 87 | 6 | 1999–2009 | 0.55 | M-v | 1 | MPC | 92346 (125504) |
| (125590) | 16.0 | 0.15 | 20100104 | 49.15937 | 258.67152 | 135.56739 | 2.42896 | 0.1791181 | 2.5280459 | 108 | 6 | 2001–2009 | 0.53 | M-v | 1 | MPC | 92380 (125590) |
| (125648) | 15.3 | 0.15 | 20100104 | 26.82877 | 2.68445 | 105.68061 | 6.74794 | 0.1532433 | 2.4583806 | 195 | 7 | 1999–2009 | 0.60 | M-v | 1 | MPC | 92404 (125648) |
| (125762) | 15.7 | 0.15 | 20100104 | 297.35954 | 105.33817 | 83.26813 | 8.00025 | 0.0756239 | 2.4400106 | 114 | 7 | 1993–2009 | 0.59 | M-v | 1 | MPC | 92449 (125762) |
| (125869) | 15.9 | 0.15 | 20100104 | 49.44189 | 229.62284 | 173.56858 | 2.19459 | 0.1119615 | 2.5445454 | 119 | 7 | 2000–2009 | 0.49 | M-v | 0 | MPC | 92488 (125869) |
| (125871) | 16.4 | 0.15 | 20100104 | 82.61289 | 207.37571 | 187.81583 | 2.01350 | 0.1956044 | 2.4665111 | 123 | 8 | 1999–2009 | 0.61 | M-v | 1 | MPC | 92489 (125871) |
| (125895) | 15.5 | 0.15 | 20100104 | 76.81793 | 272.48105 | 137.17780 | 8.23123 | 0.1077140 | 2.4483112 | 175 | 9 | 1999–2009 | 0.59 | M-v | 0 | MPC | 92498 (125895) |
| (125911) | 15.2 | 0.15 | 20100104 | 250.52013 | 210.00069 | 54.78375 | 13.19205 | 0.2241620 | 2.3355016 | 188 | 6 | 2001–2008 | 0.54 | M-v | 1 | MPC | 147116 (125911) |
| (125970) | 15.9 | 0.15 | 20100104 | 159.65555 | 212.07924 | 84.61549 | 6.13675 | 0.1981705 | 2.4744059 | 101 | 8 | 2000–2009 | 0.50 | M-v | 1 | MPC | 92526 (125970) |
| (126108) | 15.2 | 0.15 | 20100104 | 278.32900 | 241.74561 | 314.02880 | 6.42785 | 0.1206067 | 2.5613233 | 172 | 6 | 1999–2009 | 0.51 | M-v | 1 | MPC | 92576 (126108) |
| (126116) | 15.2 | 0.15 | 20100104 | 147.55624 | 0.26847 | 280.04948 | 10.94554 | 0.1553936 | 2.6149773 | 121 | 8 | 2000–2009 | 0.53 | M-v | 1 | MPC | 92579 (126116) |
| (126152) | 16.0 | 0.15 | 20100104 | 296.12307 | 62.62097 | 112.29655 | 14.61531 | 0.0130971 | 2.5294687 | 139 | 6 | 2001–2009 | 0.50 | M-v | 0 | MPC | 92593 (126152) |
| (126278) | 16.4 | 0.15 | 20100104 | 70.15083 | 21.70429 | 347.05230 | 2.19135 | 0.1676654 | 2.5576874 | 68 | 8 | 1999–2009 | 0.48 | M-v | 0 | MPC | 92643 (126278) |
| (126302) | 15.6 | 0.15 | 20100104 | 326.61268 | 358.14747 | 116.60232 | 2.18122 | 0.1187695 | 2.6363256 | 250 | 8 | 1998–2009 | 0.56 | M-v | 0 | MPC | 92652 (126302) |
| (126352) | 14.7 | 0.15 | 20100104 | 27.33173 | 102.35537 | 328.58038 | 21.77372 | 0.0430065 | 2.6300612 | 221 | 6 | 2000–2009 | 0.59 | M-v | 0 | MPC | 92672 (126352) |
| (126358) | 16.0 | 0.15 | 20100104 | 47.29273 | 304.47003 | 96.23387 | 5.90846 | 0.1074214 | 2.5646363 | 117 | 8 | 2000–2009 | 0.55 | M-v | 0 | MPC | 92675 (126358) |
| (126361) | 16.0 | 0.15 | 20100104 | 296.22509 | 163.71448 | 345.72682 | 1.64911 | 0.1383399 | 2.6479667 | 161 | 8 | 1998–2009 | 0.50 | M-v | 1 | MPC | 92676 (126361) |
| (126506) | 15.6 | 0.15 | 20100104 | 355.90857 | 52.15701 | 63.06200 | 9.51267 | 0.0440272 | 2.5751249 | 90 | 6 | 2000–2009 | 0.65 | M-v | 1 | MPC | 92732 (126506) |
| (126528) | 15.4 | 0.15 | 20100104 | 214.03347 | 136.03652 | 119.04711 | 5.52927 | 0.0733670 | 2.6211858 | 146 | 8 | 1999–2009 | 0.46 | M-v | 0 | MPC | 92740 (126528) |
| (126655) | 15.0 | 0.15 | 20100104 | 147.83200 | 139.17964 | 143.95887 | 9.94225 | 0.1445363 | 2.7253359 | 120 | 9 | 1998–2009 | 0.58 | M-v | 0 | MPC | 92784 (126655) |
| (126738) | 16.4 | 0.15 | 20100104 | 78.20347 | 221.03479 | 127.47617 | 7.20802 | 0.1320581 | 2.6575718 | 58 | 5 | 2002–2009 | 0.51 | M-v | 1 | MPC | 92813 (126738) |
| (126746) | 16.3 | 0.15 | 20100104 | 76.43415 | 221.00810 | 175.64604 | 3.45173 | 0.0633412 | 2.5724088 | 132 | 7 | 2000–2009 | 0.51 | M-v | 0 | MPC | 92815 (126746) |
| (126903) | 15.5 | 0.15 | 20100104 | 9.89864 | 304.89317 | 150.80755 | 11.42657 | 0.1304276 | 2.6312900 | 122 | 6 | 2000–2009 | 0.57 | M-v | 1 | MPC | 92869 (126903) |
| (126955) | 15.0 | 0.15 | 20100104 | 199.57529 | 110.54789 | 137.31248 | 9.59202 | 0.1134749 | 2.7343929 | 134 | 7 | 1998–2009 | 0.63 | M-v | 1 | MPC | 92887 (126955) |
| (126994) | 15.1 | 0.15 | 20100104 | 309.26015 | 44.81607 | 108.77497 | 10.15360 | 0.0692438 | 2.6815612 | 88 | 5 | 2000–2009 | 0.55 | M-v | 1 | MPC | 92899 (126994) |
| (127001) | 16.0 | 0.15 | 20100104 | 357.22356 | 214.56780 | 225.39382 | 3.28578 | 0.2072929 | 2.6712502 | 174 | 7 | 1998–2009 | 0.49 | M-v | 0 | MPC | 92901 (127001) |
| (127006) | 15.3 | 0.15 | 20100104 | 305.25918 | 316.85752 | 204.28200 | 9.71304 | 0.2473825 | 2.6656387 | 171 | 7 | 1998–2009 | 0.52 | M-v | 1 | MPC | 92903 (127006) |
| (127089) | 15.0 | 0.15 | 20100104 | 205.16300 | 134.38981 | 103.40282 | 10.28006 | 0.0749915 | 2.7301516 | 155 | 9 | 1998–2009 | 0.56 | M-v | 0 | MPC | 92932 (127089) |
| (127101) | 15.1 | 0.15 | 20100104 | 132.19625 | 203.40969 | 117.21501 | 4.83484 | 0.1792359 | 2.8011227 | 153 | 8 | 1999–2009 | 0.58 | M-v | 0 | MPC | 92936 (127101) |
| (127109) | 15.3 | 0.15 | 20100104 | 331.40125 | 189.78783 | 309.47641 | 5.02516 | 0.1166336 | 2.6627358 | 143 | 6 | 2000–2009 | 0.55 | M-v | 1 | MPC | 92939 (127109) |
| (127115) | 15.2 | 0.15 | 20100104 | 353.70097 | 267.25426 | 197.53954 | 21.03966 | 0.1299296 | 2.6674465 | 114 | 7 | 2000–2009 | 0.57 | M-v | 0 | MPC | 92941 (127115) |
| (127175) | 15.5 | 0.15 | 20100104 | 89.50496 | 244.35175 | 128.39689 | 5.73900 | 0.0441627 | 2.7346763 | 69 | 8 | 1999–2009 | 0.59 | M-v | 1 | MPC | 92959 (127175) |
| (127191) | 15.5 | 0.15 | 20100104 | 226.47179 | 156.33598 | 98.41627 | 4.44537 | 0.2120419 | 2.7032372 | 121 | 7 | 2002–2009 | 0.45 | M-v | 0 | MPC | 120723 (127191) |
| (127196) | 15.3 | 0.15 | 20100104 | 263.65827 | 100.63734 | 150.12062 | 5.51309 | 0.1426504 | 2.6344478 | 190 | 7 | 1997–2009 | 0.56 | M-v | 0 | MPC | 92965 (127196) |
| (127203) | 15.9 | 0.15 | 20100104 | 310.71222 | 244.19284 | 271.48761 | 3.93698 | 0.1055010 | 2.7014836 | 94 | 7 | 2000–2009 | 0.52 | M-v | 0 | MPC | 92968 (127203) |
| (127218) | 15.7 | 0.15 | 20100104 | 299.22221 | 103.00001 | 70.31993 | 8.13636 | 0.2084954 | 2.6559132 | 125 | 5 | 1998–2009 | 0.54 | M-v | 1 | MPC | 92973 (127218) |
| (127295) | 15.3 | 0.15 | 20100104 | 115.32617 | 279.07489 | 12.51477 | 1.77694 | 0.0820827 | 2.9498575 | 138 | 9 | 1998–2009 | 0.51 | M-v | 0 | MPC | 93000 (127295) |
| (127311) | 14.7 | 0.15 | 20100104 | 82.98391 | 291.80677 | 39.23278 | 11.15011 | 0.0935831 | 2.9939129 | 139 | 8 | 1998–2009 | 0.45 | M-v | 0 | MPC | 93005 (127311) |
| (127364) | 16.6 | 0.15 | 20100104 | 187.12867 | 180.71834 | 105.52951 | 0.33965 | 0.0778648 | 2.7502176 | 105 | 8 | 1999–2009 | 0.41 | M-v | 0 | MPC | 93021 (127364) |
| (127437) | 14.9 | 0.15 | 20100104 | 129.43865 | 341.08711 | 339.38416 | 4.56526 | 0.1693696 | 3.0849752 | 121 | 7 | 2000–2009 | 0.47 | M-v | 0 | MPC | 93043 (127437) |
| (127457) | 14.6 | 0.15 | 20100104 | 82.63305 | 344.20637 | 0.04341 | 6.09072 | 0.1388834 | 3.1858986 | 125 | 7 | 2000–2009 | 0.48 | M-v | 0 | MPC | 93049 (127457) |
| (127464) | 16.5 | 0.15 | 20100104 | 174.67413 | 19.70677 | 254.13214 | 1.17585 | 0.0810168 | 2.1521751 | 126 | 7 | 1999–2009 | 0.46 | M-v | 1 | MPC | 93051 (127464) |
| (127493) | 16.8 | 0.15 | 20100104 | 65.28807 | 227.03440 | 196.18971 | 3.46579 | 0.0843707 | 2.1644058 | 145 | 8 | 1999–2009 | 0.50 | M-v | 1 | MPC | 93059 (127493) |
| (127508) | 14.3 | 0.15 | 20100104 | 348.34950 | 7.04664 | 107.91687 | 16.35085 | 0.0475920 | 3.1942811 | 112 | 8 | 2000–2009 | 0.58 | M-v | 0 | MPC | 93065 (127508) |
| (127575) | 15.9 | 0.15 | 20100104 | 108.31411 | 93.78068 | 283.12195 | 7.59226 | 0.1087540 | 2.2857265 | 195 | 7 | 1998–2009 | 0.53 | M-v | 0 | MPC | 93088 (127575) |
| (127597) | 15.9 | 0.15 | 20100104 | 23.68590 | 317.43930 | 116.93262 | 7.26418 | 0.0718116 | 2.3643381 | 147 | 7 | 1998–2009 | 0.55 | M-v | 0 | MPC | 93097 (127597) |
| (127632) | 16.5 | 0.15 | 20100104 | 1.10908 | 128.06444 | 337.10972 | 6.77814 | 0.0653911 | 2.3422022 | 65 | 7 | 1998–2009 | 0.64 | M-v | 1 | MPC | 93109 (127632) |
| (127639) | 15.2 | 0.15 | 20100104 | 332.47959 | 206.83101 | 357.27198 | 24.25722 | 0.1734809 | 2.2948226 | 130 | 7 | 1996–2009 | 0.56 | M-v | 1 | MPC | 93111 (127639) |
| (127647) | 15.4 | 0.15 | 20100104 | 325.68188 | 140.44938 | 52.02745 | 7.46367 | 0.1835838 | 2.2918422 | 214 | 7 | 1998–2009 | 0.54 | M-v | 1 | MPC | 93114 (127647) |
| (127662) | 15.0 | 0.15 | 20100104 | 234.52188 | 342.30785 | 271.47057 | 12.44487 | 0.1501156 | 2.3674239 | 197 | 8 | 2000–2009 | 0.54 | M-v | 0 | MPC | 93119 (127662) |
| (127711) | 16.7 | 0.15 | 20100104 | 227.91885 | 99.56977 | 161.14048 | 2.38495 | 0.1447412 | 2.3982053 | 135 | 8 | 1999–2009 | 0.56 | M-v | 0 | MPC | 93136 (127711) |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (127744) | 15.9 | 0.15 | 20100104 | 309.24036 | 201.93292 | 329.13867 | 4.99714 | 0.0824048 | 2.4211093 | 87 | 7 | 1999–2009 | 0.55 | M-v | 1 | MPC | 93146 (127744) |
| (127856) | 15.8 | 0.15 | 20100104 | 282.42291 | 129.36660 | 133.00220 | 6.40895 | 0.1391186 | 2.3377315 | 184 | 8 | 1999–2009 | 0.61 | M-v | 1 | MPC | 93184 (127856) |
| (127956) | 16.4 | 0.15 | 20100104 | 316.07187 | 7.63918 | 141.20243 | 2.54621 | 0.1586027 | 2.4495818 | 94 | 7 | 1999–2009 | 0.57 | M-v | 0 | MPC | 93216 (127956) |
| (127984) | 15.4 | 0.15 | 20100104 | 250.44216 | 43.43407 | 163.41348 | 5.39901 | 0.1202336 | 2.5542424 | 169 | 9 | 1999–2009 | 0.56 | M-v | 0 | MPC | 93224 (127984) |
| (127993) | 15.8 | 0.15 | 20100104 | 314.49932 | 145.61742 | 73.86578 | 8.30691 | 0.2341485 | 2.3573537 | 107 | 6 | 1999–2009 | 0.51 | M-v | 1 | MPC | 93227 (127993) |
| (128065) | 14.9 | 0.15 | 20100104 | 13.61012 | 180.75481 | 223.11954 | 7.79407 | 0.1335389 | 2.9837205 | 189 | 9 | 1998–2009 | 0.47 | M-v | 0 | MPC | 93249 (128065) |
| (128082) | 14.7 | 0.15 | 20100104 | 91.77479 | 33.74284 | 285.32503 | 8.36350 | 0.0717086 | 2.9619150 | 170 | 9 | 1998–2009 | 0.57 | M-v | 0 | MPC | 93254 (128082) |
| (128099) | 14.8 | 0.15 | 20100104 | 345.75470 | 120.23393 | 309.80662 | 12.28496 | 0.1000875 | 2.9936074 | 123 | 7 | 1998–2009 | 0.60 | M-v | 0 | MPC | 93259 (128099) |
| (128107) | 15.5 | 0.15 | 20100104 | 151.01426 | 3.07913 | 359.70792 | 12.65719 | 0.1069526 | 2.6105225 | 72 | 8 | 1999–2009 | 0.52 | M-v | 1 | MPC | 93262 (128107) |
| (128125) | 15.0 | 0.15 | 20100104 | 77.83113 | 49.96016 | 329.17720 | 1.18411 | 0.0780326 | 2.8673768 | 177 | 9 | 1998–2009 | 0.49 | M-v | 0 | MPC | 93267 (128125) |
| (128148) | 15.0 | 0.15 | 20100104 | 184.27107 | 169.44022 | 135.17172 | 14.78585 | 0.1557302 | 2.6965820 | 77 | 6 | 1999–2009 | 0.56 | M-v | 1 | MPC | 93275 (128148) |
| (128223) | 14.6 | 0.15 | 20100104 | 232.97806 | 290.82568 | 240.65462 | 18.46966 | 0.1633701 | 3.2020400 | 63 | 7 | 2000–2009 | 0.44 | M-v | 0 | MPC | 93300 (128223) |
| (128233) | 14.5 | 0.15 | 20100104 | 103.51245 | 255.98754 | 75.12845 | 11.57524 | 0.0806791 | 2.9719732 | 150 | 10 | 1998–2009 | 0.62 | M-v | 0 | MPC | 93303 (128233) |
| (128284) | 14.8 | 0.15 | 20100104 | 108.67376 | 274.01415 | 69.21481 | 14.68248 | 0.0496198 | 3.0363061 | 77 | 7 | 1998–2009 | 0.70 | M-v | 1 | MPC | 93318 (128284) |
| (128319) | 15.4 | 0.15 | 20100104 | 196.08831 | 220.90162 | 49.91439 | 6.47616 | 0.1795354 | 2.2333052 | 291 | 8 | 1998–2009 | 0.57 | M-v | 0 | MPC | 93329 (128319) |
| (128324) | 16.5 | 0.15 | 20100104 | 230.80858 | 166.25848 | 82.10439 | 4.85104 | 0.1826738 | 2.2549083 | 133 | 7 | 1997–2009 | 0.56 | M-v | 1 | MPC | 93331 (128324) |
| (128375) | 16.3 | 0.15 | 20100104 | 151.36632 | 222.93654 | 71.15381 | 7.28728 | 0.1890778 | 2.3985874 | 99 | 7 | 2000–2009 | 0.44 | M-v | 0 | MPC | 93347 (128375) |
| (128402) | 16.4 | 0.15 | 20100104 | 195.42471 | 333.55408 | 310.98501 | 1.58138 | 0.1902721 | 2.3721648 | 158 | 9 | 1998–2009 | 0.50 | M-v | 0 | MPC | 93355 (128402) |
| (128421) | 15.4 | 0.15 | 20100104 | 66.20663 | 97.40137 | 265.05760 | 11.84625 | 0.2423737 | 2.5951673 | 77 | 5 | 2000–2009 | 0.58 | M-v | 1 | MPC | 93361 (128421) |
| (128423) | 15.6 | 0.15 | 20100104 | 211.11259 | 9.17813 | 257.64922 | 8.71227 | 0.1926752 | 2.3369279 | 145 | 8 | 2000–2009 | 0.56 | M-v | 1 | MPC | 93362 (128423) |
| (128486) | 16.2 | 0.15 | 20100104 | 213.99431 | 8.84862 | 231.41281 | 1.40598 | 0.1369856 | 2.4311136 | 179 | 8 | 1999–2009 | 0.45 | M-v | 0 | MPC | 93382 (128486) |
| (128517) | 16.3 | 0.15 | 20100104 | 56.97282 | 103.56417 | 286.54421 | 3.13007 | 0.1384824 | 2.6180950 | 107 | 7 | 2000–2009 | 0.52 | M-v | 0 | MPC | 93391 (128517) |
| (128642) | 16.3 | 0.15 | 20100104 | 41.26442 | 315.68089 | 119.29090 | 6.13290 | 0.2154126 | 2.5572751 | 49 | 6 | 2000–2009 | 0.64 | M-v | 1 | MPC | 93432 (128642) |
| (128839) | 15.2 | 0.15 | 20100104 | 27.56313 | 317.05416 | 111.45096 | 15.69503 | 0.1161975 | 2.6979309 | 69 | 7 | 2000–2009 | 0.55 | M-v | 1 | MPC | 93496 (128839) |
| (128849) | 15.6 | 0.15 | 20100104 | 33.73995 | 324.02956 | 113.36050 | 9.35940 | 0.1276948 | 2.6066857 | 91 | 6 | 2000–2009 | 0.61 | M-v | 0 | MPC | 93499 (128849) |
| (128855) | 15.2 | 0.15 | 20100104 | 350.50479 | 339.22114 | 135.04309 | 13.55232 | 0.1620393 | 2.6456486 | 115 | 6 | 2000–2009 | 0.59 | M-v | 1 | MPC | 93501 (128855) |
| (128870) | 15.6 | 0.15 | 20100104 | 139.34368 | 165.72055 | 152.72667 | 6.22780 | 0.2440160 | 2.5880629 | 102 | 7 | 1999–2008 | 0.59 | M-v | 1 | MPC | 93506 (128870) |
| (128874) | 15.9 | 0.15 | 20100104 | 67.97635 | 260.56829 | 154.78634 | 6.52859 | 0.1271581 | 2.5862437 | 127 | 6 | 2000–2009 | 0.55 | M-v | 1 | MPC | 93507 (128874) |
| (128933) | 16.9 | 0.15 | 20100104 | 296.93037 | 29.73284 | 199.98118 | 3.66760 | 0.1625614 | 2.3917257 | 60 | 8 | 1999–2009 | 0.45 | M-v | 0 | MPC | 93526 (128933) |
| (128945) | 14.9 | 0.15 | 20100104 | 98.57757 | 231.21244 | 91.84535 | 7.12799 | 0.0504181 | 2.7806706 | 207 | 9 | 1998–2009 | 0.53 | M-v | 0 | MPC | 93530 (128945) |
| (129006) | 15.8 | 0.15 | 20100104 | 42.61553 | 31.27096 | 10.30776 | 5.32139 | 0.0441052 | 2.8151317 | 62 | 7 | 1999–2009 | 0.47 | M-v | 0 | MPC | 93547 (129006) |
| (129053) | 14.1 | 0.15 | 20100104 | 331.33655 | 147.33593 | 276.96936 | 11.93609 | 0.1044094 | 3.1260028 | 134 | 8 | 1998–2009 | 0.58 | M-v | 0 | MPC | 93560 (129053) |
| (129096) | 14.9 | 0.15 | 20100104 | 18.86264 | 66.86164 | 308.30259 | 8.14485 | 0.1487563 | 3.0761070 | 115 | 6 | 1998–2009 | 0.57 | M-v | 1 | MPC | 93573 (129096) |
| (129129) | 14.7 | 0.15 | 20100104 | 336.37185 | 86.92851 | 337.73494 | 25.36999 | 0.2015855 | 3.1047569 | 89 | 6 | 1998–2009 | 0.56 | M-v | 1 | MPC | 93582 (129129) |
| (129238) | 16.5 | 0.15 | 20100104 | 104.38797 | 201.00681 | 132.58810 | 5.50116 | 0.1548444 | 2.2390249 | 95 | 6 | 1997–2008 | 0.46 | M-v | 1 | MPC | 93611 (129238) |
| (129283) | 16.4 | 0.15 | 20100104 | 57.73773 | 201.21973 | 178.25233 | 6.48132 | 0.1388807 | 2.3393243 | 101 | 6 | 1998–2009 | 0.55 | M-v | 1 | MPC | 93624 (129283) |
| (129343) | 16.2 | 0.15 | 20100104 | 59.99679 | 211.00043 | 216.47450 | 3.58784 | 0.2343432 | 2.3989361 | 276 | 7 | 1960–2009 | 0.54 | M-v | 0 | MPC | 93644 (129343) |
| (129840) | 15.6 | 0.15 | 20100104 | 199.11753 | 314.23479 | 4.01951 | 11.92218 | 0.1962475 | 2.5845546 | 122 | 7 | 1999–2009 | 0.59 | M-v | 1 | MPC | 98335 (129840) |
| (129841) | 14.8 | 0.15 | 20100104 | 69.95782 | 60.69436 | 345.90960 | 8.51638 | 0.1969191 | 2.7337691 | 207 | 6 | 1999–2009 | 0.61 | M-v | 1 | MPC | 98335 (129841) |
| (129916) | 15.2 | 0.15 | 20100104 | 212.54008 | 27.09030 | 272.08952 | 4.67665 | 0.1755358 | 2.5874701 | 170 | 8 | 1999–2009 | 0.54 | M-v | 1 | MPC | 98362 (129916) |
| (129942) | 16.1 | 0.15 | 20100104 | 111.38363 | 9.03780 | 31.07876 | 5.77722 | 0.0621940 | 2.6790109 | 84 | 6 | 1999–2009 | 0.47 | M-v | 0 | MPC | 98371 (129942) |
| (129974) | 16.3 | 0.15 | 20100104 | 222.51972 | 195.95471 | 35.72389 | 4.25844 | 0.0410919 | 2.8006451 | 60 | 7 | 1999–2009 | 0.44 | M-v | 0 | MPC | 98382 (129974) |
| (130022) | 16.1 | 0.15 | 20100104 | 19.76216 | 261.39910 | 161.71502 | 2.23671 | 0.0584525 | 2.8842128 | 108 | 6 | 1999–2009 | 0.40 | M-v | 0 | MPC | 98399 (130022) |
| (130099) | 15.3 | 0.15 | 20100104 | 42.89215 | 12.30855 | 61.10849 | 10.95163 | 0.2752070 | 2.7961344 | 150 | 6 | 1999–2009 | 0.60 | M-v | 0 | MPC | 98426 (130099) |
| (130115) | 15.6 | 0.15 | 20100104 | 46.62914 | 159.09734 | 244.11572 | 1.09334 | 0.0458922 | 2.8874020 | 119 | 7 | 1999–2009 | 0.48 | M-v | 0 | MPC | 98432 (130115) |
| (130181) | 15.0 | 0.15 | 20100104 | 48.66417 | 134.74308 | 260.65380 | 13.81624 | 0.1390579 | 2.8548103 | 101 | 7 | 1999–2009 | 0.55 | M-v | 0 | MPC | 98457 (130181) |
| (130258) | 14.6 | 0.15 | 20100104 | 185.31979 | 87.44279 | 160.76964 | 11.46502 | 0.0957230 | 3.1670639 | 85 | 6 | 2000–2009 | 0.59 | M-v | 0 | MPC | 98481 (130258) |
| (130332) | 14.4 | 0.15 | 20100104 | 211.17176 | 226.21221 | 36.64824 | 27.64255 | 0.1226127 | 3.1412624 | 120 | 7 | 2000–2009 | 0.56 | M-v | 0 | MPC | 98506 (130332) |
| (130354) | 15.2 | 0.15 | 20100104 | 357.67798 | 247.76022 | 216.42454 | 1.07540 | 0.0698313 | 3.1278830 | 154 | 8 | 2000–2009 | 0.47 | M-v | 0 | MPC | 98513 (130354) |
| (130583) | 14.5 | 0.15 | 20100104 | 42.56277 | 110.88404 | 356.61988 | 12.03227 | 0.2501416 | 2.5632665 | 298 | 6 | 2000–2009 | 0.49 | M-v | 1 | MPC | 98606 (130583) |
| (130707) | 15.4 | 0.15 | 20100104 | 53.33113 | 80.50576 | 344.39779 | 3.81995 | 0.2724462 | 2.6069953 | 235 | 6 | 2000–2009 | 0.54 | M-v | 1 | MPC | 98654 (130707) |
| (130931) | 15.2 | 0.15 | 20100104 | 358.11428 | 68.43525 | 79.85770 | 28.20640 | 0.2071172 | 2.6193379 | 100 | 6 | 2000–2009 | 0.60 | M-v | 1 | MPC | 98736 (130931) |
| (130980) | 14.7 | 0.15 | 20100104 | 53.76753 | 20.19366 | 59.08855 | 12.08664 | 0.1793350 | 2.6622441 | 245 | 6 | 2000–2009 | 0.55 | M-v | 1 | MPC | 98752 (130980) |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (130984) | 15.9 | 0.15 | 20100104 | 70.06103 | 57.62717 | 3.80557 | 11.61448 | 0.1790972 | 2.5684369 | 156 | 6 | 2000–2009 | 0.51 | M-v | 1 | MPC | 98754 (130984) |
| (131007) | 14.9 | 0.15 | 20100104 | 61.04629 | 358.42473 | 57.46313 | 13.31564 | 0.2168879 | 2.6497434 | 128 | 6 | 2000–2009 | 0.56 | M-v | 1 | MPC | 98762 (131007) |
| (131024) | 15.1 | 0.15 | 20100104 | 43.89456 | 91.05569 | 358.37633 | 11.73733 | 0.1521279 | 2.6168448 | 205 | 6 | 2000–2009 | 0.52 | M-v | 1 | MPC | 98769 (131024) |
| (131079) | 14.9 | 0.15 | 20100104 | 61.07648 | 306.95217 | 99.62484 | 17.89631 | 0.1182557 | 2.7031201 | 113 | 6 | 2000–2009 | 0.55 | M-v | 1 | MPC | 154027 (131079) |
| (131098) | 15.6 | 0.15 | 20100104 | 26.35757 | 317.67551 | 146.33917 | 9.00778 | 0.1555116 | 2.6898896 | 77 | 6 | 2001–2009 | 0.65 | M-v | 1 | MPC | 98795 (131098) |
| (131214) | 15.9 | 0.15 | 20100104 | 6.53179 | 329.19414 | 165.25675 | 2.62707 | 0.0121718 | 2.7178570 | 105 | 7 | 2001–2009 | 0.41 | M-v | 0 | MPC | 98835 (131214) |
| (131217) | 15.4 | 0.15 | 20100104 | 61.11069 | 290.77680 | 157.97057 | 13.80714 | 0.1550309 | 2.6780096 | 110 | 7 | 1999–2009 | 0.57 | M-v | 0 | MPC | 98835 (131217) |
| (131239) | 14.7 | 0.15 | 20100104 | 0.40670 | 64.19949 | 104.24484 | 12.43576 | 0.1368522 | 2.6782154 | 127 | 7 | 2001–2009 | 0.48 | M-v | 0 | MPC | 98842 (131239) |
| (131274) | 15.1 | 0.15 | 20100104 | 302.56104 | 76.75620 | 94.72080 | 4.27048 | 0.1498837 | 2.8612545 | 115 | 8 | 1999–2009 | 0.61 | M-v | 1 | MPC | 98855 (131274) |
| (131290) | 15.8 | 0.15 | 20100104 | 236.20450 | 260.75070 | 332.26649 | 1.92863 | 0.1550033 | 2.9293116 | 108 | 7 | 2001–2009 | 0.45 | M-v | 1 | MPC | 98861 (131290) |
| (131311) | 14.9 | 0.15 | 20100104 | 219.28004 | 30.60636 | 187.84098 | 11.63313 | 0.0624211 | 3.0048935 | 117 | 7 | 2001–2009 | 0.50 | M-v | 0 | MPC | 98867 (131311) |
| (131316) | 14.5 | 0.15 | 20100104 | 124.26405 | 230.76877 | 82.96179 | 11.10061 | 0.0348912 | 2.9745734 | 97 | 9 | 1998–2009 | 0.54 | M-v | 0 | MPC | 98869 (131316) |
| (131428) | 14.8 | 0.15 | 20100104 | 186.31568 | 202.65479 | 91.52404 | 6.58529 | 0.1514912 | 3.2124517 | 108 | 9 | 2000–2009 | 0.55 | M-v | 0 | MPC | 98907 (131428) |
| (131464) | 13.9 | 0.15 | 20100104 | 158.03488 | 198.03760 | 125.10004 | 23.11424 | 0.0721325 | 3.2368948 | 138 | 9 | 2000–2009 | 0.56 | M-v | 0 | MPC | 98921 (131464) |
| (131755) | 15.5 | 0.15 | 20100104 | 311.86702 | 5.18995 | 192.27331 | 2.76668 | 0.1340801 | 2.4833363 | 219 | 7 | 2000–2009 | 0.51 | M-v | 1 | MPC | 99033 (131755) |
| (132287) | 15.5 | 0.15 | 20100104 | 241.98834 | 217.77224 | 75.39748 | 8.76835 | 0.1934566 | 2.5374719 | 112 | 8 | 1999–2009 | 0.57 | M-v | 1 | MPC | 99229 (132287) |
| (132324) | 15.5 | 0.15 | 20100104 | 263.08823 | 174.35329 | 38.59225 | 11.22111 | 0.1047825 | 2.7293940 | 103 | 7 | 1999–2009 | 0.56 | M-v | 0 | MPC | 99242 (132324) |
| (132412) | 15.5 | 0.15 | 20100104 | 129.96482 | 315.19186 | 59.21988 | 6.43964 | 0.0940010 | 2.6966259 | 157 | 9 | 1999–2009 | 0.48 | M-v | 0 | MPC | 99271 (132412) |
| (132443) | 15.7 | 0.15 | 20100104 | 24.32976 | 237.79583 | 195.09462 | 12.49090 | 0.1274296 | 2.6972424 | 92 | 6 | 2000–2008 | 0.56 | M-v | 1 | MPC | 99281 (132443) |
| (132529) | 15.3 | 0.15 | 20100104 | 308.15972 | 99.55907 | 77.76171 | 14.06025 | 0.1025394 | 2.6961999 | 90 | 6 | 2001–2009 | 0.71 | M-v | 1 | MPC | 99311 (132529) |
| (132561) | 15.6 | 0.15 | 20100104 | 267.52594 | 347.66765 | 276.93084 | 1.74055 | 0.1260564 | 2.6153827 | 145 | 8 | 1999–2009 | 0.52 | M-v | 0 | MPC | 99322 (132561) |
| (132598) | 15.2 | 0.15 | 20100104 | 19.71382 | 49.04215 | 32.73980 | 5.72470 | 0.0955307 | 2.7343980 | 120 | 6 | 2001–2009 | 0.55 | M-v | 0 | MPC | 99334 (132598) |
| (132767) | 14.7 | 0.15 | 20100104 | 227.72461 | 307.77625 | 354.97784 | 8.01514 | 0.1361726 | 2.8111227 | 235 | 6 | 2002–2009 | 0.49 | M-v | 0 | MPC | 99387 (132767) |
| (132810) | 15.3 | 0.15 | 20100104 | 241.74028 | 128.97036 | 120.38879 | 7.96777 | 0.1405060 | 2.9130128 | 88 | 7 | 2001–2009 | 0.56 | M-v | 1 | MPC | 99400 (132810) |
| (132834) | 14.4 | 0.15 | 20100104 | 261.42722 | 224.69514 | 344.06492 | 9.07089 | 0.0368193 | 3.1002811 | 171 | 8 | 2000–2009 | 0.55 | M-v | 0 | MPC | 99406 (132834) |
| (132925) | 15.4 | 0.15 | 20100104 | 176.08992 | 252.24847 | 40.40447 | 1.58927 | 0.1828332 | 3.1008811 | 124 | 7 | 2000–2009 | 0.49 | M-v | 0 | MPC | 99434 (132925) |
| (133008) | 15.1 | 0.15 | 20100104 | 204.31298 | 231.64532 | 11.32944 | 8.52467 | 0.1955089 | 3.1748382 | 108 | 7 | 2000–2009 | 0.44 | M-v | 0 | MPC | 99462 (133008) |
| (133061) | 15.7 | 0.15 | 20100104 | 202.09721 | 165.46834 | 154.29344 | 6.97119 | 0.1275736 | 2.3588466 | 167 | 7 | 2000–2009 | 0.55 | M-v | 1 | MPC | 99481 (133061) |
| (133063) | 15.7 | 0.15 | 20100104 | 233.34920 | 113.06046 | 167.08198 | 4.20438 | 0.1414026 | 2.3466776 | 179 | 8 | 2000–2009 | 0.56 | M-v | 0 | MPC | 99481 (133063) |
| (133172) | 14.9 | 0.15 | 20100104 | 31.29162 | 269.02422 | 135.59084 | 2.43088 | 0.2620224 | 3.1265884 | 196 | 7 | 1998–2009 | 0.48 | M-v | 0 | MPC | 99515 (133172) |
| (133247) | 15.2 | 0.15 | 20100104 | 296.77620 | 227.76139 | 351.29557 | 14.24051 | 0.0519482 | 2.6321367 | 86 | 7 | 1999–2009 | 0.57 | M-v | 1 | MPC | 99540 (133247) |
| (133305) | 15.1 | 0.15 | 20100104 | 15.05798 | 339.72416 | 100.97290 | 3.10148 | 0.0765331 | 2.9497510 | 110 | 6 | 1999–2009 | 0.56 | M-v | 0 | MPC | 99559 (133305) |
| (133306) | 14.5 | 0.15 | 20100104 | 84.91241 | 62.38223 | 306.38077 | 8.61181 | 0.1358555 | 2.9451214 | 182 | 8 | 1998–2009 | 0.51 | M-v | 1 | MPC | 99559 (133306) |
| (133345) | 14.6 | 0.15 | 20100104 | 72.69347 | 46.30195 | 302.13996 | 3.54807 | 0.2093984 | 3.1022551 | 190 | 8 | 1998–2009 | 0.52 | M-v | 0 | MPC | 99572 (133345) |
| (133453) | 15.0 | 0.15 | 20100104 | 97.06385 | 6.96380 | 43.08478 | 4.82264 | 0.1007270 | 2.7926727 | 268 | 8 | 2000–2009 | 0.46 | M-v | 0 | MPC | 99608 (133453) |
| (133454) | 15.6 | 0.15 | 20100104 | 217.31211 | 84.66275 | 203.43459 | 3.56365 | 0.0773271 | 2.7811850 | 119 | 7 | 1998–2009 | 0.46 | M-v | 0 | MPC | 99608 (133454) |
| (133562) | 15.5 | 0.15 | 20100104 | 33.39476 | 165.58918 | 257.57273 | 1.99342 | 0.0683760 | 3.0689427 | 109 | 7 | 2001–2009 | 0.45 | M-v | 0 | MPC | 99642 (133562) |
| (133564) | 13.5 | 0.15 | 20100104 | 352.39539 | 315.31085 | 90.84082 | 18.60831 | 0.0436507 | 3.4141474 | 164 | 9 | 1999–2009 | 0.63 | M-v | 0 | MPC | 99642 (133564) |
| (133613) | 16.4 | 0.15 | 20100104 | 101.68843 | 248.10679 | 110.83336 | 2.23789 | 0.0632549 | 3.0226749 | 56 | 7 | 2000–2009 | 0.39 | M-v | 0 | MPC | 99657 (133613) |
| (133674) | 14.4 | 0.15 | 20100104 | 290.19967 | 158.31662 | 22.55496 | 8.83074 | 0.1048309 | 3.0018528 | 174 | 8 | 2000–2009 | 0.51 | M-v | 0 | MPC | 99676 (133674) |
| (133700) | 15.1 | 0.15 | 20100104 | 351.39665 | 131.41749 | 341.27789 | 4.21487 | 0.1271249 | 3.0850757 | 128 | 7 | 2000–2009 | 0.52 | M-v | 0 | MPC | 99684 (133700) |
| (133721) | 14.4 | 0.15 | 20100104 | 255.97033 | 327.23859 | 230.01521 | 20.91306 | 0.0200233 | 3.1978317 | 90 | 8 | 1997–2009 | 0.56 | M-v | 0 | MPC | 99691 (133721) |
| (133730) | 14.7 | 0.15 | 20100104 | 285.01803 | 97.79962 | 84.73620 | 11.10911 | 0.1132334 | 3.0735971 | 77 | 6 | 2000–2009 | 0.58 | M-v | 0 | MPC | 99694 (133730) |
| (133743) | 15.1 | 0.15 | 20100104 | 21.45346 | 12.99293 | 69.06230 | 10.53595 | 0.0118754 | 3.0843245 | 80 | 8 | 2000–2009 | 0.57 | M-v | 0 | MPC | 99697 (133743) |
| (133791) | 14.4 | 0.15 | 20100104 | 157.22139 | 242.26012 | 67.42008 | 22.45116 | 0.0042270 | 3.1683504 | 109 | 7 | 2000–2009 | 0.59 | M-v | 0 | MPC | 99711 (133791) |
| (133804) | 14.4 | 0.15 | 20100104 | 5.86259 | 354.14296 | 99.43527 | 25.81238 | 0.1828046 | 3.1647707 | 109 | 5 | 1998–2009 | 0.58 | M-v | 0 | MPC | 99715 (133804) |
| (133875) | 16.0 | 0.15 | 20100104 | 80.95660 | 15.35563 | 357.02330 | 4.91354 | 0.1991807 | 2.5336149 | 81 | 8 | 2000–2009 | 0.55 | M-v | 1 | MPC | 99736 (133875) |
| (133884) | 14.9 | 0.15 | 20100104 | 37.89780 | 223.16947 | 194.97844 | 16.43644 | 0.2477462 | 2.7434980 | 133 | 8 | 1999–2009 | 0.47 | M-v | 1 | MPC | 99739 (133884) |
| (133923) | 15.5 | 0.15 | 20100104 | 44.39702 | 41.14055 | 29.55506 | 8.37659 | 0.1472273 | 2.6465773 | 130 | 6 | 2000–2009 | 0.59 | M-v | 1 | MPC | 99753 (133923) |
| (133954) | 15.6 | 0.15 | 20100104 | 13.97033 | 281.04008 | 160.95870 | 10.18689 | 0.2300293 | 2.6970924 | 73 | 6 | 2000–2009 | 0.63 | M-v | 1 | MPC | 99762 (133954) |
| (133970) | 15.5 | 0.15 | 20100104 | 28.47087 | 35.25728 | 33.42768 | 2.98121 | 0.1738198 | 2.7770860 | 122 | 7 | 1999–2009 | 0.51 | M-v | 0 | MPC | 99767 (133970) |
| (134050) | 15.3 | 0.15 | 20100104 | 350.41190 | 52.53988 | 53.98599 | 4.60733 | 0.0276061 | 2.9725966 | 70 | 6 | 2000–2009 | 0.55 | M-v | 0 | MPC | 99790 (134050) |
| (134051) | 15.9 | 0.15 | 20100104 | 21.39363 | 276.39874 | 195.97736 | 2.22720 | 0.1415050 | 2.7111703 | 114 | 7 | 1999–2009 | 0.46 | M-v | 0 | MPC | 99790 (134051) |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (134057) | 15.3 | 0.15 | 20100104 | 127.76173 | 297.72666 | 100.53102 | 12.55204 | 0.1433261 | 2.4399049 | 108 | 6 | 1996–2009 | 0.49 | M-v | 2 | MPC | 99792 (134057) |
| (134107) | 15.9 | 0.15 | 20100104 | 28.17097 | 298.69052 | 128.66651 | 3.04784 | 0.1160500 | 2.9264927 | 69 | 7 | 2000–2009 | 0.52 | M-v | 0 | MPC | 99805 (134107) |
| (134118) | 14.8 | 0.15 | 20100104 | 271.86912 | 250.26938 | 295.15519 | 7.74364 | 0.0851194 | 3.0553426 | 107 | 8 | 2000–2009 | 0.54 | M-v | 0 | MPC | 99809 (134118) |
| (134119) | 15.1 | 0.15 | 20100104 | 251.94320 | 98.48094 | 109.78575 | 14.85912 | 0.1561088 | 3.1015697 | 63 | 5 | 2000–2009 | 0.48 | M-v | 0 | MPC | 99809 (134119) |
| (134160) | 14.5 | 0.15 | 20100104 | 140.22146 | 184.22072 | 131.52594 | 13.29809 | 0.1353325 | 2.9758254 | 122 | 9 | 2000–2009 | 0.56 | M-v | 0 | MPC | 99820 (134160) |
| (134181) | 14.8 | 0.15 | 20100104 | 192.40151 | 189.25039 | 129.48813 | 27.56791 | 0.1542688 | 2.7685435 | 89 | 6 | 2002–2009 | 0.50 | M-v | 1 | MPC | 99826 (134181) |
| (134191) | 15.9 | 0.15 | 20100104 | 282.83986 | 305.68479 | 251.12004 | 2.15397 | 0.0863475 | 3.0579924 | 75 | 8 | 2000–2009 | 0.44 | M-v | 0 | MPC | 99829 (134191) |
| (134196) | 14.0 | 0.15 | 20100104 | 161.85117 | 257.53800 | 33.66180 | 27.21178 | 0.0566115 | 3.1399245 | 160 | 7 | 2000–2009 | 0.58 | M-v | 0 | MPC | 99830 (134196) |
| (134199) | 14.4 | 0.15 | 20100104 | 157.81693 | 195.11870 | 124.17077 | 8.56637 | 0.0773400 | 3.1582128 | 157 | 8 | 2000–2009 | 0.57 | M-v | 0 | MPC | 99831 (134199) |
| (134257) | 15.5 | 0.15 | 20100104 | 322.40698 | 159.45604 | 351.98522 | 5.93844 | 0.1701249 | 2.7481744 | 123 | 7 | 1999–2009 | 0.51 | M-v | 1 | MPC | 99848 (134257) |
| (134275) | 15.1 | 0.15 | 20100104 | 292.61443 | 298.96437 | 261.95633 | 11.65722 | 0.2129641 | 2.6254954 | 109 | 7 | 2000–2009 | 0.57 | M-v | 1 | MPC | 99853 (134275) |
| (134298) | 15.2 | 0.15 | 20100104 | 266.38548 | 119.66388 | 78.46248 | 11.91236 | 0.0557059 | 2.7666577 | 64 | 6 | 2001–2009 | 0.59 | M-v | 1 | MPC | 99860 (134298) |
| (135001) | 17.0 | 0.15 | 20100104 | 230.34480 | 191.79900 | 63.08028 | 1.80561 | 0.1387357 | 2.1716388 | 171 | 7 | 1994–2009 | 0.48 | M-v | 0 | MPC | 102621 (135001) |
| (135061) | 17.1 | 0.15 | 20100104 | 68.46491 | 57.84412 | 315.55752 | 22.70410 | 0.1498525 | 1.8756973 | 92 | 5 | 2000–2009 | 0.62 | M-v | 1 | MPC | 102642 (135061) |
| (135278) | 16.3 | 0.15 | 20100104 | 141.32659 | 34.99144 | 288.14260 | 2.09327 | 0.1809730 | 2.3404132 | 158 | 7 | 1994–2009 | 0.48 | M-v | 0 | MPC | 102726 (135278) |
| (135285) | 16.1 | 0.15 | 20100104 | 22.56092 | 147.55309 | 281.16311 | 3.96302 | 0.1722046 | 2.4266195 | 169 | 7 | 1994–2009 | 0.55 | M-v | 0 | MPC | 102728 (135285) |
| (136313) | 14.8 | 0.15 | 20100104 | 299.50133 | 91.79591 | 139.99572 | 10.89444 | 0.0987678 | 3.1275655 | 98 | 6 | 2001–2009 | 0.52 | M-v | 0 | MPC | 103064 (136313) |
| (136618) | 16.7 | 0.15 | 20100104 | 162.66514 | 248.19673 | 99.36675 | 1.43820 | 0.3950232 | 1.5732391 | 314 | 8 | 1994–2008 | 0.48 | M-v | 3 | MPC | 160708 (136618) |
| (136976) | 15.1 | 0.15 | 20100104 | 113.09886 | 327.57784 | 347.88582 | 11.07326 | 0.1203483 | 2.9731736 | 147 | 7 | 1996–2009 | 0.51 | M-v | 0 | MPC | 104564 (136976) |
| (137581) | 16.3 | 0.15 | 20100104 | 49.63043 | 125.74964 | 290.37013 | 1.04306 | 0.1489713 | 2.1951955 | 207 | 6 | 1999–2009 | 0.51 | M-v | 0 | MPC | 104812 (137581) |
| (137805) | 16.6 | 0.15 | 20100104 | 243.67725 | 292.77155 | 349.63594 | 16.74141 | 0.5582947 | 0.8294274 | 423 | 9 | 1999–2009 | 0.52 | M-v | 3 | MPC | 166070 (137805) |
| (137925) | 15.8 | 0.15 | 20100104 | 121.54054 | 175.46572 | 131.26134 | 31.10430 | 0.7638351 | 1.2917672 | 422 | 8 | 1997–2009 | 0.45 | M-v | 2 | MPC | 159638 (137925) |
| (138852) | 20.1 | 0.15 | 20100104 | 146.15490 | 225.13519 | 60.98312 | 21.47821 | 0.2991755 | 1.0014335 | 378 | 10 | 2000–2009 | 0.44 | M-v | 3 | MPC | 166070 (138852) |
| (138893) | 17.9 | 0.15 | 20100104 | 317.12130 | 341.28119 | 265.32732 | 18.32781 | 0.7435429 | 1.1729530 | 169 | 8 | 2000–2009 | 0.60 | M-v | 2 | MPC | 164133 (138893) |
| (138935) | 16.3 | 0.15 | 20100104 | 296.54048 | 264.65681 | 264.91613 | 4.11008 | 0.0984462 | 2.7648527 | 66 | 6 | 2000–2009 | 0.33 | M-v | 0 | MPC | 105342 (138935) |
| (139034) | 15.5 | 0.15 | 20100104 | 308.10438 | 240.88417 | 334.13952 | 13.39136 | 0.0566258 | 2.6693160 | 92 | 7 | 2001–2009 | 0.55 | M-v | 0 | MPC | 105380 (139034) |
| (139236) | 16.9 | 0.15 | 20100104 | 192.36398 | 61.83496 | 201.61228 | 4.33172 | 0.1629988 | 2.2136810 | 128 | 7 | 1995–2009 | 0.50 | M-v | 0 | MPC | 105452 (139236) |
| (139456) | 16.3 | 0.15 | 20100104 | 211.27150 | 84.30495 | 164.68464 | 2.45295 | 0.1980396 | 2.2564812 | 212 | 7 | 1995–2009 | 0.51 | M-v | 0 | MPC | 105529 (139456) |
| (139466) | 14.3 | 0.15 | 20100104 | 191.47734 | 170.32606 | 124.58799 | 9.21762 | 0.1226111 | 3.1826678 | 114 | 9 | 2000–2009 | 0.53 | M-v | 0 | MPC | 105533 (139466) |
| (140689) | 14.7 | 0.15 | 20100104 | 298.40241 | 231.31420 | 13.50970 | 4.91006 | 0.1395397 | 3.1632488 | 141 | 7 | 2001–2009 | 0.50 | M-v | 0 | MPC | 106002 (140689) |
| (141339) | 16.4 | 0.15 | 20100104 | 322.10796 | 14.54823 | 99.91325 | 23.46773 | 0.0681736 | 1.9366393 | 124 | 6 | 2000–2009 | 0.62 | M-v | 1 | MPC | 106232 (141339) |
| (141417) | 15.9 | 0.15 | 20100104 | 329.10384 | 335.81136 | 135.60689 | 24.30928 | 0.0823416 | 1.9603958 | 146 | 6 | 2001–2009 | 0.58 | M-v | 1 | MPC | 106258 (141417) |
| (141520) | 16.8 | 0.15 | 20100104 | 341.15037 | 344.09934 | 150.74238 | 2.55830 | 0.0609095 | 2.6186920 | 70 | 6 | 2000–2009 | 0.43 | M-v | 1 | MPC | 106295 (141520) |
| (141577) | 12.6 | 0.15 | 20100104 | 32.42193 | 41.81450 | 356.82226 | 3.53978 | 0.0469960 | 5.2048142 | 137 | 10 | 1995–2009 | 0.51 | M-v | 0 | MPC | 106314 (141577) |
| (141761) | 17.2 | 0.15 | 20100104 | 289.23528 | 159.97430 | 151.60814 | 18.90274 | 0.5084453 | 2.5781014 | 252 | 3 | 2002–2006 | 0.48 | M-v | 0 | MPC | 106379 (141761) |
| (141910) | 17.2 | 0.15 | 20100104 | 41.67466 | 268.89492 | 38.08086 | 4.87689 | 0.1672924 | 2.3216305 | 86 | 6 | 2002–2009 | 0.34 | M-v | 0 | MPC | 106431 (141910) |
| (142954) | 16.1 | 0.15 | 20100104 | 242.65509 | 130.83209 | 98.25665 | 4.08417 | 0.1110022 | 2.2227477 | 229 | 6 | 2002–2009 | 0.51 | M-v | 1 | MPC | 106817 (142954) |
| (143308) | 16.2 | 0.15 | 20100104 | 5.02390 | 311.09815 | 151.37309 | 6.46557 | 0.0868914 | 2.3389187 | 139 | 7 | 1996–2009 | 0.48 | M-v | 0 | MPC | 106943 (143308) |
| (143559) | 16.7 | 0.15 | 20100104 | 346.94396 | 277.66526 | 208.00492 | 3.45530 | 0.1489204 | 2.3831131 | 108 | 7 | 1995–2009 | 0.52 | M-v | 0 | MPC | 107025 (143559) |
| (143675) | 16.0 | 0.15 | 20100104 | 140.91052 | 215.68045 | 139.78005 | 2.84052 | 0.0767083 | 2.8634583 | 83 | 7 | 2000–2009 | 0.33 | M-v | 0 | MPC | 107062 (143675) |
| (144336) | 14.5 | 0.15 | 20100104 | 249.79067 | 304.68851 | 339.77108 | 15.00108 | 0.1307804 | 3.2090710 | 102 | 8 | 2001–2009 | 0.56 | M-v | 0 | MPC | 107281 (144336) |
| (144929) | 16.5 | 0.15 | 20100104 | 222.80249 | 264.20558 | 335.13031 | 17.11895 | 0.0707378 | 1.9086494 | 87 | 5 | 2001–2009 | 0.52 | M-v | 1 | MPC | 107470 (144929) |
| (145521) | 14.6 | 0.15 | 20100104 | 178.67089 | 267.48948 | 354.29691 | 16.47556 | 0.0642096 | 3.1146938 | 109 | 7 | 2000–2009 | 0.55 | M-v | 0 | MPC | 107645 (145521) |
| (146281) | 16.2 | 0.15 | 20100104 | 162.09928 | 80.50827 | 162.10729 | 6.26132 | 0.0350836 | 2.2466050 | 189 | 6 | 2001–2009 | 0.56 | M-v | 0 | MPC | 111642 (146281) |
| (146969) | 16.0 | 0.15 | 20100104 | 88.00645 | 43.91693 | 293.98710 | 5.21257 | 0.1915462 | 2.1317007 | 103 | 7 | 2001–2009 | 0.50 | M-v | 1 | MPC | 111875 (146969) |
| (147589) | 14.9 | 0.15 | 20100104 | 305.10718 | 187.57856 | 105.02920 | 4.70103 | 0.2156532 | 3.1419097 | 132 | 6 | 2003–2009 | 0.37 | M-v | 0 | MPC | 152289 (147589) |
| (148478) | 16.5 | 0.15 | 20100104 | 184.18836 | 165.94724 | 85.27704 | 9.24208 | 0.0767553 | 2.2217916 | 60 | 5 | 2001–2009 | 0.52 | M-v | 2 | MPC | 113204 (148478) |
| (148488) | 16.5 | 0.15 | 20100104 | 194.76373 | 181.01540 | 71.86677 | 5.48993 | 0.0825397 | 2.2409881 | 82 | 5 | 2001–2009 | 0.49 | M-v | 1 | MPC | 113207 (148488) |
| (148498) | 16.2 | 0.15 | 20100104 | 80.80581 | 259.39829 | 46.88670 | 2.48756 | 0.2003328 | 2.4254390 | 199 | 6 | 2001–2009 | 0.52 | M-v | 1 | MPC | 113210 (148498) |
| (149278) | 16.3 | 0.15 | 20100104 | 120.30432 | 350.77683 | 332.72198 | 7.36373 | 0.1837525 | 2.1961513 | 139 | 6 | 2002–2009 | 0.45 | M-v | 1 | MPC | 113481 (149278) |
| (149302) | 16.5 | 0.15 | 20100104 | 95.61786 | 352.15895 | 335.60318 | 4.15779 | 0.1807586 | 2.2632621 | 103 | 6 | 2002–2009 | 0.48 | M-v | 1 | MPC | 113489 (149302) |
| (149305) | 16.4 | 0.15 | 20100104 | 356.12088 | 108.04024 | 187.83051 | 16.29750 | 0.2896456 | 2.5324829 | 71 | 5 | 2001–2009 | 0.58 | M-v | 1 | MPC | 113490 (149305) |
| (149328) | 16.9 | 0.15 | 20100104 | 107.60100 | 212.86018 | 132.90062 | 5.97864 | 0.1452388 | 2.2224811 | 88 | 6 | 2001–2009 | 0.43 | M-v | 1 | MPC | 113498 (149328) |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (149561) | 16.0 | 0.15 | 20100104 | 45.47453 | 157.62159 | 272.20446 | 17.53787 | 0.0871858 | 1.9641818 | 105 | 4 | 1998–2009 | 0.56 | M-v | 1 | MPC | 166072 (149561) |
| (149598) | 17.2 | 0.15 | 20100104 | 192.56152 | 132.02081 | 122.77138 | 6.46534 | 0.0116000 | 2.1723837 | 63 | 5 | 2002–2009 | 0.44 | M-v | 1 | MPC | 113580 (149598) |
| (149658) | 17.5 | 0.15 | 20100104 | 298.27115 | 353.71632 | 159.93456 | 4.48505 | 0.0505128 | 2.2161828 | 79 | 5 | 2002–2009 | 0.42 | M-v | 1 | MPC | 113599 (149658) |
| (149661) | 16.6 | 0.15 | 20100104 | 287.86595 | 40.55964 | 123.83563 | 7.28183 | 0.0474559 | 2.2294510 | 95 | 7 | 2001–2009 | 0.53 | M-v | 1 | MPC | 113600 (149661) |
| (149883) | 15.8 | 0.15 | 20100104 | 86.06986 | 226.74710 | 112.60339 | 22.79083 | 0.1711704 | 2.2910094 | 83 | 6 | 2002–2009 | 0.59 | M-v | 1 | MPC | 113664 (149883) |
| (150313) | 17.9 | 0.15 | 20100104 | 221.17957 | 213.83355 | 36.32942 | 0.86848 | 0.0702060 | 2.1511836 | 66 | 8 | 1998–2009 | 0.38 | M-v | 0 | MPC | 114913 (150313) |
| (150342) | 15.9 | 0.15 | 20100104 | 347.32275 | 213.41254 | 267.86732 | 5.13380 | 0.1042878 | 2.2281148 | 165 | 7 | 1999–2009 | 0.56 | M-v | 1 | MPC | 114922 (150342) |
| (150683) | 16.0 | 0.15 | 20100104 | 358.73861 | 33.11185 | 3.64141 | 6.25227 | 0.1377899 | 2.4432873 | 153 | 5 | 2001–2009 | 0.48 | M-v | 0 | MPC | 115041 (150683) |
| (150710) | 16.7 | 0.15 | 20100104 | 124.63297 | 129.50158 | 171.89842 | 2.45717 | 0.2278159 | 2.3725224 | 112 | 6 | 2001–2009 | 0.50 | M-v | 1 | MPC | 115051 (150710) |
| (150723) | 16.1 | 0.15 | 20100104 | 133.42283 | 268.81607 | 28.34923 | 2.86432 | 0.1923739 | 2.3760601 | 157 | 5 | 2001–2009 | 0.50 | M-v | 0 | MPC | 115057 (150723) |
| (150764) | 15.7 | 0.15 | 20100104 | 199.52840 | 337.88402 | 278.39701 | 5.13917 | 0.1304867 | 2.3155752 | 232 | 7 | 2001–2009 | 0.51 | M-v | 0 | MPC | 115074 (150764) |
| (150765) | 17.2 | 0.15 | 20100104 | 141.76115 | 134.58490 | 173.22401 | 1.49588 | 0.1945747 | 2.3532178 | 118 | 7 | 2001–2009 | 0.46 | M-v | 0 | MPC | 115074 (150765) |
| (150767) | 15.9 | 0.15 | 20100104 | 4.65414 | 47.40463 | 356.87728 | 14.73458 | 0.1701304 | 2.4854836 | 218 | 5 | 2001–2009 | 0.45 | M-v | 1 | MPC | 115075 (150767) |
| (150779) | 15.0 | 0.15 | 20100104 | 13.95154 | 97.61218 | 271.86991 | 12.76123 | 0.1827453 | 2.5399397 | 242 | 6 | 2001–2009 | 0.49 | M-v | 1 | MPC | 115080 (150779) |
| (150788) | 16.1 | 0.15 | 20100104 | 346.89419 | 59.23847 | 355.63797 | 6.06909 | 0.1096077 | 2.4866447 | 149 | 5 | 2001–2009 | 0.52 | M-v | 1 | MPC | 115084 (150788) |
| (150791) | 15.9 | 0.15 | 20100104 | 283.60766 | 231.43833 | 258.82605 | 5.30206 | 0.0846497 | 2.4264930 | 131 | 5 | 2001–2009 | 0.49 | M-v | 1 | MPC | 115085 (150791) |
| (150808) | 16.0 | 0.15 | 20100104 | 331.92525 | 73.59748 | 6.93750 | 6.22351 | 0.1153793 | 2.4619561 | 240 | 5 | 2001–2009 | 0.67 | M-v | 0 | MPC | 115091 (150808) |
| (150824) | 15.8 | 0.15 | 20100104 | 51.54904 | 355.38343 | 15.77539 | 7.90964 | 0.1037185 | 2.4630196 | 251 | 5 | 2001–2009 | 0.51 | M-v | 2 | MPC | 115097 (150824) |
| (150842) | 16.1 | 0.15 | 20100104 | 104.90142 | 191.70798 | 150.18153 | 5.50566 | 0.1948102 | 2.4065015 | 120 | 6 | 2001–2009 | 0.51 | M-v | 1 | MPC | 115105 (150842) |
| (150850) | 16.2 | 0.15 | 20100104 | 334.69344 | 116.00364 | 340.11011 | 6.38130 | 0.0841239 | 2.4317660 | 151 | 5 | 2001–2009 | 0.53 | M-v | 0 | MPC | 115108 (150850) |
| (150854) | 14.5 | 0.15 | 20100104 | 319.37745 | 76.18752 | 4.73698 | 10.77346 | 0.1754067 | 2.5982339 | 429 | 5 | 2001–2009 | 0.54 | M-v | 0 | MPC | 115110 (150854) |
| (150856) | 15.7 | 0.15 | 20100104 | 347.87751 | 39.97025 | 12.94351 | 3.39138 | 0.0922069 | 2.5714130 | 284 | 5 | 2001–2009 | 0.49 | M-v | 1 | MPC | 115111 (150856) |
| (150911) | 16.6 | 0.15 | 20100104 | 49.40364 | 322.52842 | 355.30121 | 4.96485 | 0.2985684 | 2.5409252 | 186 | 7 | 2001–2009 | 0.47 | M-v | 1 | MPC | 115132 (150911) |
| (150940) | 15.4 | 0.15 | 20100104 | 210.52978 | 285.48382 | 328.94140 | 5.88965 | 0.0991459 | 2.3912236 | 215 | 7 | 2001–2009 | 0.58 | M-v | 0 | MPC | 115145 (150940) |
| (150969) | 16.7 | 0.15 | 20100104 | 318.56904 | 357.68149 | 78.82871 | 0.57341 | 0.0510735 | 2.5387833 | 127 | 5 | 2001–2009 | 0.42 | M-v | 0 | MPC | 115156 (150969) |
| (151003) | 15.7 | 0.15 | 20100104 | 225.32975 | 316.86224 | 211.92686 | 8.12441 | 0.1018348 | 2.5676962 | 128 | 5 | 2001–2009 | 0.48 | M-v | 1 | MPC | 115168 (151003) |
| (151030) | 16.6 | 0.15 | 20100104 | 39.86230 | 201.30252 | 147.87669 | 1.47129 | 0.1595110 | 2.5681047 | 161 | 7 | 2001–2009 | 0.43 | M-v | 1 | MPC | 115179 (151030) |
| (151036) | 15.4 | 0.15 | 20100104 | 266.98569 | 65.77483 | 95.11060 | 6.33730 | 0.0920763 | 2.4463071 | 242 | 5 | 2001–2009 | 0.52 | M-v | 1 | MPC | 115181 (151036) |
| (151050) | 15.7 | 0.15 | 20100104 | 177.32570 | 321.07909 | 244.28033 | 7.03829 | 0.1508635 | 2.6822583 | 67 | 5 | 2001–2009 | 0.45 | M-v | 1 | MPC | 115185 (151050) |
| (151080) | 15.4 | 0.15 | 20100104 | 10.91403 | 351.53020 | 37.90905 | 7.33135 | 0.1417456 | 2.5711172 | 260 | 5 | 2001–2009 | 0.43 | M-v | 1 | MPC | 115198 (151080) |
| (151081) | 15.2 | 0.15 | 20100104 | 330.95645 | 123.14187 | 306.51001 | 10.63418 | 0.1344586 | 2.5759245 | 132 | 5 | 2001–2009 | 0.59 | M-v | 1 | MPC | 115199 (151081) |
| (151109) | 14.9 | 0.15 | 20100104 | 288.63003 | 95.86716 | 16.56643 | 28.40670 | 0.1376403 | 2.6303058 | 214 | 5 | 2001–2009 | 0.56 | M-v | 0 | MPC | 115209 (151109) |
| (151136) | 14.7 | 0.15 | 20100104 | 323.35253 | 152.40294 | 282.36580 | 12.69259 | 0.1333860 | 2.5951514 | 213 | 5 | 2001–2009 | 0.56 | M-v | 1 | MPC | 115218 (151136) |
| (151415) | 15.2 | 0.15 | 20100104 | 60.85882 | 144.77308 | 145.52730 | 10.90136 | 0.0803465 | 3.0043977 | 136 | 6 | 2002–2009 | 0.51 | M-v | 0 | MPC | 115313 (151415) |
| (151545) | 16.7 | 0.15 | 20100104 | 22.45686 | 78.72342 | 350.74372 | 4.78484 | 0.0775215 | 2.2018504 | 86 | 5 | 2002–2009 | 0.55 | M-v | 1 | MPC | 115355 (151545) |
| (151606) | 16.5 | 0.15 | 20100104 | 98.82250 | 329.52753 | 353.99672 | 2.88916 | 0.1802772 | 2.2657882 | 93 | 6 | 2002–2009 | 0.47 | M-v | 1 | MPC | 115376 (151606) |
| (151623) | 16.7 | 0.15 | 20100104 | 80.73878 | 29.44923 | 324.12166 | 5.58835 | 0.1564459 | 2.2652121 | 74 | 5 | 2002–2009 | 0.42 | M-v | 1 | MPC | 115382 (151623) |
| (151634) | 17.0 | 0.15 | 20100104 | 47.34144 | 55.11722 | 4.69458 | 3.30645 | 0.0253134 | 2.2341417 | 95 | 5 | 2002–2009 | 0.48 | M-v | 0 | MPC | 115385 (151634) |
| (151676) | 16.4 | 0.15 | 20100104 | 355.81722 | 301.19820 | 157.41127 | 6.36541 | 0.1652418 | 2.3018264 | 114 | 6 | 2000–2009 | 0.52 | M-v | 1 | MPC | 164136 (151676) |
| (151715) | 15.9 | 0.15 | 20100104 | 255.52974 | 124.89079 | 95.25738 | 10.68245 | 0.1882110 | 2.3751414 | 123 | 6 | 2001–2009 | 0.50 | M-v | 1 | MPC | 115411 (151715) |
| (151722) | 17.1 | 0.15 | 20100104 | 321.05723 | 321.48950 | 180.79103 | 2.09725 | 0.1509296 | 2.3730082 | 109 | 5 | 2001–2009 | 0.47 | M-v | 0 | MPC | 115413 (151722) |
| (151731) | 15.9 | 0.15 | 20100104 | 219.53635 | 316.96350 | 270.33621 | 6.70051 | 0.0664040 | 2.3759629 | 101 | 6 | 2001–2009 | 0.56 | M-v | 1 | MPC | 115416 (151731) |
| (151735) | 16.3 | 0.15 | 20100104 | 339.74799 | 30.43922 | 52.90869 | 2.91241 | 0.1442274 | 2.4435063 | 157 | 5 | 2001–2009 | 0.53 | M-v | 0 | MPC | 115417 (151735) |
| (151749) | 15.9 | 0.15 | 20100104 | 31.55280 | 20.02941 | 6.09485 | 10.42472 | 0.2188384 | 2.4184217 | 185 | 5 | 2001–2009 | 0.46 | M-v | 1 | MPC | 115422 (151749) |
| (151754) | 16.7 | 0.15 | 20100104 | 292.25771 | 38.57918 | 145.24641 | 1.74063 | 0.1231042 | 2.3699953 | 122 | 6 | 2003–2009 | 0.51 | M-v | 0 | MPC | 115423 (151754) |
| (151936) | 16.6 | 0.15 | 20100104 | 243.03775 | 56.74755 | 150.89631 | 6.56738 | 0.1116017 | 2.2551444 | 116 | 7 | 1992–2009 | 0.49 | M-v | 1 | MPC | 115482 (151936) |
| (151966) | 17.1 | 0.15 | 20100104 | 259.63292 | 167.78735 | 55.28772 | 1.55459 | 0.1194702 | 2.2008098 | 122 | 6 | 2002–2009 | 0.47 | M-v | 1 | MPC | 115492 (151966) |
| (151973) | 16.7 | 0.15 | 20100104 | 247.55917 | 338.57160 | 221.45452 | 3.29741 | 0.1146360 | 2.2866177 | 90 | 7 | 2001–2009 | 0.46 | M-v | 1 | MPC | 115494 (151973) |
| (152032) | 15.4 | 0.15 | 20100104 | 170.95989 | 322.14591 | 293.00120 | 12.62338 | 0.1542353 | 2.5505844 | 97 | 6 | 2000–2009 | 0.60 | M-v | 1 | MPC | 164137 (152032) |
| (152170) | 16.9 | 0.15 | 20100104 | 56.38564 | 8.67459 | 16.76598 | 3.43520 | 0.1687244 | 2.2956687 | 82 | 5 | 2002–2009 | 0.45 | M-v | 1 | MPC | 115552 (152170) |
| (152173) | 17.4 | 0.15 | 20100104 | 56.80399 | 287.49469 | 118.15879 | 6.06394 | 0.1422514 | 2.2157143 | 64 | 5 | 2002–2009 | 0.43 | M-v | 1 | MPC | 115553 (152173) |
| (152201) | 16.2 | 0.15 | 20100104 | 73.24608 | 59.83702 | 285.37631 | 2.88569 | 0.1119797 | 2.3923459 | 135 | 5 | 2001–2009 | 0.46 | M-v | 2 | MPC | 115562 (152201) |
| (152251) | 16.9 | 0.15 | 20100104 | 141.85050 | 30.23995 | 262.49629 | 2.59372 | 0.1080683 | 2.3448242 | 72 | 5 | 2001–2009 | 0.38 | M-v | 0 | MPC | 115578 (152251) |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (152252) | 16.5 | 0.15 | 20100104 | 311.63797 | 103.99050 | 345.92522 | 6.84763 | 0.1212933 | 2.5761913 | 110 | 5 | 2001–2009 | 0.44 | M-v | 0 | MPC | 115578 (152252) |
| (152754) | 19.2 | 0.15 | 20100104 | 148.81425 | 134.79360 | 314.64657 | 2.02209 | 0.4973477 | 1.1910847 | 193 | 5 | 1999–2007 | 0.50 | M-v | 3 | MPC | 116486 (152754) |
| (152887) | 16.5 | 0.15 | 20100104 | 321.50325 | 198.97946 | 298.19859 | 5.20175 | 0.0897328 | 2.2703771 | 66 | 7 | 2000–2009 | 0.67 | M-v | 1 | MPC | 116533 (152887) |
| (153097) | 15.1 | 0.15 | 20100104 | 104.57973 | 278.90045 | 36.03408 | 14.01819 | 0.1151792 | 2.6048270 | 114 | 6 | 2000–2009 | 0.57 | M-v | 1 | MPC | 116607 (153097) |
| (153200) | 15.4 | 0.15 | 20100104 | 126.96975 | 301.13107 | 34.40999 | 3.52127 | 0.1620363 | 2.6153989 | 152 | 7 | 2000–2009 | 0.53 | M-v | 1 | MPC | 116644 (153200) |
| (153243) | 17.2 | 0.15 | 20100104 | 94.83653 | 9.31867 | 311.94170 | 35.98486 | 0.5306397 | 1.2989337 | 70 | 7 | 2001–2009 | 0.58 | M-v | 3 | MPC | 155901 (153243) |
| (153293) | 14.0 | 0.15 | 20100104 | 125.84091 | 282.06897 | 11.54793 | 22.01617 | 0.2249137 | 3.0985387 | 179 | 9 | 2000–2009 | 0.52 | M-v | 0 | MPC | 116678 (153293) |
| (153315) | 19.2 | 0.15 | 20100104 | 341.97602 | 288.34048 | 112.60561 | 34.69493 | 0.4497385 | 1.2374795 | 50 | 5 | 2001–2008 | 0.54 | M-v | 2 | MPC | 140660 (153315) |
| (153517) | 16.1 | 0.15 | 20100104 | 92.69673 | 187.71241 | 171.91856 | 0.72678 | 0.0953583 | 2.3786144 | 179 | 7 | 2001–2009 | 0.45 | M-v | 0 | MPC | 116767 (153517) |
| (153529) | 15.7 | 0.15 | 20100104 | 63.56833 | 336.22062 | 33.49669 | 6.66674 | 0.0829080 | 2.4496014 | 206 | 5 | 2001–2009 | 0.54 | M-v | 2 | MPC | 116772 (153529) |
| (153589) | 15.5 | 0.15 | 20100104 | 280.48738 | 185.10765 | 27.56631 | 13.50544 | 0.2204834 | 2.3351980 | 171 | 7 | 1998–2009 | 0.59 | M-v | 1 | MPC | 147122 (153589) |
| (153590) | 15.4 | 0.15 | 20100104 | 338.60691 | 257.51341 | 191.86395 | 10.85647 | 0.2263163 | 2.5528234 | 286 | 5 | 2001–2009 | 0.49 | M-v | 1 | MPC | 116796 (153590) |
| (153619) | 15.4 | 0.15 | 20100104 | 143.67571 | 348.68799 | 336.43242 | 6.97681 | 0.1095729 | 2.3986924 | 162 | 7 | 2001–2009 | 0.57 | M-v | 1 | MPC | 116809 (153619) |
| (153623) | 15.7 | 0.15 | 20100104 | 326.31819 | 89.76321 | 357.93078 | 6.00117 | 0.1239302 | 2.5765057 | 193 | 5 | 2001–2009 | 0.58 | M-v | 1 | MPC | 116811 (153623) |
| (153624) | 15.8 | 0.15 | 20100104 | 358.89752 | 46.73227 | 32.16833 | 13.83879 | 0.1827170 | 2.5258458 | 121 | 6 | 2001–2009 | 0.47 | M-v | 1 | MPC | 116811 (153624) |
| (153650) | 15.2 | 0.15 | 20100104 | 38.50590 | 94.72130 | 259.61864 | 14.26737 | 0.1272698 | 2.5487627 | 145 | 6 | 2001–2009 | 0.59 | M-v | 1 | MPC | 116823 (153650) |
| (153671) | 15.7 | 0.15 | 20100104 | 284.59260 | 111.10148 | 28.23123 | 12.16588 | 0.2401497 | 2.5702597 | 183 | 5 | 2001–2009 | 0.52 | M-v | 1 | MPC | 116830 (153671) |
| (153675) | 16.2 | 0.15 | 20100104 | 16.69447 | 67.59989 | 15.13388 | 6.30021 | 0.0860715 | 2.4479847 | 79 | 6 | 1997–2009 | 0.65 | M-v | 1 | MPC | 116832 (153675) |
| (153682) | 15.5 | 0.15 | 20100104 | 181.45753 | 186.27449 | 29.90894 | 15.22683 | 0.0584708 | 2.5710302 | 126 | 5 | 2001–2009 | 0.54 | M-v | 2 | MPC | 116834 (153682) |
| (153690) | 15.3 | 0.15 | 20100104 | 91.35059 | 216.95314 | 113.04613 | 5.75246 | 0.1809050 | 2.5216529 | 167 | 6 | 2001–2009 | 0.57 | M-v | 1 | MPC | 116837 (153690) |
| (153700) | 16.3 | 0.15 | 20100104 | 65.78163 | 170.67175 | 196.32846 | 6.24277 | 0.1460497 | 2.4656609 | 102 | 5 | 2001–2009 | 0.57 | M-v | 2 | MPC | 116840 (153700) |
| (153710) | 16.5 | 0.15 | 20100104 | 77.36043 | 165.02383 | 174.11591 | 1.78169 | 0.2180113 | 2.4821202 | 133 | 6 | 2001–2009 | 0.52 | M-v | 1 | MPC | 116844 (153710) |
| (153720) | 16.3 | 0.15 | 20100104 | 292.94424 | 67.18402 | 55.04446 | 6.93453 | 0.1331259 | 2.5445579 | 122 | 5 | 2001–2009 | 0.55 | M-v | 1 | MPC | 116847 (153720) |
| (153743) | 15.8 | 0.15 | 20100104 | 349.94650 | 349.44035 | 64.25247 | 2.39036 | 0.0699179 | 2.5853334 | 222 | 5 | 2001–2009 | 0.52 | M-v | 1 | MPC | 116856 (153743) |
| (153764) | 15.9 | 0.15 | 20100104 | 355.67355 | 53.66343 | 351.64961 | 7.35228 | 0.1853303 | 2.5784001 | 207 | 5 | 2001–2009 | 0.56 | M-v | 1 | MPC | 116863 (153764) |
| (153773) | 16.4 | 0.15 | 20100104 | 37.16979 | 72.03988 | 270.65063 | 2.31739 | 0.2188223 | 2.5800561 | 201 | 6 | 2001–2009 | 0.45 | M-v | 1 | MPC | 116868 (153773) |
| (153780) | 16.1 | 0.15 | 20100104 | 35.45823 | 25.83301 | 331.34129 | 2.57251 | 0.1733629 | 2.5487979 | 212 | 6 | 2001–2009 | 0.52 | M-v | 1 | MPC | 116871 (153780) |
| (153794) | 15.8 | 0.15 | 20100104 | 292.76071 | 79.90928 | 22.16447 | 2.88135 | 0.0957268 | 2.6048743 | 214 | 5 | 2001–2009 | 0.51 | M-v | 0 | MPC | 116877 (153794) |
| (153803) | 15.6 | 0.15 | 20100104 | 343.06714 | 78.16674 | 350.94466 | 3.12493 | 0.0752746 | 2.5702849 | 262 | 5 | 2001–2009 | 0.48 | M-v | 1 | MPC | 116880 (153803) |
| (153827) | 16.0 | 0.15 | 20100104 | 273.14517 | 257.71724 | 240.65835 | 2.64861 | 0.1813940 | 2.5707403 | 134 | 5 | 2001–2009 | 0.52 | M-v | 1 | MPC | 116889 (153827) |
| (153862) | 15.4 | 0.15 | 20100104 | 18.23752 | 206.66138 | 177.77812 | 6.17891 | 0.1259597 | 2.5882727 | 182 | 6 | 2001–2009 | 0.44 | M-v | 1 | MPC | 116902 (153862) |
| (153878) | 16.2 | 0.15 | 20100104 | 91.62051 | 177.89394 | 147.84332 | 2.43546 | 0.1948283 | 2.5128893 | 77 | 6 | 2001–2009 | 0.38 | M-v | 1 | MPC | 116908 (153878) |
| (153881) | 15.6 | 0.15 | 20100104 | 126.06680 | 195.89568 | 128.22391 | 3.43705 | 0.1872261 | 2.4680071 | 121 | 6 | 2001–2009 | 0.47 | M-v | 1 | MPC | 116909 (153881) |
| (153896) | 15.6 | 0.15 | 20100104 | 53.62937 | 153.67258 | 196.26096 | 4.39781 | 0.2821391 | 2.5392600 | 190 | 6 | 2001–2009 | 0.58 | M-v | 1 | MPC | 116914 (153896) |
| (153911) | 16.1 | 0.15 | 20100104 | 157.65075 | 173.72093 | 94.16533 | 3.86142 | 0.0499302 | 2.5301147 | 106 | 6 | 2001–2009 | 0.52 | M-v | 0 | MPC | 116919 (153911) |
| (153941) | 15.7 | 0.15 | 20100104 | 282.76710 | 85.69709 | 53.64362 | 15.02368 | 0.1255810 | 2.5889168 | 146 | 5 | 2001–2009 | 0.57 | M-v | 0 | MPC | 116930 (153941) |
| (153945) | 15.6 | 0.15 | 20100104 | 27.73070 | 28.83999 | 326.06715 | 5.26517 | 0.3134129 | 2.6192306 | 228 | 7 | 2001–2009 | 0.48 | M-v | 1 | MPC | 116931 (153945) |
| (153948) | 16.3 | 0.15 | 20100104 | 109.82092 | 13.62169 | 263.64401 | 2.82786 | 0.0277940 | 2.6410368 | 85 | 5 | 2001–2009 | 0.47 | M-v | 0 | MPC | 116932 (153948) |
| (153954) | 16.4 | 0.15 | 20100104 | 163.37509 | 334.84198 | 299.20515 | 16.86234 | 0.0669707 | 1.9668175 | 129 | 6 | 2001–2009 | 0.53 | M-v | 1 | MPC | 116934 (153954) |
| (154013) | 15.2 | 0.15 | 20100104 | 182.87827 | 153.45806 | 98.99817 | 14.00310 | 0.1525920 | 2.6829692 | 109 | 7 | 2002–2009 | 0.54 | M-v | 1 | MPC | 116957 (154013) |
| (154149) | 14.3 | 0.15 | 20100104 | 164.13418 | 115.55385 | 162.35439 | 17.95623 | 0.3074018 | 2.9111311 | 202 | 6 | 2002–2009 | 0.51 | M-v | 1 | MPC | 117000 (154149) |
| (154288) | 16.8 | 0.15 | 20100104 | 35.90581 | 90.23761 | 302.76506 | 4.60346 | 0.1722328 | 2.2623624 | 90 | 5 | 1999–2009 | 0.55 | M-v | 1 | MPC | 117047 (154288) |
| (154295) | 15.9 | 0.15 | 20100104 | 57.15179 | 115.78723 | 268.45934 | 5.53882 | 0.1426290 | 2.2561638 | 124 | 5 | 2000–2009 | 0.51 | M-v | 1 | MPC | 117049 (154295) |
| (154300) | 19.2 | 0.15 | 20100104 | 209.82390 | 184.11083 | 90.79380 | 8.30046 | 0.4722673 | 1.2091057 | 85 | 5 | 2002–2009 | 0.46 | M-v | 2 | MPC | 117052 (154300) |
| (154321) | 16.4 | 0.15 | 20100104 | 21.62399 | 350.24732 | 72.86926 | 6.66482 | 0.1353496 | 2.2939889 | 109 | 5 | 2000–2009 | 0.49 | M-v | 1 | MPC | 117060 (154321) |
| (154346) | 16.8 | 0.15 | 20100104 | 106.58914 | 192.56913 | 155.83772 | 6.77818 | 0.2108135 | 2.2161093 | 115 | 5 | 2002–2009 | 0.45 | M-v | 1 | MPC | 117069 (154346) |
| (154440) | 16.4 | 0.15 | 20100104 | 275.02250 | 122.80468 | 69.37079 | 7.94922 | 0.1601026 | 2.3755461 | 84 | 5 | 2001–2009 | 0.52 | M-v | 1 | MPC | 117102 (154440) |
| (154445) | 16.3 | 0.15 | 20100104 | 6.28629 | 53.65823 | 20.85088 | 6.30434 | 0.0973148 | 2.3971142 | 134 | 5 | 2001–2009 | 0.50 | M-v | 0 | MPC | 117104 (154445) |
| (154512) | 16.9 | 0.15 | 20100104 | 242.13845 | 53.39107 | 185.51782 | 2.26991 | 0.1399162 | 2.4106950 | 107 | 6 | 2003–2009 | 0.44 | M-v | 0 | MPC | 117126 (154512) |
| (154571) | 14.9 | 0.15 | 20100104 | 154.52565 | 231.87562 | 49.18001 | 13.59058 | 0.1820084 | 2.6921033 | 89 | 7 | 2002–2009 | 0.53 | M-v | 1 | MPC | 117145 (154571) |
| (154717) | 15.8 | 0.15 | 20100104 | 151.39934 | 258.99731 | 45.37566 | 6.97143 | 0.1362720 | 2.4657465 | 97 | 7 | 2001–2009 | 0.52 | M-v | 1 | MPC | 117193 (154717) |
| (155042) | 16.6 | 0.15 | 20100104 | 57.31981 | 87.20745 | 290.93536 | 1.81809 | 0.1237101 | 2.3630981 | 150 | 5 | 2003–2009 | 0.45 | M-v | 0 | MPC | 117291 (155042) |
| (155082) | 15.6 | 0.15 | 20100104 | 17.03387 | 41.86840 | 341.14923 | 11.77208 | 0.1911574 | 2.5866951 | 130 | 5 | 2001–2009 | 0.55 | M-v | 2 | MPC | 117305 (155082) |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (155193) | 16.5 | 0.15 | 20100104 | 312.57708 | 295.70601 | 173.64696 | 4.17365 | 0.0914246 | 2.5514299 | 61 | 5 | 2001–2009 | 0.43 | M-v | 1 | MPC | 117340 (155193) |
| (155211) | 16.2 | 0.15 | 20100104 | 14.12084 | 316.94556 | 96.82516 | 6.92919 | 0.0537491 | 2.4783116 | 112 | 5 | 2001–2009 | 0.58 | M-v | 2 | MPC | 117345 (155211) |
| (155252) | 16.8 | 0.15 | 20100104 | 323.52136 | 118.41532 | 25.05587 | 2.66068 | 0.0732784 | 2.2327438 | 84 | 6 | 2002–2009 | 0.47 | M-v | 1 | MPC | 117357 (155252) |
| (155349) | 16.9 | 0.15 | 20100104 | 222.13814 | 183.48451 | 31.00117 | 2.79026 | 0.1291194 | 2.4051590 | 92 | 5 | 2001–2009 | 0.39 | M-v | 1 | MPC | 117384 (155349) |
| (155353) | 16.7 | 0.15 | 20100104 | 232.93945 | 329.50954 | 251.76954 | 1.50660 | 0.1493731 | 2.3872346 | 127 | 7 | 2001–2009 | 0.42 | M-v | 0 | MPC | 117385 (155353) |
| (155596) | 16.6 | 0.15 | 20100104 | 36.42077 | 219.05269 | 231.77812 | 3.85936 | 0.1086724 | 2.2185779 | 139 | 6 | 2000–2009 | 0.49 | M-v | 0 | MPC | 118321 (155596) |
| (155629) | 15.8 | 0.15 | 20100104 | 33.57274 | 5.58282 | 79.56188 | 7.11035 | 0.1876015 | 2.2748614 | 190 | 6 | 2000–2009 | 0.57 | M-v | 0 | MPC | 118333 (155629) |
| (155662) | 17.5 | 0.15 | 20100104 | 324.27742 | 129.64427 | 26.85365 | 2.66883 | 0.0835179 | 2.2972699 | 79 | 5 | 2000–2009 | 0.54 | M-v | 1 | MPC | 118345 (155662) |
| (155792) | 16.4 | 0.15 | 20100104 | 95.00747 | 304.52949 | 28.75739 | 6.13285 | 0.1226044 | 2.6186802 | 73 | 6 | 2000–2009 | 0.56 | M-v | 1 | MPC | 118390 (155792) |
| (156372) | 15.3 | 0.15 | 20100104 | 2.36742 | 57.17392 | 32.91733 | 14.13174 | 0.1465490 | 2.5321228 | 115 | 6 | 2001–2009 | 0.50 | M-v | 1 | MPC | 118609 (156372) |
| (156408) | 16.4 | 0.15 | 20100104 | 356.44422 | 168.01812 | 246.92870 | 3.79749 | 0.1509402 | 2.6287675 | 156 | 5 | 2001–2009 | 0.48 | M-v | 1 | MPC | 118621 (156408) |
| (156411) | 15.9 | 0.15 | 20100104 | 178.39254 | 328.53905 | 292.72066 | 2.60130 | 0.0800009 | 2.6201500 | 99 | 6 | 2002–2009 | 0.52 | M-v | 0 | MPC | 118622 (156411) |
| (156422) | 15.4 | 0.15 | 20100104 | 231.96308 | 332.95906 | 253.13731 | 8.11997 | 0.1061803 | 2.5840109 | 94 | 7 | 2002–2009 | 0.58 | M-v | 1 | MPC | 118626 (156422) |
| (156507) | 15.9 | 0.15 | 20100104 | 12.61377 | 15.64579 | 56.32474 | 4.58868 | 0.0505265 | 2.6383178 | 108 | 5 | 2002–2009 | 0.52 | M-v | 0 | MPC | 118655 (156507) |
| (156541) | 15.7 | 0.15 | 20100104 | 275.53707 | 110.38516 | 39.91907 | 9.91233 | 0.0635277 | 2.7400090 | 92 | 6 | 2002–2009 | 0.45 | M-v | 0 | MPC | 118665 (156541) |
| (156561) | 15.5 | 0.15 | 20100104 | 35.03177 | 84.89686 | 267.09976 | 0.97046 | 0.0789795 | 2.8598612 | 111 | 5 | 2002–2009 | 0.45 | M-v | 0 | MPC | 118671 (156561) |
| (156573) | 15.8 | 0.15 | 20100104 | 262.89166 | 334.70455 | 157.56808 | 2.37265 | 0.0172270 | 2.8590303 | 92 | 5 | 2002–2009 | 0.43 | M-v | 0 | MPC | 118675 (156573) |
| (156610) | 15.1 | 0.15 | 20100104 | 130.58443 | 254.83251 | 57.33290 | 8.03956 | 0.3205731 | 2.8673554 | 198 | 6 | 2002–2009 | 0.51 | M-v | 0 | MPC | 118687 (156610) |
| (156614) | 15.3 | 0.15 | 20100104 | 69.69247 | 312.12397 | 2.43239 | 4.27426 | 0.1004837 | 3.0108422 | 126 | 5 | 2002–2009 | 0.56 | M-v | 0 | MPC | 118688 (156614) |
| (156725) | 16.3 | 0.15 | 20100104 | 350.78946 | 222.37933 | 260.98391 | 7.90868 | 0.1556235 | 2.2168783 | 110 | 7 | 2000–2009 | 0.51 | M-v | 1 | MPC | 118722 (156725) |
| (156734) | 16.0 | 0.15 | 20100104 | 80.53858 | 351.09468 | 14.84157 | 5.60464 | 0.1759552 | 2.2679338 | 132 | 5 | 2002–2009 | 0.48 | M-v | 1 | MPC | 118725 (156734) |
| (156765) | 16.5 | 0.15 | 20100104 | 307.51847 | 358.44954 | 154.30325 | 2.73421 | 0.1254875 | 2.3555462 | 123 | 7 | 1998–2009 | 0.51 | M-v | 1 | MPC | 118736 (156765) |
| (156811) | 17.2 | 0.15 | 20100104 | 359.26455 | 259.61883 | 206.23364 | 1.56452 | 0.1524237 | 2.3292278 | 87 | 5 | 1998–2009 | 0.43 | M-v | 0 | MPC | 118752 (156811) |
| (156878) | 15.1 | 0.15 | 20100104 | 12.51836 | 270.22793 | 171.29326 | 22.14363 | 0.2849563 | 2.3716140 | 167 | 5 | 2001–2009 | 0.53 | M-v | 1 | MPC | 118774 (156878) |
| (156935) | 16.7 | 0.15 | 20100104 | 310.74823 | 273.66840 | 253.86868 | 1.12986 | 0.1202459 | 2.4060550 | 127 | 7 | 2001–2009 | 0.49 | M-v | 0 | MPC | 118792 (156935) |
| (156953) | 15.4 | 0.15 | 20100104 | 179.27829 | 163.38108 | 101.57475 | 13.43959 | 0.1520525 | 2.6237309 | 81 | 8 | 1996–2009 | 0.52 | M-v | 1 | MPC | 143088 (156953) |
| (156970) | 16.3 | 0.15 | 20100104 | 278.88889 | 96.76832 | 63.15479 | 5.57767 | 0.0939758 | 2.5602840 | 89 | 5 | 2002–2009 | 0.46 | M-v | 1 | MPC | 118802 (156970) |
| (157074) | 13.7 | 0.15 | 20100104 | 83.61621 | 286.81262 | 33.57469 | 26.59404 | 0.1964770 | 3.1314433 | 225 | 7 | 1996–2009 | 0.53 | M-v | 0 | MPC | 164139 (157074) |
| (157337) | 16.4 | 0.15 | 20100104 | 164.19772 | 36.76744 | 256.47995 | 3.10410 | 0.1946534 | 2.5977845 | 97 | 7 | 2002–2009 | 0.43 | M-v | 0 | MPC | 118914 (157337) |
| (157407) | 15.4 | 0.15 | 20100104 | 155.25185 | 162.06652 | 146.87076 | 14.64114 | 0.2826761 | 2.5476562 | 71 | 5 | 2000–2008 | 0.52 | M-v | 1 | MPC | 118933 (157407) |
| (157442) | 14.7 | 0.15 | 20100104 | 131.94272 | 239.40223 | 68.31534 | 11.92441 | 0.1249552 | 2.7898740 | 149 | 6 | 2002–2009 | 0.51 | M-v | 0 | MPC | 118943 (157442) |
| (157493) | 17.3 | 0.15 | 20100104 | 25.50232 | 165.56844 | 247.49234 | 0.85790 | 0.1832085 | 2.3538243 | 74 | 5 | 1998–2009 | 0.43 | M-v | 0 | MPC | 118958 (157493) |
| (157513) | 16.5 | 0.15 | 20100104 | 4.49004 | 262.12104 | 195.12790 | 3.49312 | 0.2030709 | 2.3916127 | 164 | 8 | 1996–2009 | 0.53 | M-v | 0 | MPC | 118965 (157513) |
| (157534) | 17.1 | 0.15 | 20100104 | 338.33194 | 117.32847 | 9.89109 | 6.47392 | 0.0614777 | 2.3195909 | 76 | 5 | 2000–2009 | 0.57 | M-v | 0 | MPC | 118972 (157534) |
| (157620) | 15.6 | 0.15 | 20100104 | 77.80470 | 272.41552 | 80.12706 | 16.01908 | 0.0449160 | 2.5654673 | 118 | 7 | 2001–2009 | 0.54 | M-v | 0 | MPC | 118998 (157620) |
| (157674) | 16.5 | 0.15 | 20100104 | 42.69513 | 0.51787 | 34.77040 | 2.58310 | 0.1807267 | 2.6026136 | 84 | 7 | 2000–2009 | 0.57 | M-v | 0 | MPC | 119013 (157674) |
| (158050) | 16.8 | 0.15 | 20100104 | 113.42715 | 128.48094 | 193.53607 | 3.18147 | 0.1158814 | 2.5928699 | 70 | 6 | 2000–2009 | 0.45 | M-v | 1 | MPC | 119828 (158050) |
| (158102) | 14.9 | 0.15 | 20100104 | 60.96929 | 336.33304 | 48.41270 | 14.36942 | 0.1547477 | 2.7302718 | 157 | 7 | 2000–2009 | 0.56 | M-v | 1 | MPC | 119846 (158102) |
| (158437) | 15.2 | 0.15 | 20100104 | 223.32350 | 192.43959 | 56.29644 | 8.72836 | 0.1652594 | 2.6053749 | 117 | 6 | 2000–2009 | 0.58 | M-v | 1 | MPC | 119964 (158437) |
| (158522) | 15.3 | 0.15 | 20100104 | 189.10044 | 217.42955 | 41.56180 | 3.20077 | 0.0443354 | 2.7575237 | 152 | 6 | 2002–2009 | 0.52 | M-v | 0 | MPC | 119991 (158522) |
| (158531) | 15.7 | 0.15 | 20100104 | 357.51308 | 23.18279 | 50.50224 | 4.96345 | 0.1264747 | 2.7658167 | 126 | 5 | 2002–2009 | 0.55 | M-v | 0 | MPC | 119994 (158531) |
| (158533) | 16.1 | 0.15 | 20100104 | 291.80402 | 80.96823 | 59.28520 | 0.68124 | 0.0166229 | 2.8042372 | 120 | 6 | 2002–2009 | 0.40 | M-v | 0 | MPC | 119994 (158533) |
| (158566) | 15.2 | 0.15 | 20100104 | 120.64398 | 256.31418 | 44.68559 | 7.11101 | 0.1720955 | 3.0047639 | 77 | 6 | 2002–2009 | 0.48 | M-v | 0 | MPC | 120004 (158566) |
| (158578) | 14.4 | 0.15 | 20100104 | 120.99750 | 39.27374 | 246.49146 | 11.87679 | 0.0852586 | 3.0561184 | 123 | 6 | 2002–2009 | 0.49 | M-v | 0 | MPC | 120008 (158578) |
| (158584) | 14.8 | 0.15 | 20100104 | 77.98065 | 133.58959 | 217.32373 | 9.77866 | 0.1293592 | 3.0127411 | 139 | 6 | 1998–2009 | 0.52 | M-v | 0 | MPC | 120010 (158584) |
| (159036) | 15.9 | 0.15 | 20100104 | 350.91694 | 226.96320 | 183.92975 | 1.87541 | 0.0794551 | 2.8915413 | 109 | 5 | 2002–2009 | 0.45 | M-v | 0 | MPC | 120147 (159036) |
| (159219) | 17.5 | 0.15 | 20100104 | 261.59027 | 15.21047 | 204.81449 | 0.64959 | 0.1410712 | 2.3551074 | 70 | 6 | 2003–2009 | 0.37 | M-v | 1 | MPC | 120198 (159219) |
| (159231) | 17.3 | 0.15 | 20100104 | 245.22518 | 161.85556 | 64.17746 | 3.75236 | 0.1470204 | 2.4621475 | 58 | 6 | 2003–2009 | 0.49 | M-v | 1 | MPC | 120201 (159231) |
| (159702) | 14.5 | 0.15 | 20100104 | 347.95149 | 200.52669 | 271.27771 | 7.84441 | 0.0376027 | 3.1508156 | 154 | 7 | 2002–2009 | 0.55 | M-v | 0 | MPC | 121005 (159702) |
| (159724) | 16.3 | 0.15 | 20100104 | 265.96548 | 92.98447 | 146.38968 | 7.81910 | 0.2512054 | 2.3292671 | 99 | 7 | 1996–2009 | 0.51 | M-v | 1 | MPC | 121013 (159724) |
| (159726) | 16.8 | 0.15 | 20100104 | 282.70881 | 102.54059 | 113.75318 | 2.78617 | 0.1885516 | 2.3440206 | 66 | 6 | 2002–2009 | 0.43 | M-v | 0 | MPC | 121014 (159726) |
| (159922) | 15.1 | 0.15 | 20100104 | 41.56523 | 259.18445 | 117.49886 | 9.18678 | 0.1053949 | 3.2005679 | 74 | 6 | 2002–2009 | 0.50 | M-v | 0 | MPC | 121074 (159922) |
| (160429) | 17.0 | 0.15 | 20100104 | 36.03444 | 3.50091 | 47.34815 | 3.42693 | 0.1805685 | 2.3445964 | 77 | 6 | 1998–2009 | 0.48 | M-v | 1 | MPC | 121511 (160429) |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (160841) | 15.8 | 0.15 | 20100104 | 127.09729 | 103.73092 | 322.11857 | 3.44083 | 0.1805447 | 2.5278909 | 205 | 7 | 1989–2009 | 0.50 | M-v | 1 | MPC | 122006 | (160841) |
| (161474) | 16.7 | 0.15 | 20100104 | 202.80345 | 311.52822 | 290.51476 | 4.91644 | 0.0549207 | 2.2466019 | 112 | 6 | 2002–2009 | 0.45 | M-v | 0 | MPC | 122211 | (161474) |
| (161697) | 15.0 | 0.15 | 20100104 | 289.27406 | 149.02144 | 75.47585 | 13.60451 | 0.1129218 | 2.7685970 | 130 | 8 | 1999–2009 | 0.57 | M-v | 0 | MPC | 122274 | (161697) |
| (162038) | 16.6 | 0.15 | 20100104 | 199.75129 | 351.44567 | 309.34922 | 17.23223 | 0.2766397 | 1.5870607 | 401 | 8 | 1996–2009 | 0.54 | M-v | 3 | MPC | 164140 | (162038) |
| (162181) | 18.2 | 0.15 | 20100104 | 60.87879 | 140.76323 | 208.56683 | 18.94021 | 0.2804750 | 1.4091251 | 1062 | 3 | 1999–2009 | 0.47 | M-v | 0 | MPC | 166078 | (162181) |
| (162273) | 17.0 | 0.15 | 20100104 | 138.42823 | 40.84696 | 234.46034 | 20.18437 | 0.2361087 | 1.5936346 | 413 | 7 | 1993–2009 | 0.53 | M-v | 3 | MPC | 166078 | (162273) |
| (162698) | 18.2 | 0.15 | 20100104 | 13.45318 | 271.72098 | 66.38569 | 20.69756 | 0.4874244 | 2.1190305 | 108 | 3 | 2000–2006 | 0.63 | M-v | 1 | MPC | 159642 | (162698) |
| (162783) | 20.8 | 0.15 | 20100104 | 30.13682 | 339.03671 | 65.01867 | 7.26234 | 0.2316419 | 1.3125044 | 101 | 3 | 2000–2007 | 0.57 | M-v | 1 | MPC | 123201 | (162783) |
| (163026) | 20.9 | 0.15 | 20100104 | 103.20690 | 294.30104 | 247.97450 | 11.85409 | 0.3653417 | 1.2972376 | 59 | 3 | 2001–2004 | 0.57 | M-v | 2 | MPC | 123290 | (163026) |
| (163371) | 15.2 | 0.15 | 20100104 | 215.97765 | 109.72116 | 147.13972 | 9.27288 | 0.0483064 | 2.9771454 | 86 | 10 | 1996–2009 | 0.46 | M-v | 0 | MPC | 123410 | (163371) |
| (163899) | 16.9 | 0.15 | 20100104 | 259.56854 | 326.29343 | 274.16084 | 8.46276 | 0.2098109 | 0.8281855 | 133 | 5 | 2000–2009 | 0.51 | M-v | 3 | MPC | 166078 | (163899) |
| (164202) | 20.8 | 0.15 | 20100104 | 64.26894 | 55.73410 | 343.39802 | 4.66308 | 0.2796777 | 0.9893780 | 371 | 6 | 2004–2009 | 0.44 | M-v | 3 | MPC | 158389 | (164202) |
| (164207) | 21.2 | 0.15 | 20100104 | 149.65970 | 280.85316 | 38.80426 | 13.64816 | 0.1363886 | 1.0009031 | 122 | 6 | 2001–2009 | 0.49 | M-v | 3 | MPC | 155901 | (164207) |
| (164342) | 20.8 | 0.15 | 20100104 | 142.48231 | 72.85346 | 139.02723 | 19.17277 | 0.3610968 | 1.5699442 | 81 | 3 | 2003–2007 | 0.51 | M-v | 1 | MPC | 123729 | (164342) |
| (164823) | 16.5 | 0.15 | 20100104 | 184.10936 | 214.35161 | 142.32614 | 2.17622 | 0.2170587 | 2.5570942 | 109 | 7 | 1995–2009 | 0.46 | M-v | 1 | MPC | 124635 | (164823) |
| (164866) | 15.6 | 0.15 | 20100104 | 350.81738 | 355.70466 | 240.53168 | 1.61838 | 0.0698706 | 2.5344385 | 206 | 8 | 1991–2009 | 0.53 | M-v | 1 | MPC | 124650 | (164866) |
| (165643) | 14.5 | 0.15 | 20100104 | 314.06028 | 63.08461 | 169.39529 | 14.32089 | 0.1497750 | 2.7533484 | 156 | 4 | 2001–2007 | 0.55 | M-v | 1 | MPC | 124932 | (165643) |
| (167396) | 14.9 | 0.15 | 20100104 | 33.53130 | 129.51992 | 327.60319 | 5.07845 | 0.0920913 | 3.0057043 | 139 | 6 | 2002–2009 | 0.56 | M-v | 0 | MPC | 125511 | (167396) |
| (167619) | 15.0 | 0.15 | 20100104 | 175.08918 | 31.30729 | 329.98292 | 10.66304 | 0.1378424 | 2.9547476 | 131 | 5 | 1992–2009 | 0.49 | M-v | 1 | MPC | 125578 | (167619) |
| (168078) | 15.9 | 0.15 | 20100104 | 225.23305 | 293.40228 | 354.96672 | 14.42170 | 0.2138547 | 2.6648897 | 71 | 4 | 2000–2007 | 0.43 | M-v | 2 | MPC | 125711 | (168078) |
| (168107) | 16.4 | 0.15 | 20100104 | 279.47905 | 272.45770 | 319.09471 | 4.52761 | 0.2215632 | 2.6968345 | 64 | 5 | 2001–2008 | 0.52 | M-v | 1 | MPC | 125720 | (168107) |
| (168724) | 14.2 | 0.15 | 20100104 | 246.29642 | 348.41140 | 290.54281 | 13.82536 | 0.1742481 | 3.1991026 | 80 | 7 | 1998–2009 | 0.52 | M-v | 1 | MPC | 126970 | (168724) |
| (170490) | 16.3 | 0.15 | 20100104 | 319.55824 | 334.28376 | 315.41614 | 4.65081 | 0.1139652 | 2.4014377 | 100 | 6 | 1999–2009 | 0.53 | M-v | 1 | MPC | 127557 | (170490) |
| (170604) | 15.8 | 0.15 | 20100104 | 289.00696 | 294.87625 | 15.26174 | 2.27584 | 0.0853929 | 2.5157994 | 151 | 7 | 1997–2009 | 0.54 | M-v | 2 | MPC | 127592 | (170604) |
| (171483) | 17.7 | 0.15 | 20100104 | 260.92365 | 137.55019 | 236.63487 | 0.35747 | 0.1897944 | 2.4268923 | 49 | 6 | 1995–2009 | 0.34 | M-v | 1 | MPC | 129057 | (171483) |
| (171678) | 15.0 | 0.15 | 20100104 | 275.30799 | 2.21797 | 306.47040 | 5.76792 | 0.1662387 | 3.1255658 | 85 | 7 | 2000–2009 | 0.51 | M-v | 1 | MPC | 129124 | (171678) |
| (175328) | 15.3 | 0.15 | 20100104 | 312.82897 | 165.63351 | 93.44284 | 6.36535 | 0.1847075 | 3.1775529 | 57 | 7 | 2001–2009 | 0.51 | M-v | 0 | MPC | 131044 | (175328) |
| (177651) | 17.5 | 0.15 | 20100104 | 115.16778 | 186.32286 | 89.44507 | 42.40606 | 0.6988085 | 1.1542895 | 124 | 8 | 1997–2009 | 0.42 | M-v | 3 | MPC | 166078 | (177651) |
| (188051) | 16.7 | 0.15 | 20100104 | 1.49064 | 204.40375 | 247.07358 | 19.78400 | 0.0761748 | 1.8941390 | 64 | 6 | 2001–2009 | 0.57 | M-v | 2 | MPC | 166079 | (188051) |
| (188079) | 16.3 | 0.15 | 20100104 | 63.50873 | 311.56202 | 95.92609 | 22.96586 | 0.1038352 | 1.9047444 | 122 | 5 | 2001–2009 | 0.65 | M-v | 1 | MPC | 164141 | (188079) |
| (188224) | 16.5 | 0.15 | 20100104 | 107.42104 | 204.11050 | 135.50380 | 5.43276 | 0.2209764 | 2.2093188 | 154 | 5 | 2002–2009 | 0.48 | M-v | 1 | MPC | 139477 | (188224) |
| (189018) | 15.2 | 0.15 | 20100104 | 59.73612 | 138.76883 | 223.81869 | 5.55462 | 0.1801016 | 3.0424993 | 187 | 5 | 1998–2009 | 0.55 | M-v | 0 | MPC | 159061 | (189018) |
| (189134) | 16.5 | 0.15 | 20100104 | 266.99473 | 108.74451 | 117.92875 | 25.45511 | 0.0961837 | 1.9054088 | 110 | 5 | 2002–2009 | 0.53 | M-v | 1 | MPC | 140274 | (189134) |
| (189196) | 14.9 | 0.15 | 20100104 | 43.71563 | 20.09638 | 336.63052 | 23.23757 | 0.2629449 | 3.1643780 | 86 | 5 | 2003–2009 | 0.43 | M-v | 1 | MPC | 140294 | (189196) |
| (189559) | 15.7 | 0.15 | 20100104 | 87.34651 | 74.36142 | 292.77883 | 13.80869 | 0.1697224 | 2.5799180 | 104 | 6 | 2000–2009 | 0.55 | M-v | 1 | MPC | 140836 | (189559) |
| (189577) | 15.6 | 0.15 | 20100104 | 64.92425 | 324.40003 | 56.98906 | 8.57279 | 0.1777359 | 2.6431188 | 82 | 7 | 2000–2009 | 0.64 | M-v | 1 | MPC | 140842 | (189577) |
| (189587) | 15.9 | 0.15 | 20100104 | 71.26597 | 261.37574 | 118.00861 | 6.89830 | 0.1934242 | 2.6407935 | 77 | 5 | 2000–2009 | 0.56 | M-v | 1 | MPC | 140846 | (189587) |
| (189621) | 15.4 | 0.15 | 20100104 | 350.02903 | 138.24791 | 330.22583 | 13.69204 | 0.1873522 | 2.7903783 | 100 | 6 | 1999–2009 | 0.53 | M-v | 1 | MPC | 140859 | (189621) |
| (190045) | 15.8 | 0.15 | 20100104 | 38.41055 | 117.36589 | 291.29940 | 11.24195 | 0.1620895 | 2.6601092 | 70 | 5 | 2000–2009 | 0.52 | M-v | 0 | MPC | 140999 | (190045) |
| (190129) | 15.3 | 0.15 | 20100104 | 25.86399 | 281.67763 | 136.05427 | 9.79785 | 0.3076347 | 3.0268699 | 81 | 5 | 1998–2009 | 0.53 | M-v | 0 | MPC | 141022 | (190129) |
| (190302) | 15.7 | 0.15 | 20100104 | 140.09746 | 65.51038 | 275.55932 | 9.19231 | 0.1442324 | 2.5477592 | 126 | 8 | 1996–2009 | 0.58 | M-v | 1 | MPC | 141943 | (190302) |
| (190478) | 15.4 | 0.15 | 20100104 | 293.80218 | 340.99475 | 164.31271 | 6.14893 | 0.0987142 | 3.0754523 | 66 | 5 | 2000–2009 | 0.39 | M-v | 0 | MPC | 141998 | (190478) |
| (190540) | 15.9 | 0.15 | 20100104 | 105.84630 | 156.67420 | 191.81269 | 17.95244 | 0.2066697 | 2.5749043 | 151 | 4 | 2000–2008 | 0.55 | M-v | 2 | MPC | 142021 | (190540) |
| (191642) | 16.2 | 0.15 | 20100104 | 169.14117 | 123.84110 | 144.77337 | 7.37835 | 0.2188826 | 2.5252309 | 108 | 6 | 1995–2009 | 0.50 | M-v | 1 | MPC | 142389 | (191642) |
| (191691) | 16.0 | 0.15 | 20100104 | 140.18842 | 75.46858 | 218.60226 | 13.11189 | 0.1230352 | 2.6288538 | 81 | 6 | 2000–2009 | 0.61 | M-v | 1 | MPC | 142405 | (191691) |
| (191758) | 15.5 | 0.15 | 20100104 | 40.03261 | 2.24525 | 56.55700 | 16.74871 | 0.1791747 | 2.7146208 | 101 | 6 | 2000–2009 | 0.57 | M-v | 1 | MPC | 142425 | (191758) |
| (191811) | 15.7 | 0.15 | 20100104 | 180.75185 | 45.03317 | 221.38651 | 8.22457 | 0.0745719 | 2.6396795 | 74 | 6 | 2002–2009 | 0.60 | M-v | 0 | MPC | 162290 | (191811) |
| (192112) | 15.7 | 0.15 | 20100104 | 350.98772 | 128.46975 | 340.47772 | 10.49504 | 0.1164993 | 2.7041235 | 117 | 5 | 2000–2009 | 0.53 | M-v | 0 | MPC | 142524 | (192112) |
| (192155) | 16.1 | 0.15 | 20100104 | 229.17326 | 152.64612 | 69.14487 | 1.98045 | 0.0371195 | 3.0116155 | 83 | 8 | 1995–2009 | 0.38 | M-v | 0 | MPC | 142535 | (192155) |
| (192579) | 14.3 | 0.15 | 20100104 | 18.83869 | 87.07300 | 335.79147 | 24.72921 | 0.2448992 | 3.1180285 | 187 | 5 | 1998–2009 | 0.54 | M-v | 0 | MPC | 143421 | (192579) |
| (193015) | 15.5 | 0.15 | 20100104 | 312.31064 | 331.97958 | 179.74314 | 12.82766 | 0.2610609 | 3.0685271 | 87 | 5 | 2000–2009 | 0.56 | M-v | 0 | MPC | 143563 | (193015) |
| (193037) | 15.4 | 0.15 | 20100104 | 338.14938 | 105.76718 | 32.86928 | 6.22093 | 0.1233407 | 3.0330839 | 66 | 5 | 2000–2009 | 0.59 | M-v | 1 | MPC | 143571 | (193037) |
| (193198) | 16.7 | 0.15 | 20100104 | 118.05947 | 346.50537 | 359.19251 | 11.35810 | 0.2853892 | 2.5318758 | 167 | 4 | 1996–2008 | 0.48 | M-v | 2 | MPC | 143624 | (193198) |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (193230) | 15.8 | 0.15 | 20100104 | 117.22182 | 149.18834 | 207.65873 | 14.36882 | 0.1922319 | 2.5166412 | 174 | 6 | 1996–2008 | 0.53 | M-v | 2 | MPC | 143637 | (193230) |
| (193313) | 16.2 | 0.15 | 20100104 | 33.68749 | 106.54569 | 304.09753 | 8.24933 | 0.1351266 | 2.6422079 | 89 | 5 | 2000–2009 | 0.48 | M-v | 0 | MPC | 143670 | (193313) |
| (193346) | 16.0 | 0.15 | 20100104 | 1.07901 | 320.31785 | 143.50183 | 5.06448 | 0.2408869 | 2.6517347 | 108 | 6 | 2000–2009 | 0.61 | M-v | 0 | MPC | 143683 | (193346) |
| (193514) | 15.3 | 0.15 | 20100104 | 48.50289 | 320.31963 | 106.23589 | 8.45617 | 0.0947026 | 2.7010966 | 78 | 5 | 2000–2009 | 0.54 | M-v | 1 | MPC | 143749 | (193514) |
| (193516) | 15.2 | 0.15 | 20100104 | 97.24826 | 94.01192 | 281.44650 | 14.51173 | 0.2079834 | 2.6598845 | 95 | 6 | 1999–2009 | 0.52 | M-v | 1 | MPC | 143749 | (193516) |
| (193580) | 15.5 | 0.15 | 20100104 | 7.30672 | 40.04611 | 72.88235 | 6.63276 | 0.0904511 | 2.7017621 | 71 | 5 | 2001–2009 | 0.57 | M-v | 1 | MPC | 164142 | (193580) |
| (194086) | 16.8 | 0.15 | 20100104 | 100.12320 | 177.61130 | 186.82827 | 6.86917 | 0.1312574 | 2.3636784 | 93 | 5 | 1994–2009 | 0.47 | M-v | 1 | MPC | 143946 | (194086) |
| (195279) | 15.1 | 0.15 | 20100104 | 239.96480 | 15.81721 | 187.05570 | 11.97864 | 0.1100758 | 2.7498169 | 107 | 7 | 1999–2009 | 0.54 | M-v | 1 | MPC | 144374 | (195279) |
| (195577) | 15.0 | 0.15 | 20100104 | 55.55744 | 348.64551 | 64.43214 | 13.83816 | 0.0824940 | 2.7325758 | 76 | 7 | 1999–2009 | 0.61 | M-v | 1 | MPC | 144467 | (195577) |
| (195894) | 15.1 | 0.15 | 20100104 | 162.39064 | 60.07916 | 218.27075 | 4.80790 | 0.0882865 | 3.1988736 | 95 | 6 | 2000–2009 | 0.49 | M-v | 0 | MPC | 144561 | (195894) |
| (196201) | 16.9 | 0.15 | 20100104 | 48.56883 | 176.73605 | 271.63850 | 1.20494 | 0.1536679 | 2.2507878 | 175 | 5 | 2002–2009 | 0.49 | M-v | 1 | MPC | 144659 | (196201) |
| (196294) | 15.1 | 0.15 | 20100104 | 292.01355 | 271.54495 | 290.31524 | 19.60748 | 0.1753220 | 2.3689229 | 110 | 7 | 1998–2009 | 0.62 | M-v | 1 | MPC | 144689 | (196294) |
| (196372) | 16.4 | 0.15 | 20100104 | 258.19682 | 129.51607 | 100.40720 | 2.55971 | 0.1481490 | 2.4301628 | 115 | 8 | 1995–2009 | 0.51 | M-v | 1 | MPC | 144714 | (196372) |
| (196503) | 15.2 | 0.15 | 20100104 | 223.70206 | 99.83478 | 135.42921 | 12.35797 | 0.1998617 | 2.5745910 | 201 | 6 | 1999–2009 | 0.53 | M-v | 1 | MPC | 144753 | (196503) |
| (196733) | 16.1 | 0.15 | 20100104 | 72.60428 | 106.20189 | 308.63343 | 6.44443 | 0.1684653 | 2.8031452 | 74 | 5 | 1998–2009 | 0.49 | M-v | 0 | MPC | 144827 | (196733) |
| (196839) | 14.6 | 0.15 | 20100104 | 49.54598 | 7.68603 | 30.99353 | 8.18018 | 0.1446020 | 3.0875834 | 150 | 5 | 2003–2009 | 0.47 | M-v | 1 | MPC | 144861 | (196839) |
| (197002) | 14.7 | 0.15 | 20100104 | 287.99076 | 145.74144 | 10.82620 | 9.02110 | 0.0753511 | 3.0358065 | 86 | 6 | 2000–2009 | 0.56 | M-v | 1 | MPC | 144911 | (197002) |
| (197004) | 15.7 | 0.15 | 20100104 | 22.66424 | 39.86149 | 30.45128 | 6.27909 | 0.0965321 | 3.0657567 | 73 | 5 | 2003–2009 | 0.52 | M-v | 0 | MPC | 144912 | (197004) |
| (197193) | 14.9 | 0.15 | 20100104 | 30.68460 | 118.35820 | 312.03068 | 21.52161 | 0.2542582 | 3.1323474 | 83 | 5 | 1999–2009 | 0.57 | M-v | 1 | MPC | 144969 | (197193) |
| (197284) | 15.6 | 0.15 | 20100104 | 73.42042 | 345.19512 | 51.64518 | 1.59276 | 0.0603877 | 3.0226396 | 130 | 6 | 2000–2009 | 0.46 | M-v | 0 | MPC | 144996 | (197284) |
| (197321) | 14.8 | 0.15 | 20100104 | 331.06211 | 273.90812 | 233.35571 | 11.76251 | 0.1385687 | 3.1215443 | 81 | 5 | 2002–2009 | 0.57 | M-v | 1 | MPC | 145008 | (197321) |
| (197639) | 17.0 | 0.15 | 20100104 | 255.21642 | 334.87232 | 258.92629 | 3.29394 | 0.1094509 | 2.2369542 | 64 | 6 | 2002–2009 | 0.53 | M-v | 1 | MPC | 145103 | (197639) |
| (198352) | 16.2 | 0.15 | 20100104 | 166.91692 | 232.21768 | 76.72276 | 8.45260 | 0.1583302 | 2.6022795 | 78 | 4 | 2000–2009 | 0.54 | M-v | 1 | MPC | 145329 | (198352) |
| (198867) | 17.0 | 0.15 | 20100104 | 99.03647 | 233.73194 | 131.41775 | 3.56113 | 0.0933694 | 2.2761719 | 51 | 5 | 2000–2009 | 0.47 | M-v | 1 | MPC | 145478 | (198867) |
| (198912) | 16.5 | 0.15 | 20100104 | 16.11305 | 274.52402 | 220.51391 | 3.48825 | 0.0625998 | 2.2162610 | 126 | 5 | 2002–2009 | 0.44 | M-v | 0 | MPC | 145493 | (198912) |
| (199369) | 15.7 | 0.15 | 20100104 | 82.89678 | 346.16159 | 353.07665 | 4.06195 | 0.1424909 | 2.8986961 | 59 | 6 | 2002–2009 | 0.46 | M-v | 0 | MPC | 145621 | (199369) |
| (199428) | 16.0 | 0.15 | 20100104 | 353.64695 | 112.27461 | 2.20514 | 13.43798 | 0.1546954 | 2.6763436 | 58 | 5 | 1993–2009 | 0.61 | M-v | 1 | MPC | 145636 | (199428) |
| (199445) | 16.3 | 0.15 | 20100104 | 199.90274 | 311.34083 | 298.45530 | 0.75144 | 0.0466546 | 2.9315039 | 58 | 5 | 2001–2009 | 0.31 | M-v | 0 | MPC | 145641 | (199445) |
| (199677) | 15.5 | 0.15 | 20100104 | 307.68324 | 144.82268 | 20.58054 | 17.92333 | 0.1339977 | 2.8875762 | 88 | 6 | 2001–2009 | 0.54 | M-v | 1 | MPC | 164142 | (199677) |
| (200050) | 15.6 | 0.15 | 20100104 | 146.16084 | 4.77830 | 299.24938 | 14.66584 | 0.2613891 | 2.3956188 | 101 | 5 | 2003–2009 | 0.50 | M-v | 1 | MPC | 145802 | (200050) |
| (200414) | 16.1 | 0.15 | 20100104 | 45.58252 | 130.17985 | 285.94847 | 6.96683 | 0.1844428 | 2.5869769 | 78 | 5 | 2000–2009 | 0.56 | M-v | 1 | MPC | 147720 | (200414) |
| (200525) | 15.1 | 0.15 | 20100104 | 7.28855 | 33.25670 | 101.55467 | 15.19992 | 0.1495986 | 2.7359514 | 80 | 5 | 2001–2009 | 0.63 | M-v | 1 | MPC | 147758 | (200525) |
| (201524) | 16.0 | 0.15 | 20100104 | 221.22154 | 227.58899 | 138.82535 | 7.12837 | 0.1664024 | 2.4361188 | 145 | 5 | 1999–2009 | 0.54 | M-v | 1 | MPC | 148077 | (201524) |
| (201616) | 15.9 | 0.15 | 20100104 | 73.86782 | 8.23370 | 356.83559 | 1.96412 | 0.2065805 | 3.0679114 | 59 | 5 | 2003–2009 | 0.45 | M-v | 1 | MPC | 148106 | (201616) |
| (201813) | 14.5 | 0.15 | 20100104 | 2.01537 | 48.55204 | 93.66047 | 18.67915 | 0.1921453 | 3.1719079 | 115 | 5 | 1999–2009 | 0.59 | M-v | 1 | MPC | 148164 | (201813) |
| (202498) | 16.2 | 0.15 | 20100104 | 200.80909 | 46.60970 | 198.77713 | 1.60845 | 0.0366686 | 2.9195286 | 68 | 6 | 1998–2009 | 0.44 | M-v | 0 | MPC | 148361 | (202498) |
| (202793) | 16.7 | 0.15 | 20100104 | 128.87337 | 37.06641 | 293.15025 | 0.77694 | 0.1575870 | 2.6091919 | 68 | 5 | 2004–2009 | 0.41 | M-v | 1 | MPC | 148437 | (202793) |
| (203214) | 14.3 | 0.15 | 20100104 | 325.89230 | 122.88782 | 83.76810 | 35.67766 | 0.2517666 | 2.7155669 | 114 | 5 | 2001–2009 | 0.46 | M-v | 1 | MPC | 149274 | (203214) |
| (204106) | 14.8 | 0.15 | 20100104 | 55.97486 | 187.93442 | 281.34954 | 12.34916 | 0.2051235 | 2.9777931 | 99 | 5 | 1998–2009 | 0.48 | M-v | 2 | MPC | 149553 | (204106) |
| (204960) | 16.0 | 0.15 | 20100104 | 114.42754 | 140.47553 | 213.98264 | 0.83245 | 0.2713611 | 3.0437921 | 85 | 4 | 1960–2009 | 0.47 | M-v | 1 | MPC | 149790 | (204960) |
| (207124) | 15.5 | 0.15 | 20100104 | 272.24256 | 327.16746 | 321.46787 | 14.58999 | 0.1221169 | 2.6115281 | 73 | 4 | 1998–2009 | 0.48 | M-v | 2 | MPC | 151816 | (207124) |
| (207329) | 16.4 | 0.15 | 20100104 | 13.10447 | 263.64681 | 3.02019 | 4.84426 | 0.2050950 | 2.5654217 | 108 | 4 | 2001–2009 | 0.46 | M-v | 2 | MPC | 151875 | (207329) |
| (207632) | 15.3 | 0.15 | 20100104 | 276.64827 | 189.05078 | 115.62787 | 6.21147 | 0.1180486 | 3.0307663 | 67 | 7 | 1979–2009 | 0.48 | M-v | 0 | MPC | 151958 | (207632) |
| (217017) | 15.4 | 0.15 | 20100104 | 9.36981 | 107.27333 | 16.90260 | 9.21228 | 0.1863976 | 2.7090573 | 98 | 5 | 2001–2009 | 0.55 | M-v | 1 | MPC | 159183 | (217017) |
| (225416) | 17.1 | 0.15 | 20100104 | 299.32834 | 156.32677 | 64.85220 | 38.16797 | 0.8307094 | 1.4218453 | 176 | 8 | 1999–2009 | 0.55 | M-v | 3 | MPC | 164464 | (225416) |
| (225586) | 18.3 | 0.15 | 20100104 | 134.86898 | 198.29805 | 73.82552 | 20.65549 | 0.7071286 | 1.2986531 | 78 | 7 | 2000–2009 | 0.52 | M-v | 3 | MPC | 164520 | (225586) |
| 1981 $EK_{28}$ | 15.9 | 0.15 | 20100104 | 7.19318 | 158.72385 | 351.95309 | 14.50084 | 0.1089697 | 2.5800998 | 33 | 5 | 1981–2009 | 0.68 | M-v | 1 | MPC | 147125 | 1981 $EK_{28}$ |
| 1985 WA | 18.1 | 0.15 | 20100104 | 20.03875 | 351.11121 | 43.61357 | 9.76343 | 0.6029818 | 2.8418996 | 55 | 3 | 1985–2009 | 0.73 | M-v | 1 | MPC | 166081 | 1985 WA |
| 1988 $PF_1$ | 16.4 | 0.15 | 20100104 | 39.59038 | 45.68635 | 305.18094 | 4.29873 | 0.4555585 | 2.9908306 | 28 | 2 | 1988–2009 | 0.55 | M-v | 3 | MPC | 165296 | 1988 $PF_1$ |
| 1988 $PH_4$ | 16.5 | 0.15 | 20100104 | 32.58776 | 161.38106 | 180.44055 | 9.37159 | 0.4462014 | 2.5926268 | 151 | 4 | 1988–2009 | 0.47 | M-v | 1 | MPC | 166081 | 1988 $PH_4$ |
| 1990 SH | 15.5 | 0.15 | 20100104 | 91.91304 | 262.53330 | 95.69619 | 14.57069 | 0.2573104 | 2.7401107 | 56 | 4 | 1990–2009 | 0.57 | M-v | 1 | MPC | 166081 | 1990 SH |
| 1992 $QE_3$ | 16.4 | 0.15 | 20100104 | 69.74850 | 80.35221 | 263.22926 | 1.59995 | 0.2540204 | 2.5803617 | 23 | 5 | 1992–2009 | 0.46 | M-v | 1 | MPC | 141748 | 1992 $QE_3$ |
| 1993 $FS_{62}$ | 17.7 | 0.15 | 20100104 | 211.84553 | 104.23787 | 104.90090 | 3.26670 | 0.1635867 | 2.3589876 | 34 | 6 | 1993–2009 | 0.47 | M-v | 1 | MPC | 140081 | 1993 $FS_{62}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1993 RA | 19.1 | 0.15 | 20100104 | 3.31731 | 265.04259 | 171.86595 | 5.60263 | 0.4157234 | 1.9187130 | 113 | 3 | 1993–2009 | 0.53 | M-v | 2 | MPC | 166081 | 1993 | RA |
| 1993 $TQ_2$ | 19.9 | 0.15 | 20100104 | 261.80014 | 77.48562 | 13.45518 | 6.04081 | 0.4199709 | 1.9856880 | 229 | 3 | 1993–2008 | 0.40 | M-v | 0 | MPC | 137905 | 1993 | $TQ_2$ |
| 1993 $TT_7$ | 15.6 | 0.15 | 20100104 | 13.95740 | 354.89936 | 22.36469 | 12.00362 | 0.0683838 | 3.0925432 | 49 | 4 | 1993–2009 | 0.38 | M-v | 2 | MPC | 166081 | 1993 | $TT_7$ |
| 1993 $TG_{30}$ | 15.5 | 0.15 | 20100104 | 5.18074 | 355.94095 | 36.92812 | 11.09703 | 0.2899323 | 3.0699590 | 71 | 3 | 1993–2009 | 0.58 | M-v | 2 | MPC | 166081 | 1993 | $TG_{30}$ |
| 1994 $AL_7$ | 18.3 | 0.15 | 20100104 | 10.76888 | 121.75448 | 294.05634 | 1.99077 | 0.1355895 | 2.1983877 | 51 | 5 | 1994–2009 | 0.43 | M-v | 1 | MPC | 166081 | 1994 | $AL_7$ |
| 1994 $AB_9$ | 17.3 | 0.15 | 20100104 | 170.06400 | 295.05955 | 121.90788 | 2.90416 | 0.1989368 | 2.3763077 | 27 | 3 | 1994–2005 | 0.45 | M-v | 4 | MPC | 107713 | 1994 | $AB_9$ |
| 1994 $AE_{10}$ | 16.8 | 0.15 | 20100104 | 297.10546 | 118.51575 | 61.65482 | 2.85072 | 0.1244930 | 2.5378245 | 61 | 6 | 1994–2009 | 0.43 | M-v | 2 | MPC | 166081 | 1994 | $AE_{10}$ |
| 1994 $AY_{13}$ | 16.7 | 0.15 | 20100104 | 310.33598 | 48.72878 | 107.88813 | 5.88283 | 0.1361809 | 2.5510233 | 41 | 5 | 1994–2009 | 0.49 | M-v | 3 | MPC | 97323 | 1994 | $AY_{13}$ |
| 1994 $AD_{15}$ | 17.2 | 0.15 | 20100104 | 3.27447 | 99.97720 | 331.23428 | 1.69943 | 0.1464290 | 2.5526034 | 34 | 4 | 1994–2009 | 0.33 | M-v | 3 | MPC | 166081 | 1994 | $AD_{15}$ |
| 1994 CF | 16.1 | 0.15 | 20100104 | 319.09148 | 234.70946 | 275.76367 | 6.90829 | 0.1476029 | 2.5445964 | 91 | 7 | 1982–2009 | 0.58 | M-v | 2 | MPC | 97323 | 1994 | CF |
| 1994 HH | 16.8 | 0.15 | 20100104 | 317.82391 | 204.21766 | 307.24801 | 0.67274 | 0.0674409 | 2.5953644 | 64 | 5 | 1994–2009 | 0.40 | M-v | 2 | MPC | 148803 | 1994 | HH |
| 1994 $PF_4$ | 17.1 | 0.15 | 20100104 | 51.68139 | 87.37420 | 236.67552 | 1.34836 | 0.2217659 | 2.4008046 | 52 | 7 | 1979–2009 | 0.57 | M-v | 1 | MPC | 165296 | 1994 | $PF_4$ |
| 1994 $PO_{14}$ | 16.0 | 0.15 | 20100104 | 71.79524 | 49.05053 | 309.23672 | 5.14423 | 0.2604557 | 2.3608662 | 111 | 5 | 1994–2009 | 0.53 | M-v | 2 | MPC | 160719 | 1994 | $PO_{14}$ |
| 1994 $RV_5$ | 17.2 | 0.15 | 20100104 | 335.56270 | 338.28039 | 201.12564 | 3.67540 | 0.0960977 | 2.2846653 | 53 | 7 | 1994–2009 | 0.49 | M-v | 1 | MPC | 148803 | 1994 | $RV_5$ |
| 1994 $RM_{26}$ | 17.3 | 0.15 | 20100104 | 107.85948 | 140.94435 | 176.07632 | 1.82370 | 0.1820993 | 2.3477166 | 41 | 5 | 1994–2009 | 0.33 | M-v | 1 | MPC | 166081 | 1994 | $RM_{26}$ |
| 1994 $UK_3$ | 17.8 | 0.15 | 20100104 | 8.63974 | 0.06688 | 45.74267 | 2.08071 | 0.1814083 | 2.4106371 | 58 | 4 | 1994–2009 | 0.36 | M-v | 1 | MPC | 166081 | 1994 | $UK_3$ |
| 1994 $UK_9$ | 16.0 | 0.15 | 20100104 | 284.79827 | 260.09592 | 19.52922 | 13.05792 | 0.1896054 | 2.6437216 | 38 | 4 | 1994–2009 | 0.44 | M-v | 2 | MPC | 131747 | 1994 | $UK_9$ |
| 1994 $VB_5$ | 16.6 | 0.15 | 20100104 | 58.32093 | 80.05118 | 251.29186 | 3.85934 | 0.1181190 | 2.9356548 | 50 | 5 | 1994–2009 | 0.42 | M-v | 3 | MPC | 166081 | 1994 | $VB_5$ |
| 1995 $BU_{10}$ | 16.9 | 0.15 | 20100104 | 78.28275 | 309.28395 | 92.30425 | 2.48596 | 0.1828659 | 2.3994783 | 98 | 5 | 1995–2009 | 0.47 | M-v | 1 | MPC | 120724 | 1995 | $BU_{10}$ |
| 1995 $CJ_{10}$ | 15.7 | 0.15 | 20100104 | 134.91082 | 248.33444 | 350.01057 | 12.33323 | 0.2264663 | 2.6149674 | 32 | 3 | 1995–2009 | 0.38 | M-v | 3 | MPC | 161826 | 1995 | $CJ_{10}$ |
| 1995 $FQ_3$ | 15.6 | 0.15 | 20100104 | 167.37193 | 160.76387 | 139.05652 | 6.25031 | 0.1383308 | 3.0489589 | 45 | 8 | 1995–2009 | 0.32 | M-v | 0 | MPC | 157947 | 1995 | $FQ_3$ |
| 1995 $FN_5$ | 17.3 | 0.15 | 20100104 | 273.12697 | 90.86711 | 120.92355 | 2.95249 | 0.1357615 | 2.4581520 | 42 | 5 | 1995–2009 | 0.50 | M-v | 1 | MPC | 147126 | 1995 | $FN_5$ |
| 1995 $FB_{19}$ | 16.3 | 0.15 | 20100104 | 241.79520 | 86.46101 | 155.12995 | 4.97473 | 0.1453510 | 2.4658807 | 86 | 6 | 1995–2009 | 0.48 | M-v | 1 | MPC | 159645 | 1995 | $FB_{19}$ |
| 1995 JS | 14.9 | 0.15 | 20100104 | 95.30253 | 285.90416 | 64.42020 | 10.30931 | 0.0818719 | 3.1663638 | 38 | 6 | 1995–2009 | 0.42 | M-v | 0 | MPC | 159645 | 1995 | JS |
| 1995 $MJ_2$ | 15.4 | 0.15 | 20100104 | 325.75816 | 315.16411 | 250.12151 | 8.05337 | 0.1151925 | 3.0963498 | 40 | 6 | 1995–2009 | 0.44 | M-v | 1 | MPC | 148804 | 1995 | $MJ_2$ |
| 1995 $MP_7$ | 16.2 | 0.15 | 20100104 | 310.83635 | 57.93923 | 91.89683 | 17.48029 | 0.0797296 | 3.1257651 | 33 | 5 | 1995–2009 | 0.33 | M-v | 0 | MPC | 166082 | 1995 | $MP_7$ |
| 1995 OL | 16.5 | 0.15 | 20100104 | 218.24393 | 336.41416 | 304.41458 | 11.53419 | 0.1243390 | 2.5469056 | 32 | 3 | 1995–2009 | 0.48 | M-v | 2 | MPC | 99878 | 1995 | OL |
| 1995 $OE_3$ | 15.9 | 0.15 | 20100104 | 37.70485 | 128.06249 | 279.69191 | 11.03810 | 0.1538685 | 2.6646410 | 45 | 5 | 1995–2009 | 0.62 | M-v | 1 | MPC | 140662 | 1995 | $OE_3$ |
| 1995 PR | 16.5 | 0.15 | 20100104 | 56.73449 | 303.84741 | 35.71531 | 7.77125 | 0.1613525 | 2.2798720 | 128 | 4 | 1995–2009 | 0.47 | M-v | 2 | MPC | 166082 | 1995 | PR |
| 1995 $QD_6$ | 13.4 | 0.15 | 20100104 | 41.54071 | 57.38192 | 303.27840 | 16.98948 | 0.0077259 | 5.1919222 | 38 | 5 | 1995–2009 | 0.39 | M-v | 0 | MPC | 166082 | 1995 | $QD_6$ |
| 1995 $QE_{14}$ | 17.0 | 0.15 | 20100104 | 53.02030 | 141.94998 | 238.72050 | 5.08611 | 0.0508282 | 2.6678303 | 53 | 8 | 1995–2009 | 0.49 | M-v | 0 | MPC | 166082 | 1995 | $QE_{14}$ |
| 1995 $SS_{24}$ | 17.7 | 0.15 | 20100104 | 304.67311 | 252.30523 | 69.46236 | 2.17368 | 0.1329341 | 2.4375056 | 31 | 4 | 1995–2009 | 0.37 | M-v | 2 | MPC | 103138 | 1995 | $SS_{24}$ |
| 1995 $SD_{37}$ | 17.2 | 0.15 | 20100104 | 50.25034 | 43.34383 | 342.62021 | 2.49750 | 0.1238577 | 2.2596420 | 37 | 3 | 1995–2009 | 0.58 | M-v | 4 | MPC | 166082 | 1995 | $SD_{37}$ |
| 1995 $SB_{52}$ | 17.9 | 0.15 | 20100104 | 38.58193 | 5.61844 | 13.54007 | 2.38573 | 0.1693926 | 2.2905887 | 56 | 3 | 1995–2009 | 0.43 | M-v | 3 | MPC | 166082 | 1995 | $SB_{52}$ |
| 1995 $SP_{56}$ | 14.7 | 0.15 | 19950920 | 7.93984 | 181.32390 | 164.43537 | 6.23048 | 0.0765887 | 5.3978613 | 9 | 1 | 10 days | 0.42 | | E | MPC | | 1995 | $SP_{56}$ |
| 1995 $SL_{62}$ | 15.6 | 0.15 | 20100104 | 349.57965 | 93.33628 | 15.48977 | 10.17929 | 0.0129489 | 3.4222185 | 39 | 4 | 1995–2009 | 0.34 | M-v | 0 | MPC | 150878 | 1995 | $SL_{62}$ |
| 1995 $SL_{63}$ | 17.8 | 0.15 | 20100104 | 27.82627 | 81.10070 | 328.54304 | 0.80028 | 0.2040467 | 2.2802625 | 63 | 5 | 1995–2009 | 0.53 | M-v | 2 | MPC | 159646 | 1995 | $SL_{63}$ |
| 1995 $SY_{64}$ | 18.3 | 0.15 | 20100104 | 337.11269 | 260.54914 | 207.90002 | 2.91632 | 0.1817453 | 2.2796926 | 37 | 4 | 1995–2009 | 0.33 | M-v | 1 | MPC | 166082 | 1995 | $SY_{64}$ |
| 1995 $UE_{22}$ | 17.1 | 0.15 | 20100104 | 214.81263 | 359.72551 | 211.25766 | 2.72665 | 0.1167101 | 2.2838489 | 67 | 6 | 1995–2009 | 0.44 | M-v | 1 | MPC | 166082 | 1995 | $UE_{22}$ |
| 1995 $UJ_{40}$ | 16.7 | 0.15 | 20100104 | 333.37919 | 207.75641 | 213.08775 | 4.44137 | 0.0597425 | 2.7929024 | 35 | 3 | 1995–2009 | 0.29 | M-v | 2 | MPC | 164144 | 1995 | $UJ_{40}$ |
| 1995 $UO_{58}$ | 17.2 | 0.15 | 20100104 | 81.72337 | 100.16215 | 230.78327 | 3.91466 | 0.1861008 | 2.2893929 | 57 | 6 | 1994–2009 | 0.42 | M-v | 0 | MPC | 166082 | 1995 | $UO_{58}$ |
| 1995 $UR_{65}$ | 16.1 | 0.15 | 20100104 | 66.39284 | 303.38789 | 54.43338 | 9.92500 | 0.1948751 | 2.7464605 | 52 | 5 | 1995–2009 | 0.53 | M-v | 1 | MPC | 166082 | 1995 | $UR_{65}$ |
| 1995 $UZ_{78}$ | 17.9 | 0.15 | 20100104 | 333.60979 | 4.86364 | 108.65474 | 2.97017 | 0.1564313 | 2.2964933 | 43 | 4 | 1995–2009 | 0.40 | M-v | 1 | MPC | 165297 | 1995 | $UZ_{78}$ |
| 1995 $VB_4$ | 17.2 | 0.15 | 20100104 | 62.65032 | 254.12825 | 107.03603 | 4.35491 | 0.0771748 | 2.2905669 | 56 | 8 | 1995–2009 | 0.33 | M-v | 0 | MPC | 166082 | 1995 | $VB_4$ |
| 1995 $VZ_8$ | 17.0 | 0.15 | 20100104 | 115.21158 | 274.75159 | 59.70147 | 4.58974 | 0.2008239 | 2.2614525 | 66 | 4 | 1995–2009 | 0.38 | M-v | 1 | MPC | 121748 | 1995 | $VZ_8$ |
| 1995 $VS_{17}$ | 17.0 | 0.15 | 20100104 | 4.78112 | 212.31910 | 268.14208 | 0.82399 | 0.1735255 | 2.7220385 | 28 | 5 | 1995–2009 | 0.27 | M-v | 0 | MPC | 145820 | 1995 | $VS_{17}$ |
| 1995 $WR_{11}$ | 17.1 | 0.15 | 20100104 | 6.91915 | 337.77845 | 99.38063 | 5.96008 | 0.0992516 | 2.7668845 | 31 | 4 | 1995–2009 | 0.25 | M-v | 1 | MPC | 166082 | 1995 | $WR_{11}$ |
| 1995 $WB_{13}$ | 17.1 | 0.15 | 20100104 | 349.04673 | 352.57599 | 127.90569 | 4.40982 | 0.1474869 | 2.7432955 | 33 | 4 | 1995–2009 | 0.33 | M-v | 0 | MPC | 101965 | 1995 | $WB_{13}$ |
| 1995 $WL_{38}$ | 17.5 | 0.15 | 20100104 | 25.57846 | 106.18417 | 277.64634 | 1.68285 | 0.2305990 | 2.3067156 | 109 | 4 | 1995–2009 | 0.50 | M-v | 2 | MPC | 166082 | 1995 | $WL_{38}$ |
| 1995 $XF_3$ | 17.6 | 0.15 | 20100104 | 47.92980 | 224.80930 | 169.73750 | 3.52265 | 0.1493344 | 2.2885787 | 32 | 4 | 1995–2009 | 0.26 | M-v | 1 | MPC | 135747 | 1995 | $XF_3$ |
| 1996 $GQ_6$ | 16.5 | 0.15 | 20100104 | 356.25729 | 339.48441 | 180.46718 | 10.45535 | 0.1379279 | 2.8106802 | 34 | 5 | 1996–2009 | 0.58 | M-v | 1 | MPC | 147128 | 1996 | $GQ_6$ |
| 1996 $GR_6$ | 17.0 | 0.15 | 20100104 | 223.00686 | 161.72217 | 73.89469 | 3.03283 | 0.1330707 | 2.3962472 | 58 | 4 | 1996–2009 | 0.42 | M-v | 2 | MPC | 119509 | 1996 | $GR_6$ |
| 1996 $SE_1$ | 17.4 | 0.15 | 20100104 | 25.68335 | 42.00628 | 4.38279 | 3.24401 | 0.3079245 | 2.6082769 | 36 | 3 | 1996–2009 | 0.46 | M-v | 3 | MPC | 166083 | 1996 | $SE_1$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 $TK_{27}$ | 17.8 | 0.15 | 20100104 | 27.50298 | 312.30715 | 75.54758 | 3.93735 | 0.3048407 | 2.6396703 | 63 | 3 | 1996–2009 | 0.47 | M-v | 3 | MPC | 165298 | 1996 $TK_{27}$ |
| 1996 $TT_{27}$ | 17.7 | 0.15 | 20100104 | 342.84251 | 9.51579 | 53.79636 | 6.25668 | 0.1381381 | 2.2040760 | 69 | 5 | 1996–2009 | 0.43 | M-v | 1 | MPC | 162293 | 1996 $TT_{27}$ |
| 1996 $TJ_{45}$ | 17.0 | 0.15 | 20100104 | 24.79724 | 321.32846 | 111.58640 | 4.77895 | 0.1779150 | 2.5925164 | 34 | 3 | 1996–2009 | 0.41 | M-v | 2 | MPC | 166083 | 1996 $TJ_{45}$ |
| 1996 $TZ_{50}$ | 17.4 | 0.15 | 20100104 | 33.71249 | 351.65155 | 357.34348 | 5.47943 | 0.2170540 | 2.1952008 | 100 | 6 | 1996–2009 | 0.47 | M-v | 1 | MPC | 166083 | 1996 $TZ_{50}$ |
| 1996 $VW_{1}$ | 17.6 | 0.15 | 20100104 | 20.69194 | 350.18442 | 31.82726 | 6.71132 | 0.1844151 | 2.2007129 | 51 | 3 | 1996–2009 | 0.44 | M-v | 2 | MPC | 166083 | 1996 $VW_{1}$ |
| 1996 $VW_{6}$ | 16.6 | 0.15 | 20100104 | 34.61783 | 347.80751 | 356.27552 | 7.82567 | 0.3908915 | 2.6551994 | 76 | 3 | 1996–2009 | 0.41 | M-v | 2 | MPC | 164145 | 1996 $VW_{6}$ |
| 1996 $XZ_{9}$ | 17.5 | 0.15 | 20100104 | 2.91702 | 48.49242 | 349.71918 | 5.18936 | 0.1057385 | 2.6915828 | 34 | 5 | 1996–2009 | 0.36 | M-v | 1 | MPC | 161828 | 1996 $XZ_{9}$ |
| 1996 $XP_{13}$ | 15.7 | 0.15 | 20100104 | 39.74901 | 15.46059 | 70.79814 | 6.71561 | 0.3193374 | 2.6042806 | 56 | 5 | 1996–2009 | 0.50 | M-v | 1 | MPC | 101966 | 1996 $XP_{13}$ |
| 1996 $XD_{18}$ | 17.0 | 0.15 | 20100104 | 6.87012 | 154.76154 | 262.15904 | 2.82324 | 0.1166244 | 2.6655625 | 70 | 5 | 1996–2009 | 0.37 | M-v | 0 | MPC | 166083 | 1996 $XD_{18}$ |
| 1997 $AQ_{3}$ | 16.1 | 0.15 | 20100104 | 73.72550 | 253.41171 | 113.25374 | 12.32206 | 0.2031079 | 2.6798382 | 43 | 5 | 1997–2009 | 0.45 | M-v | 1 | MPC | 166083 | 1997 $AQ_{3}$ |
| 1997 $AB_{21}$ | 16.8 | 0.15 | 20100104 | 122.85860 | 195.11846 | 161.86617 | 2.23196 | 0.0742454 | 2.6592421 | 63 | 7 | 1995–2009 | 0.37 | M-v | 1 | MPC | 158393 | 1997 $AB_{21}$ |
| 1997 $AC_{25}$ | 15.7 | 0.15 | 20100104 | 280.76737 | 279.86557 | 231.11515 | 12.88519 | 0.1234544 | 2.7470460 | 72 | 5 | 1997–2009 | 0.53 | M-v | 1 | MPC | 166083 | 1997 $AC_{25}$ |
| 1997 $CR_{11}$ | 16.5 | 0.15 | 20100104 | 10.18082 | 128.86431 | 312.12510 | 10.80100 | 0.1692078 | 2.6863165 | 43 | 6 | 1960–2009 | 0.55 | M-v | 1 | MPC | 157336 | 1997 $CR_{11}$ |
| 1997 $EY_{6}$ | 17.0 | 0.15 | 20100104 | 46.06149 | 182.78916 | 216.65923 | 6.58669 | 0.1200555 | 2.2377237 | 57 | 5 | 1997–2009 | 0.49 | M-v | 1 | MPC | 116119 | 1997 $EY_{6}$ |
| 1997 $GL_{5}$ | 16.7 | 0.15 | 20100104 | 48.23801 | 42.80588 | 4.90104 | 5.90451 | 0.0565224 | 2.7722394 | 61 | 5 | 1997–2009 | 0.35 | M-v | 1 | MPC | 147128 | 1997 $GL_{5}$ |
| 1997 $GE_{10}$ | 16.0 | 0.15 | 20100104 | 248.07825 | 35.14985 | 178.87000 | 5.46066 | 0.1771257 | 2.7922504 | 36 | 6 | 1997–2009 | 0.52 | M-v | 1 | MPC | 148806 | 1997 $GE_{10}$ |
| 1997 $ST_{16}$ | 16.2 | 0.15 | 20100104 | 10.74397 | 108.47304 | 356.34813 | 8.98615 | 0.1838582 | 2.4198010 | 69 | 6 | 1997–2009 | 0.53 | M-v | 1 | MPC | 147129 | 1997 $ST_{16}$ |
| 1997 $SK_{30}$ | 16.7 | 0.15 | 20100104 | 19.06401 | 145.54365 | 226.90956 | 2.31665 | 0.0799432 | 2.5420798 | 101 | 5 | 1997–2009 | 0.48 | M-v | 3 | MPC | 166084 | 1997 $SK_{30}$ |
| 1997 $SL_{31}$ | 16.3 | 0.15 | 20100104 | 41.21590 | 218.35714 | 176.79686 | 0.74300 | 0.1660537 | 3.1471110 | 48 | 7 | 1992–2009 | 0.31 | M-v | 0 | MPC | 147129 | 1997 $SL_{31}$ |
| 1997 $TY_{1}$ | 16.1 | 0.15 | 20100104 | 12.55440 | 192.44008 | 245.32250 | 2.46051 | 0.1734406 | 2.4670565 | 140 | 5 | 1997–2009 | 0.48 | M-v | 2 | MPC | 120726 | 1997 $TY_{1}$ |
| 1997 $TW_{2}$ | 13.0 | 0.15 | 19970929 | 316.30783 | 237.64919 | 206.89789 | 14.02048 | 0.2194263 | 5.1625512 | 9 | 1 | 2 days | 0.12 | | E | MPC | | 1997 $TW_{2}$ |
| 1997 $TW_{12}$ | 17.2 | 0.15 | 20100104 | 69.98509 | 2.36248 | 19.16650 | 4.28378 | 0.1951285 | 2.4539107 | 34 | 5 | 1993–2009 | 0.44 | M-v | 2 | MPC | 119510 | 1997 $TW_{12}$ |
| 1997 $WP_{4}$ | 16.8 | 0.15 | 20100104 | 7.21340 | 331.95343 | 51.08989 | 6.27084 | 0.1281918 | 2.5535837 | 90 | 5 | 1997–2009 | 0.48 | M-v | 2 | MPC | 162293 | 1997 $WP_{4}$ |
| 1997 $WT_{12}$ | 17.7 | 0.15 | 20100104 | 46.80834 | 9.58260 | 33.42187 | 1.74808 | 0.1860523 | 2.4706615 | 44 | 4 | 1997–2009 | 0.59 | M-v | 3 | MPC | 166084 | 1997 $WT_{12}$ |
| 1997 $WK_{14}$ | 13.2 | 0.15 | 20100104 | 320.88645 | 30.44190 | 65.67122 | 13.06945 | 0.0376317 | 5.2906646 | 41 | 4 | 1997–2009 | 0.47 | M-v | 0 | MPC | 166084 | 1997 $WK_{14}$ |
| 1997 $WY_{28}$ | 17.1 | 0.15 | 20100104 | 41.51905 | 4.51612 | 83.59836 | 3.92606 | 0.0797896 | 2.4338119 | 45 | 7 | 1997–2009 | 0.38 | M-v | 1 | MPC | 154045 | 1997 $WY_{28}$ |
| 1997 $XM_{3}$ | 15.6 | 0.15 | 20100104 | 38.41706 | 286.04881 | 104.14786 | 7.65989 | 0.2342852 | 2.5523567 | 135 | 6 | 1994–2009 | 0.54 | M-v | 2 | MPC | 166084 | 1997 $XM_{3}$ |
| 1997 $YN_{12}$ | 16.4 | 0.15 | 20100104 | 238.13904 | 181.87240 | 107.57706 | 7.46559 | 0.1133909 | 2.4365635 | 50 | 6 | 1997–2009 | 0.51 | M-v | 1 | MPC | 154045 | 1997 $YN_{12}$ |
| 1997 $YY_{13}$ | 15.2 | 0.15 | 20100104 | 309.34659 | 220.01473 | 297.91466 | 4.94024 | 0.1653115 | 2.5583217 | 185 | 6 | 1997–2009 | 0.51 | M-v | 2 | MPC | 166084 | 1997 $YY_{13}$ |
| 1998 $BH_{21}$ | 17.8 | 0.15 | 20100104 | 51.87795 | 106.60856 | 300.91644 | 8.59933 | 0.1618838 | 2.5176611 | 43 | 6 | 1994–2009 | 0.36 | M-v | 2 | MPC | 166084 | 1998 $BH_{21}$ |
| 1998 $BS_{22}$ | 17.2 | 0.15 | 20100104 | 349.64536 | 6.18134 | 120.18566 | 5.14089 | 0.0878737 | 2.5501837 | 59 | 6 | 1998–2009 | 0.39 | M-v | 2 | MPC | 147130 | 1998 $BS_{22}$ |
| 1998 CM | 14.9 | 0.15 | 20100104 | 67.54939 | 34.70989 | 343.75937 | 6.47201 | 0.2853248 | 2.5344550 | 164 | 6 | 1998–2009 | 0.51 | M-v | 2 | MPC | 164146 | 1998 CM |
| 1998 $DO_{12}$ | 16.5 | 0.15 | 20100104 | 293.36298 | 354.24930 | 145.68925 | 6.48685 | 0.1627739 | 2.6095085 | 35 | 4 | 1998–2009 | 0.53 | M-v | 3 | MPC | 166084 | 1998 $DO_{12}$ |
| 1998 FT | 17.8 | 0.15 | 20100104 | 81.76089 | 266.16648 | 41.45344 | 3.90871 | 0.1307906 | 2.2330095 | 60 | 5 | 1998–2009 | 0.38 | M-v | 0 | MPC | 166084 | 1998 FT |
| 1998 FW | 16.8 | 0.15 | 20100104 | 203.48846 | 181.91447 | 63.10485 | 3.44183 | 0.0503474 | 2.6601991 | 46 | 4 | 1998–2009 | 0.42 | M-v | 1 | MPC | 120726 | 1998 FW |
| 1998 $FL_{14}$ | 16.5 | 0.15 | 20100104 | 303.99902 | 223.44754 | 328.57104 | 4.51504 | 0.2152907 | 2.5707881 | 154 | 5 | 1998–2009 | 0.55 | M-v | 2 | MPC | 101968 | 1998 $FL_{14}$ |
| 1998 $FP_{74}$ | 16.0 | 0.15 | 20100104 | 168.28066 | 257.65441 | 25.68683 | 11.01650 | 0.0140964 | 2.6418795 | 26 | 4 | 1998–2009 | 0.60 | M-v | 2 | MPC | 73935 | 1998 $FP_{74}$ |
| 1998 $FX_{134}$ | 18.5 | 0.15 | 20100104 | 147.64291 | 253.74007 | 349.72534 | 5.21960 | 0.4308998 | 2.2548146 | 73 | 3 | 1998–2008 | 0.60 | M-v | 1 | MPC | 133289 | 1998 $FX_{134}$ |
| 1998 $HJ_{3}$ | 18.8 | 0.15 | 20100104 | 36.21259 | 93.75809 | 224.01552 | 6.55625 | 0.7459953 | 1.9863629 | 113 | 2 | 1998–2009 | 0.54 | M-v | 2 | MPC | 165299 | 1998 $HJ_{3}$ |
| 1998 $HN_{3}$ | 18.3 | 0.15 | 20100104 | 19.75252 | 250.64270 | 49.22649 | 9.20043 | 0.6174063 | 3.1110434 | 44 | 2 | 1998–2009 | 0.33 | M-v | 2 | MPC | 159062 | 1998 $HN_{3}$ |
| 1998 $HB_{7}$ | 15.6 | 0.15 | 20100104 | 344.83791 | 93.41886 | 45.82272 | 28.71683 | 0.2122599 | 2.5715936 | 27 | 3 | 1998–2009 | 0.64 | M-v | 3 | MPC | 107752 | 1998 $HB_{7}$ |
| 1998 $HQ_{10}$ | 15.8 | 0.15 | 20100104 | 311.13424 | 94.63100 | 30.56170 | 10.69307 | 0.1536787 | 2.6516593 | 76 | 4 | 1998–2009 | 0.46 | M-v | 2 | MPC | 166084 | 1998 $HQ_{10}$ |
| 1998 $HB_{27}$ | 16.6 | 0.15 | 20100104 | 316.36838 | 100.10655 | 59.48048 | 4.85005 | 0.2065744 | 2.5910559 | 65 | 5 | 1998–2009 | 0.60 | M-v | 3 | MPC | 147130 | 1998 $HB_{27}$ |
| 1998 $HE_{50}$ | 17.4 | 0.15 | 20100104 | 266.02548 | 110.36282 | 106.62914 | 3.14818 | 0.0729884 | 2.6052374 | 37 | 5 | 1998–2009 | 0.43 | M-v | 2 | MPC | 147130 | 1998 $HE_{50}$ |
| 1998 $HJ_{129}$ | 16.5 | 0.15 | 20100104 | 286.61373 | 349.08044 | 224.84188 | 3.20760 | 0.2214820 | 2.5806068 | 39 | 5 | 1998–2009 | 0.68 | M-v | 3 | MPC | 148807 | 1998 $HJ_{129}$ |
| 1998 QN | 16.6 | 0.15 | 20100104 | 46.31466 | 45.05187 | 314.98029 | 12.18830 | 0.3137505 | 2.3410411 | 80 | 3 | 1998–2009 | 0.52 | M-v | 2 | MPC | 166084 | 1998 QN |
| 1998 $QB_{28}$ | 20.3 | 0.15 | 20100104 | 317.57537 | 297.96419 | 341.64676 | 1.07733 | 0.3797055 | 2.0743937 | 42 | 3 | 1998–2007 | 0.39 | M-v | 4 | MPC | 126553 | 1998 $QB_{28}$ |
| 1998 $QW_{28}$ | 16.2 | 0.15 | 20100104 | 63.98188 | 64.89795 | 236.19745 | 5.00074 | 0.1571698 | 3.0677461 | 53 | 4 | 1998–2009 | 0.39 | M-v | 0 | MPC | 164146 | 1998 $QW_{28}$ |
| 1998 $QQ_{52}$ | 20.7 | 0.15 | 20100104 | 262.71506 | 106.24292 | 206.00655 | 4.82207 | 0.4561213 | 2.1078683 | 58 | 3 | 1998–2007 | 0.62 | M-v | 1 | MPC | 121292 | 1998 $QQ_{52}$ |
| 1998 $QK_{58}$ | 17.8 | 0.15 | 20100104 | 5.72804 | 52.95608 | 352.45718 | 1.89100 | 0.1798027 | 2.3622206 | 56 | 6 | 1995–2009 | 0.41 | M-v | 0 | MPC | 166085 | 1998 $QK_{58}$ |
| 1998 $QK_{84}$ | 15.4 | 0.15 | 20100104 | 59.88082 | 54.81119 | 256.72933 | 5.79067 | 0.2668246 | 3.0582740 | 82 | 5 | 1998–2009 | 0.50 | M-v | 1 | MPC | 166085 | 1998 $QK_{84}$ |
| 1998 $QU_{87}$ | 14.4 | 0.15 | 20100104 | 12.38664 | 82.68732 | 281.09668 | 14.56143 | 0.2610586 | 3.1326438 | 131 | 3 | 1998–2009 | 0.57 | M-v | 2 | MPC | 166085 | 1998 $QU_{87}$ |
| 1998 $QA_{103}$ | 15.2 | 0.15 | 20100104 | 44.34058 | 344.06843 | 8.53713 | 14.04147 | 0.2795671 | 3.0562096 | 98 | 3 | 1998–2009 | 0.60 | M-v | 2 | MPC | 166085 | 1998 $QA_{103}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 $RH_{9}$ | 17.1 | 0.15 | 20100104 | 17.20672 | 209.25056 | 158.23664 | 0.82168 | 0.2264393 | 3.0857327 | 40 | 3 | 1998–2009 | 0.38 | M-v | 2 | MPC | 166085 | 1998 $RH_{9}$ |
| 1998 $RN_{10}$ | 16.7 | 0.15 | 20100104 | 21.42723 | 231.71042 | 167.73814 | 4.15036 | 0.0535957 | 3.0006638 | 23 | 3 | 1998–2009 | 0.41 | M-v | 3 | MPC | 99892 | 1998 $RN_{10}$ |
| 1998 $RR_{11}$ | 15.9 | 0.15 | 20100104 | 58.29272 | 304.56748 | 11.11562 | 11.23342 | 0.2318999 | 3.1014564 | 30 | 3 | 1998–2009 | 0.36 | M-v | 2 | MPC | 163600 | 1998 $RR_{11}$ |
| 1998 $RC_{13}$ | 18.0 | 0.15 | 20100104 | 28.49294 | 212.09726 | 172.57082 | 0.90366 | 0.2028418 | 2.3603146 | 39 | 4 | 1998–2009 | 0.37 | M-v | 1 | MPC | 166085 | 1998 $RC_{13}$ |
| 1998 $RF_{13}$ | 18.5 | 0.15 | 20100104 | 32.32274 | 212.08989 | 174.30623 | 2.14956 | 0.1997639 | 2.3537599 | 28 | 2 | 1998–2009 | 0.38 | M-v | 3 | MPC | 166085 | 1998 $RF_{13}$ |
| 1998 $RR_{21}$ | 16.4 | 0.15 | 20100104 | 76.41676 | 155.43356 | 185.62032 | 5.29742 | 0.2540720 | 2.9905779 | 34 | 3 | 1998–2009 | 0.64 | M-v | 3 | MPC | 52437 | 1998 $RR_{21}$ |
| 1998 $RM_{23}$ | 17.0 | 0.15 | 20100104 | 24.05005 | 8.27848 | 359.15886 | 4.28193 | 0.2639504 | 2.3682264 | 65 | 4 | 1998–2009 | 0.61 | M-v | 1 | MPC | 166085 | 1998 $RM_{23}$ |
| 1998 $RU_{31}$ | 15.5 | 0.15 | 20100104 | 35.48189 | 189.55632 | 194.24383 | 9.80083 | 0.2932923 | 3.0324531 | 37 | 4 | 1998–2009 | 0.72 | M-v | 1 | MPC | 159373 | 1998 $RU_{31}$ |
| 1998 $RX_{50}$ | 16.6 | 0.15 | 20100104 | 69.41767 | 28.24001 | 343.77101 | 6.86943 | 0.1223504 | 2.3065480 | 100 | 5 | 1998–2009 | 0.57 | M-v | 1 | MPC | 122658 | 1998 $RX_{50}$ |
| 1998 $ST_{4}$ | 16.5 | 0.15 | 20100104 | 109.63675 | 207.02259 | 239.32271 | 9.30380 | 0.5990982 | 2.8132203 | 148 | 6 | 1998–2009 | 0.59 | M-v | 1 | MPC | 157337 | 1998 $ST_{4}$ |
| 1998 $SB_{21}$ | 17.8 | 0.15 | 20100104 | 68.86413 | 171.83838 | 216.95397 | 0.29650 | 0.1227836 | 2.2988964 | 73 | 6 | 1998–2009 | 0.46 | M-v | 1 | MPC | 119512 | 1998 $SB_{21}$ |
| 1998 $SA_{27}$ | 15.6 | 0.15 | 20100104 | 1.57527 | 61.56924 | 13.67908 | 12.85473 | 0.2803937 | 3.0508517 | 55 | 3 | 1998–2009 | 0.56 | M-v | 2 | MPC | 166085 | 1998 $SA_{27}$ |
| 1998 $SF_{28}$ | 17.2 | 0.15 | 20100104 | 43.51345 | 350.24875 | 14.55214 | 5.52438 | 0.2521772 | 2.3546820 | 89 | 2 | 1998–2009 | 0.62 | M-v | 3 | MPC | 166085 | 1998 $SF_{28}$ |
| 1998 $SR_{30}$ | 16.7 | 0.15 | 20100104 | 64.34656 | 242.25216 | 163.38990 | 2.18085 | 0.0656523 | 2.9175147 | 53 | 6 | 1998–2009 | 0.38 | M-v | 0 | MPC | 150880 | 1998 $SR_{30}$ |
| 1998 $SV_{30}$ | 17.1 | 0.15 | 20100104 | 37.55712 | 254.54679 | 154.44178 | 3.18317 | 0.1878629 | 2.3256885 | 58 | 5 | 1998–2009 | 0.46 | M-v | 1 | MPC | 117896 | 1998 $SV_{30}$ |
| 1998 $SH_{40}$ | 16.9 | 0.15 | 20100104 | 67.90555 | 36.60496 | 347.86751 | 1.59913 | 0.0323842 | 2.9252153 | 53 | 6 | 1998–2009 | 0.37 | M-v | 0 | MPC | 148807 | 1998 $SH_{40}$ |
| 1998 $SU_{44}$ | 17.2 | 0.15 | 20100104 | 106.09579 | 63.12302 | 237.32643 | 2.58740 | 0.1551866 | 2.3549435 | 50 | 5 | 1998–2009 | 0.34 | M-v | 0 | MPC | 166085 | 1998 $SU_{44}$ |
| 1998 $SO_{46}$ | 18.2 | 0.15 | 20100104 | 60.54985 | 339.25406 | 27.12890 | 0.05098 | 0.2351814 | 2.3406757 | 49 | 5 | 1998–2009 | 0.35 | M-v | 1 | MPC | 117896 | 1998 $SO_{46}$ |
| 1998 $SA_{53}$ | 17.7 | 0.15 | 20100104 | 73.79421 | 345.66580 | 15.62187 | 6.03856 | 0.2362173 | 2.3261024 | 70 | 4 | 1991–2009 | 0.57 | M-v | 2 | MPC | 104112 | 1998 $SA_{53}$ |
| 1998 $SG_{63}$ | 17.0 | 0.15 | 20100104 | 46.55653 | 304.49885 | 81.60278 | 4.31566 | 0.1844381 | 2.3246823 | 61 | 6 | 1998–2009 | 0.69 | M-v | 1 | MPC | 166085 | 1998 $SG_{63}$ |
| 1998 $SP_{63}$ | 17.4 | 0.15 | 20100104 | 69.67532 | 313.67979 | 52.22128 | 3.35105 | 0.2557570 | 2.3206109 | 75 | 5 | 1996–2009 | 0.51 | M-v | 1 | MPC | 166085 | 1998 $SP_{63}$ |
| 1998 $SJ_{87}$ | 17.0 | 0.15 | 20100104 | 116.95379 | 82.37378 | 257.72563 | 4.14434 | 0.1898740 | 2.2810494 | 86 | 4 | 1998–2009 | 0.51 | M-v | 2 | MPC | 116123 | 1998 $SJ_{87}$ |
| 1998 $SD_{113}$ | 17.5 | 0.15 | 20100104 | 56.91157 | 318.59216 | 65.90284 | 4.57323 | 0.2477462 | 2.3211066 | 69 | 5 | 1998–2009 | 0.50 | M-v | 1 | MPC | 166086 | 1998 $SD_{113}$ |
| 1998 $SU_{115}$ | 16.8 | 0.15 | 20100104 | 91.92580 | 353.47482 | 342.84702 | 2.46132 | 0.2296601 | 2.3183253 | 99 | 5 | 1998–2009 | 0.50 | M-v | 1 | MPC | 110696 | 1998 $SU_{115}$ |
| 1998 $SW_{123}$ | 17.2 | 0.15 | 20100104 | 17.25743 | 197.92875 | 175.20816 | 2.84823 | 0.3025013 | 2.3898771 | 101 | 3 | 1998–2009 | 0.46 | M-v | 2 | MPC | 166086 | 1998 $SW_{123}$ |
| 1998 $SS_{140}$ | 17.2 | 0.15 | 20100104 | 43.16119 | 114.36419 | 252.64235 | 3.64130 | 0.3454659 | 2.3482461 | 67 | 5 | 1991–2009 | 0.49 | M-v | 1 | MPC | 165300 | 1998 $SS_{140}$ |
| 1998 $SF_{146}$ | 14.7 | 0.15 | 20100104 | 39.76704 | 317.43211 | 21.81616 | 15.43877 | 0.2239427 | 3.1372777 | 85 | 3 | 1998–2009 | 0.50 | M-v | 2 | MPC | 166086 | 1998 $SF_{146}$ |
| 1998 $SE_{150}$ | 17.3 | 0.15 | 20100104 | 35.44616 | 50.28594 | 315.22236 | 0.16584 | 0.3278445 | 3.0673728 | 44 | 2 | 1998–2009 | 0.42 | M-v | 2 | MPC | 165300 | 1998 $SE_{150}$ |
| 1998 $SV_{152}$ | 16.8 | 0.15 | 20100104 | 108.90359 | 352.57860 | 344.91761 | 5.21385 | 0.1785831 | 2.2958841 | 91 | 5 | 1998–2009 | 0.58 | M-v | 2 | MPC | 117897 | 1998 $SV_{152}$ |
| 1998 $SQ_{156}$ | 16.3 | 0.15 | 19980924 | 325.16644 | 225.46870 | 204.80430 | 9.72321 | 0.2569875 | 2.7617267 | 13 | 1 | 33 days | 0.68 | | | MPC | | 1998 $SQ_{156}$ |
| 1998 $SC_{160}$ | 16.9 | 0.15 | 20100104 | 64.31286 | 281.62897 | 100.40314 | 4.05783 | 0.1737391 | 2.3136822 | 75 | 5 | 1998–2009 | 0.54 | M-v | 1 | MPC | 117897 | 1998 $SC_{160}$ |
| 1998 $SH_{162}$ | 17.3 | 0.15 | 20100104 | 89.66273 | 47.10114 | 305.80733 | 1.12018 | 0.2327987 | 2.3101745 | 96 | 4 | 1998–2009 | 0.53 | M-v | 2 | MPC | 117897 | 1998 $SH_{162}$ |
| 1998 $SD_{163}$ | 14.6 | 0.15 | 20100104 | 64.17984 | 278.92181 | 30.67685 | 25.91117 | 0.2247475 | 3.1130777 | 78 | 4 | 1998–2009 | 0.59 | M-v | 1 | MPC | 166086 | 1998 $SD_{163}$ |
| 1998 $SJ_{173}$ | 16.7 | 0.15 | 20100104 | 42.70971 | 247.38463 | 178.56011 | 1.88992 | 0.0602621 | 2.9002784 | 43 | 6 | 1998–2009 | 0.27 | M-v | 0 | MPC | 156837 | 1998 $SJ_{173}$ |
| 1998 TH | 16.9 | 0.15 | 20100104 | 90.83676 | 130.75678 | 228.65498 | 3.22219 | 0.2367421 | 2.3064055 | 139 | 5 | 1998–2009 | 0.57 | M-v | 2 | MPC | 116123 | 1998 TH |
| 1998 TN | 16.0 | 0.15 | 20100104 | 36.36715 | 311.83227 | 41.70786 | 20.67033 | 0.3644652 | 3.0794029 | 93 | 4 | 1998–2009 | 0.55 | M-v | 2 | MPC | 166086 | 1998 TN |
| 1998 $TZ_{3}$ | 18.0 | 0.15 | 20100104 | 29.26297 | 32.60724 | 3.58693 | 1.06748 | 0.1911764 | 2.3423023 | 42 | 4 | 1998–2009 | 0.34 | M-v | 1 | MPC | 166086 | 1998 $TZ_{3}$ |
| 1998 $TZ_{4}$ | 15.6 | 0.15 | 20100104 | 42.75381 | 336.45561 | 37.46298 | 10.69228 | 0.0935352 | 3.0921834 | 72 | 4 | 1998–2009 | 0.45 | M-v | 1 | MPC | 165300 | 1998 $TZ_{4}$ |
| 1998 $TU_{9}$ | 16.8 | 0.15 | 20100104 | 255.43802 | 173.42995 | 33.78396 | 8.69872 | 0.2106052 | 2.3125584 | 62 | 5 | 1998–2009 | 0.56 | M-v | 2 | MPC | 159647 | 1998 $TU_{9}$ |
| 1998 $TH_{10}$ | 16.4 | 0.15 | 20100104 | 344.10520 | 23.76036 | 59.09938 | 1.50610 | 0.1441939 | 3.0869372 | 40 | 5 | 1998–2009 | 0.37 | M-v | 0 | MPC | 166086 | 1998 $TH_{10}$ |
| 1998 $TQ_{22}$ | 16.9 | 0.15 | 20100104 | 37.85945 | 351.29564 | 21.15888 | 1.26511 | 0.1788632 | 3.0891296 | 36 | 3 | 1998–2009 | 0.33 | M-v | 1 | MPC | 166086 | 1998 $TQ_{22}$ |
| 1998 UW | 15.6 | 0.15 | 20100104 | 12.06791 | 121.02325 | 322.76095 | 24.18281 | 0.2630843 | 2.3305319 | 135 | 4 | 1998–2009 | 0.55 | M-v | 1 | MPC | 164147 | 1998 UW |
| 1998 UX | 16.2 | 0.15 | 20100104 | 65.87393 | 120.59594 | 254.43378 | 21.29888 | 0.2936245 | 2.3212248 | 96 | 3 | 1998–2009 | 0.58 | M-v | 1 | MPC | 166086 | 1998 UX |
| 1998 $UF_{1}$ | 15.9 | 0.15 | 20100104 | 23.67579 | 151.00206 | 260.93416 | 24.12507 | 0.2093307 | 2.3470606 | 73 | 3 | 1998–2009 | 0.45 | M-v | 2 | MPC | 166086 | 1998 $UF_{1}$ |
| 1998 $UJ_{9}$ | 15.7 | 0.15 | 20100104 | 355.90941 | 14.48322 | 11.43609 | 10.35218 | 0.0406717 | 3.1238946 | 44 | 4 | 1998–2009 | 0.45 | M-v | 1 | MPC | 163603 | 1998 $UJ_{9}$ |
| 1998 $UZ_{9}$ | 17.8 | 0.15 | 20100104 | 1.57481 | 216.92969 | 182.23556 | 0.84857 | 0.1781073 | 2.3800240 | 46 | 3 | 1998–2009 | 0.42 | M-v | 2 | MPC | 164147 | 1998 $UZ_{9}$ |
| 1998 $UH_{23}$ | 17.2 | 0.15 | 20100104 | 96.14807 | 50.81924 | 284.79222 | 4.58394 | 0.1753564 | 2.3184739 | 49 | 4 | 1998–2009 | 0.41 | M-v | 1 | MPC | 160722 | 1998 $UH_{23}$ |
| 1998 $UX_{39}$ | 14.9 | 0.15 | 20100104 | 30.51680 | 351.42975 | 25.17224 | 13.08602 | 0.1904575 | 3.0966486 | 88 | 5 | 1998–2009 | 0.61 | M-v | 1 | MPC | 166086 | 1998 $UX_{39}$ |
| 1998 $VR_{2}$ | 17.4 | 0.15 | 20100104 | 24.39105 | 327.75918 | 46.20983 | 5.32368 | 0.2454841 | 2.3947688 | 73 | 3 | 1996–2009 | 0.39 | M-v | 2 | MPC | 166086 | 1998 $VR_{2}$ |
| 1998 $VS_{3}$ | 17.7 | 0.15 | 20100104 | 12.32073 | 349.64080 | 53.40587 | 2.23911 | 0.1820840 | 2.3887610 | 56 | 5 | 1998–2009 | 0.35 | M-v | 1 | MPC | 165301 | 1998 $VS_{3}$ |
| 1998 $VF_{32}$ | 21.1 | 0.15 | 20100104 | 323.41410 | 320.88223 | 236.31976 | 23.74130 | 0.4438357 | 0.8509144 | 90 | 4 | 1998–2009 | 0.76 | M-v | 0 | MPC | 166086 | 1998 $VF_{32}$ |
| 1998 $VJ_{41}$ | 17.0 | 0.15 | 20100104 | 33.97626 | 339.66418 | 66.31581 | 3.07936 | 0.2073509 | 2.3562734 | 49 | 4 | 1998–2009 | 0.56 | M-v | 1 | MPC | 117898 | 1998 $VJ_{41}$ |
| 1998 $VS_{41}$ | 16.9 | 0.15 | 20100104 | 325.11621 | 61.30144 | 57.42887 | 15.76717 | 0.2463570 | 3.1178351 | 27 | 2 | 1998–2009 | 0.35 | M-v | 4 | MPC | 165302 | 1998 $VS_{41}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 $VX_{42}$ | 16.1 | 0.15 | 20100104 | 50.88521 | 281.16807 | 62.50184 | 1.41550 | 0.2300331 | 3.1090925 | 52 | 5 | 1998–2009 | 0.44 | M-v | 0 | MPC | 166086 | 1998 $VX_{42}$ |
| 1998 $VZ_{42}$ | 16.2 | 0.15 | 20100104 | 332.02751 | 76.72808 | 46.25145 | 7.79165 | 0.1574360 | 3.0399921 | 28 | 4 | 1998–2009 | 0.27 | M-v | 0 | MPC | 101973 | 1998 $VZ_{42}$ |
| 1998 $VE_{43}$ | 17.3 | 0.15 | 20100104 | 43.22882 | 286.79475 | 51.04576 | 5.35505 | 0.2575079 | 2.3957944 | 56 | 3 | 1998–2009 | 0.51 | M-v | 2 | MPC | 164147 | 1998 $VE_{43}$ |
| 1998 $VL_{55}$ | 15.4 | 0.15 | 20100104 | 66.84857 | 330.40931 | 52.32768 | 11.94025 | 0.0530163 | 3.0305260 | 41 | 7 | 1998–2009 | 0.60 | M-v | 1 | MPC | 159648 | 1998 $VL_{55}$ |
| 1998 $WU_{2}$ | 15.4 | 0.15 | 20100104 | 47.78697 | 143.01521 | 232.83498 | 13.52904 | 0.0630923 | 3.0945662 | 67 | 3 | 1998–2009 | 0.57 | M-v | 2 | MPC | 166086 | 1998 $WU_{2}$ |
| 1998 $WJ_{7}$ | 18.3 | 0.15 | 20100104 | 327.52617 | 90.28282 | 51.89305 | 8.20275 | 0.3141242 | 1.9543337 | 103 | 3 | 1998–2009 | 0.49 | M-v | 1 | MPC | 166086 | 1998 $WJ_{7}$ |
| 1998 $WT_{7}$ | 18.8 | 0.15 | 20100104 | 315.25754 | 235.92224 | 248.29410 | 40.69754 | 0.1099396 | 1.1518442 | 89 | 3 | 1998–2009 | 0.59 | M-v | 2 | MPC | 159648 | 1998 $WT_{7}$ |
| 1998 $WC_{36}$ | 18.4 | 0.15 | 20100104 | 32.74237 | 343.75526 | 55.71280 | 3.77095 | 0.2045960 | 2.3565274 | 34 | 4 | 1998–2009 | 0.36 | M-v | 1 | MPC | 166086 | 1998 $WC_{36}$ |
| 1998 $WO_{40}$ | 16.5 | 0.15 | 20100104 | 4.74235 | 199.93903 | 236.27872 | 7.82662 | 0.2298776 | 3.0785336 | 54 | 3 | 1998–2009 | 0.49 | M-v | 2 | MPC | 166086 | 1998 $WO_{40}$ |
| 1998 $XA_{5}$ | 18.8 | 0.15 | 20100104 | 225.07382 | 211.21298 | 274.22409 | 31.76093 | 0.3067845 | 1.5585437 | 197 | 4 | 1997–2005 | 0.66 | M-v | 2 | MPC | 9721 | 1998 $XA_{5}$ |
| 1998 $XD_{5}$ | 16.1 | 0.15 | 20100104 | 12.83872 | 141.24632 | 305.71883 | 6.40486 | 0.0598388 | 2.3469353 | 98 | 6 | 1998–2009 | 0.63 | M-v | 1 | MPC | 141750 | 1998 $XD_{5}$ |
| 1998 $XX_{13}$ | 14.9 | 0.15 | 20100104 | 47.01144 | 128.69054 | 243.80907 | 20.70223 | 0.2820499 | 3.0914515 | 86 | 3 | 1998–2009 | 0.52 | M-v | 1 | MPC | 166087 | 1998 $XX_{13}$ |
| 1998 $XA_{23}$ | 16.7 | 0.15 | 20100104 | 68.88809 | 126.26832 | 242.63942 | 2.73845 | 0.2058433 | 2.3458389 | 144 | 6 | 1998–2009 | 0.51 | M-v | 1 | MPC | 162296 | 1998 $XA_{23}$ |
| 1998 $XM_{25}$ | 17.1 | 0.15 | 20100104 | 17.00155 | 149.99154 | 242.24169 | 9.12102 | 0.2638285 | 2.3921851 | 95 | 5 | 1998–2009 | 0.67 | M-v | 1 | MPC | 166087 | 1998 $XM_{25}$ |
| 1998 $YW_{5}$ | 19.9 | 0.15 | 20100104 | 300.45651 | 355.02344 | 219.86957 | 8.33416 | 0.6203137 | 1.2403235 | 47 | 3 | 1998–2009 | 0.75 | M-v | 4 | MPC | 165302 | 1998 $YW_{5}$ |
| 1998 $YQ_{21}$ | 17.4 | 0.15 | 20100104 | 4.13492 | 316.14011 | 114.29908 | 5.50590 | 0.1959306 | 2.4180823 | 44 | 3 | 1998–2009 | 0.53 | M-v | 3 | MPC | 166087 | 1998 $YQ_{21}$ |
| 1998 $YQ_{31}$ | 17.1 | 0.15 | 20100104 | 45.32822 | 279.76325 | 119.04046 | 3.25651 | 0.1835688 | 2.3999782 | 56 | 4 | 1998–2009 | 0.48 | M-v | 1 | MPC | 160722 | 1998 $YQ_{31}$ |
| 1999 $BS_{4}$ | 15.4 | 0.15 | 20100104 | 13.25609 | 178.07604 | 323.97673 | 8.50640 | 0.2020634 | 3.0741922 | 47 | 5 | 1999–2009 | 0.50 | M-v | 1 | MPC | 166087 | 1999 $BS_{4}$ |
| 1999 $BC_{5}$ | 14.7 | 0.15 | 20100104 | 356.32379 | 131.98230 | 333.56360 | 18.94685 | 0.0796707 | 3.2330025 | 55 | 5 | 1999–2009 | 0.52 | M-v | 1 | MPC | 147132 | 1999 $BC_{5}$ |
| 1999 $BF_{32}$ | 16.5 | 0.15 | 20100104 | 341.08118 | 59.67702 | 83.52946 | 2.25749 | 0.1413981 | 3.1152774 | 41 | 5 | 1999–2009 | 0.40 | M-v | 0 | MPC | 166087 | 1999 $BF_{32}$ |
| 1999 $CK_{9}$ | 15.6 | 0.15 | 20100104 | 318.14739 | 230.10957 | 313.59681 | 16.16677 | 0.1974666 | 3.1193365 | 34 | 4 | 1999–2009 | 0.55 | M-v | 1 | MPC | 101974 | 1999 $CK_{9}$ |
| 1999 $CY_{49}$ | 15.2 | 0.15 | 20100104 | 31.75024 | 103.13501 | 24.21020 | 6.61758 | 0.2642249 | 3.0432400 | 80 | 4 | 1999–2009 | 0.50 | M-v | 1 | MPC | 148808 | 1999 $CY_{49}$ |
| 1999 $CW_{89}$ | 16.9 | 0.15 | 20100104 | 351.01021 | 37.99452 | 92.28912 | 8.63639 | 0.2594027 | 2.3804905 | 66 | 3 | 1999–2009 | 0.56 | M-v | 2 | MPC | 166087 | 1999 $CW_{89}$ |
| 1999 $CS_{115}$ | 15.3 | 0.15 | 20100104 | 6.31956 | 171.67644 | 317.00180 | 22.13545 | 0.1149398 | 3.1352061 | 28 | 4 | 1999–2009 | 0.51 | M-v | 0 | MPC | 166087 | 1999 $CS_{115}$ |
| 1999 $DG_{1}$ | 16.8 | 0.15 | 20100104 | 6.38334 | 164.74129 | 283.66128 | 17.02434 | 0.0907900 | 1.9890827 | 35 | 4 | 1999–2009 | 0.60 | M-v | 2 | MPC | 142573 | 1999 $DG_{1}$ |
| 1999 $EE_{7}$ | 15.9 | 0.15 | 20100104 | 32.97798 | 127.38167 | 6.92838 | 26.31436 | 0.0931684 | 2.3526193 | 64 | 5 | 1999–2009 | 0.67 | M-v | 2 | MPC | 147132 | 1999 $EE_{7}$ |
| 1999 $ER_{7}$ | 15.6 | 0.15 | 20100104 | 88.15927 | 170.07032 | 151.94012 | 3.49977 | 0.0874121 | 2.5214679 | 275 | 7 | 1997–2009 | 0.54 | M-v | 2 | MPC | 166087 | 1999 $ER_{7}$ |
| 1999 $HO_{6}$ | 15.4 | 0.15 | 20100104 | 7.99572 | 54.96758 | 109.30959 | 17.27562 | 0.2142677 | 3.1764347 | 71 | 5 | 1998–2009 | 0.43 | M-v | 0 | MPC | 152296 | 1999 $HO_{6}$ |
| 1999 $LW_{12}$ | 15.9 | 0.15 | 20100104 | 107.45414 | 200.21466 | 91.39585 | 15.34126 | 0.2943634 | 2.7176764 | 56 | 7 | 1999–2009 | 0.51 | M-v | 0 | MPC | 159649 | 1999 $LW_{12}$ |
| 1999 $PH_{3}$ | 15.9 | 0.15 | 20100104 | 85.01229 | 64.81342 | 286.65711 | 6.04944 | 0.2879080 | 2.7588880 | 90 | 4 | 1999–2009 | 0.52 | M-v | 1 | MPC | 147133 | 1999 $PH_{3}$ |
| 1999 $RH_{33}$ | 19.3 | 0.15 | 20100104 | 316.25389 | 351.41103 | 168.39189 | 11.01736 | 0.1711563 | 1.5510995 | 73 | 6 | 1999–2009 | 0.50 | M-v | 2 | MPC | 135753 | 1999 $RH_{33}$ |
| 1999 $RD_{43}$ | 17.3 | 0.15 | 20100104 | 86.67051 | 264.37766 | 81.25514 | 8.14979 | 0.3533976 | 2.1751890 | 65 | 4 | 1999–2009 | 0.57 | M-v | 1 | MPC | 166087 | 1999 $RD_{43}$ |
| 1999 $RM_{45}$ | 19.4 | 0.15 | 20100104 | 295.26166 | 88.51883 | 163.06492 | 10.88903 | 0.6441908 | 1.6810933 | 78 | 4 | 1999–2009 | 0.48 | M-v | 2 | MPC | 131754 | 1999 $RM_{45}$ |
| 1999 $RK_{131}$ | 17.2 | 0.15 | 20100104 | 51.37832 | 77.71576 | 333.11435 | 1.66666 | 0.0707696 | 2.7234974 | 35 | 4 | 1999–2009 | 0.39 | M-v | 1 | MPC | 148810 | 1999 $RK_{131}$ |
| 1999 $RJ_{133}$ | 17.2 | 0.15 | 20100104 | 216.13252 | 278.09300 | 343.73399 | 4.67241 | 0.0540326 | 2.6620814 | 37 | 5 | 1999–2009 | 0.35 | M-v | 0 | MPC | 147134 | 1999 $RJ_{133}$ |
| 1999 $RH_{147}$ | 16.1 | 0.15 | 20100104 | 215.26020 | 347.69556 | 282.09600 | 7.28845 | 0.2231876 | 2.6005400 | 53 | 6 | 1999–2009 | 0.53 | M-v | 1 | MPC | 147134 | 1999 $RH_{147}$ |
| 1999 $RM_{169}$ | 16.4 | 0.15 | 20100104 | 126.61834 | 30.35803 | 311.98902 | 4.40308 | 0.2190087 | 2.6916698 | 52 | 3 | 1999–2009 | 0.54 | M-v | 3 | MPC | 155045 | 1999 $RM_{169}$ |
| 1999 $RV_{172}$ | 15.5 | 0.15 | 20100104 | 41.13004 | 325.21829 | 24.70788 | 8.37136 | 0.2010451 | 2.8732471 | 171 | 4 | 1999–2009 | 0.56 | M-v | 2 | MPC | 166087 | 1999 $RV_{172}$ |
| 1999 $RK_{219}$ | 17.1 | 0.15 | 20100104 | 87.41635 | 13.58424 | 332.67644 | 4.34362 | 0.1916799 | 2.1523935 | 42 | 6 | 1999–2009 | 0.56 | M-v | 1 | MPC | 114589 | 1999 $RK_{219}$ |
| 1999 $RP_{227}$ | 15.2 | 0.15 | 20100104 | 46.41486 | 23.62870 | 19.97715 | 9.22748 | 0.1547772 | 2.7625836 | 108 | 8 | 1990–2009 | 0.56 | M-v | 1 | MPC | 141751 | 1999 $RP_{227}$ |
| 1999 $SN_{21}$ | 16.2 | 0.15 | 20100104 | 54.28624 | 27.05166 | 9.36745 | 4.22563 | 0.1080971 | 2.8056537 | 40 | 4 | 1999–2009 | 0.32 | M-v | 2 | MPC | 101979 | 1999 $SN_{21}$ |
| 1999 $TX_{33}$ | 17.2 | 0.15 | 20100104 | 66.25594 | 162.55170 | 198.46614 | 5.22301 | 0.1838555 | 2.1858793 | 59 | 5 | 1999–2009 | 0.59 | M-v | 1 | MPC | 139137 | 1999 $TX_{33}$ |
| 1999 $TN_{44}$ | 16.9 | 0.15 | 20100104 | 97.20624 | 34.39036 | 323.91112 | 2.81865 | 0.1048794 | 2.7756858 | 33 | 3 | 1999–2009 | 0.38 | M-v | 3 | MPC | 148811 | 1999 $TN_{44}$ |
| 1999 $TL_{46}$ | 16.5 | 0.15 | 20100104 | 49.78132 | 7.40614 | 33.34705 | 4.65908 | 0.0718426 | 2.7826824 | 29 | 6 | 1999–2009 | 0.22 | M-v | 0 | MPC | 154048 | 1999 $TL_{46}$ |
| 1999 $TE_{53}$ | 16.2 | 0.15 | 20100104 | 41.61138 | 16.57157 | 3.45194 | 7.71699 | 0.0649182 | 2.8648948 | 31 | 3 | 1994–2009 | 0.39 | M-v | 3 | MPC | 166088 | 1999 $TE_{53}$ |
| 1999 $TX_{61}$ | 17.9 | 0.15 | 20100104 | 5.49029 | 241.37823 | 214.23792 | 1.18887 | 0.0618724 | 2.1816386 | 49 | 8 | 1994–2009 | 0.34 | M-v | 0 | MPC | 117901 | 1999 $TX_{61}$ |
| 1999 $TT_{75}$ | 15.7 | 0.15 | 20100104 | 1.10862 | 55.66586 | 28.14236 | 6.50711 | 0.0343306 | 2.8457125 | 32 | 5 | 1999–2009 | 0.55 | M-v | 1 | MPC | 159375 | 1999 $TT_{75}$ |
| 1999 $TT_{109}$ | 15.3 | 0.15 | 20100104 | 314.31273 | 159.48342 | 206.23120 | 9.71314 | 0.2142005 | 3.1007348 | 42 | 5 | 1999–2009 | 0.56 | M-v | 1 | MPC | 46379 | 1999 $TT_{109}$ |
| 1999 $TT_{113}$ | 17.9 | 0.15 | 20100104 | 69.58149 | 28.73330 | 327.26350 | 2.75729 | 0.2121469 | 2.1877161 | 54 | 6 | 1999–2009 | 0.52 | M-v | 1 | MPC | 139137 | 1999 $TT_{113}$ |
| 1999 $TF_{117}$ | 17.9 | 0.15 | 20100104 | 56.33142 | 17.55426 | 344.51452 | 2.47057 | 0.2003990 | 2.2014197 | 48 | 4 | 1994–2009 | 0.46 | M-v | 2 | MPC | 165303 | 1999 $TF_{117}$ |
| 1999 $TR_{126}$ | 16.8 | 0.15 | 20100104 | 61.17766 | 22.13842 | 8.02016 | 1.63041 | 0.2417255 | 2.7969282 | 48 | 5 | 1999–2009 | 0.46 | M-v | 1 | MPC | 166088 | 1999 $TR_{126}$ |
| 1999 $TH_{134}$ | 15.4 | 0.15 | 20100104 | 1.10835 | 185.02949 | 206.33718 | 8.42389 | 0.1382796 | 2.9388497 | 110 | 5 | 1999–2009 | 0.50 | M-v | 2 | MPC | 166088 | 1999 $TH_{134}$ |
| 1999 $TV_{153}$ | 17.4 | 0.15 | 20100104 | 21.67505 | 339.34399 | 42.78692 | 8.05775 | 0.2125270 | 2.2334070 | 60 | 3 | 1999–2009 | 0.50 | M-v | 2 | MPC | 166088 | 1999 $TV_{153}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 $TV_{169}$ | 15.4 | 0.15 | 20100104 | 28.94901 | 6.93503 | 12.83705 | 12.39045 | 0.0442641 | 2.8977439 | 53 | 5 | 1999–2009 | 0.66 | M-v | 2 | MPC | 164149 | 1999 $TV_{169}$ |
| 1999 $TP_{173}$ | 17.1 | 0.15 | 20100104 | 124.64095 | 345.69338 | 327.02106 | 2.99042 | 0.2179311 | 2.1664408 | 71 | 6 | 1999–2009 | 0.58 | M-v | 1 | MPC | 114590 | 1999 $TP_{173}$ |
| 1999 $TY_{185}$ | 15.7 | 0.15 | 20100104 | 95.85484 | 66.51518 | 298.78368 | 7.54276 | 0.1640099 | 2.7636425 | 86 | 4 | 1999–2009 | 0.54 | M-v | 1 | MPC | 166088 | 1999 $TY_{185}$ |
| 1999 $TE_{195}$ | 16.7 | 0.15 | 20100104 | 284.41421 | 61.45394 | 14.63706 | 5.19203 | 0.2123086 | 2.3373856 | 118 | 4 | 1999–2008 | 0.49 | M-v | 1 | MPC | 160724 | 1999 $TE_{195}$ |
| 1999 $TU_{219}$ | 17.0 | 0.15 | 20100104 | 22.88245 | 85.12072 | 310.38353 | 4.30258 | 0.3475727 | 2.8938789 | 67 | 3 | 1999–2009 | 0.56 | M-v | 2 | MPC | 166088 | 1999 $TU_{219}$ |
| 1999 $TV_{229}$ | 17.2 | 0.15 | 20100104 | 115.04750 | 149.51815 | 194.04956 | 5.71749 | 0.0796765 | 2.7286228 | 53 | 6 | 1998–2009 | 0.36 | M-v | 0 | MPC | 147136 | 1999 $TV_{229}$ |
| 1999 $TB_{235}$ | 16.6 | 0.15 | 20100104 | 56.57516 | 232.18332 | 169.35746 | 2.45564 | 0.1871960 | 2.7895226 | 52 | 5 | 1995–2009 | 0.50 | M-v | 1 | MPC | 148812 | 1999 $TB_{235}$ |
| 1999 $TP_{269}$ | 15.5 | 0.15 | 20100104 | 97.70505 | 66.69083 | 300.50552 | 10.36762 | 0.1203121 | 2.7464041 | 39 | 4 | 1999–2009 | 0.58 | M-v | 2 | MPC | 158397 | 1999 $TP_{269}$ |
| 1999 $TS_{272}$ | 15.3 | 0.15 | 20100104 | 110.52105 | 75.87297 | 254.15505 | 11.10992 | 0.1806286 | 2.7802596 | 84 | 4 | 1999–2009 | 0.55 | M-v | 2 | MPC | 147137 | 1999 $TS_{272}$ |
| 1999 $TF_{313}$ | 17.2 | 0.15 | 20100104 | 92.48047 | 149.16360 | 215.13518 | 1.08631 | 0.0969835 | 2.7369372 | 48 | 6 | 1999–2009 | 0.42 | M-v | 1 | MPC | 148812 | 1999 $TF_{313}$ |
| 1999 $TV_{332}$ | 16.6 | 0.15 | 20100104 | 287.81657 | 168.46522 | 2.56337 | 3.93435 | 0.0410243 | 2.7922952 | 54 | 6 | 1999–2009 | 0.40 | M-v | 0 | MPC | 148812 | 1999 $TV_{332}$ |
| 1999 $UU_{7}$ | 16.3 | 0.15 | 20100104 | 16.31323 | 169.18407 | 219.96605 | 16.44709 | 0.3165181 | 2.9370231 | 164 | 3 | 1999–2009 | 0.53 | M-v | 2 | MPC | 166089 | 1999 $UU_{7}$ |
| 1999 $UX_{11}$ | 17.4 | 0.15 | 20100104 | 30.54545 | 31.28210 | 53.15412 | 5.13897 | 0.0371422 | 2.7859852 | 49 | 5 | 1999–2009 | 0.36 | M-v | 0 | MPC | 147137 | 1999 $UX_{11}$ |
| 1999 $UE_{12}$ | 17.7 | 0.15 | 20100104 | 314.34646 | 60.62577 | 37.90205 | 6.91803 | 0.1455876 | 2.2391108 | 49 | 5 | 1999–2009 | 0.50 | M-v | 0 | MPC | 164149 | 1999 $UE_{12}$ |
| 1999 $UB_{29}$ | 16.2 | 0.15 | 20100104 | 142.15923 | 291.79900 | 40.91566 | 5.48828 | 0.1805729 | 2.6995149 | 77 | 6 | 1999–2009 | 0.48 | M-v | 0 | MPC | 148813 | 1999 $UB_{29}$ |
| 1999 $UR_{36}$ | 17.2 | 0.15 | 20100104 | 50.70058 | 83.63457 | 320.56814 | 2.78649 | 0.0976050 | 2.7548823 | 40 | 7 | 1990–2009 | 0.48 | M-v | 0 | MPC | 143100 | 1999 $UR_{36}$ |
| 1999 $UR_{47}$ | 15.8 | 0.15 | 20100104 | 30.83348 | 159.28236 | 240.83539 | 7.70121 | 0.3266594 | 2.8624825 | 119 | 3 | 1999–2009 | 0.58 | M-v | 2 | MPC | 166089 | 1999 $UR_{47}$ |
| 1999 $VR_{5}$ | 18.9 | 0.15 | 20100104 | 41.48724 | 114.05449 | 241.60948 | 4.68540 | 0.3913247 | 2.2222654 | 129 | 2 | 1999–2009 | 0.58 | M-v | 2 | MPC | 166089 | 1999 $VR_{5}$ |
| 1999 $VJ_{18}$ | 17.4 | 0.15 | 20100104 | 286.84014 | 87.87691 | 275.81767 | 1.39524 | 0.2099658 | 2.3968203 | 40 | 6 | 1997–2009 | 0.32 | M-v | 1 | MPC | 157340 | 1999 $VJ_{18}$ |
| 1999 $VF_{22}$ | 20.5 | 0.15 | 20100104 | 305.44771 | 271.40816 | 3.74230 | 3.90768 | 0.7385274 | 1.3133640 | 85 | 3 | 1999–2009 | 0.58 | M-v | 3 | MPC | 148466 | 1999 $VF_{22}$ |
| 1999 $VC_{40}$ | 16.3 | 0.15 | 20100104 | 111.64746 | 303.74892 | 43.89417 | 5.89858 | 0.1526424 | 2.7745907 | 61 | 6 | 1999–2009 | 0.39 | M-v | 0 | MPC | 150884 | 1999 $VC_{40}$ |
| 1999 $VM_{46}$ | 17.4 | 0.15 | 20100104 | 122.92907 | 81.29052 | 246.41711 | 6.88492 | 0.0604518 | 1.8151348 | 49 | 4 | 1999–2009 | 0.53 | M-v | 3 | MPC | 160725 | 1999 $VM_{46}$ |
| 1999 $VY_{53}$ | 15.4 | 0.15 | 20100104 | 359.55406 | 201.67552 | 220.67315 | 11.81430 | 0.0875911 | 2.8997945 | 137 | 4 | 1999–2009 | 0.46 | M-v | 2 | MPC | 166089 | 1999 $VY_{53}$ |
| 1999 $VP_{55}$ | 16.3 | 0.15 | 20100104 | 97.25528 | 139.52656 | 226.28590 | 1.61689 | 0.1550606 | 2.7735034 | 75 | 7 | 1994–2009 | 0.50 | M-v | 1 | MPC | 150884 | 1999 $VP_{55}$ |
| 1999 $VM_{62}$ | 16.3 | 0.15 | 20100104 | 68.23657 | 347.45002 | 45.92452 | 4.13459 | 0.0985032 | 2.8013901 | 55 | 6 | 1999–2009 | 0.56 | M-v | 1 | MPC | 158397 | 1999 $VM_{62}$ |
| 1999 $VW_{75}$ | 16.3 | 0.15 | 20100104 | 8.06937 | 338.61733 | 73.80468 | 3.25383 | 0.1142914 | 2.9297935 | 79 | 4 | 1999–2009 | 0.41 | M-v | 2 | MPC | 166089 | 1999 $VW_{75}$ |
| 1999 $VM_{80}$ | 15.9 | 0.15 | 20100104 | 358.53623 | 180.94242 | 219.51634 | 15.43988 | 0.2384910 | 2.9762381 | 79 | 3 | 1999–2009 | 0.56 | M-v | 2 | MPC | 164149 | 1999 $VM_{80}$ |
| 1999 $VK_{83}$ | 17.8 | 0.15 | 20100104 | 144.06222 | 212.26405 | 69.02314 | 5.29660 | 0.1318356 | 2.2171892 | 40 | 6 | 1999–2009 | 0.40 | M-v | 0 | MPC | 165304 | 1999 $VK_{83}$ |
| 1999 $VS_{99}$ | 15.8 | 0.15 | 20100104 | 22.33842 | 139.20375 | 226.13843 | 15.97400 | 0.2374604 | 2.9678573 | 88 | 3 | 1999–2009 | 0.60 | M-v | 2 | MPC | 166089 | 1999 $VS_{99}$ |
| 1999 $VK_{104}$ | 17.2 | 0.15 | 20100104 | 351.66489 | 185.02232 | 234.79874 | 7.18127 | 0.0807201 | 2.2568675 | 69 | 3 | 1999–2009 | 0.45 | M-v | 3 | MPC | 166089 | 1999 $VK_{104}$ |
| 1999 $VY_{104}$ | 15.8 | 0.15 | 20100104 | 6.65203 | 32.45219 | 53.98365 | 13.07278 | 0.0642162 | 2.8562664 | 42 | 5 | 1999–2009 | 0.58 | M-v | 1 | MPC | 143101 | 1999 $VY_{104}$ |
| 1999 $VE_{117}$ | 17.7 | 0.15 | 20100104 | 44.71374 | 171.55291 | 213.32707 | 4.96715 | 0.1503407 | 2.2185938 | 54 | 6 | 1999–2009 | 0.47 | M-v | 1 | MPC | 166089 | 1999 $VE_{117}$ |
| 1999 $VS_{119}$ | 16.7 | 0.15 | 20100104 | 183.26399 | 290.47984 | 10.64304 | 5.36003 | 0.0598158 | 2.7175788 | 45 | 5 | 1999–2009 | 0.31 | M-v | 0 | MPC | 148814 | 1999 $VS_{119}$ |
| 1999 $VD_{127}$ | 16.8 | 0.15 | 20100104 | 225.33480 | 223.56380 | 54.13380 | 3.32173 | 0.0671101 | 2.6547439 | 39 | 5 | 1999–2009 | 0.32 | M-v | 1 | MPC | 148814 | 1999 $VD_{127}$ |
| 1999 $VS_{128}$ | 17.1 | 0.15 | 20100104 | 16.43742 | 193.87465 | 228.91194 | 5.18546 | 0.0528100 | 2.8708018 | 28 | 5 | 1996–2009 | 0.30 | M-v | 1 | MPC | 166089 | 1999 $VS_{128}$ |
| 1999 $VN_{138}$ | 18.8 | 0.15 | 20100104 | 63.25545 | 274.63183 | 76.65366 | 4.19958 | 0.1675468 | 2.2289613 | 31 | 3 | 1999–2009 | 0.38 | M-v | 3 | MPC | 166089 | 1999 $VN_{138}$ |
| 1999 $VV_{141}$ | 16.7 | 0.15 | 20100104 | 52.66679 | 104.20419 | 281.40200 | 0.94786 | 0.0814733 | 2.8614612 | 54 | 8 | 1991–2009 | 0.40 | M-v | 0 | MPC | 166089 | 1999 $VV_{141}$ |
| 1999 $VZ_{143}$ | 17.5 | 0.15 | 20100104 | 28.04912 | 21.00772 | 37.62097 | 7.38012 | 0.1506164 | 2.2029984 | 51 | 4 | 1999–2009 | 0.59 | M-v | 1 | MPC | 166089 | 1999 $VZ_{143}$ |
| 1999 $VO_{153}$ | 16.6 | 0.15 | 20100104 | 28.01751 | 331.97040 | 74.23597 | 6.43883 | 0.1012143 | 2.8981005 | 37 | 3 | 1999–2009 | 0.36 | M-v | 3 | MPC | 166089 | 1999 $VO_{153}$ |
| 1999 $VY_{167}$ | 15.4 | 0.15 | 20100104 | 22.80021 | 82.22666 | 50.81893 | 14.24222 | 0.2595056 | 2.7758229 | 113 | 4 | 1999–2009 | 0.54 | M-v | 2 | MPC | 152299 | 1999 $VY_{167}$ |
| 1999 $VF_{181}$ | 17.9 | 0.15 | 20100104 | 8.08178 | 188.18438 | 208.52454 | 3.14793 | 0.1499592 | 2.2482664 | 47 | 2 | 1999–2009 | 0.39 | M-v | 3 | MPC | 166090 | 1999 $VF_{181}$ |
| 1999 $VM_{185}$ | 17.8 | 0.15 | 20100104 | 64.26721 | 307.26925 | 70.05123 | 4.96008 | 0.2225959 | 2.1966631 | 68 | 5 | 1999–2009 | 0.43 | M-v | 0 | MPC | 166090 | 1999 $VM_{185}$ |
| 1999 $VE_{210}$ | 16.3 | 0.15 | 20100104 | 160.27761 | 209.22985 | 64.66071 | 3.02289 | 0.0161646 | 2.8751113 | 46 | 6 | 1996–2009 | 0.30 | M-v | 0 | MPC | 166090 | 1999 $VE_{210}$ |
| 1999 $VB_{212}$ | 18.3 | 0.15 | 20100104 | 42.66379 | 358.69379 | 64.90803 | 2.51280 | 0.0560690 | 2.1841519 | 22 | 4 | 1999–2009 | 0.22 | M-v | 0 | MPC | 116130 | 1999 $VB_{212}$ |
| 1999 $VE_{222}$ | 15.3 | 0.15 | 20100104 | 65.19533 | 86.47934 | 227.16733 | 10.48503 | 0.1215837 | 2.9600272 | 64 | 5 | 1994–2009 | 0.53 | M-v | 1 | MPC | 166090 | 1999 $VE_{222}$ |
| 1999 $WH_{12}$ | 17.6 | 0.15 | 20100104 | 319.50992 | 44.63206 | 82.22650 | 6.23507 | 0.0652098 | 2.2351336 | 48 | 5 | 1999–2009 | 0.44 | M-v | 0 | MPC | 116131 | 1999 $WH_{12}$ |
| 1999 $WZ_{12}$ | 15.6 | 0.15 | 20100104 | 29.62028 | 157.36806 | 320.61976 | 12.19863 | 0.1936153 | 2.7609966 | 96 | 6 | 1999–2009 | 0.55 | M-v | 1 | MPC | 150885 | 1999 $WZ_{12}$ |
| 1999 $WG_{17}$ | 15.6 | 0.15 | 20100104 | 14.45745 | 48.30106 | 39.02184 | 7.84141 | 0.1931725 | 2.8078853 | 89 | 5 | 1999–2009 | 0.44 | M-v | 1 | MPC | 101988 | 1999 $WG_{17}$ |
| 1999 $WU_{23}$ | 16.9 | 0.15 | 20100104 | 283.47479 | 146.53291 | 59.92782 | 5.15570 | 0.1377217 | 2.7858063 | 48 | 6 | 1999–2009 | 0.39 | M-v | 1 | MPC | 148815 | 1999 $WU_{23}$ |
| 1999 $WD_{24}$ | 18.5 | 0.15 | 20100104 | 110.82436 | 213.74550 | 89.64257 | 0.80596 | 0.1954049 | 2.2254446 | 37 | 4 | 1999–2009 | 0.34 | M-v | 0 | MPC | 166090 | 1999 $WD_{24}$ |
| 1999 $XB_{15}$ | 16.9 | 0.15 | 20100104 | 6.94108 | 8.93694 | 83.41999 | 22.83962 | 0.3427944 | 2.8872740 | 36 | 3 | 1999–2009 | 0.37 | M-v | 2 | MPC | 72035 | 1999 $XB_{15}$ |
| 1999 $XS_{16}$ | 15.2 | 0.15 | 20100104 | 321.38502 | 99.17659 | 77.40804 | 10.08158 | 0.5364049 | 2.9399920 | 195 | 4 | 1999–2009 | 0.45 | M-v | 1 | MPC | 166090 | 1999 $XS_{16}$ |
| 1999 $XU_{16}$ | 16.2 | 0.15 | 20100104 | 75.42552 | 99.96547 | 250.40982 | 7.26955 | 0.2214541 | 2.2240811 | 91 | 4 | 1999–2009 | 0.53 | M-v | 2 | MPC | 166090 | 1999 $XU_{16}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 $XY_{77}$ | 16.7 | 0.15 | 20100104 | 12.76091 | 320.65991 | 59.29932 | 1.53970 | 0.3418557 | 2.9794854 | 111 | 3 | 1999–2009 | 0.56 | M-v | 2 | MPC | 166090 | 1999 $XY_{77}$ |
| 1999 $XZ_{121}$ | 17.4 | 0.15 | 20100104 | 63.72443 | 45.48514 | 324.45321 | 4.89439 | 0.2924594 | 2.1946283 | 53 | 4 | 1999–2009 | 0.55 | M-v | 1 | MPC | 117905 | 1999 $XZ_{121}$ |
| 1999 $XJ_{130}$ | 15.1 | 0.15 | 20100104 | 30.30495 | 87.76946 | 304.14558 | 5.55397 | 0.3426186 | 2.9195127 | 139 | 3 | 1999–2009 | 0.55 | M-v | 2 | MPC | 166090 | 1999 $XJ_{130}$ |
| 1999 $XA_{139}$ | 15.6 | 0.15 | 20100104 | 48.88434 | 268.14917 | 99.82849 | 11.95549 | 0.1103316 | 3.0442291 | 33 | 3 | 1999–2009 | 0.50 | M-v | 3 | MPC | 166090 | 1999 $XA_{139}$ |
| 1999 $XW_{148}$ | 17.5 | 0.15 | 20100104 | 281.59871 | 112.07530 | 74.02400 | 6.15445 | 0.0770477 | 2.1969960 | 55 | 5 | 1999–2009 | 0.55 | M-v | 1 | MPC | 116131 | 1999 $XW_{148}$ |
| 1999 $XY_{150}$ | 15.7 | 0.15 | 20100104 | 45.13022 | 103.81394 | 243.97004 | 8.33449 | 0.0740193 | 3.0040898 | 47 | 4 | 1999–2009 | 0.48 | M-v | 2 | MPC | 164150 | 1999 $XY_{150}$ |
| 1999 $XU_{194}$ | 15.8 | 0.15 | 20100104 | 36.51537 | 77.81069 | 330.68904 | 6.24127 | 0.3080071 | 2.8973506 | 58 | 4 | 1999–2009 | 0.62 | M-v | 2 | MPC | 147140 | 1999 $XU_{194}$ |
| 1999 $XH_{199}$ | 15.0 | 0.15 | 20100104 | 44.70544 | 5.43757 | 50.85842 | 16.14430 | 0.1254611 | 2.8691962 | 29 | 4 | 1999–2009 | 0.59 | M-v | 2 | MPC | 166090 | 1999 $XH_{199}$ |
| 1999 $XC_{217}$ | 15.7 | 0.15 | 20100104 | 139.57137 | 204.22125 | 104.11655 | 3.56511 | 0.0967273 | 2.9780124 | 60 | 6 | 1999–2009 | 0.48 | M-v | 1 | MPC | 147140 | 1999 $XC_{217}$ |
| 1999 $XN_{223}$ | 15.9 | 0.15 | 20100104 | 300.91864 | 24.62484 | 105.40036 | 11.24528 | 0.0284092 | 3.0312010 | 30 | 3 | 1999–2009 | 0.57 | M-v | 2 | MPC | 99931 | 1999 $XN_{223}$ |
| 1999 $XJ_{240}$ | 17.4 | 0.15 | 20100104 | 31.11873 | 48.63497 | 6.73098 | 5.78372 | 0.1762558 | 2.2141008 | 33 | 4 | 1999–2009 | 0.38 | M-v | 1 | MPC | 117906 | 1999 $XJ_{240}$ |
| 1999 $XN_{250}$ | 17.5 | 0.15 | 20100104 | 62.55246 | 85.35212 | 295.32649 | 3.45524 | 0.2403086 | 2.2267083 | 76 | 3 | 1999–2009 | 0.48 | M-v | 2 | MPC | 166090 | 1999 $XN_{250}$ |
| 1999 $XW_{254}$ | 15.8 | 0.15 | 20100104 | 345.07563 | 313.35877 | 100.90336 | 8.44672 | 0.1420672 | 3.0869880 | 30 | 4 | 1999–2009 | 0.50 | M-v | 2 | MPC | 164151 | 1999 $XW_{254}$ |
| 1999 $XO_{255}$ | 16.3 | 0.15 | 20100104 | 281.98929 | 200.66844 | 327.37865 | 2.10758 | 0.0715846 | 3.0034952 | 52 | 6 | 1999–2009 | 0.32 | M-v | 1 | MPC | 166090 | 1999 $XO_{255}$ |
| 1999 $YR_{2}$ | 17.4 | 0.15 | 20100104 | 77.54494 | 86.52809 | 290.12074 | 7.48669 | 0.1092529 | 2.2357317 | 59 | 6 | 1995–2009 | 0.48 | M-v | 1 | MPC | 116132 | 1999 $YR_{2}$ |
| 2000 $AP_{8}$ | 15.8 | 0.15 | 20100104 | 4.24232 | 152.28171 | 306.02243 | 9.76818 | 0.2126129 | 2.9100388 | 47 | 4 | 1999–2009 | 0.54 | M-v | 3 | MPC | 143102 | 2000 $AP_{8}$ |
| 2000 $AZ_{36}$ | 17.1 | 0.15 | 20100104 | 350.70925 | 10.38450 | 53.27830 | 3.93046 | 0.1497793 | 2.2888121 | 82 | 5 | 2000–2009 | 0.50 | M-v | 1 | MPC | 166090 | 2000 $AZ_{36}$ |
| 2000 $AX_{92}$ | 16.7 | 0.15 | 20100104 | 65.86231 | 51.35872 | 292.54641 | 20.61319 | 0.1408569 | 1.8771823 | 51 | 5 | 1999–2009 | 0.66 | M-v | 2 | MPC | 166090 | 2000 $AX_{92}$ |
| 2000 $AE_{151}$ | 15.5 | 0.15 | 20100104 | 287.71980 | 184.26004 | 302.83738 | 4.28197 | 0.2375351 | 3.1124743 | 53 | 4 | 2000–2009 | 0.50 | M-v | 1 | MPC | 162301 | 2000 $AE_{151}$ |
| 2000 $AH_{216}$ | 16.2 | 0.15 | 20100104 | 148.21930 | 246.56576 | 73.19659 | 7.78587 | 0.0419669 | 2.8167053 | 28 | 3 | 1999–2009 | 0.33 | M-v | 3 | MPC | 156842 | 2000 $AH_{216}$ |
| 2000 $AK_{218}$ | 17.3 | 0.15 | 20100104 | 33.87849 | 343.14407 | 103.98643 | 5.07164 | 0.0990349 | 2.2110260 | 37 | 6 | 1999–2009 | 0.41 | M-v | 1 | MPC | 117906 | 2000 $AK_{218}$ |
| 2000 $AK_{221}$ | 16.4 | 0.15 | 20100104 | 30.76448 | 294.41259 | 90.38006 | 3.94047 | 0.2461946 | 3.0098550 | 51 | 2 | 2000–2009 | 0.47 | M-v | 4 | MPC | 165305 | 2000 $AK_{221}$ |
| 2000 $AQ_{253}$ | 16.9 | 0.15 | 20100104 | 335.69580 | 156.60400 | 293.75305 | 2.37293 | 0.1237070 | 3.0407581 | 27 | 3 | 2000–2009 | 0.33 | M-v | 4 | MPC | 166090 | 2000 $AQ_{253}$ |
| 2000 $BN_{20}$ | 16.6 | 0.15 | 20100104 | 346.66656 | 310.56376 | 134.03629 | 3.44065 | 0.0984754 | 3.0636897 | 32 | 5 | 1995–2009 | 0.35 | M-v | 1 | MPC | 166091 | 2000 $BN_{20}$ |
| 2000 $BF_{39}$ | 17.8 | 0.15 | 20100104 | 283.34544 | 227.07350 | 297.46942 | 2.55214 | 0.0962974 | 2.2845406 | 34 | 4 | 2000–2009 | 0.25 | M-v | 0 | MPC | 166091 | 2000 $BF_{39}$ |
| 2000 $BV_{39}$ | 16.2 | 0.15 | 20100104 | 343.37643 | 126.36086 | 295.49663 | 0.79290 | 0.1031089 | 3.1160469 | 49 | 5 | 2000–2009 | 0.28 | M-v | 0 | MPC | 166091 | 2000 $BV_{39}$ |
| 2000 $CE_{15}$ | 17.3 | 0.15 | 20100104 | 41.16112 | 315.97104 | 120.04662 | 3.59960 | 0.0802942 | 2.2303458 | 43 | 6 | 1999–2009 | 0.52 | M-v | 1 | MPC | 141754 | 2000 $CE_{15}$ |
| 2000 $CZ_{68}$ | 16.2 | 0.15 | 20100104 | 302.89420 | 348.02374 | 134.24177 | 2.01288 | 0.0504306 | 3.1075567 | 49 | 5 | 2000–2009 | 0.34 | M-v | 0 | MPC | 166091 | 2000 $CZ_{68}$ |
| 2000 $CL_{73}$ | 16.5 | 0.15 | 20100104 | 21.93077 | 197.48096 | 193.26514 | 0.52154 | 0.2215950 | 3.0705275 | 79 | 3 | 1998–2009 | 0.42 | M-v | 3 | MPC | 166091 | 2000 $CL_{73}$ |
| 2000 $CU_{74}$ | 16.2 | 0.15 | 20100104 | 321.13780 | 345.02181 | 138.06214 | 2.66630 | 0.0339077 | 3.0442109 | 43 | 7 | 1995–2009 | 0.44 | M-v | 0 | MPC | 166091 | 2000 $CU_{74}$ |
| 2000 $CQ_{99}$ | 16.4 | 0.15 | 20100104 | 261.72611 | 263.81720 | 322.36480 | 8.92260 | 0.1192529 | 2.9824833 | 43 | 6 | 2000–2009 | 0.34 | M-v | 1 | MPC | 148817 | 2000 $CQ_{99}$ |
| 2000 $CF_{100}$ | 17.6 | 0.15 | 20100104 | 331.97106 | 157.07107 | 319.97948 | 5.08455 | 0.0991593 | 2.2793841 | 40 | 4 | 2000–2009 | 0.49 | M-v | 1 | MPC | 122667 | 2000 $CF_{100}$ |
| 2000 $CO_{101}$ | 19.0 | 0.15 | 20100104 | 39.36023 | 64.83418 | 353.10711 | 15.32158 | 0.0901771 | 1.0762154 | 363 | 2 | 2000–2009 | 0.46 | M-v | 1 | MPC | 166091 | 2000 $CO_{101}$ |
| 2000 $CJ_{114}$ | 15.1 | 0.15 | 20100104 | 140.03270 | 202.69569 | 120.17166 | 6.47782 | 0.1693331 | 2.9425036 | 95 | 5 | 2000–2009 | 0.53 | M-v | 2 | MPC | 162302 | 2000 $CJ_{114}$ |
| 2000 $CD_{118}$ | 15.0 | 0.15 | 20100104 | 14.53150 | 305.26574 | 128.75519 | 11.69301 | 0.0839090 | 2.9942080 | 41 | 6 | 2000–2009 | 0.69 | M-v | 1 | MPC | 158399 | 2000 $CD_{118}$ |
| 2000 $CH_{130}$ | 17.1 | 0.15 | 20100104 | 180.86254 | 110.99913 | 146.31855 | 7.18705 | 0.0234712 | 2.3097714 | 58 | 4 | 2000–2009 | 0.36 | M-v | 1 | MPC | 117907 | 2000 $CH_{130}$ |
| 2000 $CO_{131}$ | 17.0 | 0.15 | 20100104 | 324.99831 | 168.40060 | 319.03507 | 4.52842 | 0.0881537 | 2.2838508 | 35 | 4 | 2000–2009 | 0.51 | M-v | 1 | MPC | 117907 | 2000 $CO_{131}$ |
| 2000 $CW_{140}$ | 17.8 | 0.15 | 20100104 | 279.41258 | 232.20947 | 304.07350 | 2.40782 | 0.0840478 | 2.2743236 | 43 | 6 | 1999–2009 | 0.28 | M-v | 0 | MPC | 166091 | 2000 $CW_{140}$ |
| 2000 $CE_{143}$ | 15.4 | 0.15 | 20100104 | 33.99817 | 105.25695 | 312.18341 | 9.58811 | 0.0685593 | 3.0022505 | 35 | 5 | 2000–2009 | 0.58 | M-v | 1 | MPC | 147142 | 2000 $CE_{143}$ |
| 2000 $DH_{8}$ | 18.5 | 0.15 | 20100104 | 332.16794 | 25.21135 | 159.23263 | 37.60755 | 0.3055096 | 1.8383682 | 154 | 5 | 1995–2008 | 0.51 | M-v | 2 | MPC | 143103 | 2000 $DH_{8}$ |
| 2000 $DO_{9}$ | 16.2 | 0.15 | 20100104 | 237.42141 | 57.64067 | 156.50827 | 2.58953 | 0.1487722 | 3.1044237 | 36 | 4 | 2000–2009 | 0.33 | M-v | 1 | MPC | 166091 | 2000 $DO_{9}$ |
| 2000 $DJ_{11}$ | 15.4 | 0.15 | 20100104 | 323.33998 | 306.91708 | 177.66924 | 5.49487 | 0.1009959 | 3.1317225 | 69 | 5 | 2000–2009 | 0.57 | M-v | 1 | MPC | 166091 | 2000 $DJ_{11}$ |
| 2000 $DW_{43}$ | 16.5 | 0.15 | 20100104 | 247.01374 | 216.14713 | 336.07125 | 5.94461 | 0.0345217 | 2.3259318 | 76 | 4 | 2000–2009 | 0.48 | M-v | 2 | MPC | 166091 | 2000 $DW_{43}$ |
| 2000 $DF_{51}$ | 17.2 | 0.15 | 20100104 | 282.06926 | 196.74928 | 357.83836 | 2.96466 | 0.1042706 | 2.2779445 | 89 | 5 | 1960–2009 | 0.46 | M-v | 1 | MPC | 157342 | 2000 $DF_{51}$ |
| 2000 $DP_{58}$ | 17.0 | 0.15 | 20100104 | 261.57660 | 272.26015 | 305.84518 | 2.63387 | 0.1220882 | 2.2858770 | 71 | 5 | 2000–2009 | 0.55 | M-v | 1 | MPC | 147143 | 2000 $DP_{58}$ |
| 2000 $DU_{59}$ | 16.7 | 0.15 | 20100104 | 10.79985 | 108.13416 | 338.73234 | 7.29318 | 0.0661632 | 2.2911317 | 104 | 6 | 1991–2009 | 0.52 | M-v | 0 | MPC | 117908 | 2000 $DU_{59}$ |
| 2000 $DN_{69}$ | 16.6 | 0.15 | 20100104 | 236.05752 | 353.46373 | 174.95168 | 2.95136 | 0.1164242 | 2.3906241 | 72 | 6 | 2000–2009 | 0.46 | M-v | 1 | MPC | 164152 | 2000 $DN_{69}$ |
| 2000 $DA_{72}$ | 16.5 | 0.15 | 20100104 | 309.76696 | 1.81754 | 141.26657 | 1.55602 | 0.2409000 | 3.0781794 | 51 | 5 | 2000–2009 | 0.40 | M-v | 0 | MPC | 166091 | 2000 $DA_{72}$ |
| 2000 $DO_{90}$ | 16.9 | 0.15 | 20100104 | 69.36492 | 350.36149 | 320.81000 | 6.40069 | 0.1347631 | 2.4028349 | 50 | 6 | 2000–2009 | 0.44 | M-v | 1 | MPC | 162303 | 2000 $DO_{90}$ |
| 2000 $DY_{90}$ | 16.2 | 0.15 | 20100104 | 329.90534 | 301.74337 | 139.79864 | 0.33890 | 0.1481186 | 3.1216856 | 56 | 4 | 1995–2009 | 0.31 | M-v | 0 | MPC | 166091 | 2000 $DY_{90}$ |
| 2000 $DC_{100}$ | 16.8 | 0.15 | 20100104 | 40.54266 | 20.59639 | 108.78221 | 3.92833 | 0.1097375 | 2.1856892 | 152 | 5 | 2000–2009 | 0.53 | M-v | 1 | MPC | 150888 | 2000 $DC_{100}$ |
| 2000 $DO_{104}$ | 15.1 | 0.15 | 20100104 | 294.73679 | 137.26771 | 59.69424 | 6.43436 | 0.1210695 | 3.0042180 | 65 | 7 | 1995–2009 | 0.47 | M-v | 1 | MPC | 152302 | 2000 $DO_{104}$ |
| 2000 $DE_{108}$ | 16.1 | 0.15 | 20100104 | 316.80213 | 128.36314 | 17.43421 | 2.36059 | 0.2753716 | 3.0254710 | 33 | 2 | 2000–2009 | 0.50 | M-v | 4 | MPC | 165306 | 2000 $DE_{108}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 $DD_{115}$ | 15.8 | 0.15 | 20100104 | 16.21352 | 255.89367 | 146.98955 | 11.04463 | 0.2778904 | 3.0534565 | 35 | 4 | 2000–2009 | 0.42 | M-v | 2 | MPC | 165306 | 2000 $DD_{115}$ |
| 2000 $EF_3$ | 16.3 | 0.15 | 20100104 | 261.48018 | 198.13287 | 349.34044 | 7.16998 | 0.1107563 | 2.3246653 | 105 | 4 | 2000–2009 | 0.44 | M-v | 2 | MPC | 119521 | 2000 $EF_3$ |
| 2000 $EW_9$ | 14.4 | 0.15 | 20100104 | 277.37434 | 136.80240 | 44.55627 | 23.99950 | 0.2757298 | 3.1125076 | 79 | 5 | 2000–2009 | 0.49 | M-v | 1 | MPC | 166092 | 2000 $EW_9$ |
| 2000 $EH_{18}$ | 15.4 | 0.15 | 20100104 | 270.68178 | 110.99816 | 92.31101 | 10.61902 | 0.1039533 | 3.0429831 | 39 | 5 | 2000–2009 | 0.47 | M-v | 0 | MPC | 147143 | 2000 $EH_{18}$ |
| 2000 $EH_{27}$ | 17.5 | 0.15 | 20100104 | 289.23371 | 322.58982 | 212.21214 | 1.69872 | 0.1565829 | 2.2992696 | 72 | 5 | 2000–2009 | 0.54 | M-v | 1 | MPC | 159654 | 2000 $EH_{27}$ |
| 2000 $EO_{30}$ | 16.5 | 0.15 | 20100104 | 289.39286 | 154.55308 | 34.76218 | 7.21769 | 0.0774466 | 2.2755503 | 88 | 5 | 2000–2009 | 0.58 | M-v | 1 | MPC | 143104 | 2000 $EO_{30}$ |
| 2000 $EY_{59}$ | 16.3 | 0.15 | 20100104 | 316.77001 | 142.10364 | 1.05385 | 1.48570 | 0.2645568 | 3.0676267 | 89 | 3 | 2000–2009 | 0.48 | M-v | 3 | MPC | 166092 | 2000 $EY_{59}$ |
| 2000 $ER_{72}$ | 17.7 | 0.15 | 20100104 | 313.96542 | 178.52005 | 334.53137 | 6.31757 | 0.0654488 | 2.2727933 | 38 | 5 | 2000–2009 | 0.37 | M-v | 1 | MPC | 147143 | 2000 $ER_{72}$ |
| 2000 $ES_{96}$ | 15.7 | 0.15 | 20100104 | 320.75622 | 35.22214 | 134.06722 | 6.84468 | 0.1859527 | 3.0253019 | 80 | 6 | 2000–2009 | 0.57 | M-v | 1 | MPC | 147144 | 2000 $ES_{96}$ |
| 2000 $EO_{98}$ | 16.5 | 0.15 | 20100104 | 160.63199 | 178.11559 | 321.97345 | 1.97482 | 0.0184907 | 2.5423350 | 89 | 4 | 2000–2008 | 0.41 | M-v | 2 | MPC | 139141 | 2000 $EO_{98}$ |
| 2000 $EP_{141}$ | 16.3 | 0.15 | 20100104 | 318.66220 | 129.42356 | 27.65290 | 2.92950 | 0.3217115 | 3.0278040 | 52 | 5 | 2000–2009 | 0.53 | M-v | 2 | MPC | 166092 | 2000 $EP_{141}$ |
| 2000 $ET_{152}$ | 17.3 | 0.15 | 20100104 | 250.95877 | 71.26401 | 111.32052 | 3.26380 | 0.1447337 | 2.3492810 | 43 | 3 | 2000–2007 | 0.53 | M-v | 4 | MPC | 116135 | 2000 $ET_{152}$ |
| 2000 $EP_{170}$ | 16.4 | 0.15 | 20100104 | 227.82653 | 138.38697 | 114.51579 | 6.46212 | 0.1649200 | 2.2945561 | 39 | 7 | 2000–2009 | 0.61 | M-v | 1 | MPC | 147144 | 2000 $EP_{170}$ |
| 2000 $EN_{171}$ | 15.1 | 0.15 | 20100104 | 326.44819 | 91.13707 | 30.27805 | 13.84913 | 0.2740523 | 3.0574023 | 99 | 3 | 2000–2009 | 0.56 | M-v | 2 | MPC | 166092 | 2000 $EN_{171}$ |
| 2000 $EJ_{196}$ | 15.3 | 0.15 | 20100104 | 301.36036 | 170.85138 | 359.73961 | 12.07100 | 0.0282237 | 3.0636280 | 43 | 5 | 2000–2009 | 0.53 | M-v | 2 | MPC | 147144 | 2000 $EJ_{196}$ |
| 2000 $FF_1$ | 16.3 | 0.15 | 20100104 | 294.94627 | 100.66025 | 93.83941 | 22.49262 | 0.2781978 | 2.2817349 | 235 | 4 | 2000–2009 | 0.49 | M-v | 1 | MPC | 126570 | 2000 $FF_1$ |
| 2000 $FZ_6$ | 17.9 | 0.15 | 20100104 | 288.81631 | 345.75439 | 203.45171 | 4.52851 | 0.1147204 | 2.3033554 | 50 | 5 | 1998–2009 | 0.45 | M-v | 1 | MPC | 166092 | 2000 $FZ_6$ |
| 2000 $FX_{18}$ | 15.4 | 0.15 | 20100104 | 25.18132 | 312.67250 | 152.96215 | 17.67202 | 0.3241051 | 2.9378706 | 65 | 5 | 2000–2009 | 0.57 | M-v | 1 | MPC | 166092 | 2000 $FX_{18}$ |
| 2000 $FC_{48}$ | 16.8 | 0.15 | 20100104 | 267.04043 | 135.47815 | 88.66325 | 7.36526 | 0.1594498 | 2.2994571 | 62 | 4 | 2000–2009 | 0.55 | M-v | 2 | MPC | 120733 | 2000 $FC_{48}$ |
| 2000 $FC_{66}$ | 17.1 | 0.15 | 20100104 | 245.67709 | 83.08962 | 151.24486 | 3.18446 | 0.1173767 | 2.3133192 | 54 | 6 | 2000–2009 | 0.39 | M-v | 0 | MPC | 147144 | 2000 $FC_{66}$ |
| 2000 $FH_{68}$ | 17.5 | 0.15 | 20100104 | 345.60756 | 87.96283 | 24.96879 | 4.08580 | 0.1016945 | 2.3210131 | 40 | 4 | 2000–2009 | 0.42 | M-v | 1 | MPC | 117910 | 2000 $FH_{68}$ |
| 2000 $GF_{30}$ | 17.3 | 0.15 | 20100104 | 197.10599 | 43.40051 | 208.69418 | 2.15507 | 0.1684415 | 2.3781539 | 64 | 6 | 2000–2009 | 0.52 | M-v | 0 | MPC | 147144 | 2000 $GF_{30}$ |
| 2000 $GV_{36}$ | 16.3 | 0.15 | 20100104 | 244.06658 | 225.08550 | 15.73085 | 4.98474 | 0.1049020 | 3.1034694 | 45 | 6 | 2000–2009 | 0.41 | M-v | 0 | MPC | 145853 | 2000 $GV_{36}$ |
| 2000 $GN_{37}$ | 15.4 | 0.15 | 20100104 | 334.85985 | 121.04822 | 11.37663 | 0.18095 | 0.1260986 | 3.1039322 | 73 | 6 | 2000–2009 | 0.51 | M-v | 0 | MPC | 159654 | 2000 $GN_{37}$ |
| 2000 $GU_{44}$ | 17.3 | 0.15 | 20100104 | 227.40514 | 93.43749 | 161.34915 | 2.67997 | 0.1930374 | 2.3302185 | 65 | 5 | 1993–2009 | 0.40 | M-v | 1 | MPC | 147145 | 2000 $GU_{44}$ |
| 2000 $GP_{62}$ | 15.7 | 0.15 | 20100104 | 357.69429 | 143.86785 | 21.23096 | 10.52016 | 0.0589351 | 2.9842335 | 60 | 6 | 2000–2009 | 0.42 | M-v | 1 | MPC | 160729 | 2000 $GP_{62}$ |
| 2000 $GV_{86}$ | 16.4 | 0.15 | 20100104 | 197.32805 | 194.90065 | 50.66052 | 3.33711 | 0.1923420 | 2.3855243 | 46 | 4 | 2000–2009 | 0.48 | M-v | 1 | MPC | 165306 | 2000 $GV_{86}$ |
| 2000 $GQ_{88}$ | 15.8 | 0.15 | 20100104 | 74.21501 | 80.53462 | 78.59238 | 8.69049 | 0.1634288 | 2.7606536 | 62 | 4 | 1986–2009 | 0.57 | M-v | 1 | MPC | 155048 | 2000 $GQ_{88}$ |
| 2000 $GX_{115}$ | 17.1 | 0.15 | 20100104 | 233.95035 | 110.73887 | 99.32115 | 2.18553 | 0.2405520 | 2.3688094 | 77 | 5 | 2000–2009 | 0.41 | M-v | 1 | MPC | 147145 | 2000 $GX_{115}$ |
| 2000 $GU_{127}$ | 18.5 | 0.15 | 20100104 | 41.76942 | 138.23554 | 172.49037 | 8.42001 | 0.7250570 | 2.1070538 | 255 | 7 | 2000–2009 | 0.55 | M-v | 1 | MPC | 166093 | 2000 $GU_{127}$ |
| 2000 $GX_{139}$ | 17.0 | 0.15 | 20100104 | 252.06660 | 144.60674 | 69.06324 | 6.13425 | 0.1819486 | 2.3394084 | 45 | 4 | 2000–2009 | 0.48 | M-v | 2 | MPC | 117911 | 2000 $GX_{139}$ |
| 2000 $GO_{149}$ | 15.7 | 0.15 | 20100104 | 277.96448 | 6.51488 | 172.09889 | 8.53864 | 0.1140617 | 3.1256798 | 49 | 5 | 1996–2009 | 0.46 | M-v | 1 | MPC | 148818 | 2000 $GO_{149}$ |
| 2000 $GA_{161}$ | 15.3 | 0.15 | 20100104 | 296.23934 | 128.04801 | 56.70009 | 9.75248 | 0.2372624 | 3.0933865 | 54 | 5 | 2000–2009 | 0.59 | M-v | 1 | MPC | 147145 | 2000 $GA_{161}$ |
| 2000 $GW_{175}$ | 16.8 | 0.15 | 20100104 | 288.25165 | 346.63335 | 187.44185 | 7.68467 | 0.2018925 | 2.3034395 | 107 | 4 | 2000–2009 | 0.56 | M-v | 2 | MPC | 166093 | 2000 $GW_{175}$ |
| 2000 $HO_7$ | 16.5 | 0.15 | 20100104 | 208.30717 | 136.82435 | 78.79065 | 2.25256 | 0.1378236 | 2.4127648 | 81 | 8 | 1992–2009 | 0.51 | M-v | 1 | MPC | 122669 | 2000 $HO_7$ |
| 2000 $HW_{17}$ | 17.6 | 0.15 | 20100104 | 190.70902 | 19.72265 | 232.24208 | 1.60304 | 0.1316493 | 2.4025395 | 53 | 4 | 2000–2009 | 0.45 | M-v | 2 | MPC | 117912 | 2000 $HW_{17}$ |
| 2000 $HZ_{18}$ | 17.6 | 0.15 | 20100104 | 298.78090 | 192.78259 | 52.60722 | 6.73559 | 0.1607852 | 2.2382800 | 37 | 5 | 2000–2008 | 0.46 | M-v | 1 | MPC | 148818 | 2000 $HZ_{18}$ |
| 2000 $HV_{27}$ | 16.1 | 0.15 | 20100104 | 285.65171 | 300.30169 | 229.06814 | 21.81484 | 0.2260397 | 2.3407580 | 74 | 3 | 2000–2009 | 0.49 | M-v | 2 | MPC | 166093 | 2000 $HV_{27}$ |
| 2000 $HM_{33}$ | 16.5 | 0.15 | 20100104 | 262.26591 | 135.14317 | 76.05542 | 6.93726 | 0.0732720 | 2.3204215 | 70 | 4 | 2000–2009 | 0.56 | M-v | 2 | MPC | 166093 | 2000 $HM_{33}$ |
| 2000 $HX_{43}$ | 16.2 | 0.15 | 20100104 | 294.36458 | 105.34890 | 100.84917 | 9.12583 | 0.1896557 | 3.1052986 | 44 | 5 | 2000–2009 | 0.54 | M-v | 1 | MPC | 147145 | 2000 $HX_{43}$ |
| 2000 $HY_{43}$ | 15.6 | 0.15 | 20100104 | 305.22927 | 90.97657 | 78.51979 | 13.40055 | 0.2257435 | 3.1395019 | 43 | 5 | 1998–2009 | 0.57 | M-v | 1 | MPC | 122669 | 2000 $HY_{43}$ |
| 2000 $HR_{77}$ | 15.1 | 0.15 | 20100104 | 315.47952 | 271.94133 | 237.68524 | 14.39607 | 0.2670725 | 3.0820951 | 75 | 6 | 1998–2009 | 0.55 | M-v | 1 | MPC | 166093 | 2000 $HR_{77}$ |
| 2000 $HS_{78}$ | 16.4 | 0.15 | 20100104 | 177.54066 | 167.67516 | 109.98993 | 15.49446 | 0.2368412 | 2.3855723 | 47 | 6 | 2000–2009 | 0.60 | M-v | 0 | MPC | 147146 | 2000 $HS_{78}$ |
| 2000 $HQ_{82}$ | 17.0 | 0.15 | 20100104 | 188.83059 | 184.29675 | 69.89452 | 2.03543 | 0.1537701 | 2.4060387 | 54 | 4 | 2000–2009 | 0.45 | M-v | 2 | MPC | 117912 | 2000 $HQ_{82}$ |
| 2000 $HZ_{94}$ | 16.6 | 0.15 | 20100104 | 166.05122 | 203.33371 | 84.73109 | 23.03933 | 0.0442499 | 1.9216648 | 43 | 4 | 2000–2009 | 0.63 | M-v | 3 | MPC | 140087 | 2000 $HZ_{94}$ |
| 2000 $HH_{96}$ | 16.2 | 0.15 | 20100104 | 158.35860 | 187.66501 | 94.48572 | 6.98538 | 0.1339300 | 2.4208401 | 46 | 6 | 1992–2009 | 0.51 | M-v | 1 | MPC | 143106 | 2000 $HH_{96}$ |
| 2000 $HP_{103}$ | 15.2 | 0.15 | 20100104 | 306.35518 | 65.79141 | 136.87816 | 10.24675 | 0.0519282 | 3.0522784 | 41 | 6 | 2000–2009 | 0.54 | M-v | 1 | MPC | 147146 | 2000 $HP_{103}$ |
| 2000 $JA_3$ | 18.6 | 0.15 | 20100104 | 291.38807 | 151.16092 | 119.76546 | 10.17758 | 0.4556379 | 2.2552151 | 296 | 2 | 2000–2007 | 0.56 | M-v | 1 | MPC | 122377 | 2000 $JA_3$ |
| 2000 $JU_3$ | 16.6 | 0.15 | 20100104 | 222.44325 | 179.41372 | 66.60836 | 22.68912 | 0.0865982 | 1.9066108 | 72 | 5 | 2000–2009 | 0.57 | M-v | 1 | MPC | 140087 | 2000 $JU_3$ |
| 2000 $JW_3$ | 17.1 | 0.15 | 20100104 | 121.46038 | 224.66815 | 66.26586 | 23.00787 | 0.0567496 | 1.9636683 | 61 | 5 | 2000–2009 | 0.55 | M-v | 1 | MPC | 166093 | 2000 $JW_3$ |
| 2000 $JK_6$ | 14.8 | 0.15 | 20100104 | 310.78026 | 46.73068 | 109.27271 | 17.91439 | 0.1880884 | 3.1452639 | 73 | 6 | 1998–2009 | 0.53 | M-v | 0 | MPC | 101999 | 2000 $JK_6$ |
| 2000 $JL_6$ | 14.8 | 0.15 | 20100104 | 285.45802 | 85.22476 | 126.15272 | 17.56515 | 0.0947859 | 3.1097752 | 52 | 5 | 1999–2009 | 0.51 | M-v | 1 | MPC | 164153 | 2000 $JL_6$ |
| 2000 $JA_{42}$ | 17.0 | 0.15 | 20100104 | 252.57664 | 76.88965 | 103.36743 | 2.04160 | 0.1238666 | 2.3936336 | 89 | 4 | 2000–2009 | 0.43 | M-v | 2 | MPC | 166093 | 2000 $JA_{42}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 $JK_{72}$ | 15.0 | 0.15 | 20100104 | 52.86189 | 277.84811 | 65.75513 | 26.69716 | 0.4169584 | 2.5807428 | 138 | 7 | 2000–2009 | 0.53 | M-v | 1 | MPC | 166093 | 2000 $JK_{72}$ |
| 2000 $KD_{2}$ | 15.9 | 0.15 | 20100104 | 276.49238 | 42.93754 | 144.69635 | 23.60829 | 0.1908524 | 2.3272983 | 78 | 4 | 2000–2009 | 0.61 | M-v | 2 | MPC | 143106 | 2000 $KD_{2}$ |
| 2000 $KU_{66}$ | 16.9 | 0.15 | 20100104 | 244.58917 | 89.91447 | 107.22075 | 23.17793 | 0.0474841 | 1.9298739 | 61 | 6 | 2000–2009 | 0.61 | M-v | 2 | MPC | 166093 | 2000 $KU_{66}$ |
| 2000 LB | 15.6 | 0.15 | 20100104 | 83.95779 | 109.54491 | 236.42280 | 7.61178 | 0.2066288 | 2.5663392 | 73 | 5 | 2000–2009 | 0.51 | M-v | 1 | MPC | 117914 | 2000 LB |
| 2000 $LU_{25}$ | 15.3 | 0.15 | 20100104 | 71.23461 | 93.82510 | 238.74935 | 32.86808 | 0.4405756 | 2.6100725 | 81 | 3 | 2000–2009 | 0.50 | M-v | 1 | MPC | 64740 | 2000 $LU_{25}$ |
| 2000 $LB_{28}$ | 16.7 | 0.15 | 20100104 | 263.54803 | 169.29157 | 103.37518 | 7.01980 | 0.1580168 | 2.3138830 | 31 | 4 | 2000–2009 | 0.35 | M-v | 1 | MPC | 150889 | 2000 $LB_{28}$ |
| 2000 $LU_{36}$ | 14.3 | 0.15 | 20100104 | 40.42212 | 218.58544 | 140.85198 | 9.62923 | 0.4024924 | 2.6742028 | 380 | 9 | 1998–2009 | 0.56 | M-v | 0 | MPC | 166093 | 2000 $LU_{36}$ |
| 2000 $NA_{14}$ | 16.5 | 0.15 | 20100104 | 125.35314 | 16.52617 | 282.34604 | 3.10523 | 0.2790007 | 2.5450079 | 69 | 4 | 2000–2009 | 0.48 | M-v | 3 | MPC | 140665 | 2000 $NA_{14}$ |
| 2000 $NJ_{19}$ | 17.1 | 0.15 | 20100104 | 91.55337 | 61.03300 | 283.91921 | 2.26956 | 0.3206939 | 2.5658501 | 51 | 5 | 1996–2009 | 0.64 | M-v | 2 | MPC | 97378 | 2000 $NJ_{19}$ |
| 2000 $OY_{12}$ | 16.6 | 0.15 | 20100104 | 65.08294 | 59.35507 | 301.92494 | 3.70334 | 0.3092281 | 2.5864326 | 65 | 4 | 2000–2009 | 0.46 | M-v | 3 | MPC | 97379 | 2000 $OY_{12}$ |
| 2000 $OJ_{36}$ | 15.9 | 0.15 | 20100104 | 87.49934 | 91.03816 | 240.17594 | 6.13079 | 0.2173256 | 2.5849412 | 55 | 5 | 1996–2009 | 0.52 | M-v | 1 | MPC | 66130 | 2000 $OJ_{36}$ |
| 2000 PG | 16.8 | 0.15 | 20100104 | 96.61736 | 236.57056 | 129.07017 | 24.17870 | 0.0951862 | 1.9709360 | 49 | 6 | 1999–2009 | 0.59 | M-v | 1 | MPC | 140088 | 2000 PG |
| 2000 $PO_{2}$ | 16.0 | 0.15 | 20100104 | 52.28815 | 59.83083 | 293.44124 | 10.61195 | 0.2225332 | 2.6088010 | 52 | 4 | 2000–2009 | 0.54 | M-v | 2 | MPC | 166093 | 2000 $PO_{2}$ |
| 2000 $PQ_{9}$ | 18.1 | 0.15 | 20100104 | 216.14132 | 6.75326 | 297.29961 | 13.48449 | 0.4320448 | 1.9038564 | 163 | 5 | 2000–2008 | 0.48 | M-v | 1 | MPC | 143106 | 2000 $PQ_{9}$ |
| 2000 $PH_{12}$ | 15.8 | 0.15 | 20100104 | 69.23050 | 34.56834 | 307.49319 | 13.53117 | 0.1929620 | 2.6119098 | 62 | 6 | 1998–2009 | 0.61 | M-v | 1 | MPC | 166094 | 2000 $PH_{12}$ |
| 2000 $QP_{3}$ | 15.9 | 0.15 | 20100104 | 56.25967 | 45.24218 | 343.99182 | 13.38318 | 0.1275341 | 2.5766517 | 98 | 6 | 1996–2009 | 0.54 | M-v | 1 | MPC | 159655 | 2000 $QP_{3}$ |
| 2000 $QF_{9}$ | 17.0 | 0.15 | 20100104 | 162.05029 | 331.44026 | 308.36309 | 1.78347 | 0.1732189 | 2.5171399 | 54 | 5 | 2000–2009 | 0.49 | M-v | 1 | MPC | 147147 | 2000 $QF_{9}$ |
| 2000 $QX_{17}$ | 16.0 | 0.15 | 20100104 | 68.06447 | 146.21495 | 147.44680 | 15.19940 | 0.1372059 | 2.6993749 | 30 | 3 | 2000–2009 | 0.77 | M-v | 3 | MPC | 163607 | 2000 $QX_{17}$ |
| 2000 $QV_{32}$ | 16.2 | 0.15 | 20100104 | 65.28344 | 287.52281 | 85.31606 | 4.69748 | 0.2985947 | 2.5986174 | 45 | 3 | 2000–2009 | 0.53 | M-v | 3 | MPC | 166094 | 2000 $QV_{32}$ |
| 2000 $QA_{62}$ | 15.6 | 0.15 | 20100104 | 50.29217 | 204.92232 | 147.77637 | 14.89472 | 0.2644163 | 2.6623877 | 57 | 2 | 2000–2009 | 0.58 | M-v | 3 | MPC | 166094 | 2000 $QA_{62}$ |
| 2000 $QA_{85}$ | 15.9 | 0.15 | 20100104 | 6.47429 | 84.28153 | 312.43456 | 11.23015 | 0.3356808 | 2.7043420 | 161 | 3 | 2000–2009 | 0.48 | M-v | 1 | MPC | 166094 | 2000 $QA_{85}$ |
| 2000 $QM_{115}$ | 16.7 | 0.15 | 20100104 | 94.83117 | 76.15039 | 271.21167 | 4.04012 | 0.3033200 | 2.5662090 | 89 | 4 | 2000–2009 | 0.46 | M-v | 2 | MPC | 97384 | 2000 $QM_{115}$ |
| 2000 $QO_{122}$ | 16.6 | 0.15 | 20100104 | 74.61784 | 38.66175 | 317.37244 | 6.47454 | 0.3419129 | 2.6172901 | 61 | 3 | 2000–2009 | 0.58 | M-v | 2 | MPC | 159655 | 2000 $QO_{122}$ |
| 2000 $QX_{129}$ | 15.5 | 0.15 | 20100104 | 54.24306 | 258.17728 | 125.63306 | 17.92235 | 0.3050289 | 2.6517110 | 111 | 5 | 1991–2009 | 0.58 | M-v | 1 | MPC | 90032 | 2000 $QX_{129}$ |
| 2000 $QK_{140}$ | 15.7 | 0.15 | 20100104 | 32.97160 | 233.31586 | 171.40873 | 11.79904 | 0.1935296 | 2.6381021 | 74 | 6 | 2000–2009 | 0.59 | M-v | 1 | MPC | 159656 | 2000 $QK_{140}$ |
| 2000 $QO_{157}$ | 16.6 | 0.15 | 20100104 | 27.74757 | 126.97119 | 241.23877 | 4.82543 | 0.3101900 | 2.6882363 | 66 | 3 | 2000–2009 | 0.45 | M-v | 2 | MPC | 166094 | 2000 $QO_{157}$ |
| 2000 $QA_{161}$ | 15.0 | 0.15 | 20100104 | 57.50771 | 145.31617 | 216.66845 | 12.26297 | 0.1659845 | 2.5875525 | 95 | 5 | 2000–2009 | 0.54 | M-v | 1 | MPC | 166094 | 2000 $QA_{161}$ |
| 2000 $QD_{162}$ | 17.1 | 0.15 | 20100104 | 47.10685 | 56.14081 | 287.23508 | 5.42511 | 0.2990727 | 2.6625427 | 34 | 3 | 2000–2009 | 0.46 | M-v | 3 | MPC | 165308 | 2000 $QD_{162}$ |
| 2000 $QH_{168}$ | 16.2 | 0.15 | 20100104 | 89.99738 | 15.33354 | 311.18938 | 7.32270 | 0.1986663 | 2.6088787 | 62 | 5 | 1996–2009 | 0.61 | M-v | 1 | MPC | 66139 | 2000 $QH_{168}$ |
| 2000 $QQ_{184}$ | 16.7 | 0.15 | 20100104 | 59.10205 | 261.18287 | 110.01552 | 5.00325 | 0.2963384 | 2.6057296 | 31 | 3 | 2000–2009 | 0.36 | M-v | 3 | MPC | 93838 | 2000 $QQ_{184}$ |
| 2000 $QO_{200}$ | 16.6 | 0.15 | 20100104 | 55.14899 | 206.94651 | 158.59912 | 3.36832 | 0.2219524 | 2.6208868 | 59 | 7 | 1994–2009 | 0.43 | M-v | 1 | MPC | 166094 | 2000 $QO_{200}$ |
| 2000 $QR_{212}$ | 16.9 | 0.15 | 20100104 | 75.50698 | 26.18167 | 351.99215 | 3.48676 | 0.2522507 | 2.5724795 | 51 | 4 | 2000–2009 | 0.49 | M-v | 1 | MPC | 166094 | 2000 $QR_{212}$ |
| 2000 $QP_{227}$ | 16.8 | 0.15 | 20100104 | 49.20600 | 132.69306 | 218.83351 | 2.96721 | 0.2267214 | 2.6708163 | 71 | 3 | 2000–2009 | 0.53 | M-v | 2 | MPC | 139704 | 2000 $QP_{227}$ |
| 2000 $QN_{229}$ | 15.7 | 0.15 | 20100104 | 32.30505 | 227.94941 | 169.31908 | 12.62832 | 0.2811266 | 2.6684296 | 47 | 4 | 2000–2009 | 0.58 | M-v | 1 | MPC | 166094 | 2000 $QN_{229}$ |
| 2000 $QO_{249}$ | 16.5 | 0.15 | 20100104 | 31.87542 | 105.62892 | 293.14244 | 8.00663 | 0.2681016 | 2.6193165 | 80 | 4 | 2000–2009 | 0.47 | M-v | 2 | MPC | 166094 | 2000 $QO_{249}$ |
| 2000 $RC_{8}$ | 15.7 | 0.15 | 20100104 | 52.47682 | 46.66614 | 328.22233 | 31.59688 | 0.2105876 | 2.6196046 | 94 | 6 | 1998–2009 | 0.65 | M-v | 1 | MPC | 97389 | 2000 $RC_{8}$ |
| 2000 $RY_{13}$ | 15.8 | 0.15 | 20100104 | 23.24301 | 145.83132 | 231.38717 | 7.65692 | 0.2003372 | 2.6805159 | 90 | 5 | 1999–2009 | 0.51 | M-v | 2 | MPC | 166094 | 2000 $RY_{13}$ |
| 2000 $RK_{27}$ | 15.7 | 0.15 | 20100104 | 25.43650 | 123.20272 | 234.06718 | 6.60313 | 0.2986880 | 2.7228497 | 129 | 3 | 2000–2009 | 0.47 | M-v | 2 | MPC | 166094 | 2000 $RK_{27}$ |
| 2000 $RY_{39}$ | 16.2 | 0.15 | 20100104 | 14.09889 | 75.86574 | 313.92491 | 10.83924 | 0.1982427 | 2.6827932 | 47 | 2 | 2000–2009 | 0.63 | M-v | 3 | MPC | 166095 | 2000 $RY_{39}$ |
| 2000 $RS_{77}$ | 16.8 | 0.15 | 20100104 | 17.87497 | 348.89492 | 28.08221 | 11.12838 | 0.3555471 | 2.7171796 | 94 | 2 | 2000–2009 | 0.42 | M-v | 2 | MPC | 166095 | 2000 $RS_{77}$ |
| 2000 $RV_{81}$ | 15.3 | 0.15 | 20100104 | 4.39301 | 244.60488 | 184.46631 | 29.46327 | 0.2624315 | 2.6512057 | 54 | 5 | 1998–2009 | 0.67 | M-v | 2 | MPC | 166095 | 2000 $RV_{81}$ |
| 2000 $RF_{82}$ | 15.7 | 0.15 | 20100104 | 44.43063 | 146.21215 | 218.74916 | 11.43916 | 0.1988942 | 2.6588457 | 95 | 3 | 1996–2009 | 0.50 | M-v | 2 | MPC | 166095 | 2000 $RF_{82}$ |
| 2000 $RJ_{87}$ | 16.5 | 0.15 | 20100104 | 67.11656 | 182.04825 | 170.25681 | 3.61842 | 0.2373880 | 2.6375594 | 72 | 5 | 1996–2009 | 0.48 | M-v | 1 | MPC | 117917 | 2000 $RJ_{87}$ |
| 2000 $RF_{96}$ | 15.8 | 0.15 | 20100104 | 120.81922 | 64.52841 | 244.93984 | 13.68105 | 0.2197091 | 2.5665481 | 75 | 3 | 2000–2009 | 0.44 | M-v | 2 | MPC | 70259 | 2000 $RF_{96}$ |
| 2000 $RU_{97}$ | 16.4 | 0.15 | 20100104 | 18.57846 | 118.76154 | 277.75597 | 12.90025 | 0.2950043 | 2.6969709 | 54 | 3 | 2000–2009 | 0.48 | M-v | 2 | MPC | 166095 | 2000 $RU_{97}$ |
| 2000 $RU_{102}$ | 15.8 | 0.15 | 20100104 | 11.86436 | 164.31970 | 240.03481 | 10.58656 | 0.1602939 | 2.6838822 | 81 | 3 | 1998–2009 | 0.51 | M-v | 3 | MPC | 166095 | 2000 $RU_{102}$ |
| 2000 $SZ_{6}$ | 15.9 | 0.15 | 20100104 | 60.77581 | 91.37044 | 260.76996 | 10.73528 | 0.1378407 | 2.6484465 | 62 | 3 | 2000–2009 | 0.44 | M-v | 2 | MPC | 166095 | 2000 $SZ_{6}$ |
| 2000 $SA_{14}$ | 15.5 | 0.15 | 20100104 | 315.02669 | 239.19636 | 235.27357 | 13.44225 | 0.0520717 | 2.5994847 | 84 | 5 | 2000–2009 | 0.44 | M-v | 1 | MPC | 166095 | 2000 $SA_{14}$ |
| 2000 $SB_{17}$ | 16.4 | 0.15 | 20100104 | 9.01483 | 131.38809 | 249.41367 | 6.25405 | 0.2553982 | 2.7344784 | 93 | 6 | 2000–2009 | 0.58 | M-v | 1 | MPC | 164155 | 2000 $SB_{17}$ |
| 2000 $SJ_{19}$ | 15.8 | 0.15 | 20100104 | 39.04951 | 138.51115 | 239.89948 | 11.97720 | 0.1183635 | 2.6669547 | 71 | 3 | 2000–2009 | 0.56 | M-v | 3 | MPC | 165309 | 2000 $SJ_{19}$ |
| 2000 $SK_{20}$ | 15.5 | 0.15 | 20100104 | 65.03940 | 131.83669 | 237.92047 | 13.82769 | 0.1733001 | 2.6399792 | 80 | 3 | 2000–2009 | 0.57 | M-v | 2 | MPC | 70260 | 2000 $SK_{20}$ |
| 2000 $SG_{24}$ | 15.1 | 0.15 | 20100104 | 27.08041 | 349.92454 | 34.65522 | 37.05209 | 0.1877282 | 2.7148474 | 183 | 3 | 2000–2009 | 0.48 | M-v | 2 | MPC | 166095 | 2000 $SG_{24}$ |
| 2000 $SN_{27}$ | 16.2 | 0.15 | 20100104 | 34.23079 | 168.19690 | 217.44145 | 14.05387 | 0.2002127 | 2.6633452 | 78 | 2 | 2000–2009 | 0.59 | M-v | 3 | MPC | 165309 | 2000 $SN_{27}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 $SO_{31}$ | 16.2 | 0.15 | 20100104 | 66.83183 | 179.18107 | 186.05796 | 13.47146 | 0.1660042 | 2.6119993 | 65 | 5 | 2000–2009 | 0.65 | M-v | 1 | MPC | 119527 | 2000 $SO_{31}$ |
| 2000 $SJ_{40}$ | 15.9 | 0.15 | 20100104 | 24.06078 | 297.33406 | 135.51619 | 4.26987 | 0.2187188 | 2.6274949 | 73 | 6 | 2000–2009 | 0.54 | M-v | 0 | MPC | 143108 | 2000 $SJ_{40}$ |
| 2000 $SW_{46}$ | 15.3 | 0.15 | 20100104 | 71.09025 | 46.55405 | 283.47645 | 10.55285 | 0.2008446 | 2.6332800 | 66 | 4 | 2000–2009 | 0.56 | M-v | 3 | MPC | 166095 | 2000 $SW_{46}$ |
| 2000 $SB_{48}$ | 15.9 | 0.15 | 20100104 | 130.47330 | 27.47579 | 304.28896 | 14.83343 | 0.0996233 | 2.5105810 | 119 | 6 | 2000–2009 | 0.56 | M-v | 2 | MPC | 164155 | 2000 $SB_{48}$ |
| 2000 $SD_{48}$ | 16.8 | 0.15 | 20100104 | 52.96592 | 119.46401 | 202.66961 | 12.31941 | 0.2851695 | 2.6838191 | 92 | 5 | 1996–2009 | 0.51 | M-v | 0 | MPC | 166095 | 2000 $SD_{48}$ |
| 2000 $SP_{70}$ | 16.1 | 0.15 | 20100104 | 11.59944 | 4.63117 | 24.42061 | 6.23568 | 0.2123232 | 2.7214879 | 126 | 5 | 1991–2009 | 0.54 | M-v | 1 | MPC | 166095 | 2000 $SP_{70}$ |
| 2000 $SX_{81}$ | 16.4 | 0.15 | 20100104 | 2.52617 | 241.00945 | 180.20477 | 12.74459 | 0.2696783 | 2.7077993 | 40 | 3 | 1997–2009 | 0.64 | M-v | 2 | MPC | 166095 | 2000 $SX_{81}$ |
| 2000 $SW_{89}$ | 15.3 | 0.15 | 20100104 | 25.74095 | 153.83103 | 242.91952 | 15.82126 | 0.1875878 | 2.6271925 | 132 | 5 | 1992–2009 | 0.51 | M-v | 0 | MPC | 166096 | 2000 $SW_{89}$ |
| 2000 $SS_{90}$ | 15.7 | 0.15 | 20100104 | 140.13452 | 45.45660 | 236.50674 | 11.70067 | 0.2041958 | 2.5680205 | 79 | 4 | 2000–2009 | 0.51 | M-v | 2 | MPC | 166096 | 2000 $SS_{90}$ |
| 2000 $SU_{92}$ | 16.4 | 0.15 | 20100104 | 56.77815 | 105.31994 | 282.22796 | 7.57755 | 0.1785952 | 2.5969551 | 61 | 5 | 2000–2009 | 0.49 | M-v | 0 | MPC | 97396 | 2000 $SU_{92}$ |
| 2000 $SZ_{92}$ | 15.9 | 0.15 | 20100104 | 0.14728 | 199.27056 | 219.70067 | 13.53570 | 0.0612305 | 2.6417531 | 70 | 5 | 1996–2009 | 0.65 | M-v | 1 | MPC | 166096 | 2000 $SZ_{92}$ |
| 2000 $SF_{93}$ | 15.9 | 0.15 | 20100104 | 37.78200 | 126.22207 | 231.64962 | 8.10180 | 0.3087050 | 2.6890692 | 152 | 3 | 2000–2009 | 0.51 | M-v | 2 | MPC | 166096 | 2000 $SF_{93}$ |
| 2000 $SN_{93}$ | 16.3 | 0.15 | 20100104 | 5.20513 | 183.51803 | 213.97905 | 10.36349 | 0.3006532 | 2.7197513 | 93 | 2 | 2000–2009 | 0.56 | M-v | 3 | MPC | 166096 | 2000 $SN_{93}$ |
| 2000 $SX_{94}$ | 16.3 | 0.15 | 20100104 | 25.69400 | 129.50308 | 263.68651 | 5.34944 | 0.2001335 | 2.6674406 | 96 | 5 | 2000–2009 | 0.50 | M-v | 1 | MPC | 166096 | 2000 $SX_{94}$ |
| 2000 $SP_{97}$ | 16.2 | 0.15 | 20100104 | 42.21572 | 134.73727 | 220.56398 | 4.99544 | 0.1057792 | 2.6923286 | 67 | 6 | 2000–2009 | 0.47 | M-v | 1 | MPC | 166096 | 2000 $SP_{97}$ |
| 2000 $ST_{99}$ | 16.3 | 0.15 | 20100104 | 26.66054 | 207.59081 | 228.14026 | 3.82613 | 0.1793029 | 2.6024268 | 70 | 8 | 1996–2009 | 0.56 | M-v | 1 | MPC | 143109 | 2000 $ST_{99}$ |
| 2000 $SK_{100}$ | 16.5 | 0.15 | 20100104 | 84.91343 | 44.71085 | 309.86712 | 9.79860 | 0.2609744 | 2.6135803 | 91 | 4 | 2000–2009 | 0.49 | M-v | 2 | MPC | 159657 | 2000 $SK_{100}$ |
| 2000 $SZ_{103}$ | 16.8 | 0.15 | 20100104 | 67.45218 | 135.29620 | 240.02646 | 1.43164 | 0.2625227 | 2.6141342 | 70 | 5 | 2000–2009 | 0.47 | M-v | 1 | MPC | 97396 | 2000 $SZ_{103}$ |
| 2000 $SY_{118}$ | 16.3 | 0.15 | 20100104 | 40.40745 | 8.24582 | 29.61505 | 8.64230 | 0.2944517 | 2.6595223 | 90 | 6 | 2000–2009 | 0.54 | M-v | 1 | MPC | 166096 | 2000 $SY_{118}$ |
| 2000 $SA_{130}$ | 15.4 | 0.15 | 20100104 | 33.32409 | 149.67239 | 235.83974 | 11.49493 | 0.2693011 | 2.6575447 | 138 | 3 | 2000–2009 | 0.49 | M-v | 2 | MPC | 166096 | 2000 $SA_{130}$ |
| 2000 $SH_{130}$ | 15.6 | 0.15 | 20100104 | 58.20891 | 58.75796 | 251.13024 | 13.46069 | 0.1238295 | 2.7210262 | 44 | 3 | 2000–2009 | 0.49 | M-v | 3 | MPC | 166096 | 2000 $SH_{130}$ |
| 2000 $SY_{131}$ | 16.0 | 0.15 | 20100104 | 63.11282 | 70.18766 | 273.09745 | 11.99127 | 0.1779001 | 2.6631284 | 55 | 4 | 2000–2009 | 0.49 | M-v | 1 | MPC | 166096 | 2000 $SY_{131}$ |
| 2000 $SE_{135}$ | 17.3 | 0.15 | 20100104 | 18.18255 | 155.65726 | 232.59474 | 9.10088 | 0.3711421 | 2.7107507 | 104 | 2 | 2000–2009 | 0.49 | M-v | 2 | MPC | 166096 | 2000 $SE_{135}$ |
| 2000 $SJ_{137}$ | 15.7 | 0.15 | 20100104 | 61.93349 | 120.90285 | 228.50864 | 14.16770 | 0.1617238 | 2.6741506 | 112 | 3 | 2000–2009 | 0.49 | M-v | 1 | MPC | 166096 | 2000 $SJ_{137}$ |
| 2000 $SF_{138}$ | 16.5 | 0.15 | 20100104 | 47.27779 | 112.16129 | 267.82613 | 3.72406 | 0.2313321 | 2.6540516 | 52 | 5 | 2000–2009 | 0.41 | M-v | 0 | MPC | 97398 | 2000 $SF_{138}$ |
| 2000 $SN_{138}$ | 15.9 | 0.15 | 20100104 | 82.01362 | 109.22401 | 223.95365 | 5.79084 | 0.2795021 | 2.6331230 | 101 | 4 | 2000–2009 | 0.54 | M-v | 1 | MPC | 160732 | 2000 $SN_{138}$ |
| 2000 $SO_{143}$ | 16.1 | 0.15 | 20100104 | 41.02796 | 153.12795 | 227.75833 | 9.48481 | 0.0982826 | 2.6480559 | 81 | 5 | 1996–2009 | 0.52 | M-v | 1 | MPC | 166096 | 2000 $SO_{143}$ |
| 2000 $SJ_{149}$ | 16.8 | 0.15 | 20100104 | 74.24871 | 339.56596 | 20.81798 | 3.64261 | 0.3029398 | 2.6251470 | 65 | 4 | 2000–2009 | 0.43 | M-v | 1 | MPC | 97398 | 2000 $SJ_{149}$ |
| 2000 $ST_{149}$ | 15.9 | 0.15 | 20100104 | 41.09542 | 134.59734 | 200.14125 | 9.25745 | 0.2230501 | 2.7503950 | 81 | 4 | 2000–2009 | 0.51 | M-v | 2 | MPC | 166096 | 2000 $ST_{149}$ |
| 2000 $SO_{157}$ | 15.7 | 0.15 | 20100104 | 76.75882 | 39.23162 | 298.04089 | 12.16423 | 0.3132621 | 2.6358153 | 87 | 4 | 2000–2009 | 0.47 | M-v | 1 | MPC | 97399 | 2000 $SO_{157}$ |
| 2000 $SB_{162}$ | 15.9 | 0.15 | 20100104 | 29.21634 | 136.96181 | 223.61766 | 13.71351 | 0.2358623 | 2.7210637 | 109 | 3 | 2000–2009 | 0.50 | M-v | 2 | MPC | 166096 | 2000 $SB_{162}$ |
| 2000 $SK_{163}$ | 16.4 | 0.15 | 20100104 | 100.98629 | 52.07168 | 245.77060 | 2.65133 | 0.1890808 | 2.6585589 | 43 | 3 | 2000–2009 | 0.40 | M-v | 4 | MPC | 166096 | 2000 $SK_{163}$ |
| 2000 $SZ_{173}$ | 15.6 | 0.15 | 20100104 | 102.54399 | 346.45226 | 319.88838 | 14.45958 | 0.1288905 | 2.6623494 | 75 | 5 | 2000–2009 | 0.60 | M-v | 1 | MPC | 166096 | 2000 $SZ_{173}$ |
| 2000 $SH_{181}$ | 16.1 | 0.15 | 20100104 | 80.99957 | 290.58938 | 80.14243 | 4.21077 | 0.2738642 | 2.5679291 | 60 | 5 | 2000–2009 | 0.46 | M-v | 1 | MPC | 117920 | 2000 $SH_{181}$ |
| 2000 $SS_{182}$ | 16.5 | 0.15 | 20100104 | 54.94846 | 206.96858 | 179.64050 | 3.46728 | 0.1394700 | 2.6181825 | 88 | 8 | 2000–2009 | 0.53 | M-v | 0 | MPC | 140090 | 2000 $SS_{182}$ |
| 2000 $SL_{189}$ | 16.0 | 0.15 | 20100104 | 51.90482 | 161.46668 | 214.03381 | 12.86142 | 0.1822687 | 2.6523333 | 80 | 4 | 2000–2009 | 0.49 | M-v | 1 | MPC | 166096 | 2000 $SL_{189}$ |
| 2000 $SB_{192}$ | 16.0 | 0.15 | 20100104 | 58.79894 | 35.21895 | 352.40848 | 6.49867 | 0.0615571 | 2.5926573 | 50 | 6 | 2000–2009 | 0.50 | M-v | 1 | MPC | 147151 | 2000 $SB_{192}$ |
| 2000 $SK_{207}$ | 16.2 | 0.15 | 20100104 | 3.84012 | 18.20115 | 19.44372 | 14.52858 | 0.2008428 | 2.7314656 | 49 | 2 | 2000–2009 | 0.53 | M-v | 3 | MPC | 166096 | 2000 $SK_{207}$ |
| 2000 $SF_{223}$ | 16.4 | 0.15 | 20100104 | 18.90452 | 54.64662 | 10.69987 | 6.45659 | 0.1917026 | 2.6435508 | 71 | 4 | 2000–2009 | 0.58 | M-v | 2 | MPC | 166096 | 2000 $SF_{223}$ |
| 2000 $SW_{223}$ | 16.7 | 0.15 | 20100104 | 82.06875 | 161.90526 | 201.39274 | 2.00723 | 0.2366598 | 2.6013147 | 79 | 5 | 2000–2009 | 0.50 | M-v | 1 | MPC | 119528 | 2000 $SW_{223}$ |
| 2000 $SX_{228}$ | 15.8 | 0.15 | 20100104 | 123.45015 | 357.27773 | 9.90708 | 4.20178 | 0.0809623 | 2.5260531 | 207 | 8 | 1996–2009 | 0.52 | M-v | 2 | MPC | 150893 | 2000 $SX_{228}$ |
| 2000 $SR_{232}$ | 15.9 | 0.15 | 20100104 | 25.82711 | 212.69381 | 194.15066 | 31.63577 | 0.1488308 | 2.6132929 | 35 | 4 | 2000–2009 | 0.46 | M-v | 2 | MPC | 166096 | 2000 $SR_{232}$ |
| 2000 $ST_{233}$ | 16.3 | 0.15 | 20100104 | 57.79704 | 14.57949 | 62.86109 | 7.30882 | 0.3399382 | 2.5515367 | 54 | 6 | 1992–2009 | 0.60 | M-v | 1 | MPC | 159658 | 2000 $ST_{233}$ |
| 2000 $SF_{235}$ | 16.6 | 0.15 | 20100104 | 18.72130 | 253.13075 | 180.25649 | 6.19147 | 0.2307336 | 2.6174625 | 42 | 4 | 2000–2009 | 0.57 | M-v | 1 | MPC | 102010 | 2000 $SF_{235}$ |
| 2000 $SH_{241}$ | 16.6 | 0.15 | 20100104 | 45.16527 | 166.70284 | 230.53694 | 2.86384 | 0.1997898 | 2.6342016 | 53 | 6 | 2000–2009 | 0.45 | M-v | 0 | MPC | 120737 | 2000 $SH_{241}$ |
| 2000 $SM_{246}$ | 15.9 | 0.15 | 20100104 | 66.86812 | 290.45612 | 22.35779 | 12.66147 | 0.1976137 | 2.6958106 | 55 | 3 | 2000–2009 | 0.57 | M-v | 2 | MPC | 164156 | 2000 $SM_{246}$ |
| 2000 $SB_{248}$ | 16.6 | 0.15 | 20100104 | 102.43834 | 345.03269 | 354.91592 | 6.95222 | 0.1310735 | 2.5726476 | 60 | 6 | 2000–2009 | 0.47 | M-v | 1 | MPC | 147152 | 2000 $SB_{248}$ |
| 2000 $SG_{251}$ | 15.8 | 0.15 | 20100104 | 7.59256 | 355.08899 | 39.59502 | 8.08853 | 0.1241965 | 2.7127332 | 70 | 7 | 1991–2009 | 0.57 | M-v | 1 | MPC | 166097 | 2000 $SG_{251}$ |
| 2000 $SL_{253}$ | 16.7 | 0.15 | 20100104 | 97.69993 | 225.20528 | 97.93900 | 4.95824 | 0.2292955 | 2.6096660 | 66 | 5 | 2000–2009 | 0.50 | M-v | 1 | MPC | 166097 | 2000 $SL_{253}$ |
| 2000 $SB_{257}$ | 16.2 | 0.15 | 20100104 | 41.54015 | 27.27665 | 34.41927 | 4.05406 | 0.1178412 | 2.5834962 | 47 | 7 | 2000–2009 | 0.52 | M-v | 0 | MPC | 147152 | 2000 $SB_{257}$ |
| 2000 $SE_{259}$ | 15.9 | 0.15 | 20100104 | 138.96567 | 267.37206 | 41.43195 | 12.24934 | 0.2781805 | 2.5595952 | 94 | 4 | 2000–2009 | 0.48 | M-v | 1 | MPC | 147152 | 2000 $SE_{259}$ |
| 2000 $SO_{265}$ | 16.0 | 0.15 | 20100104 | 6.38159 | 279.41978 | 161.32376 | 7.10887 | 0.2392763 | 2.6611214 | 105 | 5 | 2000–2009 | 0.56 | M-v | 0 | MPC | 162308 | 2000 $SO_{265}$ |
| 2000 $SU_{266}$ | 16.0 | 0.15 | 20100104 | 0.86895 | 183.48885 | 213.32938 | 8.85284 | 0.2905469 | 2.7378624 | 88 | 2 | 2000–2009 | 0.51 | M-v | 3 | MPC | 166097 | 2000 $SU_{266}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 $SD_{272}$ | 15.3 | 0.15 | 20100104 | 50.93808 | 81.13237 | 272.00954 | 11.96052 | 0.1621205 | 2.6883700 | 99 | 5 | 2000–2009 | 0.49 | M-v | 1 | MPC | 166097 | 2000 $SD_{272}$ |
| 2000 $SH_{288}$ | 15.5 | 0.15 | 20100104 | 57.66430 | 68.87124 | 318.64424 | 10.37896 | 0.1878754 | 2.6583448 | 127 | 5 | 2000–2009 | 0.50 | M-v | 1 | MPC | 147152 | 2000 $SH_{288}$ |
| 2000 $SQ_{291}$ | 16.4 | 0.15 | 20100104 | 20.75908 | 212.06632 | 222.02472 | 4.13115 | 0.2987150 | 2.6417231 | 51 | 3 | 2000–2009 | 0.53 | M-v | 3 | MPC | 166097 | 2000 $SQ_{291}$ |
| 2000 $SW_{291}$ | 16.9 | 0.15 | 20100104 | 94.24645 | 120.32978 | 226.14590 | 2.31357 | 0.2706086 | 2.5930063 | 86 | 4 | 1996–2009 | 0.45 | M-v | 1 | MPC | 70271 | 2000 $SW_{291}$ |
| 2000 $SP_{301}$ | 17.0 | 0.15 | 20100104 | 27.02913 | 160.22660 | 264.09148 | 3.45105 | 0.2418116 | 2.6411303 | 43 | 3 | 2000–2009 | 0.50 | M-v | 3 | MPC | 99985 | 2000 $SP_{301}$ |
| 2000 $SD_{314}$ | 16.6 | 0.15 | 20100104 | 70.29053 | 67.13233 | 279.57082 | 13.87027 | 0.2321128 | 2.6207629 | 49 | 4 | 2000–2009 | 0.44 | M-v | 1 | MPC | 97404 | 2000 $SD_{314}$ |
| 2000 $SL_{315}$ | 15.9 | 0.15 | 20100104 | 36.70247 | 139.41373 | 243.31826 | 13.83218 | 0.1483261 | 2.6768354 | 78 | 3 | 2000–2009 | 0.43 | M-v | 2 | MPC | 166097 | 2000 $SL_{315}$ |
| 2000 $SN_{352}$ | 16.7 | 0.15 | 20100104 | 79.28930 | 247.55258 | 116.91578 | 12.64995 | 0.2313319 | 2.6130006 | 44 | 4 | 2000–2009 | 0.44 | M-v | 1 | MPC | 97406 | 2000 $SN_{352}$ |
| 2000 $SJ_{355}$ | 15.9 | 0.15 | 20100104 | 13.82458 | 342.61191 | 49.83735 | 14.67277 | 0.2003403 | 2.7105883 | 98 | 5 | 2000–2009 | 0.51 | M-v | 1 | MPC | 166097 | 2000 $SJ_{355}$ |
| 2000 $TQ_3$ | 17.0 | 0.15 | 20100104 | 52.06955 | 131.58162 | 219.72617 | 1.41404 | 0.2211832 | 2.6680112 | 63 | 4 | 2000–2009 | 0.49 | M-v | 0 | MPC | 165310 | 2000 $TQ_3$ |
| 2000 $TL_{23}$ | 15.7 | 0.15 | 20100104 | 241.58782 | 176.93616 | 193.51667 | 16.03091 | 0.1386410 | 3.1508719 | 34 | 3 | 2000–2009 | 0.44 | M-v | 3 | MPC | 156847 | 2000 $TL_{23}$ |
| 2000 $TO_{29}$ | 16.0 | 0.15 | 20100104 | 39.33371 | 34.42397 | 351.50366 | 8.37271 | 0.3549756 | 2.6901570 | 47 | 3 | 1991–2009 | 0.52 | M-v | 2 | MPC | 166097 | 2000 $TO_{29}$ |
| 2000 $TT_{36}$ | 16.2 | 0.15 | 20100104 | 74.17656 | 306.32282 | 42.62005 | 12.47773 | 0.1942570 | 2.6522343 | 28 | 3 | 2000–2009 | 0.47 | M-v | 2 | MPC | 107886 | 2000 $TT_{36}$ |
| 2000 $TQ_{38}$ | 16.0 | 0.15 | 20100104 | 67.10593 | 286.06281 | 61.16583 | 6.37305 | 0.3480583 | 2.6295336 | 55 | 3 | 2000–2009 | 0.44 | M-v | 2 | MPC | 140356 | 2000 $TQ_{38}$ |
| 2000 $TZ_{39}$ | 15.9 | 0.15 | 20100104 | 104.09889 | 205.93986 | 138.28574 | 9.56701 | 0.1610794 | 2.5604313 | 124 | 5 | 2000–2009 | 0.55 | M-v | 2 | MPC | 159659 | 2000 $TZ_{39}$ |
| 2000 $TM_{48}$ | 16.0 | 0.15 | 20100104 | 25.42853 | 273.51142 | 136.93412 | 7.39510 | 0.2337328 | 2.6659098 | 79 | 4 | 2000–2009 | 0.52 | M-v | 0 | MPC | 166098 | 2000 $TM_{48}$ |
| 2000 $TW_{57}$ | 16.0 | 0.15 | 20100104 | 45.36603 | 346.31018 | 37.13398 | 11.45513 | 0.1139594 | 2.6490685 | 43 | 4 | 2000–2009 | 0.54 | M-v | 1 | MPC | 166098 | 2000 $TW_{57}$ |
| 2000 $TP_{59}$ | 15.7 | 0.15 | 20100104 | 87.26046 | 260.05240 | 88.31475 | 13.61191 | 0.2284459 | 2.6224816 | 65 | 4 | 2000–2009 | 0.48 | M-v | 2 | MPC | 166098 | 2000 $TP_{59}$ |
| 2000 $TR_{59}$ | 15.9 | 0.15 | 20100104 | 107.94920 | 243.41783 | 119.22863 | 12.20036 | 0.2254428 | 2.5578317 | 59 | 6 | 2000–2009 | 0.56 | M-v | 1 | MPC | 147153 | 2000 $TR_{59}$ |
| 2000 $TT_{59}$ | 15.6 | 0.15 | 20100104 | 38.73774 | 326.86381 | 100.32727 | 12.74123 | 0.2784562 | 2.6234678 | 55 | 5 | 2000–2009 | 0.52 | M-v | 1 | MPC | 166098 | 2000 $TT_{59}$ |
| 2000 $TG_{72}$ | 16.6 | 0.15 | 20100104 | 56.19810 | 319.36521 | 100.38052 | 5.43772 | 0.1819880 | 2.5766958 | 44 | 5 | 2000–2009 | 0.52 | M-v | 1 | MPC | 166098 | 2000 $TG_{72}$ |
| 2000 UM | 15.9 | 0.15 | 20100104 | 71.43115 | 332.02546 | 71.56721 | 16.80155 | 0.1351021 | 2.5751965 | 80 | 6 | 1996–2009 | 0.54 | M-v | 1 | MPC | 147153 | 2000 UM |
| 2000 $UB_{11}$ | 15.4 | 0.15 | 20100104 | 14.09950 | 170.83715 | 221.77127 | 13.37552 | 0.1750286 | 2.7426892 | 140 | 3 | 2000–2009 | 0.43 | M-v | 2 | MPC | 166098 | 2000 $UB_{11}$ |
| 2000 $UZ_{15}$ | 16.1 | 0.15 | 20100104 | 65.73053 | 149.38263 | 205.53820 | 27.91516 | 0.1735218 | 2.6729002 | 42 | 4 | 2000–2009 | 0.74 | M-v | 1 | MPC | 164157 | 2000 $UZ_{15}$ |
| 2000 $UE_{24}$ | 15.9 | 0.15 | 20100104 | 64.54442 | 268.37131 | 87.92134 | 6.29689 | 0.3045592 | 2.6670619 | 51 | 4 | 2000–2009 | 0.54 | M-v | 1 | MPC | 64868 | 2000 $UE_{24}$ |
| 2000 $UC_{30}$ | 15.1 | 0.15 | 20100104 | 356.31339 | 255.09830 | 210.82200 | 30.75769 | 0.2520077 | 2.7124678 | 90 | 5 | 2000–2009 | 0.51 | M-v | 1 | MPC | 102014 | 2000 $UC_{30}$ |
| 2000 $UP_{30}$ | 17.2 | 0.15 | 20100104 | 277.86769 | 118.35235 | 195.45133 | 9.33041 | 0.7639427 | 2.2467267 | 120 | 3 | 2000–2007 | 0.47 | M-v | 1 | MPC | 119530 | 2000 $UP_{30}$ |
| 2000 $UQ_{33}$ | 16.7 | 0.15 | 20100104 | 30.01510 | 308.52818 | 56.71053 | 14.15129 | 0.2980980 | 2.7375043 | 76 | 2 | 2000–2009 | 0.51 | M-v | 3 | MPC | 166098 | 2000 $UQ_{33}$ |
| 2000 $UE_{40}$ | 16.5 | 0.15 | 20100104 | 10.10414 | 149.81154 | 228.15258 | 10.14907 | 0.3003950 | 2.7694131 | 51 | 2 | 2000–2009 | 0.55 | M-v | 3 | MPC | 163614 | 2000 $UE_{40}$ |
| 2000 $UD_{58}$ | 16.8 | 0.15 | 20100104 | 39.13643 | 85.87812 | 339.81951 | 5.53614 | 0.2891926 | 2.6259139 | 39 | 4 | 2000–2009 | 0.51 | M-v | 1 | MPC | 166098 | 2000 $UD_{58}$ |
| 2000 $UE_{59}$ | 16.5 | 0.15 | 20100104 | 46.89285 | 130.01829 | 242.72379 | 6.46494 | 0.2090021 | 2.6804453 | 45 | 3 | 2000–2009 | 0.53 | M-v | 2 | MPC | 165311 | 2000 $UE_{59}$ |
| 2000 $UV_{61}$ | 17.3 | 0.15 | 20100104 | 25.28136 | 135.05502 | 248.08232 | 4.65978 | 0.3401362 | 2.7164788 | 85 | 3 | 2000–2009 | 0.49 | M-v | 2 | MPC | 166098 | 2000 $UV_{61}$ |
| 2000 $UW_{67}$ | 16.0 | 0.15 | 20100104 | 70.33197 | 122.49109 | 232.45563 | 12.40557 | 0.1537921 | 2.6690962 | 51 | 3 | 2000–2009 | 0.60 | M-v | 3 | MPC | 166098 | 2000 $UW_{67}$ |
| 2000 $UG_{68}$ | 15.4 | 0.15 | 20100104 | 117.72956 | 62.16103 | 252.47637 | 14.65830 | 0.1910432 | 2.6269186 | 61 | 4 | 2000–2009 | 0.53 | M-v | 2 | MPC | 166098 | 2000 $UG_{68}$ |
| 2000 $UQ_{68}$ | 17.0 | 0.15 | 20100104 | 16.35574 | 46.77380 | 323.84043 | 5.42017 | 0.3074629 | 2.7535853 | 38 | 3 | 2000–2009 | 0.40 | M-v | 2 | MPC | 164157 | 2000 $UQ_{68}$ |
| 2000 $UG_{70}$ | 16.1 | 0.15 | 20100104 | 63.39536 | 353.47561 | 3.07767 | 5.61528 | 0.1852296 | 2.6854946 | 68 | 5 | 1991–2009 | 0.60 | M-v | 1 | MPC | 119530 | 2000 $UG_{70}$ |
| 2000 $UV_{72}$ | 15.9 | 0.15 | 20100104 | 28.65088 | 111.81427 | 234.82224 | 6.55987 | 0.2434290 | 2.7778579 | 90 | 3 | 2000–2009 | 0.55 | M-v | 2 | MPC | 166098 | 2000 $UV_{72}$ |
| 2000 $UE_{74}$ | 16.4 | 0.15 | 20100104 | 59.35295 | 327.87357 | 101.32700 | 4.78775 | 0.2336208 | 2.5659380 | 60 | 5 | 2000–2009 | 0.55 | M-v | 1 | MPC | 159659 | 2000 $UE_{74}$ |
| 2000 $UW_{81}$ | 16.1 | 0.15 | 20100104 | 20.81751 | 341.31646 | 37.15497 | 14.28332 | 0.1915476 | 2.7151052 | 67 | 4 | 2000–2009 | 0.57 | M-v | 2 | MPC | 166098 | 2000 $UW_{81}$ |
| 2000 $UV_{85}$ | 16.3 | 0.15 | 20100104 | 148.19046 | 236.61745 | 196.59260 | 6.75279 | 0.0960257 | 2.3853657 | 38 | 3 | 2000–2007 | 0.73 | M-v | 4 | MPC | 31345 | 2000 $UV_{85}$ |
| 2000 $UU_{90}$ | 15.5 | 0.15 | 20100104 | 197.90212 | 315.60444 | 352.52454 | 2.42499 | 0.0580984 | 2.5228265 | 185 | 7 | 1998–2009 | 0.53 | M-v | 2 | MPC | 160734 | 2000 $UU_{90}$ |
| 2000 $UH_{93}$ | 16.5 | 0.15 | 20100104 | 12.23121 | 118.86418 | 257.72928 | 8.19005 | 0.1947338 | 2.7672610 | 54 | 5 | 1995–2009 | 0.52 | M-v | 0 | MPC | 164157 | 2000 $UH_{93}$ |
| 2000 $US_{95}$ | 16.1 | 0.15 | 20100104 | 39.45344 | 106.58291 | 239.85137 | 11.33091 | 0.3016786 | 2.7421994 | 66 | 2 | 2000–2009 | 0.51 | M-v | 3 | MPC | 166098 | 2000 $US_{95}$ |
| 2000 $UR_{98}$ | 16.4 | 0.15 | 20100104 | 26.62105 | 167.82227 | 259.27097 | 6.47090 | 0.2082218 | 2.6646879 | 75 | 5 | 1995–2009 | 0.50 | M-v | 1 | MPC | 97411 | 2000 $UR_{98}$ |
| 2000 $UQ_{102}$ | 15.6 | 0.15 | 20100104 | 12.09128 | 218.25428 | 256.01709 | 12.45002 | 0.2088471 | 2.6310015 | 44 | 4 | 2000–2009 | 0.54 | M-v | 1 | MPC | 97412 | 2000 $UQ_{102}$ |
| 2000 $UU_{106}$ | 16.1 | 0.15 | 20100104 | 42.26485 | 316.06394 | 68.97184 | 13.41914 | 0.1775888 | 2.6817557 | 71 | 5 | 2000–2009 | 0.47 | M-v | 1 | MPC | 166098 | 2000 $UU_{106}$ |
| 2000 $UE_{111}$ | 15.9 | 0.15 | 20100104 | 12.22864 | 34.21218 | 60.19236 | 15.43000 | 0.1230996 | 2.6446921 | 50 | 5 | 2000–2009 | 0.64 | M-v | 1 | MPC | 160734 | 2000 $UE_{111}$ |
| 2000 $VB_3$ | 16.9 | 0.15 | 20100104 | 13.62609 | 220.89170 | 220.80496 | 7.18150 | 0.2474262 | 2.6716306 | 62 | 5 | 2000–2009 | 0.53 | M-v | 1 | MPC | 140667 | 2000 $VB_3$ |
| 2000 $VU_{11}$ | 16.1 | 0.15 | 20100104 | 37.63377 | 329.81653 | 50.43827 | 11.65692 | 0.1462826 | 2.7123935 | 69 | 4 | 2000–2009 | 0.48 | M-v | 1 | MPC | 165312 | 2000 $VU_{11}$ |
| 2000 $VH_{15}$ | 15.7 | 0.15 | 20100104 | 181.33452 | 137.65320 | 207.70970 | 5.38359 | 0.1501085 | 2.4680082 | 50 | 6 | 2000–2009 | 0.60 | M-v | 2 | MPC | 152309 | 2000 $VH_{15}$ |
| 2000 $VG_{19}$ | 16.5 | 0.15 | 20100104 | 4.15613 | 9.66749 | 38.67516 | 10.99980 | 0.2257705 | 2.7382372 | 75 | 3 | 2000–2009 | 0.53 | M-v | 2 | MPC | 166098 | 2000 $VG_{19}$ |
| 2000 $VU_{40}$ | 15.9 | 0.15 | 20100104 | 70.96946 | 110.68931 | 245.40219 | 7.85412 | 0.1696037 | 2.6600257 | 49 | 3 | 2000–2009 | 0.63 | M-v | 2 | MPC | 160734 | 2000 $VU_{40}$ |
| 2000 $VG_{42}$ | 15.6 | 0.15 | 20100104 | 55.40895 | 89.05814 | 248.13832 | 4.47842 | 0.1231549 | 2.7516901 | 141 | 5 | 1977–2009 | 0.47 | M-v | 1 | MPC | 166098 | 2000 $VG_{42}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 $VD_{44}$ | 16.0 | 0.15 | 20100104 | 30.82397 | 130.17488 | 232.83449 | 11.46372 | 0.1473213 | 2.7590328 | 45 | 2 | 2000–2009 | 0.62 | M-v | 3 | MPC | 166098 | 2000 $VD_{44}$ |
| 2000 $VY_{44}$ | 16.6 | 0.15 | 20100104 | 42.50235 | 337.23806 | 32.45262 | 18.09314 | 0.2611565 | 2.7134104 | 27 | 3 | 2000–2009 | 0.61 | M-v | 2 | MPC | 64879 | 2000 $VY_{44}$ |
| 2000 $VR_{48}$ | 16.4 | 0.15 | 20100104 | 28.17471 | 43.28402 | 41.04135 | 6.42852 | 0.3309566 | 2.6525338 | 78 | 4 | 2000–2009 | 0.58 | M-v | 1 | MPC | 166098 | 2000 $VR_{48}$ |
| 2000 $VY_{51}$ | 15.9 | 0.15 | 20100104 | 23.69183 | 34.00773 | 13.11506 | 8.86791 | 0.1690198 | 2.7002357 | 48 | 5 | 2000–2009 | 0.58 | M-v | 1 | MPC | 166098 | 2000 $VY_{51}$ |
| 2000 $WG_{2}$ | 16.2 | 0.15 | 20100104 | 79.49418 | 317.01227 | 85.72054 | 32.93957 | 0.3319675 | 2.5721201 | 74 | 5 | 2000–2009 | 0.41 | M-v | 1 | MPC | 147156 | 2000 $WG_{2}$ |
| 2000 $WT_{4}$ | 16.1 | 0.15 | 20100104 | 16.22988 | 159.53616 | 290.62088 | 12.84745 | 0.2095198 | 2.6662231 | 55 | 3 | 2000–2009 | 0.41 | M-v | 2 | MPC | 165312 | 2000 $WT_{4}$ |
| 2000 $WE_{6}$ | 17.0 | 0.15 | 20100104 | 35.34128 | 271.98793 | 73.16983 | 11.43097 | 0.4884008 | 2.7477871 | 109 | 3 | 2000–2009 | 0.49 | M-v | 1 | MPC | 166098 | 2000 $WE_{6}$ |
| 2000 $WL_{10}$ | 18.1 | 0.15 | 20100104 | 231.95996 | 115.04652 | 252.20084 | 10.22643 | 0.7164330 | 3.1468587 | 263 | 3 | 1983–2006 | 0.60 | M-v | 1 | MPC | 110753 | 2000 $WL_{10}$ |
| 2000 $WH_{14}$ | 15.7 | 0.15 | 20100104 | 139.68493 | 60.70844 | 319.18120 | 3.28091 | 0.0660506 | 2.5231462 | 136 | 6 | 2000–2009 | 0.49 | M-v | 2 | MPC | 154059 | 2000 $WH_{14}$ |
| 2000 $WV_{21}$ | 15.9 | 0.15 | 20100104 | 69.70868 | 277.11680 | 74.43723 | 12.24095 | 0.2580452 | 2.6645906 | 41 | 3 | 2000–2009 | 0.39 | M-v | 2 | MPC | 166098 | 2000 $WV_{21}$ |
| 2000 $WK_{22}$ | 15.9 | 0.15 | 20100104 | 39.61583 | 324.85554 | 62.01972 | 13.85281 | 0.2640290 | 2.6717167 | 56 | 6 | 2000–2009 | 0.47 | M-v | 1 | MPC | 166098 | 2000 $WK_{22}$ |
| 2000 $WH_{30}$ | 15.8 | 0.15 | 20100104 | 15.66618 | 315.48997 | 74.77464 | 15.35108 | 0.1578806 | 2.7587015 | 43 | 3 | 2000–2009 | 0.57 | M-v | 3 | MPC | 166099 | 2000 $WH_{30}$ |
| 2000 $WU_{30}$ | 15.4 | 0.15 | 20100104 | 72.21006 | 260.41085 | 86.98065 | 12.92801 | 0.2152516 | 2.6953844 | 90 | 3 | 2000–2009 | 0.49 | M-v | 3 | MPC | 166099 | 2000 $WU_{30}$ |
| 2000 $WJ_{31}$ | 15.7 | 0.15 | 20100104 | 316.36354 | 36.93991 | 89.04805 | 11.60633 | 0.2229613 | 2.7502019 | 101 | 3 | 2000–2009 | 0.59 | M-v | 2 | MPC | 166099 | 2000 $WJ_{31}$ |
| 2000 $WP_{38}$ | 15.9 | 0.15 | 20100104 | 21.75058 | 343.48608 | 91.40938 | 14.11981 | 0.1002517 | 2.6785317 | 50 | 8 | 1998–2009 | 0.53 | M-v | 1 | MPC | 159660 | 2000 $WP_{38}$ |
| 2000 $WO_{42}$ | 16.5 | 0.15 | 20100104 | 74.44246 | 147.07186 | 230.95431 | 5.41176 | 0.1555186 | 2.6360531 | 74 | 5 | 2000–2009 | 0.49 | M-v | 1 | MPC | 147156 | 2000 $WO_{42}$ |
| 2000 $WY_{50}$ | 14.3 | 0.15 | 20100104 | 292.52146 | 293.25124 | 240.34365 | 27.78190 | 0.4305926 | 2.7670277 | 103 | 6 | 1988–2009 | 0.54 | M-v | 1 | MPC | 166099 | 2000 $WY_{50}$ |
| 2000 $WS_{51}$ | 17.2 | 0.15 | 20100104 | 14.56278 | 336.76363 | 61.33029 | 11.27357 | 0.2236046 | 2.7505867 | 34 | 2 | 2000–2009 | 0.25 | M-v | 2 | MPC | 166099 | 2000 $WS_{51}$ |
| 2000 $WT_{53}$ | 16.2 | 0.15 | 20100104 | 56.29098 | 263.14212 | 70.61875 | 3.54169 | 0.0716938 | 2.8152739 | 59 | 6 | 2000–2009 | 0.44 | M-v | 0 | MPC | 164157 | 2000 $WT_{53}$ |
| 2000 $WG_{70}$ | 15.8 | 0.15 | 20100104 | 353.61497 | 184.15966 | 257.63741 | 13.17757 | 0.1748466 | 2.7084572 | 90 | 5 | 2000–2009 | 0.54 | M-v | 1 | MPC | 166099 | 2000 $WG_{70}$ |
| 2000 $WG_{91}$ | 15.7 | 0.15 | 20100104 | 86.84845 | 296.74387 | 59.42810 | 9.09143 | 0.1648760 | 2.6711435 | 68 | 5 | 2000–2009 | 0.52 | M-v | 1 | MPC | 159660 | 2000 $WG_{91}$ |
| 2000 $WL_{102}$ | 16.1 | 0.15 | 20100104 | 52.35098 | 289.99021 | 78.38262 | 12.61609 | 0.2131931 | 2.6810525 | 65 | 4 | 2000–2009 | 0.63 | M-v | 1 | MPC | 166099 | 2000 $WL_{102}$ |
| 2000 $WA_{104}$ | 16.2 | 0.15 | 20100104 | 40.35807 | 356.53813 | 116.13602 | 7.70342 | 0.0928998 | 2.5708535 | 39 | 6 | 1998–2009 | 0.60 | M-v | 1 | MPC | 158405 | 2000 $WA_{104}$ |
| 2000 $WT_{132}$ | 16.3 | 0.15 | 20100104 | 29.16740 | 82.30463 | 307.39805 | 8.59911 | 0.2858958 | 2.7109169 | 52 | 4 | 2000–2009 | 0.57 | M-v | 1 | MPC | 166099 | 2000 $WT_{132}$ |
| 2000 $WB_{151}$ | 15.9 | 0.15 | 20100104 | 28.86118 | 339.05637 | 56.47503 | 26.39867 | 0.2259315 | 2.7296955 | 51 | 3 | 2000–2009 | 0.50 | M-v | 2 | MPC | 165313 | 2000 $WB_{151}$ |
| 2000 $WX_{153}$ | 15.1 | 0.15 | 20100104 | 13.37934 | 86.64310 | 284.13475 | 12.30876 | 0.2527767 | 2.7645082 | 98 | 3 | 2000–2009 | 0.47 | M-v | 2 | MPC | 166099 | 2000 $WX_{153}$ |
| 2000 $WM_{154}$ | 15.4 | 0.15 | 20100104 | 15.43020 | 200.34696 | 257.20398 | 16.60401 | 0.1737881 | 2.6344534 | 62 | 4 | 2000–2009 | 0.57 | M-v | 1 | MPC | 102020 | 2000 $WM_{154}$ |
| 2000 $WK_{155}$ | 16.4 | 0.15 | 20100104 | 69.17715 | 25.70565 | 318.62224 | 5.84777 | 0.3046325 | 2.6828824 | 72 | 6 | 2000–2009 | 0.54 | M-v | 1 | MPC | 159660 | 2000 $WK_{155}$ |
| 2000 $WA_{157}$ | 15.8 | 0.15 | 20100104 | 319.12744 | 87.15043 | 52.96172 | 12.22019 | 0.1701229 | 2.7153703 | 59 | 4 | 2000–2009 | 0.60 | M-v | 1 | MPC | 166099 | 2000 $WA_{157}$ |
| 2000 $WB_{165}$ | 14.5 | 0.15 | 20100104 | 335.19590 | 42.66824 | 101.52469 | 15.55116 | 0.4498865 | 2.7215586 | 186 | 6 | 1997–2009 | 0.48 | M-v | 0 | MPC | 166099 | 2000 $WB_{165}$ |
| 2000 $WC_{172}$ | 16.3 | 0.15 | 20100104 | 12.17009 | 7.28172 | 93.77204 | 16.97662 | 0.2470005 | 2.6454852 | 33 | 2 | 2000–2009 | 0.58 | M-v | 3 | MPC | 165313 | 2000 $WC_{172}$ |
| 2000 $WJ_{172}$ | 16.3 | 0.15 | 20100104 | 49.94518 | 281.87680 | 123.00902 | 12.28854 | 0.3030080 | 2.6446282 | 41 | 3 | 2000–2009 | 0.61 | M-v | 2 | MPC | 70286 | 2000 $WJ_{172}$ |
| 2000 $WA_{192}$ | 16.4 | 0.15 | 20100104 | 59.10239 | 278.35234 | 110.80481 | 10.29441 | 0.2874372 | 2.6372326 | 52 | 3 | 2000–2009 | 0.51 | M-v | 2 | MPC | 166099 | 2000 $WA_{192}$ |
| 2000 $WT_{197}$ | 16.2 | 0.15 | 20100104 | 42.97922 | 161.75719 | 290.30758 | 10.54504 | 0.2418432 | 2.6153873 | 47 | 5 | 1997–2009 | 0.47 | M-v | 1 | MPC | 166099 | 2000 $WT_{197}$ |
| 2000 $WU_{197}$ | 16.0 | 0.15 | 20100104 | 6.45417 | 185.48902 | 245.65212 | 13.14462 | 0.2132019 | 2.7249622 | 65 | 5 | 1991–2009 | 0.53 | M-v | 1 | MPC | 166099 | 2000 $WU_{197}$ |
| 2000 $XD_{11}$ | 16.1 | 0.15 | 20100104 | 35.30713 | 128.15376 | 289.26978 | 16.25398 | 0.3218691 | 2.6492910 | 45 | 4 | 2000–2009 | 0.50 | M-v | 2 | MPC | 166099 | 2000 $XD_{11}$ |
| 2000 $XC_{12}$ | 16.0 | 0.15 | 20100104 | 352.16429 | 43.77180 | 28.10205 | 9.24371 | 0.1469977 | 2.7657585 | 76 | 4 | 2000–2009 | 0.55 | M-v | 1 | MPC | 166099 | 2000 $XC_{12}$ |
| 2000 $XO_{15}$ | 15.8 | 0.15 | 20100104 | 54.58851 | 112.78521 | 245.43176 | 7.66960 | 0.1917905 | 2.7298181 | 96 | 3 | 2000–2009 | 0.45 | M-v | 2 | MPC | 166099 | 2000 $XO_{15}$ |
| 2000 $XH_{20}$ | 15.0 | 0.15 | 20100104 | 63.49510 | 75.27872 | 300.75997 | 11.66043 | 0.3212085 | 2.6648874 | 164 | 3 | 2000–2009 | 0.50 | M-v | 1 | MPC | 166099 | 2000 $XH_{20}$ |
| 2000 $XX_{30}$ | 15.5 | 0.15 | 20100104 | 89.42895 | 66.45141 | 298.17887 | 11.45575 | 0.2786368 | 2.6334003 | 123 | 4 | 2000–2009 | 0.42 | M-v | 1 | MPC | 166099 | 2000 $XX_{30}$ |
| 2000 $XH_{39}$ | 16.6 | 0.15 | 20100104 | 350.82382 | 56.24821 | 1.85282 | 10.15321 | 0.3320568 | 2.7952210 | 67 | 3 | 1995–2009 | 0.48 | M-v | 1 | MPC | 166099 | 2000 $XH_{39}$ |
| 2000 $XJ_{41}$ | 15.3 | 0.15 | 20100104 | 74.73191 | 352.42412 | 11.46627 | 13.70252 | 0.2562416 | 2.6680836 | 113 | 5 | 2000–2009 | 0.45 | M-v | 1 | MPC | 140091 | 2000 $XJ_{41}$ |
| 2000 $XO_{41}$ | 15.6 | 0.15 | 20100104 | 41.49508 | 53.83457 | 342.77612 | 13.66035 | 0.1609125 | 2.7087953 | 88 | 6 | 1995–2009 | 0.61 | M-v | 1 | MPC | 141762 | 2000 $XO_{41}$ |
| 2000 $XD_{49}$ | 16.4 | 0.15 | 20100104 | 9.71103 | 50.53021 | 49.68721 | 13.41623 | 0.2609458 | 2.7055644 | 36 | 2 | 2000–2009 | 0.47 | M-v | 3 | MPC | 165313 | 2000 $XD_{49}$ |
| 2000 $YS_{2}$ | 17.5 | 0.15 | 20100104 | 340.16538 | 73.66378 | 44.30664 | 5.95440 | 0.2527615 | 2.0953024 | 153 | 4 | 2000–2009 | 0.53 | M-v | 2 | MPC | 166100 | 2000 $YS_{2}$ |
| 2000 $YU_{13}$ | 15.9 | 0.15 | 20100104 | 34.28645 | 144.59006 | 283.86779 | 10.68827 | 0.1335305 | 2.7248665 | 52 | 4 | 2000–2009 | 0.53 | M-v | 1 | MPC | 166100 | 2000 $YU_{13}$ |
| 2000 $YQ_{19}$ | 16.1 | 0.15 | 20100104 | 328.81681 | 79.83231 | 32.67593 | 25.19651 | 0.2505194 | 2.7914221 | 63 | 3 | 2000–2009 | 0.54 | M-v | 1 | MPC | 166100 | 2000 $YQ_{19}$ |
| 2000 $YD_{32}$ | 15.1 | 0.15 | 20001222 | 283.98353 | 245.48243 | 291.69698 | 5.31513 | 0.0203842 | 2.7973111 | 12 | 1 | 3 days | 0.17 | | | MPC | | 2000 $YD_{32}$ |
| 2000 $YB_{38}$ | 15.7 | 0.15 | 20100104 | 20.51840 | 347.93204 | 115.17443 | 14.08859 | 0.1311724 | 2.6740867 | 47 | 5 | 2000–2009 | 0.54 | M-v | 1 | MPC | 166100 | 2000 $YB_{38}$ |
| 2000 $YL_{41}$ | 15.2 | 0.15 | 20100104 | 98.23166 | 240.04809 | 124.56532 | 7.16281 | 0.0423850 | 2.7230298 | 54 | 6 | 2000–2009 | 0.51 | M-v | 1 | MPC | 147160 | 2000 $YL_{41}$ |
| 2000 $YQ_{42}$ | 16.1 | 0.15 | 20100104 | 16.34500 | 142.55750 | 264.04607 | 6.00637 | 0.2773894 | 2.7780700 | 106 | 4 | 2000–2009 | 0.53 | M-v | 0 | MPC | 166100 | 2000 $YQ_{42}$ |
| 2000 $YP_{47}$ | 15.3 | 0.15 | 20100104 | 314.89850 | 217.22064 | 277.92575 | 13.29896 | 0.0485683 | 2.7840320 | 60 | 6 | 1999–2009 | 0.62 | M-v | 1 | MPC | 147160 | 2000 $YP_{47}$ |
| 2000 $YZ_{54}$ | 15.7 | 0.15 | 20100104 | 26.44903 | 115.47314 | 293.64618 | 6.91025 | 0.3053415 | 2.7487718 | 121 | 3 | 2000–2009 | 0.46 | M-v | 1 | MPC | 166100 | 2000 $YZ_{54}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 $YD_{59}$ | 15.8 | 0.15 | 20100104 | 352.60939 | 16.51575 | 93.17726 | 4.63313 | 0.1551061 | 2.7384808 | 49 | 4 | 1992–2009 | 0.68 | M-v | 3 | MPC | 100004 | 2000 $YD_{59}$ |
| 2000 $YY_{73}$ | 15.5 | 0.15 | 20100104 | 331.97153 | 53.00185 | 98.98205 | 12.79393 | 0.2267453 | 2.6958763 | 95 | 4 | 2000–2009 | 0.60 | M-v | 1 | MPC | 102023 | 2000 $YY_{73}$ |
| 2000 $YT_{95}$ | 15.3 | 0.15 | 20100104 | 121.47481 | 305.76174 | 97.94658 | 16.00346 | 0.1241252 | 2.5377218 | 101 | 6 | 2000–2009 | 0.46 | M-v | 2 | MPC | 160735 | 2000 $YT_{95}$ |
| 2000 $YY_{98}$ | 15.6 | 0.15 | 20100104 | 338.74234 | 16.80515 | 118.58783 | 14.57988 | 0.1360836 | 2.7368158 | 45 | 3 | 2000–2009 | 0.51 | M-v | 2 | MPC | 100004 | 2000 $YY_{98}$ |
| 2000 $YG_{122}$ | 16.3 | 0.15 | 20100104 | 359.68923 | 348.41942 | 83.43875 | 12.76077 | 0.2664629 | 2.7539098 | 61 | 3 | 2000–2009 | 0.55 | M-v | 2 | MPC | 166100 | 2000 $YG_{122}$ |
| 2000 $YJ_{130}$ | 16.6 | 0.15 | 20100104 | 56.08130 | 344.44279 | 99.08163 | 4.67637 | 0.1660842 | 2.6091490 | 56 | 4 | 2000–2009 | 0.59 | M-v | 1 | MPC | 158406 | 2000 $YJ_{130}$ |
| 2000 $YR_{135}$ | 16.6 | 0.15 | 20100104 | 21.82097 | 53.30734 | 12.80523 | 4.89160 | 0.3378820 | 2.7188315 | 62 | 4 | 2000–2009 | 0.45 | M-v | 0 | MPC | 166100 | 2000 $YR_{135}$ |
| 2001 AA | 16.1 | 0.15 | 20100104 | 30.37653 | 287.74465 | 154.97043 | 15.03048 | 0.3936264 | 2.6520540 | 55 | 4 | 2000–2009 | 0.73 | M-v | 2 | MPC | 159661 | 2001 AA |
| 2001 AH | 16.2 | 0.15 | 20100104 | 13.54180 | 308.66722 | 109.75067 | 9.60401 | 0.1971119 | 2.8059756 | 62 | 5 | 2000–2009 | 0.47 | M-v | 1 | MPC | 165313 | 2001 AH |
| 2001 AJ | 16.8 | 0.15 | 20100104 | 357.54772 | 147.60757 | 324.22481 | 5.55011 | 0.0342253 | 2.7579033 | 40 | 5 | 2001–2009 | 0.32 | M-v | 0 | MPC | 147161 | 2001 AJ |
| 2001 $AS_5$ | 15.4 | 0.15 | 20100104 | 23.98033 | 337.20906 | 114.17907 | 15.63264 | 0.1037222 | 2.6746191 | 41 | 6 | 2000–2009 | 0.57 | M-v | 1 | MPC | 147161 | 2001 $AS_5$ |
| 2001 $AE_{22}$ | 16.5 | 0.15 | 20100104 | 26.24386 | 331.39078 | 91.05009 | 16.25710 | 0.2511210 | 2.7219245 | 40 | 3 | 2000–2009 | 0.57 | M-v | 2 | MPC | 166100 | 2001 $AE_{22}$ |
| 2001 $AH_{22}$ | 15.3 | 0.15 | 20100104 | 341.08639 | 7.74418 | 129.83402 | 14.16523 | 0.1159472 | 2.7093867 | 51 | 5 | 2001–2009 | 0.54 | M-v | 1 | MPC | 102025 | 2001 $AH_{22}$ |
| 2001 $AL_{27}$ | 15.4 | 0.15 | 20100104 | 12.54212 | 15.55623 | 72.94045 | 11.10056 | 0.1711899 | 2.7273550 | 59 | 5 | 2000–2009 | 0.55 | M-v | 1 | MPC | 166100 | 2001 $AL_{27}$ |
| 2001 $AT_{32}$ | 16.0 | 0.15 | 20100104 | 298.54528 | 156.39271 | 318.00617 | 7.20311 | 0.2061783 | 2.8657546 | 83 | 3 | 2001–2009 | 0.44 | M-v | 2 | MPC | 164158 | 2001 $AT_{32}$ |
| 2001 $AK_{33}$ | 15.4 | 0.15 | 20100104 | 107.81131 | 85.36455 | 305.31320 | 11.96692 | 0.1931882 | 2.6030059 | 58 | 4 | 1997–2009 | 0.47 | M-v | 2 | MPC | 155921 | 2001 $AK_{33}$ |
| 2001 $AR_{50}$ | 16.7 | 0.15 | 20100104 | 314.02758 | 60.93337 | 110.08231 | 4.05447 | 0.1181530 | 2.7339009 | 42 | 5 | 2000–2009 | 0.42 | M-v | 1 | MPC | 166100 | 2001 $AR_{50}$ |
| 2001 $BG_7$ | 16.1 | 0.15 | 20100104 | 33.74870 | 91.91827 | 321.57198 | 8.12311 | 0.2149609 | 2.7493089 | 55 | 4 | 2001–2009 | 0.47 | M-v | 1 | MPC | 97429 | 2001 $BG_7$ |
| 2001 $BR_{23}$ | 16.8 | 0.15 | 20100104 | 358.80850 | 93.78759 | 326.72563 | 2.02372 | 0.1209826 | 2.1381251 | 187 | 4 | 2000–2009 | 0.44 | M-v | 2 | MPC | 166100 | 2001 $BR_{23}$ |
| 2001 $BP_{38}$ | 16.2 | 0.15 | 20100104 | 12.70105 | 96.15669 | 349.27406 | 6.18486 | 0.2882257 | 2.7466857 | 31 | 3 | 2001–2009 | 0.61 | M-v | 3 | MPC | 166100 | 2001 $BP_{38}$ |
| 2001 $BS_{46}$ | 16.0 | 0.15 | 20100104 | 347.49983 | 231.80203 | 229.38437 | 7.57157 | 0.1754955 | 2.7917955 | 45 | 3 | 2001–2009 | 0.53 | M-v | 2 | MPC | 165314 | 2001 $BS_{46}$ |
| 2001 $BR_{56}$ | 15.7 | 0.15 | 20100104 | 349.32941 | 55.02281 | 95.65671 | 4.50221 | 0.0248819 | 2.7043022 | 83 | 8 | 1999–2009 | 0.54 | M-v | 0 | MPC | 150899 | 2001 $BR_{56}$ |
| 2001 $BT_{57}$ | 16.1 | 0.15 | 20100104 | 33.95453 | 264.07640 | 266.90718 | 10.23757 | 0.2446568 | 2.5871535 | 53 | 4 | 2001–2009 | 0.60 | M-v | 3 | MPC | 152313 | 2001 $BT_{57}$ |
| 2001 $BP_{61}$ | 20.3 | 0.15 | 20100104 | 29.21642 | 108.92904 | 289.13572 | 12.96578 | 0.3253953 | 1.4866091 | 56 | 3 | 2001–2009 | 0.54 | M-v | 2 | MPC | 164159 | 2001 $BP_{61}$ |
| 2001 $BZ_{62}$ | 15.4 | 0.15 | 20100104 | 24.31113 | 137.74108 | 332.41355 | 8.30157 | 0.1337569 | 2.7188203 | 73 | 5 | 1990–2009 | 0.50 | M-v | 2 | MPC | 150899 | 2001 $BZ_{62}$ |
| 2001 $BM_{76}$ | 15.9 | 0.15 | 20100104 | 17.91179 | 171.93548 | 288.10914 | 11.78029 | 0.1304452 | 2.7375373 | 25 | 3 | 2001–2009 | 0.47 | M-v | 2 | MPC | 166100 | 2001 $BM_{76}$ |
| 2001 $BD_{83}$ | 16.8 | 0.15 | 20100104 | 51.13958 | 316.57372 | 118.17403 | 5.00884 | 0.1445786 | 2.6751369 | 30 | 4 | 2000–2009 | 0.53 | M-v | 2 | MPC | 107899 | 2001 $BD_{83}$ |
| 2001 $CX_{29}$ | 15.4 | 0.15 | 20100104 | 277.00367 | 91.51353 | 102.09118 | 9.98002 | 0.1288052 | 2.8024131 | 44 | 3 | 2001–2009 | 0.56 | M-v | 3 | MPC | 102028 | 2001 $CX_{29}$ |
| 2001 $CB_{41}$ | 15.3 | 0.15 | 20100104 | 342.20038 | 107.41576 | 68.40650 | 16.64502 | 0.1852982 | 2.7101701 | 47 | 5 | 2001–2009 | 0.49 | M-v | 1 | MPC | 162311 | 2001 $CB_{41}$ |
| 2001 $CD_{45}$ | 15.1 | 0.15 | 20100104 | 294.52492 | 115.37831 | 99.00055 | 14.44507 | 0.1962029 | 2.7681089 | 93 | 5 | 2001–2009 | 0.56 | M-v | 1 | MPC | 160736 | 2001 $CD_{45}$ |
| 2001 $CX_{47}$ | 15.6 | 0.15 | 20100104 | 0.78728 | 123.89311 | 330.31351 | 6.49713 | 0.2769007 | 2.7486707 | 71 | 3 | 2001–2009 | 0.50 | M-v | 2 | MPC | 166100 | 2001 $CX_{47}$ |
| 2001 $DB_{23}$ | 16.0 | 0.15 | 20100104 | 313.51094 | 43.96776 | 129.49944 | 8.75225 | 0.1526952 | 2.7657368 | 38 | 6 | 1993–2009 | 0.58 | M-v | 1 | MPC | 150900 | 2001 $DB_{23}$ |
| 2001 $DY_{34}$ | 15.6 | 0.15 | 20100104 | 22.72475 | 155.58654 | 322.04960 | 5.85935 | 0.0439419 | 2.6925579 | 78 | 7 | 1999–2009 | 0.53 | M-v | 1 | MPC | 148832 | 2001 $DY_{34}$ |
| 2001 $DU_{44}$ | 14.8 | 0.15 | 20100104 | 320.39947 | 6.39125 | 150.30212 | 8.87885 | 0.1555964 | 2.7997978 | 110 | 6 | 2001–2009 | 0.46 | M-v | 1 | MPC | 143119 | 2001 $DU_{44}$ |
| 2001 $DA_{48}$ | 16.9 | 0.15 | 20100104 | 302.89031 | 84.29799 | 90.33813 | 2.81377 | 0.1568385 | 2.8042355 | 36 | 4 | 2001–2009 | 0.48 | M-v | 1 | MPC | 100012 | 2001 $DA_{48}$ |
| 2001 $DC_{77}$ | 19.5 | 0.15 | 20100104 | 56.02548 | 195.13576 | 356.31615 | 9.40459 | 0.4999874 | 2.5439387 | 81 | 2 | 2001–2005 | 0.48 | M-v | 2 | MPC | 77514 | 2001 $DC_{77}$ |
| 2001 $DU_{102}$ | 15.5 | 0.15 | 20100104 | 343.94443 | 18.28729 | 111.16597 | 10.43905 | 0.0573171 | 2.8000197 | 38 | 5 | 2001–2009 | 0.50 | M-v | 1 | MPC | 166101 | 2001 $DU_{102}$ |
| 2001 $DS_{105}$ | 15.6 | 0.15 | 20100104 | 338.55035 | 190.40822 | 301.71407 | 10.52135 | 0.1501253 | 2.7704003 | 54 | 6 | 2001–2009 | 0.58 | M-v | 1 | MPC | 147164 | 2001 $DS_{105}$ |
| 2001 $DG_{111}$ | 16.8 | 0.15 | 20100104 | 217.24056 | 330.53674 | 242.11179 | 5.46317 | 0.0619765 | 2.1816218 | 51 | 5 | 2000–2009 | 0.40 | M-v | 1 | MPC | 166101 | 2001 $DG_{111}$ |
| 2001 $EH_5$ | 16.0 | 0.15 | 20100104 | 55.93022 | 312.76217 | 144.09031 | 8.61020 | 0.2447003 | 2.6694602 | 70 | 3 | 2001–2009 | 0.55 | M-v | 2 | MPC | 148833 | 2001 $EH_5$ |
| 2001 $EO_{25}$ | 16.2 | 0.15 | 20100104 | 204.96530 | 147.42929 | 108.91717 | 3.27766 | 0.0783744 | 2.9342193 | 36 | 5 | 2001–2009 | 0.30 | M-v | 0 | MPC | 166101 | 2001 $EO_{25}$ |
| 2001 $FZ_{90}$ | 16.7 | 0.15 | 20100104 | 192.61522 | 335.95060 | 265.17189 | 5.03984 | 0.2124537 | 2.2312777 | 43 | 5 | 1998–2009 | 0.64 | M-v | 1 | MPC | 147165 | 2001 $FZ_{90}$ |
| 2001 $FG_{93}$ | 15.8 | 0.15 | 20100104 | 341.87101 | 55.47403 | 147.31735 | 17.72851 | 0.1595247 | 2.6755357 | 32 | 4 | 2001–2009 | 0.53 | M-v | 1 | MPC | 72377 | 2001 $FG_{93}$ |
| 2001 $FC_{121}$ | 15.4 | 0.15 | 20100104 | 358.89680 | 89.43513 | 55.00357 | 8.40333 | 0.2531286 | 2.7662127 | 84 | 6 | 2001–2009 | 0.52 | M-v | 1 | MPC | 147166 | 2001 $FC_{121}$ |
| 2001 $FT_{125}$ | 16.5 | 0.15 | 20100104 | 339.72273 | 303.04154 | 170.72369 | 2.25265 | 0.0767345 | 2.8928062 | 50 | 5 | 2001–2009 | 0.46 | M-v | 1 | MPC | 147166 | 2001 $FT_{125}$ |
| 2001 $FQ_{126}$ | 16.2 | 0.15 | 20100104 | 337.61140 | 34.21261 | 151.95575 | 9.12598 | 0.1617758 | 2.7428016 | 38 | 5 | 2001–2009 | 0.46 | M-v | 1 | MPC | 147166 | 2001 $FQ_{126}$ |
| 2001 $FB_{129}$ | 15.0 | 0.15 | 20100104 | 305.84437 | 119.01523 | 135.35428 | 12.70126 | 0.2351966 | 2.7318928 | 110 | 4 | 2001–2009 | 0.50 | M-v | 1 | MPC | 110765 | 2001 $FB_{129}$ |
| 2001 $FJ_{131}$ | 15.2 | 0.15 | 20100104 | 306.75086 | 80.31793 | 19.15939 | 10.27072 | 0.0567958 | 3.0453360 | 75 | 5 | 1993–2009 | 0.58 | M-v | 1 | MPC | 166101 | 2001 $FJ_{131}$ |
| 2001 $FD_{145}$ | 14.6 | 0.15 | 20100104 | 203.97430 | 159.65529 | 58.63269 | 26.00020 | 0.1466889 | 3.0943943 | 54 | 3 | 2001–2009 | 0.49 | M-v | 2 | MPC | 166101 | 2001 $FD_{145}$ |
| 2001 $FH_{159}$ | 17.7 | 0.15 | 20100104 | 145.87893 | 356.29879 | 194.85191 | 6.73100 | 0.1642407 | 2.3646345 | 83 | 3 | 2001–2008 | 0.31 | M-v | 3 | MPC | 158407 | 2001 $FH_{159}$ |
| 2001 $FS_{173}$ | 16.8 | 0.15 | 20100104 | 281.81436 | 340.70816 | 170.23510 | 3.22794 | 0.0879354 | 2.9785445 | 35 | 4 | 2001–2009 | 0.36 | M-v | 1 | MPC | 147166 | 2001 $FS_{173}$ |
| 2001 $FY_{177}$ | 16.8 | 0.15 | 20100104 | 89.42782 | 64.35505 | 149.88813 | 2.91893 | 0.1413854 | 2.4449982 | 65 | 7 | 1999–2007 | 0.49 | M-v | 1 | MPC | 130120 | 2001 $FY_{177}$ |
| 2001 $FL_{179}$ | 14.9 | 0.15 | 20100104 | 282.46935 | 52.94517 | 102.77456 | 11.29881 | 0.0752421 | 2.9643374 | 64 | 5 | 2001–2009 | 0.55 | M-v | 1 | MPC | 166101 | 2001 $FL_{179}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 $FW_{196}$ | 16.0 | 0.15 | 20100104 | 289.84898 | 158.47011 | 96.65068 | 6.74678 | 0.2113941 | 2.7733182 | 33 | 5 | 2001–2009 | 0.40 | M-v | 1 | MPC | 135776 | 2001 $FW_{196}$ |
| 2001 $GQ_{2}$ | 20.1 | 0.15 | 20100104 | 136.01770 | 280.23777 | 37.20522 | 21.82141 | 0.5031577 | 1.2143031 | 414 | 2 | 2001–2009 | 0.63 | M-v | 0 | MPC | 164160 | 2001 $GQ_{2}$ |
| 2001 $GW_{11}$ | 14.9 | 0.15 | 20100104 | 169.95862 | 187.66216 | 71.10798 | 18.29599 | 0.1931022 | 3.1604681 | 35 | 6 | 1992–2009 | 0.45 | M-v | 1 | MPC | 166101 | 2001 $GW_{11}$ |
| 2001 $HP_{4}$ | 16.2 | 0.15 | 20100104 | 173.30418 | 3.04526 | 217.95228 | 24.60965 | 0.2284964 | 2.2996620 | 153 | 4 | 2001–2009 | 0.45 | M-v | 1 | MPC | 162314 | 2001 $HP_{4}$ |
| 2001 $HA_{8}$ | 16.9 | 0.15 | 20100104 | 98.38436 | 201.83313 | 96.03473 | 11.54206 | 0.5300142 | 2.3835690 | 118 | 3 | 2001–2009 | 0.50 | M-v | 2 | MPC | 166101 | 2001 $HA_{8}$ |
| 2001 $HB_{26}$ | 16.1 | 0.15 | 20100104 | 178.66773 | 188.09276 | 56.99483 | 5.70313 | 0.1479647 | 3.1439548 | 48 | 5 | 2001–2009 | 0.37 | M-v | 1 | MPC | 166101 | 2001 $HB_{26}$ |
| 2001 $HZ_{41}$ | 15.5 | 0.15 | 20100104 | 285.73472 | 96.02200 | 177.81388 | 9.18384 | 0.2940140 | 2.7508155 | 46 | 4 | 2001–2009 | 0.43 | M-v | 1 | MPC | 110767 | 2001 $HZ_{41}$ |
| 2001 $HN_{55}$ | 16.7 | 0.15 | 20100104 | 230.65020 | 179.46708 | 77.17416 | 8.76257 | 0.2367608 | 2.1828971 | 78 | 4 | 2001–2009 | 0.56 | M-v | 2 | MPC | 114611 | 2001 $HN_{55}$ |
| 2001 $HG_{65}$ | 17.4 | 0.15 | 20100104 | 249.72316 | 172.66602 | 52.61379 | 5.33453 | 0.1144175 | 2.1782162 | 70 | 5 | 2001–2009 | 0.50 | M-v | 2 | MPC | 116153 | 2001 $HG_{65}$ |
| 2001 $JA_{5}$ | 15.2 | 0.15 | 20100104 | 99.68598 | 253.65705 | 82.51399 | 17.94453 | 0.1601138 | 3.2007951 | 41 | 5 | 2001–2009 | 0.42 | M-v | 0 | MPC | 166101 | 2001 $JA_{5}$ |
| 2001 $JU_{7}$ | 15.6 | 0.15 | 20100104 | 184.34820 | 180.88910 | 62.51214 | 9.53552 | 0.1955610 | 3.1462484 | 37 | 5 | 2001–2009 | 0.49 | M-v | 1 | MPC | 166101 | 2001 $JU_{7}$ |
| 2001 $KA_{19}$ | 15.9 | 0.15 | 20100104 | 180.03750 | 9.06038 | 237.77864 | 25.15951 | 0.2363654 | 2.2905022 | 61 | 6 | 1995–2009 | 0.44 | M-v | 2 | MPC | 166102 | 2001 $KA_{19}$ |
| 2001 $KB_{19}$ | 15.1 | 0.15 | 20100104 | 247.30826 | 128.30034 | 67.39858 | 4.23105 | 0.1822012 | 3.0798715 | 72 | 7 | 2000–2009 | 0.44 | M-v | 1 | MPC | 166102 | 2001 $KB_{19}$ |
| 2001 $LX_{16}$ | 17.3 | 0.15 | 20100104 | 115.84297 | 220.68892 | 116.83459 | 10.09378 | 0.2262822 | 2.2813563 | 44 | 4 | 2001–2009 | 0.46 | M-v | 2 | MPC | 121764 | 2001 $LX_{16}$ |
| 2001 $MR_{3}$ | 19.1 | 0.15 | 20100104 | 122.93643 | 58.42807 | 221.04833 | 4.44457 | 0.4543579 | 2.3640550 | 95 | 3 | 2001–2008 | 0.48 | M-v | 1 | MPC | 135777 | 2001 $MR_{3}$ |
| 2001 $MA_{15}$ | 16.1 | 0.15 | 20100104 | 121.01564 | 218.83201 | 111.39043 | 10.22541 | 0.2385905 | 2.3370740 | 58 | 4 | 2001–2009 | 0.52 | M-v | 2 | MPC | 117932 | 2001 $MA_{15}$ |
| 2001 $MK_{16}$ | 17.2 | 0.15 | 20100104 | 169.22430 | 300.35964 | 348.05503 | 2.43373 | 0.1794512 | 2.2846026 | 58 | 6 | 2001–2009 | 0.40 | M-v | 1 | MPC | 148834 | 2001 $MK_{16}$ |
| 2001 $MR_{18}$ | 16.6 | 0.15 | 20100104 | 89.99744 | 53.70095 | 284.84006 | 7.83245 | 0.3292060 | 2.3846348 | 97 | 4 | 1990–2009 | 0.61 | M-v | 1 | MPC | 166102 | 2001 $MR_{18}$ |
| 2001 $MQ_{23}$ | 15.6 | 0.15 | 20100104 | 95.05251 | 261.52030 | 99.98016 | 9.60644 | 0.2399086 | 2.3556251 | 119 | 7 | 1998–2009 | 0.54 | M-v | 1 | MPC | 140669 | 2001 $MQ_{23}$ |
| 2001 $NV_{5}$ | 17.7 | 0.15 | 20100104 | 234.33891 | 248.99715 | 350.48056 | 3.88244 | 0.1331436 | 2.2443722 | 65 | 6 | 1998–2009 | 0.43 | M-v | 1 | MPC | 147167 | 2001 $NV_{5}$ |
| 2001 $OW_{12}$ | 17.1 | 0.15 | 20100104 | 54.47757 | 33.59053 | 318.01312 | 4.76037 | 0.2159145 | 2.4181800 | 70 | 4 | 2001–2009 | 0.50 | M-v | 3 | MPC | 166102 | 2001 $OW_{12}$ |
| 2001 $OU_{15}$ | 16.3 | 0.15 | 20100104 | 182.79910 | 168.04814 | 68.21360 | 6.84038 | 0.1756093 | 2.3400029 | 59 | 5 | 2001–2009 | 0.39 | M-v | 2 | MPC | 166102 | 2001 $OU_{15}$ |
| 2001 $OV_{15}$ | 16.1 | 0.15 | 20100104 | 75.47594 | 278.50842 | 77.38258 | 7.58148 | 0.1268567 | 2.3706652 | 94 | 4 | 2001–2009 | 0.44 | M-v | 2 | MPC | 166102 | 2001 $OV_{15}$ |
| 2001 $OY_{29}$ | 16.5 | 0.15 | 20100104 | 68.29539 | 347.76775 | 357.02878 | 7.15731 | 0.1324631 | 2.3853851 | 109 | 5 | 2000–2009 | 0.57 | M-v | 2 | MPC | 166102 | 2001 $OY_{29}$ |
| 2001 $OX_{37}$ | 17.7 | 0.15 | 20100104 | 98.78742 | 217.01982 | 80.90071 | 6.70322 | 0.2217204 | 2.4140029 | 26 | 3 | 2001–2009 | 0.36 | M-v | 2 | MPC | 137271 | 2001 $OX_{37}$ |
| 2001 $OB_{40}$ | 16.9 | 0.15 | 20100104 | 92.81705 | 227.85771 | 96.83340 | 8.52637 | 0.2275108 | 2.4084567 | 58 | 5 | 1993–2009 | 0.49 | M-v | 1 | MPC | 140092 | 2001 $OB_{40}$ |
| 2001 $OZ_{49}$ | 16.3 | 0.15 | 20100104 | 132.23095 | 54.19448 | 259.46038 | 5.70549 | 0.1294817 | 2.3187386 | 92 | 4 | 2001–2009 | 0.60 | M-v | 2 | MPC | 97442 | 2001 $OZ_{49}$ |
| 2001 $ON_{55}$ | 16.9 | 0.15 | 20100104 | 133.31531 | 49.76730 | 241.81249 | 19.30829 | 0.0834192 | 1.8760480 | 92 | 7 | 1998–2009 | 0.48 | M-v | 1 | MPC | 166102 | 2001 $ON_{55}$ |
| 2001 $OK_{62}$ | 16.5 | 0.15 | 20100104 | 111.59344 | 67.50070 | 279.53694 | 3.27947 | 0.1852742 | 2.3152681 | 85 | 7 | 1995–2009 | 0.44 | M-v | 1 | MPC | 164160 | 2001 $OK_{62}$ |
| 2001 $OY_{66}$ | 14.9 | 0.15 | 20100104 | 210.52807 | 326.38107 | 317.43310 | 16.81791 | 0.1994288 | 3.1375539 | 76 | 4 | 2001–2009 | 0.58 | M-v | 2 | MPC | 158408 | 2001 $OY_{66}$ |
| 2001 $OC_{78}$ | 16.8 | 0.15 | 20100104 | 120.98281 | 291.82949 | 36.76376 | 7.56182 | 0.1422907 | 2.3317917 | 53 | 6 | 2001–2009 | 0.55 | M-v | 1 | MPC | 141765 | 2001 $OC_{78}$ |
| 2001 $ON_{79}$ | 16.7 | 0.15 | 20100104 | 81.38390 | 319.92518 | 53.39913 | 5.77445 | 0.1680117 | 2.3485697 | 110 | 4 | 2001–2009 | 0.51 | M-v | 2 | MPC | 162314 | 2001 $ON_{79}$ |
| 2001 $OE_{84}$ | 17.9 | 0.15 | 20100104 | 137.55001 | 2.69867 | 32.26063 | 9.34830 | 0.4711497 | 2.2805885 | 391 | 4 | 2001–2009 | 0.47 | M-v | 0 | MPC | 154063 | 2001 $OE_{84}$ |
| 2001 $OB_{85}$ | 16.4 | 0.15 | 20100104 | 83.78124 | 76.29864 | 285.09176 | 8.70396 | 0.2453109 | 2.3807428 | 92 | 3 | 2001–2009 | 0.48 | M-v | 2 | MPC | 166102 | 2001 $OB_{85}$ |
| 2001 $OQ_{92}$ | 16.4 | 0.15 | 20100104 | 196.09423 | 171.94383 | 96.32680 | 5.64814 | 0.1404755 | 2.2742174 | 67 | 5 | 2001–2009 | 0.50 | M-v | 1 | MPC | 164160 | 2001 $OQ_{92}$ |
| 2001 $OL_{100}$ | 17.4 | 0.15 | 20100104 | 68.77334 | 221.59872 | 116.23190 | 4.36282 | 0.3318522 | 2.4304395 | 71 | 3 | 2001–2009 | 0.58 | M-v | 3 | MPC | 97444 | 2001 $OL_{100}$ |
| 2001 $OT_{100}$ | 16.8 | 0.15 | 20100104 | 120.04137 | 322.65217 | 352.67060 | 3.90180 | 0.2233094 | 2.3514260 | 85 | 5 | 2001–2009 | 0.46 | M-v | 1 | MPC | 116155 | 2001 $OT_{100}$ |
| 2001 $ON_{104}$ | 16.9 | 0.15 | 20100104 | 124.07448 | 226.69421 | 94.06445 | 6.77716 | 0.2109667 | 2.3401997 | 56 | 4 | 2001–2009 | 0.53 | M-v | 2 | MPC | 97444 | 2001 $ON_{104}$ |
| 2001 $PY_{9}$ | 16.8 | 0.15 | 20100104 | 108.66159 | 56.82894 | 260.71531 | 3.37478 | 0.2293703 | 2.3697292 | 112 | 5 | 1994–2009 | 0.49 | M-v | 1 | MPC | 117934 | 2001 $PY_{9}$ |
| 2001 $PF_{10}$ | 17.5 | 0.15 | 20100104 | 78.67147 | 62.81693 | 280.20361 | 1.09930 | 0.2268198 | 2.3968603 | 84 | 4 | 2001–2009 | 0.45 | M-v | 2 | MPC | 117934 | 2001 $PF_{10}$ |
| 2001 $PY_{14}$ | 17.3 | 0.15 | 20100104 | 134.48782 | 51.00713 | 266.74940 | 5.64464 | 0.2039647 | 2.3329458 | 53 | 4 | 2001–2009 | 0.46 | M-v | 1 | MPC | 141765 | 2001 $PY_{14}$ |
| 2001 $PA_{17}$ | 17.5 | 0.15 | 20100104 | 57.23957 | 311.91443 | 49.47388 | 7.95802 | 0.3798696 | 2.4347219 | 65 | 4 | 2001–2009 | 0.45 | M-v | 2 | MPC | 140093 | 2001 $PA_{17}$ |
| 2001 $PS_{26}$ | 16.6 | 0.15 | 20100104 | 118.29591 | 344.72961 | 338.99357 | 4.51501 | 0.2437478 | 2.3601599 | 98 | 4 | 2001–2009 | 0.50 | M-v | 1 | MPC | 160738 | 2001 $PS_{26}$ |
| 2001 $PG_{31}$ | 16.1 | 0.15 | 20100104 | 38.05157 | 161.03121 | 266.81762 | 11.94936 | 0.1513945 | 2.3498990 | 94 | 5 | 1998–2009 | 0.64 | M-v | 1 | MPC | 166102 | 2001 $PG_{31}$ |
| 2001 $PE_{32}$ | 17.4 | 0.15 | 20100104 | 161.22102 | 220.30869 | 84.13723 | 8.70774 | 0.1579253 | 2.2997712 | 28 | 5 | 1997–2009 | 0.32 | M-v | 1 | MPC | 143121 | 2001 $PE_{32}$ |
| 2001 $PX_{32}$ | 16.9 | 0.15 | 20100104 | 86.62075 | 260.07882 | 98.26207 | 15.35957 | 0.1297063 | 2.3627536 | 36 | 4 | 2001–2009 | 0.47 | M-v | 2 | MPC | 110774 | 2001 $PX_{32}$ |
| 2001 $PZ_{42}$ | 17.0 | 0.15 | 20100104 | 42.40409 | 72.76874 | 311.51238 | 18.53150 | 0.0834533 | 1.8944039 | 73 | 6 | 2000–2009 | 0.55 | M-v | 1 | MPC | 128723 | 2001 $PZ_{42}$ |
| 2001 $PJ_{51}$ | 16.4 | 0.15 | 20100104 | 78.77224 | 247.90145 | 117.50385 | 10.14842 | 0.2656930 | 2.3671590 | 87 | 4 | 2001–2009 | 0.49 | M-v | 2 | MPC | 97445 | 2001 $PJ_{51}$ |
| 2001 $PQ_{55}$ | 17.0 | 0.15 | 20100104 | 69.02010 | 241.01304 | 137.99132 | 2.86250 | 0.1667268 | 2.3631515 | 59 | 4 | 2001–2009 | 0.51 | M-v | 2 | MPC | 117935 | 2001 $PQ_{55}$ |
| 2001 $PQ_{58}$ | 16.5 | 0.15 | 20100104 | 60.19164 | 0.21768 | 7.59278 | 4.57239 | 0.2438269 | 2.4235846 | 156 | 4 | 2001–2009 | 0.48 | M-v | 2 | MPC | 117935 | 2001 $PQ_{58}$ |
| 2001 $QH_{1}$ | 16.2 | 0.15 | 20100104 | 33.03599 | 247.85645 | 152.19226 | 22.16541 | 0.2982878 | 2.4391252 | 85 | 3 | 2001–2009 | 0.53 | M-v | 2 | MPC | 97446 | 2001 $QH_{1}$ |
| 2001 $QX_{5}$ | 14.8 | 0.15 | 20100104 | 206.13539 | 342.86644 | 308.57086 | 8.55186 | 0.1594284 | 3.1488578 | 60 | 5 | 2001–2009 | 0.59 | M-v | 1 | MPC | 135780 | 2001 $QX_{5}$ |
| 2001 $QO_{6}$ | 16.8 | 0.15 | 20100104 | 55.85664 | 66.29052 | 318.72036 | 4.70637 | 0.2265249 | 2.3960830 | 107 | 3 | 2001–2009 | 0.48 | M-v | 2 | MPC | 97446 | 2001 $QO_{6}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 $QL_{24}$ | 16.1 | 0.15 | 20100104 | 86.22591 | 14.86532 | 337.64972 | 6.23107 | 0.1538219 | 2.3963894 | 146 | 4 | 2001–2009 | 0.44 | M-v | 2 | MPC | 117935 | 2001 $QL_{24}$ |
| 2001 $QX_{35}$ | 16.7 | 0.15 | 20100104 | 144.14996 | 358.47063 | 319.58116 | 5.24904 | 0.1839470 | 2.2990870 | 84 | 5 | 2001–2009 | 0.50 | M-v | 1 | MPC | 148835 | 2001 $QX_{35}$ |
| 2001 $QH_{36}$ | 16.4 | 0.15 | 20100104 | 47.40084 | 69.65149 | 302.70806 | 8.78045 | 0.2726486 | 2.4230881 | 117 | 4 | 1999–2009 | 0.48 | M-v | 1 | MPC | 164161 | 2001 $QH_{36}$ |
| 2001 $QP_{44}$ | 17.0 | 0.15 | 20100104 | 106.48261 | 227.66161 | 121.47004 | 4.14842 | 0.1758841 | 2.3350972 | 37 | 4 | 2001–2009 | 0.56 | M-v | 2 | MPC | 117936 | 2001 $QP_{44}$ |
| 2001 $QG_{52}$ | 16.8 | 0.15 | 20100104 | 93.75404 | 200.15595 | 163.77164 | 2.84133 | 0.1950314 | 2.3619367 | 64 | 4 | 2001–2009 | 0.48 | M-v | 2 | MPC | 160738 | 2001 $QG_{52}$ |
| 2001 $QA_{54}$ | 17.0 | 0.15 | 20100104 | 136.11192 | 186.17779 | 131.41533 | 5.20172 | 0.2071183 | 2.3297777 | 91 | 6 | 2001–2009 | 0.47 | M-v | 1 | MPC | 147169 | 2001 $QA_{54}$ |
| 2001 $QX_{57}$ | 16.7 | 0.15 | 20100104 | 51.56203 | 344.48209 | 46.36754 | 3.26511 | 0.1945504 | 2.3951569 | 133 | 5 | 2001–2009 | 0.47 | M-v | 1 | MPC | 119537 | 2001 $QX_{57}$ |
| 2001 $QX_{60}$ | 17.4 | 0.15 | 20100104 | 90.58617 | 192.83075 | 144.38401 | 1.67069 | 0.1992275 | 2.3856676 | 64 | 5 | 2001–2009 | 0.39 | M-v | 1 | MPC | 140093 | 2001 $QX_{60}$ |
| 2001 $QT_{62}$ | 16.7 | 0.15 | 20100104 | 78.25489 | 196.08108 | 168.47845 | 2.49859 | 0.2056367 | 2.3903845 | 130 | 4 | 2001–2009 | 0.52 | M-v | 2 | MPC | 160738 | 2001 $QT_{62}$ |
| 2001 $QS_{67}$ | 16.1 | 0.15 | 20100104 | 68.62845 | 53.38473 | 303.69830 | 7.74915 | 0.1784401 | 2.3962215 | 110 | 5 | 2001–2009 | 0.50 | M-v | 1 | MPC | 116157 | 2001 $QS_{67}$ |
| 2001 $QK_{82}$ | 15.4 | 0.15 | 20100104 | 338.81986 | 86.77563 | 344.34353 | 32.11107 | 0.3050450 | 2.5498603 | 223 | 3 | 2001–2009 | 0.51 | M-v | 2 | MPC | 166103 | 2001 $QK_{82}$ |
| 2001 $QO_{82}$ | 15.6 | 0.15 | 20100104 | 91.75407 | 40.58420 | 313.09569 | 10.97451 | 0.2488747 | 2.4002683 | 82 | 4 | 1997–2009 | 0.57 | M-v | 2 | MPC | 117937 | 2001 $QO_{82}$ |
| 2001 $QQ_{86}$ | 15.5 | 0.15 | 20100104 | 22.26483 | 87.95195 | 290.31053 | 11.76318 | 0.1209333 | 2.5094606 | 138 | 5 | 2001–2009 | 0.56 | M-v | 2 | MPC | 166103 | 2001 $QQ_{86}$ |
| 2001 $QW_{114}$ | 16.7 | 0.15 | 20100104 | 76.05300 | 122.69774 | 258.74539 | 3.81568 | 0.2384078 | 2.3799322 | 124 | 4 | 2001–2009 | 0.47 | M-v | 2 | MPC | 117937 | 2001 $QW_{114}$ |
| 2001 $QW_{117}$ | 16.1 | 0.15 | 20100104 | 35.62641 | 77.71712 | 318.39369 | 7.32115 | 0.2453059 | 2.4700224 | 115 | 4 | 1993–2009 | 0.60 | M-v | 2 | MPC | 166103 | 2001 $QW_{117}$ |
| 2001 $QT_{129}$ | 16.8 | 0.15 | 20100104 | 54.37730 | 107.42050 | 259.71697 | 6.01798 | 0.1677392 | 2.4218952 | 99 | 3 | 2001–2009 | 0.46 | M-v | 3 | MPC | 166103 | 2001 $QT_{129}$ |
| 2001 $QP_{132}$ | 16.5 | 0.15 | 20100104 | 101.98827 | 62.36297 | 284.97421 | 5.83322 | 0.1354327 | 2.3632499 | 65 | 5 | 2001–2009 | 0.54 | M-v | 1 | MPC | 166103 | 2001 $QP_{132}$ |
| 2001 $QX_{144}$ | 17.6 | 0.15 | 20100104 | 74.54985 | 222.41270 | 157.50682 | 1.64569 | 0.1975293 | 2.3572868 | 82 | 4 | 2001–2009 | 0.40 | M-v | 2 | MPC | 117938 | 2001 $QX_{144}$ |
| 2001 $QH_{149}$ | 17.1 | 0.15 | 20100104 | 76.88958 | 260.25012 | 105.71316 | 6.34955 | 0.2301776 | 2.3738596 | 64 | 4 | 2001–2009 | 0.50 | M-v | 2 | MPC | 166103 | 2001 $QH_{149}$ |
| 2001 $QX_{150}$ | 17.1 | 0.15 | 20100104 | 42.94565 | 146.36844 | 227.91258 | 19.02437 | 0.0988073 | 1.8994818 | 88 | 2 | 2001–2009 | 0.54 | M-v | 3 | MPC | 166103 | 2001 $QX_{150}$ |
| 2001 $QG_{151}$ | 15.7 | 0.15 | 20100104 | 8.59788 | 72.33932 | 312.18565 | 26.87790 | 0.2842461 | 2.5352856 | 128 | 3 | 2001–2009 | 0.52 | M-v | 2 | MPC | 166103 | 2001 $QG_{151}$ |
| 2001 $QB_{152}$ | 16.3 | 0.15 | 20100104 | 66.86359 | 105.97646 | 254.74839 | 22.12173 | 0.0876246 | 1.9079656 | 106 | 5 | 2001–2009 | 0.54 | M-v | 1 | MPC | 166103 | 2001 $QB_{152}$ |
| 2001 $QV_{159}$ | 17.1 | 0.15 | 20100104 | 124.14817 | 187.21093 | 143.34316 | 3.03976 | 0.2164532 | 2.3384327 | 79 | 7 | 1997–2009 | 0.45 | M-v | 1 | MPC | 140670 | 2001 $QV_{159}$ |
| 2001 $QC_{168}$ | 16.9 | 0.15 | 20100104 | 119.61116 | 245.85220 | 79.88273 | 6.78811 | 0.1231418 | 2.3508753 | 28 | 4 | 2001–2009 | 0.46 | M-v | 3 | MPC | 125826 | 2001 $QC_{168}$ |
| 2001 $QX_{168}$ | 16.9 | 0.15 | 20100104 | 92.68562 | 242.14365 | 108.21931 | 7.30443 | 0.1355235 | 2.3547601 | 62 | 6 | 2001–2009 | 0.45 | M-v | 1 | MPC | 116159 | 2001 $QX_{168}$ |
| 2001 $QG_{195}$ | 17.3 | 0.15 | 20100104 | 124.85883 | 271.46783 | 32.96954 | 1.65705 | 0.1880929 | 2.3590611 | 30 | 4 | 1994–2009 | 0.44 | M-v | 2 | MPC | 100040 | 2001 $QG_{195}$ |
| 2001 $QL_{197}$ | 15.9 | 0.15 | 20100104 | 82.43475 | 98.27310 | 254.03371 | 13.61117 | 0.1631264 | 2.4337250 | 98 | 4 | 1993–2009 | 0.56 | M-v | 2 | MPC | 166104 | 2001 $QL_{197}$ |
| 2001 $QQ_{203}$ | 16.9 | 0.15 | 20100104 | 96.26044 | 265.20061 | 80.88291 | 3.59121 | 0.2066745 | 2.3547135 | 71 | 3 | 2001–2009 | 0.46 | M-v | 2 | MPC | 97452 | 2001 $QQ_{203}$ |
| 2001 $QH_{206}$ | 16.8 | 0.15 | 20100104 | 66.24277 | 39.42239 | 344.52934 | 6.93135 | 0.1189664 | 2.3711509 | 71 | 4 | 2001–2009 | 0.60 | M-v | 2 | MPC | 119539 | 2001 $QH_{206}$ |
| 2001 $QW_{206}$ | 17.3 | 0.15 | 20100104 | 90.25675 | 237.94568 | 125.25606 | 3.06916 | 0.1550611 | 2.3619705 | 47 | 6 | 2001–2009 | 0.54 | M-v | 1 | MPC | 166104 | 2001 $QW_{206}$ |
| 2001 $QQ_{207}$ | 17.3 | 0.15 | 20100104 | 121.51126 | 202.39682 | 129.53084 | 4.25569 | 0.1471492 | 2.3439107 | 47 | 6 | 2001–2009 | 0.43 | M-v | 1 | MPC | 139150 | 2001 $QQ_{207}$ |
| 2001 $QT_{207}$ | 17.5 | 0.15 | 20100104 | 95.88706 | 229.62233 | 112.56992 | 3.03155 | 0.2054000 | 2.3796334 | 40 | 3 | 2001–2009 | 0.44 | M-v | 3 | MPC | 97452 | 2001 $QT_{207}$ |
| 2001 $QT_{209}$ | 17.2 | 0.15 | 20100104 | 149.48721 | 18.70029 | 300.11872 | 5.76318 | 0.1305891 | 2.3064467 | 46 | 4 | 2001–2009 | 0.54 | M-v | 3 | MPC | 157958 | 2001 $QT_{209}$ |
| 2001 $QL_{217}$ | 17.0 | 0.15 | 20100104 | 91.70722 | 293.77701 | 41.37462 | 2.08024 | 0.2013097 | 2.4049909 | 63 | 6 | 1960–2009 | 0.45 | M-v | 1 | MPC | 157352 | 2001 $QL_{217}$ |
| 2001 $QU_{219}$ | 17.0 | 0.15 | 20100104 | 64.04559 | 74.93880 | 333.61129 | 18.24795 | 0.1385033 | 1.8727643 | 72 | 4 | 2001–2009 | 0.53 | M-v | 2 | MPC | 110781 | 2001 $QU_{219}$ |
| 2001 $QR_{226}$ | 14.3 | 0.15 | 20100104 | 22.33441 | 131.54956 | 216.72914 | 8.94000 | 0.1514579 | 3.9804973 | 72 | 4 | 1994–2009 | 0.42 | M-v | 0 | MPC | 164162 | 2001 $QR_{226}$ |
| 2001 $QW_{226}$ | 16.7 | 0.15 | 20100104 | 89.97881 | 69.48120 | 266.91251 | 5.39582 | 0.1673211 | 2.4085983 | 94 | 5 | 1960–2009 | 0.53 | M-v | 1 | MPC | 157352 | 2001 $QW_{226}$ |
| 2001 $QV_{228}$ | 16.5 | 0.15 | 20100104 | 61.26863 | 103.35315 | 260.40782 | 7.03075 | 0.1071905 | 2.4186448 | 77 | 5 | 2001–2009 | 0.57 | M-v | 1 | MPC | 166104 | 2001 $QV_{228}$ |
| 2001 $QC_{230}$ | 17.3 | 0.15 | 20100104 | 122.48930 | 342.99701 | 348.55251 | 1.68134 | 0.1826444 | 2.3597302 | 83 | 6 | 2001–2009 | 0.43 | M-v | 0 | MPC | 147170 | 2001 $QC_{230}$ |
| 2001 $QP_{231}$ | 16.6 | 0.15 | 20100104 | 62.09381 | 105.36964 | 271.40200 | 5.50553 | 0.1627810 | 2.3971655 | 82 | 4 | 1998–2009 | 0.48 | M-v | 1 | MPC | 97453 | 2001 $QP_{231}$ |
| 2001 $QC_{237}$ | 15.2 | 0.15 | 20100104 | 31.45814 | 342.46003 | 353.81004 | 16.82481 | 0.2738209 | 3.9678679 | 59 | 2 | 2001–2009 | 0.49 | M-v | 3 | MPC | 161838 | 2001 $QC_{237}$ |
| 2001 $QZ_{245}$ | 15.8 | 0.15 | 20100104 | 53.85111 | 31.35016 | 0.57484 | 6.55017 | 0.1592530 | 2.4261364 | 133 | 5 | 2001–2009 | 0.53 | M-v | 1 | MPC | 117940 | 2001 $QZ_{245}$ |
| 2001 $QC_{246}$ | 16.4 | 0.15 | 20100104 | 97.47243 | 181.70786 | 177.21846 | 2.86037 | 0.2787574 | 2.3818984 | 166 | 6 | 1990–2009 | 0.50 | M-v | 1 | MPC | 119539 | 2001 $QC_{246}$ |
| 2001 $QD_{252}$ | 17.1 | 0.15 | 20100104 | 64.08282 | 335.13841 | 47.49261 | 2.09352 | 0.1929681 | 2.3804434 | 155 | 4 | 2001–2009 | 0.43 | M-v | 2 | MPC | 117941 | 2001 $QD_{252}$ |
| 2001 $QH_{253}$ | 16.9 | 0.15 | 20100104 | 43.00620 | 308.08515 | 85.34387 | 2.40130 | 0.1830262 | 2.4131036 | 121 | 5 | 1996–2009 | 0.52 | M-v | 1 | MPC | 166104 | 2001 $QH_{253}$ |
| 2001 $QK_{270}$ | 17.5 | 0.15 | 20100104 | 123.85798 | 208.29161 | 90.28676 | 2.26399 | 0.1886206 | 2.3609309 | 51 | 4 | 2001–2009 | 0.32 | M-v | 1 | MPC | 166104 | 2001 $QK_{270}$ |
| 2001 $QW_{272}$ | 17.4 | 0.15 | 20100104 | 84.68377 | 324.69322 | 30.49175 | 3.85086 | 0.2927497 | 2.3849560 | 54 | 3 | 2001–2009 | 0.44 | M-v | 2 | MPC | 94011 | 2001 $QW_{272}$ |
| 2001 $QU_{284}$ | 16.3 | 0.15 | 20100104 | 65.71730 | 6.67763 | 354.11664 | 5.69517 | 0.2028720 | 2.4205839 | 170 | 4 | 2001–2009 | 0.51 | M-v | 2 | MPC | 119539 | 2001 $QU_{284}$ |
| 2001 $QT_{289}$ | 16.9 | 0.15 | 20100104 | 97.03936 | 38.52439 | 323.22404 | 2.38603 | 0.0483198 | 2.3255972 | 87 | 6 | 2001–2009 | 0.40 | M-v | 0 | MPC | 141767 | 2001 $QT_{289}$ |
| 2001 $QY_{289}$ | 16.6 | 0.15 | 20100104 | 239.86947 | 293.36632 | 309.55303 | 6.62737 | 0.0886045 | 2.2636888 | 42 | 7 | 1993–2009 | 0.40 | M-v | 1 | MPC | 166104 | 2001 $QY_{289}$ |
| 2001 $QJ_{294}$ | 17.1 | 0.15 | 20100104 | 128.33915 | 153.14444 | 156.21078 | 6.36420 | 0.1253665 | 2.3512170 | 44 | 5 | 1993–2009 | 0.42 | M-v | 1 | MPC | 117942 | 2001 $QJ_{294}$ |
| 2001 $QT_{294}$ | 16.3 | 0.15 | 20100104 | 42.66748 | 144.23366 | 232.48578 | 7.53167 | 0.1637751 | 2.4314026 | 161 | 4 | 2001–2009 | 0.51 | M-v | 2 | MPC | 166104 | 2001 $QT_{294}$ |
| 2001 $QF_{298}$ | 5.1 | 0.15 | 20100104 | 142.86598 | 43.81868 | 164.15078 | 22.30201 | 0.1072795 | 39.5522930 | 32 | 5 | 2001–2009 | 0.35 | M-v | 4 | MPC | 157352 | 2001 $QF_{298}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 $QW_{317}$ | 17.5 | 0.15 | 20100104 | 56.45949 | 31.68288 | 335.77997 | 3.90567 | 0.1985916 | 2.4134202 | 32 | 3 | 2001–2009 | 0.44 | M-v | 2 | MPC | 166104 | 2001 $QW_{317}$ |
| 2001 $QH_{329}$ | 17.3 | 0.15 | 20100104 | 108.55310 | 238.82267 | 98.91576 | 2.76027 | 0.1858513 | 2.3661560 | 46 | 4 | 2000–2009 | 0.57 | M-v | 2 | MPC | 122686 | 2001 $QH_{329}$ |
| 2001 $QB_{330}$ | 16.3 | 0.15 | 20100104 | 92.32733 | 254.48921 | 98.56600 | 6.07916 | 0.1310035 | 2.3770815 | 66 | 6 | 2000–2009 | 0.51 | M-v | 1 | MPC | 116161 | 2001 $QB_{330}$ |
| 2001 $QT_{330}$ | 17.4 | 0.15 | 20100104 | 29.77389 | 296.01885 | 97.34916 | 4.21904 | 0.2925766 | 2.4791125 | 107 | 3 | 2001–2009 | 0.48 | M-v | 2 | MPC | 166104 | 2001 $QT_{330}$ |
| 2001 $QO_{333}$ | 17.1 | 0.15 | 20100104 | 16.65951 | 167.25129 | 270.81975 | 8.13050 | 0.1755284 | 2.3862221 | 49 | 4 | 1998–2009 | 0.52 | M-v | 1 | MPC | 166104 | 2001 $QO_{333}$ |
| 2001 $RG_{1}$ | 16.8 | 0.15 | 20100104 | 78.66669 | 26.07541 | 341.93269 | 5.94168 | 0.1327230 | 2.3807969 | 80 | 4 | 2001–2009 | 0.53 | M-v | 2 | MPC | 119540 | 2001 $RG_{1}$ |
| 2001 $RH_{3}$ | 16.8 | 0.15 | 20100104 | 55.55356 | 87.04236 | 299.30160 | 9.51701 | 0.1586894 | 2.3997828 | 56 | 4 | 1998–2009 | 0.52 | M-v | 1 | MPC | 97456 | 2001 $RH_{3}$ |
| 2001 $RV_{3}$ | 17.4 | 0.15 | 20100104 | 82.24311 | 93.53380 | 273.50337 | 0.93402 | 0.2369481 | 2.3781930 | 94 | 4 | 2001–2009 | 0.46 | M-v | 2 | MPC | 117942 | 2001 $RV_{3}$ |
| 2001 $RG_{4}$ | 16.0 | 0.15 | 20100104 | 82.61476 | 55.51702 | 300.64066 | 5.53770 | 0.1605266 | 2.3782089 | 131 | 4 | 2001–2009 | 0.52 | M-v | 2 | MPC | 166104 | 2001 $RG_{4}$ |
| 2001 $RK_{17}$ | 16.8 | 0.15 | 20100104 | 49.91239 | 263.37971 | 118.22104 | 2.51494 | 0.1683935 | 2.4434515 | 103 | 4 | 2001–2009 | 0.53 | M-v | 2 | MPC | 166104 | 2001 $RK_{17}$ |
| 2001 $RO_{17}$ | 16.4 | 0.15 | 20100104 | 69.45511 | 55.33987 | 6.80964 | 6.65888 | 0.2022468 | 2.3463253 | 100 | 4 | 2001–2009 | 0.49 | M-v | 1 | MPC | 147171 | 2001 $RO_{17}$ |
| 2001 $RP_{19}$ | 17.5 | 0.15 | 20100104 | 98.11243 | 307.46493 | 9.61823 | 1.69937 | 0.2706143 | 2.4002123 | 54 | 4 | 2001–2009 | 0.53 | M-v | 2 | MPC | 110785 | 2001 $RP_{19}$ |
| 2001 $RU_{25}$ | 17.7 | 0.15 | 20100104 | 84.68929 | 330.23511 | 4.76208 | 1.67556 | 0.2489675 | 2.4128528 | 54 | 3 | 2001–2009 | 0.56 | M-v | 3 | MPC | 110785 | 2001 $RU_{25}$ |
| 2001 $RU_{26}$ | 16.7 | 0.15 | 20100104 | 138.34374 | 341.57332 | 354.39752 | 5.88715 | 0.1276199 | 2.3155354 | 97 | 4 | 2001–2009 | 0.43 | M-v | 1 | MPC | 147171 | 2001 $RU_{26}$ |
| 2001 $RY_{27}$ | 17.2 | 0.15 | 20100104 | 49.26693 | 172.33050 | 225.65844 | 1.51700 | 0.1744043 | 2.3881122 | 77 | 4 | 2001–2009 | 0.41 | M-v | 2 | MPC | 143124 | 2001 $RY_{27}$ |
| 2001 $RV_{31}$ | 17.0 | 0.15 | 20100104 | 91.27890 | 108.00371 | 219.12686 | 4.60344 | 0.2311838 | 2.3942987 | 127 | 4 | 2001–2009 | 0.42 | M-v | 0 | MPC | 166104 | 2001 $RV_{31}$ |
| 2001 $RW_{42}$ | 17.2 | 0.15 | 20100104 | 129.10436 | 56.39879 | 289.14626 | 6.41216 | 0.1588682 | 2.3166570 | 66 | 5 | 2001–2009 | 0.48 | M-v | 1 | MPC | 147171 | 2001 $RW_{42}$ |
| 2001 $RX_{50}$ | 17.0 | 0.15 | 20100104 | 107.88574 | 262.79650 | 70.77009 | 3.29801 | 0.2078930 | 2.3656062 | 47 | 4 | 2001–2009 | 0.45 | M-v | 2 | MPC | 164162 | 2001 $RX_{50}$ |
| 2001 $RT_{53}$ | 17.2 | 0.15 | 20100104 | 127.90507 | 227.65680 | 80.36128 | 2.21972 | 0.1929057 | 2.3633168 | 37 | 4 | 2001–2009 | 0.53 | M-v | 2 | MPC | 113785 | 2001 $RT_{53}$ |
| 2001 $RB_{54}$ | 16.9 | 0.15 | 20100104 | 102.30838 | 288.96399 | 22.08066 | 4.92341 | 0.1842017 | 2.4119777 | 71 | 5 | 2001–2009 | 0.47 | M-v | 1 | MPC | 140094 | 2001 $RB_{54}$ |
| 2001 $RK_{65}$ | 17.1 | 0.15 | 20100104 | 64.38773 | 78.79707 | 301.43582 | 4.77971 | 0.2234110 | 2.4169960 | 64 | 3 | 2001–2009 | 0.57 | M-v | 3 | MPC | 166105 | 2001 $RK_{65}$ |
| 2001 $RX_{67}$ | 15.7 | 0.15 | 20100104 | 67.06994 | 163.05533 | 229.23901 | 5.29128 | 0.0932684 | 2.3932235 | 142 | 5 | 2001–2009 | 0.51 | M-v | 1 | MPC | 141768 | 2001 $RX_{67}$ |
| 2001 $RC_{69}$ | 16.0 | 0.15 | 20100104 | 68.09989 | 41.01526 | 331.25239 | 6.28108 | 0.2363844 | 2.4258908 | 101 | 5 | 1997–2009 | 0.51 | M-v | 2 | MPC | 97458 | 2001 $RC_{69}$ |
| 2001 $RJ_{70}$ | 16.1 | 0.15 | 20100104 | 151.00979 | 35.08568 | 331.06844 | 6.74215 | 0.1538704 | 2.2787490 | 144 | 4 | 2001–2009 | 0.53 | M-v | 2 | MPC | 159070 | 2001 $RJ_{70}$ |
| 2001 $RD_{73}$ | 15.8 | 0.15 | 20100104 | 78.60155 | 31.56906 | 340.15054 | 6.38282 | 0.1111831 | 2.4167811 | 89 | 5 | 2001–2009 | 0.52 | M-v | 1 | MPC | 160741 | 2001 $RD_{73}$ |
| 2001 $RU_{80}$ | 15.7 | 0.15 | 20100104 | 49.23936 | 334.56556 | 80.73720 | 11.70739 | 0.2443191 | 2.4381102 | 186 | 5 | 2001–2009 | 0.51 | M-v | 1 | MPC | 141768 | 2001 $RU_{80}$ |
| 2001 $RM_{85}$ | 17.7 | 0.15 | 20100104 | 82.48136 | 59.44632 | 310.49934 | 1.53288 | 0.1899051 | 2.3865030 | 74 | 3 | 2001–2009 | 0.48 | M-v | 2 | MPC | 94033 | 2001 $RM_{85}$ |
| 2001 $RS_{89}$ | 17.1 | 0.15 | 20100104 | 64.42485 | 336.21327 | 38.43453 | 3.10686 | 0.2239460 | 2.4185482 | 73 | 3 | 2001–2009 | 0.51 | M-v | 3 | MPC | 97459 | 2001 $RS_{89}$ |
| 2001 $RG_{96}$ | 16.6 | 0.15 | 20100104 | 179.30933 | 259.24277 | 319.49151 | 3.13443 | 0.0444844 | 2.4503166 | 68 | 4 | 2001–2009 | 0.37 | M-v | 2 | MPC | 164162 | 2001 $RG_{96}$ |
| 2001 $RB_{97}$ | 18.0 | 0.15 | 20100104 | 102.56667 | 142.93940 | 175.65200 | 2.42025 | 0.2056024 | 2.3990704 | 40 | 4 | 2001–2009 | 0.28 | M-v | 1 | MPC | 166105 | 2001 $RB_{97}$ |
| 2001 $RY_{98}$ | 15.4 | 0.15 | 20100104 | 267.33307 | 86.89579 | 171.55841 | 9.43137 | 0.0541403 | 3.1222661 | 31 | 3 | 1999–2007 | 0.47 | M-v | 2 | MPC | 160294 | 2001 $RY_{98}$ |
| 2001 $RV_{107}$ | 17.1 | 0.15 | 20100104 | 40.38241 | 31.90652 | 16.22206 | 1.39978 | 0.1785016 | 2.3984048 | 75 | 4 | 2001–2009 | 0.43 | M-v | 2 | MPC | 166105 | 2001 $RV_{107}$ |
| 2001 $RW_{109}$ | 17.2 | 0.15 | 20100104 | 117.63431 | 160.09086 | 146.44833 | 3.08469 | 0.1775638 | 2.3912433 | 41 | 4 | 2001–2009 | 0.52 | M-v | 2 | MPC | 166105 | 2001 $RW_{109}$ |
| 2001 $RT_{114}$ | 16.9 | 0.15 | 20100104 | 60.10921 | 335.90676 | 16.50485 | 5.97305 | 0.1086917 | 2.4456515 | 55 | 4 | 2001–2009 | 0.46 | M-v | 3 | MPC | 166105 | 2001 $RT_{114}$ |
| 2001 $RG_{118}$ | 17.1 | 0.15 | 20100104 | 87.96569 | 309.86112 | 19.28317 | 1.81344 | 0.1956372 | 2.4225454 | 88 | 4 | 2001–2009 | 0.52 | M-v | 3 | MPC | 166105 | 2001 $RG_{118}$ |
| 2001 $RO_{118}$ | 16.9 | 0.15 | 20100104 | 140.64114 | 146.04856 | 146.84602 | 2.22547 | 0.2027781 | 2.3696947 | 66 | 6 | 2001–2009 | 0.39 | M-v | 0 | MPC | 116163 | 2001 $RO_{118}$ |
| 2001 $RQ_{118}$ | 16.9 | 0.15 | 20100104 | 91.99325 | 333.37452 | 25.58440 | 3.48276 | 0.1732196 | 2.3746399 | 75 | 4 | 2001–2009 | 0.52 | M-v | 2 | MPC | 117945 | 2001 $RQ_{118}$ |
| 2001 $RO_{120}$ | 17.4 | 0.15 | 20100104 | 59.39181 | 349.31821 | 23.34571 | 2.95987 | 0.1930096 | 2.4229489 | 57 | 3 | 2001–2009 | 0.47 | M-v | 3 | MPC | 166105 | 2001 $RO_{120}$ |
| 2001 $RW_{120}$ | 14.4 | 0.15 | 20100104 | 24.07323 | 319.32738 | 27.98944 | 3.69494 | 0.2534583 | 3.9702836 | 101 | 5 | 2001–2009 | 0.49 | M-v | 1 | MPC | 166105 | 2001 $RW_{120}$ |
| 2001 $RF_{122}$ | 17.1 | 0.15 | 20100104 | 72.13248 | 355.38752 | 15.28501 | 2.66178 | 0.2018308 | 2.4014493 | 43 | 4 | 2001–2009 | 0.50 | M-v | 2 | MPC | 117945 | 2001 $RF_{122}$ |
| 2001 $RT_{124}$ | 17.3 | 0.15 | 20100104 | 44.02652 | 258.80388 | 139.31691 | 3.24722 | 0.2310285 | 2.4251785 | 74 | 3 | 2001–2009 | 0.51 | M-v | 3 | MPC | 166105 | 2001 $RT_{124}$ |
| 2001 $RB_{128}$ | 16.5 | 0.15 | 20100104 | 162.12190 | 272.64675 | 24.94368 | 6.57251 | 0.1319307 | 2.3359557 | 58 | 5 | 1994–2009 | 0.54 | M-v | 2 | MPC | 156853 | 2001 $RB_{128}$ |
| 2001 $RH_{128}$ | 16.7 | 0.15 | 20100104 | 44.71436 | 296.80936 | 93.35426 | 3.38179 | 0.2281974 | 2.4354124 | 151 | 4 | 2001–2009 | 0.51 | M-v | 2 | MPC | 160741 | 2001 $RH_{128}$ |
| 2001 $RA_{134}$ | 16.0 | 0.15 | 20100104 | 31.60364 | 261.63487 | 152.06020 | 6.07680 | 0.2037563 | 2.4291550 | 136 | 5 | 1997–2009 | 0.50 | M-v | 2 | MPC | 119541 | 2001 $RA_{134}$ |
| 2001 $RY_{138}$ | 17.1 | 0.15 | 20100104 | 34.78351 | 314.53093 | 98.61034 | 3.33235 | 0.1692339 | 2.4081898 | 80 | 5 | 2001–2009 | 0.45 | M-v | 1 | MPC | 119541 | 2001 $RY_{138}$ |
| 2001 $RB_{141}$ | 16.7 | 0.15 | 20100104 | 81.12236 | 299.29105 | 43.79540 | 6.68265 | 0.1670702 | 2.4307693 | 46 | 5 | 2000–2009 | 0.61 | M-v | 3 | MPC | 166105 | 2001 $RB_{141}$ |
| 2001 $RV_{141}$ | 18.4 | 0.15 | 20100104 | 69.96679 | 76.78570 | 358.95491 | 19.11329 | 0.1607361 | 1.8212570 | 31 | 3 | 2001–2006 | 0.50 | M-v | 2 | MPC | 158412 | 2001 $RV_{141}$ |
| 2001 $RB_{145}$ | 16.7 | 0.15 | 20100104 | 51.56369 | 328.63383 | 32.35021 | 7.69409 | 0.1840306 | 2.4468714 | 139 | 3 | 2001–2009 | 0.45 | M-v | 2 | MPC | 166105 | 2001 $RB_{145}$ |
| 2001 $RE_{147}$ | 16.7 | 0.15 | 20100104 | 56.07390 | 94.46618 | 295.47301 | 13.18346 | 0.1863475 | 2.4008232 | 45 | 3 | 2001–2009 | 0.45 | M-v | 3 | MPC | 94046 | 2001 $RE_{147}$ |
| 2001 $RR_{149}$ | 17.5 | 0.15 | 20100104 | 194.80838 | 272.15977 | 5.89243 | 2.22966 | 0.1481505 | 2.2976709 | 52 | 5 | 2001–2009 | 0.41 | M-v | 1 | MPC | 148838 | 2001 $RR_{149}$ |
| 2001 $RK_{152}$ | 16.1 | 0.15 | 20100104 | 54.04175 | 297.13302 | 77.01747 | 5.69508 | 0.1929665 | 2.4346808 | 118 | 4 | 2001–2009 | 0.45 | M-v | 2 | MPC | 166105 | 2001 $RK_{152}$ |
| 2001 $RN_{152}$ | 16.6 | 0.15 | 20100104 | 227.95218 | 159.71045 | 124.83513 | 8.01748 | 0.2359107 | 2.2247251 | 118 | 5 | 2001–2009 | 0.48 | M-v | 1 | MPC | 147172 | 2001 $RN_{152}$ |
| 2001 $RT_{155}$ | 16.8 | 0.15 | 20100104 | 69.59159 | 272.52741 | 116.54947 | 5.36822 | 0.1619126 | 2.3790389 | 45 | 5 | 1999–2009 | 0.40 | M-v | 0 | MPC | 166105 | 2001 $RT_{155}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 SC | 16.6 | 0.15 | 20100104 | 81.52052 | 33.62592 | 302.47130 | 5.35454 | 0.1482779 | 2.4025213 | 102 | 4 | 2001–2009 | 0.52 | M-v | 2 | MPC | 166105 | 2001 SC |
| 2001 $SN_1$ | 17.3 | 0.15 | 20100104 | 69.30924 | 128.71929 | 230.63651 | 1.09274 | 0.1989393 | 2.4348924 | 111 | 5 | 1997–2009 | 0.49 | M-v | 2 | MPC | 166105 | 2001 $SN_1$ |
| 2001 $SE_3$ | 16.2 | 0.15 | 20100104 | 10.18806 | 315.71752 | 105.94389 | 2.37348 | 0.1487369 | 2.4769156 | 266 | 4 | 2001–2009 | 0.55 | M-v | 2 | MPC | 166105 | 2001 $SE_3$ |
| 2001 $SF_5$ | 17.0 | 0.15 | 20100104 | 356.83199 | 181.52604 | 247.18609 | 20.02858 | 0.0835634 | 1.9055133 | 71 | 4 | 2001–2009 | 0.54 | M-v | 1 | MPC | 166105 | 2001 $SF_5$ |
| 2001 $SF_8$ | 15.3 | 0.15 | 20100104 | 247.70002 | 117.18268 | 148.16909 | 5.68756 | 0.0869823 | 3.1411746 | 74 | 7 | 2001–2009 | 0.44 | M-v | 0 | MPC | 126597 | 2001 $SF_8$ |
| 2001 $SS_8$ | 16.9 | 0.15 | 20100104 | 203.74265 | 210.78083 | 13.85137 | 4.43601 | 0.1635974 | 2.4337775 | 50 | 4 | 2001–2009 | 0.39 | M-v | 3 | MPC | 166105 | 2001 $SS_8$ |
| 2001 $SW_8$ | 16.4 | 0.15 | 20100104 | 90.50473 | 154.54275 | 209.01848 | 11.95401 | 0.1913596 | 2.3767176 | 95 | 6 | 1993–2009 | 0.52 | M-v | 1 | MPC | 148839 | 2001 $SW_8$ |
| 2001 $SO_{13}$ | 17.2 | 0.15 | 20100104 | 106.89920 | 148.89194 | 168.01917 | 2.59021 | 0.2276602 | 2.4020679 | 65 | 5 | 2001–2009 | 0.43 | M-v | 1 | MPC | 166105 | 2001 $SO_{13}$ |
| 2001 $SX_{14}$ | 17.3 | 0.15 | 20100104 | 59.16057 | 30.87251 | 350.13400 | 0.51273 | 0.1917144 | 2.4181846 | 96 | 6 | 1994–2009 | 0.49 | M-v | 1 | MPC | 119542 | 2001 $SX_{14}$ |
| 2001 $SV_{17}$ | 16.8 | 0.15 | 20100104 | 72.81841 | 229.86107 | 142.46152 | 3.40246 | 0.1891826 | 2.4042061 | 72 | 4 | 1960–2009 | 0.50 | M-v | 1 | MPC | 157353 | 2001 $SV_{17}$ |
| 2001 $SK_{18}$ | 16.7 | 0.15 | 20100104 | 40.86195 | 215.28013 | 170.80707 | 6.47551 | 0.1491827 | 2.4491133 | 86 | 4 | 2001–2009 | 0.53 | M-v | 3 | MPC | 166106 | 2001 $SK_{18}$ |
| 2001 $SM_{23}$ | 16.9 | 0.15 | 20100104 | 73.30976 | 179.51620 | 180.32100 | 3.69802 | 0.1327024 | 2.4233877 | 100 | 4 | 2001–2009 | 0.47 | M-v | 2 | MPC | 166106 | 2001 $SM_{23}$ |
| 2001 $SV_{24}$ | 17.3 | 0.15 | 20100104 | 83.53262 | 134.46486 | 200.92323 | 5.70007 | 0.2397772 | 2.4320769 | 96 | 5 | 1997–2009 | 0.49 | M-v | 1 | MPC | 140094 | 2001 $SV_{24}$ |
| 2001 $ST_{28}$ | 17.6 | 0.15 | 20100104 | 134.96601 | 306.32720 | 23.32156 | 2.30384 | 0.1560032 | 2.3501291 | 53 | 6 | 2000–2009 | 0.44 | M-v | 1 | MPC | 143126 | 2001 $ST_{28}$ |
| 2001 $SD_{29}$ | 17.0 | 0.15 | 20100104 | 47.08305 | 247.06239 | 146.49904 | 1.58069 | 0.1936520 | 2.4356194 | 125 | 5 | 1997–2009 | 0.49 | M-v | 1 | MPC | 100050 | 2001 $SD_{29}$ |
| 2001 $SL_{30}$ | 17.6 | 0.15 | 20100104 | 38.24586 | 340.30211 | 43.18697 | 1.82671 | 0.1949822 | 2.4696202 | 106 | 3 | 2001–2009 | 0.43 | M-v | 2 | MPC | 166106 | 2001 $SL_{30}$ |
| 2001 $SM_{31}$ | 16.5 | 0.15 | 20100104 | 29.11318 | 357.86122 | 39.26981 | 4.06550 | 0.2042322 | 2.4708952 | 210 | 3 | 2001–2009 | 0.47 | M-v | 2 | MPC | 166106 | 2001 $SM_{31}$ |
| 2001 $SL_{32}$ | 17.6 | 0.15 | 20100104 | 88.58153 | 160.42914 | 165.27379 | 2.21604 | 0.2215858 | 2.4419897 | 36 | 4 | 2001–2009 | 0.42 | M-v | 2 | MPC | 166106 | 2001 $SL_{32}$ |
| 2001 $SA_{38}$ | 17.0 | 0.15 | 20100104 | 103.97739 | 231.86531 | 107.65592 | 2.50437 | 0.1995203 | 2.3987253 | 44 | 6 | 1999–2009 | 0.38 | M-v | 1 | MPC | 160742 | 2001 $SA_{38}$ |
| 2001 $SX_{61}$ | 15.7 | 0.15 | 20100104 | 90.60606 | 319.89154 | 30.67650 | 6.17025 | 0.1544113 | 2.4191808 | 177 | 4 | 2001–2009 | 0.54 | M-v | 2 | MPC | 162318 | 2001 $SX_{61}$ |
| 2001 $SO_{69}$ | 15.7 | 0.15 | 20100104 | 20.48542 | 240.61073 | 159.63505 | 6.10459 | 0.1380322 | 2.5212466 | 146 | 5 | 2001–2009 | 0.58 | M-v | 3 | MPC | 166106 | 2001 $SO_{69}$ |
| 2001 $SB_{84}$ | 16.6 | 0.15 | 20100104 | 27.05751 | 222.59742 | 192.00029 | 6.65771 | 0.1079546 | 2.4010629 | 82 | 5 | 1994–2009 | 0.56 | M-v | 1 | MPC | 119543 | 2001 $SB_{84}$ |
| 2001 $SZ_{85}$ | 14.5 | 0.15 | 20100104 | 314.28356 | 227.84743 | 328.87783 | 26.42314 | 0.1357466 | 3.0973480 | 48 | 6 | 1999–2009 | 0.69 | M-v | 0 | MPC | 126598 | 2001 $SZ_{85}$ |
| 2001 $SF_{86}$ | 17.3 | 0.15 | 20100104 | 135.08245 | 48.98107 | 245.79703 | 1.51986 | 0.2091928 | 2.3597519 | 59 | 4 | 2001–2009 | 0.54 | M-v | 1 | MPC | 166106 | 2001 $SF_{86}$ |
| 2001 $SX_{86}$ | 16.8 | 0.15 | 20100104 | 334.26773 | 119.17584 | 202.81131 | 3.09099 | 0.1712259 | 2.6877018 | 45 | 5 | 2000–2008 | 0.39 | M-v | 2 | MPC | 156855 | 2001 $SX_{86}$ |
| 2001 $SZ_{89}$ | 17.3 | 0.15 | 20100104 | 12.30196 | 76.76962 | 317.76977 | 2.30696 | 0.1500061 | 2.4820916 | 79 | 6 | 1993–2009 | 0.53 | M-v | 1 | MPC | 166106 | 2001 $SZ_{89}$ |
| 2001 $SZ_{90}$ | 17.5 | 0.15 | 20100104 | 49.89185 | 58.14791 | 319.55827 | 2.79436 | 0.1483950 | 2.4318642 | 65 | 5 | 2001–2009 | 0.44 | M-v | 1 | MPC | 166106 | 2001 $SZ_{90}$ |
| 2001 $SH_{95}$ | 17.3 | 0.15 | 20100104 | 79.77632 | 144.03459 | 203.50518 | 2.85991 | 0.1423946 | 2.4193273 | 65 | 4 | 2001–2009 | 0.37 | M-v | 2 | MPC | 166106 | 2001 $SH_{95}$ |
| 2001 $SN_{99}$ | 16.7 | 0.15 | 20100104 | 163.40058 | 89.61260 | 189.68546 | 6.17135 | 0.1198495 | 2.3723983 | 70 | 8 | 1993–2009 | 0.51 | M-v | 0 | MPC | 140670 | 2001 $SN_{99}$ |
| 2001 $SF_{103}$ | 16.8 | 0.15 | 20100104 | 74.28431 | 50.17033 | 320.31923 | 3.72107 | 0.1953010 | 2.4115097 | 114 | 5 | 1999–2009 | 0.52 | M-v | 1 | MPC | 119544 | 2001 $SF_{103}$ |
| 2001 $SQ_{103}$ | 17.6 | 0.15 | 20100104 | 27.69295 | 89.83216 | 315.40372 | 1.04943 | 0.2183078 | 2.4545814 | 72 | 3 | 2001–2009 | 0.42 | M-v | 2 | MPC | 166106 | 2001 $SQ_{103}$ |
| 2001 $SG_{104}$ | 17.0 | 0.15 | 20100104 | 93.78290 | 84.18154 | 262.26329 | 5.03865 | 0.1342173 | 2.3975064 | 58 | 4 | 1997–2009 | 0.45 | M-v | 2 | MPC | 94071 | 2001 $SG_{104}$ |
| 2001 $SS_{116}$ | 16.2 | 0.15 | 20100104 | 15.48248 | 168.78280 | 249.18586 | 5.77457 | 0.1270244 | 2.4221410 | 101 | 4 | 2001–2009 | 0.55 | M-v | 2 | MPC | 166106 | 2001 $SS_{116}$ |
| 2001 $ST_{116}$ | 16.5 | 0.15 | 20100104 | 117.05858 | 43.33879 | 272.19454 | 5.37891 | 0.1059409 | 2.3859031 | 88 | 4 | 2001–2009 | 0.52 | M-v | 2 | MPC | 166106 | 2001 $ST_{116}$ |
| 2001 $SL_{117}$ | 17.5 | 0.15 | 20100104 | 124.67692 | 84.50169 | 231.36037 | 4.57741 | 0.2359114 | 2.3628532 | 83 | 4 | 2001–2009 | 0.42 | M-v | 1 | MPC | 97467 | 2001 $SL_{117}$ |
| 2001 $SF_{119}$ | 16.4 | 0.15 | 20100104 | 28.10892 | 142.16588 | 300.42515 | 6.70447 | 0.0748597 | 2.3562519 | 70 | 5 | 2001–2009 | 0.52 | M-v | 1 | MPC | 166106 | 2001 $SF_{119}$ |
| 2001 $SP_{119}$ | 17.2 | 0.15 | 20100104 | 121.53488 | 350.94062 | 310.88098 | 4.74956 | 0.2280210 | 2.3925872 | 32 | 3 | 2001–2009 | 0.50 | M-v | 3 | MPC | 100054 | 2001 $SP_{119}$ |
| 2001 $SR_{119}$ | 16.1 | 0.15 | 20100104 | 96.29636 | 348.46572 | 326.83785 | 7.28818 | 0.1095542 | 2.4401786 | 125 | 4 | 2001–2009 | 0.55 | M-v | 3 | MPC | 166106 | 2001 $SR_{119}$ |
| 2001 $SX_{119}$ | 16.3 | 0.15 | 20100104 | 76.16759 | 57.40152 | 318.79300 | 5.99868 | 0.1173438 | 2.3843167 | 79 | 3 | 2001–2009 | 0.56 | M-v | 3 | MPC | 97467 | 2001 $SX_{119}$ |
| 2001 $SV_{122}$ | 16.7 | 0.15 | 20100104 | 106.38256 | 45.96150 | 300.50058 | 5.98765 | 0.1723664 | 2.3561303 | 57 | 3 | 2001–2009 | 0.52 | M-v | 3 | MPC | 166106 | 2001 $SV_{122}$ |
| 2001 $SE_{123}$ | 16.9 | 0.15 | 20100104 | 73.03332 | 46.30319 | 289.13265 | 3.69398 | 0.1943783 | 2.4364562 | 72 | 3 | 2001–2009 | 0.50 | M-v | 3 | MPC | 166106 | 2001 $SE_{123}$ |
| 2001 $SN_{127}$ | 17.2 | 0.15 | 20100104 | 52.85527 | 136.23012 | 279.59361 | 1.48610 | 0.1945095 | 2.3789748 | 92 | 3 | 2001–2009 | 0.47 | M-v | 2 | MPC | 102042 | 2001 $SN_{127}$ |
| 2001 $SA_{132}$ | 16.9 | 0.15 | 20100104 | 156.99653 | 91.57204 | 187.31603 | 4.85050 | 0.2293447 | 2.3656444 | 72 | 6 | 1993–2009 | 0.52 | M-v | 0 | MPC | 147174 | 2001 $SA_{132}$ |
| 2001 $SQ_{132}$ | 16.7 | 0.15 | 20100104 | 68.10436 | 353.90294 | 344.12610 | 5.28740 | 0.1952863 | 2.4614524 | 102 | 4 | 2001–2009 | 0.53 | M-v | 3 | MPC | 166106 | 2001 $SQ_{132}$ |
| 2001 $SH_{135}$ | 17.3 | 0.15 | 20100104 | 134.63929 | 340.46060 | 314.48461 | 0.83338 | 0.1823198 | 2.3940915 | 69 | 6 | 2000–2009 | 0.48 | M-v | 0 | MPC | 117950 | 2001 $SH_{135}$ |
| 2001 $SO_{136}$ | 16.4 | 0.15 | 20100104 | 259.33574 | 305.97268 | 194.93396 | 14.50468 | 0.1145235 | 2.5228541 | 89 | 5 | 2001–2009 | 0.37 | M-v | 2 | MPC | 164164 | 2001 $SO_{136}$ |
| 2001 $SY_{136}$ | 17.5 | 0.15 | 20100104 | 54.52483 | 175.07511 | 212.20090 | 2.49413 | 0.1862224 | 2.4254024 | 40 | 3 | 2001–2009 | 0.39 | M-v | 2 | MPC | 117950 | 2001 $SY_{136}$ |
| 2001 $SN_{138}$ | 16.6 | 0.15 | 20100104 | 57.79677 | 3.80899 | 358.80769 | 6.70766 | 0.0622978 | 2.4571809 | 89 | 4 | 2001–2009 | 0.51 | M-v | 3 | MPC | 166106 | 2001 $SN_{138}$ |
| 2001 $SW_{139}$ | 17.4 | 0.15 | 20100104 | 125.06480 | 307.71303 | 356.24396 | 2.20347 | 0.1817097 | 2.4045324 | 56 | 7 | 1960–2009 | 0.46 | M-v | 0 | MPC | 157354 | 2001 $SW_{139}$ |
| 2001 $SH_{140}$ | 16.9 | 0.15 | 20100104 | 45.30524 | 198.87653 | 185.08263 | 2.72752 | 0.1864991 | 2.4527533 | 161 | 4 | 2001–2009 | 0.52 | M-v | 2 | MPC | 166107 | 2001 $SH_{140}$ |
| 2001 $SN_{141}$ | 16.6 | 0.15 | 20100104 | 2.77885 | 112.84659 | 327.44224 | 4.71658 | 0.0905839 | 2.4146619 | 80 | 5 | 2001–2009 | 0.57 | M-v | 0 | MPC | 166107 | 2001 $SN_{141}$ |
| 2001 $SE_{143}$ | 17.2 | 0.15 | 20100104 | 93.40902 | 66.43653 | 290.77807 | 2.78465 | 0.1654235 | 2.3821891 | 53 | 4 | 2001–2009 | 0.49 | M-v | 2 | MPC | 117950 | 2001 $SE_{143}$ |
| 2001 $SA_{145}$ | 16.2 | 0.15 | 20100104 | 103.13723 | 352.25252 | 331.64872 | 4.76394 | 0.1181808 | 2.4161424 | 74 | 5 | 2001–2009 | 0.63 | M-v | 2 | MPC | 117950 | 2001 $SA_{145}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 $SD_{148}$ | 17.3 | 0.15 | 20100104 | 73.83483 | 57.73864 | 300.61489 | 3.16885 | 0.2636081 | 2.4215444 | 87 | 3 | 2001–2009 | 0.50 | M-v | 2 | MPC | 160743 | 2001 $SD_{148}$ |
| 2001 $SD_{149}$ | 15.3 | 0.15 | 20100104 | 244.77833 | 174.11096 | 337.93526 | 6.68956 | 0.0503209 | 2.5158017 | 323 | 5 | 2001–2009 | 0.56 | M-v | 2 | MPC | 164164 | 2001 $SD_{149}$ |
| 2001 $SF_{152}$ | 16.9 | 0.15 | 20100104 | 32.83522 | 18.70481 | 342.33569 | 3.89114 | 0.2023881 | 2.5178178 | 104 | 5 | 2001–2009 | 0.51 | M-v | 2 | MPC | 164164 | 2001 $SF_{152}$ |
| 2001 $SG_{156}$ | 17.1 | 0.15 | 20100104 | 30.00973 | 184.66497 | 220.73761 | 6.76817 | 0.1986092 | 2.4461764 | 105 | 4 | 2001–2009 | 0.49 | M-v | 2 | MPC | 143128 | 2001 $SG_{156}$ |
| 2001 $SR_{156}$ | 16.3 | 0.15 | 20100104 | 41.43990 | 100.96725 | 316.29607 | 6.61705 | 0.1683140 | 2.4015446 | 54 | 4 | 1999–2009 | 0.49 | M-v | 1 | MPC | 94084 | 2001 $SR_{156}$ |
| 2001 $SD_{157}$ | 15.9 | 0.15 | 20100104 | 357.93692 | 133.43432 | 325.18344 | 6.30490 | 0.0814849 | 2.4002857 | 90 | 5 | 2001–2009 | 0.60 | M-v | 1 | MPC | 143128 | 2001 $SD_{157}$ |
| 2001 $SN_{160}$ | 17.2 | 0.15 | 20100104 | 18.28102 | 166.56084 | 205.87649 | 8.38637 | 0.2353867 | 2.5317305 | 134 | 3 | 2001–2009 | 0.46 | M-v | 2 | MPC | 166107 | 2001 $SN_{160}$ |
| 2001 $SP_{162}$ | 16.5 | 0.15 | 20100104 | 76.39321 | 355.73065 | 349.84676 | 3.33898 | 0.2164990 | 2.4481843 | 93 | 4 | 2001–2009 | 0.51 | M-v | 2 | MPC | 160743 | 2001 $SP_{162}$ |
| 2001 $SW_{162}$ | 16.6 | 0.15 | 20100104 | 88.85964 | 163.47929 | 197.46468 | 1.86013 | 0.1864404 | 2.4031375 | 97 | 4 | 2001–2009 | 0.51 | M-v | 2 | MPC | 166107 | 2001 $SW_{162}$ |
| 2001 $SM_{163}$ | 17.0 | 0.15 | 20100104 | 38.85153 | 192.05266 | 195.66304 | 8.22955 | 0.2306295 | 2.4722841 | 93 | 3 | 2001–2009 | 0.55 | M-v | 3 | MPC | 166107 | 2001 $SM_{163}$ |
| 2001 $SV_{164}$ | 17.1 | 0.15 | 20100104 | 349.79130 | 50.33501 | 22.40858 | 21.09702 | 0.1435805 | 1.9358136 | 121 | 4 | 2001–2009 | 0.54 | M-v | 2 | MPC | 166107 | 2001 $SV_{164}$ |
| 2001 $SH_{171}$ | 16.6 | 0.15 | 20100104 | 61.69099 | 87.86500 | 313.12553 | 5.35194 | 0.1070609 | 2.3719959 | 37 | 3 | 2001–2009 | 0.35 | M-v | 4 | MPC | 166107 | 2001 $SH_{171}$ |
| 2001 $SO_{172}$ | 17.1 | 0.15 | 20100104 | 45.82966 | 24.97106 | 356.07948 | 1.19067 | 0.1955135 | 2.4550185 | 116 | 5 | 1995–2009 | 0.50 | M-v | 1 | MPC | 166107 | 2001 $SO_{172}$ |
| 2001 $ST_{174}$ | 16.2 | 0.15 | 20100104 | 63.77815 | 281.17718 | 84.30889 | 2.33582 | 0.1946835 | 2.4370977 | 204 | 5 | 2001–2009 | 0.50 | M-v | 1 | MPC | 117951 | 2001 $ST_{174}$ |
| 2001 $SP_{175}$ | 16.7 | 0.15 | 20100104 | 121.73404 | 253.82836 | 69.18709 | 2.16678 | 0.1915616 | 2.3875111 | 72 | 5 | 2000–2009 | 0.45 | M-v | 1 | MPC | 97470 | 2001 $SP_{175}$ |
| 2001 $SM_{193}$ | 18.3 | 0.15 | 20100104 | 88.47995 | 155.91085 | 174.35403 | 0.59396 | 0.1981681 | 2.4208621 | 34 | 4 | 2001–2009 | 0.34 | M-v | 1 | MPC | 140095 | 2001 $SM_{193}$ |
| 2001 $SZ_{197}$ | 16.7 | 0.15 | 20100104 | 42.87347 | 25.66276 | 7.63188 | 5.35512 | 0.1406822 | 2.4247299 | 112 | 4 | 2001–2009 | 0.48 | M-v | 3 | MPC | 119545 | 2001 $SZ_{197}$ |
| 2001 $SQ_{208}$ | 17.0 | 0.15 | 20100104 | 119.16906 | 249.13257 | 41.90276 | 2.67761 | 0.2066735 | 2.4225716 | 47 | 5 | 2001–2009 | 0.42 | M-v | 0 | MPC | 166107 | 2001 $SQ_{208}$ |
| 2001 $ST_{211}$ | 17.8 | 0.15 | 20100104 | 37.86355 | 51.64590 | 354.51116 | 1.24130 | 0.1710410 | 2.4276427 | 58 | 4 | 1999–2009 | 0.41 | M-v | 1 | MPC | 97471 | 2001 $ST_{211}$ |
| 2001 $SH_{212}$ | 18.1 | 0.15 | 20100104 | 33.64386 | 215.91419 | 165.79216 | 3.23856 | 0.2763360 | 2.4793136 | 40 | 3 | 2001–2009 | 0.45 | M-v | 3 | MPC | 166107 | 2001 $SH_{212}$ |
| 2001 $SH_{217}$ | 17.6 | 0.15 | 20100104 | 47.25142 | 219.18580 | 179.50558 | 2.10110 | 0.2131179 | 2.4228110 | 32 | 4 | 2001–2009 | 0.66 | M-v | 3 | MPC | 119545 | 2001 $SH_{217}$ |
| 2001 $SK_{225}$ | 17.2 | 0.15 | 20100104 | 66.41826 | 352.49956 | 26.92293 | 4.00775 | 0.1426059 | 2.4156012 | 67 | 5 | 2001–2009 | 0.48 | M-v | 1 | MPC | 164164 | 2001 $SK_{225}$ |
| 2001 $SO_{225}$ | 17.7 | 0.15 | 20100104 | 47.02305 | 208.30546 | 181.68639 | 1.40204 | 0.1866239 | 2.4423639 | 60 | 4 | 2001–2009 | 0.44 | M-v | 2 | MPC | 97472 | 2001 $SO_{225}$ |
| 2001 $SV_{225}$ | 17.4 | 0.15 | 20100104 | 26.24826 | 342.45300 | 20.18003 | 4.69106 | 0.1563410 | 2.5299252 | 74 | 4 | 2001–2009 | 0.37 | M-v | 2 | MPC | 166107 | 2001 $SV_{225}$ |
| 2001 $SL_{229}$ | 16.8 | 0.15 | 20100104 | 351.38665 | 335.34555 | 41.92023 | 4.14632 | 0.2139374 | 2.5914640 | 77 | 6 | 2001–2009 | 0.59 | M-v | 1 | MPC | 159667 | 2001 $SL_{229}$ |
| 2001 $SX_{233}$ | 17.0 | 0.15 | 20100104 | 29.50056 | 266.21432 | 93.63441 | 2.37681 | 0.2223098 | 2.5320274 | 115 | 4 | 2001–2009 | 0.44 | M-v | 2 | MPC | 164164 | 2001 $SX_{233}$ |
| 2001 $SC_{240}$ | 17.2 | 0.15 | 20100104 | 84.07162 | 287.18571 | 51.06398 | 3.24734 | 0.1977330 | 2.4378406 | 58 | 5 | 2001–2009 | 0.36 | M-v | 1 | MPC | 166107 | 2001 $SC_{240}$ |
| 2001 $SX_{242}$ | 16.6 | 0.15 | 20100104 | 47.58670 | 336.71679 | 57.66265 | 6.01150 | 0.1643394 | 2.4309613 | 99 | 4 | 2001–2009 | 0.44 | M-v | 2 | MPC | 119545 | 2001 $SX_{242}$ |
| 2001 $SA_{247}$ | 16.7 | 0.15 | 20100104 | 72.94552 | 225.97023 | 151.22603 | 2.89915 | 0.1789104 | 2.4177238 | 53 | 3 | 2001–2009 | 0.48 | M-v | 3 | MPC | 94103 | 2001 $SA_{247}$ |
| 2001 $SU_{247}$ | 17.0 | 0.15 | 20100104 | 34.01982 | 318.54670 | 84.89280 | 2.10884 | 0.1710200 | 2.4617569 | 143 | 3 | 2001–2009 | 0.56 | M-v | 2 | MPC | 166107 | 2001 $SU_{247}$ |
| 2001 $SV_{248}$ | 16.2 | 0.15 | 20100104 | 46.94440 | 343.31872 | 30.55971 | 6.18863 | 0.1182167 | 2.4819005 | 152 | 5 | 2001–2009 | 0.53 | M-v | 2 | MPC | 166107 | 2001 $SV_{248}$ |
| 2001 $SL_{256}$ | 16.9 | 0.15 | 20100104 | 99.16374 | 173.10732 | 169.02507 | 1.26677 | 0.1915671 | 2.4164553 | 49 | 4 | 2001–2009 | 0.44 | M-v | 2 | MPC | 117953 | 2001 $SL_{256}$ |
| 2001 $SR_{258}$ | 16.7 | 0.15 | 20100104 | 220.87974 | 201.00131 | 341.85719 | 1.24861 | 0.1151054 | 2.4682154 | 122 | 5 | 1997–2009 | 0.38 | M-v | 2 | MPC | 166107 | 2001 $SR_{258}$ |
| 2001 $SO_{259}$ | 17.6 | 0.15 | 20100104 | 59.08655 | 276.71106 | 65.88403 | 2.86211 | 0.2045273 | 2.4663250 | 50 | 3 | 2001–2009 | 0.38 | M-v | 3 | MPC | 166107 | 2001 $SO_{259}$ |
| 2001 $SH_{263}$ | 17.3 | 0.15 | 20100104 | 50.30660 | 157.31012 | 208.47878 | 20.76818 | 0.0771978 | 1.9146625 | 140 | 3 | 1995–2009 | 0.54 | M-v | 2 | MPC | 166107 | 2001 $SH_{263}$ |
| 2001 $SY_{264}$ | 17.4 | 0.15 | 20100104 | 37.08809 | 312.75395 | 73.14158 | 2.80626 | 0.2468453 | 2.4797398 | 126 | 4 | 2001–2009 | 0.45 | M-v | 2 | MPC | 166107 | 2001 $SY_{264}$ |
| 2001 $SC_{269}$ | 18.1 | 0.15 | 20100104 | 43.64524 | 355.81157 | 15.53735 | 2.19460 | 0.1949056 | 2.4759465 | 79 | 4 | 1997–2009 | 0.45 | M-v | 2 | MPC | 166108 | 2001 $SC_{269}$ |
| 2001 $SN_{269}$ | 18.3 | 0.15 | 20100104 | 55.63476 | 52.73797 | 321.61910 | 0.62766 | 0.1987743 | 2.4475491 | 53 | 3 | 2001–2009 | 0.47 | M-v | 3 | MPC | 97474 | 2001 $SN_{269}$ |
| 2001 $SA_{270}$ | 18.0 | 0.15 | 20100104 | 237.08189 | 15.55625 | 210.05480 | 38.54133 | 0.7352987 | 1.3022953 | 99 | 5 | 2001–2009 | 0.45 | M-v | 3 | MPC | 128732 | 2001 $SA_{270}$ |
| 2001 $SA_{274}$ | 18.5 | 0.15 | 20100104 | 22.36632 | 228.62824 | 187.35927 | 1.06852 | 0.1699077 | 2.4255336 | 30 | 3 | 2001–2009 | 0.26 | M-v | 4 | MPC | 84964 | 2001 $SA_{274}$ |
| 2001 $SP_{277}$ | 16.3 | 0.15 | 20100104 | 359.54910 | 132.19971 | 283.44497 | 6.49332 | 0.3100719 | 2.5429444 | 234 | 3 | 2001–2009 | 0.53 | M-v | 2 | MPC | 166108 | 2001 $SP_{277}$ |
| 2001 $SE_{282}$ | 17.5 | 0.15 | 20100104 | 67.15850 | 111.36402 | 253.11872 | 18.57187 | 0.0881502 | 1.8889853 | 47 | 3 | 2001–2009 | 0.52 | M-v | 2 | MPC | 165316 | 2001 $SE_{282}$ |
| 2001 $SA_{285}$ | 17.4 | 0.15 | 20100104 | 51.10666 | 53.53099 | 354.09831 | 3.17693 | 0.1246416 | 2.3977573 | 61 | 4 | 2001–2009 | 0.46 | M-v | 2 | MPC | 119546 | 2001 $SA_{285}$ |
| 2001 $SG_{286}$ | 20.9 | 0.15 | 20100104 | 114.37167 | 56.12410 | 241.26048 | 7.77234 | 0.3472271 | 1.3581589 | 64 | 3 | 2001–2009 | 0.46 | M-v | 1 | MPC | 166108 | 2001 $SG_{286}$ |
| 2001 $SO_{288}$ | 16.6 | 0.15 | 20100104 | 87.91587 | 35.37916 | 318.91407 | 6.09042 | 0.1405426 | 2.4097757 | 63 | 6 | 1997–2009 | 0.54 | M-v | 1 | MPC | 114627 | 2001 $SO_{288}$ |
| 2001 $SJ_{301}$ | 17.5 | 0.15 | 20100104 | 2.35897 | 214.98351 | 231.70329 | 1.38844 | 0.1380555 | 2.4190576 | 93 | 4 | 2001–2009 | 0.38 | M-v | 1 | MPC | 119546 | 2001 $SJ_{301}$ |
| 2001 $SU_{303}$ | 17.8 | 0.15 | 20100104 | 46.99003 | 131.83389 | 264.86721 | 1.02149 | 0.2020456 | 2.4303084 | 46 | 3 | 2001–2009 | 0.34 | M-v | 3 | MPC | 97475 | 2001 $SU_{303}$ |
| 2001 $SD_{307}$ | 17.1 | 0.15 | 20100104 | 5.69562 | 55.70372 | 10.43647 | 2.82269 | 0.0872538 | 2.4371124 | 109 | 4 | 2001–2009 | 0.48 | M-v | 2 | MPC | 166108 | 2001 $SD_{307}$ |
| 2001 $SF_{308}$ | 17.1 | 0.15 | 20100104 | 85.71520 | 248.22467 | 115.48924 | 3.17285 | 0.2023074 | 2.3939489 | 38 | 3 | 2001–2009 | 0.49 | M-v | 2 | MPC | 100061 | 2001 $SF_{308}$ |
| 2001 $SU_{308}$ | 17.4 | 0.15 | 20100104 | 76.82299 | 273.11078 | 103.77825 | 2.22063 | 0.1801944 | 2.3762928 | 60 | 4 | 1998–2009 | 0.47 | M-v | 1 | MPC | 97475 | 2001 $SU_{308}$ |
| 2001 $SE_{313}$ | 18.6 | 0.15 | 20100104 | 25.02415 | 288.16277 | 113.18615 | 4.02025 | 0.3896838 | 2.4890338 | 98 | 3 | 2001–2009 | 0.54 | M-v | 2 | MPC | 164165 | 2001 $SE_{313}$ |
| 2001 $SM_{313}$ | 16.5 | 0.15 | 20100104 | 103.10811 | 286.71808 | 57.28743 | 8.56980 | 0.1384250 | 2.3932478 | 59 | 5 | 2001–2009 | 0.54 | M-v | 1 | MPC | 141770 | 2001 $SM_{313}$ |
| 2001 $SS_{316}$ | 16.6 | 0.15 | 20100104 | 4.13975 | 109.14581 | 319.51642 | 8.30320 | 0.2671123 | 2.5239853 | 87 | 3 | 2001–2009 | 0.54 | M-v | 2 | MPC | 166108 | 2001 $SS_{316}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 $SF_{320}$ | 17.4 | 0.15 | 20100104 | 80.55733 | 225.71274 | 111.95253 | 2.23067 | 0.1704185 | 2.4513062 | 64 | 5 | 2001–2009 | 0.53 | M-v | 1 | MPC | 166108 | 2001 $SF_{320}$ |
| 2001 $SA_{324}$ | 18.0 | 0.15 | 20100104 | 50.90414 | 69.64825 | 293.68569 | 3.41462 | 0.2479939 | 2.4679175 | 44 | 3 | 2001–2009 | 0.47 | M-v | 3 | MPC | 166108 | 2001 $SA_{324}$ |
| 2001 $SB_{329}$ | 17.7 | 0.15 | 20100104 | 96.42915 | 342.67445 | 347.72724 | 2.20421 | 0.2039594 | 2.3938399 | 28 | 3 | 2001–2009 | 0.48 | M-v | 3 | MPC | 94119 | 2001 $SB_{329}$ |
| 2001 $SC_{330}$ | 17.6 | 0.15 | 20100104 | 36.10470 | 215.74389 | 208.38343 | 0.50936 | 0.1714527 | 2.3873609 | 66 | 4 | 2001–2009 | 0.41 | M-v | 2 | MPC | 166108 | 2001 $SC_{330}$ |
| 2001 $SC_{331}$ | 18.6 | 0.15 | 20100104 | 31.74568 | 52.30352 | 343.92482 | 1.81297 | 0.1857411 | 2.4489566 | 38 | 3 | 2001–2009 | 0.37 | M-v | 3 | MPC | 166108 | 2001 $SC_{331}$ |
| 2001 $SG_{332}$ | 17.6 | 0.15 | 20100104 | 13.96268 | 251.42746 | 165.28788 | 2.53052 | 0.2040047 | 2.4474797 | 68 | 3 | 2001–2009 | 0.54 | M-v | 3 | MPC | 166108 | 2001 $SG_{332}$ |
| 2001 $SO_{339}$ | 14.9 | 0.15 | 20100104 | 251.47075 | 313.86761 | 329.04505 | 26.67735 | 0.1298118 | 3.0978528 | 44 | 4 | 2001–2009 | 0.41 | M-v | 2 | MPC | 104172 | 2001 $SO_{339}$ |
| 2001 $SX_{341}$ | 17.1 | 0.15 | 20100104 | 146.68245 | 54.80878 | 247.21191 | 5.98898 | 0.1200986 | 2.3629579 | 46 | 5 | 2001–2009 | 0.39 | M-v | 1 | MPC | 147177 | 2001 $SX_{341}$ |
| 2001 $SW_{346}$ | 17.1 | 0.15 | 20100104 | 55.99006 | 118.21180 | 288.07686 | 5.32896 | 0.1233318 | 2.3943889 | 48 | 4 | 2001–2009 | 0.48 | M-v | 1 | MPC | 140671 | 2001 $SW_{346}$ |
| 2001 $SJ_{347}$ | 16.5 | 0.15 | 20100104 | 22.35381 | 135.82014 | 332.35698 | 7.21223 | 0.0580015 | 2.3410834 | 47 | 5 | 2001–2009 | 0.56 | M-v | 1 | MPC | 166108 | 2001 $SJ_{347}$ |
| 2001 $SM_{350}$ | 17.4 | 0.15 | 20100104 | 87.40896 | 338.51761 | 22.39359 | 2.19788 | 0.2160786 | 2.4299289 | 50 | 4 | 2001–2009 | 0.36 | M-v | 2 | MPC | 166108 | 2001 $SM_{350}$ |
| 2001 $SO_{355}$ | 17.9 | 0.15 | 20010928 | 30.26763 | 207.64339 | 106.59826 | 3.14770 | 0.2053054 | 2.4312557 | 11 | 1 | 24 days | 0.24 | | | MPC | | 2001 $SO_{355}$ |
| 2001 TE | 15.8 | 0.15 | 20100104 | 69.36499 | 322.42370 | 25.54851 | 9.23050 | 0.4413121 | 2.4135679 | 109 | 5 | 1993–2009 | 0.51 | M-v | 1 | MPC | 139154 | 2001 TE |
| 2001 $TK_2$ | 17.3 | 0.15 | 20100104 | 56.12798 | 83.48248 | 303.57351 | 1.57791 | 0.1991427 | 2.4236529 | 73 | 5 | 2001–2009 | 0.52 | M-v | 2 | MPC | 166108 | 2001 $TK_2$ |
| 2001 $TW_4$ | 17.5 | 0.15 | 20100104 | 74.13105 | 11.95257 | 333.19462 | 0.61698 | 0.1900529 | 2.4472605 | 54 | 3 | 2001–2009 | 0.50 | M-v | 3 | MPC | 166108 | 2001 $TW_4$ |
| 2001 $TT_5$ | 16.7 | 0.15 | 20100104 | 46.83044 | 271.69459 | 106.63496 | 5.60395 | 0.1191583 | 2.4384197 | 49 | 3 | 2001–2009 | 0.57 | M-v | 3 | MPC | 166108 | 2001 $TT_5$ |
| 2001 $TD_8$ | 17.0 | 0.15 | 20100104 | 48.93034 | 314.53014 | 107.61425 | 7.75820 | 0.1216890 | 2.4023246 | 78 | 5 | 2001–2009 | 0.45 | M-v | 1 | MPC | 166108 | 2001 $TD_8$ |
| 2001 $TF_{11}$ | 16.9 | 0.15 | 20100104 | 72.60688 | 76.86235 | 286.30189 | 1.51757 | 0.1923248 | 2.4429806 | 84 | 4 | 2001–2009 | 0.53 | M-v | 2 | MPC | 160744 | 2001 $TF_{11}$ |
| 2001 $TA_{14}$ | 17.2 | 0.15 | 20100104 | 174.44651 | 227.54342 | 63.41339 | 7.70340 | 0.1026633 | 2.3548950 | 37 | 5 | 2000–2009 | 0.43 | M-v | 1 | MPC | 121306 | 2001 $TA_{14}$ |
| 2001 $TY_{15}$ | 16.8 | 0.15 | 20100104 | 53.51428 | 319.14539 | 71.74025 | 7.50853 | 0.1510666 | 2.4286423 | 68 | 3 | 2001–2009 | 0.54 | M-v | 3 | MPC | 166109 | 2001 $TY_{15}$ |
| 2001 $TS_{23}$ | 16.9 | 0.15 | 20100104 | 104.07844 | 350.84412 | 1.10538 | 2.43474 | 0.2101926 | 2.3898458 | 59 | 4 | 2001–2009 | 0.52 | M-v | 2 | MPC | 166109 | 2001 $TS_{23}$ |
| 2001 $TJ_{26}$ | 16.4 | 0.15 | 20100104 | 121.13349 | 66.81715 | 256.38354 | 4.08653 | 0.1187107 | 2.4127794 | 72 | 4 | 2001–2009 | 0.45 | M-v | 3 | MPC | 94132 | 2001 $TJ_{26}$ |
| 2001 $TM_{28}$ | 16.6 | 0.15 | 20100104 | 49.34042 | 14.05074 | 314.36947 | 3.19648 | 0.1253441 | 2.5738336 | 102 | 4 | 2001–2009 | 0.48 | M-v | 2 | MPC | 164165 | 2001 $TM_{28}$ |
| 2001 $TS_{32}$ | 16.2 | 0.15 | 20100104 | 103.56174 | 72.37571 | 277.13675 | 4.65641 | 0.3525717 | 2.3936073 | 125 | 3 | 2001–2009 | 0.45 | M-v | 2 | MPC | 164165 | 2001 $TS_{32}$ |
| 2001 $TO_{35}$ | 15.9 | 0.15 | 20100104 | 30.66949 | 47.24490 | 346.18070 | 7.14102 | 0.1685656 | 2.5222732 | 99 | 5 | 2001–2009 | 0.52 | M-v | 3 | MPC | 166109 | 2001 $TO_{35}$ |
| 2001 $TW_{35}$ | 17.2 | 0.15 | 20100104 | 16.49093 | 217.57262 | 239.23982 | 18.67028 | 0.0615234 | 1.8873728 | 81 | 5 | 2001–2009 | 0.51 | M-v | 1 | MPC | 140096 | 2001 $TW_{35}$ |
| 2001 $TK_{38}$ | 15.5 | 0.15 | 20100104 | 39.41989 | 48.20836 | 329.17376 | 6.34180 | 0.2432700 | 2.5349371 | 129 | 5 | 2001–2009 | 0.55 | M-v | 2 | MPC | 166109 | 2001 $TK_{38}$ |
| 2001 $TT_{38}$ | 16.0 | 0.15 | 20100104 | 112.60826 | 35.89638 | 304.26814 | 5.91684 | 0.1395587 | 2.4323417 | 68 | 5 | 2001–2009 | 0.41 | M-v | 1 | MPC | 148843 | 2001 $TT_{38}$ |
| 2001 $TJ_{39}$ | 17.2 | 0.15 | 20100104 | 1.67514 | 190.91641 | 236.99360 | 19.22318 | 0.0791998 | 1.9338066 | 87 | 2 | 2001–2009 | 0.47 | M-v | 3 | MPC | 166109 | 2001 $TJ_{39}$ |
| 2001 $TK_{42}$ | 15.2 | 0.15 | 20100104 | 341.09805 | 130.85347 | 294.06542 | 11.55405 | 0.2268693 | 2.6225459 | 210 | 3 | 2001–2009 | 0.50 | M-v | 2 | MPC | 166109 | 2001 $TK_{42}$ |
| 2001 $TZ_{42}$ | 15.2 | 0.15 | 20100104 | 20.63746 | 132.55537 | 281.50909 | 11.25876 | 0.2696019 | 2.5457369 | 210 | 4 | 1998–2009 | 0.47 | M-v | 2 | MPC | 166109 | 2001 $TZ_{42}$ |
| 2001 $TG_{47}$ | 17.2 | 0.15 | 20100104 | 113.70540 | 251.21201 | 81.81027 | 7.29207 | 0.2105464 | 2.3948955 | 35 | 4 | 2000–2009 | 0.36 | M-v | 1 | MPC | 166109 | 2001 $TG_{47}$ |
| 2001 $TK_{47}$ | 17.0 | 0.15 | 20100104 | 40.69907 | 284.06326 | 106.15029 | 6.12353 | 0.2139617 | 2.4682372 | 102 | 3 | 2001–2009 | 0.50 | M-v | 2 | MPC | 166109 | 2001 $TK_{47}$ |
| 2001 $TV_{48}$ | 16.3 | 0.15 | 20100104 | 133.48262 | 290.13563 | 15.43590 | 10.52615 | 0.2718783 | 2.3921914 | 52 | 4 | 2001–2009 | 0.57 | M-v | 1 | MPC | 140671 | 2001 $TV_{48}$ |
| 2001 $TL_{53}$ | 17.1 | 0.15 | 20100104 | 72.80733 | 306.57260 | 53.09230 | 3.88353 | 0.2081459 | 2.4342553 | 79 | 4 | 2001–2009 | 0.46 | M-v | 2 | MPC | 117956 | 2001 $TL_{53}$ |
| 2001 $TN_{53}$ | 17.0 | 0.15 | 20100104 | 52.86723 | 326.79252 | 92.01730 | 2.45226 | 0.1684524 | 2.3919998 | 61 | 4 | 2001–2009 | 0.43 | M-v | 2 | MPC | 119547 | 2001 $TN_{53}$ |
| 2001 $TC_{57}$ | 17.3 | 0.15 | 20100104 | 48.84629 | 142.08429 | 233.80321 | 1.72457 | 0.1961335 | 2.4602341 | 92 | 5 | 1993–2009 | 0.43 | M-v | 2 | MPC | 166109 | 2001 $TC_{57}$ |
| 2001 $TL_{57}$ | 16.9 | 0.15 | 20100104 | 46.51383 | 23.05357 | 8.45217 | 2.13908 | 0.1909668 | 2.4466120 | 107 | 5 | 1995–2009 | 0.52 | M-v | 1 | MPC | 117957 | 2001 $TL_{57}$ |
| 2001 $TZ_{57}$ | 17.4 | 0.15 | 20100104 | 53.60430 | 45.98385 | 309.71405 | 0.90568 | 0.2454641 | 2.4792805 | 52 | 3 | 2001–2009 | 0.45 | M-v | 3 | MPC | 166109 | 2001 $TZ_{57}$ |
| 2001 $TD_{62}$ | 16.6 | 0.15 | 20100104 | 108.83228 | 296.85979 | 45.69217 | 2.62834 | 0.2246833 | 2.3927554 | 140 | 6 | 2000–2009 | 0.56 | M-v | 1 | MPC | 117957 | 2001 $TD_{62}$ |
| 2001 $TM_{68}$ | 16.0 | 0.15 | 20100104 | 22.98914 | 201.13440 | 209.11839 | 9.81565 | 0.1537118 | 2.4911705 | 189 | 6 | 1997–2009 | 0.57 | M-v | 2 | MPC | 166109 | 2001 $TM_{68}$ |
| 2001 $TW_{69}$ | 18.0 | 0.15 | 20100104 | 44.37270 | 78.57823 | 305.14880 | 1.28492 | 0.2189421 | 2.4647767 | 45 | 4 | 2001–2009 | 0.34 | M-v | 2 | MPC | 166109 | 2001 $TW_{69}$ |
| 2001 $TT_{72}$ | 16.9 | 0.15 | 20100104 | 78.17435 | 314.45021 | 50.94529 | 3.14037 | 0.2095402 | 2.4300217 | 73 | 3 | 2001–2009 | 0.43 | M-v | 2 | MPC | 94145 | 2001 $TT_{72}$ |
| 2001 $TL_{76}$ | 16.4 | 0.15 | 20100104 | 82.10322 | 306.44078 | 63.54129 | 3.87913 | 0.1890195 | 2.4246948 | 104 | 4 | 2001–2009 | 0.40 | M-v | 2 | MPC | 166109 | 2001 $TL_{76}$ |
| 2001 $TN_{78}$ | 16.4 | 0.15 | 20100104 | 56.14936 | 336.73885 | 61.97274 | 3.83071 | 0.1782575 | 2.4429315 | 135 | 5 | 1991–2009 | 0.51 | M-v | 1 | MPC | 166109 | 2001 $TN_{78}$ |
| 2001 $TV_{88}$ | 17.4 | 0.15 | 20100104 | 28.64421 | 118.07058 | 238.51587 | 2.58887 | 0.2297825 | 2.5329278 | 131 | 3 | 2001–2009 | 0.46 | M-v | 2 | MPC | 164166 | 2001 $TV_{88}$ |
| 2001 $TZ_{88}$ | 16.6 | 0.15 | 20100104 | 29.35089 | 348.49081 | 9.34335 | 12.35067 | 0.0560701 | 2.5445999 | 83 | 4 | 1993–2009 | 0.40 | M-v | 2 | MPC | 166109 | 2001 $TZ_{88}$ |
| 2001 $TE_{89}$ | 17.3 | 0.15 | 20100104 | 359.74939 | 77.59463 | 6.64162 | 7.28819 | 0.2633893 | 2.4783742 | 82 | 3 | 2001–2009 | 0.48 | M-v | 3 | MPC | 166109 | 2001 $TE_{89}$ |
| 2001 $TD_{90}$ | 16.5 | 0.15 | 20100104 | 65.57529 | 104.03651 | 299.48822 | 4.32588 | 0.2170776 | 2.3943939 | 115 | 5 | 1995–2009 | 0.47 | M-v | 0 | MPC | 166109 | 2001 $TD_{90}$ |
| 2001 $TU_{90}$ | 16.7 | 0.15 | 20100104 | 45.90489 | 123.84696 | 250.09961 | 5.48393 | 0.1194787 | 2.4771689 | 121 | 5 | 1997–2009 | 0.50 | M-v | 2 | MPC | 166109 | 2001 $TU_{90}$ |
| 2001 $TB_{97}$ | 16.1 | 0.15 | 20100104 | 292.69826 | 229.34649 | 259.58088 | 2.58985 | 0.0673059 | 2.5123543 | 161 | 6 | 1993–2009 | 0.53 | M-v | 2 | MPC | 166109 | 2001 $TB_{97}$ |
| 2001 $TF_{97}$ | 16.2 | 0.15 | 20100104 | 33.63432 | 166.20891 | 242.88209 | 3.85023 | 0.1827375 | 2.4619437 | 178 | 4 | 2001–2009 | 0.53 | M-v | 2 | MPC | 117958 | 2001 $TF_{97}$ |
| 2001 $TN_{99}$ | 16.8 | 0.15 | 20100104 | 50.92600 | 80.59035 | 254.05592 | 3.47027 | 0.1642648 | 2.5293114 | 88 | 4 | 2001–2009 | 0.48 | M-v | 2 | MPC | 164166 | 2001 $TN_{99}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 $TS_{102}$ | 16.2 | 0.15 | 20100104 | 210.77098 | 26.48980 | 9.98911 | 8.41935 | 0.1022488 | 2.9516334 | 88 | 4 | 2001–2008 | 0.46 | M-v | 1 | MPC | 131792 | 2001 $TS_{102}$ |
| 2001 $TB_{104}$ | 16.6 | 0.15 | 20100104 | 104.80327 | 73.88947 | 278.20873 | 5.25551 | 0.1495203 | 2.3954116 | 78 | 4 | 2001–2009 | 0.48 | M-v | 2 | MPC | 166109 | 2001 $TB_{104}$ |
| 2001 $TT_{110}$ | 16.8 | 0.15 | 20100104 | 18.64700 | 12.73156 | 5.25136 | 6.95062 | 0.2493186 | 2.5411632 | 182 | 3 | 2001–2009 | 0.47 | M-v | 2 | MPC | 164166 | 2001 $TT_{110}$ |
| 2001 $TV_{128}$ | 16.8 | 0.15 | 20100104 | 192.47932 | 49.28106 | 10.84556 | 11.70603 | 0.1124678 | 2.9252712 | 37 | 4 | 1991–2009 | 0.32 | M-v | 2 | MPC | 157355 | 2001 $TV_{128}$ |
| 2001 $TY_{132}$ | 16.9 | 0.15 | 20100104 | 125.69424 | 7.66846 | 292.00137 | 4.49880 | 0.2133416 | 2.4093835 | 41 | 5 | 1997–2009 | 0.46 | M-v | 1 | MPC | 166110 | 2001 $TY_{132}$ |
| 2001 $TM_{134}$ | 16.1 | 0.15 | 20100104 | 7.05376 | 94.00368 | 317.23150 | 10.39199 | 0.2018426 | 2.4772816 | 118 | 4 | 2001–2009 | 0.53 | M-v | 2 | MPC | 166110 | 2001 $TM_{134}$ |
| 2001 $TY_{140}$ | 17.2 | 0.15 | 20100104 | 86.06058 | 224.83078 | 107.69482 | 3.41520 | 0.2201658 | 2.4256995 | 60 | 4 | 2001–2009 | 0.51 | M-v | 1 | MPC | 158415 | 2001 $TY_{140}$ |
| 2001 $TA_{144}$ | 17.3 | 0.15 | 20100104 | 33.30948 | 348.04130 | 98.51512 | 3.53665 | 0.1787293 | 2.3860960 | 54 | 4 | 2001–2009 | 0.49 | M-v | 1 | MPC | 94166 | 2001 $TA_{144}$ |
| 2001 $TA_{146}$ | 17.2 | 0.15 | 20100104 | 37.05824 | 300.13511 | 94.52765 | 4.22497 | 0.1488292 | 2.4611135 | 77 | 4 | 2001–2009 | 0.53 | M-v | 2 | MPC | 166110 | 2001 $TA_{146}$ |
| 2001 $TP_{146}$ | 17.6 | 0.15 | 20100104 | 87.92522 | 251.12471 | 108.80204 | 4.27623 | 0.2109827 | 2.4042701 | 39 | 3 | 2001–2009 | 0.39 | M-v | 2 | MPC | 100070 | 2001 $TP_{146}$ |
| 2001 $TD_{149}$ | 16.2 | 0.15 | 20100104 | 53.21598 | 287.61135 | 96.90188 | 3.51465 | 0.2040207 | 2.4486056 | 146 | 5 | 1996–2009 | 0.53 | M-v | 2 | MPC | 97484 | 2001 $TD_{149}$ |
| 2001 $TK_{154}$ | 15.9 | 0.15 | 20100104 | 92.59011 | 301.36072 | 67.95611 | 7.87702 | 0.1358503 | 2.3746924 | 114 | 5 | 2001–2009 | 0.55 | M-v | 1 | MPC | 162322 | 2001 $TK_{154}$ |
| 2001 $TM_{156}$ | 17.0 | 0.15 | 20100104 | 58.46440 | 169.82401 | 191.52565 | 2.52300 | 0.0944007 | 2.4732762 | 99 | 5 | 1993–2009 | 0.41 | M-v | 3 | MPC | 166110 | 2001 $TM_{156}$ |
| 2001 $TR_{158}$ | 17.3 | 0.15 | 20100104 | 49.48921 | 227.48869 | 147.53614 | 1.83764 | 0.1964887 | 2.4510070 | 89 | 3 | 2001–2009 | 0.49 | M-v | 3 | MPC | 166110 | 2001 $TR_{158}$ |
| 2001 $TW_{158}$ | 18.0 | 0.15 | 20100104 | 51.69169 | 191.48911 | 198.40821 | 0.72025 | 0.1893153 | 2.4332101 | 57 | 4 | 2001–2009 | 0.35 | M-v | 2 | MPC | 97484 | 2001 $TW_{158}$ |
| 2001 $TS_{160}$ | 17.6 | 0.15 | 20100104 | 302.94521 | 217.08794 | 321.31294 | 0.67176 | 0.1270911 | 2.4068433 | 53 | 6 | 1999–2009 | 0.40 | M-v | 0 | MPC | 147179 | 2001 $TS_{160}$ |
| 2001 $TG_{167}$ | 15.8 | 0.15 | 20100104 | 16.31842 | 2.95779 | 359.31640 | 9.49652 | 0.2297951 | 2.5802751 | 209 | 3 | 2001–2009 | 0.51 | M-v | 2 | MPC | 166110 | 2001 $TG_{167}$ |
| 2001 $TG_{168}$ | 16.1 | 0.15 | 20100104 | 4.23485 | 133.36082 | 257.60004 | 11.35038 | 0.2286480 | 2.5718824 | 188 | 3 | 2001–2009 | 0.50 | M-v | 2 | MPC | 166110 | 2001 $TG_{168}$ |
| 2001 $TB_{171}$ | 15.6 | 0.15 | 20100104 | 268.73942 | 271.21347 | 225.53224 | 7.84409 | 0.1071650 | 2.5247311 | 157 | 6 | 1999–2009 | 0.52 | M-v | 2 | MPC | 164166 | 2001 $TB_{171}$ |
| 2001 $TT_{172}$ | 16.9 | 0.15 | 20100104 | 12.15763 | 260.69680 | 191.90056 | 2.03398 | 0.1312241 | 2.4108969 | 91 | 4 | 2001–2009 | 0.45 | M-v | 2 | MPC | 166110 | 2001 $TT_{172}$ |
| 2001 $TX_{174}$ | 17.2 | 0.15 | 20100104 | 21.22305 | 346.09220 | 26.70905 | 11.70733 | 0.2131908 | 2.5242782 | 115 | 3 | 2001–2009 | 0.46 | M-v | 2 | MPC | 166110 | 2001 $TX_{174}$ |
| 2001 $TM_{176}$ | 16.8 | 0.15 | 20100104 | 42.90111 | 162.88891 | 215.66679 | 3.99385 | 0.0542642 | 2.4805624 | 107 | 3 | 2001–2009 | 0.43 | M-v | 3 | MPC | 166110 | 2001 $TM_{176}$ |
| 2001 $TB_{178}$ | 16.6 | 0.15 | 20100104 | 29.29184 | 66.74251 | 340.83482 | 4.87250 | 0.1418176 | 2.4585281 | 70 | 5 | 1995–2009 | 0.55 | M-v | 1 | MPC | 166110 | 2001 $TB_{178}$ |
| 2001 $TA_{181}$ | 17.4 | 0.15 | 20100104 | 10.70975 | 105.27240 | 283.80963 | 1.98631 | 0.1765977 | 2.5378861 | 73 | 4 | 2001–2009 | 0.51 | M-v | 2 | MPC | 164166 | 2001 $TA_{181}$ |
| 2001 $TF_{184}$ | 17.6 | 0.15 | 20100104 | 2.90624 | 146.90262 | 303.76494 | 1.84492 | 0.1364989 | 2.4344823 | 44 | 4 | 2001–2009 | 0.49 | M-v | 1 | MPC | 166110 | 2001 $TF_{184}$ |
| 2001 $TD_{189}$ | 16.0 | 0.15 | 20100104 | 342.40381 | 194.23989 | 248.59644 | 5.52206 | 0.1821026 | 2.5351469 | 218 | 5 | 1994–2009 | 0.55 | M-v | 2 | MPC | 166110 | 2001 $TD_{189}$ |
| 2001 $TU_{190}$ | 16.2 | 0.15 | 20100104 | 41.04411 | 133.24785 | 240.02031 | 11.00386 | 0.0587959 | 2.5311126 | 101 | 3 | 2001–2009 | 0.44 | M-v | 3 | MPC | 166110 | 2001 $TU_{190}$ |
| 2001 $TD_{191}$ | 15.8 | 0.15 | 20100104 | 68.15827 | 66.39752 | 293.55214 | 4.51443 | 0.1199869 | 2.4891681 | 145 | 6 | 1997–2009 | 0.59 | M-v | 2 | MPC | 166110 | 2001 $TD_{191}$ |
| 2001 $TT_{193}$ | 17.8 | 0.15 | 20100104 | 50.83851 | 177.71779 | 214.27422 | 4.64343 | 0.2258350 | 2.4368301 | 31 | 3 | 2001–2009 | 0.51 | M-v | 3 | MPC | 100073 | 2001 $TT_{193}$ |
| 2001 $TU_{195}$ | 15.8 | 0.15 | 20100104 | 79.08003 | 225.67802 | 129.42282 | 10.29388 | 0.1327810 | 2.4573156 | 76 | 6 | 2001–2009 | 0.50 | M-v | 1 | MPC | 117961 | 2001 $TU_{195}$ |
| 2001 $TC_{198}$ | 17.1 | 0.15 | 20100104 | 33.36134 | 74.43325 | 281.72696 | 3.24553 | 0.1233573 | 2.5199421 | 82 | 4 | 2001–2009 | 0.34 | M-v | 2 | MPC | 164167 | 2001 $TC_{198}$ |
| 2001 $TG_{203}$ | 16.9 | 0.15 | 20100104 | 68.91685 | 264.14467 | 116.99704 | 7.70424 | 0.1992957 | 2.4189015 | 39 | 3 | 2001–2009 | 0.54 | M-v | 2 | MPC | 100073 | 2001 $TG_{203}$ |
| 2001 $TA_{208}$ | 18.0 | 0.15 | 20100104 | 93.73789 | 282.82863 | 45.29319 | 1.78713 | 0.1918020 | 2.4369706 | 29 | 3 | 2001–2009 | 0.32 | M-v | 3 | MPC | 166110 | 2001 $TA_{208}$ |
| 2001 $TT_{211}$ | 17.0 | 0.15 | 20100104 | 93.68983 | 255.65645 | 92.74528 | 5.95838 | 0.1828088 | 2.4072315 | 43 | 4 | 2001–2009 | 0.50 | M-v | 2 | MPC | 166111 | 2001 $TT_{211}$ |
| 2001 $TK_{218}$ | 16.4 | 0.15 | 20100104 | 110.66950 | 260.58208 | 78.10987 | 5.64067 | 0.2146181 | 2.4019136 | 48 | 5 | 2001–2009 | 0.49 | M-v | 1 | MPC | 162323 | 2001 $TK_{218}$ |
| 2001 $TO_{218}$ | 15.8 | 0.15 | 20100104 | 102.94076 | 256.48487 | 82.16782 | 7.16426 | 0.1505568 | 2.4295740 | 72 | 4 | 2001–2009 | 0.51 | M-v | 2 | MPC | 160747 | 2001 $TO_{218}$ |
| 2001 $TB_{222}$ | 17.1 | 0.15 | 20100104 | 67.41889 | 77.35051 | 338.71294 | 3.48361 | 0.1380665 | 2.3818308 | 59 | 4 | 2001–2009 | 0.46 | M-v | 1 | MPC | 147180 | 2001 $TB_{222}$ |
| 2001 $TA_{224}$ | 16.4 | 0.15 | 20100104 | 179.53006 | 254.04690 | 3.81369 | 6.01778 | 0.0972558 | 2.4490687 | 51 | 5 | 1993–2009 | 0.55 | M-v | 1 | MPC | 143132 | 2001 $TA_{224}$ |
| 2001 $TB_{240}$ | 16.4 | 0.15 | 20100104 | 86.96863 | 257.71539 | 92.94902 | 6.02768 | 0.1273168 | 2.4439673 | 42 | 5 | 2000–2009 | 0.48 | M-v | 2 | MPC | 162323 | 2001 $TB_{240}$ |
| 2001 $TG_{240}$ | 17.4 | 0.15 | 20100104 | 17.36839 | 47.15317 | 333.24937 | 1.81033 | 0.1932840 | 2.5365958 | 87 | 4 | 2001–2009 | 0.53 | M-v | 2 | MPC | 164167 | 2001 $TG_{240}$ |
| 2001 $TH_{240}$ | 16.3 | 0.15 | 20100104 | 349.77606 | 121.90172 | 342.86125 | 6.27937 | 0.1182988 | 2.4394711 | 58 | 6 | 1997–2009 | 0.63 | M-v | 1 | MPC | 166111 | 2001 $TH_{240}$ |
| 2001 $TZ_{240}$ | 17.6 | 0.15 | 20100104 | 27.97582 | 343.56152 | 15.73522 | 5.80945 | 0.3191936 | 2.5475416 | 117 | 3 | 2001–2009 | 0.52 | M-v | 2 | MPC | 166111 | 2001 $TZ_{240}$ |
| 2001 $TN_{241}$ | 17.3 | 0.15 | 20100104 | 20.92564 | 336.58161 | 62.70736 | 3.21690 | 0.0842751 | 2.5109060 | 65 | 3 | 2001–2009 | 0.44 | M-v | 3 | MPC | 166111 | 2001 $TN_{241}$ |
| 2001 $TZ_{247}$ | 17.9 | 0.15 | 20100104 | 22.82513 | 329.30940 | 127.27213 | 1.83931 | 0.1589924 | 2.3747763 | 26 | 3 | 2001–2009 | 0.28 | M-v | 2 | MPC | 108061 | 2001 $TZ_{247}$ |
| 2001 $TD_{249}$ | 17.8 | 0.15 | 20100104 | 17.28056 | 299.04427 | 47.52166 | 4.08765 | 0.1727704 | 2.5707945 | 19 | 4 | 2001–2009 | 0.43 | M-v | 2 | MPC | 122688 | 2001 $TD_{249}$ |
| 2001 $TD_{252}$ | 17.4 | 0.15 | 20100104 | 205.75605 | 187.29718 | 57.57129 | 6.18723 | 0.1327212 | 2.3801020 | 47 | 5 | 2000–2009 | 0.31 | M-v | 2 | MPC | 166111 | 2001 $TD_{252}$ |
| 2001 $TF_{256}$ | 16.3 | 0.15 | 20100104 | 95.58874 | 272.40207 | 62.34013 | 16.58092 | 0.1185967 | 2.4353368 | 55 | 4 | 1990–2009 | 0.53 | M-v | 2 | MPC | 166111 | 2001 $TF_{256}$ |
| 2001 $TS_{256}$ | 16.4 | 0.15 | 20100104 | 20.75896 | 92.61816 | 337.00306 | 5.72246 | 0.0807851 | 2.4461463 | 46 | 6 | 1995–2009 | 0.58 | M-v | 1 | MPC | 117962 | 2001 $TS_{256}$ |
| 2001 $TA_{258}$ | 17.5 | 0.15 | 20100104 | 111.02702 | 308.80487 | 29.64700 | 10.27647 | 0.1217983 | 2.3709014 | 15 | 1 | 78 days | 0.18 | M-v | 4 | MPC | | 2001 $TA_{258}$ |
| 2001 $TJ_{258}$ | 16.8 | 0.15 | 20100104 | 166.13948 | 238.74305 | 55.43167 | 7.56806 | 0.1229384 | 2.3524255 | 42 | 6 | 1993–2009 | 0.40 | M-v | 1 | MPC | 143133 | 2001 $TJ_{258}$ |
| 2001 $TD_{261}$ | 18.4 | 0.15 | 20010928 | 352.01173 | 354.62490 | 19.07660 | 14.45491 | 0.2667457 | 2.5258399 | 10 | 1 | 8 days | 0.33 | | | MPC | | 2001 $TD_{261}$ |
| 2001 UE | 17.3 | 0.15 | 20100104 | 21.81856 | 313.36727 | 113.80191 | 3.46719 | 0.1751405 | 2.4578904 | 26 | 3 | 2001–2009 | 0.52 | M-v | 3 | MPC | 159385 | 2001 UE |
| 2001 $UD_1$ | 15.4 | 0.15 | 20100104 | 24.04739 | 123.25284 | 327.73983 | 21.80929 | 0.3530060 | 2.4118166 | 105 | 3 | 2001–2009 | 0.56 | M-v | 2 | MPC | 166111 | 2001 $UD_1$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 $UW_{4}$ | 18.6 | 0.15 | 20100104 | 312.95782 | 159.63471 | 333.78807 | 3.39021 | 0.0660214 | 1.5773316 | 200 | 6 | 1995–2009 | 0.51 | M-v | 3 | MPC | 166111 | 2001 $UW_{4}$ |
| 2001 $UB_{6}$ | 17.3 | 0.15 | 20100104 | 12.77566 | 221.61977 | 209.66596 | 21.85596 | 0.1060721 | 1.9058023 | 60 | 4 | 2000–2009 | 0.44 | M-v | 2 | MPC | 137280 | 2001 $UB_{6}$ |
| 2001 $UK_{6}$ | 16.8 | 0.15 | 20100104 | 73.07006 | 265.17482 | 105.69096 | 3.52810 | 0.2100730 | 2.4493174 | 77 | 3 | 2001–2009 | 0.46 | M-v | 2 | MPC | 166111 | 2001 $UK_{6}$ |
| 2001 $UJ_{7}$ | 16.2 | 0.15 | 20100104 | 36.67457 | 343.61676 | 11.20669 | 20.34164 | 0.2696124 | 2.5280127 | 162 | 3 | 2001–2009 | 0.51 | M-v | 2 | MPC | 166111 | 2001 $UJ_{7}$ |
| 2001 $UL_{8}$ | 16.9 | 0.15 | 20100104 | 23.49293 | 339.41962 | 33.32611 | 18.02977 | 0.1901397 | 2.5351583 | 120 | 4 | 1993–2009 | 0.56 | M-v | 2 | MPC | 166111 | 2001 $UL_{8}$ |
| 2001 $UB_{11}$ | 15.8 | 0.15 | 20100104 | 61.96378 | 289.59870 | 70.84173 | 12.40182 | 0.1249196 | 2.5241823 | 145 | 4 | 2001–2009 | 0.45 | M-v | 2 | MPC | 166111 | 2001 $UB_{11}$ |
| 2001 $UX_{13}$ | 14.3 | 0.15 | 20100104 | 359.38269 | 354.42957 | 90.49261 | 11.32474 | 0.1875635 | 3.9815755 | 65 | 3 | 2001–2009 | 0.48 | M-v | 2 | MPC | 165317 | 2001 $UX_{13}$ |
| 2001 $UZ_{16}$ | 19.4 | 0.15 | 20100104 | 198.96412 | 28.42019 | 323.24912 | 12.69052 | 0.4260649 | 1.7585690 | 117 | 3 | 2001–2008 | 0.44 | M-v | 0 | MPC | 150909 | 2001 $UZ_{16}$ |
| 2001 $UA_{18}$ | 16.0 | 0.15 | 20100104 | 109.26084 | 318.92596 | 26.35628 | 7.00977 | 0.1658772 | 2.4105993 | 71 | 5 | 2001–2009 | 0.49 | M-v | 1 | MPC | 140671 | 2001 $UA_{18}$ |
| 2001 $UL_{18}$ | 17.2 | 0.15 | 20100104 | 34.71132 | 348.03752 | 55.84997 | 5.43124 | 0.1094617 | 2.4679694 | 63 | 5 | 1997–2009 | 0.40 | M-v | 3 | MPC | 166111 | 2001 $UL_{18}$ |
| 2001 $UJ_{28}$ | 17.2 | 0.15 | 20100104 | 41.53650 | 350.78099 | 51.30051 | 3.86634 | 0.1726026 | 2.4453319 | 74 | 3 | 2001–2009 | 0.45 | M-v | 2 | MPC | 97489 | 2001 $UJ_{28}$ |
| 2001 $UR_{30}$ | 16.6 | 0.15 | 20100104 | 154.88194 | 264.10113 | 36.05910 | 8.87562 | 0.0717592 | 2.3823232 | 29 | 6 | 2000–2009 | 0.49 | M-v | 1 | MPC | 143133 | 2001 $UR_{30}$ |
| 2001 $UV_{30}$ | 16.8 | 0.15 | 20100104 | 106.34182 | 132.01385 | 196.36202 | 5.72519 | 0.1216377 | 2.4221147 | 57 | 5 | 2001–2009 | 0.35 | M-v | 0 | MPC | 116176 | 2001 $UV_{30}$ |
| 2001 $UR_{31}$ | 17.7 | 0.15 | 20100104 | 17.24751 | 12.56837 | 45.65505 | 6.42677 | 0.2226674 | 2.4790424 | 99 | 3 | 2001–2009 | 0.43 | M-v | 2 | MPC | 166112 | 2001 $UR_{31}$ |
| 2001 $UX_{32}$ | 16.3 | 0.15 | 20100104 | 63.62437 | 268.14398 | 89.39981 | 7.41491 | 0.1196975 | 2.4795526 | 52 | 3 | 2001–2009 | 0.54 | M-v | 4 | MPC | 166112 | 2001 $UX_{32}$ |
| 2001 $US_{34}$ | 15.8 | 0.15 | 20100104 | 117.41442 | 219.65571 | 104.99923 | 8.29803 | 0.1856118 | 2.4187943 | 75 | 5 | 2001–2009 | 0.58 | M-v | 1 | MPC | 162324 | 2001 $US_{34}$ |
| 2001 $UM_{39}$ | 15.9 | 0.15 | 20100104 | 300.39708 | 89.72428 | 190.32967 | 9.24882 | 0.0986006 | 3.0150977 | 70 | 4 | 1993–2006 | 0.35 | M-v | 1 | MPC | 158417 | 2001 $UM_{39}$ |
| 2001 $UD_{40}$ | 16.9 | 0.15 | 20100104 | 78.67775 | 229.59250 | 127.86442 | 2.06063 | 0.2079080 | 2.4342505 | 57 | 5 | 1997–2009 | 0.46 | M-v | 2 | MPC | 117963 | 2001 $UD_{40}$ |
| 2001 $UH_{41}$ | 17.0 | 0.15 | 20100104 | 64.55401 | 286.91537 | 72.62682 | 3.96499 | 0.1953312 | 2.4659310 | 68 | 4 | 2001–2009 | 0.46 | M-v | 2 | MPC | 166112 | 2001 $UH_{41}$ |
| 2001 $UW_{42}$ | 16.5 | 0.15 | 20100104 | 35.81480 | 9.95931 | 83.12003 | 2.36180 | 0.1437693 | 2.3772134 | 74 | 4 | 2001–2009 | 0.51 | M-v | 3 | MPC | 120749 | 2001 $UW_{42}$ |
| 2001 $UM_{43}$ | 17.5 | 0.15 | 20100104 | 123.93780 | 280.98382 | 57.62468 | 4.61796 | 0.1472172 | 2.3833417 | 69 | 6 | 2000–2009 | 0.51 | M-v | 1 | MPC | 147181 | 2001 $UM_{43}$ |
| 2001 $UR_{43}$ | 17.5 | 0.15 | 20100104 | 28.44713 | 23.70674 | 33.35323 | 3.97845 | 0.1501582 | 2.4469366 | 43 | 3 | 2001–2009 | 0.51 | M-v | 3 | MPC | 97490 | 2001 $UR_{43}$ |
| 2001 $UK_{52}$ | 16.1 | 0.15 | 20100104 | 53.26415 | 307.29559 | 49.10818 | 14.17597 | 0.0920016 | 2.5188785 | 217 | 5 | 1997–2009 | 0.55 | M-v | 2 | MPC | 166112 | 2001 $UK_{52}$ |
| 2001 $US_{56}$ | 17.6 | 0.15 | 20100104 | 67.95512 | 357.62989 | 359.25782 | 2.06923 | 0.2079520 | 2.4506340 | 40 | 3 | 2001–2009 | 0.52 | M-v | 3 | MPC | 113822 | 2001 $US_{56}$ |
| 2001 $UF_{61}$ | 17.3 | 0.15 | 20100104 | 61.64523 | 173.07776 | 222.68590 | 3.41109 | 0.0949328 | 2.4075263 | 41 | 3 | 2001–2009 | 0.40 | M-v | 2 | MPC | 94208 | 2001 $UF_{61}$ |
| 2001 $UR_{62}$ | 16.8 | 0.15 | 20100104 | 96.62699 | 52.75345 | 296.80804 | 5.62559 | 0.1330120 | 2.3970852 | 45 | 5 | 1998–2009 | 0.47 | M-v | 1 | MPC | 166112 | 2001 $UR_{62}$ |
| 2001 $UU_{71}$ | 16.4 | 0.15 | 20100104 | 347.92615 | 121.23271 | 341.11058 | 4.57482 | 0.1021427 | 2.4224926 | 92 | 5 | 2001–2009 | 0.54 | M-v | 1 | MPC | 117964 | 2001 $UU_{71}$ |
| 2001 $UA_{73}$ | 16.4 | 0.15 | 20100104 | 75.33056 | 281.65253 | 64.31341 | 6.83818 | 0.2079456 | 2.4551718 | 90 | 4 | 2001–2009 | 0.48 | M-v | 2 | MPC | 166112 | 2001 $UA_{73}$ |
| 2001 $UU_{74}$ | 16.7 | 0.15 | 20100104 | 81.10892 | 236.59902 | 129.42826 | 2.14488 | 0.2008538 | 2.4288755 | 57 | 4 | 2001–2009 | 0.38 | M-v | 2 | MPC | 166112 | 2001 $UU_{74}$ |
| 2001 $UG_{79}$ | 16.9 | 0.15 | 20100104 | 29.00303 | 153.60618 | 208.02228 | 10.22135 | 0.1802390 | 2.5491267 | 104 | 4 | 2001–2009 | 0.49 | M-v | 2 | MPC | 166112 | 2001 $UG_{79}$ |
| 2001 $UY_{79}$ | 17.1 | 0.15 | 20100104 | 22.62990 | 342.19901 | 85.54776 | 1.74946 | 0.1980456 | 2.4635958 | 119 | 4 | 2001–2009 | 0.47 | M-v | 2 | MPC | 97492 | 2001 $UY_{79}$ |
| 2001 $UP_{81}$ | 17.9 | 0.15 | 20100104 | 3.06307 | 6.54817 | 41.05991 | 21.90255 | 0.0895168 | 1.9404681 | 36 | 3 | 2000–2009 | 0.40 | M-v | 2 | MPC | 72414 | 2001 $UP_{81}$ |
| 2001 $UX_{81}$ | 17.1 | 0.15 | 20100104 | 37.89564 | 9.73818 | 47.57465 | 3.09849 | 0.1774359 | 2.4491785 | 87 | 3 | 2001–2009 | 0.47 | M-v | 3 | MPC | 166112 | 2001 $UX_{81}$ |
| 2001 $UH_{86}$ | 16.8 | 0.15 | 20100104 | 23.92711 | 349.50510 | 83.60290 | 2.43600 | 0.1647828 | 2.4465659 | 109 | 5 | 2001–2009 | 0.48 | M-v | 1 | MPC | 166112 | 2001 $UH_{86}$ |
| 2001 $UT_{86}$ | 17.5 | 0.15 | 20100104 | 36.39108 | 63.79962 | 1.18854 | 1.28118 | 0.1553560 | 2.4363447 | 66 | 6 | 1995–2009 | 0.46 | M-v | 1 | MPC | 166112 | 2001 $UT_{86}$ |
| 2001 $UW_{94}$ | 16.5 | 0.15 | 20100104 | 18.10762 | 318.46310 | 80.61708 | 10.48198 | 0.2036144 | 2.5229921 | 114 | 4 | 2001–2009 | 0.59 | M-v | 2 | MPC | 166112 | 2001 $UW_{94}$ |
| 2001 $UU_{99}$ | 16.7 | 0.15 | 20100104 | 101.33759 | 137.27455 | 208.61228 | 4.30900 | 0.2161366 | 2.4160847 | 57 | 4 | 2001–2009 | 0.49 | M-v | 2 | MPC | 100080 | 2001 $UU_{99}$ |
| 2001 $UD_{100}$ | 17.0 | 0.15 | 20100104 | 26.20901 | 351.40987 | 48.34022 | 3.29513 | 0.1328434 | 2.4920024 | 118 | 4 | 2001–2009 | 0.43 | M-v | 2 | MPC | 166112 | 2001 $UD_{100}$ |
| 2001 $UZ_{101}$ | 17.1 | 0.15 | 20100104 | 20.08004 | 209.84441 | 198.92128 | 2.59555 | 0.0871831 | 2.4735513 | 82 | 4 | 2001–2009 | 0.41 | M-v | 2 | MPC | 166112 | 2001 $UZ_{101}$ |
| 2001 $UL_{106}$ | 15.9 | 0.15 | 20100104 | 212.12653 | 337.48081 | 206.51061 | 13.43210 | 0.0335239 | 2.5708776 | 64 | 4 | 2001–2009 | 0.47 | M-v | 2 | MPC | 164168 | 2001 $UL_{106}$ |
| 2001 $UM_{106}$ | 17.6 | 0.15 | 20100104 | 40.01264 | 263.09723 | 148.90013 | 2.77322 | 0.1839763 | 2.4489008 | 37 | 3 | 2001–2009 | 0.45 | M-v | 3 | MPC | 166112 | 2001 $UM_{106}$ |
| 2001 $US_{106}$ | 17.8 | 0.15 | 20100104 | 14.23304 | 335.33324 | 46.32001 | 8.54407 | 0.1960400 | 2.5529445 | 63 | 3 | 2001–2009 | 0.43 | M-v | 2 | MPC | 164168 | 2001 $US_{106}$ |
| 2001 $UL_{108}$ | 17.4 | 0.15 | 20100104 | 30.37850 | 38.13343 | 48.57730 | 1.28438 | 0.2021259 | 2.4248117 | 96 | 6 | 1995–2009 | 0.46 | M-v | 0 | MPC | 97494 | 2001 $UL_{108}$ |
| 2001 $UP_{108}$ | 15.9 | 0.15 | 20100104 | 15.37131 | 51.99844 | 53.86480 | 14.92901 | 0.1345461 | 2.4183169 | 101 | 6 | 2001–2009 | 0.52 | M-v | 1 | MPC | 143134 | 2001 $UP_{108}$ |
| 2001 $UT_{108}$ | 15.8 | 0.15 | 20100104 | 56.96153 | 296.31639 | 61.48685 | 11.05100 | 0.1514564 | 2.5222230 | 182 | 4 | 1997–2009 | 0.52 | M-v | 3 | MPC | 166112 | 2001 $UT_{108}$ |
| 2001 $UW_{108}$ | 16.1 | 0.15 | 20100104 | 66.88759 | 155.53917 | 200.61200 | 5.88416 | 0.0750226 | 2.5192569 | 124 | 5 | 1999–2009 | 0.55 | M-v | 3 | MPC | 166112 | 2001 $UW_{108}$ |
| 2001 $UG_{109}$ | 15.8 | 0.15 | 20100104 | 359.54939 | 202.66724 | 226.24704 | 14.34886 | 0.1010035 | 2.5340976 | 184 | 4 | 2001–2009 | 0.53 | M-v | 2 | MPC | 166112 | 2001 $UG_{109}$ |
| 2001 $UP_{112}$ | 17.5 | 0.15 | 20100104 | 8.46007 | 185.10768 | 215.26708 | 5.80399 | 0.2299335 | 2.5373419 | 122 | 3 | 2001–2009 | 0.58 | M-v | 3 | MPC | 166112 | 2001 $UP_{112}$ |
| 2001 $US_{113}$ | 17.9 | 0.15 | 20100104 | 15.64767 | 342.24388 | 54.24876 | 3.75126 | 0.2214751 | 2.5227401 | 79 | 3 | 2001–2009 | 0.47 | M-v | 2 | MPC | 166112 | 2001 $US_{113}$ |
| 2001 $UY_{114}$ | 17.2 | 0.15 | 20100104 | 45.40339 | 1.13192 | 51.59437 | 2.99876 | 0.1622411 | 2.4382422 | 78 | 4 | 2001–2009 | 0.43 | M-v | 2 | MPC | 166112 | 2001 $UY_{114}$ |
| 2001 $UD_{116}$ | 16.6 | 0.15 | 20100104 | 46.78702 | 341.68216 | 46.28862 | 6.80700 | 0.0976053 | 2.4822894 | 57 | 4 | 2001–2009 | 0.50 | M-v | 3 | MPC | 119552 | 2001 $UD_{116}$ |
| 2001 $UQ_{116}$ | 17.0 | 0.15 | 20100104 | 65.80893 | 253.50899 | 123.08605 | 2.34181 | 0.1997999 | 2.4507934 | 74 | 4 | 2001–2009 | 0.49 | M-v | 2 | MPC | 119552 | 2001 $UQ_{116}$ |
| 2001 $UU_{117}$ | 16.7 | 0.15 | 20100104 | 88.85591 | 327.78464 | 25.00314 | 0.50595 | 0.2304325 | 2.4352329 | 71 | 6 | 1997–2009 | 0.54 | M-v | 1 | MPC | 117965 | 2001 $UU_{117}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 $UZ_{118}$ | 16.8 | 0.15 | 20100104 | 113.58792 | 262.15009 | 74.46941 | 3.33727 | 0.2238145 | 2.4131603 | 70 | 5 | 2001–2009 | 0.46 | M-v | 1 | MPC | 117965 | 2001 $UZ_{118}$ |
| 2001 $UD_{127}$ | 15.5 | 0.15 | 20100104 | 43.91120 | 253.29635 | 120.64484 | 5.01449 | 0.0772361 | 2.5162256 | 265 | 6 | 1991–2009 | 0.56 | M-v | 2 | MPC | 166113 | 2001 $UD_{127}$ |
| 2001 $UA_{131}$ | 16.3 | 0.15 | 20100104 | 176.58440 | 179.00366 | 40.84106 | 15.69937 | 0.0287319 | 2.5687675 | 46 | 4 | 2001–2009 | 0.56 | M-v | 3 | MPC | 164168 | 2001 $UA_{131}$ |
| 2001 $UD_{131}$ | 16.3 | 0.15 | 20100104 | 337.20701 | 89.60807 | 51.76922 | 5.52860 | 0.1387339 | 2.4207992 | 96 | 4 | 2001–2009 | 0.62 | M-v | 1 | MPC | 159670 | 2001 $UD_{131}$ |
| 2001 $UU_{134}$ | 15.1 | 0.15 | 20100104 | 40.04136 | 313.42695 | 78.87117 | 4.28342 | 0.1773682 | 2.5382369 | 196 | 5 | 2001–2009 | 0.50 | M-v | 2 | MPC | 166113 | 2001 $UU_{134}$ |
| 2001 $UM_{135}$ | 16.6 | 0.15 | 20100104 | 52.30229 | 280.67804 | 79.35116 | 2.10292 | 0.1472208 | 2.5159887 | 118 | 5 | 2001–2009 | 0.41 | M-v | 3 | MPC | 166113 | 2001 $UM_{135}$ |
| 2001 $UV_{137}$ | 17.3 | 0.15 | 20100104 | 81.58207 | 275.38366 | 66.08852 | 2.18331 | 0.2081962 | 2.4484380 | 46 | 3 | 2001–2009 | 0.43 | M-v | 3 | MPC | 97496 | 2001 $UV_{137}$ |
| 2001 $UY_{137}$ | 16.6 | 0.15 | 20100104 | 89.02955 | 251.88584 | 52.69870 | 3.58846 | 0.0403137 | 2.5403453 | 48 | 4 | 2001–2009 | 0.36 | M-v | 2 | MPC | 164168 | 2001 $UY_{137}$ |
| 2001 $UB_{147}$ | 17.1 | 0.15 | 20100104 | 354.18804 | 13.10694 | 43.94026 | 3.52997 | 0.1213647 | 2.5304205 | 79 | 4 | 2001–2009 | 0.45 | M-v | 2 | MPC | 166113 | 2001 $UB_{147}$ |
| 2001 $UM_{150}$ | 16.7 | 0.15 | 20100104 | 5.47578 | 346.07221 | 54.78841 | 5.22372 | 0.2229615 | 2.5591027 | 218 | 3 | 2001–2009 | 0.50 | M-v | 2 | MPC | 164168 | 2001 $UM_{150}$ |
| 2001 $UM_{160}$ | 16.9 | 0.15 | 20100104 | 31.50004 | 159.57786 | 224.76542 | 7.31095 | 0.2403344 | 2.5242349 | 98 | 4 | 1993–2009 | 0.52 | M-v | 3 | MPC | 166113 | 2001 $UM_{160}$ |
| 2001 $UQ_{161}$ | 16.3 | 0.15 | 20100104 | 75.44098 | 123.69839 | 237.88392 | 5.03665 | 0.1731023 | 2.4772263 | 70 | 4 | 1997–2009 | 0.57 | M-v | 3 | MPC | 97497 | 2001 $UQ_{161}$ |
| 2001 $UX_{161}$ | 16.0 | 0.15 | 20100104 | 326.92734 | 236.72338 | 221.51399 | 12.13399 | 0.1060044 | 2.5566738 | 123 | 3 | 2001–2009 | 0.53 | M-v | 3 | MPC | 166113 | 2001 $UX_{161}$ |
| 2001 $UB_{167}$ | 17.0 | 0.15 | 20100104 | 348.02633 | 191.66272 | 236.35067 | 9.82986 | 0.2637518 | 2.5339107 | 91 | 3 | 2001–2009 | 0.48 | M-v | 3 | MPC | 164168 | 2001 $UB_{167}$ |
| 2001 $UV_{170}$ | 16.8 | 0.15 | 20100104 | 33.85597 | 125.65692 | 230.95117 | 4.73839 | 0.2559647 | 2.5405766 | 179 | 3 | 2001–2009 | 0.48 | M-v | 3 | MPC | 166113 | 2001 $UV_{170}$ |
| 2001 $UH_{171}$ | 17.1 | 0.15 | 20100104 | 4.12405 | 44.63492 | 2.88999 | 4.22555 | 0.2611754 | 2.5532535 | 151 | 3 | 2001–2009 | 0.57 | M-v | 2 | MPC | 166113 | 2001 $UH_{171}$ |
| 2001 $UD_{175}$ | 16.8 | 0.15 | 20100104 | 31.32418 | 299.11137 | 104.11099 | 3.45643 | 0.1890326 | 2.4738950 | 88 | 3 | 2001–2009 | 0.53 | M-v | 3 | MPC | 166113 | 2001 $UD_{175}$ |
| 2001 $UM_{175}$ | 16.2 | 0.15 | 20100104 | 121.79604 | 240.18544 | 78.13624 | 5.22235 | 0.1850734 | 2.4187467 | 71 | 4 | 2001–2009 | 0.47 | M-v | 3 | MPC | 97498 | 2001 $UM_{175}$ |
| 2001 $UF_{177}$ | 17.0 | 0.15 | 20100104 | 16.85884 | 73.24757 | 7.30328 | 0.99138 | 0.1592817 | 2.4426850 | 94 | 4 | 2001–2009 | 0.47 | M-v | 2 | MPC | 166113 | 2001 $UF_{177}$ |
| 2001 $UA_{181}$ | 18.3 | 0.15 | 20100104 | 56.75619 | 225.20873 | 164.68526 | 2.08076 | 0.1860166 | 2.4460016 | 25 | 4 | 1993–2009 | 0.31 | M-v | 2 | MPC | 134703 | 2001 $UA_{181}$ |
| 2001 $UP_{182}$ | 17.3 | 0.15 | 20100104 | 42.33793 | 305.56744 | 71.13217 | 3.45484 | 0.2047634 | 2.4744979 | 71 | 4 | 2001–2009 | 0.48 | M-v | 2 | MPC | 166113 | 2001 $UP_{182}$ |
| 2001 $UV_{187}$ | 16.4 | 0.15 | 20100104 | 77.72394 | 281.73470 | 35.60443 | 14.61412 | 0.0191704 | 2.5647806 | 38 | 3 | 2001–2009 | 0.42 | M-v | 4 | MPC | 166113 | 2001 $UV_{187}$ |
| 2001 $UA_{188}$ | 16.6 | 0.15 | 20100104 | 346.28791 | 319.52192 | 119.94396 | 5.92016 | 0.2281565 | 2.5362674 | 71 | 4 | 2001–2009 | 0.60 | M-v | 3 | MPC | 166113 | 2001 $UA_{188}$ |
| 2001 $UK_{188}$ | 17.0 | 0.15 | 20100104 | 63.94020 | 215.89725 | 171.21838 | 3.80673 | 0.2161004 | 2.4384692 | 41 | 3 | 2001–2009 | 0.50 | M-v | 2 | MPC | 160749 | 2001 $UK_{188}$ |
| 2001 $UO_{191}$ | 17.0 | 0.15 | 20100104 | 9.90207 | 77.20437 | 17.22087 | 6.74361 | 0.1114354 | 2.4088527 | 59 | 5 | 2001–2009 | 0.56 | M-v | 1 | MPC | 119553 | 2001 $UO_{191}$ |
| 2001 $UA_{204}$ | 16.1 | 0.15 | 20100104 | 328.14152 | 134.93344 | 14.99636 | 6.80777 | 0.0958227 | 2.4033946 | 53 | 4 | 1999–2009 | 0.65 | M-v | 1 | MPC | 46853 | 2001 $UA_{204}$ |
| 2001 $UM_{206}$ | 17.6 | 0.15 | 20100104 | 40.40519 | 118.50929 | 322.28002 | 1.72159 | 0.1863013 | 2.3799771 | 37 | 4 | 2001–2009 | 0.44 | M-v | 2 | MPC | 166113 | 2001 $UM_{206}$ |
| 2001 $UP_{209}$ | 17.3 | 0.15 | 20100104 | 39.42354 | 146.27758 | 235.72244 | 6.74471 | 0.1370033 | 2.4756130 | 63 | 3 | 2001–2009 | 0.48 | M-v | 3 | MPC | 166113 | 2001 $UP_{209}$ |
| 2001 $UJ_{215}$ | 17.6 | 0.15 | 20100104 | 44.90936 | 348.01557 | 72.49726 | 3.04791 | 0.1576034 | 2.4179984 | 36 | 4 | 2001–2009 | 0.44 | M-v | 2 | MPC | 166113 | 2001 $UJ_{215}$ |
| 2001 $UM_{220}$ | 16.9 | 0.15 | 20100104 | 26.03172 | 147.18771 | 284.06827 | 1.78300 | 0.1758371 | 2.4534901 | 61 | 4 | 2001–2009 | 0.45 | M-v | 2 | MPC | 166113 | 2001 $UM_{220}$ |
| 2001 $UL_{221}$ | 17.2 | 0.15 | 20100104 | 89.72516 | 282.22126 | 76.00152 | 4.11958 | 0.2062342 | 2.4346066 | 40 | 3 | 2001–2009 | 0.45 | M-v | 3 | MPC | 113831 | 2001 $UL_{221}$ |
| 2001 $UT_{221}$ | 16.8 | 0.15 | 20100104 | 48.65353 | 281.42656 | 104.60632 | 0.96177 | 0.1277733 | 2.4846037 | 109 | 5 | 1993–2009 | 0.47 | M-v | 2 | MPC | 166113 | 2001 $UT_{221}$ |
| 2001 $UQ_{228}$ | 18.0 | 0.15 | 20100104 | 67.21148 | 242.26657 | 140.59181 | 5.27423 | 0.1589849 | 2.4186604 | 29 | 4 | 1997–2009 | 0.55 | M-v | 2 | MPC | 140362 | 2001 $UQ_{228}$ |
| 2001 $UC_{230}$ | 17.8 | 0.15 | 20100104 | 31.95749 | 320.99939 | 102.78311 | 5.43043 | 0.1770222 | 2.4487688 | 30 | 3 | 2001–2009 | 0.44 | M-v | 3 | MPC | 166114 | 2001 $UC_{230}$ |
| 2001 $VO_{1}$ | 17.3 | 0.15 | 20100104 | 48.80998 | 3.74405 | 15.15513 | 2.67716 | 0.2686077 | 2.4805727 | 93 | 4 | 1997–2009 | 0.46 | M-v | 2 | MPC | 94253 | 2001 $VO_{1}$ |
| 2001 $VP_{2}$ | 16.1 | 0.15 | 20100104 | 343.79031 | 284.44740 | 168.75291 | 27.55084 | 0.3490555 | 2.5567731 | 68 | 3 | 2001–2009 | 0.58 | M-v | 2 | MPC | 166114 | 2001 $VP_{2}$ |
| 2001 $VA_{4}$ | 18.0 | 0.15 | 20100104 | 37.03850 | 120.28565 | 248.60949 | 5.45070 | 0.2692606 | 2.5306396 | 45 | 3 | 2001–2009 | 0.48 | M-v | 3 | MPC | 166114 | 2001 $VA_{4}$ |
| 2001 $VV_{4}$ | 17.0 | 0.15 | 20100104 | 74.63856 | 88.80498 | 265.27348 | 19.24308 | 0.1272310 | 1.8910397 | 51 | 3 | 2001–2009 | 0.67 | M-v | 2 | MPC | 166114 | 2001 $VV_{4}$ |
| 2001 $VZ_{4}$ | 17.2 | 0.15 | 20100104 | 19.31961 | 176.79217 | 245.52020 | 21.42831 | 0.1543940 | 1.9099242 | 100 | 3 | 2001–2009 | 0.52 | M-v | 2 | MPC | 166114 | 2001 $VZ_{4}$ |
| 2001 $VN_{10}$ | 16.0 | 0.15 | 20100104 | 25.59827 | 129.89012 | 247.52166 | 17.22236 | 0.2785952 | 2.5293703 | 218 | 4 | 1997–2009 | 0.53 | M-v | 2 | MPC | 166114 | 2001 $VN_{10}$ |
| 2001 $VA_{17}$ | 16.8 | 0.15 | 20100104 | 108.52217 | 49.45435 | 312.44664 | 12.83937 | 0.2654407 | 2.3672769 | 61 | 4 | 2001–2009 | 0.52 | M-v | 2 | MPC | 150911 | 2001 $VA_{17}$ |
| 2001 $VS_{17}$ | 16.6 | 0.15 | 20100104 | 36.64106 | 60.49575 | 22.35314 | 2.43855 | 0.1858445 | 2.4135324 | 91 | 5 | 1997–2009 | 0.49 | M-v | 1 | MPC | 147184 | 2001 $VS_{17}$ |
| 2001 $VZ_{19}$ | 16.9 | 0.15 | 20100104 | 26.97511 | 319.56510 | 88.22115 | 3.05929 | 0.1628754 | 2.4909293 | 128 | 4 | 2001–2009 | 0.50 | M-v | 3 | MPC | 166114 | 2001 $VZ_{19}$ |
| 2001 $VR_{20}$ | 16.8 | 0.15 | 20100104 | 5.51451 | 167.04758 | 229.88325 | 5.72136 | 0.1537734 | 2.5622119 | 100 | 3 | 2001–2009 | 0.55 | M-v | 2 | MPC | 166114 | 2001 $VR_{20}$ |
| 2001 $VE_{21}$ | 15.8 | 0.15 | 20100104 | 344.91258 | 213.40352 | 233.27292 | 12.35557 | 0.2001479 | 2.5317392 | 287 | 4 | 1997–2009 | 0.47 | M-v | 2 | MPC | 166114 | 2001 $VE_{21}$ |
| 2001 $VK_{21}$ | 16.5 | 0.15 | 20100104 | 18.90453 | 5.55513 | 41.49406 | 5.59501 | 0.1320699 | 2.5162904 | 134 | 5 | 2001–2009 | 0.53 | M-v | 3 | MPC | 166114 | 2001 $VK_{21}$ |
| 2001 $VT_{31}$ | 14.2 | 0.15 | 20100104 | 359.17093 | 16.85739 | 67.12924 | 16.87516 | 0.2693038 | 3.9898390 | 94 | 4 | 2001–2009 | 0.50 | M-v | 1 | MPC | 166114 | 2001 $VT_{31}$ |
| 2001 $VD_{37}$ | 15.4 | 0.15 | 20100104 | 46.49596 | 132.97800 | 242.29765 | 10.25006 | 0.1264045 | 2.5394002 | 166 | 4 | 2001–2009 | 0.52 | M-v | 3 | MPC | 166114 | 2001 $VD_{37}$ |
| 2001 $VF_{38}$ | 15.6 | 0.15 | 20100104 | 114.99950 | 293.98700 | 6.85008 | 1.55854 | 0.1253567 | 2.5161046 | 203 | 6 | 1999–2009 | 0.48 | M-v | 2 | MPC | 166114 | 2001 $VF_{38}$ |
| 2001 $VH_{38}$ | 16.4 | 0.15 | 20100104 | 26.21286 | 124.42017 | 229.30830 | 11.75837 | 0.2065535 | 2.5877988 | 122 | 3 | 2001–2009 | 0.51 | M-v | 2 | MPC | 164169 | 2001 $VH_{38}$ |
| 2001 $VV_{42}$ | 15.5 | 0.15 | 20100104 | 25.65352 | 123.08032 | 261.87840 | 6.29636 | 0.1386047 | 2.5728035 | 176 | 4 | 2001–2009 | 0.46 | M-v | 2 | MPC | 166114 | 2001 $VV_{42}$ |
| 2001 $VV_{47}$ | 15.3 | 0.15 | 20100104 | 67.63079 | 295.43938 | 60.56455 | 2.66961 | 0.1757070 | 2.5275118 | 234 | 6 | 1991–2009 | 0.45 | M-v | 2 | MPC | 166114 | 2001 $VV_{47}$ |
| 2001 $VZ_{47}$ | 14.8 | 0.15 | 20100104 | 92.47163 | 314.26435 | 23.30507 | 2.39740 | 0.1692884 | 2.5140306 | 248 | 7 | 1995–2009 | 0.49 | M-v | 2 | MPC | 166114 | 2001 $VZ_{47}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 $VQ_{49}$ | 17.3 | 0.15 | 20100104 | 55.34752 | 75.07757 | 309.29898 | 5.05865 | 0.3121631 | 2.4470361 | 65 | 3 | 2001–2009 | 0.50 | M-v | 2 | MPC | 165317 | 2001 $VQ_{49}$ |
| 2001 $VB_{59}$ | 16.2 | 0.15 | 20100104 | 342.98182 | 99.69375 | 27.22876 | 8.83257 | 0.2294290 | 2.4657150 | 79 | 4 | 1993–2009 | 0.63 | M-v | 2 | MPC | 97504 | 2001 $VB_{59}$ |
| 2001 $VJ_{60}$ | 17.0 | 0.15 | 20100104 | 41.77228 | 122.05698 | 321.59989 | 2.83625 | 0.1493375 | 2.4032771 | 74 | 4 | 2001–2009 | 0.51 | M-v | 2 | MPC | 162327 | 2001 $VJ_{60}$ |
| 2001 $VF_{62}$ | 16.2 | 0.15 | 20100104 | 43.57373 | 69.43638 | 296.66962 | 2.73640 | 0.1454978 | 2.5282925 | 190 | 5 | 2001–2009 | 0.53 | M-v | 3 | MPC | 166114 | 2001 $VF_{62}$ |
| 2001 $VA_{64}$ | 16.1 | 0.15 | 20100104 | 107.65369 | 100.89297 | 247.74496 | 5.29231 | 0.1618572 | 2.4208160 | 74 | 6 | 2000–2009 | 0.48 | M-v | 1 | MPC | 143136 | 2001 $VA_{64}$ |
| 2001 $VR_{70}$ | 16.1 | 0.15 | 20100104 | 35.89507 | 307.26219 | 66.40107 | 6.36768 | 0.1385181 | 2.5580149 | 132 | 3 | 2001–2009 | 0.51 | M-v | 3 | MPC | 166114 | 2001 $VR_{70}$ |
| 2001 $VO_{74}$ | 17.4 | 0.15 | 20100104 | 19.55320 | 340.02125 | 51.82248 | 13.60540 | 0.1710087 | 2.5366122 | 58 | 3 | 2001–2009 | 0.47 | M-v | 3 | MPC | 166114 | 2001 $VO_{74}$ |
| 2001 $VZ_{77}$ | 17.4 | 0.15 | 20100104 | 319.42638 | 267.82847 | 256.17480 | 1.63906 | 0.1104531 | 2.4170515 | 39 | 5 | 2001–2009 | 0.36 | M-v | 1 | MPC | 147185 | 2001 $VZ_{77}$ |
| 2001 $VF_{81}$ | 16.8 | 0.15 | 20100104 | 10.90955 | 49.77811 | 36.41448 | 10.33309 | 0.2245190 | 2.4752614 | 41 | 3 | 2001–2009 | 0.60 | M-v | 3 | MPC | 166114 | 2001 $VF_{81}$ |
| 2001 $VV_{82}$ | 16.7 | 0.15 | 20100104 | 54.56083 | 306.31462 | 64.07019 | 8.09054 | 0.1189507 | 2.4895712 | 74 | 4 | 2001–2009 | 0.45 | M-v | 2 | MPC | 166114 | 2001 $VV_{82}$ |
| 2001 $VG_{88}$ | 16.7 | 0.15 | 20100104 | 89.03251 | 276.17360 | 86.25421 | 4.82405 | 0.1678311 | 2.4221128 | 54 | 5 | 2001–2009 | 0.52 | M-v | 1 | MPC | 166114 | 2001 $VG_{88}$ |
| 2001 $VH_{89}$ | 15.6 | 0.15 | 20100104 | 137.62961 | 31.69705 | 257.45755 | 14.02722 | 0.1324337 | 2.4632920 | 46 | 4 | 2001–2009 | 0.49 | M-v | 3 | MPC | 166114 | 2001 $VH_{89}$ |
| 2001 $VP_{95}$ | 16.1 | 0.15 | 20100104 | 6.84638 | 212.41512 | 202.49595 | 14.66817 | 0.1110511 | 2.5335891 | 55 | 4 | 2001–2009 | 0.71 | M-v | 4 | MPC | 166115 | 2001 $VP_{95}$ |
| 2001 $VL_{100}$ | 16.3 | 0.15 | 20100104 | 17.73275 | 222.03293 | 186.99457 | 9.04370 | 0.1402026 | 2.5271977 | 91 | 5 | 2001–2009 | 0.53 | M-v | 3 | MPC | 166115 | 2001 $VL_{100}$ |
| 2001 $VM_{104}$ | 16.7 | 0.15 | 20100104 | 89.06472 | 23.19914 | 347.41676 | 2.65365 | 0.2153318 | 2.4186618 | 65 | 5 | 1995–2009 | 0.43 | M-v | 1 | MPC | 166115 | 2001 $VM_{104}$ |
| 2001 $VQ_{111}$ | 16.8 | 0.15 | 20100104 | 9.51574 | 56.22892 | 4.51295 | 0.80896 | 0.1265811 | 2.5243541 | 100 | 5 | 2001–2009 | 0.51 | M-v | 3 | MPC | 166115 | 2001 $VQ_{111}$ |
| 2001 $VE_{112}$ | 16.3 | 0.15 | 20100104 | 311.40966 | 183.12725 | 286.42950 | 3.36803 | 0.1739183 | 2.5797314 | 95 | 5 | 1994–2009 | 0.53 | M-v | 1 | MPC | 164170 | 2001 $VE_{112}$ |
| 2001 $VW_{113}$ | 16.2 | 0.15 | 20100104 | 353.93426 | 44.08889 | 43.26540 | 7.38805 | 0.1160599 | 2.5172389 | 123 | 4 | 2001–2009 | 0.50 | M-v | 2 | MPC | 166115 | 2001 $VW_{113}$ |
| 2001 $VY_{114}$ | 16.5 | 0.15 | 20100104 | 20.57223 | 139.80842 | 260.77395 | 6.24215 | 0.1979205 | 2.5363703 | 134 | 4 | 2001–2009 | 0.49 | M-v | 2 | MPC | 166115 | 2001 $VY_{114}$ |
| 2001 $VG_{115}$ | 16.2 | 0.15 | 20100104 | 48.40271 | 115.20950 | 254.33096 | 8.00654 | 0.1318018 | 2.5372464 | 124 | 3 | 2001–2009 | 0.52 | M-v | 3 | MPC | 166115 | 2001 $VG_{115}$ |
| 2001 $VH_{115}$ | 15.8 | 0.15 | 20100104 | 311.41330 | 234.24728 | 254.81136 | 8.50850 | 0.1007538 | 2.5350649 | 167 | 5 | 2000–2009 | 0.50 | M-v | 2 | MPC | 166115 | 2001 $VH_{115}$ |
| 2001 $VT_{115}$ | 17.2 | 0.15 | 20100104 | 46.48117 | 59.61003 | 15.82620 | 2.37148 | 0.1796266 | 2.4275071 | 60 | 4 | 2001–2009 | 0.50 | M-v | 2 | MPC | 147185 | 2001 $VT_{115}$ |
| 2001 $VO_{116}$ | 17.4 | 0.15 | 20100104 | 48.17506 | 353.77757 | 56.23065 | 3.57820 | 0.1698548 | 2.4633509 | 46 | 6 | 1997–2009 | 0.43 | M-v | 1 | MPC | 166115 | 2001 $VO_{116}$ |
| 2001 $VN_{118}$ | 15.9 | 0.15 | 20100104 | 13.88861 | 117.12509 | 281.38632 | 2.63625 | 0.1922069 | 2.5725070 | 187 | 4 | 2001–2009 | 0.45 | M-v | 2 | MPC | 166115 | 2001 $VN_{118}$ |
| 2001 $VE_{120}$ | 16.8 | 0.15 | 20100104 | 57.39899 | 36.70255 | 337.72909 | 2.63902 | 0.1002205 | 2.5074532 | 75 | 6 | 1999–2009 | 0.50 | M-v | 2 | MPC | 166115 | 2001 $VE_{120}$ |
| 2001 $VW_{123}$ | 17.5 | 0.15 | 20100104 | 55.14733 | 24.69257 | 33.61861 | 2.79979 | 0.1946683 | 2.4177020 | 59 | 3 | 2001–2009 | 0.44 | M-v | 2 | MPC | 94286 | 2001 $VW_{123}$ |
| 2001 $VE_{124}$ | 17.1 | 0.15 | 20100104 | 3.07338 | 189.37953 | 230.98741 | 5.03194 | 0.1645832 | 2.5244998 | 85 | 4 | 2001–2009 | 0.42 | M-v | 3 | MPC | 166115 | 2001 $VE_{124}$ |
| 2001 $VF_{124}$ | 17.6 | 0.15 | 20100104 | 35.30769 | 351.71902 | 62.19248 | 3.20259 | 0.2019416 | 2.4667834 | 45 | 4 | 1999–2009 | 0.39 | M-v | 2 | MPC | 166115 | 2001 $VF_{124}$ |
| 2001 $VV_{124}$ | 16.3 | 0.15 | 20100104 | 326.30584 | 195.51575 | 274.61249 | 6.66381 | 0.1744640 | 2.5191417 | 106 | 4 | 1993–2009 | 0.57 | M-v | 3 | MPC | 166115 | 2001 $VV_{124}$ |
| 2001 $VY_{125}$ | 17.6 | 0.15 | 20100104 | 21.57043 | 175.67442 | 230.06911 | 3.20653 | 0.1431275 | 2.5124954 | 76 | 4 | 2001–2009 | 0.39 | M-v | 2 | MPC | 166115 | 2001 $VY_{125}$ |
| 2001 $VE_{126}$ | 17.6 | 0.15 | 20100104 | 356.79013 | 345.33953 | 87.44156 | 2.51817 | 0.1012255 | 2.5215715 | 44 | 4 | 2001–2009 | 0.43 | M-v | 3 | MPC | 166115 | 2001 $VE_{126}$ |
| 2001 $WQ_{2}$ | 17.1 | 0.15 | 20100104 | 88.52014 | 109.50472 | 229.33627 | 19.97824 | 0.0729848 | 1.9224584 | 72 | 3 | 2001–2009 | 0.51 | M-v | 1 | MPC | 166115 | 2001 $WQ_{2}$ |
| 2001 $WR_{6}$ | 16.9 | 0.15 | 20100104 | 132.62131 | 41.84691 | 294.11786 | 10.57879 | 0.2622255 | 2.3597137 | 58 | 5 | 1999–2009 | 0.45 | M-v | 1 | MPC | 158419 | 2001 $WR_{6}$ |
| 2001 $WP_{7}$ | 16.3 | 0.15 | 20100104 | 37.46373 | 268.17051 | 100.62854 | 6.30296 | 0.2070780 | 2.5352893 | 96 | 4 | 2001–2009 | 0.49 | M-v | 3 | MPC | 166115 | 2001 $WP_{7}$ |
| 2001 $WD_{8}$ | 15.6 | 0.15 | 20100104 | 35.29732 | 219.19042 | 171.13085 | 4.51666 | 0.0809954 | 2.5217997 | 254 | 8 | 1971–2009 | 0.56 | M-v | 3 | MPC | 166116 | 2001 $WD_{8}$ |
| 2001 $WV_{9}$ | 16.0 | 0.15 | 20100104 | 52.07070 | 269.66415 | 90.63728 | 12.68554 | 0.1962355 | 2.5325630 | 106 | 3 | 2001–2009 | 0.56 | M-v | 4 | MPC | 166116 | 2001 $WV_{9}$ |
| 2001 $WD_{14}$ | 15.3 | 0.15 | 20100104 | 20.95668 | 269.00020 | 152.40004 | 6.71869 | 0.2450625 | 2.5400362 | 102 | 4 | 2001–2009 | 0.51 | M-v | 2 | MPC | 164171 | 2001 $WD_{14}$ |
| 2001 $WB_{15}$ | 17.4 | 0.15 | 20100104 | 330.31543 | 217.28008 | 257.75972 | 18.87056 | 0.0699291 | 1.9216762 | 69 | 2 | 2001–2009 | 0.44 | M-v | 5 | MPC | 165318 | 2001 $WB_{15}$ |
| 2001 $WG_{15}$ | 16.6 | 0.15 | 20100104 | 32.93140 | 142.57250 | 309.63973 | 22.24632 | 0.1209949 | 1.8972798 | 79 | 4 | 1998–2009 | 0.58 | M-v | 2 | MPC | 50575 | 2001 $WG_{15}$ |
| 2001 $WL_{15}$ | 18.2 | 0.15 | 20100104 | 303.12298 | 14.37364 | 112.22914 | 6.94084 | 0.4744596 | 1.9891516 | 167 | 5 | 2000–2009 | 0.51 | M-v | 1 | MPC | 160751 | 2001 $WL_{15}$ |
| 2001 $WJ_{17}$ | 17.4 | 0.15 | 20100104 | 25.68716 | 119.56239 | 239.91257 | 2.63191 | 0.2693018 | 2.5479531 | 132 | 3 | 2001–2009 | 0.51 | M-v | 2 | MPC | 166116 | 2001 $WJ_{17}$ |
| 2001 $WZ_{23}$ | 17.8 | 0.15 | 20100104 | 354.21951 | 191.41064 | 240.58011 | 3.33559 | 0.1134580 | 2.5319422 | 58 | 4 | 2001–2009 | 0.33 | M-v | 2 | MPC | 166116 | 2001 $WZ_{23}$ |
| 2001 $WB_{26}$ | 16.7 | 0.15 | 20100104 | 311.01629 | 118.22090 | 54.56041 | 8.65299 | 0.1829273 | 2.4236523 | 50 | 4 | 2001–2009 | 0.58 | M-v | 2 | MPC | 97511 | 2001 $WB_{26}$ |
| 2001 $WD_{26}$ | 17.8 | 0.15 | 20100104 | 54.09199 | 320.44522 | 72.52164 | 4.14790 | 0.2026507 | 2.4503119 | 44 | 3 | 2001–2009 | 0.45 | M-v | 3 | MPC | 100090 | 2001 $WD_{26}$ |
| 2001 $WO_{27}$ | 16.5 | 0.15 | 20100104 | 35.06988 | 248.93732 | 131.01429 | 4.44682 | 0.1916312 | 2.5263062 | 135 | 5 | 1994–2009 | 0.54 | M-v | 3 | MPC | 166116 | 2001 $WO_{27}$ |
| 2001 $WA_{29}$ | 15.7 | 0.15 | 20100104 | 356.36069 | 322.22702 | 98.91175 | 6.28237 | 0.1647613 | 2.5574290 | 162 | 4 | 2001–2009 | 0.55 | M-v | 2 | MPC | 166116 | 2001 $WA_{29}$ |
| 2001 $WO_{31}$ | 15.2 | 0.15 | 20100104 | 133.71892 | 20.88293 | 224.63929 | 10.50955 | 0.1551520 | 2.6254341 | 102 | 4 | 2001–2009 | 0.54 | M-v | 3 | MPC | 164171 | 2001 $WO_{31}$ |
| 2001 $WV_{36}$ | 15.6 | 0.15 | 20100104 | 72.67442 | 284.03985 | 78.12177 | 8.06414 | 0.1058775 | 2.4739765 | 193 | 5 | 2001–2009 | 0.55 | M-v | 2 | MPC | 166116 | 2001 $WV_{36}$ |
| 2001 $WG_{40}$ | 15.8 | 0.15 | 20100104 | 16.94323 | 181.36205 | 233.28040 | 11.50704 | 0.2751299 | 2.5348441 | 162 | 3 | 2001–2009 | 0.42 | M-v | 2 | MPC | 166116 | 2001 $WG_{40}$ |
| 2001 $WS_{42}$ | 17.5 | 0.15 | 20100104 | 78.48802 | 174.95787 | 197.25183 | 1.57804 | 0.1656106 | 2.4365997 | 43 | 5 | 1995–2009 | 0.46 | M-v | 1 | MPC | 166116 | 2001 $WS_{42}$ |
| 2001 $WW_{45}$ | 16.9 | 0.15 | 20100104 | 86.20078 | 313.92297 | 25.10907 | 2.64830 | 0.2060458 | 2.4772790 | 43 | 5 | 1993–2009 | 0.39 | M-v | 2 | MPC | 166116 | 2001 $WW_{45}$ |
| 2001 $WA_{48}$ | 16.3 | 0.15 | 20100104 | 45.06070 | 283.62276 | 80.06851 | 15.31428 | 0.1299992 | 2.5322247 | 81 | 5 | 1993–2009 | 0.58 | M-v | 3 | MPC | 166116 | 2001 $WA_{48}$ |
| 2001 $WA_{49}$ | 17.0 | 0.15 | 20100104 | 46.64471 | 179.26276 | 192.84753 | 3.30568 | 0.1424782 | 2.5220791 | 61 | 5 | 2001–2009 | 0.46 | M-v | 3 | MPC | 166116 | 2001 $WA_{49}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 $WL_{54}$ | 16.9 | 0.15 | 20100104 | 24.36562 | 80.13690 | 37.32154 | 5.40931 | 0.1835153 | 2.3877452 | 64 | 5 | 1999–2009 | 0.66 | M-v | 1 | MPC | 147187 | 2001 $WL_{54}$ |
| 2001 $WS_{54}$ | 16.8 | 0.15 | 20100104 | 358.60527 | 140.67632 | 238.51186 | 5.45062 | 0.1203758 | 2.6086091 | 63 | 3 | 2001–2009 | 0.49 | M-v | 3 | MPC | 85263 | 2001 $WS_{54}$ |
| 2001 $WD_{55}$ | 17.1 | 0.15 | 20100104 | 355.00144 | 347.57934 | 61.65884 | 1.04425 | 0.1126397 | 2.5595113 | 101 | 4 | 2001–2009 | 0.46 | M-v | 2 | MPC | 166116 | 2001 $WD_{55}$ |
| 2001 $WM_{55}$ | 17.1 | 0.15 | 20100104 | 19.58128 | 123.44206 | 247.78985 | 2.66097 | 0.1771250 | 2.5667342 | 55 | 4 | 1999–2009 | 0.45 | M-v | 2 | MPC | 164171 | 2001 $WM_{55}$ |
| 2001 $WS_{56}$ | 17.0 | 0.15 | 20100104 | 46.25448 | 306.21885 | 38.96250 | 4.01180 | 0.1783836 | 2.5533656 | 122 | 3 | 2001–2009 | 0.40 | M-v | 3 | MPC | 166116 | 2001 $WS_{56}$ |
| 2001 $WO_{64}$ | 17.5 | 0.15 | 20100104 | 39.31225 | 315.63997 | 60.51890 | 2.11960 | 0.2109580 | 2.5283959 | 72 | 3 | 2001–2009 | 0.36 | M-v | 3 | MPC | 166116 | 2001 $WO_{64}$ |
| 2001 $WL_{70}$ | 16.7 | 0.15 | 20100104 | 144.79183 | 239.53789 | 63.01341 | 6.56805 | 0.1249794 | 2.4328043 | 54 | 5 | 1996–2009 | 0.37 | M-v | 1 | MPC | 143137 | 2001 $WL_{70}$ |
| 2001 $WO_{70}$ | 17.1 | 0.15 | 20100104 | 82.93353 | 268.57299 | 59.93866 | 9.80071 | 0.0777475 | 2.5238478 | 36 | 4 | 1997–2009 | 0.43 | M-v | 3 | MPC | 166116 | 2001 $WO_{70}$ |
| 2001 $WU_{70}$ | 17.1 | 0.15 | 20100104 | 91.39979 | 213.68234 | 118.08610 | 2.21548 | 0.1844854 | 2.4744094 | 44 | 5 | 2001–2009 | 0.35 | M-v | 2 | MPC | 116186 | 2001 $WU_{70}$ |
| 2001 $WZ_{72}$ | 16.9 | 0.15 | 20100104 | 345.88575 | 32.48926 | 73.39443 | 5.76531 | 0.0648772 | 2.4702704 | 55 | 4 | 2001–2009 | 0.38 | M-v | 2 | MPC | 166116 | 2001 $WZ_{72}$ |
| 2001 $WW_{84}$ | 16.6 | 0.15 | 20100104 | 140.26867 | 231.77186 | 85.80543 | 3.81293 | 0.2051828 | 2.4188409 | 58 | 6 | 2001–2009 | 0.43 | M-v | 1 | MPC | 158420 | 2001 $WW_{84}$ |
| 2001 $WS_{85}$ | 16.3 | 0.15 | 20100104 | 32.28975 | 120.79872 | 262.70050 | 1.45179 | 0.1290971 | 2.5612038 | 129 | 4 | 2001–2009 | 0.45 | M-v | 2 | MPC | 166117 | 2001 $WS_{85}$ |
| 2001 $WB_{87}$ | 17.2 | 0.15 | 20100104 | 8.13410 | 133.73869 | 319.44799 | 3.93897 | 0.1259002 | 2.4523639 | 26 | 4 | 1997–2009 | 0.43 | M-v | 3 | MPC | 100091 | 2001 $WB_{87}$ |
| 2001 $WT_{87}$ | 15.9 | 0.15 | 20100104 | 113.07686 | 303.91139 | 346.09890 | 3.48244 | 0.1613752 | 2.5384310 | 78 | 5 | 1997–2009 | 0.49 | M-v | 3 | MPC | 166117 | 2001 $WT_{87}$ |
| 2001 $WJ_{91}$ | 15.9 | 0.15 | 20100104 | 19.68852 | 334.03475 | 47.08898 | 13.70332 | 0.1893673 | 2.5738415 | 148 | 3 | 2001–2009 | 0.50 | M-v | 2 | MPC | 166117 | 2001 $WJ_{91}$ |
| 2001 $WS_{91}$ | 16.6 | 0.15 | 20100104 | 51.39137 | 80.72117 | 306.45418 | 5.31193 | 0.2548861 | 2.4834043 | 70 | 4 | 1997–2009 | 0.49 | M-v | 3 | MPC | 94314 | 2001 $WS_{91}$ |
| 2001 $WM_{92}$ | 15.7 | 0.15 | 20100104 | 20.66786 | 131.35228 | 257.17280 | 9.91560 | 0.1079998 | 2.5180281 | 124 | 4 | 2001–2009 | 0.49 | M-v | 3 | MPC | 166117 | 2001 $WM_{92}$ |
| 2001 $WD_{93}$ | 16.7 | 0.15 | 20100104 | 66.76847 | 71.60678 | 344.94894 | 3.78798 | 0.1381089 | 2.4163456 | 87 | 4 | 2001–2009 | 0.44 | M-v | 1 | MPC | 164172 | 2001 $WD_{93}$ |
| 2001 $WA_{94}$ | 14.9 | 0.15 | 20100104 | 343.05221 | 23.48106 | 70.15785 | 4.09762 | 0.2203396 | 3.9413916 | 57 | 4 | 2001–2009 | 0.47 | M-v | 1 | MPC | 165318 | 2001 $WA_{94}$ |
| 2001 $WR_{97}$ | 17.8 | 0.15 | 20100104 | 58.55134 | 295.68649 | 101.40190 | 2.47844 | 0.1769126 | 2.4622075 | 35 | 4 | 2001–2009 | 0.46 | M-v | 2 | MPC | 119557 | 2001 $WR_{97}$ |
| 2001 $WT_{100}$ | 16.7 | 0.15 | 20100104 | 91.42884 | 315.75182 | 13.39430 | 0.99745 | 0.0811413 | 2.5170965 | 83 | 5 | 2001–2009 | 0.44 | M-v | 3 | MPC | 166117 | 2001 $WT_{100}$ |
| 2001 $XQ_{1}$ | 14.5 | 0.15 | 20100104 | 2.79292 | 34.13756 | 10.28621 | 33.52554 | 0.4030125 | 2.6161515 | 193 | 3 | 2001–2009 | 0.50 | M-v | 1 | MPC | 166117 | 2001 $XQ_{1}$ |
| 2001 $XU_{3}$ | 14.5 | 0.15 | 20100104 | 65.18557 | 41.65083 | 283.55108 | 31.66151 | 0.1889089 | 2.6184563 | 40 | 4 | 2000–2009 | 0.65 | M-v | 3 | MPC | 166117 | 2001 $XU_{3}$ |
| 2001 $XP_{6}$ | 15.7 | 0.15 | 20100104 | 29.17310 | 64.64815 | 309.87337 | 13.35094 | 0.2468191 | 2.5468725 | 110 | 3 | 2001–2009 | 0.56 | M-v | 3 | MPC | 166117 | 2001 $XP_{6}$ |
| 2001 $XY_{8}$ | 17.0 | 0.15 | 20100104 | 307.18010 | 105.90667 | 15.25178 | 4.73032 | 0.2311015 | 2.5882845 | 54 | 5 | 1998–2009 | 0.51 | M-v | 2 | MPC | 166117 | 2001 $XY_{8}$ |
| 2001 $XX_{15}$ | 16.1 | 0.15 | 20100104 | 16.59888 | 231.86723 | 193.00387 | 2.57786 | 0.1844188 | 2.5139757 | 162 | 8 | 1991–2009 | 0.57 | M-v | 2 | MPC | 166117 | 2001 $XX_{15}$ |
| 2001 $XP_{17}$ | 15.7 | 0.15 | 20100104 | 42.06187 | 4.27703 | 23.48385 | 7.05379 | 0.2251197 | 2.5228042 | 100 | 6 | 1995–2009 | 0.53 | M-v | 3 | MPC | 166117 | 2001 $XP_{17}$ |
| 2001 $XS_{24}$ | 15.7 | 0.15 | 20100104 | 41.42233 | 315.07414 | 79.37071 | 9.42970 | 0.2675588 | 2.5308043 | 127 | 5 | 2001–2009 | 0.50 | M-v | 2 | MPC | 166117 | 2001 $XS_{24}$ |
| 2001 $XJ_{26}$ | 15.3 | 0.15 | 20100104 | 329.08995 | 48.94007 | 96.43690 | 16.51918 | 0.2140366 | 2.5541758 | 162 | 3 | 2001–2009 | 0.51 | M-v | 2 | MPC | 166117 | 2001 $XJ_{26}$ |
| 2001 $XD_{29}$ | 15.2 | 0.15 | 20100104 | 17.45449 | 284.95500 | 127.96763 | 12.79831 | 0.2105481 | 2.5687240 | 75 | 5 | 1994–2009 | 0.53 | M-v | 2 | MPC | 166117 | 2001 $XD_{29}$ |
| 2001 $XF_{31}$ | 17.1 | 0.15 | 20100104 | 318.49651 | 238.16268 | 239.70755 | 18.84546 | 0.0890987 | 1.9400853 | 70 | 2 | 2001–2009 | 0.47 | M-v | 3 | MPC | 165318 | 2001 $XF_{31}$ |
| 2001 $XO_{34}$ | 15.0 | 0.15 | 20100104 | 319.43701 | 188.14162 | 270.71886 | 28.87514 | 0.1629291 | 2.5841097 | 80 | 3 | 2001–2009 | 0.61 | M-v | 2 | MPC | 166117 | 2001 $XO_{34}$ |
| 2001 $XG_{36}$ | 15.5 | 0.15 | 20100104 | 94.32159 | 251.70139 | 50.94064 | 9.18622 | 0.1821378 | 2.5931732 | 83 | 4 | 2001–2009 | 0.49 | M-v | 2 | MPC | 166117 | 2001 $XG_{36}$ |
| 2001 $XN_{36}$ | 16.0 | 0.15 | 20100104 | 30.19335 | 334.95804 | 29.68141 | 10.38819 | 0.2772570 | 2.5605971 | 192 | 3 | 2001–2009 | 0.51 | M-v | 2 | MPC | 166117 | 2001 $XN_{36}$ |
| 2001 $XN_{37}$ | 15.8 | 0.15 | 20100104 | 315.90242 | 205.25664 | 288.67500 | 12.53810 | 0.1722881 | 2.5255669 | 47 | 4 | 2001–2009 | 0.65 | M-v | 2 | MPC | 166117 | 2001 $XN_{37}$ |
| 2001 $XQ_{37}$ | 15.9 | 0.15 | 20100104 | 96.48898 | 341.72558 | 357.43057 | 7.43838 | 0.1752478 | 2.4902648 | 47 | 4 | 2001–2009 | 0.56 | M-v | 2 | MPC | 119557 | 2001 $XQ_{37}$ |
| 2001 $XC_{38}$ | 15.7 | 0.15 | 20100104 | 355.48853 | 75.83001 | 357.17922 | 8.43557 | 0.1612187 | 2.5527145 | 132 | 4 | 2001–2009 | 0.50 | M-v | 2 | MPC | 166117 | 2001 $XC_{38}$ |
| 2001 $XM_{39}$ | 17.1 | 0.15 | 20100104 | 3.21091 | 30.01316 | 52.03948 | 12.16316 | 0.3308645 | 2.5256540 | 53 | 2 | 2001–2009 | 0.52 | M-v | 2 | MPC | 165318 | 2001 $XM_{39}$ |
| 2001 $XC_{40}$ | 15.4 | 0.15 | 20100104 | 48.59310 | 40.41134 | 316.67944 | 10.10973 | 0.3438122 | 2.5344854 | 82 | 4 | 2001–2009 | 0.54 | M-v | 3 | MPC | 166117 | 2001 $XC_{40}$ |
| 2001 $XF_{44}$ | 16.0 | 0.15 | 20100104 | 263.15242 | 164.99260 | 335.58097 | 8.13526 | 0.1217779 | 2.6675338 | 59 | 5 | 1998–2009 | 0.52 | M-v | 1 | MPC | 162331 | 2001 $XF_{44}$ |
| 2001 $XY_{44}$ | 16.2 | 0.15 | 20100104 | 345.98222 | 80.05135 | 4.05605 | 9.00172 | 0.1379931 | 2.5793191 | 47 | 3 | 2001–2009 | 0.68 | M-v | 4 | MPC | 166118 | 2001 $XY_{44}$ |
| 2001 $XR_{46}$ | 15.3 | 0.15 | 20100104 | 333.82231 | 63.31209 | 69.04166 | 12.75045 | 0.2144501 | 2.5499993 | 106 | 3 | 2001–2009 | 0.59 | M-v | 3 | MPC | 166118 | 2001 $XR_{46}$ |
| 2001 $XV_{46}$ | 15.3 | 0.15 | 20100104 | 330.91885 | 138.07244 | 0.61698 | 9.05182 | 0.0895053 | 2.5322446 | 170 | 7 | 1992–2009 | 0.58 | M-v | 2 | MPC | 159673 | 2001 $XV_{46}$ |
| 2001 $XA_{47}$ | 14.5 | 0.15 | 20100104 | 57.38179 | 35.47162 | 333.40950 | 11.51730 | 0.2992589 | 2.5450507 | 167 | 4 | 2001–2009 | 0.52 | M-v | 2 | MPC | 164173 | 2001 $XA_{47}$ |
| 2001 $XC_{47}$ | 15.0 | 0.15 | 20100104 | 48.48854 | 313.52040 | 72.03216 | 13.17773 | 0.2071528 | 2.5589703 | 120 | 4 | 2001–2009 | 0.46 | M-v | 2 | MPC | 166118 | 2001 $XC_{47}$ |
| 2001 $XY_{47}$ | 16.0 | 0.15 | 20100104 | 17.13601 | 29.43910 | 57.15981 | 12.25611 | 0.1621980 | 2.5171561 | 116 | 5 | 2001–2009 | 0.51 | M-v | 2 | MPC | 164173 | 2001 $XY_{47}$ |
| 2001 $XA_{50}$ | 16.0 | 0.15 | 20100104 | 105.21496 | 86.34063 | 226.24666 | 0.25900 | 0.1305683 | 2.5221213 | 178 | 5 | 2001–2009 | 0.47 | M-v | 3 | MPC | 166118 | 2001 $XA_{50}$ |
| 2001 $XG_{57}$ | 16.1 | 0.15 | 20100104 | 353.32367 | 174.24945 | 253.57951 | 7.35552 | 0.1556804 | 2.5693302 | 156 | 3 | 2001–2009 | 0.46 | M-v | 2 | MPC | 166118 | 2001 $XG_{57}$ |
| 2001 $XT_{57}$ | 16.4 | 0.15 | 20100104 | 326.42395 | 209.13117 | 238.82601 | 6.26882 | 0.0949237 | 2.5967440 | 84 | 3 | 2001–2009 | 0.44 | M-v | 3 | MPC | 166118 | 2001 $XT_{57}$ |
| 2001 $XC_{58}$ | 16.6 | 0.15 | 20100104 | 3.82461 | 342.67854 | 83.26212 | 4.98017 | 0.2471447 | 2.5434413 | 178 | 4 | 2001–2009 | 0.50 | M-v | 2 | MPC | 166118 | 2001 $XC_{58}$ |
| 2001 $XB_{60}$ | 16.2 | 0.15 | 20100104 | 348.63826 | 337.06603 | 94.02952 | 13.96728 | 0.2107815 | 2.5828734 | 107 | 4 | 1997–2009 | 0.63 | M-v | 2 | MPC | 166118 | 2001 $XB_{60}$ |
| 2001 $XN_{61}$ | 15.9 | 0.15 | 20100104 | 61.65034 | 247.34101 | 112.31382 | 5.12278 | 0.2067790 | 2.5251602 | 88 | 4 | 2001–2009 | 0.47 | M-v | 3 | MPC | 166118 | 2001 $XN_{61}$ |
| 2001 $XF_{62}$ | 15.7 | 0.15 | 20100104 | 29.10757 | 146.18959 | 235.07452 | 5.67758 | 0.1973658 | 2.5640769 | 210 | 3 | 2001–2009 | 0.46 | M-v | 2 | MPC | 166118 | 2001 $XF_{62}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 $XD_{65}$ | 15.6 | 0.15 | 20100104 | 21.29291 | 107.18003 | 276.93093 | 10.79629 | 0.2883243 | 2.5831455 | 129 | 3 | 2001–2009 | 0.49 | M-v | 2 | MPC | 166118 | 2001 $XD_{65}$ |
| 2001 $XZ_{65}$ | 15.4 | 0.15 | 20100104 | 322.82767 | 234.36374 | 273.32412 | 16.93372 | 0.1525340 | 2.5334347 | 107 | 5 | 1997–2009 | 0.55 | M-v | 2 | MPC | 166118 | 2001 $XZ_{65}$ |
| 2001 $XO_{67}$ | 15.6 | 0.15 | 20100104 | 353.47466 | 124.60673 | 268.09421 | 16.73186 | 0.2682330 | 2.6377421 | 117 | 3 | 2001–2009 | 0.51 | M-v | 2 | MPC | 162331 | 2001 $XO_{67}$ |
| 2001 $XT_{70}$ | 16.2 | 0.15 | 20100104 | 48.28345 | 221.36437 | 143.14065 | 5.87196 | 0.1260225 | 2.5280792 | 91 | 6 | 1995–2009 | 0.58 | M-v | 2 | MPC | 166118 | 2001 $XT_{70}$ |
| 2001 $XB_{75}$ | 16.1 | 0.15 | 20100104 | 15.75563 | 287.87693 | 130.54807 | 6.99240 | 0.1318469 | 2.5177177 | 122 | 6 | 1999–2009 | 0.50 | M-v | 2 | MPC | 166118 | 2001 $XB_{75}$ |
| 2001 $XU_{76}$ | 16.4 | 0.15 | 20100104 | 76.44846 | 321.26693 | 16.72125 | 2.74120 | 0.1493697 | 2.5312974 | 74 | 5 | 2001–2009 | 0.44 | M-v | 2 | MPC | 166118 | 2001 $XU_{76}$ |
| 2001 $XV_{77}$ | 16.6 | 0.15 | 20100104 | 48.16688 | 229.64434 | 135.91911 | 2.65007 | 0.1363060 | 2.5401987 | 61 | 4 | 2001–2009 | 0.40 | M-v | 3 | MPC | 166118 | 2001 $XV_{77}$ |
| 2001 $XY_{80}$ | 16.3 | 0.15 | 20100104 | 320.29272 | 219.30007 | 251.84180 | 7.65769 | 0.1195458 | 2.5695033 | 85 | 5 | 2000–2009 | 0.51 | M-v | 1 | MPC | 166118 | 2001 $XY_{80}$ |
| 2001 $XE_{82}$ | 16.4 | 0.15 | 20100104 | 1.21904 | 251.64932 | 183.29604 | 2.79643 | 0.1334361 | 2.5306579 | 124 | 5 | 2001–2009 | 0.42 | M-v | 2 | MPC | 166118 | 2001 $XE_{82}$ |
| 2001 $XH_{82}$ | 16.8 | 0.15 | 20100104 | 17.25945 | 328.06921 | 52.64091 | 6.01270 | 0.1832092 | 2.5916789 | 121 | 5 | 1999–2009 | 0.45 | M-v | 1 | MPC | 166118 | 2001 $XH_{82}$ |
| 2001 $XN_{83}$ | 17.0 | 0.15 | 20100104 | 6.97102 | 328.53368 | 89.50541 | 13.42267 | 0.2494424 | 2.5452168 | 82 | 3 | 2001–2009 | 0.54 | M-v | 2 | MPC | 166118 | 2001 $XN_{83}$ |
| 2001 $XK_{90}$ | 16.0 | 0.15 | 20100104 | 27.93836 | 71.78910 | 61.35753 | 10.09922 | 0.1911669 | 2.3687306 | 157 | 4 | 2001–2009 | 0.53 | M-v | 2 | MPC | 147188 | 2001 $XK_{90}$ |
| 2001 $XB_{93}$ | 16.3 | 0.15 | 20100104 | 43.37573 | 331.35350 | 58.08243 | 2.60946 | 0.1117604 | 2.5094396 | 147 | 5 | 2001–2009 | 0.51 | M-v | 2 | MPC | 166118 | 2001 $XB_{93}$ |
| 2001 $XC_{93}$ | 17.5 | 0.15 | 20100104 | 356.15323 | 353.32743 | 65.51527 | 3.85973 | 0.2196037 | 2.5602909 | 96 | 3 | 2001–2009 | 0.52 | M-v | 2 | MPC | 166118 | 2001 $XC_{93}$ |
| 2001 $XQ_{94}$ | 16.5 | 0.15 | 20100104 | 340.62541 | 83.63897 | 356.96806 | 1.70102 | 0.1892080 | 2.5613250 | 145 | 5 | 2001–2009 | 0.49 | M-v | 2 | MPC | 166118 | 2001 $XQ_{94}$ |
| 2001 $XV_{94}$ | 17.0 | 0.15 | 20100104 | 344.33426 | 216.11643 | 255.19589 | 20.29205 | 0.0993871 | 1.9096982 | 71 | 3 | 2001–2009 | 0.56 | M-v | 2 | MPC | 165319 | 2001 $XV_{94}$ |
| 2001 $XA_{95}$ | 17.1 | 0.15 | 20100104 | 355.89827 | 21.47191 | 64.31595 | 4.62265 | 0.2738042 | 2.5241084 | 159 | 3 | 2001–2009 | 0.48 | M-v | 2 | MPC | 166118 | 2001 $XA_{95}$ |
| 2001 $XL_{95}$ | 16.9 | 0.15 | 20100104 | 5.53063 | 132.94628 | 268.04333 | 3.08118 | 0.1739654 | 2.5767523 | 105 | 4 | 2001–2009 | 0.49 | M-v | 2 | MPC | 164173 | 2001 $XL_{95}$ |
| 2001 $XA_{96}$ | 16.1 | 0.15 | 20100104 | 44.02399 | 103.55626 | 262.67395 | 5.43165 | 0.1158566 | 2.5652513 | 87 | 3 | 2001–2009 | 0.52 | M-v | 3 | MPC | 166118 | 2001 $XA_{96}$ |
| 2001 $XE_{96}$ | 16.2 | 0.15 | 20100104 | 354.64567 | 339.70701 | 57.56428 | 3.06309 | 0.0872141 | 2.6280400 | 87 | 6 | 2000–2009 | 0.49 | M-v | 1 | MPC | 162332 | 2001 $XE_{96}$ |
| 2001 $XJ_{96}$ | 16.0 | 0.15 | 20100104 | 349.96608 | 34.72555 | 62.11891 | 2.45920 | 0.0690925 | 2.5164564 | 170 | 5 | 2001–2009 | 0.49 | M-v | 2 | MPC | 166118 | 2001 $XJ_{96}$ |
| 2001 $XV_{96}$ | 15.8 | 0.15 | 20100104 | 34.03106 | 84.79940 | 276.81876 | 6.32271 | 0.3192357 | 2.5478794 | 178 | 3 | 2001–2009 | 0.48 | M-v | 2 | MPC | 166118 | 2001 $XV_{96}$ |
| 2001 $XE_{103}$ | 15.4 | 0.15 | 20100104 | 39.57224 | 63.17136 | 264.41728 | 28.12518 | 0.3988911 | 2.6043393 | 114 | 3 | 2001–2009 | 0.57 | M-v | 2 | MPC | 166118 | 2001 $XE_{103}$ |
| 2001 $XU_{103}$ | 17.0 | 0.15 | 20100104 | 72.49138 | 256.25378 | 98.06022 | 25.37737 | 0.1337504 | 1.9470529 | 38 | 3 | 2001–2009 | 0.44 | M-v | 3 | MPC | 166118 | 2001 $XU_{103}$ |
| 2001 $XA_{104}$ | 17.7 | 0.15 | 20100104 | 2.95944 | 6.46754 | 76.48042 | 23.90031 | 0.0804831 | 1.9219588 | 43 | 3 | 2001–2009 | 0.40 | M-v | 2 | MPC | 165319 | 2001 $XA_{104}$ |
| 2001 $XE_{104}$ | 18.6 | 0.15 | 20100104 | 130.60122 | 324.81468 | 68.81481 | 16.43032 | 0.4971820 | 3.3172849 | 34 | 2 | 2001–2007 | 0.57 | M-v | 2 | MPC | 160300 | 2001 $XE_{104}$ |
| 2001 $XO_{105}$ | 17.4 | 0.15 | 20100104 | 248.07156 | 108.40889 | 76.53166 | 23.70765 | 0.0604074 | 1.9453682 | 32 | 3 | 2001–2009 | 0.60 | M-v | 3 | MPC | 139160 | 2001 $XO_{105}$ |
| 2001 $XT_{105}$ | 16.3 | 0.15 | 20100104 | 345.02944 | 145.45155 | 311.06732 | 4.51871 | 0.2025935 | 2.5284807 | 138 | 4 | 2001–2009 | 0.54 | M-v | 2 | MPC | 166118 | 2001 $XT_{105}$ |
| 2001 $XP_{109}$ | 15.4 | 0.15 | 20100104 | 32.32747 | 269.80796 | 119.37186 | 5.96365 | 0.0648616 | 2.5207350 | 174 | 6 | 1991–2009 | 0.59 | M-v | 3 | MPC | 166118 | 2001 $XP_{109}$ |
| 2001 $XZ_{111}$ | 16.1 | 0.15 | 20100104 | 0.52778 | 169.33876 | 228.77546 | 11.59501 | 0.1126916 | 2.6198558 | 82 | 4 | 2001–2009 | 0.46 | M-v | 2 | MPC | 164174 | 2001 $XZ_{111}$ |
| 2001 $XW_{112}$ | 16.8 | 0.15 | 20100104 | 332.05436 | 209.00311 | 254.71092 | 18.89706 | 0.0832185 | 1.9468435 | 70 | 5 | 2001–2009 | 0.45 | M-v | 1 | MPC | 166119 | 2001 $XW_{112}$ |
| 2001 $XN_{115}$ | 16.9 | 0.15 | 20100104 | 5.80996 | 15.97388 | 77.53209 | 11.70745 | 0.2508760 | 2.5206349 | 67 | 4 | 1998–2009 | 0.57 | M-v | 2 | MPC | 94354 | 2001 $XN_{115}$ |
| 2001 $XG_{116}$ | 16.2 | 0.15 | 20100104 | 10.83630 | 357.15353 | 73.46779 | 7.58776 | 0.2051332 | 2.5574372 | 119 | 4 | 2001–2009 | 0.49 | M-v | 2 | MPC | 166119 | 2001 $XG_{116}$ |
| 2001 $XK_{116}$ | 16.8 | 0.15 | 20100104 | 15.39014 | 350.28369 | 77.24671 | 9.57187 | 0.3080920 | 2.5380649 | 92 | 3 | 2001–2009 | 0.51 | M-v | 2 | MPC | 166119 | 2001 $XK_{116}$ |
| 2001 $XH_{122}$ | 17.3 | 0.15 | 20100104 | 358.91189 | 353.31399 | 110.34226 | 1.12254 | 0.1552532 | 2.4711747 | 55 | 4 | 1999–2009 | 0.49 | M-v | 2 | MPC | 94357 | 2001 $XH_{122}$ |
| 2001 $XN_{122}$ | 17.5 | 0.15 | 20100104 | 55.77448 | 318.55365 | 74.57055 | 2.28307 | 0.1867795 | 2.4596295 | 41 | 3 | 2001–2009 | 0.44 | M-v | 2 | MPC | 100099 | 2001 $XN_{122}$ |
| 2001 $XL_{124}$ | 16.4 | 0.15 | 20100104 | 313.48901 | 68.70201 | 90.96499 | 7.58688 | 0.0535044 | 2.4415293 | 36 | 5 | 2001–2009 | 0.40 | M-v | 1 | MPC | 166119 | 2001 $XL_{124}$ |
| 2001 $XR_{124}$ | 16.2 | 0.15 | 20100104 | 89.64747 | 253.20699 | 83.42571 | 7.23065 | 0.1646794 | 2.4679319 | 54 | 5 | 2000–2009 | 0.46 | M-v | 1 | MPC | 166119 | 2001 $XR_{124}$ |
| 2001 $XD_{126}$ | 16.2 | 0.15 | 20100104 | 75.40483 | 204.18076 | 144.16899 | 0.56391 | 0.0465155 | 2.5289497 | 139 | 5 | 2001–2009 | 0.53 | M-v | 2 | MPC | 166119 | 2001 $XD_{126}$ |
| 2001 $XT_{128}$ | 16.8 | 0.15 | 20100104 | 22.15698 | 248.09336 | 167.48640 | 1.85138 | 0.0997758 | 2.5114956 | 55 | 6 | 1993–2009 | 0.51 | M-v | 3 | MPC | 166119 | 2001 $XT_{128}$ |
| 2001 $XU_{129}$ | 17.0 | 0.15 | 20100104 | 34.97203 | 316.90423 | 73.86227 | 6.18322 | 0.1616678 | 2.5226915 | 65 | 3 | 2001–2009 | 0.48 | M-v | 4 | MPC | 166119 | 2001 $XU_{129}$ |
| 2001 $XW_{131}$ | 16.6 | 0.15 | 20100104 | 4.49280 | 213.52685 | 245.25835 | 4.09318 | 0.0415159 | 2.4689000 | 53 | 8 | 1993–2009 | 0.52 | M-v | 1 | MPC | 119559 | 2001 $XW_{131}$ |
| 2001 $XB_{133}$ | 16.1 | 0.15 | 20100104 | 325.44534 | 222.30726 | 247.91068 | 17.18633 | 0.1258778 | 2.5471315 | 114 | 4 | 2001–2009 | 0.44 | M-v | 2 | MPC | 166119 | 2001 $XB_{133}$ |
| 2001 $XF_{142}$ | 17.2 | 0.15 | 20100104 | 342.05473 | 223.45337 | 242.85038 | 2.39160 | 0.1652428 | 2.5233867 | 68 | 3 | 2001–2009 | 0.40 | M-v | 5 | MPC | 166119 | 2001 $XF_{142}$ |
| 2001 $XZ_{143}$ | 16.8 | 0.15 | 20100104 | 83.72719 | 340.41493 | 87.10373 | 7.95468 | 0.0911069 | 2.3724178 | 27 | 3 | 2001–2008 | 0.52 | M-v | 3 | MPC | 85327 | 2001 $XZ_{143}$ |
| 2001 $XG_{144}$ | 16.5 | 0.15 | 20100104 | 351.16060 | 323.69177 | 126.19811 | 3.38293 | 0.0834689 | 2.5315842 | 46 | 6 | 2001–2009 | 0.42 | M-v | 1 | MPC | 141775 | 2001 $XG_{144}$ |
| 2001 $XN_{145}$ | 15.9 | 0.15 | 20100104 | 291.78619 | 236.27494 | 260.34200 | 11.41738 | 0.0994397 | 2.5823933 | 38 | 3 | 2001–2009 | 0.48 | M-v | 3 | MPC | 112231 | 2001 $XN_{145}$ |
| 2001 $XY_{145}$ | 17.3 | 0.15 | 20100104 | 345.52291 | 199.48142 | 259.60753 | 3.64333 | 0.1627029 | 2.5350580 | 50 | 4 | 2000–2009 | 0.38 | M-v | 3 | MPC | 166119 | 2001 $XY_{145}$ |
| 2001 $XF_{149}$ | 16.7 | 0.15 | 20100104 | 346.09578 | 218.96754 | 231.41244 | 3.62839 | 0.1585900 | 2.5513182 | 119 | 4 | 2001–2009 | 0.51 | M-v | 2 | MPC | 166119 | 2001 $XF_{149}$ |
| 2001 $XF_{152}$ | 16.1 | 0.15 | 20100104 | 56.00157 | 120.48708 | 249.04311 | 4.87124 | 0.1680552 | 2.5347785 | 99 | 4 | 2001–2009 | 0.44 | M-v | 2 | MPC | 166119 | 2001 $XF_{152}$ |
| 2001 $XD_{155}$ | 16.1 | 0.15 | 20100104 | 29.33571 | 248.49804 | 138.55966 | 3.08988 | 0.2349698 | 2.5521294 | 155 | 5 | 1994–2009 | 0.57 | M-v | 2 | MPC | 166119 | 2001 $XD_{155}$ |
| 2001 $XJ_{155}$ | 17.1 | 0.15 | 20100104 | 348.23482 | 193.19015 | 255.06552 | 10.46965 | 0.1736001 | 2.5554339 | 80 | 3 | 2001–2009 | 0.39 | M-v | 3 | MPC | 166119 | 2001 $XJ_{155}$ |
| 2001 $XV_{158}$ | 15.8 | 0.15 | 20100104 | 348.37977 | 150.19733 | 263.42595 | 4.09375 | 0.1419676 | 2.6261979 | 150 | 3 | 2001–2009 | 0.58 | M-v | 3 | MPC | 164174 | 2001 $XV_{158}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 $XN_{160}$ | 16.8 | 0.15 | 20100104 | 29.54107 | 295.43006 | 107.91883 | 2.96458 | 0.1488400 | 2.5286657 | 44 | 3 | 2001–2009 | 0.43 | M-v | 4 | MPC | 165319 | 2001 $XN_{160}$ |
| 2001 $XR_{162}$ | 17.4 | 0.15 | 20100104 | 3.11680 | 168.02393 | 235.50114 | 2.60355 | 0.2635152 | 2.5814694 | 126 | 3 | 2001–2009 | 0.46 | M-v | 2 | MPC | 166119 | 2001 $XR_{162}$ |
| 2001 $XT_{169}$ | 15.2 | 0.15 | 20100104 | 88.77824 | 88.93001 | 256.55080 | 10.82509 | 0.2139215 | 2.5170505 | 50 | 5 | 2000–2009 | 0.61 | M-v | 1 | MPC | 160754 | 2001 $XT_{169}$ |
| 2001 $XP_{170}$ | 14.8 | 0.15 | 20100104 | 16.66271 | 124.81471 | 307.69024 | 7.43256 | 0.2823645 | 3.9484314 | 49 | 3 | 2001–2009 | 0.51 | M-v | 2 | MPC | 148851 | 2001 $XP_{170}$ |
| 2001 $XL_{171}$ | 16.6 | 0.15 | 20100104 | 75.04289 | 353.26309 | 90.51740 | 7.79115 | 0.0761294 | 2.3740788 | 33 | 3 | 2001–2008 | 0.74 | M-v | 3 | MPC | 75238 | 2001 $XL_{171}$ |
| 2001 $XA_{174}$ | 16.9 | 0.15 | 20100104 | 26.03274 | 143.94036 | 243.65187 | 4.18742 | 0.2753934 | 2.5692188 | 119 | 4 | 1998–2009 | 0.51 | M-v | 2 | MPC | 166119 | 2001 $XA_{174}$ |
| 2001 $XV_{178}$ | 15.9 | 0.15 | 20100104 | 48.65866 | 131.36058 | 256.87688 | 4.27614 | 0.1484862 | 2.5508068 | 69 | 5 | 2000–2009 | 0.55 | M-v | 1 | MPC | 166119 | 2001 $XV_{178}$ |
| 2001 $XF_{180}$ | 16.4 | 0.15 | 20100104 | 4.57632 | 225.12383 | 227.80476 | 3.71165 | 0.2292446 | 2.5264040 | 53 | 3 | 2001–2009 | 0.45 | M-v | 3 | MPC | 94380 | 2001 $XF_{180}$ |
| 2001 $XK_{182}$ | 17.1 | 0.15 | 20100104 | 60.58283 | 295.11184 | 101.54968 | 24.54249 | 0.1007560 | 1.9216158 | 68 | 5 | 2001–2009 | 0.52 | M-v | 1 | MPC | 135801 | 2001 $XK_{182}$ |
| 2001 $XH_{183}$ | 16.5 | 0.15 | 20100104 | 299.73662 | 248.88358 | 249.72267 | 1.52482 | 0.1313246 | 2.6105416 | 74 | 5 | 2000–2009 | 0.49 | M-v | 0 | MPC | 166119 | 2001 $XH_{183}$ |
| 2001 $XP_{183}$ | 15.6 | 0.15 | 20100104 | 4.65432 | 131.86218 | 273.35437 | 11.85271 | 0.1589345 | 2.6307654 | 136 | 3 | 2001–2009 | 0.46 | M-v | 2 | MPC | 166119 | 2001 $XP_{183}$ |
| 2001 $XT_{192}$ | 15.5 | 0.15 | 20100104 | 273.88254 | 271.31752 | 282.94278 | 6.59341 | 0.1445750 | 2.5715615 | 108 | 4 | 2001–2009 | 0.51 | M-v | 3 | MPC | 166119 | 2001 $XT_{192}$ |
| 2001 $XE_{198}$ | 15.8 | 0.15 | 20100104 | 3.49693 | 126.59152 | 280.28403 | 10.57978 | 0.3307253 | 2.6152972 | 169 | 3 | 2001–2009 | 0.52 | M-v | 2 | MPC | 166119 | 2001 $XE_{198}$ |
| 2001 $XP_{200}$ | 17.2 | 0.15 | 20100104 | 46.26773 | 120.56634 | 290.24398 | 2.95573 | 0.1648399 | 2.4656911 | 61 | 4 | 1997–2009 | 0.46 | M-v | 2 | MPC | 166119 | 2001 $XP_{200}$ |
| 2001 $XN_{204}$ | 17.1 | 0.15 | 20100104 | 29.68867 | 318.55772 | 117.33380 | 5.94723 | 0.1662359 | 2.4577596 | 41 | 5 | 1999–2009 | 0.48 | M-v | 1 | MPC | 162333 | 2001 $XN_{204}$ |
| 2001 $XV_{209}$ | 15.9 | 0.15 | 20100104 | 62.41114 | 251.59000 | 116.73149 | 6.63087 | 0.1409516 | 2.5285475 | 89 | 5 | 2001–2009 | 0.50 | M-v | 2 | MPC | 166120 | 2001 $XV_{209}$ |
| 2001 $XP_{213}$ | 16.0 | 0.15 | 20100104 | 346.50959 | 260.77087 | 186.91483 | 4.37552 | 0.1959979 | 2.5701748 | 150 | 4 | 2001–2009 | 0.52 | M-v | 2 | MPC | 166120 | 2001 $XP_{213}$ |
| 2001 $XU_{214}$ | 16.3 | 0.15 | 20100104 | 31.58594 | 83.73676 | 290.42152 | 14.07503 | 0.3235632 | 2.5614838 | 48 | 3 | 2001–2009 | 0.44 | M-v | 3 | MPC | 166120 | 2001 $XU_{214}$ |
| 2001 $XB_{215}$ | 15.9 | 0.15 | 20100104 | 61.58811 | 332.53227 | 32.07085 | 5.62620 | 0.2025862 | 2.5472847 | 55 | 5 | 2001–2009 | 0.53 | M-v | 2 | MPC | 162333 | 2001 $XB_{215}$ |
| 2001 $XG_{215}$ | 16.1 | 0.15 | 20100104 | 313.97689 | 118.72795 | 42.92752 | 4.89878 | 0.2041595 | 2.5510374 | 85 | 3 | 2001–2009 | 0.51 | M-v | 3 | MPC | 94391 | 2001 $XG_{215}$ |
| 2001 $XO_{216}$ | 16.5 | 0.15 | 20100104 | 337.87482 | 138.58492 | 260.46650 | 10.88469 | 0.0907894 | 2.6817787 | 37 | 3 | 2001–2009 | 0.59 | M-v | 4 | MPC | 94392 | 2001 $XO_{216}$ |
| 2001 $XS_{217}$ | 15.4 | 0.15 | 20100104 | 2.86209 | 182.36334 | 275.74774 | 13.62616 | 0.0955772 | 2.5471301 | 114 | 5 | 2000–2009 | 0.52 | M-v | 2 | MPC | 160754 | 2001 $XS_{217}$ |
| 2001 $XT_{217}$ | 17.0 | 0.15 | 20100104 | 47.65755 | 130.07169 | 283.70400 | 17.20890 | 0.1167139 | 1.9250633 | 46 | 4 | 1993–2009 | 0.55 | M-v | 2 | MPC | 164175 | 2001 $XT_{217}$ |
| 2001 $XL_{218}$ | 17.2 | 0.15 | 20100104 | 14.17578 | 181.53168 | 271.12493 | 1.66770 | 0.1596969 | 2.4489702 | 55 | 4 | 2001–2009 | 0.41 | M-v | 2 | MPC | 166120 | 2001 $XL_{218}$ |
| 2001 $XG_{219}$ | 16.3 | 0.15 | 20100104 | 84.54626 | 289.62253 | 47.23786 | 2.49804 | 0.1040998 | 2.5098287 | 133 | 5 | 2001–2009 | 0.45 | M-v | 2 | MPC | 166120 | 2001 $XG_{219}$ |
| 2001 $XP_{219}$ | 16.2 | 0.15 | 20100104 | 14.03998 | 352.49286 | 55.96177 | 15.57901 | 0.0902052 | 2.5324521 | 140 | 6 | 1997–2009 | 0.51 | M-v | 2 | MPC | 166120 | 2001 $XP_{219}$ |
| 2001 $XN_{222}$ | 16.6 | 0.15 | 20100104 | 47.08343 | 337.57392 | 16.14847 | 1.17831 | 0.0418873 | 2.5860792 | 110 | 4 | 2001–2009 | 0.41 | M-v | 2 | MPC | 166120 | 2001 $XN_{222}$ |
| 2001 $XO_{224}$ | 16.1 | 0.15 | 20100104 | 2.00786 | 18.30544 | 55.35291 | 4.67828 | 0.0492557 | 2.5228333 | 142 | 5 | 2001–2009 | 0.53 | M-v | 2 | MPC | 166120 | 2001 $XO_{224}$ |
| 2001 $XP_{224}$ | 16.9 | 0.15 | 20100104 | 351.94642 | 16.71213 | 70.37753 | 20.67107 | 0.1948244 | 2.5286870 | 76 | 4 | 2001–2009 | 0.51 | M-v | 2 | MPC | 166120 | 2001 $XP_{224}$ |
| 2001 $XE_{225}$ | 16.9 | 0.15 | 20100104 | 55.12086 | 36.68323 | 25.53259 | 1.78334 | 0.1585253 | 2.4271841 | 75 | 4 | 2001–2009 | 0.49 | M-v | 2 | MPC | 166120 | 2001 $XE_{225}$ |
| 2001 $XK_{225}$ | 17.1 | 0.15 | 20100104 | 346.70449 | 237.02711 | 266.73533 | 3.70002 | 0.1679859 | 2.4396294 | 37 | 5 | 2000–2009 | 0.41 | M-v | 2 | MPC | 147191 | 2001 $XK_{225}$ |
| 2001 $XL_{226}$ | 15.7 | 0.15 | 20100104 | 108.12128 | 20.20841 | 291.37177 | 3.21690 | 0.1529245 | 2.5246968 | 84 | 4 | 2001–2009 | 0.49 | M-v | 2 | MPC | 166120 | 2001 $XL_{226}$ |
| 2001 $XN_{227}$ | 17.2 | 0.15 | 20100104 | 53.35387 | 314.36108 | 73.24270 | 5.26644 | 0.2507634 | 2.4772430 | 52 | 4 | 1997–2009 | 0.54 | M-v | 3 | MPC | 166120 | 2001 $XN_{227}$ |
| 2001 $XJ_{228}$ | 17.1 | 0.15 | 20100104 | 94.15815 | 314.49603 | 53.59257 | 3.87105 | 0.1850732 | 2.4311736 | 33 | 4 | 2001–2009 | 0.41 | M-v | 2 | MPC | 119561 | 2001 $XJ_{228}$ |
| 2001 $XA_{229}$ | 15.9 | 0.15 | 20100104 | 109.41335 | 324.29667 | 354.60532 | 2.94260 | 0.1547120 | 2.5104920 | 83 | 5 | 2001–2009 | 0.47 | M-v | 2 | MPC | 166120 | 2001 $XA_{229}$ |
| 2001 $XB_{229}$ | 16.2 | 0.15 | 20100104 | 68.03586 | 66.00040 | 284.94616 | 3.54066 | 0.2124568 | 2.5151728 | 61 | 3 | 2001–2009 | 0.54 | M-v | 3 | MPC | 166120 | 2001 $XB_{229}$ |
| 2001 $XY_{230}$ | 16.4 | 0.15 | 20100104 | 288.74353 | 163.78729 | 318.29788 | 2.68435 | 0.0671724 | 2.6045057 | 76 | 6 | 2000–2009 | 0.53 | M-v | 0 | MPC | 166120 | 2001 $XY_{230}$ |
| 2001 $XA_{232}$ | 17.7 | 0.15 | 20100104 | 50.73227 | 16.71552 | 16.81562 | 1.41203 | 0.2853710 | 2.4737735 | 43 | 3 | 2001–2009 | 0.41 | M-v | 2 | MPC | 166120 | 2001 $XA_{232}$ |
| 2001 $XB_{232}$ | 16.4 | 0.15 | 20100104 | 49.89758 | 65.94791 | 279.69246 | 3.32444 | 0.2975703 | 2.5497585 | 141 | 5 | 2001–2009 | 0.50 | M-v | 2 | MPC | 166120 | 2001 $XB_{232}$ |
| 2001 $XO_{232}$ | 16.9 | 0.15 | 20100104 | 78.65804 | 317.22770 | 52.98284 | 5.55026 | 0.2059932 | 2.4611177 | 47 | 5 | 1997–2009 | 0.58 | M-v | 2 | MPC | 97531 | 2001 $XO_{232}$ |
| 2001 $XO_{233}$ | 17.1 | 0.15 | 20100104 | 348.47406 | 141.16376 | 280.68564 | 2.23696 | 0.1645677 | 2.5865584 | 67 | 5 | 2001–2009 | 0.46 | M-v | 1 | MPC | 164175 | 2001 $XO_{233}$ |
| 2001 $XA_{235}$ | 17.0 | 0.15 | 20100104 | 89.57866 | 351.47806 | 20.69807 | 3.00185 | 0.1904908 | 2.4412817 | 51 | 7 | 1997–2009 | 0.52 | M-v | 1 | MPC | 141775 | 2001 $XA_{235}$ |
| 2001 $XB_{237}$ | 17.1 | 0.15 | 20100104 | 11.42023 | 100.50827 | 324.39457 | 1.93230 | 0.2477094 | 2.5271810 | 84 | 3 | 2001–2009 | 0.47 | M-v | 2 | MPC | 166120 | 2001 $XB_{237}$ |
| 2001 $XQ_{237}$ | 17.3 | 0.15 | 20100104 | 28.53183 | 333.63768 | 59.53013 | 6.63422 | 0.1657637 | 2.5339005 | 62 | 3 | 2001–2009 | 0.46 | M-v | 4 | MPC | 166120 | 2001 $XQ_{237}$ |
| 2001 $XT_{237}$ | 16.2 | 0.15 | 20100104 | 28.38769 | 102.74470 | 271.41950 | 12.72878 | 0.2122492 | 2.5645228 | 97 | 3 | 2001–2009 | 0.58 | M-v | 2 | MPC | 166120 | 2001 $XT_{237}$ |
| 2001 $XN_{239}$ | 15.6 | 0.15 | 20100104 | 10.88372 | 119.06312 | 281.27594 | 13.25657 | 0.1704555 | 2.5955973 | 103 | 3 | 2001–2009 | 0.50 | M-v | 2 | MPC | 166120 | 2001 $XN_{239}$ |
| 2001 $XZ_{240}$ | 16.0 | 0.15 | 20100104 | 13.21174 | 138.37716 | 297.11529 | 8.33507 | 0.2631149 | 2.5347803 | 139 | 4 | 1994–2009 | 0.49 | M-v | 2 | MPC | 94404 | 2001 $XZ_{240}$ |
| 2001 $XU_{248}$ | 17.6 | 0.15 | 20100104 | 357.74866 | 188.59275 | 257.54422 | 4.07071 | 0.2309244 | 2.5599289 | 63 | 4 | 1998–2009 | 0.47 | M-v | 2 | MPC | 166120 | 2001 $XU_{248}$ |
| 2001 $XC_{249}$ | 16.8 | 0.15 | 20100104 | 50.32030 | 282.84022 | 102.55280 | 3.62710 | 0.1988655 | 2.5483829 | 46 | 5 | 2001–2009 | 0.39 | M-v | 1 | MPC | 119561 | 2001 $XC_{249}$ |
| 2001 $XJ_{250}$ | 15.6 | 0.15 | 20100104 | 20.96041 | 134.18770 | 259.05904 | 11.11294 | 0.1675743 | 2.5776323 | 130 | 3 | 2001–2009 | 0.47 | M-v | 2 | MPC | 166120 | 2001 $XJ_{250}$ |
| 2001 $XB_{254}$ | 16.3 | 0.15 | 20100104 | 33.52588 | 140.16157 | 318.82666 | 17.90303 | 0.0800596 | 1.9075297 | 209 | 6 | 1998–2009 | 0.54 | M-v | 1 | MPC | 140673 | 2001 $XB_{254}$ |
| 2001 $XD_{255}$ | 5.5 | 0.15 | 20100104 | 271.01111 | 111.64756 | 106.69110 | 18.12686 | 0.1091289 | 39.2954640 | 12 | 4 | 2001–2009 | 0.17 | M-v | 3 | MPC | 156862 | 2001 $XD_{255}$ |
| 2001 $XV_{262}$ | 17.6 | 0.15 | 20100104 | 5.26467 | 196.14365 | 227.18510 | 1.54205 | 0.1871530 | 2.5282832 | 69 | 3 | 2001–2009 | 0.36 | M-v | 2 | MPC | 166121 | 2001 $XV_{262}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 $XA_{266}$ | 17.5 | 0.15 | 20100104 | 33.71728 | 10.87188 | 47.86623 | 3.48801 | 0.1539790 | 2.4651906 | 37 | 6 | 1995–2009 | 0.36 | M-v | 1 | MPC | 119561 | 2001 $XA_{266}$ |
| 2001 $XE_{267}$ | 16.1 | 0.15 | 20100104 | 51.02396 | 313.55753 | 64.77266 | 14.71318 | 0.1470249 | 2.5786856 | 70 | 5 | 1999–2009 | 0.50 | M-v | 0 | MPC | 166121 | 2001 $XE_{267}$ |
| 2001 $YO_{1}$ | 17.1 | 0.15 | 20100104 | 260.87825 | 80.86943 | 81.55243 | 23.02256 | 0.0462920 | 1.9613990 | 68 | 3 | 2001–2009 | 0.58 | M-v | 2 | MPC | 166121 | 2001 $YO_{1}$ |
| 2001 $YQ_{1}$ | 16.9 | 0.15 | 20100104 | 49.93626 | 147.82076 | 264.26746 | 19.09684 | 0.0729038 | 1.9042537 | 92 | 3 | 2001–2009 | 0.53 | M-v | 1 | MPC | 166121 | 2001 $YQ_{1}$ |
| 2001 $YX_{4}$ | 15.6 | 0.15 | 20100104 | 356.25160 | 26.92050 | 62.44508 | 22.86253 | 0.1042750 | 2.5691058 | 88 | 4 | 2001–2009 | 0.53 | M-v | 2 | MPC | 166121 | 2001 $YX_{4}$ |
| 2001 $YF_{5}$ | 16.4 | 0.15 | 20100104 | 350.89588 | 345.21622 | 92.95085 | 15.36802 | 0.2193741 | 2.5971419 | 81 | 3 | 2001–2009 | 0.62 | M-v | 2 | MPC | 166121 | 2001 $YF_{5}$ |
| 2001 $YB_{6}$ | 15.8 | 0.15 | 20100104 | 301.38059 | 95.37806 | 71.40115 | 27.69645 | 0.2217307 | 2.5753717 | 51 | 2 | 2001–2009 | 0.50 | M-v | 3 | MPC | 165320 | 2001 $YB_{6}$ |
| 2001 $YA_{7}$ | 16.7 | 0.15 | 20100104 | 51.14145 | 8.82621 | 351.14512 | 5.48124 | 0.2193395 | 2.5400967 | 47 | 3 | 2001–2009 | 0.43 | M-v | 5 | MPC | 165320 | 2001 $YA_{7}$ |
| 2001 $YQ_{13}$ | 15.7 | 0.15 | 20100104 | 74.75011 | 66.04537 | 310.02964 | 4.16666 | 0.1177839 | 2.4583321 | 99 | 4 | 2001–2009 | 0.54 | M-v | 1 | MPC | 147192 | 2001 $YQ_{13}$ |
| 2001 $YJ_{15}$ | 17.3 | 0.15 | 20100104 | 21.71601 | 317.82879 | 91.43110 | 5.29618 | 0.1729882 | 2.5620645 | 99 | 3 | 2001–2009 | 0.45 | M-v | 3 | MPC | 166121 | 2001 $YJ_{15}$ |
| 2001 $YM_{17}$ | 16.4 | 0.15 | 20100104 | 54.22799 | 128.86201 | 235.30428 | 4.13198 | 0.2309781 | 2.5375254 | 58 | 4 | 2001–2009 | 0.55 | M-v | 2 | MPC | 166121 | 2001 $YM_{17}$ |
| 2001 $YF_{18}$ | 16.0 | 0.15 | 20100104 | 59.18577 | 281.86893 | 101.42824 | 5.03981 | 0.1903768 | 2.5177936 | 74 | 5 | 2001–2009 | 0.45 | M-v | 3 | MPC | 160755 | 2001 $YF_{18}$ |
| 2001 $YF_{20}$ | 16.0 | 0.15 | 20100104 | 310.05244 | 114.36394 | 51.29387 | 9.74118 | 0.2208719 | 2.4585937 | 68 | 4 | 1999–2009 | 0.60 | M-v | 3 | MPC | 166121 | 2001 $YF_{20}$ |
| 2001 $YM_{20}$ | 16.4 | 0.15 | 20100104 | 14.36910 | 170.90599 | 247.47303 | 2.05683 | 0.0498864 | 2.5079575 | 125 | 5 | 2001–2009 | 0.41 | M-v | 2 | MPC | 166121 | 2001 $YM_{20}$ |
| 2001 $YC_{23}$ | 17.4 | 0.15 | 20100104 | 10.90838 | 147.16922 | 309.44233 | 1.36665 | 0.1739685 | 2.4664534 | 44 | 4 | 2001–2009 | 0.42 | M-v | 3 | MPC | 141776 | 2001 $YC_{23}$ |
| 2001 $YD_{24}$ | 16.8 | 0.15 | 20100104 | 62.45566 | 358.95619 | 20.53631 | 3.82143 | 0.1927380 | 2.4757675 | 42 | 5 | 1997–2009 | 0.51 | M-v | 3 | MPC | 122692 | 2001 $YD_{24}$ |
| 2001 $YY_{25}$ | 15.5 | 0.15 | 20100104 | 104.49731 | 255.20958 | 57.42670 | 2.14128 | 0.1655138 | 2.5298620 | 193 | 6 | 1993–2009 | 0.46 | M-v | 2 | MPC | 166121 | 2001 $YY_{25}$ |
| 2001 $YA_{26}$ | 16.6 | 0.15 | 20100104 | 121.16282 | 81.87441 | 259.53679 | 3.49761 | 0.1384760 | 2.4339092 | 64 | 5 | 2001–2009 | 0.41 | M-v | 1 | MPC | 148853 | 2001 $YA_{26}$ |
| 2001 $YH_{28}$ | 17.1 | 0.15 | 20100104 | 89.59744 | 311.56141 | 49.65171 | 4.38173 | 0.1663587 | 2.4484397 | 38 | 3 | 2001–2009 | 0.47 | M-v | 3 | MPC | 166121 | 2001 $YH_{28}$ |
| 2001 $YA_{30}$ | 17.1 | 0.15 | 20100104 | 35.48279 | 313.74307 | 71.36221 | 14.23644 | 0.2453605 | 2.5231222 | 83 | 3 | 2001–2009 | 0.43 | M-v | 3 | MPC | 166121 | 2001 $YA_{30}$ |
| 2001 $YR_{31}$ | 16.9 | 0.15 | 20100104 | 57.99189 | 286.31375 | 78.22583 | 4.56137 | 0.1881698 | 2.5189659 | 42 | 4 | 2001–2009 | 0.40 | M-v | 3 | MPC | 166121 | 2001 $YR_{31}$ |
| 2001 $YN_{35}$ | 16.2 | 0.15 | 20100104 | 50.40346 | 35.59813 | 328.50289 | 3.32815 | 0.1448644 | 2.5540205 | 98 | 4 | 2001–2009 | 0.48 | M-v | 3 | MPC | 166121 | 2001 $YN_{35}$ |
| 2001 $YA_{37}$ | 16.8 | 0.15 | 20100104 | 70.43945 | 302.88162 | 61.96966 | 3.21965 | 0.2540720 | 2.4830326 | 30 | 4 | 1989–2009 | 0.45 | M-v | 3 | MPC | 103277 | 2001 $YA_{37}$ |
| 2001 $YC_{39}$ | 16.8 | 0.15 | 20100104 | 299.81895 | 199.58478 | 316.78695 | 1.27704 | 0.1422477 | 2.5310504 | 61 | 5 | 2001–2009 | 0.33 | M-v | 3 | MPC | 166121 | 2001 $YC_{39}$ |
| 2001 $YB_{40}$ | 15.5 | 0.15 | 20100104 | 45.98407 | 74.74365 | 297.54903 | 5.25154 | 0.1660988 | 2.5472904 | 167 | 3 | 2001–2009 | 0.56 | M-v | 3 | MPC | 166121 | 2001 $YB_{40}$ |
| 2001 $YA_{43}$ | 16.4 | 0.15 | 20100104 | 61.21929 | 276.42752 | 74.73121 | 7.15320 | 0.2271823 | 2.5429584 | 78 | 5 | 2001–2009 | 0.55 | M-v | 1 | MPC | 166121 | 2001 $YA_{43}$ |
| 2001 $YD_{45}$ | 16.3 | 0.15 | 20100104 | 358.71194 | 29.92929 | 53.40294 | 3.78847 | 0.1075747 | 2.5349240 | 112 | 4 | 2001–2009 | 0.48 | M-v | 2 | MPC | 166121 | 2001 $YD_{45}$ |
| 2001 $YU_{47}$ | 16.2 | 0.15 | 20100104 | 98.29659 | 252.84008 | 82.20747 | 14.50906 | 0.1474065 | 2.5204525 | 35 | 4 | 2001–2009 | 0.40 | M-v | 2 | MPC | 94427 | 2001 $YU_{47}$ |
| 2001 $YP_{49}$ | 15.6 | 0.15 | 20100104 | 20.41380 | 96.70188 | 281.25186 | 9.50640 | 0.1900339 | 2.5994952 | 147 | 3 | 2001–2009 | 0.54 | M-v | 2 | MPC | 166121 | 2001 $YP_{49}$ |
| 2001 $YU_{49}$ | 14.2 | 0.15 | 20100104 | 3.66827 | 170.18299 | 285.97801 | 7.57531 | 0.2436687 | 3.9544090 | 54 | 5 | 2001–2009 | 0.50 | M-v | 0 | MPC | 156863 | 2001 $YU_{49}$ |
| 2001 $YA_{51}$ | 16.6 | 0.15 | 20100104 | 241.49257 | 275.86513 | 288.93922 | 4.16093 | 0.0924725 | 2.5538825 | 50 | 8 | 1996–2009 | 0.40 | M-v | 0 | MPC | 147192 | 2001 $YA_{51}$ |
| 2001 $YH_{51}$ | 16.8 | 0.15 | 20100104 | 32.45251 | 93.48434 | 273.73726 | 10.86485 | 0.3391259 | 2.5575248 | 79 | 3 | 2001–2009 | 0.51 | M-v | 3 | MPC | 166121 | 2001 $YH_{51}$ |
| 2001 $YE_{53}$ | 15.5 | 0.15 | 20100104 | 306.86938 | 217.17189 | 278.57113 | 9.93871 | 0.0745180 | 2.5555934 | 86 | 4 | 2001–2009 | 0.54 | M-v | 3 | MPC | 166121 | 2001 $YE_{53}$ |
| 2001 $YG_{59}$ | 15.7 | 0.15 | 20100104 | 79.34744 | 66.39695 | 287.66636 | 3.86304 | 0.1519026 | 2.5200199 | 41 | 4 | 2001–2009 | 0.58 | M-v | 4 | MPC | 117983 | 2001 $YG_{59}$ |
| 2001 $YU_{62}$ | 16.3 | 0.15 | 20100104 | 353.07386 | 109.34784 | 316.97647 | 3.69938 | 0.2420266 | 2.5831811 | 159 | 3 | 2001–2009 | 0.44 | M-v | 2 | MPC | 166121 | 2001 $YU_{62}$ |
| 2001 $YJ_{65}$ | 15.6 | 0.15 | 20100104 | 16.49581 | 59.35591 | 25.15189 | 2.43609 | 0.2411556 | 3.9544093 | 68 | 5 | 1995–2009 | 0.39 | M-v | 0 | MPC | 166121 | 2001 $YJ_{65}$ |
| 2001 $YS_{66}$ | 14.5 | 0.15 | 20100104 | 38.46454 | 358.26328 | 61.98268 | 6.36978 | 0.1989210 | 3.9215843 | 65 | 4 | 2001–2009 | 0.41 | M-v | 0 | MPC | 152330 | 2001 $YS_{66}$ |
| 2001 $YM_{68}$ | 16.4 | 0.15 | 20100104 | 352.83370 | 178.14257 | 284.51835 | 12.45831 | 0.2295131 | 2.5334407 | 59 | 3 | 2001–2009 | 0.54 | M-v | 3 | MPC | 166121 | 2001 $YM_{68}$ |
| 2001 $YY_{69}$ | 16.1 | 0.15 | 20100104 | 23.64856 | 71.33221 | 309.65369 | 5.76483 | 0.2441139 | 2.5960533 | 83 | 3 | 2001–2009 | 0.45 | M-v | 2 | MPC | 166121 | 2001 $YY_{69}$ |
| 2001 $YG_{71}$ | 16.6 | 0.15 | 20100104 | 47.36113 | 292.06622 | 80.59236 | 5.84519 | 0.2656117 | 2.5539288 | 62 | 5 | 1997–2009 | 0.52 | M-v | 3 | MPC | 166121 | 2001 $YG_{71}$ |
| 2001 $YQ_{71}$ | 16.5 | 0.15 | 20100104 | 4.09912 | 131.81757 | 324.84503 | 3.36029 | 0.1932767 | 2.5204535 | 69 | 4 | 2000–2009 | 0.56 | M-v | 2 | MPC | 164176 | 2001 $YQ_{71}$ |
| 2001 $YP_{72}$ | 16.2 | 0.15 | 20100104 | 15.64898 | 125.07848 | 295.01046 | 9.76158 | 0.2322912 | 2.5497325 | 68 | 4 | 1994–2009 | 0.62 | M-v | 2 | MPC | 166121 | 2001 $YP_{72}$ |
| 2001 $YD_{77}$ | 15.1 | 0.15 | 20100104 | 261.23061 | 267.14475 | 291.26380 | 16.45754 | 0.0875220 | 2.5518887 | 42 | 4 | 2001–2009 | 0.49 | M-v | 3 | MPC | 143142 | 2001 $YD_{77}$ |
| 2001 $YL_{77}$ | 16.0 | 0.15 | 20100104 | 33.67712 | 309.73301 | 94.93575 | 10.32115 | 0.1541641 | 2.5489727 | 79 | 3 | 2001–2009 | 0.54 | M-v | 3 | MPC | 166121 | 2001 $YL_{77}$ |
| 2001 $YO_{79}$ | 15.6 | 0.15 | 20100104 | 64.67803 | 32.48702 | 330.18249 | 3.54935 | 0.2599123 | 2.5444509 | 102 | 7 | 1993–2009 | 0.55 | M-v | 2 | MPC | 166121 | 2001 $YO_{79}$ |
| 2001 $YW_{79}$ | 14.2 | 0.15 | 20100104 | 37.96001 | 128.80969 | 294.10225 | 7.31230 | 0.1776330 | 3.9669543 | 104 | 5 | 2000–2009 | 0.56 | M-v | 0 | MPC | 147193 | 2001 $YW_{79}$ |
| 2001 $YR_{80}$ | 16.8 | 0.15 | 20100104 | 339.97934 | 196.15793 | 296.08367 | 7.02629 | 0.1203819 | 2.5203101 | 61 | 6 | 1994–2009 | 0.47 | M-v | 3 | MPC | 143142 | 2001 $YR_{80}$ |
| 2001 $YN_{83}$ | 16.9 | 0.15 | 20100104 | 28.24966 | 135.91939 | 289.27763 | 2.73322 | 0.2066042 | 2.5222468 | 159 | 5 | 1994–2009 | 0.50 | M-v | 3 | MPC | 166122 | 2001 $YN_{83}$ |
| 2001 $YH_{84}$ | 15.6 | 0.15 | 20100104 | 359.95260 | 18.16768 | 90.12709 | 4.85005 | 0.1614121 | 2.5217138 | 214 | 6 | 1994–2009 | 0.46 | M-v | 2 | MPC | 166122 | 2001 $YH_{84}$ |
| 2001 $YB_{85}$ | 17.0 | 0.15 | 20100104 | 343.02962 | 150.78632 | 297.07153 | 4.15115 | 0.3269548 | 2.5845195 | 123 | 3 | 2001–2009 | 0.50 | M-v | 2 | MPC | 164176 | 2001 $YB_{85}$ |
| 2001 $YN_{88}$ | 16.0 | 0.15 | 20100104 | 12.75608 | 118.58869 | 296.64944 | 1.49932 | 0.1407103 | 2.5893887 | 137 | 5 | 1998–2009 | 0.47 | M-v | 2 | MPC | 166122 | 2001 $YN_{88}$ |
| 2001 $YE_{89}$ | 16.7 | 0.15 | 20100104 | 17.95720 | 202.34033 | 287.21936 | 7.73990 | 0.2063818 | 2.4503739 | 119 | 4 | 2001–2009 | 0.60 | M-v | 2 | MPC | 160755 | 2001 $YE_{89}$ |
| 2001 $YG_{89}$ | 16.2 | 0.15 | 20100104 | 21.57265 | 324.90571 | 100.72078 | 5.02383 | 0.1068790 | 2.5569516 | 53 | 5 | 2001–2009 | 0.51 | M-v | 2 | MPC | 166122 | 2001 $YG_{89}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 $YH_{89}$ | 16.7 | 0.15 | 20100104 | 301.95998 | 204.90034 | 312.02545 | 3.65447 | 0.1923027 | 2.5815130 | 79 | 5 | 2001–2009 | 0.51 | M-v | 2 | MPC | 165320 | 2001 $YH_{89}$ |
| 2001 $YS_{89}$ | 16.6 | 0.15 | 20100104 | 19.63670 | 51.70125 | 344.35518 | 3.75038 | 0.3008502 | 2.5792998 | 143 | 3 | 2001–2009 | 0.52 | M-v | 2 | MPC | 166122 | 2001 $YS_{89}$ |
| 2001 $YH_{95}$ | 15.6 | 0.15 | 20100104 | 91.18733 | 284.88103 | 55.54437 | 7.38757 | 0.2636382 | 2.5297627 | 39 | 4 | 2001–2009 | 0.52 | M-v | 3 | MPC | 97539 | 2001 $YH_{95}$ |
| 2001 $YK_{95}$ | 16.1 | 0.15 | 20100104 | 298.68953 | 123.94471 | 35.46459 | 5.18439 | 0.1546288 | 2.5653375 | 73 | 4 | 2000–2009 | 0.48 | M-v | 3 | MPC | 166122 | 2001 $YK_{95}$ |
| 2001 $YK_{96}$ | 16.0 | 0.15 | 20100104 | 319.54397 | 174.35996 | 318.12666 | 9.07134 | 0.1449487 | 2.5793319 | 77 | 4 | 2001–2009 | 0.55 | M-v | 3 | MPC | 166122 | 2001 $YK_{96}$ |
| 2001 $YN_{103}$ | 15.9 | 0.15 | 20100104 | 343.33052 | 227.66766 | 253.47699 | 1.86126 | 0.0923425 | 2.5206079 | 48 | 7 | 1999–2009 | 0.42 | M-v | 1 | MPC | 143142 | 2001 $YN_{103}$ |
| 2001 $YG_{107}$ | 15.7 | 0.15 | 20100104 | 28.76434 | 292.43161 | 122.64344 | 8.25732 | 0.2409023 | 2.5413863 | 161 | 5 | 1997–2009 | 0.50 | M-v | 2 | MPC | 117984 | 2001 $YG_{107}$ |
| 2001 $YF_{110}$ | 16.1 | 0.15 | 20100104 | 2.72507 | 133.11134 | 292.85356 | 12.74897 | 0.2464030 | 2.5932960 | 103 | 3 | 2001–2009 | 0.52 | M-v | 2 | MPC | 166122 | 2001 $YF_{110}$ |
| 2001 $YU_{117}$ | 15.6 | 0.15 | 20100104 | 15.05965 | 302.81348 | 95.11152 | 10.08025 | 0.1899772 | 2.6229945 | 119 | 3 | 2001–2009 | 0.49 | M-v | 2 | MPC | 166122 | 2001 $YU_{117}$ |
| 2001 $YB_{121}$ | 15.4 | 0.15 | 20100104 | 358.08285 | 339.47476 | 122.83909 | 14.28052 | 0.2104621 | 2.5373993 | 111 | 5 | 2001–2009 | 0.55 | M-v | 2 | MPC | 120756 | 2001 $YB_{121}$ |
| 2001 $YU_{123}$ | 16.7 | 0.15 | 20100104 | 16.43494 | 359.67109 | 54.58549 | 8.18337 | 0.2414909 | 2.5326423 | 89 | 3 | 2001–2009 | 0.48 | M-v | 3 | MPC | 166122 | 2001 $YU_{123}$ |
| 2001 $YQ_{124}$ | 15.8 | 0.15 | 20100104 | 5.26760 | 16.35893 | 64.55302 | 12.25260 | 0.1025272 | 2.5220107 | 93 | 5 | 2001–2009 | 0.49 | M-v | 2 | MPC | 166122 | 2001 $YQ_{124}$ |
| 2001 $YK_{125}$ | 16.3 | 0.15 | 20100104 | 344.82263 | 142.92673 | 321.43078 | 4.98921 | 0.1979659 | 2.5339753 | 66 | 3 | 2001–2009 | 0.45 | M-v | 3 | MPC | 117984 | 2001 $YK_{125}$ |
| 2001 $YR_{126}$ | 16.0 | 0.15 | 20100104 | 349.50575 | 9.53778 | 65.55897 | 11.09419 | 0.0272544 | 2.5902957 | 91 | 6 | 2001–2009 | 0.48 | M-v | 1 | MPC | 166122 | 2001 $YR_{126}$ |
| 2001 $YQ_{127}$ | 16.6 | 0.15 | 20100104 | 14.01868 | 349.70165 | 64.07673 | 6.83821 | 0.2559305 | 2.5541952 | 149 | 3 | 2001–2009 | 0.43 | M-v | 2 | MPC | 166122 | 2001 $YQ_{127}$ |
| 2001 $YC_{130}$ | 16.9 | 0.15 | 20100104 | 349.32806 | 52.71119 | 13.87518 | 3.98788 | 0.2775695 | 2.5974447 | 89 | 3 | 2001–2009 | 0.44 | M-v | 2 | MPC | 166122 | 2001 $YC_{130}$ |
| 2001 $YJ_{130}$ | 16.0 | 0.15 | 20100104 | 25.81815 | 98.83886 | 305.62336 | 11.49401 | 0.1674077 | 2.5636295 | 78 | 5 | 1998–2009 | 0.56 | M-v | 3 | MPC | 166122 | 2001 $YJ_{130}$ |
| 2001 $YX_{130}$ | 16.4 | 0.15 | 20100104 | 15.48001 | 349.81562 | 67.51287 | 5.29308 | 0.2609094 | 2.5577757 | 117 | 3 | 2001–2009 | 0.45 | M-v | 2 | MPC | 166122 | 2001 $YX_{130}$ |
| 2001 $YH_{131}$ | 15.6 | 0.15 | 20100104 | 58.08166 | 27.62988 | 338.06767 | 6.13030 | 0.1687003 | 2.5265945 | 65 | 5 | 2001–2009 | 0.52 | M-v | 3 | MPC | 166122 | 2001 $YH_{131}$ |
| 2001 $YU_{131}$ | 15.9 | 0.15 | 20100104 | 354.20929 | 149.38248 | 289.25168 | 12.57620 | 0.1446234 | 2.5441873 | 75 | 4 | 2001–2009 | 0.52 | M-v | 2 | MPC | 166122 | 2001 $YU_{131}$ |
| 2001 $YR_{136}$ | 15.1 | 0.15 | 20100104 | 83.56322 | 31.72946 | 289.22083 | 14.00899 | 0.1009647 | 2.5775832 | 51 | 4 | 2000–2009 | 0.61 | M-v | 3 | MPC | 166122 | 2001 $YR_{136}$ |
| 2001 $YF_{137}$ | 16.2 | 0.15 | 20100104 | 23.68212 | 54.43011 | 323.74616 | 11.21911 | 0.3059570 | 2.5707346 | 85 | 3 | 2001–2009 | 0.47 | M-v | 2 | MPC | 166122 | 2001 $YF_{137}$ |
| 2001 $YM_{137}$ | 16.2 | 0.15 | 20100104 | 257.34657 | 111.09028 | 357.25474 | 7.45986 | 0.1817820 | 2.7857332 | 65 | 5 | 2000–2009 | 0.45 | M-v | 0 | MPC | 120757 | 2001 $YM_{137}$ |
| 2001 $YF_{138}$ | 16.2 | 0.15 | 20100104 | 273.78269 | 164.81132 | 18.28486 | 12.59586 | 0.2020473 | 2.5752582 | 30 | 4 | 2000–2009 | 0.51 | M-v | 2 | MPC | 147194 | 2001 $YF_{138}$ |
| 2001 $YT_{138}$ | 17.8 | 0.15 | 20100104 | 14.07771 | 331.33669 | 107.28766 | 6.02365 | 0.2160883 | 2.5416176 | 59 | 3 | 2001–2009 | 0.36 | M-v | 2 | MPC | 94459 | 2001 $YT_{138}$ |
| 2001 $YU_{139}$ | 15.1 | 0.15 | 20100104 | 284.16558 | 326.15614 | 237.64753 | 13.42969 | 0.2481387 | 2.5772044 | 88 | 7 | 2001–2009 | 0.43 | M-v | 1 | MPC | 147194 | 2001 $YU_{139}$ |
| 2001 $YW_{141}$ | 17.1 | 0.15 | 20100104 | 60.16449 | 88.60480 | 326.44233 | 4.83409 | 0.1649751 | 2.4298968 | 52 | 4 | 2001–2009 | 0.44 | M-v | 1 | MPC | 162336 | 2001 $YW_{141}$ |
| 2001 $YU_{151}$ | 16.5 | 0.15 | 20100104 | 329.86659 | 124.55355 | 346.40935 | 6.01403 | 0.1822308 | 2.5486617 | 31 | 2 | 2001–2009 | 0.48 | M-v | 5 | MPC | 165321 | 2001 $YU_{151}$ |
| 2002 AA | 19.3 | 0.15 | 20100104 | 241.37445 | 64.56557 | 302.26566 | 11.27252 | 0.3023626 | 1.1479082 | 347 | 3 | 2002–2007 | 0.48 | M-v | 2 | MPC | 117985 | 2002 AA |
| 2002 $AE_1$ | 15.6 | 0.15 | 20100104 | 19.93595 | 200.78762 | 219.08588 | 10.74762 | 0.1569479 | 2.5161908 | 91 | 7 | 1949–2009 | 0.57 | M-v | 2 | MPC | 166122 | 2002 $AE_1$ |
| 2002 $AR_5$ | 17.0 | 0.15 | 20100104 | 138.65941 | 173.39244 | 120.17617 | 23.20302 | 0.1445014 | 1.6168205 | 96 | 8 | 1988–2009 | 0.50 | M-v | 3 | MPC | 166122 | 2002 $AR_5$ |
| 2002 $AJ_{10}$ | 14.9 | 0.15 | 20100104 | 55.15074 | 67.81285 | 327.77404 | 27.80284 | 0.3840982 | 2.5400832 | 220 | 4 | 1998–2009 | 0.60 | M-v | 3 | MPC | 166123 | 2002 $AJ_{10}$ |
| 2002 $AC_{11}$ | 16.0 | 0.15 | 20100104 | 348.67431 | 18.10511 | 110.87579 | 9.29631 | 0.1788783 | 2.5392163 | 127 | 3 | 2002–2009 | 0.50 | M-v | 2 | MPC | 160756 | 2002 $AC_{11}$ |
| 2002 $AU_{11}$ | 15.7 | 0.15 | 20100104 | 7.57866 | 92.09274 | 298.38878 | 26.78878 | 0.4054558 | 2.6144676 | 143 | 3 | 2001–2009 | 0.53 | M-v | 1 | MPC | 166123 | 2002 $AU_{11}$ |
| 2002 $AF_{13}$ | 15.6 | 0.15 | 20100104 | 219.57794 | 298.56220 | 305.51741 | 12.12451 | 0.1172964 | 2.6178513 | 74 | 4 | 2002–2009 | 0.52 | M-v | 2 | MPC | 147194 | 2002 $AF_{13}$ |
| 2002 $AO_{15}$ | 15.6 | 0.15 | 20100104 | 13.01001 | 100.65682 | 298.52888 | 12.57109 | 0.1864193 | 2.5563338 | 117 | 4 | 2001–2009 | 0.52 | M-v | 2 | MPC | 166123 | 2002 $AO_{15}$ |
| 2002 $AL_{17}$ | 16.7 | 0.15 | 20100104 | 162.37047 | 28.83136 | 289.51428 | 18.19527 | 0.0694931 | 1.9062249 | 46 | 3 | 2001–2009 | 0.53 | M-v | 3 | MPC | 162336 | 2002 $AL_{17}$ |
| 2002 $AT_{17}$ | 16.9 | 0.15 | 20100104 | 61.53105 | 289.71568 | 119.42578 | 23.36482 | 0.0919367 | 1.9125770 | 69 | 4 | 2002–2009 | 0.58 | M-v | 2 | MPC | 110849 | 2002 $AT_{17}$ |
| 2002 $AD_{18}$ | 17.1 | 0.15 | 20100104 | 242.95307 | 102.25325 | 88.31278 | 24.46454 | 0.0375532 | 1.9677485 | 48 | 3 | 2001–2009 | 0.59 | M-v | 2 | MPC | 166123 | 2002 $AD_{18}$ |
| 2002 $AN_{18}$ | 16.4 | 0.15 | 20100104 | 3.14100 | 283.35707 | 133.55808 | 25.21235 | 0.4282825 | 2.5938503 | 69 | 3 | 2001–2009 | 0.49 | M-v | 2 | MPC | 166123 | 2002 $AN_{18}$ |
| 2002 $AC_{19}$ | 16.0 | 0.15 | 20100104 | 357.23957 | 13.44620 | 26.26435 | 12.77217 | 0.1628661 | 2.6356721 | 105 | 4 | 2001–2009 | 0.53 | M-v | 2 | MPC | 164177 | 2002 $AC_{19}$ |
| 2002 $AS_{20}$ | 16.6 | 0.15 | 20100104 | 35.91873 | 311.93294 | 121.48574 | 25.24030 | 0.0780333 | 1.9312588 | 43 | 3 | 2001–2009 | 0.42 | M-v | 2 | MPC | 166123 | 2002 $AS_{20}$ |
| 2002 $AV_{23}$ | 16.9 | 0.15 | 20100104 | 334.27090 | 54.24863 | 24.71993 | 3.42871 | 0.1480266 | 2.6238865 | 63 | 6 | 1994–2009 | 0.37 | M-v | 1 | MPC | 166123 | 2002 $AV_{23}$ |
| 2002 $AP_{24}$ | 15.8 | 0.15 | 20100104 | 5.19804 | 279.64131 | 140.06146 | 10.37173 | 0.2659668 | 2.5826488 | 92 | 4 | 2002–2009 | 0.58 | M-v | 2 | MPC | 166123 | 2002 $AP_{24}$ |
| 2002 $AZ_{27}$ | 15.9 | 0.15 | 20100104 | 36.42355 | 15.37281 | 34.16680 | 4.31684 | 0.2357518 | 2.5377475 | 107 | 5 | 2001–2009 | 0.50 | M-v | 2 | MPC | 166123 | 2002 $AZ_{27}$ |
| 2002 $AO_{28}$ | 15.4 | 0.15 | 20100104 | 267.09573 | 66.14348 | 100.42878 | 15.47855 | 0.0955982 | 2.6689392 | 58 | 3 | 2002–2009 | 0.63 | M-v | 2 | MPC | 166123 | 2002 $AO_{28}$ |
| 2002 $AC_{29}$ | 17.7 | 0.15 | 20100104 | 210.33886 | 129.52761 | 85.19930 | 26.58002 | 0.5034316 | 1.6413646 | 55 | 4 | 2001–2008 | 0.59 | M-v | 3 | MPC | 128743 | 2002 $AC_{29}$ |
| 2002 $AO_{30}$ | 16.9 | 0.15 | 20100104 | 18.11030 | 261.96639 | 173.44967 | 0.57077 | 0.1876267 | 2.5294402 | 92 | 4 | 1998–2009 | 0.45 | M-v | 3 | MPC | 94475 | 2002 $AO_{30}$ |
| 2002 $AF_{31}$ | 17.2 | 0.15 | 20100104 | 294.08094 | 236.48859 | 275.27940 | 3.28899 | 0.1729881 | 2.6000141 | 38 | 2 | 2001–2009 | 0.51 | M-v | 4 | MPC | 165321 | 2002 $AF_{31}$ |
| 2002 $AP_{32}$ | 16.1 | 0.15 | 20100104 | 284.61668 | 177.72249 | 348.38740 | 7.35057 | 0.1439924 | 2.6208799 | 33 | 4 | 1998–2009 | 0.57 | M-v | 4 | MPC | 147194 | 2002 $AP_{32}$ |
| 2002 $AT_{32}$ | 15.7 | 0.15 | 20100104 | 37.40129 | 257.61638 | 147.82577 | 7.85161 | 0.2616865 | 2.5528214 | 124 | 6 | 1998–2009 | 0.50 | M-v | 2 | MPC | 119564 | 2002 $AT_{32}$ |
| 2002 $AC_{37}$ | 15.9 | 0.15 | 20100104 | 321.32743 | 13.46220 | 118.79611 | 6.11665 | 0.2377901 | 2.5610062 | 124 | 4 | 1998–2009 | 0.54 | M-v | 2 | MPC | 166123 | 2002 $AC_{37}$ |
| 2002 $AQ_{38}$ | 16.5 | 0.15 | 20100104 | 26.78491 | 269.99833 | 118.25354 | 12.94386 | 0.2870126 | 2.5649416 | 54 | 5 | 1998–2009 | 0.62 | M-v | 2 | MPC | 166123 | 2002 $AQ_{38}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 $AM_{40}$ | 16.1 | 0.15 | 20100104 | 25.72947 | 280.50890 | 136.63241 | 6.02865 | 0.2712188 | 2.5474569 | 102 | 3 | 2001–2009 | 0.47 | M-v | 3 | MPC | 94479 | 2002 $AM_{40}$ |
| 2002 $AP_{40}$ | 17.1 | 0.15 | 20100104 | 15.31420 | 141.96398 | 277.16648 | 6.80949 | 0.1921108 | 2.5570839 | 62 | 3 | 2001–2009 | 0.46 | M-v | 2 | MPC | 166123 | 2002 $AP_{40}$ |
| 2002 $AS_{43}$ | 16.7 | 0.15 | 20100104 | 232.74460 | 332.20086 | 262.22106 | 5.14383 | 0.0666442 | 2.5381599 | 45 | 4 | 2002–2009 | 0.43 | M-v | 2 | MPC | 164177 | 2002 $AS_{43}$ |
| 2002 $AK_{44}$ | 17.1 | 0.15 | 20100104 | 355.95540 | 254.07510 | 193.90052 | 1.52533 | 0.1903008 | 2.5611049 | 61 | 5 | 1997–2009 | 0.53 | M-v | 2 | MPC | 166123 | 2002 $AK_{44}$ |
| 2002 $AB_{46}$ | 16.8 | 0.15 | 20100104 | 350.37063 | 189.51649 | 275.39050 | 1.89855 | 0.1123792 | 2.5524960 | 64 | 6 | 1992–2009 | 0.48 | M-v | 1 | MPC | 120757 | 2002 $AB_{46}$ |
| 2002 $AE_{46}$ | 16.7 | 0.15 | 20100104 | 41.20796 | 123.38692 | 279.81738 | 9.46362 | 0.2298012 | 2.5300666 | 63 | 4 | 1998–2009 | 0.50 | M-v | 3 | MPC | 94482 | 2002 $AE_{46}$ |
| 2002 $AT_{46}$ | 16.2 | 0.15 | 20100104 | 40.78716 | 253.55821 | 121.93843 | 3.31232 | 0.2131748 | 2.5971956 | 55 | 3 | 1998–2009 | 0.59 | M-v | 2 | MPC | 165322 | 2002 $AT_{46}$ |
| 2002 $AV_{46}$ | 16.5 | 0.15 | 20100104 | 289.83586 | 229.87765 | 287.46450 | 3.87721 | 0.1674027 | 2.6094331 | 62 | 4 | 2001–2009 | 0.46 | M-v | 2 | MPC | 166123 | 2002 $AV_{46}$ |
| 2002 $AB_{47}$ | 17.0 | 0.15 | 20100104 | 358.22311 | 192.80613 | 275.60550 | 2.86538 | 0.1218694 | 2.5299177 | 80 | 4 | 2001–2009 | 0.48 | M-v | 3 | MPC | 94483 | 2002 $AB_{47}$ |
| 2002 $AN_{47}$ | 16.5 | 0.15 | 20100104 | 308.01108 | 84.50332 | 138.37882 | 5.55826 | 0.1645831 | 2.4343021 | 85 | 5 | 2001–2009 | 0.50 | M-v | 1 | MPC | 160757 | 2002 $AN_{47}$ |
| 2002 $AU_{48}$ | 16.7 | 0.15 | 20100104 | 26.39069 | 257.78658 | 141.72425 | 2.54663 | 0.2194031 | 2.5832276 | 80 | 5 | 1998–2009 | 0.42 | M-v | 2 | MPC | 166123 | 2002 $AU_{48}$ |
| 2002 $AM_{49}$ | 17.1 | 0.15 | 20100104 | 295.71358 | 239.24205 | 284.11894 | 3.54000 | 0.2251960 | 2.5994183 | 33 | 3 | 2002–2009 | 0.42 | M-v | 3 | MPC | 166123 | 2002 $AM_{49}$ |
| 2002 $AB_{50}$ | 16.8 | 0.15 | 20100104 | 312.01428 | 240.23185 | 289.42700 | 11.11343 | 0.2114326 | 2.5486297 | 52 | 3 | 2002–2009 | 0.40 | M-v | 3 | MPC | 94484 | 2002 $AB_{50}$ |
| 2002 $AF_{50}$ | 16.1 | 0.15 | 20100104 | 44.16283 | 97.05215 | 285.48811 | 3.54806 | 0.2331004 | 2.5792754 | 91 | 3 | 2001–2009 | 0.49 | M-v | 2 | MPC | 166123 | 2002 $AF_{50}$ |
| 2002 $AK_{50}$ | 16.6 | 0.15 | 20100104 | 30.72254 | 279.89911 | 125.61670 | 5.25344 | 0.3061381 | 2.5439957 | 92 | 4 | 1998–2009 | 0.53 | M-v | 3 | MPC | 94485 | 2002 $AK_{50}$ |
| 2002 $AL_{52}$ | 15.5 | 0.15 | 20100104 | 328.00944 | 193.87499 | 295.38449 | 7.96315 | 0.1088272 | 2.5779588 | 127 | 6 | 1998–2009 | 0.55 | M-v | 2 | MPC | 97546 | 2002 $AL_{52}$ |
| 2002 $AB_{53}$ | 16.5 | 0.15 | 20100104 | 33.97545 | 161.15881 | 253.25611 | 3.90853 | 0.1999774 | 2.5454884 | 63 | 5 | 2001–2009 | 0.48 | M-v | 2 | MPC | 166123 | 2002 $AB_{53}$ |
| 2002 $AA_{55}$ | 18.1 | 0.15 | 20100104 | 12.41259 | 161.06389 | 285.44689 | 4.14450 | 0.2222450 | 2.5255436 | 46 | 3 | 2002–2009 | 0.42 | M-v | 2 | MPC | 166123 | 2002 $AA_{55}$ |
| 2002 $AN_{56}$ | 16.0 | 0.15 | 20100104 | 57.19658 | 77.84788 | 264.67264 | 5.08186 | 0.0250011 | 2.6819849 | 75 | 6 | 2000–2009 | 0.49 | M-v | 1 | MPC | 164178 | 2002 $AN_{56}$ |
| 2002 $AK_{60}$ | 15.5 | 0.15 | 20100104 | 356.54976 | 296.33505 | 133.52497 | 22.29025 | 0.0628214 | 2.6484484 | 77 | 5 | 2001–2009 | 0.49 | M-v | 1 | MPC | 140363 | 2002 $AK_{60}$ |
| 2002 $AZ_{65}$ | 17.2 | 0.15 | 20100104 | 308.69814 | 41.67697 | 127.85109 | 8.36744 | 0.0860544 | 2.5306836 | 38 | 4 | 2001–2009 | 0.32 | M-v | 3 | MPC | 148855 | 2002 $AZ_{65}$ |
| 2002 $AZ_{66}$ | 18.6 | 0.15 | 20020126 | 355.52657 | 351.16024 | 142.61511 | 1.87752 | 0.1477596 | 2.3121778 | 15 | 1 | 34 days | 0.42 | | | MPC | | 2002 $AZ_{66}$ |
| 2002 $AX_{67}$ | 17.8 | 0.15 | 20100104 | 356.27406 | 1.21165 | 96.45495 | 3.44493 | 0.1718280 | 2.5438343 | 31 | 4 | 1998–2009 | 0.44 | M-v | 3 | MPC | 108205 | 2002 $AX_{67}$ |
| 2002 $AO_{69}$ | 15.8 | 0.15 | 20100104 | 27.81405 | 122.46108 | 272.22817 | 13.61735 | 0.1639156 | 2.5189161 | 101 | 4 | 2001–2009 | 0.56 | M-v | 2 | MPC | 166123 | 2002 $AO_{69}$ |
| 2002 $AC_{73}$ | 16.0 | 0.15 | 20100104 | 355.82981 | 0.17353 | 98.96373 | 12.93535 | 0.1438239 | 2.5368637 | 37 | 4 | 2001–2009 | 0.66 | M-v | 3 | MPC | 100131 | 2002 $AC_{73}$ |
| 2002 $AF_{75}$ | 16.6 | 0.15 | 20100104 | 324.53348 | 38.10857 | 90.08257 | 8.22112 | 0.1131095 | 2.5617905 | 49 | 5 | 2001–2009 | 0.40 | M-v | 1 | MPC | 166123 | 2002 $AF_{75}$ |
| 2002 $AD_{77}$ | 16.7 | 0.15 | 20100104 | 12.52973 | 55.22578 | 7.83287 | 2.74939 | 0.1602040 | 2.5669885 | 72 | 5 | 1998–2009 | 0.45 | M-v | 2 | MPC | 166123 | 2002 $AD_{77}$ |
| 2002 $AM_{86}$ | 16.1 | 0.15 | 20100104 | 314.39658 | 233.08062 | 284.26220 | 16.34837 | 0.1439003 | 2.5492093 | 44 | 3 | 2001–2009 | 0.51 | M-v | 3 | MPC | 160757 | 2002 $AM_{86}$ |
| 2002 $AD_{97}$ | 16.5 | 0.15 | 20100104 | 2.76210 | 18.73532 | 82.19176 | 1.93100 | 0.1258418 | 2.5336592 | 154 | 5 | 1994–2009 | 0.51 | M-v | 2 | MPC | 166123 | 2002 $AD_{97}$ |
| 2002 $AM_{97}$ | 16.1 | 0.15 | 20100104 | 28.21244 | 295.97107 | 105.43865 | 12.67525 | 0.1857599 | 2.5789127 | 45 | 4 | 1992–2009 | 0.40 | M-v | 2 | MPC | 166123 | 2002 $AM_{97}$ |
| 2002 $AJ_{99}$ | 16.4 | 0.15 | 20100104 | 349.20886 | 104.74275 | 331.86245 | 5.47242 | 0.2682542 | 2.5969861 | 107 | 3 | 2001–2009 | 0.52 | M-v | 2 | MPC | 166123 | 2002 $AJ_{99}$ |
| 2002 $AP_{102}$ | 16.5 | 0.15 | 20100104 | 351.57301 | 353.41994 | 103.90565 | 12.36291 | 0.1457714 | 2.5670183 | 34 | 4 | 2001–2009 | 0.51 | M-v | 3 | MPC | 121311 | 2002 $AP_{102}$ |
| 2002 $AY_{102}$ | 16.6 | 0.15 | 20100104 | 53.11376 | 348.23525 | 45.18536 | 2.65840 | 0.1702792 | 2.5519233 | 55 | 5 | 2002–2009 | 0.45 | M-v | 2 | MPC | 120758 | 2002 $AY_{102}$ |
| 2002 $AH_{103}$ | 16.6 | 0.15 | 20100104 | 20.34755 | 95.39545 | 312.55327 | 3.13642 | 0.1769843 | 2.5821723 | 67 | 3 | 2001–2009 | 0.50 | M-v | 3 | MPC | 166123 | 2002 $AH_{103}$ |
| 2002 $AT_{103}$ | 17.0 | 0.15 | 20100104 | 350.63632 | 41.48744 | 66.76222 | 3.36143 | 0.1772080 | 2.5530747 | 52 | 3 | 2002–2009 | 0.42 | M-v | 3 | MPC | 166123 | 2002 $AT_{103}$ |
| 2002 $AJ_{104}$ | 16.7 | 0.15 | 20100104 | 36.65594 | 306.92505 | 112.93057 | 3.01159 | 0.0691307 | 2.5455150 | 61 | 5 | 2001–2009 | 0.38 | M-v | 1 | MPC | 147196 | 2002 $AJ_{104}$ |
| 2002 $AS_{105}$ | 16.7 | 0.15 | 20100104 | 31.60183 | 123.59626 | 300.75251 | 7.06729 | 0.2310269 | 2.5208022 | 116 | 3 | 2001–2009 | 0.49 | M-v | 3 | MPC | 94507 | 2002 $AS_{105}$ |
| 2002 $AN_{107}$ | 16.5 | 0.15 | 20100104 | 55.78122 | 281.25240 | 107.03284 | 6.08103 | 0.1498437 | 2.5616827 | 70 | 5 | 2002–2009 | 0.43 | M-v | 0 | MPC | 119565 | 2002 $AN_{107}$ |
| 2002 $AT_{107}$ | 16.1 | 0.15 | 20100104 | 355.24212 | 135.44636 | 306.77706 | 6.50819 | 0.1829044 | 2.5882788 | 96 | 3 | 2001–2009 | 0.46 | M-v | 3 | MPC | 166124 | 2002 $AT_{107}$ |
| 2002 $AY_{112}$ | 16.2 | 0.15 | 20100104 | 20.70144 | 65.45416 | 334.20246 | 4.85559 | 0.2930234 | 2.5947548 | 147 | 3 | 2002–2009 | 0.47 | M-v | 2 | MPC | 166124 | 2002 $AY_{112}$ |
| 2002 $AN_{113}$ | 16.8 | 0.15 | 20100104 | 59.14373 | 265.12828 | 112.09436 | 12.75684 | 0.2640707 | 2.5318184 | 49 | 3 | 2001–2009 | 0.45 | M-v | 3 | MPC | 94513 | 2002 $AN_{113}$ |
| 2002 $AA_{114}$ | 16.6 | 0.15 | 20100104 | 353.56452 | 341.63660 | 104.32303 | 5.02640 | 0.1883936 | 2.5826271 | 50 | 3 | 2002–2009 | 0.46 | M-v | 3 | MPC | 166124 | 2002 $AA_{114}$ |
| 2002 $AX_{115}$ | 15.8 | 0.15 | 20100104 | 234.74619 | 307.09399 | 295.48686 | 13.62822 | 0.0924822 | 2.5301281 | 85 | 6 | 1994–2009 | 0.43 | M-v | 1 | MPC | 162337 | 2002 $AX_{115}$ |
| 2002 $AY_{123}$ | 16.7 | 0.15 | 20100104 | 334.89254 | 20.43660 | 116.28846 | 7.40619 | 0.1111336 | 2.5661386 | 72 | 3 | 2002–2009 | 0.41 | M-v | 2 | MPC | 122694 | 2002 $AY_{123}$ |
| 2002 $AV_{124}$ | 15.5 | 0.15 | 20100104 | 290.45681 | 140.98467 | 63.13271 | 3.19491 | 0.1155733 | 2.5269608 | 186 | 6 | 2000–2009 | 0.53 | M-v | 2 | MPC | 166124 | 2002 $AV_{124}$ |
| 2002 $AZ_{126}$ | 16.5 | 0.15 | 20100104 | 17.75030 | 104.62933 | 271.06289 | 4.26862 | 0.3631110 | 2.6127655 | 131 | 3 | 2001–2009 | 0.49 | M-v | 2 | MPC | 166124 | 2002 $AZ_{126}$ |
| 2002 $AD_{129}$ | 17.4 | 0.15 | 20100104 | 62.58746 | 85.09667 | 292.94292 | 16.81394 | 0.1203161 | 1.9386522 | 36 | 4 | 1998–2009 | 0.57 | M-v | 2 | MPC | 122694 | 2002 $AD_{129}$ |
| 2002 $AP_{131}$ | 16.6 | 0.15 | 20100104 | 139.16383 | 26.40931 | 307.06539 | 18.07254 | 0.0883836 | 1.9183214 | 52 | 3 | 2002–2009 | 0.56 | M-v | 2 | MPC | 122694 | 2002 $AP_{131}$ |
| 2002 $AT_{131}$ | 16.9 | 0.15 | 20100104 | 359.75889 | 178.42409 | 284.22465 | 19.04140 | 0.0882475 | 1.9072718 | 44 | 3 | 2001–2009 | 0.56 | M-v | 3 | MPC | 108210 | 2002 $AT_{131}$ |
| 2002 $AX_{131}$ | 16.3 | 0.15 | 20100104 | 334.48457 | 197.67077 | 284.68528 | 11.71658 | 0.1461753 | 2.5368667 | 32 | 4 | 2001–2009 | 0.61 | M-v | 3 | MPC | 162337 | 2002 $AX_{131}$ |
| 2002 $AZ_{131}$ | 16.4 | 0.15 | 20100104 | 349.87981 | 181.16313 | 275.16710 | 4.93403 | 0.1726023 | 2.5476127 | 95 | 5 | 2000–2009 | 0.51 | M-v | 2 | MPC | 166124 | 2002 $AZ_{131}$ |
| 2002 $AF_{133}$ | 17.1 | 0.15 | 20100104 | 345.06909 | 123.58297 | 320.45225 | 5.63145 | 0.3208751 | 2.5751632 | 90 | 4 | 1994–2009 | 0.51 | M-v | 2 | MPC | 166124 | 2002 $AF_{133}$ |
| 2002 $AS_{137}$ | 16.3 | 0.15 | 20100104 | 70.08077 | 19.05908 | 24.54135 | 3.01960 | 0.2106580 | 2.4891081 | 78 | 5 | 2002–2009 | 0.60 | M-v | 1 | MPC | 143144 | 2002 $AS_{137}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 $AV_{138}$ | 16.5 | 0.15 | 20100104 | 24.28898 | 238.90783 | 165.13504 | 4.76273 | 0.2217590 | 2.5825212 | 59 | 6 | 1992–2009 | 0.52 | M-v | 1 | MPC | 166124 | 2002 $AV_{138}$ |
| 2002 $AY_{139}$ | 16.2 | 0.15 | 20100104 | 103.22944 | 253.54113 | 103.10500 | 7.75555 | 0.1321508 | 2.4290299 | 69 | 5 | 1996–2009 | 0.44 | M-v | 1 | MPC | 166124 | 2002 $AY_{139}$ |
| 2002 $AJ_{140}$ | 16.3 | 0.15 | 20100104 | 75.07338 | 251.79875 | 118.88331 | 6.41987 | 0.2556684 | 2.4717903 | 46 | 4 | 2001–2009 | 0.38 | M-v | 3 | MPC | 94523 | 2002 $AJ_{140}$ |
| 2002 $AN_{141}$ | 15.5 | 0.15 | 20100104 | 61.33111 | 235.38110 | 116.79342 | 9.24980 | 0.2064552 | 2.5921523 | 58 | 5 | 2000–2009 | 0.61 | M-v | 1 | MPC | 166124 | 2002 $AN_{141}$ |
| 2002 $AV_{142}$ | 17.4 | 0.15 | 20100104 | 11.02242 | 156.92093 | 286.20776 | 13.08448 | 0.2284332 | 2.5298085 | 52 | 5 | 1994–2009 | 0.48 | M-v | 2 | MPC | 97551 | 2002 $AV_{142}$ |
| 2002 $AW_{142}$ | 17.3 | 0.15 | 20100104 | 327.79700 | 212.06726 | 277.26060 | 1.57922 | 0.0774955 | 2.5559443 | 45 | 4 | 2001–2009 | 0.43 | M-v | 3 | MPC | 147197 | 2002 $AW_{142}$ |
| 2002 $AH_{143}$ | 16.9 | 0.15 | 20100104 | 288.41876 | 326.29372 | 198.89928 | 1.46978 | 0.0957834 | 2.5797746 | 34 | 5 | 2002–2009 | 0.53 | M-v | 1 | MPC | 166124 | 2002 $AH_{143}$ |
| 2002 $AM_{143}$ | 16.6 | 0.15 | 20100104 | 274.79127 | 11.45343 | 189.82256 | 1.68467 | 0.1348871 | 2.5442442 | 56 | 6 | 2002–2009 | 0.49 | M-v | 1 | MPC | 147197 | 2002 $AM_{143}$ |
| 2002 $AB_{147}$ | 16.7 | 0.15 | 20100104 | 45.78063 | 210.73441 | 155.98009 | 2.10767 | 0.2137055 | 2.5949995 | 85 | 5 | 1992–2009 | 0.48 | M-v | 1 | MPC | 166124 | 2002 $AB_{147}$ |
| 2002 $AC_{147}$ | 15.2 | 0.15 | 20100104 | 247.44675 | 114.60877 | 295.16108 | 9.20143 | 0.0789013 | 2.9936251 | 31 | 3 | 2000–2008 | 0.71 | M-v | 2 | MPC | 27410 | 2002 $AC_{147}$ |
| 2002 $AR_{147}$ | 17.6 | 0.15 | 20100104 | 347.58870 | 141.09366 | 332.62557 | 4.60477 | 0.2574596 | 2.5504660 | 36 | 4 | 1994–2009 | 0.37 | M-v | 3 | MPC | 104191 | 2002 $AR_{147}$ |
| 2002 $AT_{147}$ | 15.6 | 0.15 | 20100104 | 331.37950 | 141.53034 | 319.37066 | 11.68606 | 0.0677703 | 2.6314262 | 60 | 4 | 1998–2009 | 0.57 | M-v | 2 | MPC | 166124 | 2002 $AT_{147}$ |
| 2002 $AD_{149}$ | 16.9 | 0.15 | 20100104 | 36.25209 | 78.05458 | 333.14496 | 1.02790 | 0.1402459 | 2.5352353 | 68 | 8 | 1960–2009 | 0.44 | M-v | 1 | MPC | 157361 | 2002 $AD_{149}$ |
| 2002 $AE_{150}$ | 15.8 | 0.15 | 20100104 | 232.46299 | 134.55539 | 109.86939 | 8.85187 | 0.1820644 | 2.5572831 | 65 | 5 | 2001–2009 | 0.51 | M-v | 1 | MPC | 147197 | 2002 $AE_{150}$ |
| 2002 $AN_{152}$ | 15.1 | 0.15 | 20100104 | 279.35378 | 216.13358 | 316.12038 | 12.58693 | 0.1249539 | 2.6389364 | 127 | 5 | 2002–2009 | 0.56 | M-v | 1 | MPC | 143144 | 2002 $AN_{152}$ |
| 2002 $AT_{153}$ | 15.9 | 0.15 | 20100104 | 299.72948 | 29.29063 | 126.97006 | 13.08655 | 0.1053063 | 2.6169258 | 65 | 4 | 2002–2009 | 0.45 | M-v | 2 | MPC | 121311 | 2002 $AT_{153}$ |
| 2002 $AE_{157}$ | 16.2 | 0.15 | 20100104 | 329.09370 | 332.86271 | 152.07867 | 4.27468 | 0.2026089 | 2.5887807 | 92 | 4 | 2001–2009 | 0.48 | M-v | 2 | MPC | 166124 | 2002 $AE_{157}$ |
| 2002 $AG_{158}$ | 16.2 | 0.15 | 20100104 | 0.60275 | 286.78329 | 143.98581 | 8.01076 | 0.1724699 | 2.6138615 | 47 | 5 | 2000–2009 | 0.51 | M-v | 1 | MPC | 166124 | 2002 $AG_{158}$ |
| 2002 $AC_{160}$ | 16.8 | 0.15 | 20100104 | 10.83585 | 270.39237 | 151.02628 | 5.04169 | 0.2544603 | 2.5927273 | 63 | 4 | 1998–2009 | 0.49 | M-v | 3 | MPC | 166124 | 2002 $AC_{160}$ |
| 2002 $AJ_{161}$ | 16.2 | 0.15 | 20100104 | 22.27451 | 277.62830 | 135.60671 | 10.09564 | 0.2734648 | 2.5757737 | 128 | 5 | 2000–2009 | 0.53 | M-v | 1 | MPC | 162338 | 2002 $AJ_{161}$ |
| 2002 $AB_{164}$ | 15.7 | 0.15 | 20100104 | 350.85327 | 287.88085 | 157.74001 | 7.74998 | 0.1721462 | 2.6187349 | 75 | 5 | 2002–2009 | 0.53 | M-v | 1 | MPC | 166124 | 2002 $AB_{164}$ |
| 2002 $AQ_{169}$ | 16.7 | 0.15 | 20100104 | 354.54942 | 160.70341 | 303.68813 | 11.32863 | 0.1405268 | 2.5367176 | 33 | 5 | 1998–2009 | 0.51 | M-v | 3 | MPC | 143144 | 2002 $AQ_{169}$ |
| 2002 $AT_{169}$ | 15.4 | 0.15 | 20100104 | 24.23354 | 328.83335 | 110.14832 | 11.89535 | 0.2834744 | 3.9587415 | 48 | 5 | 2000–2009 | 0.57 | M-v | 0 | MPC | 166124 | 2002 $AT_{169}$ |
| 2002 $AP_{171}$ | 16.8 | 0.15 | 20100104 | 285.50803 | 109.23226 | 91.77638 | 3.45249 | 0.1253172 | 2.5310883 | 61 | 4 | 2001–2009 | 0.39 | M-v | 3 | MPC | 166124 | 2002 $AP_{171}$ |
| 2002 $AT_{171}$ | 16.4 | 0.15 | 20100104 | 355.51347 | 342.23888 | 94.16559 | 5.67339 | 0.1292892 | 2.6045614 | 77 | 4 | 2002–2009 | 0.54 | M-v | 2 | MPC | 166124 | 2002 $AT_{171}$ |
| 2002 $AM_{172}$ | 15.8 | 0.15 | 20100104 | 65.23133 | 248.40577 | 111.44578 | 10.68837 | 0.1128322 | 2.6257118 | 54 | 4 | 2002–2009 | 0.57 | M-v | 2 | MPC | 166124 | 2002 $AM_{172}$ |
| 2002 $AV_{172}$ | 16.5 | 0.15 | 20100104 | 359.51346 | 337.73370 | 98.36871 | 5.99678 | 0.1812223 | 2.5897110 | 55 | 3 | 2002–2009 | 0.60 | M-v | 4 | MPC | 165322 | 2002 $AV_{172}$ |
| 2002 $AJ_{174}$ | 16.1 | 0.15 | 20100104 | 53.31579 | 56.99414 | 331.48752 | 5.81551 | 0.1072658 | 2.5822458 | 49 | 7 | 1998–2009 | 0.52 | M-v | 1 | MPC | 166124 | 2002 $AJ_{174}$ |
| 2002 $AN_{174}$ | 16.9 | 0.15 | 20100104 | 348.34308 | 58.24407 | 49.73420 | 2.06156 | 0.1650318 | 2.5649203 | 59 | 5 | 1992–2009 | 0.51 | M-v | 1 | MPC | 166124 | 2002 $AN_{174}$ |
| 2002 $AQ_{174}$ | 16.9 | 0.15 | 20100104 | 19.34367 | 339.01776 | 96.15097 | 2.37670 | 0.1261888 | 2.5576832 | 70 | 5 | 2002–2009 | 0.46 | M-v | 1 | MPC | 120758 | 2002 $AQ_{174}$ |
| 2002 $AE_{177}$ | 17.2 | 0.15 | 20100104 | 0.29859 | 127.65034 | 322.53880 | 4.41272 | 0.2807366 | 2.5583404 | 91 | 3 | 2002–2009 | 0.48 | M-v | 2 | MPC | 166124 | 2002 $AE_{177}$ |
| 2002 $AX_{177}$ | 16.3 | 0.15 | 20100104 | 341.28657 | 182.42776 | 316.01018 | 5.62444 | 0.0841201 | 2.5441528 | 114 | 4 | 2002–2009 | 0.49 | M-v | 3 | MPC | 166124 | 2002 $AX_{177}$ |
| 2002 $AQ_{185}$ | 17.2 | 0.15 | 20100104 | 342.84033 | 83.52261 | 29.23771 | 4.51552 | 0.2245724 | 2.5612824 | 45 | 4 | 1994–2009 | 0.48 | M-v | 2 | MPC | 166124 | 2002 $AQ_{185}$ |
| 2002 $AV_{185}$ | 16.0 | 0.15 | 20100104 | 22.80500 | 55.16718 | 29.63085 | 6.41673 | 0.0996774 | 2.5342147 | 67 | 5 | 2002–2009 | 0.63 | M-v | 3 | MPC | 147198 | 2002 $AV_{185}$ |
| 2002 $AM_{190}$ | 16.8 | 0.15 | 20100104 | 10.52358 | 356.01832 | 62.36689 | 4.35813 | 0.1935115 | 2.5703213 | 94 | 4 | 2001–2009 | 0.46 | M-v | 2 | MPC | 166125 | 2002 $AM_{190}$ |
| 2002 $AR_{194}$ | 16.3 | 0.15 | 20100104 | 133.17802 | 342.47569 | 296.71117 | 6.67419 | 0.1131652 | 2.6790204 | 39 | 4 | 1995–2009 | 0.50 | M-v | 2 | MPC | 166125 | 2002 $AR_{194}$ |
| 2002 $AQ_{195}$ | 17.0 | 0.15 | 20100104 | 306.17153 | 71.25766 | 104.57831 | 7.69860 | 0.0914933 | 2.5281829 | 57 | 4 | 1994–2009 | 0.38 | M-v | 3 | MPC | 166125 | 2002 $AQ_{195}$ |
| 2002 $AZ_{201}$ | 15.9 | 0.15 | 20100104 | 49.77805 | 326.93733 | 66.93815 | 11.16214 | 0.1844347 | 2.5386966 | 62 | 5 | 1999–2009 | 0.46 | M-v | 2 | MPC | 164179 | 2002 $AZ_{201}$ |
| 2002 $AN_{202}$ | 16.6 | 0.15 | 20100104 | 283.58219 | 280.97995 | 233.84252 | 1.92527 | 0.1112087 | 2.6439611 | 67 | 5 | 2002–2009 | 0.33 | M-v | 0 | MPC | 166125 | 2002 $AN_{202}$ |
| 2002 $AS_{202}$ | 16.9 | 0.15 | 20100104 | 42.09305 | 154.05923 | 267.50643 | 4.05655 | 0.1061769 | 2.5543206 | 52 | 5 | 2000–2009 | 0.40 | M-v | 1 | MPC | 164179 | 2002 $AS_{202}$ |
| 2002 $AR_{203}$ | 17.3 | 0.15 | 20100104 | 1.44402 | 135.46690 | 303.64628 | 3.34590 | 0.1592174 | 2.5747383 | 47 | 3 | 2002–2009 | 0.29 | M-v | 3 | MPC | 166125 | 2002 $AR_{203}$ |
| 2002 $AC_{205}$ | 15.8 | 0.15 | 20100104 | 284.71981 | 150.00546 | 16.41026 | 4.23839 | 0.1727040 | 2.5985904 | 39 | 5 | 2002–2009 | 0.61 | M-v | 2 | MPC | 166125 | 2002 $AC_{205}$ |
| 2002 $AP_{208}$ | 16.8 | 0.15 | 20100104 | 355.98224 | 123.45167 | 335.04838 | 7.40780 | 0.0868199 | 2.5560482 | 34 | 6 | 1992–2009 | 0.40 | M-v | 1 | MPC | 147198 | 2002 $AP_{208}$ |
| 2002 $BF_{1}$ | 16.6 | 0.15 | 20100104 | 10.23306 | 120.51433 | 335.91217 | 4.21012 | 0.2389040 | 2.5351355 | 123 | 4 | 2000–2009 | 0.46 | M-v | 2 | MPC | 166125 | 2002 $BF_{1}$ |
| 2002 $BL_{1}$ | 16.2 | 0.15 | 20100104 | 97.07956 | 9.51390 | 55.05940 | 4.17559 | 0.1728931 | 2.4054641 | 172 | 6 | 1993–2009 | 0.54 | M-v | 0 | MPC | 152333 | 2002 $BL_{1}$ |
| 2002 $BD_{5}$ | 16.4 | 0.15 | 20100104 | 332.21045 | 40.22114 | 80.97358 | 15.50590 | 0.1326605 | 2.5822342 | 57 | 4 | 2001–2009 | 0.61 | M-v | 2 | MPC | 166125 | 2002 $BD_{5}$ |
| 2002 $BE_{5}$ | 15.7 | 0.15 | 20100104 | 341.64659 | 46.61317 | 74.00506 | 14.78621 | 0.1538727 | 2.5597723 | 84 | 3 | 2001–2009 | 0.59 | M-v | 3 | MPC | 166125 | 2002 $BE_{5}$ |
| 2002 $BJ_{13}$ | 15.8 | 0.15 | 20100104 | 298.36025 | 118.13123 | 56.50917 | 8.17891 | 0.1442245 | 2.5808458 | 79 | 4 | 1998–2009 | 0.58 | M-v | 3 | MPC | 166125 | 2002 $BJ_{13}$ |
| 2002 $BF_{15}$ | 16.2 | 0.15 | 20100104 | 274.95304 | 42.63344 | 165.60236 | 4.62214 | 0.0862886 | 2.5507942 | 84 | 5 | 2002–2009 | 0.47 | M-v | 2 | MPC | 147199 | 2002 $BF_{15}$ |
| 2002 $BY_{15}$ | 16.6 | 0.15 | 20100104 | 318.49750 | 234.07451 | 279.37949 | 2.95240 | 0.1802793 | 2.5832408 | 96 | 5 | 1998–2009 | 0.54 | M-v | 2 | MPC | 143145 | 2002 $BY_{15}$ |
| 2002 $BW_{17}$ | 16.5 | 0.15 | 20100104 | 358.00674 | 309.86139 | 131.03202 | 6.22771 | 0.1213298 | 2.6030635 | 71 | 5 | 2000–2009 | 0.48 | M-v | 0 | MPC | 166125 | 2002 $BW_{17}$ |
| 2002 $BT_{21}$ | 16.7 | 0.15 | 20100104 | 54.96287 | 345.27220 | 86.84797 | 24.19651 | 0.0761679 | 1.9206864 | 87 | 4 | 2002–2009 | 0.60 | M-v | 2 | MPC | 159676 | 2002 $BT_{21}$ |
| 2002 $BK_{24}$ | 15.7 | 0.15 | 20100104 | 282.86248 | 202.67490 | 351.96335 | 13.02545 | 0.0932417 | 2.5557986 | 106 | 6 | 1998–2009 | 0.60 | M-v | 2 | MPC | 148857 | 2002 $BK_{24}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 $BL_{24}$ | 16.4 | 0.15 | 20100104 | 18.79588 | 163.60206 | 280.13152 | 16.74039 | 0.2100371 | 2.5317506 | 54 | 3 | 2002–2009 | 0.49 | M-v | 3 | MPC | 166125 | 2002 $BL_{24}$ |
| 2002 $BX_{26}$ | 16.5 | 0.15 | 20100104 | 35.38968 | 326.80798 | 78.52210 | 7.63285 | 0.2413141 | 2.5368946 | 74 | 4 | 2001–2009 | 0.49 | M-v | 3 | MPC | 166125 | 2002 $BX_{26}$ |
| 2002 $BG_{27}$ | 15.7 | 0.15 | 20100104 | 265.45099 | 119.16457 | 79.23849 | 13.24937 | 0.2245379 | 2.5915402 | 61 | 3 | 2001–2009 | 0.53 | M-v | 3 | MPC | 166125 | 2002 $BG_{27}$ |
| 2002 $BJ_{27}$ | 15.8 | 0.15 | 20100104 | 322.10634 | 31.18562 | 118.95261 | 12.41017 | 0.1214665 | 2.5973866 | 132 | 4 | 2002–2009 | 0.54 | M-v | 2 | MPC | 102069 | 2002 $BJ_{27}$ |
| 2002 $BY_{27}$ | 17.0 | 0.15 | 20100104 | 342.45892 | 13.69233 | 90.04664 | 8.15285 | 0.2937598 | 2.5749975 | 94 | 3 | 2001–2009 | 0.65 | M-v | 2 | MPC | 166125 | 2002 $BY_{27}$ |
| 2002 $BF_{30}$ | 17.4 | 0.15 | 20100104 | 15.35793 | 128.57820 | 304.56329 | 3.84681 | 0.2330640 | 2.5483258 | 59 | 4 | 2002–2009 | 0.50 | M-v | 2 | MPC | 94557 | 2002 $BF_{30}$ |
| 2002 $BN_{30}$ | 16.9 | 0.15 | 20100104 | 333.03685 | 58.26251 | 26.18933 | 12.86512 | 0.2364018 | 2.6334338 | 40 | 4 | 2002–2009 | 0.44 | M-v | 2 | MPC | 166125 | 2002 $BN_{30}$ |
| 2002 $BF_{32}$ | 17.2 | 0.15 | 20100104 | 309.66857 | 259.99707 | 240.12297 | 11.89255 | 0.1978744 | 2.5858146 | 28 | 2 | 2002–2009 | 0.45 | M-v | 4 | MPC | 165323 | 2002 $BF_{32}$ |
| 2002 CS | 17.6 | 0.15 | 20100104 | 358.79412 | 304.89096 | 153.97123 | 12.41343 | 0.1754607 | 1.9392445 | 40 | 3 | 2002–2009 | 0.46 | M-v | 2 | MPC | 108220 | 2002 CS |
| 2002 $CD_1$ | 16.2 | 0.15 | 20100104 | 249.56598 | 101.70578 | 188.94692 | 8.28120 | 0.1718975 | 2.4193450 | 46 | 6 | 1995–2009 | 0.56 | M-v | 1 | MPC | 126608 | 2002 $CD_1$ |
| 2002 $CE_1$ | 17.4 | 0.15 | 20100104 | 84.66297 | 90.98157 | 297.25168 | 17.29400 | 0.0956318 | 1.9230571 | 32 | 4 | 2002–2009 | 0.51 | M-v | 1 | MPC | 112797 | 2002 $CE_1$ |
| 2002 $CE_2$ | 15.6 | 0.15 | 20100104 | 276.24906 | 82.58027 | 108.77079 | 14.20865 | 0.1123259 | 2.5827340 | 89 | 6 | 2000–2009 | 0.58 | M-v | 1 | MPC | 121775 | 2002 $CE_2$ |
| 2002 $CA_3$ | 16.4 | 0.15 | 20100104 | 20.00923 | 352.54719 | 74.34944 | 5.19958 | 0.2585699 | 2.5583482 | 121 | 5 | 2002–2009 | 0.54 | M-v | 2 | MPC | 166125 | 2002 $CA_3$ |
| 2002 $CG_3$ | 15.5 | 0.15 | 20100104 | 318.40243 | 63.28434 | 108.68148 | 8.56494 | 0.1906251 | 2.5490705 | 179 | 4 | 1998–2009 | 0.49 | M-v | 2 | MPC | 166125 | 2002 $CG_3$ |
| 2002 $CR_3$ | 16.6 | 0.15 | 20100104 | 325.00352 | 93.67158 | 24.57420 | 4.89829 | 0.2015022 | 2.6227537 | 79 | 5 | 1994–2009 | 0.54 | M-v | 2 | MPC | 166125 | 2002 $CR_3$ |
| 2002 $CX_5$ | 16.5 | 0.15 | 20100104 | 23.45533 | 298.19079 | 116.21881 | 2.76511 | 0.2025397 | 2.5945668 | 80 | 4 | 2002–2009 | 0.51 | M-v | 2 | MPC | 166125 | 2002 $CX_5$ |
| 2002 $CU_6$ | 17.2 | 0.15 | 20100104 | 333.39777 | 35.53789 | 78.31284 | 23.21293 | 0.0984475 | 1.9521609 | 57 | 3 | 2001–2009 | 0.49 | M-v | 2 | MPC | 166125 | 2002 $CU_6$ |
| 2002 $CE_9$ | 16.5 | 0.15 | 20100104 | 293.24596 | 22.32703 | 128.39312 | 4.58924 | 0.0568705 | 2.6437516 | 62 | 5 | 1998–2009 | 0.39 | M-v | 1 | MPC | 166125 | 2002 $CE_9$ |
| 2002 $CG_{12}$ | 16.6 | 0.15 | 20100104 | 319.93831 | 54.78945 | 143.10453 | 21.77176 | 0.0478123 | 1.8884111 | 114 | 4 | 2002–2009 | 0.48 | M-v | 1 | MPC | 143145 | 2002 $CG_{12}$ |
| 2002 $CR_{13}$ | 16.6 | 0.15 | 20100104 | 16.56978 | 249.19369 | 179.17469 | 0.93402 | 0.1610136 | 2.5836136 | 91 | 7 | 1996–2009 | 0.41 | M-v | 0 | MPC | 120759 | 2002 $CR_{13}$ |
| 2002 $CC_{16}$ | 17.6 | 0.15 | 20100104 | 316.11256 | 94.65771 | 38.77302 | 0.36283 | 0.2472583 | 2.6106504 | 78 | 3 | 2002–2009 | 0.44 | M-v | 3 | MPC | 166125 | 2002 $CC_{16}$ |
| 2002 $CX_{16}$ | 16.6 | 0.15 | 20100104 | 21.49423 | 94.28801 | 323.87459 | 6.63621 | 0.3133711 | 2.5361021 | 124 | 4 | 1998–2009 | 0.51 | M-v | 3 | MPC | 164179 | 2002 $CX_{16}$ |
| 2002 $CP_{17}$ | 16.2 | 0.15 | 20100104 | 334.27529 | 125.06677 | 339.74843 | 4.35207 | 0.1441118 | 2.5814960 | 99 | 4 | 2000–2009 | 0.52 | M-v | 2 | MPC | 166126 | 2002 $CP_{17}$ |
| 2002 $CE_{18}$ | 15.9 | 0.15 | 20100104 | 278.66049 | 229.92793 | 42.50127 | 7.11407 | 0.0931341 | 2.3927296 | 53 | 7 | 1999–2009 | 0.57 | M-v | 1 | MPC | 148858 | 2002 $CE_{18}$ |
| 2002 $CV_{19}$ | 15.3 | 0.15 | 20100104 | 40.91194 | 32.70135 | 9.57752 | 5.06540 | 0.2838202 | 2.5445980 | 185 | 6 | 1998–2009 | 0.52 | M-v | 2 | MPC | 166126 | 2002 $CV_{19}$ |
| 2002 $CB_{20}$ | 15.7 | 0.15 | 20100104 | 45.15919 | 18.19197 | 11.33260 | 5.16629 | 0.3207558 | 2.5750998 | 80 | 5 | 2002–2009 | 0.48 | M-v | 2 | MPC | 166126 | 2002 $CB_{20}$ |
| 2002 $CZ_{26}$ | 16.4 | 0.15 | 20100104 | 10.30128 | 70.73609 | 24.87760 | 4.34078 | 0.1690320 | 2.5278342 | 67 | 5 | 1960–2009 | 0.53 | M-v | 2 | MPC | 157361 | 2002 $CZ_{26}$ |
| 2002 $CM_{29}$ | 17.2 | 0.15 | 20100104 | 9.61923 | 39.34850 | 38.25394 | 4.21749 | 0.2920656 | 2.5518587 | 69 | 3 | 2002–2009 | 0.58 | M-v | 3 | MPC | 166126 | 2002 $CM_{29}$ |
| 2002 $CM_{30}$ | 16.3 | 0.15 | 20100104 | 260.00269 | 177.48422 | 37.53226 | 5.06000 | 0.1620064 | 2.5910719 | 55 | 6 | 2000–2009 | 0.53 | M-v | 1 | MPC | 147200 | 2002 $CM_{30}$ |
| 2002 $CU_{30}$ | 16.7 | 0.15 | 20100104 | 21.69917 | 323.81420 | 98.00818 | 6.27775 | 0.2455781 | 2.5636394 | 65 | 4 | 2000–2009 | 0.38 | M-v | 2 | MPC | 166126 | 2002 $CU_{30}$ |
| 2002 $CW_{30}$ | 15.9 | 0.15 | 20100104 | 275.21566 | 115.42673 | 80.14727 | 5.24009 | 0.0062470 | 2.5605886 | 40 | 4 | 2002–2009 | 0.45 | M-v | 2 | MPC | 166126 | 2002 $CW_{30}$ |
| 2002 $CZ_{30}$ | 16.0 | 0.15 | 20100104 | 316.61288 | 68.03410 | 75.18704 | 5.45515 | 0.1986894 | 2.5920631 | 131 | 4 | 1998–2009 | 0.48 | M-v | 2 | MPC | 166126 | 2002 $CZ_{30}$ |
| 2002 $CF_{31}$ | 16.5 | 0.15 | 20100104 | 326.80030 | 131.21779 | 21.27011 | 5.59917 | 0.1606527 | 2.5495336 | 94 | 5 | 2002–2009 | 0.56 | M-v | 2 | MPC | 147200 | 2002 $CF_{31}$ |
| 2002 $CB_{32}$ | 16.1 | 0.15 | 20100104 | 272.28355 | 155.01260 | 42.83939 | 4.95583 | 0.0719180 | 2.5812754 | 50 | 6 | 1992–2009 | 0.50 | M-v | 1 | MPC | 148858 | 2002 $CB_{32}$ |
| 2002 $CS_{32}$ | 16.2 | 0.15 | 20100104 | 275.16766 | 106.27395 | 87.06890 | 8.59549 | 0.1325855 | 2.6002863 | 42 | 5 | 1998–2009 | 0.48 | M-v | 2 | MPC | 148858 | 2002 $CS_{32}$ |
| 2002 $CX_{32}$ | 17.0 | 0.15 | 20100104 | 338.49913 | 69.99421 | 54.36609 | 5.14944 | 0.2514729 | 2.5693924 | 55 | 3 | 2002–2009 | 0.43 | M-v | 3 | MPC | 94574 | 2002 $CX_{32}$ |
| 2002 $CY_{32}$ | 15.5 | 0.15 | 20100104 | 2.90402 | 352.65840 | 123.61834 | 22.86287 | 0.0226610 | 2.5491747 | 85 | 6 | 2002–2009 | 0.56 | M-v | 1 | MPC | 143146 | 2002 $CY_{32}$ |
| 2002 $CF_{34}$ | 16.0 | 0.15 | 20100104 | 29.05345 | 83.51803 | 330.35975 | 11.79538 | 0.1640742 | 2.5691554 | 60 | 4 | 2000–2009 | 0.54 | M-v | 2 | MPC | 166126 | 2002 $CF_{34}$ |
| 2002 $CR_{34}$ | 16.5 | 0.15 | 20100104 | 20.98848 | 3.48256 | 39.58134 | 5.22107 | 0.3143811 | 2.5906709 | 123 | 3 | 2002–2009 | 0.47 | M-v | 2 | MPC | 166126 | 2002 $CR_{34}$ |
| 2002 $CD_{38}$ | 16.1 | 0.15 | 20100104 | 273.16832 | 247.30073 | 305.97067 | 8.52552 | 0.0522948 | 2.5914833 | 78 | 5 | 2002–2009 | 0.51 | M-v | 2 | MPC | 147200 | 2002 $CD_{38}$ |
| 2002 $CG_{38}$ | 16.8 | 0.15 | 20100104 | 341.32370 | 146.13637 | 344.95681 | 2.83067 | 0.1244283 | 2.5612390 | 95 | 5 | 2002–2009 | 0.52 | M-v | 2 | MPC | 147200 | 2002 $CG_{38}$ |
| 2002 $CH_{40}$ | 16.1 | 0.15 | 20100104 | 317.74201 | 246.00264 | 276.42631 | 11.26554 | 0.2319503 | 2.6027639 | 110 | 6 | 1995–2009 | 0.54 | M-v | 1 | MPC | 110856 | 2002 $CH_{40}$ |
| 2002 $CF_{45}$ | 16.9 | 0.15 | 20100104 | 27.05874 | 287.46543 | 131.01629 | 4.50018 | 0.2012996 | 2.5902609 | 78 | 5 | 2000–2009 | 0.43 | M-v | 0 | MPC | 140102 | 2002 $CF_{45}$ |
| 2002 $CX_{45}$ | 15.4 | 0.15 | 20100104 | 332.71699 | 249.02628 | 243.57048 | 11.05418 | 0.2186212 | 2.5706533 | 107 | 4 | 2001–2009 | 0.53 | M-v | 2 | MPC | 166126 | 2002 $CX_{45}$ |
| 2002 $CU_{57}$ | 16.4 | 0.15 | 20100104 | 337.90658 | 139.09604 | 326.72515 | 5.09550 | 0.2845043 | 2.6182994 | 128 | 3 | 2002–2009 | 0.52 | M-v | 2 | MPC | 166126 | 2002 $CU_{57}$ |
| 2002 $CD_{60}$ | 16.8 | 0.15 | 20100104 | 280.91753 | 189.26731 | 0.51707 | 2.61709 | 0.0722480 | 2.5503728 | 41 | 6 | 1996–2009 | 0.46 | M-v | 1 | MPC | 147200 | 2002 $CD_{60}$ |
| 2002 $CO_{60}$ | 16.9 | 0.15 | 20100104 | 0.91341 | 56.50907 | 14.95236 | 5.74270 | 0.2301182 | 2.5929901 | 60 | 3 | 2002–2009 | 0.56 | M-v | 3 | MPC | 166126 | 2002 $CO_{60}$ |
| 2002 $CG_{61}$ | 16.5 | 0.15 | 20100104 | 17.75177 | 331.19677 | 87.70084 | 9.69968 | 0.1690634 | 2.6029454 | 58 | 3 | 2002–2009 | 0.50 | M-v | 2 | MPC | 166126 | 2002 $CG_{61}$ |
| 2002 $CR_{62}$ | 15.8 | 0.15 | 20100104 | 235.39673 | 151.30722 | 76.95181 | 10.00148 | 0.1938790 | 2.6495054 | 58 | 5 | 1994–2009 | 0.61 | M-v | 2 | MPC | 97562 | 2002 $CR_{62}$ |
| 2002 $CO_{66}$ | 16.2 | 0.15 | 20100104 | 325.23463 | 9.00720 | 119.89115 | 12.52135 | 0.1267458 | 2.5817766 | 69 | 3 | 2001–2009 | 0.54 | M-v | 2 | MPC | 166126 | 2002 $CO_{66}$ |
| 2002 $CH_{68}$ | 17.5 | 0.15 | 20100104 | 20.05390 | 72.95189 | 348.89683 | 4.31526 | 0.2954593 | 2.5481667 | 58 | 3 | 2002–2009 | 0.53 | M-v | 3 | MPC | 94586 | 2002 $CH_{68}$ |
| 2002 $CV_{69}$ | 16.9 | 0.15 | 20100104 | 23.80791 | 316.13144 | 130.76365 | 4.85652 | 0.2074743 | 2.5212080 | 52 | 3 | 2002–2009 | 0.52 | M-v | 3 | MPC | 94587 | 2002 $CV_{69}$ |
| 2002 $CJ_{70}$ | 16.0 | 0.15 | 20100104 | 225.31044 | 140.58800 | 118.20846 | 7.01959 | 0.1266310 | 2.5606917 | 40 | 4 | 2002–2009 | 0.47 | M-v | 2 | MPC | 147200 | 2002 $CJ_{70}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 $CR_{70}$ | 16.9 | 0.15 | 20100104 | 221.21170 | 135.81130 | 116.05294 | 3.44758 | 0.0183465 | 2.5608132 | 39 | 5 | 2000–2009 | 0.45 | M-v | 1 | MPC | 121312 | 2002 $CR_{70}$ |
| 2002 $CG_{71}$ | 17.0 | 0.15 | 20100104 | 12.07542 | 89.27738 | 334.67181 | 5.63112 | 0.3134234 | 2.5708410 | 79 | 3 | 2002–2009 | 0.54 | M-v | 2 | MPC | 166126 | 2002 $CG_{71}$ |
| 2002 $CH_{73}$ | 16.6 | 0.15 | 20100104 | 338.44724 | 94.40445 | 344.23381 | 3.23310 | 0.1737084 | 2.6640435 | 73 | 5 | 2000–2009 | 0.47 | M-v | 0 | MPC | 166126 | 2002 $CH_{73}$ |
| 2002 $CQ_{77}$ | 16.1 | 0.15 | 20100104 | 238.78485 | 105.63651 | 139.77035 | 6.60435 | 0.1054763 | 2.5762108 | 76 | 4 | 2002–2009 | 0.40 | M-v | 2 | MPC | 147200 | 2002 $CQ_{77}$ |
| 2002 $CC_{79}$ | 16.0 | 0.15 | 20100104 | 9.99921 | 348.12556 | 130.61023 | 9.18968 | 0.0679991 | 2.5294561 | 97 | 4 | 1998–2009 | 0.42 | M-v | 3 | MPC | 160759 | 2002 $CC_{79}$ |
| 2002 $CV_{86}$ | 16.0 | 0.15 | 20100104 | 38.06286 | 68.03023 | 320.18081 | 6.98330 | 0.1211439 | 2.6477289 | 63 | 5 | 2000–2009 | 0.57 | M-v | 0 | MPC | 166126 | 2002 $CV_{86}$ |
| 2002 $CA_{92}$ | 15.9 | 0.15 | 20100104 | 340.14752 | 108.19220 | 345.85602 | 7.15518 | 0.0921279 | 2.6691812 | 53 | 3 | 2002–2009 | 0.72 | M-v | 3 | MPC | 166126 | 2002 $CA_{92}$ |
| 2002 $CC_{93}$ | 16.9 | 0.15 | 20100104 | 267.58300 | 62.39765 | 117.10552 | 3.44418 | 0.1084505 | 2.6569591 | 43 | 5 | 2000–2009 | 0.41 | M-v | 0 | MPC | 120274 | 2002 $CC_{93}$ |
| 2002 $CL_{97}$ | 16.2 | 0.15 | 20100104 | 5.47662 | 316.73123 | 130.71748 | 5.71728 | 0.2362569 | 2.5864940 | 98 | 4 | 2002–2009 | 0.50 | M-v | 2 | MPC | 117994 | 2002 $CL_{97}$ |
| 2002 $CR_{100}$ | 16.0 | 0.15 | 20100104 | 252.74987 | 22.65217 | 149.91406 | 5.64903 | 0.0968506 | 2.7443915 | 63 | 4 | 2002–2009 | 0.62 | M-v | 1 | MPC | 147201 | 2002 $CR_{100}$ |
| 2002 $CS_{100}$ | 16.7 | 0.15 | 20100104 | 345.12298 | 355.31893 | 136.57324 | 4.71980 | 0.1753826 | 2.5733579 | 90 | 4 | 2000–2009 | 0.62 | M-v | 2 | MPC | 162340 | 2002 $CS_{100}$ |
| 2002 $CC_{109}$ | 17.1 | 0.15 | 20100104 | 354.05999 | 1.59206 | 114.42914 | 3.92708 | 0.1201158 | 2.5813048 | 64 | 6 | 1998–2009 | 0.53 | M-v | 1 | MPC | 166127 | 2002 $CC_{109}$ |
| 2002 $CH_{111}$ | 16.7 | 0.15 | 20100104 | 336.05716 | 327.11517 | 153.32806 | 8.34534 | 0.1550303 | 2.6340152 | 66 | 4 | 2002–2009 | 0.45 | M-v | 2 | MPC | 141778 | 2002 $CH_{111}$ |
| 2002 $CJ_{117}$ | 16.9 | 0.15 | 20100104 | 295.70367 | 80.80033 | 82.17339 | 2.01232 | 0.0873714 | 2.5980541 | 76 | 7 | 1994–2009 | 0.42 | M-v | 0 | MPC | 141779 | 2002 $CJ_{117}$ |
| 2002 $CS_{118}$ | 15.0 | 0.15 | 20100104 | 300.14842 | 102.47224 | 71.79404 | 28.06384 | 0.3460982 | 2.6364028 | 124 | 3 | 2001–2009 | 0.56 | M-v | 1 | MPC | 166127 | 2002 $CS_{118}$ |
| 2002 $CS_{119}$ | 16.4 | 0.15 | 20100104 | 23.66092 | 135.19283 | 250.34732 | 2.99259 | 0.2934413 | 2.6147706 | 102 | 4 | 2002–2009 | 0.48 | M-v | 2 | MPC | 166127 | 2002 $CS_{119}$ |
| 2002 $CY_{119}$ | 17.1 | 0.15 | 20100104 | 323.12242 | 214.41948 | 279.77619 | 4.49738 | 0.2340882 | 2.5830652 | 60 | 3 | 2001–2009 | 0.49 | M-v | 2 | MPC | 166127 | 2002 $CY_{119}$ |
| 2002 $CA_{122}$ | 16.5 | 0.15 | 20100104 | 0.16487 | 283.18229 | 156.39698 | 7.14406 | 0.1942898 | 2.5958978 | 43 | 3 | 1998–2009 | 0.63 | M-v | 3 | MPC | 165323 | 2002 $CA_{122}$ |
| 2002 $CP_{124}$ | 16.5 | 0.15 | 20100104 | 323.78153 | 278.41488 | 203.10320 | 3.37023 | 0.1656047 | 2.6256042 | 69 | 5 | 1992–2009 | 0.42 | M-v | 0 | MPC | 166127 | 2002 $CP_{124}$ |
| 2002 $CK_{125}$ | 16.3 | 0.15 | 20100104 | 262.07832 | 77.87374 | 142.51232 | 4.85179 | 0.0566322 | 2.5594239 | 76 | 6 | 1994–2009 | 0.44 | M-v | 2 | MPC | 147201 | 2002 $CK_{125}$ |
| 2002 $CJ_{126}$ | 16.6 | 0.15 | 20100104 | 316.28470 | 225.31756 | 315.01184 | 2.90352 | 0.0646259 | 2.5349882 | 83 | 6 | 1994–2009 | 0.47 | M-v | 2 | MPC | 147202 | 2002 $CJ_{126}$ |
| 2002 $CM_{126}$ | 16.9 | 0.15 | 20100104 | 272.79964 | 258.47500 | 317.22677 | 3.17637 | 0.1448422 | 2.5836811 | 51 | 5 | 2002–2009 | 0.48 | M-v | 1 | MPC | 148859 | 2002 $CM_{126}$ |
| 2002 $CV_{130}$ | 16.2 | 0.15 | 20100104 | 252.67545 | 309.99646 | 275.97467 | 4.40450 | 0.1095924 | 2.5759905 | 76 | 4 | 2002–2009 | 0.43 | M-v | 2 | MPC | 166127 | 2002 $CV_{130}$ |
| 2002 $CC_{139}$ | 16.8 | 0.15 | 20100104 | 5.77178 | 243.87444 | 184.71211 | 5.07215 | 0.2880725 | 2.5861220 | 72 | 3 | 2002–2009 | 0.54 | M-v | 2 | MPC | 166127 | 2002 $CC_{139}$ |
| 2002 $CX_{139}$ | 16.4 | 0.15 | 20100104 | 293.28593 | 247.22136 | 270.86663 | 4.20381 | 0.1660908 | 2.6341226 | 77 | 5 | 1998–2009 | 0.49 | M-v | 2 | MPC | 166127 | 2002 $CX_{139}$ |
| 2002 $CD_{141}$ | 16.9 | 0.15 | 20100104 | 347.42732 | 275.58442 | 194.19311 | 4.26188 | 0.2283969 | 2.5779976 | 59 | 3 | 2002–2009 | 0.47 | M-v | 3 | MPC | 166127 | 2002 $CD_{141}$ |
| 2002 $CD_{144}$ | 16.1 | 0.15 | 20100104 | 8.64084 | 276.31193 | 162.20854 | 12.79933 | 0.3042054 | 2.5750022 | 101 | 4 | 2001–2009 | 0.56 | M-v | 2 | MPC | 160759 | 2002 $CD_{144}$ |
| 2002 $CG_{145}$ | 16.0 | 0.15 | 20100104 | 314.78102 | 331.09540 | 166.41310 | 10.68224 | 0.1723294 | 2.6411324 | 100 | 5 | 2000–2009 | 0.62 | M-v | 1 | MPC | 166127 | 2002 $CG_{145}$ |
| 2002 $CC_{148}$ | 16.1 | 0.15 | 20100104 | 135.48267 | 129.69979 | 128.69183 | 1.25307 | 0.0208200 | 2.7713071 | 60 | 5 | 2000–2009 | 0.46 | M-v | 0 | MPC | 162341 | 2002 $CC_{148}$ |
| 2002 $CF_{150}$ | 16.4 | 0.15 | 20100104 | 177.39453 | 165.71492 | 128.72034 | 9.32919 | 0.0126020 | 2.5792479 | 44 | 5 | 2002–2009 | 0.40 | M-v | 1 | MPC | 120761 | 2002 $CF_{150}$ |
| 2002 $CV_{157}$ | 16.4 | 0.15 | 20100104 | 322.67946 | 349.46271 | 133.80226 | 14.95969 | 0.2036102 | 2.6210532 | 83 | 3 | 2001–2009 | 0.51 | M-v | 2 | MPC | 166127 | 2002 $CV_{157}$ |
| 2002 $CU_{160}$ | 16.7 | 0.15 | 20100104 | 341.55206 | 93.74091 | 35.94213 | 5.61135 | 0.1725744 | 2.5393819 | 77 | 4 | 2000–2009 | 0.55 | M-v | 3 | MPC | 97569 | 2002 $CU_{160}$ |
| 2002 $CB_{164}$ | 16.1 | 0.15 | 20100104 | 8.71018 | 184.40277 | 257.61023 | 6.24904 | 0.2858912 | 2.5643361 | 135 | 3 | 2001–2009 | 0.50 | M-v | 2 | MPC | 166127 | 2002 $CB_{164}$ |
| 2002 $CY_{166}$ | 16.5 | 0.15 | 20100104 | 276.26206 | 176.61996 | 37.60375 | 4.13966 | 0.1733028 | 2.5829935 | 69 | 6 | 1998–2009 | 0.49 | M-v | 1 | MPC | 148860 | 2002 $CY_{166}$ |
| 2002 $CT_{172}$ | 17.2 | 0.15 | 20100104 | 316.31664 | 70.46714 | 108.64399 | 5.86507 | 0.2270165 | 2.5559396 | 53 | 4 | 1998–2009 | 0.48 | M-v | 3 | MPC | 166127 | 2002 $CT_{172}$ |
| 2002 $CZ_{177}$ | 16.6 | 0.15 | 20100104 | 165.18428 | 142.95456 | 134.61600 | 3.28293 | 0.0585663 | 2.6281316 | 48 | 6 | 1998–2009 | 0.36 | M-v | 1 | MPC | 143147 | 2002 $CZ_{177}$ |
| 2002 $CJ_{178}$ | 16.3 | 0.15 | 20100104 | 225.97590 | 177.07680 | 98.71582 | 4.16561 | 0.0693362 | 2.4850918 | 69 | 6 | 1994–2009 | 0.46 | M-v | 2 | MPC | 166127 | 2002 $CJ_{178}$ |
| 2002 $CO_{178}$ | 16.2 | 0.15 | 20100104 | 39.50696 | 43.02335 | 352.57066 | 3.83844 | 0.1920456 | 2.5811300 | 45 | 5 | 2002–2009 | 0.55 | M-v | 1 | MPC | 166127 | 2002 $CO_{178}$ |
| 2002 $CE_{180}$ | 17.0 | 0.15 | 20100104 | 324.02080 | 43.37922 | 109.80280 | 4.06694 | 0.0803780 | 2.5463777 | 76 | 5 | 2000–2009 | 0.48 | M-v | 2 | MPC | 166127 | 2002 $CE_{180}$ |
| 2002 $CM_{180}$ | 16.5 | 0.15 | 20100104 | 41.37881 | 267.70894 | 121.96170 | 10.17517 | 0.2140927 | 2.5914699 | 31 | 3 | 2002–2009 | 0.42 | M-v | 3 | MPC | 94625 | 2002 $CM_{180}$ |
| 2002 $CU_{182}$ | 16.7 | 0.15 | 20100104 | 272.55363 | 79.49605 | 119.96954 | 8.78017 | 0.0498184 | 2.5662672 | 52 | 3 | 2002–2009 | 0.51 | M-v | 3 | MPC | 94626 | 2002 $CU_{182}$ |
| 2002 $CC_{186}$ | 16.9 | 0.15 | 20100104 | 2.96946 | 110.66232 | 347.99635 | 4.61171 | 0.1226566 | 2.5670218 | 65 | 9 | 1994–2009 | 0.50 | M-v | 1 | MPC | 120761 | 2002 $CC_{186}$ |
| 2002 $CY_{188}$ | 16.6 | 0.15 | 20100104 | 0.92527 | 338.18952 | 123.42106 | 6.15909 | 0.1059577 | 2.5729248 | 77 | 5 | 2000–2009 | 0.51 | M-v | 0 | MPC | 121313 | 2002 $CY_{188}$ |
| 2002 $CO_{189}$ | 17.3 | 0.15 | 20100104 | 335.77249 | 8.54776 | 107.67622 | 5.32579 | 0.1557666 | 2.5830298 | 43 | 4 | 2002–2009 | 0.45 | M-v | 2 | MPC | 166127 | 2002 $CO_{189}$ |
| 2002 $CR_{192}$ | 17.0 | 0.15 | 20100104 | 341.70384 | 14.05735 | 108.80988 | 4.63713 | 0.1273801 | 2.5787528 | 63 | 6 | 1994–2009 | 0.47 | M-v | 1 | MPC | 117996 | 2002 $CR_{192}$ |
| 2002 $CC_{194}$ | 17.5 | 0.15 | 20100104 | 10.64999 | 305.27280 | 121.19578 | 3.49830 | 0.2386302 | 2.5927231 | 58 | 3 | 2002–2009 | 0.46 | M-v | 2 | MPC | 166127 | 2002 $CC_{194}$ |
| 2002 $CP_{194}$ | 17.1 | 0.15 | 20100104 | 12.02640 | 317.25099 | 127.67765 | 5.58151 | 0.1702815 | 2.5683662 | 56 | 3 | 2002–2009 | 0.33 | M-v | 3 | MPC | 94629 | 2002 $CP_{194}$ |
| 2002 $CY_{195}$ | 17.2 | 0.15 | 20100104 | 315.42753 | 27.28958 | 134.68460 | 4.48424 | 0.0637952 | 2.5649858 | 35 | 4 | 1998–2009 | 0.43 | M-v | 3 | MPC | 94629 | 2002 $CY_{195}$ |
| 2002 $CB_{196}$ | 16.4 | 0.15 | 20100104 | 229.85740 | 140.92449 | 131.47664 | 2.06226 | 0.0554284 | 2.5139847 | 72 | 4 | 2001–2009 | 0.37 | M-v | 1 | MPC | 152335 | 2002 $CB_{196}$ |
| 2002 $CD_{200}$ | 13.3 | 0.15 | 20100104 | 337.47893 | 64.01137 | 341.06405 | 13.70651 | 0.0456133 | 5.1555320 | 37 | 4 | 2001–2009 | 0.57 | M-v | 0 | MPC | 162341 | 2002 $CD_{200}$ |
| 2002 $CH_{200}$ | 15.9 | 0.15 | 20100104 | 186.68770 | 290.35508 | 343.75765 | 5.13709 | 0.1254546 | 2.6380727 | 77 | 7 | 1995–2009 | 0.58 | M-v | 0 | MPC | 159677 | 2002 $CH_{200}$ |
| 2002 $CV_{202}$ | 15.8 | 0.15 | 20100104 | 329.64282 | 86.98770 | 330.95346 | 9.15636 | 0.0627898 | 2.7939649 | 32 | 3 | 2002–2009 | 0.53 | M-v | 2 | MPC | 69239 | 2002 $CV_{202}$ |
| 2002 $CR_{206}$ | 16.6 | 0.15 | 20100104 | 180.94246 | 300.66871 | 354.73572 | 6.08622 | 0.0271696 | 2.5786237 | 41 | 5 | 2002–2009 | 0.35 | M-v | 1 | MPC | 148861 | 2002 $CR_{206}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 $CD_{207}$ | 16.0 | 0.15 | 20100104 | 155.33207 | 154.65226 | 118.71242 | 5.13332 | 0.0410305 | 2.7129490 | 59 | 5 | 1999–2009 | 0.40 | M-v | 0 | MPC | 166127 | 2002 $CD_{207}$ |
| 2002 $CD_{209}$ | 17.2 | 0.15 | 20100104 | 38.01594 | 40.27282 | 122.94461 | 4.06040 | 0.1397696 | 2.3927337 | 29 | 3 | 2002–2009 | 0.42 | M-v | 2 | MPC | 100178 | 2002 $CD_{209}$ |
| 2002 $CP_{212}$ | 16.8 | 0.15 | 20100104 | 112.41350 | 25.77846 | 324.13322 | 5.13934 | 0.0754822 | 2.5926522 | 60 | 4 | 2002–2009 | 0.48 | M-v | 3 | MPC | 148861 | 2002 $CP_{212}$ |
| 2002 $CO_{214}$ | 15.8 | 0.15 | 20100104 | 146.22330 | 227.00392 | 124.74909 | 5.04549 | 0.0546550 | 2.5310706 | 100 | 6 | 2000–2009 | 0.54 | M-v | 3 | MPC | 148861 | 2002 $CO_{214}$ |
| 2002 $CX_{215}$ | 16.4 | 0.15 | 20100104 | 3.03503 | 344.57196 | 116.97865 | 4.49411 | 0.1062962 | 2.5980578 | 69 | 4 | 2002–2009 | 0.54 | M-v | 3 | MPC | 160759 | 2002 $CX_{215}$ |
| 2002 $CA_{217}$ | 17.1 | 0.15 | 20100104 | 1.45986 | 314.21279 | 132.23561 | 5.62010 | 0.2932944 | 2.5898841 | 64 | 3 | 2002–2009 | 0.44 | M-v | 2 | MPC | 166128 | 2002 $CA_{217}$ |
| 2002 $CT_{219}$ | 15.4 | 0.15 | 20100104 | 161.89040 | 234.04136 | 354.35641 | 17.15594 | 0.1082972 | 2.8961301 | 82 | 3 | 2002–2009 | 0.61 | M-v | 3 | MPC | 159677 | 2002 $CT_{219}$ |
| 2002 $CA_{220}$ | 15.7 | 0.15 | 20100104 | 337.15965 | 131.47598 | 354.63220 | 12.73684 | 0.1193557 | 2.6287789 | 99 | 7 | 1991–2009 | 0.56 | M-v | 1 | MPC | 148861 | 2002 $CA_{220}$ |
| 2002 $CQ_{220}$ | 16.0 | 0.15 | 20100104 | 352.09461 | 86.55853 | 352.11506 | 14.39357 | 0.2333008 | 2.6543414 | 97 | 3 | 2002–2009 | 0.59 | M-v | 3 | MPC | 166128 | 2002 $CQ_{220}$ |
| 2002 $CQ_{224}$ | 16.8 | 0.15 | 20100104 | 248.65763 | 192.40894 | 35.66262 | 3.26993 | 0.1435671 | 2.6473897 | 48 | 5 | 2002–2009 | 0.45 | M-v | 1 | MPC | 147204 | 2002 $CQ_{224}$ |
| 2002 $CR_{224}$ | 15.9 | 0.15 | 20100104 | 352.94812 | 52.32325 | 60.21717 | 7.18165 | 0.1155400 | 2.5980610 | 56 | 4 | 2002–2009 | 0.67 | M-v | 3 | MPC | 117997 | 2002 $CR_{224}$ |
| 2002 $CP_{225}$ | 16.4 | 0.15 | 20100104 | 346.11794 | 63.86852 | 57.10371 | 4.26397 | 0.2040481 | 2.5724394 | 109 | 3 | 2002–2009 | 0.47 | M-v | 3 | MPC | 160760 | 2002 $CP_{225}$ |
| 2002 $CH_{228}$ | 16.7 | 0.15 | 20100104 | 332.89564 | 225.00041 | 250.37461 | 4.68193 | 0.2215810 | 2.6099263 | 41 | 3 | 2002–2009 | 0.38 | M-v | 3 | MPC | 166128 | 2002 $CH_{228}$ |
| 2002 $CL_{229}$ | 17.3 | 0.15 | 20100104 | 33.27710 | 112.88093 | 309.53477 | 5.43856 | 0.2165278 | 2.5325354 | 50 | 4 | 1998–2009 | 0.41 | M-v | 3 | MPC | 94640 | 2002 $CL_{229}$ |
| 2002 $CP_{232}$ | 16.9 | 0.15 | 20100104 | 295.14630 | 119.13941 | 81.78345 | 3.08498 | 0.1932200 | 2.5644861 | 73 | 7 | 1994–2009 | 0.52 | M-v | 1 | MPC | 147204 | 2002 $CP_{232}$ |
| 2002 $CY_{233}$ | 16.4 | 0.15 | 20100104 | 285.50358 | 270.99716 | 265.01311 | 5.02113 | 0.1138918 | 2.6368885 | 66 | 6 | 2002–2009 | 0.51 | M-v | 1 | MPC | 160760 | 2002 $CY_{233}$ |
| 2002 $CM_{239}$ | 16.8 | 0.15 | 20100104 | 337.29475 | 149.93720 | 323.53584 | 4.42585 | 0.2528957 | 2.6177503 | 137 | 3 | 2002–2009 | 0.49 | M-v | 2 | MPC | 166128 | 2002 $CM_{239}$ |
| 2002 $CP_{244}$ | 16.1 | 0.15 | 20100104 | 12.17644 | 99.11125 | 346.04076 | 12.95193 | 0.2553980 | 2.6047000 | 76 | 3 | 2002–2009 | 0.49 | M-v | 2 | MPC | 164181 | 2002 $CP_{244}$ |
| 2002 $CY_{252}$ | 17.0 | 0.15 | 20100104 | 332.35928 | 261.52020 | 253.11942 | 4.32865 | 0.1992871 | 2.5426209 | 31 | 3 | 2002–2009 | 0.42 | M-v | 3 | MPC | 94647 | 2002 $CY_{252}$ |
| 2002 $CE_{253}$ | 15.8 | 0.15 | 20100104 | 196.46265 | 189.19153 | 14.02561 | 8.48085 | 0.1183815 | 2.8013711 | 88 | 5 | 2002–2009 | 0.50 | M-v | 1 | MPC | 166128 | 2002 $CE_{253}$ |
| 2002 $CR_{253}$ | 16.5 | 0.15 | 20100104 | 309.89346 | 61.75382 | 109.86183 | 6.20054 | 0.0825158 | 2.5290031 | 66 | 4 | 1994–2009 | 0.48 | M-v | 3 | MPC | 166128 | 2002 $CR_{253}$ |
| 2002 $CZ_{253}$ | 16.3 | 0.15 | 20100104 | 33.33564 | 125.99829 | 254.07471 | 10.71016 | 0.1980794 | 2.6364662 | 71 | 3 | 2000–2009 | 0.52 | M-v | 2 | MPC | 166128 | 2002 $CZ_{253}$ |
| 2002 $CV_{254}$ | 16.1 | 0.15 | 20100104 | 272.17995 | 287.65550 | 279.48359 | 10.95259 | 0.1059632 | 2.5786165 | 40 | 4 | 2002–2009 | 0.42 | M-v | 2 | MPC | 166128 | 2002 $CV_{254}$ |
| 2002 $CB_{256}$ | 15.9 | 0.15 | 20100104 | 3.05553 | 263.37972 | 163.71603 | 7.58639 | 0.1788232 | 2.6062093 | 82 | 4 | 2002–2009 | 0.56 | M-v | 2 | MPC | 166128 | 2002 $CB_{256}$ |
| 2002 $CN_{261}$ | 16.1 | 0.15 | 20100104 | 358.02104 | 347.21465 | 93.10777 | 5.20084 | 0.1581241 | 2.6012354 | 99 | 4 | 2002–2009 | 0.42 | M-v | 2 | MPC | 166128 | 2002 $CN_{261}$ |
| 2002 $CG_{263}$ | 15.5 | 0.15 | 20100104 | 335.83808 | 52.04028 | 89.89689 | 16.16094 | 0.0798641 | 2.5825458 | 91 | 5 | 1998–2009 | 0.60 | M-v | 2 | MPC | 166128 | 2002 $CG_{263}$ |
| 2002 $CV_{263}$ | 17.4 | 0.15 | 20100104 | 272.72076 | 44.62925 | 145.00998 | 5.35423 | 0.1278552 | 2.6292543 | 33 | 6 | 1998–2009 | 0.51 | M-v | 1 | MPC | 147205 | 2002 $CV_{263}$ |
| 2002 $CD_{265}$ | 17.3 | 0.15 | 20100104 | 48.91196 | 83.67976 | 327.85037 | 2.94568 | 0.1491454 | 2.5524863 | 42 | 5 | 2002–2009 | 0.38 | M-v | 1 | MPC | 166128 | 2002 $CD_{265}$ |
| 2002 $CF_{271}$ | 16.5 | 0.15 | 20100104 | 31.58729 | 292.82690 | 107.29189 | 4.27836 | 0.1901979 | 2.6098316 | 70 | 5 | 2000–2009 | 0.39 | M-v | 1 | MPC | 166128 | 2002 $CF_{271}$ |
| 2002 $CE_{272}$ | 15.7 | 0.15 | 20100104 | 291.60438 | 281.61752 | 238.16595 | 10.54195 | 0.2028720 | 2.6374735 | 69 | 2 | 2002–2009 | 0.52 | M-v | 3 | MPC | 165324 | 2002 $CE_{272}$ |
| 2002 $CS_{274}$ | 16.8 | 0.15 | 20100104 | 227.68068 | 78.69463 | 141.45285 | 4.36926 | 0.0183514 | 2.6541469 | 46 | 7 | 1995–2009 | 0.39 | M-v | 0 | MPC | 141779 | 2002 $CS_{274}$ |
| 2002 $CJ_{285}$ | 16.4 | 0.15 | 20100104 | 74.00775 | 50.77501 | 320.53001 | 4.36177 | 0.2793551 | 2.5305764 | 53 | 5 | 1994–2009 | 0.40 | M-v | 3 | MPC | 166128 | 2002 $CJ_{285}$ |
| 2002 $CE_{288}$ | 15.2 | 0.15 | 20100104 | 64.20484 | 199.75139 | 163.63115 | 16.06592 | 0.2152223 | 2.7328831 | 88 | 5 | 2002–2009 | 0.51 | M-v | 1 | MPC | 119572 | 2002 $CE_{288}$ |
| 2002 $CA_{289}$ | 16.1 | 0.15 | 20100104 | 210.74830 | 167.47818 | 85.06848 | 14.55126 | 0.0452398 | 2.5676058 | 51 | 6 | 2000–2009 | 0.47 | M-v | 1 | MPC | 120762 | 2002 $CA_{289}$ |
| 2002 $CM_{289}$ | 16.3 | 0.15 | 20100104 | 292.47428 | 195.78178 | 357.20958 | 12.67901 | 0.1405141 | 2.5418095 | 48 | 6 | 1996–2009 | 0.38 | M-v | 2 | MPC | 162342 | 2002 $CM_{289}$ |
| 2002 $CT_{289}$ | 16.7 | 0.15 | 20100104 | 24.49679 | 56.11118 | 6.65822 | 11.41185 | 0.2613063 | 2.5428610 | 72 | 5 | 1960–2009 | 0.57 | M-v | 2 | MPC | 157362 | 2002 $CT_{289}$ |
| 2002 $CZ_{289}$ | 15.5 | 0.15 | 20100104 | 225.99467 | 150.84190 | 88.83721 | 14.88579 | 0.2154971 | 2.6296847 | 35 | 4 | 2002–2009 | 0.44 | M-v | 2 | MPC | 166128 | 2002 $CZ_{289}$ |
| 2002 $CJ_{290}$ | 16.5 | 0.15 | 20100104 | 10.38857 | 82.37103 | 4.38965 | 10.70906 | 0.2470551 | 2.5464264 | 69 | 3 | 2002–2009 | 0.53 | M-v | 3 | MPC | 94661 | 2002 $CJ_{290}$ |
| 2002 $CF_{294}$ | 15.8 | 0.15 | 20100104 | 314.80042 | 47.24328 | 96.69611 | 15.52941 | 0.0427901 | 2.5767887 | 100 | 5 | 2001–2009 | 0.51 | M-v | 1 | MPC | 147205 | 2002 $CF_{294}$ |
| 2002 $CK_{294}$ | 15.6 | 0.15 | 20100104 | 249.00243 | 137.58313 | 97.77641 | 14.27900 | 0.0968755 | 2.5404218 | 66 | 3 | 2002–2009 | 0.48 | M-v | 4 | MPC | 166128 | 2002 $CK_{294}$ |
| 2002 $CT_{299}$ | 15.4 | 0.15 | 20100104 | 8.58492 | 199.33651 | 217.43595 | 13.41068 | 0.2353418 | 2.6306167 | 119 | 4 | 2000–2009 | 0.43 | M-v | 1 | MPC | 166128 | 2002 $CT_{299}$ |
| 2002 $CT_{301}$ | 16.4 | 0.15 | 20100104 | 76.26553 | 38.77616 | 326.21912 | 4.10504 | 0.2519830 | 2.5515392 | 45 | 4 | 1998–2009 | 0.33 | M-v | 3 | MPC | 100190 | 2002 $CT_{301}$ |
| 2002 $CG_{302}$ | 16.5 | 0.15 | 20100104 | 312.64575 | 27.23922 | 115.28695 | 7.82959 | 0.1296781 | 2.6250973 | 66 | 3 | 2002–2009 | 0.48 | M-v | 3 | MPC | 166128 | 2002 $CG_{302}$ |
| 2002 $CJ_{304}$ | 16.7 | 0.15 | 20100104 | 320.00500 | 134.96754 | 318.14837 | 4.18022 | 0.1278678 | 2.7214053 | 47 | 3 | 2002–2009 | 0.40 | M-v | 3 | MPC | 164182 | 2002 $CJ_{304}$ |
| 2002 $CB_{306}$ | 17.2 | 0.15 | 20100104 | 339.15650 | 35.62852 | 110.86118 | 5.02442 | 0.1887739 | 2.5458376 | 50 | 4 | 2000–2009 | 0.42 | M-v | 2 | MPC | 166128 | 2002 $CB_{306}$ |
| 2002 $CV_{309}$ | 16.8 | 0.15 | 20100104 | 348.74003 | 19.63052 | 154.14124 | 11.65338 | 0.1121493 | 2.4583192 | 70 | 3 | 2002–2009 | 0.43 | M-v | 3 | MPC | 94668 | 2002 $CV_{309}$ |
| 2002 $CY_{310}$ | 17.2 | 0.15 | 20100104 | 339.08711 | 100.68866 | 3.75443 | 2.03051 | 0.1709609 | 2.6280642 | 58 | 3 | 2002–2009 | 0.48 | M-v | 3 | MPC | 166129 | 2002 $CY_{310}$ |
| 2002 $CW_{314}$ | 17.2 | 0.15 | 20100104 | 4.90610 | 191.02321 | 274.44249 | 6.11840 | 0.2051219 | 2.5544930 | 41 | 4 | 1996–2009 | 0.31 | M-v | 2 | MPC | 166129 | 2002 $CW_{314}$ |
| 2002 $CL_{316}$ | 17.5 | 0.15 | 20020126 | 41.64968 | 130.49156 | 303.66945 | 7.76838 | 0.1906493 | 2.6383114 | 21 | 1 | 46 days | 0.24 | | | MPC | | 2002 $CL_{316}$ |
| 2002 $DG_1$ | 16.0 | 0.15 | 20100104 | 221.58886 | 132.92438 | 126.76485 | 9.43038 | 0.0755373 | 2.5960788 | 54 | 4 | 2002–2009 | 0.44 | M-v | 1 | MPC | 147206 | 2002 $DG_1$ |
| 2002 $DP_3$ | 16.5 | 0.15 | 20100104 | 5.70287 | 355.43059 | 67.57945 | 10.69385 | 0.4912849 | 2.5888927 | 193 | 3 | 2002–2009 | 0.44 | M-v | 1 | MPC | 166129 | 2002 $DP_3$ |
| 2002 $DA_4$ | 16.9 | 0.15 | 20100104 | 334.95909 | 76.13793 | 27.53809 | 26.90919 | 0.4352290 | 2.6094186 | 42 | 3 | 2002–2009 | 0.57 | M-v | 2 | MPC | 97576 | 2002 $DA_4$ |
| 2002 $DE_7$ | 15.6 | 0.15 | 20100104 | 320.96303 | 96.30190 | 34.68567 | 13.38067 | 0.2832618 | 2.5983007 | 129 | 3 | 2001–2009 | 0.52 | M-v | 2 | MPC | 166129 | 2002 $DE_7$ |

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| 2002 $DD_{8}$ | 15.4 | 0.15 | 20100104 | 333.62226 | 45.73788 | 67.12850 | 13.71803 | 0.1872909 | 2.6009702 | 155 | 4 | 1998–2009 | 0.47 | M-v | 2 | MPC | 166129 | 2002 $DD_{8}$ |
| 2002 $DM_{8}$ | 16.5 | 0.15 | 20100104 | 347.44585 | 14.90544 | 99.55002 | 15.52976 | 0.2024209 | 2.5647236 | 103 | 3 | 2002–2009 | 0.54 | M-v | 3 | MPC | 162343 | 2002 $DM_{8}$ |
| 2002 $DA_{9}$ | 15.6 | 0.15 | 20100104 | 345.84716 | 66.35328 | 49.84759 | 12.73392 | 0.0731521 | 2.5798691 | 72 | 4 | 2002–2009 | 0.61 | M-v | 3 | MPC | 97577 | 2002 $DA_{9}$ |
| 2002 $DC_{15}$ | 16.3 | 0.15 | 20100104 | 32.47826 | 207.87839 | 196.19761 | 4.87252 | 0.3033028 | 2.5846605 | 68 | 5 | 1992–2009 | 0.53 | M-v | 1 | MPC | 166129 | 2002 $DC_{15}$ |
| 2002 $DC_{17}$ | 15.8 | 0.15 | 20100104 | 274.88418 | 117.97778 | 96.33914 | 12.93554 | 0.1124126 | 2.5832928 | 45 | 4 | 2002–2009 | 0.57 | M-v | 3 | MPC | 166129 | 2002 $DC_{17}$ |
| 2002 $DD_{17}$ | 15.7 | 0.15 | 20100104 | 268.09361 | 96.91579 | 85.45923 | 12.74955 | 0.1508034 | 2.6755146 | 79 | 4 | 1998–2009 | 0.52 | M-v | 2 | MPC | 166129 | 2002 $DD_{17}$ |
| 2002 $DD_{18}$ | 17.2 | 0.15 | 20100104 | 317.58045 | 182.88738 | 340.94440 | 2.92019 | 0.1292889 | 2.5790970 | 55 | 4 | 2002–2009 | 0.36 | M-v | 3 | MPC | 166129 | 2002 $DD_{18}$ |
| 2002 $DU_{18}$ | 16.1 | 0.15 | 20100104 | 288.56084 | 102.26355 | 56.16264 | 12.38187 | 0.1347770 | 2.6342866 | 41 | 3 | 2002–2009 | 0.37 | M-v | 1 | MPC | 165324 | 2002 $DU_{18}$ |
| 2002 $DV_{18}$ | 16.7 | 0.15 | 20100104 | 328.91026 | 116.50398 | 41.39878 | 13.12898 | 0.2305571 | 2.5442610 | 24 | 3 | 2002–2009 | 0.63 | M-v | 4 | MPC | 94678 | 2002 $DV_{18}$ |
| 2002 $DA_{20}$ | 15.2 | 0.15 | 20100104 | 12.54023 | 50.24030 | 39.92602 | 22.66831 | 0.1018614 | 2.6117340 | 40 | 4 | 2000–2009 | 0.57 | M-v | 1 | MPC | 166129 | 2002 $DA_{20}$ |
| 2002 $DR_{20}$ | 18.2 | 0.15 | 20020307 | 17.49094 | 88.97875 | 61.50587 | 5.82329 | 0.0413884 | 2.3078915 | 7 | 1 | 39 days | 0.46 | | | MPC | | 2002 $DR_{20}$ |
| 2002 EK | 14.9 | 0.15 | 20100104 | 316.15087 | 46.03237 | 81.69712 | 32.73173 | 0.2286506 | 2.6406406 | 100 | 3 | 2001–2009 | 0.53 | M-v | 2 | MPC | 166129 | 2002 EK |
| 2002 $EB_{16}$ | 16.6 | 0.15 | 20100104 | 275.32437 | 230.94041 | 326.07116 | 6.88659 | 0.0950787 | 2.6694722 | 49 | 5 | 2002–2009 | 0.46 | M-v | 2 | MPC | 147206 | 2002 $EB_{16}$ |
| 2002 $EM_{21}$ | 16.8 | 0.15 | 20100104 | 279.34178 | 102.85948 | 70.33012 | 4.13641 | 0.2540236 | 2.6768371 | 41 | 3 | 2002–2009 | 0.40 | M-v | 3 | MPC | 166129 | 2002 $EM_{21}$ |
| 2002 $EN_{27}$ | 17.2 | 0.15 | 20100104 | 310.82345 | 174.18900 | 6.95770 | 3.69764 | 0.1922734 | 2.5849811 | 49 | 3 | 2002–2009 | 0.47 | M-v | 3 | MPC | 94685 | 2002 $EN_{27}$ |
| 2002 $EV_{28}$ | 16.2 | 0.15 | 20100104 | 344.95213 | 98.02762 | 9.91509 | 5.46653 | 0.0727857 | 2.6553005 | 72 | 6 | 1991–2009 | 0.66 | M-v | 0 | MPC | 147207 | 2002 $EV_{28}$ |
| 2002 $EM_{33}$ | 16.1 | 0.15 | 20100104 | 146.96233 | 60.60274 | 99.43790 | 6.18062 | 0.0639120 | 3.1399304 | 36 | 5 | 2000–2008 | 0.49 | M-v | 0 | MPC | 160306 | 2002 $EM_{33}$ |
| 2002 $ET_{33}$ | 16.8 | 0.15 | 20100104 | 349.16852 | 68.85792 | 31.20835 | 4.65679 | 0.1715645 | 2.6241765 | 49 | 4 | 2000–2009 | 0.56 | M-v | 1 | MPC | 166129 | 2002 $ET_{33}$ |
| 2002 $EK_{37}$ | 16.2 | 0.15 | 20100104 | 57.61573 | 223.42187 | 100.93985 | 3.37171 | 0.0580542 | 2.9075046 | 42 | 4 | 2001–2009 | 0.33 | M-v | 1 | MPC | 117434 | 2002 $EK_{37}$ |
| 2002 $EY_{40}$ | 14.6 | 0.15 | 20100104 | 100.76866 | 242.94206 | 10.87728 | 26.31069 | 0.2474786 | 3.1551697 | 68 | 2 | 2002–2009 | 0.53 | M-v | 4 | MPC | 166129 | 2002 $EY_{40}$ |
| 2002 $ER_{48}$ | 16.8 | 0.15 | 20100104 | 339.17918 | 297.93170 | 176.66321 | 7.88766 | 0.1676622 | 2.6406828 | 31 | 4 | 1996–2009 | 0.49 | M-v | 1 | MPC | 69284 | 2002 $ER_{48}$ |
| 2002 $EK_{56}$ | 16.8 | 0.15 | 20100104 | 348.16849 | 284.75919 | 199.87034 | 3.70456 | 0.1145130 | 2.5737679 | 65 | 6 | 1992–2009 | 0.48 | M-v | 1 | MPC | 147207 | 2002 $EK_{56}$ |
| 2002 $EO_{61}$ | 16.9 | 0.15 | 20100104 | 17.73108 | 266.99994 | 177.93525 | 3.13274 | 0.1854463 | 2.5889201 | 62 | 6 | 1992–2009 | 0.40 | M-v | 0 | MPC | 147207 | 2002 $EO_{61}$ |
| 2002 $EB_{68}$ | 16.2 | 0.15 | 20100104 | 232.31768 | 62.36675 | 187.87470 | 2.89029 | 0.1602645 | 2.6626983 | 81 | 4 | 2002–2009 | 0.54 | M-v | 1 | MPC | 152338 | 2002 $EB_{68}$ |
| 2002 $EF_{69}$ | 16.6 | 0.15 | 20100104 | 272.11284 | 27.74468 | 188.49988 | 5.42480 | 0.1978802 | 2.6350357 | 41 | 6 | 2002–2009 | 0.50 | M-v | 1 | MPC | 147207 | 2002 $EF_{69}$ |
| 2002 $EM_{69}$ | 15.2 | 0.15 | 20100104 | 183.82728 | 293.28401 | 352.12446 | 7.20447 | 0.2855767 | 2.7529992 | 121 | 5 | 2002–2009 | 0.58 | M-v | 2 | MPC | 147207 | 2002 $EM_{69}$ |
| 2002 $EV_{71}$ | 14.6 | 0.15 | 20100104 | 348.37615 | 131.94304 | 354.07516 | 10.95345 | 0.3134005 | 4.2757653 | 44 | 4 | 2002–2009 | 0.60 | M-v | 1 | MPC | 147208 | 2002 $EV_{71}$ |
| 2002 $ET_{73}$ | 15.7 | 0.15 | 20100104 | 291.14619 | 236.80594 | 0.01639 | 7.87159 | 0.1122115 | 2.5467486 | 86 | 8 | 1998–2009 | 0.51 | M-v | 1 | MPC | 121778 | 2002 $ET_{73}$ |
| 2002 $ES_{77}$ | 14.2 | 0.15 | 20020215 | 27.84185 | 323.22452 | 168.50162 | 9.01257 | 0.1032276 | 5.3827987 | 15 | 1 | 30 days | 0.48 | | E | MPC | | 2002 $ES_{77}$ |
| 2002 $EO_{81}$ | 16.5 | 0.15 | 20100104 | 275.76552 | 240.70739 | 321.05708 | 6.68965 | 0.0473422 | 2.6141008 | 65 | 5 | 1999–2009 | 0.47 | M-v | 3 | MPC | 148863 | 2002 $EO_{81}$ |
| 2002 $EW_{93}$ | 16.7 | 0.15 | 20100104 | 7.58393 | 285.05099 | 149.78007 | 6.04302 | 0.2542273 | 2.6103826 | 95 | 3 | 2002–2009 | 0.51 | M-v | 2 | MPC | 166130 | 2002 $EW_{93}$ |
| 2002 $EG_{96}$ | 17.5 | 0.15 | 20100104 | 344.86061 | 359.88303 | 146.39727 | 2.57024 | 0.1388429 | 2.5595990 | 40 | 4 | 2002–2009 | 0.39 | M-v | 3 | MPC | 110866 | 2002 $EG_{96}$ |
| 2002 $EL_{99}$ | 15.8 | 0.15 | 20100104 | 287.52106 | 135.76828 | 54.63428 | 10.58109 | 0.1542947 | 2.5767687 | 60 | 5 | 2000–2009 | 0.54 | M-v | 2 | MPC | 143150 | 2002 $EL_{99}$ |
| 2002 $EN_{99}$ | 17.2 | 0.15 | 20100104 | 343.64993 | 73.16405 | 58.94082 | 3.13439 | 0.2328311 | 2.5509924 | 65 | 4 | 1998–2009 | 0.58 | M-v | 3 | MPC | 166130 | 2002 $EN_{99}$ |
| 2002 $EP_{102}$ | 15.6 | 0.15 | 20100104 | 176.49926 | 348.01642 | 311.06963 | 10.56189 | 0.0822517 | 2.6297081 | 71 | 6 | 1993–2009 | 0.56 | M-v | 1 | MPC | 147208 | 2002 $EP_{102}$ |
| 2002 $EC_{103}$ | 16.6 | 0.15 | 20100104 | 337.07348 | 313.36584 | 0.95157 | 6.15249 | 0.1317200 | 2.2528663 | 72 | 3 | 2002–2009 | 0.49 | M-v | 3 | MPC | 52927 | 2002 $EC_{103}$ |
| 2002 $ES_{103}$ | 17.0 | 0.15 | 20100104 | 103.44587 | 160.40475 | 167.77630 | 5.13741 | 0.1148269 | 2.7094328 | 45 | 6 | 1995–2009 | 0.31 | M-v | 0 | MPC | 147208 | 2002 $ES_{103}$ |
| 2002 $EV_{103}$ | 16.0 | 0.15 | 20100104 | 21.85450 | 33.84754 | 61.06698 | 13.55384 | 0.2439186 | 2.5590229 | 40 | 4 | 2002–2009 | 0.50 | M-v | 2 | MPC | 102087 | 2002 $EV_{103}$ |
| 2002 $ED_{105}$ | 16.3 | 0.15 | 20100104 | 279.54725 | 76.91499 | 128.99017 | 10.35554 | 0.0942773 | 2.5945637 | 39 | 3 | 2002–2009 | 0.44 | M-v | 3 | MPC | 94703 | 2002 $ED_{105}$ |
| 2002 $ET_{105}$ | 16.9 | 0.15 | 20100104 | 326.07072 | 71.06869 | 53.02805 | 5.26935 | 0.2004808 | 2.6456720 | 72 | 5 | 1993–2009 | 0.47 | M-v | 0 | MPC | 166130 | 2002 $ET_{105}$ |
| 2002 $EH_{107}$ | 16.2 | 0.15 | 20100104 | 338.21599 | 101.65891 | 55.89952 | 7.64724 | 0.2289724 | 2.5566518 | 97 | 5 | 1998–2009 | 0.64 | M-v | 3 | MPC | 166130 | 2002 $EH_{107}$ |
| 2002 $EU_{110}$ | 16.0 | 0.15 | 20100104 | 316.11326 | 104.88554 | 56.69341 | 7.83599 | 0.1614798 | 2.6199957 | 73 | 3 | 2002–2009 | 0.53 | M-v | 3 | MPC | 164183 | 2002 $EU_{110}$ |
| 2002 $EL_{111}$ | 16.4 | 0.15 | 20100104 | 321.20413 | 89.03748 | 81.41589 | 5.10635 | 0.1120289 | 2.5869669 | 40 | 5 | 1994–2009 | 0.51 | M-v | 3 | MPC | 166130 | 2002 $EL_{111}$ |
| 2002 $EP_{113}$ | 16.6 | 0.15 | 20100104 | 334.03876 | 181.09947 | 301.31591 | 12.42094 | 0.2196863 | 2.6044672 | 108 | 4 | 2000–2009 | 0.51 | M-v | 1 | MPC | 166130 | 2002 $EP_{113}$ |
| 2002 $EU_{124}$ | 16.6 | 0.15 | 20100104 | 285.63862 | 120.31521 | 88.10713 | 6.19342 | 0.1998107 | 2.6155047 | 60 | 5 | 1998–2009 | 0.55 | M-v | 2 | MPC | 147209 | 2002 $EU_{124}$ |
| 2002 $ES_{129}$ | 16.2 | 0.15 | 20100104 | 62.28341 | 112.37045 | 176.19598 | 13.33647 | 0.2879073 | 3.1661634 | 34 | 4 | 2002–2009 | 0.39 | M-v | 0 | MPC | 166130 | 2002 $ES_{129}$ |
| 2002 $EK_{130}$ | 15.7 | 0.15 | 20100104 | 249.42200 | 326.01663 | 292.84946 | 10.72345 | 0.4357179 | 2.6405701 | 66 | 5 | 2001–2009 | 0.55 | M-v | 1 | MPC | 128749 | 2002 $EK_{130}$ |
| 2002 $EV_{133}$ | 16.3 | 0.15 | 20100104 | 18.61028 | 231.75227 | 205.05612 | 3.60615 | 0.1736880 | 2.6104862 | 44 | 6 | 2000–2009 | 0.60 | M-v | 1 | MPC | 120763 | 2002 $EV_{133}$ |
| 2002 $ES_{137}$ | 16.3 | 0.15 | 20100104 | 22.75696 | 36.25243 | 4.08624 | 6.41906 | 0.0470456 | 2.7577404 | 46 | 4 | 1993–2009 | 0.48 | M-v | 1 | MPC | 166130 | 2002 $ES_{137}$ |
| 2002 $EK_{138}$ | 16.3 | 0.15 | 20100104 | 69.90397 | 253.59599 | 147.94944 | 5.73646 | 0.0445401 | 2.6255979 | 66 | 6 | 1995–2009 | 0.45 | M-v | 1 | MPC | 147209 | 2002 $EK_{138}$ |
| 2002 $EG_{139}$ | 16.6 | 0.15 | 20100104 | 62.94090 | 16.90332 | 33.80883 | 4.01279 | 0.0939887 | 2.6081055 | 74 | 6 | 1994–2009 | 0.45 | M-v | 1 | MPC | 159678 | 2002 $EG_{139}$ |
| 2002 $EA_{141}$ | 16.4 | 0.15 | 20100104 | 238.19735 | 241.72007 | 1.81704 | 5.93590 | 0.0503361 | 2.6007095 | 42 | 4 | 2002–2009 | 0.46 | M-v | 2 | MPC | 158427 | 2002 $EA_{141}$ |
| 2002 $EE_{143}$ | 16.6 | 0.15 | 20100104 | 275.11393 | 190.72672 | 23.58481 | 3.32791 | 0.1130342 | 2.6085519 | 48 | 4 | 2002–2009 | 0.47 | M-v | 3 | MPC | 166130 | 2002 $EE_{143}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 $EY_{152}$ | 16.3 | 0.15 | 20100104 | 29.72220 | 80.03047 | 352.15197 | 5.85844 | 0.0255281 | 2.6634540 | 68 | 6 | 1995–2009 | 0.45 | M-v | 0 | MPC | 148864 | 2002 $EY_{152}$ |
| 2002 $EV_{155}$ | 16.2 | 0.15 | 20100104 | 232.41009 | 210.94310 | 27.18269 | 4.36696 | 0.1256230 | 2.6828054 | 49 | 6 | 1999–2009 | 0.44 | M-v | 1 | MPC | 150926 | 2002 $EV_{155}$ |
| 2002 $EF_{163}$ | 16.4 | 0.15 | 20100104 | 230.71631 | 282.22658 | 320.31919 | 10.53836 | 0.1570815 | 2.6464233 | 34 | 5 | 2002–2009 | 0.30 | M-v | 1 | MPC | 163625 | 2002 $EF_{163}$ |
| 2002 $EL_{163}$ | 17.8 | 0.15 | 20020327 | 9.95919 | 307.02708 | 230.56619 | 2.57552 | 0.1108246 | 2.3819356 | 9 | 1 | 32 days | 0.42 | | | MPC | | 2002 $EL_{163}$ |
| 2002 FS | 16.9 | 0.15 | 20100104 | 317.39986 | 301.85957 | 232.97150 | 4.74766 | 0.2186435 | 2.5921827 | 61 | 3 | 2002–2009 | 0.54 | M-v | 3 | MPC | 94715 | 2002 FS |
| 2002 $FA_1$ | 16.2 | 0.15 | 20100104 | 346.69149 | 100.50409 | 0.10851 | 6.59253 | 0.2951957 | 2.6389397 | 156 | 3 | 2002–2009 | 0.56 | M-v | 2 | MPC | 166130 | 2002 $FA_1$ |
| 2002 $FS_7$ | 17.0 | 0.15 | 20100104 | 354.67723 | 266.34158 | 205.21680 | 2.81341 | 0.1416130 | 2.5914017 | 46 | 5 | 2002–2009 | 0.38 | M-v | 1 | MPC | 166130 | 2002 $FS_7$ |
| 2002 $FJ_8$ | 17.1 | 0.15 | 20100104 | 318.91076 | 212.09365 | 319.70155 | 4.32305 | 0.2384165 | 2.5828729 | 69 | 3 | 2002–2009 | 0.60 | M-v | 3 | MPC | 102090 | 2002 $FJ_8$ |
| 2002 $FW_{15}$ | 15.9 | 0.15 | 20100104 | 231.56139 | 134.84092 | 80.06269 | 7.80758 | 0.0321729 | 2.7212244 | 40 | 4 | 2002–2009 | 0.44 | M-v | 2 | MPC | 165325 | 2002 $FW_{15}$ |
| 2002 $FR_{16}$ | 15.8 | 0.15 | 20100104 | 285.84430 | 32.25661 | 135.11485 | 10.54741 | 0.1508974 | 2.7182188 | 86 | 5 | 2001–2009 | 0.53 | M-v | 2 | MPC | 143152 | 2002 $FR_{16}$ |
| 2002 $FD_{20}$ | 16.4 | 0.15 | 20100104 | 302.73507 | 51.86488 | 119.05281 | 8.50714 | 0.1421561 | 2.6153181 | 100 | 6 | 1994–2009 | 0.51 | M-v | 1 | MPC | 162345 | 2002 $FD_{20}$ |
| 2002 $FE_{20}$ | 16.1 | 0.15 | 20100104 | 302.88488 | 93.59383 | 88.22613 | 8.91323 | 0.1581512 | 2.5919080 | 79 | 4 | 1998–2009 | 0.55 | M-v | 2 | MPC | 166130 | 2002 $FE_{20}$ |
| 2002 $FJ_{22}$ | 15.6 | 0.15 | 20100104 | 261.69002 | 130.75936 | 58.31756 | 12.88787 | 0.1406879 | 2.7120618 | 81 | 3 | 2002–2009 | 0.50 | M-v | 2 | MPC | 166130 | 2002 $FJ_{22}$ |
| 2002 $FA_{26}$ | 16.1 | 0.15 | 20100104 | 279.68390 | 113.93213 | 101.78047 | 13.75017 | 0.2261692 | 2.6174127 | 70 | 5 | 1998–2009 | 0.59 | M-v | 2 | MPC | 166130 | 2002 $FA_{26}$ |
| 2002 $FT_{33}$ | 16.5 | 0.15 | 20100104 | 318.96690 | 98.74923 | 59.61361 | 10.18797 | 0.2157240 | 2.6207954 | 83 | 4 | 1996–2009 | 0.61 | M-v | 1 | MPC | 143152 | 2002 $FT_{33}$ |
| 2002 $GL_5$ | 16.1 | 0.15 | 20100104 | 125.59601 | 297.38764 | 8.65979 | 3.63396 | 0.2987628 | 2.0892187 | 195 | 6 | 1999–2009 | 0.54 | M-v | 2 | MPC | 139166 | 2002 $GL_5$ |
| 2002 $GD_9$ | 15.8 | 0.15 | 20100104 | 315.78059 | 89.44474 | 71.48949 | 4.44843 | 0.2093793 | 2.6446521 | 129 | 4 | 2002–2009 | 0.47 | M-v | 2 | MPC | 162345 | 2002 $GD_9$ |
| 2002 $GM_{14}$ | 15.9 | 0.15 | 20100104 | 327.41061 | 304.64204 | 214.40518 | 11.96391 | 0.1824694 | 2.6507686 | 66 | 5 | 2002–2009 | 0.41 | M-v | 1 | MPC | 147211 | 2002 $GM_{14}$ |
| 2002 $GN_{30}$ | 15.8 | 0.15 | 20100104 | 292.92232 | 89.80628 | 63.04031 | 5.56347 | 0.0980737 | 2.7313856 | 49 | 3 | 2002–2009 | 0.61 | M-v | 3 | MPC | 94729 | 2002 $GN_{30}$ |
| 2002 $GF_{37}$ | 16.3 | 0.15 | 20100104 | 310.41639 | 98.23763 | 122.94919 | 5.53561 | 0.1141257 | 2.5192698 | 47 | 6 | 1992–2009 | 0.52 | M-v | 2 | MPC | 148865 | 2002 $GF_{37}$ |
| 2002 $GN_{43}$ | 16.7 | 0.15 | 20100104 | 301.43279 | 233.17749 | 317.99121 | 3.70730 | 0.1751570 | 2.6212689 | 80 | 4 | 2002–2009 | 0.44 | M-v | 2 | MPC | 166131 | 2002 $GN_{43}$ |
| 2002 $GK_{47}$ | 15.5 | 0.15 | 20100104 | 269.98047 | 249.30470 | 314.08813 | 12.61732 | 0.0588705 | 2.6319928 | 100 | 4 | 2002–2009 | 0.52 | M-v | 2 | MPC | 160762 | 2002 $GK_{47}$ |
| 2002 $GJ_{48}$ | 17.5 | 0.15 | 20100104 | 318.17447 | 186.75960 | 349.03409 | 0.49069 | 0.2069122 | 2.6011657 | 55 | 3 | 2002–2009 | 0.40 | M-v | 2 | MPC | 102093 | 2002 $GJ_{48}$ |
| 2002 $GL_{49}$ | 16.4 | 0.15 | 20100104 | 232.98147 | 305.30668 | 277.20373 | 9.08762 | 0.2442155 | 2.7215513 | 39 | 4 | 2002–2009 | 0.46 | M-v | 2 | MPC | 147211 | 2002 $GL_{49}$ |
| 2002 $GZ_{51}$ | 16.3 | 0.15 | 20100104 | 240.25234 | 230.60219 | 57.70169 | 4.60193 | 0.1150214 | 2.5686322 | 56 | 8 | 1994–2009 | 0.51 | M-v | 1 | MPC | 152340 | 2002 $GZ_{51}$ |
| 2002 $GD_{61}$ | 16.2 | 0.15 | 20100104 | 276.02391 | 120.57712 | 46.76231 | 5.21029 | 0.0439850 | 2.7592299 | 47 | 3 | 2002–2009 | 0.24 | M-v | 3 | MPC | 166131 | 2002 $GD_{61}$ |
| 2002 $GC_{69}$ | 16.4 | 0.15 | 20100104 | 319.06589 | 92.50212 | 40.78455 | 5.51300 | 0.0612476 | 2.7204209 | 53 | 5 | 1993–2009 | 0.44 | M-v | 1 | MPC | 166131 | 2002 $GC_{69}$ |
| 2002 $GT_{72}$ | 15.8 | 0.15 | 20100104 | 203.15890 | 159.87741 | 102.52295 | 4.14179 | 0.1433123 | 2.7378708 | 45 | 5 | 2002–2009 | 0.53 | M-v | 1 | MPC | 147212 | 2002 $GT_{72}$ |
| 2002 $GM_{78}$ | 16.0 | 0.15 | 20100104 | 335.75296 | 126.85270 | 12.50829 | 12.79520 | 0.1147022 | 2.6623164 | 50 | 5 | 2002–2009 | 0.69 | M-v | 1 | MPC | 147212 | 2002 $GM_{78}$ |
| 2002 $GR_{79}$ | 15.8 | 0.15 | 20100104 | 276.65291 | 111.40106 | 78.03172 | 15.58327 | 0.0928457 | 2.6855806 | 44 | 3 | 2002–2009 | 0.62 | M-v | 3 | MPC | 94740 | 2002 $GR_{79}$ |
| 2002 $GT_{79}$ | 16.1 | 0.15 | 20100104 | 236.90366 | 134.12635 | 77.02738 | 15.45701 | 0.1036763 | 2.7523820 | 41 | 4 | 2000–2009 | 0.53 | M-v | 1 | MPC | 166131 | 2002 $GT_{79}$ |
| 2002 $GH_{83}$ | 15.8 | 0.15 | 20100104 | 268.15967 | 103.66360 | 115.59339 | 5.68179 | 0.1115009 | 2.6671035 | 65 | 6 | 2002–2009 | 0.52 | M-v | 1 | MPC | 162346 | 2002 $GH_{83}$ |
| 2002 $GQ_{84}$ | 16.1 | 0.15 | 20100104 | 309.16705 | 108.23228 | 48.47071 | 13.61675 | 0.2270512 | 2.6705565 | 79 | 3 | 2002–2009 | 0.48 | M-v | 2 | MPC | 166131 | 2002 $GQ_{84}$ |
| 2002 $GB_{91}$ | 16.7 | 0.15 | 20100104 | 285.64864 | 144.26365 | 47.16596 | 8.41702 | 0.1697826 | 2.6844651 | 33 | 4 | 2002–2009 | 0.48 | M-v | 2 | MPC | 160762 | 2002 $GB_{91}$ |
| 2002 $GH_{96}$ | 15.4 | 0.15 | 20100104 | 124.22275 | 39.26063 | 220.05842 | 7.12210 | 0.1017613 | 3.0235347 | 57 | 6 | 1997–2009 | 0.54 | M-v | 1 | MPC | 166131 | 2002 $GH_{96}$ |
| 2002 $GD_{101}$ | 16.2 | 0.15 | 20100104 | 323.96398 | 154.79323 | 345.00344 | 2.47110 | 0.1511708 | 2.6634039 | 108 | 5 | 2002–2009 | 0.48 | M-v | 1 | MPC | 166131 | 2002 $GD_{101}$ |
| 2002 $GN_{101}$ | 16.0 | 0.15 | 20100104 | 327.95518 | 286.02211 | 197.34790 | 8.09911 | 0.1660594 | 2.6936541 | 74 | 6 | 1995–2009 | 0.55 | M-v | 1 | MPC | 166131 | 2002 $GN_{101}$ |
| 2002 $GX_{102}$ | 17.0 | 0.15 | 20100104 | 295.50723 | 339.14773 | 212.23503 | 1.59333 | 0.1350591 | 2.6355387 | 60 | 7 | 2000–2009 | 0.40 | M-v | 0 | MPC | 143153 | 2002 $GX_{102}$ |
| 2002 $GX_{104}$ | 16.6 | 0.15 | 20100104 | 14.81794 | 332.20522 | 170.78014 | 13.53046 | 0.1231971 | 2.5733828 | 43 | 4 | 2002–2009 | 0.55 | M-v | 2 | MPC | 147212 | 2002 $GX_{104}$ |
| 2002 $GZ_{104}$ | 15.8 | 0.15 | 20100104 | 109.70063 | 223.84604 | 77.25928 | 13.78457 | 0.3360625 | 3.0679778 | 61 | 4 | 2002–2009 | 0.56 | M-v | 0 | MPC | 166131 | 2002 $GZ_{104}$ |
| 2002 $GP_{105}$ | 15.9 | 0.15 | 20100104 | 303.31432 | 117.02358 | 49.96051 | 14.05485 | 0.1201171 | 2.6577714 | 38 | 4 | 2000–2009 | 0.57 | M-v | 2 | MPC | 94747 | 2002 $GP_{105}$ |
| 2002 $GX_{113}$ | 16.0 | 0.15 | 20100104 | 301.33554 | 69.54705 | 87.58377 | 6.98198 | 0.1003781 | 2.6858774 | 40 | 4 | 2002–2009 | 0.58 | M-v | 2 | MPC | 160762 | 2002 $GX_{113}$ |
| 2002 $GW_{115}$ | 16.5 | 0.15 | 20100104 | 255.00310 | 96.13396 | 169.70093 | 9.11991 | 0.0920289 | 2.5854960 | 52 | 6 | 2002–2009 | 0.42 | M-v | 1 | MPC | 147213 | 2002 $GW_{115}$ |
| 2002 $GC_{120}$ | 15.7 | 0.15 | 20100104 | 154.16528 | 227.22806 | 84.54291 | 8.31783 | 0.1550816 | 2.7625163 | 71 | 7 | 2002–2009 | 0.57 | M-v | 1 | MPC | 148866 | 2002 $GC_{120}$ |
| 2002 $GY_{122}$ | 16.9 | 0.15 | 20100104 | 266.66588 | 86.52729 | 97.40162 | 3.31826 | 0.1413534 | 2.7339963 | 52 | 4 | 2000–2009 | 0.38 | M-v | 1 | MPC | 166131 | 2002 $GY_{122}$ |
| 2002 $GM_{123}$ | 15.2 | 0.15 | 20100104 | 306.81676 | 34.68563 | 130.59071 | 15.50304 | 0.0250967 | 2.6604800 | 61 | 5 | 1998–2009 | 0.57 | M-v | 2 | MPC | 164185 | 2002 $GM_{123}$ |
| 2002 $GG_{125}$ | 15.7 | 0.15 | 20100104 | 137.19473 | 145.30411 | 229.91703 | 4.03068 | 0.0755693 | 2.5398803 | 104 | 6 | 2000–2009 | 0.41 | M-v | 2 | MPC | 152341 | 2002 $GG_{125}$ |
| 2002 $GX_{131}$ | 15.7 | 0.15 | 20100104 | 289.27821 | 82.15037 | 19.44457 | 10.75698 | 0.0777911 | 2.9175788 | 74 | 5 | 2002–2009 | 0.47 | M-v | 0 | MPC | 166131 | 2002 $GX_{131}$ |
| 2002 $GD_{139}$ | 16.3 | 0.15 | 20100104 | 295.18654 | 288.76126 | 211.78904 | 4.73407 | 0.1039650 | 2.7389863 | 71 | 6 | 2000–2009 | 0.37 | M-v | 0 | MPC | 165326 | 2002 $GD_{139}$ |
| 2002 $GA_{144}$ | 15.9 | 0.15 | 20100104 | 284.30358 | 73.67287 | 124.18187 | 8.64301 | 0.1169860 | 2.6305199 | 60 | 5 | 1998–2009 | 0.51 | M-v | 2 | MPC | 97595 | 2002 $GA_{144}$ |
| 2002 $GR_{144}$ | 15.7 | 0.15 | 20100104 | 312.41899 | 108.21411 | 86.91219 | 13.67753 | 0.1082554 | 2.6048946 | 69 | 5 | 2000–2009 | 0.59 | M-v | 2 | MPC | 147213 | 2002 $GR_{144}$ |
| 2002 $GW_{144}$ | 16.0 | 0.15 | 20100104 | 88.19093 | 270.50132 | 91.60905 | 6.58956 | 0.0877619 | 2.7245444 | 36 | 7 | 1998–2009 | 0.59 | M-v | 1 | MPC | 147213 | 2002 $GW_{144}$ |
| 2002 $GQ_{150}$ | 17.3 | 0.15 | 20100104 | 82.83688 | 136.35537 | 21.72932 | 7.50355 | 0.0579955 | 2.3623921 | 42 | 3 | 2002–2009 | 0.46 | M-v | 3 | MPC | 128752 | 2002 $GQ_{150}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 $GV_{151}$ | 16.5 | 0.15 | 20100104 | 277.86266 | 267.23837 | 326.14899 | 7.40983 | 0.1254916 | 2.5958721 | 48 | 6 | 2002–2009 | 0.43 | M-v | 1 | MPC | 148866 | 2002 $GV_{151}$ |
| 2002 $GJ_{155}$ | 16.5 | 0.15 | 20100104 | 265.12176 | 87.83326 | 114.24842 | 5.41958 | 0.0540624 | 2.6784179 | 29 | 5 | 1997–2009 | 0.40 | M-v | 1 | MPC | 147214 | 2002 $GJ_{155}$ |
| 2002 $GD_{162}$ | 15.7 | 0.15 | 20100104 | 331.97359 | 61.92837 | 31.85018 | 8.62046 | 0.0167190 | 2.8030735 | 65 | 6 | 2002–2009 | 0.41 | M-v | 0 | MPC | 166132 | 2002 $GD_{162}$ |
| 2002 $GF_{163}$ | 16.4 | 0.15 | 20100104 | 307.14988 | 101.45640 | 42.62582 | 7.62683 | 0.1877203 | 2.6984398 | 60 | 4 | 1993–2009 | 0.46 | M-v | 1 | MPC | 166132 | 2002 $GF_{163}$ |
| 2002 $GO_{164}$ | 16.1 | 0.15 | 20100104 | 246.91882 | 172.83004 | 51.08504 | 5.68503 | 0.0993265 | 2.7171670 | 33 | 4 | 2002–2009 | 0.39 | M-v | 1 | MPC | 147214 | 2002 $GO_{164}$ |
| 2002 $GB_{166}$ | 15.8 | 0.15 | 20100104 | 191.09407 | 175.54055 | 111.04637 | 10.28962 | 0.1687031 | 2.7353411 | 44 | 7 | 2001–2009 | 0.52 | M-v | 1 | MPC | 147214 | 2002 $GB_{166}$ |
| 2002 $GT_{168}$ | 16.5 | 0.15 | 20100104 | 316.98559 | 253.69556 | 317.61650 | 3.38781 | 0.0842080 | 2.5553588 | 70 | 8 | 1999–2009 | 0.53 | M-v | 1 | MPC | 152341 | 2002 $GT_{168}$ |
| 2002 $GP_{169}$ | 16.7 | 0.15 | 20100104 | 321.12557 | 228.28748 | 297.65028 | 1.08928 | 0.1345709 | 2.6384175 | 45 | 4 | 2002–2009 | 0.42 | M-v | 2 | MPC | 94761 | 2002 $GP_{169}$ |
| 2002 $GT_{169}$ | 15.7 | 0.15 | 20100104 | 84.40660 | 69.32974 | 219.74131 | 14.50712 | 0.2128384 | 3.1368992 | 41 | 3 | 2002–2009 | 0.44 | M-v | 2 | MPC | 166132 | 2002 $GT_{169}$ |
| 2002 $GQ_{171}$ | 15.9 | 0.15 | 20100104 | 256.73043 | 240.56201 | 29.49896 | 7.05708 | 0.0629651 | 2.5455773 | 73 | 6 | 1998–2009 | 0.50 | M-v | 1 | MPC | 148867 | 2002 $GQ_{171}$ |
| 2002 $GU_{172}$ | 16.8 | 0.15 | 20100104 | 296.73469 | 123.20458 | 54.74505 | 7.00623 | 0.1891839 | 2.6546900 | 21 | 3 | 2002–2009 | 0.44 | M-v | 4 | MPC | 100248 | 2002 $GU_{172}$ |
| 2002 $GF_{174}$ | 14.8 | 0.15 | 20100104 | 87.77055 | 244.90258 | 53.70774 | 17.32307 | 0.2273351 | 3.1090468 | 38 | 2 | 2002–2009 | 0.52 | M-v | 4 | MPC | 166132 | 2002 $GF_{174}$ |
| 2002 $GK_{176}$ | 16.5 | 0.15 | 20100104 | 10.17543 | 220.03907 | 244.20303 | 2.89965 | 0.2339923 | 2.5870050 | 51 | 5 | 2000–2009 | 0.49 | M-v | 1 | MPC | 166132 | 2002 $GK_{176}$ |
| 2002 $GP_{179}$ | 16.2 | 0.15 | 20100104 | 206.42726 | 152.60792 | 99.72687 | 13.52006 | 0.1273155 | 2.7658989 | 27 | 4 | 1993–2009 | 0.37 | M-v | 1 | MPC | 103315 | 2002 $GP_{179}$ |
| 2002 $GK_{180}$ | 16.8 | 0.15 | 20100104 | 287.97980 | 280.68574 | 236.06323 | 5.80428 | 0.1356292 | 2.7118623 | 31 | 3 | 2002–2009 | 0.39 | M-v | 3 | MPC | 166132 | 2002 $GK_{180}$ |
| 2002 $GB_{183}$ | 16.8 | 0.15 | 20100104 | 28.33876 | 43.01940 | 52.14021 | 22.97640 | 0.0836598 | 1.9645594 | 25 | 4 | 2002–2009 | 0.49 | M-v | 1 | MPC | 131202 | 2002 $GB_{183}$ |
| 2002 $GB_{185}$ | 16.5 | 0.15 | 20100104 | 286.10786 | 120.35283 | 30.51792 | 11.98536 | 0.1191482 | 2.7841284 | 27 | 3 | 2002–2009 | 0.38 | M-v | 3 | MPC | 165326 | 2002 $GB_{185}$ |
| 2002 $GP_{186}$ | 20.2 | 0.15 | 20100104 | 228.45297 | 24.65889 | 31.26679 | 8.15031 | 0.3326149 | 1.2855263 | 12 | 1 | 19 days | 0.30 | M-v | 7 | MPC | | 2002 $GP_{186}$ |
| 2002 $GR_{186}$ | 18.1 | 0.15 | 20020327 | 321.15354 | 111.12519 | 138.90474 | 2.81251 | 0.1765988 | 2.4023299 | 8 | 1 | 11 days | 0.18 | | | MPC | | 2002 $GR_{186}$ |
| 2002 $GU_{186}$ | 18.8 | 0.15 | 20020327 | 338.33640 | 157.12639 | 65.08002 | 3.04431 | 0.1000397 | 2.1956183 | 9 | 1 | 10 days | 0.28 | | | MPC | | 2002 $GU_{186}$ |
| 2002 $GB_{187}$ | 18.5 | 0.15 | 20020327 | 306.63328 | 125.68980 | 144.25692 | 2.87360 | 0.1865941 | 2.3860603 | 9 | 1 | 14 days | 0.25 | | | MPC | | 2002 $GB_{187}$ |
| 2002 $GC_{187}$ | 18.0 | 0.15 | 20020327 | 297.17823 | 228.79167 | 41.20535 | 7.56520 | 0.0951293 | 2.2624809 | 8 | 1 | 10 days | 0.23 | | | MPC | | 2002 $GC_{187}$ |
| 2002 $GF_{187}$ | 16.4 | 0.15 | 20020327 | 231.28616 | 288.75654 | 42.33010 | 9.69184 | 0.0324896 | 3.0045218 | 10 | 1 | 19 days | 0.29 | | | MPC | | 2002 $GF_{187}$ |
| 2002 $GL_{187}$ | 16.5 | 0.15 | 20020327 | 204.53646 | 172.64319 | 187.44530 | 11.19692 | 0.0944870 | 2.7718708 | 11 | 1 | 14 days | 0.22 | | | MPC | | 2002 $GL_{187}$ |
| 2002 $GO_{187}$ | 17.4 | 0.15 | 20020327 | 358.34204 | 97.08693 | 104.28780 | 3.08443 | 0.0483438 | 2.8961610 | 9 | 1 | 7 days | 0.43 | | E | MPC | | 2002 $GO_{187}$ |
| 2002 $GQ_{187}$ | 15.0 | 0.15 | 20020327 | 147.03635 | 5.35245 | 36.03707 | 2.47076 | 0.1434441 | 2.9055545 | 9 | 1 | 15 days | 0.29 | | | MPC | | 2002 $GQ_{187}$ |
| 2002 $GR_{187}$ | 16.2 | 0.15 | 20020327 | 125.55024 | 216.38031 | 195.37325 | 18.49468 | 0.2551539 | 2.6301962 | 17 | 1 | 5 days | 0.24 | | | MPC | | 2002 $GR_{187}$ |
| 2002 $GT_{187}$ | 18.1 | 0.15 | 20020416 | 342.07511 | 173.13733 | 47.03234 | 5.92055 | 0.1757109 | 2.4146907 | 18 | 1 | 38 days | 0.22 | | | MPC | | 2002 $GT_{187}$ |
| 2002 $HW_{5}$ | 16.6 | 0.15 | 20100104 | 304.13410 | 148.80210 | 33.76910 | 2.86112 | 0.1447232 | 2.6273452 | 68 | 4 | 2002–2009 | 0.46 | M-v | 2 | MPC | 147214 | 2002 $HW_{5}$ |
| 2002 $HF_{8}$ | 18.3 | 0.15 | 20100104 | 25.21469 | 260.68298 | 49.33098 | 4.77976 | 0.4923613 | 2.3153958 | 93 | 3 | 2002–2009 | 0.43 | M-v | 1 | MPC | 159076 | 2002 $HF_{8}$ |
| 2002 $HR_{11}$ | 15.4 | 0.15 | 20100104 | 314.70895 | 104.43247 | 80.74619 | 29.39241 | 0.3442577 | 2.6057852 | 119 | 3 | 2002–2009 | 0.40 | M-v | 1 | MPC | 166132 | 2002 $HR_{11}$ |
| 2002 $HO_{12}$ | 15.2 | 0.15 | 20100104 | 223.50747 | 146.18195 | 87.40164 | 19.00775 | 0.1785757 | 2.7421708 | 29 | 3 | 2002–2009 | 0.35 | M-v | 3 | MPC | 89283 | 2002 $HO_{12}$ |
| 2002 $HP_{12}$ | 15.9 | 0.15 | 20100104 | 259.28441 | 144.83866 | 99.54574 | 13.54816 | 0.3299723 | 2.6510368 | 58 | 4 | 1998–2009 | 0.56 | M-v | 2 | MPC | 94766 | 2002 $HP_{12}$ |
| 2002 $JQ_{2}$ | 16.4 | 0.15 | 20100104 | 246.80861 | 169.59171 | 79.52480 | 15.35471 | 0.3157739 | 2.7023839 | 52 | 3 | 2002–2009 | 0.40 | M-v | 2 | MPC | 85503 | 2002 $JQ_{2}$ |
| 2002 $JY_{3}$ | 16.6 | 0.15 | 20100104 | 316.05985 | 99.24678 | 59.05810 | 28.87953 | 0.3362760 | 2.6153612 | 64 | 3 | 2002–2009 | 0.52 | M-v | 2 | MPC | 166132 | 2002 $JY_{3}$ |
| 2002 $JM_{5}$ | 16.0 | 0.15 | 20100104 | 261.11335 | 135.89060 | 90.18064 | 10.03935 | 0.2431741 | 2.7229552 | 56 | 5 | 2002–2009 | 0.56 | M-v | 1 | MPC | 147215 | 2002 $JM_{5}$ |
| 2002 $JM_{14}$ | 15.5 | 0.15 | 20100104 | 261.00254 | 121.40334 | 119.21078 | 8.27170 | 0.1543128 | 2.6583676 | 89 | 6 | 2002–2009 | 0.46 | M-v | 1 | MPC | 159679 | 2002 $JM_{14}$ |
| 2002 $JR_{16}$ | 15.8 | 0.15 | 20100104 | 202.35137 | 142.15381 | 120.19690 | 9.02867 | 0.1694294 | 2.7554987 | 47 | 6 | 2000–2009 | 0.49 | M-v | 1 | MPC | 147215 | 2002 $JR_{16}$ |
| 2002 $JN_{33}$ | 15.3 | 0.15 | 20100104 | 106.64172 | 233.87626 | 57.04909 | 10.12010 | 0.2366569 | 3.1038511 | 71 | 5 | 2002–2009 | 0.49 | M-v | 1 | MPC | 165326 | 2002 $JN_{33}$ |
| 2002 $JH_{41}$ | 15.8 | 0.15 | 20100104 | 261.11575 | 170.32233 | 25.64376 | 3.72357 | 0.1278973 | 2.7400876 | 78 | 4 | 2002–2009 | 0.44 | M-v | 2 | MPC | 166132 | 2002 $JH_{41}$ |
| 2002 $JH_{45}$ | 16.9 | 0.15 | 20100104 | 14.36270 | 216.49326 | 23.99075 | 3.72901 | 0.1243987 | 2.3790180 | 41 | 3 | 2002–2009 | 0.48 | M-v | 3 | MPC | 127935 | 2002 $JH_{45}$ |
| 2002 $JB_{46}$ | 14.9 | 0.15 | 20100104 | 103.70764 | 29.23596 | 225.34401 | 14.17159 | 0.2392704 | 3.1552492 | 68 | 5 | 2002–2009 | 0.51 | M-v | 0 | MPC | 164185 | 2002 $JB_{46}$ |
| 2002 $JO_{54}$ | 15.5 | 0.15 | 20100104 | 234.13944 | 169.07459 | 44.21451 | 7.36856 | 0.2030122 | 2.8079423 | 50 | 3 | 2002–2009 | 0.54 | M-v | 3 | MPC | 165327 | 2002 $JO_{54}$ |
| 2002 $JC_{78}$ | 16.2 | 0.15 | 20100104 | 5.62751 | 25.56677 | 222.35950 | 12.48608 | 0.1728655 | 2.3822478 | 58 | 4 | 2002–2009 | 0.66 | M-v | 2 | MPC | 53035 | 2002 $JC_{78}$ |
| 2002 $JR_{79}$ | 15.3 | 0.15 | 20100104 | 235.65899 | 296.33576 | 227.91743 | 4.71446 | 0.0807308 | 2.9142758 | 70 | 8 | 2001–2009 | 0.47 | M-v | 0 | MPC | 166132 | 2002 $JR_{79}$ |
| 2002 $JA_{83}$ | 15.9 | 0.15 | 20100104 | 241.09196 | 148.01393 | 41.36841 | 11.94904 | 0.0813325 | 2.8410938 | 53 | 5 | 2000–2009 | 0.48 | M-v | 0 | MPC | 166132 | 2002 $JA_{83}$ |
| 2002 $JN_{84}$ | 17.2 | 0.15 | 20100104 | 51.81729 | 274.55134 | 6.92380 | 1.24883 | 0.1947771 | 2.2590733 | 72 | 4 | 2002–2008 | 0.48 | M-v | 3 | MPC | 135811 | 2002 $JN_{84}$ |
| 2002 $JK_{85}$ | 15.0 | 0.15 | 20100104 | 67.85112 | 102.74302 | 226.30981 | 12.77376 | 0.2582096 | 3.1126098 | 100 | 3 | 2002–2009 | 0.50 | M-v | 2 | MPC | 166132 | 2002 $JK_{85}$ |
| 2002 $JY_{87}$ | 16.1 | 0.15 | 20100104 | 308.19684 | 132.94055 | 39.04421 | 5.49153 | 0.0630796 | 2.7140136 | 52 | 6 | 1999–2009 | 0.44 | M-v | 1 | MPC | 150928 | 2002 $JY_{87}$ |
| 2002 $JU_{91}$ | 15.0 | 0.15 | 20100104 | 80.53576 | 83.84683 | 226.01032 | 4.52271 | 0.1625284 | 3.1105144 | 102 | 5 | 2002–2009 | 0.48 | M-v | 0 | MPC | 166132 | 2002 $JU_{91}$ |
| 2002 $JM_{93}$ | 17.0 | 0.15 | 20100104 | 85.38337 | 64.97582 | 236.04225 | 7.46191 | 0.1984625 | 2.1833300 | 85 | 3 | 2002–2009 | 0.45 | M-v | 3 | MPC | 166132 | 2002 $JM_{93}$ |
| 2002 $JG_{99}$ | 15.9 | 0.15 | 20100104 | 302.83148 | 91.08522 | 117.47858 | 13.58714 | 0.1436285 | 2.5964018 | 60 | 6 | 1998–2009 | 0.56 | M-v | 1 | MPC | 147216 | 2002 $JG_{99}$ |
| 2002 $JJ_{108}$ | 16.6 | 0.15 | 20100104 | 284.59919 | 83.66746 | 127.35368 | 13.55261 | 0.2178362 | 2.6403483 | 32 | 3 | 2002–2009 | 0.51 | M-v | 3 | MPC | 94780 | 2002 $JJ_{108}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 $JM_{113}$ | 15.6 | 0.15 | 20100104 | 203.12246 | 321.17145 | 269.83376 | 6.92866 | 0.2673142 | 2.8486813 | 48 | 4 | 2002–2009 | 0.48 | M-v | 1 | MPC | 164186 | 2002 $JM_{113}$ |
| 2002 $JR_{113}$ | 15.8 | 0.15 | 20100104 | 236.30104 | 325.50126 | 248.49810 | 12.54983 | 0.1291270 | 2.7774324 | 52 | 5 | 2002–2009 | 0.41 | M-v | 0 | MPC | 166132 | 2002 $JR_{113}$ |
| 2002 $JC_{121}$ | 14.8 | 0.15 | 20100104 | 251.03480 | 121.46264 | 82.01082 | 26.11393 | 0.1753887 | 2.7884710 | 96 | 4 | 2002–2009 | 0.55 | M-v | 2 | MPC | 166133 | 2002 $JC_{121}$ |
| 2002 $JB_{127}$ | 14.9 | 0.15 | 20100104 | 115.84854 | 50.85298 | 206.59409 | 21.83491 | 0.1908757 | 3.1339347 | 69 | 2 | 2002–2009 | 0.43 | M-v | 3 | MPC | 166133 | 2002 $JB_{127}$ |
| 2002 $JM_{144}$ | 15.7 | 0.15 | 20100104 | 330.04684 | 16.88133 | 136.30411 | 14.31308 | 0.1829210 | 2.6596344 | 69 | 4 | 2000–2009 | 0.60 | M-v | 1 | MPC | 164186 | 2002 $JM_{144}$ |
| 2002 $KA_{2}$ | 15.7 | 0.15 | 20100104 | 339.17628 | 56.53566 | 82.49302 | 5.82281 | 0.2394435 | 2.6302687 | 102 | 4 | 2000–2009 | 0.54 | M-v | 1 | MPC | 102105 | 2002 $KA_{2}$ |
| 2002 $KG_{9}$ | 15.4 | 0.15 | 20100104 | 261.34176 | 113.06268 | 118.75658 | 13.51248 | 0.1292722 | 2.6633983 | 61 | 5 | 2002–2009 | 0.53 | M-v | 1 | MPC | 147217 | 2002 $KG_{9}$ |
| 2002 $KJ_{9}$ | 17.3 | 0.15 | 20100104 | 148.43961 | 203.84961 | 80.52450 | 6.57218 | 0.3361755 | 2.1483258 | 123 | 4 | 2002–2009 | 0.51 | M-v | 2 | MPC | 166133 | 2002 $KJ_{9}$ |
| 2002 $KM_{9}$ | 15.1 | 0.15 | 20100104 | 294.42991 | 80.18133 | 117.77063 | 15.79603 | 0.3335826 | 2.6620439 | 160 | 4 | 1998–2009 | 0.54 | M-v | 1 | MPC | 102106 | 2002 $KM_{9}$ |
| 2002 $KG_{14}$ | 16.6 | 0.15 | 20100104 | 332.04117 | 25.13383 | 173.26364 | 12.71217 | 0.2372375 | 2.5710240 | 48 | 5 | 1995–2009 | 0.53 | M-v | 1 | MPC | 122704 | 2002 $KG_{14}$ |
| 2002 $KY_{14}$ | 9.5 | 0.15 | 20100104 | 5.20784 | 99.20266 | 245.41410 | 19.45119 | 0.3179781 | 12.6345773 | 93 | 4 | 2002–2009 | 0.32 | M-v | 1 | MPC | 166133 | 2002 $KY_{14}$ |
| 2002 LW | 22.4 | 0.15 | 20100104 | 35.38994 | 126.10769 | 250.15375 | 11.17310 | 0.1018419 | 1.0165887 | 64 | 2 | 2002–2005 | 0.46 | M-v | 3 | MPC | 97604 | 2002 LW |
| 2002 $LN_{8}$ | 15.9 | 0.15 | 20100104 | 146.23038 | 197.09512 | 86.85652 | 8.16559 | 0.2315266 | 2.9878942 | 35 | 5 | 2002–2009 | 0.45 | M-v | 1 | MPC | 148868 | 2002 $LN_{8}$ |
| 2002 $LZ_{20}$ | 15.2 | 0.15 | 20100104 | 281.77262 | 125.23444 | 102.27950 | 17.20152 | 0.2298519 | 2.7180212 | 110 | 5 | 2001–2009 | 0.59 | M-v | 1 | MPC | 166133 | 2002 $LZ_{20}$ |
| 2002 $LE_{32}$ | 14.1 | 0.15 | 20100104 | 134.70196 | 40.73689 | 276.54181 | 21.88635 | 0.2196113 | 3.0434299 | 84 | 4 | 2002–2009 | 0.52 | M-v | 1 | MPC | 166133 | 2002 $LE_{32}$ |
| 2002 $LS_{32}$ | 18.2 | 0.15 | 20100104 | 31.61713 | 151.47737 | 239.96806 | 8.82723 | 0.6973647 | 1.7831000 | 159 | 5 | 2002–2009 | 0.45 | M-v | 2 | MPC | 159076 | 2002 $LS_{32}$ |
| 2002 $LF_{40}$ | 17.4 | 0.15 | 20100104 | 8.79559 | 184.33741 | 119.40420 | 9.49631 | 0.2983038 | 2.3533249 | 49 | 3 | 2002–2009 | 0.59 | M-v | 1 | MPC | 122705 | 2002 $LF_{40}$ |
| 2002 $LL_{50}$ | 15.5 | 0.15 | 20100104 | 174.83579 | 244.30399 | 54.79626 | 4.91701 | 0.0862963 | 2.8080206 | 63 | 6 | 2002–2009 | 0.41 | M-v | 1 | MPC | 152343 | 2002 $LL_{50}$ |
| 2002 $MQ_{5}$ | 16.7 | 0.15 | 20100104 | 129.80721 | 296.10477 | 2.10395 | 5.83765 | 0.1708798 | 2.1559630 | 48 | 6 | 1992–2009 | 0.45 | M-v | 1 | MPC | 159394 | 2002 $MQ_{5}$ |
| 2002 $MX_{5}$ | 15.5 | 0.15 | 20100104 | 249.18884 | 95.18549 | 258.53942 | 13.73506 | 0.1896304 | 2.6090724 | 16 | 1 | 86 days | 0.21 | M-v | 4 | MPC | | 2002 $MX_{5}$ |
| 2002 NX | 19.3 | 0.15 | 20100104 | 69.19187 | 62.21002 | 288.53441 | 15.01673 | 0.4338062 | 1.7414112 | 378 | 2 | 2002–2009 | 0.46 | M-v | 1 | MPC | 161849 | 2002 NX |
| 2002 $NP_{1}$ | 17.6 | 0.15 | 20100104 | 338.46055 | 145.13983 | 315.08963 | 19.12608 | 0.1651748 | 1.2480777 | 469 | 3 | 2002–2009 | 0.40 | M-v | 2 | MPC | 166133 | 2002 $NP_{1}$ |
| 2002 $NV_{4}$ | 15.8 | 0.15 | 20100104 | 107.47520 | 76.37027 | 272.89127 | 4.49707 | 0.1642826 | 3.0493623 | 42 | 5 | 1994–2009 | 0.50 | M-v | 1 | MPC | 159681 | 2002 $NV_{4}$ |
| 2002 $NL_{5}$ | 15.8 | 0.15 | 20100104 | 55.97367 | 280.98487 | 123.16054 | 15.48824 | 0.2833705 | 3.1124080 | 33 | 4 | 2002–2009 | 0.30 | M-v | 0 | MPC | 166133 | 2002 $NL_{5}$ |
| 2002 $NL_{8}$ | 17.6 | 0.15 | 20100104 | 41.88748 | 48.88773 | 279.50816 | 7.02051 | 0.3315885 | 2.2949421 | 100 | 2 | 2002–2009 | 0.53 | M-v | 1 | MPC | 164186 | 2002 $NL_{8}$ |
| 2002 $NG_{10}$ | 16.3 | 0.15 | 20100104 | 279.19379 | 324.51135 | 262.78299 | 4.73938 | 0.3350537 | 2.7046381 | 44 | 4 | 2002–2009 | 0.41 | M-v | 2 | MPC | 122705 | 2002 $NG_{10}$ |
| 2002 $NS_{15}$ | 15.3 | 0.15 | 20100104 | 104.71085 | 296.83935 | 57.46796 | 5.48560 | 0.2659246 | 3.0741289 | 96 | 6 | 2001–2009 | 0.43 | M-v | 1 | MPC | 158431 | 2002 $NS_{15}$ |
| 2002 $NA_{16}$ | 17.2 | 0.15 | 20100104 | 35.80909 | 63.02713 | 286.48153 | 8.21739 | 0.2149138 | 2.2541803 | 52 | 4 | 2002–2009 | 0.41 | M-v | 1 | MPC | 161850 | 2002 $NA_{16}$ |
| 2002 $NW_{16}$ | 18.1 | 0.15 | 20100104 | 190.37715 | 317.63198 | 301.60540 | 14.16501 | 0.0305949 | 1.1089662 | 485 | 2 | 2002–2009 | 0.49 | M-v | 1 | MPC | 166133 | 2002 $NW_{16}$ |
| 2002 $NG_{26}$ | 14.7 | 0.15 | 20100104 | 100.73856 | 57.10629 | 303.62493 | 15.51283 | 0.2522878 | 3.1449100 | 101 | 4 | 2002–2009 | 0.47 | M-v | 1 | MPC | 155946 | 2002 $NG_{26}$ |
| 2002 $NN_{38}$ | 15.2 | 0.15 | 20100104 | 128.69174 | 31.23718 | 290.50406 | 16.71312 | 0.1512241 | 3.0783040 | 49 | 4 | 2000–2009 | 0.51 | M-v | 1 | MPC | 149834 | 2002 $NN_{38}$ |
| 2002 $NW_{50}$ | 15.8 | 0.15 | 20100104 | 129.05609 | 237.87594 | 87.56771 | 12.82099 | 0.2025270 | 3.0461754 | 24 | 4 | 2002–2009 | 0.31 | M-v | 1 | MPC | 145951 | 2002 $NW_{50}$ |
| 2002 $NK_{57}$ | 15.6 | 0.15 | 20100104 | 34.35876 | 128.87961 | 272.99728 | 10.58367 | 0.1229746 | 3.1452242 | 57 | 5 | 2002–2009 | 0.39 | M-v | 0 | MPC | 166133 | 2002 $NK_{57}$ |
| 2002 $NZ_{59}$ | 17.0 | 0.15 | 20100104 | 306.46125 | 61.30184 | 291.98015 | 5.10494 | 0.1071987 | 2.4324132 | 43 | 3 | 2002–2008 | 0.39 | M-v | 3 | MPC | 155946 | 2002 $NZ_{59}$ |
| 2002 $NE_{66}$ | 16.9 | 0.15 | 20100104 | 144.96172 | 184.79448 | 95.51646 | 2.97641 | 0.2357301 | 3.0949832 | 56 | 6 | 1996–2009 | 0.31 | M-v | 0 | MPC | 147219 | 2002 $NE_{66}$ |
| 2002 $NT_{68}$ | 15.4 | 0.15 | 20100104 | 145.62962 | 19.60776 | 289.05068 | 10.47837 | 0.1447085 | 3.0724750 | 33 | 5 | 2002–2009 | 0.42 | M-v | 1 | MPC | 166133 | 2002 $NT_{68}$ |
| 2002 $ND_{69}$ | 15.2 | 0.15 | 20100104 | 92.01268 | 53.42972 | 292.45863 | 15.19096 | 0.1108331 | 3.1212256 | 22 | 1 | 98 days | 0.37 | M-v | 4 | MPC | | 2002 $ND_{69}$ |
| 2002 $NP_{69}$ | 16.5 | 0.15 | 20100104 | 94.02619 | 258.82835 | 98.37386 | 10.94917 | 0.1529742 | 3.0792199 | 25 | 4 | 2002–2009 | 0.48 | M-v | 1 | MPC | 159396 | 2002 $NP_{69}$ |
| 2002 $NA_{70}$ | 15.3 | 0.15 | 20020725 | 317.66685 | 99.02610 | 283.19439 | 24.24955 | 0.2696131 | 3.1325804 | 14 | 1 | 45 days | 0.32 | | | MPC | | 2002 $NA_{70}$ |
| 2002 $NB_{70}$ | 15.9 | 0.15 | 20100104 | 258.92403 | 68.64345 | 256.82130 | 11.32800 | 0.3114353 | 2.6471977 | 15 | 1 | 101 days | 0.21 | M-v | 4 | MPC | | 2002 $NB_{70}$ |
| 2002 $NE_{70}$ | 16.6 | 0.15 | 20020705 | 337.50130 | 45.06076 | 286.99580 | 25.70644 | 0.1842251 | 3.1800767 | 17 | 1 | 35 days | 0.28 | | | MPC | | 2002 $NE_{70}$ |
| 2002 $NF_{70}$ | 16.7 | 0.15 | 20020705 | 0.40436 | 155.88369 | 140.99159 | 15.27266 | 0.1701731 | 3.1416380 | 14 | 1 | 35 days | 0.21 | | | MPC | | 2002 $NF_{70}$ |
| 2002 $NG_{70}$ | 16.6 | 0.15 | 20100104 | 124.96425 | 38.61207 | 252.03611 | 7.73561 | 0.1634466 | 3.1685975 | 21 | 1 | 63 days | 0.30 | M-v | 4 | MPC | | 2002 $NG_{70}$ |
| 2002 $NO_{70}$ | 18.3 | 0.15 | 20020705 | 320.43295 | 161.32117 | 195.39747 | 4.31651 | 0.2275592 | 2.5614807 | 14 | 1 | 20 days | 0.22 | | | MPC | | 2002 $NO_{70}$ |
| 2002 $NR_{70}$ | 17.3 | 0.15 | 20020705 | 283.29985 | 186.29586 | 208.96103 | 4.84043 | 0.1739196 | 2.5623899 | 13 | 1 | 26 days | 0.32 | | | MPC | | 2002 $NR_{70}$ |
| 2002 $NU_{70}$ | 16.6 | 0.15 | 20020725 | 308.97679 | 257.91605 | 128.79030 | 20.00894 | 0.3083590 | 3.0894498 | 13 | 1 | 56 days | 0.27 | | | MPC | | 2002 $NU_{70}$ |
| 2002 $NZ_{70}$ | 16.8 | 0.15 | 20020725 | 51.67284 | 32.55561 | 194.29986 | 4.36739 | 0.2368757 | 3.0609994 | 17 | 1 | 38 days | 0.27 | | | MPC | | 2002 $NZ_{70}$ |
| 2002 $NB_{71}$ | 18.0 | 0.15 | 20020725 | 8.65221 | 26.68167 | 263.68467 | 7.42670 | 0.2146463 | 2.7867743 | 12 | 1 | 48 days | 0.28 | | | MPC | | 2002 $NB_{71}$ |
| 2002 $ND_{71}$ | 16.3 | 0.15 | 20020705 | 335.04117 | 58.66953 | 273.98075 | 13.82327 | 0.1697472 | 3.0026455 | 18 | 1 | 35 days | 0.20 | | | MPC | | 2002 $ND_{71}$ |
| 2002 $NE_{71}$ | 19.5 | 0.15 | 20100104 | 250.84433 | 143.89306 | 264.77385 | 7.18532 | 0.5851251 | 1.9177484 | 11 | 1 | 18 days | 0.28 | M-v | 7 | MPC | | 2002 $NE_{71}$ |
| 2002 $NF_{71}$ | 16.5 | 0.15 | 20100104 | 328.62003 | 317.69559 | 261.83076 | 8.40828 | 0.0854608 | 2.6679359 | 19 | 1 | 61 days | 0.23 | M-v | 4 | MPC | | 2002 $NF_{71}$ |
| 2002 $NG_{71}$ | 16.6 | 0.15 | 20020725 | 359.11140 | 154.00411 | 149.17305 | 11.13388 | 0.1031604 | 3.0226841 | 14 | 1 | 44 days | 0.28 | | | MPC | | 2002 $NG_{71}$ |
| 2002 $NH_{71}$ | 16.2 | 0.15 | 20020725 | 358.99279 | 41.52216 | 262.77508 | 10.15115 | 0.0664808 | 3.0754860 | 14 | 1 | 52 days | 0.27 | | | MPC | | 2002 $NH_{71}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 $NJ_{71}$ | 18.9 | 0.15 | 20100104 | 6.98838 | 160.10804 | 174.42296 | 4.40706 | 0.2446565 | 2.3447422 | 17 | 1 | 61 days | 0.28 | M-v | 4 | MPC | | 2002 $NJ_{71}$ |
| 2002 $NL_{71}$ | 17.8 | 0.15 | 20020725 | 343.46790 | 183.44544 | 143.72906 | 8.51011 | 0.2026925 | 2.5823062 | 17 | 1 | 56 days | 0.21 | | | MPC | | 2002 $NL_{71}$ |
| 2002 $NM_{71}$ | 17.5 | 0.15 | 20020705 | 294.02728 | 113.12351 | 283.46478 | 21.01164 | 0.3009735 | 2.3188499 | 18 | 1 | 43 days | 0.22 | | | MPC | | 2002 $NM_{71}$ |
| 2002 $NN_{71}$ | 17.6 | 0.15 | 20020705 | 25.50865 | 346.23981 | 269.63406 | 10.45590 | 0.2118425 | 2.6017932 | 13 | 1 | 35 days | 0.24 | | | MPC | | 2002 $NN_{71}$ |
| 2002 $NP_{71}$ | 16.3 | 0.15 | 20020725 | 323.03152 | 215.53778 | 143.95079 | 9.69700 | 0.2375366 | 3.1479988 | 17 | 1 | 65 days | 0.24 | | | MPC | | 2002 $NP_{71}$ |
| 2002 $OQ_{1}$ | 14.8 | 0.15 | 20100104 | 100.98478 | 88.95834 | 254.37878 | 9.89104 | 0.1632815 | 3.1543015 | 101 | 4 | 2002–2009 | 0.49 | M-v | 1 | MPC | 148870 | 2002 $OQ_{1}$ |
| 2002 $OR_{6}$ | 15.4 | 0.15 | 20100104 | 186.72139 | 343.68191 | 262.56204 | 9.71500 | 0.2504001 | 3.0674933 | 35 | 3 | 2002–2009 | 0.45 | M-v | 3 | MPC | 155073 | 2002 $OR_{6}$ |
| 2002 $OE_{8}$ | 15.3 | 0.15 | 20100104 | 112.64757 | 61.28602 | 286.33485 | 4.33120 | 0.1812068 | 3.0712874 | 80 | 4 | 2002–2009 | 0.47 | M-v | 1 | MPC | 164187 | 2002 $OE_{8}$ |
| 2002 $OH_{8}$ | 15.0 | 0.15 | 20100104 | 55.92904 | 97.42899 | 306.57363 | 24.63771 | 0.2324055 | 3.1351364 | 51 | 4 | 2002–2009 | 0.44 | M-v | 1 | MPC | 145953 | 2002 $OH_{8}$ |
| 2002 $OD_{29}$ | 16.8 | 0.15 | 20100104 | 327.44673 | 68.72146 | 133.98612 | 5.58107 | 0.1171201 | 2.7281725 | 35 | 7 | 1995–2009 | 0.44 | M-v | 0 | MPC | 124363 | 2002 $OD_{29}$ |
| 2002 $OC_{31}$ | 14.9 | 0.15 | 20100104 | 102.52949 | 173.97119 | 166.05985 | 16.23267 | 0.0656690 | 3.1187786 | 43 | 7 | 2000–2009 | 0.68 | M-v | 1 | MPC | 148870 | 2002 $OC_{31}$ |
| 2002 $OD_{32}$ | 15.9 | 0.15 | 20100104 | 88.16114 | 258.72128 | 121.09002 | 12.91618 | 0.1619927 | 3.0504790 | 40 | 5 | 2001–2009 | 0.39 | M-v | 0 | MPC | 158432 | 2002 $OD_{32}$ |
| 2002 $OY_{32}$ | 16.5 | 0.15 | 20020725 | 315.51175 | 50.20223 | 317.30243 | 14.61823 | 0.0695108 | 3.0726418 | 16 | 1 | 29 days | 0.29 | | | MPC | | 2002 $OY_{32}$ |
| 2002 $OB_{33}$ | 16.2 | 0.15 | 20020725 | 51.85057 | 304.64957 | 302.03948 | 9.84559 | 0.0972459 | 3.0133201 | 20 | 1 | 44 days | 0.47 | | | MPC | | 2002 $OB_{33}$ |
| 2002 $OC_{33}$ | 17.7 | 0.15 | 20020725 | 41.74100 | 316.86049 | 292.27472 | 4.02997 | 0.1740671 | 2.3924334 | 14 | 1 | 53 days | 0.66 | | | MPC | | 2002 $OC_{33}$ |
| 2002 $OD_{33}$ | 19.2 | 0.15 | 20020725 | 356.73398 | 174.32699 | 137.14793 | 3.10429 | 0.2377991 | 2.4125021 | 9 | 1 | 21 days | 0.25 | | | MPC | | 2002 $OD_{33}$ |
| 2002 $PY_{1}$ | 14.7 | 0.15 | 20100104 | 128.13992 | 186.21325 | 142.13121 | 19.00827 | 0.1933528 | 3.0905996 | 87 | 4 | 2002–2009 | 0.50 | M-v | 2 | MPC | 148870 | 2002 $PY_{1}$ |
| 2002 $PQ_{3}$ | 16.0 | 0.15 | 20100104 | 115.04926 | 58.60024 | 242.34425 | 4.09503 | 0.1722225 | 3.1931404 | 47 | 6 | 1997–2009 | 0.36 | M-v | 0 | MPC | 147219 | 2002 $PQ_{3}$ |
| 2002 $PU_{6}$ | 18.7 | 0.15 | 20100104 | 75.58465 | 171.72142 | 140.60320 | 9.31078 | 0.2454550 | 2.2367460 | 20 | 1 | 78 days | 0.28 | M-v | 4 | MPC | | 2002 $PU_{6}$ |
| 2002 $PX_{9}$ | 15.1 | 0.15 | 20100104 | 79.48111 | 74.91111 | 277.08803 | 9.07935 | 0.0875024 | 3.1992785 | 49 | 5 | 2002–2009 | 0.41 | M-v | 0 | MPC | 166134 | 2002 $PX_{9}$ |
| 2002 $PB_{10}$ | 15.6 | 0.15 | 20100104 | 148.69317 | 22.99264 | 237.81812 | 4.58249 | 0.0781432 | 3.2410858 | 47 | 7 | 1997–2009 | 0.34 | M-v | 0 | MPC | 166134 | 2002 $PB_{10}$ |
| 2002 $PF_{13}$ | 17.0 | 0.15 | 20100104 | 358.15069 | 26.93072 | 296.18028 | 4.64598 | 0.1734399 | 2.3714231 | 56 | 3 | 2002–2007 | 0.49 | M-v | 3 | MPC | 131813 | 2002 $PF_{13}$ |
| 2002 $PO_{14}$ | 17.6 | 0.15 | 20100104 | 123.65315 | 70.97266 | 220.07685 | 2.08561 | 0.1157943 | 2.1765143 | 56 | 5 | 1996–2009 | 0.32 | M-v | 1 | MPC | 166134 | 2002 $PO_{14}$ |
| 2002 $PU_{15}$ | 17.6 | 0.15 | 20020725 | 12.53686 | 138.62591 | 141.56239 | 7.41896 | 0.2831414 | 2.6912190 | 24 | 1 | 56 days | 0.23 | | | MPC | | 2002 $PU_{15}$ |
| 2002 $PB_{20}$ | 15.8 | 0.15 | 20100104 | 261.28323 | 305.73126 | 304.71229 | 13.42380 | 0.1851051 | 2.7805092 | 40 | 5 | 2002–2009 | 0.38 | M-v | 1 | MPC | 124363 | 2002 $PB_{20}$ |
| 2002 $PE_{28}$ | 17.2 | 0.15 | 20100104 | 48.55897 | 65.48440 | 291.80366 | 3.38635 | 0.2012421 | 2.2411521 | 67 | 3 | 2002–2009 | 0.44 | M-v | 3 | MPC | 166134 | 2002 $PE_{28}$ |
| 2002 $PZ_{28}$ | 14.7 | 0.15 | 20100104 | 69.99517 | 82.13319 | 306.29646 | 14.53420 | 0.2385967 | 3.1620531 | 85 | 4 | 2002–2009 | 0.55 | M-v | 0 | MPC | 166134 | 2002 $PZ_{28}$ |
| 2002 $PE_{34}$ | 16.8 | 0.15 | 20100104 | 112.56610 | 337.20378 | 319.45307 | 7.24603 | 0.1664411 | 2.2001573 | 67 | 4 | 2002–2009 | 0.54 | M-v | 1 | MPC | 164187 | 2002 $PE_{34}$ |
| 2002 $PD_{35}$ | 14.9 | 0.15 | 20100104 | 119.55542 | 7.91654 | 314.93346 | 15.48113 | 0.1588259 | 3.1251353 | 71 | 4 | 2002–2009 | 0.44 | M-v | 2 | MPC | 162350 | 2002 $PD_{35}$ |
| 2002 $PR_{36}$ | 15.8 | 0.15 | 20100104 | 161.14685 | 356.05568 | 284.68560 | 4.11017 | 0.1407019 | 3.1055181 | 27 | 3 | 2002–2009 | 0.33 | M-v | 4 | MPC | 156877 | 2002 $PR_{36}$ |
| 2002 $PD_{53}$ | 15.8 | 0.15 | 20100104 | 134.50322 | 358.43322 | 329.55919 | 0.70667 | 0.1054329 | 3.0560771 | 80 | 7 | 2000–2009 | 0.46 | M-v | 0 | MPC | 150931 | 2002 $PD_{53}$ |
| 2002 $PL_{57}$ | 16.7 | 0.15 | 20100104 | 89.05117 | 355.65861 | 334.98599 | 5.08133 | 0.1573909 | 2.2215365 | 79 | 5 | 1994–2009 | 0.54 | M-v | 2 | MPC | 166134 | 2002 $PL_{57}$ |
| 2002 $PO_{63}$ | 15.5 | 0.15 | 20100104 | 73.22325 | 249.38917 | 116.40667 | 27.08523 | 0.2661472 | 3.2104959 | 36 | 3 | 2002–2009 | 0.59 | M-v | 2 | MPC | 142616 | 2002 $PO_{63}$ |
| 2002 $PA_{64}$ | 15.4 | 0.15 | 20100104 | 159.26412 | 0.12450 | 298.67215 | 8.54611 | 0.0493884 | 3.0138558 | 29 | 4 | 2002–2009 | 0.32 | M-v | 1 | MPC | 147220 | 2002 $PA_{64}$ |
| 2002 $PY_{64}$ | 15.2 | 0.15 | 20100104 | 15.62714 | 175.91906 | 266.27182 | 10.41170 | 0.1034628 | 3.0431063 | 29 | 1 | 63 days | 0.31 | M-v | 5 | MPC | | 2002 $PY_{64}$ |
| 2002 $PD_{66}$ | 16.6 | 0.15 | 20100104 | 170.45900 | 169.99562 | 146.84214 | 9.42862 | 0.2017056 | 2.9108832 | 26 | 1 | 65 days | 0.23 | M-v | 4 | MPC | | 2002 $PD_{66}$ |
| 2002 $PD_{67}$ | 15.6 | 0.15 | 20100104 | 188.24593 | 327.05351 | 298.96526 | 5.99162 | 0.0813654 | 3.0104240 | 40 | 7 | 2000–2009 | 0.45 | M-v | 0 | MPC | 166134 | 2002 $PD_{67}$ |
| 2002 $PX_{67}$ | 15.6 | 0.15 | 20100104 | 19.75502 | 109.15369 | 302.14596 | 10.70726 | 0.0444491 | 3.1815291 | 57 | 5 | 2002–2009 | 0.54 | M-v | 0 | MPC | 150931 | 2002 $PX_{67}$ |
| 2002 $PA_{68}$ | 17.3 | 0.15 | 20020725 | 3.95809 | 157.31515 | 149.26211 | 12.31826 | 0.1835102 | 2.6419840 | 15 | 1 | 37 days | 0.31 | | | MPC | | 2002 $PA_{68}$ |
| 2002 $PP_{68}$ | 15.9 | 0.15 | 20100104 | 223.58555 | 128.66412 | 177.05766 | 4.40069 | 0.0547340 | 2.8015739 | 53 | 7 | 2001–2009 | 0.46 | M-v | 0 | MPC | 126628 | 2002 $PP_{68}$ |
| 2002 $PL_{76}$ | 15.9 | 0.15 | 20100104 | 135.64054 | 24.92813 | 263.79397 | 11.67091 | 0.1330214 | 3.1543767 | 32 | 3 | 2002–2009 | 0.41 | M-v | 3 | MPC | 166134 | 2002 $PL_{76}$ |
| 2002 $PE_{102}$ | 17.4 | 0.15 | 20100104 | 36.73406 | 98.41098 | 248.87157 | 5.38562 | 0.2022578 | 2.2774286 | 82 | 3 | 2002–2009 | 0.52 | M-v | 3 | MPC | 166134 | 2002 $PE_{102}$ |
| 2002 $PU_{105}$ | 16.0 | 0.15 | 20100104 | 114.77280 | 49.87681 | 295.67084 | 10.76387 | 0.1384075 | 3.1144948 | 55 | 3 | 2002–2009 | 0.41 | M-v | 2 | MPC | 150931 | 2002 $PU_{105}$ |
| 2002 $PA_{107}$ | 15.1 | 0.15 | 20100104 | 346.54590 | 210.14258 | 253.35506 | 9.25048 | 0.0093254 | 3.1263832 | 40 | 5 | 2002–2009 | 0.51 | M-v | 1 | MPC | 166135 | 2002 $PA_{107}$ |
| 2002 $PB_{109}$ | 17.4 | 0.15 | 20100104 | 49.17379 | 120.98329 | 220.05193 | 6.78959 | 0.1753731 | 2.2545633 | 83 | 5 | 1999–2009 | 0.42 | M-v | 1 | MPC | 166135 | 2002 $PB_{109}$ |
| 2002 $PD_{110}$ | 17.8 | 0.15 | 20100104 | 68.13259 | 249.67227 | 113.74038 | 6.19439 | 0.1971541 | 2.1959755 | 52 | 6 | 1999–2009 | 0.51 | M-v | 1 | MPC | 147221 | 2002 $PD_{110}$ |
| 2002 $PP_{112}$ | 15.3 | 0.15 | 20100104 | 258.01964 | 319.97680 | 6.00695 | 12.69754 | 0.3113512 | 2.6600694 | 108 | 7 | 1989–2009 | 0.50 | M-v | 1 | MPC | 159682 | 2002 $PP_{112}$ |
| 2002 $PC_{118}$ | 15.1 | 0.15 | 20100104 | 86.95126 | 90.49849 | 298.05673 | 10.36269 | 0.1143113 | 3.0620157 | 67 | 4 | 2002–2009 | 0.49 | M-v | 1 | MPC | 148871 | 2002 $PC_{118}$ |
| 2002 $PU_{118}$ | 17.6 | 0.15 | 20100104 | 82.03524 | 145.40557 | 191.55766 | 5.20384 | 0.2384133 | 2.2122068 | 58 | 4 | 2002–2009 | 0.42 | M-v | 1 | MPC | 139169 | 2002 $PU_{118}$ |
| 2002 $PD_{122}$ | 17.0 | 0.15 | 20100104 | 172.16199 | 32.94408 | 230.26948 | 5.34863 | 0.1611463 | 2.1543134 | 58 | 5 | 2002–2009 | 0.50 | M-v | 2 | MPC | 166135 | 2002 $PD_{122}$ |
| 2002 $PG_{122}$ | 15.4 | 0.15 | 20100104 | 90.53530 | 72.03474 | 307.15686 | 15.16136 | 0.2246186 | 3.1313748 | 59 | 3 | 2002–2009 | 0.46 | M-v | 2 | MPC | 166135 | 2002 $PG_{122}$ |
| 2002 $PZ_{122}$ | 15.8 | 0.15 | 20100104 | 160.33470 | 351.39725 | 284.90140 | 9.65015 | 0.0993399 | 3.1256932 | 34 | 3 | 2002–2009 | 0.34 | M-v | 3 | MPC | 166135 | 2002 $PZ_{122}$ |
| 2002 $PH_{129}$ | 17.3 | 0.15 | 20100104 | 73.77790 | 254.40670 | 95.92062 | 6.81108 | 0.2421361 | 2.2223151 | 37 | 4 | 1999–2009 | 0.67 | M-v | 2 | MPC | 158433 | 2002 $PH_{129}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 $PD_{132}$ | 14.7 | 0.15 | 20100104 | 85.86808 | 237.38290 | 122.25221 | 16.56805 | 0.1877918 | 3.1743020 | 52 | 4 | 2002–2009 | 0.37 | M-v | 1 | MPC | 145960 | 2002 $PD_{132}$ |
| 2002 $PP_{138}$ | 17.2 | 0.15 | 20100104 | 49.53903 | 72.87852 | 245.55930 | 8.57717 | 0.2775268 | 2.2899740 | 89 | 2 | 2002–2009 | 0.47 | M-v | 1 | MPC | 166135 | 2002 $PP_{138}$ |
| 2002 $PG_{142}$ | 16.1 | 0.15 | 20100104 | 211.13813 | 23.52511 | 333.88614 | 9.47302 | 0.2064334 | 2.7397194 | 35 | 3 | 2000–2009 | 0.37 | M-v | 3 | MPC | 127948 | 2002 $PG_{142}$ |
| 2002 $PA_{145}$ | 15.3 | 0.15 | 20100104 | 77.19585 | 251.66667 | 127.80498 | 10.19609 | 0.0898294 | 3.0714657 | 23 | 3 | 2002–2009 | 0.34 | M-v | 3 | MPC | 75470 | 2002 $PA_{145}$ |
| 2002 $PH_{154}$ | 17.5 | 0.15 | 20020814 | 331.74143 | 67.10294 | 290.11747 | 2.65803 | 0.1870667 | 2.2124227 | 13 | 1 | 20 days | 0.46 | | | MPC | | 2002 $PH_{154}$ |
| 2002 $PF_{156}$ | 14.9 | 0.15 | 20100104 | 36.44426 | 101.01241 | 316.24957 | 15.20720 | 0.2362723 | 3.1770986 | 97 | 4 | 2002–2009 | 0.48 | M-v | 1 | MPC | 166135 | 2002 $PF_{156}$ |
| 2002 $PO_{159}$ | 15.6 | 0.15 | 20100104 | 80.03220 | 277.96152 | 114.87807 | 7.96502 | 0.1584329 | 3.0522176 | 50 | 4 | 2002–2009 | 0.37 | M-v | 0 | MPC | 148872 | 2002 $PO_{159}$ |
| 2002 $PG_{160}$ | 17.9 | 0.15 | 20100104 | 57.45357 | 4.56615 | 15.49334 | 2.71179 | 0.1838278 | 2.1897091 | 36 | 3 | 1999–2007 | 0.48 | M-v | 2 | MPC | 114665 | 2002 $PG_{160}$ |
| 2002 $PT_{160}$ | 15.6 | 0.15 | 20100104 | 162.88979 | 329.19821 | 327.00718 | 9.59460 | 0.0920218 | 3.0224595 | 39 | 3 | 2002–2009 | 0.37 | M-v | 3 | MPC | 145960 | 2002 $PT_{160}$ |
| 2002 $PA_{163}$ | 18.2 | 0.15 | 20100104 | 27.52933 | 271.75874 | 9.33648 | 2.94637 | 0.2137192 | 2.3881121 | 44 | 3 | 2002–2006 | 0.28 | M-v | 2 | MPC | 110889 | 2002 $PA_{163}$ |
| 2002 $PG_{163}$ | 15.5 | 0.15 | 20100104 | 165.54282 | 349.04934 | 313.57854 | 8.68340 | 0.0703651 | 2.9942473 | 48 | 7 | 2000–2009 | 0.44 | M-v | 1 | MPC | 147222 | 2002 $PG_{163}$ |
| 2002 $PJ_{168}$ | 15.5 | 0.15 | 20100104 | 82.27949 | 252.81521 | 121.91121 | 10.73937 | 0.0667689 | 3.1090958 | 43 | 6 | 2001–2009 | 0.53 | M-v | 1 | MPC | 160766 | 2002 $PJ_{168}$ |
| 2002 $PB_{169}$ | 18.1 | 0.15 | 20100104 | 17.71550 | 65.49660 | 321.46507 | 0.85764 | 0.1065944 | 2.2525395 | 45 | 4 | 1992–2009 | 0.37 | M-v | 1 | MPC | 164188 | 2002 $PB_{169}$ |
| 2002 $PD_{175}$ | 16.2 | 0.15 | 20100104 | 146.22707 | 211.40319 | 81.28608 | 6.70533 | 0.1201459 | 3.1145410 | 34 | 6 | 2001–2009 | 0.46 | M-v | 1 | MPC | 147223 | 2002 $PD_{175}$ |
| 2002 $PU_{176}$ | 15.5 | 0.15 | 20100104 | 188.45887 | 21.64137 | 219.90786 | 9.44001 | 0.0555872 | 3.1371212 | 33 | 4 | 2002–2009 | 0.39 | M-v | 1 | MPC | 165330 | 2002 $PU_{176}$ |
| 2002 $PG_{178}$ | 15.0 | 0.15 | 20100104 | 44.17833 | 106.56569 | 306.67487 | 12.11346 | 0.2758697 | 3.1948931 | 43 | 3 | 2002–2009 | 0.35 | M-v | 2 | MPC | 166135 | 2002 $PG_{178}$ |
| 2002 $PT_{179}$ | 15.5 | 0.15 | 20100104 | 33.69167 | 123.21719 | 301.81685 | 9.72577 | 0.0870268 | 3.1080538 | 35 | 5 | 2002–2009 | 0.45 | M-v | 0 | MPC | 147223 | 2002 $PT_{179}$ |
| 2002 $PK_{180}$ | 16.6 | 0.15 | 20100104 | 37.49984 | 83.36072 | 315.82765 | 5.70356 | 0.1927824 | 3.2446171 | 31 | 3 | 2002–2009 | 0.29 | M-v | 2 | MPC | 145963 | 2002 $PK_{180}$ |
| 2002 $PF_{186}$ | 15.1 | 0.15 | 20100104 | 134.16865 | 14.09763 | 314.08389 | 7.83307 | 0.1764701 | 3.0777420 | 35 | 3 | 2002–2009 | 0.45 | M-v | 3 | MPC | 152347 | 2002 $PF_{186}$ |
| 2002 $PL_{186}$ | 15.5 | 0.15 | 20100104 | 169.72918 | 201.20233 | 73.00102 | 3.75393 | 0.1481702 | 3.0834495 | 72 | 6 | 2001–2009 | 0.44 | M-v | 0 | MPC | 145963 | 2002 $PL_{186}$ |
| 2002 $PQ_{188}$ | 15.3 | 0.15 | 20100104 | 63.85763 | 47.52058 | 340.28038 | 10.34608 | 0.0383266 | 3.1067797 | 44 | 3 | 2002–2009 | 0.36 | M-v | 2 | MPC | 162351 | 2002 $PQ_{188}$ |
| 2002 $PF_{192}$ | 18.9 | 0.15 | 20020814 | 339.69503 | 184.28878 | 162.61372 | 4.09201 | 0.1679982 | 2.1751807 | 12 | 1 | 28 days | 0.21 | | | MPC | | 2002 $PF_{192}$ |
| 2002 $PG_{192}$ | 15.8 | 0.15 | 20020814 | 110.36651 | 298.36398 | 265.00654 | 11.28402 | 0.0435008 | 2.9852030 | 9 | 1 | 14 days | 0.18 | | | MPC | | 2002 $PG_{192}$ |
| 2002 $PH_{192}$ | 15.9 | 0.15 | 20020814 | 34.71709 | 89.05690 | 180.99773 | 11.44880 | 0.1477038 | 2.5891728 | 9 | 1 | 21 days | 0.09 | | | MPC | | 2002 $PH_{192}$ |
| 2002 $PJ_{192}$ | 18.1 | 0.15 | 20020814 | 353.18487 | 151.92302 | 178.28153 | 9.75012 | 0.2426177 | 2.5292734 | 14 | 1 | 21 days | 0.37 | | | MPC | | 2002 $PJ_{192}$ |
| 2002 $PK_{192}$ | 18.0 | 0.15 | 20020705 | 2.11166 | 354.45358 | 297.25783 | 7.18554 | 0.2464611 | 2.8355074 | 8 | 1 | 29 days | 0.27 | | | MPC | | 2002 $PK_{192}$ |
| 2002 $PL_{192}$ | 15.9 | 0.15 | 20020814 | 36.27764 | 96.27246 | 173.76776 | 13.42707 | 0.1695253 | 2.5905889 | 9 | 1 | 21 days | 0.12 | | | MPC | | 2002 $PL_{192}$ |
| 2002 $QN_{1}$ | 15.5 | 0.15 | 20100104 | 114.04372 | 207.50119 | 131.25267 | 13.71235 | 0.1304967 | 3.1085039 | 25 | 4 | 2001–2009 | 0.51 | M-v | 1 | MPC | 145965 | 2002 $QN_{1}$ |
| 2002 $QY_{3}$ | 15.4 | 0.15 | 20100104 | 294.88624 | 293.04716 | 312.56550 | 11.77972 | 0.1395850 | 2.7485059 | 48 | 4 | 2002–2009 | 0.53 | M-v | 1 | MPC | 126630 | 2002 $QY_{3}$ |
| 2002 $QO_{11}$ | 18.2 | 0.15 | 20100104 | 44.63756 | 76.47113 | 275.43299 | 1.35246 | 0.2189122 | 2.2588242 | 44 | 2 | 2002–2009 | 0.40 | M-v | 3 | MPC | 166135 | 2002 $QO_{11}$ |
| 2002 $QW_{12}$ | 16.2 | 0.15 | 20100104 | 109.88127 | 197.05182 | 184.33321 | 7.41523 | 0.1915193 | 3.0159545 | 30 | 3 | 2002–2009 | 0.32 | M-v | 2 | MPC | 121121 | 2002 $QW_{12}$ |
| 2002 $QS_{14}$ | 17.4 | 0.15 | 20100104 | 92.96166 | 30.44452 | 299.67635 | 3.99434 | 0.1996788 | 2.2001938 | 42 | 3 | 1994–2009 | 0.42 | M-v | 3 | MPC | 165332 | 2002 $QS_{14}$ |
| 2002 $QO_{22}$ | 18.1 | 0.15 | 20100104 | 55.28339 | 116.69008 | 247.30570 | 1.31158 | 0.1763049 | 2.2237666 | 61 | 5 | 1999–2009 | 0.44 | M-v | 1 | MPC | 165333 | 2002 $QO_{22}$ |
| 2002 $QZ_{23}$ | 15.5 | 0.15 | 20100104 | 165.35454 | 134.29170 | 140.84197 | 8.29184 | 0.1444566 | 3.1190142 | 35 | 5 | 2000–2009 | 0.31 | M-v | 0 | MPC | 147224 | 2002 $QZ_{23}$ |
| 2002 $QV_{25}$ | 16.1 | 0.15 | 20100104 | 273.19405 | 195.93380 | 335.84009 | 3.38687 | 0.1032858 | 3.1764502 | 44 | 6 | 2002–2009 | 0.32 | M-v | 0 | MPC | 166135 | 2002 $QV_{25}$ |
| 2002 $QF_{28}$ | 17.1 | 0.15 | 20100104 | 57.89705 | 214.18113 | 160.45354 | 8.09728 | 0.1251256 | 2.2110289 | 58 | 4 | 2002–2009 | 0.47 | M-v | 1 | MPC | 166135 | 2002 $QF_{28}$ |
| 2002 $QL_{30}$ | 18.4 | 0.15 | 20100104 | 46.36522 | 285.27814 | 78.95796 | 1.74387 | 0.2239414 | 2.2432455 | 65 | 5 | 1992–2009 | 0.36 | M-v | 1 | MPC | 166135 | 2002 $QL_{30}$ |
| 2002 $QS_{33}$ | 15.1 | 0.15 | 20100104 | 61.18256 | 270.50143 | 122.36923 | 6.30949 | 0.1340798 | 3.1918950 | 49 | 6 | 2000–2009 | 0.46 | M-v | 0 | MPC | 162351 | 2002 $QS_{33}$ |
| 2002 $QD_{48}$ | 18.3 | 0.15 | 20100104 | 84.37044 | 12.55727 | 329.19370 | 3.84654 | 0.1781950 | 2.1939558 | 38 | 2 | 2002–2009 | 0.28 | M-v | 4 | MPC | 165333 | 2002 $QD_{48}$ |
| 2002 $QH_{51}$ | 15.3 | 0.15 | 20100104 | 262.42018 | 294.66015 | 319.22527 | 14.06185 | 0.1165187 | 2.8475992 | 69 | 4 | 2002–2009 | 0.51 | M-v | 1 | MPC | 126631 | 2002 $QH_{51}$ |
| 2002 $QG_{56}$ | 18.0 | 0.15 | 20100104 | 295.12006 | 127.38649 | 12.52939 | 3.24579 | 0.0109981 | 2.1868491 | 34 | 5 | 1998–2009 | 0.37 | M-v | 2 | MPC | 166136 | 2002 $QG_{56}$ |
| 2002 $QB_{58}$ | 15.2 | 0.15 | 20100104 | 157.86299 | 342.60374 | 285.83888 | 4.96839 | 0.1301033 | 3.2136445 | 58 | 6 | 1994–2009 | 0.39 | M-v | 0 | MPC | 166136 | 2002 $QB_{58}$ |
| 2002 $QH_{61}$ | 15.4 | 0.15 | 20100104 | 77.65064 | 91.94882 | 297.85767 | 7.73033 | 0.0791873 | 3.0928274 | 55 | 6 | 2002–2009 | 0.36 | M-v | 0 | MPC | 166136 | 2002 $QH_{61}$ |
| 2002 $QR_{61}$ | 16.3 | 0.15 | 20100104 | 202.22336 | 355.08032 | 330.67508 | 1.33008 | 0.0683309 | 2.8332410 | 56 | 6 | 2000–2009 | 0.33 | M-v | 1 | MPC | 150933 | 2002 $QR_{61}$ |
| 2002 $QU_{64}$ | 17.8 | 0.15 | 20100104 | 1.60413 | 41.85479 | 340.38582 | 5.58031 | 0.1904807 | 2.3050542 | 38 | 3 | 2002–2009 | 0.42 | M-v | 3 | MPC | 65356 | 2002 $QU_{64}$ |
| 2002 $QT_{66}$ | 18.7 | 0.15 | 20100104 | 162.57961 | 141.76067 | 140.78446 | 5.56534 | 0.0590482 | 2.1505200 | 32 | 6 | 1995–2009 | 0.38 | M-v | 0 | MPC | 110893 | 2002 $QT_{66}$ |
| 2002 $QN_{72}$ | 16.2 | 0.15 | 20100104 | 68.89267 | 259.72879 | 135.48554 | 10.85200 | 0.0613616 | 3.0926805 | 34 | 5 | 2002–2009 | 0.41 | M-v | 0 | MPC | 162352 | 2002 $QN_{72}$ |
| 2002 $QY_{78}$ | 18.3 | 0.15 | 20100104 | 87.67287 | 350.27922 | 350.44202 | 1.60001 | 0.1560299 | 2.2037243 | 29 | 2 | 2002–2009 | 0.35 | M-v | 3 | MPC | 165334 | 2002 $QY_{78}$ |
| 2002 $QA_{79}$ | 16.1 | 0.15 | 20100104 | 199.53754 | 292.87357 | 348.29735 | 4.01064 | 0.1438657 | 2.9869454 | 48 | 6 | 2002–2009 | 0.36 | M-v | 0 | MPC | 156881 | 2002 $QA_{79}$ |
| 2002 $QB_{79}$ | 16.4 | 0.15 | 20100104 | 54.44316 | 5.54343 | 2.71417 | 4.25989 | 0.0648654 | 3.2443884 | 42 | 4 | 2002–2009 | 0.37 | M-v | 1 | MPC | 166136 | 2002 $QB_{79}$ |
| 2002 $QY_{85}$ | 16.2 | 0.15 | 20100104 | 254.78762 | 167.54934 | 106.64340 | 6.95207 | 0.0303509 | 2.8395513 | 30 | 4 | 2002–2009 | 0.47 | M-v | 1 | MPC | 126632 | 2002 $QY_{85}$ |
| 2002 $QG_{87}$ | 17.9 | 0.15 | 20100104 | 166.19093 | 190.29937 | 73.49545 | 1.33771 | 0.1554951 | 2.1751440 | 33 | 5 | 1996–2009 | 0.29 | M-v | 1 | MPC | 140675 | 2002 $QG_{87}$ |
| 2002 $QH_{87}$ | 16.0 | 0.15 | 20100104 | 193.25063 | 265.37937 | 359.57983 | 8.20605 | 0.1193962 | 3.0900801 | 35 | 4 | 2002–2009 | 0.32 | M-v | 1 | MPC | 145971 | 2002 $QH_{87}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 $QQ_{88}$ | 18.8 | 0.15 | 20100104 | 49.73182 | 174.75841 | 189.85385 | 0.32209 | 0.2333674 | 2.2428830 | 28 | 2 | 2002–2009 | 0.30 | M-v | 4 | MPC | 165334 | 2002 $QQ_{88}$ |
| 2002 $QX_{90}$ | 17.8 | 0.15 | 20100104 | 109.60898 | 240.97541 | 109.34597 | 5.17455 | 0.1340604 | 2.1537121 | 43 | 6 | 1999–2009 | 0.41 | M-v | 1 | MPC | 166136 | 2002 $QX_{90}$ |
| 2002 $QH_{91}$ | 16.5 | 0.15 | 20100104 | 171.96504 | 40.31972 | 230.82523 | 9.64841 | 0.0988747 | 3.1362816 | 37 | 5 | 2000–2009 | 0.37 | M-v | 1 | MPC | 147225 | 2002 $QH_{91}$ |
| 2002 $QP_{91}$ | 16.1 | 0.15 | 20100104 | 336.40528 | 238.59057 | 261.17400 | 8.83063 | 0.0428793 | 3.0056263 | 30 | 6 | 2000–2009 | 0.32 | M-v | 0 | MPC | 158434 | 2002 $QP_{91}$ |
| 2002 $QE_{93}$ | 15.5 | 0.15 | 20100104 | 72.98331 | 289.50941 | 134.28043 | 11.62488 | 0.0815636 | 2.9982531 | 42 | 5 | 2002–2009 | 0.45 | M-v | 1 | MPC | 148874 | 2002 $QE_{93}$ |
| 2002 $QA_{96}$ | 16.1 | 0.15 | 20100104 | 125.66797 | 47.03550 | 261.89521 | 8.42305 | 0.0715763 | 3.1708949 | 26 | 3 | 2002–2009 | 0.25 | M-v | 3 | MPC | 165334 | 2002 $QA_{96}$ |
| 2002 $QY_{96}$ | 16.1 | 0.15 | 20100104 | 113.99442 | 312.27798 | 1.74292 | 5.29549 | 0.1307609 | 3.1815170 | 47 | 5 | 2000–2009 | 0.30 | M-v | 0 | MPC | 166136 | 2002 $QY_{96}$ |
| 2002 $QO_{97}$ | 16.5 | 0.15 | 20100104 | 63.89789 | 338.89128 | 46.61768 | 2.70323 | 0.1742891 | 3.1715035 | 53 | 5 | 2002–2009 | 0.41 | M-v | 0 | MPC | 166136 | 2002 $QO_{97}$ |
| 2002 $QR_{101}$ | 15.8 | 0.15 | 20100104 | 84.64603 | 97.92680 | 275.48705 | 6.51044 | 0.0538024 | 3.1091291 | 29 | 5 | 1997–2009 | 0.37 | M-v | 1 | MPC | 156882 | 2002 $QR_{101}$ |
| 2002 $QC_{102}$ | 16.5 | 0.15 | 20100104 | 97.41261 | 230.77636 | 119.68009 | 2.16599 | 0.1682246 | 3.1608932 | 39 | 4 | 2002–2009 | 0.45 | M-v | 1 | MPC | 150934 | 2002 $QC_{102}$ |
| 2002 $QJ_{102}$ | 15.4 | 0.15 | 20100104 | 36.12877 | 336.61723 | 77.46021 | 12.50671 | 0.0415158 | 3.1863758 | 34 | 5 | 2002–2009 | 0.43 | M-v | 0 | MPC | 166136 | 2002 $QJ_{102}$ |
| 2002 $QW_{102}$ | 17.9 | 0.15 | 20100104 | 26.62258 | 99.81108 | 301.70692 | 5.81059 | 0.1576600 | 2.2433477 | 43 | 3 | 2002–2009 | 0.30 | M-v | 2 | MPC | 166136 | 2002 $QW_{102}$ |
| 2002 $QU_{103}$ | 15.4 | 0.15 | 20100104 | 134.14069 | 274.38366 | 103.85169 | 6.67266 | 0.1196792 | 2.9382094 | 54 | 5 | 2002–2009 | 0.47 | M-v | 1 | MPC | 152349 | 2002 $QU_{103}$ |
| 2002 $QH_{104}$ | 15.5 | 0.15 | 20100104 | 73.60636 | 84.75928 | 303.49630 | 9.82833 | 0.0292561 | 3.0933277 | 32 | 6 | 1994–2009 | 0.41 | M-v | 0 | MPC | 148874 | 2002 $QH_{104}$ |
| 2002 $QF_{108}$ | 18.1 | 0.15 | 20100104 | 31.42274 | 221.30603 | 190.79977 | 0.62218 | 0.1904994 | 2.1963106 | 40 | 3 | 2002–2009 | 0.30 | M-v | 3 | MPC | 118019 | 2002 $QF_{108}$ |
| 2002 $QR_{113}$ | 15.8 | 0.15 | 20100104 | 200.30021 | 344.27706 | 256.37603 | 8.94070 | 0.1867547 | 3.0961270 | 23 | 2 | 2002–2009 | 0.33 | M-v | 3 | MPC | 165335 | 2002 $QR_{113}$ |
| 2002 $QZ_{113}$ | 15.7 | 0.15 | 20100104 | 152.33549 | 17.10305 | 271.62469 | 7.95502 | 0.0545851 | 3.1660354 | 45 | 5 | 2002–2009 | 0.32 | M-v | 1 | MPC | 166136 | 2002 $QZ_{113}$ |
| 2002 $QR_{118}$ | 17.9 | 0.15 | 20100104 | 11.50547 | 313.50876 | 107.32520 | 5.31409 | 0.1693752 | 2.2183344 | 39 | 3 | 2002–2009 | 0.32 | M-v | 1 | MPC | 166136 | 2002 $QR_{118}$ |
| 2002 $QD_{121}$ | 16.0 | 0.15 | 20100104 | 7.58251 | 147.00019 | 310.07071 | 8.67746 | 0.0389462 | 3.0939046 | 41 | 5 | 2002–2009 | 0.22 | M-v | 0 | MPC | 147226 | 2002 $QD_{121}$ |
| 2002 $QY_{122}$ | 17.3 | 0.15 | 20100104 | 59.73932 | 315.82114 | 44.59792 | 4.12265 | 0.2152623 | 2.2238183 | 82 | 4 | 2002–2009 | 0.40 | M-v | 1 | MPC | 166136 | 2002 $QY_{122}$ |
| 2002 $QC_{123}$ | 15.8 | 0.15 | 20100104 | 131.09979 | 56.74291 | 278.34455 | 8.20619 | 0.0668966 | 3.0887328 | 36 | 5 | 2002–2009 | 0.44 | M-v | 0 | MPC | 147226 | 2002 $QC_{123}$ |
| 2002 $QS_{125}$ | 16.8 | 0.15 | 20100104 | 220.00973 | 55.80013 | 297.37922 | 5.12212 | 0.0256121 | 2.6923086 | 21 | 3 | 2000–2009 | 0.39 | M-v | 4 | MPC | 141102 | 2002 $QS_{125}$ |
| 2002 $QE_{127}$ | 18.1 | 0.15 | 20100104 | 43.21961 | 47.87366 | 346.38738 | 1.71984 | 0.2066808 | 2.2043555 | 35 | 4 | 1999–2009 | 0.51 | M-v | 1 | MPC | 145977 | 2002 $QE_{127}$ |
| 2002 $QK_{127}$ | 15.5 | 0.15 | 20100104 | 68.07567 | 266.61815 | 129.81214 | 11.23685 | 0.0778960 | 3.0841653 | 37 | 5 | 2002–2009 | 0.36 | M-v | 0 | MPC | 145978 | 2002 $QK_{127}$ |
| 2002 $QG_{131}$ | 15.8 | 0.15 | 20100104 | 42.61983 | 315.22534 | 74.90991 | 4.17098 | 0.0730209 | 3.2253890 | 38 | 4 | 1997–2009 | 0.36 | M-v | 3 | MPC | 166136 | 2002 $QG_{131}$ |
| 2002 $QX_{131}$ | 18.4 | 0.15 | 20100104 | 41.37933 | 293.11913 | 110.25673 | 2.84939 | 0.2415995 | 2.2062851 | 38 | 3 | 1999–2009 | 0.44 | M-v | 2 | MPC | 166137 | 2002 $QX_{131}$ |
| 2002 $QZ_{131}$ | 18.0 | 0.15 | 20100104 | 8.81677 | 3.90207 | 32.57685 | 2.98942 | 0.2462895 | 2.2784394 | 56 | 3 | 2002–2009 | 0.38 | M-v | 1 | MPC | 166137 | 2002 $QZ_{131}$ |
| 2002 $QX_{132}$ | 18.6 | 0.15 | 20100104 | 9.89042 | 122.11273 | 279.10003 | 2.97361 | 0.2150804 | 2.2634641 | 34 | 3 | 2002–2009 | 0.47 | M-v | 2 | MPC | 164189 | 2002 $QX_{132}$ |
| 2002 $QO_{136}$ | 18.2 | 0.15 | 20100104 | 131.41001 | 73.52548 | 182.86664 | 2.21626 | 0.1657134 | 2.2224521 | 33 | 5 | 1995–2009 | 0.40 | M-v | 1 | MPC | 165335 | 2002 $QO_{136}$ |
| 2002 $QT_{136}$ | 15.3 | 0.15 | 20100104 | 63.19336 | 96.03316 | 289.06378 | 6.59107 | 0.0452261 | 3.1882310 | 37 | 4 | 2002–2009 | 0.36 | M-v | 1 | MPC | 165335 | 2002 $QT_{136}$ |
| 2002 $QY_{136}$ | 18.8 | 0.15 | 20020814 | 29.54624 | 27.76492 | 261.98592 | 3.94472 | 0.1841208 | 2.2115447 | 8 | 1 | 28 days | 0.19 | | | MPC | | 2002 $QY_{136}$ |
| 2002 $QZ_{136}$ | 16.9 | 0.15 | 20020814 | 322.83224 | 74.47794 | 307.72518 | 9.55896 | 0.1147165 | 2.9912654 | 9 | 1 | 28 days | 0.26 | | | MPC | | 2002 $QZ_{136}$ |
| 2002 $QD_{138}$ | 19.0 | 0.15 | 20020814 | 346.38359 | 21.00703 | 321.60517 | 2.94067 | 0.2385936 | 2.3097182 | 16 | 1 | 47 days | 0.24 | | | MPC | | 2002 $QD_{138}$ |
| 2002 $QG_{138}$ | 16.1 | 0.15 | 20020725 | 134.58983 | 43.27499 | 135.68827 | 0.88882 | 0.0419013 | 3.0214957 | 9 | 1 | 19 days | 0.22 | | E | MPC | | 2002 $QG_{138}$ |
| 2002 $QH_{138}$ | 17.4 | 0.15 | 20020725 | 82.24089 | 251.06326 | 322.89168 | 9.24871 | 0.1695513 | 2.4208940 | 8 | 1 | 10 days | 0.27 | | | MPC | | 2002 $QH_{138}$ |
| 2002 $QJ_{138}$ | 16.5 | 0.15 | 20020725 | 291.77738 | 75.99351 | 316.57527 | 9.33943 | 0.0788047 | 3.0721601 | 11 | 1 | 29 days | 0.21 | | | MPC | | 2002 $QJ_{138}$ |
| 2002 $QK_{138}$ | 17.7 | 0.15 | 20020725 | 332.09374 | 41.77588 | 306.08799 | 1.22598 | 0.0972969 | 2.5243257 | 15 | 1 | 36 days | 0.21 | | | MPC | | 2002 $QK_{138}$ |
| 2002 $QL_{138}$ | 18.0 | 0.15 | 20020814 | 337.43343 | 35.87389 | 317.85870 | 7.58192 | 0.1959156 | 2.5746087 | 23 | 1 | 53 days | 0.23 | | | MPC | | 2002 $QL_{138}$ |
| 2002 $QM_{138}$ | 16.7 | 0.15 | 20020814 | 314.13344 | 243.54536 | 141.79318 | 13.97676 | 0.2011010 | 3.1185382 | 17 | 1 | 31 days | 0.28 | | | MPC | | 2002 $QM_{138}$ |
| 2002 $QN_{138}$ | 18.8 | 0.15 | 20020725 | 331.57994 | 163.26339 | 191.78466 | 0.44763 | 0.2035572 | 2.3362713 | 15 | 1 | 29 days | 0.29 | | | MPC | | 2002 $QN_{138}$ |
| 2002 $QO_{138}$ | 19.1 | 0.15 | 20020725 | 27.67163 | 124.46883 | 143.28297 | 3.44331 | 0.2316290 | 2.2552529 | 16 | 1 | 36 days | 0.28 | | | MPC | | 2002 $QO_{138}$ |
| 2002 $QP_{138}$ | 17.4 | 0.15 | 20020814 | 340.03466 | 201.35009 | 144.04898 | 15.63152 | 0.1116538 | 2.5284121 | 18 | 1 | 55 days | 0.23 | | | MPC | | 2002 $QP_{138}$ |
| 2002 $QS_{138}$ | 16.5 | 0.15 | 20020725 | 348.53212 | 187.95045 | 141.73868 | 11.55529 | 0.0803501 | 3.0674739 | 20 | 1 | 38 days | 0.26 | | | MPC | | 2002 $QS_{138}$ |
| 2002 $QT_{138}$ | 17.8 | 0.15 | 20020725 | 340.64930 | 198.30170 | 143.45660 | 14.69374 | 0.1758443 | 2.5604713 | 15 | 1 | 41 days | 0.29 | | | MPC | | 2002 $QT_{138}$ |
| 2002 $QU_{138}$ | 17.9 | 0.15 | 20020725 | 2.39148 | 161.42363 | 148.43600 | 9.89146 | 0.1902453 | 2.7782242 | 20 | 1 | 44 days | 0.28 | | | MPC | | 2002 $QU_{138}$ |
| 2002 $QV_{138}$ | 17.6 | 0.15 | 20020725 | 325.72839 | 101.76028 | 263.46681 | 1.07880 | 0.2222220 | 2.5815946 | 12 | 1 | 36 days | 0.26 | | | MPC | | 2002 $QV_{138}$ |
| 2002 $QX_{138}$ | 18.9 | 0.15 | 20020725 | 329.47727 | 38.78390 | 311.45424 | 5.68546 | 0.1043968 | 2.1403655 | 14 | 1 | 29 days | 0.26 | | | MPC | | 2002 $QX_{138}$ |
| 2002 $QY_{138}$ | 18.7 | 0.15 | 20020725 | 340.77529 | 178.09708 | 163.42329 | 1.48167 | 0.2009497 | 2.3866833 | 21 | 1 | 36 days | 0.27 | | | MPC | | 2002 $QY_{138}$ |
| 2002 $QZ_{138}$ | 18.2 | 0.15 | 20020725 | 331.44141 | 163.59477 | 194.79772 | 1.93248 | 0.2308666 | 2.6214823 | 17 | 1 | 44 days | 0.24 | | | MPC | | 2002 $QZ_{138}$ |
| 2002 $QA_{139}$ | 17.3 | 0.15 | 20020725 | 55.72670 | 310.22938 | 293.98944 | 2.84830 | 0.1509855 | 2.7804153 | 22 | 1 | 36 days | 0.29 | | | MPC | | 2002 $QA_{139}$ |
| 2002 $QC_{139}$ | 18.8 | 0.15 | 20020814 | 320.23636 | 49.90313 | 318.66385 | 19.18954 | 0.1132463 | 1.9132793 | 12 | 1 | 19 days | 0.13 | | | MPC | | 2002 $QC_{139}$ |
| 2002 $QD_{139}$ | 16.8 | 0.15 | 20020725 | 318.73929 | 55.29468 | 315.83169 | 7.96304 | 0.1538100 | 3.0615306 | 14 | 1 | 29 days | 0.29 | | | MPC | | 2002 $QD_{139}$ |
| 2002 $QF_{139}$ | 18.8 | 0.15 | 20020814 | 329.59390 | 224.88459 | 142.10687 | 8.24157 | 0.2304323 | 2.2435227 | 12 | 1 | 22 days | 0.31 | | | MPC | | 2002 $QF_{139}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 $QG_{139}$ | 17.0 | 0.15 | 20020725 | 336.39196 | 205.98166 | 133.17420 | 15.23586 | 0.1190816 | 2.7092694 | 9 | 1 | 26 days | 0.19 | | | MPC | | 2002 $QG_{139}$ |
| 2002 $QH_{139}$ | 17.5 | 0.15 | 20020725 | 337.79195 | 124.75627 | 218.74499 | 2.85275 | 0.2228772 | 2.5556921 | 16 | 1 | 36 days | 0.24 | | | MPC | | 2002 $QH_{139}$ |
| 2002 $QJ_{139}$ | 16.4 | 0.15 | 20020725 | 357.99033 | 166.39079 | 145.79946 | 21.14822 | 0.0774254 | 2.8050788 | 15 | 1 | 46 days | 0.26 | | | MPC | | 2002 $QJ_{139}$ |
| 2002 $RP_2$ | 16.8 | 0.15 | 20100104 | 71.63255 | 0.40765 | 352.99715 | 4.96318 | 0.1697770 | 2.2248080 | 70 | 4 | 2002–2009 | 0.48 | M-v | 2 | MPC | 166137 | 2002 $RP_2$ |
| 2002 $RE_8$ | 17.4 | 0.15 | 20100104 | 358.52239 | 219.14567 | 167.90318 | 6.12345 | 0.2587713 | 2.3248048 | 69 | 3 | 2002–2009 | 0.63 | M-v | 3 | MPC | 61272 | 2002 $RE_8$ |
| 2002 $RJ_9$ | 17.6 | 0.15 | 20100104 | 67.85040 | 169.24486 | 160.91712 | 6.50160 | 0.1641403 | 2.2499574 | 45 | 4 | 2002–2009 | 0.42 | M-v | 1 | MPC | 163632 | 2002 $RJ_9$ |
| 2002 $RB_{10}$ | 15.3 | 0.15 | 20100104 | 115.96945 | 226.64880 | 117.35052 | 2.06966 | 0.1692701 | 3.1145358 | 101 | 5 | 2002–2009 | 0.48 | M-v | 1 | MPC | 152350 | 2002 $RB_{10}$ |
| 2002 $RZ_{12}$ | 17.1 | 0.15 | 20100104 | 54.51124 | 17.35893 | 358.82055 | 3.85930 | 0.2167619 | 2.2370271 | 72 | 4 | 2002–2009 | 0.48 | M-v | 2 | MPC | 166137 | 2002 $RZ_{12}$ |
| 2002 $RH_{22}$ | 15.6 | 0.15 | 20100104 | 101.94206 | 221.75828 | 125.94611 | 1.78655 | 0.2063735 | 3.1903756 | 99 | 5 | 2001–2009 | 0.48 | M-v | 1 | MPC | 158435 | 2002 $RH_{22}$ |
| 2002 $RS_{23}$ | 15.1 | 0.15 | 20100104 | 34.09413 | 274.26826 | 137.52847 | 2.36352 | 0.1248748 | 3.2531253 | 86 | 7 | 1993–2009 | 0.49 | M-v | 0 | MPC | 158435 | 2002 $RS_{23}$ |
| 2002 $RW_{29}$ | 17.8 | 0.15 | 20100104 | 30.96348 | 111.10267 | 267.37350 | 3.70971 | 0.2607739 | 2.2707535 | 84 | 3 | 2002–2009 | 0.47 | M-v | 2 | MPC | 166137 | 2002 $RW_{29}$ |
| 2002 $RA_{33}$ | 17.6 | 0.15 | 20100104 | 50.42582 | 74.19830 | 276.81962 | 1.71441 | 0.1886018 | 2.2723996 | 89 | 4 | 2000–2009 | 0.47 | M-v | 2 | MPC | 166137 | 2002 $RA_{33}$ |
| 2002 $RZ_{58}$ | 17.2 | 0.15 | 20100104 | 69.86791 | 71.05392 | 278.25389 | 3.99000 | 0.1965625 | 2.2346198 | 67 | 2 | 2002–2009 | 0.38 | M-v | 2 | MPC | 165337 | 2002 $RZ_{58}$ |
| 2002 $RJ_{61}$ | 16.8 | 0.15 | 20100104 | 56.71067 | 327.55558 | 29.52835 | 6.67009 | 0.2101066 | 2.2624118 | 111 | 3 | 2002–2009 | 0.50 | M-v | 2 | MPC | 166137 | 2002 $RJ_{61}$ |
| 2002 $RZ_{66}$ | 16.5 | 0.15 | 20100104 | 92.00498 | 33.69376 | 295.54744 | 6.69670 | 0.1824809 | 2.2258141 | 68 | 4 | 2002–2009 | 0.51 | M-v | 2 | MPC | 166137 | 2002 $RZ_{66}$ |
| 2002 $RC_{79}$ | 17.4 | 0.15 | 20100104 | 38.45004 | 346.99684 | 358.22924 | 5.21994 | 0.1906517 | 2.2986356 | 87 | 4 | 1995–2009 | 0.48 | M-v | 2 | MPC | 164190 | 2002 $RC_{79}$ |
| 2002 $RT_{79}$ | 17.2 | 0.15 | 20100104 | 80.13740 | 354.80080 | 333.98492 | 3.98609 | 0.1728514 | 2.2422209 | 66 | 3 | 2002–2009 | 0.51 | M-v | 2 | MPC | 165337 | 2002 $RT_{79}$ |
| 2002 $RV_{110}$ | 16.7 | 0.15 | 20100104 | 1.00923 | 186.91761 | 211.86114 | 6.21325 | 0.1025555 | 2.2983276 | 82 | 4 | 2001–2009 | 0.41 | M-v | 2 | MPC | 166138 | 2002 $RV_{110}$ |
| 2002 $RL_{111}$ | 16.6 | 0.15 | 20100104 | 83.05271 | 86.11183 | 258.63867 | 3.91174 | 0.2093543 | 2.2406622 | 76 | 3 | 2002–2009 | 0.53 | M-v | 3 | MPC | 120288 | 2002 $RL_{111}$ |
| 2002 $RZ_{114}$ | 15.2 | 0.15 | 20100104 | 111.23726 | 75.78608 | 293.86618 | 6.37519 | 0.0830118 | 3.0571895 | 71 | 7 | 1994–2009 | 0.47 | M-v | 0 | MPC | 159683 | 2002 $RZ_{114}$ |
| 2002 $RS_{118}$ | 15.4 | 0.15 | 20100104 | 135.07546 | 286.08279 | 96.67122 | 6.39940 | 0.0597979 | 2.9274514 | 48 | 6 | 2002–2009 | 0.50 | M-v | 1 | MPC | 152351 | 2002 $RS_{118}$ |
| 2002 $RR_{119}$ | 16.6 | 0.15 | 20100104 | 23.08391 | 357.66471 | 331.31434 | 6.38419 | 0.2415558 | 2.3773069 | 72 | 5 | 2002–2009 | 0.56 | M-v | 2 | MPC | 164191 | 2002 $RR_{119}$ |
| 2002 $RM_{120}$ | 17.1 | 0.15 | 20100104 | 156.24453 | 174.09355 | 103.98536 | 4.89439 | 0.2257771 | 2.1627175 | 95 | 4 | 2002–2009 | 0.49 | M-v | 1 | MPC | 166138 | 2002 $RM_{120}$ |
| 2002 $RQ_{136}$ | 15.8 | 0.15 | 20100104 | 181.88292 | 202.39559 | 104.72802 | 5.58821 | 0.2061400 | 2.9821038 | 60 | 5 | 2001–2009 | 0.46 | M-v | 1 | MPC | 137964 | 2002 $RQ_{136}$ |
| 2002 $RZ_{136}$ | 17.9 | 0.15 | 20100104 | 49.33752 | 240.37590 | 116.92259 | 1.42832 | 0.2328513 | 2.2540872 | 80 | 4 | 2000–2009 | 0.50 | M-v | 1 | MPC | 166138 | 2002 $RZ_{136}$ |
| 2002 $RJ_{140}$ | 15.4 | 0.15 | 20100104 | 218.25786 | 252.62932 | 75.72978 | 9.26634 | 0.1010932 | 2.8038463 | 60 | 7 | 1998–2009 | 0.56 | M-v | 1 | MPC | 152351 | 2002 $RJ_{140}$ |
| 2002 $RS_{141}$ | 17.7 | 0.15 | 20100104 | 42.90548 | 122.61622 | 255.91230 | 2.31529 | 0.2785945 | 2.2544870 | 85 | 4 | 1992–2009 | 0.50 | M-v | 1 | MPC | 166138 | 2002 $RS_{141}$ |
| 2002 $RU_{141}$ | 17.9 | 0.15 | 20100104 | 89.30084 | 82.09001 | 286.46681 | 4.12571 | 0.1617356 | 2.1754465 | 46 | 4 | 2002–2009 | 0.36 | M-v | 1 | MPC | 166138 | 2002 $RU_{141}$ |
| 2002 $RV_{149}$ | 15.3 | 0.15 | 20100104 | 168.03172 | 345.54881 | 310.92598 | 9.18697 | 0.2222854 | 3.0777099 | 87 | 5 | 2002–2009 | 0.42 | M-v | 1 | MPC | 148877 | 2002 $RV_{149}$ |
| 2002 $RG_{151}$ | 17.2 | 0.15 | 20100104 | 16.17252 | 102.31681 | 273.83350 | 5.79665 | 0.1528463 | 2.2935927 | 71 | 3 | 2002–2009 | 0.48 | M-v | 2 | MPC | 164191 | 2002 $RG_{151}$ |
| 2002 $RO_{151}$ | 15.6 | 0.15 | 20100104 | 40.67910 | 130.21502 | 290.89336 | 8.23940 | 0.0664889 | 3.1752274 | 35 | 4 | 2002–2009 | 0.37 | M-v | 1 | MPC | 166138 | 2002 $RO_{151}$ |
| 2002 $RC_{153}$ | 15.2 | 0.15 | 20100104 | 73.66732 | 96.10120 | 327.45635 | 12.74145 | 0.0541553 | 3.0565132 | 50 | 6 | 2002–2009 | 0.48 | M-v | 0 | MPC | 158811 | 2002 $RC_{153}$ |
| 2002 $RE_{158}$ | 18.4 | 0.15 | 20100104 | 67.65910 | 61.72934 | 303.40756 | 1.08949 | 0.1554404 | 2.2193124 | 23 | 4 | 1997–2009 | 0.37 | M-v | 1 | MPC | 129614 | 2002 $RE_{158}$ |
| 2002 $RO_{172}$ | 15.9 | 0.15 | 20100104 | 116.22779 | 97.60779 | 260.99665 | 3.31400 | 0.1381418 | 3.0816441 | 72 | 8 | 1997–2009 | 0.44 | M-v | 0 | MPC | 158436 | 2002 $RO_{172}$ |
| 2002 $RR_{172}$ | 15.1 | 0.15 | 20100104 | 103.02987 | 78.41000 | 277.47907 | 3.39185 | 0.1698857 | 3.1524556 | 117 | 5 | 1994–2009 | 0.45 | M-v | 1 | MPC | 158436 | 2002 $RR_{172}$ |
| 2002 $RA_{173}$ | 17.4 | 0.15 | 20100104 | 86.94097 | 257.82651 | 77.95043 | 5.88791 | 0.2377370 | 2.2220598 | 42 | 4 | 2002–2009 | 0.41 | M-v | 1 | MPC | 157978 | 2002 $RA_{173}$ |
| 2002 $RM_{175}$ | 17.1 | 0.15 | 20100104 | 25.77504 | 109.77016 | 303.40395 | 6.34211 | 0.2014197 | 2.2337680 | 57 | 5 | 1999–2009 | 0.59 | M-v | 1 | MPC | 116220 | 2002 $RM_{175}$ |
| 2002 $RN_{175}$ | 17.2 | 0.15 | 20100104 | 9.35757 | 164.62874 | 230.27341 | 5.23371 | 0.2403970 | 2.2965555 | 111 | 2 | 2002–2009 | 0.46 | M-v | 3 | MPC | 166138 | 2002 $RN_{175}$ |
| 2002 $RL_{177}$ | 17.8 | 0.15 | 20100104 | 23.21010 | 63.59143 | 307.52928 | 3.32222 | 0.1611267 | 2.2973639 | 42 | 3 | 2002–2009 | 0.32 | M-v | 2 | MPC | 166138 | 2002 $RL_{177}$ |
| 2002 $RS_{181}$ | 16.8 | 0.15 | 20100104 | 46.97993 | 178.93375 | 185.55341 | 6.46357 | 0.2318381 | 2.2630809 | 109 | 3 | 2002–2009 | 0.52 | M-v | 2 | MPC | 166138 | 2002 $RS_{181}$ |
| 2002 $RM_{182}$ | 15.3 | 0.15 | 20100104 | 134.25463 | 47.17441 | 270.09664 | 13.09236 | 0.1279924 | 3.1789837 | 36 | 4 | 2002–2009 | 0.49 | M-v | 2 | MPC | 158436 | 2002 $RM_{182}$ |
| 2002 $RW_{188}$ | 16.2 | 0.15 | 20100104 | 104.72854 | 326.55111 | 20.61621 | 0.77405 | 0.1905135 | 3.1990202 | 63 | 5 | 2002–2009 | 0.39 | M-v | 1 | MPC | 145987 | 2002 $RW_{188}$ |
| 2002 $RX_{191}$ | 17.3 | 0.15 | 20100104 | 176.95626 | 259.39509 | 11.46374 | 2.06293 | 0.1364973 | 2.1502059 | 46 | 6 | 1998–2009 | 0.46 | M-v | 1 | MPC | 112817 | 2002 $RX_{191}$ |
| 2002 $RE_{203}$ | 18.0 | 0.15 | 20100104 | 54.80339 | 57.07387 | 311.26918 | 4.43060 | 0.1903837 | 2.2435291 | 30 | 4 | 1997–2009 | 0.48 | M-v | 2 | MPC | 129615 | 2002 $RE_{203}$ |
| 2002 $RG_{203}$ | 17.1 | 0.15 | 20100104 | 42.95756 | 90.45759 | 254.49552 | 4.95909 | 0.2106128 | 2.2972227 | 60 | 5 | 2002–2009 | 0.55 | M-v | 1 | MPC | 164191 | 2002 $RG_{203}$ |
| 2002 $RJ_{207}$ | 16.6 | 0.15 | 20100104 | 24.46412 | 75.70816 | 330.94407 | 5.65941 | 0.0333454 | 2.2278127 | 67 | 5 | 1999–2009 | 0.54 | M-v | 1 | MPC | 166138 | 2002 $RJ_{207}$ |
| 2002 $RO_{214}$ | 16.7 | 0.15 | 20100104 | 55.57134 | 351.89437 | 23.51085 | 8.11013 | 0.0739573 | 2.2154093 | 34 | 4 | 1999–2009 | 0.55 | M-v | 1 | MPC | 166138 | 2002 $RO_{214}$ |
| 2002 $RJ_{215}$ | 17.6 | 0.15 | 20100104 | 15.70803 | 248.52159 | 127.93601 | 5.32036 | 0.2222025 | 2.3031417 | 33 | 3 | 2002–2009 | 0.59 | M-v | 3 | MPC | 163634 | 2002 $RJ_{215}$ |
| 2002 $RK_{217}$ | 16.1 | 0.15 | 20100104 | 97.01957 | 9.55507 | 331.16904 | 3.49328 | 0.1522774 | 3.2175184 | 56 | 3 | 2002–2009 | 0.60 | M-v | 4 | MPC | 145989 | 2002 $RK_{217}$ |
| 2002 $RN_{218}$ | 15.6 | 0.15 | 20100104 | 123.13879 | 289.67113 | 125.30904 | 6.58647 | 0.0564082 | 2.8588442 | 48 | 5 | 2002–2009 | 0.50 | M-v | 1 | MPC | 155953 | 2002 $RN_{218}$ |
| 2002 $RB_{219}$ | 17.8 | 0.15 | 20100104 | 59.82781 | 4.32574 | 351.17799 | 5.51370 | 0.1798422 | 2.2322106 | 47 | 3 | 2002–2009 | 0.48 | M-v | 3 | MPC | 165338 | 2002 $RB_{219}$ |
| 2002 $RX_{223}$ | 15.8 | 0.15 | 20100104 | 168.47689 | 295.59142 | 18.44313 | 4.98557 | 0.1258007 | 3.0387394 | 53 | 7 | 2002–2009 | 0.39 | M-v | 0 | MPC | 159079 | 2002 $RX_{223}$ |
| 2002 $RK_{224}$ | 14.6 | 0.15 | 20100104 | 167.40567 | 348.66536 | 287.90338 | 7.89395 | 0.0710767 | 3.1771468 | 86 | 6 | 2002–2009 | 0.53 | M-v | 0 | MPC | 148878 | 2002 $RK_{224}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 $RB_{225}$ | 15.8 | 0.15 | 20100104 | 140.83636 | 56.53941 | 238.95956 | 4.28933 | 0.1523656 | 3.2011745 | 49 | 5 | 2002–2009 | 0.41 | M-v | 0 | MPC | 145989 | 2002 $RB_{225}$ |
| 2002 $RU_{225}$ | 17.3 | 0.15 | 20100104 | 121.70697 | 25.14006 | 277.80788 | 3.84296 | 0.2185548 | 2.1963983 | 43 | 5 | 2002–2009 | 0.57 | M-v | 1 | MPC | 166138 | 2002 $RU_{225}$ |
| 2002 $RQ_{234}$ | 15.9 | 0.15 | 20100104 | 103.01276 | 2.32113 | 343.49300 | 10.21953 | 0.0818301 | 3.1703364 | 34 | 4 | 2002–2009 | 0.41 | M-v | 2 | MPC | 147230 | 2002 $RQ_{234}$ |
| 2002 $RE_{242}$ | 16.2 | 0.15 | 20100104 | 43.25317 | 161.94478 | 252.84734 | 3.49467 | 0.1400303 | 3.1911557 | 40 | 5 | 2002–2009 | 0.49 | M-v | 0 | MPC | 158437 | 2002 $RE_{242}$ |
| 2002 $RW_{243}$ | 15.5 | 0.15 | 20100104 | 172.24573 | 290.96809 | 337.40017 | 9.84787 | 0.1084620 | 3.1313233 | 51 | 6 | 1991–2009 | 0.43 | M-v | 0 | MPC | 148878 | 2002 $RW_{243}$ |
| 2002 $RP_{244}$ | 17.9 | 0.15 | 20100104 | 49.22796 | 243.29120 | 128.29562 | 5.04393 | 0.1473908 | 2.2250281 | 37 | 3 | 2002–2009 | 0.39 | M-v | 3 | MPC | 166138 | 2002 $RP_{244}$ |
| 2002 $RR_{248}$ | 17.8 | 0.15 | 20100104 | 10.48002 | 261.67054 | 161.96032 | 4.57933 | 0.1275487 | 2.2224079 | 52 | 6 | 1994–2009 | 0.41 | M-v | 0 | MPC | 165338 | 2002 $RR_{248}$ |
| 2002 $RN_{250}$ | 16.0 | 0.15 | 20100104 | 73.16024 | 91.97685 | 298.78506 | 8.17179 | 0.0874976 | 3.1095871 | 63 | 6 | 1994–2009 | 0.32 | M-v | 0 | MPC | 166138 | 2002 $RN_{250}$ |
| 2002 $RT_{250}$ | 15.3 | 0.15 | 20100104 | 86.72434 | 70.06102 | 291.83762 | 9.49431 | 0.0861524 | 3.1418883 | 41 | 4 | 2002–2009 | 0.45 | M-v | 0 | MPC | 147230 | 2002 $RT_{250}$ |
| 2002 $RV_{255}$ | 15.3 | 0.15 | 20100104 | 205.67995 | 316.50668 | 278.08726 | 8.94489 | 0.0783126 | 3.1432748 | 35 | 4 | 2002–2009 | 0.40 | M-v | 0 | MPC | 166139 | 2002 $RV_{255}$ |
| 2002 $RW_{263}$ | 15.6 | 0.15 | 20100104 | 161.42732 | 263.57949 | 50.23404 | 6.12216 | 0.1239203 | 3.1114921 | 51 | 6 | 1991–2009 | 0.33 | M-v | 0 | MPC | 150937 | 2002 $RW_{263}$ |
| 2002 $RK_{267}$ | 15.6 | 0.15 | 20100104 | 136.09291 | 236.48448 | 90.43558 | 10.38482 | 0.0701363 | 3.1438102 | 38 | 5 | 2002–2009 | 0.38 | M-v | 0 | MPC | 166139 | 2002 $RK_{267}$ |
| 2002 $RB_{280}$ | 17.6 | 0.15 | 20100104 | 358.85549 | 122.50744 | 291.99739 | 2.59091 | 0.1032414 | 2.2600221 | 52 | 4 | 1997–2009 | 0.31 | M-v | 1 | MPC | 166139 | 2002 $RB_{280}$ |
| 2002 $RB_{282}$ | 17.9 | 0.15 | 20100104 | 19.34072 | 268.75561 | 139.99797 | 2.67501 | 0.2363821 | 2.2497962 | 55 | 3 | 2002–2009 | 0.43 | M-v | 3 | MPC | 165339 | 2002 $RB_{282}$ |
| 2002 $RG_{282}$ | 16.1 | 0.15 | 20020903 | 196.51208 | 191.60629 | 326.12901 | 9.85878 | 0.1507574 | 2.6063639 | 9 | 1 | 7 days | 0.26 | | | MPC | | 2002 $RG_{282}$ |
| 2002 $RH_{282}$ | 18.3 | 0.15 | 20020725 | 346.09037 | 178.40708 | 152.18102 | 2.43632 | 0.2168313 | 2.3108779 | 18 | 1 | 48 days | 0.34 | | | MPC | | 2002 $RH_{282}$ |
| 2002 $SG_{15}$ | 14.6 | 0.15 | 20100104 | 157.95845 | 17.09450 | 294.02245 | 16.27526 | 0.1918934 | 3.1208429 | 78 | 5 | 1999–2009 | 0.55 | M-v | 1 | MPC | 162356 | 2002 $SG_{15}$ |
| 2002 $SC_{18}$ | 17.8 | 0.15 | 20100104 | 108.41780 | 142.72978 | 173.87442 | 1.49527 | 0.1799373 | 2.2199140 | 50 | 4 | 2002–2009 | 0.41 | M-v | 1 | MPC | 140107 | 2002 $SC_{18}$ |
| 2002 $SJ_{18}$ | 18.3 | 0.15 | 20100104 | 106.91914 | 152.29481 | 170.22336 | 2.68771 | 0.1270223 | 2.2231663 | 31 | 5 | 2001–2009 | 0.25 | M-v | 0 | MPC | 139719 | 2002 $SJ_{18}$ |
| 2002 $SN_{20}$ | 15.7 | 0.15 | 20100104 | 98.04249 | 325.26886 | 27.08203 | 6.15770 | 0.1204648 | 3.2433083 | 69 | 3 | 2002–2009 | 0.45 | M-v | 2 | MPC | 150938 | 2002 $SN_{20}$ |
| 2002 $SV_{21}$ | 16.9 | 0.15 | 20100104 | 51.60694 | 359.64211 | 13.44100 | 5.80785 | 0.1688983 | 2.2486294 | 67 | 3 | 2002–2009 | 0.55 | M-v | 3 | MPC | 166139 | 2002 $SV_{21}$ |
| 2002 $SB_{24}$ | 15.3 | 0.15 | 20100104 | 126.56467 | 227.41008 | 111.99268 | 13.62289 | 0.2752816 | 3.1286107 | 43 | 3 | 2002–2009 | 0.47 | M-v | 3 | MPC | 166139 | 2002 $SB_{24}$ |
| 2002 $SS_{26}$ | 16.9 | 0.15 | 20100104 | 359.77362 | 239.05556 | 192.82672 | 6.58843 | 0.0806762 | 2.2418826 | 79 | 5 | 2002–2009 | 0.52 | M-v | 0 | MPC | 166139 | 2002 $SS_{26}$ |
| 2002 $SB_{42}$ | 16.8 | 0.15 | 20100104 | 330.62699 | 317.09956 | 11.22532 | 2.76924 | 0.1138574 | 2.5175975 | 81 | 5 | 1998–2008 | 0.40 | M-v | 3 | MPC | 133357 | 2002 $SB_{42}$ |
| 2002 $SF_{44}$ | 16.8 | 0.15 | 20100104 | 106.14871 | 317.15963 | 22.20983 | 5.17775 | 0.1727685 | 2.2170321 | 76 | 5 | 2001–2009 | 0.50 | M-v | 1 | MPC | 114671 | 2002 $SF_{44}$ |
| 2002 $SQ_{44}$ | 17.1 | 0.15 | 20100104 | 96.07690 | 184.38956 | 121.48461 | 1.27073 | 0.2172420 | 2.2625504 | 68 | 3 | 2002–2009 | 0.44 | M-v | 2 | MPC | 166139 | 2002 $SQ_{44}$ |
| 2002 $SO_{52}$ | 17.5 | 0.15 | 20100104 | 85.04232 | 250.16181 | 112.36018 | 6.84788 | 0.2015558 | 2.1972709 | 47 | 6 | 1997–2009 | 0.42 | M-v | 1 | MPC | 140108 | 2002 $SO_{52}$ |
| 2002 $SQ_{53}$ | 16.9 | 0.15 | 20100104 | 95.82685 | 22.86461 | 299.92202 | 10.05869 | 0.1853840 | 2.2416667 | 42 | 5 | 2002–2009 | 0.54 | M-v | 1 | MPC | 166139 | 2002 $SQ_{53}$ |
| 2002 $SE_{54}$ | 17.3 | 0.15 | 20100104 | 30.12368 | 158.26411 | 228.30682 | 5.61520 | 0.1910397 | 2.2543594 | 85 | 3 | 2002–2009 | 0.53 | M-v | 3 | MPC | 166139 | 2002 $SE_{54}$ |
| 2002 $SA_{60}$ | 17.6 | 0.15 | 20100104 | 111.86165 | 229.31497 | 70.46530 | 5.35994 | 0.1859649 | 2.2120125 | 38 | 4 | 2002–2009 | 0.26 | M-v | 0 | MPC | 166139 | 2002 $SA_{60}$ |
| 2002 $SN_{72}$ | 18.3 | 0.15 | 20100104 | 206.05333 | 303.67806 | 298.95872 | 1.32260 | 0.1208741 | 2.1515193 | 33 | 4 | 2001–2009 | 0.37 | M-v | 1 | MPC | 142626 | 2002 $SN_{72}$ |
| 2002 $SB_{74}$ | 16.6 | 0.15 | 20021013 | 14.23893 | 218.45947 | 128.15091 | 9.07660 | 0.2897956 | 2.6884721 | 16 | 1 | 47 days | 0.62 | | | MPC | | 2002 $SB_{74}$ |
| 2002 $TH_2$ | 16.8 | 0.15 | 20100104 | 61.47349 | 132.23698 | 213.38968 | 3.87050 | 0.2198607 | 2.2730078 | 134 | 3 | 2002–2009 | 0.53 | M-v | 3 | MPC | 166140 | 2002 $TH_2$ |
| 2002 $TO_2$ | 17.7 | 0.15 | 20100104 | 22.76542 | 39.66559 | 9.62459 | 3.29880 | 0.2074588 | 2.2654904 | 70 | 3 | 2002–2009 | 0.47 | M-v | 3 | MPC | 165340 | 2002 $TO_2$ |
| 2002 $TA_3$ | 16.7 | 0.15 | 20100104 | 96.67866 | 344.22306 | 12.41944 | 3.99727 | 0.1786365 | 2.1942774 | 125 | 4 | 2002–2009 | 0.42 | M-v | 1 | MPC | 118022 | 2002 $TA_3$ |
| 2002 $TN_8$ | 17.1 | 0.15 | 20100104 | 34.91603 | 41.30293 | 356.19364 | 3.05054 | 0.1697888 | 2.2512570 | 83 | 3 | 2002–2009 | 0.51 | M-v | 2 | MPC | 166140 | 2002 $TN_8$ |
| 2002 $TA_{14}$ | 16.5 | 0.15 | 20100104 | 53.57463 | 251.01047 | 152.66667 | 5.07596 | 0.1371000 | 2.2184860 | 103 | 5 | 2000–2009 | 0.50 | M-v | 1 | MPC | 119584 | 2002 $TA_{14}$ |
| 2002 $TA_{17}$ | 17.6 | 0.15 | 20100104 | 65.71606 | 20.54479 | 1.44514 | 5.62689 | 0.0874370 | 2.2050261 | 40 | 5 | 2002–2009 | 0.47 | M-v | 1 | MPC | 114672 | 2002 $TA_{17}$ |
| 2002 $TD_{17}$ | 16.9 | 0.15 | 20100104 | 23.91213 | 1.63020 | 2.04519 | 8.45882 | 0.1369059 | 2.3166935 | 63 | 2 | 2002–2009 | 0.53 | M-v | 3 | MPC | 166140 | 2002 $TD_{17}$ |
| 2002 $TA_{23}$ | 17.5 | 0.15 | 20100104 | 32.86116 | 158.72779 | 197.89145 | 2.00270 | 0.2413081 | 2.3137212 | 111 | 5 | 2002–2009 | 0.43 | M-v | 1 | MPC | 166140 | 2002 $TA_{23}$ |
| 2002 $TQ_{23}$ | 17.5 | 0.15 | 20100104 | 344.90678 | 246.86120 | 152.01528 | 1.93344 | 0.1883191 | 2.3595278 | 48 | 5 | 1991–2009 | 0.38 | M-v | 1 | MPC | 162357 | 2002 $TQ_{23}$ |
| 2002 $TC_{33}$ | 15.6 | 0.15 | 20100104 | 163.31317 | 293.60985 | 9.34219 | 4.46108 | 0.1528502 | 3.1209269 | 44 | 5 | 2002–2009 | 0.39 | M-v | 1 | MPC | 148880 | 2002 $TC_{33}$ |
| 2002 $TH_{37}$ | 17.6 | 0.15 | 20100104 | 60.40103 | 135.86235 | 229.79562 | 1.05886 | 0.2119625 | 2.2593155 | 44 | 4 | 2002–2009 | 0.42 | M-v | 2 | MPC | 139174 | 2002 $TH_{37}$ |
| 2002 $TS_{42}$ | 17.2 | 0.15 | 20100104 | 25.38634 | 173.23561 | 197.22766 | 5.95536 | 0.2238744 | 2.3242239 | 68 | 2 | 2002–2009 | 0.45 | M-v | 2 | MPC | 164193 | 2002 $TS_{42}$ |
| 2002 $TG_{43}$ | 15.3 | 0.15 | 20100104 | 82.80912 | 281.97957 | 154.04716 | 10.58693 | 0.0763870 | 2.9662624 | 48 | 5 | 2002–2009 | 0.52 | M-v | 1 | MPC | 150938 | 2002 $TG_{43}$ |
| 2002 $TF_{44}$ | 17.3 | 0.15 | 20100104 | 20.14498 | 335.08544 | 48.23580 | 2.98207 | 0.1929472 | 2.3202312 | 98 | 4 | 1995–2009 | 0.57 | M-v | 2 | MPC | 164193 | 2002 $TF_{44}$ |
| 2002 $TY_{45}$ | 17.5 | 0.15 | 20100104 | 92.01419 | 337.01929 | 21.04189 | 3.88853 | 0.1827933 | 2.2166778 | 65 | 5 | 2001–2009 | 0.40 | M-v | 1 | MPC | 116223 | 2002 $TY_{45}$ |
| 2002 $TL_{54}$ | 16.5 | 0.15 | 20100104 | 33.99430 | 20.47894 | 45.39434 | 7.28897 | 0.0428268 | 2.2211459 | 55 | 6 | 1999–2009 | 0.64 | M-v | 1 | MPC | 118022 | 2002 $TL_{54}$ |
| 2002 $TY_{57}$ | 19.2 | 0.15 | 20100104 | 258.71527 | 259.73048 | 119.05344 | 3.45555 | 0.3276064 | 1.9216491 | 122 | 3 | 2002–2007 | 0.45 | M-v | 2 | MPC | 94853 | 2002 $TY_{57}$ |
| 2002 $TT_{60}$ | 16.8 | 0.15 | 20100104 | 27.97114 | 206.29170 | 181.06064 | 24.62347 | 0.2658868 | 2.3055409 | 44 | 2 | 2002–2009 | 0.51 | M-v | 3 | MPC | 166140 | 2002 $TT_{60}$ |
| 2002 $TD_{61}$ | 15.2 | 0.15 | 20100104 | 162.31504 | 35.67752 | 274.28404 | 8.32276 | 0.1296923 | 3.1175468 | 85 | 5 | 2002–2009 | 0.49 | M-v | 0 | MPC | 159079 | 2002 $TD_{61}$ |
| 2002 $TC_{62}$ | 17.1 | 0.15 | 20100104 | 36.45024 | 132.13139 | 265.63155 | 6.28733 | 0.0991760 | 2.2417554 | 56 | 5 | 1999–2009 | 0.32 | M-v | 0 | MPC | 166140 | 2002 $TC_{62}$ |
| 2002 $TE_{63}$ | 17.4 | 0.15 | 20100104 | 37.17857 | 177.28604 | 217.35018 | 6.34456 | 0.0832261 | 2.2495450 | 48 | 4 | 2002–2009 | 0.43 | M-v | 1 | MPC | 166140 | 2002 $TE_{63}$ |

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| 2002 $TR_{63}$ | 17.7 | 0.15 | 20100104 | 338.39336 | 226.31179 | 206.18569 | 4.59036 | 0.1856425 | 2.3293766 | 40 | 5 | 1995–2009 | 0.49 | M-v | 1 | MPC | 166140 | 2002 $TR_{63}$ |
| 2002 $TT_{63}$ | 17.7 | 0.15 | 20100104 | 46.79709 | 337.74363 | 16.87254 | 4.51363 | 0.1423331 | 2.3035677 | 53 | 3 | 2002–2009 | 0.50 | M-v | 3 | MPC | 166140 | 2002 $TT_{63}$ |
| 2002 $TS_{67}$ | 18.9 | 0.15 | 20100104 | 358.61133 | 322.76534 | 79.50859 | 9.69229 | 0.4910059 | 2.3461000 | 163 | 3 | 2002–2007 | 0.42 | M-v | 1 | MPC | 119584 | 2002 $TS_{67}$ |
| 2002 $TD_{73}$ | 16.7 | 0.15 | 20100104 | 36.58570 | 163.24787 | 240.96078 | 6.04624 | 0.0581341 | 2.2416235 | 53 | 2 | 2002–2009 | 0.48 | M-v | 3 | MPC | 165341 | 2002 $TD_{73}$ |
| 2002 $TR_{73}$ | 16.9 | 0.15 | 20100104 | 70.64055 | 74.95605 | 265.96744 | 4.67491 | 0.1646327 | 2.2729831 | 57 | 3 | 2002–2009 | 0.56 | M-v | 3 | MPC | 166140 | 2002 $TR_{73}$ |
| 2002 $TA_{76}$ | 17.0 | 0.15 | 20100104 | 103.58498 | 36.86400 | 288.12385 | 3.17207 | 0.1984870 | 2.2211523 | 65 | 7 | 1999–2009 | 0.50 | M-v | 1 | MPC | 139174 | 2002 $TA_{76}$ |
| 2002 $TE_{76}$ | 17.5 | 0.15 | 20100104 | 39.02057 | 44.79957 | 335.45796 | 4.24523 | 0.1954619 | 2.2738145 | 70 | 4 | 2002–2009 | 0.47 | M-v | 2 | MPC | 165341 | 2002 $TE_{76}$ |
| 2002 $TP_{76}$ | 18.1 | 0.15 | 20100104 | 38.22676 | 10.61609 | 325.00296 | 3.16156 | 0.2788718 | 2.3267423 | 63 | 2 | 2002–2009 | 0.42 | M-v | 2 | MPC | 162357 | 2002 $TP_{76}$ |
| 2002 $TK_{80}$ | 17.3 | 0.15 | 20100104 | 69.45407 | 94.51269 | 218.94982 | 4.23477 | 0.1641974 | 2.3083447 | 59 | 3 | 2002–2009 | 0.44 | M-v | 2 | MPC | 164193 | 2002 $TK_{80}$ |
| 2002 $TL_{82}$ | 15.1 | 0.15 | 20100104 | 45.94501 | 109.18499 | 8.37651 | 16.14396 | 0.1784438 | 3.0463093 | 51 | 5 | 1999–2009 | 0.48 | M-v | 1 | MPC | 158439 | 2002 $TL_{82}$ |
| 2002 $TU_{83}$ | 16.8 | 0.15 | 20100104 | 253.95663 | 238.49589 | 127.28608 | 7.10577 | 0.2594410 | 2.6337254 | 65 | 4 | 2002–2009 | 0.50 | M-v | 1 | MPC | 157375 | 2002 $TU_{83}$ |
| 2002 $TH_{86}$ | 16.5 | 0.15 | 20100104 | 57.14312 | 164.97836 | 206.06144 | 6.79613 | 0.1916353 | 2.2457015 | 68 | 3 | 2002–2009 | 0.35 | M-v | 2 | MPC | 166140 | 2002 $TH_{86}$ |
| 2002 $TT_{86}$ | 14.8 | 0.15 | 20100104 | 325.72398 | 183.53574 | 11.85937 | 10.15403 | 0.0425329 | 2.9950669 | 75 | 6 | 2000–2009 | 0.53 | M-v | 1 | MPC | 126642 | 2002 $TT_{86}$ |
| 2002 $TK_{87}$ | 17.5 | 0.15 | 20100104 | 16.41422 | 212.66766 | 197.71102 | 3.63845 | 0.1538882 | 2.2735109 | 77 | 3 | 2002–2009 | 0.57 | M-v | 3 | MPC | 166140 | 2002 $TK_{87}$ |
| 2002 $TU_{90}$ | 16.8 | 0.15 | 20100104 | 42.07740 | 128.28324 | 217.55353 | 8.57987 | 0.2159977 | 2.3179124 | 98 | 3 | 2002–2009 | 0.44 | M-v | 2 | MPC | 166140 | 2002 $TU_{90}$ |
| 2002 $TZ_{90}$ | 17.2 | 0.15 | 20100104 | 94.17989 | 84.32903 | 249.47298 | 2.62673 | 0.2117066 | 2.2317728 | 66 | 5 | 2002–2009 | 0.38 | M-v | 1 | MPC | 139174 | 2002 $TZ_{90}$ |
| 2002 $TL_{93}$ | 15.1 | 0.15 | 20100104 | 189.98680 | 16.46541 | 275.19670 | 10.24283 | 0.0976293 | 3.0703028 | 45 | 6 | 2002–2009 | 0.45 | M-v | 0 | MPC | 158439 | 2002 $TL_{93}$ |
| 2002 $TQ_{93}$ | 17.5 | 0.15 | 20100104 | 54.81321 | 216.13677 | 145.54513 | 2.62545 | 0.2510037 | 2.2534690 | 33 | 2 | 2002–2009 | 0.43 | M-v | 3 | MPC | 165342 | 2002 $TQ_{93}$ |
| 2002 $TY_{95}$ | 17.2 | 0.15 | 20100104 | 29.21804 | 153.70101 | 242.32943 | 5.74733 | 0.1806065 | 2.2690808 | 53 | 2 | 2002–2009 | 0.47 | M-v | 4 | MPC | 165342 | 2002 $TY_{95}$ |
| 2002 $TA_{98}$ | 18.5 | 0.15 | 20100104 | 176.22872 | 191.77973 | 101.23427 | 1.80746 | 0.1188473 | 2.1416531 | 38 | 6 | 1996–2009 | 0.30 | M-v | 1 | MPC | 147233 | 2002 $TA_{98}$ |
| 2002 $TL_{101}$ | 17.3 | 0.15 | 20100104 | 32.24686 | 142.89940 | 226.57689 | 5.14035 | 0.1838978 | 2.2940029 | 90 | 3 | 2002–2009 | 0.46 | M-v | 2 | MPC | 166140 | 2002 $TL_{101}$ |
| 2002 $TT_{101}$ | 17.4 | 0.15 | 20100104 | 76.69062 | 71.21687 | 269.78728 | 2.55340 | 0.2024327 | 2.2442478 | 60 | 5 | 2000–2009 | 0.42 | M-v | 1 | MPC | 166140 | 2002 $TT_{101}$ |
| 2002 $TL_{103}$ | 14.4 | 0.15 | 20100104 | 27.96577 | 109.24638 | 10.45895 | 26.12778 | 0.2227231 | 3.1544287 | 91 | 4 | 2002–2009 | 0.49 | M-v | 1 | MPC | 148881 | 2002 $TL_{103}$ |
| 2002 $TN_{105}$ | 17.5 | 0.15 | 20100104 | 37.95463 | 150.83695 | 231.71493 | 5.99912 | 0.2658857 | 2.2575581 | 71 | 3 | 1992–2009 | 0.43 | M-v | 1 | MPC | 165342 | 2002 $TN_{105}$ |
| 2002 $TE_{127}$ | 15.8 | 0.15 | 20100104 | 134.93843 | 59.22845 | 283.74576 | 7.57364 | 0.1425325 | 3.1094023 | 33 | 4 | 2002–2009 | 0.44 | M-v | 1 | MPC | 149849 | 2002 $TE_{127}$ |
| 2002 $TO_{128}$ | 16.3 | 0.15 | 20100104 | 68.95595 | 118.64529 | 250.74912 | 5.07490 | 0.1836625 | 2.2209855 | 68 | 7 | 1994–2009 | 0.56 | M-v | 1 | MPC | 140108 | 2002 $TO_{128}$ |
| 2002 $TS_{129}$ | 17.2 | 0.15 | 20100104 | 8.08183 | 168.98057 | 247.27090 | 5.41008 | 0.2625783 | 2.2874863 | 107 | 2 | 2002–2009 | 0.52 | M-v | 2 | MPC | 165343 | 2002 $TS_{129}$ |
| 2002 $TP_{130}$ | 16.4 | 0.15 | 20100104 | 1.42278 | 95.26817 | 311.86394 | 3.85944 | 0.1639247 | 2.2959827 | 147 | 3 | 2002–2009 | 0.47 | M-v | 2 | MPC | 164194 | 2002 $TP_{130}$ |
| 2002 $TP_{145}$ | 15.3 | 0.15 | 20100104 | 71.48008 | 76.45330 | 310.94089 | 15.07387 | 0.0888169 | 3.1861514 | 37 | 4 | 2002–2009 | 0.61 | M-v | 2 | MPC | 149849 | 2002 $TP_{145}$ |
| 2002 $TQ_{147}$ | 18.4 | 0.15 | 20100104 | 8.02295 | 70.36944 | 331.34638 | 2.36998 | 0.1899137 | 2.3026411 | 28 | 4 | 2000–2009 | 0.39 | M-v | 2 | MPC | 161867 | 2002 $TQ_{147}$ |
| 2002 $TJ_{148}$ | 18.3 | 0.15 | 20100104 | 65.06325 | 73.13300 | 263.85401 | 6.05184 | 0.2348974 | 2.2480200 | 47 | 2 | 2002–2009 | 0.33 | M-v | 2 | MPC | 165343 | 2002 $TJ_{148}$ |
| 2002 $TL_{148}$ | 15.1 | 0.15 | 20100104 | 132.22136 | 9.13138 | 312.57679 | 15.85435 | 0.1784090 | 3.1265370 | 67 | 4 | 2002–2009 | 0.51 | M-v | 2 | MPC | 147234 | 2002 $TL_{148}$ |
| 2002 $TR_{155}$ | 16.9 | 0.15 | 20100104 | 5.87228 | 159.61580 | 227.84095 | 8.50853 | 0.1272117 | 2.3008675 | 63 | 3 | 2002–2009 | 0.46 | M-v | 2 | MPC | 164194 | 2002 $TR_{155}$ |
| 2002 $TE_{156}$ | 15.3 | 0.15 | 20100104 | 87.63171 | 87.13947 | 285.31412 | 8.18092 | 0.0810600 | 3.1750947 | 43 | 4 | 1996–2009 | 0.39 | M-v | 2 | MPC | 155088 | 2002 $TE_{156}$ |
| 2002 $TP_{165}$ | 14.4 | 0.15 | 20100104 | 137.34551 | 10.83158 | 295.76850 | 15.90660 | 0.1728874 | 3.1725494 | 78 | 5 | 1996–2009 | 0.57 | M-v | 2 | MPC | 147234 | 2002 $TP_{165}$ |
| 2002 $TA_{171}$ | 15.4 | 0.15 | 20100104 | 131.98108 | 50.64940 | 287.26502 | 10.15215 | 0.1000716 | 3.1755222 | 34 | 4 | 2002–2009 | 0.39 | M-v | 1 | MPC | 164194 | 2002 $TA_{171}$ |
| 2002 $TG_{186}$ | 17.8 | 0.15 | 20100104 | 66.73752 | 129.89936 | 207.23843 | 6.67725 | 0.2752726 | 2.2597373 | 47 | 2 | 2002–2009 | 0.43 | M-v | 3 | MPC | 165343 | 2002 $TG_{186}$ |
| 2002 $TQ_{186}$ | 16.8 | 0.15 | 20100104 | 80.36021 | 83.58975 | 241.23625 | 4.81358 | 0.1936882 | 2.2584499 | 73 | 5 | 2002–2009 | 0.49 | M-v | 1 | MPC | 166141 | 2002 $TQ_{186}$ |
| 2002 $TW_{187}$ | 17.5 | 0.15 | 20100104 | 102.15603 | 84.46918 | 254.27832 | 3.78871 | 0.2038464 | 2.2021936 | 48 | 5 | 1999–2009 | 0.41 | M-v | 1 | MPC | 166141 | 2002 $TW_{187}$ |
| 2002 $TU_{190}$ | 16.3 | 0.15 | 20100104 | 207.99307 | 90.95645 | 304.82793 | 12.42731 | 0.3094885 | 2.7454238 | 64 | 2 | 2002–2008 | 0.49 | M-v | 3 | MPC | 158440 | 2002 $TU_{190}$ |
| 2002 $TS_{193}$ | 15.9 | 0.15 | 20100104 | 195.96254 | 37.19577 | 2.30970 | 8.48678 | 0.1444687 | 2.7341696 | 38 | 3 | 2002–2009 | 0.36 | M-v | 3 | MPC | 69403 | 2002 $TS_{193}$ |
| 2002 $TT_{193}$ | 17.3 | 0.15 | 20100104 | 106.12817 | 286.32228 | 29.56336 | 4.23555 | 0.1439858 | 2.2307906 | 43 | 6 | 2001–2009 | 0.41 | M-v | 0 | MPC | 166141 | 2002 $TT_{193}$ |
| 2002 $TG_{194}$ | 15.5 | 0.15 | 20100104 | 64.75379 | 54.28511 | 18.66631 | 7.33339 | 0.2145210 | 3.1670369 | 99 | 5 | 1999–2009 | 0.47 | M-v | 1 | MPC | 160774 | 2002 $TG_{194}$ |
| 2002 $TO_{195}$ | 16.8 | 0.15 | 20100104 | 74.14971 | 340.87513 | 43.77106 | 7.56453 | 0.1394095 | 2.2196477 | 93 | 6 | 1999–2009 | 0.56 | M-v | 1 | MPC | 87552 | 2002 $TO_{195}$ |
| 2002 $TY_{195}$ | 16.6 | 0.15 | 20100104 | 37.35009 | 8.83415 | 38.47237 | 6.07931 | 0.1806914 | 2.2658793 | 92 | 5 | 2002–2009 | 0.51 | M-v | 1 | MPC | 166141 | 2002 $TY_{195}$ |
| 2002 $TL_{197}$ | 17.1 | 0.15 | 20100104 | 34.23308 | 66.76850 | 345.75104 | 3.14276 | 0.1302204 | 2.2303079 | 63 | 6 | 1999–2009 | 0.52 | M-v | 1 | MPC | 122720 | 2002 $TL_{197}$ |
| 2002 $TN_{197}$ | 17.1 | 0.15 | 20100104 | 99.32899 | 46.13710 | 275.38368 | 3.66855 | 0.1809204 | 2.2376267 | 56 | 5 | 2002–2009 | 0.44 | M-v | 1 | MPC | 165343 | 2002 $TN_{197}$ |
| 2002 $TP_{199}$ | 15.0 | 0.15 | 20100104 | 143.32719 | 39.08021 | 290.99042 | 9.73569 | 0.0485837 | 3.1775156 | 56 | 4 | 1993–2009 | 0.51 | M-v | 1 | MPC | 166141 | 2002 $TP_{199}$ |
| 2002 $TQ_{199}$ | 14.9 | 0.15 | 20100104 | 161.92015 | 36.87279 | 275.20498 | 10.23629 | 0.1357330 | 3.1334976 | 59 | 5 | 1997–2009 | 0.51 | M-v | 1 | MPC | 159080 | 2002 $TQ_{199}$ |
| 2002 $TU_{200}$ | 16.6 | 0.15 | 20100104 | 86.28146 | 30.46916 | 300.44470 | 4.49190 | 0.2089143 | 2.2310386 | 55 | 4 | 2002–2009 | 0.48 | M-v | 1 | MPC | 166141 | 2002 $TU_{200}$ |
| 2002 $TF_{204}$ | 17.1 | 0.15 | 20100104 | 38.49439 | 295.58276 | 70.98745 | 6.83222 | 0.2739880 | 2.2903559 | 101 | 3 | 2002–2009 | 0.53 | M-v | 2 | MPC | 166141 | 2002 $TF_{204}$ |
| 2002 $TV_{206}$ | 16.8 | 0.15 | 20100104 | 299.22525 | 83.98512 | 270.40368 | 3.62672 | 0.2626682 | 2.5475890 | 116 | 3 | 2002–2009 | 0.48 | M-v | 3 | MPC | 157376 | 2002 $TV_{206}$ |
| 2002 $TL_{217}$ | 18.0 | 0.15 | 20100104 | 80.42598 | 356.11998 | 17.19250 | 2.68181 | 0.1496052 | 2.2066033 | 46 | 6 | 1994–2009 | 0.37 | M-v | 1 | MPC | 166141 | 2002 $TL_{217}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 $TR_{219}$ | 17.2 | 0.15 | 20100104 | 112.91464 | 60.15295 | 272.37387 | 3.91202 | 0.2201191 | 2.1923117 | 44 | 4 | 2002–2009 | 0.44 | M-v | 2 | MPC | 114676 | 2002 $TR_{219}$ |
| 2002 $TE_{232}$ | 14.7 | 0.15 | 20100104 | 130.99228 | 39.43465 | 326.69818 | 15.79617 | 0.0982725 | 3.0686204 | 90 | 4 | 2002–2009 | 0.53 | M-v | 2 | MPC | 164194 | 2002 $TE_{232}$ |
| 2002 $TQ_{232}$ | 14.7 | 0.15 | 20100104 | 149.46274 | 43.95135 | 261.81268 | 15.10194 | 0.1061568 | 3.2207787 | 54 | 5 | 1997–2009 | 0.56 | M-v | 1 | MPC | 158440 | 2002 $TQ_{232}$ |
| 2002 $TQ_{245}$ | 16.9 | 0.15 | 20100104 | 21.53231 | 345.55868 | 37.16272 | 8.04049 | 0.1379111 | 2.3115269 | 78 | 3 | 2002–2009 | 0.49 | M-v | 2 | MPC | 166141 | 2002 $TQ_{245}$ |
| 2002 $TC_{249}$ | 17.0 | 0.15 | 20100104 | 55.17470 | 351.72299 | 31.94118 | 1.25400 | 0.1317667 | 2.2383988 | 47 | 3 | 2002–2009 | 0.46 | M-v | 3 | MPC | 166141 | 2002 $TC_{249}$ |
| 2002 $TE_{251}$ | 17.5 | 0.15 | 20100104 | 269.16017 | 26.94333 | 11.62438 | 4.75148 | 0.2055805 | 2.5564165 | 107 | 4 | 2002–2008 | 0.37 | M-v | 2 | MPC | 135830 | 2002 $TE_{251}$ |
| 2002 $TQ_{251}$ | 17.2 | 0.15 | 20100104 | 57.36799 | 265.39183 | 124.91707 | 3.40409 | 0.1320197 | 2.2299131 | 49 | 4 | 2002–2009 | 0.49 | M-v | 1 | MPC | 118024 | 2002 $TQ_{251}$ |
| 2002 $TZ_{253}$ | 18.0 | 0.15 | 20100104 | 66.43263 | 75.41273 | 286.49936 | 3.49354 | 0.1761504 | 2.2444487 | 42 | 3 | 2002–2009 | 0.46 | M-v | 3 | MPC | 116225 | 2002 $TZ_{253}$ |
| 2002 $TB_{254}$ | 17.1 | 0.15 | 20100104 | 67.55860 | 304.90619 | 4.15150 | 4.25338 | 0.1912449 | 2.3206239 | 48 | 4 | 2002–2009 | 0.51 | M-v | 1 | MPC | 162359 | 2002 $TB_{254}$ |
| 2002 $TJ_{268}$ | 16.7 | 0.15 | 20100104 | 70.93097 | 95.62923 | 289.18329 | 4.16498 | 0.1693693 | 2.1973427 | 63 | 6 | 1997–2009 | 0.44 | M-v | 1 | MPC | 166141 | 2002 $TJ_{268}$ |
| 2002 $TH_{271}$ | 16.6 | 0.15 | 20100104 | 49.72512 | 161.16364 | 233.12984 | 5.02171 | 0.1525764 | 2.2326679 | 52 | 5 | 1995–2009 | 0.53 | M-v | 1 | MPC | 116225 | 2002 $TH_{271}$ |
| 2002 $TK_{271}$ | 16.9 | 0.15 | 20100104 | 51.47128 | 49.89513 | 288.14112 | 2.44728 | 0.1843174 | 2.3077519 | 75 | 5 | 2002–2009 | 0.49 | M-v | 1 | MPC | 164194 | 2002 $TK_{271}$ |
| 2002 $TQ_{271}$ | 17.7 | 0.15 | 20100104 | 33.38457 | 96.02836 | 332.51716 | 3.06071 | 0.1493683 | 2.2149588 | 44 | 3 | 2002–2009 | 0.35 | M-v | 3 | MPC | 118025 | 2002 $TQ_{271}$ |
| 2002 $TH_{273}$ | 17.2 | 0.15 | 20100104 | 75.90292 | 345.36057 | 351.86808 | 7.05702 | 0.1556867 | 2.2632051 | 41 | 4 | 1997–2009 | 0.52 | M-v | 2 | MPC | 166141 | 2002 $TH_{273}$ |
| 2002 $TQ_{273}$ | 16.5 | 0.15 | 20100104 | 24.84074 | 184.65377 | 217.84778 | 8.73919 | 0.0812210 | 2.2661256 | 79 | 3 | 2002–2009 | 0.46 | M-v | 3 | MPC | 166142 | 2002 $TQ_{273}$ |
| 2002 $TH_{274}$ | 16.9 | 0.15 | 20100104 | 50.31726 | 123.08444 | 282.22825 | 3.74471 | 0.1485248 | 2.2251660 | 63 | 5 | 2000–2009 | 0.49 | M-v | 1 | MPC | 166142 | 2002 $TH_{274}$ |
| 2002 $TU_{275}$ | 17.5 | 0.15 | 20100104 | 8.40144 | 178.01362 | 223.86025 | 6.47289 | 0.2392981 | 2.3238767 | 97 | 2 | 2002–2009 | 0.46 | M-v | 2 | MPC | 166142 | 2002 $TU_{275}$ |
| 2002 $TH_{276}$ | 16.9 | 0.15 | 20100104 | 82.34775 | 112.81495 | 225.12506 | 5.35369 | 0.2268774 | 2.2440547 | 61 | 3 | 2002–2009 | 0.52 | M-v | 2 | MPC | 166142 | 2002 $TH_{276}$ |
| 2002 $TM_{279}$ | 16.7 | 0.15 | 20100104 | 70.28855 | 73.08203 | 286.73889 | 6.08240 | 0.2112436 | 2.2454389 | 67 | 4 | 2000–2009 | 0.54 | M-v | 2 | MPC | 116226 | 2002 $TM_{279}$ |
| 2002 $TE_{283}$ | 17.1 | 0.15 | 20100104 | 21.60834 | 116.53712 | 293.59824 | 5.37094 | 0.2327271 | 2.2852676 | 102 | 5 | 1995–2009 | 0.48 | M-v | 1 | MPC | 166142 | 2002 $TE_{283}$ |
| 2002 $TR_{285}$ | 16.4 | 0.15 | 20100104 | 133.28703 | 72.24998 | 251.74465 | 7.22601 | 0.1769116 | 2.1975236 | 125 | 6 | 1998–2009 | 0.53 | M-v | 1 | MPC | 116226 | 2002 $TR_{285}$ |
| 2002 $TG_{286}$ | 16.6 | 0.15 | 20100104 | 29.48704 | 107.47355 | 269.21010 | 8.51303 | 0.2074706 | 2.3169107 | 97 | 3 | 2002–2009 | 0.55 | M-v | 3 | MPC | 166142 | 2002 $TG_{286}$ |
| 2002 $TR_{288}$ | 16.3 | 0.15 | 20100104 | 99.43310 | 28.05728 | 321.12207 | 4.99971 | 0.1834410 | 2.2244771 | 176 | 4 | 2002–2009 | 0.43 | M-v | 1 | MPC | 118025 | 2002 $TR_{288}$ |
| 2002 $TE_{290}$ | 17.8 | 0.15 | 20100104 | 87.33741 | 83.10718 | 261.46923 | 6.51595 | 0.1974029 | 2.2327180 | 19 | 3 | 2002–2009 | 0.53 | M-v | 2 | MPC | 89355 | 2002 $TE_{290}$ |
| 2002 $TW_{290}$ | 16.4 | 0.15 | 20100104 | 88.06986 | 88.34406 | 269.94375 | 6.05448 | 0.0935151 | 2.2381268 | 82 | 4 | 2002–2009 | 0.57 | M-v | 1 | MPC | 116226 | 2002 $TW_{290}$ |
| 2002 $TM_{294}$ | 17.5 | 0.15 | 20100104 | 81.71463 | 343.41658 | 15.03318 | 2.30057 | 0.1832075 | 2.2337154 | 45 | 4 | 2002–2009 | 0.48 | M-v | 1 | MPC | 116226 | 2002 $TM_{294}$ |
| 2002 $TF_{299}$ | 18.1 | 0.15 | 20100104 | 68.78527 | 61.69882 | 263.42613 | 1.59313 | 0.1866330 | 2.3072588 | 33 | 3 | 1995–2009 | 0.33 | M-v | 3 | MPC | 164194 | 2002 $TF_{299}$ |
| 2002 $TO_{303}$ | 16.1 | 0.15 | 20100104 | 47.95231 | 29.59521 | 16.56327 | 9.71369 | 0.0246083 | 3.2508852 | 42 | 3 | 2002–2009 | 0.41 | M-v | 2 | MPC | 146007 | 2002 $TO_{303}$ |
| 2002 $TC_{307}$ | 17.7 | 0.15 | 20100104 | 102.35721 | 263.04385 | 51.44886 | 8.83998 | 0.1424304 | 2.2484474 | 47 | 3 | 2002–2009 | 0.31 | M-v | 0 | MPC | 166142 | 2002 $TC_{307}$ |
| 2002 $TT_{309}$ | 17.7 | 0.15 | 20100104 | 49.48036 | 321.74399 | 81.12372 | 6.33053 | 0.1190547 | 2.2206436 | 30 | 4 | 2002–2009 | 0.35 | M-v | 1 | MPC | 166142 | 2002 $TT_{309}$ |
| 2002 $TX_{318}$ | 15.8 | 0.15 | 20100104 | 255.17222 | 245.72964 | 341.79775 | 7.78225 | 0.0415374 | 3.0569224 | 53 | 9 | 1997–2009 | 0.43 | M-v | 0 | MPC | 147236 | 2002 $TX_{318}$ |
| 2002 $TT_{346}$ | 17.2 | 0.15 | 20100104 | 38.39253 | 289.36538 | 69.47849 | 7.44322 | 0.2377292 | 2.3037476 | 50 | 4 | 2002–2009 | 0.52 | M-v | 1 | MPC | 166142 | 2002 $TT_{346}$ |
| 2002 $TG_{348}$ | 15.4 | 0.15 | 20100104 | 258.40965 | 101.04520 | 123.72436 | 10.50109 | 0.1528166 | 3.1869978 | 37 | 4 | 2000–2009 | 0.53 | M-v | 1 | MPC | 100392 | 2002 $TG_{348}$ |
| 2002 $TD_{350}$ | 15.6 | 0.15 | 20100104 | 134.37837 | 50.87380 | 274.81850 | 9.20514 | 0.1135512 | 3.0972228 | 36 | 4 | 2002–2009 | 0.40 | M-v | 0 | MPC | 146008 | 2002 $TD_{350}$ |
| 2002 $TN_{350}$ | 16.1 | 0.15 | 20100104 | 228.49759 | 342.95622 | 234.93268 | 9.39951 | 0.1028900 | 3.1271683 | 30 | 6 | 1996–2009 | 0.30 | M-v | 0 | MPC | 166142 | 2002 $TN_{350}$ |
| 2002 $TS_{352}$ | 18.3 | 0.15 | 20100104 | 57.47830 | 161.87841 | 215.55277 | 6.04755 | 0.1235590 | 2.2141569 | 19 | 3 | 1999–2009 | 0.22 | M-v | 2 | MPC | 69408 | 2002 $TS_{352}$ |
| 2002 $TZ_{353}$ | 15.4 | 0.15 | 20100104 | 206.75850 | 52.93463 | 190.25020 | 15.52550 | 0.1850674 | 3.1170492 | 40 | 7 | 1995–2009 | 0.41 | M-v | 0 | MPC | 147236 | 2002 $TZ_{353}$ |
| 2002 $TM_{360}$ | 17.3 | 0.15 | 20100104 | 345.85583 | 277.68786 | 176.32628 | 4.92214 | 0.0828006 | 2.2358831 | 67 | 5 | 1992–2009 | 0.43 | M-v | 0 | MPC | 166142 | 2002 $TM_{360}$ |
| 2002 $TM_{368}$ | 17.2 | 0.15 | 20100104 | 18.55978 | 307.34621 | 105.99829 | 7.07582 | 0.0931059 | 2.2691799 | 62 | 3 | 1999–2009 | 0.50 | M-v | 2 | MPC | 166142 | 2002 $TM_{368}$ |
| 2002 $TU_{369}$ | 15.7 | 0.15 | 20100104 | 247.90963 | 124.55207 | 120.66864 | 10.41889 | 0.0484189 | 3.1621535 | 24 | 6 | 1993–2009 | 0.36 | M-v | 0 | MPC | 147236 | 2002 $TU_{369}$ |
| 2002 $TW_{375}$ | 17.3 | 0.15 | 20100104 | 28.34174 | 35.99543 | 359.54105 | 3.90960 | 0.1805967 | 2.2848724 | 77 | 4 | 1995–2009 | 0.45 | M-v | 3 | MPC | 166142 | 2002 $TW_{375}$ |
| 2002 $TV_{377}$ | 17.7 | 0.15 | 20100104 | 33.03570 | 31.45715 | 20.48265 | 4.11028 | 0.1672188 | 2.2262353 | 31 | 3 | 2002–2009 | 0.43 | M-v | 2 | MPC | 122722 | 2002 $TV_{377}$ |
| 2002 $TC_{378}$ | 17.6 | 0.15 | 20100104 | 53.11936 | 263.16371 | 92.54066 | 5.21128 | 0.2286280 | 2.2856166 | 32 | 2 | 2002–2009 | 0.40 | M-v | 4 | MPC | 165344 | 2002 $TC_{378}$ |
| 2002 $TR_{380}$ | 18.5 | 0.15 | 20100104 | 43.44993 | 13.77909 | 4.69663 | 1.78904 | 0.2171446 | 2.2579105 | 25 | 2 | 2002–2009 | 0.31 | M-v | 3 | MPC | 165344 | 2002 $TR_{380}$ |
| 2002 $TB_{385}$ | 17.5 | 0.15 | 20100104 | 309.08492 | 83.42391 | 18.18492 | 7.54906 | 0.0545615 | 2.2828763 | 38 | 3 | 2002–2009 | 0.36 | M-v | 1 | MPC | 166142 | 2002 $TB_{385}$ |
| 2002 $TP_{385}$ | 18.1 | 0.15 | 20100104 | 33.76322 | 321.05379 | 63.15736 | 8.75928 | 0.1496119 | 2.2901635 | 27 | 2 | 2002–2009 | 0.37 | M-v | 4 | MPC | 165344 | 2002 $TP_{385}$ |
| 2002 UD | 17.7 | 0.15 | 20100104 | 10.57909 | 227.65969 | 202.92211 | 3.66097 | 0.1980250 | 2.2799933 | 36 | 2 | 2002–2009 | 0.35 | M-v | 3 | MPC | 165345 | 2002 UD |
| 2002 $UG_2$ | 17.4 | 0.15 | 20100104 | 84.97621 | 246.70325 | 120.79860 | 7.62035 | 0.1823137 | 2.2039697 | 56 | 4 | 2002–2009 | 0.28 | M-v | 0 | MPC | 116226 | 2002 $UG_2$ |
| 2002 $UO_2$ | 15.8 | 0.15 | 20100104 | 337.02161 | 189.95151 | 273.00507 | 22.54549 | 0.2296810 | 2.3034940 | 76 | 3 | 2002–2009 | 0.55 | M-v | 1 | MPC | 166142 | 2002 $UO_2$ |
| 2002 $UW_9$ | 17.2 | 0.15 | 20100104 | 64.54695 | 9.65528 | 64.14881 | 4.62801 | 0.1424243 | 2.1645289 | 69 | 7 | 1997–2009 | 0.48 | M-v | 1 | MPC | 159687 | 2002 $UW_9$ |
| 2002 $UX_{11}$ | 15.9 | 0.15 | 20100104 | 54.00300 | 50.21646 | 290.64768 | 21.41505 | 0.2399193 | 2.2878729 | 76 | 4 | 1999–2009 | 0.57 | M-v | 2 | MPC | 166142 | 2002 $UX_{11}$ |
| 2002 $UA_{12}$ | 15.6 | 0.15 | 20100104 | 61.65163 | 92.84660 | 257.13085 | 22.29367 | 0.2848517 | 2.2601941 | 132 | 3 | 2002–2009 | 0.49 | M-v | 1 | MPC | 166142 | 2002 $UA_{12}$ |
| 2002 $UK_{16}$ | 17.4 | 0.15 | 20100104 | 21.95517 | 290.66165 | 115.83357 | 4.82715 | 0.1829255 | 2.2881311 | 57 | 4 | 2002–2009 | 0.61 | M-v | 1 | MPC | 166142 | 2002 $UK_{16}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 $UX_{20}$ | 16.7 | 0.15 | 20100104 | 71.23345 | 65.39954 | 275.55569 | 3.60072 | 0.2648537 | 2.2753334 | 116 | 4 | 1999–2009 | 0.46 | M-v | 2 | MPC | 166142 | 2002 $UX_{20}$ |
| 2002 $UT_{21}$ | 17.2 | 0.15 | 20100104 | 15.04218 | 349.71662 | 53.59789 | 10.25122 | 0.1958488 | 2.3078910 | 72 | 2 | 2002–2009 | 0.52 | M-v | 3 | MPC | 166142 | 2002 $UT_{21}$ |
| 2002 $UV_{28}$ | 17.3 | 0.15 | 20100104 | 76.41519 | 245.10324 | 120.40788 | 4.53992 | 0.1628770 | 2.2342817 | 60 | 5 | 2002–2009 | 0.46 | M-v | 1 | MPC | 116227 | 2002 $UV_{28}$ |
| 2002 $UG_{30}$ | 17.7 | 0.15 | 20100104 | 298.82779 | 97.76848 | 26.28682 | 3.60146 | 0.0753909 | 2.3016879 | 45 | 5 | 1995–2009 | 0.32 | M-v | 0 | MPC | 166142 | 2002 $UG_{30}$ |
| 2002 $UC_{31}$ | 16.6 | 0.15 | 20100104 | 48.42015 | 68.63382 | 267.36114 | 4.68995 | 0.1578717 | 2.3384876 | 92 | 5 | 1998–2009 | 0.53 | M-v | 1 | MPC | 166142 | 2002 $UC_{31}$ |
| 2002 $UD_{37}$ | 17.5 | 0.15 | 20100104 | 1.98259 | 60.04800 | 347.09847 | 2.48111 | 0.2065149 | 2.3252196 | 85 | 5 | 2000–2009 | 0.38 | M-v | 1 | MPC | 166142 | 2002 $UD_{37}$ |
| 2002 $UK_{41}$ | 17.4 | 0.15 | 20100104 | 60.21145 | 266.49395 | 119.71347 | 2.96954 | 0.1703818 | 2.2474559 | 57 | 5 | 2000–2009 | 0.52 | M-v | 1 | MPC | 114679 | 2002 $UK_{41}$ |
| 2002 $UJ_{61}$ | 16.1 | 0.15 | 20100104 | 289.24859 | 280.76644 | 270.83972 | 9.17356 | 0.0333667 | 3.0142616 | 39 | 4 | 2002–2009 | 0.43 | M-v | 0 | MPC | 147237 | 2002 $UJ_{61}$ |
| 2002 $UX_{67}$ | 18.0 | 0.15 | 20100104 | 270.90437 | 113.01653 | 60.16207 | 6.80635 | 0.0331024 | 2.2261051 | 30 | 5 | 1999–2009 | 0.36 | M-v | 0 | MPC | 166143 | 2002 $UX_{67}$ |
| 2002 $UQ_{70}$ | 18.0 | 0.15 | 20100104 | 356.75705 | 63.95054 | 19.30922 | 4.98338 | 0.1031835 | 2.2382854 | 35 | 5 | 1994–2009 | 0.48 | M-v | 0 | MPC | 166143 | 2002 $UQ_{70}$ |
| 2002 $US_{70}$ | 16.9 | 0.15 | 20100104 | 3.19638 | 16.66041 | 41.95731 | 11.08851 | 0.0515092 | 2.2697757 | 62 | 3 | 2002–2009 | 0.45 | M-v | 2 | MPC | 166143 | 2002 $US_{70}$ |
| 2002 $UJ_{71}$ | 17.6 | 0.15 | 20100104 | 356.54954 | 94.23741 | 322.15734 | 1.29181 | 0.2086960 | 2.3250664 | 79 | 3 | 2002–2009 | 0.38 | M-v | 2 | MPC | 166143 | 2002 $UJ_{71}$ |
| 2002 $UV_{71}$ | 17.6 | 0.15 | 20100104 | 63.19284 | 85.75308 | 230.62400 | 8.03717 | 0.2491266 | 2.3302773 | 47 | 3 | 2002–2009 | 0.34 | M-v | 1 | MPC | 166143 | 2002 $UV_{71}$ |
| 2002 $UB_{74}$ | 17.8 | 0.15 | 20100104 | 52.41278 | 138.54257 | 223.15511 | 1.98521 | 0.1593586 | 2.2877503 | 64 | 4 | 2001–2009 | 0.47 | M-v | 2 | MPC | 166143 | 2002 $UB_{74}$ |
| 2002 $UT_{74}$ | 17.8 | 0.15 | 20100104 | 11.55438 | 349.80058 | 77.68324 | 4.98077 | 0.1373662 | 2.2774047 | 47 | 2 | 2002–2009 | 0.42 | M-v | 3 | MPC | 165345 | 2002 $UT_{74}$ |
| 2002 $UW_{75}$ | 17.7 | 0.15 | 20100104 | 58.87358 | 50.91759 | 265.04985 | 2.60451 | 0.2356621 | 2.3408272 | 45 | 2 | 2002–2009 | 0.50 | M-v | 4 | MPC | 164195 | 2002 $UW_{75}$ |
| 2002 $VB_{4}$ | 17.4 | 0.15 | 20100104 | 37.89421 | 303.44455 | 35.67534 | 5.45468 | 0.2757943 | 2.3466050 | 75 | 4 | 2002–2009 | 0.51 | M-v | 2 | MPC | 166143 | 2002 $VB_{4}$ |
| 2002 $VS_{4}$ | 17.1 | 0.15 | 20100104 | 31.92340 | 343.11848 | 46.23131 | 10.03456 | 0.0895202 | 2.3036772 | 45 | 2 | 2002–2009 | 0.52 | M-v | 4 | MPC | 166143 | 2002 $VS_{4}$ |
| 2002 $VT_{4}$ | 17.3 | 0.15 | 20100104 | 80.15802 | 291.85967 | 27.64980 | 0.42576 | 0.2220527 | 2.3024458 | 63 | 5 | 2000–2009 | 0.39 | M-v | 1 | MPC | 166143 | 2002 $VT_{4}$ |
| 2002 $VG_{5}$ | 17.2 | 0.15 | 20100104 | 26.43456 | 337.96344 | 55.26355 | 3.24656 | 0.1386868 | 2.3037688 | 76 | 5 | 1993–2009 | 0.50 | M-v | 1 | MPC | 166143 | 2002 $VG_{5}$ |
| 2002 $VF_{7}$ | 17.3 | 0.15 | 20100104 | 274.40553 | 16.67954 | 7.71029 | 3.79683 | 0.2294042 | 2.5825446 | 72 | 3 | 2002–2008 | 0.52 | M-v | 3 | MPC | 162361 | 2002 $VF_{7}$ |
| 2002 $VT_{7}$ | 17.1 | 0.15 | 20100104 | 17.55075 | 170.47547 | 251.31275 | 9.92565 | 0.1708495 | 2.2664207 | 53 | 2 | 2002–2009 | 0.43 | M-v | 3 | MPC | 165346 | 2002 $VT_{7}$ |
| 2002 $VQ_{9}$ | 17.2 | 0.15 | 20100104 | 356.28720 | 181.21370 | 299.03051 | 4.65237 | 0.0931631 | 2.2134924 | 70 | 8 | 1995–2009 | 0.61 | M-v | 1 | MPC | 140677 | 2002 $VQ_{9}$ |
| 2002 $VT_{9}$ | 16.6 | 0.15 | 20100104 | 21.38833 | 272.16259 | 154.75547 | 6.56926 | 0.2599943 | 2.2811679 | 86 | 4 | 2002–2009 | 0.45 | M-v | 1 | MPC | 118026 | 2002 $VT_{9}$ |
| 2002 $VU_{9}$ | 16.6 | 0.15 | 20100104 | 3.91244 | 154.11635 | 247.01156 | 9.35478 | 0.0962231 | 2.3360479 | 52 | 3 | 2002–2009 | 0.62 | M-v | 3 | MPC | 165346 | 2002 $VU_{9}$ |
| 2002 $VY_{9}$ | 17.0 | 0.15 | 20100104 | 65.42539 | 41.09100 | 322.74240 | 4.31992 | 0.1740917 | 2.2642045 | 47 | 5 | 2002–2009 | 0.57 | M-v | 1 | MPC | 116228 | 2002 $VY_{9}$ |
| 2002 $VR_{12}$ | 17.1 | 0.15 | 20100104 | 41.33239 | 15.72710 | 332.94037 | 2.77759 | 0.1899041 | 2.3343740 | 105 | 6 | 1993–2009 | 0.44 | M-v | 1 | MPC | 166143 | 2002 $VR_{12}$ |
| 2002 $VD_{13}$ | 17.8 | 0.15 | 20100104 | 30.18396 | 324.74350 | 38.88745 | 1.84086 | 0.2009605 | 2.3375755 | 49 | 3 | 2002–2009 | 0.45 | M-v | 2 | MPC | 166143 | 2002 $VD_{13}$ |
| 2002 $VR_{15}$ | 17.1 | 0.15 | 20100104 | 315.04414 | 60.48341 | 39.46525 | 2.62087 | 0.1693283 | 2.3407253 | 83 | 5 | 1993–2009 | 0.54 | M-v | 1 | MPC | 164196 | 2002 $VR_{15}$ |
| 2002 $VJ_{16}$ | 17.0 | 0.15 | 20100104 | 108.08062 | 87.41121 | 254.25550 | 6.29351 | 0.2344020 | 2.2026777 | 88 | 5 | 2002–2009 | 0.53 | M-v | 1 | MPC | 140109 | 2002 $VJ_{16}$ |
| 2002 $VA_{17}$ | 16.5 | 0.15 | 20100104 | 133.72918 | 68.52538 | 236.76134 | 8.66417 | 0.1131776 | 2.2381010 | 36 | 5 | 2001–2009 | 0.62 | M-v | 1 | MPC | 165346 | 2002 $VA_{17}$ |
| 2002 $VP_{17}$ | 17.0 | 0.15 | 20100104 | 66.03970 | 226.34389 | 164.35371 | 6.28612 | 0.2646557 | 2.2369046 | 87 | 4 | 2002–2009 | 0.37 | M-v | 0 | MPC | 159687 | 2002 $VP_{17}$ |
| 2002 $VJ_{19}$ | 17.3 | 0.15 | 20100104 | 72.61320 | 327.52241 | 55.80470 | 3.60438 | 0.1404543 | 2.2274458 | 48 | 3 | 2002–2009 | 0.44 | M-v | 2 | MPC | 166143 | 2002 $VJ_{19}$ |
| 2002 $VN_{19}$ | 17.2 | 0.15 | 20100104 | 67.71880 | 149.31864 | 240.71680 | 3.61411 | 0.1550893 | 2.2275492 | 57 | 6 | 1995–2009 | 0.55 | M-v | 1 | MPC | 116228 | 2002 $VN_{19}$ |
| 2002 $VD_{20}$ | 17.3 | 0.15 | 20100104 | 41.15706 | 140.00223 | 212.27876 | 5.43875 | 0.2195277 | 2.3321892 | 72 | 4 | 1994–2009 | 0.52 | M-v | 1 | MPC | 166143 | 2002 $VD_{20}$ |
| 2002 $VN_{20}$ | 16.6 | 0.15 | 20100104 | 78.57564 | 113.30929 | 246.68754 | 4.74058 | 0.1733970 | 2.2675576 | 65 | 4 | 2002–2009 | 0.53 | M-v | 1 | MPC | 140109 | 2002 $VN_{20}$ |
| 2002 $VE_{22}$ | 17.8 | 0.15 | 20100104 | 24.00327 | 47.20310 | 15.76103 | 1.48583 | 0.1924494 | 2.2660072 | 47 | 3 | 2002–2009 | 0.44 | M-v | 4 | MPC | 165347 | 2002 $VE_{22}$ |
| 2002 $VT_{22}$ | 16.7 | 0.15 | 20100104 | 69.58707 | 158.64857 | 231.62052 | 5.81996 | 0.0907155 | 2.2298240 | 60 | 3 | 2002–2009 | 0.45 | M-v | 2 | MPC | 85723 | 2002 $VT_{22}$ |
| 2002 $VY_{22}$ | 16.7 | 0.15 | 20100104 | 354.24615 | 4.82601 | 37.19160 | 6.92976 | 0.1034635 | 2.3670847 | 60 | 5 | 2002–2009 | 0.53 | M-v | 1 | MPC | 166143 | 2002 $VY_{22}$ |
| 2002 $VR_{24}$ | 17.5 | 0.15 | 20100104 | 29.91542 | 156.94675 | 229.74120 | 1.49665 | 0.2246438 | 2.3118626 | 89 | 3 | 2002–2009 | 0.48 | M-v | 3 | MPC | 166143 | 2002 $VR_{24}$ |
| 2002 $VQ_{26}$ | 17.2 | 0.15 | 20100104 | 349.22174 | 29.39518 | 50.24880 | 5.93612 | 0.2052983 | 2.3256738 | 69 | 3 | 2002–2009 | 0.38 | M-v | 2 | MPC | 165347 | 2002 $VQ_{26}$ |
| 2002 $VR_{30}$ | 17.4 | 0.15 | 20100104 | 350.74998 | 16.28529 | 50.76439 | 6.17558 | 0.2200612 | 2.3446476 | 50 | 2 | 2002–2009 | 0.48 | M-v | 3 | MPC | 163646 | 2002 $VR_{30}$ |
| 2002 $VT_{36}$ | 16.3 | 0.15 | 20100104 | 27.12708 | 339.08720 | 74.35942 | 9.17038 | 0.2156746 | 2.3199300 | 66 | 5 | 1997–2009 | 0.46 | M-v | 1 | MPC | 166143 | 2002 $VT_{36}$ |
| 2002 $VW_{37}$ | 16.8 | 0.15 | 20100104 | 40.66014 | 336.85817 | 84.20390 | 6.66358 | 0.1410244 | 2.2207174 | 46 | 5 | 2000–2009 | 0.43 | M-v | 1 | MPC | 166143 | 2002 $VW_{37}$ |
| 2002 $VT_{40}$ | 17.5 | 0.15 | 20100104 | 37.35069 | 180.07946 | 248.46543 | 2.83707 | 0.0813131 | 2.2281233 | 35 | 4 | 2002–2009 | 0.38 | M-v | 1 | MPC | 166143 | 2002 $VT_{40}$ |
| 2002 $VR_{41}$ | 17.4 | 0.15 | 20100104 | 281.39905 | 167.88910 | 210.03859 | 1.72604 | 0.2550341 | 2.5721874 | 64 | 2 | 2002–2007 | 0.44 | M-v | 2 | MPC | 114681 | 2002 $VR_{41}$ |
| 2002 $VG_{53}$ | 17.8 | 0.15 | 20100104 | 36.46932 | 294.77807 | 82.34880 | 2.41762 | 0.2388400 | 2.3024370 | 61 | 4 | 1995–2009 | 0.50 | M-v | 3 | MPC | 165347 | 2002 $VG_{53}$ |
| 2002 $VP_{54}$ | 16.9 | 0.15 | 20100104 | 114.08281 | 37.48056 | 293.43298 | 7.37549 | 0.2154482 | 2.2097618 | 90 | 4 | 2002–2009 | 0.48 | M-v | 1 | MPC | 114682 | 2002 $VP_{54}$ |
| 2002 $VQ_{60}$ | 17.6 | 0.15 | 20100104 | 100.81137 | 191.80407 | 154.04846 | 4.43941 | 0.1910494 | 2.2252703 | 52 | 5 | 1997–2009 | 0.43 | M-v | 1 | MPC | 87557 | 2002 $VQ_{60}$ |
| 2002 $VY_{60}$ | 16.4 | 0.15 | 20100104 | 34.13010 | 96.37347 | 276.09531 | 4.28887 | 0.2239359 | 2.3033137 | 145 | 3 | 2002–2009 | 0.46 | M-v | 2 | MPC | 166143 | 2002 $VY_{60}$ |
| 2002 $VA_{61}$ | 14.3 | 0.15 | 20100104 | 63.75320 | 133.29080 | 238.36428 | 17.20442 | 0.0843570 | 3.4505972 | 45 | 4 | 2001–2009 | 0.49 | M-v | 1 | MPC | 148886 | 2002 $VA_{61}$ |
| 2002 $VF_{65}$ | 17.5 | 0.15 | 20100104 | 25.26127 | 331.34403 | 58.44888 | 9.51710 | 0.1885141 | 2.3058951 | 58 | 2 | 2002–2009 | 0.48 | M-v | 3 | MPC | 166144 | 2002 $VF_{65}$ |
| 2002 $VU_{66}$ | 16.7 | 0.15 | 20100104 | 322.22775 | 93.85289 | 40.85503 | 7.25262 | 0.0824176 | 2.2518512 | 41 | 5 | 2000–2009 | 0.63 | M-v | 1 | MPC | 118028 | 2002 $VU_{66}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 $VY_{66}$ | 17.4 | 0.15 | 20100104 | 43.14549 | 70.06869 | 308.83641 | 2.84138 | 0.2610616 | 2.2870311 | 75 | 4 | 2000–2009 | 0.44 | M-v | 2 | MPC | 166144 | 2002 $VY_{66}$ |
| 2002 $VA_{67}$ | 17.4 | 0.15 | 20100104 | 29.44172 | 167.69165 | 198.92839 | 4.68915 | 0.1955436 | 2.3252406 | 73 | 5 | 1995–2009 | 0.46 | M-v | 2 | MPC | 166144 | 2002 $VA_{67}$ |
| 2002 $VZ_{67}$ | 16.1 | 0.15 | 20100104 | 207.65335 | 6.14216 | 132.16241 | 5.35795 | 0.2225349 | 2.5907423 | 75 | 4 | 2002–2009 | 0.53 | M-v | 1 | MPC | 159081 | 2002 $VZ_{67}$ |
| 2002 $VD_{73}$ | 16.9 | 0.15 | 20100104 | 11.14541 | 344.25463 | 71.06611 | 5.91307 | 0.1549209 | 2.3067108 | 88 | 4 | 2002–2009 | 0.54 | M-v | 2 | MPC | 166144 | 2002 $VD_{73}$ |
| 2002 $VA_{74}$ | 17.2 | 0.15 | 20100104 | 17.44519 | 0.48390 | 64.71128 | 7.30895 | 0.1235839 | 2.2646066 | 39 | 3 | 2002–2009 | 0.47 | M-v | 3 | MPC | 165347 | 2002 $VA_{74}$ |
| 2002 $VA_{77}$ | 17.2 | 0.15 | 20100104 | 47.68447 | 330.03091 | 82.90619 | 5.91416 | 0.1213103 | 2.2402385 | 49 | 5 | 2002–2009 | 0.49 | M-v | 1 | MPC | 164196 | 2002 $VA_{77}$ |
| 2002 $VR_{83}$ | 16.9 | 0.15 | 20100104 | 30.35042 | 311.57278 | 90.07953 | 6.34054 | 0.1859272 | 2.3031234 | 66 | 3 | 2000–2009 | 0.42 | M-v | 3 | MPC | 165348 | 2002 $VR_{83}$ |
| 2002 $VE_{84}$ | 15.4 | 0.15 | 20100104 | 22.97323 | 173.33375 | 240.09855 | 22.48572 | 0.2154339 | 2.3175597 | 66 | 3 | 2002–2009 | 0.41 | M-v | 2 | MPC | 165348 | 2002 $VE_{84}$ |
| 2002 $VO_{85}$ | 21.6 | 0.15 | 20100104 | 195.78582 | 248.14649 | 230.17351 | 20.12905 | 0.2222871 | 1.3290619 | 51 | 2 | 2002–2005 | 0.53 | M-v | 2 | MPC | 97626 | 2002 $VO_{85}$ |
| 2002 $VU_{85}$ | 16.5 | 0.15 | 20100104 | 95.56064 | 39.87933 | 280.59378 | 4.53301 | 0.2853608 | 2.2624158 | 50 | 5 | 2002–2009 | 0.50 | M-v | 1 | MPC | 166144 | 2002 $VU_{85}$ |
| 2002 $VM_{86}$ | 17.7 | 0.15 | 20100104 | 74.22599 | 17.92190 | 1.76563 | 2.62444 | 0.2238574 | 2.2220175 | 49 | 4 | 2002–2009 | 0.52 | M-v | 1 | MPC | 166144 | 2002 $VM_{86}$ |
| 2002 $VY_{87}$ | 16.1 | 0.15 | 20100104 | 328.73110 | 49.31401 | 47.46207 | 23.59427 | 0.1957483 | 2.3477017 | 81 | 3 | 2002–2009 | 0.59 | M-v | 1 | MPC | 166144 | 2002 $VY_{87}$ |
| 2002 $VU_{88}$ | 17.1 | 0.15 | 20100104 | 13.04510 | 17.95345 | 5.67004 | 4.23832 | 0.2484443 | 2.3468764 | 97 | 3 | 2002–2009 | 0.44 | M-v | 2 | MPC | 164196 | 2002 $VU_{88}$ |
| 2002 $VC_{92}$ | 18.8 | 0.15 | 20100104 | 335.21041 | 231.77526 | 243.63755 | 27.31841 | 0.2785457 | 1.4606656 | 152 | 3 | 2002–2009 | 0.45 | M-v | 1 | MPC | 166144 | 2002 $VC_{92}$ |
| 2002 $VM_{93}$ | 17.0 | 0.15 | 20100104 | 46.26936 | 121.47548 | 268.65047 | 4.60699 | 0.1680132 | 2.2859495 | 57 | 5 | 1995–2009 | 0.41 | M-v | 1 | MPC | 166144 | 2002 $VM_{93}$ |
| 2002 $VV_{94}$ | 17.0 | 0.15 | 20100104 | 120.85073 | 34.19414 | 292.33472 | 4.28360 | 0.2224941 | 2.2214835 | 69 | 4 | 2002–2009 | 0.53 | M-v | 2 | MPC | 118028 | 2002 $VV_{94}$ |
| 2002 $VG_{95}$ | 17.3 | 0.15 | 20100104 | 38.30900 | 16.95312 | 336.66141 | 1.99359 | 0.3506781 | 2.3250509 | 127 | 5 | 1977–2009 | 0.47 | M-v | 1 | MPC | 166144 | 2002 $VG_{95}$ |
| 2002 $VG_{100}$ | 16.9 | 0.15 | 20100104 | 40.43266 | 101.62624 | 252.76093 | 6.17633 | 0.1435935 | 2.3284832 | 67 | 5 | 2002–2009 | 0.52 | M-v | 1 | MPC | 164197 | 2002 $VG_{100}$ |
| 2002 $VN_{101}$ | 16.9 | 0.15 | 20100104 | 356.06878 | 326.09125 | 98.36902 | 4.26772 | 0.2191740 | 2.3426160 | 89 | 3 | 2002–2009 | 0.51 | M-v | 2 | MPC | 166144 | 2002 $VN_{101}$ |
| 2002 $VL_{102}$ | 17.1 | 0.15 | 20100104 | 30.71733 | 15.48757 | 31.77464 | 7.05903 | 0.1158794 | 2.2727802 | 30 | 4 | 2002–2009 | 0.44 | M-v | 1 | MPC | 166144 | 2002 $VL_{102}$ |
| 2002 $VU_{102}$ | 17.4 | 0.15 | 20100104 | 354.20438 | 64.20076 | 343.76087 | 2.36003 | 0.1671583 | 2.3514500 | 69 | 6 | 2000–2009 | 0.42 | M-v | 0 | MPC | 164197 | 2002 $VU_{102}$ |
| 2002 $VV_{102}$ | 16.4 | 0.15 | 20100104 | 84.89290 | 98.26960 | 250.66582 | 5.36882 | 0.1521878 | 2.2566534 | 102 | 4 | 2002–2009 | 0.40 | M-v | 1 | MPC | 116231 | 2002 $VV_{102}$ |
| 2002 $VS_{104}$ | 16.4 | 0.15 | 20100104 | 128.29661 | 282.79530 | 34.16025 | 5.87178 | 0.2084083 | 2.2315927 | 57 | 5 | 2001–2009 | 0.49 | M-v | 1 | MPC | 140677 | 2002 $VS_{104}$ |
| 2002 $VQ_{106}$ | 16.2 | 0.15 | 20100104 | 240.26697 | 306.40293 | 247.02098 | 6.41295 | 0.0519906 | 2.2827503 | 69 | 4 | 2002–2009 | 0.53 | M-v | 2 | MPC | 166144 | 2002 $VQ_{106}$ |
| 2002 $VK_{114}$ | 17.3 | 0.15 | 20100104 | 29.63829 | 308.11970 | 68.85298 | 3.57454 | 0.2055779 | 2.3322293 | 61 | 3 | 2002–2009 | 0.49 | M-v | 3 | MPC | 166144 | 2002 $VK_{114}$ |
| 2002 $VL_{114}$ | 17.4 | 0.15 | 20100104 | 21.00032 | 186.14344 | 188.44228 | 1.23006 | 0.2002743 | 2.3558867 | 67 | 6 | 1998–2009 | 0.52 | M-v | 1 | MPC | 166144 | 2002 $VL_{114}$ |
| 2002 $VC_{119}$ | 16.8 | 0.15 | 20100104 | 31.38684 | 34.12981 | 330.13602 | 4.12765 | 0.2352515 | 2.3482047 | 96 | 5 | 1998–2009 | 0.52 | M-v | 1 | MPC | 166144 | 2002 $VC_{119}$ |
| 2002 $VY_{119}$ | 17.3 | 0.15 | 20100104 | 38.54896 | 47.77999 | 347.62173 | 3.71264 | 0.2712865 | 2.2845815 | 43 | 3 | 2002–2009 | 0.43 | M-v | 3 | MPC | 132903 | 2002 $VY_{119}$ |
| 2002 $VK_{123}$ | 17.5 | 0.15 | 20100104 | 337.14894 | 35.45207 | 48.73163 | 2.82862 | 0.1700051 | 2.3397172 | 71 | 3 | 2002–2009 | 0.40 | M-v | 1 | MPC | 166144 | 2002 $VK_{123}$ |
| 2002 $VF_{124}$ | 17.1 | 0.15 | 20100104 | 39.36396 | 5.29122 | 15.32941 | 3.81346 | 0.2472703 | 2.3035071 | 62 | 3 | 2002–2009 | 0.55 | M-v | 2 | MPC | 166144 | 2002 $VF_{124}$ |
| 2002 $VZ_{125}$ | 15.2 | 0.15 | 20100104 | 285.49864 | 299.15557 | 280.83099 | 24.34097 | 0.2402155 | 2.3209149 | 63 | 3 | 2002–2009 | 0.48 | M-v | 2 | MPC | 166144 | 2002 $VZ_{125}$ |
| 2002 $VE_{126}$ | 16.4 | 0.15 | 20100104 | 60.43429 | 100.20583 | 281.68997 | 6.03019 | 0.1159231 | 2.2676350 | 48 | 4 | 2002–2009 | 0.40 | M-v | 1 | MPC | 110943 | 2002 $VE_{126}$ |
| 2002 $VH_{126}$ | 16.7 | 0.15 | 20100104 | 3.25093 | 60.44004 | 33.71901 | 8.34957 | 0.0916670 | 2.2682212 | 43 | 4 | 2002–2009 | 0.45 | M-v | 1 | MPC | 166144 | 2002 $VH_{126}$ |
| 2002 $VM_{126}$ | 17.6 | 0.15 | 20100104 | 355.49324 | 38.17274 | 44.11811 | 7.40950 | 0.2135904 | 2.3122510 | 81 | 2 | 2002–2009 | 0.48 | M-v | 3 | MPC | 166144 | 2002 $VM_{126}$ |
| 2002 $VP_{126}$ | 17.0 | 0.15 | 20100104 | 41.36022 | 124.66769 | 278.70984 | 6.17001 | 0.1864415 | 2.2680810 | 61 | 3 | 2002–2009 | 0.48 | M-v | 2 | MPC | 164197 | 2002 $VP_{126}$ |
| 2002 $VF_{127}$ | 16.7 | 0.15 | 20100104 | 28.67028 | 347.61221 | 48.62293 | 7.45596 | 0.1051995 | 2.3133039 | 94 | 2 | 2002–2009 | 0.50 | M-v | 3 | MPC | 166144 | 2002 $VF_{127}$ |
| 2002 $VU_{130}$ | 5.6 | 0.15 | 20100104 | 262.37843 | 281.18124 | 267.75492 | 1.37726 | 0.2066499 | 39.1239797 | 30 | 6 | 2002–2009 | 0.71 | M-v | 4 | MPC | 157379 | 2002 $VU_{130}$ |
| 2002 $VO_{136}$ | 16.9 | 0.15 | 20100104 | 64.00005 | 106.45411 | 239.59631 | 8.59180 | 0.1802963 | 2.3047126 | 34 | 3 | 1995–2009 | 0.54 | M-v | 5 | MPC | 165348 | 2002 $VO_{136}$ |
| 2002 $VE_{140}$ | 17.5 | 0.15 | 20100104 | 52.01372 | 272.00268 | 103.67178 | 3.68095 | 0.1547450 | 2.2707218 | 55 | 6 | 2000–2009 | 0.40 | M-v | 0 | MPC | 166144 | 2002 $VE_{140}$ |
| 2002 $VM_{142}$ | 17.7 | 0.15 | 20100104 | 321.22334 | 21.52369 | 91.18062 | 3.59091 | 0.1092576 | 2.3066041 | 30 | 5 | 1995–2009 | 0.47 | M-v | 3 | MPC | 166145 | 2002 $VM_{142}$ |
| 2002 $VR_{142}$ | 17.1 | 0.15 | 20100104 | 245.38272 | 279.56885 | 119.34230 | 3.60843 | 0.1068610 | 2.6478319 | 30 | 3 | 2002–2009 | 0.44 | M-v | 3 | MPC | 152073 | 2002 $VR_{142}$ |
| 2002 $VQ_{143}$ | 15.2 | 0.15 | 20100104 | 46.71081 | 331.37848 | 77.10666 | 11.05692 | 0.0767579 | 3.4263202 | 41 | 6 | 2001–2009 | 0.36 | M-v | 0 | MPC | 164197 | 2002 $VQ_{143}$ |
| 2002 $VV_{143}$ | 18.2 | 0.15 | 20100104 | 9.99351 | 332.84054 | 62.59819 | 3.75195 | 0.2248457 | 2.3335063 | 31 | 2 | 2002–2009 | 0.28 | M-v | 3 | MPC | 164197 | 2002 $VV_{143}$ |
| 2002 $VN_{146}$ | 18.3 | 0.15 | 20100104 | 34.33687 | 106.48642 | 286.55576 | 2.31720 | 0.1716640 | 2.2900312 | 29 | 2 | 2002–2009 | 0.38 | M-v | 4 | MPC | 165349 | 2002 $VN_{146}$ |
| 2002 WP | 18.5 | 0.15 | 20100104 | 10.86958 | 1.07335 | 76.36110 | 19.14944 | 0.2157902 | 1.4500671 | 314 | 3 | 2002–2009 | 0.43 | M-v | 1 | MPC | 166145 | 2002 WP |
| 2002 $WH_2$ | 18.7 | 0.15 | 20100104 | 40.38919 | 132.71473 | 238.79536 | 5.59962 | 0.2597755 | 2.3071216 | 32 | 2 | 2002–2009 | 0.32 | M-v | 4 | MPC | 165349 | 2002 $WH_2$ |
| 2002 $WJ_2$ | 17.3 | 0.15 | 20100104 | 6.07697 | 183.23188 | 237.78244 | 6.98627 | 0.0795828 | 2.3170679 | 46 | 3 | 2002–2009 | 0.49 | M-v | 3 | MPC | 165349 | 2002 $WJ_2$ |
| 2002 $WP_4$ | 16.9 | 0.15 | 20100104 | 244.84695 | 98.94984 | 67.43572 | 7.42272 | 0.0642653 | 2.3808663 | 32 | 3 | 2002–2009 | 0.41 | M-v | 3 | MPC | 113984 | 2002 $WP_4$ |
| 2002 $WY_5$ | 17.0 | 0.15 | 20100104 | 81.63838 | 7.78824 | 335.81208 | 5.65689 | 0.1114694 | 2.2790133 | 43 | 7 | 1997–2009 | 0.53 | M-v | 1 | MPC | 114685 | 2002 $WY_5$ |
| 2002 $WV_9$ | 17.2 | 0.15 | 20100104 | 59.66270 | 333.78086 | 49.78644 | 4.00547 | 0.1631636 | 2.2656955 | 49 | 5 | 2002–2009 | 0.43 | M-v | 1 | MPC | 166145 | 2002 $WV_9$ |
| 2002 $WD_{19}$ | 18.4 | 0.15 | 20100104 | 358.84531 | 288.69210 | 121.12979 | 1.97676 | 0.1743862 | 2.3496201 | 30 | 3 | 2002–2009 | 0.35 | M-v | 2 | MPC | 160334 | 2002 $WD_{19}$ |
| 2002 $WN_{19}$ | 17.6 | 0.15 | 20100104 | 96.32382 | 268.06008 | 79.03133 | 3.33122 | 0.1911277 | 2.2438800 | 44 | 4 | 2002–2009 | 0.45 | M-v | 1 | MPC | 159689 | 2002 $WN_{19}$ |
| 2002 $WW_{19}$ | 18.3 | 0.15 | 20100104 | 36.40347 | 267.11658 | 154.09542 | 2.48095 | 0.1262720 | 2.2517205 | 42 | 6 | 1995–2009 | 0.37 | M-v | 0 | MPC | 116232 | 2002 $WW_{19}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 $WB_{26}$ | 17.6 | 0.15 | 20100104 | 347.38216 | 344.54732 | 81.11386 | 7.00619 | 0.0940616 | 2.3445049 | 30 | 3 | 2002–2009 | 0.32 | M-v | 2 | MPC | 164198 2002 $WB_{26}$ |
| 2002 $WE_{26}$ | 17.7 | 0.15 | 20100104 | 348.09494 | 12.35363 | 87.69853 | 6.72780 | 0.1487532 | 2.2920742 | 31 | 2 | 2002–2009 | 0.27 | M-v | 4 | MPC | 165349 2002 $WE_{26}$ |
| 2002 $WS_{26}$ | 17.5 | 0.15 | 20100104 | 332.37762 | 55.33486 | 51.76143 | 4.70846 | 0.1396588 | 2.2919805 | 71 | 3 | 2002–2009 | 0.40 | M-v | 2 | MPC | 166145 2002 $WS_{26}$ |
| 2002 $WG_{27}$ | 17.4 | 0.15 | 20100104 | 353.41277 | 0.45867 | 86.09036 | 7.39706 | 0.1373704 | 2.3003704 | 38 | 3 | 1996–2009 | 0.49 | M-v | 4 | MPC | 165349 2002 $WG_{27}$ |
| 2002 $WM_{27}$ | 17.8 | 0.15 | 20100104 | 47.51378 | 303.43204 | 40.55296 | 3.85269 | 0.1751530 | 2.3548217 | 29 | 2 | 2002–2009 | 0.29 | M-v | 3 | MPC | 164198 2002 $WM_{27}$ |
| 2002 $WD_{29}$ | 17.4 | 0.15 | 20100104 | 348.14303 | 219.42751 | 208.42892 | 4.63363 | 0.1422403 | 2.3353551 | 50 | 3 | 2002–2009 | 0.33 | M-v | 2 | MPC | 166145 2002 $WD_{29}$ |
| 2002 $WM_{30}$ | 18.3 | 0.15 | 20100104 | 46.53222 | 135.61484 | 237.96147 | 7.27292 | 0.1593515 | 2.3087833 | 30 | 3 | 2002–2009 | 0.37 | M-v | 2 | MPC | 166145 2002 $WM_{30}$ |
| 2002 $XH_{5}$ | 15.5 | 0.15 | 20100104 | 335.55424 | 66.67711 | 77.31641 | 24.04419 | 0.2865566 | 2.3439871 | 82 | 4 | 1998–2009 | 0.51 | M-v | 1 | MPC | 166145 2002 $XH_{5}$ |
| 2002 $XW_{5}$ | 16.6 | 0.15 | 20100104 | 28.39558 | 341.14161 | 81.92263 | 3.72158 | 0.1084923 | 2.2631354 | 63 | 5 | 2000–2009 | 0.54 | M-v | 1 | MPC | 119586 2002 $XW_{5}$ |
| 2002 $XA_{7}$ | 17.0 | 0.15 | 20100104 | 327.98905 | 246.32547 | 217.23667 | 4.28634 | 0.1619973 | 2.3336847 | 48 | 3 | 2002–2009 | 0.51 | M-v | 2 | MPC | 166145 2002 $XA_{7}$ |
| 2002 $XX_{9}$ | 16.3 | 0.15 | 20100104 | 31.79340 | 311.34395 | 85.47377 | 11.06167 | 0.2253025 | 2.3265642 | 71 | 3 | 2002–2009 | 0.49 | M-v | 2 | MPC | 165350 2002 $XX_{9}$ |
| 2002 $XB_{11}$ | 16.9 | 0.15 | 20100104 | 70.99559 | 313.03965 | 61.18753 | 6.84630 | 0.1280962 | 2.2723117 | 50 | 4 | 2002–2009 | 0.47 | M-v | 1 | MPC | 164198 2002 $XB_{11}$ |
| 2002 $XR_{12}$ | 17.0 | 0.15 | 20100104 | 358.73288 | 192.65207 | 256.97378 | 6.37120 | 0.0467138 | 2.2919044 | 33 | 3 | 2002–2009 | 0.41 | M-v | 3 | MPC | 166145 2002 $XR_{12}$ |
| 2002 $XN_{14}$ | 20.1 | 0.15 | 20100104 | 24.26360 | 310.75971 | 86.26157 | 11.78598 | 0.4406105 | 1.7675682 | 181 | 2 | 2002–2009 | 0.41 | M-v | 1 | MPC | 164198 2002 $XN_{14}$ |
| 2002 $XC_{15}$ | 17.9 | 0.15 | 20100104 | 350.89672 | 184.47024 | 248.74337 | 2.89401 | 0.2165653 | 2.3458941 | 78 | 3 | 2002–2009 | 0.47 | M-v | 2 | MPC | 166145 2002 $XC_{15}$ |
| 2002 $XG_{18}$ | 16.9 | 0.15 | 20100104 | 4.11940 | 343.48143 | 80.84596 | 8.69615 | 0.1965984 | 2.3311685 | 92 | 3 | 2002–2009 | 0.55 | M-v | 2 | MPC | 166145 2002 $XG_{18}$ |
| 2002 $XD_{19}$ | 17.0 | 0.15 | 20100104 | 31.29071 | 322.64257 | 50.04635 | 5.89022 | 0.1299114 | 2.3360669 | 74 | 5 | 2001–2009 | 0.55 | M-v | 1 | MPC | 164198 2002 $XD_{19}$ |
| 2002 $XW_{22}$ | 16.8 | 0.15 | 20100104 | 318.21910 | 61.64862 | 42.82787 | 4.29544 | 0.1058391 | 2.3576788 | 43 | 4 | 1991–2009 | 0.44 | M-v | 1 | MPC | 166145 2002 $XW_{22}$ |
| 2002 $XZ_{22}$ | 17.0 | 0.15 | 20100104 | 355.67541 | 47.07521 | 53.44995 | 5.29883 | 0.1711003 | 2.2839562 | 41 | 3 | 2002–2009 | 0.38 | M-v | 3 | MPC | 166145 2002 $XZ_{22}$ |
| 2002 $XR_{24}$ | 17.8 | 0.15 | 20100104 | 358.90447 | 23.93220 | 28.02494 | 1.77480 | 0.1651363 | 2.3653987 | 72 | 5 | 1998–2009 | 0.46 | M-v | 0 | MPC | 163651 2002 $XR_{24}$ |
| 2002 $XA_{28}$ | 16.2 | 0.15 | 20100104 | 39.86109 | 135.99365 | 240.96030 | 4.79486 | 0.0858230 | 2.3359469 | 83 | 5 | 1998–2009 | 0.53 | M-v | 1 | MPC | 165350 2002 $XA_{28}$ |
| 2002 $XA_{33}$ | 17.5 | 0.15 | 20100104 | 316.83678 | 56.94834 | 80.63297 | 3.00255 | 0.1489893 | 2.3097682 | 53 | 4 | 1998–2009 | 0.39 | M-v | 0 | MPC | 166145 2002 $XA_{33}$ |
| 2002 $XO_{35}$ | 15.4 | 0.15 | 20100104 | 326.97454 | 43.85080 | 104.37141 | 24.74465 | 0.2269186 | 2.3364693 | 122 | 4 | 2002–2009 | 0.56 | M-v | 1 | MPC | 121324 2002 $XO_{35}$ |
| 2002 $XO_{38}$ | 16.0 | 0.15 | 20100104 | 33.58909 | 134.08509 | 262.18204 | 23.17240 | 0.2697013 | 2.2959568 | 109 | 2 | 2002–2009 | 0.45 | M-v | 3 | MPC | 165350 2002 $XO_{38}$ |
| 2002 $XM_{41}$ | 16.8 | 0.15 | 20100104 | 123.03697 | 66.07409 | 267.36155 | 5.29347 | 0.2075031 | 2.2206670 | 93 | 3 | 2002–2009 | 0.49 | M-v | 3 | MPC | 166145 2002 $XM_{41}$ |
| 2002 $XT_{41}$ | 17.5 | 0.15 | 20100104 | 78.44993 | 312.50866 | 47.37000 | 7.73856 | 0.2463445 | 2.2599039 | 32 | 3 | 2002–2009 | 0.47 | M-v | 2 | MPC | 108584 2002 $XT_{41}$ |
| 2002 $XO_{48}$ | 17.0 | 0.15 | 20100104 | 68.50990 | 275.52202 | 97.60687 | 3.53941 | 0.1882853 | 2.2639886 | 41 | 4 | 2002–2009 | 0.56 | M-v | 1 | MPC | 118031 2002 $XO_{48}$ |
| 2002 $XD_{51}$ | 16.5 | 0.15 | 20100104 | 281.44104 | 213.96503 | 274.91204 | 1.39687 | 0.1511845 | 2.4174234 | 116 | 4 | 2002–2009 | 0.49 | M-v | 2 | MPC | 116234 2002 $XD_{51}$ |
| 2002 $XS_{52}$ | 16.4 | 0.15 | 20100104 | 8.38194 | 145.55018 | 273.95114 | 8.79621 | 0.1748777 | 2.3438446 | 82 | 4 | 1998–2009 | 0.49 | M-v | 1 | MPC | 166146 2002 $XS_{52}$ |
| 2002 $XL_{53}$ | 17.6 | 0.15 | 20100104 | 20.10441 | 268.90571 | 152.20236 | 2.80117 | 0.2270526 | 2.2910012 | 44 | 4 | 2000–2009 | 0.40 | M-v | 2 | MPC | 166146 2002 $XL_{53}$ |
| 2002 $XX_{57}$ | 17.0 | 0.15 | 20100104 | 313.74835 | 311.23633 | 155.95720 | 2.85757 | 0.1731615 | 2.3746582 | 95 | 5 | 1994–2009 | 0.53 | M-v | 1 | MPC | 164198 2002 $XX_{57}$ |
| 2002 $XQ_{60}$ | 16.8 | 0.15 | 20100104 | 43.01247 | 298.18194 | 76.92005 | 3.85795 | 0.1708746 | 2.3252710 | 101 | 5 | 2002–2009 | 0.49 | M-v | 1 | MPC | 166146 2002 $XQ_{60}$ |
| 2002 $XT_{60}$ | 16.3 | 0.15 | 20100104 | 296.70617 | 269.84708 | 252.77960 | 23.16901 | 0.1465921 | 2.3058688 | 41 | 3 | 2002–2009 | 0.50 | M-v | 3 | MPC | 165351 2002 $XT_{60}$ |
| 2002 $XW_{64}$ | 16.6 | 0.15 | 20100104 | 43.53035 | 288.87161 | 85.51165 | 23.31370 | 0.3124630 | 2.3327464 | 51 | 3 | 2002–2009 | 0.41 | M-v | 2 | MPC | 166146 2002 $XW_{64}$ |
| 2002 $XY_{66}$ | 18.2 | 0.15 | 20100104 | 350.18817 | 238.69626 | 250.96434 | 1.18405 | 0.1859377 | 2.2623508 | 43 | 5 | 2000–2009 | 0.47 | M-v | 0 | MPC | 119586 2002 $XY_{66}$ |
| 2002 $XA_{72}$ | 17.0 | 0.15 | 20100104 | 20.34176 | 22.32635 | 29.18687 | 5.43348 | 0.2011429 | 2.3074087 | 90 | 3 | 2002–2009 | 0.49 | M-v | 2 | MPC | 166146 2002 $XA_{72}$ |
| 2002 $XY_{81}$ | 16.3 | 0.15 | 20100104 | 27.58264 | 0.02792 | 68.76534 | 8.77155 | 0.2093091 | 2.3015091 | 93 | 3 | 2002–2009 | 0.58 | M-v | 2 | MPC | 166146 2002 $XY_{81}$ |
| 2002 $XE_{89}$ | 16.5 | 0.15 | 20100104 | 309.76077 | 46.68396 | 97.59726 | 23.58630 | 0.2712815 | 2.3684965 | 59 | 3 | 2002–2009 | 0.57 | M-v | 1 | MPC | 159691 2002 $XE_{89}$ |
| 2002 $XL_{93}$ | 17.5 | 0.15 | 20100104 | 35.63138 | 294.65792 | 69.87397 | 3.19793 | 0.1908366 | 2.3531955 | 50 | 4 | 1991–2009 | 0.36 | M-v | 1 | MPC | 166146 2002 $XL_{93}$ |
| 2002 $XE_{95}$ | 17.5 | 0.15 | 20100104 | 39.08224 | 354.28049 | 87.22221 | 3.90192 | 0.1310172 | 2.2139980 | 44 | 5 | 2002–2009 | 0.41 | M-v | 1 | MPC | 119587 2002 $XE_{95}$ |
| 2002 $XJ_{95}$ | 17.4 | 0.15 | 20100104 | 337.35287 | 10.70272 | 63.71210 | 2.30315 | 0.1541120 | 2.3561531 | 47 | 3 | 2002–2009 | 0.52 | M-v | 2 | MPC | 164199 2002 $XJ_{95}$ |
| 2002 $XB_{96}$ | 16.9 | 0.15 | 20100104 | 354.43140 | 226.21065 | 229.86376 | 5.47982 | 0.0706022 | 2.2817344 | 50 | 5 | 2002–2009 | 0.50 | M-v | 1 | MPC | 159691 2002 $XB_{96}$ |
| 2002 $XJ_{98}$ | 17.2 | 0.15 | 20100104 | 5.52369 | 180.98600 | 262.62708 | 2.94786 | 0.1071673 | 2.2794753 | 38 | 6 | 1992–2009 | 0.49 | M-v | 1 | MPC | 158445 2002 $XJ_{98}$ |
| 2002 $XK_{98}$ | 15.3 | 0.15 | 20100104 | 90.83524 | 0.11758 | 65.39147 | 4.02628 | 0.0360958 | 3.1670430 | 50 | 7 | 1999–2009 | 0.39 | M-v | 0 | MPC | 152362 2002 $XK_{98}$ |
| 2002 $XO_{103}$ | 16.9 | 0.15 | 20100104 | 11.62967 | 171.56694 | 249.95118 | 7.72292 | 0.1873213 | 2.3208388 | 58 | 2 | 2002–2009 | 0.44 | M-v | 3 | MPC | 165351 2002 $XO_{103}$ |
| 2002 $XD_{105}$ | 17.5 | 0.15 | 20100104 | 345.73887 | 18.94001 | 69.93927 | 4.29359 | 0.1827284 | 2.3362435 | 59 | 3 | 2000–2009 | 0.44 | M-v | 2 | MPC | 166146 2002 $XD_{105}$ |
| 2002 $XR_{113}$ | 16.5 | 0.15 | 20100104 | 335.82491 | 198.52172 | 285.46188 | 6.04860 | 0.0403173 | 2.3027005 | 52 | 5 | 2002–2009 | 0.47 | M-v | 1 | MPC | 141786 2002 $XR_{113}$ |
| 2002 $XA_{115}$ | 16.9 | 0.15 | 20100104 | 45.59520 | 148.09905 | 229.57543 | 6.31860 | 0.1193974 | 2.3172526 | 55 | 4 | 2002–2009 | 0.40 | M-v | 1 | MPC | 166146 2002 $XA_{115}$ |
| 2002 $XR_{117}$ | 17.9 | 0.15 | 20100104 | 28.14252 | 291.61195 | 95.57236 | 5.29913 | 0.2477802 | 2.3103223 | 51 | 2 | 2002–2009 | 0.52 | M-v | 4 | MPC | 166146 2002 $XR_{117}$ |
| 2002 $XW_{118}$ | 17.3 | 0.15 | 20100104 | 105.07081 | 95.07275 | 225.76168 | 5.14842 | 0.1983898 | 2.2686047 | 49 | 5 | 1995–2009 | 0.28 | M-v | 1 | MPC | 149860 2002 $XW_{118}$ |
| 2002 $YF_{4}$ | 18.6 | 0.15 | 20100104 | 337.66437 | 93.54253 | 61.75661 | 33.67357 | 0.3343149 | 1.7547468 | 52 | 3 | 2002–2009 | 0.51 | M-v | 2 | MPC | 166146 2002 $YF_{4}$ |
| 2002 $YD_{5}$ | 15.7 | 0.15 | 20100104 | 74.55426 | 358.00393 | 27.74803 | 24.52998 | 0.1998731 | 2.3121964 | 161 | 4 | 1998–2009 | 0.53 | M-v | 2 | MPC | 160780 2002 $YD_{5}$ |
| 2002 $YK_{8}$ | 16.7 | 0.15 | 20100104 | 41.69210 | 327.81030 | 92.44076 | 9.59300 | 0.1450177 | 2.2669438 | 67 | 3 | 2002–2009 | 0.49 | M-v | 1 | MPC | 166146 2002 $YK_{8}$ |

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| 2002 $YR_{9}$ | 16.7 | 0.15 | 20100104 | 24.82789 | 168.16442 | 262.79734 | 2.97720 | 0.1301309 | 2.3042380 | 59 | 5 | 2002–2009 | 0.57 | M-v | 1 | MPC | 140111 | 2002 $YR_{9}$ |
| 2002 $YX_{11}$ | 16.0 | 0.15 | 20100104 | 336.46021 | 90.42226 | 108.93567 | 22.68338 | 0.4302647 | 2.2935393 | 143 | 4 | 1989–2009 | 0.51 | M-v | 1 | MPC | 166146 | 2002 $YX_{11}$ |
| 2002 $YE_{15}$ | 16.8 | 0.15 | 20100104 | 345.44432 | 16.45216 | 104.56622 | 5.08191 | 0.0796596 | 2.3207170 | 51 | 4 | 2002–2009 | 0.64 | M-v | 1 | MPC | 119587 | 2002 $YE_{15}$ |
| 2002 $YU_{16}$ | 17.0 | 0.15 | 20100104 | 25.89664 | 320.27530 | 70.31454 | 3.39085 | 0.2271314 | 2.3275290 | 110 | 3 | 2002–2009 | 0.56 | M-v | 3 | MPC | 166146 | 2002 $YU_{16}$ |
| 2002 $YZ_{17}$ | 17.2 | 0.15 | 20100104 | 350.19761 | 177.16140 | 250.90491 | 4.96035 | 0.2106632 | 2.3586736 | 60 | 5 | 1996–2009 | 0.49 | M-v | 1 | MPC | 164199 | 2002 $YZ_{17}$ |
| 2002 $YH_{19}$ | 17.1 | 0.15 | 20100104 | 356.80527 | 341.85256 | 94.64729 | 5.07018 | 0.1865292 | 2.3374475 | 45 | 4 | 1996–2009 | 0.57 | M-v | 2 | MPC | 165352 | 2002 $YH_{19}$ |
| 2002 $YR_{25}$ | 16.6 | 0.15 | 20100104 | 81.74967 | 271.32706 | 92.94793 | 7.80230 | 0.2071389 | 2.2902760 | 54 | 4 | 1998–2009 | 0.43 | M-v | 2 | MPC | 166146 | 2002 $YR_{25}$ |
| 2002 $YV_{27}$ | 16.7 | 0.15 | 20100104 | 24.39462 | 121.48950 | 278.49682 | 5.65917 | 0.1733100 | 2.3621895 | 65 | 4 | 1998–2009 | 0.50 | M-v | 1 | MPC | 165352 | 2002 $YV_{27}$ |
| 2002 $YL_{28}$ | 16.6 | 0.15 | 20100104 | 14.62083 | 132.60863 | 293.79084 | 7.02296 | 0.1914430 | 2.3343988 | 60 | 4 | 2002–2009 | 0.51 | M-v | 1 | MPC | 165352 | 2002 $YL_{28}$ |
| 2003 $AC_{2}$ | 16.7 | 0.15 | 20100104 | 52.82779 | 266.84699 | 134.85183 | 10.27609 | 0.1321976 | 2.3292111 | 80 | 6 | 2001–2009 | 0.56 | M-v | 1 | MPC | 159691 | 2003 $AC_{2}$ |
| 2003 $AG_{2}$ | 15.9 | 0.15 | 20100104 | 32.80928 | 121.25885 | 294.73762 | 21.15043 | 0.3316891 | 2.3242906 | 98 | 3 | 2002–2009 | 0.51 | M-v | 1 | MPC | 166147 | 2003 $AG_{2}$ |
| 2003 $AL_{5}$ | 16.5 | 0.15 | 20100104 | 82.13250 | 68.58311 | 293.49527 | 10.80471 | 0.1835652 | 2.3049733 | 93 | 4 | 1998–2009 | 0.51 | M-v | 2 | MPC | 159692 | 2003 $AL_{5}$ |
| 2003 $AG_{9}$ | 15.8 | 0.15 | 20100104 | 322.87245 | 237.29580 | 304.39929 | 22.64978 | 0.2207487 | 2.2753550 | 51 | 3 | 2002–2009 | 0.54 | M-v | 2 | MPC | 166147 | 2003 $AG_{9}$ |
| 2003 $AM_{15}$ | 17.3 | 0.15 | 20100104 | 40.89548 | 330.04570 | 79.47225 | 6.72625 | 0.1586243 | 2.2971672 | 44 | 3 | 2003–2009 | 0.46 | M-v | 1 | MPC | 165353 | 2003 $AM_{15}$ |
| 2003 $AV_{15}$ | 16.6 | 0.15 | 20100104 | 342.88421 | 23.89412 | 58.81091 | 7.08469 | 0.0861908 | 2.3797398 | 56 | 5 | 1998–2009 | 0.54 | M-v | 1 | MPC | 165353 | 2003 $AV_{15}$ |
| 2003 $AY_{20}$ | 16.7 | 0.15 | 20100104 | 58.01903 | 18.47874 | 2.11253 | 2.50248 | 0.2276675 | 2.3082165 | 103 | 6 | 1998–2009 | 0.44 | M-v | 1 | MPC | 118034 | 2003 $AY_{20}$ |
| 2003 $AW_{21}$ | 16.7 | 0.15 | 20100104 | 45.00646 | 75.40871 | 335.72421 | 6.01011 | 0.1082885 | 2.3109286 | 120 | 3 | 2002–2009 | 0.55 | M-v | 2 | MPC | 97630 | 2003 $AW_{21}$ |
| 2003 $AX_{24}$ | 16.6 | 0.15 | 20100104 | 50.72346 | 115.85345 | 271.80492 | 6.03594 | 0.1230355 | 2.3189843 | 45 | 6 | 1998–2009 | 0.54 | M-v | 1 | MPC | 166147 | 2003 $AX_{24}$ |
| 2003 $AO_{25}$ | 16.6 | 0.15 | 20100104 | 0.68229 | 203.26526 | 276.24322 | 6.84276 | 0.0830608 | 2.2687946 | 50 | 6 | 2000–2009 | 0.56 | M-v | 1 | MPC | 143167 | 2003 $AO_{25}$ |
| 2003 $AE_{33}$ | 17.1 | 0.15 | 20100104 | 319.61499 | 90.95891 | 48.29851 | 3.14498 | 0.1020295 | 2.3425737 | 45 | 4 | 2003–2009 | 0.37 | M-v | 1 | MPC | 119588 | 2003 $AE_{33}$ |
| 2003 $AZ_{36}$ | 16.2 | 0.15 | 20100104 | 349.49711 | 176.71331 | 257.53838 | 6.02988 | 0.2059080 | 2.3713324 | 73 | 5 | 1998–2009 | 0.51 | M-v | 1 | MPC | 166147 | 2003 $AZ_{36}$ |
| 2003 $AK_{38}$ | 17.0 | 0.15 | 20100104 | 344.02698 | 230.61562 | 229.51383 | 4.34154 | 0.1294561 | 2.3607099 | 57 | 5 | 1998–2009 | 0.49 | M-v | 1 | MPC | 166147 | 2003 $AK_{38}$ |
| 2003 $AB_{40}$ | 16.6 | 0.15 | 20100104 | 304.73899 | 222.97638 | 250.91256 | 4.89406 | 0.1412608 | 2.4369761 | 57 | 3 | 2002–2009 | 0.50 | M-v | 2 | MPC | 164199 | 2003 $AB_{40}$ |
| 2003 $AN_{40}$ | 16.9 | 0.15 | 20100104 | 9.75661 | 185.97973 | 268.76443 | 7.07600 | 0.2466986 | 2.3120911 | 72 | 4 | 1995–2009 | 0.49 | M-v | 1 | MPC | 166147 | 2003 $AN_{40}$ |
| 2003 $AO_{40}$ | 16.2 | 0.15 | 20100104 | 34.88207 | 176.05411 | 252.01428 | 5.52206 | 0.2433824 | 2.2975054 | 84 | 3 | 2003–2009 | 0.52 | M-v | 2 | MPC | 97630 | 2003 $AO_{40}$ |
| 2003 $AD_{46}$ | 16.5 | 0.15 | 20100104 | 320.75091 | 20.34397 | 80.96183 | 8.48766 | 0.1357289 | 2.3974319 | 48 | 5 | 1999–2009 | 0.60 | M-v | 1 | MPC | 166147 | 2003 $AD_{46}$ |
| 2003 $AS_{53}$ | 16.5 | 0.15 | 20100104 | 305.13094 | 56.51020 | 83.92914 | 7.48113 | 0.0876018 | 2.3773252 | 63 | 3 | 2003–2009 | 0.54 | M-v | 2 | MPC | 166147 | 2003 $AS_{53}$ |
| 2003 $AL_{54}$ | 16.4 | 0.15 | 20100104 | 288.16196 | 48.47774 | 102.89495 | 10.57036 | 0.0943814 | 2.3982696 | 69 | 3 | 2002–2009 | 0.53 | M-v | 2 | MPC | 166147 | 2003 $AL_{54}$ |
| 2003 $AC_{55}$ | 17.2 | 0.15 | 20100104 | 316.40992 | 125.55178 | 34.90416 | 4.32521 | 0.1425203 | 2.3222939 | 56 | 6 | 1998–2009 | 0.46 | M-v | 1 | MPC | 119588 | 2003 $AC_{55}$ |
| 2003 $AR_{61}$ | 16.8 | 0.15 | 20100104 | 345.72775 | 202.52827 | 247.05687 | 6.69190 | 0.1832839 | 2.3769049 | 86 | 4 | 1998–2009 | 0.55 | M-v | 1 | MPC | 166147 | 2003 $AR_{61}$ |
| 2003 $AY_{63}$ | 15.5 | 0.15 | 20100104 | 2.26027 | 113.59026 | 324.67350 | 23.40430 | 0.2474734 | 2.3562181 | 116 | 5 | 1998–2009 | 0.50 | M-v | 1 | MPC | 118036 | 2003 $AY_{63}$ |
| 2003 $AQ_{69}$ | 16.3 | 0.15 | 20100104 | 60.98517 | 97.74387 | 286.99191 | 6.21941 | 0.1323223 | 2.3229917 | 87 | 5 | 1995–2009 | 0.60 | M-v | 2 | MPC | 97631 | 2003 $AQ_{69}$ |
| 2003 $AW_{71}$ | 16.5 | 0.15 | 20100104 | 322.30295 | 219.51688 | 257.28261 | 21.87473 | 0.2376150 | 2.3537890 | 41 | 3 | 2002–2009 | 0.41 | M-v | 1 | MPC | 165354 | 2003 $AW_{71}$ |
| 2003 $AV_{80}$ | 15.8 | 0.15 | 20100104 | 310.41556 | 91.25702 | 75.79470 | 22.07267 | 0.2926002 | 2.3748708 | 58 | 2 | 2003–2009 | 0.55 | M-v | 2 | MPC | 165354 | 2003 $AV_{80}$ |
| 2003 $AY_{82}$ | 17.2 | 0.15 | 20100104 | 44.07595 | 265.86718 | 133.16360 | 4.14814 | 0.2212275 | 2.3200562 | 63 | 5 | 1998–2009 | 0.44 | M-v | 1 | MPC | 118037 | 2003 $AY_{82}$ |
| 2003 $AP_{90}$ | 17.1 | 0.15 | 20100104 | 51.54085 | 322.11419 | 77.56864 | 7.11031 | 0.1937213 | 2.2914055 | 53 | 3 | 2002–2009 | 0.49 | M-v | 2 | MPC | 166147 | 2003 $AP_{90}$ |
| 2003 $AT_{90}$ | 16.6 | 0.15 | 20100104 | 358.18924 | 77.18669 | 21.17591 | 6.83177 | 0.0901320 | 2.3500400 | 95 | 4 | 2003–2009 | 0.44 | M-v | 0 | MPC | 166147 | 2003 $AT_{90}$ |
| 2003 BM | 18.0 | 0.15 | 20100104 | 24.60234 | 298.34575 | 158.86636 | 1.28201 | 0.1719669 | 2.2705348 | 43 | 6 | 1998–2009 | 0.48 | M-v | 1 | MPC | 120773 | 2003 BM |
| 2003 BU | 15.8 | 0.15 | 20100104 | 285.25717 | 64.40657 | 94.38495 | 15.17290 | 0.0910857 | 2.4141176 | 63 | 6 | 2000–2009 | 0.62 | M-v | 1 | MPC | 166147 | 2003 BU |
| 2003 $BL_{1}$ | 19.3 | 0.15 | 20100104 | 56.59374 | 110.60104 | 324.19642 | 22.45780 | 0.3198456 | 1.7123709 | 78 | 3 | 2003–2009 | 0.47 | M-v | 1 | MPC | 65426 | 2003 $BL_{1}$ |
| 2003 $BF_{3}$ | 17.1 | 0.15 | 20100104 | 7.70145 | 161.04047 | 276.40075 | 6.03885 | 0.1741680 | 2.3575585 | 47 | 3 | 2003–2009 | 0.55 | M-v | 3 | MPC | 165354 | 2003 $BF_{3}$ |
| 2003 $BQ_{7}$ | 16.8 | 0.15 | 20100104 | 329.04658 | 204.51328 | 299.72302 | 4.72025 | 0.1577781 | 2.3324135 | 66 | 5 | 2003–2009 | 0.51 | M-v | 1 | MPC | 147240 | 2003 $BQ_{7}$ |
| 2003 $BK_{8}$ | 17.0 | 0.15 | 20100104 | 24.49360 | 287.76971 | 145.42623 | 5.94165 | 0.1898146 | 2.3154379 | 43 | 4 | 2003–2009 | 0.49 | M-v | 1 | MPC | 159693 | 2003 $BK_{8}$ |
| 2003 $BS_{8}$ | 16.6 | 0.15 | 20100104 | 20.03020 | 171.23659 | 258.21688 | 5.33154 | 0.1955158 | 2.3289940 | 44 | 4 | 1996–2009 | 0.44 | M-v | 1 | MPC | 160782 | 2003 $BS_{8}$ |
| 2003 $BS_{10}$ | 16.1 | 0.15 | 20100104 | 290.23088 | 74.46163 | 97.74445 | 5.58451 | 0.0658455 | 2.3729591 | 65 | 8 | 1992–2009 | 0.56 | M-v | 1 | MPC | 141787 | 2003 $BS_{10}$ |
| 2003 $BY_{11}$ | 16.5 | 0.15 | 20100104 | 19.10854 | 334.96993 | 127.35336 | 6.50093 | 0.1069307 | 2.3101211 | 90 | 5 | 2003–2009 | 0.53 | M-v | 1 | MPC | 143167 | 2003 $BY_{11}$ |
| 2003 $BC_{13}$ | 16.5 | 0.15 | 20100104 | 336.04712 | 218.49555 | 292.54619 | 6.11758 | 0.1135439 | 2.2931881 | 55 | 6 | 1996–2009 | 0.57 | M-v | 2 | MPC | 166147 | 2003 $BC_{13}$ |
| 2003 $BX_{14}$ | 17.0 | 0.15 | 20100104 | 354.59384 | 108.95116 | 347.98176 | 3.88559 | 0.1883415 | 2.3623409 | 71 | 5 | 1994–2009 | 0.47 | M-v | 1 | MPC | 166147 | 2003 $BX_{14}$ |
| 2003 $BW_{18}$ | 14.9 | 0.15 | 20100104 | 58.40597 | 240.10329 | 296.64772 | 19.30074 | 0.1416774 | 3.1294521 | 45 | 3 | 2003–2009 | 0.57 | M-v | 3 | MPC | 159693 | 2003 $BW_{18}$ |
| 2003 $BK_{19}$ | 17.0 | 0.15 | 20100104 | 57.89592 | 2.27842 | 86.20762 | 6.25001 | 0.1239160 | 2.2483107 | 91 | 5 | 2000–2009 | 0.56 | M-v | 1 | MPC | 160782 | 2003 $BK_{19}$ |
| 2003 $BJ_{28}$ | 17.3 | 0.15 | 20100104 | 281.97764 | 101.18057 | 80.54997 | 6.37928 | 0.2058676 | 2.4068617 | 55 | 5 | 2001–2009 | 0.53 | M-v | 1 | MPC | 166148 | 2003 $BJ_{28}$ |
| 2003 $BF_{29}$ | 16.4 | 0.15 | 20100104 | 73.23986 | 247.82470 | 124.76052 | 9.96181 | 0.2430690 | 2.3186504 | 66 | 3 | 2003–2009 | 0.53 | M-v | 2 | MPC | 159693 | 2003 $BF_{29}$ |
| 2003 $BD_{31}$ | 16.4 | 0.15 | 20100104 | 43.83781 | 98.63794 | 284.92071 | 5.11589 | 0.2247887 | 2.3711154 | 95 | 3 | 2003–2009 | 0.45 | M-v | 2 | MPC | 166148 | 2003 $BD_{31}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 $BD_{33}$ | 16.4 | 0.15 | 20100104 | 18.62453 | 101.39867 | 9.27776 | 8.59602 | 0.1860410 | 2.3005741 | 124 | 4 | 1991–2009 | 0.53 | M-v | 2 | MPC | 160782 | 2003 $BD_{33}$ |
| 2003 $BN_{34}$ | 16.7 | 0.15 | 20100104 | 317.42144 | 186.91979 | 306.70539 | 6.18565 | 0.0628283 | 2.3650865 | 44 | 5 | 2003–2009 | 0.58 | M-v | 1 | MPC | 141787 | 2003 $BN_{34}$ |
| 2003 $BU_{35}$ | 16.4 | 0.15 | 20100104 | 349.15114 | 214.07385 | 264.99217 | 14.87336 | 0.5366459 | 3.7423600 | 119 | 2 | 2002–2009 | 0.42 | M-v | 1 | MPC | 165354 | 2003 $BU_{35}$ |
| 2003 $BO_{38}$ | 17.4 | 0.15 | 20100104 | 317.66928 | 42.96469 | 107.07556 | 3.26281 | 0.1781725 | 2.3477051 | 44 | 5 | 2001–2009 | 0.52 | M-v | 0 | MPC | 119590 | 2003 $BO_{38}$ |
| 2003 $BX_{39}$ | 16.4 | 0.15 | 20100104 | 53.64203 | 72.88151 | 312.68194 | 6.16087 | 0.1927719 | 2.3466053 | 61 | 4 | 1998–2009 | 0.50 | M-v | 1 | MPC | 160782 | 2003 $BX_{39}$ |
| 2003 $BP_{43}$ | 16.9 | 0.15 | 20100104 | 21.89954 | 356.32967 | 109.95247 | 2.60693 | 0.1819660 | 2.2910206 | 108 | 4 | 2003–2009 | 0.53 | M-v | 1 | MPC | 120774 | 2003 $BP_{43}$ |
| 2003 $BY_{43}$ | 16.4 | 0.15 | 20100104 | 332.64119 | 141.50271 | 358.08287 | 7.68344 | 0.0844550 | 2.3443838 | 84 | 7 | 1996–2009 | 0.56 | M-v | 1 | MPC | 159693 | 2003 $BY_{43}$ |
| 2003 $BX_{44}$ | 16.4 | 0.15 | 20100104 | 341.76315 | 15.54243 | 104.14468 | 3.57830 | 0.0741404 | 2.3564706 | 124 | 4 | 2003–2009 | 0.56 | M-v | 0 | MPC | 119590 | 2003 $BX_{44}$ |
| 2003 $BZ_{47}$ | 14.5 | 0.15 | 20100104 | 318.44208 | 347.53649 | 144.75177 | 13.10051 | 0.1937873 | 3.9970031 | 59 | 4 | 1995–2009 | 0.65 | M-v | 1 | MPC | 165355 | 2003 $BZ_{47}$ |
| 2003 $BW_{50}$ | 17.5 | 0.15 | 20100104 | 347.68097 | 187.56676 | 316.45457 | 3.57178 | 0.1900097 | 2.2954429 | 55 | 4 | 2003–2009 | 0.42 | M-v | 1 | MPC | 166148 | 2003 $BW_{50}$ |
| 2003 $BO_{51}$ | 17.0 | 0.15 | 20100104 | 45.84577 | 60.63401 | 357.75770 | 3.32210 | 0.1560827 | 2.3173041 | 110 | 5 | 2001–2009 | 0.55 | M-v | 1 | MPC | 166148 | 2003 $BO_{51}$ |
| 2003 $BT_{51}$ | 16.5 | 0.15 | 20100104 | 18.59882 | 146.07075 | 284.46874 | 4.30364 | 0.1999180 | 2.3411390 | 67 | 4 | 2003–2009 | 0.54 | M-v | 1 | MPC | 118039 | 2003 $BT_{51}$ |
| 2003 $BG_{52}$ | 17.5 | 0.15 | 20100104 | 120.83852 | 326.58610 | 325.69996 | 21.86444 | 0.0190353 | 1.8495835 | 78 | 4 | 2003–2009 | 0.54 | M-v | 2 | MPC | 162367 | 2003 $BG_{52}$ |
| 2003 $BZ_{52}$ | 16.9 | 0.15 | 20100104 | 22.61752 | 157.07967 | 297.85684 | 2.93200 | 0.1216838 | 2.3028431 | 63 | 4 | 2003–2009 | 0.52 | M-v | 1 | MPC | 166148 | 2003 $BZ_{52}$ |
| 2003 $BA_{54}$ | 16.8 | 0.15 | 20100104 | 313.70888 | 195.41834 | 300.79672 | 4.57479 | 0.1405788 | 2.3887772 | 92 | 5 | 2003–2009 | 0.55 | M-v | 0 | MPC | 166148 | 2003 $BA_{54}$ |
| 2003 $BK_{54}$ | 16.9 | 0.15 | 20100104 | 334.31496 | 226.73014 | 250.99994 | 2.85205 | 0.0637627 | 2.3723932 | 46 | 4 | 2003–2009 | 0.46 | M-v | 1 | MPC | 166148 | 2003 $BK_{54}$ |
| 2003 $BG_{55}$ | 16.4 | 0.15 | 20100104 | 45.25806 | 64.90146 | 331.52429 | 5.33712 | 0.1956934 | 2.3457965 | 81 | 5 | 1998–2009 | 0.44 | M-v | 1 | MPC | 122728 | 2003 $BG_{55}$ |
| 2003 $BB_{59}$ | 16.7 | 0.15 | 20100104 | 37.91767 | 121.97497 | 296.40438 | 6.54289 | 0.1394078 | 2.3337958 | 54 | 3 | 2003–2009 | 0.46 | M-v | 2 | MPC | 89418 | 2003 $BB_{59}$ |
| 2003 $BV_{64}$ | 17.2 | 0.15 | 20100104 | 299.91487 | 38.49569 | 117.23566 | 3.50966 | 0.1634626 | 2.3830108 | 43 | 4 | 1996–2009 | 0.56 | M-v | 1 | MPC | 166148 | 2003 $BV_{64}$ |
| 2003 $BR_{65}$ | 16.9 | 0.15 | 20100104 | 239.52726 | 284.78889 | 284.26369 | 4.28853 | 0.1494441 | 2.4316101 | 49 | 4 | 2003–2009 | 0.51 | M-v | 1 | MPC | 166148 | 2003 $BR_{65}$ |
| 2003 $BS_{65}$ | 17.6 | 0.15 | 20100104 | 317.16177 | 307.78224 | 217.38166 | 3.99946 | 0.1351183 | 2.3234860 | 56 | 7 | 1998–2009 | 0.39 | M-v | 0 | MPC | 147241 | 2003 $BS_{65}$ |
| 2003 $BZ_{65}$ | 16.7 | 0.15 | 20100104 | 15.44715 | 8.92943 | 69.00823 | 6.38034 | 0.1306973 | 2.3433291 | 34 | 3 | 2003–2009 | 0.54 | M-v | 2 | MPC | 121790 | 2003 $BZ_{65}$ |
| 2003 $BU_{66}$ | 17.3 | 0.15 | 20100104 | 350.56865 | 166.97031 | 283.98495 | 3.02385 | 0.1934169 | 2.3873847 | 52 | 3 | 2002–2009 | 0.57 | M-v | 2 | MPC | 165355 | 2003 $BU_{66}$ |
| 2003 $BF_{70}$ | 17.1 | 0.15 | 20100104 | 48.69421 | 348.03192 | 82.40929 | 3.88907 | 0.1329034 | 2.2908798 | 107 | 6 | 1996–2009 | 0.57 | M-v | 1 | MPC | 160783 | 2003 $BF_{70}$ |
| 2003 $BQ_{74}$ | 17.5 | 0.15 | 20100104 | 318.90955 | 74.61043 | 50.34971 | 8.40938 | 0.1093817 | 2.3948023 | 33 | 5 | 1994–2009 | 0.34 | M-v | 1 | MPC | 166148 | 2003 $BQ_{74}$ |
| 2003 $BK_{81}$ | 17.7 | 0.15 | 20100104 | 21.78764 | 274.57937 | 164.82899 | 2.35610 | 0.1967892 | 2.3250770 | 74 | 4 | 2003–2009 | 0.38 | M-v | 0 | MPC | 121790 | 2003 $BK_{81}$ |
| 2003 $BN_{83}$ | 16.7 | 0.15 | 20100104 | 334.26141 | 332.02229 | 138.22585 | 5.23750 | 0.1381766 | 2.4027085 | 76 | 5 | 2001–2009 | 0.56 | M-v | 0 | MPC | 166148 | 2003 $BN_{83}$ |
| 2003 $BW_{86}$ | 17.5 | 0.15 | 20100104 | 35.58932 | 157.77913 | 255.74660 | 0.77233 | 0.1758178 | 2.3560924 | 84 | 4 | 2003–2009 | 0.41 | M-v | 0 | MPC | 118041 | 2003 $BW_{86}$ |
| 2003 $BW_{93}$ | 15.8 | 0.15 | 20100104 | 154.67930 | 215.24165 | 336.73445 | 8.66861 | 0.1793142 | 2.6907368 | 41 | 3 | 2003–2009 | 0.51 | M-v | 3 | MPC | 166148 | 2003 $BW_{93}$ |
| 2003 CC | 20.3 | 0.15 | 20100104 | 209.71010 | 103.08401 | 136.38122 | 2.32336 | 0.3267821 | 1.5003972 | 120 | 3 | 2003–2009 | 0.48 | M-v | 1 | MPC | 85903 | 2003 CC |
| 2003 $CX_1$ | 16.3 | 0.15 | 20100104 | 254.29622 | 327.97503 | 177.68996 | 5.93689 | 0.1035975 | 2.5208132 | 98 | 6 | 1999–2009 | 0.49 | M-v | 2 | MPC | 164201 | 2003 $CX_1$ |
| 2003 $CU_3$ | 16.8 | 0.15 | 20100104 | 46.00444 | 250.55687 | 133.86747 | 11.80034 | 0.2011052 | 2.3874116 | 41 | 4 | 2001–2009 | 0.46 | M-v | 1 | MPC | 108672 | 2003 $CU_3$ |
| 2003 $CP_5$ | 14.7 | 0.15 | 20100104 | 321.69339 | 144.96843 | 336.75825 | 8.44444 | 0.2318207 | 3.9516388 | 62 | 5 | 2000–2009 | 0.51 | M-v | 1 | MPC | 166148 | 2003 $CP_5$ |
| 2003 $CX_5$ | 17.1 | 0.15 | 20100104 | 9.48312 | 98.85929 | 355.65179 | 4.89105 | 0.1858249 | 2.3229717 | 72 | 6 | 1996–2009 | 0.45 | M-v | 0 | MPC | 159694 | 2003 $CX_5$ |
| 2003 $CJ_7$ | 16.8 | 0.15 | 20100104 | 260.24654 | 107.93928 | 92.78701 | 6.19717 | 0.2037087 | 2.4012008 | 53 | 4 | 2003–2009 | 0.53 | M-v | 2 | MPC | 166148 | 2003 $CJ_7$ |
| 2003 $CN_{11}$ | 17.5 | 0.15 | 20100104 | 303.88757 | 117.20393 | 78.00114 | 4.21618 | 0.1712378 | 2.3317580 | 31 | 3 | 2003–2009 | 0.30 | M-v | 3 | MPC | 166148 | 2003 $CN_{11}$ |
| 2003 $CW_{11}$ | 16.1 | 0.15 | 20100104 | 136.43415 | 141.85109 | 336.99335 | 9.30990 | 0.1824076 | 2.9778129 | 39 | 3 | 2003–2008 | 0.53 | M-v | 2 | MPC | 108673 | 2003 $CW_{11}$ |
| 2003 $CJ_{12}$ | 16.7 | 0.15 | 20100104 | 334.92693 | 164.38734 | 300.14111 | 4.19147 | 0.1105714 | 2.4029537 | 86 | 5 | 2001–2009 | 0.61 | M-v | 1 | MPC | 166149 | 2003 $CJ_{12}$ |
| 2003 $CG_{17}$ | 16.5 | 0.15 | 20100104 | 273.39964 | 117.55248 | 92.38546 | 5.14089 | 0.1811164 | 2.3847553 | 104 | 4 | 2002–2009 | 0.47 | M-v | 1 | MPC | 121325 | 2003 $CG_{17}$ |
| 2003 $CY_{20}$ | 16.8 | 0.15 | 20100104 | 67.96946 | 106.67840 | 208.65949 | 4.05397 | 0.1554268 | 2.8042983 | 47 | 5 | 1995–2009 | 0.44 | M-v | 0 | MPC | 164201 | 2003 $CY_{20}$ |
| 2003 $CB_{21}$ | 17.6 | 0.15 | 20100104 | 285.17985 | 357.58903 | 166.20625 | 5.35479 | 0.1420297 | 2.4321832 | 38 | 4 | 2003–2009 | 0.45 | M-v | 1 | MPC | 166149 | 2003 $CB_{21}$ |
| 2003 $CB_{25}$ | 16.9 | 0.15 | 20100104 | 302.91998 | 95.92056 | 109.40185 | 5.59821 | 0.1909219 | 2.3298464 | 44 | 4 | 2003–2009 | 0.45 | M-v | 1 | MPC | 160783 | 2003 $CB_{25}$ |
| 2003 $CG_{26}$ | 16.4 | 0.15 | 20100104 | 138.55793 | 85.89814 | 106.21942 | 10.17365 | 0.1080335 | 2.7591433 | 30 | 5 | 1999–2008 | 0.61 | M-v | 1 | MPC | 160337 | 2003 $CG_{26}$ |
| 2003 $DW_3$ | 17.0 | 0.15 | 20100104 | 270.23142 | 224.74600 | 343.09068 | 7.45670 | 0.1020973 | 2.3826868 | 41 | 5 | 2003–2009 | 0.41 | M-v | 1 | MPC | 147242 | 2003 $DW_3$ |
| 2003 $DR_4$ | 14.4 | 0.15 | 20100104 | 337.53503 | 23.92010 | 92.25955 | 12.70844 | 0.2209603 | 3.9576544 | 123 | 3 | 2001–2009 | 0.43 | M-v | 2 | MPC | 166149 | 2003 $DR_4$ |
| 2003 $DZ_7$ | 16.6 | 0.15 | 20100104 | 267.38061 | 272.88030 | 339.89035 | 6.62492 | 0.2020527 | 2.3294492 | 44 | 3 | 2003–2009 | 0.45 | M-v | 3 | MPC | 166149 | 2003 $DZ_7$ |
| 2003 $DP_{17}$ | 17.2 | 0.15 | 20100104 | 290.17848 | 233.53951 | 334.68197 | 2.31981 | 0.1968584 | 2.3598588 | 64 | 6 | 1992–2009 | 0.47 | M-v | 1 | MPC | 166149 | 2003 $DP_{17}$ |
| 2003 $DY_{17}$ | 17.2 | 0.15 | 20100104 | 267.91443 | 93.38594 | 100.59830 | 6.32723 | 0.1669976 | 2.4020684 | 48 | 4 | 2001–2009 | 0.51 | M-v | 1 | MPC | 166149 | 2003 $DY_{17}$ |
| 2003 $DW_{19}$ | 17.1 | 0.15 | 20100104 | 37.29742 | 85.87949 | 330.18078 | 5.93998 | 0.1042221 | 2.3853084 | 47 | 5 | 2001–2009 | 0.52 | M-v | 1 | MPC | 118043 | 2003 $DW_{19}$ |
| 2003 $DB_{24}$ | 17.1 | 0.15 | 20100104 | 352.84691 | 341.64594 | 135.82308 | 3.18117 | 0.1405497 | 2.3574035 | 53 | 5 | 1992–2009 | 0.53 | M-v | 1 | MPC | 166149 | 2003 $DB_{24}$ |
| 2003 $DY_{24}$ | 17.2 | 0.15 | 20100104 | 347.72882 | 116.55630 | 335.58577 | 4.50973 | 0.1950367 | 2.4038628 | 57 | 3 | 2003–2009 | 0.48 | M-v | 2 | MPC | 165355 | 2003 $DY_{24}$ |
| 2003 ER | 19.8 | 0.15 | 20100104 | 197.45191 | 68.54884 | 156.07037 | 36.10688 | 0.2359165 | 1.5125469 | 91 | 3 | 2003–2007 | 0.44 | M-v | 2 | MPC | 122729 | 2003 ER |
| 2003 $ED_2$ | 16.8 | 0.15 | 20100104 | 6.18550 | 40.79776 | 112.92756 | 8.11986 | 0.0545255 | 2.2638995 | 50 | 5 | 2002–2009 | 0.63 | M-v | 1 | MPC | 162369 | 2003 $ED_2$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 $EN_2$ | 17.2 | 0.15 | 20100104 | 293.68457 | 254.48588 | 292.69758 | 0.51744 | 0.1270212 | 2.3654791 | 59 | 5 | 2003–2009 | 0.35 | M-v | 1 | MPC | 166149 | 2003 $EN_2$ |
| 2003 $EZ_2$ | 16.5 | 0.15 | 20100104 | 286.44909 | 168.83349 | 6.36537 | 4.97691 | 0.1686914 | 2.3930275 | 72 | 4 | 2003–2009 | 0.48 | M-v | 1 | MPC | 166149 | 2003 $EZ_2$ |
| 2003 $EB_3$ | 17.1 | 0.15 | 20100104 | 0.11157 | 23.48736 | 115.15576 | 4.84755 | 0.0848326 | 2.2921438 | 31 | 4 | 2003–2009 | 0.48 | M-v | 1 | MPC | 120775 | 2003 $EB_3$ |
| 2003 $EL_3$ | 16.6 | 0.15 | 20100104 | 67.25506 | 294.93096 | 130.45567 | 7.14758 | 0.0766542 | 2.2995562 | 59 | 6 | 2001–2009 | 0.56 | M-v | 1 | MPC | 160784 | 2003 $EL_3$ |
| 2003 $EM_4$ | 16.3 | 0.15 | 20100104 | 355.41897 | 202.58516 | 322.68922 | 6.19978 | 0.1016097 | 2.2848110 | 78 | 4 | 2001–2009 | 0.57 | M-v | 3 | MPC | 164201 | 2003 $EM_4$ |
| 2003 $EW_6$ | 16.5 | 0.15 | 20100104 | 10.04841 | 162.13940 | 327.25133 | 6.78217 | 0.0420510 | 2.3169704 | 39 | 4 | 2001–2009 | 0.44 | M-v | 2 | MPC | 158448 | 2003 $EW_6$ |
| 2003 $ER_{15}$ | 17.1 | 0.15 | 20100104 | 303.71241 | 257.10352 | 267.97482 | 3.82639 | 0.1833637 | 2.4036368 | 45 | 5 | 1998–2009 | 0.52 | M-v | 1 | MPC | 166149 | 2003 $ER_{15}$ |
| 2003 $EU_{17}$ | 16.3 | 0.15 | 20100104 | 6.40997 | 15.78625 | 126.68012 | 4.25448 | 0.1714167 | 2.3115731 | 112 | 5 | 2001–2009 | 0.55 | M-v | 1 | MPC | 147243 | 2003 $EU_{17}$ |
| 2003 $EO_{25}$ | 16.7 | 0.15 | 20100104 | 306.10658 | 104.98723 | 75.32122 | 3.34188 | 0.1604870 | 2.3734916 | 77 | 4 | 2003–2009 | 0.46 | M-v | 1 | MPC | 166149 | 2003 $EO_{25}$ |
| 2003 $EF_{26}$ | 17.2 | 0.15 | 20100104 | 348.59745 | 256.23786 | 276.85424 | 2.36257 | 0.1312796 | 2.2881994 | 69 | 6 | 2001–2009 | 0.45 | M-v | 1 | MPC | 147243 | 2003 $EF_{26}$ |
| 2003 $EH_{27}$ | 16.9 | 0.15 | 20100104 | 320.11119 | 120.25976 | 44.63620 | 3.21055 | 0.1578497 | 2.3715676 | 75 | 5 | 2001–2009 | 0.53 | M-v | 1 | MPC | 166149 | 2003 $EH_{27}$ |
| 2003 $EF_{29}$ | 16.9 | 0.15 | 20100104 | 308.28070 | 27.94636 | 148.09569 | 5.80193 | 0.1353505 | 2.3823840 | 62 | 7 | 1996–2009 | 0.50 | M-v | 1 | MPC | 147243 | 2003 $EF_{29}$ |
| 2003 $ED_{30}$ | 16.6 | 0.15 | 20100104 | 349.84233 | 123.75615 | 325.38953 | 5.57854 | 0.0927171 | 2.4236360 | 61 | 5 | 2001–2009 | 0.45 | M-v | 0 | MPC | 166149 | 2003 $ED_{30}$ |
| 2003 $EP_{30}$ | 17.3 | 0.15 | 20100104 | 325.58582 | 193.11055 | 327.80556 | 2.99115 | 0.1759697 | 2.3466101 | 46 | 4 | 2002–2009 | 0.37 | M-v | 1 | MPC | 166149 | 2003 $EP_{30}$ |
| 2003 $EF_{33}$ | 17.6 | 0.15 | 20100104 | 282.52588 | 209.94541 | 343.32223 | 1.66215 | 0.0954835 | 2.3861583 | 70 | 5 | 2003–2009 | 0.32 | M-v | 0 | MPC | 147243 | 2003 $EF_{33}$ |
| 2003 $EK_{39}$ | 15.9 | 0.15 | 20100104 | 240.86282 | 121.79480 | 118.25244 | 15.57929 | 0.1378524 | 2.4074071 | 58 | 5 | 2003–2009 | 0.54 | M-v | 1 | MPC | 120776 | 2003 $EK_{39}$ |
| 2003 $EC_{41}$ | 16.0 | 0.15 | 20100104 | 194.65366 | 170.66667 | 77.10912 | 10.23920 | 0.2208746 | 2.5338712 | 76 | 5 | 2001–2009 | 0.48 | M-v | 2 | MPC | 166149 | 2003 $EC_{41}$ |
| 2003 $EP_{48}$ | 17.1 | 0.15 | 20100104 | 244.46892 | 138.87218 | 106.85338 | 3.21077 | 0.1572956 | 2.4055850 | 55 | 4 | 2003–2009 | 0.53 | M-v | 1 | MPC | 147243 | 2003 $EP_{48}$ |
| 2003 $EY_{48}$ | 16.5 | 0.15 | 20100104 | 227.73526 | 8.83324 | 162.91753 | 5.43400 | 0.0843504 | 2.5965055 | 53 | 3 | 2003–2009 | 0.43 | M-v | 3 | MPC | 119594 | 2003 $EY_{48}$ |
| 2003 $ES_{63}$ | 17.3 | 0.15 | 20100104 | 222.87783 | 203.26222 | 59.60454 | 2.13852 | 0.1377816 | 2.4072252 | 47 | 5 | 2003–2009 | 0.43 | M-v | 0 | MPC | 160337 | 2003 $ES_{63}$ |
| 2003 $FD_7$ | 17.5 | 0.15 | 20100104 | 267.94873 | 264.40689 | 316.85875 | 4.37620 | 0.1429501 | 2.4099324 | 55 | 6 | 1999–2008 | 0.45 | M-v | 1 | MPC | 147244 | 2003 $FD_7$ |
| 2003 $FG_7$ | 16.7 | 0.15 | 20100104 | 229.00477 | 356.67280 | 322.03298 | 5.37597 | 0.1800047 | 2.2980265 | 73 | 6 | 1999–2008 | 0.50 | M-v | 1 | MPC | 150947 | 2003 $FG_7$ |
| 2003 $FH_7$ | 13.4 | 0.15 | 20030322 | 283.24358 | 323.79968 | 314.58771 | 6.27202 | 0.0980077 | 5.0665192 | 17 | 1 | 5 days | 0.62 | | | MPC | | 2003 $FH_7$ |
| 2003 $FM_7$ | 16.9 | 0.15 | 20100104 | 345.98248 | 191.84180 | 2.88806 | 22.99559 | 0.1855408 | 2.2780105 | 55 | 4 | 2003–2009 | 0.49 | M-v | 2 | MPC | 150947 | 2003 $FM_7$ |
| 2003 $FR_7$ | 17.1 | 0.15 | 20100104 | 341.49021 | 117.74723 | 40.53682 | 3.23877 | 0.1607485 | 2.3551599 | 63 | 6 | 2001–2009 | 0.40 | M-v | 1 | MPC | 147244 | 2003 $FR_7$ |
| 2003 $FE_{10}$ | 18.1 | 0.15 | 20100104 | 332.34494 | 132.45568 | 30.25721 | 2.49683 | 0.1468374 | 2.3426618 | 28 | 4 | 2003–2009 | 0.43 | M-v | 1 | MPC | 160337 | 2003 $FE_{10}$ |
| 2003 $FE_{17}$ | 18.0 | 0.15 | 20100104 | 309.02749 | 30.68156 | 139.36238 | 3.56168 | 0.0842156 | 2.3824530 | 30 | 5 | 2003–2009 | 0.37 | M-v | 0 | MPC | 147244 | 2003 $FE_{17}$ |
| 2003 $FX_{17}$ | 17.3 | 0.15 | 20100104 | 356.11962 | 283.82289 | 220.66281 | 1.22849 | 0.1898133 | 2.3157762 | 68 | 5 | 1997–2009 | 0.51 | M-v | 1 | MPC | 166150 | 2003 $FX_{17}$ |
| 2003 $FC_{19}$ | 16.2 | 0.15 | 20100104 | 319.15082 | 76.90309 | 109.84265 | 4.71030 | 0.1487571 | 2.3673082 | 108 | 4 | 2003–2009 | 0.59 | M-v | 1 | MPC | 147244 | 2003 $FC_{19}$ |
| 2003 $FW_{20}$ | 16.7 | 0.15 | 20100104 | 280.12857 | 73.00485 | 136.83439 | 3.67899 | 0.1250856 | 2.4265417 | 58 | 6 | 2000–2009 | 0.49 | M-v | 1 | MPC | 147244 | 2003 $FW_{20}$ |
| 2003 $FH_{24}$ | 15.1 | 0.15 | 20100104 | 74.73579 | 158.35811 | 203.03751 | 3.89742 | 0.2046207 | 2.5199041 | 93 | 5 | 2001–2009 | 0.62 | M-v | 3 | MPC | 119595 | 2003 $FH_{24}$ |
| 2003 $FJ_{26}$ | 16.2 | 0.15 | 20100104 | 245.77104 | 109.73134 | 178.58608 | 7.10530 | 0.1316632 | 2.2958135 | 80 | 9 | 1994–2009 | 0.63 | M-v | 1 | MPC | 148508 | 2003 $FJ_{26}$ |
| 2003 $FE_{34}$ | 17.5 | 0.15 | 20100104 | 7.11127 | 309.13330 | 163.73927 | 1.98961 | 0.1714455 | 2.3613391 | 39 | 4 | 2003–2009 | 0.37 | M-v | 0 | MPC | 119595 | 2003 $FE_{34}$ |
| 2003 $FK_{35}$ | 17.8 | 0.15 | 20100104 | 333.21207 | 128.10949 | 4.51506 | 5.99908 | 0.1381545 | 2.4103431 | 22 | 3 | 2003–2009 | 0.30 | M-v | 3 | MPC | 94947 | 2003 $FK_{35}$ |
| 2003 $FW_{40}$ | 16.5 | 0.15 | 20100104 | 272.75771 | 112.84188 | 122.98029 | 6.61992 | 0.0722840 | 2.3224093 | 36 | 4 | 2003–2009 | 0.35 | M-v | 1 | MPC | 147244 | 2003 $FW_{40}$ |
| 2003 $FS_{48}$ | 17.9 | 0.15 | 20100104 | 344.90908 | 309.98668 | 197.62843 | 0.93965 | 0.2605354 | 2.3471906 | 50 | 3 | 2003–2009 | 0.41 | M-v | 2 | MPC | 164202 | 2003 $FS_{48}$ |
| 2003 $FQ_{51}$ | 16.3 | 0.15 | 20100104 | 214.02316 | 214.95924 | 36.32603 | 6.92021 | 0.0704134 | 2.4708380 | 83 | 7 | 2000–2009 | 0.59 | M-v | 1 | MPC | 143169 | 2003 $FQ_{51}$ |
| 2003 $FK_{59}$ | 15.9 | 0.15 | 20100104 | 295.90110 | 245.03526 | 15.11866 | 22.49634 | 0.1910384 | 2.2694989 | 93 | 4 | 2003–2009 | 0.59 | M-v | 1 | MPC | 124391 | 2003 $FK_{59}$ |
| 2003 $FP_{62}$ | 17.3 | 0.15 | 20100104 | 309.92618 | 67.47691 | 86.84621 | 2.03332 | 0.1406945 | 2.4261286 | 74 | 4 | 2003–2009 | 0.38 | M-v | 0 | MPC | 166150 | 2003 $FP_{62}$ |
| 2003 $FP_{63}$ | 17.0 | 0.15 | 20100104 | 329.50805 | 63.01048 | 80.69050 | 5.74532 | 0.1258260 | 2.3997128 | 57 | 5 | 2001–2009 | 0.40 | M-v | 0 | MPC | 166150 | 2003 $FP_{63}$ |
| 2003 $FP_{66}$ | 16.8 | 0.15 | 20100104 | 265.88953 | 102.65911 | 109.50455 | 3.56510 | 0.0953200 | 2.4278005 | 65 | 6 | 2001–2009 | 0.53 | M-v | 1 | MPC | 143169 | 2003 $FP_{66}$ |
| 2003 $FF_{73}$ | 16.7 | 0.15 | 20100104 | 268.16721 | 87.02327 | 137.92571 | 2.96827 | 0.1715837 | 2.4120291 | 53 | 6 | 2003–2009 | 0.49 | M-v | 1 | MPC | 147245 | 2003 $FF_{73}$ |
| 2003 $FO_{75}$ | 16.9 | 0.15 | 20100104 | 333.21044 | 240.82568 | 241.70803 | 5.88120 | 0.2111542 | 2.3930191 | 66 | 4 | 2003–2009 | 0.41 | M-v | 1 | MPC | 165356 | 2003 $FO_{75}$ |
| 2003 $FS_{76}$ | 16.7 | 0.15 | 20100104 | 256.70230 | 153.55506 | 61.69952 | 6.91960 | 0.0635354 | 2.4264086 | 32 | 5 | 2001–2009 | 0.48 | M-v | 1 | MPC | 119596 | 2003 $FS_{76}$ |
| 2003 $FY_{76}$ | 17.3 | 0.15 | 20100104 | 262.69115 | 178.02122 | 21.69992 | 1.65969 | 0.1296725 | 2.4351747 | 54 | 5 | 2003–2009 | 0.47 | M-v | 1 | MPC | 147245 | 2003 $FY_{76}$ |
| 2003 $FV_{79}$ | 16.8 | 0.15 | 20100104 | 9.53170 | 60.57959 | 49.99769 | 4.51646 | 0.1672245 | 2.3795986 | 79 | 5 | 2001–2009 | 0.45 | M-v | 0 | MPC | 121326 | 2003 $FV_{79}$ |
| 2003 $FG_{81}$ | 16.9 | 0.15 | 20100104 | 295.66549 | 107.75759 | 83.36251 | 6.75263 | 0.1218926 | 2.3943707 | 52 | 5 | 1992–2009 | 0.45 | M-v | 1 | MPC | 166150 | 2003 $FG_{81}$ |
| 2003 $FZ_{93}$ | 15.5 | 0.15 | 20100104 | 101.99430 | 243.03194 | 62.88777 | 14.45315 | 0.1523032 | 2.6942899 | 73 | 2 | 2003–2009 | 0.58 | M-v | 4 | MPC | 166150 | 2003 $FZ_{93}$ |
| 2003 $FJ_{94}$ | 15.8 | 0.15 | 20100104 | 137.88270 | 206.71252 | 78.36406 | 7.73032 | 0.2600915 | 2.6936971 | 72 | 5 | 1999–2009 | 0.61 | M-v | 1 | MPC | 166150 | 2003 $FJ_{94}$ |
| 2003 $FY_{102}$ | 18.3 | 0.15 | 20030322 | 335.03253 | 316.58967 | 265.49138 | 3.21004 | 0.1723402 | 2.2742533 | 25 | 1 | 5 days | 0.61 | | | MPC | | 2003 $FY_{102}$ |
| 2003 $FZ_{102}$ | 17.5 | 0.15 | 20030322 | 295.21585 | 33.09262 | 232.24633 | 5.98952 | 0.1189118 | 2.2501655 | 16 | 1 | 2 days | 0.56 | | | MPC | | 2003 $FZ_{102}$ |
| 2003 $FV_{110}$ | 16.0 | 0.15 | 20030322 | 91.57584 | 100.63464 | 352.20334 | 13.58614 | 0.0417284 | 2.8838493 | 8 | 1 | 4 days | 0.26 | | | MPC | | 2003 $FV_{110}$ |
| 2003 $FV_{113}$ | 15.8 | 0.15 | 20100104 | 86.44678 | 354.08286 | 194.95563 | 16.53967 | 0.1680364 | 3.0903075 | 30 | 3 | 2003–2009 | 0.56 | M-v | 1 | MPC | 142637 | 2003 $FV_{113}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 $FR_{121}$ | 17.1 | 0.15 | 20100104 | 303.80162 | 280.33894 | 242.98494 | 2.30242 | 0.1447953 | 2.4032892 | 64 | 5 | 2003–2009 | 0.41 | M-v | 0 | MPC | 147246 | 2003 $FR_{121}$ |
| 2003 $FW_{127}$ | 15.4 | 0.15 | 20100104 | 58.40078 | 179.27978 | 200.19531 | 17.35243 | 0.1879781 | 2.5491518 | 54 | 3 | 2003–2009 | 0.57 | M-v | 3 | MPC | 120778 | 2003 $FW_{127}$ |
| 2003 $GG_{7}$ | 16.7 | 0.15 | 20100104 | 313.72111 | 204.56802 | 348.86155 | 1.82411 | 0.1363595 | 2.3535165 | 66 | 6 | 1992–2009 | 0.55 | M-v | 1 | MPC | 147247 | 2003 $GG_{7}$ |
| 2003 $GO_{13}$ | 17.5 | 0.15 | 20100104 | 10.32802 | 100.81157 | 359.72003 | 5.14139 | 0.1510249 | 2.3521261 | 43 | 4 | 2001–2009 | 0.48 | M-v | 1 | MPC | 97650 | 2003 $GO_{13}$ |
| 2003 $GF_{16}$ | 16.3 | 0.15 | 20100104 | 158.48030 | 182.70308 | 84.18249 | 6.70290 | 0.0984656 | 2.5709497 | 45 | 7 | 1999–2009 | 0.38 | M-v | 0 | MPC | 166151 | 2003 $GF_{16}$ |
| 2003 $GJ_{16}$ | 17.3 | 0.15 | 20100104 | 331.37587 | 63.26384 | 101.85193 | 6.38848 | 0.1286980 | 2.3489334 | 38 | 4 | 2001–2009 | 0.44 | M-v | 1 | MPC | 121793 | 2003 $GJ_{16}$ |
| 2003 $GL_{24}$ | 13.4 | 0.15 | 20100104 | 68.14509 | 286.03472 | 52.22435 | 11.41696 | 0.0545482 | 5.2265333 | 50 | 5 | 2003–2009 | 0.37 | M-v | 0 | MPC | 166151 | 2003 $GL_{24}$ |
| 2003 $GJ_{26}$ | 17.1 | 0.15 | 20100104 | 147.49582 | 71.68993 | 214.43777 | 3.15468 | 0.2053468 | 2.6065524 | 32 | 5 | 1996–2009 | 0.56 | M-v | 1 | MPC | 157383 | 2003 $GJ_{26}$ |
| 2003 $GC_{34}$ | 16.0 | 0.15 | 20100104 | 135.38657 | 107.46249 | 173.79393 | 11.46451 | 0.0517527 | 2.5775859 | 61 | 6 | 2000–2009 | 0.51 | M-v | 0 | MPC | 164203 | 2003 $GC_{34}$ |
| 2003 $GM_{36}$ | 18.1 | 0.15 | 20100104 | 348.39357 | 278.09752 | 222.47020 | 1.51300 | 0.1659105 | 2.3718521 | 26 | 4 | 2001–2009 | 0.42 | M-v | 1 | MPC | 103504 | 2003 $GM_{36}$ |
| 2003 $GU_{39}$ | 16.3 | 0.15 | 20100104 | 338.83445 | 0.39686 | 137.59864 | 6.22061 | 0.1346762 | 2.4120113 | 47 | 6 | 2001–2009 | 0.58 | M-v | 1 | MPC | 162371 | 2003 $GU_{39}$ |
| 2003 $GD_{51}$ | 17.3 | 0.15 | 20100104 | 288.63423 | 105.82669 | 115.12573 | 2.87358 | 0.1734756 | 2.3834828 | 44 | 6 | 1992–2009 | 0.47 | M-v | 1 | MPC | 148891 | 2003 $GD_{51}$ |
| 2003 $GR_{56}$ | 17.5 | 0.15 | 20100104 | 119.66811 | 231.19132 | 80.30500 | 5.36495 | 0.0524689 | 2.6173136 | 27 | 4 | 2000–2009 | 0.29 | M-v | 0 | MPC | 166151 | 2003 $GR_{56}$ |
| 2003 $GV_{56}$ | 16.4 | 0.15 | 20100104 | 327.18231 | 121.63325 | 21.32204 | 7.16188 | 0.1102127 | 2.4336307 | 33 | 5 | 1999–2009 | 0.64 | M-v | 1 | MPC | 147248 | 2003 $GV_{56}$ |
| 2003 $GG_{57}$ | 13.0 | 0.15 | 20100104 | 161.40766 | 176.54539 | 82.15425 | 14.50645 | 0.0215315 | 5.2500003 | 35 | 4 | 2003–2009 | 0.38 | M-v | 1 | MPC | 165357 | 2003 $GG_{57}$ |
| 2003 $HY_{5}$ | 15.7 | 0.15 | 20100104 | 242.72009 | 97.97525 | 116.06303 | 10.79594 | 0.1412559 | 2.5264676 | 132 | 6 | 1999–2009 | 0.59 | M-v | 2 | MPC | 166151 | 2003 $HY_{5}$ |
| 2003 $HM_{11}$ | 16.4 | 0.15 | 20100104 | 250.24967 | 169.78985 | 111.22452 | 6.29035 | 0.1043053 | 2.3598350 | 63 | 4 | 2003–2009 | 0.39 | M-v | 1 | MPC | 155965 | 2003 $HM_{11}$ |
| 2003 $HR_{16}$ | 17.3 | 0.15 | 20100104 | 289.65268 | 84.28184 | 43.75571 | 22.01555 | 0.1190715 | 1.8862836 | 55 | 4 | 2003–2009 | 0.56 | M-v | 1 | MPC | 162371 | 2003 $HR_{16}$ |
| 2003 $HD_{22}$ | 16.2 | 0.15 | 20100104 | 207.08320 | 183.73970 | 59.39172 | 15.98747 | 0.1617561 | 2.5719081 | 74 | 5 | 1998–2009 | 0.57 | M-v | 2 | MPC | 166151 | 2003 $HD_{22}$ |
| 2003 $HP_{22}$ | 16.5 | 0.15 | 20100104 | 221.54542 | 339.50959 | 233.53914 | 4.07028 | 0.1266794 | 2.5621946 | 56 | 5 | 2003–2009 | 0.49 | M-v | 1 | MPC | 166151 | 2003 $HP_{22}$ |
| 2003 $HS_{25}$ | 16.7 | 0.15 | 20100104 | 70.44615 | 173.37849 | 24.81302 | 1.15763 | 0.0871910 | 3.1929797 | 19 | 2 | 2003–2008 | 0.31 | M-v | 4 | MPC | 112323 | 2003 $HS_{25}$ |
| 2003 $HK_{30}$ | 15.8 | 0.15 | 20100104 | 227.29207 | 307.54098 | 232.34740 | 12.27330 | 0.1049150 | 2.6614974 | 83 | 4 | 2003–2009 | 0.47 | M-v | 1 | MPC | 164203 | 2003 $HK_{30}$ |
| 2003 $HE_{38}$ | 16.5 | 0.15 | 20100104 | 297.62608 | 358.23607 | 210.03564 | 6.25184 | 0.0877222 | 2.3959380 | 96 | 5 | 1999–2009 | 0.46 | M-v | 0 | MPC | 148891 | 2003 $HE_{38}$ |
| 2003 $HG_{39}$ | 15.8 | 0.15 | 20100104 | 280.23547 | 124.50404 | 45.89549 | 8.23110 | 0.0397145 | 2.5475438 | 45 | 6 | 1999–2009 | 0.61 | M-v | 1 | MPC | 166152 | 2003 $HG_{39}$ |
| 2003 $HF_{45}$ | 17.2 | 0.15 | 20100104 | 267.23482 | 137.16748 | 87.05255 | 2.49035 | 0.1457461 | 2.4453060 | 49 | 6 | 1999–2009 | 0.53 | M-v | 0 | MPC | 147249 | 2003 $HF_{45}$ |
| 2003 $HB_{54}$ | 17.0 | 0.15 | 20100104 | 276.92147 | 11.19796 | 203.03384 | 1.84772 | 0.1530819 | 2.4180082 | 51 | 6 | 1994–2009 | 0.41 | M-v | 1 | MPC | 147249 | 2003 $HB_{54}$ |
| 2003 $HR_{55}$ | 16.7 | 0.15 | 20100104 | 328.00200 | 121.85314 | 37.17393 | 5.03342 | 0.1756628 | 2.3934243 | 58 | 4 | 1999–2009 | 0.63 | M-v | 1 | MPC | 94999 | 2003 $HR_{55}$ |
| 2003 $HM_{58}$ | 16.5 | 0.15 | 20100104 | 358.41850 | 349.04305 | 136.04396 | 15.42061 | 0.1007756 | 2.4656282 | 27 | 4 | 2003–2009 | 0.44 | M-v | 1 | MPC | 160786 | 2003 $HM_{58}$ |
| 2003 $HX_{58}$ | 17.3 | 0.15 | 20100104 | 269.22352 | 154.95252 | 63.16418 | 2.12772 | 0.1390605 | 2.4302714 | 32 | 6 | 2001–2009 | 0.31 | M-v | 1 | MPC | 159412 | 2003 $HX_{58}$ |
| 2003 $JB_{3}$ | 16.7 | 0.15 | 20100104 | 27.99846 | 331.48363 | 37.50381 | 6.78139 | 0.0512356 | 2.7216657 | 49 | 6 | 1991–2009 | 0.34 | M-v | 0 | MPC | 164204 | 2003 $JB_{3}$ |
| 2003 $JV_{5}$ | 17.0 | 0.15 | 20100104 | 280.65375 | 142.24509 | 61.17193 | 5.88414 | 0.0988518 | 2.4547431 | 32 | 5 | 1999–2009 | 0.37 | M-v | 0 | MPC | 158451 | 2003 $JV_{5}$ |
| 2003 $JR_{6}$ | 15.9 | 0.15 | 20100104 | 151.80826 | 191.97598 | 70.64211 | 9.90049 | 0.1817984 | 2.7263558 | 32 | 3 | 2003–2009 | 0.44 | M-v | 3 | MPC | 166152 | 2003 $JR_{6}$ |
| 2003 $JS_{13}$ | 16.6 | 0.15 | 20100104 | 264.99224 | 117.66170 | 125.13897 | 7.19801 | 0.1065132 | 2.4266081 | 42 | 5 | 2000–2009 | 0.50 | M-v | 1 | MPC | 147250 | 2003 $JS_{13}$ |
| 2003 $JL_{14}$ | 15.6 | 0.15 | 20100104 | 57.00364 | 101.68306 | 205.85064 | 18.30192 | 0.2814749 | 3.0214875 | 102 | 3 | 2003–2009 | 0.51 | M-v | 1 | MPC | 166152 | 2003 $JL_{14}$ |
| 2003 $JK_{17}$ | 15.9 | 0.15 | 20100104 | 126.96714 | 200.77049 | 86.49268 | 13.59042 | 0.1797033 | 2.7389623 | 51 | 5 | 2000–2009 | 0.61 | M-v | 1 | MPC | 166152 | 2003 $JK_{17}$ |
| 2003 $KE_{11}$ | 17.9 | 0.15 | 20100104 | 276.10328 | 103.63787 | 62.25817 | 22.70117 | 0.0584696 | 1.8615432 | 36 | 4 | 2003–2009 | 0.49 | M-v | 2 | MPC | 166152 | 2003 $KE_{11}$ |
| 2003 $KV_{19}$ | 16.3 | 0.15 | 20100104 | 200.72775 | 160.94871 | 138.10216 | 6.64063 | 0.0825741 | 2.4789643 | 36 | 5 | 2002–2009 | 0.46 | M-v | 1 | MPC | 147250 | 2003 $KV_{19}$ |
| 2003 $KP_{36}$ | 15.6 | 0.15 | 20100104 | 221.87279 | 151.12185 | 85.69078 | 14.89956 | 0.1236344 | 2.5801313 | 72 | 4 | 2003–2009 | 0.48 | M-v | 1 | MPC | 166152 | 2003 $KP_{36}$ |
| 2003 $LV_{1}$ | 18.7 | 0.15 | 20100104 | 296.37731 | 105.19794 | 75.36647 | 34.08468 | 0.0526598 | 1.4816652 | 67 | 3 | 2003–2009 | 0.48 | M-v | 3 | MPC | 166152 | 2003 $LV_{1}$ |
| 2003 $LF_{2}$ | 17.1 | 0.15 | 20100104 | 282.57902 | 150.11466 | 84.69624 | 2.21324 | 0.1374786 | 2.3944820 | 50 | 6 | 1994–2009 | 0.41 | M-v | 0 | MPC | 147250 | 2003 $LF_{2}$ |
| 2003 $LD_{3}$ | 17.6 | 0.15 | 20100104 | 274.81579 | 198.35579 | 17.95366 | 1.30401 | 0.1395009 | 2.4372681 | 37 | 6 | 1999–2009 | 0.44 | M-v | 0 | MPC | 147250 | 2003 $LD_{3}$ |
| 2003 $LT_{3}$ | 15.4 | 0.15 | 20100104 | 65.52133 | 83.61930 | 134.95123 | 24.44897 | 0.3640133 | 3.2150305 | 59 | 3 | 2003–2009 | 0.39 | M-v | 1 | MPC | 137991 | 2003 $LT_{3}$ |
| 2003 $LP_{5}$ | 16.4 | 0.15 | 20100104 | 53.50229 | 303.39889 | 46.34646 | 6.93997 | 0.0450808 | 2.7050364 | 50 | 2 | 2003–2009 | 0.44 | M-v | 3 | MPC | 166152 | 2003 $LP_{5}$ |
| 2003 $LJ_{6}$ | 16.2 | 0.15 | 20100104 | 216.33883 | 341.00513 | 289.78067 | 13.92606 | 0.2713046 | 2.5478137 | 62 | 5 | 1999–2009 | 0.35 | M-v | 1 | MPC | 147250 | 2003 $LJ_{6}$ |
| 2003 MB | 16.1 | 0.15 | 20100104 | 127.06268 | 207.98571 | 127.11277 | 5.76098 | 0.1472713 | 2.6434926 | 53 | 6 | 1999–2008 | 0.42 | M-v | 1 | MPC | 147250 | 2003 MB |
| 2003 $MO_{3}$ | 15.5 | 0.15 | 20100104 | 233.79622 | 162.73634 | 104.85927 | 8.65856 | 0.2345564 | 2.5381170 | 72 | 7 | 1999–2009 | 0.59 | M-v | 1 | MPC | 159700 | 2003 $MO_{3}$ |
| 2003 $MH_{5}$ | 14.6 | 0.15 | 20100104 | 83.20848 | 63.21406 | 272.36378 | 14.67500 | 0.2300823 | 2.9277351 | 85 | 4 | 2003–2009 | 0.42 | M-v | 2 | MPC | 159700 | 2003 $MH_{5}$ |
| 2003 $MO_{5}$ | 15.3 | 0.15 | 20100104 | 129.20794 | 39.76844 | 279.13806 | 12.46810 | 0.2035090 | 2.7913529 | 74 | 4 | 2003–2009 | 0.48 | M-v | 1 | MPC | 162372 | 2003 $MO_{5}$ |
| 2003 $MY_{5}$ | 15.4 | 0.15 | 20100104 | 152.95590 | 358.04153 | 261.51072 | 9.47093 | 0.2200165 | 2.8391218 | 61 | 6 | 1999–2009 | 0.51 | M-v | 1 | MPC | 166152 | 2003 $MY_{5}$ |
| 2003 $MZ_{12}$ | 14.7 | 0.15 | 20100104 | 1.94755 | 271.95488 | 118.92670 | 21.34535 | 0.3080626 | 3.1478052 | 34 | 4 | 1994–2009 | 0.50 | M-v | 1 | MPC | 164204 | 2003 $MZ_{12}$ |
| 2003 $NR_{2}$ | 17.0 | 0.15 | 20100104 | 130.93019 | 221.07071 | 109.27894 | 24.79342 | 0.0733311 | 1.9102339 | 38 | 5 | 2000–2009 | 0.64 | M-v | 1 | MPC | 140115 | 2003 $NR_{2}$ |
| 2003 $NU_{2}$ | 15.8 | 0.15 | 20100104 | 141.25425 | 33.46839 | 271.11778 | 6.98560 | 0.2060940 | 2.7677463 | 52 | 3 | 2003–2009 | 0.60 | M-v | 3 | MPC | 148892 | 2003 $NU_{2}$ |
| 2003 $NA_{6}$ | 16.7 | 0.15 | 20100104 | 37.54595 | 117.36986 | 249.23809 | 12.47272 | 0.3027358 | 3.0982152 | 52 | 2 | 2003–2009 | 0.47 | M-v | 2 | MPC | 166153 | 2003 $NA_{6}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 $NF_{8}$ | 15.9 | 0.15 | 20100104 | 137.50129 | 202.65627 | 107.17950 | 10.09565 | 0.1576640 | 2.8010079 | 44 | 5 | 2003–2009 | 0.48 | M-v | 1 | MPC | 158821 | 2003 $NF_{8}$ |
| 2003 $NG_{10}$ | 15.9 | 0.15 | 20100104 | 82.54497 | 85.13844 | 254.15711 | 7.18722 | 0.0703024 | 2.9110686 | 43 | 4 | 1996–2009 | 0.35 | M-v | 1 | MPC | 166153 | 2003 $NG_{10}$ |
| 2003 $NY_{11}$ | 16.0 | 0.15 | 20100104 | 37.66053 | 89.47201 | 285.08214 | 11.70484 | 0.1962047 | 3.0185385 | 39 | 4 | 1999–2009 | 0.51 | M-v | 2 | MPC | 166153 | 2003 $NY_{11}$ |
| 2003 $NW_{12}$ | 15.9 | 0.15 | 20100104 | 128.44312 | 38.61700 | 233.87138 | 14.39278 | 0.1702450 | 2.9414722 | 29 | 5 | 2002–2009 | 0.36 | M-v | 0 | MPC | 166153 | 2003 $NW_{12}$ |
| 2003 OT | 15.4 | 0.15 | 20100104 | 21.56625 | 63.61641 | 309.68069 | 15.45741 | 0.2463017 | 3.0899321 | 33 | 2 | 2003–2009 | 0.46 | M-v | 3 | MPC | 166153 | 2003 OT |
| 2003 $OO_{1}$ | 15.7 | 0.15 | 20100104 | 206.86067 | 331.25695 | 290.06964 | 10.84974 | 0.1658197 | 2.6421371 | 49 | 5 | 2002–2009 | 0.38 | M-v | 1 | MPC | 166153 | 2003 $OO_{1}$ |
| 2003 $OO_{5}$ | 15.7 | 0.15 | 20100104 | 95.36075 | 45.47878 | 314.87451 | 13.07179 | 0.3480810 | 2.8648862 | 149 | 4 | 2003–2009 | 0.45 | M-v | 1 | MPC | 166153 | 2003 $OO_{5}$ |
| 2003 $OO_{10}$ | 15.9 | 0.15 | 20100104 | 228.45427 | 305.09916 | 317.02044 | 10.04031 | 0.1926221 | 2.5790364 | 55 | 4 | 2002–2009 | 0.41 | M-v | 3 | MPC | 102150 | 2003 $OO_{10}$ |
| 2003 $OF_{12}$ | 14.3 | 0.15 | 20100104 | 49.50165 | 101.93247 | 220.19278 | 17.69073 | 0.1554535 | 3.2139858 | 115 | 6 | 2001–2009 | 0.47 | M-v | 1 | MPC | 166153 | 2003 $OF_{12}$ |
| 2003 $OX_{13}$ | 15.6 | 0.15 | 20100104 | 183.53602 | 358.16946 | 312.03155 | 35.36672 | 0.2670862 | 2.6184071 | 41 | 4 | 1999–2009 | 0.56 | M-v | 2 | MPC | 122734 | 2003 $OX_{13}$ |
| 2003 $OA_{16}$ | 15.3 | 0.15 | 20100104 | 46.76176 | 58.15530 | 285.67695 | 10.12547 | 0.2961003 | 3.1483906 | 99 | 3 | 1998–2009 | 0.51 | M-v | 2 | MPC | 166153 | 2003 $OA_{16}$ |
| 2003 $OE_{16}$ | 15.4 | 0.15 | 20100104 | 51.54599 | 104.00984 | 256.51701 | 8.37570 | 0.1079804 | 3.1043454 | 57 | 3 | 2003–2009 | 0.48 | M-v | 1 | MPC | 166153 | 2003 $OE_{16}$ |
| 2003 $OE_{20}$ | 15.1 | 0.15 | 20100104 | 74.91411 | 44.36128 | 247.34239 | 4.43817 | 0.1424882 | 3.0943558 | 76 | 5 | 1993–2009 | 0.53 | M-v | 1 | MPC | 164205 | 2003 $OE_{20}$ |
| 2003 $OB_{22}$ | 15.6 | 0.15 | 20100104 | 138.53382 | 185.98944 | 172.85335 | 9.99065 | 0.2901670 | 2.7827858 | 128 | 7 | 2001–2009 | 0.50 | M-v | 1 | MPC | 152366 | 2003 $OB_{22}$ |
| 2003 $ON_{23}$ | 16.7 | 0.15 | 20100104 | 141.90991 | 99.90526 | 213.37904 | 3.34375 | 0.0945859 | 2.7916909 | 40 | 5 | 1999–2009 | 0.49 | M-v | 1 | MPC | 155965 | 2003 $ON_{23}$ |
| 2003 $OO_{23}$ | 15.9 | 0.15 | 20100104 | 130.17255 | 72.03108 | 270.35969 | 3.75948 | 0.0847575 | 2.7436248 | 47 | 4 | 2003–2009 | 0.52 | M-v | 1 | MPC | 158451 | 2003 $OO_{23}$ |
| 2003 $OB_{24}$ | 16.2 | 0.15 | 20100104 | 224.53796 | 336.09239 | 261.81013 | 9.24241 | 0.0758201 | 2.6985071 | 39 | 7 | 2000–2009 | 0.53 | M-v | 1 | MPC | 148893 | 2003 $OB_{24}$ |
| 2003 $OT_{30}$ | 15.1 | 0.15 | 20100104 | 354.50581 | 91.31255 | 328.32260 | 14.82709 | 0.2199194 | 3.1335291 | 69 | 3 | 2003–2009 | 0.53 | M-v | 2 | MPC | 166153 | 2003 $OT_{30}$ |
| 2003 $OE_{33}$ | 15.3 | 0.15 | 20100104 | 119.09585 | 68.85246 | 248.17557 | 9.56888 | 0.1038263 | 2.9148707 | 41 | 4 | 2003–2009 | 0.41 | M-v | 1 | MPC | 166153 | 2003 $OE_{33}$ |
| 2003 $PO_{7}$ | 15.7 | 0.15 | 20100104 | 68.56493 | 8.50221 | 291.07892 | 11.71283 | 0.2149694 | 3.0968803 | 29 | 3 | 2003–2009 | 0.35 | M-v | 4 | MPC | 95027 | 2003 $PO_{7}$ |
| 2003 $QG_{2}$ | 14.7 | 0.15 | 20100104 | 39.02396 | 95.80711 | 276.76482 | 23.64242 | 0.3222564 | 3.1546859 | 55 | 2 | 2003–2009 | 0.57 | M-v | 2 | MPC | 165358 | 2003 $QG_{2}$ |
| 2003 $QB_{7}$ | 15.7 | 0.15 | 20100104 | 3.41774 | 69.10425 | 330.10142 | 3.07642 | 0.1683208 | 3.1594980 | 88 | 7 | 1992–2009 | 0.46 | M-v | 0 | MPC | 166153 | 2003 $QB_{7}$ |
| 2003 $QL_{10}$ | 14.4 | 0.15 | 20100104 | 52.39370 | 103.60241 | 256.54377 | 20.32128 | 0.1414203 | 3.0958824 | 96 | 3 | 2003–2009 | 0.45 | M-v | 2 | MPC | 166153 | 2003 $QL_{10}$ |
| 2003 $QU_{22}$ | 15.0 | 0.15 | 20100104 | 354.73394 | 122.60919 | 278.70783 | 3.62284 | 0.1467210 | 3.2024496 | 120 | 5 | 1994–2009 | 0.42 | M-v | 0 | MPC | 164205 | 2003 $QU_{22}$ |
| 2003 $QD_{24}$ | 15.7 | 0.15 | 20100104 | 128.69660 | 26.28443 | 317.98070 | 10.95994 | 0.1214248 | 2.7608310 | 92 | 5 | 2001–2009 | 0.50 | M-v | 1 | MPC | 150950 | 2003 $QD_{24}$ |
| 2003 $QT_{24}$ | 16.0 | 0.15 | 20100104 | 34.29616 | 174.09511 | 202.34144 | 6.47657 | 0.2666712 | 3.1537886 | 52 | 2 | 2003–2009 | 0.55 | M-v | 3 | MPC | 165359 | 2003 $QT_{24}$ |
| 2003 $QY_{27}$ | 15.4 | 0.15 | 20100104 | 53.51618 | 53.54057 | 291.99702 | 15.40308 | 0.2598370 | 3.0864388 | 50 | 3 | 2003–2009 | 0.43 | M-v | 2 | MPC | 165359 | 2003 $QY_{27}$ |
| 2003 $QQ_{28}$ | 16.4 | 0.15 | 20100104 | 118.51392 | 28.84006 | 319.81836 | 5.24750 | 0.0651797 | 2.7728253 | 42 | 5 | 2003–2009 | 0.46 | M-v | 1 | MPC | 146029 | 2003 $QQ_{28}$ |
| 2003 $QA_{31}$ | 19.1 | 0.15 | 20100104 | 310.16496 | 90.32735 | 169.53387 | 8.34040 | 0.5475443 | 1.7363908 | 86 | 3 | 2003–2009 | 0.48 | M-v | 2 | MPC | 77699 | 2003 $QA_{31}$ |
| 2003 $QJ_{31}$ | 15.9 | 0.15 | 20100104 | 95.91063 | 153.55374 | 191.89334 | 9.29213 | 0.1047068 | 2.8822503 | 49 | 7 | 1992–2009 | 0.42 | M-v | 0 | MPC | 148894 | 2003 $QJ_{31}$ |
| 2003 $QP_{36}$ | 17.0 | 0.15 | 20100104 | 333.38495 | 194.15006 | 132.38763 | 3.21399 | 0.1301488 | 2.2281135 | 29 | 3 | 2003–2009 | 0.44 | M-v | 3 | MPC | 100474 | 2003 $QP_{36}$ |
| 2003 $QR_{43}$ | 15.7 | 0.15 | 20100104 | 52.54943 | 335.48488 | 34.75205 | 1.64191 | 0.2938575 | 3.0709872 | 78 | 7 | 1998–2009 | 0.51 | M-v | 0 | MPC | 120782 | 2003 $QR_{43}$ |
| 2003 $QQ_{46}$ | 14.9 | 0.15 | 20100104 | 33.79385 | 249.11341 | 131.64644 | 18.71553 | 0.2085333 | 3.1192512 | 68 | 5 | 2003–2009 | 0.53 | M-v | 1 | MPC | 166154 | 2003 $QQ_{46}$ |
| 2003 $QH_{54}$ | 15.7 | 0.15 | 20100104 | 52.55688 | 292.03815 | 61.66853 | 5.02620 | 0.2592234 | 3.0925918 | 67 | 6 | 1998–2009 | 0.49 | M-v | 0 | MPC | 166154 | 2003 $QH_{54}$ |
| 2003 $QJ_{55}$ | 15.2 | 0.15 | 20100104 | 138.88657 | 219.36390 | 122.93141 | 7.41670 | 0.0646956 | 2.7571937 | 72 | 6 | 2001–2009 | 0.53 | M-v | 1 | MPC | 148894 | 2003 $QJ_{55}$ |
| 2003 $QG_{65}$ | 14.6 | 0.15 | 20100104 | 49.85080 | 278.54173 | 77.54911 | 12.40408 | 0.1417354 | 3.1106759 | 84 | 4 | 1998–2009 | 0.49 | M-v | 1 | MPC | 166154 | 2003 $QG_{65}$ |
| 2003 $QE_{70}$ | 15.8 | 0.15 | 20100104 | 88.58139 | 204.97133 | 103.45126 | 7.14830 | 0.1237073 | 3.0641895 | 35 | 6 | 2002–2009 | 0.52 | M-v | 1 | MPC | 164206 | 2003 $QE_{70}$ |
| 2003 $QP_{71}$ | 16.2 | 0.15 | 20100104 | 64.01790 | 59.68057 | 309.27743 | 14.63255 | 0.2525108 | 3.0409876 | 51 | 3 | 2003–2009 | 0.46 | M-v | 2 | MPC | 141791 | 2003 $QP_{71}$ |
| 2003 $QD_{72}$ | 15.6 | 0.15 | 20100104 | 44.94456 | 295.56703 | 86.77447 | 5.42595 | 0.1898851 | 3.0434410 | 50 | 4 | 2003–2009 | 0.39 | M-v | 1 | MPC | 166154 | 2003 $QD_{72}$ |
| 2003 $QT_{72}$ | 15.7 | 0.15 | 20100104 | 75.96174 | 88.08241 | 258.33562 | 7.88432 | 0.1457269 | 2.9908644 | 57 | 2 | 2003–2009 | 0.45 | M-v | 3 | MPC | 165360 | 2003 $QT_{72}$ |
| 2003 $QK_{75}$ | 15.0 | 0.15 | 20100104 | 62.26290 | 75.18766 | 276.51833 | 5.31850 | 0.2043589 | 3.0636582 | 156 | 5 | 1998–2009 | 0.49 | M-v | 0 | MPC | 166154 | 2003 $QK_{75}$ |
| 2003 $QP_{75}$ | 15.8 | 0.15 | 20100104 | 65.60836 | 64.91307 | 283.35643 | 3.25564 | 0.2023781 | 3.0594500 | 77 | 3 | 2003–2009 | 0.50 | M-v | 3 | MPC | 166154 | 2003 $QP_{75}$ |
| 2003 $QV_{75}$ | 15.5 | 0.15 | 20100104 | 49.54157 | 181.71486 | 176.77372 | 18.31328 | 0.2424093 | 3.1120467 | 72 | 2 | 2003–2009 | 0.42 | M-v | 3 | MPC | 165360 | 2003 $QV_{75}$ |
| 2003 $QS_{81}$ | 16.2 | 0.15 | 20100104 | 154.50682 | 297.43589 | 344.32775 | 1.12780 | 0.0702822 | 2.8881372 | 47 | 7 | 2001–2009 | 0.44 | M-v | 0 | MPC | 166154 | 2003 $QS_{81}$ |
| 2003 $QY_{81}$ | 16.4 | 0.15 | 20100104 | 67.49819 | 7.93455 | 343.34519 | 1.97750 | 0.1811407 | 3.0129793 | 32 | 4 | 1998–2009 | 0.33 | M-v | 0 | MPC | 165361 | 2003 $QY_{81}$ |
| 2003 $QV_{86}$ | 15.0 | 0.15 | 20100104 | 351.84164 | 79.08889 | 324.90054 | 13.88064 | 0.1786563 | 3.1697018 | 68 | 5 | 2000–2009 | 0.49 | M-v | 0 | MPC | 164206 | 2003 $QV_{86}$ |
| 2003 $QC_{90}$ | 17.2 | 0.15 | 20100104 | 182.59527 | 109.13325 | 153.84373 | 2.46092 | 0.0198973 | 2.8602996 | 25 | 4 | 1996–2009 | 0.29 | M-v | 0 | MPC | 100493 | 2003 $QC_{90}$ |
| 2003 $QS_{90}$ | 17.2 | 0.15 | 20100104 | 136.68639 | 34.66328 | 313.23094 | 19.40515 | 0.0911660 | 1.8917289 | 38 | 4 | 2001–2009 | 0.51 | M-v | 2 | MPC | 95049 | 2003 $QS_{90}$ |
| 2003 $QN_{102}$ | 15.3 | 0.15 | 20100104 | 39.40303 | 55.28611 | 314.85041 | 3.80771 | 0.1909349 | 3.0836520 | 82 | 4 | 2003–2009 | 0.58 | M-v | 1 | MPC | 166154 | 2003 $QN_{102}$ |
| 2003 $QP_{111}$ | 15.2 | 0.15 | 20100104 | 54.48272 | 339.27781 | 37.26795 | 13.34981 | 0.3176986 | 3.0595351 | 78 | 4 | 1998–2009 | 0.66 | M-v | 1 | MPC | 141792 | 2003 $QP_{111}$ |
| 2003 $QD_{114}$ | 15.4 | 0.15 | 20100104 | 16.87510 | 134.54451 | 265.23875 | 6.36011 | 0.0960600 | 3.0738926 | 77 | 6 | 1998–2009 | 0.50 | M-v | 0 | MPC | 166154 | 2003 $QD_{114}$ |
| 2003 $QS_{114}$ | 15.3 | 0.15 | 20100104 | 68.01762 | 300.76156 | 70.58520 | 5.79370 | 0.0875560 | 2.9839231 | 42 | 7 | 1993–2009 | 0.53 | M-v | 0 | MPC | 147254 | 2003 $QS_{114}$ |
| 2003 $QA_{120}$ | 16.0 | 0.15 | 20100104 | 140.83341 | 33.42442 | 298.69583 | 7.75509 | 0.1090509 | 2.8056960 | 67 | 5 | 2001–2009 | 0.40 | M-v | 1 | MPC | 166154 | 2003 $QA_{120}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 $QB_{120}$ | 15.9 | 0.15 | 20100104 | 69.54326 | 104.71869 | 255.23709 | 7.70942 | 0.0641119 | 3.0128242 | 29 | 3 | 2003–2009 | 0.23 | M-v | 3 | MPC | 165361 | 2003 $QB_{120}$ |
| 2003 $RG_{6}$ | 16.4 | 0.15 | 20100104 | 106.37189 | 53.79953 | 330.29795 | 4.79903 | 0.0821522 | 2.7335860 | 40 | 5 | 2001–2009 | 0.43 | M-v | 1 | MPC | 147255 | 2003 $RG_{6}$ |
| 2003 $RL_{6}$ | 16.0 | 0.15 | 20100104 | 219.18926 | 181.04246 | 128.53091 | 3.59459 | 0.0626837 | 2.5721795 | 50 | 6 | 2002–2009 | 0.61 | M-v | 1 | MPC | 150952 | 2003 $RL_{6}$ |
| 2003 $RR_{9}$ | 15.3 | 0.15 | 20100104 | 72.85976 | 105.79891 | 248.78042 | 8.13279 | 0.1269703 | 3.0106298 | 59 | 5 | 1993–2009 | 0.49 | M-v | 1 | MPC | 166154 | 2003 $RR_{9}$ |
| 2003 $RP_{12}$ | 14.9 | 0.15 | 20100104 | 51.21764 | 73.97729 | 313.33928 | 11.86465 | 0.1697459 | 3.0028011 | 112 | 5 | 1998–2009 | 0.56 | M-v | 1 | MPC | 141792 | 2003 $RP_{12}$ |
| 2003 $RF_{15}$ | 15.6 | 0.15 | 20100104 | 55.53063 | 63.53160 | 282.31953 | 9.77255 | 0.2101321 | 3.1269294 | 40 | 2 | 2003–2009 | 0.46 | M-v | 4 | MPC | 165361 | 2003 $RF_{15}$ |
| 2003 $RG_{15}$ | 15.6 | 0.15 | 20100104 | 59.08958 | 136.48971 | 229.49101 | 13.69353 | 0.0762551 | 3.0281656 | 56 | 4 | 2003–2009 | 0.41 | M-v | 0 | MPC | 166154 | 2003 $RG_{15}$ |
| 2003 $RS_{15}$ | 15.6 | 0.15 | 20100104 | 158.31790 | 14.30500 | 291.16309 | 8.31362 | 0.1549897 | 2.7502085 | 58 | 5 | 2003–2009 | 0.44 | M-v | 1 | MPC | 147255 | 2003 $RS_{15}$ |
| 2003 $RL_{17}$ | 15.4 | 0.15 | 20100104 | 181.73518 | 4.55550 | 277.07736 | 8.77191 | 0.2444276 | 2.7809187 | 62 | 5 | 1998–2009 | 0.48 | M-v | 1 | MPC | 147255 | 2003 $RL_{17}$ |
| 2003 $RM_{18}$ | 15.6 | 0.15 | 20100104 | 112.94680 | 107.78248 | 199.56537 | 9.85642 | 0.1118267 | 2.9904269 | 60 | 4 | 2003–2009 | 0.52 | M-v | 0 | MPC | 166154 | 2003 $RM_{18}$ |
| 2003 $RS_{19}$ | 17.8 | 0.15 | 20100104 | 3.33608 | 40.65552 | 274.39464 | 0.76887 | 0.2023963 | 2.1918280 | 38 | 3 | 2002–2009 | 0.52 | M-v | 3 | MPC | 56776 | 2003 $RS_{19}$ |
| 2003 $RX_{20}$ | 15.3 | 0.15 | 20100104 | 50.14244 | 338.85160 | 61.81838 | 2.83414 | 0.0421233 | 2.9197833 | 59 | 5 | 2001–2009 | 0.54 | M-v | 0 | MPC | 148895 | 2003 $RX_{20}$ |
| 2003 $RC_{22}$ | 16.4 | 0.15 | 20100104 | 218.92773 | 92.35822 | 282.65473 | 6.18692 | 0.1632145 | 2.4374360 | 83 | 3 | 2003–2009 | 0.51 | M-v | 3 | MPC | 137993 | 2003 $RC_{22}$ |
| 2003 $RY_{22}$ | 14.0 | 0.15 | 20100104 | 344.23488 | 191.80617 | 224.95546 | 26.30301 | 0.1361995 | 3.2297885 | 102 | 5 | 2003–2009 | 0.47 | M-v | 1 | MPC | 166155 | 2003 $RY_{22}$ |
| 2003 $RB_{23}$ | 15.3 | 0.15 | 20100104 | 44.35548 | 103.68345 | 250.17906 | 11.23912 | 0.2721523 | 3.0951368 | 86 | 2 | 2003–2009 | 0.47 | M-v | 2 | MPC | 166155 | 2003 $RB_{23}$ |
| 2003 $RE_{24}$ | 15.8 | 0.15 | 20100104 | 33.80849 | 131.57589 | 217.20343 | 26.36240 | 0.2388548 | 3.1844469 | 37 | 2 | 2003–2009 | 0.50 | M-v | 3 | MPC | 163659 | 2003 $RE_{24}$ |
| 2003 $RP_{24}$ | 15.2 | 0.15 | 20100104 | 58.24339 | 111.26106 | 281.79634 | 8.72898 | 0.0736727 | 2.9112600 | 58 | 5 | 2003–2009 | 0.48 | M-v | 0 | MPC | 147255 | 2003 $RP_{24}$ |
| 2003 $RV_{24}$ | 15.3 | 0.15 | 20100104 | 80.94687 | 86.11524 | 247.98407 | 8.81592 | 0.0698366 | 3.0372097 | 71 | 5 | 1993–2009 | 0.41 | M-v | 1 | MPC | 166155 | 2003 $RV_{24}$ |
| 2003 $RP_{25}$ | 14.6 | 0.15 | 20100104 | 32.82042 | 45.18296 | 333.94915 | 23.48005 | 0.2365520 | 3.1619186 | 62 | 6 | 1998–2009 | 0.60 | M-v | 1 | MPC | 141793 | 2003 $RP_{25}$ |
| 2003 $RS_{25}$ | 15.1 | 0.15 | 20100104 | 69.14049 | 105.62522 | 243.55725 | 15.24195 | 0.1075467 | 3.0745116 | 58 | 3 | 2003–2009 | 0.37 | M-v | 2 | MPC | 165361 | 2003 $RS_{25}$ |
| 2003 $RG_{27}$ | 15.8 | 0.15 | 20100104 | 22.00732 | 254.62180 | 137.00533 | 14.06687 | 0.2928758 | 3.1976437 | 36 | 2 | 2003–2009 | 0.56 | M-v | 3 | MPC | 166155 | 2003 $RG_{27}$ |
| 2003 $SL_{1}$ | 17.0 | 0.15 | 20100104 | 58.11740 | 79.24054 | 346.77350 | 6.52208 | 0.0585572 | 2.7954609 | 32 | 3 | 2001–2008 | 0.40 | M-v | 1 | MPC | 149868 | 2003 $SL_{1}$ |
| 2003 $SU_{1}$ | 15.8 | 0.15 | 20100104 | 118.17677 | 46.03982 | 350.98155 | 5.55567 | 0.0331159 | 2.6722051 | 84 | 7 | 1995–2009 | 0.50 | M-v | 0 | MPC | 158453 | 2003 $SU_{1}$ |
| 2003 $SQ_{2}$ | 16.7 | 0.15 | 20100104 | 58.85435 | 78.18949 | 294.32285 | 1.43941 | 0.0911753 | 3.0219062 | 34 | 4 | 1999–2009 | 0.28 | M-v | 0 | MPC | 166155 | 2003 $SQ_{2}$ |
| 2003 $SM_{4}$ | 15.3 | 0.15 | 20100104 | 11.28417 | 271.64808 | 143.22367 | 25.08140 | 0.3916163 | 3.2336690 | 45 | 2 | 2003–2009 | 0.60 | M-v | 2 | MPC | 163660 | 2003 $SM_{4}$ |
| 2003 $SP_{5}$ | 16.8 | 0.15 | 20100104 | 170.98120 | 294.36101 | 359.67221 | 4.19689 | 0.0633932 | 2.8174026 | 41 | 5 | 2003–2009 | 0.39 | M-v | 1 | MPC | 147255 | 2003 $SP_{5}$ |
| 2003 $SS_{5}$ | 16.7 | 0.15 | 20100104 | 308.74496 | 319.15112 | 26.96774 | 6.95499 | 0.1532195 | 2.2683907 | 47 | 3 | 2002–2009 | 0.51 | M-v | 3 | MPC | 159705 | 2003 $SS_{5}$ |
| 2003 $SB_{6}$ | 16.2 | 0.15 | 20100104 | 87.08681 | 276.77385 | 49.28056 | 3.93983 | 0.1874609 | 3.1085678 | 44 | 3 | 2003–2009 | 0.29 | M-v | 2 | MPC | 165362 | 2003 $SB_{6}$ |
| 2003 $SC_{6}$ | 15.5 | 0.15 | 20100104 | 14.05611 | 246.28452 | 182.99773 | 13.19736 | 0.1856317 | 3.1043538 | 50 | 6 | 2000–2009 | 0.48 | M-v | 0 | MPC | 143176 | 2003 $SC_{6}$ |
| 2003 $SZ_{19}$ | 16.4 | 0.15 | 20100104 | 90.68813 | 58.13790 | 315.31515 | 1.05141 | 0.0779963 | 2.8547406 | 52 | 5 | 2003–2009 | 0.37 | M-v | 1 | MPC | 152369 | 2003 $SZ_{19}$ |
| 2003 $SK_{30}$ | 16.2 | 0.15 | 20100104 | 78.43921 | 317.82606 | 19.57450 | 3.58422 | 0.2164241 | 3.0977547 | 50 | 5 | 2003–2009 | 0.49 | M-v | 1 | MPC | 143176 | 2003 $SK_{30}$ |
| 2003 $SN_{32}$ | 16.9 | 0.15 | 20100104 | 224.30349 | 250.90660 | 358.27041 | 21.23905 | 0.0535830 | 1.9362240 | 95 | 4 | 2002–2009 | 0.53 | M-v | 0 | MPC | 159705 | 2003 $SN_{32}$ |
| 2003 $SD_{33}$ | 15.9 | 0.15 | 20100104 | 12.95452 | 23.41061 | 346.85862 | 8.97269 | 0.0872215 | 3.1640636 | 50 | 4 | 2003–2009 | 0.42 | M-v | 0 | MPC | 164207 | 2003 $SD_{33}$ |
| 2003 $SY_{35}$ | 15.7 | 0.15 | 20100104 | 95.22405 | 261.41569 | 85.83776 | 6.26287 | 0.2255210 | 2.9674387 | 46 | 6 | 1998–2009 | 0.46 | M-v | 1 | MPC | 166155 | 2003 $SY_{35}$ |
| 2003 $SY_{37}$ | 15.2 | 0.15 | 20100104 | 31.08509 | 148.09894 | 235.44075 | 18.20227 | 0.1394519 | 3.1072206 | 75 | 2 | 2003–2009 | 0.46 | M-v | 3 | MPC | 165363 | 2003 $SY_{37}$ |
| 2003 $SC_{38}$ | 15.3 | 0.15 | 20100104 | 318.30702 | 231.04161 | 248.47179 | 11.67261 | 0.1109145 | 3.0215829 | 54 | 4 | 1993–2009 | 0.38 | M-v | 2 | MPC | 165363 | 2003 $SC_{38}$ |
| 2003 $SL_{42}$ | 15.5 | 0.15 | 20100104 | 40.01674 | 78.57037 | 261.59392 | 10.08204 | 0.2474176 | 3.1725232 | 65 | 2 | 2003–2009 | 0.47 | M-v | 2 | MPC | 166155 | 2003 $SL_{42}$ |
| 2003 $SP_{45}$ | 14.8 | 0.15 | 20100104 | 49.89808 | 349.95952 | 15.65874 | 13.89109 | 0.0736840 | 3.1108014 | 89 | 3 | 2003–2009 | 0.55 | M-v | 1 | MPC | 166155 | 2003 $SP_{45}$ |
| 2003 $SO_{51}$ | 15.8 | 0.15 | 20100104 | 86.55295 | 326.28247 | 32.27249 | 10.88192 | 0.1140481 | 2.9852318 | 52 | 4 | 2003–2009 | 0.42 | M-v | 1 | MPC | 146037 | 2003 $SO_{51}$ |
| 2003 $SJ_{52}$ | 16.5 | 0.15 | 20100104 | 62.49540 | 267.17837 | 117.53427 | 2.74684 | 0.1139920 | 2.9995529 | 28 | 5 | 2003–2009 | 0.30 | M-v | 0 | MPC | 143177 | 2003 $SJ_{52}$ |
| 2003 $SK_{58}$ | 15.4 | 0.15 | 20100104 | 114.42329 | 60.60474 | 236.21107 | 12.14399 | 0.1414347 | 2.9963491 | 51 | 6 | 1997–2009 | 0.52 | M-v | 1 | MPC | 166155 | 2003 $SK_{58}$ |
| 2003 $SX_{58}$ | 14.8 | 0.15 | 20100104 | 38.27021 | 146.26636 | 228.90527 | 8.73035 | 0.1020869 | 3.0774269 | 129 | 3 | 2003–2009 | 0.48 | M-v | 2 | MPC | 166155 | 2003 $SX_{58}$ |
| 2003 $SZ_{58}$ | 15.0 | 0.15 | 20100104 | 55.83171 | 88.27909 | 275.53104 | 7.88490 | 0.1606420 | 3.0418441 | 59 | 4 | 2003–2009 | 0.50 | M-v | 1 | MPC | 166155 | 2003 $SZ_{58}$ |
| 2003 $SN_{66}$ | 16.3 | 0.15 | 20100104 | 289.09352 | 297.86204 | 299.18194 | 5.94308 | 0.0229420 | 2.6103604 | 51 | 6 | 2001–2009 | 0.46 | M-v | 0 | MPC | 152370 | 2003 $SN_{66}$ |
| 2003 $SB_{70}$ | 15.6 | 0.15 | 20100104 | 121.43312 | 158.92347 | 173.86378 | 2.13487 | 0.0855761 | 2.9200600 | 163 | 7 | 1993–2009 | 0.51 | M-v | 1 | MPC | 150953 | 2003 $SB_{70}$ |
| 2003 $SF_{74}$ | 16.3 | 0.15 | 20100104 | 72.91418 | 201.08670 | 201.28983 | 7.87892 | 0.2010481 | 2.8923701 | 104 | 5 | 2003–2009 | 0.43 | M-v | 1 | MPC | 148897 | 2003 $SF_{74}$ |
| 2003 $SJ_{77}$ | 14.9 | 0.15 | 20100104 | 53.58102 | 164.78768 | 216.41535 | 10.51379 | 0.0599690 | 3.0127578 | 76 | 4 | 1998–2009 | 0.45 | M-v | 2 | MPC | 166155 | 2003 $SJ_{77}$ |
| 2003 $SR_{77}$ | 15.4 | 0.15 | 20100104 | 17.10388 | 173.65613 | 221.42204 | 11.16792 | 0.0710507 | 3.1316773 | 87 | 5 | 2000–2009 | 0.40 | M-v | 0 | MPC | 166156 | 2003 $SR_{77}$ |
| 2003 $SN_{80}$ | 14.6 | 0.15 | 20100104 | 55.38209 | 42.20625 | 307.43207 | 15.25189 | 0.1810821 | 3.1258723 | 70 | 5 | 2000–2009 | 0.55 | M-v | 1 | MPC | 166156 | 2003 $SN_{80}$ |
| 2003 $SB_{82}$ | 15.9 | 0.15 | 20100104 | 45.39044 | 5.42293 | 12.50817 | 5.81441 | 0.0671519 | 3.0865567 | 54 | 3 | 2003–2009 | 0.32 | M-v | 2 | MPC | 166156 | 2003 $SB_{82}$ |
| 2003 $SR_{82}$ | 16.1 | 0.15 | 20100104 | 81.78890 | 292.38597 | 25.38151 | 0.51008 | 0.1430457 | 3.1411955 | 54 | 5 | 1998–2009 | 0.32 | M-v | 0 | MPC | 166156 | 2003 $SR_{82}$ |
| 2003 $SM_{83}$ | 15.3 | 0.15 | 20100104 | 168.89885 | 254.07015 | 16.71517 | 10.38045 | 0.0612547 | 2.9633576 | 66 | 6 | 1998–2009 | 0.52 | M-v | 0 | MPC | 148898 | 2003 $SM_{83}$ |
| 2003 $SQ_{83}$ | 17.2 | 0.15 | 20100104 | 31.31454 | 344.34738 | 38.90858 | 2.73851 | 0.1956673 | 3.1529371 | 32 | 2 | 2003–2009 | 0.31 | M-v | 2 | MPC | 166156 | 2003 $SQ_{83}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 $SM_{84}$ | 22.7 | 0.15 | 20100104 | 170.96549 | 87.35959 | 186.73072 | 2.79483 | 0.0820871 | 1.1254805 | 73 | 2 | 2003–2009 | 0.48 | M-v | 4 | MPC | 161880 | 2003 $SM_{84}$ |
| 2003 $SR_{85}$ | 15.4 | 0.15 | 20100104 | 14.38009 | 161.36990 | 238.03811 | 16.13733 | 0.1865927 | 3.1638226 | 65 | 2 | 2003–2009 | 0.48 | M-v | 3 | MPC | 166156 | 2003 $SR_{85}$ |
| 2003 $SS_{85}$ | 15.5 | 0.15 | 20100104 | 165.91274 | 99.18789 | 234.59500 | 8.74330 | 0.0688589 | 2.7451236 | 96 | 7 | 2000–2009 | 0.48 | M-v | 0 | MPC | 159706 | 2003 $SS_{85}$ |
| 2003 $SL_{86}$ | 15.5 | 0.15 | 20100104 | 33.21069 | 170.33447 | 224.69377 | 16.99174 | 0.1913827 | 3.1260394 | 25 | 3 | 2003–2009 | 0.42 | M-v | 2 | MPC | 166156 | 2003 $SL_{86}$ |
| 2003 $SC_{87}$ | 15.5 | 0.15 | 20100104 | 78.45552 | 298.05348 | 52.34393 | 8.29805 | 0.1561744 | 3.0216769 | 57 | 6 | 1996–2009 | 0.49 | M-v | 1 | MPC | 147258 | 2003 $SC_{87}$ |
| 2003 $SK_{87}$ | 15.5 | 0.15 | 20100104 | 32.73265 | 244.01780 | 154.90037 | 12.13180 | 0.1574022 | 3.0502594 | 43 | 4 | 2003–2009 | 0.48 | M-v | 1 | MPC | 166156 | 2003 $SK_{87}$ |
| 2003 $SA_{89}$ | 15.4 | 0.15 | 20100104 | 35.30045 | 129.42059 | 255.00979 | 8.05937 | 0.1476420 | 3.0395164 | 75 | 3 | 1998–2009 | 0.41 | M-v | 1 | MPC | 165364 | 2003 $SA_{89}$ |
| 2003 $SC_{95}$ | 16.6 | 0.15 | 20100104 | 246.12394 | 1.86083 | 222.46117 | 6.15724 | 0.1495264 | 2.7948508 | 45 | 6 | 1999–2009 | 0.45 | M-v | 0 | MPC | 147258 | 2003 $SC_{95}$ |
| 2003 $SZ_{96}$ | 15.0 | 0.15 | 20100104 | 323.31187 | 233.48177 | 223.99745 | 16.20978 | 0.1365784 | 3.1517170 | 85 | 5 | 2001–2009 | 0.46 | M-v | 0 | MPC | 166156 | 2003 $SZ_{96}$ |
| 2003 $SA_{97}$ | 15.3 | 0.15 | 20100104 | 60.16785 | 30.87919 | 306.94653 | 12.52605 | 0.0251876 | 3.1961596 | 33 | 3 | 2003–2009 | 0.43 | M-v | 2 | MPC | 163662 | 2003 $SA_{97}$ |
| 2003 $SH_{97}$ | 16.0 | 0.15 | 20100104 | 13.95228 | 155.52298 | 246.87484 | 9.58563 | 0.0966869 | 3.1564846 | 34 | 5 | 1997–2009 | 0.32 | M-v | 0 | MPC | 165364 | 2003 $SH_{97}$ |
| 2003 $SX_{99}$ | 16.6 | 0.15 | 20100104 | 79.37177 | 157.53321 | 173.81414 | 2.42447 | 0.2015467 | 3.0069940 | 31 | 5 | 1998–2009 | 0.30 | M-v | 0 | MPC | 166156 | 2003 $SX_{99}$ |
| 2003 $SZ_{100}$ | 14.5 | 0.15 | 20100104 | 43.58023 | 96.85038 | 261.99128 | 9.59583 | 0.1354457 | 3.1405320 | 82 | 3 | 2003–2009 | 0.48 | M-v | 2 | MPC | 166156 | 2003 $SZ_{100}$ |
| 2003 $SC_{101}$ | 15.8 | 0.15 | 20100104 | 73.79394 | 110.87547 | 272.60834 | 11.23514 | 0.1232214 | 2.9106524 | 38 | 4 | 2003–2009 | 0.49 | M-v | 1 | MPC | 155969 | 2003 $SC_{101}$ |
| 2003 $SE_{101}$ | 15.6 | 0.15 | 20100104 | 65.04291 | 95.53022 | 244.05589 | 11.54265 | 0.2953487 | 3.1012014 | 64 | 2 | 2003–2009 | 0.46 | M-v | 2 | MPC | 165364 | 2003 $SE_{101}$ |
| 2003 $SM_{101}$ | 15.5 | 0.15 | 20100104 | 71.79926 | 93.08251 | 272.03567 | 9.09158 | 0.1182157 | 2.9983025 | 54 | 4 | 2003–2009 | 0.40 | M-v | 1 | MPC | 147258 | 2003 $SM_{101}$ |
| 2003 $SX_{101}$ | 15.3 | 0.15 | 20100104 | 7.45966 | 180.33237 | 244.78636 | 10.07687 | 0.1047256 | 3.1258125 | 65 | 3 | 2003–2009 | 0.46 | M-v | 1 | MPC | 166156 | 2003 $SX_{101}$ |
| 2003 $SS_{103}$ | 15.3 | 0.15 | 20100104 | 45.09729 | 175.24404 | 194.93741 | 17.76566 | 0.2088067 | 3.1569637 | 83 | 6 | 2001–2009 | 0.44 | M-v | 1 | MPC | 166156 | 2003 $SS_{103}$ |
| 2003 $SO_{104}$ | 15.9 | 0.15 | 20100104 | 40.72004 | 41.61985 | 341.54032 | 3.66289 | 0.1283749 | 3.1165420 | 42 | 3 | 2003–2009 | 0.45 | M-v | 3 | MPC | 165365 | 2003 $SO_{104}$ |
| 2003 $SA_{105}$ | 14.8 | 0.15 | 20100104 | 105.41656 | 57.31806 | 218.46511 | 17.46892 | 0.1482794 | 3.1890556 | 80 | 5 | 2001–2009 | 0.53 | M-v | 0 | MPC | 166156 | 2003 $SA_{105}$ |
| 2003 $SR_{105}$ | 16.9 | 0.15 | 20100104 | 64.34761 | 31.12737 | 8.44900 | 2.09142 | 0.0803480 | 2.9299043 | 32 | 5 | 2000–2009 | 0.56 | M-v | 2 | MPC | 149871 | 2003 $SR_{105}$ |
| 2003 $SV_{108}$ | 14.8 | 0.15 | 20100104 | 166.80169 | 309.31901 | 340.45717 | 9.96318 | 0.0326878 | 2.9702502 | 74 | 6 | 2002–2009 | 0.42 | M-v | 0 | MPC | 147258 | 2003 $SV_{108}$ |
| 2003 $SG_{113}$ | 15.3 | 0.15 | 20100104 | 317.63367 | 190.23344 | 243.68824 | 10.45677 | 0.0515732 | 3.1459882 | 28 | 5 | 1998–2009 | 0.36 | M-v | 0 | MPC | 95078 | 2003 $SG_{113}$ |
| 2003 $SS_{113}$ | 16.3 | 0.15 | 20100104 | 221.26361 | 352.38523 | 259.16110 | 8.72919 | 0.1938433 | 2.6885261 | 47 | 6 | 1995–2009 | 0.41 | M-v | 0 | MPC | 147258 | 2003 $SS_{113}$ |
| 2003 $SX_{115}$ | 14.5 | 0.15 | 20100104 | 12.48784 | 146.10366 | 250.63620 | 16.72029 | 0.2142656 | 3.1546680 | 105 | 3 | 1998–2009 | 0.59 | M-v | 2 | MPC | 166156 | 2003 $SX_{115}$ |
| 2003 $SZ_{116}$ | 15.2 | 0.15 | 20100104 | 41.49098 | 126.82178 | 251.82475 | 11.19792 | 0.1744400 | 3.1012112 | 79 | 4 | 1999–2009 | 0.46 | M-v | 0 | MPC | 166156 | 2003 $SZ_{116}$ |
| 2003 $SC_{117}$ | 15.3 | 0.15 | 20100104 | 27.17652 | 165.32747 | 242.79748 | 9.77090 | 0.1393740 | 3.0709921 | 57 | 6 | 1997–2009 | 0.48 | M-v | 0 | MPC | 147258 | 2003 $SC_{117}$ |
| 2003 $SH_{132}$ | 16.6 | 0.15 | 20100104 | 42.98998 | 333.75903 | 37.19029 | 1.17918 | 0.2172471 | 3.1861649 | 45 | 4 | 2003–2009 | 0.35 | M-v | 1 | MPC | 166156 | 2003 $SH_{132}$ |
| 2003 $SQ_{133}$ | 15.4 | 0.15 | 20100104 | 78.48882 | 75.55303 | 238.55125 | 8.72692 | 0.2291343 | 3.1427369 | 41 | 2 | 2003–2009 | 0.43 | M-v | 4 | MPC | 165366 | 2003 $SQ_{133}$ |
| 2003 $SC_{134}$ | 15.8 | 0.15 | 20100104 | 153.50310 | 189.05494 | 124.59953 | 6.73369 | 0.0698538 | 2.8464658 | 66 | 5 | 2002–2009 | 0.47 | M-v | 1 | MPC | 162376 | 2003 $SC_{134}$ |
| 2003 $SN_{134}$ | 16.3 | 0.15 | 20100104 | 354.13387 | 203.50031 | 256.22933 | 4.62776 | 0.0247545 | 2.8883049 | 44 | 7 | 1996–2009 | 0.44 | M-v | 0 | MPC | 166156 | 2003 $SN_{134}$ |
| 2003 $SX_{135}$ | 15.9 | 0.15 | 20100104 | 16.07095 | 200.45879 | 209.66015 | 6.92810 | 0.3130313 | 3.1307510 | 57 | 2 | 2003–2009 | 0.44 | M-v | 3 | MPC | 165366 | 2003 $SX_{135}$ |
| 2003 $SO_{138}$ | 15.1 | 0.15 | 20100104 | 123.11984 | 75.35649 | 265.98208 | 3.93131 | 0.1093807 | 2.9188767 | 116 | 6 | 1998–2009 | 0.47 | M-v | 1 | MPC | 150955 | 2003 $SO_{138}$ |
| 2003 $SW_{139}$ | 16.3 | 0.15 | 20100104 | 75.32203 | 343.84809 | 353.10623 | 4.50584 | 0.1399952 | 3.0957346 | 26 | 2 | 2003–2009 | 0.31 | M-v | 4 | MPC | 165366 | 2003 $SW_{139}$ |
| 2003 $SD_{140}$ | 15.6 | 0.15 | 20100104 | 25.70083 | 261.19804 | 128.83910 | 5.60513 | 0.1613049 | 3.1831257 | 70 | 5 | 2003–2009 | 0.54 | M-v | 0 | MPC | 166156 | 2003 $SD_{140}$ |
| 2003 $SF_{141}$ | 15.0 | 0.15 | 20100104 | 2.43525 | 103.33940 | 316.38208 | 15.19346 | 0.2073349 | 3.1403669 | 70 | 4 | 1994–2009 | 0.55 | M-v | 1 | MPC | 166156 | 2003 $SF_{141}$ |
| 2003 $SM_{141}$ | 15.4 | 0.15 | 20100104 | 7.57378 | 188.14151 | 243.97707 | 17.12334 | 0.2121203 | 3.1468052 | 73 | 3 | 1992–2009 | 0.43 | M-v | 2 | MPC | 165366 | 2003 $SM_{141}$ |
| 2003 $SQ_{141}$ | 15.5 | 0.15 | 20100104 | 12.18401 | 163.98324 | 239.87300 | 6.18009 | 0.1166634 | 3.2433592 | 56 | 2 | 2003–2009 | 0.45 | M-v | 3 | MPC | 166156 | 2003 $SQ_{141}$ |
| 2003 $SM_{144}$ | 14.3 | 0.15 | 20100104 | 22.65261 | 93.26425 | 307.73105 | 12.03819 | 0.2874003 | 3.1663562 | 148 | 3 | 2003–2009 | 0.43 | M-v | 1 | MPC | 166156 | 2003 $SM_{144}$ |
| 2003 $ST_{144}$ | 15.1 | 0.15 | 20100104 | 47.71368 | 125.33161 | 235.00140 | 13.51570 | 0.2825284 | 3.1711304 | 85 | 2 | 2003–2009 | 0.46 | M-v | 2 | MPC | 166156 | 2003 $ST_{144}$ |
| 2003 $SD_{145}$ | 15.6 | 0.15 | 20100104 | 34.58703 | 125.18899 | 243.16103 | 12.63055 | 0.3001144 | 3.1812290 | 101 | 3 | 1992–2009 | 0.48 | M-v | 2 | MPC | 166156 | 2003 $SD_{145}$ |
| 2003 $SU_{150}$ | 16.1 | 0.15 | 20100104 | 23.74636 | 326.31730 | 64.87876 | 6.10336 | 0.2054115 | 3.1499979 | 64 | 2 | 2003–2009 | 0.50 | M-v | 3 | MPC | 166156 | 2003 $SU_{150}$ |
| 2003 $SO_{151}$ | 15.0 | 0.15 | 20100104 | 2.78360 | 295.19605 | 139.30315 | 9.92446 | 0.0702536 | 3.0360874 | 79 | 3 | 2003–2009 | 0.50 | M-v | 3 | MPC | 166157 | 2003 $SO_{151}$ |
| 2003 $SN_{154}$ | 15.2 | 0.15 | 20100104 | 85.86056 | 140.66073 | 206.36296 | 15.42897 | 0.0919400 | 3.0720695 | 80 | 6 | 2000–2009 | 0.57 | M-v | 0 | MPC | 147260 | 2003 $SN_{154}$ |
| 2003 $SW_{157}$ | 16.1 | 0.15 | 20100104 | 46.94656 | 88.02427 | 272.01010 | 3.38794 | 0.2340808 | 3.1685149 | 77 | 4 | 1997–2009 | 0.46 | M-v | 1 | MPC | 166157 | 2003 $SW_{157}$ |
| 2003 $SG_{158}$ | 15.7 | 0.15 | 20100104 | 67.67763 | 301.98207 | 49.86850 | 28.18213 | 0.3136354 | 3.1075417 | 74 | 5 | 2002–2009 | 0.44 | M-v | 1 | MPC | 164208 | 2003 $SG_{158}$ |
| 2003 $SN_{160}$ | 14.9 | 0.15 | 20100104 | 312.53369 | 76.84140 | 31.56702 | 9.92079 | 0.0072258 | 3.0827698 | 75 | 5 | 2001–2009 | 0.50 | M-v | 0 | MPC | 166157 | 2003 $SN_{160}$ |
| 2003 $SX_{160}$ | 16.0 | 0.15 | 20100104 | 53.53051 | 25.99945 | 4.89254 | 8.22310 | 0.1272485 | 2.9795299 | 58 | 6 | 1993–2009 | 0.48 | M-v | 1 | MPC | 148899 | 2003 $SX_{160}$ |
| 2003 $SH_{167}$ | 15.5 | 0.15 | 20100104 | 123.97304 | 73.65233 | 322.61121 | 7.90566 | 0.0617197 | 2.7454737 | 87 | 5 | 2003–2009 | 0.48 | M-v | 1 | MPC | 148899 | 2003 $SH_{167}$ |
| 2003 $SB_{170}$ | 17.0 | 0.15 | 20100104 | 78.67243 | 74.61161 | 287.53029 | 14.15186 | 0.1251864 | 2.0005502 | 58 | 3 | 2003–2009 | 0.54 | M-v | 3 | MPC | 166157 | 2003 $SB_{170}$ |
| 2003 $SN_{171}$ | 16.1 | 0.15 | 20100104 | 80.45424 | 304.72402 | 59.37567 | 5.47908 | 0.1824582 | 2.9839146 | 48 | 4 | 2003–2009 | 0.53 | M-v | 1 | MPC | 160344 | 2003 $SN_{171}$ |
| 2003 $SR_{173}$ | 15.4 | 0.15 | 20100104 | 102.26480 | 51.42425 | 250.89156 | 4.34786 | 0.1262779 | 3.1301100 | 72 | 5 | 1997–2009 | 0.44 | M-v | 0 | MPC | 166157 | 2003 $SR_{173}$ |
| 2003 $ST_{174}$ | 16.6 | 0.15 | 20100104 | 92.50815 | 188.96852 | 173.41826 | 2.56624 | 0.1984960 | 2.9209392 | 69 | 4 | 1998–2009 | 0.50 | M-v | 2 | MPC | 149873 | 2003 $ST_{174}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 $SQ_{175}$ | 15.9 | 0.15 | 20100104 | 41.49596 | 335.88654 | 39.55835 | 1.96095 | 0.1745281 | 3.1115820 | 30 | 3 | 2003–2009 | 0.42 | M-v | 4 | MPC | 165367 | 2003 $SQ_{175}$ |
| 2003 $SL_{176}$ | 16.3 | 0.15 | 20100104 | 48.80720 | 21.55230 | 10.06324 | 4.01380 | 0.2467019 | 3.0287616 | 30 | 3 | 2003–2009 | 0.42 | M-v | 3 | MPC | 75981 | 2003 $SL_{176}$ |
| 2003 $SX_{177}$ | 15.6 | 0.15 | 20100104 | 128.58756 | 32.43055 | 331.72118 | 5.05629 | 0.1271051 | 2.7524585 | 93 | 6 | 1997–2009 | 0.47 | M-v | 1 | MPC | 152372 | 2003 $SX_{177}$ |
| 2003 $SG_{179}$ | 15.2 | 0.15 | 20100104 | 308.19240 | 315.98730 | 162.59020 | 11.82882 | 0.0313252 | 3.0800955 | 66 | 4 | 2003–2009 | 0.50 | M-v | 0 | MPC | 166157 | 2003 $SG_{179}$ |
| 2003 $SP_{179}$ | 15.7 | 0.15 | 20100104 | 27.88153 | 359.32937 | 24.39097 | 14.89780 | 0.1358502 | 3.1679359 | 39 | 2 | 2003–2009 | 0.42 | M-v | 2 | MPC | 165367 | 2003 $SP_{179}$ |
| 2003 $SE_{188}$ | 14.9 | 0.15 | 20100104 | 60.90905 | 305.63346 | 66.33251 | 10.04535 | 0.0757194 | 3.0345579 | 57 | 5 | 2003–2009 | 0.47 | M-v | 0 | MPC | 166157 | 2003 $SE_{188}$ |
| 2003 $SV_{188}$ | 15.2 | 0.15 | 20100104 | 77.08270 | 304.05774 | 61.00173 | 6.52619 | 0.0835035 | 2.9966822 | 51 | 4 | 2003–2009 | 0.61 | M-v | 1 | MPC | 166157 | 2003 $SV_{188}$ |
| 2003 $SC_{192}$ | 15.9 | 0.15 | 20100104 | 73.91533 | 48.87210 | 320.82513 | 6.92758 | 0.2626362 | 3.0421857 | 117 | 4 | 2003–2009 | 0.41 | M-v | 1 | MPC | 154105 | 2003 $SC_{192}$ |
| 2003 $SZ_{192}$ | 15.6 | 0.15 | 20100104 | 45.34923 | 86.21948 | 314.06048 | 7.27529 | 0.0903729 | 3.0337954 | 41 | 4 | 2003–2009 | 0.49 | M-v | 1 | MPC | 162376 | 2003 $SZ_{192}$ |
| 2003 $SC_{193}$ | 15.4 | 0.15 | 20100104 | 61.89075 | 88.50382 | 263.29861 | 8.39189 | 0.0710149 | 3.1662812 | 43 | 4 | 1997–2009 | 0.49 | M-v | 1 | MPC | 166157 | 2003 $SC_{193}$ |
| 2003 $SJ_{195}$ | 15.1 | 0.15 | 20100104 | 68.62821 | 140.34362 | 225.19839 | 9.70703 | 0.0567298 | 3.0900724 | 61 | 4 | 1998–2009 | 0.55 | M-v | 1 | MPC | 166157 | 2003 $SJ_{195}$ |
| 2003 $SJ_{196}$ | 14.7 | 0.15 | 20100104 | 112.96911 | 93.88028 | 225.61742 | 12.85734 | 0.0463676 | 3.1014469 | 58 | 4 | 2000–2009 | 0.45 | M-v | 1 | MPC | 165367 | 2003 $SJ_{196}$ |
| 2003 $SL_{199}$ | 15.5 | 0.15 | 20100104 | 9.01964 | 209.00106 | 243.60061 | 4.60437 | 0.2198589 | 3.0779171 | 68 | 5 | 1998–2009 | 0.52 | M-v | 0 | MPC | 166157 | 2003 $SL_{199}$ |
| 2003 $SP_{200}$ | 14.7 | 0.15 | 20100104 | 30.44161 | 165.67300 | 223.60682 | 27.89488 | 0.1727382 | 3.1110192 | 84 | 4 | 1998–2009 | 0.48 | M-v | 1 | MPC | 166157 | 2003 $SP_{200}$ |
| 2003 $SZ_{200}$ | 15.9 | 0.15 | 20100104 | 182.33906 | 345.65590 | 305.74408 | 3.15573 | 0.0818567 | 2.8106251 | 75 | 6 | 1993–2009 | 0.51 | M-v | 0 | MPC | 150956 | 2003 $SZ_{200}$ |
| 2003 $SC_{201}$ | 16.5 | 0.15 | 20100104 | 181.00292 | 299.04751 | 359.78578 | 6.24774 | 0.0338776 | 2.7788969 | 72 | 4 | 2003–2009 | 0.44 | M-v | 1 | MPC | 147261 | 2003 $SC_{201}$ |
| 2003 $SK_{205}$ | 15.9 | 0.15 | 20100104 | 78.65310 | 320.93508 | 352.90661 | 4.20303 | 0.2476219 | 3.1395056 | 50 | 3 | 2003–2009 | 0.44 | M-v | 3 | MPC | 165367 | 2003 $SK_{205}$ |
| 2003 $SL_{208}$ | 15.7 | 0.15 | 20100104 | 39.77898 | 97.22704 | 258.63835 | 3.79639 | 0.1680018 | 3.1413143 | 61 | 5 | 2002–2009 | 0.44 | M-v | 0 | MPC | 166157 | 2003 $SL_{208}$ |
| 2003 $SD_{209}$ | 15.5 | 0.15 | 20100104 | 68.57750 | 59.02677 | 289.84236 | 5.60372 | 0.1572279 | 3.0027311 | 64 | 5 | 2000–2009 | 0.42 | M-v | 0 | MPC | 166157 | 2003 $SD_{209}$ |
| 2003 $SF_{213}$ | 15.1 | 0.15 | 20100104 | 25.07627 | 321.37160 | 71.43656 | 13.96440 | 0.1850198 | 3.0975760 | 91 | 5 | 1998–2009 | 0.46 | M-v | 1 | MPC | 166157 | 2003 $SF_{213}$ |
| 2003 $SY_{218}$ | 14.9 | 0.15 | 20100104 | 59.59801 | 125.92871 | 217.71746 | 9.26785 | 0.2812952 | 3.2274338 | 147 | 6 | 1997–2009 | 0.63 | M-v | 1 | MPC | 166157 | 2003 $SY_{218}$ |
| 2003 $SQ_{229}$ | 16.2 | 0.15 | 20100104 | 46.60713 | 315.22299 | 50.09866 | 5.60789 | 0.1732562 | 3.2024986 | 57 | 3 | 2003–2009 | 0.36 | M-v | 2 | MPC | 166157 | 2003 $SQ_{229}$ |
| 2003 $SR_{235}$ | 15.3 | 0.15 | 20100104 | 59.73637 | 7.48463 | 347.20647 | 9.32681 | 0.0922490 | 3.1392755 | 62 | 5 | 2003–2009 | 0.39 | M-v | 1 | MPC | 166158 | 2003 $SR_{235}$ |
| 2003 $SJ_{247}$ | 15.8 | 0.15 | 20100104 | 74.78250 | 127.76078 | 193.30486 | 0.32093 | 0.2097284 | 3.1729855 | 67 | 6 | 1997–2009 | 0.41 | M-v | 1 | MPC | 166158 | 2003 $SJ_{247}$ |
| 2003 $SU_{248}$ | 15.6 | 0.15 | 20100104 | 27.96354 | 251.63497 | 156.41425 | 0.80350 | 0.1570542 | 3.1040442 | 73 | 5 | 2003–2009 | 0.45 | M-v | 0 | MPC | 147262 | 2003 $SU_{248}$ |
| 2003 $SU_{250}$ | 14.9 | 0.15 | 20100104 | 48.39321 | 180.84922 | 194.86271 | 28.02791 | 0.1183502 | 3.1285180 | 34 | 2 | 2003–2009 | 0.63 | M-v | 3 | MPC | 165369 | 2003 $SU_{250}$ |
| 2003 $SW_{254}$ | 15.6 | 0.15 | 20100104 | 10.45407 | 248.29893 | 187.75470 | 10.71961 | 0.0738409 | 3.0124771 | 89 | 4 | 2003–2009 | 0.51 | M-v | 0 | MPC | 162377 | 2003 $SW_{254}$ |
| 2003 $SL_{258}$ | 15.7 | 0.15 | 20100104 | 33.17824 | 17.21306 | 25.85175 | 5.63447 | 0.1754981 | 3.1124780 | 54 | 4 | 2003–2009 | 0.46 | M-v | 1 | MPC | 160788 | 2003 $SL_{258}$ |
| 2003 $SJ_{260}$ | 15.5 | 0.15 | 20100104 | 20.13809 | 154.10092 | 223.88811 | 3.97953 | 0.1289780 | 3.1553735 | 64 | 6 | 1997–2009 | 0.45 | M-v | 0 | MPC | 166158 | 2003 $SJ_{260}$ |
| 2003 $SM_{260}$ | 16.4 | 0.15 | 20100104 | 265.67117 | 330.53401 | 224.97585 | 4.57102 | 0.0532362 | 2.8621978 | 43 | 5 | 2001–2009 | 0.27 | M-v | 1 | MPC | 166158 | 2003 $SM_{260}$ |
| 2003 $SZ_{263}$ | 15.1 | 0.15 | 20100104 | 98.76064 | 310.46767 | 26.48738 | 10.18223 | 0.0742036 | 3.0357790 | 72 | 6 | 2001–2009 | 0.51 | M-v | 1 | MPC | 159709 | 2003 $SZ_{263}$ |
| 2003 $SG_{264}$ | 16.2 | 0.15 | 20100104 | 99.44739 | 233.15280 | 82.39484 | 2.63968 | 0.2124950 | 3.0447687 | 62 | 8 | 1998–2009 | 0.39 | M-v | 0 | MPC | 143182 | 2003 $SG_{264}$ |
| 2003 $SR_{264}$ | 15.7 | 0.15 | 20100104 | 346.82226 | 45.62506 | 31.45357 | 10.94435 | 0.0988794 | 3.1313513 | 42 | 4 | 2003–2009 | 0.48 | M-v | 0 | MPC | 166158 | 2003 $SR_{264}$ |
| 2003 $SC_{266}$ | 15.4 | 0.15 | 20100104 | 335.79076 | 66.44908 | 27.84048 | 5.03666 | 0.1130929 | 3.1387869 | 60 | 2 | 2003–2009 | 0.50 | M-v | 4 | MPC | 165369 | 2003 $SC_{266}$ |
| 2003 $ST_{269}$ | 15.5 | 0.15 | 20100104 | 89.39110 | 326.80087 | 37.12161 | 13.81380 | 0.0934224 | 2.9780323 | 87 | 6 | 1993–2009 | 0.70 | M-v | 1 | MPC | 159710 | 2003 $ST_{269}$ |
| 2003 $SH_{270}$ | 16.0 | 0.15 | 20100104 | 60.92805 | 280.69332 | 91.08603 | 8.00857 | 0.2267411 | 3.0838686 | 30 | 3 | 2003–2009 | 0.43 | M-v | 2 | MPC | 121141 | 2003 $SH_{270}$ |
| 2003 $SG_{277}$ | 15.4 | 0.15 | 20100104 | 90.42411 | 357.80268 | 322.75471 | 7.30476 | 0.2120604 | 3.0877389 | 73 | 3 | 2003–2009 | 0.50 | M-v | 2 | MPC | 147263 | 2003 $SG_{277}$ |
| 2003 $SM_{277}$ | 16.2 | 0.15 | 20100104 | 63.53372 | 67.61115 | 313.52804 | 7.52677 | 0.2056402 | 3.0204817 | 30 | 3 | 2003–2009 | 0.43 | M-v | 3 | MPC | 147263 | 2003 $SM_{277}$ |
| 2003 $SU_{277}$ | 15.6 | 0.15 | 20100104 | 352.82224 | 207.55624 | 236.57260 | 9.56563 | 0.2038767 | 3.1418775 | 56 | 3 | 2003–2009 | 0.45 | M-v | 2 | MPC | 165370 | 2003 $SU_{277}$ |
| 2003 $SK_{279}$ | 15.5 | 0.15 | 20100104 | 35.82146 | 239.70701 | 132.49528 | 11.19645 | 0.2473537 | 3.1751030 | 47 | 4 | 1997–2009 | 0.52 | M-v | 2 | MPC | 166158 | 2003 $SK_{279}$ |
| 2003 $SX_{279}$ | 16.6 | 0.15 | 20100104 | 111.87086 | 82.31999 | 224.96127 | 3.13212 | 0.2243492 | 2.9953485 | 47 | 5 | 2002–2009 | 0.42 | M-v | 0 | MPC | 146051 | 2003 $SX_{279}$ |
| 2003 $SA_{280}$ | 16.3 | 0.15 | 20100104 | 50.67637 | 109.16709 | 244.78174 | 8.72663 | 0.2262245 | 3.1441232 | 38 | 2 | 2003–2009 | 0.28 | M-v | 3 | MPC | 165370 | 2003 $SA_{280}$ |
| 2003 $SM_{281}$ | 15.1 | 0.15 | 20100104 | 289.98122 | 250.75011 | 241.24050 | 8.94519 | 0.0589069 | 3.0918057 | 45 | 5 | 2001–2009 | 0.41 | M-v | 0 | MPC | 166158 | 2003 $SM_{281}$ |
| 2003 $SQ_{283}$ | 14.8 | 0.15 | 20100104 | 349.84103 | 116.94159 | 321.43022 | 15.91342 | 0.2093483 | 3.1153218 | 100 | 5 | 2000–2009 | 0.53 | M-v | 1 | MPC | 166158 | 2003 $SQ_{283}$ |
| 2003 $SS_{283}$ | 15.1 | 0.15 | 20100104 | 47.40910 | 110.61657 | 225.54067 | 12.72131 | 0.1240981 | 3.2148963 | 50 | 2 | 2003–2009 | 0.47 | M-v | 3 | MPC | 163666 | 2003 $SS_{283}$ |
| 2003 $SC_{284}$ | 15.2 | 0.15 | 20100104 | 58.01616 | 157.68612 | 218.75388 | 12.89208 | 0.0713940 | 3.0055911 | 47 | 3 | 2003–2009 | 0.48 | M-v | 2 | MPC | 166158 | 2003 $SC_{284}$ |
| 2003 $SA_{288}$ | 15.0 | 0.15 | 20100104 | 42.21012 | 154.49469 | 243.01999 | 10.93962 | 0.0934677 | 3.1356929 | 69 | 3 | 2003–2009 | 0.43 | M-v | 2 | MPC | 146052 | 2003 $SA_{288}$ |
| 2003 $SR_{288}$ | 16.4 | 0.15 | 20100104 | 20.01655 | 350.23411 | 50.26607 | 6.86045 | 0.2559692 | 3.1752320 | 52 | 3 | 1992–2009 | 0.32 | M-v | 1 | MPC | 166158 | 2003 $SR_{288}$ |
| 2003 $SF_{289}$ | 15.3 | 0.15 | 20100104 | 1.64422 | 268.42696 | 169.27140 | 16.35859 | 0.2192713 | 3.1188024 | 47 | 5 | 1992–2009 | 0.46 | M-v | 0 | MPC | 164210 | 2003 $SF_{289}$ |
| 2003 $SG_{289}$ | 15.7 | 0.15 | 20100104 | 55.55029 | 257.91050 | 116.18533 | 5.22450 | 0.0437149 | 3.0678227 | 39 | 6 | 2003–2009 | 0.46 | M-v | 0 | MPC | 166158 | 2003 $SG_{289}$ |
| 2003 $SJ_{292}$ | 15.5 | 0.15 | 20100104 | 93.24749 | 81.71620 | 233.32084 | 14.66496 | 0.0500880 | 3.1631083 | 37 | 4 | 1998–2009 | 0.42 | M-v | 1 | MPC | 165371 | 2003 $SJ_{292}$ |
| 2003 $SP_{292}$ | 15.4 | 0.15 | 20100104 | 98.42803 | 33.91919 | 321.94665 | 8.95140 | 0.0950962 | 2.9534932 | 68 | 4 | 2003–2009 | 0.46 | M-v | 2 | MPC | 158456 | 2003 $SP_{292}$ |
| 2003 $SY_{292}$ | 15.5 | 0.15 | 20100104 | 63.41042 | 101.35974 | 346.86724 | 17.06200 | 0.1143785 | 2.7478300 | 47 | 6 | 2001–2009 | 0.42 | M-v | 0 | MPC | 154106 | 2003 $SY_{292}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 $SM_{295}$ | 16.1 | 0.15 | 20100104 | 85.77680 | 38.06818 | 331.27409 | 9.34659 | 0.1015171 | 2.9384056 | 35 | 3 | 2003–2009 | 0.51 | M-v | 3 | MPC | 146053 | 2003 $SM_{295}$ |
| 2003 $SV_{295}$ | 15.2 | 0.15 | 20100104 | 67.44464 | 143.37279 | 211.01321 | 23.75293 | 0.1211954 | 3.0925647 | 45 | 3 | 2003–2009 | 0.55 | M-v | 2 | MPC | 121141 | 2003 $SV_{295}$ |
| 2003 $SW_{295}$ | 15.2 | 0.15 | 20100104 | 321.98694 | 220.64754 | 253.34604 | 9.09117 | 0.1824951 | 3.1413233 | 49 | 4 | 1997–2009 | 0.53 | M-v | 2 | MPC | 166158 | 2003 $SW_{295}$ |
| 2003 $SV_{297}$ | 15.5 | 0.15 | 20100104 | 354.11037 | 184.53366 | 234.74329 | 14.34200 | 0.2379121 | 3.2118085 | 48 | 3 | 2003–2009 | 0.44 | M-v | 1 | MPC | 166158 | 2003 $SV_{297}$ |
| 2003 $SC_{298}$ | 16.2 | 0.15 | 20100104 | 37.49433 | 111.36857 | 247.30725 | 12.83593 | 0.2378967 | 3.2036195 | 30 | 2 | 2003–2009 | 0.35 | M-v | 3 | MPC | 165371 | 2003 $SC_{298}$ |
| 2003 $SP_{302}$ | 15.2 | 0.15 | 20100104 | 37.24159 | 136.36406 | 253.07991 | 8.77284 | 0.0811977 | 3.0671266 | 76 | 5 | 2003–2009 | 0.52 | M-v | 0 | MPC | 166158 | 2003 $SP_{302}$ |
| 2003 $SW_{302}$ | 15.9 | 0.15 | 20100104 | 29.92774 | 11.18797 | 11.59985 | 15.07114 | 0.1752081 | 3.1841976 | 43 | 3 | 2003–2009 | 0.56 | M-v | 3 | MPC | 100584 | 2003 $SW_{302}$ |
| 2003 $SJ_{304}$ | 15.0 | 0.15 | 20100104 | 356.01729 | 257.72143 | 186.97854 | 15.97404 | 0.2058241 | 3.1546297 | 89 | 3 | 2003–2009 | 0.52 | M-v | 1 | MPC | 166158 | 2003 $SJ_{304}$ |
| 2003 $SX_{306}$ | 16.0 | 0.15 | 20100104 | 324.76770 | 237.92316 | 209.33214 | 7.95324 | 0.1443978 | 3.1815001 | 54 | 5 | 1992–2009 | 0.38 | M-v | 0 | MPC | 166158 | 2003 $SX_{306}$ |
| 2003 $SJ_{308}$ | 16.5 | 0.15 | 20100104 | 78.87787 | 76.81530 | 341.03170 | 18.56181 | 0.1143281 | 1.9497355 | 66 | 5 | 1999–2009 | 0.56 | M-v | 1 | MPC | 166158 | 2003 $SJ_{308}$ |
| 2003 $ST_{308}$ | 15.8 | 0.15 | 20100104 | 77.14625 | 53.62599 | 302.69892 | 16.81959 | 0.2020848 | 3.0692766 | 57 | 4 | 2003–2009 | 0.43 | M-v | 1 | MPC | 147264 | 2003 $ST_{308}$ |
| 2003 $SQ_{310}$ | 15.5 | 0.15 | 20100104 | 58.68026 | 301.21086 | 85.07144 | 11.60824 | 0.1353129 | 3.0271561 | 37 | 4 | 1996–2009 | 0.44 | M-v | 1 | MPC | 166159 | 2003 $SQ_{310}$ |
| 2003 $SE_{313}$ | 15.2 | 0.15 | 20100104 | 72.88409 | 75.93631 | 273.26761 | 9.59735 | 0.1208596 | 3.1268411 | 70 | 5 | 2003–2009 | 0.54 | M-v | 0 | MPC | 166159 | 2003 $SE_{313}$ |
| 2003 $SG_{313}$ | 16.8 | 0.15 | 20100104 | 44.62257 | 159.92159 | 196.77993 | 1.12749 | 0.2370118 | 3.1695672 | 50 | 3 | 2000–2009 | 0.48 | M-v | 3 | MPC | 166159 | 2003 $SG_{313}$ |
| 2003 $SV_{313}$ | 15.3 | 0.15 | 20100104 | 160.85418 | 221.38779 | 40.80774 | 10.06885 | 0.0230655 | 3.0804752 | 63 | 5 | 1998–2009 | 0.47 | M-v | 0 | MPC | 165371 | 2003 $SV_{313}$ |
| 2003 $SL_{315}$ | 15.7 | 0.15 | 20100104 | 30.47011 | 273.24801 | 98.27498 | 16.38515 | 0.2169080 | 3.1959230 | 36 | 3 | 2003–2009 | 0.49 | M-v | 3 | MPC | 165371 | 2003 $SL_{315}$ |
| 2003 $SW_{318}$ | 16.8 | 0.15 | 20100104 | 353.93836 | 233.35151 | 202.05575 | 7.96024 | 0.0667682 | 3.0583124 | 27 | 3 | 2003–2009 | 0.25 | M-v | 2 | MPC | 108750 | 2003 $SW_{318}$ |
| 2003 $SK_{319}$ | 16.2 | 0.15 | 20100104 | 64.65720 | 252.64284 | 109.17651 | 3.18746 | 0.0716215 | 3.0763792 | 50 | 6 | 2003–2009 | 0.58 | M-v | 0 | MPC | 166159 | 2003 $SK_{319}$ |
| 2003 $SJ_{320}$ | 15.8 | 0.15 | 20100104 | 356.77267 | 130.63254 | 272.29912 | 3.60972 | 0.1718203 | 3.2182605 | 61 | 3 | 2003–2009 | 0.42 | M-v | 1 | MPC | 164210 | 2003 $SJ_{320}$ |
| 2003 $SR_{320}$ | 16.5 | 0.15 | 20100104 | 308.20768 | 326.44606 | 178.69172 | 4.52700 | 0.1211574 | 2.9613891 | 60 | 5 | 1996–2009 | 0.38 | M-v | 0 | MPC | 166159 | 2003 $SR_{320}$ |
| 2003 $SL_{321}$ | 15.7 | 0.15 | 20100104 | 329.03202 | 154.11834 | 340.20813 | 9.12547 | 0.1020289 | 2.9925553 | 46 | 5 | 1993–2009 | 0.47 | M-v | 2 | MPC | 148903 | 2003 $SL_{321}$ |
| 2003 $SM_{321}$ | 15.2 | 0.15 | 20100104 | 136.44000 | 325.93442 | 348.19813 | 9.15201 | 0.0944015 | 2.9962532 | 55 | 4 | 2003–2009 | 0.46 | M-v | 1 | MPC | 148903 | 2003 $SM_{321}$ |
| 2003 $SB_{322}$ | 15.1 | 0.15 | 20100104 | 61.52541 | 219.47512 | 136.50068 | 10.35815 | 0.0869763 | 3.1711134 | 49 | 7 | 1994–2009 | 0.54 | M-v | 0 | MPC | 166159 | 2003 $SB_{322}$ |
| 2003 $SB_{323}$ | 16.3 | 0.15 | 20100104 | 71.03640 | 7.86959 | 325.79335 | 5.10912 | 0.1530559 | 3.0972588 | 39 | 4 | 2003–2009 | 0.26 | M-v | 0 | MPC | 166159 | 2003 $SB_{323}$ |
| 2003 $SF_{324}$ | 15.9 | 0.15 | 20100104 | 130.30294 | 40.32666 | 233.28623 | 3.99566 | 0.1424204 | 3.0614858 | 47 | 6 | 2001–2009 | 0.34 | M-v | 0 | MPC | 166159 | 2003 $SF_{324}$ |
| 2003 $SJ_{326}$ | 17.0 | 0.15 | 20100104 | 130.68243 | 13.85670 | 283.47755 | 0.47139 | 0.1269463 | 2.9830970 | 46 | 6 | 1998–2009 | 0.33 | M-v | 0 | MPC | 159711 | 2003 $SJ_{326}$ |
| 2003 $ST_{333}$ | 16.0 | 0.15 | 20100104 | 15.07466 | 76.53910 | 7.18193 | 12.74578 | 0.2091389 | 3.0066915 | 36 | 3 | 2003–2009 | 0.48 | M-v | 1 | MPC | 162378 | 2003 $ST_{333}$ |
| 2003 $SD_{337}$ | 16.1 | 0.15 | 20100104 | 39.07824 | 1.98615 | 348.46588 | 4.20913 | 0.0831139 | 3.2186550 | 39 | 3 | 2003–2009 | 0.23 | M-v | 2 | MPC | 164210 | 2003 $SD_{337}$ |
| 2003 $SK_{337}$ | 16.1 | 0.15 | 20100104 | 306.40970 | 64.84793 | 56.34794 | 10.03453 | 0.0280743 | 3.1222387 | 35 | 3 | 2001–2009 | 0.28 | M-v | 1 | MPC | 165372 | 2003 $SK_{337}$ |
| 2003 $SK_{338}$ | 16.5 | 0.15 | 20100104 | 3.69477 | 119.17719 | 14.68224 | 3.99151 | 0.0466938 | 2.7708899 | 48 | 7 | 1994–2009 | 0.31 | M-v | 0 | MPC | 148903 | 2003 $SK_{338}$ |
| 2003 $SO_{338}$ | 16.8 | 0.15 | 20100104 | 85.86023 | 228.88832 | 143.14444 | 2.90093 | 0.0892780 | 2.9316051 | 47 | 5 | 2003–2009 | 0.28 | M-v | 0 | MPC | 148903 | 2003 $SO_{338}$ |
| 2003 $SB_{339}$ | 16.8 | 0.15 | 20100104 | 84.44764 | 250.49626 | 94.90335 | 4.39333 | 0.1075008 | 3.0584589 | 26 | 2 | 2003–2009 | 0.32 | M-v | 3 | MPC | 165373 | 2003 $SB_{339}$ |
| 2003 $SK_{345}$ | 15.2 | 0.15 | 20100104 | 71.83969 | 90.79134 | 212.55570 | 6.27069 | 0.1360521 | 3.1779819 | 64 | 7 | 1998–2009 | 0.49 | M-v | 0 | MPC | 164210 | 2003 $SK_{345}$ |
| 2003 $SM_{351}$ | 15.8 | 0.15 | 20100104 | 194.20675 | 198.31686 | 92.74925 | 5.53151 | 0.0449744 | 2.7972678 | 48 | 5 | 1995–2009 | 0.36 | M-v | 1 | MPC | 166159 | 2003 $SM_{351}$ |
| 2003 $SS_{352}$ | 16.4 | 0.15 | 20100104 | 85.79715 | 166.82828 | 168.43089 | 2.60478 | 0.2107791 | 3.0402645 | 39 | 5 | 2003–2009 | 0.37 | M-v | 0 | MPC | 160346 | 2003 $SS_{352}$ |
| 2003 $SQ_{390}$ | 15.6 | 0.15 | 20100104 | 235.16502 | 137.66468 | 43.15915 | 9.90724 | 0.0360438 | 3.1596652 | 30 | 3 | 2003–2009 | 0.52 | M-v | 2 | MPC | 166159 | 2003 $SQ_{390}$ |
| 2003 $SU_{404}$ | 16.4 | 0.15 | 20100104 | 3.57313 | 9.47690 | 58.36559 | 12.34881 | 0.1224745 | 3.1526707 | 26 | 4 | 1992–2009 | 0.22 | M-v | 0 | MPC | 165374 | 2003 $SU_{404}$ |
| 2003 $SW_{404}$ | 16.3 | 0.15 | 20100104 | 359.69632 | 23.72238 | 60.37312 | 12.23090 | 0.2985316 | 3.1637366 | 66 | 2 | 2003–2009 | 0.50 | M-v | 2 | MPC | 165374 | 2003 $SW_{404}$ |
| 2003 $SY_{406}$ | 15.8 | 0.15 | 20030918 | 354.81945 | 274.85233 | 120.45622 | 11.89178 | 0.2197697 | 3.9134095 | 6 | 1 | 3 days | 0.07 | | E | MPC | | 2003 $SY_{406}$ |
| 2003 $SF_{410}$ | 17.2 | 0.15 | 20100104 | 31.59938 | 226.32155 | 172.87308 | 2.68028 | 0.1220691 | 3.0686268 | 30 | 4 | 2000–2009 | 0.29 | M-v | 1 | MPC | 165374 | 2003 $SF_{410}$ |
| 2003 $SE_{411}$ | 16.8 | 0.15 | 20100104 | 121.44310 | 99.62334 | 208.19234 | 2.34982 | 0.0861556 | 2.9845970 | 27 | 4 | 2003–2009 | 0.43 | M-v | 0 | MPC | 158457 | 2003 $SE_{411}$ |
| 2003 $SA_{414}$ | 16.9 | 0.15 | 20100104 | 73.73941 | 246.37868 | 150.87643 | 2.62696 | 0.0837190 | 2.8816746 | 33 | 4 | 2003–2009 | 0.23 | M-v | 1 | MPC | 156915 | 2003 $SA_{414}$ |
| 2003 $SQ_{422}$ | 15.4 | 0.15 | 20100104 | 4.54437 | 106.17235 | 339.76156 | 7.68889 | 0.0908858 | 3.0251020 | 54 | 4 | 2003–2009 | 0.51 | M-v | 1 | MPC | 147266 | 2003 $SQ_{422}$ |
| 2003 $SU_{426}$ | 17.0 | 0.15 | 20100104 | 43.34238 | 77.56074 | 347.25415 | 1.42902 | 0.0478631 | 2.8676988 | 36 | 6 | 1996–2009 | 0.43 | M-v | 1 | MPC | 148904 | 2003 $SU_{426}$ |
| 2003 $SV_{428}$ | 16.1 | 0.15 | 20100104 | 29.59425 | 147.66838 | 211.14722 | 7.48910 | 0.0613933 | 3.2304839 | 37 | 4 | 2003–2009 | 0.34 | M-v | 1 | MPC | 166159 | 2003 $SV_{428}$ |
| 2003 $SF_{429}$ | 15.2 | 0.15 | 20100104 | 357.63769 | 69.31651 | 358.21243 | 9.03435 | 0.0633824 | 3.1669620 | 51 | 5 | 2003–2009 | 0.48 | M-v | 0 | MPC | 166159 | 2003 $SF_{429}$ |
| 2003 $SC_{432}$ | 17.3 | 0.15 | 20100104 | 37.55449 | 164.14718 | 215.67129 | 4.90248 | 0.1427916 | 3.0964190 | 25 | 2 | 2003–2009 | 0.29 | M-v | 3 | MPC | 166159 | 2003 $SC_{432}$ |
| 2003 $TC_1$ | 14.6 | 0.15 | 20100104 | 74.05782 | 79.68062 | 260.03593 | 18.15885 | 0.0933303 | 3.1551443 | 63 | 3 | 2003–2009 | 0.52 | M-v | 3 | MPC | 166159 | 2003 $TC_1$ |
| 2003 $TG_2$ | 21.6 | 0.15 | 20100104 | 241.28707 | 355.13787 | 200.70597 | 25.44576 | 0.3159746 | 0.9078216 | 34 | 1 | 24 days | 0.54 | M-v | 6 | MPC | 53835 | 2003 $TG_2$ |
| 2003 $TO_3$ | 15.7 | 0.15 | 20100104 | 8.97876 | 20.03915 | 37.22484 | 15.27743 | 0.2491722 | 3.1967542 | 92 | 2 | 2003–2009 | 0.48 | M-v | 2 | MPC | 166160 | 2003 $TO_3$ |
| 2003 $TQ_3$ | 16.3 | 0.15 | 20100104 | 18.30763 | 93.55027 | 335.81838 | 9.34694 | 0.2631008 | 3.0830804 | 61 | 4 | 2003–2009 | 0.43 | M-v | 0 | MPC | 166160 | 2003 $TQ_3$ |
| 2003 $TN_4$ | 16.3 | 0.15 | 20100104 | 189.81123 | 20.93414 | 265.95803 | 3.85537 | 0.1393201 | 2.7663529 | 42 | 4 | 2002–2009 | 0.36 | M-v | 1 | MPC | 148520 | 2003 $TN_4$ |
| 2003 $TJ_7$ | 15.4 | 0.15 | 20100104 | 45.69419 | 308.98928 | 47.75836 | 17.07717 | 0.2305262 | 3.1650889 | 64 | 3 | 2003–2009 | 0.50 | M-v | 2 | MPC | 165375 | 2003 $TJ_7$ |

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| 2003 $TC_8$ | 15.9 | 0.15 | 20100104 | 188.69970 | 334.13939 | 305.38891 | 8.81786 | 0.0639642 | 2.9136760 | 44 | 5 | 2003–2009 | 0.31 | M-v | 1 | MPC | 147266 | 2003 $TC_8$ |
| 2003 $TS_8$ | 15.1 | 0.15 | 20100104 | 54.18854 | 99.26386 | 276.27685 | 8.37457 | 0.2345209 | 3.1440931 | 108 | 3 | 2003–2009 | 0.45 | M-v | 1 | MPC | 147266 | 2003 $TS_8$ |
| 2003 $TX_9$ | 20.7 | 0.15 | 20100104 | 328.28789 | 80.84735 | 4.23804 | 8.40989 | 0.4724198 | 2.1517425 | 72 | 2 | 2003–2006 | 0.46 | M-v | 2 | MPC | 108770 | 2003 $TX_9$ |
| 2003 $TU_{11}$ | 15.0 | 0.15 | 20100104 | 81.98559 | 327.57528 | 23.51387 | 6.80680 | 0.0760076 | 3.0730420 | 77 | 6 | 2001–2009 | 0.50 | M-v | 1 | MPC | 166160 | 2003 $TU_{11}$ |
| 2003 $TC_{13}$ | 15.0 | 0.15 | 20100104 | 23.89063 | 169.72228 | 232.75730 | 16.70683 | 0.2293353 | 3.1940250 | 121 | 2 | 2003–2009 | 0.47 | M-v | 2 | MPC | 166160 | 2003 $TC_{13}$ |
| 2003 $TB_{15}$ | 15.2 | 0.15 | 20100104 | 44.31175 | 343.06799 | 29.25454 | 9.55094 | 0.1553717 | 3.1058944 | 73 | 3 | 2003–2009 | 0.50 | M-v | 2 | MPC | 166160 | 2003 $TB_{15}$ |
| 2003 $TR_{15}$ | 15.6 | 0.15 | 20100104 | 75.60769 | 280.43627 | 86.01170 | 9.97869 | 0.1412723 | 3.0501538 | 48 | 3 | 2003–2009 | 0.54 | M-v | 2 | MPC | 146067 | 2003 $TR_{15}$ |
| 2003 $TJ_{16}$ | 15.5 | 0.15 | 20100104 | 28.15156 | 175.75332 | 230.91533 | 9.73432 | 0.2024212 | 3.1492617 | 53 | 3 | 2003–2009 | 0.41 | M-v | 2 | MPC | 159712 | 2003 $TJ_{16}$ |
| 2003 $TU_{17}$ | 15.1 | 0.15 | 20100104 | 75.78935 | 121.03541 | 240.03527 | 8.87835 | 0.0555917 | 3.0724776 | 55 | 5 | 1998–2009 | 0.49 | M-v | 1 | MPC | 166160 | 2003 $TU_{17}$ |
| 2003 $TG_{19}$ | 15.4 | 0.15 | 20100104 | 62.69364 | 104.53910 | 243.82531 | 9.66322 | 0.1345618 | 3.1018996 | 60 | 4 | 2003–2009 | 0.50 | M-v | 1 | MPC | 165375 | 2003 $TG_{19}$ |
| 2003 $TQ_{19}$ | 16.2 | 0.15 | 20100104 | 48.95636 | 216.75446 | 145.91376 | 0.30627 | 0.1792008 | 3.1605125 | 41 | 3 | 2003–2009 | 0.24 | M-v | 3 | MPC | 165375 | 2003 $TQ_{19}$ |
| 2003 $TH_{20}$ | 15.8 | 0.15 | 20100104 | 104.22279 | 14.22560 | 327.37025 | 9.25188 | 0.0988392 | 2.9810649 | 41 | 3 | 2003–2009 | 0.38 | M-v | 3 | MPC | 159712 | 2003 $TH_{20}$ |
| 2003 $TR_{20}$ | 15.0 | 0.15 | 20100104 | 26.24559 | 81.15702 | 311.98242 | 7.88390 | 0.2173488 | 3.1997253 | 63 | 4 | 2003–2009 | 0.40 | M-v | 1 | MPC | 166160 | 2003 $TR_{20}$ |
| 2003 $TA_{21}$ | 15.4 | 0.15 | 20100104 | 33.78914 | 302.75662 | 94.34567 | 8.14852 | 0.1104955 | 3.1263440 | 62 | 4 | 2003–2009 | 0.51 | M-v | 1 | MPC | 166160 | 2003 $TA_{21}$ |
| 2003 $TH_{27}$ | 16.6 | 0.15 | 20100104 | 53.78400 | 128.67736 | 227.68200 | 8.21759 | 0.1068629 | 3.1719417 | 41 | 3 | 2003–2009 | 0.39 | M-v | 2 | MPC | 165375 | 2003 $TH_{27}$ |
| 2003 $TA_{29}$ | 16.5 | 0.15 | 20100104 | 26.03029 | 103.17271 | 331.47246 | 1.66422 | 0.0609842 | 2.9830175 | 49 | 5 | 1998–2009 | 0.39 | M-v | 1 | MPC | 147267 | 2003 $TA_{29}$ |
| 2003 $TQ_{37}$ | 16.3 | 0.15 | 20100104 | 245.36405 | 287.67619 | 314.41293 | 7.79104 | 0.1166915 | 2.8072929 | 41 | 5 | 2001–2009 | 0.39 | M-v | 0 | MPC | 128811 | 2003 $TQ_{37}$ |
| 2003 $TN_{39}$ | 15.9 | 0.15 | 20100104 | 228.37849 | 325.36741 | 236.19412 | 8.80819 | 0.0339197 | 3.0972350 | 57 | 3 | 1998–2009 | 0.41 | M-v | 3 | MPC | 166160 | 2003 $TN_{39}$ |
| 2003 $TM_{45}$ | 15.8 | 0.15 | 20100104 | 15.08273 | 175.37310 | 225.18699 | 11.43216 | 0.1077431 | 3.2031196 | 42 | 3 | 2003–2009 | 0.40 | M-v | 3 | MPC | 166160 | 2003 $TM_{45}$ |
| 2003 $TL_{48}$ | 17.0 | 0.15 | 20100104 | 103.31310 | 46.47366 | 319.76276 | 4.95877 | 0.0830401 | 2.8517426 | 32 | 3 | 2003–2009 | 0.30 | M-v | 3 | MPC | 146068 | 2003 $TL_{48}$ |
| 2003 $TK_{51}$ | 15.4 | 0.15 | 20100104 | 76.97521 | 79.42171 | 303.72296 | 8.04635 | 0.1618705 | 2.9761614 | 91 | 4 | 2003–2009 | 0.40 | M-v | 1 | MPC | 162378 | 2003 $TK_{51}$ |
| 2003 $TU_{54}$ | 15.8 | 0.15 | 20100104 | 165.18687 | 190.94984 | 63.73066 | 8.38504 | 0.1114248 | 3.1054873 | 42 | 5 | 1998–2009 | 0.46 | M-v | 0 | MPC | 166160 | 2003 $TU_{54}$ |
| 2003 $TR_{55}$ | 15.8 | 0.15 | 20100104 | 178.08091 | 109.80229 | 157.74389 | 10.73564 | 0.0809020 | 2.9938088 | 42 | 5 | 1997–2009 | 0.44 | M-v | 0 | MPC | 147267 | 2003 $TR_{55}$ |
| 2003 UQ | 14.3 | 0.15 | 20100104 | 45.79571 | 86.63085 | 266.44981 | 24.66104 | 0.3161729 | 3.1950412 | 73 | 3 | 2002–2009 | 0.56 | M-v | 1 | MPC | 166160 | 2003 UQ |
| 2003 $UC_1$ | 15.1 | 0.15 | 20100104 | 160.99072 | 19.09463 | 249.67527 | 8.60317 | 0.0579922 | 3.0838694 | 66 | 3 | 2003–2009 | 0.30 | M-v | 3 | MPC | 166160 | 2003 $UC_1$ |
| 2003 $UM_1$ | 15.7 | 0.15 | 20100104 | 71.82554 | 104.79207 | 259.79253 | 8.11448 | 0.1330259 | 3.0636579 | 50 | 3 | 2003–2009 | 0.50 | M-v | 2 | MPC | 166160 | 2003 $UM_1$ |
| 2003 $US_4$ | 14.4 | 0.15 | 20100104 | 10.26263 | 153.11643 | 260.71726 | 26.42421 | 0.1397718 | 3.1639876 | 62 | 3 | 1998–2009 | 0.60 | M-v | 2 | MPC | 166160 | 2003 $US_4$ |
| 2003 $UU_4$ | 15.0 | 0.15 | 20100104 | 42.84128 | 265.30209 | 110.26577 | 17.56485 | 0.2842825 | 3.1624910 | 42 | 4 | 2003–2009 | 0.47 | M-v | 1 | MPC | 155972 | 2003 $UU_4$ |
| 2003 $UH_5$ | 15.4 | 0.15 | 20100104 | 2.14395 | 158.84848 | 269.45796 | 9.43143 | 0.1995809 | 3.1451083 | 80 | 3 | 2003–2009 | 0.44 | M-v | 1 | MPC | 166160 | 2003 $UH_5$ |
| 2003 $UJ_6$ | 15.1 | 0.15 | 20100104 | 336.85414 | 199.39601 | 263.24373 | 21.27258 | 0.1643361 | 3.1440001 | 43 | 2 | 2003–2009 | 0.63 | M-v | 4 | MPC | 165376 | 2003 $UJ_6$ |
| 2003 $UR_7$ | 14.8 | 0.15 | 20100104 | 38.92740 | 168.81480 | 202.45209 | 16.76397 | 0.1572842 | 3.0965105 | 79 | 5 | 1996–2009 | 0.55 | M-v | 1 | MPC | 166160 | 2003 $UR_7$ |
| 2003 $UE_{13}$ | 14.8 | 0.15 | 20100104 | 64.40712 | 327.46666 | 62.68159 | 17.43998 | 0.1687889 | 3.0532758 | 86 | 4 | 2003–2009 | 0.44 | M-v | 1 | MPC | 147268 | 2003 $UE_{13}$ |
| 2003 $UY_{15}$ | 14.6 | 0.15 | 20100104 | 66.38222 | 165.63854 | 210.40155 | 17.68427 | 0.0765975 | 3.1310282 | 91 | 6 | 1997–2009 | 0.58 | M-v | 1 | MPC | 159712 | 2003 $UY_{15}$ |
| 2003 $UZ_{15}$ | 15.3 | 0.15 | 20100104 | 48.95877 | 178.47129 | 200.55206 | 7.40140 | 0.1674178 | 3.1868454 | 97 | 7 | 2000–2009 | 0.54 | M-v | 0 | MPC | 141800 | 2003 $UZ_{15}$ |
| 2003 $UE_{16}$ | 16.0 | 0.15 | 20100104 | 69.57198 | 251.93629 | 123.20347 | 5.88287 | 0.2557440 | 3.0570813 | 67 | 4 | 1994–2009 | 0.47 | M-v | 1 | MPC | 147268 | 2003 $UE_{16}$ |
| 2003 $UP_{16}$ | 15.7 | 0.15 | 20100104 | 69.90603 | 313.04365 | 57.24917 | 2.46403 | 0.1970659 | 3.0923742 | 85 | 7 | 1992–2009 | 0.52 | M-v | 0 | MPC | 152376 | 2003 $UP_{16}$ |
| 2003 $UX_{16}$ | 15.1 | 0.15 | 20100104 | 98.95627 | 46.69480 | 311.36094 | 10.79056 | 0.1703198 | 2.9847404 | 72 | 4 | 2003–2009 | 0.41 | M-v | 2 | MPC | 147268 | 2003 $UX_{16}$ |
| 2003 $UA_{23}$ | 16.7 | 0.15 | 20100104 | 87.79538 | 325.59246 | 49.40434 | 5.55153 | 0.2001796 | 2.9971119 | 45 | 3 | 2003–2009 | 0.38 | M-v | 2 | MPC | 159712 | 2003 $UA_{23}$ |
| 2003 $UQ_{27}$ | 15.1 | 0.15 | 20100104 | 6.78280 | 15.43790 | 48.75464 | 13.98221 | 0.1391889 | 3.1603772 | 77 | 2 | 2003–2009 | 0.53 | M-v | 3 | MPC | 166161 | 2003 $UQ_{27}$ |
| 2003 $UM_{28}$ | 16.3 | 0.15 | 20100104 | 51.34690 | 227.46177 | 165.35541 | 0.14039 | 0.1612076 | 3.1120564 | 41 | 4 | 2003–2009 | 0.32 | M-v | 0 | MPC | 146071 | 2003 $UM_{28}$ |
| 2003 $UQ_{30}$ | 16.3 | 0.15 | 20100104 | 92.01795 | 40.60989 | 325.32325 | 5.20667 | 0.0890555 | 2.9231917 | 38 | 5 | 2003–2009 | 0.36 | M-v | 0 | MPC | 146071 | 2003 $UQ_{30}$ |
| 2003 $UE_{35}$ | 15.1 | 0.15 | 20100104 | 87.91700 | 69.81766 | 253.96823 | 7.76903 | 0.1261076 | 3.0944598 | 38 | 3 | 2003–2009 | 0.28 | M-v | 2 | MPC | 159713 | 2003 $UE_{35}$ |
| 2003 $UG_{35}$ | 15.8 | 0.15 | 20100104 | 195.15763 | 199.83771 | 127.82619 | 6.38414 | 0.1306006 | 2.6382035 | 68 | 7 | 1999–2009 | 0.58 | M-v | 1 | MPC | 159713 | 2003 $UG_{35}$ |
| 2003 $UQ_{36}$ | 15.8 | 0.15 | 20100104 | 16.66352 | 146.22731 | 277.54862 | 9.27696 | 0.2094892 | 3.1554266 | 52 | 5 | 1998–2009 | 0.50 | M-v | 0 | MPC | 166161 | 2003 $UQ_{36}$ |
| 2003 $UJ_{37}$ | 14.5 | 0.15 | 20100104 | 12.61179 | 174.07280 | 238.40036 | 19.21875 | 0.1533916 | 3.1970031 | 124 | 2 | 2003–2009 | 0.44 | M-v | 2 | MPC | 166161 | 2003 $UJ_{37}$ |
| 2003 $UT_{40}$ | 15.7 | 0.15 | 20100104 | 57.22069 | 19.09698 | 7.11385 | 2.86360 | 0.2088562 | 3.1042816 | 78 | 5 | 1999–2009 | 0.44 | M-v | 0 | MPC | 148906 | 2003 $UT_{40}$ |
| 2003 $UR_{41}$ | 16.8 | 0.15 | 20100104 | 98.20426 | 146.82183 | 177.01449 | 0.56180 | 0.1823352 | 3.0439851 | 43 | 4 | 2003–2009 | 0.45 | M-v | 0 | MPC | 147268 | 2003 $UR_{41}$ |
| 2003 $UX_{47}$ | 14.9 | 0.15 | 20100104 | 18.68662 | 161.00243 | 227.74515 | 14.62872 | 0.1273076 | 3.2126694 | 86 | 3 | 2003–2009 | 0.47 | M-v | 2 | MPC | 166161 | 2003 $UX_{47}$ |
| 2003 $UL_{49}$ | 15.4 | 0.15 | 20100104 | 87.05813 | 64.92284 | 265.53944 | 11.15460 | 0.1554956 | 3.1477441 | 47 | 3 | 2003–2009 | 0.48 | M-v | 3 | MPC | 166161 | 2003 $UL_{49}$ |
| 2003 $UF_{51}$ | 14.6 | 0.15 | 20100104 | 123.44626 | 34.14172 | 266.12495 | 15.20863 | 0.0533924 | 3.1034118 | 63 | 5 | 2003–2009 | 0.50 | M-v | 1 | MPC | 166161 | 2003 $UF_{51}$ |
| 2003 $UZ_{51}$ | 15.2 | 0.15 | 20100104 | 139.11059 | 23.84637 | 272.96142 | 10.83036 | 0.1323102 | 3.0412438 | 46 | 4 | 2003–2009 | 0.50 | M-v | 2 | MPC | 166161 | 2003 $UZ_{51}$ |
| 2003 $UJ_{55}$ | 14.7 | 0.15 | 20100104 | 51.13630 | 95.89625 | 275.92734 | 11.65902 | 0.2977306 | 3.1789530 | 108 | 3 | 2003–2009 | 0.42 | M-v | 1 | MPC | 166161 | 2003 $UJ_{55}$ |
| 2003 $UZ_{55}$ | 15.9 | 0.15 | 20100104 | 164.53449 | 20.26047 | 317.18440 | 5.29082 | 0.0684274 | 2.7768376 | 47 | 4 | 2003–2009 | 0.37 | M-v | 1 | MPC | 148906 | 2003 $UZ_{55}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 $US_{57}$ | 15.3 | 0.15 | 20100104 | 45.42876 | 97.49029 | 269.59484 | 7.64406 | 0.0884698 | 3.1775837 | 53 | 4 | 1997–2009 | 0.51 | M-v | 2 | MPC | 166161 | 2003 $US_{57}$ |
| 2003 $UZ_{57}$ | 15.6 | 0.15 | 20100104 | 74.05883 | 104.79013 | 249.92161 | 8.71976 | 0.1227113 | 3.0839255 | 53 | 4 | 1998–2009 | 0.51 | M-v | 1 | MPC | 166161 | 2003 $UZ_{57}$ |
| 2003 $UF_{59}$ | 14.4 | 0.15 | 20100104 | 12.78958 | 198.87362 | 237.50477 | 23.38673 | 0.1631046 | 3.1302799 | 56 | 3 | 2003–2009 | 0.48 | M-v | 3 | MPC | 146073 | 2003 $UF_{59}$ |
| 2003 $UG_{60}$ | 14.9 | 0.15 | 20100104 | 14.35748 | 142.51485 | 296.34146 | 10.96368 | 0.1950156 | 3.1013800 | 81 | 4 | 2003–2009 | 0.50 | M-v | 0 | MPC | 150960 | 2003 $UG_{60}$ |
| 2003 $UR_{63}$ | 15.7 | 0.15 | 20100104 | 118.66134 | 220.36841 | 125.12756 | 6.99070 | 0.0959882 | 2.9273934 | 96 | 5 | 2000–2009 | 0.46 | M-v | 3 | MPC | 158458 | 2003 $UR_{63}$ |
| 2003 $UT_{64}$ | 15.2 | 0.15 | 20100104 | 54.28189 | 302.63939 | 87.18429 | 16.01701 | 0.2586644 | 3.0873533 | 66 | 4 | 2003–2009 | 0.55 | M-v | 1 | MPC | 162378 | 2003 $UT_{64}$ |
| 2003 $UL_{65}$ | 14.9 | 0.15 | 20100104 | 141.00845 | 211.45295 | 89.65987 | 10.99645 | 0.0625310 | 3.0300248 | 41 | 6 | 2001–2009 | 0.50 | M-v | 1 | MPC | 166161 | 2003 $UL_{65}$ |
| 2003 $UV_{69}$ | 17.1 | 0.15 | 20100104 | 60.68717 | 255.29139 | 147.23724 | 2.60683 | 0.0720358 | 2.9298104 | 38 | 5 | 1998–2009 | 0.43 | M-v | 2 | MPC | 156917 | 2003 $UV_{69}$ |
| 2003 $UK_{71}$ | 16.0 | 0.15 | 20100104 | 56.38205 | 348.48308 | 47.20652 | 2.77633 | 0.0294466 | 2.9813719 | 49 | 5 | 2003–2009 | 0.35 | M-v | 0 | MPC | 147269 | 2003 $UK_{71}$ |
| 2003 $UX_{71}$ | 15.8 | 0.15 | 20100104 | 323.50156 | 261.09205 | 227.51064 | 4.57888 | 0.1083407 | 3.0194487 | 47 | 6 | 1998–2009 | 0.40 | M-v | 0 | MPC | 166161 | 2003 $UX_{71}$ |
| 2003 $UV_{74}$ | 15.6 | 0.15 | 20100104 | 106.96030 | 36.92002 | 264.11530 | 7.40581 | 0.1823001 | 3.1212269 | 71 | 3 | 2003–2009 | 0.51 | M-v | 3 | MPC | 160789 | 2003 $UV_{74}$ |
| 2003 $UB_{76}$ | 15.8 | 0.15 | 20100104 | 173.67848 | 0.76838 | 324.17570 | 3.75685 | 0.0700601 | 2.7769413 | 52 | 5 | 2000–2009 | 0.43 | M-v | 1 | MPC | 166161 | 2003 $UB_{76}$ |
| 2003 $UO_{77}$ | 15.1 | 0.15 | 20100104 | 59.20489 | 141.96501 | 255.99126 | 9.40612 | 0.1094072 | 3.0249575 | 71 | 6 | 1998–2009 | 0.57 | M-v | 1 | MPC | 148907 | 2003 $UO_{77}$ |
| 2003 $UB_{78}$ | 14.3 | 0.15 | 20100104 | 40.21847 | 102.86398 | 306.24485 | 6.29705 | 0.1692145 | 3.0904267 | 161 | 4 | 2003–2009 | 0.47 | M-v | 0 | MPC | 148907 | 2003 $UB_{78}$ |
| 2003 $UN_{78}$ | 15.6 | 0.15 | 20100104 | 50.66309 | 88.94304 | 277.87164 | 8.55536 | 0.0671250 | 3.1235664 | 41 | 4 | 2003–2009 | 0.47 | M-v | 1 | MPC | 166161 | 2003 $UN_{78}$ |
| 2003 $UD_{92}$ | 15.4 | 0.15 | 20100104 | 19.93238 | 326.24033 | 96.41237 | 6.98269 | 0.0446237 | 3.0783091 | 53 | 8 | 1998–2009 | 0.45 | M-v | 0 | MPC | 143187 | 2003 $UD_{92}$ |
| 2003 $UL_{92}$ | 15.2 | 0.15 | 20100104 | 80.86894 | 127.70171 | 248.30150 | 8.73778 | 0.1129483 | 3.0069549 | 84 | 4 | 1998–2009 | 0.51 | M-v | 2 | MPC | 147270 | 2003 $UL_{92}$ |
| 2003 $UG_{93}$ | 14.9 | 0.15 | 20100104 | 40.43617 | 181.19333 | 208.21376 | 16.38949 | 0.2330720 | 3.1187628 | 78 | 5 | 1996–2009 | 0.41 | M-v | 1 | MPC | 166161 | 2003 $UG_{93}$ |
| 2003 $UT_{96}$ | 15.1 | 0.15 | 20100104 | 52.60097 | 156.12256 | 205.27955 | 10.52831 | 0.0710595 | 3.1551115 | 69 | 5 | 2003–2009 | 0.57 | M-v | 1 | MPC | 166161 | 2003 $UT_{96}$ |
| 2003 $UE_{99}$ | 16.1 | 0.15 | 20100104 | 82.42755 | 274.37188 | 93.39599 | 9.30899 | 0.3073094 | 3.0437641 | 64 | 4 | 2003–2009 | 0.55 | M-v | 1 | MPC | 147270 | 2003 $UE_{99}$ |
| 2003 $UJ_{100}$ | 15.2 | 0.15 | 20100104 | 112.24720 | 239.18258 | 94.07464 | 8.85756 | 0.1963222 | 3.0401333 | 57 | 4 | 2003–2009 | 0.45 | M-v | 0 | MPC | 147271 | 2003 $UJ_{100}$ |
| 2003 $UT_{102}$ | 14.9 | 0.15 | 20100104 | 44.08536 | 351.87446 | 39.03915 | 11.41176 | 0.0700163 | 3.1083991 | 70 | 7 | 1995–2009 | 0.57 | M-v | 1 | MPC | 166161 | 2003 $UT_{102}$ |
| 2003 $UQ_{104}$ | 16.1 | 0.15 | 20100104 | 32.92343 | 173.45452 | 217.29659 | 12.63953 | 0.1872297 | 3.1618767 | 40 | 3 | 1992–2009 | 0.37 | M-v | 2 | MPC | 165376 | 2003 $UQ_{104}$ |
| 2003 $UX_{104}$ | 16.0 | 0.15 | 20100104 | 197.19210 | 9.75483 | 257.44740 | 1.42644 | 0.0112176 | 2.9649896 | 51 | 7 | 1998–2009 | 0.38 | M-v | 0 | MPC | 147271 | 2003 $UX_{104}$ |
| 2003 $UJ_{105}$ | 15.3 | 0.15 | 20100104 | 48.48758 | 127.03292 | 254.72779 | 15.63288 | 0.1423790 | 3.1362717 | 47 | 3 | 2003–2009 | 0.35 | M-v | 1 | MPC | 166161 | 2003 $UJ_{105}$ |
| 2003 $UW_{105}$ | 15.3 | 0.15 | 20100104 | 20.70337 | 163.30056 | 243.66195 | 17.04615 | 0.2028198 | 3.1920873 | 108 | 3 | 2003–2009 | 0.44 | M-v | 2 | MPC | 166161 | 2003 $UW_{105}$ |
| 2003 $UK_{106}$ | 15.6 | 0.15 | 20100104 | 231.85158 | 186.92808 | 41.09827 | 10.53061 | 0.0279596 | 2.9771168 | 55 | 6 | 1998–2009 | 0.34 | M-v | 1 | MPC | 150961 | 2003 $UK_{106}$ |
| 2003 $UW_{106}$ | 14.8 | 0.15 | 20100104 | 354.91684 | 196.06357 | 252.54345 | 11.28111 | 0.0207522 | 3.1390664 | 71 | 5 | 2002–2009 | 0.50 | M-v | 1 | MPC | 166161 | 2003 $UW_{106}$ |
| 2003 $UM_{107}$ | 14.9 | 0.15 | 20100104 | 46.14936 | 115.45540 | 243.18393 | 14.57132 | 0.1000628 | 3.1431434 | 45 | 2 | 2003–2009 | 0.46 | M-v | 3 | MPC | 165376 | 2003 $UM_{107}$ |
| 2003 $UZ_{107}$ | 15.6 | 0.15 | 20100104 | 110.61815 | 35.51231 | 286.43241 | 10.90834 | 0.2138909 | 3.0387050 | 44 | 4 | 2003–2009 | 0.44 | M-v | 1 | MPC | 147271 | 2003 $UZ_{107}$ |
| 2003 $UA_{109}$ | 16.3 | 0.15 | 20100104 | 333.92131 | 247.97377 | 226.19052 | 3.35437 | 0.0352125 | 3.1279025 | 29 | 7 | 1994–2009 | 0.30 | M-v | 0 | MPC | 147271 | 2003 $UA_{109}$ |
| 2003 $UT_{113}$ | 15.7 | 0.15 | 20100104 | 69.06626 | 254.83689 | 88.60492 | 9.99020 | 0.2710704 | 3.1587374 | 34 | 5 | 1992–2009 | 0.40 | M-v | 1 | MPC | 155106 | 2003 $UT_{113}$ |
| 2003 $UV_{120}$ | 15.5 | 0.15 | 20100104 | 45.72837 | 323.69708 | 65.46396 | 1.89739 | 0.1328210 | 3.1040547 | 48 | 6 | 1992–2009 | 0.42 | M-v | 1 | MPC | 159714 | 2003 $UV_{120}$ |
| 2003 $UK_{122}$ | 15.1 | 0.15 | 20100104 | 43.86093 | 178.30788 | 216.91509 | 9.76494 | 0.0942391 | 3.1080859 | 77 | 4 | 2000–2009 | 0.51 | M-v | 1 | MPC | 147271 | 2003 $UK_{122}$ |
| 2003 $UQ_{122}$ | 15.2 | 0.15 | 20100104 | 62.57061 | 256.13892 | 130.94982 | 15.78003 | 0.1937588 | 3.1000892 | 53 | 4 | 2003–2009 | 0.63 | M-v | 1 | MPC | 162379 | 2003 $UQ_{122}$ |
| 2003 $UG_{124}$ | 15.9 | 0.15 | 20100104 | 71.02465 | 257.38439 | 73.52400 | 5.30448 | 0.1897782 | 3.1955014 | 50 | 3 | 2003–2009 | 0.42 | M-v | 2 | MPC | 166162 | 2003 $UG_{124}$ |
| 2003 $UY_{127}$ | 15.0 | 0.15 | 20100104 | 100.79522 | 76.64218 | 256.09454 | 10.38552 | 0.1114148 | 3.0978140 | 49 | 3 | 2003–2009 | 0.48 | M-v | 3 | MPC | 159714 | 2003 $UY_{127}$ |
| 2003 $UQ_{130}$ | 15.1 | 0.15 | 20100104 | 351.06761 | 171.08288 | 284.41154 | 16.56624 | 0.1761477 | 3.1095518 | 41 | 4 | 2003–2009 | 0.44 | M-v | 1 | MPC | 147271 | 2003 $UQ_{130}$ |
| 2003 $UU_{130}$ | 15.5 | 0.15 | 20100104 | 168.62517 | 0.84552 | 307.45915 | 14.55592 | 0.1351389 | 2.8463672 | 23 | 4 | 2001–2009 | 0.53 | M-v | 2 | MPC | 166162 | 2003 $UU_{130}$ |
| 2003 $UW_{132}$ | 15.3 | 0.15 | 20100104 | 69.62338 | 65.42852 | 314.79333 | 4.59500 | 0.1447984 | 3.1057858 | 110 | 5 | 2000–2009 | 0.46 | M-v | 0 | MPC | 159714 | 2003 $UW_{132}$ |
| 2003 $UX_{133}$ | 14.9 | 0.15 | 20100104 | 83.99373 | 59.75371 | 283.36858 | 9.09990 | 0.1800231 | 3.0833869 | 94 | 4 | 2003–2009 | 0.44 | M-v | 1 | MPC | 166162 | 2003 $UX_{133}$ |
| 2003 $UB_{134}$ | 16.1 | 0.15 | 20100104 | 81.45776 | 85.96831 | 269.55909 | 8.80844 | 0.2715938 | 3.0312380 | 74 | 3 | 2003–2009 | 0.47 | M-v | 2 | MPC | 147272 | 2003 $UB_{134}$ |
| 2003 $UK_{134}$ | 15.4 | 0.15 | 20100104 | 85.83532 | 8.34814 | 350.04874 | 6.35212 | 0.1574445 | 3.0391795 | 108 | 4 | 2003–2009 | 0.46 | M-v | 1 | MPC | 148908 | 2003 $UK_{134}$ |
| 2003 $UY_{134}$ | 15.1 | 0.15 | 20100104 | 68.12867 | 99.86171 | 258.75968 | 4.49300 | 0.1936341 | 3.1562253 | 98 | 5 | 2003–2009 | 0.49 | M-v | 0 | MPC | 160790 | 2003 $UY_{134}$ |
| 2003 $UC_{135}$ | 16.1 | 0.15 | 20100104 | 64.47050 | 10.16102 | 351.97268 | 1.51162 | 0.1783286 | 3.1036603 | 62 | 5 | 2003–2009 | 0.41 | M-v | 0 | MPC | 166162 | 2003 $UC_{135}$ |
| 2003 $UL_{138}$ | 15.2 | 0.15 | 20100104 | 50.28533 | 297.21703 | 79.38821 | 6.05235 | 0.1685493 | 3.1710668 | 82 | 5 | 2002–2009 | 0.52 | M-v | 1 | MPC | 166162 | 2003 $UL_{138}$ |
| 2003 $UU_{138}$ | 15.3 | 0.15 | 20100104 | 74.28357 | 322.23325 | 17.18131 | 9.97715 | 0.0756046 | 3.0990321 | 49 | 3 | 2001–2009 | 0.53 | M-v | 3 | MPC | 166162 | 2003 $UU_{138}$ |
| 2003 $UF_{139}$ | 14.7 | 0.15 | 20100104 | 54.43675 | 253.58157 | 102.93489 | 10.13907 | 0.0860641 | 3.1708401 | 40 | 3 | 2003–2009 | 0.44 | M-v | 3 | MPC | 166162 | 2003 $UF_{139}$ |
| 2003 $UA_{140}$ | 17.4 | 0.15 | 20100104 | 291.50558 | 260.06008 | 122.94086 | 6.99129 | 0.1197665 | 2.2776354 | 54 | 3 | 2003–2008 | 0.44 | M-v | 1 | MPC | 135857 | 2003 $UA_{140}$ |
| 2003 $UG_{140}$ | 14.8 | 0.15 | 20100104 | 352.50584 | 36.04995 | 64.48429 | 10.01062 | 0.0693107 | 2.9995234 | 47 | 6 | 2000–2009 | 0.54 | M-v | 1 | MPC | 166162 | 2003 $UG_{140}$ |
| 2003 $US_{141}$ | 16.2 | 0.15 | 20100104 | 48.71785 | 304.52739 | 96.33461 | 4.41917 | 0.1898914 | 3.0215622 | 55 | 6 | 2000–2009 | 0.53 | M-v | 0 | MPC | 166162 | 2003 $US_{141}$ |
| 2003 $UR_{142}$ | 14.7 | 0.15 | 20100104 | 61.53508 | 135.14910 | 249.87782 | 10.14675 | 0.0713119 | 3.1023694 | 83 | 4 | 2002–2009 | 0.54 | M-v | 1 | MPC | 166162 | 2003 $UR_{142}$ |
| 2003 $UL_{143}$ | 15.3 | 0.15 | 20100104 | 125.44883 | 138.06766 | 247.87181 | 8.12301 | 0.1534272 | 2.8089036 | 84 | 5 | 1998–2009 | 0.56 | M-v | 2 | MPC | 159714 | 2003 $UL_{143}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 $UO_{148}$ | 15.1 | 0.15 | 20100104 | 73.20722 | 292.99583 | 72.39625 | 17.29075 | 0.0546799 | 3.1467094 | 43 | 5 | 2001–2009 | 0.47 | M-v | 1 | MPC | 166162 | 2003 $UO_{148}$ |
| 2003 $UW_{150}$ | 16.1 | 0.15 | 20100104 | 43.38342 | 312.82246 | 84.19252 | 3.13046 | 0.1745944 | 3.0801956 | 42 | 4 | 2003–2009 | 0.38 | M-v | 0 | MPC | 147272 | 2003 $UW_{150}$ |
| 2003 $UY_{150}$ | 15.9 | 0.15 | 20100104 | 34.76014 | 261.27898 | 160.89006 | 3.12687 | 0.1591953 | 3.0515862 | 55 | 5 | 2000–2009 | 0.42 | M-v | 0 | MPC | 147272 | 2003 $UY_{150}$ |
| 2003 $UP_{151}$ | 15.4 | 0.15 | 20100104 | 54.08019 | 324.04977 | 68.47358 | 9.06477 | 0.2277933 | 3.0944579 | 76 | 5 | 2001–2009 | 0.58 | M-v | 1 | MPC | 162379 | 2003 $UP_{151}$ |
| 2003 $US_{152}$ | 15.7 | 0.15 | 20100104 | 148.72283 | 272.48183 | 87.68746 | 10.80037 | 0.3124592 | 2.7798725 | 91 | 3 | 2002–2009 | 0.49 | M-v | 2 | MPC | 150962 | 2003 $US_{152}$ |
| 2003 $UY_{152}$ | 15.8 | 0.15 | 20100104 | 89.66425 | 103.36705 | 246.29294 | 2.95324 | 0.2560377 | 3.0435744 | 89 | 5 | 2003–2009 | 0.46 | M-v | 0 | MPC | 148908 | 2003 $UY_{152}$ |
| 2003 $UR_{153}$ | 16.1 | 0.15 | 20100104 | 106.28147 | 63.78594 | 301.80030 | 12.10823 | 0.1287179 | 2.8483244 | 64 | 5 | 1998–2009 | 0.57 | M-v | 2 | MPC | 150962 | 2003 $UR_{153}$ |
| 2003 $UC_{154}$ | 16.1 | 0.15 | 20100104 | 62.54219 | 314.65104 | 50.87822 | 0.13094 | 0.1914317 | 3.1603434 | 72 | 5 | 2001–2009 | 0.44 | M-v | 0 | MPC | 166162 | 2003 $UC_{154}$ |
| 2003 $UD_{155}$ | 16.4 | 0.15 | 20100104 | 33.74729 | 355.05790 | 65.54800 | 6.64710 | 0.2509679 | 3.0499594 | 46 | 2 | 2003–2009 | 0.47 | M-v | 2 | MPC | 163670 | 2003 $UD_{155}$ |
| 2003 $UO_{157}$ | 15.2 | 0.15 | 20100104 | 130.67759 | 207.83784 | 91.90246 | 5.38963 | 0.0791865 | 3.0877299 | 40 | 4 | 2003–2009 | 0.42 | M-v | 1 | MPC | 166162 | 2003 $UO_{157}$ |
| 2003 $UY_{157}$ | 15.0 | 0.15 | 20100104 | 87.26495 | 83.10795 | 250.73515 | 7.99564 | 0.0858682 | 3.1626809 | 53 | 4 | 1994–2009 | 0.48 | M-v | 1 | MPC | 166162 | 2003 $UY_{157}$ |
| 2003 $UJ_{164}$ | 15.3 | 0.15 | 20100104 | 6.73428 | 184.91426 | 197.20238 | 10.30660 | 0.0987770 | 3.4052416 | 52 | 4 | 2000–2009 | 0.38 | M-v | 1 | MPC | 166162 | 2003 $UJ_{164}$ |
| 2003 $UL_{166}$ | 15.3 | 0.15 | 20100104 | 347.93282 | 261.39784 | 217.39853 | 25.13225 | 0.2995453 | 3.1621849 | 79 | 3 | 2003–2009 | 0.47 | M-v | 1 | MPC | 159715 | 2003 $UL_{166}$ |
| 2003 $UM_{167}$ | 14.8 | 0.15 | 20100104 | 124.54459 | 57.84119 | 251.69119 | 13.30628 | 0.1614058 | 3.0793264 | 77 | 4 | 2003–2009 | 0.58 | M-v | 1 | MPC | 166162 | 2003 $UM_{167}$ |
| 2003 $UG_{173}$ | 15.2 | 0.15 | 20100104 | 93.73681 | 108.25673 | 230.74593 | 10.39732 | 0.1236298 | 3.1032664 | 68 | 4 | 2003–2009 | 0.49 | M-v | 1 | MPC | 147273 | 2003 $UG_{173}$ |
| 2003 $UW_{175}$ | 15.8 | 0.15 | 20100104 | 60.32326 | 254.52690 | 88.57886 | 2.52269 | 0.1714210 | 3.1703786 | 61 | 3 | 2003–2009 | 0.47 | M-v | 2 | MPC | 166162 | 2003 $UW_{175}$ |
| 2003 $UL_{179}$ | 15.7 | 0.15 | 20100104 | 35.43904 | 288.33607 | 125.00662 | 3.62480 | 0.1689654 | 3.0896479 | 55 | 6 | 2002–2009 | 0.48 | M-v | 0 | MPC | 147273 | 2003 $UL_{179}$ |
| 2003 $UQ_{184}$ | 15.5 | 0.15 | 20100104 | 65.38338 | 257.66030 | 119.60308 | 5.73931 | 0.1547861 | 3.0885736 | 50 | 5 | 1994–2009 | 0.44 | M-v | 1 | MPC | 147273 | 2003 $UQ_{184}$ |
| 2003 $UG_{186}$ | 15.4 | 0.15 | 20100104 | 359.65327 | 54.71193 | 60.35139 | 9.73177 | 0.0566088 | 2.9762760 | 56 | 5 | 2003–2009 | 0.50 | M-v | 0 | MPC | 150963 | 2003 $UG_{186}$ |
| 2003 $UP_{187}$ | 15.3 | 0.15 | 20100104 | 116.24157 | 44.86440 | 356.89060 | 6.47558 | 0.0600651 | 2.8007043 | 54 | 5 | 2002–2009 | 0.54 | M-v | 1 | MPC | 148909 | 2003 $UP_{187}$ |
| 2003 $UQ_{187}$ | 15.0 | 0.15 | 20100104 | 86.72825 | 88.31125 | 266.35808 | 8.41777 | 0.1163904 | 3.1234010 | 47 | 4 | 2002–2009 | 0.58 | M-v | 1 | MPC | 159422 | 2003 $UQ_{187}$ |
| 2003 $UU_{189}$ | 15.1 | 0.15 | 20100104 | 57.73147 | 326.42654 | 59.64359 | 10.59379 | 0.2166992 | 3.0993122 | 102 | 4 | 2003–2009 | 0.52 | M-v | 1 | MPC | 166162 | 2003 $UU_{189}$ |
| 2003 $UA_{191}$ | 15.5 | 0.15 | 20100104 | 0.01821 | 33.77701 | 50.46767 | 17.52084 | 0.2194405 | 3.1850932 | 56 | 3 | 2003–2009 | 0.57 | M-v | 3 | MPC | 166162 | 2003 $UA_{191}$ |
| 2003 $UW_{192}$ | 15.8 | 0.15 | 20100104 | 75.20443 | 10.14075 | 317.22505 | 4.18778 | 0.1477937 | 3.1105763 | 70 | 6 | 2003–2009 | 0.42 | M-v | 0 | MPC | 166162 | 2003 $UW_{192}$ |
| 2003 $UK_{193}$ | 15.3 | 0.15 | 20100104 | 331.22137 | 39.03446 | 29.63288 | 5.23045 | 0.0870315 | 3.2595076 | 77 | 5 | 1994–2009 | 0.44 | M-v | 0 | MPC | 166162 | 2003 $UK_{193}$ |
| 2003 $UP_{196}$ | 15.7 | 0.15 | 20100104 | 127.98294 | 291.08471 | 30.38395 | 9.90290 | 0.0802186 | 3.0367714 | 59 | 4 | 2003–2009 | 0.41 | M-v | 1 | MPC | 150963 | 2003 $UP_{196}$ |
| 2003 $UB_{200}$ | 16.1 | 0.15 | 20100104 | 83.65377 | 186.48571 | 186.49206 | 3.51817 | 0.1164909 | 2.9912321 | 66 | 5 | 2003–2009 | 0.39 | M-v | 1 | MPC | 159715 | 2003 $UB_{200}$ |
| 2003 $UD_{202}$ | 15.0 | 0.15 | 20100104 | 26.04101 | 240.94116 | 176.14346 | 8.04447 | 0.2352520 | 3.1759868 | 87 | 4 | 2003–2009 | 0.47 | M-v | 0 | MPC | 160790 | 2003 $UD_{202}$ |
| 2003 $UO_{203}$ | 16.0 | 0.15 | 20100104 | 40.52092 | 186.45797 | 234.73986 | 3.22693 | 0.1256124 | 3.0491671 | 53 | 6 | 2000–2009 | 0.39 | M-v | 0 | MPC | 147274 | 2003 $UO_{203}$ |
| 2003 $UR_{204}$ | 16.0 | 0.15 | 20100104 | 304.48809 | 271.09487 | 219.99425 | 4.16601 | 0.1498208 | 3.1754080 | 50 | 5 | 2003–2009 | 0.37 | M-v | 0 | MPC | 166163 | 2003 $UR_{204}$ |
| 2003 $UH_{205}$ | 15.8 | 0.15 | 20100104 | 237.20477 | 307.99569 | 327.41416 | 6.36188 | 0.1001113 | 2.7306134 | 60 | 5 | 2003–2009 | 0.45 | M-v | 1 | MPC | 150963 | 2003 $UH_{205}$ |
| 2003 $UV_{205}$ | 15.3 | 0.15 | 20100104 | 42.90356 | 173.79442 | 243.97311 | 17.32567 | 0.2564624 | 3.1146455 | 97 | 3 | 2003–2009 | 0.50 | M-v | 1 | MPC | 146082 | 2003 $UV_{205}$ |
| 2003 $UH_{207}$ | 15.7 | 0.15 | 20100104 | 21.85735 | 132.62134 | 262.01676 | 3.48240 | 0.1200483 | 3.2425015 | 51 | 4 | 1997–2009 | 0.55 | M-v | 2 | MPC | 166163 | 2003 $UH_{207}$ |
| 2003 $UD_{209}$ | 15.8 | 0.15 | 20100104 | 79.58171 | 84.07902 | 269.65167 | 2.78018 | 0.2589649 | 3.0826018 | 77 | 3 | 2003–2009 | 0.59 | M-v | 3 | MPC | 166163 | 2003 $UD_{209}$ |
| 2003 $UU_{211}$ | 16.4 | 0.15 | 20100104 | 47.87149 | 24.72913 | 26.97119 | 1.51818 | 0.1766713 | 3.0726577 | 46 | 4 | 2003–2009 | 0.44 | M-v | 0 | MPC | 158460 | 2003 $UU_{211}$ |
| 2003 $UJ_{216}$ | 15.8 | 0.15 | 20100104 | 42.59618 | 38.11855 | 341.68607 | 4.68898 | 0.1671708 | 3.1539534 | 70 | 7 | 1997–2009 | 0.50 | M-v | 1 | MPC | 166163 | 2003 $UJ_{216}$ |
| 2003 $UT_{220}$ | 15.8 | 0.15 | 20100104 | 77.42576 | 119.40141 | 225.53264 | 9.01759 | 0.0163180 | 3.1192953 | 42 | 4 | 1998–2009 | 0.34 | M-v | 1 | MPC | 166163 | 2003 $UT_{220}$ |
| 2003 $UT_{221}$ | 15.5 | 0.15 | 20100104 | 17.13863 | 335.17000 | 71.10348 | 6.18084 | 0.1405003 | 3.2119901 | 49 | 2 | 2003–2009 | 0.50 | M-v | 4 | MPC | 166163 | 2003 $UT_{221}$ |
| 2003 $UO_{225}$ | 15.7 | 0.15 | 20100104 | 52.66995 | 137.29483 | 236.91102 | 8.46492 | 0.0805167 | 3.1735243 | 55 | 6 | 1992–2009 | 0.47 | M-v | 0 | MPC | 166163 | 2003 $UO_{225}$ |
| 2003 $UU_{225}$ | 15.0 | 0.15 | 20100104 | 47.10822 | 120.94257 | 259.38330 | 3.64668 | 0.1411275 | 3.1688226 | 66 | 5 | 1992–2009 | 0.41 | M-v | 0 | MPC | 165377 | 2003 $UU_{225}$ |
| 2003 $UM_{228}$ | 15.4 | 0.15 | 20100104 | 25.90442 | 9.29793 | 42.85115 | 10.43994 | 0.1034361 | 3.0960397 | 32 | 4 | 2003–2009 | 0.63 | M-v | 1 | MPC | 158827 | 2003 $UM_{228}$ |
| 2003 $UN_{228}$ | 17.3 | 0.15 | 20100104 | 191.00359 | 305.56428 | 119.49245 | 3.40661 | 0.1793035 | 2.4535329 | 51 | 4 | 2003–2009 | 0.56 | M-v | 1 | MPC | 159716 | 2003 $UN_{228}$ |
| 2003 $UZ_{238}$ | 15.9 | 0.15 | 20100104 | 104.44547 | 294.38219 | 15.71467 | 9.32486 | 0.0745740 | 3.1551057 | 47 | 6 | 1995–2009 | 0.32 | M-v | 0 | MPC | 166163 | 2003 $UZ_{238}$ |
| 2003 $UP_{240}$ | 15.5 | 0.15 | 20100104 | 118.11509 | 49.63618 | 299.75193 | 4.08431 | 0.1373012 | 2.9600944 | 101 | 4 | 2003–2009 | 0.47 | M-v | 2 | MPC | 166163 | 2003 $UP_{240}$ |
| 2003 $UX_{244}$ | 15.3 | 0.15 | 20100104 | 341.14039 | 8.26877 | 89.55664 | 6.35256 | 0.1407517 | 3.2088600 | 53 | 5 | 2002–2009 | 0.44 | M-v | 0 | MPC | 166163 | 2003 $UX_{244}$ |
| 2003 $UD_{247}$ | 15.2 | 0.15 | 20100104 | 139.17983 | 268.09248 | 56.87221 | 16.74465 | 0.1208903 | 3.0026421 | 79 | 3 | 2003–2009 | 0.49 | M-v | 3 | MPC | 158461 | 2003 $UD_{247}$ |
| 2003 $UN_{247}$ | 14.8 | 0.15 | 20100104 | 270.82277 | 133.21481 | 54.50995 | 11.83365 | 0.0252006 | 3.0193496 | 66 | 8 | 1998–2009 | 0.67 | M-v | 1 | MPC | 147275 | 2003 $UN_{247}$ |
| 2003 $UJ_{248}$ | 15.5 | 0.15 | 20100104 | 235.63004 | 345.49885 | 228.93275 | 8.17534 | 0.0564741 | 3.0069448 | 42 | 5 | 1998–2009 | 0.36 | M-v | 1 | MPC | 148911 | 2003 $UJ_{248}$ |
| 2003 $UY_{248}$ | 16.1 | 0.15 | 20100104 | 69.91433 | 357.66854 | 347.34238 | 5.69644 | 0.1873128 | 3.1266150 | 48 | 6 | 1992–2009 | 0.30 | M-v | 0 | MPC | 147275 | 2003 $UY_{248}$ |
| 2003 $UW_{249}$ | 15.4 | 0.15 | 20100104 | 46.61246 | 313.49292 | 63.01462 | 13.47926 | 0.2657414 | 3.1982677 | 89 | 4 | 2003–2009 | 0.57 | M-v | 1 | MPC | 160790 | 2003 $UW_{249}$ |
| 2003 $UM_{250}$ | 15.2 | 0.15 | 20100104 | 60.41616 | 126.88503 | 243.24568 | 12.23663 | 0.0941697 | 3.1958222 | 55 | 3 | 2003–2009 | 0.40 | M-v | 2 | MPC | 166163 | 2003 $UM_{250}$ |
| 2003 $UD_{257}$ | 15.2 | 0.15 | 20100104 | 345.50456 | 43.66005 | 78.53705 | 6.46192 | 0.1991342 | 3.1189788 | 45 | 5 | 1999–2009 | 0.69 | M-v | 1 | MPC | 147275 | 2003 $UD_{257}$ |
| 2003 $UA_{260}$ | 15.1 | 0.15 | 20100104 | 35.13047 | 274.51171 | 105.87573 | 16.54802 | 0.2511730 | 3.1924016 | 38 | 5 | 2001–2009 | 0.41 | M-v | 0 | MPC | 166163 | 2003 $UA_{260}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 $UY_{270}$ | 15.8 | 0.15 | 20100104 | 91.84416 | 251.78837 | 83.00988 | 10.18065 | 0.0608187 | 3.1118167 | 34 | 4 | 2002–2009 | 0.33 | M-v | 0 | MPC | 166163 | 2003 $UY_{270}$ |
| 2003 $UV_{271}$ | 16.0 | 0.15 | 20100104 | 156.42317 | 332.29476 | 34.22867 | 6.84713 | 0.0924914 | 2.7472480 | 50 | 6 | 2001–2009 | 0.47 | M-v | 1 | MPC | 148911 | 2003 $UV_{271}$ |
| 2003 $UA_{272}$ | 14.8 | 0.15 | 20100104 | 104.68453 | 283.17058 | 49.45836 | 16.79838 | 0.1376983 | 3.0729998 | 44 | 3 | 2003–2009 | 0.48 | M-v | 3 | MPC | 146088 | 2003 $UA_{272}$ |
| 2003 $UV_{272}$ | 15.6 | 0.15 | 20100104 | 41.45424 | 327.86355 | 64.79241 | 8.38853 | 0.1326802 | 3.1633748 | 26 | 3 | 1992–2009 | 0.44 | M-v | 3 | MPC | 165377 | 2003 $UV_{272}$ |
| 2003 $UQ_{273}$ | 15.4 | 0.15 | 20100104 | 32.77605 | 352.47313 | 71.15003 | 10.79791 | 0.1101484 | 3.0938460 | 53 | 5 | 2002–2009 | 0.59 | M-v | 1 | MPC | 158827 | 2003 $UQ_{273}$ |
| 2003 $UG_{274}$ | 15.1 | 0.15 | 20100104 | 49.50529 | 155.52530 | 225.79435 | 17.42886 | 0.1785773 | 3.1043284 | 60 | 4 | 2003–2009 | 0.51 | M-v | 1 | MPC | 158461 | 2003 $UG_{274}$ |
| 2003 $UJ_{279}$ | 15.4 | 0.15 | 20100104 | 56.25123 | 345.74409 | 51.18684 | 10.07058 | 0.0769222 | 2.9975964 | 71 | 6 | 1996–2009 | 0.54 | M-v | 0 | MPC | 147276 | 2003 $UJ_{279}$ |
| 2003 $UM_{279}$ | 15.8 | 0.15 | 20100104 | 354.17413 | 179.78368 | 247.59189 | 9.26547 | 0.1621055 | 3.2134406 | 38 | 2 | 2003–2009 | 0.35 | M-v | 3 | MPC | 165378 | 2003 $UM_{279}$ |
| 2003 $US_{283}$ | 14.8 | 0.15 | 20100104 | 62.68747 | 113.39881 | 244.21912 | 24.95713 | 0.2080711 | 3.2190733 | 72 | 3 | 2003–2009 | 0.42 | M-v | 1 | MPC | 166163 | 2003 $US_{283}$ |
| 2003 $UA_{293}$ | 14.6 | 0.15 | 20100104 | 53.34201 | 265.51695 | 105.57538 | 17.69019 | 0.2233756 | 3.2049734 | 86 | 4 | 2003–2009 | 0.49 | M-v | 0 | MPC | 159717 | 2003 $UA_{293}$ |
| 2003 $US_{308}$ | 15.9 | 0.15 | 20100104 | 149.68790 | 111.47691 | 204.56956 | 1.67888 | 0.0618920 | 2.9488636 | 68 | 4 | 1998–2009 | 0.36 | M-v | 3 | MPC | 152381 | 2003 $US_{308}$ |
| 2003 $UY_{309}$ | 14.7 | 0.15 | 20100104 | 140.13982 | 309.67701 | 337.96047 | 11.37607 | 0.1456237 | 3.0694277 | 96 | 4 | 2003–2009 | 0.51 | M-v | 1 | MPC | 148912 | 2003 $UY_{309}$ |
| 2003 $UE_{316}$ | 16.6 | 0.15 | 20100104 | 63.01734 | 302.86623 | 83.80725 | 0.97120 | 0.2190060 | 3.0868654 | 56 | 4 | 2003–2009 | 0.39 | M-v | 1 | MPC | 148912 | 2003 $UE_{316}$ |
| 2003 $US_{316}$ | 16.1 | 0.15 | 20100104 | 8.22746 | 71.82996 | 30.79294 | 3.47568 | 0.1560222 | 3.1328623 | 48 | 4 | 2003–2009 | 0.35 | M-v | 0 | MPC | 166164 | 2003 $US_{316}$ |
| 2003 $US_{325}$ | 15.9 | 0.15 | 20100104 | 41.34488 | 133.89563 | 205.54785 | 15.26456 | 0.1132065 | 3.1716159 | 36 | 4 | 2002–2009 | 0.36 | M-v | 1 | MPC | 166164 | 2003 $US_{325}$ |
| 2003 $UO_{328}$ | 15.6 | 0.15 | 20100104 | 314.10218 | 114.16100 | 328.52662 | 10.07201 | 0.0996854 | 3.1993111 | 38 | 4 | 2000–2009 | 0.43 | M-v | 0 | MPC | 164213 | 2003 $UO_{328}$ |
| 2003 $UR_{329}$ | 16.7 | 0.15 | 20100104 | 37.61393 | 208.05501 | 221.71206 | 5.55622 | 0.0453633 | 2.8595634 | 44 | 4 | 2003–2009 | 0.26 | M-v | 0 | MPC | 146090 | 2003 $UR_{329}$ |
| 2003 $UA_{339}$ | 15.8 | 0.15 | 20100104 | 281.48281 | 90.13647 | 71.99777 | 2.55758 | 0.2097722 | 3.0577574 | 49 | 5 | 2000–2009 | 0.44 | M-v | 0 | MPC | 166164 | 2003 $UA_{339}$ |
| 2003 $UA_{352}$ | 18.4 | 0.15 | 20100104 | 255.21989 | 300.00656 | 105.00876 | 3.08885 | 0.2051617 | 2.3231158 | 26 | 2 | 2003–2008 | 0.43 | M-v | 3 | MPC | 152381 | 2003 $UA_{352}$ |
| 2003 $UP_{369}$ | 16.0 | 0.15 | 20100104 | 65.64761 | 31.42547 | 333.87116 | 5.14032 | 0.1108934 | 3.1276357 | 42 | 6 | 1994–2009 | 0.33 | M-v | 0 | MPC | 146092 | 2003 $UP_{369}$ |
| 2003 $UD_{372}$ | 16.0 | 0.15 | 20100104 | 24.22308 | 172.72399 | 228.43384 | 11.30107 | 0.1212184 | 3.0030265 | 48 | 3 | 2003–2009 | 0.44 | M-v | 2 | MPC | 165379 | 2003 $UD_{372}$ |
| 2003 $UB_{376}$ | 16.6 | 0.15 | 20100104 | 7.52459 | 228.66767 | 202.28768 | 5.85121 | 0.2111606 | 3.0736901 | 30 | 3 | 2003–2009 | 0.36 | M-v | 2 | MPC | 165379 | 2003 $UB_{376}$ |
| 2003 $UK_{391}$ | 16.4 | 0.15 | 20100104 | 316.45877 | 64.27835 | 56.54251 | 19.13197 | 0.1606242 | 3.1870392 | 31 | 3 | 2003–2009 | 0.30 | M-v | 1 | MPC | 166164 | 2003 $UK_{391}$ |
| 2003 $UW_{414}$ | 15.7 | 0.15 | 20100104 | 77.81825 | 24.68624 | 349.62387 | 9.17127 | 0.0509957 | 3.0964327 | 38 | 4 | 1997–2009 | 0.30 | M-v | 1 | MPC | 148912 | 2003 $UW_{414}$ |
| 2003 $UD_{415}$ | 16.0 | 0.15 | 20100104 | 359.46615 | 187.92683 | 235.25193 | 16.03286 | 0.1704517 | 3.1422772 | 51 | 2 | 2003–2009 | 0.49 | M-v | 3 | MPC | 165379 | 2003 $UD_{415}$ |
| 2003 $UE_{415}$ | 16.2 | 0.15 | 20100104 | 44.80662 | 123.75181 | 236.61296 | 14.14842 | 0.1502570 | 3.1453508 | 31 | 3 | 1998–2009 | 0.28 | M-v | 2 | MPC | 165379 | 2003 $UE_{415}$ |
| 2003 $UU_{416}$ | 15.9 | 0.15 | 20100104 | 33.47108 | 135.35474 | 271.87987 | 6.39076 | 0.1711671 | 3.1362852 | 22 | 3 | 2003–2009 | 0.39 | M-v | 3 | MPC | 165379 | 2003 $UU_{416}$ |
| 2003 $VA_2$ | 14.6 | 0.15 | 20100104 | 95.05467 | 44.86948 | 279.87122 | 15.54738 | 0.1946346 | 3.1260027 | 67 | 5 | 1997–2009 | 0.49 | M-v | 1 | MPC | 147277 | 2003 $VA_2$ |
| 2003 $VJ_2$ | 14.3 | 0.15 | 20100104 | 94.20509 | 56.59312 | 267.68514 | 22.29880 | 0.3327585 | 3.0934649 | 98 | 4 | 2002–2009 | 0.47 | M-v | 1 | MPC | 166164 | 2003 $VJ_2$ |
| 2003 $VB_3$ | 19.2 | 0.15 | 20100104 | 347.01674 | 304.89228 | 191.73468 | 1.03579 | 0.3378752 | 2.0366257 | 55 | 3 | 2003–2009 | 0.26 | M-v | 1 | MPC | 166164 | 2003 $VB_3$ |
| 2003 $VC_4$ | 15.4 | 0.15 | 20100104 | 25.71434 | 175.96653 | 261.65793 | 8.31914 | 0.1671942 | 3.0980821 | 54 | 4 | 2003–2009 | 0.41 | M-v | 0 | MPC | 146095 | 2003 $VC_4$ |
| 2003 $VJ_7$ | 16.6 | 0.15 | 20100104 | 56.20737 | 329.07040 | 39.72059 | 2.04661 | 0.1825924 | 3.2077874 | 30 | 4 | 1991–2009 | 0.32 | M-v | 1 | MPC | 165379 | 2003 $VJ_7$ |
| 2003 $VU_{10}$ | 16.1 | 0.15 | 20100104 | 60.73627 | 206.17495 | 158.42834 | 2.08123 | 0.1577454 | 3.2034245 | 35 | 4 | 2003–2009 | 0.46 | M-v | 0 | MPC | 166164 | 2003 $VU_{10}$ |
| 2003 $WC_1$ | 15.1 | 0.15 | 20100104 | 82.82168 | 277.46708 | 67.29491 | 8.35895 | 0.1208684 | 3.2067597 | 55 | 4 | 2002–2009 | 0.46 | M-v | 1 | MPC | 166164 | 2003 $WC_1$ |
| 2003 $WO_1$ | 16.0 | 0.15 | 20100104 | 30.79660 | 181.78519 | 253.86575 | 3.13862 | 0.1467457 | 3.0931054 | 63 | 6 | 1994–2009 | 0.43 | M-v | 0 | MPC | 147277 | 2003 $WO_1$ |
| 2003 $WY_2$ | 16.4 | 0.15 | 20100104 | 4.15357 | 32.97473 | 28.52852 | 25.78492 | 0.1255020 | 3.2000778 | 28 | 3 | 2003–2009 | 0.39 | M-v | 2 | MPC | 100660 | 2003 $WY_2$ |
| 2003 $WW_4$ | 15.9 | 0.15 | 20100104 | 46.87601 | 32.41355 | 8.72471 | 7.76411 | 0.0588771 | 3.1348187 | 33 | 4 | 2000–2009 | 0.29 | M-v | 0 | MPC | 159717 | 2003 $WW_4$ |
| 2003 $WY_4$ | 16.0 | 0.15 | 20100104 | 48.97510 | 146.40281 | 328.07556 | 4.94192 | 0.0172948 | 2.8063857 | 47 | 5 | 2002–2009 | 0.35 | M-v | 0 | MPC | 159086 | 2003 $WY_4$ |
| 2003 $WG_5$ | 16.3 | 0.15 | 20100104 | 27.21782 | 61.38841 | 2.76911 | 3.81942 | 0.2067212 | 3.1354678 | 34 | 3 | 2003–2009 | 0.36 | M-v | 3 | MPC | 103559 | 2003 $WG_5$ |
| 2003 $WJ_5$ | 15.6 | 0.15 | 20100104 | 106.68894 | 227.92653 | 116.36205 | 2.56435 | 0.0698535 | 3.0426377 | 57 | 6 | 2000–2009 | 0.46 | M-v | 0 | MPC | 147277 | 2003 $WJ_5$ |
| 2003 $WB_7$ | 15.1 | 0.15 | 20100104 | 91.64165 | 267.06794 | 89.93064 | 17.90193 | 0.2069837 | 3.0944907 | 51 | 5 | 2002–2009 | 0.47 | M-v | 1 | MPC | 162380 | 2003 $WB_7$ |
| 2003 $WE_7$ | 14.4 | 0.15 | 20100104 | 59.78616 | 256.40629 | 81.29721 | 26.62828 | 0.2935812 | 3.1512039 | 81 | 5 | 2002–2009 | 0.51 | M-v | 1 | MPC | 166164 | 2003 $WE_7$ |
| 2003 $WX_7$ | 16.0 | 0.15 | 20100104 | 5.13632 | 252.43155 | 235.15762 | 1.36159 | 0.1870324 | 3.0582436 | 74 | 6 | 2000–2009 | 0.44 | M-v | 0 | MPC | 162380 | 2003 $WX_7$ |
| 2003 $WN_{11}$ | 14.5 | 0.15 | 20100104 | 7.70186 | 164.24407 | 265.71768 | 18.30951 | 0.1282683 | 3.2397017 | 58 | 4 | 2002–2009 | 0.49 | M-v | 2 | MPC | 166164 | 2003 $WN_{11}$ |
| 2003 $WG_{15}$ | 15.7 | 0.15 | 20100104 | 52.33328 | 322.38836 | 53.81426 | 4.47924 | 0.0796841 | 3.1956165 | 65 | 5 | 2002–2009 | 0.32 | M-v | 0 | MPC | 166164 | 2003 $WG_{15}$ |
| 2003 $WM_{16}$ | 15.7 | 0.15 | 20100104 | 10.18736 | 195.56384 | 217.98606 | 9.47611 | 0.1505179 | 3.2471115 | 53 | 2 | 2003–2009 | 0.45 | M-v | 3 | MPC | 166164 | 2003 $WM_{16}$ |
| 2003 $WS_{17}$ | 15.2 | 0.15 | 20100104 | 83.97838 | 247.99538 | 106.02711 | 15.60094 | 0.2248777 | 3.1016933 | 50 | 4 | 2003–2009 | 0.37 | M-v | 0 | MPC | 147277 | 2003 $WS_{17}$ |
| 2003 $WM_{20}$ | 15.8 | 0.15 | 20100104 | 3.54187 | 94.78375 | 29.29764 | 11.96024 | 0.2842102 | 3.1165391 | 59 | 4 | 2003–2009 | 0.45 | M-v | 0 | MPC | 160791 | 2003 $WM_{20}$ |
| 2003 $WF_{27}$ | 15.4 | 0.15 | 20100104 | 323.30510 | 239.78616 | 264.89993 | 8.78084 | 0.0224833 | 3.0600416 | 58 | 5 | 2003–2009 | 0.45 | M-v | 0 | MPC | 164213 | 2003 $WF_{27}$ |
| 2003 $WO_{27}$ | 15.3 | 0.15 | 20100104 | 357.58510 | 232.75697 | 245.90849 | 15.40064 | 0.1750111 | 3.0855029 | 66 | 5 | 1998–2009 | 0.52 | M-v | 1 | MPC | 147278 | 2003 $WO_{27}$ |
| 2003 $WV_{27}$ | 16.3 | 0.15 | 20100104 | 356.13035 | 97.69734 | 350.65689 | 4.90392 | 0.1441278 | 3.2077680 | 32 | 4 | 2003–2009 | 0.44 | M-v | 0 | MPC | 147278 | 2003 $WV_{27}$ |
| 2003 $WA_{31}$ | 14.7 | 0.15 | 20100104 | 121.97161 | 85.54388 | 231.20410 | 15.11915 | 0.0952820 | 3.0767279 | 77 | 3 | 2003–2009 | 0.54 | M-v | 3 | MPC | 164213 | 2003 $WA_{31}$ |
| 2003 $WD_{31}$ | 15.2 | 0.15 | 20100104 | 37.46297 | 166.58655 | 249.17508 | 8.52925 | 0.0820280 | 3.0657527 | 47 | 4 | 2002–2009 | 0.48 | M-v | 1 | MPC | 147278 | 2003 $WD_{31}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 $WG_{31}$ | 15.2 | 0.15 | 20100104 | 19.38331 | 167.69176 | 251.86845 | 8.27577 | 0.0641955 | 3.1382799 | 52 | 3 | 2002–2009 | 0.35 | M-v | 2 | MPC | 76199 | 2003 $WG_{31}$ |
| 2003 $WH_{34}$ | 15.6 | 0.15 | 20100104 | 9.05203 | 72.06253 | 359.22873 | 2.83441 | 0.1439054 | 3.2348551 | 42 | 5 | 1993–2009 | 0.51 | M-v | 1 | MPC | 165380 | 2003 $WH_{34}$ |
| 2003 $WP_{39}$ | 15.2 | 0.15 | 20100104 | 24.43630 | 158.96507 | 242.56594 | 21.33894 | 0.0640449 | 3.2426009 | 41 | 2 | 2003–2009 | 0.36 | M-v | 3 | MPC | 165380 | 2003 $WP_{39}$ |
| 2003 $WS_{41}$ | 14.5 | 0.15 | 20100104 | 316.23650 | 247.75378 | 264.48644 | 16.02228 | 0.1620057 | 3.1893678 | 44 | 3 | 2003–2009 | 0.44 | M-v | 3 | MPC | 166164 | 2003 $WS_{41}$ |
| 2003 $WN_{44}$ | 15.5 | 0.15 | 20100104 | 11.28722 | 142.75618 | 300.47897 | 9.82198 | 0.1598416 | 3.1460109 | 38 | 6 | 1999–2009 | 0.49 | M-v | 1 | MPC | 147278 | 2003 $WN_{44}$ |
| 2003 $WP_{44}$ | 15.3 | 0.15 | 20100104 | 30.89470 | 122.99460 | 308.08311 | 9.55614 | 0.1550634 | 3.0940828 | 57 | 6 | 1994–2009 | 0.56 | M-v | 0 | MPC | 147278 | 2003 $WP_{44}$ |
| 2003 $WN_{46}$ | 15.2 | 0.15 | 20100104 | 347.45963 | 232.62367 | 217.42143 | 13.91429 | 0.0287622 | 3.1615970 | 42 | 4 | 2001–2009 | 0.52 | M-v | 0 | MPC | 166164 | 2003 $WN_{46}$ |
| 2003 $WO_{58}$ | 16.0 | 0.15 | 20100104 | 90.71829 | 122.64806 | 234.55002 | 4.30129 | 0.1235857 | 3.1018201 | 58 | 5 | 2002–2009 | 0.53 | M-v | 1 | MPC | 148914 | 2003 $WO_{58}$ |
| 2003 $WN_{63}$ | 15.7 | 0.15 | 20100104 | 46.08119 | 136.95221 | 245.54543 | 8.34601 | 0.1582776 | 3.2425233 | 54 | 4 | 2002–2009 | 0.37 | M-v | 1 | MPC | 166165 | 2003 $WN_{63}$ |
| 2003 $WD_{64}$ | 14.8 | 0.15 | 20100104 | 174.71426 | 210.12782 | 63.63229 | 10.56645 | 0.0708920 | 3.1709951 | 38 | 6 | 2002–2009 | 0.51 | M-v | 1 | MPC | 160355 | 2003 $WD_{64}$ |
| 2003 $WK_{64}$ | 16.1 | 0.15 | 20100104 | 262.10148 | 272.60438 | 64.23847 | 15.35843 | 0.1187593 | 2.5233171 | 60 | 5 | 1991–2009 | 0.55 | M-v | 3 | MPC | 138002 | 2003 $WK_{64}$ |
| 2003 $WR_{64}$ | 15.8 | 0.15 | 20100104 | 68.69648 | 300.10655 | 80.11893 | 2.69968 | 0.3269764 | 3.0812443 | 112 | 3 | 2003–2009 | 0.44 | M-v | 2 | MPC | 147279 | 2003 $WR_{64}$ |
| 2003 $WO_{67}$ | 16.0 | 0.15 | 20100104 | 11.98671 | 52.89281 | 44.21155 | 5.23829 | 0.1126528 | 3.1334551 | 54 | 6 | 2000–2009 | 0.46 | M-v | 0 | MPC | 150967 | 2003 $WO_{67}$ |
| 2003 $WU_{73}$ | 15.1 | 0.15 | 20100104 | 86.42803 | 67.46587 | 310.16752 | 11.22134 | 0.1995890 | 3.0527346 | 82 | 5 | 2002–2009 | 0.45 | M-v | 1 | MPC | 166165 | 2003 $WU_{73}$ |
| 2003 $WM_{75}$ | 15.2 | 0.15 | 20100104 | 72.34852 | 262.57877 | 113.60990 | 11.59615 | 0.2157514 | 3.1320963 | 57 | 4 | 2002–2009 | 0.52 | M-v | 1 | MPC | 166165 | 2003 $WM_{75}$ |
| 2003 $WH_{76}$ | 15.6 | 0.15 | 20100104 | 77.36988 | 66.11918 | 290.62146 | 8.08680 | 0.0814609 | 3.1638681 | 33 | 3 | 2003–2009 | 0.42 | M-v | 3 | MPC | 166165 | 2003 $WH_{76}$ |
| 2003 $WU_{77}$ | 16.7 | 0.15 | 20100104 | 193.61302 | 24.17825 | 255.38120 | 16.99046 | 0.0451459 | 1.9730302 | 66 | 5 | 2003–2009 | 0.51 | M-v | 1 | MPC | 162380 | 2003 $WU_{77}$ |
| 2003 $WW_{81}$ | 15.2 | 0.15 | 20100104 | 42.06626 | 81.48156 | 302.24643 | 7.76268 | 0.0655134 | 3.1634627 | 50 | 5 | 2000–2009 | 0.47 | M-v | 0 | MPC | 166165 | 2003 $WW_{81}$ |
| 2003 $WF_{102}$ | 15.5 | 0.15 | 20100104 | 45.73469 | 184.83744 | 201.93707 | 3.07377 | 0.1494457 | 3.2188334 | 58 | 7 | 1997–2009 | 0.47 | M-v | 0 | MPC | 147280 | 2003 $WF_{102}$ |
| 2003 $WU_{111}$ | 15.5 | 0.15 | 20100104 | 86.03273 | 8.14291 | 357.74547 | 3.26693 | 0.1414989 | 3.0977683 | 90 | 7 | 1997–2009 | 0.57 | M-v | 1 | MPC | 147280 | 2003 $WU_{111}$ |
| 2003 $WH_{114}$ | 15.5 | 0.15 | 20100104 | 133.06818 | 49.65577 | 279.90714 | 7.70241 | 0.0671562 | 3.0713350 | 56 | 4 | 2002–2009 | 0.43 | M-v | 1 | MPC | 148915 | 2003 $WH_{114}$ |
| 2003 $WC_{115}$ | 14.9 | 0.15 | 20100104 | 45.87595 | 9.67610 | 20.47784 | 6.79475 | 0.1742103 | 3.2146286 | 89 | 7 | 1997–2009 | 0.45 | M-v | 0 | MPC | 147280 | 2003 $WC_{115}$ |
| 2003 $WC_{129}$ | 14.8 | 0.15 | 20100104 | 296.19628 | 123.06461 | 49.11754 | 14.59217 | 0.0875513 | 3.1616016 | 68 | 6 | 2000–2009 | 0.52 | M-v | 1 | MPC | 150968 | 2003 $WC_{129}$ |
| 2003 $WP_{132}$ | 15.1 | 0.15 | 20100104 | 357.71516 | 233.47322 | 261.03249 | 9.21582 | 0.2156405 | 3.1020226 | 56 | 4 | 2003–2009 | 0.56 | M-v | 1 | MPC | 147281 | 2003 $WP_{132}$ |
| 2003 $WP_{134}$ | 15.6 | 0.15 | 20100104 | 8.86818 | 28.74309 | 57.32502 | 3.08944 | 0.1776878 | 3.2018626 | 49 | 6 | 1997–2009 | 0.46 | M-v | 0 | MPC | 150968 | 2003 $WP_{134}$ |
| 2003 $WP_{140}$ | 15.5 | 0.15 | 20100104 | 6.81255 | 45.73786 | 68.33600 | 9.65949 | 0.2935278 | 3.1749675 | 49 | 3 | 2003–2009 | 0.46 | M-v | 2 | MPC | 166165 | 2003 $WP_{140}$ |
| 2003 $WW_{141}$ | 15.4 | 0.15 | 20100104 | 95.86615 | 159.55252 | 260.75959 | 7.74892 | 0.2721436 | 2.9201087 | 62 | 5 | 2002–2009 | 0.35 | M-v | 1 | MPC | 152087 | 2003 $WW_{141}$ |
| 2003 $WG_{149}$ | 15.9 | 0.15 | 20100104 | 62.01124 | 124.08465 | 253.49297 | 8.48660 | 0.2030903 | 3.1506085 | 37 | 3 | 2003–2009 | 0.44 | M-v | 2 | MPC | 147281 | 2003 $WG_{149}$ |
| 2003 $WF_{150}$ | 14.8 | 0.15 | 20100104 | 110.60062 | 246.34999 | 78.28043 | 17.41543 | 0.2338331 | 3.1247650 | 71 | 4 | 2003–2009 | 0.57 | M-v | 0 | MPC | 162380 | 2003 $WF_{150}$ |
| 2003 $WO_{151}$ | 20.4 | 0.15 | 20100104 | 3.65840 | 330.76487 | 228.15468 | 19.79104 | 0.6631876 | 1.5451537 | 41 | 2 | 2003–2005 | 0.46 | M-v | 4 | MPC | 166165 | 2003 $WO_{151}$ |
| 2003 $WJ_{155}$ | 16.6 | 0.15 | 20100104 | 315.69436 | 238.11205 | 115.29392 | 7.70498 | 0.1489244 | 2.3184432 | 79 | 4 | 2003–2009 | 0.33 | M-v | 1 | MPC | 158465 | 2003 $WJ_{155}$ |
| 2003 $WM_{155}$ | 15.7 | 0.15 | 20100104 | 41.08589 | 314.38476 | 94.56488 | 14.11805 | 0.1912343 | 3.1412330 | 43 | 3 | 2003–2009 | 0.41 | M-v | 2 | MPC | 166165 | 2003 $WM_{155}$ |
| 2003 $WV_{158}$ | 16.0 | 0.15 | 20100104 | 84.33089 | 117.93831 | 237.35591 | 8.01799 | 0.0640724 | 3.1633437 | 33 | 4 | 2001–2009 | 0.30 | M-v | 0 | MPC | 155116 | 2003 $WV_{158}$ |
| 2003 $WA_{159}$ | 15.4 | 0.15 | 20100104 | 334.59582 | 72.15330 | 59.02708 | 2.31504 | 0.1285236 | 3.1325203 | 98 | 6 | 2000–2009 | 0.62 | M-v | 0 | MPC | 160792 | 2003 $WA_{159}$ |
| 2003 $WT_{161}$ | 15.2 | 0.15 | 20100104 | 44.30213 | 317.53809 | 100.74813 | 12.23595 | 0.0586181 | 3.1123039 | 28 | 3 | 1992–2009 | 0.52 | M-v | 3 | MPC | 165381 | 2003 $WT_{161}$ |
| 2003 $WS_{162}$ | 15.3 | 0.15 | 20100104 | 56.23296 | 304.25490 | 82.23850 | 7.04025 | 0.1221102 | 3.1593545 | 45 | 5 | 2002–2009 | 0.44 | M-v | 1 | MPC | 102195 | 2003 $WS_{162}$ |
| 2003 $WW_{163}$ | 16.7 | 0.15 | 20100104 | 11.40587 | 25.99333 | 66.82802 | 2.76381 | 0.2070112 | 3.1718304 | 43 | 4 | 2003–2009 | 0.50 | M-v | 0 | MPC | 148916 | 2003 $WW_{163}$ |
| 2003 $WO_{165}$ | 16.1 | 0.15 | 20100104 | 59.62280 | 153.67875 | 244.58967 | 8.25795 | 0.0952199 | 3.1395252 | 28 | 4 | 2002–2009 | 0.20 | M-v | 0 | MPC | 146108 | 2003 $WO_{165}$ |
| 2003 $WV_{169}$ | 15.4 | 0.15 | 20100104 | 74.48175 | 258.05936 | 115.35406 | 18.00051 | 0.1765542 | 3.1214370 | 42 | 4 | 2002–2009 | 0.50 | M-v | 1 | MPC | 164213 | 2003 $WV_{169}$ |
| 2003 $WK_{170}$ | 15.1 | 0.15 | 20100104 | 359.92117 | 22.71385 | 104.84767 | 18.09173 | 0.1321911 | 3.0287368 | 46 | 4 | 2003–2009 | 0.57 | M-v | 1 | MPC | 147282 | 2003 $WK_{170}$ |
| 2003 $WV_{182}$ | 16.2 | 0.15 | 20100104 | 105.88697 | 121.65345 | 228.28921 | 11.03124 | 0.1720564 | 3.0082241 | 26 | 3 | 2003–2009 | 0.22 | M-v | 2 | MPC | 149896 | 2003 $WV_{182}$ |
| 2003 $WV_{189}$ | 14.9 | 0.15 | 20100104 | 21.84010 | 300.95317 | 129.32521 | 17.90395 | 0.1985523 | 3.1522353 | 44 | 5 | 2002–2009 | 0.52 | M-v | 1 | MPC | 147282 | 2003 $WV_{189}$ |
| 2003 $WS_{190}$ | 15.3 | 0.15 | 20100104 | 88.38082 | 272.76425 | 124.63762 | 21.99357 | 0.2018845 | 2.9733102 | 53 | 5 | 1998–2009 | 0.58 | M-v | 1 | MPC | 150969 | 2003 $WS_{190}$ |
| 2003 $WP_{192}$ | 14.0 | 0.15 | 20100104 | 96.17364 | 259.54541 | 99.89833 | 28.34179 | 0.2095420 | 3.2276527 | 59 | 6 | 2001–2009 | 0.59 | M-v | 1 | MPC | 150969 | 2003 $WP_{192}$ |
| 2003 XG | 15.2 | 0.15 | 20100104 | 66.13171 | 52.20258 | 309.66486 | 7.32644 | 0.5261804 | 3.1179086 | 123 | 6 | 1981–2009 | 0.46 | M-v | 0 | MPC | 166165 | 2003 XG |
| 2003 $XX_1$ | 14.5 | 0.15 | 20100104 | 59.16896 | 311.25027 | 67.56165 | 25.58013 | 0.2102946 | 3.1588000 | 101 | 4 | 2003–2009 | 0.56 | M-v | 1 | MPC | 166165 | 2003 $XX_1$ |
| 2003 $XT_6$ | 14.9 | 0.15 | 20100104 | 74.98128 | 279.42884 | 93.26967 | 14.55758 | 0.1920422 | 3.1792085 | 52 | 3 | 2003–2009 | 0.58 | M-v | 3 | MPC | 166165 | 2003 $XT_6$ |
| 2003 $XE_8$ | 14.9 | 0.15 | 20100104 | 58.19653 | 323.50279 | 81.12055 | 12.01847 | 0.1786959 | 3.1198883 | 64 | 5 | 2002–2009 | 0.54 | M-v | 1 | MPC | 162381 | 2003 $XE_8$ |
| 2003 $XW_{12}$ | 16.3 | 0.15 | 20100104 | 0.97511 | 4.71986 | 108.95114 | 30.34342 | 0.0928909 | 2.0448398 | 85 | 4 | 2003–2009 | 0.56 | M-v | 2 | MPC | 166166 | 2003 $XW_{12}$ |
| 2003 $XB_{16}$ | 16.3 | 0.15 | 20100104 | 60.43540 | 97.08965 | 296.71044 | 3.86470 | 0.1551932 | 3.1474897 | 32 | 4 | 2003–2009 | 0.29 | M-v | 0 | MPC | 158465 | 2003 $XB_{16}$ |
| 2003 $XO_{18}$ | 15.3 | 0.15 | 20100104 | 52.34205 | 92.47731 | 324.42937 | 8.30093 | 0.0774250 | 3.1083736 | 57 | 5 | 2002–2009 | 0.52 | M-v | 1 | MPC | 158465 | 2003 $XO_{18}$ |
| 2003 $XZ_{21}$ | 16.4 | 0.15 | 20100104 | 80.81180 | 193.22371 | 122.47776 | 5.09608 | 0.3231848 | 2.1073245 | 98 | 4 | 2003–2009 | 0.51 | M-v | 3 | MPC | 166166 | 2003 $XZ_{21}$ |
| 2003 $XD_{23}$ | 15.8 | 0.15 | 20100104 | 129.40625 | 302.09611 | 20.52157 | 6.87974 | 0.1240114 | 3.0709438 | 62 | 5 | 1995–2009 | 0.42 | M-v | 0 | MPC | 147283 | 2003 $XD_{23}$ |

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| 2003 $XX_{31}$ | 16.2 | 0.15 | 20100104 | 43.89654 | 203.17049 | 201.03694 | 1.49228 | 0.1157923 | 3.1722498 | 47 | 6 | 2002–2009 | 0.29 | M-v | 0 | MPC | 147283 | 2003 $XX_{31}$ |
| 2003 $XV_{32}$ | 16.2 | 0.15 | 20100104 | 1.53163 | 232.92566 | 218.82704 | 4.10006 | 0.1474952 | 3.2029974 | 36 | 5 | 2003–2009 | 0.42 | M-v | 0 | MPC | 157996 | 2003 $XV_{32}$ |
| 2003 $YP_{4}$ | 15.1 | 0.15 | 20100104 | 41.44795 | 116.42768 | 316.33017 | 20.06152 | 0.1901713 | 3.1863338 | 46 | 3 | 2003–2009 | 0.57 | M-v | 1 | MPC | 146113 | 2003 $YP_{4}$ |
| 2003 $YJ_{10}$ | 15.8 | 0.15 | 20100104 | 62.21474 | 83.41120 | 294.79891 | 13.54350 | 0.3402920 | 3.1448359 | 67 | 3 | 2003–2009 | 0.49 | M-v | 2 | MPC | 166166 | 2003 $YJ_{10}$ |
| 2003 $YV_{10}$ | 15.0 | 0.15 | 20100104 | 328.74772 | 130.07768 | 24.00513 | 5.22655 | 0.1236196 | 3.2024170 | 84 | 4 | 2003–2009 | 0.46 | M-v | 0 | MPC | 150969 | 2003 $YV_{10}$ |
| 2003 $YH_{21}$ | 17.0 | 0.15 | 20100104 | 20.70112 | 5.29906 | 55.69601 | 2.37533 | 0.0280972 | 2.1329346 | 60 | 4 | 1995–2009 | 0.39 | M-v | 3 | MPC | 166166 | 2003 $YH_{21}$ |
| 2003 $YD_{28}$ | 15.3 | 0.15 | 20100104 | 72.26376 | 296.00447 | 86.16417 | 10.56264 | 0.2148936 | 3.1144239 | 50 | 4 | 2002–2009 | 0.51 | M-v | 0 | MPC | 165381 | 2003 $YD_{28}$ |
| 2003 $YN_{33}$ | 15.5 | 0.15 | 20100104 | 63.07673 | 306.45717 | 89.83858 | 10.80300 | 0.1506774 | 3.0751661 | 69 | 5 | 2002–2009 | 0.57 | M-v | 1 | MPC | 147284 | 2003 $YN_{33}$ |
| 2003 $YV_{38}$ | 15.7 | 0.15 | 20100104 | 91.08812 | 213.04592 | 139.60905 | 3.24757 | 0.2060703 | 3.0994473 | 55 | 5 | 2001–2009 | 0.51 | M-v | 1 | MPC | 146117 | 2003 $YV_{38}$ |
| 2003 $YK_{45}$ | 15.5 | 0.15 | 20100104 | 101.68162 | 276.58759 | 107.23992 | 5.31108 | 0.1519620 | 2.9663524 | 60 | 5 | 2003–2009 | 0.50 | M-v | 1 | MPC | 150970 | 2003 $YK_{45}$ |
| 2003 $YX_{45}$ | 14.7 | 0.15 | 20100104 | 341.35991 | 78.93685 | 60.97793 | 24.79179 | 0.1878665 | 3.1792601 | 75 | 5 | 1994–2009 | 0.59 | M-v | 0 | MPC | 147284 | 2003 $YX_{45}$ |
| 2003 $YD_{47}$ | 15.3 | 0.15 | 20100104 | 24.80168 | 187.02459 | 250.36643 | 7.97313 | 0.0707992 | 3.1744378 | 39 | 4 | 2003–2009 | 0.54 | M-v | 1 | MPC | 152388 | 2003 $YD_{47}$ |
| 2003 $YB_{55}$ | 14.8 | 0.15 | 20100104 | 322.19978 | 95.36142 | 79.33500 | 21.34141 | 0.1372071 | 3.0807868 | 57 | 5 | 2000–2009 | 0.56 | M-v | 1 | MPC | 148919 | 2003 $YB_{55}$ |
| 2003 $YC_{63}$ | 14.6 | 0.15 | 20100104 | 27.01924 | 341.10935 | 122.39211 | 7.22459 | 0.1755087 | 3.1407360 | 87 | 6 | 1992–2009 | 0.52 | M-v | 0 | MPC | 152388 | 2003 $YC_{63}$ |
| 2003 $YP_{67}$ | 15.0 | 0.15 | 20100104 | 134.95630 | 252.77887 | 77.74337 | 9.95573 | 0.1424965 | 3.0481962 | 84 | 5 | 2002–2009 | 0.43 | M-v | 1 | MPC | 152388 | 2003 $YP_{67}$ |
| 2003 $YK_{71}$ | 14.6 | 0.15 | 20100104 | 275.87102 | 273.13690 | 271.90085 | 7.37689 | 0.0437095 | 3.2201887 | 82 | 5 | 2002–2009 | 0.46 | M-v | 1 | MPC | 159087 | 2003 $YK_{71}$ |
| 2003 $YX_{71}$ | 14.6 | 0.15 | 20100104 | 339.20752 | 79.47918 | 79.64834 | 14.84287 | 0.1879157 | 3.1184448 | 75 | 5 | 1999–2009 | 0.53 | M-v | 1 | MPC | 147285 | 2003 $YX_{71}$ |
| 2003 $YX_{84}$ | 14.8 | 0.15 | 20100104 | 312.56088 | 279.02414 | 260.24411 | 12.19703 | 0.2457390 | 3.1574322 | 71 | 6 | 2003–2009 | 0.51 | M-v | 1 | MPC | 147285 | 2003 $YX_{84}$ |
| 2003 $YW_{91}$ | 14.7 | 0.15 | 20100104 | 131.69644 | 229.76235 | 76.49652 | 20.54597 | 0.0074235 | 3.2181177 | 41 | 4 | 2003–2009 | 0.60 | M-v | 1 | MPC | 165382 | 2003 $YW_{91}$ |
| 2003 $YH_{99}$ | 15.3 | 0.15 | 20100104 | 48.19699 | 326.02294 | 97.82720 | 18.34968 | 0.0761399 | 3.1619371 | 29 | 4 | 2003–2009 | 0.51 | M-v | 1 | MPC | 147285 | 2003 $YH_{99}$ |
| 2003 $YK_{104}$ | 15.7 | 0.15 | 20100104 | 56.58721 | 322.61096 | 117.36923 | 8.94683 | 0.2300053 | 3.0884388 | 49 | 4 | 2002–2009 | 0.45 | M-v | 1 | MPC | 146119 | 2003 $YK_{104}$ |
| 2003 $YY_{104}$ | 14.4 | 0.15 | 20100104 | 87.38991 | 259.45845 | 118.10687 | 26.36027 | 0.2677522 | 3.1686487 | 60 | 3 | 2003–2009 | 0.53 | M-v | 2 | MPC | 152389 | 2003 $YY_{104}$ |
| 2003 $YZ_{109}$ | 15.5 | 0.15 | 20100104 | 30.18673 | 37.95320 | 22.55868 | 5.27703 | 0.1483085 | 3.1895860 | 48 | 6 | 1991–2009 | 0.56 | M-v | 0 | MPC | 147286 | 2003 $YZ_{109}$ |
| 2003 $YG_{118}$ | 17.1 | 0.15 | 20100104 | 230.60705 | 232.21118 | 348.57422 | 8.12840 | 0.6441288 | 2.2825039 | 325 | 5 | 2003–2008 | 0.41 | M-v | 1 | MPC | 147286 | 2003 $YG_{118}$ |
| 2003 $YE_{125}$ | 14.5 | 0.15 | 20100104 | 68.46990 | 70.32462 | 285.22520 | 12.04114 | 0.3030862 | 3.1750323 | 86 | 3 | 2003–2009 | 0.52 | M-v | 2 | MPC | 166166 | 2003 $YE_{125}$ |
| 2003 $YE_{132}$ | 15.2 | 0.15 | 20100104 | 179.93542 | 7.58919 | 339.35695 | 11.15684 | 0.0274363 | 2.9739941 | 53 | 4 | 2002–2009 | 0.50 | M-v | 1 | MPC | 159721 | 2003 $YE_{132}$ |
| 2003 $YN_{133}$ | 15.5 | 0.15 | 20100104 | 51.25252 | 115.82041 | 321.35343 | 6.12545 | 0.1536202 | 3.1285128 | 59 | 5 | 2002–2009 | 0.46 | M-v | 1 | MPC | 148920 | 2003 $YN_{133}$ |
| 2003 $YF_{136}$ | 18.4 | 0.15 | 20100104 | 27.69813 | 98.93042 | 265.50470 | 3.50906 | 0.2813537 | 2.1537112 | 53 | 3 | 2003–2009 | 0.50 | M-v | 2 | MPC | 164214 | 2003 $YF_{136}$ |
| 2003 $YE_{139}$ | 14.8 | 0.15 | 20100104 | 65.44762 | 75.61934 | 298.84652 | 12.80699 | 0.2344978 | 3.0998388 | 116 | 4 | 2003–2009 | 0.44 | M-v | 1 | MPC | 150971 | 2003 $YE_{139}$ |
| 2003 $YG_{139}$ | 15.7 | 0.15 | 20100104 | 26.10163 | 158.08197 | 268.44828 | 17.86130 | 0.3215648 | 3.1074054 | 45 | 2 | 2003–2009 | 0.52 | M-v | 2 | MPC | 165383 | 2003 $YG_{139}$ |
| 2003 $YK_{145}$ | 14.7 | 0.15 | 20100104 | 328.99864 | 226.16446 | 319.90410 | 25.76512 | 0.1746148 | 3.1934819 | 50 | 4 | 2001–2009 | 0.47 | M-v | 1 | MPC | 160793 | 2003 $YK_{145}$ |
| 2003 $YW_{148}$ | 14.3 | 0.15 | 20100104 | 37.43861 | 15.58257 | 40.51134 | 12.66194 | 0.0800268 | 3.3400981 | 64 | 4 | 2002–2009 | 0.57 | M-v | 1 | MPC | 150972 | 2003 $YW_{148}$ |
| 2003 $YZ_{148}$ | 14.2 | 0.15 | 20100104 | 1.32992 | 10.13171 | 76.34438 | 22.40381 | 0.0566058 | 3.4219487 | 57 | 6 | 2002–2009 | 0.53 | M-v | 0 | MPC | 147287 | 2003 $YZ_{148}$ |
| 2003 $YU_{149}$ | 14.6 | 0.15 | 20100104 | 63.79786 | 284.64128 | 70.42859 | 10.72281 | 0.0853966 | 3.4746907 | 57 | 5 | 2002–2009 | 0.51 | M-v | 0 | MPC | 166166 | 2003 $YU_{149}$ |
| 2003 $YZ_{150}$ | 14.8 | 0.15 | 20100104 | 33.72815 | 115.88067 | 313.86962 | 30.64323 | 0.2508580 | 3.2590288 | 68 | 4 | 2002–2009 | 0.56 | M-v | 1 | MPC | 164214 | 2003 $YZ_{150}$ |
| 2004 AE | 20.7 | 0.15 | 20100104 | 164.20012 | 193.05978 | 307.64789 | 18.72905 | 0.3328869 | 1.4322124 | 54 | 3 | 2004–2008 | 0.55 | M-v | 1 | MPC | 147287 | 2004 AE |
| 2004 $AZ_{11}$ | 16.2 | 0.15 | 20100104 | 3.02714 | 206.73167 | 315.79574 | 4.59361 | 0.1065833 | 3.0489316 | 31 | 5 | 1999–2009 | 0.43 | M-v | 1 | MPC | 158468 | 2004 $AZ_{11}$ |
| 2004 $BX_{2}$ | 17.4 | 0.15 | 20100104 | 167.15719 | 141.28589 | 17.08677 | 1.37255 | 0.1188465 | 2.4630763 | 169 | 4 | 2002–2008 | 0.28 | M-v | 1 | MPC | 139191 | 2004 $BX_{2}$ |
| 2004 $BP_{4}$ | 15.5 | 0.15 | 20100104 | 309.40704 | 87.00249 | 132.35758 | 10.82904 | 0.0555750 | 3.1061782 | 48 | 3 | 2004–2009 | 0.45 | M-v | 1 | MPC | 103596 | 2004 $BP_{4}$ |
| 2004 $BQ_{9}$ | 17.4 | 0.15 | 20100104 | 36.34457 | 57.40086 | 339.57884 | 3.30998 | 0.0873982 | 2.1646951 | 66 | 4 | 2001–2009 | 0.42 | M-v | 2 | MPC | 165383 | 2004 $BQ_{9}$ |
| 2004 $BA_{13}$ | 15.6 | 0.15 | 20100104 | 50.19711 | 332.77803 | 129.92704 | 6.79574 | 0.1394026 | 3.0996523 | 82 | 6 | 1993–2009 | 0.47 | M-v | 0 | MPC | 154119 | 2004 $BA_{13}$ |
| 2004 $BE_{13}$ | 14.5 | 0.15 | 20100104 | 200.64028 | 145.71258 | 124.42348 | 16.33719 | 0.0673377 | 3.4308613 | 41 | 4 | 2004–2009 | 0.59 | M-v | 0 | MPC | 164214 | 2004 $BE_{13}$ |
| 2004 $BY_{17}$ | 15.2 | 0.15 | 20100104 | 43.23155 | 66.12342 | 38.67142 | 12.66532 | 0.0936904 | 3.1284379 | 40 | 5 | 2002–2008 | 0.48 | M-v | 0 | MPC | 148922 | 2004 $BY_{17}$ |
| 2004 $BW_{27}$ | 17.6 | 0.15 | 20100104 | 269.57448 | 81.96663 | 94.95862 | 2.48751 | 0.0661385 | 2.1691759 | 53 | 5 | 2001–2009 | 0.48 | M-v | 2 | MPC | 166167 | 2004 $BW_{27}$ |
| 2004 $BV_{29}$ | 15.0 | 0.15 | 20100104 | 335.62165 | 222.85645 | 332.54020 | 8.21490 | 0.1906806 | 3.1746773 | 56 | 4 | 2004–2009 | 0.38 | M-v | 1 | MPC | 126704 | 2004 $BV_{29}$ |
| 2004 $BO_{35}$ | 16.9 | 0.15 | 20100104 | 70.25396 | 127.08955 | 113.93659 | 11.25140 | 0.0970088 | 2.5266241 | 28 | 4 | 1995–2008 | 0.45 | M-v | 3 | MPC | 158469 | 2004 $BO_{35}$ |
| 2004 $BO_{48}$ | 15.9 | 0.15 | 20100104 | 39.23762 | 163.27606 | 299.49692 | 8.51452 | 0.1853374 | 3.1261364 | 58 | 6 | 2001–2009 | 0.51 | M-v | 0 | MPC | 148922 | 2004 $BO_{48}$ |
| 2004 $BD_{56}$ | 15.2 | 0.15 | 20100104 | 327.92136 | 73.54428 | 144.02154 | 12.69648 | 0.0914257 | 3.0917967 | 56 | 5 | 2002–2009 | 0.48 | M-v | 0 | MPC | 104289 | 2004 $BD_{56}$ |
| 2004 $BB_{57}$ | 17.2 | 0.15 | 20100104 | 352.32206 | 67.85690 | 10.26657 | 4.62324 | 0.0967106 | 2.1833134 | 58 | 5 | 2001–2009 | 0.65 | M-v | 2 | MPC | 166167 | 2004 $BB_{57}$ |
| 2004 $BL_{73}$ | 17.3 | 0.15 | 20100104 | 334.72962 | 151.70990 | 286.93192 | 3.42380 | 0.0953482 | 2.2061979 | 54 | 3 | 2003–2009 | 0.52 | M-v | 3 | MPC | 164214 | 2004 $BL_{73}$ |
| 2004 $BL_{85}$ | 17.0 | 0.15 | 20100104 | 18.04734 | 27.93874 | 8.21859 | 2.73101 | 0.2004788 | 2.1846546 | 150 | 5 | 1996–2009 | 0.47 | M-v | 1 | MPC | 166167 | 2004 $BL_{85}$ |
| 2004 $BE_{86}$ | 20.9 | 0.15 | 20100104 | 134.86084 | 14.67286 | 154.79677 | 3.78165 | 0.2373448 | 1.4407360 | 141 | 2 | 2003–2008 | 0.49 | M-v | 1 | MPC | 146125 | 2004 $BE_{86}$ |
| 2004 $BR_{103}$ | 15.5 | 0.15 | 20100104 | 58.48701 | 276.54115 | 171.15772 | 24.21513 | 0.3234106 | 3.1078324 | 45 | 4 | 2002–2009 | 0.47 | M-v | 1 | MPC | 150974 | 2004 $BR_{103}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 $BP_{109}$ | 15.2 | 0.15 | 20100104 | 21.34634 | 114.69323 | 33.05583 | 10.67115 | 0.1881407 | 3.1380193 | 57 | 6 | 1999–2009 | 0.47 | M-v | 1 | MPC | 148923 | 2004 $BP_{109}$ |
| 2004 $BV_{109}$ | 16.1 | 0.15 | 20100104 | 5.49707 | 21.32462 | 138.86260 | 12.32109 | 0.0755120 | 3.1009953 | 20 | 3 | 2002–2009 | 0.23 | M-v | 1 | MPC | 114075 | 2004 $BV_{109}$ |
| 2004 $BY_{112}$ | 18.1 | 0.15 | 20100104 | 227.04219 | 275.27838 | 202.20221 | 1.64439 | 0.1337929 | 2.3724971 | 40 | 4 | 1999–2008 | 0.33 | M-v | 1 | MPC | 156934 | 2004 $BY_{112}$ |
| 2004 $BQ_{139}$ | 15.6 | 0.15 | 20100104 | 290.99773 | 120.14903 | 120.34393 | 7.29777 | 0.1093939 | 3.0967678 | 58 | 5 | 2004–2009 | 0.48 | M-v | 0 | MPC | 162383 | 2004 $BQ_{139}$ |
| 2004 $BH_{151}$ | 15.0 | 0.15 | 20100104 | 13.65697 | 7.41930 | 140.34075 | 16.93428 | 0.0705719 | 3.0763561 | 28 | 5 | 2001–2009 | 0.55 | M-v | 1 | MPC | 166167 | 2004 $BH_{151}$ |
| 2004 $BH_{160}$ | 18.8 | 0.15 | 20100104 | 69.12006 | 35.49022 | 341.77087 | 3.56355 | 0.1401927 | 2.1972503 | 21 | 4 | 2002–2009 | 0.40 | M-v | 3 | MPC | 158471 | 2004 $BH_{160}$ |
| 2004 $CE_6$ | 17.3 | 0.15 | 20100104 | 258.08475 | 68.69137 | 87.96268 | 6.54630 | 0.0788619 | 2.2471246 | 53 | 4 | 2001–2009 | 0.41 | M-v | 1 | MPC | 164214 | 2004 $CE_6$ |
| 2004 $CZ_7$ | 17.4 | 0.15 | 20100104 | 292.62095 | 85.69387 | 42.96607 | 7.09802 | 0.0751972 | 2.2200063 | 58 | 4 | 1999–2009 | 0.36 | M-v | 1 | MPC | 166167 | 2004 $CZ_7$ |
| 2004 $CE_{17}$ | 16.7 | 0.15 | 20100104 | 54.43106 | 120.50274 | 127.29864 | 3.81660 | 0.0905521 | 2.6094661 | 59 | 4 | 2004–2009 | 0.38 | M-v | 1 | MPC | 158471 | 2004 $CE_{17}$ |
| 2004 $CJ_{17}$ | 15.5 | 0.15 | 20100104 | 283.78713 | 218.63355 | 30.59883 | 8.06244 | 0.0596728 | 3.1674267 | 36 | 4 | 2004–2009 | 0.40 | M-v | 1 | MPC | 128122 | 2004 $CJ_{17}$ |
| 2004 $CF_{21}$ | 17.5 | 0.15 | 20100104 | 240.53941 | 131.33184 | 61.37949 | 5.39180 | 0.0950865 | 2.2190997 | 41 | 3 | 2004–2009 | 0.55 | M-v | 3 | MPC | 166167 | 2004 $CF_{21}$ |
| 2004 $CF_{26}$ | 15.2 | 0.15 | 20100104 | 76.12043 | 112.28445 | 331.45031 | 8.62812 | 0.0678349 | 3.1756454 | 39 | 4 | 2004–2009 | 0.53 | M-v | 0 | MPC | 152393 | 2004 $CF_{26}$ |
| 2004 $CX_{30}$ | 17.6 | 0.15 | 20100104 | 275.24765 | 122.02408 | 295.14276 | 2.59852 | 0.1165679 | 2.3948192 | 29 | 4 | 2002–2008 | 0.36 | M-v | 0 | MPC | 158471 | 2004 $CX_{30}$ |
| 2004 $CO_{45}$ | 17.0 | 0.15 | 20100104 | 244.62236 | 135.73311 | 58.71834 | 4.70562 | 0.0609750 | 2.1949119 | 53 | 6 | 1998–2009 | 0.41 | M-v | 1 | MPC | 166167 | 2004 $CO_{45}$ |
| 2004 $CM_{60}$ | 16.9 | 0.15 | 20100104 | 131.04956 | 162.59079 | 13.65066 | 6.30878 | 0.1531195 | 2.5641010 | 53 | 5 | 1992–2008 | 0.52 | M-v | 3 | MPC | 133412 | 2004 $CM_{60}$ |
| 2004 $CP_{70}$ | 15.4 | 0.15 | 20100104 | 33.80689 | 18.17784 | 125.61722 | 5.89828 | 0.0902995 | 3.0597246 | 46 | 5 | 2004–2009 | 0.44 | M-v | 0 | MPC | 157399 | 2004 $CP_{70}$ |
| 2004 $CN_{83}$ | 15.1 | 0.15 | 20100104 | 252.12846 | 79.99335 | 95.92066 | 0.80689 | 0.1467548 | 3.9358026 | 54 | 5 | 2002–2009 | 0.31 | M-v | 0 | MPC | 166168 | 2004 $CN_{83}$ |
| 2004 $CQ_{85}$ | 17.0 | 0.15 | 20100104 | 187.38499 | 228.26212 | 10.34078 | 1.69797 | 0.1826051 | 2.2807320 | 66 | 3 | 2004–2009 | 0.47 | M-v | 3 | MPC | 166168 | 2004 $CQ_{85}$ |
| 2004 $CQ_{108}$ | 17.1 | 0.15 | 20100104 | 259.60409 | 220.76979 | 289.96665 | 4.53344 | 0.0731505 | 2.2737425 | 35 | 5 | 1997–2009 | 0.43 | M-v | 1 | MPC | 116262 | 2004 $CQ_{108}$ |
| 2004 $CO_{114}$ | 14.7 | 0.15 | 20100104 | 27.03362 | 110.06565 | 20.69899 | 26.70002 | 0.2188234 | 3.1709811 | 54 | 4 | 1993–2009 | 0.50 | M-v | 1 | MPC | 87615 | 2004 $CO_{114}$ |
| 2004 $CU_{115}$ | 15.8 | 0.15 | 20100104 | 5.13536 | 78.60853 | 78.41986 | 2.12929 | 0.1183838 | 3.1060117 | 66 | 5 | 2004–2009 | 0.33 | M-v | 0 | MPC | 154121 | 2004 $CU_{115}$ |
| 2004 DC | 18.1 | 0.15 | 20100104 | 267.64948 | 156.12026 | 75.00312 | 19.44156 | 0.3994417 | 1.6338207 | 184 | 3 | 2004–2009 | 0.51 | M-v | 0 | MPC | 143198 | 2004 DC |
| 2004 $DL_4$ | 15.2 | 0.15 | 20100104 | 70.11162 | 338.52287 | 93.25500 | 7.53565 | 0.2002896 | 3.1741338 | 101 | 6 | 1999–2009 | 0.43 | M-v | 0 | MPC | 160797 | 2004 $DL_4$ |
| 2004 $DM_8$ | 17.6 | 0.15 | 20100104 | 282.76073 | 209.71667 | 337.17238 | 6.12654 | 0.0538762 | 2.1471526 | 63 | 5 | 2002–2009 | 0.43 | M-v | 1 | MPC | 119610 | 2004 $DM_8$ |
| 2004 $DQ_{16}$ | 17.5 | 0.15 | 20100104 | 282.33313 | 287.17427 | 245.58076 | 5.32723 | 0.0425088 | 2.1637934 | 35 | 6 | 1998–2009 | 0.46 | M-v | 1 | MPC | 121338 | 2004 $DQ_{16}$ |
| 2004 $DU_{16}$ | 17.1 | 0.15 | 20100104 | 313.61047 | 244.53160 | 222.29131 | 6.35279 | 0.0576357 | 2.2263045 | 40 | 3 | 1999–2009 | 0.47 | M-v | 2 | MPC | 166168 | 2004 $DU_{16}$ |
| 2004 $DW_{17}$ | 15.3 | 0.15 | 20100104 | 53.90856 | 280.49747 | 169.19619 | 22.28991 | 0.2083872 | 3.1815791 | 49 | 4 | 2002–2009 | 0.42 | M-v | 0 | MPC | 148926 | 2004 $DW_{17}$ |
| 2004 $DE_{22}$ | 16.4 | 0.15 | 20100104 | 216.90446 | 92.49973 | 130.89395 | 7.29765 | 0.1524739 | 2.2632620 | 83 | 5 | 2004–2009 | 0.47 | M-v | 1 | MPC | 166168 | 2004 $DE_{22}$ |
| 2004 $DH_{26}$ | 16.5 | 0.15 | 20100104 | 170.52492 | 153.67450 | 91.75835 | 2.97476 | 0.2014641 | 2.3039983 | 60 | 5 | 1995–2009 | 0.50 | M-v | 0 | MPC | 166168 | 2004 $DH_{26}$ |
| 2004 $DN_{30}$ | 17.3 | 0.15 | 20100104 | 329.44296 | 109.85589 | 21.56532 | 3.34314 | 0.0453279 | 2.1578525 | 74 | 5 | 1996–2009 | 0.47 | M-v | 1 | MPC | 160798 | 2004 $DN_{30}$ |
| 2004 $DE_{41}$ | 16.2 | 0.15 | 20100104 | 81.42253 | 173.35323 | 12.07991 | 11.26354 | 0.0890922 | 2.7839539 | 133 | 2 | 2004–2006 | 0.38 | M-v | 3 | MPC | 160798 | 2004 $DE_{41}$ |
| 2004 $DM_{54}$ | 15.7 | 0.15 | 20100104 | 45.42265 | 143.97398 | 330.29812 | 8.19520 | 0.0657694 | 3.1757725 | 24 | 3 | 2004–2009 | 0.41 | M-v | 3 | MPC | 162386 | 2004 $DM_{54}$ |
| 2004 $DR_{58}$ | 14.4 | 0.15 | 20100104 | 223.13775 | 223.32644 | 338.90802 | 7.57604 | 0.0993138 | 3.9664657 | 50 | 4 | 2004–2009 | 0.40 | M-v | 1 | MPC | 166168 | 2004 $DR_{58}$ |
| 2004 $DV_{61}$ | 16.7 | 0.15 | 20100104 | 214.51135 | 162.98405 | 61.76748 | 5.37348 | 0.1957508 | 2.2685387 | 61 | 4 | 2003–2009 | 0.46 | M-v | 2 | MPC | 166168 | 2004 $DV_{61}$ |
| 2004 EN | 17.4 | 0.15 | 20100104 | 230.22573 | 281.69640 | 297.41398 | 3.95622 | 0.1661276 | 2.2292532 | 57 | 4 | 2004–2009 | 0.47 | M-v | 1 | MPC | 166168 | 2004 EN |
| 2004 EO | 17.2 | 0.15 | 20100104 | 317.09577 | 20.57331 | 101.70540 | 4.40300 | 0.1181685 | 2.2134606 | 93 | 5 | 2001–2009 | 0.53 | M-v | 1 | MPC | 166168 | 2004 EO |
| 2004 $EB_9$ | 16.6 | 0.15 | 20100104 | 209.74552 | 145.48404 | 72.12265 | 6.40139 | 0.1825934 | 2.3347839 | 120 | 3 | 2004–2009 | 0.45 | M-v | 2 | MPC | 166169 | 2004 $EB_9$ |
| 2004 $EE_{10}$ | 17.1 | 0.15 | 20100104 | 142.26292 | 313.11870 | 328.64560 | 3.59989 | 0.1362784 | 2.3017130 | 61 | 5 | 1998–2009 | 0.45 | M-v | 0 | MPC | 166169 | 2004 $EE_{10}$ |
| 2004 $EW_{11}$ | 14.9 | 0.15 | 20100104 | 344.01795 | 228.37784 | 317.02950 | 8.51687 | 0.0507485 | 3.1781589 | 64 | 5 | 2001–2009 | 0.44 | M-v | 1 | MPC | 160798 | 2004 $EW_{11}$ |
| 2004 $EE_{14}$ | 16.8 | 0.15 | 20100104 | 218.55628 | 159.97125 | 66.85475 | 5.83897 | 0.1190324 | 2.2511566 | 52 | 3 | 2004–2009 | 0.38 | M-v | 2 | MPC | 166169 | 2004 $EE_{14}$ |
| 2004 $EJ_{14}$ | 17.2 | 0.15 | 20100104 | 260.48311 | 127.57789 | 56.78184 | 3.46160 | 0.0763059 | 2.2357023 | 68 | 5 | 2002–2009 | 0.45 | M-v | 1 | MPC | 166169 | 2004 $EJ_{14}$ |
| 2004 $EX_{16}$ | 16.8 | 0.15 | 20100104 | 213.91460 | 135.26166 | 82.45595 | 6.04781 | 0.1150517 | 2.2896496 | 39 | 3 | 2004–2009 | 0.48 | M-v | 2 | MPC | 166169 | 2004 $EX_{16}$ |
| 2004 $EQ_{19}$ | 17.0 | 0.15 | 20100104 | 188.31744 | 92.74333 | 144.07224 | 1.09891 | 0.1693496 | 2.3035024 | 68 | 5 | 1998–2009 | 0.50 | M-v | 1 | MPC | 166169 | 2004 $EQ_{19}$ |
| 2004 $EF_{31}$ | 17.2 | 0.15 | 20100104 | 262.04189 | 319.39158 | 235.45187 | 3.82360 | 0.1030408 | 2.2085695 | 50 | 5 | 2004–2009 | 0.48 | M-v | 1 | MPC | 166169 | 2004 $EF_{31}$ |
| 2004 $EL_{35}$ | 16.7 | 0.15 | 20100104 | 265.24091 | 137.84446 | 62.72928 | 4.84971 | 0.0751461 | 2.2057825 | 124 | 5 | 2001–2009 | 0.50 | M-v | 2 | MPC | 119610 | 2004 $EL_{35}$ |
| 2004 $EO_{36}$ | 16.9 | 0.15 | 20100104 | 298.40691 | 162.07364 | 343.50904 | 5.49305 | 0.0727770 | 2.2264035 | 75 | 5 | 1992–2009 | 0.53 | M-v | 1 | MPC | 166169 | 2004 $EO_{36}$ |
| 2004 $ED_{41}$ | 17.1 | 0.15 | 20100104 | 356.76407 | 74.45332 | 10.61121 | 4.33547 | 0.0638762 | 2.2190151 | 90 | 5 | 1994–2009 | 0.52 | M-v | 0 | MPC | 166169 | 2004 $ED_{41}$ |
| 2004 $ET_{41}$ | 16.4 | 0.15 | 20100104 | 169.36727 | 222.99030 | 31.56069 | 5.00620 | 0.1010756 | 2.2959272 | 108 | 3 | 2004–2009 | 0.52 | M-v | 1 | MPC | 166169 | 2004 $ET_{41}$ |
| 2004 $ET_{42}$ | 17.2 | 0.15 | 20100104 | 284.32003 | 130.10451 | 8.08302 | 1.87971 | 0.1394741 | 2.2656128 | 75 | 5 | 1995–2009 | 0.50 | M-v | 1 | MPC | 166169 | 2004 $ET_{42}$ |
| 2004 $EB_{45}$ | 15.5 | 0.15 | 20100104 | 307.73653 | 331.11066 | 156.48658 | 0.88100 | 0.0611806 | 3.9332346 | 67 | 5 | 1997–2009 | 0.42 | M-v | 0 | MPC | 166169 | 2004 $EB_{45}$ |
| 2004 $EJ_{59}$ | 17.1 | 0.15 | 20100104 | 274.32665 | 286.05252 | 276.26819 | 6.17004 | 0.0970555 | 2.1793252 | 53 | 6 | 1994–2009 | 0.61 | M-v | 1 | MPC | 148927 | 2004 $EJ_{59}$ |
| 2004 $EN_{62}$ | 17.5 | 0.15 | 20100104 | 266.47265 | 37.07363 | 130.88061 | 0.74809 | 0.1268220 | 2.2539917 | 49 | 3 | 2004–2009 | 0.37 | M-v | 3 | MPC | 166169 | 2004 $EN_{62}$ |
| 2004 $EL_{69}$ | 16.2 | 0.15 | 20100104 | 76.87003 | 311.24699 | 173.76744 | 9.43474 | 0.1192891 | 2.9981432 | 22 | 3 | 1999–2009 | 0.49 | M-v | 2 | MPC | 100712 | 2004 $EL_{69}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 $EK_{78}$ | 17.3 | 0.15 | 20100104 | 215.76039 | 178.42900 | 68.78825 | 2.76647 | 0.0589280 | 2.2147645 | 43 | 6 | 2001–2009 | 0.47 | M-v | 1 | MPC | 118068 | 2004 $EK_{78}$ |
| 2004 $ES_{79}$ | 16.4 | 0.15 | 20100104 | 265.15361 | 321.16029 | 242.67640 | 5.57145 | 0.1091560 | 2.2177517 | 96 | 5 | 2004–2009 | 0.53 | M-v | 1 | MPC | 143199 | 2004 $ES_{79}$ |
| 2004 $ES_{85}$ | 16.0 | 0.15 | 20100104 | 113.88834 | 269.71001 | 54.94947 | 6.57380 | 0.1784368 | 2.2874792 | 110 | 9 | 1977–2009 | 0.54 | M-v | 1 | MPC | 148927 | 2004 $ES_{85}$ |
| 2004 $EZ_{86}$ | 16.8 | 0.15 | 20100104 | 238.64755 | 89.60984 | 119.45751 | 5.59665 | 0.1056404 | 2.2715029 | 81 | 6 | 2002–2009 | 0.53 | M-v | 1 | MPC | 166169 | 2004 $EZ_{86}$ |
| 2004 $FG_{8}$ | 18.4 | 0.15 | 20100104 | 327.34312 | 68.02138 | 50.78605 | 3.85497 | 0.0998868 | 2.1963956 | 29 | 3 | 2004–2009 | 0.49 | M-v | 3 | MPC | 166170 | 2004 $FG_{8}$ |
| 2004 $FN_{13}$ | 16.1 | 0.15 | 20100104 | 136.63051 | 316.79510 | 195.26985 | 13.26969 | 0.1127700 | 2.6807413 | 110 | 5 | 2000–2008 | 0.46 | M-v | 1 | MPC | 159722 | 2004 $FN_{13}$ |
| 2004 $FU_{25}$ | 16.4 | 0.15 | 20100104 | 273.73660 | 140.16890 | 8.07352 | 5.03918 | 0.1821061 | 2.2887671 | 115 | 5 | 1999–2009 | 0.52 | M-v | 1 | MPC | 166170 | 2004 $FU_{25}$ |
| 2004 $FB_{27}$ | 17.0 | 0.15 | 20100104 | 154.19097 | 94.49746 | 194.99523 | 1.24045 | 0.1022972 | 2.2685042 | 56 | 5 | 2002–2009 | 0.42 | M-v | 1 | MPC | 159722 | 2004 $FB_{27}$ |
| 2004 $FG_{27}$ | 16.9 | 0.15 | 20100104 | 193.81039 | 246.35698 | 0.32367 | 6.74655 | 0.0570421 | 2.2627753 | 49 | 4 | 2004–2009 | 0.45 | M-v | 1 | MPC | 114717 | 2004 $FG_{27}$ |
| 2004 $FL_{27}$ | 15.4 | 0.15 | 20100104 | 304.87538 | 253.33439 | 239.73513 | 1.46150 | 0.1524693 | 3.9292576 | 50 | 5 | 2001–2009 | 0.32 | M-v | 0 | MPC | 166170 | 2004 $FL_{27}$ |
| 2004 $FD_{28}$ | 16.0 | 0.15 | 20100104 | 206.88280 | 44.04467 | 199.35868 | 23.04584 | 0.1449164 | 2.2894516 | 117 | 5 | 1998–2009 | 0.63 | M-v | 1 | MPC | 147292 | 2004 $FD_{28}$ |
| 2004 $FK_{35}$ | 17.1 | 0.15 | 20100104 | 203.69909 | 176.22208 | 44.32818 | 2.90889 | 0.1577338 | 2.3264579 | 57 | 6 | 1997–2009 | 0.50 | M-v | 1 | MPC | 166170 | 2004 $FK_{35}$ |
| 2004 $FT_{38}$ | 16.1 | 0.15 | 20100104 | 193.87209 | 336.95630 | 232.55380 | 5.84965 | 0.0869861 | 2.3724961 | 67 | 6 | 1991–2009 | 0.50 | M-v | 1 | MPC | 166170 | 2004 $FT_{38}$ |
| 2004 $FO_{41}$ | 16.0 | 0.15 | 20100104 | 84.28677 | 327.05370 | 30.88194 | 8.79099 | 0.1632569 | 2.2750112 | 111 | 5 | 2002–2009 | 0.49 | M-v | 1 | MPC | 116265 | 2004 $FO_{41}$ |
| 2004 $FL_{45}$ | 16.8 | 0.15 | 20100104 | 167.40645 | 149.96669 | 108.27182 | 4.33277 | 0.1477781 | 2.3461428 | 79 | 6 | 2000–2009 | 0.51 | M-v | 1 | MPC | 166170 | 2004 $FL_{45}$ |
| 2004 $FL_{47}$ | 16.7 | 0.15 | 20100104 | 291.71817 | 74.04500 | 33.84178 | 6.41549 | 0.0523542 | 2.3257400 | 38 | 3 | 2002–2009 | 0.47 | M-v | 2 | MPC | 164217 | 2004 $FL_{47}$ |
| 2004 $FL_{50}$ | 17.6 | 0.15 | 20100104 | 221.90810 | 288.33775 | 289.56648 | 1.99950 | 0.1545530 | 2.2768515 | 40 | 5 | 1997–2009 | 0.53 | M-v | 1 | MPC | 165386 | 2004 $FL_{50}$ |
| 2004 $FD_{52}$ | 16.8 | 0.15 | 20100104 | 244.26315 | 10.22857 | 163.35891 | 5.28456 | 0.1313819 | 2.3095332 | 80 | 5 | 1995–2009 | 0.48 | M-v | 1 | MPC | 166170 | 2004 $FD_{52}$ |
| 2004 $FW_{84}$ | 17.1 | 0.15 | 20100104 | 359.85746 | 63.85251 | 13.50792 | 4.16510 | 0.1226486 | 2.2325548 | 99 | 5 | 1999–2009 | 0.53 | M-v | 1 | MPC | 166170 | 2004 $FW_{84}$ |
| 2004 $FV_{91}$ | 17.4 | 0.15 | 20100104 | 211.79566 | 73.92263 | 168.38606 | 3.71638 | 0.1645800 | 2.2671327 | 64 | 6 | 1998–2009 | 0.51 | M-v | 1 | MPC | 159723 | 2004 $FV_{91}$ |
| 2004 $FZ_{92}$ | 17.3 | 0.15 | 20100104 | 322.40292 | 120.41178 | 20.10149 | 3.86757 | 0.0281085 | 2.1930918 | 36 | 4 | 2002–2009 | 0.51 | M-v | 2 | MPC | 116266 | 2004 $FZ_{92}$ |
| 2004 $FL_{93}$ | 17.0 | 0.15 | 20100104 | 7.52445 | 53.86097 | 33.10598 | 7.14012 | 0.0403360 | 2.2072466 | 48 | 5 | 1994–2009 | 0.62 | M-v | 1 | MPC | 158475 | 2004 $FL_{93}$ |
| 2004 $FN_{97}$ | 16.7 | 0.15 | 20100104 | 223.52200 | 149.70553 | 83.31122 | 5.28164 | 0.1211698 | 2.2351422 | 75 | 4 | 2002–2009 | 0.52 | M-v | 2 | MPC | 154125 | 2004 $FN_{97}$ |
| 2004 $FA_{111}$ | 16.2 | 0.15 | 20100104 | 133.38706 | 273.32331 | 17.35773 | 8.62125 | 0.1202191 | 2.3538077 | 92 | 4 | 2001–2009 | 0.62 | M-v | 2 | MPC | 166170 | 2004 $FA_{111}$ |
| 2004 $FP_{112}$ | 16.2 | 0.15 | 20100104 | 310.98882 | 68.40133 | 191.09614 | 9.88746 | 0.0923390 | 3.1348136 | 43 | 2 | 2004–2006 | 0.33 | M-v | 3 | MPC | 114720 | 2004 $FP_{112}$ |
| 2004 $FU_{116}$ | 17.3 | 0.15 | 20100104 | 232.07066 | 141.54433 | 109.07316 | 6.64595 | 0.1582266 | 2.2170781 | 72 | 5 | 2002–2009 | 0.55 | M-v | 1 | MPC | 143199 | 2004 $FU_{116}$ |
| 2004 $FT_{130}$ | 16.9 | 0.15 | 20100104 | 201.82442 | 177.10212 | 99.80151 | 8.29250 | 0.1767109 | 2.2207964 | 29 | 3 | 2004–2009 | 0.50 | M-v | 2 | MPC | 95199 | 2004 $FT_{130}$ |
| 2004 $FZ_{135}$ | 17.3 | 0.15 | 20100104 | 190.61398 | 74.13535 | 179.66236 | 3.00145 | 0.1717841 | 2.3000982 | 48 | 7 | 1997–2009 | 0.46 | M-v | 1 | MPC | 141805 | 2004 $FZ_{135}$ |
| 2004 $FO_{136}$ | 17.3 | 0.15 | 20100104 | 193.73567 | 192.10546 | 59.97259 | 11.12651 | 0.1728256 | 2.3067311 | 74 | 6 | 2001–2009 | 0.60 | M-v | 1 | MPC | 166171 | 2004 $FO_{136}$ |
| 2004 $FZ_{159}$ | 17.5 | 0.15 | 20100104 | 356.85532 | 21.45974 | 61.10003 | 4.34466 | 0.1049207 | 2.2119229 | 66 | 3 | 2004–2009 | 0.52 | M-v | 3 | MPC | 166171 | 2004 $FZ_{159}$ |
| 2004 $FS_{166}$ | 17.4 | 0.15 | 20040405 | 351.21877 | 277.99877 | 299.92956 | 9.70658 | 0.2532697 | 2.4023727 | 12 | 1 | 27 days | 0.42 | | | MPC | | 2004 $FS_{166}$ |
| 2004 $GW_{1}$ | 16.6 | 0.15 | 20100104 | 275.61843 | 143.11654 | 55.98894 | 4.81614 | 0.1434590 | 2.2106371 | 94 | 4 | 2004–2009 | 0.48 | M-v | 2 | MPC | 121811 | 2004 $GW_{1}$ |
| 2004 $GZ_{4}$ | 16.7 | 0.15 | 20100104 | 287.71599 | 90.17980 | 98.47946 | 5.45398 | 0.0916700 | 2.2043815 | 104 | 4 | 2004–2009 | 0.47 | M-v | 2 | MPC | 166171 | 2004 $GZ_{4}$ |
| 2004 $GW_{8}$ | 16.8 | 0.15 | 20100104 | 76.12378 | 22.84377 | 350.88297 | 3.57451 | 0.1152277 | 2.2721302 | 70 | 6 | 1995–2009 | 0.53 | M-v | 1 | MPC | 118069 | 2004 $GW_{8}$ |
| 2004 $GB_{13}$ | 16.3 | 0.15 | 20100104 | 199.12807 | 136.78958 | 115.12135 | 9.73544 | 0.1927034 | 2.3297550 | 92 | 6 | 2000–2009 | 0.50 | M-v | 1 | MPC | 143200 | 2004 $GB_{13}$ |
| 2004 $GX_{13}$ | 17.5 | 0.15 | 20100104 | 235.13224 | 274.86151 | 263.61144 | 4.08364 | 0.1116564 | 2.3539464 | 40 | 4 | 2004–2009 | 0.41 | M-v | 1 | MPC | 162390 | 2004 $GX_{13}$ |
| 2004 $GF_{21}$ | 17.3 | 0.15 | 20100104 | 244.00208 | 120.82748 | 90.40557 | 5.27737 | 0.1452578 | 2.2686140 | 45 | 4 | 2004–2009 | 0.38 | M-v | 1 | MPC | 166171 | 2004 $GF_{21}$ |
| 2004 $GH_{21}$ | 16.6 | 0.15 | 20100104 | 2.72714 | 342.57924 | 117.12702 | 6.38569 | 0.0797214 | 2.2281316 | 69 | 7 | 2000–2009 | 0.45 | M-v | 1 | MPC | 148928 | 2004 $GH_{21}$ |
| 2004 $GT_{22}$ | 16.9 | 0.15 | 20100104 | 342.78999 | 88.23184 | 35.26955 | 5.57501 | 0.0827075 | 2.2086790 | 72 | 7 | 1994–2009 | 0.56 | M-v | 1 | MPC | 118069 | 2004 $GT_{22}$ |
| 2004 $GA_{23}$ | 17.1 | 0.15 | 20100104 | 137.65502 | 211.15763 | 66.79649 | 1.66418 | 0.1823095 | 2.4049462 | 41 | 4 | 2001–2009 | 0.44 | M-v | 2 | MPC | 166171 | 2004 $GA_{23}$ |
| 2004 $GJ_{23}$ | 17.6 | 0.15 | 20100104 | 284.75244 | 350.47104 | 186.34587 | 3.60268 | 0.1033771 | 2.2233826 | 64 | 5 | 1997–2009 | 0.42 | M-v | 1 | MPC | 166171 | 2004 $GJ_{23}$ |
| 2004 $GZ_{23}$ | 16.8 | 0.15 | 20100104 | 209.63698 | 166.15385 | 107.54818 | 7.62588 | 0.2066089 | 2.2480344 | 55 | 5 | 2001–2009 | 0.66 | M-v | 1 | MPC | 147293 | 2004 $GZ_{23}$ |
| 2004 $GF_{24}$ | 16.9 | 0.15 | 20100104 | 189.12080 | 169.14365 | 81.20637 | 7.73123 | 0.0713414 | 2.3210297 | 36 | 7 | 1997–2009 | 0.62 | M-v | 1 | MPC | 160802 | 2004 $GF_{24}$ |
| 2004 $GK_{24}$ | 16.6 | 0.15 | 20100104 | 241.25893 | 13.71062 | 196.13270 | 23.94128 | 0.0951300 | 2.2754010 | 65 | 4 | 2004–2009 | 0.52 | M-v | 2 | MPC | 160802 | 2004 $GK_{24}$ |
| 2004 $GF_{25}$ | 16.4 | 0.15 | 20100104 | 167.27576 | 244.15128 | 62.61431 | 5.60053 | 0.1473701 | 2.2457650 | 89 | 6 | 1995–2009 | 0.48 | M-v | 0 | MPC | 147293 | 2004 $GF_{25}$ |
| 2004 $GQ_{28}$ | 17.0 | 0.15 | 20100104 | 279.08676 | 337.37757 | 198.24126 | 5.91349 | 0.0897585 | 2.2406734 | 69 | 4 | 2004–2009 | 0.50 | M-v | 2 | MPC | 166171 | 2004 $GQ_{28}$ |
| 2004 $GY_{32}$ | 16.5 | 0.15 | 20100104 | 151.74195 | 337.77790 | 192.04309 | 2.71922 | 0.1289125 | 2.6355283 | 96 | 5 | 2001–2008 | 0.58 | M-v | 1 | MPC | 138025 | 2004 $GY_{32}$ |
| 2004 $GW_{33}$ | 16.3 | 0.15 | 20100104 | 230.82869 | 149.74667 | 48.25644 | 5.93660 | 0.1787819 | 2.3343221 | 81 | 6 | 1998–2009 | 0.42 | M-v | 1 | MPC | 166171 | 2004 $GW_{33}$ |
| 2004 $GQ_{39}$ | 16.6 | 0.15 | 20100104 | 91.53190 | 267.51161 | 339.04474 | 6.83945 | 0.2236241 | 2.6614202 | 50 | 3 | 2004–2009 | 0.46 | M-v | 2 | MPC | 162390 | 2004 $GQ_{39}$ |
| 2004 $GQ_{48}$ | 18.0 | 0.15 | 20100104 | 316.67892 | 144.57483 | 11.96045 | 2.40695 | 0.1076067 | 2.1864546 | 62 | 6 | 1999–2009 | 0.33 | M-v | 1 | MPC | 119611 | 2004 $GQ_{48}$ |
| 2004 $GW_{48}$ | 17.2 | 0.15 | 20100104 | 1.89901 | 142.69720 | 206.64397 | 7.79236 | 0.0581937 | 2.5619618 | 33 | 3 | 2004–2009 | 0.25 | M-v | 3 | MPC | 158477 | 2004 $GW_{48}$ |
| 2004 $GK_{50}$ | 18.0 | 0.15 | 20100104 | 320.01210 | 254.39576 | 255.92257 | 2.62055 | 0.0675229 | 2.2013567 | 34 | 4 | 2004–2009 | 0.45 | M-v | 2 | MPC | 118070 | 2004 $GK_{50}$ |
| 2004 $GH_{60}$ | 17.5 | 0.15 | 20100104 | 295.35922 | 348.14994 | 177.89417 | 5.25195 | 0.1352774 | 2.2131976 | 35 | 4 | 2004–2009 | 0.44 | M-v | 2 | MPC | 115792 | 2004 $GH_{60}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 $GM_{64}$ | 16.6 | 0.15 | 20100104 | 47.01744 | 22.60977 | 2.26324 | 7.14985 | 0.1188806 | 2.2973577 | 46 | 5 | 2002–2009 | 0.42 | M-v | 1 | MPC | 166172 | 2004 $GM_{64}$ |
| 2004 $GB_{79}$ | 17.1 | 0.15 | 20100104 | 309.97278 | 65.93708 | 41.19579 | 7.11780 | 0.1337783 | 2.2975833 | 34 | 3 | 2002–2009 | 0.29 | M-v | 0 | MPC | 166172 | 2004 $GB_{79}$ |
| 2004 $HV_{6}$ | 17.4 | 0.15 | 20100104 | 253.22631 | 161.55446 | 61.74018 | 8.55287 | 0.1246640 | 2.2194698 | 48 | 4 | 2004–2009 | 0.55 | M-v | 2 | MPC | 121811 | 2004 $HV_{6}$ |
| 2004 $HK_{15}$ | 14.6 | 0.15 | 20100104 | 14.12325 | 212.99850 | 228.31453 | 2.62819 | 0.1662083 | 3.9563246 | 87 | 6 | 2001–2009 | 0.48 | M-v | 0 | MPC | 154127 | 2004 $HK_{15}$ |
| 2004 $HW_{27}$ | 17.1 | 0.15 | 20100104 | 176.89355 | 161.77527 | 116.88243 | 4.00025 | 0.1451993 | 2.3117250 | 47 | 5 | 2001–2009 | 0.40 | M-v | 1 | MPC | 147293 | 2004 $HW_{27}$ |
| 2004 $HN_{34}$ | 16.6 | 0.15 | 20100104 | 238.00616 | 120.05377 | 115.82962 | 5.79863 | 0.0926868 | 2.2506519 | 76 | 6 | 2000–2009 | 0.56 | M-v | 1 | MPC | 152401 | 2004 $HN_{34}$ |
| 2004 $HJ_{36}$ | 16.1 | 0.15 | 20100104 | 241.70388 | 129.64675 | 35.01338 | 5.32224 | 0.1235588 | 2.3808533 | 71 | 5 | 2000–2009 | 0.52 | M-v | 1 | MPC | 164219 | 2004 $HJ_{36}$ |
| 2004 $HL_{36}$ | 16.9 | 0.15 | 20100104 | 290.38007 | 148.91481 | 35.03029 | 7.61216 | 0.1077529 | 2.2179411 | 73 | 4 | 2004–2009 | 0.57 | M-v | 2 | MPC | 121812 | 2004 $HL_{36}$ |
| 2004 $HN_{37}$ | 16.0 | 0.15 | 20100104 | 131.85444 | 211.72282 | 83.06373 | 12.82823 | 0.2760127 | 2.4162326 | 86 | 4 | 2001–2009 | 0.57 | M-v | 0 | MPC | 140685 | 2004 $HN_{37}$ |
| 2004 $HG_{44}$ | 16.5 | 0.15 | 20100104 | 206.88544 | 324.07078 | 240.96927 | 5.55075 | 0.0720385 | 2.3788419 | 58 | 5 | 2000–2009 | 0.48 | M-v | 1 | MPC | 166172 | 2004 $HG_{44}$ |
| 2004 $HM_{44}$ | 17.3 | 0.15 | 20100104 | 155.66718 | 8.67368 | 230.59322 | 11.64993 | 0.1258012 | 2.4487061 | 37 | 5 | 2000–2009 | 0.33 | M-v | 1 | MPC | 164219 | 2004 $HM_{44}$ |
| 2004 $HP_{45}$ | 16.9 | 0.15 | 20100104 | 216.18820 | 207.86393 | 44.64829 | 8.37336 | 0.1135631 | 2.2651814 | 72 | 7 | 1998–2009 | 0.59 | M-v | 1 | MPC | 160803 | 2004 $HP_{45}$ |
| 2004 $HX_{46}$ | 17.2 | 0.15 | 20100104 | 263.34011 | 194.88771 | 10.92580 | 8.51139 | 0.0987417 | 2.2280529 | 53 | 5 | 1995–2009 | 0.44 | M-v | 1 | MPC | 118071 | 2004 $HX_{46}$ |
| 2004 $HS_{48}$ | 16.8 | 0.15 | 20100104 | 219.59646 | 321.89347 | 273.14252 | 6.99433 | 0.1730061 | 2.2875634 | 55 | 3 | 2004–2009 | 0.38 | M-v | 2 | MPC | 166172 | 2004 $HS_{48}$ |
| 2004 $HX_{60}$ | 16.9 | 0.15 | 20100104 | 246.24103 | 95.10052 | 136.31426 | 5.88149 | 0.1147993 | 2.2427975 | 53 | 4 | 2004–2009 | 0.51 | M-v | 2 | MPC | 119612 | 2004 $HX_{60}$ |
| 2004 $HW_{76}$ | 18.1 | 0.15 | 20100104 | 107.04368 | 262.65167 | 53.93976 | 2.11514 | 0.1885212 | 2.3896991 | 32 | 3 | 2004–2009 | 0.28 | M-v | 2 | MPC | 109033 | 2004 $HW_{76}$ |
| 2004 $HT_{78}$ | 13.3 | 0.15 | 20100104 | 356.81391 | 356.26744 | 48.10390 | 12.42082 | 0.0530769 | 5.1451266 | 50 | 5 | 2002–2009 | 0.40 | M-v | 1 | MPC | 166172 | 2004 $HT_{78}$ |
| 2004 $JA_{11}$ | 15.7 | 0.15 | 20100104 | 102.04341 | 204.52941 | 132.60032 | 8.11459 | 0.2636890 | 2.4508985 | 58 | 5 | 2001–2009 | 0.54 | M-v | 1 | MPC | 140124 | 2004 $JA_{11}$ |
| 2004 $JK_{14}$ | 17.1 | 0.15 | 20100104 | 271.51303 | 72.47611 | 140.70427 | 5.47874 | 0.0947565 | 2.2244720 | 81 | 5 | 2004–2009 | 0.51 | M-v | 1 | MPC | 147294 | 2004 $JK_{14}$ |
| 2004 $JM_{14}$ | 16.3 | 0.15 | 20100104 | 151.76562 | 191.64833 | 95.80167 | 7.27061 | 0.1417285 | 2.3859167 | 47 | 5 | 1996–2009 | 0.48 | M-v | 1 | MPC | 100720 | 2004 $JM_{14}$ |
| 2004 $JN_{17}$ | 16.6 | 0.15 | 20100104 | 250.74757 | 307.87246 | 235.90273 | 4.67165 | 0.0887466 | 2.3352929 | 77 | 5 | 2000–2009 | 0.47 | M-v | 1 | MPC | 166173 | 2004 $JN_{17}$ |
| 2004 $JV_{17}$ | 16.9 | 0.15 | 20100104 | 217.94271 | 212.99495 | 16.22137 | 4.09930 | 0.0835655 | 2.3167755 | 53 | 4 | 2004–2009 | 0.50 | M-v | 1 | MPC | 116271 | 2004 $JV_{17}$ |
| 2004 $JD_{23}$ | 17.2 | 0.15 | 20100104 | 247.75066 | 312.09308 | 264.30427 | 2.59137 | 0.1155058 | 2.2628256 | 66 | 5 | 2004–2009 | 0.42 | M-v | 1 | MPC | 147294 | 2004 $JD_{23}$ |
| 2004 $JQ_{23}$ | 16.8 | 0.15 | 20100104 | 149.59116 | 24.05569 | 252.58784 | 2.63102 | 0.1986559 | 2.4316648 | 64 | 5 | 2004–2009 | 0.39 | M-v | 1 | MPC | 166173 | 2004 $JQ_{23}$ |
| 2004 $JW_{25}$ | 16.3 | 0.15 | 20100104 | 233.09307 | 324.73258 | 236.28785 | 5.45714 | 0.0478926 | 2.3561214 | 57 | 6 | 2000–2009 | 0.47 | M-v | 1 | MPC | 166173 | 2004 $JW_{25}$ |
| 2004 $JU_{29}$ | 16.9 | 0.15 | 20100104 | 147.63818 | 215.36673 | 71.24222 | 5.54758 | 0.1765156 | 2.4051932 | 57 | 4 | 2001–2009 | 0.33 | M-v | 2 | MPC | 166173 | 2004 $JU_{29}$ |
| 2004 $JC_{30}$ | 17.0 | 0.15 | 20100104 | 191.94371 | 171.33141 | 80.50259 | 3.42520 | 0.1592257 | 2.3548001 | 48 | 4 | 2004–2009 | 0.54 | M-v | 2 | MPC | 143201 | 2004 $JC_{30}$ |
| 2004 $JK_{30}$ | 16.6 | 0.15 | 20100104 | 210.61331 | 13.66272 | 224.12226 | 5.61414 | 0.1813582 | 2.3317014 | 51 | 4 | 2004–2009 | 0.39 | M-v | 1 | MPC | 166173 | 2004 $JK_{30}$ |
| 2004 $JN_{31}$ | 17.2 | 0.15 | 20100104 | 258.57589 | 350.94361 | 209.78799 | 4.65846 | 0.1231321 | 2.2726361 | 64 | 6 | 2002–2009 | 0.45 | M-v | 1 | MPC | 141806 | 2004 $JN_{31}$ |
| 2004 $JV_{32}$ | 16.6 | 0.15 | 20100104 | 185.26158 | 134.47850 | 125.64885 | 4.77358 | 0.1084462 | 2.3415173 | 55 | 5 | 2004–2009 | 0.47 | M-v | 1 | MPC | 147294 | 2004 $JV_{32}$ |
| 2004 $JZ_{33}$ | 17.0 | 0.15 | 20100104 | 214.61499 | 165.65698 | 99.47358 | 6.18117 | 0.1340898 | 2.2645423 | 41 | 7 | 1994–2009 | 0.50 | M-v | 1 | MPC | 116271 | 2004 $JZ_{33}$ |
| 2004 $JC_{35}$ | 15.7 | 0.15 | 20100104 | 81.28790 | 129.90680 | 207.28375 | 6.32396 | 0.2486381 | 2.5273651 | 67 | 6 | 2001–2009 | 0.54 | M-v | 1 | MPC | 140685 | 2004 $JC_{35}$ |
| 2004 $JE_{35}$ | 16.7 | 0.15 | 20100104 | 174.86669 | 173.82784 | 112.41662 | 4.78869 | 0.2097296 | 2.3536149 | 76 | 7 | 2001–2009 | 0.56 | M-v | 1 | MPC | 147294 | 2004 $JE_{35}$ |
| 2004 $JX_{44}$ | 15.9 | 0.15 | 20100104 | 251.17604 | 130.02142 | 77.71021 | 24.86651 | 0.2198264 | 2.2766783 | 69 | 4 | 1999–2009 | 0.50 | M-v | 1 | MPC | 166173 | 2004 $JX_{44}$ |
| 2004 KQ | 17.0 | 0.15 | 20100104 | 200.61249 | 201.72469 | 48.07532 | 7.96941 | 0.1687458 | 2.3350521 | 56 | 4 | 2004–2009 | 0.44 | M-v | 2 | MPC | 166173 | 2004 KQ |
| 2004 $KD_{1}$ | 17.7 | 0.15 | 20100104 | 175.20611 | 9.79600 | 271.57217 | 10.12524 | 0.3303043 | 1.7198522 | 103 | 5 | 2002–2009 | 0.46 | M-v | 2 | MPC | 166173 | 2004 $KD_{1}$ |
| 2004 $KH_{4}$ | 17.2 | 0.15 | 20100104 | 152.79649 | 295.87445 | 337.48396 | 0.88362 | 0.1619473 | 2.4203448 | 54 | 7 | 1997–2009 | 0.36 | M-v | 1 | MPC | 118073 | 2004 $KH_{4}$ |
| 2004 $KX_{5}$ | 17.4 | 0.15 | 20100104 | 205.62729 | 152.11166 | 89.00239 | 3.51400 | 0.1910680 | 2.3452508 | 47 | 7 | 1993–2009 | 0.53 | M-v | 1 | MPC | 166173 | 2004 $KX_{5}$ |
| 2004 $LZ_{6}$ | 16.9 | 0.15 | 20100104 | 170.43884 | 190.82892 | 78.48876 | 7.33334 | 0.1521676 | 2.3917379 | 48 | 4 | 2004–2009 | 0.42 | M-v | 1 | MPC | 166173 | 2004 $LZ_{6}$ |
| 2004 $LA_{7}$ | 16.9 | 0.15 | 20100104 | 99.99170 | 245.51607 | 63.15008 | 5.66354 | 0.3471180 | 2.5721459 | 51 | 3 | 2004–2009 | 0.49 | M-v | 3 | MPC | 140686 | 2004 $LA_{7}$ |
| 2004 $LZ_{14}$ | 16.6 | 0.15 | 20100104 | 163.14647 | 186.28621 | 105.14969 | 8.34933 | 0.2299208 | 2.4206208 | 45 | 4 | 2004–2009 | 0.46 | M-v | 2 | MPC | 147294 | 2004 $LZ_{14}$ |
| 2004 $LA_{15}$ | 17.1 | 0.15 | 20100104 | 188.40642 | 158.12557 | 124.21383 | 4.71107 | 0.1427384 | 2.3130145 | 39 | 5 | 2001–2009 | 0.56 | M-v | 1 | MPC | 147294 | 2004 $LA_{15}$ |
| 2004 $LL_{15}$ | 16.0 | 0.15 | 20100104 | 27.06431 | 258.40306 | 94.10726 | 7.22570 | 0.2517341 | 2.7833470 | 66 | 5 | 2003–2009 | 0.55 | M-v | 1 | MPC | 166173 | 2004 $LL_{15}$ |
| 2004 $LA_{20}$ | 17.8 | 0.15 | 20100104 | 222.59979 | 329.96970 | 282.95697 | 2.58205 | 0.1338742 | 2.2655391 | 21 | 3 | 2004–2008 | 0.43 | M-v | 3 | MPC | 95233 | 2004 $LA_{20}$ |
| 2004 $LF_{25}$ | 16.4 | 0.15 | 20100104 | 139.24389 | 83.16167 | 233.47063 | 3.72385 | 0.1866495 | 2.4473391 | 67 | 5 | 2004–2009 | 0.46 | M-v | 1 | MPC | 147294 | 2004 $LF_{25}$ |
| 2004 $LG_{31}$ | 16.0 | 0.15 | 20100104 | 29.40746 | 89.34947 | 159.95777 | 8.06462 | 0.2281058 | 3.0996877 | 38 | 3 | 2003–2009 | 0.44 | M-v | 2 | MPC | 158479 | 2004 $LG_{31}$ |
| 2004 $MP_{2}$ | 15.9 | 0.15 | 20100104 | 257.15487 | 119.63268 | 106.83128 | 22.47980 | 0.2099141 | 2.2839878 | 60 | 4 | 2000–2009 | 0.62 | M-v | 1 | MPC | 120791 | 2004 $MP_{2}$ |
| 2004 $MR_{4}$ | 16.5 | 0.15 | 20100104 | 93.54561 | 278.19888 | 66.32157 | 9.34666 | 0.1955663 | 2.5228174 | 29 | 5 | 2001–2009 | 0.57 | M-v | 0 | MPC | 97712 | 2004 $MR_{4}$ |
| 2004 $ML_{5}$ | 16.9 | 0.15 | 20100104 | 222.05685 | 334.67369 | 273.89183 | 3.94369 | 0.1197339 | 2.3669443 | 54 | 5 | 2004–2009 | 0.44 | M-v | 1 | MPC | 159725 | 2004 $ML_{5}$ |
| 2004 $MY_{6}$ | 16.8 | 0.15 | 20100104 | 85.11775 | 92.01858 | 236.14006 | 4.65064 | 0.2561650 | 2.6163131 | 40 | 4 | 2000–2009 | 0.47 | M-v | 2 | MPC | 166174 | 2004 $MY_{6}$ |
| 2004 $MT_{7}$ | 15.8 | 0.15 | 20100104 | 125.38296 | 235.84952 | 45.27804 | 13.45210 | 0.1882572 | 2.6074269 | 58 | 5 | 2000–2009 | 0.57 | M-v | 1 | MPC | 166174 | 2004 $MT_{7}$ |
| 2004 NH | 16.9 | 0.15 | 20100104 | 141.18519 | 219.97949 | 93.45507 | 5.90567 | 0.1978839 | 2.4499188 | 42 | 4 | 2004–2009 | 0.39 | M-v | 2 | MPC | 143202 | 2004 NH |
| 2004 NR | 16.7 | 0.15 | 20100104 | 103.17091 | 166.87490 | 156.13246 | 2.29143 | 0.1421521 | 2.5457799 | 48 | 6 | 2000–2009 | 0.37 | M-v | 0 | MPC | 166174 | 2004 NR |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 $NL_2$ | 16.4 | 0.15 | 20100104 | 95.07240 | 254.41475 | 75.86087 | 4.89054 | 0.1972039 | 2.5866282 | 33 | 4 | 2000–2009 | 0.52 | M-v | 1 | MPC | 166174 | 2004 $NL_2$ |
| 2004 $NQ_5$ | 17.0 | 0.15 | 20100104 | 153.72093 | 303.59627 | 3.65727 | 3.49940 | 0.1712954 | 2.4332562 | 89 | 4 | 2004–2009 | 0.41 | M-v | 1 | MPC | 148929 | 2004 $NQ_5$ |
| 2004 $NZ_5$ | 16.7 | 0.15 | 20100104 | 153.22489 | 166.64659 | 140.54772 | 6.89730 | 0.1275108 | 2.4206040 | 63 | 4 | 2004–2009 | 0.51 | M-v | 1 | MPC | 147295 | 2004 $NZ_5$ |
| 2004 $NQ_6$ | 15.2 | 0.15 | 20100104 | 84.60981 | 9.84539 | 336.08101 | 14.08201 | 0.2705903 | 2.6463475 | 91 | 5 | 1991–2009 | 0.48 | M-v | 1 | MPC | 95240 | 2004 $NQ_6$ |
| 2004 $NT_6$ | 16.5 | 0.15 | 20100104 | 100.58334 | 192.06763 | 119.86268 | 9.91756 | 0.3143183 | 2.6582238 | 68 | 6 | 1999–2009 | 0.50 | M-v | 0 | MPC | 155995 | 2004 $NT_6$ |
| 2004 $NV_6$ | 15.1 | 0.15 | 20100104 | 66.08621 | 206.88973 | 127.76350 | 10.67558 | 0.2238375 | 2.7848893 | 91 | 6 | 1999–2009 | 0.52 | M-v | 1 | MPC | 166174 | 2004 $NV_6$ |
| 2004 $NZ_8$ | 16.0 | 0.15 | 20100104 | 31.04237 | 302.21879 | 85.10924 | 8.02707 | 0.5129095 | 2.7822856 | 118 | 4 | 1976–2009 | 0.49 | M-v | 0 | MPC | 166174 | 2004 $NZ_8$ |
| 2004 $NO_{10}$ | 17.1 | 0.15 | 20100104 | 129.56030 | 200.57333 | 116.97400 | 3.55168 | 0.1811623 | 2.4787246 | 53 | 6 | 2003–2009 | 0.38 | M-v | 0 | MPC | 159091 | 2004 $NO_{10}$ |
| 2004 $NM_{13}$ | 17.1 | 0.15 | 20100104 | 232.20463 | 121.24560 | 132.59786 | 5.96392 | 0.1392721 | 2.3113964 | 42 | 7 | 2000–2009 | 0.44 | M-v | 0 | MPC | 147295 | 2004 $NM_{13}$ |
| 2004 $NX_{13}$ | 16.7 | 0.15 | 20100104 | 132.45312 | 199.52418 | 137.51343 | 5.69406 | 0.1260954 | 2.4172332 | 49 | 4 | 2004–2009 | 0.42 | M-v | 1 | MPC | 152402 | 2004 $NX_{13}$ |
| 2004 $NO_{14}$ | 17.0 | 0.15 | 20100104 | 141.28839 | 134.64582 | 183.76151 | 2.18327 | 0.1815778 | 2.4442144 | 65 | 4 | 2004–2009 | 0.43 | M-v | 2 | MPC | 147295 | 2004 $NO_{14}$ |
| 2004 $NW_{15}$ | 16.5 | 0.15 | 20100104 | 119.60983 | 87.67470 | 219.54590 | 2.95106 | 0.1845776 | 2.5541375 | 51 | 6 | 2000–2009 | 0.44 | M-v | 1 | MPC | 166174 | 2004 $NW_{15}$ |
| 2004 $NM_{18}$ | 16.4 | 0.15 | 20100104 | 40.62898 | 156.53999 | 207.40496 | 4.00255 | 0.4039724 | 2.7511019 | 58 | 3 | 2004–2009 | 0.46 | M-v | 1 | MPC | 165388 | 2004 $NM_{18}$ |
| 2004 $NY_{19}$ | 16.4 | 0.15 | 20100104 | 24.04743 | 101.08035 | 253.35488 | 6.34128 | 0.2419369 | 2.8077891 | 63 | 2 | 2004–2009 | 0.47 | M-v | 3 | MPC | 164220 | 2004 $NY_{19}$ |
| 2004 $NA_{21}$ | 16.5 | 0.15 | 20100104 | 98.79032 | 96.53726 | 232.12298 | 4.45175 | 0.1469088 | 2.5558854 | 33 | 5 | 2000–2009 | 0.54 | M-v | 1 | MPC | 118075 | 2004 $NA_{21}$ |
| 2004 $NF_{21}$ | 16.8 | 0.15 | 20100104 | 36.85680 | 110.02144 | 251.38443 | 5.93747 | 0.3107461 | 2.7661283 | 54 | 2 | 2004–2009 | 0.43 | M-v | 3 | MPC | 165388 | 2004 $NF_{21}$ |
| 2004 $NL_{22}$ | 16.3 | 0.15 | 20100104 | 118.18262 | 273.46974 | 36.73071 | 4.50862 | 0.1724007 | 2.5270248 | 25 | 3 | 2004–2009 | 0.34 | M-v | 4 | MPC | 165388 | 2004 $NL_{22}$ |
| 2004 $NT_{22}$ | 16.5 | 0.15 | 20100104 | 129.56645 | 19.21278 | 273.15410 | 3.95631 | 0.2722914 | 2.5662388 | 66 | 4 | 2000–2009 | 0.57 | M-v | 2 | MPC | 140686 | 2004 $NT_{22}$ |
| 2004 $NZ_{22}$ | 15.8 | 0.15 | 20100104 | 82.63476 | 36.59073 | 314.74953 | 12.15517 | 0.2546426 | 2.6443871 | 102 | 3 | 2004–2009 | 0.40 | M-v | 2 | MPC | 95246 | 2004 $NZ_{22}$ |
| 2004 $NG_{23}$ | 15.5 | 0.15 | 20100104 | 101.09838 | 12.14919 | 318.42179 | 12.90137 | 0.1828617 | 2.6346248 | 84 | 6 | 2000–2009 | 0.51 | M-v | 1 | MPC | 147295 | 2004 $NG_{23}$ |
| 2004 $NX_{27}$ | 17.0 | 0.15 | 20100104 | 280.26509 | 2.60512 | 252.09877 | 3.55710 | 0.1189688 | 2.2117131 | 57 | 8 | 2000–2009 | 0.45 | M-v | 0 | MPC | 148930 | 2004 $NX_{27}$ |
| 2004 $NE_{28}$ | 16.5 | 0.15 | 20100104 | 55.66429 | 179.15795 | 137.14363 | 10.15068 | 0.2755127 | 2.7981371 | 38 | 4 | 2003–2009 | 0.46 | M-v | 1 | MPC | 156944 | 2004 $NE_{28}$ |
| 2004 $NC_{30}$ | 16.7 | 0.15 | 20100104 | 116.76588 | 95.24280 | 197.77666 | 5.67137 | 0.2267564 | 2.5238031 | 36 | 5 | 2003–2009 | 0.35 | M-v | 1 | MPC | 166174 | 2004 $NC_{30}$ |
| 2004 $NP_{30}$ | 16.5 | 0.15 | 20100104 | 156.71932 | 181.02872 | 121.29873 | 3.01821 | 0.1811068 | 2.4259113 | 44 | 7 | 1996–2009 | 0.47 | M-v | 1 | MPC | 147296 | 2004 $NP_{30}$ |
| 2004 $NK_{31}$ | 16.6 | 0.15 | 20100104 | 173.05290 | 252.63893 | 40.06209 | 7.40612 | 0.1356454 | 2.4198342 | 41 | 6 | 2001–2009 | 0.54 | M-v | 1 | MPC | 147296 | 2004 $NK_{31}$ |
| 2004 $ND_{33}$ | 16.5 | 0.15 | 20100104 | 171.69723 | 2.10277 | 293.80018 | 4.22726 | 0.1910008 | 2.4237961 | 74 | 3 | 2004–2009 | 0.46 | M-v | 2 | MPC | 148930 | 2004 $ND_{33}$ |
| 2004 $OV_9$ | 16.7 | 0.15 | 20100104 | 105.64185 | 258.34834 | 72.00086 | 5.21178 | 0.1892115 | 2.5361071 | 42 | 6 | 1995–2009 | 0.45 | M-v | 1 | MPC | 118076 | 2004 $OV_9$ |
| 2004 $OQ_{10}$ | 16.1 | 0.15 | 20100104 | 56.05136 | 104.72277 | 230.32223 | 18.28115 | 0.3359053 | 2.7674524 | 194 | 3 | 2004–2009 | 0.40 | M-v | 2 | MPC | 166174 | 2004 $OQ_{10}$ |
| 2004 $PN_1$ | 15.6 | 0.15 | 20100104 | 49.82662 | 79.09136 | 293.73830 | 23.75169 | 0.3162966 | 2.7207404 | 43 | 3 | 2000–2009 | 0.56 | M-v | 2 | MPC | 166174 | 2004 $PN_1$ |
| 2004 $PQ_2$ | 16.2 | 0.15 | 20100104 | 91.98230 | 36.07344 | 315.64149 | 14.18098 | 0.1184234 | 2.5888736 | 75 | 4 | 2000–2009 | 0.51 | M-v | 2 | MPC | 147296 | 2004 $PQ_2$ |
| 2004 $PB_5$ | 16.0 | 0.15 | 20100104 | 89.81502 | 181.30478 | 164.38314 | 14.58573 | 0.1452726 | 2.5596001 | 37 | 7 | 1996–2009 | 0.55 | M-v | 1 | MPC | 147296 | 2004 $PB_5$ |
| 2004 $PM_5$ | 17.1 | 0.15 | 20100104 | 71.54482 | 114.37661 | 223.35224 | 3.12714 | 0.2057017 | 2.6700364 | 35 | 5 | 2000–2009 | 0.45 | M-v | 1 | MPC | 166174 | 2004 $PM_5$ |
| 2004 $PK_{14}$ | 15.9 | 0.15 | 20100104 | 70.02409 | 23.43196 | 335.05868 | 13.45294 | 0.2662549 | 2.6612556 | 86 | 4 | 2000–2009 | 0.48 | M-v | 1 | MPC | 159727 | 2004 $PK_{14}$ |
| 2004 $PT_{15}$ | 16.4 | 0.15 | 20100104 | 109.70025 | 198.65139 | 112.92232 | 2.49905 | 0.2029666 | 2.6335546 | 76 | 6 | 1991–2009 | 0.52 | M-v | 1 | MPC | 166174 | 2004 $PT_{15}$ |
| 2004 $PC_{16}$ | 16.8 | 0.15 | 20100104 | 68.02454 | 86.54352 | 292.54551 | 5.70426 | 0.3330560 | 2.6534435 | 56 | 3 | 2000–2009 | 0.46 | M-v | 2 | MPC | 74313 | 2004 $PC_{16}$ |
| 2004 $PH_{16}$ | 15.6 | 0.15 | 20100104 | 35.87323 | 231.15140 | 142.38833 | 10.13176 | 0.2336895 | 2.7838221 | 88 | 3 | 2004–2009 | 0.48 | M-v | 2 | MPC | 166174 | 2004 $PH_{16}$ |
| 2004 $PM_{18}$ | 16.5 | 0.15 | 20100104 | 193.31510 | 77.10365 | 201.55637 | 2.64528 | 0.2091281 | 2.4019330 | 138 | 4 | 2004–2009 | 0.48 | M-v | 1 | MPC | 150981 | 2004 $PM_{18}$ |
| 2004 $PP_{24}$ | 16.6 | 0.15 | 20100104 | 167.01222 | 178.48986 | 119.29311 | 5.94859 | 0.1894231 | 2.4349575 | 66 | 5 | 2004–2009 | 0.50 | M-v | 1 | MPC | 146139 | 2004 $PP_{24}$ |
| 2004 $PA_{26}$ | 16.8 | 0.15 | 20100104 | 87.90498 | 199.90707 | 140.83072 | 6.51609 | 0.2279475 | 2.6192607 | 46 | 5 | 1996–2009 | 0.53 | M-v | 1 | MPC | 97718 | 2004 $PA_{26}$ |
| 2004 $PJ_{27}$ | 16.8 | 0.15 | 20100104 | 77.33157 | 271.26539 | 110.23270 | 8.04100 | 0.1473492 | 2.5130129 | 47 | 4 | 2002–2009 | 0.37 | M-v | 1 | MPC | 166174 | 2004 $PJ_{27}$ |
| 2004 $PU_{27}$ | 16.0 | 0.15 | 20100104 | 86.20677 | 221.39857 | 111.83625 | 12.96896 | 0.2078040 | 2.6387282 | 49 | 5 | 1999–2009 | 0.44 | M-v | 0 | MPC | 159727 | 2004 $PU_{27}$ |
| 2004 $PE_{28}$ | 16.1 | 0.15 | 20100104 | 19.61952 | 128.26672 | 252.03980 | 6.78668 | 0.2427809 | 2.8069042 | 85 | 5 | 1997–2009 | 0.59 | M-v | 1 | MPC | 166174 | 2004 $PE_{28}$ |
| 2004 $PE_{32}$ | 16.6 | 0.15 | 20100104 | 203.77483 | 299.21706 | 345.64029 | 6.23769 | 0.1320095 | 2.3769940 | 73 | 6 | 1997–2009 | 0.47 | M-v | 0 | MPC | 147297 | 2004 $PE_{32}$ |
| 2004 $PE_{35}$ | 16.2 | 0.15 | 20100104 | 56.63276 | 39.84348 | 334.63196 | 12.95241 | 0.2744497 | 2.6930597 | 72 | 4 | 2000–2009 | 0.53 | M-v | 1 | MPC | 97719 | 2004 $PE_{35}$ |
| 2004 $PC_{41}$ | 16.6 | 0.15 | 20100104 | 64.57968 | 254.49258 | 92.28067 | 13.99832 | 0.2091662 | 2.6623867 | 57 | 3 | 2004–2009 | 0.49 | M-v | 2 | MPC | 166175 | 2004 $PC_{41}$ |
| 2004 $PV_{42}$ | 16.6 | 0.15 | 20100104 | 96.54457 | 267.27741 | 57.52679 | 5.47700 | 0.2238020 | 2.6128378 | 48 | 6 | 2000–2009 | 0.43 | M-v | 1 | MPC | 116276 | 2004 $PV_{42}$ |
| 2004 $PY_{44}$ | 16.1 | 0.15 | 20100104 | 47.43059 | 288.23842 | 128.17273 | 11.17482 | 0.2201485 | 2.5799248 | 72 | 6 | 2000–2009 | 0.56 | M-v | 0 | MPC | 160805 | 2004 $PY_{44}$ |
| 2004 $PD_{47}$ | 16.3 | 0.15 | 20100104 | 66.59572 | 303.86278 | 74.55086 | 4.68751 | 0.2012919 | 2.5822662 | 68 | 6 | 1992–2009 | 0.44 | M-v | 0 | MPC | 166175 | 2004 $PD_{47}$ |
| 2004 $PN_{48}$ | 16.9 | 0.15 | 20100104 | 79.49236 | 69.23345 | 276.67329 | 2.80443 | 0.2907828 | 2.6385915 | 25 | 3 | 2000–2009 | 0.43 | M-v | 3 | MPC | 73017 | 2004 $PN_{48}$ |
| 2004 $PP_{49}$ | 16.7 | 0.15 | 20100104 | 215.21430 | 293.58330 | 345.82205 | 5.42023 | 0.2284537 | 2.3254758 | 54 | 5 | 1997–2009 | 0.50 | M-v | 1 | MPC | 159728 | 2004 $PP_{49}$ |
| 2004 $PD_{51}$ | 16.3 | 0.15 | 20100104 | 47.03639 | 318.25668 | 13.35810 | 4.82874 | 0.1552123 | 2.7928383 | 61 | 5 | 2003–2009 | 0.39 | M-v | 1 | MPC | 166175 | 2004 $PD_{51}$ |
| 2004 $PB_{52}$ | 16.6 | 0.15 | 20100104 | 171.41652 | 217.07357 | 133.40166 | 10.60627 | 0.1558666 | 2.3275602 | 73 | 6 | 2001–2009 | 0.61 | M-v | 1 | MPC | 150981 | 2004 $PB_{52}$ |
| 2004 $PK_{53}$ | 16.7 | 0.15 | 20100104 | 75.50150 | 16.31657 | 3.31315 | 3.29959 | 0.1371728 | 2.5270432 | 50 | 6 | 1994–2009 | 0.48 | M-v | 2 | MPC | 122774 | 2004 $PK_{53}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 $PR_{55}$ | 16.0 | 0.15 | 20100104 | 89.12253 | 216.23949 | 111.40692 | 4.41297 | 0.1934287 | 2.6652350 | 69 | 4 | 1998–2009 | 0.42 | M-v | 1 | MPC | 165389 2004 $PR_{55}$ |
| 2004 $PS_{58}$ | 17.2 | 0.15 | 20100104 | 129.50164 | 137.52792 | 167.11484 | 5.17217 | 0.1566107 | 2.5613497 | 38 | 5 | 2000–2009 | 0.39 | M-v | 1 | MPC | 141808 2004 $PS_{58}$ |
| 2004 $PR_{60}$ | 16.2 | 0.15 | 20100104 | 41.09873 | 129.12238 | 223.67653 | 3.61036 | 0.0830939 | 2.7970660 | 66 | 6 | 1995–2009 | 0.52 | M-v | 1 | MPC | 166175 2004 $PR_{60}$ |
| 2004 $PX_{60}$ | 16.7 | 0.15 | 20100104 | 82.10703 | 40.10468 | 291.87459 | 3.87817 | 0.1931027 | 2.6948513 | 53 | 3 | 2004–2009 | 0.43 | M-v | 3 | MPC | 166175 2004 $PX_{60}$ |
| 2004 $PX_{63}$ | 16.1 | 0.15 | 20100104 | 62.08795 | 93.66373 | 233.27272 | 4.99911 | 0.0377237 | 2.7490475 | 82 | 6 | 2000–2009 | 0.50 | M-v | 0 | MPC | 164221 2004 $PX_{63}$ |
| 2004 $PC_{64}$ | 16.7 | 0.15 | 20100104 | 73.99036 | 272.13054 | 113.14685 | 6.81859 | 0.0411435 | 2.4931576 | 37 | 4 | 2003–2009 | 0.43 | M-v | 1 | MPC | 156945 2004 $PC_{64}$ |
| 2004 $PM_{69}$ | 16.4 | 0.15 | 20100104 | 158.20797 | 39.09779 | 257.98813 | 4.43509 | 0.1400802 | 2.5097062 | 64 | 6 | 2003–2009 | 0.52 | M-v | 1 | MPC | 156945 2004 $PM_{69}$ |
| 2004 $PQ_{70}$ | 16.2 | 0.15 | 20100104 | 82.87505 | 214.34511 | 119.85719 | 5.58569 | 0.1276258 | 2.6272275 | 31 | 5 | 2002–2009 | 0.37 | M-v | 1 | MPC | 165390 2004 $PQ_{70}$ |
| 2004 $PL_{72}$ | 16.5 | 0.15 | 20100104 | 126.17709 | 177.95052 | 115.75211 | 2.51583 | 0.1675345 | 2.5720033 | 53 | 6 | 2000–2009 | 0.36 | M-v | 0 | MPC | 166175 2004 $PL_{72}$ |
| 2004 $PA_{75}$ | 16.9 | 0.15 | 20100104 | 217.38429 | 283.94554 | 344.40773 | 4.92122 | 0.2054095 | 2.3483302 | 71 | 6 | 1997–2009 | 0.44 | M-v | 0 | MPC | 147299 2004 $PA_{75}$ |
| 2004 $PC_{79}$ | 15.9 | 0.15 | 20100104 | 76.58622 | 62.03687 | 282.82511 | 6.96613 | 0.1920214 | 2.6634514 | 107 | 4 | 2000–2009 | 0.50 | M-v | 1 | MPC | 97722 2004 $PC_{79}$ |
| 2004 $PV_{88}$ | 16.5 | 0.15 | 20100104 | 121.68072 | 181.37380 | 105.28198 | 2.96705 | 0.1175982 | 2.6362476 | 45 | 6 | 1998–2009 | 0.36 | M-v | 1 | MPC | 165390 2004 $PV_{88}$ |
| 2004 $PU_{89}$ | 16.5 | 0.15 | 20100104 | 75.75548 | 180.09159 | 178.42673 | 3.39598 | 0.2822370 | 2.6863535 | 73 | 7 | 1960–2009 | 0.47 | M-v | 1 | MPC | 157405 2004 $PU_{89}$ |
| 2004 $PJ_{94}$ | 16.4 | 0.15 | 20100104 | 131.90681 | 196.31922 | 98.89514 | 3.40830 | 0.2045319 | 2.5967270 | 75 | 5 | 2003–2009 | 0.49 | M-v | 1 | MPC | 166175 2004 $PJ_{94}$ |
| 2004 $PB_{95}$ | 15.6 | 0.15 | 20100104 | 112.20805 | 46.84762 | 244.21480 | 11.92435 | 0.1814487 | 2.6754207 | 88 | 5 | 1999–2009 | 0.52 | M-v | 1 | MPC | 166175 2004 $PB_{95}$ |
| 2004 $PF_{95}$ | 15.8 | 0.15 | 20100104 | 358.98290 | 114.45820 | 279.57958 | 5.34542 | 0.1245732 | 2.8078924 | 90 | 5 | 1992–2009 | 0.45 | M-v | 0 | MPC | 164222 2004 $PF_{95}$ |
| 2004 $PW_{96}$ | 16.4 | 0.15 | 20100104 | 70.79722 | 44.13987 | 334.78315 | 13.60878 | 0.0778238 | 2.5616981 | 47 | 5 | 2000–2009 | 0.49 | M-v | 1 | MPC | 147300 2004 $PW_{96}$ |
| 2004 $PV_{98}$ | 16.2 | 0.15 | 20100104 | 53.54602 | 229.04549 | 121.88017 | 13.28893 | 0.1640412 | 2.7360227 | 42 | 4 | 2000–2009 | 0.49 | M-v | 0 | MPC | 166175 2004 $PV_{98}$ |
| 2004 $PZ_{100}$ | 15.6 | 0.15 | 20100104 | 78.50549 | 181.29705 | 170.62371 | 17.26705 | 0.1693815 | 2.6719297 | 82 | 4 | 2000–2009 | 0.60 | M-v | 1 | MPC | 74320 2004 $PZ_{100}$ |
| 2004 $PC_{103}$ | 15.4 | 0.15 | 20100104 | 83.14486 | 136.74226 | 198.91799 | 13.26973 | 0.2254623 | 2.7328568 | 121 | 7 | 1995–2009 | 0.49 | M-v | 1 | MPC | 140127 2004 $PC_{103}$ |
| 2004 $PE_{103}$ | 15.8 | 0.15 | 20100104 | 53.76820 | 43.31800 | 342.64954 | 16.37917 | 0.2346096 | 2.7298335 | 77 | 4 | 2004–2009 | 0.49 | M-v | 1 | MPC | 164222 2004 $PE_{103}$ |
| 2004 $PT_{107}$ | 6.0 | 0.15 | 20100104 | 345.57760 | 18.60212 | 320.93239 | 26.06972 | 0.0634354 | 40.8031114 | 24 | 5 | 2004–2009 | 0.17 | M-v | 3 | MPC | 157405 2004 $PT_{107}$ |
| 2004 $PQ_{109}$ | 16.3 | 0.15 | 20100104 | 49.46376 | 88.76064 | 298.96125 | 8.50996 | 0.1820885 | 2.5685305 | 33 | 4 | 2002–2009 | 0.49 | M-v | 2 | MPC | 100741 2004 $PQ_{109}$ |
| 2004 $PX_{113}$ | 15.9 | 0.15 | 20100104 | 112.45495 | 193.30455 | 133.01415 | 10.76635 | 0.0784552 | 2.6019475 | 63 | 6 | 2000–2009 | 0.64 | M-v | 1 | MPC | 159729 2004 $PX_{113}$ |
| 2004 $PZ_{113}$ | 15.9 | 0.15 | 20100104 | 93.10280 | 280.60071 | 10.30229 | 8.92119 | 0.1313548 | 2.7626763 | 54 | 4 | 2002–2009 | 0.50 | M-v | 1 | MPC | 164222 2004 $PZ_{113}$ |
| 2004 $QG_{1}$ | 15.7 | 0.15 | 20100104 | 12.29276 | 76.26404 | 292.52575 | 14.74843 | 0.4490112 | 3.0407569 | 133 | 3 | 2000–2009 | 0.49 | M-v | 1 | MPC | 166175 2004 $QG_{1}$ |
| 2004 $QF_{3}$ | 16.5 | 0.15 | 20100104 | 69.67843 | 254.93552 | 95.03883 | 6.11879 | 0.2483941 | 2.6728472 | 57 | 4 | 2000–2009 | 0.47 | M-v | 1 | MPC | 166175 2004 $QF_{3}$ |
| 2004 $QJ_{4}$ | 16.2 | 0.15 | 20100104 | 124.68659 | 237.66104 | 23.06982 | 12.36898 | 0.1355913 | 2.6654947 | 33 | 3 | 2003–2009 | 0.36 | M-v | 2 | MPC | 163678 2004 $QJ_{4}$ |
| 2004 $QP_{6}$ | 16.4 | 0.15 | 20100104 | 80.30206 | 48.96349 | 254.28981 | 2.71963 | 0.1678113 | 2.7209746 | 60 | 5 | 2000–2009 | 0.51 | M-v | 1 | MPC | 166175 2004 $QP_{6}$ |
| 2004 $QS_{6}$ | 16.1 | 0.15 | 20100104 | 33.93106 | 144.36267 | 230.56713 | 8.28841 | 0.1911512 | 2.7538813 | 75 | 3 | 2000–2009 | 0.52 | M-v | 2 | MPC | 165391 2004 $QS_{6}$ |
| 2004 $QL_{9}$ | 15.3 | 0.15 | 20100104 | 28.78663 | 331.29119 | 17.41424 | 10.09164 | 0.1148131 | 2.8928809 | 66 | 3 | 2004–2009 | 0.55 | M-v | 3 | MPC | 162396 2004 $QL_{9}$ |
| 2004 $QZ_{9}$ | 16.0 | 0.15 | 20100104 | 31.13077 | 246.99669 | 134.10077 | 15.86822 | 0.1793762 | 2.7593786 | 75 | 3 | 2004–2009 | 0.57 | M-v | 2 | MPC | 166176 2004 $QZ_{9}$ |
| 2004 $QV_{10}$ | 16.1 | 0.15 | 20100104 | 76.64956 | 300.74037 | 33.72993 | 9.49198 | 0.2391397 | 2.7060355 | 48 | 5 | 2000–2009 | 0.46 | M-v | 1 | MPC | 166176 2004 $QV_{10}$ |
| 2004 $QA_{12}$ | 15.8 | 0.15 | 20100104 | 19.19416 | 351.65869 | 11.84349 | 15.59286 | 0.1440862 | 2.8619437 | 47 | 3 | 2004–2009 | 0.41 | M-v | 2 | MPC | 164222 2004 $QA_{12}$ |
| 2004 $QH_{18}$ | 15.5 | 0.15 | 20100104 | 102.95293 | 58.41829 | 282.98678 | 12.05931 | 0.3501218 | 2.6459169 | 105 | 3 | 2004–2009 | 0.52 | M-v | 1 | MPC | 164222 2004 $QH_{18}$ |
| 2004 $QL_{18}$ | 15.6 | 0.15 | 20100104 | 80.60016 | 341.39628 | 22.44398 | 13.33441 | 0.1974647 | 2.6939696 | 117 | 4 | 2004–2009 | 0.48 | M-v | 1 | MPC | 147301 2004 $QL_{18}$ |
| 2004 $QB_{20}$ | 17.0 | 0.15 | 20100104 | 95.56914 | 129.84830 | 220.67514 | 2.05865 | 0.2347964 | 2.6061259 | 79 | 5 | 2000–2009 | 0.55 | M-v | 1 | MPC | 147301 2004 $QB_{20}$ |
| 2004 $QW_{24}$ | 15.6 | 0.15 | 20100104 | 123.86731 | 232.45284 | 82.05868 | 34.57335 | 0.2549820 | 2.5769684 | 62 | 5 | 2001–2009 | 0.34 | M-v | 0 | MPC | 148934 2004 $QW_{24}$ |
| 2004 $QG_{27}$ | 15.9 | 0.15 | 20100104 | 125.69211 | 47.34129 | 238.35076 | 14.67895 | 0.2071614 | 2.6737130 | 35 | 2 | 2004–2009 | 0.46 | M-v | 3 | MPC | 165391 2004 $QG_{27}$ |
| 2004 $QE_{28}$ | 17.4 | 0.15 | 20100104 | 86.43234 | 78.17334 | 254.53261 | 3.37991 | 0.0839101 | 2.6955825 | 19 | 2 | 2004–2009 | 0.23 | M-v | 4 | MPC | 165391 2004 $QE_{28}$ |
| 2004 RG | 16.9 | 0.15 | 20100104 | 113.18238 | 48.80390 | 289.07851 | 12.78016 | 0.2037514 | 2.5555679 | 63 | 3 | 2004–2009 | 0.43 | M-v | 3 | MPC | 143206 2004 RG |
| 2004 RZ | 15.6 | 0.15 | 20100104 | 48.17060 | 108.55764 | 238.83988 | 25.57776 | 0.2782647 | 2.8387497 | 132 | 3 | 2004–2009 | 0.45 | M-v | 1 | MPC | 166176 2004 RZ |
| 2004 $RE_{4}$ | 16.5 | 0.15 | 20100104 | 51.47611 | 242.74819 | 122.07632 | 10.09300 | 0.2392699 | 2.7298621 | 46 | 3 | 2004–2009 | 0.65 | M-v | 3 | MPC | 95321 2004 $RE_{4}$ |
| 2004 $RP_{5}$ | 16.1 | 0.15 | 20100104 | 49.72718 | 302.84435 | 71.90635 | 8.32306 | 0.1622062 | 2.7266227 | 89 | 3 | 2000–2009 | 0.51 | M-v | 2 | MPC | 166176 2004 $RP_{5}$ |
| 2004 $RZ_{5}$ | 16.0 | 0.15 | 20100104 | 42.69398 | 338.33130 | 29.88220 | 9.07921 | 0.2043866 | 2.7532888 | 78 | 2 | 2004–2009 | 0.47 | M-v | 3 | MPC | 166176 2004 $RZ_{5}$ |
| 2004 $RB_{7}$ | 15.8 | 0.15 | 20100104 | 23.38256 | 326.85033 | 35.41470 | 8.94243 | 0.2191214 | 2.8763577 | 68 | 5 | 2002–2009 | 0.46 | M-v | 1 | MPC | 166176 2004 $RB_{7}$ |
| 2004 $RT_{7}$ | 16.5 | 0.15 | 20100104 | 87.43602 | 255.47479 | 100.84652 | 14.23328 | 0.3059831 | 2.6530287 | 44 | 3 | 1996–2009 | 0.52 | M-v | 2 | MPC | 163680 2004 $RT_{7}$ |
| 2004 $RS_{8}$ | 16.4 | 0.15 | 20100104 | 114.92367 | 49.96521 | 241.55923 | 5.83229 | 0.2350048 | 2.6571305 | 48 | 2 | 2004–2009 | 0.45 | M-v | 4 | MPC | 165392 2004 $RS_{8}$ |
| 2004 $RR_{10}$ | 16.6 | 0.15 | 20100104 | 82.23433 | 305.10646 | 40.93272 | 3.72175 | 0.1555399 | 2.6422981 | 94 | 5 | 2000–2009 | 0.52 | M-v | 1 | MPC | 166176 2004 $RR_{10}$ |
| 2004 $RP_{18}$ | 16.7 | 0.15 | 20100104 | 74.37992 | 34.85578 | 334.98532 | 4.36819 | 0.1324685 | 2.6143965 | 79 | 4 | 2002–2009 | 0.48 | M-v | 3 | MPC | 159731 2004 $RP_{18}$ |
| 2004 $RO_{19}$ | 16.0 | 0.15 | 20100104 | 91.00880 | 165.76528 | 155.96462 | 5.95998 | 0.0557221 | 2.7068016 | 44 | 4 | 2002–2009 | 0.50 | M-v | 1 | MPC | 122775 2004 $RO_{19}$ |
| 2004 $RS_{19}$ | 16.4 | 0.15 | 20100104 | 127.15493 | 164.67994 | 149.80378 | 4.84521 | 0.0605701 | 2.5881398 | 67 | 8 | 2000–2009 | 0.41 | M-v | 0 | MPC | 147302 2004 $RS_{19}$ |
| 2004 $RG_{22}$ | 16.6 | 0.15 | 20100104 | 78.86541 | 334.69947 | 348.58498 | 3.07653 | 0.1969600 | 2.7352244 | 43 | 3 | 2004–2009 | 0.41 | M-v | 3 | MPC | 165392 2004 $RG_{22}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 $RW_{22}$ | 17.6 | 0.15 | 20100104 | 69.72317 | 337.49321 | 40.10296 | 1.36372 | 0.1929950 | 2.6235905 | 37 | 5 | 2000–2009 | 0.44 | M-v | 1 | MPC | 97728 | 2004 $RW_{22}$ |
| 2004 $RH_{25}$ | 16.9 | 0.15 | 20100104 | 91.60294 | 96.92141 | 231.96372 | 1.86018 | 0.1446596 | 2.6521401 | 57 | 6 | 1999–2009 | 0.45 | M-v | 0 | MPC | 166176 | 2004 $RH_{25}$ |
| 2004 $RD_{31}$ | 16.1 | 0.15 | 20100104 | 52.12080 | 319.46797 | 11.83479 | 5.46238 | 0.1547487 | 2.7878222 | 42 | 2 | 2004–2009 | 0.49 | M-v | 3 | MPC | 163680 | 2004 $RD_{31}$ |
| 2004 $RG_{31}$ | 17.0 | 0.15 | 20100104 | 56.94296 | 310.61881 | 28.61714 | 3.76697 | 0.2810077 | 2.7568238 | 50 | 3 | 1995–2009 | 0.48 | M-v | 2 | MPC | 166176 | 2004 $RG_{31}$ |
| 2004 $RG_{33}$ | 16.4 | 0.15 | 20100104 | 137.84686 | 194.97394 | 102.68357 | 3.98516 | 0.1534521 | 2.5780199 | 36 | 4 | 2004–2009 | 0.42 | M-v | 1 | MPC | 141810 | 2004 $RG_{33}$ |
| 2004 $RH_{33}$ | 15.7 | 0.15 | 20100104 | 82.98997 | 337.01906 | 7.92556 | 7.67586 | 0.2637526 | 2.6546284 | 123 | 4 | 2000–2009 | 0.46 | M-v | 1 | MPC | 119621 | 2004 $RH_{33}$ |
| 2004 $RW_{34}$ | 16.3 | 0.15 | 20100104 | 36.68294 | 3.17677 | 15.55480 | 8.01389 | 0.2665787 | 2.7725535 | 66 | 3 | 1995–2009 | 0.49 | M-v | 1 | MPC | 166176 | 2004 $RW_{34}$ |
| 2004 $RQ_{37}$ | 16.6 | 0.15 | 20100104 | 89.31010 | 349.73268 | 23.35044 | 4.17952 | 0.1759753 | 2.5400089 | 62 | 6 | 2000–2009 | 0.53 | M-v | 1 | MPC | 147302 | 2004 $RQ_{37}$ |
| 2004 $RH_{39}$ | 16.3 | 0.15 | 20100104 | 52.39179 | 293.34621 | 96.33364 | 3.27996 | 0.1021310 | 2.6390232 | 42 | 4 | 2000–2009 | 0.61 | M-v | 1 | MPC | 166177 | 2004 $RH_{39}$ |
| 2004 $RW_{39}$ | 16.3 | 0.15 | 20100104 | 66.04694 | 344.46188 | 0.28234 | 6.60454 | 0.1435921 | 2.7204158 | 62 | 3 | 2004–2009 | 0.43 | M-v | 3 | MPC | 166177 | 2004 $RW_{39}$ |
| 2004 $RM_{40}$ | 16.3 | 0.15 | 20100104 | 357.57118 | 123.79060 | 306.78494 | 3.45084 | 0.1110037 | 2.7145971 | 77 | 5 | 2000–2009 | 0.47 | M-v | 0 | MPC | 166177 | 2004 $RM_{40}$ |
| 2004 $RN_{43}$ | 16.2 | 0.15 | 20100104 | 30.52792 | 206.19132 | 183.80733 | 8.44700 | 0.2128239 | 2.7445219 | 85 | 4 | 2003–2009 | 0.49 | M-v | 3 | MPC | 165393 | 2004 $RN_{43}$ |
| 2004 $RG_{44}$ | 16.4 | 0.15 | 20100104 | 40.28061 | 85.60519 | 329.50920 | 14.17833 | 0.1195397 | 2.5879456 | 56 | 6 | 2000–2009 | 0.59 | M-v | 1 | MPC | 147302 | 2004 $RG_{44}$ |
| 2004 $RR_{47}$ | 16.7 | 0.15 | 20100104 | 61.64779 | 19.21805 | 351.37082 | 2.82962 | 0.2666020 | 2.6919789 | 55 | 4 | 2002–2009 | 0.47 | M-v | 2 | MPC | 102208 | 2004 $RR_{47}$ |
| 2004 $RS_{48}$ | 16.8 | 0.15 | 20100104 | 59.08997 | 324.43169 | 34.51513 | 3.25772 | 0.1468971 | 2.7215668 | 61 | 5 | 1995–2009 | 0.43 | M-v | 1 | MPC | 166177 | 2004 $RS_{48}$ |
| 2004 $RB_{50}$ | 15.6 | 0.15 | 20100104 | 14.76339 | 268.53339 | 154.67872 | 22.03615 | 0.0655004 | 2.6276012 | 46 | 4 | 2000–2009 | 0.65 | M-v | 1 | MPC | 69938 | 2004 $RB_{50}$ |
| 2004 $RP_{50}$ | 16.7 | 0.15 | 20100104 | 111.95005 | 263.70169 | 49.93944 | 2.70486 | 0.2030450 | 2.6336729 | 76 | 6 | 2000–2009 | 0.51 | M-v | 1 | MPC | 118085 | 2004 $RP_{50}$ |
| 2004 $RD_{53}$ | 17.3 | 0.15 | 20100104 | 105.24055 | 211.42646 | 140.84509 | 3.20176 | 0.1806317 | 2.5696169 | 62 | 6 | 2000–2009 | 0.50 | M-v | 1 | MPC | 147303 | 2004 $RD_{53}$ |
| 2004 $RT_{53}$ | 16.5 | 0.15 | 20100104 | 129.01851 | 168.39712 | 128.78186 | 4.03639 | 0.2313304 | 2.6119082 | 57 | 5 | 2000–2009 | 0.43 | M-v | 1 | MPC | 147303 | 2004 $RT_{53}$ |
| 2004 $RT_{54}$ | 16.4 | 0.15 | 20100104 | 255.31249 | 355.03699 | 244.53716 | 4.69055 | 0.1916767 | 2.3521080 | 79 | 5 | 2004–2009 | 0.48 | M-v | 1 | MPC | 147303 | 2004 $RT_{54}$ |
| 2004 $RA_{55}$ | 16.4 | 0.15 | 20100104 | 159.36275 | 284.74058 | 7.09474 | 7.66049 | 0.1335785 | 2.5503714 | 81 | 6 | 2000–2009 | 0.53 | M-v | 1 | MPC | 148935 | 2004 $RA_{55}$ |
| 2004 $RN_{55}$ | 16.6 | 0.15 | 20100104 | 87.84024 | 87.90805 | 236.03332 | 4.03374 | 0.1121768 | 2.7057182 | 49 | 6 | 2000–2009 | 0.49 | M-v | 0 | MPC | 166177 | 2004 $RN_{55}$ |
| 2004 $RY_{56}$ | 16.7 | 0.15 | 20100104 | 54.44675 | 68.83567 | 267.93067 | 3.05193 | 0.1111866 | 2.8103535 | 39 | 3 | 1995–2009 | 0.30 | M-v | 3 | MPC | 166177 | 2004 $RY_{56}$ |
| 2004 $RM_{57}$ | 16.1 | 0.15 | 20100104 | 31.93995 | 31.35619 | 10.20358 | 12.15140 | 0.3133530 | 2.7648141 | 60 | 2 | 2004–2009 | 0.53 | M-v | 3 | MPC | 165393 | 2004 $RM_{57}$ |
| 2004 $RC_{58}$ | 16.5 | 0.15 | 20100104 | 32.78150 | 254.89053 | 140.73118 | 4.68256 | 0.2347611 | 2.7600579 | 57 | 3 | 2004–2009 | 0.52 | M-v | 3 | MPC | 95342 | 2004 $RC_{58}$ |
| 2004 $RX_{62}$ | 16.5 | 0.15 | 20100104 | 39.84131 | 144.72365 | 224.92548 | 0.98531 | 0.2376709 | 2.7948077 | 143 | 4 | 1995–2009 | 0.40 | M-v | 0 | MPC | 166177 | 2004 $RX_{62}$ |
| 2004 $RE_{64}$ | 16.4 | 0.15 | 20100104 | 71.76592 | 60.42587 | 261.69509 | 0.47706 | 0.2298969 | 2.7846203 | 69 | 5 | 2004–2009 | 0.48 | M-v | 1 | MPC | 166177 | 2004 $RE_{64}$ |
| 2004 $RF_{64}$ | 16.0 | 0.15 | 20100104 | 0.77045 | 21.26602 | 351.14856 | 8.16935 | 0.0947172 | 2.9655007 | 48 | 3 | 2004–2009 | 0.50 | M-v | 3 | MPC | 166177 | 2004 $RF_{64}$ |
| 2004 $RZ_{67}$ | 17.0 | 0.15 | 20100104 | 91.50285 | 350.35904 | 4.96422 | 4.14514 | 0.2305096 | 2.6256632 | 67 | 5 | 2000–2009 | 0.54 | M-v | 2 | MPC | 141811 | 2004 $RZ_{67}$ |
| 2004 $RV_{70}$ | 16.3 | 0.15 | 20100104 | 219.72179 | 298.31073 | 315.65683 | 5.51281 | 0.0806078 | 2.4556331 | 68 | 7 | 2000–2009 | 0.49 | M-v | 0 | MPC | 148936 | 2004 $RV_{70}$ |
| 2004 $RF_{73}$ | 16.5 | 0.15 | 20100104 | 111.86197 | 225.68637 | 105.35692 | 3.00023 | 0.1900254 | 2.6119826 | 58 | 6 | 1999–2009 | 0.46 | M-v | 1 | MPC | 147304 | 2004 $RF_{73}$ |
| 2004 $RH_{75}$ | 15.9 | 0.15 | 20100104 | 38.74478 | 316.22801 | 19.40490 | 6.62179 | 0.2301500 | 2.9220377 | 99 | 4 | 1999–2009 | 0.48 | M-v | 2 | MPC | 166177 | 2004 $RH_{75}$ |
| 2004 $RP_{75}$ | 16.8 | 0.15 | 20100104 | 98.15103 | 204.44092 | 136.34710 | 3.02211 | 0.2167725 | 2.6436211 | 55 | 5 | 1991–2009 | 0.44 | M-v | 1 | MPC | 158481 | 2004 $RP_{75}$ |
| 2004 $RT_{76}$ | 16.3 | 0.15 | 20100104 | 82.41628 | 340.21642 | 21.28222 | 6.79388 | 0.1669346 | 2.6605149 | 107 | 6 | 1998–2009 | 0.56 | M-v | 1 | MPC | 143208 | 2004 $RT_{76}$ |
| 2004 $RL_{78}$ | 15.8 | 0.15 | 20100104 | 68.99198 | 313.39888 | 50.38339 | 6.09180 | 0.1765818 | 2.7078576 | 61 | 5 | 2000–2009 | 0.60 | M-v | 1 | MPC | 166177 | 2004 $RL_{78}$ |
| 2004 $RE_{79}$ | 16.5 | 0.15 | 20100104 | 42.49084 | 315.27319 | 53.65869 | 2.80575 | 0.0951095 | 2.8442008 | 51 | 5 | 2002–2009 | 0.27 | M-v | 1 | MPC | 166177 | 2004 $RE_{79}$ |
| 2004 $RU_{81}$ | 17.4 | 0.15 | 20100104 | 72.24633 | 277.88873 | 108.24788 | 0.77615 | 0.1395292 | 2.5964684 | 46 | 8 | 1996–2009 | 0.41 | M-v | 1 | MPC | 147304 | 2004 $RU_{81}$ |
| 2004 $RB_{82}$ | 15.7 | 0.15 | 20100104 | 7.61356 | 19.42312 | 2.16719 | 9.03916 | 0.1398253 | 2.9688499 | 49 | 2 | 2004–2009 | 0.47 | M-v | 3 | MPC | 163680 | 2004 $RB_{82}$ |
| 2004 $RJ_{82}$ | 16.9 | 0.15 | 20100104 | 94.51622 | 128.97343 | 201.72680 | 2.26328 | 0.1331217 | 2.6292003 | 45 | 5 | 1996–2009 | 0.43 | M-v | 1 | MPC | 166177 | 2004 $RJ_{82}$ |
| 2004 $RH_{83}$ | 16.3 | 0.15 | 20100104 | 358.85639 | 231.94221 | 168.11319 | 11.10611 | 0.1529457 | 2.8627375 | 45 | 3 | 2004–2009 | 0.41 | M-v | 2 | MPC | 163680 | 2004 $RH_{83}$ |
| 2004 $RO_{83}$ | 16.7 | 0.15 | 20100104 | 113.26498 | 331.11029 | 8.39760 | 4.14402 | 0.1808451 | 2.6139872 | 61 | 5 | 2004–2009 | 0.49 | M-v | 1 | MPC | 148937 | 2004 $RO_{83}$ |
| 2004 $RZ_{83}$ | 16.0 | 0.15 | 20100104 | 68.09106 | 73.26272 | 302.22976 | 16.56410 | 0.2162937 | 2.6244624 | 81 | 4 | 2000–2009 | 0.49 | M-v | 1 | MPC | 97733 | 2004 $RZ_{83}$ |
| 2004 $RF_{84}$ | 18.4 | 0.15 | 20100104 | 200.69171 | 122.47126 | 344.75590 | 23.25688 | 0.6035052 | 2.1645385 | 221 | 2 | 2004–2007 | 0.55 | M-v | 2 | MPC | 126714 | 2004 $RF_{84}$ |
| 2004 $RK_{86}$ | 16.8 | 0.15 | 20100104 | 61.82050 | 95.04854 | 276.82554 | 4.61997 | 0.2422665 | 2.6416801 | 32 | 3 | 2000–2009 | 0.51 | M-v | 2 | MPC | 86546 | 2004 $RK_{86}$ |
| 2004 $RH_{87}$ | 16.6 | 0.15 | 20100104 | 26.29687 | 76.34316 | 320.03040 | 12.08192 | 0.2189135 | 2.7889911 | 46 | 4 | 2001–2009 | 0.50 | M-v | 1 | MPC | 159732 | 2004 $RH_{87}$ |
| 2004 $RP_{88}$ | 16.8 | 0.15 | 20100104 | 73.27112 | 80.87840 | 232.70428 | 7.48391 | 0.2924231 | 2.7274370 | 49 | 4 | 1995–2009 | 0.41 | M-v | 2 | MPC | 166177 | 2004 $RP_{88}$ |
| 2004 $RK_{91}$ | 16.7 | 0.15 | 20100104 | 146.87317 | 72.39131 | 210.41105 | 4.02866 | 0.1922934 | 2.5679404 | 51 | 6 | 2003–2009 | 0.55 | M-v | 1 | MPC | 165394 | 2004 $RK_{91}$ |
| 2004 $RS_{91}$ | 16.3 | 0.15 | 20100104 | 118.79310 | 58.56125 | 244.95777 | 6.64274 | 0.1975979 | 2.6080038 | 44 | 4 | 1992–2009 | 0.52 | M-v | 2 | MPC | 166177 | 2004 $RS_{91}$ |
| 2004 $RU_{92}$ | 16.4 | 0.15 | 20100104 | 32.95251 | 124.18863 | 252.26261 | 7.20284 | 0.2255920 | 2.7703837 | 77 | 2 | 2004–2009 | 0.45 | M-v | 3 | MPC | 165394 | 2004 $RU_{92}$ |
| 2004 $RB_{97}$ | 16.1 | 0.15 | 20100104 | 91.38524 | 52.35348 | 304.85102 | 10.87243 | 0.1002128 | 2.6048180 | 38 | 3 | 2004–2009 | 0.38 | M-v | 3 | MPC | 95364 | 2004 $RB_{97}$ |
| 2004 $RO_{98}$ | 16.9 | 0.15 | 20100104 | 25.82388 | 158.18027 | 229.35560 | 3.42023 | 0.2110704 | 2.7817248 | 70 | 3 | 2004–2009 | 0.47 | M-v | 3 | MPC | 165395 | 2004 $RO_{98}$ |
| 2004 $RF_{100}$ | 16.6 | 0.15 | 20100104 | 56.63136 | 143.17700 | 215.88723 | 2.74292 | 0.2072936 | 2.7390777 | 60 | 3 | 2004–2009 | 0.38 | M-v | 3 | MPC | 166178 | 2004 $RF_{100}$ |
| 2004 $RC_{101}$ | 16.1 | 0.15 | 20100104 | 116.16224 | 12.19701 | 279.80496 | 3.79518 | 0.0894570 | 2.7278353 | 43 | 3 | 2002–2009 | 0.53 | M-v | 3 | MPC | 97733 | 2004 $RC_{101}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 $RS_{101}$ | 16.7 | 0.15 | 20100104 | 99.78422 | 23.76801 | 301.93535 | 3.05617 | 0.1910452 | 2.6608428 | 51 | 5 | 2003–2009 | 0.44 | M-v | 1 | MPC | 166178 | 2004 $RS_{101}$ |
| 2004 $RQ_{102}$ | 16.1 | 0.15 | 20100104 | 259.16912 | 251.24520 | 330.97617 | 6.01962 | 0.0707156 | 2.4619694 | 57 | 4 | 2004–2009 | 0.46 | M-v | 1 | MPC | 147305 | 2004 $RQ_{102}$ |
| 2004 $RF_{104}$ | 15.9 | 0.15 | 20100104 | 132.99506 | 10.67563 | 279.31890 | 6.98653 | 0.2033873 | 2.6452941 | 73 | 4 | 2003–2009 | 0.48 | M-v | 1 | MPC | 166178 | 2004 $RF_{104}$ |
| 2004 $RB_{105}$ | 15.9 | 0.15 | 20100104 | 37.37390 | 109.50026 | 301.54699 | 7.47009 | 0.1894915 | 2.6937771 | 43 | 4 | 1995–2009 | 0.50 | M-v | 1 | MPC | 141812 | 2004 $RB_{105}$ |
| 2004 $RW_{106}$ | 16.8 | 0.15 | 20100104 | 71.32996 | 91.58288 | 287.25504 | 2.32130 | 0.1154660 | 2.5784898 | 49 | 7 | 2000–2009 | 0.49 | M-v | 1 | MPC | 143208 | 2004 $RW_{106}$ |
| 2004 $RO_{108}$ | 15.7 | 0.15 | 20100104 | 50.00521 | 88.24425 | 236.13927 | 6.00183 | 0.1133474 | 2.8827524 | 70 | 4 | 2004–2009 | 0.50 | M-v | 0 | MPC | 164224 | 2004 $RO_{108}$ |
| 2004 $RN_{112}$ | 15.5 | 0.15 | 20100104 | 108.42336 | 42.82073 | 274.62216 | 15.68480 | 0.1734211 | 2.6786966 | 62 | 3 | 2004–2009 | 0.45 | M-v | 3 | MPC | 141812 | 2004 $RN_{112}$ |
| 2004 $RV_{112}$ | 15.9 | 0.15 | 20100104 | 74.76280 | 44.52927 | 308.99739 | 15.14484 | 0.2499401 | 2.7178434 | 71 | 3 | 2004–2009 | 0.37 | M-v | 2 | MPC | 162398 | 2004 $RV_{112}$ |
| 2004 $RL_{114}$ | 16.5 | 0.15 | 20100104 | 293.18947 | 257.07018 | 270.83598 | 2.29707 | 0.1158593 | 2.5252044 | 50 | 5 | 2001–2009 | 0.29 | M-v | 2 | MPC | 166178 | 2004 $RL_{114}$ |
| 2004 $RE_{122}$ | 17.0 | 0.15 | 20100104 | 39.97415 | 217.02392 | 140.27536 | 5.09647 | 0.0890923 | 2.7930673 | 28 | 4 | 2002–2009 | 0.40 | M-v | 2 | MPC | 163681 | 2004 $RE_{122}$ |
| 2004 $RE_{124}$ | 16.5 | 0.15 | 20100104 | 64.46146 | 270.76415 | 58.13084 | 8.77013 | 0.2961018 | 2.7974602 | 60 | 3 | 2004–2009 | 0.45 | M-v | 2 | MPC | 166178 | 2004 $RE_{124}$ |
| 2004 $RQ_{124}$ | 17.2 | 0.15 | 20100104 | 24.12769 | 195.71128 | 209.41263 | 3.13255 | 0.1452396 | 2.7126535 | 42 | 3 | 2004–2009 | 0.29 | M-v | 2 | MPC | 166178 | 2004 $RQ_{124}$ |
| 2004 $RW_{134}$ | 17.0 | 0.15 | 20100104 | 7.78204 | 11.89846 | 51.75394 | 2.01135 | 0.0336002 | 2.6589136 | 38 | 4 | 2004–2009 | 0.31 | M-v | 0 | MPC | 164224 | 2004 $RW_{134}$ |
| 2004 $RW_{139}$ | 17.3 | 0.15 | 20100104 | 126.55736 | 184.39012 | 130.23361 | 2.43914 | 0.2146816 | 2.5737239 | 66 | 6 | 1995–2009 | 0.54 | M-v | 1 | MPC | 147306 | 2004 $RW_{139}$ |
| 2004 $RC_{141}$ | 15.9 | 0.15 | 20100104 | 69.57533 | 294.73607 | 39.47605 | 7.94981 | 0.2320200 | 2.7770225 | 76 | 4 | 2003–2009 | 0.53 | M-v | 2 | MPC | 166178 | 2004 $RC_{141}$ |
| 2004 $RN_{142}$ | 17.4 | 0.15 | 20100104 | 76.84415 | 14.00370 | 333.75332 | 4.28255 | 0.1683912 | 2.7006184 | 36 | 4 | 1995–2009 | 0.40 | M-v | 1 | MPC | 166178 | 2004 $RN_{142}$ |
| 2004 $RX_{142}$ | 16.0 | 0.15 | 20100104 | 30.48610 | 131.21004 | 260.53872 | 8.67981 | 0.2757628 | 2.7896880 | 88 | 2 | 2004–2009 | 0.38 | M-v | 2 | MPC | 165395 | 2004 $RX_{142}$ |
| 2004 $RX_{144}$ | 17.6 | 0.15 | 20100104 | 116.89753 | 204.50253 | 130.50376 | 1.31564 | 0.1428536 | 2.5524791 | 33 | 5 | 2000–2009 | 0.37 | M-v | 1 | MPC | 147306 | 2004 $RX_{144}$ |
| 2004 $RU_{147}$ | 16.3 | 0.15 | 20100104 | 63.40858 | 190.12413 | 167.66091 | 9.43063 | 0.1470178 | 2.7281900 | 39 | 3 | 2004–2009 | 0.35 | M-v | 3 | MPC | 166178 | 2004 $RU_{147}$ |
| 2004 $RX_{147}$ | 16.1 | 0.15 | 20100104 | 55.06271 | 319.60645 | 42.05315 | 5.17326 | 0.1328813 | 2.7386663 | 67 | 3 | 2002–2009 | 0.49 | M-v | 3 | MPC | 165396 | 2004 $RX_{147}$ |
| 2004 $RF_{152}$ | 15.7 | 0.15 | 20100104 | 25.79678 | 155.33975 | 211.36159 | 14.12575 | 0.1590488 | 2.8055483 | 104 | 3 | 2004–2009 | 0.49 | M-v | 2 | MPC | 166178 | 2004 $RF_{152}$ |
| 2004 $RN_{152}$ | 16.6 | 0.15 | 20100104 | 47.84626 | 113.19506 | 239.64154 | 8.20710 | 0.1793252 | 2.7689054 | 52 | 4 | 1995–2009 | 0.55 | M-v | 1 | MPC | 166178 | 2004 $RN_{152}$ |
| 2004 $RN_{153}$ | 16.2 | 0.15 | 20100104 | 1.19070 | 114.61044 | 299.78255 | 6.48872 | 0.2867134 | 2.8506023 | 78 | 4 | 1996–2009 | 0.53 | M-v | 1 | MPC | 166178 | 2004 $RN_{153}$ |
| 2004 $RD_{154}$ | 16.0 | 0.15 | 20100104 | 43.47113 | 103.89923 | 287.32121 | 8.50634 | 0.0660821 | 2.6813201 | 80 | 4 | 2004–2009 | 0.53 | M-v | 1 | MPC | 166178 | 2004 $RD_{154}$ |
| 2004 $RG_{154}$ | 16.7 | 0.15 | 20100104 | 173.53885 | 43.08962 | 226.82333 | 3.56768 | 0.1134249 | 2.5578353 | 35 | 4 | 2003–2009 | 0.52 | M-v | 1 | MPC | 147306 | 2004 $RG_{154}$ |
| 2004 $RQ_{154}$ | 17.0 | 0.15 | 20100104 | 44.45136 | 103.90856 | 296.28438 | 5.95011 | 0.1719456 | 2.6719421 | 28 | 4 | 2004–2009 | 0.40 | M-v | 0 | MPC | 158482 | 2004 $RQ_{154}$ |
| 2004 $RC_{158}$ | 16.9 | 0.15 | 20100104 | 58.49873 | 68.75957 | 301.39729 | 4.04586 | 0.1626408 | 2.6929744 | 38 | 3 | 2004–2009 | 0.35 | M-v | 3 | MPC | 165396 | 2004 $RC_{158}$ |
| 2004 $RB_{159}$ | 15.1 | 0.15 | 20100104 | 300.45279 | 104.01774 | 317.75798 | 9.11086 | 0.0724392 | 3.0287523 | 42 | 3 | 2001–2009 | 0.60 | M-v | 2 | MPC | 74343 | 2004 $RB_{159}$ |
| 2004 $RG_{159}$ | 16.5 | 0.15 | 20100104 | 56.93912 | 149.50632 | 225.04766 | 5.40894 | 0.1426269 | 2.6936248 | 44 | 3 | 2000–2009 | 0.45 | M-v | 3 | MPC | 74343 | 2004 $RG_{159}$ |
| 2004 $RL_{159}$ | 17.2 | 0.15 | 20100104 | 8.62974 | 215.12271 | 229.91278 | 3.21443 | 0.0984829 | 2.6114081 | 36 | 5 | 2000–2009 | 0.41 | M-v | 0 | MPC | 95385 | 2004 $RL_{159}$ |
| 2004 $RQ_{160}$ | 17.2 | 0.15 | 20100104 | 99.12260 | 36.12764 | 319.52966 | 3.54324 | 0.1441142 | 2.5803175 | 46 | 6 | 2000–2009 | 0.37 | M-v | 1 | MPC | 147306 | 2004 $RQ_{160}$ |
| 2004 $RR_{165}$ | 15.8 | 0.15 | 20100104 | 36.75697 | 249.96198 | 130.56904 | 12.00208 | 0.2978876 | 2.7981125 | 63 | 3 | 2004–2009 | 0.54 | M-v | 2 | MPC | 166179 | 2004 $RR_{165}$ |
| 2004 $RK_{167}$ | 16.1 | 0.15 | 20100104 | 343.39412 | 38.21500 | 18.36547 | 13.93615 | 0.2278344 | 2.8964904 | 44 | 3 | 2004–2009 | 0.51 | M-v | 1 | MPC | 164225 | 2004 $RK_{167}$ |
| 2004 $RP_{167}$ | 15.1 | 0.15 | 20100104 | 115.36023 | 20.05568 | 263.10814 | 8.33771 | 0.0902712 | 2.7986767 | 77 | 5 | 2002–2009 | 0.66 | M-v | 1 | MPC | 166179 | 2004 $RP_{167}$ |
| 2004 $RK_{168}$ | 16.2 | 0.15 | 20100104 | 90.41260 | 102.06409 | 262.82591 | 8.62837 | 0.1590405 | 2.5514537 | 46 | 4 | 2004–2009 | 0.45 | M-v | 2 | MPC | 143209 | 2004 $RK_{168}$ |
| 2004 $RW_{168}$ | 16.3 | 0.15 | 20100104 | 49.21294 | 152.28435 | 219.82402 | 5.81315 | 0.0617233 | 2.6929284 | 47 | 4 | 2000–2009 | 0.42 | M-v | 0 | MPC | 165397 | 2004 $RW_{168}$ |
| 2004 $RA_{170}$ | 16.1 | 0.15 | 20100104 | 88.13205 | 89.38239 | 240.25813 | 7.87263 | 0.1227105 | 2.7126970 | 43 | 2 | 2004–2009 | 0.45 | M-v | 4 | MPC | 165397 | 2004 $RA_{170}$ |
| 2004 $RP_{172}$ | 16.2 | 0.15 | 20100104 | 112.58830 | 70.09354 | 231.76102 | 6.29288 | 0.2001187 | 2.6597563 | 54 | 4 | 1994–2009 | 0.45 | M-v | 1 | MPC | 166179 | 2004 $RP_{172}$ |
| 2004 $RX_{177}$ | 15.6 | 0.15 | 20100104 | 5.10490 | 165.92665 | 239.35195 | 8.13289 | 0.1573169 | 2.8153305 | 96 | 5 | 1995–2009 | 0.50 | M-v | 1 | MPC | 166179 | 2004 $RX_{177}$ |
| 2004 $RX_{179}$ | 15.6 | 0.15 | 20100104 | 113.10731 | 96.48856 | 212.18073 | 12.32431 | 0.1892431 | 2.6644824 | 54 | 7 | 1999–2009 | 0.55 | M-v | 1 | MPC | 141812 | 2004 $RX_{179}$ |
| 2004 $RS_{182}$ | 16.9 | 0.15 | 20100104 | 261.73655 | 307.46199 | 309.00496 | 5.60131 | 0.2153318 | 2.3086011 | 50 | 6 | 2003–2009 | 0.39 | M-v | 1 | MPC | 148939 | 2004 $RS_{182}$ |
| 2004 $RR_{183}$ | 16.7 | 0.15 | 20100104 | 85.59933 | 61.95673 | 300.66222 | 3.54242 | 0.2395271 | 2.6334244 | 71 | 4 | 2004–2009 | 0.44 | M-v | 1 | MPC | 141812 | 2004 $RR_{183}$ |
| 2004 $RR_{187}$ | 16.0 | 0.15 | 20100104 | 27.02905 | 97.39805 | 298.78022 | 6.27926 | 0.2287375 | 2.7934227 | 72 | 3 | 2004–2009 | 0.46 | M-v | 2 | MPC | 166179 | 2004 $RR_{187}$ |
| 2004 $RC_{188}$ | 15.8 | 0.15 | 20100104 | 3.17770 | 103.04971 | 303.43132 | 7.07098 | 0.1574892 | 2.8580816 | 92 | 4 | 1999–2009 | 0.52 | M-v | 2 | MPC | 166179 | 2004 $RC_{188}$ |
| 2004 $RM_{189}$ | 15.1 | 0.15 | 20100104 | 20.26946 | 113.29882 | 327.48647 | 12.50430 | 0.1418702 | 2.6645492 | 141 | 4 | 2004–2009 | 0.53 | M-v | 0 | MPC | 162399 | 2004 $RM_{189}$ |
| 2004 $RT_{191}$ | 16.5 | 0.15 | 20100104 | 94.24703 | 44.86624 | 315.55608 | 5.87564 | 0.1855772 | 2.6322187 | 81 | 4 | 2004–2009 | 0.45 | M-v | 1 | MPC | 148939 | 2004 $RT_{191}$ |
| 2004 $RD_{196}$ | 16.5 | 0.15 | 20100104 | 63.01747 | 112.80384 | 230.61677 | 6.93020 | 0.2007833 | 2.7937290 | 51 | 4 | 1995–2009 | 0.57 | M-v | 1 | MPC | 166179 | 2004 $RD_{196}$ |
| 2004 $RH_{196}$ | 16.3 | 0.15 | 20100104 | 200.55359 | 342.76980 | 308.81259 | 7.72853 | 0.1258740 | 2.4438101 | 61 | 5 | 2000–2009 | 0.59 | M-v | 2 | MPC | 148939 | 2004 $RH_{196}$ |
| 2004 $RJ_{196}$ | 15.6 | 0.15 | 20100104 | 355.59248 | 237.77719 | 215.13199 | 14.01797 | 0.0228254 | 2.6605388 | 70 | 6 | 2000–2009 | 0.57 | M-v | 1 | MPC | 160810 | 2004 $RJ_{196}$ |
| 2004 $RA_{199}$ | 16.1 | 0.15 | 20100104 | 43.22064 | 145.07344 | 259.88970 | 6.99352 | 0.3042519 | 2.7599358 | 80 | 4 | 2000–2009 | 0.60 | M-v | 1 | MPC | 162399 | 2004 $RA_{199}$ |
| 2004 $RC_{199}$ | 15.5 | 0.15 | 20100104 | 75.53657 | 40.44864 | 307.11637 | 5.49281 | 0.2661863 | 2.7631575 | 98 | 5 | 1999–2009 | 0.50 | M-v | 1 | MPC | 118092 | 2004 $RC_{199}$ |
| 2004 $RG_{199}$ | 15.9 | 0.15 | 20100104 | 64.08603 | 63.83393 | 317.94989 | 8.08692 | 0.2478310 | 2.7333774 | 82 | 6 | 1999–2009 | 0.50 | M-v | 1 | MPC | 147308 | 2004 $RG_{199}$ |
| 2004 $RR_{199}$ | 15.9 | 0.15 | 20100104 | 79.26122 | 79.64009 | 279.45064 | 7.41356 | 0.2761457 | 2.7282875 | 74 | 3 | 2004–2009 | 0.43 | M-v | 2 | MPC | 139748 | 2004 $RR_{199}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 $RW_{199}$ | 14.9 | 0.15 | 20100104 | 10.26777 | 115.09250 | 263.40532 | 12.34254 | 0.2189680 | 3.0492357 | 102 | 2 | 2004–2009 | 0.57 | M-v | 2 | MPC | 166179 | 2004 $RW_{199}$ |
| 2004 $RQ_{201}$ | 15.7 | 0.15 | 20100104 | 20.31056 | 211.56975 | 203.98984 | 7.42092 | 0.2489739 | 2.7985824 | 98 | 5 | 2001–2009 | 0.50 | M-v | 1 | MPC | 166179 | 2004 $RQ_{201}$ |
| 2004 $RV_{203}$ | 15.5 | 0.15 | 20100104 | 265.16752 | 296.28247 | 310.28669 | 22.91801 | 0.2134774 | 2.3289638 | 61 | 3 | 2002–2009 | 0.46 | M-v | 1 | MPC | 162400 | 2004 $RV_{203}$ |
| 2004 $RK_{204}$ | 15.4 | 0.15 | 20100104 | 58.70006 | 77.87423 | 277.72026 | 6.53596 | 0.3091726 | 2.7616234 | 119 | 4 | 1995–2009 | 0.37 | M-v | 2 | MPC | 74350 | 2004 $RK_{204}$ |
| 2004 $RP_{208}$ | 16.1 | 0.15 | 20100104 | 92.19617 | 55.20534 | 268.29957 | 10.03499 | 0.3339269 | 2.6724941 | 53 | 4 | 2004–2009 | 0.51 | M-v | 2 | MPC | 140387 | 2004 $RP_{208}$ |
| 2004 $RZ_{208}$ | 16.2 | 0.15 | 20100104 | 114.52737 | 49.48192 | 265.98337 | 10.06532 | 0.1754298 | 2.5992929 | 43 | 4 | 2004–2009 | 0.55 | M-v | 2 | MPC | 166179 | 2004 $RZ_{208}$ |
| 2004 $RT_{209}$ | 16.0 | 0.15 | 20100104 | 48.37584 | 116.59943 | 231.26016 | 11.26748 | 0.1764293 | 2.7940627 | 71 | 4 | 1995–2009 | 0.61 | M-v | 1 | MPC | 166179 | 2004 $RT_{209}$ |
| 2004 $RM_{210}$ | 16.2 | 0.15 | 20100104 | 74.91081 | 83.68204 | 291.82189 | 13.05868 | 0.1426125 | 2.6145751 | 56 | 4 | 2004–2009 | 0.54 | M-v | 1 | MPC | 159736 | 2004 $RM_{210}$ |
| 2004 $RA_{212}$ | 15.6 | 0.15 | 20100104 | 86.12924 | 41.03594 | 280.06800 | 12.90836 | 0.1580573 | 2.7135396 | 39 | 4 | 2004–2009 | 0.61 | M-v | 1 | MPC | 166179 | 2004 $RA_{212}$ |
| 2004 $RJ_{212}$ | 15.7 | 0.15 | 20100104 | 18.96464 | 124.94080 | 286.64983 | 12.66583 | 0.1255104 | 2.7421216 | 57 | 3 | 2004–2009 | 0.62 | M-v | 2 | MPC | 166179 | 2004 $RJ_{212}$ |
| 2004 $RW_{213}$ | 16.0 | 0.15 | 20100104 | 139.58778 | 36.30606 | 307.79926 | 14.43975 | 0.0926444 | 2.5215658 | 81 | 6 | 1994–2009 | 0.42 | M-v | 2 | MPC | 166179 | 2004 $RW_{213}$ |
| 2004 $RY_{213}$ | 15.1 | 0.15 | 20100104 | 69.84707 | 61.61302 | 263.58973 | 13.81190 | 0.1561542 | 2.8609758 | 71 | 3 | 1999–2009 | 0.49 | M-v | 3 | MPC | 166180 | 2004 $RY_{213}$ |
| 2004 $RV_{214}$ | 16.0 | 0.15 | 20100104 | 75.35315 | 70.48327 | 305.73424 | 10.78260 | 0.0885945 | 2.6288221 | 67 | 4 | 2004–2009 | 0.43 | M-v | 1 | MPC | 147308 | 2004 $RV_{214}$ |
| 2004 $RJ_{215}$ | 16.1 | 0.15 | 20100104 | 52.97677 | 112.02232 | 271.31614 | 10.26026 | 0.2695281 | 2.7250678 | 48 | 3 | 2000–2009 | 0.44 | M-v | 2 | MPC | 166180 | 2004 $RJ_{215}$ |
| 2004 $RG_{216}$ | 16.4 | 0.15 | 20100104 | 93.11032 | 49.85688 | 306.31472 | 10.24320 | 0.1794386 | 2.6316294 | 61 | 4 | 2004–2009 | 0.33 | M-v | 1 | MPC | 147308 | 2004 $RG_{216}$ |
| 2004 $RL_{216}$ | 15.8 | 0.15 | 20100104 | 63.18444 | 102.16638 | 256.40305 | 8.46690 | 0.1887615 | 2.7498117 | 55 | 2 | 2004–2009 | 0.37 | M-v | 3 | MPC | 165398 | 2004 $RL_{216}$ |
| 2004 $RX_{216}$ | 16.6 | 0.15 | 20100104 | 66.91961 | 99.84223 | 280.11315 | 7.64225 | 0.2234198 | 2.6792208 | 64 | 4 | 2000–2009 | 0.52 | M-v | 1 | MPC | 166180 | 2004 $RX_{216}$ |
| 2004 $RQ_{217}$ | 15.4 | 0.15 | 20100104 | 11.39712 | 161.73788 | 256.43397 | 12.08544 | 0.0867655 | 2.7844872 | 78 | 3 | 2004–2009 | 0.47 | M-v | 2 | MPC | 166180 | 2004 $RQ_{217}$ |
| 2004 $RJ_{218}$ | 15.7 | 0.15 | 20100104 | 119.68846 | 80.06003 | 249.48365 | 11.21854 | 0.1989111 | 2.6164101 | 105 | 4 | 2000–2009 | 0.56 | M-v | 2 | MPC | 166180 | 2004 $RJ_{218}$ |
| 2004 $RC_{219}$ | 15.7 | 0.15 | 20100104 | 79.17899 | 75.28290 | 306.66022 | 10.90926 | 0.1469270 | 2.6524048 | 88 | 6 | 1996–2009 | 0.46 | M-v | 1 | MPC | 159736 | 2004 $RC_{219}$ |
| 2004 $RM_{222}$ | 15.1 | 0.15 | 20100104 | 29.03363 | 54.20322 | 16.09221 | 13.99022 | 0.4410235 | 2.8938144 | 131 | 4 | 1999–2009 | 0.52 | M-v | 1 | MPC | 166180 | 2004 $RM_{222}$ |
| 2004 $RQ_{224}$ | 16.2 | 0.15 | 20100104 | 86.70517 | 340.96530 | 1.46330 | 5.07790 | 0.0970070 | 2.7252279 | 57 | 5 | 1995–2009 | 0.48 | M-v | 1 | MPC | 141814 | 2004 $RQ_{224}$ |
| 2004 $RD_{226}$ | 15.9 | 0.15 | 20100104 | 24.07707 | 227.86625 | 187.86909 | 9.57673 | 0.1883447 | 2.7523571 | 84 | 6 | 1995–2009 | 0.40 | M-v | 1 | MPC | 121341 | 2004 $RD_{226}$ |
| 2004 $RA_{228}$ | 15.2 | 0.15 | 20100104 | 208.79047 | 303.54224 | 211.91250 | 9.16615 | 0.0654733 | 3.1501400 | 32 | 4 | 2001–2007 | 0.36 | M-v | 1 | MPC | 122777 | 2004 $RA_{228}$ |
| 2004 $RU_{228}$ | 17.2 | 0.15 | 20100104 | 198.26192 | 282.30456 | 344.41588 | 3.57888 | 0.0845990 | 2.5917401 | 37 | 5 | 2002–2009 | 0.40 | M-v | 1 | MPC | 156950 | 2004 $RU_{228}$ |
| 2004 $RV_{228}$ | 16.6 | 0.15 | 20100104 | 339.46833 | 143.40663 | 335.07481 | 2.94452 | 0.0361784 | 2.6718337 | 69 | 7 | 1999–2009 | 0.41 | M-v | 0 | MPC | 148940 | 2004 $RV_{228}$ |
| 2004 $RU_{233}$ | 16.5 | 0.15 | 20100104 | 75.91496 | 164.52481 | 180.51971 | 4.64996 | 0.0798093 | 2.7843149 | 41 | 6 | 2002–2009 | 0.36 | M-v | 1 | MPC | 166180 | 2004 $RU_{233}$ |
| 2004 $RR_{235}$ | 17.2 | 0.15 | 20100104 | 213.93440 | 127.49036 | 127.33668 | 3.31642 | 0.1913255 | 2.4040614 | 45 | 5 | 1996–2009 | 0.33 | M-v | 0 | MPC | 147309 | 2004 $RR_{235}$ |
| 2004 $RM_{237}$ | 17.0 | 0.15 | 20100104 | 37.82312 | 90.34373 | 321.50588 | 3.30797 | 0.2191105 | 2.6770303 | 54 | 3 | 2004–2009 | 0.33 | M-v | 2 | MPC | 166180 | 2004 $RM_{237}$ |
| 2004 $RM_{243}$ | 17.5 | 0.15 | 20100104 | 119.82245 | 303.59258 | 13.57841 | 3.52276 | 0.0760239 | 2.6266815 | 36 | 6 | 2000–2009 | 0.34 | M-v | 0 | MPC | 165399 | 2004 $RM_{243}$ |
| 2004 $RO_{246}$ | 16.2 | 0.15 | 20100104 | 18.73144 | 223.78726 | 194.52183 | 5.86697 | 0.0631051 | 2.7454316 | 77 | 5 | 1998–2009 | 0.43 | M-v | 1 | MPC | 166180 | 2004 $RO_{246}$ |
| 2004 $RB_{255}$ | 15.7 | 0.15 | 20100104 | 35.78188 | 273.40954 | 128.66277 | 13.76957 | 0.1534823 | 2.7169133 | 45 | 5 | 2004–2009 | 0.53 | M-v | 1 | MPC | 141814 | 2004 $RB_{255}$ |
| 2004 $RM_{255}$ | 15.9 | 0.15 | 20100104 | 95.46098 | 282.22949 | 55.41639 | 12.30894 | 0.2157366 | 2.6616301 | 67 | 6 | 2000–2009 | 0.55 | M-v | 1 | MPC | 143211 | 2004 $RM_{255}$ |
| 2004 $RQ_{255}$ | 16.1 | 0.15 | 20100104 | 66.75825 | 280.48355 | 72.05401 | 13.45867 | 0.2443328 | 2.7455772 | 30 | 2 | 2004–2009 | 0.40 | M-v | 3 | MPC | 165399 | 2004 $RQ_{255}$ |
| 2004 $RJ_{257}$ | 16.8 | 0.15 | 20100104 | 48.86273 | 226.31225 | 152.58680 | 3.07885 | 0.1431993 | 2.6698920 | 51 | 5 | 2000–2009 | 0.41 | M-v | 0 | MPC | 166180 | 2004 $RJ_{257}$ |
| 2004 $RX_{268}$ | 17.4 | 0.15 | 20100104 | 110.99909 | 343.72430 | 320.23170 | 1.82545 | 0.0849892 | 2.7021156 | 43 | 6 | 1995–2009 | 0.35 | M-v | 0 | MPC | 166180 | 2004 $RX_{268}$ |
| 2004 $RJ_{269}$ | 17.0 | 0.15 | 20100104 | 101.44679 | 27.30154 | 285.79280 | 1.08546 | 0.0700475 | 2.7140084 | 39 | 5 | 2002–2009 | 0.32 | M-v | 0 | MPC | 166180 | 2004 $RJ_{269}$ |
| 2004 $RY_{273}$ | 17.0 | 0.15 | 20100104 | 342.02835 | 44.09067 | 120.11428 | 3.09494 | 0.1438811 | 2.3998579 | 60 | 6 | 1999–2009 | 0.41 | M-v | 1 | MPC | 148940 | 2004 $RY_{273}$ |
| 2004 $RZ_{273}$ | 17.2 | 0.15 | 20100104 | 81.96378 | 281.31537 | 91.42069 | 1.94526 | 0.0704832 | 2.5795996 | 45 | 7 | 1998–2009 | 0.32 | M-v | 0 | MPC | 147310 | 2004 $RZ_{273}$ |
| 2004 $RY_{276}$ | 16.6 | 0.15 | 20100104 | 37.91933 | 68.45040 | 344.92586 | 11.09714 | 0.1432735 | 2.5937194 | 36 | 4 | 2000–2009 | 0.56 | M-v | 1 | MPC | 95436 | 2004 $RY_{276}$ |
| 2004 $RH_{277}$ | 16.3 | 0.15 | 20100104 | 146.73636 | 46.24842 | 274.32386 | 5.63979 | 0.1698224 | 2.5280788 | 92 | 5 | 2000–2009 | 0.50 | M-v | 3 | MPC | 158482 | 2004 $RH_{277}$ |
| 2004 $RJ_{285}$ | 17.0 | 0.15 | 20100104 | 35.75708 | 18.68426 | 12.99806 | 4.26412 | 0.2352596 | 2.7478623 | 49 | 4 | 1995–2009 | 0.41 | M-v | 0 | MPC | 165400 | 2004 $RJ_{285}$ |
| 2004 $RZ_{287}$ | 16.5 | 0.15 | 20100104 | 23.03856 | 221.84728 | 192.85616 | 9.68012 | 0.2237016 | 2.8094548 | 48 | 6 | 2000–2009 | 0.41 | M-v | 0 | MPC | 141814 | 2004 $RZ_{287}$ |
| 2004 $RB_{288}$ | 15.7 | 0.15 | 20100104 | 41.24198 | 6.18148 | 38.63673 | 5.31509 | 0.1052555 | 2.7437611 | 64 | 6 | 2002–2009 | 0.56 | M-v | 1 | MPC | 166180 | 2004 $RB_{288}$ |
| 2004 $RD_{290}$ | 16.2 | 0.15 | 20100104 | 43.55217 | 328.71896 | 33.32177 | 12.32853 | 0.1737833 | 2.7385386 | 59 | 3 | 2000–2009 | 0.44 | M-v | 2 | MPC | 166181 | 2004 $RD_{290}$ |
| 2004 $RJ_{290}$ | 16.2 | 0.15 | 20100104 | 62.91908 | 258.50030 | 101.46843 | 5.86604 | 0.1727705 | 2.7233956 | 56 | 6 | 2000–2009 | 0.45 | M-v | 0 | MPC | 166181 | 2004 $RJ_{290}$ |
| 2004 $RW_{291}$ | 16.3 | 0.15 | 20100104 | 233.07907 | 33.56094 | 264.53227 | 5.28025 | 0.1088532 | 2.3281529 | 82 | 5 | 2001–2009 | 0.49 | M-v | 1 | MPC | 158483 | 2004 $RW_{291}$ |
| 2004 $RA_{292}$ | 15.0 | 0.15 | 20100104 | 336.81780 | 27.66958 | 348.77953 | 8.87210 | 0.0584908 | 3.1238269 | 65 | 4 | 2004–2009 | 0.49 | M-v | 1 | MPC | 160811 | 2004 $RA_{292}$ |
| 2004 $RC_{303}$ | 16.7 | 0.15 | 20100104 | 358.89679 | 146.82010 | 315.72301 | 11.35039 | 0.2381368 | 2.6425709 | 38 | 4 | 1993–2009 | 0.41 | M-v | 1 | MPC | 95440 | 2004 $RC_{303}$ |
| 2004 $RQ_{306}$ | 16.1 | 0.15 | 20100104 | 115.34665 | 255.54678 | 98.58789 | 6.21480 | 0.2428611 | 2.6103519 | 77 | 4 | 2004–2009 | 0.50 | M-v | 1 | MPC | 148941 | 2004 $RQ_{306}$ |
| 2004 $RU_{307}$ | 16.4 | 0.15 | 20100104 | 88.16505 | 352.38113 | 335.32679 | 2.66398 | 0.1907287 | 2.7338971 | 67 | 5 | 2003–2009 | 0.38 | M-v | 1 | MPC | 119630 | 2004 $RU_{307}$ |
| 2004 $RQ_{308}$ | 16.2 | 0.15 | 20100104 | 130.99916 | 353.91187 | 302.73789 | 5.59664 | 0.1977981 | 2.6549065 | 62 | 4 | 2004–2009 | 0.52 | M-v | 2 | MPC | 159738 | 2004 $RQ_{308}$ |
| 2004 $RW_{308}$ | 17.4 | 0.15 | 20100104 | 55.53073 | 261.72083 | 121.83307 | 3.23978 | 0.1685357 | 2.6710584 | 30 | 6 | 1991–2009 | 0.39 | M-v | 0 | MPC | 134813 | 2004 $RW_{308}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 $RH_{312}$ | 16.1 | 0.15 | 20100104 | 19.81360 | 358.65366 | 44.65535 | 5.19186 | 0.1558533 | 2.7443370 | 92 | 5 | 2000–2009 | 0.49 | M-v | 1 | MPC | 166181 | 2004 $RH_{312}$ |
| 2004 $RK_{317}$ | 16.1 | 0.15 | 20100104 | 52.72713 | 47.15774 | 334.75300 | 4.88830 | 0.0666518 | 2.7075603 | 43 | 4 | 2004–2009 | 0.46 | M-v | 1 | MPC | 166181 | 2004 $RK_{317}$ |
| 2004 $RB_{320}$ | 16.5 | 0.15 | 20100104 | 95.65428 | 92.87773 | 278.10754 | 8.68194 | 0.0512892 | 2.5459767 | 58 | 5 | 2000–2009 | 0.43 | M-v | 2 | MPC | 166181 | 2004 $RB_{320}$ |
| 2004 $RZ_{321}$ | 16.0 | 0.15 | 20100104 | 43.27882 | 174.93282 | 206.11593 | 8.09044 | 0.2549610 | 2.7804171 | 75 | 3 | 2004–2009 | 0.44 | M-v | 2 | MPC | 142714 | 2004 $RZ_{321}$ |
| 2004 $RM_{324}$ | 16.2 | 0.15 | 20100104 | 20.57758 | 104.03293 | 310.69126 | 7.35685 | 0.1340769 | 2.7429630 | 50 | 5 | 1999–2009 | 0.46 | M-v | 1 | MPC | 141815 | 2004 $RM_{324}$ |
| 2004 $RB_{325}$ | 16.2 | 0.15 | 20100104 | 22.80047 | 161.78170 | 218.34713 | 12.60944 | 0.0970268 | 2.8409449 | 58 | 2 | 2004–2009 | 0.38 | M-v | 3 | MPC | 166181 | 2004 $RB_{325}$ |
| 2004 $RQ_{327}$ | 16.3 | 0.15 | 20100104 | 43.89470 | 145.02072 | 237.97085 | 10.16085 | 0.0661528 | 2.7122524 | 66 | 5 | 1991–2009 | 0.47 | M-v | 1 | MPC | 165400 | 2004 $RQ_{327}$ |
| 2004 $RA_{332}$ | 16.7 | 0.15 | 20100104 | 44.37556 | 297.08548 | 77.27390 | 10.03934 | 0.1851376 | 2.7687166 | 42 | 2 | 2004–2009 | 0.51 | M-v | 3 | MPC | 165400 | 2004 $RA_{332}$ |
| 2004 $RR_{335}$ | 17.1 | 0.15 | 20100104 | 11.38751 | 181.54380 | 247.03110 | 3.41124 | 0.1888906 | 2.7900534 | 37 | 3 | 2004–2009 | 0.34 | M-v | 2 | MPC | 166181 | 2004 $RR_{335}$ |
| 2004 $RN_{336}$ | 17.4 | 0.15 | 20100104 | 33.70099 | 168.80380 | 260.07257 | 2.09586 | 0.1074085 | 2.6667538 | 35 | 5 | 2000–2009 | 0.35 | M-v | 0 | MPC | 147312 | 2004 $RN_{336}$ |
| 2004 $RG_{338}$ | 16.3 | 0.15 | 20100104 | 67.61341 | 3.31710 | 21.34139 | 3.75823 | 0.1179616 | 2.6798014 | 78 | 9 | 1960–2009 | 0.56 | M-v | 1 | MPC | 157406 | 2004 $RG_{338}$ |
| 2004 $RO_{340}$ | 15.5 | 0.15 | 20100104 | 26.03190 | 160.19491 | 263.76028 | 14.34301 | 0.0558223 | 2.6415009 | 49 | 5 | 1995–2009 | 0.49 | M-v | 1 | MPC | 166181 | 2004 $RO_{340}$ |
| 2004 $RQ_{340}$ | 15.7 | 0.15 | 20100104 | 40.64598 | 237.35711 | 148.29437 | 27.09504 | 0.1627102 | 2.7587498 | 36 | 5 | 1997–2009 | 0.56 | M-v | 1 | MPC | 166181 | 2004 $RQ_{340}$ |
| 2004 $RY_{340}$ | 15.7 | 0.15 | 20100104 | 90.19601 | 226.55105 | 104.56829 | 16.27261 | 0.2081338 | 2.7124640 | 59 | 5 | 2003–2009 | 0.40 | M-v | 0 | MPC | 119631 | 2004 $RY_{340}$ |
| 2004 $RZ_{340}$ | 16.4 | 0.15 | 20100104 | 89.47024 | 242.13921 | 123.79279 | 16.26679 | 0.1653649 | 2.5993060 | 57 | 5 | 2000–2009 | 0.47 | M-v | 1 | MPC | 158483 | 2004 $RZ_{340}$ |
| 2004 $RE_{341}$ | 15.7 | 0.15 | 20100104 | 68.25862 | 103.56629 | 241.09936 | 13.46678 | 0.0583345 | 2.6973919 | 50 | 3 | 2002–2009 | 0.40 | M-v | 2 | MPC | 165401 | 2004 $RE_{341}$ |
| 2004 $RB_{345}$ | 17.0 | 0.15 | 20100104 | 100.84944 | 12.02204 | 340.16578 | 4.83053 | 0.1874900 | 2.6053917 | 49 | 4 | 2004–2009 | 0.60 | M-v | 2 | MPC | 143212 | 2004 $RB_{345}$ |
| 2004 $RW_{345}$ | 15.6 | 0.15 | 20100104 | 40.12615 | 286.13869 | 135.67379 | 14.86774 | 0.2166595 | 2.6903330 | 54 | 7 | 1997–2009 | 0.46 | M-v | 1 | MPC | 159739 | 2004 $RW_{345}$ |
| 2004 $RO_{346}$ | 15.5 | 0.15 | 20100104 | 23.40055 | 189.27465 | 212.72014 | 13.24835 | 0.0467988 | 2.7908602 | 81 | 3 | 2004–2009 | 0.48 | M-v | 3 | MPC | 166181 | 2004 $RO_{346}$ |
| 2004 $RY_{356}$ | 15.6 | 0.15 | 20040912 | 6.10616 | 315.89703 | 29.11796 | 9.60552 | 0.1116882 | 2.7599577 | 10 | 1 | 46 days | 0.44 | | | MPC | | 2004 $RY_{356}$ |
| 2004 $RZ_{356}$ | 15.6 | 0.15 | 20040823 | 47.44029 | 201.36672 | 79.02183 | 3.45480 | 0.2192634 | 3.0430370 | 11 | 1 | 10 days | 0.73 | | | MPC | | 2004 $RZ_{356}$ |
| 2004 $SB_2$ | 16.2 | 0.15 | 20100104 | 48.56986 | 11.22569 | 325.58692 | 2.60171 | 0.1546097 | 2.8617259 | 78 | 7 | 1997–2009 | 0.46 | M-v | 1 | MPC | 164228 | 2004 $SB_2$ |
| 2004 $SX_3$ | 16.9 | 0.15 | 20100104 | 80.67685 | 5.36422 | 6.65997 | 5.37751 | 0.2092437 | 2.6230270 | 51 | 5 | 2000–2009 | 0.51 | M-v | 1 | MPC | 160812 | 2004 $SX_3$ |
| 2004 $SB_4$ | 16.2 | 0.15 | 20100104 | 96.95599 | 262.02001 | 81.14907 | 15.69447 | 0.1612764 | 2.5988774 | 38 | 5 | 2000–2009 | 0.48 | M-v | 1 | MPC | 143213 | 2004 $SB_4$ |
| 2004 $SH_4$ | 16.1 | 0.15 | 20100104 | 34.23485 | 63.86214 | 310.87282 | 8.10619 | 0.1700333 | 2.7835421 | 66 | 3 | 2004–2009 | 0.60 | M-v | 3 | MPC | 166182 | 2004 $SH_4$ |
| 2004 $SL_4$ | 16.9 | 0.15 | 20100104 | 56.79881 | 100.60474 | 262.72366 | 2.92191 | 0.0872787 | 2.7012572 | 54 | 4 | 2004–2009 | 0.31 | M-v | 0 | MPC | 166182 | 2004 $SL_4$ |
| 2004 $SV_4$ | 16.6 | 0.15 | 20100104 | 86.85563 | 120.02302 | 210.85332 | 6.93489 | 0.2376630 | 2.7510921 | 40 | 3 | 2003–2009 | 0.36 | M-v | 2 | MPC | 73202 | 2004 $SV_4$ |
| 2004 $SY_7$ | 17.1 | 0.15 | 20100104 | 50.81480 | 10.88437 | 10.44264 | 4.77652 | 0.2682400 | 2.7262279 | 42 | 3 | 2004–2009 | 0.41 | M-v | 3 | MPC | 100785 | 2004 $SY_7$ |
| 2004 $SD_{10}$ | 16.4 | 0.15 | 20100104 | 55.73249 | 292.85691 | 99.35465 | 7.29061 | 0.1912847 | 2.6199951 | 50 | 6 | 2000–2009 | 0.40 | M-v | 0 | MPC | 166182 | 2004 $SD_{10}$ |
| 2004 $SL_{11}$ | 15.7 | 0.15 | 20100104 | 39.56864 | 304.69641 | 52.29608 | 9.89514 | 0.1697364 | 2.8145856 | 67 | 3 | 1993–2009 | 0.50 | M-v | 3 | MPC | 166182 | 2004 $SL_{11}$ |
| 2004 $SO_{15}$ | 16.5 | 0.15 | 20100104 | 53.82131 | 295.45789 | 84.81665 | 7.32958 | 0.1507669 | 2.7093165 | 39 | 4 | 2000–2009 | 0.43 | M-v | 1 | MPC | 122777 | 2004 $SO_{15}$ |
| 2004 $SJ_{18}$ | 15.8 | 0.15 | 20100104 | 48.34509 | 289.78359 | 67.65026 | 10.00151 | 0.1752142 | 2.8118105 | 83 | 3 | 2004–2009 | 0.52 | M-v | 3 | MPC | 166182 | 2004 $SJ_{18}$ |
| 2004 $SZ_{19}$ | 18.7 | 0.15 | 20100104 | 85.73052 | 171.19333 | 170.31527 | 26.22278 | 0.3028033 | 1.7965776 | 47 | 4 | 2004–2009 | 0.53 | M-v | 2 | MPC | 162402 | 2004 $SZ_{19}$ |
| 2004 $SC_{23}$ | 16.2 | 0.15 | 20100104 | 57.20939 | 42.37788 | 329.11651 | 1.02257 | 0.1443600 | 2.7722761 | 58 | 4 | 2004–2009 | 0.40 | M-v | 1 | MPC | 118096 | 2004 $SC_{23}$ |
| 2004 $SZ_{23}$ | 17.3 | 0.15 | 20100104 | 45.06813 | 227.65982 | 179.56574 | 3.74248 | 0.1811137 | 2.7109525 | 30 | 5 | 1995–2009 | 0.29 | M-v | 1 | MPC | 100786 | 2004 $SZ_{23}$ |
| 2004 $SH_{24}$ | 16.7 | 0.15 | 20100104 | 106.49554 | 279.97974 | 38.90770 | 5.13958 | 0.1237183 | 2.7407800 | 29 | 3 | 2004–2009 | 0.33 | M-v | 3 | MPC | 165402 | 2004 $SH_{24}$ |
| 2004 $SG_{26}$ | 14.7 | 0.15 | 20100104 | 296.78484 | 235.97201 | 275.71833 | 26.36657 | 0.1125194 | 2.6879783 | 108 | 4 | 2000–2009 | 0.47 | M-v | 1 | MPC | 166182 | 2004 $SG_{26}$ |
| 2004 $SO_{26}$ | 16.5 | 0.15 | 20100104 | 354.25391 | 256.23032 | 164.55329 | 13.37353 | 0.2475221 | 2.8660006 | 63 | 5 | 2000–2009 | 0.59 | M-v | 1 | MPC | 164228 | 2004 $SO_{26}$ |
| 2004 $SG_{31}$ | 16.7 | 0.15 | 20100104 | 58.31726 | 356.94252 | 22.22698 | 3.18266 | 0.2130744 | 2.7188210 | 74 | 6 | 1995–2009 | 0.41 | M-v | 1 | MPC | 166182 | 2004 $SG_{31}$ |
| 2004 $SP_{31}$ | 16.4 | 0.15 | 20100104 | 48.95384 | 53.70021 | 352.88534 | 3.95706 | 0.1291696 | 2.6455258 | 60 | 6 | 2000–2009 | 0.45 | M-v | 1 | MPC | 147313 | 2004 $SP_{31}$ |
| 2004 $SD_{32}$ | 16.4 | 0.15 | 20100104 | 62.82362 | 330.29734 | 27.09037 | 5.17255 | 0.1815473 | 2.7634493 | 52 | 2 | 2004–2009 | 0.49 | M-v | 3 | MPC | 165402 | 2004 $SD_{32}$ |
| 2004 $SP_{39}$ | 15.5 | 0.15 | 20100104 | 88.35110 | 146.75767 | 191.18670 | 7.36248 | 0.2433235 | 2.7331304 | 80 | 5 | 1999–2009 | 0.45 | M-v | 2 | MPC | 160813 | 2004 $SP_{39}$ |
| 2004 $SW_{41}$ | 16.3 | 0.15 | 20100104 | 41.32043 | 175.39311 | 213.77834 | 9.35632 | 0.1800381 | 2.7136521 | 45 | 5 | 1995–2009 | 0.50 | M-v | 1 | MPC | 166182 | 2004 $SW_{41}$ |
| 2004 $SH_{42}$ | 16.6 | 0.15 | 20100104 | 49.73634 | 120.11908 | 252.63949 | 3.67273 | 0.1206902 | 2.7229370 | 49 | 5 | 1995–2009 | 0.37 | M-v | 0 | MPC | 166182 | 2004 $SH_{42}$ |
| 2004 $SA_{45}$ | 15.2 | 0.15 | 20100104 | 264.62062 | 129.89702 | 340.22837 | 14.01958 | 0.2192979 | 3.2040128 | 63 | 3 | 2004–2009 | 0.51 | M-v | 2 | MPC | 102214 | 2004 $SA_{45}$ |
| 2004 $SY_{47}$ | 15.6 | 0.15 | 20100104 | 61.28979 | 187.32129 | 228.95440 | 18.16510 | 0.1709268 | 2.6264904 | 99 | 4 | 2000–2009 | 0.54 | M-v | 1 | MPC | 158483 | 2004 $SY_{47}$ |
| 2004 $SE_{48}$ | 15.1 | 0.15 | 20100104 | 356.68190 | 159.20536 | 240.20639 | 13.16845 | 0.2612375 | 3.0512569 | 123 | 2 | 2004–2009 | 0.49 | M-v | 2 | MPC | 166182 | 2004 $SE_{48}$ |
| 2004 $SH_{48}$ | 15.5 | 0.15 | 20100104 | 12.87262 | 108.97604 | 271.26126 | 5.03468 | 0.2872178 | 3.0280488 | 122 | 2 | 2004–2009 | 0.47 | M-v | 2 | MPC | 164229 | 2004 $SH_{48}$ |
| 2004 $SL_{51}$ | 16.3 | 0.15 | 20100104 | 147.29994 | 203.20194 | 99.64041 | 3.95547 | 0.1520269 | 2.5570388 | 36 | 4 | 2004–2009 | 0.50 | M-v | 1 | MPC | 152407 | 2004 $SL_{51}$ |
| 2004 $SX_{51}$ | 15.8 | 0.15 | 20100104 | 63.43237 | 309.06021 | 73.67991 | 7.66462 | 0.2663174 | 2.7534817 | 94 | 4 | 2004–2009 | 0.53 | M-v | 1 | MPC | 162403 | 2004 $SX_{51}$ |
| 2004 $SJ_{52}$ | 17.1 | 0.15 | 20100104 | 83.82493 | 78.77218 | 286.30740 | 4.26449 | 0.2104844 | 2.6227195 | 44 | 4 | 2004–2009 | 0.47 | M-v | 1 | MPC | 141161 | 2004 $SJ_{52}$ |
| 2004 $SW_{52}$ | 16.2 | 0.15 | 20100104 | 51.57373 | 82.66557 | 282.31251 | 11.82915 | 0.2256178 | 2.7299896 | 33 | 3 | 2004–2009 | 0.41 | M-v | 2 | MPC | 100790 | 2004 $SW_{52}$ |
| 2004 $SO_{53}$ | 16.2 | 0.15 | 20100104 | 49.89267 | 183.54283 | 202.35063 | 2.66857 | 0.3014930 | 2.7412290 | 87 | 6 | 1995–2009 | 0.40 | M-v | 1 | MPC | 162403 | 2004 $SO_{53}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 $SR_{55}$ | 16.5 | 0.15 | 20100104 | 76.72661 | 104.09045 | 245.00764 | 3.28007 | 0.0981507 | 2.7592525 | 55 | 6 | 2002–2009 | 0.38 | M-v | 0 | MPC | 166182 | 2004 $SR_{55}$ |
| 2004 $SR_{60}$ | 15.4 | 0.15 | 20100104 | 6.18185 | 167.82985 | 226.10194 | 14.14107 | 0.0954462 | 2.9339880 | 63 | 5 | 1994–2009 | 0.55 | M-v | 2 | MPC | 166182 | 2004 $SR_{60}$ |
| 2004 $SS_{60}$ | 15.6 | 0.15 | 20100104 | 59.15818 | 75.91966 | 296.32651 | 7.91688 | 0.1469547 | 2.8347053 | 64 | 4 | 1999–2009 | 0.51 | M-v | 1 | MPC | 141816 | 2004 $SS_{60}$ |
| 2004 $TY_{2}$ | 16.9 | 0.15 | 20100104 | 296.10003 | 217.06787 | 13.85986 | 4.35094 | 0.1121724 | 2.3831740 | 50 | 6 | 1997–2009 | 0.36 | M-v | 1 | MPC | 147314 | 2004 $TY_{2}$ |
| 2004 $TZ_{4}$ | 16.8 | 0.15 | 20100104 | 82.03584 | 24.47329 | 337.97941 | 1.57885 | 0.1049212 | 2.7436563 | 48 | 7 | 1997–2009 | 0.36 | M-v | 0 | MPC | 158483 | 2004 $TZ_{4}$ |
| 2004 $TR_{6}$ | 16.1 | 0.15 | 20100104 | 106.71695 | 195.95675 | 113.50136 | 5.93019 | 0.2804265 | 2.6708744 | 62 | 6 | 2000–2009 | 0.42 | M-v | 1 | MPC | 166183 | 2004 $TR_{6}$ |
| 2004 $TC_{7}$ | 15.8 | 0.15 | 20100104 | 39.85800 | 289.08913 | 155.78519 | 15.10936 | 0.3440772 | 2.6379508 | 79 | 4 | 2000–2009 | 0.49 | M-v | 1 | MPC | 147314 | 2004 $TC_{7}$ |
| 2004 $TP_{12}$ | 17.7 | 0.15 | 20100104 | 121.20684 | 96.79024 | 224.65127 | 24.78181 | 0.1587022 | 1.7895359 | 95 | 3 | 2004–2009 | 0.44 | M-v | 1 | MPC | 100794 | 2004 $TP_{12}$ |
| 2004 $TR_{12}$ | 18.2 | 0.15 | 20100104 | 187.44708 | 77.71357 | 155.43514 | 19.35547 | 0.2096470 | 0.8951145 | 73 | 3 | 2004–2009 | 0.27 | M-v | 2 | MPC | 166183 | 2004 $TR_{12}$ |
| 2004 $TW_{13}$ | 16.2 | 0.15 | 20100104 | 77.17167 | 74.14361 | 282.92685 | 5.54678 | 0.0490971 | 2.7095299 | 48 | 5 | 2000–2009 | 0.45 | M-v | 1 | MPC | 166183 | 2004 $TW_{13}$ |
| 2004 $TS_{15}$ | 16.0 | 0.15 | 20100104 | 0.90211 | 16.02022 | 18.52097 | 5.55634 | 0.2370714 | 3.0296516 | 63 | 3 | 2004–2009 | 0.44 | M-v | 2 | MPC | 166183 | 2004 $TS_{15}$ |
| 2004 $TB_{18}$ | 17.7 | 0.15 | 20100104 | 353.88875 | 13.04520 | 121.06194 | 13.20812 | 0.4508209 | 1.8151812 | 253 | 3 | 2004–2009 | 0.46 | M-v | 1 | MPC | 166183 | 2004 $TB_{18}$ |
| 2004 $TR_{19}$ | 16.2 | 0.15 | 20100104 | 32.16126 | 331.53354 | 88.56184 | 5.02011 | 0.1790683 | 2.7231256 | 61 | 4 | 2001–2009 | 0.60 | M-v | 1 | MPC | 166183 | 2004 $TR_{19}$ |
| 2004 $TG_{22}$ | 16.3 | 0.15 | 20100104 | 347.40506 | 206.26743 | 213.53887 | 5.67203 | 0.0868471 | 2.8696555 | 56 | 4 | 1999–2009 | 0.38 | M-v | 2 | MPC | 166183 | 2004 $TG_{22}$ |
| 2004 $TH_{22}$ | 17.2 | 0.15 | 20100104 | 62.73342 | 174.75791 | 226.45121 | 3.62863 | 0.0349030 | 2.6018330 | 46 | 5 | 2000–2009 | 0.25 | M-v | 0 | MPC | 148944 | 2004 $TH_{22}$ |
| 2004 $TL_{22}$ | 16.5 | 0.15 | 20100104 | 179.52502 | 313.00536 | 309.36606 | 2.90829 | 0.0832692 | 2.6469474 | 52 | 7 | 1995–2009 | 0.40 | M-v | 0 | MPC | 159741 | 2004 $TL_{22}$ |
| 2004 $TQ_{24}$ | 16.1 | 0.15 | 20100104 | 91.92129 | 327.15798 | 359.63248 | 6.45618 | 0.0366611 | 2.7688973 | 71 | 6 | 1993–2009 | 0.35 | M-v | 0 | MPC | 166183 | 2004 $TQ_{24}$ |
| 2004 $TB_{28}$ | 16.2 | 0.15 | 20100104 | 87.27535 | 197.49319 | 130.30509 | 1.33125 | 0.0754558 | 2.7744430 | 77 | 5 | 1993–2009 | 0.43 | M-v | 1 | MPC | 166183 | 2004 $TB_{28}$ |
| 2004 $TF_{31}$ | 16.1 | 0.15 | 20100104 | 21.59016 | 213.93281 | 221.41887 | 8.31719 | 0.2459074 | 2.7398543 | 78 | 6 | 1999–2009 | 0.56 | M-v | 0 | MPC | 97751 | 2004 $TF_{31}$ |
| 2004 $TZ_{31}$ | 16.7 | 0.15 | 20100104 | 71.24369 | 47.88023 | 309.75783 | 3.30662 | 0.0635300 | 2.7730422 | 56 | 6 | 1995–2009 | 0.36 | M-v | 0 | MPC | 166183 | 2004 $TZ_{31}$ |
| 2004 $TP_{33}$ | 17.0 | 0.15 | 20100104 | 358.08115 | 178.70467 | 257.82533 | 1.87600 | 0.1254342 | 2.8061624 | 52 | 3 | 2004–2009 | 0.30 | M-v | 1 | MPC | 166183 | 2004 $TP_{33}$ |
| 2004 $TJ_{34}$ | 17.3 | 0.15 | 20100104 | 182.64026 | 286.01872 | 339.57415 | 1.43838 | 0.0403049 | 2.6785432 | 36 | 5 | 2004–2009 | 0.33 | M-v | 0 | MPC | 141816 | 2004 $TJ_{34}$ |
| 2004 $TQ_{35}$ | 17.2 | 0.15 | 20100104 | 30.22383 | 53.32478 | 11.49297 | 5.00235 | 0.1568271 | 2.7147786 | 36 | 4 | 2004–2009 | 0.38 | M-v | 1 | MPC | 147315 | 2004 $TQ_{35}$ |
| 2004 $TU_{37}$ | 16.5 | 0.15 | 20100104 | 141.91755 | 92.62293 | 198.62831 | 3.20907 | 0.1437430 | 2.6937311 | 62 | 4 | 2004–2009 | 0.36 | M-v | 0 | MPC | 154130 | 2004 $TU_{37}$ |
| 2004 $TS_{41}$ | 16.0 | 0.15 | 20100104 | 18.65523 | 78.63604 | 352.51125 | 4.38152 | 0.1413940 | 2.7629912 | 76 | 5 | 2001–2009 | 0.47 | M-v | 0 | MPC | 160814 | 2004 $TS_{41}$ |
| 2004 $TT_{46}$ | 16.8 | 0.15 | 20100104 | 316.98188 | 209.20421 | 359.68138 | 1.27357 | 0.1356914 | 2.4419344 | 76 | 6 | 2000–2009 | 0.43 | M-v | 1 | MPC | 147315 | 2004 $TT_{46}$ |
| 2004 $TF_{47}$ | 16.8 | 0.15 | 20100104 | 36.51750 | 212.19708 | 222.01489 | 1.10738 | 0.0548599 | 2.6541067 | 43 | 6 | 1995–2009 | 0.35 | M-v | 0 | MPC | 147315 | 2004 $TF_{47}$ |
| 2004 $TW_{53}$ | 15.5 | 0.15 | 20100104 | 50.37258 | 114.41725 | 213.28991 | 9.10364 | 0.0814915 | 3.0845396 | 54 | 4 | 2002–2009 | 0.41 | M-v | 0 | MPC | 166183 | 2004 $TW_{53}$ |
| 2004 $TJ_{54}$ | 15.5 | 0.15 | 20100104 | 77.44761 | 94.57078 | 215.04570 | 7.45723 | 0.0767466 | 3.0370247 | 56 | 5 | 1996–2009 | 0.48 | M-v | 0 | MPC | 164230 | 2004 $TJ_{54}$ |
| 2004 $TV_{59}$ | 16.2 | 0.15 | 20100104 | 45.60798 | 5.23296 | 27.04961 | 6.71087 | 0.0750133 | 2.7193193 | 46 | 6 | 1995–2009 | 0.42 | M-v | 1 | MPC | 122778 | 2004 $TV_{59}$ |
| 2004 $TV_{64}$ | 16.1 | 0.15 | 20100104 | 304.50890 | 90.33686 | 41.27793 | 4.27197 | 0.0467479 | 2.7744303 | 54 | 5 | 2002–2009 | 0.41 | M-v | 0 | MPC | 166184 | 2004 $TV_{64}$ |
| 2004 $TP_{65}$ | 16.1 | 0.15 | 20100104 | 48.49161 | 307.88818 | 84.74344 | 10.50795 | 0.2208950 | 2.7510001 | 47 | 4 | 2001–2009 | 0.37 | M-v | 0 | MPC | 165403 | 2004 $TP_{65}$ |
| 2004 $TX_{65}$ | 16.8 | 0.15 | 20100104 | 44.67809 | 348.63426 | 45.65226 | 4.37528 | 0.2986114 | 2.7496413 | 58 | 3 | 2004–2009 | 0.44 | M-v | 2 | MPC | 95502 | 2004 $TX_{65}$ |
| 2004 $TW_{67}$ | 15.8 | 0.15 | 20100104 | 54.27726 | 226.04762 | 151.66882 | 10.28760 | 0.1459832 | 2.7666011 | 67 | 8 | 1998–2009 | 0.50 | M-v | 1 | MPC | 147316 | 2004 $TW_{67}$ |
| 2004 $TL_{68}$ | 15.7 | 0.15 | 20100104 | 104.69540 | 246.28171 | 92.96010 | 6.94170 | 0.1797318 | 2.6564544 | 71 | 4 | 2004–2009 | 0.38 | M-v | 1 | MPC | 164230 | 2004 $TL_{68}$ |
| 2004 $TQ_{68}$ | 15.3 | 0.15 | 20100104 | 54.52828 | 255.49201 | 81.59761 | 5.85278 | 0.1058584 | 2.9075595 | 72 | 3 | 2004–2009 | 0.51 | M-v | 3 | MPC | 166184 | 2004 $TQ_{68}$ |
| 2004 $TE_{70}$ | 15.8 | 0.15 | 20100104 | 53.84264 | 259.89902 | 83.54634 | 4.26308 | 0.2418820 | 2.8843747 | 84 | 5 | 1999–2009 | 0.54 | M-v | 1 | MPC | 166184 | 2004 $TE_{70}$ |
| 2004 $TB_{72}$ | 17.5 | 0.15 | 20100104 | 11.39914 | 23.97013 | 45.69382 | 0.96960 | 0.0548580 | 2.7291290 | 43 | 4 | 1995–2009 | 0.39 | M-v | 0 | MPC | 166184 | 2004 $TB_{72}$ |
| 2004 $TQ_{72}$ | 16.5 | 0.15 | 20100104 | 83.46321 | 318.86173 | 36.88149 | 6.47550 | 0.0497875 | 2.7299748 | 45 | 5 | 1995–2009 | 0.33 | M-v | 0 | MPC | 165404 | 2004 $TQ_{72}$ |
| 2004 $TB_{73}$ | 17.1 | 0.15 | 20100104 | 313.71995 | 189.32302 | 24.21630 | 7.16128 | 0.0916438 | 2.4218379 | 46 | 6 | 2000–2009 | 0.26 | M-v | 0 | MPC | 158484 | 2004 $TB_{73}$ |
| 2004 $TM_{75}$ | 17.0 | 0.15 | 20100104 | 23.64506 | 223.53097 | 168.30148 | 0.68433 | 0.0461727 | 2.9097226 | 37 | 3 | 2004–2009 | 0.35 | M-v | 4 | MPC | 166184 | 2004 $TM_{75}$ |
| 2004 $TC_{80}$ | 17.1 | 0.15 | 20100104 | 111.28331 | 93.14098 | 265.54405 | 2.23461 | 0.0841011 | 2.5725552 | 45 | 6 | 2000–2009 | 0.33 | M-v | 1 | MPC | 148945 | 2004 $TC_{80}$ |
| 2004 $TA_{81}$ | 16.5 | 0.15 | 20100104 | 68.24184 | 104.48443 | 236.40234 | 3.00204 | 0.1098447 | 2.8086197 | 45 | 4 | 2003–2009 | 0.31 | M-v | 1 | MPC | 166184 | 2004 $TA_{81}$ |
| 2004 $TC_{82}$ | 17.5 | 0.15 | 20100104 | 228.23631 | 297.14308 | 276.26288 | 1.89013 | 0.0480255 | 2.6873575 | 58 | 6 | 2000–2009 | 0.37 | M-v | 0 | MPC | 166184 | 2004 $TC_{82}$ |
| 2004 $TM_{85}$ | 16.8 | 0.15 | 20100104 | 312.20884 | 264.78643 | 218.71712 | 1.68569 | 0.1381032 | 2.7874915 | 53 | 5 | 2000–2009 | 0.33 | M-v | 1 | MPC | 165404 | 2004 $TM_{85}$ |
| 2004 $TE_{88}$ | 17.0 | 0.15 | 20100104 | 353.99197 | 351.99912 | 69.99503 | 1.46124 | 0.2408926 | 2.8921096 | 58 | 3 | 2004–2009 | 0.33 | M-v | 2 | MPC | 166184 | 2004 $TE_{88}$ |
| 2004 $TW_{88}$ | 16.7 | 0.15 | 20100104 | 322.76916 | 99.63649 | 56.53861 | 2.73864 | 0.0853477 | 2.5717914 | 70 | 6 | 1994–2009 | 0.51 | M-v | 2 | MPC | 166184 | 2004 $TW_{88}$ |
| 2004 $TX_{89}$ | 16.6 | 0.15 | 20100104 | 48.69627 | 256.57222 | 146.75337 | 5.20185 | 0.1811864 | 2.6739009 | 52 | 5 | 2000–2009 | 0.53 | M-v | 1 | MPC | 143216 | 2004 $TX_{89}$ |
| 2004 $TM_{91}$ | 16.5 | 0.15 | 20100104 | 309.47432 | 151.20244 | 359.63964 | 4.76212 | 0.1530040 | 2.7310894 | 57 | 5 | 2002–2009 | 0.37 | M-v | 1 | MPC | 160815 | 2004 $TM_{91}$ |
| 2004 $TP_{91}$ | 16.8 | 0.15 | 20100104 | 66.66524 | 28.34790 | 316.72034 | 2.01366 | 0.2720862 | 2.7954887 | 49 | 4 | 1999–2009 | 0.37 | M-v | 1 | MPC | 166184 | 2004 $TP_{91}$ |
| 2004 $TK_{93}$ | 17.1 | 0.15 | 20100104 | 16.51911 | 61.34592 | 7.84226 | 1.34305 | 0.2133148 | 2.7773648 | 28 | 3 | 2004–2009 | 0.20 | M-v | 2 | MPC | 166184 | 2004 $TK_{93}$ |
| 2004 $TE_{95}$ | 17.4 | 0.15 | 20100104 | 114.45672 | 312.24214 | 26.50883 | 2.26282 | 0.0870355 | 2.6574943 | 40 | 6 | 1995–2009 | 0.67 | M-v | 1 | MPC | 158484 | 2004 $TE_{95}$ |
| 2004 $TJ_{100}$ | 16.2 | 0.15 | 20100104 | 49.65070 | 317.52589 | 109.43479 | 5.60794 | 0.1145714 | 2.6115772 | 52 | 5 | 2000–2009 | 0.54 | M-v | 1 | MPC | 166184 | 2004 $TJ_{100}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 $TM_{106}$ | 15.9 | 0.15 | 20100104 | 343.39460 | 37.10858 | 34.09179 | 8.57206 | 0.1923532 | 2.8804969 | 83 | 4 | 1997–2009 | 0.44 | M-v | 1 | MPC | 166184 | 2004 $TM_{106}$ |
| 2004 $TR_{106}$ | 16.2 | 0.15 | 20100104 | 86.34057 | 314.11905 | 42.05590 | 9.43251 | 0.1391980 | 2.6621095 | 40 | 4 | 2004–2009 | 0.58 | M-v | 1 | MPC | 143216 | 2004 $TR_{106}$ |
| 2004 $TQ_{108}$ | 17.2 | 0.15 | 20100104 | 176.80339 | 7.41997 | 41.30512 | 6.81598 | 0.1513686 | 2.2329127 | 37 | 3 | 2004–2009 | 0.57 | M-v | 3 | MPC | 103638 | 2004 $TQ_{108}$ |
| 2004 $TB_{109}$ | 16.4 | 0.15 | 20100104 | 60.85439 | 235.06019 | 135.47330 | 4.29358 | 0.0747007 | 2.7209409 | 62 | 7 | 1999–2009 | 0.39 | M-v | 0 | MPC | 140690 | 2004 $TB_{109}$ |
| 2004 $TF_{109}$ | 15.6 | 0.15 | 20100104 | 57.35240 | 268.68328 | 87.13875 | 7.13231 | 0.2280344 | 2.8034730 | 92 | 6 | 1999–2009 | 0.59 | M-v | 1 | MPC | 166184 | 2004 $TF_{109}$ |
| 2004 $TQ_{109}$ | 15.9 | 0.15 | 20100104 | 29.26246 | 344.53954 | 60.87531 | 5.49523 | 0.2009739 | 2.7987446 | 58 | 3 | 2004–2009 | 0.50 | M-v | 3 | MPC | 165404 | 2004 $TQ_{109}$ |
| 2004 $TD_{112}$ | 15.2 | 0.15 | 20100104 | 111.84534 | 84.91615 | 245.78847 | 21.16502 | 0.0845775 | 2.7025699 | 62 | 7 | 1991–2009 | 0.56 | M-v | 1 | MPC | 147317 | 2004 $TD_{112}$ |
| 2004 $TH_{112}$ | 15.7 | 0.15 | 20100104 | 14.12029 | 307.29488 | 28.52359 | 18.81152 | 0.2598255 | 3.1091501 | 49 | 3 | 2004–2009 | 0.41 | M-v | 3 | MPC | 139211 | 2004 $TH_{112}$ |
| 2004 $TZ_{112}$ | 16.3 | 0.15 | 20100104 | 86.16116 | 84.17045 | 273.24540 | 7.68048 | 0.1391602 | 2.7246234 | 55 | 4 | 2000–2009 | 0.46 | M-v | 1 | MPC | 166184 | 2004 $TZ_{112}$ |
| 2004 $TT_{113}$ | 15.2 | 0.15 | 20100104 | 308.17419 | 219.63307 | 233.60133 | 7.26815 | 0.1614626 | 3.0775397 | 70 | 5 | 1993–2009 | 0.45 | M-v | 0 | MPC | 166184 | 2004 $TT_{113}$ |
| 2004 $TO_{115}$ | 15.1 | 0.15 | 20100104 | 288.36211 | 103.34805 | 4.64099 | 6.84688 | 0.0309693 | 3.0443843 | 48 | 5 | 1999–2009 | 0.61 | M-v | 1 | MPC | 164231 | 2004 $TO_{115}$ |
| 2004 $TQ_{116}$ | 15.0 | 0.15 | 20100104 | 10.06882 | 195.94722 | 249.96012 | 12.77146 | 0.1008372 | 2.7311915 | 38 | 3 | 2000–2009 | 0.47 | M-v | 2 | MPC | 77789 | 2004 $TQ_{116}$ |
| 2004 $TX_{117}$ | 15.5 | 0.15 | 20100104 | 329.41296 | 43.27762 | 55.00214 | 9.72439 | 0.1805338 | 2.9037021 | 71 | 4 | 2001–2009 | 0.52 | M-v | 1 | MPC | 166185 | 2004 $TX_{117}$ |
| 2004 $TN_{119}$ | 16.5 | 0.15 | 20100104 | 62.55662 | 125.13343 | 234.58167 | 12.27187 | 0.2116954 | 2.7395094 | 25 | 2 | 2004–2009 | 0.42 | M-v | 3 | MPC | 165405 | 2004 $TN_{119}$ |
| 2004 $TZ_{122}$ | 17.2 | 0.15 | 20100104 | 56.32214 | 326.56405 | 66.67498 | 3.59860 | 0.1703719 | 2.6879530 | 36 | 5 | 1997–2009 | 0.56 | M-v | 1 | MPC | 166185 | 2004 $TZ_{122}$ |
| 2004 $TU_{123}$ | 16.2 | 0.15 | 20100104 | 24.85199 | 259.70115 | 146.08880 | 5.58712 | 0.1672180 | 2.7876979 | 57 | 4 | 1999–2009 | 0.58 | M-v | 2 | MPC | 166185 | 2004 $TU_{123}$ |
| 2004 $TZ_{123}$ | 16.5 | 0.15 | 20100104 | 45.31986 | 27.40422 | 22.95206 | 2.33947 | 0.2503511 | 2.6760265 | 39 | 5 | 1991–2009 | 0.43 | M-v | 1 | MPC | 166185 | 2004 $TZ_{123}$ |
| 2004 $TU_{124}$ | 16.4 | 0.15 | 20100104 | 56.54622 | 280.84298 | 101.49202 | 2.87619 | 0.1979222 | 2.7044626 | 43 | 4 | 1995–2009 | 0.63 | M-v | 2 | MPC | 100807 | 2004 $TU_{124}$ |
| 2004 $TS_{125}$ | 16.3 | 0.15 | 20100104 | 61.37289 | 276.93164 | 92.38090 | 6.69068 | 0.0921135 | 2.7243645 | 40 | 4 | 2000–2009 | 0.47 | M-v | 1 | MPC | 166185 | 2004 $TS_{125}$ |
| 2004 $TH_{129}$ | 15.8 | 0.15 | 20100104 | 11.13425 | 20.03191 | 53.17279 | 8.59687 | 0.1599624 | 2.7558218 | 53 | 5 | 2000–2009 | 0.56 | M-v | 1 | MPC | 166185 | 2004 $TH_{129}$ |
| 2004 $TH_{136}$ | 16.1 | 0.15 | 20100104 | 39.95879 | 89.74605 | 288.49700 | 6.50481 | 0.1831982 | 2.8152872 | 40 | 3 | 2004–2009 | 0.47 | M-v | 3 | MPC | 165405 | 2004 $TH_{136}$ |
| 2004 $TX_{136}$ | 16.4 | 0.15 | 20100104 | 9.38860 | 170.14944 | 254.23374 | 7.58427 | 0.2975668 | 2.8675966 | 84 | 2 | 2004–2009 | 0.42 | M-v | 2 | MPC | 165405 | 2004 $TX_{136}$ |
| 2004 $TT_{140}$ | 17.1 | 0.15 | 20100104 | 355.50170 | 81.87774 | 4.46841 | 7.90613 | 0.2671674 | 2.7935489 | 24 | 3 | 2004–2009 | 0.31 | M-v | 2 | MPC | 100810 | 2004 $TT_{140}$ |
| 2004 $TO_{142}$ | 16.9 | 0.15 | 20100104 | 296.64006 | 224.90592 | 356.44986 | 2.13367 | 0.1816846 | 2.4110476 | 80 | 7 | 1999–2009 | 0.30 | M-v | 0 | MPC | 148947 | 2004 $TO_{142}$ |
| 2004 $TW_{143}$ | 16.2 | 0.15 | 20100104 | 25.64945 | 215.88815 | 200.46568 | 2.28770 | 0.1790452 | 2.7836976 | 65 | 6 | 2001–2009 | 0.41 | M-v | 0 | MPC | 166185 | 2004 $TW_{143}$ |
| 2004 $TX_{144}$ | 16.1 | 0.15 | 20100104 | 9.38540 | 3.10505 | 15.98053 | 2.90764 | 0.2246921 | 3.0251544 | 60 | 4 | 2004–2009 | 0.42 | M-v | 1 | MPC | 162407 | 2004 $TX_{144}$ |
| 2004 $TH_{145}$ | 15.6 | 0.15 | 20100104 | 293.57167 | 101.92702 | 0.02640 | 11.91426 | 0.1053757 | 2.9672890 | 56 | 4 | 2001–2009 | 0.48 | M-v | 1 | MPC | 164231 | 2004 $TH_{145}$ |
| 2004 $TL_{146}$ | 15.8 | 0.15 | 20100104 | 5.55366 | 34.06655 | 48.87571 | 4.58945 | 0.0950206 | 2.7369450 | 60 | 5 | 2002–2009 | 0.53 | M-v | 0 | MPC | 166185 | 2004 $TL_{146}$ |
| 2004 $TF_{147}$ | 16.6 | 0.15 | 20100104 | 76.02713 | 74.66907 | 308.78022 | 2.73357 | 0.0919720 | 2.6453237 | 57 | 6 | 2000–2009 | 0.44 | M-v | 0 | MPC | 147318 | 2004 $TF_{147}$ |
| 2004 $TZ_{147}$ | 17.4 | 0.15 | 20100104 | 33.25663 | 79.79530 | 319.68059 | 2.63386 | 0.0942297 | 2.7663493 | 27 | 3 | 2004–2009 | 0.39 | M-v | 3 | MPC | 166185 | 2004 $TZ_{147}$ |
| 2004 $TF_{149}$ | 16.5 | 0.15 | 20100104 | 6.39950 | 216.34469 | 217.69101 | 4.38383 | 0.1432268 | 2.7738861 | 35 | 3 | 2004–2009 | 0.27 | M-v | 2 | MPC | 165405 | 2004 $TF_{149}$ |
| 2004 $TB_{151}$ | 17.0 | 0.15 | 20100104 | 58.69822 | 353.40053 | 10.38720 | 4.72511 | 0.0179341 | 2.7957878 | 26 | 2 | 2004–2009 | 0.26 | M-v | 3 | MPC | 165405 | 2004 $TB_{151}$ |
| 2004 $TX_{151}$ | 16.9 | 0.15 | 20100104 | 348.44708 | 235.14003 | 212.64466 | 2.34023 | 0.0618738 | 2.7674175 | 48 | 6 | 1993–2009 | 0.34 | M-v | 0 | MPC | 165405 | 2004 $TX_{151}$ |
| 2004 $TT_{153}$ | 17.2 | 0.15 | 20100104 | 68.02210 | 16.71430 | 10.51526 | 2.03552 | 0.0990808 | 2.6611792 | 36 | 3 | 2004–2009 | 0.27 | M-v | 3 | MPC | 95537 | 2004 $TT_{153}$ |
| 2004 $TN_{156}$ | 16.4 | 0.15 | 20100104 | 348.91729 | 270.45103 | 189.65062 | 5.53473 | 0.0226739 | 2.6923142 | 37 | 5 | 2002–2009 | 0.45 | M-v | 0 | MPC | 147318 | 2004 $TN_{156}$ |
| 2004 $TG_{160}$ | 15.9 | 0.15 | 20100104 | 131.43339 | 79.91879 | 240.46342 | 3.91255 | 0.0480586 | 2.7192721 | 69 | 8 | 1995–2009 | 0.50 | M-v | 0 | MPC | 148947 | 2004 $TG_{160}$ |
| 2004 $TK_{161}$ | 15.8 | 0.15 | 20100104 | 34.53538 | 137.59445 | 215.37318 | 5.08833 | 0.1432635 | 3.0031156 | 96 | 4 | 1999–2009 | 0.44 | M-v | 2 | MPC | 166185 | 2004 $TK_{161}$ |
| 2004 $TY_{163}$ | 16.7 | 0.15 | 20100104 | 334.41223 | 9.52139 | 67.10103 | 2.89770 | 0.2109562 | 2.9941202 | 40 | 4 | 1999–2009 | 0.34 | M-v | 2 | MPC | 164232 | 2004 $TY_{163}$ |
| 2004 $TS_{167}$ | 17.1 | 0.15 | 20100104 | 326.30727 | 264.45815 | 204.23226 | 3.59305 | 0.1680947 | 2.7780875 | 36 | 3 | 2004–2009 | 0.48 | M-v | 3 | MPC | 165406 | 2004 $TS_{167}$ |
| 2004 $TV_{167}$ | 16.8 | 0.15 | 20100104 | 257.55074 | 262.46983 | 353.08622 | 2.04802 | 0.1603926 | 2.3586621 | 45 | 5 | 2003–2009 | 0.34 | M-v | 0 | MPC | 148553 | 2004 $TV_{167}$ |
| 2004 $TA_{169}$ | 16.4 | 0.15 | 20100104 | 78.62242 | 319.17320 | 59.85520 | 5.27841 | 0.2209486 | 2.6512596 | 42 | 3 | 2004–2009 | 0.54 | M-v | 3 | MPC | 159744 | 2004 $TA_{169}$ |
| 2004 $TW_{170}$ | 15.8 | 0.15 | 20100104 | 54.44063 | 323.22610 | 57.79123 | 7.04993 | 0.1107222 | 2.7611208 | 45 | 3 | 2004–2009 | 0.45 | M-v | 3 | MPC | 142723 | 2004 $TW_{170}$ |
| 2004 $TT_{171}$ | 16.2 | 0.15 | 20100104 | 31.50343 | 336.82185 | 82.75418 | 6.35179 | 0.1529290 | 2.7212873 | 50 | 6 | 1997–2009 | 0.51 | M-v | 1 | MPC | 166186 | 2004 $TT_{171}$ |
| 2004 $TJ_{172}$ | 16.1 | 0.15 | 20100104 | 94.13167 | 38.94665 | 316.96035 | 9.08687 | 0.1222055 | 2.6961992 | 55 | 4 | 2004–2009 | 0.47 | M-v | 1 | MPC | 150991 | 2004 $TJ_{172}$ |
| 2004 $TU_{175}$ | 16.1 | 0.15 | 20100104 | 124.38607 | 264.38286 | 69.76998 | 4.23670 | 0.1182890 | 2.6285890 | 62 | 4 | 2004–2009 | 0.43 | M-v | 1 | MPC | 166186 | 2004 $TU_{175}$ |
| 2004 $TJ_{176}$ | 16.3 | 0.15 | 20100104 | 31.72921 | 191.58040 | 154.98198 | 2.53190 | 0.3129543 | 2.9955527 | 72 | 3 | 2003–2009 | 0.48 | M-v | 2 | MPC | 164232 | 2004 $TJ_{176}$ |
| 2004 $TD_{184}$ | 16.4 | 0.15 | 20100104 | 180.11123 | 14.19514 | 244.26359 | 2.90574 | 0.0729118 | 2.6863287 | 44 | 5 | 2004–2009 | 0.34 | M-v | 0 | MPC | 166186 | 2004 $TD_{184}$ |
| 2004 $TJ_{191}$ | 17.1 | 0.15 | 20100104 | 70.80534 | 346.59952 | 28.00433 | 3.26056 | 0.0886169 | 2.6831266 | 28 | 5 | 2002–2009 | 0.32 | M-v | 0 | MPC | 119640 | 2004 $TJ_{191}$ |
| 2004 $TE_{194}$ | 16.7 | 0.15 | 20100104 | 14.67729 | 124.64567 | 346.90421 | 3.86742 | 0.1787457 | 2.6433947 | 58 | 4 | 2004–2009 | 0.36 | M-v | 0 | MPC | 166186 | 2004 $TE_{194}$ |
| 2004 $TF_{195}$ | 16.4 | 0.15 | 20100104 | 47.45087 | 156.37820 | 225.00865 | 5.28560 | 0.0734470 | 2.8005847 | 52 | 4 | 1999–2009 | 0.36 | M-v | 2 | MPC | 166186 | 2004 $TF_{195}$ |
| 2004 $TC_{198}$ | 16.1 | 0.15 | 20100104 | 1.82564 | 43.24626 | 32.17354 | 6.70282 | 0.0621493 | 2.7864554 | 37 | 4 | 2002–2009 | 0.54 | M-v | 1 | MPC | 165407 | 2004 $TC_{198}$ |
| 2004 $TD_{199}$ | 16.4 | 0.15 | 20100104 | 312.73977 | 78.13152 | 42.35395 | 3.95264 | 0.0920797 | 2.8361476 | 53 | 5 | 1999–2009 | 0.41 | M-v | 0 | MPC | 166186 | 2004 $TD_{199}$ |
| 2004 $TF_{203}$ | 15.2 | 0.15 | 20100104 | 267.06183 | 268.98499 | 234.49566 | 11.06571 | 0.1231493 | 3.0729372 | 68 | 5 | 1993–2009 | 0.43 | M-v | 0 | MPC | 164232 | 2004 $TF_{203}$ |

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| 2004 $TF_{205}$ | 16.2 | 0.15 | 20100104 | 53.36089 | 112.26624 | 231.73193 | 8.77643 | 0.0464269 | 3.0459501 | 44 | 4 | 2001–2009 | 0.34 | M-v | 2 | MPC | 161906 | 2004 $TF_{205}$ |
| 2004 $TB_{206}$ | 16.7 | 0.15 | 20100104 | 17.18756 | 327.20755 | 50.33425 | 5.18375 | 0.2703649 | 2.9958933 | 67 | 2 | 2004–2009 | 0.47 | M-v | 2 | MPC | 166186 | 2004 $TB_{206}$ |
| 2004 $TT_{207}$ | 15.9 | 0.15 | 20100104 | 42.98598 | 117.60427 | 220.99676 | 7.36295 | 0.1509819 | 3.0765416 | 47 | 3 | 2003–2009 | 0.43 | M-v | 2 | MPC | 164232 | 2004 $TT_{207}$ |
| 2004 $TL_{209}$ | 16.8 | 0.15 | 20100104 | 160.48551 | 260.90511 | 18.43206 | 3.45919 | 0.0392600 | 2.6712151 | 49 | 6 | 2000–2009 | 0.51 | M-v | 0 | MPC | 122780 | 2004 $TL_{209}$ |
| 2004 $TJ_{213}$ | 17.0 | 0.15 | 20100104 | 102.05091 | 135.15183 | 181.04942 | 1.72711 | 0.2332792 | 2.7776789 | 48 | 5 | 1999–2009 | 0.37 | M-v | 0 | MPC | 140132 | 2004 $TJ_{213}$ |
| 2004 $TL_{214}$ | 16.3 | 0.15 | 20100104 | 322.11850 | 300.76810 | 202.37523 | 8.87992 | 0.1843022 | 2.7193193 | 43 | 6 | 1988–2009 | 0.56 | M-v | 1 | MPC | 164233 | 2004 $TL_{214}$ |
| 2004 $TK_{215}$ | 16.7 | 0.15 | 20100104 | 34.85061 | 153.85499 | 202.69910 | 5.20369 | 0.0831601 | 2.8950292 | 60 | 4 | 1999–2009 | 0.36 | M-v | 3 | MPC | 166186 | 2004 $TK_{215}$ |
| 2004 $TA_{218}$ | 17.1 | 0.15 | 20100104 | 28.34073 | 213.77504 | 193.89212 | 3.02696 | 0.0968222 | 2.7369127 | 41 | 4 | 1995–2009 | 0.29 | M-v | 0 | MPC | 165407 | 2004 $TA_{218}$ |
| 2004 $TN_{219}$ | 16.7 | 0.15 | 20100104 | 45.24252 | 9.53400 | 26.61636 | 1.82651 | 0.0648012 | 2.7384229 | 47 | 5 | 1995–2009 | 0.31 | M-v | 0 | MPC | 120808 | 2004 $TN_{219}$ |
| 2004 $TP_{222}$ | 16.1 | 0.15 | 20100104 | 8.61590 | 73.14154 | 341.00821 | 14.28721 | 0.1480566 | 2.8475213 | 50 | 3 | 2004–2009 | 0.44 | M-v | 2 | MPC | 166186 | 2004 $TP_{222}$ |
| 2004 $TQ_{224}$ | 16.8 | 0.15 | 20100104 | 165.81820 | 64.39315 | 214.12312 | 1.28898 | 0.0712326 | 2.6397156 | 54 | 5 | 2002–2009 | 0.39 | M-v | 0 | MPC | 147320 | 2004 $TQ_{224}$ |
| 2004 $TB_{231}$ | 16.2 | 0.15 | 20100104 | 194.63110 | 252.52472 | 310.86458 | 3.23371 | 0.0790132 | 2.9922000 | 60 | 5 | 2001–2009 | 0.30 | M-v | 0 | MPC | 164233 | 2004 $TB_{231}$ |
| 2004 $TQ_{231}$ | 17.0 | 0.15 | 20100104 | 62.19621 | 86.37222 | 284.63152 | 2.95905 | 0.0878636 | 2.7894855 | 46 | 7 | 1999–2009 | 0.37 | M-v | 0 | MPC | 166187 | 2004 $TQ_{231}$ |
| 2004 $TR_{235}$ | 17.9 | 0.15 | 20100104 | 283.75903 | 226.62654 | 49.04882 | 3.63915 | 0.1657191 | 2.2761469 | 24 | 3 | 2003–2006 | 0.26 | M-v | 2 | MPC | 109081 | 2004 $TR_{235}$ |
| 2004 $TS_{238}$ | 16.1 | 0.15 | 20100104 | 33.70992 | 326.98963 | 21.09889 | 9.78021 | 0.1691233 | 3.0078401 | 50 | 3 | 2004–2009 | 0.43 | M-v | 2 | MPC | 166187 | 2004 $TS_{238}$ |
| 2004 $TW_{238}$ | 15.4 | 0.15 | 20100104 | 55.04911 | 305.36623 | 27.76379 | 18.16135 | 0.1275069 | 2.9756289 | 74 | 3 | 2004–2009 | 0.39 | M-v | 2 | MPC | 166187 | 2004 $TW_{238}$ |
| 2004 $TJ_{239}$ | 16.2 | 0.15 | 20100104 | 72.19968 | 133.52422 | 213.39268 | 5.73112 | 0.0782987 | 2.8422579 | 60 | 4 | 2004–2009 | 0.36 | M-v | 1 | MPC | 165408 | 2004 $TJ_{239}$ |
| 2004 $TV_{241}$ | 16.3 | 0.15 | 20100104 | 112.22642 | 68.38341 | 252.44491 | 13.71349 | 0.1135583 | 2.7136000 | 33 | 4 | 2000–2009 | 0.41 | M-v | 1 | MPC | 166187 | 2004 $TV_{241}$ |
| 2004 $TA_{243}$ | 15.8 | 0.15 | 20100104 | 106.26993 | 232.33671 | 96.12360 | 15.26908 | 0.1899981 | 2.6895535 | 42 | 4 | 2000–2009 | 0.61 | M-v | 2 | MPC | 166187 | 2004 $TA_{243}$ |
| 2004 $TY_{249}$ | 15.7 | 0.15 | 20100104 | 18.93026 | 337.57341 | 39.08415 | 9.53160 | 0.1951128 | 3.0028601 | 84 | 4 | 1999–2009 | 0.50 | M-v | 2 | MPC | 166187 | 2004 $TY_{249}$ |
| 2004 $TP_{250}$ | 15.6 | 0.15 | 20100104 | 3.77526 | 5.65874 | 86.70241 | 18.51595 | 0.2195973 | 2.7654094 | 43 | 4 | 2001–2009 | 0.54 | M-v | 1 | MPC | 97762 | 2004 $TP_{250}$ |
| 2004 $TP_{253}$ | 16.1 | 0.15 | 20100104 | 5.76659 | 230.98465 | 197.28661 | 24.88244 | 0.1546568 | 2.7891515 | 42 | 3 | 2004–2009 | 0.60 | M-v | 2 | MPC | 166187 | 2004 $TP_{253}$ |
| 2004 $TD_{260}$ | 16.4 | 0.15 | 20100104 | 94.10126 | 165.58226 | 200.68407 | 2.23208 | 0.1483730 | 2.6558748 | 67 | 6 | 2002–2009 | 0.41 | M-v | 0 | MPC | 148949 | 2004 $TD_{260}$ |
| 2004 $TQ_{272}$ | 15.4 | 0.15 | 20100104 | 347.21859 | 165.50577 | 235.27959 | 10.14306 | 0.1002721 | 3.0943346 | 36 | 5 | 1993–2009 | 0.36 | M-v | 1 | MPC | 164233 | 2004 $TQ_{272}$ |
| 2004 $TC_{273}$ | 15.2 | 0.15 | 20100104 | 23.88433 | 120.09923 | 236.15440 | 8.98840 | 0.0804498 | 3.1131584 | 60 | 4 | 2001–2009 | 0.45 | M-v | 1 | MPC | 166187 | 2004 $TC_{273}$ |
| 2004 $TH_{273}$ | 16.4 | 0.15 | 20100104 | 95.24753 | 123.38542 | 249.59485 | 5.37163 | 0.0422424 | 2.6849927 | 38 | 3 | 2004–2009 | 0.48 | M-v | 3 | MPC | 148949 | 2004 $TH_{273}$ |
| 2004 $TB_{274}$ | 16.6 | 0.15 | 20100104 | 123.34940 | 270.19616 | 34.59447 | 9.33306 | 0.1303665 | 2.8059782 | 33 | 6 | 1999–2009 | 0.29 | M-v | 0 | MPC | 141819 | 2004 $TB_{274}$ |
| 2004 $TA_{276}$ | 16.8 | 0.15 | 20100104 | 14.00591 | 46.53045 | 41.98615 | 2.94984 | 0.1648784 | 2.7634228 | 51 | 5 | 2001–2009 | 0.33 | M-v | 0 | MPC | 147322 | 2004 $TA_{276}$ |
| 2004 $TR_{276}$ | 16.7 | 0.15 | 20100104 | 25.86156 | 238.17564 | 192.69565 | 2.36074 | 0.1697217 | 2.7652880 | 51 | 5 | 1999–2009 | 0.36 | M-v | 0 | MPC | 143219 | 2004 $TR_{276}$ |
| 2004 $TS_{278}$ | 15.7 | 0.15 | 20100104 | 280.14654 | 99.05769 | 70.21051 | 5.13362 | 0.0109050 | 2.7758324 | 36 | 5 | 2001–2009 | 0.42 | M-v | 1 | MPC | 160817 | 2004 $TS_{278}$ |
| 2004 $TX_{279}$ | 16.6 | 0.15 | 20100104 | 11.35118 | 30.07799 | 38.54047 | 4.88507 | 0.0488320 | 2.7966276 | 33 | 3 | 2004–2009 | 0.30 | M-v | 2 | MPC | 165408 | 2004 $TX_{279}$ |
| 2004 $TB_{286}$ | 17.1 | 0.15 | 20100104 | 107.86137 | 342.74038 | 10.49325 | 2.94143 | 0.0395626 | 2.6910876 | 32 | 6 | 1995–2009 | 0.27 | M-v | 1 | MPC | 147322 | 2004 $TB_{286}$ |
| 2004 $TW_{290}$ | 16.6 | 0.15 | 20100104 | 154.49998 | 275.31709 | 6.41586 | 5.60321 | 0.1174903 | 2.6832922 | 41 | 4 | 2004–2009 | 0.32 | M-v | 0 | MPC | 166187 | 2004 $TW_{290}$ |
| 2004 $TC_{294}$ | 16.0 | 0.15 | 20100104 | 320.81837 | 37.83439 | 37.33056 | 11.54941 | 0.0164899 | 3.0213272 | 49 | 3 | 2004–2009 | 0.36 | M-v | 2 | MPC | 166187 | 2004 $TC_{294}$ |
| 2004 $TB_{295}$ | 15.7 | 0.15 | 20100104 | 78.51485 | 272.63696 | 34.79284 | 10.14740 | 0.0457285 | 3.0977861 | 45 | 3 | 2004–2009 | 0.25 | M-v | 1 | MPC | 164234 | 2004 $TB_{295}$ |
| 2004 $TK_{295}$ | 16.5 | 0.15 | 20100104 | 81.11310 | 128.03440 | 236.98860 | 6.64546 | 0.1876830 | 2.7395317 | 35 | 3 | 2004–2009 | 0.41 | M-v | 2 | MPC | 143219 | 2004 $TK_{295}$ |
| 2004 $TL_{295}$ | 15.4 | 0.15 | 20100104 | 357.99490 | 354.93530 | 35.28713 | 11.03303 | 0.0944018 | 3.0990797 | 46 | 3 | 2004–2009 | 0.43 | M-v | 2 | MPC | 164234 | 2004 $TL_{295}$ |
| 2004 $TY_{296}$ | 15.9 | 0.15 | 20100104 | 4.25216 | 329.17121 | 67.27200 | 5.57435 | 0.2407570 | 3.0028582 | 68 | 2 | 2004–2009 | 0.40 | M-v | 2 | MPC | 163691 | 2004 $TY_{296}$ |
| 2004 $TV_{299}$ | 16.8 | 0.15 | 20100104 | 25.23631 | 55.20760 | 2.50462 | 3.08424 | 0.0816518 | 2.7685341 | 34 | 4 | 2004–2009 | 0.37 | M-v | 0 | MPC | 166187 | 2004 $TV_{299}$ |
| 2004 $TR_{300}$ | 15.6 | 0.15 | 20100104 | 71.90600 | 73.11391 | 300.31271 | 7.06375 | 0.1144942 | 2.7566810 | 70 | 5 | 1999–2009 | 0.54 | M-v | 1 | MPC | 160817 | 2004 $TR_{300}$ |
| 2004 $TJ_{301}$ | 15.2 | 0.15 | 20100104 | 353.94522 | 181.97337 | 259.07939 | 14.18848 | 0.1106955 | 2.8654445 | 101 | 5 | 1995–2009 | 0.51 | M-v | 1 | MPC | 166187 | 2004 $TJ_{301}$ |
| 2004 $TD_{302}$ | 16.2 | 0.15 | 20100104 | 28.57766 | 330.74102 | 22.53837 | 11.74977 | 0.1286015 | 2.9297401 | 36 | 4 | 1994–2009 | 0.30 | M-v | 2 | MPC | 164234 | 2004 $TD_{302}$ |
| 2004 $TN_{306}$ | 16.0 | 0.15 | 20100104 | 354.49215 | 89.22468 | 308.61747 | 7.35914 | 0.0785942 | 2.9486413 | 55 | 3 | 2004–2009 | 0.44 | M-v | 2 | MPC | 164234 | 2004 $TN_{306}$ |
| 2004 $TW_{306}$ | 15.9 | 0.15 | 20100104 | 356.61271 | 188.10265 | 256.75001 | 7.24824 | 0.1625545 | 2.7728430 | 83 | 5 | 2000–2009 | 0.60 | M-v | 1 | MPC | 166187 | 2004 $TW_{306}$ |
| 2004 $TK_{307}$ | 16.3 | 0.15 | 20100104 | 62.48882 | 101.73019 | 277.66787 | 6.56019 | 0.1886236 | 2.7177833 | 39 | 3 | 2004–2009 | 0.53 | M-v | 2 | MPC | 141167 | 2004 $TK_{307}$ |
| 2004 $TD_{308}$ | 15.6 | 0.15 | 20100104 | 89.70178 | 97.30902 | 240.22172 | 11.67068 | 0.1283848 | 2.7625420 | 52 | 4 | 1999–2009 | 0.51 | M-v | 1 | MPC | 166188 | 2004 $TD_{308}$ |
| 2004 $TS_{308}$ | 16.1 | 0.15 | 20100104 | 344.19350 | 103.56333 | 0.09466 | 4.85592 | 0.0714619 | 2.7235513 | 31 | 6 | 1993–2009 | 0.36 | M-v | 0 | MPC | 120810 | 2004 $TS_{308}$ |
| 2004 $TW_{308}$ | 16.5 | 0.15 | 20100104 | 169.45931 | 26.83488 | 267.66515 | 7.69138 | 0.2167924 | 2.5344124 | 57 | 5 | 2003–2009 | 0.57 | M-v | 1 | MPC | 158842 | 2004 $TW_{308}$ |
| 2004 $TO_{323}$ | 16.7 | 0.15 | 20100104 | 43.63402 | 146.51169 | 226.50317 | 0.91784 | 0.1327229 | 2.9212813 | 63 | 4 | 1999–2009 | 0.36 | M-v | 3 | MPC | 166188 | 2004 $TO_{323}$ |
| 2004 $TZ_{323}$ | 16.1 | 0.15 | 20100104 | 8.55823 | 36.10665 | 66.56352 | 3.78095 | 0.0431766 | 2.7135993 | 54 | 5 | 2002–2009 | 0.44 | M-v | 0 | MPC | 147323 | 2004 $TZ_{323}$ |
| 2004 $TY_{328}$ | 15.3 | 0.15 | 20100104 | 16.47295 | 15.47369 | 60.07114 | 15.66520 | 0.1546423 | 2.7018322 | 43 | 5 | 2000–2009 | 0.64 | M-v | 1 | MPC | 166188 | 2004 $TY_{328}$ |
| 2004 $TP_{332}$ | 16.7 | 0.15 | 20100104 | 112.90352 | 117.70272 | 229.29228 | 3.59738 | 0.1074769 | 2.6769957 | 36 | 3 | 2004–2009 | 0.36 | M-v | 3 | MPC | 160386 | 2004 $TP_{332}$ |
| 2004 $TW_{332}$ | 16.8 | 0.15 | 20100104 | 23.94784 | 190.73175 | 213.88147 | 1.37209 | 0.0655760 | 2.8666894 | 47 | 4 | 1999–2009 | 0.35 | M-v | 2 | MPC | 166188 | 2004 $TW_{332}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 $TO_{333}$ | 17.1 | 0.15 | 20100104 | 343.63082 | 238.88584 | 183.76772 | 0.75058 | 0.2243882 | 3.0215637 | 45 | 3 | 2000–2009 | 0.47 | M-v | 3 | MPC | 164234 | 2004 $TO_{333}$ |
| 2004 $TT_{333}$ | 15.5 | 0.15 | 20100104 | 46.10701 | 120.68777 | 220.48841 | 7.21809 | 0.1519227 | 3.0158539 | 68 | 2 | 2004–2009 | 0.41 | M-v | 3 | MPC | 166188 | 2004 $TT_{333}$ |
| 2004 $TF_{334}$ | 16.6 | 0.15 | 20100104 | 5.94825 | 5.03945 | 72.34788 | 1.57732 | 0.0457484 | 2.8128406 | 40 | 5 | 2004–2009 | 0.26 | M-v | 0 | MPC | 166188 | 2004 $TF_{334}$ |
| 2004 $TO_{335}$ | 16.7 | 0.15 | 20100104 | 14.18774 | 190.77894 | 224.48526 | 6.90974 | 0.0732818 | 2.8781139 | 43 | 3 | 2001–2009 | 0.29 | M-v | 2 | MPC | 166188 | 2004 $TO_{335}$ |
| 2004 $TM_{337}$ | 16.5 | 0.15 | 20100104 | 101.17345 | 111.88936 | 198.54200 | 4.25693 | 0.0731813 | 2.7858531 | 52 | 3 | 2004–2009 | 0.30 | M-v | 3 | MPC | 166188 | 2004 $TM_{337}$ |
| 2004 $TA_{341}$ | 16.3 | 0.15 | 20100104 | 9.36658 | 162.26323 | 220.62215 | 8.39039 | 0.1328551 | 3.0080705 | 35 | 3 | 1993–2009 | 0.32 | M-v | 2 | MPC | 164234 | 2004 $TA_{341}$ |
| 2004 $TY_{350}$ | 16.5 | 0.15 | 20100104 | 10.83232 | 15.98895 | 59.14607 | 5.25140 | 0.0912869 | 2.8116842 | 39 | 3 | 2004–2009 | 0.39 | M-v | 2 | MPC | 166188 | 2004 $TY_{350}$ |
| 2004 $TU_{353}$ | 16.3 | 0.15 | 20100104 | 15.73650 | 83.31445 | 70.77876 | 5.60846 | 0.1933992 | 2.5478505 | 64 | 4 | 2004–2009 | 0.40 | M-v | 1 | MPC | 152411 | 2004 $TU_{353}$ |
| 2004 $TE_{354}$ | 16.1 | 0.15 | 20100104 | 207.98559 | 178.79807 | 59.35567 | 10.29366 | 0.0763227 | 2.8282756 | 37 | 4 | 2001–2009 | 0.38 | M-v | 1 | MPC | 165409 | 2004 $TE_{354}$ |
| 2004 $TH_{355}$ | 16.0 | 0.15 | 20100104 | 14.37401 | 341.84640 | 60.73524 | 10.49158 | 0.1979353 | 2.8470553 | 84 | 3 | 2004–2009 | 0.53 | M-v | 3 | MPC | 166188 | 2004 $TH_{355}$ |
| 2004 $TV_{355}$ | 15.8 | 0.15 | 20100104 | 106.57318 | 226.91496 | 91.71989 | 10.77356 | 0.1838199 | 2.7238453 | 39 | 6 | 2003–2009 | 0.45 | M-v | 0 | MPC | 166188 | 2004 $TV_{355}$ |
| 2004 $TZ_{355}$ | 15.7 | 0.15 | 20100104 | 52.63318 | 303.09740 | 81.54919 | 10.45222 | 0.0795864 | 2.7448884 | 36 | 5 | 2004–2009 | 0.53 | M-v | 1 | MPC | 165409 | 2004 $TZ_{355}$ |
| 2004 $TX_{356}$ | 15.8 | 0.15 | 20100104 | 88.86269 | 274.40356 | 75.31866 | 13.67987 | 0.2072160 | 2.6792270 | 45 | 5 | 2000–2009 | 0.49 | M-v | 1 | MPC | 143220 | 2004 $TX_{356}$ |
| 2004 $TP_{366}$ | 16.8 | 0.15 | 20100104 | 44.82770 | 77.64561 | 342.04310 | 3.89442 | 0.0896675 | 2.7074317 | 73 | 4 | 2004–2009 | 0.34 | M-v | 0 | MPC | 148951 | 2004 $TP_{366}$ |
| 2004 $TL_{367}$ | 15.6 | 0.15 | 20100104 | 38.04160 | 139.29723 | 227.55262 | 11.74461 | 0.1187394 | 2.9242354 | 51 | 2 | 2004–2009 | 0.48 | M-v | 4 | MPC | 165409 | 2004 $TL_{367}$ |
| 2004 $TD_{368}$ | 15.6 | 0.15 | 20100104 | 50.17234 | 309.59226 | 19.56736 | 12.78551 | 0.1301614 | 2.9963815 | 46 | 4 | 2000–2009 | 0.31 | M-v | 1 | MPC | 166188 | 2004 $TD_{368}$ |
| 2004 $TB_{369}$ | 17.0 | 0.15 | 20100104 | 25.94394 | 112.91836 | 278.72307 | 0.90475 | 0.1300200 | 2.9271663 | 39 | 4 | 2000–2009 | 0.34 | M-v | 3 | MPC | 166188 | 2004 $TB_{369}$ |
| 2004 $TE_{369}$ | 16.7 | 0.15 | 20100104 | 15.36526 | 200.35898 | 222.51069 | 6.00017 | 0.1247589 | 2.8398011 | 20 | 2 | 2004–2009 | 0.32 | M-v | 4 | MPC | 165409 | 2004 $TE_{369}$ |
| 2004 $TK_{370}$ | 15.9 | 0.15 | 20041022 | 15.04302 | 280.32016 | 80.40557 | 16.32960 | 0.2532082 | 3.0253908 | 10 | 1 | 19 days | 0.56 | | | MPC | | 2004 $TK_{370}$ |
| 2004 UL | 18.8 | 0.15 | 20100104 | 184.62700 | 149.45266 | 39.68038 | 23.72358 | 0.9268431 | 1.2664472 | 104 | 3 | 2004–2007 | 0.58 | M-v | 1 | MPC | 126716 | 2004 UL |
| 2004 $UD_1$ | 16.3 | 0.15 | 20100104 | 49.25676 | 298.94369 | 20.05295 | 1.59246 | 0.3164319 | 2.9976895 | 98 | 3 | 2004–2009 | 0.44 | M-v | 2 | MPC | 164234 | 2004 $UD_1$ |
| 2004 $UW_2$ | 16.4 | 0.15 | 20100104 | 60.23592 | 241.11329 | 119.26716 | 8.67807 | 0.2311359 | 2.7770098 | 45 | 5 | 2000–2009 | 0.54 | M-v | 1 | MPC | 97766 | 2004 $UW_2$ |
| 2004 $UA_5$ | 16.6 | 0.15 | 20100104 | 80.18244 | 96.49928 | 276.53564 | 13.98664 | 0.1828736 | 2.6439242 | 32 | 4 | 2000–2009 | 0.41 | M-v | 1 | MPC | 166188 | 2004 $UA_5$ |
| 2004 $UE_5$ | 15.4 | 0.15 | 20100104 | 350.86501 | 118.54801 | 14.89728 | 33.70391 | 0.2266008 | 2.7269592 | 37 | 5 | 2004–2009 | 0.47 | M-v | 1 | MPC | 159746 | 2004 $UE_5$ |
| 2004 $UA_7$ | 16.4 | 0.15 | 20100104 | 48.61759 | 115.86500 | 256.83291 | 6.17002 | 0.2303571 | 2.8081497 | 39 | 2 | 2004–2009 | 0.48 | M-v | 3 | MPC | 165410 | 2004 $UA_7$ |
| 2004 $UB_8$ | 16.8 | 0.15 | 20100104 | 35.76058 | 101.00581 | 244.00979 | 11.10441 | 0.3979603 | 2.9433847 | 65 | 3 | 1999–2009 | 0.55 | M-v | 3 | MPC | 166188 | 2004 $UB_8$ |
| 2004 $UO_8$ | 16.1 | 0.15 | 20100104 | 11.78925 | 2.29034 | 15.42534 | 6.50495 | 0.1350322 | 3.0424281 | 54 | 4 | 2004–2009 | 0.37 | M-v | 1 | MPC | 164234 | 2004 $UO_8$ |
| 2004 VH | 15.5 | 0.15 | 20100104 | 1.28530 | 131.61728 | 335.80246 | 12.35960 | 0.2568005 | 2.7926396 | 74 | 3 | 2004–2009 | 0.47 | M-v | 2 | MPC | 166188 | 2004 VH |
| 2004 $VG_1$ | 16.0 | 0.15 | 20100104 | 152.42803 | 245.33636 | 49.50485 | 13.50857 | 0.2122160 | 2.6792888 | 45 | 4 | 2004–2009 | 0.50 | M-v | 1 | MPC | 147324 | 2004 $VG_1$ |
| 2004 $VR_1$ | 16.3 | 0.15 | 20100104 | 18.19620 | 344.53849 | 62.24740 | 12.07490 | 0.1423479 | 2.8541069 | 58 | 2 | 2004–2009 | 0.39 | M-v | 3 | MPC | 165410 | 2004 $VR_1$ |
| 2004 $VT_3$ | 16.0 | 0.15 | 20100104 | 7.85929 | 8.41486 | 69.57038 | 4.58615 | 0.0700962 | 2.7978936 | 46 | 4 | 2001–2009 | 0.50 | M-v | 1 | MPC | 166188 | 2004 $VT_3$ |
| 2004 $VX_3$ | 15.4 | 0.15 | 20100104 | 2.58824 | 27.11183 | 60.63632 | 6.69833 | 0.1136286 | 2.7898659 | 59 | 5 | 2001–2009 | 0.64 | M-v | 1 | MPC | 160819 | 2004 $VX_3$ |
| 2004 $VN_{12}$ | 15.4 | 0.15 | 20100104 | 20.42164 | 3.82981 | 77.07621 | 13.73523 | 0.1207320 | 2.7584724 | 46 | 3 | 2000–2009 | 0.61 | M-v | 2 | MPC | 166189 | 2004 $VN_{12}$ |
| 2004 $VA_{15}$ | 18.4 | 0.15 | 20100104 | 23.69473 | 330.08676 | 36.05309 | 17.41659 | 0.5963377 | 2.8843395 | 102 | 2 | 2004–2009 | 0.44 | M-v | 1 | MPC | 166189 | 2004 $VA_{15}$ |
| 2004 $VF_{16}$ | 15.6 | 0.15 | 20100104 | 26.89428 | 344.46331 | 92.47015 | 13.16927 | 0.2269146 | 2.7705054 | 57 | 2 | 2004–2009 | 0.53 | M-v | 2 | MPC | 165410 | 2004 $VF_{16}$ |
| 2004 $VG_{18}$ | 16.0 | 0.15 | 20100104 | 330.11987 | 239.58666 | 232.31978 | 9.29390 | 0.1862770 | 2.8813489 | 60 | 2 | 2004–2009 | 0.56 | M-v | 4 | MPC | 165410 | 2004 $VG_{18}$ |
| 2004 $VJ_{20}$ | 15.9 | 0.15 | 20100104 | 76.71679 | 310.00785 | 65.73882 | 6.79467 | 0.0646085 | 2.7257940 | 42 | 4 | 2002–2009 | 0.36 | M-v | 1 | MPC | 164235 | 2004 $VJ_{20}$ |
| 2004 $VK_{25}$ | 16.0 | 0.15 | 20100104 | 13.78088 | 142.03331 | 271.33677 | 5.04298 | 0.0809811 | 2.8709792 | 48 | 5 | 1996–2009 | 0.45 | M-v | 1 | MPC | 166189 | 2004 $VK_{25}$ |
| 2004 $VG_{30}$ | 15.6 | 0.15 | 20100104 | 36.02141 | 121.64872 | 214.37108 | 9.71137 | 0.1542540 | 3.1129617 | 54 | 3 | 2002–2009 | 0.46 | M-v | 1 | MPC | 163693 | 2004 $VG_{30}$ |
| 2004 $VK_{30}$ | 16.5 | 0.15 | 20100104 | 17.94527 | 161.20912 | 213.37716 | 8.70467 | 0.1478188 | 3.0330399 | 39 | 2 | 2004–2009 | 0.36 | M-v | 2 | MPC | 166189 | 2004 $VK_{30}$ |
| 2004 $VM_{32}$ | 16.2 | 0.15 | 20100104 | 46.79062 | 218.37599 | 151.80650 | 2.45367 | 0.1040659 | 2.9204833 | 64 | 5 | 2001–2009 | 0.41 | M-v | 1 | MPC | 166189 | 2004 $VM_{32}$ |
| 2004 $VA_{34}$ | 16.8 | 0.15 | 20100104 | 20.94363 | 301.53209 | 112.47196 | 3.14748 | 0.0523278 | 2.8507932 | 23 | 3 | 2004–2009 | 0.24 | M-v | 3 | MPC | 166189 | 2004 $VA_{34}$ |
| 2004 $VT_{34}$ | 16.5 | 0.15 | 20100104 | 358.04994 | 188.44376 | 209.92399 | 9.14434 | 0.0975556 | 3.0511456 | 36 | 2 | 2004–2009 | 0.27 | M-v | 3 | MPC | 164235 | 2004 $VT_{34}$ |
| 2004 $VK_{36}$ | 16.1 | 0.15 | 20100104 | 48.43671 | 180.39513 | 227.11297 | 4.59314 | 0.0679397 | 2.7490404 | 56 | 6 | 1999–2009 | 0.45 | M-v | 0 | MPC | 159095 | 2004 $VK_{36}$ |
| 2004 $VC_{37}$ | 17.0 | 0.15 | 20100104 | 116.35395 | 117.78913 | 233.62550 | 1.03635 | 0.0905026 | 2.6670205 | 53 | 6 | 2002–2009 | 0.40 | M-v | 0 | MPC | 146231 | 2004 $VC_{37}$ |
| 2004 $VL_{37}$ | 16.6 | 0.15 | 20100104 | 4.67336 | 220.04622 | 238.64768 | 2.83563 | 0.0702134 | 2.7488218 | 56 | 4 | 2004–2009 | 0.32 | M-v | 0 | MPC | 148953 | 2004 $VL_{37}$ |
| 2004 $VF_{38}$ | 15.4 | 0.15 | 20100104 | 29.12567 | 314.40823 | 56.60156 | 6.31528 | 0.1230798 | 3.0000195 | 79 | 6 | 1999–2009 | 0.44 | M-v | 1 | MPC | 166189 | 2004 $VF_{38}$ |
| 2004 $VR_{39}$ | 15.7 | 0.15 | 20100104 | 331.23581 | 204.52166 | 213.14175 | 4.28474 | 0.0205062 | 3.1243808 | 50 | 3 | 2004–2009 | 0.35 | M-v | 3 | MPC | 164235 | 2004 $VR_{39}$ |
| 2004 $VW_{40}$ | 15.4 | 0.15 | 20100104 | 134.29506 | 294.30624 | 53.52646 | 22.30153 | 0.0638923 | 2.6241298 | 63 | 6 | 2000–2009 | 0.51 | M-v | 1 | MPC | 148953 | 2004 $VW_{40}$ |
| 2004 $VD_{49}$ | 15.2 | 0.15 | 20100104 | 87.41893 | 232.62353 | 84.90874 | 9.43982 | 0.3036892 | 2.8647010 | 56 | 5 | 1999–2009 | 0.42 | M-v | 1 | MPC | 166189 | 2004 $VD_{49}$ |
| 2004 $VE_{53}$ | 15.6 | 0.15 | 20100104 | 5.64578 | 173.72878 | 233.53818 | 10.59843 | 0.1830093 | 2.9974674 | 96 | 3 | 2004–2009 | 0.45 | M-v | 3 | MPC | 166189 | 2004 $VE_{53}$ |
| 2004 $VD_{54}$ | 15.6 | 0.15 | 20100104 | 62.98772 | 70.53557 | 309.57119 | 10.51367 | 0.0536924 | 2.7518597 | 48 | 5 | 2002–2009 | 0.47 | M-v | 1 | MPC | 166189 | 2004 $VD_{54}$ |
| 2004 $VK_{54}$ | 15.2 | 0.15 | 20100104 | 41.02696 | 98.02794 | 273.48090 | 15.79214 | 0.1424739 | 2.8810173 | 34 | 2 | 2004–2009 | 0.63 | M-v | 4 | MPC | 165411 | 2004 $VK_{54}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 $VB_{55}$ | 16.8 | 0.15 | 20100104 | 61.51386 | 21.80831 | 345.12774 | 0.55992 | 0.1204251 | 2.8145483 | 46 | 5 | 1999–2009 | 0.44 | M-v | 1 | MPC | 166189 | 2004 $VB_{55}$ |
| 2004 $VJ_{55}$ | 16.0 | 0.15 | 20100104 | 6.36629 | 24.17444 | 83.45464 | 9.88952 | 0.0960653 | 2.7414011 | 67 | 5 | 2001–2009 | 0.48 | M-v | 1 | MPC | 162412 | 2004 $VJ_{55}$ |
| 2004 $VG_{57}$ | 16.3 | 0.15 | 20100104 | 39.48210 | 143.41437 | 275.51432 | 10.57922 | 0.1515940 | 2.7045874 | 48 | 3 | 2000–2009 | 0.46 | M-v | 1 | MPC | 166189 | 2004 $VG_{57}$ |
| 2004 $VO_{58}$ | 15.4 | 0.15 | 20100104 | 39.43622 | 115.57121 | 260.93092 | 9.48482 | 0.0528620 | 2.9287597 | 52 | 5 | 2001–2009 | 0.52 | M-v | 1 | MPC | 166189 | 2004 $VO_{58}$ |
| 2004 $VE_{60}$ | 16.1 | 0.15 | 20100104 | 85.11915 | 343.66197 | 27.25884 | 5.83393 | 0.0870469 | 2.7549956 | 37 | 3 | 2004–2009 | 0.51 | M-v | 2 | MPC | 148953 | 2004 $VE_{60}$ |
| 2004 $VP_{60}$ | 15.5 | 0.15 | 20100104 | 34.43793 | 117.33353 | 239.79614 | 8.40448 | 0.1641847 | 3.0575606 | 56 | 5 | 2002–2009 | 0.42 | M-v | 0 | MPC | 166189 | 2004 $VP_{60}$ |
| 2004 $VM_{63}$ | 16.0 | 0.15 | 20100104 | 30.10448 | 263.84823 | 126.19737 | 3.50853 | 0.1519350 | 2.9102783 | 79 | 4 | 2004–2009 | 0.47 | M-v | 1 | MPC | 166189 | 2004 $VM_{63}$ |
| 2004 $VK_{67}$ | 16.9 | 0.15 | 20100104 | 22.69302 | 2.93590 | 17.61595 | 0.60832 | 0.2231340 | 2.9689467 | 60 | 2 | 2004–2009 | 0.43 | M-v | 3 | MPC | 166189 | 2004 $VK_{67}$ |
| 2004 $VR_{70}$ | 16.6 | 0.15 | 20100104 | 78.80056 | 134.91124 | 234.30390 | 2.42908 | 0.2049403 | 2.7454255 | 55 | 5 | 2004–2009 | 0.53 | M-v | 1 | MPC | 148953 | 2004 $VR_{70}$ |
| 2004 $VL_{72}$ | 15.9 | 0.15 | 20100104 | 92.72502 | 142.10887 | 233.97009 | 5.19701 | 0.0441702 | 2.7128262 | 75 | 6 | 1995–2009 | 0.56 | M-v | 1 | MPC | 147327 | 2004 $VL_{72}$ |
| 2004 $VP_{72}$ | 15.7 | 0.15 | 20100104 | 127.92667 | 69.38182 | 246.63021 | 3.90039 | 0.1514750 | 2.7654039 | 49 | 5 | 1999–2009 | 0.42 | M-v | 0 | MPC | 147327 | 2004 $VP_{72}$ |
| 2004 $VR_{76}$ | 15.4 | 0.15 | 20100104 | 13.34558 | 347.88419 | 84.54779 | 5.17834 | 0.0839527 | 2.8046851 | 82 | 5 | 2001–2009 | 0.35 | M-v | 0 | MPC | 166190 | 2004 $VR_{76}$ |
| 2004 $VD_{77}$ | 16.2 | 0.15 | 20100104 | 5.04723 | 65.34740 | 324.12333 | 1.01495 | 0.1061750 | 3.0463122 | 46 | 6 | 1995–2009 | 0.39 | M-v | 1 | MPC | 164236 | 2004 $VD_{77}$ |
| 2004 $VT_{77}$ | 16.1 | 0.15 | 20100104 | 70.61542 | 315.28240 | 115.24491 | 5.49609 | 0.1318264 | 2.5995460 | 61 | 4 | 2004–2009 | 0.59 | M-v | 1 | MPC | 158486 | 2004 $VT_{77}$ |
| 2004 $VK_{79}$ | 16.7 | 0.15 | 20100104 | 231.30867 | 156.27452 | 79.45689 | 3.72621 | 0.0556647 | 2.6870733 | 29 | 4 | 2004–2009 | 0.23 | M-v | 0 | MPC | 158007 | 2004 $VK_{79}$ |
| 2004 $VO_{80}$ | 16.5 | 0.15 | 20100104 | 52.55701 | 338.57862 | 47.64384 | 5.47190 | 0.1022478 | 2.7859630 | 35 | 4 | 2001–2009 | 0.49 | M-v | 0 | MPC | 140391 | 2004 $VO_{80}$ |
| 2004 $VP_{81}$ | 16.3 | 0.15 | 20100104 | 114.66536 | 266.43348 | 71.55324 | 15.02042 | 0.1280455 | 2.7369922 | 34 | 4 | 1998–2009 | 0.31 | M-v | 1 | MPC | 135897 | 2004 $VP_{81}$ |
| 2004 $VQ_{83}$ | 15.7 | 0.15 | 20100104 | 310.11813 | 116.67183 | 66.97239 | 7.23364 | 0.2174581 | 2.6993560 | 74 | 5 | 2001–2009 | 0.52 | M-v | 1 | MPC | 150995 | 2004 $VQ_{83}$ |
| 2004 $VE_{90}$ | 15.9 | 0.15 | 20100104 | 133.81572 | 74.01617 | 266.06154 | 7.36286 | 0.1888240 | 2.6331680 | 42 | 3 | 2004–2009 | 0.55 | M-v | 3 | MPC | 148954 | 2004 $VE_{90}$ |
| 2004 WK | 15.9 | 0.15 | 20100104 | 16.31289 | 6.73023 | 69.01048 | 11.23203 | 0.2061318 | 2.7985156 | 44 | 5 | 1997–2009 | 0.51 | M-v | 1 | MPC | 166190 | 2004 WK |
| 2004 $WO_1$ | 16.5 | 0.15 | 20100104 | 354.63201 | 19.73578 | 26.93546 | 1.80442 | 0.2207132 | 3.0474796 | 43 | 4 | 1995–2009 | 0.32 | M-v | 1 | MPC | 166190 | 2004 $WO_1$ |
| 2004 $WH_4$ | 15.4 | 0.15 | 20100104 | 65.80861 | 107.36468 | 225.74140 | 11.03300 | 0.1639854 | 2.9780545 | 59 | 2 | 2004–2009 | 0.57 | M-v | 4 | MPC | 165411 | 2004 $WH_4$ |
| 2004 $WK_4$ | 16.1 | 0.15 | 20100104 | 90.53322 | 269.45715 | 71.09756 | 3.09731 | 0.1285678 | 2.8359764 | 53 | 6 | 2002–2009 | 0.45 | M-v | 0 | MPC | 147328 | 2004 $WK_4$ |
| 2004 $WF_5$ | 16.1 | 0.15 | 20100104 | 100.98015 | 292.97189 | 65.25801 | 5.41280 | 0.2317167 | 2.6709920 | 81 | 4 | 2004–2009 | 0.60 | M-v | 1 | MPC | 160820 | 2004 $WF_5$ |
| 2004 $WH_5$ | 15.1 | 0.15 | 20100104 | 27.95959 | 199.82534 | 247.18270 | 16.52087 | 0.1320198 | 2.6758905 | 82 | 4 | 2000–2009 | 0.59 | M-v | 1 | MPC | 166190 | 2004 $WH_5$ |
| 2004 $WX_6$ | 14.9 | 0.15 | 20100104 | 25.69535 | 315.98147 | 56.00715 | 13.35174 | 0.2171588 | 3.0380921 | 111 | 4 | 1999–2009 | 0.56 | M-v | 2 | MPC | 166190 | 2004 $WX_6$ |
| 2004 $WW_7$ | 15.4 | 0.15 | 20100104 | 74.72732 | 97.02037 | 232.10301 | 12.45838 | 0.1098133 | 2.9640396 | 56 | 3 | 2003–2009 | 0.50 | M-v | 2 | MPC | 166190 | 2004 $WW_7$ |
| 2004 $WC_8$ | 16.1 | 0.15 | 20100104 | 25.78180 | 204.31975 | 217.66819 | 3.39571 | 0.0916241 | 2.8138665 | 42 | 5 | 1999–2009 | 0.40 | M-v | 0 | MPC | 166190 | 2004 $WC_8$ |
| 2004 $WX_9$ | 16.3 | 0.15 | 20100104 | 63.30340 | 270.22001 | 175.96264 | 13.16820 | 0.1453895 | 2.5895636 | 25 | 3 | 2004–2009 | 0.45 | M-v | 3 | MPC | 158843 | 2004 $WX_9$ |
| 2004 $WV_{10}$ | 16.6 | 0.15 | 20100104 | 86.15784 | 52.31117 | 356.79052 | 3.84072 | 0.2582549 | 2.6250860 | 98 | 4 | 2000–2009 | 0.42 | M-v | 1 | MPC | 150996 | 2004 $WV_{10}$ |
| 2004 $WO_{12}$ | 14.9 | 0.15 | 20100104 | 303.91787 | 266.91734 | 218.62928 | 16.33082 | 0.2132702 | 3.0665073 | 82 | 3 | 2004–2009 | 0.49 | M-v | 1 | MPC | 166190 | 2004 $WO_{12}$ |
| 2004 XB | 16.7 | 0.15 | 20100104 | 75.08026 | 61.27227 | 292.53789 | 11.77201 | 0.0982551 | 1.8416879 | 116 | 4 | 1999–2009 | 0.54 | M-v | 2 | MPC | 166190 | 2004 XB |
| 2004 XX | 15.6 | 0.15 | 20100104 | 12.36291 | 114.71010 | 273.83215 | 10.02109 | 0.2037538 | 2.9837445 | 86 | 2 | 2004–2009 | 0.57 | M-v | 3 | MPC | 166190 | 2004 XX |
| 2004 $XD_2$ | 15.6 | 0.15 | 20100104 | 1.77132 | 186.27124 | 293.84997 | 8.24555 | 0.2334696 | 2.7853779 | 71 | 6 | 1996–2009 | 0.50 | M-v | 1 | MPC | 147328 | 2004 $XD_2$ |
| 2004 $XN_2$ | 15.6 | 0.15 | 20100104 | 7.23972 | 17.52121 | 3.73148 | 5.29702 | 0.1418785 | 3.1182765 | 48 | 4 | 2001–2009 | 0.46 | M-v | 1 | MPC | 164236 | 2004 $XN_2$ |
| 2004 $XT_2$ | 16.6 | 0.15 | 20100104 | 331.53430 | 25.18839 | 55.50190 | 2.59402 | 0.2382770 | 3.0714678 | 31 | 2 | 2004–2009 | 0.46 | M-v | 4 | MPC | 163696 | 2004 $XT_2$ |
| 2004 $XJ_3$ | 17.5 | 0.15 | 20100104 | 20.38931 | 153.19075 | 242.29484 | 35.73664 | 0.5551692 | 2.8758466 | 193 | 2 | 2004–2009 | 0.45 | M-v | 0 | MPC | 166190 | 2004 $XJ_3$ |
| 2004 $XM_9$ | 17.1 | 0.15 | 20100104 | 128.69569 | 18.82588 | 63.63122 | 7.71060 | 0.0854808 | 2.3744966 | 33 | 3 | 2004–2009 | 0.58 | M-v | 4 | MPC | 100864 | 2004 $XM_9$ |
| 2004 $XQ_9$ | 14.9 | 0.15 | 20100104 | 354.82865 | 131.99776 | 262.74160 | 7.89354 | 0.0827318 | 3.1751453 | 51 | 4 | 2003–2009 | 0.49 | M-v | 0 | MPC | 163696 | 2004 $XQ_9$ |
| 2004 $XH_{10}$ | 16.0 | 0.15 | 20100104 | 74.89102 | 264.80895 | 107.39709 | 3.16500 | 0.2395021 | 2.7708098 | 62 | 5 | 1999–2009 | 0.48 | M-v | 1 | MPC | 147329 | 2004 $XH_{10}$ |
| 2004 $XJ_{11}$ | 14.9 | 0.15 | 20100104 | 17.54190 | 102.52779 | 256.61089 | 24.99873 | 0.2585613 | 3.1740540 | 66 | 2 | 2004–2009 | 0.47 | M-v | 2 | MPC | 166190 | 2004 $XJ_{11}$ |
| 2004 $XP_{12}$ | 15.2 | 0.15 | 20100104 | 347.38405 | 187.19648 | 253.67733 | 2.88938 | 0.2088644 | 3.0121766 | 115 | 4 | 2000–2009 | 0.43 | M-v | 3 | MPC | 166190 | 2004 $XP_{12}$ |
| 2004 $XZ_{13}$ | 16.3 | 0.15 | 20100104 | 32.24636 | 52.46114 | 63.69939 | 5.93689 | 0.1149644 | 2.7206643 | 73 | 4 | 2004–2009 | 0.37 | M-v | 0 | MPC | 152414 | 2004 $XZ_{13}$ |
| 2004 $XW_{16}$ | 14.8 | 0.15 | 20100104 | 60.87322 | 266.71368 | 84.89280 | 13.51142 | 0.2765726 | 2.9861249 | 58 | 3 | 2002–2009 | 0.43 | M-v | 2 | MPC | 165412 | 2004 $XW_{16}$ |
| 2004 $XH_{17}$ | 15.1 | 0.15 | 20100104 | 1.99744 | 162.61656 | 277.70140 | 9.97477 | 0.0613299 | 3.0021477 | 50 | 4 | 2003–2009 | 0.46 | M-v | 1 | MPC | 165412 | 2004 $XH_{17}$ |
| 2004 $XB_{18}$ | 16.0 | 0.15 | 20100104 | 71.66918 | 295.70613 | 134.03932 | 15.14124 | 0.1606684 | 2.6157828 | 37 | 3 | 2004–2009 | 0.59 | M-v | 3 | MPC | 158844 | 2004 $XB_{18}$ |
| 2004 $XL_{18}$ | 14.9 | 0.15 | 20100104 | 312.49582 | 200.58126 | 251.16846 | 4.66516 | 0.1411966 | 3.1347556 | 102 | 6 | 1998–2009 | 0.53 | M-v | 1 | MPC | 164237 | 2004 $XL_{18}$ |
| 2004 $XP_{18}$ | 15.8 | 0.15 | 20100104 | 132.51341 | 241.53399 | 139.78987 | 0.82664 | 0.1529125 | 2.5334697 | 149 | 6 | 2000–2009 | 0.48 | M-v | 2 | MPC | 160820 | 2004 $XP_{18}$ |
| 2004 $XX_{18}$ | 15.8 | 0.15 | 20100104 | 15.81195 | 258.41991 | 141.18022 | 1.53645 | 0.2011958 | 2.9895174 | 121 | 7 | 1995–2009 | 0.47 | M-v | 0 | MPC | 166191 | 2004 $XX_{18}$ |
| 2004 $XR_{19}$ | 16.4 | 0.15 | 20100104 | 11.76695 | 33.02456 | 51.27168 | 3.37438 | 0.2226056 | 2.8643492 | 39 | 3 | 1999–2009 | 0.50 | M-v | 2 | MPC | 164237 | 2004 $XR_{19}$ |
| 2004 $XC_{20}$ | 15.4 | 0.15 | 20100104 | 327.28570 | 214.02927 | 256.17899 | 11.04631 | 0.1304459 | 3.0001764 | 33 | 2 | 2004–2009 | 0.46 | M-v | 4 | MPC | 165412 | 2004 $XC_{20}$ |
| 2004 $XL_{20}$ | 15.1 | 0.15 | 20100104 | 291.31547 | 65.05395 | 80.38586 | 10.83862 | 0.0827705 | 3.0244532 | 71 | 4 | 2001–2009 | 0.50 | M-v | 1 | MPC | 166191 | 2004 $XL_{20}$ |
| 2004 $XS_{20}$ | 15.7 | 0.15 | 20100104 | 36.88947 | 139.94448 | 232.45893 | 1.97248 | 0.2944377 | 2.9800311 | 82 | 5 | 1998–2009 | 0.44 | M-v | 1 | MPC | 166191 | 2004 $XS_{20}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 $XN_{22}$ | 15.2 | 0.15 | 20100104 | 26.74445 | 310.61167 | 128.42862 | 2.67633 | 0.0437503 | 2.7724844 | 92 | 7 | 1992–2009 | 0.46 | M-v | 0 | MPC | 160820 | 2004 $XN_{22}$ |
| 2004 $XC_{23}$ | 15.7 | 0.15 | 20100104 | 24.60393 | 280.52567 | 108.93254 | 4.40137 | 0.2790241 | 2.9794019 | 100 | 5 | 1995–2009 | 0.46 | M-v | 2 | MPC | 166191 | 2004 $XC_{23}$ |
| 2004 $XA_{25}$ | 15.5 | 0.15 | 20100104 | 32.57422 | 265.67792 | 114.37132 | 3.12961 | 0.2552335 | 2.9960582 | 82 | 5 | 2000–2009 | 0.44 | M-v | 1 | MPC | 165413 | 2004 $XA_{25}$ |
| 2004 $XH_{26}$ | 15.4 | 0.15 | 20100104 | 9.38977 | 30.01614 | 77.19918 | 11.60918 | 0.0942377 | 2.8470238 | 65 | 5 | 1999–2009 | 0.60 | M-v | 1 | MPC | 166191 | 2004 $XH_{26}$ |
| 2004 $XA_{27}$ | 16.3 | 0.15 | 20100104 | 3.13107 | 323.25017 | 115.41815 | 2.21428 | 0.1682051 | 2.9239086 | 59 | 5 | 2001–2009 | 0.48 | M-v | 1 | MPC | 166191 | 2004 $XA_{27}$ |
| 2004 $XQ_{28}$ | 15.1 | 0.15 | 20100104 | 18.21206 | 309.98972 | 123.04252 | 10.86974 | 0.0650664 | 3.0183403 | 41 | 6 | 2000–2009 | 0.49 | M-v | 1 | MPC | 147330 | 2004 $XQ_{28}$ |
| 2004 $XG_{29}$ | 25.3 | 0.15 | 20100104 | 23.56380 | 109.77855 | 302.92598 | 0.15473 | 0.3131826 | 1.4095498 | 110 | 1 | 36 days | 0.53 | M-v | 2 | MPC | 74447 | 2004 $XG_{29}$ |
| 2004 $XV_{29}$ | 17.1 | 0.15 | 20100104 | 0.98338 | 143.22404 | 249.81626 | 7.38800 | 0.3039198 | 3.0598041 | 46 | 2 | 2004–2009 | 0.49 | M-v | 3 | MPC | 163697 | 2004 $XV_{29}$ |
| 2004 $XB_{31}$ | 14.7 | 0.15 | 20100104 | 257.36734 | 300.20803 | 251.39563 | 16.32550 | 0.1521517 | 2.9738933 | 60 | 5 | 2001–2009 | 0.49 | M-v | 1 | MPC | 166191 | 2004 $XB_{31}$ |
| 2004 $XB_{35}$ | 14.9 | 0.15 | 20100104 | 346.90255 | 13.76178 | 91.30827 | 14.26824 | 0.0429728 | 2.9888610 | 46 | 4 | 2002–2009 | 0.46 | M-v | 1 | MPC | 166191 | 2004 $XB_{35}$ |
| 2004 $XM_{35}$ | 19.8 | 0.15 | 20100104 | 5.06856 | 322.81194 | 119.15457 | 5.35564 | 0.3005594 | 1.8370132 | 80 | 2 | 2004–2009 | 0.42 | M-v | 3 | MPC | 166191 | 2004 $XM_{35}$ |
| 2004 $XV_{35}$ | 15.7 | 0.15 | 20100104 | 12.30066 | 341.51516 | 73.96644 | 9.48782 | 0.1156495 | 2.9784171 | 105 | 4 | 2000–2009 | 0.43 | M-v | 2 | MPC | 166191 | 2004 $XV_{35}$ |
| 2004 $XQ_{36}$ | 16.4 | 0.15 | 20100104 | 316.72068 | 253.36512 | 285.89317 | 2.47801 | 0.0411962 | 2.6927737 | 71 | 7 | 1999–2009 | 0.36 | M-v | 0 | MPC | 166191 | 2004 $XQ_{36}$ |
| 2004 $XD_{37}$ | 15.6 | 0.15 | 20100104 | 286.81349 | 70.50179 | 83.02944 | 9.89400 | 0.0350649 | 2.9860671 | 33 | 3 | 2004–2009 | 0.38 | M-v | 3 | MPC | 166191 | 2004 $XD_{37}$ |
| 2004 $XA_{39}$ | 16.0 | 0.15 | 20100104 | 47.05860 | 292.22506 | 141.79284 | 11.06263 | 0.3123618 | 2.7276878 | 62 | 3 | 2004–2009 | 0.49 | M-v | 2 | MPC | 166191 | 2004 $XA_{39}$ |
| 2004 $XL_{42}$ | 16.3 | 0.15 | 20100104 | 6.19049 | 322.51057 | 61.03989 | 4.49045 | 0.3295098 | 3.0607380 | 69 | 3 | 2004–2009 | 0.42 | M-v | 2 | MPC | 164237 | 2004 $XL_{42}$ |
| 2004 $XH_{43}$ | 15.0 | 0.15 | 20100104 | 322.51536 | 29.79339 | 75.55608 | 13.08172 | 0.0741995 | 2.9888521 | 67 | 3 | 2004–2009 | 0.52 | M-v | 2 | MPC | 166191 | 2004 $XH_{43}$ |
| 2004 $XB_{44}$ | 16.2 | 0.15 | 20100104 | 33.24313 | 133.10156 | 249.60023 | 2.89248 | 0.1196614 | 2.9849391 | 49 | 5 | 1996–2009 | 0.42 | M-v | 0 | MPC | 166191 | 2004 $XB_{44}$ |
| 2004 $XR_{44}$ | 15.7 | 0.15 | 20100104 | 27.91810 | 134.10539 | 263.66509 | 9.23335 | 0.0937729 | 2.9499537 | 19 | 2 | 2004–2009 | 0.31 | M-v | 4 | MPC | 165413 | 2004 $XR_{44}$ |
| 2004 $XT_{45}$ | 15.9 | 0.15 | 20100104 | 126.79707 | 227.64922 | 102.36797 | 8.17844 | 0.2770589 | 2.7320338 | 44 | 5 | 2002–2009 | 0.57 | M-v | 1 | MPC | 158008 | 2004 $XT_{45}$ |
| 2004 $XD_{50}$ | 18.5 | 0.15 | 20100104 | 332.58651 | 63.62907 | 106.16238 | 20.66028 | 0.3773893 | 1.8251770 | 90 | 2 | 2004–2009 | 0.48 | M-v | 2 | MPC | 166191 | 2004 $XD_{50}$ |
| 2004 $XO_{53}$ | 15.3 | 0.15 | 20100104 | 29.35194 | 319.04599 | 87.48351 | 2.53306 | 0.0522401 | 2.9773633 | 78 | 5 | 2003–2009 | 0.40 | M-v | 0 | MPC | 166191 | 2004 $XO_{53}$ |
| 2004 $XY_{54}$ | 15.2 | 0.15 | 20100104 | 329.83556 | 82.59649 | 85.63193 | 16.97673 | 0.2202467 | 2.7920850 | 74 | 4 | 2001–2009 | 0.57 | M-v | 1 | MPC | 102231 | 2004 $XY_{54}$ |
| 2004 $XY_{55}$ | 16.5 | 0.15 | 20100104 | 322.77679 | 142.65846 | 63.27696 | 5.34503 | 0.0974656 | 2.6356153 | 53 | 4 | 2004–2009 | 0.31 | M-v | 1 | MPC | 149941 | 2004 $XY_{55}$ |
| 2004 $XE_{56}$ | 15.1 | 0.15 | 20100104 | 340.28102 | 348.57212 | 68.28094 | 6.65341 | 0.1511151 | 3.2111097 | 49 | 3 | 2004–2009 | 0.52 | M-v | 3 | MPC | 163698 | 2004 $XE_{56}$ |
| 2004 $XG_{56}$ | 15.6 | 0.15 | 20100104 | 28.66171 | 311.58897 | 77.92183 | 11.44370 | 0.1195526 | 3.0686146 | 48 | 4 | 2003–2009 | 0.40 | M-v | 0 | MPC | 165414 | 2004 $XG_{56}$ |
| 2004 $XG_{58}$ | 15.3 | 0.15 | 20100104 | 58.17519 | 95.66558 | 304.39882 | 11.53720 | 0.0934844 | 2.9057142 | 71 | 4 | 2003–2009 | 0.50 | M-v | 1 | MPC | 147331 | 2004 $XG_{58}$ |
| 2004 $XH_{59}$ | 15.6 | 0.15 | 20100104 | 313.11497 | 72.87138 | 78.90422 | 11.89181 | 0.0900579 | 2.9693452 | 36 | 3 | 2004–2009 | 0.40 | M-v | 2 | MPC | 100876 | 2004 $XH_{59}$ |
| 2004 $XP_{59}$ | 15.2 | 0.15 | 20100104 | 294.97310 | 63.05806 | 80.22704 | 16.97777 | 0.1518909 | 3.0837776 | 49 | 3 | 2004–2009 | 0.53 | M-v | 1 | MPC | 166191 | 2004 $XP_{59}$ |
| 2004 $XX_{59}$ | 15.2 | 0.15 | 20100104 | 17.95637 | 312.66693 | 81.12146 | 10.46608 | 0.2845671 | 3.0792086 | 74 | 4 | 1998–2009 | 0.51 | M-v | 1 | MPC | 166191 | 2004 $XX_{59}$ |
| 2004 $XP_{60}$ | 16.0 | 0.15 | 20100104 | 334.55757 | 3.99957 | 103.25160 | 12.37345 | 0.1185494 | 3.0491809 | 35 | 3 | 1998–2009 | 0.33 | M-v | 3 | MPC | 165414 | 2004 $XP_{60}$ |
| 2004 $XR_{61}$ | 15.0 | 0.15 | 20100104 | 23.97193 | 63.99197 | 289.33192 | 17.07772 | 0.1981384 | 3.1814410 | 65 | 3 | 2003–2009 | 0.43 | M-v | 2 | MPC | 166191 | 2004 $XR_{61}$ |
| 2004 $XS_{63}$ | 15.4 | 0.15 | 20100104 | 279.00434 | 93.81945 | 29.41569 | 4.86655 | 0.1088500 | 3.2124778 | 54 | 3 | 2004–2009 | 0.37 | M-v | 2 | MPC | 164238 | 2004 $XS_{63}$ |
| 2004 $XO_{65}$ | 14.1 | 0.15 | 20100104 | 292.94769 | 201.62602 | 301.75629 | 26.79434 | 0.1364770 | 3.1516537 | 65 | 5 | 2002–2009 | 0.50 | M-v | 1 | MPC | 147331 | 2004 $XO_{65}$ |
| 2004 $XX_{68}$ | 15.2 | 0.15 | 20100104 | 338.96572 | 354.86660 | 98.10641 | 11.72958 | 0.1735810 | 3.0773745 | 57 | 4 | 1998–2009 | 0.52 | M-v | 1 | MPC | 166192 | 2004 $XX_{68}$ |
| 2004 $XS_{69}$ | 15.9 | 0.15 | 20100104 | 28.82240 | 334.68532 | 49.80209 | 6.64307 | 0.1655146 | 3.1034372 | 84 | 5 | 1998–2009 | 0.46 | M-v | 0 | MPC | 166192 | 2004 $XS_{69}$ |
| 2004 $XM_{70}$ | 16.0 | 0.15 | 20100104 | 42.90402 | 136.72674 | 255.19339 | 14.27548 | 0.1416153 | 2.8492109 | 40 | 4 | 1999–2009 | 0.49 | M-v | 2 | MPC | 166192 | 2004 $XM_{70}$ |
| 2004 $XX_{72}$ | 15.3 | 0.15 | 20100104 | 78.42770 | 285.48745 | 97.21159 | 7.67693 | 0.0612295 | 2.7602902 | 40 | 6 | 2002–2009 | 0.51 | M-v | 1 | MPC | 166192 | 2004 $XX_{72}$ |
| 2004 $XZ_{74}$ | 15.0 | 0.15 | 20100104 | 242.33663 | 95.05871 | 75.76689 | 12.21833 | 0.0453191 | 3.0610470 | 55 | 4 | 2004–2009 | 0.54 | M-v | 0 | MPC | 121347 | 2004 $XZ_{74}$ |
| 2004 $XF_{75}$ | 16.0 | 0.15 | 20100104 | 7.24626 | 301.40326 | 89.33449 | 2.36451 | 0.3036541 | 3.0953708 | 71 | 5 | 1998–2009 | 0.48 | M-v | 0 | MPC | 164238 | 2004 $XF_{75}$ |
| 2004 $XO_{75}$ | 15.3 | 0.15 | 20100104 | 351.93065 | 326.70825 | 95.31936 | 17.85289 | 0.1957133 | 3.1387507 | 47 | 4 | 1998–2009 | 0.65 | M-v | 1 | MPC | 165414 | 2004 $XO_{75}$ |
| 2004 $XK_{77}$ | 15.3 | 0.15 | 20100104 | 253.28729 | 262.71707 | 261.97433 | 9.64961 | 0.0187422 | 3.1003264 | 38 | 4 | 2003–2009 | 0.47 | M-v | 1 | MPC | 165414 | 2004 $XK_{77}$ |
| 2004 $XK_{79}$ | 16.2 | 0.15 | 20100104 | 334.87840 | 17.51833 | 56.75564 | 3.64511 | 0.1556873 | 3.0987026 | 33 | 4 | 1995–2009 | 0.49 | M-v | 1 | MPC | 164238 | 2004 $XK_{79}$ |
| 2004 $XV_{79}$ | 15.6 | 0.15 | 20100104 | 0.42697 | 333.71300 | 69.78882 | 2.31537 | 0.1710620 | 3.1088152 | 71 | 5 | 1995–2009 | 0.50 | M-v | 1 | MPC | 166192 | 2004 $XV_{79}$ |
| 2004 $XP_{80}$ | 16.3 | 0.15 | 20100104 | 37.42292 | 4.56878 | 85.00331 | 5.84831 | 0.2980727 | 2.7460466 | 41 | 3 | 2004–2009 | 0.43 | M-v | 3 | MPC | 100880 | 2004 $XP_{80}$ |
| 2004 $XW_{80}$ | 14.5 | 0.15 | 20100104 | 48.89836 | 284.13221 | 86.71018 | 14.72475 | 0.2879460 | 2.9464362 | 91 | 4 | 2000–2009 | 0.46 | M-v | 2 | MPC | 166192 | 2004 $XW_{80}$ |
| 2004 $XX_{80}$ | 15.7 | 0.15 | 20100104 | 358.18842 | 354.59631 | 79.14054 | 5.08045 | 0.2435270 | 2.9979259 | 107 | 2 | 2004–2009 | 0.48 | M-v | 3 | MPC | 166192 | 2004 $XX_{80}$ |
| 2004 $XB_{81}$ | 15.4 | 0.15 | 20100104 | 346.26173 | 11.38760 | 89.19450 | 20.12610 | 0.2088464 | 2.9935377 | 75 | 3 | 2001–2009 | 0.46 | M-v | 2 | MPC | 165414 | 2004 $XB_{81}$ |
| 2004 $XX_{81}$ | 15.1 | 0.15 | 20100104 | 308.61980 | 38.94506 | 114.72970 | 15.40989 | 0.2416771 | 3.1166140 | 76 | 3 | 2000–2009 | 0.53 | M-v | 2 | MPC | 77794 | 2004 $XX_{81}$ |
| 2004 $XJ_{82}$ | 15.0 | 0.15 | 20100104 | 79.08191 | 265.89588 | 88.21122 | 11.92330 | 0.3501161 | 2.7815485 | 74 | 5 | 1999–2009 | 0.47 | M-v | 1 | MPC | 166192 | 2004 $XJ_{82}$ |
| 2004 $XM_{86}$ | 16.4 | 0.15 | 20100104 | 5.09430 | 345.72034 | 121.08799 | 3.79795 | 0.1558003 | 2.9040484 | 43 | 3 | 2004–2009 | 0.42 | M-v | 3 | MPC | 165415 | 2004 $XM_{86}$ |
| 2004 $XV_{87}$ | 15.5 | 0.15 | 20100104 | 31.30685 | 324.18370 | 94.90135 | 16.61492 | 0.1843511 | 2.9424459 | 47 | 3 | 2000–2009 | 0.64 | M-v | 3 | MPC | 166192 | 2004 $XV_{87}$ |
| 2004 $XJ_{96}$ | 15.4 | 0.15 | 20100104 | 292.61295 | 53.14856 | 91.62090 | 16.68826 | 0.0450230 | 3.1047513 | 39 | 3 | 2004–2009 | 0.36 | M-v | 1 | MPC | 166192 | 2004 $XJ_{96}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 $XD_{97}$ | 15.0 | 0.15 | 20100104 | 180.07302 | 164.96304 | 93.97231 | 16.78223 | 0.0409176 | 3.1067699 | 47 | 5 | 2001–2009 | 0.44 | M-v | 0 | MPC | 166192 | 2004 $XD_{97}$ |
| 2004 $XJ_{102}$ | 15.6 | 0.15 | 20100104 | 25.64565 | 126.74961 | 306.37286 | 11.88774 | 0.1785734 | 2.7877366 | 39 | 3 | 2004–2009 | 0.31 | M-v | 2 | MPC | 146259 | 2004 $XJ_{102}$ |
| 2004 $XC_{106}$ | 15.3 | 0.15 | 20100104 | 31.23785 | 96.85570 | 280.46265 | 9.33159 | 0.2122898 | 2.9934093 | 47 | 3 | 1994–2009 | 0.53 | M-v | 2 | MPC | 165416 | 2004 $XC_{106}$ |
| 2004 $XX_{108}$ | 15.8 | 0.15 | 20100104 | 36.59236 | 340.11373 | 66.91187 | 11.75786 | 0.1098359 | 2.9056208 | 48 | 5 | 1999–2009 | 0.52 | M-v | 1 | MPC | 166192 | 2004 $XX_{108}$ |
| 2004 $XX_{111}$ | 16.6 | 0.15 | 20100104 | 111.57976 | 90.26399 | 281.83267 | 5.23211 | 0.0474635 | 2.6908703 | 40 | 6 | 1997–2009 | 0.39 | M-v | 0 | MPC | 156961 | 2004 $XX_{111}$ |
| 2004 $XT_{112}$ | 16.5 | 0.15 | 20100104 | 52.87430 | 119.23545 | 292.48704 | 3.19479 | 0.0632898 | 2.7966439 | 49 | 4 | 2004–2009 | 0.42 | M-v | 0 | MPC | 147333 | 2004 $XT_{112}$ |
| 2004 $XK_{116}$ | 17.2 | 0.15 | 20100104 | 309.24802 | 224.99777 | 316.14398 | 3.05826 | 0.1335816 | 2.7926088 | 29 | 5 | 2001–2009 | 0.29 | M-v | 1 | MPC | 165416 | 2004 $XK_{116}$ |
| 2004 $XW_{116}$ | 16.3 | 0.15 | 20100104 | 355.76774 | 225.66969 | 215.06620 | 3.17712 | 0.0846384 | 2.9994634 | 42 | 5 | 2003–2009 | 0.36 | M-v | 0 | MPC | 165416 | 2004 $XW_{116}$ |
| 2004 $XH_{119}$ | 16.1 | 0.15 | 20100104 | 332.10066 | 183.95150 | 292.36663 | 3.55570 | 0.0799328 | 3.0404281 | 45 | 4 | 2003–2009 | 0.36 | M-v | 1 | MPC | 166192 | 2004 $XH_{119}$ |
| 2004 $XV_{121}$ | 15.7 | 0.15 | 20100104 | 344.84799 | 48.59244 | 26.21095 | 3.71448 | 0.0720034 | 3.0630275 | 60 | 5 | 2001–2009 | 0.49 | M-v | 1 | MPC | 166192 | 2004 $XV_{121}$ |
| 2004 $XR_{122}$ | 15.5 | 0.15 | 20100104 | 310.26710 | 208.16729 | 273.90803 | 9.62151 | 0.0443541 | 3.0034456 | 48 | 6 | 2003–2009 | 0.46 | M-v | 0 | MPC | 165416 | 2004 $XR_{122}$ |
| 2004 $XE_{124}$ | 15.2 | 0.15 | 20100104 | 353.15982 | 71.13681 | 337.08087 | 15.09818 | 0.2787270 | 3.0931362 | 73 | 2 | 2004–2009 | 0.49 | M-v | 3 | MPC | 164238 | 2004 $XE_{124}$ |
| 2004 $XT_{124}$ | 16.9 | 0.15 | 20100104 | 10.37794 | 341.31188 | 43.77491 | 2.83817 | 0.2937227 | 3.0815297 | 36 | 2 | 2004–2009 | 0.37 | M-v | 3 | MPC | 166193 | 2004 $XT_{124}$ |
| 2004 $XT_{128}$ | 15.7 | 0.15 | 20100104 | 42.72490 | 120.29895 | 254.71380 | 8.54395 | 0.1474646 | 3.0086891 | 61 | 3 | 2004–2009 | 0.45 | M-v | 2 | MPC | 165417 | 2004 $XT_{128}$ |
| 2004 $XK_{129}$ | 14.9 | 0.15 | 20100104 | 32.13219 | 342.33374 | 75.32606 | 12.80017 | 0.0937633 | 3.0255856 | 46 | 4 | 2003–2009 | 0.59 | M-v | 1 | MPC | 166193 | 2004 $XK_{129}$ |
| 2004 $XM_{129}$ | 16.2 | 0.15 | 20100104 | 13.53473 | 2.37637 | 59.08380 | 10.01795 | 0.1665653 | 2.9307128 | 37 | 2 | 2004–2009 | 0.40 | M-v | 3 | MPC | 165417 | 2004 $XM_{129}$ |
| 2004 $XT_{131}$ | 16.3 | 0.15 | 20100104 | 38.61006 | 106.42418 | 317.03999 | 4.28680 | 0.1703899 | 2.7980899 | 40 | 4 | 1995–2009 | 0.43 | M-v | 0 | MPC | 166193 | 2004 $XT_{131}$ |
| 2004 $XF_{135}$ | 15.6 | 0.15 | 20100104 | 302.59975 | 189.10000 | 344.69910 | 3.82997 | 0.0097388 | 2.7899203 | 76 | 4 | 2004–2009 | 0.44 | M-v | 1 | MPC | 147333 | 2004 $XF_{135}$ |
| 2004 $XS_{137}$ | 14.7 | 0.15 | 20100104 | 303.04499 | 178.23532 | 305.17683 | 9.51810 | 0.0846255 | 3.1516332 | 59 | 6 | 2000–2009 | 0.48 | M-v | 1 | MPC | 166193 | 2004 $XS_{137}$ |
| 2004 $XA_{138}$ | 16.8 | 0.15 | 20100104 | 117.88365 | 241.45271 | 97.67644 | 6.55838 | 0.2357077 | 2.7695924 | 27 | 3 | 2004–2009 | 0.41 | M-v | 3 | MPC | 160391 | 2004 $XA_{138}$ |
| 2004 $XL_{142}$ | 15.9 | 0.15 | 20100104 | 356.56311 | 178.87331 | 301.85554 | 3.72019 | 0.0759018 | 2.7775071 | 51 | 3 | 2004–2009 | 0.41 | M-v | 3 | MPC | 166193 | 2004 $XL_{142}$ |
| 2004 $XW_{142}$ | 15.5 | 0.15 | 20100104 | 3.15435 | 339.76403 | 58.67452 | 11.81911 | 0.0874900 | 3.1245287 | 49 | 4 | 2004–2009 | 0.40 | M-v | 1 | MPC | 164239 | 2004 $XW_{142}$ |
| 2004 $XE_{143}$ | 15.6 | 0.15 | 20100104 | 174.82773 | 12.61233 | 273.65203 | 12.45326 | 0.1344887 | 2.7934743 | 35 | 5 | 2003–2009 | 0.51 | M-v | 1 | MPC | 160391 | 2004 $XE_{143}$ |
| 2004 $XX_{145}$ | 16.1 | 0.15 | 20100104 | 20.01871 | 358.87601 | 85.09706 | 4.06966 | 0.0656086 | 2.7682381 | 51 | 5 | 2001–2009 | 0.34 | M-v | 0 | MPC | 166193 | 2004 $XX_{145}$ |
| 2004 $XC_{147}$ | 15.6 | 0.15 | 20100104 | 357.95061 | 88.57072 | 316.60188 | 11.69872 | 0.3164266 | 3.0637694 | 67 | 3 | 2000–2009 | 0.58 | M-v | 3 | MPC | 164239 | 2004 $XC_{147}$ |
| 2004 $XE_{167}$ | 15.0 | 0.15 | 20100104 | 45.23224 | 264.12193 | 70.36767 | 7.98147 | 0.1603255 | 3.0304554 | 70 | 4 | 2004–2009 | 0.52 | M-v | 1 | MPC | 166193 | 2004 $XE_{167}$ |
| 2004 $XG_{169}$ | 16.1 | 0.15 | 20100104 | 221.71873 | 295.80382 | 301.11988 | 5.48267 | 0.0096006 | 2.8502410 | 45 | 7 | 1996–2009 | 0.37 | M-v | 0 | MPC | 147334 | 2004 $XG_{169}$ |
| 2004 $XQ_{176}$ | 16.9 | 0.15 | 20100104 | 37.12150 | 93.90886 | 313.24528 | 1.17170 | 0.0781667 | 2.9305652 | 29 | 4 | 2004–2009 | 0.42 | M-v | 1 | MPC | 160392 | 2004 $XQ_{176}$ |
| 2004 $XF_{179}$ | 16.1 | 0.15 | 20100104 | 318.86794 | 12.30238 | 128.00121 | 3.39388 | 0.1594536 | 3.0492533 | 49 | 6 | 2000–2009 | 0.43 | M-v | 0 | MPC | 143227 | 2004 $XF_{179}$ |
| 2004 $XV_{180}$ | 15.3 | 0.15 | 20100104 | 247.13655 | 117.53718 | 81.60670 | 10.67510 | 0.0488492 | 3.0877273 | 40 | 6 | 2001–2009 | 0.45 | M-v | 0 | MPC | 166193 | 2004 $XV_{180}$ |
| 2004 $XJ_{186}$ | 15.8 | 0.15 | 20100104 | 31.04171 | 166.16318 | 270.69855 | 12.98524 | 0.1596190 | 2.7468461 | 40 | 3 | 2004–2009 | 0.55 | M-v | 3 | MPC | 166193 | 2004 $XJ_{186}$ |
| 2004 $XS_{191}$ | 15.7 | 0.15 | 20100104 | 333.73880 | 81.64377 | 28.35753 | 14.89539 | 0.2459936 | 3.1199859 | 49 | 2 | 2004–2009 | 0.58 | M-v | 3 | MPC | 165417 | 2004 $XS_{191}$ |
| 2004 $XA_{192}$ | 4.0 | 0.15 | 20100104 | 350.10515 | 131.97291 | 328.55533 | 38.14600 | 0.2462489 | 47.0734865 | 19 | 5 | 1989–2009 | 0.39 | M-v | 2 | MPC | 160821 | 2004 $XA_{192}$ |
| 2004 $YX_3$ | 16.3 | 0.15 | 20100104 | 355.45970 | 237.67131 | 289.44047 | 6.67893 | 0.1652832 | 2.7340847 | 52 | 5 | 2001–2009 | 0.38 | M-v | 1 | MPC | 148961 | 2004 $YX_3$ |
| 2004 $YB_6$ | 15.6 | 0.15 | 20100104 | 64.19154 | 61.42423 | 294.73053 | 9.34076 | 0.0787244 | 3.1661701 | 24 | 3 | 2003–2009 | 0.42 | M-v | 3 | MPC | 86608 | 2004 $YB_6$ |
| 2004 $YD_{11}$ | 15.8 | 0.15 | 20100104 | 77.29644 | 98.80312 | 242.89144 | 10.93812 | 0.0703775 | 2.9493654 | 41 | 5 | 2001–2009 | 0.39 | M-v | 0 | MPC | 166193 | 2004 $YD_{11}$ |
| 2004 $YP_{11}$ | 16.4 | 0.15 | 20100104 | 344.74285 | 35.92653 | 70.80026 | 1.31540 | 0.1755783 | 3.0198253 | 43 | 4 | 2001–2009 | 0.38 | M-v | 1 | MPC | 166193 | 2004 $YP_{11}$ |
| 2004 $YR_{15}$ | 16.1 | 0.15 | 20100104 | 232.83571 | 285.31775 | 323.83809 | 3.24289 | 0.1772177 | 2.9923280 | 52 | 7 | 2000–2009 | 0.45 | M-v | 0 | MPC | 147335 | 2004 $YR_{15}$ |
| 2004 $YB_{19}$ | 16.1 | 0.15 | 20100104 | 333.43571 | 181.05095 | 289.57081 | 3.90944 | 0.1242838 | 3.0933015 | 31 | 3 | 2004–2009 | 0.26 | M-v | 3 | MPC | 165418 | 2004 $YB_{19}$ |
| 2004 $YL_{20}$ | 15.4 | 0.15 | 20100104 | 23.68800 | 307.98375 | 115.19451 | 4.71415 | 0.2097676 | 2.9813243 | 62 | 6 | 1996–2009 | 0.46 | M-v | 0 | MPC | 147335 | 2004 $YL_{20}$ |
| 2004 $YM_{20}$ | 15.4 | 0.15 | 20100104 | 73.29978 | 88.14128 | 292.92533 | 8.58916 | 0.0713370 | 3.0056512 | 42 | 4 | 2003–2009 | 0.43 | M-v | 1 | MPC | 148961 | 2004 $YM_{20}$ |
| 2004 $YT_{20}$ | 15.7 | 0.15 | 20100104 | 16.86376 | 155.23486 | 291.98960 | 9.80327 | 0.0502984 | 2.9946679 | 39 | 3 | 2004–2009 | 0.40 | M-v | 2 | MPC | 146267 | 2004 $YT_{20}$ |
| 2004 $YJ_{21}$ | 16.0 | 0.15 | 20100104 | 344.56310 | 3.53414 | 119.14116 | 11.89301 | 0.0521407 | 3.0043845 | 53 | 6 | 2002–2009 | 0.39 | M-v | 0 | MPC | 121347 | 2004 $YJ_{21}$ |
| 2004 $YZ_{21}$ | 16.5 | 0.15 | 20100104 | 353.94020 | 346.02758 | 105.66592 | 2.39451 | 0.1900899 | 3.0689541 | 52 | 3 | 2003–2009 | 0.38 | M-v | 2 | MPC | 165418 | 2004 $YZ_{21}$ |
| 2004 $YP_{22}$ | 15.8 | 0.15 | 20100104 | 77.54647 | 241.08238 | 135.19530 | 1.49209 | 0.0732350 | 3.0437385 | 53 | 3 | 2004–2009 | 0.24 | M-v | 2 | MPC | 148961 | 2004 $YP_{22}$ |
| 2004 $YY_{28}$ | 15.5 | 0.15 | 20100104 | 326.16293 | 151.33223 | 320.89483 | 2.74381 | 0.1505196 | 2.9942371 | 71 | 6 | 1994–2009 | 0.48 | M-v | 2 | MPC | 166193 | 2004 $YY_{28}$ |
| 2004 $YA_{35}$ | 15.3 | 0.15 | 20100104 | 27.24359 | 237.48515 | 140.04065 | 13.10896 | 0.2498778 | 2.9993393 | 65 | 5 | 1998–2009 | 0.58 | M-v | 1 | MPC | 166193 | 2004 $YA_{35}$ |
| 2005 $AA_1$ | 16.5 | 0.15 | 20100104 | 9.37483 | 153.84291 | 264.40531 | 3.24618 | 0.3451837 | 3.0147183 | 70 | 2 | 2004–2009 | 0.41 | M-v | 3 | MPC | 165418 | 2005 $AA_1$ |
| 2005 $AF_2$ | 14.8 | 0.15 | 20100104 | 243.05459 | 129.97899 | 79.41007 | 17.65911 | 0.1888657 | 3.1302631 | 75 | 4 | 2000–2009 | 0.57 | M-v | 2 | MPC | 166193 | 2005 $AF_2$ |
| 2005 $AG_2$ | 17.1 | 0.15 | 20100104 | 192.39992 | 168.52387 | 96.51211 | 23.44433 | 0.0627583 | 1.8795630 | 45 | 4 | 2002–2009 | 0.59 | M-v | 1 | MPC | 140133 | 2005 $AG_2$ |
| 2005 $AU_2$ | 15.5 | 0.15 | 20100104 | 3.06925 | 349.47383 | 107.60187 | 9.82391 | 0.0743389 | 3.0231778 | 57 | 6 | 2000–2009 | 0.52 | M-v | 0 | MPC | 147336 | 2005 $AU_2$ |
| 2005 $AF_4$ | 15.0 | 0.15 | 20100104 | 315.72328 | 21.12322 | 103.31664 | 28.94387 | 0.1264203 | 3.1338134 | 37 | 3 | 2004–2009 | 0.61 | M-v | 2 | MPC | 100898 | 2005 $AF_4$ |
| 2005 $AO_4$ | 17.1 | 0.15 | 20100104 | 122.69065 | 44.34445 | 70.26088 | 7.05750 | 0.0887035 | 2.3796027 | 48 | 3 | 2000–2009 | 0.64 | M-v | 3 | MPC | 73741 | 2005 $AO_4$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 $AO_{5}$ | 15.2 | 0.15 | 20100104 | 335.85300 | 25.09178 | 80.15156 | 10.66341 | 0.0544844 | 3.1212677 | 48 | 5 | 2001–2009 | 0.46 | M-v | 0 | MPC | 166194 | 2005 $AO_{5}$ |
| 2005 $AQ_{7}$ | 15.1 | 0.15 | 20100104 | 298.29631 | 44.45333 | 105.71433 | 9.98133 | 0.1258253 | 3.1560863 | 55 | 3 | 2005–2009 | 0.54 | M-v | 2 | MPC | 166194 | 2005 $AQ_{7}$ |
| 2005 $AH_{9}$ | 15.6 | 0.15 | 20100104 | 320.41028 | 30.75943 | 80.74280 | 18.42373 | 0.2352439 | 3.1353609 | 49 | 4 | 2000–2009 | 0.43 | M-v | 1 | MPC | 166194 | 2005 $AH_{9}$ |
| 2005 $AQ_{10}$ | 15.4 | 0.15 | 20100104 | 336.53371 | 115.14282 | 88.02539 | 13.72829 | 0.1333605 | 2.6735571 | 68 | 6 | 2002–2009 | 0.47 | M-v | 1 | MPC | 151002 | 2005 $AQ_{10}$ |
| 2005 $AT_{12}$ | 15.0 | 0.15 | 20100104 | 359.06175 | 316.35171 | 112.40760 | 19.41672 | 0.1501535 | 3.1010985 | 60 | 2 | 2004–2009 | 0.50 | M-v | 3 | MPC | 163701 | 2005 $AT_{12}$ |
| 2005 $AX_{13}$ | 14.9 | 0.15 | 20100104 | 345.24772 | 331.57014 | 109.56600 | 29.07369 | 0.1571682 | 3.1667050 | 41 | 3 | 1999–2009 | 0.62 | M-v | 2 | MPC | 165419 | 2005 $AX_{13}$ |
| 2005 $AQ_{14}$ | 15.0 | 0.15 | 20100104 | 33.24871 | 282.83349 | 117.67800 | 12.78017 | 0.0989261 | 3.1230343 | 69 | 7 | 2000–2009 | 0.54 | M-v | 0 | MPC | 166194 | 2005 $AQ_{14}$ |
| 2005 $AZ_{14}$ | 16.2 | 0.15 | 20100104 | 25.22007 | 151.23725 | 323.93180 | 2.43598 | 0.0468325 | 2.7847035 | 86 | 7 | 1998–2009 | 0.42 | M-v | 0 | MPC | 148963 | 2005 $AZ_{14}$ |
| 2005 $AL_{18}$ | 15.0 | 0.15 | 20100104 | 354.95469 | 318.62425 | 129.14897 | 28.66520 | 0.1614469 | 3.1251889 | 66 | 3 | 2002–2009 | 0.52 | M-v | 2 | MPC | 166194 | 2005 $AL_{18}$ |
| 2005 $AS_{18}$ | 15.8 | 0.15 | 20100104 | 351.06238 | 148.12277 | 291.02826 | 14.86678 | 0.1338681 | 3.0959448 | 29 | 3 | 2004–2009 | 0.60 | M-v | 3 | MPC | 142735 | 2005 $AS_{18}$ |
| 2005 $AU_{18}$ | 15.6 | 0.15 | 20100104 | 17.74042 | 312.66783 | 98.37655 | 6.53107 | 0.1708376 | 3.0607953 | 57 | 6 | 2001–2009 | 0.43 | M-v | 0 | MPC | 166194 | 2005 $AU_{18}$ |
| 2005 $AF_{23}$ | 15.9 | 0.15 | 20100104 | 28.80805 | 322.17218 | 100.33563 | 10.58576 | 0.1465992 | 3.0072584 | 40 | 7 | 1996–2009 | 0.52 | M-v | 0 | MPC | 143228 | 2005 $AF_{23}$ |
| 2005 $AR_{23}$ | 15.5 | 0.15 | 20100104 | 349.44605 | 123.60450 | 338.65306 | 7.53705 | 0.1752906 | 3.0989473 | 94 | 4 | 2003–2009 | 0.46 | M-v | 0 | MPC | 166194 | 2005 $AR_{23}$ |
| 2005 $AP_{24}$ | 16.0 | 0.15 | 20100104 | 353.71844 | 125.67701 | 295.14462 | 14.95676 | 0.4092182 | 3.1335958 | 85 | 2 | 2004–2009 | 0.47 | M-v | 2 | MPC | 166194 | 2005 $AP_{24}$ |
| 2005 $AF_{28}$ | 15.6 | 0.15 | 20100104 | 27.69934 | 118.68267 | 291.14964 | 8.87611 | 0.0790337 | 3.1093152 | 64 | 6 | 2000–2009 | 0.52 | M-v | 0 | MPC | 147337 | 2005 $AF_{28}$ |
| 2005 $AG_{28}$ | 15.7 | 0.15 | 20100104 | 47.56496 | 101.29834 | 345.04439 | 9.93079 | 0.2328629 | 2.7810800 | 70 | 6 | 1996–2009 | 0.46 | M-v | 0 | MPC | 147337 | 2005 $AG_{28}$ |
| 2005 $AY_{28}$ | 21.6 | 0.15 | 20100104 | 277.81762 | 155.80653 | 117.65112 | 5.89694 | 0.5701053 | 0.8722640 | 80 | 3 | 2005–2009 | 0.59 | M-v | 4 | MPC | 152420 | 2005 $AY_{28}$ |
| 2005 $AC_{30}$ | 14.9 | 0.15 | 20100104 | 308.63556 | 70.22321 | 65.25397 | 14.40016 | 0.1174891 | 3.1914199 | 57 | 4 | 2000–2009 | 0.49 | M-v | 1 | MPC | 166194 | 2005 $AC_{30}$ |
| 2005 $AH_{32}$ | 15.9 | 0.15 | 20100104 | 27.11787 | 303.09663 | 97.50928 | 5.88028 | 0.2609318 | 3.0015476 | 60 | 2 | 2004–2009 | 0.48 | M-v | 3 | MPC | 165419 | 2005 $AH_{32}$ |
| 2005 $AW_{32}$ | 16.6 | 0.15 | 20100104 | 273.45327 | 248.26339 | 298.70894 | 15.77722 | 0.0536057 | 1.8877811 | 57 | 4 | 2001–2009 | 0.51 | M-v | 2 | MPC | 164239 | 2005 $AW_{32}$ |
| 2005 $AV_{33}$ | 15.1 | 0.15 | 20100104 | 30.63645 | 294.67031 | 119.49140 | 23.10988 | 0.0168841 | 3.0684984 | 36 | 4 | 2002–2009 | 0.49 | M-v | 2 | MPC | 143228 | 2005 $AV_{33}$ |
| 2005 $AC_{34}$ | 15.1 | 0.15 | 20100104 | 2.89962 | 286.51586 | 108.30397 | 15.52124 | 0.2603968 | 3.1265539 | 43 | 3 | 2004–2009 | 0.50 | M-v | 2 | MPC | 165419 | 2005 $AC_{34}$ |
| 2005 $AU_{34}$ | 15.9 | 0.15 | 20100104 | 72.87987 | 270.30027 | 111.39328 | 7.02391 | 0.0978086 | 2.9384134 | 27 | 5 | 2001–2009 | 0.43 | M-v | 0 | MPC | 159748 | 2005 $AU_{34}$ |
| 2005 $AB_{35}$ | 15.2 | 0.15 | 20100104 | 334.60423 | 350.87794 | 127.35817 | 11.19905 | 0.0884469 | 3.0069393 | 25 | 3 | 2000–2009 | 0.37 | M-v | 3 | MPC | 76594 | 2005 $AB_{35}$ |
| 2005 $AD_{38}$ | 16.0 | 0.15 | 20100104 | 349.32519 | 211.22719 | 225.31772 | 3.21504 | 0.1723540 | 3.1328759 | 54 | 3 | 2003–2009 | 0.45 | M-v | 2 | MPC | 166194 | 2005 $AD_{38}$ |
| 2005 $AQ_{38}$ | 16.2 | 0.15 | 20100104 | 343.28996 | 218.05704 | 244.47092 | 4.18797 | 0.2445429 | 3.0618913 | 62 | 5 | 1998–2009 | 0.48 | M-v | 0 | MPC | 165420 | 2005 $AQ_{38}$ |
| 2005 $AE_{39}$ | 15.8 | 0.15 | 20100104 | 333.85064 | 219.35707 | 334.87738 | 4.21810 | 0.0957516 | 2.7321671 | 48 | 6 | 2001–2009 | 0.46 | M-v | 1 | MPC | 152420 | 2005 $AE_{39}$ |
| 2005 $AL_{40}$ | 15.0 | 0.15 | 20100104 | 271.81386 | 69.59166 | 104.79682 | 17.75626 | 0.0653688 | 3.1408279 | 40 | 3 | 2005–2009 | 0.61 | M-v | 2 | MPC | 100903 | 2005 $AL_{40}$ |
| 2005 $AD_{41}$ | 16.4 | 0.15 | 20100104 | 44.44435 | 239.87009 | 165.67232 | 1.79021 | 0.2111508 | 2.9225087 | 45 | 6 | 1993–2009 | 0.46 | M-v | 0 | MPC | 165420 | 2005 $AD_{41}$ |
| 2005 $AR_{41}$ | 14.9 | 0.15 | 20100104 | 59.55755 | 107.26668 | 271.15555 | 9.79978 | 0.1153453 | 3.0715248 | 77 | 4 | 2003–2009 | 0.48 | M-v | 1 | MPC | 147337 | 2005 $AR_{41}$ |
| 2005 $AZ_{42}$ | 16.3 | 0.15 | 20100104 | 338.11270 | 305.99646 | 212.01827 | 1.02734 | 0.1726863 | 2.8976116 | 70 | 5 | 2002–2009 | 0.47 | M-v | 1 | MPC | 151004 | 2005 $AZ_{42}$ |
| 2005 $AC_{44}$ | 16.3 | 0.15 | 20100104 | 348.15511 | 30.52791 | 79.91932 | 2.92680 | 0.0980117 | 3.0505978 | 36 | 5 | 2003–2009 | 0.33 | M-v | 0 | MPC | 143228 | 2005 $AC_{44}$ |
| 2005 $AT_{47}$ | 16.3 | 0.15 | 20100104 | 313.19804 | 190.55844 | 295.16039 | 0.15921 | 0.2229477 | 3.1643074 | 31 | 3 | 2005–2009 | 0.45 | M-v | 4 | MPC | 166194 | 2005 $AT_{47}$ |
| 2005 $AB_{49}$ | 16.6 | 0.15 | 20100104 | 80.99527 | 301.38287 | 107.09247 | 3.16373 | 0.0744631 | 2.7906711 | 41 | 4 | 2004–2009 | 0.40 | M-v | 1 | MPC | 151004 | 2005 $AB_{49}$ |
| 2005 $AN_{50}$ | 15.5 | 0.15 | 20100104 | 330.16868 | 323.06815 | 150.49334 | 10.06639 | 0.0575107 | 3.1005857 | 50 | 7 | 2000–2009 | 0.46 | M-v | 0 | MPC | 162416 | 2005 $AN_{50}$ |
| 2005 $AY_{53}$ | 14.9 | 0.15 | 20100104 | 263.06203 | 282.66562 | 296.04011 | 9.70865 | 0.1772003 | 3.1110944 | 64 | 6 | 2000–2009 | 0.64 | M-v | 1 | MPC | 166194 | 2005 $AY_{53}$ |
| 2005 $AF_{54}$ | 15.9 | 0.15 | 20100104 | 340.21131 | 78.71273 | 43.43224 | 2.28386 | 0.1285840 | 3.0885809 | 53 | 6 | 2000–2009 | 0.40 | M-v | 0 | MPC | 147337 | 2005 $AF_{54}$ |
| 2005 $AR_{54}$ | 15.0 | 0.15 | 20100104 | 6.27724 | 17.59343 | 44.65619 | 14.11365 | 0.1530777 | 3.0238388 | 90 | 5 | 1993–2009 | 0.47 | M-v | 1 | MPC | 166194 | 2005 $AR_{54}$ |
| 2005 $AW_{56}$ | 15.5 | 0.15 | 20100104 | 291.40424 | 124.77178 | 56.48660 | 10.98161 | 0.1641174 | 3.0251386 | 55 | 6 | 1998–2009 | 0.45 | M-v | 0 | MPC | 147338 | 2005 $AW_{56}$ |
| 2005 $AR_{57}$ | 15.9 | 0.15 | 20100104 | 354.80325 | 153.55954 | 12.52163 | 12.43394 | 0.1455898 | 2.7675449 | 44 | 4 | 2001–2009 | 0.48 | M-v | 1 | MPC | 166194 | 2005 $AR_{57}$ |
| 2005 $AW_{57}$ | 15.7 | 0.15 | 20100104 | 335.86887 | 79.32524 | 36.02543 | 10.41418 | 0.2451886 | 3.0653244 | 61 | 5 | 1998–2009 | 0.48 | M-v | 0 | MPC | 166194 | 2005 $AW_{57}$ |
| 2005 $AZ_{57}$ | 15.4 | 0.15 | 20100104 | 9.01782 | 64.87828 | 44.55019 | 10.51016 | 0.2539026 | 2.9008650 | 50 | 4 | 2000–2009 | 0.58 | M-v | 3 | MPC | 102239 | 2005 $AZ_{57}$ |
| 2005 $AH_{59}$ | 15.3 | 0.15 | 20100104 | 51.60274 | 300.13397 | 107.01705 | 11.16217 | 0.0801761 | 2.9623909 | 52 | 5 | 2001–2009 | 0.61 | M-v | 1 | MPC | 147338 | 2005 $AH_{59}$ |
| 2005 $AW_{60}$ | 16.0 | 0.15 | 20100104 | 8.76833 | 20.13367 | 49.72827 | 1.49672 | 0.1888243 | 3.0725275 | 45 | 4 | 2003–2009 | 0.41 | M-v | 0 | MPC | 165420 | 2005 $AW_{60}$ |
| 2005 $AA_{62}$ | 14.9 | 0.15 | 20100104 | 47.41356 | 74.89372 | 319.04722 | 21.27384 | 0.1063583 | 3.1321486 | 91 | 4 | 2002–2009 | 0.56 | M-v | 1 | MPC | 166194 | 2005 $AA_{62}$ |
| 2005 $AR_{63}$ | 15.6 | 0.15 | 20100104 | 235.05600 | 303.23686 | 264.54653 | 8.56419 | 0.0574959 | 3.1262974 | 38 | 4 | 2002–2009 | 0.35 | M-v | 1 | MPC | 165420 | 2005 $AR_{63}$ |
| 2005 $AS_{65}$ | 17.4 | 0.15 | 20100104 | 308.55003 | 300.67815 | 223.26688 | 0.81285 | 0.2545764 | 3.0571997 | 33 | 4 | 2000–2009 | 0.45 | M-v | 1 | MPC | 166195 | 2005 $AS_{65}$ |
| 2005 $AM_{72}$ | 16.3 | 0.15 | 20100104 | 88.59538 | 298.23999 | 105.90728 | 3.07424 | 0.0791182 | 2.8375259 | 53 | 6 | 2000–2009 | 0.29 | M-v | 0 | MPC | 152421 | 2005 $AM_{72}$ |
| 2005 $AG_{74}$ | 16.2 | 0.15 | 20100104 | 90.75080 | 225.33050 | 121.15890 | 10.26302 | 0.0808210 | 3.1644766 | 38 | 3 | 2002–2009 | 0.33 | M-v | 3 | MPC | 100909 | 2005 $AG_{74}$ |
| 2005 $AB_{77}$ | 16.6 | 0.15 | 20100104 | 346.95382 | 150.27757 | 342.91167 | 7.46577 | 0.1186239 | 2.9720964 | 26 | 4 | 2000–2009 | 0.36 | M-v | 2 | MPC | 160393 | 2005 $AB_{77}$ |
| 2005 $AJ_{77}$ | 16.0 | 0.15 | 20100104 | 301.38218 | 87.10956 | 75.45254 | 5.41679 | 0.2045703 | 3.1430293 | 42 | 4 | 2003–2009 | 0.49 | M-v | 1 | MPC | 165420 | 2005 $AJ_{77}$ |
| 2005 $AP_{77}$ | 15.8 | 0.15 | 20100104 | 306.52985 | 180.07910 | 339.31748 | 6.74534 | 0.0996141 | 3.0944976 | 54 | 5 | 2002–2009 | 0.31 | M-v | 0 | MPC | 147338 | 2005 $AP_{77}$ |
| 2005 $AQ_{77}$ | 15.6 | 0.15 | 20100104 | 10.91693 | 342.32012 | 106.21522 | 7.38483 | 0.1449426 | 3.0346197 | 57 | 5 | 2003–2009 | 0.54 | M-v | 0 | MPC | 143228 | 2005 $AQ_{77}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 $AS_{77}$ | 15.6 | 0.15 | 20100104 | 239.91168 | 94.31074 | 115.52916 | 10.77900 | 0.0319135 | 3.2008305 | 32 | 5 | 1998–2009 | 0.45 | M-v | 0 | MPC | 147338 | 2005 $AS_{77}$ |
| 2005 $AP_{78}$ | 15.5 | 0.15 | 20100104 | 168.64288 | 198.31111 | 103.00176 | 7.34883 | 0.0535672 | 3.0511014 | 45 | 6 | 2002–2009 | 0.53 | M-v | 0 | MPC | 147338 | 2005 $AP_{78}$ |
| 2005 $AH_{80}$ | 16.4 | 0.15 | 20100104 | 50.16736 | 282.82163 | 116.86570 | 10.88348 | 0.0919990 | 3.0822906 | 19 | 3 | 2003–2009 | 0.23 | M-v | 2 | MPC | 89620 | 2005 $AH_{80}$ |
| 2005 $AE_{81}$ | 15.5 | 0.15 | 20100104 | 76.84455 | 276.00582 | 123.65085 | 18.49601 | 0.0905559 | 2.9032327 | 46 | 5 | 1995–2009 | 0.54 | M-v | 3 | MPC | 158489 | 2005 $AE_{81}$ |
| 2005 $AG_{82}$ | 15.9 | 0.15 | 20100104 | 4.85127 | 357.16155 | 106.90796 | 10.48175 | 0.1194323 | 3.0106557 | 36 | 4 | 2003–2009 | 0.35 | M-v | 0 | MPC | 166195 | 2005 $AG_{82}$ |
| 2005 $BA_{8}$ | 15.4 | 0.15 | 20100104 | 259.15980 | 130.38387 | 103.20209 | 10.65704 | 0.0740592 | 2.8957534 | 32 | 6 | 2001–2009 | 0.58 | M-v | 1 | MPC | 147339 | 2005 $BA_{8}$ |
| 2005 $BH_{9}$ | 15.2 | 0.15 | 20100104 | 306.36963 | 19.16804 | 115.94403 | 13.07570 | 0.0732821 | 3.2064918 | 52 | 5 | 2002–2009 | 0.51 | M-v | 0 | MPC | 111078 | 2005 $BH_{9}$ |
| 2005 $BA_{13}$ | 16.3 | 0.15 | 20100104 | 350.98409 | 224.54181 | 305.19773 | 6.82141 | 0.1580531 | 2.7696230 | 34 | 4 | 2003–2009 | 0.46 | M-v | 1 | MPC | 149952 | 2005 $BA_{13}$ |
| 2005 $BM_{13}$ | 15.3 | 0.15 | 20100104 | 324.25146 | 181.33822 | 303.19555 | 4.17245 | 0.0983481 | 3.1530566 | 70 | 5 | 2002–2009 | 0.44 | M-v | 1 | MPC | 147339 | 2005 $BM_{13}$ |
| 2005 $BK_{19}$ | 14.8 | 0.15 | 20100104 | 347.90067 | 121.42694 | 313.85424 | 25.97456 | 0.1942805 | 3.1593928 | 73 | 4 | 2003–2009 | 0.53 | M-v | 1 | MPC | 147339 | 2005 $BK_{19}$ |
| 2005 $BP_{23}$ | 14.9 | 0.15 | 20100104 | 345.47553 | 359.67750 | 117.18204 | 7.81442 | 0.1132597 | 3.0721926 | 72 | 8 | 2000–2009 | 0.51 | M-v | 0 | MPC | 147339 | 2005 $BP_{23}$ |
| 2005 $BZ_{24}$ | 16.5 | 0.15 | 20100104 | 339.82309 | 2.78448 | 116.27067 | 2.46513 | 0.2053275 | 3.0412634 | 40 | 3 | 2004–2009 | 0.38 | M-v | 3 | MPC | 166195 | 2005 $BZ_{24}$ |
| 2005 $BF_{28}$ | 17.1 | 0.15 | 20100104 | 188.47565 | 172.68523 | 100.68506 | 24.06624 | 0.0332481 | 1.8815893 | 50 | 4 | 2002–2009 | 0.45 | M-v | 1 | MPC | 140133 | 2005 $BF_{28}$ |
| 2005 $BL_{28}$ | 15.4 | 0.15 | 20100104 | 303.75059 | 219.64521 | 291.90204 | 8.46071 | 0.0788147 | 3.1438900 | 61 | 7 | 2002–2009 | 0.54 | M-v | 0 | MPC | 147339 | 2005 $BL_{28}$ |
| 2005 $BR_{29}$ | 15.6 | 0.15 | 20100104 | 339.23066 | 36.24352 | 87.09217 | 14.10849 | 0.0935351 | 2.9966337 | 43 | 5 | 1998–2009 | 0.54 | M-v | 0 | MPC | 100915 | 2005 $BR_{29}$ |
| 2005 $BX_{34}$ | 16.7 | 0.15 | 20100104 | 39.25043 | 264.43886 | 117.85456 | 3.05340 | 0.2100366 | 3.1244119 | 50 | 4 | 2001–2009 | 0.39 | M-v | 1 | MPC | 166195 | 2005 $BX_{34}$ |
| 2005 $CJ_{4}$ | 14.9 | 0.15 | 20100104 | 4.90729 | 298.73465 | 136.02239 | 17.06877 | 0.1985134 | 3.1540688 | 75 | 6 | 2002–2009 | 0.55 | M-v | 0 | MPC | 159749 | 2005 $CJ_{4}$ |
| 2005 $CP_{6}$ | 16.9 | 0.15 | 20100104 | 41.02415 | 267.89105 | 137.24894 | 25.41070 | 0.0742513 | 1.9097457 | 64 | 7 | 1998–2009 | 0.57 | M-v | 1 | MPC | 138038 | 2005 $CP_{6}$ |
| 2005 $CV_{8}$ | 16.5 | 0.15 | 20100104 | 57.36256 | 3.41202 | 78.56073 | 5.45030 | 0.1846687 | 2.7816467 | 48 | 5 | 1999–2009 | 0.58 | M-v | 1 | MPC | 151006 | 2005 $CV_{8}$ |
| 2005 $CV_{9}$ | 16.4 | 0.15 | 20100104 | 282.21801 | 133.25857 | 70.71141 | 3.73671 | 0.0976954 | 3.0628765 | 41 | 5 | 1995–2009 | 0.52 | M-v | 1 | MPC | 148574 | 2005 $CV_{9}$ |
| 2005 $CR_{10}$ | 15.0 | 0.15 | 20100104 | 20.60269 | 97.19652 | 346.43199 | 10.00488 | 0.0879330 | 3.0927736 | 64 | 6 | 1994–2009 | 0.49 | M-v | 0 | MPC | 147340 | 2005 $CR_{10}$ |
| 2005 $CT_{11}$ | 15.4 | 0.15 | 20100104 | 323.26121 | 172.28160 | 333.14816 | 19.72850 | 0.0096425 | 3.0629805 | 51 | 6 | 2000–2009 | 0.56 | M-v | 1 | MPC | 147340 | 2005 $CT_{11}$ |
| 2005 $CV_{12}$ | 14.7 | 0.15 | 20100104 | 303.29449 | 256.42695 | 256.31789 | 14.91061 | 0.1850708 | 3.1219737 | 62 | 5 | 2002–2009 | 0.48 | M-v | 1 | MPC | 166195 | 2005 $CV_{12}$ |
| 2005 $CP_{13}$ | 15.4 | 0.15 | 20100104 | 89.34408 | 254.60259 | 113.75522 | 10.74885 | 0.0775135 | 3.1149222 | 54 | 7 | 1992–2009 | 0.55 | M-v | 0 | MPC | 162417 | 2005 $CP_{13}$ |
| 2005 $CQ_{13}$ | 15.9 | 0.15 | 20100104 | 20.48184 | 338.14637 | 115.72121 | 10.85051 | 0.0840172 | 3.0085340 | 41 | 4 | 2001–2009 | 0.33 | M-v | 0 | MPC | 166195 | 2005 $CQ_{13}$ |
| 2005 $CB_{14}$ | 15.5 | 0.15 | 20100104 | 317.82378 | 176.61257 | 340.52872 | 7.80247 | 0.0646533 | 3.0451769 | 48 | 5 | 1997–2009 | 0.49 | M-v | 2 | MPC | 164240 | 2005 $CB_{14}$ |
| 2005 $CO_{14}$ | 16.3 | 0.15 | 20100104 | 289.94652 | 77.19289 | 113.16457 | 4.31522 | 0.0434457 | 3.0094964 | 52 | 7 | 2001–2009 | 0.33 | M-v | 0 | MPC | 147340 | 2005 $CO_{14}$ |
| 2005 $CG_{15}$ | 16.3 | 0.15 | 20100104 | 1.37155 | 337.74298 | 99.60575 | 2.23901 | 0.1449528 | 3.1551183 | 42 | 5 | 2000–2009 | 0.41 | M-v | 0 | MPC | 165421 | 2005 $CG_{15}$ |
| 2005 $CQ_{15}$ | 15.7 | 0.15 | 20100104 | 276.67481 | 287.97156 | 291.24031 | 6.65330 | 0.1988697 | 3.0040020 | 39 | 3 | 2005–2009 | 0.45 | M-v | 3 | MPC | 166195 | 2005 $CQ_{15}$ |
| 2005 $CY_{16}$ | 15.3 | 0.15 | 20100104 | 245.59241 | 288.10485 | 311.55646 | 11.12536 | 0.1415557 | 3.0598111 | 60 | 5 | 1994–2009 | 0.45 | M-v | 0 | MPC | 148966 | 2005 $CY_{16}$ |
| 2005 $CG_{22}$ | 15.5 | 0.15 | 20100104 | 337.40698 | 143.30470 | 68.89746 | 4.42641 | 0.1875930 | 2.7717266 | 86 | 7 | 2001–2009 | 0.53 | M-v | 1 | MPC | 148966 | 2005 $CG_{22}$ |
| 2005 $CJ_{22}$ | 15.7 | 0.15 | 20100104 | 268.03273 | 320.69470 | 244.81142 | 13.27338 | 0.2312306 | 3.1667727 | 35 | 4 | 2000–2009 | 0.53 | M-v | 2 | MPC | 166195 | 2005 $CJ_{22}$ |
| 2005 $CC_{23}$ | 15.1 | 0.15 | 20100104 | 26.63806 | 331.35737 | 130.12737 | 28.55200 | 0.1742648 | 2.9277270 | 40 | 6 | 2000–2009 | 0.52 | M-v | 1 | MPC | 166195 | 2005 $CC_{23}$ |
| 2005 $CR_{23}$ | 14.0 | 0.15 | 20100104 | 124.30757 | 16.73836 | 302.08073 | 26.73792 | 0.1956609 | 3.1664446 | 76 | 4 | 2002–2009 | 0.56 | M-v | 2 | MPC | 160822 | 2005 $CR_{23}$ |
| 2005 $CF_{24}$ | 15.9 | 0.15 | 20100104 | 309.59542 | 235.69268 | 276.89285 | 14.12644 | 0.1884511 | 3.1046386 | 31 | 2 | 2005–2009 | 0.47 | M-v | 4 | MPC | 165421 | 2005 $CF_{24}$ |
| 2005 $CX_{25}$ | 15.5 | 0.15 | 20100104 | 300.73359 | 195.40211 | 333.54156 | 10.12748 | 0.0298949 | 3.0936968 | 38 | 4 | 2002–2009 | 0.44 | M-v | 3 | MPC | 146279 | 2005 $CX_{25}$ |
| 2005 $CL_{26}$ | 15.7 | 0.15 | 20100104 | 139.73969 | 227.77836 | 111.05937 | 12.84644 | 0.0278486 | 2.9719994 | 35 | 6 | 2001–2009 | 0.41 | M-v | 0 | MPC | 166195 | 2005 $CL_{26}$ |
| 2005 $CJ_{27}$ | 15.4 | 0.15 | 20100104 | 21.51529 | 126.86264 | 313.04191 | 21.15321 | 0.0765676 | 3.0369485 | 52 | 4 | 2002–2009 | 0.56 | M-v | 1 | MPC | 147340 | 2005 $CJ_{27}$ |
| 2005 $CA_{29}$ | 16.1 | 0.15 | 20100104 | 359.48082 | 336.38326 | 131.59441 | 10.88135 | 0.0638284 | 3.0788495 | 23 | 3 | 2004–2009 | 0.25 | M-v | 2 | MPC | 100919 | 2005 $CA_{29}$ |
| 2005 $CC_{31}$ | 15.8 | 0.15 | 20100104 | 28.30739 | 307.35339 | 122.10209 | 6.46190 | 0.1250858 | 3.0938460 | 27 | 4 | 2003–2009 | 0.27 | M-v | 0 | MPC | 102242 | 2005 $CC_{31}$ |
| 2005 $CR_{33}$ | 15.8 | 0.15 | 20100104 | 254.42015 | 237.03643 | 357.85464 | 5.07023 | 0.1458560 | 3.0605726 | 47 | 4 | 2005–2009 | 0.45 | M-v | 0 | MPC | 148966 | 2005 $CR_{33}$ |
| 2005 $CT_{37}$ | 15.7 | 0.15 | 20100104 | 338.55829 | 32.04985 | 91.09266 | 9.20954 | 0.2182064 | 3.1186121 | 33 | 3 | 2005–2009 | 0.35 | M-v | 3 | MPC | 165421 | 2005 $CT_{37}$ |
| 2005 $CL_{38}$ | 14.5 | 0.15 | 20100104 | 331.80493 | 186.28589 | 276.43776 | 28.19781 | 0.2481905 | 3.1945901 | 36 | 3 | 1998–2009 | 0.58 | M-v | 2 | MPC | 166195 | 2005 $CL_{38}$ |
| 2005 $CF_{39}$ | 16.6 | 0.15 | 20100104 | 51.41222 | 352.28932 | 20.05723 | 5.26666 | 0.1425679 | 3.2314268 | 31 | 4 | 1997–2009 | 0.39 | M-v | 2 | MPC | 166195 | 2005 $CF_{39}$ |
| 2005 $CX_{39}$ | 15.9 | 0.15 | 20100104 | 69.15007 | 240.59384 | 133.30229 | 1.92125 | 0.1528562 | 3.1072488 | 62 | 4 | 2003–2009 | 0.47 | M-v | 1 | MPC | 148967 | 2005 $CX_{39}$ |
| 2005 $CW_{42}$ | 15.1 | 0.15 | 20100104 | 283.93484 | 267.23913 | 265.86409 | 8.51170 | 0.1758975 | 3.1334484 | 47 | 6 | 2000–2009 | 0.38 | M-v | 0 | MPC | 160822 | 2005 $CW_{42}$ |
| 2005 $CG_{45}$ | 16.1 | 0.15 | 20100104 | 309.57738 | 74.11723 | 151.62824 | 8.54040 | 0.1215465 | 2.7682676 | 54 | 7 | 1996–2009 | 0.42 | M-v | 1 | MPC | 152424 | 2005 $CG_{45}$ |
| 2005 $CK_{46}$ | 15.6 | 0.15 | 20100104 | 276.65619 | 208.69428 | 341.94023 | 3.62875 | 0.1011951 | 3.1848717 | 59 | 5 | 2001–2009 | 0.39 | M-v | 1 | MPC | 151007 | 2005 $CK_{46}$ |
| 2005 $CN_{50}$ | 16.0 | 0.15 | 20100104 | 286.54993 | 262.39832 | 295.76562 | 2.30070 | 0.2040004 | 3.1237031 | 41 | 6 | 2000–2009 | 0.58 | M-v | 1 | MPC | 158847 | 2005 $CN_{50}$ |
| 2005 $CD_{55}$ | 16.8 | 0.15 | 20100104 | 41.93437 | 334.85322 | 69.28647 | 2.25053 | 0.1856203 | 3.1014297 | 29 | 4 | 2003–2009 | 0.36 | M-v | 0 | MPC | 147341 | 2005 $CD_{55}$ |
| 2005 $CV_{56}$ | 15.6 | 0.15 | 20100104 | 17.53018 | 129.14350 | 334.98472 | 6.07900 | 0.0511293 | 2.9678442 | 62 | 6 | 2000–2009 | 0.52 | M-v | 0 | MPC | 147341 | 2005 $CV_{56}$ |
| 2005 $CS_{60}$ | 16.0 | 0.15 | 20100104 | 348.49175 | 162.02454 | 331.88598 | 7.87330 | 0.1907201 | 2.9646151 | 36 | 5 | 2000–2009 | 0.45 | M-v | 2 | MPC | 147341 | 2005 $CS_{60}$ |
| 2005 $CB_{61}$ | 17.0 | 0.15 | 20100104 | 331.93619 | 99.95953 | 53.92826 | 3.91962 | 0.2157611 | 3.0160655 | 45 | 4 | 1998–2009 | 0.38 | M-v | 1 | MPC | 166196 | 2005 $CB_{61}$ |

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| 2005 $CR_{61}$ | 17.2 | 0.15 | 20100104 | 20.31068 | 267.32337 | 144.95465 | 23.74980 | 0.1385415 | 1.9299334 | 35 | 4 | 1998–2009 | 0.57 | M-v | 1 | MPC | 166196 | 2005 $CR_{61}$ |
| 2005 $CS_{62}$ | 16.4 | 0.15 | 20100104 | 335.85844 | 52.00014 | 90.00779 | 3.32515 | 0.1590639 | 3.0467821 | 46 | 5 | 2000–2009 | 0.37 | M-v | 0 | MPC | 166196 | 2005 $CS_{62}$ |
| 2005 $CM_{65}$ | 15.0 | 0.15 | 20100104 | 289.61135 | 68.21810 | 133.45901 | 11.95318 | 0.0323071 | 3.0395643 | 50 | 7 | 2002–2009 | 0.50 | M-v | 0 | MPC | 148967 | 2005 $CM_{65}$ |
| 2005 $CN_{65}$ | 17.4 | 0.15 | 20100104 | 166.29000 | 345.57727 | 131.26613 | 4.55618 | 0.1948110 | 2.2933535 | 43 | 4 | 1998–2009 | 0.44 | M-v | 1 | MPC | 156969 | 2005 $CN_{65}$ |
| 2005 $CU_{70}$ | 15.7 | 0.15 | 20100104 | 320.50281 | 232.07771 | 280.91328 | 8.58434 | 0.0240638 | 2.9682698 | 56 | 5 | 1997–2009 | 0.49 | M-v | 1 | MPC | 166196 | 2005 $CU_{70}$ |
| 2005 $CO_{78}$ | 15.4 | 0.15 | 20100104 | 285.83684 | 257.38027 | 292.36604 | 13.24961 | 0.1167597 | 3.0921053 | 24 | 4 | 2003–2009 | 0.60 | M-v | 1 | MPC | 158490 | 2005 $CO_{78}$ |
| 2005 $CR_{80}$ | 15.6 | 0.15 | 20050219 | 328.87485 | 207.11944 | 334.51474 | 17.11042 | 0.1813730 | 3.1629404 | 13 | 1 | 40 days | 0.54 | | | MPC | | 2005 $CR_{80}$ |
| 2005 $CS_{80}$ | 15.5 | 0.15 | 20050219 | 17.55563 | 117.02903 | 9.77607 | 15.34264 | 0.1383171 | 3.2209364 | 16 | 1 | 59 days | 0.66 | | | MPC | | 2005 $CS_{80}$ |
| 2005 $DW_{1}$ | 15.0 | 0.15 | 20100104 | 290.14627 | 259.54177 | 287.77062 | 15.00482 | 0.1428512 | 3.0921327 | 39 | 5 | 1992–2009 | 0.52 | M-v | 1 | MPC | 155155 | 2005 $DW_{1}$ |
| 2005 EG | 14.6 | 0.15 | 20100104 | 284.37942 | 121.35830 | 79.48162 | 23.54568 | 0.2131688 | 3.1579618 | 64 | 4 | 2000–2009 | 0.53 | M-v | 1 | MPC | 164240 | 2005 EG |
| 2005 $EV_{5}$ | 15.1 | 0.15 | 20100104 | 353.15856 | 87.81789 | 60.24040 | 2.56645 | 0.0736966 | 3.0292569 | 116 | 4 | 2005–2009 | 0.48 | M-v | 1 | MPC | 158490 | 2005 $EV_{5}$ |
| 2005 $EU_{9}$ | 15.6 | 0.15 | 20100104 | 332.83730 | 169.96012 | 334.40352 | 4.15972 | 0.0878473 | 3.1499852 | 65 | 5 | 1997–2009 | 0.47 | M-v | 0 | MPC | 146281 | 2005 $EU_{9}$ |
| 2005 $EV_{9}$ | 15.8 | 0.15 | 20100104 | 333.61481 | 306.96137 | 194.71350 | 2.58084 | 0.2290457 | 3.1172546 | 69 | 5 | 2000–2009 | 0.41 | M-v | 0 | MPC | 162417 | 2005 $EV_{9}$ |
| 2005 $EF_{10}$ | 15.2 | 0.15 | 20100104 | 331.81657 | 158.76544 | 343.85641 | 17.35945 | 0.1714955 | 3.1451517 | 61 | 4 | 2002–2009 | 0.52 | M-v | 1 | MPC | 146281 | 2005 $EF_{10}$ |
| 2005 $EE_{33}$ | 16.7 | 0.15 | 20100104 | 226.06462 | 322.06403 | 229.55560 | 20.82603 | 0.0334347 | 1.9923905 | 88 | 5 | 2003–2009 | 0.52 | M-v | 1 | MPC | 166196 | 2005 $EE_{33}$ |
| 2005 $EP_{36}$ | 14.8 | 0.15 | 20100104 | 322.32924 | 234.34053 | 284.95942 | 11.57453 | 0.1040759 | 3.0895171 | 53 | 6 | 2000–2009 | 0.44 | M-v | 1 | MPC | 166196 | 2005 $EP_{36}$ |
| 2005 $EJ_{38}$ | 15.2 | 0.15 | 20100104 | 286.68813 | 279.20914 | 275.05582 | 27.05692 | 0.2174524 | 3.1683916 | 32 | 3 | 2001–2009 | 0.43 | M-v | 2 | MPC | 76786 | 2005 $EJ_{38}$ |
| 2005 $EO_{38}$ | 16.9 | 0.15 | 20100104 | 19.48378 | 258.46055 | 169.69601 | 23.00752 | 0.1289832 | 1.9284634 | 98 | 4 | 1998–2009 | 0.64 | M-v | 1 | MPC | 166196 | 2005 $EO_{38}$ |
| 2005 $ES_{40}$ | 15.4 | 0.15 | 20100104 | 38.79107 | 286.58926 | 135.36733 | 2.33769 | 0.1388641 | 3.1976880 | 59 | 5 | 2002–2009 | 0.39 | M-v | 0 | MPC | 151009 | 2005 $ES_{40}$ |
| 2005 $EY_{40}$ | 15.5 | 0.15 | 20100104 | 356.29105 | 38.74447 | 61.40153 | 15.20225 | 0.1299966 | 3.1480169 | 48 | 5 | 2000–2009 | 0.52 | M-v | 0 | MPC | 166196 | 2005 $EY_{40}$ |
| 2005 $EA_{42}$ | 15.9 | 0.15 | 20100104 | 325.08071 | 196.49253 | 311.68911 | 2.56065 | 0.0239811 | 3.0124543 | 45 | 4 | 2000–2009 | 0.32 | M-v | 2 | MPC | 166196 | 2005 $EA_{42}$ |
| 2005 $EH_{49}$ | 16.1 | 0.15 | 20100104 | 21.96592 | 322.22982 | 167.80465 | 16.59315 | 0.1876583 | 2.8676179 | 61 | 5 | 2000–2009 | 0.49 | M-v | 1 | MPC | 148968 | 2005 $EH_{49}$ |
| 2005 $EV_{64}$ | 16.0 | 0.15 | 20100104 | 337.03993 | 69.90645 | 64.93927 | 1.84726 | 0.1318010 | 3.1396063 | 62 | 7 | 1994–2009 | 0.51 | M-v | 0 | MPC | 147343 | 2005 $EV_{64}$ |
| 2005 $EC_{84}$ | 16.0 | 0.15 | 20100104 | 283.74914 | 15.94423 | 199.38531 | 4.32499 | 0.2017326 | 3.1375702 | 63 | 4 | 2005–2009 | 0.43 | M-v | 1 | MPC | 147344 | 2005 $EC_{84}$ |
| 2005 $EP_{86}$ | 15.2 | 0.15 | 20100104 | 330.25298 | 119.48822 | 31.88665 | 6.70315 | 0.1185817 | 3.1866369 | 84 | 6 | 1993–2009 | 0.60 | M-v | 1 | MPC | 151010 | 2005 $EP_{86}$ |
| 2005 $ER_{86}$ | 15.1 | 0.15 | 20100104 | 332.67938 | 39.59143 | 100.01292 | 17.22253 | 0.1741132 | 3.1833267 | 45 | 3 | 2003–2009 | 0.51 | M-v | 2 | MPC | 76851 | 2005 $ER_{86}$ |
| 2005 $EO_{89}$ | 15.2 | 0.15 | 20100104 | 345.32049 | 306.16850 | 153.32302 | 27.44418 | 0.1545565 | 3.1758889 | 37 | 3 | 2005–2009 | 0.48 | M-v | 2 | MPC | 147344 | 2005 $EO_{89}$ |
| 2005 $ET_{90}$ | 15.8 | 0.15 | 20100104 | 341.30656 | 181.10044 | 317.25983 | 4.26970 | 0.1057619 | 3.0877553 | 70 | 5 | 2002–2009 | 0.49 | M-v | 1 | MPC | 166196 | 2005 $ET_{90}$ |
| 2005 $EX_{91}$ | 16.8 | 0.15 | 20100104 | 63.47803 | 22.42911 | 0.85375 | 20.01169 | 0.0815482 | 1.9513441 | 110 | 5 | 2002–2009 | 0.47 | M-v | 1 | MPC | 160822 | 2005 $EX_{91}$ |
| 2005 $EE_{96}$ | 15.5 | 0.15 | 20100104 | 280.47936 | 293.79811 | 283.88769 | 8.31948 | 0.0910628 | 2.9680150 | 35 | 4 | 2003–2009 | 0.39 | M-v | 2 | MPC | 148969 | 2005 $EE_{96}$ |
| 2005 $EU_{102}$ | 16.4 | 0.15 | 20100104 | 42.47501 | 303.59876 | 109.23801 | 2.32541 | 0.1289984 | 3.0385451 | 40 | 4 | 2003–2009 | 0.28 | M-v | 0 | MPC | 166196 | 2005 $EU_{102}$ |
| 2005 $EB_{103}$ | 16.2 | 0.15 | 20100104 | 340.94423 | 354.36265 | 139.53535 | 2.23952 | 0.1377574 | 3.1211225 | 44 | 5 | 2003–2009 | 0.41 | M-v | 0 | MPC | 160823 | 2005 $EB_{103}$ |
| 2005 $EX_{107}$ | 15.9 | 0.15 | 20100104 | 41.01305 | 252.37061 | 142.19993 | 6.57431 | 0.1221799 | 3.2447870 | 40 | 4 | 2002–2009 | 0.30 | M-v | 0 | MPC | 152123 | 2005 $EX_{107}$ |
| 2005 $EF_{117}$ | 16.4 | 0.15 | 20100104 | 333.91072 | 122.59336 | 17.62427 | 2.32695 | 0.2037978 | 3.1779814 | 35 | 4 | 2003–2009 | 0.41 | M-v | 0 | MPC | 158848 | 2005 $EF_{117}$ |
| 2005 $EW_{121}$ | 16.1 | 0.15 | 20100104 | 343.19014 | 43.17709 | 160.57449 | 5.29667 | 0.1047838 | 2.7868066 | 40 | 5 | 2002–2009 | 0.43 | M-v | 1 | MPC | 141174 | 2005 $EW_{121}$ |
| 2005 $EW_{131}$ | 15.6 | 0.15 | 20100104 | 313.21224 | 18.92288 | 159.14088 | 5.39204 | 0.1321754 | 3.1239107 | 53 | 4 | 2005–2009 | 0.45 | M-v | 1 | MPC | 160823 | 2005 $EW_{131}$ |
| 2005 $EM_{133}$ | 14.8 | 0.15 | 20100104 | 267.90968 | 90.87177 | 118.24577 | 10.43949 | 0.1631255 | 3.1938228 | 34 | 4 | 2000–2009 | 0.50 | M-v | 2 | MPC | 158493 | 2005 $EM_{133}$ |
| 2005 $EP_{138}$ | 15.0 | 0.15 | 20100104 | 320.87732 | 63.31713 | 119.24328 | 7.93248 | 0.0646799 | 3.0535957 | 45 | 5 | 2000–2009 | 0.45 | M-v | 1 | MPC | 166196 | 2005 $EP_{138}$ |
| 2005 $EY_{142}$ | 16.0 | 0.15 | 20100104 | 3.63172 | 354.58255 | 138.14170 | 5.13013 | 0.2426309 | 3.0279119 | 54 | 4 | 2003–2009 | 0.49 | M-v | 1 | MPC | 166197 | 2005 $EY_{142}$ |
| 2005 $EB_{153}$ | 15.2 | 0.15 | 20100104 | 321.58835 | 58.05220 | 98.71514 | 20.11813 | 0.2224974 | 3.1781313 | 34 | 3 | 1999–2009 | 0.66 | M-v | 2 | MPC | 76918 | 2005 $EB_{153}$ |
| 2005 $EK_{153}$ | 17.1 | 0.15 | 20100104 | 81.15258 | 343.72461 | 34.10936 | 22.27817 | 0.0267947 | 1.9167626 | 82 | 5 | 1998–2009 | 0.58 | M-v | 1 | MPC | 160823 | 2005 $EK_{153}$ |
| 2005 $EX_{161}$ | 15.8 | 0.15 | 20100104 | 88.56969 | 25.77548 | 31.28156 | 5.95971 | 0.1882131 | 3.0365089 | 41 | 5 | 2002–2009 | 0.53 | M-v | 1 | MPC | 149959 | 2005 $EX_{161}$ |
| 2005 $ES_{170}$ | 16.1 | 0.15 | 20100104 | 63.21322 | 264.49887 | 254.98743 | 8.13417 | 0.1221016 | 2.5714663 | 54 | 5 | 2001–2009 | 0.57 | M-v | 1 | MPC | 157414 | 2005 $ES_{170}$ |
| 2005 $EO_{177}$ | 15.9 | 0.15 | 20100104 | 327.70988 | 12.86080 | 185.13538 | 3.22968 | 0.1041273 | 3.0246957 | 52 | 6 | 1992–2009 | 0.35 | M-v | 1 | MPC | 151011 | 2005 $EO_{177}$ |
| 2005 $ET_{204}$ | 17.4 | 0.15 | 20100104 | 359.24179 | 264.49381 | 2.01716 | 14.59060 | 0.1583149 | 2.5714629 | 41 | 3 | 2005–2009 | 0.39 | M-v | 1 | MPC | 155165 | 2005 $ET_{204}$ |
| 2005 $EQ_{207}$ | 15.3 | 0.15 | 20100104 | 239.97930 | 293.93248 | 336.46600 | 4.49214 | 0.0777295 | 3.0569911 | 52 | 7 | 1997–2009 | 0.49 | M-v | 0 | MPC | 162417 | 2005 $EQ_{207}$ |
| 2005 $EA_{208}$ | 16.5 | 0.15 | 20100104 | 21.37113 | 179.24134 | 263.43265 | 2.31797 | 0.1250314 | 3.0171254 | 42 | 5 | 2000–2009 | 0.39 | M-v | 0 | MPC | 143231 | 2005 $EA_{208}$ |
| 2005 $EM_{212}$ | 14.8 | 0.15 | 20100104 | 300.82492 | 140.18243 | 41.04990 | 17.48297 | 0.1228033 | 3.1651129 | 66 | 4 | 1997–2009 | 0.54 | M-v | 1 | MPC | 151012 | 2005 $EM_{212}$ |
| 2005 $EV_{217}$ | 16.9 | 0.15 | 20100104 | 341.79628 | 102.39625 | 57.63405 | 1.56881 | 0.2281810 | 3.0667251 | 33 | 5 | 2001–2009 | 0.40 | M-v | 1 | MPC | 146291 | 2005 $EV_{217}$ |
| 2005 $EO_{219}$ | 15.6 | 0.15 | 20100104 | 29.51950 | 118.89777 | 8.57073 | 10.63500 | 0.0408539 | 3.0383446 | 33 | 3 | 2005–2009 | 0.24 | M-v | 2 | MPC | 129728 | 2005 $EO_{219}$ |
| 2005 $ET_{221}$ | 14.8 | 0.15 | 20100104 | 34.73471 | 90.29344 | 325.39884 | 23.66281 | 0.2254969 | 3.1788890 | 64 | 6 | 1999–2009 | 0.57 | M-v | 1 | MPC | 148971 | 2005 $ET_{221}$ |
| 2005 $EZ_{224}$ | 14.1 | 0.15 | 20100104 | 308.36020 | 95.03833 | 110.35599 | 32.89755 | 0.0375297 | 3.2266134 | 69 | 6 | 1992–2009 | 0.59 | M-v | 1 | MPC | 104322 | 2005 $EZ_{224}$ |
| 2005 $EM_{225}$ | 14.7 | 0.15 | 20100104 | 358.61807 | 353.52031 | 103.49725 | 14.26834 | 0.1664214 | 3.0804624 | 49 | 6 | 1993–2009 | 0.45 | M-v | 1 | MPC | 147347 | 2005 $EM_{225}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 $EH_{238}$ | 15.4 | 0.15 | 20100104 | 281.36120 | 156.95509 | 57.10108 | 2.22372 | 0.1556584 | 3.1727449 | 69 | 5 | 2002–2009 | 0.50 | M-v | 1 | MPC | 166197 | 2005 $EH_{238}$ |
| 2005 $EP_{250}$ | 16.7 | 0.15 | 20100104 | 172.68458 | 232.91003 | 65.42967 | 22.72045 | 0.0210184 | 1.9227564 | 71 | 3 | 2005–2009 | 0.47 | M-v | 1 | MPC | 118111 | 2005 $EP_{250}$ |
| 2005 $EW_{253}$ | 16.3 | 0.15 | 20100104 | 350.25096 | 157.61017 | 319.32607 | 4.68541 | 0.1202807 | 3.0959585 | 33 | 4 | 2003–2009 | 0.28 | M-v | 0 | MPC | 160399 | 2005 $EW_{253}$ |
| 2005 $ER_{262}$ | 16.3 | 0.15 | 20100104 | 340.48856 | 246.16525 | 303.18277 | 2.82014 | 0.1039316 | 2.9055777 | 52 | 7 | 2000–2009 | 0.45 | M-v | 1 | MPC | 158495 | 2005 $ER_{262}$ |
| 2005 $EL_{272}$ | 15.1 | 0.15 | 20100104 | 165.04108 | 195.04493 | 52.33849 | 3.55686 | 0.1475333 | 3.9569464 | 39 | 6 | 2001–2009 | 0.29 | M-v | 0 | MPC | 166197 | 2005 $EL_{272}$ |
| 2005 $ER_{275}$ | 15.8 | 0.15 | 20100104 | 291.83656 | 345.53424 | 209.82951 | 4.21597 | 0.1305236 | 3.1964355 | 46 | 6 | 1999–2009 | 0.41 | M-v | 0 | MPC | 148972 | 2005 $ER_{275}$ |
| 2005 $ER_{283}$ | 15.2 | 0.15 | 20100104 | 301.79543 | 138.15147 | 41.77698 | 13.28923 | 0.0987621 | 3.1567086 | 57 | 4 | 2002–2009 | 0.46 | M-v | 2 | MPC | 148972 | 2005 $ER_{283}$ |
| 2005 $EW_{286}$ | 15.1 | 0.15 | 20100104 | 235.05767 | 310.81143 | 289.16228 | 10.08136 | 0.1520249 | 3.2062941 | 52 | 5 | 2004–2009 | 0.57 | M-v | 0 | MPC | 158849 | 2005 $EW_{286}$ |
| 2005 $EE_{287}$ | 16.0 | 0.15 | 20100104 | 347.51563 | 39.04498 | 158.15446 | 9.50797 | 0.0860107 | 2.7612038 | 43 | 5 | 2001–2009 | 0.46 | M-v | 1 | MPC | 126739 | 2005 $EE_{287}$ |
| 2005 $EF_{296}$ | 15.8 | 0.15 | 20100104 | 54.65962 | 299.50923 | 144.62519 | 6.55972 | 0.0399746 | 2.8883953 | 43 | 6 | 2003–2009 | 0.27 | M-v | 0 | MPC | 148973 | 2005 $EF_{296}$ |
| 2005 $EK_{297}$ | 16.5 | 0.15 | 20100104 | 8.55387 | 49.19411 | 25.64599 | 0.85413 | 0.1556330 | 3.1685544 | 32 | 4 | 2003–2009 | 0.30 | M-v | 1 | MPC | 166197 | 2005 $EK_{297}$ |
| 2005 $EQ_{327}$ | 15.4 | 0.15 | 20100104 | 278.29596 | 107.68957 | 126.22531 | 13.96297 | 0.1727814 | 3.0868941 | 35 | 4 | 2000–2009 | 0.47 | M-v | 1 | MPC | 146294 | 2005 $EQ_{327}$ |
| 2005 $EP_{330}$ | 15.4 | 0.15 | 20050331 | 339.68645 | 220.64293 | 20.55704 | 14.40273 | 0.2395954 | 3.1717652 | 15 | 1 | 56 days | 0.45 | | | MPC | | 2005 $EP_{330}$ |
| 2005 $FC_3$ | 19.1 | 0.15 | 20100104 | 229.34466 | 87.69846 | 158.49865 | 9.87581 | 0.5869777 | 1.9753638 | 207 | 3 | 2005–2008 | 0.37 | M-v | 1 | MPC | 131910 | 2005 $FC_3$ |
| 2005 $FF_4$ | 15.3 | 0.15 | 20100104 | 24.92940 | 127.85943 | 330.39621 | 9.37114 | 0.0485290 | 3.1820375 | 44 | 7 | 1993–2009 | 0.47 | M-v | 0 | MPC | 155167 | 2005 $FF_4$ |
| 2005 $FA_6$ | 15.0 | 0.15 | 20100104 | 327.34557 | 239.54048 | 284.22655 | 15.15406 | 0.2003167 | 3.1380769 | 55 | 6 | 1999–2009 | 0.37 | M-v | 0 | MPC | 162418 | 2005 $FA_6$ |
| 2005 $FV_6$ | 15.4 | 0.15 | 20100104 | 354.72157 | 49.86517 | 75.29325 | 10.09782 | 0.2737395 | 3.0944488 | 69 | 5 | 1998–2009 | 0.57 | M-v | 0 | MPC | 166197 | 2005 $FV_6$ |
| 2005 $FN_{14}$ | 16.0 | 0.15 | 20050331 | 35.38712 | 97.51842 | 20.73188 | 13.23301 | 0.3604718 | 3.2386239 | 12 | 1 | 49 days | 0.45 | | | MPC | | 2005 $FN_{14}$ |
| 2005 $GE_1$ | 16.0 | 0.15 | 20100104 | 309.26430 | 114.28305 | 67.06709 | 12.36727 | 0.2172270 | 3.2203795 | 41 | 5 | 2002–2009 | 0.45 | M-v | 0 | MPC | 147348 | 2005 $GE_1$ |
| 2005 $GY_1$ | 14.9 | 0.15 | 20100104 | 329.06323 | 114.06159 | 30.02091 | 27.37383 | 0.1435881 | 3.1532293 | 72 | 5 | 1997–2009 | 0.55 | M-v | 1 | MPC | 151014 | 2005 $GY_1$ |
| 2005 $GG_2$ | 14.8 | 0.15 | 20100104 | 319.29562 | 97.18347 | 62.88554 | 14.17939 | 0.1978251 | 3.1406113 | 67 | 5 | 2000–2009 | 0.62 | M-v | 1 | MPC | 166197 | 2005 $GG_2$ |
| 2005 $GC_6$ | 14.9 | 0.15 | 20100104 | 249.42484 | 104.75766 | 65.54440 | 7.23064 | 0.1098010 | 3.9335559 | 33 | 3 | 2004–2009 | 0.34 | M-v | 2 | MPC | 166197 | 2005 $GC_6$ |
| 2005 $GY_8$ | 21.9 | 0.15 | 20100104 | 197.20488 | 103.24437 | 179.93243 | 2.82586 | 0.6721199 | 2.0487736 | 109 | 2 | 2005–2008 | 0.37 | M-v | 3 | MPC | 137370 | 2005 $GY_8$ |
| 2005 $GZ_9$ | 17.1 | 0.15 | 20100104 | 356.60691 | 199.03488 | 273.27871 | 16.75046 | 0.0897957 | 1.8896380 | 48 | 3 | 2005–2009 | 0.51 | M-v | 2 | MPC | 166197 | 2005 $GZ_9$ |
| 2005 $GW_{14}$ | 15.6 | 0.15 | 20100104 | 355.98347 | 322.62600 | 182.05575 | 10.26332 | 0.0349680 | 3.0691646 | 56 | 6 | 2002–2009 | 0.29 | M-v | 0 | MPC | 148973 | 2005 $GW_{14}$ |
| 2005 $GC_{19}$ | 15.5 | 0.15 | 20100104 | 318.91819 | 200.86322 | 353.39844 | 3.95972 | 0.1603396 | 3.0659980 | 41 | 4 | 2005–2009 | 0.53 | M-v | 1 | MPC | 148973 | 2005 $GC_{19}$ |
| 2005 $GK_{22}$ | 15.3 | 0.15 | 20100104 | 51.05464 | 346.04007 | 119.85875 | 10.71364 | 0.0737623 | 3.0319818 | 41 | 5 | 2002–2009 | 0.58 | M-v | 1 | MPC | 162418 | 2005 $GK_{22}$ |
| 2005 $GB_{23}$ | 15.5 | 0.15 | 20100104 | 55.36294 | 299.93162 | 156.34692 | 10.97705 | 0.0839769 | 3.0175467 | 40 | 6 | 2000–2009 | 0.46 | M-v | 0 | MPC | 148973 | 2005 $GB_{23}$ |
| 2005 $GW_{23}$ | 15.5 | 0.15 | 20100104 | 26.28221 | 88.99745 | 330.37646 | 22.27948 | 0.1604774 | 3.1007913 | 45 | 4 | 2003–2009 | 0.44 | M-v | 0 | MPC | 166197 | 2005 $GW_{23}$ |
| 2005 $GZ_{29}$ | 15.4 | 0.15 | 20100104 | 305.14545 | 87.37765 | 99.50288 | 5.99386 | 0.1136398 | 3.2124522 | 49 | 6 | 1996–2009 | 0.58 | M-v | 1 | MPC | 166197 | 2005 $GZ_{29}$ |
| 2005 $GM_{31}$ | 15.5 | 0.15 | 20100104 | 315.43232 | 69.71475 | 132.34288 | 6.51204 | 0.1436155 | 3.0527593 | 56 | 8 | 1999–2009 | 0.50 | M-v | 0 | MPC | 151014 | 2005 $GM_{31}$ |
| 2005 $GX_{31}$ | 17.2 | 0.15 | 20100104 | 358.35115 | 267.63394 | 190.75421 | 21.80838 | 0.0964755 | 1.9293454 | 70 | 4 | 2005–2009 | 0.55 | M-v | 1 | MPC | 157417 | 2005 $GX_{31}$ |
| 2005 $GH_{36}$ | 15.1 | 0.15 | 20100104 | 3.33158 | 57.95655 | 47.26999 | 16.98854 | 0.1084770 | 3.2047648 | 42 | 5 | 1991–2009 | 0.70 | M-v | 1 | MPC | 155168 | 2005 $GH_{36}$ |
| 2005 $GH_{47}$ | 15.7 | 0.15 | 20100104 | 281.27628 | 206.17996 | 5.96834 | 4.84122 | 0.1264035 | 3.2118384 | 55 | 7 | 1996–2009 | 0.36 | M-v | 0 | MPC | 148974 | 2005 $GH_{47}$ |
| 2005 $GQ_{50}$ | 17.2 | 0.15 | 20100104 | 113.89350 | 216.84901 | 84.29068 | 2.00152 | 0.2110632 | 2.1547183 | 87 | 5 | 1999–2009 | 0.41 | M-v | 1 | MPC | 166197 | 2005 $GQ_{50}$ |
| 2005 $GD_{51}$ | 15.3 | 0.15 | 20100104 | 343.13115 | 201.67299 | 319.22172 | 13.06119 | 0.1842676 | 3.0627730 | 38 | 3 | 2003–2009 | 0.38 | M-v | 2 | MPC | 166197 | 2005 $GD_{51}$ |
| 2005 $GY_{69}$ | 15.7 | 0.15 | 20100104 | 239.35720 | 274.87413 | 339.40741 | 5.15826 | 0.1082670 | 3.1141063 | 51 | 4 | 1996–2009 | 0.25 | M-v | 3 | MPC | 149964 | 2005 $GY_{69}$ |
| 2005 $GC_{74}$ | 15.9 | 0.15 | 20100104 | 5.32466 | 161.13696 | 85.87317 | 14.57959 | 0.1130317 | 2.6539351 | 46 | 3 | 2005–2009 | 0.50 | M-v | 3 | MPC | 156980 | 2005 $GC_{74}$ |
| 2005 $GS_{78}$ | 15.0 | 0.15 | 20100104 | 333.11860 | 104.60983 | 65.69422 | 21.14289 | 0.2817911 | 3.0959705 | 90 | 4 | 1998–2009 | 0.56 | M-v | 1 | MPC | 162418 | 2005 $GS_{78}$ |
| 2005 $GE_{79}$ | 17.2 | 0.15 | 20100104 | 17.79310 | 67.10566 | 196.78953 | 5.35750 | 0.1741119 | 2.5413988 | 99 | 4 | 2001–2009 | 0.28 | M-v | 2 | MPC | 157417 | 2005 $GE_{79}$ |
| 2005 $GT_{79}$ | 15.5 | 0.15 | 20100104 | 296.96260 | 135.68413 | 114.85317 | 15.16028 | 0.1042479 | 2.9819815 | 61 | 8 | 2000–2009 | 0.45 | M-v | 0 | MPC | 152435 | 2005 $GT_{79}$ |
| 2005 $GE_{82}$ | 15.9 | 0.15 | 20100104 | 246.89048 | 132.46896 | 159.06705 | 11.36293 | 0.1037610 | 2.8032724 | 31 | 3 | 2002–2007 | 0.34 | M-v | 3 | MPC | 161917 | 2005 $GE_{82}$ |
| 2005 $GA_{88}$ | 15.7 | 0.15 | 20100104 | 354.61498 | 169.70314 | 359.97644 | 8.83237 | 0.1086733 | 2.9937834 | 32 | 4 | 2002–2009 | 0.43 | M-v | 1 | MPC | 158497 | 2005 $GA_{88}$ |
| 2005 $GH_{103}$ | 15.0 | 0.15 | 20100104 | 340.84620 | 121.33248 | 21.10170 | 32.55256 | 0.1691706 | 3.1951078 | 54 | 5 | 2002–2009 | 0.62 | M-v | 1 | MPC | 148975 | 2005 $GH_{103}$ |
| 2005 $GP_{112}$ | 15.7 | 0.15 | 20100104 | 318.70712 | 234.48304 | 333.62935 | 4.73175 | 0.0679765 | 3.0533965 | 48 | 8 | 1994–2009 | 0.38 | M-v | 0 | MPC | 151015 | 2005 $GP_{112}$ |
| 2005 $GS_{124}$ | 15.0 | 0.15 | 20100104 | 330.19876 | 116.48919 | 50.36597 | 27.73205 | 0.1753418 | 3.1068258 | 67 | 3 | 2005–2009 | 0.45 | M-v | 2 | MPC | 151015 | 2005 $GS_{124}$ |
| 2005 $GJ_{128}$ | 15.2 | 0.15 | 20100104 | 314.79153 | 48.16047 | 130.54899 | 6.00024 | 0.1168732 | 3.1626829 | 46 | 6 | 2001–2009 | 0.54 | M-v | 1 | MPC | 158851 | 2005 $GJ_{128}$ |
| 2005 $GP_{128}$ | 18.5 | 0.15 | 20100104 | 358.62281 | 116.50066 | 166.90589 | 5.28937 | 0.5746245 | 2.7064827 | 91 | 1 | 242 days | 0.52 | M-v | 4 | MPC | 90213 | 2005 $GP_{128}$ |
| 2005 $GU_{128}$ | 16.6 | 0.15 | 20100104 | 308.20821 | 73.44057 | 83.45380 | 24.21182 | 0.0764755 | 1.9416636 | 37 | 3 | 2001–2009 | 0.55 | M-v | 2 | MPC | 77140 | 2005 $GU_{128}$ |
| 2005 $GT_{134}$ | 18.0 | 0.15 | 20100104 | 85.04172 | 346.94939 | 245.75064 | 0.49816 | 0.1430098 | 2.3897034 | 45 | 8 | 1995–2009 | 0.35 | M-v | 1 | MPC | 160825 | 2005 $GT_{134}$ |
| 2005 $GM_{141}$ | 15.6 | 0.15 | 20100104 | 323.50398 | 153.89563 | 53.74428 | 6.35291 | 0.0829668 | 3.0340333 | 43 | 6 | 1998–2009 | 0.42 | M-v | 0 | MPC | 152436 | 2005 $GM_{141}$ |
| 2005 $GX_{141}$ | 14.6 | 0.15 | 20100104 | 343.51565 | 90.03227 | 70.29132 | 23.67577 | 0.1759828 | 3.1922452 | 74 | 6 | 1999–2009 | 0.62 | M-v | 1 | MPC | 148975 | 2005 $GX_{141}$ |
| 2005 $GO_{149}$ | 15.6 | 0.15 | 20100104 | 277.36313 | 84.03795 | 187.03472 | 9.19721 | 0.1636796 | 3.0755464 | 56 | 5 | 2001–2009 | 0.48 | M-v | 0 | MPC | 160825 | 2005 $GO_{149}$ |

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| 2005 $GH_{161}$ | 15.8 | 0.15 | 20100104 | 355.51458 | 36.19755 | 129.40764 | 7.84472 | 0.1319411 | 3.0073148 | 34 | 5 | 2002–2009 | 0.46 | M-v | 1 | MPC | 156016 | 2005 $GH_{161}$ |
| 2005 $GJ_{166}$ | 15.9 | 0.15 | 20100104 | 344.13363 | 61.83848 | 104.00148 | 1.87820 | 0.2053199 | 3.0780774 | 39 | 4 | 1998–2009 | 0.44 | M-v | 1 | MPC | 156983 | 2005 $GJ_{166}$ |
| 2005 $GW_{171}$ | 15.2 | 0.15 | 20100104 | 331.74423 | 9.85265 | 184.80576 | 8.16267 | 0.0227586 | 3.0861363 | 45 | 8 | 2001–2009 | 0.45 | M-v | 0 | MPC | 156017 | 2005 $GW_{171}$ |
| 2005 $GW_{179}$ | 15.0 | 0.15 | 20100104 | 346.80457 | 46.63162 | 115.28271 | 28.18624 | 0.1875785 | 3.1594394 | 44 | 4 | 1999–2009 | 0.65 | M-v | 1 | MPC | 160825 | 2005 $GW_{179}$ |
| 2005 $GE_{195}$ | 16.2 | 0.15 | 20100104 | 345.14026 | 8.64770 | 113.31427 | 0.87506 | 0.1563588 | 3.1248545 | 43 | 3 | 2005–2009 | 0.34 | M-v | 2 | MPC | 156984 | 2005 $GE_{195}$ |
| 2005 $GN_{220}$ | 15.0 | 0.15 | 20100104 | 248.44717 | 284.45806 | 353.96137 | 15.83125 | 0.0740158 | 3.0428679 | 47 | 7 | 2001–2009 | 0.49 | M-v | 0 | MPC | 156985 | 2005 $GN_{220}$ |
| 2005 $GP_{227}$ | 15.7 | 0.15 | 20050420 | 37.17121 | 40.19564 | 136.01563 | 11.30601 | 0.1679924 | 3.1223993 | 14 | 1 | 30 days | 0.87 | | | MPC | | 2005 $GP_{227}$ |
| 2005 HZ | 18.3 | 0.15 | 20100104 | 110.43788 | 59.81614 | 174.06609 | 0.87162 | 0.1723808 | 2.3005302 | 31 | 3 | 2002–2008 | 0.33 | M-v | 2 | MPC | 89657 | 2005 HZ |
| 2005 $HB_4$ | 24.4 | 0.15 | 20100104 | 337.31980 | 153.17722 | 83.85925 | 2.52709 | 0.2280376 | 1.3548305 | 69 | 1 | 49 days | 0.61 | M-v | 5 | MPC | 77877 | 2005 $HB_4$ |
| 2005 $JF_{21}$ | 17.1 | 0.15 | 20100104 | 106.41894 | 205.99463 | 132.34763 | 10.86686 | 0.5356721 | 2.2242941 | 273 | 5 | 2002–2009 | 0.44 | M-v | 1 | MPC | 138040 | 2005 $JF_{21}$ |
| 2005 $JK_{25}$ | 16.0 | 0.15 | 20100104 | 192.97744 | 210.08042 | 219.82163 | 11.82871 | 0.2612569 | 2.5580556 | 32 | 3 | 2005–2009 | 0.37 | M-v | 3 | MPC | 160404 | 2005 $JK_{25}$ |
| 2005 $JE_{46}$ | 17.7 | 0.15 | 20100104 | 223.89556 | 114.50243 | 238.56521 | 8.26016 | 0.5525813 | 1.9040215 | 684 | 3 | 1984–2008 | 0.42 | M-v | 0 | MPC | 148976 | 2005 $JE_{46}$ |
| 2005 $JL_{52}$ | 15.3 | 0.15 | 20100104 | 263.90304 | 183.57536 | 99.40347 | 9.54935 | 0.0527707 | 3.0639300 | 51 | 6 | 2004–2009 | 0.31 | M-v | 0 | MPC | 152438 | 2005 $JL_{52}$ |
| 2005 $JS_{68}$ | 14.8 | 0.15 | 20100104 | 2.00507 | 13.56642 | 122.18933 | 12.28124 | 0.2158555 | 3.1641574 | 35 | 4 | 2003–2009 | 0.50 | M-v | 1 | MPC | 147350 | 2005 $JS_{68}$ |
| 2005 $JP_{74}$ | 17.3 | 0.15 | 20100104 | 31.49148 | 41.34326 | 210.74287 | 5.17592 | 0.0648396 | 2.5545187 | 34 | 4 | 2001–2009 | 0.31 | M-v | 2 | MPC | 159457 | 2005 $JP_{74}$ |
| 2005 $JT_{99}$ | 15.4 | 0.15 | 20100104 | 84.49771 | 309.81040 | 128.59383 | 9.66742 | 0.0102214 | 3.2461761 | 34 | 5 | 1998–2009 | 0.50 | M-v | 1 | MPC | 131408 | 2005 $JT_{99}$ |
| 2005 $JS_{112}$ | 13.0 | 0.15 | 20100104 | 274.97883 | 264.78595 | 206.33996 | 27.21719 | 0.0940314 | 5.1999267 | 30 | 5 | 2003–2009 | 0.39 | M-v | 1 | MPC | 162419 | 2005 $JS_{112}$ |
| 2005 $JK_{130}$ | 17.4 | 0.15 | 20100104 | 62.82852 | 212.20546 | 76.08131 | 3.85019 | 0.1821595 | 2.3360300 | 59 | 6 | 1995–2009 | 0.50 | M-v | 0 | MPC | 159751 | 2005 $JK_{130}$ |
| 2005 $JB_{177}$ | 18.0 | 0.15 | 20100104 | 124.32895 | 214.07442 | 14.15323 | 1.34909 | 0.1437418 | 2.3130708 | 42 | 6 | 2001–2009 | 0.35 | M-v | 0 | MPC | 135906 | 2005 $JB_{177}$ |
| 2005 $JZ_{183}$ | 14.7 | 0.15 | 20100104 | 239.53897 | 109.38354 | 94.04368 | 6.64732 | 0.0828314 | 3.9398860 | 40 | 5 | 1995–2009 | 0.32 | M-v | 0 | MPC | 166198 | 2005 $JZ_{183}$ |
| 2005 $KF_6$ | 17.4 | 0.15 | 20100104 | 118.69141 | 247.66581 | 49.84128 | 5.85949 | 0.1271782 | 2.1563039 | 64 | 3 | 2005–2009 | 0.38 | M-v | 2 | MPC | 166198 | 2005 $KF_6$ |
| 2005 $KP_{13}$ | 17.2 | 0.15 | 20100104 | 125.50405 | 40.60341 | 270.96957 | 5.02533 | 0.0972121 | 2.2227257 | 38 | 3 | 2005–2009 | 0.25 | M-v | 2 | MPC | 166198 | 2005 $KP_{13}$ |
| 2005 LS | 15.8 | 0.15 | 20100104 | 326.91107 | 86.93824 | 192.17293 | 24.61284 | 0.1293034 | 2.7956909 | 58 | 4 | 2000–2009 | 0.54 | M-v | 0 | MPC | 156022 | 2005 LS |
| 2005 LW | 18.9 | 0.15 | 20100104 | 243.45094 | 354.66071 | 138.18484 | 3.13092 | 0.6406009 | 1.4677054 | 149 | 4 | 2004–2009 | 0.45 | M-v | 2 | MPC | 160826 | 2005 LW |
| 2005 $LC_8$ | 16.8 | 0.15 | 20100104 | 72.45605 | 270.89993 | 47.56945 | 5.93457 | 0.2485652 | 2.3489510 | 77 | 5 | 1991–2009 | 0.62 | M-v | 1 | MPC | 166198 | 2005 $LC_8$ |
| 2005 $LH_{23}$ | 16.9 | 0.15 | 20100104 | 62.80716 | 219.66294 | 94.96022 | 5.82836 | 0.2693438 | 2.3929014 | 61 | 3 | 2005–2009 | 0.44 | M-v | 2 | MPC | 166198 | 2005 $LH_{23}$ |
| 2005 $LE_{40}$ | 18.3 | 0.15 | 20100104 | 125.22913 | 198.07392 | 116.68667 | 4.02345 | 0.1753034 | 2.1965063 | 52 | 4 | 2002–2009 | 0.28 | M-v | 1 | MPC | 140134 | 2005 $LE_{40}$ |
| 2005 $LU_{47}$ | 17.6 | 0.15 | 20100104 | 46.56333 | 121.91584 | 241.23369 | 1.42378 | 0.2443833 | 2.3334782 | 77 | 5 | 1991–2009 | 0.45 | M-v | 0 | MPC | 166198 | 2005 $LU_{47}$ |
| 2005 $LM_{48}$ | 18.2 | 0.15 | 20100104 | 74.39913 | 55.69942 | 280.37329 | 5.98639 | 0.3083500 | 2.3246692 | 42 | 3 | 1998–2009 | 0.68 | M-v | 2 | MPC | 166198 | 2005 $LM_{48}$ |
| 2005 $LZ_{51}$ | 17.8 | 0.15 | 20100104 | 88.45842 | 47.38020 | 278.35596 | 3.76607 | 0.2727144 | 2.2945572 | 62 | 4 | 2002–2009 | 0.48 | M-v | 1 | MPC | 166198 | 2005 $LZ_{51}$ |
| 2005 MC | 16.5 | 0.15 | 20100104 | 14.14716 | 124.98923 | 287.42714 | 27.26884 | 0.5926105 | 2.6165134 | 263 | 3 | 2005–2009 | 0.36 | M-v | 0 | MPC | 166199 | 2005 MC |
| 2005 $MR_4$ | 17.5 | 0.15 | 20100104 | 85.06019 | 33.81104 | 287.12745 | 5.33868 | 0.2413813 | 2.3067422 | 43 | 2 | 2005–2009 | 0.31 | M-v | 3 | MPC | 165424 | 2005 $MR_4$ |
| 2005 $MX_5$ | 17.3 | 0.15 | 20100104 | 89.66044 | 219.31996 | 133.51045 | 5.00474 | 0.2158193 | 2.2352809 | 61 | 5 | 2002–2009 | 0.37 | M-v | 1 | MPC | 116292 | 2005 $MX_5$ |
| 2005 $MR_{15}$ | 15.7 | 0.15 | 20100104 | 79.65345 | 70.01294 | 250.11677 | 21.75519 | 0.2230446 | 2.3607025 | 62 | 3 | 2005–2009 | 0.53 | M-v | 2 | MPC | 166199 | 2005 $MR_{15}$ |
| 2005 $MO_{18}$ | 17.9 | 0.15 | 20100104 | 65.99885 | 94.46317 | 258.43862 | 1.12119 | 0.2574047 | 2.3132428 | 37 | 3 | 2002–2009 | 0.35 | M-v | 1 | MPC | 165424 | 2005 $MO_{18}$ |
| 2005 $MU_{18}$ | 17.6 | 0.15 | 20100104 | 158.19245 | 358.42269 | 253.90687 | 2.62684 | 0.1732404 | 2.2393835 | 49 | 5 | 1998–2009 | 0.42 | M-v | 1 | MPC | 166199 | 2005 $MU_{18}$ |
| 2005 $MG_{20}$ | 17.0 | 0.15 | 20100104 | 90.66214 | 208.53459 | 118.10122 | 3.48862 | 0.1904745 | 2.2889882 | 76 | 4 | 2005–2009 | 0.36 | M-v | 1 | MPC | 162421 | 2005 $MG_{20}$ |
| 2005 $MA_{21}$ | 17.0 | 0.15 | 20100104 | 102.02990 | 100.38663 | 219.95019 | 7.34808 | 0.2315841 | 2.2703860 | 55 | 3 | 2005–2009 | 0.37 | M-v | 2 | MPC | 140134 | 2005 $MA_{21}$ |
| 2005 $ME_{22}$ | 15.8 | 0.15 | 20100104 | 262.33081 | 219.73799 | 125.78517 | 11.77832 | 0.0986585 | 3.1107696 | 67 | 5 | 1997–2009 | 0.35 | M-v | 0 | MPC | 157423 | 2005 $ME_{22}$ |
| 2005 $MG_{24}$ | 13.1 | 0.15 | 20100104 | 345.36656 | 171.99308 | 236.48861 | 30.75151 | 0.0762533 | 5.1912850 | 32 | 3 | 1998–2009 | 0.57 | M-v | 2 | MPC | 162421 | 2005 $MG_{24}$ |
| 2005 $MP_{24}$ | 17.4 | 0.15 | 20100104 | 88.63197 | 246.80904 | 69.06241 | 5.49936 | 0.2426690 | 2.3189721 | 48 | 5 | 1991–2009 | 0.43 | M-v | 1 | MPC | 166199 | 2005 $MP_{24}$ |
| 2005 $MM_{30}$ | 17.4 | 0.15 | 20100104 | 47.73163 | 153.06100 | 220.33041 | 4.42207 | 0.2470774 | 2.3325045 | 52 | 3 | 2005–2009 | 0.41 | M-v | 2 | MPC | 166199 | 2005 $MM_{30}$ |
| 2005 $MK_{31}$ | 17.9 | 0.15 | 20100104 | 89.43334 | 53.21200 | 281.67149 | 2.48175 | 0.1945950 | 2.2615690 | 38 | 4 | 2000–2009 | 0.35 | M-v | 1 | MPC | 166199 | 2005 $MK_{31}$ |
| 2005 $MR_{35}$ | 17.2 | 0.15 | 20100104 | 42.28913 | 257.81875 | 114.11500 | 4.40560 | 0.2323830 | 2.3462180 | 78 | 5 | 1998–2009 | 0.48 | M-v | 1 | MPC | 166199 | 2005 $MR_{35}$ |
| 2005 $MB_{40}$ | 17.7 | 0.15 | 20100104 | 138.86757 | 43.50333 | 258.25293 | 6.77336 | 0.1698959 | 2.1763561 | 26 | 3 | 2002–2009 | 0.41 | M-v | 2 | MPC | 86849 | 2005 $MB_{40}$ |
| 2005 $MW_{42}$ | 17.1 | 0.15 | 20100104 | 72.99585 | 198.84690 | 134.33883 | 3.01153 | 0.2210353 | 2.3403401 | 74 | 3 | 2005–2009 | 0.40 | M-v | 2 | MPC | 166199 | 2005 $MW_{42}$ |
| 2005 $MD_{43}$ | 17.1 | 0.15 | 20100104 | 49.33093 | 63.96531 | 303.77731 | 6.14206 | 0.1359332 | 2.3176740 | 60 | 3 | 2005–2009 | 0.36 | M-v | 2 | MPC | 166199 | 2005 $MD_{43}$ |
| 2005 $MC_{48}$ | 17.7 | 0.15 | 20100104 | 46.63231 | 181.73850 | 168.29478 | 6.67274 | 0.1548945 | 2.3707085 | 44 | 3 | 1998–2009 | 0.26 | M-v | 1 | MPC | 164243 | 2005 $MC_{48}$ |
| 2005 $MU_{50}$ | 17.7 | 0.15 | 20100104 | 239.62629 | 246.58295 | 313.13202 | 3.37455 | 0.0705917 | 2.1810060 | 34 | 3 | 2004–2009 | 0.32 | M-v | 3 | MPC | 166199 | 2005 $MU_{50}$ |
| 2005 $MQ_{53}$ | 17.8 | 0.15 | 20100104 | 69.55122 | 251.80587 | 130.21659 | 1.44550 | 0.2243706 | 2.2612822 | 43 | 5 | 1992–2009 | 0.40 | M-v | 1 | MPC | 166199 | 2005 $MQ_{53}$ |
| 2005 $MQ_{54}$ | 17.8 | 0.15 | 20100104 | 80.50770 | 200.81791 | 138.48356 | 3.05414 | 0.2048147 | 2.3020595 | 46 | 5 | 2000–2009 | 0.32 | M-v | 1 | MPC | 166199 | 2005 $MQ_{54}$ |
| 2005 $MR_{54}$ | 17.6 | 0.15 | 20100104 | 144.39930 | 338.87095 | 310.15796 | 1.04274 | 0.1549903 | 2.2172935 | 41 | 5 | 2004–2009 | 0.40 | M-v | 1 | MPC | 166199 | 2005 $MR_{54}$ |
| 2005 NA | 16.9 | 0.15 | 20100104 | 75.71373 | 24.45194 | 305.45817 | 1.37601 | 0.2299913 | 2.3677822 | 133 | 5 | 2004–2009 | 0.48 | M-v | 1 | MPC | 166199 | 2005 NA |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 $NU_{1}$ | 17.7 | 0.15 | 20100104 | 65.30648 | 108.20142 | 239.20015 | 3.99979 | 0.2548986 | 2.3328607 | 39 | 2 | 2005–2009 | 0.26 | M-v | 3 | MPC | 165425 | 2005 $NU_{1}$ |
| 2005 $NY_{3}$ | 17.6 | 0.15 | 20100104 | 73.01865 | 197.00924 | 147.65509 | 2.91989 | 0.2240313 | 2.3061910 | 51 | 7 | 2000–2009 | 0.34 | M-v | 1 | MPC | 140135 | 2005 $NY_{3}$ |
| 2005 $NR_{4}$ | 17.6 | 0.15 | 20100104 | 33.43806 | 123.78290 | 244.26425 | 0.36836 | 0.1918592 | 2.3689717 | 63 | 3 | 2005–2009 | 0.41 | M-v | 2 | MPC | 166200 | 2005 $NR_{4}$ |
| 2005 $NV_{4}$ | 17.4 | 0.15 | 20100104 | 3.99212 | 169.63614 | 122.19479 | 3.72553 | 0.3009549 | 2.7157293 | 43 | 3 | 2005–2009 | 0.38 | M-v | 2 | MPC | 156999 | 2005 $NV_{4}$ |
| 2005 $NV_{7}$ | 17.0 | 0.15 | 20100104 | 66.95725 | 46.10356 | 264.13366 | 4.40561 | 0.2491825 | 2.4102990 | 63 | 3 | 2005–2009 | 0.45 | M-v | 2 | MPC | 164243 | 2005 $NV_{7}$ |
| 2005 $NH_{8}$ | 17.7 | 0.15 | 20100104 | 147.67397 | 40.86792 | 235.28860 | 2.71732 | 0.0918661 | 2.2342263 | 62 | 5 | 1999–2009 | 0.39 | M-v | 1 | MPC | 166200 | 2005 $NH_{8}$ |
| 2005 $NP_{10}$ | 17.4 | 0.15 | 20100104 | 56.53284 | 85.32618 | 279.74437 | 3.05994 | 0.2169366 | 2.2914040 | 45 | 4 | 2002–2009 | 0.51 | M-v | 1 | MPC | 166200 | 2005 $NP_{10}$ |
| 2005 $NA_{15}$ | 17.5 | 0.15 | 20100104 | 94.93139 | 26.70747 | 314.22152 | 3.18695 | 0.1945515 | 2.2441762 | 42 | 4 | 2002–2009 | 0.36 | M-v | 1 | MPC | 115825 | 2005 $NA_{15}$ |
| 2005 $NW_{16}$ | 18.0 | 0.15 | 20100104 | 87.73638 | 159.98218 | 174.48182 | 1.64780 | 0.1534758 | 2.2712501 | 30 | 4 | 2002–2009 | 0.39 | M-v | 1 | MPC | 166200 | 2005 $NW_{16}$ |
| 2005 $NR_{19}$ | 17.6 | 0.15 | 20100104 | 34.98634 | 244.01508 | 148.14473 | 3.71797 | 0.1281705 | 2.2764693 | 37 | 4 | 1995–2009 | 0.37 | M-v | 1 | MPC | 166200 | 2005 $NR_{19}$ |
| 2005 $NA_{21}$ | 16.5 | 0.15 | 20100104 | 42.34828 | 286.24807 | 75.29956 | 7.17710 | 0.2461949 | 2.3598766 | 104 | 5 | 1998–2009 | 0.49 | M-v | 1 | MPC | 166200 | 2005 $NA_{21}$ |
| 2005 $NX_{28}$ | 18.0 | 0.15 | 20100104 | 65.35234 | 190.02157 | 171.22352 | 4.32959 | 0.1980119 | 2.2955440 | 41 | 5 | 2004–2009 | 0.41 | M-v | 1 | MPC | 140135 | 2005 $NX_{28}$ |
| 2005 $NA_{29}$ | 18.0 | 0.15 | 20100104 | 106.31071 | 100.38814 | 219.10779 | 1.90333 | 0.1554994 | 2.2529913 | 31 | 3 | 2005–2009 | 0.32 | M-v | 3 | MPC | 138880 | 2005 $NA_{29}$ |
| 2005 $NF_{30}$ | 18.0 | 0.15 | 20100104 | 55.51969 | 38.57082 | 316.73579 | 1.62260 | 0.2307930 | 2.3346188 | 37 | 2 | 2005–2009 | 0.31 | M-v | 3 | MPC | 165425 | 2005 $NF_{30}$ |
| 2005 $NC_{33}$ | 17.6 | 0.15 | 20100104 | 7.80990 | 86.02524 | 298.43826 | 1.45769 | 0.1789613 | 2.4082347 | 46 | 3 | 2005–2009 | 0.35 | M-v | 2 | MPC | 163710 | 2005 $NC_{33}$ |
| 2005 $NC_{36}$ | 17.9 | 0.15 | 20100104 | 243.65018 | 358.62283 | 208.74792 | 0.98899 | 0.0993202 | 2.1419281 | 53 | 6 | 1999–2009 | 0.29 | M-v | 0 | MPC | 166200 | 2005 $NC_{36}$ |
| 2005 $NX_{36}$ | 17.0 | 0.15 | 20100104 | 96.92086 | 181.23882 | 146.74479 | 5.68808 | 0.2072300 | 2.2638638 | 85 | 3 | 2005–2009 | 0.35 | M-v | 1 | MPC | 151018 | 2005 $NX_{36}$ |
| 2005 $NY_{36}$ | 16.9 | 0.15 | 20100104 | 306.58183 | 191.09658 | 273.28924 | 6.00125 | 0.0619992 | 2.3013706 | 65 | 5 | 2000–2009 | 0.35 | M-v | 1 | MPC | 164244 | 2005 $NY_{36}$ |
| 2005 $NJ_{42}$ | 17.3 | 0.15 | 20100104 | 30.31725 | 262.35238 | 138.15286 | 7.33439 | 0.1566006 | 2.2669291 | 34 | 6 | 2002–2009 | 0.46 | M-v | 1 | MPC | 140135 | 2005 $NJ_{42}$ |
| 2005 $NW_{49}$ | 17.0 | 0.15 | 20100104 | 128.09356 | 14.28736 | 308.24524 | 5.88814 | 0.1702547 | 2.1921949 | 75 | 4 | 2002–2009 | 0.35 | M-v | 1 | MPC | 118113 | 2005 $NW_{49}$ |
| 2005 $NK_{52}$ | 16.2 | 0.15 | 20100104 | 87.39667 | 223.38756 | 58.88857 | 3.11272 | 0.1699916 | 2.4105686 | 98 | 3 | 2005–2009 | 0.43 | M-v | 2 | MPC | 166200 | 2005 $NK_{52}$ |
| 2005 $NQ_{54}$ | 17.4 | 0.15 | 20100104 | 41.40118 | 251.46209 | 142.06306 | 7.62136 | 0.1123787 | 2.2450294 | 48 | 5 | 2001–2009 | 0.32 | M-v | 0 | MPC | 120815 | 2005 $NQ_{54}$ |
| 2005 $NN_{55}$ | 17.3 | 0.15 | 20100104 | 79.59449 | 255.65697 | 78.62267 | 7.36231 | 0.1641971 | 2.2815224 | 50 | 6 | 2002–2009 | 0.43 | M-v | 0 | MPC | 166200 | 2005 $NN_{55}$ |
| 2005 $NS_{55}$ | 16.9 | 0.15 | 20100104 | 33.63928 | 121.24182 | 227.70753 | 8.49912 | 0.2789179 | 2.4567003 | 76 | 3 | 2005–2009 | 0.55 | M-v | 2 | MPC | 166200 | 2005 $NS_{55}$ |
| 2005 $NR_{57}$ | 17.3 | 0.15 | 20100104 | 69.26425 | 143.45298 | 209.53888 | 5.73664 | 0.2146557 | 2.2986449 | 35 | 3 | 2005–2009 | 0.32 | M-v | 3 | MPC | 140135 | 2005 $NR_{57}$ |
| 2005 $NY_{81}$ | 17.1 | 0.15 | 20100104 | 55.44812 | 40.25886 | 338.41445 | 6.05444 | 0.1069705 | 2.2604702 | 36 | 4 | 2002–2009 | 0.40 | M-v | 1 | MPC | 118113 | 2005 $NY_{81}$ |
| 2005 $NQ_{89}$ | 16.4 | 0.15 | 20100104 | 37.58686 | 26.88019 | 318.09229 | 5.81888 | 0.1458591 | 2.4173231 | 90 | 3 | 2005–2009 | 0.39 | M-v | 2 | MPC | 166200 | 2005 $NQ_{89}$ |
| 2005 $NV_{89}$ | 18.1 | 0.15 | 20100104 | 182.52639 | 69.53928 | 192.29739 | 2.92649 | 0.1316405 | 2.1569967 | 31 | 3 | 2002–2009 | 0.32 | M-v | 3 | MPC | 141185 | 2005 $NV_{89}$ |
| 2005 $NJ_{102}$ | 15.7 | 0.15 | 20100104 | 79.03034 | 57.58628 | 263.55746 | 23.35193 | 0.1709403 | 2.3556008 | 60 | 4 | 2002–2009 | 0.57 | M-v | 1 | MPC | 166201 | 2005 $NJ_{102}$ |
| 2005 $NB_{117}$ | 17.7 | 0.15 | 20100104 | 24.78340 | 106.45454 | 284.11367 | 3.31472 | 0.1498878 | 2.3035116 | 64 | 5 | 2000–2009 | 0.53 | M-v | 1 | MPC | 166201 | 2005 $NB_{117}$ |
| 2005 $NB_{123}$ | 17.0 | 0.15 | 20100104 | 79.62042 | 271.10878 | 21.76692 | 9.57007 | 0.2285888 | 2.3960960 | 58 | 3 | 2005–2009 | 0.42 | M-v | 2 | MPC | 166201 | 2005 $NB_{123}$ |
| 2005 $NC_{123}$ | 16.8 | 0.15 | 20100104 | 76.77296 | 310.10226 | 28.76356 | 9.34244 | 0.2564489 | 2.3108973 | 39 | 4 | 2004–2009 | 0.34 | M-v | 1 | MPC | 139217 | 2005 $NC_{123}$ |
| 2005 $NE_{123}$ | 16.3 | 0.15 | 20100104 | 10.95198 | 352.86527 | 31.77493 | 7.71417 | 0.2227998 | 2.4419877 | 80 | 5 | 1998–2009 | 0.50 | M-v | 1 | MPC | 166201 | 2005 $NE_{123}$ |
| 2005 $NL_{123}$ | 17.4 | 0.15 | 20100104 | 56.45500 | 170.48782 | 184.85847 | 2.43883 | 0.2153942 | 2.3456650 | 59 | 4 | 1998–2009 | 0.48 | M-v | 1 | MPC | 166201 | 2005 $NL_{123}$ |
| 2005 OW | 20.9 | 0.15 | 20100104 | 0.91953 | 62.27440 | 271.76681 | 1.63934 | 0.6017917 | 2.6664904 | 175 | 1 | 151 days | 0.59 | M-v | 3 | MPC | 97787 | 2005 OW |
| 2005 $OU_{1}$ | 20.1 | 0.15 | 20100104 | 349.31997 | 204.75770 | 309.77615 | 12.52313 | 0.3201125 | 0.9759916 | 149 | 4 | 2005–2008 | 0.43 | M-v | 3 | MPC | 147351 | 2005 $OU_{1}$ |
| 2005 $OM_{3}$ | 15.9 | 0.15 | 20100104 | 38.89914 | 22.91918 | 313.59121 | 8.44699 | 0.2305538 | 2.4237258 | 87 | 3 | 2005–2009 | 0.45 | M-v | 2 | MPC | 166201 | 2005 $OM_{3}$ |
| 2005 $OS_{3}$ | 16.6 | 0.15 | 20100104 | 44.26769 | 326.02084 | 46.84519 | 6.36879 | 0.2557778 | 2.3393287 | 77 | 4 | 1998–2009 | 0.53 | M-v | 1 | MPC | 166201 | 2005 $OS_{3}$ |
| 2005 $OS_{4}$ | 17.0 | 0.15 | 20100104 | 105.39067 | 239.60217 | 97.64213 | 6.40734 | 0.2671761 | 2.2389373 | 62 | 3 | 2005–2009 | 0.43 | M-v | 2 | MPC | 140136 | 2005 $OS_{4}$ |
| 2005 $OF_{5}$ | 16.8 | 0.15 | 20100104 | 133.14322 | 145.32677 | 154.58112 | 4.52402 | 0.1786961 | 2.2171190 | 89 | 5 | 2002–2009 | 0.51 | M-v | 1 | MPC | 140136 | 2005 $OF_{5}$ |
| 2005 $OY_{5}$ | 16.5 | 0.15 | 20100104 | 89.24932 | 5.00499 | 325.19821 | 5.96966 | 0.1336778 | 2.3053540 | 67 | 6 | 1998–2009 | 0.41 | M-v | 1 | MPC | 166201 | 2005 $OY_{5}$ |
| 2005 $OE_{6}$ | 18.3 | 0.15 | 20100104 | 87.21636 | 264.98848 | 90.06594 | 3.51398 | 0.1802743 | 2.2627227 | 45 | 5 | 1995–2009 | 0.28 | M-v | 1 | MPC | 116295 | 2005 $OE_{6}$ |
| 2005 $OF_{8}$ | 15.7 | 0.15 | 20100104 | 39.79897 | 131.59987 | 245.41839 | 23.64447 | 0.2458467 | 2.4109595 | 138 | 3 | 2005–2009 | 0.48 | M-v | 2 | MPC | 166201 | 2005 $OF_{8}$ |
| 2005 $OP_{8}$ | 17.8 | 0.15 | 20100104 | 64.12076 | 109.70725 | 222.34280 | 2.13578 | 0.2635605 | 2.3738957 | 50 | 2 | 2005–2009 | 0.35 | M-v | 2 | MPC | 166201 | 2005 $OP_{8}$ |
| 2005 $OH_{10}$ | 17.0 | 0.15 | 20100104 | 31.31121 | 307.98935 | 78.35077 | 3.09351 | 0.1931878 | 2.3679827 | 106 | 3 | 2005–2009 | 0.40 | M-v | 3 | MPC | 166201 | 2005 $OH_{10}$ |
| 2005 $OW_{10}$ | 16.6 | 0.15 | 20100104 | 50.44540 | 317.16036 | 53.61305 | 7.38046 | 0.1437265 | 2.3305456 | 65 | 3 | 2002–2009 | 0.41 | M-v | 2 | MPC | 166201 | 2005 $OW_{10}$ |
| 2005 $OK_{12}$ | 17.0 | 0.15 | 20100104 | 65.58303 | 53.87528 | 335.56171 | 7.58973 | 0.0976127 | 2.2378445 | 68 | 4 | 1995–2009 | 0.37 | M-v | 1 | MPC | 118114 | 2005 $OK_{12}$ |
| 2005 $OT_{12}$ | 17.4 | 0.15 | 20100104 | 29.22028 | 317.03199 | 51.63407 | 2.96018 | 0.2077038 | 2.4494575 | 62 | 3 | 2001–2009 | 0.47 | M-v | 2 | MPC | 166201 | 2005 $OT_{12}$ |
| 2005 $OW_{13}$ | 17.2 | 0.15 | 20100104 | 49.86549 | 192.06596 | 192.72194 | 6.18026 | 0.1273357 | 2.2687800 | 21 | 4 | 1995–2009 | 0.27 | M-v | 1 | MPC | 95696 | 2005 $OW_{13}$ |
| 2005 $OS_{14}$ | 17.1 | 0.15 | 20100104 | 128.50389 | 353.87069 | 330.99745 | 5.33416 | 0.2588788 | 2.2138439 | 71 | 3 | 2005–2009 | 0.38 | M-v | 2 | MPC | 117541 | 2005 $OS_{14}$ |
| 2005 $OC_{15}$ | 16.9 | 0.15 | 20100104 | 73.23819 | 276.66157 | 40.64704 | 6.85221 | 0.1308062 | 2.3591935 | 70 | 5 | 2001–2009 | 0.45 | M-v | 1 | MPC | 166201 | 2005 $OC_{15}$ |
| 2005 $OX_{15}$ | 17.1 | 0.15 | 20100104 | 60.83375 | 209.32887 | 161.17301 | 6.61543 | 0.1701366 | 2.2977399 | 51 | 5 | 2002–2009 | 0.33 | M-v | 1 | MPC | 140692 | 2005 $OX_{15}$ |
| 2005 $OL_{16}$ | 16.9 | 0.15 | 20100104 | 22.64984 | 119.98367 | 271.69389 | 3.33959 | 0.2384791 | 2.3993150 | 112 | 5 | 1998–2009 | 0.43 | M-v | 1 | MPC | 166201 | 2005 $OL_{16}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 $OQ_{16}$ | 17.3 | 0.15 | 20100104 | 323.67669 | 65.86715 | 148.48178 | 23.71356 | 0.0620989 | 1.9315257 | 79 | 6 | 1999–2009 | 0.54 | M-v | 1 | MPC | 159753 | 2005 $OQ_{16}$ |
| 2005 $OC_{19}$ | 17.1 | 0.15 | 20100104 | 68.77242 | 65.78949 | 301.04878 | 5.88762 | 0.2585455 | 2.3143099 | 58 | 4 | 1998–2009 | 0.53 | M-v | 1 | MPC | 116295 | 2005 $OC_{19}$ |
| 2005 $OM_{27}$ | 17.2 | 0.15 | 20100104 | 49.95019 | 191.47461 | 178.22933 | 8.49226 | 0.2479306 | 2.3518875 | 43 | 5 | 1996–2009 | 0.55 | M-v | 1 | MPC | 166201 | 2005 $OM_{27}$ |
| 2005 $OG_{28}$ | 16.9 | 0.15 | 20100104 | 65.44685 | 242.87134 | 141.30655 | 4.90792 | 0.1721367 | 2.2709315 | 41 | 4 | 2000–2009 | 0.43 | M-v | 1 | MPC | 158505 | 2005 $OG_{28}$ |
| 2005 $OC_{29}$ | 17.1 | 0.15 | 20100104 | 51.78842 | 275.12415 | 100.74582 | 3.89256 | 0.1219061 | 2.3293040 | 37 | 3 | 2005–2009 | 0.34 | M-v | 3 | MPC | 124031 | 2005 $OC_{29}$ |
| 2005 $OE_{31}$ | 17.2 | 0.15 | 20100104 | 65.31187 | 109.86943 | 250.21808 | 7.95354 | 0.2665502 | 2.3175419 | 26 | 3 | 1998–2009 | 0.49 | M-v | 2 | MPC | 141187 | 2005 $OE_{31}$ |
| 2005 PT | 16.1 | 0.15 | 20100104 | 57.07390 | 11.26776 | 328.25521 | 15.23641 | 0.3038921 | 2.3992801 | 122 | 3 | 2005–2009 | 0.38 | M-v | 1 | MPC | 166202 | 2005 PT |
| 2005 $PD_1$ | 17.5 | 0.15 | 20100104 | 58.22556 | 263.54607 | 111.16993 | 7.16709 | 0.1221833 | 2.2816422 | 67 | 6 | 1998–2009 | 0.30 | M-v | 1 | MPC | 166202 | 2005 $PD_1$ |
| 2005 $PF_1$ | 16.7 | 0.15 | 20100104 | 47.92839 | 258.66347 | 115.36667 | 7.03263 | 0.1341177 | 2.3242591 | 45 | 5 | 2002–2009 | 0.43 | M-v | 1 | MPC | 165426 | 2005 $PF_1$ |
| 2005 $PR_4$ | 17.5 | 0.15 | 20100104 | 32.87054 | 310.17836 | 67.70701 | 10.49032 | 0.3379144 | 2.3959431 | 92 | 2 | 2005–2009 | 0.48 | M-v | 3 | MPC | 166202 | 2005 $PR_4$ |
| 2005 $PV_4$ | 16.7 | 0.15 | 20100104 | 66.82148 | 273.81522 | 73.73979 | 11.09619 | 0.2355497 | 2.3192015 | 86 | 3 | 2005–2009 | 0.36 | M-v | 2 | MPC | 166202 | 2005 $PV_4$ |
| 2005 $PO_5$ | 17.4 | 0.15 | 20100104 | 44.79251 | 233.98196 | 127.80481 | 0.34173 | 0.2290943 | 2.3945915 | 78 | 3 | 1994–2009 | 0.47 | M-v | 2 | MPC | 166202 | 2005 $PO_5$ |
| 2005 $PH_6$ | 17.1 | 0.15 | 20100104 | 97.11855 | 266.89402 | 58.95959 | 6.45034 | 0.1046008 | 2.2704776 | 50 | 6 | 2001–2009 | 0.47 | M-v | 1 | MPC | 166202 | 2005 $PH_6$ |
| 2005 $PH_7$ | 17.5 | 0.15 | 20100104 | 65.53755 | 347.92635 | 25.21085 | 1.94572 | 0.2701969 | 2.2980375 | 57 | 5 | 2001–2009 | 0.44 | M-v | 1 | MPC | 166202 | 2005 $PH_7$ |
| 2005 $PP_9$ | 17.5 | 0.15 | 20100104 | 55.87085 | 240.37006 | 110.80572 | 2.14119 | 0.2043548 | 2.3711884 | 56 | 4 | 2005–2009 | 0.35 | M-v | 1 | MPC | 165427 | 2005 $PP_9$ |
| 2005 $PL_{10}$ | 17.2 | 0.15 | 20100104 | 32.62472 | 356.21244 | 357.95453 | 5.39683 | 0.1739392 | 2.4494570 | 49 | 4 | 2005–2009 | 0.36 | M-v | 1 | MPC | 164246 | 2005 $PL_{10}$ |
| 2005 $PQ_{15}$ | 17.5 | 0.15 | 20100104 | 87.37510 | 246.97814 | 128.07901 | 5.28950 | 0.0981667 | 2.1969237 | 43 | 6 | 2001–2009 | 0.44 | M-v | 1 | MPC | 122792 | 2005 $PQ_{15}$ |
| 2005 $PF_{17}$ | 17.8 | 0.15 | 20100104 | 21.64019 | 108.04541 | 315.16340 | 1.80827 | 0.1519519 | 2.2522605 | 40 | 5 | 2000–2009 | 0.42 | M-v | 1 | MPC | 120378 | 2005 $PF_{17}$ |
| 2005 $PV_{19}$ | 17.1 | 0.15 | 20100104 | 34.74916 | 238.70929 | 161.15452 | 2.87418 | 0.2159093 | 2.3110075 | 66 | 3 | 2005–2009 | 0.45 | M-v | 2 | MPC | 166202 | 2005 $PV_{19}$ |
| 2005 $PD_{29}$ | 15.7 | 0.15 | 20050818 | 34.17926 | 328.82646 | 305.70408 | 17.29575 | 0.1948073 | 2.5810368 | 12 | 1 | 27 days | 0.10 | | | MPC | | 2005 $PD_{29}$ |
| 2005 $PE_{29}$ | 16.1 | 0.15 | 20050818 | 322.59325 | 260.33952 | 117.99011 | 3.22542 | 0.1070226 | 2.6659556 | 6 | 1 | 19 days | 0.28 | | | MPC | | 2005 $PE_{29}$ |
| 2005 $PF_{29}$ | 16.4 | 0.15 | 20050818 | 12.82001 | 275.93760 | 27.56574 | 7.69480 | 0.2418144 | 2.7293824 | 9 | 1 | 24 days | 0.39 | | | MPC | | 2005 $PF_{29}$ |
| 2005 QL | 18.7 | 0.15 | 20100104 | 24.20852 | 290.58364 | 105.12088 | 10.71149 | 0.5032967 | 2.4446576 | 64 | 2 | 2005–2009 | 0.46 | M-v | 1 | MPC | 166202 | 2005 QL |
| 2005 $QE_1$ | 17.6 | 0.15 | 20100104 | 118.92379 | 351.48542 | 320.66013 | 2.37332 | 0.1522369 | 2.2435430 | 36 | 4 | 1992–2009 | 0.39 | M-v | 2 | MPC | 166202 | 2005 $QE_1$ |
| 2005 $QY_1$ | 16.9 | 0.15 | 20100104 | 151.48257 | 345.36776 | 287.22911 | 3.78931 | 0.1247540 | 2.2506843 | 53 | 6 | 1997–2009 | 0.31 | M-v | 1 | MPC | 166202 | 2005 $QY_1$ |
| 2005 $QH_2$ | 17.1 | 0.15 | 20100104 | 17.61963 | 120.05189 | 268.35660 | 4.04775 | 0.1726170 | 2.3903002 | 73 | 3 | 2005–2009 | 0.40 | M-v | 2 | MPC | 166202 | 2005 $QH_2$ |
| 2005 $QL_2$ | 16.6 | 0.15 | 20100104 | 69.20105 | 97.28386 | 241.11653 | 5.68257 | 0.1331494 | 2.3430766 | 42 | 2 | 2005–2009 | 0.52 | M-v | 4 | MPC | 165428 | 2005 $QL_2$ |
| 2005 $QN_3$ | 17.4 | 0.15 | 20100104 | 37.80559 | 192.75486 | 181.44878 | 2.41303 | 0.2460703 | 2.4132299 | 109 | 3 | 2005–2009 | 0.41 | M-v | 2 | MPC | 166202 | 2005 $QN_3$ |
| 2005 $QG_4$ | 17.3 | 0.15 | 20100104 | 118.80187 | 15.00752 | 304.23260 | 0.99134 | 0.2090480 | 2.2518916 | 102 | 7 | 1995–2009 | 0.42 | M-v | 1 | MPC | 118115 | 2005 $QG_4$ |
| 2005 $QL_4$ | 17.5 | 0.15 | 20100104 | 124.69032 | 199.87871 | 106.95933 | 1.42433 | 0.2290398 | 2.2568059 | 91 | 4 | 2002–2009 | 0.43 | M-v | 1 | MPC | 140137 | 2005 $QL_4$ |
| 2005 $QG_5$ | 16.7 | 0.15 | 20100104 | 38.02334 | 19.61397 | 331.45650 | 7.41345 | 0.0978076 | 2.4088793 | 53 | 4 | 1996–2009 | 0.42 | M-v | 1 | MPC | 165428 | 2005 $QG_5$ |
| 2005 $QP_6$ | 16.9 | 0.15 | 20100104 | 14.66960 | 54.16878 | 333.69452 | 3.85104 | 0.1940962 | 2.4543497 | 112 | 3 | 2005–2009 | 0.52 | M-v | 2 | MPC | 166202 | 2005 $QP_6$ |
| 2005 $QS_7$ | 17.1 | 0.15 | 20100104 | 159.03289 | 154.50530 | 142.19384 | 2.59795 | 0.1771587 | 2.1830180 | 80 | 6 | 1998–2009 | 0.46 | M-v | 1 | MPC | 122792 | 2005 $QS_7$ |
| 2005 $QA_8$ | 17.5 | 0.15 | 20100104 | 75.78296 | 12.30242 | 335.41844 | 2.87114 | 0.1761905 | 2.3376248 | 60 | 5 | 1998–2009 | 0.41 | M-v | 1 | MPC | 166202 | 2005 $QA_8$ |
| 2005 $QC_8$ | 17.6 | 0.15 | 20100104 | 42.39507 | 223.70645 | 153.55410 | 1.79402 | 0.2005906 | 2.3898487 | 66 | 4 | 2005–2009 | 0.43 | M-v | 1 | MPC | 165428 | 2005 $QC_8$ |
| 2005 $QJ_8$ | 17.2 | 0.15 | 20100104 | 51.49867 | 160.25746 | 219.54128 | 1.98727 | 0.2266602 | 2.3103270 | 49 | 3 | 2005–2009 | 0.33 | M-v | 2 | MPC | 166202 | 2005 $QJ_8$ |
| 2005 $QF_9$ | 17.2 | 0.15 | 20100104 | 68.81616 | 211.99546 | 138.81521 | 1.98094 | 0.2022173 | 2.3620333 | 75 | 3 | 2005–2009 | 0.51 | M-v | 2 | MPC | 166202 | 2005 $QF_9$ |
| 2005 $QJ_9$ | 16.8 | 0.15 | 20100104 | 78.82690 | 5.62607 | 6.05696 | 5.35345 | 0.1756530 | 2.2734586 | 98 | 4 | 2004–2009 | 0.44 | M-v | 2 | MPC | 116296 | 2005 $QJ_9$ |
| 2005 $QN_9$ | 16.6 | 0.15 | 20100104 | 80.60856 | 354.69278 | 2.29574 | 4.88163 | 0.1826232 | 2.3033519 | 93 | 5 | 1998–2009 | 0.46 | M-v | 1 | MPC | 118115 | 2005 $QN_9$ |
| 2005 $QE_{10}$ | 17.7 | 0.15 | 20100104 | 31.78819 | 135.96942 | 281.50041 | 3.28133 | 0.1697855 | 2.2782738 | 38 | 3 | 2002–2009 | 0.45 | M-v | 3 | MPC | 109332 | 2005 $QE_{10}$ |
| 2005 $QS_{10}$ | 18.8 | 0.15 | 20100104 | 44.93971 | 229.86295 | 150.84834 | 15.80315 | 0.4798147 | 2.4195224 | 71 | 2 | 2005–2009 | 0.44 | M-v | 1 | MPC | 161925 | 2005 $QS_{10}$ |
| 2005 $QN_{11}$ | 19.9 | 0.15 | 20100104 | 123.02272 | 134.96143 | 223.89155 | 5.61855 | 0.4037688 | 2.1739013 | 119 | 1 | 148 days | 0.42 | M-v | 4 | MPC | 97790 | 2005 $QN_{11}$ |
| 2005 $QN_{13}$ | 17.3 | 0.15 | 20100104 | 73.10516 | 22.42627 | 319.98451 | 3.29963 | 0.2084053 | 2.3478069 | 49 | 2 | 2005–2009 | 0.47 | M-v | 3 | MPC | 165429 | 2005 $QN_{13}$ |
| 2005 $QZ_{13}$ | 17.6 | 0.15 | 20100104 | 57.74788 | 214.46473 | 175.65382 | 4.07606 | 0.1798169 | 2.2902947 | 48 | 3 | 2005–2009 | 0.34 | M-v | 2 | MPC | 117542 | 2005 $QZ_{13}$ |
| 2005 $QE_{14}$ | 16.9 | 0.15 | 20100104 | 48.71008 | 57.54900 | 342.58260 | 6.31725 | 0.0986618 | 2.2766333 | 58 | 3 | 2005–2009 | 0.48 | M-v | 3 | MPC | 118115 | 2005 $QE_{14}$ |
| 2005 $QC_{15}$ | 17.2 | 0.15 | 20100104 | 349.13470 | 68.88738 | 350.03856 | 1.87350 | 0.1977718 | 2.4535555 | 54 | 5 | 1999–2009 | 0.27 | M-v | 0 | MPC | 162426 | 2005 $QC_{15}$ |
| 2005 $QK_{15}$ | 17.8 | 0.15 | 20100104 | 41.20327 | 14.22285 | 335.17201 | 3.22166 | 0.1856619 | 2.4524622 | 52 | 2 | 2005–2009 | 0.44 | M-v | 2 | MPC | 164247 | 2005 $QK_{15}$ |
| 2005 $QN_{15}$ | 17.8 | 0.15 | 20100104 | 22.54165 | 185.23151 | 205.94643 | 2.20392 | 0.1899982 | 2.4140868 | 61 | 4 | 2003–2009 | 0.33 | M-v | 1 | MPC | 166202 | 2005 $QN_{15}$ |
| 2005 $QJ_{17}$ | 17.5 | 0.15 | 20100104 | 54.83220 | 316.06706 | 34.19615 | 2.13039 | 0.2589123 | 2.4191193 | 82 | 3 | 2001–2009 | 0.43 | M-v | 2 | MPC | 165429 | 2005 $QJ_{17}$ |
| 2005 $QO_{17}$ | 17.3 | 0.15 | 20100104 | 169.45714 | 141.07115 | 133.14413 | 3.01474 | 0.1071241 | 2.2468832 | 69 | 6 | 1997–2009 | 0.33 | M-v | 1 | MPC | 118115 | 2005 $QO_{17}$ |
| 2005 $QT_{17}$ | 16.9 | 0.15 | 20100104 | 77.98687 | 305.98606 | 34.13232 | 3.27843 | 0.1836336 | 2.3599043 | 78 | 3 | 2005–2009 | 0.42 | M-v | 3 | MPC | 165429 | 2005 $QT_{17}$ |
| 2005 $QU_{17}$ | 17.1 | 0.15 | 20100104 | 91.27440 | 293.91052 | 43.46598 | 2.47343 | 0.1418195 | 2.3236862 | 57 | 3 | 2005–2009 | 0.41 | M-v | 2 | MPC | 166202 | 2005 $QU_{17}$ |
| 2005 $QY_{17}$ | 16.7 | 0.15 | 20100104 | 40.91876 | 27.92741 | 8.92010 | 2.69974 | 0.1613712 | 2.3467079 | 96 | 5 | 1998–2009 | 0.45 | M-v | 1 | MPC | 159753 | 2005 $QY_{17}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 $QJ_{18}$ | 17.4 | 0.15 | 20100104 | 45.66855 | 244.13922 | 132.90977 | 1.92008 | 0.1986407 | 2.3905184 | 65 | 3 | 2005–2009 | 0.43 | M-v | 2 | MPC | 166202 | 2005 $QJ_{18}$ |
| 2005 $QN_{19}$ | 17.4 | 0.15 | 20100104 | 54.28164 | 66.65624 | 330.24446 | 4.57538 | 0.1735858 | 2.2718730 | 59 | 4 | 2002–2009 | 0.31 | M-v | 0 | MPC | 116297 | 2005 $QN_{19}$ |
| 2005 $QW_{19}$ | 17.3 | 0.15 | 20100104 | 62.65676 | 189.06683 | 156.88237 | 2.84665 | 0.2213759 | 2.3972173 | 80 | 3 | 2005–2009 | 0.45 | M-v | 2 | MPC | 165430 | 2005 $QW_{19}$ |
| 2005 $QD_{20}$ | 16.8 | 0.15 | 20100104 | 42.72106 | 33.99111 | 332.46977 | 8.19022 | 0.2450391 | 2.4116638 | 138 | 3 | 2005–2009 | 0.47 | M-v | 2 | MPC | 166203 | 2005 $QD_{20}$ |
| 2005 $QZ_{20}$ | 16.6 | 0.15 | 20100104 | 59.12101 | 68.16634 | 258.30007 | 2.71400 | 0.2056611 | 2.4327119 | 106 | 4 | 2004–2009 | 0.49 | M-v | 2 | MPC | 166203 | 2005 $QZ_{20}$ |
| 2005 $QB_{21}$ | 17.2 | 0.15 | 20100104 | 63.19523 | 321.84337 | 20.29541 | 2.71355 | 0.2179264 | 2.3883377 | 73 | 3 | 2005–2009 | 0.45 | M-v | 2 | MPC | 166203 | 2005 $QB_{21}$ |
| 2005 $QG_{22}$ | 16.9 | 0.15 | 20100104 | 46.85523 | 269.02860 | 118.72318 | 2.84207 | 0.2085921 | 2.3363515 | 71 | 4 | 1998–2009 | 0.60 | M-v | 1 | MPC | 118115 | 2005 $QG_{22}$ |
| 2005 $QK_{23}$ | 16.8 | 0.15 | 20100104 | 38.28966 | 5.93959 | 35.90567 | 2.79595 | 0.2145918 | 2.3585486 | 110 | 5 | 1998–2009 | 0.54 | M-v | 1 | MPC | 160830 | 2005 $QK_{23}$ |
| 2005 $QR_{25}$ | 17.3 | 0.15 | 20100104 | 14.68582 | 342.63188 | 103.14048 | 2.41228 | 0.1256562 | 2.2918150 | 29 | 3 | 2005–2009 | 0.29 | M-v | 2 | MPC | 117544 | 2005 $QR_{25}$ |
| 2005 $QF_{26}$ | 17.3 | 0.15 | 20100104 | 144.23374 | 158.30013 | 151.00991 | 7.39791 | 0.2174913 | 2.2096122 | 60 | 5 | 1998–2009 | 0.35 | M-v | 2 | MPC | 116297 | 2005 $QF_{26}$ |
| 2005 $QV_{27}$ | 17.4 | 0.15 | 20100104 | 29.31794 | 237.70004 | 132.29751 | 5.17509 | 0.1888566 | 2.4861247 | 57 | 4 | 2001–2009 | 0.39 | M-v | 2 | MPC | 164247 | 2005 $QV_{27}$ |
| 2005 $QE_{29}$ | 17.4 | 0.15 | 20100104 | 104.75644 | 89.04444 | 260.62253 | 4.38263 | 0.1979130 | 2.2208846 | 51 | 5 | 1995–2009 | 0.45 | M-v | 1 | MPC | 104339 | 2005 $QE_{29}$ |
| 2005 $QM_{29}$ | 18.1 | 0.15 | 20100104 | 74.66175 | 75.29529 | 251.70289 | 4.44312 | 0.2894942 | 2.3683680 | 63 | 2 | 2005–2009 | 0.28 | M-v | 2 | MPC | 165430 | 2005 $QM_{29}$ |
| 2005 $QK_{30}$ | 17.8 | 0.15 | 20100104 | 100.76806 | 167.88270 | 151.33192 | 5.54250 | 0.2408354 | 2.2932216 | 48 | 4 | 2005–2009 | 0.48 | M-v | 1 | MPC | 139220 | 2005 $QK_{30}$ |
| 2005 $QM_{31}$ | 15.8 | 0.15 | 20100104 | 39.45797 | 93.87204 | 263.31490 | 8.93184 | 0.1909384 | 2.4045730 | 106 | 3 | 2005–2009 | 0.45 | M-v | 2 | MPC | 166203 | 2005 $QM_{31}$ |
| 2005 $QS_{33}$ | 17.4 | 0.15 | 20100104 | 92.21924 | 59.47536 | 273.69928 | 0.42388 | 0.1773166 | 2.2957141 | 49 | 3 | 2005–2009 | 0.46 | M-v | 2 | MPC | 115833 | 2005 $QS_{33}$ |
| 2005 $QL_{34}$ | 17.9 | 0.15 | 20100104 | 13.09368 | 134.57682 | 256.07764 | 1.59824 | 0.2162285 | 2.4592064 | 47 | 2 | 2005–2009 | 0.49 | M-v | 3 | MPC | 166203 | 2005 $QL_{34}$ |
| 2005 $QT_{34}$ | 18.1 | 0.15 | 20100104 | 72.89178 | 285.49041 | 46.52976 | 0.82437 | 0.2361044 | 2.3821004 | 60 | 4 | 2005–2009 | 0.51 | M-v | 1 | MPC | 166203 | 2005 $QT_{34}$ |
| 2005 $QF_{35}$ | 17.6 | 0.15 | 20100104 | 141.17872 | 160.26227 | 124.36983 | 3.35796 | 0.1497627 | 2.2821615 | 33 | 4 | 2001–2009 | 0.33 | M-v | 2 | MPC | 166203 | 2005 $QF_{35}$ |
| 2005 $QT_{35}$ | 16.5 | 0.15 | 20100104 | 37.86585 | 259.97669 | 132.87177 | 2.83219 | 0.2134243 | 2.3741446 | 73 | 5 | 1992–2009 | 0.46 | M-v | 1 | MPC | 166203 | 2005 $QT_{35}$ |
| 2005 $QW_{36}$ | 17.7 | 0.15 | 20100104 | 80.76956 | 8.70672 | 313.85328 | 1.83862 | 0.2318913 | 2.3887095 | 42 | 5 | 2004–2009 | 0.48 | M-v | 1 | MPC | 166203 | 2005 $QW_{36}$ |
| 2005 $QD_{37}$ | 16.9 | 0.15 | 20100104 | 34.71902 | 223.62428 | 200.57362 | 5.91149 | 0.1481368 | 2.2913363 | 58 | 6 | 1998–2009 | 0.44 | M-v | 1 | MPC | 119649 | 2005 $QD_{37}$ |
| 2005 $QS_{37}$ | 17.1 | 0.15 | 20100104 | 70.58101 | 58.51840 | 332.06650 | 6.51483 | 0.0961262 | 2.2553807 | 41 | 5 | 1997–2009 | 0.49 | M-v | 1 | MPC | 164247 | 2005 $QS_{37}$ |
| 2005 $QG_{38}$ | 17.3 | 0.15 | 20100104 | 117.36344 | 141.02819 | 180.05865 | 2.65455 | 0.2344536 | 2.2644757 | 99 | 5 | 1998–2009 | 0.39 | M-v | 0 | MPC | 140137 | 2005 $QG_{38}$ |
| 2005 $QU_{38}$ | 17.9 | 0.15 | 20100104 | 60.13165 | 212.06077 | 183.29512 | 2.20944 | 0.1774628 | 2.2578918 | 50 | 5 | 1995–2009 | 0.33 | M-v | 1 | MPC | 118116 | 2005 $QU_{38}$ |
| 2005 $QA_{39}$ | 17.4 | 0.15 | 20100104 | 67.18004 | 37.43569 | 317.99984 | 0.53989 | 0.2015812 | 2.3584218 | 73 | 5 | 1998–2009 | 0.39 | M-v | 1 | MPC | 166203 | 2005 $QA_{39}$ |
| 2005 $QK_{39}$ | 17.0 | 0.15 | 20100104 | 20.16911 | 274.57997 | 94.91372 | 1.57898 | 0.2291128 | 2.4672274 | 45 | 3 | 2001–2009 | 0.43 | M-v | 2 | MPC | 163715 | 2005 $QK_{39}$ |
| 2005 $QZ_{39}$ | 17.4 | 0.15 | 20100104 | 49.68835 | 94.62096 | 272.78952 | 6.40022 | 0.2388146 | 2.3734718 | 28 | 2 | 2005–2009 | 0.43 | M-v | 4 | MPC | 165430 | 2005 $QZ_{39}$ |
| 2005 $QM_{40}$ | 17.1 | 0.15 | 20100104 | 42.18353 | 121.98485 | 239.41986 | 3.65608 | 0.2407400 | 2.4160701 | 88 | 2 | 2005–2009 | 0.51 | M-v | 3 | MPC | 166203 | 2005 $QM_{40}$ |
| 2005 $QE_{41}$ | 16.7 | 0.15 | 20100104 | 76.96690 | 22.77550 | 304.32640 | 3.99573 | 0.2000261 | 2.3829987 | 91 | 3 | 2005–2009 | 0.56 | M-v | 3 | MPC | 166203 | 2005 $QE_{41}$ |
| 2005 $QD_{42}$ | 16.4 | 0.15 | 20100104 | 81.48500 | 14.32504 | 342.06304 | 7.05335 | 0.1501453 | 2.2985667 | 104 | 6 | 1991–2009 | 0.46 | M-v | 1 | MPC | 118116 | 2005 $QD_{42}$ |
| 2005 $QD_{44}$ | 18.2 | 0.15 | 20100104 | 47.76366 | 229.88860 | 143.10467 | 1.73286 | 0.1992917 | 2.3678726 | 33 | 2 | 2005–2009 | 0.28 | M-v | 3 | MPC | 165431 | 2005 $QD_{44}$ |
| 2005 $QW_{44}$ | 16.6 | 0.15 | 20100104 | 32.02728 | 349.34753 | 27.04873 | 2.84131 | 0.2336494 | 2.4275795 | 130 | 5 | 2001–2009 | 0.45 | M-v | 1 | MPC | 166203 | 2005 $QW_{44}$ |
| 2005 $QS_{45}$ | 17.3 | 0.15 | 20100104 | 62.27566 | 335.67084 | 42.18427 | 2.89094 | 0.2254178 | 2.3153773 | 53 | 4 | 1998–2009 | 0.43 | M-v | 1 | MPC | 118116 | 2005 $QS_{45}$ |
| 2005 $QW_{45}$ | 17.3 | 0.15 | 20100104 | 44.43018 | 242.33480 | 135.80728 | 6.41471 | 0.2008942 | 2.3754191 | 57 | 5 | 2004–2009 | 0.44 | M-v | 1 | MPC | 165431 | 2005 $QW_{45}$ |
| 2005 $QC_{46}$ | 17.3 | 0.15 | 20100104 | 64.17613 | 332.40599 | 22.89983 | 3.62317 | 0.2181584 | 2.3600934 | 70 | 3 | 2005–2009 | 0.32 | M-v | 2 | MPC | 165431 | 2005 $QC_{46}$ |
| 2005 $QE_{46}$ | 18.0 | 0.15 | 20100104 | 50.11146 | 316.58720 | 46.00934 | 2.20098 | 0.1937037 | 2.3945035 | 39 | 2 | 2005–2009 | 0.24 | M-v | 2 | MPC | 165431 | 2005 $QE_{46}$ |
| 2005 $QY_{46}$ | 16.6 | 0.15 | 20100104 | 204.05631 | 193.58527 | 8.26871 | 7.14812 | 0.0640636 | 2.3796772 | 63 | 6 | 1998–2009 | 0.50 | M-v | 1 | MPC | 166203 | 2005 $QY_{46}$ |
| 2005 $QK_{48}$ | 17.7 | 0.15 | 20100104 | 46.12090 | 9.34792 | 45.68059 | 2.98369 | 0.1802047 | 2.2720012 | 30 | 4 | 1995–2009 | 0.24 | M-v | 0 | MPC | 166203 | 2005 $QK_{48}$ |
| 2005 $QA_{49}$ | 17.4 | 0.15 | 20100104 | 34.12033 | 300.49357 | 92.59417 | 3.62207 | 0.1839832 | 2.3786563 | 42 | 3 | 2005–2009 | 0.32 | M-v | 3 | MPC | 166203 | 2005 $QA_{49}$ |
| 2005 $QD_{50}$ | 16.6 | 0.15 | 20100104 | 61.37795 | 334.74609 | 51.40724 | 6.08719 | 0.1677387 | 2.3066719 | 56 | 6 | 1998–2009 | 0.50 | M-v | 1 | MPC | 159754 | 2005 $QD_{50}$ |
| 2005 $QK_{52}$ | 18.3 | 0.15 | 20100104 | 29.27836 | 110.61440 | 290.45761 | 1.48848 | 0.2044776 | 2.3582945 | 47 | 4 | 1998–2009 | 0.29 | M-v | 0 | MPC | 166203 | 2005 $QK_{52}$ |
| 2005 $QM_{53}$ | 17.1 | 0.15 | 20100104 | 83.22645 | 193.40492 | 149.48394 | 6.37603 | 0.1896310 | 2.3088500 | 47 | 4 | 2005–2009 | 0.37 | M-v | 1 | MPC | 140138 | 2005 $QM_{53}$ |
| 2005 $QT_{53}$ | 17.6 | 0.15 | 20100104 | 44.29949 | 348.81336 | 351.27426 | 1.70786 | 0.1819304 | 2.4596218 | 38 | 3 | 2005–2009 | 0.43 | M-v | 2 | MPC | 166204 | 2005 $QT_{53}$ |
| 2005 $QK_{55}$ | 17.3 | 0.15 | 20100104 | 75.63668 | 297.05742 | 40.99516 | 2.92820 | 0.2334544 | 2.3600808 | 61 | 3 | 2005–2009 | 0.43 | M-v | 2 | MPC | 166204 | 2005 $QK_{55}$ |
| 2005 $QT_{57}$ | 16.7 | 0.15 | 20100104 | 16.73242 | 68.77420 | 342.20622 | 5.74667 | 0.1173128 | 2.3666531 | 116 | 3 | 2005–2009 | 0.40 | M-v | 2 | MPC | 166204 | 2005 $QT_{57}$ |
| 2005 $QJ_{58}$ | 16.7 | 0.15 | 20100104 | 26.72080 | 30.35363 | 3.13081 | 6.82423 | 0.1258915 | 2.3934374 | 72 | 3 | 2005–2009 | 0.39 | M-v | 2 | MPC | 166204 | 2005 $QJ_{58}$ |
| 2005 $QY_{59}$ | 17.9 | 0.15 | 20100104 | 47.01022 | 163.59107 | 198.70227 | 1.38025 | 0.1980795 | 2.4290776 | 74 | 4 | 2001–2009 | 0.33 | M-v | 2 | MPC | 166204 | 2005 $QY_{59}$ |
| 2005 $QA_{60}$ | 17.5 | 0.15 | 20100104 | 31.74862 | 212.86049 | 187.05179 | 0.79869 | 0.1846973 | 2.3879568 | 47 | 4 | 1994–2009 | 0.41 | M-v | 1 | MPC | 166204 | 2005 $QA_{60}$ |
| 2005 $QQ_{60}$ | 17.2 | 0.15 | 20100104 | 62.84368 | 157.45150 | 220.73334 | 3.02150 | 0.1911071 | 2.3036507 | 47 | 4 | 1998–2009 | 0.49 | M-v | 1 | MPC | 97794 | 2005 $QQ_{60}$ |
| 2005 $QT_{60}$ | 17.1 | 0.15 | 20100104 | 44.61209 | 202.34293 | 194.03483 | 2.23377 | 0.1162019 | 2.3158271 | 47 | 5 | 1991–2009 | 0.44 | M-v | 1 | MPC | 166204 | 2005 $QT_{60}$ |
| 2005 $QA_{65}$ | 17.2 | 0.15 | 20100104 | 13.37118 | 12.22416 | 41.49853 | 4.95125 | 0.2332076 | 2.4240739 | 89 | 2 | 2005–2009 | 0.42 | M-v | 2 | MPC | 166204 | 2005 $QA_{65}$ |
| 2005 $QM_{65}$ | 15.7 | 0.15 | 20100104 | 41.80003 | 315.92843 | 30.50445 | 23.78846 | 0.2283295 | 2.4073566 | 87 | 3 | 2005–2009 | 0.47 | M-v | 2 | MPC | 166204 | 2005 $QM_{65}$ |

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| 2005 $QM_{66}$ | 17.3 | 0.15 | 20100104 | 352.08905 | 57.02210 | 4.92205 | 4.78742 | 0.1930231 | 2.4361927 | 79 | 3 | 2005–2009 | 0.45 | M-v | 2 | MPC | 164248 | 2005 $QM_{66}$ |
| 2005 $QO_{66}$ | 17.4 | 0.15 | 20100104 | 26.34212 | 337.56378 | 55.54448 | 3.03766 | 0.2022390 | 2.4218082 | 84 | 3 | 2005–2009 | 0.44 | M-v | 2 | MPC | 166204 | 2005 $QO_{66}$ |
| 2005 $QJ_{69}$ | 16.4 | 0.15 | 20100104 | 67.99434 | 288.00320 | 47.72880 | 5.51557 | 0.2617779 | 2.3784578 | 94 | 2 | 2005–2009 | 0.50 | M-v | 2 | MPC | 165432 | 2005 $QJ_{69}$ |
| 2005 $QW_{70}$ | 16.6 | 0.15 | 20100104 | 73.80930 | 203.73757 | 149.39875 | 6.61273 | 0.1332097 | 2.3419450 | 65 | 3 | 2005–2009 | 0.47 | M-v | 3 | MPC | 166204 | 2005 $QW_{70}$ |
| 2005 $QY_{70}$ | 16.9 | 0.15 | 20100104 | 62.76955 | 54.99382 | 341.23953 | 4.52755 | 0.1143564 | 2.2527823 | 108 | 4 | 2002–2009 | 0.49 | M-v | 1 | MPC | 119649 | 2005 $QY_{70}$ |
| 2005 $QX_{71}$ | 17.3 | 0.15 | 20100104 | 119.81903 | 57.76936 | 229.85296 | 1.89969 | 0.1953799 | 2.3308018 | 70 | 5 | 2001–2009 | 0.37 | M-v | 0 | MPC | 166204 | 2005 $QX_{71}$ |
| 2005 $QC_{72}$ | 17.9 | 0.15 | 20100104 | 86.34078 | 79.96179 | 278.89731 | 1.47871 | 0.2333888 | 2.2758684 | 57 | 3 | 1998–2009 | 0.48 | M-v | 2 | MPC | 90231 | 2005 $QC_{72}$ |
| 2005 $QE_{73}$ | 17.1 | 0.15 | 20100104 | 93.19355 | 125.95368 | 223.98378 | 3.09677 | 0.1589730 | 2.2817680 | 66 | 4 | 2004–2009 | 0.54 | M-v | 2 | MPC | 115837 | 2005 $QE_{73}$ |
| 2005 $QR_{73}$ | 16.7 | 0.15 | 20100104 | 69.87490 | 55.16888 | 292.78928 | 3.58546 | 0.2062768 | 2.3791266 | 98 | 3 | 2005–2009 | 0.43 | M-v | 2 | MPC | 166204 | 2005 $QR_{73}$ |
| 2005 $QB_{74}$ | 16.3 | 0.15 | 20100104 | 51.74580 | 37.76902 | 343.68769 | 5.99624 | 0.2221011 | 2.3687761 | 122 | 5 | 1992–2009 | 0.47 | M-v | 1 | MPC | 166204 | 2005 $QB_{74}$ |
| 2005 $QH_{74}$ | 16.3 | 0.15 | 20100104 | 63.35408 | 21.56981 | 345.97972 | 6.73866 | 0.1207746 | 2.3487455 | 62 | 3 | 2005–2009 | 0.54 | M-v | 3 | MPC | 166204 | 2005 $QH_{74}$ |
| 2005 $QL_{74}$ | 17.3 | 0.15 | 20100104 | 14.82592 | 10.10404 | 29.08851 | 1.69688 | 0.1929739 | 2.4583811 | 98 | 3 | 2001–2009 | 0.48 | M-v | 3 | MPC | 166204 | 2005 $QL_{74}$ |
| 2005 $QN_{74}$ | 17.0 | 0.15 | 20100104 | 79.17632 | 336.93885 | 355.86959 | 2.23597 | 0.2123992 | 2.3799800 | 94 | 5 | 2000–2009 | 0.47 | M-v | 1 | MPC | 166204 | 2005 $QN_{74}$ |
| 2005 $QF_{76}$ | 17.0 | 0.15 | 20100104 | 31.26443 | 310.59240 | 154.04196 | 24.00042 | 0.2451278 | 2.1530449 | 27 | 5 | 2004–2009 | 0.47 | M-v | 1 | MPC | 143232 | 2005 $QF_{76}$ |
| 2005 $QH_{77}$ | 17.3 | 0.15 | 20100104 | 42.02315 | 69.38974 | 314.60339 | 2.35759 | 0.1923906 | 2.3678332 | 87 | 5 | 1994–2009 | 0.45 | M-v | 1 | MPC | 166204 | 2005 $QH_{77}$ |
| 2005 $QL_{78}$ | 18.1 | 0.15 | 20100104 | 46.83405 | 50.99152 | 308.75221 | 1.36327 | 0.2295354 | 2.4313772 | 35 | 2 | 2005–2009 | 0.28 | M-v | 3 | MPC | 165433 | 2005 $QL_{78}$ |
| 2005 $QR_{78}$ | 17.9 | 0.15 | 20100104 | 29.38627 | 55.42044 | 345.09064 | 1.94283 | 0.2051235 | 2.3959063 | 44 | 5 | 1994–2009 | 0.35 | M-v | 0 | MPC | 166204 | 2005 $QR_{78}$ |
| 2005 $QH_{79}$ | 16.1 | 0.15 | 20100104 | 103.11493 | 22.97963 | 250.51106 | 5.41966 | 0.1079644 | 2.4345396 | 46 | 5 | 2001–2009 | 0.53 | M-v | 1 | MPC | 164249 | 2005 $QH_{79}$ |
| 2005 $QY_{79}$ | 17.4 | 0.15 | 20100104 | 68.31729 | 78.26040 | 289.87587 | 8.19721 | 0.1975654 | 2.3039176 | 30 | 4 | 1998–2009 | 0.53 | M-v | 2 | MPC | 118117 | 2005 $QY_{79}$ |
| 2005 $QN_{80}$ | 17.1 | 0.15 | 20100104 | 55.42115 | 252.47807 | 80.71769 | 2.60392 | 0.1761942 | 2.4354908 | 48 | 2 | 2005–2009 | 0.35 | M-v | 3 | MPC | 166204 | 2005 $QN_{80}$ |
| 2005 $QP_{80}$ | 17.5 | 0.15 | 20100104 | 109.37169 | 237.70697 | 114.77999 | 4.08684 | 0.1511334 | 2.2020003 | 39 | 5 | 2001–2009 | 0.40 | M-v | 1 | MPC | 166204 | 2005 $QP_{80}$ |
| 2005 $QO_{81}$ | 17.8 | 0.15 | 20100104 | 60.85851 | 9.96315 | 13.05366 | 2.88866 | 0.2267230 | 2.2957493 | 48 | 3 | 2005–2009 | 0.35 | M-v | 2 | MPC | 166204 | 2005 $QO_{81}$ |
| 2005 $QE_{82}$ | 17.1 | 0.15 | 20100104 | 19.47591 | 24.22389 | 359.72160 | 4.48383 | 0.1331939 | 2.4205068 | 68 | 3 | 2002–2009 | 0.41 | M-v | 1 | MPC | 166204 | 2005 $QE_{82}$ |
| 2005 $QT_{82}$ | 17.4 | 0.15 | 20100104 | 149.20745 | 100.21456 | 207.48904 | 2.77888 | 0.2136951 | 2.1831029 | 72 | 4 | 2002–2009 | 0.39 | M-v | 2 | MPC | 116299 | 2005 $QT_{82}$ |
| 2005 $QJ_{83}$ | 17.1 | 0.15 | 20100104 | 98.24855 | 152.71188 | 169.51020 | 6.81620 | 0.1592852 | 2.3213756 | 70 | 6 | 1998–2009 | 0.42 | M-v | 0 | MPC | 140138 | 2005 $QJ_{83}$ |
| 2005 $QR_{83}$ | 17.1 | 0.15 | 20100104 | 62.41498 | 46.17296 | 335.81544 | 5.23258 | 0.2332770 | 2.3307469 | 76 | 5 | 1998–2009 | 0.50 | M-v | 1 | MPC | 122793 | 2005 $QR_{83}$ |
| 2005 $QD_{84}$ | 17.3 | 0.15 | 20100104 | 357.81942 | 107.58186 | 337.55370 | 3.29858 | 0.0498958 | 2.3170503 | 56 | 4 | 2000–2009 | 0.41 | M-v | 1 | MPC | 119649 | 2005 $QD_{84}$ |
| 2005 $QU_{84}$ | 16.3 | 0.15 | 20100104 | 103.11044 | 35.41027 | 325.79900 | 9.12897 | 0.1717183 | 2.2185443 | 59 | 4 | 2002–2009 | 0.38 | M-v | 1 | MPC | 118117 | 2005 $QU_{84}$ |
| 2005 $QR_{85}$ | 16.8 | 0.15 | 20100104 | 92.14418 | 18.63143 | 335.94882 | 4.13764 | 0.1632130 | 2.3286681 | 80 | 3 | 2005–2009 | 0.52 | M-v | 3 | MPC | 120382 | 2005 $QR_{85}$ |
| 2005 $QV_{85}$ | 16.2 | 0.15 | 20100104 | 47.29110 | 350.26290 | 46.77245 | 12.21282 | 0.2029971 | 2.3738379 | 114 | 3 | 1998–2009 | 0.50 | M-v | 2 | MPC | 166204 | 2005 $QV_{85}$ |
| 2005 $QH_{86}$ | 17.0 | 0.15 | 20100104 | 62.82044 | 106.93544 | 286.83101 | 3.54364 | 0.1379155 | 2.3572222 | 66 | 4 | 2001–2009 | 0.58 | M-v | 1 | MPC | 160831 | 2005 $QH_{86}$ |
| 2005 $QD_{88}$ | 18.2 | 0.15 | 20100104 | 48.77415 | 67.03061 | 327.02475 | 1.93989 | 0.2218080 | 2.3171598 | 68 | 5 | 1998–2009 | 0.40 | M-v | 1 | MPC | 118117 | 2005 $QD_{88}$ |
| 2005 $QQ_{88}$ | 17.5 | 0.15 | 20100104 | 7.28126 | 315.90970 | 108.32252 | 2.37201 | 0.1652586 | 2.3668509 | 49 | 3 | 2005–2009 | 0.40 | M-v | 3 | MPC | 165433 | 2005 $QQ_{88}$ |
| 2005 $QM_{89}$ | 18.4 | 0.15 | 20100104 | 53.61078 | 211.92110 | 161.34474 | 0.94607 | 0.2398126 | 2.3294869 | 39 | 6 | 1991–2009 | 0.43 | M-v | 1 | MPC | 166205 | 2005 $QM_{89}$ |
| 2005 $QV_{89}$ | 17.5 | 0.15 | 20100104 | 59.04436 | 45.04943 | 318.58140 | 5.31930 | 0.1374893 | 2.3177431 | 48 | 4 | 2000–2009 | 0.40 | M-v | 1 | MPC | 166205 | 2005 $QV_{89}$ |
| 2005 $QQ_{91}$ | 17.7 | 0.15 | 20100104 | 60.06083 | 84.03376 | 291.66385 | 1.08497 | 0.2312705 | 2.2994235 | 32 | 3 | 2005–2009 | 0.42 | M-v | 2 | MPC | 117547 | 2005 $QQ_{91}$ |
| 2005 $QS_{91}$ | 18.0 | 0.15 | 20100104 | 81.99179 | 76.83510 | 259.64309 | 1.41873 | 0.2341511 | 2.3457161 | 39 | 4 | 1998–2009 | 0.54 | M-v | 1 | MPC | 139223 | 2005 $QS_{91}$ |
| 2005 $QJ_{92}$ | 17.6 | 0.15 | 20100104 | 79.80480 | 153.75857 | 173.84119 | 1.14871 | 0.1911878 | 2.3794893 | 48 | 5 | 2000–2009 | 0.37 | M-v | 1 | MPC | 166205 | 2005 $QJ_{92}$ |
| 2005 $QU_{92}$ | 17.3 | 0.15 | 20100104 | 40.53224 | 285.66925 | 100.08451 | 3.41017 | 0.1945301 | 2.3645367 | 48 | 3 | 2003–2009 | 0.38 | M-v | 2 | MPC | 165434 | 2005 $QU_{92}$ |
| 2005 $QB_{94}$ | 17.7 | 0.15 | 20100104 | 69.32647 | 317.23421 | 32.36737 | 2.68942 | 0.2157563 | 2.3687619 | 50 | 2 | 2005–2009 | 0.43 | M-v | 3 | MPC | 165434 | 2005 $QB_{94}$ |
| 2005 $QR_{96}$ | 17.7 | 0.15 | 20100104 | 66.08257 | 269.31217 | 116.95064 | 2.98035 | 0.1740432 | 2.2587888 | 46 | 5 | 2000–2009 | 0.35 | M-v | 0 | MPC | 166205 | 2005 $QR_{96}$ |
| 2005 $QX_{96}$ | 17.2 | 0.15 | 20100104 | 13.16077 | 283.95058 | 134.78702 | 5.91179 | 0.1519287 | 2.3394904 | 44 | 5 | 1996–2009 | 0.45 | M-v | 0 | MPC | 166205 | 2005 $QX_{96}$ |
| 2005 $QQ_{100}$ | 17.5 | 0.15 | 20100104 | 46.85785 | 124.87121 | 204.80429 | 3.38625 | 0.2267722 | 2.4822620 | 61 | 4 | 2001–2009 | 0.39 | M-v | 2 | MPC | 166205 | 2005 $QQ_{100}$ |
| 2005 $QJ_{106}$ | 17.5 | 0.15 | 20100104 | 97.89891 | 247.92446 | 58.06599 | 3.15475 | 0.2250578 | 2.3449069 | 64 | 3 | 2005–2009 | 0.35 | M-v | 1 | MPC | 166205 | 2005 $QJ_{106}$ |
| 2005 $QY_{110}$ | 17.4 | 0.15 | 20100104 | 50.19109 | 85.43330 | 288.04213 | 1.13738 | 0.2133207 | 2.3781386 | 56 | 3 | 2005–2009 | 0.40 | M-v | 2 | MPC | 166205 | 2005 $QY_{110}$ |
| 2005 $QS_{111}$ | 17.2 | 0.15 | 20100104 | 7.24053 | 127.84675 | 274.55621 | 0.87942 | 0.1385889 | 2.4449351 | 80 | 5 | 1998–2009 | 0.42 | M-v | 1 | MPC | 166205 | 2005 $QS_{111}$ |
| 2005 $QX_{112}$ | 17.1 | 0.15 | 20100104 | 55.81976 | 302.18880 | 51.81148 | 4.80665 | 0.2441455 | 2.3985963 | 82 | 5 | 2003–2009 | 0.50 | M-v | 1 | MPC | 166205 | 2005 $QX_{112}$ |
| 2005 $QM_{113}$ | 16.8 | 0.15 | 20100104 | 120.21048 | 215.24346 | 104.41360 | 2.25022 | 0.1903527 | 2.2691768 | 80 | 7 | 1998–2009 | 0.47 | M-v | 1 | MPC | 159754 | 2005 $QM_{113}$ |
| 2005 $QW_{113}$ | 17.0 | 0.15 | 20100104 | 53.47904 | 278.03675 | 115.33290 | 3.06817 | 0.2312362 | 2.3349964 | 72 | 4 | 1998–2009 | 0.42 | M-v | 1 | MPC | 166205 | 2005 $QW_{113}$ |
| 2005 $QD_{114}$ | 17.0 | 0.15 | 20100104 | 32.97032 | 303.37804 | 117.34226 | 1.68477 | 0.0921732 | 2.2977620 | 83 | 6 | 2000–2009 | 0.51 | M-v | 0 | MPC | 140138 | 2005 $QD_{114}$ |
| 2005 $QO_{114}$ | 17.4 | 0.15 | 20100104 | 46.90854 | 172.61936 | 190.87521 | 0.81549 | 0.1991012 | 2.4303524 | 128 | 3 | 2005–2009 | 0.43 | M-v | 2 | MPC | 166205 | 2005 $QO_{114}$ |
| 2005 $QW_{116}$ | 17.7 | 0.15 | 20100104 | 23.76608 | 251.55039 | 154.36318 | 2.78414 | 0.1940192 | 2.3645894 | 53 | 3 | 2005–2009 | 0.41 | M-v | 2 | MPC | 166205 | 2005 $QW_{116}$ |
| 2005 $QE_{117}$ | 18.1 | 0.15 | 20100104 | 68.83455 | 204.87334 | 140.75550 | 1.82541 | 0.2004207 | 2.3575851 | 39 | 3 | 1998–2009 | 0.28 | M-v | 2 | MPC | 165434 | 2005 $QE_{117}$ |

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| 2005 $QT_{120}$ | 18.4 | 0.15 | 20100104 | 25.23593 | 264.99953 | 148.62260 | 0.84589 | 0.2122166 | 2.3358315 | 35 | 5 | 1991–2009 | 0.37 | M-v | 0 | MPC | 111122 | 2005 $QT_{120}$ |
| 2005 $QX_{120}$ | 17.6 | 0.15 | 20100104 | 15.69950 | 241.77212 | 177.56306 | 5.36237 | 0.2067175 | 2.3601563 | 43 | 4 | 2003–2009 | 0.41 | M-v | 0 | MPC | 166205 | 2005 $QX_{120}$ |
| 2005 $QP_{121}$ | 17.7 | 0.15 | 20100104 | 33.40363 | 114.25096 | 278.49487 | 0.78902 | 0.1676281 | 2.3631395 | 41 | 4 | 1998–2009 | 0.39 | M-v | 0 | MPC | 165435 | 2005 $QP_{121}$ |
| 2005 $QC_{123}$ | 16.5 | 0.15 | 20100104 | 232.29671 | 183.17723 | 338.81583 | 6.13852 | 0.0931713 | 2.4449568 | 48 | 5 | 1996–2009 | 0.31 | M-v | 1 | MPC | 164249 | 2005 $QC_{123}$ |
| 2005 $QJ_{123}$ | 17.2 | 0.15 | 20100104 | 46.23174 | 145.93965 | 207.67706 | 1.04049 | 0.0839329 | 2.4246216 | 70 | 6 | 1994–2009 | 0.41 | M-v | 0 | MPC | 166205 | 2005 $QJ_{123}$ |
| 2005 $QF_{131}$ | 16.7 | 0.15 | 20100104 | 43.11961 | 313.99609 | 66.18358 | 3.63095 | 0.1762893 | 2.3758686 | 65 | 6 | 1998–2009 | 0.40 | M-v | 0 | MPC | 166205 | 2005 $QF_{131}$ |
| 2005 $QL_{131}$ | 17.0 | 0.15 | 20100104 | 17.11174 | 353.21538 | 47.85320 | 3.11070 | 0.2187838 | 2.4243322 | 87 | 3 | 1990–2009 | 0.43 | M-v | 2 | MPC | 166205 | 2005 $QL_{131}$ |
| 2005 $QX_{131}$ | 17.5 | 0.15 | 20100104 | 343.49835 | 36.12975 | 62.77597 | 3.55495 | 0.1790121 | 2.3406161 | 59 | 5 | 1998–2009 | 0.40 | M-v | 0 | MPC | 166205 | 2005 $QX_{131}$ |
| 2005 $QQ_{133}$ | 16.8 | 0.15 | 20100104 | 1.21595 | 176.16201 | 99.46915 | 0.34473 | 0.1907501 | 2.9733715 | 46 | 5 | 1995–2009 | 0.30 | M-v | 0 | MPC | 159101 | 2005 $QQ_{133}$ |
| 2005 $QW_{133}$ | 18.6 | 0.15 | 20100104 | 54.89534 | 238.62638 | 155.09518 | 1.19712 | 0.1884292 | 2.3100480 | 33 | 5 | 1991–2009 | 0.37 | M-v | 1 | MPC | 120384 | 2005 $QW_{133}$ |
| 2005 $QC_{135}$ | 17.5 | 0.15 | 20100104 | 328.14469 | 329.40003 | 142.04374 | 3.03206 | 0.0888880 | 2.3371809 | 40 | 4 | 2000–2009 | 0.25 | M-v | 1 | MPC | 166205 | 2005 $QC_{135}$ |
| 2005 $QJ_{135}$ | 17.6 | 0.15 | 20100104 | 85.96020 | 333.52838 | 26.53093 | 2.23491 | 0.1238525 | 2.2845784 | 69 | 4 | 2004–2009 | 0.41 | M-v | 2 | MPC | 166205 | 2005 $QJ_{135}$ |
| 2005 $QX_{135}$ | 18.2 | 0.15 | 20100104 | 65.85899 | 205.03863 | 145.80697 | 2.04246 | 0.1996730 | 2.3808935 | 39 | 3 | 2005–2009 | 0.35 | M-v | 2 | MPC | 165435 | 2005 $QX_{135}$ |
| 2005 $QH_{138}$ | 18.1 | 0.15 | 20100104 | 16.00049 | 347.29512 | 66.96868 | 2.19129 | 0.1655551 | 2.3901427 | 45 | 3 | 2005–2009 | 0.28 | M-v | 2 | MPC | 166206 | 2005 $QH_{138}$ |
| 2005 $QJ_{139}$ | 17.1 | 0.15 | 20100104 | 336.07524 | 62.02624 | 17.33503 | 2.48394 | 0.1755623 | 2.4635959 | 81 | 3 | 2005–2009 | 0.37 | M-v | 1 | MPC | 164250 | 2005 $QJ_{139}$ |
| 2005 $QX_{145}$ | 17.1 | 0.15 | 20100104 | 34.38369 | 336.74054 | 55.34201 | 7.10426 | 0.2534028 | 2.4035500 | 57 | 2 | 2005–2009 | 0.52 | M-v | 3 | MPC | 166206 | 2005 $QX_{145}$ |
| 2005 $QY_{145}$ | 16.9 | 0.15 | 20100104 | 16.88456 | 311.63533 | 101.31512 | 8.80660 | 0.1885700 | 2.4000921 | 45 | 2 | 2005–2009 | 0.40 | M-v | 3 | MPC | 165436 | 2005 $QY_{145}$ |
| 2005 $QX_{146}$ | 17.4 | 0.15 | 20100104 | 40.28092 | 291.35711 | 55.32773 | 3.12001 | 0.1891923 | 2.4353883 | 54 | 5 | 2004–2009 | 0.41 | M-v | 1 | MPC | 164250 | 2005 $QX_{146}$ |
| 2005 $QF_{147}$ | 16.5 | 0.15 | 20100104 | 28.24287 | 290.21570 | 117.57344 | 10.08767 | 0.1885560 | 2.3171664 | 56 | 3 | 2003–2009 | 0.46 | M-v | 2 | MPC | 166206 | 2005 $QF_{147}$ |
| 2005 $QR_{147}$ | 16.9 | 0.15 | 20100104 | 36.27725 | 342.44589 | 43.24549 | 6.64595 | 0.2040781 | 2.3621545 | 66 | 4 | 1998–2009 | 0.50 | M-v | 1 | MPC | 165436 | 2005 $QR_{147}$ |
| 2005 $QU_{152}$ | 17.0 | 0.15 | 20100104 | 1.50125 | 149.60787 | 259.27907 | 5.76858 | 0.0705947 | 2.3834229 | 40 | 3 | 2005–2009 | 0.42 | M-v | 2 | MPC | 166206 | 2005 $QU_{152}$ |
| 2005 $QC_{155}$ | 17.4 | 0.15 | 20100104 | 109.32809 | 288.59014 | 27.02961 | 3.44456 | 0.1819780 | 2.2730409 | 34 | 3 | 2005–2009 | 0.27 | M-v | 2 | MPC | 165436 | 2005 $QC_{155}$ |
| 2005 $QK_{155}$ | 16.9 | 0.15 | 20100104 | 71.84852 | 260.20352 | 44.36557 | 4.15610 | 0.2163622 | 2.4296380 | 58 | 3 | 2005–2009 | 0.48 | M-v | 2 | MPC | 164250 | 2005 $QK_{155}$ |
| 2005 $QQ_{155}$ | 17.9 | 0.15 | 20100104 | 49.04145 | 332.10120 | 43.76419 | 2.97908 | 0.2353508 | 2.3398882 | 37 | 5 | 1998–2009 | 0.48 | M-v | 1 | MPC | 166206 | 2005 $QQ_{155}$ |
| 2005 $QC_{158}$ | 17.1 | 0.15 | 20100104 | 57.99994 | 316.74182 | 47.77113 | 3.82975 | 0.1977507 | 2.3749774 | 65 | 5 | 1994–2009 | 0.41 | M-v | 1 | MPC | 166206 | 2005 $QC_{158}$ |
| 2005 $QJ_{158}$ | 17.4 | 0.15 | 20100104 | 13.98580 | 3.15313 | 34.55666 | 5.64331 | 0.1958623 | 2.4566760 | 75 | 2 | 2005–2009 | 0.41 | M-v | 2 | MPC | 166206 | 2005 $QJ_{158}$ |
| 2005 $QE_{159}$ | 16.5 | 0.15 | 20100104 | 122.73755 | 245.29888 | 38.66044 | 5.49262 | 0.2229619 | 2.3506089 | 113 | 3 | 2005–2009 | 0.45 | M-v | 2 | MPC | 166206 | 2005 $QE_{159}$ |
| 2005 $QC_{160}$ | 16.3 | 0.15 | 20100104 | 64.58151 | 312.05661 | 55.93449 | 6.81653 | 0.1602867 | 2.3212558 | 41 | 4 | 2002–2009 | 0.51 | M-v | 1 | MPC | 95721 | 2005 $QC_{160}$ |
| 2005 $QD_{160}$ | 16.3 | 0.15 | 20100104 | 55.49841 | 314.15174 | 21.40209 | 8.86535 | 0.3126542 | 2.4324597 | 148 | 3 | 2005–2009 | 0.43 | M-v | 2 | MPC | 166206 | 2005 $QD_{160}$ |
| 2005 $QD_{161}$ | 17.5 | 0.15 | 20100104 | 2.41769 | 359.52354 | 73.69005 | 3.05915 | 0.1811457 | 2.3931839 | 69 | 3 | 2005–2009 | 0.36 | M-v | 2 | MPC | 166206 | 2005 $QD_{161}$ |
| 2005 $QX_{161}$ | 17.4 | 0.15 | 20100104 | 151.07958 | 215.21136 | 64.86676 | 4.35768 | 0.1343694 | 2.2417016 | 41 | 5 | 1995–2009 | 0.40 | M-v | 1 | MPC | 166206 | 2005 $QX_{161}$ |
| 2005 $QK_{165}$ | 16.8 | 0.15 | 20100104 | 94.50818 | 259.42468 | 58.89778 | 6.48673 | 0.1341946 | 2.3820092 | 58 | 3 | 2001–2009 | 0.49 | M-v | 3 | MPC | 166206 | 2005 $QK_{165}$ |
| 2005 $QE_{171}$ | 16.8 | 0.15 | 20100104 | 92.63396 | 35.08106 | 288.90622 | 4.80971 | 0.2462979 | 2.3373989 | 64 | 4 | 2001–2009 | 0.44 | M-v | 2 | MPC | 118119 | 2005 $QE_{171}$ |
| 2005 $QW_{171}$ | 17.4 | 0.15 | 20100104 | 162.53487 | 342.00169 | 314.02029 | 3.92137 | 0.1519171 | 2.2031735 | 50 | 5 | 2002–2009 | 0.39 | M-v | 1 | MPC | 147351 | 2005 $QW_{171}$ |
| 2005 $QO_{172}$ | 17.1 | 0.15 | 20100104 | 5.14760 | 127.53511 | 306.04835 | 4.38149 | 0.1943668 | 2.3974422 | 40 | 3 | 2003–2009 | 0.54 | M-v | 3 | MPC | 165436 | 2005 $QO_{172}$ |
| 2005 $QQ_{174}$ | 17.6 | 0.15 | 20100104 | 40.90314 | 222.82876 | 182.93040 | 2.55146 | 0.1497975 | 2.3028519 | 47 | 5 | 1998–2009 | 0.37 | M-v | 1 | MPC | 117551 | 2005 $QQ_{174}$ |
| 2005 $QN_{175}$ | 17.7 | 0.15 | 20100104 | 55.99087 | 15.92829 | 346.25418 | 1.39331 | 0.2271986 | 2.3929407 | 41 | 2 | 2005–2009 | 0.28 | M-v | 3 | MPC | 165437 | 2005 $QN_{175}$ |
| 2005 $QT_{175}$ | 17.7 | 0.15 | 20100104 | 19.83203 | 308.86710 | 118.88877 | 3.18396 | 0.1854118 | 2.3478600 | 28 | 4 | 2003–2009 | 0.33 | M-v | 1 | MPC | 166206 | 2005 $QT_{175}$ |
| 2005 $QB_{176}$ | 16.5 | 0.15 | 20100104 | 74.57997 | 281.21427 | 40.68763 | 7.11782 | 0.0882792 | 2.4602179 | 67 | 5 | 2001–2009 | 0.46 | M-v | 1 | MPC | 166206 | 2005 $QB_{176}$ |
| 2005 $QZ_{177}$ | 17.4 | 0.15 | 20100104 | 15.37122 | 103.78708 | 310.56479 | 1.82087 | 0.2136868 | 2.4173867 | 69 | 5 | 1999–2009 | 0.50 | M-v | 0 | MPC | 166206 | 2005 $QZ_{177}$ |
| 2005 $QA_{178}$ | 16.6 | 0.15 | 20100104 | 34.03087 | 294.05065 | 120.21122 | 7.33852 | 0.0944123 | 2.3370799 | 47 | 5 | 2003–2009 | 0.54 | M-v | 1 | MPC | 121823 | 2005 $QA_{178}$ |
| 2005 $QG_{178}$ | 17.6 | 0.15 | 20100104 | 40.28751 | 202.47494 | 189.63642 | 1.58613 | 0.1438061 | 2.3622928 | 37 | 5 | 1998–2009 | 0.39 | M-v | 1 | MPC | 166206 | 2005 $QG_{178}$ |
| 2005 $QT_{179}$ | 17.5 | 0.15 | 20100104 | 120.10119 | 216.23762 | 89.86132 | 3.76571 | 0.1921351 | 2.2893320 | 46 | 4 | 2005–2009 | 0.44 | M-v | 1 | MPC | 139764 | 2005 $QT_{179}$ |
| 2005 $QD_{180}$ | 17.8 | 0.15 | 20100104 | 73.76102 | 83.17680 | 248.22506 | 3.90338 | 0.2477766 | 2.3739012 | 35 | 2 | 2005–2009 | 0.44 | M-v | 3 | MPC | 165437 | 2005 $QD_{180}$ |
| 2005 $QN_{180}$ | 17.7 | 0.15 | 20100104 | 60.62144 | 295.98253 | 54.13417 | 5.95373 | 0.2419638 | 2.3773165 | 43 | 3 | 2005–2009 | 0.58 | M-v | 3 | MPC | 165437 | 2005 $QN_{180}$ |
| 2005 $QO_{180}$ | 18.1 | 0.15 | 20100104 | 136.94877 | 167.62848 | 154.96457 | 2.40788 | 0.0970267 | 2.2159529 | 36 | 5 | 1997–2009 | 0.32 | M-v | 1 | MPC | 120816 | 2005 $QO_{180}$ |
| 2005 $QW_{181}$ | 17.5 | 0.15 | 20100104 | 35.67546 | 162.48228 | 241.07978 | 1.70091 | 0.1760675 | 2.3334280 | 31 | 3 | 2005–2009 | 0.32 | M-v | 2 | MPC | 166207 | 2005 $QW_{181}$ |
| 2005 $QQ_{182}$ | 17.9 | 0.15 | 20100104 | 0.35222 | 275.11401 | 180.74737 | 2.16607 | 0.0913627 | 2.2843415 | 33 | 4 | 2000–2009 | 0.31 | M-v | 0 | MPC | 121823 | 2005 $QQ_{182}$ |
| 2005 $QU_{182}$ | 3.4 | 0.15 | 20100104 | 11.30589 | 224.39526 | 78.38105 | 14.03075 | 0.6760144 | 114.0695101 | 39 | 8 | 1974–2009 | 0.34 | M-v | 2 | MPC | 148581 | 2005 $QU_{182}$ |
| 2005 $QE_{183}$ | 17.3 | 0.15 | 20100104 | 45.43918 | 99.87040 | 272.66320 | 4.50935 | 0.1715906 | 2.3882623 | 46 | 4 | 2002–2009 | 0.45 | M-v | 1 | MPC | 166207 | 2005 $QE_{183}$ |
| 2005 $QO_{188}$ | 17.8 | 0.15 | 20100104 | 91.44565 | 173.44168 | 146.64094 | 1.72022 | 0.2029207 | 2.3471373 | 43 | 3 | 2005–2009 | 0.41 | M-v | 2 | MPC | 166207 | 2005 $QO_{188}$ |
| 2005 $QR_{189}$ | 17.6 | 0.15 | 20100104 | 17.29179 | 170.73586 | 260.71600 | 1.58503 | 0.0834944 | 2.2647298 | 25 | 5 | 1995–2009 | 0.36 | M-v | 0 | MPC | 166207 | 2005 $QR_{189}$ |
| 2005 $QN_{190}$ | 18.0 | 0.15 | 20050907 | 357.45115 | 22.41106 | 332.29786 | 12.29330 | 0.3045472 | 2.6413687 | 15 | 1 | 36 days | 0.42 | | | MPC | | 2005 $QN_{190}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 $QP_{190}$ | 15.1 | 0.15 | 20050907 | 345.70797 | 89.92804 | 278.41533 | 14.21413 | 0.2936008 | 3.1008450 | 12 | 1 | 26 days | 0.17 | | | MPC | | 2005 $QP_{190}$ |
| 2005 $QQ_{190}$ | 15.3 | 0.15 | 20050927 | 15.16376 | 71.85623 | 260.33057 | 9.80808 | 0.2195542 | 3.0713862 | 12 | 1 | 59 days | 0.61 | | | MPC | | 2005 $QQ_{190}$ |
| 2005 $RS_{1}$ | 16.7 | 0.15 | 20100104 | 38.73504 | 0.86922 | 30.32348 | 3.35910 | 0.1792634 | 2.3099028 | 53 | 5 | 2002–2009 | 0.39 | M-v | 1 | MPC | 166207 | 2005 $RS_{1}$ |
| 2005 $RA_{5}$ | 17.1 | 0.15 | 20100104 | 24.47825 | 91.74916 | 308.83719 | 4.81635 | 0.1786653 | 2.4209464 | 137 | 2 | 2005–2009 | 0.49 | M-v | 3 | MPC | 165437 | 2005 $RA_{5}$ |
| 2005 $RW_{5}$ | 18.0 | 0.15 | 20100104 | 69.45137 | 92.05643 | 263.84146 | 1.12263 | 0.2369051 | 2.3377895 | 38 | 3 | 1998–2009 | 0.53 | M-v | 3 | MPC | 87157 | 2005 $RW_{5}$ |
| 2005 $RQ_{6}$ | 18.9 | 0.15 | 20100104 | 15.22585 | 5.44684 | 36.23261 | 12.48097 | 0.5509873 | 2.5061990 | 437 | 2 | 2005–2009 | 0.29 | M-v | 0 | MPC | 166207 | 2005 $RQ_{6}$ |
| 2005 $RR_{6}$ | 18.4 | 0.15 | 20100104 | 298.08034 | 58.86558 | 28.27158 | 6.95613 | 0.6959047 | 2.9750732 | 66 | 2 | 2005–2006 | 0.35 | M-v | 2 | MPC | 102254 | 2005 $RR_{6}$ |
| 2005 $RM_{8}$ | 17.3 | 0.15 | 20100104 | 41.45290 | 76.52254 | 336.09218 | 2.99856 | 0.2242993 | 2.3177429 | 46 | 4 | 1998–2009 | 0.70 | M-v | 1 | MPC | 166207 | 2005 $RM_{8}$ |
| 2005 $RO_{8}$ | 17.5 | 0.15 | 20100104 | 126.33088 | 102.27174 | 212.72291 | 1.73408 | 0.1548221 | 2.2607524 | 52 | 5 | 2001–2009 | 0.47 | M-v | 2 | MPC | 118120 | 2005 $RO_{8}$ |
| 2005 $RX_{8}$ | 16.4 | 0.15 | 20100104 | 100.31914 | 159.89852 | 171.22670 | 5.81017 | 0.1368039 | 2.3365352 | 109 | 4 | 2005–2009 | 0.48 | M-v | 1 | MPC | 140140 | 2005 $RX_{8}$ |
| 2005 $RX_{9}$ | 16.2 | 0.15 | 20100104 | 25.70177 | 166.75963 | 233.57678 | 6.70175 | 0.2718755 | 2.4248774 | 206 | 3 | 2001–2009 | 0.46 | M-v | 1 | MPC | 166207 | 2005 $RX_{9}$ |
| 2005 $RZ_{10}$ | 16.9 | 0.15 | 20100104 | 146.03814 | 45.23850 | 268.35072 | 4.63167 | 0.1316530 | 2.2133405 | 50 | 4 | 2002–2009 | 0.52 | M-v | 2 | MPC | 140694 | 2005 $RZ_{10}$ |
| 2005 $RW_{11}$ | 17.8 | 0.15 | 20100104 | 62.94177 | 65.48799 | 294.26813 | 0.39594 | 0.1814766 | 2.3986755 | 53 | 3 | 2004–2009 | 0.44 | M-v | 3 | MPC | 165438 | 2005 $RW_{11}$ |
| 2005 $RQ_{14}$ | 17.9 | 0.15 | 20100104 | 25.21270 | 215.16984 | 181.43800 | 1.10854 | 0.1894813 | 2.3940599 | 53 | 4 | 2003–2009 | 0.53 | M-v | 1 | MPC | 166207 | 2005 $RQ_{14}$ |
| 2005 $RZ_{17}$ | 17.3 | 0.15 | 20100104 | 326.34042 | 48.21859 | 68.12043 | 3.42528 | 0.1148212 | 2.3050763 | 49 | 5 | 2000–2009 | 0.43 | M-v | 1 | MPC | 166207 | 2005 $RZ_{17}$ |
| 2005 $RZ_{20}$ | 16.8 | 0.15 | 20100104 | 76.22418 | 74.82083 | 264.15790 | 5.45077 | 0.1400349 | 2.3866797 | 56 | 5 | 1996–2009 | 0.36 | M-v | 1 | MPC | 166207 | 2005 $RZ_{20}$ |
| 2005 $RO_{21}$ | 16.8 | 0.15 | 20100104 | 34.20599 | 148.86483 | 223.10045 | 5.78074 | 0.1181557 | 2.4142438 | 94 | 5 | 1994–2009 | 0.46 | M-v | 1 | MPC | 166207 | 2005 $RO_{21}$ |
| 2005 $RW_{21}$ | 17.5 | 0.15 | 20100104 | 48.81463 | 30.92509 | 355.38764 | 2.64605 | 0.1605181 | 2.3272963 | 43 | 4 | 1991–2009 | 0.48 | M-v | 1 | MPC | 118120 | 2005 $RW_{21}$ |
| 2005 $RE_{22}$ | 18.0 | 0.15 | 20100104 | 53.18989 | 136.27274 | 216.15856 | 0.09130 | 0.2431860 | 2.4187899 | 54 | 2 | 2005–2009 | 0.34 | M-v | 3 | MPC | 166207 | 2005 $RE_{22}$ |
| 2005 $RB_{25}$ | 16.1 | 0.15 | 20100104 | 65.60870 | 45.41595 | 311.18397 | 6.97525 | 0.2310958 | 2.3821030 | 55 | 3 | 2003–2009 | 0.50 | M-v | 3 | MPC | 165438 | 2005 $RB_{25}$ |
| 2005 $RJ_{25}$ | 16.7 | 0.15 | 20100104 | 68.12013 | 94.30942 | 266.03705 | 5.31431 | 0.1144192 | 2.3691265 | 49 | 3 | 2001–2009 | 0.47 | M-v | 3 | MPC | 165438 | 2005 $RJ_{25}$ |
| 2005 $RT_{25}$ | 16.5 | 0.15 | 20100104 | 119.40036 | 48.89483 | 280.70498 | 5.67414 | 0.1940281 | 2.2651802 | 82 | 5 | 1992–2009 | 0.45 | M-v | 1 | MPC | 116303 | 2005 $RT_{25}$ |
| 2005 $RB_{29}$ | 16.7 | 0.15 | 20100104 | 109.54067 | 223.32049 | 104.66167 | 5.08219 | 0.1898690 | 2.2757853 | 64 | 8 | 1995–2009 | 0.48 | M-v | 1 | MPC | 140140 | 2005 $RB_{29}$ |
| 2005 $RO_{30}$ | 16.2 | 0.15 | 20100104 | 49.01070 | 90.54252 | 311.74852 | 11.25900 | 0.2183426 | 2.3574708 | 86 | 3 | 2001–2009 | 0.47 | M-v | 2 | MPC | 165439 | 2005 $RO_{30}$ |
| 2005 $RR_{30}$ | 18.5 | 0.15 | 20100104 | 34.30302 | 3.01263 | 21.85714 | 1.27518 | 0.1950838 | 2.3916600 | 36 | 3 | 1994–2009 | 0.33 | M-v | 1 | MPC | 166207 | 2005 $RR_{30}$ |
| 2005 $RX_{30}$ | 16.5 | 0.15 | 20100104 | 35.90764 | 110.29229 | 284.63728 | 7.91295 | 0.3263662 | 2.4286188 | 114 | 3 | 2001–2009 | 0.54 | M-v | 2 | MPC | 166207 | 2005 $RX_{30}$ |
| 2005 $RN_{33}$ | 19.6 | 0.15 | 20100104 | 297.22234 | 300.00758 | 100.75380 | 7.18991 | 0.2565672 | 1.7337674 | 84 | 2 | 2005–2009 | 0.48 | M-v | 2 | MPC | 157427 | 2005 $RN_{33}$ |
| 2005 $RQ_{40}$ | 16.9 | 0.15 | 20100104 | 31.49285 | 148.70852 | 230.58786 | 3.97903 | 0.2037844 | 2.4432219 | 94 | 3 | 2001–2009 | 0.46 | M-v | 2 | MPC | 166207 | 2005 $RQ_{40}$ |
| 2005 $RH_{41}$ | 17.2 | 0.15 | 20100104 | 18.33926 | 46.23660 | 39.90141 | 3.10235 | 0.0537329 | 2.2371160 | 41 | 4 | 2002–2009 | 0.31 | M-v | 0 | MPC | 118121 | 2005 $RH_{41}$ |
| 2005 $RQ_{41}$ | 17.5 | 0.15 | 20100104 | 34.54805 | 292.66633 | 98.09590 | 2.89278 | 0.1919653 | 2.3926781 | 40 | 3 | 2005–2009 | 0.36 | M-v | 3 | MPC | 165439 | 2005 $RQ_{41}$ |
| 2005 $RY_{41}$ | 16.9 | 0.15 | 20100104 | 0.57137 | 250.22884 | 198.63324 | 6.54767 | 0.0755814 | 2.2868261 | 42 | 4 | 2002–2009 | 0.52 | M-v | 1 | MPC | 120816 | 2005 $RY_{41}$ |
| 2005 $RB_{42}$ | 17.9 | 0.15 | 20100104 | 27.08278 | 184.03838 | 217.32891 | 1.76149 | 0.1975174 | 2.3897198 | 52 | 5 | 1994–2009 | 0.34 | M-v | 0 | MPC | 166208 | 2005 $RB_{42}$ |
| 2005 $RA_{43}$ | 17.7 | 0.15 | 20100104 | 102.06248 | 75.88686 | 265.96885 | 4.45215 | 0.2103831 | 2.2510201 | 29 | 3 | 2002–2009 | 0.42 | M-v | 3 | MPC | 100978 | 2005 $RA_{43}$ |
| 2005 $RO_{43}$ | 7.3 | 0.15 | 20100104 | 309.96066 | 326.54433 | 198.12584 | 35.42592 | 0.5182804 | 28.8420103 | 119 | 6 | 2004–2009 | 0.13 | M-v | 2 | MPC | 157427 | 2005 $RO_{43}$ |
| 2005 $RT_{43}$ | 17.7 | 0.15 | 20100104 | 10.02490 | 295.45237 | 151.31480 | 2.09921 | 0.1835181 | 2.3165818 | 48 | 5 | 1996–2009 | 0.46 | M-v | 0 | MPC | 121824 | 2005 $RT_{43}$ |
| 2005 $RJ_{44}$ | 16.9 | 0.15 | 20100104 | 56.49996 | 318.99879 | 45.74925 | 9.09001 | 0.1493103 | 2.3920295 | 56 | 3 | 2004–2009 | 0.49 | M-v | 2 | MPC | 166208 | 2005 $RJ_{44}$ |
| 2005 $RX_{44}$ | 16.8 | 0.15 | 20100104 | 44.70368 | 334.86616 | 56.94120 | 6.77168 | 0.1136632 | 2.3394006 | 56 | 5 | 1993–2009 | 0.58 | M-v | 1 | MPC | 166208 | 2005 $RX_{44}$ |
| 2005 $RU_{47}$ | 17.2 | 0.15 | 20100104 | 11.72393 | 10.24049 | 50.07617 | 8.38977 | 0.1296173 | 2.4179720 | 65 | 2 | 2005–2009 | 0.38 | M-v | 2 | MPC | 166208 | 2005 $RU_{47}$ |
| 2005 $RZ_{51}$ | 19.1 | 0.15 | 20100104 | 162.38851 | 28.99898 | 274.84756 | 2.08952 | 0.3424754 | 2.1267687 | 32 | 1 | 114 days | 0.53 | M-v | 4 | MPC | | 2005 $RZ_{51}$ |
| 2005 SH | 17.9 | 0.15 | 20100104 | 35.44918 | 131.97978 | 249.16710 | 4.63174 | 0.2621675 | 2.4270080 | 68 | 2 | 2005–2009 | 0.43 | M-v | 3 | MPC | 165440 | 2005 SH |
| 2005 SX | 16.6 | 0.15 | 20100104 | 141.45526 | 34.22364 | 240.25332 | 6.30888 | 0.1088263 | 2.3285340 | 60 | 4 | 2005–2009 | 0.44 | M-v | 1 | MPC | 166208 | 2005 SX |
| 2005 $SP_{2}$ | 17.5 | 0.15 | 20100104 | 48.19742 | 36.85764 | 319.08363 | 3.96792 | 0.2380580 | 2.4068941 | 45 | 4 | 2003–2009 | 0.44 | M-v | 1 | MPC | 166208 | 2005 $SP_{2}$ |
| 2005 $SW_{2}$ | 17.0 | 0.15 | 20100104 | 97.58665 | 323.46241 | 24.36631 | 6.83446 | 0.1349822 | 2.2961918 | 62 | 4 | 1998–2009 | 0.39 | M-v | 1 | MPC | 111127 | 2005 $SW_{2}$ |
| 2005 $SY_{2}$ | 17.7 | 0.15 | 20100104 | 56.44856 | 187.18801 | 165.15041 | 2.24173 | 0.2294141 | 2.4289657 | 101 | 4 | 2001–2009 | 0.39 | M-v | 1 | MPC | 166208 | 2005 $SY_{2}$ |
| 2005 $SB_{3}$ | 17.6 | 0.15 | 20100104 | 97.95418 | 352.61892 | 5.82119 | 3.08501 | 0.1744172 | 2.2689074 | 73 | 4 | 2004–2009 | 0.39 | M-v | 2 | MPC | 166208 | 2005 $SB_{3}$ |
| 2005 $SJ_{3}$ | 17.2 | 0.15 | 20100104 | 150.26785 | 353.35691 | 323.01321 | 3.06174 | 0.1748842 | 2.2158875 | 99 | 7 | 1994–2009 | 0.48 | M-v | 1 | MPC | 147352 | 2005 $SJ_{3}$ |
| 2005 $SS_{4}$ | 19.1 | 0.15 | 20100104 | 207.14865 | 192.15323 | 28.72884 | 14.59543 | 0.7513036 | 1.4599593 | 46 | 3 | 2005–2007 | 0.52 | M-v | 3 | MPC | 128891 | 2005 $SS_{4}$ |
| 2005 $SD_{5}$ | 17.0 | 0.15 | 20100104 | 129.02558 | 293.32010 | 22.70788 | 4.67930 | 0.2196066 | 2.2132171 | 69 | 5 | 2002–2009 | 0.39 | M-v | 1 | MPC | 114750 | 2005 $SD_{5}$ |
| 2005 $SU_{5}$ | 17.6 | 0.15 | 20100104 | 59.48128 | 143.52120 | 229.95579 | 1.28189 | 0.2230509 | 2.3641547 | 87 | 3 | 2005–2009 | 0.37 | M-v | 2 | MPC | 165440 | 2005 $SU_{5}$ |
| 2005 $SN_{6}$ | 17.4 | 0.15 | 20100104 | 300.15416 | 187.81917 | 289.07099 | 2.69520 | 0.0671535 | 2.5124883 | 37 | 4 | 2001–2009 | 0.33 | M-v | 2 | MPC | 164252 | 2005 $SN_{6}$ |
| 2005 $SX_{6}$ | 18.0 | 0.15 | 20100104 | 43.26607 | 115.56657 | 269.67531 | 1.15559 | 0.1865644 | 2.4267418 | 38 | 2 | 2005–2009 | 0.31 | M-v | 3 | MPC | 165440 | 2005 $SX_{6}$ |
| 2005 $SQ_{7}$ | 16.9 | 0.15 | 20100104 | 291.72366 | 172.56633 | 349.33330 | 2.15584 | 0.1147993 | 2.3418472 | 88 | 3 | 2005–2009 | 0.41 | M-v | 3 | MPC | 166208 | 2005 $SQ_{7}$ |
| 2005 $SY_{7}$ | 16.9 | 0.15 | 20100104 | 35.32229 | 263.58027 | 111.98956 | 6.83496 | 0.1082598 | 2.4144860 | 41 | 5 | 2001–2009 | 0.49 | M-v | 1 | MPC | 166208 | 2005 $SY_{7}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 $SH_{10}$ | 15.7 | 0.15 | 20100104 | 52.55937 | 10.97081 | 53.61321 | 25.76092 | 0.2079363 | 2.2719281 | 88 | 4 | 2002–2009 | 0.53 | M-v | 1 | MPC | 119651 | 2005 $SH_{10}$ |
| 2005 $SO_{10}$ | 16.5 | 0.15 | 20100104 | 67.89064 | 290.70146 | 85.72256 | 6.41141 | 0.1856532 | 2.2978223 | 66 | 6 | 1998–2009 | 0.47 | M-v | 1 | MPC | 166208 | 2005 $SO_{10}$ |
| 2005 $SM_{12}$ | 15.9 | 0.15 | 20100104 | 66.07291 | 116.09259 | 239.11327 | 6.39956 | 0.1154603 | 2.4024371 | 134 | 3 | 2005–2009 | 0.53 | M-v | 2 | MPC | 166208 | 2005 $SM_{12}$ |
| 2005 $SD_{17}$ | 17.9 | 0.15 | 20100104 | 139.37289 | 334.66552 | 325.44504 | 1.97038 | 0.0834073 | 2.3063437 | 50 | 5 | 2000–2009 | 0.36 | M-v | 0 | MPC | 118122 | 2005 $SD_{17}$ |
| 2005 $SP_{17}$ | 17.3 | 0.15 | 20100104 | 194.37218 | 222.82525 | 14.46278 | 2.21064 | 0.1257484 | 2.3258831 | 62 | 5 | 1997–2009 | 0.44 | M-v | 0 | MPC | 122794 | 2005 $SP_{17}$ |
| 2005 $SH_{18}$ | 18.3 | 0.15 | 20100104 | 46.38610 | 171.92577 | 222.95104 | 0.73668 | 0.1842781 | 2.3573539 | 48 | 3 | 2005–2009 | 0.25 | M-v | 2 | MPC | 117556 | 2005 $SH_{18}$ |
| 2005 $SR_{18}$ | 16.9 | 0.15 | 20100104 | 2.74941 | 5.50229 | 1.18317 | 2.56653 | 0.1096200 | 2.6283144 | 60 | 4 | 1999–2009 | 0.48 | M-v | 2 | MPC | 162431 | 2005 $SR_{18}$ |
| 2005 $SX_{19}$ | 17.4 | 0.15 | 20100104 | 42.66112 | 347.70977 | 55.24098 | 4.46293 | 0.1814938 | 2.3593099 | 67 | 3 | 2005–2009 | 0.47 | M-v | 2 | MPC | 166208 | 2005 $SX_{19}$ |
| 2005 $SU_{20}$ | 16.4 | 0.15 | 20100104 | 84.44475 | 264.98222 | 86.87863 | 3.44757 | 0.2212563 | 2.3550353 | 106 | 5 | 2003–2009 | 0.38 | M-v | 1 | MPC | 164252 | 2005 $SU_{20}$ |
| 2005 $SQ_{21}$ | 16.3 | 0.15 | 20100104 | 33.71933 | 111.59382 | 236.39760 | 6.87362 | 0.2464405 | 2.4558866 | 103 | 2 | 2005–2009 | 0.46 | M-v | 2 | MPC | 166208 | 2005 $SQ_{21}$ |
| 2005 $SU_{21}$ | 16.7 | 0.15 | 20100104 | 92.50435 | 333.93145 | 8.07857 | 6.69981 | 0.1425489 | 2.3205369 | 100 | 6 | 1991–2009 | 0.53 | M-v | 1 | MPC | 118122 | 2005 $SU_{21}$ |
| 2005 $SK_{22}$ | 17.1 | 0.15 | 20100104 | 137.41003 | 276.78685 | 42.45346 | 4.07290 | 0.1907593 | 2.2186555 | 82 | 4 | 2001–2009 | 0.36 | M-v | 2 | MPC | 121826 | 2005 $SK_{22}$ |
| 2005 $SW_{22}$ | 17.4 | 0.15 | 20100104 | 34.13034 | 338.28466 | 33.78343 | 5.73813 | 0.2182320 | 2.4606369 | 79 | 2 | 2005–2009 | 0.45 | M-v | 2 | MPC | 166208 | 2005 $SW_{22}$ |
| 2005 $SN_{23}$ | 17.1 | 0.15 | 20100104 | 38.60668 | 356.88512 | 49.09281 | 4.64443 | 0.1871045 | 2.3428887 | 57 | 5 | 1996–2009 | 0.52 | M-v | 1 | MPC | 118122 | 2005 $SN_{23}$ |
| 2005 $SL_{24}$ | 16.7 | 0.15 | 20100104 | 91.81123 | 263.71711 | 118.46982 | 5.22770 | 0.1772263 | 2.2271579 | 63 | 5 | 2002–2009 | 0.47 | M-v | 1 | MPC | 140141 | 2005 $SL_{24}$ |
| 2005 $SR_{24}$ | 17.5 | 0.15 | 20100104 | 114.48646 | 265.98428 | 75.23713 | 5.96325 | 0.1758711 | 2.2403859 | 46 | 5 | 2001–2009 | 0.44 | M-v | 1 | MPC | 166208 | 2005 $SR_{24}$ |
| 2005 $SB_{26}$ | 16.6 | 0.15 | 20100104 | 38.25814 | 141.43828 | 235.08158 | 7.66240 | 0.0674069 | 2.4376681 | 64 | 4 | 2003–2009 | 0.47 | M-v | 0 | MPC | 166208 | 2005 $SB_{26}$ |
| 2005 $SE_{26}$ | 17.6 | 0.15 | 20100104 | 145.56112 | 116.33294 | 161.61174 | 2.70779 | 0.2403350 | 2.2948066 | 87 | 7 | 1998–2009 | 0.31 | M-v | 0 | MPC | 140694 | 2005 $SE_{26}$ |
| 2005 $SP_{26}$ | 17.1 | 0.15 | 20100104 | 7.68218 | 3.65078 | 49.61705 | 2.79450 | 0.1662557 | 2.4429271 | 78 | 3 | 2005–2009 | 0.51 | M-v | 3 | MPC | 166208 | 2005 $SP_{26}$ |
| 2005 $SC_{27}$ | 16.8 | 0.15 | 20100104 | 301.33182 | 244.84617 | 273.06685 | 4.97336 | 0.1112489 | 2.2998723 | 58 | 4 | 2002–2009 | 0.49 | M-v | 1 | MPC | 166208 | 2005 $SC_{27}$ |
| 2005 $SS_{27}$ | 16.4 | 0.15 | 20100104 | 241.21615 | 312.22893 | 244.55385 | 5.63244 | 0.0851120 | 2.3538726 | 67 | 6 | 1994–2009 | 0.56 | M-v | 1 | MPC | 166208 | 2005 $SS_{27}$ |
| 2005 $SE_{31}$ | 17.0 | 0.15 | 20100104 | 144.08144 | 316.08758 | 338.93414 | 2.38573 | 0.1683115 | 2.2693065 | 99 | 6 | 1997–2009 | 0.36 | M-v | 1 | MPC | 122795 | 2005 $SE_{31}$ |
| 2005 $SQ_{31}$ | 16.8 | 0.15 | 20100104 | 283.64493 | 156.92550 | 36.85586 | 7.02841 | 0.1331560 | 2.2416500 | 54 | 6 | 1995–2009 | 0.45 | M-v | 1 | MPC | 118122 | 2005 $SQ_{31}$ |
| 2005 $SW_{31}$ | 16.9 | 0.15 | 20100104 | 21.21692 | 342.42804 | 72.48272 | 3.45504 | 0.0705520 | 2.3972025 | 56 | 6 | 1994–2009 | 0.39 | M-v | 0 | MPC | 166209 | 2005 $SW_{31}$ |
| 2005 $SK_{32}$ | 17.3 | 0.15 | 20100104 | 102.81813 | 200.33836 | 109.49908 | 2.51075 | 0.1987158 | 2.3937005 | 51 | 6 | 1994–2009 | 0.34 | M-v | 0 | MPC | 166209 | 2005 $SK_{32}$ |
| 2005 $SY_{32}$ | 16.6 | 0.15 | 20100104 | 39.60056 | 354.55949 | 40.94536 | 6.41137 | 0.0719079 | 2.3962237 | 60 | 3 | 2005–2009 | 0.46 | M-v | 3 | MPC | 166209 | 2005 $SY_{32}$ |
| 2005 $SE_{33}$ | 17.2 | 0.15 | 20100104 | 49.80743 | 181.67928 | 206.78826 | 5.90898 | 0.1159229 | 2.3440851 | 57 | 6 | 1996–2009 | 0.39 | M-v | 1 | MPC | 121827 | 2005 $SE_{33}$ |
| 2005 $SX_{33}$ | 17.6 | 0.15 | 20100104 | 8.09014 | 344.35901 | 83.07245 | 3.40168 | 0.1889073 | 2.4393487 | 39 | 2 | 2005–2009 | 0.39 | M-v | 3 | MPC | 165441 | 2005 $SX_{33}$ |
| 2005 $SO_{35}$ | 16.9 | 0.15 | 20100104 | 49.96031 | 331.45596 | 36.86296 | 7.16432 | 0.1565939 | 2.4322559 | 90 | 2 | 2005–2009 | 0.50 | M-v | 3 | MPC | 166209 | 2005 $SO_{35}$ |
| 2005 $ST_{37}$ | 17.6 | 0.15 | 20100104 | 293.33436 | 344.54868 | 180.84891 | 5.30786 | 0.0981560 | 2.2865981 | 60 | 6 | 1998–2009 | 0.28 | M-v | 0 | MPC | 121827 | 2005 $ST_{37}$ |
| 2005 $SD_{38}$ | 17.5 | 0.15 | 20100104 | 36.20077 | 331.00919 | 39.16078 | 1.89014 | 0.2032548 | 2.4576118 | 104 | 2 | 2005–2009 | 0.30 | M-v | 2 | MPC | 166209 | 2005 $SD_{38}$ |
| 2005 $SU_{38}$ | 17.4 | 0.15 | 20100104 | 118.64458 | 285.27307 | 12.34004 | 2.59854 | 0.1871987 | 2.3543627 | 51 | 6 | 1998–2009 | 0.32 | M-v | 0 | MPC | 166209 | 2005 $SU_{38}$ |
| 2005 $SJ_{39}$ | 17.3 | 0.15 | 20100104 | 23.40953 | 71.84783 | 14.61863 | 4.55860 | 0.0994369 | 2.2746963 | 56 | 3 | 2005–2009 | 0.42 | M-v | 3 | MPC | 119190 | 2005 $SJ_{39}$ |
| 2005 $SF_{41}$ | 17.7 | 0.15 | 20100104 | 25.59315 | 306.41287 | 120.34481 | 0.46683 | 0.1908072 | 2.3543478 | 64 | 4 | 2002–2009 | 0.34 | M-v | 0 | MPC | 166209 | 2005 $SF_{41}$ |
| 2005 $SX_{41}$ | 17.1 | 0.15 | 20100104 | 50.61589 | 109.85634 | 267.96453 | 2.43732 | 0.2129643 | 2.4011701 | 82 | 5 | 2001–2009 | 0.52 | M-v | 1 | MPC | 116306 | 2005 $SX_{41}$ |
| 2005 $SW_{46}$ | 18.0 | 0.15 | 20100104 | 354.04596 | 143.26816 | 309.16264 | 1.89285 | 0.1572400 | 2.3990316 | 46 | 5 | 2001–2009 | 0.32 | M-v | 0 | MPC | 166209 | 2005 $SW_{46}$ |
| 2005 $SM_{47}$ | 17.6 | 0.15 | 20100104 | 18.89267 | 155.42308 | 271.04612 | 1.68428 | 0.1620800 | 2.3829846 | 31 | 4 | 2002–2009 | 0.32 | M-v | 0 | MPC | 119190 | 2005 $SM_{47}$ |
| 2005 $SP_{48}$ | 17.4 | 0.15 | 20100104 | 144.38081 | 324.87284 | 354.52956 | 3.88324 | 0.0276396 | 2.2753591 | 50 | 4 | 1998–2009 | 0.30 | M-v | 1 | MPC | 120816 | 2005 $SP_{48}$ |
| 2005 $SD_{49}$ | 17.8 | 0.15 | 20100104 | 43.23629 | 311.92822 | 39.69517 | 1.41379 | 0.1796722 | 2.5220899 | 57 | 3 | 2001–2009 | 0.44 | M-v | 3 | MPC | 166209 | 2005 $SD_{49}$ |
| 2005 $SM_{49}$ | 17.3 | 0.15 | 20100104 | 46.77511 | 337.81013 | 39.41210 | 2.05134 | 0.1922202 | 2.4312955 | 119 | 4 | 2001–2009 | 0.42 | M-v | 2 | MPC | 166209 | 2005 $SM_{49}$ |
| 2005 $SO_{49}$ | 17.7 | 0.15 | 20100104 | 328.66164 | 82.55812 | 24.81257 | 3.96617 | 0.0911963 | 2.4370380 | 60 | 4 | 2003–2009 | 0.30 | M-v | 0 | MPC | 166209 | 2005 $SO_{49}$ |
| 2005 $SR_{50}$ | 17.4 | 0.15 | 20100104 | 98.51945 | 323.53965 | 22.12676 | 4.93891 | 0.1527263 | 2.3223765 | 63 | 4 | 2004–2009 | 0.43 | M-v | 2 | MPC | 116306 | 2005 $SR_{50}$ |
| 2005 $SU_{52}$ | 17.5 | 0.15 | 20100104 | 69.13226 | 272.95590 | 108.63698 | 1.77572 | 0.1616449 | 2.3138050 | 79 | 4 | 2003–2009 | 0.42 | M-v | 1 | MPC | 121597 | 2005 $SU_{52}$ |
| 2005 $SF_{53}$ | 17.9 | 0.15 | 20100104 | 44.18184 | 194.88173 | 173.11473 | 2.35334 | 0.2135357 | 2.4251831 | 54 | 2 | 2005–2009 | 0.41 | M-v | 2 | MPC | 166209 | 2005 $SF_{53}$ |
| 2005 $SH_{53}$ | 17.4 | 0.15 | 20100104 | 130.92193 | 358.70364 | 326.93930 | 3.52816 | 0.1554603 | 2.2299715 | 56 | 4 | 2004–2009 | 0.38 | M-v | 3 | MPC | 122518 | 2005 $SH_{53}$ |
| 2005 $SL_{53}$ | 17.8 | 0.15 | 20100104 | 33.58881 | 105.14297 | 318.72540 | 1.06733 | 0.2169244 | 2.3292046 | 59 | 5 | 1998–2009 | 0.40 | M-v | 0 | MPC | 166209 | 2005 $SL_{53}$ |
| 2005 $SN_{53}$ | 17.0 | 0.15 | 20100104 | 46.43818 | 53.10581 | 350.58418 | 5.43500 | 0.2377191 | 2.3617885 | 84 | 6 | 1996–2009 | 0.49 | M-v | 1 | MPC | 118123 | 2005 $SN_{53}$ |
| 2005 $SO_{53}$ | 16.8 | 0.15 | 20100104 | 23.03122 | 156.23526 | 251.21709 | 3.48757 | 0.0854587 | 2.4149054 | 70 | 2 | 2005–2009 | 0.50 | M-v | 3 | MPC | 166209 | 2005 $SO_{53}$ |
| 2005 $SR_{53}$ | 16.9 | 0.15 | 20100104 | 50.68700 | 162.40999 | 218.12258 | 7.35945 | 0.1584616 | 2.3930939 | 78 | 4 | 2001–2009 | 0.55 | M-v | 2 | MPC | 166209 | 2005 $SR_{53}$ |
| 2005 $SB_{55}$ | 17.4 | 0.15 | 20100104 | 18.72925 | 233.33355 | 183.20579 | 1.69189 | 0.1595829 | 2.4244343 | 57 | 3 | 2005–2009 | 0.39 | M-v | 3 | MPC | 166209 | 2005 $SB_{55}$ |
| 2005 $SN_{55}$ | 17.3 | 0.15 | 20100104 | 15.91394 | 354.58528 | 33.42691 | 1.96193 | 0.0823247 | 2.5235890 | 65 | 4 | 2001–2009 | 0.39 | M-v | 3 | MPC | 166209 | 2005 $SN_{55}$ |
| 2005 $SR_{56}$ | 17.8 | 0.15 | 20100104 | 16.35998 | 241.30909 | 168.88756 | 5.22883 | 0.2275369 | 2.3901132 | 59 | 4 | 2003–2009 | 0.46 | M-v | 0 | MPC | 166209 | 2005 $SR_{56}$ |
| 2005 $SG_{60}$ | 17.3 | 0.15 | 20100104 | 58.64826 | 313.02821 | 46.80160 | 1.85659 | 0.1916233 | 2.4209916 | 76 | 4 | 2001–2009 | 0.45 | M-v | 2 | MPC | 166209 | 2005 $SG_{60}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 $SY_{60}$ | 17.7 | 0.15 | 20100104 | 87.97331 | 146.19129 | 192.82812 | 4.53290 | 0.0585437 | 2.3943555 | 44 | 6 | 2000–2009 | 0.41 | M-v | 1 | MPC | 166209 | 2005 $SY_{60}$ |
| 2005 $SD_{63}$ | 16.8 | 0.15 | 20100104 | 13.47125 | 231.90813 | 186.66871 | 8.14134 | 0.0946949 | 2.3769611 | 62 | 5 | 1994–2009 | 0.48 | M-v | 1 | MPC | 166209 | 2005 $SD_{63}$ |
| 2005 $SF_{63}$ | 18.4 | 0.15 | 20100104 | 75.61312 | 123.08143 | 218.19632 | 0.86799 | 0.1989253 | 2.3761273 | 46 | 3 | 1994–2009 | 0.32 | M-v | 3 | MPC | 166210 | 2005 $SF_{63}$ |
| 2005 $SM_{63}$ | 17.2 | 0.15 | 20100104 | 288.35671 | 154.11375 | 13.36206 | 7.11621 | 0.0484670 | 2.3046504 | 59 | 3 | 2005–2009 | 0.46 | M-v | 3 | MPC | 119652 | 2005 $SM_{63}$ |
| 2005 $SV_{63}$ | 17.6 | 0.15 | 20100104 | 338.50198 | 265.42143 | 194.07317 | 2.11092 | 0.1628970 | 2.4295218 | 58 | 3 | 2005–2009 | 0.34 | M-v | 2 | MPC | 166210 | 2005 $SV_{63}$ |
| 2005 $SH_{64}$ | 17.5 | 0.15 | 20100104 | 294.46439 | 135.20834 | 25.65213 | 2.09230 | 0.1706277 | 2.3440247 | 65 | 5 | 2000–2009 | 0.46 | M-v | 1 | MPC | 166210 | 2005 $SH_{64}$ |
| 2005 $SU_{64}$ | 17.0 | 0.15 | 20100104 | 121.53130 | 59.31161 | 243.08987 | 3.12549 | 0.1804118 | 2.3123178 | 41 | 5 | 1994–2009 | 0.46 | M-v | 1 | MPC | 166210 | 2005 $SU_{64}$ |
| 2005 $SQ_{65}$ | 16.6 | 0.15 | 20100104 | 7.97889 | 167.09435 | 255.51851 | 4.25837 | 0.1291969 | 2.4070200 | 83 | 5 | 2001–2009 | 0.46 | M-v | 0 | MPC | 166210 | 2005 $SQ_{65}$ |
| 2005 $ST_{65}$ | 17.5 | 0.15 | 20100104 | 68.65392 | 83.20816 | 261.92317 | 4.12428 | 0.2683968 | 2.3902135 | 58 | 3 | 2005–2009 | 0.42 | M-v | 3 | MPC | 165442 | 2005 $ST_{65}$ |
| 2005 $SZ_{65}$ | 16.9 | 0.15 | 20100104 | 53.62785 | 307.52704 | 65.05189 | 6.43840 | 0.2442569 | 2.4026556 | 85 | 4 | 2001–2009 | 0.34 | M-v | 1 | MPC | 166210 | 2005 $SZ_{65}$ |
| 2005 $ST_{67}$ | 18.1 | 0.15 | 20100104 | 36.71774 | 163.18424 | 217.66912 | 1.68705 | 0.2250219 | 2.4329356 | 66 | 2 | 2005–2009 | 0.31 | M-v | 2 | MPC | 166210 | 2005 $ST_{67}$ |
| 2005 $SB_{68}$ | 17.2 | 0.15 | 20100104 | 7.87641 | 221.39811 | 219.79729 | 4.38726 | 0.1887443 | 2.3788733 | 88 | 5 | 1998–2009 | 0.46 | M-v | 0 | MPC | 166210 | 2005 $SB_{68}$ |
| 2005 $SK_{68}$ | 17.2 | 0.15 | 20100104 | 74.53169 | 121.95015 | 244.57576 | 1.89568 | 0.1902250 | 2.3329182 | 82 | 6 | 1995–2009 | 0.41 | M-v | 1 | MPC | 116307 | 2005 $SK_{68}$ |
| 2005 $SZ_{68}$ | 17.7 | 0.15 | 20100104 | 47.68363 | 195.46440 | 194.58207 | 5.98836 | 0.1114611 | 2.3704148 | 33 | 4 | 1994–2009 | 0.30 | M-v | 1 | MPC | 117561 | 2005 $SZ_{68}$ |
| 2005 $SQ_{69}$ | 17.0 | 0.15 | 20100104 | 45.04314 | 335.51803 | 57.76752 | 2.39914 | 0.1890670 | 2.3825536 | 116 | 3 | 2005–2009 | 0.45 | M-v | 2 | MPC | 160835 | 2005 $SQ_{69}$ |
| 2005 $SS_{69}$ | 16.6 | 0.15 | 20100104 | 51.39575 | 274.45077 | 76.96371 | 14.17281 | 0.2782829 | 2.4534340 | 68 | 3 | 2005–2009 | 0.48 | M-v | 2 | MPC | 166210 | 2005 $SS_{69}$ |
| 2005 $SZ_{69}$ | 17.2 | 0.15 | 20100104 | 46.70249 | 343.80251 | 85.14172 | 3.14056 | 0.1705998 | 2.2876945 | 76 | 6 | 1993–2009 | 0.43 | M-v | 1 | MPC | 119652 | 2005 $SZ_{69}$ |
| 2005 $SB_{71}$ | 21.1 | 0.15 | 20100104 | 44.09174 | 100.34673 | 200.66654 | 13.20976 | 0.2573332 | 1.2637223 | 103 | 2 | 2005–2008 | 0.49 | M-v | 2 | MPC | 149969 | 2005 $SB_{71}$ |
| 2005 $SW_{71}$ | 17.0 | 0.15 | 20100104 | 31.65420 | 326.22454 | 91.48953 | 2.23820 | 0.1769152 | 2.3695729 | 90 | 3 | 2005–2009 | 0.50 | M-v | 2 | MPC | 120816 | 2005 $SW_{71}$ |
| 2005 $SA_{72}$ | 17.0 | 0.15 | 20100104 | 23.65510 | 43.38005 | 0.18206 | 3.51256 | 0.2427571 | 2.4347364 | 126 | 4 | 2001–2009 | 0.42 | M-v | 2 | MPC | 166210 | 2005 $SA_{72}$ |
| 2005 $SL_{72}$ | 16.9 | 0.15 | 20100104 | 15.42020 | 349.82519 | 74.52777 | 3.34126 | 0.1629995 | 2.3871593 | 95 | 3 | 2005–2009 | 0.44 | M-v | 2 | MPC | 166210 | 2005 $SL_{72}$ |
| 2005 $SP_{72}$ | 17.4 | 0.15 | 20100104 | 37.56761 | 266.24968 | 111.15406 | 2.95759 | 0.2235796 | 2.4430008 | 114 | 5 | 2001–2009 | 0.45 | M-v | 1 | MPC | 166210 | 2005 $SP_{72}$ |
| 2005 $SJ_{73}$ | 17.2 | 0.15 | 20100104 | 50.37548 | 251.33960 | 122.03087 | 2.09875 | 0.2030944 | 2.4312163 | 95 | 5 | 2001–2009 | 0.50 | M-v | 2 | MPC | 166210 | 2005 $SJ_{73}$ |
| 2005 $SF_{77}$ | 16.6 | 0.15 | 20100104 | 128.08927 | 96.19011 | 179.68536 | 7.61074 | 0.2274965 | 2.3662464 | 68 | 3 | 2005–2009 | 0.45 | M-v | 2 | MPC | 140142 | 2005 $SF_{77}$ |
| 2005 $SZ_{78}$ | 17.7 | 0.15 | 20100104 | 2.61308 | 23.96484 | 44.36128 | 3.17271 | 0.1769969 | 2.4252062 | 106 | 4 | 2003–2009 | 0.40 | M-v | 1 | MPC | 166210 | 2005 $SZ_{78}$ |
| 2005 $SC_{79}$ | 17.9 | 0.15 | 20100104 | 22.55301 | 349.18278 | 40.63642 | 3.31887 | 0.2035754 | 2.4649957 | 73 | 2 | 2005–2009 | 0.30 | M-v | 2 | MPC | 166210 | 2005 $SC_{79}$ |
| 2005 $SP_{79}$ | 18.1 | 0.15 | 20100104 | 36.21928 | 233.41205 | 153.25305 | 1.57934 | 0.1951723 | 2.4141546 | 87 | 3 | 2005–2009 | 0.32 | M-v | 2 | MPC | 166210 | 2005 $SP_{79}$ |
| 2005 $SH_{80}$ | 17.9 | 0.15 | 20100104 | 23.76633 | 271.99297 | 142.17118 | 1.80242 | 0.1762175 | 2.3832118 | 55 | 4 | 2003–2009 | 0.39 | M-v | 0 | MPC | 165443 | 2005 $SH_{80}$ |
| 2005 $SV_{80}$ | 17.9 | 0.15 | 20100104 | 42.34538 | 335.43820 | 53.44405 | 1.25208 | 0.2158849 | 2.3886433 | 76 | 2 | 2005–2009 | 0.35 | M-v | 3 | MPC | 165443 | 2005 $SV_{80}$ |
| 2005 $SB_{82}$ | 18.6 | 0.15 | 20100104 | 74.85052 | 207.09686 | 167.32651 | 3.23941 | 0.1524153 | 2.2985043 | 36 | 3 | 1998–2009 | 0.28 | M-v | 2 | MPC | 121830 | 2005 $SB_{82}$ |
| 2005 $SP_{82}$ | 17.7 | 0.15 | 20100104 | 34.63339 | 172.66105 | 215.54990 | 0.80021 | 0.1929663 | 2.4238216 | 71 | 3 | 2003–2009 | 0.39 | M-v | 2 | MPC | 166210 | 2005 $SP_{82}$ |
| 2005 $SH_{83}$ | 17.3 | 0.15 | 20100104 | 222.28122 | 11.33390 | 206.80966 | 2.05295 | 0.0691809 | 2.3239873 | 48 | 4 | 2004–2009 | 0.30 | M-v | 1 | MPC | 166210 | 2005 $SH_{83}$ |
| 2005 $SY_{85}$ | 18.0 | 0.15 | 20100104 | 141.42686 | 140.23387 | 149.32895 | 2.17494 | 0.2429732 | 2.2796944 | 72 | 5 | 2001–2009 | 0.31 | M-v | 0 | MPC | 140142 | 2005 $SY_{85}$ |
| 2005 $SN_{88}$ | 16.7 | 0.15 | 20100104 | 94.87153 | 281.74917 | 59.38294 | 6.28852 | 0.1933593 | 2.3122491 | 50 | 4 | 1998–2009 | 0.51 | M-v | 1 | MPC | 121831 | 2005 $SN_{88}$ |
| 2005 $SU_{88}$ | 17.3 | 0.15 | 20100104 | 51.96245 | 151.28619 | 237.00959 | 1.78227 | 0.2064513 | 2.3777471 | 95 | 3 | 2005–2009 | 0.42 | M-v | 2 | MPC | 117563 | 2005 $SU_{88}$ |
| 2005 $SA_{89}$ | 17.3 | 0.15 | 20100104 | 126.21490 | 83.52294 | 212.77667 | 4.30178 | 0.2381946 | 2.3380841 | 48 | 4 | 1998–2009 | 0.36 | M-v | 0 | MPC | 140142 | 2005 $SA_{89}$ |
| 2005 $SJ_{90}$ | 17.8 | 0.15 | 20100104 | 359.14708 | 230.48464 | 216.94749 | 1.68038 | 0.1510106 | 2.4116359 | 73 | 3 | 2005–2009 | 0.39 | M-v | 2 | MPC | 166210 | 2005 $SJ_{90}$ |
| 2005 $ST_{90}$ | 17.3 | 0.15 | 20100104 | 130.72089 | 99.43189 | 204.25934 | 3.66869 | 0.1539772 | 2.3311030 | 37 | 5 | 1997–2009 | 0.35 | M-v | 1 | MPC | 115854 | 2005 $ST_{90}$ |
| 2005 $SB_{91}$ | 18.1 | 0.15 | 20100104 | 44.33111 | 176.94934 | 202.42276 | 3.09319 | 0.2106829 | 2.4326073 | 39 | 2 | 2005–2009 | 0.39 | M-v | 3 | MPC | 165444 | 2005 $SB_{91}$ |
| 2005 $SC_{91}$ | 16.2 | 0.15 | 20100104 | 234.55830 | 322.95195 | 202.03239 | 14.57450 | 0.0533312 | 2.5646936 | 72 | 4 | 2001–2009 | 0.42 | M-v | 2 | MPC | 164254 | 2005 $SC_{91}$ |
| 2005 $SO_{91}$ | 16.4 | 0.15 | 20100104 | 187.26116 | 6.88694 | 202.65566 | 8.83969 | 0.1092799 | 2.5441711 | 46 | 4 | 2001–2009 | 0.34 | M-v | 2 | MPC | 164254 | 2005 $SO_{91}$ |
| 2005 $SH_{92}$ | 18.2 | 0.15 | 20100104 | 43.38942 | 171.40423 | 210.48596 | 2.15620 | 0.1953122 | 2.4235797 | 41 | 2 | 2005–2009 | 0.33 | M-v | 2 | MPC | 165444 | 2005 $SH_{92}$ |
| 2005 $SO_{92}$ | 18.2 | 0.15 | 20100104 | 68.63326 | 142.41099 | 209.08749 | 1.04778 | 0.1801189 | 2.4074077 | 35 | 4 | 2001–2009 | 0.37 | M-v | 2 | MPC | 166210 | 2005 $SO_{92}$ |
| 2005 $SW_{92}$ | 17.3 | 0.15 | 20100104 | 6.26992 | 231.05787 | 203.48167 | 5.47051 | 0.1141796 | 2.4025129 | 52 | 3 | 2005–2009 | 0.62 | M-v | 3 | MPC | 166210 | 2005 $SW_{92}$ |
| 2005 $SZ_{95}$ | 17.7 | 0.15 | 20100104 | 123.92989 | 182.77734 | 137.29349 | 2.30056 | 0.2150880 | 2.2642561 | 93 | 5 | 2001–2009 | 0.38 | M-v | 2 | MPC | 133460 | 2005 $SZ_{95}$ |
| 2005 $SQ_{97}$ | 16.9 | 0.15 | 20100104 | 127.66034 | 260.02908 | 56.56059 | 3.05725 | 0.1930100 | 2.2624910 | 121 | 6 | 1998–2009 | 0.42 | M-v | 1 | MPC | 121831 | 2005 $SQ_{97}$ |
| 2005 $SW_{97}$ | 17.1 | 0.15 | 20100104 | 80.02484 | 67.12969 | 257.05338 | 5.57639 | 0.1412393 | 2.4504515 | 45 | 3 | 2001–2009 | 0.40 | M-v | 3 | MPC | 166210 | 2005 $SW_{97}$ |
| 2005 $SC_{98}$ | 16.5 | 0.15 | 20100104 | 69.41753 | 111.18855 | 239.86727 | 6.11407 | 0.1279577 | 2.4100843 | 90 | 2 | 2005–2009 | 0.43 | M-v | 3 | MPC | 165444 | 2005 $SC_{98}$ |
| 2005 $SZ_{100}$ | 16.8 | 0.15 | 20100104 | 149.83637 | 308.27250 | 339.47509 | 5.27002 | 0.1426017 | 2.3158853 | 43 | 5 | 2001–2009 | 0.49 | M-v | 1 | MPC | 114753 | 2005 $SZ_{100}$ |
| 2005 $SF_{101}$ | 16.7 | 0.15 | 20100104 | 282.70419 | 173.93500 | 351.24976 | 6.21484 | 0.0935268 | 2.3640601 | 97 | 5 | 2001–2009 | 0.42 | M-v | 1 | MPC | 119652 | 2005 $SF_{101}$ |
| 2005 $SA_{102}$ | 16.2 | 0.15 | 20100104 | 357.45311 | 119.88474 | 343.17040 | 6.49006 | 0.0609532 | 2.3145516 | 135 | 4 | 2002–2009 | 0.53 | M-v | 0 | MPC | 159757 | 2005 $SA_{102}$ |
| 2005 $SR_{102}$ | 17.1 | 0.15 | 20100104 | 333.06307 | 197.40887 | 272.87931 | 4.13202 | 0.1768952 | 2.4237428 | 39 | 2 | 2005–2009 | 0.40 | M-v | 4 | MPC | 165445 | 2005 $SR_{102}$ |
| 2005 $SB_{103}$ | 17.5 | 0.15 | 20100104 | 61.02646 | 52.75986 | 333.23058 | 1.76335 | 0.2266550 | 2.3401596 | 106 | 3 | 2005–2009 | 0.42 | M-v | 2 | MPC | 166211 | 2005 $SB_{103}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 $SJ_{103}$ | 17.2 | 0.15 | 20100104 | 19.04408 | 68.12133 | 351.85038 | 1.83263 | 0.2089408 | 2.4222552 | 92 | 6 | 1999–2009 | 0.56 | M-v | 1 | MPC | 166211 | 2005 $SJ_{103}$ |
| 2005 $SN_{104}$ | 16.9 | 0.15 | 20100104 | 34.44668 | 236.08967 | 166.35000 | 2.07541 | 0.2117578 | 2.4147734 | 115 | 5 | 1996–2009 | 0.48 | M-v | 1 | MPC | 166211 | 2005 $SN_{104}$ |
| 2005 $SP_{105}$ | 15.8 | 0.15 | 20100104 | 20.08902 | 153.73263 | 219.99280 | 10.77065 | 0.2473187 | 2.5951646 | 172 | 3 | 2005–2009 | 0.44 | M-v | 2 | MPC | 166211 | 2005 $SP_{105}$ |
| 2005 $SN_{106}$ | 17.5 | 0.15 | 20100104 | 332.60371 | 100.80696 | 8.61163 | 1.39278 | 0.1344203 | 2.3875755 | 65 | 3 | 2005–2009 | 0.31 | M-v | 2 | MPC | 166211 | 2005 $SN_{106}$ |
| 2005 $ST_{108}$ | 17.6 | 0.15 | 20100104 | 32.79711 | 90.13269 | 320.75471 | 0.79139 | 0.1715918 | 2.3799757 | 56 | 5 | 1994–2009 | 0.45 | M-v | 1 | MPC | 119653 | 2005 $ST_{108}$ |
| 2005 $SA_{110}$ | 17.3 | 0.15 | 20100104 | 98.29099 | 268.25463 | 12.63488 | 3.04876 | 0.1423250 | 2.5481519 | 50 | 4 | 2001–2009 | 0.29 | M-v | 2 | MPC | 164254 | 2005 $SA_{110}$ |
| 2005 $SD_{110}$ | 17.1 | 0.15 | 20100104 | 8.37232 | 252.04114 | 176.69298 | 3.22808 | 0.0559119 | 2.3916875 | 67 | 5 | 2001–2009 | 0.32 | M-v | 0 | MPC | 166211 | 2005 $SD_{110}$ |
| 2005 $SE_{110}$ | 17.7 | 0.15 | 20100104 | 69.29384 | 180.04698 | 161.94322 | 2.35370 | 0.2391044 | 2.4181435 | 61 | 3 | 2001–2009 | 0.46 | M-v | 2 | MPC | 166211 | 2005 $SE_{110}$ |
| 2005 $SG_{110}$ | 18.0 | 0.15 | 20100104 | 26.60922 | 191.47966 | 199.14730 | 1.31875 | 0.1972024 | 2.4403315 | 100 | 3 | 2001–2009 | 0.33 | M-v | 2 | MPC | 166211 | 2005 $SG_{110}$ |
| 2005 $SU_{110}$ | 18.1 | 0.15 | 20100104 | 22.43690 | 151.93222 | 244.76220 | 0.54895 | 0.1921747 | 2.4602717 | 68 | 4 | 2001–2009 | 0.40 | M-v | 3 | MPC | 166211 | 2005 $SU_{110}$ |
| 2005 $SA_{112}$ | 17.1 | 0.15 | 20100104 | 147.49383 | 10.55259 | 310.55892 | 7.06587 | 0.1429972 | 2.1967251 | 63 | 5 | 2002–2009 | 0.44 | M-v | 1 | MPC | 147352 | 2005 $SA_{112}$ |
| 2005 $SB_{112}$ | 17.1 | 0.15 | 20100104 | 20.39340 | 183.94285 | 244.05439 | 4.77203 | 0.1323588 | 2.3436342 | 47 | 5 | 1991–2009 | 0.44 | M-v | 1 | MPC | 166211 | 2005 $SB_{112}$ |
| 2005 $SO_{112}$ | 16.9 | 0.15 | 20100104 | 359.32462 | 9.14952 | 29.40364 | 15.34347 | 0.2555360 | 2.6037001 | 86 | 2 | 2005–2009 | 0.51 | M-v | 2 | MPC | 164254 | 2005 $SO_{112}$ |
| 2005 $ST_{113}$ | 17.8 | 0.15 | 20100104 | 44.14924 | 142.99891 | 237.15983 | 0.43369 | 0.2024360 | 2.4030820 | 77 | 3 | 2005–2009 | 0.38 | M-v | 2 | MPC | 166211 | 2005 $ST_{113}$ |
| 2005 $ST_{114}$ | 17.0 | 0.15 | 20100104 | 92.04138 | 63.22020 | 256.19655 | 1.55476 | 0.2269049 | 2.3835146 | 88 | 5 | 2001–2009 | 0.38 | M-v | 0 | MPC | 166211 | 2005 $ST_{114}$ |
| 2005 $SF_{116}$ | 17.9 | 0.15 | 20100104 | 64.78664 | 46.28954 | 294.92440 | 0.57150 | 0.1872419 | 2.4377521 | 58 | 3 | 2001–2009 | 0.35 | M-v | 2 | MPC | 166211 | 2005 $SF_{116}$ |
| 2005 $SZ_{116}$ | 17.6 | 0.15 | 20100104 | 54.25555 | 92.64678 | 281.91790 | 1.73948 | 0.1966869 | 2.3514952 | 56 | 5 | 1996–2009 | 0.39 | M-v | 1 | MPC | 118126 | 2005 $SZ_{116}$ |
| 2005 $SC_{117}$ | 16.5 | 0.15 | 20100104 | 2.14756 | 8.05977 | 56.70675 | 5.66941 | 0.1258449 | 2.4016667 | 99 | 4 | 2003–2009 | 0.52 | M-v | 1 | MPC | 166211 | 2005 $SC_{117}$ |
| 2005 $SD_{117}$ | 17.1 | 0.15 | 20100104 | 33.23398 | 312.22273 | 94.43588 | 3.38533 | 0.1843579 | 2.3570768 | 48 | 4 | 2003–2009 | 0.43 | M-v | 1 | MPC | 166211 | 2005 $SD_{117}$ |
| 2005 $SH_{117}$ | 17.1 | 0.15 | 20100104 | 50.75275 | 262.12074 | 120.23477 | 6.26593 | 0.1329618 | 2.3533107 | 47 | 6 | 1997–2009 | 0.51 | M-v | 1 | MPC | 116309 | 2005 $SH_{117}$ |
| 2005 $SO_{117}$ | 16.8 | 0.15 | 20100104 | 87.24437 | 292.11463 | 72.49986 | 4.44883 | 0.1742833 | 2.2780321 | 40 | 4 | 2002–2009 | 0.40 | M-v | 1 | MPC | 166211 | 2005 $SO_{117}$ |
| 2005 $SV_{117}$ | 16.8 | 0.15 | 20100104 | 40.46393 | 356.70702 | 38.99772 | 10.14865 | 0.0606208 | 2.3467884 | 37 | 5 | 1998–2009 | 0.72 | M-v | 1 | MPC | 166211 | 2005 $SV_{117}$ |
| 2005 $SY_{117}$ | 17.1 | 0.15 | 20100104 | 69.46362 | 242.96812 | 99.97770 | 6.64013 | 0.2287043 | 2.3914706 | 56 | 3 | 2005–2009 | 0.50 | M-v | 2 | MPC | 166211 | 2005 $SY_{117}$ |
| 2005 $SP_{121}$ | 17.7 | 0.15 | 20100104 | 20.93420 | 133.83262 | 276.17928 | 2.75118 | 0.2170309 | 2.4189504 | 71 | 2 | 2005–2009 | 0.45 | M-v | 3 | MPC | 165445 | 2005 $SP_{121}$ |
| 2005 $SR_{123}$ | 16.7 | 0.15 | 20100104 | 326.84777 | 254.16883 | 219.91162 | 6.12877 | 0.0653583 | 2.3481564 | 82 | 6 | 1998–2009 | 0.57 | M-v | 1 | MPC | 166211 | 2005 $SR_{123}$ |
| 2005 $SV_{123}$ | 17.8 | 0.15 | 20100104 | 25.12337 | 8.54868 | 32.62015 | 2.52081 | 0.1811333 | 2.4219919 | 68 | 3 | 2003–2009 | 0.39 | M-v | 2 | MPC | 166211 | 2005 $SV_{123}$ |
| 2005 $SX_{123}$ | 17.6 | 0.15 | 20100104 | 69.12554 | 284.18615 | 102.12099 | 2.26885 | 0.2297573 | 2.3009053 | 82 | 5 | 1998–2009 | 0.49 | M-v | 1 | MPC | 121832 | 2005 $SX_{123}$ |
| 2005 $SF_{125}$ | 17.1 | 0.15 | 20100104 | 142.31885 | 284.64308 | 17.06244 | 2.78451 | 0.1971699 | 2.2547283 | 54 | 5 | 1995–2009 | 0.47 | M-v | 1 | MPC | 95860 | 2005 $SF_{125}$ |
| 2005 $SN_{126}$ | 17.7 | 0.15 | 20100104 | 72.58026 | 253.11409 | 94.17637 | 3.12995 | 0.2388997 | 2.3824322 | 69 | 5 | 2003–2009 | 0.33 | M-v | 0 | MPC | 166211 | 2005 $SN_{126}$ |
| 2005 $SO_{129}$ | 16.8 | 0.15 | 20100104 | 20.20496 | 220.37381 | 204.25164 | 3.63006 | 0.1738788 | 2.3899759 | 79 | 3 | 2005–2009 | 0.49 | M-v | 2 | MPC | 166211 | 2005 $SO_{129}$ |
| 2005 $SO_{130}$ | 16.8 | 0.15 | 20100104 | 117.96369 | 229.97405 | 106.35795 | 7.22185 | 0.1493918 | 2.2822889 | 52 | 4 | 1998–2009 | 0.36 | M-v | 2 | MPC | 121600 | 2005 $SO_{130}$ |
| 2005 $ST_{130}$ | 17.5 | 0.15 | 20100104 | 45.21767 | 231.58083 | 167.60539 | 1.14034 | 0.1842694 | 2.3794251 | 57 | 5 | 2001–2009 | 0.41 | M-v | 1 | MPC | 118126 | 2005 $ST_{130}$ |
| 2005 $SD_{131}$ | 17.7 | 0.15 | 20100104 | 42.77637 | 136.68626 | 202.59680 | 6.53606 | 0.2296446 | 2.5617664 | 65 | 4 | 2001–2009 | 0.50 | M-v | 2 | MPC | 166211 | 2005 $SD_{131}$ |
| 2005 $SP_{131}$ | 18.1 | 0.15 | 20100104 | 292.25893 | 291.29701 | 233.71952 | 1.04565 | 0.1020833 | 2.3341883 | 35 | 4 | 2000–2009 | 0.26 | M-v | 1 | MPC | 158029 | 2005 $SP_{131}$ |
| 2005 $SG_{132}$ | 15.6 | 0.15 | 20100104 | 352.62339 | 196.98177 | 225.63133 | 10.93141 | 0.1718817 | 2.6033077 | 142 | 4 | 2001–2009 | 0.41 | M-v | 2 | MPC | 166211 | 2005 $SG_{132}$ |
| 2005 $SV_{132}$ | 17.5 | 0.15 | 20100104 | 26.64748 | 93.35812 | 338.73763 | 0.88569 | 0.1528169 | 2.3653071 | 50 | 4 | 2003–2009 | 0.48 | M-v | 1 | MPC | 166212 | 2005 $SV_{132}$ |
| 2005 $SK_{133}$ | 16.3 | 0.15 | 20100104 | 334.78004 | 222.48484 | 206.67575 | 11.71803 | 0.1544469 | 2.5921487 | 102 | 4 | 2001–2009 | 0.53 | M-v | 2 | MPC | 164255 | 2005 $SK_{133}$ |
| 2005 $SN_{133}$ | 17.0 | 0.15 | 20100104 | 23.51974 | 338.41703 | 21.15355 | 5.84331 | 0.2570897 | 2.5820725 | 92 | 3 | 2001–2009 | 0.45 | M-v | 2 | MPC | 166212 | 2005 $SN_{133}$ |
| 2005 $SP_{134}$ | 17.1 | 0.15 | 20100104 | 144.99552 | 221.58648 | 88.35288 | 3.95859 | 0.1545538 | 2.2361208 | 59 | 5 | 2001–2009 | 0.40 | M-v | 2 | MPC | 164255 | 2005 $SP_{134}$ |
| 2005 $SV_{135}$ | 17.2 | 0.15 | 20100104 | 287.56838 | 162.43492 | 19.21826 | 6.18881 | 0.0934452 | 2.2368640 | 46 | 3 | 2005–2009 | 0.35 | M-v | 3 | MPC | 133460 | 2005 $SV_{135}$ |
| 2005 $SC_{138}$ | 15.8 | 0.15 | 20100104 | 41.37542 | 154.65194 | 227.50321 | 12.65624 | 0.2835201 | 2.4044410 | 115 | 3 | 2005–2009 | 0.51 | M-v | 2 | MPC | 166212 | 2005 $SC_{138}$ |
| 2005 $SQ_{138}$ | 18.4 | 0.15 | 20100104 | 69.18124 | 294.90276 | 48.17767 | 2.04300 | 0.1896454 | 2.4069978 | 33 | 4 | 2004–2009 | 0.36 | M-v | 2 | MPC | 162435 | 2005 $SQ_{138}$ |
| 2005 $SX_{138}$ | 18.0 | 0.15 | 20100104 | 352.81402 | 20.88587 | 101.22681 | 1.33050 | 0.0660291 | 2.2417642 | 50 | 5 | 1995–2009 | 0.29 | M-v | 1 | MPC | 121833 | 2005 $SX_{138}$ |
| 2005 $SE_{139}$ | 18.2 | 0.15 | 20100104 | 1.93797 | 282.09993 | 150.39783 | 2.75711 | 0.1833495 | 2.4236443 | 39 | 2 | 2005–2009 | 0.22 | M-v | 3 | MPC | 165446 | 2005 $SE_{139}$ |
| 2005 $SH_{139}$ | 17.7 | 0.15 | 20100104 | 345.59303 | 22.94446 | 69.35108 | 2.21293 | 0.1494685 | 2.4073430 | 74 | 3 | 2005–2009 | 0.32 | M-v | 2 | MPC | 166212 | 2005 $SH_{139}$ |
| 2005 $SN_{143}$ | 17.9 | 0.15 | 20100104 | 65.85138 | 325.79501 | 45.86906 | 3.51558 | 0.1983839 | 2.3478586 | 74 | 3 | 2003–2009 | 0.34 | M-v | 2 | MPC | 121834 | 2005 $SN_{143}$ |
| 2005 $SL_{144}$ | 17.6 | 0.15 | 20100104 | 42.98966 | 22.01662 | 13.80429 | 1.27264 | 0.1907697 | 2.3587089 | 38 | 3 | 2005–2009 | 0.41 | M-v | 3 | MPC | 121602 | 2005 $SL_{144}$ |
| 2005 $ST_{145}$ | 17.4 | 0.15 | 20100104 | 150.48242 | 152.00202 | 107.32062 | 2.96352 | 0.1910934 | 2.3692505 | 32 | 3 | 1997–2009 | 0.73 | M-v | 3 | MPC | 166212 | 2005 $ST_{145}$ |
| 2005 $SU_{146}$ | 16.8 | 0.15 | 20100104 | 64.65715 | 299.74163 | 22.61215 | 9.86367 | 0.0913700 | 2.5517238 | 56 | 3 | 1997–2009 | 0.39 | M-v | 3 | MPC | 166212 | 2005 $SU_{146}$ |
| 2005 $SU_{147}$ | 17.8 | 0.15 | 20100104 | 34.76083 | 244.74923 | 176.36358 | 2.25582 | 0.1382118 | 2.3490610 | 62 | 5 | 1996–2009 | 0.31 | M-v | 0 | MPC | 166212 | 2005 $SU_{147}$ |
| 2005 $SV_{147}$ | 17.0 | 0.15 | 20100104 | 355.48416 | 84.17226 | 26.23118 | 8.40321 | 0.1962559 | 2.3608816 | 70 | 5 | 1998–2009 | 0.48 | M-v | 0 | MPC | 166212 | 2005 $SV_{147}$ |
| 2005 $SR_{148}$ | 17.0 | 0.15 | 20100104 | 21.07638 | 43.54373 | 35.68150 | 5.77788 | 0.1516851 | 2.3516101 | 69 | 4 | 2003–2009 | 0.47 | M-v | 1 | MPC | 119195 | 2005 $SR_{148}$ |
| 2005 $SC_{149}$ | 17.3 | 0.15 | 20100104 | 113.58678 | 257.70069 | 38.29270 | 6.84445 | 0.0986805 | 2.4525477 | 43 | 2 | 2005–2009 | 0.26 | M-v | 3 | MPC | 166212 | 2005 $SC_{149}$ |

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| 2005 $SG_{149}$ | 17.1 | 0.15 | 20100104 | 15.63192 | 16.92718 | 65.37815 | 2.98879 | 0.1550766 | 2.3611769 | 64 | 6 | 1994–2009 | 0.36 | M-v | 1 | MPC | 119653 | 2005 $SG_{149}$ |
| 2005 $SA_{150}$ | 17.1 | 0.15 | 20100104 | 327.92067 | 65.14590 | 43.21598 | 5.68170 | 0.0696304 | 2.4162876 | 40 | 3 | 2005–2009 | 0.24 | M-v | 2 | MPC | 165446 | 2005 $SA_{150}$ |
| 2005 $SA_{153}$ | 16.7 | 0.15 | 20100104 | 213.98669 | 198.43354 | 36.30009 | 7.15923 | 0.0816763 | 2.3454475 | 60 | 4 | 2005–2009 | 0.38 | M-v | 1 | MPC | 166212 | 2005 $SA_{153}$ |
| 2005 $SF_{153}$ | 17.4 | 0.15 | 20100104 | 48.09898 | 188.84960 | 193.03221 | 4.82775 | 0.1168763 | 2.4234326 | 38 | 4 | 2000–2009 | 0.40 | M-v | 3 | MPC | 134882 | 2005 $SF_{153}$ |
| 2005 $SZ_{153}$ | 18.5 | 0.15 | 20100104 | 33.95034 | 93.75282 | 292.42543 | 1.75273 | 0.1766730 | 2.4240950 | 28 | 2 | 2005–2009 | 0.25 | M-v | 4 | MPC | 165447 | 2005 $SZ_{153}$ |
| 2005 $SD_{154}$ | 17.4 | 0.15 | 20100104 | 2.53300 | 157.11777 | 281.06403 | 1.66245 | 0.1611417 | 2.3861541 | 86 | 5 | 1998–2009 | 0.37 | M-v | 0 | MPC | 166212 | 2005 $SD_{154}$ |
| 2005 $SQ_{154}$ | 17.7 | 0.15 | 20100104 | 138.10662 | 45.84070 | 240.74028 | 2.15280 | 0.1024488 | 2.3455079 | 30 | 2 | 2005–2009 | 0.26 | M-v | 4 | MPC | 165447 | 2005 $SQ_{154}$ |
| 2005 $SU_{156}$ | 17.5 | 0.15 | 20100104 | 355.20793 | 80.15935 | 36.81080 | 2.82031 | 0.0921124 | 2.2857932 | 41 | 4 | 1998–2009 | 0.26 | M-v | 0 | MPC | 166212 | 2005 $SU_{156}$ |
| 2005 $SR_{157}$ | 17.8 | 0.15 | 20100104 | 71.32719 | 201.68416 | 172.19518 | 2.04769 | 0.2003129 | 2.3340926 | 59 | 5 | 1996–2009 | 0.47 | M-v | 1 | MPC | 166212 | 2005 $SR_{157}$ |
| 2005 $SF_{158}$ | 18.2 | 0.15 | 20100104 | 80.66325 | 5.02960 | 320.31414 | 1.82269 | 0.2157506 | 2.3957515 | 40 | 3 | 1994–2009 | 0.33 | M-v | 3 | MPC | 166212 | 2005 $SF_{158}$ |
| 2005 $SG_{158}$ | 17.4 | 0.15 | 20100104 | 26.11488 | 184.88972 | 225.71430 | 2.11341 | 0.1717713 | 2.3832201 | 80 | 5 | 1994–2009 | 0.38 | M-v | 0 | MPC | 166212 | 2005 $SG_{158}$ |
| 2005 $SL_{159}$ | 16.6 | 0.15 | 20100104 | 355.32141 | 208.52408 | 222.80598 | 5.51478 | 0.1028344 | 2.4635125 | 120 | 3 | 2001–2009 | 0.45 | M-v | 3 | MPC | 166212 | 2005 $SL_{159}$ |
| 2005 $SR_{162}$ | 16.6 | 0.15 | 20100104 | 57.76473 | 320.04295 | 36.69343 | 7.04404 | 0.1589241 | 2.3844001 | 90 | 5 | 2004–2009 | 0.46 | M-v | 1 | MPC | 166212 | 2005 $SR_{162}$ |
| 2005 $SW_{162}$ | 17.2 | 0.15 | 20100104 | 55.93315 | 262.40509 | 93.40881 | 5.91978 | 0.2432824 | 2.4009611 | 45 | 4 | 2003–2009 | 0.52 | M-v | 1 | MPC | 166212 | 2005 $SW_{162}$ |
| 2005 $SX_{162}$ | 16.6 | 0.15 | 20100104 | 110.39079 | 253.55929 | 63.48373 | 7.36167 | 0.1327717 | 2.3095757 | 44 | 3 | 2004–2009 | 0.40 | M-v | 2 | MPC | 165447 | 2005 $SX_{162}$ |
| 2005 $SP_{163}$ | 16.5 | 0.15 | 20100104 | 47.03324 | 333.58727 | 63.27151 | 4.13387 | 0.2396789 | 2.3795979 | 114 | 4 | 2002–2009 | 0.43 | M-v | 1 | MPC | 166212 | 2005 $SP_{163}$ |
| 2005 $SW_{163}$ | 16.7 | 0.15 | 20100104 | 61.61033 | 302.24109 | 64.44457 | 7.06684 | 0.1388058 | 2.4049422 | 43 | 4 | 2001–2009 | 0.43 | M-v | 2 | MPC | 166212 | 2005 $SW_{163}$ |
| 2005 $SQ_{164}$ | 16.6 | 0.15 | 20100104 | 23.53309 | 310.17925 | 109.03346 | 6.86023 | 0.1111266 | 2.4096352 | 75 | 5 | 1998–2009 | 0.47 | M-v | 1 | MPC | 166212 | 2005 $SQ_{164}$ |
| 2005 $SJ_{165}$ | 17.4 | 0.15 | 20100104 | 42.67496 | 335.32123 | 36.19310 | 1.99337 | 0.2140091 | 2.4180572 | 77 | 3 | 2005–2009 | 0.50 | M-v | 3 | MPC | 166212 | 2005 $SJ_{165}$ |
| 2005 $ST_{165}$ | 16.8 | 0.15 | 20100104 | 40.68951 | 305.14321 | 80.33213 | 6.49105 | 0.2448035 | 2.4021122 | 59 | 3 | 2001–2009 | 0.51 | M-v | 3 | MPC | 166213 | 2005 $ST_{165}$ |
| 2005 $SU_{167}$ | 17.1 | 0.15 | 20100104 | 18.88319 | 326.46874 | 42.20208 | 7.38776 | 0.3864249 | 2.5845630 | 116 | 2 | 2005–2009 | 0.47 | M-v | 2 | MPC | 166213 | 2005 $SU_{167}$ |
| 2005 $SC_{170}$ | 16.6 | 0.15 | 20100104 | 30.34464 | 173.79875 | 217.79401 | 7.52535 | 0.2656864 | 2.4162899 | 108 | 2 | 2005–2009 | 0.43 | M-v | 2 | MPC | 166213 | 2005 $SC_{170}$ |
| 2005 $SU_{171}$ | 17.7 | 0.15 | 20100104 | 215.57654 | 261.25640 | 346.29762 | 6.50898 | 0.1183406 | 2.2145917 | 34 | 4 | 2004–2009 | 0.37 | M-v | 2 | MPC | 162436 | 2005 $SU_{171}$ |
| 2005 $SP_{176}$ | 16.8 | 0.15 | 20100104 | 303.21253 | 240.71067 | 227.44978 | 4.74193 | 0.1301021 | 2.5215794 | 61 | 5 | 1997–2009 | 0.44 | M-v | 2 | MPC | 164256 | 2005 $SP_{176}$ |
| 2005 $SD_{179}$ | 17.6 | 0.15 | 20100104 | 56.62101 | 89.02837 | 280.09545 | 1.02601 | 0.2278576 | 2.3825549 | 84 | 3 | 2003–2009 | 0.32 | M-v | 2 | MPC | 165447 | 2005 $SD_{179}$ |
| 2005 $SY_{179}$ | 16.8 | 0.15 | 20100104 | 33.91262 | 350.50326 | 26.31351 | 3.79589 | 0.1943929 | 2.4457877 | 160 | 3 | 2005–2009 | 0.43 | M-v | 2 | MPC | 166213 | 2005 $SY_{179}$ |
| 2005 $SJ_{183}$ | 15.6 | 0.15 | 20100104 | 231.28389 | 71.49067 | 13.79070 | 12.32206 | 0.1386951 | 3.0871166 | 44 | 3 | 2002–2007 | 0.53 | M-v | 2 | MPC | 120395 | 2005 $SJ_{183}$ |
| 2005 $SS_{183}$ | 17.7 | 0.15 | 20100104 | 38.56248 | 140.79659 | 270.97314 | 0.76799 | 0.1703063 | 2.3588990 | 44 | 5 | 1994–2009 | 0.32 | M-v | 0 | MPC | 120395 | 2005 $SS_{183}$ |
| 2005 $SE_{184}$ | 17.9 | 0.15 | 20100104 | 69.41806 | 103.48672 | 282.59510 | 1.11156 | 0.1826241 | 2.3108044 | 47 | 4 | 2003–2009 | 0.49 | M-v | 1 | MPC | 117573 | 2005 $SE_{184}$ |
| 2005 $SA_{187}$ | 17.3 | 0.15 | 20100104 | 294.02748 | 261.67016 | 247.22300 | 5.24813 | 0.0738356 | 2.3541335 | 47 | 4 | 1996–2009 | 0.29 | M-v | 1 | MPC | 166213 | 2005 $SA_{187}$ |
| 2005 $SY_{187}$ | 18.3 | 0.15 | 20100104 | 13.13881 | 262.03620 | 167.97294 | 1.49032 | 0.1620362 | 2.4003183 | 35 | 5 | 2001–2009 | 0.37 | M-v | 0 | MPC | 119654 | 2005 $SY_{187}$ |
| 2005 $SR_{188}$ | 17.7 | 0.15 | 20100104 | 344.20903 | 276.82159 | 189.08363 | 2.11217 | 0.1796463 | 2.4044630 | 35 | 3 | 2005–2009 | 0.34 | M-v | 2 | MPC | 165448 | 2005 $SR_{188}$ |
| 2005 $SY_{188}$ | 18.2 | 0.15 | 20100104 | 30.30127 | 217.16798 | 182.92381 | 0.96792 | 0.1928851 | 2.4290878 | 51 | 4 | 2001–2009 | 0.37 | M-v | 2 | MPC | 166213 | 2005 $SY_{188}$ |
| 2005 $SS_{190}$ | 17.5 | 0.15 | 20100104 | 30.90137 | 322.43407 | 61.64572 | 3.09353 | 0.2171531 | 2.4672824 | 90 | 3 | 2001–2009 | 0.45 | M-v | 2 | MPC | 166213 | 2005 $SS_{190}$ |
| 2005 $SR_{191}$ | 17.8 | 0.15 | 20100104 | 37.47267 | 21.07211 | 31.96488 | 2.89751 | 0.2373121 | 2.3820874 | 53 | 2 | 2005–2009 | 0.50 | M-v | 3 | MPC | 165448 | 2005 $SR_{191}$ |
| 2005 $SY_{191}$ | 17.0 | 0.15 | 20100104 | 24.37380 | 255.29965 | 189.36250 | 2.12548 | 0.2254154 | 2.3509269 | 103 | 6 | 1996–2009 | 0.51 | M-v | 1 | MPC | 119654 | 2005 $SY_{191}$ |
| 2005 $SO_{192}$ | 17.3 | 0.15 | 20100104 | 26.70267 | 225.67776 | 186.63282 | 2.13168 | 0.1683979 | 2.4270576 | 93 | 3 | 2001–2009 | 0.48 | M-v | 2 | MPC | 166213 | 2005 $SO_{192}$ |
| 2005 $SD_{193}$ | 16.8 | 0.15 | 20100104 | 109.80978 | 334.91413 | 354.69027 | 3.95910 | 0.2470946 | 2.3111754 | 73 | 6 | 1998–2009 | 0.47 | M-v | 1 | MPC | 140694 | 2005 $SD_{193}$ |
| 2005 $SF_{193}$ | 16.9 | 0.15 | 20100104 | 58.53245 | 323.59445 | 62.91998 | 4.36258 | 0.2990102 | 2.3969441 | 122 | 4 | 2001–2009 | 0.41 | M-v | 1 | MPC | 166213 | 2005 $SF_{193}$ |
| 2005 $SN_{193}$ | 16.6 | 0.15 | 20100104 | 120.01691 | 107.37171 | 224.73394 | 2.55117 | 0.2078449 | 2.2852102 | 113 | 5 | 1960–2009 | 0.45 | M-v | 2 | MPC | 157429 | 2005 $SN_{193}$ |
| 2005 $SM_{200}$ | 17.8 | 0.15 | 20100104 | 72.00848 | 321.08817 | 42.25888 | 2.06950 | 0.2131834 | 2.3472595 | 65 | 3 | 2003–2009 | 0.36 | M-v | 2 | MPC | 164256 | 2005 $SM_{200}$ |
| 2005 $SX_{201}$ | 17.4 | 0.15 | 20100104 | 23.59092 | 242.30569 | 153.14553 | 4.11939 | 0.1397004 | 2.4213435 | 54 | 5 | 2001–2009 | 0.46 | M-v | 1 | MPC | 166213 | 2005 $SX_{201}$ |
| 2005 $SY_{202}$ | 16.3 | 0.15 | 20100104 | 18.30965 | 27.47005 | 317.55109 | 8.98796 | 0.1170516 | 2.6041675 | 89 | 4 | 2001–2009 | 0.48 | M-v | 2 | MPC | 164256 | 2005 $SY_{202}$ |
| 2005 $SO_{203}$ | 17.6 | 0.15 | 20100104 | 60.93462 | 299.10442 | 62.60319 | 3.45285 | 0.2009853 | 2.3963585 | 41 | 3 | 2005–2009 | 0.49 | M-v | 3 | MPC | 165448 | 2005 $SO_{203}$ |
| 2005 $SR_{205}$ | 17.2 | 0.15 | 20100104 | 116.09928 | 57.98065 | 277.07756 | 4.59632 | 0.1657272 | 2.2486212 | 31 | 3 | 2005–2009 | 0.40 | M-v | 3 | MPC | 115863 | 2005 $SR_{205}$ |
| 2005 $SN_{206}$ | 17.5 | 0.15 | 20100104 | 66.08486 | 295.83045 | 67.20019 | 5.32673 | 0.2845951 | 2.3650739 | 63 | 3 | 2005–2009 | 0.44 | M-v | 2 | MPC | 166213 | 2005 $SN_{206}$ |
| 2005 $SV_{206}$ | 17.6 | 0.15 | 20100104 | 51.05582 | 165.51195 | 218.15299 | 0.77733 | 0.1803359 | 2.3672339 | 54 | 3 | 2005–2009 | 0.30 | M-v | 2 | MPC | 117575 | 2005 $SV_{206}$ |
| 2005 $SX_{206}$ | 18.6 | 0.15 | 20100104 | 7.21265 | 238.56938 | 199.74039 | 0.91445 | 0.1612369 | 2.3710796 | 33 | 5 | 2000–2009 | 0.45 | M-v | 1 | MPC | 165448 | 2005 $SX_{206}$ |
| 2005 $SR_{207}$ | 16.9 | 0.15 | 20100104 | 11.46276 | 160.02337 | 273.26437 | 4.39747 | 0.1651555 | 2.3993613 | 68 | 5 | 1998–2009 | 0.57 | M-v | 1 | MPC | 166213 | 2005 $SR_{207}$ |
| 2005 $SJ_{209}$ | 16.9 | 0.15 | 20100104 | 74.66354 | 270.37184 | 120.60339 | 6.71916 | 0.1386111 | 2.2882140 | 66 | 5 | 1998–2009 | 0.46 | M-v | 1 | MPC | 121837 | 2005 $SJ_{209}$ |
| 2005 $SF_{210}$ | 16.6 | 0.15 | 20100104 | 101.76977 | 77.85425 | 227.86143 | 6.69216 | 0.1182999 | 2.4067582 | 37 | 3 | 2005–2009 | 0.48 | M-v | 3 | MPC | 166213 | 2005 $SF_{210}$ |
| 2005 $SM_{210}$ | 17.3 | 0.15 | 20100104 | 344.92317 | 171.07026 | 289.74764 | 4.02227 | 0.0868893 | 2.3497496 | 43 | 4 | 2002–2009 | 0.43 | M-v | 1 | MPC | 165449 | 2005 $SM_{210}$ |
| 2005 $SG_{211}$ | 17.8 | 0.15 | 20100104 | 38.52349 | 72.55679 | 311.64367 | 0.68922 | 0.1890007 | 2.4292203 | 45 | 3 | 2003–2009 | 0.35 | M-v | 2 | MPC | 165449 | 2005 $SG_{211}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 $SK_{214}$ | 16.6 | 0.15 | 20100104 | 114.86158 | 28.28821 | 275.13652 | 7.35803 | 0.2748077 | 2.3175807 | 63 | 5 | 2001–2009 | 0.41 | M-v | 1 | MPC | 166213 | 2005 $SK_{214}$ |
| 2005 $SE_{215}$ | 17.0 | 0.15 | 20100104 | 56.16743 | 54.52893 | 264.10468 | 4.22439 | 0.2521825 | 2.5421669 | 52 | 2 | 2005–2009 | 0.52 | M-v | 4 | MPC | 164256 | 2005 $SE_{215}$ |
| 2005 $SJ_{215}$ | 17.2 | 0.15 | 20100104 | 86.28884 | 80.28003 | 290.92449 | 3.87456 | 0.1818466 | 2.2964155 | 66 | 3 | 2003–2009 | 0.52 | M-v | 3 | MPC | 97838 | 2005 $SJ_{215}$ |
| 2005 $SZ_{215}$ | 17.2 | 0.15 | 20100104 | 86.95104 | 86.73672 | 243.96468 | 5.43117 | 0.1430107 | 2.3892418 | 33 | 3 | 2001–2009 | 0.48 | M-v | 4 | MPC | 165449 | 2005 $SZ_{215}$ |
| 2005 $SC_{216}$ | 17.2 | 0.15 | 20100104 | 36.95727 | 84.74730 | 335.78668 | 6.64173 | 0.0815162 | 2.3087219 | 33 | 5 | 2001–2009 | 0.42 | M-v | 1 | MPC | 158511 | 2005 $SC_{216}$ |
| 2005 $SD_{216}$ | 17.1 | 0.15 | 20100104 | 62.97582 | 210.19296 | 154.30598 | 1.39335 | 0.1995384 | 2.3922755 | 117 | 7 | 2000–2009 | 0.47 | M-v | 1 | MPC | 140144 | 2005 $SD_{216}$ |
| 2005 $SB_{218}$ | 16.8 | 0.15 | 20100104 | 55.63057 | 336.72653 | 64.46583 | 4.00124 | 0.2247093 | 2.3432505 | 140 | 6 | 1998–2009 | 0.48 | M-v | 1 | MPC | 166213 | 2005 $SB_{218}$ |
| 2005 $SF_{218}$ | 17.6 | 0.15 | 20100104 | 33.78204 | 252.80277 | 146.27265 | 4.26133 | 0.2168393 | 2.4358568 | 48 | 3 | 2001–2009 | 0.48 | M-v | 3 | MPC | 95932 | 2005 $SF_{218}$ |
| 2005 $SK_{218}$ | 16.8 | 0.15 | 20100104 | 69.66794 | 284.92526 | 86.73599 | 5.16345 | 0.1220185 | 2.3764580 | 38 | 4 | 2001–2009 | 0.52 | M-v | 2 | MPC | 95932 | 2005 $SK_{218}$ |
| 2005 $SN_{218}$ | 16.7 | 0.15 | 20100104 | 102.27814 | 212.85355 | 125.77567 | 3.28559 | 0.1996436 | 2.3352549 | 120 | 5 | 1998–2009 | 0.50 | M-v | 2 | MPC | 118129 | 2005 $SN_{218}$ |
| 2005 $SO_{219}$ | 16.4 | 0.15 | 20100104 | 74.93325 | 77.70454 | 274.53136 | 4.38419 | 0.3411915 | 2.5622982 | 64 | 5 | 1992–2009 | 0.34 | M-v | 2 | MPC | 166213 | 2005 $SO_{219}$ |
| 2005 $SQ_{220}$ | 15.9 | 0.15 | 20100104 | 341.15802 | 113.82867 | 321.44601 | 11.77895 | 0.2485480 | 2.5734598 | 94 | 3 | 2001–2009 | 0.55 | M-v | 2 | MPC | 164256 | 2005 $SQ_{220}$ |
| 2005 $SU_{220}$ | 17.1 | 0.15 | 20100104 | 91.03516 | 65.16532 | 275.87710 | 5.54136 | 0.2965685 | 2.3381419 | 65 | 3 | 2003–2009 | 0.47 | M-v | 3 | MPC | 89872 | 2005 $SU_{220}$ |
| 2005 $SH_{221}$ | 17.0 | 0.15 | 20100104 | 346.32317 | 253.30684 | 194.95778 | 6.55407 | 0.0615721 | 2.3770097 | 75 | 3 | 2005–2009 | 0.44 | M-v | 1 | MPC | 165449 | 2005 $SH_{221}$ |
| 2005 $SN_{221}$ | 17.6 | 0.15 | 20100104 | 16.04904 | 67.76816 | 7.79248 | 1.22918 | 0.1619926 | 2.3886228 | 48 | 5 | 2001–2009 | 0.37 | M-v | 0 | MPC | 119655 | 2005 $SN_{221}$ |
| 2005 $ST_{221}$ | 15.6 | 0.15 | 20100104 | 35.57682 | 204.47805 | 239.00417 | 24.37054 | 0.1976946 | 2.3132635 | 100 | 4 | 1998–2009 | 0.50 | M-v | 1 | MPC | 164256 | 2005 $ST_{221}$ |
| 2005 $SH_{224}$ | 17.7 | 0.15 | 20100104 | 270.89318 | 345.99401 | 185.03214 | 2.63994 | 0.0980746 | 2.3503903 | 49 | 3 | 2005–2009 | 0.36 | M-v | 3 | MPC | 166214 | 2005 $SH_{224}$ |
| 2005 $SW_{224}$ | 17.3 | 0.15 | 20100104 | 24.52007 | 319.97001 | 88.04936 | 2.38012 | 0.1779407 | 2.4269833 | 80 | 2 | 2005–2009 | 0.48 | M-v | 2 | MPC | 165450 | 2005 $SW_{224}$ |
| 2005 $SH_{231}$ | 17.5 | 0.15 | 20100104 | 48.26674 | 169.82223 | 236.68588 | 0.58752 | 0.1780393 | 2.3597129 | 97 | 4 | 2003–2009 | 0.45 | M-v | 1 | MPC | 166214 | 2005 $SH_{231}$ |
| 2005 $SW_{231}$ | 17.8 | 0.15 | 20100104 | 96.80103 | 145.76495 | 203.61835 | 2.03600 | 0.2246297 | 2.3201447 | 83 | 4 | 1998–2009 | 0.52 | M-v | 2 | MPC | 117577 | 2005 $SW_{231}$ |
| 2005 $SA_{232}$ | 17.7 | 0.15 | 20100104 | 108.33197 | 301.07300 | 15.40572 | 1.55234 | 0.1965198 | 2.3831438 | 41 | 3 | 2001–2009 | 0.38 | M-v | 2 | MPC | 95940 | 2005 $SA_{232}$ |
| 2005 $SP_{232}$ | 17.3 | 0.15 | 20100104 | 23.60781 | 219.78129 | 220.62378 | 1.53789 | 0.1926808 | 2.3703897 | 78 | 4 | 2001–2009 | 0.47 | M-v | 0 | MPC | 164257 | 2005 $SP_{232}$ |
| 2005 $SZ_{232}$ | 17.7 | 0.15 | 20100104 | 333.72213 | 225.04931 | 248.76594 | 0.33395 | 0.1360237 | 2.4419678 | 56 | 4 | 2001–2009 | 0.31 | M-v | 2 | MPC | 166214 | 2005 $SZ_{232}$ |
| 2005 $SC_{234}$ | 17.5 | 0.15 | 20100104 | 123.07972 | 140.62253 | 177.85205 | 1.89410 | 0.1483311 | 2.2838236 | 70 | 4 | 2004–2009 | 0.34 | M-v | 2 | MPC | 121838 | 2005 $SC_{234}$ |
| 2005 $SG_{234}$ | 17.0 | 0.15 | 20100104 | 34.93199 | 172.46873 | 239.24495 | 5.49399 | 0.1496363 | 2.3397429 | 62 | 5 | 1991–2009 | 0.52 | M-v | 1 | MPC | 100995 | 2005 $SG_{234}$ |
| 2005 $SU_{235}$ | 17.1 | 0.15 | 20100104 | 43.02406 | 350.88618 | 349.70180 | 3.45717 | 0.1587784 | 2.5763118 | 37 | 2 | 2005–2009 | 0.51 | M-v | 3 | MPC | 164257 | 2005 $SU_{235}$ |
| 2005 $SQ_{237}$ | 17.9 | 0.15 | 20100104 | 350.73017 | 218.68229 | 234.02777 | 2.62715 | 0.1920831 | 2.4534625 | 41 | 3 | 1999–2009 | 0.30 | M-v | 1 | MPC | 165450 | 2005 $SQ_{237}$ |
| 2005 $SS_{239}$ | 16.3 | 0.15 | 20100104 | 40.65357 | 141.59334 | 240.93029 | 9.14823 | 0.1167913 | 2.3826420 | 87 | 5 | 1998–2009 | 0.55 | M-v | 1 | MPC | 166214 | 2005 $SS_{239}$ |
| 2005 $SX_{245}$ | 17.9 | 0.15 | 20100104 | 355.85526 | 91.82212 | 16.88368 | 2.22451 | 0.0816200 | 2.3183326 | 52 | 5 | 1996–2009 | 0.33 | M-v | 0 | MPC | 120817 | 2005 $SX_{245}$ |
| 2005 $ST_{247}$ | 17.5 | 0.15 | 20100104 | 282.99044 | 183.17960 | 15.24761 | 4.70944 | 0.0542948 | 2.2300411 | 37 | 4 | 1995–2009 | 0.32 | M-v | 1 | MPC | 120817 | 2005 $ST_{247}$ |
| 2005 $SH_{249}$ | 17.7 | 0.15 | 20100104 | 286.21984 | 162.54529 | 13.78074 | 2.46086 | 0.1443473 | 2.3455673 | 47 | 4 | 2003–2009 | 0.28 | M-v | 1 | MPC | 166214 | 2005 $SH_{249}$ |
| 2005 $SR_{249}$ | 16.9 | 0.15 | 20100104 | 82.25658 | 336.19902 | 19.26798 | 6.18776 | 0.1748644 | 2.2825300 | 45 | 3 | 2004–2009 | 0.43 | M-v | 2 | MPC | 95949 | 2005 $SR_{249}$ |
| 2005 $SM_{251}$ | 17.0 | 0.15 | 20100104 | 66.82080 | 241.38392 | 105.52989 | 3.08154 | 0.2596433 | 2.3666235 | 41 | 4 | 1998–2009 | 0.50 | M-v | 1 | MPC | 166214 | 2005 $SM_{251}$ |
| 2005 $SB_{253}$ | 17.2 | 0.15 | 20100104 | 77.70325 | 274.87657 | 55.70453 | 5.96517 | 0.2454064 | 2.4082455 | 78 | 4 | 2001–2009 | 0.48 | M-v | 1 | MPC | 166214 | 2005 $SB_{253}$ |
| 2005 $SO_{253}$ | 16.5 | 0.15 | 20100104 | 101.42402 | 65.14518 | 277.53604 | 4.28103 | 0.1157687 | 2.2726918 | 68 | 7 | 1995–2009 | 0.49 | M-v | 1 | MPC | 116313 | 2005 $SO_{253}$ |
| 2005 $SQ_{253}$ | 16.8 | 0.15 | 20100104 | 108.51024 | 49.32097 | 267.79254 | 5.38624 | 0.1523784 | 2.3359939 | 42 | 4 | 2002–2009 | 0.50 | M-v | 2 | MPC | 166214 | 2005 $SQ_{253}$ |
| 2005 $SN_{254}$ | 17.4 | 0.15 | 20100104 | 16.38314 | 343.22632 | 50.65689 | 2.31047 | 0.1901800 | 2.4328332 | 75 | 3 | 2005–2009 | 0.49 | M-v | 2 | MPC | 166214 | 2005 $SN_{254}$ |
| 2005 $SS_{256}$ | 17.6 | 0.15 | 20100104 | 74.75420 | 10.32750 | 328.11850 | 0.85812 | 0.1868375 | 2.3821306 | 38 | 3 | 2000–2009 | 0.26 | M-v | 3 | MPC | 165451 | 2005 $SS_{256}$ |
| 2005 $SW_{256}$ | 17.1 | 0.15 | 20100104 | 17.31599 | 18.55044 | 37.94409 | 4.16419 | 0.1814731 | 2.3959599 | 78 | 4 | 2000–2009 | 0.40 | M-v | 1 | MPC | 166214 | 2005 $SW_{256}$ |
| 2005 $SY_{256}$ | 17.3 | 0.15 | 20100104 | 17.78980 | 27.39301 | 37.11526 | 5.97420 | 0.2029994 | 2.3743999 | 39 | 5 | 1996–2009 | 0.29 | M-v | 0 | MPC | 162438 | 2005 $SY_{256}$ |
| 2005 $SL_{257}$ | 16.9 | 0.15 | 20100104 | 35.13113 | 234.28359 | 167.77050 | 6.61744 | 0.0982576 | 2.3586438 | 47 | 3 | 2005–2009 | 0.40 | M-v | 3 | MPC | 166214 | 2005 $SL_{257}$ |
| 2005 $SS_{259}$ | 17.0 | 0.15 | 20100104 | 141.74236 | 3.51047 | 291.80831 | 4.72680 | 0.1669668 | 2.2796240 | 36 | 3 | 2005–2009 | 0.40 | M-v | 3 | MPC | 116314 | 2005 $SS_{259}$ |
| 2005 $SF_{261}$ | 18.0 | 0.15 | 20100104 | 4.52288 | 271.40284 | 171.73596 | 2.20904 | 0.1938248 | 2.3026018 | 40 | 5 | 2000–2009 | 0.35 | M-v | 1 | MPC | 162438 | 2005 $SF_{261}$ |
| 2005 $ST_{261}$ | 17.7 | 0.15 | 20100104 | 9.33934 | 231.56491 | 199.16856 | 7.11259 | 0.2310475 | 2.3879926 | 39 | 3 | 2005–2009 | 0.45 | M-v | 2 | MPC | 165451 | 2005 $ST_{261}$ |
| 2005 $SV_{263}$ | 17.6 | 0.15 | 20100104 | 16.28191 | 351.33721 | 82.81268 | 3.18881 | 0.1768332 | 2.3946432 | 41 | 5 | 1994–2009 | 0.41 | M-v | 0 | MPC | 95961 | 2005 $SV_{263}$ |
| 2005 $SD_{264}$ | 17.6 | 0.15 | 20100104 | 79.93010 | 224.47915 | 124.46231 | 3.11422 | 0.2506432 | 2.3122586 | 45 | 6 | 1991–2009 | 0.48 | M-v | 1 | MPC | 140144 | 2005 $SD_{264}$ |
| 2005 $SG_{264}$ | 17.1 | 0.15 | 20100104 | 16.50684 | 268.01549 | 167.04699 | 2.92100 | 0.1607785 | 2.3378972 | 68 | 6 | 1991–2009 | 0.44 | M-v | 0 | MPC | 160838 | 2005 $SG_{264}$ |
| 2005 $SC_{266}$ | 16.9 | 0.15 | 20100104 | 31.32168 | 196.92980 | 227.49293 | 5.32699 | 0.1018571 | 2.2854958 | 37 | 6 | 2000–2009 | 0.49 | M-v | 1 | MPC | 118130 | 2005 $SC_{266}$ |
| 2005 $SW_{269}$ | 17.1 | 0.15 | 20100104 | 308.77119 | 127.01320 | 343.52705 | 2.86047 | 0.1986780 | 2.5378482 | 44 | 5 | 2001–2009 | 0.44 | M-v | 1 | MPC | 164257 | 2005 $SW_{269}$ |
| 2005 $SA_{271}$ | 17.4 | 0.15 | 20100104 | 71.89790 | 257.30782 | 85.28864 | 5.56716 | 0.2094841 | 2.3954082 | 50 | 4 | 2001–2009 | 0.43 | M-v | 1 | MPC | 166215 | 2005 $SA_{271}$ |
| 2005 $SM_{278}$ | 17.2 | 0.15 | 20100104 | 207.42743 | 228.55883 | 11.57726 | 2.95841 | 0.0367734 | 2.3371126 | 53 | 5 | 1998–2009 | 0.47 | M-v | 1 | MPC | 166215 | 2005 $SM_{278}$ |
| 2005 $SY_{278}$ | 17.4 | 0.15 | 20100104 | 91.86614 | 107.69876 | 228.28304 | 6.32678 | 0.1219038 | 2.3873665 | 28 | 4 | 2001–2009 | 0.41 | M-v | 1 | MPC | 166215 | 2005 $SY_{278}$ |
| 2005 $SE_{279}$ | 18.1 | 0.15 | 20100104 | 22.25639 | 284.15650 | 132.21939 | 0.27272 | 0.2046943 | 2.4326505 | 36 | 4 | 1995–2009 | 0.37 | M-v | 1 | MPC | 109386 | 2005 $SE_{279}$ |

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| 2005 $SK_{279}$ | 16.8 | 0.15 | 20100104 | 198.84186 | 219.19487 | 49.53180 | 6.82686 | 0.0954485 | 2.3769929 | 49 | 6 | 2000–2009 | 0.43 | M-v | 1 | MPC | 147353 | 2005 $SK_{279}$ |
| 2005 $SR_{279}$ | 17.7 | 0.15 | 20100104 | 3.17104 | 14.34453 | 51.84866 | 3.28605 | 0.1855319 | 2.4513201 | 57 | 3 | 2003–2009 | 0.44 | M-v | 2 | MPC | 166215 | 2005 $SR_{279}$ |
| 2005 $SF_{286}$ | 17.4 | 0.15 | 20100104 | 324.60996 | 55.02868 | 83.58521 | 12.80606 | 0.1357526 | 2.3736647 | 28 | 3 | 2003–2009 | 0.19 | M-v | 2 | MPC | 166215 | 2005 $SF_{286}$ |
| 2005 $SO_{289}$ | 17.4 | 0.15 | 20100104 | 1.06581 | 189.35676 | 282.33104 | 1.61522 | 0.1254086 | 2.2830780 | 31 | 3 | 2005–2009 | 0.33 | M-v | 2 | MPC | 166215 | 2005 $SO_{289}$ |
| 2005 $SV_{289}$ | 16.5 | 0.15 | 20100104 | 55.66521 | 115.13550 | 216.29401 | 3.66862 | 0.0939499 | 2.6200593 | 59 | 7 | 2000–2009 | 0.39 | M-v | 0 | MPC | 166215 | 2005 $SV_{289}$ |
| 2005 $SL_{290}$ | 17.5 | 0.15 | 20100104 | 319.05524 | 153.94882 | 347.91879 | 2.12395 | 0.1237358 | 2.3390793 | 28 | 4 | 1998–2009 | 0.35 | M-v | 1 | MPC | 166215 | 2005 $SL_{290}$ |
| 2005 $SD_{291}$ | 17.1 | 0.15 | 20100104 | 33.44489 | 151.56883 | 218.11367 | 10.44676 | 0.0959648 | 2.5739708 | 47 | 2 | 2005–2009 | 0.34 | M-v | 3 | MPC | 165452 | 2005 $SD_{291}$ |
| 2005 $SW_{292}$ | 18.1 | 0.15 | 20100104 | 40.20529 | 14.78947 | 12.02371 | 1.30190 | 0.1903152 | 2.4014375 | 33 | 2 | 2005–2009 | 0.40 | M-v | 3 | MPC | 165452 | 2005 $SW_{292}$ |
| 2005 $SX_{292}$ | 17.0 | 0.15 | 20100104 | 331.60155 | 235.32557 | 233.99652 | 4.21018 | 0.0657443 | 2.3954318 | 35 | 3 | 2005–2009 | 0.42 | M-v | 3 | MPC | 165452 | 2005 $SX_{292}$ |
| 2005 $SB_{293}$ | 15.6 | 0.15 | 20050927 | 6.15090 | 241.85186 | 105.74723 | 2.50201 | 0.1817104 | 3.1587141 | 14 | 1 | 18 days | 0.64 | | | MPC | | 2005 $SB_{293}$ |
| 2005 $SC_{293}$ | 15.2 | 0.15 | 20050927 | 302.54092 | 212.91546 | 239.80798 | 15.93203 | 0.2756507 | 3.1100877 | 14 | 1 | 27 days | 0.65 | | | MPC | | 2005 $SC_{293}$ |
| 2005 $SE_{293}$ | 15.3 | 0.15 | 20051017 | 16.22158 | 210.12827 | 154.98355 | 20.70528 | 0.1943998 | 3.1438148 | 13 | 1 | 51 days | 0.25 | | | MPC | | 2005 $SE_{293}$ |
| 2005 $SF_{293}$ | 16.0 | 0.15 | 20050927 | 3.12086 | 209.87485 | 152.98437 | 13.68090 | 0.2480793 | 2.9734620 | 12 | 1 | 8 days | 0.65 | | | MPC | | 2005 $SF_{293}$ |
| 2005 TT | 15.9 | 0.15 | 20100104 | 19.12996 | 351.35335 | 18.86470 | 30.12910 | 0.2856325 | 2.5971590 | 91 | 2 | 2005–2009 | 0.50 | M-v | 2 | MPC | 166215 | 2005 TT |
| 2005 TU | 17.8 | 0.15 | 20100104 | 92.11677 | 131.07505 | 233.31429 | 1.25814 | 0.0514306 | 2.2725783 | 47 | 5 | 1995–2009 | 0.34 | M-v | 1 | MPC | 118130 | 2005 TU |
| 2005 $TV_2$ | 17.0 | 0.15 | 20100104 | 335.10122 | 162.00847 | 314.28731 | 2.42473 | 0.1112364 | 2.3316978 | 59 | 5 | 1994–2009 | 0.45 | M-v | 1 | MPC | 166215 | 2005 $TV_2$ |
| 2005 $TX_4$ | 17.3 | 0.15 | 20100104 | 244.98134 | 19.80208 | 173.83005 | 2.53599 | 0.1624036 | 2.3874838 | 68 | 5 | 2000–2009 | 0.36 | M-v | 2 | MPC | 166215 | 2005 $TX_4$ |
| 2005 $TL_5$ | 16.8 | 0.15 | 20100104 | 37.56999 | 113.83185 | 290.03958 | 5.10811 | 0.1125146 | 2.3805226 | 44 | 2 | 2005–2009 | 0.56 | M-v | 3 | MPC | 165452 | 2005 $TL_5$ |
| 2005 $TW_6$ | 17.0 | 0.15 | 20100104 | 86.47153 | 86.56797 | 286.67718 | 4.95476 | 0.1143921 | 2.2909185 | 74 | 5 | 2000–2009 | 0.47 | M-v | 1 | MPC | 166215 | 2005 $TW_6$ |
| 2005 $TC_7$ | 17.3 | 0.15 | 20100104 | 121.97267 | 71.23243 | 236.81966 | 5.24985 | 0.1628057 | 2.3443815 | 42 | 4 | 1998–2009 | 0.43 | M-v | 1 | MPC | 166215 | 2005 $TC_7$ |
| 2005 $TR_9$ | 16.3 | 0.15 | 20100104 | 17.37836 | 167.73011 | 194.83910 | 14.84386 | 0.2634108 | 2.6316699 | 90 | 3 | 2005–2009 | 0.61 | M-v | 2 | MPC | 164258 | 2005 $TR_9$ |
| 2005 $TV_{13}$ | 17.2 | 0.15 | 20100104 | 28.24247 | 167.59441 | 254.78572 | 1.89375 | 0.2318602 | 2.3800175 | 113 | 5 | 1994–2009 | 0.47 | M-v | 0 | MPC | 166215 | 2005 $TV_{13}$ |
| 2005 $TZ_{13}$ | 17.6 | 0.15 | 20100104 | 54.56359 | 204.21271 | 168.13894 | 1.75705 | 0.0911088 | 2.3717160 | 70 | 3 | 2005–2009 | 0.30 | M-v | 3 | MPC | 166215 | 2005 $TZ_{13}$ |
| 2005 $TP_{14}$ | 17.0 | 0.15 | 20100104 | 33.53616 | 323.62161 | 55.18149 | 6.44082 | 0.2120076 | 2.4302381 | 113 | 3 | 2005–2009 | 0.52 | M-v | 3 | MPC | 166215 | 2005 $TP_{14}$ |
| 2005 $TT_{14}$ | 16.8 | 0.15 | 20100104 | 104.65847 | 241.01855 | 67.33360 | 7.46874 | 0.1263012 | 2.3574154 | 39 | 3 | 2005–2009 | 0.48 | M-v | 2 | MPC | 165453 | 2005 $TT_{14}$ |
| 2005 $TA_{15}$ | 18.4 | 0.15 | 20100104 | 33.11069 | 102.21596 | 280.39124 | 5.37721 | 0.2655589 | 2.4596311 | 47 | 3 | 2001–2009 | 0.48 | M-v | 2 | MPC | 166215 | 2005 $TA_{15}$ |
| 2005 $TW_{16}$ | 17.2 | 0.15 | 20100104 | 30.78232 | 339.79932 | 21.33366 | 5.39952 | 0.2522445 | 2.4859303 | 110 | 3 | 2001–2009 | 0.49 | M-v | 2 | MPC | 166215 | 2005 $TW_{16}$ |
| 2005 $TA_{17}$ | 17.4 | 0.15 | 20100104 | 95.42958 | 303.68984 | 21.87557 | 2.51659 | 0.2298307 | 2.3352148 | 64 | 3 | 2005–2009 | 0.41 | M-v | 1 | MPC | 166215 | 2005 $TA_{17}$ |
| 2005 $TY_{17}$ | 17.6 | 0.15 | 20100104 | 69.55181 | 328.42648 | 73.12037 | 2.63608 | 0.1942498 | 2.2695671 | 50 | 3 | 2003–2009 | 0.49 | M-v | 2 | MPC | 97849 | 2005 $TY_{17}$ |
| 2005 $TE_{18}$ | 17.4 | 0.15 | 20100104 | 83.40965 | 297.43634 | 54.76908 | 3.33899 | 0.2151454 | 2.3368852 | 76 | 5 | 1998–2009 | 0.54 | M-v | 1 | MPC | 97849 | 2005 $TE_{18}$ |
| 2005 $TF_{18}$ | 17.5 | 0.15 | 20100104 | 51.65455 | 253.23713 | 143.48960 | 2.54418 | 0.2002997 | 2.3500738 | 75 | 4 | 2003–2009 | 0.49 | M-v | 1 | MPC | 117581 | 2005 $TF_{18}$ |
| 2005 $TY_{20}$ | 18.2 | 0.15 | 20100104 | 317.34314 | 286.78785 | 209.72005 | 2.33113 | 0.1354892 | 2.3168475 | 36 | 3 | 2005–2009 | 0.28 | M-v | 2 | MPC | 122521 | 2005 $TY_{20}$ |
| 2005 $TM_{21}$ | 17.5 | 0.15 | 20100104 | 71.09755 | 290.58131 | 60.33118 | 2.19736 | 0.1962485 | 2.3876549 | 68 | 5 | 2003–2009 | 0.42 | M-v | 1 | MPC | 166215 | 2005 $TM_{21}$ |
| 2005 $TP_{21}$ | 16.7 | 0.15 | 20100104 | 125.80090 | 229.20861 | 72.97139 | 2.79822 | 0.2186214 | 2.3130530 | 70 | 6 | 2001–2009 | 0.43 | M-v | 0 | MPC | 140145 | 2005 $TP_{21}$ |
| 2005 $TZ_{23}$ | 16.7 | 0.15 | 20100104 | 348.56156 | 29.97896 | 29.37345 | 13.82259 | 0.1362141 | 2.5461603 | 93 | 5 | 1995–2009 | 0.44 | M-v | 2 | MPC | 166215 | 2005 $TZ_{23}$ |
| 2005 $TZ_{24}$ | 16.7 | 0.15 | 20100104 | 76.19848 | 97.06708 | 209.41626 | 13.79972 | 0.1097049 | 2.6099556 | 65 | 3 | 2005–2009 | 0.25 | M-v | 1 | MPC | 166216 | 2005 $TZ_{24}$ |
| 2005 $TM_{25}$ | 17.5 | 0.15 | 20100104 | 253.02701 | 150.00982 | 40.09221 | 3.72163 | 0.0308255 | 2.4066338 | 47 | 3 | 2005–2009 | 0.32 | M-v | 3 | MPC | 166216 | 2005 $TM_{25}$ |
| 2005 $TP_{26}$ | 17.5 | 0.15 | 20100104 | 355.91609 | 50.40627 | 44.74558 | 1.98752 | 0.1505412 | 2.4254288 | 71 | 4 | 2001–2009 | 0.29 | M-v | 2 | MPC | 143234 | 2005 $TP_{26}$ |
| 2005 $TH_{27}$ | 17.2 | 0.15 | 20100104 | 187.04700 | 225.51519 | 43.01673 | 5.84936 | 0.1377653 | 2.3103599 | 57 | 6 | 1998–2009 | 0.44 | M-v | 1 | MPC | 143234 | 2005 $TH_{27}$ |
| 2005 $TP_{27}$ | 17.1 | 0.15 | 20100104 | 86.33454 | 300.25989 | 61.33173 | 3.65168 | 0.1901896 | 2.3219826 | 86 | 3 | 2005–2009 | 0.37 | M-v | 2 | MPC | 118131 | 2005 $TP_{27}$ |
| 2005 $TS_{27}$ | 17.0 | 0.15 | 20100104 | 51.94732 | 238.53561 | 158.25454 | 2.42911 | 0.2084736 | 2.3673644 | 87 | 3 | 2003–2009 | 0.54 | M-v | 2 | MPC | 161944 | 2005 $TS_{27}$ |
| 2005 $TG_{32}$ | 17.3 | 0.15 | 20100104 | 123.41592 | 175.50344 | 132.17359 | 3.14100 | 0.1155057 | 2.3359714 | 83 | 5 | 2001–2009 | 0.40 | M-v | 1 | MPC | 166216 | 2005 $TG_{32}$ |
| 2005 $TB_{33}$ | 17.4 | 0.15 | 20100104 | 318.18101 | 33.53664 | 80.45465 | 2.80488 | 0.1171552 | 2.4192881 | 54 | 4 | 2003–2009 | 0.32 | M-v | 1 | MPC | 164258 | 2005 $TB_{33}$ |
| 2005 $TB_{39}$ | 17.4 | 0.15 | 20100104 | 27.28900 | 123.60713 | 277.23360 | 3.52986 | 0.1879775 | 2.4353197 | 67 | 2 | 2005–2009 | 0.49 | M-v | 3 | MPC | 165453 | 2005 $TB_{39}$ |
| 2005 $TF_{40}$ | 16.8 | 0.15 | 20100104 | 353.40740 | 39.88679 | 52.28050 | 7.43504 | 0.0715391 | 2.4009395 | 62 | 3 | 2005–2009 | 0.45 | M-v | 2 | MPC | 166216 | 2005 $TF_{40}$ |
| 2005 $TW_{40}$ | 16.4 | 0.15 | 20100104 | 342.41475 | 47.31799 | 114.06128 | 6.39950 | 0.0739014 | 2.4368012 | 110 | 6 | 2001–2009 | 0.46 | M-v | 1 | MPC | 147353 | 2005 $TW_{40}$ |
| 2005 $TS_{41}$ | 16.9 | 0.15 | 20100104 | 79.84966 | 98.58648 | 244.84049 | 4.94301 | 0.1234330 | 2.3877808 | 64 | 5 | 1994–2009 | 0.45 | M-v | 1 | MPC | 166216 | 2005 $TS_{41}$ |
| 2005 $TD_{42}$ | 16.5 | 0.15 | 20100104 | 138.80459 | 56.47969 | 231.88393 | 5.10064 | 0.2189314 | 2.3272903 | 63 | 6 | 1991–2009 | 0.55 | M-v | 1 | MPC | 166216 | 2005 $TD_{42}$ |
| 2005 $TL_{42}$ | 17.0 | 0.15 | 20100104 | 9.22589 | 165.36455 | 255.80933 | 2.13727 | 0.1370174 | 2.4325404 | 76 | 3 | 2005–2009 | 0.47 | M-v | 3 | MPC | 166216 | 2005 $TL_{42}$ |
| 2005 $TC_{43}$ | 17.8 | 0.15 | 20100104 | 55.27438 | 325.16789 | 27.52649 | 1.52067 | 0.2076311 | 2.4022453 | 53 | 3 | 2002–2009 | 0.42 | M-v | 3 | MPC | 166216 | 2005 $TC_{43}$ |
| 2005 $TM_{45}$ | 17.4 | 0.15 | 20100104 | 174.81875 | 9.66314 | 260.68567 | 3.30745 | 0.1504401 | 2.2244159 | 51 | 5 | 1995–2009 | 0.37 | M-v | 1 | MPC | 122797 | 2005 $TM_{45}$ |
| 2005 $TW_{46}$ | 17.5 | 0.15 | 20100104 | 90.47434 | 354.83055 | 2.92326 | 5.52313 | 0.1331760 | 2.3165002 | 70 | 3 | 2005–2009 | 0.50 | M-v | 3 | MPC | 115871 | 2005 $TW_{46}$ |
| 2005 $TE_{48}$ | 17.7 | 0.15 | 20100104 | 67.17804 | 17.43952 | 8.86045 | 2.76949 | 0.1106211 | 2.3191657 | 65 | 7 | 1996–2009 | 0.44 | M-v | 1 | MPC | 118132 | 2005 $TE_{48}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 $TY_{51}$ | 17.7 | 0.15 | 20100104 | 1.39479 | 3.45689 | 79.63503 | 24.40102 | 0.5602009 | 2.5942932 | 90 | 2 | 2005–2009 | 0.41 | M-v | 1 | MPC | 161945 | 2005 $TY_{51}$ |
| 2005 $TJ_{53}$ | 18.0 | 0.15 | 20100104 | 16.71421 | 60.72821 | 348.34076 | 2.10823 | 0.1912335 | 2.4571914 | 60 | 5 | 1995–2009 | 0.46 | M-v | 1 | MPC | 166216 | 2005 $TJ_{53}$ |
| 2005 $TM_{54}$ | 16.4 | 0.15 | 20100104 | 93.90798 | 238.36731 | 88.27371 | 5.23542 | 0.2713190 | 2.3689443 | 103 | 5 | 1983–2009 | 0.47 | M-v | 1 | MPC | 151018 | 2005 $TM_{54}$ |
| 2005 $TO_{54}$ | 17.5 | 0.15 | 20100104 | 67.09676 | 277.08852 | 70.92237 | 5.24809 | 0.1970175 | 2.4316343 | 44 | 3 | 2005–2009 | 0.48 | M-v | 3 | MPC | 165454 | 2005 $TO_{54}$ |
| 2005 $TV_{55}$ | 17.5 | 0.15 | 20100104 | 91.59314 | 273.71172 | 49.29210 | 4.03276 | 0.1413230 | 2.3912399 | 57 | 5 | 2004–2009 | 0.32 | M-v | 1 | MPC | 166216 | 2005 $TV_{55}$ |
| 2005 $TT_{57}$ | 16.9 | 0.15 | 20100104 | 235.25516 | 29.55928 | 174.29881 | 2.35564 | 0.1572359 | 2.3947101 | 86 | 5 | 2000–2009 | 0.48 | M-v | 2 | MPC | 166216 | 2005 $TT_{57}$ |
| 2005 $TJ_{59}$ | 17.2 | 0.15 | 20100104 | 31.50604 | 318.56736 | 28.92076 | 15.30608 | 0.2105557 | 2.5946300 | 38 | 3 | 2005–2009 | 0.50 | M-v | 2 | MPC | 157017 | 2005 $TJ_{59}$ |
| 2005 $TJ_{62}$ | 17.6 | 0.15 | 20100104 | 326.92169 | 75.28764 | 73.10926 | 2.31450 | 0.1083871 | 2.3020090 | 55 | 3 | 2005–2009 | 0.26 | M-v | 2 | MPC | 120818 | 2005 $TJ_{62}$ |
| 2005 $TS_{62}$ | 18.1 | 0.15 | 20100104 | 14.53930 | 353.08502 | 29.40761 | 10.16137 | 0.3187219 | 2.5572782 | 58 | 2 | 2005–2009 | 0.52 | M-v | 2 | MPC | 166216 | 2005 $TS_{62}$ |
| 2005 $TW_{62}$ | 17.3 | 0.15 | 20100104 | 336.72834 | 17.31006 | 78.52014 | 1.95128 | 0.1296728 | 2.4752889 | 64 | 5 | 2001–2009 | 0.42 | M-v | 1 | MPC | 166216 | 2005 $TW_{62}$ |
| 2005 $TN_{67}$ | 18.0 | 0.15 | 20100104 | 346.59225 | 209.77964 | 255.33119 | 2.34904 | 0.1489240 | 2.3463279 | 30 | 4 | 1998–2009 | 0.28 | M-v | 1 | MPC | 166216 | 2005 $TN_{67}$ |
| 2005 $TQ_{73}$ | 17.1 | 0.15 | 20100104 | 107.73561 | 311.22890 | 24.23860 | 7.27705 | 0.1428925 | 2.2656978 | 37 | 3 | 2004–2009 | 0.45 | M-v | 2 | MPC | 96007 | 2005 $TQ_{73}$ |
| 2005 $TB_{74}$ | 17.3 | 0.15 | 20100104 | 101.98720 | 207.21955 | 136.25429 | 5.93364 | 0.2285734 | 2.3149302 | 46 | 5 | 1995–2009 | 0.58 | M-v | 3 | MPC | 97857 | 2005 $TB_{74}$ |
| 2005 $TV_{75}$ | 16.8 | 0.15 | 20100104 | 355.27671 | 186.75400 | 249.96126 | 11.48962 | 0.2340202 | 2.4647331 | 86 | 3 | 2001–2009 | 0.48 | M-v | 3 | MPC | 166216 | 2005 $TV_{75}$ |
| 2005 $TK_{77}$ | 17.4 | 0.15 | 20100104 | 25.23839 | 355.04761 | 78.50960 | 3.57739 | 0.1866488 | 2.3566900 | 51 | 5 | 1998–2009 | 0.45 | M-v | 0 | MPC | 122797 | 2005 $TK_{77}$ |
| 2005 $TM_{77}$ | 17.1 | 0.15 | 20100104 | 48.45528 | 255.42992 | 119.10041 | 3.06475 | 0.2192501 | 2.4230645 | 67 | 4 | 2001–2009 | 0.65 | M-v | 2 | MPC | 166216 | 2005 $TM_{77}$ |
| 2005 $TQ_{77}$ | 16.9 | 0.15 | 20100104 | 11.55497 | 353.33610 | 22.07524 | 14.74836 | 0.1935388 | 2.6043837 | 63 | 5 | 1999–2009 | 0.46 | M-v | 1 | MPC | 164259 | 2005 $TQ_{77}$ |
| 2005 $TF_{79}$ | 18.4 | 0.15 | 20100104 | 12.24773 | 42.60008 | 27.25893 | 0.62614 | 0.1783019 | 2.4282205 | 47 | 3 | 2001–2009 | 0.31 | M-v | 3 | MPC | 165454 | 2005 $TF_{79}$ |
| 2005 $TY_{79}$ | 16.9 | 0.15 | 20100104 | 135.76792 | 359.29987 | 320.79863 | 5.37866 | 0.2004921 | 2.2484031 | 65 | 7 | 1997–2009 | 0.47 | M-v | 1 | MPC | 147354 | 2005 $TY_{79}$ |
| 2005 $TK_{82}$ | 17.8 | 0.15 | 20100104 | 98.26648 | 99.50455 | 230.33789 | 3.94198 | 0.1248030 | 2.3580815 | 34 | 6 | 1998–2009 | 0.32 | M-v | 0 | MPC | 166216 | 2005 $TK_{82}$ |
| 2005 $TU_{82}$ | 17.1 | 0.15 | 20100104 | 42.75379 | 70.29924 | 320.91575 | 5.56475 | 0.2040191 | 2.3861463 | 53 | 5 | 1998–2009 | 0.46 | M-v | 1 | MPC | 166216 | 2005 $TU_{82}$ |
| 2005 $TG_{85}$ | 17.1 | 0.15 | 20100104 | 168.85902 | 261.87748 | 5.88515 | 3.81373 | 0.2187654 | 2.2893793 | 46 | 6 | 1991–2009 | 0.46 | M-v | 1 | MPC | 140695 | 2005 $TG_{85}$ |
| 2005 $TZ_{85}$ | 18.0 | 0.15 | 20100104 | 89.22626 | 222.72275 | 103.91022 | 3.64704 | 0.2352770 | 2.3589153 | 28 | 3 | 2005–2009 | 0.55 | M-v | 2 | MPC | 155194 | 2005 $TZ_{85}$ |
| 2005 $TE_{86}$ | 16.7 | 0.15 | 20100104 | 118.07888 | 62.77554 | 232.82366 | 7.96698 | 0.1780862 | 2.3724743 | 84 | 3 | 2005–2009 | 0.44 | M-v | 2 | MPC | 166216 | 2005 $TE_{86}$ |
| 2005 $TO_{86}$ | 17.9 | 0.15 | 20100104 | 57.12856 | 297.47718 | 53.96955 | 3.19423 | 0.2389352 | 2.4188549 | 54 | 2 | 2005–2009 | 0.33 | M-v | 2 | MPC | 166217 | 2005 $TO_{86}$ |
| 2005 $TF_{87}$ | 17.9 | 0.15 | 20100104 | 343.17920 | 327.36555 | 138.41931 | 1.77569 | 0.1288121 | 2.3651384 | 57 | 3 | 2003–2009 | 0.35 | M-v | 3 | MPC | 166217 | 2005 $TF_{87}$ |
| 2005 $TD_{90}$ | 17.4 | 0.15 | 20100104 | 37.89071 | 315.69075 | 34.22925 | 8.04980 | 0.2352765 | 2.5612470 | 87 | 2 | 2005–2009 | 0.43 | M-v | 3 | MPC | 166217 | 2005 $TD_{90}$ |
| 2005 $TW_{91}$ | 17.9 | 0.15 | 20100104 | 63.77870 | 81.16469 | 260.42613 | 3.63764 | 0.2410296 | 2.4130275 | 42 | 2 | 2005–2009 | 0.43 | M-v | 3 | MPC | 165454 | 2005 $TW_{91}$ |
| 2005 $TY_{103}$ | 17.2 | 0.15 | 20100104 | 31.28779 | 124.03560 | 333.98881 | 4.43144 | 0.0547092 | 2.2241830 | 64 | 5 | 2000–2009 | 0.45 | M-v | 0 | MPC | 147354 | 2005 $TY_{103}$ |
| 2005 $TF_{105}$ | 16.6 | 0.15 | 20100104 | 77.45095 | 65.68032 | 297.41567 | 5.56023 | 0.2279433 | 2.3680399 | 55 | 3 | 2001–2009 | 0.45 | M-v | 3 | MPC | 96030 | 2005 $TF_{105}$ |
| 2005 $TS_{106}$ | 17.7 | 0.15 | 20100104 | 15.31092 | 351.12946 | 100.18064 | 1.85080 | 0.1592568 | 2.3492723 | 57 | 4 | 1996–2009 | 0.35 | M-v | 0 | MPC | 166217 | 2005 $TS_{106}$ |
| 2005 $TA_{113}$ | 18.4 | 0.15 | 20100104 | 28.65446 | 109.38763 | 293.12740 | 1.41062 | 0.1765577 | 2.4145711 | 35 | 2 | 2005–2009 | 0.34 | M-v | 3 | MPC | 165455 | 2005 $TA_{113}$ |
| 2005 $TT_{114}$ | 17.4 | 0.15 | 20100104 | 354.95595 | 128.32264 | 349.83787 | 3.81730 | 0.1737204 | 2.2943463 | 33 | 3 | 2003–2009 | 0.36 | M-v | 3 | MPC | 101012 | 2005 $TT_{114}$ |
| 2005 $TT_{115}$ | 17.7 | 0.15 | 20100104 | 26.76950 | 148.94611 | 248.34667 | 1.27363 | 0.2104860 | 2.4378161 | 67 | 5 | 1994–2009 | 0.38 | M-v | 0 | MPC | 166217 | 2005 $TT_{115}$ |
| 2005 $TO_{116}$ | 17.8 | 0.15 | 20100104 | 112.70227 | 331.92400 | 327.03576 | 2.02164 | 0.2154609 | 2.3616520 | 45 | 4 | 2004–2009 | 0.33 | M-v | 0 | MPC | 166217 | 2005 $TO_{116}$ |
| 2005 $TO_{121}$ | 17.5 | 0.15 | 20100104 | 109.90926 | 80.58598 | 224.30778 | 1.62922 | 0.2122506 | 2.3571245 | 50 | 6 | 1998–2009 | 0.29 | M-v | 0 | MPC | 140146 | 2005 $TO_{121}$ |
| 2005 $TP_{122}$ | 18.0 | 0.15 | 20100104 | 6.48852 | 267.99104 | 189.94936 | 3.84934 | 0.1189313 | 2.3153272 | 33 | 5 | 2004–2009 | 0.31 | M-v | 0 | MPC | 166217 | 2005 $TP_{122}$ |
| 2005 $TH_{127}$ | 18.0 | 0.15 | 20100104 | 23.19339 | 133.86244 | 280.92742 | 0.50710 | 0.1453541 | 2.4105328 | 31 | 4 | 2001–2009 | 0.35 | M-v | 2 | MPC | 165455 | 2005 $TH_{127}$ |
| 2005 $TR_{127}$ | 18.3 | 0.15 | 20100104 | 10.40544 | 132.19214 | 328.80307 | 0.63353 | 0.1474471 | 2.3105863 | 37 | 4 | 2003–2009 | 0.27 | M-v | 0 | MPC | 119657 | 2005 $TR_{127}$ |
| 2005 $TB_{129}$ | 17.5 | 0.15 | 20100104 | 115.77463 | 96.37538 | 198.70806 | 1.54340 | 0.1765657 | 2.4224217 | 37 | 4 | 2001–2009 | 0.36 | M-v | 2 | MPC | 166217 | 2005 $TB_{129}$ |
| 2005 $TF_{131}$ | 17.6 | 0.15 | 20100104 | 7.73327 | 28.73613 | 64.11410 | 3.28336 | 0.1698147 | 2.3782508 | 61 | 4 | 2003–2009 | 0.38 | M-v | 1 | MPC | 119657 | 2005 $TF_{131}$ |
| 2005 $TM_{131}$ | 16.9 | 0.15 | 20100104 | 186.34562 | 209.11598 | 36.40555 | 7.55209 | 0.1164165 | 2.3862704 | 47 | 4 | 1994–2009 | 0.33 | M-v | 1 | MPC | 165455 | 2005 $TM_{131}$ |
| 2005 $TP_{131}$ | 17.1 | 0.15 | 20100104 | 90.42040 | 280.08966 | 40.45655 | 4.36845 | 0.1873694 | 2.4270148 | 64 | 5 | 2001–2009 | 0.35 | M-v | 0 | MPC | 166217 | 2005 $TP_{131}$ |
| 2005 $TJ_{135}$ | 16.8 | 0.15 | 20100104 | 352.24503 | 199.93418 | 249.61426 | 4.06637 | 0.2069415 | 2.6620345 | 77 | 5 | 2000–2009 | 0.53 | M-v | 1 | MPC | 166217 | 2005 $TJ_{135}$ |
| 2005 $TQ_{137}$ | 17.6 | 0.15 | 20100104 | 147.84759 | 217.41693 | 70.72599 | 3.47980 | 0.1958354 | 2.3244745 | 21 | 5 | 2002–2009 | 0.31 | M-v | 1 | MPC | 120406 | 2005 $TQ_{137}$ |
| 2005 $TP_{143}$ | 17.1 | 0.15 | 20100104 | 232.59752 | 144.56583 | 71.33843 | 5.27036 | 0.1613949 | 2.3274112 | 34 | 3 | 2005–2009 | 0.50 | M-v | 3 | MPC | 166217 | 2005 $TP_{143}$ |
| 2005 $TS_{150}$ | 17.1 | 0.15 | 20100104 | 241.44324 | 105.37030 | 88.25256 | 3.39676 | 0.1103635 | 2.3859388 | 62 | 4 | 2000–2009 | 0.45 | M-v | 3 | MPC | 166218 | 2005 $TS_{150}$ |
| 2005 $TC_{151}$ | 17.7 | 0.15 | 20100104 | 281.20834 | 73.05397 | 122.97999 | 3.57447 | 0.0828522 | 2.2340123 | 57 | 5 | 2004–2009 | 0.28 | M-v | 1 | MPC | 166218 | 2005 $TC_{151}$ |
| 2005 $TZ_{151}$ | 17.7 | 0.15 | 20100104 | 37.05834 | 12.44621 | 51.60089 | 3.06795 | 0.1882342 | 2.3439309 | 56 | 3 | 2005–2009 | 0.43 | M-v | 2 | MPC | 165456 | 2005 $TZ_{151}$ |
| 2005 $TK_{152}$ | 16.1 | 0.15 | 20100104 | 50.11258 | 283.26235 | 99.76884 | 10.00957 | 0.2006607 | 2.5992084 | 67 | 3 | 2004–2009 | 0.41 | M-v | 1 | MPC | 166218 | 2005 $TK_{152}$ |
| 2005 $TD_{154}$ | 16.6 | 0.15 | 20100104 | 142.90257 | 342.41031 | 329.25607 | 6.38867 | 0.1924695 | 2.2340726 | 86 | 4 | 2005–2009 | 0.50 | M-v | 1 | MPC | 147354 | 2005 $TD_{154}$ |
| 2005 $TZ_{154}$ | 17.1 | 0.15 | 20100104 | 356.40687 | 91.12170 | 348.55615 | 6.46424 | 0.1346391 | 2.4163438 | 50 | 4 | 2001–2009 | 0.52 | M-v | 3 | MPC | 166218 | 2005 $TZ_{154}$ |
| 2005 $TP_{159}$ | 16.6 | 0.15 | 20100104 | 323.64615 | 267.79132 | 238.96546 | 4.90234 | 0.1352836 | 2.3146582 | 53 | 5 | 2000–2009 | 0.64 | M-v | 1 | MPC | 120818 | 2005 $TP_{159}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 $TR_{161}$ | 17.4 | 0.15 | 20100104 | 5.43965 | 101.23089 | 0.03557 | 4.82768 | 0.1861405 | 2.3564452 | 57 | 4 | 1994–2009 | 0.49 | M-v | 1 | MPC | 104355 | 2005 $TR_{161}$ |
| 2005 $TG_{164}$ | 17.8 | 0.15 | 20100104 | 345.65359 | 186.01941 | 302.71371 | 1.60348 | 0.1506379 | 2.3260244 | 32 | 5 | 1998–2009 | 0.28 | M-v | 0 | MPC | 120818 | 2005 $TG_{164}$ |
| 2005 $TU_{164}$ | 17.0 | 0.15 | 20100104 | 29.50522 | 29.14256 | 336.29143 | 2.36578 | 0.1534176 | 2.5578891 | 77 | 4 | 2001–2009 | 0.50 | M-v | 3 | MPC | 164260 | 2005 $TU_{164}$ |
| 2005 $TT_{166}$ | 17.1 | 0.15 | 20100104 | 32.02233 | 33.93894 | 317.96449 | 1.28129 | 0.2347199 | 2.5769764 | 95 | 3 | 2001–2009 | 0.45 | M-v | 2 | MPC | 164260 | 2005 $TT_{166}$ |
| 2005 $TJ_{167}$ | 17.6 | 0.15 | 20100104 | 268.77616 | 310.25338 | 225.85123 | 0.76003 | 0.1234110 | 2.4128771 | 56 | 4 | 2003–2009 | 0.38 | M-v | 1 | MPC | 164260 | 2005 $TJ_{167}$ |
| 2005 $TC_{168}$ | 17.3 | 0.15 | 20100104 | 345.04891 | 169.47851 | 294.93149 | 0.43406 | 0.1369261 | 2.4174778 | 55 | 6 | 1999–2009 | 0.27 | M-v | 0 | MPC | 166218 | 2005 $TC_{168}$ |
| 2005 $TG_{169}$ | 17.8 | 0.15 | 20100104 | 8.92260 | 89.58252 | 345.17233 | 2.14849 | 0.0718191 | 2.3968268 | 41 | 4 | 2001–2009 | 0.28 | M-v | 2 | MPC | 119657 | 2005 $TG_{169}$ |
| 2005 $TH_{170}$ | 16.1 | 0.15 | 20100104 | 25.74976 | 335.54019 | 96.67435 | 14.90648 | 0.0619404 | 2.5865870 | 59 | 5 | 2002–2009 | 0.52 | M-v | 1 | MPC | 162442 | 2005 $TH_{170}$ |
| 2005 $TY_{170}$ | 16.2 | 0.15 | 20100104 | 346.90910 | 192.14384 | 227.75436 | 12.38870 | 0.2553612 | 2.6148544 | 116 | 2 | 2005–2009 | 0.53 | M-v | 2 | MPC | 161949 | 2005 $TY_{170}$ |
| 2005 $TE_{179}$ | 18.0 | 0.15 | 20100104 | 29.63736 | 97.56294 | 301.65788 | 2.54572 | 0.1202589 | 2.3925443 | 41 | 3 | 2005–2009 | 0.38 | M-v | 3 | MPC | 166218 | 2005 $TE_{179}$ |
| 2005 $TX_{179}$ | 16.8 | 0.15 | 20100104 | 23.93637 | 206.31684 | 235.62553 | 3.83776 | 0.1434503 | 2.2815832 | 50 | 5 | 1998–2009 | 0.45 | M-v | 0 | MPC | 118135 | 2005 $TX_{179}$ |
| 2005 $TW_{181}$ | 16.5 | 0.15 | 20100104 | 171.65991 | 20.32078 | 241.53435 | 9.35946 | 0.1128610 | 2.3287092 | 45 | 4 | 2001–2009 | 0.44 | M-v | 2 | MPC | 166218 | 2005 $TW_{181}$ |
| 2005 $TE_{191}$ | 17.4 | 0.15 | 20100104 | 58.80349 | 282.30242 | 76.10774 | 3.94557 | 0.2234642 | 2.4187045 | 55 | 3 | 2001–2009 | 0.47 | M-v | 3 | MPC | 165456 | 2005 $TE_{191}$ |
| 2005 $TP_{194}$ | 17.1 | 0.15 | 20100104 | 295.70176 | 254.39769 | 217.27276 | 13.68121 | 0.0513232 | 2.5806629 | 34 | 2 | 2005–2009 | 0.32 | M-v | 3 | MPC | 166218 | 2005 $TP_{194}$ |
| 2005 UB | 16.6 | 0.15 | 20100104 | 239.22143 | 3.09484 | 272.16176 | 27.71046 | 0.7384522 | 1.8958273 | 130 | 4 | 2005–2009 | 0.39 | M-v | 2 | MPC | 131927 | 2005 UB |
| 2005 UX | 17.3 | 0.15 | 20100104 | 58.63780 | 245.88330 | 107.41434 | 3.52695 | 0.2472334 | 2.4014162 | 68 | 3 | 2005–2009 | 0.51 | M-v | 3 | MPC | 165457 | 2005 UX |
| 2005 $UX_2$ | 18.1 | 0.15 | 20100104 | 2.99193 | 21.18241 | 24.88398 | 7.96161 | 0.3753108 | 2.5737649 | 107 | 2 | 2005–2009 | 0.45 | M-v | 2 | MPC | 166218 | 2005 $UX_2$ |
| 2005 $UU_3$ | 22.0 | 0.15 | 20100104 | 251.00544 | 128.25585 | 36.54230 | 13.94740 | 0.4759771 | 1.2760439 | 44 | 2 | 2005–2006 | 0.42 | M-v | 3 | MPC | 109402 | 2005 $UU_3$ |
| 2005 $UE_4$ | 17.1 | 0.15 | 20100104 | 112.72674 | 289.48730 | 55.37652 | 5.22568 | 0.1612048 | 2.2956175 | 116 | 5 | 1998–2009 | 0.59 | M-v | 1 | MPC | 97872 | 2005 $UE_4$ |
| 2005 $UF_4$ | 17.3 | 0.15 | 20100104 | 54.70791 | 253.25831 | 142.36231 | 1.86001 | 0.1917516 | 2.3713208 | 99 | 5 | 2001–2009 | 0.47 | M-v | 1 | MPC | 166218 | 2005 $UF_4$ |
| 2005 $UQ_7$ | 17.0 | 0.15 | 20100104 | 38.43686 | 149.31774 | 274.89963 | 6.48467 | 0.0743762 | 2.2943778 | 49 | 5 | 2001–2009 | 0.43 | M-v | 1 | MPC | 166218 | 2005 $UQ_7$ |
| 2005 $UO_9$ | 18.1 | 0.15 | 20100104 | 28.81695 | 243.61531 | 165.34247 | 3.57710 | 0.1814106 | 2.4178108 | 38 | 3 | 2001–2009 | 0.34 | M-v | 3 | MPC | 166218 | 2005 $UO_9$ |
| 2005 $UY_9$ | 16.7 | 0.15 | 20100104 | 48.95229 | 317.76345 | 65.12736 | 7.28622 | 0.1063625 | 2.4113287 | 51 | 2 | 2005–2009 | 0.47 | M-v | 3 | MPC | 166218 | 2005 $UY_9$ |
| 2005 $UZ_{10}$ | 17.4 | 0.15 | 20100104 | 336.26015 | 251.44289 | 191.39497 | 4.52671 | 0.2184151 | 2.5657628 | 79 | 4 | 2001–2009 | 0.41 | M-v | 2 | MPC | 164260 | 2005 $UZ_{10}$ |
| 2005 $UT_{12}$ | 17.6 | 0.15 | 20100104 | 7.58814 | 337.63280 | 59.48806 | 6.48192 | 0.2739586 | 2.5918013 | 113 | 3 | 2001–2009 | 0.52 | M-v | 2 | MPC | 166219 | 2005 $UT_{12}$ |
| 2005 $UE_{13}$ | 17.4 | 0.15 | 20100104 | 340.59903 | 267.65193 | 220.85304 | 4.88575 | 0.1016458 | 2.3154497 | 72 | 6 | 1998–2009 | 0.44 | M-v | 0 | MPC | 143235 | 2005 $UE_{13}$ |
| 2005 $UH_{15}$ | 18.0 | 0.15 | 20100104 | 313.47350 | 337.15835 | 169.27472 | 1.29940 | 0.1229584 | 2.3885639 | 68 | 5 | 2003–2009 | 0.33 | M-v | 0 | MPC | 141829 | 2005 $UH_{15}$ |
| 2005 $UN_{15}$ | 18.1 | 0.15 | 20100104 | 351.28110 | 25.01448 | 61.66092 | 2.07027 | 0.1515494 | 2.4705169 | 46 | 2 | 2005–2009 | 0.35 | M-v | 3 | MPC | 165458 | 2005 $UN_{15}$ |
| 2005 $UB_{20}$ | 16.4 | 0.15 | 20100104 | 331.68873 | 195.67920 | 234.20403 | 10.92192 | 0.1670706 | 2.6779809 | 54 | 2 | 2005–2009 | 0.41 | M-v | 2 | MPC | 164261 | 2005 $UB_{20}$ |
| 2005 $UN_{20}$ | 17.0 | 0.15 | 20100104 | 343.46975 | 35.04161 | 40.61356 | 13.41063 | 0.2402313 | 2.5737651 | 111 | 3 | 2001–2009 | 0.53 | M-v | 2 | MPC | 166219 | 2005 $UN_{20}$ |
| 2005 $UH_{21}$ | 16.9 | 0.15 | 20100104 | 254.78178 | 183.64817 | 2.40232 | 3.39173 | 0.0761275 | 2.4209643 | 105 | 4 | 2001–2009 | 0.40 | M-v | 3 | MPC | 166219 | 2005 $UH_{21}$ |
| 2005 $UW_{21}$ | 16.8 | 0.15 | 20100104 | 202.12823 | 6.34304 | 234.02636 | 5.83461 | 0.0930446 | 2.3796163 | 54 | 5 | 1997–2009 | 0.49 | M-v | 1 | MPC | 166219 | 2005 $UW_{21}$ |
| 2005 $UF_{23}$ | 16.6 | 0.15 | 20100104 | 234.78675 | 293.45789 | 238.78040 | 3.26125 | 0.0587238 | 2.5737198 | 57 | 5 | 2001–2009 | 0.44 | M-v | 2 | MPC | 166219 | 2005 $UF_{23}$ |
| 2005 $UN_{23}$ | 16.7 | 0.15 | 20100104 | 132.23088 | 350.73380 | 310.06578 | 1.63540 | 0.2138828 | 2.3437935 | 96 | 5 | 2001–2009 | 0.48 | M-v | 1 | MPC | 118137 | 2005 $UN_{23}$ |
| 2005 $UZ_{23}$ | 17.2 | 0.15 | 20100104 | 302.84386 | 284.89549 | 227.65305 | 4.78698 | 0.1557435 | 2.4180316 | 54 | 3 | 2005–2009 | 0.41 | M-v | 3 | MPC | 166219 | 2005 $UZ_{23}$ |
| 2005 $UU_{25}$ | 16.7 | 0.15 | 20100104 | 89.95385 | 81.13827 | 217.12922 | 7.45198 | 0.1235465 | 2.5817185 | 92 | 3 | 2005–2009 | 0.33 | M-v | 1 | MPC | 166219 | 2005 $UU_{25}$ |
| 2005 $UJ_{26}$ | 17.4 | 0.15 | 20100104 | 335.87107 | 93.56797 | 37.41397 | 5.62847 | 0.1396613 | 2.3750324 | 53 | 4 | 2003–2009 | 0.32 | M-v | 0 | MPC | 119209 | 2005 $UJ_{26}$ |
| 2005 $US_{26}$ | 16.6 | 0.15 | 20100104 | 332.94697 | 49.87280 | 358.93426 | 3.19921 | 0.1858455 | 2.6953297 | 72 | 3 | 2005–2009 | 0.46 | M-v | 3 | MPC | 162443 | 2005 $US_{26}$ |
| 2005 $UY_{26}$ | 16.4 | 0.15 | 20100104 | 77.92948 | 306.45842 | 12.74995 | 2.55814 | 0.1288379 | 2.5434060 | 94 | 4 | 2001–2009 | 0.46 | M-v | 3 | MPC | 166219 | 2005 $UY_{26}$ |
| 2005 $UE_{27}$ | 16.9 | 0.15 | 20100104 | 52.27963 | 284.59898 | 53.41403 | 5.49159 | 0.0594123 | 2.6087441 | 39 | 3 | 2001–2009 | 0.38 | M-v | 2 | MPC | 163736 | 2005 $UE_{27}$ |
| 2005 $UJ_{27}$ | 17.7 | 0.15 | 20100104 | 355.55748 | 16.99103 | 35.59694 | 3.40979 | 0.2549040 | 2.5831838 | 69 | 3 | 2001–2009 | 0.47 | M-v | 2 | MPC | 166219 | 2005 $UJ_{27}$ |
| 2005 $US_{27}$ | 17.3 | 0.15 | 20100104 | 47.85860 | 2.39235 | 29.40537 | 1.59738 | 0.1692696 | 2.4025331 | 74 | 4 | 2001–2009 | 0.51 | M-v | 2 | MPC | 118137 | 2005 $US_{27}$ |
| 2005 $UJ_{28}$ | 17.1 | 0.15 | 20100104 | 24.19755 | 201.25974 | 226.30375 | 1.75608 | 0.1602404 | 2.4030243 | 78 | 4 | 2001–2009 | 0.51 | M-v | 2 | MPC | 119658 | 2005 $UJ_{28}$ |
| 2005 $UJ_{29}$ | 17.0 | 0.15 | 20100104 | 37.60400 | 17.01684 | 36.09760 | 2.67699 | 0.2231138 | 2.4045278 | 97 | 5 | 2001–2009 | 0.44 | M-v | 1 | MPC | 166219 | 2005 $UJ_{29}$ |
| 2005 $UB_{30}$ | 17.4 | 0.15 | 20100104 | 63.29773 | 325.05135 | 59.23491 | 2.26522 | 0.1863417 | 2.3900992 | 70 | 4 | 2001–2009 | 0.41 | M-v | 2 | MPC | 118137 | 2005 $UB_{30}$ |
| 2005 $UB_{32}$ | 17.8 | 0.15 | 20100104 | 1.43954 | 65.48283 | 42.68998 | 1.79563 | 0.1437727 | 2.3610783 | 65 | 6 | 1994–2009 | 0.30 | M-v | 0 | MPC | 166219 | 2005 $UB_{32}$ |
| 2005 $UF_{34}$ | 17.5 | 0.15 | 20100104 | 295.94019 | 123.01773 | 51.66688 | 4.81231 | 0.0850109 | 2.3607605 | 44 | 3 | 2005–2009 | 0.21 | M-v | 2 | MPC | 120819 | 2005 $UF_{34}$ |
| 2005 $UF_{42}$ | 17.1 | 0.15 | 20100104 | 16.19734 | 16.03192 | 8.15736 | 4.52284 | 0.1558808 | 2.5642153 | 124 | 5 | 1999–2009 | 0.44 | M-v | 1 | MPC | 164261 | 2005 $UF_{42}$ |
| 2005 $UH_{42}$ | 17.9 | 0.15 | 20100104 | 72.36292 | 158.17315 | 213.07081 | 0.77478 | 0.1862282 | 2.3587212 | 33 | 3 | 1994–2009 | 0.46 | M-v | 3 | MPC | 96095 | 2005 $UH_{42}$ |
| 2005 $UJ_{42}$ | 17.6 | 0.15 | 20100104 | 66.14313 | 171.48520 | 216.87499 | 1.45459 | 0.1737579 | 2.3391770 | 56 | 5 | 2001–2009 | 0.55 | M-v | 1 | MPC | 166219 | 2005 $UJ_{42}$ |
| 2005 $UW_{43}$ | 17.9 | 0.15 | 20100104 | 103.04822 | 80.63328 | 244.73280 | 3.33987 | 0.1656097 | 2.3579418 | 26 | 3 | 2001–2009 | 0.40 | M-v | 3 | MPC | 126071 | 2005 $UW_{43}$ |
| 2005 $UJ_{44}$ | 17.9 | 0.15 | 20100104 | 16.51133 | 288.52802 | 137.52052 | 2.27933 | 0.1558011 | 2.4437312 | 45 | 4 | 2001–2009 | 0.43 | M-v | 2 | MPC | 119659 | 2005 $UJ_{44}$ |
| 2005 $UM_{44}$ | 17.4 | 0.15 | 20100104 | 192.93872 | 186.25654 | 91.62210 | 2.82370 | 0.0277291 | 2.3029515 | 53 | 7 | 1998–2009 | 0.43 | M-v | 0 | MPC | 147355 | 2005 $UM_{44}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 $US_{44}$ | 18.7 | 0.15 | 20100104 | 29.35989 | 272.28278 | 122.33370 | 2.12240 | 0.2613155 | 2.4807998 | 55 | 4 | 1993–2009 | 0.37 | M-v | 2 | MPC | 166219 | 2005 $US_{44}$ |
| 2005 $UX_{44}$ | 17.4 | 0.15 | 20100104 | 11.25805 | 194.68923 | 194.62186 | 5.26655 | 0.1956001 | 2.5740030 | 64 | 4 | 2005–2009 | 0.48 | M-v | 1 | MPC | 166219 | 2005 $UX_{44}$ |
| 2005 $US_{47}$ | 17.8 | 0.15 | 20100104 | 98.11757 | 285.38548 | 69.36097 | 3.72688 | 0.1644580 | 2.3237913 | 40 | 4 | 1998–2009 | 0.54 | M-v | 2 | MPC | 118138 | 2005 $US_{47}$ |
| 2005 $UX_{47}$ | 17.3 | 0.15 | 20100104 | 36.48301 | 309.13641 | 104.93441 | 3.18165 | 0.1991834 | 2.3995615 | 62 | 3 | 2005–2009 | 0.38 | M-v | 2 | MPC | 165458 | 2005 $UX_{47}$ |
| 2005 $UV_{48}$ | 17.5 | 0.15 | 20100104 | 50.32852 | 80.11425 | 299.59386 | 1.17842 | 0.2198306 | 2.4229976 | 91 | 4 | 2001–2009 | 0.41 | M-v | 2 | MPC | 166219 | 2005 $UV_{48}$ |
| 2005 $UB_{50}$ | 16.0 | 0.15 | 20100104 | 295.24723 | 248.48862 | 225.03698 | 14.52734 | 0.0971657 | 2.5929275 | 146 | 5 | 1992–2009 | 0.48 | M-v | 1 | MPC | 166219 | 2005 $UB_{50}$ |
| 2005 $UD_{50}$ | 16.7 | 0.15 | 20100104 | 9.97309 | 9.93711 | 13.84944 | 5.39544 | 0.1656293 | 2.5987823 | 77 | 2 | 2005–2009 | 0.43 | M-v | 3 | MPC | 166220 | 2005 $UD_{50}$ |
| 2005 $UE_{50}$ | 16.4 | 0.15 | 20100104 | 351.31453 | 30.51911 | 15.46134 | 5.39371 | 0.1869063 | 2.6146534 | 130 | 3 | 2005–2009 | 0.46 | M-v | 2 | MPC | 166220 | 2005 $UE_{50}$ |
| 2005 $UO_{50}$ | 16.5 | 0.15 | 20100104 | 13.95727 | 135.86202 | 240.82651 | 4.00291 | 0.1875565 | 2.6066435 | 102 | 3 | 2001–2009 | 0.49 | M-v | 2 | MPC | 166220 | 2005 $UO_{50}$ |
| 2005 $UY_{50}$ | 17.4 | 0.15 | 20100104 | 14.47603 | 122.85171 | 248.61345 | 3.39018 | 0.2797033 | 2.6047562 | 72 | 2 | 2005–2009 | 0.42 | M-v | 2 | MPC | 166220 | 2005 $UY_{50}$ |
| 2005 $UZ_{50}$ | 16.6 | 0.15 | 20100104 | 19.77447 | 356.39405 | 10.09067 | 3.47568 | 0.2133023 | 2.6109558 | 89 | 2 | 2005–2009 | 0.48 | M-v | 2 | MPC | 166220 | 2005 $UZ_{50}$ |
| 2005 $UB_{51}$ | 17.0 | 0.15 | 20100104 | 111.07563 | 29.72249 | 338.01577 | 3.26700 | 0.1824589 | 2.2400652 | 82 | 5 | 2002–2009 | 0.48 | M-v | 1 | MPC | 162444 | 2005 $UB_{51}$ |
| 2005 $UC_{52}$ | 16.5 | 0.15 | 20100104 | 90.83224 | 97.22031 | 265.95006 | 5.88223 | 0.1399528 | 2.3282132 | 79 | 2 | 2005–2009 | 0.48 | M-v | 3 | MPC | 165459 | 2005 $UC_{52}$ |
| 2005 $UT_{54}$ | 16.7 | 0.15 | 20100104 | 21.54934 | 80.29068 | 277.48051 | 4.69399 | 0.3363732 | 2.6069640 | 106 | 2 | 2005–2009 | 0.56 | M-v | 2 | MPC | 166220 | 2005 $UT_{54}$ |
| 2005 $UG_{55}$ | 17.3 | 0.15 | 20100104 | 73.88043 | 45.15785 | 341.41360 | 1.97788 | 0.1130711 | 2.3366329 | 53 | 5 | 2001–2009 | 0.48 | M-v | 1 | MPC | 166220 | 2005 $UG_{55}$ |
| 2005 $UL_{55}$ | 17.8 | 0.15 | 20100104 | 13.78354 | 122.65160 | 261.27438 | 2.92953 | 0.2613256 | 2.5876425 | 70 | 3 | 2004–2009 | 0.52 | M-v | 2 | MPC | 164262 | 2005 $UL_{55}$ |
| 2005 $UT_{55}$ | 16.4 | 0.15 | 20100104 | 13.48076 | 324.08936 | 53.69011 | 3.07776 | 0.1413218 | 2.6282758 | 73 | 5 | 2001–2009 | 0.42 | M-v | 2 | MPC | 164262 | 2005 $UT_{55}$ |
| 2005 $UT_{58}$ | 16.5 | 0.15 | 20100104 | 53.23803 | 85.62370 | 238.11529 | 10.58028 | 0.3229206 | 2.5818772 | 104 | 4 | 2001–2009 | 0.54 | M-v | 2 | MPC | 166220 | 2005 $UT_{58}$ |
| 2005 $UO_{60}$ | 16.8 | 0.15 | 20100104 | 11.16451 | 165.18358 | 216.36507 | 2.23240 | 0.1203115 | 2.6432283 | 47 | 2 | 2005–2009 | 0.35 | M-v | 2 | MPC | 166220 | 2005 $UO_{60}$ |
| 2005 $UF_{61}$ | 16.7 | 0.15 | 20100104 | 92.54312 | 323.99791 | 81.64276 | 6.09540 | 0.1527625 | 2.2381716 | 118 | 5 | 2002–2009 | 0.47 | M-v | 1 | MPC | 143237 | 2005 $UF_{61}$ |
| 2005 $UL_{61}$ | 17.0 | 0.15 | 20100104 | 94.47568 | 286.75511 | 100.74478 | 6.34409 | 0.1115823 | 2.2845996 | 87 | 6 | 1991–2009 | 0.52 | M-v | 1 | MPC | 143237 | 2005 $UL_{61}$ |
| 2005 $UF_{63}$ | 17.1 | 0.15 | 20100104 | 258.60391 | 123.47096 | 79.12184 | 2.75463 | 0.1447470 | 2.4168421 | 49 | 5 | 2003–2009 | 0.40 | M-v | 1 | MPC | 147355 | 2005 $UF_{63}$ |
| 2005 $UH_{64}$ | 17.2 | 0.15 | 20100104 | 352.43976 | 282.96081 | 147.76370 | 5.46953 | 0.1660450 | 2.5606016 | 25 | 4 | 2000–2009 | 0.48 | M-v | 3 | MPC | 166220 | 2005 $UH_{64}$ |
| 2005 $UZ_{64}$ | 17.1 | 0.15 | 20100104 | 1.13228 | 255.71155 | 128.03888 | 5.56783 | 0.2664275 | 2.5941187 | 68 | 3 | 2001–2009 | 0.50 | M-v | 3 | MPC | 160842 | 2005 $UZ_{64}$ |
| 2005 $UZ_{65}$ | 16.7 | 0.15 | 20100104 | 348.23419 | 212.97382 | 234.70726 | 5.30725 | 0.0948048 | 2.4479000 | 93 | 3 | 2001–2009 | 0.38 | M-v | 2 | MPC | 166220 | 2005 $UZ_{65}$ |
| 2005 $UD_{67}$ | 16.4 | 0.15 | 20100104 | 69.59848 | 283.62845 | 92.69925 | 8.91378 | 0.2032099 | 2.3618107 | 101 | 3 | 2001–2009 | 0.45 | M-v | 2 | MPC | 166220 | 2005 $UD_{67}$ |
| 2005 $UG_{68}$ | 16.3 | 0.15 | 20100104 | 30.65689 | 4.38204 | 67.88423 | 7.47068 | 0.0794997 | 2.3417269 | 95 | 5 | 2001–2009 | 0.46 | M-v | 1 | MPC | 166220 | 2005 $UG_{68}$ |
| 2005 $UX_{69}$ | 17.2 | 0.15 | 20100104 | 61.03889 | 123.24213 | 278.08734 | 7.93197 | 0.1320735 | 2.3070671 | 41 | 5 | 2001–2009 | 0.41 | M-v | 0 | MPC | 166220 | 2005 $UX_{69}$ |
| 2005 $UR_{70}$ | 16.9 | 0.15 | 20100104 | 30.98277 | 358.84968 | 352.36960 | 4.42144 | 0.2442415 | 2.5702830 | 89 | 4 | 2001–2009 | 0.46 | M-v | 2 | MPC | 164262 | 2005 $UR_{70}$ |
| 2005 $UE_{71}$ | 16.2 | 0.15 | 20100104 | 94.79209 | 19.65093 | 302.06594 | 5.14526 | 0.2641932 | 2.3751650 | 83 | 5 | 1994–2009 | 0.42 | M-v | 1 | MPC | 166220 | 2005 $UE_{71}$ |
| 2005 $UU_{71}$ | 17.2 | 0.15 | 20100104 | 60.19876 | 78.92725 | 327.59634 | 6.32299 | 0.1253671 | 2.3062381 | 25 | 4 | 2001–2009 | 0.43 | M-v | 3 | MPC | 158515 | 2005 $UU_{71}$ |
| 2005 $UK_{73}$ | 16.3 | 0.15 | 20100104 | 50.25429 | 274.61286 | 62.50593 | 2.83435 | 0.1031671 | 2.6327999 | 74 | 4 | 2005–2009 | 0.29 | M-v | 1 | MPC | 164262 | 2005 $UK_{73}$ |
| 2005 $UN_{73}$ | 16.7 | 0.15 | 20100104 | 18.48453 | 334.22788 | 46.35600 | 17.83638 | 0.2237663 | 2.5823125 | 80 | 2 | 2005–2009 | 0.51 | M-v | 2 | MPC | 165460 | 2005 $UN_{73}$ |
| 2005 $UT_{73}$ | 16.7 | 0.15 | 20100104 | 358.98296 | 31.41859 | 78.65448 | 3.28844 | 0.1595008 | 2.3910230 | 102 | 5 | 2001–2009 | 0.50 | M-v | 1 | MPC | 166220 | 2005 $UT_{73}$ |
| 2005 $UF_{74}$ | 16.5 | 0.15 | 20100104 | 106.97418 | 69.70250 | 281.98248 | 5.79323 | 0.1311452 | 2.3167789 | 68 | 7 | 1996–2009 | 0.50 | M-v | 1 | MPC | 140148 | 2005 $UF_{74}$ |
| 2005 $UR_{74}$ | 17.0 | 0.15 | 20100104 | 23.84701 | 112.77384 | 237.91842 | 5.11096 | 0.3469222 | 2.6224750 | 106 | 2 | 2005–2009 | 0.47 | M-v | 1 | MPC | 166220 | 2005 $UR_{74}$ |
| 2005 $UJ_{76}$ | 17.0 | 0.15 | 20100104 | 16.74290 | 151.91432 | 311.77089 | 8.41633 | 0.1643828 | 2.3217219 | 50 | 4 | 2003–2009 | 0.56 | M-v | 1 | MPC | 166220 | 2005 $UJ_{76}$ |
| 2005 $UL_{76}$ | 16.2 | 0.15 | 20100104 | 17.55617 | 14.84861 | 359.94602 | 13.41921 | 0.1607599 | 2.6002781 | 68 | 3 | 2005–2009 | 0.46 | M-v | 2 | MPC | 164262 | 2005 $UL_{76}$ |
| 2005 $UT_{76}$ | 17.1 | 0.15 | 20100104 | 9.35244 | 6.18980 | 30.19746 | 4.59006 | 0.2572291 | 2.5775045 | 117 | 3 | 2001–2009 | 0.48 | M-v | 2 | MPC | 166220 | 2005 $UT_{76}$ |
| 2005 $UE_{77}$ | 16.9 | 0.15 | 20100104 | 34.58628 | 308.76477 | 114.18795 | 10.41599 | 0.0860656 | 2.3750585 | 39 | 5 | 2001–2009 | 0.46 | M-v | 1 | MPC | 140148 | 2005 $UE_{77}$ |
| 2005 $UG_{77}$ | 17.6 | 0.15 | 20100104 | 2.90553 | 156.83344 | 247.09581 | 3.76372 | 0.3227518 | 2.5857360 | 96 | 3 | 2001–2009 | 0.46 | M-v | 2 | MPC | 166220 | 2005 $UG_{77}$ |
| 2005 $UU_{78}$ | 17.0 | 0.15 | 20100104 | 81.34784 | 186.01757 | 204.80651 | 6.15253 | 0.1926204 | 2.3004733 | 75 | 3 | 1998–2009 | 0.47 | M-v | 3 | MPC | 101037 | 2005 $UU_{78}$ |
| 2005 $UY_{78}$ | 16.5 | 0.15 | 20100104 | 46.84963 | 342.17361 | 71.54667 | 4.96932 | 0.2249264 | 2.3740308 | 126 | 5 | 2001–2009 | 0.42 | M-v | 1 | MPC | 166220 | 2005 $UY_{78}$ |
| 2005 $UE_{79}$ | 16.3 | 0.15 | 20100104 | 14.57653 | 163.41644 | 212.45814 | 12.67937 | 0.1788119 | 2.6473997 | 92 | 3 | 2005–2009 | 0.59 | M-v | 2 | MPC | 166220 | 2005 $UE_{79}$ |
| 2005 $UF_{79}$ | 15.9 | 0.15 | 20100104 | 348.81005 | 204.46855 | 215.43821 | 14.46356 | 0.0858274 | 2.6199233 | 115 | 3 | 2005–2009 | 0.49 | M-v | 2 | MPC | 166220 | 2005 $UF_{79}$ |
| 2005 $UP_{79}$ | 17.0 | 0.15 | 20100104 | 84.17950 | 272.10175 | 85.38650 | 7.08270 | 0.1778075 | 2.3776839 | 51 | 3 | 2001–2009 | 0.56 | M-v | 3 | MPC | 166220 | 2005 $UP_{79}$ |
| 2005 $UO_{80}$ | 16.6 | 0.15 | 20100104 | 80.51708 | 260.83542 | 103.15920 | 6.87829 | 0.1357359 | 2.4096778 | 61 | 5 | 2001–2009 | 0.59 | M-v | 1 | MPC | 160843 | 2005 $UO_{80}$ |
| 2005 $UF_{84}$ | 17.8 | 0.15 | 20100104 | 8.74052 | 268.47587 | 202.14698 | 1.86046 | 0.1865232 | 2.3312515 | 56 | 5 | 1998–2009 | 0.39 | M-v | 0 | MPC | 120820 | 2005 $UF_{84}$ |
| 2005 $UF_{87}$ | 17.2 | 0.15 | 20100104 | 207.40137 | 115.54320 | 107.79545 | 1.92494 | 0.0373779 | 2.4408767 | 66 | 4 | 2001–2009 | 0.36 | M-v | 2 | MPC | 166221 | 2005 $UF_{87}$ |
| 2005 $UW_{88}$ | 16.5 | 0.15 | 20100104 | 278.12037 | 102.96574 | 47.08258 | 7.27975 | 0.0773669 | 2.4847470 | 56 | 6 | 1997–2009 | 0.46 | M-v | 2 | MPC | 166221 | 2005 $UW_{88}$ |
| 2005 $US_{90}$ | 17.1 | 0.15 | 20100104 | 47.80235 | 105.96847 | 270.24124 | 5.15030 | 0.1260268 | 2.4690950 | 56 | 3 | 2001–2009 | 0.45 | M-v | 4 | MPC | 166221 | 2005 $US_{90}$ |
| 2005 $UB_{91}$ | 16.6 | 0.15 | 20100104 | 135.29249 | 16.11325 | 273.02494 | 5.26276 | 0.1073629 | 2.4454206 | 45 | 4 | 2001–2009 | 0.41 | M-v | 2 | MPC | 166221 | 2005 $UB_{91}$ |
| 2005 $UE_{91}$ | 17.2 | 0.15 | 20100104 | 210.89596 | 335.23095 | 287.15939 | 4.47566 | 0.1088529 | 2.2730831 | 39 | 5 | 2001–2009 | 0.26 | M-v | 0 | MPC | 159479 | 2005 $UE_{91}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 $UC_{93}$ | 17.1 | 0.15 | 20100104 | 307.38346 | 73.83341 | 29.88302 | 12.51809 | 0.0961689 | 2.6053943 | 39 | 2 | 2005–2009 | 0.23 | M-v | 3 | MPC | 166221 | 2005 $UC_{93}$ |
| 2005 $UY_{94}$ | 16.7 | 0.15 | 20100104 | 122.89984 | 57.93534 | 251.32248 | 6.17177 | 0.2711174 | 2.3349856 | 79 | 4 | 1998–2009 | 0.46 | M-v | 1 | MPC | 140696 | 2005 $UY_{94}$ |
| 2005 $UF_{96}$ | 17.3 | 0.15 | 20100104 | 75.27462 | 249.08113 | 105.53426 | 2.37672 | 0.1857688 | 2.4140077 | 45 | 3 | 2001–2009 | 0.42 | M-v | 3 | MPC | 101039 | 2005 $UF_{96}$ |
| 2005 $UX_{96}$ | 16.9 | 0.15 | 20100104 | 57.62484 | 174.63847 | 150.44012 | 3.25490 | 0.1695105 | 2.6107971 | 51 | 4 | 2005–2009 | 0.34 | M-v | 1 | MPC | 164263 | 2005 $UX_{96}$ |
| 2005 $UB_{97}$ | 17.7 | 0.15 | 20100104 | 9.19748 | 281.87120 | 111.34488 | 2.21596 | 0.2313302 | 2.5819486 | 44 | 2 | 2005–2009 | 0.34 | M-v | 3 | MPC | 163738 | 2005 $UB_{97}$ |
| 2005 $UQ_{97}$ | 17.7 | 0.15 | 20100104 | 123.89800 | 197.52084 | 100.00972 | 3.53214 | 0.1639356 | 2.4413950 | 25 | 3 | 2004–2009 | 0.40 | M-v | 2 | MPC | 166221 | 2005 $UQ_{97}$ |
| 2005 $UT_{99}$ | 17.2 | 0.15 | 20100104 | 87.54761 | 221.60256 | 122.61204 | 3.50763 | 0.2103228 | 2.3920000 | 31 | 3 | 2001–2009 | 0.56 | M-v | 3 | MPC | 96144 | 2005 $UT_{99}$ |
| 2005 $UH_{102}$ | 16.9 | 0.15 | 20100104 | 259.43687 | 111.21945 | 74.82574 | 7.35969 | 0.0863121 | 2.4362701 | 58 | 3 | 2005–2009 | 0.53 | M-v | 3 | MPC | 166221 | 2005 $UH_{102}$ |
| 2005 $UX_{102}$ | 17.0 | 0.15 | 20100104 | 323.76569 | 100.64305 | 63.11566 | 5.92968 | 0.1610970 | 2.3367447 | 54 | 4 | 2003–2009 | 0.47 | M-v | 1 | MPC | 162446 | 2005 $UX_{102}$ |
| 2005 $UN_{103}$ | 17.5 | 0.15 | 20100104 | 357.36726 | 6.55596 | 86.59915 | 2.11269 | 0.1447702 | 2.4539938 | 35 | 4 | 2001–2009 | 0.28 | M-v | 3 | MPC | 121845 | 2005 $UN_{103}$ |
| 2005 $UQ_{103}$ | 17.7 | 0.15 | 20100104 | 335.12944 | 300.87925 | 178.71577 | 2.35544 | 0.1495513 | 2.4581444 | 34 | 5 | 1999–2009 | 0.29 | M-v | 0 | MPC | 166221 | 2005 $UQ_{103}$ |
| 2005 $UR_{103}$ | 17.6 | 0.15 | 20100104 | 346.46795 | 12.00695 | 105.63224 | 2.29423 | 0.1291110 | 2.4106143 | 35 | 5 | 2001–2009 | 0.39 | M-v | 0 | MPC | 120820 | 2005 $UR_{103}$ |
| 2005 $UB_{106}$ | 16.8 | 0.15 | 20100104 | 245.58314 | 143.16261 | 88.90978 | 3.91530 | 0.1067658 | 2.3116415 | 76 | 7 | 1993–2009 | 0.46 | M-v | 1 | MPC | 147355 | 2005 $UB_{106}$ |
| 2005 $UD_{106}$ | 17.0 | 0.15 | 20100104 | 115.82797 | 192.88632 | 136.33714 | 2.63801 | 0.2508703 | 2.3273130 | 52 | 3 | 2004–2009 | 0.38 | M-v | 2 | MPC | 96147 | 2005 $UD_{106}$ |
| 2005 $US_{106}$ | 17.1 | 0.15 | 20100104 | 333.62684 | 51.93889 | 75.54469 | 4.00958 | 0.0616575 | 2.3928375 | 69 | 5 | 1997–2009 | 0.37 | M-v | 0 | MPC | 120820 | 2005 $US_{106}$ |
| 2005 $UM_{107}$ | 17.3 | 0.15 | 20100104 | 274.74612 | 77.29300 | 74.86382 | 5.19514 | 0.0601246 | 2.5414887 | 36 | 3 | 2005–2009 | 0.32 | M-v | 3 | MPC | 164263 | 2005 $UM_{107}$ |
| 2005 $UJ_{108}$ | 17.4 | 0.15 | 20100104 | 98.81093 | 247.16974 | 82.65688 | 3.40885 | 0.2110389 | 2.4004503 | 41 | 4 | 2001–2009 | 0.33 | M-v | 2 | MPC | 116323 | 2005 $UJ_{108}$ |
| 2005 $UK_{109}$ | 16.5 | 0.15 | 20100104 | 35.04413 | 339.68442 | 15.82037 | 5.21865 | 0.0084442 | 2.7117804 | 40 | 5 | 2001–2009 | 0.31 | M-v | 0 | MPC | 164263 | 2005 $UK_{109}$ |
| 2005 $UM_{110}$ | 16.7 | 0.15 | 20100104 | 354.34321 | 154.12799 | 253.83084 | 3.89346 | 0.2364240 | 2.6386474 | 96 | 3 | 2001–2009 | 0.43 | M-v | 2 | MPC | 164263 | 2005 $UM_{110}$ |
| 2005 $UG_{111}$ | 16.6 | 0.15 | 20100104 | 275.20308 | 92.81547 | 28.88866 | 5.28390 | 0.0614294 | 2.7192673 | 25 | 3 | 2002–2009 | 0.35 | M-v | 3 | MPC | 164263 | 2005 $UG_{111}$ |
| 2005 $UJ_{111}$ | 16.5 | 0.15 | 20100104 | 30.25064 | 105.25137 | 252.99771 | 5.35707 | 0.0847337 | 2.6882360 | 46 | 4 | 2000–2009 | 0.39 | M-v | 1 | MPC | 162446 | 2005 $UJ_{111}$ |
| 2005 $UQ_{112}$ | 16.2 | 0.15 | 20100104 | 96.96172 | 284.35379 | 36.87540 | 9.10591 | 0.1027763 | 2.5203555 | 56 | 4 | 2001–2009 | 0.46 | M-v | 2 | MPC | 166221 | 2005 $UQ_{112}$ |
| 2005 $UN_{113}$ | 17.4 | 0.15 | 20100104 | 64.75631 | 116.85912 | 242.54728 | 5.24552 | 0.1566919 | 2.4800001 | 33 | 2 | 2005–2009 | 0.35 | M-v | 4 | MPC | 165460 | 2005 $UN_{113}$ |
| 2005 $UT_{113}$ | 17.7 | 0.15 | 20100104 | 39.34676 | 181.75328 | 236.13595 | 1.91778 | 0.2017831 | 2.4017863 | 69 | 4 | 2001–2009 | 0.44 | M-v | 2 | MPC | 119661 | 2005 $UT_{113}$ |
| 2005 $UA_{114}$ | 16.7 | 0.15 | 20100104 | 339.08928 | 36.45506 | 48.00049 | 33.04458 | 0.2089042 | 2.5953001 | 47 | 3 | 2005–2009 | 0.50 | M-v | 2 | MPC | 166221 | 2005 $UA_{114}$ |
| 2005 $UW_{116}$ | 16.1 | 0.15 | 20100104 | 51.38407 | 118.50004 | 230.68058 | 13.64126 | 0.1534621 | 2.5639983 | 116 | 3 | 2005–2009 | 0.47 | M-v | 2 | MPC | 166221 | 2005 $UW_{116}$ |
| 2005 $UE_{119}$ | 17.7 | 0.15 | 20100104 | 219.43780 | 222.91920 | 12.09935 | 1.93385 | 0.1856940 | 2.3247496 | 40 | 4 | 2005–2009 | 0.40 | M-v | 1 | MPC | 149971 | 2005 $UE_{119}$ |
| 2005 $US_{123}$ | 17.2 | 0.15 | 20100104 | 335.96540 | 139.83176 | 287.40428 | 0.70077 | 0.0867932 | 2.6084813 | 55 | 3 | 2005–2009 | 0.33 | M-v | 2 | MPC | 164264 | 2005 $US_{123}$ |
| 2005 $UX_{124}$ | 17.3 | 0.15 | 20100104 | 19.93271 | 137.14302 | 242.66693 | 2.78805 | 0.1896907 | 2.5825705 | 75 | 3 | 2001–2009 | 0.42 | M-v | 2 | MPC | 164264 | 2005 $UX_{124}$ |
| 2005 $UE_{126}$ | 17.0 | 0.15 | 20100104 | 47.04176 | 290.88183 | 42.04090 | 2.96355 | 0.1997253 | 2.6286302 | 66 | 3 | 2005–2009 | 0.29 | M-v | 2 | MPC | 166221 | 2005 $UE_{126}$ |
| 2005 $UN_{126}$ | 16.6 | 0.15 | 20100104 | 14.73386 | 337.27477 | 45.12409 | 3.74380 | 0.0451539 | 2.6307949 | 58 | 4 | 2003–2009 | 0.32 | M-v | 1 | MPC | 164264 | 2005 $UN_{126}$ |
| 2005 $UA_{127}$ | 18.1 | 0.15 | 20100104 | 335.16250 | 226.35146 | 224.75310 | 9.41464 | 0.2499721 | 2.5788790 | 38 | 2 | 2005–2009 | 0.32 | M-v | 2 | MPC | 166221 | 2005 $UA_{127}$ |
| 2005 $UX_{127}$ | 16.1 | 0.15 | 20100104 | 226.64864 | 314.82570 | 228.15905 | 13.18594 | 0.1066140 | 2.6198944 | 48 | 4 | 2003–2009 | 0.38 | M-v | 1 | MPC | 164264 | 2005 $UX_{127}$ |
| 2005 $UN_{128}$ | 17.5 | 0.15 | 20100104 | 237.66392 | 324.57132 | 230.69501 | 6.92559 | 0.0310882 | 2.4807890 | 40 | 4 | 2001–2009 | 0.29 | M-v | 2 | MPC | 166221 | 2005 $UN_{128}$ |
| 2005 $UQ_{130}$ | 17.7 | 0.15 | 20100104 | 346.01033 | 70.71946 | 21.00492 | 3.57737 | 0.1581811 | 2.5209198 | 27 | 3 | 2003–2009 | 0.25 | M-v | 3 | MPC | 165461 | 2005 $UQ_{130}$ |
| 2005 $UX_{137}$ | 18.5 | 0.15 | 20100104 | 44.39192 | 322.31601 | 41.43432 | 2.93561 | 0.2766848 | 2.4719275 | 42 | 3 | 2001–2009 | 0.39 | M-v | 2 | MPC | 166222 | 2005 $UX_{137}$ |
| 2005 $UF_{142}$ | 16.4 | 0.15 | 20100104 | 44.13960 | 244.89969 | 111.45245 | 7.33403 | 0.2440767 | 2.5268265 | 66 | 3 | 2001–2009 | 0.54 | M-v | 3 | MPC | 166222 | 2005 $UF_{142}$ |
| 2005 $UQ_{142}$ | 17.8 | 0.15 | 20100104 | 0.31925 | 250.62522 | 222.81968 | 0.56593 | 0.1368937 | 2.3598529 | 70 | 6 | 2001–2009 | 0.35 | M-v | 0 | MPC | 166222 | 2005 $UQ_{142}$ |
| 2005 $UZ_{143}$ | 18.0 | 0.15 | 20100104 | 354.24400 | 101.47918 | 20.67998 | 4.32212 | 0.1781694 | 2.3114436 | 34 | 4 | 2003–2009 | 0.42 | M-v | 0 | MPC | 158516 | 2005 $UZ_{143}$ |
| 2005 $UA_{145}$ | 17.5 | 0.15 | 20100104 | 96.24288 | 350.27403 | 16.29581 | 4.43018 | 0.1745723 | 2.2989940 | 54 | 4 | 2003–2009 | 0.42 | M-v | 1 | MPC | 119662 | 2005 $UA_{145}$ |
| 2005 $UG_{146}$ | 16.5 | 0.15 | 20100104 | 163.01324 | 241.11273 | 8.43859 | 4.62221 | 0.1050459 | 2.5275250 | 40 | 5 | 2001–2009 | 0.31 | M-v | 2 | MPC | 165461 | 2005 $UG_{146}$ |
| 2005 $UR_{149}$ | 17.5 | 0.15 | 20100104 | 358.52303 | 14.10180 | 27.29017 | 3.01510 | 0.2268154 | 2.6076662 | 54 | 2 | 2005–2009 | 0.34 | M-v | 3 | MPC | 166222 | 2005 $UR_{149}$ |
| 2005 $UU_{150}$ | 17.0 | 0.15 | 20100104 | 53.89957 | 162.44254 | 244.65513 | 2.28073 | 0.1294358 | 2.3631998 | 64 | 4 | 2001–2009 | 0.46 | M-v | 2 | MPC | 118142 | 2005 $UU_{150}$ |
| 2005 $UJ_{152}$ | 18.2 | 0.15 | 20100104 | 29.24924 | 193.68078 | 232.64989 | 1.65174 | 0.1560335 | 2.4062298 | 46 | 3 | 2001–2009 | 0.47 | M-v | 3 | MPC | 166222 | 2005 $UJ_{152}$ |
| 2005 $UM_{152}$ | 16.4 | 0.15 | 20100104 | 356.97773 | 5.47620 | 44.10963 | 16.48268 | 0.1794853 | 2.6048438 | 82 | 4 | 2001–2009 | 0.53 | M-v | 2 | MPC | 164264 | 2005 $UM_{152}$ |
| 2005 $UO_{152}$ | 16.8 | 0.15 | 20100104 | 63.23786 | 93.79593 | 231.48694 | 8.85533 | 0.0785206 | 2.6554497 | 29 | 3 | 2005–2009 | 0.32 | M-v | 2 | MPC | 139780 | 2005 $UO_{152}$ |
| 2005 $UX_{152}$ | 16.1 | 0.15 | 20100104 | 342.99754 | 16.87203 | 41.12602 | 7.59176 | 0.1775029 | 2.6466341 | 112 | 5 | 2001–2009 | 0.53 | M-v | 1 | MPC | 166222 | 2005 $UX_{152}$ |
| 2005 $UZ_{152}$ | 17.7 | 0.15 | 20100104 | 294.91005 | 147.19053 | 27.18504 | 2.44994 | 0.1273490 | 2.3927234 | 61 | 6 | 2001–2009 | 0.41 | M-v | 0 | MPC | 147356 | 2005 $UZ_{152}$ |
| 2005 $UH_{153}$ | 17.5 | 0.15 | 20100104 | 113.40776 | 301.02900 | 38.19120 | 3.19073 | 0.1890470 | 2.3301696 | 39 | 7 | 1993–2009 | 0.45 | M-v | 0 | MPC | 114767 | 2005 $UH_{153}$ |
| 2005 $UA_{154}$ | 18.1 | 0.15 | 20100104 | 31.22237 | 18.52877 | 38.05269 | 1.94928 | 0.1651331 | 2.4323813 | 33 | 3 | 2001–2009 | 0.38 | M-v | 2 | MPC | 109411 | 2005 $UA_{154}$ |
| 2005 $UG_{155}$ | 16.9 | 0.15 | 20100104 | 70.05011 | 286.31183 | 49.44100 | 6.45724 | 0.1799098 | 2.5214881 | 71 | 5 | 2001–2009 | 0.44 | M-v | 2 | MPC | 166222 | 2005 $UG_{155}$ |
| 2005 $UW_{157}$ | 16.6 | 0.15 | 20100104 | 53.16222 | 116.85433 | 217.11372 | 11.66559 | 0.0711006 | 2.6644184 | 30 | 3 | 2000–2009 | 0.41 | M-v | 3 | MPC | 163742 | 2005 $UW_{157}$ |
| 2005 $UU_{158}$ | 17.6 | 0.15 | 20100104 | 7.02548 | 105.73891 | 288.09665 | 0.38617 | 0.2269868 | 2.6218959 | 75 | 3 | 2001–2009 | 0.34 | M-v | 2 | MPC | 166222 | 2005 $UU_{158}$ |

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| 2005 $UV_{158}$ | 17.8 | 0.15 | 20100104 | 58.68821 | 327.43477 | 65.48313 | 2.53517 | 0.1965468 | 2.3775494 | 90 | 3 | 2001–2009 | 0.39 | M-v | 2 | MPC | 165462 | 2005 $UV_{158}$ |
| 2005 $UG_{159}$ | 16.5 | 0.15 | 20100104 | 142.94120 | 214.53313 | 99.03406 | 7.31482 | 0.2088888 | 2.2890596 | 67 | 3 | 2005–2009 | 0.58 | M-v | 2 | MPC | 147356 | 2005 $UG_{159}$ |
| 2005 $UG_{160}$ | 17.2 | 0.15 | 20100104 | 128.56811 | 181.87920 | 142.92140 | 3.53509 | 0.1878088 | 2.2702457 | 54 | 5 | 1998–2009 | 0.59 | M-v | 2 | MPC | 119662 | 2005 $UG_{160}$ |
| 2005 $UB_{161}$ | 17.2 | 0.15 | 20100104 | 9.64030 | 314.27392 | 107.82883 | 6.78656 | 0.2441819 | 2.4796430 | 93 | 3 | 2001–2009 | 0.57 | M-v | 3 | MPC | 166222 | 2005 $UB_{161}$ |
| 2005 $UL_{161}$ | 17.2 | 0.15 | 20100104 | 56.96893 | 97.96824 | 224.20916 | 11.30734 | 0.2447085 | 2.5560480 | 66 | 3 | 2001–2009 | 0.38 | M-v | 3 | MPC | 166222 | 2005 $UL_{161}$ |
| 2005 $UM_{161}$ | 17.7 | 0.15 | 20100104 | 30.09106 | 110.19018 | 275.15930 | 6.71151 | 0.2982155 | 2.4591607 | 50 | 2 | 2005–2009 | 0.51 | M-v | 3 | MPC | 165463 | 2005 $UM_{161}$ |
| 2005 $UC_{162}$ | 17.3 | 0.15 | 20100104 | 35.83540 | 292.46016 | 84.40642 | 7.08682 | 0.2603744 | 2.4754897 | 79 | 3 | 2001–2009 | 0.43 | M-v | 2 | MPC | 166222 | 2005 $UC_{162}$ |
| 2005 $UH_{162}$ | 16.8 | 0.15 | 20100104 | 6.66538 | 9.64208 | 109.66866 | 7.16358 | 0.0612730 | 2.2756705 | 46 | 5 | 1998–2009 | 0.34 | M-v | 0 | MPC | 166222 | 2005 $UH_{162}$ |
| 2005 $UY_{162}$ | 17.1 | 0.15 | 20100104 | 195.21048 | 4.88269 | 237.73460 | 4.59485 | 0.1460672 | 2.3839557 | 33 | 3 | 2005–2009 | 0.42 | M-v | 3 | MPC | 165463 | 2005 $UY_{162}$ |
| 2005 $UZ_{164}$ | 17.2 | 0.15 | 20100104 | 93.64364 | 260.30150 | 30.81340 | 4.73076 | 0.1554062 | 2.5763826 | 76 | 3 | 2005–2009 | 0.32 | M-v | 2 | MPC | 166223 | 2005 $UZ_{164}$ |
| 2005 $UH_{167}$ | 17.7 | 0.15 | 20100104 | 314.39394 | 276.41432 | 219.12911 | 5.05458 | 0.1773691 | 2.4519887 | 39 | 4 | 2003–2009 | 0.35 | M-v | 0 | MPC | 166223 | 2005 $UH_{167}$ |
| 2005 $UT_{168}$ | 17.4 | 0.15 | 20100104 | 250.29195 | 179.96300 | 24.82573 | 1.40822 | 0.1249406 | 2.3608166 | 44 | 4 | 2000–2009 | 0.51 | M-v | 3 | MPC | 118143 | 2005 $UT_{168}$ |
| 2005 $UJ_{169}$ | 16.7 | 0.15 | 20100104 | 327.86932 | 191.17051 | 251.31436 | 3.23032 | 0.1535457 | 2.6133384 | 68 | 6 | 2000–2009 | 0.46 | M-v | 1 | MPC | 162448 | 2005 $UJ_{169}$ |
| 2005 $UL_{169}$ | 17.6 | 0.15 | 20100104 | 22.63335 | 161.08555 | 237.13392 | 6.18996 | 0.1439391 | 2.5111006 | 35 | 3 | 2001–2009 | 0.34 | M-v | 3 | MPC | 166223 | 2005 $UL_{169}$ |
| 2005 $UP_{170}$ | 17.8 | 0.15 | 20100104 | 61.81340 | 127.16993 | 242.13083 | 3.40185 | 0.0701324 | 2.4611043 | 35 | 3 | 2001–2009 | 0.29 | M-v | 2 | MPC | 165463 | 2005 $UP_{170}$ |
| 2005 $UU_{170}$ | 17.5 | 0.15 | 20100104 | 36.75005 | 63.09285 | 347.77795 | 1.68156 | 0.1007561 | 2.4157004 | 47 | 4 | 2001–2009 | 0.40 | M-v | 2 | MPC | 119662 | 2005 $UU_{170}$ |
| 2005 $UV_{170}$ | 16.4 | 0.15 | 20100104 | 111.38780 | 290.63112 | 348.75176 | 1.84098 | 0.0577901 | 2.6505955 | 69 | 6 | 2000–2009 | 0.35 | M-v | 0 | MPC | 166223 | 2005 $UV_{170}$ |
| 2005 $UD_{171}$ | 17.6 | 0.15 | 20100104 | 359.37715 | 273.85229 | 244.82122 | 3.61312 | 0.1015449 | 2.2028728 | 55 | 4 | 2005–2009 | 0.32 | M-v | 1 | MPC | 148978 | 2005 $UD_{171}$ |
| 2005 $UK_{171}$ | 16.5 | 0.15 | 20100104 | 11.87722 | 146.44040 | 230.42449 | 11.00144 | 0.1954532 | 2.6351210 | 75 | 3 | 2005–2009 | 0.45 | M-v | 2 | MPC | 164265 | 2005 $UK_{171}$ |
| 2005 $UK_{173}$ | 16.7 | 0.15 | 20100104 | 74.32155 | 273.18261 | 29.05752 | 4.08888 | 0.1466557 | 2.6515141 | 51 | 5 | 1999–2009 | 0.29 | M-v | 0 | MPC | 164265 | 2005 $UK_{173}$ |
| 2005 $UB_{174}$ | 17.8 | 0.15 | 20100104 | 46.03490 | 110.93662 | 263.24422 | 5.10874 | 0.1299798 | 2.5111282 | 22 | 2 | 2005–2009 | 0.36 | M-v | 4 | MPC | 165463 | 2005 $UB_{174}$ |
| 2005 $UR_{174}$ | 16.9 | 0.15 | 20100104 | 37.73432 | 313.97057 | 37.74832 | 13.27301 | 0.2143354 | 2.6045578 | 46 | 2 | 2005–2009 | 0.33 | M-v | 3 | MPC | 166223 | 2005 $UR_{174}$ |
| 2005 $UX_{174}$ | 16.8 | 0.15 | 20100104 | 109.80617 | 293.27557 | 345.41648 | 3.30333 | 0.0598727 | 2.6915218 | 45 | 5 | 2003–2009 | 0.45 | M-v | 0 | MPC | 164265 | 2005 $UX_{174}$ |
| 2005 $UC_{176}$ | 17.7 | 0.15 | 20100104 | 231.06520 | 193.95044 | 44.41479 | 11.44875 | 0.1390585 | 2.3461782 | 27 | 5 | 2000–2009 | 0.51 | M-v | 1 | MPC | 118143 | 2005 $UC_{176}$ |
| 2005 $UT_{176}$ | 16.4 | 0.15 | 20100104 | 319.78441 | 83.85251 | 42.18957 | 11.89463 | 0.2439238 | 2.5449099 | 104 | 3 | 2001–2009 | 0.51 | M-v | 3 | MPC | 166223 | 2005 $UT_{176}$ |
| 2005 $UF_{177}$ | 16.6 | 0.15 | 20100104 | 70.07020 | 315.57018 | 5.47945 | 1.71301 | 0.0836204 | 2.6408181 | 52 | 5 | 1999–2009 | 0.39 | M-v | 1 | MPC | 164265 | 2005 $UF_{177}$ |
| 2005 $UR_{177}$ | 16.1 | 0.15 | 20100104 | 220.55745 | 277.25084 | 263.67832 | 3.65751 | 0.0897193 | 2.6838508 | 54 | 5 | 2003–2009 | 0.45 | M-v | 1 | MPC | 162448 | 2005 $UR_{177}$ |
| 2005 $UP_{178}$ | 17.9 | 0.15 | 20100104 | 25.83636 | 28.46093 | 73.29204 | 4.36754 | 0.0960983 | 2.3075561 | 33 | 4 | 1998–2009 | 0.32 | M-v | 1 | MPC | 126077 | 2005 $UP_{178}$ |
| 2005 $UV_{180}$ | 17.0 | 0.15 | 20100104 | 29.86540 | 230.76878 | 125.88689 | 2.29173 | 0.2389991 | 2.6218723 | 64 | 3 | 2005–2009 | 0.43 | M-v | 2 | MPC | 164265 | 2005 $UV_{180}$ |
| 2005 $UW_{180}$ | 17.3 | 0.15 | 20100104 | 161.84336 | 169.34251 | 118.81064 | 3.37408 | 0.1144423 | 2.3902674 | 42 | 5 | 2001–2009 | 0.42 | M-v | 1 | MPC | 148978 | 2005 $UW_{180}$ |
| 2005 $UD_{182}$ | 16.8 | 0.15 | 20100104 | 65.08149 | 265.19031 | 52.49869 | 13.64299 | 0.2376814 | 2.6107168 | 47 | 3 | 2005–2009 | 0.38 | M-v | 1 | MPC | 166223 | 2005 $UD_{182}$ |
| 2005 $UE_{182}$ | 16.7 | 0.15 | 20100104 | 76.82983 | 281.71522 | 51.80403 | 5.08453 | 0.1224909 | 2.5442641 | 55 | 4 | 2001–2009 | 0.39 | M-v | 3 | MPC | 166223 | 2005 $UE_{182}$ |
| 2005 $UM_{182}$ | 16.7 | 0.15 | 20100104 | 71.72899 | 106.71057 | 230.00933 | 4.49705 | 0.1099200 | 2.5642099 | 44 | 3 | 2001–2009 | 0.31 | M-v | 3 | MPC | 166223 | 2005 $UM_{182}$ |
| 2005 $UN_{182}$ | 16.2 | 0.15 | 20100104 | 329.23620 | 203.39646 | 229.64416 | 6.86661 | 0.1237818 | 2.6713436 | 73 | 6 | 2002–2009 | 0.51 | M-v | 1 | MPC | 162448 | 2005 $UN_{182}$ |
| 2005 $UC_{183}$ | 17.7 | 0.15 | 20100104 | 354.08045 | 60.82258 | 62.16059 | 3.05700 | 0.1376969 | 2.3832475 | 33 | 4 | 2003–2009 | 0.29 | M-v | 0 | MPC | 126077 | 2005 $UC_{183}$ |
| 2005 $UF_{188}$ | 17.7 | 0.15 | 20100104 | 246.45312 | 206.83735 | 1.96343 | 1.34123 | 0.1313397 | 2.3539331 | 41 | 3 | 2005–2009 | 0.37 | M-v | 3 | MPC | 117614 | 2005 $UF_{188}$ |
| 2005 $UH_{191}$ | 18.2 | 0.15 | 20100104 | 44.98775 | 121.26783 | 236.50943 | 4.28556 | 0.2087094 | 2.5345695 | 45 | 3 | 2001–2009 | 0.38 | M-v | 3 | MPC | 166223 | 2005 $UH_{191}$ |
| 2005 $UK_{194}$ | 17.6 | 0.15 | 20100104 | 314.46173 | 78.85416 | 68.20821 | 2.20159 | 0.1276879 | 2.3779505 | 50 | 5 | 1996–2009 | 0.45 | M-v | 1 | MPC | 120419 | 2005 $UK_{194}$ |
| 2005 $UH_{199}$ | 17.4 | 0.15 | 20100104 | 344.21682 | 213.38380 | 209.14241 | 11.32724 | 0.1075353 | 2.5580824 | 35 | 2 | 2005–2009 | 0.34 | M-v | 3 | MPC | 166223 | 2005 $UH_{199}$ |
| 2005 $UL_{200}$ | 16.9 | 0.15 | 20100104 | 28.69663 | 162.11283 | 212.63837 | 4.83610 | 0.1052383 | 2.5805264 | 65 | 3 | 2001–2009 | 0.36 | M-v | 2 | MPC | 166223 | 2005 $UL_{200}$ |
| 2005 $UR_{200}$ | 18.1 | 0.15 | 20100104 | 320.18251 | 76.64022 | 70.03778 | 2.48968 | 0.1217065 | 2.3930570 | 31 | 4 | 2003–2009 | 0.34 | M-v | 0 | MPC | 120420 | 2005 $UR_{200}$ |
| 2005 $UU_{205}$ | 17.0 | 0.15 | 20100104 | 334.58951 | 217.55439 | 208.47025 | 2.22895 | 0.1360932 | 2.6541299 | 48 | 4 | 2003–2009 | 0.31 | M-v | 1 | MPC | 164266 | 2005 $UU_{205}$ |
| 2005 $UZ_{205}$ | 17.2 | 0.15 | 20100104 | 247.57311 | 147.97886 | 58.66327 | 6.30167 | 0.1569079 | 2.4349172 | 46 | 4 | 2000–2009 | 0.45 | M-v | 2 | MPC | 166223 | 2005 $UZ_{205}$ |
| 2005 $UX_{206}$ | 17.7 | 0.15 | 20100104 | 351.48059 | 49.02507 | 57.05661 | 2.14815 | 0.1347205 | 2.3911702 | 54 | 4 | 2003–2009 | 0.36 | M-v | 0 | MPC | 166223 | 2005 $UX_{206}$ |
| 2005 $UE_{211}$ | 16.9 | 0.15 | 20100104 | 13.27995 | 262.92678 | 118.81303 | 1.17298 | 0.1722337 | 2.6189705 | 93 | 5 | 2000–2009 | 0.42 | M-v | 1 | MPC | 166223 | 2005 $UE_{211}$ |
| 2005 $UH_{212}$ | 16.8 | 0.15 | 20100104 | 76.01057 | 157.34589 | 177.13060 | 1.64535 | 0.1216276 | 2.5281090 | 86 | 4 | 2001–2009 | 0.42 | M-v | 3 | MPC | 166223 | 2005 $UH_{212}$ |
| 2005 $UE_{213}$ | 16.3 | 0.15 | 20100104 | 16.23831 | 138.29155 | 265.50684 | 5.76612 | 0.3255517 | 2.6314214 | 151 | 3 | 2000–2009 | 0.46 | M-v | 0 | MPC | 166223 | 2005 $UE_{213}$ |
| 2005 $UB_{214}$ | 16.4 | 0.15 | 20100104 | 15.38304 | 154.82686 | 302.75947 | 4.21038 | 0.1875683 | 2.3894644 | 96 | 6 | 1999–2009 | 0.47 | M-v | 1 | MPC | 166223 | 2005 $UB_{214}$ |
| 2005 $UQ_{214}$ | 17.0 | 0.15 | 20100104 | 48.33698 | 315.42909 | 94.12522 | 5.33439 | 0.1520143 | 2.3328942 | 57 | 4 | 1999–2009 | 0.44 | M-v | 1 | MPC | 164266 | 2005 $UQ_{214}$ |
| 2005 $UQ_{215}$ | 17.3 | 0.15 | 20100104 | 26.34017 | 298.50731 | 127.39165 | 2.82551 | 0.1792824 | 2.3881959 | 54 | 4 | 1999–2009 | 0.50 | M-v | 1 | MPC | 166223 | 2005 $UQ_{215}$ |
| 2005 $UR_{215}$ | 17.4 | 0.15 | 20100104 | 70.83671 | 183.77465 | 188.90694 | 1.99169 | 0.2186759 | 2.3657751 | 72 | 4 | 2001–2009 | 0.41 | M-v | 1 | MPC | 166223 | 2005 $UR_{215}$ |
| 2005 $UZ_{215}$ | 17.8 | 0.15 | 20100104 | 9.98141 | 12.91802 | 56.21247 | 6.14270 | 0.2713399 | 2.4753829 | 68 | 4 | 1999–2009 | 0.48 | M-v | 2 | MPC | 165465 | 2005 $UZ_{215}$ |
| 2005 $UT_{216}$ | 15.4 | 0.15 | 20100104 | 19.75482 | 153.93243 | 227.97349 | 12.25004 | 0.2314611 | 2.6066482 | 165 | 3 | 2005–2009 | 0.44 | M-v | 2 | MPC | 166224 | 2005 $UT_{216}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 $UX_{217}$ | 16.8 | 0.15 | 20100104 | 13.14736 | 357.20805 | 36.03314 | 7.01587 | 0.2878989 | 2.5809617 | 105 | 3 | 2001–2009 | 0.50 | M-v | 2 | MPC | 166224 | 2005 $UX_{217}$ |
| 2005 $UB_{218}$ | 16.1 | 0.15 | 20100104 | 9.02292 | 150.36937 | 300.99507 | 11.92324 | 0.2114912 | 2.6265283 | 49 | 5 | 2000–2009 | 0.52 | M-v | 1 | MPC | 147356 | 2005 $UB_{218}$ |
| 2005 $UT_{219}$ | 16.8 | 0.15 | 20100104 | 44.74669 | 333.76185 | 339.80347 | 3.58843 | 0.0654608 | 2.7741226 | 31 | 4 | 2005–2009 | 0.25 | M-v | 1 | MPC | 162449 | 2005 $UT_{219}$ |
| 2005 $UE_{220}$ | 17.1 | 0.15 | 20100104 | 129.89724 | 39.29627 | 250.80220 | 6.27659 | 0.0872944 | 2.4613531 | 30 | 3 | 2002–2009 | 0.25 | M-v | 2 | MPC | 165465 | 2005 $UE_{220}$ |
| 2005 $UR_{220}$ | 16.0 | 0.15 | 20100104 | 230.64847 | 283.06035 | 240.87188 | 8.15536 | 0.0437861 | 2.6421828 | 45 | 5 | 2001–2009 | 0.50 | M-v | 1 | MPC | 162450 | 2005 $UR_{220}$ |
| 2005 $UH_{222}$ | 18.4 | 0.15 | 20100104 | 23.50468 | 118.53070 | 317.50612 | 1.96499 | 0.1947822 | 2.3840562 | 40 | 3 | 2001–2009 | 0.38 | M-v | 3 | MPC | 101059 | 2005 $UH_{222}$ |
| 2005 $UR_{223}$ | 17.4 | 0.15 | 20100104 | 308.94434 | 244.65071 | 259.53875 | 3.15500 | 0.1390369 | 2.4211703 | 39 | 4 | 2003–2009 | 0.36 | M-v | 1 | MPC | 166224 | 2005 $UR_{223}$ |
| 2005 $UW_{223}$ | 17.7 | 0.15 | 20100104 | 228.18970 | 297.22998 | 310.72463 | 2.16276 | 0.1293915 | 2.2513894 | 40 | 7 | 2000–2009 | 0.34 | M-v | 1 | MPC | 148978 | 2005 $UW_{223}$ |
| 2005 $UM_{224}$ | 17.5 | 0.15 | 20100104 | 304.45987 | 166.18975 | 346.46385 | 2.43536 | 0.1255518 | 2.3998223 | 65 | 5 | 2001–2009 | 0.40 | M-v | 0 | MPC | 119663 | 2005 $UM_{224}$ |
| 2005 $UT_{226}$ | 16.8 | 0.15 | 20100104 | 322.98802 | 33.71843 | 54.20717 | 3.17710 | 0.1572130 | 2.6164947 | 59 | 5 | 2000–2009 | 0.28 | M-v | 1 | MPC | 164266 | 2005 $UT_{226}$ |
| 2005 $UE_{229}$ | 17.3 | 0.15 | 20100104 | 18.84720 | 209.78917 | 167.29756 | 1.99261 | 0.1579996 | 2.6067844 | 39 | 3 | 2005–2009 | 0.40 | M-v | 3 | MPC | 163744 | 2005 $UE_{229}$ |
| 2005 $UC_{230}$ | 17.1 | 0.15 | 20100104 | 132.15632 | 203.20071 | 85.43125 | 3.28187 | 0.2078348 | 2.4274145 | 45 | 5 | 2001–2009 | 0.34 | M-v | 1 | MPC | 166224 | 2005 $UC_{230}$ |
| 2005 $UP_{230}$ | 17.1 | 0.15 | 20100104 | 66.67740 | 293.89361 | 91.65704 | 4.25246 | 0.1686322 | 2.3746294 | 64 | 4 | 2003–2009 | 0.52 | M-v | 1 | MPC | 165465 | 2005 $UP_{230}$ |
| 2005 $UY_{231}$ | 17.0 | 0.15 | 20100104 | 118.50475 | 281.62113 | 49.42529 | 6.98659 | 0.1282615 | 2.3490116 | 47 | 5 | 2001–2009 | 0.40 | M-v | 0 | MPC | 141830 | 2005 $UY_{231}$ |
| 2005 $UZ_{231}$ | 16.9 | 0.15 | 20100104 | 194.28446 | 17.70771 | 219.10621 | 5.75833 | 0.1013226 | 2.4738107 | 30 | 3 | 2005–2009 | 0.27 | M-v | 3 | MPC | 166224 | 2005 $UZ_{231}$ |
| 2005 $UB_{232}$ | 17.2 | 0.15 | 20100104 | 33.54784 | 300.86049 | 45.47758 | 13.72695 | 0.2923050 | 2.5935408 | 56 | 2 | 2005–2009 | 0.49 | M-v | 2 | MPC | 163744 | 2005 $UB_{232}$ |
| 2005 $UE_{232}$ | 16.9 | 0.15 | 20100104 | 88.98485 | 260.40042 | 62.00242 | 2.06471 | 0.1070678 | 2.5146897 | 65 | 4 | 2001–2009 | 0.34 | M-v | 3 | MPC | 166224 | 2005 $UE_{232}$ |
| 2005 $UQ_{233}$ | 17.9 | 0.15 | 20100104 | 38.11077 | 315.26896 | 58.01827 | 13.36469 | 0.1692070 | 2.5257238 | 42 | 3 | 2001–2009 | 0.30 | M-v | 3 | MPC | 166224 | 2005 $UQ_{233}$ |
| 2005 $UD_{236}$ | 17.6 | 0.15 | 20100104 | 38.23337 | 338.20874 | 78.03491 | 7.02958 | 0.1015546 | 2.3974445 | 41 | 4 | 2003–2009 | 0.43 | M-v | 1 | MPC | 165466 | 2005 $UD_{236}$ |
| 2005 $UX_{239}$ | 16.8 | 0.15 | 20100104 | 288.09889 | 348.03227 | 146.53171 | 5.33546 | 0.1762483 | 2.6228268 | 29 | 3 | 2005–2009 | 0.29 | M-v | 1 | MPC | 163745 | 2005 $UX_{239}$ |
| 2005 $UM_{241}$ | 16.2 | 0.15 | 20100104 | 47.59923 | 337.37282 | 2.87148 | 3.54069 | 0.1632988 | 2.6466377 | 63 | 3 | 2003–2009 | 0.50 | M-v | 2 | MPC | 166224 | 2005 $UM_{241}$ |
| 2005 $UX_{242}$ | 16.5 | 0.15 | 20100104 | 60.77504 | 91.13062 | 274.92280 | 5.12468 | 0.1679624 | 2.4805355 | 78 | 3 | 2001–2009 | 0.43 | M-v | 3 | MPC | 166224 | 2005 $UX_{242}$ |
| 2005 $US_{244}$ | 17.2 | 0.15 | 20100104 | 75.59679 | 95.73202 | 292.53850 | 5.54462 | 0.0950925 | 2.3728142 | 43 | 4 | 1998–2009 | 0.32 | M-v | 1 | MPC | 166224 | 2005 $US_{244}$ |
| 2005 $UT_{244}$ | 16.4 | 0.15 | 20100104 | 4.46669 | 8.04454 | 18.98680 | 7.06362 | 0.0538178 | 2.7230897 | 69 | 6 | 1994–2009 | 0.40 | M-v | 0 | MPC | 166224 | 2005 $UT_{244}$ |
| 2005 $UC_{249}$ | 17.6 | 0.15 | 20100104 | 93.75878 | 121.34435 | 206.69714 | 3.65583 | 0.1888821 | 2.4397175 | 37 | 3 | 2001–2009 | 0.36 | M-v | 3 | MPC | 101062 | 2005 $UC_{249}$ |
| 2005 $UL_{249}$ | 17.2 | 0.15 | 20100104 | 181.10551 | 167.89736 | 75.02995 | 2.51248 | 0.0441454 | 2.5138020 | 39 | 5 | 2000–2009 | 0.29 | M-v | 1 | MPC | 166224 | 2005 $UL_{249}$ |
| 2005 $UW_{249}$ | 16.7 | 0.15 | 20100104 | 134.53846 | 229.09385 | 55.29939 | 2.63492 | 0.1068744 | 2.5918400 | 61 | 6 | 2000–2009 | 0.35 | M-v | 1 | MPC | 166224 | 2005 $UW_{249}$ |
| 2005 $UM_{255}$ | 17.5 | 0.15 | 20100104 | 59.28395 | 299.64286 | 50.80553 | 4.48437 | 0.1716175 | 2.4540036 | 56 | 2 | 2005–2009 | 0.36 | M-v | 3 | MPC | 166224 | 2005 $UM_{255}$ |
| 2005 $UA_{256}$ | 17.0 | 0.15 | 20100104 | 26.68379 | 174.19753 | 199.98877 | 3.68921 | 0.1910120 | 2.5930153 | 64 | 3 | 2005–2009 | 0.45 | M-v | 2 | MPC | 166224 | 2005 $UA_{256}$ |
| 2005 $UG_{261}$ | 16.3 | 0.15 | 20100104 | 49.80471 | 114.50426 | 229.42060 | 12.78719 | 0.2255821 | 2.6068854 | 76 | 3 | 2005–2009 | 0.38 | M-v | 2 | MPC | 166225 | 2005 $UG_{261}$ |
| 2005 $UG_{262}$ | 17.6 | 0.15 | 20100104 | 143.60953 | 200.90629 | 85.66931 | 2.66226 | 0.1895478 | 2.3573978 | 38 | 5 | 2001–2009 | 0.38 | M-v | 1 | MPC | 114769 | 2005 $UG_{262}$ |
| 2005 $UD_{263}$ | 18.7 | 0.15 | 20100104 | 357.37807 | 21.45922 | 55.84946 | 5.11859 | 0.1528609 | 2.4719217 | 37 | 2 | 2005–2009 | 0.34 | M-v | 3 | MPC | 165466 | 2005 $UD_{263}$ |
| 2005 $UZ_{263}$ | 17.2 | 0.15 | 20100104 | 197.15558 | 218.73133 | 48.56808 | 6.23254 | 0.0960017 | 2.2817687 | 49 | 4 | 2004–2009 | 0.29 | M-v | 1 | MPC | 118146 | 2005 $UZ_{263}$ |
| 2005 $UL_{267}$ | 17.9 | 0.15 | 20100104 | 340.67456 | 338.84374 | 143.70037 | 2.04631 | 0.1350236 | 2.4143670 | 36 | 7 | 1999–2009 | 0.45 | M-v | 0 | MPC | 119664 | 2005 $UL_{267}$ |
| 2005 $UW_{267}$ | 18.1 | 0.15 | 20100104 | 342.00733 | 32.87250 | 80.87034 | 3.15621 | 0.1548685 | 2.4435868 | 27 | 2 | 2005–2009 | 0.27 | M-v | 3 | MPC | 165467 | 2005 $UW_{267}$ |
| 2005 $US_{272}$ | 17.3 | 0.15 | 20100104 | 74.15206 | 282.56491 | 70.78097 | 7.62350 | 0.1218894 | 2.4705499 | 31 | 2 | 2005–2009 | 0.26 | M-v | 3 | MPC | 165467 | 2005 $US_{272}$ |
| 2005 $UJ_{273}$ | 16.4 | 0.15 | 20100104 | 32.92451 | 327.08243 | 50.69738 | 2.97886 | 0.2139911 | 2.5741844 | 137 | 3 | 2005–2009 | 0.47 | M-v | 3 | MPC | 166225 | 2005 $UJ_{273}$ |
| 2005 $UT_{273}$ | 17.0 | 0.15 | 20100104 | 206.35875 | 191.32769 | 31.49693 | 7.20077 | 0.0747606 | 2.3683969 | 58 | 3 | 2004–2009 | 0.37 | M-v | 3 | MPC | 166225 | 2005 $UT_{273}$ |
| 2005 $UU_{274}$ | 16.0 | 0.15 | 20100104 | 11.54197 | 147.88851 | 237.99236 | 12.76709 | 0.2571426 | 2.6258893 | 99 | 2 | 2005–2009 | 0.49 | M-v | 2 | MPC | 166225 | 2005 $UU_{274}$ |
| 2005 $UB_{275}$ | 15.4 | 0.15 | 20100104 | 56.41994 | 324.77892 | 352.61236 | 11.46980 | 0.1929433 | 2.6595903 | 83 | 5 | 2003–2009 | 0.51 | M-v | 1 | MPC | 164267 | 2005 $UB_{275}$ |
| 2005 $UG_{275}$ | 16.8 | 0.15 | 20100104 | 71.06121 | 280.07420 | 85.80967 | 3.29946 | 0.2320075 | 2.3790568 | 103 | 5 | 2001–2009 | 0.48 | M-v | 2 | MPC | 166225 | 2005 $UG_{275}$ |
| 2005 $UQ_{275}$ | 17.0 | 0.15 | 20100104 | 124.53341 | 30.51088 | 291.94490 | 5.25335 | 0.1600086 | 2.3333577 | 46 | 5 | 2001–2009 | 0.47 | M-v | 1 | MPC | 118146 | 2005 $UQ_{275}$ |
| 2005 $UX_{278}$ | 17.8 | 0.15 | 20100104 | 350.91355 | 300.74132 | 169.57195 | 1.58364 | 0.0931063 | 2.3824431 | 37 | 5 | 2001–2009 | 0.32 | M-v | 0 | MPC | 120424 | 2005 $UX_{278}$ |
| 2005 $US_{280}$ | 16.7 | 0.15 | 20100104 | 356.24352 | 19.60667 | 38.60405 | 12.65007 | 0.1263452 | 2.5709329 | 67 | 2 | 2005–2009 | 0.36 | M-v | 2 | MPC | 166225 | 2005 $US_{280}$ |
| 2005 $UT_{285}$ | 17.5 | 0.15 | 20100104 | 70.74588 | 270.91076 | 71.81177 | 5.79196 | 0.1788545 | 2.4531870 | 43 | 4 | 2001–2009 | 0.36 | M-v | 2 | MPC | 166225 | 2005 $UT_{285}$ |
| 2005 $UQ_{286}$ | 17.7 | 0.15 | 20100104 | 132.25603 | 187.60167 | 104.04528 | 3.23605 | 0.2025970 | 2.3759961 | 39 | 4 | 2001–2009 | 0.35 | M-v | 2 | MPC | 147357 | 2005 $UQ_{286}$ |
| 2005 $UN_{292}$ | 16.8 | 0.15 | 20100104 | 34.52973 | 347.42242 | 21.35038 | 6.26862 | 0.0802832 | 2.5820516 | 36 | 2 | 2005–2009 | 0.34 | M-v | 3 | MPC | 166225 | 2005 $UN_{292}$ |
| 2005 $US_{294}$ | 17.1 | 0.15 | 20100104 | 266.29648 | 183.51319 | 347.02790 | 2.22417 | 0.0573321 | 2.4871980 | 42 | 4 | 2001–2009 | 0.29 | M-v | 3 | MPC | 166225 | 2005 $US_{294}$ |
| 2005 $UO_{296}$ | 16.7 | 0.15 | 20100104 | 155.42907 | 37.12916 | 230.80433 | 3.98408 | 0.0224339 | 2.5270971 | 56 | 4 | 1999–2009 | 0.40 | M-v | 3 | MPC | 166225 | 2005 $UO_{296}$ |
| 2005 $UD_{297}$ | 16.9 | 0.15 | 20100104 | 316.67714 | 147.88089 | 262.25450 | 0.95065 | 0.0687542 | 2.8364231 | 33 | 4 | 2002–2009 | 0.45 | M-v | 1 | MPC | 118146 | 2005 $UD_{297}$ |
| 2005 $UB_{300}$ | 16.5 | 0.15 | 20100104 | 85.72039 | 200.72192 | 61.81721 | 0.91338 | 0.0653355 | 2.9275699 | 33 | 6 | 1999–2009 | 0.35 | M-v | 0 | MPC | 140151 | 2005 $UB_{300}$ |
| 2005 $UL_{300}$ | 17.3 | 0.15 | 20100104 | 82.16557 | 280.02998 | 94.77439 | 7.30282 | 0.1399740 | 2.3562269 | 45 | 4 | 2000–2009 | 0.40 | M-v | 1 | MPC | 165467 | 2005 $UL_{300}$ |
| 2005 $UA_{303}$ | 17.1 | 0.15 | 20100104 | 102.08409 | 238.30906 | 105.61492 | 6.06768 | 0.2571661 | 2.3399542 | 57 | 5 | 2001–2009 | 0.45 | M-v | 2 | MPC | 162451 | 2005 $UA_{303}$ |

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| 2005 $UN_{303}$ | 17.2 | 0.15 | 20100104 | 298.06047 | 74.58266 | 100.19923 | 7.89459 | 0.0997202 | 2.3807962 | 29 | 5 | 2001–2009 | 0.59 | M-v | 1 | MPC | 122800 | 2005 $UN_{303}$ |
| 2005 $UQ_{303}$ | 16.9 | 0.15 | 20100104 | 320.74494 | 249.36075 | 203.58107 | 11.28100 | 0.1569840 | 2.6422440 | 35 | 2 | 2005–2009 | 0.45 | M-v | 3 | MPC | 164268 | 2005 $UQ_{303}$ |
| 2005 $UQ_{304}$ | 17.3 | 0.15 | 20100104 | 83.16428 | 277.20878 | 94.21054 | 8.65419 | 0.1733197 | 2.3610168 | 47 | 4 | 2000–2009 | 0.54 | M-v | 1 | MPC | 166225 | 2005 $UQ_{304}$ |
| 2005 $UJ_{305}$ | 17.2 | 0.15 | 20100104 | 321.49577 | 105.18068 | 54.54405 | 5.84567 | 0.0706186 | 2.2779349 | 61 | 3 | 2005–2009 | 0.31 | M-v | 2 | MPC | 166225 | 2005 $UJ_{305}$ |
| 2005 $UZ_{306}$ | 16.7 | 0.15 | 20100104 | 41.70543 | 297.51324 | 45.60691 | 4.26213 | 0.1983812 | 2.6154695 | 69 | 4 | 2005–2009 | 0.44 | M-v | 1 | MPC | 166225 | 2005 $UZ_{306}$ |
| 2005 $UJ_{307}$ | 16.8 | 0.15 | 20100104 | 279.02395 | 114.87995 | 33.46412 | 2.35733 | 0.0782598 | 2.5466082 | 49 | 5 | 1999–2009 | 0.34 | M-v | 1 | MPC | 166225 | 2005 $UJ_{307}$ |
| 2005 $UD_{308}$ | 17.3 | 0.15 | 20100104 | 31.55758 | 5.62397 | 2.50766 | 0.87552 | 0.1367832 | 2.5958929 | 49 | 3 | 2005–2009 | 0.40 | M-v | 3 | MPC | 166225 | 2005 $UD_{308}$ |
| 2005 $UO_{308}$ | 17.7 | 0.15 | 20100104 | 330.78658 | 88.92246 | 34.57653 | 1.74217 | 0.1385446 | 2.4664102 | 58 | 6 | 1995–2009 | 0.41 | M-v | 0 | MPC | 166225 | 2005 $UO_{308}$ |
| 2005 $UE_{309}$ | 17.3 | 0.15 | 20100104 | 17.93099 | 315.75069 | 98.29419 | 3.07463 | 0.1762372 | 2.4595077 | 88 | 3 | 2001–2009 | 0.52 | M-v | 2 | MPC | 166225 | 2005 $UE_{309}$ |
| 2005 $UQ_{312}$ | 17.5 | 0.15 | 20100104 | 43.04331 | 127.15923 | 288.21421 | 0.50150 | 0.1657181 | 2.3681075 | 58 | 5 | 2001–2009 | 0.42 | M-v | 1 | MPC | 166226 | 2005 $UQ_{312}$ |
| 2005 $US_{312}$ | 15.9 | 0.15 | 20100104 | 75.05199 | 278.53971 | 24.00643 | 5.66434 | 0.1035053 | 2.6807180 | 59 | 6 | 1996–2009 | 0.43 | M-v | 0 | MPC | 164268 | 2005 $US_{312}$ |
| 2005 $UW_{312}$ | 17.0 | 0.15 | 20100104 | 160.99072 | 47.70987 | 270.31726 | 3.94181 | 0.2008148 | 2.2170245 | 65 | 3 | 2005–2009 | 0.46 | M-v | 3 | MPC | 147357 | 2005 $UW_{312}$ |
| 2005 $UL_{314}$ | 17.5 | 0.15 | 20100104 | 76.74014 | 279.62979 | 109.23195 | 4.02715 | 0.2394660 | 2.2964922 | 45 | 3 | 1998–2009 | 0.45 | M-v | 3 | MPC | 96262 | 2005 $UL_{314}$ |
| 2005 $UQ_{314}$ | 17.0 | 0.15 | 20100104 | 101.62098 | 272.41064 | 88.57702 | 6.73368 | 0.1871175 | 2.2789948 | 45 | 4 | 1998–2009 | 0.55 | M-v | 2 | MPC | 103777 | 2005 $UQ_{314}$ |
| 2005 $UZ_{316}$ | 17.7 | 0.15 | 20100104 | 104.20321 | 43.89593 | 269.08626 | 2.38227 | 0.2137685 | 2.2834010 | 44 | 3 | 2005–2009 | 0.50 | M-v | 2 | MPC | 166226 | 2005 $UZ_{316}$ |
| 2005 $UP_{321}$ | 16.1 | 0.15 | 20100104 | 54.53542 | 298.70301 | 49.68031 | 15.46285 | 0.1361536 | 2.5884074 | 73 | 3 | 2003–2009 | 0.49 | M-v | 2 | MPC | 166226 | 2005 $UP_{321}$ |
| 2005 $UH_{322}$ | 16.8 | 0.15 | 20100104 | 47.39812 | 1.27272 | 42.11003 | 7.16881 | 0.1224398 | 2.4147142 | 50 | 3 | 2001–2009 | 0.46 | M-v | 2 | MPC | 164268 | 2005 $UH_{322}$ |
| 2005 $UL_{323}$ | 17.6 | 0.15 | 20100104 | 343.45966 | 35.78252 | 66.41259 | 3.36872 | 0.1797778 | 2.4374458 | 53 | 4 | 2003–2009 | 0.34 | M-v | 0 | MPC | 166226 | 2005 $UL_{323}$ |
| 2005 $UD_{327}$ | 16.7 | 0.15 | 20100104 | 25.47119 | 346.22887 | 20.96363 | 4.67702 | 0.2376356 | 2.6128354 | 96 | 2 | 2005–2009 | 0.49 | M-v | 2 | MPC | 166226 | 2005 $UD_{327}$ |
| 2005 $UB_{328}$ | 16.0 | 0.15 | 20100104 | 78.79843 | 90.20713 | 237.83404 | 11.45731 | 0.1166225 | 2.5766849 | 90 | 2 | 2005–2009 | 0.50 | M-v | 4 | MPC | 166226 | 2005 $UB_{328}$ |
| 2005 $UX_{332}$ | 18.5 | 0.15 | 20100104 | 326.67293 | 37.81263 | 87.14095 | 2.39518 | 0.1201819 | 2.4174884 | 28 | 5 | 1999–2009 | 0.36 | M-v | 1 | MPC | 158517 | 2005 $UX_{332}$ |
| 2005 $UO_{335}$ | 16.5 | 0.15 | 20100104 | 22.91120 | 150.46886 | 272.65569 | 5.23925 | 0.0920191 | 2.4258259 | 43 | 4 | 2001–2009 | 0.52 | M-v | 2 | MPC | 166226 | 2005 $UO_{335}$ |
| 2005 $UV_{341}$ | 17.7 | 0.15 | 20100104 | 299.37966 | 244.42594 | 287.48163 | 5.33932 | 0.1574433 | 2.3655243 | 43 | 5 | 2003–2009 | 0.27 | M-v | 0 | MPC | 166226 | 2005 $UV_{341}$ |
| 2005 $UD_{343}$ | 16.2 | 0.15 | 20100104 | 111.41742 | 223.34757 | 88.02840 | 12.42248 | 0.2033102 | 2.3475113 | 62 | 5 | 1997–2009 | 0.50 | M-v | 0 | MPC | 166226 | 2005 $UD_{343}$ |
| 2005 $UE_{343}$ | 17.0 | 0.15 | 20100104 | 24.95369 | 326.15461 | 74.71208 | 8.35219 | 0.2398725 | 2.4400519 | 67 | 2 | 2005–2009 | 0.52 | M-v | 3 | MPC | 165467 | 2005 $UE_{343}$ |
| 2005 $UH_{345}$ | 18.0 | 0.15 | 20100104 | 13.64167 | 344.63191 | 74.49949 | 5.20426 | 0.1781502 | 2.5199319 | 27 | 3 | 2002–2009 | 0.37 | M-v | 3 | MPC | 165468 | 2005 $UH_{345}$ |
| 2005 $UH_{347}$ | 17.6 | 0.15 | 20100104 | 253.10656 | 133.97508 | 67.66489 | 2.30718 | 0.1287060 | 2.4311537 | 32 | 3 | 2005–2009 | 0.28 | M-v | 3 | MPC | 120822 | 2005 $UH_{347}$ |
| 2005 $UV_{348}$ | 15.5 | 0.15 | 20100104 | 45.72986 | 97.82900 | 248.88064 | 13.88300 | 0.1400719 | 2.6266560 | 95 | 2 | 2005–2009 | 0.53 | M-v | 3 | MPC | 166226 | 2005 $UV_{348}$ |
| 2005 $UY_{350}$ | 16.7 | 0.15 | 20100104 | 68.38824 | 123.16479 | 251.38728 | 6.83882 | 0.1259687 | 2.3611461 | 53 | 4 | 2001–2009 | 0.59 | M-v | 3 | MPC | 111145 | 2005 $UY_{350}$ |
| 2005 $UO_{352}$ | 16.7 | 0.15 | 20100104 | 37.57318 | 111.30110 | 242.89054 | 10.52740 | 0.1449245 | 2.5716282 | 58 | 4 | 2001–2009 | 0.57 | M-v | 3 | MPC | 166226 | 2005 $UO_{352}$ |
| 2005 $UV_{353}$ | 15.7 | 0.15 | 20100104 | 3.57841 | 113.27772 | 250.60946 | 12.49743 | 0.1927270 | 2.7228986 | 91 | 3 | 2005–2009 | 0.55 | M-v | 2 | MPC | 162452 | 2005 $UV_{353}$ |
| 2005 $UC_{354}$ | 16.1 | 0.15 | 20100104 | 313.71277 | 239.51604 | 259.98848 | 13.64679 | 0.0394556 | 2.4567634 | 61 | 5 | 2003–2009 | 0.51 | M-v | 1 | MPC | 141831 | 2005 $UC_{354}$ |
| 2005 $UV_{354}$ | 16.3 | 0.15 | 20100104 | 4.11104 | 157.01398 | 284.73490 | 6.64672 | 0.1130467 | 2.4403626 | 73 | 5 | 1994–2009 | 0.51 | M-v | 1 | MPC | 166226 | 2005 $UV_{354}$ |
| 2005 $UB_{355}$ | 15.1 | 0.15 | 20100104 | 87.00380 | 271.64444 | 18.11014 | 12.87511 | 0.1845879 | 2.6280961 | 134 | 3 | 2005–2009 | 0.52 | M-v | 1 | MPC | 166226 | 2005 $UB_{355}$ |
| 2005 $UO_{355}$ | 15.6 | 0.15 | 20100104 | 352.94806 | 262.44684 | 246.56216 | 20.58887 | 0.2456216 | 2.3310167 | 94 | 3 | 1999–2009 | 0.47 | M-v | 2 | MPC | 165468 | 2005 $UO_{355}$ |
| 2005 $UC_{359}$ | 17.9 | 0.15 | 20100104 | 67.37193 | 66.09787 | 274.27846 | 1.46963 | 0.2067394 | 2.4450491 | 36 | 4 | 2001–2009 | 0.43 | M-v | 2 | MPC | 165468 | 2005 $UC_{359}$ |
| 2005 $UH_{360}$ | 15.5 | 0.15 | 20100104 | 40.88433 | 103.29775 | 312.82316 | 7.06240 | 0.0279410 | 2.7191643 | 87 | 4 | 2004–2009 | 0.45 | M-v | 0 | MPC | 162453 | 2005 $UH_{360}$ |
| 2005 $UP_{361}$ | 18.1 | 0.15 | 20100104 | 58.47958 | 250.34150 | 105.69023 | 0.83826 | 0.1823591 | 2.4680260 | 52 | 4 | 1997–2009 | 0.38 | M-v | 2 | MPC | 166226 | 2005 $UP_{361}$ |
| 2005 $UJ_{364}$ | 17.5 | 0.15 | 20100104 | 283.41301 | 108.79107 | 95.45070 | 3.43220 | 0.1128509 | 2.2776744 | 37 | 4 | 2005–2009 | 0.45 | M-v | 1 | MPC | 147357 | 2005 $UJ_{364}$ |
| 2005 $UU_{365}$ | 17.3 | 0.15 | 20100104 | 143.02449 | 174.32780 | 138.57792 | 3.66430 | 0.2388271 | 2.2790106 | 50 | 7 | 1998–2009 | 0.53 | M-v | 1 | MPC | 147357 | 2005 $UU_{365}$ |
| 2005 $UO_{368}$ | 16.6 | 0.15 | 20100104 | 168.79130 | 199.11248 | 72.55208 | 7.13958 | 0.1258031 | 2.4230112 | 40 | 4 | 2000–2009 | 0.39 | M-v | 1 | MPC | 166226 | 2005 $UO_{368}$ |
| 2005 $UE_{370}$ | 18.0 | 0.15 | 20100104 | 72.42870 | 254.09583 | 124.82439 | 2.20655 | 0.1996533 | 2.3653795 | 32 | 4 | 2001–2009 | 0.28 | M-v | 1 | MPC | 155199 | 2005 $UE_{370}$ |
| 2005 $UL_{371}$ | 17.2 | 0.15 | 20100104 | 35.34526 | 67.57532 | 326.29013 | 0.36451 | 0.0484652 | 2.5128652 | 88 | 6 | 1999–2009 | 0.47 | M-v | 2 | MPC | 166226 | 2005 $UL_{371}$ |
| 2005 $UO_{379}$ | 17.8 | 0.15 | 20100104 | 8.72011 | 358.38602 | 77.53426 | 2.51315 | 0.1607860 | 2.4320341 | 47 | 2 | 2005–2009 | 0.31 | M-v | 3 | MPC | 165468 | 2005 $UO_{379}$ |
| 2005 $UP_{382}$ | 17.3 | 0.15 | 20100104 | 134.88210 | 176.45270 | 146.26272 | 5.41193 | 0.1554464 | 2.2538220 | 37 | 5 | 2001–2009 | 0.51 | M-v | 1 | MPC | 155200 | 2005 $UP_{382}$ |
| 2005 $UP_{388}$ | 17.4 | 0.15 | 20100104 | 173.82751 | 64.64638 | 204.70722 | 4.26298 | 0.1590796 | 2.2687794 | 33 | 5 | 1998–2009 | 0.40 | M-v | 0 | MPC | 96298 | 2005 $UP_{388}$ |
| 2005 $US_{388}$ | 17.4 | 0.15 | 20100104 | 348.99703 | 215.65979 | 230.77909 | 1.60283 | 0.1567799 | 2.4203155 | 59 | 3 | 2005–2009 | 0.42 | M-v | 2 | MPC | 166227 | 2005 $US_{388}$ |
| 2005 $US_{392}$ | 17.6 | 0.15 | 20100104 | 72.74212 | 284.16317 | 81.01423 | 2.53902 | 0.0810102 | 2.3573408 | 47 | 4 | 2002–2009 | 0.33 | M-v | 1 | MPC | 166227 | 2005 $US_{392}$ |
| 2005 $UY_{394}$ | 17.8 | 0.15 | 20100104 | 155.82212 | 122.34262 | 158.18626 | 3.12234 | 0.1245667 | 2.3642269 | 37 | 5 | 1996–2009 | 0.37 | M-v | 1 | MPC | 158518 | 2005 $UY_{394}$ |
| 2005 $UM_{396}$ | 16.5 | 0.15 | 20100104 | 97.10793 | 287.50198 | 66.45833 | 7.49644 | 0.1261603 | 2.2909142 | 43 | 5 | 1998–2009 | 0.50 | M-v | 1 | MPC | 166227 | 2005 $UM_{396}$ |
| 2005 $UM_{398}$ | 16.5 | 0.15 | 20100104 | 45.80952 | 317.10372 | 64.29248 | 7.79934 | 0.1096180 | 2.4071968 | 79 | 4 | 2001–2009 | 0.37 | M-v | 2 | MPC | 166227 | 2005 $UM_{398}$ |
| 2005 $UF_{402}$ | 17.5 | 0.15 | 20100104 | 14.81214 | 67.84856 | 20.21768 | 2.82977 | 0.1666654 | 2.3966208 | 32 | 4 | 2003–2009 | 0.41 | M-v | 1 | MPC | 126087 | 2005 $UF_{402}$ |
| 2005 $UY_{403}$ | 17.5 | 0.15 | 20100104 | 63.44398 | 220.33880 | 200.12103 | 6.55145 | 0.0885513 | 2.2930852 | 41 | 5 | 2000–2009 | 0.29 | M-v | 0 | MPC | 119666 | 2005 $UY_{403}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 $UP_{406}$ | 17.8 | 0.15 | 20100104 | 7.67889 | 299.94295 | 147.34285 | 2.50915 | 0.1898817 | 2.4137328 | 47 | 6 | 1999–2009 | 0.45 | M-v | 0 | MPC | 119666 | 2005 $UP_{406}$ |
| 2005 $UZ_{407}$ | 17.2 | 0.15 | 20100104 | 350.17699 | 0.02125 | 90.20267 | 2.38057 | 0.1493997 | 2.4371098 | 73 | 5 | 2001–2009 | 0.47 | M-v | 0 | MPC | 166227 | 2005 $UZ_{407}$ |
| 2005 $UW_{411}$ | 17.8 | 0.15 | 20100104 | 359.22157 | 17.38607 | 92.53362 | 4.05576 | 0.0472372 | 2.3813152 | 41 | 5 | 2001–2009 | 0.30 | M-v | 0 | MPC | 119230 | 2005 $UW_{411}$ |
| 2005 $UX_{411}$ | 16.9 | 0.15 | 20100104 | 128.55718 | 224.99756 | 69.72588 | 11.21039 | 0.0928785 | 2.5221147 | 30 | 2 | 2005–2009 | 0.35 | M-v | 4 | MPC | 165469 | 2005 $UX_{411}$ |
| 2005 $UG_{412}$ | 15.8 | 0.15 | 20100104 | 30.46133 | 145.20296 | 226.53986 | 14.46101 | 0.1280661 | 2.6186578 | 123 | 3 | 2005–2009 | 0.55 | M-v | 2 | MPC | 166227 | 2005 $UG_{412}$ |
| 2005 $UN_{414}$ | 17.5 | 0.15 | 20100104 | 339.96172 | 60.47846 | 74.07318 | 3.83811 | 0.1760797 | 2.3680642 | 40 | 5 | 1992–2009 | 0.46 | M-v | 0 | MPC | 166227 | 2005 $UN_{414}$ |
| 2005 $UB_{427}$ | 17.2 | 0.15 | 20100104 | 254.12563 | 133.14745 | 57.43327 | 2.02490 | 0.1199888 | 2.3714185 | 46 | 4 | 2000–2009 | 0.58 | M-v | 3 | MPC | 166227 | 2005 $UB_{427}$ |
| 2005 $UO_{431}$ | 17.8 | 0.15 | 20100104 | 351.68770 | 254.22658 | 203.86219 | 4.42074 | 0.0704856 | 2.4495983 | 42 | 5 | 2003–2009 | 0.30 | M-v | 0 | MPC | 166227 | 2005 $UO_{431}$ |
| 2005 $UU_{432}$ | 18.0 | 0.15 | 20100104 | 357.70385 | 351.54962 | 124.16485 | 1.95477 | 0.1284251 | 2.3827175 | 49 | 5 | 2001–2009 | 0.29 | M-v | 0 | MPC | 166227 | 2005 $UU_{432}$ |
| 2005 $UL_{436}$ | 17.3 | 0.15 | 20100104 | 264.09231 | 338.05629 | 218.57661 | 4.08911 | 0.1786385 | 2.4193346 | 64 | 8 | 1992–2009 | 0.53 | M-v | 1 | MPC | 166227 | 2005 $UL_{436}$ |
| 2005 $UU_{438}$ | 16.5 | 0.15 | 20100104 | 58.78983 | 295.34716 | 27.27959 | 9.32251 | 0.1770579 | 2.5732059 | 72 | 3 | 2005–2009 | 0.42 | M-v | 2 | MPC | 166227 | 2005 $UU_{438}$ |
| 2005 $UP_{440}$ | 17.5 | 0.15 | 20100104 | 11.80047 | 90.74870 | 341.03866 | 3.14557 | 0.2048591 | 2.4365543 | 39 | 3 | 2001–2009 | 0.66 | M-v | 2 | MPC | 166227 | 2005 $UP_{440}$ |
| 2005 $UE_{442}$ | 15.1 | 0.15 | 20100104 | 340.43753 | 198.05915 | 248.01912 | 12.32213 | 0.2675753 | 2.6315843 | 147 | 3 | 2002–2009 | 0.46 | M-v | 2 | MPC | 166227 | 2005 $UE_{442}$ |
| 2005 $UQ_{443}$ | 16.7 | 0.15 | 20100104 | 23.74133 | 81.31969 | 321.71362 | 4.17081 | 0.0481146 | 2.4631229 | 58 | 5 | 2001–2009 | 0.56 | M-v | 1 | MPC | 166227 | 2005 $UQ_{443}$ |
| 2005 $UY_{443}$ | 17.1 | 0.15 | 20100104 | 55.20683 | 93.14986 | 328.47190 | 5.78291 | 0.1560746 | 2.3191859 | 52 | 6 | 1998–2009 | 0.46 | M-v | 0 | MPC | 147358 | 2005 $UY_{443}$ |
| 2005 $UB_{445}$ | 17.8 | 0.15 | 20100104 | 74.35411 | 236.65956 | 148.20649 | 3.24586 | 0.1431402 | 2.3032365 | 34 | 4 | 2003–2009 | 0.40 | M-v | 1 | MPC | 118150 | 2005 $UB_{445}$ |
| 2005 $UH_{447}$ | 16.8 | 0.15 | 20100104 | 107.06136 | 84.51750 | 269.44329 | 6.51818 | 0.1331864 | 2.3152148 | 47 | 5 | 2001–2009 | 0.52 | M-v | 1 | MPC | 140153 | 2005 $UH_{447}$ |
| 2005 $UZ_{451}$ | 16.4 | 0.15 | 20100104 | 32.97448 | 255.98158 | 108.21911 | 4.14657 | 0.1500368 | 2.6109590 | 79 | 5 | 1998–2009 | 0.48 | M-v | 1 | MPC | 166228 | 2005 $UZ_{451}$ |
| 2005 $US_{454}$ | 17.1 | 0.15 | 20100104 | 41.76575 | 237.69573 | 161.21893 | 6.27228 | 0.1110983 | 2.3902212 | 49 | 6 | 1994–2009 | 0.56 | M-v | 1 | MPC | 121847 | 2005 $US_{454}$ |
| 2005 $UW_{454}$ | 15.9 | 0.15 | 20100104 | 31.35117 | 318.14057 | 59.81164 | 15.30580 | 0.1295839 | 2.5802813 | 105 | 3 | 2005–2009 | 0.51 | M-v | 3 | MPC | 166228 | 2005 $UW_{454}$ |
| 2005 $UX_{454}$ | 16.1 | 0.15 | 20100104 | 22.05274 | 145.70642 | 224.46213 | 13.10496 | 0.2799278 | 2.6112567 | 119 | 2 | 2005–2009 | 0.50 | M-v | 2 | MPC | 166228 | 2005 $UX_{454}$ |
| 2005 $UG_{456}$ | 16.7 | 0.15 | 20100104 | 43.11832 | 159.67706 | 179.93914 | 4.79471 | 0.2664345 | 2.6005805 | 66 | 3 | 2005–2009 | 0.53 | M-v | 3 | MPC | 166228 | 2005 $UG_{456}$ |
| 2005 $UD_{464}$ | 17.1 | 0.15 | 20100104 | 277.09275 | 102.08917 | 74.02059 | 6.95689 | 0.0785875 | 2.3848549 | 38 | 3 | 2005–2009 | 0.49 | M-v | 3 | MPC | 166228 | 2005 $UD_{464}$ |
| 2005 $UC_{469}$ | 17.0 | 0.15 | 20100104 | 132.86179 | 34.27180 | 284.11656 | 3.05887 | 0.2832847 | 2.2840096 | 51 | 7 | 1991–2009 | 0.48 | M-v | 1 | MPC | 118150 | 2005 $UC_{469}$ |
| 2005 $UK_{470}$ | 17.4 | 0.15 | 20100104 | 296.21098 | 206.45418 | 326.58818 | 3.17707 | 0.0503795 | 2.3456313 | 41 | 5 | 2003–2009 | 0.35 | M-v | 0 | MPC | 147358 | 2005 $UK_{470}$ |
| 2005 $UM_{475}$ | 15.9 | 0.15 | 20100104 | 278.18149 | 251.45734 | 241.71069 | 11.40019 | 0.2013961 | 2.6707737 | 45 | 5 | 1992–2009 | 0.55 | M-v | 1 | MPC | 122801 | 2005 $UM_{475}$ |
| 2005 $UN_{475}$ | 17.8 | 0.15 | 20100104 | 6.25760 | 184.26572 | 292.42485 | 2.37167 | 0.1012701 | 2.3098665 | 31 | 4 | 2003–2009 | 0.34 | M-v | 0 | MPC | 120823 | 2005 $UN_{475}$ |
| 2005 $UR_{475}$ | 17.1 | 0.15 | 20100104 | 52.97100 | 119.43372 | 209.14508 | 15.98103 | 0.2457204 | 2.5794538 | 58 | 4 | 2000–2009 | 0.43 | M-v | 1 | MPC | 166228 | 2005 $UR_{475}$ |
| 2005 $UV_{476}$ | 17.1 | 0.15 | 20100104 | 20.35450 | 296.95213 | 69.51710 | 3.49849 | 0.1515913 | 2.6256845 | 39 | 4 | 2001–2009 | 0.45 | M-v | 2 | MPC | 162455 | 2005 $UV_{476}$ |
| 2005 $UJ_{477}$ | 17.2 | 0.15 | 20100104 | 50.54820 | 239.30902 | 137.60723 | 2.69318 | 0.1517043 | 2.4368593 | 53 | 4 | 2001–2009 | 0.44 | M-v | 2 | MPC | 166228 | 2005 $UJ_{477}$ |
| 2005 $UQ_{478}$ | 17.8 | 0.15 | 20100104 | 281.94238 | 92.01449 | 113.12064 | 2.89399 | 0.2247464 | 2.3338878 | 45 | 4 | 2005–2009 | 0.45 | M-v | 1 | MPC | 147358 | 2005 $UQ_{478}$ |
| 2005 $UJ_{482}$ | 17.0 | 0.15 | 20100104 | 162.83395 | 48.26513 | 241.10989 | 5.02291 | 0.1821879 | 2.2409847 | 44 | 7 | 1998–2009 | 0.59 | M-v | 1 | MPC | 141832 | 2005 $UJ_{482}$ |
| 2005 $UO_{488}$ | 17.7 | 0.15 | 20100104 | 62.08766 | 60.84765 | 287.70503 | 2.79997 | 0.1928549 | 2.4550860 | 46 | 3 | 2001–2009 | 0.50 | M-v | 3 | MPC | 166228 | 2005 $UO_{488}$ |
| 2005 $UV_{489}$ | 16.9 | 0.15 | 20100104 | 18.23663 | 116.10816 | 297.27892 | 6.56080 | 0.1668311 | 2.4629074 | 59 | 3 | 2001–2009 | 0.62 | M-v | 3 | MPC | 166228 | 2005 $UV_{489}$ |
| 2005 $UE_{490}$ | 17.2 | 0.15 | 20100104 | 80.30407 | 23.20123 | 344.22513 | 6.70295 | 0.1199748 | 2.3597296 | 35 | 3 | 2005–2009 | 0.46 | M-v | 3 | MPC | 122801 | 2005 $UE_{490}$ |
| 2005 $UJ_{490}$ | 16.1 | 0.15 | 20100104 | 14.42097 | 47.85702 | 324.96803 | 6.40216 | 0.1299106 | 2.6373019 | 60 | 4 | 2001–2009 | 0.48 | M-v | 2 | MPC | 164271 | 2005 $UJ_{490}$ |
| 2005 $UM_{491}$ | 16.4 | 0.15 | 20100104 | 63.05564 | 277.01242 | 52.46705 | 11.82762 | 0.2291090 | 2.4216180 | 81 | 3 | 2005–2009 | 0.49 | M-v | 2 | MPC | 166228 | 2005 $UM_{491}$ |
| 2005 $UF_{492}$ | 17.2 | 0.15 | 20100104 | 106.92072 | 215.63639 | 129.84609 | 7.76068 | 0.1404921 | 2.3446969 | 36 | 6 | 2001–2009 | 0.50 | M-v | 1 | MPC | 118151 | 2005 $UF_{492}$ |
| 2005 $US_{492}$ | 18.8 | 0.15 | 20050927 | 339.20871 | 44.82504 | 12.04568 | 23.76611 | 0.3069994 | 2.2558279 | 14 | 1 | 33 days | 0.29 | | | MPC | | 2005 $US_{492}$ |
| 2005 $UH_{494}$ | 17.2 | 0.15 | 20100104 | 17.26953 | 347.12191 | 116.29099 | 3.55468 | 0.1564900 | 2.3372534 | 52 | 5 | 2001–2009 | 0.55 | M-v | 1 | MPC | 120823 | 2005 $UH_{494}$ |
| 2005 $UB_{495}$ | 16.6 | 0.15 | 20100104 | 113.69807 | 272.56972 | 73.22744 | 7.79068 | 0.1720201 | 2.2356943 | 46 | 4 | 2001–2009 | 0.50 | M-v | 1 | MPC | 166228 | 2005 $UB_{495}$ |
| 2005 $UK_{495}$ | 16.1 | 0.15 | 20100104 | 58.73479 | 304.62808 | 3.10737 | 11.79360 | 0.2042923 | 2.6210360 | 71 | 3 | 2005–2009 | 0.50 | M-v | 2 | MPC | 164271 | 2005 $UK_{495}$ |
| 2005 $UH_{502}$ | 15.8 | 0.15 | 20100104 | 59.90693 | 40.75534 | 265.17863 | 12.61709 | 0.2583030 | 2.6418480 | 37 | 4 | 2004–2009 | 0.64 | M-v | 1 | MPC | 163752 | 2005 $UH_{502}$ |
| 2005 $UR_{502}$ | 16.8 | 0.15 | 20100104 | 27.01251 | 313.06412 | 93.77097 | 6.10023 | 0.1438041 | 2.4153045 | 57 | 2 | 2005–2009 | 0.47 | M-v | 3 | MPC | 165470 | 2005 $UR_{502}$ |
| 2005 $UY_{504}$ | 16.6 | 0.15 | 20100104 | 341.11263 | 21.31137 | 111.73673 | 2.83833 | 0.1248105 | 2.7194138 | 35 | 5 | 2000–2009 | 0.44 | M-v | 0 | MPC | 148979 | 2005 $UY_{504}$ |
| 2005 $UO_{508}$ | 17.3 | 0.15 | 20100104 | 65.09138 | 66.38437 | 320.01370 | 1.39258 | 0.2156978 | 2.4689645 | 52 | 4 | 2001–2009 | 0.41 | M-v | 3 | MPC | 166228 | 2005 $UO_{508}$ |
| 2005 $UL_{509}$ | 17.9 | 0.15 | 20100104 | 342.62128 | 120.08410 | 15.89867 | 2.51051 | 0.1464847 | 2.4017833 | 33 | 6 | 1999–2009 | 0.38 | M-v | 1 | MPC | 109435 | 2005 $UL_{509}$ |
| 2005 $UF_{512}$ | 16.4 | 0.15 | 20100104 | 25.40048 | 120.05549 | 288.99533 | 6.16240 | 0.1111421 | 2.4630145 | 54 | 3 | 2001–2009 | 0.55 | M-v | 4 | MPC | 166229 | 2005 $UF_{512}$ |
| 2005 $UJ_{512}$ | 17.1 | 0.15 | 20100104 | 351.94420 | 202.41218 | 250.88519 | 2.47447 | 0.0960295 | 2.6031707 | 42 | 3 | 2005–2009 | 0.36 | M-v | 3 | MPC | 166229 | 2005 $UJ_{512}$ |
| 2005 $UK_{512}$ | 17.3 | 0.15 | 20100104 | 284.32647 | 284.91231 | 232.74240 | 3.91582 | 0.1972303 | 2.5564013 | 32 | 4 | 2001–2009 | 0.26 | M-v | 2 | MPC | 165471 | 2005 $UK_{512}$ |
| 2005 $UQ_{512}$ | 16.6 | 0.15 | 20100104 | 41.24291 | 302.30746 | 43.95565 | 5.96081 | 0.2550075 | 2.6249511 | 76 | 3 | 2005–2009 | 0.42 | M-v | 2 | MPC | 166229 | 2005 $UQ_{512}$ |
| 2005 $US_{525}$ | 17.3 | 0.15 | 20100104 | 56.95666 | 305.96439 | 58.63523 | 2.78105 | 0.1003334 | 2.5383312 | 42 | 3 | 2001–2009 | 0.37 | M-v | 4 | MPC | 166229 | 2005 $US_{525}$ |
| 2005 $UL_{530}$ | 16.0 | 0.15 | 20100104 | 106.94542 | 211.93645 | 139.47515 | 6.12387 | 0.0820426 | 2.6909252 | 43 | 5 | 1999–2009 | 0.28 | M-v | 0 | MPC | 165471 | 2005 $UL_{530}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 $UP_{530}$ | 17.3 | 0.15 | 20051106 | 353.34226 | 302.89998 | 112.56572 | 2.23389 | 0.1685155 | 2.3516908 | 15 | 1 | 42 days | 0.48 | | | MPC | | 2005 $UP_{530}$ |
| 2005 VJ | 17.4 | 0.15 | 20100104 | 13.07422 | 26.25953 | 25.48992 | 3.48833 | 0.1477155 | 2.5318734 | 68 | 4 | 2001–2009 | 0.37 | M-v | 2 | MPC | 166229 | 2005 VJ |
| 2005 VQ | 18.9 | 0.15 | 20100104 | 316.54791 | 184.16071 | 54.48260 | 19.12979 | 0.4886382 | 1.1255302 | 79 | 3 | 2005–2009 | 0.57 | M-v | 3 | MPC | 164271 | 2005 VQ |
| 2005 $VD_1$ | 15.8 | 0.15 | 20100104 | 22.18529 | 96.73100 | 246.31128 | 27.45844 | 0.3387410 | 2.6522823 | 116 | 3 | 2000–2009 | 0.51 | M-v | 1 | MPC | 166229 | 2005 $VD_1$ |
| 2005 $VX_1$ | 16.1 | 0.15 | 20100104 | 20.61951 | 149.55721 | 214.32964 | 33.46032 | 0.2590796 | 2.6135022 | 91 | 3 | 2005–2009 | 0.45 | M-v | 2 | MPC | 166229 | 2005 $VX_1$ |
| 2005 $VB_3$ | 16.9 | 0.15 | 20100104 | 63.84225 | 289.91296 | 92.77831 | 2.34317 | 0.1384562 | 2.3790698 | 100 | 4 | 2001–2009 | 0.53 | M-v | 2 | MPC | 119667 | 2005 $VB_3$ |
| 2005 $VJ_4$ | 16.9 | 0.15 | 20100104 | 92.78195 | 79.14827 | 335.27841 | 7.69144 | 0.1048358 | 2.2042289 | 77 | 6 | 1995–2009 | 0.46 | M-v | 1 | MPC | 148979 | 2005 $VJ_4$ |
| 2005 $VM_4$ | 17.5 | 0.15 | 20100104 | 343.25587 | 194.61847 | 232.02623 | 2.21453 | 0.2264535 | 2.6004268 | 55 | 5 | 1998–2009 | 0.54 | M-v | 2 | MPC | 166229 | 2005 $VM_4$ |
| 2005 $VA_5$ | 15.9 | 0.15 | 20100104 | 98.61250 | 67.30865 | 210.84805 | 9.90712 | 0.1898882 | 2.6381235 | 83 | 3 | 2005–2009 | 0.46 | M-v | 2 | MPC | 166229 | 2005 $VA_5$ |
| 2005 $VO_5$ | 19.8 | 0.15 | 20100104 | 184.65544 | 241.63884 | 101.24898 | 14.27159 | 0.5607077 | 2.0093770 | 81 | 2 | 2005–2008 | 0.39 | M-v | 2 | MPC | 151019 | 2005 $VO_5$ |
| 2005 $VQ_5$ | 16.0 | 0.15 | 20100104 | 134.31501 | 220.57902 | 48.65618 | 14.82620 | 0.0575231 | 2.5891299 | 77 | 5 | 2001–2009 | 0.42 | M-v | 1 | MPC | 166229 | 2005 $VQ_5$ |
| 2005 $VF_6$ | 17.1 | 0.15 | 20100104 | 17.42948 | 22.70670 | 355.21983 | 4.04591 | 0.2599937 | 2.6229324 | 81 | 3 | 2001–2009 | 0.46 | M-v | 2 | MPC | 166229 | 2005 $VF_6$ |
| 2005 $VM_6$ | 16.9 | 0.15 | 20100104 | 329.00699 | 49.02715 | 42.47307 | 12.37767 | 0.1425857 | 2.6168201 | 56 | 2 | 2005–2009 | 0.38 | M-v | 3 | MPC | 166229 | 2005 $VM_6$ |
| 2005 $VU_9$ | 17.3 | 0.15 | 20100104 | 25.82797 | 78.42387 | 286.39374 | 3.11421 | 0.2273975 | 2.5851470 | 50 | 2 | 2005–2009 | 0.51 | M-v | 3 | MPC | 164272 | 2005 $VU_9$ |
| 2005 $VR_{13}$ | 17.0 | 0.15 | 20100104 | 124.95515 | 232.02276 | 104.50389 | 6.22713 | 0.1386139 | 2.2922333 | 57 | 4 | 2005–2009 | 0.42 | M-v | 1 | MPC | 166229 | 2005 $VR_{13}$ |
| 2005 $VT_{16}$ | 17.5 | 0.15 | 20100104 | 61.69636 | 262.26146 | 116.35382 | 5.23104 | 0.2891598 | 2.3796948 | 68 | 5 | 1995–2009 | 0.48 | M-v | 1 | MPC | 96362 | 2005 $VT_{16}$ |
| 2005 $VA_{17}$ | 16.0 | 0.15 | 20100104 | 14.84394 | 120.54938 | 243.66102 | 26.26992 | 0.2969480 | 2.6323387 | 86 | 4 | 2002–2009 | 0.51 | M-v | 2 | MPC | 162456 | 2005 $VA_{17}$ |
| 2005 $VE_{21}$ | 17.2 | 0.15 | 20100104 | 66.91488 | 216.78884 | 199.46307 | 6.40410 | 0.0909635 | 2.2740435 | 70 | 6 | 1998–2009 | 0.38 | M-v | 0 | MPC | 148979 | 2005 $VE_{21}$ |
| 2005 $VY_{29}$ | 16.4 | 0.15 | 20100104 | 343.70188 | 45.21888 | 69.40127 | 8.72597 | 0.0715058 | 2.4408004 | 69 | 4 | 2001–2009 | 0.44 | M-v | 2 | MPC | 122802 | 2005 $VY_{29}$ |
| 2005 $VZ_{30}$ | 16.4 | 0.15 | 20100104 | 321.00954 | 94.43143 | 66.32315 | 5.87233 | 0.2284608 | 2.4249115 | 80 | 5 | 1999–2009 | 0.58 | M-v | 1 | MPC | 166229 | 2005 $VZ_{30}$ |
| 2005 $VT_{31}$ | 17.2 | 0.15 | 20100104 | 338.12393 | 37.44550 | 78.69999 | 3.47117 | 0.1277104 | 2.4775377 | 41 | 3 | 2005–2009 | 0.22 | M-v | 2 | MPC | 120439 | 2005 $VT_{31}$ |
| 2005 $VO_{32}$ | 15.6 | 0.15 | 20100104 | 45.53274 | 116.99172 | 236.74632 | 13.98637 | 0.1239032 | 2.6312081 | 68 | 3 | 2005–2009 | 0.47 | M-v | 2 | MPC | 166230 | 2005 $VO_{32}$ |
| 2005 $VZ_{33}$ | 17.0 | 0.15 | 20100104 | 40.54731 | 336.94992 | 86.81244 | 3.53573 | 0.1874216 | 2.3876553 | 71 | 3 | 2001–2009 | 0.42 | M-v | 3 | MPC | 166230 | 2005 $VZ_{33}$ |
| 2005 $VY_{38}$ | 16.3 | 0.15 | 20100104 | 5.04661 | 27.93674 | 71.00803 | 12.75049 | 0.1638145 | 2.4207984 | 108 | 5 | 2001–2009 | 0.49 | M-v | 1 | MPC | 164272 | 2005 $VY_{38}$ |
| 2005 $VE_{40}$ | 18.2 | 0.15 | 20100104 | 328.20766 | 293.67288 | 230.64959 | 2.68964 | 0.1424585 | 2.2833768 | 31 | 4 | 2004–2009 | 0.26 | M-v | 1 | MPC | 121610 | 2005 $VE_{40}$ |
| 2005 $VR_{41}$ | 16.8 | 0.15 | 20100104 | 33.90667 | 268.41643 | 117.54147 | 4.82380 | 0.2035286 | 2.5491246 | 36 | 3 | 2001–2009 | 0.53 | M-v | 3 | MPC | 166230 | 2005 $VR_{41}$ |
| 2005 $VF_{42}$ | 16.4 | 0.15 | 20100104 | 103.13855 | 244.03319 | 120.05468 | 6.20000 | 0.1827202 | 2.2990879 | 83 | 6 | 2001–2009 | 0.48 | M-v | 1 | MPC | 160849 | 2005 $VF_{42}$ |
| 2005 $VV_{42}$ | 16.8 | 0.15 | 20100104 | 38.52311 | 315.99956 | 105.22469 | 4.64120 | 0.1658357 | 2.3702083 | 64 | 5 | 2000–2009 | 0.50 | M-v | 1 | MPC | 166230 | 2005 $VV_{42}$ |
| 2005 $VO_{43}$ | 16.0 | 0.15 | 20100104 | 359.19388 | 1.38817 | 52.18694 | 9.93240 | 0.1212864 | 2.6341610 | 93 | 4 | 2001–2009 | 0.54 | M-v | 2 | MPC | 166230 | 2005 $VO_{43}$ |
| 2005 $VD_{49}$ | 17.8 | 0.15 | 20100104 | 16.30363 | 182.13683 | 216.47127 | 2.07116 | 0.1820764 | 2.5408063 | 49 | 3 | 2001–2009 | 0.34 | M-v | 3 | MPC | 166230 | 2005 $VD_{49}$ |
| 2005 $VF_{49}$ | 16.4 | 0.15 | 20100104 | 333.22800 | 161.46040 | 272.37178 | 10.91127 | 0.1457862 | 2.6141207 | 38 | 3 | 2001–2009 | 0.63 | M-v | 3 | MPC | 96381 | 2005 $VF_{49}$ |
| 2005 $VK_{49}$ | 15.0 | 0.15 | 20100104 | 331.64204 | 121.99456 | 300.33683 | 8.73054 | 0.0637912 | 3.1054033 | 77 | 6 | 1998–2009 | 0.60 | M-v | 1 | MPC | 164272 | 2005 $VK_{49}$ |
| 2005 $VQ_{50}$ | 17.1 | 0.15 | 20100104 | 26.00403 | 261.12974 | 153.88601 | 7.52758 | 0.1059794 | 2.4076897 | 53 | 5 | 2001–2009 | 0.55 | M-v | 1 | MPC | 121848 | 2005 $VQ_{50}$ |
| 2005 $VF_{68}$ | 17.6 | 0.15 | 20100104 | 336.70677 | 16.36984 | 86.24488 | 4.11965 | 0.1864984 | 2.5264058 | 57 | 3 | 2001–2009 | 0.39 | M-v | 3 | MPC | 166230 | 2005 $VF_{68}$ |
| 2005 $VT_{68}$ | 16.8 | 0.15 | 20100104 | 147.07446 | 181.40516 | 98.99519 | 3.75549 | 0.1440876 | 2.4600034 | 52 | 7 | 1996–2009 | 0.38 | M-v | 0 | MPC | 165473 | 2005 $VT_{68}$ |
| 2005 $VX_{69}$ | 16.9 | 0.15 | 20100104 | 260.27022 | 28.57458 | 178.87835 | 3.86010 | 0.1868196 | 2.4243209 | 92 | 5 | 2003–2009 | 0.55 | M-v | 1 | MPC | 147359 | 2005 $VX_{69}$ |
| 2005 $VP_{71}$ | 17.6 | 0.15 | 20100104 | 348.30722 | 23.81845 | 93.23786 | 4.32277 | 0.1359316 | 2.4281711 | 51 | 5 | 2003–2009 | 0.36 | M-v | 0 | MPC | 141223 | 2005 $VP_{71}$ |
| 2005 $VC_{76}$ | 15.9 | 0.15 | 20100104 | 353.55511 | 159.95014 | 241.49706 | 13.21635 | 0.0705802 | 2.5663330 | 62 | 4 | 2001–2009 | 0.61 | M-v | 2 | MPC | 164272 | 2005 $VC_{76}$ |
| 2005 $VV_{76}$ | 16.0 | 0.15 | 20100104 | 19.05152 | 214.24572 | 242.93945 | 24.40515 | 0.2096483 | 2.3368524 | 86 | 4 | 1998–2009 | 0.53 | M-v | 1 | MPC | 160849 | 2005 $VV_{76}$ |
| 2005 $VF_{77}$ | 16.5 | 0.15 | 20100104 | 311.58003 | 134.95136 | 322.55983 | 7.84851 | 0.1562931 | 2.5837291 | 44 | 4 | 2001–2009 | 0.52 | M-v | 2 | MPC | 162458 | 2005 $VF_{77}$ |
| 2005 $VJ_{78}$ | 15.5 | 0.15 | 20100104 | 49.90988 | 41.12500 | 313.42133 | 3.48498 | 0.1767810 | 2.5787836 | 118 | 4 | 2001–2009 | 0.42 | M-v | 2 | MPC | 166230 | 2005 $VJ_{78}$ |
| 2005 $VK_{81}$ | 17.1 | 0.15 | 20100104 | 111.48749 | 288.28198 | 62.97179 | 5.76954 | 0.0756747 | 2.3782865 | 47 | 4 | 2001–2009 | 0.30 | M-v | 2 | MPC | 166230 | 2005 $VK_{81}$ |
| 2005 $VU_{82}$ | 16.9 | 0.15 | 20100104 | 16.86452 | 359.39677 | 38.88413 | 6.41967 | 0.2398943 | 2.5619694 | 139 | 5 | 2001–2009 | 0.46 | M-v | 2 | MPC | 166230 | 2005 $VU_{82}$ |
| 2005 $VD_{83}$ | 16.3 | 0.15 | 20100104 | 48.08939 | 114.55114 | 212.29885 | 10.69881 | 0.2083916 | 2.6730437 | 45 | 4 | 1996–2009 | 0.41 | M-v | 1 | MPC | 163756 | 2005 $VD_{83}$ |
| 2005 $VM_{84}$ | 17.9 | 0.15 | 20100104 | 22.46957 | 137.69449 | 248.35199 | 2.69364 | 0.1984871 | 2.5415776 | 25 | 3 | 2001–2009 | 0.31 | M-v | 3 | MPC | 166230 | 2005 $VM_{84}$ |
| 2005 $VO_{85}$ | 17.3 | 0.15 | 20100104 | 63.57705 | 102.01757 | 198.12026 | 5.45619 | 0.2787084 | 2.6768710 | 47 | 5 | 2000–2009 | 0.32 | M-v | 0 | MPC | 166230 | 2005 $VO_{85}$ |
| 2005 $VJ_{89}$ | 17.2 | 0.15 | 20100104 | 323.66012 | 308.07854 | 139.63971 | 3.98155 | 0.0857860 | 2.6207850 | 43 | 4 | 1994–2009 | 0.37 | M-v | 1 | MPC | 164273 | 2005 $VJ_{89}$ |
| 2005 $VV_{89}$ | 16.7 | 0.15 | 20100104 | 209.23708 | 330.04000 | 253.20211 | 16.03809 | 0.0814884 | 2.5460645 | 30 | 2 | 2005–2009 | 0.24 | M-v | 3 | MPC | 165473 | 2005 $VV_{89}$ |
| 2005 $VW_{92}$ | 17.1 | 0.15 | 20100104 | 337.35281 | 350.05374 | 119.84423 | 3.61693 | 0.1565417 | 2.5179068 | 48 | 6 | 2000–2009 | 0.52 | M-v | 1 | MPC | 166230 | 2005 $VW_{92}$ |
| 2005 $VG_{97}$ | 17.3 | 0.15 | 20100104 | 347.51335 | 194.87140 | 230.51908 | 11.62398 | 0.1504344 | 2.5897723 | 35 | 2 | 2005–2009 | 0.22 | M-v | 2 | MPC | 166231 | 2005 $VG_{97}$ |
| 2005 $VZ_{97}$ | 16.0 | 0.15 | 20100104 | 53.91945 | 71.60980 | 258.95061 | 23.00931 | 0.2924835 | 2.5748686 | 78 | 3 | 2001–2009 | 0.53 | M-v | 3 | MPC | 166231 | 2005 $VZ_{97}$ |
| 2005 $VY_{102}$ | 17.3 | 0.15 | 20100104 | 54.70060 | 318.42393 | 55.19320 | 7.04646 | 0.1471636 | 2.3823217 | 49 | 2 | 2005–2009 | 0.33 | M-v | 2 | MPC | 166231 | 2005 $VY_{102}$ |
| 2005 $VO_{107}$ | 18.4 | 0.15 | 20100104 | 3.44945 | 180.39127 | 296.49222 | 2.54943 | 0.1536875 | 2.3538522 | 21 | 3 | 2001–2009 | 0.25 | M-v | 3 | MPC | 103793 | 2005 $VO_{107}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 $VJ_{110}$ | 16.9 | 0.15 | 20100104 | 262.83269 | 115.30613 | 71.45778 | 2.43354 | 0.1350544 | 2.4414960 | 72 | 5 | 1999–2009 | 0.50 | M-v | 1 | MPC | 166231 | 2005 $VJ_{110}$ |
| 2005 $VR_{110}$ | 17.2 | 0.15 | 20100104 | 326.91801 | 29.10682 | 56.57902 | 4.66339 | 0.1527301 | 2.6051783 | 47 | 2 | 2005–2009 | 0.31 | M-v | 3 | MPC | 163758 | 2005 $VR_{110}$ |
| 2005 $VS_{111}$ | 16.7 | 0.15 | 20100104 | 71.20585 | 43.81044 | 285.61237 | 3.56963 | 0.2369830 | 2.5645577 | 53 | 3 | 2005–2009 | 0.37 | M-v | 3 | MPC | 165474 | 2005 $VS_{111}$ |
| 2005 $VW_{112}$ | 17.1 | 0.15 | 20100104 | 25.98288 | 54.76183 | 309.80319 | 1.11314 | 0.2191692 | 2.6405672 | 78 | 6 | 1996–2009 | 0.41 | M-v | 0 | MPC | 164273 | 2005 $VW_{112}$ |
| 2005 $VP_{113}$ | 16.7 | 0.15 | 20100104 | 39.67378 | 14.67917 | 45.85148 | 8.27246 | 0.0977373 | 2.4073073 | 50 | 5 | 2001–2009 | 0.55 | M-v | 1 | MPC | 122803 | 2005 $VP_{113}$ |
| 2005 $VA_{114}$ | 17.5 | 0.15 | 20100104 | 326.99291 | 240.55680 | 266.21397 | 0.54586 | 0.1297730 | 2.4152683 | 40 | 5 | 2001–2009 | 0.38 | M-v | 0 | MPC | 120824 | 2005 $VA_{114}$ |
| 2005 $VF_{114}$ | 17.1 | 0.15 | 20100104 | 21.07841 | 136.88596 | 247.15112 | 1.18581 | 0.0964385 | 2.6330952 | 60 | 4 | 2004–2009 | 0.35 | M-v | 0 | MPC | 166231 | 2005 $VF_{114}$ |
| 2005 $VP_{114}$ | 17.1 | 0.15 | 20100104 | 43.72296 | 300.61222 | 50.60278 | 13.54272 | 0.3029424 | 2.5594928 | 58 | 2 | 2005–2009 | 0.49 | M-v | 3 | MPC | 166231 | 2005 $VP_{114}$ |
| 2005 $VL_{118}$ | 16.5 | 0.15 | 20100104 | 21.55936 | 92.51937 | 288.00653 | 26.51524 | 0.4090805 | 2.5816762 | 35 | 3 | 2001–2009 | 0.55 | M-v | 3 | MPC | 96422 | 2005 $VL_{118}$ |
| 2005 $VP_{118}$ | 18.9 | 0.15 | 20100104 | 113.83335 | 123.16987 | 111.17270 | 19.28843 | 0.7030370 | 2.0957343 | 32 | 4 | 2005–2009 | 0.09 | M-v | 1 | MPC | 159766 | 2005 $VP_{118}$ |
| 2005 $VX_{118}$ | 16.7 | 0.15 | 20100104 | 129.80132 | 345.87183 | 349.41204 | 4.24987 | 0.2553372 | 2.2864325 | 48 | 4 | 2005–2009 | 0.38 | M-v | 1 | MPC | 148980 | 2005 $VX_{118}$ |
| 2005 $VY_{118}$ | 15.9 | 0.15 | 20100104 | 82.99651 | 78.20306 | 286.13172 | 20.80912 | 0.2003323 | 2.3228685 | 53 | 4 | 1995–2009 | 0.45 | M-v | 3 | MPC | 166231 | 2005 $VY_{118}$ |
| 2005 $VF_{120}$ | 15.6 | 0.15 | 20100104 | 13.47800 | 118.69077 | 267.74434 | 10.32863 | 0.3030625 | 2.6573208 | 114 | 3 | 2002–2009 | 0.45 | M-v | 2 | MPC | 166231 | 2005 $VF_{120}$ |
| 2005 $VQ_{123}$ | 18.1 | 0.15 | 20100104 | 345.46665 | 190.33753 | 313.36152 | 1.80371 | 0.1412483 | 2.3798526 | 29 | 4 | 1999–2009 | 0.44 | M-v | 1 | MPC | 109446 | 2005 $VQ_{123}$ |
| 2005 $VB_{124}$ | 16.8 | 0.15 | 20100104 | 305.62929 | 91.69252 | 81.37532 | 7.97309 | 0.0475841 | 2.3413757 | 59 | 6 | 2000–2009 | 0.46 | M-v | 1 | MPC | 166231 | 2005 $VB_{124}$ |
| 2005 $VW_{124}$ | 17.5 | 0.15 | 20100104 | 248.32410 | 3.01889 | 228.41802 | 2.84935 | 0.1749653 | 2.3083887 | 67 | 4 | 2005–2009 | 0.45 | M-v | 1 | MPC | 147360 | 2005 $VW_{124}$ |
| 2005 $VC_{125}$ | 16.7 | 0.15 | 20100104 | 36.22984 | 117.96078 | 273.95665 | 12.16314 | 0.1792897 | 2.5837341 | 34 | 2 | 2005–2009 | 0.47 | M-v | 3 | MPC | 165475 | 2005 $VC_{125}$ |
| 2005 $VG_{125}$ | 16.3 | 0.15 | 20100104 | 320.36047 | 228.52062 | 298.36341 | 12.24054 | 0.1971417 | 2.6415580 | 57 | 4 | 2005–2009 | 0.47 | M-v | 1 | MPC | 146322 | 2005 $VG_{125}$ |
| 2005 $VY_{127}$ | 17.5 | 0.15 | 20100104 | 187.41357 | 159.63507 | 72.13844 | 3.50714 | 0.1374002 | 2.3860623 | 41 | 4 | 2004–2009 | 0.33 | M-v | 1 | MPC | 160850 | 2005 $VY_{127}$ |
| 2005 $VP_{129}$ | 18.1 | 0.15 | 20100104 | 13.49979 | 262.22924 | 166.26998 | 6.09254 | 0.1718149 | 2.4002182 | 23 | 4 | 2001–2009 | 0.20 | M-v | 0 | MPC | 121613 | 2005 $VP_{129}$ |
| 2005 WM | 17.4 | 0.15 | 20100104 | 4.11333 | 350.84573 | 65.94153 | 3.85581 | 0.2044356 | 2.5701953 | 76 | 4 | 1994–2009 | 0.43 | M-v | 2 | MPC | 166231 | 2005 WM |
| 2005 WQ | 17.4 | 0.15 | 20100104 | 34.15072 | 358.28416 | 70.77984 | 2.29987 | 0.1665675 | 2.4028767 | 68 | 4 | 2001–2009 | 0.46 | M-v | 2 | MPC | 166231 | 2005 WQ |
| 2005 $WA_1$ | 21.6 | 0.15 | 20100104 | 143.29344 | 241.49499 | 247.45246 | 10.94018 | 0.5858180 | 2.0064727 | 118 | 1 | 195 days | 0.63 | M-v | 3 | MPC | 97976 | 2005 $WA_1$ |
| 2005 $WR_2$ | 19.3 | 0.15 | 20100104 | 96.53322 | 49.46509 | 282.45181 | 7.85745 | 0.5463567 | 1.5317450 | 121 | 3 | 2005–2008 | 0.37 | M-v | 1 | MPC | 133471 | 2005 $WR_2$ |
| 2005 $WE_3$ | 16.6 | 0.15 | 20100104 | 18.49299 | 197.46807 | 173.29753 | 8.26548 | 0.2228738 | 2.6169960 | 60 | 3 | 2005–2009 | 0.53 | M-v | 2 | MPC | 166231 | 2005 $WE_3$ |
| 2005 $WK_4$ | 20.1 | 0.15 | 20100104 | 245.97988 | 74.31387 | 138.28993 | 9.83290 | 0.2373143 | 1.0117698 | 111 | 5 | 2005–2009 | 0.42 | M-v | 3 | MPC | 164273 | 2005 $WK_4$ |
| 2005 $WZ_5$ | 16.4 | 0.15 | 20100104 | 25.75936 | 319.27804 | 53.72974 | 3.05026 | 0.1953654 | 2.6093767 | 105 | 4 | 2005–2009 | 0.41 | M-v | 1 | MPC | 166231 | 2005 $WZ_5$ |
| 2005 $WE_6$ | 17.1 | 0.15 | 20100104 | 10.02679 | 130.88113 | 252.25486 | 5.03098 | 0.2708007 | 2.6269725 | 78 | 3 | 2001–2009 | 0.39 | M-v | 2 | MPC | 161986 | 2005 $WE_6$ |
| 2005 $WV_6$ | 16.3 | 0.15 | 20100104 | 36.91114 | 109.90100 | 242.10462 | 10.33516 | 0.2142887 | 2.6261586 | 90 | 2 | 2005–2009 | 0.49 | M-v | 3 | MPC | 166231 | 2005 $WV_6$ |
| 2005 $WM_7$ | 17.0 | 0.15 | 20100104 | 9.73506 | 60.40052 | 340.83524 | 2.95322 | 0.2607486 | 2.5659326 | 123 | 3 | 2001–2009 | 0.54 | M-v | 2 | MPC | 166231 | 2005 $WM_7$ |
| 2005 $WN_8$ | 18.1 | 0.15 | 20100104 | 30.86417 | 135.10424 | 242.39731 | 11.97489 | 0.2588462 | 2.5473319 | 51 | 2 | 2005–2009 | 0.33 | M-v | 3 | MPC | 165475 | 2005 $WN_8$ |
| 2005 $WX_{10}$ | 18.6 | 0.15 | 20100104 | 23.94434 | 185.46624 | 227.00868 | 1.34840 | 0.1796896 | 2.4768649 | 29 | 4 | 1997–2009 | 0.33 | M-v | 3 | MPC | 166231 | 2005 $WX_{10}$ |
| 2005 $WO_{15}$ | 17.0 | 0.15 | 20100104 | 7.60666 | 344.87743 | 63.45529 | 0.10588 | 0.1833932 | 2.5873869 | 97 | 3 | 1998–2009 | 0.44 | M-v | 3 | MPC | 166231 | 2005 $WO_{15}$ |
| 2005 $WU_{15}$ | 17.0 | 0.15 | 20100104 | 58.84217 | 88.70078 | 252.63552 | 2.68806 | 0.2809556 | 2.5455977 | 59 | 3 | 2001–2009 | 0.39 | M-v | 4 | MPC | 166231 | 2005 $WU_{15}$ |
| 2005 $WG_{16}$ | 16.8 | 0.15 | 20100104 | 330.53416 | 233.31361 | 248.94528 | 10.99088 | 0.1956102 | 2.5255764 | 67 | 3 | 2001–2009 | 0.40 | M-v | 3 | MPC | 166232 | 2005 $WG_{16}$ |
| 2005 $WL_{16}$ | 16.6 | 0.15 | 20100104 | 82.40765 | 82.35545 | 249.00045 | 7.89912 | 0.1998378 | 2.5299778 | 51 | 2 | 2005–2009 | 0.46 | M-v | 4 | MPC | 165476 | 2005 $WL_{16}$ |
| 2005 $WC_{18}$ | 16.4 | 0.15 | 20100104 | 37.53611 | 144.99570 | 250.20130 | 8.05170 | 0.0816879 | 2.5324107 | 76 | 4 | 2001–2009 | 0.43 | M-v | 3 | MPC | 166232 | 2005 $WC_{18}$ |
| 2005 $WG_{18}$ | 17.0 | 0.15 | 20100104 | 316.71691 | 320.00155 | 250.04498 | 3.47560 | 0.0602799 | 2.2079798 | 69 | 6 | 2003–2009 | 0.43 | M-v | 0 | MPC | 147360 | 2005 $WG_{18}$ |
| 2005 $WM_{18}$ | 16.6 | 0.15 | 20100104 | 36.73552 | 319.36838 | 72.70695 | 4.19335 | 0.1669392 | 2.5274991 | 109 | 6 | 1995–2009 | 0.39 | M-v | 2 | MPC | 166232 | 2005 $WM_{18}$ |
| 2005 $WE_{19}$ | 16.6 | 0.15 | 20100104 | 39.24883 | 283.67670 | 97.30910 | 17.25571 | 0.2281911 | 2.5243349 | 62 | 3 | 2001–2009 | 0.60 | M-v | 3 | MPC | 166232 | 2005 $WE_{19}$ |
| 2005 $WF_{19}$ | 17.0 | 0.15 | 20100104 | 73.63262 | 255.97614 | 131.84221 | 7.72688 | 0.2847844 | 2.3495731 | 43 | 5 | 1999–2009 | 0.41 | M-v | 1 | MPC | 118156 | 2005 $WF_{19}$ |
| 2005 $WG_{21}$ | 17.9 | 0.15 | 20100104 | 338.90852 | 74.71382 | 23.48991 | 2.62378 | 0.0878009 | 2.5332667 | 23 | 2 | 2005–2009 | 0.25 | M-v | 4 | MPC | 165476 | 2005 $WG_{21}$ |
| 2005 $WC_{22}$ | 17.5 | 0.15 | 20100104 | 0.85270 | 150.64233 | 257.16591 | 5.16857 | 0.2699107 | 2.6098487 | 65 | 2 | 2005–2009 | 0.40 | M-v | 2 | MPC | 166232 | 2005 $WC_{22}$ |
| 2005 $WS_{24}$ | 17.4 | 0.15 | 20100104 | 29.10139 | 9.42150 | 2.33143 | 2.22151 | 0.1994473 | 2.6086426 | 67 | 3 | 2005–2009 | 0.34 | M-v | 2 | MPC | 166232 | 2005 $WS_{24}$ |
| 2005 $WJ_{25}$ | 16.9 | 0.15 | 20100104 | 119.44665 | 251.65965 | 44.33480 | 4.93117 | 0.1060973 | 2.5813491 | 50 | 4 | 1999–2009 | 0.32 | M-v | 1 | MPC | 165476 | 2005 $WJ_{25}$ |
| 2005 $WN_{25}$ | 16.1 | 0.15 | 20100104 | 98.26066 | 248.43128 | 56.56463 | 11.69025 | 0.1902353 | 2.5961402 | 58 | 2 | 2005–2009 | 0.41 | M-v | 3 | MPC | 166232 | 2005 $WN_{25}$ |
| 2005 $WU_{25}$ | 17.4 | 0.15 | 20100104 | 5.01506 | 187.58433 | 290.17932 | 2.68287 | 0.1310127 | 2.3756035 | 42 | 4 | 2001–2009 | 0.39 | M-v | 2 | MPC | 147360 | 2005 $WU_{25}$ |
| 2005 $WE_{26}$ | 17.5 | 0.15 | 20100104 | 351.78333 | 29.74976 | 41.22823 | 4.60407 | 0.1891768 | 2.5959460 | 55 | 3 | 2001–2009 | 0.31 | M-v | 2 | MPC | 166232 | 2005 $WE_{26}$ |
| 2005 $WG_{26}$ | 17.4 | 0.15 | 20100104 | 16.55274 | 76.16791 | 299.03235 | 2.49186 | 0.1715238 | 2.6805159 | 39 | 3 | 2002–2009 | 0.30 | M-v | 2 | MPC | 162460 | 2005 $WG_{26}$ |
| 2005 $WS_{26}$ | 16.4 | 0.15 | 20100104 | 108.08608 | 61.28473 | 253.58798 | 13.08883 | 0.1107596 | 2.5440867 | 27 | 2 | 2005–2009 | 0.33 | M-v | 4 | MPC | 165476 | 2005 $WS_{26}$ |
| 2005 $WD_{27}$ | 17.6 | 0.15 | 20100104 | 53.61527 | 352.38341 | 20.37086 | 1.86481 | 0.1485922 | 2.5137034 | 31 | 2 | 2005–2009 | 0.36 | M-v | 5 | MPC | 165476 | 2005 $WD_{27}$ |
| 2005 $WL_{27}$ | 16.6 | 0.15 | 20100104 | 346.84870 | 181.81023 | 261.54439 | 3.49567 | 0.0483168 | 2.5632043 | 72 | 6 | 2001–2009 | 0.41 | M-v | 1 | MPC | 166232 | 2005 $WL_{27}$ |
| 2005 $WN_{27}$ | 17.0 | 0.15 | 20100104 | 42.03406 | 337.24140 | 45.07308 | 3.73448 | 0.1756004 | 2.5227982 | 62 | 3 | 2001–2009 | 0.44 | M-v | 4 | MPC | 166232 | 2005 $WN_{27}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 $WW_{29}$ | 17.1 | 0.15 | 20100104 | 45.01034 | 64.76882 | 296.23406 | 2.14519 | 0.2644221 | 2.5538460 | 74 | 3 | 2001–2009 | 0.44 | M-v | 3 | MPC | 166232 | 2005 $WW_{29}$ |
| 2005 $WP_{31}$ | 16.4 | 0.15 | 20100104 | 43.96508 | 312.67149 | 62.49599 | 7.22844 | 0.2251323 | 2.5355444 | 94 | 3 | 2001–2009 | 0.45 | M-v | 3 | MPC | 166232 | 2005 $WP_{31}$ |
| 2005 $WS_{31}$ | 16.6 | 0.15 | 20100104 | 314.29071 | 120.78060 | 329.17723 | 1.29289 | 0.0361769 | 2.7209005 | 67 | 5 | 2002–2009 | 0.29 | M-v | 0 | MPC | 166232 | 2005 $WS_{31}$ |
| 2005 $WD_{32}$ | 17.2 | 0.15 | 20100104 | 294.68678 | 136.11992 | 52.66494 | 2.13966 | 0.1515412 | 2.4165989 | 44 | 4 | 2003–2009 | 0.34 | M-v | 1 | MPC | 96460 | 2005 $WD_{32}$ |
| 2005 $WE_{33}$ | 16.2 | 0.15 | 20100104 | 18.31166 | 338.37263 | 49.67699 | 6.07520 | 0.1684706 | 2.6022967 | 129 | 5 | 2000–2009 | 0.42 | M-v | 1 | MPC | 166232 | 2005 $WE_{33}$ |
| 2005 $WG_{33}$ | 16.0 | 0.15 | 20100104 | 84.28387 | 60.91304 | 262.13807 | 12.49253 | 0.2059504 | 2.5852917 | 42 | 2 | 2005–2009 | 0.41 | M-v | 3 | MPC | 165477 | 2005 $WG_{33}$ |
| 2005 $WM_{33}$ | 17.6 | 0.15 | 20100104 | 14.02894 | 353.76750 | 60.59921 | 6.76467 | 0.2279577 | 2.5535966 | 68 | 2 | 2005–2009 | 0.36 | M-v | 2 | MPC | 166232 | 2005 $WM_{33}$ |
| 2005 $WQ_{33}$ | 16.9 | 0.15 | 20100104 | 37.73961 | 153.25473 | 278.49116 | 3.76523 | 0.1680224 | 2.4068525 | 67 | 4 | 2001–2009 | 0.41 | M-v | 2 | MPC | 164274 | 2005 $WQ_{33}$ |
| 2005 $WB_{35}$ | 17.2 | 0.15 | 20100104 | 301.35619 | 52.75206 | 80.23045 | 1.81258 | 0.0941619 | 2.5824832 | 35 | 4 | 1997–2009 | 0.36 | M-v | 1 | MPC | 165477 | 2005 $WB_{35}$ |
| 2005 $WG_{35}$ | 17.6 | 0.15 | 20100104 | 349.37924 | 45.19636 | 80.53369 | 2.37607 | 0.1325418 | 2.4154775 | 42 | 5 | 2001–2009 | 0.36 | M-v | 0 | MPC | 120824 | 2005 $WG_{35}$ |
| 2005 $WT_{35}$ | 16.6 | 0.15 | 20100104 | 24.28578 | 142.68491 | 245.11097 | 4.05606 | 0.2294717 | 2.5840093 | 137 | 2 | 2005–2009 | 0.48 | M-v | 3 | MPC | 166232 | 2005 $WT_{35}$ |
| 2005 $WV_{35}$ | 16.3 | 0.15 | 20100104 | 39.72920 | 126.52336 | 239.39415 | 5.07832 | 0.0627613 | 2.6698938 | 41 | 3 | 1998–2009 | 0.33 | M-v | 2 | MPC | 163763 | 2005 $WV_{35}$ |
| 2005 $WY_{35}$ | 17.6 | 0.15 | 20100104 | 37.41862 | 288.40258 | 100.17128 | 2.77966 | 0.1591275 | 2.5406541 | 35 | 3 | 2002–2009 | 0.37 | M-v | 4 | MPC | 165477 | 2005 $WY_{35}$ |
| 2005 $WA_{36}$ | 17.0 | 0.15 | 20100104 | 127.55925 | 256.24817 | 79.86155 | 8.07744 | 0.1203221 | 2.3740705 | 41 | 4 | 2001–2009 | 0.46 | M-v | 2 | MPC | 143243 | 2005 $WA_{36}$ |
| 2005 $WU_{38}$ | 16.2 | 0.15 | 20100104 | 19.50879 | 323.28199 | 87.94428 | 12.78163 | 0.0679564 | 2.5951909 | 63 | 4 | 2001–2009 | 0.41 | M-v | 2 | MPC | 166232 | 2005 $WU_{38}$ |
| 2005 $WV_{38}$ | 16.5 | 0.15 | 20100104 | 90.69712 | 233.73239 | 107.35463 | 6.05953 | 0.2723558 | 2.4675468 | 36 | 4 | 2001–2009 | 0.47 | M-v | 1 | MPC | 166232 | 2005 $WV_{38}$ |
| 2005 $WV_{39}$ | 17.4 | 0.15 | 20100104 | 321.30385 | 90.47376 | 69.15293 | 2.51754 | 0.1310255 | 2.4136782 | 31 | 4 | 2001–2009 | 0.29 | M-v | 2 | MPC | 119243 | 2005 $WV_{39}$ |
| 2005 $WH_{40}$ | 17.2 | 0.15 | 20100104 | 1.26528 | 341.08438 | 74.32633 | 3.81635 | 0.2274465 | 2.6103573 | 54 | 3 | 2000–2009 | 0.39 | M-v | 2 | MPC | 166232 | 2005 $WH_{40}$ |
| 2005 $WK_{40}$ | 17.0 | 0.15 | 20100104 | 1.26108 | 185.36622 | 253.07245 | 10.09843 | 0.1601858 | 2.5407186 | 45 | 3 | 2001–2009 | 0.31 | M-v | 3 | MPC | 166232 | 2005 $WK_{40}$ |
| 2005 $WW_{42}$ | 18.1 | 0.15 | 20100104 | 8.31588 | 344.28943 | 57.82724 | 4.91654 | 0.2306051 | 2.6002535 | 55 | 2 | 2005–2009 | 0.40 | M-v | 2 | MPC | 166232 | 2005 $WW_{42}$ |
| 2005 $WP_{43}$ | 16.3 | 0.15 | 20100104 | 265.27888 | 99.94661 | 65.15506 | 8.63910 | 0.1150980 | 2.6348894 | 60 | 4 | 2001–2009 | 0.41 | M-v | 1 | MPC | 164274 | 2005 $WP_{43}$ |
| 2005 $WJ_{45}$ | 17.2 | 0.15 | 20100104 | 44.49416 | 290.57554 | 64.36189 | 11.31585 | 0.3351793 | 2.5360712 | 84 | 3 | 2001–2009 | 0.48 | M-v | 3 | MPC | 166232 | 2005 $WJ_{45}$ |
| 2005 $WY_{48}$ | 17.1 | 0.15 | 20100104 | 33.31231 | 308.73135 | 63.27535 | 4.71600 | 0.2390317 | 2.5977754 | 51 | 3 | 2005–2009 | 0.53 | M-v | 3 | MPC | 166233 | 2005 $WY_{48}$ |
| 2005 $WA_{50}$ | 17.5 | 0.15 | 20100104 | 25.32796 | 333.30289 | 66.61474 | 6.15932 | 0.0981209 | 2.5340719 | 41 | 2 | 2005–2009 | 0.31 | M-v | 4 | MPC | 166233 | 2005 $WA_{50}$ |
| 2005 $WW_{50}$ | 17.1 | 0.15 | 20100104 | 213.40954 | 11.73898 | 248.80444 | 4.09121 | 0.1150005 | 2.3363334 | 45 | 5 | 2001–2009 | 0.28 | M-v | 1 | MPC | 147361 | 2005 $WW_{50}$ |
| 2005 $WB_{51}$ | 16.1 | 0.15 | 20100104 | 26.11059 | 328.05518 | 74.07321 | 6.73367 | 0.1392457 | 2.5641059 | 98 | 5 | 2001–2009 | 0.52 | M-v | 2 | MPC | 166233 | 2005 $WB_{51}$ |
| 2005 $WP_{51}$ | 16.8 | 0.15 | 20100104 | 34.14324 | 296.45036 | 64.25533 | 3.38426 | 0.2216823 | 2.6513617 | 82 | 5 | 2002–2009 | 0.36 | M-v | 1 | MPC | 166233 | 2005 $WP_{51}$ |
| 2005 $WS_{51}$ | 16.8 | 0.15 | 20100104 | 31.45710 | 320.22835 | 71.08833 | 7.66005 | 0.1331221 | 2.5777944 | 35 | 2 | 2005–2009 | 0.33 | M-v | 3 | MPC | 165478 | 2005 $WS_{51}$ |
| 2005 $WJ_{53}$ | 17.0 | 0.15 | 20100104 | 342.67618 | 356.58466 | 79.21554 | 3.02647 | 0.1428761 | 2.6006572 | 52 | 3 | 2005–2009 | 0.29 | M-v | 2 | MPC | 161990 | 2005 $WJ_{53}$ |
| 2005 $WU_{53}$ | 16.6 | 0.15 | 20100104 | 252.44725 | 109.51617 | 72.72358 | 8.11728 | 0.1363143 | 2.5955619 | 54 | 3 | 2005–2009 | 0.37 | M-v | 3 | MPC | 166233 | 2005 $WU_{53}$ |
| 2005 $WW_{56}$ | 17.2 | 0.15 | 20100104 | 68.29071 | 313.93513 | 27.29094 | 3.74188 | 0.2324244 | 2.5397344 | 34 | 2 | 2005–2009 | 0.47 | M-v | 4 | MPC | 165478 | 2005 $WW_{56}$ |
| 2005 $WK_{57}$ | 17.7 | 0.15 | 20100104 | 32.46059 | 313.58327 | 104.93863 | 10.04656 | 0.2219706 | 2.4193264 | 60 | 4 | 2001–2009 | 0.57 | M-v | 1 | MPC | 96480 | 2005 $WK_{57}$ |
| 2005 $WA_{58}$ | 17.3 | 0.15 | 20100104 | 23.23494 | 181.88331 | 252.98463 | 0.54994 | 0.1600745 | 2.4267397 | 71 | 5 | 2001–2009 | 0.58 | M-v | 1 | MPC | 166233 | 2005 $WA_{58}$ |
| 2005 $WK_{60}$ | 17.8 | 0.15 | 20100104 | 4.04214 | 192.74476 | 237.51196 | 2.92700 | 0.1071258 | 2.5172193 | 41 | 3 | 2001–2009 | 0.32 | M-v | 3 | MPC | 165479 | 2005 $WK_{60}$ |
| 2005 $WN_{62}$ | 16.9 | 0.15 | 20100104 | 347.78412 | 292.49182 | 157.40597 | 2.28967 | 0.1679827 | 2.5325606 | 83 | 4 | 2001–2009 | 0.44 | M-v | 2 | MPC | 166233 | 2005 $WN_{62}$ |
| 2005 $WR_{62}$ | 16.7 | 0.15 | 20100104 | 32.25533 | 262.93988 | 123.68008 | 5.22059 | 0.2189008 | 2.5278898 | 71 | 3 | 2001–2009 | 0.53 | M-v | 3 | MPC | 166233 | 2005 $WR_{62}$ |
| 2005 $WB_{63}$ | 16.0 | 0.15 | 20100104 | 288.30730 | 248.53844 | 265.37771 | 12.45962 | 0.1201146 | 2.5977939 | 68 | 4 | 2001–2009 | 0.44 | M-v | 2 | MPC | 166233 | 2005 $WB_{63}$ |
| 2005 $WF_{68}$ | 15.6 | 0.15 | 20100104 | 40.94354 | 106.97073 | 252.43330 | 12.54723 | 0.2122228 | 2.6233504 | 67 | 2 | 2005–2009 | 0.47 | M-v | 3 | MPC | 165479 | 2005 $WF_{68}$ |
| 2005 $WN_{68}$ | 17.9 | 0.15 | 20100104 | 337.74175 | 230.67367 | 236.35897 | 4.99527 | 0.1941775 | 2.5258275 | 66 | 3 | 2001–2009 | 0.31 | M-v | 4 | MPC | 166233 | 2005 $WN_{68}$ |
| 2005 $WX_{68}$ | 16.6 | 0.15 | 20100104 | 252.17135 | 294.47555 | 249.86634 | 12.46726 | 0.0895405 | 2.5848287 | 38 | 3 | 2005–2009 | 0.27 | M-v | 2 | MPC | 165479 | 2005 $WX_{68}$ |
| 2005 $WB_{69}$ | 15.8 | 0.15 | 20100104 | 345.88382 | 191.79894 | 251.84647 | 13.96622 | 0.2255382 | 2.5974712 | 135 | 3 | 2001–2009 | 0.47 | M-v | 2 | MPC | 166233 | 2005 $WB_{69}$ |
| 2005 $WH_{69}$ | 16.8 | 0.15 | 20100104 | 164.69415 | 175.43704 | 76.19489 | 4.39650 | 0.0175715 | 2.5941533 | 57 | 6 | 1994–2009 | 0.26 | M-v | 1 | MPC | 166233 | 2005 $WH_{69}$ |
| 2005 $WM_{69}$ | 17.1 | 0.15 | 20100104 | 45.68876 | 334.35818 | 74.94459 | 3.84732 | 0.1839374 | 2.4288709 | 69 | 3 | 2001–2009 | 0.49 | M-v | 3 | MPC | 166233 | 2005 $WM_{69}$ |
| 2005 $WR_{69}$ | 16.5 | 0.15 | 20100104 | 37.11978 | 248.15339 | 135.34034 | 1.36218 | 0.1485666 | 2.5638652 | 83 | 6 | 1994–2009 | 0.46 | M-v | 2 | MPC | 166233 | 2005 $WR_{69}$ |
| 2005 $WA_{72}$ | 15.9 | 0.15 | 20100104 | 350.63048 | 131.06865 | 286.58261 | 13.03946 | 0.0877397 | 2.5547038 | 75 | 4 | 2001–2009 | 0.63 | M-v | 3 | MPC | 166233 | 2005 $WA_{72}$ |
| 2005 $WM_{74}$ | 15.7 | 0.15 | 20100104 | 354.99657 | 261.31952 | 157.88209 | 15.02551 | 0.1274153 | 2.6226388 | 110 | 6 | 2000–2009 | 0.48 | M-v | 1 | MPC | 166233 | 2005 $WM_{74}$ |
| 2005 $WB_{76}$ | 17.0 | 0.15 | 20100104 | 1.73632 | 12.82033 | 59.73454 | 2.38246 | 0.1963042 | 2.5467410 | 97 | 3 | 2001–2009 | 0.44 | M-v | 2 | MPC | 166233 | 2005 $WB_{76}$ |
| 2005 $WE_{76}$ | 17.0 | 0.15 | 20100104 | 81.96208 | 17.93867 | 308.87802 | 1.73774 | 0.2127826 | 2.5486613 | 38 | 2 | 2005–2009 | 0.29 | M-v | 3 | MPC | 165479 | 2005 $WE_{76}$ |
| 2005 $WL_{76}$ | 16.7 | 0.15 | 20100104 | 38.63617 | 322.45095 | 63.71843 | 14.45848 | 0.0640561 | 2.5623057 | 62 | 4 | 2003–2009 | 0.52 | M-v | 1 | MPC | 165479 | 2005 $WL_{76}$ |
| 2005 $WL_{79}$ | 17.0 | 0.15 | 20100104 | 97.99768 | 88.13087 | 260.45489 | 5.35012 | 0.2003613 | 2.4182613 | 51 | 3 | 2001–2009 | 0.40 | M-v | 2 | MPC | 96498 | 2005 $WL_{79}$ |
| 2005 $WM_{79}$ | 17.8 | 0.15 | 20100104 | 21.38388 | 337.64148 | 68.51859 | 3.07548 | 0.1819334 | 2.5575225 | 29 | 2 | 2005–2009 | 0.28 | M-v | 4 | MPC | 165480 | 2005 $WM_{79}$ |
| 2005 $WR_{79}$ | 17.1 | 0.15 | 20100104 | 185.16874 | 357.83643 | 288.89215 | 1.91382 | 0.2127983 | 2.3633758 | 47 | 4 | 2005–2009 | 0.37 | M-v | 1 | MPC | 146325 | 2005 $WR_{79}$ |
| 2005 $WN_{84}$ | 17.1 | 0.15 | 20100104 | 282.07975 | 138.29518 | 29.14675 | 1.52194 | 0.0831734 | 2.4852032 | 43 | 3 | 2005–2009 | 0.32 | M-v | 3 | MPC | 166233 | 2005 $WN_{84}$ |

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| 2005 $WU_{86}$ | 18.2 | 0.15 | 20100104 | 14.60261 | 353.97227 | 105.07311 | 1.88154 | 0.1946317 | 2.4026544 | 36 | 4 | 1994–2009 | 0.34 | M-v | 1 | MPC | 96504 | 2005 $WU_{86}$ |
| 2005 $WD_{87}$ | 16.8 | 0.15 | 20100104 | 46.01294 | 289.84136 | 84.48711 | 3.73940 | 0.2160830 | 2.5989919 | 56 | 5 | 1996–2009 | 0.45 | M-v | 1 | MPC | 166233 | 2005 $WD_{87}$ |
| 2005 $WX_{87}$ | 16.5 | 0.15 | 20100104 | 291.47318 | 111.17151 | 90.25423 | 3.78773 | 0.1390535 | 2.4424320 | 53 | 6 | 1999–2009 | 0.48 | M-v | 1 | MPC | 164275 | 2005 $WX_{87}$ |
| 2005 $WP_{88}$ | 16.0 | 0.15 | 20100104 | 337.90348 | 212.98127 | 246.63319 | 11.09960 | 0.1449244 | 2.5819439 | 106 | 2 | 2005–2009 | 0.43 | M-v | 3 | MPC | 166234 | 2005 $WP_{88}$ |
| 2005 $WD_{89}$ | 16.4 | 0.15 | 20100104 | 349.13829 | 240.94493 | 244.01322 | 5.42438 | 0.0553307 | 2.3772144 | 96 | 5 | 2001–2009 | 0.48 | M-v | 0 | MPC | 147361 | 2005 $WD_{89}$ |
| 2005 $WP_{90}$ | 16.4 | 0.15 | 20100104 | 15.48795 | 71.49593 | 331.10668 | 3.93651 | 0.1430709 | 2.5367191 | 96 | 4 | 2001–2009 | 0.59 | M-v | 3 | MPC | 166234 | 2005 $WP_{90}$ |
| 2005 $WP_{91}$ | 16.3 | 0.15 | 20100104 | 71.13999 | 267.99912 | 73.23140 | 4.96160 | 0.1461087 | 2.5673394 | 111 | 5 | 1995–2009 | 0.52 | M-v | 1 | MPC | 166234 | 2005 $WP_{91}$ |
| 2005 $WQ_{91}$ | 17.0 | 0.15 | 20100104 | 29.24248 | 126.87706 | 232.07441 | 3.31030 | 0.3268271 | 2.6080657 | 126 | 2 | 2005–2009 | 0.45 | M-v | 2 | MPC | 166234 | 2005 $WQ_{91}$ |
| 2005 $WY_{91}$ | 18.1 | 0.15 | 20100104 | 354.40388 | 38.00295 | 53.85188 | 1.59352 | 0.1465009 | 2.4351339 | 33 | 3 | 2001–2009 | 0.25 | M-v | 3 | MPC | 165480 | 2005 $WY_{91}$ |
| 2005 $WT_{92}$ | 15.9 | 0.15 | 20100104 | 103.33360 | 235.74215 | 74.92024 | 9.03474 | 0.1683754 | 2.5639440 | 54 | 3 | 2001–2009 | 0.42 | M-v | 3 | MPC | 166234 | 2005 $WT_{92}$ |
| 2005 $WV_{92}$ | 16.4 | 0.15 | 20100104 | 112.59785 | 226.34579 | 73.85476 | 11.69467 | 0.1269715 | 2.6036807 | 49 | 4 | 2004–2009 | 0.28 | M-v | 1 | MPC | 166234 | 2005 $WV_{92}$ |
| 2005 $WM_{93}$ | 17.2 | 0.15 | 20100104 | 335.53601 | 243.69836 | 250.57009 | 2.83890 | 0.1252989 | 2.4572030 | 54 | 6 | 1997–2009 | 0.42 | M-v | 0 | MPC | 121351 | 2005 $WM_{93}$ |
| 2005 $WU_{93}$ | 16.9 | 0.15 | 20100104 | 281.78033 | 144.97615 | 38.31472 | 2.98359 | 0.1482429 | 2.3579292 | 76 | 5 | 2003–2009 | 0.49 | M-v | 1 | MPC | 143244 | 2005 $WU_{93}$ |
| 2005 $WV_{93}$ | 17.7 | 0.15 | 20100104 | 285.83529 | 132.01079 | 40.36694 | 2.28631 | 0.1221158 | 2.3841715 | 48 | 4 | 1996–2009 | 0.37 | M-v | 1 | MPC | 166234 | 2005 $WV_{93}$ |
| 2005 $WQ_{94}$ | 16.5 | 0.15 | 20100104 | 37.16428 | 284.75460 | 88.80889 | 4.93548 | 0.1970852 | 2.5878628 | 80 | 4 | 1998–2009 | 0.48 | M-v | 2 | MPC | 166234 | 2005 $WQ_{94}$ |
| 2005 $WS_{94}$ | 17.3 | 0.15 | 20100104 | 76.17156 | 276.01104 | 95.09857 | 4.20172 | 0.2037897 | 2.4190691 | 49 | 3 | 2001–2009 | 0.49 | M-v | 3 | MPC | 166234 | 2005 $WS_{94}$ |
| 2005 $WY_{98}$ | 16.6 | 0.15 | 20100104 | 65.23594 | 264.49030 | 80.13951 | 5.16724 | 0.2178111 | 2.5593285 | 54 | 3 | 2005–2009 | 0.41 | M-v | 2 | MPC | 166234 | 2005 $WY_{98}$ |
| 2005 $WE_{99}$ | 16.1 | 0.15 | 20100104 | 163.58169 | 14.86719 | 248.76818 | 13.48980 | 0.0558597 | 2.5904612 | 39 | 5 | 2000–2009 | 0.39 | M-v | 0 | MPC | 165481 | 2005 $WE_{99}$ |
| 2005 $WC_{100}$ | 17.0 | 0.15 | 20100104 | 3.54242 | 328.84189 | 87.13875 | 3.05720 | 0.1459741 | 2.5701446 | 45 | 4 | 2001–2009 | 0.40 | M-v | 2 | MPC | 166234 | 2005 $WC_{100}$ |
| 2005 $WT_{100}$ | 16.9 | 0.15 | 20100104 | 5.75991 | 334.17907 | 65.58569 | 2.79602 | 0.0939329 | 2.6577113 | 61 | 5 | 2002–2009 | 0.34 | M-v | 1 | MPC | 166234 | 2005 $WT_{100}$ |
| 2005 $WA_{101}$ | 16.9 | 0.15 | 20100104 | 28.11002 | 159.30968 | 219.89954 | 2.17703 | 0.1967362 | 2.5955022 | 59 | 3 | 2005–2009 | 0.46 | M-v | 3 | MPC | 166234 | 2005 $WA_{101}$ |
| 2005 $WK_{101}$ | 17.4 | 0.15 | 20100104 | 347.23193 | 215.48476 | 230.38513 | 4.51285 | 0.1027734 | 2.5312282 | 36 | 2 | 2005–2009 | 0.28 | M-v | 3 | MPC | 165481 | 2005 $WK_{101}$ |
| 2005 $WT_{101}$ | 15.8 | 0.15 | 20100104 | 18.59493 | 123.83992 | 251.62196 | 12.03595 | 0.2778363 | 2.6394294 | 115 | 2 | 2005–2009 | 0.50 | M-v | 2 | MPC | 166234 | 2005 $WT_{101}$ |
| 2005 $WX_{103}$ | 16.8 | 0.15 | 20100104 | 7.14436 | 23.42735 | 358.98830 | 3.87576 | 0.2241817 | 2.6586468 | 70 | 3 | 2002–2009 | 0.44 | M-v | 2 | MPC | 166234 | 2005 $WX_{103}$ |
| 2005 $WY_{105}$ | 16.1 | 0.15 | 20100104 | 31.39416 | 159.35160 | 201.55971 | 13.59367 | 0.2627972 | 2.6027545 | 152 | 3 | 2005–2009 | 0.44 | M-v | 2 | MPC | 166234 | 2005 $WY_{105}$ |
| 2005 $WV_{106}$ | 17.7 | 0.15 | 20100104 | 292.82374 | 26.36267 | 133.46688 | 2.08465 | 0.1381834 | 2.4676232 | 35 | 5 | 1995–2009 | 0.39 | M-v | 1 | MPC | 166234 | 2005 $WV_{106}$ |
| 2005 $WH_{108}$ | 16.9 | 0.15 | 20100104 | 74.90355 | 349.93292 | 20.43958 | 6.16845 | 0.1830811 | 2.2706991 | 49 | 4 | 2004–2009 | 0.40 | M-v | 2 | MPC | 115919 | 2005 $WH_{108}$ |
| 2005 $WO_{108}$ | 17.4 | 0.15 | 20100104 | 25.76756 | 357.84045 | 89.64947 | 2.39776 | 0.1421687 | 2.3877581 | 53 | 5 | 2001–2009 | 0.45 | M-v | 1 | MPC | 120826 | 2005 $WO_{108}$ |
| 2005 $WU_{109}$ | 17.0 | 0.15 | 20100104 | 59.23211 | 292.55575 | 76.72224 | 3.30790 | 0.1098287 | 2.5141207 | 50 | 3 | 2001–2009 | 0.37 | M-v | 3 | MPC | 165481 | 2005 $WU_{109}$ |
| 2005 $WC_{110}$ | 16.3 | 0.15 | 20100104 | 81.14304 | 271.70540 | 85.46251 | 3.77011 | 0.0068178 | 2.5140370 | 91 | 6 | 1993–2009 | 0.41 | M-v | 3 | MPC | 166234 | 2005 $WC_{110}$ |
| 2005 $WQ_{112}$ | 16.2 | 0.15 | 20100104 | 38.61950 | 122.85546 | 273.89162 | 12.70396 | 0.1678957 | 2.6070641 | 55 | 4 | 2000–2009 | 0.45 | M-v | 0 | MPC | 159766 | 2005 $WQ_{112}$ |
| 2005 $WE_{116}$ | 17.2 | 0.15 | 20100104 | 10.70487 | 15.93017 | 107.59479 | 5.90858 | 0.1567883 | 2.3549099 | 33 | 5 | 1998–2009 | 0.43 | M-v | 0 | MPC | 164276 | 2005 $WE_{116}$ |
| 2005 $WH_{116}$ | 16.4 | 0.15 | 20100104 | 292.88196 | 243.46051 | 235.85727 | 9.61319 | 0.1804981 | 2.7382457 | 39 | 6 | 1995–2009 | 0.50 | M-v | 1 | MPC | 126103 | 2005 $WH_{116}$ |
| 2005 $WD_{118}$ | 17.0 | 0.15 | 20100104 | 44.68854 | 55.66521 | 296.59544 | 3.27961 | 0.3284958 | 2.5377065 | 113 | 4 | 2001–2009 | 0.50 | M-v | 2 | MPC | 166234 | 2005 $WD_{118}$ |
| 2005 $WM_{118}$ | 15.8 | 0.15 | 20100104 | 328.02848 | 156.61551 | 317.24392 | 4.48752 | 0.1471283 | 2.5448093 | 131 | 4 | 2001–2009 | 0.45 | M-v | 2 | MPC | 166234 | 2005 $WM_{118}$ |
| 2005 $WO_{119}$ | 16.1 | 0.15 | 20100104 | 272.25504 | 12.86127 | 51.75312 | 6.03924 | 0.1433834 | 3.1167104 | 50 | 3 | 2002–2007 | 0.59 | M-v | 3 | MPC | 118160 | 2005 $WO_{119}$ |
| 2005 $WT_{119}$ | 17.1 | 0.15 | 20100104 | 16.97464 | 353.96379 | 56.42686 | 3.71865 | 0.1201984 | 2.5608133 | 59 | 3 | 2005–2009 | 0.42 | M-v | 3 | MPC | 165482 | 2005 $WT_{119}$ |
| 2005 $WP_{120}$ | 16.3 | 0.15 | 20100104 | 21.83546 | 119.45680 | 257.03204 | 13.36432 | 0.3060238 | 2.6183749 | 90 | 2 | 2005–2009 | 0.54 | M-v | 2 | MPC | 166234 | 2005 $WP_{120}$ |
| 2005 $WS_{121}$ | 16.3 | 0.15 | 20100104 | 18.09839 | 355.35657 | 92.02833 | 10.90309 | 0.1883246 | 2.4538546 | 94 | 4 | 2001–2009 | 0.49 | M-v | 2 | MPC | 166235 | 2005 $WS_{121}$ |
| 2005 $WU_{121}$ | 16.8 | 0.15 | 20100104 | 344.19670 | 209.06179 | 241.75242 | 8.62544 | 0.1724140 | 2.5648454 | 63 | 3 | 2000–2009 | 0.45 | M-v | 2 | MPC | 166235 | 2005 $WU_{121}$ |
| 2005 $WW_{121}$ | 15.8 | 0.15 | 20100104 | 8.75826 | 183.27012 | 235.46641 | 7.10948 | 0.1405897 | 2.5816231 | 127 | 4 | 2002–2009 | 0.40 | M-v | 2 | MPC | 166235 | 2005 $WW_{121}$ |
| 2005 $WB_{122}$ | 16.5 | 0.15 | 20100104 | 53.72439 | 122.66606 | 245.64140 | 10.74447 | 0.1776572 | 2.5319504 | 53 | 2 | 2005–2009 | 0.57 | M-v | 4 | MPC | 165482 | 2005 $WB_{122}$ |
| 2005 $WC_{122}$ | 16.3 | 0.15 | 20100104 | 47.14412 | 263.26019 | 91.02845 | 5.89218 | 0.2250009 | 2.5944475 | 89 | 5 | 1994–2009 | 0.56 | M-v | 2 | MPC | 166235 | 2005 $WC_{122}$ |
| 2005 $WG_{122}$ | 17.6 | 0.15 | 20100104 | 48.40358 | 15.55809 | 10.24673 | 5.58642 | 0.1682947 | 2.3210365 | 34 | 4 | 1991–2009 | 0.38 | M-v | 1 | MPC | 115919 | 2005 $WG_{122}$ |
| 2005 $WX_{123}$ | 17.6 | 0.15 | 20100104 | 344.78526 | 274.67110 | 217.02142 | 2.51013 | 0.1292621 | 2.3211424 | 30 | 5 | 1994–2009 | 0.30 | M-v | 0 | MPC | 160443 | 2005 $WX_{123}$ |
| 2005 $WU_{124}$ | 17.5 | 0.15 | 20100104 | 64.49862 | 260.51222 | 67.58561 | 6.20647 | 0.2684306 | 2.6075013 | 25 | 2 | 2005–2009 | 0.33 | M-v | 4 | MPC | 166235 | 2005 $WU_{124}$ |
| 2005 $WZ_{124}$ | 17.2 | 0.15 | 20100104 | 264.76474 | 240.77650 | 292.08539 | 1.99557 | 0.1202380 | 2.6077105 | 58 | 5 | 1994–2009 | 0.27 | M-v | 1 | MPC | 166235 | 2005 $WZ_{124}$ |
| 2005 $WY_{126}$ | 15.7 | 0.15 | 20100104 | 19.93919 | 191.52316 | 210.97996 | 9.23740 | 0.1278684 | 2.5618235 | 145 | 5 | 2001–2009 | 0.54 | M-v | 2 | MPC | 166235 | 2005 $WY_{126}$ |
| 2005 $WZ_{126}$ | 16.0 | 0.15 | 20100104 | 34.48520 | 139.57476 | 213.35873 | 10.71666 | 0.1935352 | 2.6494903 | 105 | 3 | 2005–2009 | 0.45 | M-v | 2 | MPC | 166235 | 2005 $WZ_{126}$ |
| 2005 $WT_{127}$ | 16.9 | 0.15 | 20100104 | 187.54224 | 353.17870 | 236.56489 | 2.62396 | 0.1208468 | 2.5976177 | 37 | 6 | 2003–2009 | 0.33 | M-v | 0 | MPC | 164277 | 2005 $WT_{127}$ |
| 2005 $WY_{129}$ | 17.5 | 0.15 | 20100104 | 73.49323 | 313.89139 | 65.31249 | 2.97533 | 0.1755156 | 2.3877113 | 31 | 3 | 2001–2009 | 0.41 | M-v | 3 | MPC | 101145 | 2005 $WY_{129}$ |
| 2005 $WO_{130}$ | 17.2 | 0.15 | 20100104 | 223.05691 | 186.14482 | 69.40715 | 6.63515 | 0.1148195 | 2.3340965 | 47 | 6 | 2001–2009 | 0.30 | M-v | 0 | MPC | 118160 | 2005 $WO_{130}$ |
| 2005 $WB_{131}$ | 17.1 | 0.15 | 20100104 | 88.50003 | 247.97344 | 66.65670 | 3.01736 | 0.1859521 | 2.5817097 | 37 | 3 | 2005–2009 | 0.31 | M-v | 3 | MPC | 166235 | 2005 $WB_{131}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 $WP_{133}$ | 17.0 | 0.15 | 20100104 | 5.76007 | 145.10545 | 256.49941 | 5.03127 | 0.1381261 | 2.6504945 | 57 | 3 | 1992–2009 | 0.35 | M-v | 2 | MPC | 164277 | 2005 $WP_{133}$ |
| 2005 $WU_{133}$ | 17.3 | 0.15 | 20100104 | 8.86409 | 5.99768 | 70.31306 | 3.50282 | 0.0357593 | 2.5123638 | 35 | 4 | 2003–2009 | 0.33 | M-v | 3 | MPC | 166235 | 2005 $WU_{133}$ |
| 2005 $WN_{134}$ | 18.2 | 0.15 | 20100104 | 38.84252 | 118.40642 | 268.00861 | 2.79616 | 0.2786080 | 2.5645860 | 29 | 2 | 2005–2009 | 0.26 | M-v | 4 | MPC | 165482 | 2005 $WN_{134}$ |
| 2005 $WD_{135}$ | 16.8 | 0.15 | 20100104 | 219.22196 | 147.42926 | 102.63740 | 10.49772 | 0.1027700 | 2.5728383 | 64 | 4 | 2003–2009 | 0.33 | M-v | 2 | MPC | 120826 | 2005 $WD_{135}$ |
| 2005 $WL_{135}$ | 17.8 | 0.15 | 20100104 | 47.47034 | 299.39887 | 103.70151 | 8.31090 | 0.1653439 | 2.5452646 | 37 | 4 | 1998–2009 | 0.30 | M-v | 3 | MPC | 96539 | 2005 $WL_{135}$ |
| 2005 $WS_{135}$ | 16.4 | 0.15 | 20100104 | 84.49212 | 237.39512 | 66.15828 | 6.76608 | 0.2355702 | 2.6465754 | 57 | 3 | 2005–2009 | 0.34 | M-v | 2 | MPC | 166235 | 2005 $WS_{135}$ |
| 2005 $WJ_{138}$ | 17.4 | 0.15 | 20100104 | 17.28365 | 195.57176 | 250.54132 | 2.51009 | 0.0948020 | 2.4136960 | 48 | 5 | 1993–2009 | 0.30 | M-v | 1 | MPC | 166235 | 2005 $WJ_{138}$ |
| 2005 $WC_{140}$ | 17.3 | 0.15 | 20100104 | 55.40479 | 353.60258 | 39.17368 | 1.29565 | 0.1258557 | 2.5253034 | 42 | 3 | 2005–2009 | 0.30 | M-v | 3 | MPC | 119251 | 2005 $WC_{140}$ |
| 2005 $WT_{140}$ | 16.0 | 0.15 | 20100104 | 341.53173 | 193.46317 | 280.31231 | 14.35804 | 0.0515989 | 2.5770834 | 61 | 5 | 2000–2009 | 0.41 | M-v | 1 | MPC | 166235 | 2005 $WT_{140}$ |
| 2005 $WF_{142}$ | 17.1 | 0.15 | 20100104 | 8.13319 | 20.19036 | 57.08815 | 2.55637 | 0.1129467 | 2.5156494 | 42 | 4 | 2001–2009 | 0.37 | M-v | 3 | MPC | 166235 | 2005 $WF_{142}$ |
| 2005 $WS_{142}$ | 17.6 | 0.15 | 20100104 | 23.74009 | 318.89017 | 67.30573 | 5.93788 | 0.2027536 | 2.5718748 | 54 | 2 | 2005–2009 | 0.37 | M-v | 3 | MPC | 165482 | 2005 $WS_{142}$ |
| 2005 $WX_{142}$ | 17.4 | 0.15 | 20100104 | 332.25055 | 92.45911 | 75.37008 | 3.07734 | 0.1312766 | 2.3010077 | 29 | 4 | 2003–2009 | 0.29 | M-v | 1 | MPC | 126104 | 2005 $WX_{142}$ |
| 2005 $WQ_{143}$ | 17.3 | 0.15 | 20100104 | 315.00666 | 79.81186 | 85.85642 | 1.93709 | 0.1410292 | 2.4157451 | 42 | 6 | 1994–2009 | 0.42 | M-v | 0 | MPC | 158521 | 2005 $WQ_{143}$ |
| 2005 $WS_{143}$ | 16.8 | 0.15 | 20100104 | 47.79025 | 285.54562 | 74.95409 | 13.50929 | 0.2243676 | 2.5679877 | 41 | 3 | 2005–2009 | 0.32 | M-v | 2 | MPC | 165482 | 2005 $WS_{143}$ |
| 2005 $WV_{145}$ | 17.3 | 0.15 | 20100104 | 33.65042 | 40.07863 | 331.49982 | 1.47609 | 0.1039011 | 2.6397685 | 37 | 4 | 2000–2009 | 0.42 | M-v | 1 | MPC | 164277 | 2005 $WV_{145}$ |
| 2005 $WA_{148}$ | 17.4 | 0.15 | 20100104 | 28.23321 | 331.78066 | 71.54975 | 15.75693 | 0.0946821 | 2.5436679 | 32 | 2 | 2005–2009 | 0.29 | M-v | 4 | MPC | 165483 | 2005 $WA_{148}$ |
| 2005 $WM_{149}$ | 17.4 | 0.15 | 20100104 | 327.68403 | 170.77228 | 323.29491 | 2.55636 | 0.0648483 | 2.4638723 | 36 | 5 | 2003–2009 | 0.28 | M-v | 0 | MPC | 142784 | 2005 $WM_{149}$ |
| 2005 $WW_{149}$ | 17.1 | 0.15 | 20100104 | 43.54247 | 23.07711 | 41.95450 | 4.69607 | 0.0553472 | 2.4006701 | 55 | 5 | 2001–2009 | 0.45 | M-v | 1 | MPC | 122804 | 2005 $WW_{149}$ |
| 2005 $WD_{150}$ | 17.5 | 0.15 | 20100104 | 316.07523 | 172.22931 | 18.13674 | 3.17501 | 0.1142294 | 2.3087023 | 39 | 5 | 2001–2009 | 0.44 | M-v | 1 | MPC | 147362 | 2005 $WD_{150}$ |
| 2005 $WM_{150}$ | 16.0 | 0.15 | 20100104 | 22.95889 | 319.23288 | 42.54526 | 3.79106 | 0.1598995 | 2.7182428 | 62 | 3 | 2000–2009 | 0.49 | M-v | 3 | MPC | 162464 | 2005 $WM_{150}$ |
| 2005 $WW_{150}$ | 16.8 | 0.15 | 20100104 | 36.87132 | 332.53560 | 46.59729 | 5.41687 | 0.2218587 | 2.5565251 | 66 | 2 | 2005–2009 | 0.39 | M-v | 3 | MPC | 165483 | 2005 $WW_{150}$ |
| 2005 $WK_{151}$ | 16.8 | 0.15 | 20100104 | 159.37808 | 314.90168 | 351.47073 | 3.84252 | 0.1481729 | 2.4089252 | 60 | 4 | 2005–2009 | 0.34 | M-v | 1 | MPC | 148981 | 2005 $WK_{151}$ |
| 2005 $WW_{153}$ | 16.5 | 0.15 | 20100104 | 110.05508 | 242.18673 | 65.63031 | 13.08640 | 0.1982541 | 2.5558324 | 34 | 2 | 2005–2009 | 0.34 | M-v | 4 | MPC | 165483 | 2005 $WW_{153}$ |
| 2005 $WC_{155}$ | 16.9 | 0.15 | 20100104 | 62.70133 | 15.61465 | 339.74620 | 0.83269 | 0.1490767 | 2.5737980 | 58 | 3 | 2005–2009 | 0.40 | M-v | 2 | MPC | 166235 | 2005 $WC_{155}$ |
| 2005 $WD_{155}$ | 16.8 | 0.15 | 20100104 | 34.29144 | 288.16123 | 66.32894 | 4.02583 | 0.1029632 | 2.7578444 | 44 | 5 | 1995–2009 | 0.30 | M-v | 0 | MPC | 164277 | 2005 $WD_{155}$ |
| 2005 $WH_{156}$ | 16.1 | 0.15 | 20100104 | 39.06101 | 138.99408 | 215.90419 | 12.11452 | 0.1870878 | 2.6482549 | 95 | 5 | 1996–2009 | 0.50 | M-v | 1 | MPC | 166235 | 2005 $WH_{156}$ |
| 2005 $WN_{156}$ | 15.9 | 0.15 | 20100104 | 340.97283 | 297.84728 | 172.77965 | 6.33317 | 0.2869195 | 2.5509579 | 102 | 5 | 1998–2009 | 0.53 | M-v | 2 | MPC | 166235 | 2005 $WN_{156}$ |
| 2005 $WT_{156}$ | 16.5 | 0.15 | 20100104 | 58.58923 | 266.15089 | 74.46057 | 6.16951 | 0.2348941 | 2.5751956 | 84 | 4 | 2001–2009 | 0.45 | M-v | 2 | MPC | 166235 | 2005 $WT_{156}$ |
| 2005 $WV_{156}$ | 16.3 | 0.15 | 20100104 | 11.16617 | 321.02239 | 74.83127 | 6.37574 | 0.2267525 | 2.6427776 | 74 | 4 | 1992–2009 | 0.57 | M-v | 1 | MPC | 166235 | 2005 $WV_{156}$ |
| 2005 $WG_{157}$ | 16.3 | 0.15 | 20100104 | 14.14484 | 144.66895 | 262.67053 | 12.63301 | 0.2873897 | 2.6217697 | 60 | 2 | 2005–2009 | 0.45 | M-v | 2 | MPC | 166235 | 2005 $WG_{157}$ |
| 2005 $WR_{157}$ | 15.8 | 0.15 | 20100104 | 305.70606 | 236.23808 | 278.55567 | 10.71088 | 0.1138411 | 2.5973455 | 76 | 6 | 2000–2009 | 0.46 | M-v | 1 | MPC | 151019 | 2005 $WR_{157}$ |
| 2005 $WY_{157}$ | 15.5 | 0.15 | 20100104 | 44.16650 | 280.37352 | 108.16884 | 27.96291 | 0.2414125 | 2.5837982 | 83 | 3 | 2002–2009 | 0.46 | M-v | 3 | MPC | 103810 | 2005 $WY_{157}$ |
| 2005 $WZ_{157}$ | 16.2 | 0.15 | 20100104 | 357.60848 | 29.82890 | 67.48608 | 27.32561 | 0.2396176 | 2.5645211 | 49 | 4 | 2001–2009 | 0.59 | M-v | 2 | MPC | 166235 | 2005 $WZ_{157}$ |
| 2005 $WE_{158}$ | 16.2 | 0.15 | 20100104 | 12.64663 | 132.83204 | 278.20064 | 12.24267 | 0.1962935 | 2.6540712 | 81 | 5 | 2000–2009 | 0.50 | M-v | 0 | MPC | 166235 | 2005 $WE_{158}$ |
| 2005 $WV_{158}$ | 16.7 | 0.15 | 20100104 | 340.20891 | 182.79098 | 261.68964 | 4.64620 | 0.2950899 | 2.6590562 | 45 | 2 | 2005–2009 | 0.50 | M-v | 3 | MPC | 166235 | 2005 $WV_{158}$ |
| 2005 $WE_{159}$ | 16.1 | 0.15 | 20100104 | 351.48136 | 20.49283 | 47.32951 | 9.57057 | 0.3455130 | 2.6751334 | 114 | 2 | 2005–2009 | 0.48 | M-v | 2 | MPC | 166235 | 2005 $WE_{159}$ |
| 2005 $WW_{159}$ | 16.6 | 0.15 | 20100104 | 97.05501 | 259.96976 | 90.05867 | 3.31393 | 0.2036196 | 2.4113317 | 63 | 6 | 1994–2009 | 0.47 | M-v | 1 | MPC | 122804 | 2005 $WW_{159}$ |
| 2005 $WF_{160}$ | 15.7 | 0.15 | 20100104 | 316.75033 | 256.41797 | 291.85428 | 26.98412 | 0.3623853 | 2.6177109 | 59 | 3 | 1994–2009 | 0.44 | M-v | 1 | MPC | 101151 | 2005 $WF_{160}$ |
| 2005 $WH_{160}$ | 17.5 | 0.15 | 20100104 | 354.71114 | 88.07564 | 53.54434 | 1.95610 | 0.1305561 | 2.4040285 | 57 | 6 | 1999–2009 | 0.35 | M-v | 0 | MPC | 166235 | 2005 $WH_{160}$ |
| 2005 $WR_{162}$ | 15.6 | 0.15 | 20100104 | 275.18618 | 259.17258 | 273.31007 | 11.05175 | 0.1126461 | 2.6706644 | 55 | 6 | 2000–2009 | 0.47 | M-v | 1 | MPC | 166236 | 2005 $WR_{162}$ |
| 2005 $WZ_{162}$ | 17.3 | 0.15 | 20100104 | 5.82544 | 349.07819 | 86.94658 | 6.83326 | 0.2479706 | 2.5916118 | 58 | 3 | 2002–2009 | 0.51 | M-v | 2 | MPC | 165484 | 2005 $WZ_{162}$ |
| 2005 $WA_{163}$ | 16.6 | 0.15 | 20100104 | 359.52156 | 150.68604 | 245.66869 | 13.96227 | 0.1173663 | 2.6382829 | 36 | 2 | 2005–2009 | 0.39 | M-v | 2 | MPC | 161996 | 2005 $WA_{163}$ |
| 2005 $WW_{165}$ | 16.9 | 0.15 | 20100104 | 50.54610 | 205.39156 | 159.00857 | 0.69329 | 0.0864656 | 2.5604522 | 57 | 5 | 2001–2009 | 0.25 | M-v | 1 | MPC | 166236 | 2005 $WW_{165}$ |
| 2005 $WC_{166}$ | 17.8 | 0.15 | 20100104 | 13.96062 | 161.48998 | 260.70405 | 2.48508 | 0.2376333 | 2.5408036 | 30 | 2 | 2005–2009 | 0.37 | M-v | 4 | MPC | 165485 | 2005 $WC_{166}$ |
| 2005 $WF_{166}$ | 15.8 | 0.15 | 20100104 | 44.37075 | 277.80340 | 89.96402 | 25.00792 | 0.2218227 | 2.6282207 | 48 | 2 | 2005–2009 | 0.46 | M-v | 3 | MPC | 166236 | 2005 $WF_{166}$ |
| 2005 $WG_{167}$ | 16.8 | 0.15 | 20100104 | 71.51141 | 264.48270 | 66.74054 | 4.40241 | 0.1823827 | 2.5986281 | 47 | 3 | 2005–2009 | 0.43 | M-v | 2 | MPC | 166236 | 2005 $WG_{167}$ |
| 2005 $WM_{168}$ | 16.8 | 0.15 | 20100104 | 323.83135 | 63.36855 | 91.53574 | 6.14903 | 0.0998741 | 2.4194137 | 39 | 5 | 2000–2009 | 0.40 | M-v | 0 | MPC | 121351 | 2005 $WM_{168}$ |
| 2005 $WK_{169}$ | 16.8 | 0.15 | 20100104 | 192.70857 | 154.84510 | 82.87799 | 3.34398 | 0.1383509 | 2.4295396 | 37 | 5 | 1996–2009 | 0.39 | M-v | 1 | MPC | 166236 | 2005 $WK_{169}$ |
| 2005 $WY_{169}$ | 17.6 | 0.15 | 20100104 | 330.66975 | 69.45457 | 96.31751 | 2.99425 | 0.1314009 | 2.3521715 | 44 | 5 | 1996–2009 | 0.41 | M-v | 2 | MPC | 96566 | 2005 $WY_{169}$ |
| 2005 $WZ_{169}$ | 17.6 | 0.15 | 20100104 | 7.01797 | 184.95961 | 236.88002 | 4.42360 | 0.0612024 | 2.5715108 | 28 | 2 | 2005–2009 | 0.36 | M-v | 3 | MPC | 166236 | 2005 $WZ_{169}$ |
| 2005 $WW_{170}$ | 16.8 | 0.15 | 20100104 | 233.88747 | 161.39968 | 83.29404 | 8.34915 | 0.0740191 | 2.4038789 | 37 | 4 | 2003–2009 | 0.41 | M-v | 1 | MPC | 166236 | 2005 $WW_{170}$ |
| 2005 $WZ_{170}$ | 17.0 | 0.15 | 20100104 | 127.06314 | 85.52481 | 253.07656 | 3.22686 | 0.0532880 | 2.4209482 | 43 | 7 | 1997–2009 | 0.31 | M-v | 0 | MPC | 166236 | 2005 $WZ_{170}$ |
| 2005 $WV_{171}$ | 17.4 | 0.15 | 20100104 | 301.39077 | 96.19655 | 84.75189 | 2.37115 | 0.1223652 | 2.3574376 | 54 | 5 | 2003–2009 | 0.47 | M-v | 1 | MPC | 147362 | 2005 $WV_{171}$ |

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| 2005 $WY_{173}$ | 16.0 | 0.15 | 20100104 | 351.10817 | 321.65011 | 89.48421 | 6.39975 | 0.0087539 | 2.7114135 | 60 | 6 | 2000–2009 | 0.45 | M-v | 0 | MPC | 164277 | 2005 $WY_{173}$ |
| 2005 $WB_{174}$ | 17.4 | 0.15 | 20100104 | 224.28895 | 128.66422 | 118.67546 | 2.08211 | 0.1414931 | 2.4014860 | 49 | 6 | 1999–2009 | 0.42 | M-v | 1 | MPC | 147362 | 2005 $WB_{174}$ |
| 2005 $WL_{176}$ | 17.3 | 0.15 | 20100104 | 330.42480 | 58.69133 | 58.51953 | 4.00676 | 0.0475676 | 2.5819172 | 33 | 3 | 2005–2009 | 0.24 | M-v | 3 | MPC | 165485 | 2005 $WL_{176}$ |
| 2005 $WQ_{176}$ | 15.7 | 0.15 | 20100104 | 311.77092 | 216.85734 | 279.37801 | 11.67940 | 0.1141117 | 2.6098219 | 61 | 3 | 2001–2009 | 0.54 | M-v | 2 | MPC | 166236 | 2005 $WQ_{176}$ |
| 2005 $WV_{176}$ | 17.6 | 0.15 | 20100104 | 351.46020 | 18.19432 | 71.97116 | 5.27636 | 0.2021900 | 2.5906293 | 33 | 2 | 2005–2009 | 0.34 | M-v | 3 | MPC | 165485 | 2005 $WV_{176}$ |
| 2005 $WL_{177}$ | 16.1 | 0.15 | 20100104 | 37.92511 | 99.16754 | 295.18645 | 6.36645 | 0.1575984 | 2.5818749 | 44 | 4 | 1994–2009 | 0.50 | M-v | 2 | MPC | 96570 | 2005 $WL_{177}$ |
| 2005 $WO_{177}$ | 15.8 | 0.15 | 20100104 | 230.44347 | 303.42773 | 280.69418 | 13.75521 | 0.1426912 | 2.6191747 | 28 | 3 | 2001–2009 | 0.40 | M-v | 3 | MPC | 96570 | 2005 $WO_{177}$ |
| 2005 $WS_{177}$ | 16.9 | 0.15 | 20100104 | 226.51259 | 164.13772 | 52.71907 | 2.13057 | 0.0396104 | 2.6276561 | 62 | 8 | 1996–2009 | 0.33 | M-v | 0 | MPC | 147363 | 2005 $WS_{177}$ |
| 2005 $WZ_{177}$ | 17.0 | 0.15 | 20100104 | 111.62465 | 281.90768 | 61.81469 | 2.93655 | 0.1930804 | 2.4423757 | 32 | 4 | 2001–2009 | 0.38 | M-v | 2 | MPC | 147363 | 2005 $WZ_{177}$ |
| 2005 $WZ_{181}$ | 15.8 | 0.15 | 20100104 | 295.64293 | 203.94042 | 214.18277 | 9.70754 | 0.0975006 | 2.9676978 | 27 | 3 | 2005–2009 | 0.58 | M-v | 3 | MPC | 158871 | 2005 $WZ_{181}$ |
| 2005 $WN_{182}$ | 16.0 | 0.15 | 20100104 | 357.81271 | 325.88716 | 110.94459 | 15.72952 | 0.2400428 | 2.6322004 | 133 | 6 | 2002–2009 | 0.46 | M-v | 2 | MPC | 166236 | 2005 $WN_{182}$ |
| 2005 $WC_{183}$ | 16.4 | 0.15 | 20100104 | 24.20884 | 63.70951 | 320.70177 | 12.50055 | 0.1661614 | 2.5303680 | 55 | 3 | 2001–2009 | 0.59 | M-v | 3 | MPC | 166236 | 2005 $WC_{183}$ |
| 2005 $WQ_{183}$ | 16.6 | 0.15 | 20100104 | 354.93307 | 15.63586 | 52.96970 | 14.55534 | 0.0891405 | 2.5732493 | 50 | 4 | 2003–2009 | 0.45 | M-v | 2 | MPC | 166236 | 2005 $WQ_{183}$ |
| 2005 $WN_{186}$ | 16.9 | 0.15 | 20100104 | 330.64509 | 194.51749 | 276.30047 | 3.01058 | 0.1419409 | 2.7169329 | 50 | 3 | 2000–2009 | 0.33 | M-v | 2 | MPC | 165486 | 2005 $WN_{186}$ |
| 2005 $WL_{187}$ | 17.0 | 0.15 | 20100104 | 295.31950 | 233.98597 | 279.61936 | 4.34800 | 0.1784251 | 2.5778161 | 42 | 2 | 2005–2009 | 0.29 | M-v | 3 | MPC | 165486 | 2005 $WL_{187}$ |
| 2005 $WZ_{187}$ | 17.4 | 0.15 | 20100104 | 9.11669 | 339.46931 | 92.78555 | 3.54256 | 0.1726514 | 2.4609357 | 53 | 3 | 2001–2009 | 0.46 | M-v | 2 | MPC | 166236 | 2005 $WZ_{187}$ |
| 2005 $WC_{188}$ | 16.9 | 0.15 | 20100104 | 19.14070 | 338.27474 | 61.75996 | 5.04141 | 0.1989098 | 2.6115620 | 101 | 2 | 2005–2009 | 0.42 | M-v | 3 | MPC | 166236 | 2005 $WC_{188}$ |
| 2005 $WK_{188}$ | 17.5 | 0.15 | 20100104 | 45.58854 | 312.73322 | 62.32029 | 5.41577 | 0.2248687 | 2.5928608 | 39 | 2 | 2005–2009 | 0.29 | M-v | 3 | MPC | 165486 | 2005 $WK_{188}$ |
| 2005 $WV_{188}$ | 16.9 | 0.15 | 20100104 | 9.77920 | 2.87407 | 99.23322 | 6.36340 | 0.1624063 | 2.4136907 | 47 | 4 | 2001–2009 | 0.37 | M-v | 1 | MPC | 166236 | 2005 $WV_{188}$ |
| 2005 $WB_{189}$ | 15.7 | 0.15 | 20100104 | 337.56384 | 4.29104 | 78.88227 | 22.84718 | 0.0309824 | 2.6167938 | 60 | 5 | 2001–2009 | 0.53 | M-v | 1 | MPC | 166236 | 2005 $WB_{189}$ |
| 2005 $WG_{189}$ | 15.9 | 0.15 | 20100104 | 10.89491 | 155.73423 | 252.25388 | 10.85146 | 0.1643863 | 2.6208469 | 66 | 2 | 2005–2009 | 0.39 | M-v | 3 | MPC | 165486 | 2005 $WG_{189}$ |
| 2005 $WT_{189}$ | 14.3 | 0.15 | 20100104 | 69.87001 | 44.69872 | 303.67972 | 12.42106 | 0.0943592 | 2.5160823 | 183 | 6 | 1999–2009 | 0.59 | M-v | 2 | MPC | 166236 | 2005 $WT_{189}$ |
| 2005 $WQ_{193}$ | 15.9 | 0.15 | 20100104 | 6.72405 | 273.26652 | 123.69715 | 14.93652 | 0.1044144 | 2.6414407 | 44 | 5 | 1999–2009 | 0.65 | M-v | 1 | MPC | 164278 | 2005 $WQ_{193}$ |
| 2005 $WV_{193}$ | 16.5 | 0.15 | 20100104 | 26.19559 | 275.93846 | 132.57825 | 4.71622 | 0.1178010 | 2.5223298 | 36 | 5 | 2001–2009 | 0.48 | M-v | 3 | MPC | 166236 | 2005 $WV_{193}$ |
| 2005 $WW_{193}$ | 15.9 | 0.15 | 20100104 | 349.23448 | 16.30441 | 86.73379 | 16.41564 | 0.2333314 | 2.5994822 | 117 | 3 | 2001–2009 | 0.56 | M-v | 2 | MPC | 166236 | 2005 $WW_{193}$ |
| 2005 $WP_{194}$ | 15.9 | 0.15 | 20100104 | 27.96862 | 235.65840 | 140.76820 | 13.74077 | 0.2068013 | 2.6116120 | 50 | 3 | 2005–2009 | 0.57 | M-v | 2 | MPC | 166236 | 2005 $WP_{194}$ |
| 2005 $WJ_{195}$ | 16.6 | 0.15 | 20100104 | 26.22767 | 333.62665 | 68.68637 | 7.65682 | 0.2649268 | 2.5515682 | 68 | 3 | 2001–2009 | 0.51 | M-v | 3 | MPC | 166236 | 2005 $WJ_{195}$ |
| 2005 $WE_{196}$ | 16.5 | 0.15 | 20100104 | 197.14232 | 182.42504 | 92.45942 | 8.19577 | 0.1095963 | 2.4806165 | 42 | 5 | 2003–2009 | 0.59 | M-v | 1 | MPC | 143245 | 2005 $WE_{196}$ |
| 2005 $WP_{204}$ | 16.0 | 0.15 | 20100104 | 320.40252 | 351.77660 | 119.35357 | 9.83653 | 0.0928104 | 2.7890265 | 65 | 4 | 2002–2009 | 0.49 | M-v | 1 | MPC | 166237 | 2005 $WP_{204}$ |
| 2005 $WU_{207}$ | 15.9 | 0.15 | 20100104 | 158.65794 | 156.25931 | 130.90341 | 6.99494 | 0.0311677 | 2.7781841 | 49 | 6 | 1993–2009 | 0.31 | M-v | 1 | MPC | 121351 | 2005 $WU_{207}$ |
| 2005 $WD_{208}$ | 17.3 | 0.15 | 20100104 | 331.86979 | 159.42679 | 311.49149 | 2.01721 | 0.0475590 | 2.5597548 | 33 | 4 | 2004–2009 | 0.32 | M-v | 2 | MPC | 165487 | 2005 $WD_{208}$ |
| 2005 $WM_{208}$ | 16.7 | 0.15 | 20100104 | 28.48991 | 44.48351 | 348.11948 | 3.45345 | 0.2622936 | 2.5463998 | 50 | 2 | 2005–2009 | 0.54 | M-v | 4 | MPC | 165487 | 2005 $WM_{208}$ |
| 2005 $WL_{210}$ | 18.2 | 0.15 | 20100104 | 60.66201 | 33.95299 | 0.22668 | 1.35672 | 0.1894852 | 2.3991554 | 25 | 3 | 2001–2009 | 0.34 | M-v | 3 | MPC | 140698 | 2005 $WL_{210}$ |
| 2005 $WE_{211}$ | 15.4 | 0.15 | 20100104 | 14.24702 | 70.51173 | 303.26880 | 3.59736 | 0.0594648 | 3.1112010 | 57 | 5 | 1995–2009 | 0.40 | M-v | 1 | MPC | 164278 | 2005 $WE_{211}$ |
| 2005 $WP_{211}$ | 17.2 | 0.15 | 20100104 | 8.99225 | 175.70309 | 232.26364 | 1.88446 | 0.1851911 | 2.6140956 | 24 | 2 | 2005–2009 | 0.46 | M-v | 3 | MPC | 165487 | 2005 $WP_{211}$ |
| 2005 $WQ_{211}$ | 17.3 | 0.15 | 20100104 | 323.19413 | 239.18960 | 240.73903 | 6.16964 | 0.0965512 | 2.5736389 | 25 | 3 | 2005–2009 | 0.37 | M-v | 3 | MPC | 165487 | 2005 $WQ_{211}$ |
| 2005 XG | 17.5 | 0.15 | 20100104 | 126.09520 | 274.32737 | 50.16024 | 3.26700 | 0.1877202 | 2.3115676 | 39 | 6 | 1998–2009 | 0.31 | M-v | 1 | MPC | 118163 | 2005 XG |
| 2005 $XP_1$ | 16.5 | 0.15 | 20100104 | 247.69876 | 133.35481 | 71.95532 | 11.50189 | 0.1719733 | 2.5336581 | 69 | 5 | 1999–2009 | 0.48 | M-v | 2 | MPC | 166237 | 2005 $XP_1$ |
| 2005 $XO_2$ | 17.4 | 0.15 | 20100104 | 6.06961 | 38.60911 | 4.66934 | 4.11830 | 0.2712711 | 2.6018593 | 80 | 3 | 2001–2009 | 0.46 | M-v | 2 | MPC | 166237 | 2005 $XO_2$ |
| 2005 $XC_3$ | 17.0 | 0.15 | 20100104 | 74.36661 | 304.95529 | 75.64646 | 6.93102 | 0.1247368 | 2.4000304 | 49 | 3 | 2001–2009 | 0.46 | M-v | 2 | MPC | 96598 | 2005 $XC_3$ |
| 2005 $XP_3$ | 16.1 | 0.15 | 20100104 | 75.77077 | 67.44552 | 290.18487 | 5.75628 | 0.1125286 | 2.4641722 | 49 | 4 | 1995–2009 | 0.46 | M-v | 3 | MPC | 166237 | 2005 $XP_3$ |
| 2005 $XR_3$ | 17.0 | 0.15 | 20100104 | 359.23363 | 8.33154 | 77.29374 | 5.55051 | 0.2299570 | 2.5377558 | 86 | 3 | 2001–2009 | 0.44 | M-v | 3 | MPC | 166237 | 2005 $XR_3$ |
| 2005 $XX_3$ | 16.1 | 0.15 | 20100104 | 36.19483 | 133.45989 | 220.18919 | 4.58808 | 0.0756837 | 2.7222066 | 71 | 6 | 2000–2009 | 0.52 | M-v | 0 | MPC | 164278 | 2005 $XX_3$ |
| 2005 $XC_4$ | 14.8 | 0.15 | 20100104 | 301.08753 | 258.79788 | 309.01600 | 26.53844 | 0.3678307 | 2.6246346 | 115 | 3 | 2005–2009 | 0.49 | M-v | 1 | MPC | 124477 | 2005 $XC_4$ |
| 2005 $XG_6$ | 16.6 | 0.15 | 20100104 | 99.92867 | 14.95652 | 304.05137 | 1.15202 | 0.1589684 | 2.5419748 | 62 | 5 | 1996–2009 | 0.20 | M-v | 0 | MPC | 166237 | 2005 $XG_6$ |
| 2005 $XJ_6$ | 15.9 | 0.15 | 20100104 | 96.19526 | 24.76036 | 297.61112 | 4.34820 | 0.1492006 | 2.5526076 | 74 | 4 | 2001–2009 | 0.47 | M-v | 3 | MPC | 166237 | 2005 $XJ_6$ |
| 2005 $XT_6$ | 16.8 | 0.15 | 20100104 | 99.32497 | 64.50845 | 246.91288 | 4.78482 | 0.1138205 | 2.6153449 | 54 | 5 | 2000–2009 | 0.49 | M-v | 1 | MPC | 165488 | 2005 $XT_6$ |
| 2005 $XE_7$ | 16.8 | 0.15 | 20100104 | 23.69983 | 152.98699 | 282.23283 | 5.35882 | 0.1059754 | 2.4398904 | 62 | 6 | 1997–2009 | 0.52 | M-v | 2 | MPC | 166237 | 2005 $XE_7$ |
| 2005 $XC_{12}$ | 17.7 | 0.15 | 20100104 | 5.80969 | 293.51952 | 173.17677 | 1.36713 | 0.1248340 | 2.3684889 | 33 | 4 | 2003–2009 | 0.27 | M-v | 0 | MPC | 166237 | 2005 $XC_{12}$ |
| 2005 $XO_{12}$ | 17.7 | 0.15 | 20100104 | 134.22663 | 206.21819 | 90.19439 | 2.21350 | 0.1855759 | 2.4273793 | 30 | 4 | 2001–2009 | 0.36 | M-v | 4 | MPC | 103814 | 2005 $XO_{12}$ |
| 2005 $XB_{13}$ | 15.8 | 0.15 | 20100104 | 202.01036 | 83.35116 | 116.08287 | 4.61321 | 0.0326679 | 2.7785156 | 52 | 4 | 2002–2009 | 0.39 | M-v | 1 | MPC | 164278 | 2005 $XB_{13}$ |
| 2005 $XM_{16}$ | 16.1 | 0.15 | 20100104 | 356.70578 | 166.51486 | 267.42325 | 12.56387 | 0.1367005 | 2.6448697 | 55 | 4 | 2002–2009 | 0.48 | M-v | 3 | MPC | 166237 | 2005 $XM_{16}$ |
| 2005 $XE_{17}$ | 16.9 | 0.15 | 20100104 | 358.55295 | 178.29670 | 230.68974 | 4.27524 | 0.3030301 | 2.6582472 | 81 | 5 | 1996–2009 | 0.43 | M-v | 0 | MPC | 164278 | 2005 $XE_{17}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 $XB_{19}$ | 15.7 | 0.15 | 20100104 | 12.61619 | 317.92813 | 115.81535 | 33.75374 | 0.2913754 | 2.6077276 | 83 | 3 | 2002–2009 | 0.55 | M-v | 2 | MPC | 96608 | 2005 $XB_{19}$ |
| 2005 $XH_{19}$ | 17.6 | 0.15 | 20100104 | 318.05926 | 103.90679 | 55.06296 | 3.03518 | 0.1716845 | 2.4459203 | 31 | 4 | 2001–2009 | 0.32 | M-v | 2 | MPC | 103814 | 2005 $XH_{19}$ |
| 2005 $XB_{20}$ | 15.8 | 0.15 | 20100104 | 18.45215 | 137.50837 | 273.95997 | 14.12119 | 0.0583291 | 2.5711704 | 60 | 4 | 2001–2009 | 0.48 | M-v | 2 | MPC | 166237 | 2005 $XB_{20}$ |
| 2005 $XJ_{20}$ | 17.4 | 0.15 | 20100104 | 19.81071 | 75.25434 | 329.11749 | 3.56824 | 0.2548541 | 2.5483745 | 73 | 4 | 1960–2009 | 0.44 | M-v | 2 | MPC | 166237 | 2005 $XJ_{20}$ |
| 2005 $XH_{21}$ | 15.3 | 0.15 | 20100104 | 103.34237 | 253.32638 | 62.96046 | 12.44415 | 0.2249186 | 2.5504958 | 32 | 2 | 2005–2009 | 0.34 | M-v | 4 | MPC | 165489 | 2005 $XH_{21}$ |
| 2005 $XX_{21}$ | 16.5 | 0.15 | 20100104 | 312.99654 | 126.86810 | 9.88947 | 4.03418 | 0.1715215 | 2.5396842 | 55 | 3 | 2001–2009 | 0.41 | M-v | 3 | MPC | 166237 | 2005 $XX_{21}$ |
| 2005 $XC_{22}$ | 15.8 | 0.15 | 20100104 | 63.29292 | 16.68418 | 320.02896 | 4.05643 | 0.2589592 | 2.5692427 | 80 | 4 | 2001–2009 | 0.46 | M-v | 3 | MPC | 166237 | 2005 $XC_{22}$ |
| 2005 $XB_{25}$ | 16.6 | 0.15 | 20100104 | 334.76546 | 88.53690 | 68.27466 | 6.00947 | 0.1708928 | 2.4013081 | 59 | 4 | 2001–2009 | 0.38 | M-v | 1 | MPC | 166237 | 2005 $XB_{25}$ |
| 2005 $XZ_{25}$ | 16.5 | 0.15 | 20100104 | 40.60912 | 303.54792 | 73.85396 | 11.52739 | 0.2334679 | 2.5561660 | 73 | 3 | 2001–2009 | 0.47 | M-v | 3 | MPC | 166237 | 2005 $XZ_{25}$ |
| 2005 $XK_{26}$ | 18.7 | 0.15 | 20100104 | 356.15241 | 8.37443 | 77.28281 | 5.79361 | 0.2430971 | 2.5215484 | 27 | 2 | 2005–2009 | 0.25 | M-v | 4 | MPC | 165489 | 2005 $XK_{26}$ |
| 2005 $XN_{26}$ | 17.2 | 0.15 | 20100104 | 12.19071 | 314.52395 | 101.41045 | 2.80464 | 0.0857396 | 2.6564894 | 28 | 2 | 2005–2009 | 0.36 | M-v | 4 | MPC | 166237 | 2005 $XN_{26}$ |
| 2005 $XJ_{27}$ | 17.8 | 0.15 | 20100104 | 354.07437 | 203.83707 | 288.16194 | 4.23135 | 0.1387401 | 2.3783312 | 35 | 4 | 2001–2009 | 0.40 | M-v | 2 | MPC | 147363 | 2005 $XJ_{27}$ |
| 2005 $XX_{28}$ | 17.7 | 0.15 | 20100104 | 20.71175 | 131.55535 | 303.26275 | 2.01105 | 0.1503397 | 2.4435674 | 42 | 4 | 1999–2009 | 0.43 | M-v | 1 | MPC | 96616 | 2005 $XX_{28}$ |
| 2005 $XB_{29}$ | 17.7 | 0.15 | 20100104 | 0.36447 | 14.07345 | 50.81137 | 6.94575 | 0.2465735 | 2.5654665 | 48 | 2 | 2005–2009 | 0.34 | M-v | 2 | MPC | 166237 | 2005 $XB_{29}$ |
| 2005 $XC_{30}$ | 17.7 | 0.15 | 20100104 | 24.52649 | 267.85863 | 166.87649 | 1.43179 | 0.1675522 | 2.4022539 | 30 | 3 | 2001–2009 | 0.28 | M-v | 3 | MPC | 96618 | 2005 $XC_{30}$ |
| 2005 $XF_{30}$ | 16.4 | 0.15 | 20100104 | 126.94085 | 61.67386 | 217.14404 | 5.78582 | 0.1945516 | 2.5357166 | 42 | 2 | 2005–2009 | 0.35 | M-v | 4 | MPC | 165489 | 2005 $XF_{30}$ |
| 2005 $XW_{33}$ | 15.4 | 0.15 | 20100104 | 172.08189 | 2.16949 | 258.18862 | 14.07247 | 0.0854326 | 2.6156034 | 50 | 7 | 1999–2009 | 0.56 | M-v | 1 | MPC | 166237 | 2005 $XW_{33}$ |
| 2005 $XC_{35}$ | 16.9 | 0.15 | 20100104 | 18.30952 | 265.02233 | 118.17306 | 3.68056 | 0.2003811 | 2.6753851 | 54 | 4 | 2002–2009 | 0.43 | M-v | 2 | MPC | 166237 | 2005 $XC_{35}$ |
| 2005 $XS_{36}$ | 16.3 | 0.15 | 20100104 | 74.40540 | 50.92920 | 299.52886 | 3.45303 | 0.2664624 | 2.5401371 | 39 | 5 | 1994–2009 | 0.35 | M-v | 3 | MPC | 119675 | 2005 $XS_{36}$ |
| 2005 $XY_{36}$ | 17.3 | 0.15 | 20100104 | 43.19851 | 51.48625 | 332.65966 | 3.17756 | 0.0724637 | 2.6479915 | 37 | 5 | 2000–2009 | 0.29 | M-v | 0 | MPC | 166237 | 2005 $XY_{36}$ |
| 2005 $XH_{41}$ | 17.1 | 0.15 | 20100104 | 225.89518 | 174.88703 | 35.36748 | 4.71845 | 0.1080265 | 2.6730361 | 32 | 4 | 1998–2009 | 0.29 | M-v | 1 | MPC | 166238 | 2005 $XH_{41}$ |
| 2005 $XR_{41}$ | 16.4 | 0.15 | 20100104 | 344.08044 | 34.06730 | 122.25545 | 7.22559 | 0.1829384 | 2.3968370 | 42 | 5 | 1994–2009 | 0.47 | M-v | 1 | MPC | 164279 | 2005 $XR_{41}$ |
| 2005 $XC_{42}$ | 17.5 | 0.15 | 20100104 | 355.85852 | 149.93908 | 253.63993 | 5.33425 | 0.1209825 | 2.6227416 | 29 | 4 | 1998–2009 | 0.36 | M-v | 2 | MPC | 96624 | 2005 $XC_{42}$ |
| 2005 $XC_{43}$ | 17.2 | 0.15 | 20100104 | 29.54467 | 330.20163 | 66.33370 | 16.03717 | 0.0603629 | 2.5685747 | 33 | 4 | 1999–2009 | 0.26 | M-v | 1 | MPC | 165490 | 2005 $XC_{43}$ |
| 2005 $XH_{48}$ | 17.4 | 0.15 | 20100104 | 294.68673 | 74.50387 | 66.08735 | 4.97350 | 0.1448423 | 2.6145332 | 47 | 4 | 2002–2009 | 0.34 | M-v | 1 | MPC | 164279 | 2005 $XH_{48}$ |
| 2005 $XK_{50}$ | 16.4 | 0.15 | 20100104 | 44.74474 | 80.11323 | 292.06601 | 6.01104 | 0.2420987 | 2.5690718 | 61 | 3 | 2001–2009 | 0.54 | M-v | 3 | MPC | 166238 | 2005 $XK_{50}$ |
| 2005 $XJ_{53}$ | 17.0 | 0.15 | 20100104 | 97.89684 | 13.17336 | 306.41723 | 2.83971 | 0.0563995 | 2.5189058 | 37 | 3 | 2005–2009 | 0.29 | M-v | 3 | MPC | 166238 | 2005 $XJ_{53}$ |
| 2005 $XU_{53}$ | 16.7 | 0.15 | 20100104 | 76.05617 | 274.99869 | 22.51090 | 5.11237 | 0.1492376 | 2.6889251 | 46 | 6 | 1999–2009 | 0.40 | M-v | 0 | MPC | 164279 | 2005 $XU_{53}$ |
| 2005 $XK_{54}$ | 17.7 | 0.15 | 20100104 | 319.82834 | 125.66289 | 38.22769 | 1.75221 | 0.1292886 | 2.3937268 | 40 | 6 | 2001–2009 | 0.48 | M-v | 1 | MPC | 147364 | 2005 $XK_{54}$ |
| 2005 $XQ_{54}$ | 18.0 | 0.15 | 20100104 | 61.41662 | 51.11691 | 337.66594 | 1.46919 | 0.2187982 | 2.4093952 | 33 | 3 | 2001–2009 | 0.48 | M-v | 3 | MPC | 96628 | 2005 $XQ_{54}$ |
| 2005 $XU_{55}$ | 17.1 | 0.15 | 20100104 | 101.47927 | 77.80067 | 270.06963 | 4.05259 | 0.1438057 | 2.4150592 | 42 | 4 | 2001–2009 | 0.28 | M-v | 2 | MPC | 158521 | 2005 $XU_{55}$ |
| 2005 $XA_{59}$ | 18.3 | 0.15 | 20100104 | 14.87833 | 326.57601 | 71.89852 | 5.89478 | 0.2816081 | 2.5882405 | 28 | 2 | 2005–2009 | 0.34 | M-v | 3 | MPC | 165491 | 2005 $XA_{59}$ |
| 2005 $XM_{59}$ | 16.4 | 0.15 | 20100104 | 33.88817 | 54.29365 | 336.81413 | 1.92044 | 0.1236383 | 2.5843682 | 76 | 5 | 2001–2009 | 0.47 | M-v | 1 | MPC | 166238 | 2005 $XM_{59}$ |
| 2005 $XN_{59}$ | 16.8 | 0.15 | 20100104 | 13.10537 | 88.64229 | 328.15222 | 1.66476 | 0.1891139 | 2.5690292 | 48 | 3 | 2002–2009 | 0.45 | M-v | 3 | MPC | 166238 | 2005 $XN_{59}$ |
| 2005 $XU_{59}$ | 17.8 | 0.15 | 20100104 | 49.71322 | 11.19269 | 350.04624 | 0.21334 | 0.2000388 | 2.5984832 | 39 | 2 | 2005–2009 | 0.22 | M-v | 3 | MPC | 165491 | 2005 $XU_{59}$ |
| 2005 $XD_{60}$ | 16.1 | 0.15 | 20100104 | 10.06127 | 112.89317 | 273.90266 | 3.96905 | 0.0569716 | 2.7496188 | 56 | 5 | 1995–2009 | 0.41 | M-v | 0 | MPC | 164279 | 2005 $XD_{60}$ |
| 2005 $XL_{60}$ | 16.5 | 0.15 | 20100104 | 7.89358 | 318.56360 | 70.90034 | 3.80244 | 0.1239644 | 2.7210240 | 41 | 5 | 1998–2009 | 0.26 | M-v | 0 | MPC | 166238 | 2005 $XL_{60}$ |
| 2005 $XN_{60}$ | 17.3 | 0.15 | 20100104 | 322.45870 | 251.78536 | 268.38594 | 4.23990 | 0.0575514 | 2.3059060 | 37 | 5 | 2002–2009 | 0.30 | M-v | 0 | MPC | 159768 | 2005 $XN_{60}$ |
| 2005 $XG_{61}$ | 17.3 | 0.15 | 20100104 | 119.61777 | 246.38363 | 49.51443 | 1.86795 | 0.1759917 | 2.5613486 | 30 | 3 | 2005–2009 | 0.30 | M-v | 3 | MPC | 165491 | 2005 $XG_{61}$ |
| 2005 $XH_{61}$ | 16.4 | 0.15 | 20100104 | 30.28258 | 145.49746 | 242.94952 | 6.93830 | 0.3036441 | 2.5594703 | 92 | 3 | 2002–2009 | 0.51 | M-v | 2 | MPC | 166238 | 2005 $XH_{61}$ |
| 2005 $XX_{61}$ | 17.4 | 0.15 | 20100104 | 305.92189 | 231.19923 | 252.98413 | 1.92813 | 0.0622683 | 2.5175516 | 43 | 4 | 2003–2009 | 0.35 | M-v | 2 | MPC | 166238 | 2005 $XX_{61}$ |
| 2005 $XF_{62}$ | 15.8 | 0.15 | 20100104 | 45.83568 | 287.75236 | 93.35169 | 22.72081 | 0.0803155 | 2.5981925 | 48 | 4 | 2001–2009 | 0.46 | M-v | 1 | MPC | 166238 | 2005 $XF_{62}$ |
| 2005 $XY_{63}$ | 16.9 | 0.15 | 20100104 | 331.55831 | 113.78946 | 33.26061 | 2.60685 | 0.1580538 | 2.4470355 | 39 | 6 | 1997–2009 | 0.38 | M-v | 1 | MPC | 166238 | 2005 $XY_{63}$ |
| 2005 $XF_{65}$ | 15.8 | 0.15 | 20100104 | 325.87541 | 251.79590 | 225.23231 | 7.40962 | 0.1334018 | 2.5776993 | 97 | 5 | 2000–2009 | 0.52 | M-v | 0 | MPC | 166238 | 2005 $XF_{65}$ |
| 2005 $XR_{65}$ | 16.8 | 0.15 | 20100104 | 49.68535 | 92.72325 | 276.95268 | 9.84457 | 0.1996689 | 2.5355492 | 36 | 3 | 2001–2009 | 0.49 | M-v | 4 | MPC | 166238 | 2005 $XR_{65}$ |
| 2005 $XW_{65}$ | 15.7 | 0.15 | 20100104 | 41.54845 | 168.39020 | 213.66326 | 4.55835 | 0.2281308 | 2.5539209 | 113 | 6 | 1998–2009 | 0.51 | M-v | 2 | MPC | 166238 | 2005 $XW_{65}$ |
| 2005 $XA_{66}$ | 16.0 | 0.15 | 20100104 | 25.51053 | 200.45268 | 203.88223 | 3.66716 | 0.2449470 | 2.5484397 | 106 | 5 | 2001–2009 | 0.50 | M-v | 2 | MPC | 166238 | 2005 $XA_{66}$ |
| 2005 $XK_{66}$ | 15.9 | 0.15 | 20100104 | 32.48053 | 234.73967 | 125.01059 | 14.78301 | 0.3883958 | 2.5954680 | 66 | 3 | 2002–2009 | 0.46 | M-v | 2 | MPC | 166238 | 2005 $XK_{66}$ |
| 2005 $XA_{67}$ | 16.2 | 0.15 | 20100104 | 303.23365 | 164.56620 | 295.20248 | 4.37778 | 0.0286531 | 2.7133996 | 44 | 5 | 2002–2009 | 0.49 | M-v | 1 | MPC | 164279 | 2005 $XA_{67}$ |
| 2005 $XZ_{69}$ | 17.7 | 0.15 | 20100104 | 28.09273 | 50.89750 | 22.69141 | 2.99817 | 0.1439795 | 2.4373087 | 33 | 4 | 2001–2009 | 0.32 | M-v | 2 | MPC | 166238 | 2005 $XZ_{69}$ |
| 2005 $XU_{70}$ | 16.1 | 0.15 | 20100104 | 67.62148 | 306.47841 | 44.78179 | 3.26790 | 0.2554413 | 2.5338393 | 35 | 3 | 2001–2009 | 0.38 | M-v | 3 | MPC | 166239 | 2005 $XU_{70}$ |
| 2005 $XS_{72}$ | 16.5 | 0.15 | 20100104 | 271.05700 | 140.43420 | 50.76801 | 4.86331 | 0.1022851 | 2.5512912 | 36 | 5 | 2001–2009 | 0.23 | M-v | 0 | MPC | 166239 | 2005 $XS_{72}$ |
| 2005 $XQ_{73}$ | 17.4 | 0.15 | 20100104 | 8.34020 | 31.49071 | 11.42999 | 2.16578 | 0.2035387 | 2.6574595 | 80 | 3 | 2000–2009 | 0.36 | M-v | 1 | MPC | 166239 | 2005 $XQ_{73}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 $XK_{75}$ | 16.8 | 0.15 | 20100104 | 16.29004 | 331.00050 | 63.42454 | 6.31698 | 0.2657095 | 2.6374315 | 57 | 2 | 2005–2009 | 0.39 | M-v | 2 | MPC | 166239 | 2005 $XK_{75}$ |
| 2005 $XQ_{76}$ | 16.7 | 0.15 | 20100104 | 67.95436 | 35.70691 | 314.02875 | 2.75501 | 0.0319500 | 2.5502444 | 28 | 2 | 2005–2009 | 0.22 | M-v | 4 | MPC | 165491 | 2005 $XQ_{76}$ |
| 2005 $XF_{78}$ | 16.7 | 0.15 | 20100104 | 12.29874 | 77.42251 | 320.34800 | 10.62957 | 0.2525511 | 2.5449234 | 64 | 3 | 2001–2009 | 0.56 | M-v | 3 | MPC | 166239 | 2005 $XF_{78}$ |
| 2005 $XJ_{78}$ | 16.5 | 0.15 | 20100104 | 338.85013 | 257.83869 | 173.51335 | 12.76550 | 0.2394458 | 2.6368026 | 38 | 2 | 2005–2009 | 0.55 | M-v | 3 | MPC | 164280 | 2005 $XJ_{78}$ |
| 2005 $XX_{78}$ | 16.6 | 0.15 | 20100104 | 30.63494 | 31.30264 | 347.60193 | 7.98622 | 0.2683648 | 2.5390053 | 84 | 4 | 2001–2009 | 0.50 | M-v | 2 | MPC | 166239 | 2005 $XX_{78}$ |
| 2005 $XV_{81}$ | 18.2 | 0.15 | 20100104 | 331.32650 | 168.73188 | 310.32897 | 1.16893 | 0.1659990 | 2.5666461 | 28 | 4 | 1998–2009 | 0.32 | M-v | 3 | MPC | 166239 | 2005 $XV_{81}$ |
| 2005 $XO_{82}$ | 17.0 | 0.15 | 20100104 | 55.84251 | 75.10130 | 272.34095 | 3.63593 | 0.2267280 | 2.5626733 | 71 | 3 | 2001–2009 | 0.43 | M-v | 3 | MPC | 166239 | 2005 $XO_{82}$ |
| 2005 $XV_{83}$ | 15.8 | 0.15 | 20100104 | 1.06832 | 340.27025 | 91.78175 | 12.93636 | 0.1587795 | 2.6597206 | 116 | 4 | 2000–2009 | 0.61 | M-v | 1 | MPC | 166239 | 2005 $XV_{83}$ |
| 2005 $XX_{83}$ | 16.7 | 0.15 | 20100104 | 338.83603 | 214.89309 | 222.52643 | 11.02678 | 0.3289473 | 2.7336557 | 56 | 2 | 2005–2009 | 0.58 | M-v | 3 | MPC | 164280 | 2005 $XX_{83}$ |
| 2005 $XJ_{84}$ | 16.1 | 0.15 | 20100104 | 52.39425 | 199.93161 | 166.70380 | 6.06377 | 0.2112982 | 2.5452853 | 70 | 6 | 1999–2009 | 0.54 | M-v | 2 | MPC | 166239 | 2005 $XJ_{84}$ |
| 2005 $XL_{86}$ | 17.7 | 0.15 | 20100104 | 335.18099 | 34.82131 | 81.38413 | 5.66571 | 0.1577318 | 2.5595522 | 32 | 3 | 2001–2009 | 0.31 | M-v | 3 | MPC | 166239 | 2005 $XL_{86}$ |
| 2005 $XU_{86}$ | 16.5 | 0.15 | 20100104 | 119.69485 | 356.02066 | 305.74653 | 4.80752 | 0.0377895 | 2.7115884 | 33 | 4 | 2005–2009 | 0.26 | M-v | 0 | MPC | 165492 | 2005 $XU_{86}$ |
| 2005 $XF_{95}$ | 16.8 | 0.15 | 20100104 | 271.32762 | 330.92147 | 203.54278 | 6.42342 | 0.0559637 | 2.3279184 | 37 | 4 | 2005–2009 | 0.54 | M-v | 1 | MPC | 166239 | 2005 $XF_{95}$ |
| 2005 $XJ_{100}$ | 18.4 | 0.15 | 20100104 | 24.14238 | 304.80916 | 107.47768 | 5.86835 | 0.2806867 | 2.5999681 | 21 | 2 | 2005–2009 | 0.27 | M-v | 3 | MPC | 165492 | 2005 $XJ_{100}$ |
| 2005 $XX_{104}$ | 17.3 | 0.15 | 20100104 | 92.10757 | 10.85216 | 352.14281 | 2.44221 | 0.0902853 | 2.6822457 | 30 | 4 | 2004–2009 | 0.29 | M-v | 1 | MPC | 147365 | 2005 $XX_{104}$ |
| 2005 $XZ_{114}$ | 16.2 | 0.15 | 20100104 | 289.52990 | 243.91765 | 281.60465 | 6.58246 | 0.0700090 | 2.5229902 | 26 | 3 | 2001–2009 | 0.64 | M-v | 5 | MPC | 135939 | 2005 $XZ_{114}$ |
| 2005 $XH_{115}$ | 16.5 | 0.15 | 20100104 | 183.08422 | 298.34986 | 356.58749 | 3.32863 | 0.0467752 | 2.7633837 | 52 | 4 | 2003–2009 | 0.30 | M-v | 1 | MPC | 146335 | 2005 $XH_{115}$ |
| 2005 $XK_{115}$ | 16.8 | 0.15 | 20100104 | 185.70421 | 341.76712 | 305.87238 | 3.55274 | 0.0696306 | 2.6336812 | 38 | 3 | 2005–2009 | 0.33 | M-v | 3 | MPC | 146335 | 2005 $XK_{115}$ |
| 2005 $XN_{115}$ | 16.9 | 0.15 | 20100104 | 318.21079 | 203.82858 | 291.92105 | 1.85538 | 0.0997838 | 2.5527986 | 38 | 6 | 2001–2009 | 0.48 | M-v | 1 | MPC | 162467 | 2005 $XN_{115}$ |
| 2005 YD | 24.5 | 0.15 | 20100104 | 340.79442 | 314.22996 | 90.65571 | 4.78320 | 0.4252213 | 1.6528637 | 28 | 1 | 13 days | 0.52 | M-v | 7 | MPC | 98031 | 2005 YD |
| 2005 $YJ_1$ | 16.2 | 0.15 | 20100104 | 34.03273 | 304.15493 | 105.41765 | 15.22285 | 0.1722969 | 2.5655560 | 72 | 6 | 2002–2009 | 0.47 | M-v | 1 | MPC | 166239 | 2005 $YJ_1$ |
| 2005 $YM_1$ | 16.4 | 0.15 | 20100104 | 345.89592 | 35.63846 | 26.06952 | 7.30320 | 0.1785475 | 2.6740817 | 55 | 4 | 2002–2009 | 0.46 | M-v | 2 | MPC | 166239 | 2005 $YM_1$ |
| 2005 $YX_1$ | 15.4 | 0.15 | 20100104 | 40.76743 | 271.56138 | 74.95476 | 27.42758 | 0.4708500 | 2.6180051 | 127 | 5 | 2000–2009 | 0.50 | M-v | 1 | MPC | 166239 | 2005 $YX_1$ |
| 2005 $YF_3$ | 15.1 | 0.15 | 20100104 | 47.38583 | 347.21133 | 20.92949 | 15.29961 | 0.1931365 | 2.5499968 | 99 | 5 | 2001–2009 | 0.55 | M-v | 2 | MPC | 166239 | 2005 $YF_3$ |
| 2005 $YZ_3$ | 16.5 | 0.15 | 20100104 | 15.13687 | 19.36168 | 60.56541 | 12.54828 | 0.1176446 | 2.5246729 | 45 | 4 | 2001–2009 | 0.41 | M-v | 3 | MPC | 120829 | 2005 $YZ_3$ |
| 2005 $YV_5$ | 17.0 | 0.15 | 20100104 | 43.29788 | 293.60047 | 79.28248 | 5.97131 | 0.2660759 | 2.5424449 | 59 | 3 | 2005–2009 | 0.42 | M-v | 2 | MPC | 165492 | 2005 $YV_5$ |
| 2005 $YB_6$ | 17.2 | 0.15 | 20100104 | 301.32581 | 56.32594 | 91.33097 | 5.38111 | 0.1683883 | 2.5854396 | 43 | 3 | 2005–2009 | 0.38 | M-v | 2 | MPC | 165493 | 2005 $YB_6$ |
| 2005 $YX_6$ | 16.1 | 0.15 | 20100104 | 22.72920 | 308.80599 | 64.73345 | 7.04465 | 0.0538141 | 2.7467555 | 47 | 5 | 1991–2009 | 0.51 | M-v | 1 | MPC | 164280 | 2005 $YX_6$ |
| 2005 $YB_7$ | 16.0 | 0.15 | 20100104 | 19.46935 | 141.78148 | 317.87793 | 9.09655 | 0.1568699 | 2.4404410 | 68 | 4 | 2001–2009 | 0.52 | M-v | 2 | MPC | 158522 | 2005 $YB_7$ |
| 2005 $YK_7$ | 17.3 | 0.15 | 20100104 | 8.82193 | 150.93460 | 282.92309 | 12.57242 | 0.2250854 | 2.5923545 | 42 | 4 | 2000–2009 | 0.38 | M-v | 1 | MPC | 96664 | 2005 $YK_7$ |
| 2005 $YJ_8$ | 15.7 | 0.15 | 20100104 | 291.36300 | 258.43628 | 286.01732 | 12.79194 | 0.1076469 | 2.5710765 | 78 | 5 | 2002–2009 | 0.47 | M-v | 2 | MPC | 147365 | 2005 $YJ_8$ |
| 2005 $YJ_9$ | 17.2 | 0.15 | 20100104 | 47.42118 | 64.30845 | 262.53879 | 4.50337 | 0.3067400 | 2.6529612 | 39 | 2 | 2005–2009 | 0.40 | M-v | 3 | MPC | 163779 | 2005 $YJ_9$ |
| 2005 $YK_9$ | 17.9 | 0.15 | 20100104 | 334.89942 | 199.49332 | 306.07808 | 1.51733 | 0.1396522 | 2.3997862 | 46 | 5 | 1999–2009 | 0.34 | M-v | 0 | MPC | 147365 | 2005 $YK_9$ |
| 2005 $YW_{10}$ | 17.0 | 0.15 | 20100104 | 42.16070 | 108.70540 | 268.29891 | 1.20274 | 0.0544068 | 2.6538363 | 52 | 5 | 2003–2009 | 0.29 | M-v | 0 | MPC | 166239 | 2005 $YW_{10}$ |
| 2005 $YL_{13}$ | 17.2 | 0.15 | 20100104 | 342.22854 | 321.84062 | 148.98591 | 0.77024 | 0.1170816 | 2.6196942 | 47 | 5 | 1996–2009 | 0.32 | M-v | 0 | MPC | 96670 | 2005 $YL_{13}$ |
| 2005 $YM_{13}$ | 16.2 | 0.15 | 20100104 | 43.78978 | 276.77255 | 112.85302 | 6.56462 | 0.1403816 | 2.6475751 | 59 | 7 | 2000–2009 | 0.54 | M-v | 0 | MPC | 166239 | 2005 $YM_{13}$ |
| 2005 $YU_{15}$ | 16.8 | 0.15 | 20100104 | 25.40688 | 282.45092 | 116.73756 | 6.91083 | 0.1613411 | 2.6916123 | 40 | 2 | 2005–2009 | 0.31 | M-v | 3 | MPC | 165493 | 2005 $YU_{15}$ |
| 2005 $YD_{16}$ | 17.4 | 0.15 | 20100104 | 356.81848 | 175.45454 | 267.16227 | 0.88628 | 0.0561559 | 2.6903328 | 41 | 5 | 2000–2009 | 0.34 | M-v | 0 | MPC | 120829 | 2005 $YD_{16}$ |
| 2005 $YQ_{16}$ | 17.4 | 0.15 | 20100104 | 44.02975 | 138.71367 | 252.50913 | 0.80274 | 0.2505840 | 2.5762866 | 41 | 4 | 2000–2009 | 0.37 | M-v | 3 | MPC | 96675 | 2005 $YQ_{16}$ |
| 2005 $YW_{17}$ | 17.8 | 0.15 | 20100104 | 357.55713 | 159.27182 | 275.97848 | 7.85539 | 0.2224549 | 2.5503152 | 27 | 3 | 2001–2009 | 0.46 | M-v | 3 | MPC | 166239 | 2005 $YW_{17}$ |
| 2005 $YN_{23}$ | 17.9 | 0.15 | 20100104 | 34.39984 | 105.07188 | 282.03268 | 3.39198 | 0.3018272 | 2.5861412 | 34 | 2 | 2005–2009 | 0.31 | M-v | 4 | MPC | 165494 | 2005 $YN_{23}$ |
| 2005 $YP_{23}$ | 16.7 | 0.15 | 20100104 | 89.77605 | 217.78404 | 108.05820 | 1.73244 | 0.0735664 | 2.7696534 | 52 | 5 | 2002–2009 | 0.34 | M-v | 1 | MPC | 166240 | 2005 $YP_{23}$ |
| 2005 $YK_{24}$ | 17.1 | 0.15 | 20100104 | 8.26076 | 9.20626 | 105.49058 | 8.61853 | 0.1402044 | 2.4542300 | 49 | 3 | 2001–2009 | 0.31 | M-v | 2 | MPC | 166240 | 2005 $YK_{24}$ |
| 2005 $YR_{24}$ | 17.1 | 0.15 | 20100104 | 307.79605 | 320.60340 | 247.40428 | 0.88478 | 0.2096292 | 2.4132710 | 44 | 6 | 1999–2009 | 0.34 | M-v | 1 | MPC | 147365 | 2005 $YR_{24}$ |
| 2005 $YG_{25}$ | 18.1 | 0.15 | 20100104 | 352.40223 | 171.97719 | 283.70802 | 3.43038 | 0.1926662 | 2.6069669 | 36 | 4 | 2000–2009 | 0.33 | M-v | 1 | MPC | 166240 | 2005 $YG_{25}$ |
| 2005 $YJ_{25}$ | 16.9 | 0.15 | 20100104 | 36.99227 | 250.22743 | 131.10209 | 2.20912 | 0.1573423 | 2.7106179 | 65 | 5 | 2002–2009 | 0.42 | M-v | 1 | MPC | 166240 | 2005 $YJ_{25}$ |
| 2005 $YP_{25}$ | 17.6 | 0.15 | 20100104 | 343.03844 | 56.57065 | 119.26275 | 2.96331 | 0.1537116 | 2.3856404 | 37 | 4 | 1999–2009 | 0.26 | M-v | 0 | MPC | 147365 | 2005 $YP_{25}$ |
| 2005 $YR_{25}$ | 16.5 | 0.15 | 20100104 | 18.67420 | 308.33799 | 115.04860 | 6.04823 | 0.1485353 | 2.6121826 | 92 | 5 | 2002–2009 | 0.49 | M-v | 1 | MPC | 166240 | 2005 $YR_{25}$ |
| 2005 $YS_{25}$ | 17.2 | 0.15 | 20100104 | 300.57462 | 102.82681 | 111.90821 | 3.56068 | 0.1339844 | 2.4072704 | 64 | 7 | 1995–2009 | 0.38 | M-v | 0 | MPC | 147365 | 2005 $YS_{25}$ |
| 2005 $YF_{26}$ | 16.4 | 0.15 | 20100104 | 17.72513 | 340.65048 | 34.22735 | 2.33746 | 0.0803144 | 2.8685011 | 81 | 5 | 2002–2009 | 0.40 | M-v | 0 | MPC | 166240 | 2005 $YF_{26}$ |
| 2005 $YP_{26}$ | 16.7 | 0.15 | 20100104 | 356.77022 | 138.08401 | 269.70704 | 2.24477 | 0.0952320 | 2.7255240 | 48 | 4 | 2002–2009 | 0.35 | M-v | 1 | MPC | 166240 | 2005 $YP_{26}$ |
| 2005 $YU_{26}$ | 17.3 | 0.15 | 20100104 | 0.95217 | 173.23539 | 335.78756 | 3.68477 | 0.2720926 | 2.4128343 | 55 | 4 | 2001–2009 | 0.40 | M-v | 2 | MPC | 166240 | 2005 $YU_{26}$ |
| 2005 $YY_{26}$ | 16.7 | 0.15 | 20100104 | 42.38423 | 288.15632 | 90.44882 | 4.73799 | 0.0669825 | 2.7407978 | 42 | 3 | 2005–2009 | 0.32 | M-v | 3 | MPC | 165494 | 2005 $YY_{26}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 $YS_{27}$ | 17.2 | 0.15 | 20100104 | 52.94353 | 49.42290 | 346.18811 | 2.38813 | 0.2120823 | 2.5237022 | 34 | 2 | 2005–2009 | 0.30 | M-v | 4 | MPC | 165494 | 2005 $YS_{27}$ |
| 2005 $YT_{28}$ | 16.2 | 0.15 | 20100104 | 90.48151 | 246.83248 | 105.35652 | 11.71366 | 0.1484501 | 2.5851820 | 67 | 7 | 1995–2009 | 0.39 | M-v | 1 | MPC | 143247 | 2005 $YT_{28}$ |
| 2005 $YC_{29}$ | 17.1 | 0.15 | 20100104 | 280.13627 | 74.53027 | 83.63104 | 3.20848 | 0.1984286 | 2.7432437 | 39 | 3 | 2002–2009 | 0.39 | M-v | 3 | MPC | 166240 | 2005 $YC_{29}$ |
| 2005 $YG_{29}$ | 18.0 | 0.15 | 20100104 | 17.95524 | 41.08024 | 41.71018 | 1.28138 | 0.1861471 | 2.5135097 | 32 | 4 | 2000–2009 | 0.27 | M-v | 3 | MPC | 103817 | 2005 $YG_{29}$ |
| 2005 $YP_{30}$ | 16.6 | 0.15 | 20100104 | 330.82274 | 352.00633 | 125.94828 | 5.35767 | 0.2806393 | 2.6466734 | 109 | 3 | 2002–2009 | 0.51 | M-v | 3 | MPC | 166240 | 2005 $YP_{30}$ |
| 2005 $YY_{31}$ | 17.0 | 0.15 | 20100104 | 18.67902 | 311.06982 | 104.47104 | 5.77786 | 0.1897247 | 2.6400990 | 57 | 4 | 2000–2009 | 0.48 | M-v | 0 | MPC | 166240 | 2005 $YY_{31}$ |
| 2005 $YN_{32}$ | 18.1 | 0.15 | 20100104 | 14.72926 | 267.62176 | 172.45688 | 1.13761 | 0.1889009 | 2.5605879 | 37 | 5 | 2000–2009 | 0.45 | M-v | 1 | MPC | 121852 | 2005 $YN_{32}$ |
| 2005 $YV_{32}$ | 17.4 | 0.15 | 20100104 | 9.95551 | 230.86122 | 215.85678 | 1.33776 | 0.1890475 | 2.5576664 | 42 | 3 | 2002–2009 | 0.35 | M-v | 2 | MPC | 96693 | 2005 $YV_{32}$ |
| 2005 $YX_{32}$ | 17.3 | 0.15 | 20100104 | 355.00966 | 196.34203 | 256.02962 | 1.95022 | 0.0701312 | 2.6419841 | 24 | 3 | 2004–2009 | 0.32 | M-v | 3 | MPC | 96693 | 2005 $YX_{32}$ |
| 2005 $YB_{33}$ | 16.9 | 0.15 | 20100104 | 356.77575 | 190.87066 | 252.45001 | 2.07512 | 0.1940917 | 2.6368219 | 65 | 3 | 2004–2009 | 0.36 | M-v | 3 | MPC | 166240 | 2005 $YB_{33}$ |
| 2005 $YP_{33}$ | 16.8 | 0.15 | 20100104 | 12.20020 | 298.80602 | 110.13947 | 6.82971 | 0.2544448 | 2.6341624 | 53 | 2 | 2005–2009 | 0.50 | M-v | 3 | MPC | 166240 | 2005 $YP_{33}$ |
| 2005 $YU_{34}$ | 15.8 | 0.15 | 20100104 | 82.53485 | 210.99515 | 123.97457 | 12.51568 | 0.0245360 | 2.8348658 | 39 | 4 | 2002–2009 | 0.58 | M-v | 1 | MPC | 166240 | 2005 $YU_{34}$ |
| 2005 $YZ_{34}$ | 16.0 | 0.15 | 20100104 | 242.36291 | 274.96237 | 280.29455 | 4.38249 | 0.0451359 | 2.7636530 | 52 | 4 | 2005–2009 | 0.33 | M-v | 0 | MPC | 166240 | 2005 $YZ_{34}$ |
| 2005 $YW_{35}$ | 16.7 | 0.15 | 20100104 | 249.90941 | 332.04205 | 275.28252 | 5.55623 | 0.1055475 | 2.4293567 | 52 | 4 | 2002–2009 | 0.36 | M-v | 2 | MPC | 146339 | 2005 $YW_{35}$ |
| 2005 $YJ_{36}$ | 17.1 | 0.15 | 20100104 | 7.65382 | 353.49546 | 87.14697 | 3.67000 | 0.1412234 | 2.6192020 | 35 | 4 | 2002–2009 | 0.28 | M-v | 2 | MPC | 124477 | 2005 $YJ_{36}$ |
| 2005 $YP_{37}$ | 17.1 | 0.15 | 20100104 | 14.03813 | 85.68367 | 318.96118 | 5.05514 | 0.3517822 | 2.6010112 | 80 | 3 | 2002–2009 | 0.52 | M-v | 2 | MPC | 165495 | 2005 $YP_{37}$ |
| 2005 $YG_{38}$ | 16.6 | 0.15 | 20100104 | 15.72069 | 48.99882 | 27.94444 | 12.69298 | 0.2030721 | 2.5476864 | 33 | 3 | 2001–2009 | 0.58 | M-v | 3 | MPC | 166240 | 2005 $YG_{38}$ |
| 2005 $YJ_{39}$ | 16.8 | 0.15 | 20100104 | 343.93665 | 277.72942 | 186.40540 | 4.93763 | 0.2485219 | 2.6123970 | 74 | 4 | 2002–2009 | 0.58 | M-v | 3 | MPC | 166240 | 2005 $YJ_{39}$ |
| 2005 $YM_{39}$ | 17.0 | 0.15 | 20100104 | 349.25763 | 137.24137 | 14.29360 | 3.44707 | 0.1309080 | 2.4326931 | 42 | 3 | 2004–2008 | 0.57 | M-v | 4 | MPC | 96701 | 2005 $YM_{39}$ |
| 2005 $YS_{41}$ | 17.4 | 0.15 | 20100104 | 52.10452 | 43.69995 | 347.49854 | 1.52908 | 0.0934721 | 2.6171218 | 40 | 5 | 2000–2009 | 0.32 | M-v | 1 | MPC | 166240 | 2005 $YS_{41}$ |
| 2005 $YT_{41}$ | 17.0 | 0.15 | 20100104 | 17.68588 | 327.10199 | 101.52111 | 4.20054 | 0.1508686 | 2.5943111 | 56 | 5 | 2000–2009 | 0.54 | M-v | 0 | MPC | 166240 | 2005 $YT_{41}$ |
| 2005 $YU_{41}$ | 15.9 | 0.15 | 20100104 | 23.27978 | 97.21375 | 306.07452 | 6.44037 | 0.0413847 | 2.7450522 | 50 | 4 | 2004–2009 | 0.38 | M-v | 1 | MPC | 166240 | 2005 $YU_{41}$ |
| 2005 $YH_{42}$ | 17.0 | 0.15 | 20100104 | 12.03401 | 356.14660 | 35.39142 | 2.39826 | 0.1075265 | 2.6872022 | 44 | 4 | 2000–2009 | 0.41 | M-v | 1 | MPC | 166240 | 2005 $YH_{42}$ |
| 2005 $YY_{42}$ | 16.5 | 0.15 | 20100104 | 225.75522 | 333.31461 | 286.02491 | 12.43615 | 0.2417323 | 2.5533728 | 43 | 5 | 1995–2009 | 0.39 | M-v | 2 | MPC | 96705 | 2005 $YY_{42}$ |
| 2005 $YG_{43}$ | 16.7 | 0.15 | 20100104 | 25.64371 | 293.27866 | 125.14946 | 4.43113 | 0.0595836 | 2.6360441 | 55 | 7 | 1996–2009 | 0.34 | M-v | 0 | MPC | 158522 | 2005 $YG_{43}$ |
| 2005 $YO_{44}$ | 16.4 | 0.15 | 20100104 | 72.30815 | 241.95253 | 114.90114 | 9.05517 | 0.1343183 | 2.6343318 | 58 | 7 | 1999–2009 | 0.45 | M-v | 1 | MPC | 119677 | 2005 $YO_{44}$ |
| 2005 $YV_{44}$ | 16.9 | 0.15 | 20100104 | 38.38245 | 186.70067 | 219.33197 | 1.50834 | 0.1705062 | 2.5520819 | 43 | 3 | 2001–2009 | 0.44 | M-v | 3 | MPC | 96708 | 2005 $YV_{44}$ |
| 2005 $YK_{46}$ | 16.7 | 0.15 | 20100104 | 33.82611 | 277.24828 | 116.45665 | 12.49510 | 0.1944028 | 2.6259781 | 56 | 3 | 2004–2009 | 0.34 | M-v | 1 | MPC | 166240 | 2005 $YK_{46}$ |
| 2005 $YO_{46}$ | 16.1 | 0.15 | 20100104 | 39.82228 | 120.66682 | 275.56421 | 10.70978 | 0.0737826 | 2.6439735 | 61 | 5 | 2000–2009 | 0.48 | M-v | 0 | MPC | 166240 | 2005 $YO_{46}$ |
| 2005 $YZ_{46}$ | 16.3 | 0.15 | 20100104 | 321.32359 | 30.83443 | 107.08157 | 13.49199 | 0.1720350 | 2.6322582 | 73 | 3 | 2002–2009 | 0.47 | M-v | 2 | MPC | 166241 | 2005 $YZ_{46}$ |
| 2005 $YT_{47}$ | 16.2 | 0.15 | 20100104 | 15.20943 | 340.02128 | 91.44236 | 10.27162 | 0.1672475 | 2.5693566 | 64 | 3 | 2001–2009 | 0.64 | M-v | 3 | MPC | 166241 | 2005 $YT_{47}$ |
| 2005 $YU_{47}$ | 17.2 | 0.15 | 20100104 | 21.74819 | 127.96859 | 0.05749 | 3.61136 | 0.1455823 | 2.3670275 | 85 | 5 | 1997–2009 | 0.55 | M-v | 1 | MPC | 147366 | 2005 $YU_{47}$ |
| 2005 $YF_{48}$ | 17.2 | 0.15 | 20100104 | 48.94314 | 274.12454 | 111.39611 | 3.44941 | 0.1963958 | 2.6108575 | 44 | 5 | 2000–2009 | 0.37 | M-v | 0 | MPC | 166241 | 2005 $YF_{48}$ |
| 2005 $YY_{48}$ | 16.7 | 0.15 | 20100104 | 301.75882 | 201.11013 | 285.39160 | 4.31331 | 0.0299002 | 2.7844804 | 41 | 3 | 1995–2009 | 0.36 | M-v | 3 | MPC | 165495 | 2005 $YY_{48}$ |
| 2005 $YC_{49}$ | 16.4 | 0.15 | 20100104 | 83.22042 | 215.86729 | 128.19451 | 5.09995 | 0.1204207 | 2.7361173 | 43 | 7 | 1997–2009 | 0.42 | M-v | 0 | MPC | 166241 | 2005 $YC_{49}$ |
| 2005 $YW_{49}$ | 17.5 | 0.15 | 20100104 | 0.54918 | 339.90004 | 122.94412 | 5.73631 | 0.2117262 | 2.5465433 | 50 | 3 | 2002–2009 | 0.49 | M-v | 3 | MPC | 96718 | 2005 $YW_{49}$ |
| 2005 $YJ_{50}$ | 15.6 | 0.15 | 20100104 | 338.61318 | 341.49636 | 123.19182 | 15.12811 | 0.0627029 | 2.6560012 | 85 | 4 | 2002–2009 | 0.50 | M-v | 2 | MPC | 166241 | 2005 $YJ_{50}$ |
| 2005 $YD_{51}$ | 16.5 | 0.15 | 20100104 | 245.15623 | 268.04961 | 295.28653 | 3.43499 | 0.0298808 | 2.6723921 | 56 | 5 | 2002–2009 | 0.33 | M-v | 0 | MPC | 147366 | 2005 $YD_{51}$ |
| 2005 $YM_{52}$ | 16.2 | 0.15 | 20100104 | 27.67924 | 134.47173 | 264.90146 | 5.16691 | 0.0749343 | 2.7259795 | 67 | 4 | 2000–2009 | 0.47 | M-v | 1 | MPC | 166241 | 2005 $YM_{52}$ |
| 2005 $YS_{52}$ | 16.4 | 0.15 | 20100104 | 349.04418 | 190.85076 | 255.34278 | 3.42281 | 0.1384177 | 2.6786959 | 71 | 4 | 2004–2009 | 0.43 | M-v | 0 | MPC | 166241 | 2005 $YS_{52}$ |
| 2005 $YS_{53}$ | 16.8 | 0.15 | 20100104 | 285.28070 | 88.44924 | 106.74334 | 4.30088 | 0.0969140 | 2.5530817 | 58 | 4 | 2002–2009 | 0.46 | M-v | 3 | MPC | 166241 | 2005 $YS_{53}$ |
| 2005 $YC_{54}$ | 16.7 | 0.15 | 20100104 | 181.08279 | 337.27209 | 281.89638 | 3.58458 | 0.1016443 | 2.7225366 | 45 | 4 | 2005–2009 | 0.35 | M-v | 1 | MPC | 166241 | 2005 $YC_{54}$ |
| 2005 $YQ_{54}$ | 18.8 | 0.15 | 20100104 | 15.56757 | 157.98481 | 281.26533 | 0.90644 | 0.2242324 | 2.5438623 | 33 | 4 | 2000–2009 | 0.37 | M-v | 2 | MPC | 96724 | 2005 $YQ_{54}$ |
| 2005 $YD_{55}$ | 16.1 | 0.15 | 20100104 | 186.95120 | 137.13539 | 123.61510 | 8.79389 | 0.1674682 | 2.6849008 | 43 | 4 | 2002–2009 | 0.49 | M-v | 2 | MPC | 131427 | 2005 $YD_{55}$ |
| 2005 $YH_{55}$ | 17.9 | 0.15 | 20100104 | 342.85847 | 38.29379 | 86.46236 | 6.86031 | 0.2839133 | 2.5637081 | 36 | 3 | 2002–2009 | 0.48 | M-v | 3 | MPC | 96725 | 2005 $YH_{55}$ |
| 2005 $YM_{55}$ | 16.5 | 0.15 | 20100104 | 350.42409 | 300.42597 | 160.56287 | 30.47374 | 0.3579694 | 2.6130553 | 63 | 2 | 2005–2009 | 0.49 | M-v | 3 | MPC | 165496 | 2005 $YM_{55}$ |
| 2005 $YT_{55}$ | 20.6 | 0.15 | 20100104 | 50.74991 | 11.61727 | 141.39587 | 2.30017 | 0.4601814 | 2.2515547 | 156 | 1 | 85 days | 0.44 | M-v | 4 | MPC | 102264 | 2005 $YT_{55}$ |
| 2005 $YB_{56}$ | 16.9 | 0.15 | 20100104 | 39.62318 | 61.48677 | 324.05167 | 0.30576 | 0.0950142 | 2.5363664 | 55 | 4 | 2001–2009 | 0.39 | M-v | 3 | MPC | 164281 | 2005 $YB_{56}$ |
| 2005 $YK_{56}$ | 16.4 | 0.15 | 20100104 | 41.72212 | 326.24321 | 71.70382 | 7.74686 | 0.2715965 | 2.5508922 | 95 | 4 | 2001–2009 | 0.59 | M-v | 3 | MPC | 166241 | 2005 $YK_{56}$ |
| 2005 $YS_{56}$ | 17.0 | 0.15 | 20100104 | 94.47657 | 56.96835 | 287.11512 | 6.73133 | 0.0242565 | 2.5423937 | 30 | 3 | 2005–2009 | 0.38 | M-v | 3 | MPC | 141232 | 2005 $YS_{56}$ |
| 2005 $YZ_{57}$ | 17.1 | 0.15 | 20100104 | 50.69278 | 92.48171 | 289.17669 | 10.48744 | 0.2207177 | 2.5526826 | 35 | 3 | 2001–2009 | 0.41 | M-v | 3 | MPC | 109474 | 2005 $YZ_{57}$ |
| 2005 $YQ_{58}$ | 16.8 | 0.15 | 20100104 | 205.69755 | 164.46273 | 79.11008 | 3.61780 | 0.0500460 | 2.6732184 | 34 | 3 | 2005–2009 | 0.39 | M-v | 3 | MPC | 120830 | 2005 $YQ_{58}$ |
| 2005 $YH_{59}$ | 16.2 | 0.15 | 20100104 | 27.33866 | 148.20870 | 257.24020 | 13.29552 | 0.0761470 | 2.6051397 | 52 | 4 | 2000–2009 | 0.46 | M-v | 0 | MPC | 166241 | 2005 $YH_{59}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 $YC_{60}$ | 17.3 | 0.15 | 20100104 | 304.64739 | 113.41707 | 23.35335 | 1.95666 | 0.1413135 | 2.7049084 | 41 | 3 | 2002–2009 | 0.35 | M-v | 3 | MPC | 166241 | 2005 $YC_{60}$ |
| 2005 $YO_{60}$ | 17.2 | 0.15 | 20100104 | 295.94233 | 205.15470 | 319.76505 | 4.51624 | 0.1494295 | 2.6441098 | 29 | 3 | 2002–2009 | 0.40 | M-v | 3 | MPC | 101172 | 2005 $YO_{60}$ |
| 2005 $YU_{60}$ | 17.1 | 0.15 | 20100104 | 9.88820 | 342.90655 | 102.12892 | 7.10753 | 0.1090012 | 2.5694935 | 52 | 3 | 2005–2009 | 0.35 | M-v | 3 | MPC | 119263 | 2005 $YU_{60}$ |
| 2005 $YA_{62}$ | 16.6 | 0.15 | 20100104 | 5.00856 | 328.74430 | 97.57962 | 14.72164 | 0.1798979 | 2.6288419 | 31 | 2 | 2005–2009 | 0.48 | M-v | 3 | MPC | 165496 | 2005 $YA_{62}$ |
| 2005 $YJ_{63}$ | 17.4 | 0.15 | 20100104 | 19.48576 | 102.63830 | 310.42977 | 1.26080 | 0.1788281 | 2.5998429 | 55 | 5 | 1996–2009 | 0.39 | M-v | 0 | MPC | 166241 | 2005 $YJ_{63}$ |
| 2005 $YK_{63}$ | 16.3 | 0.15 | 20100104 | 298.97015 | 170.22271 | 298.70839 | 3.96109 | 0.0779863 | 2.8121798 | 41 | 3 | 2005–2009 | 0.32 | M-v | 3 | MPC | 164282 | 2005 $YK_{63}$ |
| 2005 $YL_{63}$ | 16.8 | 0.15 | 20100104 | 31.44361 | 149.46128 | 287.37787 | 5.61802 | 0.1154904 | 2.4682669 | 49 | 3 | 2001–2009 | 0.40 | M-v | 2 | MPC | 166241 | 2005 $YL_{63}$ |
| 2005 $YW_{63}$ | 16.4 | 0.15 | 20100104 | 7.90704 | 325.79761 | 83.21238 | 2.98858 | 0.1985935 | 2.6845542 | 105 | 3 | 2000–2009 | 0.52 | M-v | 2 | MPC | 166241 | 2005 $YW_{63}$ |
| 2005 $YH_{70}$ | 16.5 | 0.15 | 20100104 | 120.31092 | 225.13304 | 90.88071 | 6.46285 | 0.0318263 | 2.7064073 | 44 | 3 | 2000–2009 | 0.39 | M-v | 3 | MPC | 165496 | 2005 $YH_{70}$ |
| 2005 $YJ_{73}$ | 16.9 | 0.15 | 20100104 | 27.94545 | 77.70665 | 307.34425 | 4.46244 | 0.2804570 | 2.6132727 | 66 | 3 | 2002–2009 | 0.42 | M-v | 2 | MPC | 166241 | 2005 $YJ_{73}$ |
| 2005 $YD_{74}$ | 16.8 | 0.15 | 20100104 | 14.94054 | 118.16918 | 289.26727 | 4.00823 | 0.2819212 | 2.5974510 | 95 | 3 | 2002–2009 | 0.44 | M-v | 2 | MPC | 166241 | 2005 $YD_{74}$ |
| 2005 $YN_{75}$ | 17.9 | 0.15 | 20100104 | 313.10626 | 199.91096 | 351.04067 | 1.71068 | 0.1714721 | 2.4267126 | 34 | 4 | 1995–2009 | 0.29 | M-v | 1 | MPC | 96741 | 2005 $YN_{75}$ |
| 2005 $YG_{76}$ | 16.7 | 0.15 | 20100104 | 27.28113 | 334.35070 | 88.33434 | 8.21545 | 0.1396689 | 2.5416754 | 66 | 4 | 2001–2009 | 0.46 | M-v | 2 | MPC | 122805 | 2005 $YG_{76}$ |
| 2005 $YJ_{76}$ | 16.2 | 0.15 | 20100104 | 336.82747 | 3.54109 | 58.52150 | 2.82700 | 0.0625822 | 2.8513631 | 67 | 3 | 2005–2009 | 0.35 | M-v | 3 | MPC | 164282 | 2005 $YJ_{76}$ |
| 2005 $YQ_{76}$ | 17.2 | 0.15 | 20100104 | 343.53198 | 91.73859 | 62.72975 | 3.22615 | 0.1383811 | 2.4233849 | 50 | 4 | 2001–2009 | 0.41 | M-v | 2 | MPC | 162469 | 2005 $YQ_{76}$ |
| 2005 $YW_{76}$ | 16.5 | 0.15 | 20100104 | 35.98972 | 331.36875 | 78.17434 | 5.05662 | 0.0490698 | 2.5934432 | 43 | 4 | 2002–2009 | 0.28 | M-v | 2 | MPC | 166241 | 2005 $YW_{76}$ |
| 2005 $YR_{77}$ | 16.0 | 0.15 | 20100104 | 107.19819 | 212.35502 | 86.11835 | 4.59602 | 0.1705843 | 2.8064165 | 35 | 3 | 2005–2009 | 0.28 | M-v | 2 | MPC | 165497 | 2005 $YR_{77}$ |
| 2005 $YW_{79}$ | 16.9 | 0.15 | 20100104 | 355.56288 | 347.17203 | 89.66800 | 3.95488 | 0.1466142 | 2.6597031 | 66 | 5 | 1998–2009 | 0.43 | M-v | 0 | MPC | 165497 | 2005 $YW_{79}$ |
| 2005 $YT_{81}$ | 16.7 | 0.15 | 20100104 | 87.44213 | 76.35534 | 272.86814 | 3.47450 | 0.2534721 | 2.5554952 | 60 | 5 | 2000–2009 | 0.47 | M-v | 1 | MPC | 164282 | 2005 $YT_{81}$ |
| 2005 $YU_{81}$ | 16.9 | 0.15 | 20100104 | 256.59173 | 138.58830 | 113.38757 | 7.48021 | 0.1254857 | 2.3983392 | 42 | 4 | 2002–2009 | 0.40 | M-v | 2 | MPC | 101175 | 2005 $YU_{81}$ |
| 2005 $YS_{82}$ | 16.5 | 0.15 | 20100104 | 67.94825 | 82.38070 | 281.87628 | 5.21979 | 0.0315632 | 2.7149643 | 52 | 4 | 2004–2009 | 0.36 | M-v | 1 | MPC | 166241 | 2005 $YS_{82}$ |
| 2005 $YV_{82}$ | 16.5 | 0.15 | 20100104 | 238.90319 | 131.44309 | 119.00693 | 11.59591 | 0.1824697 | 2.5275703 | 46 | 5 | 2000–2009 | 0.35 | M-v | 1 | MPC | 101175 | 2005 $YV_{82}$ |
| 2005 $YA_{83}$ | 16.5 | 0.15 | 20100104 | 319.30855 | 198.07132 | 260.05086 | 1.92886 | 0.1556457 | 2.7907717 | 83 | 5 | 2000–2009 | 0.44 | M-v | 0 | MPC | 166241 | 2005 $YA_{83}$ |
| 2005 $YJ_{83}$ | 16.3 | 0.15 | 20100104 | 53.46827 | 182.75399 | 152.98745 | 3.08872 | 0.0658117 | 2.9755385 | 54 | 4 | 2002–2009 | 0.27 | M-v | 0 | MPC | 162470 | 2005 $YJ_{83}$ |
| 2005 $YQ_{86}$ | 16.5 | 0.15 | 20100104 | 69.68198 | 264.32186 | 99.59674 | 4.63944 | 0.2428445 | 2.5472538 | 46 | 4 | 2002–2009 | 0.30 | M-v | 2 | MPC | 164282 | 2005 $YQ_{86}$ |
| 2005 $YA_{87}$ | 18.3 | 0.15 | 20100104 | 338.75196 | 176.93465 | 291.29933 | 2.11066 | 0.1499246 | 2.6236356 | 30 | 3 | 2002–2009 | 0.35 | M-v | 4 | MPC | 165497 | 2005 $YA_{87}$ |
| 2005 $YY_{87}$ | 16.0 | 0.15 | 20100104 | 55.44324 | 32.38967 | 294.47769 | 4.26720 | 0.1339458 | 3.0150805 | 38 | 3 | 2004–2009 | 0.47 | M-v | 3 | MPC | 163782 | 2005 $YY_{87}$ |
| 2005 $YZ_{87}$ | 17.0 | 0.15 | 20100104 | 76.99027 | 68.72233 | 290.28564 | 3.12670 | 0.2983863 | 2.5437191 | 37 | 3 | 2002–2009 | 0.48 | M-v | 4 | MPC | 96750 | 2005 $YZ_{87}$ |
| 2005 $YA_{89}$ | 17.1 | 0.15 | 20100104 | 14.28862 | 150.65951 | 296.50648 | 4.21237 | 0.1349354 | 2.5140574 | 38 | 3 | 2001–2009 | 0.46 | M-v | 3 | MPC | 109476 | 2005 $YA_{89}$ |
| 2005 $YL_{89}$ | 17.1 | 0.15 | 20100104 | 336.57055 | 271.56177 | 256.23735 | 0.49923 | 0.1226241 | 2.4243703 | 62 | 5 | 2001–2009 | 0.46 | M-v | 1 | MPC | 147367 | 2005 $YL_{89}$ |
| 2005 $YG_{90}$ | 16.9 | 0.15 | 20100104 | 18.60521 | 132.46740 | 277.56029 | 4.80546 | 0.0428822 | 2.7491004 | 37 | 2 | 2005–2009 | 0.35 | M-v | 3 | MPC | 165498 | 2005 $YG_{90}$ |
| 2005 $YX_{90}$ | 17.1 | 0.15 | 20100104 | 2.71584 | 151.26955 | 281.42143 | 5.52854 | 0.0351809 | 2.7274349 | 46 | 2 | 2005–2009 | 0.34 | M-v | 3 | MPC | 165498 | 2005 $YX_{90}$ |
| 2005 $YE_{91}$ | 16.2 | 0.15 | 20100104 | 68.45977 | 94.00846 | 270.66473 | 4.19247 | 0.0724200 | 2.7107419 | 49 | 4 | 2004–2009 | 0.40 | M-v | 1 | MPC | 166242 | 2005 $YE_{91}$ |
| 2005 $YS_{91}$ | 17.5 | 0.15 | 20100104 | 51.99619 | 205.02951 | 198.78492 | 1.82724 | 0.1125169 | 2.5547041 | 41 | 5 | 1996–2009 | 0.39 | M-v | 0 | MPC | 111153 | 2005 $YS_{91}$ |
| 2005 $YM_{92}$ | 16.1 | 0.15 | 20100104 | 201.60143 | 81.44171 | 136.00336 | 1.21784 | 0.2544425 | 3.0051753 | 49 | 4 | 2003–2009 | 0.24 | M-v | 0 | MPC | 166242 | 2005 $YM_{92}$ |
| 2005 $YW_{94}$ | 15.9 | 0.15 | 20100104 | 30.93243 | 260.93250 | 123.80437 | 18.45572 | 0.2396823 | 2.5669840 | 44 | 2 | 2005–2009 | 0.49 | M-v | 3 | MPC | 166242 | 2005 $YW_{94}$ |
| 2005 $YE_{95}$ | 15.9 | 0.15 | 20100104 | 63.66250 | 85.22901 | 267.31984 | 5.15514 | 0.0170350 | 2.7927602 | 56 | 5 | 2000–2009 | 0.36 | M-v | 0 | MPC | 166242 | 2005 $YE_{95}$ |
| 2005 $YH_{95}$ | 17.3 | 0.15 | 20100104 | 54.75539 | 124.36412 | 241.04063 | 2.41403 | 0.1566065 | 2.6903317 | 37 | 3 | 1991–2009 | 0.35 | M-v | 3 | MPC | 165498 | 2005 $YH_{95}$ |
| 2005 $YM_{95}$ | 18.0 | 0.15 | 20100104 | 55.51599 | 210.44718 | 166.52745 | 2.26918 | 0.1150382 | 2.6422985 | 24 | 4 | 2000–2009 | 0.65 | M-v | 1 | MPC | 166242 | 2005 $YM_{95}$ |
| 2005 $YS_{96}$ | 16.6 | 0.15 | 20100104 | 279.38499 | 72.71890 | 92.90527 | 4.11882 | 0.2026582 | 2.5908306 | 53 | 3 | 2005–2009 | 0.29 | M-v | 2 | MPC | 166242 | 2005 $YS_{96}$ |
| 2005 $YV_{96}$ | 15.4 | 0.15 | 20100104 | 45.03720 | 71.31199 | 281.01273 | 10.36685 | 0.1804720 | 2.6070212 | 74 | 2 | 2005–2009 | 0.48 | M-v | 3 | MPC | 166242 | 2005 $YV_{96}$ |
| 2005 $YN_{97}$ | 16.5 | 0.15 | 20100104 | 145.23007 | 215.06183 | 76.06082 | 5.90026 | 0.0958827 | 2.6537627 | 37 | 4 | 1994–2009 | 0.29 | M-v | 1 | MPC | 166242 | 2005 $YN_{97}$ |
| 2005 $YJ_{98}$ | 17.4 | 0.15 | 20100104 | 48.31000 | 124.15903 | 235.62975 | 3.39132 | 0.1667437 | 2.5765618 | 34 | 2 | 2005–2009 | 0.25 | M-v | 3 | MPC | 165498 | 2005 $YJ_{98}$ |
| 2005 $YG_{99}$ | 17.3 | 0.15 | 20100104 | 2.23486 | 105.17171 | 25.48932 | 2.13352 | 0.1384898 | 2.3669919 | 46 | 4 | 2001–2009 | 0.24 | M-v | 1 | MPC | 142789 | 2005 $YG_{99}$ |
| 2005 $YV_{99}$ | 16.4 | 0.15 | 20100104 | 47.43000 | 316.87995 | 73.99804 | 5.75525 | 0.0635763 | 2.6124854 | 60 | 6 | 2002–2009 | 0.43 | M-v | 1 | MPC | 166242 | 2005 $YV_{99}$ |
| 2005 $YB_{101}$ | 16.4 | 0.15 | 20100104 | 82.34029 | 70.16536 | 276.47389 | 10.70485 | 0.0895230 | 2.6181780 | 22 | 3 | 2004–2009 | 0.22 | M-v | 2 | MPC | 96762 | 2005 $YB_{101}$ |
| 2005 $YQ_{103}$ | 17.0 | 0.15 | 20100104 | 324.79141 | 240.73756 | 277.62839 | 5.32049 | 0.1237455 | 2.4761670 | 46 | 4 | 2001–2009 | 0.32 | M-v | 2 | MPC | 166242 | 2005 $YQ_{103}$ |
| 2005 $YM_{105}$ | 16.8 | 0.15 | 20100104 | 296.97077 | 56.64389 | 104.18498 | 14.18518 | 0.0950731 | 2.6026116 | 35 | 3 | 2005–2009 | 0.22 | M-v | 2 | MPC | 121168 | 2005 $YM_{105}$ |
| 2005 $YS_{106}$ | 17.0 | 0.15 | 20100104 | 245.99472 | 335.16661 | 270.01448 | 4.55695 | 0.1554673 | 2.4542054 | 41 | 3 | 2005–2009 | 0.41 | M-v | 3 | MPC | 146345 | 2005 $YS_{106}$ |
| 2005 $YV_{106}$ | 17.0 | 0.15 | 20100104 | 278.84832 | 77.70149 | 97.58395 | 3.25967 | 0.1294387 | 2.6446341 | 39 | 3 | 2002–2009 | 0.43 | M-v | 3 | MPC | 166242 | 2005 $YV_{106}$ |
| 2005 $YA_{107}$ | 16.3 | 0.15 | 20100104 | 50.06799 | 244.00485 | 103.48022 | 8.93628 | 0.2230595 | 2.7489365 | 50 | 5 | 2000–2009 | 0.59 | M-v | 1 | MPC | 164282 | 2005 $YA_{107}$ |
| 2005 $YB_{107}$ | 16.9 | 0.15 | 20100104 | 281.82587 | 116.62505 | 100.40216 | 5.43350 | 0.1999897 | 2.4724242 | 39 | 3 | 2005–2009 | 0.32 | M-v | 3 | MPC | 146345 | 2005 $YB_{107}$ |
| 2005 $YD_{108}$ | 15.9 | 0.15 | 20100104 | 39.19536 | 71.03624 | 271.84649 | 4.51981 | 0.0946565 | 2.9599068 | 59 | 5 | 1996–2009 | 0.51 | M-v | 2 | MPC | 164282 | 2005 $YD_{108}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 $YM_{108}$ | 17.1 | 0.15 | 20100104 | 54.69786 | 235.72441 | 128.19853 | 4.37471 | 0.2350344 | 2.6328875 | 41 | 3 | 2000–2009 | 0.42 | M-v | 2 | MPC | 166242 | 2005 $YM_{108}$ |
| 2005 $YU_{108}$ | 17.9 | 0.15 | 20100104 | 320.77481 | 358.84781 | 130.80367 | 2.72060 | 0.1440307 | 2.6335007 | 34 | 4 | 2002–2009 | 0.40 | M-v | 2 | MPC | 166242 | 2005 $YU_{108}$ |
| 2005 $YU_{110}$ | 16.8 | 0.15 | 20100104 | 34.56074 | 164.23253 | 217.57218 | 2.94326 | 0.1039365 | 2.7282230 | 55 | 5 | 2002–2009 | 0.38 | M-v | 0 | MPC | 166242 | 2005 $YU_{110}$ |
| 2005 $YY_{111}$ | 17.3 | 0.15 | 20100104 | 7.33286 | 243.62830 | 235.14995 | 0.52023 | 0.1444888 | 2.4430954 | 49 | 6 | 1995–2009 | 0.34 | M-v | 1 | MPC | 147368 | 2005 $YY_{111}$ |
| 2005 $YZ_{113}$ | 16.5 | 0.15 | 20100104 | 258.61307 | 138.31324 | 58.03019 | 4.52041 | 0.1061148 | 2.6707599 | 40 | 6 | 1998–2009 | 0.40 | M-v | 1 | MPC | 165499 | 2005 $YZ_{113}$ |
| 2005 $YF_{114}$ | 17.2 | 0.15 | 20100104 | 122.92496 | 264.04997 | 76.07473 | 4.19818 | 0.0576088 | 2.5399015 | 35 | 6 | 2002–2009 | 0.27 | M-v | 0 | MPC | 119680 | 2005 $YF_{114}$ |
| 2005 $YY_{114}$ | 16.9 | 0.15 | 20100104 | 37.47084 | 312.48534 | 82.64590 | 4.34360 | 0.1101947 | 2.6757609 | 53 | 5 | 1993–2009 | 0.42 | M-v | 1 | MPC | 166242 | 2005 $YY_{114}$ |
| 2005 $YZ_{114}$ | 17.5 | 0.15 | 20100104 | 17.32599 | 333.00413 | 77.56279 | 3.68582 | 0.2156450 | 2.6500505 | 31 | 4 | 2000–2009 | 0.18 | M-v | 1 | MPC | 165499 | 2005 $YZ_{114}$ |
| 2005 $YA_{115}$ | 16.5 | 0.15 | 20100104 | 48.75167 | 324.73275 | 48.43075 | 2.52199 | 0.0995132 | 2.7442310 | 50 | 5 | 2002–2009 | 0.29 | M-v | 0 | MPC | 166242 | 2005 $YA_{115}$ |
| 2005 $YC_{115}$ | 17.3 | 0.15 | 20100104 | 1.91021 | 8.52714 | 59.26922 | 3.06884 | 0.1948099 | 2.6699237 | 80 | 4 | 1993–2009 | 0.40 | M-v | 0 | MPC | 166242 | 2005 $YC_{115}$ |
| 2005 $YD_{115}$ | 16.1 | 0.15 | 20100104 | 237.58612 | 138.15612 | 99.96164 | 9.60332 | 0.0811775 | 2.5644810 | 44 | 4 | 2002–2009 | 0.34 | M-v | 2 | MPC | 166242 | 2005 $YD_{115}$ |
| 2005 $YM_{115}$ | 16.4 | 0.15 | 20100104 | 52.76558 | 355.49035 | 10.98843 | 3.34438 | 0.1028185 | 2.7619014 | 53 | 5 | 1995–2009 | 0.31 | M-v | 0 | MPC | 166242 | 2005 $YM_{115}$ |
| 2005 $YL_{116}$ | 16.4 | 0.15 | 20100104 | 65.05405 | 272.23318 | 103.80646 | 10.51983 | 0.1057412 | 2.6488197 | 45 | 5 | 2003–2009 | 0.38 | M-v | 0 | MPC | 141837 | 2005 $YL_{116}$ |
| 2005 $YB_{117}$ | 17.5 | 0.15 | 20100104 | 350.27869 | 356.55342 | 81.21035 | 3.27819 | 0.0777241 | 2.7404400 | 44 | 6 | 1995–2009 | 0.31 | M-v | 0 | MPC | 166242 | 2005 $YB_{117}$ |
| 2005 $YK_{117}$ | 16.8 | 0.15 | 20100104 | 38.75121 | 359.49249 | 19.90725 | 1.46581 | 0.1932461 | 2.7074923 | 52 | 4 | 2002–2009 | 0.35 | M-v | 1 | MPC | 166242 | 2005 $YK_{117}$ |
| 2005 $YT_{117}$ | 17.5 | 0.15 | 20100104 | 66.95098 | 24.61813 | 2.56929 | 1.73761 | 0.1257463 | 2.5596251 | 22 | 3 | 2004–2009 | 0.27 | M-v | 2 | MPC | 126116 | 2005 $YT_{117}$ |
| 2005 $YV_{119}$ | 17.0 | 0.15 | 20100104 | 35.16493 | 294.26667 | 111.44582 | 13.82180 | 0.1972852 | 2.5654320 | 35 | 3 | 2002–2009 | 0.39 | M-v | 3 | MPC | 96775 | 2005 $YV_{119}$ |
| 2005 $YC_{120}$ | 16.5 | 0.15 | 20100104 | 308.07006 | 218.15558 | 253.66926 | 3.14992 | 0.0140353 | 2.7764435 | 46 | 5 | 1995–2009 | 0.34 | M-v | 0 | MPC | 166242 | 2005 $YC_{120}$ |
| 2005 $YG_{120}$ | 16.6 | 0.15 | 20100104 | 109.69553 | 50.83562 | 257.90829 | 3.72720 | 0.1072003 | 2.7527654 | 37 | 5 | 2002–2009 | 0.47 | M-v | 1 | MPC | 166242 | 2005 $YG_{120}$ |
| 2005 $YP_{123}$ | 16.3 | 0.15 | 20100104 | 311.24390 | 51.57396 | 64.11303 | 4.06425 | 0.0230554 | 2.7225226 | 56 | 4 | 2000–2009 | 0.34 | M-v | 0 | MPC | 166243 | 2005 $YP_{123}$ |
| 2005 $YX_{123}$ | 16.2 | 0.15 | 20100104 | 16.98951 | 6.39873 | 46.39504 | 3.27525 | 0.2014799 | 2.6318011 | 81 | 4 | 2002–2009 | 0.56 | M-v | 2 | MPC | 166243 | 2005 $YX_{123}$ |
| 2005 $YC_{124}$ | 16.4 | 0.15 | 20100104 | 64.39250 | 275.20198 | 102.40316 | 9.07889 | 0.2796269 | 2.5300168 | 70 | 3 | 2002–2009 | 0.38 | M-v | 3 | MPC | 166243 | 2005 $YC_{124}$ |
| 2005 $YN_{124}$ | 16.2 | 0.15 | 20100104 | 50.86730 | 96.61953 | 318.52824 | 7.78026 | 0.1420171 | 2.4609931 | 69 | 4 | 2001–2009 | 0.41 | M-v | 2 | MPC | 166243 | 2005 $YN_{124}$ |
| 2005 $YE_{125}$ | 15.4 | 0.15 | 20100104 | 95.65292 | 321.10651 | 304.01157 | 9.51618 | 0.0549010 | 3.2021235 | 40 | 5 | 2001–2009 | 0.30 | M-v | 0 | MPC | 118169 | 2005 $YE_{125}$ |
| 2005 $YA_{126}$ | 17.4 | 0.15 | 20100104 | 324.10176 | 149.22725 | 339.04955 | 3.82413 | 0.0929348 | 2.6102721 | 41 | 4 | 2002–2009 | 0.36 | M-v | 2 | MPC | 166243 | 2005 $YA_{126}$ |
| 2005 $YF_{126}$ | 17.3 | 0.15 | 20100104 | 327.78263 | 189.52667 | 341.55925 | 3.72286 | 0.0824411 | 2.4181823 | 34 | 4 | 2004–2009 | 0.26 | M-v | 1 | MPC | 146347 | 2005 $YF_{126}$ |
| 2005 $YM_{126}$ | 18.2 | 0.15 | 20100104 | 341.85993 | 111.53479 | 13.07734 | 2.68729 | 0.0474234 | 2.5344627 | 31 | 5 | 1996–2009 | 0.42 | M-v | 2 | MPC | 157434 | 2005 $YM_{126}$ |
| 2005 $YP_{126}$ | 17.1 | 0.15 | 20100104 | 328.50478 | 96.38997 | 68.55249 | 4.85071 | 0.1748930 | 2.4761389 | 46 | 3 | 2005–2009 | 0.40 | M-v | 3 | MPC | 166243 | 2005 $YP_{126}$ |
| 2005 $YX_{127}$ | 17.2 | 0.15 | 20100104 | 75.22006 | 306.18770 | 60.18596 | 3.19862 | 0.1102509 | 2.5767144 | 34 | 5 | 2000–2009 | 0.36 | M-v | 0 | MPC | 159769 | 2005 $YX_{127}$ |
| 2005 $YN_{129}$ | 17.6 | 0.15 | 20100104 | 328.35931 | 24.49893 | 91.48745 | 3.55967 | 0.0680415 | 2.6117164 | 29 | 4 | 2000–2009 | 0.30 | M-v | 0 | MPC | 165500 | 2005 $YN_{129}$ |
| 2005 $YW_{129}$ | 16.1 | 0.15 | 20100104 | 336.26469 | 6.36958 | 87.37675 | 10.22235 | 0.0803081 | 2.6871868 | 54 | 7 | 1994–2009 | 0.46 | M-v | 0 | MPC | 166243 | 2005 $YW_{129}$ |
| 2005 $YE_{130}$ | 16.8 | 0.15 | 20100104 | 332.72785 | 54.83795 | 19.33661 | 2.50503 | 0.1574209 | 2.8628072 | 54 | 3 | 2004–2009 | 0.50 | M-v | 2 | MPC | 166243 | 2005 $YE_{130}$ |
| 2005 $YQ_{130}$ | 17.0 | 0.15 | 20100104 | 15.51653 | 319.39151 | 104.93393 | 7.95969 | 0.1028079 | 2.6286631 | 33 | 3 | 2003–2009 | 0.35 | M-v | 2 | MPC | 165500 | 2005 $YQ_{130}$ |
| 2005 $YB_{131}$ | 15.7 | 0.15 | 20100104 | 211.55085 | 149.66402 | 120.00722 | 12.42177 | 0.0972864 | 2.5643580 | 81 | 4 | 2005–2009 | 0.47 | M-v | 1 | MPC | 147369 | 2005 $YB_{131}$ |
| 2005 $YJ_{131}$ | 16.9 | 0.15 | 20100104 | 84.50510 | 249.99360 | 120.55613 | 7.10908 | 0.2071737 | 2.5364671 | 54 | 8 | 1998–2009 | 0.47 | M-v | 1 | MPC | 166243 | 2005 $YJ_{131}$ |
| 2005 $YX_{132}$ | 16.5 | 0.15 | 20100104 | 254.62369 | 127.67279 | 72.50866 | 6.50549 | 0.0737577 | 2.5966700 | 32 | 3 | 2005–2009 | 0.20 | M-v | 2 | MPC | 120832 | 2005 $YX_{132}$ |
| 2005 $YL_{133}$ | 17.3 | 0.15 | 20100104 | 37.56560 | 3.99648 | 47.33990 | 3.45981 | 0.0973141 | 2.5353185 | 32 | 6 | 2000–2009 | 0.55 | M-v | 1 | MPC | 120832 | 2005 $YL_{133}$ |
| 2005 $YF_{134}$ | 16.9 | 0.15 | 20100104 | 12.87193 | 66.35156 | 343.90968 | 5.89386 | 0.0153590 | 2.7367509 | 36 | 5 | 2002–2009 | 0.32 | M-v | 0 | MPC | 166243 | 2005 $YF_{134}$ |
| 2005 $YV_{134}$ | 16.6 | 0.15 | 20100104 | 13.29203 | 11.95072 | 70.20611 | 7.44533 | 0.1507539 | 2.5477847 | 61 | 4 | 2002–2009 | 0.56 | M-v | 3 | MPC | 162471 | 2005 $YV_{134}$ |
| 2005 $YJ_{135}$ | 16.5 | 0.15 | 20100104 | 104.06564 | 247.64632 | 80.94157 | 9.26111 | 0.1211017 | 2.6219409 | 39 | 5 | 2003–2009 | 0.36 | M-v | 1 | MPC | 165501 | 2005 $YJ_{135}$ |
| 2005 $YR_{135}$ | 16.9 | 0.15 | 20100104 | 310.83457 | 67.19169 | 58.91725 | 3.43881 | 0.0460495 | 2.6791429 | 33 | 3 | 2005–2009 | 0.48 | M-v | 3 | MPC | 166243 | 2005 $YR_{135}$ |
| 2005 $YF_{136}$ | 17.0 | 0.15 | 20100104 | 145.37842 | 224.33133 | 60.47449 | 3.97262 | 0.0423594 | 2.7246608 | 36 | 4 | 1995–2009 | 0.35 | M-v | 0 | MPC | 166243 | 2005 $YF_{136}$ |
| 2005 $YH_{137}$ | 17.1 | 0.15 | 20100104 | 84.84104 | 354.45602 | 340.59097 | 2.44293 | 0.0481181 | 2.7475562 | 42 | 5 | 2002–2009 | 0.39 | M-v | 0 | MPC | 166243 | 2005 $YH_{137}$ |
| 2005 $YB_{138}$ | 16.9 | 0.15 | 20100104 | 28.09479 | 115.91743 | 304.93391 | 4.47130 | 0.1428923 | 2.5642331 | 59 | 5 | 2000–2009 | 0.38 | M-v | 1 | MPC | 96791 | 2005 $YB_{138}$ |
| 2005 $YO_{138}$ | 16.7 | 0.15 | 20100104 | 255.78534 | 136.70726 | 101.00302 | 7.21912 | 0.1075569 | 2.4765695 | 44 | 4 | 2003–2009 | 0.44 | M-v | 1 | MPC | 166243 | 2005 $YO_{138}$ |
| 2005 $YD_{142}$ | 17.2 | 0.15 | 20100104 | 345.83742 | 54.83269 | 18.93680 | 2.14473 | 0.2335443 | 2.6997083 | 67 | 4 | 1993–2009 | 0.41 | M-v | 1 | MPC | 164283 | 2005 $YD_{142}$ |
| 2005 $YN_{145}$ | 16.0 | 0.15 | 20100104 | 68.34931 | 13.75852 | 341.92301 | 4.75531 | 0.3040796 | 2.5393035 | 54 | 6 | 2001–2009 | 0.39 | M-v | 1 | MPC | 140412 | 2005 $YN_{145}$ |
| 2005 $YM_{147}$ | 16.5 | 0.15 | 20100104 | 22.25956 | 341.31441 | 30.66572 | 2.36328 | 0.0800634 | 2.8674399 | 48 | 4 | 2004–2009 | 0.40 | M-v | 1 | MPC | 166243 | 2005 $YM_{147}$ |
| 2005 $YP_{149}$ | 16.8 | 0.15 | 20100104 | 43.60701 | 348.19849 | 36.15251 | 3.09223 | 0.2229557 | 2.6190771 | 44 | 6 | 1996–2009 | 0.45 | M-v | 1 | MPC | 166243 | 2005 $YP_{149}$ |
| 2005 $YZ_{150}$ | 16.5 | 0.15 | 20100104 | 34.52920 | 325.70045 | 74.11582 | 4.26499 | 0.1618410 | 2.6359954 | 36 | 3 | 2000–2009 | 0.46 | M-v | 2 | MPC | 166243 | 2005 $YZ_{150}$ |
| 2005 $YM_{151}$ | 16.6 | 0.15 | 20100104 | 65.31454 | 289.33598 | 79.47261 | 4.59362 | 0.2492042 | 2.5936767 | 30 | 4 | 2000–2009 | 0.42 | M-v | 1 | MPC | 164284 | 2005 $YM_{151}$ |
| 2005 $YZ_{151}$ | 16.7 | 0.15 | 20100104 | 12.68805 | 155.40740 | 267.59888 | 3.12298 | 0.1422243 | 2.6206153 | 78 | 6 | 1996–2009 | 0.41 | M-v | 0 | MPC | 166243 | 2005 $YZ_{151}$ |
| 2005 $YW_{152}$ | 16.2 | 0.15 | 20100104 | 339.19961 | 1.85597 | 83.61886 | 11.05691 | 0.1991525 | 2.7210426 | 58 | 3 | 2000–2009 | 0.68 | M-v | 2 | MPC | 166243 | 2005 $YW_{152}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 $YH_{153}$ | 15.1 | 0.15 | 20100104 | 24.72605 | 78.47866 | 275.68494 | 15.56704 | 0.3454643 | 2.6622372 | 124 | 2 | 2005–2009 | 0.50 | M-v | 1 | MPC | 166243 | 2005 $YH_{153}$ |
| 2005 $YW_{153}$ | 17.2 | 0.15 | 20100104 | 359.83015 | 342.15831 | 96.72904 | 8.04353 | 0.2904766 | 2.6220280 | 76 | 2 | 2005–2009 | 0.45 | M-v | 2 | MPC | 165501 | 2005 $YW_{153}$ |
| 2005 $YZ_{153}$ | 17.0 | 0.15 | 20100104 | 173.03662 | 219.51703 | 73.18473 | 4.67248 | 0.1103591 | 2.5268262 | 41 | 6 | 2000–2009 | 0.40 | M-v | 0 | MPC | 143248 | 2005 $YZ_{153}$ |
| 2005 $YH_{154}$ | 17.1 | 0.15 | 20100104 | 34.84132 | 59.80155 | 328.29749 | 2.59045 | 0.2350852 | 2.6070482 | 47 | 3 | 2002–2009 | 0.39 | M-v | 2 | MPC | 166244 | 2005 $YH_{154}$ |
| 2005 $YL_{154}$ | 16.7 | 0.15 | 20100104 | 357.36071 | 123.41401 | 317.44958 | 6.51238 | 0.2019031 | 2.6567324 | 72 | 2 | 2005–2009 | 0.53 | M-v | 3 | MPC | 165502 | 2005 $YL_{154}$ |
| 2005 $YN_{154}$ | 16.8 | 0.15 | 20100104 | 323.71049 | 75.24992 | 74.05001 | 4.56114 | 0.1600351 | 2.5966820 | 50 | 6 | 1992–2009 | 0.56 | M-v | 1 | MPC | 147369 | 2005 $YN_{154}$ |
| 2005 $YA_{157}$ | 15.6 | 0.15 | 20100104 | 297.30982 | 41.96801 | 109.49907 | 12.88934 | 0.1438852 | 2.6454370 | 56 | 5 | 1998–2009 | 0.47 | M-v | 1 | MPC | 122805 | 2005 $YA_{157}$ |
| 2005 $YT_{158}$ | 17.1 | 0.15 | 20100104 | 326.67833 | 309.04781 | 187.65716 | 2.31142 | 0.1230017 | 2.5647920 | 52 | 6 | 2002–2009 | 0.42 | M-v | 1 | MPC | 166244 | 2005 $YT_{158}$ |
| 2005 $YO_{159}$ | 16.6 | 0.15 | 20100104 | 17.81459 | 136.16656 | 269.33306 | 13.24821 | 0.2561599 | 2.6100394 | 61 | 4 | 2000–2009 | 0.52 | M-v | 1 | MPC | 166244 | 2005 $YO_{159}$ |
| 2005 $YZ_{159}$ | 15.7 | 0.15 | 20100104 | 143.90275 | 27.65395 | 249.25932 | 5.76240 | 0.1537484 | 2.7731184 | 63 | 4 | 2002–2009 | 0.36 | M-v | 2 | MPC | 166244 | 2005 $YZ_{159}$ |
| 2005 $YN_{161}$ | 16.4 | 0.15 | 20100104 | 6.64444 | 142.60029 | 246.59783 | 7.95152 | 0.3533872 | 2.6704518 | 89 | 2 | 2005–2009 | 0.51 | M-v | 2 | MPC | 166244 | 2005 $YN_{161}$ |
| 2005 $YP_{161}$ | 15.2 | 0.15 | 20100104 | 307.14259 | 213.39084 | 262.53496 | 14.67014 | 0.1137733 | 2.7331162 | 71 | 5 | 2000–2009 | 0.64 | M-v | 1 | MPC | 166244 | 2005 $YP_{161}$ |
| 2005 $YX_{161}$ | 16.5 | 0.15 | 20100104 | 15.48216 | 250.04726 | 160.73956 | 3.25015 | 0.1870953 | 2.6524742 | 80 | 6 | 2000–2009 | 0.45 | M-v | 0 | MPC | 166244 | 2005 $YX_{161}$ |
| 2005 $YD_{162}$ | 16.3 | 0.15 | 20100104 | 336.26397 | 211.74730 | 232.52907 | 4.91788 | 0.2683272 | 2.7055577 | 78 | 4 | 2000–2009 | 0.49 | M-v | 1 | MPC | 164284 | 2005 $YD_{162}$ |
| 2005 $YG_{162}$ | 16.6 | 0.15 | 20100104 | 4.04787 | 238.92265 | 153.59008 | 2.48955 | 0.0703637 | 2.8579958 | 49 | 5 | 2002–2009 | 0.35 | M-v | 0 | MPC | 164284 | 2005 $YG_{162}$ |
| 2005 $YX_{163}$ | 16.7 | 0.15 | 20100104 | 42.12186 | 166.28910 | 295.48551 | 4.59774 | 0.1671095 | 2.3395271 | 47 | 5 | 1998–2009 | 0.49 | M-v | 1 | MPC | 147370 | 2005 $YX_{163}$ |
| 2005 $YS_{164}$ | 17.0 | 0.15 | 20100104 | 11.32674 | 66.16121 | 355.96698 | 4.23792 | 0.2193387 | 2.5795968 | 55 | 4 | 1994–2009 | 0.54 | M-v | 3 | MPC | 166244 | 2005 $YS_{164}$ |
| 2005 $YZ_{166}$ | 16.2 | 0.15 | 20100104 | 64.21654 | 150.03797 | 222.08023 | 3.14525 | 0.2629833 | 2.5426066 | 52 | 5 | 2001–2009 | 0.49 | M-v | 2 | MPC | 162472 | 2005 $YZ_{166}$ |
| 2005 $YY_{167}$ | 17.1 | 0.15 | 20100104 | 353.81226 | 28.01921 | 82.18551 | 12.66245 | 0.1907796 | 2.5566813 | 37 | 3 | 2002–2009 | 0.59 | M-v | 3 | MPC | 166244 | 2005 $YY_{167}$ |
| 2005 $YD_{168}$ | 17.4 | 0.15 | 20100104 | 32.20056 | 203.82133 | 208.21387 | 2.17391 | 0.1442766 | 2.5874591 | 41 | 4 | 1992–2009 | 0.33 | M-v | 1 | MPC | 166244 | 2005 $YD_{168}$ |
| 2005 $YF_{168}$ | 17.4 | 0.15 | 20100104 | 78.07734 | 143.13462 | 243.92680 | 2.44662 | 0.1037725 | 2.5110308 | 40 | 5 | 2004–2009 | 0.35 | M-v | 0 | MPC | 146352 | 2005 $YF_{168}$ |
| 2005 $YO_{168}$ | 16.9 | 0.15 | 20100104 | 9.90173 | 177.46668 | 253.58027 | 4.04461 | 0.2045059 | 2.5907854 | 39 | 3 | 2002–2009 | 0.36 | M-v | 3 | MPC | 165502 | 2005 $YO_{168}$ |
| 2005 $YD_{170}$ | 18.0 | 0.15 | 20100104 | 21.92008 | 185.72632 | 226.55099 | 3.40689 | 0.2075900 | 2.5967618 | 30 | 2 | 2005–2009 | 0.46 | M-v | 4 | MPC | 165502 | 2005 $YD_{170}$ |
| 2005 $YZ_{171}$ | 16.9 | 0.15 | 20100104 | 328.31540 | 229.60482 | 256.35747 | 10.91943 | 0.2438971 | 2.6446037 | 43 | 2 | 2005–2009 | 0.46 | M-v | 3 | MPC | 165502 | 2005 $YZ_{171}$ |
| 2005 $YF_{172}$ | 16.0 | 0.15 | 20100104 | 358.37688 | 46.75432 | 58.30885 | 15.23670 | 0.0723559 | 2.5917251 | 64 | 6 | 2000–2009 | 0.61 | M-v | 1 | MPC | 166244 | 2005 $YF_{172}$ |
| 2005 $YJ_{172}$ | 15.9 | 0.15 | 20100104 | 340.12852 | 50.29271 | 61.87653 | 17.66132 | 0.1406062 | 2.6512577 | 37 | 3 | 2002–2009 | 0.54 | M-v | 3 | MPC | 166244 | 2005 $YJ_{172}$ |
| 2005 $YR_{172}$ | 15.9 | 0.15 | 20100104 | 3.50581 | 26.21858 | 69.02840 | 15.87435 | 0.1740560 | 2.5548791 | 65 | 4 | 2001–2009 | 0.52 | M-v | 2 | MPC | 166244 | 2005 $YR_{172}$ |
| 2005 $YW_{173}$ | 15.7 | 0.15 | 20100104 | 322.52714 | 224.99738 | 288.60668 | 8.65521 | 0.1839935 | 2.6585809 | 84 | 5 | 2000–2009 | 0.56 | M-v | 1 | MPC | 164284 | 2005 $YW_{173}$ |
| 2005 $YW_{175}$ | 16.6 | 0.15 | 20100104 | 111.00127 | 13.03246 | 300.46345 | 5.28352 | 0.0594607 | 2.7689142 | 54 | 5 | 1997–2009 | 0.35 | M-v | 0 | MPC | 165503 | 2005 $YW_{175}$ |
| 2005 $YJ_{176}$ | 17.2 | 0.15 | 20100104 | 16.25335 | 308.59650 | 103.66304 | 5.02529 | 0.1516752 | 2.6594673 | 47 | 3 | 1996–2009 | 0.29 | M-v | 3 | MPC | 166244 | 2005 $YJ_{176}$ |
| 2005 $YT_{176}$ | 16.7 | 0.15 | 20100104 | 200.19096 | 335.86347 | 295.36228 | 3.90483 | 0.1416318 | 2.5575220 | 41 | 4 | 2002–2009 | 0.37 | M-v | 3 | MPC | 146352 | 2005 $YT_{176}$ |
| 2005 $YD_{177}$ | 17.6 | 0.15 | 20100104 | 330.36781 | 197.76778 | 288.94044 | 5.21212 | 0.1415112 | 2.6012972 | 32 | 4 | 1996–2009 | 0.69 | M-v | 2 | MPC | 96822 | 2005 $YD_{177}$ |
| 2005 $YR_{178}$ | 17.2 | 0.15 | 20100104 | 292.27538 | 82.72197 | 60.38015 | 4.56949 | 0.0313603 | 2.7227285 | 36 | 4 | 2000–2009 | 0.38 | M-v | 0 | MPC | 166244 | 2005 $YR_{178}$ |
| 2005 $YW_{178}$ | 16.2 | 0.15 | 20100104 | 113.79229 | 8.27709 | 306.52736 | 6.92338 | 0.1469177 | 2.7936762 | 38 | 3 | 2005–2009 | 0.46 | M-v | 3 | MPC | 143249 | 2005 $YW_{178}$ |
| 2005 $YC_{182}$ | 17.7 | 0.15 | 20100104 | 9.75897 | 84.41541 | 59.51274 | 3.95534 | 0.1415205 | 2.3369098 | 38 | 5 | 2001–2009 | 0.42 | M-v | 0 | MPC | 147370 | 2005 $YC_{182}$ |
| 2005 $YM_{182}$ | 15.8 | 0.15 | 20100104 | 305.24032 | 249.75337 | 270.97358 | 12.45170 | 0.1987282 | 2.6298973 | 36 | 3 | 2002–2009 | 0.60 | M-v | 3 | MPC | 96827 | 2005 $YM_{182}$ |
| 2005 $YP_{182}$ | 15.9 | 0.15 | 20100104 | 334.20454 | 241.08751 | 244.75205 | 6.70705 | 0.1412360 | 2.5658554 | 29 | 4 | 2002–2009 | 0.31 | M-v | 2 | MPC | 166244 | 2005 $YP_{182}$ |
| 2005 $YQ_{184}$ | 16.9 | 0.15 | 20100104 | 21.74463 | 185.26079 | 230.12127 | 1.23978 | 0.0683688 | 2.6488925 | 63 | 6 | 2000–2009 | 0.42 | M-v | 0 | MPC | 166244 | 2005 $YQ_{184}$ |
| 2005 $YG_{185}$ | 16.5 | 0.15 | 20100104 | 29.53219 | 286.76453 | 119.27017 | 13.65571 | 0.1781024 | 2.6330410 | 37 | 5 | 2000–2009 | 0.55 | M-v | 1 | MPC | 120474 | 2005 $YG_{185}$ |
| 2005 $YF_{186}$ | 16.5 | 0.15 | 20100104 | 14.78940 | 181.99346 | 252.08958 | 10.87746 | 0.1497195 | 2.6062139 | 42 | 5 | 2000–2009 | 0.46 | M-v | 0 | MPC | 166244 | 2005 $YF_{186}$ |
| 2005 $YG_{186}$ | 15.8 | 0.15 | 20100104 | 342.75450 | 205.04022 | 254.24245 | 11.73777 | 0.1260680 | 2.7075467 | 80 | 5 | 2000–2009 | 0.59 | M-v | 1 | MPC | 166244 | 2005 $YG_{186}$ |
| 2005 $YN_{187}$ | 16.3 | 0.15 | 20100104 | 124.05372 | 321.20043 | 285.17639 | 7.93846 | 0.0474165 | 3.1364938 | 24 | 3 | 2001–2009 | 0.36 | M-v | 2 | MPC | 140412 | 2005 $YN_{187}$ |
| 2005 $YJ_{188}$ | 16.9 | 0.15 | 20100104 | 2.81605 | 352.85151 | 94.62740 | 3.23841 | 0.1872715 | 2.6143326 | 67 | 4 | 1998–2009 | 0.48 | M-v | 2 | MPC | 96831 | 2005 $YJ_{188}$ |
| 2005 $YS_{188}$ | 16.6 | 0.15 | 20100104 | 41.92280 | 66.78387 | 313.09066 | 2.94461 | 0.1096037 | 2.7679947 | 40 | 6 | 1999–2009 | 0.32 | M-v | 0 | MPC | 166244 | 2005 $YS_{188}$ |
| 2005 $YO_{189}$ | 16.1 | 0.15 | 20100104 | 166.93477 | 159.71587 | 115.62203 | 9.78620 | 0.0898937 | 2.6633745 | 43 | 5 | 1999–2009 | 0.49 | M-v | 1 | MPC | 143249 | 2005 $YO_{189}$ |
| 2005 $YF_{191}$ | 17.5 | 0.15 | 20100104 | 314.84654 | 108.38837 | 88.45684 | 2.50203 | 0.1380637 | 2.4442417 | 41 | 5 | 1999–2009 | 0.38 | M-v | 1 | MPC | 147370 | 2005 $YF_{191}$ |
| 2005 $YR_{191}$ | 17.0 | 0.15 | 20100104 | 339.77198 | 125.24807 | 329.21988 | 2.68320 | 0.0614463 | 2.7501679 | 43 | 3 | 2004–2009 | 0.29 | M-v | 3 | MPC | 166244 | 2005 $YR_{191}$ |
| 2005 $YZ_{191}$ | 17.6 | 0.15 | 20100104 | 280.91379 | 141.64075 | 44.03316 | 1.51519 | 0.0428521 | 2.6191765 | 22 | 5 | 1994–2009 | 0.32 | M-v | 1 | MPC | 143249 | 2005 $YZ_{191}$ |
| 2005 $YR_{192}$ | 17.0 | 0.15 | 20100104 | 327.37635 | 36.94355 | 104.15030 | 3.54712 | 0.0642986 | 2.5998998 | 43 | 6 | 1998–2009 | 0.45 | M-v | 1 | MPC | 147370 | 2005 $YR_{192}$ |
| 2005 $YD_{193}$ | 17.8 | 0.15 | 20100104 | 317.21208 | 236.41632 | 313.89750 | 0.88374 | 0.1398069 | 2.4604692 | 44 | 7 | 2000–2009 | 0.37 | M-v | 0 | MPC | 147371 | 2005 $YD_{193}$ |
| 2005 $YC_{196}$ | 15.6 | 0.15 | 20100104 | 287.65527 | 126.38708 | 50.91529 | 13.64595 | 0.2440223 | 2.7802250 | 76 | 5 | 2000–2009 | 0.54 | M-v | 1 | MPC | 166245 | 2005 $YC_{196}$ |
| 2005 $YE_{196}$ | 15.8 | 0.15 | 20100104 | 12.81147 | 141.54777 | 311.96337 | 32.59224 | 0.2135789 | 2.6214907 | 52 | 4 | 2004–2009 | 0.43 | M-v | 1 | MPC | 166245 | 2005 $YE_{196}$ |
| 2005 $YK_{199}$ | 17.3 | 0.15 | 20100104 | 286.13441 | 240.16289 | 308.64140 | 10.93446 | 0.1222183 | 2.5680702 | 49 | 3 | 2002–2009 | 0.36 | M-v | 3 | MPC | 101190 | 2005 $YK_{199}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 $YS_{199}$ | 15.5 | 0.15 | 20100104 | 287.22678 | 242.91076 | 301.04865 | 11.48265 | 0.1160235 | 2.6333243 | 84 | 5 | 1999–2009 | 0.53 | M-v | 2 | MPC | 147371 | 2005 $YS_{199}$ |
| 2005 $YA_{200}$ | 16.5 | 0.15 | 20100104 | 4.11555 | 157.33714 | 299.98845 | 12.63861 | 0.1286865 | 2.5682897 | 45 | 3 | 2002–2009 | 0.45 | M-v | 3 | MPC | 96841 | 2005 $YA_{200}$ |
| 2005 $YB_{200}$ | 16.4 | 0.15 | 20100104 | 255.98192 | 23.35090 | 92.99622 | 2.25940 | 0.1228413 | 3.1557418 | 32 | 4 | 2000–2007 | 0.79 | M-v | 1 | MPC | 96841 | 2005 $YB_{200}$ |
| 2005 $YR_{201}$ | 17.4 | 0.15 | 20100104 | 61.06067 | 227.39044 | 148.87520 | 0.50178 | 0.1764985 | 2.5770655 | 39 | 4 | 2002–2009 | 0.42 | M-v | 3 | MPC | 119269 | 2005 $YR_{201}$ |
| 2005 $YO_{204}$ | 16.9 | 0.15 | 20100104 | 59.16551 | 90.84689 | 295.30132 | 9.47968 | 0.1232763 | 2.6188199 | 34 | 4 | 2002–2009 | 0.25 | M-v | 1 | MPC | 141234 | 2005 $YO_{204}$ |
| 2005 $YW_{204}$ | 15.5 | 0.15 | 20100104 | 324.80730 | 314.19708 | 152.74885 | 8.93266 | 0.1341885 | 2.8814101 | 80 | 7 | 1996–2009 | 0.49 | M-v | 0 | MPC | 143249 | 2005 $YW_{204}$ |
| 2005 $YP_{206}$ | 16.0 | 0.15 | 20100104 | 6.06355 | 149.59537 | 277.27633 | 11.70014 | 0.1640608 | 2.6627122 | 57 | 4 | 2000–2009 | 0.61 | M-v | 1 | MPC | 166245 | 2005 $YP_{206}$ |
| 2005 $YS_{206}$ | 17.3 | 0.15 | 20100104 | 50.97762 | 94.53724 | 290.99102 | 14.32299 | 0.2933887 | 2.5323447 | 51 | 3 | 2001–2009 | 0.37 | M-v | 3 | MPC | 96847 | 2005 $YS_{206}$ |
| 2005 $YC_{208}$ | 17.3 | 0.15 | 20100104 | 356.41994 | 27.96545 | 83.87144 | 8.03778 | 0.2026072 | 2.5284767 | 69 | 3 | 2001–2009 | 0.54 | M-v | 2 | MPC | 166245 | 2005 $YC_{208}$ |
| 2005 $YE_{208}$ | 16.4 | 0.15 | 20100104 | 16.55336 | 211.26752 | 199.46044 | 12.26302 | 0.2702287 | 2.6325203 | 59 | 4 | 1996–2009 | 0.55 | M-v | 1 | MPC | 165504 | 2005 $YE_{208}$ |
| 2005 $YO_{210}$ | 17.0 | 0.15 | 20100104 | 26.28803 | 347.73622 | 45.30689 | 5.75612 | 0.2935969 | 2.5896886 | 80 | 2 | 2005–2009 | 0.49 | M-v | 3 | MPC | 166245 | 2005 $YO_{210}$ |
| 2005 $YR_{210}$ | 15.9 | 0.15 | 20100104 | 327.09705 | 90.84947 | 130.41575 | 12.79133 | 0.2168644 | 2.3534096 | 107 | 7 | 1996–2009 | 0.50 | M-v | 1 | MPC | 148984 | 2005 $YR_{210}$ |
| 2005 $YA_{211}$ | 15.6 | 0.15 | 20100104 | 35.06160 | 122.92829 | 300.91110 | 21.41722 | 0.0450032 | 2.6458874 | 90 | 4 | 2004–2009 | 0.51 | M-v | 1 | MPC | 147371 | 2005 $YA_{211}$ |
| 2005 $YN_{211}$ | 16.3 | 0.15 | 20100104 | 40.31785 | 202.17307 | 190.87758 | 14.95300 | 0.1379987 | 2.5385309 | 46 | 6 | 1995–2009 | 0.53 | M-v | 2 | MPC | 166245 | 2005 $YN_{211}$ |
| 2005 $YQ_{213}$ | 17.3 | 0.15 | 20100104 | 7.61391 | 27.29045 | 17.18241 | 3.58080 | 0.3046390 | 2.6444381 | 89 | 2 | 2005–2009 | 0.46 | M-v | 3 | MPC | 166245 | 2005 $YQ_{213}$ |
| 2005 $YS_{213}$ | 16.8 | 0.15 | 20100104 | 11.17618 | 19.81633 | 34.97032 | 4.65396 | 0.1877446 | 2.6407637 | 55 | 3 | 2005–2009 | 0.42 | M-v | 2 | MPC | 165504 | 2005 $YS_{213}$ |
| 2005 $YE_{214}$ | 16.2 | 0.15 | 20100104 | 5.98795 | 24.79626 | 55.83958 | 14.19798 | 0.1264435 | 2.5671660 | 35 | 5 | 2001–2009 | 0.50 | M-v | 2 | MPC | 166245 | 2005 $YE_{214}$ |
| 2005 $YH_{214}$ | 15.2 | 0.15 | 20100104 | 199.03026 | 192.81221 | 352.16934 | 11.55186 | 0.0642636 | 3.0527575 | 33 | 5 | 1998–2009 | 0.64 | M-v | 1 | MPC | 162473 | 2005 $YH_{214}$ |
| 2005 $YO_{216}$ | 16.6 | 0.15 | 20100104 | 351.43050 | 40.13891 | 52.37940 | 4.95907 | 0.1455850 | 2.6105259 | 57 | 5 | 2000–2009 | 0.49 | M-v | 0 | MPC | 165504 | 2005 $YO_{216}$ |
| 2005 $YQ_{216}$ | 17.3 | 0.15 | 20100104 | 65.66614 | 6.82519 | 334.51339 | 2.78480 | 0.1900456 | 2.7268745 | 35 | 3 | 2004–2009 | 0.33 | M-v | 3 | MPC | 166245 | 2005 $YQ_{216}$ |
| 2005 $YZ_{217}$ | 17.9 | 0.15 | 20100104 | 60.92284 | 171.43943 | 218.43313 | 0.97220 | 0.2165189 | 2.3659903 | 32 | 4 | 2001–2009 | 0.41 | M-v | 2 | MPC | 117659 | 2005 $YZ_{217}$ |
| 2005 $YE_{219}$ | 16.4 | 0.15 | 20100104 | 142.61783 | 31.94827 | 285.82292 | 8.38679 | 0.2328792 | 2.4013017 | 81 | 3 | 2005–2009 | 0.49 | M-v | 2 | MPC | 158523 | 2005 $YE_{219}$ |
| 2005 $YO_{220}$ | 15.9 | 0.15 | 20100104 | 302.14190 | 48.81891 | 80.21193 | 9.61299 | 0.0911611 | 2.7512786 | 62 | 5 | 2000–2009 | 0.63 | M-v | 1 | MPC | 166245 | 2005 $YO_{220}$ |
| 2005 $YT_{220}$ | 15.8 | 0.15 | 20100104 | 66.30990 | 277.27317 | 87.31149 | 13.90047 | 0.1231639 | 2.6480741 | 52 | 6 | 2000–2009 | 0.57 | M-v | 1 | MPC | 166245 | 2005 $YT_{220}$ |
| 2005 $YX_{220}$ | 15.5 | 0.15 | 20100104 | 293.44815 | 287.70756 | 309.71308 | 26.63064 | 0.3931296 | 2.6075665 | 57 | 3 | 1998–2009 | 0.61 | M-v | 2 | MPC | 101192 | 2005 $YX_{220}$ |
| 2005 $YE_{221}$ | 15.9 | 0.15 | 20100104 | 328.29139 | 233.75623 | 286.55503 | 12.20259 | 0.2013500 | 2.6272179 | 56 | 3 | 2005–2009 | 0.49 | M-v | 2 | MPC | 166245 | 2005 $YE_{221}$ |
| 2005 $YC_{223}$ | 16.5 | 0.15 | 20100104 | 207.39107 | 161.25057 | 64.16251 | 2.54703 | 0.1512206 | 2.6415215 | 67 | 5 | 2002–2009 | 0.39 | M-v | 1 | MPC | 166245 | 2005 $YC_{223}$ |
| 2005 $YX_{231}$ | 17.6 | 0.15 | 20100104 | 3.46874 | 210.98915 | 302.81527 | 4.24481 | 0.1744424 | 2.3646631 | 38 | 3 | 2005–2009 | 0.48 | M-v | 4 | MPC | 160447 | 2005 $YX_{231}$ |
| 2005 $YX_{236}$ | 17.3 | 0.15 | 20100104 | 271.81096 | 6.39814 | 164.48974 | 1.97048 | 0.1325478 | 2.7473668 | 29 | 4 | 1997–2009 | 0.33 | M-v | 1 | MPC | 103827 | 2005 $YX_{236}$ |
| 2005 $YH_{237}$ | 15.8 | 0.15 | 20100104 | 107.30984 | 40.88266 | 282.75835 | 12.96249 | 0.1201016 | 2.6999034 | 32 | 4 | 2004–2009 | 0.48 | M-v | 1 | MPC | 143249 | 2005 $YH_{237}$ |
| 2005 $YU_{239}$ | 17.3 | 0.15 | 20100104 | 290.39376 | 34.36054 | 134.22592 | 3.68021 | 0.1204071 | 2.6336789 | 34 | 4 | 1998–2009 | 0.44 | M-v | 2 | MPC | 166245 | 2005 $YU_{239}$ |
| 2005 $YK_{245}$ | 16.7 | 0.15 | 20100104 | 48.66137 | 290.06377 | 87.25387 | 7.45559 | 0.0574945 | 2.7000479 | 33 | 3 | 2005–2009 | 0.37 | M-v | 3 | MPC | 166245 | 2005 $YK_{245}$ |
| 2005 $YH_{251}$ | 16.5 | 0.15 | 20100104 | 46.41565 | 119.99533 | 269.67328 | 5.54172 | 0.0430853 | 2.7199550 | 33 | 2 | 2005–2009 | 0.23 | M-v | 3 | MPC | 165505 | 2005 $YH_{251}$ |
| 2005 $YP_{251}$ | 15.4 | 0.15 | 20100104 | 65.29103 | 50.66183 | 264.68809 | 6.28799 | 0.0199881 | 3.1103265 | 45 | 5 | 1993–2009 | 0.46 | M-v | 1 | MPC | 164285 | 2005 $YP_{251}$ |
| 2005 $YB_{257}$ | 15.8 | 0.15 | 20100104 | 281.48464 | 259.12412 | 278.57506 | 11.41314 | 0.1066856 | 2.6755630 | 34 | 3 | 2002–2009 | 0.45 | M-v | 3 | MPC | 166245 | 2005 $YB_{257}$ |
| 2005 $YL_{263}$ | 17.7 | 0.15 | 20100104 | 354.88850 | 100.54828 | 347.79416 | 3.26433 | 0.0412436 | 2.6438873 | 31 | 5 | 2002–2009 | 0.30 | M-v | 0 | MPC | 120833 | 2005 $YL_{263}$ |
| 2005 $YC_{265}$ | 16.6 | 0.15 | 20100104 | 69.91758 | 280.11183 | 83.88833 | 3.27196 | 0.1010619 | 2.6748789 | 32 | 4 | 2004–2009 | 0.34 | M-v | 1 | MPC | 166246 | 2005 $YC_{265}$ |
| 2005 $YS_{265}$ | 17.8 | 0.15 | 20100104 | 339.58972 | 124.62112 | 336.40777 | 1.95081 | 0.0558899 | 2.6512050 | 40 | 5 | 2002–2009 | 0.34 | M-v | 1 | MPC | 166246 | 2005 $YS_{265}$ |
| 2005 $YW_{266}$ | 15.9 | 0.15 | 20100104 | 60.48527 | 3.43869 | 356.93703 | 3.00863 | 0.2131326 | 2.5859039 | 48 | 5 | 1992–2009 | 0.52 | M-v | 1 | MPC | 166246 | 2005 $YW_{266}$ |
| 2005 $YZ_{274}$ | 15.9 | 0.15 | 20100104 | 302.99281 | 270.91637 | 298.94043 | 10.02395 | 0.2527692 | 2.5794278 | 84 | 5 | 2002–2009 | 0.51 | M-v | 2 | MPC | 166246 | 2005 $YZ_{274}$ |
| 2005 $YD_{278}$ | 16.7 | 0.15 | 20100104 | 71.93442 | 245.33966 | 86.75319 | 3.74454 | 0.1490948 | 2.6568084 | 42 | 4 | 2002–2009 | 0.46 | M-v | 2 | MPC | 166246 | 2005 $YD_{278}$ |
| 2005 $YC_{281}$ | 16.0 | 0.15 | 20100104 | 32.11161 | 36.36893 | 315.65542 | 9.71895 | 0.1059494 | 3.0016371 | 30 | 3 | 1993–2009 | 0.53 | M-v | 3 | MPC | 162004 | 2005 $YC_{281}$ |
| 2005 $YU_{285}$ | 16.7 | 0.15 | 20100104 | 289.35653 | 155.72691 | 48.14435 | 3.38691 | 0.1476011 | 2.4491379 | 39 | 5 | 2001–2009 | 0.36 | M-v | 1 | MPC | 147372 | 2005 $YU_{285}$ |
| 2005 $YR_{286}$ | 16.5 | 0.15 | 20100104 | 317.31025 | 32.28584 | 86.84747 | 5.40923 | 0.0171745 | 2.7628048 | 36 | 3 | 2005–2009 | 0.32 | M-v | 3 | MPC | 166246 | 2005 $YR_{286}$ |
| 2005 $YE_{288}$ | 16.2 | 0.15 | 20100104 | 356.03697 | 108.97220 | 3.24941 | 15.32273 | 0.1590095 | 2.5464123 | 51 | 4 | 2001–2009 | 0.64 | M-v | 3 | MPC | 160857 | 2005 $YE_{288}$ |
| 2005 $YQ_{288}$ | 16.0 | 0.15 | 20100104 | 59.92288 | 48.30365 | 300.53032 | 3.66959 | 0.2694899 | 2.5589507 | 77 | 4 | 1994–2009 | 0.44 | M-v | 3 | MPC | 166246 | 2005 $YQ_{288}$ |
| 2005 $YC_{292}$ | 16.9 | 0.15 | 20100104 | 77.43390 | 112.76285 | 239.77759 | 1.79829 | 0.0860509 | 2.6988500 | 28 | 4 | 2004–2009 | 0.36 | M-v | 1 | MPC | 165505 | 2005 $YC_{292}$ |
| 2006 AC | 16.4 | 0.15 | 20100104 | 42.63982 | 221.48518 | 170.01169 | 5.33184 | 0.2823673 | 2.5510828 | 42 | 4 | 2002–2009 | 0.50 | M-v | 3 | MPC | 118172 | 2006 AC |
| 2006 AE | 16.6 | 0.15 | 20100104 | 340.78369 | 213.89632 | 252.97007 | 7.93778 | 0.0974725 | 2.6050383 | 61 | 7 | 1992–2009 | 0.39 | M-v | 0 | MPC | 166246 | 2006 AE |
| 2006 $AB_1$ | 17.1 | 0.15 | 20100104 | 34.91820 | 245.82722 | 159.35422 | 1.98829 | 0.1926427 | 2.5890080 | 56 | 5 | 2000–2009 | 0.40 | M-v | 1 | MPC | 166246 | 2006 $AB_1$ |
| 2006 $AT_1$ | 16.5 | 0.15 | 20100104 | 312.34988 | 248.45639 | 238.94321 | 3.81729 | 0.0657614 | 2.6881254 | 53 | 5 | 1998–2009 | 0.40 | M-v | 1 | MPC | 166246 | 2006 $AT_1$ |
| 2006 $AM_4$ | 21.8 | 0.15 | 20100104 | 308.70936 | 139.68890 | 123.28541 | 4.12851 | 0.6490996 | 0.9818110 | 168 | 3 | 2006–2008 | 0.38 | M-v | 3 | MPC | 133471 | 2006 $AM_4$ |
| 2006 $AO_4$ | 15.4 | 0.15 | 20100104 | 47.70439 | 50.31171 | 318.62668 | 24.40177 | 0.5823974 | 2.6302943 | 84 | 4 | 1993–2009 | 0.52 | M-v | 2 | MPC | 166246 | 2006 $AO_4$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 $AS_4$ | 16.2 | 0.15 | 20100104 | 155.87812 | 301.86958 | 337.16733 | 5.88315 | 0.0426153 | 2.8176710 | 59 | 5 | 1999–2009 | 0.51 | M-v | 0 | MPC | 147372 | 2006 $AS_4$ |
| 2006 $AX_4$ | 15.6 | 0.15 | 20100104 | 60.60849 | 277.23400 | 102.28805 | 30.08898 | 0.2459670 | 2.6201558 | 68 | 3 | 2004–2009 | 0.59 | M-v | 2 | MPC | 166246 | 2006 $AX_4$ |
| 2006 $AM_7$ | 15.2 | 0.15 | 20100104 | 269.52457 | 105.00109 | 24.96509 | 17.28348 | 0.1021903 | 3.0706286 | 51 | 4 | 2001–2009 | 0.52 | M-v | 1 | MPC | 164286 | 2006 $AM_7$ |
| 2006 $AX_9$ | 15.9 | 0.15 | 20100104 | 281.37261 | 299.97835 | 251.98325 | 6.94315 | 0.0988848 | 2.5647042 | 45 | 4 | 2002–2009 | 0.45 | M-v | 2 | MPC | 164286 | 2006 $AX_9$ |
| 2006 $AD_{10}$ | 16.2 | 0.15 | 20100104 | 18.73833 | 175.82262 | 238.43851 | 7.38637 | 0.1239933 | 2.6500036 | 71 | 6 | 2000–2009 | 0.50 | M-v | 0 | MPC | 166246 | 2006 $AD_{10}$ |
| 2006 $AE_{10}$ | 16.3 | 0.15 | 20100104 | 41.39080 | 97.13985 | 295.09335 | 10.63619 | 0.1303546 | 2.6372796 | 67 | 5 | 2000–2009 | 0.41 | M-v | 0 | MPC | 160857 | 2006 $AE_{10}$ |
| 2006 $AS_{10}$ | 16.0 | 0.15 | 20100104 | 320.65584 | 61.40833 | 83.05073 | 4.99701 | 0.1112107 | 2.6363116 | 65 | 5 | 1998–2009 | 0.65 | M-v | 2 | MPC | 143250 | 2006 $AS_{10}$ |
| 2006 $AR_{12}$ | 17.4 | 0.15 | 20100104 | 23.34955 | 170.15209 | 281.17491 | 4.08794 | 0.0771638 | 2.4663634 | 43 | 6 | 2001–2009 | 0.45 | M-v | 1 | MPC | 166246 | 2006 $AR_{12}$ |
| 2006 $AV_{12}$ | 17.0 | 0.15 | 20100104 | 322.72455 | 140.93790 | 42.82458 | 2.44805 | 0.1180972 | 2.4187782 | 56 | 4 | 2004–2009 | 0.36 | M-v | 1 | MPC | 148985 | 2006 $AV_{12}$ |
| 2006 $AW_{13}$ | 16.2 | 0.15 | 20100104 | 153.81314 | 181.35153 | 124.42446 | 4.50193 | 0.1775855 | 2.6605878 | 74 | 6 | 2002–2009 | 0.44 | M-v | 0 | MPC | 147373 | 2006 $AW_{13}$ |
| 2006 $AN_{14}$ | 16.8 | 0.15 | 20100104 | 17.15821 | 121.43232 | 299.66396 | 6.20163 | 0.2055792 | 2.6443582 | 55 | 4 | 2000–2009 | 0.52 | M-v | 1 | MPC | 166246 | 2006 $AN_{14}$ |
| 2006 $AO_{14}$ | 16.7 | 0.15 | 20100104 | 28.36656 | 118.37542 | 295.13398 | 3.74656 | 0.2232183 | 2.6098971 | 71 | 3 | 2004–2009 | 0.38 | M-v | 1 | MPC | 160857 | 2006 $AO_{14}$ |
| 2006 $AT_{14}$ | 17.9 | 0.15 | 20100104 | 345.44216 | 168.52709 | 300.13027 | 2.34887 | 0.1600707 | 2.6379654 | 50 | 4 | 2002–2009 | 0.33 | M-v | 2 | MPC | 166246 | 2006 $AT_{14}$ |
| 2006 $AV_{14}$ | 16.2 | 0.15 | 20100104 | 335.77769 | 334.27544 | 123.36927 | 9.63879 | 0.1112905 | 2.7518648 | 85 | 4 | 2004–2009 | 0.45 | M-v | 1 | MPC | 166246 | 2006 $AV_{14}$ |
| 2006 $AF_{15}$ | 16.4 | 0.15 | 20100104 | 140.74658 | 10.34876 | 292.47503 | 6.60959 | 0.0149153 | 2.7198674 | 50 | 2 | 2005–2009 | 0.27 | M-v | 3 | MPC | 165506 | 2006 $AF_{15}$ |
| 2006 $AM_{16}$ | 16.0 | 0.15 | 20100104 | 275.55249 | 260.63599 | 318.56832 | 11.33131 | 0.1189388 | 2.6265058 | 39 | 4 | 1993–2009 | 0.32 | M-v | 1 | MPC | 102268 | 2006 $AM_{16}$ |
| 2006 $AC_{17}$ | 17.0 | 0.15 | 20100104 | 313.69894 | 24.12299 | 120.44346 | 3.88253 | 0.0531367 | 2.5954097 | 25 | 3 | 2005–2009 | 0.19 | M-v | 2 | MPC | 121620 | 2006 $AC_{17}$ |
| 2006 $AM_{17}$ | 17.2 | 0.15 | 20100104 | 18.06914 | 258.95283 | 165.94831 | 0.81042 | 0.0981826 | 2.6234187 | 56 | 6 | 2000–2009 | 0.36 | M-v | 0 | MPC | 141838 | 2006 $AM_{17}$ |
| 2006 $AN_{17}$ | 16.5 | 0.15 | 20100104 | 221.88450 | 302.97574 | 213.81187 | 1.06904 | 0.0369354 | 3.1070874 | 39 | 3 | 2006–2009 | 0.44 | M-v | 3 | MPC | 120480 | 2006 $AN_{17}$ |
| 2006 $AM_{20}$ | 16.4 | 0.15 | 20100104 | 43.72040 | 346.03833 | 39.58200 | 5.37891 | 0.3008077 | 2.5881360 | 47 | 3 | 2002–2009 | 0.52 | M-v | 3 | MPC | 164286 | 2006 $AM_{20}$ |
| 2006 $AW_{20}$ | 16.2 | 0.15 | 20100104 | 29.80942 | 314.82342 | 92.01871 | 15.38473 | 0.1487781 | 2.6329155 | 49 | 2 | 2005–2009 | 0.59 | M-v | 3 | MPC | 165506 | 2006 $AW_{20}$ |
| 2006 $AZ_{20}$ | 16.6 | 0.15 | 20100104 | 352.86040 | 14.90958 | 87.12913 | 15.35625 | 0.2044067 | 2.6217545 | 44 | 3 | 2005–2009 | 0.48 | M-v | 2 | MPC | 165506 | 2006 $AZ_{20}$ |
| 2006 $AG_{21}$ | 15.7 | 0.15 | 20100104 | 233.80520 | 154.72543 | 87.39396 | 13.64541 | 0.1107204 | 2.6133962 | 49 | 4 | 2002–2009 | 0.55 | M-v | 2 | MPC | 166246 | 2006 $AG_{21}$ |
| 2006 $AJ_{21}$ | 16.9 | 0.15 | 20100104 | 12.27771 | 24.66853 | 27.74088 | 6.83510 | 0.3305518 | 2.6259959 | 90 | 2 | 2005–2009 | 0.48 | M-v | 2 | MPC | 166246 | 2006 $AJ_{21}$ |
| 2006 $AQ_{21}$ | 15.8 | 0.15 | 20100104 | 261.00874 | 121.82445 | 97.96121 | 15.71535 | 0.0629735 | 2.5704909 | 56 | 3 | 2002–2009 | 0.52 | M-v | 3 | MPC | 166246 | 2006 $AQ_{21}$ |
| 2006 $AY_{23}$ | 16.7 | 0.15 | 20100104 | 0.90180 | 105.15650 | 314.83698 | 7.90880 | 0.3437285 | 2.6877102 | 114 | 2 | 2005–2009 | 0.51 | M-v | 2 | MPC | 166247 | 2006 $AY_{23}$ |
| 2006 $AM_{27}$ | 17.5 | 0.15 | 20100104 | 309.37459 | 280.77194 | 217.52626 | 2.41237 | 0.0403606 | 2.6860074 | 36 | 5 | 2002–2009 | 0.27 | M-v | 0 | MPC | 120834 | 2006 $AM_{27}$ |
| 2006 $AP_{30}$ | 15.9 | 0.15 | 20100104 | 298.31519 | 174.17245 | 323.35791 | 8.40131 | 0.1180177 | 2.7724498 | 49 | 3 | 2006–2009 | 0.52 | M-v | 3 | MPC | 166247 | 2006 $AP_{30}$ |
| 2006 $AK_{31}$ | 15.9 | 0.15 | 20100104 | 255.15566 | 80.05039 | 103.37664 | 10.53661 | 0.0191663 | 2.7316613 | 48 | 3 | 2005–2009 | 0.56 | M-v | 1 | MPC | 166247 | 2006 $AK_{31}$ |
| 2006 $AQ_{31}$ | 16.4 | 0.15 | 20100104 | 338.62844 | 131.07269 | 313.78909 | 12.52927 | 0.2281988 | 2.6969272 | 58 | 3 | 2000–2009 | 0.43 | M-v | 2 | MPC | 166247 | 2006 $AQ_{31}$ |
| 2006 $AW_{32}$ | 16.7 | 0.15 | 20100104 | 332.94137 | 56.36658 | 65.59459 | 13.82185 | 0.2202661 | 2.6756635 | 47 | 2 | 2005–2009 | 0.51 | M-v | 3 | MPC | 165507 | 2006 $AW_{32}$ |
| 2006 $AQ_{33}$ | 16.5 | 0.15 | 20100104 | 93.25903 | 354.91602 | 341.49813 | 6.00215 | 0.2882695 | 2.5525881 | 37 | 4 | 1996–2009 | 0.50 | M-v | 1 | MPC | 117661 | 2006 $AQ_{33}$ |
| 2006 $AG_{34}$ | 17.2 | 0.15 | 20100104 | 1.44683 | 28.86408 | 51.54307 | 2.13232 | 0.0644321 | 2.6720356 | 37 | 5 | 2002–2009 | 0.31 | M-v | 0 | MPC | 166247 | 2006 $AG_{34}$ |
| 2006 $AQ_{35}$ | 16.5 | 0.15 | 20100104 | 256.93846 | 81.30316 | 123.13277 | 6.50342 | 0.1262712 | 2.6915942 | 28 | 3 | 2002–2009 | 0.35 | M-v | 3 | MPC | 96922 | 2006 $AQ_{35}$ |
| 2006 $AP_{36}$ | 17.0 | 0.15 | 20100104 | 200.79041 | 246.99009 | 358.07863 | 2.27038 | 0.0274627 | 2.7159926 | 50 | 6 | 2002–2009 | 0.42 | M-v | 0 | MPC | 147373 | 2006 $AP_{36}$ |
| 2006 $AY_{38}$ | 17.6 | 0.15 | 20100104 | 25.24229 | 115.93282 | 310.50236 | 1.50941 | 0.1416117 | 2.5832438 | 34 | 4 | 2002–2009 | 0.29 | M-v | 2 | MPC | 158040 | 2006 $AY_{38}$ |
| 2006 $AD_{39}$ | 17.2 | 0.15 | 20100104 | 326.24065 | 157.00706 | 306.03494 | 3.15922 | 0.0592728 | 2.7553726 | 30 | 3 | 1997–2009 | 0.31 | M-v | 3 | MPC | 165507 | 2006 $AD_{39}$ |
| 2006 $AO_{39}$ | 17.2 | 0.15 | 20100104 | 28.03103 | 76.89512 | 319.52770 | 2.58023 | 0.0920388 | 2.7186207 | 46 | 4 | 2000–2009 | 0.37 | M-v | 0 | MPC | 166247 | 2006 $AO_{39}$ |
| 2006 $AQ_{39}$ | 16.5 | 0.15 | 20100104 | 321.28570 | 14.66965 | 113.13124 | 14.74370 | 0.0871517 | 2.6512680 | 57 | 5 | 2000–2009 | 0.36 | M-v | 0 | MPC | 121353 | 2006 $AQ_{39}$ |
| 2006 $AY_{40}$ | 17.3 | 0.15 | 20100104 | 95.04464 | 254.17323 | 107.77149 | 5.79053 | 0.1845189 | 2.5178182 | 36 | 6 | 1994–2009 | 0.42 | M-v | 1 | MPC | 120834 | 2006 $AY_{40}$ |
| 2006 $AG_{41}$ | 17.1 | 0.15 | 20100104 | 15.73773 | 339.20460 | 67.67601 | 2.43174 | 0.0707971 | 2.7945004 | 45 | 3 | 2004–2009 | 0.27 | M-v | 3 | MPC | 166247 | 2006 $AG_{41}$ |
| 2006 $AY_{41}$ | 17.7 | 0.15 | 20100104 | 22.74634 | 242.84885 | 176.20213 | 2.49392 | 0.0551729 | 2.6843781 | 36 | 5 | 2000–2009 | 0.37 | M-v | 0 | MPC | 142792 | 2006 $AY_{41}$ |
| 2006 $AO_{42}$ | 15.8 | 0.15 | 20100104 | 182.23008 | 356.24853 | 297.38649 | 15.76683 | 0.1356812 | 2.5807231 | 50 | 4 | 2002–2009 | 0.37 | M-v | 2 | MPC | 166247 | 2006 $AO_{42}$ |
| 2006 $AG_{45}$ | 16.5 | 0.15 | 20100104 | 52.26324 | 233.01321 | 136.45087 | 5.43494 | 0.2124435 | 2.6174854 | 45 | 6 | 2000–2009 | 0.50 | M-v | 1 | MPC | 166247 | 2006 $AG_{45}$ |
| 2006 $AL_{46}$ | 17.7 | 0.15 | 20100104 | 71.44014 | 224.98369 | 162.90533 | 2.44571 | 0.0974554 | 2.5437041 | 34 | 3 | 2005–2009 | 0.32 | M-v | 3 | MPC | 155209 | 2006 $AL_{46}$ |
| 2006 $AD_{47}$ | 16.8 | 0.15 | 20100104 | 266.79206 | 144.40977 | 50.78291 | 4.09598 | 0.1735568 | 2.6602578 | 35 | 6 | 1998–2009 | 0.32 | M-v | 1 | MPC | 166247 | 2006 $AD_{47}$ |
| 2006 $AK_{48}$ | 15.9 | 0.15 | 20100104 | 249.56450 | 288.00184 | 312.65018 | 11.44346 | 0.1512080 | 2.6799270 | 34 | 4 | 2003–2009 | 0.39 | M-v | 0 | MPC | 126750 | 2006 $AK_{48}$ |
| 2006 $AB_{53}$ | 16.8 | 0.15 | 20100104 | 11.45937 | 142.00804 | 245.19532 | 2.03975 | 0.0734477 | 2.9116234 | 49 | 3 | 2004–2009 | 0.35 | M-v | 2 | MPC | 166247 | 2006 $AB_{53}$ |
| 2006 $AT_{53}$ | 16.8 | 0.15 | 20100104 | 79.98685 | 91.53999 | 237.25976 | 1.14570 | 0.0748226 | 2.8870457 | 41 | 6 | 1999–2009 | 0.35 | M-v | 0 | MPC | 166247 | 2006 $AT_{53}$ |
| 2006 $AZ_{53}$ | 16.9 | 0.15 | 20100104 | 81.73164 | 78.73355 | 274.25744 | 4.95248 | 0.0241656 | 2.7451442 | 36 | 3 | 2005–2009 | 0.26 | M-v | 2 | MPC | 166247 | 2006 $AZ_{53}$ |
| 2006 $AW_{55}$ | 16.9 | 0.15 | 20100104 | 75.57672 | 93.68867 | 272.19948 | 2.31414 | 0.2063807 | 2.5633412 | 46 | 5 | 1996–2009 | 0.49 | M-v | 1 | MPC | 164287 | 2006 $AW_{55}$ |
| 2006 $AC_{56}$ | 16.9 | 0.15 | 20100104 | 44.75521 | 240.10526 | 137.72472 | 4.85864 | 0.2275883 | 2.6648085 | 45 | 4 | 2000–2009 | 0.47 | M-v | 0 | MPC | 166247 | 2006 $AC_{56}$ |
| 2006 $AE_{57}$ | 17.4 | 0.15 | 20100104 | 240.84118 | 211.11970 | 2.78390 | 0.91180 | 0.0684915 | 2.6174844 | 38 | 5 | 2004–2009 | 0.22 | M-v | 0 | MPC | 143251 | 2006 $AE_{57}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 $AS_{57}$ | 16.0 | 0.15 | 20100104 | 43.75275 | 137.62078 | 256.40724 | 4.93009 | 0.2952083 | 2.5831001 | 66 | 5 | 2000–2009 | 0.52 | M-v | 1 | MPC | 166247 | 2006 $AS_{57}$ |
| 2006 $AF_{58}$ | 17.7 | 0.15 | 20100104 | 10.34313 | 241.14090 | 214.73014 | 2.01849 | 0.1212898 | 2.5728142 | 45 | 7 | 1996–2009 | 0.37 | M-v | 1 | MPC | 166247 | 2006 $AF_{58}$ |
| 2006 $AT_{58}$ | 16.7 | 0.15 | 20100104 | 29.29037 | 7.59493 | 356.10923 | 1.43406 | 0.1031959 | 2.9024471 | 44 | 4 | 1999–2009 | 0.37 | M-v | 3 | MPC | 164287 | 2006 $AT_{58}$ |
| 2006 $AN_{60}$ | 17.3 | 0.15 | 20100104 | 226.09021 | 282.39645 | 290.94072 | 0.75548 | 0.0178293 | 2.7076859 | 45 | 6 | 2002–2009 | 0.40 | M-v | 0 | MPC | 166248 | 2006 $AN_{60}$ |
| 2006 $AP_{60}$ | 17.0 | 0.15 | 20100104 | 159.62350 | 180.36445 | 116.80079 | 3.82865 | 0.1378195 | 2.6064442 | 44 | 5 | 2003–2009 | 0.32 | M-v | 0 | MPC | 143251 | 2006 $AP_{60}$ |
| 2006 $AB_{61}$ | 16.5 | 0.15 | 20100104 | 222.55952 | 339.18378 | 282.95705 | 9.15350 | 0.1449860 | 2.5397111 | 28 | 3 | 2006–2009 | 0.39 | M-v | 2 | MPC | 157036 | 2006 $AB_{61}$ |
| 2006 $AN_{62}$ | 17.2 | 0.15 | 20100104 | 54.44924 | 303.79872 | 78.13120 | 4.35957 | 0.0956811 | 2.6489024 | 29 | 3 | 2005–2009 | 0.33 | M-v | 3 | MPC | 165508 | 2006 $AN_{62}$ |
| 2006 $AU_{63}$ | 16.9 | 0.15 | 20100104 | 101.31636 | 289.26461 | 72.21157 | 3.41331 | 0.0489944 | 2.5331104 | 60 | 9 | 1999–2009 | 0.37 | M-v | 0 | MPC | 143251 | 2006 $AU_{63}$ |
| 2006 $AG_{68}$ | 16.6 | 0.15 | 20100104 | 32.91804 | 105.21856 | 300.74639 | 16.07928 | 0.2581221 | 2.6023777 | 34 | 4 | 2002–2009 | 0.54 | M-v | 2 | MPC | 96945 | 2006 $AG_{68}$ |
| 2006 $AY_{68}$ | 16.1 | 0.15 | 20100104 | 303.23010 | 107.93976 | 107.53553 | 7.17996 | 0.0435981 | 2.3031030 | 41 | 5 | 2003–2009 | 0.59 | M-v | 1 | MPC | 147374 | 2006 $AY_{68}$ |
| 2006 $AJ_{69}$ | 16.1 | 0.15 | 20100104 | 55.88339 | 246.47793 | 116.75342 | 14.49677 | 0.1373301 | 2.6994964 | 46 | 3 | 2004–2009 | 0.38 | M-v | 2 | MPC | 166248 | 2006 $AJ_{69}$ |
| 2006 $AW_{70}$ | 17.0 | 0.15 | 20100104 | 273.21445 | 265.89189 | 290.79243 | 2.29163 | 0.1123557 | 2.6453927 | 33 | 4 | 2002–2009 | 0.44 | M-v | 2 | MPC | 147375 | 2006 $AW_{70}$ |
| 2006 $AJ_{71}$ | 16.5 | 0.15 | 20100104 | 132.62046 | 169.17164 | 139.90661 | 6.57475 | 0.0495344 | 2.7494058 | 47 | 5 | 2002–2009 | 0.36 | M-v | 0 | MPC | 157037 | 2006 $AJ_{71}$ |
| 2006 $AP_{71}$ | 17.2 | 0.15 | 20100104 | 43.72067 | 123.84479 | 294.59289 | 5.24127 | 0.1219065 | 2.5606063 | 44 | 4 | 1996–2009 | 0.43 | M-v | 2 | MPC | 166248 | 2006 $AP_{71}$ |
| 2006 $AW_{72}$ | 16.6 | 0.15 | 20100104 | 172.36924 | 198.09250 | 75.25891 | 5.07638 | 0.0582333 | 2.6516362 | 29 | 3 | 2005–2009 | 0.33 | M-v | 3 | MPC | 166248 | 2006 $AW_{72}$ |
| 2006 $AD_{73}$ | 16.3 | 0.15 | 20100104 | 48.47830 | 252.66994 | 120.63471 | 2.93464 | 0.0874366 | 2.8062424 | 46 | 5 | 2000–2009 | 0.39 | M-v | 0 | MPC | 166248 | 2006 $AD_{73}$ |
| 2006 $AF_{73}$ | 16.8 | 0.15 | 20100104 | 342.99301 | 291.09608 | 181.65435 | 5.25346 | 0.1515409 | 2.6113255 | 35 | 6 | 2002–2009 | 0.55 | M-v | 1 | MPC | 143252 | 2006 $AF_{73}$ |
| 2006 $AQ_{73}$ | 17.1 | 0.15 | 20100104 | 41.71061 | 145.59479 | 267.24279 | 2.68726 | 0.1869162 | 2.5504737 | 53 | 3 | 2002–2009 | 0.38 | M-v | 3 | MPC | 166248 | 2006 $AQ_{73}$ |
| 2006 $AK_{74}$ | 17.1 | 0.15 | 20100104 | 353.01049 | 77.56948 | 90.08729 | 3.37714 | 0.1841788 | 2.4142771 | 74 | 8 | 1995–2009 | 0.48 | M-v | 1 | MPC | 147375 | 2006 $AK_{74}$ |
| 2006 $AP_{75}$ | 17.9 | 0.15 | 20100104 | 314.76943 | 233.50877 | 289.52398 | 2.87904 | 0.1733508 | 2.5756292 | 38 | 3 | 2002–2009 | 0.39 | M-v | 3 | MPC | 96954 | 2006 $AP_{75}$ |
| 2006 $AS_{76}$ | 15.7 | 0.15 | 20100104 | 31.00688 | 298.79283 | 128.12190 | 15.76056 | 0.0899555 | 2.6332407 | 71 | 6 | 2000–2009 | 0.59 | M-v | 1 | MPC | 143252 | 2006 $AS_{76}$ |
| 2006 $AU_{78}$ | 16.8 | 0.15 | 20100104 | 176.46992 | 150.61111 | 109.84052 | 4.59376 | 0.0504302 | 2.7843650 | 25 | 3 | 2005–2009 | 0.31 | M-v | 3 | MPC | 120483 | 2006 $AU_{78}$ |
| 2006 $AF_{79}$ | 16.7 | 0.15 | 20100104 | 0.10031 | 151.74002 | 278.69121 | 3.24770 | 0.0423043 | 2.7913233 | 36 | 3 | 2004–2009 | 0.37 | M-v | 2 | MPC | 166248 | 2006 $AF_{79}$ |
| 2006 $AB_{82}$ | 16.8 | 0.15 | 20100104 | 65.54575 | 123.84185 | 235.59976 | 2.97458 | 0.1066097 | 2.7034725 | 40 | 5 | 2000–2009 | 0.47 | M-v | 1 | MPC | 166248 | 2006 $AB_{82}$ |
| 2006 $AR_{82}$ | 15.5 | 0.15 | 20100104 | 4.31628 | 0.85020 | 53.47760 | 13.59828 | 0.1691702 | 2.6732010 | 124 | 6 | 2000–2009 | 0.51 | M-v | 1 | MPC | 166248 | 2006 $AR_{82}$ |
| 2006 $AQ_{83}$ | 16.6 | 0.15 | 20100104 | 14.79164 | 330.37156 | 114.94859 | 18.01373 | 0.1520922 | 2.5621241 | 43 | 4 | 2002–2009 | 0.62 | M-v | 2 | MPC | 120835 | 2006 $AQ_{83}$ |
| 2006 $AQ_{84}$ | 15.3 | 0.15 | 20100104 | 248.29129 | 136.61836 | 82.85204 | 12.50310 | 0.1283634 | 2.6872377 | 49 | 5 | 1998–2009 | 0.47 | M-v | 2 | MPC | 147375 | 2006 $AQ_{84}$ |
| 2006 $AK_{85}$ | 16.4 | 0.15 | 20100104 | 40.60258 | 35.10498 | 2.66829 | 13.62233 | 0.2428443 | 2.5943113 | 30 | 5 | 1996–2009 | 0.61 | M-v | 1 | MPC | 101219 | 2006 $AK_{85}$ |
| 2006 $AL_{85}$ | 16.2 | 0.15 | 20100104 | 4.93090 | 174.64550 | 273.21842 | 6.03708 | 0.1738758 | 2.6427111 | 61 | 5 | 1992–2009 | 0.57 | M-v | 1 | MPC | 166248 | 2006 $AL_{85}$ |
| 2006 $AN_{85}$ | 15.9 | 0.15 | 20100104 | 357.08955 | 32.92892 | 149.26735 | 10.78957 | 0.1338301 | 2.3644435 | 96 | 7 | 1996–2009 | 0.53 | M-v | 1 | MPC | 159770 | 2006 $AN_{85}$ |
| 2006 $AG_{92}$ | 17.1 | 0.15 | 20100104 | 25.42950 | 111.89094 | 306.00442 | 4.52130 | 0.2764945 | 2.5828178 | 63 | 3 | 2002–2009 | 0.44 | M-v | 2 | MPC | 101220 | 2006 $AG_{92}$ |
| 2006 $AF_{96}$ | 16.2 | 0.15 | 20100104 | 330.75096 | 63.73397 | 79.72912 | 16.07040 | 0.1264427 | 2.5984640 | 44 | 3 | 2002–2009 | 0.59 | M-v | 3 | MPC | 96971 | 2006 $AF_{96}$ |
| 2006 $AL_{96}$ | 15.5 | 0.15 | 20100104 | 312.42908 | 359.18379 | 131.12078 | 10.16157 | 0.1045264 | 2.7689324 | 69 | 5 | 1993–2009 | 0.48 | M-v | 1 | MPC | 166248 | 2006 $AL_{96}$ |
| 2006 $AK_{100}$ | 17.1 | 0.15 | 20100104 | 26.55433 | 75.60663 | 333.85814 | 3.65986 | 0.0633404 | 2.7849111 | 27 | 3 | 2004–2009 | 0.40 | M-v | 4 | MPC | 166248 | 2006 $AK_{100}$ |
| 2006 $AO_{100}$ | 16.7 | 0.15 | 20100104 | 31.53735 | 103.64240 | 280.61808 | 4.23332 | 0.1394318 | 2.7730790 | 35 | 3 | 2004–2009 | 0.46 | M-v | 3 | MPC | 166248 | 2006 $AO_{100}$ |
| 2006 $AA_{101}$ | 16.8 | 0.15 | 20100104 | 17.44168 | 262.41831 | 151.93751 | 2.93087 | 0.1786806 | 2.6981875 | 42 | 3 | 2004–2009 | 0.52 | M-v | 2 | MPC | 166248 | 2006 $AA_{101}$ |
| 2006 $AC_{101}$ | 16.6 | 0.15 | 20100104 | 34.08556 | 275.15194 | 134.11637 | 7.21414 | 0.0460658 | 2.7632570 | 38 | 4 | 2006–2009 | 0.39 | M-v | 1 | MPC | 147376 | 2006 $AC_{101}$ |
| 2006 $AW_{104}$ | 16.5 | 0.15 | 20100104 | 92.77630 | 23.61551 | 330.68160 | 8.24480 | 0.1380460 | 2.7746397 | 63 | 3 | 2006–2009 | 0.41 | M-v | 2 | MPC | 147376 | 2006 $AW_{104}$ |
| 2006 $AD_{105}$ | 16.4 | 0.15 | 20100104 | 332.80692 | 238.82159 | 214.41374 | 1.49578 | 0.1340546 | 2.9936996 | 50 | 6 | 2001–2009 | 0.30 | M-v | 0 | MPC | 166248 | 2006 $AD_{105}$ |
| 2006 $BV_{1}$ | 15.9 | 0.15 | 20100104 | 137.40089 | 356.53248 | 310.13464 | 5.49030 | 0.0010848 | 2.7446236 | 56 | 5 | 2002–2009 | 0.44 | M-v | 1 | MPC | 148986 | 2006 $BV_{1}$ |
| 2006 $BY_{1}$ | 16.9 | 0.15 | 20100104 | 343.57047 | 329.41672 | 135.53324 | 3.04414 | 0.0960983 | 2.6911478 | 42 | 5 | 1999–2009 | 0.23 | M-v | 1 | MPC | 166248 | 2006 $BY_{1}$ |
| 2006 $BA_{2}$ | 16.1 | 0.15 | 20100104 | 112.04778 | 26.19088 | 318.20350 | 4.68304 | 0.0793923 | 2.6538343 | 59 | 5 | 2000–2009 | 0.48 | M-v | 1 | MPC | 147376 | 2006 $BA_{2}$ |
| 2006 $BY_{5}$ | 16.7 | 0.15 | 20100104 | 59.19356 | 164.75625 | 246.63095 | 4.92062 | 0.1651665 | 2.4727190 | 37 | 5 | 2001–2009 | 0.49 | M-v | 1 | MPC | 120836 | 2006 $BY_{5}$ |
| 2006 $BN_{7}$ | 16.7 | 0.15 | 20100104 | 341.54857 | 60.85476 | 85.88904 | 30.05394 | 0.3722069 | 2.5922818 | 56 | 3 | 2002–2009 | 0.53 | M-v | 2 | MPC | 166248 | 2006 $BN_{7}$ |
| 2006 $BD_{8}$ | 16.6 | 0.15 | 20100104 | 354.26192 | 123.69092 | 320.82129 | 8.70848 | 0.1555954 | 2.7543382 | 46 | 2 | 2006–2009 | 0.37 | M-v | 4 | MPC | 165509 | 2006 $BD_{8}$ |
| 2006 $BH_{10}$ | 16.5 | 0.15 | 20100104 | 207.84585 | 250.11108 | 332.59132 | 1.38802 | 0.0262902 | 2.8306617 | 32 | 4 | 2006–2009 | 0.31 | M-v | 1 | MPC | 166249 | 2006 $BH_{10}$ |
| 2006 $BK_{12}$ | 16.3 | 0.15 | 20100104 | 10.50290 | 142.88119 | 267.91886 | 7.41882 | 0.4183657 | 2.6514104 | 101 | 3 | 2000–2009 | 0.42 | M-v | 1 | MPC | 166249 | 2006 $BK_{12}$ |
| 2006 $BC_{13}$ | 17.1 | 0.15 | 20100104 | 29.64048 | 283.64274 | 154.03881 | 2.66382 | 0.1210390 | 2.5769657 | 67 | 6 | 2000–2009 | 0.38 | M-v | 0 | MPC | 147376 | 2006 $BC_{13}$ |
| 2006 $BY_{13}$ | 16.1 | 0.15 | 20100104 | 14.00112 | 5.20949 | 63.05790 | 15.53955 | 0.0495885 | 2.6937288 | 54 | 5 | 2000–2009 | 0.60 | M-v | 1 | MPC | 166249 | 2006 $BY_{13}$ |
| 2006 $BC_{18}$ | 16.7 | 0.15 | 20100104 | 310.56935 | 13.57681 | 126.37719 | 8.96771 | 0.1919466 | 2.6916407 | 49 | 3 | 2002–2009 | 0.49 | M-v | 3 | MPC | 101227 | 2006 $BC_{18}$ |
| 2006 $BT_{19}$ | 17.7 | 0.15 | 20100104 | 58.88229 | 255.45607 | 128.40173 | 4.86436 | 0.1580358 | 2.5956155 | 24 | 5 | 1992–2009 | 0.41 | M-v | 1 | MPC | 128236 | 2006 $BT_{19}$ |
| 2006 $BF_{20}$ | 17.9 | 0.15 | 20100104 | 34.41207 | 330.53783 | 88.77691 | 1.37609 | 0.2023383 | 2.5460394 | 35 | 3 | 2002–2009 | 0.38 | M-v | 3 | MPC | 96991 | 2006 $BF_{20}$ |
| 2006 $BD_{22}$ | 15.5 | 0.15 | 20100104 | 195.38335 | 97.78263 | 134.24064 | 3.29798 | 0.1693766 | 2.9952023 | 63 | 5 | 2001–2009 | 0.35 | M-v | 0 | MPC | 166249 | 2006 $BD_{22}$ |

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| 2006 $BE_{24}$ | 16.6 | 0.15 | 20100104 | 355.32810 | 342.23158 | 111.52572 | 3.67991 | 0.1705778 | 2.6487774 | 80 | 6 | 1993–2009 | 0.55 | M-v | 1 | MPC | 166249 | 2006 $BE_{24}$ |
| 2006 $BF_{24}$ | 17.8 | 0.15 | 20100104 | 336.39636 | 64.15118 | 30.04741 | 0.84674 | 0.3176697 | 2.6978950 | 66 | 3 | 2002–2009 | 0.42 | M-v | 2 | MPC | 166249 | 2006 $BF_{24}$ |
| 2006 $BY_{26}$ | 16.3 | 0.15 | 20100104 | 10.95023 | 104.96620 | 324.78221 | 11.65648 | 0.1695665 | 2.7079974 | 44 | 6 | 1997–2009 | 0.37 | M-v | 0 | MPC | 101230 | 2006 $BY_{26}$ |
| 2006 $BF_{27}$ | 16.9 | 0.15 | 20100104 | 326.39910 | 26.88957 | 128.42539 | 6.06161 | 0.0460986 | 2.5796109 | 35 | 4 | 1998–2009 | 0.31 | M-v | 3 | MPC | 103840 | 2006 $BF_{27}$ |
| 2006 $BL_{27}$ | 16.6 | 0.15 | 20100104 | 327.10920 | 227.88152 | 272.78835 | 13.06232 | 0.0770067 | 2.5797572 | 38 | 4 | 2002–2009 | 0.43 | M-v | 2 | MPC | 166249 | 2006 $BL_{27}$ |
| 2006 $BV_{27}$ | 16.4 | 0.15 | 20100104 | 235.69434 | 103.49373 | 109.12858 | 2.19338 | 0.0680355 | 2.7222356 | 51 | 7 | 1998–2009 | 0.43 | M-v | 0 | MPC | 147377 | 2006 $BV_{27}$ |
| 2006 $BG_{29}$ | 16.4 | 0.15 | 20100104 | 147.20281 | 175.31571 | 92.35250 | 3.95571 | 0.0464840 | 2.9545654 | 51 | 5 | 1999–2009 | 0.44 | M-v | 0 | MPC | 166249 | 2006 $BG_{29}$ |
| 2006 $BH_{29}$ | 17.1 | 0.15 | 20100104 | 33.86962 | 309.39659 | 112.01247 | 5.33313 | 0.1105040 | 2.6145395 | 47 | 4 | 2004–2009 | 0.41 | M-v | 0 | MPC | 119277 | 2006 $BH_{29}$ |
| 2006 $BR_{29}$ | 16.7 | 0.15 | 20100104 | 324.14749 | 122.33817 | 359.80773 | 2.36847 | 0.1320716 | 2.7127736 | 69 | 5 | 1991–2009 | 0.43 | M-v | 0 | MPC | 166249 | 2006 $BR_{29}$ |
| 2006 $BS_{29}$ | 17.5 | 0.15 | 20100104 | 79.89573 | 71.85163 | 334.25963 | 6.12933 | 0.0736592 | 2.4811519 | 53 | 5 | 2000–2009 | 0.40 | M-v | 1 | MPC | 147377 | 2006 $BS_{29}$ |
| 2006 $BY_{30}$ | 16.2 | 0.15 | 20100104 | 3.38800 | 343.55107 | 104.63358 | 3.35145 | 0.1430331 | 2.6579608 | 41 | 4 | 2004–2009 | 0.46 | M-v | 1 | MPC | 166249 | 2006 $BY_{30}$ |
| 2006 $BB_{31}$ | 17.7 | 0.15 | 20100104 | 357.97210 | 130.83187 | 334.67281 | 3.14505 | 0.2262199 | 2.5865714 | 47 | 4 | 2000–2009 | 0.39 | M-v | 1 | MPC | 102272 | 2006 $BB_{31}$ |
| 2006 $BF_{31}$ | 16.1 | 0.15 | 20100104 | 326.53995 | 355.16268 | 120.38313 | 3.72181 | 0.0457597 | 2.7614081 | 84 | 5 | 2000–2009 | 0.42 | M-v | 0 | MPC | 166249 | 2006 $BF_{31}$ |
| 2006 $BQ_{31}$ | 15.7 | 0.15 | 20100104 | 251.09881 | 99.36894 | 108.78437 | 5.15075 | 0.1349316 | 2.7886130 | 44 | 5 | 1992–2009 | 0.39 | M-v | 1 | MPC | 97001 | 2006 $BQ_{31}$ |
| 2006 $BC_{32}$ | 16.4 | 0.15 | 20100104 | 278.05370 | 229.52991 | 323.26590 | 10.64516 | 0.1340284 | 2.6953742 | 36 | 3 | 2006–2009 | 0.21 | M-v | 2 | MPC | 153466 | 2006 $BC_{32}$ |
| 2006 $BY_{35}$ | 17.1 | 0.15 | 20100104 | 101.94703 | 295.52711 | 17.55908 | 1.73599 | 0.0660069 | 2.9109566 | 31 | 3 | 2004–2009 | 0.30 | M-v | 4 | MPC | 101232 | 2006 $BY_{35}$ |
| 2006 $BM_{36}$ | 16.9 | 0.15 | 20100104 | 220.64972 | 210.05044 | 20.92449 | 3.59975 | 0.1290114 | 2.8165011 | 29 | 4 | 1997–2009 | 0.27 | M-v | 1 | MPC | 157434 | 2006 $BM_{36}$ |
| 2006 $BY_{36}$ | 15.2 | 0.15 | 20100104 | 9.23009 | 34.09373 | 344.94285 | 8.92950 | 0.1230762 | 3.0980260 | 72 | 4 | 1998–2009 | 0.46 | M-v | 1 | MPC | 164288 | 2006 $BY_{36}$ |
| 2006 $BH_{38}$ | 16.3 | 0.15 | 20100104 | 10.39133 | 262.20020 | 156.62752 | 2.56597 | 0.0647205 | 2.8556186 | 37 | 3 | 2005–2009 | 0.39 | M-v | 2 | MPC | 165510 | 2006 $BH_{38}$ |
| 2006 $BN_{38}$ | 16.4 | 0.15 | 20100104 | 222.31290 | 97.48230 | 152.97690 | 5.45222 | 0.0778867 | 2.7488398 | 61 | 6 | 1993–2009 | 0.37 | M-v | 1 | MPC | 147377 | 2006 $BN_{38}$ |
| 2006 $BE_{39}$ | 15.5 | 0.15 | 20100104 | 207.79341 | 224.84787 | 327.51220 | 4.85867 | 0.1012594 | 3.0880889 | 71 | 7 | 2001–2009 | 0.47 | M-v | 0 | MPC | 164288 | 2006 $BE_{39}$ |
| 2006 $BH_{39}$ | 16.8 | 0.15 | 20100104 | 352.74369 | 44.05625 | 48.02495 | 1.80858 | 0.0517186 | 2.6543879 | 57 | 5 | 2002–2009 | 0.26 | M-v | 0 | MPC | 166249 | 2006 $BH_{39}$ |
| 2006 $BO_{39}$ | 16.3 | 0.15 | 20100104 | 327.07545 | 97.10063 | 22.25385 | 2.47334 | 0.1414159 | 2.7006264 | 75 | 4 | 2000–2009 | 0.52 | M-v | 1 | MPC | 166249 | 2006 $BO_{39}$ |
| 2006 $BA_{40}$ | 16.1 | 0.15 | 20100104 | 68.04311 | 10.05049 | 347.48289 | 1.48173 | 0.0800426 | 2.8662231 | 44 | 3 | 2005–2009 | 0.36 | M-v | 2 | MPC | 166249 | 2006 $BA_{40}$ |
| 2006 $BE_{40}$ | 17.1 | 0.15 | 20100104 | 10.50587 | 308.66529 | 138.99514 | 4.57972 | 0.2961297 | 2.5875462 | 60 | 2 | 2006–2009 | 0.52 | M-v | 3 | MPC | 165510 | 2006 $BE_{40}$ |
| 2006 $BF_{40}$ | 16.5 | 0.15 | 20100104 | 355.22339 | 328.85733 | 138.64675 | 3.09811 | 0.0498004 | 2.6981904 | 40 | 5 | 1993–2009 | 0.52 | M-v | 1 | MPC | 153466 | 2006 $BF_{40}$ |
| 2006 $BK_{40}$ | 16.3 | 0.15 | 20100104 | 215.54020 | 354.73891 | 222.98185 | 3.44545 | 0.1297234 | 2.9940029 | 44 | 5 | 2003–2009 | 0.34 | M-v | 1 | MPC | 166249 | 2006 $BK_{40}$ |
| 2006 $BZ_{42}$ | 16.2 | 0.15 | 20100104 | 41.61479 | 296.30117 | 107.73228 | 5.00542 | 0.2356819 | 2.5809849 | 65 | 5 | 2000–2009 | 0.54 | M-v | 1 | MPC | 166249 | 2006 $BZ_{42}$ |
| 2006 $BM_{43}$ | 16.2 | 0.15 | 20100104 | 287.23467 | 82.21831 | 73.46814 | 4.30599 | 0.0350209 | 2.8089523 | 61 | 6 | 2001–2009 | 0.35 | M-v | 0 | MPC | 166249 | 2006 $BM_{43}$ |
| 2006 $BW_{43}$ | 15.9 | 0.15 | 20100104 | 325.95777 | 355.27457 | 104.27843 | 3.64233 | 0.1164386 | 2.8692487 | 52 | 5 | 1999–2009 | 0.49 | M-v | 0 | MPC | 166249 | 2006 $BW_{43}$ |
| 2006 $BF_{44}$ | 16.4 | 0.15 | 20100104 | 20.05405 | 76.63706 | 339.03653 | 4.31464 | 0.1031229 | 2.8341419 | 58 | 5 | 1994–2009 | 0.48 | M-v | 2 | MPC | 166249 | 2006 $BF_{44}$ |
| 2006 $BM_{45}$ | 15.7 | 0.15 | 20100104 | 175.04262 | 93.87115 | 168.54598 | 2.35689 | 0.0912793 | 2.9841052 | 75 | 4 | 2003–2009 | 0.43 | M-v | 0 | MPC | 166249 | 2006 $BM_{45}$ |
| 2006 $BU_{45}$ | 17.1 | 0.15 | 20100104 | 264.34260 | 60.01964 | 152.19846 | 4.69561 | 0.0657986 | 2.6962512 | 51 | 6 | 1997–2009 | 0.38 | M-v | 1 | MPC | 147378 | 2006 $BU_{45}$ |
| 2006 $BK_{46}$ | 16.4 | 0.15 | 20100104 | 98.76225 | 210.39671 | 145.61258 | 5.63493 | 0.1324831 | 2.7398494 | 46 | 6 | 1993–2009 | 0.46 | M-v | 1 | MPC | 147378 | 2006 $BK_{46}$ |
| 2006 $BC_{50}$ | 17.1 | 0.15 | 20100104 | 235.59853 | 257.06747 | 352.33248 | 3.93785 | 0.1784552 | 2.6079748 | 41 | 3 | 2005–2009 | 0.34 | M-v | 3 | MPC | 148988 | 2006 $BC_{50}$ |
| 2006 $BM_{51}$ | 16.6 | 0.15 | 20100104 | 58.59659 | 355.69845 | 18.71988 | 1.23839 | 0.0856489 | 2.7799606 | 39 | 4 | 2004–2009 | 0.31 | M-v | 0 | MPC | 166249 | 2006 $BM_{51}$ |
| 2006 $BO_{52}$ | 16.8 | 0.15 | 20100104 | 33.63942 | 266.33506 | 124.83297 | 4.31344 | 0.2013172 | 2.7393264 | 34 | 3 | 2004–2009 | 0.50 | M-v | 3 | MPC | 165510 | 2006 $BO_{52}$ |
| 2006 $BS_{52}$ | 15.9 | 0.15 | 20100104 | 74.60469 | 27.86239 | 326.25675 | 3.11593 | 0.1129973 | 2.8072518 | 53 | 6 | 1999–2009 | 0.49 | M-v | 1 | MPC | 147378 | 2006 $BS_{52}$ |
| 2006 $BA_{56}$ | 16.6 | 0.15 | 20100104 | 321.78506 | 348.84263 | 157.44088 | 2.22286 | 0.0151905 | 2.6765523 | 55 | 4 | 2004–2009 | 0.34 | M-v | 1 | MPC | 147378 | 2006 $BA_{56}$ |
| 2006 $BN_{56}$ | 15.8 | 0.15 | 20100104 | 22.23139 | 302.70587 | 110.84859 | 13.32226 | 0.0928450 | 2.7235454 | 54 | 6 | 1997–2009 | 0.56 | M-v | 1 | MPC | 166250 | 2006 $BN_{56}$ |
| 2006 $BW_{56}$ | 15.9 | 0.15 | 20100104 | 49.95659 | 230.10800 | 140.28177 | 4.41659 | 0.1058947 | 2.8085429 | 34 | 4 | 2004–2009 | 0.64 | M-v | 1 | MPC | 166250 | 2006 $BW_{56}$ |
| 2006 $BW_{57}$ | 15.7 | 0.15 | 20100104 | 245.54276 | 302.64306 | 274.56401 | 10.53095 | 0.0906459 | 2.7110286 | 44 | 5 | 2003–2009 | 0.58 | M-v | 1 | MPC | 147378 | 2006 $BW_{57}$ |
| 2006 $BO_{59}$ | 16.1 | 0.15 | 20100104 | 39.26542 | 285.67296 | 99.99414 | 5.10382 | 0.0753697 | 2.7755843 | 56 | 5 | 2000–2009 | 0.43 | M-v | 0 | MPC | 166250 | 2006 $BO_{59}$ |
| 2006 $BT_{59}$ | 15.6 | 0.15 | 20100104 | 66.87926 | 31.95657 | 330.18284 | 4.75381 | 0.0531836 | 2.8180470 | 69 | 5 | 1999–2009 | 0.55 | M-v | 1 | MPC | 166250 | 2006 $BT_{59}$ |
| 2006 $BO_{61}$ | 15.6 | 0.15 | 20100104 | 37.12748 | 292.99455 | 77.35502 | 15.91006 | 0.1626608 | 2.8462839 | 43 | 4 | 1993–2009 | 0.56 | M-v | 2 | MPC | 165510 | 2006 $BO_{61}$ |
| 2006 $BQ_{62}$ | 17.4 | 0.15 | 20100104 | 312.05459 | 244.30164 | 273.25892 | 3.91078 | 0.2858707 | 2.6847857 | 38 | 2 | 2006–2009 | 0.43 | M-v | 3 | MPC | 165511 | 2006 $BQ_{62}$ |
| 2006 $BY_{62}$ | 16.4 | 0.15 | 20100104 | 117.07530 | 302.47710 | 13.02130 | 2.05523 | 0.0687951 | 2.8644355 | 46 | 6 | 1994–2009 | 0.41 | M-v | 1 | MPC | 166250 | 2006 $BY_{62}$ |
| 2006 $BU_{63}$ | 17.6 | 0.15 | 20100104 | 346.41681 | 174.67211 | 288.01717 | 2.48585 | 0.1440550 | 2.6607656 | 38 | 3 | 2000–2009 | 0.39 | M-v | 2 | MPC | 165511 | 2006 $BU_{63}$ |
| 2006 $BK_{65}$ | 17.6 | 0.15 | 20100104 | 277.79144 | 133.15909 | 59.18106 | 1.57677 | 0.1940444 | 2.6616481 | 24 | 3 | 2002–2009 | 0.34 | M-v | 4 | MPC | 101240 | 2006 $BK_{65}$ |
| 2006 $BK_{66}$ | 16.7 | 0.15 | 20100104 | 353.74886 | 63.13903 | 348.62946 | 2.74629 | 0.1589616 | 2.8639125 | 51 | 2 | 2006–2009 | 0.41 | M-v | 3 | MPC | 164289 | 2006 $BK_{66}$ |
| 2006 $BN_{67}$ | 16.4 | 0.15 | 20100104 | 36.85994 | 282.40522 | 95.75800 | 3.28837 | 0.0790053 | 2.8687802 | 58 | 6 | 2000–2009 | 0.42 | M-v | 0 | MPC | 166250 | 2006 $BN_{67}$ |
| 2006 $BX_{68}$ | 16.7 | 0.15 | 20100104 | 320.99656 | 43.51952 | 78.08521 | 4.42918 | 0.1491595 | 2.7404093 | 47 | 3 | 2000–2009 | 0.44 | M-v | 3 | MPC | 166250 | 2006 $BX_{68}$ |
| 2006 $BV_{69}$ | 17.1 | 0.15 | 20100104 | 323.92510 | 168.70853 | 55.63429 | 4.51801 | 0.1562019 | 2.3413298 | 31 | 5 | 2000–2009 | 0.31 | M-v | 1 | MPC | 152445 | 2006 $BV_{69}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 $BU_{70}$ | 16.1 | 0.15 | 20100104 | 72.02789 | 294.64332 | 65.73752 | 5.60813 | 0.1313319 | 2.7766707 | 32 | 3 | 2006–2009 | 0.32 | M-v | 2 | MPC | 165511 | 2006 $BU_{70}$ |
| 2006 $BJ_{73}$ | 16.5 | 0.15 | 20100104 | 192.06865 | 181.04854 | 64.86083 | 3.83684 | 0.0233960 | 2.8164786 | 42 | 5 | 2004–2009 | 0.40 | M-v | 0 | MPC | 166250 | 2006 $BJ_{73}$ |
| 2006 $BS_{75}$ | 16.9 | 0.15 | 20100104 | 49.81196 | 39.07907 | 356.52511 | 4.16776 | 0.1575995 | 2.6476865 | 38 | 5 | 2000–2009 | 0.46 | M-v | 1 | MPC | 120837 | 2006 $BS_{75}$ |
| 2006 $BA_{79}$ | 16.9 | 0.15 | 20100104 | 350.82707 | 19.58562 | 109.95730 | 5.57707 | 0.1713171 | 2.6069961 | 50 | 5 | 1996–2009 | 0.48 | M-v | 1 | MPC | 166250 | 2006 $BA_{79}$ |
| 2006 $BZ_{80}$ | 16.9 | 0.15 | 20100104 | 338.80508 | 80.98511 | 64.77540 | 2.91715 | 0.0488596 | 2.6317973 | 69 | 4 | 2004–2009 | 0.41 | M-v | 1 | MPC | 166250 | 2006 $BZ_{80}$ |
| 2006 $BY_{81}$ | 16.1 | 0.15 | 20100104 | 52.50290 | 302.36683 | 93.88228 | 3.34938 | 0.1705359 | 2.7333270 | 38 | 4 | 2001–2009 | 0.27 | M-v | 2 | MPC | 166250 | 2006 $BY_{81}$ |
| 2006 $BC_{87}$ | 16.5 | 0.15 | 20100104 | 351.11132 | 330.43488 | 82.16261 | 2.41874 | 0.0996813 | 2.9542392 | 38 | 4 | 2004–2009 | 0.38 | M-v | 0 | MPC | 166250 | 2006 $BC_{87}$ |
| 2006 $BB_{88}$ | 17.0 | 0.15 | 20100104 | 265.19857 | 104.29649 | 121.67773 | 5.51710 | 0.1744591 | 2.6130498 | 41 | 6 | 1998–2009 | 0.37 | M-v | 0 | MPC | 147379 | 2006 $BB_{88}$ |
| 2006 $BA_{90}$ | 17.6 | 0.15 | 20100104 | 343.72248 | 2.67478 | 125.53465 | 3.68189 | 0.0569309 | 2.6165719 | 49 | 4 | 2002–2009 | 0.39 | M-v | 2 | MPC | 147379 | 2006 $BA_{90}$ |
| 2006 $BD_{90}$ | 16.7 | 0.15 | 20100104 | 5.81750 | 97.39489 | 339.34227 | 3.76030 | 0.0566927 | 2.7550827 | 40 | 4 | 1999–2009 | 0.33 | M-v | 1 | MPC | 166250 | 2006 $BD_{90}$ |
| 2006 $BV_{92}$ | 16.5 | 0.15 | 20100104 | 11.30135 | 124.02450 | 299.05257 | 1.04837 | 0.0519071 | 2.8685252 | 49 | 7 | 1994–2009 | 0.45 | M-v | 0 | MPC | 166250 | 2006 $BV_{92}$ |
| 2006 $BQ_{94}$ | 16.4 | 0.15 | 20100104 | 144.73580 | 84.48202 | 208.92606 | 1.30182 | 0.0877059 | 2.9428716 | 44 | 6 | 2001–2009 | 0.39 | M-v | 0 | MPC | 166250 | 2006 $BQ_{94}$ |
| 2006 $BK_{95}$ | 17.1 | 0.15 | 20100104 | 5.42795 | 184.14537 | 278.33434 | 1.15310 | 0.1645578 | 2.6408479 | 55 | 5 | 1993–2009 | 0.39 | M-v | 0 | MPC | 147380 | 2006 $BK_{95}$ |
| 2006 $BO_{96}$ | 16.6 | 0.15 | 20100104 | 330.36111 | 183.22855 | 322.16188 | 4.74116 | 0.1008119 | 2.6773651 | 55 | 4 | 2003–2009 | 0.34 | M-v | 2 | MPC | 153468 | 2006 $BO_{96}$ |
| 2006 $BY_{97}$ | 16.1 | 0.15 | 20100104 | 315.76119 | 93.75960 | 36.26244 | 9.30126 | 0.1297050 | 2.7437654 | 42 | 3 | 2002–2009 | 0.47 | M-v | 3 | MPC | 166251 | 2006 $BY_{97}$ |
| 2006 $BK_{99}$ | 16.7 | 0.15 | 20100104 | 146.17294 | 8.81159 | 316.14273 | 6.49131 | 0.0990451 | 2.6054576 | 58 | 5 | 1991–2009 | 0.37 | M-v | 1 | MPC | 148989 | 2006 $BK_{99}$ |
| 2006 $BO_{99}$ | 16.3 | 0.15 | 20100104 | 9.63771 | 333.51974 | 96.28788 | 4.82099 | 0.0801763 | 2.7743782 | 46 | 5 | 1996–2009 | 0.38 | M-v | 0 | MPC | 165513 | 2006 $BO_{99}$ |
| 2006 $BK_{102}$ | 16.9 | 0.15 | 20100104 | 10.41684 | 228.48300 | 181.62192 | 1.84004 | 0.2088159 | 2.7914706 | 55 | 2 | 2006–2009 | 0.52 | M-v | 4 | MPC | 165513 | 2006 $BK_{102}$ |
| 2006 $BU_{102}$ | 17.0 | 0.15 | 20100104 | 19.55695 | 125.63648 | 274.27819 | 1.01158 | 0.0771177 | 2.8964508 | 44 | 4 | 2001–2009 | 0.37 | M-v | 2 | MPC | 166251 | 2006 $BU_{102}$ |
| 2006 $BW_{102}$ | 17.1 | 0.15 | 20100104 | 325.87999 | 330.28010 | 152.07651 | 4.80788 | 0.0215596 | 2.7584491 | 48 | 4 | 1995–2009 | 0.43 | M-v | 1 | MPC | 153469 | 2006 $BW_{102}$ |
| 2006 $BZ_{102}$ | 16.0 | 0.15 | 20100104 | 227.98591 | 310.08832 | 314.64503 | 14.13562 | 0.1096253 | 2.5836141 | 55 | 4 | 2002–2009 | 0.43 | M-v | 1 | MPC | 147380 | 2006 $BZ_{102}$ |
| 2006 $BZ_{107}$ | 17.1 | 0.15 | 20100104 | 86.58557 | 31.90192 | 340.94255 | 2.46150 | 0.0681972 | 2.6264395 | 51 | 6 | 1991–2009 | 0.34 | M-v | 0 | MPC | 147380 | 2006 $BZ_{107}$ |
| 2006 $BF_{109}$ | 17.0 | 0.15 | 20100104 | 56.76386 | 61.04047 | 332.86506 | 5.77302 | 0.0421458 | 2.6926349 | 32 | 3 | 2006–2009 | 0.26 | M-v | 2 | MPC | 153469 | 2006 $BF_{109}$ |
| 2006 $BO_{109}$ | 18.4 | 0.15 | 20100104 | 353.65085 | 142.76608 | 339.84120 | 4.32744 | 0.1934378 | 2.5583918 | 33 | 4 | 2002–2009 | 0.34 | M-v | 3 | MPC | 111156 | 2006 $BO_{109}$ |
| 2006 $BY_{110}$ | 17.7 | 0.15 | 20100104 | 46.26199 | 11.19921 | 43.24899 | 2.92436 | 0.1635940 | 2.5752470 | 29 | 5 | 2000–2009 | 0.33 | M-v | 0 | MPC | 166251 | 2006 $BY_{110}$ |
| 2006 $BZ_{111}$ | 16.8 | 0.15 | 20100104 | 6.77749 | 10.37287 | 66.81680 | 1.84257 | 0.2106639 | 2.6538211 | 50 | 4 | 2000–2009 | 0.41 | M-v | 1 | MPC | 166251 | 2006 $BZ_{111}$ |
| 2006 $BW_{112}$ | 17.0 | 0.15 | 20100104 | 173.65287 | 205.78796 | 90.49438 | 2.96469 | 0.0431925 | 2.6412347 | 38 | 6 | 2000–2009 | 0.30 | M-v | 0 | MPC | 147380 | 2006 $BW_{112}$ |
| 2006 $BW_{115}$ | 16.5 | 0.15 | 20100104 | 169.42019 | 33.45178 | 266.31827 | 1.75555 | 0.0737345 | 2.7030052 | 43 | 5 | 2003–2009 | 0.25 | M-v | 1 | MPC | 151024 | 2006 $BW_{115}$ |
| 2006 $BA_{117}$ | 16.8 | 0.15 | 20100104 | 12.36281 | 272.37014 | 162.11084 | 4.70232 | 0.0439408 | 2.7915572 | 46 | 4 | 1999–2009 | 0.37 | M-v | 0 | MPC | 153469 | 2006 $BA_{117}$ |
| 2006 $BL_{117}$ | 16.4 | 0.15 | 20100104 | 170.31490 | 63.56114 | 205.78665 | 0.47903 | 0.0651944 | 2.9203865 | 57 | 6 | 1998–2009 | 0.36 | M-v | 0 | MPC | 166251 | 2006 $BL_{117}$ |
| 2006 $BD_{118}$ | 16.8 | 0.15 | 20100104 | 153.97027 | 45.72916 | 261.55107 | 2.52225 | 0.0870032 | 2.7655279 | 29 | 3 | 2006–2009 | 0.26 | M-v | 3 | MPC | 157039 | 2006 $BD_{118}$ |
| 2006 $BW_{118}$ | 17.2 | 0.15 | 20100104 | 317.42747 | 153.72065 | 345.33781 | 2.59793 | 0.1025901 | 2.6524715 | 38 | 5 | 1993–2009 | 0.40 | M-v | 1 | MPC | 166251 | 2006 $BW_{118}$ |
| 2006 $BT_{119}$ | 16.4 | 0.15 | 20100104 | 69.37558 | 65.63448 | 304.75409 | 6.75988 | 0.2321996 | 2.7452167 | 36 | 4 | 2004–2009 | 0.49 | M-v | 1 | MPC | 141841 | 2006 $BT_{119}$ |
| 2006 $BC_{120}$ | 16.0 | 0.15 | 20100104 | 152.97616 | 15.95356 | 311.52833 | 7.88326 | 0.1164346 | 2.6316258 | 42 | 4 | 1999–2009 | 0.46 | M-v | 3 | MPC | 166251 | 2006 $BC_{120}$ |
| 2006 $BS_{120}$ | 15.9 | 0.15 | 20100104 | 322.27823 | 265.28425 | 193.18629 | 3.88832 | 0.0022295 | 2.9831361 | 53 | 5 | 2001–2009 | 0.29 | M-v | 0 | MPC | 166251 | 2006 $BS_{120}$ |
| 2006 $BW_{121}$ | 17.3 | 0.15 | 20100104 | 337.31302 | 40.56590 | 58.23035 | 0.96498 | 0.0277393 | 2.7980428 | 32 | 2 | 2006–2009 | 0.36 | M-v | 4 | MPC | 165514 | 2006 $BW_{121}$ |
| 2006 $BS_{122}$ | 16.9 | 0.15 | 20100104 | 187.79484 | 306.18910 | 328.76597 | 2.97264 | 0.0635736 | 2.7745517 | 45 | 4 | 1994–2009 | 0.38 | M-v | 0 | MPC | 147381 | 2006 $BS_{122}$ |
| 2006 $BF_{124}$ | 16.5 | 0.15 | 20100104 | 266.00309 | 243.40933 | 336.68081 | 3.82882 | 0.1650167 | 2.7027477 | 83 | 5 | 1999–2009 | 0.37 | M-v | 1 | MPC | 151024 | 2006 $BF_{124}$ |
| 2006 $BR_{124}$ | 16.6 | 0.15 | 20100104 | 3.71581 | 103.53506 | 336.43334 | 3.19784 | 0.0760047 | 2.8106140 | 38 | 3 | 2004–2009 | 0.30 | M-v | 2 | MPC | 166251 | 2006 $BR_{124}$ |
| 2006 $BB_{126}$ | 16.5 | 0.15 | 20100104 | 31.52122 | 239.41665 | 167.98554 | 2.14757 | 0.0694077 | 2.8454775 | 48 | 6 | 1994–2009 | 0.38 | M-v | 0 | MPC | 166251 | 2006 $BB_{126}$ |
| 2006 $BO_{126}$ | 16.7 | 0.15 | 20100104 | 126.69408 | 165.22379 | 162.72641 | 2.48882 | 0.0681490 | 2.8111718 | 39 | 5 | 1994–2009 | 0.45 | M-v | 1 | MPC | 153470 | 2006 $BO_{126}$ |
| 2006 $BP_{126}$ | 16.5 | 0.15 | 20100104 | 110.66459 | 15.28931 | 332.00463 | 5.79535 | 0.0296784 | 2.7763041 | 46 | 4 | 2001–2009 | 0.33 | M-v | 1 | MPC | 147381 | 2006 $BP_{126}$ |
| 2006 $BZ_{127}$ | 17.4 | 0.15 | 20100104 | 27.82141 | 252.16768 | 174.60314 | 3.73971 | 0.1835101 | 2.6568297 | 41 | 4 | 2002–2009 | 0.28 | M-v | 1 | MPC | 166251 | 2006 $BZ_{127}$ |
| 2006 $BC_{128}$ | 16.8 | 0.15 | 20100104 | 349.25472 | 227.06695 | 177.56830 | 3.34951 | 0.1373905 | 3.1024812 | 26 | 3 | 1998–2009 | 0.31 | M-v | 3 | MPC | 101259 | 2006 $BC_{128}$ |
| 2006 $BD_{128}$ | 16.8 | 0.15 | 20100104 | 343.04650 | 249.49948 | 238.49089 | 1.25718 | 0.1472082 | 2.6474681 | 73 | 6 | 2000–2009 | 0.41 | M-v | 0 | MPC | 147381 | 2006 $BD_{128}$ |
| 2006 $BM_{129}$ | 17.0 | 0.15 | 20100104 | 67.74656 | 243.16535 | 149.53239 | 2.72468 | 0.1049944 | 2.6397545 | 50 | 5 | 2000–2009 | 0.40 | M-v | 1 | MPC | 146382 | 2006 $BM_{129}$ |
| 2006 $BW_{132}$ | 17.2 | 0.15 | 20100104 | 0.54516 | 220.06572 | 251.08627 | 0.76080 | 0.0631027 | 2.6919718 | 51 | 6 | 1995–2009 | 0.36 | M-v | 0 | MPC | 148989 | 2006 $BW_{132}$ |
| 2006 $BK_{133}$ | 16.7 | 0.15 | 20100104 | 82.03559 | 65.91383 | 317.45837 | 4.46171 | 0.0830746 | 2.7140281 | 39 | 3 | 2006–2009 | 0.28 | M-v | 3 | MPC | 166251 | 2006 $BK_{133}$ |
| 2006 $BB_{135}$ | 15.8 | 0.15 | 20100104 | 94.18097 | 172.66639 | 126.46684 | 9.08100 | 0.1315918 | 3.1431963 | 23 | 3 | 2006–2009 | 0.57 | M-v | 4 | MPC | 141240 | 2006 $BB_{135}$ |
| 2006 $BO_{135}$ | 16.8 | 0.15 | 20100104 | 101.18980 | 231.24372 | 133.74358 | 15.18559 | 0.1869153 | 2.5597983 | 47 | 6 | 2003–2009 | 0.44 | M-v | 0 | MPC | 143255 | 2006 $BO_{135}$ |
| 2006 $BR_{135}$ | 16.1 | 0.15 | 20100104 | 253.84010 | 245.67193 | 334.98396 | 8.53478 | 0.1382591 | 2.7511149 | 64 | 4 | 2003–2009 | 0.34 | M-v | 2 | MPC | 147381 | 2006 $BR_{135}$ |
| 2006 $BF_{136}$ | 16.6 | 0.15 | 20100104 | 127.04522 | 267.61323 | 37.05471 | 3.81349 | 0.0514150 | 2.6970423 | 40 | 4 | 2004–2009 | 0.26 | M-v | 0 | MPC | 166251 | 2006 $BF_{136}$ |
| 2006 $BG_{138}$ | 17.0 | 0.15 | 20100104 | 103.71958 | 43.16016 | 319.95144 | 5.47159 | 0.0480918 | 2.6822295 | 32 | 3 | 2006–2009 | 0.37 | M-v | 3 | MPC | 146384 | 2006 $BG_{138}$ |

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| 2006 $BV_{141}$ | 17.1 | 0.15 | 20100104 | 321.97826 | 67.68942 | 74.17900 | 0.76914 | 0.0137089 | 2.7636334 | 41 | 4 | 1997–2009 | 0.40 | M-v | 1 | MPC | 147381 | 2006 $BV_{141}$ |
| 2006 $BY_{141}$ | 16.2 | 0.15 | 20100104 | 180.52716 | 19.11683 | 247.52664 | 1.07012 | 0.0466252 | 2.8394483 | 34 | 4 | 1999–2009 | 0.38 | M-v | 0 | MPC | 147382 | 2006 $BY_{141}$ |
| 2006 $BT_{143}$ | 16.0 | 0.15 | 20100104 | 321.84729 | 243.84445 | 258.57968 | 9.06748 | 0.0610241 | 2.6338115 | 44 | 6 | 1995–2009 | 0.62 | M-v | 2 | MPC | 147382 | 2006 $BT_{143}$ |
| 2006 $BY_{143}$ | 17.4 | 0.15 | 20100104 | 335.41222 | 259.96393 | 246.15470 | 4.21918 | 0.2199480 | 2.5799103 | 34 | 4 | 2000–2009 | 0.51 | M-v | 2 | MPC | 160859 | 2006 $BY_{143}$ |
| 2006 $BQ_{144}$ | 15.6 | 0.15 | 20100104 | 276.21670 | 286.16238 | 289.59844 | 12.24740 | 0.1197358 | 2.6054506 | 44 | 4 | 2005–2009 | 0.55 | M-v | 1 | MPC | 166251 | 2006 $BQ_{144}$ |
| 2006 $BZ_{144}$ | 16.7 | 0.15 | 20100104 | 16.59967 | 219.15509 | 217.70459 | 4.15224 | 0.2224069 | 2.5779930 | 47 | 4 | 2000–2009 | 0.45 | M-v | 2 | MPC | 160859 | 2006 $BZ_{144}$ |
| 2006 $BG_{145}$ | 15.9 | 0.15 | 20100104 | 6.24980 | 147.33119 | 302.49479 | 11.92121 | 0.1319736 | 2.6358317 | 63 | 5 | 2000–2009 | 0.62 | M-v | 1 | MPC | 160859 | 2006 $BG_{145}$ |
| 2006 $BH_{145}$ | 15.5 | 0.15 | 20100104 | 330.40121 | 164.43734 | 335.84826 | 13.83745 | 0.0661680 | 2.6790302 | 119 | 4 | 2004–2009 | 0.54 | M-v | 1 | MPC | 147382 | 2006 $BH_{145}$ |
| 2006 $BU_{145}$ | 16.1 | 0.15 | 20100104 | 275.51969 | 260.99092 | 218.42605 | 3.72873 | 0.1879930 | 3.0156772 | 32 | 3 | 2004–2009 | 0.53 | M-v | 3 | MPC | 162478 | 2006 $BU_{145}$ |
| 2006 $BL_{147}$ | 16.5 | 0.15 | 20100104 | 64.80833 | 273.98597 | 73.93425 | 3.28584 | 0.0769258 | 2.9102242 | 71 | 6 | 2001–2009 | 0.42 | M-v | 0 | MPC | 166251 | 2006 $BL_{147}$ |
| 2006 $BA_{148}$ | 18.4 | 0.15 | 20100104 | 53.40967 | 25.94934 | 327.69244 | 15.78492 | 0.6142147 | 1.6305850 | 73 | 3 | 2006–2009 | 0.53 | M-v | 4 | MPC | 135939 | 2006 $BA_{148}$ |
| 2006 $BV_{148}$ | 16.4 | 0.15 | 20100104 | 356.84526 | 132.20296 | 315.42491 | 4.17251 | 0.0853393 | 2.7147444 | 73 | 7 | 1995–2009 | 0.44 | M-v | 0 | MPC | 147382 | 2006 $BV_{148}$ |
| 2006 $BY_{149}$ | 16.2 | 0.15 | 20100104 | 342.68443 | 54.36662 | 47.92465 | 11.94792 | 0.1534450 | 2.6897906 | 67 | 3 | 2000–2009 | 0.62 | M-v | 2 | MPC | 166251 | 2006 $BY_{149}$ |
| 2006 $BM_{150}$ | 17.0 | 0.15 | 20100104 | 7.19842 | 353.48540 | 77.83040 | 4.89039 | 0.2091835 | 2.6369803 | 51 | 3 | 2000–2009 | 0.45 | M-v | 0 | MPC | 166251 | 2006 $BM_{150}$ |
| 2006 $BT_{151}$ | 16.9 | 0.15 | 20100104 | 22.67065 | 354.49212 | 47.09502 | 2.45383 | 0.0687138 | 2.8561197 | 38 | 4 | 2004–2009 | 0.29 | M-v | 1 | MPC | 166251 | 2006 $BT_{151}$ |
| 2006 $BY_{151}$ | 16.7 | 0.15 | 20100104 | 145.83269 | 213.69269 | 66.72841 | 3.00461 | 0.0667053 | 2.9358681 | 37 | 5 | 2003–2009 | 0.34 | M-v | 0 | MPC | 166251 | 2006 $BY_{151}$ |
| 2006 $BB_{152}$ | 16.7 | 0.15 | 20100104 | 14.39950 | 340.89605 | 65.69383 | 2.93494 | 0.0633934 | 2.8926077 | 42 | 3 | 2006–2009 | 0.34 | M-v | 3 | MPC | 166251 | 2006 $BB_{152}$ |
| 2006 $BL_{153}$ | 16.0 | 0.15 | 20100104 | 26.98152 | 272.80521 | 87.42938 | 2.34027 | 0.1817864 | 3.0968415 | 57 | 6 | 2001–2009 | 0.33 | M-v | 0 | MPC | 164290 | 2006 $BL_{153}$ |
| 2006 $BF_{154}$ | 17.0 | 0.15 | 20100104 | 278.02674 | 193.95569 | 16.27720 | 2.07356 | 0.1582118 | 2.6570246 | 42 | 5 | 2002–2009 | 0.37 | M-v | 0 | MPC | 147382 | 2006 $BF_{154}$ |
| 2006 $BN_{154}$ | 16.1 | 0.15 | 20100104 | 116.19365 | 213.01037 | 130.86620 | 6.32368 | 0.0743450 | 2.7270926 | 40 | 5 | 2002–2009 | 0.38 | M-v | 0 | MPC | 147382 | 2006 $BN_{154}$ |
| 2006 $BZ_{154}$ | 17.5 | 0.15 | 20100104 | 5.57782 | 347.98568 | 105.32413 | 3.83140 | 0.1426619 | 2.6729183 | 21 | 3 | 2000–2009 | 0.35 | M-v | 2 | MPC | 97091 | 2006 $BZ_{154}$ |
| 2006 $BD_{155}$ | 17.3 | 0.15 | 20100104 | 12.33533 | 32.18387 | 62.36079 | 2.71326 | 0.0207039 | 2.6978013 | 30 | 5 | 2002–2009 | 0.31 | M-v | 0 | MPC | 143255 | 2006 $BD_{155}$ |
| 2006 $BJ_{155}$ | 15.7 | 0.15 | 20100104 | 355.11388 | 255.39960 | 137.53403 | 10.78958 | 0.1244466 | 3.1779329 | 21 | 3 | 2000–2009 | 0.42 | M-v | 3 | MPC | 163790 | 2006 $BJ_{155}$ |
| 2006 $BM_{155}$ | 16.0 | 0.15 | 20100104 | 352.34444 | 316.06297 | 136.83660 | 13.26061 | 0.1450571 | 2.7545238 | 39 | 3 | 2005–2009 | 0.51 | M-v | 2 | MPC | 160859 | 2006 $BM_{155}$ |
| 2006 $BB_{156}$ | 16.6 | 0.15 | 20100104 | 93.71305 | 262.00131 | 130.97010 | 3.62767 | 0.0786622 | 2.5551785 | 57 | 4 | 2002–2009 | 0.51 | M-v | 3 | MPC | 158524 | 2006 $BB_{156}$ |
| 2006 $BE_{157}$ | 15.8 | 0.15 | 20100104 | 281.93031 | 65.06216 | 118.61488 | 4.27333 | 0.1079070 | 2.7818670 | 63 | 7 | 1992–2009 | 0.59 | M-v | 1 | MPC | 147382 | 2006 $BE_{157}$ |
| 2006 $BN_{158}$ | 16.5 | 0.15 | 20100104 | 92.82275 | 37.31031 | 304.36593 | 0.59677 | 0.0482491 | 2.9402367 | 50 | 5 | 2001–2009 | 0.32 | M-v | 0 | MPC | 166252 | 2006 $BN_{158}$ |
| 2006 $BG_{161}$ | 15.9 | 0.15 | 20100104 | 50.45074 | 216.08397 | 170.63554 | 7.88628 | 0.1257214 | 2.7921663 | 45 | 5 | 2004–2009 | 0.39 | M-v | 1 | MPC | 147382 | 2006 $BG_{161}$ |
| 2006 $BM_{161}$ | 16.0 | 0.15 | 20100104 | 116.43504 | 22.41892 | 296.95220 | 5.35535 | 0.0636591 | 2.8976357 | 60 | 5 | 2003–2009 | 0.38 | M-v | 0 | MPC | 146387 | 2006 $BM_{161}$ |
| 2006 $BO_{161}$ | 15.7 | 0.15 | 20100104 | 312.75439 | 241.29927 | 290.61394 | 14.13632 | 0.0294368 | 2.6277260 | 38 | 3 | 2006–2009 | 0.46 | M-v | 2 | MPC | 166252 | 2006 $BO_{161}$ |
| 2006 $BU_{161}$ | 15.8 | 0.15 | 20100104 | 325.76369 | 260.64189 | 250.43638 | 10.23219 | 0.1318320 | 2.6402071 | 67 | 6 | 2000–2009 | 0.52 | M-v | 1 | MPC | 166252 | 2006 $BU_{161}$ |
| 2006 $BY_{161}$ | 16.1 | 0.15 | 20100104 | 302.27623 | 42.48876 | 93.75036 | 5.22371 | 0.1511194 | 2.7867621 | 35 | 3 | 2000–2009 | 0.52 | M-v | 3 | MPC | 97097 | 2006 $BY_{161}$ |
| 2006 $BD_{165}$ | 16.7 | 0.15 | 20100104 | 237.33444 | 279.81933 | 335.49537 | 2.94911 | 0.1753522 | 2.6957781 | 55 | 5 | 2002–2009 | 0.33 | M-v | 0 | MPC | 158524 | 2006 $BD_{165}$ |
| 2006 $BM_{165}$ | 16.6 | 0.15 | 20100104 | 133.41602 | 186.72368 | 137.70818 | 3.74280 | 0.1020017 | 2.7803163 | 48 | 6 | 2003–2009 | 0.41 | M-v | 0 | MPC | 159108 | 2006 $BM_{165}$ |
| 2006 $BB_{166}$ | 16.3 | 0.15 | 20100104 | 26.19651 | 215.26403 | 153.20413 | 0.54432 | 0.1782767 | 3.0929200 | 64 | 5 | 1998–2009 | 0.33 | M-v | 1 | MPC | 166252 | 2006 $BB_{166}$ |
| 2006 $BY_{168}$ | 16.4 | 0.15 | 20100104 | 104.39435 | 220.85451 | 145.01097 | 6.97889 | 0.0480571 | 2.7040116 | 41 | 4 | 1997–2009 | 0.40 | M-v | 1 | MPC | 147383 | 2006 $BY_{168}$ |
| 2006 $BK_{169}$ | 16.8 | 0.15 | 20100104 | 84.60331 | 317.59779 | 53.13039 | 0.47239 | 0.0842143 | 2.7628546 | 33 | 4 | 1999–2009 | 0.29 | M-v | 1 | MPC | 153472 | 2006 $BK_{169}$ |
| 2006 $BP_{169}$ | 17.2 | 0.15 | 20100104 | 358.79905 | 324.53097 | 145.78183 | 2.98738 | 0.0541016 | 2.6886907 | 39 | 4 | 1993–2009 | 0.37 | M-v | 1 | MPC | 147383 | 2006 $BP_{169}$ |
| 2006 $BS_{169}$ | 15.9 | 0.15 | 20100104 | 38.16847 | 31.21043 | 341.33420 | 5.13834 | 0.0766773 | 3.0785770 | 42 | 3 | 2003–2009 | 0.57 | M-v | 3 | MPC | 166252 | 2006 $BS_{169}$ |
| 2006 $BV_{172}$ | 16.5 | 0.15 | 20100104 | 115.45726 | 44.15607 | 274.15834 | 3.68790 | 0.0616353 | 2.7746696 | 39 | 4 | 2006–2009 | 0.46 | M-v | 1 | MPC | 166252 | 2006 $BV_{172}$ |
| 2006 $BV_{173}$ | 16.2 | 0.15 | 20100104 | 25.44605 | 329.90368 | 80.02585 | 10.57569 | 0.0556890 | 2.5498949 | 65 | 4 | 2001–2009 | 0.43 | M-v | 2 | MPC | 166252 | 2006 $BV_{173}$ |
| 2006 $BG_{174}$ | 16.7 | 0.15 | 20100104 | 51.18306 | 48.57229 | 1.87425 | 4.85234 | 0.1439292 | 2.5729847 | 57 | 6 | 1996–2009 | 0.47 | M-v | 0 | MPC | 166252 | 2006 $BG_{174}$ |
| 2006 $BP_{174}$ | 16.6 | 0.15 | 20100104 | 128.88878 | 217.57808 | 95.54820 | 7.12845 | 0.0630375 | 2.7826688 | 22 | 4 | 1993–2009 | 0.22 | M-v | 1 | MPC | 119282 | 2006 $BP_{174}$ |
| 2006 $BQ_{178}$ | 16.4 | 0.15 | 20100104 | 157.16903 | 352.54469 | 323.15371 | 6.08005 | 0.1610933 | 2.5952955 | 55 | 7 | 1991–2009 | 0.49 | M-v | 1 | MPC | 158524 | 2006 $BQ_{178}$ |
| 2006 $BL_{179}$ | 16.3 | 0.15 | 20100104 | 296.29603 | 13.06378 | 125.03345 | 4.19493 | 0.0347759 | 2.8370741 | 34 | 5 | 2003–2009 | 0.37 | M-v | 0 | MPC | 147383 | 2006 $BL_{179}$ |
| 2006 $BG_{181}$ | 15.4 | 0.15 | 20100104 | 345.91443 | 74.78423 | 335.93812 | 6.86694 | 0.0379638 | 3.1112264 | 44 | 3 | 2003–2009 | 0.47 | M-v | 2 | MPC | 164290 | 2006 $BG_{181}$ |
| 2006 $BE_{182}$ | 17.2 | 0.15 | 20100104 | 74.78803 | 17.43057 | 5.21234 | 1.84126 | 0.0958819 | 2.6864755 | 37 | 5 | 1995–2009 | 0.37 | M-v | 1 | MPC | 146389 | 2006 $BE_{182}$ |
| 2006 $BM_{182}$ | 16.5 | 0.15 | 20100104 | 198.40141 | 222.48613 | 17.58845 | 1.96192 | 0.0504633 | 2.9018379 | 51 | 4 | 1999–2009 | 0.33 | M-v | 0 | MPC | 166252 | 2006 $BM_{182}$ |
| 2006 $BP_{183}$ | 16.6 | 0.15 | 20100104 | 355.77114 | 98.20461 | 308.57892 | 4.16718 | 0.1296280 | 3.0375101 | 43 | 5 | 1995–2009 | 0.34 | M-v | 0 | MPC | 164290 | 2006 $BP_{183}$ |
| 2006 $BY_{184}$ | 17.2 | 0.15 | 20100104 | 148.91073 | 262.83984 | 60.33578 | 2.29338 | 0.2066942 | 2.5736760 | 70 | 6 | 2000–2009 | 0.43 | M-v | 1 | MPC | 151025 | 2006 $BY_{184}$ |
| 2006 $BR_{185}$ | 17.2 | 0.15 | 20100104 | 39.74427 | 125.09911 | 281.58890 | 2.90318 | 0.0623944 | 2.7517576 | 27 | 3 | 2004–2009 | 0.38 | M-v | 2 | MPC | 111156 | 2006 $BR_{185}$ |
| 2006 $BD_{186}$ | 16.8 | 0.15 | 20100104 | 53.42173 | 65.25517 | 311.15938 | 1.07447 | 0.0788814 | 2.8666263 | 41 | 4 | 2004–2009 | 0.41 | M-v | 1 | MPC | 166252 | 2006 $BD_{186}$ |
| 2006 $BE_{186}$ | 15.9 | 0.15 | 20100104 | 104.57495 | 194.09213 | 146.43405 | 9.19470 | 0.2028578 | 2.7907014 | 30 | 3 | 2006–2009 | 0.45 | M-v | 3 | MPC | 152446 | 2006 $BE_{186}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 $BU_{187}$ | 15.7 | 0.15 | 20100104 | 311.10441 | 88.27923 | 32.08470 | 4.71285 | 0.0798900 | 2.9196098 | 65 | 4 | 2001–2009 | 0.51 | M-v | 2 | MPC | 166252 | 2006 $BU_{187}$ |
| 2006 $BK_{190}$ | 15.8 | 0.15 | 20100104 | 83.22022 | 250.98884 | 127.03530 | 5.98469 | 0.0619290 | 2.7380794 | 42 | 6 | 1996–2009 | 0.56 | M-v | 1 | MPC | 147383 | 2006 $BK_{190}$ |
| 2006 $BE_{193}$ | 16.8 | 0.15 | 20100104 | 355.85514 | 252.37613 | 212.73150 | 1.45579 | 0.0328862 | 2.6923183 | 53 | 6 | 1995–2009 | 0.33 | M-v | 0 | MPC | 146391 | 2006 $BE_{193}$ |
| 2006 $BP_{194}$ | 16.9 | 0.15 | 20100104 | 76.83821 | 262.29412 | 156.59642 | 5.10741 | 0.2158707 | 2.4012973 | 83 | 8 | 1997–2009 | 0.40 | M-v | 0 | MPC | 147383 | 2006 $BP_{194}$ |
| 2006 $BB_{196}$ | 16.3 | 0.15 | 20100104 | 238.57255 | 33.99279 | 177.62078 | 4.46977 | 0.0464875 | 2.8106099 | 40 | 6 | 1992–2009 | 0.38 | M-v | 0 | MPC | 158041 | 2006 $BB_{196}$ |
| 2006 $BD_{198}$ | 15.8 | 0.15 | 20100104 | 19.34467 | 66.42053 | 310.34313 | 9.72922 | 0.0831935 | 3.1244598 | 37 | 3 | 2003–2009 | 0.34 | M-v | 3 | MPC | 163791 | 2006 $BD_{198}$ |
| 2006 $BX_{199}$ | 16.8 | 0.15 | 20100104 | 64.53257 | 96.49871 | 285.65320 | 1.96222 | 0.0186782 | 2.8560670 | 41 | 5 | 1994–2009 | 0.33 | M-v | 0 | MPC | 166252 | 2006 $BX_{199}$ |
| 2006 $BP_{200}$ | 16.3 | 0.15 | 20100104 | 173.73302 | 152.68138 | 115.08238 | 5.58867 | 0.0244509 | 2.7756225 | 53 | 5 | 1995–2009 | 0.39 | M-v | 0 | MPC | 166252 | 2006 $BP_{200}$ |
| 2006 $BH_{201}$ | 16.0 | 0.15 | 20100104 | 52.48832 | 83.82897 | 254.60381 | 4.91470 | 0.0959663 | 2.9294132 | 48 | 3 | 2006–2009 | 0.31 | M-v | 2 | MPC | 163792 | 2006 $BH_{201}$ |
| 2006 $BM_{203}$ | 16.9 | 0.15 | 20100104 | 338.29690 | 8.04996 | 115.18871 | 3.11472 | 0.0343798 | 2.6884309 | 41 | 6 | 1995–2009 | 0.46 | M-v | 1 | MPC | 158524 | 2006 $BM_{203}$ |
| 2006 $BW_{205}$ | 16.2 | 0.15 | 20100104 | 357.21307 | 292.63288 | 114.54347 | 4.02603 | 0.1061846 | 3.0246345 | 51 | 5 | 2001–2009 | 0.25 | M-v | 0 | MPC | 166252 | 2006 $BW_{205}$ |
| 2006 $BT_{207}$ | 16.0 | 0.15 | 20100104 | 328.72034 | 307.89257 | 169.00026 | 9.24633 | 0.1830165 | 2.7376494 | 88 | 5 | 1997–2009 | 0.58 | M-v | 1 | MPC | 166252 | 2006 $BT_{207}$ |
| 2006 $BH_{213}$ | 16.3 | 0.15 | 20100104 | 348.74698 | 124.63765 | 357.11883 | 13.57063 | 0.1414504 | 2.5308474 | 50 | 7 | 1960–2009 | 0.55 | M-v | 2 | MPC | 160860 | 2006 $BH_{213}$ |
| 2006 $BH_{214}$ | 17.2 | 0.15 | 20100104 | 12.84430 | 180.35183 | 256.51458 | 3.68568 | 0.2583219 | 2.6219247 | 31 | 3 | 2000–2009 | 0.52 | M-v | 1 | MPC | 97120 | 2006 $BH_{214}$ |
| 2006 $BM_{214}$ | 15.2 | 0.15 | 20100104 | 259.58923 | 257.67303 | 297.77432 | 13.67138 | 0.0344079 | 2.7375769 | 44 | 6 | 1999–2009 | 0.72 | M-v | 1 | MPC | 166252 | 2006 $BM_{214}$ |
| 2006 $BF_{215}$ | 16.4 | 0.15 | 20100104 | 330.54298 | 339.42836 | 137.64023 | 9.60569 | 0.0814965 | 2.7189426 | 42 | 5 | 1997–2009 | 0.42 | M-v | 1 | MPC | 147384 | 2006 $BF_{215}$ |
| 2006 $BG_{216}$ | 15.8 | 0.15 | 20100104 | 326.15015 | 235.59260 | 250.35402 | 13.38594 | 0.1140419 | 2.6874339 | 55 | 4 | 2000–2009 | 0.52 | M-v | 1 | MPC | 166252 | 2006 $BG_{216}$ |
| 2006 $BL_{216}$ | 16.5 | 0.15 | 20100104 | 335.96160 | 355.42190 | 101.82314 | 13.44421 | 0.1767620 | 2.7267009 | 45 | 3 | 2000–2009 | 0.53 | M-v | 1 | MPC | 166252 | 2006 $BL_{216}$ |
| 2006 $BZ_{216}$ | 16.1 | 0.15 | 20100104 | 4.09065 | 345.31006 | 113.30613 | 15.99236 | 0.2309432 | 2.6296032 | 57 | 4 | 2002–2009 | 0.55 | M-v | 1 | MPC | 97121 | 2006 $BZ_{216}$ |
| 2006 $BG_{217}$ | 16.4 | 0.15 | 20100104 | 347.34521 | 6.00481 | 90.74799 | 4.68779 | 0.0739278 | 2.7162613 | 35 | 3 | 2006–2009 | 0.38 | M-v | 3 | MPC | 165515 | 2006 $BG_{217}$ |
| 2006 $BF_{219}$ | 17.3 | 0.15 | 20100104 | 340.13587 | 219.13434 | 273.14340 | 3.88997 | 0.1952477 | 2.5705247 | 54 | 4 | 2002–2009 | 0.49 | M-v | 3 | MPC | 166253 | 2006 $BF_{219}$ |
| 2006 $BP_{219}$ | 15.9 | 0.15 | 20100104 | 6.54209 | 337.64737 | 124.94409 | 12.17198 | 0.1536163 | 2.6474328 | 47 | 5 | 2000–2009 | 0.58 | M-v | 1 | MPC | 102282 | 2006 $BP_{219}$ |
| 2006 $BY_{219}$ | 16.3 | 0.15 | 20100104 | 17.20239 | 125.92767 | 276.09407 | 2.88168 | 0.1150223 | 2.6605114 | 58 | 5 | 1991–2009 | 0.57 | M-v | 1 | MPC | 166253 | 2006 $BY_{219}$ |
| 2006 $BM_{220}$ | 17.2 | 0.15 | 20100104 | 34.15083 | 312.92662 | 109.50269 | 4.56581 | 0.0189107 | 2.6795822 | 21 | 3 | 2006–2009 | 0.24 | M-v | 3 | MPC | 121624 | 2006 $BM_{220}$ |
| 2006 $BH_{221}$ | 16.3 | 0.15 | 20100104 | 102.03689 | 208.21102 | 111.93514 | 2.90366 | 0.0755668 | 2.9089275 | 49 | 5 | 1999–2009 | 0.34 | M-v | 0 | MPC | 166253 | 2006 $BH_{221}$ |
| 2006 $BV_{222}$ | 16.3 | 0.15 | 20100104 | 133.69828 | 149.59650 | 171.83453 | 2.11565 | 0.0819123 | 2.7376658 | 55 | 6 | 2002–2009 | 0.39 | M-v | 0 | MPC | 147384 | 2006 $BV_{222}$ |
| 2006 $BH_{223}$ | 17.9 | 0.15 | 20100104 | 32.22227 | 109.10708 | 311.18661 | 2.43591 | 0.2226356 | 2.6076281 | 44 | 5 | 2000–2009 | 0.32 | M-v | 0 | MPC | 166253 | 2006 $BH_{223}$ |
| 2006 $BJ_{223}$ | 16.0 | 0.15 | 20100104 | 27.84791 | 108.52151 | 318.01095 | 5.40913 | 0.0117822 | 2.7316700 | 73 | 5 | 1999–2009 | 0.43 | M-v | 0 | MPC | 162479 | 2006 $BJ_{223}$ |
| 2006 $BU_{223}$ | 16.1 | 0.15 | 20100104 | 248.00949 | 28.01587 | 151.59527 | 2.32940 | 0.0855232 | 2.9563928 | 59 | 6 | 1996–2009 | 0.41 | M-v | 0 | MPC | 166253 | 2006 $BU_{223}$ |
| 2006 $BU_{224}$ | 16.3 | 0.15 | 20100104 | 85.24539 | 179.34896 | 172.45549 | 4.52871 | 0.0804226 | 2.8025293 | 60 | 6 | 1999–2009 | 0.34 | M-v | 0 | MPC | 148991 | 2006 $BU_{224}$ |
| 2006 $BS_{226}$ | 16.8 | 0.15 | 20100104 | 247.64678 | 276.77133 | 315.73189 | 4.23467 | 0.1079648 | 2.7114945 | 41 | 5 | 1999–2009 | 0.37 | M-v | 0 | MPC | 162479 | 2006 $BS_{226}$ |
| 2006 $BO_{228}$ | 17.2 | 0.15 | 20100104 | 34.47399 | 53.95925 | 12.99426 | 3.10097 | 0.1667042 | 2.5524736 | 24 | 4 | 1994–2009 | 0.45 | M-v | 3 | MPC | 97127 | 2006 $BO_{228}$ |
| 2006 $BA_{229}$ | 17.2 | 0.15 | 20100104 | 216.06500 | 277.64641 | 350.56400 | 4.40230 | 0.1506329 | 2.5907491 | 28 | 4 | 1995–2009 | 0.35 | M-v | 2 | MPC | 149988 | 2006 $BA_{229}$ |
| 2006 $BP_{231}$ | 16.7 | 0.15 | 20100104 | 272.01207 | 127.38857 | 108.56123 | 7.01185 | 0.0965018 | 2.4769187 | 30 | 4 | 1998–2009 | 0.42 | M-v | 3 | MPC | 109506 | 2006 $BP_{231}$ |
| 2006 $BZ_{231}$ | 15.9 | 0.15 | 20100104 | 192.73028 | 159.80912 | 88.39980 | 5.02879 | 0.0496224 | 2.8023564 | 44 | 5 | 2002–2009 | 0.40 | M-v | 1 | MPC | 166253 | 2006 $BZ_{231}$ |
| 2006 $BF_{233}$ | 16.9 | 0.15 | 20100104 | 343.73524 | 41.72190 | 90.09054 | 2.67574 | 0.0657604 | 2.5720936 | 41 | 4 | 2002–2009 | 0.37 | M-v | 3 | MPC | 166253 | 2006 $BF_{233}$ |
| 2006 $BQ_{233}$ | 17.0 | 0.15 | 20100104 | 11.98250 | 319.21383 | 106.54445 | 5.14039 | 0.2101928 | 2.6605033 | 53 | 3 | 2002–2009 | 0.43 | M-v | 2 | MPC | 165515 | 2006 $BQ_{233}$ |
| 2006 $BZ_{236}$ | 16.4 | 0.15 | 20100104 | 43.15238 | 343.29310 | 55.54632 | 2.77552 | 0.0777225 | 2.7158414 | 49 | 7 | 1995–2009 | 0.37 | M-v | 0 | MPC | 166253 | 2006 $BZ_{236}$ |
| 2006 $BT_{243}$ | 17.1 | 0.15 | 20100104 | 286.66733 | 148.90317 | 54.03133 | 3.38171 | 0.1244991 | 2.6072264 | 28 | 6 | 2000–2009 | 0.50 | M-v | 1 | MPC | 147385 | 2006 $BT_{243}$ |
| 2006 $BS_{245}$ | 16.7 | 0.15 | 20100104 | 14.55225 | 347.45452 | 80.05150 | 1.81244 | 0.0559522 | 2.7639559 | 41 | 5 | 2002–2009 | 0.32 | M-v | 0 | MPC | 166253 | 2006 $BS_{245}$ |
| 2006 $BB_{247}$ | 16.3 | 0.15 | 20100104 | 57.43076 | 245.67684 | 136.24314 | 3.17765 | 0.0668815 | 2.8059885 | 46 | 6 | 1999–2009 | 0.36 | M-v | 0 | MPC | 147385 | 2006 $BB_{247}$ |
| 2006 $BA_{248}$ | 16.3 | 0.15 | 20100104 | 346.30132 | 325.51794 | 119.64575 | 3.15354 | 0.0370420 | 2.8841830 | 44 | 4 | 2004–2009 | 0.28 | M-v | 0 | MPC | 165516 | 2006 $BA_{248}$ |
| 2006 $BA_{251}$ | 16.8 | 0.15 | 20100104 | 122.60719 | 134.47329 | 179.16247 | 3.39216 | 0.0611659 | 2.7616467 | 42 | 5 | 2004–2009 | 0.35 | M-v | 0 | MPC | 166253 | 2006 $BA_{251}$ |
| 2006 $BO_{251}$ | 16.4 | 0.15 | 20100104 | 244.52424 | 1.67671 | 185.97786 | 0.70816 | 0.1538562 | 2.9744063 | 63 | 5 | 2001–2009 | 0.39 | M-v | 1 | MPC | 166253 | 2006 $BO_{251}$ |
| 2006 $BB_{253}$ | 17.5 | 0.15 | 20100104 | 5.48095 | 312.08037 | 155.67419 | 1.52237 | 0.1793243 | 2.5796262 | 51 | 5 | 2002–2009 | 0.40 | M-v | 1 | MPC | 164291 | 2006 $BB_{253}$ |
| 2006 $BF_{253}$ | 17.7 | 0.15 | 20100104 | 9.94475 | 227.34241 | 230.70914 | 0.48958 | 0.0287274 | 2.6612238 | 37 | 4 | 2002–2009 | 0.42 | M-v | 3 | MPC | 147385 | 2006 $BF_{253}$ |
| 2006 $BN_{254}$ | 18.1 | 0.15 | 20100104 | 359.07166 | 270.21785 | 179.51014 | 1.88683 | 0.1720352 | 2.6864586 | 22 | 4 | 2000–2009 | 0.30 | M-v | 0 | MPC | 97138 | 2006 $BN_{254}$ |
| 2006 $BN_{256}$ | 16.6 | 0.15 | 20100104 | 135.23981 | 308.99635 | 14.90107 | 3.21228 | 0.0883735 | 2.7588765 | 45 | 5 | 2003–2009 | 0.36 | M-v | 1 | MPC | 147385 | 2006 $BN_{256}$ |
| 2006 $BR_{256}$ | 16.1 | 0.15 | 20100104 | 311.48065 | 105.33927 | 342.13718 | 11.36516 | 0.1013144 | 3.0844461 | 42 | 2 | 2006–2009 | 0.39 | M-v | 3 | MPC | 162011 | 2006 $BR_{256}$ |
| 2006 $BG_{257}$ | 16.1 | 0.15 | 20100104 | 42.02110 | 294.00173 | 82.66456 | 2.57022 | 0.0798277 | 2.9800362 | 49 | 5 | 2000–2009 | 0.41 | M-v | 1 | MPC | 166253 | 2006 $BG_{257}$ |
| 2006 $BO_{257}$ | 15.5 | 0.15 | 20100104 | 318.19390 | 86.29193 | 348.20559 | 9.47870 | 0.0665366 | 3.1747385 | 39 | 4 | 2003–2009 | 0.33 | M-v | 0 | MPC | 164291 | 2006 $BO_{257}$ |
| 2006 $BD_{259}$ | 16.5 | 0.15 | 20100104 | 190.43129 | 173.14032 | 108.44135 | 2.80048 | 0.0487654 | 2.7186338 | 46 | 6 | 1999–2009 | 0.46 | M-v | 0 | MPC | 147385 | 2006 $BD_{259}$ |
| 2006 $BK_{259}$ | 17.2 | 0.15 | 20100104 | 320.39522 | 22.62258 | 124.68236 | 3.92037 | 0.0626902 | 2.7105542 | 24 | 4 | 1995–2009 | 0.28 | M-v | 1 | MPC | 111157 | 2006 $BK_{259}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 $BJ_{260}$ | 16.3 | 0.15 | 20100104 | 190.63563 | 141.50244 | 136.33073 | 5.83742 | 0.1332935 | 2.7910989 | 43 | 7 | 1998–2009 | 0.48 | M-v | 0 | MPC | 147385 | 2006 $BJ_{260}$ |
| 2006 $BJ_{261}$ | 15.7 | 0.15 | 20100104 | 79.44974 | 215.98515 | 123.71663 | 2.13999 | 0.0641859 | 3.0166929 | 49 | 7 | 1995–2009 | 0.37 | M-v | 0 | MPC | 166253 | 2006 $BJ_{261}$ |
| 2006 $BV_{261}$ | 16.6 | 0.15 | 20100104 | 212.46895 | 178.90334 | 112.01775 | 2.57191 | 0.0941243 | 2.5537156 | 51 | 5 | 1994–2009 | 0.39 | M-v | 2 | MPC | 166253 | 2006 $BV_{261}$ |
| 2006 $BH_{263}$ | 16.2 | 0.15 | 20100104 | 350.44236 | 142.99245 | 338.85190 | 14.22530 | 0.2009140 | 2.6316677 | 106 | 5 | 1991–2009 | 0.56 | M-v | 1 | MPC | 147385 | 2006 $BH_{263}$ |
| 2006 $BL_{267}$ | 15.9 | 0.15 | 20100104 | 320.08301 | 25.42825 | 88.36088 | 9.79136 | 0.1150896 | 2.7878692 | 44 | 4 | 2004–2009 | 0.57 | M-v | 1 | MPC | 166253 | 2006 $BL_{267}$ |
| 2006 $BU_{268}$ | 15.7 | 0.15 | 20100104 | 348.71953 | 43.61780 | 38.63717 | 11.51418 | 0.1155565 | 2.7964829 | 65 | 5 | 2000–2009 | 0.49 | M-v | 1 | MPC | 166253 | 2006 $BU_{268}$ |
| 2006 $BS_{271}$ | 16.8 | 0.15 | 20100104 | 52.42073 | 81.46065 | 308.87691 | 3.77227 | 0.2336336 | 2.5987442 | 51 | 4 | 2000–2009 | 0.35 | M-v | 1 | MPC | 101305 | 2006 $BS_{271}$ |
| 2006 $BX_{273}$ | 16.9 | 0.15 | 20100104 | 328.64222 | 107.31968 | 46.39140 | 3.16679 | 0.1054913 | 2.6253807 | 51 | 5 | 2002–2009 | 0.45 | M-v | 1 | MPC | 166253 | 2006 $BX_{273}$ |
| 2006 $BJ_{274}$ | 18.3 | 0.15 | 20100104 | 19.25296 | 96.34029 | 350.83220 | 3.30184 | 0.1498559 | 2.5728103 | 27 | 5 | 2000–2009 | 0.32 | M-v | 0 | MPC | 109509 | 2006 $BJ_{274}$ |
| 2006 $BZ_{274}$ | 16.9 | 0.15 | 20100104 | 194.13542 | 297.29152 | 334.05703 | 8.40982 | 0.0535236 | 2.7335997 | 48 | 3 | 2006–2009 | 0.39 | M-v | 2 | MPC | 146397 | 2006 $BZ_{274}$ |
| 2006 $BR_{277}$ | 16.3 | 0.15 | 20100104 | 86.19678 | 212.78716 | 131.20501 | 5.98190 | 0.1252035 | 2.7469245 | 36 | 5 | 2002–2009 | 0.52 | M-v | 1 | MPC | 158525 | 2006 $BR_{277}$ |
| 2006 $BL_{279}$ | 16.3 | 0.15 | 20100104 | 180.84300 | 138.02582 | 150.73252 | 4.85576 | 0.0435561 | 2.7863875 | 43 | 5 | 2003–2009 | 0.39 | M-v | 0 | MPC | 146398 | 2006 $BL_{279}$ |
| 2006 $BX_{280}$ | 16.9 | 0.15 | 20100104 | 330.62256 | 56.91969 | 64.00998 | 4.21172 | 0.1492212 | 2.7415129 | 23 | 2 | 2006–2009 | 0.23 | M-v | 4 | MPC | 165517 | 2006 $BX_{280}$ |
| 2006 $BP_{281}$ | 16.5 | 0.15 | 20100104 | 177.40363 | 270.48586 | 22.90844 | 3.90875 | 0.0776382 | 2.6980569 | 58 | 6 | 1993–2009 | 0.33 | M-v | 0 | MPC | 146399 | 2006 $BP_{281}$ |
| 2006 $CC_5$ | 15.5 | 0.15 | 20100104 | 208.69695 | 79.14871 | 137.91628 | 12.11473 | 0.0422596 | 2.9710742 | 48 | 4 | 2005–2009 | 0.52 | M-v | 1 | MPC | 166254 | 2006 $CC_5$ |
| 2006 $CZ_5$ | 16.7 | 0.15 | 20100104 | 220.70376 | 43.81189 | 219.03404 | 1.58815 | 0.1667925 | 2.6647103 | 55 | 6 | 2002–2009 | 0.41 | M-v | 0 | MPC | 148992 | 2006 $CZ_5$ |
| 2006 $CJ_6$ | 16.7 | 0.15 | 20100104 | 46.49849 | 86.06840 | 310.75048 | 11.78732 | 0.2874146 | 2.6022428 | 26 | 3 | 2000–2009 | 0.43 | M-v | 3 | MPC | 97149 | 2006 $CJ_6$ |
| 2006 $CC_7$ | 16.1 | 0.15 | 20100104 | 341.98207 | 172.74182 | 289.70969 | 3.59810 | 0.0189030 | 2.7694659 | 37 | 3 | 2005–2009 | 0.42 | M-v | 3 | MPC | 166254 | 2006 $CC_7$ |
| 2006 $CJ_9$ | 17.0 | 0.15 | 20100104 | 329.47997 | 356.90599 | 151.60029 | 4.05934 | 0.1407076 | 2.6190708 | 54 | 3 | 2002–2009 | 0.36 | M-v | 2 | MPC | 157041 | 2006 $CJ_9$ |
| 2006 $CC_{11}$ | 16.2 | 0.15 | 20100104 | 215.82940 | 141.14124 | 120.14737 | 6.13543 | 0.2140638 | 2.5631848 | 66 | 7 | 1998–2009 | 0.33 | M-v | 1 | MPC | 147387 | 2006 $CC_{11}$ |
| 2006 $CK_{15}$ | 16.2 | 0.15 | 20100104 | 276.03957 | 102.97431 | 92.62343 | 5.18861 | 0.0492709 | 2.6494830 | 38 | 5 | 1993–2009 | 0.47 | M-v | 1 | MPC | 147387 | 2006 $CK_{15}$ |
| 2006 $CF_{18}$ | 15.8 | 0.15 | 20100104 | 323.22846 | 359.03164 | 126.13046 | 10.48403 | 0.0997829 | 2.7660991 | 45 | 4 | 2002–2009 | 0.48 | M-v | 1 | MPC | 102284 | 2006 $CF_{18}$ |
| 2006 $CQ_{21}$ | 15.6 | 0.15 | 20100104 | 308.68342 | 110.40784 | 68.70687 | 17.34662 | 0.3050157 | 2.7079739 | 67 | 3 | 2001–2009 | 0.51 | M-v | 2 | MPC | 166254 | 2006 $CQ_{21}$ |
| 2006 $CM_{26}$ | 16.3 | 0.15 | 20100104 | 316.40735 | 179.67316 | 305.50958 | 4.99731 | 0.0869283 | 2.5685047 | 50 | 4 | 2001–2009 | 0.37 | M-v | 3 | MPC | 166254 | 2006 $CM_{26}$ |
| 2006 $CP_{26}$ | 17.9 | 0.15 | 20100104 | 2.73855 | 338.71604 | 121.93858 | 1.98431 | 0.1013042 | 2.6096761 | 27 | 3 | 2002–2009 | 0.35 | M-v | 4 | MPC | 141242 | 2006 $CP_{26}$ |
| 2006 $CO_{30}$ | 16.9 | 0.15 | 20100104 | 80.22909 | 245.62364 | 185.07404 | 4.65469 | 0.0861250 | 2.4093222 | 56 | 6 | 1993–2009 | 0.44 | M-v | 0 | MPC | 151026 | 2006 $CO_{30}$ |
| 2006 $CM_{38}$ | 15.8 | 0.15 | 20100104 | 261.65912 | 268.84044 | 324.34520 | 11.20149 | 0.1052278 | 2.6365881 | 33 | 5 | 2002–2009 | 0.48 | M-v | 2 | MPC | 147388 | 2006 $CM_{38}$ |
| 2006 $CO_{40}$ | 16.3 | 0.15 | 20100104 | 112.46540 | 271.49242 | 87.94547 | 3.62327 | 0.0943833 | 2.7183780 | 74 | 6 | 1999–2009 | 0.46 | M-v | 1 | MPC | 151026 | 2006 $CO_{40}$ |
| 2006 $CP_{40}$ | 16.7 | 0.15 | 20100104 | 309.31835 | 47.96808 | 122.74690 | 4.90732 | 0.0301705 | 2.6899799 | 42 | 5 | 2003–2009 | 0.34 | M-v | 1 | MPC | 146403 | 2006 $CP_{40}$ |
| 2006 $CH_{41}$ | 16.9 | 0.15 | 20100104 | 227.07498 | 285.98429 | 320.89352 | 8.24055 | 0.1008125 | 2.7813496 | 32 | 5 | 2001–2009 | 0.35 | M-v | 0 | MPC | 146403 | 2006 $CH_{41}$ |
| 2006 $CM_{41}$ | 17.0 | 0.15 | 20100104 | 16.66106 | 265.23819 | 182.34450 | 6.28806 | 0.1281958 | 2.6856675 | 47 | 3 | 2006–2009 | 0.29 | M-v | 3 | MPC | 153478 | 2006 $CM_{41}$ |
| 2006 $CP_{41}$ | 16.8 | 0.15 | 20100104 | 316.20053 | 254.18922 | 293.91966 | 2.76378 | 0.1473782 | 2.5815543 | 42 | 6 | 2002–2009 | 0.39 | M-v | 1 | MPC | 148992 | 2006 $CP_{41}$ |
| 2006 $CQ_{41}$ | 16.7 | 0.15 | 20100104 | 181.05717 | 56.85614 | 241.76415 | 2.49187 | 0.0850444 | 2.7265207 | 47 | 6 | 1999–2009 | 0.38 | M-v | 0 | MPC | 147388 | 2006 $CQ_{41}$ |
| 2006 $CH_{44}$ | 16.9 | 0.15 | 20100104 | 184.75298 | 128.85465 | 131.15734 | 5.07743 | 0.0498240 | 2.6643967 | 27 | 5 | 2002–2009 | 0.33 | M-v | 0 | MPC | 141844 | 2006 $CH_{44}$ |
| 2006 $CE_{45}$ | 16.5 | 0.15 | 20100104 | 326.87654 | 359.38385 | 46.52825 | 3.87228 | 0.1934806 | 3.0915603 | 26 | 3 | 2004–2009 | 0.31 | M-v | 2 | MPC | 97164 | 2006 $CE_{45}$ |
| 2006 $CT_{46}$ | 16.7 | 0.15 | 20100104 | 153.23847 | 277.31620 | 7.54617 | 2.69591 | 0.0402134 | 2.8170421 | 44 | 8 | 2001–2009 | 0.39 | M-v | 0 | MPC | 166254 | 2006 $CT_{46}$ |
| 2006 $CB_{47}$ | 17.0 | 0.15 | 20100104 | 292.93111 | 183.39392 | 355.27381 | 4.16180 | 0.1060077 | 2.6571504 | 38 | 5 | 2002–2009 | 0.43 | M-v | 1 | MPC | 147388 | 2006 $CB_{47}$ |
| 2006 $CC_{47}$ | 17.0 | 0.15 | 20100104 | 354.80957 | 348.20760 | 129.02086 | 7.30067 | 0.1321303 | 2.5867098 | 25 | 3 | 2002–2009 | 0.32 | M-v | 3 | MPC | 155214 | 2006 $CC_{47}$ |
| 2006 $CG_{51}$ | 16.8 | 0.15 | 20100104 | 343.38927 | 146.23876 | 302.65676 | 1.86997 | 0.0605368 | 2.7931299 | 39 | 4 | 2004–2009 | 0.27 | M-v | 0 | MPC | 166254 | 2006 $CG_{51}$ |
| 2006 $CO_{56}$ | 16.0 | 0.15 | 20100104 | 138.54980 | 7.26042 | 315.48973 | 8.08748 | 0.1518080 | 2.7282307 | 41 | 3 | 2005–2009 | 0.37 | M-v | 3 | MPC | 157042 | 2006 $CO_{56}$ |
| 2006 $CL_{57}$ | 16.5 | 0.15 | 20100104 | 67.56713 | 46.85898 | 341.06656 | 4.69553 | 0.1541624 | 2.7150589 | 54 | 4 | 2002–2009 | 0.39 | M-v | 2 | MPC | 146405 | 2006 $CL_{57}$ |
| 2006 $CW_{57}$ | 17.1 | 0.15 | 20100104 | 9.93128 | 76.39506 | 345.52131 | 2.01274 | 0.0615123 | 2.6835479 | 38 | 4 | 2002–2009 | 0.34 | M-v | 1 | MPC | 166254 | 2006 $CW_{57}$ |
| 2006 $CV_{58}$ | 16.9 | 0.15 | 20100104 | 21.42830 | 269.06043 | 125.50877 | 8.44567 | 0.3425580 | 2.6744525 | 52 | 3 | 2000–2009 | 0.49 | M-v | 3 | MPC | 166254 | 2006 $CV_{58}$ |
| 2006 $CN_{60}$ | 15.7 | 0.15 | 20100104 | 262.91817 | 87.67073 | 54.41932 | 12.23226 | 0.0468139 | 2.9659987 | 34 | 4 | 2002–2009 | 0.46 | M-v | 0 | MPC | 164292 | 2006 $CN_{60}$ |
| 2006 $CD_{61}$ | 16.0 | 0.15 | 20100104 | 237.32187 | 139.61487 | 106.95963 | 15.91053 | 0.0729521 | 2.5799903 | 36 | 5 | 1999–2009 | 0.42 | M-v | 1 | MPC | 166254 | 2006 $CD_{61}$ |
| 2006 $CJ_{62}$ | 14.8 | 0.15 | 20100104 | 300.38561 | 34.89801 | 112.90041 | 13.37468 | 0.0395293 | 2.9593837 | 69 | 7 | 2000–2009 | 0.70 | M-v | 1 | MPC | 147388 | 2006 $CJ_{62}$ |
| 2006 $CH_{65}$ | 16.6 | 0.15 | 20100104 | 21.97703 | 280.53666 | 131.72749 | 2.81276 | 0.1005609 | 2.8912527 | 37 | 4 | 1999–2009 | 0.34 | M-v | 0 | MPC | 166254 | 2006 $CH_{65}$ |
| 2006 $CJ_{65}$ | 16.9 | 0.15 | 20100104 | 316.51502 | 3.62203 | 126.51865 | 3.07420 | 0.0145905 | 2.8676828 | 34 | 4 | 1999–2009 | 0.42 | M-v | 1 | MPC | 147389 | 2006 $CJ_{65}$ |
| 2006 $CL_{66}$ | 16.9 | 0.15 | 20100104 | 22.94373 | 255.07843 | 191.60340 | 5.09131 | 0.0265523 | 2.7202518 | 39 | 5 | 2003–2009 | 0.35 | M-v | 0 | MPC | 147389 | 2006 $CL_{66}$ |
| 2006 DE | 15.7 | 0.15 | 20100104 | 333.18065 | 66.21095 | 80.64074 | 28.63812 | 0.2356182 | 2.6097164 | 45 | 3 | 2002–2009 | 0.52 | M-v | 2 | MPC | 166254 | 2006 DE |
| 2006 DF | 16.0 | 0.15 | 20100104 | 301.92819 | 88.07841 | 75.47625 | 9.03633 | 0.1984399 | 2.7833050 | 64 | 3 | 2000–2009 | 0.50 | M-v | 2 | MPC | 166254 | 2006 DF |
| 2006 $DF_1$ | 16.5 | 0.15 | 20100104 | 106.59036 | 105.89935 | 253.01570 | 5.65468 | 0.0490316 | 2.6994993 | 78 | 5 | 1995–2009 | 0.49 | M-v | 1 | MPC | 148993 | 2006 $DF_1$ |
| 2006 $DT_1$ | 16.5 | 0.15 | 20100104 | 359.64484 | 16.38896 | 83.94804 | 3.13628 | 0.0395835 | 2.7202590 | 42 | 6 | 2000–2009 | 0.41 | M-v | 0 | MPC | 147389 | 2006 $DT_1$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 $DH_2$ | 16.4 | 0.15 | 20100104 | 13.26117 | 112.25831 | 333.26329 | 2.30741 | 0.0781074 | 2.7174672 | 66 | 4 | 2004–2009 | 0.27 | M-v | 0 | MPC | 147389 | 2006 $DH_2$ |
| 2006 $DM_2$ | 16.9 | 0.15 | 20100104 | 38.57995 | 67.74379 | 355.64278 | 1.40183 | 0.0606646 | 2.7119288 | 56 | 4 | 1997–2009 | 0.33 | M-v | 0 | MPC | 166254 | 2006 $DM_2$ |
| 2006 $DC_3$ | 15.9 | 0.15 | 20100104 | 259.07218 | 54.41114 | 137.21042 | 4.33867 | 0.0294391 | 2.7697482 | 56 | 6 | 1995–2009 | 0.39 | M-v | 1 | MPC | 166254 | 2006 $DC_3$ |
| 2006 $DQ_3$ | 16.4 | 0.15 | 20100104 | 44.53418 | 229.03919 | 190.15796 | 3.66283 | 0.0663831 | 2.6828887 | 64 | 7 | 1997–2009 | 0.41 | M-v | 0 | MPC | 148993 | 2006 $DQ_3$ |
| 2006 $DC_4$ | 16.5 | 0.15 | 20100104 | 312.86196 | 171.19558 | 347.42187 | 5.99861 | 0.0628142 | 2.7365606 | 48 | 3 | 2006–2009 | 0.37 | M-v | 3 | MPC | 153479 | 2006 $DC_4$ |
| 2006 $DA_6$ | 15.7 | 0.15 | 20100104 | 232.73543 | 125.31520 | 78.83903 | 3.09609 | 0.0351535 | 2.9319818 | 45 | 4 | 2004–2009 | 0.63 | M-v | 1 | MPC | 165518 | 2006 $DA_6$ |
| 2006 $DC_8$ | 16.3 | 0.15 | 20100104 | 72.66023 | 20.31454 | 15.41748 | 5.55747 | 0.0511369 | 2.8201444 | 47 | 4 | 1994–2009 | 0.42 | M-v | 1 | MPC | 147390 | 2006 $DC_8$ |
| 2006 $DU_8$ | 15.9 | 0.15 | 20100104 | 323.67339 | 53.69058 | 77.42376 | 9.15471 | 0.1742686 | 2.7481612 | 59 | 4 | 2001–2009 | 0.55 | M-v | 1 | MPC | 166254 | 2006 $DU_8$ |
| 2006 $DA_{10}$ | 15.7 | 0.15 | 20100104 | 196.56474 | 194.12393 | 114.42937 | 6.69773 | 0.1557013 | 2.6075605 | 66 | 7 | 1998–2009 | 0.57 | M-v | 1 | MPC | 151026 | 2006 $DA_{10}$ |
| 2006 $DH_{11}$ | 16.0 | 0.15 | 20100104 | 6.06895 | 54.16511 | 49.98795 | 4.22767 | 0.2399654 | 2.6151755 | 73 | 5 | 2000–2009 | 0.57 | M-v | 1 | MPC | 166254 | 2006 $DH_{11}$ |
| 2006 $DU_{11}$ | 16.0 | 0.15 | 20100104 | 52.98516 | 107.64785 | 276.67805 | 4.69047 | 0.0387312 | 2.7244664 | 55 | 5 | 1996–2009 | 0.46 | M-v | 1 | MPC | 166254 | 2006 $DU_{11}$ |
| 2006 $DK_{13}$ | 16.2 | 0.15 | 20100104 | 16.41722 | 163.93326 | 292.08033 | 7.12297 | 0.0934762 | 2.6324468 | 32 | 3 | 2004–2009 | 0.50 | M-v | 2 | MPC | 166254 | 2006 $DK_{13}$ |
| 2006 $DD_{14}$ | 15.0 | 0.15 | 20100104 | 290.46616 | 103.01788 | 17.78164 | 12.17268 | 0.1543432 | 3.1288853 | 70 | 4 | 2001–2009 | 0.53 | M-v | 1 | MPC | 166254 | 2006 $DD_{14}$ |
| 2006 $DH_{14}$ | 15.9 | 0.15 | 20100104 | 318.76191 | 35.33498 | 118.16368 | 8.94485 | 0.1302913 | 2.7597327 | 58 | 4 | 1992–2009 | 0.64 | M-v | 1 | MPC | 111159 | 2006 $DH_{14}$ |
| 2006 $DO_{14}$ | 16.1 | 0.15 | 20100104 | 64.56325 | 293.36206 | 94.34689 | 5.50041 | 0.0818234 | 2.8040418 | 59 | 4 | 2004–2009 | 0.44 | M-v | 0 | MPC | 143259 | 2006 $DO_{14}$ |
| 2006 $DY_{15}$ | 15.3 | 0.15 | 20100104 | 96.69513 | 229.56713 | 89.82885 | 4.39447 | 0.0954177 | 3.0391009 | 53 | 5 | 2003–2009 | 0.48 | M-v | 0 | MPC | 166254 | 2006 $DY_{15}$ |
| 2006 $DF_{19}$ | 16.6 | 0.15 | 20100104 | 187.07372 | 196.82323 | 87.30674 | 3.29043 | 0.0429897 | 2.7007675 | 48 | 6 | 1995–2009 | 0.34 | M-v | 0 | MPC | 147390 | 2006 $DF_{19}$ |
| 2006 $DG_{22}$ | 16.3 | 0.15 | 20100104 | 123.06086 | 320.32218 | 21.47719 | 4.55335 | 0.0778321 | 2.7690701 | 53 | 4 | 2004–2009 | 0.49 | M-v | 1 | MPC | 158525 | 2006 $DG_{22}$ |
| 2006 $DT_{22}$ | 15.5 | 0.15 | 20100104 | 84.25809 | 322.90274 | 40.40803 | 2.49851 | 0.0850162 | 2.8664654 | 66 | 7 | 1999–2009 | 0.51 | M-v | 1 | MPC | 148993 | 2006 $DT_{22}$ |
| 2006 $DW_{22}$ | 16.5 | 0.15 | 20100104 | 149.45754 | 178.46919 | 137.43532 | 5.11420 | 0.0576305 | 2.7947061 | 29 | 4 | 2001–2009 | 0.33 | M-v | 1 | MPC | 147390 | 2006 $DW_{22}$ |
| 2006 $DL_{25}$ | 16.6 | 0.15 | 20100104 | 161.70476 | 143.63023 | 136.18704 | 2.77027 | 0.0391827 | 2.9309891 | 36 | 4 | 2003–2009 | 0.30 | M-v | 0 | MPC | 147390 | 2006 $DL_{25}$ |
| 2006 $DA_{27}$ | 16.1 | 0.15 | 20100104 | 63.82738 | 242.45988 | 157.13817 | 4.80607 | 0.0762987 | 2.7777114 | 53 | 5 | 1999–2009 | 0.52 | M-v | 1 | MPC | 147391 | 2006 $DA_{27}$ |
| 2006 $DC_{29}$ | 16.2 | 0.15 | 20100104 | 141.21712 | 193.79609 | 146.13141 | 5.32901 | 0.0795960 | 2.7538495 | 33 | 5 | 2001–2009 | 0.22 | M-v | 0 | MPC | 157042 | 2006 $DC_{29}$ |
| 2006 $DJ_{29}$ | 16.8 | 0.15 | 20100104 | 31.28076 | 331.51207 | 103.80976 | 3.94858 | 0.0917102 | 2.6327205 | 41 | 5 | 1993–2009 | 0.43 | M-v | 1 | MPC | 166255 | 2006 $DJ_{29}$ |
| 2006 $DE_{30}$ | 16.1 | 0.15 | 20100104 | 81.63698 | 203.84171 | 164.38558 | 2.42430 | 0.0934070 | 2.9124199 | 63 | 8 | 1993–2009 | 0.57 | M-v | 1 | MPC | 147391 | 2006 $DE_{30}$ |
| 2006 $DY_{30}$ | 16.7 | 0.15 | 20100104 | 284.29416 | 32.55581 | 164.09737 | 5.21067 | 0.0931622 | 2.7393884 | 30 | 4 | 2003–2009 | 0.35 | M-v | 2 | MPC | 147391 | 2006 $DY_{30}$ |
| 2006 $DB_{31}$ | 16.8 | 0.15 | 20100104 | 317.28916 | 153.66405 | 347.49716 | 2.08443 | 0.1586259 | 2.7989473 | 55 | 5 | 1994–2009 | 0.46 | M-v | 1 | MPC | 166255 | 2006 $DB_{31}$ |
| 2006 $DS_{32}$ | 16.6 | 0.15 | 20100104 | 34.82957 | 253.24979 | 169.42310 | 2.37050 | 0.0485726 | 2.8286109 | 55 | 6 | 1996–2009 | 0.35 | M-v | 0 | MPC | 148994 | 2006 $DS_{32}$ |
| 2006 $DW_{38}$ | 16.0 | 0.15 | 20100104 | 129.21075 | 267.30910 | 35.33224 | 2.74029 | 0.1573002 | 3.0997475 | 45 | 5 | 2000–2009 | 0.41 | M-v | 1 | MPC | 147391 | 2006 $DW_{38}$ |
| 2006 $DH_{39}$ | 16.6 | 0.15 | 20100104 | 34.65810 | 272.35005 | 156.26735 | 4.11283 | 0.0785962 | 2.8064521 | 39 | 4 | 1996–2009 | 0.24 | M-v | 0 | MPC | 153480 | 2006 $DH_{39}$ |
| 2006 $DO_{43}$ | 17.7 | 0.15 | 20100104 | 50.37136 | 42.32468 | 1.73482 | 2.74399 | 0.1828105 | 2.6848206 | 32 | 4 | 1995–2009 | 0.40 | M-v | 1 | MPC | 166255 | 2006 $DO_{43}$ |
| 2006 $DF_{45}$ | 16.7 | 0.15 | 20100104 | 95.40817 | 16.05535 | 351.64507 | 4.87043 | 0.0666695 | 2.7517284 | 42 | 5 | 2002–2009 | 0.38 | M-v | 1 | MPC | 148994 | 2006 $DF_{45}$ |
| 2006 $DG_{46}$ | 16.3 | 0.15 | 20100104 | 173.43544 | 261.64164 | 27.40393 | 2.25568 | 0.0342016 | 2.8600303 | 63 | 5 | 1999–2009 | 0.34 | M-v | 0 | MPC | 147392 | 2006 $DG_{46}$ |
| 2006 $DK_{46}$ | 17.1 | 0.15 | 20100104 | 24.67834 | 267.04670 | 141.03374 | 2.73156 | 0.0606959 | 2.8584340 | 35 | 6 | 2001–2009 | 0.32 | M-v | 1 | MPC | 166255 | 2006 $DK_{46}$ |
| 2006 $DK_{47}$ | 18.1 | 0.15 | 20100104 | 354.51587 | 126.56061 | 328.83460 | 2.82275 | 0.3131294 | 2.6456297 | 47 | 3 | 2000–2009 | 0.42 | M-v | 1 | MPC | 165518 | 2006 $DK_{47}$ |
| 2006 $DC_{48}$ | 17.0 | 0.15 | 20100104 | 20.40795 | 91.67664 | 302.19080 | 0.50054 | 0.0651811 | 3.0233730 | 36 | 4 | 1998–2009 | 0.33 | M-v | 0 | MPC | 166255 | 2006 $DC_{48}$ |
| 2006 $DT_{48}$ | 16.9 | 0.15 | 20100104 | 329.48584 | 340.91564 | 131.25616 | 2.34761 | 0.1448568 | 2.8445547 | 48 | 5 | 1999–2009 | 0.26 | M-v | 0 | MPC | 166255 | 2006 $DT_{48}$ |
| 2006 $DW_{50}$ | 16.7 | 0.15 | 20100104 | 13.83714 | 184.47194 | 245.88512 | 2.02584 | 0.1010616 | 2.6640699 | 32 | 4 | 2004–2009 | 0.38 | M-v | 0 | MPC | 120841 | 2006 $DW_{50}$ |
| 2006 $DQ_{51}$ | 15.7 | 0.15 | 20100104 | 48.13770 | 266.32719 | 63.94585 | 1.33589 | 0.0510588 | 3.2501623 | 44 | 3 | 2006–2009 | 0.36 | M-v | 2 | MPC | 164293 | 2006 $DQ_{51}$ |
| 2006 $DH_{52}$ | 16.9 | 0.15 | 20100104 | 3.89927 | 7.31508 | 107.53582 | 3.21617 | 0.0179591 | 2.6685911 | 49 | 5 | 2000–2009 | 0.35 | M-v | 0 | MPC | 147392 | 2006 $DH_{52}$ |
| 2006 $DN_{57}$ | 16.9 | 0.15 | 20100104 | 237.06543 | 329.84994 | 266.62346 | 1.40089 | 0.1252995 | 2.8460283 | 43 | 4 | 2006–2009 | 0.34 | M-v | 1 | MPC | 153481 | 2006 $DN_{57}$ |
| 2006 $DT_{61}$ | 15.3 | 0.15 | 20100104 | 312.34351 | 72.68111 | 158.69104 | 13.25492 | 0.2214388 | 2.6355061 | 75 | 4 | 2002–2009 | 0.43 | M-v | 2 | MPC | 124482 | 2006 $DT_{61}$ |
| 2006 $DY_{62}$ | 14.4 | 0.15 | 20100104 | 211.75042 | 167.27516 | 61.85552 | 24.02683 | 0.4265344 | 3.2622399 | 137 | 8 | 1994–2009 | 0.43 | M-v | 1 | MPC | 166255 | 2006 $DY_{62}$ |
| 2006 $DA_{64}$ | 16.0 | 0.15 | 20100104 | 308.85421 | 90.58130 | 40.31711 | 2.51072 | 0.0129593 | 2.8908734 | 30 | 5 | 2002–2009 | 0.45 | M-v | 0 | MPC | 164293 | 2006 $DA_{64}$ |
| 2006 $DK_{65}$ | 17.6 | 0.15 | 20100104 | 346.71361 | 47.54767 | 95.56725 | 8.48212 | 0.2668697 | 2.5650850 | 26 | 3 | 2002–2009 | 0.47 | M-v | 3 | MPC | 166255 | 2006 $DK_{65}$ |
| 2006 $DW_{65}$ | 16.6 | 0.15 | 20100104 | 355.56682 | 11.15768 | 110.73634 | 3.24297 | 0.1559355 | 2.6414939 | 63 | 6 | 2000–2009 | 0.46 | M-v | 0 | MPC | 166255 | 2006 $DW_{65}$ |
| 2006 $DE_{66}$ | 15.9 | 0.15 | 20100104 | 9.95100 | 321.66971 | 123.31668 | 14.56141 | 0.2298652 | 2.6894635 | 46 | 5 | 1997–2009 | 0.55 | M-v | 1 | MPC | 159772 | 2006 $DE_{66}$ |
| 2006 $DA_{68}$ | 16.6 | 0.15 | 20100104 | 316.92443 | 257.37211 | 274.29071 | 11.66630 | 0.2053517 | 2.6494743 | 36 | 4 | 2006–2009 | 0.40 | M-v | 1 | MPC | 166255 | 2006 $DA_{68}$ |
| 2006 $DN_{68}$ | 16.3 | 0.15 | 20100104 | 317.47570 | 81.55239 | 75.67419 | 3.73581 | 0.2753130 | 2.7225441 | 92 | 3 | 2000–2009 | 0.52 | M-v | 1 | MPC | 166255 | 2006 $DN_{68}$ |
| 2006 $DO_{68}$ | 16.1 | 0.15 | 20100104 | 297.75686 | 69.64632 | 114.53279 | 19.05152 | 0.1284021 | 2.7280503 | 34 | 5 | 1992–2009 | 0.55 | M-v | 0 | MPC | 121628 | 2006 $DO_{68}$ |
| 2006 $DF_{69}$ | 16.8 | 0.15 | 20100104 | 359.95905 | 110.36533 | 352.70634 | 5.07571 | 0.1317859 | 2.6581789 | 44 | 4 | 2004–2009 | 0.40 | M-v | 1 | MPC | 147393 | 2006 $DF_{69}$ |
| 2006 $DA_{70}$ | 16.3 | 0.15 | 20100104 | 47.06988 | 287.82873 | 110.95127 | 2.79594 | 0.1089016 | 2.9489890 | 50 | 6 | 1995–2009 | 0.52 | M-v | 0 | MPC | 158525 | 2006 $DA_{70}$ |
| 2006 $DY_{75}$ | 16.7 | 0.15 | 20100104 | 107.37199 | 221.56452 | 130.71852 | 3.64098 | 0.0881811 | 2.7809134 | 35 | 6 | 2003–2009 | 0.36 | M-v | 0 | MPC | 143261 | 2006 $DY_{75}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 $DX_{83}$ | 17.4 | 0.15 | 20100104 | 14.37885 | 143.48645 | 309.05913 | 1.90132 | 0.1569126 | 2.6843983 | 29 | 4 | 2004–2009 | 0.29 | M-v | 0 | MPC | 143261 | 2006 $DX_{83}$ |
| 2006 $DQ_{84}$ | 16.3 | 0.15 | 20100104 | 288.65973 | 213.01219 | 329.37258 | 3.88383 | 0.0879745 | 2.7693893 | 30 | 3 | 2006–2009 | 0.31 | M-v | 3 | MPC | 153482 | 2006 $DQ_{84}$ |
| 2006 $DV_{86}$ | 16.0 | 0.15 | 20100104 | 48.14427 | 350.39138 | 25.38592 | 5.03630 | 0.1845877 | 3.0596021 | 44 | 4 | 1998–2009 | 0.38 | M-v | 0 | MPC | 166256 | 2006 $DV_{86}$ |
| 2006 $DD_{87}$ | 15.3 | 0.15 | 20100104 | 233.82226 | 88.84835 | 108.42085 | 2.68106 | 0.1528665 | 3.1194855 | 100 | 6 | 2000–2009 | 0.47 | M-v | 1 | MPC | 166256 | 2006 $DD_{87}$ |
| 2006 $DF_{87}$ | 16.1 | 0.15 | 20100104 | 226.91119 | 124.08474 | 103.06464 | 2.76997 | 0.1159520 | 2.9724078 | 48 | 5 | 1995–2009 | 0.43 | M-v | 1 | MPC | 146418 | 2006 $DF_{87}$ |
| 2006 $DH_{87}$ | 16.2 | 0.15 | 20100104 | 106.25376 | 218.29540 | 113.22159 | 2.97226 | 0.0855136 | 3.0633425 | 39 | 7 | 1997–2009 | 0.42 | M-v | 0 | MPC | 147393 | 2006 $DH_{87}$ |
| 2006 $DW_{87}$ | 17.0 | 0.15 | 20100104 | 286.62735 | 134.39235 | 166.34938 | 10.35361 | 0.2536962 | 2.3339205 | 25 | 3 | 1999–2007 | 0.50 | M-v | 2 | MPC | 97204 | 2006 $DW_{87}$ |
| 2006 $DU_{89}$ | 16.6 | 0.15 | 20100104 | 247.09929 | 278.41711 | 311.71667 | 2.02176 | 0.0184992 | 2.7006887 | 57 | 5 | 1999–2009 | 0.45 | M-v | 1 | MPC | 166256 | 2006 $DU_{89}$ |
| 2006 $DE_{91}$ | 16.8 | 0.15 | 20100104 | 269.64294 | 14.42682 | 189.82180 | 1.72673 | 0.1698673 | 2.7892176 | 45 | 6 | 1992–2009 | 0.36 | M-v | 0 | MPC | 148995 | 2006 $DE_{91}$ |
| 2006 $DD_{93}$ | 16.5 | 0.15 | 20100104 | 51.58075 | 155.28125 | 219.68364 | 1.33075 | 0.0364286 | 3.1295077 | 31 | 3 | 2006–2009 | 0.34 | M-v | 3 | MPC | 165519 | 2006 $DD_{93}$ |
| 2006 $DH_{94}$ | 17.3 | 0.15 | 20100104 | 351.62162 | 16.36527 | 154.49271 | 1.44529 | 0.0663375 | 2.5357435 | 54 | 5 | 2000–2009 | 0.38 | M-v | 2 | MPC | 151028 | 2006 $DH_{94}$ |
| 2006 $DJ_{96}$ | 16.5 | 0.15 | 20100104 | 227.36363 | 41.76666 | 169.71033 | 1.10091 | 0.1305534 | 3.1520906 | 30 | 4 | 2000–2009 | 0.40 | M-v | 1 | MPC | 147394 | 2006 $DJ_{96}$ |
| 2006 $DV_{99}$ | 16.7 | 0.15 | 20100104 | 132.19527 | 308.16683 | 23.55701 | 3.67546 | 0.0979256 | 2.7748168 | 44 | 3 | 2006–2009 | 0.30 | M-v | 3 | MPC | 146420 | 2006 $DV_{99}$ |
| 2006 $DX_{99}$ | 17.4 | 0.15 | 20100104 | 12.21329 | 10.31216 | 59.56704 | 2.76834 | 0.0454123 | 2.8663531 | 31 | 3 | 1999–2009 | 0.35 | M-v | 3 | MPC | 103871 | 2006 $DX_{99}$ |
| 2006 $DD_{102}$ | 17.1 | 0.15 | 20100104 | 49.05796 | 24.64294 | 30.69619 | 4.14862 | 0.0939383 | 2.7250564 | 39 | 6 | 2001–2009 | 0.29 | M-v | 0 | MPC | 146421 | 2006 $DD_{102}$ |
| 2006 $DA_{103}$ | 16.5 | 0.15 | 20100104 | 292.96253 | 333.27776 | 156.58287 | 2.07509 | 0.0115432 | 3.0847290 | 67 | 7 | 1998–2009 | 0.33 | M-v | 0 | MPC | 166256 | 2006 $DA_{103}$ |
| 2006 $DJ_{105}$ | 16.2 | 0.15 | 20100104 | 350.20694 | 320.79581 | 162.11811 | 8.08925 | 0.1225865 | 2.6896498 | 49 | 5 | 2002–2009 | 0.41 | M-v | 2 | MPC | 147394 | 2006 $DJ_{105}$ |
| 2006 $DW_{111}$ | 16.2 | 0.15 | 20100104 | 252.45308 | 45.40036 | 180.02314 | 5.03390 | 0.0986453 | 2.7320705 | 51 | 4 | 2002–2008 | 0.45 | M-v | 2 | MPC | 147395 | 2006 $DW_{111}$ |
| 2006 $DJ_{113}$ | 15.8 | 0.15 | 20100104 | 155.47198 | 192.75706 | 110.23137 | 3.13502 | 0.0466943 | 2.9096096 | 62 | 6 | 2001–2009 | 0.44 | M-v | 0 | MPC | 147395 | 2006 $DJ_{113}$ |
| 2006 $DC_{114}$ | 15.8 | 0.15 | 20100104 | 305.70644 | 353.25526 | 155.79322 | 8.78270 | 0.1603046 | 2.8007641 | 89 | 3 | 2001–2009 | 0.55 | M-v | 2 | MPC | 166256 | 2006 $DC_{114}$ |
| 2006 $DD_{115}$ | 16.2 | 0.15 | 20100104 | 257.91480 | 162.41699 | 6.94798 | 4.91438 | 0.1081946 | 3.1035152 | 44 | 3 | 2003–2009 | 0.33 | M-v | 3 | MPC | 165519 | 2006 $DD_{115}$ |
| 2006 $DR_{116}$ | 15.4 | 0.15 | 20100104 | 242.30305 | 166.72115 | 62.17254 | 14.74814 | 0.1470692 | 2.7984141 | 73 | 6 | 1999–2009 | 0.49 | M-v | 1 | MPC | 147395 | 2006 $DR_{116}$ |
| 2006 $DL_{119}$ | 16.2 | 0.15 | 20100104 | 301.42999 | 80.78048 | 77.54776 | 10.39896 | 0.1875041 | 2.7447872 | 47 | 3 | 2002–2009 | 0.52 | M-v | 3 | MPC | 166256 | 2006 $DL_{119}$ |
| 2006 $DV_{119}$ | 15.1 | 0.15 | 20100104 | 319.35255 | 84.85958 | 17.20124 | 14.90517 | 0.0223720 | 2.9619651 | 60 | 3 | 2006–2009 | 0.56 | M-v | 3 | MPC | 166256 | 2006 $DV_{119}$ |
| 2006 $DZ_{119}$ | 15.8 | 0.15 | 20100104 | 269.66491 | 124.57633 | 9.20790 | 10.47845 | 0.1180929 | 3.0948281 | 39 | 2 | 2006–2009 | 0.44 | M-v | 3 | MPC | 164294 | 2006 $DZ_{119}$ |
| 2006 $DD_{120}$ | 15.4 | 0.15 | 20100104 | 188.74183 | 163.91171 | 71.71835 | 5.63128 | 0.1233548 | 3.0749306 | 44 | 6 | 2001–2009 | 0.44 | M-v | 0 | MPC | 165519 | 2006 $DD_{120}$ |
| 2006 $DR_{122}$ | 16.4 | 0.15 | 20100104 | 346.08412 | 358.13236 | 102.67664 | 13.45359 | 0.2259237 | 2.6864105 | 29 | 3 | 2002–2009 | 0.66 | M-v | 3 | MPC | 101414 | 2006 $DR_{122}$ |
| 2006 $DG_{128}$ | 16.2 | 0.15 | 20100104 | 89.81895 | 233.66846 | 135.78363 | 6.97356 | 0.0800713 | 2.6717343 | 40 | 4 | 2005–2009 | 0.38 | M-v | 1 | MPC | 165520 | 2006 $DG_{128}$ |
| 2006 $DZ_{130}$ | 16.4 | 0.15 | 20100104 | 63.81513 | 327.82556 | 62.44097 | 5.27819 | 0.0778663 | 2.7952755 | 28 | 4 | 2004–2009 | 0.30 | M-v | 1 | MPC | 166256 | 2006 $DZ_{130}$ |
| 2006 $DF_{131}$ | 15.7 | 0.15 | 20100104 | 48.07441 | 346.02810 | 21.49130 | 9.71178 | 0.1263908 | 3.0725075 | 48 | 5 | 1960–2009 | 0.52 | M-v | 1 | MPC | 166256 | 2006 $DF_{131}$ |
| 2006 $DL_{131}$ | 16.0 | 0.15 | 20100104 | 79.00268 | 317.46392 | 66.89532 | 5.80973 | 0.1230295 | 2.7240899 | 28 | 4 | 2004–2009 | 0.47 | M-v | 1 | MPC | 147395 | 2006 $DL_{131}$ |
| 2006 $DA_{132}$ | 15.8 | 0.15 | 20100104 | 18.03665 | 327.18243 | 72.29976 | 4.25716 | 0.0960928 | 3.0232935 | 59 | 5 | 2001–2009 | 0.41 | M-v | 0 | MPC | 166256 | 2006 $DA_{132}$ |
| 2006 $DJ_{132}$ | 16.6 | 0.15 | 20100104 | 71.72468 | 278.80056 | 116.18374 | 4.61538 | 0.0783073 | 2.7157196 | 44 | 4 | 2004–2009 | 0.42 | M-v | 1 | MPC | 166256 | 2006 $DJ_{132}$ |
| 2006 $DP_{132}$ | 17.2 | 0.15 | 20100104 | 268.87049 | 207.96983 | 73.48334 | 3.34886 | 0.2006321 | 2.4374419 | 37 | 4 | 1995–2007 | 0.46 | M-v | 2 | MPC | 157044 | 2006 $DP_{132}$ |
| 2006 $DS_{133}$ | 15.9 | 0.15 | 20100104 | 37.47896 | 353.70512 | 21.91962 | 4.57599 | 0.1947473 | 3.0046425 | 61 | 3 | 2006–2009 | 0.47 | M-v | 1 | MPC | 166256 | 2006 $DS_{133}$ |
| 2006 $DC_{136}$ | 15.8 | 0.15 | 20100104 | 298.67319 | 59.36845 | 78.72773 | 3.21068 | 0.0470825 | 2.9410842 | 66 | 3 | 2004–2009 | 0.53 | M-v | 3 | MPC | 165520 | 2006 $DC_{136}$ |
| 2006 $DL_{137}$ | 16.9 | 0.15 | 20100104 | 15.25165 | 354.31661 | 77.10719 | 3.08156 | 0.0312976 | 2.8736795 | 44 | 6 | 1994–2009 | 0.38 | M-v | 1 | MPC | 147396 | 2006 $DL_{137}$ |
| 2006 $DN_{138}$ | 16.4 | 0.15 | 20100104 | 295.05043 | 58.48695 | 120.98984 | 4.33651 | 0.1269271 | 2.7435602 | 56 | 7 | 1995–2009 | 0.43 | M-v | 1 | MPC | 160861 | 2006 $DN_{138}$ |
| 2006 $DY_{141}$ | 16.7 | 0.15 | 20100104 | 53.15301 | 264.54091 | 129.54623 | 4.98188 | 0.2095271 | 2.7869849 | 32 | 4 | 2001–2009 | 0.43 | M-v | 1 | MPC | 101420 | 2006 $DY_{141}$ |
| 2006 $DY_{144}$ | 16.9 | 0.15 | 20100104 | 86.73118 | 9.52840 | 4.80235 | 4.30810 | 0.0820591 | 2.7745133 | 44 | 4 | 1999–2009 | 0.36 | M-v | 1 | MPC | 148996 | 2006 $DY_{144}$ |
| 2006 $DS_{146}$ | 16.4 | 0.15 | 20100104 | 270.98880 | 197.60781 | 346.62963 | 10.09094 | 0.0383458 | 2.8900133 | 54 | 5 | 2001–2009 | 0.40 | M-v | 1 | MPC | 147396 | 2006 $DS_{146}$ |
| 2006 $DK_{156}$ | 16.9 | 0.15 | 20100104 | 216.40354 | 212.12086 | 21.14087 | 1.93477 | 0.0427078 | 2.9188463 | 53 | 6 | 1998–2009 | 0.36 | M-v | 0 | MPC | 147396 | 2006 $DK_{156}$ |
| 2006 $DR_{157}$ | 16.1 | 0.15 | 20100104 | 65.72416 | 266.36138 | 132.66944 | 4.90307 | 0.0595731 | 2.7674336 | 37 | 4 | 2003–2009 | 0.43 | M-v | 1 | MPC | 158526 | 2006 $DR_{157}$ |
| 2006 $DV_{158}$ | 15.8 | 0.15 | 20100104 | 151.92493 | 181.35540 | 125.10391 | 2.90644 | 0.0519799 | 2.8784435 | 58 | 6 | 1996–2009 | 0.41 | M-v | 0 | MPC | 148997 | 2006 $DV_{158}$ |
| 2006 $DW_{161}$ | 16.3 | 0.15 | 20100104 | 174.03360 | 176.64343 | 82.59503 | 2.14693 | 0.1237123 | 3.0424219 | 37 | 6 | 1997–2009 | 0.53 | M-v | 0 | MPC | 147396 | 2006 $DW_{161}$ |
| 2006 $DB_{164}$ | 16.6 | 0.15 | 20100104 | 291.34433 | 225.72040 | 323.75417 | 4.30442 | 0.0987948 | 2.7103744 | 44 | 6 | 1997–2009 | 0.35 | M-v | 1 | MPC | 166257 | 2006 $DB_{164}$ |
| 2006 $DD_{164}$ | 16.4 | 0.15 | 20100104 | 29.95890 | 112.93984 | 307.49245 | 2.91241 | 0.0893806 | 2.8112096 | 40 | 5 | 1999–2009 | 0.45 | M-v | 0 | MPC | 147396 | 2006 $DD_{164}$ |
| 2006 $DG_{164}$ | 16.6 | 0.15 | 20100104 | 193.16107 | 77.59517 | 197.80978 | 2.88554 | 0.0562138 | 2.7774530 | 49 | 5 | 1994–2009 | 0.36 | M-v | 0 | MPC | 148997 | 2006 $DG_{164}$ |
| 2006 $DH_{177}$ | 16.8 | 0.15 | 20100104 | 79.04786 | 22.60246 | 5.49630 | 3.79427 | 0.0537514 | 2.7505113 | 40 | 4 | 2004–2009 | 0.28 | M-v | 1 | MPC | 160455 | 2006 $DH_{177}$ |
| 2006 $DJ_{188}$ | 16.3 | 0.15 | 20100104 | 69.06595 | 252.55120 | 117.06305 | 2.57708 | 0.0130122 | 3.0370117 | 41 | 6 | 1996–2009 | 0.35 | M-v | 0 | MPC | 166257 | 2006 $DJ_{188}$ |
| 2006 $DM_{190}$ | 15.8 | 0.15 | 20100104 | 210.65801 | 152.37353 | 105.12226 | 3.15691 | 0.0740650 | 2.9179436 | 58 | 7 | 1996–2009 | 0.42 | M-v | 0 | MPC | 151029 | 2006 $DM_{190}$ |
| 2006 $DF_{195}$ | 15.6 | 0.15 | 20100104 | 277.43825 | 98.10119 | 92.24681 | 13.85069 | 0.1284563 | 2.7694457 | 38 | 4 | 2001–2009 | 0.53 | M-v | 1 | MPC | 160862 | 2006 $DF_{195}$ |
| 2006 $DU_{196}$ | 16.2 | 0.15 | 20100104 | 21.60554 | 189.08025 | 218.60020 | 9.03834 | 0.3564282 | 2.6605666 | 56 | 3 | 2000–2009 | 0.58 | M-v | 2 | MPC | 166257 | 2006 $DU_{196}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 $DD_{197}$ | 15.5 | 0.15 | 20100104 | 304.47406 | 306.49511 | 203.41482 | 14.72091 | 0.0870629 | 2.8451740 | 39 | 7 | 1992–2009 | 0.38 | M-v | 0 | MPC | 147397 | 2006 $DD_{197}$ |
| 2006 $DS_{201}$ | 15.7 | 0.15 | 20100104 | 357.58098 | 21.51271 | 67.86266 | 8.99971 | 0.0402924 | 2.7330773 | 51 | 5 | 1995–2009 | 0.62 | M-v | 1 | MPC | 166257 | 2006 $DS_{201}$ |
| 2006 $DP_{202}$ | 15.2 | 0.15 | 20100104 | 281.02487 | 87.68184 | 41.85146 | 9.54455 | 0.1095120 | 3.1014859 | 54 | 3 | 2004–2009 | 0.45 | M-v | 2 | MPC | 164294 | 2006 $DP_{202}$ |
| 2006 $DQ_{204}$ | 15.8 | 0.15 | 20100104 | 285.44422 | 98.84691 | 97.79461 | 13.78481 | 0.1111327 | 2.6480100 | 27 | 3 | 2002–2009 | 0.40 | M-v | 3 | MPC | 166257 | 2006 $DQ_{204}$ |
| 2006 $DR_{206}$ | 16.8 | 0.15 | 20100104 | 311.87057 | 210.36783 | 306.28854 | 3.36023 | 0.0100012 | 2.7977590 | 43 | 5 | 1998–2009 | 0.44 | M-v | 2 | MPC | 148997 | 2006 $DR_{206}$ |
| 2006 $DS_{207}$ | 15.8 | 0.15 | 20100104 | 10.16538 | 97.18844 | 359.02786 | 11.78357 | 0.1586369 | 2.7746829 | 51 | 6 | 1999–2009 | 0.47 | M-v | 0 | MPC | 148997 | 2006 $DS_{207}$ |
| 2006 $DF_{211}$ | 17.1 | 0.15 | 20100104 | 238.39396 | 62.98946 | 173.06934 | 4.07129 | 0.0452696 | 2.8147094 | 33 | 4 | 2003–2009 | 0.34 | M-v | 1 | MPC | 147398 | 2006 $DF_{211}$ |
| 2006 $DO_{213}$ | 16.6 | 0.15 | 20100104 | 118.23694 | 4.09307 | 341.03420 | 2.14362 | 0.0477763 | 2.7291347 | 41 | 3 | 2006–2009 | 0.40 | M-v | 3 | MPC | 166257 | 2006 $DO_{213}$ |
| 2006 $DU_{214}$ | 17.2 | 0.15 | 20100104 | 12.52756 | 249.91540 | 205.12812 | 3.56579 | 0.0702773 | 2.7801771 | 31 | 4 | 1999–2009 | 0.32 | M-v | 0 | MPC | 147398 | 2006 $DU_{214}$ |
| 2006 $DW_{214}$ | 16.1 | 0.15 | 20100104 | 41.62114 | 103.66187 | 302.34581 | 0.22893 | 0.1417937 | 2.8954108 | 66 | 6 | 1998–2009 | 0.38 | M-v | 0 | MPC | 159108 | 2006 $DW_{214}$ |
| 2006 $DY_{214}$ | 17.3 | 0.15 | 20100104 | 14.41290 | 80.26583 | 6.34423 | 5.69081 | 0.0341334 | 2.8923214 | 38 | 5 | 2001–2009 | 0.42 | M-v | 0 | MPC | 147398 | 2006 $DY_{214}$ |
| 2006 $EK_{2}$ | 16.7 | 0.15 | 20100104 | 210.08830 | 176.36763 | 74.29734 | 3.11747 | 0.0239211 | 2.8841717 | 34 | 4 | 2004–2009 | 0.35 | M-v | 0 | MPC | 158526 | 2006 $EK_{2}$ |
| 2006 $EG_{5}$ | 16.3 | 0.15 | 20100104 | 130.65950 | 216.64044 | 120.20590 | 4.23850 | 0.1258888 | 2.7633399 | 62 | 6 | 1993–2009 | 0.43 | M-v | 1 | MPC | 146437 | 2006 $EG_{5}$ |
| 2006 $EG_{6}$ | 16.1 | 0.15 | 20100104 | 66.63107 | 306.10948 | 53.18359 | 1.61556 | 0.1090471 | 2.9971931 | 42 | 4 | 1998–2009 | 0.38 | M-v | 1 | MPC | 166257 | 2006 $EG_{6}$ |
| 2006 $EC_{10}$ | 16.7 | 0.15 | 20100104 | 264.06482 | 82.68344 | 99.46985 | 2.11726 | 0.0780124 | 2.9605196 | 30 | 3 | 2006–2009 | 0.42 | M-v | 4 | MPC | 165521 | 2006 $EC_{10}$ |
| 2006 $EG_{10}$ | 16.3 | 0.15 | 20100104 | 330.71688 | 355.34366 | 151.76877 | 5.39176 | 0.0557188 | 2.7274763 | 32 | 4 | 2003–2009 | 0.31 | M-v | 2 | MPC | 147398 | 2006 $EG_{10}$ |
| 2006 $EO_{10}$ | 16.6 | 0.15 | 20100104 | 281.03213 | 174.90340 | 18.99907 | 4.12389 | 0.0394070 | 2.7726802 | 42 | 4 | 1999–2009 | 0.34 | M-v | 1 | MPC | 147398 | 2006 $EO_{10}$ |
| 2006 $EX_{13}$ | 16.9 | 0.15 | 20100104 | 2.98495 | 309.46794 | 165.74721 | 2.46504 | 0.0092784 | 2.7265917 | 64 | 5 | 1999–2009 | 0.39 | M-v | 0 | MPC | 151030 | 2006 $EX_{13}$ |
| 2006 $EV_{14}$ | 16.3 | 0.15 | 20100104 | 288.18050 | 174.30202 | 8.14784 | 3.59946 | 0.0333583 | 2.8038220 | 82 | 5 | 2003–2009 | 0.38 | M-v | 1 | MPC | 147399 | 2006 $EV_{14}$ |
| 2006 $ES_{16}$ | 17.1 | 0.15 | 20100104 | 297.09110 | 60.28779 | 170.65316 | 10.65157 | 0.0628409 | 2.5359899 | 33 | 5 | 2003–2009 | 0.27 | M-v | 1 | MPC | 147399 | 2006 $ES_{16}$ |
| 2006 $EF_{20}$ | 16.7 | 0.15 | 20100104 | 350.56859 | 249.57400 | 200.43051 | 2.98490 | 0.0614585 | 2.7730876 | 37 | 5 | 2002–2009 | 0.28 | M-v | 0 | MPC | 166257 | 2006 $EF_{20}$ |
| 2006 $ET_{21}$ | 17.3 | 0.15 | 20100104 | 32.72314 | 50.82663 | 17.86788 | 1.91506 | 0.0620897 | 2.7202090 | 29 | 5 | 2002–2009 | 0.39 | M-v | 0 | MPC | 146440 | 2006 $ET_{21}$ |
| 2006 $ES_{22}$ | 17.1 | 0.15 | 20100104 | 113.32412 | 306.53291 | 28.76814 | 2.25643 | 0.0769617 | 2.8535448 | 41 | 7 | 1997–2009 | 0.33 | M-v | 0 | MPC | 147399 | 2006 $ES_{22}$ |
| 2006 $ED_{23}$ | 16.7 | 0.15 | 20100104 | 197.24414 | 209.40170 | 38.77074 | 2.33921 | 0.0618512 | 2.9183854 | 31 | 4 | 2003–2009 | 0.46 | M-v | 0 | MPC | 142808 | 2006 $ED_{23}$ |
| 2006 $ET_{23}$ | 17.0 | 0.15 | 20100104 | 36.20530 | 276.95082 | 154.03840 | 2.18223 | 0.0502598 | 2.6992539 | 46 | 6 | 1999–2009 | 0.37 | M-v | 0 | MPC | 147399 | 2006 $ET_{23}$ |
| 2006 $EL_{25}$ | 17.2 | 0.15 | 20100104 | 79.56950 | 203.88392 | 186.12692 | 2.03901 | 0.0914252 | 2.6559554 | 60 | 6 | 1991–2009 | 0.43 | M-v | 1 | MPC | 148998 | 2006 $EL_{25}$ |
| 2006 $EY_{34}$ | 16.8 | 0.15 | 20100104 | 312.26797 | 124.69950 | 39.95612 | 4.11487 | 0.0350568 | 2.7806198 | 52 | 7 | 1994–2009 | 0.30 | M-v | 0 | MPC | 148998 | 2006 $EY_{34}$ |
| 2006 $ED_{37}$ | 16.0 | 0.15 | 20100104 | 122.10091 | 228.75610 | 81.06731 | 2.36204 | 0.1704619 | 3.2017399 | 39 | 5 | 2002–2009 | 0.36 | M-v | 0 | MPC | 146443 | 2006 $ED_{37}$ |
| 2006 $EV_{40}$ | 16.9 | 0.15 | 20100104 | 315.25246 | 79.97697 | 43.81090 | 2.41598 | 0.0277395 | 3.0193815 | 40 | 4 | 2003–2009 | 0.30 | M-v | 0 | MPC | 166258 | 2006 $EV_{40}$ |
| 2006 $EC_{42}$ | 15.9 | 0.15 | 20100104 | 339.26621 | 183.12551 | 266.56949 | 2.30386 | 0.0845099 | 3.0463646 | 72 | 5 | 2003–2009 | 0.40 | M-v | 0 | MPC | 166258 | 2006 $EC_{42}$ |
| 2006 $EW_{46}$ | 15.5 | 0.15 | 20100104 | 169.40490 | 150.85890 | 114.54797 | 3.63344 | 0.0763156 | 3.0018730 | 63 | 5 | 1996–2009 | 0.41 | M-v | 0 | MPC | 166258 | 2006 $EW_{46}$ |
| 2006 $EZ_{49}$ | 16.4 | 0.15 | 20100104 | 61.33890 | 13.29904 | 35.56334 | 5.52893 | 0.0596978 | 2.7172330 | 35 | 5 | 2002–2009 | 0.47 | M-v | 0 | MPC | 146446 | 2006 $EZ_{49}$ |
| 2006 $EE_{52}$ | 16.6 | 0.15 | 20100104 | 5.96314 | 125.19387 | 342.38455 | 3.87899 | 0.0701240 | 2.7394947 | 33 | 4 | 2000–2009 | 0.32 | M-v | 0 | MPC | 158526 | 2006 $EE_{52}$ |
| 2006 $EU_{53}$ | 16.8 | 0.15 | 20100104 | 273.97545 | 245.47439 | 326.72657 | 4.52573 | 0.1039520 | 2.7239952 | 34 | 3 | 2006–2009 | 0.40 | M-v | 3 | MPC | 146446 | 2006 $EU_{53}$ |
| 2006 $EQ_{55}$ | 16.1 | 0.15 | 20100104 | 23.62095 | 139.68166 | 257.96510 | 2.46636 | 0.0261580 | 3.0725595 | 37 | 5 | 2003–2009 | 0.38 | M-v | 0 | MPC | 166258 | 2006 $EQ_{55}$ |
| 2006 $EA_{57}$ | 16.5 | 0.15 | 20100104 | 347.34212 | 273.54599 | 189.67785 | 7.94385 | 0.1718865 | 2.7631723 | 34 | 3 | 2004–2009 | 0.45 | M-v | 2 | MPC | 166258 | 2006 $EA_{57}$ |
| 2006 $EL_{57}$ | 16.9 | 0.15 | 20100104 | 259.09121 | 289.04763 | 235.54601 | 3.70395 | 0.0857572 | 3.0561400 | 23 | 3 | 2004–2009 | 0.25 | M-v | 3 | MPC | 101491 | 2006 $EL_{57}$ |
| 2006 $EQ_{65}$ | 15.5 | 0.15 | 20100104 | 246.86504 | 2.78255 | 192.91940 | 9.88886 | 0.0609461 | 3.0756675 | 47 | 4 | 2003–2009 | 0.41 | M-v | 1 | MPC | 147400 | 2006 $EQ_{65}$ |
| 2006 $EL_{67}$ | 16.4 | 0.15 | 20100104 | 343.70724 | 79.48172 | 51.23339 | 3.29855 | 0.1476427 | 2.7476121 | 45 | 4 | 2004–2009 | 0.40 | M-v | 0 | MPC | 147400 | 2006 $EL_{67}$ |
| 2006 $EZ_{71}$ | 16.4 | 0.15 | 20100104 | 278.48663 | 160.03484 | 358.88198 | 1.08678 | 0.0627364 | 3.0523817 | 37 | 5 | 2000–2009 | 0.40 | M-v | 0 | MPC | 166258 | 2006 $EZ_{71}$ |
| 2006 $EC_{73}$ | 16.7 | 0.15 | 20100104 | 258.60822 | 297.09279 | 237.94681 | 0.44266 | 0.0064920 | 3.1143342 | 31 | 5 | 1995–2009 | 0.49 | M-v | 1 | MPC | 158527 | 2006 $EC_{73}$ |
| 2006 FM | 15.9 | 0.15 | 20100104 | 347.85941 | 81.30481 | 69.14567 | 13.22554 | 0.1258815 | 2.5426396 | 42 | 5 | 2000–2009 | 0.59 | M-v | 2 | MPC | 147400 | 2006 FM |
| 2006 $FK_{6}$ | 15.8 | 0.15 | 20100104 | 313.03711 | 115.47244 | 55.39647 | 9.85328 | 0.1779318 | 2.7423078 | 41 | 5 | 2001–2009 | 0.42 | M-v | 1 | MPC | 160862 | 2006 $FK_{6}$ |
| 2006 $FE_{7}$ | 16.1 | 0.15 | 20100104 | 237.63275 | 156.59819 | 64.25800 | 1.68072 | 0.0946690 | 3.0763037 | 65 | 7 | 2000–2009 | 0.34 | M-v | 0 | MPC | 147401 | 2006 $FE_{7}$ |
| 2006 $FS_{7}$ | 16.1 | 0.15 | 20100104 | 277.57341 | 19.32208 | 141.14315 | 1.52284 | 0.1159933 | 3.1439590 | 54 | 5 | 2003–2009 | 0.35 | M-v | 1 | MPC | 166258 | 2006 $FS_{7}$ |
| 2006 $FB_{9}$ | 16.3 | 0.15 | 20100104 | 240.29042 | 116.86867 | 105.25250 | 1.98181 | 0.2283184 | 3.0682088 | 46 | 4 | 1995–2009 | 0.45 | M-v | 2 | MPC | 111165 | 2006 $FB_{9}$ |
| 2006 $FC_{12}$ | 16.6 | 0.15 | 20100104 | 178.63004 | 211.77388 | 47.23518 | 3.74802 | 0.0750276 | 3.1562388 | 28 | 5 | 2001–2009 | 0.45 | M-v | 1 | MPC | 166258 | 2006 $FC_{12}$ |
| 2006 $FF_{15}$ | 15.0 | 0.15 | 20100104 | 267.52861 | 117.65562 | 51.88573 | 9.89927 | 0.0199393 | 3.0267551 | 53 | 5 | 1996–2009 | 0.55 | M-v | 1 | MPC | 166258 | 2006 $FF_{15}$ |
| 2006 $FV_{15}$ | 16.2 | 0.15 | 20100104 | 10.85571 | 275.39164 | 185.46816 | 3.30659 | 0.0539895 | 2.7758158 | 64 | 6 | 2001–2009 | 0.32 | M-v | 0 | MPC | 148999 | 2006 $FV_{15}$ |
| 2006 $FN_{18}$ | 16.6 | 0.15 | 20100104 | 157.85410 | 137.13246 | 165.79939 | 3.02976 | 0.0101061 | 3.0400451 | 42 | 5 | 1997–2009 | 0.38 | M-v | 0 | MPC | 146451 | 2006 $FN_{18}$ |
| 2006 $FP_{20}$ | 15.9 | 0.15 | 20100104 | 244.94579 | 81.81676 | 131.65332 | 1.95174 | 0.1432146 | 3.0639633 | 36 | 3 | 2005–2009 | 0.41 | M-v | 2 | MPC | 155220 | 2006 $FP_{20}$ |
| 2006 $FJ_{26}$ | 16.6 | 0.15 | 20100104 | 26.16234 | 291.86609 | 191.41088 | 7.77055 | 0.1052137 | 2.6042972 | 48 | 6 | 1997–2009 | 0.33 | M-v | 0 | MPC | 151031 | 2006 $FJ_{26}$ |
| 2006 $FW_{29}$ | 16.0 | 0.15 | 20100104 | 199.29151 | 286.59541 | 38.29413 | 6.65187 | 0.0764173 | 2.6964459 | 69 | 4 | 2003–2009 | 0.47 | M-v | 1 | MPC | 159772 | 2006 $FW_{29}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 $FM_{31}$ | 16.4 | 0.15 | 20100104 | 105.46813 | 181.22829 | 164.17140 | 2.19407 | 0.1064057 | 3.0151774 | 51 | 6 | 1998–2009 | 0.30 | M-v | 1 | MPC | 149000 | 2006 $FM_{31}$ |
| 2006 $FM_{34}$ | 16.6 | 0.15 | 20100104 | 311.23480 | 215.40672 | 9.20367 | 9.64946 | 0.1535855 | 2.5825066 | 45 | 4 | 2003–2009 | 0.51 | M-v | 1 | MPC | 124486 | 2006 $FM_{34}$ |
| 2006 $FD_{35}$ | 15.3 | 0.15 | 20100104 | 212.96092 | 189.13012 | 32.41412 | 7.85866 | 0.1396148 | 3.1560204 | 50 | 5 | 2002–2009 | 0.46 | M-v | 1 | MPC | 166258 | 2006 $FD_{35}$ |
| 2006 $FG_{35}$ | 15.0 | 0.15 | 20100104 | 220.55747 | 126.22404 | 94.26489 | 4.69724 | 0.1921728 | 3.1424471 | 76 | 4 | 1995–2009 | 0.59 | M-v | 1 | MPC | 166258 | 2006 $FG_{35}$ |
| 2006 $FP_{36}$ | 16.4 | 0.15 | 20100104 | 305.54153 | 75.86619 | 125.01549 | 11.16448 | 0.1642015 | 2.6309902 | 36 | 4 | 2002–2009 | 0.52 | M-v | 2 | MPC | 152450 | 2006 $FP_{36}$ |
| 2006 $FA_{37}$ | 15.7 | 0.15 | 20100104 | 342.47437 | 67.23556 | 89.06958 | 14.19551 | 0.2075813 | 2.6636905 | 63 | 4 | 2000–2009 | 0.61 | M-v | 1 | MPC | 162483 | 2006 $FA_{37}$ |
| 2006 $FE_{38}$ | 15.7 | 0.15 | 20100104 | 128.35983 | 299.02086 | 21.05982 | 9.72868 | 0.1201867 | 3.0705429 | 73 | 6 | 1992–2009 | 0.45 | M-v | 0 | MPC | 147402 | 2006 $FE_{38}$ |
| 2006 $FF_{38}$ | 15.9 | 0.15 | 20100104 | 219.33828 | 122.49097 | 99.90341 | 2.94417 | 0.1170730 | 3.1047095 | 54 | 5 | 2002–2009 | 0.38 | M-v | 1 | MPC | 166258 | 2006 $FF_{38}$ |
| 2006 $FH_{39}$ | 16.0 | 0.15 | 20100104 | 171.70741 | 100.36391 | 198.17878 | 3.65520 | 0.0839788 | 2.7727108 | 64 | 4 | 2003–2009 | 0.44 | M-v | 2 | MPC | 158527 | 2006 $FH_{39}$ |
| 2006 $FP_{39}$ | 16.3 | 0.15 | 20100104 | 202.25090 | 265.49118 | 3.53822 | 3.51289 | 0.0578912 | 2.7754854 | 79 | 7 | 1997–2009 | 0.43 | M-v | 0 | MPC | 147402 | 2006 $FP_{39}$ |
| 2006 $FD_{43}$ | 16.7 | 0.15 | 20100104 | 89.61658 | 224.49355 | 151.93142 | 4.49672 | 0.0426361 | 2.7584305 | 41 | 4 | 2003–2009 | 0.40 | M-v | 2 | MPC | 160457 | 2006 $FD_{43}$ |
| 2006 $FQ_{43}$ | 15.0 | 0.15 | 20100104 | 11.12997 | 54.23492 | 9.57211 | 11.99479 | 0.0360241 | 2.9528570 | 22 | 3 | 2003–2009 | 0.57 | M-v | 3 | MPC | 128246 | 2006 $FQ_{43}$ |
| 2006 $FM_{47}$ | 15.0 | 0.15 | 20100104 | 345.07418 | 351.59125 | 98.12414 | 11.25222 | 0.0947302 | 2.9706779 | 42 | 2 | 2006–2009 | 0.48 | M-v | 4 | MPC | 165522 | 2006 $FM_{47}$ |
| 2006 $FF_{48}$ | 15.7 | 0.15 | 20100104 | 316.05294 | 76.26340 | 39.22535 | 11.45015 | 0.0810418 | 2.9712180 | 49 | 4 | 1996–2009 | 0.58 | M-v | 1 | MPC | 166258 | 2006 $FF_{48}$ |
| 2006 $FJ_{53}$ | 16.0 | 0.15 | 20100104 | 267.75033 | 140.50826 | 38.39017 | 5.54462 | 0.0992849 | 3.1480601 | 54 | 6 | 2000–2009 | 0.38 | M-v | 0 | MPC | 166259 | 2006 $FJ_{53}$ |
| 2006 $FB_{55}$ | 16.4 | 0.15 | 20100104 | 117.77786 | 175.81864 | 170.70171 | 5.24527 | 0.0723227 | 2.7993233 | 34 | 4 | 2003–2009 | 0.42 | M-v | 2 | MPC | 157435 | 2006 $FB_{55}$ |
| 2006 GW | 15.6 | 0.15 | 20100104 | 256.98471 | 192.35429 | 351.90814 | 10.37834 | 0.0481915 | 3.0365154 | 68 | 3 | 2006–2009 | 0.41 | M-v | 2 | MPC | 166259 | 2006 GW |
| 2006 $GP_2$ | 15.7 | 0.15 | 20100104 | 353.51587 | 61.94582 | 87.94568 | 31.08051 | 0.2936962 | 2.6233838 | 68 | 4 | 2000–2009 | 0.68 | M-v | 1 | MPC | 166259 | 2006 $GP_2$ |
| 2006 $GH_8$ | 15.5 | 0.15 | 20100104 | 354.88984 | 294.34165 | 146.52656 | 6.50146 | 0.1790041 | 2.9875586 | 60 | 3 | 2005–2009 | 0.50 | M-v | 2 | MPC | 165523 | 2006 $GH_8$ |
| 2006 $GR_{11}$ | 15.7 | 0.15 | 20100104 | 336.20307 | 85.07178 | 38.03913 | 10.88827 | 0.0458594 | 2.9623027 | 50 | 6 | 2001–2009 | 0.39 | M-v | 0 | MPC | 147403 | 2006 $GR_{11}$ |
| 2006 $GC_{17}$ | 15.9 | 0.15 | 20100104 | 68.48780 | 332.36846 | 48.31027 | 7.95181 | 0.1098022 | 3.1056359 | 33 | 5 | 2001–2009 | 0.49 | M-v | 1 | MPC | 147403 | 2006 $GC_{17}$ |
| 2006 $GR_{18}$ | 16.5 | 0.15 | 20100104 | 277.37122 | 101.70562 | 97.49268 | 3.10980 | 0.0287716 | 2.9094473 | 37 | 4 | 2006–2009 | 0.35 | M-v | 1 | MPC | 166259 | 2006 $GR_{18}$ |
| 2006 $GG_{20}$ | 18.6 | 0.15 | 20100104 | 333.37651 | 124.84966 | 172.00872 | 5.38179 | 0.0407946 | 2.1734960 | 28 | 3 | 2006–2009 | 0.38 | M-v | 2 | MPC | 128247 | 2006 $GG_{20}$ |
| 2006 $GE_{23}$ | 15.7 | 0.15 | 20100104 | 51.95862 | 302.98221 | 104.92242 | 3.15662 | 0.0665183 | 3.0459756 | 51 | 4 | 2002–2009 | 0.37 | M-v | 0 | MPC | 149001 | 2006 $GE_{23}$ |
| 2006 $GT_{39}$ | 14.6 | 0.15 | 20100104 | 262.50005 | 103.66749 | 58.82423 | 18.27683 | 0.0946765 | 3.1781101 | 66 | 4 | 2003–2009 | 0.64 | M-v | 1 | MPC | 166259 | 2006 $GT_{39}$ |
| 2006 $GZ_{40}$ | 14.5 | 0.15 | 20100104 | 313.50462 | 59.47486 | 46.90128 | 23.11597 | 0.1576317 | 3.1250737 | 61 | 3 | 1998–2009 | 0.61 | M-v | 1 | MPC | 166259 | 2006 $GZ_{40}$ |
| 2006 $GK_{41}$ | 15.1 | 0.15 | 20100104 | 276.12991 | 338.66472 | 200.97335 | 10.41553 | 0.1184173 | 3.0208772 | 74 | 5 | 2001–2009 | 0.46 | M-v | 1 | MPC | 147404 | 2006 $GK_{41}$ |
| 2006 $GY_{41}$ | 15.7 | 0.15 | 20100104 | 351.63654 | 69.54001 | 65.08568 | 12.15060 | 0.2294466 | 2.6786286 | 53 | 5 | 1991–2009 | 0.58 | M-v | 1 | MPC | 166259 | 2006 $GY_{41}$ |
| 2006 $GT_{42}$ | 14.9 | 0.15 | 20100104 | 261.22684 | 305.68294 | 203.91611 | 23.16344 | 0.2079929 | 3.1782684 | 61 | 5 | 2000–2009 | 0.52 | M-v | 1 | MPC | 166259 | 2006 $GT_{42}$ |
| 2006 $GJ_{47}$ | 15.9 | 0.15 | 20100104 | 324.60415 | 106.01245 | 51.62754 | 8.43687 | 0.1654222 | 2.7856237 | 57 | 4 | 2004–2009 | 0.55 | M-v | 1 | MPC | 147405 | 2006 $GJ_{47}$ |
| 2006 $GW_{48}$ | 15.5 | 0.15 | 20100104 | 302.47557 | 301.61089 | 214.63235 | 15.71082 | 0.1277381 | 3.0129483 | 48 | 6 | 1998–2009 | 0.54 | M-v | 0 | MPC | 166259 | 2006 $GW_{48}$ |
| 2006 $GF_{49}$ | 15.0 | 0.15 | 20100104 | 13.74147 | 326.55796 | 119.27555 | 14.40887 | 0.1288993 | 2.8704631 | 32 | 5 | 2001–2009 | 0.55 | M-v | 1 | MPC | 101604 | 2006 $GF_{49}$ |
| 2006 $GH_{49}$ | 14.8 | 0.15 | 20100104 | 170.38252 | 195.70004 | 72.60564 | 21.61649 | 0.0582293 | 3.2394362 | 56 | 5 | 2000–2009 | 0.50 | M-v | 1 | MPC | 166259 | 2006 $GH_{49}$ |
| 2006 $GO_{50}$ | 16.5 | 0.15 | 20100104 | 308.45647 | 248.87200 | 346.46925 | 7.01314 | 0.2621164 | 2.5811545 | 41 | 4 | 2003–2009 | 0.44 | M-v | 1 | MPC | 126759 | 2006 $GO_{50}$ |
| 2006 $GJ_{51}$ | 16.1 | 0.15 | 20100104 | 307.51498 | 258.17700 | 337.33912 | 6.37376 | 0.2062590 | 2.5399162 | 41 | 5 | 2002–2009 | 0.47 | M-v | 2 | MPC | 126759 | 2006 $GJ_{51}$ |
| 2006 $GA_{54}$ | 15.9 | 0.15 | 20100104 | 198.18182 | 178.55785 | 91.00894 | 3.71184 | 0.0538885 | 3.1229603 | 51 | 5 | 2003–2009 | 0.35 | M-v | 0 | MPC | 147405 | 2006 $GA_{54}$ |
| 2006 HR | 16.8 | 0.15 | 20100104 | 310.07612 | 46.46950 | 119.89946 | 3.09158 | 0.0097621 | 2.8654089 | 46 | 5 | 2003–2009 | 0.29 | M-v | 0 | MPC | 159487 | 2006 HR |
| 2006 $HB_2$ | 15.2 | 0.15 | 20100104 | 233.40763 | 140.31547 | 57.98968 | 16.21780 | 0.1253275 | 3.1724764 | 45 | 3 | 2003–2009 | 0.54 | M-v | 3 | MPC | 166259 | 2006 $HB_2$ |
| 2006 $HK_4$ | 16.4 | 0.15 | 20100104 | 321.89074 | 340.88476 | 175.90153 | 3.46177 | 0.1314492 | 2.7409616 | 44 | 6 | 1995–2009 | 0.47 | M-v | 1 | MPC | 147405 | 2006 $HK_4$ |
| 2006 $HQ_7$ | 15.3 | 0.15 | 20100104 | 279.87814 | 85.53092 | 128.45837 | 8.09300 | 0.0999282 | 2.7936278 | 54 | 6 | 2001–2009 | 0.60 | M-v | 1 | MPC | 160863 | 2006 $HQ_7$ |
| 2006 $HB_{12}$ | 16.1 | 0.15 | 20100104 | 163.38861 | 206.60956 | 78.46874 | 8.78680 | 0.0126156 | 3.2121888 | 38 | 3 | 2003–2009 | 0.27 | M-v | 3 | MPC | 101624 | 2006 $HB_{12}$ |
| 2006 $HG_{12}$ | 15.7 | 0.15 | 20100104 | 15.57146 | 7.41481 | 68.32641 | 11.25169 | 0.0703889 | 3.1256362 | 42 | 5 | 1993–2009 | 0.40 | M-v | 0 | MPC | 166259 | 2006 $HG_{12}$ |
| 2006 $HJ_{16}$ | 16.7 | 0.15 | 20100104 | 351.80565 | 280.47759 | 174.71753 | 5.54495 | 0.1123103 | 3.0944523 | 37 | 5 | 2003–2009 | 0.30 | M-v | 0 | MPC | 147406 | 2006 $HJ_{16}$ |
| 2006 $HM_{17}$ | 14.9 | 0.15 | 20100104 | 326.30510 | 355.45935 | 128.14702 | 11.57820 | 0.0389646 | 2.9763994 | 48 | 7 | 2000–2009 | 0.64 | M-v | 1 | MPC | 147406 | 2006 $HM_{17}$ |
| 2006 $HF_{18}$ | 16.5 | 0.15 | 20100104 | 239.55989 | 99.38558 | 142.79364 | 4.52635 | 0.0480606 | 2.8114537 | 53 | 8 | 1995–2009 | 0.31 | M-v | 0 | MPC | 147406 | 2006 $HF_{18}$ |
| 2006 $HC_{19}$ | 15.8 | 0.15 | 20100104 | 262.88392 | 100.65519 | 73.24692 | 5.71773 | 0.1241126 | 3.1974045 | 46 | 4 | 2003–2009 | 0.38 | M-v | 0 | MPC | 166260 | 2006 $HC_{19}$ |
| 2006 $HH_{20}$ | 16.0 | 0.15 | 20100104 | 356.08972 | 238.81625 | 209.05252 | 2.87202 | 0.1616341 | 2.9796533 | 53 | 6 | 1998–2009 | 0.44 | M-v | 0 | MPC | 165523 | 2006 $HH_{20}$ |
| 2006 $HB_{21}$ | 15.6 | 0.15 | 20100104 | 303.19254 | 52.21419 | 78.62694 | 5.15025 | 0.0881681 | 3.2133745 | 49 | 5 | 2000–2009 | 0.34 | M-v | 0 | MPC | 166260 | 2006 $HB_{21}$ |
| 2006 $HL_{21}$ | 16.7 | 0.15 | 20100104 | 292.51342 | 21.52218 | 140.98897 | 4.03681 | 0.0826316 | 3.0616335 | 24 | 4 | 2000–2009 | 0.23 | M-v | 0 | MPC | 158528 | 2006 $HL_{21}$ |
| 2006 $HD_{22}$ | 15.7 | 0.15 | 20100104 | 295.93326 | 35.06172 | 127.32904 | 3.59118 | 0.1436190 | 3.0052113 | 54 | 6 | 2000–2009 | 0.42 | M-v | 0 | MPC | 149003 | 2006 $HD_{22}$ |
| 2006 $HA_{23}$ | 16.7 | 0.15 | 20100104 | 352.82414 | 329.32471 | 149.39559 | 2.80800 | 0.0680117 | 2.9197585 | 49 | 5 | 2003–2009 | 0.31 | M-v | 0 | MPC | 147406 | 2006 $HA_{23}$ |
| 2006 $HK_{24}$ | 16.8 | 0.15 | 20100104 | 284.49885 | 141.85864 | 89.06082 | 3.62732 | 0.1621603 | 2.7628372 | 40 | 7 | 1996–2009 | 0.34 | M-v | 0 | MPC | 149003 | 2006 $HK_{24}$ |
| 2006 $HR_{27}$ | 15.9 | 0.15 | 20100104 | 18.48775 | 314.52667 | 133.24509 | 8.41773 | 0.1657759 | 3.0829359 | 33 | 4 | 2003–2009 | 0.52 | M-v | 1 | MPC | 101641 | 2006 $HR_{27}$ |

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| 2006 $HD_{29}$ | 15.4 | 0.15 | 20100104 | 252.51725 | 166.14489 | 52.25189 | 13.98240 | 0.1319459 | 3.0539717 | 56 | 4 | 2003–2009 | 0.47 | M-v | 1 | MPC | 147406 | 2006 $HD_{29}$ |
| 2006 $HY_{36}$ | 15.8 | 0.15 | 20100104 | 312.48846 | 261.85263 | 201.16290 | 11.04744 | 0.2196628 | 3.0499724 | 53 | 4 | 2001–2009 | 0.40 | M-v | 0 | MPC | 166260 | 2006 $HY_{36}$ |
| 2006 $HP_{40}$ | 16.1 | 0.15 | 20100104 | 207.89046 | 246.58456 | 17.77830 | 1.03988 | 0.0474732 | 2.9963825 | 63 | 5 | 2001–2009 | 0.42 | M-v | 0 | MPC | 151034 | 2006 $HP_{40}$ |
| 2006 $HK_{42}$ | 15.4 | 0.15 | 20100104 | 221.06573 | 124.62584 | 99.97568 | 13.89275 | 0.1814136 | 3.1555330 | 37 | 3 | 2004–2009 | 0.58 | M-v | 3 | MPC | 165524 | 2006 $HK_{42}$ |
| 2006 $HU_{44}$ | 16.2 | 0.15 | 20100104 | 170.15425 | 247.29332 | 53.36662 | 2.64533 | 0.0480458 | 2.9140355 | 46 | 4 | 2003–2009 | 0.29 | M-v | 0 | MPC | 150007 | 2006 $HU_{44}$ |
| 2006 $HK_{47}$ | 15.1 | 0.15 | 20100104 | 357.04172 | 48.80433 | 47.49660 | 15.06228 | 0.0652010 | 3.0580055 | 55 | 4 | 2003–2009 | 0.54 | M-v | 1 | MPC | 166260 | 2006 $HK_{47}$ |
| 2006 $HS_{55}$ | 15.9 | 0.15 | 20100104 | 246.27160 | 140.69541 | 64.68413 | 18.06150 | 0.1821155 | 3.1351920 | 30 | 2 | 2006–2009 | 0.42 | M-v | 3 | MPC | 165524 | 2006 $HS_{55}$ |
| 2006 $HX_{59}$ | 15.5 | 0.15 | 20100104 | 277.73278 | 113.10594 | 71.69037 | 16.84399 | 0.1479310 | 3.0590469 | 45 | 4 | 1998–2009 | 0.52 | M-v | 1 | MPC | 166260 | 2006 $HX_{59}$ |
| 2006 $HB_{61}$ | 15.3 | 0.15 | 20100104 | 233.92416 | 105.24856 | 130.27322 | 8.28204 | 0.1210724 | 3.1377108 | 52 | 6 | 2000–2009 | 0.48 | M-v | 1 | MPC | 147408 | 2006 $HB_{61}$ |
| 2006 $HH_{61}$ | 15.6 | 0.15 | 20100104 | 306.79488 | 85.94912 | 27.61261 | 15.29427 | 0.1720452 | 3.1476572 | 51 | 3 | 2004–2009 | 0.49 | M-v | 2 | MPC | 166260 | 2006 $HH_{61}$ |
| 2006 $HA_{62}$ | 16.8 | 0.15 | 20100104 | 355.66179 | 8.42064 | 96.90138 | 4.84151 | 0.0873322 | 2.9878216 | 30 | 4 | 2003–2009 | 0.29 | M-v | 0 | MPC | 103901 | 2006 $HA_{62}$ |
| 2006 $HN_{65}$ | 16.2 | 0.15 | 20100104 | 61.17787 | 249.44078 | 200.07158 | 4.04165 | 0.0583825 | 2.7654230 | 52 | 6 | 1998–2009 | 0.38 | M-v | 0 | MPC | 152454 | 2006 $HN_{65}$ |
| 2006 $HO_{71}$ | 15.8 | 0.15 | 20100104 | 253.57636 | 109.23304 | 121.90689 | 5.98395 | 0.1046407 | 2.9862686 | 47 | 5 | 2003–2009 | 0.43 | M-v | 0 | MPC | 166260 | 2006 $HO_{71}$ |
| 2006 $HJ_{72}$ | 15.4 | 0.15 | 20100104 | 60.33284 | 275.99581 | 126.68737 | 6.51829 | 0.1317072 | 3.2121488 | 49 | 3 | 2006–2009 | 0.44 | M-v | 2 | MPC | 158528 | 2006 $HJ_{72}$ |
| 2006 $HM_{74}$ | 16.2 | 0.15 | 20100104 | 294.66114 | 99.50274 | 67.68280 | 10.77904 | 0.1687848 | 3.0289414 | 31 | 4 | 2003–2009 | 0.49 | M-v | 0 | MPC | 166260 | 2006 $HM_{74}$ |
| 2006 $HB_{84}$ | 15.7 | 0.15 | 20100104 | 64.26812 | 318.62620 | 90.83524 | 8.58288 | 0.0159587 | 3.1356567 | 33 | 6 | 2000–2009 | 0.36 | M-v | 0 | MPC | 166260 | 2006 $HB_{84}$ |
| 2006 $HJ_{84}$ | 16.4 | 0.15 | 20100104 | 321.88591 | 29.32416 | 125.80347 | 3.88487 | 0.0496146 | 3.0476146 | 42 | 5 | 2003–2009 | 0.37 | M-v | 0 | MPC | 164296 | 2006 $HJ_{84}$ |
| 2006 $HS_{88}$ | 16.6 | 0.15 | 20100104 | 17.21366 | 335.81833 | 155.06230 | 5.27881 | 0.1688034 | 2.7283419 | 29 | 4 | 2001–2009 | 0.36 | M-v | 1 | MPC | 147409 | 2006 $HS_{88}$ |
| 2006 $HK_{93}$ | 15.8 | 0.15 | 20100104 | 331.59148 | 251.87962 | 212.84302 | 16.44763 | 0.2482250 | 3.1741203 | 62 | 3 | 2003–2009 | 0.51 | M-v | 2 | MPC | 166260 | 2006 $HK_{93}$ |
| 2006 $HS_{94}$ | 17.1 | 0.15 | 20100104 | 309.21678 | 59.47539 | 78.23811 | 1.17130 | 0.1419037 | 2.9796278 | 35 | 4 | 2001–2009 | 0.35 | M-v | 0 | MPC | 166260 | 2006 $HS_{94}$ |
| 2006 $HW_{94}$ | 16.7 | 0.15 | 20100104 | 28.62807 | 31.74913 | 44.02351 | 2.75109 | 0.0940627 | 2.8868417 | 48 | 6 | 2001–2009 | 0.43 | M-v | 0 | MPC | 149005 | 2006 $HW_{94}$ |
| 2006 $HY_{94}$ | 16.1 | 0.15 | 20100104 | 67.71447 | 226.30580 | 196.21781 | 7.26155 | 0.0558715 | 2.7510220 | 62 | 4 | 2003–2009 | 0.41 | M-v | 1 | MPC | 151035 | 2006 $HY_{94}$ |
| 2006 $HT_{102}$ | 15.5 | 0.15 | 20100104 | 290.53041 | 315.59254 | 215.40539 | 11.21928 | 0.1777917 | 3.0786712 | 42 | 4 | 2006–2009 | 0.27 | M-v | 1 | MPC | 166260 | 2006 $HT_{102}$ |
| 2006 $HR_{104}$ | 15.8 | 0.15 | 20100104 | 274.50986 | 116.26052 | 90.55133 | 16.45254 | 0.1554261 | 2.8896386 | 43 | 4 | 2001–2009 | 0.62 | M-v | 2 | MPC | 104374 | 2006 $HR_{104}$ |
| 2006 $HP_{105}$ | 15.3 | 0.15 | 20100104 | 290.15831 | 65.94412 | 104.41397 | 17.97639 | 0.1799758 | 3.0513888 | 47 | 3 | 2004–2009 | 0.51 | M-v | 1 | MPC | 166260 | 2006 $HP_{105}$ |
| 2006 $HQ_{106}$ | 16.1 | 0.15 | 20100104 | 22.89564 | 346.31541 | 121.08534 | 5.30443 | 0.1678320 | 2.7650409 | 41 | 5 | 2001–2009 | 0.50 | M-v | 1 | MPC | 147409 | 2006 $HQ_{106}$ |
| 2006 $HV_{106}$ | 17.7 | 0.15 | 20100104 | 30.21063 | 67.95898 | 111.37792 | 5.06707 | 0.1893436 | 2.3763299 | 30 | 3 | 2002–2008 | 0.37 | M-v | 2 | MPC | 101721 | 2006 $HV_{106}$ |
| 2006 $HD_{107}$ | 15.2 | 0.15 | 20100104 | 326.98819 | 69.36546 | 73.64562 | 12.04309 | 0.0552708 | 2.9990644 | 39 | 6 | 2001–2009 | 0.57 | M-v | 0 | MPC | 121857 | 2006 $HD_{107}$ |
| 2006 $HA_{108}$ | 16.4 | 0.15 | 20100104 | 177.49262 | 213.87908 | 76.37821 | 7.71843 | 0.0769306 | 3.1395906 | 34 | 3 | 2006–2009 | 0.46 | M-v | 2 | MPC | 152455 | 2006 $HA_{108}$ |
| 2006 $HW_{114}$ | 15.8 | 0.15 | 20100104 | 306.71601 | 84.34336 | 40.88310 | 11.96693 | 0.1492455 | 3.1218379 | 50 | 3 | 2003–2009 | 0.31 | M-v | 1 | MPC | 166260 | 2006 $HW_{114}$ |
| 2006 $HF_{137}$ | 16.6 | 0.15 | 20100104 | 348.91883 | 15.07034 | 82.85571 | 2.30126 | 0.1557753 | 3.0455943 | 44 | 5 | 2000–2009 | 0.27 | M-v | 0 | MPC | 166261 | 2006 $HF_{137}$ |
| 2006 $JJ_{2}$ | 16.4 | 0.15 | 20100104 | 268.69616 | 114.44158 | 93.09556 | 7.98682 | 0.1157907 | 3.0525426 | 32 | 4 | 2005–2009 | 0.38 | M-v | 1 | MPC | 147410 | 2006 $JJ_{2}$ |
| 2006 $JB_{6}$ | 16.1 | 0.15 | 20100104 | 116.95478 | 208.11096 | 199.76457 | 6.20294 | 0.0141143 | 2.7151551 | 63 | 6 | 2003–2009 | 0.53 | M-v | 1 | MPC | 151036 | 2006 $JB_{6}$ |
| 2006 $JB_{7}$ | 15.5 | 0.15 | 20100104 | 157.22693 | 229.96042 | 72.31342 | 5.25353 | 0.0736607 | 3.2465060 | 49 | 5 | 2001–2009 | 0.50 | M-v | 0 | MPC | 152455 | 2006 $JB_{7}$ |
| 2006 $JT_{7}$ | 16.3 | 0.15 | 20100104 | 343.92981 | 302.65657 | 215.53412 | 6.96744 | 0.1562161 | 2.7472954 | 56 | 4 | 1999–2009 | 0.31 | M-v | 0 | MPC | 149006 | 2006 $JT_{7}$ |
| 2006 $JD_{10}$ | 16.5 | 0.15 | 20100104 | 309.90208 | 97.88809 | 45.47746 | 3.94337 | 0.1692982 | 3.1035429 | 29 | 3 | 2005–2009 | 0.22 | M-v | 3 | MPC | 165525 | 2006 $JD_{10}$ |
| 2006 $JU_{11}$ | 15.2 | 0.15 | 20100104 | 166.83076 | 229.79276 | 84.50328 | 11.86349 | 0.0751464 | 3.1127203 | 33 | 3 | 2006–2009 | 0.23 | M-v | 1 | MPC | 155230 | 2006 $JU_{11}$ |
| 2006 $JW_{12}$ | 15.8 | 0.15 | 20100104 | 170.04940 | 214.66718 | 91.27711 | 10.48016 | 0.0668152 | 3.1681529 | 36 | 5 | 2000–2009 | 0.35 | M-v | 0 | MPC | 166261 | 2006 $JW_{12}$ |
| 2006 $JL_{15}$ | 16.2 | 0.15 | 20100104 | 319.05944 | 78.21877 | 46.76232 | 7.01386 | 0.1486777 | 3.0577280 | 36 | 2 | 2006–2009 | 0.33 | M-v | 3 | MPC | 165525 | 2006 $JL_{15}$ |
| 2006 $JM_{16}$ | 15.4 | 0.15 | 20100104 | 328.13061 | 55.39969 | 70.67803 | 7.43021 | 0.1253142 | 3.1054459 | 39 | 3 | 2005–2009 | 0.60 | M-v | 3 | MPC | 165525 | 2006 $JM_{16}$ |
| 2006 $JW_{21}$ | 15.6 | 0.15 | 20100104 | 134.97956 | 234.16812 | 103.33512 | 10.02685 | 0.0712908 | 3.1774904 | 28 | 5 | 2000–2009 | 0.35 | M-v | 1 | MPC | 149007 | 2006 $JW_{21}$ |
| 2006 $JA_{36}$ | 16.5 | 0.15 | 20100104 | 284.54001 | 93.19489 | 97.29899 | 4.77033 | 0.1081663 | 3.0314293 | 36 | 7 | 1995–2009 | 0.32 | M-v | 0 | MPC | 154162 | 2006 $JA_{36}$ |
| 2006 $JB_{36}$ | 15.7 | 0.15 | 20100104 | 269.69105 | 108.75725 | 73.17848 | 11.01557 | 0.0884263 | 3.2434355 | 41 | 5 | 1997–2009 | 0.38 | M-v | 0 | MPC | 166261 | 2006 $JB_{36}$ |
| 2006 $JL_{44}$ | 15.4 | 0.15 | 20100104 | 249.53404 | 140.02956 | 63.28902 | 14.32274 | 0.1153698 | 3.2152654 | 40 | 5 | 2000–2009 | 0.42 | M-v | 1 | MPC | 166261 | 2006 $JL_{44}$ |
| 2006 $JW_{44}$ | 16.2 | 0.15 | 20100104 | 179.38371 | 233.84453 | 128.95950 | 3.41220 | 0.0181177 | 2.5679136 | 62 | 7 | 2001–2009 | 0.42 | M-v | 0 | MPC | 151037 | 2006 $JW_{44}$ |
| 2006 $JA_{46}$ | 16.1 | 0.15 | 20100104 | 322.98123 | 162.98971 | 45.08393 | 7.34458 | 0.1437818 | 2.6608866 | 48 | 6 | 1999–2009 | 0.34 | M-v | 0 | MPC | 149008 | 2006 $JA_{46}$ |
| 2006 $JJ_{47}$ | 14.8 | 0.15 | 20100104 | 246.48790 | 335.65587 | 236.55870 | 16.19264 | 0.0888349 | 3.1890888 | 61 | 5 | 2000–2009 | 0.33 | M-v | 1 | MPC | 164296 | 2006 $JJ_{47}$ |
| 2006 $JM_{47}$ | 15.1 | 0.15 | 20100104 | 316.34398 | 88.79651 | 78.14910 | 13.69630 | 0.0848197 | 2.9647578 | 46 | 5 | 1993–2009 | 0.47 | M-v | 0 | MPC | 162483 | 2006 $JM_{47}$ |
| 2006 $JJ_{48}$ | 15.4 | 0.15 | 20100104 | 276.16277 | 112.86462 | 70.75860 | 17.05028 | 0.1956204 | 3.0983893 | 39 | 2 | 2006–2009 | 0.36 | M-v | 3 | MPC | 165526 | 2006 $JJ_{48}$ |
| 2006 $JG_{50}$ | 16.6 | 0.15 | 20100104 | 319.95577 | 292.33172 | 226.60745 | 3.60426 | 0.0433317 | 2.9427738 | 33 | 6 | 1998–2009 | 0.44 | M-v | 1 | MPC | 150014 | 2006 $JG_{50}$ |
| 2006 $JJ_{50}$ | 16.6 | 0.15 | 20100104 | 263.06010 | 242.70907 | 314.69870 | 0.36068 | 0.1512242 | 3.0752103 | 27 | 5 | 2000–2009 | 0.35 | M-v | 1 | MPC | 158529 | 2006 $JJ_{50}$ |
| 2006 $JK_{51}$ | 15.0 | 0.15 | 20100104 | 14.07484 | 302.30889 | 118.77499 | 11.12817 | 0.0764344 | 3.4759337 | 27 | 5 | 2002–2009 | 0.55 | M-v | 0 | MPC | 126171 | 2006 $JK_{51}$ |
| 2006 $JJ_{54}$ | 15.0 | 0.15 | 20100104 | 258.78622 | 132.62407 | 65.64684 | 17.78710 | 0.1661826 | 3.1220743 | 45 | 5 | 1992–2009 | 0.40 | M-v | 1 | MPC | 165526 | 2006 $JJ_{54}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 $JD_{79}$ | 18.0 | 0.15 | 20100104 | 277.42714 | 116.51347 | 192.16034 | 1.10384 | 0.1932159 | 2.4269791 | 31 | 3 | 2003–2007 | 0.38 | M-v | 1 | MPC | 157053 | 2006 $JD_{79}$ |
| 2006 $KD_{2}$ | 16.2 | 0.15 | 20100104 | 270.08623 | 294.96322 | 316.47872 | 7.73643 | 0.1721203 | 2.7432409 | 38 | 7 | 2001–2009 | 0.42 | M-v | 0 | MPC | 149009 | 2006 $KD_{2}$ |
| 2006 $KW_{8}$ | 15.8 | 0.15 | 20100104 | 261.93977 | 172.97524 | 52.95986 | 5.85532 | 0.1144620 | 2.9886163 | 50 | 4 | 2006–2009 | 0.39 | M-v | 1 | MPC | 148603 | 2006 $KW_{8}$ |
| 2006 $KH_{14}$ | 15.4 | 0.15 | 20100104 | 229.99795 | 139.84590 | 81.00338 | 11.01124 | 0.0444111 | 3.1934704 | 30 | 3 | 2003–2009 | 0.37 | M-v | 3 | MPC | 166261 | 2006 $KH_{14}$ |
| 2006 $KT_{14}$ | 16.2 | 0.15 | 20100104 | 251.93416 | 49.34337 | 170.26496 | 1.51062 | 0.1242028 | 3.0967193 | 56 | 9 | 1995–2009 | 0.41 | M-v | 0 | MPC | 152457 | 2006 $KT_{14}$ |
| 2006 $KB_{17}$ | 14.9 | 0.15 | 20100104 | 27.35287 | 322.66775 | 119.90172 | 11.12321 | 0.0680497 | 3.1544244 | 61 | 4 | 2005–2009 | 0.54 | M-v | 0 | MPC | 147412 | 2006 $KB_{17}$ |
| 2006 $KR_{17}$ | 16.4 | 0.15 | 20100104 | 200.64673 | 136.00732 | 136.76888 | 10.14079 | 0.0503095 | 3.0384418 | 28 | 5 | 2000–2009 | 0.30 | M-v | 1 | MPC | 147412 | 2006 $KR_{17}$ |
| 2006 $KC_{18}$ | 16.3 | 0.15 | 20100104 | 310.88054 | 25.94749 | 120.33450 | 10.99028 | 0.1012578 | 3.0482373 | 34 | 4 | 2001–2009 | 0.33 | M-v | 0 | MPC | 101795 | 2006 $KC_{18}$ |
| 2006 $KO_{18}$ | 15.2 | 0.15 | 20100104 | 141.93981 | 218.70442 | 118.30841 | 11.01553 | 0.1144247 | 3.0659242 | 64 | 6 | 2001–2009 | 0.46 | M-v | 0 | MPC | 151038 | 2006 $KO_{18}$ |
| 2006 $KJ_{20}$ | 15.8 | 0.15 | 20100104 | 288.24953 | 120.49582 | 139.62992 | 13.11836 | 0.0649344 | 2.5908893 | 37 | 4 | 2002–2009 | 0.64 | M-v | 2 | MPC | 126173 | 2006 $KJ_{20}$ |
| 2006 $KH_{31}$ | 16.0 | 0.15 | 20100104 | 48.86909 | 162.53341 | 250.76392 | 3.11614 | 0.0528417 | 3.2022547 | 34 | 3 | 2006–2009 | 0.26 | M-v | 2 | MPC | 146485 | 2006 $KH_{31}$ |
| 2006 $KA_{37}$ | 16.2 | 0.15 | 20100104 | 279.32023 | 79.97861 | 104.20487 | 2.26978 | 0.1234344 | 3.1402442 | 47 | 7 | 2000–2009 | 0.40 | M-v | 0 | MPC | 147413 | 2006 $KA_{37}$ |
| 2006 $KZ_{37}$ | 19.1 | 0.15 | 20100104 | 96.80183 | 243.16553 | 95.72121 | 21.37026 | 0.2086988 | 1.2847126 | 149 | 3 | 1993–2009 | 0.43 | M-v | 1 | MPC | 166261 | 2006 $KZ_{37}$ |
| 2006 $KW_{43}$ | 16.6 | 0.15 | 20100104 | 341.41720 | 128.67864 | 59.96802 | 6.61555 | 0.2409949 | 2.6148057 | 37 | 3 | 2006–2009 | 0.28 | M-v | 2 | MPC | 148605 | 2006 $KW_{43}$ |
| 2006 $KY_{53}$ | 15.3 | 0.15 | 20100104 | 305.32147 | 276.79926 | 229.19493 | 14.77664 | 0.1986373 | 3.1684084 | 65 | 5 | 2000–2009 | 0.48 | M-v | 0 | MPC | 166261 | 2006 $KY_{53}$ |
| 2006 $KG_{57}$ | 15.8 | 0.15 | 20100104 | 266.97560 | 50.57456 | 141.07071 | 5.51832 | 0.1249050 | 3.1993370 | 56 | 6 | 1996–2009 | 0.37 | M-v | 0 | MPC | 166261 | 2006 $KG_{57}$ |
| 2006 $KG_{60}$ | 15.7 | 0.15 | 20100104 | 55.96786 | 317.81414 | 101.77186 | 11.56965 | 0.0808383 | 3.1567585 | 28 | 4 | 2004–2009 | 0.35 | M-v | 1 | MPC | 166261 | 2006 $KG_{60}$ |
| 2006 $KX_{63}$ | 15.5 | 0.15 | 20100104 | 336.77143 | 243.11768 | 213.96908 | 13.70914 | 0.2548036 | 3.1453932 | 89 | 5 | 2003–2009 | 0.46 | M-v | 0 | MPC | 166261 | 2006 $KX_{63}$ |
| 2006 $KM_{65}$ | 16.0 | 0.15 | 20100104 | 214.60424 | 242.28851 | 16.65268 | 4.23860 | 0.0615200 | 2.8163852 | 86 | 4 | 2003–2009 | 0.41 | M-v | 1 | MPC | 151039 | 2006 $KM_{65}$ |
| 2006 $KA_{73}$ | 16.2 | 0.15 | 20100104 | 347.75606 | 1.39293 | 122.38685 | 10.35129 | 0.0524022 | 3.1272185 | 35 | 5 | 1999–2009 | 0.24 | M-v | 0 | MPC | 147413 | 2006 $KA_{73}$ |
| 2006 $KN_{74}$ | 15.8 | 0.15 | 20100104 | 326.99074 | 37.64766 | 113.84179 | 11.93316 | 0.0454220 | 3.0944875 | 20 | 3 | 2006–2009 | 0.20 | M-v | 2 | MPC | 146488 | 2006 $KN_{74}$ |
| 2006 $KL_{79}$ | 16.0 | 0.15 | 20100104 | 352.08361 | 93.43972 | 43.39468 | 10.71347 | 0.1891994 | 2.7539307 | 38 | 4 | 2004–2009 | 0.42 | M-v | 0 | MPC | 147413 | 2006 $KL_{79}$ |
| 2006 $KR_{103}$ | 15.5 | 0.15 | 20100104 | 303.89826 | 74.92269 | 93.42808 | 10.59481 | 0.0484764 | 3.1679281 | 49 | 5 | 2003–2009 | 0.34 | M-v | 0 | MPC | 166261 | 2006 $KR_{103}$ |
| 2006 $KT_{109}$ | 16.0 | 0.15 | 20100104 | 2.08952 | 188.13743 | 252.10000 | 5.75685 | 0.1345579 | 3.2051677 | 47 | 5 | 1997–2009 | 0.26 | M-v | 0 | MPC | 166261 | 2006 $KT_{109}$ |
| 2006 $KM_{110}$ | 16.0 | 0.15 | 20100104 | 38.25337 | 126.83280 | 303.81995 | 2.76117 | 0.0525693 | 3.1175355 | 37 | 4 | 2005–2009 | 0.35 | M-v | 0 | MPC | 146491 | 2006 $KM_{110}$ |
| 2006 $KM_{115}$ | 15.4 | 0.15 | 20100104 | 217.61438 | 62.46567 | 206.26544 | 4.00977 | 0.1204952 | 3.0817993 | 66 | 4 | 2006–2009 | 0.32 | M-v | 0 | MPC | 152459 | 2006 $KM_{115}$ |
| 2006 $KR_{116}$ | 15.7 | 0.15 | 20100104 | 10.40054 | 336.03439 | 131.65207 | 4.14074 | 0.0541158 | 3.0668796 | 53 | 7 | 1995–2009 | 0.40 | M-v | 0 | MPC | 147414 | 2006 $KR_{116}$ |
| 2006 $KT_{117}$ | 16.1 | 0.15 | 20100104 | 193.76015 | 258.93987 | 25.11858 | 4.98514 | 0.1120238 | 3.1095551 | 37 | 5 | 2000–2009 | 0.32 | M-v | 0 | MPC | 149011 | 2006 $KT_{117}$ |
| 2006 $KT_{122}$ | 16.3 | 0.15 | 20100104 | 258.81722 | 83.55095 | 157.04013 | 5.32050 | 0.1429180 | 2.9174986 | 32 | 5 | 2002–2008 | 0.34 | M-v | 0 | MPC | 156046 | 2006 $KT_{122}$ |
| 2006 $KH_{133}$ | 17.1 | 0.15 | 20100104 | 327.58385 | 203.93010 | 64.89644 | 6.72096 | 0.0409526 | 2.4061097 | 38 | 4 | 2003–2009 | 0.52 | M-v | 1 | MPC | 157437 | 2006 $KH_{133}$ |
| 2006 $KD_{141}$ | 17.9 | 0.15 | 20100104 | 8.63190 | 303.33670 | 265.71966 | 0.44463 | 0.1308779 | 2.4382617 | 36 | 3 | 2002–2009 | 0.30 | M-v | 4 | MPC | 160465 | 2006 $KD_{141}$ |
| 2006 LN | 15.3 | 0.15 | 20100104 | 223.15061 | 341.41707 | 279.68835 | 10.12701 | 0.1870295 | 3.1156083 | 39 | 6 | 1979–2009 | 0.51 | M-v | 1 | MPC | 160465 | 2006 LN |
| 2006 $LU_{1}$ | 15.2 | 0.15 | 20100104 | 263.77515 | 320.51221 | 238.09352 | 24.06028 | 0.3328340 | 3.1300430 | 29 | 3 | 2006–2009 | 0.29 | M-v | 2 | MPC | 166261 | 2006 $LU_{1}$ |
| 2006 $MB_{15}$ | 16.7 | 0.15 | 20100104 | 79.58433 | 83.36753 | 283.01807 | 18.20766 | 0.1307525 | 1.8897457 | 64 | 4 | 2001–2009 | 0.55 | M-v | 2 | MPC | 111173 | 2006 $MB_{15}$ |
| 2006 $OU_{10}$ | 17.8 | 0.15 | 20100104 | 8.07637 | 173.38212 | 335.27704 | 33.71518 | 0.3500148 | 1.7542540 | 47 | 3 | 2006–2009 | 0.51 | M-v | 2 | MPC | 159489 | 2006 $OU_{10}$ |
| 2006 $OT_{17}$ | 15.3 | 0.15 | 20100104 | 183.21685 | 344.34641 | 18.14458 | 10.88959 | 0.0670718 | 3.0770437 | 77 | 8 | 1999–2009 | 0.54 | M-v | 0 | MPC | 158531 | 2006 $OT_{17}$ |
| 2006 $OW_{21}$ | 16.1 | 0.15 | 20060724 | 12.17747 | 263.68558 | 39.60130 | 14.20306 | 0.1682707 | 2.6612296 | 12 | 1 | 27 days | 0.60 | | | MPC | | 2006 $OW_{21}$ |
| 2006 $OX_{21}$ | 17.4 | 0.15 | 20060813 | 344.31177 | 269.93744 | 78.11003 | 5.86028 | 0.3347314 | 2.4724400 | 11 | 1 | 26 days | 0.34 | | | MPC | | 2006 $OX_{21}$ |
| 2006 $OY_{21}$ | 17.6 | 0.15 | 20100104 | 285.50182 | 38.84376 | 354.29459 | 13.13275 | 0.3321561 | 2.5460158 | 18 | 1 | 158 days | 0.52 | M-v | 4 | MPC | | 2006 $OY_{21}$ |
| 2006 $OA_{22}$ | 16.3 | 0.15 | 20100104 | 285.05127 | 187.83017 | 181.89116 | 14.04605 | 0.2745413 | 2.6465338 | 24 | 1 | 118 days | 0.54 | M-v | 4 | MPC | | 2006 $OA_{22}$ |
| 2006 $OB_{22}$ | 16.7 | 0.15 | 20100104 | 267.02872 | 179.37711 | 176.25445 | 14.24214 | 0.2026041 | 2.7896826 | 28 | 1 | 98 days | 0.56 | M-v | 4 | MPC | | 2006 $OB_{22}$ |
| 2006 $PA_{1}$ | 19.7 | 0.15 | 20100104 | 29.40876 | 85.49665 | 322.55152 | 2.43324 | 0.5499784 | 2.0341782 | 295 | 3 | 2006–2009 | 0.43 | M-v | 0 | MPC | 162484 | 2006 $PA_{1}$ |
| 2006 $PO_{20}$ | 17.1 | 0.15 | 20100104 | 1.72336 | 299.27969 | 130.10953 | 24.03966 | 0.0902504 | 1.8826789 | 41 | 7 | 2000–2009 | 0.51 | M-v | 1 | MPC | 166261 | 2006 $PO_{20}$ |
| 2006 $PR_{20}$ | 17.7 | 0.15 | 20100104 | 11.59430 | 257.23706 | 16.33222 | 0.72766 | 0.1910548 | 2.3244225 | 43 | 4 | 2002–2009 | 0.41 | M-v | 1 | MPC | 158531 | 2006 $PR_{20}$ |
| 2006 $PG_{22}$ | 16.8 | 0.15 | 20100104 | 334.80770 | 24.57676 | 306.90413 | 4.20904 | 0.2168408 | 2.3730046 | 98 | 5 | 1999–2009 | 0.46 | M-v | 1 | MPC | 160864 | 2006 $PG_{22}$ |
| 2006 $PQ_{25}$ | 15.4 | 0.15 | 20100104 | 236.60599 | 158.01595 | 141.16619 | 11.91675 | 0.0740619 | 3.2065651 | 39 | 7 | 1999–2009 | 0.54 | M-v | 0 | MPC | 157060 | 2006 $PQ_{25}$ |
| 2006 $PX_{43}$ | 15.8 | 0.15 | 20060902 | 5.96796 | 58.54960 | 276.67132 | 15.43168 | 0.2194068 | 3.1340371 | 13 | 1 | 45 days | 0.21 | | | MPC | | 2006 $PX_{43}$ |
| 2006 $QM_{8}$ | 16.2 | 0.15 | 20100104 | 278.40355 | 179.53164 | 152.91363 | 6.58522 | 0.0221755 | 2.6742464 | 48 | 5 | 1996–2009 | 0.50 | M-v | 1 | MPC | 111184 | 2006 $QM_{8}$ |
| 2006 $QK_{10}$ | 16.5 | 0.15 | 20100104 | 276.74258 | 241.73520 | 116.80141 | 14.42385 | 0.1937308 | 2.5772314 | 35 | 5 | 1997–2009 | 0.35 | M-v | 1 | MPC | 157439 | 2006 $QK_{10}$ |
| 2006 $QX_{14}$ | 16.4 | 0.15 | 20100104 | 288.09286 | 326.01191 | 320.92838 | 7.23649 | 0.1965557 | 2.7718490 | 36 | 3 | 2005–2009 | 0.39 | M-v | 3 | MPC | 109628 | 2006 $QX_{14}$ |
| 2006 $QF_{21}$ | 17.9 | 0.15 | 20100104 | 20.45241 | 108.42262 | 179.17844 | 3.21572 | 0.1642662 | 2.2876535 | 46 | 4 | 2002–2009 | 0.35 | M-v | 1 | MPC | 160467 | 2006 $QF_{21}$ |
| 2006 $QM_{23}$ | 17.0 | 0.15 | 20100104 | 244.41308 | 60.94492 | 316.85120 | 3.98128 | 0.1777507 | 2.7085636 | 102 | 5 | 1993–2008 | 0.45 | M-v | 1 | MPC | 133475 | 2006 $QM_{23}$ |
| 2006 $QE_{57}$ | 13.9 | 0.15 | 20100104 | 337.76027 | 49.06792 | 52.14444 | 5.23714 | 0.0693266 | 5.1664352 | 58 | 6 | 2001–2009 | 0.31 | M-v | 0 | MPC | 166262 | 2006 $QE_{57}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 $QL_{104}$ | 16.8 | 0.15 | 20100104 | 314.17218 | 75.88011 | 263.54131 | 1.33302 | 0.2313762 | 2.4127697 | 68 | 5 | 2003–2009 | 0.37 | M-v | 1 | MPC | 157442 | 2006 $QL_{104}$ |
| 2006 $QN_{106}$ | 17.0 | 0.15 | 20100104 | 282.76735 | 100.98006 | 224.74058 | 2.17148 | 0.1283799 | 2.6819249 | 38 | 4 | 2002–2009 | 0.48 | M-v | 1 | MPC | 160865 | 2006 $QN_{106}$ |
| 2006 $QG_{138}$ | 17.2 | 0.15 | 20100104 | 308.62201 | 227.63651 | 128.68184 | 3.80574 | 0.0988717 | 2.3890999 | 47 | 4 | 1995–2009 | 0.42 | M-v | 1 | MPC | 158534 | 2006 $QG_{138}$ |
| 2006 $QW_{142}$ | 17.1 | 0.15 | 20100104 | 86.88285 | 68.15442 | 273.60840 | 18.82606 | 0.0704380 | 1.9091164 | 37 | 4 | 2001–2009 | 0.58 | M-v | 2 | MPC | 166262 | 2006 $QW_{142}$ |
| 2006 $QR_{167}$ | 16.8 | 0.15 | 20100104 | 28.14390 | 341.98428 | 344.25191 | 7.89484 | 0.2019942 | 2.2235715 | 77 | 4 | 2005–2009 | 0.46 | M-v | 1 | MPC | 159774 | 2006 $QR_{167}$ |
| 2006 $QK_{187}$ | 17.4 | 0.15 | 20060902 | 347.30187 | 97.36102 | 262.22411 | 5.51858 | 0.1571753 | 2.3512456 | 12 | 1 | 53 days | 0.38 | | | MPC | | 2006 $QK_{187}$ |
| 2006 $QN_{187}$ | 17.2 | 0.15 | 20060902 | 18.72226 | 220.04036 | 103.18767 | 4.03889 | 0.2081650 | 2.3616108 | 12 | 1 | 33 days | 0.64 | | | MPC | | 2006 $QN_{187}$ |
| 2006 $QO_{187}$ | 14.8 | 0.15 | 20060902 | 16.46599 | 29.02539 | 291.80790 | 24.85518 | 0.1101197 | 3.1636803 | 12 | 1 | 22 days | 0.63 | | | MPC | | 2006 $QO_{187}$ |
| 2006 $QP_{187}$ | 17.9 | 0.15 | 20060902 | 4.06547 | 21.95791 | 315.05917 | 19.68048 | 0.0735094 | 1.8299995 | 12 | 1 | 22 days | 0.60 | | | MPC | | 2006 $QP_{187}$ |
| 2006 $QR_{187}$ | 17.4 | 0.15 | 20060922 | 4.75039 | 45.00789 | 308.15386 | 7.19494 | 0.3307684 | 2.6928278 | 17 | 1 | 56 days | 0.34 | | | MPC | | 2006 $QR_{187}$ |
| 2006 $QS_{187}$ | 15.4 | 0.15 | 20060902 | 318.38313 | 257.46926 | 136.46834 | 11.47967 | 0.0954621 | 3.0621339 | 11 | 1 | 27 days | 0.66 | | | MPC | | 2006 $QS_{187}$ |
| 2006 $RQ_{18}$ | 16.0 | 0.15 | 20100104 | 240.19131 | 118.79270 | 198.76914 | 15.93262 | 0.3021558 | 3.1630276 | 68 | 3 | 2000–2006 | 0.47 | M-v | 2 | MPC | 114781 | 2006 $RQ_{18}$ |
| 2006 $RT_{31}$ | 16.9 | 0.15 | 20100104 | 176.68680 | 27.43451 | 18.64345 | 1.67802 | 0.0885330 | 3.1685311 | 38 | 4 | 2000–2009 | 0.38 | M-v | 0 | MPC | 158536 | 2006 $RT_{31}$ |
| 2006 $RT_{41}$ | 17.4 | 0.15 | 20060922 | 343.86232 | 22.86522 | 5.48211 | 4.15033 | 0.0771492 | 2.7567456 | 50 | 1 | 29 days | 0.25 | | | MPC | | 2006 $RT_{41}$ |
| 2006 $RV_{41}$ | 17.2 | 0.15 | 20060922 | 24.00510 | 316.50071 | 8.70300 | 4.96302 | 0.2925073 | 3.1973265 | 90 | 1 | 47 days | 0.13 | | | MPC | | 2006 $RV_{41}$ |
| 2006 $RJ_{42}$ | 15.9 | 0.15 | 20100104 | 77.86868 | 135.34673 | 16.29216 | 5.51334 | 0.0917777 | 3.1581578 | 98 | 2 | 2006–2009 | 0.17 | M-v | 3 | MPC | 157069 | 2006 $RJ_{42}$ |
| 2006 $RM_{42}$ | 17.9 | 0.15 | 20100104 | 279.29930 | 38.20552 | 18.13736 | 2.17906 | 0.1036593 | 2.4008195 | 103 | 5 | 1995–2008 | 0.30 | M-v | 1 | MPC | 133482 | 2006 $RM_{42}$ |
| 2006 $RO_{42}$ | 16.7 | 0.15 | 20100104 | 207.46057 | 7.78821 | 12.93255 | 8.28773 | 0.0776914 | 3.1080168 | 80 | 1 | 62 days | 0.25 | M-v | 4 | MPC | 133482 | 2006 $RO_{42}$ |
| 2006 $RW_{44}$ | 17.7 | 0.15 | 20060922 | 314.71639 | 58.33417 | 17.72540 | 11.52554 | 0.1963732 | 2.6785228 | 17 | 1 | 30 days | 0.50 | | | MPC | | 2006 $RW_{44}$ |
| 2006 $RJ_{58}$ | 16.9 | 0.15 | 20100104 | 255.45410 | 54.72343 | 283.89742 | 0.27871 | 0.0500929 | 3.0019417 | 53 | 5 | 1998–2009 | 0.34 | M-v | 1 | MPC | 156056 | 2006 $RJ_{58}$ |
| 2006 $RB_{66}$ | 18.5 | 0.15 | 20100104 | 296.97346 | 25.92133 | 15.33479 | 6.53760 | 0.1445682 | 2.3942496 | 24 | 1 | 62 days | 0.29 | M-v | 4 | MPC | 111219 | 2006 $RB_{66}$ |
| 2006 $RT_{72}$ | 16.1 | 0.15 | 20100104 | 243.43335 | 334.94685 | 353.65439 | 1.16864 | 0.1473591 | 3.1016066 | 52 | 5 | 1999–2009 | 0.33 | M-v | 1 | MPC | 154171 | 2006 $RT_{72}$ |
| 2006 $RA_{73}$ | 17.2 | 0.15 | 20100104 | 200.67894 | 43.27275 | 4.75715 | 1.63992 | 0.0687093 | 2.9058885 | 48 | 4 | 1996–2007 | 0.35 | M-v | 2 | MPC | 131943 | 2006 $RA_{73}$ |
| 2006 $RG_{73}$ | 17.0 | 0.15 | 20060922 | 20.37225 | 329.68003 | 8.43769 | 6.34052 | 0.1351508 | 3.1582831 | 20 | 1 | 28 days | 0.43 | | | MPC | | 2006 $RG_{73}$ |
| 2006 $RW_{73}$ | 19.0 | 0.15 | 20060922 | 13.69622 | 339.63071 | 4.11224 | 1.06589 | 0.1843059 | 2.3966821 | 26 | 1 | 46 days | 0.34 | | | MPC | | 2006 $RW_{73}$ |
| 2006 $RD_{75}$ | 15.7 | 0.15 | 20060922 | 16.89948 | 308.59406 | 25.97716 | 1.32086 | 0.2975996 | 3.9234659 | 39 | 1 | 42 days | 0.37 | | | MPC | | 2006 $RD_{75}$ |
| 2006 $RP_{75}$ | 16.9 | 0.15 | 20100104 | 167.83302 | 71.38511 | 11.22354 | 7.49799 | 0.1894806 | 3.0322003 | 27 | 2 | 2003–2006 | 0.40 | M-v | 3 | MPC | 122824 | 2006 $RP_{75}$ |
| 2006 $RB_{76}$ | 17.1 | 0.15 | 20060922 | 2.09112 | 349.42198 | 14.65039 | 3.66518 | 0.0867720 | 3.0337160 | 29 | 1 | 42 days | 0.30 | | | MPC | | 2006 $RB_{76}$ |
| 2006 $RK_{76}$ | 18.9 | 0.15 | 20060922 | 56.83698 | 276.29284 | 10.74834 | 4.57482 | 0.1931706 | 2.1918858 | 20 | 1 | 31 days | 0.22 | | | MPC | | 2006 $RK_{76}$ |
| 2006 $RK_{82}$ | 17.4 | 0.15 | 20100104 | 252.71909 | 248.53602 | 194.16542 | 5.91343 | 0.1112868 | 2.4097746 | 58 | 2 | 2006–2008 | 0.26 | M-v | 3 | MPC | 137509 | 2006 $RK_{82}$ |
| 2006 $RL_{82}$ | 17.7 | 0.15 | 20100104 | 309.29240 | 236.19307 | 193.42665 | 5.52666 | 0.0950693 | 2.1964897 | 63 | 3 | 2003–2008 | 0.25 | M-v | 2 | MPC | 140162 | 2006 $RL_{82}$ |
| 2006 $RF_{83}$ | 17.8 | 0.15 | 20060922 | 358.45813 | 177.75948 | 191.82557 | 6.60794 | 0.0583996 | 2.7682084 | 10 | 1 | 29 days | 0.17 | | | MPC | | 2006 $RF_{83}$ |
| 2006 $RS_{84}$ | 16.7 | 0.15 | 20100104 | 186.89668 | 60.89065 | 357.67815 | 1.52907 | 0.1376550 | 3.0198135 | 46 | 3 | 2006–2009 | 0.25 | M-v | 2 | MPC | 157446 | 2006 $RS_{84}$ |
| 2006 $RL_{85}$ | 16.5 | 0.15 | 20060922 | 26.12826 | 311.72829 | 8.82144 | 4.38406 | 0.2753059 | 2.9998077 | 39 | 1 | 43 days | 0.50 | | | MPC | | 2006 $RL_{85}$ |
| 2006 $RN_{85}$ | 18.2 | 0.15 | 20060922 | 332.43970 | 40.71894 | 4.28859 | 1.99422 | 0.1793030 | 2.4177630 | 25 | 1 | 43 days | 0.19 | | | MPC | | 2006 $RN_{85}$ |
| 2006 $RW_{85}$ | 17.6 | 0.15 | 20100104 | 297.59136 | 10.59686 | 11.40971 | 2.71220 | 0.2061815 | 2.4511871 | 69 | 3 | 2002–2008 | 0.39 | M-v | 2 | MPC | 135948 | 2006 $RW_{85}$ |
| 2006 $RZ_{85}$ | 17.6 | 0.15 | 20100104 | 248.50936 | 18.32370 | 11.37835 | 4.98841 | 0.0233916 | 2.6769183 | 38 | 4 | 2000–2008 | 0.24 | M-v | 1 | MPC | 133059 | 2006 $RZ_{85}$ |
| 2006 $RL_{86}$ | 16.9 | 0.15 | 20100104 | 258.40829 | 121.00649 | 187.45741 | 3.24107 | 0.1898313 | 3.1017100 | 41 | 4 | 2000–2009 | 0.24 | M-v | 0 | MPC | 152465 | 2006 $RL_{86}$ |
| 2006 $RA_{87}$ | 17.6 | 0.15 | 20100104 | 174.69694 | 147.80263 | 13.28805 | 4.53277 | 0.1302190 | 2.3889867 | 49 | 3 | 2001–2008 | 0.37 | M-v | 2 | MPC | 159111 | 2006 $RA_{87}$ |
| 2006 $RK_{88}$ | 16.9 | 0.15 | 20100104 | 34.74949 | 57.45236 | 196.41312 | 14.78248 | 0.0729992 | 2.5763486 | 43 | 4 | 2000–2009 | 0.27 | M-v | 0 | MPC | 159111 | 2006 $RK_{88}$ |
| 2006 $RP_{89}$ | 18.3 | 0.15 | 20060922 | 349.88587 | 185.70756 | 199.16361 | 8.35643 | 0.1426573 | 2.6895011 | 26 | 1 | 46 days | 0.39 | | | MPC | | 2006 $RP_{89}$ |
| 2006 $RY_{90}$ | 18.6 | 0.15 | 20100104 | 306.38454 | 57.17111 | 0.34156 | 1.39362 | 0.1837601 | 2.2967596 | 45 | 3 | 1992–2006 | 0.32 | M-v | 1 | MPC | 109911 | 2006 $RY_{90}$ |
| 2006 $RK_{91}$ | 17.2 | 0.15 | 20100104 | 289.54469 | 337.33742 | 9.60622 | 1.98479 | 0.0834219 | 2.6883624 | 42 | 3 | 2006–2009 | 0.36 | M-v | 3 | MPC | 157446 | 2006 $RK_{91}$ |
| 2006 $RV_{91}$ | 17.6 | 0.15 | 20100104 | 205.92162 | 304.11862 | 196.67793 | 2.11602 | 0.1299120 | 2.3723634 | 142 | 4 | 1999–2008 | 0.24 | M-v | 1 | MPC | 138091 | 2006 $RV_{91}$ |
| 2006 $RY_{92}$ | 16.9 | 0.15 | 20060922 | 63.00873 | 102.40362 | 196.54927 | 9.69449 | 0.0845113 | 3.0009251 | 79 | 1 | 43 days | 0.39 | | | MPC | | 2006 $RY_{92}$ |
| 2006 $RG_{93}$ | 17.7 | 0.15 | 20100104 | 63.38009 | 47.36516 | 209.86095 | 2.07446 | 0.1841476 | 2.3373143 | 100 | 6 | 1999–2008 | 0.43 | M-v | 0 | MPC | 133486 | 2006 $RG_{93}$ |
| 2006 $RK_{98}$ | 16.6 | 0.15 | 20060922 | 336.60746 | 343.10320 | 54.16611 | 11.24743 | 0.2532914 | 2.7220569 | 17 | 1 | 39 days | 0.39 | | | MPC | | 2006 $RK_{98}$ |
| 2006 $RY_{98}$ | 16.9 | 0.15 | 20100104 | 258.92879 | 341.87281 | 25.02414 | 1.99703 | 0.2665493 | 2.7564707 | 81 | 1 | 94 days | 0.36 | M-v | 3 | MPC | 112926 | 2006 $RY_{98}$ |
| 2006 $RG_{105}$ | 18.7 | 0.15 | 20060922 | 86.53468 | 268.16570 | 2.60637 | 1.68705 | 0.1257646 | 2.5711493 | 53 | 1 | 29 days | 0.11 | | | MPC | | 2006 $RG_{105}$ |
| 2006 $RQ_{105}$ | 19.8 | 0.15 | 20060922 | 56.06997 | 81.19418 | 209.05652 | 1.58710 | 0.2099499 | 2.2591323 | 51 | 1 | 30 days | 0.19 | | | MPC | | 2006 $RQ_{105}$ |
| 2006 $RX_{105}$ | 18.2 | 0.15 | 20060922 | 240.15541 | 303.19286 | 203.46789 | 3.53196 | 0.1657655 | 2.5833090 | 46 | 1 | 30 days | 0.10 | | | MPC | | 2006 $RX_{105}$ |
| 2006 $RF_{107}$ | 18.5 | 0.15 | 20100104 | 176.39609 | 325.90854 | 194.63374 | 4.36340 | 0.0904239 | 2.3893202 | 54 | 2 | 2006–2008 | 0.09 | M-v | 3 | MPC | 134949 | 2006 $RF_{107}$ |
| 2006 $RZ_{107}$ | 19.1 | 0.15 | 20060922 | 6.87246 | 71.56494 | 286.92438 | 0.64397 | 0.1744328 | 2.5667853 | 52 | 1 | 30 days | 0.09 | | | MPC | | 2006 $RZ_{107}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 $RP_{108}$ | 18.9 | 0.15 | 20100104 | 208.20586 | 151.28696 | 4.76787 | 2.82985 | 0.0568680 | 2.2461585 | 66 | 2 | 2006–2008 | 0.16 | M-v | 4 | MPC | 137512 | 2006 $RP_{108}$ |
| 2006 $RM_{111}$ | 17.5 | 0.15 | 20060922 | 191.26825 | 167.68062 | 15.10982 | 11.45547 | 0.0418501 | 3.0398611 | 52 | 1 | 29 days | 0.13 | | | MPC | | 2006 $RM_{111}$ |
| 2006 $RX_{112}$ | 17.7 | 0.15 | 20060922 | 79.09414 | 272.53561 | 14.35743 | 9.25031 | 0.0522139 | 3.0377707 | 56 | 1 | 30 days | 0.05 | | | MPC | | 2006 $RX_{112}$ |
| 2006 $RF_{113}$ | 17.6 | 0.15 | 20060922 | 340.84507 | 19.20508 | 15.19769 | 9.60426 | 0.0841663 | 3.0951571 | 75 | 1 | 30 days | 0.15 | | | MPC | | 2006 $RF_{113}$ |
| 2006 $RP_{113}$ | 18.4 | 0.15 | 20060922 | 41.60217 | 310.07371 | 14.67577 | 1.97169 | 0.0574248 | 3.0548609 | 47 | 1 | 30 days | 0.07 | | | MPC | | 2006 $RP_{113}$ |
| 2006 $RU_{113}$ | 17.6 | 0.15 | 20060922 | 67.72569 | 263.02665 | 24.97140 | 0.70608 | 0.1396992 | 3.1923432 | 47 | 1 | 30 days | 0.07 | | | MPC | | 2006 $RU_{113}$ |
| 2006 $RV_{113}$ | 18.4 | 0.15 | 20060922 | 14.70220 | 170.23677 | 180.62686 | 1.07747 | 0.1452750 | 3.1664891 | 62 | 1 | 29 days | 0.08 | | | MPC | | 2006 $RV_{113}$ |
| 2006 $RY_{113}$ | 18.2 | 0.15 | 20060922 | 358.84221 | 354.41592 | 17.42478 | 2.24266 | 0.1393649 | 2.9922810 | 59 | 1 | 29 days | 0.09 | | | MPC | | 2006 $RY_{113}$ |
| 2006 $RZ_{113}$ | 18.5 | 0.15 | 20060922 | 172.82258 | 184.57109 | 11.45549 | 2.67269 | 0.0516875 | 2.2565668 | 76 | 1 | 29 days | 0.07 | | | MPC | | 2006 $RZ_{113}$ |
| 2006 $RC_{114}$ | 17.7 | 0.15 | 20060922 | 267.75962 | 93.10865 | 15.04776 | 5.94428 | 0.0421996 | 2.9051360 | 64 | 1 | 30 days | 0.13 | | | MPC | | 2006 $RC_{114}$ |
| 2006 $RT_{114}$ | 19.1 | 0.15 | 20060922 | 50.96835 | 280.54146 | 11.53106 | 3.29978 | 0.2403617 | 2.3099845 | 76 | 1 | 29 days | 0.10 | | | MPC | | 2006 $RT_{114}$ |
| 2006 $RV_{114}$ | 17.5 | 0.15 | 20060922 | 147.66284 | 201.76745 | 18.35072 | 4.21447 | 0.0601825 | 2.7551599 | 56 | 1 | 30 days | 0.13 | | | MPC | | 2006 $RV_{114}$ |
| 2006 $RX_{114}$ | 17.3 | 0.15 | 20100104 | 248.84354 | 184.02440 | 194.16837 | 1.48064 | 0.0478258 | 2.7685859 | 77 | 5 | 1997–2009 | 0.26 | M-v | 0 | MPC | 157447 | 2006 $RX_{114}$ |
| 2006 $RD_{115}$ | 17.7 | 0.15 | 20060922 | 355.49074 | 11.64153 | 4.02056 | 1.81588 | 0.0759327 | 3.1206583 | 52 | 1 | 30 days | 0.08 | | | MPC | | 2006 $RD_{115}$ |
| 2006 $RJ_{115}$ | 17.4 | 0.15 | 20060922 | 42.81533 | 314.47696 | 8.63117 | 5.12770 | 0.0476017 | 2.6904199 | 67 | 1 | 30 days | 0.09 | | | MPC | | 2006 $RJ_{115}$ |
| 2006 $RB_{116}$ | 17.3 | 0.15 | 20100104 | 217.91208 | 200.23715 | 201.59485 | 1.51476 | 0.0694304 | 2.8661850 | 81 | 4 | 1996–2008 | 0.32 | M-v | 2 | MPC | 133065 | 2006 $RB_{116}$ |
| 2006 $RQ_{116}$ | 18.4 | 0.15 | 20060922 | 29.55693 | 140.97290 | 195.56521 | 7.47033 | 0.0634334 | 2.5706839 | 45 | 1 | 29 days | 0.08 | | | MPC | | 2006 $RQ_{116}$ |
| 2006 $RQ_{117}$ | 20.5 | 0.15 | 20060922 | 28.65331 | 315.10039 | 6.37245 | 4.21786 | 0.2393154 | 2.3577908 | 47 | 1 | 29 days | 0.09 | | | MPC | | 2006 $RQ_{117}$ |
| 2006 $RC_{118}$ | 16.9 | 0.15 | 20100104 | 64.66109 | 158.50634 | 18.28775 | 2.50922 | 0.1333683 | 3.0176720 | 69 | 3 | 2000–2009 | 0.26 | M-v | 3 | MPC | 158879 | 2006 $RC_{118}$ |
| 2006 $RD_{118}$ | 17.2 | 0.15 | 20060922 | 50.52651 | 305.07059 | 11.22073 | 11.10406 | 0.0440207 | 3.0455473 | 63 | 1 | 30 days | 0.21 | | | MPC | | 2006 $RD_{118}$ |
| 2006 $RO_{118}$ | 18.3 | 0.15 | 20060922 | 311.17962 | 214.77125 | 226.22591 | 0.37707 | 0.2042201 | 3.0859885 | 43 | 1 | 30 days | 0.17 | | | MPC | | 2006 $RO_{118}$ |
| 2006 $RY_{118}$ | 19.2 | 0.15 | 20060922 | 358.66937 | 0.29984 | 10.55541 | 3.25794 | 0.1866396 | 2.6691706 | 56 | 1 | 30 days | 0.16 | | | MPC | | 2006 $RY_{118}$ |
| 2006 $RA_{119}$ | 19.1 | 0.15 | 20060922 | 99.11058 | 248.51444 | 10.07410 | 6.50023 | 0.1065634 | 2.5323269 | 34 | 1 | 29 days | 0.03 | | | MPC | | 2006 $RA_{119}$ |
| 2006 $RF_{119}$ | 18.1 | 0.15 | 20060922 | 35.74159 | 312.90669 | 17.40841 | 2.19216 | 0.0624902 | 2.8297505 | 64 | 1 | 30 days | 0.22 | | | MPC | | 2006 $RF_{119}$ |
| 2006 $RJ_{119}$ | 17.5 | 0.15 | 20060922 | 272.71735 | 98.69811 | 8.86169 | 4.52412 | 0.0772268 | 2.9104043 | 91 | 1 | 30 days | 0.17 | | | MPC | | 2006 $RJ_{119}$ |
| 2006 $RK_{119}$ | 17.5 | 0.15 | 20060922 | 244.72337 | 133.21625 | 1.70620 | 1.76421 | 0.0783875 | 2.7784343 | 70 | 1 | 30 days | 0.04 | | | MPC | | 2006 $RK_{119}$ |
| 2006 $RN_{119}$ | 17.9 | 0.15 | 20060922 | 271.54275 | 285.51334 | 194.43333 | 4.98943 | 0.1789141 | 2.9962478 | 50 | 1 | 30 days | 0.21 | | | MPC | | 2006 $RN_{119}$ |
| 2006 $RU_{119}$ | 18.1 | 0.15 | 20060922 | 149.02948 | 205.01126 | 15.56398 | 13.78416 | 0.0364948 | 2.5700139 | 40 | 1 | 29 days | 0.10 | | | MPC | | 2006 $RU_{119}$ |
| 2006 $RT_{122}$ | 14.8 | 0.15 | 20060922 | 331.07592 | 89.36294 | 303.89185 | 19.25124 | 0.1262135 | 3.2214897 | 15 | 1 | 50 days | 0.56 | | | MPC | | 2006 $RT_{122}$ |
| 2006 $RU_{122}$ | 15.8 | 0.15 | 20060902 | 30.39663 | 13.51712 | 300.41238 | 11.23860 | 0.1202426 | 2.6279036 | 14 | 1 | 21 days | 0.55 | | | MPC | | 2006 $RU_{122}$ |
| 2006 $RV_{122}$ | 16.0 | 0.15 | 20060902 | 344.60141 | 289.85796 | 79.58827 | 7.37413 | 0.1802482 | 3.0605072 | 10 | 1 | 12 days | 0.73 | | | MPC | | 2006 $RV_{122}$ |
| 2006 $SY_3$ | 16.0 | 0.15 | 20100104 | 231.78521 | 140.70881 | 194.76279 | 27.70039 | 0.1941108 | 3.1709790 | 38 | 1 | 69 days | 0.45 | M-v | 4 | MPC | 133493 | 2006 $SY_3$ |
| 2006 $SP_{13}$ | 16.3 | 0.15 | 20060922 | 9.86511 | 344.10325 | 12.03640 | 13.24995 | 0.0516914 | 2.6134331 | 49 | 1 | 44 days | 0.44 | | | MPC | | 2006 $SP_{13}$ |
| 2006 $SB_{25}$ | 18.6 | 0.15 | 20060922 | 340.32381 | 31.27150 | 4.62439 | 2.46568 | 0.1799620 | 2.4647536 | 21 | 1 | 44 days | 0.38 | | | MPC | | 2006 $SB_{25}$ |
| 2006 $SW_{31}$ | 17.0 | 0.15 | 20100104 | 180.24640 | 247.96906 | 194.09012 | 7.46871 | 0.1793410 | 2.9274501 | 60 | 4 | 2001–2009 | 0.25 | M-v | 0 | MPC | 158538 | 2006 $SW_{31}$ |
| 2006 $SE_{32}$ | 15.1 | 0.15 | 20100104 | 158.59179 | 159.53257 | 189.81614 | 2.55167 | 0.2577593 | 3.9825345 | 94 | 4 | 1998–2009 | 0.38 | M-v | 0 | MPC | 152465 | 2006 $SE_{32}$ |
| 2006 $SF_{32}$ | 15.1 | 0.15 | 20100104 | 179.66159 | 213.91366 | 189.11440 | 9.34873 | 0.0892171 | 3.1613886 | 82 | 4 | 2001–2009 | 0.39 | M-v | 1 | MPC | 156059 | 2006 $SF_{32}$ |
| 2006 $SM_{34}$ | 16.5 | 0.15 | 20060922 | 27.24763 | 142.00471 | 194.45380 | 5.52349 | 0.0475515 | 2.7465985 | 15 | 1 | 27 days | 0.49 | | | MPC | | 2006 $SM_{34}$ |
| 2006 $SO_{35}$ | 16.4 | 0.15 | 20100104 | 240.95994 | 184.27523 | 203.66233 | 4.45527 | 0.0860177 | 2.7668224 | 51 | 4 | 2004–2009 | 0.40 | M-v | 1 | MPC | 155253 | 2006 $SO_{35}$ |
| 2006 $SQ_{35}$ | 17.5 | 0.15 | 20100104 | 351.89703 | 153.25088 | 209.59889 | 2.05931 | 0.1987419 | 2.2551548 | 85 | 3 | 2002–2008 | 0.40 | M-v | 2 | MPC | 162485 | 2006 $SQ_{35}$ |
| 2006 $SR_{35}$ | 16.8 | 0.15 | 20060922 | 344.90941 | 191.95619 | 195.93713 | 9.78847 | 0.0813627 | 3.0545666 | 10 | 1 | 27 days | 0.13 | | | MPC | | 2006 $SR_{35}$ |
| 2006 $SB_{40}$ | 16.9 | 0.15 | 20100104 | 197.87957 | 297.07418 | 107.90346 | 2.78848 | 0.1898872 | 2.9830755 | 31 | 3 | 1998–2008 | 0.44 | M-v | 2 | MPC | 142827 | 2006 $SB_{40}$ |
| 2006 $SP_{41}$ | 17.5 | 0.15 | 20100104 | 186.83707 | 207.69431 | 195.87559 | 0.59398 | 0.2384658 | 3.1573205 | 40 | 1 | 67 days | 0.25 | M-v | 4 | MPC | 121862 | 2006 $SP_{41}$ |
| 2006 $SU_{49}$ | 19.5 | 0.15 | 20100104 | 223.58651 | 198.90899 | 303.21423 | 2.51874 | 0.3121230 | 1.4128641 | 176 | 4 | 2001–2008 | 0.45 | M-v | 2 | MPC | 149012 | 2006 $SU_{49}$ |
| 2006 $SC_{67}$ | 16.9 | 0.15 | 20100104 | 137.89303 | 88.04161 | 8.47470 | 9.43876 | 0.0574471 | 3.0451100 | 41 | 2 | 2006–2009 | 0.35 | M-v | 3 | MPC | 155255 | 2006 $SC_{67}$ |
| 2006 $SF_{80}$ | 16.7 | 0.15 | 20100104 | 242.76016 | 91.16715 | 321.34800 | 3.87344 | 0.0181299 | 2.5602701 | 77 | 5 | 2000–2008 | 0.50 | M-v | 1 | MPC | 138093 | 2006 $SF_{80}$ |
| 2006 $ST_{80}$ | 17.1 | 0.15 | 20060922 | 106.07759 | 247.08857 | 10.65910 | 4.06556 | 0.0572114 | 2.7844197 | 57 | 1 | 30 days | 0.10 | | | MPC | | 2006 $ST_{80}$ |
| 2006 $SE_{81}$ | 17.9 | 0.15 | 20060922 | 25.62387 | 326.89911 | 13.18530 | 6.04970 | 0.0733989 | 2.7558950 | 62 | 1 | 29 days | 0.13 | | | MPC | | 2006 $SE_{81}$ |
| 2006 $SQ_{81}$ | 17.1 | 0.15 | 20060922 | 52.06903 | 124.38665 | 188.71097 | 2.87304 | 0.0593557 | 2.7944527 | 10 | 1 | 26 days | 0.14 | | | MPC | | 2006 $SQ_{81}$ |
| 2006 $SZ_{100}$ | 18.1 | 0.15 | 20060922 | 26.40732 | 327.00406 | 8.08679 | 1.43782 | 0.0616517 | 2.6906040 | 14 | 1 | 25 days | 0.27 | | | MPC | | 2006 $SZ_{100}$ |
| 2006 $SD_{101}$ | 19.0 | 0.15 | 20060922 | 326.57961 | 47.15422 | 8.28473 | 7.11621 | 0.2191569 | 2.6526856 | 14 | 1 | 25 days | 0.19 | | | MPC | | 2006 $SD_{101}$ |
| 2006 $SS_{102}$ | 17.1 | 0.15 | 20100104 | 223.75657 | 68.55339 | 327.43580 | 0.95146 | 0.1042558 | 2.8499179 | 40 | 5 | 1999–2008 | 0.27 | M-v | 0 | MPC | 133499 | 2006 $SS_{102}$ |
| 2006 $ST_{102}$ | 17.1 | 0.15 | 20060922 | 84.61498 | 266.18038 | 6.27725 | 4.78060 | 0.1132871 | 3.1525433 | 14 | 1 | 25 days | 0.31 | | | MPC | | 2006 $ST_{102}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 $SD_{103}$ | 17.7 | 0.15 | 20060922 | 29.66695 | 142.80912 | 192.43905 | 1.88845 | 0.0352651 | 2.8546799 | 13 | 1 | 25 days | 0.37 | | | MPC | | 2006 $SD_{103}$ |
| 2006 $SR_{103}$ | 17.0 | 0.15 | 20100104 | 49.01444 | 231.28190 | 2.51089 | 1.98894 | 0.1389713 | 2.5677284 | 38 | 6 | 1998–2009 | 0.26 | M-v | 0 | MPC | 158057 | 2006 $SR_{103}$ |
| 2006 $SV_{103}$ | 18.1 | 0.15 | 20100104 | 103.15884 | 223.18554 | 7.04587 | 2.07310 | 0.0463541 | 2.3425767 | 35 | 4 | 2003–2008 | 0.28 | M-v | 0 | MPC | 153542 | 2006 $SV_{103}$ |
| 2006 $SW_{103}$ | 17.9 | 0.15 | 20060922 | 279.53830 | 95.65955 | 11.26515 | 9.85306 | 0.1658267 | 2.7521757 | 14 | 1 | 25 days | 0.19 | | | MPC | | 2006 $SW_{103}$ |
| 2006 $SE_{104}$ | 17.4 | 0.15 | 20100104 | 52.06816 | 255.08760 | 9.39754 | 2.69717 | 0.1488499 | 2.3607650 | 66 | 7 | 1994–2008 | 0.44 | M-v | 0 | MPC | 131948 | 2006 $SE_{104}$ |
| 2006 $SP_{105}$ | 18.0 | 0.15 | 20060922 | 336.14355 | 29.36453 | 13.39009 | 4.56617 | 0.1149995 | 2.8180572 | 11 | 1 | 25 days | 0.21 | | | MPC | | 2006 $SP_{105}$ |
| 2006 $SG_{107}$ | 18.5 | 0.15 | 20060922 | 324.59463 | 180.57390 | 235.52078 | 0.54218 | 0.1536319 | 2.3633015 | 69 | 1 | 29 days | 0.33 | | | MPC | | 2006 $SG_{107}$ |
| 2006 $SL_{107}$ | 16.0 | 0.15 | 20100104 | 209.11012 | 181.81548 | 185.74804 | 1.75126 | 0.0947560 | 3.1625604 | 74 | 5 | 1995–2009 | 0.41 | M-v | 0 | MPC | 154173 | 2006 $SL_{107}$ |
| 2006 $SP_{111}$ | 17.1 | 0.15 | 20100104 | 151.71007 | 80.60238 | 206.12429 | 20.75020 | 0.0711194 | 1.9312555 | 84 | 4 | 2000–2009 | 0.52 | M-v | 1 | MPC | 143269 | 2006 $SP_{111}$ |
| 2006 $SW_{122}$ | 18.0 | 0.15 | 20060922 | 352.31298 | 265.78135 | 111.49896 | 5.99076 | 0.3666428 | 2.6721328 | 19 | 1 | 39 days | 0.56 | | | MPC | | 2006 $SW_{122}$ |
| 2006 $SU_{131}$ | 18.7 | 0.15 | 20100104 | 216.47334 | 167.62269 | 107.46692 | 9.65618 | 0.3955021 | 1.7277568 | 70 | 3 | 2006–2009 | 0.58 | M-v | 2 | MPC | 151043 | 2006 $SU_{131}$ |
| 2006 $SL_{144}$ | 18.6 | 0.15 | 20060922 | 318.81393 | 232.36909 | 199.59064 | 7.74792 | 0.2050271 | 2.7584123 | 9 | 1 | 24 days | 0.23 | | | MPC | | 2006 $SL_{144}$ |
| 2006 $SS_{146}$ | 17.9 | 0.15 | 20060922 | 83.29685 | 56.46801 | 227.37309 | 0.88832 | 0.0353378 | 2.7517924 | 61 | 1 | 30 days | 0.11 | | | MPC | | 2006 $SS_{146}$ |
| 2006 $SF_{147}$ | 18.3 | 0.15 | 20060922 | 326.86261 | 192.60918 | 225.13069 | 1.36019 | 0.2037413 | 2.6401252 | 13 | 1 | 25 days | 0.14 | | | MPC | | 2006 $SF_{147}$ |
| 2006 $SG_{147}$ | 16.8 | 0.15 | 20060922 | 235.04828 | 297.94281 | 208.50945 | 2.95655 | 0.1195650 | 3.0714964 | 10 | 1 | 25 days | 0.22 | | | MPC | | 2006 $SG_{147}$ |
| 2006 $SK_{147}$ | 18.2 | 0.15 | 20060922 | 300.36880 | 242.78983 | 204.54074 | 2.81273 | 0.1717506 | 2.4144222 | 60 | 1 | 30 days | 0.11 | | | MPC | | 2006 $SK_{147}$ |
| 2006 $SP_{147}$ | 16.5 | 0.15 | 20060922 | 43.16093 | 114.36951 | 202.89591 | 4.62961 | 0.1218472 | 3.2453722 | 69 | 1 | 35 days | 0.13 | | | MPC | | 2006 $SP_{147}$ |
| 2006 $SX_{147}$ | 17.6 | 0.15 | 20100104 | 258.02252 | 204.76281 | 196.88481 | 2.89903 | 0.1852779 | 2.6103940 | 46 | 3 | 2002–2008 | 0.38 | M-v | 3 | MPC | 139800 | 2006 $SX_{147}$ |
| 2006 $SP_{148}$ | 16.8 | 0.15 | 20060922 | 183.80574 | 172.65156 | 11.42658 | 16.66096 | 0.0835428 | 3.1324507 | 11 | 1 | 25 days | 0.26 | | | MPC | | 2006 $SP_{148}$ |
| 2006 $SP_{157}$ | 18.5 | 0.15 | 20060922 | 0.99224 | 350.82090 | 11.51096 | 5.71884 | 0.1798443 | 2.3704619 | 17 | 1 | 21 days | 0.18 | | | MPC | | 2006 $SP_{157}$ |
| 2006 $SS_{170}$ | 19.0 | 0.15 | 20061012 | 353.85835 | 175.28266 | 206.07444 | 1.41492 | 0.2239521 | 2.6224522 | 33 | 1 | 58 days | 0.34 | | | MPC | | 2006 $SS_{170}$ |
| 2006 $SV_{170}$ | 16.5 | 0.15 | 20100104 | 180.74557 | 327.82282 | 190.66281 | 10.99463 | 0.1880114 | 2.3795442 | 117 | 4 | 2004–2009 | 0.46 | M-v | 2 | MPC | 159111 | 2006 $SV_{170}$ |
| 2006 $SW_{180}$ | 17.1 | 0.15 | 20100104 | 62.72385 | 198.46455 | 6.02657 | 6.84649 | 0.1520425 | 2.6921320 | 35 | 4 | 2000–2009 | 0.42 | M-v | 1 | MPC | 157451 | 2006 $SW_{180}$ |
| 2006 $SX_{180}$ | 17.5 | 0.15 | 20100104 | 148.02542 | 291.67511 | 206.03412 | 1.05964 | 0.1710115 | 2.7192578 | 67 | 5 | 1999–2008 | 0.28 | M-v | 0 | MPC | 138095 | 2006 $SX_{180}$ |
| 2006 $SA_{181}$ | 18.7 | 0.15 | 20100104 | 28.36697 | 93.57016 | 195.65775 | 1.20474 | 0.2198428 | 2.3128915 | 35 | 1 | 63 days | 0.25 | M-v | 5 | MPC | 133502 | 2006 $SA_{181}$ |
| 2006 $SF_{181}$ | 17.2 | 0.15 | 20100104 | 297.75318 | 132.11813 | 190.10785 | 4.10280 | 0.0920668 | 2.7339590 | 57 | 5 | 2000–2009 | 0.26 | M-v | 0 | MPC | 157451 | 2006 $SF_{181}$ |
| 2006 $SO_{182}$ | 18.3 | 0.15 | 20100104 | 294.74761 | 10.17043 | 354.78337 | 0.82022 | 0.2154575 | 2.5372489 | 138 | 1 | 92 days | 0.29 | M-v | 3 | MPC | 138095 | 2006 $SO_{182}$ |
| 2006 $SC_{183}$ | 17.0 | 0.15 | 20060922 | 36.03838 | 313.35150 | 16.11021 | 10.18449 | 0.1000969 | 3.3687588 | 56 | 1 | 32 days | 0.20 | | | MPC | | 2006 $SC_{183}$ |
| 2006 $SS_{191}$ | 17.6 | 0.15 | 20060922 | 50.70924 | 281.35931 | 8.73734 | 20.49703 | 0.2334714 | 3.1408644 | 11 | 1 | 18 days | 0.25 | | | MPC | | 2006 $SS_{191}$ |
| 2006 $SH_{196}$ | 16.7 | 0.15 | 20100104 | 152.07175 | 189.55109 | 261.76330 | 0.20713 | 0.1257230 | 3.0340684 | 61 | 5 | 2001–2009 | 0.35 | M-v | 0 | MPC | 158882 | 2006 $SH_{196}$ |
| 2006 $SN_{202}$ | 19.2 | 0.15 | 20060922 | 37.01356 | 110.42582 | 193.09198 | 8.74656 | 0.2699311 | 2.2383776 | 16 | 1 | 19 days | 0.25 | | | MPC | | 2006 $SN_{202}$ |
| 2006 $SQ_{202}$ | 17.1 | 0.15 | 20060922 | 305.80032 | 220.95396 | 205.32932 | 1.39399 | 0.0524208 | 2.8678167 | 10 | 1 | 19 days | 0.24 | | | MPC | | 2006 $SQ_{202}$ |
| 2006 $SR_{202}$ | 16.4 | 0.15 | 20060922 | 84.76736 | 85.62258 | 188.69428 | 12.83763 | 0.0732829 | 3.1965022 | 13 | 1 | 19 days | 0.22 | | | MPC | | 2006 $SR_{202}$ |
| 2006 $ST_{204}$ | 16.7 | 0.15 | 20100104 | 229.92224 | 347.85335 | 11.77930 | 5.20239 | 0.1331755 | 3.0240113 | 38 | 2 | 2006–2007 | 0.35 | M-v | 3 | MPC | 142832 | 2006 $ST_{204}$ |
| 2006 $SY_{204}$ | 18.4 | 0.15 | 20060922 | 253.39091 | 100.24559 | 29.71257 | 0.52401 | 0.1574823 | 2.4417696 | 11 | 1 | 19 days | 0.22 | | | MPC | | 2006 $SY_{204}$ |
| 2006 $SC_{205}$ | 17.4 | 0.15 | 20060922 | 195.13810 | 344.44779 | 190.27197 | 2.42705 | 0.0671703 | 2.6528019 | 10 | 1 | 18 days | 0.28 | | E | MPC | | 2006 $SC_{205}$ |
| 2006 $SS_{205}$ | 16.9 | 0.15 | 20060922 | 148.67966 | 254.94107 | 324.85906 | 0.62687 | 0.0300228 | 3.0788535 | 11 | 1 | 19 days | 0.19 | | | MPC | | 2006 $SS_{205}$ |
| 2006 $SR_{209}$ | 16.6 | 0.15 | 20060922 | 317.26692 | 40.28357 | 11.10887 | 22.76208 | 0.0092025 | 3.0706818 | 11 | 1 | 18 days | 0.19 | | | MPC | | 2006 $SR_{209}$ |
| 2006 $SW_{209}$ | 18.4 | 0.15 | 20060922 | 11.87253 | 333.80861 | 16.88677 | 5.51886 | 0.1492423 | 2.6268348 | 11 | 1 | 18 days | 0.18 | | | MPC | | 2006 $SW_{209}$ |
| 2006 $SS_{220}$ | 19.6 | 0.15 | 20060922 | 351.62785 | 5.74863 | 14.52186 | 4.40481 | 0.1852918 | 2.6015072 | 11 | 1 | 19 days | 0.11 | | | MPC | | 2006 $SS_{220}$ |
| 2006 $SX_{220}$ | 18.1 | 0.15 | 20100104 | 264.29234 | 251.33575 | 190.28438 | 2.07223 | 0.1764107 | 2.3302501 | 39 | 3 | 1997–2008 | 0.31 | M-v | 2 | MPC | 155261 | 2006 $SX_{220}$ |
| 2006 $SK_{222}$ | 17.6 | 0.15 | 20060922 | 45.94139 | 283.17203 | 13.71328 | 13.35152 | 0.2607325 | 3.1933696 | 31 | 1 | 19 days | 0.28 | | | MPC | | 2006 $SK_{222}$ |
| 2006 $SO_{222}$ | 18.6 | 0.15 | 20100104 | 294.63307 | 64.37917 | 20.50856 | 2.65107 | 0.1388529 | 2.2169581 | 25 | 1 | 62 days | 0.29 | M-v | 4 | MPC | 121867 | 2006 $SO_{222}$ |
| 2006 $SY_{234}$ | 17.1 | 0.15 | 20100104 | 244.16332 | 105.80872 | 273.83132 | 2.59656 | 0.1114826 | 2.7747717 | 33 | 4 | 2002–2008 | 0.61 | M-v | 1 | MPC | 131951 | 2006 $SY_{234}$ |
| 2006 $SL_{250}$ | 16.7 | 0.15 | 20060922 | 167.44846 | 2.64995 | 202.14633 | 9.00595 | 0.1067567 | 3.1276782 | 10 | 1 | 18 days | 0.47 | | | MPC | | 2006 $SL_{250}$ |
| 2006 $ST_{250}$ | 15.7 | 0.15 | 20100104 | 184.13312 | 204.58006 | 201.65944 | 8.50569 | 0.0545671 | 3.1309629 | 53 | 3 | 2004–2009 | 0.37 | M-v | 2 | MPC | 156064 | 2006 $ST_{250}$ |
| 2006 $SY_{250}$ | 17.3 | 0.15 | 20100104 | 251.99026 | 155.96010 | 208.07056 | 1.43709 | 0.0811248 | 2.8595822 | 33 | 3 | 2001–2008 | 0.36 | M-v | 3 | MPC | 131487 | 2006 $SY_{250}$ |
| 2006 $SX_{251}$ | 19.5 | 0.15 | 20060922 | 21.01696 | 328.10172 | 7.50263 | 2.41991 | 0.2149068 | 2.3889547 | 105 | 1 | 29 days | 0.13 | | | MPC | | 2006 $SX_{251}$ |
| 2006 $SM_{252}$ | 17.2 | 0.15 | 20060922 | 335.04884 | 45.12034 | 355.90212 | 2.76113 | 0.1127879 | 2.9993679 | 13 | 1 | 23 days | 0.32 | | | MPC | | 2006 $SM_{252}$ |
| 2006 $SR_{252}$ | 17.7 | 0.15 | 20060922 | 66.13552 | 97.17210 | 199.86683 | 4.73034 | 0.0659115 | 2.7889846 | 47 | 1 | 30 days | 0.19 | | | MPC | | 2006 $SR_{252}$ |
| 2006 $SS_{252}$ | 16.1 | 0.15 | 20060922 | 282.08513 | 264.07168 | 198.83699 | 10.87786 | 0.1216021 | 3.0623018 | 10 | 1 | 18 days | 0.18 | | | MPC | | 2006 $SS_{252}$ |
| 2006 $SJ_{253}$ | 17.4 | 0.15 | 20060922 | 299.20747 | 45.71683 | 27.77351 | 2.30885 | 0.0569069 | 2.7249648 | 10 | 1 | 17 days | 0.18 | | | MPC | | 2006 $SJ_{253}$ |
| 2006 $SO_{253}$ | 16.6 | 0.15 | 20100104 | 10.30461 | 229.74920 | 13.60110 | 11.41102 | 0.1358886 | 2.7439222 | 53 | 3 | 2000–2009 | 0.31 | M-v | 2 | MPC | 157452 | 2006 $SO_{253}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 $SV_{259}$ | 16.9 | 0.15 | 20100104 | 182.77901 | 316.06007 | 212.22283 | 1.68153 | 0.1525220 | 2.3442927 | 120 | 5 | 1999–2008 | 0.46 | M-v | 1 | MPC | 140162 | 2006 $SV_{259}$ |
| 2006 $SE_{279}$ | 18.9 | 0.15 | 20060922 | 324.81733 | 223.93615 | 204.98124 | 3.31271 | 0.2772939 | 2.5380565 | 10 | 1 | 16 days | 0.12 | | | MPC | | 2006 $SE_{279}$ |
| 2006 $SN_{285}$ | 17.7 | 0.15 | 20100104 | 298.80243 | 349.34150 | 349.33933 | 0.66812 | 0.1460543 | 2.6368128 | 93 | 2 | 2005–2006 | 0.17 | M-v | 3 | MPC | 134971 | 2006 $SN_{285}$ |
| 2006 $SC_{287}$ | 16.3 | 0.15 | 20060922 | 22.53116 | 62.10927 | 267.27233 | 11.57549 | 0.2667242 | 2.6501908 | 15 | 1 | 28 days | 0.44 | | | MPC | | 2006 $SC_{287}$ |
| 2006 $SB_{295}$ | 18.9 | 0.15 | 20060922 | 326.93072 | 203.23369 | 207.10553 | 1.08572 | 0.1663688 | 2.4021132 | 10 | 1 | 19 days | 0.26 | | | MPC | | 2006 $SB_{295}$ |
| 2006 $SN_{297}$ | 18.2 | 0.15 | 20100104 | 304.27827 | 29.11508 | 7.61847 | 1.21249 | 0.1932237 | 2.3614946 | 41 | 1 | 82 days | 0.40 | M-v | 5 | MPC | 112934 | 2006 $SN_{297}$ |
| 2006 $SP_{297}$ | 17.3 | 0.15 | 20060922 | 39.99075 | 26.55625 | 288.56829 | 0.14974 | 0.1302934 | 2.9740767 | 11 | 1 | 19 days | 0.27 | | | MPC | | 2006 $SP_{297}$ |
| 2006 $SA_{331}$ | 17.8 | 0.15 | 20061012 | 357.48007 | 184.33578 | 192.96716 | 13.25478 | 0.2442373 | 2.7692470 | 29 | 1 | 50 days | 0.18 | | | MPC | | 2006 $SA_{331}$ |
| 2006 $SN_{331}$ | 19.0 | 0.15 | 20061012 | 355.03855 | 174.14011 | 206.88696 | 0.81970 | 0.1951869 | 2.3183739 | 18 | 1 | 30 days | 0.36 | | | MPC | | 2006 $SN_{331}$ |
| 2006 $SR_{331}$ | 17.3 | 0.15 | 20100104 | 237.70203 | 324.72966 | 65.84980 | 0.92192 | 0.0814787 | 2.7656363 | 24 | 4 | 1997–2008 | 0.40 | M-v | 2 | MPC | 121869 | 2006 $SR_{331}$ |
| 2006 $SQ_{337}$ | 17.6 | 0.15 | 20100104 | 179.10108 | 332.36413 | 125.00827 | 4.68078 | 0.0579350 | 2.7645709 | 50 | 2 | 2006–2008 | 0.35 | M-v | 3 | MPC | 135959 | 2006 $SQ_{337}$ |
| 2006 $SF_{340}$ | 17.2 | 0.15 | 20100104 | 225.04212 | 302.31219 | 150.21464 | 5.24011 | 0.1790612 | 2.5754688 | 31 | 3 | 2002–2008 | 0.24 | M-v | 2 | MPC | 163801 | 2006 $SF_{340}$ |
| 2006 $SB_{341}$ | 20.1 | 0.15 | 20060922 | 354.50058 | 1.60795 | 17.76318 | 15.01276 | 0.3876994 | 2.7653548 | 9 | 1 | 15 days | 0.18 | | | MPC | | 2006 $SB_{341}$ |
| 2006 $SN_{352}$ | 16.0 | 0.15 | 20100104 | 293.40943 | 317.70606 | 344.90811 | 8.64463 | 0.0405252 | 3.0260793 | 25 | 3 | 1995–2009 | 0.36 | M-v | 3 | MPC | 155268 | 2006 $SN_{352}$ |
| 2006 $SX_{368}$ | 9.5 | 0.15 | 20100104 | 358.71033 | 70.64110 | 280.01548 | 36.27993 | 0.4633080 | 22.2861045 | 77 | 4 | 2006–2009 | 0.15 | M-v | 1 | MPC | 166262 | 2006 $SX_{368}$ |
| 2006 $SG_{369}$ | 7.9 | 0.15 | 20100104 | 3.22450 | 289.80611 | 101.32212 | 13.59623 | 0.3731340 | 48.0809939 | 54 | 4 | 2006–2009 | 0.14 | M-v | 2 | MPC | 157455 | 2006 $SG_{369}$ |
| 2006 $SB_{372}$ | 17.1 | 0.15 | 20100104 | 172.10842 | 293.05208 | 201.06749 | 2.35671 | 0.0876096 | 2.5385385 | 69 | 5 | 1992–2008 | 0.45 | M-v | 3 | MPC | 135960 | 2006 $SB_{372}$ |
| 2006 $SS_{394}$ | 17.3 | 0.15 | 20100104 | 180.67369 | 262.26589 | 196.34589 | 2.20151 | 0.1549581 | 2.7813337 | 53 | 4 | 2001–2008 | 0.42 | M-v | 0 | MPC | 134978 | 2006 $SS_{394}$ |
| 2006 $SQ_{395}$ | 18.7 | 0.15 | 20060922 | 133.97928 | 210.36992 | 17.69103 | 5.42529 | 0.1028161 | 2.2051228 | 34 | 1 | 26 days | 0.08 | | | MPC | | 2006 $SQ_{395}$ |
| 2006 $ST_{395}$ | 18.3 | 0.15 | 20060922 | 346.41154 | 17.78637 | 12.91548 | 10.04232 | 0.1975211 | 3.1266018 | 44 | 1 | 26 days | 0.10 | | | MPC | | 2006 $ST_{395}$ |
| 2006 $SP_{406}$ | 18.4 | 0.15 | 20060922 | 26.74214 | 320.20299 | 12.98487 | 15.82003 | 0.1071453 | 2.5467722 | 13 | 1 | 25 days | 0.54 | | | MPC | | 2006 $SP_{406}$ |
| 2006 $SD_{410}$ | 17.8 | 0.15 | 20060922 | 342.23571 | 199.59902 | 193.23910 | 6.90972 | 0.1877625 | 3.1710564 | 13 | 1 | 29 days | 0.36 | | | MPC | | 2006 $SD_{410}$ |
| 2006 $SA_{412}$ | 16.6 | 0.15 | 20100104 | 284.56910 | 195.08823 | 146.62684 | 11.17173 | 0.2362199 | 2.7933001 | 54 | 6 | 2001–2009 | 0.52 | M-v | 1 | MPC | 165529 | 2006 $SA_{412}$ |
| 2006 $SS_{412}$ | 17.2 | 0.15 | 20100104 | 301.65194 | 74.46705 | 296.26265 | 3.68419 | 0.1816067 | 2.5118559 | 23 | 3 | 2002–2008 | 0.44 | M-v | 3 | MPC | 165530 | 2006 $SS_{412}$ |
| 2006 $SW_{412}$ | 17.4 | 0.15 | 20060922 | 346.48003 | 152.75551 | 238.58258 | 9.91830 | 0.3043159 | 2.7734655 | 17 | 1 | 36 days | 0.59 | | | MPC | | 2006 $SW_{412}$ |
| 2006 $SA_{413}$ | 16.3 | 0.15 | 20060922 | 11.50961 | 98.33283 | 253.75731 | 14.45873 | 0.2888176 | 3.0944031 | 20 | 1 | 40 days | 0.73 | | | MPC | | 2006 $SA_{413}$ |
| 2006 $SB_{413}$ | 17.2 | 0.15 | 20060922 | 347.24065 | 304.44460 | 75.38828 | 9.60105 | 0.1577532 | 2.4050395 | 11 | 1 | 22 days | 0.53 | | | MPC | | 2006 $SB_{413}$ |
| 2006 $SE_{413}$ | 17.0 | 0.15 | 20061012 | 343.94181 | 262.24293 | 154.87819 | 12.00984 | 0.2844348 | 2.6067234 | 20 | 1 | 59 days | 0.53 | | | MPC | | 2006 $SE_{413}$ |
| 2006 $SK_{413}$ | 16.5 | 0.15 | 20061012 | 21.95933 | 236.40828 | 112.07338 | 13.70555 | 0.2953307 | 2.6889297 | 16 | 1 | 58 days | 0.53 | | | MPC | | 2006 $SK_{413}$ |
| 2006 $SM_{413}$ | 17.5 | 0.15 | 20060922 | 350.28454 | 74.50431 | 311.78515 | 6.76872 | 0.1540817 | 2.2268290 | 10 | 1 | 25 days | 0.37 | | | MPC | | 2006 $SM_{413}$ |
| 2006 $TG_4$ | 16.7 | 0.15 | 20100104 | 308.51215 | 2.18996 | 321.54953 | 2.38273 | 0.1551391 | 2.7574781 | 48 | 5 | 1992–2008 | 0.41 | M-v | 1 | MPC | 122840 | 2006 $TG_4$ |
| 2006 $TK_{10}$ | 18.0 | 0.15 | 20060922 | 58.24085 | 319.83088 | 328.84463 | 4.01012 | 0.1966770 | 2.5488608 | 17 | 1 | 32 days | 0.35 | | | MPC | | 2006 $TK_{10}$ |
| 2006 $TO_{10}$ | 17.3 | 0.15 | 20060922 | 44.40468 | 329.05714 | 351.99933 | 9.02416 | 0.0409392 | 2.5716437 | 23 | 1 | 36 days | 0.33 | | | MPC | | 2006 $TO_{10}$ |
| 2006 $TP_{11}$ | 18.0 | 0.15 | 20061012 | 339.74270 | 217.88269 | 200.31104 | 6.92736 | 0.3508864 | 2.6941885 | 28 | 1 | 8 days | 0.39 | | | MPC | | 2006 $TP_{11}$ |
| 2006 $TD_{24}$ | 17.8 | 0.15 | 20100104 | 39.01787 | 46.70909 | 11.32308 | 20.60150 | 0.1220337 | 1.9066643 | 43 | 3 | 2005–2009 | 0.51 | M-v | 2 | MPC | 110217 | 2006 $TD_{24}$ |
| 2006 $TJ_{57}$ | 17.4 | 0.15 | 20061012 | 99.35014 | 65.00646 | 197.91676 | 19.03640 | 0.1362383 | 3.0132338 | 11 | 1 | 3 days | 0.29 | | | MPC | | 2006 $TJ_{57}$ |
| 2006 $TP_{66}$ | 15.4 | 0.15 | 20100104 | 148.16488 | 118.93669 | 337.94691 | 10.79508 | 0.0196259 | 2.9603977 | 41 | 4 | 2001–2009 | 0.52 | M-v | 1 | MPC | 131957 | 2006 $TP_{66}$ |
| 2006 $TJ_{69}$ | 15.1 | 0.15 | 20100104 | 285.49314 | 187.78031 | 101.29188 | 13.11479 | 0.0452042 | 3.1999299 | 26 | 3 | 1996–2009 | 0.49 | M-v | 2 | MPC | 126212 | 2006 $TJ_{69}$ |
| 2006 $TH_{85}$ | 17.8 | 0.15 | 20100104 | 40.17614 | 83.14329 | 269.03580 | 3.07093 | 0.1999083 | 2.1330047 | 107 | 5 | 2001–2009 | 0.44 | M-v | 2 | MPC | 164297 | 2006 $TH_{85}$ |
| 2006 $TP_{107}$ | 17.1 | 0.15 | 20100104 | 83.82350 | 39.67603 | 327.65891 | 19.68079 | 0.1062621 | 1.9169152 | 48 | 5 | 1998–2009 | 0.66 | M-v | 2 | MPC | 122845 | 2006 $TP_{107}$ |
| 2006 $TU_{107}$ | 13.5 | 0.15 | 20100104 | 349.15538 | 195.75535 | 238.07101 | 16.31083 | 0.0209021 | 5.3048760 | 62 | 5 | 2000–2009 | 0.25 | M-v | 0 | MPC | 166262 | 2006 $TU_{107}$ |
| 2006 $TV_{108}$ | 17.3 | 0.15 | 20100104 | 153.43163 | 247.18824 | 74.02645 | 26.72758 | 0.0460679 | 1.8574025 | 57 | 4 | 2003–2009 | 0.44 | M-v | 1 | MPC | 140165 | 2006 $TV_{108}$ |
| 2006 $TJ_{113}$ | 16.4 | 0.15 | 20100104 | 267.31107 | 249.57424 | 140.22281 | 11.25074 | 0.1352972 | 2.6927558 | 51 | 4 | 1999–2009 | 0.34 | M-v | 1 | MPC | 153562 | 2006 $TJ_{113}$ |
| 2006 $TD_{130}$ | 15.1 | 0.15 | 20061101 | 78.98893 | 164.05754 | 138.38949 | 14.01001 | 0.1216129 | 2.9919995 | 16 | 1 | 43 days | 0.68 | | | MPC | | 2006 $TD_{130}$ |
| 2006 $TE_{130}$ | 17.8 | 0.15 | 20061101 | 8.92441 | 25.27827 | 355.99589 | 9.51664 | 0.3860937 | 2.5949024 | 15 | 1 | 40 days | 0.36 | | | MPC | | 2006 $TE_{130}$ |
| 2006 $TF_{130}$ | 17.1 | 0.15 | 20061012 | 28.74879 | 230.56420 | 116.24650 | 7.70911 | 0.2143815 | 2.2397672 | 15 | 1 | 35 days | 0.68 | | | MPC | | 2006 $TF_{130}$ |
| 2006 UR | 19.4 | 0.15 | 20100104 | 1.10859 | 200.05155 | 263.35571 | 5.32431 | 0.4475839 | 2.0193450 | 254 | 2 | 2006–2009 | 0.37 | M-v | 1 | MPC | 166263 | 2006 UR |
| 2006 $UF_1$ | 15.1 | 0.15 | 20100104 | 221.30836 | 56.67094 | 292.11468 | 8.22304 | 0.0107687 | 3.1005120 | 40 | 6 | 2001–2009 | 0.49 | M-v | 1 | MPC | 165531 | 2006 $UF_1$ |
| 2006 $UF_{18}$ | 16.2 | 0.15 | 20100104 | 252.07918 | 296.55291 | 14.84518 | 3.12572 | 0.1523027 | 3.1083202 | 35 | 3 | 2004–2007 | 0.39 | M-v | 3 | MPC | 142843 | 2006 $UF_{18}$ |
| 2006 $US_{18}$ | 18.8 | 0.15 | 20100104 | 84.46064 | 102.50607 | 229.61736 | 5.62427 | 0.0749913 | 2.0417444 | 36 | 3 | 2003–2009 | 0.32 | M-v | 3 | MPC | 166263 | 2006 $US_{18}$ |
| 2006 $UJ_{24}$ | 16.8 | 0.15 | 20100104 | 205.67783 | 60.33208 | 335.73477 | 2.04308 | 0.0978403 | 3.1143431 | 42 | 4 | 1997–2009 | 0.38 | M-v | 1 | MPC | 156072 | 2006 $UJ_{24}$ |
| 2006 $UB_{44}$ | 18.7 | 0.15 | 20100104 | 27.97345 | 330.31165 | 39.31876 | 1.44461 | 0.1811787 | 2.1389241 | 90 | 5 | 2003–2009 | 0.31 | M-v | 2 | MPC | 166263 | 2006 $UB_{44}$ |
| 2006 $UO_{49}$ | 18.4 | 0.15 | 20100104 | 0.00165 | 1.61226 | 319.12188 | 0.60615 | 0.2032636 | 2.3522414 | 85 | 5 | 1995–2009 | 0.29 | M-v | 0 | MPC | 158549 | 2006 $UO_{49}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 $UY_{66}$ | 16.1 | 0.15 | 20100104 | 85.79586 | 322.04048 | 191.92426 | 5.33470 | 0.0913265 | 3.0564775 | 142 | 3 | 1995–2009 | 0.27 | M-v | 3 | MPC | 159504 | 2006 $UY_{66}$ |
| 2006 $UE_{75}$ | 17.5 | 0.15 | 20100104 | 16.46612 | 69.23546 | 30.32573 | 21.11416 | 0.1362991 | 1.8931834 | 43 | 3 | 2005–2009 | 0.50 | M-v | 2 | MPC | 156074 | 2006 $UE_{75}$ |
| 2006 $UO_{84}$ | 18.3 | 0.15 | 20100104 | 14.12548 | 352.07812 | 40.96724 | 6.64215 | 0.1844211 | 2.1439421 | 53 | 3 | 2005–2009 | 0.46 | M-v | 2 | MPC | 165531 | 2006 $UO_{84}$ |
| 2006 $UY_{86}$ | 17.6 | 0.15 | 20100104 | 1.97244 | 19.84995 | 28.15657 | 2.91878 | 0.1011250 | 2.1534391 | 76 | 3 | 2006–2009 | 0.42 | M-v | 2 | MPC | 166263 | 2006 $UY_{86}$ |
| 2006 $UV_{87}$ | 17.6 | 0.15 | 20100104 | 357.00468 | 193.66695 | 235.51397 | 5.06520 | 0.1030233 | 2.1188385 | 88 | 2 | 2006–2009 | 0.45 | M-v | 3 | MPC | 166263 | 2006 $UV_{87}$ |
| 2006 $UK_{88}$ | 18.0 | 0.15 | 20100104 | 46.35323 | 9.74263 | 321.19104 | 1.56995 | 0.1983583 | 2.1868717 | 98 | 3 | 2006–2009 | 0.44 | M-v | 2 | MPC | 166263 | 2006 $UK_{88}$ |
| 2006 $UV_{183}$ | 17.1 | 0.15 | 20100104 | 43.02507 | 294.26251 | 124.09820 | 23.87945 | 0.0992247 | 1.9098493 | 27 | 4 | 2005–2009 | 0.43 | M-v | 1 | MPC | 140166 | 2006 $UV_{183}$ |
| 2006 $UE_{187}$ | 16.7 | 0.15 | 20060922 | 356.40378 | 85.18940 | 291.97030 | 10.57830 | 0.1864672 | 2.6198173 | 16 | 1 | 25 days | 0.33 | | | MPC | | 2006 $UE_{187}$ |
| 2006 $UX_{189}$ | 16.7 | 0.15 | 20061012 | 13.91203 | 59.72363 | 304.73695 | 6.95184 | 0.1803871 | 2.6504833 | 18 | 1 | 29 days | 0.49 | | | MPC | | 2006 $UX_{189}$ |
| 2006 $UD_{190}$ | 15.2 | 0.15 | 20061012 | 328.65914 | 184.71724 | 239.56019 | 14.26049 | 0.0798740 | 3.2176562 | 21 | 1 | 34 days | 0.68 | | | MPC | | 2006 $UD_{190}$ |
| 2006 $UB_{193}$ | 17.0 | 0.15 | 20100104 | 260.12723 | 65.60286 | 357.23154 | 11.17845 | 0.3046168 | 2.6140166 | 25 | 1 | 68 days | 0.39 | M-v | 4 | MPC | | 2006 $UB_{193}$ |
| 2006 $UJ_{194}$ | 16.6 | 0.15 | 20100104 | 234.89645 | 307.86624 | 52.57617 | 1.20164 | 0.1799031 | 3.1033090 | 45 | 4 | 1995–2008 | 0.38 | M-v | 1 | MPC | 133523 | 2006 $UJ_{194}$ |
| 2006 $UH_{235}$ | 16.5 | 0.15 | 20100104 | 305.12645 | 90.85269 | 213.52536 | 5.33584 | 0.0752009 | 2.9132550 | 37 | 3 | 2001–2009 | 0.33 | M-v | 2 | MPC | 110450 | 2006 $UH_{235}$ |
| 2006 $UE_{262}$ | 16.9 | 0.15 | 20100104 | 39.50960 | 133.86579 | 253.97790 | 4.59449 | 0.1816358 | 2.1743077 | 109 | 3 | 2006–2009 | 0.42 | M-v | 2 | MPC | 166263 | 2006 $UE_{262}$ |
| 2006 $UZ_{262}$ | 18.6 | 0.15 | 20100104 | 94.36185 | 227.13850 | 68.86126 | 1.98015 | 0.1579438 | 2.1565056 | 33 | 3 | 2005–2009 | 0.39 | M-v | 2 | MPC | 110461 | 2006 $UZ_{262}$ |
| 2006 $UZ_{291}$ | 15.8 | 0.15 | 20100104 | 94.00193 | 191.68126 | 283.70103 | 9.23719 | 0.0564683 | 3.0610649 | 66 | 4 | 1995–2009 | 0.38 | M-v | 1 | MPC | 152468 | 2006 $UZ_{291}$ |
| 2006 $UM_{338}$ | 17.8 | 0.15 | 20100104 | 65.61501 | 97.92063 | 240.88030 | 4.92487 | 0.1639227 | 2.1511120 | 34 | 3 | 2006–2009 | 0.37 | M-v | 3 | MPC | 166263 | 2006 $UM_{338}$ |
| 2006 $UZ_{360}$ | 16.2 | 0.15 | 20061101 | 326.88733 | 258.33752 | 193.23255 | 15.53662 | 0.2428380 | 3.0365752 | 15 | 1 | 34 days | 0.76 | | | MPC | | 2006 $UZ_{360}$ |
| 2006 $UB_{361}$ | 16.8 | 0.15 | 20061101 | 310.87870 | 311.69965 | 150.84123 | 4.88745 | 0.1877448 | 2.7140640 | 12 | 1 | 38 days | 0.46 | | | MPC | | 2006 $UB_{361}$ |
| 2006 $UC_{361}$ | 17.4 | 0.15 | 20061012 | 1.35733 | 62.81023 | 317.57014 | 8.71730 | 0.2109708 | 2.3734980 | 15 | 1 | 8 days | 0.38 | | | MPC | | 2006 $UC_{361}$ |
| 2006 $UD_{361}$ | 16.9 | 0.15 | 20061101 | 26.87088 | 109.32277 | 243.20315 | 11.66775 | 0.2927761 | 2.6951049 | 24 | 1 | 57 days | 0.43 | | | MPC | | 2006 $UD_{361}$ |
| 2006 $UF_{361}$ | 17.3 | 0.15 | 20061101 | 8.93799 | 2.86370 | 25.04284 | 16.55082 | 0.2593643 | 2.6414342 | 23 | 1 | 33 days | 0.63 | | | MPC | | 2006 $UF_{361}$ |
| 2006 $UG_{361}$ | 17.6 | 0.15 | 20061101 | 29.21494 | 76.44599 | 268.59806 | 6.05758 | 0.3438529 | 2.5053718 | 12 | 1 | 26 days | 0.50 | | | MPC | | 2006 $UG_{361}$ |
| 2006 $UH_{361}$ | 17.1 | 0.15 | 20061101 | 3.59244 | 99.19357 | 302.16677 | 5.39534 | 0.2857816 | 2.6178245 | 19 | 1 | 33 days | 0.51 | | | MPC | | 2006 $UH_{361}$ |
| 2006 $UJ_{361}$ | 15.2 | 0.15 | 20061101 | 27.21118 | 261.25986 | 102.45228 | 18.85221 | 0.1492237 | 3.1666262 | 12 | 1 | 27 days | 0.68 | | | MPC | | 2006 $UJ_{361}$ |
| 2006 $UL_{361}$ | 16.5 | 0.15 | 20061101 | 21.28977 | 58.74663 | 317.68460 | 7.01219 | 0.1880909 | 2.6376502 | 18 | 1 | 29 days | 0.62 | | | MPC | | 2006 $UL_{361}$ |
| 2006 $UM_{361}$ | 16.9 | 0.15 | 20061101 | 0.47990 | 289.97545 | 101.00329 | 13.79215 | 0.3375227 | 2.6753017 | 12 | 1 | 24 days | 0.56 | | | MPC | | 2006 $UM_{361}$ |
| 2006 $VG_{4}$ | 17.2 | 0.15 | 20100104 | 239.12972 | 242.09573 | 290.13852 | 1.43377 | 0.0836629 | 2.1831526 | 54 | 4 | 2000–2009 | 0.49 | M-v | 2 | MPC | 162491 | 2006 $VG_{4}$ |
| 2006 $VO_{13}$ | 17.2 | 0.15 | 20100104 | 60.66912 | 281.71966 | 46.02640 | 5.79181 | 0.3279146 | 2.1287598 | 132 | 3 | 1999–2009 | 0.51 | M-v | 1 | MPC | 166263 | 2006 $VO_{13}$ |
| 2006 $VE_{16}$ | 18.1 | 0.15 | 20100104 | 302.56962 | 84.87337 | 27.39310 | 4.86393 | 0.0719712 | 2.1658736 | 41 | 3 | 2004–2009 | 0.24 | M-v | 2 | MPC | 166263 | 2006 $VE_{16}$ |
| 2006 $VO_{27}$ | 17.6 | 0.15 | 20100104 | 79.21755 | 67.05171 | 239.05191 | 5.59239 | 0.1828412 | 2.1858590 | 35 | 2 | 2006–2009 | 0.42 | M-v | 4 | MPC | 163802 | 2006 $VO_{27}$ |
| 2006 $VL_{63}$ | 17.5 | 0.15 | 20100104 | 33.58416 | 128.40217 | 241.54127 | 5.88695 | 0.0985190 | 2.1850028 | 50 | 3 | 2005–2009 | 0.47 | M-v | 2 | MPC | 164299 | 2006 $VL_{63}$ |
| 2006 $VU_{80}$ | 16.3 | 0.15 | 20100104 | 285.47456 | 218.16414 | 106.65390 | 3.14002 | 0.1709181 | 3.1119801 | 34 | 4 | 1998–2008 | 0.29 | M-v | 0 | MPC | 153580 | 2006 $VU_{80}$ |
| 2006 $VQ_{112}$ | 17.7 | 0.15 | 20100104 | 23.23694 | 6.85099 | 338.67308 | 3.90751 | 0.2528227 | 2.2605156 | 31 | 3 | 2004–2009 | 0.53 | M-v | 3 | MPC | 112981 | 2006 $VQ_{112}$ |
| 2006 $VC_{138}$ | 17.9 | 0.15 | 20100104 | 194.15689 | 112.36324 | 116.56868 | 1.10951 | 0.0970658 | 2.1492439 | 49 | 6 | 1999–2009 | 0.40 | M-v | 1 | MPC | 164299 | 2006 $VC_{138}$ |
| 2006 $VM_{146}$ | 16.9 | 0.15 | 20100104 | 62.49659 | 174.45966 | 154.60330 | 4.95809 | 0.1943427 | 2.1752186 | 61 | 4 | 2005–2009 | 0.50 | M-v | 2 | MPC | 164299 | 2006 $VM_{146}$ |
| 2006 $VO_{155}$ | 15.0 | 0.15 | 20061101 | 31.42509 | 8.97072 | 358.71144 | 10.15138 | 0.1065861 | 3.0362273 | 21 | 1 | 55 days | 0.46 | | | MPC | | 2006 $VO_{155}$ |
| 2006 $VN_{156}$ | 16.6 | 0.15 | 20100104 | 320.99774 | 236.07324 | 64.35975 | 5.37978 | 0.0440735 | 2.7968182 | 72 | 5 | 2000–2009 | 0.34 | M-v | 0 | MPC | 157470 | 2006 $VN_{156}$ |
| 2006 $VB_{161}$ | 17.9 | 0.15 | 20100104 | 309.91174 | 204.64499 | 194.14790 | 5.02243 | 0.1127245 | 2.3079918 | 59 | 3 | 2005–2008 | 0.34 | M-v | 2 | MPC | 137582 | 2006 $VB_{161}$ |
| 2006 $VY_{173}$ | 17.4 | 0.15 | 20061121 | 33.41811 | 289.08442 | 75.60262 | 13.95528 | 0.3033427 | 2.6254791 | 31 | 1 | 55 days | 0.40 | | | MPC | | 2006 $VY_{173}$ |
| 2006 $VA_{174}$ | 15.9 | 0.15 | 20100104 | 290.99802 | 335.18273 | 133.35242 | 18.30604 | 0.0962022 | 2.6236676 | 23 | 1 | 145 days | 0.56 | M-v | 4 | MPC | | 2006 $VA_{174}$ |
| 2006 WW | 16.2 | 0.15 | 20100104 | 276.50164 | 197.50245 | 88.61887 | 33.00546 | 0.8634886 | 2.6928305 | 118 | 3 | 2006–2009 | 0.47 | M-v | 3 | MPC | 133153 | 2006 WW |
| 2006 $WN_{1}$ | 18.7 | 0.15 | 20100104 | 56.26111 | 93.33059 | 239.42562 | 4.01463 | 0.4507713 | 2.0997139 | 82 | 2 | 2006–2009 | 0.37 | M-v | 1 | MPC | 166264 | 2006 $WN_{1}$ |
| 2006 $WY_{2}$ | 18.5 | 0.15 | 20100104 | 185.36033 | 159.97216 | 99.88741 | 27.55167 | 0.3328900 | 0.9833952 | 91 | 4 | 2006–2009 | 0.45 | M-v | 3 | MPC | 152469 | 2006 $WY_{2}$ |
| 2006 $WC_{3}$ | 16.8 | 0.15 | 20100104 | 178.82779 | 25.89408 | 266.17338 | 17.97944 | 0.0541796 | 1.9227431 | 39 | 4 | 2003–2009 | 0.51 | M-v | 2 | MPC | 158557 | 2006 $WC_{3}$ |
| 2006 $WR_{4}$ | 16.8 | 0.15 | 20100104 | 22.05019 | 40.54373 | 51.68507 | 22.31742 | 0.0877024 | 1.9768431 | 52 | 6 | 1999–2009 | 0.51 | M-v | 1 | MPC | 122859 | 2006 $WR_{4}$ |
| 2006 $WJ_{11}$ | 16.7 | 0.15 | 20100104 | 349.94703 | 154.38056 | 265.40805 | 6.43772 | 0.0916976 | 2.1988188 | 75 | 4 | 2004–2009 | 0.48 | M-v | 2 | MPC | 164299 | 2006 $WJ_{11}$ |
| 2006 $WM_{12}$ | 17.6 | 0.15 | 20100104 | 336.60929 | 188.84066 | 249.08057 | 4.81223 | 0.0839449 | 2.1972619 | 36 | 2 | 2006–2009 | 0.22 | M-v | 3 | MPC | 163804 | 2006 $WM_{12}$ |
| 2006 $WS_{13}$ | 18.1 | 0.15 | 20100104 | 27.92805 | 151.37142 | 216.56981 | 4.17206 | 0.1757996 | 2.2022882 | 32 | 2 | 2006–2009 | 0.44 | M-v | 3 | MPC | 166264 | 2006 $WS_{13}$ |
| 2006 $WM_{27}$ | 16.7 | 0.15 | 20100104 | 58.28547 | 325.15001 | 95.78649 | 23.66163 | 0.1178536 | 1.9342803 | 87 | 4 | 1998–2009 | 0.56 | M-v | 2 | MPC | 166264 | 2006 $WM_{27}$ |
| 2006 $WU_{54}$ | 17.0 | 0.15 | 20100104 | 18.03694 | 139.34742 | 268.46182 | 2.59832 | 0.0483753 | 2.1440069 | 106 | 6 | 1999–2009 | 0.39 | M-v | 1 | MPC | 166264 | 2006 $WU_{54}$ |
| 2006 $WQ_{58}$ | 16.6 | 0.15 | 20100104 | 27.62080 | 276.24574 | 43.56449 | 6.89606 | 0.0664562 | 2.4570199 | 52 | 4 | 2002–2008 | 0.41 | M-v | 1 | MPC | 139269 | 2006 $WQ_{58}$ |
| 2006 $WM_{60}$ | 17.1 | 0.15 | 20061101 | 359.19370 | 272.78514 | 128.21529 | 13.61002 | 0.2637699 | 2.6412580 | 16 | 1 | 33 days | 0.49 | | | MPC | | 2006 $WM_{60}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 $WO_{69}$ | 17.1 | 0.15 | 20100104 | 332.58388 | 342.28355 | 124.06413 | 4.37841 | 0.0846553 | 2.2450080 | 106 | 6 | 1995–2009 | 0.50 | M-v | 1 | MPC | 166264 | 2006 $WO_{69}$ |
| 2006 $WY_{85}$ | 16.9 | 0.15 | 20100104 | 281.66552 | 247.14385 | 228.96560 | 6.07448 | 0.0647166 | 2.3088903 | 42 | 4 | 2004–2009 | 0.34 | M-v | 2 | MPC | 140705 | 2006 $WY_{85}$ |
| 2006 $WP_{96}$ | 16.2 | 0.15 | 20100104 | 130.76859 | 173.11237 | 59.00960 | 8.07668 | 0.0706918 | 2.4167152 | 61 | 4 | 2002–2008 | 0.49 | M-v | 2 | MPC | 141292 | 2006 $WP_{96}$ |
| 2006 $WQ_{102}$ | 17.6 | 0.15 | 20100104 | 79.90475 | 64.91568 | 245.93671 | 5.26250 | 0.1996382 | 2.1914817 | 41 | 3 | 2006–2009 | 0.32 | M-v | 1 | MPC | 165534 | 2006 $WQ_{102}$ |
| 2006 $WV_{113}$ | 17.0 | 0.15 | 20061012 | 351.39294 | 37.79297 | 18.76019 | 17.34973 | 0.4119558 | 3.0043367 | 19 | 1 | 48 days | 0.58 | | | MPC | | 2006 $WV_{113}$ |
| 2006 $WT_{138}$ | 15.6 | 0.15 | 20100104 | 238.96685 | 294.84680 | 100.62882 | 8.92025 | 0.0526598 | 2.9107884 | 45 | 4 | 2003–2009 | 0.53 | M-v | 1 | MPC | 135055 | 2006 $WT_{138}$ |
| 2006 $WA_{151}$ | 16.6 | 0.15 | 20100104 | 75.53589 | 265.16284 | 117.78508 | 24.73933 | 0.1139161 | 1.9615929 | 52 | 6 | 2002–2009 | 0.49 | M-v | 1 | MPC | 139270 | 2006 $WA_{151}$ |
| 2006 $WE_{151}$ | 18.1 | 0.15 | 20100104 | 332.64713 | 212.21353 | 228.43626 | 3.13760 | 0.0967246 | 2.1405138 | 62 | 5 | 1993–2009 | 0.39 | M-v | 1 | MPC | 164300 | 2006 $WE_{151}$ |
| 2006 $WY_{159}$ | 17.4 | 0.15 | 20100104 | 270.80939 | 94.54865 | 85.45691 | 4.93466 | 0.1504021 | 2.2712720 | 81 | 3 | 2004–2009 | 0.51 | M-v | 2 | MPC | 166264 | 2006 $WY_{159}$ |
| 2006 $WG_{182}$ | 16.6 | 0.15 | 20100104 | 292.81954 | 264.19291 | 72.82028 | 10.65812 | 0.1185514 | 3.0150065 | 27 | 3 | 2000–2009 | 0.30 | M-v | 2 | MPC | 112645 | 2006 $WG_{182}$ |
| 2006 $WL_{185}$ | 17.5 | 0.15 | 20100104 | 323.15920 | 185.56869 | 268.26707 | 3.93593 | 0.0988001 | 2.2154777 | 72 | 4 | 1997–2009 | 0.37 | M-v | 1 | MPC | 164300 | 2006 $WL_{185}$ |
| 2006 $WA_{201}$ | 18.1 | 0.15 | 20100104 | 5.11153 | 122.45434 | 282.86682 | 2.67877 | 0.2102824 | 2.2743256 | 58 | 2 | 2006–2009 | 0.38 | M-v | 3 | MPC | 166264 | 2006 $WA_{201}$ |
| 2006 $WZ_{201}$ | 17.7 | 0.15 | 20100104 | 49.97274 | 268.63919 | 111.45742 | 5.28672 | 0.1602445 | 2.1956701 | 41 | 4 | 2001–2009 | 0.45 | M-v | 1 | MPC | 166264 | 2006 $WZ_{201}$ |
| 2006 $WB_{206}$ | 15.9 | 0.15 | 20100104 | 38.37819 | 345.38862 | 302.38846 | 16.95753 | 0.0789753 | 3.0771950 | 22 | 1 | 78 days | 0.39 | M-v | 5 | MPC | | 2006 $WB_{206}$ |
| 2006 XA | 17.3 | 0.15 | 20100104 | 313.77873 | 300.68990 | 253.11008 | 10.29438 | 0.5485194 | 2.1969770 | 173 | 3 | 2006–2009 | 0.43 | M-v | 1 | MPC | 166264 | 2006 XA |
| 2006 $XQ_3$ | 16.2 | 0.15 | 20100104 | 266.96558 | 278.37572 | 84.00860 | 9.45781 | 0.3277313 | 2.7427205 | 36 | 1 | 144 days | 0.53 | M-v | 4 | MPC | | 2006 $XQ_3$ |
| 2006 $XP_9$ | 17.0 | 0.15 | 20100104 | 334.24479 | 357.64887 | 80.04542 | 7.34682 | 0.0625863 | 2.2701855 | 27 | 4 | 2002–2009 | 0.43 | M-v | 1 | MPC | 153586 | 2006 $XP_9$ |
| 2006 $XA_{14}$ | 17.1 | 0.15 | 20100104 | 64.37173 | 58.97278 | 296.76742 | 1.39476 | 0.0552741 | 2.1624177 | 57 | 5 | 1993–2009 | 0.48 | M-v | 1 | MPC | 166265 | 2006 $XA_{14}$ |
| 2006 $XU_{17}$ | 17.0 | 0.15 | 20100104 | 326.10923 | 136.14006 | 315.44228 | 3.75399 | 0.1976395 | 2.2725446 | 124 | 5 | 2000–2009 | 0.49 | M-v | 1 | MPC | 164301 | 2006 $XU_{17}$ |
| 2006 $XH_{19}$ | 18.5 | 0.15 | 20100104 | 339.93027 | 276.90295 | 165.49354 | 1.16268 | 0.1502891 | 2.2281184 | 41 | 3 | 2004–2009 | 0.41 | M-v | 3 | MPC | 166265 | 2006 $XH_{19}$ |
| 2006 $XJ_{31}$ | 18.3 | 0.15 | 20100104 | 27.13744 | 89.24643 | 289.48033 | 2.76712 | 0.1475834 | 2.2028690 | 50 | 4 | 2004–2009 | 0.34 | M-v | 2 | MPC | 164301 | 2006 $XJ_{31}$ |
| 2006 $XB_{60}$ | 17.7 | 0.15 | 20100104 | 197.05596 | 160.87116 | 86.82525 | 6.87779 | 0.1401977 | 2.2239555 | 27 | 5 | 2001–2009 | 0.36 | M-v | 1 | MPC | 166265 | 2006 $XB_{60}$ |
| 2006 $XX_{67}$ | 17.9 | 0.15 | 20100104 | 1.60518 | 312.72134 | 98.96311 | 4.90241 | 0.0975196 | 2.2031034 | 65 | 4 | 2004–2009 | 0.46 | M-v | 2 | MPC | 164301 | 2006 $XX_{67}$ |
| 2006 $XA_{69}$ | 17.9 | 0.15 | 20100104 | 355.30649 | 298.78178 | 114.71122 | 0.72381 | 0.1259695 | 2.2961183 | 53 | 5 | 2000–2009 | 0.27 | M-v | 0 | MPC | 164301 | 2006 $XA_{69}$ |
| 2006 $XN_{73}$ | 15.7 | 0.15 | 20100104 | 78.14596 | 176.61955 | 148.39106 | 5.10937 | 0.1392010 | 2.6219484 | 65 | 5 | 2000–2009 | 0.52 | M-v | 1 | MPC | 166265 | 2006 $XN_{73}$ |
| 2006 $YB_1$ | 17.3 | 0.15 | 20100104 | 47.36461 | 264.73940 | 83.75552 | 5.75960 | 0.1910211 | 2.2182920 | 57 | 4 | 2005–2009 | 0.36 | M-v | 1 | MPC | 164301 | 2006 $YB_1$ |
| 2006 $YQ_4$ | 17.2 | 0.15 | 20100104 | 300.79585 | 212.51789 | 265.41732 | 4.85154 | 0.1807946 | 2.3199912 | 56 | 3 | 2000–2009 | 0.48 | M-v | 2 | MPC | 164301 | 2006 $YQ_4$ |
| 2006 $YT_{13}$ | 18.3 | 0.15 | 20100104 | 307.68639 | 105.44687 | 116.78168 | 38.23930 | 0.4259069 | 1.3233086 | 77 | 3 | 2006–2009 | 0.55 | M-v | 3 | MPC | 164301 | 2006 $YT_{13}$ |
| 2006 $YU_{13}$ | 18.5 | 0.15 | 20100104 | 338.41063 | 2.50337 | 13.37571 | 1.46839 | 0.2010085 | 2.4311799 | 27 | 3 | 2002–2008 | 0.46 | M-v | 4 | MPC | 160512 | 2006 $YU_{13}$ |
| 2006 $YE_{17}$ | 17.2 | 0.15 | 20100104 | 142.37345 | 184.94182 | 108.69917 | 6.61017 | 0.1430407 | 2.2652250 | 41 | 7 | 2000–2009 | 0.38 | M-v | 1 | MPC | 166265 | 2006 $YE_{17}$ |
| 2006 $YJ_{23}$ | 17.4 | 0.15 | 20100104 | 244.95986 | 108.90249 | 67.10895 | 4.30194 | 0.1636568 | 2.3402464 | 27 | 3 | 2000–2009 | 0.42 | M-v | 3 | MPC | 112682 | 2006 $YJ_{23}$ |
| 2006 $YM_{34}$ | 17.8 | 0.15 | 20100104 | 304.25746 | 72.48437 | 66.71627 | 6.09436 | 0.1318921 | 2.2270730 | 50 | 4 | 1999–2009 | 0.38 | M-v | 1 | MPC | 166265 | 2006 $YM_{34}$ |
| 2006 $YW_{34}$ | 18.3 | 0.15 | 20100104 | 308.50990 | 93.92542 | 60.39446 | 4.47314 | 0.1332215 | 2.1560433 | 27 | 3 | 2004–2009 | 0.35 | M-v | 3 | MPC | 114507 | 2006 $YW_{34}$ |
| 2006 $YJ_{35}$ | 18.0 | 0.15 | 20100104 | 17.81217 | 51.11051 | 333.46291 | 3.71754 | 0.2066500 | 2.2780876 | 43 | 3 | 2002–2009 | 0.52 | M-v | 2 | MPC | 164302 | 2006 $YJ_{35}$ |
| 2006 $YU_{38}$ | 18.4 | 0.15 | 20100104 | 340.49222 | 141.42842 | 328.11976 | 4.03635 | 0.0748827 | 2.1833456 | 42 | 4 | 1999–2009 | 0.41 | M-v | 1 | MPC | 118184 | 2006 $YU_{38}$ |
| 2006 $YF_{39}$ | 16.5 | 0.15 | 20100104 | 201.07159 | 281.49375 | 312.00710 | 6.61578 | 0.0570385 | 2.2892390 | 68 | 6 | 2000–2009 | 0.47 | M-v | 1 | MPC | 166265 | 2006 $YF_{39}$ |
| 2006 $YO_{40}$ | 17.9 | 0.15 | 20100104 | 319.88050 | 226.05465 | 235.25728 | 2.20981 | 0.1373729 | 2.2389976 | 36 | 4 | 1999–2009 | 0.35 | M-v | 0 | MPC | 166265 | 2006 $YO_{40}$ |
| 2006 $YY_{40}$ | 17.4 | 0.15 | 20100104 | 141.56487 | 98.40590 | 199.19095 | 1.64505 | 0.1251025 | 2.1193908 | 31 | 4 | 2005–2009 | 0.23 | M-v | 1 | MPC | 141303 | 2006 $YY_{40}$ |
| 2006 $YP_{46}$ | 17.2 | 0.15 | 20100104 | 298.51291 | 257.82846 | 255.73894 | 4.72783 | 0.0893429 | 2.2127763 | 46 | 4 | 2001–2009 | 0.37 | M-v | 2 | MPC | 165535 | 2006 $YP_{46}$ |
| 2006 $YQ_{49}$ | 17.6 | 0.15 | 20100104 | 299.67047 | 90.18320 | 25.79466 | 3.91006 | 0.1041703 | 2.3564211 | 53 | 2 | 2006–2009 | 0.47 | M-v | 4 | MPC | 166265 | 2006 $YQ_{49}$ |
| 2006 $YC_{50}$ | 18.0 | 0.15 | 20100104 | 6.51328 | 310.45328 | 122.22127 | 1.37062 | 0.1609488 | 2.1833759 | 57 | 2 | 2006–2009 | 0.40 | M-v | 3 | MPC | 165535 | 2006 $YC_{50}$ |
| 2006 $YE_{51}$ | 17.9 | 0.15 | 20100104 | 257.06853 | 84.52416 | 93.05193 | 2.27517 | 0.1292639 | 2.3699208 | 32 | 3 | 2002–2009 | 0.39 | M-v | 3 | MPC | 166265 | 2006 $YE_{51}$ |
| 2006 $YQ_{53}$ | 17.3 | 0.15 | 20100104 | 44.20554 | 267.34698 | 83.15948 | 5.60208 | 0.1666736 | 2.3882023 | 38 | 4 | 2005–2009 | 0.43 | M-v | 1 | MPC | 163808 | 2006 $YQ_{53}$ |
| 2006 $YN_{54}$ | 18.0 | 0.15 | 20100104 | 332.93980 | 159.10048 | 304.55491 | 2.44908 | 0.0980295 | 2.2146391 | 44 | 3 | 2004–2009 | 0.37 | M-v | 3 | MPC | 165536 | 2006 $YN_{54}$ |
| 2006 $YM_{55}$ | 17.6 | 0.15 | 20061231 | 328.13413 | 113.36894 | 42.61468 | 2.34642 | 0.1128370 | 2.4205546 | 12 | 1 | 38 days | 0.48 | | | MPC | | 2006 $YM_{55}$ |
| 2006 $YN_{55}$ | 16.7 | 0.15 | 20070120 | 200.47009 | 35.01719 | 240.75184 | 1.88493 | 0.0439052 | 2.6441233 | 17 | 1 | 56 days | 0.60 | | | MPC | | 2006 $YN_{55}$ |
| 2006 $YO_{55}$ | 17.2 | 0.15 | 20100104 | 224.76091 | 6.88839 | 140.57158 | 5.87705 | 0.0844584 | 2.6302813 | 20 | 1 | 90 days | 0.28 | M-v | 4 | MPC | | 2006 $YO_{55}$ |
| 2006 $YP_{55}$ | 17.7 | 0.15 | 20061231 | 286.01206 | 288.45204 | 285.24410 | 3.55796 | 0.1677440 | 2.5593648 | 18 | 1 | 43 days | 0.38 | | | MPC | | 2006 $YP_{55}$ |
| 2006 $YQ_{55}$ | 15.7 | 0.15 | 20100104 | 78.15118 | 7.81593 | 330.46436 | 14.39722 | 0.1819553 | 2.5409227 | 22 | 1 | 81 days | 0.58 | M-v | 5 | MPC | | 2006 $YQ_{55}$ |
| 2007 AG | 20.1 | 0.15 | 20100104 | 129.53210 | 5.60908 | 283.29177 | 11.93956 | 0.3744377 | 0.7203120 | 133 | 3 | 2007–2009 | 0.40 | M-v | 3 | MPC | 148609 | 2007 AG |
| 2007 $AD_1$ | 18.5 | 0.15 | 20100104 | 312.40197 | 22.22179 | 119.61521 | 3.03138 | 0.1230739 | 2.1858239 | 43 | 2 | 2006–2009 | 0.34 | M-v | 3 | MPC | 165536 | 2007 $AD_1$ |
| 2007 $AQ_1$ | 18.0 | 0.15 | 20100104 | 310.55101 | 35.30569 | 91.63295 | 1.44489 | 0.1345925 | 2.2504781 | 58 | 4 | 1997–2009 | 0.40 | M-v | 2 | MPC | 166266 | 2007 $AQ_1$ |
| 2007 $AW_1$ | 17.4 | 0.15 | 20100104 | 342.82436 | 175.46398 | 280.09404 | 2.90028 | 0.1117395 | 2.2078188 | 67 | 3 | 2005–2009 | 0.44 | M-v | 3 | MPC | 165536 | 2007 $AW_1$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 $AC_5$ | 17.7 | 0.15 | 20100104 | 10.26911 | 272.92013 | 116.01830 | 0.96734 | 0.2320593 | 2.2633908 | 66 | 3 | 2002–2009 | 0.38 | M-v | 1 | MPC | 164302 | 2007 $AC_5$ |
| 2007 $AA_8$ | 18.0 | 0.15 | 20100104 | 19.40976 | 340.36507 | 44.61176 | 3.01286 | 0.1660224 | 2.3147747 | 55 | 3 | 2002–2009 | 0.39 | M-v | 2 | MPC | 164302 | 2007 $AA_8$ |
| 2007 $AB_8$ | 17.7 | 0.15 | 20100104 | 284.42909 | 82.21344 | 92.51299 | 5.23204 | 0.0653103 | 2.1830981 | 64 | 3 | 2004–2009 | 0.32 | M-v | 3 | MPC | 166266 | 2007 $AB_8$ |
| 2007 $AG_{12}$ | 19.7 | 0.15 | 20100104 | 33.56221 | 68.08780 | 305.62140 | 42.02801 | 0.6561997 | 2.0898965 | 45 | 3 | 2007–2009 | 0.57 | M-v | 1 | MPC | 160884 | 2007 $AG_{12}$ |
| 2007 $AN_{14}$ | 17.7 | 0.15 | 20100104 | 16.39404 | 158.09878 | 272.53241 | 2.08092 | 0.1118115 | 2.1649240 | 43 | 4 | 1996–2009 | 0.48 | M-v | 2 | MPC | 118186 | 2007 $AN_{14}$ |
| 2007 $AU_{19}$ | 17.3 | 0.15 | 20100104 | 77.41061 | 316.43978 | 58.53983 | 2.19800 | 0.1023759 | 2.1438730 | 63 | 4 | 2002–2009 | 0.49 | M-v | 2 | MPC | 166266 | 2007 $AU_{19}$ |
| 2007 $AV_{21}$ | 17.1 | 0.15 | 20100104 | 355.29029 | 355.63894 | 92.42494 | 4.74177 | 0.1145937 | 2.1848732 | 89 | 3 | 2004–2009 | 0.46 | M-v | 3 | MPC | 165538 | 2007 $AV_{21}$ |
| 2007 $AS_{23}$ | 17.7 | 0.15 | 20100104 | 27.79142 | 151.89169 | 253.20129 | 3.07242 | 0.1476808 | 2.1827720 | 61 | 3 | 2002–2009 | 0.39 | M-v | 2 | MPC | 166266 | 2007 $AS_{23}$ |
| 2007 $AM_{25}$ | 16.9 | 0.15 | 20100104 | 147.46457 | 27.29937 | 317.18907 | 17.30130 | 0.0867382 | 1.9785012 | 36 | 3 | 2007–2009 | 0.39 | M-v | 2 | MPC | 166266 | 2007 $AM_{25}$ |
| 2007 $AD_{27}$ | 17.2 | 0.15 | 20100104 | 291.09412 | 101.51698 | 24.99504 | 2.87914 | 0.1091504 | 2.4073784 | 54 | 5 | 2000–2009 | 0.35 | M-v | 1 | MPC | 166266 | 2007 $AD_{27}$ |
| 2007 $AK_{27}$ | 18.0 | 0.15 | 20100104 | 2.18369 | 127.88164 | 284.34728 | 2.06508 | 0.1805846 | 2.3257411 | 49 | 3 | 2005–2009 | 0.43 | M-v | 1 | MPC | 164303 | 2007 $AK_{27}$ |
| 2007 $AQ_{27}$ | 17.1 | 0.15 | 20100104 | 229.04581 | 155.67196 | 91.78489 | 5.86831 | 0.1516338 | 2.2060233 | 27 | 3 | 2004–2009 | 0.55 | M-v | 3 | MPC | 160884 | 2007 $AQ_{27}$ |
| 2007 $AA_{30}$ | 18.1 | 0.15 | 20100104 | 17.35862 | 271.83939 | 112.60816 | 1.44577 | 0.2257301 | 2.2914095 | 45 | 4 | 1995–2009 | 0.37 | M-v | 2 | MPC | 163810 | 2007 $AA_{30}$ |
| 2007 $AC_{30}$ | 17.7 | 0.15 | 20100104 | 262.82395 | 102.56099 | 72.11845 | 2.45965 | 0.1178593 | 2.3541811 | 34 | 3 | 2005–2009 | 0.30 | M-v | 3 | MPC | 166266 | 2007 $AC_{30}$ |
| 2007 $AL_{30}$ | 17.7 | 0.15 | 20100104 | 112.12712 | 117.55659 | 229.64242 | 1.51610 | 0.1524390 | 2.1262882 | 30 | 4 | 2002–2009 | 0.29 | M-v | 3 | MPC | 141307 | 2007 $AL_{30}$ |
| 2007 $AG_{31}$ | 15.5 | 0.15 | 20061231 | 223.76392 | 166.58994 | 98.89934 | 12.15272 | 0.0504530 | 3.0767583 | 10 | 1 | 18 days | 0.68 | | | MPC | | 2007 $AG_{31}$ |
| 2007 BN | 17.4 | 0.15 | 20100104 | 15.72818 | 313.09238 | 105.92293 | 6.27392 | 0.1040030 | 2.1927896 | 57 | 5 | 1997–2009 | 0.41 | M-v | 1 | MPC | 165538 | 2007 BN |
| 2007 BW | 16.9 | 0.15 | 20100104 | 182.26501 | 318.64045 | 306.92731 | 5.39885 | 0.0967653 | 2.2408672 | 45 | 5 | 1998–2009 | 0.44 | M-v | 1 | MPC | 140706 | 2007 BW |
| 2007 $BT_2$ | 17.1 | 0.15 | 20100104 | 135.82785 | 148.94214 | 31.03956 | 26.85577 | 0.2238841 | 1.6325874 | 525 | 3 | 1993–2009 | 0.36 | M-v | 1 | MPC | 159118 | 2007 $BT_2$ |
| 2007 $BQ_5$ | 17.6 | 0.15 | 20100104 | 348.06581 | 39.07372 | 61.29348 | 3.12619 | 0.0749524 | 2.1696506 | 64 | 5 | 1993–2009 | 0.43 | M-v | 1 | MPC | 166266 | 2007 $BQ_5$ |
| 2007 $BQ_7$ | 16.5 | 0.15 | 20100104 | 81.03268 | 220.41110 | 118.03475 | 27.83218 | 0.2514215 | 2.2473566 | 41 | 3 | 2006–2009 | 0.50 | M-v | 1 | MPC | 138972 | 2007 $BQ_7$ |
| 2007 $BL_{10}$ | 18.0 | 0.15 | 20100104 | 339.70967 | 180.53724 | 280.08433 | 3.56986 | 0.1163175 | 2.2068556 | 43 | 2 | 2006–2009 | 0.31 | M-v | 2 | MPC | 165539 | 2007 $BL_{10}$ |
| 2007 $BX_{10}$ | 17.6 | 0.15 | 20100104 | 260.21799 | 125.96338 | 62.24830 | 4.16229 | 0.0694403 | 2.2604326 | 38 | 4 | 2002–2009 | 0.46 | M-v | 1 | MPC | 166266 | 2007 $BX_{10}$ |
| 2007 $BZ_{10}$ | 17.8 | 0.15 | 20100104 | 82.76595 | 276.31300 | 84.19357 | 4.45825 | 0.1846304 | 2.1767816 | 27 | 3 | 2002–2009 | 0.40 | M-v | 3 | MPC | 166266 | 2007 $BZ_{10}$ |
| 2007 $BZ_{12}$ | 18.0 | 0.15 | 20100104 | 245.05718 | 184.79646 | 17.64056 | 2.08783 | 0.1354013 | 2.2992180 | 32 | 3 | 2004–2009 | 0.37 | M-v | 3 | MPC | 166266 | 2007 $BZ_{12}$ |
| 2007 $BX_{14}$ | 17.6 | 0.15 | 20100104 | 352.86226 | 85.18077 | 335.32016 | 3.01970 | 0.1525630 | 2.3159726 | 62 | 5 | 2000–2009 | 0.41 | M-v | 0 | MPC | 164303 | 2007 $BX_{14}$ |
| 2007 $BQ_{16}$ | 17.1 | 0.15 | 20100104 | 226.38118 | 124.37369 | 86.55430 | 2.35961 | 0.1365384 | 2.3704564 | 46 | 6 | 1995–2009 | 0.49 | M-v | 1 | MPC | 166266 | 2007 $BQ_{16}$ |
| 2007 $BY_{16}$ | 17.4 | 0.15 | 20100104 | 274.82837 | 54.47918 | 82.82722 | 2.20797 | 0.1326096 | 2.3917664 | 50 | 3 | 2002–2009 | 0.40 | M-v | 3 | MPC | 164303 | 2007 $BY_{16}$ |
| 2007 $BN_{18}$ | 17.6 | 0.15 | 20100104 | 335.01990 | 16.06701 | 67.76176 | 3.50061 | 0.1793498 | 2.2968262 | 51 | 4 | 2002–2009 | 0.30 | M-v | 0 | MPC | 163811 | 2007 $BN_{18}$ |
| 2007 $BM_{20}$ | 16.9 | 0.15 | 20100104 | 282.79549 | 190.83466 | 326.75411 | 5.30669 | 0.1698958 | 2.3394776 | 83 | 4 | 2000–2009 | 0.54 | M-v | 2 | MPC | 164303 | 2007 $BM_{20}$ |
| 2007 $BP_{26}$ | 18.4 | 0.15 | 20100104 | 282.15351 | 80.76082 | 106.91901 | 1.25317 | 0.0978779 | 2.1531668 | 37 | 4 | 2001–2009 | 0.35 | M-v | 2 | MPC | 147417 | 2007 $BP_{26}$ |
| 2007 $BF_{27}$ | 17.5 | 0.15 | 20100104 | 270.89842 | 213.74167 | 323.52333 | 1.92316 | 0.1728227 | 2.2926333 | 62 | 2 | 2006–2009 | 0.39 | M-v | 3 | MPC | 165539 | 2007 $BF_{27}$ |
| 2007 $BJ_{28}$ | 16.7 | 0.15 | 20100104 | 74.61487 | 320.21665 | 328.74436 | 3.50526 | 0.1819826 | 2.7812825 | 59 | 7 | 1995–2009 | 0.46 | M-v | 1 | MPC | 164304 | 2007 $BJ_{28}$ |
| 2007 $BN_{28}$ | 17.8 | 0.15 | 20100104 | 222.83777 | 115.52932 | 117.33102 | 4.46149 | 0.1922399 | 2.2837203 | 27 | 5 | 2000–2009 | 0.40 | M-v | 1 | MPC | 147417 | 2007 $BN_{28}$ |
| 2007 $BG_{29}$ | 17.9 | 0.15 | 20100104 | 175.71260 | 245.10345 | 61.04268 | 18.51081 | 0.3346799 | 0.8325781 | 60 | 3 | 2007–2009 | 0.48 | M-v | 4 | MPC | 166267 | 2007 $BG_{29}$ |
| 2007 $BY_{29}$ | 16.8 | 0.15 | 20100104 | 209.09130 | 104.50425 | 120.00372 | 4.94665 | 0.0251739 | 2.3274727 | 51 | 3 | 2005–2009 | 0.42 | M-v | 3 | MPC | 166267 | 2007 $BY_{29}$ |
| 2007 $BD_{30}$ | 16.5 | 0.15 | 20100104 | 322.24008 | 343.97429 | 118.42229 | 7.36122 | 0.0656455 | 2.3389928 | 54 | 3 | 2000–2009 | 0.54 | M-v | 2 | MPC | 164304 | 2007 $BD_{30}$ |
| 2007 $BZ_{31}$ | 17.5 | 0.15 | 20100104 | 231.59647 | 284.54130 | 283.36955 | 5.79265 | 0.0949032 | 2.2802022 | 41 | 3 | 2000–2009 | 0.28 | M-v | 3 | MPC | 165539 | 2007 $BZ_{31}$ |
| 2007 $BQ_{36}$ | 17.5 | 0.15 | 20100104 | 318.16426 | 17.27337 | 84.59731 | 5.62487 | 0.1242093 | 2.3370755 | 42 | 3 | 2002–2009 | 0.45 | M-v | 2 | MPC | 164304 | 2007 $BQ_{36}$ |
| 2007 $BQ_{37}$ | 17.8 | 0.15 | 20100104 | 23.74972 | 109.93920 | 282.70429 | 1.20733 | 0.1768405 | 2.2599141 | 57 | 4 | 2000–2009 | 0.41 | M-v | 1 | MPC | 166267 | 2007 $BQ_{37}$ |
| 2007 $BY_{37}$ | 18.4 | 0.15 | 20100104 | 19.84490 | 265.44137 | 157.16893 | 2.16695 | 0.0523250 | 2.2085624 | 43 | 6 | 2001–2009 | 0.34 | M-v | 0 | MPC | 166267 | 2007 $BY_{37}$ |
| 2007 $BQ_{40}$ | 18.3 | 0.15 | 20100104 | 334.49361 | 176.09077 | 277.22517 | 0.48066 | 0.1747892 | 2.2604759 | 78 | 2 | 2006–2009 | 0.34 | M-v | 3 | MPC | 166267 | 2007 $BQ_{40}$ |
| 2007 $BS_{41}$ | 17.0 | 0.15 | 20100104 | 226.34531 | 255.80714 | 307.17289 | 3.89297 | 0.1547218 | 2.3970546 | 67 | 4 | 2000–2009 | 0.40 | M-v | 2 | MPC | 166267 | 2007 $BS_{41}$ |
| 2007 $BO_{42}$ | 17.0 | 0.15 | 20100104 | 284.08715 | 324.26951 | 164.26988 | 2.25947 | 0.1732224 | 2.4085750 | 85 | 4 | 1994–2009 | 0.32 | M-v | 2 | MPC | 164304 | 2007 $BO_{42}$ |
| 2007 $BL_{43}$ | 18.0 | 0.15 | 20100104 | 299.63495 | 34.68603 | 124.41797 | 5.13330 | 0.0777307 | 2.1897096 | 45 | 4 | 2002–2009 | 0.40 | M-v | 2 | MPC | 158563 | 2007 $BL_{43}$ |
| 2007 $BB_{44}$ | 16.4 | 0.15 | 20100104 | 353.00545 | 261.26423 | 145.49718 | 1.69545 | 0.1802354 | 2.4292496 | 92 | 5 | 2002–2009 | 0.48 | M-v | 1 | MPC | 164304 | 2007 $BB_{44}$ |
| 2007 $BU_{44}$ | 16.4 | 0.15 | 20100104 | 181.54766 | 298.03349 | 271.55821 | 4.10119 | 0.0777250 | 2.5940508 | 37 | 4 | 2001–2009 | 0.29 | M-v | 3 | MPC | 162501 | 2007 $BU_{44}$ |
| 2007 $BF_{46}$ | 17.2 | 0.15 | 20100104 | 226.11987 | 130.73689 | 96.39212 | 2.92575 | 0.1599337 | 2.3195471 | 38 | 4 | 1993–2009 | 0.27 | M-v | 2 | MPC | 120515 | 2007 $BF_{46}$ |
| 2007 $BJ_{46}$ | 17.8 | 0.15 | 20100104 | 336.99680 | 3.54212 | 120.94140 | 6.25108 | 0.0573597 | 2.1841505 | 47 | 4 | 2001–2009 | 0.48 | M-v | 2 | MPC | 159785 | 2007 $BJ_{46}$ |
| 2007 $BN_{47}$ | 17.6 | 0.15 | 20100104 | 264.60179 | 102.67925 | 90.68231 | 3.40243 | 0.0981022 | 2.2749936 | 41 | 4 | 2004–2009 | 0.30 | M-v | 1 | MPC | 121874 | 2007 $BN_{47}$ |
| 2007 $BT_{48}$ | 16.3 | 0.15 | 20100104 | 5.36431 | 301.70601 | 113.70450 | 6.61577 | 0.0981897 | 2.3812467 | 55 | 4 | 1998–2009 | 0.49 | M-v | 1 | MPC | 166267 | 2007 $BT_{48}$ |
| 2007 $BR_{54}$ | 17.3 | 0.15 | 20100104 | 28.51540 | 321.44453 | 62.04265 | 3.77622 | 0.1189184 | 2.2942006 | 63 | 5 | 1995–2009 | 0.36 | M-v | 0 | MPC | 166267 | 2007 $BR_{54}$ |
| 2007 $BO_{56}$ | 17.5 | 0.15 | 20100104 | 19.92601 | 18.46422 | 1.35614 | 4.10913 | 0.0715434 | 2.3836897 | 42 | 3 | 2005–2009 | 0.39 | M-v | 2 | MPC | 164304 | 2007 $BO_{56}$ |

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| 2007 $BH_{57}$ | 17.1 | 0.15 | 20100104 | 337.38692 | 5.36669 | 66.75416 | 4.70644 | 0.1010938 | 2.3877648 | 52 | 4 | 1996–2009 | 0.51 | M-v | 1 | MPC | 164304 | 2007 $BH_{57}$ |
| 2007 $BQ_{64}$ | 17.4 | 0.15 | 20100104 | 90.93044 | 52.53480 | 285.68917 | 2.56340 | 0.1315895 | 2.3236102 | 53 | 3 | 2005–2009 | 0.37 | M-v | 3 | MPC | 166267 | 2007 $BQ_{64}$ |
| 2007 $BX_{65}$ | 17.0 | 0.15 | 20100104 | 249.08594 | 248.78962 | 311.85699 | 1.82245 | 0.1690145 | 2.3627802 | 66 | 3 | 2006–2009 | 0.44 | M-v | 2 | MPC | 166267 | 2007 $BX_{65}$ |
| 2007 $BZ_{65}$ | 18.2 | 0.15 | 20100104 | 264.26841 | 51.40904 | 145.33149 | 2.92381 | 0.1404448 | 2.2875934 | 26 | 3 | 2000–2009 | 0.36 | M-v | 3 | MPC | 120847 | 2007 $BZ_{65}$ |
| 2007 $BP_{67}$ | 16.7 | 0.15 | 20100104 | 267.39513 | 85.24570 | 99.59615 | 5.23884 | 0.0889824 | 2.3112637 | 73 | 6 | 2000–2009 | 0.44 | M-v | 1 | MPC | 166267 | 2007 $BP_{67}$ |
| 2007 $BF_{68}$ | 17.0 | 0.15 | 20100104 | 25.45082 | 268.68486 | 125.98365 | 3.63718 | 0.1639970 | 2.3358161 | 76 | 5 | 2004–2009 | 0.43 | M-v | 1 | MPC | 166267 | 2007 $BF_{68}$ |
| 2007 $BL_{69}$ | 18.1 | 0.15 | 20100104 | 333.95883 | 0.50548 | 133.64443 | 2.29068 | 0.1134403 | 2.1865650 | 52 | 5 | 2002–2009 | 0.34 | M-v | 1 | MPC | 141859 | 2007 $BL_{69}$ |
| 2007 $BJ_{73}$ | 17.1 | 0.15 | 20100104 | 215.45842 | 298.27334 | 312.31859 | 4.41747 | 0.2014249 | 2.3007758 | 60 | 6 | 2000–2009 | 0.49 | M-v | 1 | MPC | 147418 | 2007 $BJ_{73}$ |
| 2007 $BY_{74}$ | 18.0 | 0.15 | 20100104 | 208.10725 | 61.89547 | 179.45429 | 2.21886 | 0.1620691 | 2.3402657 | 40 | 6 | 2000–2009 | 0.38 | M-v | 0 | MPC | 147418 | 2007 $BY_{74}$ |
| 2007 $BC_{75}$ | 16.2 | 0.15 | 20100104 | 95.94578 | 136.93272 | 115.52612 | 2.44501 | 0.0760451 | 3.0878366 | 43 | 5 | 2002–2009 | 0.36 | M-v | 0 | MPC | 160886 | 2007 $BC_{75}$ |
| 2007 $BF_{75}$ | 16.3 | 0.15 | 20100104 | 118.14764 | 188.42469 | 107.84683 | 3.15799 | 0.0957598 | 2.5165746 | 65 | 5 | 1997–2009 | 0.45 | M-v | 3 | MPC | 166268 | 2007 $BF_{75}$ |
| 2007 $BU_{75}$ | 18.6 | 0.15 | 20100104 | 354.29098 | 84.71916 | 358.85791 | 0.84616 | 0.1644112 | 2.2123074 | 53 | 4 | 1999–2009 | 0.47 | M-v | 1 | MPC | 166268 | 2007 $BU_{75}$ |
| 2007 $BC_{76}$ | 17.1 | 0.15 | 20100104 | 222.03625 | 131.87507 | 135.10666 | 5.91677 | 0.1758256 | 2.2095747 | 42 | 5 | 1992–2009 | 0.43 | M-v | 1 | MPC | 160886 | 2007 $BC_{76}$ |
| 2007 $BF_{77}$ | 16.8 | 0.15 | 20100104 | 325.26801 | 18.20662 | 86.67846 | 7.33141 | 0.0582373 | 2.3044101 | 36 | 2 | 2007–2009 | 0.48 | M-v | 4 | MPC | 165541 | 2007 $BF_{77}$ |
| 2007 $BU_{78}$ | 17.5 | 0.15 | 20100104 | 158.68943 | 144.96161 | 138.17143 | 4.68286 | 0.1438290 | 2.2886371 | 36 | 5 | 1995–2009 | 0.38 | M-v | 1 | MPC | 140449 | 2007 $BU_{78}$ |
| 2007 $BC_{79}$ | 16.9 | 0.15 | 20100104 | 348.11023 | 336.33519 | 112.47803 | 7.98474 | 0.0671826 | 2.3297733 | 49 | 4 | 2001–2009 | 0.67 | M-v | 1 | MPC | 166268 | 2007 $BC_{79}$ |
| 2007 $BD_{81}$ | 16.9 | 0.15 | 20070120 | 303.12291 | 94.68077 | 115.36392 | 3.76505 | 0.1569755 | 3.0222319 | 14 | 1 | 20 days | 0.20 | | | MPC | | 2007 $BD_{81}$ |
| 2007 $BM_{81}$ | 17.3 | 0.15 | 20100104 | 214.20626 | 161.60137 | 69.35002 | 3.26377 | 0.1271300 | 2.3132755 | 40 | 5 | 2001–2009 | 0.54 | M-v | 1 | MPC | 165541 | 2007 $BM_{81}$ |
| 2007 $BN_{101}$ | 17.3 | 0.15 | 20070120 | 231.51707 | 165.88027 | 110.61369 | 3.36293 | 0.2882421 | 2.3099425 | 11 | 1 | 28 days | 0.45 | | | MPC | | 2007 $BN_{101}$ |
| 2007 $BO_{101}$ | 19.3 | 0.15 | 20070120 | 326.72495 | 33.27748 | 133.32112 | 6.05490 | 0.1206795 | 2.2042176 | 18 | 1 | 33 days | 0.35 | | | MPC | | 2007 $BO_{101}$ |
| 2007 $BR_{101}$ | 15.7 | 0.15 | 20070209 | 188.66046 | 173.22674 | 142.45624 | 20.44937 | 0.1451874 | 3.1169282 | 16 | 1 | 44 days | 0.25 | | | MPC | | 2007 $BR_{101}$ |
| 2007 $BS_{101}$ | 17.1 | 0.15 | 20100104 | 228.32103 | 359.92753 | 155.39131 | 7.90029 | 0.2166994 | 2.6350526 | 19 | 1 | 85 days | 0.35 | M-v | 4 | MPC | | 2007 $BS_{101}$ |
| 2007 $CR_{1}$ | 17.6 | 0.15 | 20100104 | 252.54565 | 56.04388 | 126.11765 | 2.00542 | 0.1290194 | 2.3863085 | 41 | 3 | 2005–2009 | 0.34 | M-v | 3 | MPC | 166268 | 2007 $CR_{1}$ |
| 2007 $CA_{3}$ | 18.5 | 0.15 | 20100104 | 359.69865 | 228.36494 | 186.63164 | 2.08701 | 0.1921360 | 2.3161397 | 37 | 2 | 2007–2009 | 0.35 | M-v | 4 | MPC | 164305 | 2007 $CA_{3}$ |
| 2007 $CW_{3}$ | 16.8 | 0.15 | 20100104 | 307.65078 | 306.89359 | 149.17980 | 1.23940 | 0.1380552 | 2.4194478 | 90 | 3 | 2005–2009 | 0.42 | M-v | 2 | MPC | 164305 | 2007 $CW_{3}$ |
| 2007 $CT_{4}$ | 18.1 | 0.15 | 20100104 | 340.10198 | 222.84593 | 235.73417 | 1.22450 | 0.0506198 | 2.2858222 | 46 | 4 | 2004–2009 | 0.35 | M-v | 1 | MPC | 166268 | 2007 $CT_{4}$ |
| 2007 $CL_{5}$ | 17.7 | 0.15 | 20100104 | 269.65043 | 248.99092 | 325.15209 | 7.32004 | 0.1016446 | 2.1585414 | 38 | 4 | 2005–2009 | 0.42 | M-v | 1 | MPC | 158563 | 2007 $CL_{5}$ |
| 2007 $CS_{11}$ | 16.4 | 0.15 | 20100104 | 308.49006 | 199.12877 | 253.15150 | 5.06600 | 0.1063330 | 2.4470438 | 64 | 5 | 2003–2009 | 0.49 | M-v | 1 | MPC | 164305 | 2007 $CS_{11}$ |
| 2007 $CW_{12}$ | 18.1 | 0.15 | 20100104 | 252.96448 | 214.36233 | 350.37032 | 2.03403 | 0.1498925 | 2.2681082 | 30 | 4 | 1995–2009 | 0.27 | M-v | 1 | MPC | 120524 | 2007 $CW_{12}$ |
| 2007 $CY_{12}$ | 17.7 | 0.15 | 20100104 | 349.03742 | 215.72094 | 239.87467 | 4.44058 | 0.3093273 | 2.1777376 | 112 | 2 | 2006–2009 | 0.49 | M-v | 2 | MPC | 166268 | 2007 $CY_{12}$ |
| 2007 $CS_{15}$ | 17.4 | 0.15 | 20100104 | 313.48313 | 91.01712 | 359.70237 | 5.67611 | 0.0842330 | 2.4272391 | 37 | 3 | 2005–2009 | 0.29 | M-v | 2 | MPC | 162502 | 2007 $CS_{15}$ |
| 2007 $CB_{17}$ | 18.2 | 0.15 | 20100104 | 198.26113 | 69.51653 | 182.76104 | 3.91084 | 0.0865124 | 2.2801092 | 37 | 6 | 1998–2009 | 0.22 | M-v | 0 | MPC | 141860 | 2007 $CB_{17}$ |
| 2007 $CF_{17}$ | 17.6 | 0.15 | 20100104 | 337.75792 | 91.76738 | 11.22879 | 2.72200 | 0.1101767 | 2.2763073 | 72 | 5 | 2002–2009 | 0.41 | M-v | 0 | MPC | 166268 | 2007 $CF_{17}$ |
| 2007 $CW_{17}$ | 17.4 | 0.15 | 20100104 | 19.95920 | 313.37117 | 111.49919 | 4.45122 | 0.1387290 | 2.2169607 | 41 | 4 | 2004–2009 | 0.40 | M-v | 2 | MPC | 117695 | 2007 $CW_{17}$ |
| 2007 $CY_{17}$ | 17.5 | 0.15 | 20100104 | 307.61797 | 54.53800 | 52.44744 | 2.63832 | 0.1232623 | 2.4107272 | 37 | 3 | 2005–2009 | 0.39 | M-v | 3 | MPC | 162502 | 2007 $CY_{17}$ |
| 2007 $CV_{18}$ | 17.5 | 0.15 | 20100104 | 42.23183 | 290.91881 | 72.43035 | 2.55348 | 0.1969463 | 2.3630638 | 62 | 2 | 2007–2009 | 0.49 | M-v | 3 | MPC | 166268 | 2007 $CV_{18}$ |
| 2007 $CK_{21}$ | 17.3 | 0.15 | 20100104 | 346.48432 | 223.29462 | 233.61133 | 3.53034 | 0.1166426 | 2.2251346 | 56 | 5 | 1999–2009 | 0.44 | M-v | 0 | MPC | 166268 | 2007 $CK_{21}$ |
| 2007 $CA_{22}$ | 17.9 | 0.15 | 20100104 | 354.47994 | 351.52525 | 102.60519 | 5.46136 | 0.1147296 | 2.2054246 | 42 | 3 | 2004–2009 | 0.53 | M-v | 3 | MPC | 165542 | 2007 $CA_{22}$ |
| 2007 $CJ_{23}$ | 16.7 | 0.15 | 20100104 | 196.25784 | 132.42246 | 116.55322 | 7.93613 | 0.0529632 | 2.2567867 | 56 | 5 | 2004–2009 | 0.46 | M-v | 1 | MPC | 160886 | 2007 $CJ_{23}$ |
| 2007 $CP_{23}$ | 17.2 | 0.15 | 20100104 | 324.37534 | 187.77443 | 294.86946 | 6.97470 | 0.1220440 | 2.2324632 | 59 | 6 | 1999–2009 | 0.39 | M-v | 1 | MPC | 166268 | 2007 $CP_{23}$ |
| 2007 $CZ_{25}$ | 17.3 | 0.15 | 20100104 | 305.14713 | 231.80315 | 272.53099 | 2.93849 | 0.1360137 | 2.2823352 | 53 | 3 | 2004–2009 | 0.56 | M-v | 2 | MPC | 165542 | 2007 $CZ_{25}$ |
| 2007 $CB_{26}$ | 16.7 | 0.15 | 20100104 | 210.45842 | 157.88005 | 82.15158 | 5.52364 | 0.1769695 | 2.3411265 | 60 | 7 | 2000–2009 | 0.49 | M-v | 1 | MPC | 166268 | 2007 $CB_{26}$ |
| 2007 $CM_{28}$ | 17.5 | 0.15 | 20100104 | 182.31938 | 85.20564 | 175.99210 | 1.25567 | 0.1557746 | 2.3812285 | 45 | 5 | 2001–2009 | 0.27 | M-v | 1 | MPC | 143272 | 2007 $CM_{28}$ |
| 2007 $CH_{29}$ | 18.1 | 0.15 | 20100104 | 29.78220 | 259.71164 | 146.14789 | 1.90243 | 0.0692745 | 2.2380699 | 43 | 6 | 1992–2009 | 0.42 | M-v | 1 | MPC | 166268 | 2007 $CH_{29}$ |
| 2007 $CK_{31}$ | 16.8 | 0.15 | 20100104 | 174.75043 | 293.26205 | 315.03160 | 1.22999 | 0.1413321 | 2.4607564 | 56 | 6 | 2000–2009 | 0.39 | M-v | 0 | MPC | 166269 | 2007 $CK_{31}$ |
| 2007 $CG_{32}$ | 16.4 | 0.15 | 20100104 | 71.04822 | 7.64550 | 304.20145 | 3.87173 | 0.1408661 | 2.6396740 | 51 | 4 | 2000–2009 | 0.36 | M-v | 1 | MPC | 163814 | 2007 $CG_{32}$ |
| 2007 $CD_{35}$ | 17.1 | 0.15 | 20100104 | 304.24336 | 64.44834 | 37.66008 | 1.76345 | 0.1293565 | 2.4601397 | 55 | 3 | 2005–2009 | 0.36 | M-v | 2 | MPC | 164306 | 2007 $CD_{35}$ |
| 2007 $CU_{35}$ | 18.3 | 0.15 | 20100104 | 288.85854 | 209.24048 | 337.04352 | 1.50770 | 0.2282472 | 2.2009318 | 75 | 3 | 2004–2009 | 0.42 | M-v | 2 | MPC | 147418 | 2007 $CU_{35}$ |
| 2007 $CH_{36}$ | 17.3 | 0.15 | 20100104 | 263.25760 | 182.29057 | 356.63181 | 5.82924 | 0.1449422 | 2.3683351 | 70 | 4 | 2001–2009 | 0.39 | M-v | 2 | MPC | 166269 | 2007 $CH_{36}$ |
| 2007 $CJ_{38}$ | 17.6 | 0.15 | 20100104 | 237.30070 | 64.93714 | 148.42744 | 2.60610 | 0.1183696 | 2.2941800 | 44 | 5 | 2004–2009 | 0.28 | M-v | 1 | MPC | 166269 | 2007 $CJ_{38}$ |
| 2007 $CT_{41}$ | 17.3 | 0.15 | 20100104 | 229.33424 | 279.40354 | 326.11051 | 5.57051 | 0.1229449 | 2.2260597 | 50 | 5 | 1998–2009 | 0.36 | M-v | 0 | MPC | 147419 | 2007 $CT_{41}$ |
| 2007 $CB_{43}$ | 17.0 | 0.15 | 20100104 | 349.56496 | 122.39072 | 321.50734 | 6.29906 | 0.1570588 | 2.2873679 | 69 | 2 | 2006–2009 | 0.44 | M-v | 3 | MPC | 165543 | 2007 $CB_{43}$ |
| 2007 $CL_{44}$ | 17.3 | 0.15 | 20100104 | 19.18965 | 266.93309 | 156.09376 | 5.12597 | 0.1097773 | 2.2037762 | 60 | 6 | 1999–2009 | 0.57 | M-v | 1 | MPC | 166269 | 2007 $CL_{44}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 $CW_{44}$ | 16.9 | 0.15 | 20100104 | 196.65119 | 3.78292 | 231.83870 | 1.66738 | 0.1695827 | 2.4361709 | 44 | 5 | 2003–2009 | 0.36 | M-v | 1 | MPC | 166269 | 2007 $CW_{44}$ |
| 2007 $CZ_{45}$ | 16.9 | 0.15 | 20100104 | 341.49386 | 158.14666 | 239.50022 | 3.68054 | 0.2794953 | 2.4725171 | 36 | 4 | 2003–2009 | 0.45 | M-v | 1 | MPC | 159787 | 2007 $CZ_{45}$ |
| 2007 $CG_{46}$ | 17.9 | 0.15 | 20100104 | 282.64642 | 259.52328 | 276.79425 | 3.20641 | 0.1271833 | 2.2513798 | 35 | 2 | 2006–2009 | 0.40 | M-v | 4 | MPC | 165543 | 2007 $CG_{46}$ |
| 2007 $CQ_{49}$ | 17.4 | 0.15 | 20100104 | 42.75010 | 217.51470 | 179.61538 | 5.08334 | 0.1061546 | 2.2501313 | 26 | 5 | 2002–2009 | 0.23 | M-v | 1 | MPC | 120531 | 2007 $CQ_{49}$ |
| 2007 $CO_{51}$ | 16.8 | 0.15 | 20100104 | 341.69858 | 320.39440 | 103.96486 | 2.24959 | 0.1663834 | 2.3910960 | 54 | 4 | 1998–2009 | 0.46 | M-v | 1 | MPC | 164306 | 2007 $CO_{51}$ |
| 2007 $CY_{52}$ | 17.1 | 0.15 | 20100104 | 260.10984 | 213.16491 | 348.13171 | 1.87788 | 0.1546653 | 2.2932967 | 61 | 4 | 2005–2009 | 0.50 | M-v | 1 | MPC | 147419 | 2007 $CY_{52}$ |
| 2007 $CZ_{53}$ | 18.0 | 0.15 | 20100104 | 296.01129 | 5.25168 | 158.78549 | 2.52560 | 0.1384851 | 2.3023677 | 23 | 2 | 2007–2009 | 0.43 | M-v | 4 | MPC | 165543 | 2007 $CZ_{53}$ |
| 2007 $CE_{54}$ | 17.0 | 0.15 | 20100104 | 262.85188 | 114.95483 | 51.12055 | 5.76361 | 0.1339381 | 2.4342319 | 72 | 3 | 2005–2009 | 0.52 | M-v | 3 | MPC | 166269 | 2007 $CE_{54}$ |
| 2007 $CO_{54}$ | 17.1 | 0.15 | 20100104 | 279.40708 | 259.70972 | 294.01898 | 3.31139 | 0.1252505 | 2.2699892 | 55 | 4 | 2005–2009 | 0.56 | M-v | 1 | MPC | 147419 | 2007 $CO_{54}$ |
| 2007 $CA_{56}$ | 17.5 | 0.15 | 20100104 | 318.10594 | 245.07350 | 211.72509 | 1.50634 | 0.1649924 | 2.3722607 | 82 | 5 | 2000–2009 | 0.48 | M-v | 0 | MPC | 164307 | 2007 $CA_{56}$ |
| 2007 $CN_{57}$ | 17.1 | 0.15 | 20100104 | 340.80808 | 71.62750 | 34.30523 | 6.02977 | 0.1086085 | 2.2295655 | 65 | 5 | 1999–2009 | 0.55 | M-v | 0 | MPC | 166269 | 2007 $CN_{57}$ |
| 2007 $CJ_{60}$ | 17.1 | 0.15 | 20100104 | 277.86850 | 3.05381 | 169.53033 | 6.42765 | 0.0418295 | 2.2569800 | 41 | 5 | 1994–2009 | 0.45 | M-v | 1 | MPC | 140708 | 2007 $CJ_{60}$ |
| 2007 $CO_{60}$ | 16.8 | 0.15 | 20100104 | 348.63086 | 26.30966 | 62.63114 | 7.45596 | 0.0842831 | 2.3300890 | 87 | 5 | 2000–2009 | 0.55 | M-v | 1 | MPC | 166269 | 2007 $CO_{60}$ |
| 2007 $CP_{60}$ | 16.8 | 0.15 | 20100104 | 331.16260 | 72.25297 | 55.64038 | 6.98495 | 0.1615732 | 2.2243888 | 63 | 2 | 2006–2009 | 0.51 | M-v | 3 | MPC | 165544 | 2007 $CP_{60}$ |
| 2007 $CS_{61}$ | 17.1 | 0.15 | 20100104 | 265.65680 | 201.36039 | 339.04287 | 2.10640 | 0.1474564 | 2.3705644 | 121 | 5 | 1996–2009 | 0.47 | M-v | 1 | MPC | 166269 | 2007 $CS_{61}$ |
| 2007 $CL_{62}$ | 17.5 | 0.15 | 20100104 | 293.34544 | 227.34332 | 298.37708 | 4.00722 | 0.1052068 | 2.2460526 | 41 | 2 | 2006–2009 | 0.31 | M-v | 3 | MPC | 165544 | 2007 $CL_{62}$ |
| 2007 $CX_{65}$ | 18.0 | 0.15 | 20100104 | 335.05159 | 63.36584 | 32.34298 | 4.46705 | 0.0488409 | 2.3541448 | 32 | 4 | 2004–2009 | 0.34 | M-v | 1 | MPC | 166269 | 2007 $CX_{65}$ |
| 2007 $CD_{79}$ | 15.7 | 0.15 | 20070209 | 341.79599 | 179.50837 | 340.54412 | 16.43855 | 0.1164973 | 3.0887285 | 15 | 1 | 16 days | 0.69 | | | MPC | | 2007 $CD_{79}$ |
| 2007 $CG_{79}$ | 15.5 | 0.15 | 20070209 | 332.99316 | 155.14566 | 35.72601 | 15.74625 | 0.1988101 | 3.1829982 | 16 | 1 | 33 days | 0.63 | | | MPC | | 2007 $CG_{79}$ |
| 2007 $CH_{79}$ | 16.8 | 0.15 | 20070301 | 338.82372 | 87.35016 | 101.65564 | 6.21544 | 0.1313196 | 2.3722645 | 19 | 1 | 39 days | 0.68 | | | MPC | | 2007 $CH_{79}$ |
| 2007 $DF_{2}$ | 16.8 | 0.15 | 20100104 | 331.60890 | 42.78872 | 56.21716 | 7.56802 | 0.0620878 | 2.3560575 | 82 | 3 | 2005–2009 | 0.51 | M-v | 3 | MPC | 166269 | 2007 $DF_{2}$ |
| 2007 $DW_{2}$ | 17.1 | 0.15 | 20100104 | 233.21946 | 159.11929 | 61.28217 | 3.85284 | 0.1130437 | 2.3195886 | 39 | 3 | 2005–2009 | 0.37 | M-v | 3 | MPC | 166270 | 2007 $DW_{2}$ |
| 2007 $DY_{2}$ | 16.8 | 0.15 | 20100104 | 284.62384 | 60.85071 | 107.88065 | 6.44153 | 0.1456560 | 2.2870264 | 32 | 3 | 2000–2009 | 0.51 | M-v | 3 | MPC | 160518 | 2007 $DY_{2}$ |
| 2007 $DC_{4}$ | 17.1 | 0.15 | 20100104 | 244.44033 | 313.90943 | 281.95771 | 4.14368 | 0.1142237 | 2.2305393 | 65 | 6 | 1997–2009 | 0.51 | M-v | 1 | MPC | 149016 | 2007 $DC_{4}$ |
| 2007 $DO_{7}$ | 17.3 | 0.15 | 20100104 | 297.44400 | 179.05572 | 327.10079 | 3.74351 | 0.1453169 | 2.3361252 | 75 | 4 | 2002–2009 | 0.53 | M-v | 1 | MPC | 166270 | 2007 $DO_{7}$ |
| 2007 $DA_{8}$ | 19.0 | 0.15 | 20100104 | 1.76891 | 191.11800 | 249.45810 | 2.29225 | 0.1770507 | 2.2348392 | 61 | 4 | 1999–2009 | 0.44 | M-v | 0 | MPC | 166270 | 2007 $DA_{8}$ |
| 2007 $DL_{8}$ | 17.3 | 0.15 | 20100104 | 196.88101 | 132.78340 | 157.49099 | 18.80953 | 0.7657134 | 2.6623402 | 71 | 2 | 2007–2008 | 0.49 | M-v | 3 | MPC | 128916 | 2007 $DL_{8}$ |
| 2007 $DE_{10}$ | 16.7 | 0.15 | 20100104 | 93.16539 | 328.25523 | 1.11892 | 3.40026 | 0.1838061 | 2.5413029 | 35 | 5 | 1999–2009 | 0.22 | M-v | 2 | MPC | 166270 | 2007 $DE_{10}$ |
| 2007 $DZ_{11}$ | 16.8 | 0.15 | 20100104 | 310.39342 | 59.64805 | 76.18639 | 5.91874 | 0.0644444 | 2.2443231 | 53 | 5 | 2002–2009 | 0.49 | M-v | 1 | MPC | 166270 | 2007 $DZ_{11}$ |
| 2007 $DY_{12}$ | 16.1 | 0.15 | 20100104 | 3.54819 | 37.73389 | 351.16467 | 13.24017 | 0.0633143 | 2.7544856 | 62 | 3 | 2004–2009 | 0.50 | M-v | 2 | MPC | 164307 | 2007 $DY_{12}$ |
| 2007 $DA_{15}$ | 17.8 | 0.15 | 20100104 | 0.83713 | 347.10326 | 98.14843 | 4.65905 | 0.1150311 | 2.2402649 | 32 | 3 | 2002–2009 | 0.34 | M-v | 1 | MPC | 165544 | 2007 $DA_{15}$ |
| 2007 $DH_{15}$ | 17.6 | 0.15 | 20100104 | 58.63227 | 23.26830 | 12.59773 | 5.88922 | 0.0620792 | 2.2238941 | 30 | 5 | 2002–2009 | 0.33 | M-v | 1 | MPC | 116091 | 2007 $DH_{15}$ |
| 2007 $DO_{15}$ | 17.5 | 0.15 | 20100104 | 135.33347 | 212.30427 | 110.39445 | 6.81300 | 0.1491315 | 2.2541863 | 36 | 5 | 2004–2009 | 0.24 | M-v | 0 | MPC | 140176 | 2007 $DO_{15}$ |
| 2007 $DU_{15}$ | 16.8 | 0.15 | 20100104 | 340.80197 | 93.40556 | 7.00737 | 6.59535 | 0.0641729 | 2.2989142 | 56 | 3 | 2005–2009 | 0.44 | M-v | 2 | MPC | 166270 | 2007 $DU_{15}$ |
| 2007 $DN_{17}$ | 16.7 | 0.15 | 20100104 | 74.34266 | 292.31623 | 23.83576 | 4.44578 | 0.1196377 | 2.6587491 | 42 | 3 | 2005–2009 | 0.28 | M-v | 2 | MPC | 166270 | 2007 $DN_{17}$ |
| 2007 $DW_{23}$ | 17.2 | 0.15 | 20100104 | 226.05164 | 67.49458 | 157.45366 | 2.72107 | 0.1734416 | 2.4112997 | 56 | 5 | 2003–2009 | 0.46 | M-v | 1 | MPC | 166270 | 2007 $DW_{23}$ |
| 2007 $DX_{24}$ | 17.0 | 0.15 | 20100104 | 285.38806 | 1.09565 | 158.15817 | 6.68179 | 0.0519235 | 2.3438492 | 59 | 5 | 2000–2009 | 0.47 | M-v | 1 | MPC | 166270 | 2007 $DX_{24}$ |
| 2007 $DA_{26}$ | 17.4 | 0.15 | 20100104 | 22.06856 | 294.26597 | 109.95472 | 3.01431 | 0.2033183 | 2.3428037 | 41 | 2 | 2007–2009 | 0.44 | M-v | 3 | MPC | 165545 | 2007 $DA_{26}$ |
| 2007 $DQ_{26}$ | 18.2 | 0.15 | 20100104 | 16.94153 | 308.16856 | 114.64254 | 3.21290 | 0.0733379 | 2.3462865 | 28 | 3 | 2005–2009 | 0.37 | M-v | 2 | MPC | 166270 | 2007 $DQ_{26}$ |
| 2007 $DU_{26}$ | 17.2 | 0.15 | 20100104 | 272.36989 | 148.16879 | 19.51694 | 2.53737 | 0.1472746 | 2.3986287 | 69 | 3 | 2005–2009 | 0.47 | M-v | 2 | MPC | 166270 | 2007 $DU_{26}$ |
| 2007 $DB_{30}$ | 17.2 | 0.15 | 20100104 | 239.85645 | 96.08785 | 150.97908 | 5.81443 | 0.1243908 | 2.2176115 | 40 | 4 | 2002–2009 | 0.45 | M-v | 1 | MPC | 142871 | 2007 $DB_{30}$ |
| 2007 $DN_{30}$ | 18.2 | 0.15 | 20100104 | 308.20947 | 141.91831 | 353.76068 | 2.33365 | 0.1239503 | 2.3365561 | 31 | 3 | 2000–2009 | 0.36 | M-v | 3 | MPC | 165546 | 2007 $DN_{30}$ |
| 2007 $DC_{31}$ | 15.7 | 0.15 | 20100104 | 47.33031 | 143.98942 | 154.71766 | 2.25796 | 0.0923810 | 3.2421482 | 44 | 4 | 2003–2009 | 0.31 | M-v | 0 | MPC | 166270 | 2007 $DC_{31}$ |
| 2007 $DH_{31}$ | 18.2 | 0.15 | 20100104 | 343.35492 | 104.45885 | 5.58164 | 1.57155 | 0.0985866 | 2.2675207 | 31 | 4 | 1995–2009 | 0.37 | M-v | 0 | MPC | 166270 | 2007 $DH_{31}$ |
| 2007 $DM_{33}$ | 17.4 | 0.15 | 20100104 | 5.22304 | 296.12170 | 140.80483 | 4.37108 | 0.0727925 | 2.3606916 | 33 | 3 | 2005–2009 | 0.24 | M-v | 2 | MPC | 166270 | 2007 $DM_{33}$ |
| 2007 $DV_{33}$ | 17.9 | 0.15 | 20100104 | 355.18461 | 69.53772 | 21.36288 | 2.63355 | 0.1686661 | 2.2887626 | 42 | 3 | 1995–2009 | 0.38 | M-v | 2 | MPC | 166270 | 2007 $DV_{33}$ |
| 2007 $DS_{37}$ | 17.8 | 0.15 | 20100104 | 286.93666 | 309.05836 | 217.03119 | 0.91006 | 0.1239872 | 2.3565350 | 49 | 5 | 1998–2009 | 0.35 | M-v | 1 | MPC | 122877 | 2007 $DS_{37}$ |
| 2007 $DX_{37}$ | 17.4 | 0.15 | 20100104 | 227.00382 | 252.10947 | 334.04389 | 2.17664 | 0.1269864 | 2.4320511 | 41 | 5 | 1999–2009 | 0.31 | M-v | 1 | MPC | 166271 | 2007 $DX_{37}$ |
| 2007 $DS_{38}$ | 16.1 | 0.15 | 20100104 | 189.61387 | 225.62239 | 9.23540 | 6.71325 | 0.1435958 | 2.6589504 | 71 | 5 | 1996–2009 | 0.50 | M-v | 0 | MPC | 120849 | 2007 $DS_{38}$ |
| 2007 $DX_{38}$ | 18.1 | 0.15 | 20100104 | 289.40834 | 39.99145 | 113.65557 | 2.10152 | 0.1329853 | 2.4086441 | 35 | 5 | 1994–2009 | 0.41 | M-v | 1 | MPC | 166271 | 2007 $DX_{38}$ |
| 2007 $DO_{39}$ | 17.2 | 0.15 | 20100104 | 338.04953 | 30.10506 | 97.23962 | 3.30421 | 0.0770074 | 2.2938959 | 58 | 4 | 1998–2009 | 0.35 | M-v | 0 | MPC | 121876 | 2007 $DO_{39}$ |
| 2007 $DH_{40}$ | 16.4 | 0.15 | 20100104 | 266.97411 | 112.57275 | 106.56583 | 22.35870 | 0.1450342 | 2.2840603 | 45 | 4 | 2000–2009 | 0.54 | M-v | 1 | MPC | 164308 | 2007 $DH_{40}$ |
| 2007 $DF_{41}$ | 17.0 | 0.15 | 20100104 | 201.25111 | 347.70886 | 290.04734 | 2.93310 | 0.1885905 | 2.3328477 | 56 | 6 | 1996–2009 | 0.43 | M-v | 1 | MPC | 158564 | 2007 $DF_{41}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 $DL_{41}$ | 20.6 | 0.15 | 20100104 | 139.64547 | 139.96011 | 150.96265 | 4.67389 | 0.4762293 | 1.4567662 | 65 | 3 | 2007–2009 | 0.38 | M-v | 1 | MPC | 128916 | 2007 $DL_{41}$ |
| 2007 $DE_{42}$ | 17.2 | 0.15 | 20100104 | 315.21776 | 181.86986 | 308.46444 | 4.91199 | 0.1516227 | 2.2870331 | 50 | 4 | 2000–2009 | 0.48 | M-v | 1 | MPC | 166271 | 2007 $DE_{42}$ |
| 2007 $DA_{43}$ | 17.7 | 0.15 | 20100104 | 303.92362 | 306.52201 | 203.13966 | 1.88594 | 0.0855853 | 2.2641384 | 53 | 6 | 1995–2009 | 0.51 | M-v | 1 | MPC | 166271 | 2007 $DA_{43}$ |
| 2007 $DQ_{44}$ | 17.1 | 0.15 | 20100104 | 327.24989 | 255.05341 | 185.80050 | 2.92960 | 0.1494089 | 2.4174816 | 54 | 3 | 2005–2009 | 0.44 | M-v | 2 | MPC | 163817 | 2007 $DQ_{44}$ |
| 2007 $DF_{49}$ | 16.0 | 0.15 | 20100104 | 190.38833 | 171.18094 | 34.11000 | 17.41022 | 0.0804127 | 2.7763703 | 56 | 3 | 1998–2009 | 0.48 | M-v | 3 | MPC | 163817 | 2007 $DF_{49}$ |
| 2007 $DX_{49}$ | 16.5 | 0.15 | 20100104 | 212.92779 | 163.57335 | 68.05908 | 7.37389 | 0.0626207 | 2.3877896 | 48 | 5 | 2000–2009 | 0.37 | M-v | 1 | MPC | 166271 | 2007 $DX_{49}$ |
| 2007 $DJ_{51}$ | 16.8 | 0.15 | 20100104 | 196.80161 | 262.94837 | 325.47086 | 5.93863 | 0.1450194 | 2.5534477 | 64 | 5 | 2003–2009 | 0.34 | M-v | 1 | MPC | 166271 | 2007 $DJ_{51}$ |
| 2007 $DY_{51}$ | 18.0 | 0.15 | 20100104 | 280.33849 | 276.50823 | 252.58039 | 3.35563 | 0.0966408 | 2.3389873 | 25 | 3 | 2005–2009 | 0.34 | M-v | 3 | MPC | 116099 | 2007 $DY_{51}$ |
| 2007 $DW_{52}$ | 17.4 | 0.15 | 20100104 | 312.39028 | 225.39801 | 272.69242 | 2.00982 | 0.1684388 | 2.3129847 | 59 | 3 | 2005–2009 | 0.48 | M-v | 2 | MPC | 165547 | 2007 $DW_{52}$ |
| 2007 $DB_{53}$ | 17.2 | 0.15 | 20100104 | 290.58020 | 229.95561 | 322.23436 | 4.60337 | 0.0893174 | 2.2209013 | 63 | 5 | 1998–2009 | 0.52 | M-v | 1 | MPC | 147420 | 2007 $DB_{53}$ |
| 2007 $DY_{55}$ | 17.3 | 0.15 | 20100104 | 16.54634 | 316.48000 | 91.06654 | 3.67593 | 0.1963305 | 2.3733569 | 54 | 3 | 2005–2009 | 0.41 | M-v | 3 | MPC | 165547 | 2007 $DY_{55}$ |
| 2007 $DD_{56}$ | 16.7 | 0.15 | 20100104 | 268.56417 | 80.52772 | 98.36937 | 3.47511 | 0.0963766 | 2.3794197 | 67 | 5 | 2000–2009 | 0.54 | M-v | 1 | MPC | 166271 | 2007 $DD_{56}$ |
| 2007 $DM_{59}$ | 17.5 | 0.15 | 20100104 | 257.75336 | 253.82135 | 300.01257 | 1.82402 | 0.1825951 | 2.3709869 | 39 | 2 | 2006–2009 | 0.34 | M-v | 4 | MPC | 165547 | 2007 $DM_{59}$ |
| 2007 $DV_{59}$ | 16.9 | 0.15 | 20100104 | 228.79426 | 166.95605 | 46.21152 | 2.25372 | 0.1211321 | 2.4288923 | 69 | 4 | 2003–2009 | 0.48 | M-v | 2 | MPC | 122877 | 2007 $DV_{59}$ |
| 2007 $DZ_{62}$ | 17.4 | 0.15 | 20100104 | 200.04767 | 161.67605 | 117.27131 | 5.43563 | 0.1573978 | 2.2223364 | 26 | 5 | 2000–2009 | 0.40 | M-v | 1 | MPC | 147420 | 2007 $DZ_{62}$ |
| 2007 $DH_{63}$ | 17.2 | 0.15 | 20100104 | 163.51389 | 173.40089 | 128.69439 | 8.19207 | 0.0754677 | 2.2187752 | 49 | 6 | 2002–2009 | 0.45 | M-v | 1 | MPC | 141863 | 2007 $DH_{63}$ |
| 2007 $DT_{65}$ | 17.7 | 0.15 | 20100104 | 320.44167 | 30.58571 | 106.53177 | 3.11999 | 0.1066895 | 2.2685491 | 38 | 5 | 1995–2009 | 0.45 | M-v | 1 | MPC | 166271 | 2007 $DT_{65}$ |
| 2007 $DL_{70}$ | 17.9 | 0.15 | 20100104 | 0.83178 | 24.96392 | 29.44995 | 1.35361 | 0.2006290 | 2.4238703 | 43 | 3 | 2005–2009 | 0.33 | M-v | 2 | MPC | 166271 | 2007 $DL_{70}$ |
| 2007 $DV_{70}$ | 17.9 | 0.15 | 20100104 | 293.23604 | 102.36448 | 64.50316 | 1.39769 | 0.1406851 | 2.2989881 | 42 | 3 | 2005–2009 | 0.38 | M-v | 3 | MPC | 166271 | 2007 $DV_{70}$ |
| 2007 $DY_{72}$ | 16.9 | 0.15 | 20100104 | 124.37216 | 264.63363 | 5.25837 | 3.70314 | 0.0596463 | 2.8009200 | 30 | 3 | 2004–2009 | 0.22 | M-v | 2 | MPC | 117768 | 2007 $DY_{72}$ |
| 2007 $DD_{74}$ | 18.6 | 0.15 | 20100104 | 344.26648 | 119.03972 | 349.53623 | 1.92067 | 0.1478697 | 2.2697597 | 31 | 3 | 1995–2009 | 0.34 | M-v | 2 | MPC | 166271 | 2007 $DD_{74}$ |
| 2007 $DF_{75}$ | 17.6 | 0.15 | 20100104 | 351.68923 | 338.61336 | 82.43200 | 0.57091 | 0.2009995 | 2.4305511 | 52 | 3 | 2005–2009 | 0.33 | M-v | 2 | MPC | 166271 | 2007 $DF_{75}$ |
| 2007 $DK_{76}$ | 17.0 | 0.15 | 20100104 | 88.94348 | 280.42297 | 50.13259 | 3.92567 | 0.0765039 | 2.6505275 | 45 | 3 | 2005–2009 | 0.33 | M-v | 3 | MPC | 166271 | 2007 $DK_{76}$ |
| 2007 $DU_{76}$ | 16.7 | 0.15 | 20100104 | 253.46546 | 174.14209 | 14.70511 | 6.88050 | 0.0733982 | 2.3775075 | 54 | 3 | 2005–2009 | 0.47 | M-v | 3 | MPC | 166271 | 2007 $DU_{76}$ |
| 2007 $DJ_{84}$ | 16.8 | 0.15 | 20100104 | 300.21342 | 84.52403 | 41.34978 | 14.78791 | 0.1402252 | 2.4103504 | 54 | 2 | 2007–2009 | 0.53 | M-v | 3 | MPC | 166271 | 2007 $DJ_{84}$ |
| 2007 $DF_{86}$ | 17.3 | 0.15 | 20100104 | 297.92617 | 291.75034 | 207.73411 | 1.79222 | 0.1318972 | 2.4047791 | 47 | 5 | 1992–2009 | 0.55 | M-v | 1 | MPC | 166271 | 2007 $DF_{86}$ |
| 2007 $DY_{88}$ | 16.6 | 0.15 | 20100104 | 323.74194 | 305.63878 | 136.30904 | 4.47411 | 0.0231133 | 2.5755371 | 55 | 5 | 1995–2009 | 0.41 | M-v | 1 | MPC | 164309 | 2007 $DY_{88}$ |
| 2007 $DA_{91}$ | 17.6 | 0.15 | 20100104 | 8.52449 | 83.36180 | 337.55973 | 4.44146 | 0.2045273 | 2.2840385 | 75 | 3 | 2002–2009 | 0.43 | M-v | 2 | MPC | 166272 | 2007 $DA_{91}$ |
| 2007 $DQ_{91}$ | 17.4 | 0.15 | 20100104 | 343.07528 | 69.56800 | 5.22918 | 1.30430 | 0.1542338 | 2.3867458 | 63 | 5 | 1996–2009 | 0.41 | M-v | 1 | MPC | 164309 | 2007 $DQ_{91}$ |
| 2007 $DH_{92}$ | 17.3 | 0.15 | 20100104 | 22.32130 | 265.41088 | 132.30789 | 2.65151 | 0.2020337 | 2.3580745 | 76 | 4 | 2005–2009 | 0.45 | M-v | 1 | MPC | 166272 | 2007 $DH_{92}$ |
| 2007 $DN_{92}$ | 16.6 | 0.15 | 20100104 | 103.21509 | 294.84714 | 25.59434 | 1.76623 | 0.2250739 | 2.5258876 | 30 | 3 | 2005–2009 | 0.28 | M-v | 3 | MPC | 166272 | 2007 $DN_{92}$ |
| 2007 $DZ_{96}$ | 17.2 | 0.15 | 20100104 | 291.21630 | 218.59911 | 302.02358 | 1.55362 | 0.1465076 | 2.3407711 | 68 | 5 | 1994–2009 | 0.40 | M-v | 1 | MPC | 164310 | 2007 $DZ_{96}$ |
| 2007 $DV_{97}$ | 17.6 | 0.15 | 20100104 | 259.43483 | 0.08974 | 193.19402 | 1.81541 | 0.1102550 | 2.4136779 | 57 | 3 | 2005–2009 | 0.38 | M-v | 3 | MPC | 166272 | 2007 $DV_{97}$ |
| 2007 $DR_{98}$ | 17.4 | 0.15 | 20100104 | 227.58864 | 92.40318 | 133.61021 | 1.91123 | 0.1430647 | 2.3606643 | 45 | 3 | 2005–2009 | 0.32 | M-v | 4 | MPC | 166272 | 2007 $DR_{98}$ |
| 2007 $DE_{99}$ | 16.9 | 0.15 | 20100104 | 228.81702 | 93.78527 | 133.34307 | 3.88551 | 0.1129477 | 2.3388252 | 60 | 5 | 2001–2009 | 0.37 | M-v | 1 | MPC | 166272 | 2007 $DE_{99}$ |
| 2007 $DJ_{99}$ | 17.2 | 0.15 | 20100104 | 253.66934 | 78.28596 | 117.10565 | 2.78879 | 0.0658430 | 2.3370320 | 55 | 5 | 2002–2009 | 0.49 | M-v | 1 | MPC | 166272 | 2007 $DJ_{99}$ |
| 2007 $DH_{101}$ | 17.0 | 0.15 | 20100104 | 70.51277 | 198.89707 | 147.16162 | 1.00266 | 0.1663853 | 2.5312700 | 43 | 3 | 2005–2009 | 0.36 | M-v | 3 | MPC | 166272 | 2007 $DH_{101}$ |
| 2007 $DD_{105}$ | 17.3 | 0.15 | 20100104 | 327.81102 | 95.33485 | 50.93137 | 3.11565 | 0.1412510 | 2.3001487 | 52 | 5 | 2000–2009 | 0.32 | M-v | 0 | MPC | 166272 | 2007 $DD_{105}$ |
| 2007 $DR_{106}$ | 17.9 | 0.15 | 20100104 | 324.10989 | 224.86671 | 258.09316 | 0.74063 | 0.1378952 | 2.3422882 | 37 | 4 | 2002–2009 | 0.26 | M-v | 0 | MPC | 166272 | 2007 $DR_{106}$ |
| 2007 $DA_{110}$ | 17.1 | 0.15 | 20100104 | 189.63921 | 220.21786 | 21.78442 | 2.66068 | 0.0485989 | 2.5859853 | 47 | 4 | 2003–2009 | 0.38 | M-v | 1 | MPC | 166272 | 2007 $DA_{110}$ |
| 2007 $DT_{110}$ | 17.5 | 0.15 | 20100104 | 234.06786 | 90.19171 | 135.03884 | 2.02663 | 0.1354636 | 2.4134437 | 35 | 6 | 1996–2009 | 0.29 | M-v | 1 | MPC | 147421 | 2007 $DT_{110}$ |
| 2007 $DR_{112}$ | 16.5 | 0.15 | 20100104 | 54.76286 | 313.32153 | 59.08443 | 2.86230 | 0.0475478 | 2.6268941 | 59 | 4 | 2003–2009 | 0.32 | M-v | 1 | MPC | 166272 | 2007 $DR_{112}$ |
| 2007 $DU_{113}$ | 17.9 | 0.15 | 20100104 | 326.52432 | 311.53033 | 167.16877 | 1.12296 | 0.1373245 | 2.3246928 | 35 | 2 | 2007–2009 | 0.22 | M-v | 3 | MPC | 165549 | 2007 $DU_{113}$ |
| 2007 $DP_{115}$ | 17.7 | 0.15 | 20100104 | 154.27227 | 324.75887 | 347.13561 | 4.54075 | 0.0657347 | 2.2778770 | 34 | 5 | 2001–2009 | 0.27 | M-v | 1 | MPC | 159519 | 2007 $DP_{115}$ |
| 2007 $DF_{116}$ | 17.2 | 0.15 | 20070301 | 1.61353 | 54.59737 | 109.30020 | 10.29998 | 0.2580878 | 2.7840911 | 16 | 1 | 38 days | 0.66 | | | MPC | | 2007 $DF_{116}$ |
| 2007 $DG_{116}$ | 16.1 | 0.15 | 20070301 | 336.19971 | 149.84968 | 45.40429 | 13.23899 | 0.0859287 | 2.7857669 | 18 | 1 | 54 days | 0.65 | | | MPC | | 2007 $DG_{116}$ |
| 2007 $DH_{116}$ | 15.8 | 0.15 | 20070301 | 23.24468 | 121.37734 | 12.34209 | 27.35464 | 0.1432462 | 3.1259852 | 15 | 1 | 31 days | 0.91 | | | MPC | | 2007 $DH_{116}$ |
| 2007 $DJ_{116}$ | 17.0 | 0.15 | 20070301 | 336.24695 | 109.24584 | 95.00145 | 13.95768 | 0.2139859 | 2.6835465 | 20 | 1 | 38 days | 0.71 | | | MPC | | 2007 $DJ_{116}$ |
| 2007 $EH_2$ | 17.7 | 0.15 | 20100104 | 89.87571 | 30.35038 | 334.16159 | 2.73486 | 0.1048812 | 2.3220419 | 32 | 3 | 2005–2009 | 0.47 | M-v | 3 | MPC | 119372 | 2007 $EH_2$ |
| 2007 $EN_2$ | 17.6 | 0.15 | 20100104 | 331.63062 | 232.23279 | 251.20630 | 0.36813 | 0.1440945 | 2.2503257 | 67 | 7 | 1995–2009 | 0.40 | M-v | 1 | MPC | 164310 | 2007 $EN_2$ |
| 2007 $EZ_2$ | 17.9 | 0.15 | 20100104 | 264.25826 | 98.68056 | 117.87363 | 2.80972 | 0.1146679 | 2.2497457 | 40 | 8 | 1995–2009 | 0.31 | M-v | 0 | MPC | 147421 | 2007 $EZ_2$ |
| 2007 $EE_5$ | 18.5 | 0.15 | 20100104 | 312.76879 | 332.23208 | 175.00947 | 2.38237 | 0.1216981 | 2.2341568 | 38 | 4 | 1995–2009 | 0.37 | M-v | 1 | MPC | 120851 | 2007 $EE_5$ |
| 2007 $EN_9$ | 16.4 | 0.15 | 20100104 | 264.60867 | 217.83381 | 352.53295 | 22.97501 | 0.1800768 | 2.3124900 | 106 | 5 | 2000–2009 | 0.62 | M-v | 2 | MPC | 147421 | 2007 $EN_9$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 $ET_{9}$ | 18.1 | 0.15 | 20100104 | 28.99780 | 73.99113 | 355.34145 | 2.22216 | 0.1833002 | 2.2340315 | 43 | 5 | 1997–2009 | 0.40 | M-v | 1 | MPC | 166273 | 2007 $ET_{9}$ |
| 2007 $EC_{11}$ | 18.0 | 0.15 | 20100104 | 270.68841 | 147.91444 | 28.27734 | 1.99082 | 0.1217614 | 2.3377544 | 48 | 4 | 2000–2009 | 0.33 | M-v | 2 | MPC | 166273 | 2007 $EC_{11}$ |
| 2007 $EV_{13}$ | 17.5 | 0.15 | 20100104 | 282.98437 | 193.09209 | 341.60394 | 2.01160 | 0.1514334 | 2.3578302 | 42 | 4 | 2003–2009 | 0.36 | M-v | 1 | MPC | 166273 | 2007 $EV_{13}$ |
| 2007 $EO_{14}$ | 17.5 | 0.15 | 20100104 | 296.64795 | 34.94276 | 113.46023 | 3.89266 | 0.1076262 | 2.3290609 | 46 | 5 | 1993–2009 | 0.44 | M-v | 1 | MPC | 166273 | 2007 $EO_{14}$ |
| 2007 $ER_{15}$ | 17.4 | 0.15 | 20100104 | 315.80321 | 6.29745 | 140.75355 | 3.10481 | 0.1611223 | 2.3129652 | 63 | 4 | 2005–2009 | 0.31 | M-v | 1 | MPC | 141864 | 2007 $ER_{15}$ |
| 2007 $EN_{16}$ | 16.0 | 0.15 | 20100104 | 179.93486 | 217.59077 | 20.97776 | 11.95842 | 0.1373954 | 2.6786034 | 51 | 3 | 2007–2009 | 0.42 | M-v | 2 | MPC | 165550 | 2007 $EN_{16}$ |
| 2007 $EG_{18}$ | 16.4 | 0.15 | 20100104 | 222.73440 | 124.70804 | 105.60780 | 3.51467 | 0.1572867 | 2.4421090 | 59 | 5 | 1999–2009 | 0.46 | M-v | 2 | MPC | 166273 | 2007 $EG_{18}$ |
| 2007 $ER_{18}$ | 17.5 | 0.15 | 20100104 | 267.58306 | 127.20287 | 82.70538 | 2.83581 | 0.1006978 | 2.2928525 | 51 | 5 | 2001–2009 | 0.38 | M-v | 1 | MPC | 155309 | 2007 $ER_{18}$ |
| 2007 $EQ_{20}$ | 17.3 | 0.15 | 20100104 | 329.56523 | 325.97265 | 153.62648 | 6.91327 | 0.0610634 | 2.3648609 | 29 | 4 | 2005–2009 | 0.35 | M-v | 0 | MPC | 141865 | 2007 $EQ_{20}$ |
| 2007 $EU_{20}$ | 17.1 | 0.15 | 20100104 | 239.28643 | 128.61211 | 108.31719 | 3.42126 | 0.1165370 | 2.3146117 | 45 | 6 | 2000–2009 | 0.43 | M-v | 1 | MPC | 147421 | 2007 $EU_{20}$ |
| 2007 $EY_{20}$ | 17.0 | 0.15 | 20100104 | 193.40338 | 242.32977 | 10.50592 | 4.49790 | 0.1818702 | 2.5372575 | 59 | 6 | 2003–2009 | 0.46 | M-v | 1 | MPC | 149017 | 2007 $EY_{20}$ |
| 2007 $EC_{21}$ | 16.9 | 0.15 | 20100104 | 28.90945 | 1.69134 | 8.69222 | 5.97332 | 0.0432418 | 2.7316865 | 54 | 3 | 2005–2009 | 0.28 | M-v | 2 | MPC | 166273 | 2007 $EC_{21}$ |
| 2007 $EV_{23}$ | 17.2 | 0.15 | 20100104 | 289.48085 | 84.99515 | 84.12522 | 3.30049 | 0.1422403 | 2.3640513 | 42 | 4 | 2002–2009 | 0.36 | M-v | 1 | MPC | 159790 | 2007 $EV_{23}$ |
| 2007 $EB_{25}$ | 16.4 | 0.15 | 20100104 | 281.77199 | 110.30819 | 16.74940 | 17.25923 | 0.1433545 | 2.6981184 | 31 | 2 | 2007–2009 | 0.44 | M-v | 3 | MPC | 165550 | 2007 $EB_{25}$ |
| 2007 $EO_{25}$ | 17.8 | 0.15 | 20100104 | 268.53287 | 200.70078 | 7.00965 | 2.33651 | 0.1532406 | 2.3476488 | 45 | 6 | 1996–2009 | 0.50 | M-v | 1 | MPC | 147421 | 2007 $EO_{25}$ |
| 2007 $EW_{29}$ | 16.2 | 0.15 | 20100104 | 34.65229 | 344.95158 | 24.78219 | 7.27668 | 0.3226084 | 2.6017837 | 85 | 2 | 2007–2009 | 0.45 | M-v | 3 | MPC | 166273 | 2007 $EW_{29}$ |
| 2007 $EE_{30}$ | 16.5 | 0.15 | 20100104 | 200.13767 | 104.75259 | 146.02072 | 6.71119 | 0.0961065 | 2.4335986 | 47 | 5 | 2003–2009 | 0.48 | M-v | 0 | MPC | 159790 | 2007 $EE_{30}$ |
| 2007 $ER_{30}$ | 17.5 | 0.15 | 20100104 | 223.85723 | 145.02964 | 41.00333 | 1.82913 | 0.0616559 | 2.5379200 | 30 | 4 | 1995–2009 | 0.41 | M-v | 3 | MPC | 164311 | 2007 $ER_{30}$ |
| 2007 $ER_{31}$ | 17.0 | 0.15 | 20100104 | 234.64089 | 98.30319 | 114.04036 | 2.85862 | 0.1055284 | 2.3620622 | 57 | 4 | 2000–2009 | 0.27 | M-v | 2 | MPC | 166273 | 2007 $ER_{31}$ |
| 2007 $EM_{32}$ | 17.5 | 0.15 | 20100104 | 343.58780 | 221.88061 | 197.30762 | 1.66671 | 0.1932424 | 2.4286859 | 55 | 4 | 1994–2009 | 0.29 | M-v | 0 | MPC | 166273 | 2007 $EM_{32}$ |
| 2007 $EX_{32}$ | 16.4 | 0.15 | 20100104 | 9.02082 | 13.72080 | 16.90578 | 11.76337 | 0.1033580 | 2.6975396 | 44 | 3 | 2002–2009 | 0.40 | M-v | 2 | MPC | 166273 | 2007 $EX_{32}$ |
| 2007 $EY_{32}$ | 16.9 | 0.15 | 20100104 | 242.47359 | 107.51711 | 96.19587 | 3.20799 | 0.1290054 | 2.4584592 | 53 | 6 | 1994–2009 | 0.38 | M-v | 1 | MPC | 166273 | 2007 $EY_{32}$ |
| 2007 $EM_{34}$ | 17.0 | 0.15 | 20100104 | 267.45135 | 67.11335 | 111.08243 | 3.79081 | 0.1192866 | 2.4090659 | 51 | 6 | 1994–2009 | 0.45 | M-v | 1 | MPC | 165550 | 2007 $EM_{34}$ |
| 2007 $EW_{34}$ | 16.0 | 0.15 | 20100104 | 282.62264 | 266.89213 | 207.58870 | 4.76655 | 0.0212375 | 2.7773382 | 59 | 8 | 1995–2009 | 0.45 | M-v | 0 | MPC | 166273 | 2007 $EW_{34}$ |
| 2007 $EL_{36}$ | 16.7 | 0.15 | 20100104 | 226.65290 | 122.06034 | 129.76581 | 10.26793 | 0.1124981 | 2.2999375 | 44 | 5 | 2000–2009 | 0.58 | M-v | 1 | MPC | 158564 | 2007 $EL_{36}$ |
| 2007 $ED_{37}$ | 17.7 | 0.15 | 20100104 | 283.12722 | 323.78381 | 202.63106 | 2.19223 | 0.1161985 | 2.3884295 | 40 | 3 | 2005–2009 | 0.30 | M-v | 3 | MPC | 166273 | 2007 $ED_{37}$ |
| 2007 $EE_{38}$ | 16.8 | 0.15 | 20100104 | 199.90475 | 40.55564 | 205.67337 | 2.58949 | 0.0601401 | 2.4783986 | 49 | 5 | 2001–2009 | 0.28 | M-v | 1 | MPC | 166273 | 2007 $EE_{38}$ |
| 2007 $EA_{39}$ | 17.1 | 0.15 | 20100104 | 5.65352 | 309.97672 | 127.57172 | 4.16149 | 0.1795942 | 2.3137885 | 79 | 5 | 1997–2009 | 0.45 | M-v | 0 | MPC | 166273 | 2007 $EA_{39}$ |
| 2007 $EJ_{40}$ | 17.0 | 0.15 | 20100104 | 149.72441 | 234.68480 | 40.05700 | 5.53419 | 0.1315098 | 2.7090160 | 44 | 5 | 1995–2009 | 0.34 | M-v | 1 | MPC | 166273 | 2007 $EJ_{40}$ |
| 2007 $EQ_{40}$ | 15.8 | 0.15 | 20100104 | 71.03298 | 110.32392 | 234.99532 | 2.73742 | 0.2404517 | 2.5684767 | 65 | 5 | 2001–2009 | 0.42 | M-v | 1 | MPC | 166274 | 2007 $EQ_{40}$ |
| 2007 $EK_{41}$ | 17.2 | 0.15 | 20100104 | 302.71359 | 187.96753 | 325.37799 | 2.79130 | 0.0921151 | 2.3201075 | 36 | 3 | 2005–2009 | 0.36 | M-v | 3 | MPC | 165550 | 2007 $EK_{41}$ |
| 2007 $EE_{42}$ | 16.3 | 0.15 | 20100104 | 356.53081 | 42.32662 | 1.84751 | 6.05950 | 0.0350654 | 2.7581953 | 51 | 5 | 1995–2009 | 0.39 | M-v | 1 | MPC | 164311 | 2007 $EE_{42}$ |
| 2007 $EJ_{42}$ | 17.1 | 0.15 | 20100104 | 235.34588 | 48.49130 | 175.19469 | 5.46851 | 0.1194190 | 2.4199811 | 45 | 4 | 2005–2009 | 0.32 | M-v | 1 | MPC | 164311 | 2007 $EJ_{42}$ |
| 2007 $EH_{44}$ | 17.6 | 0.15 | 20100104 | 345.34077 | 228.02933 | 229.50316 | 1.73613 | 0.1682018 | 2.3513484 | 42 | 4 | 2002–2009 | 0.41 | M-v | 1 | MPC | 166274 | 2007 $EH_{44}$ |
| 2007 $EK_{45}$ | 16.1 | 0.15 | 20100104 | 136.91607 | 271.66709 | 13.16835 | 7.82860 | 0.0540433 | 2.7236758 | 49 | 4 | 1995–2009 | 0.35 | M-v | 0 | MPC | 166274 | 2007 $EK_{45}$ |
| 2007 $EL_{46}$ | 17.3 | 0.15 | 20100104 | 232.46062 | 58.42438 | 188.69739 | 1.02886 | 0.1487944 | 2.3737588 | 58 | 6 | 2001–2009 | 0.44 | M-v | 1 | MPC | 147422 | 2007 $EL_{46}$ |
| 2007 $EA_{47}$ | 16.0 | 0.15 | 20100104 | 53.41195 | 13.02813 | 8.15083 | 4.99257 | 0.1690735 | 2.5601662 | 46 | 6 | 2001–2009 | 0.54 | M-v | 1 | MPC | 166274 | 2007 $EA_{47}$ |
| 2007 $EG_{47}$ | 17.5 | 0.15 | 20100104 | 272.30187 | 323.85998 | 217.77632 | 0.94828 | 0.1216052 | 2.4236777 | 47 | 5 | 2003–2009 | 0.32 | M-v | 1 | MPC | 166274 | 2007 $EG_{47}$ |
| 2007 $EM_{48}$ | 17.6 | 0.15 | 20100104 | 284.41339 | 81.16726 | 96.02209 | 2.36826 | 0.1238310 | 2.3937173 | 35 | 3 | 2005–2009 | 0.33 | M-v | 3 | MPC | 121668 | 2007 $EM_{48}$ |
| 2007 $EP_{48}$ | 17.3 | 0.15 | 20100104 | 258.64188 | 61.23671 | 135.95410 | 3.21898 | 0.1440682 | 2.4579233 | 62 | 6 | 1999–2009 | 0.43 | M-v | 0 | MPC | 166274 | 2007 $EP_{48}$ |
| 2007 $ED_{49}$ | 16.5 | 0.15 | 20100104 | 212.90673 | 195.24917 | 24.88135 | 5.56522 | 0.0623883 | 2.6354198 | 42 | 4 | 2000–2009 | 0.48 | M-v | 1 | MPC | 166274 | 2007 $ED_{49}$ |
| 2007 $EO_{50}$ | 17.8 | 0.15 | 20100104 | 33.06320 | 191.35958 | 234.18867 | 1.35244 | 0.1008257 | 2.2678665 | 42 | 5 | 1992–2009 | 0.30 | M-v | 0 | MPC | 117811 | 2007 $EO_{50}$ |
| 2007 $EJ_{51}$ | 14.5 | 0.15 | 20100104 | 92.14836 | 308.33422 | 339.97676 | 12.51212 | 0.0817085 | 3.0477597 | 55 | 5 | 2002–2009 | 0.56 | M-v | 1 | MPC | 166274 | 2007 $EJ_{51}$ |
| 2007 $EM_{51}$ | 15.9 | 0.15 | 20100104 | 76.67771 | 313.33693 | 39.36608 | 2.94923 | 0.0687205 | 2.7118522 | 83 | 6 | 1991–2009 | 0.47 | M-v | 0 | MPC | 166274 | 2007 $EM_{51}$ |
| 2007 $EG_{54}$ | 16.8 | 0.15 | 20100104 | 229.31077 | 161.70066 | 40.44463 | 6.28524 | 0.0211500 | 2.6859870 | 45 | 5 | 1993–2009 | 0.33 | M-v | 1 | MPC | 166274 | 2007 $EG_{54}$ |
| 2007 $EH_{54}$ | 17.3 | 0.15 | 20100104 | 257.73789 | 53.36317 | 176.33051 | 5.33423 | 0.1871704 | 2.3556112 | 56 | 6 | 2003–2009 | 0.42 | M-v | 0 | MPC | 147422 | 2007 $EH_{54}$ |
| 2007 $ES_{56}$ | 15.3 | 0.15 | 20100104 | 344.86407 | 343.98320 | 37.23263 | 15.66846 | 0.0407183 | 3.1378634 | 42 | 5 | 1993–2009 | 0.46 | M-v | 1 | MPC | 162511 | 2007 $ES_{56}$ |
| 2007 $EB_{58}$ | 17.4 | 0.15 | 20100104 | 38.57739 | 47.50588 | 322.85909 | 1.69721 | 0.2299448 | 2.3307588 | 80 | 5 | 1991–2009 | 0.49 | M-v | 1 | MPC | 166274 | 2007 $EB_{58}$ |
| 2007 $EJ_{58}$ | 17.8 | 0.15 | 20100104 | 28.34395 | 84.57788 | 321.04199 | 1.75506 | 0.1570127 | 2.2426946 | 31 | 2 | 2007–2009 | 0.31 | M-v | 4 | MPC | 165551 | 2007 $EJ_{58}$ |
| 2007 $EQ_{59}$ | 16.8 | 0.15 | 20100104 | 247.62640 | 108.06226 | 87.90733 | 3.41887 | 0.1414150 | 2.4416748 | 59 | 5 | 1992–2009 | 0.46 | M-v | 1 | MPC | 166274 | 2007 $EQ_{59}$ |
| 2007 $EC_{62}$ | 17.9 | 0.15 | 20100104 | 329.58719 | 38.52062 | 113.24821 | 2.60552 | 0.0843534 | 2.1909942 | 23 | 4 | 2004–2009 | 0.31 | M-v | 2 | MPC | 158565 | 2007 $EC_{62}$ |
| 2007 $EH_{63}$ | 16.9 | 0.15 | 20100104 | 102.16985 | 288.78231 | 17.36306 | 2.78015 | 0.0864016 | 2.6895013 | 51 | 7 | 1998–2009 | 0.36 | M-v | 0 | MPC | 166274 | 2007 $EH_{63}$ |
| 2007 $EN_{63}$ | 16.8 | 0.15 | 20100104 | 227.88439 | 216.41396 | 6.45745 | 4.98678 | 0.0646438 | 2.3964302 | 61 | 5 | 1996–2009 | 0.36 | M-v | 1 | MPC | 122881 | 2007 $EN_{63}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 $EG_{64}$ | 18.3 | 0.15 | 20100104 | 299.95470 | 245.36431 | 294.97660 | 1.54783 | 0.0350934 | 2.1446113 | 27 | 4 | 1999–2009 | 0.29 | M-v | 1 | MPC | 141866 | 2007 $EG_{64}$ |
| 2007 $EW_{64}$ | 17.1 | 0.15 | 20100104 | 311.76058 | 49.50925 | 105.44050 | 2.68079 | 0.1388454 | 2.2722430 | 53 | 5 | 1992–2009 | 0.51 | M-v | 1 | MPC | 159791 | 2007 $EW_{64}$ |
| 2007 $EB_{65}$ | 16.6 | 0.15 | 20100104 | 18.73386 | 347.59122 | 29.05064 | 5.45955 | 0.0835213 | 2.7606316 | 67 | 4 | 2000–2009 | 0.43 | M-v | 1 | MPC | 166274 | 2007 $EB_{65}$ |
| 2007 $EO_{68}$ | 17.6 | 0.15 | 20100104 | 300.57064 | 63.52727 | 107.58494 | 4.77370 | 0.1591067 | 2.2419204 | 55 | 5 | 1992–2009 | 0.50 | M-v | 1 | MPC | 166274 | 2007 $EO_{68}$ |
| 2007 $EZ_{68}$ | 17.3 | 0.15 | 20100104 | 266.14318 | 66.64952 | 123.25613 | 2.24944 | 0.1231695 | 2.3928052 | 44 | 6 | 2001–2009 | 0.37 | M-v | 1 | MPC | 147422 | 2007 $EZ_{68}$ |
| 2007 $EK_{69}$ | 17.1 | 0.15 | 20100104 | 7.52972 | 14.94100 | 25.32553 | 6.34921 | 0.0608427 | 2.6843397 | 71 | 6 | 1994–2009 | 0.31 | M-v | 1 | MPC | 166274 | 2007 $EK_{69}$ |
| 2007 $ER_{70}$ | 16.4 | 0.15 | 20100104 | 151.95979 | 131.18364 | 111.20674 | 3.16285 | 0.0122943 | 2.8635418 | 51 | 5 | 2002–2009 | 0.38 | M-v | 0 | MPC | 164312 | 2007 $ER_{70}$ |
| 2007 $EG_{73}$ | 17.5 | 0.15 | 20100104 | 255.66144 | 87.67671 | 109.71858 | 3.01379 | 0.1558798 | 2.3882002 | 55 | 6 | 1996–2009 | 0.39 | M-v | 0 | MPC | 166274 | 2007 $EG_{73}$ |
| 2007 $EA_{74}$ | 17.5 | 0.15 | 20100104 | 254.20476 | 30.16067 | 196.24040 | 4.51338 | 0.0975094 | 2.2972567 | 30 | 3 | 2005–2009 | 0.15 | M-v | 3 | MPC | 119714 | 2007 $EA_{74}$ |
| 2007 $EN_{75}$ | 17.1 | 0.15 | 20100104 | 220.62770 | 240.13270 | 0.02812 | 3.88101 | 0.0518172 | 2.4108132 | 35 | 5 | 2003–2009 | 0.35 | M-v | 0 | MPC | 149017 | 2007 $EN_{75}$ |
| 2007 $EH_{76}$ | 17.2 | 0.15 | 20100104 | 242.63061 | 31.23626 | 209.41780 | 3.37274 | 0.1110324 | 2.3105455 | 64 | 5 | 2000–2009 | 0.47 | M-v | 1 | MPC | 146511 | 2007 $EH_{76}$ |
| 2007 $EB_{79}$ | 16.6 | 0.15 | 20100104 | 277.62830 | 226.40820 | 315.70331 | 5.47473 | 0.0541820 | 2.3693672 | 49 | 5 | 2003–2009 | 0.54 | M-v | 1 | MPC | 166275 | 2007 $EB_{79}$ |
| 2007 $EV_{79}$ | 16.6 | 0.15 | 20100104 | 20.86256 | 211.88450 | 194.47663 | 6.65764 | 0.2153624 | 2.5534002 | 34 | 2 | 2007–2009 | 0.47 | M-v | 3 | MPC | 165552 | 2007 $EV_{79}$ |
| 2007 $EX_{81}$ | 16.6 | 0.15 | 20100104 | 105.02053 | 271.14954 | 47.59079 | 4.16540 | 0.0923150 | 2.6553985 | 30 | 5 | 2000–2009 | 0.28 | M-v | 1 | MPC | 166275 | 2007 $EX_{81}$ |
| 2007 $EY_{81}$ | 16.8 | 0.15 | 20100104 | 289.34980 | 57.77728 | 123.45585 | 3.19511 | 0.0950843 | 2.3067963 | 45 | 5 | 1993–2009 | 0.67 | M-v | 1 | MPC | 119715 | 2007 $EY_{81}$ |
| 2007 $EP_{85}$ | 14.6 | 0.15 | 20100104 | 37.91096 | 344.68042 | 356.59500 | 18.22725 | 0.1296249 | 3.1474138 | 103 | 5 | 1998–2009 | 0.50 | M-v | 1 | MPC | 164313 | 2007 $EP_{85}$ |
| 2007 $EF_{89}$ | 17.1 | 0.15 | 20100104 | 181.86779 | 139.20148 | 118.52866 | 2.08481 | 0.1495402 | 2.4567644 | 47 | 5 | 2004–2009 | 0.37 | M-v | 1 | MPC | 143276 | 2007 $EF_{89}$ |
| 2007 $EX_{89}$ | 17.2 | 0.15 | 20100104 | 347.45904 | 264.95869 | 166.06150 | 6.10096 | 0.0925411 | 2.4116207 | 37 | 3 | 2005–2009 | 0.39 | M-v | 2 | MPC | 166275 | 2007 $EX_{89}$ |
| 2007 $EZ_{89}$ | 17.8 | 0.15 | 20100104 | 50.31110 | 72.09633 | 323.71851 | 2.51453 | 0.1135980 | 2.2572155 | 35 | 4 | 2000–2009 | 0.28 | M-v | 0 | MPC | 120561 | 2007 $EZ_{89}$ |
| 2007 $EF_{91}$ | 17.0 | 0.15 | 20100104 | 106.45807 | 323.27019 | 358.00825 | 2.78691 | 0.1304946 | 2.6202103 | 41 | 4 | 2004–2009 | 0.27 | M-v | 0 | MPC | 126257 | 2007 $EF_{91}$ |
| 2007 $EX_{95}$ | 16.7 | 0.15 | 20100104 | 119.50666 | 270.33405 | 74.97116 | 3.50300 | 0.1959625 | 2.4207799 | 45 | 5 | 2001–2009 | 0.48 | M-v | 1 | MPC | 159119 | 2007 $EX_{95}$ |
| 2007 $EF_{96}$ | 15.4 | 0.15 | 20100104 | 14.93953 | 171.75581 | 196.52550 | 8.12421 | 0.1193704 | 3.1311751 | 54 | 6 | 1996–2009 | 0.30 | M-v | 0 | MPC | 164313 | 2007 $EF_{96}$ |
| 2007 $ES_{96}$ | 18.1 | 0.15 | 20100104 | 355.91219 | 171.43904 | 305.22487 | 0.91375 | 0.0917811 | 2.3008120 | 47 | 4 | 2002–2009 | 0.36 | M-v | 0 | MPC | 166275 | 2007 $ES_{96}$ |
| 2007 $ET_{97}$ | 17.7 | 0.15 | 20100104 | 313.55092 | 80.93637 | 25.65967 | 2.74402 | 0.1760039 | 2.3819215 | 62 | 5 | 1996–2009 | 0.40 | M-v | 1 | MPC | 166275 | 2007 $ET_{97}$ |
| 2007 $EU_{100}$ | 17.7 | 0.15 | 20100104 | 21.96742 | 332.08074 | 81.33670 | 1.13357 | 0.1068774 | 2.3228400 | 47 | 3 | 2005–2009 | 0.38 | M-v | 3 | MPC | 166275 | 2007 $EU_{100}$ |
| 2007 $EE_{101}$ | 16.7 | 0.15 | 20100104 | 179.19317 | 188.57282 | 63.28794 | 4.67810 | 0.1043294 | 2.6159239 | 38 | 5 | 2003–2009 | 0.35 | M-v | 1 | MPC | 166275 | 2007 $EE_{101}$ |
| 2007 $EJ_{105}$ | 16.8 | 0.15 | 20100104 | 135.84921 | 284.62976 | 6.95459 | 4.27608 | 0.1468536 | 2.6472678 | 46 | 4 | 2004–2009 | 0.28 | M-v | 0 | MPC | 166275 | 2007 $EJ_{105}$ |
| 2007 $ES_{105}$ | 17.4 | 0.15 | 20100104 | 307.56210 | 120.80868 | 25.91093 | 6.02783 | 0.2304352 | 2.3219725 | 71 | 3 | 2000–2009 | 0.51 | M-v | 2 | MPC | 166275 | 2007 $ES_{105}$ |
| 2007 $EK_{106}$ | 15.8 | 0.15 | 20100104 | 55.68620 | 271.16702 | 60.14398 | 5.46228 | 0.0820812 | 3.0001376 | 50 | 6 | 1996–2009 | 0.46 | M-v | 1 | MPC | 164313 | 2007 $EK_{106}$ |
| 2007 $EK_{107}$ | 18.3 | 0.15 | 20100104 | 306.59648 | 51.35813 | 105.65894 | 3.72677 | 0.1776026 | 2.3174007 | 35 | 3 | 2005–2009 | 0.20 | M-v | 2 | MPC | 166275 | 2007 $EK_{107}$ |
| 2007 $ES_{108}$ | 16.3 | 0.15 | 20100104 | 174.84415 | 167.76152 | 97.71891 | 3.29530 | 0.1629016 | 2.6504416 | 39 | 6 | 1998–2009 | 0.43 | M-v | 0 | MPC | 146513 | 2007 $ES_{108}$ |
| 2007 $EL_{109}$ | 16.8 | 0.15 | 20100104 | 255.82831 | 147.42870 | 28.77880 | 9.55448 | 0.0717985 | 2.5737625 | 33 | 4 | 2003–2009 | 0.44 | M-v | 1 | MPC | 166275 | 2007 $EL_{109}$ |
| 2007 $EU_{109}$ | 17.0 | 0.15 | 20100104 | 281.14365 | 148.95337 | 51.46936 | 4.08382 | 0.1084100 | 2.2941588 | 65 | 6 | 1998–2009 | 0.39 | M-v | 1 | MPC | 166275 | 2007 $EU_{109}$ |
| 2007 $EQ_{111}$ | 16.5 | 0.15 | 20100104 | 223.63002 | 175.02716 | 33.06197 | 5.53596 | 0.1241212 | 2.6226430 | 54 | 4 | 2004–2009 | 0.39 | M-v | 1 | MPC | 166275 | 2007 $EQ_{111}$ |
| 2007 $EE_{115}$ | 16.9 | 0.15 | 20100104 | 357.28604 | 323.52560 | 121.41424 | 3.64821 | 0.0624423 | 2.5282038 | 41 | 4 | 2001–2009 | 0.31 | M-v | 2 | MPC | 166275 | 2007 $EE_{115}$ |
| 2007 $EF_{116}$ | 17.6 | 0.15 | 20100104 | 284.12361 | 143.46061 | 39.94636 | 7.14550 | 0.1989513 | 2.3703370 | 47 | 4 | 2003–2009 | 0.39 | M-v | 1 | MPC | 120855 | 2007 $EF_{116}$ |
| 2007 $EE_{118}$ | 17.8 | 0.15 | 20100104 | 230.61296 | 154.80229 | 122.56652 | 3.11029 | 0.2229385 | 2.3106469 | 30 | 3 | 2004–2008 | 0.31 | M-v | 2 | MPC | 150030 | 2007 $EE_{118}$ |
| 2007 $EX_{118}$ | 16.5 | 0.15 | 20100104 | 311.15522 | 63.33680 | 36.48803 | 6.96518 | 0.0900616 | 2.7396148 | 63 | 4 | 2000–2009 | 0.29 | M-v | 0 | MPC | 166276 | 2007 $EX_{118}$ |
| 2007 $EG_{119}$ | 17.6 | 0.15 | 20100104 | 265.15634 | 119.86133 | 91.41344 | 2.30715 | 0.1287445 | 2.3685654 | 40 | 6 | 1996–2009 | 0.34 | M-v | 1 | MPC | 147423 | 2007 $EG_{119}$ |
| 2007 $EE_{120}$ | 16.9 | 0.15 | 20100104 | 200.38230 | 133.30151 | 103.94877 | 3.41427 | 0.0977411 | 2.6830836 | 43 | 6 | 2000–2009 | 0.36 | M-v | 0 | MPC | 166276 | 2007 $EE_{120}$ |
| 2007 $EG_{120}$ | 16.7 | 0.15 | 20100104 | 317.55741 | 300.27982 | 163.13880 | 6.33568 | 0.1614988 | 2.6286060 | 56 | 3 | 2005–2009 | 0.49 | M-v | 2 | MPC | 164314 | 2007 $EG_{120}$ |
| 2007 $EB_{121}$ | 17.5 | 0.15 | 20100104 | 203.07160 | 234.17812 | 15.41200 | 1.43172 | 0.1543576 | 2.3828299 | 52 | 7 | 1996–2009 | 0.45 | M-v | 0 | MPC | 147423 | 2007 $EB_{121}$ |
| 2007 $ER_{125}$ | 16.4 | 0.15 | 20100104 | 219.51927 | 346.82330 | 147.58690 | 9.01675 | 0.0738496 | 3.1537041 | 23 | 3 | 2001–2009 | 0.29 | M-v | 3 | MPC | 162513 | 2007 $ER_{125}$ |
| 2007 $EC_{127}$ | 16.8 | 0.15 | 20100104 | 221.58710 | 234.57413 | 14.37795 | 5.59401 | 0.1479575 | 2.3089509 | 70 | 5 | 2001–2009 | 0.52 | M-v | 1 | MPC | 149018 | 2007 $EC_{127}$ |
| 2007 $ED_{127}$ | 17.1 | 0.15 | 20100104 | 278.83282 | 68.43361 | 107.61488 | 5.20966 | 0.0962053 | 2.3136338 | 29 | 2 | 2007–2009 | 0.44 | M-v | 4 | MPC | 165552 | 2007 $ED_{127}$ |
| 2007 $EA_{128}$ | 17.6 | 0.15 | 20100104 | 22.66338 | 238.77590 | 174.78875 | 4.06391 | 0.2030657 | 2.3163091 | 35 | 3 | 2000–2009 | 0.40 | M-v | 3 | MPC | 117833 | 2007 $EA_{128}$ |
| 2007 $EY_{129}$ | 15.9 | 0.15 | 20100104 | 42.53187 | 19.50865 | 352.45551 | 7.11172 | 0.1741701 | 2.5487592 | 59 | 3 | 2005–2009 | 0.41 | M-v | 4 | MPC | 166276 | 2007 $EY_{129}$ |
| 2007 $ES_{130}$ | 17.4 | 0.15 | 20100104 | 248.21049 | 224.86884 | 355.90076 | 2.25293 | 0.1451578 | 2.3471997 | 80 | 6 | 2000–2009 | 0.36 | M-v | 1 | MPC | 147423 | 2007 $ES_{130}$ |
| 2007 $EB_{132}$ | 17.7 | 0.15 | 20100104 | 340.49709 | 104.51015 | 2.12469 | 2.37969 | 0.1934539 | 2.3116978 | 38 | 2 | 2007–2009 | 0.27 | M-v | 4 | MPC | 165553 | 2007 $EB_{132}$ |
| 2007 $EO_{132}$ | 18.2 | 0.15 | 20100104 | 279.01212 | 11.75301 | 169.45562 | 3.81280 | 0.1130450 | 2.3487598 | 34 | 4 | 2001–2009 | 0.28 | M-v | 3 | MPC | 117836 | 2007 $EO_{132}$ |
| 2007 $EW_{137}$ | 17.1 | 0.15 | 20100104 | 351.43779 | 5.13499 | 109.71549 | 8.36632 | 0.1656859 | 2.2195332 | 43 | 4 | 1999–2009 | 0.55 | M-v | 1 | MPC | 122883 | 2007 $EW_{137}$ |
| 2007 $EN_{138}$ | 18.1 | 0.15 | 20100104 | 275.49825 | 134.02361 | 49.61485 | 2.35807 | 0.1748973 | 2.2748927 | 41 | 3 | 2005–2009 | 0.28 | M-v | 3 | MPC | 166276 | 2007 $EN_{138}$ |
| 2007 $EU_{138}$ | 16.9 | 0.15 | 20100104 | 178.09693 | 253.43124 | 1.83563 | 2.35653 | 0.1513284 | 2.4517242 | 32 | 3 | 2005–2009 | 0.41 | M-v | 4 | MPC | 166276 | 2007 $EU_{138}$ |

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| 2007 $EG_{139}$ | 16.5 | 0.15 | 20100104 | 41.61573 | 315.47502 | 38.86419 | 5.43447 | 0.0780112 | 2.7566168 | 56 | 6 | 1995–2009 | 0.39 | M-v | 1 | MPC | 166276 | 2007 $EG_{139}$ |
| 2007 $EQ_{139}$ | 16.8 | 0.15 | 20100104 | 354.02932 | 314.16172 | 90.44409 | 2.89297 | 0.0694702 | 2.6936623 | 61 | 3 | 2005–2009 | 0.34 | M-v | 3 | MPC | 164314 | 2007 $EQ_{139}$ |
| 2007 $ED_{142}$ | 17.1 | 0.15 | 20100104 | 7.60128 | 115.76727 | 321.65889 | 3.78155 | 0.2016983 | 2.3317113 | 55 | 5 | 2001–2009 | 0.48 | M-v | 0 | MPC | 166276 | 2007 $ED_{142}$ |
| 2007 $EJ_{142}$ | 16.9 | 0.15 | 20100104 | 200.52892 | 287.91278 | 340.24696 | 6.22024 | 0.1118203 | 2.4049535 | 46 | 6 | 1997–2009 | 0.49 | M-v | 0 | MPC | 147424 | 2007 $EJ_{142}$ |
| 2007 $EL_{144}$ | 17.4 | 0.15 | 20100104 | 359.41989 | 318.95262 | 100.11355 | 1.89854 | 0.1912920 | 2.4394538 | 65 | 5 | 1999–2009 | 0.40 | M-v | 1 | MPC | 166276 | 2007 $EL_{144}$ |
| 2007 $EV_{144}$ | 16.6 | 0.15 | 20100104 | 109.00915 | 291.71795 | 42.94867 | 2.81722 | 0.1987515 | 2.4733580 | 36 | 4 | 2001–2009 | 0.34 | M-v | 3 | MPC | 122883 | 2007 $EV_{144}$ |
| 2007 $EE_{146}$ | 16.5 | 0.15 | 20100104 | 28.12736 | 351.33457 | 21.09863 | 6.25372 | 0.0656844 | 2.7031839 | 61 | 3 | 2003–2009 | 0.37 | M-v | 3 | MPC | 166277 | 2007 $EE_{146}$ |
| 2007 $EP_{148}$ | 18.6 | 0.15 | 20100104 | 334.86737 | 48.70491 | 60.55558 | 3.30687 | 0.1858853 | 2.3205942 | 37 | 3 | 2000–2009 | 0.33 | M-v | 1 | MPC | 165553 | 2007 $EP_{148}$ |
| 2007 $EQ_{150}$ | 17.3 | 0.15 | 20100104 | 0.09496 | 326.43628 | 103.94551 | 3.13027 | 0.1647220 | 2.3867023 | 50 | 3 | 2005–2009 | 0.47 | M-v | 2 | MPC | 165553 | 2007 $EQ_{150}$ |
| 2007 $EQ_{151}$ | 17.6 | 0.15 | 20100104 | 264.49631 | 75.66368 | 113.43478 | 3.08865 | 0.1191436 | 2.3751883 | 35 | 4 | 2003–2009 | 0.35 | M-v | 1 | MPC | 117844 | 2007 $EQ_{151}$ |
| 2007 $EZ_{151}$ | 17.8 | 0.15 | 20100104 | 38.65638 | 312.35795 | 84.36642 | 3.63551 | 0.1826512 | 2.3712654 | 24 | 3 | 2005–2009 | 0.37 | M-v | 3 | MPC | 119432 | 2007 $EZ_{151}$ |
| 2007 $EH_{153}$ | 16.0 | 0.15 | 20100104 | 4.95826 | 332.74970 | 51.07164 | 5.54949 | 0.0718364 | 2.7874952 | 49 | 5 | 2000–2009 | 0.43 | M-v | 1 | MPC | 162514 | 2007 $EH_{153}$ |
| 2007 $EZ_{156}$ | 17.6 | 0.15 | 20100104 | 328.36944 | 59.08196 | 82.14885 | 4.06519 | 0.1505724 | 2.3029307 | 44 | 4 | 2002–2009 | 0.34 | M-v | 1 | MPC | 121878 | 2007 $EZ_{156}$ |
| 2007 $EV_{159}$ | 16.5 | 0.15 | 20100104 | 225.57812 | 118.39097 | 138.82509 | 5.70799 | 0.1459278 | 2.2852187 | 65 | 7 | 2000–2009 | 0.61 | M-v | 1 | MPC | 159791 | 2007 $EV_{159}$ |
| 2007 $ED_{165}$ | 17.7 | 0.15 | 20100104 | 299.94741 | 278.81498 | 294.04853 | 1.82319 | 0.1885723 | 2.1566579 | 34 | 4 | 1994–2009 | 0.51 | M-v | 2 | MPC | 121199 | 2007 $ED_{165}$ |
| 2007 $EL_{168}$ | 16.3 | 0.15 | 20100104 | 68.38696 | 300.60651 | 57.88478 | 4.48905 | 0.1034585 | 2.7083181 | 47 | 5 | 2000–2009 | 0.39 | M-v | 0 | MPC | 166277 | 2007 $EL_{168}$ |
| 2007 $EW_{169}$ | 17.3 | 0.15 | 20100104 | 246.09135 | 92.58461 | 142.17185 | 5.79947 | 0.1173500 | 2.2929342 | 29 | 3 | 2007–2009 | 0.38 | M-v | 2 | MPC | 159792 | 2007 $EW_{169}$ |
| 2007 $EQ_{173}$ | 16.1 | 0.15 | 20100104 | 123.05645 | 60.43111 | 200.10581 | 8.98711 | 0.0928461 | 3.0963656 | 42 | 5 | 2001–2009 | 0.30 | M-v | 0 | MPC | 166277 | 2007 $EQ_{173}$ |
| 2007 $EC_{175}$ | 17.5 | 0.15 | 20100104 | 313.91445 | 261.44384 | 251.82836 | 1.59595 | 0.1540430 | 2.3080470 | 51 | 3 | 2005–2009 | 0.45 | M-v | 3 | MPC | 166277 | 2007 $EC_{175}$ |
| 2007 $EK_{177}$ | 16.9 | 0.15 | 20100104 | 230.84109 | 14.13688 | 227.01554 | 4.40612 | 0.1138280 | 2.4011665 | 47 | 6 | 1997–2009 | 0.47 | M-v | 0 | MPC | 147424 | 2007 $EK_{177}$ |
| 2007 $EJ_{179}$ | 17.7 | 0.15 | 20100104 | 292.93875 | 292.78866 | 234.33169 | 1.85744 | 0.1642574 | 2.3864914 | 39 | 4 | 2003–2009 | 0.34 | M-v | 0 | MPC | 166277 | 2007 $EJ_{179}$ |
| 2007 $EX_{179}$ | 16.1 | 0.15 | 20100104 | 193.22916 | 347.88785 | 206.02883 | 11.83111 | 0.0254856 | 3.0349271 | 30 | 4 | 2002–2009 | 0.30 | M-v | 1 | MPC | 164315 | 2007 $EX_{179}$ |
| 2007 $EF_{180}$ | 17.7 | 0.15 | 20100104 | 267.82401 | 349.93362 | 227.55014 | 4.65799 | 0.1085592 | 2.3061313 | 42 | 6 | 1998–2009 | 0.39 | M-v | 0 | MPC | 159792 | 2007 $EF_{180}$ |
| 2007 $EP_{180}$ | 17.5 | 0.15 | 20100104 | 249.76002 | 239.80738 | 352.35618 | 2.25755 | 0.1563598 | 2.3784031 | 31 | 5 | 2003–2009 | 0.32 | M-v | 1 | MPC | 146519 | 2007 $EP_{180}$ |
| 2007 $EW_{180}$ | 16.4 | 0.15 | 20100104 | 184.43516 | 37.01893 | 216.48505 | 4.35818 | 0.0842167 | 2.6592289 | 53 | 7 | 2000–2009 | 0.32 | M-v | 0 | MPC | 166277 | 2007 $EW_{180}$ |
| 2007 $EF_{181}$ | 17.7 | 0.15 | 20100104 | 259.46915 | 268.87446 | 294.08594 | 1.14698 | 0.1622930 | 2.4420505 | 41 | 7 | 1994–2009 | 0.42 | M-v | 1 | MPC | 166277 | 2007 $EF_{181}$ |
| 2007 $EQ_{181}$ | 16.5 | 0.15 | 20100104 | 337.77430 | 221.66077 | 213.94036 | 8.35089 | 0.1202584 | 2.7445374 | 53 | 2 | 2007–2009 | 0.30 | M-v | 3 | MPC | 166277 | 2007 $EQ_{181}$ |
| 2007 $ET_{182}$ | 15.3 | 0.15 | 20100104 | 177.90787 | 352.02355 | 207.95418 | 13.83543 | 0.1526736 | 3.1642661 | 59 | 8 | 1996–2009 | 0.44 | M-v | 0 | MPC | 166277 | 2007 $ET_{182}$ |
| 2007 $EF_{190}$ | 18.3 | 0.15 | 20100104 | 343.25794 | 164.25323 | 293.10027 | 1.42549 | 0.1811529 | 2.3154153 | 38 | 3 | 2002–2009 | 0.34 | M-v | 2 | MPC | 165554 | 2007 $EF_{190}$ |
| 2007 $ED_{191}$ | 16.8 | 0.15 | 20100104 | 39.48941 | 3.70826 | 17.92647 | 6.23064 | 0.0722636 | 2.6908487 | 30 | 4 | 1960–2009 | 0.28 | M-v | 2 | MPC | 157124 | 2007 $ED_{191}$ |
| 2007 $EK_{191}$ | 17.0 | 0.15 | 20100104 | 261.14370 | 124.50723 | 43.09844 | 2.01867 | 0.0374524 | 2.6236897 | 45 | 5 | 1996–2009 | 0.37 | M-v | 0 | MPC | 166277 | 2007 $EK_{191}$ |
| 2007 $EN_{191}$ | 16.9 | 0.15 | 20100104 | 74.88212 | 346.25232 | 25.23085 | 0.12542 | 0.0947447 | 2.5130893 | 39 | 4 | 2005–2009 | 0.32 | M-v | 1 | MPC | 160522 | 2007 $EN_{191}$ |
| 2007 $ER_{191}$ | 17.9 | 0.15 | 20100104 | 290.61742 | 167.78218 | 357.06410 | 0.57994 | 0.0707674 | 2.4117797 | 28 | 4 | 2005–2009 | 0.26 | M-v | 1 | MPC | 158086 | 2007 $ER_{191}$ |
| 2007 $EY_{191}$ | 18.4 | 0.15 | 20100104 | 323.17506 | 139.78072 | 6.61383 | 5.07570 | 0.0897770 | 2.3071034 | 34 | 4 | 2000–2009 | 0.29 | M-v | 1 | MPC | 119722 | 2007 $EY_{191}$ |
| 2007 $EO_{195}$ | 17.2 | 0.15 | 20100104 | 337.22749 | 244.92088 | 172.52113 | 6.44092 | 0.0081378 | 2.7638195 | 38 | 3 | 1995–2009 | 0.32 | M-v | 3 | MPC | 119446 | 2007 $EO_{195}$ |
| 2007 $EO_{196}$ | 18.2 | 0.15 | 20100104 | 283.48147 | 155.51114 | 13.49035 | 2.35410 | 0.1636825 | 2.4298511 | 34 | 4 | 2003–2009 | 0.31 | M-v | 1 | MPC | 119446 | 2007 $EO_{196}$ |
| 2007 $ES_{196}$ | 16.0 | 0.15 | 20100104 | 344.19625 | 36.58368 | 22.67759 | 15.16705 | 0.1451982 | 2.7812972 | 64 | 3 | 2000–2009 | 0.45 | M-v | 2 | MPC | 166277 | 2007 $ES_{196}$ |
| 2007 $ES_{197}$ | 17.9 | 0.15 | 20100104 | 288.96497 | 314.59781 | 233.57336 | 1.77427 | 0.1001780 | 2.3210916 | 39 | 5 | 1998–2009 | 0.27 | M-v | 1 | MPC | 147425 | 2007 $ES_{197}$ |
| 2007 $ED_{198}$ | 17.4 | 0.15 | 20100104 | 326.22515 | 140.96734 | 337.08582 | 2.35529 | 0.1866032 | 2.3966799 | 51 | 4 | 2001–2009 | 0.44 | M-v | 2 | MPC | 166278 | 2007 $ED_{198}$ |
| 2007 $EQ_{198}$ | 17.6 | 0.15 | 20100104 | 309.83473 | 220.31353 | 278.63150 | 2.85521 | 0.1401964 | 2.3114251 | 38 | 4 | 2000–2009 | 0.42 | M-v | 1 | MPC | 165555 | 2007 $EQ_{198}$ |
| 2007 $EL_{199}$ | 15.4 | 0.15 | 20100104 | 270.38827 | 123.18006 | 62.17030 | 23.62252 | 0.1631177 | 2.3198491 | 90 | 3 | 2000–2009 | 0.48 | M-v | 2 | MPC | 166278 | 2007 $EL_{199}$ |
| 2007 $ER_{199}$ | 16.1 | 0.15 | 20100104 | 175.87331 | 199.07376 | 37.83392 | 3.08063 | 0.1465698 | 2.7165101 | 51 | 4 | 2003–2009 | 0.40 | M-v | 1 | MPC | 166278 | 2007 $ER_{199}$ |
| 2007 $EH_{200}$ | 17.1 | 0.15 | 20100104 | 238.28502 | 152.04355 | 32.81981 | 12.24201 | 0.1162644 | 2.5795711 | 29 | 3 | 2003–2009 | 0.55 | M-v | 3 | MPC | 119449 | 2007 $EH_{200}$ |
| 2007 $EQ_{200}$ | 16.4 | 0.15 | 20100104 | 241.19458 | 125.80879 | 57.93564 | 6.83309 | 0.1375546 | 2.6360686 | 67 | 3 | 2005–2009 | 0.37 | M-v | 3 | MPC | 166278 | 2007 $EQ_{200}$ |
| 2007 $EY_{200}$ | 15.4 | 0.15 | 20100104 | 85.78622 | 201.16246 | 141.30848 | 8.79338 | 0.2079598 | 2.5368373 | 28 | 4 | 1998–2009 | 0.54 | M-v | 3 | MPC | 158565 | 2007 $EY_{200}$ |
| 2007 $EH_{205}$ | 16.5 | 0.15 | 20100104 | 38.08664 | 305.56448 | 58.40857 | 6.58278 | 0.0802635 | 2.8726934 | 35 | 3 | 2002–2009 | 0.37 | M-v | 2 | MPC | 166278 | 2007 $EH_{205}$ |
| 2007 $EL_{205}$ | 15.0 | 0.15 | 20100104 | 24.09732 | 338.14371 | 23.02179 | 22.06342 | 0.1600572 | 3.0896154 | 84 | 3 | 2006–2009 | 0.45 | M-v | 2 | MPC | 166278 | 2007 $EL_{205}$ |
| 2007 $ES_{209}$ | 15.1 | 0.15 | 20100104 | 132.04471 | 216.72961 | 44.25821 | 11.97032 | 0.0184561 | 3.0896171 | 62 | 5 | 2001–2009 | 0.46 | M-v | 1 | MPC | 164316 | 2007 $ES_{209}$ |
| 2007 $ES_{210}$ | 17.0 | 0.15 | 20100104 | 326.36819 | 73.90967 | 43.43692 | 5.66448 | 0.1647865 | 2.2871347 | 68 | 3 | 2002–2009 | 0.55 | M-v | 2 | MPC | 166278 | 2007 $ES_{210}$ |
| 2007 $EY_{210}$ | 17.4 | 0.15 | 20100104 | 294.21687 | 199.37277 | 346.38766 | 2.56348 | 0.0414758 | 2.1847711 | 50 | 5 | 2004–2009 | 0.31 | M-v | 1 | MPC | 166278 | 2007 $EY_{210}$ |
| 2007 $EK_{212}$ | 17.2 | 0.15 | 20100104 | 330.42256 | 37.25621 | 101.67417 | 5.64431 | 0.0514061 | 2.2326146 | 39 | 4 | 1999–2009 | 0.57 | M-v | 1 | MPC | 166278 | 2007 $EK_{212}$ |
| 2007 $EU_{213}$ | 17.3 | 0.15 | 20100104 | 102.03211 | 8.74205 | 303.51482 | 0.50928 | 0.0406928 | 2.5811090 | 44 | 6 | 1992–2009 | 0.36 | M-v | 0 | MPC | 166278 | 2007 $EU_{213}$ |
| 2007 $ER_{214}$ | 16.7 | 0.15 | 20100104 | 137.83494 | 124.42834 | 165.35012 | 2.84199 | 0.2503943 | 3.0736670 | 47 | 7 | 1997–2009 | 0.43 | M-v | 0 | MPC | 147425 | 2007 $ER_{214}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 $EY_{214}$ | 14.3 | 0.15 | 20100104 | 59.98181 | 292.73287 | 19.94951 | 22.19214 | 0.1901985 | 3.1786191 | 84 | 3 | 2003–2009 | 0.48 | M-v | 2 | MPC | 166278 | 2007 $EY_{214}$ |
| 2007 $EO_{215}$ | 16.9 | 0.15 | 20100104 | 270.56665 | 250.68022 | 288.23893 | 4.47704 | 0.0784499 | 2.3608940 | 28 | 3 | 2007–2009 | 0.54 | M-v | 4 | MPC | 165555 | 2007 $EO_{215}$ |
| 2007 $ED_{219}$ | 17.3 | 0.15 | 20100104 | 287.19517 | 137.87168 | 20.42994 | 2.58068 | 0.1481209 | 2.4342547 | 51 | 3 | 2005–2009 | 0.31 | M-v | 3 | MPC | 166278 | 2007 $ED_{219}$ |
| 2007 $EN_{222}$ | 18.0 | 0.15 | 20100104 | 27.65749 | 163.34592 | 27.22729 | 21.59870 | 0.0581247 | 1.8721464 | 19 | 1 | 60 days | 0.60 | M-v | 4 | MPC | | 2007 $EN_{222}$ |
| 2007 FS | 17.2 | 0.15 | 20100104 | 263.14071 | 209.50016 | 9.11465 | 4.96081 | 0.1799519 | 2.3330375 | 57 | 5 | 2000–2009 | 0.39 | M-v | 1 | MPC | 147425 | 2007 FS |
| 2007 $FH_2$ | 16.6 | 0.15 | 20100104 | 241.93402 | 162.03082 | 82.28223 | 8.38191 | 0.1869187 | 2.2854448 | 46 | 5 | 2000–2009 | 0.49 | M-v | 1 | MPC | 147425 | 2007 $FH_2$ |
| 2007 $FM_3$ | 16.9 | 0.15 | 20100104 | 322.00469 | 77.70446 | 56.35027 | 42.60108 | 0.4038713 | 2.2372963 | 143 | 2 | 2007–2009 | 0.46 | M-v | 2 | MPC | 165555 | 2007 $FM_3$ |
| 2007 $FC_4$ | 17.0 | 0.15 | 20100104 | 220.91045 | 160.01271 | 101.04581 | 7.79627 | 0.1379950 | 2.2949876 | 24 | 4 | 2000–2009 | 0.59 | M-v | 1 | MPC | 121362 | 2007 $FC_4$ |
| 2007 $FP_4$ | 16.7 | 0.15 | 20100104 | 102.17778 | 105.60274 | 217.47661 | 1.72931 | 0.0115107 | 2.6394618 | 44 | 5 | 2000–2009 | 0.35 | M-v | 0 | MPC | 166278 | 2007 $FP_4$ |
| 2007 $FQ_7$ | 17.0 | 0.15 | 20100104 | 355.18717 | 177.71466 | 248.88430 | 0.66489 | 0.1599289 | 2.4245946 | 79 | 3 | 2005–2009 | 0.38 | M-v | 2 | MPC | 166278 | 2007 $FQ_7$ |
| 2007 $FJ_{11}$ | 16.7 | 0.15 | 20100104 | 210.57056 | 349.30349 | 249.28899 | 4.46482 | 0.2175453 | 2.6231313 | 54 | 6 | 1994–2009 | 0.45 | M-v | 1 | MPC | 159792 | 2007 $FJ_{11}$ |
| 2007 $FM_{11}$ | 16.7 | 0.15 | 20100104 | 275.03098 | 197.00086 | 312.49007 | 4.31851 | 0.2301981 | 2.5683610 | 38 | 2 | 2007–2009 | 0.29 | M-v | 3 | MPC | 163830 | 2007 $FM_{11}$ |
| 2007 $FF_{12}$ | 17.4 | 0.15 | 20100104 | 237.99608 | 212.37486 | 22.47802 | 5.63264 | 0.1322253 | 2.3699213 | 45 | 6 | 2001–2009 | 0.38 | M-v | 1 | MPC | 143278 | 2007 $FF_{12}$ |
| 2007 $FC_{13}$ | 17.0 | 0.15 | 20100104 | 317.57751 | 197.47049 | 317.45665 | 6.79044 | 0.0359972 | 2.2770537 | 53 | 4 | 2001–2009 | 0.47 | M-v | 1 | MPC | 146523 | 2007 $FC_{13}$ |
| 2007 $FG_{15}$ | 17.0 | 0.15 | 20100104 | 296.81500 | 220.29242 | 318.38507 | 4.93203 | 0.0628169 | 2.2929909 | 40 | 4 | 2001–2009 | 0.32 | M-v | 1 | MPC | 149018 | 2007 $FG_{15}$ |
| 2007 $FL_{15}$ | 16.4 | 0.15 | 20100104 | 202.27960 | 26.78288 | 205.57998 | 7.24857 | 0.1476751 | 2.5610411 | 46 | 5 | 1999–2009 | 0.51 | M-v | 1 | MPC | 166279 | 2007 $FL_{15}$ |
| 2007 $FE_{20}$ | 19.7 | 0.15 | 20100104 | 65.09829 | 279.28639 | 282.41608 | 7.61071 | 0.2727418 | 1.7536865 | 46 | 2 | 2007–2008 | 0.28 | M-v | 1 | MPC | 148610 | 2007 $FE_{20}$ |
| 2007 $FS_{22}$ | 17.8 | 0.15 | 20100104 | 288.67766 | 84.48775 | 81.84211 | 1.94714 | 0.1331096 | 2.3845496 | 37 | 4 | 2003–2009 | 0.30 | M-v | 1 | MPC | 166279 | 2007 $FS_{22}$ |
| 2007 $FF_{23}$ | 17.6 | 0.15 | 20100104 | 250.96895 | 145.70876 | 56.87611 | 3.24110 | 0.1481210 | 2.4519766 | 37 | 4 | 2001–2009 | 0.46 | M-v | 3 | MPC | 166279 | 2007 $FF_{23}$ |
| 2007 $FU_{23}$ | 16.2 | 0.15 | 20100104 | 61.05022 | 342.04035 | 26.76667 | 4.09797 | 0.1516625 | 2.6098898 | 62 | 6 | 1996–2009 | 0.56 | M-v | 1 | MPC | 166279 | 2007 $FU_{23}$ |
| 2007 $FN_{24}$ | 18.3 | 0.15 | 20100104 | 287.05406 | 13.99442 | 178.09824 | 2.39250 | 0.0864768 | 2.2193046 | 24 | 3 | 2004–2009 | 0.27 | M-v | 3 | MPC | 141338 | 2007 $FN_{24}$ |
| 2007 $FX_{24}$ | 17.1 | 0.15 | 20100104 | 308.72369 | 85.29937 | 41.39941 | 0.68615 | 0.0246666 | 2.5215127 | 62 | 5 | 1995–2009 | 0.30 | M-v | 1 | MPC | 166279 | 2007 $FX_{24}$ |
| 2007 $FQ_{28}$ | 17.3 | 0.15 | 20100104 | 257.85009 | 211.60767 | 335.17664 | 2.02555 | 0.1203057 | 2.4216068 | 46 | 3 | 2005–2009 | 0.39 | M-v | 3 | MPC | 166279 | 2007 $FQ_{28}$ |
| 2007 $FP_{29}$ | 17.2 | 0.15 | 20100104 | 175.51222 | 220.16681 | 37.48033 | 2.86905 | 0.0386773 | 2.5603127 | 47 | 7 | 1996–2009 | 0.42 | M-v | 1 | MPC | 166279 | 2007 $FP_{29}$ |
| 2007 $FN_{30}$ | 17.2 | 0.15 | 20100104 | 109.51354 | 137.80016 | 183.78113 | 2.50749 | 0.1065550 | 2.6755007 | 43 | 7 | 2000–2009 | 0.37 | M-v | 0 | MPC | 166279 | 2007 $FN_{30}$ |
| 2007 $FJ_{31}$ | 16.8 | 0.15 | 20100104 | 306.85374 | 347.95316 | 125.65676 | 1.00065 | 0.0254781 | 2.6804311 | 45 | 6 | 2000–2009 | 0.34 | M-v | 0 | MPC | 166279 | 2007 $FJ_{31}$ |
| 2007 $FJ_{32}$ | 16.1 | 0.15 | 20100104 | 334.47362 | 60.09919 | 35.93191 | 12.00855 | 0.0970137 | 2.6205818 | 59 | 3 | 2002–2009 | 0.43 | M-v | 2 | MPC | 165556 | 2007 $FJ_{32}$ |
| 2007 $FL_{32}$ | 17.4 | 0.15 | 20100104 | 232.50562 | 43.99857 | 181.76152 | 5.00899 | 0.1611868 | 2.5365696 | 37 | 5 | 2003–2009 | 0.37 | M-v | 1 | MPC | 147426 | 2007 $FL_{32}$ |
| 2007 $FQ_{32}$ | 16.7 | 0.15 | 20100104 | 232.94684 | 43.45687 | 165.14982 | 2.26393 | 0.0335944 | 2.6260833 | 53 | 5 | 2004–2009 | 0.35 | M-v | 0 | MPC | 166279 | 2007 $FQ_{32}$ |
| 2007 $FL_{34}$ | 17.7 | 0.15 | 20100104 | 239.27224 | 152.08796 | 86.97111 | 4.35897 | 0.1216989 | 2.3597090 | 40 | 3 | 2005–2009 | 0.34 | M-v | 3 | MPC | 119466 | 2007 $FL_{34}$ |
| 2007 $FM_{34}$ | 16.4 | 0.15 | 20100104 | 321.98973 | 47.27038 | 35.12804 | 12.47901 | 0.0292456 | 2.7058140 | 57 | 4 | 2000–2009 | 0.53 | M-v | 0 | MPC | 166279 | 2007 $FM_{34}$ |
| 2007 $FS_{35}$ | 19.5 | 0.15 | 20100104 | 317.16873 | 107.02818 | 183.27660 | 0.31751 | 0.3901500 | 1.9221133 | 58 | 3 | 1999–2007 | 0.39 | M-v | 3 | MPC | 121363 | 2007 $FS_{35}$ |
| 2007 $FN_{36}$ | 17.9 | 0.15 | 20100104 | 9.05754 | 27.69742 | 38.50131 | 0.22281 | 0.1876878 | 2.3994795 | 58 | 3 | 2005–2009 | 0.40 | M-v | 3 | MPC | 165557 | 2007 $FN_{36}$ |
| 2007 $FH_{37}$ | 17.7 | 0.15 | 20100104 | 284.84267 | 113.61166 | 71.60048 | 2.93614 | 0.1644719 | 2.3829590 | 29 | 4 | 1996–2009 | 0.23 | M-v | 1 | MPC | 121678 | 2007 $FH_{37}$ |
| 2007 $FQ_{38}$ | 15.9 | 0.15 | 20100104 | 202.53256 | 176.15413 | 57.24378 | 12.50532 | 0.1251962 | 2.6768522 | 56 | 5 | 1994–2009 | 0.48 | M-v | 1 | MPC | 166279 | 2007 $FQ_{38}$ |
| 2007 $FU_{43}$ | 17.0 | 0.15 | 20100104 | 248.35676 | 171.51512 | 21.48725 | 5.65982 | 0.1082736 | 2.5945604 | 36 | 5 | 1996–2009 | 0.39 | M-v | 1 | MPC | 166279 | 2007 $FU_{43}$ |
| 2007 $FY_{43}$ | 16.1 | 0.15 | 20100104 | 61.76368 | 359.78139 | 2.37652 | 6.92154 | 0.2659245 | 2.5469729 | 44 | 5 | 2001–2009 | 0.45 | M-v | 3 | MPC | 166279 | 2007 $FY_{43}$ |
| 2007 $FT_{44}$ | 15.0 | 0.15 | 20100104 | 32.80297 | 326.92386 | 33.50330 | 9.64670 | 0.0848080 | 3.0793451 | 66 | 6 | 1994–2009 | 0.48 | M-v | 1 | MPC | 164317 | 2007 $FT_{44}$ |
| 2007 $FX_{44}$ | 17.8 | 0.15 | 20070301 | 230.63465 | 128.50194 | 181.95180 | 21.45032 | 0.0827623 | 1.9098060 | 15 | 1 | 13 days | 0.65 | | | MPC | | 2007 $FX_{44}$ |
| 2007 $FP_{45}$ | 18.0 | 0.15 | 20100104 | 321.96877 | 224.22918 | 263.10213 | 0.68183 | 0.1288620 | 2.3589873 | 35 | 4 | 2003–2009 | 0.27 | M-v | 0 | MPC | 166280 | 2007 $FP_{45}$ |
| 2007 $FN_{46}$ | 15.9 | 0.15 | 20100104 | 37.06266 | 324.12581 | 29.35589 | 11.32451 | 0.0887025 | 3.1396529 | 51 | 3 | 1998–2009 | 0.28 | M-v | 2 | MPC | 166280 | 2007 $FN_{46}$ |
| 2007 $FO_{46}$ | 16.9 | 0.15 | 20100104 | 89.77203 | 287.60354 | 39.13431 | 2.53350 | 0.0678208 | 2.8654327 | 43 | 5 | 1994–2009 | 0.41 | M-v | 1 | MPC | 166280 | 2007 $FO_{46}$ |
| 2007 $FF_{47}$ | 17.6 | 0.15 | 20100104 | 246.74431 | 211.35784 | 25.52574 | 2.54179 | 0.1769547 | 2.3554830 | 40 | 4 | 2005–2009 | 0.34 | M-v | 1 | MPC | 146527 | 2007 $FF_{47}$ |
| 2007 $FV_{47}$ | 16.8 | 0.15 | 20100104 | 3.90948 | 24.20528 | 91.91591 | 6.24325 | 0.0925031 | 2.2522213 | 40 | 5 | 2001–2009 | 0.35 | M-v | 1 | MPC | 166280 | 2007 $FV_{47}$ |
| 2007 $GP_1$ | 15.7 | 0.15 | 20100104 | 94.36742 | 240.11821 | 62.86916 | 6.16042 | 0.1484686 | 3.1327423 | 51 | 4 | 2003–2009 | 0.40 | M-v | 0 | MPC | 166280 | 2007 $GP_1$ |
| 2007 $GA_2$ | 16.9 | 0.15 | 20100104 | 317.77522 | 62.18760 | 93.14033 | 5.83217 | 0.0877907 | 2.2962161 | 40 | 3 | 2007–2009 | 0.36 | M-v | 3 | MPC | 141339 | 2007 $GA_2$ |
| 2007 $GF_2$ | 17.2 | 0.15 | 20100104 | 20.24155 | 204.00730 | 222.11078 | 1.66065 | 0.0628729 | 2.5310057 | 48 | 6 | 2001–2009 | 0.54 | M-v | 1 | MPC | 143279 | 2007 $GF_2$ |
| 2007 $GH_4$ | 16.3 | 0.15 | 20100104 | 128.52356 | 225.64045 | 63.71703 | 5.27446 | 0.0398376 | 2.7951310 | 77 | 5 | 2002–2009 | 0.33 | M-v | 0 | MPC | 166280 | 2007 $GH_4$ |
| 2007 $GC_6$ | 17.6 | 0.15 | 20100104 | 259.08485 | 70.68887 | 158.11195 | 1.71930 | 0.1256560 | 2.3873919 | 59 | 4 | 2003–2009 | 0.47 | M-v | 1 | MPC | 147426 | 2007 $GC_6$ |
| 2007 $GZ_7$ | 15.8 | 0.15 | 20100104 | 100.29809 | 272.99591 | 17.59893 | 10.31882 | 0.0625079 | 3.0090342 | 45 | 4 | 2002–2009 | 0.29 | M-v | 0 | MPC | 166280 | 2007 $GZ_7$ |
| 2007 $GF_{10}$ | 17.4 | 0.15 | 20100104 | 296.62432 | 88.16626 | 65.47158 | 5.99192 | 0.0895858 | 2.3808908 | 35 | 4 | 2003–2009 | 0.27 | M-v | 0 | MPC | 166280 | 2007 $GF_{10}$ |
| 2007 $GP_{12}$ | 17.1 | 0.15 | 20100104 | 13.73871 | 276.15293 | 143.89491 | 6.41391 | 0.1144147 | 2.4504820 | 37 | 6 | 1999–2009 | 0.48 | M-v | 1 | MPC | 166280 | 2007 $GP_{12}$ |
| 2007 $GZ_{12}$ | 17.2 | 0.15 | 20100104 | 110.64737 | 136.39603 | 165.26001 | 8.92389 | 0.0376136 | 2.7131008 | 24 | 4 | 1995–2007 | 0.27 | M-v | 0 | MPC | 166280 | 2007 $GZ_{12}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 $GP_{14}$ | 17.2 | 0.15 | 20100104 | 31.00682 | 272.79492 | 176.06697 | 6.50021 | 0.0540955 | 2.3155736 | 48 | 3 | 2005–2008 | 0.51 | M-v | 2 | MPC | 165557 | 2007 $GP_{14}$ |
| 2007 $GJ_{16}$ | 15.3 | 0.15 | 20100104 | 78.93526 | 313.18141 | 22.07042 | 9.36141 | 0.0696862 | 2.9657281 | 67 | 3 | 2004–2009 | 0.47 | M-v | 1 | MPC | 166280 | 2007 $GJ_{16}$ |
| 2007 $GO_{16}$ | 16.7 | 0.15 | 20100104 | 193.18438 | 272.34818 | 8.09622 | 4.05384 | 0.0217095 | 2.4404704 | 60 | 6 | 2001–2009 | 0.40 | M-v | 0 | MPC | 149019 | 2007 $GO_{16}$ |
| 2007 $GG_{17}$ | 14.9 | 0.15 | 20100104 | 97.58929 | 299.94785 | 23.67695 | 10.43085 | 0.1111053 | 2.9606670 | 54 | 6 | 2002–2009 | 0.59 | M-v | 0 | MPC | 166280 | 2007 $GG_{17}$ |
| 2007 $GA_{18}$ | 16.2 | 0.15 | 20100104 | 56.49496 | 138.29210 | 235.33342 | 8.27472 | 0.0935712 | 2.7612898 | 35 | 2 | 2007–2009 | 0.32 | M-v | 3 | MPC | 166280 | 2007 $GA_{18}$ |
| 2007 $GT_{21}$ | 15.7 | 0.15 | 20100104 | 228.92108 | 177.56487 | 42.38191 | 13.38419 | 0.0966622 | 2.6338564 | 53 | 3 | 2002–2009 | 0.54 | M-v | 2 | MPC | 162518 | 2007 $GT_{21}$ |
| 2007 $GV_{21}$ | 16.1 | 0.15 | 20100104 | 129.42591 | 238.33122 | 53.66330 | 4.09928 | 0.1032438 | 2.9954827 | 47 | 5 | 2002–2009 | 0.26 | M-v | 0 | MPC | 166280 | 2007 $GV_{21}$ |
| 2007 $GK_{22}$ | 15.9 | 0.15 | 20100104 | 114.64660 | 251.37935 | 48.52072 | 10.40848 | 0.0866513 | 3.0717530 | 58 | 3 | 2007–2009 | 0.32 | M-v | 2 | MPC | 166280 | 2007 $GK_{22}$ |
| 2007 $GV_{22}$ | 15.7 | 0.15 | 20100104 | 337.49895 | 198.79015 | 213.23286 | 10.54324 | 0.0269055 | 3.1794414 | 49 | 4 | 1998–2009 | 0.29 | M-v | 0 | MPC | 166280 | 2007 $GV_{22}$ |
| 2007 $GG_{23}$ | 16.6 | 0.15 | 20100104 | 177.20138 | 79.47669 | 156.54381 | 0.94557 | 0.0825894 | 2.9620805 | 50 | 6 | 1999–2009 | 0.25 | M-v | 0 | MPC | 166280 | 2007 $GG_{23}$ |
| 2007 $GZ_{23}$ | 16.7 | 0.15 | 20100104 | 240.46110 | 168.36042 | 41.32704 | 2.78988 | 0.2103916 | 2.5983157 | 71 | 4 | 2005–2009 | 0.40 | M-v | 1 | MPC | 164318 | 2007 $GZ_{23}$ |
| 2007 $GO_{25}$ | 16.4 | 0.15 | 20100104 | 196.70716 | 351.08574 | 267.17570 | 4.27274 | 0.2066326 | 2.6281719 | 43 | 5 | 1995–2009 | 0.54 | M-v | 1 | MPC | 146530 | 2007 $GO_{25}$ |
| 2007 $GY_{26}$ | 15.6 | 0.15 | 20100104 | 279.78542 | 287.76269 | 191.36922 | 10.05607 | 0.0506486 | 3.1139324 | 64 | 6 | 1996–2009 | 0.43 | M-v | 0 | MPC | 164318 | 2007 $GY_{26}$ |
| 2007 $GM_{27}$ | 15.8 | 0.15 | 20100104 | 229.21322 | 359.41508 | 224.17712 | 11.97979 | 0.1240223 | 2.6677781 | 59 | 6 | 1998–2009 | 0.48 | M-v | 0 | MPC | 166280 | 2007 $GM_{27}$ |
| 2007 $GD_{28}$ | 16.7 | 0.15 | 20100104 | 169.63310 | 217.19606 | 55.46172 | 9.26979 | 0.0928847 | 2.6667177 | 37 | 3 | 2000–2009 | 0.47 | M-v | 3 | MPC | 165558 | 2007 $GD_{28}$ |
| 2007 $GE_{28}$ | 16.3 | 0.15 | 20100104 | 207.84547 | 164.14440 | 62.99674 | 13.32951 | 0.1542983 | 2.6144680 | 44 | 4 | 2003–2009 | 0.61 | M-v | 2 | MPC | 166281 | 2007 $GE_{28}$ |
| 2007 $GO_{29}$ | 15.6 | 0.15 | 20100104 | 188.77892 | 9.74020 | 248.61028 | 13.00117 | 0.1535432 | 2.6534070 | 49 | 4 | 2000–2009 | 0.51 | M-v | 1 | MPC | 166281 | 2007 $GO_{29}$ |
| 2007 $GU_{30}$ | 16.6 | 0.15 | 20100104 | 121.23398 | 273.26082 | 33.42829 | 3.92571 | 0.0862451 | 2.8157858 | 45 | 4 | 2004–2009 | 0.37 | M-v | 0 | MPC | 166281 | 2007 $GU_{30}$ |
| 2007 $GB_{31}$ | 15.4 | 0.15 | 20100104 | 16.72931 | 172.31556 | 202.68574 | 4.66147 | 0.1719535 | 3.1680325 | 75 | 6 | 1998–2009 | 0.40 | M-v | 0 | MPC | 166281 | 2007 $GB_{31}$ |
| 2007 $GO_{31}$ | 18.2 | 0.15 | 20100104 | 333.49124 | 191.20989 | 308.55741 | 3.04865 | 0.0689427 | 2.2843626 | 31 | 4 | 2000–2009 | 0.30 | M-v | 0 | MPC | 120606 | 2007 $GO_{31}$ |
| 2007 $GS_{32}$ | 17.1 | 0.15 | 20100104 | 301.88373 | 78.20309 | 102.90303 | 7.39958 | 0.0646594 | 2.3594479 | 48 | 5 | 2001–2009 | 0.33 | M-v | 0 | MPC | 126268 | 2007 $GS_{32}$ |
| 2007 $GF_{33}$ | 15.7 | 0.15 | 20100104 | 204.97044 | 158.89258 | 84.33149 | 11.93331 | 0.2106225 | 2.6237572 | 57 | 4 | 2001–2009 | 0.50 | M-v | 1 | MPC | 166281 | 2007 $GF_{33}$ |
| 2007 $GQ_{33}$ | 18.0 | 0.15 | 20100104 | 305.84456 | 95.35208 | 51.69457 | 3.10314 | 0.1625810 | 2.4586559 | 37 | 4 | 2003–2009 | 0.36 | M-v | 1 | MPC | 166281 | 2007 $GQ_{33}$ |
| 2007 $GW_{33}$ | 16.4 | 0.15 | 20100104 | 272.72348 | 101.29815 | 49.93834 | 9.56148 | 0.1022986 | 2.7812940 | 39 | 3 | 2002–2009 | 0.23 | M-v | 2 | MPC | 166281 | 2007 $GW_{33}$ |
| 2007 $GR_{34}$ | 16.4 | 0.15 | 20100104 | 160.86829 | 221.57661 | 39.77599 | 4.52078 | 0.0617194 | 2.6530634 | 50 | 5 | 2000–2009 | 0.33 | M-v | 0 | MPC | 166281 | 2007 $GR_{34}$ |
| 2007 $GN_{36}$ | 16.3 | 0.15 | 20100104 | 219.26208 | 166.38774 | 49.17005 | 12.65664 | 0.1420432 | 2.6795009 | 74 | 4 | 2000–2009 | 0.47 | M-v | 1 | MPC | 166281 | 2007 $GN_{36}$ |
| 2007 $GP_{36}$ | 17.2 | 0.15 | 20100104 | 348.41903 | 46.47728 | 61.35799 | 5.16723 | 0.1622168 | 2.3928987 | 36 | 3 | 2005–2009 | 0.28 | M-v | 2 | MPC | 166281 | 2007 $GP_{36}$ |
| 2007 $GM_{37}$ | 16.4 | 0.15 | 20100104 | 91.06923 | 180.05607 | 151.28089 | 2.74774 | 0.1181757 | 2.8878503 | 37 | 7 | 1994–2009 | 0.33 | M-v | 0 | MPC | 143280 | 2007 $GM_{37}$ |
| 2007 $GV_{37}$ | 16.4 | 0.15 | 20100104 | 29.46127 | 335.25850 | 60.33381 | 5.79771 | 0.0713761 | 2.7476678 | 50 | 5 | 2000–2009 | 0.46 | M-v | 1 | MPC | 165558 | 2007 $GV_{37}$ |
| 2007 $GN_{38}$ | 16.7 | 0.15 | 20100104 | 128.46217 | 217.17977 | 66.29128 | 2.85263 | 0.0773886 | 2.9280608 | 51 | 6 | 1999–2009 | 0.39 | M-v | 1 | MPC | 166281 | 2007 $GN_{38}$ |
| 2007 $GE_{39}$ | 17.8 | 0.15 | 20100104 | 268.30259 | 146.56935 | 52.45792 | 1.76525 | 0.1689925 | 2.4320302 | 43 | 5 | 2003–2009 | 0.33 | M-v | 1 | MPC | 147428 | 2007 $GE_{39}$ |
| 2007 $GN_{39}$ | 16.5 | 0.15 | 20100104 | 35.38599 | 186.81950 | 206.67167 | 3.30114 | 0.1010103 | 2.7736637 | 40 | 3 | 2004–2009 | 0.37 | M-v | 3 | MPC | 166281 | 2007 $GN_{39}$ |
| 2007 $GH_{40}$ | 17.3 | 0.15 | 20100104 | 181.23160 | 221.24909 | 74.05425 | 2.61629 | 0.0922978 | 2.4878826 | 63 | 6 | 1995–2009 | 0.36 | M-v | 0 | MPC | 149019 | 2007 $GH_{40}$ |
| 2007 $GB_{41}$ | 16.4 | 0.15 | 20100104 | 353.68814 | 207.48905 | 221.06600 | 2.85484 | 0.0775391 | 2.7912662 | 64 | 5 | 2002–2009 | 0.36 | M-v | 0 | MPC | 166281 | 2007 $GB_{41}$ |
| 2007 $GQ_{44}$ | 16.2 | 0.15 | 20100104 | 318.41393 | 54.02075 | 53.98305 | 5.83813 | 0.0492376 | 2.7684752 | 56 | 5 | 2000–2009 | 0.37 | M-v | 1 | MPC | 166281 | 2007 $GQ_{44}$ |
| 2007 $GT_{44}$ | 16.7 | 0.15 | 20100104 | 307.25698 | 322.46199 | 151.17971 | 2.69927 | 0.0096351 | 2.8579589 | 47 | 5 | 1999–2009 | 0.28 | M-v | 0 | MPC | 164319 | 2007 $GT_{44}$ |
| 2007 $GZ_{44}$ | 17.4 | 0.15 | 20100104 | 242.79534 | 19.48489 | 192.34426 | 5.26688 | 0.0613213 | 2.5787853 | 38 | 5 | 1998–2009 | 0.26 | M-v | 0 | MPC | 147428 | 2007 $GZ_{44}$ |
| 2007 $GE_{45}$ | 16.3 | 0.15 | 20100104 | 356.69392 | 257.65173 | 199.16550 | 7.64644 | 0.1118993 | 2.5201053 | 55 | 6 | 2000–2009 | 0.50 | M-v | 1 | MPC | 122887 | 2007 $GE_{45}$ |
| 2007 $GK_{45}$ | 17.8 | 0.15 | 20100104 | 340.06603 | 309.39576 | 184.04448 | 4.61775 | 0.1495772 | 2.3524683 | 30 | 3 | 2005–2009 | 0.30 | M-v | 2 | MPC | 126270 | 2007 $GK_{45}$ |
| 2007 $GB_{46}$ | 16.4 | 0.15 | 20100104 | 163.90559 | 237.60051 | 65.71244 | 3.00326 | 0.1931922 | 2.6679369 | 64 | 4 | 2006–2009 | 0.44 | M-v | 0 | MPC | 159119 | 2007 $GB_{46}$ |
| 2007 $GY_{46}$ | 17.5 | 0.15 | 20100104 | 271.75089 | 91.46531 | 170.49268 | 4.16397 | 0.1269563 | 2.1815661 | 36 | 4 | 2001–2009 | 0.42 | M-v | 2 | MPC | 149019 | 2007 $GY_{46}$ |
| 2007 $GL_{47}$ | 16.3 | 0.15 | 20100104 | 287.32248 | 292.51941 | 222.53349 | 12.31360 | 0.1055652 | 2.6450000 | 63 | 5 | 2000–2009 | 0.41 | M-v | 0 | MPC | 166281 | 2007 $GL_{47}$ |
| 2007 $GM_{47}$ | 17.0 | 0.15 | 20100104 | 249.99220 | 181.49434 | 56.50345 | 3.04996 | 0.1607426 | 2.4167968 | 56 | 6 | 2003–2009 | 0.45 | M-v | 1 | MPC | 147428 | 2007 $GM_{47}$ |
| 2007 $GQ_{48}$ | 15.3 | 0.15 | 20100104 | 42.53663 | 315.62224 | 61.68068 | 10.39281 | 0.0855297 | 2.9853731 | 72 | 5 | 2002–2009 | 0.39 | M-v | 1 | MPC | 166281 | 2007 $GQ_{48}$ |
| 2007 $GC_{49}$ | 16.2 | 0.15 | 20100104 | 321.10772 | 267.54870 | 206.78737 | 8.66195 | 0.0591313 | 2.7171951 | 38 | 5 | 2000–2009 | 0.27 | M-v | 0 | MPC | 165559 | 2007 $GC_{49}$ |
| 2007 $GA_{50}$ | 17.6 | 0.15 | 20100104 | 231.46264 | 189.04926 | 57.42131 | 4.52551 | 0.1582814 | 2.3925633 | 32 | 4 | 2003–2009 | 0.49 | M-v | 1 | MPC | 146534 | 2007 $GA_{50}$ |
| 2007 $GB_{50}$ | 17.4 | 0.15 | 20100104 | 289.87414 | 105.18606 | 92.08835 | 3.01653 | 0.1161387 | 2.2719537 | 48 | 3 | 2005–2009 | 0.48 | M-v | 3 | MPC | 166281 | 2007 $GB_{50}$ |
| 2007 $GF_{51}$ | 16.5 | 0.15 | 20100104 | 237.28075 | 103.03930 | 113.98795 | 5.36241 | 0.1649967 | 2.5616742 | 58 | 5 | 1994–2009 | 0.46 | M-v | 1 | MPC | 166281 | 2007 $GF_{51}$ |
| 2007 $GN_{51}$ | 16.5 | 0.15 | 20100104 | 203.46998 | 142.46332 | 107.12028 | 14.02658 | 0.1986754 | 2.6130870 | 36 | 5 | 2000–2009 | 0.54 | M-v | 1 | MPC | 122887 | 2007 $GN_{51}$ |
| 2007 $GV_{51}$ | 16.8 | 0.15 | 20100104 | 334.35200 | 56.05845 | 61.00193 | 7.50441 | 0.0760867 | 2.3312745 | 48 | 3 | 2005–2009 | 0.59 | M-v | 2 | MPC | 121879 | 2007 $GV_{51}$ |
| 2007 $GW_{52}$ | 15.6 | 0.15 | 20100104 | 355.82285 | 228.99652 | 210.81271 | 16.87190 | 0.0318213 | 2.7433660 | 47 | 3 | 2006–2009 | 0.43 | M-v | 3 | MPC | 166282 | 2007 $GW_{52}$ |
| 2007 $GQ_{55}$ | 16.9 | 0.15 | 20100104 | 68.28179 | 291.87438 | 76.88815 | 7.50197 | 0.0562218 | 2.6803953 | 30 | 3 | 2003–2009 | 0.43 | M-v | 3 | MPC | 165560 | 2007 $GQ_{55}$ |
| 2007 $GD_{58}$ | 17.3 | 0.15 | 20100104 | 146.64739 | 180.13733 | 124.47914 | 3.99789 | 0.1133399 | 2.6299111 | 30 | 5 | 2003–2009 | 0.36 | M-v | 1 | MPC | 147429 | 2007 $GD_{58}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 $GX_{59}$ | 17.8 | 0.15 | 20100104 | 331.06871 | 205.31475 | 288.23057 | 0.84218 | 0.1345192 | 2.3926195 | 40 | 7 | 1998–2009 | 0.34 | M-v | 0 | MPC | 141871 | 2007 $GX_{59}$ |
| 2007 $GF_{60}$ | 17.8 | 0.15 | 20100104 | 58.61919 | 53.42442 | 4.83275 | 3.81325 | 0.0364705 | 2.3993465 | 47 | 6 | 2001–2009 | 0.44 | M-v | 1 | MPC | 147429 | 2007 $GF_{60}$ |
| 2007 $GR_{60}$ | 15.8 | 0.15 | 20100104 | 148.64270 | 10.04913 | 250.24316 | 4.73418 | 0.1558467 | 3.0646802 | 54 | 5 | 2003–2009 | 0.44 | M-v | 0 | MPC | 166282 | 2007 $GR_{60}$ |
| 2007 $GX_{60}$ | 17.2 | 0.15 | 20100104 | 287.65632 | 263.11951 | 250.92522 | 3.44083 | 0.1414439 | 2.5461202 | 42 | 4 | 2001–2009 | 0.37 | M-v | 2 | MPC | 164319 | 2007 $GX_{60}$ |
| 2007 $GE_{61}$ | 16.6 | 0.15 | 20100104 | 102.13415 | 84.91988 | 248.69689 | 4.34769 | 0.0793148 | 2.7742402 | 32 | 5 | 2004–2009 | 0.25 | M-v | 0 | MPC | 166282 | 2007 $GE_{61}$ |
| 2007 $GG_{61}$ | 15.9 | 0.15 | 20100104 | 116.20806 | 50.44424 | 243.09565 | 5.89398 | 0.1522191 | 3.1262667 | 55 | 5 | 2003–2009 | 0.36 | M-v | 0 | MPC | 166282 | 2007 $GG_{61}$ |
| 2007 $GL_{61}$ | 17.3 | 0.15 | 20100104 | 179.03287 | 307.58960 | 303.30370 | 3.03846 | 0.0536510 | 2.7697319 | 37 | 5 | 2000–2009 | 0.35 | M-v | 0 | MPC | 166282 | 2007 $GL_{61}$ |
| 2007 $GQ_{61}$ | 15.5 | 0.15 | 20100104 | 13.58039 | 154.01719 | 228.89321 | 11.07053 | 0.0385219 | 3.0793613 | 39 | 3 | 2004–2009 | 0.38 | M-v | 3 | MPC | 164319 | 2007 $GQ_{61}$ |
| 2007 $GR_{62}$ | 16.9 | 0.15 | 20100104 | 244.65823 | 104.52901 | 132.49461 | 5.46948 | 0.1410838 | 2.3833601 | 55 | 6 | 1996–2009 | 0.50 | M-v | 1 | MPC | 147429 | 2007 $GR_{62}$ |
| 2007 $GW_{62}$ | 17.0 | 0.15 | 20100104 | 122.59747 | 7.61071 | 303.65063 | 0.54617 | 0.0877916 | 2.8170098 | 40 | 6 | 1999–2009 | 0.34 | M-v | 0 | MPC | 143280 | 2007 $GW_{62}$ |
| 2007 $GC_{63}$ | 16.6 | 0.15 | 20100104 | 70.98187 | 129.16568 | 232.78219 | 5.17084 | 0.0683332 | 2.7838564 | 29 | 3 | 2004–2009 | 0.22 | M-v | 2 | MPC | 166282 | 2007 $GC_{63}$ |
| 2007 $GN_{66}$ | 15.6 | 0.15 | 20100104 | 73.32521 | 297.66070 | 48.23884 | 10.82349 | 0.0835551 | 3.0059697 | 58 | 3 | 2007–2009 | 0.35 | M-v | 2 | MPC | 166282 | 2007 $GN_{66}$ |
| 2007 $GX_{66}$ | 15.6 | 0.15 | 20100104 | 98.37026 | 291.44169 | 35.52034 | 2.44173 | 0.0553587 | 2.9449011 | 47 | 6 | 2002–2009 | 0.35 | M-v | 0 | MPC | 166282 | 2007 $GX_{66}$ |
| 2007 $GL_{67}$ | 16.5 | 0.15 | 20100104 | 309.12056 | 82.10988 | 37.68698 | 4.41688 | 0.0498402 | 2.7712405 | 48 | 6 | 1997–2009 | 0.40 | M-v | 0 | MPC | 166282 | 2007 $GL_{67}$ |
| 2007 $GN_{67}$ | 17.6 | 0.15 | 20100104 | 281.71561 | 130.92063 | 35.93192 | 3.27150 | 0.0983508 | 2.5809945 | 27 | 4 | 2001–2009 | 0.34 | M-v | 2 | MPC | 166282 | 2007 $GN_{67}$ |
| 2007 $GZ_{72}$ | 15.3 | 0.15 | 20100104 | 95.85742 | 84.34581 | 194.74519 | 20.26753 | 0.0375047 | 3.2186620 | 43 | 2 | 2007–2009 | 0.47 | M-v | 2 | MPC | 166282 | 2007 $GZ_{72}$ |
| 2007 $GD_{75}$ | 16.5 | 0.15 | 20100104 | 182.92859 | 213.71213 | 76.02067 | 5.56399 | 0.0823476 | 2.5629812 | 38 | 5 | 1992–2009 | 0.40 | M-v | 0 | MPC | 147429 | 2007 $GD_{75}$ |
| 2007 $GE_{75}$ | 16.0 | 0.15 | 20100104 | 176.53914 | 183.51433 | 84.61143 | 13.51857 | 0.1489957 | 2.6275813 | 58 | 6 | 2002–2009 | 0.52 | M-v | 1 | MPC | 166282 | 2007 $GE_{75}$ |
| 2007 $GR_{75}$ | 15.1 | 0.15 | 20100104 | 76.67401 | 258.88054 | 77.20550 | 17.19901 | 0.1075385 | 3.0759729 | 39 | 3 | 2007–2009 | 0.42 | M-v | 3 | MPC | 166282 | 2007 $GR_{75}$ |
| 2007 HZ | 20.2 | 0.15 | 20100104 | 359.16454 | 259.01728 | 208.40505 | 7.41748 | 0.1423698 | 1.3289493 | 66 | 3 | 1984–2009 | 0.35 | M-v | 2 | MPC | 162519 | 2007 HZ |
| 2007 $HC_1$ | 16.4 | 0.15 | 20100104 | 184.35039 | 76.02997 | 184.16037 | 13.60856 | 0.1513862 | 2.6170064 | 54 | 4 | 2003–2009 | 0.48 | M-v | 1 | MPC | 149020 | 2007 $HC_1$ |
| 2007 $HN_3$ | 16.2 | 0.15 | 20100104 | 249.47209 | 171.52641 | 31.36369 | 8.90138 | 0.0598979 | 2.5473588 | 44 | 4 | 2000–2009 | 0.42 | M-v | 1 | MPC | 124511 | 2007 $HN_3$ |
| 2007 $HQ_4$ | 15.2 | 0.15 | 20100104 | 85.48376 | 258.52748 | 66.75902 | 10.35245 | 0.0960273 | 3.0900628 | 56 | 4 | 1996–2009 | 0.46 | M-v | 0 | MPC | 165560 | 2007 $HQ_4$ |
| 2007 $HX_4$ | 17.7 | 0.15 | 20100104 | 21.22971 | 14.47494 | 41.69230 | 56.55769 | 0.3315320 | 1.3174332 | 103 | 4 | 1998–2009 | 0.47 | M-v | 2 | MPC | 166282 | 2007 $HX_4$ |
| 2007 $HT_6$ | 17.2 | 0.15 | 20100104 | 179.11247 | 78.05337 | 184.48108 | 2.55080 | 0.1305513 | 2.6387562 | 46 | 6 | 2003–2009 | 0.38 | M-v | 0 | MPC | 147430 | 2007 $HT_6$ |
| 2007 $HG_7$ | 15.2 | 0.15 | 20100104 | 180.00732 | 195.05290 | 75.20945 | 14.45083 | 0.1622883 | 2.6717274 | 72 | 4 | 2004–2009 | 0.63 | M-v | 1 | MPC | 147430 | 2007 $HG_7$ |
| 2007 $HQ_7$ | 16.2 | 0.15 | 20100104 | 185.21388 | 187.88344 | 75.15395 | 10.39077 | 0.1277291 | 2.6216333 | 41 | 3 | 2006–2009 | 0.35 | M-v | 3 | MPC | 165561 | 2007 $HQ_7$ |
| 2007 $HH_{14}$ | 17.0 | 0.15 | 20100104 | 39.32069 | 226.95996 | 170.66440 | 3.63414 | 0.1216209 | 2.6115575 | 38 | 7 | 2000–2009 | 0.63 | M-v | 1 | MPC | 140180 | 2007 $HH_{14}$ |
| 2007 $HN_{14}$ | 17.7 | 0.15 | 20100104 | 272.62617 | 182.66475 | 31.69594 | 3.22747 | 0.0553790 | 2.3799006 | 53 | 5 | 2003–2009 | 0.32 | M-v | 1 | MPC | 147430 | 2007 $HN_{14}$ |
| 2007 $HX_{14}$ | 17.0 | 0.15 | 20100104 | 274.50790 | 105.92619 | 120.25607 | 6.85542 | 0.0575654 | 2.3031062 | 36 | 6 | 1993–2009 | 0.56 | M-v | 1 | MPC | 158566 | 2007 $HX_{14}$ |
| 2007 $HV_{15}$ | 16.3 | 0.15 | 20100104 | 204.13596 | 184.83310 | 72.14930 | 6.37342 | 0.1471128 | 2.6045561 | 48 | 4 | 2005–2009 | 0.50 | M-v | 1 | MPC | 147430 | 2007 $HV_{15}$ |
| 2007 $HM_{17}$ | 15.9 | 0.15 | 20100104 | 181.58757 | 202.95726 | 51.91285 | 6.04170 | 0.0733289 | 2.7223483 | 34 | 2 | 2007–2009 | 0.40 | M-v | 3 | MPC | 165561 | 2007 $HM_{17}$ |
| 2007 $HK_{18}$ | 17.6 | 0.15 | 20100104 | 276.51141 | 45.85450 | 158.73554 | 1.29108 | 0.1342319 | 2.3540713 | 42 | 5 | 2001–2009 | 0.29 | M-v | 1 | MPC | 147430 | 2007 $HK_{18}$ |
| 2007 $HA_{24}$ | 16.6 | 0.15 | 20100104 | 307.39822 | 65.68482 | 54.77417 | 4.34888 | 0.0081997 | 2.7995815 | 50 | 3 | 2004–2009 | 0.29 | M-v | 2 | MPC | 165562 | 2007 $HA_{24}$ |
| 2007 $HU_{26}$ | 16.2 | 0.15 | 20100104 | 97.56795 | 264.92855 | 55.06956 | 7.20921 | 0.1586872 | 3.0575533 | 35 | 3 | 1998–2009 | 0.28 | M-v | 2 | MPC | 165562 | 2007 $HU_{26}$ |
| 2007 $HW_{26}$ | 16.5 | 0.15 | 20100104 | 235.64338 | 155.33723 | 58.39742 | 4.39014 | 0.1270428 | 2.6240752 | 47 | 6 | 1996–2009 | 0.47 | M-v | 0 | MPC | 166283 | 2007 $HW_{26}$ |
| 2007 $HW_{27}$ | 16.1 | 0.15 | 20100104 | 123.83158 | 228.87856 | 60.90733 | 7.51534 | 0.1750992 | 3.2050998 | 44 | 5 | 2002–2009 | 0.28 | M-v | 0 | MPC | 166283 | 2007 $HW_{27}$ |
| 2007 $HM_{28}$ | 16.6 | 0.15 | 20100104 | 290.77813 | 80.32343 | 109.21417 | 6.01730 | 0.1031980 | 2.2850830 | 34 | 3 | 2005–2009 | 0.57 | M-v | 3 | MPC | 166283 | 2007 $HM_{28}$ |
| 2007 $HS_{28}$ | 16.1 | 0.15 | 20100104 | 63.51141 | 161.82361 | 195.44979 | 5.71410 | 0.0265931 | 2.6117707 | 57 | 3 | 2003–2009 | 0.47 | M-v | 2 | MPC | 166283 | 2007 $HS_{28}$ |
| 2007 $HD_{29}$ | 15.5 | 0.15 | 20100104 | 129.56641 | 203.10547 | 68.19805 | 8.96488 | 0.2167385 | 3.1464889 | 44 | 3 | 2003–2009 | 0.44 | M-v | 2 | MPC | 166283 | 2007 $HD_{29}$ |
| 2007 $HF_{29}$ | 18.1 | 0.15 | 20100104 | 289.16571 | 125.16010 | 46.78486 | 2.62841 | 0.1395118 | 2.3714870 | 36 | 4 | 1996–2009 | 0.28 | M-v | 1 | MPC | 158566 | 2007 $HF_{29}$ |
| 2007 $HA_{30}$ | 16.7 | 0.15 | 20100104 | 192.09262 | 193.61465 | 61.51395 | 2.69373 | 0.1601284 | 2.6143869 | 55 | 6 | 2002–2009 | 0.40 | M-v | 0 | MPC | 147431 | 2007 $HA_{30}$ |
| 2007 $HH_{32}$ | 16.8 | 0.15 | 20100104 | 74.66095 | 335.39729 | 13.48277 | 1.81386 | 0.0396650 | 2.8312144 | 47 | 6 | 2002–2009 | 0.39 | M-v | 0 | MPC | 166283 | 2007 $HH_{32}$ |
| 2007 $HV_{33}$ | 17.2 | 0.15 | 20100104 | 103.14289 | 338.13486 | 25.55866 | 3.30016 | 0.0725556 | 2.5214974 | 42 | 7 | 1996–2009 | 0.36 | M-v | 0 | MPC | 147431 | 2007 $HV_{33}$ |
| 2007 $HP_{35}$ | 16.9 | 0.15 | 20100104 | 162.30249 | 233.90545 | 44.23265 | 4.20530 | 0.0632918 | 2.7583560 | 40 | 6 | 1993–2009 | 0.40 | M-v | 1 | MPC | 166283 | 2007 $HP_{35}$ |
| 2007 $HU_{35}$ | 17.0 | 0.15 | 20100104 | 322.92831 | 92.97028 | 43.27356 | 11.54183 | 0.2358440 | 2.3902721 | 50 | 3 | 2003–2009 | 0.47 | M-v | 2 | MPC | 166283 | 2007 $HU_{35}$ |
| 2007 $HV_{35}$ | 16.6 | 0.15 | 20100104 | 155.59905 | 252.48932 | 54.71325 | 3.63807 | 0.1012748 | 2.6356337 | 63 | 5 | 2004–2009 | 0.37 | M-v | 0 | MPC | 149020 | 2007 $HV_{35}$ |
| 2007 $HN_{36}$ | 16.0 | 0.15 | 20100104 | 98.84777 | 108.79821 | 230.95177 | 5.55404 | 0.0465698 | 2.7712536 | 38 | 5 | 1997–2009 | 0.42 | M-v | 0 | MPC | 157474 | 2007 $HN_{36}$ |
| 2007 $HQ_{41}$ | 16.0 | 0.15 | 20100104 | 79.02743 | 276.29350 | 78.97261 | 8.75447 | 0.0923056 | 2.8898942 | 43 | 5 | 1999–2009 | 0.32 | M-v | 0 | MPC | 166284 | 2007 $HQ_{41}$ |
| 2007 $HY_{44}$ | 16.7 | 0.15 | 20100104 | 65.62317 | 189.73647 | 184.56355 | 2.75232 | 0.0181412 | 2.6078127 | 51 | 7 | 2000–2009 | 0.44 | M-v | 0 | MPC | 147431 | 2007 $HY_{44}$ |
| 2007 $HV_{45}$ | 17.1 | 0.15 | 20100104 | 270.37632 | 14.49069 | 157.66564 | 1.84512 | 0.0189355 | 2.6373577 | 38 | 6 | 2002–2009 | 0.28 | M-v | 0 | MPC | 162520 | 2007 $HV_{45}$ |
| 2007 $HA_{46}$ | 16.6 | 0.15 | 20100104 | 4.06131 | 4.43627 | 33.20006 | 12.88099 | 0.1543315 | 2.8896072 | 41 | 3 | 2005–2009 | 0.46 | M-v | 2 | MPC | 165563 | 2007 $HA_{46}$ |
| 2007 $HE_{46}$ | 16.0 | 0.15 | 20100104 | 194.13295 | 160.74880 | 85.26247 | 6.13222 | 0.0758293 | 2.7365931 | 58 | 6 | 1995–2009 | 0.49 | M-v | 1 | MPC | 166284 | 2007 $HE_{46}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 $HL_{46}$ | 17.2 | 0.15 | 20100104 | 268.24240 | 129.47415 | 112.35626 | 7.16901 | 0.1438810 | 2.2102218 | 44 | 5 | 1994–2009 | 0.36 | M-v | 1 | MPC | 158566 | 2007 $HL_{46}$ |
| 2007 $HP_{47}$ | 17.1 | 0.15 | 20100104 | 281.33987 | 37.50192 | 154.30473 | 3.14030 | 0.0357772 | 2.4434694 | 37 | 5 | 2004–2009 | 0.26 | M-v | 1 | MPC | 147431 | 2007 $HP_{47}$ |
| 2007 $HP_{48}$ | 16.8 | 0.15 | 20100104 | 165.50160 | 205.56889 | 72.42597 | 4.34114 | 0.0483758 | 2.6942165 | 33 | 3 | 2005–2009 | 0.29 | M-v | 3 | MPC | 166284 | 2007 $HP_{48}$ |
| 2007 $HR_{48}$ | 16.6 | 0.15 | 20100104 | 313.70991 | 308.50053 | 190.36358 | 4.09735 | 0.0692099 | 2.5209477 | 47 | 6 | 2001–2009 | 0.31 | M-v | 0 | MPC | 147431 | 2007 $HR_{48}$ |
| 2007 $HH_{51}$ | 17.0 | 0.15 | 20100104 | 240.16434 | 121.96216 | 100.10510 | 3.20674 | 0.0912304 | 2.5338327 | 61 | 5 | 1999–2009 | 0.49 | M-v | 2 | MPC | 166284 | 2007 $HH_{51}$ |
| 2007 $HE_{53}$ | 14.6 | 0.15 | 20100104 | 19.64548 | 326.74442 | 61.47704 | 28.96281 | 0.1772952 | 3.1893089 | 60 | 3 | 2004–2009 | 0.52 | M-v | 2 | MPC | 165563 | 2007 $HE_{53}$ |
| 2007 $HQ_{54}$ | 17.6 | 0.15 | 20100104 | 286.77355 | 75.43499 | 90.92669 | 3.30302 | 0.1193838 | 2.4280871 | 31 | 6 | 1999–2009 | 0.28 | M-v | 1 | MPC | 121689 | 2007 $HQ_{54}$ |
| 2007 $HV_{54}$ | 17.1 | 0.15 | 20100104 | 330.28438 | 31.94463 | 103.86520 | 6.86054 | 0.0488160 | 2.4298063 | 28 | 4 | 2003–2009 | 0.36 | M-v | 1 | MPC | 121222 | 2007 $HV_{54}$ |
| 2007 $HL_{56}$ | 15.7 | 0.15 | 20100104 | 83.66788 | 274.77286 | 61.46801 | 10.44045 | 0.0995360 | 3.0110099 | 50 | 3 | 2004–2009 | 0.30 | M-v | 1 | MPC | 166284 | 2007 $HL_{56}$ |
| 2007 $HQ_{57}$ | 16.5 | 0.15 | 20100104 | 218.79768 | 170.97807 | 63.34445 | 14.85400 | 0.1972686 | 2.6660933 | 45 | 2 | 2007–2009 | 0.43 | M-v | 3 | MPC | 165563 | 2007 $HQ_{57}$ |
| 2007 $HE_{58}$ | 16.2 | 0.15 | 20100104 | 205.68479 | 149.41854 | 71.62860 | 9.93848 | 0.0953228 | 2.7232782 | 32 | 4 | 2000–2009 | 0.40 | M-v | 1 | MPC | 166284 | 2007 $HE_{58}$ |
| 2007 $HO_{58}$ | 16.5 | 0.15 | 20100104 | 230.30105 | 138.25398 | 108.77003 | 7.39671 | 0.0978163 | 2.4157494 | 43 | 6 | 1995–2009 | 0.54 | M-v | 1 | MPC | 121223 | 2007 $HO_{58}$ |
| 2007 $HR_{58}$ | 15.9 | 0.15 | 20100104 | 39.12923 | 309.90590 | 54.89692 | 14.42675 | 0.1717633 | 3.1392937 | 48 | 2 | 2007–2009 | 0.45 | M-v | 3 | MPC | 165564 | 2007 $HR_{58}$ |
| 2007 $HO_{60}$ | 16.5 | 0.15 | 20100104 | 239.44231 | 155.56070 | 39.86383 | 13.19919 | 0.1209865 | 2.5835705 | 43 | 3 | 2003–2009 | 0.44 | M-v | 3 | MPC | 165564 | 2007 $HO_{60}$ |
| 2007 $HY_{64}$ | 15.3 | 0.15 | 20100104 | 82.44357 | 288.81775 | 45.31068 | 10.66834 | 0.1299997 | 2.9852867 | 53 | 3 | 2002–2009 | 0.37 | M-v | 2 | MPC | 166284 | 2007 $HY_{64}$ |
| 2007 $HC_{65}$ | 16.2 | 0.15 | 20100104 | 123.32252 | 229.14595 | 54.27401 | 6.06994 | 0.1514617 | 3.1184195 | 40 | 5 | 1998–2009 | 0.32 | M-v | 0 | MPC | 166284 | 2007 $HC_{65}$ |
| 2007 $HN_{65}$ | 16.2 | 0.15 | 20100104 | 227.37420 | 136.85180 | 90.24459 | 8.82983 | 0.1589829 | 2.6237835 | 44 | 3 | 2005–2009 | 0.45 | M-v | 2 | MPC | 166284 | 2007 $HN_{65}$ |
| 2007 $HV_{65}$ | 16.0 | 0.15 | 20100104 | 172.71266 | 203.60030 | 68.82669 | 5.55025 | 0.1093937 | 2.7019197 | 46 | 5 | 1998–2009 | 0.51 | M-v | 1 | MPC | 166284 | 2007 $HV_{65}$ |
| 2007 $HV_{66}$ | 16.3 | 0.15 | 20100104 | 312.46133 | 47.57066 | 115.25434 | 7.48245 | 0.0766449 | 2.4595865 | 57 | 5 | 2001–2009 | 0.43 | M-v | 0 | MPC | 166284 | 2007 $HV_{66}$ |
| 2007 $HN_{69}$ | 16.2 | 0.15 | 20100104 | 116.52714 | 254.60005 | 73.76264 | 13.27300 | 0.1773718 | 2.7388317 | 36 | 3 | 2004–2009 | 0.33 | M-v | 1 | MPC | 126283 | 2007 $HN_{69}$ |
| 2007 $HL_{72}$ | 17.1 | 0.15 | 20100104 | 252.29050 | 8.13537 | 220.33817 | 3.90288 | 0.1403034 | 2.3966124 | 53 | 6 | 2001–2009 | 0.41 | M-v | 1 | MPC | 147432 | 2007 $HL_{72}$ |
| 2007 $HB_{74}$ | 15.6 | 0.15 | 20100104 | 198.63003 | 165.06126 | 100.19602 | 12.98736 | 0.1608705 | 2.6350445 | 60 | 5 | 2002–2009 | 0.56 | M-v | 1 | MPC | 147432 | 2007 $HB_{74}$ |
| 2007 $HN_{74}$ | 17.8 | 0.15 | 20100104 | 323.97254 | 30.88839 | 128.72849 | 3.10279 | 0.1187320 | 2.3414315 | 37 | 5 | 2003–2009 | 0.25 | M-v | 0 | MPC | 147432 | 2007 $HN_{74}$ |
| 2007 $HP_{74}$ | 15.4 | 0.15 | 20100104 | 53.03605 | 166.02337 | 205.72426 | 9.68790 | 0.1136023 | 2.9814480 | 43 | 4 | 2003–2009 | 0.57 | M-v | 1 | MPC | 166284 | 2007 $HP_{74}$ |
| 2007 $HH_{76}$ | 16.3 | 0.15 | 20100104 | 204.58524 | 174.84947 | 52.71291 | 7.04243 | 0.0360858 | 2.8275589 | 55 | 3 | 2004–2009 | 0.27 | M-v | 2 | MPC | 166284 | 2007 $HH_{76}$ |
| 2007 $HU_{78}$ | 17.3 | 0.15 | 20100104 | 236.41267 | 209.78706 | 43.57738 | 2.05729 | 0.1501775 | 2.3616446 | 57 | 6 | 2003–2009 | 0.32 | M-v | 0 | MPC | 149021 | 2007 $HU_{78}$ |
| 2007 $HS_{82}$ | 17.1 | 0.15 | 20100104 | 264.06803 | 107.73237 | 116.03000 | 7.12858 | 0.0839438 | 2.3761866 | 48 | 6 | 1999–2009 | 0.55 | M-v | 1 | MPC | 120662 | 2007 $HS_{82}$ |
| 2007 $HA_{83}$ | 15.9 | 0.15 | 20100104 | 193.46097 | 171.07108 | 71.24311 | 12.90746 | 0.0401351 | 2.7202640 | 34 | 2 | 2007–2009 | 0.44 | M-v | 3 | MPC | 165564 | 2007 $HA_{83}$ |
| 2007 $HB_{83}$ | 15.6 | 0.15 | 20100104 | 353.50576 | 30.10566 | 55.13981 | 22.66259 | 0.0370588 | 2.6537185 | 57 | 5 | 2000–2009 | 0.42 | M-v | 0 | MPC | 166285 | 2007 $HB_{83}$ |
| 2007 $HE_{83}$ | 16.8 | 0.15 | 20100104 | 298.15044 | 253.57813 | 234.97230 | 5.34922 | 0.0674653 | 2.7103022 | 40 | 5 | 1998–2009 | 0.36 | M-v | 0 | MPC | 166285 | 2007 $HE_{83}$ |
| 2007 $HM_{83}$ | 16.2 | 0.15 | 20100104 | 217.95221 | 331.99088 | 236.83643 | 7.63792 | 0.1363104 | 2.7571672 | 41 | 3 | 2002–2009 | 0.37 | M-v | 3 | MPC | 166285 | 2007 $HM_{83}$ |
| 2007 $HO_{84}$ | 17.2 | 0.15 | 20100104 | 273.45753 | 118.82937 | 55.72261 | 6.55519 | 0.0726122 | 2.5639955 | 31 | 3 | 2005–2009 | 0.35 | M-v | 3 | MPC | 165564 | 2007 $HO_{84}$ |
| 2007 $HB_{88}$ | 16.0 | 0.15 | 20100104 | 204.08328 | 233.04856 | 26.59829 | 11.09447 | 0.1621782 | 2.6388291 | 56 | 6 | 1994–2009 | 0.43 | M-v | 1 | MPC | 149021 | 2007 $HB_{88}$ |
| 2007 $HO_{88}$ | 16.6 | 0.15 | 20100104 | 29.38053 | 334.99676 | 79.53531 | 6.41186 | 0.0501597 | 2.6864192 | 37 | 5 | 1993–2009 | 0.44 | M-v | 1 | MPC | 141873 | 2007 $HO_{88}$ |
| 2007 $HQ_{88}$ | 17.1 | 0.15 | 20100104 | 192.23020 | 176.82059 | 110.91538 | 5.12894 | 0.0773575 | 2.3952669 | 37 | 5 | 2004–2009 | 0.52 | M-v | 1 | MPC | 147432 | 2007 $HQ_{88}$ |
| 2007 $HD_{89}$ | 15.4 | 0.15 | 20100104 | 42.10813 | 309.22382 | 66.32303 | 10.53104 | 0.0919509 | 3.0754115 | 63 | 2 | 2007–2009 | 0.54 | M-v | 3 | MPC | 165565 | 2007 $HD_{89}$ |
| 2007 $HF_{91}$ | 16.5 | 0.15 | 20100104 | 248.38946 | 150.60841 | 49.29606 | 4.74954 | 0.0324044 | 2.6708890 | 29 | 2 | 2007–2009 | 0.30 | M-v | 3 | MPC | 165565 | 2007 $HF_{91}$ |
| 2007 $HZ_{92}$ | 15.8 | 0.15 | 20100104 | 152.56990 | 205.23596 | 79.30024 | 5.47230 | 0.0334096 | 2.8045843 | 40 | 4 | 2002–2009 | 0.45 | M-v | 1 | MPC | 166285 | 2007 $HZ_{92}$ |
| 2007 $HJ_{95}$ | 16.4 | 0.15 | 20100104 | 146.31683 | 205.14143 | 112.91222 | 8.44658 | 0.0997815 | 2.6984196 | 39 | 6 | 1997–2009 | 0.53 | M-v | 1 | MPC | 147433 | 2007 $HJ_{95}$ |
| 2007 $HP_{95}$ | 16.1 | 0.15 | 20100104 | 137.21428 | 221.01650 | 42.02385 | 10.49465 | 0.0561226 | 3.0945706 | 32 | 2 | 2007–2009 | 0.26 | M-v | 3 | MPC | 166285 | 2007 $HP_{95}$ |
| 2007 $HO_{96}$ | 16.0 | 0.15 | 20100104 | 136.66324 | 217.30933 | 61.42990 | 12.37231 | 0.1011650 | 3.0750845 | 40 | 4 | 1996–2009 | 0.28 | M-v | 1 | MPC | 165565 | 2007 $HO_{96}$ |
| 2007 $JJ_{3}$ | 15.0 | 0.15 | 20100104 | 116.03799 | 241.65411 | 44.56901 | 17.62570 | 0.1131541 | 3.1130807 | 53 | 4 | 2003–2009 | 0.46 | M-v | 0 | MPC | 166285 | 2007 $JJ_{3}$ |
| 2007 $JO_{3}$ | 15.8 | 0.15 | 20100104 | 263.20485 | 2.94379 | 193.40541 | 11.46999 | 0.1107695 | 2.5814925 | 45 | 5 | 2000–2009 | 0.49 | M-v | 1 | MPC | 149021 | 2007 $JO_{3}$ |
| 2007 $JH_{4}$ | 16.1 | 0.15 | 20100104 | 237.17439 | 143.57101 | 78.30619 | 23.06457 | 0.0963414 | 2.6045553 | 33 | 7 | 1992–2009 | 0.52 | M-v | 1 | MPC | 166285 | 2007 $JH_{4}$ |
| 2007 $JQ_{4}$ | 17.2 | 0.15 | 20100104 | 306.54053 | 328.04542 | 200.01644 | 5.01086 | 0.0916217 | 2.4432725 | 40 | 4 | 2003–2009 | 0.45 | M-v | 1 | MPC | 166285 | 2007 $JQ_{4}$ |
| 2007 $JB_{9}$ | 16.6 | 0.15 | 20100104 | 35.13252 | 319.95326 | 86.84998 | 1.33376 | 0.0678449 | 2.7619916 | 39 | 6 | 1995–2009 | 0.32 | M-v | 0 | MPC | 141874 | 2007 $JB_{9}$ |
| 2007 $JX_{9}$ | 16.8 | 0.15 | 20100104 | 320.83109 | 137.47187 | 354.04824 | 8.58086 | 0.1610871 | 2.5285830 | 47 | 4 | 2001–2009 | 0.49 | M-v | 2 | MPC | 166285 | 2007 $JX_{9}$ |
| 2007 $JQ_{10}$ | 16.2 | 0.15 | 20100104 | 282.84825 | 283.47511 | 233.41718 | 10.54961 | 0.1403356 | 2.6200749 | 48 | 3 | 2005–2009 | 0.45 | M-v | 2 | MPC | 166285 | 2007 $JQ_{10}$ |
| 2007 $JW_{10}$ | 17.2 | 0.15 | 20100104 | 242.59277 | 333.03227 | 242.70424 | 3.62140 | 0.1837303 | 2.5655787 | 28 | 3 | 2007–2009 | 0.35 | M-v | 4 | MPC | 146551 | 2007 $JW_{10}$ |
| 2007 $JP_{12}$ | 14.5 | 0.15 | 20100104 | 145.40343 | 187.25969 | 87.01421 | 19.24335 | 0.1950371 | 3.1275627 | 50 | 3 | 2001–2009 | 0.53 | M-v | 2 | MPC | 166285 | 2007 $JP_{12}$ |
| 2007 $JS_{12}$ | 15.1 | 0.15 | 20100104 | 153.02613 | 175.66088 | 95.23383 | 16.03999 | 0.1065528 | 3.0352039 | 36 | 4 | 2001–2009 | 0.63 | M-v | 1 | MPC | 165566 | 2007 $JS_{12}$ |
| 2007 $JX_{12}$ | 15.6 | 0.15 | 20100104 | 110.73463 | 230.60834 | 96.20023 | 18.66326 | 0.2549203 | 3.1756022 | 35 | 4 | 2001–2009 | 0.49 | M-v | 0 | MPC | 166285 | 2007 $JX_{12}$ |
| 2007 $JB_{15}$ | 16.5 | 0.15 | 20100104 | 354.26599 | 205.01708 | 230.88415 | 3.30789 | 0.0419709 | 2.7733857 | 52 | 5 | 2000–2009 | 0.31 | M-v | 0 | MPC | 166285 | 2007 $JB_{15}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 $JJ_{21}$ | 17.2 | 0.15 | 20100104 | 322.49752 | 154.72156 | 21.52392 | 3.44001 | 0.0532422 | 2.3120568 | 61 | 6 | 1994–2009 | 0.44 | M-v | 1 | MPC | 149021 | 2007 $JJ_{21}$ |
| 2007 $JQ_{21}$ | 17.0 | 0.15 | 20100104 | 170.69774 | 278.72668 | 47.38953 | 1.00677 | 0.3214324 | 2.5854213 | 36 | 3 | 1995–2009 | 0.35 | M-v | 2 | MPC | 160524 | 2007 $JQ_{21}$ |
| 2007 $JA_{22}$ | 15.0 | 0.15 | 20100104 | 89.97651 | 210.03337 | 125.89767 | 10.86410 | 0.0987342 | 3.0669341 | 54 | 5 | 2000–2009 | 0.57 | M-v | 0 | MPC | 147434 | 2007 $JA_{22}$ |
| 2007 $JB_{23}$ | 15.2 | 0.15 | 20100104 | 119.00287 | 23.26008 | 285.86905 | 8.32453 | 0.1149413 | 3.0642758 | 52 | 5 | 2003–2009 | 0.53 | M-v | 1 | MPC | 147434 | 2007 $JB_{23}$ |
| 2007 $JS_{23}$ | 15.3 | 0.15 | 20100104 | 65.34054 | 325.94993 | 62.00781 | 12.04006 | 0.0477696 | 2.7146825 | 51 | 6 | 2000–2009 | 0.56 | M-v | 1 | MPC | 147434 | 2007 $JS_{23}$ |
| 2007 $JU_{23}$ | 16.3 | 0.15 | 20100104 | 217.03718 | 178.25226 | 57.31968 | 10.67693 | 0.2074944 | 2.6930572 | 37 | 3 | 2002–2009 | 0.37 | M-v | 2 | MPC | 126289 | 2007 $JU_{23}$ |
| 2007 $JZ_{23}$ | 16.8 | 0.15 | 20100104 | 304.92371 | 260.09078 | 224.75869 | 5.79781 | 0.0217706 | 2.7497322 | 31 | 3 | 2007–2009 | 0.26 | M-v | 3 | MPC | 165567 | 2007 $JZ_{23}$ |
| 2007 $JV_{27}$ | 16.5 | 0.15 | 20100104 | 173.10217 | 58.45669 | 214.12497 | 4.52694 | 0.0916327 | 2.7629103 | 37 | 5 | 2004–2009 | 0.28 | M-v | 0 | MPC | 147434 | 2007 $JV_{27}$ |
| 2007 $JD_{28}$ | 16.3 | 0.15 | 20100104 | 155.77325 | 82.15002 | 190.97055 | 3.96707 | 0.2287888 | 3.0328236 | 37 | 6 | 1992–2009 | 0.36 | M-v | 0 | MPC | 147434 | 2007 $JD_{28}$ |
| 2007 $JF_{29}$ | 15.9 | 0.15 | 20100104 | 73.88161 | 297.13334 | 81.56126 | 14.96135 | 0.0478325 | 2.7215865 | 52 | 7 | 1998–2009 | 0.36 | M-v | 0 | MPC | 158567 | 2007 $JF_{29}$ |
| 2007 $JR_{30}$ | 15.6 | 0.15 | 20100104 | 157.65414 | 169.06394 | 109.78408 | 2.38088 | 0.2214907 | 2.9977901 | 59 | 3 | 2007–2009 | 0.46 | M-v | 2 | MPC | 151045 | 2007 $JR_{30}$ |
| 2007 $JN_{31}$ | 17.0 | 0.15 | 20100104 | 217.86741 | 190.24695 | 73.27224 | 5.93548 | 0.1667510 | 2.4841251 | 62 | 6 | 1999–2009 | 0.41 | M-v | 1 | MPC | 147434 | 2007 $JN_{31}$ |
| 2007 $JH_{32}$ | 16.5 | 0.15 | 20100104 | 190.83660 | 208.13038 | 77.43054 | 6.92902 | 0.1256461 | 2.5760957 | 27 | 3 | 2007–2009 | 0.32 | M-v | 2 | MPC | 146554 | 2007 $JH_{32}$ |
| 2007 $JE_{33}$ | 16.1 | 0.15 | 20100104 | 163.28089 | 209.16016 | 90.48885 | 10.60555 | 0.2285528 | 2.7740567 | 43 | 4 | 2003–2009 | 0.55 | M-v | 1 | MPC | 158567 | 2007 $JE_{33}$ |
| 2007 $JQ_{33}$ | 15.2 | 0.15 | 20100104 | 87.41517 | 225.05265 | 105.14463 | 10.41365 | 0.0383992 | 3.0839283 | 46 | 6 | 2003–2009 | 0.44 | M-v | 0 | MPC | 166286 | 2007 $JQ_{33}$ |
| 2007 $JV_{41}$ | 16.5 | 0.15 | 20100104 | 310.11351 | 89.97710 | 39.33993 | 5.37177 | 0.0532616 | 2.6847315 | 44 | 4 | 2002–2009 | 0.37 | M-v | 2 | MPC | 166286 | 2007 $JV_{41}$ |
| 2007 $JE_{43}$ | 15.6 | 0.15 | 20100104 | 202.46782 | 175.18560 | 74.84807 | 13.40932 | 0.2574078 | 2.7714721 | 54 | 5 | 2002–2009 | 0.47 | M-v | 1 | MPC | 122891 | 2007 $JE_{43}$ |
| 2007 $JN_{43}$ | 17.5 | 0.15 | 20100104 | 276.25774 | 331.17601 | 196.77537 | 5.53041 | 0.1982320 | 2.4115180 | 19 | 1 | 62 days | 0.41 | M-v | 4 | MPC | | 2007 $JN_{43}$ |
| 2007 $JX_{43}$ | 15.3 | 0.15 | 20100104 | 106.94732 | 235.44973 | 79.77853 | 19.67762 | 0.1783644 | 3.0917169 | 49 | 5 | 1998–2009 | 0.38 | M-v | 0 | MPC | 166286 | 2007 $JX_{43}$ |
| 2007 $JA_{45}$ | 15.7 | 0.15 | 20100104 | 17.23107 | 164.65741 | 234.92810 | 10.09226 | 0.0468941 | 3.1104529 | 47 | 3 | 1998–2009 | 0.45 | M-v | 3 | MPC | 165568 | 2007 $JA_{45}$ |
| 2007 $JH_{45}$ | 16.9 | 0.15 | 20100104 | 250.38118 | 85.40870 | 122.24970 | 3.44229 | 0.1817251 | 2.5707909 | 41 | 3 | 2007–2009 | 0.40 | M-v | 3 | MPC | 166286 | 2007 $JH_{45}$ |
| 2007 $KH_{1}$ | 17.5 | 0.15 | 20100104 | 321.15658 | 37.48786 | 117.23851 | 3.60179 | 0.1301806 | 2.4271891 | 37 | 5 | 2003–2009 | 0.35 | M-v | 0 | MPC | 147435 | 2007 $KH_{1}$ |
| 2007 $KS_{1}$ | 16.4 | 0.15 | 20100104 | 290.57237 | 73.55747 | 106.04006 | 7.24617 | 0.0773959 | 2.4083460 | 50 | 6 | 1998–2009 | 0.53 | M-v | 1 | MPC | 141347 | 2007 $KS_{1}$ |
| 2007 $KZ_{1}$ | 16.8 | 0.15 | 20100104 | 215.75498 | 338.55235 | 254.44012 | 11.68185 | 0.1228918 | 2.7087422 | 32 | 4 | 2003–2009 | 0.46 | M-v | 1 | MPC | 166286 | 2007 $KZ_{1}$ |
| 2007 $KH_{3}$ | 17.0 | 0.15 | 20100104 | 294.79574 | 301.29595 | 255.07443 | 5.62725 | 0.0648379 | 2.3862511 | 38 | 6 | 2001–2009 | 0.33 | M-v | 0 | MPC | 147435 | 2007 $KH_{3}$ |
| 2007 $KM_{6}$ | 16.0 | 0.15 | 20100104 | 169.66892 | 18.98822 | 234.81067 | 9.59158 | 0.0020978 | 2.9571059 | 49 | 4 | 2003–2009 | 0.30 | M-v | 1 | MPC | 166286 | 2007 $KM_{6}$ |
| 2007 $KO_{7}$ | 17.0 | 0.15 | 20100104 | 256.87003 | 285.08869 | 306.27329 | 4.20151 | 0.1778931 | 2.3781479 | 40 | 7 | 1992–2009 | 0.47 | M-v | 1 | MPC | 147435 | 2007 $KO_{7}$ |
| 2007 $KY_{7}$ | 15.9 | 0.15 | 20100104 | 259.80481 | 45.02638 | 147.58802 | 4.16529 | 0.2090736 | 2.5927778 | 53 | 6 | 1994–2009 | 0.50 | M-v | 1 | MPC | 166286 | 2007 $KY_{7}$ |
| 2007 $KE_{8}$ | 16.6 | 0.15 | 20100104 | 220.13682 | 144.99674 | 98.14148 | 14.68430 | 0.1719971 | 2.6312969 | 30 | 3 | 2005–2009 | 0.34 | M-v | 2 | MPC | 121704 | 2007 $KE_{8}$ |
| 2007 $KE_{9}$ | 15.3 | 0.15 | 20100104 | 191.94132 | 357.28841 | 283.85183 | 9.88548 | 0.1629422 | 2.6450221 | 65 | 6 | 1999–2009 | 0.61 | M-v | 1 | MPC | 151045 | 2007 $KE_{9}$ |
| 2007 $LN_{3}$ | 16.1 | 0.15 | 20100104 | 307.85773 | 276.75273 | 225.19432 | 10.61264 | 0.1316266 | 2.6256476 | 45 | 2 | 2007–2009 | 0.39 | M-v | 3 | MPC | 166286 | 2007 $LN_{3}$ |
| 2007 $LV_{6}$ | 17.3 | 0.15 | 20100104 | 300.65015 | 43.68824 | 138.22232 | 5.10517 | 0.1989490 | 2.3666381 | 34 | 7 | 1996–2009 | 0.38 | M-v | 0 | MPC | 147436 | 2007 $LV_{6}$ |
| 2007 $LA_{9}$ | 16.0 | 0.15 | 20100104 | 285.99309 | 285.26903 | 235.66366 | 11.26011 | 0.1389963 | 2.6205782 | 61 | 5 | 1992–2009 | 0.37 | M-v | 0 | MPC | 166286 | 2007 $LA_{9}$ |
| 2007 $LL_{12}$ | 17.3 | 0.15 | 20100104 | 326.01468 | 46.60169 | 95.45151 | 4.02022 | 0.1398085 | 2.4507287 | 31 | 4 | 2003–2009 | 0.21 | M-v | 0 | MPC | 126294 | 2007 $LL_{12}$ |
| 2007 $LV_{14}$ | 14.0 | 0.15 | 20100104 | 286.11135 | 68.55376 | 48.80742 | 6.17843 | 0.1285726 | 5.2391065 | 44 | 7 | 1998–2009 | 0.45 | M-v | 0 | MPC | 163839 | 2007 $LV_{14}$ |
| 2007 $LR_{16}$ | 15.3 | 0.15 | 20100104 | 254.19203 | 269.96377 | 236.31483 | 9.73053 | 0.0697245 | 3.1186422 | 36 | 3 | 2004–2009 | 0.36 | M-v | 2 | MPC | 164323 | 2007 $LR_{16}$ |
| 2007 $LW_{16}$ | 16.5 | 0.15 | 20100104 | 4.20513 | 18.12000 | 75.55028 | 3.56907 | 0.0392874 | 2.6251018 | 22 | 4 | 2002–2009 | 0.19 | M-v | 2 | MPC | 121254 | 2007 $LW_{16}$ |
| 2007 $LC_{17}$ | 16.6 | 0.15 | 20100104 | 306.38828 | 99.81255 | 76.35103 | 7.06684 | 0.0670611 | 2.4280752 | 36 | 5 | 2001–2009 | 0.45 | M-v | 1 | MPC | 122892 | 2007 $LC_{17}$ |
| 2007 $LH_{17}$ | 15.9 | 0.15 | 20100104 | 97.46575 | 288.18802 | 59.92564 | 6.20257 | 0.1423621 | 2.9137140 | 36 | 4 | 2003–2009 | 0.37 | M-v | 0 | MPC | 166287 | 2007 $LH_{17}$ |
| 2007 $LN_{17}$ | 15.8 | 0.15 | 20100104 | 106.12317 | 270.66616 | 57.68905 | 9.10873 | 0.0876579 | 2.9331488 | 43 | 5 | 2003–2009 | 0.33 | M-v | 0 | MPC | 165569 | 2007 $LN_{17}$ |
| 2007 $LX_{18}$ | 15.6 | 0.15 | 20100104 | 170.22511 | 15.94167 | 252.61197 | 12.62762 | 0.2206993 | 2.9871638 | 38 | 3 | 2007–2009 | 0.39 | M-v | 3 | MPC | 165569 | 2007 $LX_{18}$ |
| 2007 $LN_{19}$ | 15.5 | 0.15 | 20100104 | 228.37726 | 329.48047 | 260.68596 | 10.95217 | 0.1455705 | 2.6185769 | 53 | 4 | 2002–2009 | 0.39 | M-v | 1 | MPC | 166287 | 2007 $LN_{19}$ |
| 2007 $LW_{21}$ | 16.3 | 0.15 | 20100104 | 253.86723 | 106.40804 | 102.34089 | 10.94363 | 0.0303632 | 2.6446636 | 23 | 4 | 1994–2009 | 0.23 | M-v | 1 | MPC | 142886 | 2007 $LW_{21}$ |
| 2007 $LL_{24}$ | 15.9 | 0.15 | 20100104 | 174.75956 | 184.17121 | 78.53349 | 7.32222 | 0.0583156 | 2.8783390 | 42 | 3 | 2004–2009 | 0.44 | M-v | 3 | MPC | 166287 | 2007 $LL_{24}$ |
| 2007 $LV_{24}$ | 16.8 | 0.15 | 20100104 | 323.67985 | 71.87402 | 85.78341 | 6.14097 | 0.1303864 | 2.4108690 | 48 | 4 | 2003–2009 | 0.55 | M-v | 1 | MPC | 162521 | 2007 $LV_{24}$ |
| 2007 $LZ_{24}$ | 15.8 | 0.15 | 20100104 | 79.64159 | 133.44467 | 243.66672 | 5.22659 | 0.0827130 | 2.7617980 | 65 | 7 | 1999–2009 | 0.53 | M-v | 0 | MPC | 162521 | 2007 $LZ_{24}$ |
| 2007 $LF_{26}$ | 16.0 | 0.15 | 20100104 | 117.93337 | 265.93450 | 134.79928 | 14.15114 | 0.0529459 | 2.5945740 | 38 | 6 | 1997–2009 | 0.47 | M-v | 1 | MPC | 151046 | 2007 $LF_{26}$ |
| 2007 $LQ_{29}$ | 15.7 | 0.15 | 20100104 | 95.46059 | 253.59200 | 131.46309 | 11.26492 | 0.1023915 | 3.0228766 | 33 | 5 | 2002–2009 | 0.51 | M-v | 0 | MPC | 150036 | 2007 $LQ_{29}$ |
| 2007 $LQ_{31}$ | 15.5 | 0.15 | 20100104 | 177.21847 | 6.84933 | 263.46470 | 8.61563 | 0.1423126 | 2.8031707 | 48 | 6 | 2002–2009 | 0.50 | M-v | 1 | MPC | 149022 | 2007 $LQ_{31}$ |
| 2007 $LG_{32}$ | 15.8 | 0.15 | 20100104 | 212.01394 | 169.58081 | 67.15811 | 15.42594 | 0.0781160 | 2.7481813 | 31 | 2 | 2007–2009 | 0.35 | M-v | 3 | MPC | 165569 | 2007 $LG_{32}$ |
| 2007 $LY_{33}$ | 15.3 | 0.15 | 20100104 | 112.44619 | 229.38515 | 98.83677 | 24.21558 | 0.2022985 | 3.0322108 | 28 | 3 | 2007–2009 | 0.35 | M-v | 2 | MPC | 147437 | 2007 $LY_{33}$ |
| 2007 $MP_{1}$ | 14.9 | 0.15 | 20100104 | 148.73471 | 26.70404 | 278.00598 | 15.18661 | 0.1493970 | 3.2160567 | 51 | 6 | 2002–2009 | 0.39 | M-v | 0 | MPC | 166287 | 2007 $MP_{1}$ |
| 2007 $MQ_{1}$ | 16.7 | 0.15 | 20100104 | 258.63387 | 321.20326 | 261.06386 | 5.68944 | 0.0707642 | 2.7913953 | 34 | 5 | 2001–2009 | 0.31 | M-v | 0 | MPC | 146563 | 2007 $MQ_{1}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 $MF_7$ | 15.8 | 0.15 | 20100104 | 127.08090 | 254.89478 | 76.05781 | 12.59817 | 0.1090436 | 2.7884368 | 36 | 5 | 2002–2009 | 0.49 | M-v | 0 | MPC | 143285 | 2007 $MF_7$ |
| 2007 $MR_7$ | 15.5 | 0.15 | 20100104 | 138.00695 | 220.25090 | 74.03316 | 7.80536 | 0.0819197 | 2.9823670 | 36 | 3 | 2004–2009 | 0.30 | M-v | 3 | MPC | 165569 | 2007 $MR_7$ |
| 2007 $MK_{13}$ | 20.1 | 0.15 | 20100104 | 93.66782 | 259.85201 | 95.13254 | 19.88465 | 0.1397344 | 1.0243999 | 82 | 3 | 2007–2009 | 0.55 | M-v | 2 | MPC | 152470 | 2007 $MK_{13}$ |
| 2007 $MS_{13}$ | 16.4 | 0.15 | 20100104 | 194.96504 | 127.51913 | 111.36750 | 15.88852 | 0.0970920 | 2.8090152 | 30 | 4 | 2002–2009 | 0.39 | M-v | 1 | MPC | 121717 | 2007 $MS_{13}$ |
| 2007 $MO_{24}$ | 15.0 | 0.15 | 20100104 | 278.26422 | 264.14178 | 268.07437 | 9.94967 | 0.1222088 | 3.1191052 | 37 | 5 | 2000–2009 | 0.48 | M-v | 0 | MPC | 166287 | 2007 $MO_{24}$ |
| 2007 $NC_3$ | 15.3 | 0.15 | 20100104 | 69.22979 | 292.36722 | 130.88802 | 22.19327 | 0.1215653 | 3.1280118 | 32 | 4 | 2003–2009 | 0.58 | M-v | 1 | MPC | 154179 | 2007 $NC_3$ |
| 2007 OQ | 16.1 | 0.15 | 20100104 | 218.86786 | 333.93272 | 282.87216 | 11.38459 | 0.1568031 | 2.7786450 | 48 | 5 | 2003–2009 | 0.42 | M-v | 1 | MPC | 166287 | 2007 OQ |
| 2007 $OD_1$ | 15.4 | 0.15 | 20100104 | 203.19325 | 177.77148 | 128.82682 | 16.13992 | 0.1808271 | 2.7487507 | 40 | 4 | 2002–2009 | 0.37 | M-v | 1 | MPC | 124513 | 2007 $OD_1$ |
| 2007 $OO_5$ | 16.6 | 0.15 | 20100104 | 221.20475 | 221.30491 | 103.34714 | 8.22176 | 0.0896892 | 2.4714367 | 29 | 4 | 2006–2009 | 0.42 | M-v | 1 | MPC | 152146 | 2007 $OO_5$ |
| 2007 $OL_7$ | 15.3 | 0.15 | 20100104 | 120.39414 | 255.81925 | 109.55121 | 11.31344 | 0.0718501 | 3.0269169 | 54 | 7 | 2002–2009 | 0.55 | M-v | 0 | MPC | 158568 | 2007 $OL_7$ |
| 2007 $PP_2$ | 15.6 | 0.15 | 20100104 | 18.06501 | 188.45046 | 317.46182 | 8.17115 | 0.0178204 | 2.5876147 | 48 | 5 | 1999–2009 | 0.52 | M-v | 1 | MPC | 149024 | 2007 $PP_2$ |
| 2007 $PH_{13}$ | 15.7 | 0.15 | 20100104 | 136.78935 | 225.45253 | 127.93147 | 12.02032 | 0.1796459 | 3.0464563 | 34 | 4 | 1999–2009 | 0.46 | M-v | 2 | MPC | 135076 | 2007 $PH_{13}$ |
| 2007 $PS_{14}$ | 16.6 | 0.15 | 20100104 | 252.63862 | 141.74063 | 126.63053 | 13.19566 | 0.2157298 | 2.5324435 | 31 | 4 | 2002–2009 | 0.57 | M-v | 2 | MPC | 131536 | 2007 $PS_{14}$ |
| 2007 $PM_{16}$ | 12.8 | 0.15 | 20100104 | 32.58044 | 29.11442 | 344.35036 | 18.04404 | 0.0786497 | 5.1980215 | 42 | 4 | 2002–2009 | 0.50 | M-v | 1 | MPC | 147438 | 2007 $PM_{16}$ |
| 2007 $PC_{28}$ | 15.4 | 0.15 | 20100104 | 88.88997 | 85.25106 | 289.48277 | 8.81812 | 0.1252123 | 3.4043423 | 35 | 4 | 2001–2009 | 0.41 | M-v | 0 | MPC | 166287 | 2007 $PC_{28}$ |
| 2007 $PG_{29}$ | 15.5 | 0.15 | 20100104 | 166.28430 | 12.98832 | 295.67238 | 11.90222 | 0.1881339 | 3.2013559 | 39 | 5 | 2001–2009 | 0.44 | M-v | 1 | MPC | 166287 | 2007 $PG_{29}$ |
| 2007 $PM_{35}$ | 17.9 | 0.15 | 20100104 | 268.47603 | 144.62401 | 144.33320 | 3.27372 | 0.1699041 | 2.3077344 | 37 | 5 | 1996–2007 | 0.59 | M-v | 1 | MPC | 155335 | 2007 $PM_{35}$ |
| 2007 $PF_{37}$ | 15.3 | 0.15 | 20100104 | 167.02622 | 27.23931 | 275.45716 | 3.66640 | 0.1422037 | 3.2286038 | 53 | 4 | 2001–2009 | 0.45 | M-v | 1 | MPC | 151048 | 2007 $PF_{37}$ |
| 2007 $PN_{39}$ | 15.7 | 0.15 | 20100104 | 267.41553 | 309.89765 | 267.88449 | 8.69095 | 0.1790415 | 3.0044332 | 44 | 4 | 2003–2009 | 0.31 | M-v | 1 | MPC | 147438 | 2007 $PN_{39}$ |
| 2007 $PX_{42}$ | 16.9 | 0.15 | 20100104 | 277.06085 | 67.28069 | 196.72780 | 2.62616 | 0.1732852 | 2.3988543 | 51 | 6 | 1999–2009 | 0.44 | M-v | 1 | MPC | 152473 | 2007 $PX_{42}$ |
| 2007 $PE_{48}$ | 16.1 | 0.15 | 20070828 | 7.92255 | 213.38786 | 104.04004 | 15.24426 | 0.1244455 | 2.5565058 | 12 | 1 | 33 days | 0.22 | | | MPC | | 2007 $PE_{48}$ |
| 2007 $PH_{48}$ | 16.7 | 0.15 | 20070828 | 11.20735 | 80.37181 | 236.02166 | 6.90373 | 0.2863352 | 3.0774136 | 12 | 1 | 26 days | 0.67 | | | MPC | | 2007 $PH_{48}$ |
| 2007 $PK_{48}$ | 18.0 | 0.15 | 20070808 | 356.04454 | 332.50619 | 354.15505 | 3.10385 | 0.1816902 | 2.5026540 | 9 | 1 | 5 days | 0.33 | | | MPC | | 2007 $PK_{48}$ |
| 2007 QK | 15.7 | 0.15 | 20100104 | 218.98112 | 347.91982 | 293.81938 | 21.02240 | 0.2028566 | 2.7750747 | 51 | 5 | 1996–2009 | 0.50 | M-v | 1 | MPC | 159797 | 2007 QK |
| 2007 $QK_{12}$ | 15.9 | 0.15 | 20100104 | 106.28745 | 201.77167 | 130.32699 | 11.31498 | 0.0933911 | 3.5050475 | 14 | 1 | 83 days | 0.16 | M-v | 5 | MPC | | 2007 $QK_{12}$ |
| 2007 $QT_{15}$ | 17.9 | 0.15 | 20070828 | 338.43330 | 63.90060 | 303.86341 | 8.26347 | 0.1936217 | 2.3613970 | 14 | 1 | 20 days | 0.54 | | | MPC | | 2007 $QT_{15}$ |
| 2007 $QU_{15}$ | 17.9 | 0.15 | 20070828 | 14.28946 | 192.48769 | 121.64955 | 4.28863 | 0.2922766 | 2.6899647 | 16 | 1 | 26 days | 0.65 | | | MPC | | 2007 $QU_{15}$ |
| 2007 $QX_{15}$ | 16.7 | 0.15 | 20070828 | 350.88540 | 91.93230 | 273.71047 | 8.39702 | 0.3104001 | 3.0749401 | 12 | 1 | 50 days | 0.45 | | | MPC | | 2007 $QX_{15}$ |
| 2007 $RH_5$ | 16.7 | 0.15 | 20100104 | 17.21359 | 67.27352 | 53.79454 | 2.62482 | 0.0645727 | 2.9382764 | 60 | 9 | 1995–2009 | 0.44 | M-v | 0 | MPC | 150044 | 2007 $RH_5$ |
| 2007 $RN_7$ | 21.6 | 0.15 | 20100104 | 174.69332 | 232.42265 | 152.65912 | 9.83878 | 0.1121898 | 1.2976076 | 32 | 1 | 139 days | 0.65 | M-v | 3 | MPC | 138132 | 2007 $RN_7$ |
| 2007 $RC_{11}$ | 16.9 | 0.15 | 20070917 | 351.86315 | 7.43231 | 5.08815 | 9.34959 | 0.1797004 | 2.8219949 | 17 | 1 | 33 days | 0.25 | | | MPC | | 2007 $RC_{11}$ |
| 2007 $RD_{11}$ | 18.3 | 0.15 | 20070828 | 351.15551 | 196.83656 | 170.45617 | 14.89616 | 0.2603819 | 2.6158756 | 9 | 1 | 14 days | 0.25 | | | MPC | | 2007 $RD_{11}$ |
| 2007 $RH_{14}$ | 15.2 | 0.15 | 20100104 | 180.62909 | 89.22696 | 223.45823 | 9.56576 | 0.0351118 | 3.1023002 | 96 | 4 | 2002–2009 | 0.48 | M-v | 1 | MPC | 149025 | 2007 $RH_{14}$ |
| 2007 $RD_{16}$ | 15.4 | 0.15 | 20100104 | 319.41877 | 214.42523 | 333.87018 | 10.69979 | 0.0920743 | 3.0821535 | 41 | 3 | 2007–2009 | 0.32 | M-v | 3 | MPC | 150045 | 2007 $RD_{16}$ |
| 2007 $RN_{22}$ | 15.5 | 0.15 | 20100104 | 192.43976 | 335.43418 | 312.11472 | 10.99742 | 0.1144115 | 3.1719383 | 40 | 4 | 1999–2009 | 0.54 | M-v | 1 | MPC | 159798 | 2007 $RN_{22}$ |
| 2007 $RS_{103}$ | 15.1 | 0.15 | 20100104 | 143.72006 | 12.54126 | 5.92800 | 18.53439 | 0.1039055 | 3.0854761 | 105 | 5 | 2002–2009 | 0.52 | M-v | 1 | MPC | 149026 | 2007 $RS_{103}$ |
| 2007 $RD_{120}$ | 16.0 | 0.15 | 20100104 | 246.48273 | 228.40052 | 53.72696 | 2.69528 | 0.0338685 | 2.8399436 | 55 | 6 | 1998–2009 | 0.40 | M-v | 0 | MPC | 159799 | 2007 $RD_{120}$ |
| 2007 $RM_{133}$ | 18.3 | 0.15 | 20100104 | 287.91342 | 181.00155 | 106.20098 | 10.74600 | 0.4400616 | 2.2106798 | 55 | 1 | 65 days | 0.48 | M-v | 4 | MPC | 128937 | 2007 $RM_{133}$ |
| 2007 $RU_{150}$ | 12.3 | 0.15 | 20100104 | 4.57137 | 311.03708 | 103.61518 | 13.57115 | 0.1323428 | 5.2567853 | 54 | 4 | 2002–2009 | 0.51 | M-v | 1 | MPC | 165570 | 2007 $RU_{150}$ |
| 2007 $RO_{168}$ | 13.1 | 0.15 | 20100104 | 3.81166 | 19.24962 | 46.98679 | 4.25053 | 0.0553631 | 5.2356659 | 64 | 5 | 1996–2009 | 0.31 | M-v | 0 | MPC | 149027 | 2007 $RO_{168}$ |
| 2007 $RP_{185}$ | 14.8 | 0.15 | 20100104 | 20.78087 | 121.49913 | 23.34803 | 26.82812 | 0.1603970 | 3.1220381 | 36 | 4 | 1999–2009 | 0.53 | M-v | 1 | MPC | 157131 | 2007 $RP_{185}$ |
| 2007 $RU_{215}$ | 16.5 | 0.15 | 20100104 | 95.25012 | 106.92497 | 329.80600 | 3.24168 | 0.1240427 | 3.0656344 | 29 | 3 | 2004–2009 | 0.39 | M-v | 2 | MPC | 153609 | 2007 $RU_{215}$ |
| 2007 $RS_{217}$ | 17.7 | 0.15 | 20100104 | 63.60097 | 185.74590 | 351.02593 | 8.87912 | 0.1390100 | 2.3432444 | 32 | 3 | 2002–2009 | 0.60 | M-v | 4 | MPC | 142896 | 2007 $RS_{217}$ |
| 2007 $RM_{255}$ | 14.1 | 0.15 | 20100104 | 31.68780 | 152.15118 | 238.04464 | 3.67499 | 0.0608233 | 5.2979635 | 47 | 4 | 1996–2009 | 0.36 | M-v | 0 | MPC | 166288 | 2007 $RM_{255}$ |
| 2007 $RS_{258}$ | 16.1 | 0.15 | 20100104 | 175.93069 | 113.09257 | 224.76874 | 2.95888 | 0.1215629 | 3.0587034 | 40 | 5 | 2002–2008 | 0.43 | M-v | 1 | MPC | 155354 | 2007 $RS_{258}$ |
| 2007 $RL_{277}$ | 14.7 | 0.15 | 20100104 | 234.07635 | 354.00150 | 280.50003 | 11.02515 | 0.0984846 | 3.0111383 | 72 | 6 | 2000–2009 | 0.52 | M-v | 1 | MPC | 152482 | 2007 $RL_{277}$ |
| 2007 $RQ_{277}$ | 15.0 | 0.15 | 20100104 | 141.39717 | 213.20458 | 127.62981 | 17.54243 | 0.1371336 | 3.4433191 | 36 | 7 | 1994–2009 | 0.70 | M-v | 1 | MPC | 126496 | 2007 $RQ_{277}$ |
| 2007 $RN_{280}$ | 14.8 | 0.15 | 20100104 | 208.81343 | 343.04699 | 294.04657 | 21.18034 | 0.1496987 | 3.1858238 | 49 | 7 | 1992–2009 | 0.46 | M-v | 1 | MPC | 166288 | 2007 $RN_{280}$ |
| 2007 $RJ_{283}$ | 12.6 | 0.15 | 20100104 | 357.56572 | 170.89780 | 257.55605 | 12.38356 | 0.0689577 | 5.1960591 | 92 | 4 | 2006–2009 | 0.50 | M-v | 2 | MPC | 166288 | 2007 $RJ_{283}$ |
| 2007 $RS_{286}$ | 15.7 | 0.15 | 20100104 | 134.42812 | 13.97143 | 335.59107 | 9.41738 | 0.0944394 | 3.1257419 | 35 | 3 | 2002–2007 | 0.33 | M-v | 2 | MPC | 140712 | 2007 $RS_{286}$ |
| 2007 $RU_{309}$ | 16.3 | 0.15 | 20100104 | 270.01445 | 277.36009 | 54.55327 | 12.51901 | 0.0778438 | 2.5617523 | 25 | 1 | 95 days | 0.40 | M-v | 4 | MPC | | 2007 $RU_{309}$ |
| 2007 $RV_{309}$ | 18.2 | 0.15 | 20070917 | 318.68228 | 26.61432 | 21.85277 | 21.47904 | 0.0959370 | 1.9075483 | 15 | 1 | 31 days | 0.50 | | | MPC | | 2007 $RV_{309}$ |
| 2007 $RX_{309}$ | 16.9 | 0.15 | 20070917 | 4.96004 | 210.87396 | 159.55900 | 4.81678 | 0.1603809 | 3.0778234 | 19 | 1 | 37 days | 0.53 | | | MPC | | 2007 $RX_{309}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 $RY_{309}$ | 17.1 | 0.15 | 20070828 | 358.57282 | 309.79586 | 37.70065 | 4.62091 | 0.1562161 | 2.5390084 | 12 | 1 | 9 days | 0.61 | | | MPC | | 2007 $RY_{309}$ |
| 2007 $RZ_{309}$ | 16.6 | 0.15 | 20070828 | 336.01446 | 239.75167 | 139.16463 | 9.67304 | 0.1779582 | 2.7434941 | 12 | 1 | 15 days | 0.66 | | | MPC | | 2007 $RZ_{309}$ |
| 2007 $RB_{310}$ | 17.1 | 0.15 | 20100104 | 242.29781 | 44.71800 | 269.92690 | 4.47481 | 0.1990250 | 2.3886780 | 22 | 1 | 29 days | 0.59 | M-v | 6 D | MPC | | 2007 $RB_{310}$ |
| 2007 $RC_{310}$ | 15.4 | 0.15 | 20070828 | 21.00076 | 304.54372 | 4.05137 | 25.29717 | 0.1770378 | 3.1953549 | 12 | 1 | 14 days | 0.74 | | | MPC | | 2007 $RC_{310}$ |
| 2007 $RD_{310}$ | 16.9 | 0.15 | 20070917 | 348.55428 | 272.50654 | 93.96222 | 6.61153 | 0.2318792 | 2.3973824 | 19 | 1 | 28 days | 0.73 | | | MPC | | 2007 $RD_{310}$ |
| 2007 $RF_{310}$ | 16.6 | 0.15 | 20070828 | 322.33516 | 127.53108 | 280.14416 | 6.50230 | 0.2458329 | 2.8359833 | 12 | 1 | 7 days | 0.56 | | | MPC | | 2007 $RF_{310}$ |
| 2007 $RG_{310}$ | 17.3 | 0.15 | 20070917 | 49.97753 | 29.28114 | 244.89482 | 4.91521 | 0.2076472 | 2.3190165 | 16 | 1 | 38 days | 0.53 | | | MPC | | 2007 $RG_{310}$ |
| 2007 $RJ_{310}$ | 17.9 | 0.15 | 20070828 | 6.99881 | 202.01726 | 124.42827 | 7.14309 | 0.3289192 | 2.5992022 | 14 | 1 | 15 days | 0.69 | | | MPC | | 2007 $RJ_{310}$ |
| 2007 $RK_{310}$ | 16.8 | 0.15 | 20070917 | 45.01127 | 252.11623 | 34.55254 | 6.56557 | 0.1964182 | 2.3486795 | 19 | 1 | 40 days | 0.55 | | | MPC | | 2007 $RK_{310}$ |
| 2007 $RM_{310}$ | 16.9 | 0.15 | 20070917 | 1.22893 | 231.67564 | 119.91781 | 8.64133 | 0.1580774 | 2.3004135 | 15 | 1 | 36 days | 0.35 | | | MPC | | 2007 $RM_{310}$ |
| 2007 $RN_{310}$ | 15.3 | 0.15 | 20070917 | 339.40247 | 240.99371 | 144.28076 | 20.53323 | 0.1757963 | 3.1385851 | 16 | 1 | 37 days | 0.59 | | | MPC | | 2007 $RN_{310}$ |
| 2007 $RO_{310}$ | 16.7 | 0.15 | 20070917 | 15.08695 | 191.82261 | 143.29589 | 17.73932 | 0.2674082 | 2.6788072 | 12 | 1 | 37 days | 0.54 | | | MPC | | 2007 $RO_{310}$ |
| 2007 $RS_{310}$ | 15.7 | 0.15 | 20070917 | 34.24080 | 6.41910 | 300.99478 | 6.94940 | 0.2623630 | 3.1020154 | 11 | 1 | 31 days | 0.40 | | | MPC | | 2007 $RS_{310}$ |
| 2007 $RU_{310}$ | 17.7 | 0.15 | 20070917 | 24.59956 | 231.67044 | 91.00884 | 4.85866 | 0.2670312 | 2.2903349 | 16 | 1 | 28 days | 0.62 | | | MPC | | 2007 $RU_{310}$ |
| 2007 $RW_{310}$ | 16.6 | 0.15 | 20070917 | 0.73142 | 137.36360 | 227.71712 | 17.03498 | 0.2760884 | 3.1359473 | 12 | 1 | 25 days | 0.75 | | | MPC | | 2007 $RW_{310}$ |
| 2007 $RY_{310}$ | 15.4 | 0.15 | 20071007 | 359.20479 | 321.12217 | 41.89185 | 16.20558 | 0.2347739 | 3.1192943 | 20 | 1 | 54 days | 0.52 | | | MPC | | 2007 $RY_{310}$ |
| 2007 $SX_{12}$ | 16.2 | 0.15 | 20100104 | 262.90724 | 305.65045 | 336.12505 | 5.88069 | 0.1969261 | 2.5960810 | 62 | 7 | 2002–2009 | 0.50 | M-v | 0 | MPC | 152483 | 2007 $SX_{12}$ |
| 2007 $SZ_{20}$ | 18.2 | 0.15 | 20071007 | 4.76461 | 272.54884 | 97.92666 | 3.57511 | 0.2281195 | 2.2919205 | 20 | 1 | 47 days | 0.49 | | | MPC | | 2007 $SZ_{20}$ |
| 2007 $SA_{21}$ | 17.2 | 0.15 | 20071007 | 40.46427 | 59.20931 | 273.59431 | 5.22509 | 0.1920699 | 2.3065862 | 14 | 1 | 48 days | 0.49 | | | MPC | | 2007 $SA_{21}$ |
| 2007 $TN_{14}$ | 15.3 | 0.15 | 20100104 | 49.26002 | 4.35356 | 74.86963 | 3.89168 | 0.1578711 | 3.9534189 | 52 | 7 | 1994–2009 | 0.53 | M-v | 0 | MPC | 156097 | 2007 $TN_{14}$ |
| 2007 $TU_{17}$ | 15.0 | 0.15 | 20100104 | 128.12482 | 37.80721 | 13.63220 | 11.06321 | 0.0780899 | 3.1133116 | 82 | 4 | 1999–2009 | 0.49 | M-v | 1 | MPC | 153618 | 2007 $TU_{17}$ |
| 2007 $TE_{68}$ | 17.5 | 0.15 | 20100104 | 258.07776 | 231.58546 | 96.90085 | 3.86549 | 0.1889692 | 2.3808232 | 41 | 6 | 2002–2009 | 0.60 | M-v | 1 | MPC | 153623 | 2007 $TE_{68}$ |
| 2007 $TL_{92}$ | 16.1 | 0.15 | 20100104 | 254.50336 | 87.28831 | 139.77277 | 5.63515 | 0.1205943 | 3.1021843 | 34 | 4 | 2005–2009 | 0.39 | M-v | 0 | MPC | 137621 | 2007 $TL_{92}$ |
| 2007 $TU_{158}$ | 15.9 | 0.15 | 20100104 | 160.32941 | 145.45258 | 264.36069 | 5.14822 | 0.0793390 | 2.7477399 | 46 | 3 | 2002–2009 | 0.58 | M-v | 3 | MPC | 140479 | 2007 $TU_{158}$ |
| 2007 $TA_{168}$ | 15.3 | 0.15 | 20100104 | 212.99709 | 324.00946 | 351.61837 | 5.25909 | 0.0344569 | 3.0853534 | 37 | 6 | 2002–2009 | 0.46 | M-v | 1 | MPC | 151059 | 2007 $TA_{168}$ |
| 2007 $TP_{185}$ | 15.2 | 0.15 | 20100104 | 124.81234 | 240.56075 | 136.01165 | 3.24045 | 0.0599475 | 3.4637576 | 51 | 7 | 1994–2009 | 0.49 | M-v | 0 | MPC | 151059 | 2007 $TP_{185}$ |
| 2007 $TD_{190}$ | 16.3 | 0.15 | 20100104 | 107.52131 | 207.79065 | 201.93408 | 0.50488 | 0.0771833 | 3.0013990 | 34 | 5 | 1999–2009 | 0.30 | M-v | 0 | MPC | 151059 | 2007 $TD_{190}$ |
| 2007 $TK_{220}$ | 17.8 | 0.15 | 20100104 | 183.60585 | 350.68547 | 63.49500 | 1.33498 | 0.1948504 | 2.3997456 | 27 | 4 | 1996–2007 | 0.37 | M-v | 1 | MPC | 142907 | 2007 $TK_{220}$ |
| 2007 $TL_{221}$ | 16.1 | 0.15 | 20100104 | 236.68190 | 101.25525 | 144.41529 | 2.79905 | 0.0700343 | 3.2314952 | 29 | 4 | 2005–2009 | 0.31 | M-v | 0 | MPC | 160535 | 2007 $TL_{221}$ |
| 2007 $TX_{236}$ | 17.7 | 0.15 | 20100104 | 335.85121 | 132.49293 | 153.31656 | 2.59715 | 0.0852605 | 2.2105371 | 38 | 3 | 2006–2009 | 0.30 | M-v | 2 | MPC | 129888 | 2007 $TX_{236}$ |
| 2007 $TG_{243}$ | 15.9 | 0.15 | 20100104 | 254.84662 | 308.70287 | 323.18022 | 11.96448 | 0.2869374 | 2.6416674 | 41 | 5 | 2001–2009 | 0.45 | M-v | 0 | MPC | 160893 | 2007 $TG_{243}$ |
| 2007 $TN_{266}$ | 17.1 | 0.15 | 20100104 | 336.12601 | 58.26630 | 165.94555 | 6.56231 | 0.0339966 | 2.4603574 | 30 | 4 | 1996–2007 | 0.32 | M-v | 1 | MPC | 165572 | 2007 $TN_{266}$ |
| 2007 $TC_{305}$ | 16.3 | 0.15 | 20100104 | 179.86321 | 354.46416 | 341.36216 | 6.50016 | 0.0723575 | 2.7551777 | 34 | 3 | 2003–2007 | 0.32 | M-v | 3 | MPC | 165573 | 2007 $TC_{305}$ |
| 2007 $TU_{311}$ | 16.0 | 0.15 | 20100104 | 327.47993 | 133.76453 | 68.75435 | 4.49110 | 0.1109501 | 3.1593017 | 32 | 3 | 2005–2009 | 0.34 | M-v | 4 | MPC | 160538 | 2007 $TU_{311}$ |
| 2007 $TK_{332}$ | 17.4 | 0.15 | 20100104 | 160.94615 | 114.56187 | 320.93496 | 2.08818 | 0.0964497 | 2.5965441 | 36 | 3 | 2003–2009 | 0.37 | M-v | 3 | MPC | 141376 | 2007 $TK_{332}$ |
| 2007 $TV_{365}$ | 16.7 | 0.15 | 20100104 | 186.50221 | 215.98719 | 135.97218 | 2.93988 | 0.0745603 | 2.8301009 | 42 | 3 | 2002–2009 | 0.28 | M-v | 3 | MPC | 165575 | 2007 $TV_{365}$ |
| 2007 $TN_{380}$ | 18.0 | 0.15 | 20100104 | 173.75885 | 271.58799 | 194.23413 | 5.08159 | 0.1174247 | 2.2495085 | 34 | 3 | 2000–2009 | 0.32 | M-v | 2 | MPC | 159531 | 2007 $TN_{380}$ |
| 2007 $TG_{422}$ | 6.1 | 0.15 | 20100104 | 0.12385 | 285.61842 | 112.84556 | 18.60381 | 0.9336325 | 535.7377284 | 32 | 3 | 2007–2009 | 0.13 | M-v | 1 | MPC | 148620 | 2007 $TG_{422}$ |
| 2007 $TO_{440}$ | 15.9 | 0.15 | 20071027 | 159.13398 | 14.89126 | 238.39841 | 9.78589 | 0.0605545 | 2.9990802 | 20 | 1 | 55 days | 0.30 | | | MPC | | 2007 $TO_{440}$ |
| 2007 $TP_{440}$ | 17.1 | 0.15 | 20071007 | 23.29403 | 287.36040 | 76.72249 | 4.65848 | 0.1026899 | 2.6822616 | 17 | 1 | 36 days | 0.67 | | | MPC | | 2007 $TP_{440}$ |
| 2007 $TQ_{440}$ | 18.3 | 0.15 | 20071007 | 354.81200 | 20.14150 | 13.08910 | 8.89893 | 0.1646264 | 2.5358698 | 11 | 1 | 8 days | 0.30 | | | MPC | | 2007 $TQ_{440}$ |
| 2007 $TR_{440}$ | 15.2 | 0.15 | 20071027 | 3.05091 | 317.14723 | 72.26653 | 8.60995 | 0.2715574 | 3.9556286 | 16 | 1 | 42 days | 0.61 | | | MPC | | 2007 $TR_{440}$ |
| 2007 $TS_{440}$ | 16.0 | 0.15 | 20100104 | 167.87577 | 117.71529 | 226.31965 | 11.29940 | 0.1504162 | 3.1462659 | 16 | 1 | 68 days | 0.48 | M-v | 5 | MPC | | 2007 $TS_{440}$ |
| 2007 $TU_{440}$ | 15.9 | 0.15 | 20071007 | 349.43516 | 51.92114 | 348.44705 | 9.30705 | 0.1525277 | 3.0374445 | 16 | 1 | 31 days | 0.62 | | | MPC | | 2007 $TU_{440}$ |
| 2007 $TV_{440}$ | 18.0 | 0.15 | 20071007 | 11.71759 | 44.15180 | 322.48015 | 6.40403 | 0.1765975 | 2.2089466 | 12 | 1 | 24 days | 0.44 | | | MPC | | 2007 $TV_{440}$ |
| 2007 $TW_{440}$ | 16.7 | 0.15 | 20071007 | 349.45084 | 173.38516 | 234.36430 | 15.22207 | 0.2636595 | 3.1873859 | 12 | 1 | 24 days | 0.75 | | | MPC | | 2007 $TW_{440}$ |
| 2007 $TZ_{440}$ | 17.9 | 0.15 | 20071007 | 353.80127 | 318.71048 | 73.61170 | 5.24606 | 0.3050732 | 2.5868987 | 12 | 1 | 21 days | 0.51 | | | MPC | | 2007 $TZ_{440}$ |
| 2007 $TA_{441}$ | 17.2 | 0.15 | 20071007 | 18.11217 | 272.86883 | 81.88989 | 9.63574 | 0.1828128 | 2.5769444 | 16 | 1 | 23 days | 0.59 | | | MPC | | 2007 $TA_{441}$ |
| 2007 $TB_{441}$ | 16.8 | 0.15 | 20071027 | 10.62772 | 268.87133 | 111.78798 | 8.64052 | 0.2401180 | 2.7508114 | 12 | 1 | 36 days | 0.59 | | | MPC | | 2007 $TB_{441}$ |
| 2007 $TC_{441}$ | 16.8 | 0.15 | 20100104 | 193.06540 | 283.40441 | 95.53016 | 10.15713 | 0.1979515 | 2.6521677 | 20 | 1 | 125 days | 0.54 | M-v | 4 | MPC | | 2007 $TC_{441}$ |
| 2007 $TD_{441}$ | 16.3 | 0.15 | 20071027 | 334.85408 | 329.22168 | 102.07719 | 10.85057 | 0.1739546 | 2.8775346 | 12 | 1 | 36 days | 0.48 | | | MPC | | 2007 $TD_{441}$ |
| 2007 $TF_{441}$ | 15.7 | 0.15 | 20071007 | 29.24821 | 268.04304 | 80.56249 | 4.74355 | 0.0790115 | 2.9082506 | 11 | 1 | 18 days | 0.51 | | | MPC | | 2007 $TF_{441}$ |
| 2007 $TG_{441}$ | 17.2 | 0.15 | 20100104 | 206.07311 | 158.20771 | 242.42776 | 8.19880 | 0.1761196 | 2.3824612 | 20 | 1 | 116 days | 0.49 | M-v | 4 | MPC | | 2007 $TG_{441}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007 $UR_{3}$ | 21.1 | 0.15 | 20100104 | 354.66817 | 316.13647 | 156.16206 | 1.31064 | 0.2838445 | 1.5599969 | 91 | 3 | 2003–2009 | 0.47 | M-v | 2 | MPC | 166305 | 2007 $UR_{3}$ |
| 2007 $UR_{53}$ | 16.9 | 0.15 | 20100104 | 0.68642 | 16.34555 | 238.40233 | 5.83400 | 0.1594111 | 2.3305427 | 36 | 3 | 2003–2007 | 0.30 | M-v | 3 | MPC | 160540 | 2007 $UR_{53}$ |
| 2007 $UA_{99}$ | 15.5 | 0.15 | 20100104 | 89.21333 | 241.65875 | 234.40647 | 10.63799 | 0.0899522 | 3.1374274 | 47 | 3 | 2001–2009 | 0.45 | M-v | 1 | MPC | 130313 | 2007 $UA_{99}$ |
| 2007 $UM_{126}$ | 10.1 | 0.15 | 20100104 | 58.58608 | 104.51627 | 184.84222 | 41.70303 | 0.3401017 | 12.9174733 | 69 | 6 | 2001–2009 | 0.25 | M-v | 1 | MPC | 156110 | 2007 $UM_{126}$ |
| 2007 $UA_{136}$ | 16.2 | 0.15 | 20100104 | 112.09199 | 216.67611 | 251.00780 | 14.15354 | 0.2097126 | 3.0885373 | 17 | 1 | 78 days | 0.39 | M-v | 4 | MPC | | 2007 $UA_{136}$ |
| 2007 $UD_{136}$ | 17.5 | 0.15 | 20071027 | 18.96321 | 230.74693 | 141.09942 | 3.34236 | 0.2049633 | 2.3442790 | 12 | 1 | 20 days | 0.66 | | | MPC | | 2007 $UD_{136}$ |
| 2007 $VD_{3}$ | 22.2 | 0.15 | 20100104 | 258.10329 | 179.84086 | 53.81018 | 13.11919 | 0.1503099 | 0.9721729 | 75 | 2 | 2007–2009 | 0.48 | M-v | 3 | MPC | 148621 | 2007 $VD_{3}$ |
| 2007 $VY_{51}$ | 17.6 | 0.15 | 20100104 | 41.17589 | 195.78591 | 26.12058 | 7.55068 | 0.0501730 | 2.3972353 | 26 | 3 | 2003–2009 | 0.33 | M-v | 3 | MPC | 142922 | 2007 $VY_{51}$ |
| 2007 $VH_{118}$ | 15.7 | 0.15 | 20100104 | 119.64701 | 312.10093 | 123.05935 | 13.63407 | 0.2308004 | 3.1611023 | 37 | 3 | 2003–2009 | 0.60 | M-v | 2 | MPC | 155426 | 2007 $VH_{118}$ |
| 2007 $VP_{207}$ | 17.6 | 0.15 | 20100104 | 120.20704 | 130.25502 | 18.30772 | 0.57967 | 0.1555182 | 2.4042537 | 42 | 3 | 2005–2009 | 0.25 | M-v | 3 | MPC | 159534 | 2007 $VP_{207}$ |
| 2007 $WB_{61}$ | 18.1 | 0.15 | 20071116 | 13.99404 | 307.10295 | 89.26552 | 2.27014 | 0.1958464 | 3.0624887 | 14 | 1 | 17 days | 0.33 | | | MPC | | 2007 $WB_{61}$ |
| 2007 $XG_{7}$ | 17.0 | 0.15 | 20100104 | 293.02395 | 267.32023 | 2.38120 | 0.81511 | 0.1652679 | 3.1182745 | 37 | 5 | 1999–2009 | 0.45 | M-v | 1 | MPC | 152505 | 2007 $XG_{7}$ |
| 2007 $XU_{54}$ | 17.0 | 0.15 | 20100104 | 195.60955 | 220.69758 | 163.39776 | 0.50704 | 0.0367424 | 2.9902773 | 25 | 5 | 2001–2009 | 0.32 | M-v | 0 | MPC | 158111 | 2007 $XU_{54}$ |
| 2007 $YW_{43}$ | 18.8 | 0.15 | 20080115 | 45.96354 | 314.77375 | 105.89946 | 6.51649 | 0.1583112 | 2.1545380 | 20 | 1 | 42 days | 0.33 | | | MPC | | 2007 $YW_{43}$ |
| 2007 $YW_{62}$ | 18.1 | 0.15 | 20100104 | 229.08158 | 204.86455 | 229.89030 | 0.79820 | 0.1541448 | 2.3712279 | 29 | 3 | 1999–2008 | 0.25 | M-v | 4 | MPC | 139885 | 2007 $YW_{62}$ |
| 2008 $AY_{7}$ | 17.0 | 0.15 | 20100104 | 172.91920 | 4.81866 | 102.26328 | 3.54364 | 0.1650759 | 2.6725154 | 44 | 4 | 1995–2009 | 0.42 | M-v | 1 | MPC | 158587 | 2008 $AY_{7}$ |
| 2008 $AZ_{7}$ | 17.2 | 0.15 | 20080115 | 78.76274 | 98.68554 | 288.80159 | 3.74232 | 0.1595060 | 2.6743612 | 21 | 1 | 58 days | 0.46 | | | MPC | | 2008 $AZ_{7}$ |
| 2008 $AS_{26}$ | 17.7 | 0.15 | 20080204 | 296.03306 | 78.64530 | 133.25322 | 4.37692 | 0.0780471 | 2.2350814 | 30 | 1 | 53 days | 0.49 | | | MPC | | 2008 $AS_{26}$ |
| 2008 $AB_{31}$ | 20.2 | 0.15 | 20100104 | 311.43156 | 255.53391 | 303.10736 | 30.02582 | 0.3203152 | 1.6017722 | 39 | 3 | 2002–2009 | 0.41 | M-v | 2 | MPC | 137639 | 2008 $AB_{31}$ |
| 2008 $AQ_{34}$ | 15.7 | 0.15 | 20100104 | 143.99766 | 350.70576 | 118.41922 | 13.73887 | 0.0281342 | 3.0994575 | 52 | 5 | 1997–2009 | 0.43 | M-v | 1 | MPC | 156124 | 2008 $AQ_{34}$ |
| 2008 $AW_{34}$ | 17.7 | 0.15 | 20100104 | 218.82087 | 338.04680 | 98.82943 | 3.47546 | 0.1711585 | 2.4407308 | 24 | 1 | 125 days | 0.31 | M-v | 4 | MPC | 138137 | 2008 $AW_{34}$ |
| 2008 $AC_{59}$ | 16.4 | 0.15 | 20100104 | 288.41367 | 41.96483 | 292.33766 | 6.15721 | 0.0712120 | 2.8971136 | 43 | 4 | 1996–2009 | 0.34 | M-v | 1 | MPC | 157493 | 2008 $AC_{59}$ |
| 2008 $AJ_{59}$ | 18.0 | 0.15 | 20071226 | 286.58692 | 302.05648 | 264.61474 | 1.49753 | 0.1471613 | 2.4119229 | 10 | 1 | 9 days | 0.19 | | | MPC | | 2008 $AJ_{59}$ |
| 2008 $AM_{59}$ | 16.2 | 0.15 | 20100104 | 206.18962 | 278.13471 | 125.77428 | 16.19533 | 0.0589551 | 3.0466626 | 24 | 1 | 72 days | 0.25 | M-v | 4 | MPC | 156125 | 2008 $AM_{59}$ |
| 2008 $AO_{59}$ | 16.8 | 0.15 | 20100104 | 188.45865 | 143.08414 | 295.81531 | 6.52809 | 0.1177680 | 2.7753825 | 35 | 1 | 108 days | 0.32 | M-v | 4 | MPC | 140720 | 2008 $AO_{59}$ |
| 2008 $AW_{61}$ | 17.9 | 0.15 | 20080115 | 24.91726 | 326.78090 | 123.11134 | 7.85044 | 0.1551400 | 2.5980248 | 20 | 1 | 57 days | 0.40 | | | MPC | | 2008 $AW_{61}$ |
| 2008 $AO_{85}$ | 18.1 | 0.15 | 20100104 | 211.90871 | 352.17699 | 108.25151 | 2.33776 | 0.1409699 | 2.3733254 | 46 | 5 | 1997–2008 | 0.43 | M-v | 1 | MPC | 135249 | 2008 $AO_{85}$ |
| 2008 $AP_{85}$ | 17.2 | 0.15 | 20080204 | 359.61309 | 21.79232 | 109.84990 | 2.76536 | 0.1583390 | 3.0716110 | 21 | 1 | 58 days | 0.21 | | | MPC | | 2008 $AP_{85}$ |
| 2008 $AK_{94}$ | 17.9 | 0.15 | 20071226 | 41.04455 | 72.62331 | 338.31976 | 1.47470 | 0.2605657 | 2.9116383 | 9 | 1 | 12 days | 0.20 | | | MPC | | 2008 $AK_{94}$ |
| 2008 $AH_{95}$ | 16.9 | 0.15 | 20071226 | 289.13072 | 72.87254 | 126.13429 | 9.71733 | 0.0782503 | 3.0060774 | 10 | 1 | 12 days | 0.15 | | | MPC | | 2008 $AH_{95}$ |
| 2008 $AS_{108}$ | 16.6 | 0.15 | 20071226 | 109.16007 | 69.23214 | 296.45491 | 10.64901 | 0.0444520 | 2.9616970 | 9 | 1 | 13 days | 0.18 | | | MPC | | 2008 $AS_{108}$ |
| 2008 $AT_{108}$ | 17.9 | 0.15 | 20071226 | 47.01478 | 101.43842 | 293.08465 | 6.49848 | 0.3235842 | 2.6586829 | 10 | 1 | 13 days | 0.20 | | | MPC | | 2008 $AT_{108}$ |
| 2008 $AV_{108}$ | 17.1 | 0.15 | 20100104 | 202.17210 | 147.19519 | 284.52025 | 2.10903 | 0.0728531 | 2.7284224 | 38 | 4 | 1999–2008 | 0.33 | M-v | 1 | MPC | 141452 | 2008 $AV_{108}$ |
| 2008 $AX_{112}$ | 17.0 | 0.15 | 20100104 | 185.67326 | 61.84702 | 77.23469 | 13.22761 | 0.2274050 | 2.6154295 | 14 | 1 | 94 days | 0.48 | M-v | 5 | MPC | | 2008 $AX_{112}$ |
| 2008 $AE_{117}$ | 17.1 | 0.15 | 20080115 | 28.39782 | 77.02815 | 355.06115 | 6.72774 | 0.2586776 | 2.6592490 | 34 | 1 | 41 days | 0.62 | | | MPC | | 2008 $AE_{117}$ |
| 2008 $AE_{129}$ | 17.0 | 0.15 | 20080204 | 232.48568 | 151.66828 | 123.64624 | 25.49319 | 0.2009788 | 2.3349209 | 15 | 1 | 49 days | 0.31 | | | MPC | | 2008 $AE_{129}$ |
| 2008 $BR_{5}$ | 17.6 | 0.15 | 20071226 | 62.33713 | 96.64281 | 302.44586 | 11.37668 | 0.1597036 | 2.5350702 | 10 | 1 | 14 days | 0.18 | | | MPC | | 2008 $BR_{5}$ |
| 2008 $BY_{11}$ | 17.1 | 0.15 | 20071226 | 331.98503 | 47.12225 | 112.31143 | 8.69892 | 0.1862522 | 3.0723838 | 9 | 1 | 14 days | 0.11 | | | MPC | | 2008 $BY_{11}$ |
| 2008 $BK_{16}$ | 17.9 | 0.15 | 20080115 | 337.77126 | 205.47978 | 306.57934 | 5.11083 | 0.1220698 | 2.2739162 | 30 | 1 | 58 days | 0.40 | | | MPC | | 2008 $BK_{16}$ |
| 2008 $BH_{17}$ | 16.6 | 0.15 | 20100104 | 235.92429 | 274.63658 | 123.08858 | 13.88435 | 0.1794464 | 2.5750738 | 47 | 5 | 2001–2008 | 0.38 | M-v | 0 | MPC | 152506 | 2008 $BH_{17}$ |
| 2008 $BY_{26}$ | 16.2 | 0.15 | 20100104 | 345.72183 | 141.64247 | 133.90589 | 6.49177 | 0.1199402 | 3.0958666 | 45 | 4 | 2004–2008 | 0.39 | M-v | 1 | MPC | 135279 | 2008 $BY_{26}$ |
| 2008 $BQ_{27}$ | 17.1 | 0.15 | 20080115 | 280.34300 | 267.08853 | 302.71573 | 7.76738 | 0.0381183 | 3.1808462 | 16 | 1 | 28 days | 0.32 | | | MPC | | 2008 $BQ_{27}$ |
| 2008 $CX_{5}$ | 16.0 | 0.15 | 20100104 | 137.49213 | 234.73290 | 336.03821 | 9.17461 | 0.1818761 | 2.3760392 | 132 | 3 | 2006–2009 | 0.49 | M-v | 2 | MPC | 166313 | 2008 $CX_{5}$ |
| 2008 $CC_{66}$ | 16.0 | 0.15 | 20100104 | 172.65193 | 116.53459 | 330.72190 | 26.19698 | 0.1424317 | 3.0869990 | 30 | 1 | 142 days | 0.25 | M-v | 3 | MPC | | 2008 $CC_{66}$ |
| 2008 $CR_{118}$ | 18.9 | 0.15 | 20100104 | 207.26275 | 156.91476 | 121.63573 | 3.92368 | 0.5107828 | 1.8386442 | 80 | 3 | 2003–2008 | 0.41 | M-v | 2 | MPC | 147445 | 2008 $CR_{118}$ |
| 2008 $CH_{140}$ | 18.1 | 0.15 | 20080224 | 21.13653 | 187.03670 | 300.97113 | 0.28007 | 0.2317271 | 2.5974286 | 16 | 1 | 32 days | 0.36 | | | MPC | | 2008 $CH_{140}$ |
| 2008 $CN_{150}$ | 18.7 | 0.15 | 20080224 | 21.68702 | 244.11327 | 244.83433 | 1.47255 | 0.1615938 | 2.3356067 | 16 | 1 | 51 days | 0.18 | | | MPC | | 2008 $CN_{150}$ |
| 2008 $CR_{153}$ | 17.3 | 0.15 | 20100104 | 92.60726 | 262.76072 | 21.28980 | 5.66030 | 0.2364114 | 2.3233307 | 30 | 2 | 2008–2009 | 0.27 | M-v | 3 | MPC | 164324 | 2008 $CR_{153}$ |
| 2008 $CT_{169}$ | 17.7 | 0.15 | 20100104 | 230.92195 | 231.51486 | 206.90753 | 3.12303 | 0.0869265 | 2.5456110 | 39 | 3 | 1994–2008 | 0.36 | M-v | 2 | MPC | 150100 | 2008 $CT_{169}$ |
| 2008 $CR_{197}$ | 17.8 | 0.15 | 20100104 | 212.88688 | 92.34799 | 7.85293 | 5.10540 | 0.1475417 | 2.5520245 | 33 | 4 | 2000–2008 | 0.29 | M-v | 2 | MPC | 139923 | 2008 $CR_{197}$ |
| 2008 DJ | 20.4 | 0.15 | 20100104 | 258.85555 | 117.76371 | 319.30958 | 5.05065 | 0.6033677 | 1.9827702 | 142 | 1 | 59 days | 0.33 | M-v | 5 | MPC | 139287 | 2008 DJ |
| 2008 $DS_{18}$ | 17.5 | 0.15 | 20100104 | 267.21164 | 130.26621 | 17.30682 | 20.28865 | 0.0912102 | 1.8911797 | 54 | 3 | 2004–2009 | 0.44 | M-v | 2 | MPC | 164324 | 2008 $DS_{18}$ |
| 2008 $DZ_{31}$ | 17.5 | 0.15 | 20100104 | 223.06054 | 334.51053 | 138.41055 | 7.84660 | 0.0941337 | 2.4139928 | 24 | 1 | 84 days | 0.59 | M-v | 4 | MPC | | 2008 $DZ_{31}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 $DP_{39}$ | 16.9 | 0.15 | 20080224 | 24.33555 | 150.84484 | 353.11811 | 11.68966 | 0.1376458 | 2.6397123 | 27 | 1 | 55 days | 0.48 | | | MPC | | 2008 $DP_{39}$ |
| 2008 $DA_{40}$ | 18.4 | 0.15 | 20100104 | 199.63401 | 296.17245 | 209.68722 | 2.04081 | 0.1458691 | 2.3937725 | 35 | 3 | 2003–2008 | 0.25 | M-v | 3 | MPC | 139289 | 2008 $DA_{40}$ |
| 2008 $DQ_{45}$ | 16.3 | 0.15 | 20100104 | 134.15783 | 130.76406 | 7.04486 | 10.36392 | 0.1820482 | 3.1298129 | 34 | 1 | 171 days | 0.57 | M-v | 3 | MPC | | 2008 $DQ_{45}$ |
| 2008 $DE_{84}$ | 16.8 | 0.15 | 20100104 | 105.13302 | 208.69945 | 14.32591 | 13.49346 | 0.1057790 | 2.7594930 | 17 | 1 | 76 days | 0.34 | M-v | 4 | MPC | | 2008 $DE_{84}$ |
| 2008 $EE_{11}$ | 16.8 | 0.15 | 20080224 | 84.06423 | 273.32623 | 161.04801 | 26.98671 | 0.1105321 | 2.5935055 | 13 | 1 | 27 days | 0.19 | | | MPC | | 2008 $EE_{11}$ |
| 2008 $EH_{11}$ | 16.2 | 0.15 | 20080224 | 131.08299 | 8.20372 | 25.74414 | 10.15726 | 0.0779937 | 2.9655525 | 9 | 1 | 11 days | 0.17 | | | MPC | | 2008 $EH_{11}$ |
| 2008 $EZ_{11}$ | 17.4 | 0.15 | 20080224 | 298.85884 | 178.70795 | 66.78283 | 6.37351 | 0.1246584 | 2.6465684 | 9 | 1 | 11 days | 0.20 | | | MPC | | 2008 $EZ_{11}$ |
| 2008 $EN_{16}$ | 16.9 | 0.15 | 20080224 | 69.53938 | 95.87698 | 4.20615 | 21.80902 | 0.1111231 | 2.5904026 | 9 | 1 | 9 days | 0.25 | | | MPC | | 2008 $EN_{16}$ |
| 2008 $EY_{20}$ | 17.0 | 0.15 | 20100104 | 104.63363 | 284.89637 | 3.43077 | 6.03543 | 0.1208212 | 2.2598619 | 77 | 5 | 2001–2009 | 0.49 | M-v | 0 | MPC | 164325 | 2008 $EY_{20}$ |
| 2008 $EW_{25}$ | 17.4 | 0.15 | 20080224 | 306.07464 | 39.51011 | 184.26510 | 3.61304 | 0.2088150 | 2.3516119 | 10 | 1 | 8 days | 0.45 | | | MPC | | 2008 $EW_{25}$ |
| 2008 $EB_{33}$ | 16.4 | 0.15 | 20080204 | 10.75964 | 215.65871 | 271.60135 | 11.41129 | 0.2340831 | 2.6280746 | 37 | 1 | 56 days | 0.64 | | | MPC | | 2008 $EB_{33}$ |
| 2008 $EE_{34}$ | 16.6 | 0.15 | 20100104 | 89.01974 | 285.35077 | 317.20673 | 11.43259 | 0.1228728 | 2.6700629 | 31 | 3 | 2004–2009 | 0.50 | M-v | 2 | MPC | 137783 | 2008 $EE_{34}$ |
| 2008 $ER_{35}$ | 17.9 | 0.15 | 20080224 | 332.94480 | 58.96457 | 129.26614 | 2.69263 | 0.1674009 | 2.3213947 | 12 | 1 | 12 days | 0.32 | | | MPC | | 2008 $ER_{35}$ |
| 2008 $EO_{37}$ | 17.7 | 0.15 | 20080204 | 336.68986 | 207.06734 | 323.32554 | 6.74888 | 0.1351238 | 2.5909502 | 13 | 1 | 51 days | 0.25 | | | MPC | | 2008 $EO_{37}$ |
| 2008 $EF_{38}$ | 16.5 | 0.15 | 20080224 | 257.35928 | 207.52624 | 75.57117 | 5.43366 | 0.1022502 | 2.7751104 | 10 | 1 | 8 days | 0.33 | | | MPC | | 2008 $EF_{38}$ |
| 2008 $ES_{40}$ | 16.4 | 0.15 | 20080315 | 65.16391 | 218.48697 | 251.29836 | 3.64457 | 0.0931164 | 3.0982796 | 13 | 1 | 23 days | 0.29 | | | MPC | | 2008 $ES_{40}$ |
| 2008 $EA_{42}$ | 15.8 | 0.15 | 20100104 | 98.01011 | 246.52485 | 19.95487 | 12.99795 | 0.2461298 | 2.6761294 | 94 | 6 | 1996–2009 | 0.39 | M-v | 0 | MPC | 166314 | 2008 $EA_{42}$ |
| 2008 $EY_{43}$ | 16.7 | 0.15 | 20080224 | 260.71907 | 122.73275 | 164.32867 | 6.15609 | 0.2456763 | 2.7952911 | 11 | 1 | 12 days | 0.23 | | E | MPC | | 2008 $EY_{43}$ |
| 2008 $EH_{49}$ | 18.1 | 0.15 | 20100104 | 142.92682 | 257.86973 | 224.88862 | 6.50842 | 0.4263323 | 3.0124333 | 26 | 1 | 87 days | 0.68 | M-v | 6 | MPC | | 2008 $EH_{49}$ |
| 2008 $EG_{54}$ | 17.4 | 0.15 | 20080224 | 53.44625 | 343.21652 | 130.43482 | 8.54785 | 0.1162042 | 2.5491167 | 12 | 1 | 4 days | 0.21 | | | MPC | | 2008 $EG_{54}$ |
| 2008 $EO_{64}$ | 16.1 | 0.15 | 20080224 | 243.16102 | 327.19685 | 328.14365 | 6.58342 | 0.0298843 | 3.1956797 | 12 | 1 | 10 days | 0.24 | | | MPC | | 2008 $EO_{64}$ |
| 2008 $EB_{65}$ | 17.6 | 0.15 | 20080224 | 307.50668 | 259.80165 | 340.15716 | 12.09652 | 0.1689923 | 2.3640230 | 12 | 1 | 6 days | 0.32 | | | MPC | | 2008 $EB_{65}$ |
| 2008 $EA_{66}$ | 18.8 | 0.15 | 20080315 | 219.95048 | 141.48446 | 181.12313 | 22.32708 | 0.1190212 | 1.9544008 | 23 | 1 | 19 days | 0.37 | | | MPC | | 2008 $EA_{66}$ |
| 2008 $ET_{66}$ | 16.7 | 0.15 | 20080224 | 240.73835 | 34.46103 | 262.91746 | 2.95956 | 0.0620000 | 2.8061426 | 15 | 1 | 10 days | 0.35 | | | MPC | | 2008 $ET_{66}$ |
| 2008 $EM_{67}$ | 17.3 | 0.15 | 20100104 | 54.44778 | 0.24929 | 327.26414 | 5.82919 | 0.1697699 | 2.2230789 | 68 | 3 | 1999–2009 | 0.47 | M-v | 2 | MPC | 164326 | 2008 $EM_{67}$ |
| 2008 $EU_{67}$ | 16.5 | 0.15 | 20080224 | 267.10947 | 297.64071 | 335.23510 | 10.96849 | 0.0712796 | 2.9617764 | 15 | 1 | 10 days | 0.26 | | | MPC | | 2008 $EU_{67}$ |
| 2008 $ED_{69}$ | 17.0 | 0.15 | 20100104 | 109.45921 | 172.72372 | 149.89119 | 36.28293 | 0.7496092 | 2.8866463 | 114 | 3 | 2004–2008 | 0.40 | M-v | 1 | MPC | 150114 | 2008 $ED_{69}$ |
| 2008 $EX_{70}$ | 18.1 | 0.15 | 20080224 | 339.48155 | 65.40714 | 122.88394 | 3.05057 | 0.1174247 | 2.3428585 | 14 | 1 | 33 days | 0.28 | | | MPC | | 2008 $EX_{70}$ |
| 2008 $EN_{74}$ | 17.3 | 0.15 | 20080315 | 335.13044 | 77.71476 | 135.98468 | 3.21860 | 0.1381390 | 2.6768660 | 21 | 1 | 38 days | 0.40 | | | MPC | | 2008 $EN_{74}$ |
| 2008 $EH_{79}$ | 17.5 | 0.15 | 20080224 | 8.51535 | 209.82588 | 301.80592 | 5.56325 | 0.1774238 | 2.7312296 | 15 | 1 | 26 days | 0.60 | | | MPC | | 2008 $EH_{79}$ |
| 2008 $EO_{79}$ | 16.9 | 0.15 | 20100104 | 132.30113 | 312.30751 | 304.78715 | 4.47339 | 0.1682998 | 2.2367186 | 54 | 4 | 1992–2009 | 0.59 | M-v | 2 | MPC | 164326 | 2008 $EO_{79}$ |
| 2008 $EP_{81}$ | 18.3 | 0.15 | 20080315 | 323.00405 | 21.70981 | 203.63927 | 4.93126 | 0.0733221 | 2.3997997 | 16 | 1 | 18 days | 0.18 | | | MPC | | 2008 $EP_{81}$ |
| 2008 $EU_{89}$ | 17.8 | 0.15 | 20080224 | 247.30009 | 246.08711 | 58.70159 | 6.49289 | 0.2299614 | 2.3350067 | 7 | 1 | 10 days | 0.46 | | | MPC | | 2008 $EU_{89}$ |
| 2008 $EN_{92}$ | 16.6 | 0.15 | 20080315 | 15.57214 | 73.38250 | 85.22768 | 14.55399 | 0.1316382 | 2.5509225 | 20 | 1 | 36 days | 0.67 | | | MPC | | 2008 $EN_{92}$ |
| 2008 $EL_{93}$ | 17.4 | 0.15 | 20080224 | 307.94311 | 53.79936 | 165.00877 | 7.38793 | 0.0683310 | 3.0562268 | 12 | 1 | 13 days | 0.22 | | | MPC | | 2008 $EL_{93}$ |
| 2008 $EW_{110}$ | 17.4 | 0.15 | 20080224 | 329.48153 | 91.63551 | 119.98290 | 6.19945 | 0.1722782 | 3.1525079 | 9 | 1 | 11 days | 0.23 | | | MPC | | 2008 $EW_{110}$ |
| 2008 $EZ_{112}$ | 17.1 | 0.15 | 20080224 | 334.07762 | 222.70327 | 346.63394 | 12.40832 | 0.0882443 | 2.6830726 | 9 | 1 | 8 days | 0.30 | | | MPC | | 2008 $EZ_{112}$ |
| 2008 $EC_{115}$ | 16.5 | 0.15 | 20080315 | 48.22987 | 139.04445 | 350.49410 | 22.24572 | 0.0896992 | 2.6005681 | 17 | 1 | 35 days | 0.48 | | | MPC | | 2008 $EC_{115}$ |
| 2008 $ET_{122}$ | 15.4 | 0.15 | 20080315 | 354.37332 | 216.39387 | 341.65124 | 11.04941 | 0.1476200 | 3.0490866 | 20 | 1 | 46 days | 0.35 | | | MPC | | 2008 $ET_{122}$ |
| 2008 $EF_{136}$ | 16.8 | 0.15 | 20080315 | 265.77213 | 182.91353 | 116.66859 | 4.40157 | 0.1552899 | 2.7775205 | 10 | 1 | 20 days | 0.15 | | | MPC | | 2008 $EF_{136}$ |
| 2008 $EG_{142}$ | 16.1 | 0.15 | 20080224 | 159.71606 | 64.98261 | 315.25139 | 7.70295 | 0.1020477 | 2.9760979 | 9 | 1 | 12 days | 0.18 | | | MPC | | 2008 $EG_{142}$ |
| 2008 $ET_{142}$ | 18.9 | 0.15 | 20080224 | 47.20989 | 354.13549 | 105.98258 | 3.67730 | 0.2319426 | 2.1924132 | 9 | 1 | 16 days | 0.14 | | | MPC | | 2008 $ET_{142}$ |
| 2008 $EC_{143}$ | 16.1 | 0.15 | 20080224 | 64.82568 | 125.54835 | 319.15346 | 10.98387 | 0.1738265 | 3.0995947 | 20 | 1 | 9 days | 0.31 | | | MPC | | 2008 $EC_{143}$ |
| 2008 $ED_{143}$ | 16.9 | 0.15 | 20080224 | 107.86307 | 208.87554 | 208.72094 | 10.58059 | 0.0270670 | 3.0417364 | 12 | 1 | 9 days | 0.26 | | | MPC | | 2008 $ED_{143}$ |
| 2008 $EK_{148}$ | 17.9 | 0.15 | 20080224 | 11.23196 | 336.19624 | 182.00126 | 3.94617 | 0.1123148 | 2.3351138 | 19 | 1 | 54 days | 0.60 | | | MPC | | 2008 $EK_{148}$ |
| 2008 $FU_{1}$ | 18.4 | 0.15 | 20080315 | 18.90114 | 213.49809 | 292.43607 | 1.66203 | 0.1426552 | 2.3841228 | 9 | 1 | 13 days | 0.31 | | | MPC | | 2008 $FU_{1}$ |
| 2008 $FW_{2}$ | 18.1 | 0.15 | 20080315 | 40.25660 | 116.59274 | 3.32387 | 3.10514 | 0.1399397 | 2.4432143 | 9 | 1 | 7 days | 0.27 | | | MPC | | 2008 $FW_{2}$ |
| 2008 $FR_{6}$ | 17.7 | 0.15 | 20080224 | 348.74231 | 62.84988 | 136.31944 | 6.23945 | 0.1363223 | 2.5911173 | 29 | 1 | 59 days | 0.27 | | | MPC | | 2008 $FR_{6}$ |
| 2008 $FN_{7}$ | 17.2 | 0.15 | 20100104 | 58.05830 | 296.85274 | 20.80372 | 4.10614 | 0.1886413 | 2.4353259 | 88 | 5 | 2000–2009 | 0.40 | M-v | 1 | MPC | 164327 | 2008 $FN_{7}$ |
| 2008 $FT_{9}$ | 18.1 | 0.15 | 20080315 | 68.98784 | 93.58449 | 353.47910 | 18.77253 | 0.0928174 | 1.9697900 | 23 | 1 | 36 days | 0.53 | | | MPC | | 2008 $FT_{9}$ |
| 2008 $FA_{11}$ | 17.9 | 0.15 | 20080315 | 301.32689 | 189.53351 | 43.27517 | 4.03332 | 0.0769845 | 2.3546190 | 10 | 1 | 11 days | 0.22 | | | MPC | | 2008 $FA_{11}$ |
| 2008 $FS_{13}$ | 18.2 | 0.15 | 20080315 | 125.42138 | 201.13393 | 199.60387 | 4.66592 | 0.1791205 | 2.2213758 | 11 | 1 | 18 days | 0.39 | | | MPC | | 2008 $FS_{13}$ |
| 2008 $FC_{14}$ | 17.8 | 0.15 | 20080315 | 287.51441 | 39.34884 | 216.17169 | 1.60151 | 0.0236214 | 2.6300101 | 11 | 1 | 18 days | 0.43 | | | MPC | | 2008 $FC_{14}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 $FU_{14}$ | 16.9 | 0.15 | 20080315 | 152.77585 | 237.70543 | 144.27229 | 3.03400 | 0.1487736 | 2.8368373 | 12 | 1 | 11 days | 0.33 | | | MPC | | 2008 $FU_{14}$ |
| 2008 $FZ_{14}$ | 15.8 | 0.15 | 20100104 | 93.31910 | 109.59295 | 171.73198 | 12.74955 | 0.1806294 | 2.6165941 | 41 | 4 | 2004–2009 | 0.47 | M-v | 1 | MPC | 164327 | 2008 $FZ_{14}$ |
| 2008 $FD_{17}$ | 17.9 | 0.15 | 20080315 | 329.06785 | 231.76599 | 350.46188 | 10.95048 | 0.2236823 | 2.6296895 | 14 | 1 | 32 days | 0.20 | | | MPC | | 2008 $FD_{17}$ |
| 2008 $FR_{19}$ | 19.3 | 0.15 | 20080315 | 92.34025 | 248.30909 | 178.89136 | 23.43446 | 0.1390399 | 1.9142774 | 15 | 1 | 19 days | 0.31 | | | MPC | | 2008 $FR_{19}$ |
| 2008 $FK_{20}$ | 16.4 | 0.15 | 20080315 | 25.84902 | 156.72966 | 1.14727 | 19.48432 | 0.0182299 | 3.0508511 | 10 | 1 | 18 days | 0.16 | | | MPC | | 2008 $FK_{20}$ |
| 2008 $FM_{21}$ | 17.9 | 0.15 | 20100104 | 103.33025 | 227.00338 | 80.04429 | 6.33613 | 0.1973521 | 2.2331633 | 43 | 4 | 1999–2009 | 0.38 | M-v | 0 | MPC | 166315 | 2008 $FM_{21}$ |
| 2008 $FR_{22}$ | 17.3 | 0.15 | 20080315 | 38.51666 | 343.46015 | 167.46954 | 10.12724 | 0.0552125 | 2.7228681 | 10 | 1 | 13 days | 0.23 | | | MPC | | 2008 $FR_{22}$ |
| 2008 $FS_{24}$ | 17.5 | 0.15 | 20080315 | 23.66365 | 76.12504 | 91.86986 | 7.35081 | 0.0922137 | 2.6509582 | 13 | 1 | 9 days | 0.26 | | | MPC | | 2008 $FS_{24}$ |
| 2008 $FS_{34}$ | 16.4 | 0.15 | 20080315 | 92.37026 | 246.83926 | 170.65317 | 11.96377 | 0.2274145 | 3.0388614 | 12 | 1 | 8 days | 0.14 | | | MPC | | 2008 $FS_{34}$ |
| 2008 $FB_{37}$ | 16.2 | 0.15 | 20080315 | 204.45191 | 171.88751 | 164.66120 | 4.87913 | 0.0692313 | 2.6907534 | 12 | 1 | 8 days | 0.24 | | E | MPC | | 2008 $FB_{37}$ |
| 2008 $FE_{39}$ | 17.1 | 0.15 | 20100104 | 94.52997 | 253.76850 | 47.36808 | 10.02090 | 0.2118399 | 2.3920090 | 25 | 3 | 2005–2009 | 0.29 | M-v | 1 | MPC | 141552 | 2008 $FE_{39}$ |
| 2008 $FC_{40}$ | 17.4 | 0.15 | 20080404 | 248.03717 | 275.89713 | 37.95587 | 8.94823 | 0.0253079 | 2.5427346 | 26 | 1 | 59 days | 0.23 | | | MPC | | 2008 $FC_{40}$ |
| 2008 $FP_{40}$ | 17.0 | 0.15 | 20100104 | 118.71020 | 232.57047 | 43.18751 | 6.86127 | 0.0953501 | 2.2715080 | 67 | 4 | 2001–2009 | 0.47 | M-v | 1 | MPC | 166315 | 2008 $FP_{40}$ |
| 2008 $FQ_{41}$ | 16.2 | 0.15 | 20100104 | 24.43294 | 93.63683 | 189.09946 | 7.69154 | 0.0177242 | 2.9114266 | 32 | 3 | 2000–2008 | 0.37 | M-v | 2 | MPC | 160568 | 2008 $FQ_{41}$ |
| 2008 $FT_{44}$ | 16.8 | 0.15 | 20100104 | 87.76528 | 127.65979 | 165.33847 | 6.17169 | 0.2258415 | 2.3311301 | 73 | 5 | 1991–2009 | 0.52 | M-v | 1 | MPC | 164327 | 2008 $FT_{44}$ |
| 2008 $FW_{44}$ | 16.5 | 0.15 | 20080315 | 143.24321 | 212.73269 | 172.63693 | 28.25932 | 0.0718487 | 3.1633352 | 12 | 1 | 21 days | 0.30 | | | MPC | | 2008 $FW_{44}$ |
| 2008 $FA_{46}$ | 17.0 | 0.15 | 20080315 | 310.69304 | 78.02875 | 163.65919 | 5.25508 | 0.1739067 | 2.8507953 | 12 | 1 | 8 days | 0.18 | | | MPC | | 2008 $FA_{46}$ |
| 2008 $FQ_{46}$ | 18.9 | 0.15 | 20080315 | 335.02192 | 90.93833 | 136.26753 | 2.06358 | 0.3523286 | 2.7648181 | 12 | 1 | 8 days | 0.44 | | E | MPC | | 2008 $FQ_{46}$ |
| 2008 $FH_{48}$ | 19.7 | 0.15 | 20080315 | 63.83256 | 94.14442 | 13.11280 | 15.43663 | 0.1219771 | 1.8126044 | 12 | 1 | 6 days | 0.31 | | | MPC | | 2008 $FH_{48}$ |
| 2008 $FZ_{48}$ | 17.5 | 0.15 | 20100104 | 50.48112 | 276.06230 | 56.57194 | 2.04561 | 0.2007228 | 2.3670047 | 51 | 5 | 2001–2009 | 0.37 | M-v | 1 | MPC | 166315 | 2008 $FZ_{48}$ |
| 2008 $FD_{49}$ | 17.1 | 0.15 | 20080315 | 151.79716 | 20.10101 | 14.53056 | 26.48680 | 0.0557291 | 2.7207890 | 12 | 1 | 10 days | 0.28 | | E | MPC | | 2008 $FD_{49}$ |
| 2008 $FF_{56}$ | 17.7 | 0.15 | 20100104 | 116.98886 | 117.84810 | 183.97060 | 2.32005 | 0.1641865 | 2.1437599 | 52 | 5 | 1995–2009 | 0.30 | M-v | 1 | MPC | 166315 | 2008 $FF_{56}$ |
| 2008 $FJ_{58}$ | 16.6 | 0.15 | 20080404 | 346.32949 | 45.55282 | 183.83012 | 8.12889 | 0.1043542 | 2.9356484 | 10 | 1 | 17 days | 0.15 | | | MPC | | 2008 $FJ_{58}$ |
| 2008 $FA_{63}$ | 17.0 | 0.15 | 20080315 | 2.25663 | 140.04860 | 50.46515 | 11.26385 | 0.1494709 | 3.1743623 | 9 | 1 | 9 days | 0.34 | | | MPC | | 2008 $FA_{63}$ |
| 2008 $FD_{66}$ | 17.2 | 0.15 | 20100104 | 57.18039 | 317.63694 | 44.39120 | 4.27659 | 0.1444506 | 2.1511279 | 95 | 5 | 2004–2009 | 0.41 | M-v | 1 | MPC | 166315 | 2008 $FD_{66}$ |
| 2008 $FN_{66}$ | 17.2 | 0.15 | 20100104 | 104.08960 | 242.28623 | 53.18334 | 3.54610 | 0.1891470 | 2.4260791 | 51 | 3 | 2005–2009 | 0.37 | M-v | 2 | MPC | 166316 | 2008 $FN_{66}$ |
| 2008 $FK_{68}$ | 17.0 | 0.15 | 20100104 | 75.29629 | 269.02308 | 51.41217 | 5.14002 | 0.0436845 | 2.3243745 | 39 | 3 | 2002–2009 | 0.27 | M-v | 2 | MPC | 163848 | 2008 $FK_{68}$ |
| 2008 $FZ_{68}$ | 18.3 | 0.15 | 20080315 | 340.24010 | 123.09243 | 102.49392 | 2.24651 | 0.1439775 | 2.3389285 | 13 | 1 | 12 days | 0.23 | | | MPC | | 2008 $FZ_{68}$ |
| 2008 $FT_{69}$ | 16.8 | 0.15 | 20100104 | 89.66152 | 266.68493 | 37.90395 | 5.57883 | 0.2521283 | 2.5998080 | 32 | 3 | 2005–2009 | 0.46 | M-v | 3 | MPC | 165586 | 2008 $FT_{69}$ |
| 2008 $FO_{72}$ | 13.5 | 0.15 | 20100104 | 336.45478 | 234.04696 | 53.46189 | 9.48937 | 0.1035346 | 5.1918504 | 26 | 3 | 1996–2009 | 0.43 | M-v | 4 | MPC | 140560 | 2008 $FO_{72}$ |
| 2008 $FC_{76}$ | 9.1 | 0.15 | 20100104 | 333.68450 | 141.42043 | 245.66448 | 27.10865 | 0.3110336 | 14.7899721 | 92 | 2 | 2008–2009 | 0.42 | M-v | 2 | MPC | 162531 | 2008 $FC_{76}$ |
| 2008 $FD_{80}$ | 18.8 | 0.15 | 20080315 | 19.61526 | 309.25484 | 211.23059 | 1.70085 | 0.1403602 | 2.4187060 | 15 | 1 | 27 days | 0.32 | | | MPC | | 2008 $FD_{80}$ |
| 2008 $FP_{80}$ | 19.0 | 0.15 | 20080315 | 327.17712 | 233.33389 | 356.38057 | 1.29926 | 0.1361931 | 2.3606102 | 12 | 1 | 19 days | 0.23 | | | MPC | | 2008 $FP_{80}$ |
| 2008 $FP_{84}$ | 16.9 | 0.15 | 20100104 | 75.82656 | 240.93282 | 55.40749 | 1.88991 | 0.1742025 | 2.3986579 | 49 | 5 | 2002–2009 | 0.37 | M-v | 0 | MPC | 164328 | 2008 $FP_{84}$ |
| 2008 $FF_{93}$ | 17.2 | 0.15 | 20100104 | 78.87985 | 283.23429 | 22.19208 | 2.62820 | 0.2206931 | 2.3179201 | 48 | 3 | 2004–2009 | 0.34 | M-v | 2 | MPC | 166316 | 2008 $FF_{93}$ |
| 2008 $FH_{97}$ | 19.1 | 0.15 | 20080404 | 290.83426 | 107.63512 | 173.14331 | 4.49561 | 0.2015549 | 2.1669431 | 14 | 1 | 45 days | 0.29 | | | MPC | | 2008 $FH_{97}$ |
| 2008 $FZ_{98}$ | 17.1 | 0.15 | 20080404 | 83.73799 | 66.93155 | 52.03332 | 14.28184 | 0.0246859 | 2.5937084 | 9 | 1 | 16 days | 0.17 | | | MPC | | 2008 $FZ_{98}$ |
| 2008 $FQ_{110}$ | 17.9 | 0.15 | 20080404 | 79.06993 | 82.09445 | 21.48859 | 22.72385 | 0.0763635 | 2.6206279 | 12 | 1 | 8 days | 0.27 | | | MPC | | 2008 $FQ_{110}$ |
| 2008 $FB_{114}$ | 15.9 | 0.15 | 20100104 | 16.81393 | 219.27129 | 103.14450 | 2.57389 | 0.1828414 | 3.1356087 | 37 | 3 | 2004–2009 | 0.40 | M-v | 3 | MPC | 139043 | 2008 $FB_{114}$ |
| 2008 $FQ_{121}$ | 17.8 | 0.15 | 20080404 | 310.22906 | 128.13966 | 146.61498 | 7.61840 | 0.2633702 | 2.6595879 | 16 | 1 | 12 days | 0.25 | | | MPC | | 2008 $FQ_{121}$ |
| 2008 $FT_{122}$ | 16.4 | 0.15 | 20080424 | 319.26515 | 189.80219 | 76.28822 | 12.16536 | 0.1583412 | 2.6489681 | 23 | 1 | 56 days | 0.52 | | | MPC | | 2008 $FT_{122}$ |
| 2008 $FO_{123}$ | 16.5 | 0.15 | 20100104 | 128.16444 | 232.63148 | 28.97001 | 6.68910 | 0.0922336 | 2.3325749 | 75 | 5 | 2001–2009 | 0.50 | M-v | 1 | MPC | 163849 | 2008 $FO_{123}$ |
| 2008 $FK_{124}$ | 16.3 | 0.15 | 20100104 | 45.97097 | 109.98601 | 215.45450 | 7.58418 | 0.2720594 | 2.7878036 | 82 | 4 | 2003–2009 | 0.43 | M-v | 1 | MPC | 166316 | 2008 $FK_{124}$ |
| 2008 $FO_{126}$ | 16.3 | 0.15 | 20100104 | 51.37983 | 147.06470 | 199.72773 | 12.07022 | 0.3023480 | 2.5715049 | 53 | 2 | 2008–2009 | 0.48 | M-v | 3 | MPC | 166316 | 2008 $FO_{126}$ |
| 2008 $FZ_{127}$ | 17.7 | 0.15 | 20100104 | 109.16638 | 182.89781 | 101.31898 | 4.06097 | 0.2162993 | 2.4165793 | 40 | 4 | 2001–2009 | 0.48 | M-v | 1 | MPC | 143299 | 2008 $FZ_{127}$ |
| 2008 $GE_{1}$ | 19.3 | 0.15 | 20100104 | 33.19727 | 312.85126 | 129.75831 | 6.71764 | 0.2477700 | 1.6516015 | 56 | 2 | 2008–2009 | 0.56 | M-v | 3 | MPC | 166316 | 2008 $GE_{1}$ |
| 2008 $GH_{4}$ | 15.3 | 0.15 | 20100104 | 91.45345 | 13.70743 | 287.37905 | 13.26981 | 0.2779615 | 2.5555707 | 71 | 5 | 2003–2009 | 0.59 | M-v | 1 | MPC | 166316 | 2008 $GH_{4}$ |
| 2008 $GN_{7}$ | 16.3 | 0.15 | 20080404 | 334.10086 | 69.96771 | 167.83957 | 5.55370 | 0.0215550 | 2.9830547 | 10 | 1 | 27 days | 0.27 | | | MPC | | 2008 $GN_{7}$ |
| 2008 $GD_{10}$ | 18.0 | 0.15 | 20100104 | 142.24262 | 81.84447 | 168.78585 | 2.49730 | 0.1142858 | 2.3676150 | 14 | 1 | 61 days | 0.31 | M-v | 4 | MPC | | 2008 $GD_{10}$ |
| 2008 $GO_{10}$ | 17.4 | 0.15 | 20100104 | 110.90627 | 119.45323 | 185.06685 | 2.67761 | 0.1572351 | 2.2687841 | 53 | 3 | 2005–2009 | 0.40 | M-v | 2 | MPC | 166316 | 2008 $GO_{10}$ |
| 2008 $GL_{11}$ | 15.1 | 0.15 | 20100104 | 82.14667 | 250.59930 | 41.30180 | 18.74403 | 0.3638729 | 3.0345468 | 118 | 3 | 2001–2009 | 0.46 | M-v | 1 | MPC | 166316 | 2008 $GL_{11}$ |
| 2008 $GO_{11}$ | 16.9 | 0.15 | 20100104 | 178.91831 | 201.26730 | 29.67073 | 6.95788 | 0.0975360 | 2.2001668 | 74 | 4 | 2004–2009 | 0.43 | M-v | 3 | MPC | 166316 | 2008 $GO_{11}$ |
| 2008 $GT_{11}$ | 17.8 | 0.15 | 20080404 | 33.20179 | 338.69896 | 197.11169 | 3.80194 | 0.1217915 | 2.2116223 | 9 | 1 | 13 days | 0.16 | | | MPC | | 2008 $GT_{11}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 $GW_{15}$ | 17.7 | 0.15 | 20080315 | 338.66098 | 31.38463 | 192.84211 | 10.72584 | 0.2100726 | 2.7533872 | 18 | 1 | 57 days | 0.19 | | MPC | | 2008 $GW_{15}$ |
| 2008 $GD_{19}$ | 16.5 | 0.15 | 20080315 | 347.18318 | 129.83322 | 85.49063 | 9.09476 | 0.1056887 | 2.7703354 | 12 | 1 | 7 days | 0.57 | | MPC | | 2008 $GD_{19}$ |
| 2008 $GZ_{21}$ | 17.9 | 0.15 | 20100104 | 305.53909 | 289.59186 | 217.93045 | 20.55529 | 0.1661517 | 1.7711816 | 68 | 4 | 1990–2009 | 0.54 | M-v 1 | MPC | 166316 | 2008 $GZ_{21}$ |
| 2008 $GX_{26}$ | 18.1 | 0.15 | 20080315 | 7.38773 | 157.45875 | 1.53033 | 13.74994 | 0.1811370 | 2.6351006 | 9 | 1 | 11 days | 0.20 | | MPC | | 2008 $GX_{26}$ |
| 2008 $GU_{32}$ | 16.6 | 0.15 | 20080404 | 62.89552 | 315.04098 | 183.57826 | 14.38569 | 0.0802346 | 3.1303890 | 12 | 1 | 16 days | 0.41 | | MPC | | 2008 $GU_{32}$ |
| 2008 $GW_{32}$ | 18.4 | 0.15 | 20080424 | 335.40666 | 117.51334 | 127.92637 | 5.16464 | 0.1310686 | 2.2374423 | 13 | 1 | 58 days | 0.28 | | MPC | | 2008 $GW_{32}$ |
| 2008 $GZ_{37}$ | 17.3 | 0.15 | 20100104 | 128.74596 | 224.81219 | 60.27314 | 3.11378 | 0.1968795 | 2.3157719 | 49 | 4 | 2001–2009 | 0.52 | M-v 1 | MPC | 166317 | 2008 $GZ_{37}$ |
| 2008 $GW_{40}$ | 16.9 | 0.15 | 20080404 | 339.75451 | 180.97272 | 46.36889 | 13.58283 | 0.0290548 | 2.3698385 | 27 | 1 | 41 days | 0.53 | | MPC | | 2008 $GW_{40}$ |
| 2008 $GO_{41}$ | 16.8 | 0.15 | 20080404 | 221.88593 | 165.36054 | 185.78294 | 9.75300 | 0.0639726 | 3.0545945 | 10 | 1 | 24 days | 0.25 | | MPC | | 2008 $GO_{41}$ |
| 2008 $GP_{41}$ | 18.2 | 0.15 | 20080404 | 321.81014 | 69.01385 | 191.67621 | 11.59632 | 0.1870640 | 2.7475270 | 14 | 1 | 33 days | 0.34 | | MPC | | 2008 $GP_{41}$ |
| 2008 $GR_{41}$ | 14.2 | 0.15 | 20080404 | 217.37257 | 161.12248 | 197.11769 | 18.85106 | 0.0631576 | 5.1486948 | 10 | 1 | 24 days | 0.28 | | MPC | | 2008 $GR_{41}$ |
| 2008 $GG_{43}$ | 18.8 | 0.15 | 20080404 | 20.48325 | 349.63719 | 187.79137 | 2.45700 | 0.0574459 | 2.2263215 | 13 | 1 | 20 days | 0.24 | | MPC | | 2008 $GG_{43}$ |
| 2008 $GB_{44}$ | 17.4 | 0.15 | 20100104 | 114.42901 | 51.41310 | 216.44849 | 8.67674 | 0.2546124 | 2.6025807 | 14 | 1 | 60 days | 0.21 | M-v 4 | MPC | | 2008 $GB_{44}$ |
| 2008 $GT_{45}$ | 17.4 | 0.15 | 20100104 | 124.78999 | 220.12396 | 84.13948 | 7.57130 | 0.2493825 | 2.2368421 | 36 | 4 | 1992–2009 | 0.32 | M-v 1 | MPC | 158605 | 2008 $GT_{45}$ |
| 2008 $GA_{51}$ | 19.1 | 0.15 | 20080315 | 295.36836 | 146.02814 | 127.08125 | 2.04158 | 0.1624386 | 2.3895885 | 11 | 1 | 12 days | 0.35 | | MPC | | 2008 $GA_{51}$ |
| 2008 $GP_{51}$ | 17.2 | 0.15 | 20080404 | 5.87152 | 150.53015 | 39.95326 | 5.12794 | 0.1102005 | 2.9678025 | 15 | 1 | 28 days | 0.22 | | MPC | | 2008 $GP_{51}$ |
| 2008 $GA_{52}$ | 17.8 | 0.15 | 20100104 | 82.27706 | 145.79422 | 178.00714 | 2.80570 | 0.2459322 | 2.2628514 | 46 | 5 | 1978–2009 | 0.39 | M-v 1 | MPC | 166317 | 2008 $GA_{52}$ |
| 2008 $GG_{54}$ | 16.9 | 0.15 | 20080404 | 294.37367 | 273.17865 | 35.83543 | 13.11208 | 0.2799422 | 2.6454070 | 13 | 1 | 20 days | 0.18 | | MPC | | 2008 $GG_{54}$ |
| 2008 $GH_{55}$ | 19.5 | 0.15 | 20080404 | 342.90613 | 93.74693 | 129.20662 | 1.84261 | 0.1801001 | 2.4667462 | 12 | 1 | 14 days | 0.27 | | MPC | | 2008 $GH_{55}$ |
| 2008 $GS_{62}$ | 17.1 | 0.15 | 20100104 | 98.86928 | 97.27141 | 213.12082 | 7.64914 | 0.2071614 | 2.2575312 | 56 | 3 | 1995–2009 | 0.39 | M-v 1 | MPC | 166317 | 2008 $GS_{62}$ |
| 2008 $GG_{63}$ | 17.2 | 0.15 | 20080404 | 85.82516 | 35.94330 | 69.43658 | 4.11664 | 0.0429248 | 2.7224926 | 11 | 1 | 22 days | 0.21 | | MPC | | 2008 $GG_{63}$ |
| 2008 $GR_{68}$ | 15.9 | 0.15 | 20100104 | 64.76588 | 108.36573 | 206.25153 | 23.88019 | 0.1862141 | 2.7458332 | 52 | 3 | 2000–2009 | 0.46 | M-v 1 | MPC | 166317 | 2008 $GR_{68}$ |
| 2008 $GW_{70}$ | 17.0 | 0.15 | 20100104 | 69.30032 | 335.66578 | 331.92050 | 3.54572 | 0.2377492 | 2.3729138 | 59 | 3 | 2004–2009 | 0.47 | M-v 2 | MPC | 166317 | 2008 $GW_{70}$ |
| 2008 $GA_{72}$ | 19.3 | 0.15 | 20080404 | 29.13114 | 78.13051 | 85.51976 | 2.39653 | 0.0997910 | 2.3408090 | 10 | 1 | 26 days | 0.26 | | MPC | | 2008 $GA_{72}$ |
| 2008 $GN_{72}$ | 18.2 | 0.15 | 20080404 | 307.59553 | 250.72775 | 16.69047 | 4.79199 | 0.2072092 | 2.3063036 | 14 | 1 | 30 days | 0.30 | | MPC | | 2008 $GN_{72}$ |
| 2008 $GZ_{72}$ | 18.0 | 0.15 | 20080404 | 268.82044 | 149.23195 | 156.95224 | 1.60705 | 0.1827655 | 2.3768181 | 15 | 1 | 37 days | 0.26 | | MPC | | 2008 $GZ_{72}$ |
| 2008 $GP_{73}$ | 18.6 | 0.15 | 20080315 | 6.16473 | 135.32774 | 44.01790 | 12.94423 | 0.2259581 | 2.6455903 | 20 | 1 | 29 days | 0.28 | | MPC | | 2008 $GP_{73}$ |
| 2008 $GT_{76}$ | 16.9 | 0.15 | 20080404 | 349.64500 | 25.45037 | 202.12874 | 28.82704 | 0.1976482 | 3.1653927 | 9 | 1 | 14 days | 0.17 | | MPC | | 2008 $GT_{76}$ |
| 2008 $GW_{77}$ | 17.7 | 0.15 | 20100104 | 96.92680 | 238.73212 | 89.29332 | 5.25347 | 0.1846180 | 2.1929246 | 28 | 3 | 2002–2009 | 0.30 | M-v 2 | MPC | 166317 | 2008 $GW_{77}$ |
| 2008 $GR_{79}$ | 16.4 | 0.15 | 20080404 | 333.77683 | 40.18024 | 207.95617 | 8.84261 | 0.0445721 | 3.0956326 | 9 | 1 | 12 days | 0.22 | | MPC | | 2008 $GR_{79}$ |
| 2008 $GZ_{82}$ | 16.4 | 0.15 | 20080404 | 26.19091 | 115.72989 | 52.05146 | 10.69210 | 0.1539975 | 3.1549492 | 13 | 1 | 31 days | 0.13 | | MPC | | 2008 $GZ_{82}$ |
| 2008 $GY_{86}$ | 18.2 | 0.15 | 20080315 | 336.27206 | 83.37007 | 146.41010 | 7.03990 | 0.2434567 | 2.6283486 | 14 | 1 | 31 days | 0.26 | | MPC | | 2008 $GY_{86}$ |
| 2008 $GJ_{87}$ | 16.7 | 0.15 | 20080404 | 349.88036 | 177.14460 | 35.10321 | 15.73883 | 0.1846401 | 3.2156066 | 13 | 1 | 24 days | 0.24 | | MPC | | 2008 $GJ_{87}$ |
| 2008 $GG_{88}$ | 15.9 | 0.15 | 20100104 | 3.97334 | 284.86434 | 40.32317 | 9.21169 | 0.0837470 | 3.0499996 | 22 | 1 | 94 days | 0.45 | M-v 4 | MPC | | 2008 $GG_{88}$ |
| 2008 $GX_{89}$ | 15.6 | 0.15 | 20080404 | 210.34190 | 169.58105 | 188.61299 | 9.02462 | 0.0736811 | 3.1614268 | 22 | 1 | 31 days | 0.29 | | MPC | | 2008 $GX_{89}$ |
| 2008 $GD_{90}$ | 17.7 | 0.15 | 20100104 | 99.00172 | 206.70371 | 103.82966 | 2.23847 | 0.1261124 | 2.1966118 | 49 | 5 | 2004–2009 | 0.35 | M-v 0 | MPC | 166317 | 2008 $GD_{90}$ |
| 2008 $GO_{90}$ | 18.3 | 0.15 | 20080404 | 296.01734 | 238.68303 | 35.94839 | 6.51426 | 0.0955541 | 2.3640778 | 13 | 1 | 24 days | 0.13 | | MPC | | 2008 $GO_{90}$ |
| 2008 $GC_{91}$ | 18.8 | 0.15 | 20080404 | 35.04476 | 327.63721 | 180.98854 | 4.89867 | 0.2332268 | 2.6698833 | 11 | 1 | 21 days | 0.45 | | MPC | | 2008 $GC_{91}$ |
| 2008 $GX_{91}$ | 17.1 | 0.15 | 20080404 | 108.94737 | 55.18540 | 31.58639 | 6.51055 | 0.0503684 | 2.7513629 | 17 | 1 | 31 days | 0.24 | | MPC | | 2008 $GX_{91}$ |
| 2008 $GC_{93}$ | 16.9 | 0.15 | 20080315 | 0.41234 | 147.87496 | 40.22151 | 14.52183 | 0.1165495 | 2.6200330 | 24 | 1 | 52 days | 0.51 | | MPC | | 2008 $GC_{93}$ |
| 2008 $GW_{93}$ | 17.0 | 0.15 | 20080315 | 314.72296 | 98.67993 | 122.25738 | 2.50515 | 0.0603755 | 2.8626336 | 10 | 1 | 32 days | 0.25 | | MPC | | 2008 $GW_{93}$ |
| 2008 $GT_{94}$ | 17.4 | 0.15 | 20080315 | 73.13534 | 341.87427 | 126.36259 | 6.11725 | 0.0740880 | 2.7103713 | 12 | 1 | 32 days | 0.31 | | MPC | | 2008 $GT_{94}$ |
| 2008 $GJ_{95}$ | 18.5 | 0.15 | 20080404 | 345.60974 | 92.62061 | 120.65582 | 2.36405 | 0.1384279 | 2.3392460 | 14 | 1 | 33 days | 0.19 | | MPC | | 2008 $GJ_{95}$ |
| 2008 $GL_{95}$ | 16.8 | 0.15 | 20100104 | 50.23710 | 294.49785 | 39.63057 | 6.70120 | 0.1971806 | 2.3701055 | 71 | 3 | 2001–2009 | 0.41 | M-v 2 | MPC | 166317 | 2008 $GL_{95}$ |
| 2008 $GE_{96}$ | 16.7 | 0.15 | 20080404 | 334.35248 | 205.29684 | 36.58862 | 26.62122 | 0.1884619 | 3.1692988 | 9 | 1 | 16 days | 0.11 | | MPC | | 2008 $GE_{96}$ |
| 2008 $GF_{96}$ | 17.6 | 0.15 | 20080404 | 25.20492 | 359.71042 | 171.40863 | 7.94929 | 0.1362366 | 2.3398774 | 13 | 1 | 40 days | 0.31 | | MPC | | 2008 $GF_{96}$ |
| 2008 $GV_{96}$ | 15.9 | 0.15 | 20080315 | 246.03011 | 284.36541 | 27.80195 | 11.37519 | 0.1264462 | 3.1281537 | 15 | 1 | 45 days | 0.27 | | MPC | | 2008 $GV_{96}$ |
| 2008 $GH_{97}$ | 15.9 | 0.15 | 20080404 | 323.26461 | 225.26387 | 30.05794 | 17.89587 | 0.0747531 | 3.1391122 | 18 | 1 | 27 days | 0.46 | | MPC | | 2008 $GH_{97}$ |
| 2008 $GB_{99}$ | 17.9 | 0.15 | 20100104 | 104.67590 | 115.20615 | 191.24008 | 1.83349 | 0.2221135 | 2.2624611 | 43 | 4 | 2002–2009 | 0.42 | M-v 0 | MPC | 166317 | 2008 $GB_{99}$ |
| 2008 $GG_{99}$ | 17.8 | 0.15 | 20080315 | 330.14724 | 273.59900 | 306.49561 | 1.17157 | 0.1905212 | 2.4056996 | 16 | 1 | 45 days | 0.25 | | MPC | | 2008 $GG_{99}$ |
| 2008 $GW_{99}$ | 19.5 | 0.15 | 20080404 | 17.70290 | 127.06391 | 39.55963 | 14.39548 | 0.3631566 | 2.5651977 | 10 | 1 | 18 days | 0.40 | | MPC | | 2008 $GW_{99}$ |
| 2008 $GN_{103}$ | 16.2 | 0.15 | 20080404 | 58.44018 | 359.13243 | 130.28971 | 5.97282 | 0.1547616 | 3.0283782 | 10 | 1 | 18 days | 0.27 | | MPC | | 2008 $GN_{103}$ |
| 2008 $GO_{103}$ | 17.5 | 0.15 | 20080404 | 34.06110 | 33.63151 | 128.21448 | 5.33539 | 0.1083027 | 2.6265931 | 15 | 1 | 17 days | 0.21 | | MPC | | 2008 $GO_{103}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 $GU_{103}$ | 16.3 | 0.15 | 20080424 | 239.83923 | 268.35399 | 68.73156 | 10.69404 | 0.0925804 | 3.1409894 | 10 | 1 | 26 days | 0.24 | | | MPC | | 2008 $GU_{103}$ |
| 2008 $GZ_{103}$ | 17.0 | 0.15 | 20080424 | 328.63533 | 99.09835 | 147.35980 | 6.74012 | 0.0726427 | 2.5595649 | 10 | 1 | 26 days | 0.12 | | | MPC | | 2008 $GZ_{103}$ |
| 2008 $GF_{104}$ | 18.2 | 0.15 | 20080404 | 16.53581 | 138.65560 | 42.06187 | 12.03844 | 0.1074436 | 2.6431839 | 13 | 1 | 28 days | 0.29 | | | MPC | | 2008 $GF_{104}$ |
| 2008 $GJ_{104}$ | 17.2 | 0.15 | 20080404 | 42.53402 | 96.39738 | 55.91154 | 8.55932 | 0.0905313 | 3.0108697 | 13 | 1 | 34 days | 0.28 | | | MPC | | 2008 $GJ_{104}$ |
| 2008 $GR_{105}$ | 16.7 | 0.15 | 20100104 | 43.75863 | 328.57218 | 12.27378 | 15.15731 | 0.1199253 | 2.3623958 | 48 | 3 | 2002–2009 | 0.45 | M-v | 2 | MPC | 166317 | 2008 $GR_{105}$ |
| 2008 $GG_{106}$ | 18.3 | 0.15 | 20080404 | 47.16429 | 131.74756 | 10.90729 | 1.25457 | 0.1667134 | 2.6595642 | 12 | 1 | 16 days | 0.28 | | | MPC | | 2008 $GG_{106}$ |
| 2008 $GL_{112}$ | 16.9 | 0.15 | 20100104 | 148.27050 | 222.08384 | 18.82257 | 7.01182 | 0.0990950 | 2.3099499 | 45 | 4 | 2005–2009 | 0.38 | M-v | 1 | MPC | 166317 | 2008 $GL_{112}$ |
| 2008 $GK_{117}$ | 17.9 | 0.15 | 20080424 | 1.14474 | 36.10930 | 179.94434 | 8.35197 | 0.1407979 | 2.8527141 | 13 | 1 | 55 days | 0.28 | | | MPC | | 2008 $GK_{117}$ |
| 2008 $GH_{118}$ | 17.3 | 0.15 | 20100104 | 162.35095 | 193.96861 | 62.34942 | 8.78689 | 0.1802900 | 2.1671029 | 54 | 3 | 2006–2009 | 0.46 | M-v | 3 | MPC | 165587 | 2008 $GH_{118}$ |
| 2008 $GQ_{118}$ | 16.6 | 0.15 | 20080404 | 268.74108 | 280.35405 | 32.08013 | 11.47731 | 0.1169511 | 2.8372840 | 12 | 1 | 15 days | 0.24 | | | MPC | | 2008 $GQ_{118}$ |
| 2008 $GV_{118}$ | 17.8 | 0.15 | 20100104 | 106.96850 | 82.88013 | 174.62249 | 4.19088 | 0.2012867 | 2.7844434 | 13 | 1 | 60 days | 0.34 | M-v | 5 | MPC | | 2008 $GV_{118}$ |
| 2008 $GW_{121}$ | 17.5 | 0.15 | 20080404 | 97.44075 | 334.25832 | 114.49744 | 3.49939 | 0.1726595 | 2.4293718 | 10 | 1 | 15 days | 0.32 | | | MPC | | 2008 $GW_{121}$ |
| 2008 $GZ_{121}$ | 17.1 | 0.15 | 20080404 | 83.72921 | 333.58976 | 138.58938 | 3.80297 | 0.0838245 | 2.6551912 | 10 | 1 | 15 days | 0.19 | | | MPC | | 2008 $GZ_{121}$ |
| 2008 $GF_{122}$ | 16.4 | 0.15 | 20100104 | 123.51652 | 65.37906 | 165.02245 | 6.10677 | 0.1078156 | 2.6784254 | 38 | 3 | 2005–2009 | 0.40 | M-v | 3 | MPC | 139080 | 2008 $GF_{122}$ |
| 2008 $GJ_{122}$ | 18.4 | 0.15 | 20080404 | 347.98298 | 173.56595 | 43.41240 | 7.33638 | 0.0609816 | 2.3700507 | 14 | 1 | 14 days | 0.27 | | | MPC | | 2008 $GJ_{122}$ |
| 2008 $GT_{122}$ | 16.0 | 0.15 | 20080404 | 131.23905 | 24.65837 | 44.42515 | 11.08188 | 0.0894147 | 3.0089840 | 9 | 1 | 15 days | 0.25 | | | MPC | | 2008 $GT_{122}$ |
| 2008 $GF_{125}$ | 18.0 | 0.15 | 20080404 | 37.96360 | 278.76819 | 237.55195 | 3.46580 | 0.1257167 | 2.7567411 | 15 | 1 | 16 days | 0.26 | | | MPC | | 2008 $GF_{125}$ |
| 2008 $GP_{125}$ | 18.2 | 0.15 | 20080404 | 331.51824 | 259.28906 | 346.43434 | 2.72300 | 0.2014718 | 2.6710139 | 12 | 1 | 16 days | 0.22 | | | MPC | | 2008 $GP_{125}$ |
| 2008 $GA_{128}$ | 16.2 | 0.15 | 20080424 | 7.60211 | 127.00087 | 92.42980 | 13.86532 | 0.0774170 | 2.9862117 | 14 | 1 | 42 days | 0.17 | | | MPC | | 2008 $GA_{128}$ |
| 2008 $GO_{128}$ | 16.5 | 0.15 | 20080424 | 36.44543 | 85.02741 | 83.15003 | 32.19135 | 0.1646283 | 2.5961100 | 16 | 1 | 58 days | 0.59 | | | MPC | | 2008 $GO_{128}$ |
| 2008 $GP_{129}$ | 17.2 | 0.15 | 20100104 | 100.58804 | 139.49255 | 187.93643 | 6.23176 | 0.1935847 | 2.2617543 | 49 | 5 | 1995–2009 | 0.37 | M-v | 1 | MPC | 164331 | 2008 $GP_{129}$ |
| 2008 $GE_{131}$ | 16.8 | 0.15 | 20100104 | 71.13335 | 208.28424 | 124.72941 | 4.39652 | 0.2555678 | 2.5680039 | 50 | 5 | 2004–2009 | 0.42 | M-v | 0 | MPC | 166317 | 2008 $GE_{131}$ |
| 2008 $GA_{142}$ | 16.4 | 0.15 | 20100104 | 81.59635 | 57.68836 | 176.13238 | 12.04201 | 0.1341509 | 2.7849635 | 16 | 1 | 131 days | 0.21 | M-v | 4 | MPC | | 2008 $GA_{142}$ |
| 2008 $HH_5$ | 17.1 | 0.15 | 20080404 | 102.83227 | 62.49864 | 22.32998 | 13.97216 | 0.1175773 | 2.6393590 | 11 | 1 | 23 days | 0.26 | | | MPC | | 2008 $HH_5$ |
| 2008 $HQ_7$ | 18.1 | 0.15 | 20080424 | 300.28036 | 184.52222 | 114.23521 | 10.00814 | 0.1969163 | 2.2693367 | 9 | 1 | 8 days | 0.15 | | | MPC | | 2008 $HQ_7$ |
| 2008 $HR_9$ | 17.6 | 0.15 | 20080404 | 324.70911 | 44.05665 | 204.69547 | 16.35299 | 0.1840077 | 2.6412925 | 11 | 1 | 21 days | 0.32 | | | MPC | | 2008 $HR_9$ |
| 2008 $HL_{10}$ | 16.7 | 0.15 | 20080404 | 335.70735 | 205.01775 | 26.89628 | 0.69480 | 0.0952300 | 2.9852762 | 11 | 1 | 17 days | 0.22 | | | MPC | | 2008 $HL_{10}$ |
| 2008 $HO_{10}$ | 18.8 | 0.15 | 20080404 | 351.63904 | 183.70939 | 28.86164 | 3.98786 | 0.1400635 | 2.3383380 | 14 | 1 | 17 days | 0.35 | | | MPC | | 2008 $HO_{10}$ |
| 2008 $HB_{12}$ | 16.3 | 0.15 | 20100104 | 87.74150 | 256.61778 | 31.68742 | 17.82345 | 0.2301478 | 2.6716776 | 49 | 3 | 2000–2009 | 0.44 | M-v | 1 | MPC | 166318 | 2008 $HB_{12}$ |
| 2008 $HN_{12}$ | 15.7 | 0.15 | 20100104 | 63.02518 | 281.96134 | 53.48148 | 11.90854 | 0.2117550 | 2.6284448 | 99 | 4 | 1995–2009 | 0.47 | M-v | 1 | MPC | 166318 | 2008 $HN_{12}$ |
| 2008 $HK_{17}$ | 16.7 | 0.15 | 20100104 | 63.18370 | 104.04611 | 223.35588 | 7.31758 | 0.1449808 | 2.3587356 | 81 | 6 | 1991–2009 | 0.44 | M-v | 1 | MPC | 164332 | 2008 $HK_{17}$ |
| 2008 $HT_{17}$ | 17.0 | 0.15 | 20100104 | 86.58824 | 239.55368 | 73.22417 | 15.01307 | 0.2686364 | 2.5468251 | 39 | 3 | 2005–2009 | 0.37 | M-v | 2 | MPC | 166318 | 2008 $HT_{17}$ |
| 2008 $HE_{21}$ | 16.8 | 0.15 | 20100104 | 98.21572 | 162.84547 | 168.77491 | 6.09636 | 0.1304829 | 2.2427723 | 43 | 4 | 2002–2009 | 0.30 | M-v | 1 | MPC | 166318 | 2008 $HE_{21}$ |
| 2008 $HY_{22}$ | 17.2 | 0.15 | 20100104 | 69.30175 | 341.75985 | 0.11364 | 5.14188 | 0.1757234 | 2.1802496 | 47 | 3 | 1999–2009 | 0.39 | M-v | 3 | MPC | 165588 | 2008 $HY_{22}$ |
| 2008 $HV_{23}$ | 15.8 | 0.15 | 20080424 | 23.61466 | 100.59831 | 93.55210 | 16.17499 | 0.0205967 | 3.2079135 | 9 | 1 | 5 days | 0.44 | | | MPC | | 2008 $HV_{23}$ |
| 2008 $HG_{25}$ | 17.4 | 0.15 | 20080404 | 7.02817 | 173.47893 | 19.81123 | 11.10539 | 0.0624692 | 2.6970819 | 10 | 1 | 19 days | 0.30 | | | MPC | | 2008 $HG_{25}$ |
| 2008 $HH_{25}$ | 17.9 | 0.15 | 20080404 | 2.68774 | 207.51063 | 354.83788 | 1.68920 | 0.1286644 | 2.6470897 | 12 | 1 | 16 days | 0.25 | | | MPC | | 2008 $HH_{25}$ |
| 2008 $HV_{26}$ | 18.8 | 0.15 | 20080404 | 300.95962 | 223.52563 | 56.13262 | 4.34791 | 0.1688571 | 2.1902467 | 11 | 1 | 15 days | 0.15 | | | MPC | | 2008 $HV_{26}$ |
| 2008 $HP_{27}$ | 17.1 | 0.15 | 20080404 | 230.83047 | 174.33042 | 174.83847 | 11.29414 | 0.1482305 | 2.6155278 | 15 | 1 | 38 days | 0.32 | | | MPC | | 2008 $HP_{27}$ |
| 2008 $HX_{31}$ | 14.6 | 0.15 | 20080424 | 355.73962 | 32.25276 | 192.84035 | 9.34075 | 0.0524576 | 5.2794752 | 12 | 1 | 3 days | 0.26 | | E | MPC | | 2008 $HX_{31}$ |
| 2008 $HN_{32}$ | 16.7 | 0.15 | 20100104 | 78.74000 | 230.46447 | 90.61958 | 5.54150 | 0.2615338 | 2.5487760 | 40 | 3 | 2005–2009 | 0.20 | M-v | 1 | MPC | 166318 | 2008 $HN_{32}$ |
| 2008 $HB_{34}$ | 17.2 | 0.15 | 20100104 | 109.28116 | 185.00888 | 130.38939 | 5.95069 | 0.2464156 | 2.3431302 | 56 | 4 | 2005–2009 | 0.48 | M-v | 1 | MPC | 140767 | 2008 $HB_{34}$ |
| 2008 $HA_{35}$ | 16.3 | 0.15 | 20100104 | 87.07590 | 244.49591 | 51.51917 | 33.17406 | 0.3145596 | 2.7578184 | 45 | 3 | 2004–2009 | 0.52 | M-v | 1 | MPC | 165588 | 2008 $HA_{35}$ |
| 2008 $HM_{36}$ | 17.7 | 0.15 | 20080424 | 99.12126 | 2.03615 | 120.06509 | 6.21846 | 0.0417610 | 2.2904074 | 9 | 1 | 8 days | 0.33 | | | MPC | | 2008 $HM_{36}$ |
| 2008 $HR_{36}$ | 17.5 | 0.15 | 20100104 | 110.68334 | 214.44320 | 96.64176 | 8.09617 | 0.2032838 | 2.3298578 | 49 | 4 | 2005–2009 | 0.44 | M-v | 0 | MPC | 166318 | 2008 $HR_{36}$ |
| 2008 $HD_{38}$ | 15.8 | 0.15 | 20100104 | 33.65880 | 301.22283 | 45.00253 | 8.04264 | 0.3239762 | 3.0423303 | 96 | 3 | 2004–2009 | 0.41 | M-v | 1 | MPC | 166318 | 2008 $HD_{38}$ |
| 2008 $HE_{38}$ | 16.2 | 0.15 | 20100104 | 82.97721 | 243.77090 | 72.73717 | 13.99106 | 0.2745294 | 2.6226893 | 49 | 2 | 2008–2009 | 0.44 | M-v | 3 | MPC | 165588 | 2008 $HE_{38}$ |
| 2008 $HM_{42}$ | 17.8 | 0.15 | 20080404 | 43.95547 | 56.47959 | 93.23548 | 10.91784 | 0.1869154 | 2.5649385 | 10 | 1 | 21 days | 0.20 | | | MPC | | 2008 $HM_{42}$ |
| 2008 $HC_{44}$ | 17.5 | 0.15 | 20080404 | 45.18885 | 323.87885 | 191.39977 | 5.21363 | 0.0992317 | 2.7446583 | 19 | 1 | 36 days | 0.27 | | | MPC | | 2008 $HC_{44}$ |
| 2008 $HL_{44}$ | 17.7 | 0.15 | 20100104 | 108.38690 | 169.82926 | 140.20623 | 2.77431 | 0.2139648 | 2.3395822 | 39 | 4 | 2004–2009 | 0.45 | M-v | 0 | MPC | 166318 | 2008 $HL_{44}$ |
| 2008 $HT_{44}$ | 17.8 | 0.15 | 20100104 | 115.01146 | 41.56811 | 238.00011 | 1.50267 | 0.1139311 | 2.2925233 | 35 | 3 | 2005–2009 | 0.35 | M-v | 2 | MPC | 163856 | 2008 $HT_{44}$ |
| 2008 $HX_{46}$ | 15.6 | 0.15 | 20080424 | 76.47773 | 8.27735 | 129.19218 | 13.95666 | 0.1468375 | 2.8383967 | 13 | 1 | 49 days | 0.17 | | | MPC | | 2008 $HX_{46}$ |
| 2008 $HF_{47}$ | 16.7 | 0.15 | 20100104 | 141.38877 | 15.98278 | 237.76082 | 5.17573 | 0.1066884 | 2.4264048 | 62 | 6 | 1996–2009 | 0.48 | M-v | 1 | MPC | 166318 | 2008 $HF_{47}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 $HS_{48}$ | 17.5 | 0.15 | 20080404 | 280.94440 | 204.51203 | 96.95786 | 11.83935 | 0.0820146 | 2.5429954 | 10 | 1 | 21 days | 0.26 | | | MPC | | 2008 $HS_{48}$ |
| 2008 $HO_{49}$ | 15.8 | 0.15 | 20100104 | 115.24559 | 347.83290 | 264.09939 | 5.34773 | 0.1782137 | 2.6391672 | 71 | 5 | 2003–2009 | 0.50 | M-v | 1 | MPC | 166318 | 2008 $HO_{49}$ |
| 2008 $HJ_{50}$ | 18.5 | 0.15 | 20080424 | 28.32583 | 109.71089 | 76.46557 | 2.86040 | 0.1512494 | 2.3380294 | 10 | 1 | 15 days | 0.28 | | | MPC | | 2008 $HJ_{50}$ |
| 2008 $HL_{50}$ | 16.7 | 0.15 | 20080424 | 283.32990 | 88.68356 | 217.39284 | 10.10181 | 0.0164732 | 2.9901327 | 9 | 1 | 19 days | 0.17 | | | MPC | | 2008 $HL_{50}$ |
| 2008 $HJ_{51}$ | 17.9 | 0.15 | 20100104 | 103.05171 | 106.04408 | 215.31383 | 5.30068 | 0.2098383 | 2.3028032 | 26 | 3 | 2005–2009 | 0.31 | M-v | 2 | MPC | 141657 | 2008 $HJ_{51}$ |
| 2008 $HO_{51}$ | 16.1 | 0.15 | 20100104 | 62.61123 | 114.98148 | 224.85451 | 11.97807 | 0.2706254 | 2.6178347 | 63 | 3 | 1996–2009 | 0.40 | M-v | 2 | MPC | 166318 | 2008 $HO_{51}$ |
| 2008 $HP_{51}$ | 16.6 | 0.15 | 20100104 | 63.37844 | 112.89785 | 225.67275 | 15.55782 | 0.2617529 | 2.6141404 | 43 | 3 | 1992–2009 | 0.40 | M-v | 2 | MPC | 165589 | 2008 $HP_{51}$ |
| 2008 $HB_{56}$ | 15.8 | 0.15 | 20100104 | 197.88088 | 30.23302 | 93.90681 | 18.46875 | 0.1841035 | 3.1576950 | 24 | 2 | 2006–2008 | 0.48 | M-v | 3 | MPC | 141659 | 2008 $HB_{56}$ |
| 2008 $HC_{58}$ | 16.5 | 0.15 | 20080404 | 45.72890 | 285.72995 | 206.01200 | 25.05609 | 0.2097733 | 2.8190436 | 15 | 1 | 28 days | 0.52 | | | MPC | | 2008 $HC_{58}$ |
| 2008 $HO_{60}$ | 16.4 | 0.15 | 20080424 | 37.66151 | 348.79858 | 189.24289 | 17.73677 | 0.1363765 | 3.2412412 | 11 | 1 | 19 days | 0.28 | | | MPC | | 2008 $HO_{60}$ |
| 2008 $HM_{61}$ | 17.6 | 0.15 | 20080424 | 331.64868 | 216.86122 | 43.44069 | 5.85398 | 0.1056986 | 2.5381695 | 13 | 1 | 50 days | 0.27 | | | MPC | | 2008 $HM_{61}$ |
| 2008 $HN_{61}$ | 16.8 | 0.15 | 20100104 | 131.00036 | 29.00494 | 233.49013 | 4.95945 | 0.0860412 | 2.4168785 | 52 | 8 | 1960–2009 | 0.41 | M-v | 0 | MPC | 166319 | 2008 $HN_{61}$ |
| 2008 $HU_{61}$ | 17.2 | 0.15 | 20100104 | 138.89149 | 39.03800 | 236.12768 | 6.00968 | 0.1113547 | 2.2605994 | 53 | 3 | 2005–2009 | 0.33 | M-v | 3 | MPC | 166319 | 2008 $HU_{61}$ |
| 2008 $HY_{62}$ | 15.9 | 0.15 | 20080424 | 183.99364 | 324.39523 | 72.58499 | 17.03974 | 0.2309197 | 3.0893264 | 10 | 1 | 30 days | 0.25 | | | MPC | | 2008 $HY_{62}$ |
| 2008 $HA_{63}$ | 17.1 | 0.15 | 20080404 | 344.56906 | 22.47602 | 201.91632 | 10.45853 | 0.0720038 | 2.5951927 | 19 | 1 | 38 days | 0.67 | | | MPC | | 2008 $HA_{63}$ |
| 2008 $HT_{63}$ | 15.6 | 0.15 | 20080404 | 341.07174 | 147.36568 | 75.00555 | 17.91004 | 0.1472256 | 3.1471307 | 19 | 1 | 28 days | 0.70 | | | MPC | | 2008 $HT_{63}$ |
| 2008 $HH_{65}$ | 17.2 | 0.15 | 20080514 | 358.06254 | 147.28882 | 95.78927 | 3.65008 | 0.1710742 | 2.3413647 | 12 | 1 | 29 days | 0.23 | | | MPC | | 2008 $HH_{65}$ |
| 2008 $HJ_{65}$ | 16.5 | 0.15 | 20080424 | 355.21448 | 156.81217 | 84.15053 | 5.64158 | 0.1871875 | 2.5966705 | 11 | 1 | 28 days | 0.16 | | | MPC | | 2008 $HJ_{65}$ |
| 2008 $HZ_{65}$ | 16.6 | 0.15 | 20080514 | 7.21194 | 144.51101 | 76.18660 | 21.16252 | 0.1426836 | 3.2082090 | 10 | 1 | 31 days | 0.11 | | | MPC | | 2008 $HZ_{65}$ |
| 2008 $HT_{66}$ | 17.7 | 0.15 | 20100104 | 166.85602 | 209.60905 | 74.72169 | 23.45465 | 0.0525223 | 1.9694989 | 33 | 4 | 1995–2009 | 0.49 | M-v | 1 | MPC | 166319 | 2008 $HT_{66}$ |
| 2008 $HE_{68}$ | 16.4 | 0.15 | 20100104 | 43.59755 | 116.98706 | 205.79911 | 16.53418 | 0.2651117 | 3.0888005 | 25 | 2 | 2008–2009 | 0.43 | M-v | 3 | MPC | 163857 | 2008 $HE_{68}$ |
| 2008 $HU_{69}$ | 16.1 | 0.15 | 20100104 | 39.70156 | 176.52123 | 155.64581 | 2.28433 | 0.1818102 | 3.1312437 | 58 | 5 | 2001–2009 | 0.42 | M-v | 1 | MPC | 164333 | 2008 $HU_{69}$ |
| 2008 JX | 17.5 | 0.15 | 20100104 | 70.42812 | 190.29754 | 143.55460 | 2.00576 | 0.1863317 | 2.4013771 | 37 | 3 | 2005–2009 | 0.24 | M-v | 2 | MPC | 166319 | 2008 JX |
| 2008 $JA_4$ | 17.2 | 0.15 | 20080514 | 10.49905 | 72.91983 | 147.98060 | 12.53486 | 0.0828803 | 2.8651018 | 13 | 1 | 32 days | 0.21 | | | MPC | | 2008 $JA_4$ |
| 2008 $JB_4$ | 16.6 | 0.15 | 20100104 | 130.85688 | 42.94934 | 232.05911 | 22.49579 | 0.1879749 | 2.4363771 | 62 | 4 | 2004–2009 | 0.46 | M-v | 1 | MPC | 166319 | 2008 $JB_4$ |
| 2008 $JT_6$ | 17.7 | 0.15 | 20100104 | 100.26082 | 144.09282 | 185.07010 | 3.50686 | 0.1760838 | 2.2300871 | 56 | 5 | 2002–2009 | 0.32 | M-v | 1 | MPC | 141667 | 2008 $JT_6$ |
| 2008 $JD_7$ | 17.7 | 0.15 | 20100104 | 109.69900 | 81.54476 | 228.10498 | 6.21285 | 0.2267830 | 2.3651393 | 36 | 3 | 2005–2009 | 0.34 | M-v | 2 | MPC | 166319 | 2008 $JD_7$ |
| 2008 $JL_9$ | 17.0 | 0.15 | 20080424 | 27.48135 | 90.28331 | 97.23922 | 13.30152 | 0.1234645 | 2.6455040 | 14 | 1 | 53 days | 0.24 | | | MPC | | 2008 $JL_9$ |
| 2008 $JT_9$ | 17.0 | 0.15 | 20080424 | 18.28671 | 141.52527 | 55.79291 | 14.20077 | 0.1953882 | 2.6862376 | 28 | 1 | 57 days | 0.55 | | | MPC | | 2008 $JT_9$ |
| 2008 $JZ_9$ | 16.4 | 0.15 | 20080514 | 297.86540 | 95.25897 | 227.46516 | 16.39097 | 0.2581477 | 3.0798483 | 13 | 1 | 28 days | 0.25 | | | MPC | | 2008 $JZ_9$ |
| 2008 $JG_{10}$ | 16.9 | 0.15 | 20080424 | 119.46174 | 44.46273 | 56.81417 | 12.18327 | 0.0856266 | 2.5794032 | 9 | 1 | 10 days | 0.41 | | E | MPC | | 2008 $JG_{10}$ |
| 2008 $JC_{11}$ | 13.7 | 0.15 | 20080514 | 265.18645 | 205.70363 | 128.47740 | 12.38532 | 0.0641099 | 5.2749576 | 12 | 1 | 39 days | 0.28 | | | MPC | | 2008 $JC_{11}$ |
| 2008 $JG_{12}$ | 18.0 | 0.15 | 20080514 | 322.85819 | 80.42527 | 215.25026 | 26.09882 | 0.2312410 | 2.6190746 | 15 | 1 | 29 days | 0.26 | | | MPC | | 2008 $JG_{12}$ |
| 2008 $JV_{15}$ | 17.4 | 0.15 | 20100104 | 52.35305 | 298.85181 | 38.30887 | 3.53132 | 0.1975821 | 2.3854067 | 77 | 6 | 1998–2009 | 0.41 | M-v | 0 | MPC | 166319 | 2008 $JV_{15}$ |
| 2008 $JT_{17}$ | 15.5 | 0.15 | 20080424 | 298.59474 | 170.03931 | 126.12884 | 12.04458 | 0.0604506 | 3.1490531 | 14 | 1 | 48 days | 0.16 | | | MPC | | 2008 $JT_{17}$ |
| 2008 $JT_{20}$ | 16.5 | 0.15 | 20100104 | 132.99038 | 51.05399 | 230.95370 | 7.55948 | 0.1697163 | 2.3470639 | 70 | 3 | 2005–2009 | 0.43 | M-v | 2 | MPC | 166319 | 2008 $JT_{20}$ |
| 2008 $JD_{22}$ | 16.6 | 0.15 | 20080514 | 350.15333 | 174.75050 | 68.89920 | 15.24475 | 0.0784131 | 2.9693390 | 9 | 1 | 22 days | 0.22 | | | MPC | | 2008 $JD_{22}$ |
| 2008 $JS_{22}$ | 17.3 | 0.15 | 20080514 | 304.97964 | 232.30007 | 86.70283 | 13.08874 | 0.3098327 | 2.6388105 | 9 | 1 | 24 days | 0.23 | | | MPC | | 2008 $JS_{22}$ |
| 2008 $JT_{22}$ | 13.1 | 0.15 | 20080514 | 114.69511 | 2.22136 | 106.21099 | 13.62660 | 0.0511824 | 5.1777923 | 10 | 1 | 25 days | 0.19 | | | MPC | | 2008 $JT_{22}$ |
| 2008 $JX_{22}$ | 16.1 | 0.15 | 20080424 | 262.54135 | 218.78764 | 113.46036 | 10.42286 | 0.0664883 | 2.9652725 | 16 | 1 | 35 days | 0.27 | | | MPC | | 2008 $JX_{22}$ |
| 2008 $JH_{25}$ | 15.6 | 0.15 | 20080404 | 338.23077 | 200.96228 | 49.39117 | 9.68480 | 0.0350015 | 3.1719809 | 12 | 1 | 42 days | 0.25 | | | MPC | | 2008 $JH_{25}$ |
| 2008 $JZ_{25}$ | 17.1 | 0.15 | 20100104 | 160.66311 | 34.00641 | 230.60191 | 7.07286 | 0.1551948 | 2.2053923 | 28 | 2 | 2008–2009 | 0.31 | M-v | 3 | MPC | 166319 | 2008 $JZ_{25}$ |
| 2008 $JX_{26}$ | 19.2 | 0.15 | 20080424 | 0.56488 | 11.71494 | 209.98717 | 2.86546 | 0.1351045 | 2.1842320 | 13 | 1 | 30 days | 0.31 | | | MPC | | 2008 $JX_{26}$ |
| 2008 $JM_{28}$ | 17.4 | 0.15 | 20080514 | 260.70743 | 160.48410 | 194.20381 | 6.02283 | 0.1871064 | 2.3201879 | 10 | 1 | 20 days | 0.24 | | | MPC | | 2008 $JM_{28}$ |
| 2008 $JL_{30}$ | 15.8 | 0.15 | 20080424 | 228.98710 | 308.88196 | 63.01700 | 17.86167 | 0.1110605 | 3.1213926 | 9 | 1 | 12 days | 0.20 | | | MPC | | 2008 $JL_{30}$ |
| 2008 $JR_{30}$ | 17.1 | 0.15 | 20080514 | 19.05704 | 75.37944 | 136.53352 | 10.86293 | 0.1600582 | 3.1687015 | 9 | 1 | 16 days | 0.18 | | | MPC | | 2008 $JR_{30}$ |
| 2008 $JH_{32}$ | 18.3 | 0.15 | 20080514 | 320.39349 | 70.53539 | 225.18152 | 4.81883 | 0.2650088 | 2.6746014 | 14 | 1 | 20 days | 0.20 | | | MPC | | 2008 $JH_{32}$ |
| 2008 $JM_{32}$ | 16.9 | 0.15 | 20100104 | 54.70940 | 300.02184 | 55.26789 | 7.11267 | 0.1780768 | 2.3916700 | 93 | 3 | 2005–2009 | 0.45 | M-v | 2 | MPC | 166319 | 2008 $JM_{32}$ |
| 2008 $JR_{32}$ | 18.6 | 0.15 | 20080514 | 296.73981 | 251.57056 | 57.35367 | 5.22954 | 0.1220334 | 2.1982626 | 14 | 1 | 19 days | 0.31 | | | MPC | | 2008 $JR_{32}$ |
| 2008 $JH_{33}$ | 17.5 | 0.15 | 20080424 | 9.71816 | 122.58798 | 86.76488 | 11.97383 | 0.1636338 | 2.4357462 | 14 | 1 | 47 days | 0.17 | | | MPC | | 2008 $JH_{33}$ |
| 2008 $JT_{33}$ | 16.9 | 0.15 | 20100104 | 184.27674 | 340.76480 | 170.69137 | 11.34048 | 0.2607205 | 2.7909644 | 16 | 1 | 71 days | 0.24 | M-v | 4 | MPC | | 2008 $JT_{33}$ |
| 2008 $JF_{34}$ | 17.0 | 0.15 | 20080514 | 19.86548 | 95.90143 | 93.89229 | 14.59838 | 0.2973421 | 2.7290306 | 21 | 1 | 32 days | 0.58 | | | MPC | | 2008 $JF_{34}$ |
| 2008 $JU_{35}$ | 15.7 | 0.15 | 20100104 | 52.36628 | 220.26227 | 144.21285 | 12.86987 | 0.2886650 | 2.5695231 | 27 | 2 | 2008–2009 | 0.46 | M-v | 3 | MPC | 165590 | 2008 $JU_{35}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 $JJ_{36}$ | 17.1 | 0.15 | 20100104 | 51.88979 | 254.70629 | 121.03241 | 7.28405 | 0.2155432 | 2.3324190 | 41 | 4 | 1998–2009 | 0.52 | M-v | 1 | MPC | 158608 | 2008 $JJ_{36}$ |
| 2008 $JC_{38}$ | 17.4 | 0.15 | 20100104 | 109.71286 | 181.21385 | 129.70228 | 2.06370 | 0.1901671 | 2.3607289 | 39 | 5 | 1998–2009 | 0.37 | M-v | 1 | MPC | 166320 | 2008 $JC_{38}$ |
| 2008 KC | 17.3 | 0.15 | 20080424 | 344.14957 | 149.75690 | 107.58099 | 2.93144 | 0.1900328 | 2.3587743 | 10 | 1 | 27 days | 0.19 | | | MPC | | 2008 KC |
| 2008 KY | 17.3 | 0.15 | 20080514 | 320.02035 | 174.04072 | 108.09346 | 8.49250 | 0.0389798 | 2.7670996 | 9 | 1 | 20 days | 0.24 | | | MPC | | 2008 KY |
| 2008 $KR_1$ | 17.8 | 0.15 | 20080514 | 350.45236 | 95.30375 | 160.28283 | 5.32115 | 0.2068233 | 2.3666256 | 17 | 1 | 52 days | 0.29 | | | MPC | | 2008 $KR_1$ |
| 2008 $KY_1$ | 17.9 | 0.15 | 20100104 | 1.42086 | 30.00830 | 75.32610 | 20.59829 | 0.0508786 | 1.8651046 | 33 | 4 | 1991–2009 | 0.34 | M-v | 1 | MPC | 166320 | 2008 $KY_1$ |
| 2008 $KC_3$ | 17.0 | 0.15 | 20080514 | 51.65913 | 60.39421 | 113.64202 | 8.39683 | 0.1471746 | 2.5338642 | 10 | 1 | 15 days | 0.26 | | | MPC | | 2008 $KC_3$ |
| 2008 $KW_3$ | 15.9 | 0.15 | 20100104 | 92.37629 | 26.06579 | 231.30834 | 19.55989 | 0.1218632 | 3.2107042 | 18 | 1 | 63 days | 0.24 | M-v | 4 | MPC | | 2008 $KW_3$ |
| 2008 $KP_6$ | 17.2 | 0.15 | 20080514 | 11.08052 | 157.72873 | 65.88125 | 8.78572 | 0.1516318 | 2.7072589 | 12 | 1 | 25 days | 0.26 | | | MPC | | 2008 $KP_6$ |
| 2008 $KS_9$ | 17.2 | 0.15 | 20080514 | 23.49175 | 131.25694 | 69.98357 | 12.92577 | 0.1936672 | 3.1841219 | 9 | 1 | 27 days | 0.24 | | | MPC | | 2008 $KS_9$ |
| 2008 $KE_{10}$ | 17.9 | 0.15 | 20080514 | 115.00190 | 44.49623 | 66.67667 | 23.71548 | 0.0803913 | 1.9213891 | 11 | 1 | 17 days | 0.25 | | | MPC | | 2008 $KE_{10}$ |
| 2008 $KL_{12}$ | 17.0 | 0.15 | 20080514 | 5.02968 | 349.41754 | 239.69592 | 16.50520 | 0.1351125 | 2.6832785 | 13 | 1 | 28 days | 0.24 | | | MPC | | 2008 $KL_{12}$ |
| 2008 $KM_{12}$ | 15.7 | 0.15 | 20080514 | 288.16227 | 259.27756 | 59.05004 | 11.15456 | 0.0916576 | 3.1186241 | 9 | 1 | 14 days | 0.33 | | | MPC | | 2008 $KM_{12}$ |
| 2008 $KR_{12}$ | 18.4 | 0.15 | 20080424 | 320.39930 | 205.15374 | 74.19085 | 4.06488 | 0.1892640 | 2.2028898 | 12 | 1 | 46 days | 0.17 | | | MPC | | 2008 $KR_{12}$ |
| 2008 $KB_{13}$ | 16.7 | 0.15 | 20100104 | 91.97896 | 110.39303 | 196.70017 | 3.17783 | 0.2429378 | 2.6024569 | 47 | 5 | 1995–2009 | 0.38 | M-v | 0 | MPC | 166320 | 2008 $KB_{13}$ |
| 2008 $KB_{14}$ | 16.1 | 0.15 | 20080514 | 278.86808 | 199.71368 | 120.32413 | 13.01541 | 0.0460126 | 2.9192800 | 9 | 1 | 17 days | 0.26 | | | MPC | | 2008 $KB_{14}$ |
| 2008 $KE_{14}$ | 16.3 | 0.15 | 20080514 | 70.06214 | 56.24041 | 100.75383 | 17.27343 | 0.0620322 | 3.1362997 | 9 | 1 | 17 days | 0.21 | | | MPC | | 2008 $KE_{14}$ |
| 2008 $KK_{15}$ | 15.8 | 0.15 | 20080514 | 223.23671 | 273.44980 | 112.45927 | 14.90873 | 0.1825498 | 3.2007042 | 9 | 1 | 16 days | 0.27 | | | MPC | | 2008 $KK_{15}$ |
| 2008 $KJ_{16}$ | 16.5 | 0.15 | 20080514 | 334.53257 | 146.92550 | 119.49205 | 11.72482 | 0.0412153 | 3.0694190 | 9 | 1 | 26 days | 0.13 | | | MPC | | 2008 $KJ_{16}$ |
| 2008 $KH_{18}$ | 16.2 | 0.15 | 20080514 | 312.33788 | 189.85451 | 113.46169 | 19.24682 | 0.1955088 | 3.1285802 | 13 | 1 | 29 days | 0.21 | | | MPC | | 2008 $KH_{18}$ |
| 2008 $KL_{18}$ | 18.2 | 0.15 | 20080514 | 72.05414 | 70.56080 | 82.43222 | 24.08235 | 0.0707331 | 1.9225152 | 9 | 1 | 7 days | 0.17 | | | MPC | | 2008 $KL_{18}$ |
| 2008 $KG_{20}$ | 16.8 | 0.15 | 20100104 | 38.46434 | 215.86309 | 136.11127 | 4.28078 | 0.2067692 | 2.7320098 | 52 | 3 | 2000–2009 | 0.41 | M-v | 2 | MPC | 166320 | 2008 $KG_{20}$ |
| 2008 $KT_{22}$ | 16.9 | 0.15 | 20080603 | 299.85729 | 107.09133 | 210.17959 | 10.57766 | 0.1393010 | 3.0539928 | 10 | 1 | 26 days | 0.21 | | | MPC | | 2008 $KT_{22}$ |
| 2008 $KJ_{23}$ | 16.8 | 0.15 | 20100104 | 95.64875 | 100.11531 | 208.16743 | 8.74244 | 0.2525535 | 2.6134378 | 38 | 4 | 1992–2009 | 0.51 | M-v | 1 | MPC | 166320 | 2008 $KJ_{23}$ |
| 2008 $KZ_{24}$ | 17.3 | 0.15 | 20080514 | 344.00969 | 86.01324 | 186.33791 | 13.07283 | 0.2671365 | 3.1421947 | 14 | 1 | 34 days | 0.26 | | | MPC | | 2008 $KZ_{24}$ |
| 2008 $KU_{29}$ | 17.3 | 0.15 | 20100104 | 117.42643 | 213.55582 | 102.60325 | 8.06812 | 0.2953095 | 2.3260460 | 35 | 5 | 1994–2009 | 0.55 | M-v | 1 | MPC | 141686 | 2008 $KU_{29}$ |
| 2008 $KZ_{29}$ | 17.4 | 0.15 | 20080514 | 319.69519 | 164.80350 | 128.81967 | 15.49972 | 0.1690814 | 2.6213567 | 10 | 1 | 22 days | 0.18 | | | MPC | | 2008 $KZ_{29}$ |
| 2008 $KE_{31}$ | 16.3 | 0.15 | 20100104 | 20.76754 | 160.13928 | 200.05059 | 13.33699 | 0.1240515 | 2.7820213 | 43 | 3 | 2003–2009 | 0.48 | M-v | 2 | MPC | 166320 | 2008 $KE_{31}$ |
| 2008 $KK_{33}$ | 16.7 | 0.15 | 20080514 | 356.42976 | 148.72815 | 93.03592 | 15.86208 | 0.2138399 | 3.1739356 | 16 | 1 | 47 days | 0.28 | | | MPC | | 2008 $KK_{33}$ |
| 2008 $KH_{35}$ | 13.6 | 0.15 | 20080514 | 261.35838 | 141.35728 | 202.84570 | 7.76347 | 0.0787243 | 5.2884334 | 9 | 1 | 35 days | 0.15 | | | MPC | | 2008 $KH_{35}$ |
| 2008 $KT_{35}$ | 17.5 | 0.15 | 20080514 | 10.78932 | 132.64851 | 92.82385 | 17.63778 | 0.1756664 | 3.0786992 | 10 | 1 | 21 days | 0.27 | | | MPC | | 2008 $KT_{35}$ |
| 2008 $KY_{35}$ | 18.1 | 0.15 | 20080603 | 312.08999 | 202.31259 | 117.52652 | 14.72784 | 0.2277073 | 2.6193042 | 9 | 1 | 14 days | 0.28 | | | MPC | | 2008 $KY_{35}$ |
| 2008 $KZ_{36}$ | 17.1 | 0.15 | 20080514 | 286.41406 | 128.35989 | 207.61191 | 14.49087 | 0.1563248 | 2.5929680 | 13 | 1 | 39 days | 0.19 | | | MPC | | 2008 $KZ_{36}$ |
| 2008 $KO_{39}$ | 16.9 | 0.15 | 20080603 | 16.74977 | 47.80852 | 177.03169 | 10.87141 | 0.1726933 | 3.0322921 | 9 | 1 | 12 days | 0.10 | | | MPC | | 2008 $KO_{39}$ |
| 2008 $KR_{39}$ | 16.1 | 0.15 | 20080514 | 31.22739 | 5.43740 | 200.73256 | 14.63116 | 0.1240872 | 3.1401826 | 10 | 1 | 29 days | 0.18 | | | MPC | | 2008 $KR_{39}$ |
| 2008 $KT_{39}$ | 17.8 | 0.15 | 20100104 | 106.29834 | 227.66941 | 92.03712 | 3.76399 | 0.2493692 | 2.3337887 | 41 | 5 | 2000–2009 | 0.29 | M-v | 0 | MPC | 166320 | 2008 $KT_{39}$ |
| 2008 $KL_{40}$ | 17.9 | 0.15 | 20100104 | 138.14464 | 101.43428 | 195.19306 | 5.94089 | 0.2029753 | 2.2559954 | 32 | 4 | 2001–2009 | 0.41 | M-v | 1 | MPC | 157498 | 2008 $KL_{40}$ |
| 2008 $KM_{41}$ | 17.3 | 0.15 | 20080514 | 4.83919 | 88.95570 | 146.21626 | 9.60590 | 0.2043061 | 2.7142040 | 13 | 1 | 35 days | 0.28 | | | MPC | | 2008 $KM_{41}$ |
| 2008 $KX_{41}$ | 15.8 | 0.15 | 20080514 | 195.27105 | 294.45626 | 109.37424 | 16.05375 | 0.0756116 | 3.1815859 | 9 | 1 | 21 days | 0.19 | | | MPC | | 2008 $KX_{41}$ |
| 2008 $KW_{42}$ | 16.1 | 0.15 | 20080424 | 302.52566 | 169.81106 | 139.37846 | 10.89165 | 0.1871440 | 3.3316474 | 13 | 1 | 52 days | 0.28 | | | MPC | | 2008 $KW_{42}$ |
| 2008 $KX_{42}$ | 17.3 | 0.15 | 20100104 | 287.86897 | 234.74309 | 240.25490 | 6.42136 | 0.0539063 | 2.3084061 | 25 | 4 | 2005–2009 | 0.29 | M-v | 1 | MPC | 141690 | 2008 $KX_{42}$ |
| 2008 $LR_3$ | 17.5 | 0.15 | 20080514 | 3.55120 | 101.76060 | 132.34874 | 13.15148 | 0.2409208 | 2.5436981 | 10 | 1 | 22 days | 0.15 | | | MPC | | 2008 $LR_3$ |
| 2008 $LC_4$ | 17.2 | 0.15 | 20080514 | 341.72685 | 113.69843 | 148.40213 | 7.55386 | 0.1357224 | 2.7718189 | 10 | 1 | 8 days | 0.46 | | | MPC | | 2008 $LC_4$ |
| 2008 $LS_4$ | 15.4 | 0.15 | 20100104 | 287.78102 | 180.63291 | 284.52086 | 9.77861 | 0.0611974 | 3.0950986 | 28 | 3 | 2005–2009 | 0.49 | M-v | 2 | MPC | 163861 | 2008 $LS_4$ |
| 2008 $LC_5$ | 18.4 | 0.15 | 20080603 | 346.79338 | 29.35096 | 268.18954 | 7.82882 | 0.2362416 | 2.2610988 | 13 | 1 | 8 days | 0.23 | | | MPC | | 2008 $LC_5$ |
| 2008 $LF_5$ | 17.1 | 0.15 | 20100104 | 150.32633 | 174.80964 | 110.56664 | 7.19786 | 0.2382635 | 2.3908180 | 29 | 5 | 2001–2009 | 0.37 | M-v | 1 | MPC | 160907 | 2008 $LF_5$ |
| 2008 $LX_6$ | 15.6 | 0.15 | 20100104 | 19.58579 | 157.34943 | 197.84695 | 15.76716 | 0.1887980 | 3.1344388 | 59 | 3 | 1998–2009 | 0.47 | M-v | 2 | MPC | 166320 | 2008 $LX_6$ |
| 2008 $LH_7$ | 18.3 | 0.15 | 20080514 | 10.45442 | 80.42973 | 145.83219 | 9.14038 | 0.2212233 | 2.8006823 | 10 | 1 | 35 days | 0.35 | | | MPC | | 2008 $LH_7$ |
| 2008 $LV_7$ | 16.3 | 0.15 | 20100104 | 68.02925 | 154.49096 | 181.55255 | 13.83548 | 0.2699830 | 2.6804262 | 35 | 4 | 2002–2009 | 0.43 | M-v | 0 | MPC | 166320 | 2008 $LV_7$ |
| 2008 $LM_8$ | 16.6 | 0.15 | 20100104 | 47.61051 | 249.30958 | 104.87806 | 13.78354 | 0.2860452 | 2.6680618 | 39 | 4 | 2000–2009 | 0.49 | M-v | 0 | MPC | 166320 | 2008 $LM_8$ |
| 2008 $LW_8$ | 17.3 | 0.15 | 20100104 | 240.19877 | 118.48473 | 223.21325 | 17.26122 | 0.3936245 | 1.6753173 | 125 | 4 | 1997–2009 | 0.46 | M-v | 2 | MPC | 154214 | 2008 $LW_8$ |
| 2008 $LS_9$ | 18.2 | 0.15 | 20080603 | 346.01053 | 82.68764 | 188.31982 | 12.89100 | 0.1651170 | 2.5273602 | 9 | 1 | 12 days | 0.40 | | | MPC | | 2008 $LS_9$ |
| 2008 $LX_9$ | 17.7 | 0.15 | 20080603 | 334.83008 | 129.33459 | 151.66732 | 12.48968 | 0.1699527 | 2.5454478 | 9 | 1 | 12 days | 0.25 | | | MPC | | 2008 $LX_9$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 $LN_{10}$ | 15.9 | 0.15 | 20080514 | 46.19718 | 100.05369 | 70.03287 | 25.25414 | 0.2246537 | 3.1894906 | 13 | 1 | 44 days | 0.29 | | | MPC | | 2008 $LN_{10}$ |
| 2008 $LU_{10}$ | 16.2 | 0.15 | 20080514 | 296.57927 | 171.11891 | 150.23604 | 3.24566 | 0.1548345 | 3.0888802 | 10 | 1 | 26 days | 0.34 | | | MPC | | 2008 $LU_{10}$ |
| 2008 $LV_{10}$ | 16.3 | 0.15 | 20080514 | 330.50569 | 200.73006 | 77.50455 | 15.41776 | 0.1326827 | 2.5858328 | 18 | 1 | 53 days | 0.21 | | | MPC | | 2008 $LV_{10}$ |
| 2008 $LA_{11}$ | 18.4 | 0.15 | 20080603 | 337.13672 | 162.46094 | 120.85759 | 2.97205 | 0.2147251 | 2.3668719 | 10 | 1 | 12 days | 0.35 | | | MPC | | 2008 $LA_{11}$ |
| 2008 $LB_{13}$ | 16.6 | 0.15 | 20080514 | 334.86906 | 185.28912 | 89.19698 | 10.77466 | 0.1595459 | 2.6782244 | 13 | 1 | 41 days | 0.14 | | | MPC | | 2008 $LB_{13}$ |
| 2008 $LU_{13}$ | 17.4 | 0.15 | 20080603 | 286.47349 | 137.70839 | 208.48743 | 14.78130 | 0.2148780 | 2.5401393 | 12 | 1 | 28 days | 0.29 | | | MPC | | 2008 $LU_{13}$ |
| 2008 $LF_{15}$ | 16.3 | 0.15 | 20080514 | 17.67081 | 25.41505 | 199.96911 | 18.83891 | 0.0817603 | 3.2074619 | 13 | 1 | 39 days | 0.22 | | | MPC | | 2008 $LF_{15}$ |
| 2008 $LT_{16}$ | 16.2 | 0.15 | 20100104 | 235.79825 | 279.32157 | 252.73952 | 8.02111 | 0.1237730 | 2.5508692 | 46 | 5 | 1997–2009 | 0.42 | M-v | 1 | MPC | 164335 | 2008 $LT_{16}$ |
| 2008 $LG_{17}$ | 17.6 | 0.15 | 20080603 | 306.29608 | 200.91080 | 112.60159 | 8.24104 | 0.1365369 | 2.3756828 | 12 | 1 | 28 days | 0.25 | | | MPC | | 2008 $LG_{17}$ |
| 2008 ML | 14.7 | 0.15 | 20100104 | 101.86019 | 267.57286 | 40.76853 | 11.63613 | 0.2466472 | 2.5657330 | 70 | 5 | 2003–2009 | 0.51 | M-v | 1 | MPC | 166321 | 2008 ML |
| 2008 MY | 16.4 | 0.15 | 20100104 | 119.88399 | 222.80905 | 79.32050 | 18.92989 | 0.2478667 | 2.6048349 | 34 | 5 | 1992–2009 | 0.34 | M-v | 1 | MPC | 166321 | 2008 MY |
| 2008 $MB_2$ | 16.0 | 0.15 | 20080603 | 313.34939 | 165.84232 | 130.97525 | 10.12925 | 0.0670270 | 3.1596931 | 9 | 1 | 28 days | 0.09 | | | MPC | | 2008 $MB_2$ |
| 2008 $MJ_2$ | 16.1 | 0.15 | 20100104 | 358.93121 | 308.29912 | 136.70149 | 5.58140 | 0.1050941 | 2.5543688 | 43 | 5 | 2003–2009 | 0.45 | M-v | 1 | MPC | 166321 | 2008 $MJ_2$ |
| 2008 $MZ_2$ | 14.5 | 0.15 | 20100104 | 28.53510 | 106.04572 | 301.16688 | 15.85852 | 0.2726795 | 3.1424309 | 56 | 3 | 2003–2009 | 0.51 | M-v | 2 | MPC | 166321 | 2008 $MZ_2$ |
| 2008 $MA_5$ | 15.0 | 0.15 | 20100104 | 55.51722 | 48.01543 | 280.46626 | 28.21013 | 0.1782076 | 2.6294866 | 40 | 3 | 2005–2009 | 0.49 | M-v | 3 | MPC | 166321 | 2008 $MA_5$ |
| 2008 ND | 16.3 | 0.15 | 20100104 | 56.55536 | 115.69767 | 199.96147 | 12.03205 | 0.2067901 | 3.1066569 | 46 | 5 | 1997–2009 | 0.36 | M-v | 0 | MPC | 164335 | 2008 ND |
| 2008 $NF_2$ | 16.1 | 0.15 | 20100104 | 86.29369 | 73.81511 | 268.67511 | 13.02156 | 0.1330903 | 2.7754183 | 27 | 2 | 2008–2009 | 0.33 | M-v | 3 | MPC | 165591 | 2008 $NF_2$ |
| 2008 $NS_2$ | 16.2 | 0.15 | 20100104 | 107.34281 | 354.58871 | 310.23785 | 4.10476 | 0.1597736 | 2.9783488 | 50 | 5 | 1998–2009 | 0.35 | M-v | 1 | MPC | 166321 | 2008 $NS_2$ |
| 2008 OE | 16.2 | 0.15 | 20080713 | 339.61950 | 28.51464 | 306.18647 | 11.01745 | 0.2726694 | 2.9551606 | 9 | 1 | 1 days | 0.46 | | E | MPC | | 2008 OE |
| 2008 OP | 16.6 | 0.15 | 20080713 | 2.12397 | 178.42179 | 116.04103 | 2.42849 | 0.1445210 | 2.5208279 | 9 | 1 | 2 days | 0.32 | | | MPC | | 2008 OP |
| 2008 $OF_1$ | 16.8 | 0.15 | 20100104 | 78.44875 | 208.56939 | 130.83418 | 17.90049 | 0.3129832 | 3.1064452 | 31 | 1 | 82 days | 0.49 | M-v | 5 | MPC | | 2008 $OF_1$ |
| 2008 $OL_2$ | 18.4 | 0.15 | 20080713 | 352.15421 | 169.65718 | 143.66294 | 5.26786 | 0.3024070 | 2.5440772 | 10 | 1 | 2 days | 0.32 | | | MPC | | 2008 $OL_2$ |
| 2008 $ON_2$ | 16.8 | 0.15 | 20080713 | 354.02741 | 177.39687 | 133.75506 | 3.31910 | 0.1892463 | 2.7336069 | 10 | 1 | 2 days | 0.43 | | | MPC | | 2008 $ON_2$ |
| 2008 $OX_2$ | 20.1 | 0.15 | 20100104 | 10.14934 | 251.82926 | 220.32870 | 6.63982 | 0.6019425 | 1.0476656 | 91 | 2 | 2008–2009 | 0.40 | M-v | 4 | MPC | 159546 | 2008 $OX_2$ |
| 2008 $OY_7$ | 17.7 | 0.15 | 20080713 | 0.85042 | 66.13404 | 232.58256 | 1.93918 | 0.3709197 | 3.1909484 | 16 | 1 | 2 days | 0.41 | | E | MPC | | 2008 $OY_7$ |
| 2008 $OA_8$ | 17.0 | 0.15 | 20100104 | 103.89776 | 188.80090 | 165.25241 | 2.62924 | 0.2121667 | 2.4659297 | 47 | 4 | 1993–2009 | 0.34 | M-v | 2 | MPC | 156131 | 2008 $OA_8$ |
| 2008 $OJ_9$ | 15.6 | 0.15 | 20080802 | 326.10158 | 223.18491 | 136.33333 | 15.68376 | 0.1614289 | 3.0838591 | 9 | 1 | 12 days | 0.68 | | E | MPC | | 2008 $OJ_9$ |
| 2008 $OM_9$ | 17.4 | 0.15 | 20080713 | 347.92674 | 17.15958 | 306.18377 | 12.84997 | 0.1760432 | 2.4847780 | 13 | 1 | 6 days | 0.37 | | | MPC | | 2008 $OM_9$ |
| 2008 $OQ_9$ | 16.2 | 0.15 | 20080713 | 7.81476 | 121.26354 | 174.56258 | 1.23878 | 0.2518451 | 3.1588361 | 16 | 1 | 6 days | 0.59 | | | MPC | | 2008 $OQ_9$ |
| 2008 $OY_9$ | 16.1 | 0.15 | 20100104 | 296.28717 | 208.88105 | 304.57124 | 3.90579 | 0.0987595 | 2.5319224 | 60 | 4 | 2001–2009 | 0.47 | M-v | 4 | MPC | 166321 | 2008 $OY_9$ |
| 2008 $OB_{10}$ | 16.7 | 0.15 | 20100104 | 153.05315 | 173.31884 | 150.49229 | 6.39265 | 0.2000111 | 2.2431638 | 81 | 5 | 1998–2009 | 0.40 | M-v | 1 | MPC | 147447 | 2008 $OB_{10}$ |
| 2008 $OJ_{10}$ | 18.4 | 0.15 | 20080713 | 350.80010 | 166.69809 | 154.23981 | 11.46443 | 0.2618178 | 2.2619546 | 24 | 1 | 52 days | 0.57 | | | MPC | | 2008 $OJ_{10}$ |
| 2008 $OX_{10}$ | 15.1 | 0.15 | 20100104 | 97.02170 | 67.78042 | 254.36342 | 9.42830 | 0.1324081 | 2.9182987 | 82 | 4 | 2003–2009 | 0.56 | M-v | 2 | MPC | 166321 | 2008 $OX_{10}$ |
| 2008 $OY_{10}$ | 15.7 | 0.15 | 20100104 | 121.39556 | 44.80893 | 252.58866 | 6.95658 | 0.1935871 | 2.7942818 | 52 | 4 | 2004–2009 | 0.54 | M-v | 1 | MPC | 166321 | 2008 $OY_{10}$ |
| 2008 $OZ_{10}$ | 15.4 | 0.15 | 20100104 | 111.09208 | 59.86341 | 251.30923 | 8.19772 | 0.0886054 | 2.7914847 | 50 | 3 | 2004–2009 | 0.41 | M-v | 2 | MPC | 165591 | 2008 $OZ_{10}$ |
| 2008 $OJ_{11}$ | 16.9 | 0.15 | 20100104 | 189.34339 | 331.09963 | 282.05407 | 4.46325 | 0.1632230 | 2.3471932 | 49 | 6 | 1993–2009 | 0.43 | M-v | 0 | MPC | 158609 | 2008 $OJ_{11}$ |
| 2008 $OC_{12}$ | 16.3 | 0.15 | 20100104 | 68.77496 | 77.17757 | 284.24205 | 5.09758 | 0.1458226 | 2.7506444 | 38 | 3 | 2004–2009 | 0.33 | M-v | 2 | MPC | 166321 | 2008 $OC_{12}$ |
| 2008 $OD_{12}$ | 16.0 | 0.15 | 20080713 | 349.05886 | 122.83288 | 194.79982 | 1.66501 | 0.1998231 | 3.1317948 | 10 | 1 | 7 days | 0.32 | | | MPC | | 2008 $OD_{12}$ |
| 2008 $ON_{12}$ | 17.9 | 0.15 | 20080713 | 317.63152 | 70.35176 | 296.07409 | 5.95975 | 0.2414540 | 2.3761589 | 10 | 1 | 5 days | 0.33 | | | MPC | | 2008 $ON_{12}$ |
| 2008 $OR_{12}$ | 17.7 | 0.15 | 20080713 | 344.25913 | 18.34852 | 308.66557 | 15.84226 | 0.1942373 | 2.5919203 | 10 | 1 | 3 days | 0.41 | | | MPC | | 2008 $OR_{12}$ |
| 2008 $OT_{12}$ | 17.7 | 0.15 | 20080713 | 15.39374 | 327.31362 | 308.67001 | 3.86187 | 0.2769730 | 2.7194090 | 10 | 1 | 3 days | 0.36 | | | MPC | | 2008 $OT_{12}$ |
| 2008 $OW_{12}$ | 17.6 | 0.15 | 20080713 | 359.69450 | 133.77217 | 168.00858 | 2.97212 | 0.1768147 | 2.4359979 | 10 | 1 | 5 days | 0.23 | | | MPC | | 2008 $OW_{12}$ |
| 2008 $OT_{13}$ | 16.1 | 0.15 | 20100104 | 60.90535 | 222.51277 | 138.48613 | 9.19264 | 0.1662310 | 3.0873354 | 36 | 5 | 2000–2009 | 0.43 | M-v | 1 | MPC | 160578 | 2008 $OT_{13}$ |
| 2008 $OW_{13}$ | 18.3 | 0.15 | 20080713 | 20.67628 | 70.83742 | 201.38746 | 1.74775 | 0.2244703 | 2.3778303 | 10 | 1 | 6 days | 0.28 | | | MPC | | 2008 $OW_{13}$ |
| 2008 $OY_{13}$ | 16.8 | 0.15 | 20080802 | 335.43606 | 97.03389 | 256.34620 | 3.82909 | 0.2309716 | 2.6314732 | 13 | 1 | 5 days | 0.59 | | | MPC | | 2008 $OY_{13}$ |
| 2008 $OW_{15}$ | 18.2 | 0.15 | 20080802 | 5.15066 | 163.59957 | 137.75897 | 4.02757 | 0.3201521 | 2.4994711 | 13 | 1 | 12 days | 0.37 | | | MPC | | 2008 $OW_{15}$ |
| 2008 $OW_{17}$ | 18.2 | 0.15 | 20080802 | 34.34853 | 115.41289 | 157.14589 | 1.54094 | 0.2318903 | 2.3865807 | 10 | 1 | 21 days | 0.19 | | | MPC | | 2008 $OW_{17}$ |
| 2008 $OQ_{18}$ | 17.7 | 0.15 | 20100104 | 121.99858 | 33.90080 | 298.27397 | 1.55768 | 0.1907277 | 2.4361626 | 46 | 5 | 2001–2009 | 0.44 | M-v | 1 | MPC | 150133 | 2008 $OQ_{18}$ |
| 2008 $OC_{19}$ | 15.9 | 0.15 | 20080802 | 333.98062 | 42.17954 | 316.71305 | 21.32748 | 0.1872308 | 3.0929018 | 9 | 1 | 7 days | 0.41 | | | MPC | | 2008 $OC_{19}$ |
| 2008 $OS_{20}$ | 16.8 | 0.15 | 20100104 | 357.77332 | 196.77098 | 244.10265 | 0.79837 | 0.0717116 | 2.9526374 | 58 | 6 | 2000–2009 | 0.43 | M-v | 0 | MPC | 166321 | 2008 $OS_{20}$ |
| 2008 $OU_{21}$ | 15.8 | 0.15 | 20100104 | 288.80317 | 15.32732 | 138.85703 | 2.81499 | 0.0108633 | 2.8671575 | 37 | 5 | 1999–2009 | 0.34 | M-v | 0 | MPC | 166321 | 2008 $OU_{21}$ |
| 2008 $OR_{22}$ | 18.0 | 0.15 | 20080822 | 38.01678 | 295.66216 | 342.95300 | 1.62100 | 0.2317783 | 2.7703030 | 13 | 1 | 53 days | 0.36 | | | MPC | | 2008 $OR_{22}$ |
| 2008 $OU_{22}$ | 13.1 | 0.15 | 20100104 | 294.22325 | 290.35997 | 155.44945 | 3.34831 | 0.0387295 | 5.2252930 | 47 | 6 | 2003–2009 | 0.25 | M-v | 0 | MPC | 164335 | 2008 $OU_{22}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 $OH_{23}$ | 16.7 | 0.15 | 20080822 | 15.89061 | 333.49377 | 342.39393 | 13.12987 | 0.2158559 | 3.1284700 | 18 | 1 | 54 days | 0.35 | | | MPC | | 2008 $OH_{23}$ |
| 2008 $PQ_{3}$ | 16.0 | 0.15 | 20100104 | 84.66538 | 117.26271 | 234.18638 | 9.05865 | 0.0831122 | 2.5506975 | 49 | 4 | 2004–2009 | 0.45 | M-v | 1 | MPC | 166321 | 2008 $PQ_{3}$ |
| 2008 $PC_{4}$ | 16.5 | 0.15 | 20100104 | 205.74871 | 332.08831 | 294.68377 | 6.87116 | 0.1114024 | 2.2831230 | 43 | 5 | 2001–2009 | 0.46 | M-v | 1 | MPC | 166322 | 2008 $PC_{4}$ |
| 2008 $PF_{4}$ | 15.5 | 0.15 | 20100104 | 315.40179 | 220.73444 | 242.78160 | 8.56228 | 0.0522583 | 3.1917976 | 63 | 5 | 1992–2009 | 0.36 | M-v | 1 | MPC | 166322 | 2008 $PF_{4}$ |
| 2008 $PG_{5}$ | 17.9 | 0.15 | 20100104 | 121.57329 | 118.77890 | 227.57234 | 4.75695 | 0.2284212 | 2.3907300 | 18 | 1 | 67 days | 0.50 | M-v | 5 | MPC | | 2008 $PG_{5}$ |
| 2008 $PZ_{6}$ | 16.3 | 0.15 | 20100104 | 62.75239 | 99.69741 | 293.61630 | 7.87906 | 0.1039398 | 2.6516609 | 46 | 3 | 2004–2009 | 0.45 | M-v | 2 | MPC | 147449 | 2008 $PZ_{6}$ |
| 2008 $PJ_{7}$ | 15.9 | 0.15 | 20100104 | 98.80401 | 75.53670 | 249.88680 | 6.44791 | 0.0532824 | 2.8369912 | 33 | 5 | 1999–2009 | 0.56 | M-v | 0 | MPC | 166322 | 2008 $PJ_{7}$ |
| 2008 $PM_{7}$ | 16.0 | 0.15 | 20100104 | 85.59664 | 70.59188 | 283.65124 | 12.72939 | 0.2176486 | 2.7744529 | 32 | 2 | 2008–2009 | 0.40 | M-v | 3 | MPC | 165592 | 2008 $PM_{7}$ |
| 2008 $PD_{8}$ | 16.6 | 0.15 | 20100104 | 153.81401 | 14.69654 | 271.45087 | 6.96407 | 0.1369442 | 2.5115418 | 39 | 4 | 2004–2009 | 0.43 | M-v | 3 | MPC | 166322 | 2008 $PD_{8}$ |
| 2008 $PH_{8}$ | 16.2 | 0.15 | 20100104 | 114.09618 | 41.95984 | 252.89473 | 4.90068 | 0.1736555 | 3.0450257 | 45 | 5 | 2001–2009 | 0.34 | M-v | 0 | MPC | 166322 | 2008 $PH_{8}$ |
| 2008 $PN_{8}$ | 16.6 | 0.15 | 20100104 | 131.37705 | 18.22694 | 314.83611 | 6.72991 | 0.1344384 | 2.3767978 | 55 | 3 | 2003–2009 | 0.42 | M-v | 2 | MPC | 151071 | 2008 $PN_{8}$ |
| 2008 $PA_{11}$ | 16.7 | 0.15 | 20100104 | 114.19669 | 305.12377 | 40.19933 | 12.38243 | 0.3056844 | 2.4329918 | 22 | 1 | 101 days | 0.35 | M-v | 4 | MPC | | 2008 $PA_{11}$ |
| 2008 $PH_{12}$ | 15.8 | 0.15 | 20100104 | 100.06542 | 54.35582 | 317.92717 | 12.55094 | 0.3058683 | 2.6611311 | 38 | 4 | 2001–2009 | 0.42 | M-v | 2 | MPC | 150136 | 2008 $PH_{12}$ |
| 2008 $PS_{13}$ | 15.0 | 0.15 | 20100104 | 327.62896 | 168.72225 | 294.39178 | 5.46548 | 0.1236337 | 3.0811790 | 40 | 3 | 2003–2009 | 0.50 | M-v | 3 | MPC | 166322 | 2008 $PS_{13}$ |
| 2008 $PW_{13}$ | 16.4 | 0.15 | 20100104 | 81.43334 | 44.71585 | 323.59939 | 8.68086 | 0.2333187 | 2.7249831 | 46 | 5 | 1999–2009 | 0.50 | M-v | 1 | MPC | 150137 | 2008 $PW_{13}$ |
| 2008 $PC_{14}$ | 16.8 | 0.15 | 20080802 | 340.44648 | 208.96112 | 136.42587 | 4.02954 | 0.1622785 | 2.4760187 | 13 | 1 | 25 days | 0.30 | | | MPC | | 2008 $PC_{14}$ |
| 2008 $PE_{15}$ | 17.8 | 0.15 | 20080802 | 354.11652 | 185.50554 | 141.65027 | 3.58128 | 0.2009212 | 2.3793848 | 10 | 1 | 12 days | 0.29 | | | MPC | | 2008 $PE_{15}$ |
| 2008 $PV_{18}$ | 15.7 | 0.15 | 20100104 | 43.52447 | 279.26944 | 138.32335 | 25.81848 | 0.2839046 | 3.0922904 | 32 | 4 | 1999–2009 | 0.52 | M-v | 1 | MPC | 160908 | 2008 $PV_{18}$ |
| 2008 $PP_{19}$ | 17.3 | 0.15 | 20100104 | 210.06283 | 99.83852 | 138.64348 | 2.44162 | 0.1401122 | 2.4766236 | 49 | 6 | 2003–2009 | 0.45 | M-v | 0 | MPC | 146603 | 2008 $PP_{19}$ |
| 2008 QZ | 20.4 | 0.15 | 20100104 | 147.99075 | 194.05655 | 160.71930 | 6.83172 | 0.4236980 | 2.1694764 | 138 | 1 | 70 days | 0.40 | M-v | 4 | MPC | 147451 | 2008 QZ |
| 2008 $QB_{4}$ | 16.1 | 0.15 | 20100104 | 335.01928 | 208.99557 | 279.24429 | 12.32707 | 0.1001046 | 2.5860488 | 30 | 3 | 2005–2009 | 0.23 | M-v | 4 | MPC | 142994 | 2008 $QB_{4}$ |
| 2008 $QD_{4}$ | 11.2 | 0.15 | 20100104 | 350.60999 | 68.84573 | 344.68219 | 42.01838 | 0.3546253 | 8.4301989 | 97 | 2 | 2008–2009 | 0.36 | M-v | 2 | MPC | 164336 | 2008 $QD_{4}$ |
| 2008 $QN_{5}$ | 15.5 | 0.15 | 20100104 | 93.70041 | 349.60917 | 3.64968 | 9.21343 | 0.0997187 | 3.1448440 | 78 | 5 | 1997–2009 | 0.52 | M-v | 1 | MPC | 146608 | 2008 $QN_{5}$ |
| 2008 $QM_{7}$ | 18.0 | 0.15 | 20080822 | 32.87513 | 157.53102 | 125.52884 | 5.32381 | 0.2023527 | 2.2733026 | 9 | 1 | 12 days | 0.72 | | | MPC | | 2008 $QM_{7}$ |
| 2008 $QO_{7}$ | 16.1 | 0.15 | 20100104 | 44.81555 | 287.61624 | 138.66963 | 12.38944 | 0.1896784 | 2.6218492 | 33 | 6 | 2000–2009 | 0.50 | M-v | 1 | MPC | 146610 | 2008 $QO_{7}$ |
| 2008 $QX_{13}$ | 16.1 | 0.15 | 20100104 | 325.56915 | 235.13214 | 257.35795 | 7.39906 | 0.0967463 | 2.9987341 | 39 | 5 | 2002–2009 | 0.40 | M-v | 1 | MPC | 158609 | 2008 $QX_{13}$ |
| 2008 $QJ_{14}$ | 16.6 | 0.15 | 20100104 | 130.06426 | 148.56423 | 163.60861 | 6.04768 | 0.0361567 | 2.7888595 | 36 | 4 | 2006–2009 | 0.25 | M-v | 0 | MPC | 146616 | 2008 $QJ_{14}$ |
| 2008 $QV_{15}$ | 15.8 | 0.15 | 20080822 | 44.76486 | 0.19558 | 291.58248 | 2.81294 | 0.1349566 | 2.8429983 | 13 | 1 | 7 days | 0.62 | | E | MPC | | 2008 $QV_{15}$ |
| 2008 $QD_{18}$ | 15.5 | 0.15 | 20100104 | 91.36622 | 81.44968 | 275.83876 | 12.87352 | 0.2479649 | 3.0994518 | 45 | 4 | 2003–2009 | 0.55 | M-v | 2 | MPC | 152507 | 2008 $QD_{18}$ |
| 2008 $QG_{19}$ | 16.4 | 0.15 | 20080911 | 21.95426 | 346.89830 | 326.90937 | 13.52952 | 0.2555833 | 2.6417064 | 32 | 1 | 38 days | 0.54 | | | MPC | | 2008 $QG_{19}$ |
| 2008 $QF_{20}$ | 16.0 | 0.15 | 20100104 | 97.05970 | 303.45677 | 41.54722 | 3.00338 | 0.1379923 | 3.0957988 | 75 | 7 | 1994–2009 | 0.45 | M-v | 0 | MPC | 150148 | 2008 $QF_{20}$ |
| 2008 $QX_{20}$ | 15.3 | 0.15 | 20100104 | 52.06658 | 159.86740 | 213.66932 | 9.00578 | 0.0294969 | 3.0803745 | 55 | 4 | 1998–2009 | 0.45 | M-v | 1 | MPC | 165592 | 2008 $QX_{20}$ |
| 2008 $QP_{21}$ | 15.5 | 0.15 | 20100104 | 110.69489 | 70.32196 | 238.60466 | 6.33726 | 0.1586707 | 3.1666785 | 43 | 5 | 2002–2009 | 0.50 | M-v | 0 | MPC | 166322 | 2008 $QP_{21}$ |
| 2008 $QH_{22}$ | 15.7 | 0.15 | 20100104 | 117.02878 | 32.88607 | 309.53037 | 11.27259 | 0.1042000 | 2.6710477 | 39 | 3 | 2006–2009 | 0.49 | M-v | 3 | MPC | 147456 | 2008 $QH_{22}$ |
| 2008 $QK_{23}$ | 16.2 | 0.15 | 20100104 | 99.30521 | 106.00880 | 215.98155 | 8.27258 | 0.2340384 | 3.1230104 | 83 | 4 | 2003–2009 | 0.47 | M-v | 1 | MPC | 146622 | 2008 $QK_{23}$ |
| 2008 $QR_{23}$ | 16.5 | 0.15 | 20100104 | 100.47127 | 57.33673 | 293.45838 | 6.18283 | 0.1176569 | 3.0310978 | 47 | 5 | 1997–2009 | 0.38 | M-v | 1 | MPC | 166322 | 2008 $QR_{23}$ |
| 2008 $QY_{24}$ | 16.4 | 0.15 | 20080822 | 24.49070 | 356.43593 | 293.05124 | 12.83020 | 0.3330657 | 3.3662651 | 8 | 1 | 3 days | 0.41 | | E | MPC | | 2008 $QY_{24}$ |
| 2008 $QW_{25}$ | 16.1 | 0.15 | 20100104 | 101.64136 | 225.24703 | 119.65005 | 3.70839 | 0.0837831 | 2.7088024 | 37 | 5 | 1997–2009 | 0.39 | M-v | 0 | MPC | 150150 | 2008 $QW_{25}$ |
| 2008 $QY_{25}$ | 16.4 | 0.15 | 20080802 | 328.91933 | 232.85491 | 144.03540 | 12.53013 | 0.2039122 | 2.9740373 | 16 | 1 | 38 days | 0.60 | | | MPC | | 2008 $QY_{25}$ |
| 2008 $QA_{27}$ | 16.9 | 0.15 | 20100104 | 96.05593 | 318.17987 | 47.23245 | 3.56221 | 0.1948227 | 2.6247710 | 34 | 5 | 2002–2009 | 0.48 | M-v | 1 | MPC | 150150 | 2008 $QA_{27}$ |
| 2008 $QJ_{27}$ | 16.4 | 0.15 | 20100104 | 81.16030 | 266.27204 | 107.49868 | 5.88455 | 0.1724160 | 2.7741903 | 60 | 6 | 2001–2009 | 0.36 | M-v | 0 | MPC | 166322 | 2008 $QJ_{27}$ |
| 2008 $QX_{27}$ | 17.2 | 0.15 | 20080822 | 24.61743 | 195.58578 | 112.69909 | 7.40691 | 0.1329307 | 2.3132498 | 10 | 1 | 7 days | 0.46 | | | MPC | | 2008 $QX_{27}$ |
| 2008 $QY_{27}$ | 16.2 | 0.15 | 20100104 | 99.36800 | 244.83677 | 113.24825 | 8.20480 | 0.1558383 | 2.6979714 | 50 | 7 | 1995–2009 | 0.47 | M-v | 1 | MPC | 164336 | 2008 $QY_{27}$ |
| 2008 $QO_{29}$ | 17.1 | 0.15 | 20100104 | 89.37654 | 12.78719 | 1.48410 | 2.68785 | 0.1608338 | 2.5836666 | 39 | 5 | 2000–2009 | 0.49 | M-v | 2 | MPC | 150151 | 2008 $QO_{29}$ |
| 2008 $QU_{29}$ | 17.0 | 0.15 | 20100104 | 130.33919 | 350.39866 | 342.84867 | 4.77094 | 0.1174300 | 2.4155115 | 46 | 4 | 1997–2009 | 0.37 | M-v | 1 | MPC | 147457 | 2008 $QU_{29}$ |
| 2008 $QS_{30}$ | 15.3 | 0.15 | 20080802 | 354.42021 | 23.60418 | 320.48852 | 17.67939 | 0.1236879 | 3.0830802 | 21 | 1 | 36 days | 0.59 | | | MPC | | 2008 $QS_{30}$ |
| 2008 $QT_{30}$ | 15.1 | 0.15 | 20100104 | 2.34968 | 156.29828 | 271.56614 | 6.82283 | 0.0648970 | 3.3391922 | 54 | 5 | 1996–2009 | 0.45 | M-v | 1 | MPC | 166322 | 2008 $QT_{30}$ |
| 2008 $QD_{31}$ | 17.1 | 0.15 | 20080911 | 17.47594 | 45.50162 | 272.23846 | 6.35523 | 0.3162372 | 2.7472513 | 22 | 1 | 35 days | 0.76 | | | MPC | | 2008 $QD_{31}$ |
| 2008 $QP_{32}$ | 18.3 | 0.15 | 20080822 | 1.47150 | 16.09736 | 321.62250 | 7.19842 | 0.2838890 | 2.6386095 | 9 | 1 | 4 days | 0.63 | | | MPC | | 2008 $QP_{32}$ |
| 2008 $QR_{32}$ | 16.0 | 0.15 | 20100104 | 87.78628 | 79.48702 | 268.83312 | 8.80669 | 0.0882712 | 2.7695830 | 50 | 4 | 2004–2009 | 0.42 | M-v | 1 | MPC | 166322 | 2008 $QR_{32}$ |
| 2008 $QR_{33}$ | 16.5 | 0.15 | 20100104 | 61.15917 | 46.56523 | 341.56851 | 3.06637 | 0.1685576 | 2.9421782 | 41 | 6 | 1998–2009 | 0.40 | M-v | 1 | MPC | 146629 | 2008 $QR_{33}$ |
| 2008 $QU_{33}$ | 16.8 | 0.15 | 20100104 | 131.63644 | 164.58051 | 161.91962 | 3.27725 | 0.1278786 | 2.6566879 | 43 | 6 | 1998–2009 | 0.36 | M-v | 0 | MPC | 149037 | 2008 $QU_{33}$ |
| 2008 $QH_{34}$ | 17.1 | 0.15 | 20080822 | 329.81929 | 215.91600 | 160.18327 | 7.36126 | 0.1205004 | 2.3646673 | 13 | 1 | 17 days | 0.39 | | | MPC | | 2008 $QH_{34}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 $QM_{34}$ | 16.7 | 0.15 | 20080802 | 3.07342 | 172.72430 | 149.29399 | 14.79502 | 0.1927441 | 2.7462040 | 12 | 1 | 26 days | 0.31 | | | MPC | | 2008 $QM_{34}$ |
| 2008 $QQ_{34}$ | 16.8 | 0.15 | 20080911 | 7.00896 | 258.12090 | 73.63393 | 16.07828 | 0.2738287 | 2.6172013 | 12 | 1 | 35 days | 0.25 | | | MPC | | 2008 $QQ_{34}$ |
| 2008 $QD_{35}$ | 15.7 | 0.15 | 20100104 | 55.67714 | 268.71874 | 113.79604 | 3.85483 | 0.1866448 | 3.2320263 | 30 | 5 | 2002–2009 | 0.44 | M-v | 0 | MPC | 162541 | 2008 $QD_{35}$ |
| 2008 $QC_{37}$ | 16.6 | 0.15 | 20100104 | 86.68655 | 19.13011 | 335.81528 | 4.45623 | 0.1054699 | 2.9820072 | 34 | 4 | 2003–2009 | 0.31 | M-v | 1 | MPC | 146632 | 2008 $QC_{37}$ |
| 2008 $QE_{37}$ | 14.8 | 0.15 | 20100104 | 318.31624 | 150.71009 | 322.44676 | 2.58789 | 0.2007667 | 3.9307876 | 54 | 5 | 2000–2009 | 0.56 | M-v | 1 | MPC | 166322 | 2008 $QE_{37}$ |
| 2008 $QQ_{37}$ | 13.6 | 0.15 | 20100104 | 38.24970 | 353.47751 | 0.92163 | 5.86234 | 0.0503879 | 5.0960441 | 42 | 4 | 2003–2009 | 0.34 | M-v | 0 | MPC | 165593 | 2008 $QQ_{37}$ |
| 2008 $QX_{37}$ | 16.2 | 0.15 | 20100104 | 45.40110 | 270.78289 | 139.98362 | 1.95718 | 0.1597607 | 3.2479291 | 45 | 5 | 1996–2009 | 0.35 | M-v | 0 | MPC | 149037 | 2008 $QX_{37}$ |
| 2008 $QG_{39}$ | 16.7 | 0.15 | 20100104 | 17.64753 | 146.77366 | 323.09514 | 3.24855 | 0.1639636 | 2.7272652 | 32 | 3 | 2004–2009 | 0.40 | M-v | 2 | MPC | 165593 | 2008 $QG_{39}$ |
| 2008 $QX_{40}$ | 16.3 | 0.15 | 20100104 | 193.56665 | 42.48155 | 228.68636 | 14.90751 | 0.1143399 | 2.5233357 | 18 | 1 | 97 days | 0.51 | M-v | 4 | MPC | | 2008 $QX_{40}$ |
| 2008 $QS_{42}$ | 13.9 | 0.15 | 20100104 | 349.08101 | 194.16028 | 229.15996 | 3.73378 | 0.0530509 | 5.2349299 | 32 | 2 | 2008–2009 | 0.39 | M-v | 3 | MPC | 166323 | 2008 $QS_{42}$ |
| 2008 $QD_{43}$ | 16.5 | 0.15 | 20100104 | 68.00344 | 145.37191 | 255.64506 | 3.00816 | 0.1026832 | 2.8019185 | 41 | 5 | 1999–2009 | 0.43 | M-v | 0 | MPC | 165593 | 2008 $QD_{43}$ |
| 2008 $QF_{43}$ | 17.9 | 0.15 | 20100104 | 128.90057 | 339.48495 | 347.94711 | 2.82061 | 0.2509304 | 2.5366532 | 23 | 1 | 83 days | 0.55 | M-v | 4 | MPC | | 2008 $QF_{43}$ |
| 2008 $QJ_{43}$ | 18.5 | 0.15 | 20080822 | 17.78002 | 147.00255 | 164.04930 | 2.16946 | 0.2172504 | 2.3879077 | 14 | 1 | 16 days | 0.19 | | | MPC | | 2008 $QJ_{43}$ |
| 2008 RK | 16.0 | 0.15 | 20100104 | 93.75110 | 246.26723 | 119.67900 | 7.14785 | 0.0474471 | 2.7362441 | 38 | 4 | 2002–2009 | 0.61 | M-v | 3 | MPC | 146637 | 2008 RK |
| 2008 $RA_1$ | 16.9 | 0.15 | 20080911 | 329.38841 | 286.79975 | 118.58039 | 5.24295 | 0.3461802 | 2.6703709 | 15 | 1 | 22 days | 0.49 | | | MPC | | 2008 $RA_1$ |
| 2008 $RD_2$ | 16.3 | 0.15 | 20100104 | 94.85762 | 216.42918 | 154.48427 | 2.48020 | 0.0928866 | 2.7204034 | 55 | 5 | 2000–2009 | 0.38 | M-v | 1 | MPC | 162541 | 2008 $RD_2$ |
| 2008 $RK_2$ | 13.3 | 0.15 | 20100104 | 17.11334 | 179.97874 | 206.27763 | 6.77349 | 0.0934620 | 5.1936338 | 56 | 5 | 1995–2009 | 0.40 | M-v | 0 | MPC | 166323 | 2008 $RK_2$ |
| 2008 $RD_3$ | 16.9 | 0.15 | 20100104 | 53.17583 | 147.16061 | 268.40748 | 2.04210 | 0.0621406 | 2.7137755 | 39 | 5 | 1999–2009 | 0.40 | M-v | 0 | MPC | 158610 | 2008 $RD_3$ |
| 2008 $RO_3$ | 16.4 | 0.15 | 20100104 | 27.96857 | 187.17302 | 234.13262 | 2.11717 | 0.0871981 | 3.1995385 | 27 | 5 | 1997–2009 | 0.36 | M-v | 1 | MPC | 157170 | 2008 $RO_3$ |
| 2008 $RB_4$ | 17.3 | 0.15 | 20100104 | 268.73274 | 260.72317 | 305.74410 | 1.81244 | 0.1303343 | 2.4254551 | 45 | 6 | 1994–2009 | 0.53 | M-v | 1 | MPC | 150157 | 2008 $RB_4$ |
| 2008 $RG_4$ | 16.2 | 0.15 | 20100104 | 124.63827 | 8.80241 | 324.50592 | 2.40106 | 0.1491277 | 2.6939401 | 55 | 6 | 1995–2009 | 0.35 | M-v | 1 | MPC | 149037 | 2008 $RG_4$ |
| 2008 $RS_4$ | 15.6 | 0.15 | 20100104 | 312.66878 | 168.43348 | 310.77830 | 1.71213 | 0.1222705 | 3.9765688 | 40 | 6 | 2000–2009 | 0.38 | M-v | 0 | MPC | 166323 | 2008 $RS_4$ |
| 2008 $RE_5$ | 16.3 | 0.15 | 20100104 | 35.76182 | 18.46685 | 42.68206 | 1.09212 | 0.1670398 | 3.2298013 | 37 | 3 | 2006–2009 | 0.38 | M-v | 1 | MPC | 162541 | 2008 $RE_5$ |
| 2008 $RH_5$ | 16.3 | 0.15 | 20100104 | 57.79951 | 250.05942 | 142.75731 | 2.45082 | 0.0771781 | 3.1923850 | 59 | 5 | 2003–2009 | 0.44 | M-v | 0 | MPC | 150159 | 2008 $RH_5$ |
| 2008 $RM_6$ | 19.1 | 0.15 | 20080802 | 354.19784 | 101.04609 | 225.44208 | 6.28156 | 0.2280433 | 2.2380204 | 13 | 1 | 42 days | 0.23 | | | MPC | | 2008 $RM_6$ |
| 2008 $RO_6$ | 16.2 | 0.15 | 20080822 | 303.12010 | 111.68088 | 280.97965 | 13.35921 | 0.0919655 | 3.2401386 | 9 | 1 | 16 days | 0.18 | | | MPC | | 2008 $RO_6$ |
| 2008 $RP_6$ | 15.5 | 0.15 | 20080822 | 213.60683 | 207.23796 | 267.31940 | 11.16506 | 0.0315001 | 3.0410090 | 9 | 1 | 16 days | 0.42 | | | MPC | | 2008 $RP_6$ |
| 2008 $RX_6$ | 16.1 | 0.15 | 20080822 | 286.58053 | 133.43407 | 293.56506 | 13.03901 | 0.2433704 | 3.1117912 | 9 | 1 | 2 days | 0.31 | | E | MPC | | 2008 $RX_6$ |
| 2008 $RB_7$ | 16.0 | 0.15 | 20080822 | 270.68318 | 172.38638 | 254.74854 | 7.47071 | 0.1159476 | 3.2607746 | 9 | 1 | 2 days | 0.14 | | | MPC | | 2008 $RB_7$ |
| 2008 $RD_7$ | 16.9 | 0.15 | 20080822 | 2.37680 | 49.90308 | 273.01110 | 8.55300 | 0.0417247 | 3.0338644 | 12 | 1 | 17 days | 0.29 | | | MPC | | 2008 $RD_7$ |
| 2008 $RP_7$ | 17.0 | 0.15 | 20080911 | 309.31517 | 199.71981 | 190.89434 | 5.44811 | 0.0829313 | 2.4861261 | 10 | 1 | 21 days | 0.14 | | | MPC | | 2008 $RP_7$ |
| 2008 $RF_8$ | 16.4 | 0.15 | 20080911 | 196.76650 | 314.43814 | 208.07779 | 6.02779 | 0.0660615 | 2.9747221 | 13 | 1 | 18 days | 0.25 | | | MPC | | 2008 $RF_8$ |
| 2008 $RG_8$ | 17.3 | 0.15 | 20080822 | 299.80356 | 167.86664 | 270.99069 | 2.93154 | 0.2433222 | 2.6571541 | 9 | 1 | 2 days | 0.19 | | | MPC | | 2008 $RG_8$ |
| 2008 $RJ_8$ | 18.6 | 0.15 | 20080822 | 8.71136 | 349.35940 | 342.40179 | 12.11323 | 0.2984927 | 2.9182000 | 9 | 1 | 2 days | 0.55 | | E | MPC | | 2008 $RJ_8$ |
| 2008 $RY_8$ | 18.2 | 0.15 | 20080911 | 23.23468 | 274.25103 | 37.35503 | 3.80820 | 0.3677113 | 3.0987930 | 10 | 1 | 25 days | 0.57 | | | MPC | | 2008 $RY_8$ |
| 2008 $RV_9$ | 13.2 | 0.15 | 20100104 | 352.02264 | 203.66458 | 223.13152 | 6.72948 | 0.0938111 | 5.2883336 | 83 | 4 | 2003–2009 | 0.43 | M-v | 1 | MPC | 166323 | 2008 $RV_9$ |
| 2008 $RA_{10}$ | 13.5 | 0.15 | 20100104 | 42.86508 | 137.11332 | 230.37280 | 5.60903 | 0.0401446 | 5.2974415 | 78 | 5 | 2001–2009 | 0.30 | M-v | 0 | MPC | 166323 | 2008 $RA_{10}$ |
| 2008 $RD_{10}$ | 18.1 | 0.15 | 20080911 | 328.66027 | 239.26298 | 150.71916 | 3.18689 | 0.0535193 | 2.5348746 | 10 | 1 | 18 days | 0.16 | | | MPC | | 2008 $RD_{10}$ |
| 2008 $RV_{10}$ | 16.6 | 0.15 | 20100104 | 95.50904 | 353.35450 | 11.18436 | 5.29362 | 0.1218536 | 2.7778894 | 42 | 4 | 1999–2009 | 0.35 | M-v | 1 | MPC | 149038 | 2008 $RV_{10}$ |
| 2008 $RK_{11}$ | 17.1 | 0.15 | 20080822 | 40.61201 | 145.42624 | 159.40587 | 6.56951 | 0.0837836 | 2.7501763 | 9 | 1 | 12 days | 0.45 | | | MPC | | 2008 $RK_{11}$ |
| 2008 $RN_{12}$ | 16.2 | 0.15 | 20100104 | 45.73882 | 268.87788 | 150.70895 | 6.08794 | 0.1401363 | 3.1236083 | 40 | 4 | 2003–2009 | 0.33 | M-v | 0 | MPC | 150162 | 2008 $RN_{12}$ |
| 2008 $RF_{13}$ | 17.5 | 0.15 | 20080822 | 21.11836 | 355.15928 | 328.16332 | 8.60514 | 0.1421585 | 2.7820525 | 9 | 1 | 12 days | 0.22 | | | MPC | | 2008 $RF_{13}$ |
| 2008 $RL_{13}$ | 16.9 | 0.15 | 20080822 | 306.10620 | 100.44094 | 309.79982 | 5.14339 | 0.0387224 | 2.6870262 | 9 | 1 | 12 days | 0.23 | | | MPC | | 2008 $RL_{13}$ |
| 2008 $RP_{13}$ | 16.5 | 0.15 | 20080911 | 78.28612 | 304.13353 | 317.55572 | 7.29606 | 0.1623034 | 3.0492697 | 10 | 1 | 32 days | 0.23 | | | MPC | | 2008 $RP_{13}$ |
| 2008 $RR_{13}$ | 18.9 | 0.15 | 20080822 | 27.42331 | 69.52318 | 236.91518 | 3.94077 | 0.2043795 | 2.2795442 | 12 | 1 | 12 days | 0.24 | | | MPC | | 2008 $RR_{13}$ |
| 2008 $RX_{13}$ | 16.8 | 0.15 | 20080822 | 348.18845 | 138.59806 | 227.49653 | 5.06217 | 0.0197843 | 2.8897582 | 9 | 1 | 12 days | 0.26 | | | MPC | | 2008 $RX_{13}$ |
| 2008 $RY_{13}$ | 16.3 | 0.15 | 20080822 | 294.79817 | 171.62341 | 253.61457 | 4.48102 | 0.0491640 | 3.0878508 | 9 | 1 | 12 days | 0.11 | | | MPC | | 2008 $RY_{13}$ |
| 2008 $RZ_{13}$ | 17.2 | 0.15 | 20080911 | 294.80007 | 255.61958 | 191.02207 | 16.73307 | 0.2107111 | 2.8884286 | 10 | 1 | 17 days | 0.63 | | E | MPC | | 2008 $RZ_{13}$ |
| 2008 $RJ_{14}$ | 17.3 | 0.15 | 20080822 | 290.08831 | 192.47417 | 244.31926 | 4.83095 | 0.1126029 | 2.9179903 | 12 | 1 | 12 days | 0.37 | | | MPC | | 2008 $RJ_{14}$ |
| 2008 $RV_{14}$ | 17.8 | 0.15 | 20080822 | 5.89032 | 123.36661 | 220.08407 | 4.87731 | 0.1034767 | 2.4790135 | 9 | 1 | 12 days | 0.21 | | | MPC | | 2008 $RV_{14}$ |
| 2008 $RX_{14}$ | 16.7 | 0.15 | 20080822 | 40.45169 | 13.90860 | 287.99352 | 3.83833 | 0.1239412 | 2.7419287 | 9 | 1 | 12 days | 0.11 | | | MPC | | 2008 $RX_{14}$ |
| 2008 $RC_{15}$ | 18.5 | 0.15 | 20080911 | 47.29445 | 69.47199 | 217.29504 | 4.22857 | 0.2230412 | 2.4153980 | 13 | 1 | 17 days | 0.34 | | | MPC | | 2008 $RC_{15}$ |
| 2008 $RF_{15}$ | 18.5 | 0.15 | 20080822 | 15.87293 | 97.19539 | 222.46742 | 4.14720 | 0.2694925 | 2.5065760 | 9 | 1 | 12 days | 0.21 | | | MPC | | 2008 $RF_{15}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 $RP_{15}$ | 16.9 | 0.15 | 20080911 | 334.27392 | 148.55735 | 249.96365 | 3.30224 | 0.2337783 | 2.6753326 | 13 | 1 | 37 days | 0.23 | | | MPC | | 2008 $RP_{15}$ |
| 2008 $RV_{15}$ | 16.3 | 0.15 | 20081001 | 351.31915 | 93.84982 | 281.13962 | 3.49752 | 0.1282147 | 3.1709912 | 14 | 1 | 56 days | 0.15 | | | MPC | | 2008 $RV_{15}$ |
| 2008 $RF_{16}$ | 16.8 | 0.15 | 20080822 | 280.12155 | 201.15523 | 244.27478 | 4.06845 | 0.0911711 | 2.7493920 | 9 | 1 | 12 days | 0.20 | | | MPC | | 2008 $RF_{16}$ |
| 2008 $RM_{16}$ | 17.9 | 0.15 | 20080911 | 304.80376 | 176.77684 | 245.64656 | 3.48660 | 0.0824753 | 2.5949051 | 10 | 1 | 19 days | 0.34 | | | MPC | | 2008 $RM_{16}$ |
| 2008 $RR_{16}$ | 18.9 | 0.15 | 20080822 | 9.86151 | 27.21835 | 307.81826 | 3.87768 | 0.1734048 | 2.2912489 | 9 | 1 | 12 days | 0.23 | | | MPC | | 2008 $RR_{16}$ |
| 2008 $RS_{16}$ | 15.9 | 0.15 | 20080911 | 77.03363 | 327.50395 | 291.41076 | 3.50793 | 0.2148483 | 3.1695242 | 14 | 1 | 19 days | 0.15 | | | MPC | | 2008 $RS_{16}$ |
| 2008 $RO_{17}$ | 16.8 | 0.15 | 20100104 | 60.22098 | 223.70469 | 205.60773 | 5.11491 | 0.2285533 | 2.6878218 | 44 | 5 | 1992–2009 | 0.41 | M-v | 1 | MPC | 151071 | 2008 $RO_{17}$ |
| 2008 $RW_{17}$ | 16.5 | 0.15 | 20080822 | 322.95114 | 174.59217 | 217.09557 | 5.41967 | 0.0319158 | 2.7634546 | 13 | 1 | 28 days | 0.26 | | | MPC | | 2008 $RW_{17}$ |
| 2008 $RY_{17}$ | 15.7 | 0.15 | 20100104 | 225.68765 | 347.79753 | 233.63891 | 4.65121 | 0.0715187 | 2.9096090 | 38 | 4 | 2003–2009 | 0.34 | M-v | 0 | MPC | 166323 | 2008 $RY_{17}$ |
| 2008 $RB_{18}$ | 16.5 | 0.15 | 20080911 | 115.46380 | 39.80743 | 196.88880 | 10.04054 | 0.0538772 | 3.1100119 | 10 | 1 | 17 days | 0.26 | | | MPC | | 2008 $RB_{18}$ |
| 2008 $RG_{18}$ | 16.3 | 0.15 | 20080822 | 337.88157 | 181.06201 | 195.82133 | 11.11811 | 0.0327991 | 2.9995011 | 13 | 1 | 28 days | 0.27 | | E | MPC | | 2008 $RG_{18}$ |
| 2008 $RH_{18}$ | 17.0 | 0.15 | 20080822 | 62.78731 | 61.36041 | 221.75518 | 4.78889 | 0.0629840 | 2.7082367 | 16 | 1 | 28 days | 0.27 | | | MPC | | 2008 $RH_{18}$ |
| 2008 $RJ_{18}$ | 16.2 | 0.15 | 20100104 | 98.72444 | 10.89524 | 337.29734 | 10.89215 | 0.0344236 | 3.0375781 | 30 | 4 | 2003–2009 | 0.45 | M-v | 1 | MPC | 155499 | 2008 $RJ_{18}$ |
| 2008 $RO_{18}$ | 16.6 | 0.15 | 20080911 | 62.25642 | 311.27394 | 341.21511 | 11.18610 | 0.0356071 | 3.1809118 | 9 | 1 | 17 days | 0.15 | | | MPC | | 2008 $RO_{18}$ |
| 2008 $RR_{18}$ | 16.3 | 0.15 | 20100104 | 51.48784 | 210.00579 | 193.56918 | 11.11160 | 0.0797226 | 2.9978970 | 21 | 1 | 101 days | 0.30 | M-v | 4 | MPC | | 2008 $RR_{18}$ |
| 2008 $RS_{18}$ | 16.8 | 0.15 | 20080822 | 36.06772 | 104.07612 | 196.84548 | 9.35581 | 0.1967886 | 3.2441231 | 9 | 1 | 12 days | 0.23 | | | MPC | | 2008 $RS_{18}$ |
| 2008 $RF_{19}$ | 16.0 | 0.15 | 20100104 | 18.71878 | 221.29876 | 221.29827 | 3.57744 | 0.0983584 | 2.9878124 | 31 | 6 | 1995–2009 | 0.31 | M-v | 0 | MPC | 150163 | 2008 $RF_{19}$ |
| 2008 $RK_{19}$ | 18.7 | 0.15 | 20080822 | 7.19455 | 107.57249 | 228.79456 | 2.79866 | 0.2093218 | 2.3487235 | 13 | 1 | 30 days | 0.14 | | | MPC | | 2008 $RK_{19}$ |
| 2008 $RO_{20}$ | 14.1 | 0.15 | 20100104 | 330.17075 | 232.04075 | 210.99297 | 7.08044 | 0.0898928 | 5.1449436 | 39 | 2 | 2008–2009 | 0.30 | M-v | 3 | MPC | 166323 | 2008 $RO_{20}$ |
| 2008 $RP_{22}$ | 16.3 | 0.15 | 20100104 | 114.97323 | 176.86438 | 161.84402 | 6.17696 | 0.1880325 | 2.6767555 | 63 | 7 | 1998–2009 | 0.41 | M-v | 1 | MPC | 146648 | 2008 $RP_{22}$ |
| 2008 $RF_{23}$ | 16.2 | 0.15 | 20100104 | 166.02658 | 317.85911 | 343.06092 | 5.79891 | 0.2116111 | 2.5469891 | 73 | 4 | 2005–2009 | 0.49 | M-v | 1 | MPC | 149038 | 2008 $RF_{23}$ |
| 2008 $RT_{23}$ | 17.2 | 0.15 | 20080911 | 3.78106 | 29.45595 | 324.69761 | 13.28211 | 0.2303468 | 2.5868670 | 18 | 1 | 31 days | 0.79 | | | MPC | | 2008 $RT_{23}$ |
| 2008 $RZ_{24}$ | 20.1 | 0.15 | 20100104 | 167.61240 | 122.24590 | 165.76139 | 13.93509 | 0.5618036 | 2.1776221 | 62 | 1 | 74 days | 0.39 | M-v | 4 | MPC | 149038 | 2008 $RZ_{24}$ |
| 2008 $RQ_{25}$ | 16.7 | 0.15 | 20100104 | 98.25388 | 12.47302 | 355.66922 | 3.85450 | 0.1044978 | 2.7454722 | 73 | 4 | 2004–2009 | 0.45 | M-v | 1 | MPC | 166323 | 2008 $RQ_{25}$ |
| 2008 $RJ_{26}$ | 18.8 | 0.15 | 20080822 | 323.73021 | 228.25640 | 171.58962 | 5.17698 | 0.3010113 | 2.4356915 | 10 | 1 | 3 days | 0.26 | | E | MPC | | 2008 $RJ_{26}$ |
| 2008 $RV_{26}$ | 17.2 | 0.15 | 20100104 | 335.32130 | 171.96667 | 332.46432 | 6.26478 | 0.0765688 | 2.3127774 | 38 | 4 | 1994–2009 | 0.40 | M-v | 2 | MPC | 160908 | 2008 $RV_{26}$ |
| 2008 $RW_{28}$ | 17.0 | 0.15 | 20100104 | 127.26042 | 63.41840 | 231.95727 | 0.93264 | 0.2469702 | 3.0348077 | 48 | 4 | 2003–2009 | 0.31 | M-v | 0 | MPC | 149039 | 2008 $RW_{28}$ |
| 2008 $RE_{30}$ | 18.2 | 0.15 | 20080822 | 18.05689 | 142.39315 | 172.85229 | 13.32712 | 0.2821229 | 2.6451741 | 12 | 1 | 4 days | 0.27 | | | MPC | | 2008 $RE_{30}$ |
| 2008 $RU_{30}$ | 18.2 | 0.15 | 20080911 | 332.88443 | 48.33650 | 356.37003 | 8.30163 | 0.2759385 | 2.7404690 | 17 | 1 | 27 days | 0.18 | | | MPC | | 2008 $RU_{30}$ |
| 2008 $RB_{31}$ | 16.4 | 0.15 | 20080911 | 267.90879 | 275.25608 | 186.80637 | 1.45971 | 0.1411950 | 3.2129358 | 14 | 1 | 18 days | 0.34 | | | MPC | | 2008 $RB_{31}$ |
| 2008 $RJ_{32}$ | 18.7 | 0.15 | 20080911 | 16.28538 | 278.12340 | 50.39212 | 0.53700 | 0.2101338 | 2.4274719 | 14 | 1 | 30 days | 0.25 | | | MPC | | 2008 $RJ_{32}$ |
| 2008 $RS_{32}$ | 18.1 | 0.15 | 20080911 | 13.28428 | 338.67458 | 357.93212 | 6.25771 | 0.1354941 | 2.3295705 | 14 | 1 | 30 days | 0.27 | | | MPC | | 2008 $RS_{32}$ |
| 2008 $RF_{33}$ | 17.7 | 0.15 | 20080911 | 353.16262 | 144.64463 | 219.89783 | 3.17381 | 0.1150252 | 2.7911271 | 10 | 1 | 19 days | 0.29 | | | MPC | | 2008 $RF_{33}$ |
| 2008 $RY_{34}$ | 17.0 | 0.15 | 20080911 | 43.23144 | 117.42289 | 181.59140 | 8.96360 | 0.1709563 | 2.8019837 | 14 | 1 | 37 days | 0.24 | | | MPC | | 2008 $RY_{34}$ |
| 2008 $RB_{35}$ | 17.8 | 0.15 | 20080911 | 26.89053 | 326.98268 | 343.43833 | 3.74555 | 0.2692874 | 2.5908634 | 10 | 1 | 18 days | 0.15 | | | MPC | | 2008 $RB_{35}$ |
| 2008 $RN_{35}$ | 17.3 | 0.15 | 20100104 | 9.48795 | 203.91969 | 256.54580 | 1.20226 | 0.0335088 | 2.7003709 | 40 | 4 | 2004–2009 | 0.30 | M-v | 0 | MPC | 146658 | 2008 $RN_{35}$ |
| 2008 $RU_{37}$ | 16.3 | 0.15 | 20100104 | 13.04023 | 92.26431 | 351.61983 | 5.61569 | 0.1433603 | 3.2330145 | 37 | 4 | 2002–2009 | 0.34 | M-v | 1 | MPC | 146659 | 2008 $RU_{37}$ |
| 2008 $RY_{37}$ | 16.8 | 0.15 | 20100104 | 169.57290 | 304.48426 | 350.82545 | 6.19728 | 0.1035345 | 2.5344930 | 39 | 4 | 2002–2009 | 0.41 | M-v | 3 | MPC | 149039 | 2008 $RY_{37}$ |
| 2008 $RY_{39}$ | 16.5 | 0.15 | 20100104 | 66.40865 | 219.86425 | 175.17025 | 3.44412 | 0.1406957 | 2.9731724 | 48 | 4 | 2003–2009 | 0.38 | M-v | 1 | MPC | 150172 | 2008 $RY_{39}$ |
| 2008 $RZ_{40}$ | 16.3 | 0.15 | 20100104 | 8.82826 | 283.84603 | 170.68948 | 2.15153 | 0.0279043 | 2.8662925 | 48 | 4 | 2003–2009 | 0.34 | M-v | 0 | MPC | 146660 | 2008 $RZ_{40}$ |
| 2008 $RH_{41}$ | 16.3 | 0.15 | 20100104 | 180.28153 | 275.26391 | 3.16931 | 4.57302 | 0.0818168 | 2.7163319 | 71 | 7 | 1997–2009 | 0.43 | M-v | 0 | MPC | 146661 | 2008 $RH_{41}$ |
| 2008 $RN_{41}$ | 16.2 | 0.15 | 20100104 | 120.01792 | 186.69047 | 140.97973 | 0.84984 | 0.1228602 | 2.9635363 | 58 | 5 | 1999–2009 | 0.37 | M-v | 1 | MPC | 158610 | 2008 $RN_{41}$ |
| 2008 $RB_{43}$ | 16.8 | 0.15 | 20100104 | 202.97462 | 102.82126 | 170.03477 | 4.20058 | 0.0363638 | 2.5512067 | 56 | 6 | 2002–2009 | 0.36 | M-v | 0 | MPC | 158610 | 2008 $RB_{43}$ |
| 2008 $RN_{44}$ | 16.3 | 0.15 | 20100104 | 19.59251 | 58.34430 | 24.48543 | 2.30781 | 0.0478133 | 2.9009965 | 56 | 5 | 2001–2009 | 0.41 | M-v | 0 | MPC | 150176 | 2008 $RN_{44}$ |
| 2008 $RK_{46}$ | 15.5 | 0.15 | 20100104 | 51.88136 | 28.14853 | 13.38605 | 10.83395 | 0.0447737 | 3.0960669 | 71 | 4 | 2003–2009 | 0.41 | M-v | 1 | MPC | 150177 | 2008 $RK_{46}$ |
| 2008 $RP_{46}$ | 16.0 | 0.15 | 20081001 | 343.13940 | 211.34217 | 187.05539 | 17.51327 | 0.1940318 | 3.1384480 | 46 | 1 | 58 days | 0.57 | | | MPC | | 2008 $RP_{46}$ |
| 2008 $RR_{46}$ | 16.6 | 0.15 | 20100104 | 37.17016 | 224.85652 | 210.43980 | 1.44626 | 0.0448623 | 2.8435864 | 44 | 5 | 2003–2009 | 0.26 | M-v | 0 | MPC | 150178 | 2008 $RR_{46}$ |
| 2008 $RD_{48}$ | 16.7 | 0.15 | 20080822 | 334.16956 | 238.55663 | 139.88111 | 8.09831 | 0.2058614 | 2.6423345 | 10 | 1 | 7 days | 0.69 | | | MPC | | 2008 $RD_{48}$ |
| 2008 $RO_{49}$ | 16.7 | 0.15 | 20080911 | 227.47132 | 219.82722 | 268.03564 | 6.23925 | 0.1455953 | 2.6213105 | 10 | 1 | 28 days | 0.24 | | | MPC | | 2008 $RO_{49}$ |
| 2008 $RS_{49}$ | 13.6 | 0.15 | 20100104 | 308.58150 | 147.24202 | 307.80931 | 12.22094 | 0.1693428 | 5.2164406 | 14 | 1 | 64 days | 0.28 | M-v | 4 | MPC | | 2008 $RS_{49}$ |
| 2008 $RF_{50}$ | 16.4 | 0.15 | 20080911 | 139.27379 | 242.28706 | 303.46887 | 8.53484 | 0.3661004 | 2.3579404 | 10 | 1 | 28 days | 0.30 | | | MPC | | 2008 $RF_{50}$ |
| 2008 $RM_{50}$ | 17.7 | 0.15 | 20100104 | 181.23214 | 25.78639 | 263.63944 | 4.73738 | 0.1040903 | 2.3152399 | 26 | 5 | 2001–2009 | 0.23 | M-v | 0 | MPC | 146665 | 2008 $RM_{50}$ |
| 2008 $RY_{50}$ | 15.6 | 0.15 | 20100104 | 309.03617 | 231.51070 | 256.65438 | 5.17926 | 0.1183451 | 3.2024473 | 53 | 5 | 2003–2009 | 0.35 | M-v | 0 | MPC | 166323 | 2008 $RY_{50}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 $RD_{51}$ | 17.3 | 0.15 | 20100104 | 299.87034 | 284.77247 | 249.61898 | 4.09814 | 0.0632526 | 2.3731275 | 39 | 4 | 2005–2009 | 0.37 | M-v | 1 | MPC | 166324 | 2008 $RD_{51}$ |
| 2008 $RT_{52}$ | 16.6 | 0.15 | 20100104 | 126.99525 | 353.64398 | 291.14149 | 5.69063 | 0.2206716 | 3.0670887 | 14 | 1 | 70 days | 0.18 | M-v | 4 | MPC | | 2008 $RT_{52}$ |
| 2008 $RR_{53}$ | 16.8 | 0.15 | 20100104 | 37.86966 | 256.65595 | 173.22416 | 24.09790 | 0.3737933 | 3.1768860 | 14 | 1 | 62 days | 0.22 | M-v | 4 | MPC | | 2008 $RR_{53}$ |
| 2008 $RS_{53}$ | 16.1 | 0.15 | 20080911 | 50.51223 | 315.07600 | 316.82617 | 10.67404 | 0.2135105 | 3.0478938 | 10 | 1 | 28 days | 0.21 | | | MPC | | 2008 $RS_{53}$ |
| 2008 $RX_{54}$ | 16.6 | 0.15 | 20080911 | 199.41986 | 197.89461 | 309.56167 | 8.98831 | 0.0516139 | 2.9830583 | 10 | 1 | 28 days | 0.35 | | | MPC | | 2008 $RX_{54}$ |
| 2008 $RV_{57}$ | 18.2 | 0.15 | 20081001 | 356.95621 | 18.43295 | 348.82421 | 9.06100 | 0.1232270 | 2.3636300 | 14 | 1 | 57 days | 0.41 | | | MPC | | 2008 $RV_{57}$ |
| 2008 $RE_{58}$ | 17.2 | 0.15 | 20100104 | 246.83084 | 223.62367 | 2.54411 | 5.14056 | 0.1115523 | 2.4247720 | 34 | 5 | 1997–2009 | 0.43 | M-v | 1 | MPC | 158610 | 2008 $RE_{58}$ |
| 2008 $RF_{58}$ | 17.4 | 0.15 | 20080911 | 14.22249 | 174.05100 | 164.21518 | 3.92520 | 0.1418564 | 2.6993330 | 14 | 1 | 36 days | 0.23 | | | MPC | | 2008 $RF_{58}$ |
| 2008 $RU_{58}$ | 15.9 | 0.15 | 20080911 | 349.61037 | 238.70073 | 129.20670 | 2.26928 | 0.0577440 | 2.9494580 | 10 | 1 | 18 days | 0.23 | | | MPC | | 2008 $RU_{58}$ |
| 2008 $RR_{60}$ | 15.3 | 0.15 | 20080822 | 125.43175 | 239.18767 | 307.85080 | 14.18474 | 0.1461007 | 3.1218436 | 15 | 1 | 2 days | 0.16 | | E | MPC | | 2008 $RR_{60}$ |
| 2008 $RX_{61}$ | 18.0 | 0.15 | 20080911 | 62.85162 | 298.17497 | 325.28337 | 3.76468 | 0.1705196 | 2.5821881 | 10 | 1 | 19 days | 0.27 | | | MPC | | 2008 $RX_{61}$ |
| 2008 $RZ_{61}$ | 16.2 | 0.15 | 20080822 | 10.17051 | 152.79469 | 169.82885 | 17.76332 | 0.2437989 | 3.0830646 | 18 | 1 | 54 days | 0.57 | | | MPC | | 2008 $RZ_{61}$ |
| 2008 $RX_{62}$ | 17.4 | 0.15 | 20080911 | 266.39881 | 311.23921 | 152.46526 | 5.27884 | 0.1328998 | 2.5599905 | 11 | 1 | 18 days | 0.27 | | | MPC | | 2008 $RX_{62}$ |
| 2008 $RF_{63}$ | 17.9 | 0.15 | 20080911 | 317.10355 | 26.39538 | 22.49080 | 3.20476 | 0.1242473 | 2.6456390 | 11 | 1 | 17 days | 0.27 | | | MPC | | 2008 $RF_{63}$ |
| 2008 $RL_{63}$ | 15.9 | 0.15 | 20100104 | 302.00123 | 102.37624 | 46.30117 | 2.87569 | 0.0470901 | 2.9821575 | 45 | 5 | 2001–2009 | 0.37 | M-v | 0 | MPC | 166324 | 2008 $RL_{63}$ |
| 2008 $RO_{63}$ | 13.3 | 0.15 | 20080911 | 354.09187 | 214.64376 | 151.09667 | 4.30103 | 0.1119086 | 5.1582036 | 15 | 1 | 24 days | 0.26 | | | MPC | | 2008 $RO_{63}$ |
| 2008 $RW_{64}$ | 16.1 | 0.15 | 20100104 | 124.63666 | 300.98290 | 28.17858 | 4.66829 | 0.0722509 | 2.7668545 | 49 | 8 | 1999–2009 | 0.39 | M-v | 0 | MPC | 150180 | 2008 $RW_{64}$ |
| 2008 $RA_{65}$ | 17.1 | 0.15 | 20100104 | 31.86277 | 358.73829 | 96.60073 | 2.00129 | 0.1664705 | 2.5961563 | 35 | 4 | 2004–2009 | 0.23 | M-v | 0 | MPC | 150181 | 2008 $RA_{65}$ |
| 2008 $RD_{65}$ | 16.3 | 0.15 | 20080911 | 320.76537 | 241.94430 | 157.38234 | 10.35479 | 0.0605921 | 3.0147588 | 10 | 1 | 33 days | 0.15 | | | MPC | | 2008 $RD_{65}$ |
| 2008 $RJ_{66}$ | 15.6 | 0.15 | 20100104 | 14.83005 | 348.65344 | 91.55872 | 3.31431 | 0.0172306 | 2.9153314 | 40 | 6 | 2000–2009 | 0.45 | M-v | 0 | MPC | 149040 | 2008 $RJ_{66}$ |
| 2008 $RK_{66}$ | 16.6 | 0.15 | 20100104 | 88.83625 | 21.02697 | 19.63186 | 6.76655 | 0.1034029 | 2.4237568 | 35 | 1 | 90 days | 0.44 | M-v | 4 | MPC | | 2008 $RK_{66}$ |
| 2008 $RH_{67}$ | 12.6 | 0.15 | 20100104 | 335.48560 | 49.19291 | 29.56663 | 9.96132 | 0.1163236 | 5.1715573 | 85 | 3 | 2002–2009 | 0.54 | M-v | 3 | MPC | 166324 | 2008 $RH_{67}$ |
| 2008 $RD_{68}$ | 16.9 | 0.15 | 20100104 | 88.58894 | 310.14238 | 55.71754 | 3.98528 | 0.1288136 | 3.0360778 | 27 | 3 | 2003–2009 | 0.22 | M-v | 3 | MPC | 146673 | 2008 $RD_{68}$ |
| 2008 $RU_{68}$ | 16.2 | 0.15 | 20100104 | 52.44272 | 7.58800 | 51.06487 | 5.89953 | 0.0532405 | 2.7875154 | 34 | 3 | 1999–2009 | 0.39 | M-v | 2 | MPC | 146674 | 2008 $RU_{68}$ |
| 2008 $RH_{69}$ | 16.1 | 0.15 | 20100104 | 20.89026 | 65.09398 | 15.21592 | 6.95856 | 0.1301700 | 3.1728210 | 50 | 4 | 2002–2009 | 0.30 | M-v | 0 | MPC | 162100 | 2008 $RH_{69}$ |
| 2008 $RP_{69}$ | 16.4 | 0.15 | 20100104 | 211.67052 | 21.59483 | 212.24904 | 4.00990 | 0.0580522 | 2.7975026 | 40 | 5 | 2002–2009 | 0.36 | M-v | 0 | MPC | 166324 | 2008 $RP_{69}$ |
| 2008 $RW_{69}$ | 17.0 | 0.15 | 20080911 | 335.43892 | 52.24655 | 330.41703 | 7.83379 | 0.1277552 | 3.1260193 | 15 | 1 | 33 days | 0.34 | | | MPC | | 2008 $RW_{69}$ |
| 2008 $RB_{70}$ | 18.2 | 0.15 | 20080911 | 23.15237 | 136.86359 | 181.24499 | 6.69774 | 0.1385727 | 2.3313522 | 23 | 1 | 27 days | 0.22 | | | MPC | | 2008 $RB_{70}$ |
| 2008 $RN_{70}$ | 16.8 | 0.15 | 20100104 | 157.39077 | 193.52384 | 109.01600 | 3.55633 | 0.1893932 | 2.4027804 | 42 | 7 | 1997–2009 | 0.55 | M-v | 1 | MPC | 158156 | 2008 $RN_{70}$ |
| 2008 $RJ_{71}$ | 15.6 | 0.15 | 20080822 | 57.98017 | 282.50167 | 328.07049 | 11.90840 | 0.1860237 | 2.8325271 | 11 | 1 | 4 days | 0.42 | | | MPC | | 2008 $RJ_{71}$ |
| 2008 $RS_{71}$ | 15.3 | 0.15 | 20080911 | 89.60472 | 78.27662 | 173.32659 | 26.42154 | 0.1449239 | 3.1578038 | 19 | 1 | 34 days | 0.30 | | | MPC | | 2008 $RS_{71}$ |
| 2008 $RW_{71}$ | 16.3 | 0.15 | 20100104 | 138.49521 | 129.43317 | 167.97718 | 5.92993 | 0.1353185 | 2.6880653 | 45 | 5 | 2003–2009 | 0.44 | M-v | 0 | MPC | 150183 | 2008 $RW_{71}$ |
| 2008 $RB_{72}$ | 17.2 | 0.15 | 20080911 | 340.71335 | 69.20120 | 303.31414 | 1.09709 | 0.2571536 | 2.9217217 | 12 | 1 | 17 days | 0.59 | | E | MPC | | 2008 $RB_{72}$ |
| 2008 $RF_{72}$ | 17.0 | 0.15 | 20100104 | 55.71798 | 188.15393 | 193.53023 | 1.05422 | 0.0840589 | 2.9611205 | 40 | 6 | 1998–2009 | 0.36 | M-v | 1 | MPC | 158610 | 2008 $RF_{72}$ |
| 2008 $RQ_{72}$ | 13.4 | 0.15 | 20100104 | 283.36375 | 129.49274 | 334.74942 | 6.40442 | 0.0824437 | 5.2754956 | 31 | 3 | 2002–2009 | 0.37 | M-v | 3 | MPC | 162542 | 2008 $RQ_{72}$ |
| 2008 $RC_{73}$ | 16.4 | 0.15 | 20100104 | 218.87908 | 29.58562 | 181.27598 | 2.08636 | 0.0811248 | 2.9983872 | 48 | 5 | 1996–2009 | 0.38 | M-v | 1 | MPC | 166324 | 2008 $RC_{73}$ |
| 2008 $RY_{74}$ | 20.0 | 0.15 | 20080911 | 352.48524 | 189.07398 | 171.32426 | 3.87073 | 0.1931957 | 1.9792235 | 12 | 1 | 16 days | 0.27 | | | MPC | | 2008 $RY_{74}$ |
| 2008 $RO_{75}$ | 16.0 | 0.15 | 20080911 | 345.05766 | 13.35793 | 349.21620 | 2.43636 | 0.0383790 | 2.6777516 | 12 | 1 | 14 days | 0.23 | | | MPC | | 2008 $RO_{75}$ |
| 2008 $RQ_{75}$ | 17.2 | 0.15 | 20080911 | 36.82642 | 149.13303 | 152.45422 | 4.42638 | 0.1174860 | 2.7056304 | 12 | 1 | 17 days | 0.24 | | | MPC | | 2008 $RQ_{75}$ |
| 2008 $RU_{75}$ | 18.5 | 0.15 | 20080911 | 345.60419 | 220.52348 | 151.18916 | 2.60352 | 0.1926878 | 2.5158145 | 12 | 1 | 16 days | 0.21 | | | MPC | | 2008 $RU_{75}$ |
| 2008 $RX_{75}$ | 17.5 | 0.15 | 20080911 | 25.00086 | 151.79492 | 162.48028 | 8.93649 | 0.1929949 | 2.8999954 | 12 | 1 | 17 days | 0.19 | | | MPC | | 2008 $RX_{75}$ |
| 2008 $RA_{76}$ | 15.7 | 0.15 | 20080911 | 293.69741 | 275.72781 | 169.63894 | 26.53002 | 0.2231868 | 3.1409161 | 16 | 1 | 23 days | 0.34 | | | MPC | | 2008 $RA_{76}$ |
| 2008 $RF_{77}$ | 15.2 | 0.15 | 20100104 | 37.83085 | 56.60900 | 10.92807 | 11.13250 | 0.0264335 | 3.1040586 | 55 | 4 | 2003–2009 | 0.40 | M-v | 1 | MPC | 146679 | 2008 $RF_{77}$ |
| 2008 $RK_{77}$ | 16.4 | 0.15 | 20100104 | 154.60026 | 321.53487 | 344.67605 | 1.59842 | 0.1361371 | 2.7372612 | 52 | 6 | 2002–2009 | 0.36 | M-v | 0 | MPC | 151072 | 2008 $RK_{77}$ |
| 2008 $RU_{77}$ | 15.6 | 0.15 | 20100104 | 154.15658 | 28.00133 | 280.49561 | 0.94000 | 0.0536350 | 2.9128963 | 53 | 4 | 2004–2009 | 0.35 | M-v | 0 | MPC | 164336 | 2008 $RU_{77}$ |
| 2008 $RP_{78}$ | 16.5 | 0.15 | 20100104 | 142.98911 | 10.79603 | 306.68407 | 3.93503 | 0.1060005 | 2.7326013 | 37 | 4 | 2004–2009 | 0.26 | M-v | 1 | MPC | 149041 | 2008 $RP_{78}$ |
| 2008 $RF_{79}$ | 16.2 | 0.15 | 20080911 | 322.25518 | 69.76959 | 322.40561 | 11.34355 | 0.1471611 | 3.1270447 | 14 | 1 | 28 days | 0.37 | | | MPC | | 2008 $RF_{79}$ |
| 2008 $RX_{79}$ | 15.9 | 0.15 | 20100104 | 8.56927 | 250.29153 | 186.46318 | 10.03101 | 0.0956443 | 3.1097071 | 31 | 5 | 2001–2009 | 0.50 | M-v | 1 | MPC | 146681 | 2008 $RX_{79}$ |
| 2008 $RO_{80}$ | 18.1 | 0.15 | 20080911 | 93.41019 | 80.58120 | 178.51682 | 22.48446 | 0.0498051 | 1.9321308 | 18 | 1 | 35 days | 0.32 | | | MPC | | 2008 $RO_{80}$ |
| 2008 $RY_{81}$ | 16.9 | 0.15 | 20080822 | 332.50125 | 182.69541 | 190.03622 | 7.90350 | 0.1056042 | 3.1796431 | 15 | 1 | 55 days | 0.26 | | | MPC | | 2008 $RY_{81}$ |
| 2008 $RE_{83}$ | 16.6 | 0.15 | 20100104 | 116.89091 | 99.44543 | 207.26551 | 3.37111 | 0.1038579 | 3.0872220 | 29 | 4 | 2003–2009 | 0.30 | M-v | 0 | MPC | 146682 | 2008 $RE_{83}$ |
| 2008 $RF_{83}$ | 18.0 | 0.15 | 20080911 | 22.45560 | 123.00966 | 186.75528 | 5.59212 | 0.2002895 | 2.9354334 | 10 | 1 | 15 days | 0.30 | | | MPC | | 2008 $RF_{83}$ |
| 2008 $RZ_{83}$ | 16.4 | 0.15 | 20080822 | 296.29712 | 103.11441 | 320.14699 | 6.45676 | 0.1791366 | 3.1837388 | 13 | 1 | 52 days | 0.37 | | | MPC | | 2008 $RZ_{83}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 $RC_{84}$ | 16.7 | 0.15 | 20100104 | 39.09501 | 169.22752 | 252.31795 | 2.54385 | 0.0972832 | 2.7082258 | 44 | 6 | 1995–2009 | 0.40 | M-v | 0 | MPC | 158611 | 2008 $RC_{84}$ |
| 2008 $RF_{86}$ | 16.8 | 0.15 | 20100104 | 251.07686 | 339.57144 | 232.01887 | 10.43732 | 0.1420234 | 2.7424523 | 34 | 5 | 1999–2009 | 0.30 | M-v | 0 | MPC | 155504 | 2008 $RF_{86}$ |
| 2008 $RW_{88}$ | 16.9 | 0.15 | 20100104 | 170.75464 | 333.81166 | 313.94101 | 6.42909 | 0.2058507 | 2.5597280 | 17 | 1 | 87 days | 0.34 | M-v | 4 | MPC | | 2008 $RW_{88}$ |
| 2008 $RC_{90}$ | 16.5 | 0.15 | 20100104 | 170.49011 | 49.95527 | 221.16248 | 7.66226 | 0.1558974 | 3.0235479 | 26 | 3 | 2003–2009 | 0.44 | M-v | 3 | MPC | 155505 | 2008 $RC_{90}$ |
| 2008 $RR_{90}$ | 16.9 | 0.15 | 20080822 | 256.54825 | 126.12967 | 337.68236 | 19.29903 | 0.2424718 | 2.8268583 | 11 | 1 | 20 days | 0.39 | | | MPC | | 2008 $RR_{90}$ |
| 2008 $RU_{91}$ | 17.1 | 0.15 | 20100104 | 320.21013 | 177.32362 | 350.32076 | 2.38418 | 0.1336938 | 2.4560801 | 38 | 5 | 2000–2009 | 0.36 | M-v | 2 | MPC | 166324 | 2008 $RU_{91}$ |
| 2008 $RA_{94}$ | 17.2 | 0.15 | 20100104 | 225.77529 | 94.92838 | 142.83892 | 1.78471 | 0.0883097 | 2.6585203 | 37 | 4 | 2002–2009 | 0.32 | M-v | 1 | MPC | 155505 | 2008 $RA_{94}$ |
| 2008 $RC_{96}$ | 17.8 | 0.15 | 20080911 | 37.46949 | 113.29563 | 173.40560 | 8.76829 | 0.2173194 | 2.3497032 | 15 | 1 | 25 days | 0.24 | | | MPC | | 2008 $RC_{96}$ |
| 2008 $RK_{96}$ | 14.9 | 0.15 | 20100104 | 4.64235 | 82.23452 | 11.50070 | 7.27471 | 0.2072158 | 3.9974700 | 48 | 6 | 1995–2009 | 0.37 | M-v | 0 | MPC | 150191 | 2008 $RK_{96}$ |
| 2008 $RE_{98}$ | 18.1 | 0.15 | 20080911 | 359.18212 | 177.64854 | 191.40739 | 13.17129 | 0.2938478 | 2.6441786 | 39 | 1 | 32 days | 0.63 | | | MPC | | 2008 $RE_{98}$ |
| 2008 $RF_{98}$ | 17.0 | 0.15 | 20080911 | 21.16503 | 271.18161 | 48.03827 | 26.13321 | 0.3370842 | 2.4902770 | 11 | 1 | 19 days | 0.62 | | E | MPC | | 2008 $RF_{98}$ |
| 2008 $RK_{98}$ | 16.0 | 0.15 | 20100104 | 141.80988 | 210.89653 | 71.88664 | 18.82324 | 0.3001854 | 2.6613123 | 38 | 4 | 2003–2009 | 0.51 | M-v | 2 | MPC | 166324 | 2008 $RK_{98}$ |
| 2008 $RN_{98}$ | 18.6 | 0.15 | 20100104 | 135.29010 | 254.75870 | 79.57343 | 8.86445 | 0.4021354 | 2.3536291 | 27 | 1 | 84 days | 0.33 | M-v | 4 | MPC | | 2008 $RN_{98}$ |
| 2008 $RO_{98}$ | 19.7 | 0.15 | 20080822 | 355.55941 | 219.12740 | 121.28647 | 9.34549 | 0.3618755 | 2.1719466 | 18 | 1 | 34 days | 0.46 | | | MPC | | 2008 $RO_{98}$ |
| 2008 $RB_{99}$ | 17.1 | 0.15 | 20100104 | 35.54687 | 74.08882 | 358.87832 | 4.45124 | 0.0297975 | 2.6389839 | 37 | 5 | 1995–2009 | 0.37 | M-v | 0 | MPC | 146691 | 2008 $RB_{99}$ |
| 2008 $RT_{99}$ | 16.4 | 0.15 | 20100104 | 91.98235 | 335.22221 | 26.85821 | 2.53238 | 0.1477389 | 3.0056847 | 41 | 4 | 2003–2009 | 0.25 | M-v | 1 | MPC | 158611 | 2008 $RT_{99}$ |
| 2008 $RE_{100}$ | 16.3 | 0.15 | 20100104 | 312.10549 | 321.45836 | 197.82035 | 4.97193 | 0.0631789 | 2.8666399 | 44 | 5 | 2001–2009 | 0.26 | M-v | 0 | MPC | 146692 | 2008 $RE_{100}$ |
| 2008 $RQ_{100}$ | 16.4 | 0.15 | 20100104 | 4.69335 | 336.38728 | 123.74260 | 2.81948 | 0.0332624 | 2.7115430 | 36 | 5 | 2002–2009 | 0.40 | M-v | 1 | MPC | 157171 | 2008 $RQ_{100}$ |
| 2008 $RK_{102}$ | 16.1 | 0.15 | 20100104 | 68.12742 | 263.13147 | 134.13459 | 3.21698 | 0.1007076 | 3.0124505 | 47 | 7 | 1998–2009 | 0.42 | M-v | 0 | MPC | 150194 | 2008 $RK_{102}$ |
| 2008 $RV_{103}$ | 16.9 | 0.15 | 20100104 | 83.04893 | 74.07094 | 313.49241 | 5.64327 | 0.0525384 | 2.7537231 | 40 | 5 | 2001–2009 | 0.29 | M-v | 1 | MPC | 166324 | 2008 $RV_{103}$ |
| 2008 $RW_{103}$ | 16.4 | 0.15 | 20100104 | 290.24812 | 237.98996 | 298.94802 | 5.55861 | 0.0361874 | 2.8098407 | 36 | 5 | 1998–2009 | 0.33 | M-v | 1 | MPC | 146695 | 2008 $RW_{103}$ |
| 2008 $RB_{104}$ | 16.2 | 0.15 | 20100104 | 280.09568 | 276.18842 | 260.97471 | 4.56564 | 0.1190854 | 2.9892457 | 33 | 4 | 2003–2009 | 0.34 | M-v | 2 | MPC | 166324 | 2008 $RB_{104}$ |
| 2008 $RF_{106}$ | 16.3 | 0.15 | 20100104 | 78.92824 | 260.40853 | 120.47566 | 14.86431 | 0.2752466 | 3.1963459 | 28 | 4 | 2002–2009 | 0.67 | M-v | 1 | MPC | 159548 | 2008 $RF_{106}$ |
| 2008 $RH_{106}$ | 15.6 | 0.15 | 20100104 | 2.61601 | 108.16567 | 320.40913 | 9.45840 | 0.0821800 | 3.1213359 | 46 | 5 | 1994–2009 | 0.36 | M-v | 0 | MPC | 166324 | 2008 $RH_{106}$ |
| 2008 $RU_{107}$ | 16.7 | 0.15 | 20100104 | 243.97246 | 323.36536 | 234.13331 | 3.30813 | 0.0409093 | 2.7639027 | 41 | 5 | 2004–2009 | 0.41 | M-v | 0 | MPC | 165594 | 2008 $RU_{107}$ |
| 2008 $RX_{108}$ | 17.0 | 0.15 | 20100104 | 45.52404 | 239.34590 | 183.64015 | 4.34537 | 0.0599184 | 2.7932957 | 17 | 1 | 61 days | 0.32 | M-v | 5 | MPC | | 2008 $RX_{108}$ |
| 2008 $RD_{109}$ | 15.0 | 0.15 | 20100104 | 60.63758 | 320.46332 | 77.60851 | 14.15064 | 0.1575157 | 3.1473858 | 47 | 4 | 2003–2009 | 0.60 | M-v | 1 | MPC | 159812 | 2008 $RD_{109}$ |
| 2008 $RE_{109}$ | 17.5 | 0.15 | 20100104 | 186.65503 | 104.63201 | 180.64570 | 4.43161 | 0.0672971 | 2.4380071 | 46 | 6 | 2003–2009 | 0.32 | M-v | 0 | MPC | 150198 | 2008 $RE_{109}$ |
| 2008 $RT_{109}$ | 17.1 | 0.15 | 20100104 | 186.22441 | 82.84905 | 201.89601 | 2.39863 | 0.1596957 | 2.4711521 | 59 | 5 | 2000–2009 | 0.48 | M-v | 0 | MPC | 146700 | 2008 $RT_{109}$ |
| 2008 $RU_{109}$ | 16.9 | 0.15 | 20081001 | 29.49368 | 338.74566 | 359.79423 | 1.38094 | 0.0903441 | 2.9032548 | 16 | 1 | 57 days | 0.31 | | | MPC | | 2008 $RU_{109}$ |
| 2008 $RK_{110}$ | 16.1 | 0.15 | 20100104 | 247.79682 | 344.79011 | 218.86220 | 2.32281 | 0.0545790 | 3.0031979 | 37 | 6 | 1995–2009 | 0.39 | M-v | 0 | MPC | 166324 | 2008 $RK_{110}$ |
| 2008 $RM_{110}$ | 16.9 | 0.15 | 20081001 | 339.58492 | 337.52656 | 63.89570 | 2.70097 | 0.1732871 | 3.1874240 | 29 | 1 | 56 days | 0.43 | | D | MPC | | 2008 $RM_{110}$ |
| 2008 $RY_{110}$ | 17.5 | 0.15 | 20100104 | 70.57711 | 331.71108 | 69.33283 | 2.91545 | 0.1134296 | 2.8539652 | 17 | 1 | 60 days | 0.27 | M-v | 4 | MPC | | 2008 $RY_{110}$ |
| 2008 $RA_{111}$ | 16.5 | 0.15 | 20100104 | 276.15972 | 146.62716 | 53.82874 | 4.64058 | 0.0412438 | 2.6408261 | 53 | 5 | 2002–2009 | 0.46 | M-v | 1 | MPC | 166324 | 2008 $RA_{111}$ |
| 2008 $RQ_{112}$ | 13.8 | 0.15 | 20100104 | 34.48777 | 147.55734 | 224.89106 | 9.27022 | 0.1371005 | 5.2060278 | 36 | 3 | 1996–2009 | 0.29 | M-v | 2 | MPC | 166324 | 2008 $RQ_{112}$ |
| 2008 $RT_{112}$ | 16.4 | 0.15 | 20100104 | 47.75223 | 145.55325 | 269.07826 | 4.84131 | 0.1327425 | 3.1001923 | 29 | 3 | 2003–2009 | 0.30 | M-v | 2 | MPC | 166324 | 2008 $RT_{112}$ |
| 2008 $RA_{113}$ | 16.2 | 0.15 | 20100104 | 66.25223 | 80.78090 | 320.13066 | 5.13225 | 0.0608542 | 2.8651544 | 46 | 5 | 1998–2009 | 0.29 | M-v | 0 | MPC | 149043 | 2008 $RA_{113}$ |
| 2008 $RF_{114}$ | 16.8 | 0.15 | 20100104 | 128.48552 | 324.44727 | 0.49208 | 4.42886 | 0.0923788 | 2.7382839 | 39 | 6 | 1999–2009 | 0.35 | M-v | 0 | MPC | 149043 | 2008 $RF_{114}$ |
| 2008 $RN_{115}$ | 16.8 | 0.15 | 20100104 | 70.45459 | 152.62288 | 230.26288 | 1.13773 | 0.0821738 | 2.8553485 | 37 | 5 | 2002–2009 | 0.35 | M-v | 1 | MPC | 150203 | 2008 $RN_{115}$ |
| 2008 $RV_{115}$ | 16.6 | 0.15 | 20100104 | 121.12838 | 53.59444 | 271.72204 | 1.95087 | 0.1135796 | 2.8179051 | 39 | 5 | 1999–2009 | 0.51 | M-v | 1 | MPC | 150203 | 2008 $RV_{115}$ |
| 2008 $RD_{117}$ | 16.3 | 0.15 | 20100104 | 87.29259 | 263.00053 | 127.77176 | 12.63258 | 0.1170192 | 2.7314375 | 37 | 4 | 2001–2009 | 0.56 | M-v | 1 | MPC | 164337 | 2008 $RD_{117}$ |
| 2008 $RO_{117}$ | 16.2 | 0.15 | 20100104 | 249.73606 | 350.60935 | 206.00122 | 4.35110 | 0.0478518 | 2.8858949 | 45 | 7 | 1998–2009 | 0.36 | M-v | 0 | MPC | 166324 | 2008 $RO_{117}$ |
| 2008 $RU_{117}$ | 16.3 | 0.15 | 20100104 | 107.00388 | 65.50032 | 280.81385 | 4.99487 | 0.0604407 | 3.0424226 | 33 | 4 | 2003–2009 | 0.27 | M-v | 1 | MPC | 149043 | 2008 $RU_{117}$ |
| 2008 $RX_{117}$ | 16.5 | 0.15 | 20081001 | 339.49561 | 185.87976 | 211.76636 | 9.14440 | 0.0831391 | 3.1268031 | 16 | 1 | 50 days | 0.41 | | | MPC | | 2008 $RX_{117}$ |
| 2008 $RM_{118}$ | 17.1 | 0.15 | 20100104 | 247.11335 | 251.72376 | 352.28797 | 2.20303 | 0.1441004 | 2.3976652 | 32 | 5 | 2000–2009 | 0.35 | M-v | 2 | MPC | 166324 | 2008 $RM_{118}$ |
| 2008 $RE_{121}$ | 17.4 | 0.15 | 20100104 | 185.72579 | 138.64144 | 143.33473 | 1.53595 | 0.1830004 | 2.3867650 | 13 | 1 | 61 days | 0.21 | M-v | 4 | MPC | | 2008 $RE_{121}$ |
| 2008 $RG_{121}$ | 17.4 | 0.15 | 20100104 | 322.19345 | 327.51553 | 205.54487 | 0.53004 | 0.1284465 | 2.4218717 | 38 | 5 | 2001–2009 | 0.34 | M-v | 1 | MPC | 164337 | 2008 $RG_{121}$ |
| 2008 $RN_{122}$ | 14.5 | 0.15 | 20080911 | 324.11582 | 41.35320 | 0.21065 | 28.13623 | 0.1080611 | 5.1491028 | 15 | 1 | 46 days | 0.24 | | | MPC | | 2008 $RN_{122}$ |
| 2008 $RH_{123}$ | 17.3 | 0.15 | 20080911 | 11.83129 | 154.36767 | 187.55844 | 1.70477 | 0.0841657 | 2.8639426 | 15 | 1 | 44 days | 0.25 | | | MPC | | 2008 $RH_{123}$ |
| 2008 $RW_{124}$ | 12.9 | 0.15 | 20100104 | 4.98795 | 8.62241 | 33.98404 | 4.64177 | 0.0536837 | 5.3096186 | 60 | 3 | 2002–2009 | 0.45 | M-v | 2 | MPC | 166325 | 2008 $RW_{124}$ |
| 2008 $RM_{125}$ | 17.3 | 0.15 | 20100104 | 48.01446 | 47.19334 | 10.27793 | 2.57623 | 0.0634492 | 2.7330375 | 35 | 5 | 2000–2009 | 0.30 | M-v | 0 | MPC | 158159 | 2008 $RM_{125}$ |
| 2008 $RV_{125}$ | 13.1 | 0.15 | 20100104 | 19.61223 | 165.29264 | 215.94109 | 7.31184 | 0.1264902 | 5.1375039 | 74 | 5 | 1998–2009 | 0.58 | M-v | 0 | MPC | 166325 | 2008 $RV_{125}$ |
| 2008 $RJ_{126}$ | 14.0 | 0.15 | 20100104 | 76.49081 | 316.92375 | 13.28984 | 4.43923 | 0.0210599 | 5.1668749 | 44 | 6 | 1997–2009 | 0.37 | M-v | 0 | MPC | 166325 | 2008 $RJ_{126}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 $RT_{126}$ | 14.1 | 0.15 | 20100104 | 35.82995 | 43.90605 | 334.91986 | 6.41316 | 0.0112972 | 5.1910461 | 32 | 4 | 1995–2009 | 0.31 | M-v | 1 | MPC | 164337 | 2008 $RT_{126}$ |
| 2008 $RH_{128}$ | 15.9 | 0.15 | 20100104 | 275.40665 | 348.78930 | 175.08633 | 12.38360 | 0.0536604 | 3.1198720 | 25 | 3 | 2002–2008 | 0.25 | M-v | 2 | MPC | 165596 | 2008 $RH_{128}$ |
| 2008 $RJ_{128}$ | 17.6 | 0.15 | 20081001 | 345.69358 | 22.30285 | 357.41828 | 12.52266 | 0.1628213 | 2.9905994 | 16 | 1 | 47 days | 0.22 | | | MPC | | 2008 $RJ_{128}$ |
| 2008 $RV_{128}$ | 16.9 | 0.15 | 20100104 | 13.72676 | 85.04438 | 3.68633 | 5.97279 | 0.0180163 | 2.7964013 | 29 | 4 | 1994–2009 | 0.41 | M-v | 0 | MPC | 158162 | 2008 $RV_{128}$ |
| 2008 $RA_{129}$ | 16.3 | 0.15 | 20081001 | 28.71883 | 340.85897 | 344.72106 | 15.20252 | 0.2612200 | 3.0605595 | 23 | 1 | 59 days | 0.62 | | | MPC | | 2008 $RA_{129}$ |
| 2008 $RL_{130}$ | 17.0 | 0.15 | 20100104 | 24.83650 | 5.53543 | 81.56305 | 2.85925 | 0.0329229 | 2.8004603 | 33 | 5 | 1996–2009 | 0.36 | M-v | 1 | MPC | 165598 | 2008 $RL_{130}$ |
| 2008 $RM_{131}$ | 15.4 | 0.15 | 20100104 | 29.13928 | 70.81458 | 346.54797 | 9.35650 | 0.0422739 | 3.1891225 | 15 | 1 | 90 days | 0.43 | M-v | 6 | MPC | | 2008 $RM_{131}$ |
| 2008 $RV_{131}$ | 17.1 | 0.15 | 20100104 | 107.44441 | 336.76924 | 35.65243 | 3.39011 | 0.2089487 | 2.4450961 | 35 | 4 | 2003–2008 | 0.36 | M-v | 1 | MPC | 165600 | 2008 $RV_{131}$ |
| 2008 $RY_{131}$ | 15.9 | 0.15 | 20080911 | 328.00117 | 243.84357 | 164.40655 | 16.63454 | 0.2786647 | 3.1948931 | 12 | 1 | 25 days | 0.49 | | | MPC | | 2008 $RY_{131}$ |
| 2008 $RB_{132}$ | 17.3 | 0.15 | 20080911 | 354.75343 | 227.41736 | 139.25458 | 5.27329 | 0.3234805 | 2.6146925 | 23 | 1 | 33 days | 0.60 | | | MPC | | 2008 $RB_{132}$ |
| 2008 $RC_{132}$ | 16.7 | 0.15 | 20080911 | 343.17632 | 225.03290 | 159.96371 | 14.29643 | 0.2172208 | 2.7069644 | 21 | 1 | 26 days | 0.62 | | | MPC | | 2008 $RC_{132}$ |
| 2008 $RD_{132}$ | 16.2 | 0.15 | 20080911 | 332.00469 | 278.36618 | 114.48373 | 5.36350 | 0.1809044 | 2.7038160 | 24 | 1 | 39 days | 0.51 | | | MPC | | 2008 $RD_{132}$ |
| 2008 $RG_{132}$ | 16.6 | 0.15 | 20081001 | 3.81323 | 119.38763 | 232.75552 | 9.46889 | 0.1242350 | 2.5690136 | 11 | 1 | 52 days | 0.54 | | | MPC | | 2008 $RG_{132}$ |
| 2008 $RT_{132}$ | 17.3 | 0.15 | 20080911 | 348.62429 | 229.23510 | 133.90340 | 5.69548 | 0.2227481 | 2.6056005 | 14 | 1 | 14 days | 0.53 | | | MPC | | 2008 $RT_{132}$ |
| 2008 $RA_{133}$ | 19.0 | 0.15 | 20080911 | 358.16143 | 5.56486 | 352.63315 | 21.60486 | 0.1496293 | 1.8209965 | 19 | 1 | 29 days | 0.57 | | | MPC | | 2008 $RA_{133}$ |
| 2008 $RB_{133}$ | 16.0 | 0.15 | 20100104 | 89.44962 | 355.03303 | 15.63088 | 13.88350 | 0.1091768 | 2.7133388 | 15 | 1 | 92 days | 0.44 | M-v | 4 | MPC | | 2008 $RB_{133}$ |
| 2008 $RD_{133}$ | 18.8 | 0.15 | 20080911 | 342.32138 | 245.91533 | 134.15170 | 3.88139 | 0.1890704 | 2.3313408 | 11 | 1 | 29 days | 0.43 | | | MPC | | 2008 $RD_{133}$ |
| 2008 $RE_{133}$ | 16.4 | 0.15 | 20100104 | 52.92178 | 15.16977 | 74.63766 | 11.92269 | 0.2956356 | 2.7443572 | 19 | 1 | 71 days | 0.62 | M-v | 5 | MPC | | 2008 $RE_{133}$ |
| 2008 $RF_{133}$ | 19.2 | 0.15 | 20080911 | 21.82352 | 38.22480 | 287.07598 | 0.57343 | 0.2363214 | 2.1940224 | 12 | 1 | 37 days | 0.44 | | | MPC | | 2008 $RF_{133}$ |
| 2008 $RG_{133}$ | 17.0 | 0.15 | 20081001 | 15.90713 | 246.50395 | 97.83351 | 7.13809 | 0.1359662 | 2.5069163 | 12 | 1 | 51 days | 0.65 | | | MPC | | 2008 $RG_{133}$ |
| 2008 $RH_{133}$ | 15.3 | 0.15 | 20080911 | 28.98678 | 174.26576 | 146.13529 | 16.12598 | 0.0977187 | 3.0764553 | 12 | 1 | 26 days | 0.60 | | | MPC | | 2008 $RH_{133}$ |
| 2008 $RK_{133}$ | 16.8 | 0.15 | 20080911 | 355.19006 | 213.97407 | 153.01677 | 14.49397 | 0.2666991 | 2.6906650 | 16 | 1 | 33 days | 0.80 | | | MPC | | 2008 $RK_{133}$ |
| 2008 $RZ_{133}$ | 17.5 | 0.15 | 20080822 | 349.64846 | 37.36885 | 316.58956 | 8.19563 | 0.3060426 | 2.5991416 | 16 | 1 | 24 days | 0.58 | | | MPC | | 2008 $RZ_{133}$ |
| 2008 $RC_{134}$ | 18.2 | 0.15 | 20080911 | 343.13716 | 342.03392 | 35.08831 | 5.89379 | 0.2156093 | 2.2162987 | 11 | 1 | 33 days | 0.57 | | | MPC | | 2008 $RC_{134}$ |
| 2008 $RK_{134}$ | 17.3 | 0.15 | 20081001 | 314.73811 | 307.92668 | 140.23871 | 13.44172 | 0.2548744 | 2.4114850 | 12 | 1 | 51 days | 0.63 | | | MPC | | 2008 $RK_{134}$ |
| 2008 $RL_{134}$ | 17.0 | 0.15 | 20100104 | 118.04114 | 35.10162 | 289.80646 | 12.62311 | 0.2590690 | 2.6941168 | 23 | 1 | 62 days | 0.55 | M-v | 4 | MPC | | 2008 $RL_{134}$ |
| 2008 $RO_{134}$ | 17.3 | 0.15 | 20081001 | 352.21459 | 253.46073 | 129.19145 | 3.74319 | 0.2114800 | 2.7634274 | 19 | 1 | 53 days | 0.29 | | | MPC | | 2008 $RO_{134}$ |
| 2008 SH | 16.0 | 0.15 | 20100104 | 135.47168 | 243.01539 | 72.49955 | 10.29581 | 0.0251684 | 3.0236020 | 38 | 5 | 2001–2009 | 0.43 | M-v | 0 | MPC | 150209 | 2008 SH |
| 2008 $SA_1$ | 16.5 | 0.15 | 20100104 | 117.91041 | 210.03864 | 126.82921 | 4.94237 | 0.2340264 | 2.6312240 | 50 | 6 | 1991–2009 | 0.51 | M-v | 1 | MPC | 146709 | 2008 $SA_1$ |
| 2008 $SQ_1$ | 18.5 | 0.15 | 20100104 | 77.59545 | 150.98395 | 269.95675 | 6.70024 | 0.5825504 | 2.9591052 | 659 | 2 | 2004–2009 | 0.37 | M-v | 0 | MPC | 159134 | 2008 $SQ_1$ |
| 2008 $SF_2$ | 17.9 | 0.15 | 20080911 | 345.10479 | 46.90882 | 331.10777 | 12.45716 | 0.2885839 | 2.6521452 | 20 | 1 | 29 days | 0.64 | | | MPC | | 2008 $SF_2$ |
| 2008 $SQ_2$ | 17.4 | 0.15 | 20080911 | 32.45429 | 217.54937 | 86.70024 | 6.30387 | 0.2282871 | 2.3573766 | 14 | 1 | 18 days | 0.45 | | | MPC | | 2008 $SQ_2$ |
| 2008 $SY_2$ | 17.2 | 0.15 | 20080911 | 354.92951 | 308.46514 | 43.86607 | 4.92956 | 0.2594702 | 2.4277104 | 12 | 1 | 10 days | 0.33 | | | MPC | | 2008 $SY_2$ |
| 2008 $SE_3$ | 17.7 | 0.15 | 20080911 | 12.90476 | 182.02038 | 157.37976 | 6.05493 | 0.1470089 | 2.2580574 | 12 | 1 | 9 days | 0.67 | | | MPC | | 2008 $SE_3$ |
| 2008 $SN_3$ | 17.0 | 0.15 | 20080911 | 317.03312 | 32.31162 | 37.56788 | 4.77412 | 0.2782539 | 2.5566476 | 12 | 1 | 2 days | 0.41 | | | MPC | | 2008 $SN_3$ |
| 2008 $SW_3$ | 15.7 | 0.15 | 20100104 | 127.47769 | 285.11095 | 27.10271 | 7.48628 | 0.2980739 | 2.7840779 | 57 | 5 | 1993–2009 | 0.46 | M-v | 1 | MPC | 150211 | 2008 $SW_3$ |
| 2008 $SC_4$ | 17.8 | 0.15 | 20080911 | 343.97910 | 328.82662 | 56.18980 | 3.43328 | 0.2290421 | 2.4370926 | 12 | 1 | 2 days | 0.36 | | E | MPC | | 2008 $SC_4$ |
| 2008 $SL_4$ | 15.5 | 0.15 | 20100104 | 45.72457 | 273.14457 | 138.32902 | 7.12718 | 0.1313423 | 3.1834462 | 32 | 4 | 2002–2009 | 0.56 | M-v | 1 | MPC | 158925 | 2008 $SL_4$ |
| 2008 $SU_4$ | 17.9 | 0.15 | 20081001 | 2.15654 | 223.69497 | 141.49110 | 5.65792 | 0.2486074 | 2.3591160 | 20 | 1 | 30 days | 0.67 | | | MPC | | 2008 $SU_4$ |
| 2008 $SX_4$ | 17.2 | 0.15 | 20100104 | 183.61321 | 171.20735 | 132.62006 | 6.23592 | 0.1791129 | 2.2298916 | 44 | 7 | 1998–2009 | 0.53 | M-v | 1 | MPC | 146714 | 2008 $SX_4$ |
| 2008 $SY_4$ | 15.3 | 0.15 | 20100104 | 177.76208 | 198.61757 | 69.71612 | 6.51975 | 0.0774191 | 3.0463177 | 43 | 5 | 1998–2009 | 0.43 | M-v | 1 | MPC | 150212 | 2008 $SY_4$ |
| 2008 $SQ_5$ | 16.5 | 0.15 | 20100104 | 106.59289 | 235.45948 | 125.28532 | 5.81209 | 0.1736382 | 2.7595759 | 37 | 3 | 2003–2009 | 0.53 | M-v | 4 | MPC | 150213 | 2008 $SQ_5$ |
| 2008 $SF_6$ | 16.6 | 0.15 | 20080911 | 12.16089 | 319.26707 | 23.76823 | 8.52604 | 0.1475549 | 2.7237924 | 11 | 1 | 2 days | 0.30 | | | MPC | | 2008 $SF_6$ |
| 2008 $SG_6$ | 17.6 | 0.15 | 20080911 | 351.77718 | 227.10339 | 144.22952 | 4.88972 | 0.2401157 | 2.3478068 | 13 | 1 | 3 days | 0.50 | | | MPC | | 2008 $SG_6$ |
| 2008 $ST_6$ | 15.9 | 0.15 | 20080911 | 350.14385 | 347.87768 | 30.67181 | 13.56353 | 0.1645882 | 3.0038196 | 12 | 1 | 11 days | 0.41 | | | MPC | | 2008 $ST_6$ |
| 2008 $SZ_6$ | 15.9 | 0.15 | 20080911 | 351.37121 | 356.55783 | 14.68804 | 15.52824 | 0.1337166 | 3.1131099 | 9 | 1 | 2 days | 0.39 | | E | MPC | | 2008 $SZ_6$ |
| 2008 $SE_7$ | 15.8 | 0.15 | 20100104 | 100.89518 | 104.42819 | 247.51890 | 8.35332 | 0.1642153 | 2.8095930 | 47 | 6 | 1999–2009 | 0.38 | M-v | 0 | MPC | 149044 | 2008 $SE_7$ |
| 2008 $SS_8$ | 16.1 | 0.15 | 20080911 | 3.21736 | 5.66072 | 338.44128 | 10.08339 | 0.1922021 | 3.1510238 | 32 | 1 | 48 days | 0.40 | | | MPC | | 2008 $SS_8$ |
| 2008 $SX_9$ | 15.6 | 0.15 | 20100104 | 133.53378 | 102.79732 | 201.36172 | 2.96566 | 0.0848848 | 3.0023934 | 54 | 6 | 1998–2009 | 0.46 | M-v | 0 | MPC | 166325 | 2008 $SX_9$ |
| 2008 $SC_{10}$ | 17.7 | 0.15 | 20080911 | 351.76195 | 185.75234 | 178.20663 | 6.96361 | 0.1359704 | 2.2220013 | 26 | 1 | 23 days | 0.45 | | | MPC | | 2008 $SC_{10}$ |
| 2008 $SS_{10}$ | 16.0 | 0.15 | 20100104 | 55.94816 | 178.85549 | 211.91432 | 0.45469 | 0.1506411 | 3.1419955 | 57 | 5 | 2002–2009 | 0.42 | M-v | 0 | MPC | 150217 | 2008 $SS_{10}$ |
| 2008 $SY_{10}$ | 18.3 | 0.15 | 20080911 | 15.42838 | 296.60284 | 22.73135 | 4.83561 | 0.2959874 | 2.2156402 | 26 | 1 | 46 days | 0.40 | | | MPC | | 2008 $SY_{10}$ |
| 2008 $SG_{12}$ | 15.2 | 0.15 | 20100104 | 136.28658 | 56.96987 | 233.41162 | 7.62825 | 0.0810937 | 3.3636944 | 60 | 4 | 2002–2009 | 0.44 | M-v | 2 | MPC | 166325 | 2008 $SG_{12}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 $SK_{12}$ | 17.7 | 0.15 | 20080911 | 30.26450 | 10.44812 | 283.23366 | 5.06109 | 0.3202636 | 2.5737531 | 17 | 1 | 16 days | 0.66 | | | MPC | | 2008 $SK_{12}$ |
| 2008 $SY_{12}$ | 17.0 | 0.15 | 20081001 | 48.19622 | 225.80609 | 87.75970 | 3.20707 | 0.0636131 | 2.8435749 | 22 | 1 | 59 days | 0.46 | | | MPC | | 2008 $SY_{12}$ |
| 2008 $SP_{13}$ | 16.4 | 0.15 | 20100104 | 77.09279 | 197.61163 | 162.85193 | 5.83052 | 0.0586798 | 2.8024279 | 39 | 4 | 2006–2009 | 0.30 | M-v | 0 | MPC | 146719 | 2008 $SP_{13}$ |
| 2008 $SR_{13}$ | 17.8 | 0.15 | 20080822 | 355.39222 | 1.16848 | 335.12368 | 4.40290 | 0.2124700 | 2.4520241 | 14 | 1 | 31 days | 0.20 | | | MPC | | 2008 $SR_{13}$ |
| 2008 $SD_{14}$ | 17.9 | 0.15 | 20080911 | 317.79352 | 239.59098 | 167.00547 | 4.76973 | 0.2739012 | 2.5768014 | 10 | 1 | 17 days | 0.18 | | | MPC | | 2008 $SD_{14}$ |
| 2008 $SF_{14}$ | 16.0 | 0.15 | 20080911 | 45.78348 | 106.93401 | 158.61469 | 25.90467 | 0.2403030 | 3.0925426 | 10 | 1 | 15 days | 0.17 | | | MPC | | 2008 $SF_{14}$ |
| 2008 $SY_{14}$ | 17.0 | 0.15 | 20080911 | 214.45920 | 227.91768 | 257.79287 | 2.34638 | 0.0535275 | 2.5587698 | 10 | 1 | 17 days | 0.23 | | | MPC | | 2008 $SY_{14}$ |
| 2008 $SQ_{15}$ | 18.5 | 0.15 | 20100104 | 112.27560 | 170.90538 | 192.17905 | 1.01538 | 0.2072486 | 2.3987675 | 20 | 1 | 83 days | 0.43 | M-v | 5 | MPC | | 2008 $SQ_{15}$ |
| 2008 $SS_{15}$ | 17.6 | 0.15 | 20080911 | 9.95741 | 15.81416 | 308.68985 | 1.65753 | 0.1645323 | 2.7324314 | 16 | 1 | 18 days | 0.27 | | | MPC | | 2008 $SS_{15}$ |
| 2008 $SV_{15}$ | 16.4 | 0.15 | 20100104 | 0.81140 | 259.74123 | 178.64922 | 2.24759 | 0.1107000 | 3.0265052 | 45 | 4 | 2003–2009 | 0.34 | M-v | 1 | MPC | 166325 | 2008 $SV_{15}$ |
| 2008 $SD_{16}$ | 17.5 | 0.15 | 20080822 | 3.30877 | 21.81064 | 304.49016 | 3.47503 | 0.2451214 | 2.8592572 | 13 | 1 | 31 days | 0.27 | | | MPC | | 2008 $SD_{16}$ |
| 2008 $SJ_{16}$ | 17.3 | 0.15 | 20080911 | 297.49796 | 87.92027 | 330.23789 | 9.78407 | 0.1591573 | 2.6778961 | 9 | 1 | 4 days | 0.43 | | | MPC | | 2008 $SJ_{16}$ |
| 2008 $SP_{16}$ | 17.7 | 0.15 | 20080822 | 342.51727 | 50.13967 | 310.25267 | 3.39717 | 0.2231983 | 2.6148637 | 19 | 1 | 32 days | 0.30 | | | MPC | | 2008 $SP_{16}$ |
| 2008 $SV_{16}$ | 18.8 | 0.15 | 20080911 | 11.24207 | 140.80731 | 206.70486 | 6.46599 | 0.1418103 | 2.4061719 | 33 | 1 | 33 days | 0.28 | | D | MPC | | 2008 $SV_{16}$ |
| 2008 $SL_{17}$ | 17.4 | 0.15 | 20080911 | 261.13883 | 130.56354 | 315.12397 | 6.00027 | 0.0569187 | 2.2793635 | 10 | 1 | 5 days | 0.21 | | | MPC | | 2008 $SL_{17}$ |
| 2008 $SZ_{17}$ | 16.3 | 0.15 | 20080911 | 281.12570 | 256.44551 | 174.16426 | 11.63690 | 0.1138917 | 3.0817912 | 9 | 1 | 4 days | 0.20 | | | MPC | | 2008 $SZ_{17}$ |
| 2008 $SO_{18}$ | 17.4 | 0.15 | 20080911 | 242.35576 | 115.99581 | 346.65414 | 4.83648 | 0.0558780 | 2.3484293 | 11 | 1 | 13 days | 0.27 | | | MPC | | 2008 $SO_{18}$ |
| 2008 $SQ_{18}$ | 17.9 | 0.15 | 20080822 | 313.59354 | 265.08024 | 131.66585 | 2.20591 | 0.1738411 | 2.4272120 | 9 | 1 | 32 days | 0.27 | | | MPC | | 2008 $SQ_{18}$ |
| 2008 $SZ_{18}$ | 17.2 | 0.15 | 20080911 | 347.97224 | 160.76348 | 196.70450 | 3.88079 | 0.1536481 | 2.7283381 | 9 | 1 | 4 days | 0.33 | | | MPC | | 2008 $SZ_{18}$ |
| 2008 $SC_{19}$ | 16.4 | 0.15 | 20080911 | 12.00014 | 151.47879 | 170.17860 | 17.52093 | 0.2136474 | 3.1581830 | 9 | 1 | 13 days | 0.19 | | | MPC | | 2008 $SC_{19}$ |
| 2008 $SY_{19}$ | 17.4 | 0.15 | 20080911 | 203.94528 | 192.28776 | 310.58039 | 5.38834 | 0.1017766 | 2.2947985 | 22 | 1 | 16 days | 0.29 | | | MPC | | 2008 $SY_{19}$ |
| 2008 $SD_{20}$ | 18.7 | 0.15 | 20080822 | 12.08813 | 36.30987 | 275.83767 | 2.44239 | 0.2878763 | 2.4721541 | 21 | 1 | 54 days | 0.25 | | | MPC | | 2008 $SD_{20}$ |
| 2008 $SR_{20}$ | 18.5 | 0.15 | 20080911 | 3.75573 | 184.94680 | 150.79057 | 2.31626 | 0.2472827 | 2.7787491 | 13 | 1 | 18 days | 0.28 | | | MPC | | 2008 $SR_{20}$ |
| 2008 $ST_{20}$ | 17.5 | 0.15 | 20080911 | 345.83878 | 13.78970 | 346.85941 | 4.98149 | 0.1279425 | 2.6184639 | 11 | 1 | 11 days | 0.17 | | | MPC | | 2008 $ST_{20}$ |
| 2008 $SE_{21}$ | 19.1 | 0.15 | 20080911 | 3.49819 | 111.99137 | 227.60109 | 1.95634 | 0.1696886 | 2.1734622 | 13 | 1 | 14 days | 0.21 | | | MPC | | 2008 $SE_{21}$ |
| 2008 $SH_{21}$ | 16.8 | 0.15 | 20080822 | 332.04982 | 55.27509 | 321.79504 | 4.77248 | 0.1684287 | 3.0700184 | 13 | 1 | 33 days | 0.15 | | | MPC | | 2008 $SH_{21}$ |
| 2008 $SM_{21}$ | 15.4 | 0.15 | 20100104 | 336.62527 | 286.10683 | 178.23029 | 11.60585 | 0.1378329 | 3.1563081 | 47 | 6 | 2000–2009 | 0.39 | M-v | 0 | MPC | 166326 | 2008 $SM_{21}$ |
| 2008 $SN_{21}$ | 18.4 | 0.15 | 20080911 | 25.15627 | 352.79863 | 315.36621 | 3.07312 | 0.1813287 | 2.4107183 | 13 | 1 | 16 days | 0.20 | | | MPC | | 2008 $SN_{21}$ |
| 2008 $SV_{21}$ | 15.4 | 0.15 | 20080911 | 146.11716 | 38.39498 | 149.64942 | 5.30169 | 0.1432858 | 3.0630946 | 10 | 1 | 13 days | 0.26 | | E | MPC | | 2008 $SV_{21}$ |
| 2008 $SF_{22}$ | 16.9 | 0.15 | 20080911 | 94.93907 | 73.00286 | 170.38517 | 21.88171 | 0.0474567 | 2.6373820 | 12 | 1 | 20 days | 0.41 | | | MPC | | 2008 $SF_{22}$ |
| 2008 $SH_{22}$ | 18.6 | 0.15 | 20080911 | 333.30622 | 118.08713 | 269.36602 | 1.73043 | 0.2259321 | 2.3269558 | 9 | 1 | 4 days | 0.68 | | E | MPC | | 2008 $SH_{22}$ |
| 2008 $SM_{22}$ | 17.4 | 0.15 | 20080911 | 128.17691 | 30.94302 | 178.32394 | 6.76352 | 0.0827180 | 2.4094014 | 9 | 1 | 5 days | 0.27 | | | MPC | | 2008 $SM_{22}$ |
| 2008 $SP_{22}$ | 14.2 | 0.15 | 20080911 | 296.15878 | 247.40092 | 169.89503 | 19.73644 | 0.1005156 | 5.2547497 | 9 | 1 | 17 days | 0.17 | | | MPC | | 2008 $SP_{22}$ |
| 2008 $SU_{22}$ | 17.4 | 0.15 | 20080911 | 279.56904 | 274.34770 | 168.01337 | 12.04511 | 0.1586790 | 2.5792480 | 11 | 1 | 13 days | 0.35 | | | MPC | | 2008 $SU_{22}$ |
| 2008 $SY_{22}$ | 17.4 | 0.15 | 20081001 | 319.91988 | 232.80105 | 171.53730 | 12.08510 | 0.1598955 | 2.6059491 | 13 | 1 | 59 days | 0.23 | | | MPC | | 2008 $SY_{22}$ |
| 2008 $SC_{23}$ | 16.7 | 0.15 | 20100104 | 60.25769 | 97.24455 | 287.42741 | 0.90930 | 0.0190214 | 2.9200975 | 39 | 6 | 1998–2009 | 0.25 | M-v | 0 | MPC | 166326 | 2008 $SC_{23}$ |
| 2008 $SH_{23}$ | 16.4 | 0.15 | 20080911 | 127.88904 | 5.93984 | 205.20609 | 0.89337 | 0.1229004 | 2.9739755 | 11 | 1 | 13 days | 0.39 | | E | MPC | | 2008 $SH_{23}$ |
| 2008 $SJ_{23}$ | 17.7 | 0.15 | 20081001 | 359.16325 | 5.10896 | 1.55639 | 17.20954 | 0.1611154 | 2.5465471 | 19 | 1 | 41 days | 0.41 | | | MPC | | 2008 $SJ_{23}$ |
| 2008 $SP_{23}$ | 18.9 | 0.15 | 20080911 | 9.12898 | 95.95266 | 243.44738 | 0.30925 | 0.0579628 | 2.2089391 | 11 | 1 | 15 days | 0.69 | | | MPC | | 2008 $SP_{23}$ |
| 2008 $SQ_{23}$ | 18.1 | 0.15 | 20080911 | 354.10379 | 173.00701 | 185.68574 | 0.91761 | 0.2067435 | 2.8902841 | 11 | 1 | 14 days | 0.20 | | | MPC | | 2008 $SQ_{23}$ |
| 2008 $SZ_{23}$ | 18.7 | 0.15 | 20080911 | 341.58396 | 24.02048 | 353.26633 | 13.58366 | 0.1866947 | 2.6614344 | 15 | 1 | 25 days | 0.29 | | | MPC | | 2008 $SZ_{23}$ |
| 2008 $SB_{24}$ | 16.9 | 0.15 | 20080911 | 289.80286 | 81.69068 | 352.91193 | 15.20123 | 0.1220398 | 2.6996435 | 11 | 1 | 14 days | 0.17 | | | MPC | | 2008 $SB_{24}$ |
| 2008 $SG_{24}$ | 17.7 | 0.15 | 20080911 | 227.76795 | 320.07403 | 168.95516 | 3.07354 | 0.0735180 | 2.3375140 | 15 | 1 | 16 days | 0.51 | | | MPC | | 2008 $SG_{24}$ |
| 2008 $SN_{24}$ | 16.7 | 0.15 | 20080911 | 14.67491 | 323.26668 | 4.08038 | 1.73260 | 0.2249489 | 3.1098401 | 14 | 1 | 14 days | 0.30 | | | MPC | | 2008 $SN_{24}$ |
| 2008 $SO_{24}$ | 16.7 | 0.15 | 20100104 | 67.82101 | 25.11615 | 357.57012 | 5.66861 | 0.2257356 | 3.0763004 | 51 | 3 | 2003–2009 | 0.46 | M-v | 2 | MPC | 158614 | 2008 $SO_{24}$ |
| 2008 $SP_{24}$ | 18.3 | 0.15 | 20080911 | 21.05448 | 143.96756 | 172.29199 | 7.35076 | 0.2357187 | 2.2552838 | 21 | 1 | 22 days | 0.52 | | | MPC | | 2008 $SP_{24}$ |
| 2008 $SR_{25}$ | 16.4 | 0.15 | 20080911 | 334.57833 | 230.49621 | 169.22324 | 6.25203 | 0.3084116 | 3.9954891 | 11 | 1 | 15 days | 0.30 | | E | MPC | | 2008 $SR_{25}$ |
| 2008 $SU_{25}$ | 18.7 | 0.15 | 20080911 | 326.61550 | 26.57540 | 5.15687 | 3.39433 | 0.0993785 | 2.2615453 | 11 | 1 | 15 days | 0.29 | | | MPC | | 2008 $SU_{25}$ |
| 2008 $SV_{25}$ | 16.2 | 0.15 | 20080911 | 168.14377 | 8.49271 | 171.41732 | 16.25581 | 0.2389417 | 2.5044783 | 11 | 1 | 3 days | 0.39 | | E | MPC | | 2008 $SV_{25}$ |
| 2008 $SX_{25}$ | 19.8 | 0.15 | 20080911 | 337.81293 | 2.23844 | 19.06781 | 1.17145 | 0.1558539 | 2.0401325 | 11 | 1 | 3 days | 0.43 | | | MPC | | 2008 $SX_{25}$ |
| 2008 $SY_{25}$ | 13.7 | 0.15 | 20080911 | 186.66834 | 161.57776 | 5.18285 | 5.05348 | 0.0873546 | 5.0576945 | 11 | 1 | 16 days | 0.49 | | E | MPC | | 2008 $SY_{25}$ |
| 2008 $SZ_{25}$ | 19.3 | 0.15 | 20080911 | 336.54606 | 285.08954 | 105.87390 | 0.56084 | 0.2583704 | 2.4001514 | 11 | 1 | 3 days | 0.35 | | | MPC | | 2008 $SZ_{25}$ |
| 2008 $SC_{26}$ | 16.5 | 0.15 | 20080911 | 299.87653 | 248.49724 | 167.93002 | 9.60036 | 0.0375741 | 3.0597153 | 11 | 1 | 16 days | 0.24 | | | MPC | | 2008 $SC_{26}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 $SP_{26}$ | 13.4 | 0.15 | 20080911 | 190.85687 | 20.00259 | 143.58950 | 2.02451 | 0.0769142 | 4.9273937 | 11 | 1 | 15 days | 0.24 | | E | MPC | | 2008 $SP_{26}$ |
| 2008 $SQ_{26}$ | 13.8 | 0.15 | 20080911 | 193.88909 | 159.68484 | 0.79370 | 7.47852 | 0.0565118 | 5.0239551 | 11 | 1 | 15 days | 0.35 | | E | MPC | | 2008 $SQ_{26}$ |
| 2008 $SR_{26}$ | 13.6 | 0.15 | 20080911 | 258.66075 | 293.93000 | 170.12518 | 17.58105 | 0.0878747 | 4.9477449 | 15 | 1 | 16 days | 0.31 | | | MPC | | 2008 $SR_{26}$ |
| 2008 $SS_{26}$ | 18.0 | 0.15 | 20080911 | 359.27657 | 325.63722 | 27.17818 | 1.24886 | 0.1618473 | 2.3970356 | 15 | 1 | 10 days | 0.60 | | | MPC | | 2008 $SS_{26}$ |
| 2008 $SX_{26}$ | 16.6 | 0.15 | 20100104 | 20.01631 | 177.32246 | 268.50103 | 0.87859 | 0.0704384 | 2.9242766 | 50 | 7 | 1999–2009 | 0.38 | M-v | 0 | MPC | 150222 | 2008 $SX_{26}$ |
| 2008 $SW_{27}$ | 16.6 | 0.15 | 20100104 | 29.90034 | 46.47498 | 27.30471 | 2.28945 | 0.0583707 | 2.9537435 | 45 | 5 | 2003–2009 | 0.34 | M-v | 0 | MPC | 150223 | 2008 $SW_{27}$ |
| 2008 $SW_{28}$ | 13.9 | 0.15 | 20100104 | 11.97627 | 174.01599 | 229.23469 | 4.80182 | 0.0902077 | 5.3296604 | 45 | 3 | 2002–2009 | 0.27 | M-v | 2 | MPC | 166326 | 2008 $SW_{28}$ |
| 2008 $SE_{29}$ | 16.0 | 0.15 | 20100104 | 87.35870 | 23.45140 | 343.58422 | 5.38864 | 0.1634914 | 3.0931152 | 46 | 4 | 2003–2009 | 0.38 | M-v | 1 | MPC | 150224 | 2008 $SE_{29}$ |
| 2008 $SE_{31}$ | 18.2 | 0.15 | 20081001 | 27.68679 | 354.87594 | 330.51959 | 7.72475 | 0.2656008 | 2.7265481 | 13 | 1 | 40 days | 0.48 | | | MPC | | 2008 $SE_{31}$ |
| 2008 $SK_{31}$ | 16.5 | 0.15 | 20100104 | 83.37406 | 146.12953 | 232.73511 | 8.56822 | 0.0705457 | 2.9859067 | 39 | 4 | 1998–2009 | 0.35 | M-v | 2 | MPC | 146732 | 2008 $SK_{31}$ |
| 2008 $SB_{32}$ | 17.3 | 0.15 | 20100104 | 208.18533 | 307.45900 | 320.85160 | 5.92441 | 0.1531852 | 2.4427773 | 26 | 3 | 2004–2009 | 0.40 | M-v | 4 | MPC | 146733 | 2008 $SB_{32}$ |
| 2008 $SC_{32}$ | 16.7 | 0.15 | 20100104 | 237.87169 | 345.62517 | 251.89775 | 6.01792 | 0.1562959 | 2.5254448 | 45 | 6 | 2003–2009 | 0.37 | M-v | 0 | MPC | 159813 | 2008 $SC_{32}$ |
| 2008 $ST_{32}$ | 16.9 | 0.15 | 20080911 | 41.14794 | 310.14657 | 352.09772 | 14.07775 | 0.2573242 | 3.1081560 | 10 | 1 | 12 days | 0.40 | | | MPC | | 2008 $ST_{32}$ |
| 2008 $SA_{33}$ | 18.4 | 0.15 | 20080911 | 358.59406 | 358.18095 | 344.74794 | 26.00155 | 0.2081265 | 2.1995977 | 10 | 1 | 3 days | 0.66 | | | MPC | | 2008 $SA_{33}$ |
| 2008 $SJ_{33}$ | 17.3 | 0.15 | 20100104 | 85.67526 | 213.25394 | 155.34440 | 2.11736 | 0.1291138 | 2.7019852 | 47 | 5 | 1999–2009 | 0.32 | M-v | 0 | MPC | 146735 | 2008 $SJ_{33}$ |
| 2008 $SW_{33}$ | 17.6 | 0.15 | 20080911 | 348.15513 | 9.98460 | 355.23908 | 3.92277 | 0.1980327 | 2.4374671 | 28 | 1 | 36 days | 0.51 | | | MPC | | 2008 $SW_{33}$ |
| 2008 $SR_{34}$ | 16.3 | 0.15 | 20080911 | 34.66936 | 315.27729 | 14.34492 | 17.13918 | 0.1165020 | 3.1817994 | 21 | 1 | 45 days | 0.32 | | | MPC | | 2008 $SR_{34}$ |
| 2008 $SC_{35}$ | 15.9 | 0.15 | 20100104 | 129.68073 | 154.20072 | 185.48571 | 4.21489 | 0.0772059 | 2.7830989 | 71 | 7 | 1992–2009 | 0.44 | M-v | 1 | MPC | 149047 | 2008 $SC_{35}$ |
| 2008 $SA_{36}$ | 17.1 | 0.15 | 20100104 | 81.73962 | 12.55399 | 32.76537 | 2.39288 | 0.0934328 | 2.6638217 | 65 | 7 | 1995–2009 | 0.36 | M-v | 0 | MPC | 151073 | 2008 $SA_{36}$ |
| 2008 $SQ_{36}$ | 17.3 | 0.15 | 20080911 | 345.34229 | 194.47143 | 176.29502 | 8.57412 | 0.2151784 | 2.7861607 | 20 | 1 | 16 days | 0.52 | | | MPC | | 2008 $SQ_{36}$ |
| 2008 $SX_{36}$ | 18.6 | 0.15 | 20080911 | 9.21682 | 341.36064 | 349.84365 | 12.53764 | 0.2726368 | 2.5432548 | 15 | 1 | 32 days | 0.44 | | | MPC | | 2008 $SX_{36}$ |
| 2008 $SB_{38}$ | 16.9 | 0.15 | 20080911 | 119.66501 | 234.14966 | 350.46554 | 16.18733 | 0.0602224 | 2.4712277 | 12 | 1 | 15 days | 0.42 | | | MPC | | 2008 $SB_{38}$ |
| 2008 $SF_{38}$ | 17.7 | 0.15 | 20080911 | 359.37105 | 181.93760 | 170.19770 | 6.28598 | 0.1744053 | 3.0231590 | 12 | 1 | 16 days | 0.59 | | E | MPC | | 2008 $SF_{38}$ |
| 2008 $SC_{39}$ | 15.8 | 0.15 | 20100104 | 197.99767 | 235.98964 | 25.86571 | 8.96006 | 0.0460547 | 2.9971358 | 45 | 5 | 2001–2009 | 0.45 | M-v | 1 | MPC | 152508 | 2008 $SC_{39}$ |
| 2008 $SM_{39}$ | 13.1 | 0.15 | 20100104 | 349.26075 | 43.54445 | 32.04374 | 9.83744 | 0.0689100 | 5.1911692 | 46 | 3 | 2007–2009 | 0.43 | M-v | 2 | MPC | 165601 | 2008 $SM_{39}$ |
| 2008 $SO_{39}$ | 15.7 | 0.15 | 20100104 | 144.63428 | 235.72754 | 60.27060 | 3.05873 | 0.0910832 | 3.3976407 | 35 | 4 | 2005–2009 | 0.39 | M-v | 0 | MPC | 146742 | 2008 $SO_{39}$ |
| 2008 $SY_{39}$ | 13.2 | 0.15 | 20100104 | 301.70457 | 24.53100 | 96.41377 | 3.02178 | 0.0442907 | 5.3414271 | 50 | 4 | 2001–2009 | 0.34 | M-v | 1 | MPC | 166326 | 2008 $SY_{39}$ |
| 2008 $SW_{40}$ | 15.9 | 0.15 | 20100104 | 81.96078 | 330.71556 | 42.34334 | 2.58660 | 0.0668335 | 2.8288742 | 60 | 6 | 1996–2009 | 0.47 | M-v | 1 | MPC | 146744 | 2008 $SW_{40}$ |
| 2008 $ST_{41}$ | 15.9 | 0.15 | 20080911 | 185.99215 | 356.53216 | 173.45815 | 20.29569 | 0.2209574 | 2.8712799 | 12 | 1 | 15 days | 0.62 | | E | MPC | | 2008 $ST_{41}$ |
| 2008 $SC_{42}$ | 16.6 | 0.15 | 20080911 | 3.63340 | 156.14775 | 194.50746 | 0.30188 | 0.1786340 | 3.1656702 | 19 | 1 | 48 days | 0.35 | | | MPC | | 2008 $SC_{42}$ |
| 2008 $SO_{42}$ | 14.0 | 0.15 | 20100104 | 359.84700 | 50.73887 | 15.07165 | 4.58554 | 0.0587019 | 5.2281229 | 48 | 5 | 1996–2009 | 0.38 | M-v | 0 | MPC | 166326 | 2008 $SO_{42}$ |
| 2008 $SF_{43}$ | 16.7 | 0.15 | 20100104 | 31.62648 | 276.77676 | 157.19741 | 1.18301 | 0.1802977 | 3.0767580 | 59 | 4 | 2003–2009 | 0.39 | M-v | 0 | MPC | 166326 | 2008 $SF_{43}$ |
| 2008 $SK_{44}$ | 16.1 | 0.15 | 20100104 | 21.08183 | 57.31689 | 33.23799 | 3.04272 | 0.0531031 | 3.1009839 | 51 | 5 | 2000–2009 | 0.26 | M-v | 0 | MPC | 166326 | 2008 $SK_{44}$ |
| 2008 $ST_{47}$ | 16.8 | 0.15 | 20080911 | 264.28394 | 114.04235 | 353.53612 | 12.47231 | 0.1241647 | 2.7741052 | 14 | 1 | 18 days | 0.21 | | | MPC | | 2008 $ST_{47}$ |
| 2008 $SB_{48}$ | 17.1 | 0.15 | 20080911 | 7.47227 | 151.19898 | 192.78251 | 7.50891 | 0.2606407 | 3.0422510 | 14 | 1 | 28 days | 0.41 | | | MPC | | 2008 $SB_{48}$ |
| 2008 $SE_{48}$ | 18.9 | 0.15 | 20080911 | 32.28033 | 107.54671 | 208.63496 | 2.73708 | 0.1334404 | 2.2418630 | 14 | 1 | 26 days | 0.28 | | | MPC | | 2008 $SE_{48}$ |
| 2008 $SH_{48}$ | 15.6 | 0.15 | 20080911 | 248.93958 | 123.32635 | 354.09531 | 10.14170 | 0.0438933 | 3.3907564 | 10 | 1 | 18 days | 0.19 | | | MPC | | 2008 $SH_{48}$ |
| 2008 $SS_{48}$ | 17.8 | 0.15 | 20080911 | 335.09384 | 40.19594 | 0.25554 | 32.74047 | 0.2548684 | 2.5783545 | 21 | 1 | 10 days | 0.43 | | | MPC | | 2008 $SS_{48}$ |
| 2008 $SW_{48}$ | 16.8 | 0.15 | 20080911 | 1.13499 | 171.11337 | 188.45333 | 9.41451 | 0.0908865 | 3.1629552 | 10 | 1 | 6 days | 0.40 | | | MPC | | 2008 $SW_{48}$ |
| 2008 $SE_{49}$ | 19.4 | 0.15 | 20080911 | 12.90548 | 139.52495 | 201.29762 | 1.90594 | 0.1332797 | 2.1465668 | 14 | 1 | 26 days | 0.38 | | | MPC | | 2008 $SE_{49}$ |
| 2008 $SG_{49}$ | 17.3 | 0.15 | 20080911 | 63.34218 | 91.47506 | 186.18569 | 15.33507 | 0.1746500 | 2.6508593 | 10 | 1 | 6 days | 0.25 | | | MPC | | 2008 $SG_{49}$ |
| 2008 $SM_{49}$ | 17.5 | 0.15 | 20080911 | 21.26843 | 13.27543 | 321.75080 | 1.23883 | 0.0974749 | 2.8647693 | 18 | 1 | 51 days | 0.29 | | | MPC | | 2008 $SM_{49}$ |
| 2008 $SA_{50}$ | 17.1 | 0.15 | 20100104 | 131.44999 | 331.22244 | 356.00748 | 4.15330 | 0.0705787 | 2.7913713 | 50 | 4 | 1994–2009 | 0.36 | M-v | 1 | MPC | 150236 | 2008 $SA_{50}$ |
| 2008 $SE_{50}$ | 18.4 | 0.15 | 20081001 | 6.00795 | 167.46037 | 188.89984 | 5.13905 | 0.2580857 | 2.6380229 | 37 | 1 | 35 days | 0.38 | | | MPC | | 2008 $SE_{50}$ |
| 2008 $SP_{50}$ | 16.4 | 0.15 | 20100104 | 62.90745 | 59.39371 | 343.59361 | 1.54053 | 0.0705509 | 2.8501849 | 55 | 6 | 2001–2009 | 0.40 | M-v | 0 | MPC | 166326 | 2008 $SP_{50}$ |
| 2008 $SV_{50}$ | 16.8 | 0.15 | 20080911 | 75.09250 | 95.17233 | 188.24674 | 4.09456 | 0.0386677 | 2.7832984 | 18 | 1 | 51 days | 0.37 | | | MPC | | 2008 $SV_{50}$ |
| 2008 $SB_{51}$ | 18.9 | 0.15 | 20080911 | 30.01675 | 141.92046 | 182.17149 | 6.87478 | 0.1049113 | 2.3405658 | 14 | 1 | 36 days | 0.32 | | | MPC | | 2008 $SB_{51}$ |
| 2008 $SL_{52}$ | 18.4 | 0.15 | 20081001 | 346.74000 | 25.16405 | 8.15841 | 8.75335 | 0.2208228 | 2.7102268 | 14 | 1 | 28 days | 0.32 | | | MPC | | 2008 $SL_{52}$ |
| 2008 $SX_{52}$ | 16.4 | 0.15 | 20100104 | 89.81834 | 357.37401 | 14.27863 | 2.48356 | 0.0826829 | 2.9817206 | 59 | 4 | 2003–2009 | 0.39 | M-v | 1 | MPC | 158614 | 2008 $SX_{52}$ |
| 2008 $SZ_{54}$ | 16.9 | 0.15 | 20080911 | 5.75649 | 347.18609 | 16.32579 | 8.67960 | 0.1269146 | 3.1038523 | 11 | 1 | 13 days | 0.23 | | | MPC | | 2008 $SZ_{54}$ |
| 2008 $SL_{55}$ | 17.0 | 0.15 | 20100104 | 215.71341 | 251.72361 | 8.15360 | 3.46924 | 0.0978586 | 2.5741231 | 35 | 4 | 1994–2009 | 0.38 | M-v | 2 | MPC | 166326 | 2008 $SL_{55}$ |
| 2008 $SS_{55}$ | 16.2 | 0.15 | 20100104 | 62.35535 | 204.46572 | 195.28502 | 1.30420 | 0.0710903 | 3.1450190 | 53 | 5 | 1997–2009 | 0.34 | M-v | 0 | MPC | 152508 | 2008 $SS_{55}$ |
| 2008 $SV_{59}$ | 17.9 | 0.15 | 20081001 | 42.94138 | 131.25315 | 187.52526 | 10.25504 | 0.2497347 | 2.9261743 | 10 | 1 | 32 days | 0.35 | | | MPC | | 2008 $SV_{59}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 $SE_{60}$ | 16.1 | 0.15 | 20100104 | 158.10352 | 24.97807 | 281.58460 | 14.26970 | 0.1731456 | 2.6897884 | 40 | 4 | 2000–2009 | 0.53 | M-v | 3 | MPC | 166326 | 2008 $SE_{60}$ |
| 2008 $SK_{60}$ | 16.2 | 0.15 | 20080911 | 324.70162 | 132.47761 | 296.57691 | 15.45860 | 0.2091480 | 3.2054727 | 12 | 1 | 10 days | 0.46 | | | MPC | | 2008 $SK_{60}$ |
| 2008 $SM_{61}$ | 16.4 | 0.15 | 20080822 | 77.51917 | 280.84291 | 313.08023 | 4.54480 | 0.1901987 | 2.7384089 | 12 | 1 | 35 days | 0.66 | | | MPC | | 2008 $SM_{61}$ |
| 2008 $SP_{61}$ | 16.6 | 0.15 | 20080822 | 323.89948 | 44.28434 | 331.03038 | 11.31133 | 0.0719334 | 2.9120034 | 16 | 1 | 49 days | 0.25 | | | MPC | | 2008 $SP_{61}$ |
| 2008 $SR_{63}$ | 16.1 | 0.15 | 20100104 | 284.87862 | 248.76728 | 281.27678 | 3.50660 | 0.1324937 | 3.2072652 | 42 | 5 | 1998–2009 | 0.36 | M-v | 0 | MPC | 166326 | 2008 $SR_{63}$ |
| 2008 $SV_{63}$ | 16.3 | 0.15 | 20100104 | 118.54508 | 110.37688 | 218.48378 | 4.88981 | 0.1484153 | 3.1092301 | 53 | 5 | 2001–2009 | 0.41 | M-v | 0 | MPC | 151074 | 2008 $SV_{63}$ |
| 2008 $SB_{64}$ | 17.8 | 0.15 | 20080911 | 282.89408 | 124.72981 | 329.64275 | 4.89913 | 0.1105382 | 2.6278045 | 13 | 1 | 52 days | 0.23 | | | MPC | | 2008 $SB_{64}$ |
| 2008 $SP_{65}$ | 16.4 | 0.15 | 20100104 | 59.96966 | 97.49621 | 339.06390 | 0.93548 | 0.0592159 | 2.7056895 | 69 | 5 | 1997–2009 | 0.41 | M-v | 1 | MPC | 151074 | 2008 $SP_{65}$ |
| 2008 $SA_{66}$ | 18.5 | 0.15 | 20081001 | 1.43414 | 181.37986 | 202.98613 | 6.77642 | 0.1569849 | 2.1953636 | 23 | 1 | 46 days | 0.26 | | | MPC | | 2008 $SA_{66}$ |
| 2008 $SP_{68}$ | 14.9 | 0.15 | 20081001 | 219.77949 | 339.70139 | 180.41671 | 25.53041 | 0.0581326 | 3.2476779 | 11 | 1 | 35 days | 0.52 | | | MPC | | 2008 $SP_{68}$ |
| 2008 $SQ_{68}$ | 16.0 | 0.15 | 20100104 | 142.94120 | 18.18685 | 308.89766 | 4.61021 | 0.1013474 | 2.6611723 | 52 | 5 | 1997–2009 | 0.37 | M-v | 1 | MPC | 158615 | 2008 $SQ_{68}$ |
| 2008 $SZ_{68}$ | 16.8 | 0.15 | 20080911 | 25.08877 | 315.67253 | 358.08589 | 4.49891 | 0.0586591 | 2.7762383 | 9 | 1 | 14 days | 0.19 | | | MPC | | 2008 $SZ_{68}$ |
| 2008 $SS_{69}$ | 15.4 | 0.15 | 20080911 | 351.00371 | 25.12752 | 333.76486 | 8.85650 | 0.1220949 | 3.4924756 | 16 | 1 | 4 days | 0.50 | | | MPC | | 2008 $SS_{69}$ |
| 2008 $SJ_{70}$ | 16.9 | 0.15 | 20100104 | 263.00119 | 122.64099 | 86.87049 | 2.70104 | 0.0189819 | 2.8287122 | 41 | 3 | 2006–2009 | 0.36 | M-v | 3 | MPC | 150250 | 2008 $SJ_{70}$ |
| 2008 $SP_{70}$ | 18.0 | 0.15 | 20080911 | 6.65016 | 218.35608 | 121.05585 | 1.81317 | 0.2318500 | 3.0861268 | 12 | 1 | 16 days | 0.28 | | | MPC | | 2008 $SP_{70}$ |
| 2008 $SU_{70}$ | 17.6 | 0.15 | 20100104 | 128.50903 | 314.12994 | 34.60776 | 0.97948 | 0.2102944 | 2.4007233 | 24 | 1 | 79 days | 0.49 | M-v | 4 | MPC | | 2008 $SU_{70}$ |
| 2008 $ST_{71}$ | 17.0 | 0.15 | 20100104 | 38.70438 | 149.16551 | 314.09911 | 3.29886 | 0.2117199 | 2.6033251 | 48 | 4 | 2004–2009 | 0.30 | M-v | 0 | MPC | 150250 | 2008 $ST_{71}$ |
| 2008 $SB_{73}$ | 15.2 | 0.15 | 20080911 | 25.13388 | 240.51751 | 100.88393 | 10.71689 | 0.0821412 | 3.1793788 | 10 | 1 | 9 days | 0.32 | | | MPC | | 2008 $SB_{73}$ |
| 2008 $SW_{73}$ | 14.0 | 0.15 | 20080911 | 24.98454 | 131.96629 | 214.88807 | 6.71714 | 0.0192523 | 5.1554594 | 12 | 1 | 52 days | 0.25 | | | MPC | | 2008 $SW_{73}$ |
| 2008 $SB_{75}$ | 16.8 | 0.15 | 20100104 | 71.35393 | 254.15306 | 119.46368 | 2.91984 | 0.1577962 | 3.0541054 | 37 | 7 | 1992–2009 | 0.40 | M-v | 0 | MPC | 146774 | 2008 $SB_{75}$ |
| 2008 $SH_{75}$ | 16.3 | 0.15 | 20080911 | 31.15754 | 28.27656 | 290.23457 | 2.78134 | 0.1349053 | 3.0668269 | 21 | 1 | 36 days | 0.57 | | | MPC | | 2008 $SH_{75}$ |
| 2008 $SU_{75}$ | 16.6 | 0.15 | 20100104 | 94.81959 | 37.65755 | 332.09008 | 3.51821 | 0.0928124 | 2.7713067 | 45 | 4 | 2004–2009 | 0.49 | M-v | 1 | MPC | 166326 | 2008 $SU_{75}$ |
| 2008 $SY_{75}$ | 16.6 | 0.15 | 20080911 | 236.99112 | 306.00090 | 201.65175 | 6.56774 | 0.2946227 | 2.4194326 | 10 | 1 | 21 days | 0.11 | | | MPC | | 2008 $SY_{75}$ |
| 2008 $SR_{77}$ | 18.3 | 0.15 | 20080911 | 44.49842 | 99.55779 | 201.93812 | 4.54081 | 0.1664669 | 2.7173522 | 14 | 1 | 38 days | 0.19 | | | MPC | | 2008 $SR_{77}$ |
| 2008 $SW_{77}$ | 18.4 | 0.15 | 20080911 | 82.12097 | 301.07017 | 332.15745 | 1.90087 | 0.0489938 | 2.2377542 | 11 | 1 | 8 days | 0.18 | | | MPC | | 2008 $SW_{77}$ |
| 2008 $SZ_{78}$ | 17.2 | 0.15 | 20100104 | 83.90279 | 34.01019 | 354.16360 | 13.06902 | 0.1985765 | 2.7676990 | 30 | 1 | 92 days | 0.49 | M-v | 4 | MPC | | 2008 $SZ_{78}$ |
| 2008 $SB_{79}$ | 17.8 | 0.15 | 20100104 | 136.58193 | 353.56125 | 324.61856 | 3.19736 | 0.2445451 | 2.6181413 | 18 | 1 | 67 days | 0.42 | M-v | 4 | MPC | | 2008 $SB_{79}$ |
| 2008 $SR_{81}$ | 16.3 | 0.15 | 20100104 | 79.40603 | 247.30122 | 138.66380 | 6.27178 | 0.0313910 | 2.6522457 | 28 | 4 | 2006–2009 | 0.45 | M-v | 1 | MPC | 160580 | 2008 $SR_{81}$ |
| 2008 $SB_{82}$ | 15.6 | 0.15 | 20100104 | 356.61325 | 349.78016 | 108.53302 | 4.26755 | 0.0665131 | 3.2111197 | 42 | 6 | 2002–2009 | 0.39 | M-v | 0 | MPC | 166326 | 2008 $SB_{82}$ |
| 2008 $SD_{82}$ | 16.1 | 0.15 | 20100104 | 79.24840 | 317.03145 | 62.41087 | 5.64709 | 0.1224788 | 3.1512225 | 31 | 4 | 2003–2009 | 0.47 | M-v | 1 | MPC | 155509 | 2008 $SD_{82}$ |
| 2008 $SE_{82}$ | 14.8 | 0.15 | 20100104 | 7.72316 | 300.41355 | 21.35626 | 17.42893 | 0.8363447 | 19.5846789 | 22 | 1 | 61 days | 0.68 | M-v | 3 | MPC | | 2008 $SE_{82}$ |
| 2008 $SF_{82}$ | 18.2 | 0.15 | 20080911 | 335.31934 | 239.73689 | 153.91220 | 5.22542 | 0.1448130 | 2.2776439 | 14 | 1 | 25 days | 0.39 | | | MPC | | 2008 $SF_{82}$ |
| 2008 $SM_{82}$ | 16.1 | 0.15 | 20100104 | 60.83343 | 331.48115 | 64.30449 | 6.64356 | 0.0047207 | 2.7752028 | 32 | 6 | 1997–2009 | 0.50 | M-v | 1 | MPC | 149051 | 2008 $SM_{82}$ |
| 2008 $SQ_{82}$ | 17.3 | 0.15 | 20080911 | 18.02995 | 241.63776 | 86.05327 | 2.88063 | 0.2288771 | 2.7132157 | 14 | 1 | 24 days | 0.50 | | | MPC | | 2008 $SQ_{82}$ |
| 2008 $SU_{82}$ | 15.0 | 0.15 | 20100104 | 98.36064 | 63.75621 | 287.49345 | 11.87900 | 0.2869181 | 3.0721948 | 74 | 3 | 2002–2009 | 0.31 | M-v | 2 | MPC | 166326 | 2008 $SU_{82}$ |
| 2008 $SA_{83}$ | 16.6 | 0.15 | 20100104 | 69.57115 | 145.68580 | 263.02553 | 10.11280 | 0.0786205 | 2.3956171 | 82 | 4 | 2001–2009 | 0.39 | M-v | 1 | MPC | 160908 | 2008 $SA_{83}$ |
| 2008 $SB_{83}$ | 16.6 | 0.15 | 20100104 | 169.28337 | 38.78096 | 219.41676 | 12.72681 | 0.2207970 | 2.6271737 | 29 | 1 | 159 days | 0.51 | M-v | 5 | MPC | | 2008 $SB_{83}$ |
| 2008 $SG_{83}$ | 16.7 | 0.15 | 20100104 | 63.23262 | 214.05874 | 185.27795 | 4.36674 | 0.0828881 | 2.7571877 | 30 | 5 | 1997–2009 | 0.47 | M-v | 1 | MPC | 150255 | 2008 $SG_{83}$ |
| 2008 $SB_{84}$ | 15.7 | 0.15 | 20081001 | 351.01702 | 174.35876 | 208.22905 | 10.94233 | 0.1240973 | 3.1156398 | 21 | 1 | 30 days | 0.46 | | | MPC | | 2008 $SB_{84}$ |
| 2008 $SN_{84}$ | 17.9 | 0.15 | 20081001 | 14.32175 | 11.76991 | 343.54120 | 6.04569 | 0.1163767 | 2.2998452 | 14 | 1 | 15 days | 0.19 | | | MPC | | 2008 $SN_{84}$ |
| 2008 $SP_{84}$ | 18.5 | 0.15 | 20081001 | 340.48271 | 163.50362 | 236.42236 | 4.13912 | 0.1567183 | 2.2734256 | 10 | 1 | 10 days | 0.31 | | | MPC | | 2008 $SP_{84}$ |
| 2008 $SU_{84}$ | 15.6 | 0.15 | 20100104 | 79.55740 | 351.17736 | 44.21690 | 2.95948 | 0.0392056 | 3.1004898 | 69 | 5 | 2002–2009 | 0.47 | M-v | 0 | MPC | 166326 | 2008 $SU_{84}$ |
| 2008 $SP_{85}$ | 18.4 | 0.15 | 20080911 | 341.29463 | 180.95034 | 185.09450 | 6.36061 | 0.1118817 | 2.3343426 | 13 | 1 | 26 days | 0.25 | | | MPC | | 2008 $SP_{85}$ |
| 2008 $SA_{86}$ | 17.6 | 0.15 | 20080911 | 328.62102 | 182.41620 | 219.22938 | 12.35800 | 0.0624396 | 2.7614481 | 9 | 1 | 18 days | 0.22 | | | MPC | | 2008 $SA_{86}$ |
| 2008 $SD_{86}$ | 14.6 | 0.15 | 20100104 | 33.38049 | 142.98632 | 236.69315 | 10.80942 | 0.1072194 | 5.1743960 | 30 | 3 | 1995–2009 | 0.23 | M-v | 2 | MPC | 165601 | 2008 $SD_{86}$ |
| 2008 $SG_{86}$ | 17.4 | 0.15 | 20080911 | 55.07005 | 41.46034 | 250.12105 | 6.44747 | 0.1872952 | 2.6161295 | 9 | 1 | 18 days | 0.24 | | | MPC | | 2008 $SG_{86}$ |
| 2008 $SS_{87}$ | 17.1 | 0.15 | 20080822 | 359.90512 | 188.94358 | 154.48340 | 9.01350 | 0.2267222 | 2.7914629 | 23 | 1 | 54 days | 0.42 | | | MPC | | 2008 $SS_{87}$ |
| 2008 $SB_{88}$ | 15.2 | 0.15 | 20100104 | 145.70509 | 56.34838 | 235.66474 | 3.73232 | 0.0635941 | 2.9687709 | 47 | 4 | 1993–2009 | 0.50 | M-v | 3 | MPC | 166326 | 2008 $SB_{88}$ |
| 2008 $ST_{89}$ | 16.0 | 0.15 | 20080911 | 294.25194 | 85.88445 | 350.65854 | 15.43126 | 0.1447029 | 3.1762478 | 14 | 1 | 32 days | 0.29 | | | MPC | | 2008 $ST_{89}$ |
| 2008 $SY_{90}$ | 16.9 | 0.15 | 20100104 | 142.08210 | 99.53266 | 216.63954 | 2.75335 | 0.1918588 | 2.7543222 | 45 | 5 | 1999–2009 | 0.34 | M-v | 0 | MPC | 149052 | 2008 $SY_{90}$ |
| 2008 $SM_{94}$ | 16.7 | 0.15 | 20100104 | 20.44621 | 240.45495 | 205.23358 | 2.92295 | 0.0677720 | 2.7794583 | 50 | 7 | 1994–2009 | 0.33 | M-v | 0 | MPC | 150262 | 2008 $SM_{94}$ |
| 2008 $SJ_{95}$ | 18.9 | 0.15 | 20080911 | 70.04881 | 92.83577 | 183.49371 | 22.23828 | 0.0791895 | 1.9729040 | 12 | 1 | 11 days | 0.20 | | | MPC | | 2008 $SJ_{95}$ |
| 2008 $SJ_{97}$ | 16.0 | 0.15 | 20100104 | 331.82019 | 217.71489 | 292.05238 | 2.26984 | 0.0328764 | 2.7765584 | 50 | 5 | 1998–2009 | 0.42 | M-v | 2 | MPC | 166326 | 2008 $SJ_{97}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 $SF_{99}$ | 18.1 | 0.15 | 20080911 | 45.58075 | 239.86022 | 64.16338 | 4.23703 | 0.2495379 | 2.2800479 | 9 | 1 | 16 days | 0.14 | | | MPC | | 2008 $SF_{99}$ |
| 2008 $SW_{103}$ | 17.0 | 0.15 | 20100104 | 207.57463 | 269.70222 | 20.92172 | 3.61616 | 0.0498348 | 2.4666084 | 45 | 5 | 1996–2009 | 0.34 | M-v | 1 | MPC | 151075 | 2008 $SW_{103}$ |
| 2008 $SR_{107}$ | 18.8 | 0.15 | 20080911 | 5.73311 | 1.38696 | 352.18219 | 13.67438 | 0.2546589 | 2.5976527 | 12 | 1 | 34 days | 0.21 | | | MPC | | 2008 $SR_{107}$ |
| 2008 $SZ_{107}$ | 16.0 | 0.15 | 20081001 | 49.77325 | 325.88072 | 354.80933 | 15.13424 | 0.0492072 | 3.0633660 | 13 | 1 | 38 days | 0.17 | | | MPC | | 2008 $SZ_{107}$ |
| 2008 $SK_{108}$ | 13.2 | 0.15 | 20080911 | 255.75464 | 131.57020 | 339.65766 | 15.91610 | 0.1764530 | 5.2732800 | 12 | 1 | 16 days | 0.23 | | E | MPC | | 2008 $SK_{108}$ |
| 2008 $SH_{109}$ | 19.5 | 0.15 | 20080911 | 11.88623 | 7.09929 | 326.19354 | 3.38802 | 0.1481007 | 2.1961269 | 16 | 1 | 18 days | 0.37 | | | MPC | | 2008 $SH_{109}$ |
| 2008 $SP_{109}$ | 17.2 | 0.15 | 20080911 | 300.06737 | 91.59881 | 337.80931 | 7.57350 | 0.1775238 | 2.7363115 | 15 | 1 | 24 days | 0.16 | | | MPC | | 2008 $SP_{109}$ |
| 2008 $SU_{109}$ | 16.1 | 0.15 | 20100104 | 175.17764 | 224.64706 | 56.66462 | 3.98150 | 0.0805282 | 2.9406307 | 36 | 4 | 2003–2009 | 0.31 | M-v | 0 | MPC | 149054 | 2008 $SU_{109}$ |
| 2008 $SL_{110}$ | 16.3 | 0.15 | 20100104 | 146.76455 | 182.77099 | 135.20743 | 2.62502 | 0.0855849 | 2.8062963 | 61 | 8 | 1998–2009 | 0.40 | M-v | 0 | MPC | 152509 | 2008 $SL_{110}$ |
| 2008 $SO_{111}$ | 18.6 | 0.15 | 20080911 | 7.81709 | 209.53337 | 130.01359 | 2.03649 | 0.2205099 | 2.6307150 | 12 | 1 | 18 days | 0.25 | | | MPC | | 2008 $SO_{111}$ |
| 2008 $SR_{111}$ | 18.4 | 0.15 | 20080911 | 339.14935 | 214.48564 | 165.04561 | 7.30597 | 0.1232190 | 2.4389198 | 12 | 1 | 19 days | 0.21 | | | MPC | | 2008 $SR_{111}$ |
| 2008 $SG_{112}$ | 17.1 | 0.15 | 20080911 | 59.20353 | 130.57996 | 162.31558 | 5.96785 | 0.1710003 | 2.2360254 | 25 | 1 | 48 days | 0.56 | | | MPC | | 2008 $SG_{112}$ |
| 2008 $SQ_{112}$ | 16.1 | 0.15 | 20100104 | 39.13149 | 331.66091 | 112.43556 | 3.43133 | 0.1717902 | 3.0120199 | 52 | 7 | 1994–2009 | 0.46 | M-v | 0 | MPC | 153681 | 2008 $SQ_{112}$ |
| 2008 $ST_{112}$ | 15.9 | 0.15 | 20100104 | 122.61022 | 190.21656 | 138.42374 | 4.28933 | 0.1819509 | 3.0138691 | 57 | 5 | 2003–2009 | 0.43 | M-v | 1 | MPC | 146807 | 2008 $ST_{112}$ |
| 2008 $SC_{113}$ | 17.3 | 0.15 | 20080911 | 17.76273 | 168.17812 | 165.27985 | 10.61805 | 0.0724063 | 2.5510160 | 12 | 1 | 18 days | 0.18 | | | MPC | | 2008 $SC_{113}$ |
| 2008 $SG_{113}$ | 16.6 | 0.15 | 20080911 | 2.49705 | 250.41059 | 101.06350 | 2.69149 | 0.1467757 | 3.1422506 | 11 | 1 | 17 days | 0.26 | | | MPC | | 2008 $SG_{113}$ |
| 2008 $SK_{113}$ | 13.6 | 0.15 | 20080911 | 15.88504 | 254.86549 | 83.11105 | 3.54841 | 0.0706623 | 5.2843166 | 11 | 1 | 17 days | 0.26 | | | MPC | | 2008 $SK_{113}$ |
| 2008 $SV_{113}$ | 17.6 | 0.15 | 20081001 | 8.05287 | 192.53224 | 172.13208 | 9.86016 | 0.1616395 | 2.7642862 | 14 | 1 | 29 days | 0.20 | | | MPC | | 2008 $SV_{113}$ |
| 2008 $SN_{115}$ | 17.1 | 0.15 | 20081001 | 358.67155 | 213.97349 | 166.31151 | 8.65234 | 0.1997504 | 3.0246618 | 13 | 1 | 30 days | 0.23 | | | MPC | | 2008 $SN_{115}$ |
| 2008 $SW_{115}$ | 17.1 | 0.15 | 20080911 | 313.95589 | 293.44402 | 131.71155 | 5.58576 | 0.0584243 | 2.7677361 | 9 | 1 | 16 days | 0.26 | | | MPC | | 2008 $SW_{115}$ |
| 2008 $SJ_{116}$ | 15.9 | 0.15 | 20100104 | 136.23558 | 260.55165 | 74.28315 | 4.40280 | 0.0644880 | 2.8876261 | 56 | 5 | 2003–2009 | 0.42 | M-v | 0 | MPC | 166327 | 2008 $SJ_{116}$ |
| 2008 $SS_{116}$ | 17.9 | 0.15 | 20081001 | 345.12053 | 29.25406 | 8.74076 | 6.30763 | 0.0825138 | 2.3699938 | 14 | 1 | 28 days | 0.24 | | | MPC | | 2008 $SS_{116}$ |
| 2008 $SA_{117}$ | 16.6 | 0.15 | 20081001 | 70.39874 | 270.09543 | 17.23165 | 15.48484 | 0.2259780 | 3.0941140 | 21 | 1 | 37 days | 0.26 | | | MPC | | 2008 $SA_{117}$ |
| 2008 $SW_{119}$ | 16.5 | 0.15 | 20100104 | 46.48248 | 237.09004 | 193.44585 | 2.21666 | 0.0192449 | 2.9660834 | 21 | 1 | 63 days | 0.38 | M-v | 4 | MPC | | 2008 $SW_{119}$ |
| 2008 $SH_{120}$ | 13.8 | 0.15 | 20080911 | 324.63655 | 318.45323 | 122.24036 | 0.29402 | 0.2086222 | 4.9316048 | 10 | 1 | 4 days | 0.39 | | E | MPC | | 2008 $SH_{120}$ |
| 2008 $SM_{121}$ | 13.7 | 0.15 | 20100104 | 3.44649 | 205.15876 | 222.68719 | 3.62396 | 0.0602161 | 5.2176311 | 53 | 3 | 2007–2009 | 0.36 | M-v | 2 | MPC | 165602 | 2008 $SM_{121}$ |
| 2008 $SP_{123}$ | 17.4 | 0.15 | 20081001 | 36.95494 | 306.01812 | 21.31688 | 8.30388 | 0.2451473 | 3.0501991 | 13 | 1 | 28 days | 0.42 | | | MPC | | 2008 $SP_{123}$ |
| 2008 $SD_{127}$ | 15.4 | 0.15 | 20100104 | 46.04360 | 184.93425 | 218.86196 | 4.44105 | 0.2615580 | 3.9771317 | 77 | 4 | 1992–2009 | 0.43 | M-v | 1 | MPC | 152509 | 2008 $SD_{127}$ |
| 2008 $SF_{127}$ | 16.4 | 0.15 | 20080911 | 353.88033 | 6.93760 | 19.59041 | 18.07754 | 0.1786095 | 3.1050197 | 13 | 1 | 29 days | 0.23 | | | MPC | | 2008 $SF_{127}$ |
| 2008 $SD_{129}$ | 16.0 | 0.15 | 20100104 | 181.68363 | 305.97718 | 351.07987 | 3.25214 | 0.1731149 | 2.5745345 | 74 | 5 | 2002–2009 | 0.41 | M-v | 0 | MPC | 151076 | 2008 $SD_{129}$ |
| 2008 $SH_{129}$ | 16.5 | 0.15 | 20100104 | 21.00480 | 131.39190 | 357.94023 | 3.85567 | 0.1161686 | 2.6128945 | 34 | 4 | 2003–2009 | 0.41 | M-v | 2 | MPC | 152509 | 2008 $SH_{129}$ |
| 2008 $SK_{130}$ | 16.8 | 0.15 | 20100104 | 358.85957 | 277.25218 | 235.96154 | 3.18004 | 0.0411075 | 2.4064482 | 52 | 5 | 1993–2009 | 0.47 | M-v | 1 | MPC | 152509 | 2008 $SK_{130}$ |
| 2008 $SY_{133}$ | 16.4 | 0.15 | 20080911 | 294.44215 | 248.80824 | 181.45139 | 8.56727 | 0.2119482 | 3.1264506 | 13 | 1 | 16 days | 0.27 | | | MPC | | 2008 $SY_{133}$ |
| 2008 $SZ_{133}$ | 16.2 | 0.15 | 20100104 | 24.61628 | 118.33912 | 313.27455 | 3.97128 | 0.0955516 | 2.7465313 | 48 | 5 | 2002–2009 | 0.24 | M-v | 0 | MPC | 164337 | 2008 $SZ_{133}$ |
| 2008 $SM_{134}$ | 16.0 | 0.15 | 20100104 | 328.97141 | 154.72140 | 335.56378 | 9.78224 | 0.0521797 | 3.1151852 | 31 | 4 | 1997–2009 | 0.39 | M-v | 1 | MPC | 150289 | 2008 $SM_{134}$ |
| 2008 $SA_{136}$ | 13.3 | 0.15 | 20080911 | 323.97880 | 250.18402 | 149.45492 | 9.99149 | 0.1570974 | 5.3354352 | 12 | 1 | 19 days | 0.33 | | | MPC | | 2008 $SA_{136}$ |
| 2008 $SJ_{136}$ | 17.1 | 0.15 | 20100104 | 233.35710 | 0.46406 | 251.83684 | 4.43948 | 0.1961176 | 2.3354576 | 44 | 5 | 2004–2009 | 0.42 | M-v | 1 | MPC | 159813 | 2008 $SJ_{136}$ |
| 2008 $SP_{136}$ | 16.6 | 0.15 | 20100104 | 24.28361 | 139.35589 | 318.79516 | 5.57656 | 0.2152174 | 3.1005525 | 36 | 3 | 1999–2009 | 0.30 | M-v | 2 | MPC | 146826 | 2008 $SP_{136}$ |
| 2008 $SA_{137}$ | 16.6 | 0.15 | 20080911 | 47.14410 | 289.59069 | 359.74579 | 25.88974 | 0.2534869 | 3.1039871 | 14 | 1 | 29 days | 0.25 | | | MPC | | 2008 $SA_{137}$ |
| 2008 $SB_{137}$ | 13.9 | 0.15 | 20100104 | 28.67970 | 344.08609 | 44.85887 | 8.21586 | 0.0841377 | 5.2309639 | 34 | 2 | 2008–2009 | 0.24 | M-v | 3 | MPC | 165602 | 2008 $SB_{137}$ |
| 2008 $SH_{137}$ | 16.0 | 0.15 | 20081001 | 290.84959 | 55.64571 | 38.19023 | 10.88312 | 0.0758741 | 3.2204178 | 10 | 1 | 15 days | 0.20 | | | MPC | | 2008 $SH_{137}$ |
| 2008 $SV_{137}$ | 18.6 | 0.15 | 20081021 | 356.39096 | 338.05259 | 59.89555 | 2.33179 | 0.1868118 | 2.5451162 | 16 | 1 | 58 days | 0.33 | | | MPC | | 2008 $SV_{137}$ |
| 2008 $SJ_{139}$ | 18.0 | 0.15 | 20081001 | 15.40590 | 283.50813 | 50.56749 | 1.99497 | 0.2603774 | 2.4149361 | 24 | 1 | 57 days | 0.54 | | | MPC | | 2008 $SJ_{139}$ |
| 2008 $SL_{140}$ | 16.0 | 0.15 | 20100104 | 10.90643 | 171.29513 | 278.94398 | 10.12383 | 0.0650407 | 3.0742308 | 34 | 3 | 2003–2009 | 0.32 | M-v | 3 | MPC | 158163 | 2008 $SL_{140}$ |
| 2008 $SO_{140}$ | 16.4 | 0.15 | 20081001 | 19.41070 | 88.40644 | 258.24501 | 10.54347 | 0.0812529 | 3.1737658 | 11 | 1 | 15 days | 0.23 | | | MPC | | 2008 $SO_{140}$ |
| 2008 $SP_{140}$ | 16.0 | 0.15 | 20100104 | 114.44512 | 56.68342 | 283.12615 | 9.93147 | 0.0745064 | 2.9778191 | 32 | 3 | 2003–2009 | 0.29 | M-v | 4 | MPC | 150291 | 2008 $SP_{140}$ |
| 2008 $SP_{143}$ | 13.4 | 0.15 | 20100104 | 47.67916 | 331.55422 | 60.08443 | 7.74312 | 0.0629388 | 5.1630111 | 53 | 3 | 2007–2009 | 0.33 | M-v | 2 | MPC | 165602 | 2008 $SP_{143}$ |
| 2008 $SE_{144}$ | 17.0 | 0.15 | 20080911 | 93.50118 | 28.15294 | 217.44021 | 4.23217 | 0.0769204 | 2.6718568 | 11 | 1 | 7 days | 0.33 | | | MPC | | 2008 $SE_{144}$ |
| 2008 $SM_{144}$ | 18.1 | 0.15 | 20080911 | 322.65553 | 248.98155 | 163.23087 | 13.32965 | 0.2655200 | 2.6553533 | 15 | 1 | 24 days | 0.25 | | | MPC | | 2008 $SM_{144}$ |
| 2008 $SN_{144}$ | 13.8 | 0.15 | 20080911 | 147.87168 | 69.49041 | 132.18730 | 6.89684 | 0.0119630 | 5.0202128 | 11 | 1 | 19 days | 0.43 | | E | MPC | | 2008 $SN_{144}$ |
| 2008 $SV_{144}$ | 14.2 | 0.15 | 20100104 | 359.22578 | 136.85222 | 298.94300 | 1.17594 | 0.0519279 | 5.1333852 | 42 | 4 | 2002–2009 | 0.40 | M-v | 1 | MPC | 165602 | 2008 $SV_{144}$ |
| 2008 $SV_{145}$ | 15.0 | 0.15 | 20100104 | 228.10979 | 328.90489 | 245.55085 | 9.68333 | 0.0817905 | 3.2184985 | 51 | 3 | 2003–2009 | 0.35 | M-v | 2 | MPC | 166327 | 2008 $SV_{145}$ |
| 2008 $SE_{146}$ | 17.2 | 0.15 | 20100104 | 270.57309 | 294.94771 | 281.18433 | 5.58413 | 0.0779533 | 2.3823021 | 40 | 6 | 1997–2009 | 0.33 | M-v | 1 | MPC | 146832 | 2008 $SE_{146}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 $SP_{146}$ | 18.5 | 0.15 | 20081001 | 357.78052 | 58.59384 | 313.48764 | 5.32575 | 0.1668363 | 2.2779343 | 23 | 1 | 54 days | 0.27 | | | MPC | | 2008 $SP_{146}$ |
| 2008 $SG_{147}$ | 16.2 | 0.15 | 20100104 | 103.18865 | 60.98332 | 326.62367 | 10.17388 | 0.0658361 | 2.6184603 | 39 | 4 | 1999–2009 | 0.39 | M-v | 2 | MPC | 146833 | 2008 $SG_{147}$ |
| 2008 $SM_{147}$ | 16.6 | 0.15 | 20081001 | 245.56104 | 260.51026 | 230.20604 | 10.60817 | 0.0833822 | 2.5299482 | 14 | 1 | 37 days | 0.16 | | | MPC | | 2008 $SM_{147}$ |
| 2008 $SP_{147}$ | 16.2 | 0.15 | 20100104 | 203.57723 | 319.23576 | 296.26513 | 5.98166 | 0.0867896 | 2.7543123 | 48 | 4 | 2003–2009 | 0.32 | M-v | 1 | MPC | 146834 | 2008 $SP_{147}$ |
| 2008 $ST_{147}$ | 16.9 | 0.15 | 20100104 | 123.10734 | 152.31521 | 194.10624 | 2.02098 | 0.1027568 | 2.7238209 | 68 | 6 | 1999–2009 | 0.38 | M-v | 0 | MPC | 146835 | 2008 $ST_{147}$ |
| 2008 $SL_{149}$ | 16.7 | 0.15 | 20100104 | 335.72564 | 239.26133 | 259.65895 | 8.01139 | 0.1075263 | 2.8036500 | 28 | 3 | 2003–2009 | 0.25 | M-v | 3 | MPC | 150296 | 2008 $SL_{149}$ |
| 2008 $SO_{149}$ | 15.2 | 0.15 | 20100104 | 125.97858 | 67.92358 | 247.46412 | 10.00959 | 0.0595354 | 2.9623721 | 44 | 4 | 2003–2009 | 0.50 | M-v | 2 | MPC | 146837 | 2008 $SO_{149}$ |
| 2008 $SH_{152}$ | 18.0 | 0.15 | 20100104 | 128.98285 | 124.00436 | 246.78523 | 3.72201 | 0.2038695 | 2.2749591 | 42 | 1 | 62 days | 0.57 | M-v | 4 | MPC | | 2008 $SH_{152}$ |
| 2008 $SY_{152}$ | 16.7 | 0.15 | 20100104 | 111.09279 | 349.84664 | 2.38065 | 3.59802 | 0.1186230 | 2.6618634 | 39 | 4 | 2004–2009 | 0.37 | M-v | 1 | MPC | 146840 | 2008 $SY_{152}$ |
| 2008 $SZ_{152}$ | 19.4 | 0.15 | 20080911 | 0.06708 | 181.11052 | 170.42843 | 4.47614 | 0.4244957 | 2.6545728 | 9 | 1 | 7 days | 0.27 | | E | MPC | | 2008 $SZ_{152}$ |
| 2008 $SK_{153}$ | 16.5 | 0.15 | 20100104 | 73.49787 | 226.41782 | 151.68096 | 3.23145 | 0.1306775 | 3.0267593 | 33 | 5 | 1998–2009 | 0.40 | M-v | 1 | MPC | 149060 | 2008 $SK_{153}$ |
| 2008 $SY_{153}$ | 19.0 | 0.15 | 20080911 | 349.47148 | 3.44806 | 8.18075 | 8.88327 | 0.2148402 | 2.0549489 | 18 | 1 | 6 days | 0.51 | | | MPC | | 2008 $SY_{153}$ |
| 2008 $SB_{154}$ | 16.4 | 0.15 | 20080911 | 18.64909 | 309.18943 | 11.91197 | 10.32333 | 0.3178559 | 3.0230626 | 18 | 1 | 8 days | 0.54 | | | MPC | | 2008 $SB_{154}$ |
| 2008 $SD_{154}$ | 15.9 | 0.15 | 20080911 | 342.96467 | 6.58962 | 15.06945 | 10.02466 | 0.1195637 | 3.1024591 | 11 | 1 | 6 days | 0.33 | | | MPC | | 2008 $SD_{154}$ |
| 2008 $SF_{154}$ | 17.6 | 0.15 | 20080911 | 14.42376 | 234.21972 | 102.08818 | 1.88809 | 0.1945580 | 2.4647232 | 11 | 1 | 6 days | 0.40 | | | MPC | | 2008 $SF_{154}$ |
| 2008 $SV_{154}$ | 17.9 | 0.15 | 20080911 | 345.58928 | 322.30512 | 63.09921 | 1.92641 | 0.3281859 | 2.9632697 | 10 | 1 | 6 days | 0.32 | | | MPC | | 2008 $SV_{154}$ |
| 2008 $SA_{155}$ | 17.6 | 0.15 | 20080911 | 352.27514 | 342.96565 | 22.69838 | 5.00244 | 0.2039500 | 2.4587594 | 12 | 1 | 6 days | 0.57 | | | MPC | | 2008 $SA_{155}$ |
| 2008 $SC_{155}$ | 17.7 | 0.15 | 20080911 | 352.01741 | 313.23904 | 57.78350 | 3.35262 | 0.1851772 | 2.4659931 | 11 | 1 | 5 days | 0.43 | | | MPC | | 2008 $SC_{155}$ |
| 2008 $SK_{155}$ | 15.6 | 0.15 | 20100104 | 140.52808 | 243.74001 | 73.05423 | 4.99282 | 0.0645636 | 2.9582495 | 52 | 6 | 1996–2009 | 0.45 | M-v | 0 | MPC | 166327 | 2008 $SK_{155}$ |
| 2008 $SS_{156}$ | 16.1 | 0.15 | 20080911 | 21.63551 | 291.58075 | 26.67203 | 3.07280 | 0.1841317 | 3.0783013 | 18 | 1 | 5 days | 0.57 | | | MPC | | 2008 $SS_{156}$ |
| 2008 $SU_{156}$ | 14.5 | 0.15 | 20080911 | 138.37636 | 200.17464 | 359.48716 | 13.16484 | 0.1968309 | 3.0775235 | 16 | 1 | 7 days | 0.54 | | | MPC | | 2008 $SU_{156}$ |
| 2008 $SV_{156}$ | 16.6 | 0.15 | 20100104 | 63.74779 | 56.06969 | 336.30558 | 0.99290 | 0.1411134 | 2.9131897 | 48 | 5 | 2003–2009 | 0.47 | M-v | 0 | MPC | 150300 | 2008 $SV_{156}$ |
| 2008 $SA_{157}$ | 16.1 | 0.15 | 20080911 | 28.88846 | 348.01231 | 331.81401 | 5.78253 | 0.0985127 | 2.7018721 | 13 | 1 | 5 days | 0.66 | | E | MPC | | 2008 $SA_{157}$ |
| 2008 $SB_{157}$ | 13.7 | 0.15 | 20080911 | 118.20456 | 215.80913 | 349.31157 | 18.98465 | 0.4380561 | 2.7583422 | 16 | 1 | 5 days | 0.35 | | | MPC | | 2008 $SB_{157}$ |
| 2008 $SJ_{157}$ | 17.8 | 0.15 | 20100104 | 100.79703 | 184.29636 | 189.39049 | 6.47888 | 0.2992505 | 2.6304980 | 20 | 1 | 88 days | 0.50 | M-v | 4 | MPC | | 2008 $SJ_{157}$ |
| 2008 $SM_{157}$ | 17.8 | 0.15 | 20080911 | 352.69681 | 12.40838 | 355.29717 | 13.80960 | 0.2434630 | 2.5491696 | 12 | 1 | 8 days | 0.41 | | | MPC | | 2008 $SM_{157}$ |
| 2008 $SA_{159}$ | 15.7 | 0.15 | 20080911 | 320.00583 | 57.47856 | 343.35297 | 9.76152 | 0.0436312 | 3.1260520 | 10 | 1 | 8 days | 0.24 | | | MPC | | 2008 $SA_{159}$ |
| 2008 $SN_{161}$ | 18.3 | 0.15 | 20080911 | 345.99496 | 206.00005 | 174.22154 | 2.50782 | 0.1562958 | 2.2474364 | 13 | 1 | 3 days | 0.58 | | E | MPC | | 2008 $SN_{161}$ |
| 2008 $SD_{162}$ | 15.7 | 0.15 | 20081001 | 337.60648 | 25.61255 | 12.76884 | 27.71090 | 0.1274120 | 3.1304902 | 15 | 1 | 34 days | 0.45 | | | MPC | | 2008 $SD_{162}$ |
| 2008 $SF_{162}$ | 17.2 | 0.15 | 20100104 | 172.14694 | 248.09416 | 47.66308 | 3.36297 | 0.1341849 | 2.5323272 | 61 | 7 | 1999–2009 | 0.35 | M-v | 0 | MPC | 146850 | 2008 $SF_{162}$ |
| 2008 $SB_{163}$ | 15.7 | 0.15 | 20100104 | 78.63194 | 295.19867 | 79.34222 | 2.15538 | 0.1662594 | 3.1515018 | 69 | 5 | 2000–2009 | 0.40 | M-v | 0 | MPC | 151077 | 2008 $SB_{163}$ |
| 2008 $ST_{163}$ | 15.9 | 0.15 | 20100104 | 178.00924 | 252.63197 | 31.26625 | 6.53268 | 0.0411782 | 2.8403605 | 48 | 3 | 2006–2009 | 0.37 | M-v | 2 | MPC | 150305 | 2008 $ST_{163}$ |
| 2008 $SO_{164}$ | 15.3 | 0.15 | 20100104 | 159.75260 | 214.89428 | 88.12018 | 3.28795 | 0.0485061 | 2.8685508 | 62 | 6 | 2000–2009 | 0.42 | M-v | 0 | MPC | 152509 | 2008 $SO_{164}$ |
| 2008 $SS_{164}$ | 17.4 | 0.15 | 20081001 | 357.61650 | 189.70843 | 188.90697 | 22.50304 | 0.1637019 | 2.3275214 | 21 | 1 | 29 days | 0.54 | | | MPC | | 2008 $SS_{164}$ |
| 2008 $SG_{165}$ | 15.7 | 0.15 | 20100104 | 91.44536 | 203.03309 | 168.00192 | 4.82137 | 0.1035082 | 3.0751090 | 62 | 4 | 2002–2009 | 0.40 | M-v | 2 | MPC | 150306 | 2008 $SG_{165}$ |
| 2008 $SX_{165}$ | 13.4 | 0.15 | 20100104 | 54.08576 | 168.54337 | 185.92286 | 8.76199 | 0.1418664 | 5.1923419 | 49 | 3 | 2007–2009 | 0.41 | M-v | 2 | MPC | 166327 | 2008 $SX_{165}$ |
| 2008 $SD_{166}$ | 15.7 | 0.15 | 20100104 | 52.01834 | 318.27306 | 93.40662 | 2.67389 | 0.1375095 | 3.1742792 | 72 | 6 | 1997–2009 | 0.40 | M-v | 0 | MPC | 166327 | 2008 $SD_{166}$ |
| 2008 $SY_{168}$ | 18.5 | 0.15 | 20080911 | 14.76913 | 344.96245 | 344.76018 | 5.27342 | 0.2220256 | 2.1754745 | 24 | 1 | 27 days | 0.35 | | | MPC | | 2008 $SY_{168}$ |
| 2008 $SY_{169}$ | 13.9 | 0.15 | 20080911 | 288.31025 | 226.65176 | 210.66438 | 8.20225 | 0.0793770 | 5.2175807 | 11 | 1 | 25 days | 0.32 | | | MPC | | 2008 $SY_{169}$ |
| 2008 $SM_{170}$ | 14.1 | 0.15 | 20080911 | 240.96526 | 282.28578 | 197.92147 | 11.82741 | 0.0416375 | 5.2452686 | 11 | 1 | 25 days | 0.14 | | | MPC | | 2008 $SM_{170}$ |
| 2008 $SF_{171}$ | 17.7 | 0.15 | 20080911 | 9.92345 | 96.00893 | 246.67090 | 3.57491 | 0.1168468 | 2.6868428 | 11 | 1 | 23 days | 0.17 | | | MPC | | 2008 $SF_{171}$ |
| 2008 $SM_{171}$ | 18.6 | 0.15 | 20080911 | 15.31324 | 111.47463 | 223.60048 | 4.18208 | 0.1260769 | 2.3696391 | 11 | 1 | 23 days | 0.17 | | | MPC | | 2008 $SM_{171}$ |
| 2008 $SV_{171}$ | 16.7 | 0.15 | 20080911 | 186.05288 | 195.23570 | 336.43886 | 9.79816 | 0.0373940 | 3.1237932 | 11 | 1 | 23 days | 0.24 | | | MPC | | 2008 $SV_{171}$ |
| 2008 $SG_{172}$ | 18.8 | 0.15 | 20100104 | 143.61096 | 135.61898 | 209.77505 | 5.43760 | 0.2718222 | 2.2581030 | 15 | 1 | 63 days | 0.33 | M-v | 4 | MPC | | 2008 $SG_{172}$ |
| 2008 $ST_{172}$ | 17.8 | 0.15 | 20100104 | 96.07634 | 284.97335 | 125.90675 | 2.91893 | 0.2091036 | 2.4745581 | 17 | 1 | 103 days | 0.20 | M-v | 4 | MPC | | 2008 $ST_{172}$ |
| 2008 $SP_{173}$ | 18.2 | 0.15 | 20081001 | 41.89403 | 29.07642 | 288.07295 | 1.88411 | 0.2417653 | 2.5371421 | 13 | 1 | 28 days | 0.24 | | | MPC | | 2008 $SP_{173}$ |
| 2008 $SU_{173}$ | 15.6 | 0.15 | 20100104 | 60.61020 | 95.09148 | 299.83470 | 12.79503 | 0.1097713 | 3.0358182 | 38 | 6 | 1997–2009 | 0.50 | M-v | 0 | MPC | 149063 | 2008 $SU_{173}$ |
| 2008 $SK_{174}$ | 15.9 | 0.15 | 20100104 | 45.59912 | 116.49529 | 327.74552 | 11.61350 | 0.1318980 | 2.6410468 | 39 | 3 | 2004–2009 | 0.54 | M-v | 2 | MPC | 166327 | 2008 $SK_{174}$ |
| 2008 $SL_{174}$ | 15.9 | 0.15 | 20100104 | 81.06591 | 86.74330 | 306.23786 | 8.11407 | 0.0894942 | 2.7349625 | 39 | 4 | 2003–2009 | 0.37 | M-v | 1 | MPC | 166327 | 2008 $SL_{174}$ |
| 2008 $SA_{175}$ | 18.7 | 0.15 | 20080911 | 44.96519 | 57.91817 | 241.12044 | 4.90821 | 0.1788058 | 2.2651645 | 10 | 1 | 23 days | 0.16 | | | MPC | | 2008 $SA_{175}$ |
| 2008 $SF_{175}$ | 17.6 | 0.15 | 20081001 | 331.67263 | 52.33579 | 348.74919 | 13.26242 | 0.0709711 | 2.6077390 | 11 | 1 | 16 days | 0.35 | | | MPC | | 2008 $SF_{175}$ |
| 2008 $SM_{175}$ | 16.8 | 0.15 | 20080911 | 321.11181 | 113.30922 | 303.51384 | 4.39731 | 0.1784042 | 2.6747089 | 13 | 1 | 34 days | 0.42 | | | MPC | | 2008 $SM_{175}$ |
| 2008 $SR_{175}$ | 16.3 | 0.15 | 20080911 | 3.02609 | 2.92252 | 357.41485 | 22.85020 | 0.1401344 | 3.0091281 | 17 | 1 | 46 days | 0.27 | | | MPC | | 2008 $SR_{175}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 $SL_{176}$ | 17.1 | 0.15 | 20100104 | 141.15115 | 284.33097 | 38.85886 | 5.34828 | 0.2100579 | 2.6064421 | 60 | 4 | 2004–2009 | 0.38 | M-v | 1 | MPC | 149063 | 2008 $SL_{176}$ |
| 2008 $SU_{178}$ | 18.1 | 0.15 | 20080911 | 31.65882 | 126.25112 | 190.53291 | 5.60385 | 0.1399850 | 2.3909397 | 14 | 1 | 57 days | 0.33 | | | MPC | | 2008 $SU_{178}$ |
| 2008 $SG_{179}$ | 19.2 | 0.15 | 20080911 | 5.84285 | 192.96811 | 156.23582 | 0.39846 | 0.2546868 | 2.6981349 | 11 | 1 | 7 days | 0.30 | | | MPC | | 2008 $SG_{179}$ |
| 2008 $SA_{180}$ | 13.4 | 0.15 | 20100104 | 14.66189 | 5.00911 | 49.81461 | 5.06841 | 0.0797747 | 5.1777531 | 64 | 5 | 2001–2009 | 0.40 | M-v | 0 | MPC | 165603 | 2008 $SA_{180}$ |
| 2008 $SA_{182}$ | 18.9 | 0.15 | 20081021 | 2.70229 | 349.86858 | 41.41322 | 6.54216 | 0.1433740 | 2.3008454 | 22 | 1 | 57 days | 0.33 | | | MPC | | 2008 $SA_{182}$ |
| 2008 $SO_{185}$ | 18.7 | 0.15 | 20081001 | 22.74737 | 148.44009 | 207.65361 | 21.50509 | 0.0736237 | 1.9193140 | 12 | 1 | 29 days | 0.15 | | | MPC | | 2008 $SO_{185}$ |
| 2008 $SQ_{185}$ | 17.5 | 0.15 | 20080911 | 9.14191 | 128.26498 | 209.23034 | 7.40596 | 0.1333975 | 2.3171556 | 18 | 1 | 32 days | 0.61 | | | MPC | | 2008 $SQ_{185}$ |
| 2008 $SS_{185}$ | 17.1 | 0.15 | 20081001 | 260.67860 | 250.14906 | 232.93140 | 8.04775 | 0.1367371 | 2.5455482 | 11 | 1 | 14 days | 0.16 | | | MPC | | 2008 $SS_{185}$ |
| 2008 $SU_{185}$ | 17.8 | 0.15 | 20080911 | 263.66156 | 126.57612 | 354.67550 | 23.20797 | 0.1651764 | 2.2682822 | 14 | 1 | 34 days | 0.20 | | | MPC | | 2008 $SU_{185}$ |
| 2008 $SW_{185}$ | 16.6 | 0.15 | 20100104 | 6.61143 | 200.69508 | 295.44725 | 7.00646 | 0.2109947 | 2.5778980 | 35 | 3 | 2006–2009 | 0.31 | M-v | 2 | MPC | 166327 | 2008 $SW_{185}$ |
| 2008 $SB_{186}$ | 16.2 | 0.15 | 20081001 | 219.59383 | 182.48466 | 335.73794 | 10.59657 | 0.0868854 | 2.9840633 | 14 | 1 | 50 days | 0.32 | | | MPC | | 2008 $SB_{186}$ |
| 2008 $SG_{186}$ | 16.4 | 0.15 | 20080911 | 4.91097 | 5.34123 | 339.42903 | 10.57697 | 0.0759291 | 3.1349015 | 16 | 1 | 31 days | 0.26 | | | MPC | | 2008 $SG_{186}$ |
| 2008 $SK_{186}$ | 17.9 | 0.15 | 20080911 | 27.47455 | 104.30549 | 206.31097 | 7.80915 | 0.2203124 | 2.3358937 | 14 | 1 | 8 days | 0.53 | | | MPC | | 2008 $SK_{186}$ |
| 2008 $SU_{186}$ | 16.4 | 0.15 | 20100104 | 278.30017 | 303.87479 | 252.50696 | 3.89140 | 0.0646787 | 2.8537432 | 35 | 4 | 2003–2009 | 0.36 | M-v | 1 | MPC | 146868 | 2008 $SU_{186}$ |
| 2008 $SD_{188}$ | 16.0 | 0.15 | 20080911 | 64.33384 | 300.29051 | 4.47218 | 8.47341 | 0.0959402 | 3.0375316 | 9 | 1 | 8 days | 0.19 | | | MPC | | 2008 $SD_{188}$ |
| 2008 $SD_{189}$ | 19.0 | 0.15 | 20081001 | 344.71262 | 70.85325 | 313.19350 | 3.90439 | 0.2428756 | 2.3874505 | 15 | 1 | 55 days | 0.23 | | | MPC | | 2008 $SD_{189}$ |
| 2008 $SF_{189}$ | 16.0 | 0.15 | 20080911 | 357.20045 | 11.57426 | 343.33538 | 18.05221 | 0.1717459 | 3.0987373 | 16 | 1 | 24 days | 0.21 | | | MPC | | 2008 $SF_{189}$ |
| 2008 $SH_{189}$ | 16.5 | 0.15 | 20100104 | 341.34269 | 159.74953 | 326.55826 | 7.84825 | 0.1486222 | 2.7526247 | 27 | 4 | 2001–2009 | 0.44 | M-v | 2 | MPC | 146870 | 2008 $SH_{189}$ |
| 2008 $SZ_{190}$ | 16.9 | 0.15 | 20100104 | 194.56859 | 52.48375 | 231.28274 | 3.84902 | 0.1528939 | 2.3308982 | 57 | 7 | 1993–2009 | 0.48 | M-v | 1 | MPC | 159813 | 2008 $SZ_{190}$ |
| 2008 $SF_{191}$ | 15.7 | 0.15 | 20100104 | 24.98870 | 187.02892 | 257.02227 | 3.83155 | 0.0283804 | 2.7853102 | 50 | 4 | 2004–2009 | 0.42 | M-v | 0 | MPC | 162542 | 2008 $SF_{191}$ |
| 2008 $SL_{192}$ | 18.7 | 0.15 | 20081001 | 19.18186 | 212.05078 | 140.91793 | 3.92817 | 0.2209996 | 2.5317483 | 10 | 1 | 27 days | 0.29 | | | MPC | | 2008 $SL_{192}$ |
| 2008 $SP_{193}$ | 18.2 | 0.15 | 20080911 | 70.60812 | 196.27274 | 97.06749 | 4.07612 | 0.0918218 | 2.0705926 | 9 | 1 | 4 days | 0.13 | | | MPC | | 2008 $SP_{193}$ |
| 2008 $ST_{193}$ | 17.6 | 0.15 | 20080911 | 55.99898 | 207.12764 | 102.94606 | 4.54149 | 0.1144624 | 2.5274273 | 9 | 1 | 4 days | 0.25 | | | MPC | | 2008 $ST_{193}$ |
| 2008 $SO_{194}$ | 18.0 | 0.15 | 20081001 | 18.21497 | 336.50000 | 21.93616 | 13.83018 | 0.1949920 | 2.6276932 | 9 | 1 | 29 days | 0.11 | | | MPC | | 2008 $SO_{194}$ |
| 2008 $SB_{196}$ | 15.6 | 0.15 | 20100104 | 32.45461 | 241.53962 | 185.80349 | 2.07108 | 0.1152536 | 3.9777367 | 34 | 3 | 2007–2009 | 0.31 | M-v | 2 | MPC | 150322 | 2008 $SB_{196}$ |
| 2008 $SL_{197}$ | 17.3 | 0.15 | 20081021 | 40.93308 | 302.40366 | 37.30429 | 13.26002 | 0.1740655 | 2.6513658 | 17 | 1 | 56 days | 0.15 | | | MPC | | 2008 $SL_{197}$ |
| 2008 $SM_{197}$ | 16.8 | 0.15 | 20100104 | 139.76002 | 276.33566 | 73.06634 | 3.62068 | 0.0934596 | 2.6637712 | 38 | 4 | 2001–2008 | 0.29 | M-v | 1 | MPC | 151078 | 2008 $SM_{197}$ |
| 2008 $SL_{198}$ | 16.4 | 0.15 | 20100104 | 140.48967 | 217.35366 | 122.28722 | 3.03072 | 0.1038873 | 2.8422313 | 48 | 5 | 2003–2009 | 0.33 | M-v | 1 | MPC | 150324 | 2008 $SL_{198}$ |
| 2008 $SQ_{198}$ | 16.5 | 0.15 | 20081001 | 18.76881 | 118.94380 | 228.50133 | 11.75773 | 0.0513774 | 3.2148072 | 15 | 1 | 33 days | 0.29 | | | MPC | | 2008 $SQ_{198}$ |
| 2008 $SX_{198}$ | 18.5 | 0.15 | 20080911 | 332.53023 | 94.10529 | 298.90734 | 11.47832 | 0.3007861 | 2.6513501 | 12 | 1 | 5 days | 0.24 | | | MPC | | 2008 $SX_{198}$ |
| 2008 $SB_{199}$ | 18.1 | 0.15 | 20081001 | 337.25266 | 89.62626 | 301.17959 | 10.59774 | 0.2855619 | 2.6080368 | 12 | 1 | 36 days | 0.26 | | | MPC | | 2008 $SB_{199}$ |
| 2008 $SD_{199}$ | 18.3 | 0.15 | 20080911 | 326.51741 | 153.77533 | 234.85727 | 7.82208 | 0.1816721 | 2.4773734 | 12 | 1 | 5 days | 0.29 | | | MPC | | 2008 $SD_{199}$ |
| 2008 $ST_{199}$ | 16.7 | 0.15 | 20081001 | 252.45050 | 284.77657 | 215.61410 | 10.72547 | 0.0641794 | 3.2149531 | 14 | 1 | 24 days | 0.29 | | | MPC | | 2008 $ST_{199}$ |
| 2008 $SZ_{202}$ | 17.1 | 0.15 | 20081001 | 355.50081 | 337.75164 | 53.51158 | 10.84133 | 0.1030127 | 3.3576682 | 16 | 1 | 27 days | 0.32 | | D | MPC | | 2008 $SZ_{202}$ |
| 2008 $SM_{203}$ | 17.8 | 0.15 | 20081001 | 32.29869 | 257.26237 | 64.95674 | 5.56913 | 0.3812270 | 3.1995220 | 9 | 1 | 12 days | 0.13 | | | MPC | | 2008 $SM_{203}$ |
| 2008 $SU_{203}$ | 15.3 | 0.15 | 20100104 | 55.59173 | 253.54761 | 144.12090 | 3.78525 | 0.2120404 | 3.9645654 | 40 | 4 | 2002–2009 | 0.36 | M-v | 0 | MPC | 150327 | 2008 $SU_{203}$ |
| 2008 $SL_{207}$ | 16.8 | 0.15 | 20080911 | 55.45449 | 48.47069 | 209.17633 | 15.83802 | 0.2233509 | 2.9984825 | 12 | 1 | 2 days | 0.23 | | | MPC | | 2008 $SL_{207}$ |
| 2008 $SM_{207}$ | 13.8 | 0.15 | 20080911 | 85.88075 | 36.87093 | 196.23304 | 20.35419 | 0.1225760 | 5.0676548 | 30 | 1 | 2 days | 0.33 | | E | MPC | | 2008 $SM_{207}$ |
| 2008 $SN_{207}$ | 18.5 | 0.15 | 20080911 | 31.72118 | 327.27857 | 318.06375 | 20.20215 | 0.2901181 | 2.6848892 | 20 | 1 | 2 days | 0.33 | | E | MPC | | 2008 $SN_{207}$ |
| 2008 $SO_{207}$ | 15.9 | 0.15 | 20080911 | 327.14702 | 142.61712 | 238.20457 | 11.18622 | 0.1447703 | 3.1472225 | 18 | 1 | 2 days | 0.18 | | | MPC | | 2008 $SO_{207}$ |
| 2008 $SR_{207}$ | 15.4 | 0.15 | 20100104 | 45.67911 | 61.63361 | 342.17675 | 16.99506 | 0.1082097 | 3.1494146 | 49 | 6 | 1994–2009 | 0.63 | M-v | 1 | MPC | 162542 | 2008 $SR_{207}$ |
| 2008 $SB_{208}$ | 15.8 | 0.15 | 20081001 | 282.95137 | 16.17320 | 97.48937 | 16.66344 | 0.1058763 | 2.6898743 | 12 | 1 | 12 days | 0.58 | | | MPC | | 2008 $SB_{208}$ |
| 2008 $SB_{209}$ | 18.8 | 0.15 | 20080911 | 341.37644 | 328.86137 | 49.86457 | 3.19727 | 0.2141863 | 2.3106001 | 10 | 1 | 3 days | 0.30 | | | MPC | | 2008 $SB_{209}$ |
| 2008 $SC_{209}$ | 18.2 | 0.15 | 20080911 | 324.04725 | 26.59605 | 23.18872 | 6.34461 | 0.2678076 | 2.7524084 | 10 | 1 | 4 days | 0.53 | | | MPC | | 2008 $SC_{209}$ |
| 2008 $SD_{209}$ | 16.4 | 0.15 | 20100104 | 177.96602 | 188.15102 | 69.86082 | 3.71135 | 0.1413944 | 2.7814949 | 44 | 6 | 2002–2009 | 0.44 | M-v | 0 | MPC | 166327 | 2008 $SD_{209}$ |
| 2008 $SK_{210}$ | 19.6 | 0.15 | 20081001 | 344.04757 | 325.18418 | 70.27227 | 1.73986 | 0.2495997 | 2.6077815 | 12 | 1 | 27 days | 0.24 | | | MPC | | 2008 $SK_{210}$ |
| 2008 $SL_{210}$ | 16.9 | 0.15 | 20100104 | 27.66175 | 308.59976 | 171.25977 | 6.86165 | 0.0431350 | 2.2489915 | 58 | 6 | 2001–2009 | 0.54 | M-v | 1 | MPC | 159813 | 2008 $SL_{210}$ |
| 2008 $SR_{210}$ | 18.9 | 0.15 | 20080911 | 356.28778 | 266.65098 | 111.31161 | 3.71552 | 0.1952491 | 2.3711582 | 9 | 1 | 8 days | 0.22 | | | MPC | | 2008 $SR_{210}$ |
| 2008 $SC_{211}$ | 16.6 | 0.15 | 20100104 | 157.26305 | 80.34979 | 223.05028 | 11.26096 | 0.1952313 | 2.5699686 | 28 | 1 | 117 days | 0.56 | M-v | 4 | MPC | | 2008 $SC_{211}$ |
| 2008 $SD_{211}$ | 15.1 | 0.15 | 20080911 | 157.60006 | 317.47021 | 247.66442 | 8.00612 | 0.1115855 | 2.6905361 | 12 | 1 | 7 days | 0.56 | | | MPC | | 2008 $SD_{211}$ |
| 2008 $SG_{211}$ | 16.5 | 0.15 | 20081001 | 9.58664 | 110.70673 | 246.07623 | 8.35135 | 0.0972561 | 2.6189446 | 12 | 1 | 11 days | 0.28 | | | MPC | | 2008 $SG_{211}$ |
| 2008 $SE_{212}$ | 16.3 | 0.15 | 20100104 | 261.02284 | 281.20256 | 297.76873 | 11.04036 | 0.0545323 | 2.4511686 | 49 | 3 | 2005–2009 | 0.33 | M-v | 2 | MPC | 166327 | 2008 $SE_{212}$ |
| 2008 $SL_{212}$ | 16.2 | 0.15 | 20080911 | 59.83788 | 246.05767 | 18.62410 | 7.84783 | 0.2271567 | 2.8292276 | 11 | 1 | 6 days | 0.19 | | | MPC | | 2008 $SL_{212}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 $SZ_{212}$ | 18.1 | 0.15 | 20080911 | 359.79868 | 353.08154 | 6.81159 | 9.73225 | 0.2297752 | 3.0913161 | 11 | 1 | 12 days | 0.25 | | | MPC | | 2008 $SZ_{212}$ |
| 2008 $SG_{213}$ | 15.1 | 0.15 | 20080911 | 348.58444 | 350.51933 | 27.88891 | 0.71265 | 0.1548421 | 5.2141162 | 14 | 1 | 29 days | 0.25 | | | MPC | | 2008 $SG_{213}$ |
| 2008 $SJ_{213}$ | 15.6 | 0.15 | 20080911 | 181.15012 | 176.04225 | 5.60046 | 27.78216 | 0.1616380 | 3.1849363 | 11 | 1 | 12 days | 0.55 | | E | MPC | | 2008 $SJ_{213}$ |
| 2008 $SM_{216}$ | 16.9 | 0.15 | 20080911 | 253.96575 | 105.16488 | 12.81859 | 6.63085 | 0.0832532 | 2.7991508 | 14 | 1 | 21 days | 0.25 | | | MPC | | 2008 $SM_{216}$ |
| 2008 $SO_{216}$ | 17.7 | 0.15 | 20080911 | 237.71444 | 174.33172 | 315.82300 | 7.14466 | 0.0525299 | 2.1848591 | 15 | 1 | 30 days | 0.27 | | | MPC | | 2008 $SO_{216}$ |
| 2008 $SQ_{216}$ | 17.5 | 0.15 | 20081001 | 20.87768 | 103.00837 | 237.93975 | 8.11644 | 0.1369617 | 2.9481855 | 12 | 1 | 10 days | 0.27 | | | MPC | | 2008 $SQ_{216}$ |
| 2008 $SS_{216}$ | 18.9 | 0.15 | 20081001 | 276.64450 | 166.29635 | 289.17683 | 5.48259 | 0.0301489 | 2.1473660 | 12 | 1 | 10 days | 0.25 | | | MPC | | 2008 $SS_{216}$ |
| 2008 $SJ_{217}$ | 16.3 | 0.15 | 20081001 | 64.10949 | 47.36795 | 252.52464 | 8.55760 | 0.0469531 | 3.1087184 | 20 | 1 | 30 days | 0.25 | | | MPC | | 2008 $SJ_{217}$ |
| 2008 $SY_{217}$ | 16.0 | 0.15 | 20100104 | 100.09412 | 282.90888 | 107.82878 | 9.70735 | 0.2043966 | 3.0137626 | 28 | 1 | 125 days | 0.48 | M-v | 4 | MPC | | 2008 $SY_{217}$ |
| 2008 $SR_{218}$ | 16.2 | 0.15 | 20100104 | 97.67649 | 68.95992 | 295.47929 | 2.80717 | 0.1123384 | 2.8094650 | 58 | 6 | 1994–2009 | 0.38 | M-v | 1 | MPC | 166327 | 2008 $SR_{218}$ |
| 2008 $ST_{218}$ | 17.6 | 0.15 | 20100104 | 106.78277 | 172.74800 | 197.84321 | 13.76286 | 0.1929716 | 2.5752348 | 13 | 1 | 63 days | 0.29 | M-v | 4 | MPC | | 2008 $ST_{218}$ |
| 2008 $SV_{218}$ | 15.9 | 0.15 | 20081001 | 282.41013 | 108.99214 | 353.05469 | 11.24395 | 0.1540410 | 2.6583094 | 14 | 1 | 37 days | 0.30 | | | MPC | | 2008 $SV_{218}$ |
| 2008 $SJ_{219}$ | 16.0 | 0.15 | 20100104 | 17.77934 | 195.09922 | 250.15986 | 2.56325 | 0.0474745 | 2.9516301 | 46 | 6 | 1993–2009 | 0.41 | M-v | 0 | MPC | 162543 | 2008 $SJ_{219}$ |
| 2008 $SO_{219}$ | 16.0 | 0.15 | 20100104 | 94.79860 | 12.13602 | 340.92299 | 4.76814 | 0.1582964 | 3.0959762 | 48 | 6 | 2000–2009 | 0.39 | M-v | 1 | MPC | 150334 | 2008 $SO_{219}$ |
| 2008 $SL_{222}$ | 13.8 | 0.15 | 20100104 | 52.00916 | 132.11684 | 219.81273 | 6.77365 | 0.0370754 | 5.0973426 | 41 | 5 | 1998–2009 | 0.28 | M-v | 0 | MPC | 166327 | 2008 $SL_{222}$ |
| 2008 $SQ_{223}$ | 15.8 | 0.15 | 20100104 | 217.57538 | 349.29630 | 237.42217 | 5.49443 | 0.1250780 | 3.0556671 | 30 | 3 | 2003–2009 | 0.44 | M-v | 3 | MPC | 165603 | 2008 $SQ_{223}$ |
| 2008 $SS_{224}$ | 16.4 | 0.15 | 20100104 | 267.88099 | 347.16304 | 226.27268 | 3.89057 | 0.0517835 | 2.7565444 | 60 | 7 | 1994–2009 | 0.34 | M-v | 0 | MPC | 146887 | 2008 $SS_{224}$ |
| 2008 $SX_{224}$ | 14.0 | 0.15 | 20100104 | 70.05968 | 349.88729 | 3.73365 | 3.45870 | 0.0408820 | 5.1551717 | 69 | 5 | 2000–2009 | 0.32 | M-v | 0 | MPC | 166327 | 2008 $SX_{224}$ |
| 2008 $SZ_{224}$ | 17.6 | 0.15 | 20081001 | 50.00623 | 310.89352 | 11.70950 | 4.99405 | 0.1091282 | 2.7108952 | 13 | 1 | 28 days | 0.31 | | | MPC | | 2008 $SZ_{224}$ |
| 2008 $SE_{227}$ | 16.9 | 0.15 | 20100104 | 89.90403 | 86.83039 | 293.81304 | 5.02859 | 0.0530847 | 2.6912896 | 30 | 3 | 2004–2009 | 0.27 | M-v | 2 | MPC | 149069 | 2008 $SE_{227}$ |
| 2008 $SK_{227}$ | 13.6 | 0.15 | 20100104 | 339.24066 | 207.88144 | 225.72549 | 8.85114 | 0.0911279 | 5.2309365 | 35 | 3 | 1997–2009 | 0.33 | M-v | 3 | MPC | 163867 | 2008 $SK_{227}$ |
| 2008 $SB_{228}$ | 17.3 | 0.15 | 20081001 | 22.21254 | 42.52175 | 299.38393 | 5.14583 | 0.0609317 | 2.7653235 | 14 | 1 | 54 days | 0.26 | | | MPC | | 2008 $SB_{228}$ |
| 2008 $SG_{229}$ | 13.4 | 0.15 | 20080911 | 291.34887 | 91.43128 | 354.04011 | 21.36998 | 0.0878773 | 5.2120774 | 13 | 1 | 34 days | 0.36 | | | MPC | | 2008 $SG_{229}$ |
| 2008 $SU_{232}$ | 17.8 | 0.15 | 20081001 | 334.96499 | 284.79575 | 122.45188 | 3.53596 | 0.1816238 | 2.6814616 | 12 | 1 | 6 days | 0.17 | | | MPC | | 2008 $SU_{232}$ |
| 2008 $SY_{232}$ | 16.8 | 0.15 | 20081001 | 328.86834 | 352.64563 | 52.87064 | 5.78478 | 0.0442160 | 2.7112394 | 11 | 1 | 35 days | 0.11 | | | MPC | | 2008 $SY_{232}$ |
| 2008 $SZ_{232}$ | 17.4 | 0.15 | 20081001 | 260.04013 | 72.52445 | 55.69694 | 5.42027 | 0.1552569 | 2.4227168 | 12 | 1 | 6 days | 0.29 | | | MPC | | 2008 $SZ_{232}$ |
| 2008 $SD_{233}$ | 17.6 | 0.15 | 20080911 | 51.67072 | 241.33838 | 65.26514 | 4.00102 | 0.0759660 | 2.5619931 | 15 | 1 | 28 days | 0.21 | | | MPC | | 2008 $SD_{233}$ |
| 2008 $SH_{233}$ | 18.5 | 0.15 | 20081001 | 18.29984 | 196.39354 | 146.68891 | 4.26602 | 0.1979000 | 2.4358324 | 15 | 1 | 5 days | 0.24 | | | MPC | | 2008 $SH_{233}$ |
| 2008 $ST_{233}$ | 16.8 | 0.15 | 20100104 | 219.19908 | 149.99301 | 96.06488 | 3.30845 | 0.0612463 | 2.7268787 | 27 | 3 | 2002–2008 | 0.28 | M-v | 2 | MPC | 155511 | 2008 $ST_{233}$ |
| 2008 $SY_{233}$ | 13.5 | 0.15 | 20100104 | 14.28821 | 348.14820 | 48.07981 | 7.02218 | 0.0573503 | 5.3547498 | 37 | 2 | 2008–2009 | 0.32 | M-v | 3 | MPC | 165603 | 2008 $SY_{233}$ |
| 2008 $SA_{236}$ | 16.7 | 0.15 | 20100104 | 185.60501 | 287.84571 | 354.36243 | 3.51843 | 0.0591525 | 2.6938271 | 31 | 5 | 1999–2009 | 0.36 | M-v | 0 | MPC | 149069 | 2008 $SA_{236}$ |
| 2008 $SF_{236}$ | 13.0 | 0.15 | 20100104 | 336.99174 | 227.24225 | 222.99747 | 9.98689 | 0.0452394 | 5.2608926 | 59 | 3 | 2007–2009 | 0.35 | M-v | 2 | MPC | 165604 | 2008 $SF_{236}$ |
| 2008 $SJ_{236}$ | 12.2 | 0.15 | 20100104 | 1.49094 | 183.02521 | 234.54629 | 6.04361 | 0.4383616 | 10.9642861 | 80 | 3 | 2007–2009 | 0.33 | M-v | 1 | MPC | 166327 | 2008 $SJ_{236}$ |
| 2008 $SN_{236}$ | 19.0 | 0.15 | 20081001 | 34.83595 | 2.98696 | 327.75806 | 2.34665 | 0.1751871 | 2.1775228 | 13 | 1 | 38 days | 0.23 | | | MPC | | 2008 $SN_{236}$ |
| 2008 $SF_{237}$ | 17.3 | 0.15 | 20080911 | 273.95602 | 124.57512 | 328.05742 | 2.30764 | 0.0606268 | 3.1819736 | 12 | 1 | 12 days | 0.35 | | | MPC | | 2008 $SF_{237}$ |
| 2008 $SK_{237}$ | 14.7 | 0.15 | 20080911 | 161.50069 | 198.55891 | 358.85121 | 22.81637 | 0.0525297 | 5.1283431 | 11 | 1 | 26 days | 0.49 | | E | MPC | | 2008 $SK_{237}$ |
| 2008 $SU_{237}$ | 16.6 | 0.15 | 20100104 | 117.57120 | 306.18102 | 359.17737 | 9.09524 | 0.2276488 | 3.1107129 | 28 | 1 | 74 days | 0.52 | M-v | 5 | MPC | | 2008 $SU_{237}$ |
| 2008 $SX_{237}$ | 18.4 | 0.15 | 20080911 | 340.82525 | 204.26948 | 177.46455 | 0.87794 | 0.1929265 | 2.2057686 | 12 | 1 | 12 days | 0.27 | | | MPC | | 2008 $SX_{237}$ |
| 2008 $SZ_{237}$ | 13.5 | 0.15 | 20080911 | 275.52269 | 88.57527 | 358.93409 | 8.45517 | 0.0445969 | 5.1638308 | 15 | 1 | 37 days | 0.36 | | | MPC | | 2008 $SZ_{237}$ |
| 2008 $SD_{238}$ | 18.1 | 0.15 | 20081001 | 66.13769 | 164.02928 | 130.91970 | 3.07627 | 0.1908638 | 2.4256794 | 13 | 1 | 27 days | 0.32 | | | MPC | | 2008 $SD_{238}$ |
| 2008 $SL_{238}$ | 17.2 | 0.15 | 20080911 | 294.78945 | 21.91574 | 77.05486 | 3.58366 | 0.1463660 | 2.4295879 | 9 | 1 | 12 days | 0.14 | | | MPC | | 2008 $SL_{238}$ |
| 2008 $SU_{238}$ | 17.8 | 0.15 | 20080911 | 354.69020 | 187.71188 | 182.17879 | 17.02593 | 0.2101471 | 3.1730390 | 14 | 1 | 39 days | 0.24 | | | MPC | | 2008 $SU_{238}$ |
| 2008 $SV_{238}$ | 18.6 | 0.15 | 20080911 | 357.95246 | 229.09401 | 134.40740 | 1.87233 | 0.1843445 | 2.7420644 | 11 | 1 | 4 days | 0.61 | | | MPC | | 2008 $SV_{238}$ |
| 2008 $SN_{239}$ | 17.3 | 0.15 | 20081001 | 129.81189 | 176.18278 | 58.34010 | 3.04246 | 0.0433998 | 2.9826772 | 12 | 1 | 26 days | 0.34 | | | MPC | | 2008 $SN_{239}$ |
| 2008 $SO_{239}$ | 16.8 | 0.15 | 20100104 | 95.53674 | 347.08500 | 34.33567 | 4.60223 | 0.0583739 | 2.6107742 | 32 | 4 | 2002–2009 | 0.24 | M-v | 2 | MPC | 157173 | 2008 $SO_{239}$ |
| 2008 $SV_{239}$ | 17.1 | 0.15 | 20081001 | 46.50373 | 256.50610 | 52.01329 | 6.81938 | 0.2615743 | 2.5675469 | 16 | 1 | 31 days | 0.24 | | | MPC | | 2008 $SV_{239}$ |
| 2008 $SH_{240}$ | 17.5 | 0.15 | 20081001 | 24.78953 | 280.03763 | 68.69479 | 6.05143 | 0.1722134 | 2.7367756 | 10 | 1 | 23 days | 0.21 | | | MPC | | 2008 $SH_{240}$ |
| 2008 $SK_{240}$ | 17.8 | 0.15 | 20081001 | 284.43449 | 24.86854 | 89.65382 | 5.81005 | 0.1187487 | 2.6787918 | 10 | 1 | 23 days | 0.24 | | | MPC | | 2008 $SK_{240}$ |
| 2008 $SQ_{241}$ | 17.3 | 0.15 | 20080911 | 19.85186 | 174.40780 | 161.06941 | 6.34403 | 0.1758382 | 2.6434772 | 18 | 1 | 54 days | 0.51 | | | MPC | | 2008 $SQ_{241}$ |
| 2008 $SX_{241}$ | 18.4 | 0.15 | 20080911 | 19.21396 | 173.65652 | 155.90733 | 5.52441 | 0.2440480 | 2.2705105 | 21 | 1 | 54 days | 0.65 | | | MPC | | 2008 $SX_{241}$ |
| 2008 $SF_{243}$ | 15.9 | 0.15 | 20100104 | 204.34208 | 180.23813 | 95.66989 | 2.67092 | 0.0293498 | 2.9798277 | 51 | 4 | 2003–2009 | 0.34 | M-v | 1 | MPC | 166328 | 2008 $SF_{243}$ |
| 2008 $SY_{243}$ | 18.2 | 0.15 | 20081001 | 347.91688 | 201.33296 | 193.60038 | 4.35273 | 0.2752407 | 2.6381840 | 10 | 1 | 16 days | 0.25 | | | MPC | | 2008 $SY_{243}$ |
| 2008 $SM_{244}$ | 17.1 | 0.15 | 20081001 | 2.50096 | 244.00302 | 139.05143 | 5.13634 | 0.2438166 | 2.7927861 | 31 | 1 | 36 days | 0.64 | | | MPC | | 2008 $SM_{244}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 $SQ_{244}$ | 16.7 | 0.15 | 20100104 | 73.30516 | 144.96225 | 246.67654 | 1.07709 | 0.0737381 | 2.8680080 | 41 | 5 | 2001–2009 | 0.39 | M-v | 1 | MPC | 146895 | 2008 $SQ_{244}$ |
| 2008 $SZ_{244}$ | 13.1 | 0.15 | 20100104 | 359.90005 | 28.34866 | 28.95174 | 7.59305 | 0.0713786 | 5.1990732 | 73 | 3 | 2003–2009 | 0.42 | M-v | 2 | MPC | 166328 | 2008 $SZ_{244}$ |
| 2008 $SE_{245}$ | 14.1 | 0.15 | 20080911 | 353.37797 | 78.93084 | 298.85394 | 8.49527 | 0.0262007 | 5.3161180 | 13 | 1 | 33 days | 0.26 | | | MPC | | 2008 $SE_{245}$ |
| 2008 $SG_{245}$ | 17.2 | 0.15 | 20081001 | 18.94796 | 114.55803 | 230.53672 | 10.75064 | 0.1510146 | 3.0104270 | 14 | 1 | 30 days | 0.39 | | | MPC | | 2008 $SG_{245}$ |
| 2008 $SH_{245}$ | 15.8 | 0.15 | 20081001 | 93.78736 | 57.50593 | 211.69851 | 21.00954 | 0.0694460 | 3.1390626 | 10 | 1 | 9 days | 0.19 | | | MPC | | 2008 $SH_{245}$ |
| 2008 $SW_{245}$ | 16.0 | 0.15 | 20081001 | 291.51106 | 282.16729 | 206.31417 | 25.30038 | 0.2630994 | 3.1826652 | 13 | 1 | 32 days | 0.23 | | | MPC | | 2008 $SW_{245}$ |
| 2008 $SB_{246}$ | 16.0 | 0.15 | 20081001 | 352.65598 | 70.59618 | 318.68295 | 12.11133 | 0.1697703 | 2.6160620 | 36 | 1 | 56 days | 0.54 | | | MPC | | 2008 $SB_{246}$ |
| 2008 $SD_{246}$ | 16.7 | 0.15 | 20081001 | 332.53630 | 96.51790 | 325.45177 | 12.56202 | 0.1846208 | 2.6386331 | 19 | 1 | 38 days | 0.54 | | | MPC | | 2008 $SD_{246}$ |
| 2008 $SF_{246}$ | 16.9 | 0.15 | 20080911 | 325.17971 | 208.32553 | 205.41612 | 9.41162 | 0.2296110 | 2.8060964 | 10 | 1 | 8 days | 0.35 | | | MPC | | 2008 $SF_{246}$ |
| 2008 $SO_{246}$ | 16.4 | 0.15 | 20080911 | 14.71057 | 145.62413 | 201.98027 | 9.27738 | 0.0802111 | 3.1711813 | 12 | 1 | 32 days | 0.41 | | | MPC | | 2008 $SO_{246}$ |
| 2008 $SJ_{248}$ | 14.6 | 0.15 | 20100104 | 5.98347 | 40.81645 | 56.88265 | 3.67449 | 0.1997905 | 3.9360765 | 46 | 3 | 2003–2009 | 0.42 | M-v | 2 | MPC | 152510 | 2008 $SJ_{248}$ |
| 2008 $SC_{251}$ | 16.1 | 0.15 | 20100104 | 163.29462 | 245.91645 | 27.38235 | 5.74714 | 0.1482261 | 3.2621297 | 35 | 5 | 2000–2009 | 0.42 | M-v | 0 | MPC | 146899 | 2008 $SC_{251}$ |
| 2008 $SZ_{252}$ | 15.9 | 0.15 | 20100104 | 345.70463 | 156.69871 | 331.96151 | 3.38171 | 0.1149656 | 3.2255434 | 33 | 4 | 2001–2009 | 0.34 | M-v | 2 | MPC | 166328 | 2008 $SZ_{252}$ |
| 2008 $SW_{253}$ | 17.1 | 0.15 | 20100104 | 253.03193 | 161.46552 | 69.72954 | 4.85562 | 0.0735498 | 2.5474552 | 26 | 4 | 2000–2009 | 0.38 | M-v | 2 | MPC | 166328 | 2008 $SW_{253}$ |
| 2008 $SK_{254}$ | 17.9 | 0.15 | 20081001 | 16.05479 | 338.78376 | 13.61636 | 10.92692 | 0.2962913 | 3.0012234 | 28 | 1 | 39 days | 0.29 | | | MPC | | 2008 $SK_{254}$ |
| 2008 $SS_{254}$ | 16.1 | 0.15 | 20100104 | 194.41686 | 26.29055 | 252.91126 | 8.82162 | 0.0489358 | 2.5514877 | 45 | 6 | 2000–2009 | 0.48 | M-v | 0 | MPC | 159813 | 2008 $SS_{254}$ |
| 2008 $SB_{256}$ | 16.6 | 0.15 | 20100104 | 348.82272 | 55.24879 | 61.59518 | 1.94715 | 0.0683360 | 3.1266027 | 33 | 7 | 1992–2009 | 0.30 | M-v | 0 | MPC | 150350 | 2008 $SB_{256}$ |
| 2008 $SG_{256}$ | 18.7 | 0.15 | 20081001 | 11.08969 | 199.33057 | 161.99336 | 1.32094 | 0.2034520 | 2.3316002 | 17 | 1 | 39 days | 0.20 | | | MPC | | 2008 $SG_{256}$ |
| 2008 $SB_{257}$ | 16.2 | 0.15 | 20100104 | 132.16196 | 203.78250 | 117.48591 | 9.06201 | 0.2520662 | 2.7744697 | 40 | 5 | 2001–2009 | 0.47 | M-v | 1 | MPC | 150351 | 2008 $SB_{257}$ |
| 2008 $SK_{257}$ | 13.0 | 0.15 | 20100104 | 7.23091 | 19.58051 | 38.00709 | 10.81539 | 0.0587306 | 5.2617521 | 51 | 4 | 2002–2009 | 0.28 | M-v | 0 | MPC | 165604 | 2008 $SK_{257}$ |
| 2008 $SV_{258}$ | 15.9 | 0.15 | 20100104 | 333.13878 | 264.88511 | 243.06403 | 6.41472 | 0.1651071 | 2.7931678 | 55 | 7 | 2001–2009 | 0.38 | M-v | 0 | MPC | 146905 | 2008 $SV_{258}$ |
| 2008 $SH_{259}$ | 16.9 | 0.15 | 20081001 | 7.79898 | 13.80575 | 353.06784 | 16.68842 | 0.2253452 | 2.7720821 | 21 | 1 | 40 days | 0.49 | | | MPC | | 2008 $SH_{259}$ |
| 2008 $SN_{259}$ | 17.5 | 0.15 | 20081001 | 12.30839 | 212.54548 | 146.57132 | 2.76190 | 0.0690497 | 2.8367232 | 21 | 1 | 40 days | 0.33 | | | MPC | | 2008 $SN_{259}$ |
| 2008 $SX_{259}$ | 17.7 | 0.15 | 20081001 | 336.14122 | 58.20326 | 2.50442 | 12.73332 | 0.2641626 | 2.6729394 | 26 | 1 | 41 days | 0.62 | | | MPC | | 2008 $SX_{259}$ |
| 2008 $SY_{259}$ | 16.4 | 0.15 | 20081001 | 357.88603 | 53.45621 | 331.01150 | 5.21463 | 0.0687595 | 2.8786937 | 18 | 1 | 40 days | 0.49 | | | MPC | | 2008 $SY_{259}$ |
| 2008 $SD_{260}$ | 13.8 | 0.15 | 20100104 | 57.46609 | 293.51133 | 65.50820 | 9.30274 | 0.0424279 | 5.1243820 | 39 | 3 | 2003–2009 | 0.46 | M-v | 2 | MPC | 166328 | 2008 $SD_{260}$ |
| 2008 $SU_{261}$ | 17.0 | 0.15 | 20081001 | 311.28436 | 51.87002 | 15.10317 | 1.86289 | 0.0579280 | 2.8356620 | 20 | 1 | 35 days | 0.31 | | | MPC | | 2008 $SU_{261}$ |
| 2008 $SV_{261}$ | 16.5 | 0.15 | 20081001 | 311.65023 | 53.60151 | 14.42873 | 11.01262 | 0.0666177 | 3.1565967 | 17 | 1 | 35 days | 0.30 | | | MPC | | 2008 $SV_{261}$ |
| 2008 $SN_{264}$ | 18.6 | 0.15 | 20081001 | 343.59714 | 217.66193 | 196.21392 | 12.55172 | 0.2973509 | 2.5276807 | 21 | 1 | 35 days | 0.49 | | | MPC | | 2008 $SN_{264}$ |
| 2008 $SD_{265}$ | 18.0 | 0.15 | 20081001 | 335.64036 | 282.89313 | 138.64187 | 2.95342 | 0.1248826 | 2.6372851 | 16 | 1 | 37 days | 0.30 | | | MPC | | 2008 $SD_{265}$ |
| 2008 $SL_{265}$ | 16.8 | 0.15 | 20081001 | 343.34223 | 302.81664 | 87.27101 | 2.97144 | 0.0726982 | 2.9665745 | 21 | 1 | 35 days | 0.37 | | | MPC | | 2008 $SL_{265}$ |
| 2008 $SF_{266}$ | 15.9 | 0.15 | 20100104 | 170.34546 | 249.43585 | 57.51259 | 3.23205 | 0.0326213 | 2.8333707 | 51 | 5 | 2001–2009 | 0.33 | M-v | 0 | MPC | 165605 | 2008 $SF_{266}$ |
| 2008 $SJ_{266}$ | 15.6 | 0.15 | 20100104 | 286.09529 | 68.82384 | 124.67220 | 4.44706 | 0.0652039 | 3.1305437 | 52 | 7 | 1999–2009 | 0.48 | M-v | 0 | MPC | 150357 | 2008 $SJ_{266}$ |
| 2008 $SV_{266}$ | 17.2 | 0.15 | 20100104 | 134.48524 | 136.20154 | 208.53503 | 2.77730 | 0.1990284 | 2.6451087 | 23 | 1 | 117 days | 0.37 | M-v | 4 | MPC | | 2008 $SV_{266}$ |
| 2008 $SB_{269}$ | 15.4 | 0.15 | 20100104 | 90.90740 | 90.44616 | 278.63795 | 8.90286 | 0.0522285 | 3.0463454 | 45 | 4 | 2002–2009 | 0.36 | M-v | 0 | MPC | 162543 | 2008 $SB_{269}$ |
| 2008 $SH_{269}$ | 15.8 | 0.15 | 20100104 | 56.15541 | 307.53966 | 126.53395 | 8.46447 | 0.1265292 | 2.7206758 | 40 | 4 | 1992–2009 | 0.54 | M-v | 2 | MPC | 158617 | 2008 $SH_{269}$ |
| 2008 $SS_{274}$ | 16.9 | 0.15 | 20100104 | 359.88808 | 247.50880 | 220.26735 | 2.96455 | 0.0071127 | 2.8034269 | 41 | 7 | 1992–2009 | 0.23 | M-v | 0 | MPC | 158165 | 2008 $SS_{274}$ |
| 2008 $ST_{274}$ | 16.4 | 0.15 | 20100104 | 348.53816 | 283.46764 | 201.32971 | 2.93839 | 0.0368196 | 2.7613564 | 34 | 7 | 1994–2009 | 0.42 | M-v | 1 | MPC | 158165 | 2008 $ST_{274}$ |
| 2008 $SX_{274}$ | 13.6 | 0.15 | 20100104 | 351.17374 | 359.41981 | 73.19335 | 5.02280 | 0.0616726 | 5.2424334 | 39 | 3 | 2007–2009 | 0.29 | M-v | 2 | MPC | 166328 | 2008 $SX_{274}$ |
| 2008 $SB_{275}$ | 16.9 | 0.15 | 20100104 | 272.16124 | 157.76622 | 64.39674 | 4.32445 | 0.0972407 | 2.4449704 | 35 | 4 | 2001–2009 | 0.28 | M-v | 2 | MPC | 166328 | 2008 $SB_{275}$ |
| 2008 $SR_{275}$ | 13.5 | 0.15 | 20100104 | 4.77882 | 174.08625 | 241.41024 | 7.69654 | 0.0495481 | 5.1040288 | 44 | 5 | 1996–2009 | 0.28 | M-v | 0 | MPC | 166328 | 2008 $SR_{275}$ |
| 2008 $SV_{276}$ | 17.3 | 0.15 | 20100104 | 79.05522 | 25.89310 | 7.87429 | 6.18938 | 0.0371145 | 2.7477586 | 24 | 5 | 1997–2009 | 0.35 | M-v | 1 | MPC | 158166 | 2008 $SV_{276}$ |
| 2008 $SF_{277}$ | 16.6 | 0.15 | 20081001 | 335.21635 | 6.48850 | 38.81817 | 3.08712 | 0.0964430 | 3.1360110 | 16 | 1 | 16 days | 0.46 | | | MPC | | 2008 $SF_{277}$ |
| 2008 $SJ_{279}$ | 16.6 | 0.15 | 20100104 | 111.32973 | 335.15547 | 1.73127 | 9.23691 | 0.0798187 | 3.0016040 | 21 | 3 | 2003–2009 | 0.36 | M-v | 3 | MPC | 158168 | 2008 $SJ_{279}$ |
| 2008 $SK_{280}$ | 18.1 | 0.15 | 20100104 | 114.35483 | 339.61320 | 39.78657 | 5.84900 | 0.2394141 | 2.4199540 | 21 | 1 | 63 days | 0.70 | M-v | 4 | MPC | | 2008 $SK_{280}$ |
| 2008 $SJ_{281}$ | 16.4 | 0.15 | 20100104 | 193.13704 | 101.73899 | 221.16419 | 3.44356 | 0.1260106 | 2.4760585 | 49 | 6 | 1995–2008 | 0.45 | M-v | 1 | MPC | 165607 | 2008 $SJ_{281}$ |
| 2008 $SR_{282}$ | 15.6 | 0.15 | 20100104 | 124.56268 | 38.34925 | 319.46597 | 15.22666 | 0.2022597 | 2.6185562 | 45 | 4 | 2002–2009 | 0.42 | M-v | 2 | MPC | 165608 | 2008 $SR_{282}$ |
| 2008 $SY_{282}$ | 15.9 | 0.15 | 20100104 | 120.64195 | 80.58653 | 232.11448 | 3.75206 | 0.1161132 | 3.0678812 | 35 | 4 | 2003–2009 | 0.25 | M-v | 0 | MPC | 165609 | 2008 $SY_{282}$ |
| 2008 $ST_{285}$ | 16.8 | 0.15 | 20100104 | 330.45309 | 270.79226 | 242.21105 | 3.14328 | 0.0813136 | 2.7938862 | 25 | 3 | 2003–2009 | 0.35 | M-v | 3 | MPC | 165614 | 2008 $ST_{285}$ |
| 2008 $SV_{285}$ | 17.3 | 0.15 | 20081001 | 171.16500 | 28.12243 | 187.45106 | 2.27257 | 0.0641953 | 2.3571463 | 14 | 1 | 47 days | 0.31 | | | MPC | | 2008 $SV_{285}$ |
| 2008 $SG_{287}$ | 14.1 | 0.15 | 20100104 | 2.72432 | 108.00947 | 339.83221 | 8.95986 | 0.0877253 | 3.9517355 | 33 | 4 | 2003–2009 | 0.42 | M-v | 1 | MPC | 165615 | 2008 $SG_{287}$ |
| 2008 $SM_{287}$ | 17.4 | 0.15 | 20100104 | 259.61543 | 144.01128 | 74.50254 | 3.22679 | 0.0233672 | 2.6413983 | 32 | 4 | 2004–2009 | 0.36 | M-v | 1 | MPC | 165616 | 2008 $SM_{287}$ |
| 2008 $SO_{287}$ | 16.6 | 0.15 | 20100104 | 274.34286 | 282.63225 | 287.74640 | 3.60245 | 0.1134469 | 2.7557293 | 25 | 5 | 2003–2009 | 0.37 | M-v | 1 | MPC | 165616 | 2008 $SO_{287}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 $SV_{288}$ | 17.2 | 0.15 | 20100104 | 357.45331 | 351.72607 | 166.21728 | 1.66614 | 0.1149704 | 2.4293302 | 31 | 2 | 2005–2008 | 0.37 | M-v | 3 | MPC | 165617 | 2008 $SV_{288}$ |
| 2008 $SQ_{290}$ | 17.5 | 0.15 | 20100104 | 98.12276 | 323.93684 | 79.59017 | 3.65316 | 0.1941632 | 2.4535391 | 28 | 1 | 99 days | 0.48 | M-v | 4 | MPC | | 2008 $SQ_{290}$ |
| 2008 $SJ_{291}$ | 15.1 | 0.15 | 20100104 | 89.15187 | 61.58781 | 285.25989 | 15.29496 | 0.2399740 | 3.1225899 | 34 | 3 | 2003–2009 | 0.59 | M-v | 3 | MPC | 165619 | 2008 $SJ_{291}$ |
| 2008 $SV_{291}$ | 14.5 | 0.15 | 20081001 | 50.76571 | 337.37969 | 318.44680 | 11.40248 | 0.2081374 | 3.8772270 | 11 | 1 | 25 days | 0.71 | | | MPC | | 2008 $SV_{291}$ |
| 2008 $SZ_{291}$ | 17.8 | 0.15 | 20100104 | 93.79799 | 18.31664 | 13.97296 | 7.73106 | 0.4073108 | 2.6490218 | 47 | 1 | 86 days | 0.51 | M-v | 4 | MPC | | 2008 $SZ_{291}$ |
| 2008 $SA_{293}$ | 18.1 | 0.15 | 20080911 | 27.01370 | 291.37121 | 25.45082 | 8.48684 | 0.1735612 | 2.2464309 | 15 | 1 | 17 days | 0.63 | | | MPC | | 2008 $SA_{293}$ |
| 2008 $SB_{293}$ | 16.6 | 0.15 | 20080911 | 26.70905 | 311.77577 | 5.03935 | 15.82356 | 0.1684236 | 2.6698892 | 19 | 1 | 7 days | 0.66 | | | MPC | | 2008 $SB_{293}$ |
| 2008 $SD_{293}$ | 16.1 | 0.15 | 20080911 | 349.14303 | 54.24934 | 332.53261 | 11.76779 | 0.1664865 | 2.7801490 | 21 | 1 | 32 days | 0.57 | | | MPC | | 2008 $SD_{293}$ |
| 2008 $SE_{293}$ | 16.3 | 0.15 | 20081001 | 41.77300 | 266.71830 | 64.85168 | 9.33751 | 0.1239184 | 3.0290786 | 19 | 1 | 28 days | 0.42 | | | MPC | | 2008 $SE_{293}$ |
| 2008 $SG_{293}$ | 17.7 | 0.15 | 20100104 | 257.95764 | 64.41402 | 222.91070 | 20.39388 | 0.0727538 | 1.8798270 | 19 | 1 | 94 days | 0.43 | M-v | 4 | MPC | | 2008 $SG_{293}$ |
| 2008 $SH_{293}$ | 17.1 | 0.15 | 20081001 | 318.14006 | 326.72288 | 110.11843 | 8.58596 | 0.1696607 | 2.2935160 | 12 | 1 | 42 days | 0.62 | | | MPC | | 2008 $SH_{293}$ |
| 2008 $SK_{293}$ | 16.4 | 0.15 | 20081001 | 37.87930 | 339.07549 | 337.02031 | 13.05338 | 0.1877835 | 2.6718981 | 23 | 1 | 46 days | 0.59 | | | MPC | | 2008 $SK_{293}$ |
| 2008 $SL_{293}$ | 16.1 | 0.15 | 20081001 | 356.98088 | 28.52633 | 351.13274 | 21.83593 | 0.1568764 | 3.0899756 | 16 | 1 | 32 days | 0.63 | | | MPC | | 2008 $SL_{293}$ |
| 2008 $SM_{293}$ | 15.6 | 0.15 | 20081001 | 14.46525 | 308.40642 | 54.52532 | 13.37673 | 0.1957818 | 3.1445883 | 19 | 1 | 15 days | 0.60 | | | MPC | | 2008 $SM_{293}$ |
| 2008 $SO_{293}$ | 16.7 | 0.15 | 20100104 | 75.87170 | 291.21795 | 137.05159 | 8.28603 | 0.2679788 | 3.0139083 | 19 | 1 | 152 days | 0.53 | M-v | 3 | MPC | | 2008 $SO_{293}$ |
| 2008 $SK_{294}$ | 17.3 | 0.15 | 20080911 | 27.44870 | 186.38729 | 140.25645 | 8.29420 | 0.1968059 | 2.2054604 | 21 | 1 | 53 days | 0.66 | | | MPC | | 2008 $SK_{294}$ |
| 2008 $SR_{294}$ | 17.6 | 0.15 | 20081001 | 354.05018 | 85.86269 | 291.38397 | 11.24681 | 0.2886503 | 2.6208928 | 15 | 1 | 57 days | 0.72 | | | MPC | | 2008 $SR_{294}$ |
| 2008 $SS_{294}$ | 16.3 | 0.15 | 20081001 | 17.21530 | 39.86542 | 295.87228 | 13.48965 | 0.2522553 | 2.7407181 | 20 | 1 | 35 days | 0.66 | | | MPC | | 2008 $SS_{294}$ |
| 2008 $ST_{294}$ | 16.4 | 0.15 | 20080911 | 349.76858 | 97.01476 | 281.97019 | 8.75061 | 0.2637028 | 3.1910529 | 22 | 1 | 32 days | 0.69 | | | MPC | | 2008 $ST_{294}$ |
| 2008 $SC_{295}$ | 16.3 | 0.15 | 20081001 | 44.32205 | 10.31388 | 293.04231 | 13.25643 | 0.2465356 | 2.6679173 | 12 | 1 | 33 days | 0.55 | | | MPC | | 2008 $SC_{295}$ |
| 2008 $SE_{295}$ | 16.8 | 0.15 | 20081001 | 30.60672 | 55.73248 | 269.92274 | 13.42781 | 0.2008175 | 2.6258456 | 15 | 1 | 35 days | 0.63 | | | MPC | | 2008 $SE_{295}$ |
| 2008 $SF_{295}$ | 17.3 | 0.15 | 20081001 | 22.38186 | 6.20020 | 334.33074 | 17.88495 | 0.2075077 | 2.5884665 | 11 | 1 | 32 days | 0.33 | | | MPC | | 2008 $SF_{295}$ |
| 2008 $SB_{296}$ | 16.9 | 0.15 | 20081001 | 22.27392 | 218.00739 | 123.34977 | 16.05086 | 0.2330695 | 2.6436005 | 12 | 1 | 29 days | 0.60 | | | MPC | | 2008 $SB_{296}$ |
| 2008 $SD_{296}$ | 16.8 | 0.15 | 20100104 | 109.74892 | 243.10297 | 124.03842 | 12.92587 | 0.3323745 | 2.6049153 | 19 | 1 | 82 days | 0.62 | M-v | 4 | MPC | | 2008 $SD_{296}$ |
| 2008 $SV_{296}$ | 17.5 | 0.15 | 20081001 | 10.08863 | 244.65159 | 127.90671 | 6.75419 | 0.2014724 | 2.7808780 | 12 | 1 | 27 days | 0.63 | | | MPC | | 2008 $SV_{296}$ |
| 2008 $SD_{297}$ | 17.0 | 0.15 | 20100104 | 102.93240 | 129.58251 | 239.83360 | 12.54632 | 0.2843104 | 2.6661928 | 27 | 1 | 70 days | 0.61 | M-v | 4 | MPC | | 2008 $SD_{297}$ |
| 2008 $SF_{297}$ | 16.6 | 0.15 | 20081001 | 336.59795 | 151.51506 | 252.87904 | 8.94879 | 0.1463692 | 2.6019789 | 12 | 1 | 32 days | 0.38 | | | MPC | | 2008 $SF_{297}$ |
| 2008 $SG_{297}$ | 17.4 | 0.15 | 20081001 | 36.60414 | 311.55472 | 7.85188 | 13.59210 | 0.2857792 | 2.6193756 | 19 | 1 | 40 days | 0.67 | | | MPC | | 2008 $SG_{297}$ |
| 2008 $SH_{297}$ | 17.3 | 0.15 | 20081001 | 11.91226 | 307.22991 | 52.93600 | 11.37551 | 0.1265105 | 2.5831334 | 12 | 1 | 30 days | 0.78 | | | MPC | | 2008 $SH_{297}$ |
| 2008 $SJ_{297}$ | 16.2 | 0.15 | 20081001 | 3.66563 | 207.16640 | 167.98005 | 15.24202 | 0.1526596 | 3.0093223 | 16 | 1 | 34 days | 0.74 | | | MPC | | 2008 $SJ_{297}$ |
| 2008 $SL_{297}$ | 17.7 | 0.15 | 20081001 | 329.92443 | 181.95042 | 246.80586 | 11.58631 | 0.1530299 | 2.3867094 | 12 | 1 | 34 days | 0.60 | | | MPC | | 2008 $SL_{297}$ |
| 2008 $SM_{297}$ | 17.4 | 0.15 | 20081001 | 307.19480 | 278.38834 | 169.03644 | 5.14653 | 0.1072597 | 2.2072830 | 14 | 1 | 40 days | 0.26 | | | MPC | | 2008 $SM_{297}$ |
| 2008 $SN_{297}$ | 17.7 | 0.15 | 20081001 | 41.75362 | 201.63909 | 126.86539 | 3.22145 | 0.1752621 | 2.3358049 | 13 | 1 | 32 days | 0.17 | | | MPC | | 2008 $SN_{297}$ |
| 2008 $SO_{297}$ | 17.0 | 0.15 | 20081001 | 290.29099 | 93.37460 | 4.94194 | 5.48039 | 0.0441652 | 2.7829366 | 13 | 1 | 24 days | 0.58 | | | MPC | | 2008 $SO_{297}$ |
| 2008 TU | 15.5 | 0.15 | 20100104 | 263.50198 | 95.02864 | 108.03997 | 11.17859 | 0.0438184 | 3.0140828 | 32 | 5 | 2002–2009 | 0.56 | M-v | 0 | MPC | 150369 | 2008 TU |
| 2008 TW | 18.1 | 0.15 | 20081001 | 334.96263 | 17.46195 | 11.98495 | 22.03086 | 0.0667897 | 1.8917619 | 9 | 1 | 2 days | 0.44 | | | MPC | | 2008 TW |
| 2008 $TM_1$ | 15.3 | 0.15 | 20080911 | 44.42169 | 26.47206 | 248.84529 | 14.11866 | 0.2452712 | 3.1610422 | 16 | 1 | 33 days | 0.56 | | | MPC | | 2008 $TM_1$ |
| 2008 $TV_2$ | 18.7 | 0.15 | 20081001 | 334.17697 | 354.02673 | 61.08636 | 5.98053 | 0.2026709 | 2.2078269 | 13 | 1 | 25 days | 0.62 | | | MPC | | 2008 $TV_2$ |
| 2008 $TR_3$ | 15.6 | 0.15 | 20100104 | 89.33750 | 137.69648 | 226.57039 | 4.29479 | 0.1322485 | 3.1789354 | 50 | 4 | 2002–2009 | 0.50 | M-v | 1 | MPC | 150371 | 2008 $TR_3$ |
| 2008 $TT_4$ | 16.3 | 0.15 | 20100104 | 3.93102 | 270.50842 | 198.94077 | 4.27988 | 0.0183290 | 2.7744315 | 59 | 5 | 2002–2009 | 0.37 | M-v | 0 | MPC | 152511 | 2008 $TT_4$ |
| 2008 $TL_6$ | 15.4 | 0.15 | 20100104 | 118.13207 | 291.49325 | 38.39678 | 26.68442 | 0.2431893 | 3.1960363 | 29 | 1 | 62 days | 0.70 | M-v | 5 | MPC | | 2008 $TL_6$ |
| 2008 $TL_7$ | 17.3 | 0.15 | 20081001 | 337.30317 | 204.25875 | 195.36481 | 2.94185 | 0.1321165 | 2.6139235 | 10 | 1 | 4 days | 0.36 | | | MPC | | 2008 $TL_7$ |
| 2008 $TC_8$ | 15.2 | 0.15 | 20100104 | 36.51623 | 37.36853 | 30.24282 | 15.23592 | 0.0783717 | 3.1568216 | 41 | 5 | 1991–2009 | 0.51 | M-v | 1 | MPC | 150377 | 2008 $TC_8$ |
| 2008 $TE_8$ | 16.6 | 0.15 | 20081001 | 290.13849 | 286.71022 | 176.35547 | 8.83225 | 0.1227473 | 2.7206112 | 17 | 1 | 28 days | 0.36 | | D | MPC | | 2008 $TE_8$ |
| 2008 $TM_9$ | 16.1 | 0.15 | 20100104 | 56.51141 | 170.66964 | 238.59506 | 13.92628 | 0.0648795 | 2.6044332 | 26 | 4 | 2005–2009 | 0.48 | M-v | 1 | MPC | 150378 | 2008 $TM_9$ |
| 2008 $TV_{10}$ | 17.4 | 0.15 | 20081001 | 36.92353 | 130.24574 | 187.50044 | 13.47881 | 0.1929568 | 2.6106531 | 27 | 1 | 45 days | 0.50 | | | MPC | | 2008 $TV_{10}$ |
| 2008 $TE_{11}$ | 17.3 | 0.15 | 20080911 | 291.96285 | 244.86687 | 192.19524 | 8.27743 | 0.0517440 | 3.0269644 | 11 | 1 | 9 days | 0.29 | | | MPC | | 2008 $TE_{11}$ |
| 2008 $TN_{11}$ | 16.0 | 0.15 | 20080911 | 179.36420 | 352.03476 | 193.07163 | 4.59604 | 0.3069639 | 2.5260973 | 10 | 1 | 8 days | 0.27 | | E | MPC | | 2008 $TN_{11}$ |
| 2008 $TX_{11}$ | 16.7 | 0.15 | 20100104 | 107.50324 | 145.72102 | 206.92914 | 1.48243 | 0.0799625 | 2.8511318 | 51 | 7 | 2001–2009 | 0.35 | M-v | 0 | MPC | 150379 | 2008 $TX_{11}$ |
| 2008 $TO_{12}$ | 17.0 | 0.15 | 20080911 | 60.72480 | 295.31992 | 3.45089 | 8.61029 | 0.0687633 | 3.0312093 | 10 | 1 | 11 days | 0.25 | | | MPC | | 2008 $TO_{12}$ |
| 2008 $TL_{13}$ | 18.2 | 0.15 | 20081001 | 358.85235 | 176.38904 | 194.62091 | 13.14884 | 0.1414913 | 3.1488379 | 12 | 1 | 2 days | 0.26 | | E | MPC | | 2008 $TL_{13}$ |
| 2008 $TN_{13}$ | 20.3 | 0.15 | 20080911 | 350.49843 | 174.43961 | 200.08056 | 4.77907 | 0.2191022 | 2.1792353 | 17 | 1 | 12 days | 0.20 | | | MPC | | 2008 $TN_{13}$ |
| 2008 $TP_{14}$ | 19.2 | 0.15 | 20081001 | 357.02270 | 21.75273 | 351.68325 | 3.04519 | 0.1899075 | 2.4757176 | 12 | 1 | 2 days | 0.15 | | | MPC | | 2008 $TP_{14}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 $TR_{14}$ | 16.9 | 0.15 | 20100104 | 307.25623 | 184.77528 | 344.29763 | 3.23579 | 0.0431497 | 2.6482388 | 55 | 4 | 2002–2009 | 0.41 | M-v | 3 | MPC | 160582 | 2008 $TR_{14}$ |
| 2008 $TY_{14}$ | 19.0 | 0.15 | 20081001 | 4.15889 | 3.95466 | 358.28281 | 6.06875 | 0.2442390 | 2.8139927 | 14 | 1 | 2 days | 0.30 | | | MPC | | 2008 $TY_{14}$ |
| 2008 $TA_{15}$ | 17.9 | 0.15 | 20081001 | 199.43309 | 257.59336 | 273.12454 | 1.58853 | 0.0157246 | 2.6598372 | 12 | 1 | 2 days | 0.24 | | E | MPC | | 2008 $TA_{15}$ |
| 2008 $TC_{15}$ | 17.4 | 0.15 | 20081001 | 38.06943 | 90.31964 | 214.13328 | 3.68595 | 0.2865451 | 3.1064945 | 15 | 1 | 2 days | 0.78 | | | MPC | | 2008 $TC_{15}$ |
| 2008 $TE_{15}$ | 17.5 | 0.15 | 20080911 | 25.80672 | 334.54430 | 350.51124 | 3.06158 | 0.1959968 | 2.7448240 | 18 | 1 | 16 days | 0.21 | | | MPC | | 2008 $TE_{15}$ |
| 2008 $TG_{15}$ | 16.4 | 0.15 | 20081001 | 91.44437 | 338.00676 | 293.63184 | 1.22545 | 0.0564481 | 2.9714916 | 21 | 1 | 26 days | 0.27 | | | MPC | | 2008 $TG_{15}$ |
| 2008 $TH_{15}$ | 17.0 | 0.15 | 20081001 | 181.24963 | 195.68968 | 353.33778 | 5.48367 | 0.2869558 | 2.2541293 | 11 | 1 | 2 days | 0.46 | | E | MPC | | 2008 $TH_{15}$ |
| 2008 $TV_{15}$ | 18.3 | 0.15 | 20080911 | 82.08483 | 42.47070 | 217.12773 | 5.54808 | 0.1928886 | 2.2161249 | 10 | 1 | 9 days | 0.38 | | | MPC | | 2008 $TV_{15}$ |
| 2008 $TA_{16}$ | 18.3 | 0.15 | 20080911 | 341.87262 | 191.54167 | 201.64577 | 7.77998 | 0.2466575 | 2.6617405 | 20 | 1 | 36 days | 0.32 | | | MPC | | 2008 $TA_{16}$ |
| 2008 $TO_{16}$ | 17.3 | 0.15 | 20081001 | 308.54463 | 210.93000 | 216.40103 | 8.45175 | 0.0635499 | 3.1122021 | 14 | 1 | 33 days | 0.38 | | | MPC | | 2008 $TO_{16}$ |
| 2008 $TQ_{16}$ | 18.5 | 0.15 | 20100104 | 196.11969 | 316.14527 | 343.10887 | 6.12463 | 0.1103045 | 2.2196827 | 34 | 3 | 1998–2008 | 0.25 | M-v | 2 | MPC | 150381 | 2008 $TQ_{16}$ |
| 2008 $TO_{23}$ | 18.6 | 0.15 | 20080911 | 342.70257 | 14.60604 | 8.07213 | 2.09709 | 0.2490852 | 2.6632943 | 16 | 1 | 26 days | 0.23 | | | MPC | | 2008 $TO_{23}$ |
| 2008 $TP_{23}$ | 17.1 | 0.15 | 20080911 | 311.55083 | 342.57846 | 75.69708 | 0.57445 | 0.1564676 | 2.8407451 | 11 | 1 | 12 days | 0.19 | | | MPC | | 2008 $TP_{23}$ |
| 2008 $TV_{24}$ | 18.7 | 0.15 | 20080911 | 337.42987 | 7.68667 | 31.64449 | 9.57517 | 0.2250138 | 2.6833528 | 15 | 1 | 8 days | 0.42 | | | MPC | | 2008 $TV_{24}$ |
| 2008 $TX_{24}$ | 17.4 | 0.15 | 20081001 | 78.31038 | 111.91583 | 154.33673 | 6.11615 | 0.2347254 | 2.5966497 | 11 | 1 | 2 days | 0.25 | | | MPC | | 2008 $TX_{24}$ |
| 2008 $TY_{24}$ | 16.0 | 0.15 | 20081001 | 263.28140 | 76.52540 | 37.78501 | 9.95709 | 0.0563671 | 3.1643094 | 18 | 1 | 31 days | 0.22 | | | MPC | | 2008 $TY_{24}$ |
| 2008 $TL_{25}$ | 19.7 | 0.15 | 20081001 | 336.55934 | 329.02461 | 75.39546 | 3.17107 | 0.1851267 | 2.2777039 | 12 | 1 | 2 days | 0.41 | | | MPC | | 2008 $TL_{25}$ |
| 2008 $TF_{27}$ | 18.4 | 0.15 | 20081001 | 323.91862 | 170.42224 | 259.51252 | 6.66712 | 0.2008821 | 2.3250656 | 29 | 1 | 24 days | 0.45 | | | MPC | | 2008 $TF_{27}$ |
| 2008 $TQ_{27}$ | 16.0 | 0.15 | 20100104 | 9.57443 | 83.97977 | 14.00660 | 6.33937 | 0.1385519 | 3.2255614 | 56 | 4 | 2002–2009 | 0.33 | M-v | 0 | MPC | 164338 | 2008 $TQ_{27}$ |
| 2008 $TR_{27}$ | 16.5 | 0.15 | 20100104 | 202.46440 | 240.68563 | 20.94456 | 5.41034 | 0.0818739 | 2.7657213 | 51 | 5 | 1999–2009 | 0.36 | M-v | 0 | MPC | 150388 | 2008 $TR_{27}$ |
| 2008 $TS_{27}$ | 16.3 | 0.15 | 20100104 | 94.21182 | 147.26629 | 214.83207 | 2.37803 | 0.0992694 | 3.0599733 | 54 | 4 | 2003–2009 | 0.46 | M-v | 1 | MPC | 150388 | 2008 $TS_{27}$ |
| 2008 $TU_{27}$ | 15.9 | 0.15 | 20080911 | 295.07106 | 254.16986 | 192.72782 | 9.98188 | 0.0910509 | 3.0223187 | 13 | 1 | 27 days | 0.50 | | | MPC | | 2008 $TU_{27}$ |
| 2008 $TV_{29}$ | 16.6 | 0.15 | 20100104 | 38.13241 | 68.01099 | 4.98007 | 1.82660 | 0.0660652 | 2.8322173 | 39 | 5 | 1996–2009 | 0.36 | M-v | 0 | MPC | 150389 | 2008 $TV_{29}$ |
| 2008 $TX_{29}$ | 17.6 | 0.15 | 20081001 | 6.83677 | 169.84429 | 189.29152 | 12.31941 | 0.1869148 | 2.5712250 | 19 | 1 | 26 days | 0.48 | | | MPC | | 2008 $TX_{29}$ |
| 2008 $TY_{29}$ | 16.1 | 0.15 | 20100104 | 71.50629 | 191.85565 | 190.39736 | 5.27707 | 0.1293221 | 3.1262844 | 38 | 4 | 2002–2009 | 0.38 | M-v | 2 | MPC | 150389 | 2008 $TY_{29}$ |
| 2008 $TA_{30}$ | 15.8 | 0.15 | 20100104 | 67.35789 | 190.89987 | 191.19157 | 2.23115 | 0.0865794 | 3.2172553 | 65 | 7 | 2000–2009 | 0.42 | M-v | 0 | MPC | 151082 | 2008 $TA_{30}$ |
| 2008 $TM_{30}$ | 16.5 | 0.15 | 20100104 | 134.02116 | 173.80312 | 153.91472 | 0.73822 | 0.1085131 | 2.9720397 | 52 | 6 | 1998–2009 | 0.39 | M-v | 1 | MPC | 151082 | 2008 $TM_{30}$ |
| 2008 $TT_{30}$ | 17.5 | 0.15 | 20081001 | 227.20116 | 143.24372 | 24.67122 | 24.36999 | 0.1710986 | 2.3101175 | 10 | 1 | 19 days | 0.17 | | | MPC | | 2008 $TT_{30}$ |
| 2008 $TW_{30}$ | 17.9 | 0.15 | 20081001 | 28.29815 | 141.79722 | 201.61840 | 25.80264 | 0.1769106 | 3.1670830 | 10 | 1 | 21 days | 0.18 | | | MPC | | 2008 $TW_{30}$ |
| 2008 $TK_{31}$ | 17.6 | 0.15 | 20081001 | 28.52583 | 287.73668 | 44.37276 | 3.20962 | 0.2922702 | 3.1679062 | 10 | 1 | 19 days | 0.51 | | E | MPC | | 2008 $TK_{31}$ |
| 2008 $TR_{31}$ | 17.8 | 0.15 | 20081001 | 353.00871 | 196.38324 | 197.55657 | 6.99345 | 0.2402427 | 2.6871176 | 17 | 1 | 31 days | 0.27 | | | MPC | | 2008 $TR_{31}$ |
| 2008 $TU_{31}$ | 17.5 | 0.15 | 20080911 | 312.67405 | 253.54000 | 196.23056 | 12.41456 | 0.2401491 | 2.6777428 | 13 | 1 | 32 days | 0.21 | | | MPC | | 2008 $TU_{31}$ |
| 2008 $TD_{32}$ | 16.4 | 0.15 | 20081001 | 14.61849 | 172.61808 | 196.05127 | 9.31297 | 0.1002902 | 3.1324945 | 10 | 1 | 22 days | 0.30 | | | MPC | | 2008 $TD_{32}$ |
| 2008 $TG_{32}$ | 16.1 | 0.15 | 20081001 | 236.70805 | 326.50720 | 193.32924 | 6.10603 | 0.0937030 | 3.0230883 | 10 | 1 | 22 days | 0.24 | | | MPC | | 2008 $TG_{32}$ |
| 2008 $TK_{32}$ | 16.4 | 0.15 | 20080911 | 344.48440 | 199.43732 | 200.08650 | 26.55533 | 0.1202685 | 3.2136595 | 9 | 1 | 18 days | 0.17 | | | MPC | | 2008 $TK_{32}$ |
| 2008 $TA_{34}$ | 17.9 | 0.15 | 20081001 | 350.56172 | 204.94709 | 193.55912 | 13.89451 | 0.2543397 | 2.6436790 | 17 | 1 | 34 days | 0.21 | | | MPC | | 2008 $TA_{34}$ |
| 2008 $TO_{34}$ | 16.3 | 0.15 | 20081001 | 4.80992 | 320.83561 | 60.90621 | 5.78520 | 0.0311734 | 3.0185765 | 13 | 1 | 29 days | 0.16 | | | MPC | | 2008 $TO_{34}$ |
| 2008 $TB_{35}$ | 17.8 | 0.15 | 20081001 | 25.62040 | 317.24512 | 8.53940 | 14.53755 | 0.2683018 | 2.7900460 | 10 | 1 | 6 days | 0.40 | | | MPC | | 2008 $TB_{35}$ |
| 2008 $TD_{35}$ | 18.3 | 0.15 | 20081001 | 329.59212 | 232.74979 | 192.63898 | 4.73216 | 0.3037509 | 2.3662039 | 26 | 1 | 51 days | 0.39 | | | MPC | | 2008 $TD_{35}$ |
| 2008 $TF_{35}$ | 16.8 | 0.15 | 20100104 | 107.39959 | 9.63279 | 343.34827 | 2.05298 | 0.0800634 | 2.8834896 | 39 | 5 | 2003–2009 | 0.42 | M-v | 1 | MPC | 150391 | 2008 $TF_{35}$ |
| 2008 $TS_{35}$ | 17.5 | 0.15 | 20081001 | 103.39388 | 235.49493 | 3.96585 | 7.70884 | 0.2711573 | 2.2676292 | 10 | 1 | 9 days | 0.28 | | | MPC | | 2008 $TS_{35}$ |
| 2008 $TZ_{35}$ | 16.8 | 0.15 | 20081001 | 213.04738 | 312.99060 | 208.23269 | 5.81999 | 0.0912301 | 2.4687173 | 12 | 1 | 17 days | 0.35 | | | MPC | | 2008 $TZ_{35}$ |
| 2008 $TA_{36}$ | 17.4 | 0.15 | 20081001 | 41.84078 | 332.26168 | 348.98925 | 5.97385 | 0.0783057 | 2.7542271 | 14 | 1 | 35 days | 0.27 | | | MPC | | 2008 $TA_{36}$ |
| 2008 $TJ_{36}$ | 18.4 | 0.15 | 20081001 | 358.58633 | 25.23746 | 346.67105 | 3.26885 | 0.1881582 | 2.5765553 | 10 | 1 | 9 days | 0.32 | | | MPC | | 2008 $TJ_{36}$ |
| 2008 $TK_{36}$ | 16.4 | 0.15 | 20100104 | 341.11148 | 150.37593 | 341.40572 | 3.11464 | 0.1221980 | 2.9372187 | 30 | 4 | 2003–2009 | 0.35 | M-v | 3 | MPC | 150391 | 2008 $TK_{36}$ |
| 2008 $TP_{36}$ | 16.4 | 0.15 | 20100104 | 110.55379 | 117.94587 | 221.73753 | 2.61122 | 0.1154308 | 3.0360220 | 50 | 4 | 2003–2009 | 0.40 | M-v | 1 | MPC | 150392 | 2008 $TP_{36}$ |
| 2008 $TC_{37}$ | 16.3 | 0.15 | 20100104 | 71.30279 | 46.94561 | 341.89383 | 5.63891 | 0.0985581 | 3.0028880 | 39 | 4 | 2003–2009 | 0.41 | M-v | 1 | MPC | 150392 | 2008 $TC_{37}$ |
| 2008 $TJ_{37}$ | 15.4 | 0.15 | 20100104 | 234.38605 | 2.88612 | 217.40102 | 5.57998 | 0.0889174 | 2.9424617 | 47 | 6 | 2001–2009 | 0.36 | M-v | 0 | MPC | 166332 | 2008 $TJ_{37}$ |
| 2008 $TP_{37}$ | 17.6 | 0.15 | 20081001 | 28.84139 | 116.23334 | 216.39069 | 4.51239 | 0.1412090 | 2.7310209 | 13 | 1 | 9 days | 0.40 | | | MPC | | 2008 $TP_{37}$ |
| 2008 $TR_{37}$ | 19.8 | 0.15 | 20081001 | 339.14170 | 182.38178 | 215.47631 | 3.42887 | 0.1397491 | 2.0282466 | 11 | 1 | 7 days | 0.31 | | | MPC | | 2008 $TR_{37}$ |
| 2008 $TW_{38}$ | 19.5 | 0.15 | 20081001 | 23.12962 | 87.73538 | 260.01561 | 1.65341 | 0.2065353 | 2.1474954 | 9 | 1 | 8 days | 0.27 | | | MPC | | 2008 $TW_{38}$ |
| 2008 $TK_{39}$ | 18.8 | 0.15 | 20081001 | 23.96818 | 326.77462 | 21.35376 | 12.52031 | 0.2003345 | 2.2674504 | 9 | 1 | 8 days | 0.38 | | | MPC | | 2008 $TK_{39}$ |
| 2008 $TJ_{40}$ | 15.9 | 0.15 | 20081001 | 203.92389 | 234.56757 | 306.48948 | 8.41336 | 0.1189517 | 3.1532915 | 13 | 1 | 20 days | 0.28 | | | MPC | | 2008 $TJ_{40}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 $TV_{40}$ | 17.4 | 0.15 | 20081001 | 22.57525 | 112.53465 | 239.58651 | 10.97419 | 0.0808379 | 2.8894982 | 16 | 1 | 31 days | 0.31 | | | MPC | | 2008 $TV_{40}$ |
| 2008 $TY_{40}$ | 16.9 | 0.15 | 20081001 | 344.80681 | 54.26727 | 344.11866 | 12.74191 | 0.0790515 | 3.2319703 | 13 | 1 | 8 days | 0.18 | | | MPC | | 2008 $TY_{40}$ |
| 2008 $TZ_{40}$ | 16.8 | 0.15 | 20081001 | 179.80742 | 244.20637 | 316.50655 | 8.67355 | 0.0305435 | 3.0910995 | 13 | 1 | 8 days | 0.27 | | | MPC | | 2008 $TZ_{40}$ |
| 2008 $TQ_{41}$ | 16.2 | 0.15 | 20100104 | 63.39884 | 75.60864 | 329.57020 | 9.88262 | 0.0785597 | 3.0604253 | 46 | 4 | 2002–2009 | 0.41 | M-v | 1 | MPC | 150393 | 2008 $TQ_{41}$ |
| 2008 $TY_{41}$ | 18.5 | 0.15 | 20081001 | 111.66267 | 6.64281 | 253.09732 | 8.58327 | 0.0699190 | 2.2185477 | 17 | 1 | 8 days | 0.25 | | | MPC | | 2008 $TY_{41}$ |
| 2008 $TM_{42}$ | 16.6 | 0.15 | 20081001 | 7.67253 | 69.03618 | 303.56951 | 8.58035 | 0.0168797 | 3.1638357 | 13 | 1 | 8 days | 0.27 | | | MPC | | 2008 $TM_{42}$ |
| 2008 $TN_{42}$ | 18.4 | 0.15 | 20081001 | 320.12695 | 151.77496 | 291.33106 | 6.75307 | 0.2622409 | 2.8096678 | 12 | 1 | 8 days | 0.24 | | | MPC | | 2008 $TN_{42}$ |
| 2008 $TV_{42}$ | 16.3 | 0.15 | 20100104 | 11.59977 | 164.74542 | 316.07450 | 8.98629 | 0.1122488 | 2.7511102 | 36 | 4 | 2001–2009 | 0.35 | M-v | 1 | MPC | 166332 | 2008 $TV_{42}$ |
| 2008 $TK_{43}$ | 15.8 | 0.15 | 20100104 | 105.40186 | 60.03024 | 293.46301 | 8.68290 | 0.1144729 | 3.0813944 | 55 | 5 | 2000–2009 | 0.41 | M-v | 0 | MPC | 166332 | 2008 $TK_{43}$ |
| 2008 $TP_{43}$ | 18.8 | 0.15 | 20081001 | 70.95831 | 345.24029 | 318.67082 | 7.45476 | 0.0365080 | 2.2924764 | 19 | 1 | 8 days | 0.46 | | | MPC | | 2008 $TP_{43}$ |
| 2008 $TR_{43}$ | 18.9 | 0.15 | 20081021 | 24.27027 | 129.64755 | 236.64342 | 1.84866 | 0.1115596 | 2.1329406 | 18 | 1 | 54 days | 0.28 | | | MPC | | 2008 $TR_{43}$ |
| 2008 $TX_{47}$ | 17.4 | 0.15 | 20081001 | 61.87706 | 198.24784 | 109.25693 | 4.75726 | 0.2004293 | 2.5650875 | 10 | 1 | 24 days | 0.16 | | | MPC | | 2008 $TX_{47}$ |
| 2008 $TZ_{47}$ | 17.2 | 0.15 | 20081001 | 9.51564 | 63.75890 | 302.27736 | 5.34747 | 0.0904930 | 3.0242230 | 15 | 1 | 36 days | 0.18 | | | MPC | | 2008 $TZ_{47}$ |
| 2008 $TT_{48}$ | 17.2 | 0.15 | 20100104 | 143.45905 | 0.51413 | 295.98755 | 1.01997 | 0.0414063 | 2.8481785 | 37 | 5 | 1999–2009 | 0.35 | M-v | 1 | MPC | 158929 | 2008 $TT_{48}$ |
| 2008 $TZ_{48}$ | 17.7 | 0.15 | 20081001 | 24.44504 | 22.53120 | 306.23730 | 2.85645 | 0.2439678 | 2.6865127 | 16 | 1 | 26 days | 0.40 | | | MPC | | 2008 $TZ_{48}$ |
| 2008 $TE_{49}$ | 14.1 | 0.15 | 20100104 | 11.90659 | 168.65413 | 232.52003 | 6.01414 | 0.0902664 | 5.1928526 | 37 | 5 | 1995–2009 | 0.33 | M-v | 0 | MPC | 165620 | 2008 $TE_{49}$ |
| 2008 $TO_{49}$ | 18.6 | 0.15 | 20100104 | 162.32399 | 340.62671 | 333.09578 | 3.68453 | 0.2041531 | 2.3603899 | 13 | 1 | 63 days | 0.25 | M-v | 4 | MPC | | 2008 $TO_{49}$ |
| 2008 $TV_{49}$ | 13.6 | 0.15 | 20100104 | 28.65240 | 8.38473 | 21.04816 | 4.34139 | 0.0712860 | 5.1845362 | 53 | 5 | 2001–2009 | 0.38 | M-v | 0 | MPC | 166332 | 2008 $TV_{49}$ |
| 2008 $TY_{49}$ | 17.3 | 0.15 | 20081001 | 28.68965 | 313.81178 | 27.36134 | 3.93623 | 0.0976513 | 2.7939842 | 16 | 1 | 18 days | 0.34 | | | MPC | | 2008 $TY_{49}$ |
| 2008 $TF_{50}$ | 17.8 | 0.15 | 20081001 | 19.75198 | 328.60747 | 22.02409 | 4.40586 | 0.1231435 | 2.6841025 | 9 | 1 | 8 days | 0.21 | | | MPC | | 2008 $TF_{50}$ |
| 2008 $TK_{50}$ | 16.9 | 0.15 | 20081001 | 323.60729 | 232.31115 | 195.25797 | 27.39238 | 0.1747157 | 3.0862054 | 13 | 1 | 30 days | 0.32 | | | MPC | | 2008 $TK_{50}$ |
| 2008 $TN_{50}$ | 19.0 | 0.15 | 20080911 | 334.71965 | 214.75586 | 191.74632 | 4.64376 | 0.2293795 | 2.3254792 | 13 | 1 | 20 days | 0.20 | | | MPC | | 2008 $TN_{50}$ |
| 2008 $TQ_{50}$ | 17.1 | 0.15 | 20081001 | 330.77825 | 358.82983 | 56.89245 | 1.86438 | 0.1431004 | 3.0892550 | 9 | 1 | 8 days | 0.37 | | | MPC | | 2008 $TQ_{50}$ |
| 2008 $TV_{50}$ | 16.7 | 0.15 | 20100104 | 48.75719 | 251.60644 | 173.59805 | 2.01363 | 0.0697728 | 2.9263045 | 32 | 4 | 2003–2009 | 0.29 | M-v | 1 | MPC | 150399 | 2008 $TV_{50}$ |
| 2008 $TW_{50}$ | 18.9 | 0.15 | 20081001 | 17.98993 | 306.04269 | 41.80150 | 2.05567 | 0.2033485 | 2.3839912 | 13 | 1 | 21 days | 0.27 | | | MPC | | 2008 $TW_{50}$ |
| 2008 $TA_{51}$ | 16.7 | 0.15 | 20081001 | 221.21079 | 128.44586 | 31.18674 | 3.48313 | 0.0385936 | 2.7220704 | 13 | 1 | 18 days | 0.34 | | | MPC | | 2008 $TA_{51}$ |
| 2008 $TB_{51}$ | 17.8 | 0.15 | 20081001 | 4.05036 | 247.13958 | 124.60561 | 0.67047 | 0.1144350 | 2.5718483 | 9 | 1 | 8 days | 0.16 | | | MPC | | 2008 $TB_{51}$ |
| 2008 $TH_{51}$ | 16.2 | 0.15 | 20100104 | 66.31571 | 223.12330 | 184.56916 | 5.76451 | 0.1592440 | 2.9891303 | 39 | 4 | 2003–2009 | 0.42 | M-v | 1 | MPC | 152183 | 2008 $TH_{51}$ |
| 2008 $TV_{51}$ | 19.0 | 0.15 | 20081001 | 3.27443 | 341.85953 | 25.33363 | 1.44403 | 0.2347029 | 2.2506797 | 13 | 1 | 16 days | 0.23 | | | MPC | | 2008 $TV_{51}$ |
| 2008 $TE_{52}$ | 15.6 | 0.15 | 20081021 | 64.08855 | 331.14162 | 341.35789 | 12.86247 | 0.0639694 | 3.1589415 | 15 | 1 | 37 days | 0.18 | | | MPC | | 2008 $TE_{52}$ |
| 2008 $TF_{52}$ | 17.4 | 0.15 | 20081001 | 31.27610 | 14.62216 | 326.86813 | 9.74639 | 0.0956856 | 3.1485582 | 11 | 1 | 19 days | 0.27 | | | MPC | | 2008 $TF_{52}$ |
| 2008 $TR_{52}$ | 18.3 | 0.15 | 20080911 | 11.36335 | 156.55770 | 189.92682 | 13.83348 | 0.2695070 | 2.6767102 | 12 | 1 | 18 days | 0.29 | | | MPC | | 2008 $TR_{52}$ |
| 2008 $TT_{52}$ | 16.9 | 0.15 | 20081001 | 24.74588 | 159.54071 | 189.10761 | 9.19269 | 0.0683088 | 3.1139823 | 13 | 1 | 22 days | 0.33 | | | MPC | | 2008 $TT_{52}$ |
| 2008 $TX_{52}$ | 17.3 | 0.15 | 20081001 | 18.63104 | 165.37734 | 188.58709 | 9.41438 | 0.1031091 | 3.0159088 | 13 | 1 | 22 days | 0.25 | | | MPC | | 2008 $TX_{52}$ |
| 2008 $TE_{53}$ | 19.2 | 0.15 | 20081001 | 5.65463 | 191.60753 | 175.34788 | 3.09502 | 0.1639299 | 2.1852483 | 13 | 1 | 34 days | 0.25 | | | MPC | | 2008 $TE_{53}$ |
| 2008 $TJ_{53}$ | 13.5 | 0.15 | 20100104 | 349.78074 | 44.96955 | 350.37171 | 6.66878 | 0.0796523 | 5.2403163 | 43 | 5 | 2002–2009 | 0.40 | M-v | 0 | MPC | 164338 | 2008 $TJ_{53}$ |
| 2008 $TO_{53}$ | 17.7 | 0.15 | 20081001 | 346.57988 | 217.14317 | 176.34213 | 4.50316 | 0.0883916 | 2.7433415 | 13 | 1 | 22 days | 0.26 | | | MPC | | 2008 $TO_{53}$ |
| 2008 $TD_{54}$ | 18.3 | 0.15 | 20081001 | 18.56473 | 226.41754 | 122.32084 | 1.88726 | 0.1942588 | 2.4345516 | 13 | 1 | 30 days | 0.19 | | | MPC | | 2008 $TD_{54}$ |
| 2008 $TE_{54}$ | 19.1 | 0.15 | 20080911 | 23.71846 | 193.23339 | 138.95726 | 1.79335 | 0.2114052 | 2.3570843 | 9 | 1 | 12 days | 0.15 | | | MPC | | 2008 $TE_{54}$ |
| 2008 $TP_{54}$ | 17.7 | 0.15 | 20081001 | 350.70096 | 182.09540 | 209.04182 | 3.85871 | 0.1386253 | 2.8434942 | 12 | 1 | 16 days | 0.21 | | | MPC | | 2008 $TP_{54}$ |
| 2008 $TS_{54}$ | 13.8 | 0.15 | 20100104 | 349.23130 | 61.02053 | 17.22473 | 4.20836 | 0.0663908 | 5.1311806 | 47 | 5 | 2001–2009 | 0.33 | M-v | 0 | MPC | 166332 | 2008 $TS_{54}$ |
| 2008 $TX_{54}$ | 18.6 | 0.15 | 20081001 | 311.99770 | 166.28882 | 279.45677 | 0.73434 | 0.1997296 | 2.2605130 | 9 | 1 | 8 days | 0.47 | | | MPC | | 2008 $TX_{54}$ |
| 2008 $TY_{54}$ | 17.3 | 0.15 | 20081001 | 74.25533 | 280.53262 | 16.68194 | 13.80767 | 0.0709106 | 2.4576992 | 13 | 1 | 30 days | 0.14 | | | MPC | | 2008 $TY_{54}$ |
| 2008 $TC_{55}$ | 17.8 | 0.15 | 20080911 | 75.59195 | 69.70430 | 210.84223 | 1.85409 | 0.1554237 | 2.3827564 | 9 | 1 | 12 days | 0.29 | | | MPC | | 2008 $TC_{55}$ |
| 2008 $TP_{55}$ | 17.8 | 0.15 | 20081001 | 2.45520 | 181.30292 | 196.21622 | 2.05212 | 0.0865790 | 2.6671307 | 13 | 1 | 18 days | 0.27 | | | MPC | | 2008 $TP_{55}$ |
| 2008 $TT_{55}$ | 17.1 | 0.15 | 20100104 | 42.06829 | 247.22781 | 216.45341 | 1.23478 | 0.1638691 | 2.6275045 | 53 | 5 | 2000–2009 | 0.39 | M-v | 1 | MPC | 155515 | 2008 $TT_{55}$ |
| 2008 $TV_{55}$ | 16.4 | 0.15 | 20100104 | 31.15755 | 39.73566 | 25.69283 | 3.11458 | 0.2469070 | 3.9767403 | 34 | 4 | 2000–2009 | 0.40 | M-v | 1 | MPC | 155515 | 2008 $TV_{55}$ |
| 2008 $TZ_{55}$ | 17.3 | 0.15 | 20081001 | 4.00590 | 181.43592 | 194.54719 | 3.98756 | 0.0773958 | 2.6589939 | 12 | 1 | 36 days | 0.18 | | | MPC | | 2008 $TZ_{55}$ |
| 2008 $TB_{56}$ | 18.4 | 0.15 | 20081001 | 31.17357 | 147.35811 | 190.13786 | 2.87615 | 0.1529529 | 2.4118168 | 16 | 1 | 18 days | 0.24 | | | MPC | | 2008 $TB_{56}$ |
| 2008 $TL_{56}$ | 15.9 | 0.15 | 20081001 | 29.58342 | 312.84855 | 22.82476 | 17.47400 | 0.2197949 | 3.0962213 | 14 | 1 | 24 days | 0.49 | | | MPC | | 2008 $TL_{56}$ |
| 2008 $TP_{56}$ | 18.3 | 0.15 | 20081001 | 1.38091 | 346.17538 | 32.52355 | 2.26272 | 0.0717741 | 2.4343928 | 10 | 1 | 18 days | 0.34 | | E | MPC | | 2008 $TP_{56}$ |
| 2008 $TS_{56}$ | 16.2 | 0.15 | 20100104 | 207.22542 | 237.20089 | 26.48809 | 2.15721 | 0.0357244 | 2.9004465 | 60 | 7 | 1998–2009 | 0.43 | M-v | 0 | MPC | 150402 | 2008 $TS_{56}$ |
| 2008 $TC_{57}$ | 18.5 | 0.15 | 20081001 | 48.45504 | 272.81165 | 38.60832 | 1.67467 | 0.1979100 | 2.3195608 | 16 | 1 | 26 days | 0.25 | | | MPC | | 2008 $TC_{57}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 $TD_{57}$ | 16.6 | 0.15 | 20100104 | 159.45151 | 129.62257 | 186.65212 | 1.32141 | 0.0412096 | 2.7184874 | 63 | 4 | 2002–2009 | 0.37 | M-v | 3 | MPC | 149080 | 2008 $TD_{57}$ |
| 2008 $TO_{57}$ | 17.7 | 0.15 | 20081001 | 237.49910 | 123.32981 | 22.32459 | 7.53665 | 0.0490778 | 2.3576725 | 17 | 1 | 18 days | 0.26 | | | MPC | | 2008 $TO_{57}$ |
| 2008 $TR_{57}$ | 17.0 | 0.15 | 20081001 | 60.23259 | 290.29237 | 24.20561 | 3.67732 | 0.0458792 | 2.6820521 | 13 | 1 | 18 days | 0.19 | | | MPC | | 2008 $TR_{57}$ |
| 2008 $TF_{58}$ | 18.9 | 0.15 | 20081001 | 331.52474 | 256.41209 | 161.68181 | 1.05233 | 0.1670934 | 2.3560181 | 13 | 1 | 26 days | 0.22 | | | MPC | | 2008 $TF_{58}$ |
| 2008 $TR_{58}$ | 17.1 | 0.15 | 20081001 | 35.03659 | 138.54623 | 198.20117 | 11.88675 | 0.1313630 | 2.9680934 | 13 | 1 | 18 days | 0.26 | | | MPC | | 2008 $TR_{58}$ |
| 2008 $TH_{59}$ | 15.3 | 0.15 | 20100104 | 42.64205 | 31.22362 | 31.38939 | 8.89098 | 0.0301967 | 3.1785715 | 62 | 6 | 1994–2009 | 0.36 | M-v | 0 | MPC | 151082 | 2008 $TH_{59}$ |
| 2008 $TZ_{59}$ | 18.6 | 0.15 | 20081001 | 34.42605 | 283.03803 | 40.44135 | 3.91179 | 0.2630828 | 2.6063828 | 12 | 1 | 16 days | 0.32 | | | MPC | | 2008 $TZ_{59}$ |
| 2008 $TF_{60}$ | 17.4 | 0.15 | 20080911 | 339.04277 | 12.34980 | 12.34125 | 2.92624 | 0.1463079 | 2.7023529 | 15 | 1 | 36 days | 0.21 | | | MPC | | 2008 $TF_{60}$ |
| 2008 $TQ_{60}$ | 19.4 | 0.15 | 20081001 | 19.33807 | 58.56382 | 290.75483 | 0.47424 | 0.2435857 | 2.4206568 | 13 | 1 | 18 days | 0.26 | | | MPC | | 2008 $TQ_{60}$ |
| 2008 $TX_{60}$ | 18.0 | 0.15 | 20081001 | 77.58585 | 10.79556 | 275.60589 | 0.61943 | 0.1855208 | 2.4223898 | 13 | 1 | 18 days | 0.42 | | | MPC | | 2008 $TX_{60}$ |
| 2008 $TY_{60}$ | 16.8 | 0.15 | 20081001 | 98.15702 | 258.00042 | 25.12199 | 15.51965 | 0.0635626 | 3.1367813 | 10 | 1 | 24 days | 0.24 | | | MPC | | 2008 $TY_{60}$ |
| 2008 $TC_{61}$ | 16.4 | 0.15 | 20100104 | 117.93891 | 240.18495 | 96.15476 | 8.93488 | 0.2327199 | 2.7673023 | 46 | 5 | 1998–2009 | 0.51 | M-v | 1 | MPC | 166332 | 2008 $TC_{61}$ |
| 2008 $TJ_{61}$ | 17.7 | 0.15 | 20081001 | 12.47901 | 157.88397 | 209.43126 | 5.84277 | 0.0626401 | 2.6901460 | 10 | 1 | 18 days | 0.25 | | | MPC | | 2008 $TJ_{61}$ |
| 2008 $TU_{61}$ | 15.9 | 0.15 | 20080911 | 212.78677 | 325.57005 | 214.76409 | 3.76051 | 0.2197440 | 3.0876298 | 10 | 1 | 14 days | 0.51 | | E | MPC | | 2008 $TU_{61}$ |
| 2008 $TN_{62}$ | 15.6 | 0.15 | 20100104 | 232.44421 | 217.87527 | 17.15456 | 5.58684 | 0.0739990 | 3.0039588 | 57 | 6 | 2002–2009 | 0.44 | M-v | 1 | MPC | 151083 | 2008 $TN_{62}$ |
| 2008 $TE_{63}$ | 15.9 | 0.15 | 20100104 | 31.60813 | 107.66891 | 334.80790 | 0.29735 | 0.0247584 | 3.0120456 | 63 | 6 | 2000–2009 | 0.29 | M-v | 0 | MPC | 150405 | 2008 $TE_{63}$ |
| 2008 $TA_{64}$ | 17.7 | 0.15 | 20081001 | 339.37335 | 218.50943 | 204.67810 | 17.62170 | 0.3136462 | 3.0782020 | 13 | 1 | 31 days | 0.23 | | | MPC | | 2008 $TA_{64}$ |
| 2008 $TA_{65}$ | 16.7 | 0.15 | 20081001 | 17.15676 | 133.14405 | 219.43360 | 12.23150 | 0.1223549 | 2.7031816 | 10 | 1 | 6 days | 0.40 | | | MPC | | 2008 $TA_{65}$ |
| 2008 $TF_{66}$ | 17.6 | 0.15 | 20081001 | 278.51250 | 40.94480 | 82.25942 | 2.62318 | 0.1344620 | 2.4623730 | 13 | 1 | 21 days | 0.18 | | | MPC | | 2008 $TF_{66}$ |
| 2008 $TH_{66}$ | 17.2 | 0.15 | 20081001 | 353.33386 | 359.79888 | 37.02225 | 9.78350 | 0.2088993 | 3.1018236 | 13 | 1 | 21 days | 0.16 | | | MPC | | 2008 $TH_{66}$ |
| 2008 $TQ_{66}$ | 16.7 | 0.15 | 20081001 | 109.39318 | 66.31698 | 198.41782 | 9.30206 | 0.1410364 | 2.5631536 | 13 | 1 | 21 days | 0.19 | | | MPC | | 2008 $TQ_{66}$ |
| 2008 $TU_{66}$ | 17.0 | 0.15 | 20081001 | 359.97159 | 212.26437 | 174.30398 | 4.50298 | 0.1078415 | 2.6694372 | 9 | 1 | 8 days | 0.12 | | | MPC | | 2008 $TU_{66}$ |
| 2008 $TE_{67}$ | 16.5 | 0.15 | 20081001 | 243.48888 | 27.72151 | 131.07405 | 2.51613 | 0.1336049 | 2.7430814 | 9 | 1 | 8 days | 0.43 | | | MPC | | 2008 $TE_{67}$ |
| 2008 $TU_{68}$ | 18.2 | 0.15 | 20081001 | 69.37151 | 118.62077 | 180.37245 | 6.06604 | 0.1482223 | 2.3291344 | 9 | 1 | 8 days | 0.35 | | | MPC | | 2008 $TU_{68}$ |
| 2008 $TB_{69}$ | 19.5 | 0.15 | 20081001 | 334.87464 | 276.13196 | 153.99772 | 2.52886 | 0.3193789 | 2.3830193 | 13 | 1 | 23 days | 0.16 | | | MPC | | 2008 $TB_{69}$ |
| 2008 $TK_{69}$ | 16.6 | 0.15 | 20081001 | 307.05883 | 259.18012 | 192.17169 | 11.17639 | 0.1013486 | 2.9882784 | 13 | 1 | 29 days | 0.22 | | | MPC | | 2008 $TK_{69}$ |
| 2008 $TU_{69}$ | 18.2 | 0.15 | 20081001 | 1.08651 | 236.56338 | 145.89952 | 3.02511 | 0.2291956 | 2.5960634 | 16 | 1 | 23 days | 0.22 | | | MPC | | 2008 $TU_{69}$ |
| 2008 $TW_{69}$ | 16.5 | 0.15 | 20080911 | 4.27876 | 200.23988 | 178.32723 | 6.88631 | 0.1134383 | 3.0965375 | 9 | 1 | 13 days | 0.16 | | | MPC | | 2008 $TW_{69}$ |
| 2008 $TC_{70}$ | 16.9 | 0.15 | 20081001 | 257.96205 | 94.88557 | 52.14131 | 9.54305 | 0.1587976 | 2.5274060 | 9 | 1 | 8 days | 0.30 | | E | MPC | | 2008 $TC_{70}$ |
| 2008 $TK_{70}$ | 17.4 | 0.15 | 20081001 | 334.08080 | 258.35727 | 160.43636 | 4.73724 | 0.0871035 | 2.7016876 | 12 | 1 | 17 days | 0.33 | | | MPC | | 2008 $TK_{70}$ |
| 2008 $TM_{70}$ | 17.8 | 0.15 | 20081021 | 14.48945 | 286.38406 | 82.94061 | 3.30136 | 0.2261032 | 2.6326951 | 17 | 1 | 38 days | 0.25 | | | MPC | | 2008 $TM_{70}$ |
| 2008 $TO_{70}$ | 16.5 | 0.15 | 20081001 | 151.25623 | 153.03301 | 83.11299 | 4.87142 | 0.0443863 | 2.8105779 | 12 | 1 | 17 days | 0.24 | | | MPC | | 2008 $TO_{70}$ |
| 2008 $TP_{70}$ | 18.9 | 0.15 | 20080911 | 20.95989 | 157.72142 | 177.38645 | 6.39335 | 0.3161289 | 2.5622077 | 9 | 1 | 13 days | 0.37 | | | MPC | | 2008 $TP_{70}$ |
| 2008 $TV_{70}$ | 18.8 | 0.15 | 20081001 | 3.68214 | 251.47487 | 125.86201 | 2.81607 | 0.2253521 | 2.3198667 | 12 | 1 | 8 days | 0.25 | | | MPC | | 2008 $TV_{70}$ |
| 2008 $TX_{70}$ | 17.5 | 0.15 | 20081001 | 42.79965 | 127.68148 | 191.40645 | 12.18379 | 0.2603602 | 2.6453919 | 13 | 1 | 29 days | 0.27 | | | MPC | | 2008 $TX_{70}$ |
| 2008 $TY_{70}$ | 18.5 | 0.15 | 20081001 | 345.31772 | 304.10333 | 104.33043 | 3.31030 | 0.2010992 | 2.5929438 | 13 | 1 | 23 days | 0.30 | | | MPC | | 2008 $TY_{70}$ |
| 2008 $TB_{71}$ | 17.9 | 0.15 | 20081001 | 297.71726 | 298.35252 | 169.51904 | 5.10127 | 0.1721760 | 2.2491487 | 9 | 1 | 8 days | 0.38 | | | MPC | | 2008 $TB_{71}$ |
| 2008 $TE_{71}$ | 17.2 | 0.15 | 20081001 | 48.09075 | 148.36274 | 175.22379 | 6.10925 | 0.1563365 | 2.3277749 | 13 | 1 | 37 days | 0.53 | | | MPC | | 2008 $TE_{71}$ |
| 2008 $TF_{71}$ | 16.6 | 0.15 | 20100104 | 170.41616 | 218.10134 | 87.86853 | 4.75486 | 0.1153610 | 2.7484312 | 29 | 5 | 2002–2009 | 0.36 | M-v | 2 | MPC | 158169 | 2008 $TF_{71}$ |
| 2008 $TH_{71}$ | 18.2 | 0.15 | 20081001 | 316.89382 | 346.12511 | 100.91863 | 3.50989 | 0.1834476 | 2.4332511 | 10 | 1 | 23 days | 0.17 | | | MPC | | 2008 $TH_{71}$ |
| 2008 $TY_{71}$ | 18.7 | 0.15 | 20081001 | 10.20866 | 215.56221 | 154.56868 | 4.34063 | 0.1833651 | 2.2234135 | 10 | 1 | 26 days | 0.32 | | | MPC | | 2008 $TY_{71}$ |
| 2008 $TJ_{72}$ | 16.5 | 0.15 | 20100104 | 148.66166 | 223.91701 | 92.22296 | 4.60514 | 0.1794699 | 2.5865313 | 46 | 6 | 2003–2009 | 0.45 | M-v | 1 | MPC | 150412 | 2008 $TJ_{72}$ |
| 2008 $TK_{74}$ | 15.8 | 0.15 | 20100104 | 165.32964 | 5.17985 | 299.17075 | 1.60995 | 0.0688794 | 3.1619672 | 54 | 5 | 1999–2009 | 0.37 | M-v | 0 | MPC | 150414 | 2008 $TK_{74}$ |
| 2008 $TX_{75}$ | 17.8 | 0.15 | 20081001 | 38.88743 | 139.62624 | 184.32954 | 4.33453 | 0.1147108 | 3.0755740 | 12 | 1 | 8 days | 0.29 | | | MPC | | 2008 $TX_{75}$ |
| 2008 $TY_{75}$ | 18.5 | 0.15 | 20081001 | 341.08667 | 205.32759 | 191.31420 | 9.56879 | 0.1360568 | 2.5697774 | 15 | 1 | 16 days | 0.24 | | | MPC | | 2008 $TY_{75}$ |
| 2008 $TZ_{75}$ | 14.4 | 0.15 | 20081001 | 354.71597 | 353.66819 | 25.11018 | 3.45280 | 0.0432422 | 5.1164575 | 12 | 1 | 8 days | 0.32 | | E | MPC | | 2008 $TZ_{75}$ |
| 2008 $TB_{76}$ | 17.3 | 0.15 | 20081001 | 307.36879 | 51.72926 | 19.89982 | 5.10740 | 0.0729046 | 2.6983638 | 12 | 1 | 8 days | 0.18 | | | MPC | | 2008 $TB_{76}$ |
| 2008 $TF_{76}$ | 17.1 | 0.15 | 20081001 | 90.61081 | 256.14349 | 15.40129 | 10.85659 | 0.0916337 | 3.1318064 | 12 | 1 | 8 days | 0.30 | | | MPC | | 2008 $TF_{76}$ |
| 2008 $TJ_{76}$ | 16.5 | 0.15 | 20081001 | 120.26138 | 205.61508 | 25.08254 | 4.57449 | 0.2614229 | 2.9839764 | 12 | 1 | 8 days | 0.38 | | | MPC | | 2008 $TJ_{76}$ |
| 2008 $TX_{76}$ | 17.1 | 0.15 | 20081001 | 68.81830 | 267.75143 | 26.66103 | 2.97044 | 0.0843836 | 2.7553845 | 12 | 1 | 8 days | 0.24 | | | MPC | | 2008 $TX_{76}$ |
| 2008 $TF_{77}$ | 18.6 | 0.15 | 20081001 | 335.96473 | 26.89608 | 15.67293 | 9.69095 | 0.1198173 | 2.3780262 | 12 | 1 | 16 days | 0.29 | | | MPC | | 2008 $TF_{77}$ |
| 2008 $TM_{77}$ | 17.0 | 0.15 | 20081001 | 339.22021 | 227.05421 | 170.74824 | 2.08281 | 0.0886903 | 2.9985795 | 15 | 1 | 19 days | 0.23 | | | MPC | | 2008 $TM_{77}$ |
| 2008 $TP_{77}$ | 17.7 | 0.15 | 20081001 | 4.72488 | 188.30815 | 179.09746 | 4.58616 | 0.0621631 | 2.7723479 | 15 | 1 | 16 days | 0.28 | | | MPC | | 2008 $TP_{77}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 $TX_{77}$ | 18.5 | 0.15 | 20081001 | 310.13483 | 41.75383 | 32.72941 | 3.19541 | 0.1262163 | 2.3220758 | 16 | 1 | 17 days | 0.25 | | | MPC | | 2008 $TX_{77}$ |
| 2008 $TZ_{77}$ | 17.9 | 0.15 | 20081001 | 17.23884 | 207.94144 | 139.11554 | 1.06455 | 0.1994892 | 3.0510282 | 12 | 1 | 8 days | 0.45 | | | MPC | | 2008 $TZ_{77}$ |
| 2008 $TC_{78}$ | 16.9 | 0.15 | 20081001 | 59.62828 | 278.21087 | 27.99187 | 5.32857 | 0.0715495 | 2.7716405 | 16 | 1 | 17 days | 0.35 | | | MPC | | 2008 $TC_{78}$ |
| 2008 $TJ_{78}$ | 17.4 | 0.15 | 20081001 | 20.41192 | 314.46335 | 34.37777 | 2.18870 | 0.0951847 | 2.8605356 | 12 | 1 | 8 days | 0.35 | | | MPC | | 2008 $TJ_{78}$ |
| 2008 $TK_{78}$ | 18.9 | 0.15 | 20081001 | 357.24333 | 201.37938 | 175.49194 | 3.58071 | 0.2306268 | 2.5854731 | 15 | 1 | 18 days | 0.25 | | | MPC | | 2008 $TK_{78}$ |
| 2008 $TS_{78}$ | 17.4 | 0.15 | 20081001 | 302.29171 | 260.59346 | 190.90849 | 15.54188 | 0.1824368 | 3.0387607 | 15 | 1 | 16 days | 0.24 | | | MPC | | 2008 $TS_{78}$ |
| 2008 $TU_{78}$ | 16.9 | 0.15 | 20081001 | 282.91151 | 33.69607 | 74.09605 | 1.61048 | 0.1454097 | 3.0753153 | 16 | 1 | 17 days | 0.34 | | | MPC | | 2008 $TU_{78}$ |
| 2008 $TW_{78}$ | 17.7 | 0.15 | 20081001 | 152.27534 | 43.64977 | 176.51346 | 4.80860 | 0.0282392 | 2.7902829 | 12 | 1 | 8 days | 0.29 | | | MPC | | 2008 $TW_{78}$ |
| 2008 $TH_{79}$ | 15.7 | 0.15 | 20081001 | 198.37505 | 10.49937 | 171.68222 | 4.07083 | 0.1878861 | 3.1358788 | 12 | 1 | 8 days | 0.29 | | | MPC | | 2008 $TH_{79}$ |
| 2008 $TJ_{79}$ | 16.8 | 0.15 | 20081001 | 26.91065 | 181.06708 | 163.34178 | 3.22981 | 0.0535014 | 2.9988972 | 16 | 1 | 17 days | 0.50 | | | MPC | | 2008 $TJ_{79}$ |
| 2008 $TU_{79}$ | 17.3 | 0.15 | 20081001 | 96.27340 | 217.18109 | 54.90087 | 2.79304 | 0.0558124 | 2.9288526 | 16 | 1 | 17 days | 0.30 | | | MPC | | 2008 $TU_{79}$ |
| 2008 $TB_{80}$ | 17.5 | 0.15 | 20081001 | 309.61579 | 48.05866 | 31.91752 | 4.89056 | 0.1493354 | 2.7736144 | 10 | 1 | 8 days | 0.26 | | | MPC | | 2008 $TB_{80}$ |
| 2008 $TC_{80}$ | 16.9 | 0.15 | 20080911 | 45.34122 | 260.47825 | 58.92526 | 2.85028 | 0.0668394 | 2.8674013 | 11 | 1 | 12 days | 0.29 | | | MPC | | 2008 $TC_{80}$ |
| 2008 $TD_{80}$ | 17.5 | 0.15 | 20081001 | 32.78272 | 280.94511 | 45.65935 | 3.17369 | 0.1873366 | 2.4260662 | 14 | 1 | 15 days | 0.51 | | | MPC | | 2008 $TD_{80}$ |
| 2008 $TG_{80}$ | 17.5 | 0.15 | 20081001 | 326.01655 | 230.90426 | 191.13315 | 14.02560 | 0.1598164 | 3.0601315 | 10 | 1 | 7 days | 0.30 | | | MPC | | 2008 $TG_{80}$ |
| 2008 $TH_{80}$ | 17.0 | 0.15 | 20081001 | 128.06607 | 50.19711 | 189.51204 | 12.47839 | 0.1110315 | 3.1373410 | 11 | 1 | 22 days | 0.25 | | | MPC | | 2008 $TH_{80}$ |
| 2008 $TQ_{80}$ | 17.0 | 0.15 | 20081001 | 264.52035 | 304.02737 | 170.17596 | 1.91963 | 0.0326163 | 2.7456083 | 17 | 1 | 8 days | 0.35 | | | MPC | | 2008 $TQ_{80}$ |
| 2008 $TU_{80}$ | 15.4 | 0.15 | 20081001 | 222.38797 | 348.79323 | 180.31017 | 2.57147 | 0.2634281 | 3.1578068 | 14 | 1 | 8 days | 0.46 | | | MPC | | 2008 $TU_{80}$ |
| 2008 $TZ_{80}$ | 17.3 | 0.15 | 20081001 | 90.80700 | 123.49625 | 148.75033 | 0.86450 | 0.0891361 | 2.5283550 | 12 | 1 | 8 days | 0.19 | | | MPC | | 2008 $TZ_{80}$ |
| 2008 $TK_{81}$ | 19.2 | 0.15 | 20081001 | 57.80788 | 112.73039 | 181.54401 | 1.13909 | 0.1893787 | 2.1124783 | 12 | 1 | 8 days | 0.26 | | | MPC | | 2008 $TK_{81}$ |
| 2008 $TN_{81}$ | 17.4 | 0.15 | 20081001 | 219.76210 | 118.80034 | 43.92767 | 1.26620 | 0.1351229 | 2.3406532 | 15 | 1 | 31 days | 0.23 | | | MPC | | 2008 $TN_{81}$ |
| 2008 $TO_{81}$ | 17.6 | 0.15 | 20080911 | 20.13779 | 172.05015 | 173.35786 | 2.11357 | 0.0807017 | 2.8461376 | 16 | 1 | 20 days | 0.21 | | | MPC | | 2008 $TO_{81}$ |
| 2008 $TR_{81}$ | 19.7 | 0.15 | 20081001 | 332.46973 | 229.68685 | 181.30108 | 2.43396 | 0.1657532 | 2.3204272 | 12 | 1 | 8 days | 0.39 | | | MPC | | 2008 $TR_{81}$ |
| 2008 $TS_{81}$ | 16.6 | 0.15 | 20081001 | 58.45181 | 110.09798 | 192.47909 | 11.24525 | 0.1267935 | 3.0987689 | 15 | 1 | 16 days | 0.22 | | | MPC | | 2008 $TS_{81}$ |
| 2008 $TV_{81}$ | 14.7 | 0.15 | 20081001 | 268.96014 | 275.43542 | 190.82527 | 7.60907 | 0.0088314 | 5.0977817 | 12 | 1 | 8 days | 0.19 | | E | MPC | | 2008 $TV_{81}$ |
| 2008 $TA_{82}$ | 16.9 | 0.15 | 20081001 | 284.59660 | 111.29660 | 15.67714 | 18.08156 | 0.3312895 | 3.2036303 | 12 | 1 | 8 days | 0.59 | | | MPC | | 2008 $TA_{82}$ |
| 2008 $TB_{82}$ | 19.9 | 0.15 | 20081001 | 337.87639 | 228.05400 | 176.37287 | 0.90174 | 0.1878094 | 2.3094702 | 12 | 1 | 8 days | 0.31 | | | MPC | | 2008 $TB_{82}$ |
| 2008 $TF_{82}$ | 17.0 | 0.15 | 20100104 | 139.03954 | 334.98070 | 346.80703 | 4.46560 | 0.1963867 | 2.6135403 | 36 | 5 | 2004–2009 | 0.41 | M-v | 1 | MPC | 149085 | 2008 $TF_{82}$ |
| 2008 $TM_{82}$ | 17.4 | 0.15 | 20081001 | 11.04114 | 156.97556 | 205.88580 | 8.45272 | 0.1628158 | 2.5734960 | 9 | 1 | 7 days | 0.26 | | | MPC | | 2008 $TM_{82}$ |
| 2008 $TP_{82}$ | 15.8 | 0.15 | 20100104 | 156.89839 | 219.17284 | 97.76152 | 2.91063 | 0.0656687 | 2.9040294 | 52 | 5 | 1999–2009 | 0.41 | M-v | 0 | MPC | 146953 | 2008 $TP_{82}$ |
| 2008 $TX_{82}$ | 18.1 | 0.15 | 20081001 | 10.03838 | 150.77630 | 181.89947 | 14.06715 | 0.2743761 | 2.5944551 | 9 | 1 | 5 days | 0.38 | | | MPC | | 2008 $TX_{82}$ |
| 2008 $TH_{83}$ | 17.1 | 0.15 | 20081001 | 302.18921 | 98.55309 | 357.97863 | 9.47985 | 0.2057897 | 3.1478018 | 9 | 1 | 14 days | 0.24 | | | MPC | | 2008 $TH_{83}$ |
| 2008 $TK_{83}$ | 17.0 | 0.15 | 20081001 | 22.40683 | 138.06868 | 208.43258 | 9.34751 | 0.1242348 | 3.0061671 | 9 | 1 | 12 days | 0.13 | | | MPC | | 2008 $TK_{83}$ |
| 2008 $TU_{83}$ | 18.7 | 0.15 | 20081001 | 22.78529 | 83.31915 | 258.48766 | 1.70138 | 0.1794467 | 2.3451619 | 9 | 1 | 12 days | 0.19 | | | MPC | | 2008 $TU_{83}$ |
| 2008 $TW_{83}$ | 17.1 | 0.15 | 20100104 | 129.46561 | 48.88379 | 276.28453 | 2.18270 | 0.2367359 | 2.7851751 | 13 | 1 | 69 days | 0.23 | M-v | 5 | MPC | | 2008 $TW_{83}$ |
| 2008 $TX_{83}$ | 17.7 | 0.15 | 20081001 | 343.96948 | 180.04294 | 216.24514 | 4.50382 | 0.1176548 | 2.7191817 | 9 | 1 | 12 days | 0.23 | | | MPC | | 2008 $TX_{83}$ |
| 2008 $TG_{84}$ | 16.9 | 0.15 | 20080911 | 351.37519 | 12.16741 | 10.79402 | 5.67056 | 0.1768658 | 3.0556215 | 20 | 1 | 45 days | 0.44 | | | MPC | | 2008 $TG_{84}$ |
| 2008 $TB_{85}$ | 16.5 | 0.15 | 20100104 | 135.30436 | 33.27977 | 290.89277 | 0.95074 | 0.0470635 | 2.8961417 | 33 | 3 | 2006–2009 | 0.32 | M-v | 3 | MPC | 150419 | 2008 $TB_{85}$ |
| 2008 $TE_{85}$ | 17.8 | 0.15 | 20081001 | 317.36698 | 233.77932 | 195.43505 | 10.70864 | 0.1648360 | 2.7624737 | 12 | 1 | 7 days | 0.18 | | | MPC | | 2008 $TE_{85}$ |
| 2008 $TO_{85}$ | 20.4 | 0.15 | 20081001 | 1.94200 | 172.62905 | 195.24223 | 0.13565 | 0.1872369 | 2.0860199 | 12 | 1 | 7 days | 0.54 | | E | MPC | | 2008 $TO_{85}$ |
| 2008 $TT_{85}$ | 16.3 | 0.15 | 20081001 | 153.49518 | 231.15141 | 350.08137 | 6.46079 | 0.1091184 | 2.4500578 | 12 | 1 | 38 days | 0.25 | | | MPC | | 2008 $TT_{85}$ |
| 2008 $TV_{85}$ | 16.1 | 0.15 | 20081001 | 187.66615 | 173.72328 | 12.47477 | 5.96113 | 0.0828456 | 3.0252230 | 15 | 1 | 30 days | 0.21 | | | MPC | | 2008 $TV_{85}$ |
| 2008 $TE_{86}$ | 16.6 | 0.15 | 20100104 | 137.02018 | 112.51738 | 210.71922 | 0.92214 | 0.0310034 | 2.9378088 | 44 | 3 | 2003–2009 | 0.29 | M-v | 4 | MPC | 150420 | 2008 $TE_{86}$ |
| 2008 $TP_{86}$ | 18.5 | 0.15 | 20081001 | 41.09508 | 117.29663 | 201.42303 | 3.13379 | 0.1401058 | 2.4103703 | 11 | 1 | 16 days | 0.16 | | | MPC | | 2008 $TP_{86}$ |
| 2008 $TU_{86}$ | 16.4 | 0.15 | 20081001 | 56.08348 | 303.72201 | 12.82402 | 10.73650 | 0.1031683 | 3.1075965 | 18 | 1 | 26 days | 0.19 | | | MPC | | 2008 $TU_{86}$ |
| 2008 $TV_{86}$ | 15.4 | 0.15 | 20100104 | 278.49637 | 176.39797 | 15.18605 | 12.60057 | 0.0897975 | 3.0931262 | 34 | 3 | 2003–2008 | 0.40 | M-v | 3 | MPC | 150420 | 2008 $TV_{86}$ |
| 2008 $TA_{87}$ | 17.3 | 0.15 | 20081001 | 341.09409 | 50.30520 | 355.44430 | 4.21617 | 0.1406300 | 3.0498160 | 13 | 1 | 44 days | 0.22 | | | MPC | | 2008 $TA_{87}$ |
| 2008 $TF_{87}$ | 17.9 | 0.15 | 20081001 | 27.98608 | 312.26174 | 14.97579 | 11.47519 | 0.3052934 | 2.7522493 | 12 | 1 | 35 days | 0.14 | | | MPC | | 2008 $TF_{87}$ |
| 2008 $TK_{87}$ | 16.3 | 0.15 | 20081001 | 337.81051 | 348.91874 | 65.40297 | 6.11057 | 0.1447517 | 3.1933625 | 13 | 1 | 27 days | 0.17 | | | MPC | | 2008 $TK_{87}$ |
| 2008 $TQ_{87}$ | 16.6 | 0.15 | 20081001 | 20.70209 | 234.31053 | 121.58971 | 3.83949 | 0.1665882 | 3.0201264 | 13 | 1 | 27 days | 0.22 | | | MPC | | 2008 $TQ_{87}$ |
| 2008 $TW_{87}$ | 16.8 | 0.15 | 20081001 | 68.26314 | 255.68618 | 45.81651 | 11.68958 | 0.1417976 | 2.7229127 | 9 | 1 | 12 days | 0.31 | | | MPC | | 2008 $TW_{87}$ |
| 2008 $TX_{87}$ | 15.6 | 0.15 | 20100104 | 152.20834 | 243.16367 | 50.09758 | 10.56363 | 0.2099920 | 3.1215737 | 16 | 1 | 96 days | 0.19 | M-v | 4 | MPC | | 2008 $TX_{87}$ |
| 2008 $TG_{88}$ | 18.2 | 0.15 | 20081001 | 40.27959 | 204.85071 | 118.74378 | 3.56525 | 0.1970486 | 2.2613225 | 13 | 1 | 24 days | 0.19 | | | MPC | | 2008 $TG_{88}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 $TL_{88}$ | 16.9 | 0.15 | 20081001 | 341.13691 | 279.25469 | 129.20684 | 4.73753 | 0.0958173 | 2.7690323 | 13 | 1 | 31 days | 0.27 | | | MPC | | 2008 $TL_{88}$ |
| 2008 $TM_{88}$ | 13.4 | 0.15 | 20100104 | 43.15764 | 298.83530 | 85.89279 | 7.45810 | 0.1115967 | 5.1525203 | 50 | 4 | 2003–2009 | 0.37 | M-v | 0 | MPC | 166332 | 2008 $TM_{88}$ |
| 2008 $TP_{88}$ | 17.7 | 0.15 | 20081001 | 294.38679 | 169.47603 | 282.70981 | 4.53105 | 0.1058800 | 2.5452963 | 15 | 1 | 34 days | 0.25 | | | MPC | | 2008 $TP_{88}$ |
| 2008 $TT_{88}$ | 18.1 | 0.15 | 20081001 | 335.84525 | 93.21170 | 316.18334 | 0.59667 | 0.1882991 | 2.4546401 | 11 | 1 | 16 days | 0.23 | | | MPC | | 2008 $TT_{88}$ |
| 2008 $TU_{88}$ | 18.9 | 0.15 | 20081001 | 359.70823 | 174.84070 | 199.24479 | 4.20529 | 0.3031978 | 2.5920076 | 16 | 1 | 25 days | 0.20 | | | MPC | | 2008 $TU_{88}$ |
| 2008 $TV_{88}$ | 18.7 | 0.15 | 20081001 | 20.03908 | 300.78068 | 44.21413 | 3.66436 | 0.1989206 | 2.4606327 | 17 | 1 | 18 days | 0.34 | | | MPC | | 2008 $TV_{88}$ |
| 2008 $TW_{88}$ | 17.5 | 0.15 | 20081001 | 26.18952 | 143.49225 | 191.04417 | 17.31116 | 0.2390730 | 3.1519662 | 15 | 1 | 21 days | 0.25 | | | MPC | | 2008 $TW_{88}$ |
| 2008 $TY_{88}$ | 16.8 | 0.15 | 20081001 | 51.41971 | 326.82652 | 357.94196 | 2.41333 | 0.0345957 | 2.9761871 | 12 | 1 | 18 days | 0.32 | | | MPC | | 2008 $TY_{88}$ |
| 2008 $TZ_{88}$ | 16.2 | 0.15 | 20081001 | 296.24541 | 219.74772 | 251.26089 | 1.32878 | 0.1707036 | 3.2482225 | 9 | 1 | 11 days | 0.25 | | | MPC | | 2008 $TZ_{88}$ |
| 2008 $TH_{89}$ | 18.1 | 0.15 | 20081001 | 309.23385 | 61.42820 | 23.37264 | 2.85534 | 0.1018833 | 2.2100696 | 12 | 1 | 47 days | 0.21 | | | MPC | | 2008 $TH_{89}$ |
| 2008 $TE_{91}$ | 13.9 | 0.15 | 20100104 | 26.51634 | 47.17003 | 338.73824 | 2.34775 | 0.1722080 | 5.2214618 | 41 | 4 | 2002–2009 | 0.40 | M-v | 0 | MPC | 165621 | 2008 $TE_{91}$ |
| 2008 $TP_{91}$ | 16.4 | 0.15 | 20081001 | 26.75508 | 26.29134 | 295.21965 | 14.63921 | 0.2858646 | 2.7382915 | 24 | 1 | 35 days | 0.57 | | | MPC | | 2008 $TP_{91}$ |
| 2008 $TR_{91}$ | 17.7 | 0.15 | 20081021 | 342.50385 | 18.07566 | 43.18114 | 6.34452 | 0.2109221 | 2.3701286 | 36 | 1 | 57 days | 0.48 | | | MPC | | 2008 $TR_{91}$ |
| 2008 $TU_{91}$ | 16.3 | 0.15 | 20100104 | 157.99577 | 140.25034 | 166.23774 | 8.54584 | 0.1556781 | 2.7237394 | 42 | 6 | 2002–2009 | 0.58 | M-v | 1 | MPC | 159813 | 2008 $TU_{91}$ |
| 2008 $TA_{92}$ | 16.2 | 0.15 | 20081001 | 324.12274 | 91.78797 | 326.07254 | 21.11985 | 0.1124710 | 2.5956343 | 19 | 1 | 42 days | 0.49 | | | MPC | | 2008 $TA_{92}$ |
| 2008 $TF_{93}$ | 17.2 | 0.15 | 20100104 | 134.27600 | 271.70651 | 63.32583 | 2.75718 | 0.0963486 | 2.7051464 | 30 | 4 | 1995–2009 | 0.39 | M-v | 1 | MPC | 146960 | 2008 $TF_{93}$ |
| 2008 $TV_{93}$ | 15.7 | 0.15 | 20081001 | 98.81064 | 87.06890 | 183.45854 | 9.39190 | 0.0592818 | 3.0833631 | 10 | 1 | 19 days | 0.26 | | | MPC | | 2008 $TV_{93}$ |
| 2008 $TW_{93}$ | 18.9 | 0.15 | 20081001 | 0.18228 | 218.66032 | 154.33270 | 2.69720 | 0.2206721 | 2.3664213 | 14 | 1 | 31 days | 0.27 | | | MPC | | 2008 $TW_{93}$ |
| 2008 $TA_{94}$ | 16.7 | 0.15 | 20100104 | 99.16815 | 297.93285 | 72.62004 | 3.05048 | 0.0849126 | 2.8490733 | 26 | 4 | 2003–2009 | 0.35 | M-v | 1 | MPC | 150425 | 2008 $TA_{94}$ |
| 2008 $TK_{94}$ | 16.4 | 0.15 | 20081001 | 16.01216 | 298.42353 | 58.92447 | 4.55344 | 0.1049595 | 2.8160295 | 13 | 1 | 28 days | 0.17 | | | MPC | | 2008 $TK_{94}$ |
| 2008 $TH_{95}$ | 17.2 | 0.15 | 20100104 | 191.34221 | 43.70774 | 206.85516 | 1.75411 | 0.1673024 | 2.5692720 | 49 | 6 | 1996–2009 | 0.38 | M-v | 0 | MPC | 146962 | 2008 $TH_{95}$ |
| 2008 $TJ_{95}$ | 17.3 | 0.15 | 20080911 | 292.61763 | 81.85397 | 342.84040 | 4.78709 | 0.1024883 | 2.8152882 | 10 | 1 | 17 days | 0.30 | | | MPC | | 2008 $TJ_{95}$ |
| 2008 $TM_{96}$ | 18.1 | 0.15 | 20081001 | 4.22501 | 85.12428 | 283.69831 | 4.00578 | 0.1318934 | 2.6699417 | 9 | 1 | 2 days | 0.24 | | | MPC | | 2008 $TM_{96}$ |
| 2008 $TN_{96}$ | 18.4 | 0.15 | 20081001 | 20.63383 | 54.32904 | 293.45970 | 3.96493 | 0.1216559 | 2.3780069 | 12 | 1 | 2 days | 0.26 | | | MPC | | 2008 $TN_{96}$ |
| 2008 $TT_{96}$ | 16.6 | 0.15 | 20081001 | 57.64218 | 71.94971 | 232.36828 | 9.08458 | 0.0900507 | 3.1410245 | 9 | 1 | 13 days | 0.39 | | | MPC | | 2008 $TT_{96}$ |
| 2008 $TD_{97}$ | 14.8 | 0.15 | 20081001 | 88.29984 | 247.38280 | 4.00901 | 32.10640 | 0.3206003 | 3.4828294 | 10 | 1 | 23 days | 0.24 | | | MPC | | 2008 $TD_{97}$ |
| 2008 $TY_{97}$ | 13.8 | 0.15 | 20080911 | 314.15349 | 206.10661 | 213.04729 | 16.98203 | 0.0213539 | 5.2227190 | 9 | 1 | 18 days | 0.09 | | | MPC | | 2008 $TY_{97}$ |
| 2008 $TC_{98}$ | 17.0 | 0.15 | 20080911 | 347.69988 | 170.23233 | 212.90965 | 13.07550 | 0.0969841 | 3.0011265 | 15 | 1 | 33 days | 0.18 | | | MPC | | 2008 $TC_{98}$ |
| 2008 $TK_{98}$ | 17.9 | 0.15 | 20081001 | 280.35045 | 158.80365 | 305.31435 | 3.88235 | 0.0974505 | 2.2222233 | 10 | 1 | 23 days | 0.14 | | | MPC | | 2008 $TK_{98}$ |
| 2008 $TN_{98}$ | 15.8 | 0.15 | 20081001 | 138.07163 | 34.12273 | 195.31226 | 11.41295 | 0.1324463 | 2.9825979 | 10 | 1 | 17 days | 0.16 | | | MPC | | 2008 $TN_{98}$ |
| 2008 $TP_{98}$ | 17.9 | 0.15 | 20081001 | 352.61693 | 201.39347 | 185.36253 | 2.16143 | 0.2143935 | 2.6776278 | 12 | 1 | 16 days | 0.37 | | | MPC | | 2008 $TP_{98}$ |
| 2008 $TT_{98}$ | 16.6 | 0.15 | 20100104 | 109.31660 | 313.69167 | 30.87449 | 4.19484 | 0.1181808 | 3.0944811 | 27 | 4 | 2003–2009 | 0.38 | M-v | 1 | MPC | 158170 | 2008 $TT_{98}$ |
| 2008 $TA_{99}$ | 16.2 | 0.15 | 20081001 | 69.17747 | 126.17786 | 164.93270 | 1.21982 | 0.1668353 | 3.1520169 | 10 | 1 | 17 days | 0.24 | | | MPC | | 2008 $TA_{99}$ |
| 2008 $TH_{99}$ | 17.1 | 0.15 | 20100104 | 5.57483 | 291.41116 | 173.64051 | 1.98372 | 0.0232314 | 2.8678766 | 37 | 4 | 2003–2009 | 0.43 | M-v | 1 | MPC | 146964 | 2008 $TH_{99}$ |
| 2008 $TN_{99}$ | 17.3 | 0.15 | 20081001 | 13.83522 | 333.72837 | 22.67116 | 12.56108 | 0.1278626 | 2.7432145 | 10 | 1 | 17 days | 0.48 | | | MPC | | 2008 $TN_{99}$ |
| 2008 $TR_{99}$ | 17.0 | 0.15 | 20100104 | 337.84563 | 119.56276 | 48.68566 | 1.94694 | 0.1252076 | 2.3824887 | 39 | 6 | 2000–2009 | 0.44 | M-v | 1 | MPC | 150426 | 2008 $TR_{99}$ |
| 2008 $TT_{99}$ | 17.5 | 0.15 | 20081001 | 64.18463 | 115.99404 | 183.63309 | 4.39988 | 0.1117072 | 2.6980139 | 13 | 1 | 18 days | 0.26 | | | MPC | | 2008 $TT_{99}$ |
| 2008 $TV_{99}$ | 17.8 | 0.15 | 20081001 | 353.55407 | 258.24192 | 125.47597 | 1.28091 | 0.0958858 | 2.6840380 | 9 | 1 | 16 days | 0.19 | | | MPC | | 2008 $TV_{99}$ |
| 2008 $TW_{99}$ | 16.8 | 0.15 | 20081001 | 50.14047 | 281.09202 | 20.25364 | 25.80382 | 0.2376050 | 3.2028022 | 13 | 1 | 29 days | 0.29 | | | MPC | | 2008 $TW_{99}$ |
| 2008 $TZ_{99}$ | 18.0 | 0.15 | 20081001 | 53.96143 | 156.22776 | 141.18569 | 2.16136 | 0.2221219 | 2.4218533 | 9 | 1 | 14 days | 0.21 | | | MPC | | 2008 $TZ_{99}$ |
| 2008 $TD_{100}$ | 16.4 | 0.15 | 20081001 | 201.50335 | 146.21220 | 32.83477 | 7.47951 | 0.0777057 | 2.7011829 | 9 | 1 | 16 days | 0.27 | | | MPC | | 2008 $TD_{100}$ |
| 2008 $TU_{100}$ | 13.5 | 0.15 | 20100104 | 351.59159 | 138.78121 | 294.54105 | 0.58714 | 0.0551569 | 5.2221705 | 72 | 6 | 2000–2009 | 0.35 | M-v | 0 | MPC | 166332 | 2008 $TU_{100}$ |
| 2008 $TC_{101}$ | 17.6 | 0.15 | 20081001 | 290.96094 | 111.83270 | 341.70326 | 1.26610 | 0.0416188 | 2.7035673 | 13 | 1 | 29 days | 0.37 | | | MPC | | 2008 $TC_{101}$ |
| 2008 $TD_{101}$ | 13.8 | 0.15 | 20100104 | 347.69071 | 232.80973 | 206.33988 | 10.87668 | 0.0663866 | 5.2376912 | 44 | 5 | 1996–2009 | 0.29 | M-v | 0 | MPC | 166332 | 2008 $TD_{101}$ |
| 2008 $TB_{102}$ | 18.0 | 0.15 | 20081001 | 40.23215 | 307.43784 | 18.50516 | 6.43546 | 0.1447516 | 2.6898041 | 13 | 1 | 19 days | 0.35 | | | MPC | | 2008 $TB_{102}$ |
| 2008 $TD_{102}$ | 17.5 | 0.15 | 20081001 | 338.34132 | 10.53295 | 37.29794 | 1.11672 | 0.1412700 | 3.0780220 | 16 | 1 | 26 days | 0.27 | | | MPC | | 2008 $TD_{102}$ |
| 2008 $TA_{103}$ | 16.7 | 0.15 | 20081001 | 317.08581 | 202.85560 | 229.37840 | 13.09790 | 0.2344233 | 2.6910911 | 17 | 1 | 9 days | 0.57 | | | MPC | | 2008 $TA_{103}$ |
| 2008 $TH_{103}$ | 16.0 | 0.15 | 20081001 | 318.41066 | 231.27452 | 196.60592 | 12.23939 | 0.0398216 | 3.4939075 | 13 | 1 | 18 days | 0.24 | | | MPC | | 2008 $TH_{103}$ |
| 2008 $TM_{103}$ | 16.0 | 0.15 | 20081001 | 187.44719 | 168.57005 | 28.89081 | 18.63042 | 0.2048912 | 2.5751573 | 10 | 1 | 14 days | 0.78 | | E | MPC | | 2008 $TM_{103}$ |
| 2008 $TX_{103}$ | 17.1 | 0.15 | 20081001 | 201.64120 | 156.46815 | 29.47219 | 11.41759 | 0.1216972 | 2.6046043 | 10 | 1 | 14 days | 0.30 | | E | MPC | | 2008 $TX_{103}$ |
| 2008 $TZ_{103}$ | 17.1 | 0.15 | 20081001 | 338.95688 | 214.45779 | 191.48699 | 5.01027 | 0.0606714 | 2.7023281 | 14 | 1 | 23 days | 0.20 | | | MPC | | 2008 $TZ_{103}$ |
| 2008 $TC_{104}$ | 16.4 | 0.15 | 20081001 | 350.68943 | 199.92915 | 196.34348 | 16.09848 | 0.1901579 | 3.1518007 | 14 | 1 | 24 days | 0.34 | | | MPC | | 2008 $TC_{104}$ |
| 2008 $TE_{104}$ | 17.2 | 0.15 | 20080911 | 358.04082 | 12.09413 | 349.50623 | 13.57054 | 0.2484568 | 2.6543087 | 15 | 1 | 37 days | 0.39 | | | MPC | | 2008 $TE_{104}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 $TA_{105}$ | 15.9 | 0.15 | 20100104 | 311.17137 | 174.03543 | 2.09083 | 4.08858 | 0.1448532 | 2.9171634 | 33 | 4 | 2003–2008 | 0.34 | M-v | 1 | MPC | 153684 | 2008 $TA_{105}$ |
| 2008 $TG_{106}$ | 15.4 | 0.15 | 20100104 | 20.81078 | 59.80250 | 16.73623 | 3.28106 | 0.1676972 | 3.9732973 | 41 | 5 | 1995–2009 | 0.41 | M-v | 0 | MPC | 150430 | 2008 $TG_{106}$ |
| 2008 $TW_{106}$ | 16.3 | 0.15 | 20081001 | 93.52585 | 229.66015 | 27.22800 | 16.59772 | 0.2116211 | 3.1676241 | 11 | 1 | 17 days | 0.17 | | | MPC | | 2008 $TW_{106}$ |
| 2008 $TE_{107}$ | 18.5 | 0.15 | 20081001 | 12.68254 | 264.10370 | 89.03384 | 2.59980 | 0.2033551 | 2.3880866 | 15 | 1 | 31 days | 0.29 | | | MPC | | 2008 $TE_{107}$ |
| 2008 $TH_{107}$ | 17.0 | 0.15 | 20081001 | 221.10127 | 85.32018 | 73.06898 | 3.94745 | 0.0783483 | 2.5477964 | 12 | 1 | 17 days | 0.27 | | | MPC | | 2008 $TH_{107}$ |
| 2008 $TV_{107}$ | 16.0 | 0.15 | 20081001 | 310.69373 | 44.14368 | 44.29561 | 11.10976 | 0.2154730 | 3.9620045 | 15 | 1 | 31 days | 0.27 | | | MPC | | 2008 $TV_{107}$ |
| 2008 $TH_{108}$ | 15.9 | 0.15 | 20081001 | 134.45483 | 169.01608 | 66.84192 | 6.65874 | 0.1078326 | 3.2088581 | 10 | 1 | 12 days | 0.21 | | | MPC | | 2008 $TH_{108}$ |
| 2008 $TA_{109}$ | 18.1 | 0.15 | 20081001 | 71.60408 | 161.30143 | 126.54166 | 4.86076 | 0.1399457 | 2.2947940 | 16 | 1 | 28 days | 0.32 | | | MPC | | 2008 $TA_{109}$ |
| 2008 $TD_{109}$ | 17.8 | 0.15 | 20080911 | 342.30194 | 302.68491 | 90.26083 | 4.60106 | 0.1726790 | 2.4333697 | 12 | 1 | 14 days | 0.27 | | | MPC | | 2008 $TD_{109}$ |
| 2008 $TH_{109}$ | 17.1 | 0.15 | 20081001 | 75.56101 | 116.97738 | 162.25731 | 9.79268 | 0.2047240 | 2.6183729 | 15 | 1 | 22 days | 0.20 | | | MPC | | 2008 $TH_{109}$ |
| 2008 $TQ_{109}$ | 18.5 | 0.15 | 20081001 | 36.92810 | 149.07258 | 171.84185 | 11.09629 | 0.2355738 | 2.6873624 | 10 | 1 | 3 days | 0.18 | | | MPC | | 2008 $TQ_{109}$ |
| 2008 $TV_{109}$ | 19.3 | 0.15 | 20081001 | 2.81632 | 222.61307 | 149.31834 | 6.12863 | 0.2461820 | 2.5131862 | 11 | 1 | 2 days | 0.27 | | | MPC | | 2008 $TV_{109}$ |
| 2008 $TG_{110}$ | 16.2 | 0.15 | 20100104 | 17.02045 | 152.40538 | 321.10481 | 12.61697 | 0.1123805 | 2.6708781 | 28 | 3 | 1997–2009 | 0.50 | M-v | 2 | MPC | 166332 | 2008 $TG_{110}$ |
| 2008 $TO_{110}$ | 16.6 | 0.15 | 20100104 | 222.17572 | 278.58251 | 342.90697 | 6.26057 | 0.1046591 | 2.4705103 | 43 | 4 | 2005–2009 | 0.41 | M-v | 1 | MPC | 166332 | 2008 $TO_{110}$ |
| 2008 $TC_{112}$ | 17.4 | 0.15 | 20080911 | 7.11386 | 77.92119 | 280.26135 | 2.52859 | 0.2290877 | 2.2689089 | 17 | 1 | 35 days | 0.61 | | | MPC | | 2008 $TC_{112}$ |
| 2008 $TU_{113}$ | 16.7 | 0.15 | 20081001 | 60.16050 | 196.39235 | 116.09450 | 3.48455 | 0.1441321 | 3.1269745 | 13 | 1 | 21 days | 0.22 | | | MPC | | 2008 $TU_{113}$ |
| 2008 $TZ_{113}$ | 18.8 | 0.15 | 20081021 | 39.56926 | 295.91403 | 41.35905 | 10.59601 | 0.1629460 | 2.2333324 | 13 | 1 | 33 days | 0.28 | | | MPC | | 2008 $TZ_{113}$ |
| 2008 $TK_{114}$ | 16.2 | 0.15 | 20081001 | 357.64800 | 218.39091 | 173.79287 | 5.38126 | 0.0292836 | 2.8991478 | 10 | 1 | 19 days | 0.15 | | | MPC | | 2008 $TK_{114}$ |
| 2008 $TR_{114}$ | 17.7 | 0.15 | 20081001 | 23.10652 | 163.45288 | 194.92300 | 14.38871 | 0.1261651 | 2.5807597 | 9 | 1 | 17 days | 0.29 | | | MPC | | 2008 $TR_{114}$ |
| 2008 $TL_{115}$ | 16.4 | 0.15 | 20081001 | 25.73341 | 199.62553 | 153.56837 | 9.85711 | 0.1060350 | 3.0816551 | 12 | 1 | 16 days | 0.22 | | | MPC | | 2008 $TL_{115}$ |
| 2008 $TQ_{115}$ | 16.5 | 0.15 | 20081001 | 341.41225 | 57.36368 | 351.87350 | 10.19882 | 0.1729080 | 3.0383379 | 15 | 1 | 31 days | 0.49 | | | MPC | | 2008 $TQ_{115}$ |
| 2008 $TP_{116}$ | 15.7 | 0.15 | 20081001 | 63.67780 | 36.50844 | 269.28536 | 10.16143 | 0.1061794 | 3.1777927 | 13 | 1 | 8 days | 0.44 | | | MPC | | 2008 $TP_{116}$ |
| 2008 $TQ_{116}$ | 18.2 | 0.15 | 20081001 | 23.80139 | 13.71822 | 322.71356 | 7.16573 | 0.2578125 | 2.2051514 | 20 | 1 | 58 days | 0.39 | | | MPC | | 2008 $TQ_{116}$ |
| 2008 $TM_{117}$ | 17.9 | 0.15 | 20080911 | 41.46536 | 310.60361 | 2.02532 | 14.59220 | 0.1852584 | 2.5508462 | 23 | 1 | 30 days | 0.23 | | | MPC | | 2008 $TM_{117}$ |
| 2008 $TC_{118}$ | 15.5 | 0.15 | 20100104 | 134.79536 | 300.20439 | 31.88550 | 3.43358 | 0.0517644 | 3.2659846 | 66 | 5 | 1996–2009 | 0.45 | M-v | 1 | MPC | 156139 | 2008 $TC_{118}$ |
| 2008 $TS_{118}$ | 18.2 | 0.15 | 20080911 | 30.82736 | 357.77674 | 318.23261 | 2.10981 | 0.1871018 | 2.3942051 | 12 | 1 | 54 days | 0.19 | | | MPC | | 2008 $TS_{118}$ |
| 2008 $TC_{119}$ | 18.8 | 0.15 | 20081001 | 351.97372 | 107.84993 | 273.17067 | 1.36779 | 0.2054916 | 2.3529683 | 12 | 1 | 16 days | 0.37 | | | MPC | | 2008 $TC_{119}$ |
| 2008 $TD_{119}$ | 16.7 | 0.15 | 20080911 | 33.58652 | 318.16059 | 359.22843 | 8.94595 | 0.1710652 | 3.0360202 | 15 | 1 | 45 days | 0.33 | | | MPC | | 2008 $TD_{119}$ |
| 2008 $TF_{119}$ | 17.5 | 0.15 | 20080911 | 341.17963 | 174.87091 | 210.26633 | 5.81592 | 0.0589929 | 2.7340068 | 9 | 1 | 35 days | 0.24 | | | MPC | | 2008 $TF_{119}$ |
| 2008 $TG_{119}$ | 18.0 | 0.15 | 20080911 | 356.31686 | 0.26852 | 8.86122 | 5.90246 | 0.1656454 | 2.6412579 | 9 | 1 | 21 days | 0.21 | | | MPC | | 2008 $TG_{119}$ |
| 2008 $TM_{119}$ | 16.7 | 0.15 | 20080911 | 341.95116 | 77.17232 | 311.37227 | 8.45968 | 0.1020206 | 3.1652143 | 14 | 1 | 34 days | 0.21 | | | MPC | | 2008 $TM_{119}$ |
| 2008 $TD_{120}$ | 17.1 | 0.15 | 20100104 | 81.96230 | 158.91718 | 227.23455 | 4.91393 | 0.2381956 | 3.0007776 | 17 | 1 | 98 days | 0.27 | M-v | 3 | MPC | | 2008 $TD_{120}$ |
| 2008 $TQ_{120}$ | 18.5 | 0.15 | 20081001 | 13.02676 | 242.15153 | 109.47347 | 3.71532 | 0.2398467 | 2.1939009 | 27 | 1 | 28 days | 0.69 | | | MPC | | 2008 $TQ_{120}$ |
| 2008 $TA_{121}$ | 16.8 | 0.15 | 20081001 | 64.15227 | 190.74305 | 110.76200 | 3.08434 | 0.1630757 | 2.8751836 | 10 | 1 | 15 days | 0.28 | | | MPC | | 2008 $TA_{121}$ |
| 2008 $TT_{121}$ | 14.9 | 0.15 | 20081001 | 97.62669 | 322.39756 | 314.39575 | 6.66561 | 0.0705854 | 3.4771508 | 11 | 1 | 19 days | 0.37 | | | MPC | | 2008 $TT_{121}$ |
| 2008 $TY_{122}$ | 15.5 | 0.15 | 20081001 | 235.88276 | 74.83838 | 84.48619 | 4.03583 | 0.1686339 | 2.7354660 | 9 | 1 | 3 days | 0.18 | | | MPC | | 2008 $TY_{122}$ |
| 2008 $TL_{123}$ | 16.4 | 0.15 | 20081001 | 358.61986 | 140.38281 | 243.94924 | 8.88554 | 0.1076261 | 3.4276022 | 14 | 1 | 33 days | 0.23 | | | MPC | | 2008 $TL_{123}$ |
| 2008 $TS_{123}$ | 16.3 | 0.15 | 20081001 | 283.31780 | 67.73884 | 24.89851 | 5.64458 | 0.2100101 | 3.0568381 | 12 | 1 | 14 days | 0.22 | | | MPC | | 2008 $TS_{123}$ |
| 2008 $TW_{123}$ | 18.5 | 0.15 | 20081001 | 336.95603 | 331.10903 | 73.23505 | 2.78631 | 0.0977533 | 2.5959091 | 14 | 1 | 21 days | 0.30 | | | MPC | | 2008 $TW_{123}$ |
| 2008 $TX_{123}$ | 16.4 | 0.15 | 20100104 | 53.34285 | 186.46763 | 225.55894 | 2.26994 | 0.0170115 | 2.9326949 | 42 | 5 | 2003–2009 | 0.32 | M-v | 0 | MPC | 158621 | 2008 $TX_{123}$ |
| 2008 $TY_{123}$ | 17.7 | 0.15 | 20080911 | 321.03927 | 212.21210 | 207.33003 | 4.72985 | 0.1501748 | 2.6955570 | 14 | 1 | 36 days | 0.21 | | | MPC | | 2008 $TY_{123}$ |
| 2008 $TK_{124}$ | 16.9 | 0.15 | 20081001 | 27.06540 | 84.40633 | 261.82459 | 4.37714 | 0.0361663 | 2.8323505 | 10 | 1 | 16 days | 0.30 | | | MPC | | 2008 $TK_{124}$ |
| 2008 $TM_{124}$ | 16.8 | 0.15 | 20081001 | 332.89251 | 180.30166 | 226.12538 | 7.33168 | 0.0699007 | 3.1586513 | 13 | 1 | 16 days | 0.25 | | | MPC | | 2008 $TM_{124}$ |
| 2008 $TV_{124}$ | 12.9 | 0.15 | 20081001 | 264.17429 | 282.03858 | 211.81321 | 17.15768 | 0.1923393 | 5.1019530 | 10 | 1 | 16 days | 0.18 | | | MPC | | 2008 $TV_{124}$ |
| 2008 $TB_{125}$ | 17.5 | 0.15 | 20081001 | 289.76841 | 148.88643 | 319.79371 | 3.90713 | 0.1945828 | 2.5909838 | 10 | 1 | 16 days | 0.29 | | | MPC | | 2008 $TB_{125}$ |
| 2008 $TE_{125}$ | 17.1 | 0.15 | 20081001 | 50.08098 | 41.19627 | 283.92893 | 3.37272 | 0.0201031 | 2.7634865 | 10 | 1 | 16 days | 0.38 | | | MPC | | 2008 $TE_{125}$ |
| 2008 $TF_{125}$ | 17.4 | 0.15 | 20081001 | 52.93027 | 333.71527 | 336.59431 | 4.03905 | 0.1315147 | 2.6153089 | 10 | 1 | 16 days | 0.30 | | | MPC | | 2008 $TF_{125}$ |
| 2008 $TJ_{125}$ | 16.7 | 0.15 | 20081001 | 324.22199 | 212.45482 | 206.63679 | 22.96806 | 0.0900608 | 3.1164821 | 10 | 1 | 16 days | 0.72 | | E | MPC | | 2008 $TJ_{125}$ |
| 2008 $TK_{125}$ | 18.3 | 0.15 | 20081001 | 43.94153 | 343.90987 | 336.20843 | 3.57535 | 0.1321118 | 2.3976063 | 10 | 1 | 12 days | 0.29 | | | MPC | | 2008 $TK_{125}$ |
| 2008 $TL_{125}$ | 13.9 | 0.15 | 20100104 | 15.38012 | 127.75747 | 276.27265 | 3.91236 | 0.0645677 | 5.2680243 | 45 | 4 | 1995–2009 | 0.31 | M-v | 0 | MPC | 166332 | 2008 $TL_{125}$ |
| 2008 $TN_{125}$ | 19.5 | 0.15 | 20081001 | 354.31966 | 16.76621 | 8.96193 | 13.21359 | 0.2926754 | 2.6578941 | 10 | 1 | 14 days | 0.26 | | | MPC | | 2008 $TN_{125}$ |
| 2008 $TV_{125}$ | 13.7 | 0.15 | 20100104 | 86.06195 | 72.53312 | 250.96215 | 5.65569 | 0.0945337 | 5.1760785 | 32 | 3 | 2007–2009 | 0.25 | M-v | 2 | MPC | 165621 | 2008 $TV_{125}$ |
| 2008 $TB_{126}$ | 16.5 | 0.15 | 20081001 | 51.25107 | 315.04464 | 1.68950 | 13.00332 | 0.1036494 | 3.0450338 | 10 | 1 | 16 days | 0.35 | | | MPC | | 2008 $TB_{126}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 $TF_{126}$ | 16.3 | 0.15 | 20100104 | 55.35166 | 210.64423 | 221.25767 | 10.33269 | 0.0954328 | 2.6925517 | 22 | 1 | 100 days | 0.55 | M-v | 4 | MPC | | 2008 $TF_{126}$ |
| 2008 $TZ_{126}$ | 17.6 | 0.15 | 20081001 | 329.35959 | 92.68861 | 320.77757 | 5.67894 | 0.1021320 | 2.9745030 | 10 | 1 | 16 days | 0.24 | | | MPC | | 2008 $TZ_{126}$ |
| 2008 $TD_{127}$ | 17.0 | 0.15 | 20081001 | 352.16011 | 174.83053 | 215.63337 | 12.87798 | 0.3126761 | 3.1921674 | 11 | 1 | 7 days | 0.35 | | | MPC | | 2008 $TD_{127}$ |
| 2008 $TP_{127}$ | 16.2 | 0.15 | 20100104 | 86.03093 | 38.18905 | 330.60495 | 5.73541 | 0.1352351 | 3.1860616 | 29 | 4 | 2002–2009 | 0.34 | M-v | 2 | MPC | 155517 | 2008 $TP_{127}$ |
| 2008 $TB_{128}$ | 17.7 | 0.15 | 20081001 | 38.55566 | 92.44286 | 220.42741 | 10.12533 | 0.2679068 | 2.5868798 | 15 | 1 | 17 days | 0.46 | | | MPC | | 2008 $TB_{128}$ |
| 2008 $TG_{128}$ | 15.1 | 0.15 | 20081001 | 148.33086 | 356.88652 | 222.44420 | 12.35643 | 0.2454546 | 2.9965839 | 11 | 1 | 21 days | 0.34 | | | MPC | | 2008 $TG_{128}$ |
| 2008 $TL_{128}$ | 15.6 | 0.15 | 20081001 | 214.07536 | 15.71580 | 155.28948 | 5.35153 | 0.2245376 | 2.6816553 | 12 | 1 | 2 days | 0.49 | | | MPC | | 2008 $TL_{128}$ |
| 2008 $TN_{128}$ | 17.4 | 0.15 | 20081001 | 2.48001 | 306.11829 | 63.37481 | 3.37667 | 0.1524744 | 2.6468057 | 26 | 1 | 56 days | 0.45 | | | MPC | | 2008 $TN_{128}$ |
| 2008 $TG_{129}$ | 15.6 | 0.15 | 20081001 | 180.04080 | 208.05646 | 349.97383 | 13.37489 | 0.1554904 | 2.8905583 | 16 | 1 | 22 days | 0.23 | | | MPC | | 2008 $TG_{129}$ |
| 2008 $TJ_{129}$ | 16.8 | 0.15 | 20081001 | 9.24409 | 125.36674 | 240.54317 | 9.14359 | 0.0655339 | 3.0677977 | 16 | 1 | 22 days | 0.18 | | | MPC | | 2008 $TJ_{129}$ |
| 2008 $TV_{129}$ | 16.4 | 0.15 | 20100104 | 2.06761 | 151.59423 | 325.38455 | 3.61950 | 0.0931518 | 3.0985621 | 30 | 5 | 1997–2009 | 0.39 | M-v | 0 | MPC | 150442 | 2008 $TV_{129}$ |
| 2008 $TZ_{129}$ | 16.8 | 0.15 | 20081001 | 109.55747 | 291.04118 | 342.62019 | 4.82184 | 0.0155350 | 2.7492054 | 21 | 1 | 38 days | 0.33 | | | MPC | | 2008 $TZ_{129}$ |
| 2008 $TC_{130}$ | 19.1 | 0.15 | 20081001 | 20.49391 | 123.67151 | 228.45978 | 5.60765 | 0.1719344 | 2.3816737 | 10 | 1 | 12 days | 0.26 | | | MPC | | 2008 $TC_{130}$ |
| 2008 $TG_{130}$ | 16.5 | 0.15 | 20081001 | 114.32779 | 260.72160 | 9.10354 | 10.00251 | 0.0184535 | 3.0002403 | 18 | 1 | 23 days | 0.25 | | | MPC | | 2008 $TG_{130}$ |
| 2008 $TH_{130}$ | 17.0 | 0.15 | 20081001 | 286.56351 | 200.22806 | 267.63226 | 3.42164 | 0.0780625 | 3.0524552 | 10 | 1 | 12 days | 0.25 | | | MPC | | 2008 $TH_{130}$ |
| 2008 $TJ_{130}$ | 14.0 | 0.15 | 20100104 | 344.72769 | 172.45969 | 280.02416 | 4.21989 | 0.0956639 | 5.1476025 | 37 | 3 | 1995–2009 | 0.32 | M-v | 3 | MPC | 165622 | 2008 $TJ_{130}$ |
| 2008 $TW_{130}$ | 17.9 | 0.15 | 20100104 | 237.85150 | 339.26511 | 291.80997 | 2.70506 | 0.1637170 | 2.1555856 | 31 | 3 | 2005–2008 | 0.49 | M-v | 3 | MPC | 155518 | 2008 $TW_{130}$ |
| 2008 $TS_{132}$ | 16.8 | 0.15 | 20081001 | 2.44801 | 152.69345 | 228.23612 | 11.32248 | 0.1245270 | 3.1659988 | 18 | 1 | 38 days | 0.25 | | | MPC | | 2008 $TS_{132}$ |
| 2008 $TT_{132}$ | 16.0 | 0.15 | 20100104 | 143.69137 | 39.54928 | 272.13454 | 4.84689 | 0.1079403 | 3.1434994 | 40 | 5 | 1997–2009 | 0.40 | M-v | 1 | MPC | 150443 | 2008 $TT_{132}$ |
| 2008 $TO_{133}$ | 17.2 | 0.15 | 20081001 | 300.06830 | 270.36957 | 177.44386 | 3.81828 | 0.1423809 | 2.8165420 | 15 | 1 | 2 days | 0.29 | | | MPC | | 2008 $TO_{133}$ |
| 2008 $TR_{133}$ | 17.3 | 0.15 | 20081001 | 138.40475 | 205.40370 | 19.31507 | 11.66488 | 0.1447028 | 2.3792848 | 15 | 1 | 17 days | 0.24 | | | MPC | | 2008 $TR_{133}$ |
| 2008 $TS_{133}$ | 19.4 | 0.15 | 20081001 | 341.52637 | 14.79821 | 22.94571 | 5.20604 | 0.1729524 | 2.1433998 | 11 | 1 | 2 days | 0.20 | | | MPC | | 2008 $TS_{133}$ |
| 2008 $TT_{133}$ | 16.1 | 0.15 | 20081001 | 169.12057 | 181.36728 | 18.26798 | 17.67421 | 0.2878743 | 2.9175049 | 11 | 1 | 16 days | 0.27 | | | MPC | | 2008 $TT_{133}$ |
| 2008 $TH_{134}$ | 18.4 | 0.15 | 20081001 | 345.20175 | 158.88216 | 246.25139 | 4.84765 | 0.1161698 | 2.7107126 | 11 | 1 | 16 days | 0.22 | | | MPC | | 2008 $TH_{134}$ |
| 2008 $TU_{134}$ | 17.7 | 0.15 | 20081001 | 15.56025 | 116.33546 | 251.34698 | 3.56911 | 0.1041791 | 2.7416849 | 13 | 1 | 28 days | 0.25 | | | MPC | | 2008 $TU_{134}$ |
| 2008 $TD_{135}$ | 18.1 | 0.15 | 20081001 | 275.58413 | 114.88049 | 18.93593 | 10.97614 | 0.1950365 | 2.2489422 | 9 | 1 | 8 days | 0.39 | | | MPC | | 2008 $TD_{135}$ |
| 2008 $TN_{135}$ | 16.2 | 0.15 | 20100104 | 154.48698 | 70.53754 | 241.63213 | 4.75007 | 0.1537056 | 2.8588536 | 35 | 3 | 2003–2009 | 0.32 | M-v | 3 | MPC | 159814 | 2008 $TN_{135}$ |
| 2008 $TE_{136}$ | 16.3 | 0.15 | 20081021 | 295.97412 | 253.32191 | 214.72396 | 11.27952 | 0.0941536 | 3.1428272 | 19 | 1 | 59 days | 0.29 | | | MPC | | 2008 $TE_{136}$ |
| 2008 $TM_{138}$ | 17.6 | 0.15 | 20081001 | 52.91008 | 77.74279 | 234.37590 | 6.15159 | 0.1921400 | 2.7172919 | 10 | 1 | 12 days | 0.32 | | | MPC | | 2008 $TM_{138}$ |
| 2008 $TN_{138}$ | 15.8 | 0.15 | 20081001 | 89.35294 | 275.37116 | 13.73959 | 13.01762 | 0.0854173 | 3.2258981 | 17 | 1 | 47 days | 0.35 | | | MPC | | 2008 $TN_{138}$ |
| 2008 $TB_{139}$ | 17.2 | 0.15 | 20081021 | 61.39477 | 70.78332 | 223.44855 | 10.95368 | 0.3052102 | 2.6630176 | 14 | 1 | 29 days | 0.36 | | | MPC | | 2008 $TB_{139}$ |
| 2008 $TK_{139}$ | 17.2 | 0.15 | 20081001 | 54.55548 | 291.97271 | 17.61399 | 12.36759 | 0.2217692 | 3.0616126 | 10 | 1 | 13 days | 0.29 | | | MPC | | 2008 $TK_{139}$ |
| 2008 $TY_{140}$ | 18.1 | 0.15 | 20081001 | 249.38110 | 308.09688 | 187.73034 | 3.48248 | 0.1316255 | 2.3063286 | 16 | 1 | 8 days | 0.42 | | | MPC | | 2008 $TY_{140}$ |
| 2008 $TC_{141}$ | 17.6 | 0.15 | 20081001 | 55.76349 | 104.60842 | 193.85979 | 14.51918 | 0.1691618 | 2.6564740 | 12 | 1 | 7 days | 0.35 | | | MPC | | 2008 $TC_{141}$ |
| 2008 $TT_{141}$ | 14.2 | 0.15 | 20081001 | 58.20532 | 293.64264 | 17.04418 | 16.60253 | 0.0538404 | 5.1036771 | 11 | 1 | 11 days | 0.29 | | E | MPC | | 2008 $TT_{141}$ |
| 2008 $TX_{141}$ | 16.9 | 0.15 | 20081001 | 193.01426 | 5.71521 | 177.38171 | 2.27042 | 0.0800882 | 2.8084076 | 12 | 1 | 8 days | 0.50 | | | MPC | | 2008 $TX_{141}$ |
| 2008 $TZ_{141}$ | 18.3 | 0.15 | 20081001 | 302.73481 | 64.72584 | 29.57953 | 3.71697 | 0.2149297 | 2.5170545 | 12 | 1 | 8 days | 0.40 | | | MPC | | 2008 $TZ_{141}$ |
| 2008 $TB_{142}$ | 13.8 | 0.15 | 20100104 | 8.44859 | 20.34851 | 29.65233 | 7.56707 | 0.0984665 | 5.1988455 | 45 | 4 | 2002–2009 | 0.33 | M-v | 0 | MPC | 166332 | 2008 $TB_{142}$ |
| 2008 $TE_{142}$ | 16.8 | 0.15 | 20081001 | 223.42453 | 333.09870 | 184.50327 | 9.19678 | 0.0997818 | 2.7649096 | 19 | 1 | 32 days | 0.34 | | | MPC | | 2008 $TE_{142}$ |
| 2008 $TK_{142}$ | 17.9 | 0.15 | 20081001 | 2.85768 | 186.90885 | 182.75418 | 5.76338 | 0.1715333 | 3.1211026 | 12 | 1 | 8 days | 0.34 | | | MPC | | 2008 $TK_{142}$ |
| 2008 $TV_{143}$ | 18.8 | 0.15 | 20081001 | 3.50703 | 344.52893 | 21.37244 | 1.87655 | 0.1578615 | 2.2063243 | 11 | 1 | 6 days | 0.44 | | | MPC | | 2008 $TV_{143}$ |
| 2008 $TQ_{144}$ | 16.6 | 0.15 | 20100104 | 116.64028 | 183.70094 | 166.00200 | 2.18924 | 0.1089187 | 2.7500725 | 38 | 4 | 2003–2009 | 0.41 | M-v | 2 | MPC | 150448 | 2008 $TQ_{144}$ |
| 2008 $TB_{145}$ | 14.8 | 0.15 | 20081001 | 349.03580 | 211.57449 | 176.31402 | 6.74055 | 0.1818717 | 5.3980232 | 12 | 1 | 16 days | 0.66 | | E | MPC | | 2008 $TB_{145}$ |
| 2008 $TH_{145}$ | 17.8 | 0.15 | 20081001 | 324.39927 | 40.36115 | 18.65111 | 17.14193 | 0.1550104 | 3.0415832 | 12 | 1 | 12 days | 0.25 | | | MPC | | 2008 $TH_{145}$ |
| 2008 $TM_{145}$ | 19.7 | 0.15 | 20081001 | 2.70948 | 341.38317 | 23.48144 | 7.06253 | 0.3206016 | 2.6715041 | 12 | 1 | 12 days | 0.17 | | | MPC | | 2008 $TM_{145}$ |
| 2008 $TF_{146}$ | 18.5 | 0.15 | 20100104 | 109.55476 | 259.13570 | 135.92987 | 1.71833 | 0.1802934 | 2.3484134 | 17 | 1 | 60 days | 0.37 | M-v | 4 | MPC | | 2008 $TF_{146}$ |
| 2008 $TQ_{146}$ | 16.2 | 0.15 | 20100104 | 10.92766 | 312.10925 | 141.85496 | 2.39199 | 0.1111029 | 3.1850734 | 52 | 6 | 1997–2009 | 0.34 | M-v | 0 | MPC | 149093 | 2008 $TQ_{146}$ |
| 2008 $TU_{146}$ | 13.9 | 0.15 | 20100104 | 0.38439 | 273.50426 | 145.73935 | 3.23128 | 0.0958707 | 5.1449795 | 50 | 3 | 2007–2009 | 0.32 | M-v | 2 | MPC | 165622 | 2008 $TU_{146}$ |
| 2008 $TD_{147}$ | 16.8 | 0.15 | 20081001 | 325.48611 | 276.45061 | 147.78765 | 2.25244 | 0.1986497 | 3.1223385 | 12 | 1 | 17 days | 0.19 | | | MPC | | 2008 $TD_{147}$ |
| 2008 $TF_{147}$ | 16.5 | 0.15 | 20081001 | 190.03240 | 157.68077 | 28.56025 | 7.73987 | 0.1138122 | 2.7889990 | 12 | 1 | 17 days | 0.24 | | | MPC | | 2008 $TF_{147}$ |
| 2008 $TH_{147}$ | 18.0 | 0.15 | 20081001 | 75.43219 | 253.68172 | 28.06119 | 6.30158 | 0.1472826 | 2.5806239 | 12 | 1 | 8 days | 0.47 | | | MPC | | 2008 $TH_{147}$ |
| 2008 $TJ_{147}$ | 18.1 | 0.15 | 20081001 | 246.02445 | 88.52002 | 44.49089 | 3.39144 | 0.0523256 | 2.2897638 | 11 | 1 | 14 days | 0.25 | | | MPC | | 2008 $TJ_{147}$ |
| 2008 $TQ_{147}$ | 19.9 | 0.15 | 20081001 | 312.59118 | 246.79594 | 193.62335 | 21.64862 | 0.2056229 | 1.9156529 | 13 | 1 | 15 days | 0.30 | | | MPC | | 2008 $TQ_{147}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 $TD_{148}$ | 17.1 | 0.15 | 20081001 | 71.27538 | 171.41677 | 116.18299 | 2.34620 | 0.1279391 | 2.9865482 | 14 | 1 | 20 days | 0.27 | | MPC | | 2008 $TD_{148}$ |
| 2008 $TK_{148}$ | 16.5 | 0.15 | 20081001 | 34.68623 | 153.31050 | 184.75787 | 11.15700 | 0.0182870 | 3.0454079 | 18 | 1 | 30 days | 0.39 | | MPC | | 2008 $TK_{148}$ |
| 2008 $TO_{148}$ | 13.7 | 0.15 | 20100104 | 17.87565 | 347.19105 | 50.13811 | 5.10104 | 0.0573537 | 5.1740986 | 48 | 4 | 1997–2009 | 0.38 | M-v 0 | MPC | 166332 | 2008 $TO_{148}$ |
| 2008 $TY_{148}$ | 18.7 | 0.15 | 20081001 | 31.36418 | 269.19149 | 56.52962 | 3.60998 | 0.2023111 | 2.6043891 | 11 | 1 | 14 days | 0.30 | | MPC | | 2008 $TY_{148}$ |
| 2008 $TF_{149}$ | 13.4 | 0.15 | 20100104 | 351.66099 | 24.82252 | 39.98659 | 8.37440 | 0.0460664 | 5.1648044 | 31 | 4 | 1997–2009 | 0.40 | M-v 0 | MPC | 166332 | 2008 $TF_{149}$ |
| 2008 $TH_{149}$ | 17.8 | 0.15 | 20081001 | 10.57208 | 213.12332 | 146.85773 | 3.78532 | 0.1028830 | 2.7548259 | 16 | 1 | 26 days | 0.35 | | MPC | | 2008 $TH_{149}$ |
| 2008 $TN_{149}$ | 16.4 | 0.15 | 20100104 | 351.79646 | 36.18450 | 80.26972 | 3.04549 | 0.0282056 | 2.8785745 | 37 | 5 | 2001–2009 | 0.35 | M-v 0 | MPC | 150449 | 2008 $TN_{149}$ |
| 2008 $TQ_{149}$ | 16.3 | 0.15 | 20081001 | 20.93507 | 315.96926 | 31.94901 | 9.49919 | 0.0802229 | 3.4026329 | 12 | 1 | 12 days | 0.18 | | MPC | | 2008 $TQ_{149}$ |
| 2008 $TE_{150}$ | 20.5 | 0.15 | 20081001 | 15.96306 | 316.58893 | 27.45873 | 5.53958 | 0.2395483 | 2.1525517 | 12 | 1 | 12 days | 0.36 | | MPC | | 2008 $TE_{150}$ |
| 2008 $TS_{150}$ | 18.6 | 0.15 | 20081001 | 32.36382 | 299.30980 | 22.03917 | 11.53350 | 0.2182802 | 2.6202972 | 16 | 1 | 27 days | 0.23 | | MPC | | 2008 $TS_{150}$ |
| 2008 $TX_{150}$ | 18.6 | 0.15 | 20081001 | 39.53723 | 281.19239 | 47.10285 | 3.97022 | 0.0399847 | 2.2895197 | 12 | 1 | 12 days | 0.20 | | MPC | | 2008 $TX_{150}$ |
| 2008 $TZ_{150}$ | 18.2 | 0.15 | 20080911 | 354.67000 | 338.62007 | 33.62692 | 6.88288 | 0.1021123 | 2.7659484 | 15 | 1 | 36 days | 0.38 | | MPC | | 2008 $TZ_{150}$ |
| 2008 $TL_{151}$ | 16.2 | 0.15 | 20100104 | 195.77600 | 160.23092 | 105.54630 | 3.04088 | 0.0218487 | 2.8938203 | 36 | 5 | 2000–2009 | 0.44 | M-v 0 | MPC | 150450 | 2008 $TL_{151}$ |
| 2008 $TX_{151}$ | 17.1 | 0.15 | 20080911 | 351.02271 | 215.43525 | 162.25639 | 5.48545 | 0.1164560 | 2.6996380 | 15 | 1 | 37 days | 0.17 | | MPC | | 2008 $TX_{151}$ |
| 2008 $TT_{152}$ | 16.4 | 0.15 | 20081001 | 51.85339 | 151.20486 | 144.38627 | 4.56375 | 0.2399257 | 3.0396201 | 12 | 1 | 16 days | 0.17 | | MPC | | 2008 $TT_{152}$ |
| 2008 $TW_{152}$ | 18.9 | 0.15 | 20081001 | 334.99014 | 322.67852 | 91.51816 | 2.55335 | 0.2630529 | 2.2768256 | 12 | 1 | 11 days | 0.54 | | MPC | | 2008 $TW_{152}$ |
| 2008 $TX_{152}$ | 17.7 | 0.15 | 20081001 | 290.32246 | 62.47025 | 46.07572 | 3.69858 | 0.2025912 | 2.7338274 | 9 | 1 | 8 days | 0.25 | | MPC | | 2008 $TX_{152}$ |
| 2008 $TQ_{153}$ | 15.3 | 0.15 | 20081001 | 134.83555 | 359.15929 | 239.33516 | 15.20462 | 0.1351117 | 3.0848905 | 12 | 1 | 20 days | 0.27 | | MPC | | 2008 $TQ_{153}$ |
| 2008 $TU_{153}$ | 16.0 | 0.15 | 20081001 | 21.49763 | 80.93141 | 278.10131 | 8.20152 | 0.0553093 | 3.1273247 | 12 | 1 | 20 days | 0.26 | | MPC | | 2008 $TU_{153}$ |
| 2008 $TV_{153}$ | 16.5 | 0.15 | 20081001 | 58.72511 | 302.69934 | 357.75776 | 15.45461 | 0.2152699 | 2.7237181 | 12 | 1 | 15 days | 0.23 | | MPC | | 2008 $TV_{153}$ |
| 2008 $TL_{154}$ | 16.6 | 0.15 | 20081021 | 334.43127 | 77.29568 | 349.13619 | 10.96698 | 0.1968379 | 2.6490013 | 26 | 1 | 36 days | 0.40 | | MPC | | 2008 $TL_{154}$ |
| 2008 $TY_{156}$ | 15.2 | 0.15 | 20100104 | 352.71274 | 43.32751 | 74.05923 | 4.43363 | 0.1960201 | 3.9562846 | 40 | 3 | 2003–2009 | 0.41 | M-v 2 | MPC | 166332 | 2008 $TY_{156}$ |
| 2008 $TH_{157}$ | 18.0 | 0.15 | 20081001 | 336.59879 | 69.90568 | 358.18419 | 27.71648 | 0.4358370 | 2.5604640 | 16 | 1 | 13 days | 0.36 | | MPC | | 2008 $TH_{157}$ |
| 2008 $TP_{157}$ | 17.0 | 0.15 | 20100104 | 100.04063 | 331.33988 | 50.36272 | 14.97811 | 0.2849878 | 2.6516228 | 28 | 1 | 99 days | 0.52 | M-v 3 | MPC | | 2008 $TP_{157}$ |
| 2008 $TW_{157}$ | 17.8 | 0.15 | 20080911 | 29.45606 | 60.31104 | 257.09724 | 13.70022 | 0.2346112 | 2.3912283 | 12 | 1 | 14 days | 0.70 | | MPC | | 2008 $TW_{157}$ |
| 2008 $TR_{158}$ | 14.2 | 0.15 | 20081001 | 260.69760 | 281.37157 | 196.08920 | 24.44144 | 0.0855761 | 5.1866297 | 12 | 1 | 27 days | 0.31 | | MPC | | 2008 $TR_{158}$ |
| 2008 $TV_{158}$ | 17.3 | 0.15 | 20081001 | 322.40009 | 193.84013 | 224.09271 | 4.16754 | 0.1552670 | 2.7065380 | 13 | 1 | 34 days | 0.18 | | MPC | | 2008 $TV_{158}$ |
| 2008 $TY_{158}$ | 18.2 | 0.15 | 20081001 | 26.49350 | 88.29818 | 242.81673 | 1.87647 | 0.1795477 | 2.4108501 | 13 | 1 | 17 days | 0.24 | | MPC | | 2008 $TY_{158}$ |
| 2008 $TF_{160}$ | 16.5 | 0.15 | 20100104 | 261.10498 | 182.81703 | 44.23174 | 5.13537 | 0.0407526 | 2.6641678 | 47 | 5 | 2002–2009 | 0.37 | M-v 1 | MPC | 158621 | 2008 $TF_{160}$ |
| 2008 $TL_{160}$ | 17.1 | 0.15 | 20081001 | 277.66706 | 302.84343 | 174.00220 | 4.39876 | 0.0204609 | 2.7765434 | 19 | 1 | 33 days | 0.45 | | MPC | | 2008 $TL_{160}$ |
| 2008 $TT_{163}$ | 16.6 | 0.15 | 20100104 | 150.65038 | 45.65252 | 281.22166 | 0.96017 | 0.0619055 | 2.8557918 | 48 | 6 | 1998–2009 | 0.45 | M-v 0 | MPC | 153685 | 2008 $TT_{163}$ |
| 2008 $TY_{165}$ | 15.2 | 0.15 | 20100104 | 358.08570 | 179.00825 | 299.80167 | 8.27293 | 0.1273797 | 3.1795850 | 39 | 5 | 1993–2009 | 0.32 | M-v 1 | MPC | 166332 | 2008 $TY_{165}$ |
| 2008 $TR_{167}$ | 15.0 | 0.15 | 20100104 | 51.57332 | 104.65478 | 317.43951 | 6.55052 | 0.0400416 | 3.2298991 | 51 | 5 | 2003–2009 | 0.42 | M-v 0 | MPC | 166333 | 2008 $TR_{167}$ |
| 2008 $TA_{168}$ | 15.2 | 0.15 | 20100104 | 81.68294 | 266.09482 | 115.20493 | 12.48396 | 0.0659719 | 3.0908128 | 33 | 5 | 2002–2009 | 0.48 | M-v 1 | MPC | 150458 | 2008 $TA_{168}$ |
| 2008 $TR_{169}$ | 18.5 | 0.15 | 20081021 | 359.17522 | 359.23294 | 38.02859 | 10.50846 | 0.2097610 | 2.3581804 | 17 | 1 | 41 days | 0.70 | | MPC | | 2008 $TR_{169}$ |
| 2008 $TV_{173}$ | 15.9 | 0.15 | 20100104 | 67.03123 | 275.82871 | 124.68220 | 12.25396 | 0.1145920 | 3.0490910 | 34 | 5 | 2003–2009 | 0.48 | M-v 1 | MPC | 158171 | 2008 $TV_{173}$ |
| 2008 $TG_{174}$ | 13.7 | 0.15 | 20100104 | 0.90844 | 336.14516 | 97.75444 | 2.52743 | 0.0551679 | 5.2316677 | 36 | 3 | 2007–2009 | 0.39 | M-v 3 | MPC | 165622 | 2008 $TG_{174}$ |
| 2008 $TW_{174}$ | 13.1 | 0.15 | 20100104 | 269.71833 | 111.14599 | 41.49818 | 7.62540 | 0.0187020 | 5.2396698 | 46 | 5 | 2002–2009 | 0.34 | M-v 1 | MPC | 166333 | 2008 $TW_{174}$ |
| 2008 $TQ_{176}$ | 16.2 | 0.15 | 20100104 | 144.73405 | 209.74917 | 109.16312 | 14.09363 | 0.1830107 | 2.5959647 | 33 | 6 | 2003–2009 | 0.49 | M-v 1 | MPC | 159549 | 2008 $TQ_{176}$ |
| 2008 $TH_{177}$ | 15.1 | 0.15 | 20081001 | 47.72691 | 150.87235 | 169.01303 | 18.32897 | 0.0731272 | 3.2339611 | 24 | 1 | 34 days | 0.77 | | MPC | | 2008 $TH_{177}$ |
| 2008 $TK_{177}$ | 16.9 | 0.15 | 20100104 | 98.24818 | 318.10867 | 52.83158 | 11.25759 | 0.3308329 | 2.6996362 | 20 | 1 | 112 days | 0.54 | M-v 4 | MPC | | 2008 $TK_{177}$ |
| 2008 $TO_{177}$ | 15.6 | 0.15 | 20081001 | 4.67997 | 291.57472 | 84.23333 | 13.83652 | 0.1445352 | 3.1333553 | 12 | 1 | 32 days | 0.48 | | MPC | | 2008 $TO_{177}$ |
| 2008 $TP_{177}$ | 16.0 | 0.15 | 20081001 | 357.59801 | 332.84666 | 49.00399 | 25.16681 | 0.1802963 | 3.1070515 | 15 | 1 | 33 days | 0.50 | | MPC | | 2008 $TP_{177}$ |
| 2008 $TQ_{177}$ | 16.6 | 0.15 | 20081001 | 25.89665 | 359.64171 | 347.14416 | 14.77725 | 0.1232169 | 2.6285139 | 29 | 1 | 40 days | 0.63 | | MPC | | 2008 $TQ_{177}$ |
| 2008 $TT_{177}$ | 16.1 | 0.15 | 20081021 | 32.53253 | 106.55386 | 241.63824 | 25.43377 | 0.2103176 | 3.0451938 | 16 | 1 | 42 days | 0.70 | | MPC | | 2008 $TT_{177}$ |
| 2008 $TU_{177}$ | 15.9 | 0.15 | 20081001 | 357.12044 | 207.18153 | 183.85884 | 16.33648 | 0.1850765 | 3.1883242 | 20 | 1 | 30 days | 0.69 | | MPC | | 2008 $TU_{177}$ |
| 2008 $TV_{177}$ | 16.5 | 0.15 | 20081021 | 349.85302 | 296.24646 | 112.03555 | 8.27324 | 0.1119144 | 2.6493740 | 12 | 1 | 54 days | 0.62 | | MPC | | 2008 $TV_{177}$ |
| 2008 $TW_{177}$ | 15.1 | 0.15 | 20081021 | 13.82938 | 288.13046 | 86.59877 | 14.81468 | 0.0288802 | 3.1240999 | 16 | 1 | 25 days | 0.61 | | MPC | | 2008 $TW_{177}$ |
| 2008 $TX_{177}$ | 16.6 | 0.15 | 20081021 | 17.56484 | 278.88859 | 89.28848 | 15.55475 | 0.1289640 | 2.5890423 | 12 | 1 | 24 days | 0.48 | | MPC | | 2008 $TX_{177}$ |
| 2008 $TZ_{177}$ | 15.4 | 0.15 | 20081021 | 334.14347 | 270.89596 | 178.87711 | 16.37917 | 0.1843849 | 3.0831135 | 18 | 1 | 49 days | 0.69 | | MPC | | 2008 $TZ_{177}$ |
| 2008 $TA_{178}$ | 18.2 | 0.15 | 20081001 | 26.34228 | 253.12690 | 67.29334 | 9.11155 | 0.2905227 | 2.3290503 | 12 | 1 | 25 days | 0.65 | | MPC | | 2008 $TA_{178}$ |
| 2008 $TB_{178}$ | 16.2 | 0.15 | 20081001 | 47.35021 | 16.00123 | 300.10736 | 12.69990 | 0.1623959 | 2.6781988 | 21 | 1 | 31 days | 0.71 | | MPC | | 2008 $TB_{178}$ |
| 2008 $TK_{180}$ | 17.1 | 0.15 | 20081001 | 347.13202 | 242.12138 | 147.21836 | 11.96569 | 0.2037134 | 2.4744318 | 12 | 1 | 25 days | 0.62 | | MPC | | 2008 $TK_{180}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 $TQ_{180}$ | 17.8 | 0.15 | 20081001 | 1.11678 | 93.55182 | 280.30156 | 10.09663 | 0.3046823 | 2.6205395 | 30 | 1 | 45 days | 0.51 | | | MPC | | 2008 $TQ_{180}$ |
| 2008 $TU_{180}$ | 16.6 | 0.15 | 20100104 | 107.66117 | 230.21572 | 141.61834 | 14.18774 | 0.2716063 | 2.6696079 | 25 | 1 | 114 days | 0.77 | M-v | 4 | MPC | | 2008 $TU_{180}$ |
| 2008 $TV_{180}$ | 15.8 | 0.15 | 20080911 | 5.10319 | 22.56127 | 332.03691 | 17.82233 | 0.1125849 | 3.0844835 | 21 | 1 | 50 days | 0.63 | | | MPC | | 2008 $TV_{180}$ |
| 2008 $TW_{180}$ | 18.1 | 0.15 | 20081001 | 3.74746 | 113.25266 | 258.89649 | 5.57091 | 0.1854160 | 2.2449898 | 20 | 1 | 30 days | 0.59 | | | MPC | | 2008 $TW_{180}$ |
| 2008 $TX_{180}$ | 17.3 | 0.15 | 20081021 | 2.58470 | 127.42354 | 249.09772 | 16.46210 | 0.2876556 | 2.6820321 | 21 | 1 | 28 days | 0.50 | | | MPC | | 2008 $TX_{180}$ |
| 2008 $TA_{181}$ | 17.5 | 0.15 | 20081021 | 354.74301 | 312.05538 | 90.59045 | 14.02394 | 0.2709985 | 2.6134650 | 12 | 1 | 24 days | 0.50 | | | MPC | | 2008 $TA_{181}$ |
| 2008 $TB_{181}$ | 16.3 | 0.15 | 20081001 | 317.12141 | 358.59291 | 76.42448 | 5.94038 | 0.2159921 | 3.1494556 | 12 | 1 | 24 days | 0.29 | | | MPC | | 2008 $TB_{181}$ |
| 2008 $TD_{181}$ | 16.5 | 0.15 | 20081001 | 43.83588 | 276.20986 | 38.28850 | 24.06136 | 0.2403464 | 3.1974860 | 12 | 1 | 15 days | 0.46 | | | MPC | | 2008 $TD_{181}$ |
| 2008 $TE_{181}$ | 17.8 | 0.15 | 20081001 | 1.76882 | 200.85790 | 175.58586 | 14.64811 | 0.2495293 | 2.7788513 | 12 | 1 | 20 days | 0.50 | | | MPC | | 2008 $TE_{181}$ |
| 2008 $TF_{181}$ | 18.6 | 0.15 | 20081001 | 19.38473 | 259.54933 | 87.12431 | 6.68261 | 0.2424245 | 2.1688207 | 12 | 1 | 14 days | 0.38 | | | MPC | | 2008 $TF_{181}$ |
| 2008 $TG_{181}$ | 17.9 | 0.15 | 20081001 | 35.42148 | 130.84758 | 197.94175 | 7.58517 | 0.2153529 | 2.6751543 | 11 | 1 | 20 days | 0.20 | | | MPC | | 2008 $TG_{181}$ |
| 2008 $TH_{181}$ | 16.8 | 0.15 | 20100104 | 57.23137 | 43.23643 | 78.37412 | 13.96836 | 0.2413072 | 2.6203824 | 16 | 1 | 75 days | 0.19 | M-v | 4 | MPC | | 2008 $TH_{181}$ |
| 2008 $UB_1$ | 17.2 | 0.15 | 20081021 | 70.15703 | 254.76216 | 46.00435 | 34.66282 | 0.3168208 | 2.5498842 | 13 | 1 | 2 days | 0.27 | | | MPC | | 2008 $UB_1$ |
| 2008 $UN_1$ | 16.5 | 0.15 | 20081021 | 4.32822 | 302.09466 | 81.40964 | 11.62672 | 0.2482376 | 3.2063725 | 20 | 1 | 56 days | 0.46 | | | MPC | | 2008 $UN_1$ |
| 2008 $UR_1$ | 15.9 | 0.15 | 20100104 | 76.12601 | 250.71283 | 180.72455 | 12.43625 | 0.1421059 | 2.7164153 | 63 | 7 | 1999–2009 | 0.58 | M-v | 1 | MPC | 156140 | 2008 $UR_1$ |
| 2008 $US_1$ | 13.9 | 0.15 | 20081021 | 318.30990 | 50.58261 | 26.27054 | 19.86981 | 0.2053018 | 5.3889803 | 11 | 1 | 8 days | 0.38 | | | MPC | | 2008 $US_1$ |
| 2008 $UX_2$ | 17.1 | 0.15 | 20100104 | 97.37437 | 279.35616 | 127.56284 | 12.06409 | 0.2990742 | 2.6047803 | 25 | 1 | 63 days | 0.83 | M-v | 4 | MPC | | 2008 $UX_2$ |
| 2008 $UW_3$ | 16.9 | 0.15 | 20100104 | 85.57177 | 137.23104 | 244.78648 | 13.72147 | 0.2669813 | 3.0141350 | 22 | 1 | 93 days | 0.51 | M-v | 4 | MPC | | 2008 $UW_3$ |
| 2008 $UH_6$ | 16.1 | 0.15 | 20100104 | 173.87243 | 198.28071 | 100.87787 | 7.83783 | 0.0794265 | 2.7297280 | 66 | 7 | 1997–2009 | 0.43 | M-v | 1 | MPC | 164339 | 2008 $UH_6$ |
| 2008 $UV_6$ | 16.2 | 0.15 | 20100104 | 235.79107 | 192.81728 | 52.71726 | 3.23405 | 0.1071078 | 2.9815978 | 39 | 3 | 2006–2009 | 0.36 | M-v | 3 | MPC | 148637 | 2008 $UV_6$ |
| 2008 $UZ_6$ | 10.7 | 0.15 | 20100104 | 356.51070 | 199.60968 | 240.63276 | 35.83132 | 0.6135127 | 27.3466700 | 68 | 2 | 2008–2009 | 0.41 | M-v | 2 | MPC | 166333 | 2008 $UZ_6$ |
| 2008 $UA_8$ | 16.7 | 0.15 | 20100104 | 294.73046 | 328.08628 | 207.41012 | 3.76939 | 0.0202253 | 2.7086137 | 38 | 5 | 1999–2009 | 0.28 | M-v | 0 | MPC | 155520 | 2008 $UA_8$ |
| 2008 $UO_8$ | 16.1 | 0.15 | 20081001 | 202.19808 | 358.32382 | 167.93033 | 2.22802 | 0.0195396 | 2.8849986 | 14 | 1 | 26 days | 0.21 | | | MPC | | 2008 $UO_8$ |
| 2008 $UX_8$ | 17.1 | 0.15 | 20100104 | 102.28754 | 9.13196 | 357.41494 | 2.30681 | 0.0896246 | 2.7291296 | 34 | 4 | 2004–2009 | 0.37 | M-v | 1 | MPC | 150475 | 2008 $UX_8$ |
| 2008 $UZ_8$ | 17.7 | 0.15 | 20100104 | 288.63387 | 298.16572 | 272.60042 | 0.54390 | 0.1000821 | 2.2472417 | 33 | 3 | 2005–2008 | 0.29 | M-v | 3 | MPC | 155520 | 2008 $UZ_8$ |
| 2008 $UJ_9$ | 13.5 | 0.15 | 20081001 | 314.07680 | 47.38450 | 8.34307 | 10.24814 | 0.0293938 | 5.2437347 | 14 | 1 | 30 days | 0.25 | | | MPC | | 2008 $UJ_9$ |
| 2008 $UO_9$ | 13.2 | 0.15 | 20100104 | 356.39616 | 27.18945 | 26.56916 | 5.22222 | 0.0723032 | 5.2292590 | 46 | 2 | 2008–2009 | 0.33 | M-v | 3 | MPC | 165623 | 2008 $UO_9$ |
| 2008 $US_9$ | 16.3 | 0.15 | 20081001 | 193.20962 | 233.32301 | 305.50176 | 2.41880 | 0.0448005 | 3.0224433 | 10 | 1 | 17 days | 0.22 | | | MPC | | 2008 $US_9$ |
| 2008 $UY_9$ | 17.6 | 0.15 | 20081021 | 305.75956 | 275.56501 | 181.39724 | 1.80649 | 0.2474824 | 2.6045976 | 13 | 1 | 8 days | 0.30 | | | MPC | | 2008 $UY_9$ |
| 2008 $UC_{10}$ | 17.5 | 0.15 | 20081021 | 300.53332 | 279.06459 | 177.58304 | 5.68983 | 0.2061504 | 2.8302264 | 10 | 1 | 8 days | 0.33 | | E | MPC | | 2008 $UC_{10}$ |
| 2008 $UH_{10}$ | 17.1 | 0.15 | 20100104 | 153.10473 | 64.96604 | 245.95323 | 3.74518 | 0.1046379 | 2.7064061 | 34 | 5 | 2003–2009 | 0.39 | M-v | 1 | MPC | 150475 | 2008 $UH_{10}$ |
| 2008 $UJ_{10}$ | 17.8 | 0.15 | 20081001 | 355.45637 | 21.38117 | 357.24576 | 7.22678 | 0.1816911 | 2.5927199 | 10 | 1 | 10 days | 0.27 | | | MPC | | 2008 $UJ_{10}$ |
| 2008 $UP_{10}$ | 15.2 | 0.15 | 20081001 | 163.86111 | 198.72597 | 6.52492 | 16.65833 | 0.1488633 | 3.0315863 | 10 | 1 | 10 days | 0.27 | | E | MPC | | 2008 $UP_{10}$ |
| 2008 $UT_{10}$ | 17.3 | 0.15 | 20081001 | 341.72310 | 165.71219 | 229.70039 | 3.75938 | 0.1131870 | 2.7882813 | 10 | 1 | 14 days | 0.31 | | | MPC | | 2008 $UT_{10}$ |
| 2008 $UV_{10}$ | 16.5 | 0.15 | 20081001 | 61.72867 | 294.90616 | 0.93196 | 8.81417 | 0.1430722 | 2.7610665 | 16 | 1 | 33 days | 0.23 | | | MPC | | 2008 $UV_{10}$ |
| 2008 $UJ_{11}$ | 16.6 | 0.15 | 20081001 | 35.71219 | 132.13780 | 199.48214 | 9.16232 | 0.0662974 | 3.1321499 | 13 | 1 | 30 days | 0.29 | | | MPC | | 2008 $UJ_{11}$ |
| 2008 $UL_{11}$ | 13.8 | 0.15 | 20081001 | 359.95760 | 290.74925 | 78.96550 | 2.40877 | 0.0329273 | 5.0299270 | 10 | 1 | 23 days | 0.30 | | | MPC | | 2008 $UL_{11}$ |
| 2008 $UO_{11}$ | 15.2 | 0.15 | 20100104 | 1.56767 | 102.76843 | 353.61343 | 6.83731 | 0.2455953 | 3.9851140 | 31 | 3 | 2003–2009 | 0.36 | M-v | 2 | MPC | 150476 | 2008 $UO_{11}$ |
| 2008 $UT_{11}$ | | | 20081001 | 357.67470 | 49.08333 | 330.40247 | 5.00710 | 0.0770519 | 2.3284050 | 9 | 1 | 2 days | 0.22 | | | MPC | | 2008 $UT_{11}$ |
| 2008 $UB_{12}$ | 16.5 | 0.15 | 20100104 | 112.09853 | 50.28915 | 298.61775 | 0.96962 | 0.0941519 | 2.8982868 | 32 | 5 | 1998–2009 | 0.32 | M-v | 1 | MPC | 146994 | 2008 $UB_{12}$ |
| 2008 $UG_{12}$ | 17.5 | 0.15 | 20081001 | 59.54208 | 339.19045 | 320.20677 | 4.85509 | 0.1723852 | 2.5817757 | 13 | 1 | 25 days | 0.29 | | | MPC | | 2008 $UG_{12}$ |
| 2008 $UF_{13}$ | 17.3 | 0.15 | 20100104 | 169.73462 | 312.74173 | 347.86253 | 1.90367 | 0.0920870 | 2.6390108 | 42 | 4 | 2002–2009 | 0.33 | M-v | 3 | MPC | 150477 | 2008 $UF_{13}$ |
| 2008 $UX_{13}$ | 16.4 | 0.15 | 20081001 | 314.34042 | 220.41760 | 211.82425 | 11.35733 | 0.1241738 | 3.1474861 | 15 | 1 | 33 days | 0.21 | | | MPC | | 2008 $UX_{13}$ |
| 2008 $UY_{13}$ | 17.2 | 0.15 | 20081001 | 355.78567 | 98.07683 | 282.47788 | 2.84630 | 0.1096680 | 2.8036637 | 17 | 1 | 33 days | 0.27 | | | MPC | | 2008 $UY_{13}$ |
| 2008 $UK_{14}$ | 18.5 | 0.15 | 20081001 | 9.10210 | 164.26433 | 192.04613 | 1.93614 | 0.0794023 | 2.3173911 | 11 | 1 | 23 days | 0.28 | | | MPC | | 2008 $UK_{14}$ |
| 2008 $UL_{14}$ | 17.2 | 0.15 | 20081001 | 352.73777 | 9.18531 | 7.75309 | 11.06014 | 0.1519038 | 3.1291989 | 11 | 1 | 23 days | 0.23 | | | MPC | | 2008 $UL_{14}$ |
| 2008 $UP_{14}$ | 18.3 | 0.15 | 20080911 | 343.57929 | 184.61558 | 202.40799 | 8.47635 | 0.2120785 | 2.7130409 | 14 | 1 | 49 days | 0.52 | | | MPC | | 2008 $UP_{14}$ |
| 2008 $UB_{15}$ | 17.6 | 0.15 | 20081001 | 58.28847 | 279.64333 | 7.90461 | 6.71939 | 0.2123217 | 2.6949825 | 11 | 1 | 23 days | 0.33 | | | MPC | | 2008 $UB_{15}$ |
| 2008 $UD_{15}$ | 17.8 | 0.15 | 20081001 | 327.44490 | 201.68433 | 221.52065 | 11.64364 | 0.1809592 | 2.6777024 | 14 | 1 | 21 days | 0.25 | | | MPC | | 2008 $UD_{15}$ |
| 2008 $UL_{15}$ | 13.5 | 0.15 | 20100104 | 30.02077 | 32.80778 | 348.45919 | 5.05521 | 0.0651130 | 5.2469633 | 37 | 3 | 2007–2009 | 0.41 | M-v | 2 | MPC | 164339 | 2008 $UL_{15}$ |
| 2008 $UM_{15}$ | 13.9 | 0.15 | 20100104 | 358.33470 | 198.33932 | 220.13578 | 3.65819 | 0.0788430 | 5.2021348 | 55 | 5 | 2001–2009 | 0.42 | M-v | 0 | MPC | 166333 | 2008 $UM_{15}$ |
| 2008 $UR_{15}$ | 17.2 | 0.15 | 20081001 | 16.04311 | 27.40329 | 329.41595 | 4.00743 | 0.0922485 | 2.9288845 | 16 | 1 | 16 days | 0.28 | | | MPC | | 2008 $UR_{15}$ |
| 2008 $UF_{16}$ | 17.4 | 0.15 | 20081001 | 345.49521 | 16.01197 | 18.65679 | 9.53129 | 0.0800052 | 3.1170874 | 10 | 1 | 31 days | 0.23 | | | MPC | | 2008 $UF_{16}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 $UP_{16}$ | 18.1 | 0.15 | 20081021 | 0.95005 | 357.78268 | 24.26431 | 3.75792 | 0.1544202 | 2.6225304 | 11 | 1 | 6 days | 0.34 | | | MPC | | 2008 $UP_{16}$ |
| 2008 $UR_{16}$ | 17.6 | 0.15 | 20081001 | 6.90411 | 163.63208 | 203.57220 | 0.49725 | 0.1968582 | 3.0802319 | 11 | 1 | 3 days | 0.24 | | E | MPC | | 2008 $UR_{16}$ |
| 2008 $UU_{16}$ | 16.6 | 0.15 | 20081021 | 87.88719 | 58.88518 | 199.13352 | 5.26478 | 0.3376760 | 2.8672759 | 11 | 1 | 6 days | 0.41 | | | MPC | | 2008 $UU_{16}$ |
| 2008 $UB_{17}$ | 16.5 | 0.15 | 20081001 | 257.93832 | 299.92437 | 201.37205 | 18.41392 | 0.1843904 | 3.0587686 | 10 | 1 | 14 days | 0.46 | | E | MPC | | 2008 $UB_{17}$ |
| 2008 $UJ_{17}$ | 17.2 | 0.15 | 20081021 | 336.11035 | 28.16528 | 27.57240 | 8.78021 | 0.1427367 | 3.0476026 | 11 | 1 | 5 days | 0.15 | | | MPC | | 2008 $UJ_{17}$ |
| 2008 $UL_{17}$ | 18.8 | 0.15 | 20081021 | 75.08606 | 101.72622 | 194.27276 | 2.88360 | 0.1199643 | 2.0943372 | 15 | 1 | 5 days | 0.18 | | | MPC | | 2008 $UL_{17}$ |
| 2008 $UM_{17}$ | 19.3 | 0.15 | 20081021 | 359.85831 | 354.48706 | 30.93429 | 3.98946 | 0.1817590 | 2.2229816 | 11 | 1 | 5 days | 0.15 | | | MPC | | 2008 $UM_{17}$ |
| 2008 $UP_{17}$ | 16.9 | 0.15 | 20081021 | 259.39743 | 106.44251 | 32.45021 | 3.67117 | 0.1289791 | 2.7380306 | 11 | 1 | 5 days | 0.20 | | | MPC | | 2008 $UP_{17}$ |
| 2008 $UQ_{17}$ | 18.7 | 0.15 | 20081021 | 353.91780 | 349.12329 | 42.46213 | 2.10084 | 0.0505685 | 2.4173410 | 11 | 1 | 5 days | 0.39 | | | MPC | | 2008 $UQ_{17}$ |
| 2008 $US_{17}$ | 17.5 | 0.15 | 20081021 | 219.52911 | 334.56624 | 199.76744 | 8.73077 | 0.1413308 | 2.2675980 | 11 | 1 | 5 days | 0.29 | | | MPC | | 2008 $US_{17}$ |
| 2008 $UU_{17}$ | 18.5 | 0.15 | 20081001 | 0.95389 | 284.92849 | 93.52624 | 0.72291 | 0.1070246 | 2.7390875 | 10 | 1 | 14 days | 0.24 | | | MPC | | 2008 $UU_{17}$ |
| 2008 $UN_{18}$ | 17.3 | 0.15 | 20081001 | 309.40357 | 59.18975 | 21.24082 | 6.81380 | 0.0628729 | 3.0689965 | 17 | 1 | 26 days | 0.35 | | | MPC | | 2008 $UN_{18}$ |
| 2008 $UT_{18}$ | 18.1 | 0.15 | 20081001 | 127.69863 | 225.84844 | 22.32906 | 7.01281 | 0.0857363 | 2.3000749 | 14 | 1 | 22 days | 0.24 | | | MPC | | 2008 $UT_{18}$ |
| 2008 $UW_{18}$ | 18.0 | 0.15 | 20081001 | 70.06759 | 290.41300 | 12.85923 | 2.21922 | 0.0945001 | 2.6681988 | 18 | 1 | 36 days | 0.24 | | | MPC | | 2008 $UW_{18}$ |
| 2008 $UE_{19}$ | 17.1 | 0.15 | 20081001 | 9.12841 | 346.12040 | 29.02737 | 16.42336 | 0.0674817 | 3.1504082 | 14 | 1 | 25 days | 0.30 | | | MPC | | 2008 $UE_{19}$ |
| 2008 $UF_{19}$ | 16.9 | 0.15 | 20081001 | 85.38016 | 64.50583 | 216.96937 | 1.83780 | 0.1689224 | 2.9874828 | 10 | 1 | 2 days | 0.21 | | | MPC | | 2008 $UF_{19}$ |
| 2008 $US_{19}$ | 18.9 | 0.15 | 20081001 | 336.05519 | 226.89111 | 190.79359 | 1.07044 | 0.1816304 | 2.5202274 | 10 | 1 | 14 days | 0.23 | | | MPC | | 2008 $US_{19}$ |
| 2008 $UD_{20}$ | 18.7 | 0.15 | 20081001 | 344.00900 | 17.45870 | 32.24473 | 11.95830 | 0.2691527 | 2.4102732 | 10 | 1 | 2 days | 0.26 | | | MPC | | 2008 $UD_{20}$ |
| 2008 $UJ_{20}$ | 18.8 | 0.15 | 20081001 | 325.21862 | 206.94061 | 216.37142 | 3.57254 | 0.1094114 | 2.2593273 | 21 | 1 | 32 days | 0.38 | | | MPC | | 2008 $UJ_{20}$ |
| 2008 $US_{20}$ | 17.5 | 0.15 | 20081001 | 18.42826 | 146.46174 | 213.15013 | 13.11831 | 0.1268665 | 3.1837822 | 14 | 1 | 22 days | 0.31 | | | MPC | | 2008 $US_{20}$ |
| 2008 $UU_{20}$ | 19.1 | 0.15 | 20081001 | 23.19800 | 67.90011 | 278.85036 | 1.02811 | 0.1965929 | 2.5256397 | 14 | 1 | 11 days | 0.36 | | | MPC | | 2008 $UU_{20}$ |
| 2008 $UV_{20}$ | 17.9 | 0.15 | 20081001 | 343.29785 | 85.33844 | 323.43953 | 1.25699 | 0.2147419 | 3.0091641 | 10 | 1 | 14 days | 0.31 | | | MPC | | 2008 $UV_{20}$ |
| 2008 $UW_{20}$ | 19.9 | 0.15 | 20081001 | 350.54431 | 156.48825 | 237.44954 | 1.65599 | 0.2027174 | 2.2566552 | 11 | 1 | 10 days | 0.39 | | | MPC | | 2008 $UW_{20}$ |
| 2008 $UH_{21}$ | 17.6 | 0.15 | 20081021 | 293.64956 | 264.12140 | 211.59353 | 18.21003 | 0.1746673 | 2.7039033 | 11 | 1 | 7 days | 0.26 | | | MPC | | 2008 $UH_{21}$ |
| 2008 $UJ_{21}$ | 17.3 | 0.15 | 20081001 | 299.19576 | 64.09378 | 27.70398 | 22.23033 | 0.0550032 | 2.6879004 | 14 | 1 | 20 days | 0.21 | | | MPC | | 2008 $UJ_{21}$ |
| 2008 $UL_{21}$ | 16.2 | 0.15 | 20100104 | 15.33957 | 102.69894 | 356.90131 | 1.34630 | 0.0626854 | 3.1384461 | 51 | 6 | 2002–2009 | 0.31 | M-v | 0 | MPC | 152513 | 2008 $UL_{21}$ |
| 2008 $UT_{21}$ | 16.6 | 0.15 | 20081001 | 135.88174 | 21.92118 | 210.62085 | 3.58950 | 0.3414678 | 2.4733736 | 10 | 1 | 2 days | 0.26 | | | MPC | | 2008 $UT_{21}$ |
| 2008 $UB_{22}$ | 19.0 | 0.15 | 20081001 | 12.52682 | 152.93659 | 207.92077 | 5.23454 | 0.2052461 | 2.4318440 | 17 | 1 | 22 days | 0.40 | | | MPC | | 2008 $UB_{22}$ |
| 2008 $UC_{22}$ | 18.4 | 0.15 | 20081001 | 328.08299 | 210.12309 | 206.48107 | 2.42315 | 0.0410460 | 2.3554543 | 18 | 1 | 36 days | 0.35 | | | MPC | | 2008 $UC_{22}$ |
| 2008 $UH_{22}$ | 16.6 | 0.15 | 20100104 | 66.59760 | 33.85720 | 28.02383 | 1.99892 | 0.0707976 | 2.7377077 | 60 | 5 | 1999–2009 | 0.32 | M-v | 1 | MPC | 151088 | 2008 $UH_{22}$ |
| 2008 $UE_{23}$ | 16.7 | 0.15 | 20081001 | 345.38509 | 186.66121 | 203.90965 | 1.07528 | 0.0666958 | 3.0955566 | 13 | 1 | 13 days | 0.27 | | | MPC | | 2008 $UE_{23}$ |
| 2008 $UF_{23}$ | 16.8 | 0.15 | 20081001 | 299.31674 | 242.66674 | 199.20033 | 3.13409 | 0.0677647 | 2.7728556 | 19 | 1 | 58 days | 0.29 | | | MPC | | 2008 $UF_{23}$ |
| 2008 $UH_{23}$ | 18.3 | 0.15 | 20081021 | 74.97523 | 91.20819 | 197.99498 | 2.19659 | 0.1396742 | 2.2014785 | 14 | 1 | 41 days | 0.65 | | | MPC | | 2008 $UH_{23}$ |
| 2008 $UY_{23}$ | 13.4 | 0.15 | 20100104 | 327.76357 | 218.42895 | 234.38573 | 5.99319 | 0.0524820 | 5.1404162 | 73 | 6 | 1997–2009 | 0.35 | M-v | 0 | MPC | 166333 | 2008 $UY_{23}$ |
| 2008 $UB_{24}$ | 16.3 | 0.15 | 20081001 | 242.72740 | 281.45730 | 215.36430 | 9.23167 | 0.0376433 | 3.0096134 | 12 | 1 | 17 days | 0.23 | | | MPC | | 2008 $UB_{24}$ |
| 2008 $UC_{24}$ | 16.4 | 0.15 | 20081021 | 295.16395 | 226.48461 | 227.97218 | 5.39391 | 0.0912116 | 3.1839168 | 9 | 1 | 4 days | 0.33 | | | MPC | | 2008 $UC_{24}$ |
| 2008 $UF_{25}$ | 18.8 | 0.15 | 20100104 | 149.95107 | 325.58450 | 13.65208 | 7.22943 | 0.3009751 | 2.2248881 | 20 | 1 | 86 days | 0.23 | M-v | 3 | MPC | | 2008 $UF_{25}$ |
| 2008 $UP_{25}$ | 14.6 | 0.15 | 20081001 | 19.52682 | 159.49579 | 197.60772 | 7.75847 | 0.0352310 | 5.0401699 | 11 | 1 | 13 days | 0.23 | | E | MPC | | 2008 $UP_{25}$ |
| 2008 $UR_{25}$ | 17.3 | 0.15 | 20100104 | 205.54263 | 239.29449 | 32.15328 | 3.26914 | 0.0890444 | 2.5790025 | 28 | 3 | 2006–2009 | 0.27 | M-v | 3 | MPC | 150482 | 2008 $UR_{25}$ |
| 2008 $UW_{25}$ | 17.0 | 0.15 | 20081001 | 150.42990 | 31.67154 | 189.11257 | 1.00325 | 0.1519120 | 2.3966432 | 11 | 1 | 29 days | 0.21 | | | MPC | | 2008 $UW_{25}$ |
| 2008 $UZ_{25}$ | 17.0 | 0.15 | 20081001 | 20.86449 | 143.92186 | 203.79366 | 12.17500 | 0.1835090 | 3.0999849 | 18 | 1 | 44 days | 0.28 | | | MPC | | 2008 $UZ_{25}$ |
| 2008 $UO_{26}$ | 19.3 | 0.15 | 20081001 | 357.10244 | 7.02478 | 15.10036 | 0.77222 | 0.2206037 | 2.4274996 | 11 | 1 | 13 days | 0.89 | | E | MPC | | 2008 $UO_{26}$ |
| 2008 $UP_{26}$ | 18.9 | 0.15 | 20081001 | 356.17447 | 1.27359 | 23.37296 | 1.39359 | 0.2106483 | 2.6491694 | 11 | 1 | 13 days | 0.58 | | E | MPC | | 2008 $UP_{26}$ |
| 2008 $UN_{30}$ | 16.6 | 0.15 | 20100104 | 116.82580 | 121.23359 | 214.04193 | 12.84299 | 0.2909794 | 3.1717491 | 18 | 1 | 63 days | 0.35 | M-v | 5 | MPC | | 2008 $UN_{30}$ |
| 2008 $UN_{33}$ | 16.3 | 0.15 | 20081001 | 324.48709 | 332.75716 | 87.71201 | 2.19730 | 0.0511827 | 2.9980852 | 16 | 1 | 15 days | 0.31 | | | MPC | | 2008 $UN_{33}$ |
| 2008 $UY_{33}$ | 17.0 | 0.15 | 20100104 | 225.12767 | 209.70753 | 58.61416 | 4.82024 | 0.1375474 | 2.3463789 | 39 | 5 | 2004–2009 | 0.35 | M-v | 1 | MPC | 158173 | 2008 $UY_{33}$ |
| 2008 $UX_{34}$ | 17.0 | 0.15 | 20081001 | 53.19547 | 291.55362 | 32.76197 | 8.04165 | 0.0631178 | 2.9994682 | 17 | 1 | 34 days | 0.29 | | | MPC | | 2008 $UX_{34}$ |
| 2008 $UY_{34}$ | 18.4 | 0.15 | 20081001 | 1.88521 | 181.72364 | 195.45367 | 2.70642 | 0.2221689 | 2.6079936 | 14 | 1 | 20 days | 0.20 | | | MPC | | 2008 $UY_{34}$ |
| 2008 $UZ_{34}$ | 17.1 | 0.15 | 20081001 | 189.47548 | 165.19440 | 33.22654 | 7.89200 | 0.2437475 | 2.3379675 | 10 | 1 | 13 days | 0.37 | | E | MPC | | 2008 $UZ_{34}$ |
| 2008 $UH_{35}$ | 17.8 | 0.15 | 20081001 | 11.00435 | 332.86487 | 33.34956 | 3.09325 | 0.1440399 | 2.5517726 | 14 | 1 | 27 days | 0.24 | | | MPC | | 2008 $UH_{35}$ |
| 2008 $UM_{35}$ | 18.6 | 0.15 | 20081001 | 347.77501 | 6.12321 | 29.48752 | 7.00969 | 0.1032059 | 2.2600015 | 14 | 1 | 20 days | 0.26 | | | MPC | | 2008 $UM_{35}$ |
| 2008 $UQ_{35}$ | 17.1 | 0.15 | 20081001 | 56.56718 | 285.76327 | 35.53400 | 2.38796 | 0.0583449 | 2.8598428 | 13 | 1 | 20 days | 0.32 | | | MPC | | 2008 $UQ_{35}$ |
| 2008 $US_{35}$ | 17.7 | 0.15 | 20081001 | 348.64271 | 201.21759 | 195.17536 | 1.26692 | 0.0864769 | 2.7163807 | 14 | 1 | 27 days | 0.27 | | | MPC | | 2008 $US_{35}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 $UT_{35}$ | 17.8 | 0.15 | 20081001 | 355.49240 | 350.43874 | 37.95669 | 3.25183 | 0.1899598 | 2.7734776 | 13 | 1 | 20 days | 0.32 | | | MPC | | 2008 $UT_{35}$ |
| 2008 $UA_{36}$ | 17.8 | 0.15 | 20081001 | 12.71075 | 339.25925 | 28.27974 | 10.35112 | 0.1127083 | 3.0041799 | 14 | 1 | 20 days | 0.37 | | | MPC | | 2008 $UA_{36}$ |
| 2008 $UN_{39}$ | 17.5 | 0.15 | 20081001 | 322.00172 | 56.44639 | 30.35270 | 13.90104 | 0.2692543 | 3.1678449 | 13 | 1 | 27 days | 0.48 | | | MPC | | 2008 $UN_{39}$ |
| 2008 $UT_{39}$ | 20.2 | 0.15 | 20081001 | 5.96407 | 179.67089 | 189.68786 | 1.59782 | 0.2259372 | 2.2000655 | 10 | 1 | 13 days | 0.24 | | | MPC | | 2008 $UT_{39}$ |
| 2008 $UE_{40}$ | 17.2 | 0.15 | 20081001 | 33.86883 | 4.65976 | 354.47207 | 0.96126 | 0.0900739 | 2.6664454 | 10 | 1 | 32 days | 0.32 | | | MPC | | 2008 $UE_{40}$ |
| 2008 $UC_{43}$ | 18.1 | 0.15 | 20081021 | 38.01744 | 299.74891 | 33.42709 | 7.65520 | 0.1658788 | 2.4874197 | 15 | 1 | 30 days | 0.22 | | | MPC | | 2008 $UC_{43}$ |
| 2008 $UG_{43}$ | 18.1 | 0.15 | 20081021 | 320.02086 | 43.37703 | 28.43745 | 21.23240 | 0.0807325 | 1.9314056 | 28 | 1 | 19 days | 0.64 | | | MPC | | 2008 $UG_{43}$ |
| 2008 $UK_{43}$ | 18.0 | 0.15 | 20081001 | 33.84554 | 136.49798 | 192.57919 | 3.44060 | 0.2008115 | 2.5856837 | 14 | 1 | 21 days | 0.18 | | | MPC | | 2008 $UK_{43}$ |
| 2008 $UQ_{43}$ | 18.9 | 0.15 | 20081001 | 23.27274 | 139.13240 | 208.22424 | 6.91087 | 0.1407112 | 2.1913083 | 14 | 1 | 24 days | 0.22 | | | MPC | | 2008 $UQ_{43}$ |
| 2008 $UV_{43}$ | 18.0 | 0.15 | 20081021 | 262.05888 | 135.98383 | 4.02382 | 1.23318 | 0.1484899 | 2.3796486 | 11 | 1 | 3 days | 0.29 | | | MPC | | 2008 $UV_{43}$ |
| 2008 $UB_{45}$ | 15.6 | 0.15 | 20100104 | 93.60695 | 129.17447 | 232.72509 | 3.92043 | 0.1175242 | 3.2425013 | 37 | 4 | 2002–2009 | 0.36 | M-v | 1 | MPC | 156141 | 2008 $UB_{45}$ |
| 2008 $UC_{45}$ | 16.7 | 0.15 | 20081001 | 27.94424 | 132.40872 | 214.09284 | 15.63303 | 0.1166032 | 3.1400572 | 14 | 1 | 32 days | 0.21 | | | MPC | | 2008 $UC_{45}$ |
| 2008 $UJ_{46}$ | 16.9 | 0.15 | 20081021 | 288.60629 | 92.74496 | 41.43961 | 15.57396 | 0.0800669 | 2.6029256 | 9 | 1 | 19 days | 0.24 | | | MPC | | 2008 $UJ_{46}$ |
| 2008 $UC_{48}$ | 17.0 | 0.15 | 20081001 | 55.58654 | 86.59683 | 234.72956 | 1.62228 | 0.0784021 | 3.1153918 | 14 | 1 | 26 days | 0.23 | | | MPC | | 2008 $UC_{48}$ |
| 2008 $UE_{49}$ | 18.1 | 0.15 | 20081001 | 328.50865 | 52.86163 | 30.31694 | 4.69189 | 0.1545577 | 2.2235490 | 13 | 1 | 35 days | 0.43 | | | MPC | | 2008 $UE_{49}$ |
| 2008 $UM_{49}$ | 18.0 | 0.15 | 20081001 | 330.87544 | 45.06895 | 16.92013 | 2.87276 | 0.1391879 | 2.6013314 | 20 | 1 | 41 days | 0.24 | | | MPC | | 2008 $UM_{49}$ |
| 2008 $UN_{49}$ | 18.6 | 0.15 | 20081001 | 348.03891 | 188.85717 | 211.49208 | 5.60996 | 0.1730104 | 2.6722251 | 19 | 1 | 47 days | 0.37 | | | MPC | | 2008 $UN_{49}$ |
| 2008 $UZ_{49}$ | 18.7 | 0.15 | 20081001 | 49.35472 | 280.91117 | 32.21640 | 3.10619 | 0.2057467 | 2.1922216 | 14 | 1 | 19 days | 0.27 | | | MPC | | 2008 $UZ_{49}$ |
| 2008 $UG_{51}$ | 19.8 | 0.15 | 20081021 | 318.26533 | 55.22496 | 29.23069 | 2.40746 | 0.2012682 | 2.3104317 | 11 | 1 | 6 days | 0.35 | | | MPC | | 2008 $UG_{51}$ |
| 2008 $UH_{51}$ | 16.9 | 0.15 | 20081021 | 292.61618 | 41.38115 | 52.26435 | 0.97625 | 0.0278267 | 2.8196278 | 15 | 1 | 32 days | 0.27 | | | MPC | | 2008 $UH_{51}$ |
| 2008 $UL_{55}$ | 17.1 | 0.15 | 20100104 | 310.48243 | 3.38946 | 184.96193 | 1.05674 | 0.1235756 | 2.3742243 | 46 | 5 | 1999–2009 | 0.41 | M-v | 1 | MPC | 150501 | 2008 $UL_{55}$ |
| 2008 $UR_{55}$ | 17.2 | 0.15 | 20081001 | 319.17752 | 50.56820 | 9.67923 | 11.79636 | 0.0529354 | 2.5897808 | 19 | 1 | 54 days | 0.28 | | | MPC | | 2008 $UR_{55}$ |
| 2008 $UU_{55}$ | 13.8 | 0.15 | 20100104 | 25.31157 | 141.81251 | 248.06544 | 3.81438 | 0.0486746 | 5.2222387 | 43 | 2 | 2008–2009 | 0.34 | M-v | 3 | MPC | 165624 | 2008 $UU_{55}$ |
| 2008 $UF_{57}$ | 16.1 | 0.15 | 20100104 | 305.78582 | 121.17699 | 56.57608 | 6.87675 | 0.0902697 | 3.0700071 | 43 | 4 | 2000–2009 | 0.28 | M-v | 0 | MPC | 149104 | 2008 $UF_{57}$ |
| 2008 $UD_{58}$ | 16.7 | 0.15 | 20081021 | 0.73041 | 350.57259 | 43.73451 | 22.84893 | 0.0880058 | 3.2314393 | 16 | 1 | 42 days | 0.32 | | | MPC | | 2008 $UD_{58}$ |
| 2008 $UJ_{58}$ | 16.3 | 0.15 | 20100104 | 152.14902 | 168.00095 | 142.79267 | 4.00574 | 0.1123097 | 3.1171378 | 37 | 5 | 1995–2009 | 0.28 | M-v | 0 | MPC | 158623 | 2008 $UJ_{58}$ |
| 2008 $UN_{61}$ | 18.6 | 0.15 | 20081021 | 350.06833 | 173.63615 | 239.38531 | 8.04411 | 0.1004665 | 2.3027582 | 12 | 1 | 12 days | 0.25 | | | MPC | | 2008 $UN_{61}$ |
| 2008 $UR_{61}$ | 15.6 | 0.15 | 20100104 | 209.67253 | 246.79593 | 14.90257 | 6.54111 | 0.1745445 | 3.1397288 | 41 | 4 | 2006–2009 | 0.35 | M-v | 1 | MPC | 148642 | 2008 $UR_{61}$ |
| 2008 $UO_{62}$ | 16.4 | 0.15 | 20100104 | 68.70348 | 52.97972 | 23.47507 | 5.53766 | 0.1699858 | 2.7758270 | 51 | 5 | 1994–2009 | 0.48 | M-v | 1 | MPC | 150506 | 2008 $UO_{62}$ |
| 2008 $UU_{63}$ | 18.1 | 0.15 | 20081021 | 44.68101 | 240.63040 | 74.83368 | 5.95320 | 0.2244840 | 2.2012766 | 10 | 1 | 4 days | 0.19 | | | MPC | | 2008 $UU_{63}$ |
| 2008 $UZ_{63}$ | 17.0 | 0.15 | 20081001 | 2.89030 | 227.15801 | 145.80478 | 7.00521 | 0.0517995 | 2.7158364 | 19 | 1 | 15 days | 0.28 | | | MPC | | 2008 $UZ_{63}$ |
| 2008 $UD_{64}$ | 17.5 | 0.15 | 20081021 | 7.75355 | 276.86240 | 94.83320 | 4.37310 | 0.1598766 | 2.6223382 | 10 | 1 | 4 days | 0.33 | | | MPC | | 2008 $UD_{64}$ |
| 2008 $UE_{64}$ | 18.2 | 0.15 | 20081021 | 359.71054 | 233.03874 | 150.30556 | 4.82060 | 0.1577831 | 2.5293015 | 10 | 1 | 3 days | 0.34 | | | MPC | | 2008 $UE_{64}$ |
| 2008 $UO_{64}$ | 17.9 | 0.15 | 20081021 | 230.39471 | 85.60750 | 68.65639 | 6.01863 | 0.0277577 | 2.4370202 | 10 | 1 | 3 days | 0.16 | | | MPC | | 2008 $UO_{64}$ |
| 2008 $UP_{64}$ | 15.4 | 0.15 | 20081001 | 89.97416 | 200.96585 | 69.64116 | 9.54379 | 0.1670567 | 3.1410724 | 11 | 1 | 15 days | 0.19 | | | MPC | | 2008 $UP_{64}$ |
| 2008 $UK_{67}$ | 16.6 | 0.15 | 20081021 | 314.91027 | 68.70565 | 34.78789 | 10.73636 | 0.1088639 | 3.0472950 | 9 | 1 | 16 days | 0.16 | | | MPC | | 2008 $UK_{67}$ |
| 2008 $UE_{68}$ | 18.3 | 0.15 | 20081001 | 28.66433 | 227.89584 | 103.86422 | 4.15190 | 0.2423079 | 2.3024811 | 16 | 1 | 35 days | 0.29 | | | MPC | | 2008 $UE_{68}$ |
| 2008 $UQ_{68}$ | 16.6 | 0.15 | 20081001 | 345.21171 | 313.04255 | 84.25200 | 6.71608 | 0.0156000 | 2.6972553 | 17 | 1 | 36 days | 0.34 | | | MPC | | 2008 $UQ_{68}$ |
| 2008 $UZ_{68}$ | 17.5 | 0.15 | 20081001 | 101.70717 | 219.20103 | 56.21817 | 11.91810 | 0.0481880 | 2.7327805 | 19 | 1 | 16 days | 0.39 | | | MPC | | 2008 $UZ_{68}$ |
| 2008 $UT_{69}$ | 17.9 | 0.15 | 20081001 | 31.16127 | 217.39016 | 118.14415 | 3.49539 | 0.1735749 | 2.2835190 | 18 | 1 | 32 days | 0.43 | | | MPC | | 2008 $UT_{69}$ |
| 2008 $UR_{70}$ | 17.6 | 0.15 | 20081001 | 356.69276 | 277.06497 | 112.45517 | 2.54671 | 0.1505504 | 2.9665243 | 13 | 1 | 22 days | 0.33 | | | MPC | | 2008 $UR_{70}$ |
| 2008 $UZ_{70}$ | 17.1 | 0.15 | 20081110 | 13.91023 | 86.12852 | 314.69618 | 5.57742 | 0.0500868 | 2.7271085 | 13 | 1 | 43 days | 0.26 | | | MPC | | 2008 $UZ_{70}$ |
| 2008 $UM_{71}$ | 15.9 | 0.15 | 20081110 | 94.29465 | 54.43681 | 258.35952 | 11.08788 | 0.1229112 | 3.0366925 | 22 | 1 | 41 days | 0.38 | | | MPC | | 2008 $UM_{71}$ |
| 2008 $UA_{74}$ | 16.2 | 0.15 | 20081021 | 62.31258 | 77.24565 | 252.01266 | 15.42306 | 0.1975447 | 3.0488735 | 9 | 1 | 12 days | 0.23 | | | MPC | | 2008 $UA_{74}$ |
| 2008 $UK_{74}$ | 17.7 | 0.15 | 20081021 | 28.09347 | 330.58185 | 33.40014 | 12.49494 | 0.2506630 | 2.6205266 | 12 | 1 | 16 days | 0.24 | | | MPC | | 2008 $UK_{74}$ |
| 2008 $UW_{74}$ | 16.0 | 0.15 | 20100104 | 129.27940 | 296.60351 | 46.65776 | 15.35615 | 0.2140353 | 3.1103866 | 19 | 1 | 100 days | 0.28 | M-v | 5 | MPC | | 2008 $UW_{74}$ |
| 2008 $UG_{78}$ | 17.3 | 0.15 | 20081001 | 9.35915 | 327.87360 | 42.55522 | 15.23591 | 0.2305604 | 2.8112665 | 28 | 1 | 43 days | 0.61 | | | MPC | | 2008 $UG_{78}$ |
| 2008 $UH_{79}$ | 18.0 | 0.15 | 20081001 | 21.17504 | 98.99901 | 239.16889 | 1.18901 | 0.2308344 | 2.7293574 | 15 | 1 | 57 days | 0.22 | | | MPC | | 2008 $UH_{79}$ |
| 2008 $UN_{79}$ | 16.4 | 0.15 | 20100104 | 125.29336 | 0.36326 | 344.66478 | 5.26938 | 0.0877462 | 2.9617009 | 38 | 6 | 2000–2009 | 0.28 | M-v | 1 | MPC | 152515 | 2008 $UN_{79}$ |
| 2008 $UO_{79}$ | 15.5 | 0.15 | 20100104 | 220.82740 | 10.58679 | 239.75063 | 9.42705 | 0.0603355 | 3.0021796 | 49 | 5 | 2002–2009 | 0.37 | M-v | 0 | MPC | 166333 | 2008 $UO_{79}$ |
| 2008 $UP_{79}$ | 16.5 | 0.15 | 20081001 | 301.58030 | 80.17556 | 8.87640 | 9.10651 | 0.0185246 | 3.0733241 | 13 | 1 | 19 days | 0.30 | | | MPC | | 2008 $UP_{79}$ |
| 2008 $UQ_{79}$ | 14.3 | 0.15 | 20081001 | 334.24144 | 104.88685 | 314.60459 | 4.50990 | 0.0418531 | 5.2963478 | 13 | 1 | 32 days | 0.27 | | | MPC | | 2008 $UQ_{79}$ |
| 2008 $UJ_{80}$ | 16.0 | 0.15 | 20081021 | 292.73552 | 231.22764 | 259.01213 | 9.96459 | 0.1714877 | 3.1573640 | 9 | 1 | 8 days | 0.17 | | | MPC | | 2008 $UJ_{80}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 $UT_{80}$ | 17.3 | 0.15 | 20081001 | 355.91452 | 343.90135 | 40.38421 | 7.09777 | 0.0665582 | 2.7728216 | 11 | 1 | 15 days | 0.30 | | | MPC | | 2008 $UT_{80}$ |
| 2008 $UA_{81}$ | 18.5 | 0.15 | 20081001 | 13.71192 | 307.08055 | 47.14521 | 5.44016 | 0.2229900 | 2.2683854 | 17 | 1 | 32 days | 0.39 | | | MPC | | 2008 $UA_{81}$ |
| 2008 $UE_{81}$ | 17.5 | 0.15 | 20081001 | 116.60980 | 96.22534 | 167.15633 | 4.90212 | 0.0047508 | 2.7327276 | 11 | 1 | 15 days | 0.25 | | | MPC | | 2008 $UE_{81}$ |
| 2008 $UG_{81}$ | 17.5 | 0.15 | 20080911 | 2.47653 | 179.60797 | 188.40760 | 8.48183 | 0.1609352 | 2.4361297 | 18 | 1 | 48 days | 0.44 | | | MPC | | 2008 $UG_{81}$ |
| 2008 $UJ_{81}$ | 18.5 | 0.15 | 20081001 | 9.07883 | 294.07665 | 70.55116 | 3.40949 | 0.1816981 | 2.3363229 | 14 | 1 | 31 days | 0.79 | | | MPC | | 2008 $UJ_{81}$ |
| 2008 $UK_{81}$ | 15.8 | 0.15 | 20081001 | 305.88982 | 36.79370 | 44.20327 | 10.64778 | 0.0597857 | 3.1661093 | 11 | 1 | 15 days | 0.35 | | | MPC | | 2008 $UK_{81}$ |
| 2008 $UO_{82}$ | 13.5 | 0.15 | 20081001 | 131.30684 | 173.75452 | 69.52012 | 7.60381 | 0.0403407 | 5.0428278 | 11 | 1 | 18 days | 0.25 | | | MPC | | 2008 $UO_{82}$ |
| 2008 $UV_{82}$ | 16.8 | 0.15 | 20081021 | 341.56752 | 50.77948 | 23.50110 | 10.10911 | 0.0909670 | 3.1315852 | 9 | 1 | 15 days | 0.14 | | | MPC | | 2008 $UV_{82}$ |
| 2008 $UY_{82}$ | 18.0 | 0.15 | 20081001 | 319.09197 | 265.47447 | 169.51935 | 5.06448 | 0.1362098 | 2.6123432 | 11 | 1 | 15 days | 0.17 | | | MPC | | 2008 $UY_{82}$ |
| 2008 $UD_{83}$ | 15.9 | 0.15 | 20100104 | 62.34953 | 222.22396 | 195.13420 | 11.95209 | 0.0927433 | 2.9666141 | 28 | 3 | 2003–2008 | 0.44 | M-v | 3 | MPC | 160585 | 2008 $UD_{83}$ |
| 2008 $UN_{83}$ | 17.3 | 0.15 | 20081021 | 46.02648 | 134.69425 | 193.98454 | 16.11515 | 0.1910114 | 2.6507463 | 11 | 1 | 5 days | 0.68 | | | MPC | | 2008 $UN_{83}$ |
| 2008 $UT_{84}$ | 17.6 | 0.15 | 20081021 | 16.02114 | 351.95415 | 28.55838 | 10.63429 | 0.0870731 | 2.9921345 | 17 | 1 | 50 days | 0.25 | | | MPC | | 2008 $UT_{84}$ |
| 2008 $UA_{85}$ | 18.8 | 0.15 | 20081001 | 32.25461 | 282.69312 | 47.13497 | 1.93360 | 0.1943896 | 2.4368559 | 11 | 1 | 31 days | 0.22 | | | MPC | | 2008 $UA_{85}$ |
| 2008 $UG_{85}$ | 18.7 | 0.15 | 20081001 | 316.30531 | 250.21897 | 189.25305 | 1.56244 | 0.1989518 | 2.3616315 | 11 | 1 | 14 days | 0.30 | | | MPC | | 2008 $UG_{85}$ |
| 2008 $UA_{87}$ | 18.0 | 0.15 | 20081021 | 324.05736 | 243.73072 | 210.06341 | 9.17260 | 0.2688348 | 2.7162424 | 17 | 1 | 39 days | 0.23 | | | MPC | | 2008 $UA_{87}$ |
| 2008 $UH_{87}$ | 15.3 | 0.15 | 20100104 | 174.10307 | 338.59944 | 318.78473 | 6.38997 | 0.0852720 | 3.1515951 | 51 | 6 | 2002–2009 | 0.33 | M-v | 0 | MPC | 155527 | 2008 $UH_{87}$ |
| 2008 $UA_{88}$ | 18.9 | 0.15 | 20081021 | 342.30648 | 13.10135 | 29.32359 | 8.15016 | 0.1804656 | 2.3754342 | 15 | 1 | 49 days | 0.23 | | | MPC | | 2008 $UA_{88}$ |
| 2008 $UE_{88}$ | 14.5 | 0.15 | 20081001 | 318.26517 | 243.47082 | 181.75419 | 15.92389 | 0.0536815 | 5.1254575 | 11 | 1 | 29 days | 0.23 | | | MPC | | 2008 $UE_{88}$ |
| 2008 $UF_{88}$ | 16.6 | 0.15 | 20081001 | 69.83556 | 221.05599 | 76.28836 | 5.57139 | 0.0966590 | 2.8115939 | 14 | 1 | 33 days | 0.15 | | | MPC | | 2008 $UF_{88}$ |
| 2008 $UB_{89}$ | 17.2 | 0.15 | 20081001 | 14.70507 | 287.32259 | 72.75707 | 4.95725 | 0.0820834 | 2.7651985 | 11 | 1 | 17 days | 0.16 | | | MPC | | 2008 $UB_{89}$ |
| 2008 $UD_{89}$ | 16.8 | 0.15 | 20081001 | 38.62455 | 134.78152 | 187.09952 | 11.53276 | 0.1917531 | 3.2215578 | 12 | 1 | 15 days | 0.26 | | | MPC | | 2008 $UD_{89}$ |
| 2008 $UO_{89}$ | 16.9 | 0.15 | 20081001 | 296.41186 | 225.00376 | 232.12045 | 10.26296 | 0.0618821 | 2.5894495 | 10 | 1 | 17 days | 0.15 | | | MPC | | 2008 $UO_{89}$ |
| 2008 $UR_{89}$ | 17.0 | 0.15 | 20081001 | 16.83773 | 171.93330 | 193.06654 | 5.50619 | 0.1768216 | 3.0518287 | 14 | 1 | 36 days | 0.27 | | | MPC | | 2008 $UR_{89}$ |
| 2008 $UU_{89}$ | 19.2 | 0.15 | 20081001 | 355.86100 | 259.36039 | 130.56085 | 2.54275 | 0.1760371 | 2.2309263 | 11 | 1 | 15 days | 0.21 | | | MPC | | 2008 $UU_{89}$ |
| 2008 $UF_{90}$ | 13.2 | 0.15 | 20100104 | 47.74434 | 58.79058 | 299.63007 | 4.87088 | 0.1276728 | 5.2272057 | 59 | 3 | 2000–2009 | 0.52 | M-v | 3 | MPC | 166333 | 2008 $UF_{90}$ |
| 2008 $UF_{91}$ | 16.7 | 0.15 | 20081001 | 342.07855 | 15.40144 | 40.88582 | 11.63824 | 0.0639510 | 3.1275342 | 12 | 1 | 36 days | 0.32 | | | MPC | | 2008 $UF_{91}$ |
| 2008 $UH_{91}$ | 16.1 | 0.15 | 20100104 | 148.37615 | 259.10691 | 46.59299 | 6.61272 | 0.0502497 | 2.7476215 | 34 | 4 | 2004–2009 | 0.47 | M-v | 0 | MPC | 148646 | 2008 $UH_{91}$ |
| 2008 $UO_{92}$ | 17.7 | 0.15 | 20081021 | 27.26379 | 262.72486 | 84.59736 | 6.16527 | 0.1968036 | 2.2264386 | 15 | 1 | 7 days | 0.66 | | | MPC | | 2008 $UO_{92}$ |
| 2008 $UW_{92}$ | 16.6 | 0.15 | 20081021 | 30.91751 | 150.94236 | 186.26781 | 12.30071 | 0.2895778 | 2.6637348 | 13 | 1 | 5 days | 0.41 | | | MPC | | 2008 $UW_{92}$ |
| 2008 $UY_{92}$ | 15.2 | 0.15 | 20081001 | 58.57681 | 193.05021 | 112.15032 | 8.11924 | 0.2402799 | 2.9952289 | 14 | 1 | 21 days | 0.39 | | | MPC | | 2008 $UY_{92}$ |
| 2008 $UE_{93}$ | 15.9 | 0.15 | 20081021 | 63.24701 | 206.46277 | 112.13692 | 7.21953 | 0.1015918 | 2.5761990 | 12 | 1 | 5 days | 0.59 | | | MPC | | 2008 $UE_{93}$ |
| 2008 $UW_{94}$ | 17.7 | 0.15 | 20081021 | 335.83998 | 354.30644 | 57.29147 | 5.92291 | 0.1002715 | 2.3296029 | 10 | 1 | 8 days | 0.24 | | | MPC | | 2008 $UW_{94}$ |
| 2008 $UM_{95}$ | 17.1 | 0.15 | 20081001 | 326.62130 | 267.44227 | 163.69214 | 4.17243 | 0.0795336 | 2.7799870 | 19 | 1 | 32 days | 0.50 | | | MPC | | 2008 $UM_{95}$ |
| 2008 $UD_{96}$ | 15.6 | 0.15 | 20081021 | 329.97658 | 314.18914 | 105.83211 | 6.04085 | 0.0222958 | 2.7637122 | 12 | 1 | 8 days | 0.40 | | | MPC | | 2008 $UD_{96}$ |
| 2008 $UG_{96}$ | 16.3 | 0.15 | 20100104 | 111.13883 | 291.19539 | 46.10340 | 18.77533 | 0.2779439 | 3.0519057 | 33 | 1 | 93 days | 0.57 | M-v | 4 | MPC | 151092 | 2008 $UG_{96}$ |
| 2008 $UM_{96}$ | 17.0 | 0.15 | 20081021 | 320.99317 | 359.12397 | 79.91287 | 7.57640 | 0.1051326 | 2.3674017 | 11 | 1 | 6 days | 0.28 | | | MPC | | 2008 $UM_{96}$ |
| 2008 $UY_{98}$ | 16.8 | 0.15 | 20081001 | 39.58680 | 313.42373 | 6.03476 | 13.03439 | 0.2673224 | 2.6904446 | 26 | 1 | 41 days | 0.55 | | | MPC | | 2008 $UY_{98}$ |
| 2008 $UZ_{98}$ | 15.0 | 0.15 | 20100104 | 106.90098 | 91.86132 | 258.47166 | 8.99643 | 0.1292614 | 3.1926149 | 47 | 3 | 2002–2009 | 0.45 | M-v | 2 | MPC | 162543 | 2008 $UZ_{98}$ |
| 2008 $UU_{100}$ | 18.3 | 0.15 | 20081021 | 331.24746 | 52.27867 | 27.33042 | 3.56847 | 0.2672200 | 3.1868737 | 10 | 1 | 20 days | 0.25 | | E | MPC | | 2008 $UU_{100}$ |
| 2008 $UB_{101}$ | 18.2 | 0.15 | 20081001 | 76.59180 | 307.09640 | 336.91551 | 3.81273 | 0.1262602 | 2.2789699 | 12 | 1 | 33 days | 0.30 | | | MPC | | 2008 $UB_{101}$ |
| 2008 $UE_{101}$ | 17.0 | 0.15 | 20100104 | 271.79360 | 251.00371 | 330.60074 | 2.95442 | 0.1602995 | 2.5290785 | 46 | 4 | 1994–2009 | 0.35 | M-v | 3 | MPC | 147024 | 2008 $UE_{101}$ |
| 2008 $UG_{101}$ | 16.3 | 0.15 | 20100104 | 54.95717 | 66.39331 | 348.95429 | 3.60475 | 0.0667204 | 3.1642763 | 35 | 4 | 1997–2009 | 0.40 | M-v | 0 | MPC | 147024 | 2008 $UG_{101}$ |
| 2008 $UK_{101}$ | 17.8 | 0.15 | 20081001 | 225.55040 | 309.81696 | 223.09862 | 10.39326 | 0.1815305 | 2.3555045 | 11 | 1 | 18 days | 0.45 | | | MPC | | 2008 $UK_{101}$ |
| 2008 $UB_{102}$ | 18.7 | 0.15 | 20081001 | 349.55551 | 152.37046 | 242.45392 | 2.40591 | 0.0826249 | 2.2612821 | 10 | 1 | 17 days | 0.15 | | | MPC | | 2008 $UB_{102}$ |
| 2008 $UM_{103}$ | 17.5 | 0.15 | 20100104 | 105.17099 | 5.71561 | 49.23518 | 6.09418 | 0.0347189 | 2.3765637 | 17 | 1 | 72 days | 0.19 | M-v | 3 | MPC | | 2008 $UM_{103}$ |
| 2008 $UG_{104}$ | 18.9 | 0.15 | 20081001 | 4.20850 | 348.83232 | 25.76048 | 12.11961 | 0.2427844 | 2.5972918 | 19 | 1 | 28 days | 0.25 | | | MPC | | 2008 $UG_{104}$ |
| 2008 $UL_{104}$ | 16.9 | 0.15 | 20081001 | 100.39228 | 238.73622 | 34.30480 | 3.24786 | 0.1124667 | 2.7749884 | 14 | 1 | 20 days | 0.32 | | | MPC | | 2008 $UL_{104}$ |
| 2008 $UW_{104}$ | 17.1 | 0.15 | 20081001 | 348.47831 | 16.04059 | 27.13157 | 17.27184 | 0.2074089 | 3.1970829 | 11 | 1 | 20 days | 0.21 | | | MPC | | 2008 $UW_{104}$ |
| 2008 $UY_{104}$ | 16.8 | 0.15 | 20081001 | 54.75556 | 106.54984 | 212.97346 | 15.71516 | 0.1246734 | 3.2331949 | 11 | 1 | 20 days | 0.19 | | | MPC | | 2008 $UY_{104}$ |
| 2008 $UR_{105}$ | 17.7 | 0.15 | 20081021 | 1.09614 | 352.38893 | 37.12932 | 17.37287 | 0.2736525 | 2.7332469 | 19 | 1 | 53 days | 0.38 | | | MPC | | 2008 $UR_{105}$ |
| 2008 $UZ_{105}$ | 17.0 | 0.15 | 20081001 | 321.17282 | 59.57355 | 8.24544 | 10.86627 | 0.1726175 | 3.0852462 | 13 | 1 | 21 days | 0.24 | | | MPC | | 2008 $UZ_{105}$ |
| 2008 $UM_{106}$ | 17.2 | 0.15 | 20081001 | 323.19401 | 116.61999 | 308.25387 | 0.54259 | 0.1786268 | 3.0867396 | 17 | 1 | 19 days | 0.42 | | | MPC | | 2008 $UM_{106}$ |
| 2008 $US_{106}$ | 16.9 | 0.15 | 20081001 | 17.19861 | 353.36576 | 0.91718 | 4.23251 | 0.1015162 | 3.0311334 | 10 | 1 | 16 days | 0.23 | | | MPC | | 2008 $US_{106}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 $UT_{106}$ | 16.4 | 0.15 | 20100104 | 11.81008 | 237.24646 | 219.09446 | 2.66046 | 0.1021189 | 3.1206738 | 38 | 5 | 2003–2009 | 0.23 | M-v | 0 | MPC | 150530 | 2008 $UT_{106}$ |
| 2008 $UN_{107}$ | 16.8 | 0.15 | 20081001 | 359.41114 | 270.77655 | 105.05535 | 5.88833 | 0.2326350 | 3.2280163 | 15 | 1 | 19 days | 0.31 | | | MPC | | 2008 $UN_{107}$ |
| 2008 $UV_{107}$ | 17.1 | 0.15 | 20081001 | 323.97922 | 255.74690 | 166.38757 | 12.23214 | 0.0937423 | 3.0867832 | 16 | 1 | 34 days | 0.39 | | | MPC | | 2008 $UV_{107}$ |
| 2008 $UK_{108}$ | 17.7 | 0.15 | 20081021 | 45.89049 | 323.77923 | 9.60858 | 3.98593 | 0.2688206 | 2.5909790 | 12 | 1 | 16 days | 0.54 | | | MPC | | 2008 $UK_{108}$ |
| 2008 $UM_{109}$ | 13.7 | 0.15 | 20081001 | 131.62088 | 232.57105 | 4.81163 | 7.29146 | 0.0316800 | 5.1042575 | 9 | 1 | 26 days | 0.66 | | E | MPC | | 2008 $UM_{109}$ |
| 2008 $UO_{109}$ | 14.0 | 0.15 | 20081001 | 232.45032 | 297.39005 | 210.04986 | 18.60297 | 0.0486201 | 5.1787994 | 13 | 1 | 53 days | 0.16 | | | MPC | | 2008 $UO_{109}$ |
| 2008 $UE_{110}$ | 16.3 | 0.15 | 20081021 | 113.16852 | 343.45217 | 291.78667 | 4.74706 | 0.1016899 | 2.7777800 | 9 | 1 | 18 days | 0.11 | | | MPC | | 2008 $UE_{110}$ |
| 2008 $UF_{110}$ | 17.1 | 0.15 | 20100104 | 306.66886 | 263.83752 | 293.49832 | 4.66685 | 0.1317712 | 2.6727025 | 29 | 6 | 2000–2009 | 0.32 | M-v | 0 | MPC | 157500 | 2008 $UF_{110}$ |
| 2008 $UN_{110}$ | 15.3 | 0.15 | 20100104 | 121.48053 | 68.50432 | 253.55355 | 7.15674 | 0.3451617 | 3.0721623 | 55 | 3 | 2003–2009 | 0.40 | M-v | 3 | MPC | 150531 | 2008 $UN_{110}$ |
| 2008 $UV_{112}$ | 18.7 | 0.15 | 20081021 | 15.88752 | 89.96226 | 282.69874 | 2.73178 | 0.1996094 | 2.5322221 | 12 | 1 | 31 days | 0.20 | | | MPC | | 2008 $UV_{112}$ |
| 2008 $UH_{113}$ | 17.4 | 0.15 | 20081001 | 19.80027 | 24.51406 | 347.71878 | 4.22395 | 0.0517643 | 2.7117834 | 9 | 1 | 19 days | 0.25 | | | MPC | | 2008 $UH_{113}$ |
| 2008 $UX_{114}$ | 16.6 | 0.15 | 20081021 | 355.73839 | 131.12692 | 277.71304 | 6.20636 | 0.1564218 | 3.2406343 | 12 | 1 | 18 days | 0.21 | | | MPC | | 2008 $UX_{114}$ |
| 2008 $UV_{115}$ | 17.2 | 0.15 | 20081001 | 74.06475 | 285.56918 | 19.70251 | 11.48212 | 0.1794537 | 2.6218607 | 13 | 1 | 26 days | 0.30 | | | MPC | | 2008 $UV_{115}$ |
| 2008 $UB_{117}$ | 17.3 | 0.15 | 20081001 | 92.56426 | 296.50848 | 353.97741 | 6.06954 | 0.1242410 | 2.4575854 | 10 | 1 | 27 days | 0.26 | | | MPC | | 2008 $UB_{117}$ |
| 2008 $UE_{117}$ | 17.3 | 0.15 | 20081001 | 335.36101 | 52.94553 | 26.70279 | 13.83917 | 0.2827846 | 3.1800782 | 13 | 1 | 28 days | 0.16 | | | MPC | | 2008 $UE_{117}$ |
| 2008 $UX_{117}$ | 17.1 | 0.15 | 20100104 | 198.93347 | 306.42851 | 356.96743 | 5.85842 | 0.1953622 | 2.3174510 | 33 | 3 | 2004–2008 | 0.38 | M-v | 3 | MPC | 150537 | 2008 $UX_{117}$ |
| 2008 $UN_{118}$ | 19.3 | 0.15 | 20081021 | 353.51095 | 81.36248 | 327.75429 | 2.93820 | 0.1616514 | 2.2679004 | 9 | 1 | 18 days | 0.15 | | | MPC | | 2008 $UN_{118}$ |
| 2008 $UU_{118}$ | 16.8 | 0.15 | 20081110 | 302.46818 | 220.14651 | 252.97496 | 7.39226 | 0.0691015 | 3.0236760 | 14 | 1 | 41 days | 0.21 | | | MPC | | 2008 $UU_{118}$ |
| 2008 $UA_{120}$ | 17.6 | 0.15 | 20081110 | 346.54757 | 51.69773 | 19.79115 | 13.62539 | 0.1860238 | 2.7298045 | 14 | 1 | 45 days | 0.16 | | | MPC | | 2008 $UA_{120}$ |
| 2008 $US_{121}$ | 16.4 | 0.15 | 20100104 | 25.67431 | 234.22783 | 248.70369 | 17.81301 | 0.1939586 | 3.1155266 | 24 | 1 | 87 days | 0.27 | M-v | 4 | MPC | | 2008 $US_{121}$ |
| 2008 $UD_{122}$ | 18.9 | 0.15 | 20081110 | 11.87666 | 68.62198 | 322.88814 | 4.32047 | 0.2332448 | 2.5375695 | 16 | 1 | 40 days | 0.34 | | | MPC | | 2008 $UD_{122}$ |
| 2008 $UP_{122}$ | 19.2 | 0.15 | 20081021 | 8.11247 | 92.62047 | 297.86644 | 4.08772 | 0.1823525 | 2.1936418 | 15 | 1 | 16 days | 0.39 | | | MPC | | 2008 $UP_{122}$ |
| 2008 $UR_{122}$ | 18.0 | 0.15 | 20081021 | 182.49166 | 206.97381 | 17.78444 | 9.15307 | 0.0716099 | 2.2002638 | 9 | 1 | 12 days | 0.17 | | | MPC | | 2008 $UR_{122}$ |
| 2008 $UW_{128}$ | 16.9 | 0.15 | 20081001 | 276.31791 | 240.89785 | 230.98814 | 1.69376 | 0.1139321 | 2.6872747 | 18 | 1 | 49 days | 0.27 | | | MPC | | 2008 $UW_{128}$ |
| 2008 $UY_{128}$ | 14.0 | 0.15 | 20081001 | 89.81016 | 73.82387 | 199.66608 | 7.56628 | 0.0986394 | 5.1661951 | 10 | 1 | 16 days | 0.33 | | | MPC | | 2008 $UY_{128}$ |
| 2008 $UT_{129}$ | 18.5 | 0.15 | 20081021 | 19.45246 | 335.37080 | 23.39506 | 5.53310 | 0.2910283 | 2.6179619 | 21 | 1 | 55 days | 0.28 | | | MPC | | 2008 $UT_{129}$ |
| 2008 $UG_{133}$ | 17.4 | 0.15 | 20081021 | 14.70164 | 345.24236 | 36.24195 | 2.69291 | 0.1758771 | 3.1206182 | 15 | 1 | 26 days | 0.39 | | | MPC | | 2008 $UG_{133}$ |
| 2008 $UP_{134}$ | 19.0 | 0.15 | 20081001 | 48.81258 | 282.81299 | 34.46996 | 2.52365 | 0.2362087 | 2.2129197 | 13 | 1 | 30 days | 0.44 | | | MPC | | 2008 $UP_{134}$ |
| 2008 $UY_{134}$ | 17.1 | 0.15 | 20081021 | 245.83217 | 126.10169 | 42.56096 | 11.61116 | 0.1390850 | 2.7954678 | 12 | 1 | 27 days | 0.41 | | | MPC | | 2008 $UY_{134}$ |
| 2008 $UJ_{136}$ | 16.5 | 0.15 | 20081021 | 206.53282 | 340.01301 | 218.48252 | 8.40471 | 0.0368182 | 3.1436234 | 13 | 1 | 16 days | 0.38 | | | MPC | | 2008 $UJ_{136}$ |
| 2008 $UM_{137}$ | 17.3 | 0.15 | 20081021 | 28.98803 | 150.17711 | 217.01157 | 3.80629 | 0.0951961 | 2.7478357 | 10 | 1 | 17 days | 0.37 | | | MPC | | 2008 $UM_{137}$ |
| 2008 $UN_{138}$ | 16.4 | 0.15 | 20100104 | 106.25065 | 317.16436 | 47.89299 | 16.14693 | 0.1867985 | 3.0825586 | 16 | 1 | 61 days | 0.28 | M-v | 4 | MPC | | 2008 $UN_{138}$ |
| 2008 $UU_{138}$ | 17.3 | 0.15 | 20081001 | 42.37104 | 131.00393 | 189.13247 | 3.13193 | 0.1810582 | 2.9318414 | 17 | 1 | 21 days | 0.29 | | | MPC | | 2008 $UU_{138}$ |
| 2008 $UF_{140}$ | 18.1 | 0.15 | 20081021 | 14.07451 | 153.27496 | 224.59983 | 3.82975 | 0.1278885 | 2.5573609 | 17 | 1 | 28 days | 0.29 | | | MPC | | 2008 $UF_{140}$ |
| 2008 $UU_{141}$ | 16.2 | 0.15 | 20081021 | 338.69668 | 19.38076 | 53.22055 | 2.60073 | 0.0719215 | 3.0581711 | 20 | 1 | 59 days | 0.28 | | | MPC | | 2008 $UU_{141}$ |
| 2008 $UX_{141}$ | 17.4 | 0.15 | 20081021 | 328.47266 | 25.74447 | 66.29423 | 1.01163 | 0.1881375 | 2.9216290 | 16 | 1 | 28 days | 0.24 | | | MPC | | 2008 $UX_{141}$ |
| 2008 $UW_{142}$ | 17.9 | 0.15 | 20081021 | 283.69128 | 84.03257 | 54.21465 | 5.79753 | 0.1699919 | 2.3586395 | 19 | 1 | 28 days | 0.26 | | | MPC | | 2008 $UW_{142}$ |
| 2008 $UJ_{143}$ | 17.3 | 0.15 | 20081021 | 351.74278 | 342.67162 | 72.75286 | 2.05962 | 0.1424328 | 3.0401627 | 9 | 1 | 17 days | 0.18 | | | MPC | | 2008 $UJ_{143}$ |
| 2008 $UL_{144}$ | 17.4 | 0.15 | 20081021 | 194.50342 | 134.28327 | 79.85660 | 2.32753 | 0.1393182 | 2.2635334 | 9 | 1 | 17 days | 0.38 | | | MPC | | 2008 $UL_{144}$ |
| 2008 $UK_{148}$ | 18.7 | 0.15 | 20081021 | 17.14012 | 340.96296 | 38.98007 | 2.58472 | 0.2339078 | 2.6382968 | 16 | 1 | 29 days | 0.37 | | | MPC | | 2008 $UK_{148}$ |
| 2008 $UQ_{149}$ | 19.2 | 0.15 | 20081001 | 353.20661 | 219.05054 | 172.66332 | 1.90566 | 0.1374976 | 2.1550148 | 10 | 1 | 20 days | 0.22 | | | MPC | | 2008 $UQ_{149}$ |
| 2008 $UA_{150}$ | 16.6 | 0.15 | 20081001 | 73.08033 | 174.83837 | 121.87004 | 1.92568 | 0.1733537 | 3.2702976 | 13 | 1 | 34 days | 0.20 | | | MPC | | 2008 $UA_{150}$ |
| 2008 $UZ_{154}$ | 16.3 | 0.15 | 20081021 | 315.28051 | 40.91932 | 40.15600 | 10.88645 | 0.0242591 | 3.0911514 | 13 | 1 | 41 days | 0.44 | | | MPC | | 2008 $UZ_{154}$ |
| 2008 $UC_{155}$ | 16.2 | 0.15 | 20100104 | 262.68124 | 33.45982 | 182.04958 | 2.19222 | 0.0818520 | 2.9972556 | 58 | 9 | 1992–2009 | 0.33 | M-v | 0 | MPC | 150555 | 2008 $UC_{155}$ |
| 2008 $UM_{159}$ | | | 20081021 | 18.61734 | 91.32945 | 282.66119 | 5.51980 | 0.1971284 | 2.7149646 | 9 | 1 | 4 days | 0.15 | | | MPC | | 2008 $UM_{159}$ |
| 2008 $UV_{160}$ | 16.6 | 0.15 | 20081001 | 62.97686 | 41.28909 | 276.11144 | 10.59036 | 0.0324875 | 2.9872502 | 11 | 1 | 18 days | 0.21 | | | MPC | | 2008 $UV_{160}$ |
| 2008 $UY_{160}$ | 15.6 | 0.15 | 20081021 | 347.03633 | 139.65758 | 267.28285 | 20.39297 | 0.1668324 | 3.1158777 | 12 | 1 | 25 days | 0.73 | | | MPC | | 2008 $UY_{160}$ |
| 2008 $UG_{161}$ | 17.0 | 0.15 | 20081001 | 267.48203 | 194.77784 | 278.57721 | 2.89943 | 0.0621359 | 2.7995816 | 19 | 1 | 36 days | 0.27 | | | MPC | | 2008 $UG_{161}$ |
| 2008 $US_{161}$ | 17.1 | 0.15 | 20081001 | 33.54777 | 72.95303 | 258.48635 | 2.98787 | 0.1378534 | 3.0674803 | 12 | 1 | 35 days | 0.21 | | | MPC | | 2008 $US_{161}$ |
| 2008 $UD_{164}$ | 17.2 | 0.15 | 20081021 | 0.14618 | 147.61805 | 248.74185 | 5.36318 | 0.0397334 | 2.6828557 | 12 | 1 | 29 days | 0.26 | | | MPC | | 2008 $UD_{164}$ |
| 2008 $UE_{164}$ | 19.0 | 0.15 | 20081021 | 3.40557 | 169.07837 | 220.61949 | 20.66591 | 0.0840086 | 1.9096771 | 13 | 1 | 15 days | 0.17 | | | MPC | | 2008 $UE_{164}$ |
| 2008 $UH_{164}$ | 19.0 | 0.15 | 20081021 | 332.03729 | 208.70445 | 228.53236 | 8.40532 | 0.2052574 | 2.4582523 | 18 | 1 | 49 days | 0.28 | | | MPC | | 2008 $UH_{164}$ |
| 2008 $UJ_{164}$ | 17.6 | 0.15 | 20081021 | 345.59187 | 166.13691 | 245.53762 | 5.72782 | 0.1391239 | 3.0843630 | 13 | 1 | 41 days | 0.27 | | | MPC | | 2008 $UJ_{164}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 $UL_{164}$ | 17.9 | 0.15 | 20081021 | 48.56173 | 344.21974 | 338.44100 | 2.66784 | 0.2079081 | 2.5958876 | 14 | 1 | 13 days | 0.29 | | | MPC | | 2008 $UL_{164}$ |
| 2008 $UM_{164}$ | 18.8 | 0.15 | 20081021 | 17.33306 | 133.56463 | 233.57856 | 7.26293 | 0.1748579 | 2.5619586 | 10 | 1 | 13 days | 0.23 | | | MPC | | 2008 $UM_{164}$ |
| 2008 $UP_{164}$ | 17.6 | 0.15 | 20081001 | 325.29427 | 67.50231 | 358.70844 | 4.15138 | 0.0501031 | 2.7742953 | 13 | 1 | 17 days | 0.21 | | | MPC | | 2008 $UP_{164}$ |
| 2008 $UK_{165}$ | 18.8 | 0.15 | 20081021 | 35.99356 | 169.93221 | 174.69104 | 1.27385 | 0.2010234 | 2.4363498 | 10 | 1 | 24 days | 0.19 | | | MPC | | 2008 $UK_{165}$ |
| 2008 $UM_{166}$ | 16.2 | 0.15 | 20100104 | 158.14453 | 257.30913 | 57.61775 | 4.91316 | 0.0361883 | 3.2313746 | 31 | 4 | 2000–2009 | 0.40 | M-v | 0 | MPC | 147047 | 2008 $UM_{166}$ |
| 2008 $UQ_{166}$ | 18.3 | 0.15 | 20100104 | 184.06828 | 248.29846 | 69.03726 | 2.96189 | 0.2038062 | 2.3029718 | 19 | 1 | 75 days | 0.35 | M-v | 5 | MPC | | 2008 $UQ_{166}$ |
| 2008 $UN_{168}$ | 15.8 | 0.15 | 20100104 | 244.00727 | 167.77597 | 65.40582 | 6.49358 | 0.1167041 | 3.1632595 | 33 | 6 | 2000–2009 | 0.32 | M-v | 0 | MPC | 157175 | 2008 $UN_{168}$ |
| 2008 $UZ_{168}$ | 17.2 | 0.15 | 20081021 | 226.58318 | 117.71208 | 69.54160 | 6.74822 | 0.1703682 | 2.3903362 | 10 | 1 | 4 days | 0.47 | | | MPC | | 2008 $UZ_{168}$ |
| 2008 $UQ_{169}$ | 15.6 | 0.15 | 20100104 | 271.72588 | 153.39800 | 57.22885 | 17.56693 | 0.0947797 | 3.2204579 | 20 | 1 | 76 days | 0.38 | M-v | 4 | MPC | | 2008 $UQ_{169}$ |
| 2008 $UT_{169}$ | 16.5 | 0.15 | 20081021 | 33.84218 | 305.03842 | 57.85419 | 11.98492 | 0.0950849 | 2.9974559 | 21 | 1 | 57 days | 0.31 | | | MPC | | 2008 $UT_{169}$ |
| 2008 $UG_{170}$ | 15.3 | 0.15 | 20100104 | 31.64535 | 171.42382 | 266.69053 | 4.03671 | 0.1014121 | 3.2186898 | 58 | 7 | 1999–2009 | 0.40 | M-v | 0 | MPC | 166333 | 2008 $UG_{170}$ |
| 2008 $UM_{170}$ | 17.7 | 0.15 | 20081001 | 34.53832 | 37.84965 | 280.73197 | 3.23540 | 0.3008431 | 2.6096972 | 15 | 1 | 20 days | 0.33 | | | MPC | | 2008 $UM_{170}$ |
| 2008 $UN_{170}$ | 17.9 | 0.15 | 20081001 | 13.35963 | 108.01371 | 248.91637 | 4.52527 | 0.2210678 | 2.2139794 | 12 | 1 | 17 days | 0.32 | | | MPC | | 2008 $UN_{170}$ |
| 2008 $UX_{171}$ | 17.1 | 0.15 | 20081021 | 55.71461 | 285.47668 | 36.53530 | 5.85790 | 0.2734809 | 3.0101208 | 13 | 1 | 18 days | 0.32 | | | MPC | | 2008 $UX_{171}$ |
| 2008 $UN_{172}$ | 17.3 | 0.15 | 20081021 | 64.81474 | 87.65211 | 247.36438 | 3.24048 | 0.0550317 | 2.7907088 | 10 | 1 | 27 days | 0.45 | | E | MPC | | 2008 $UN_{172}$ |
| 2008 $UH_{173}$ | 18.3 | 0.15 | 20081021 | 58.24896 | 82.91326 | 233.65065 | 2.84650 | 0.2626260 | 2.3282652 | 13 | 1 | 27 days | 0.35 | | | MPC | | 2008 $UH_{173}$ |
| 2008 $UX_{173}$ | 16.2 | 0.15 | 20081001 | 84.06810 | 40.85801 | 237.80981 | 12.72485 | 0.1625511 | 2.6233233 | 12 | 1 | 17 days | 0.23 | | | MPC | | 2008 $UX_{173}$ |
| 2008 $UJ_{175}$ | 16.2 | 0.15 | 20081001 | 188.05150 | 303.47930 | 260.96346 | 4.07464 | 0.1430258 | 3.1385202 | 14 | 1 | 18 days | 0.26 | | | MPC | | 2008 $UJ_{175}$ |
| 2008 $UZ_{175}$ | 17.9 | 0.15 | 20081021 | 352.55200 | 148.47968 | 256.14977 | 2.23102 | 0.1610215 | 2.6704836 | 18 | 1 | 29 days | 0.30 | | | MPC | | 2008 $UZ_{175}$ |
| 2008 $UX_{176}$ | 18.1 | 0.15 | 20081021 | 33.29833 | 14.19588 | 342.70108 | 1.64057 | 0.0703924 | 2.3054667 | 14 | 1 | 24 days | 0.30 | | | MPC | | 2008 $UX_{176}$ |
| 2008 $UY_{177}$ | 16.5 | 0.15 | 20081021 | 41.69959 | 119.17363 | 230.97953 | 9.70684 | 0.0490604 | 3.0155839 | 18 | 1 | 41 days | 0.50 | | | MPC | | 2008 $UY_{177}$ |
| 2008 $UA_{178}$ | 17.6 | 0.15 | 20081021 | 140.95521 | 294.73049 | 313.20939 | 1.95035 | 0.1012353 | 2.3849651 | 11 | 1 | 13 days | 0.34 | | | MPC | | 2008 $UA_{178}$ |
| 2008 $UB_{178}$ | 18.2 | 0.15 | 20081021 | 328.93830 | 54.98872 | 17.08178 | 5.46260 | 0.0957431 | 2.3566865 | 14 | 1 | 25 days | 0.35 | | | MPC | | 2008 $UB_{178}$ |
| 2008 $UR_{178}$ | 17.5 | 0.15 | 20081021 | 321.46078 | 213.61368 | 221.77431 | 20.72120 | 0.0530397 | 2.6581555 | 11 | 1 | 13 days | 0.25 | | | MPC | | 2008 $UR_{178}$ |
| 2008 $UD_{179}$ | 15.1 | 0.15 | 20081001 | 264.91010 | 176.18435 | 351.87566 | 3.60738 | 0.2277167 | 2.5014981 | 9 | 1 | 35 days | 0.29 | | | MPC | | 2008 $UD_{179}$ |
| 2008 $UX_{179}$ | 18.7 | 0.15 | 20081021 | 25.23459 | 19.57989 | 344.77375 | 1.80018 | 0.2320795 | 2.3402265 | 17 | 1 | 27 days | 0.22 | | | MPC | | 2008 $UX_{179}$ |
| 2008 $UR_{180}$ | 17.8 | 0.15 | 20081021 | 95.17921 | 269.23607 | 30.37927 | 4.76894 | 0.1482592 | 2.4193020 | 10 | 1 | 27 days | 0.24 | | | MPC | | 2008 $UR_{180}$ |
| 2008 $UZ_{180}$ | 16.1 | 0.15 | 20081110 | 112.88197 | 16.17242 | 265.39765 | 4.61260 | 0.2528394 | 2.5614799 | 14 | 1 | 44 days | 0.20 | | | MPC | | 2008 $UZ_{180}$ |
| 2008 $UV_{181}$ | 16.1 | 0.15 | 20100104 | 140.35010 | 157.19782 | 172.35037 | 3.69035 | 0.0643437 | 3.0742127 | 47 | 6 | 2002–2009 | 0.29 | M-v | 0 | MPC | 150569 | 2008 $UV_{181}$ |
| 2008 $UW_{181}$ | 16.3 | 0.15 | 20081001 | 337.74627 | 217.26446 | 200.53706 | 9.40597 | 0.0714366 | 3.1482021 | 13 | 1 | 34 days | 0.22 | | | MPC | | 2008 $UW_{181}$ |
| 2008 $UW_{182}$ | 15.9 | 0.15 | 20100104 | 167.05728 | 229.27280 | 75.95216 | 3.22688 | 0.0680196 | 2.9542092 | 39 | 4 | 2003–2009 | 0.46 | M-v | 1 | MPC | 155537 | 2008 $UW_{182}$ |
| 2008 $UV_{184}$ | 16.5 | 0.15 | 20081021 | 35.55310 | 319.00901 | 52.30804 | 2.08714 | 0.1164834 | 3.1724832 | 9 | 1 | 28 days | 0.17 | | | MPC | | 2008 $UV_{184}$ |
| 2008 $UC_{185}$ | 15.9 | 0.15 | 20100104 | 166.19221 | 5.46882 | 314.24155 | 0.81231 | 0.0885690 | 3.1636330 | 65 | 6 | 1999–2009 | 0.38 | M-v | 0 | MPC | 155537 | 2008 $UC_{185}$ |
| 2008 $UT_{188}$ | 17.2 | 0.15 | 20081021 | 309.51384 | 44.62133 | 47.79980 | 1.64225 | 0.0876362 | 2.7010321 | 16 | 1 | 49 days | 0.29 | | | MPC | | 2008 $UT_{188}$ |
| 2008 $US_{189}$ | 16.9 | 0.15 | 20100104 | 141.22157 | 295.32712 | 29.71425 | 3.26770 | 0.0886413 | 2.6694067 | 38 | 4 | 2004–2009 | 0.39 | M-v | 1 | MPC | 158175 | 2008 $US_{189}$ |
| 2008 $UW_{189}$ | 17.7 | 0.15 | 20081001 | 2.97626 | 296.96012 | 71.09704 | 2.91795 | 0.0407160 | 2.5907318 | 11 | 1 | 18 days | 0.20 | | | MPC | | 2008 $UW_{189}$ |
| 2008 $UB_{190}$ | 13.9 | 0.15 | 20100104 | 58.11226 | 279.98642 | 64.64789 | 3.30434 | 0.1233864 | 5.1759864 | 48 | 5 | 2003–2009 | 0.40 | M-v | 1 | MPC | 166333 | 2008 $UB_{190}$ |
| 2008 $UD_{190}$ | 18.1 | 0.15 | 20081001 | 337.81621 | 243.65873 | 158.88343 | 3.19926 | 0.1832394 | 2.4392127 | 14 | 1 | 18 days | 0.25 | | | MPC | | 2008 $UD_{190}$ |
| 2008 $UA_{192}$ | 16.0 | 0.15 | 20100104 | 89.70064 | 302.97630 | 107.21633 | 3.75164 | 0.0308844 | 2.6422892 | 66 | 7 | 1995–2009 | 0.46 | M-v | 0 | MPC | 157175 | 2008 $UA_{192}$ |
| 2008 $UE_{195}$ | 17.2 | 0.15 | 20081021 | 19.15381 | 280.51882 | 81.57556 | 12.56673 | 0.2219938 | 2.6892628 | 11 | 1 | 7 days | 0.18 | | | MPC | | 2008 $UE_{195}$ |
| 2008 $UV_{195}$ | 17.3 | 0.15 | 20081021 | 52.18331 | 258.36852 | 62.04879 | 29.02364 | 0.2048727 | 2.3804018 | 10 | 1 | 8 days | 0.52 | | | MPC | | 2008 $UV_{195}$ |
| 2008 $UC_{196}$ | 16.9 | 0.15 | 20081021 | 331.20996 | 335.39641 | 87.43833 | 6.35968 | 0.2014618 | 3.0993189 | 14 | 1 | 7 days | 0.23 | | | MPC | | 2008 $UC_{196}$ |
| 2008 $UE_{196}$ | 16.4 | 0.15 | 20081021 | 5.21884 | 313.31806 | 59.43535 | 9.83128 | 0.0904950 | 3.1680030 | 10 | 1 | 7 days | 0.23 | | | MPC | | 2008 $UE_{196}$ |
| 2008 $UR_{196}$ | 15.7 | 0.15 | 20100104 | 254.52649 | 90.76856 | 131.69064 | 2.96402 | 0.0827188 | 3.1648012 | 51 | 5 | 1999–2009 | 0.38 | M-v | 0 | MPC | 150577 | 2008 $UR_{196}$ |
| 2008 $UA_{197}$ | 16.6 | 0.15 | 20100104 | 349.19278 | 290.63529 | 241.71251 | 7.94821 | 0.0880803 | 2.6317457 | 52 | 6 | 1995–2009 | 0.40 | M-v | 1 | MPC | 152517 | 2008 $UA_{197}$ |
| 2008 $UC_{198}$ | 18.8 | 0.15 | 20081021 | 350.98211 | 323.30933 | 75.03686 | 6.02745 | 0.2807349 | 2.6102382 | 13 | 1 | 7 days | 0.29 | | | MPC | | 2008 $UC_{198}$ |
| 2008 $UP_{198}$ | 15.8 | 0.15 | 20081021 | 31.30581 | 314.02779 | 35.74295 | 21.67183 | 0.1583635 | 2.9699849 | 14 | 1 | 9 days | 0.59 | | | MPC | | 2008 $UP_{198}$ |
| 2008 $UL_{200}$ | 17.1 | 0.15 | 20100104 | 122.38068 | 156.71473 | 206.61249 | 1.53103 | 0.1541592 | 2.6827960 | 42 | 1 | 78 days | 0.47 | M-v | 4 | MPC | | 2008 $UL_{200}$ |
| 2008 $UG_{204}$ | 16.8 | 0.15 | 20081021 | 38.94683 | 333.15209 | 7.58230 | 8.85150 | 0.2120377 | 2.7345480 | 15 | 1 | 23 days | 0.60 | | | MPC | | 2008 $UG_{204}$ |
| 2008 $UT_{204}$ | 16.2 | 0.15 | 20081001 | 15.78312 | 63.70503 | 294.63710 | 5.42281 | 0.2167646 | 3.0527841 | 18 | 1 | 37 days | 0.46 | | | MPC | | 2008 $UT_{204}$ |
| 2008 $UP_{205}$ | 16.9 | 0.15 | 20081021 | 15.41478 | 36.92673 | 351.14973 | 1.58760 | 0.0743766 | 2.6550663 | 12 | 1 | 12 days | 0.29 | | | MPC | | 2008 $UP_{205}$ |
| 2008 $UF_{206}$ | 17.3 | 0.15 | 20081021 | 312.58355 | 257.23724 | 239.09878 | 24.19978 | 0.3865615 | 3.2602522 | 10 | 1 | 8 days | 0.24 | | | MPC | | 2008 $UF_{206}$ |
| 2008 $UG_{206}$ | 17.4 | 0.15 | 20081021 | 240.86052 | 200.34880 | 344.48307 | 5.08361 | 0.1741856 | 2.2990856 | 9 | 1 | 8 days | 0.40 | | | MPC | | 2008 $UG_{206}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 $UK_{206}$ | 16.6 | 0.15 | 20081021 | 5.10624 | 222.13320 | 159.46480 | 9.71339 | 0.1386621 | 2.8523446 | 19 | 1 | 44 days | 0.67 | | | MPC | | 2008 $UK_{206}$ |
| 2008 $US_{206}$ | 15.6 | 0.15 | 20081001 | 335.59470 | 251.22264 | 162.36712 | 21.70078 | 0.1889868 | 3.0939876 | 16 | 1 | 37 days | 0.47 | | | MPC | | 2008 $US_{206}$ |
| 2008 $UU_{206}$ | 15.9 | 0.15 | 20081001 | 41.80031 | 266.97119 | 88.16201 | 7.46651 | 0.0391338 | 2.7245517 | 11 | 1 | 22 days | 0.17 | | | MPC | | 2008 $UU_{206}$ |
| 2008 $UY_{206}$ | 17.5 | 0.15 | 20081021 | 62.10905 | 292.36059 | 8.92048 | 8.54804 | 0.1552857 | 2.5652750 | 9 | 1 | 10 days | 0.25 | | | MPC | | 2008 $UY_{206}$ |
| 2008 $UZ_{206}$ | 16.7 | 0.15 | 20081021 | 109.84307 | 40.29842 | 210.32225 | 4.78443 | 0.1805468 | 2.8100461 | 9 | 1 | 10 days | 0.26 | | | MPC | | 2008 $UZ_{206}$ |
| 2008 $UD_{207}$ | 17.5 | 0.15 | 20081001 | 19.62368 | 306.65368 | 44.70522 | 5.91378 | 0.0534443 | 2.5805814 | 13 | 1 | 27 days | 0.21 | | | MPC | | 2008 $UD_{207}$ |
| 2008 $UE_{207}$ | 18.5 | 0.15 | 20081001 | 348.21794 | 22.94311 | 25.29164 | 9.84766 | 0.2551115 | 2.7128512 | 9 | 1 | 33 days | 0.17 | | | MPC | | 2008 $UE_{207}$ |
| 2008 $UX_{207}$ | 17.2 | 0.15 | 20081001 | 27.33860 | 117.78548 | 242.84703 | 4.87526 | 0.0943478 | 2.8516333 | 9 | 1 | 20 days | 0.22 | | | MPC | | 2008 $UX_{207}$ |
| 2008 $UY_{207}$ | 18.3 | 0.15 | 20081021 | 37.87921 | 335.16151 | 15.84446 | 3.76748 | 0.1094850 | 2.5145258 | 15 | 1 | 45 days | 0.29 | | | MPC | | 2008 $UY_{207}$ |
| 2008 $UP_{208}$ | 17.0 | 0.15 | 20081021 | 354.12459 | 100.14216 | 306.76950 | 1.43989 | 0.1190103 | 3.0609614 | 12 | 1 | 48 days | 0.24 | | | MPC | | 2008 $UP_{208}$ |
| 2008 $US_{209}$ | 19.2 | 0.15 | 20081021 | 328.67459 | 164.76287 | 275.18337 | 1.37676 | 0.1800832 | 2.3450315 | 9 | 1 | 8 days | 0.37 | | | MPC | | 2008 $US_{209}$ |
| 2008 $UV_{209}$ | 18.0 | 0.15 | 20081021 | 305.80639 | 221.36051 | 247.27453 | 2.34919 | 0.1714602 | 2.5324340 | 18 | 1 | 45 days | 0.36 | | | MPC | | 2008 $UV_{209}$ |
| 2008 $UY_{209}$ | 17.9 | 0.15 | 20081021 | 351.77166 | 14.58260 | 33.23335 | 9.54434 | 0.1493987 | 2.8058534 | 15 | 1 | 28 days | 0.25 | | | MPC | | 2008 $UY_{209}$ |
| 2008 $UZ_{209}$ | 17.5 | 0.15 | 20081021 | 13.16761 | 353.91778 | 27.54555 | 5.99972 | 0.0788833 | 2.6699568 | 12 | 1 | 8 days | 0.34 | | | MPC | | 2008 $UZ_{209}$ |
| 2008 $UP_{210}$ | 15.9 | 0.15 | 20081021 | 190.81444 | 326.19759 | 246.47060 | 1.76332 | 0.2670420 | 2.7637854 | 9 | 1 | 7 days | 0.19 | | E | MPC | | 2008 $UP_{210}$ |
| 2008 $UR_{210}$ | 17.6 | 0.15 | 20081021 | 298.61238 | 85.03862 | 35.25342 | 12.33935 | 0.1939577 | 2.5740715 | 18 | 1 | 28 days | 0.17 | | | MPC | | 2008 $UR_{210}$ |
| 2008 $UT_{210}$ | 17.3 | 0.15 | 20081021 | 331.04499 | 50.59458 | 23.21431 | 1.93252 | 0.1069910 | 3.0343161 | 12 | 1 | 15 days | 0.26 | | | MPC | | 2008 $UT_{210}$ |
| 2008 $UV_{211}$ | 17.5 | 0.15 | 20081021 | 52.74233 | 66.48750 | 250.15000 | 11.17878 | 0.2893706 | 2.6501368 | 10 | 1 | 10 days | 0.22 | | | MPC | | 2008 $UV_{211}$ |
| 2008 $UD_{213}$ | 18.8 | 0.15 | 20081021 | 1.62918 | 154.65987 | 227.50358 | 6.67244 | 0.2090672 | 2.2171310 | 15 | 1 | 20 days | 0.67 | | | MPC | | 2008 $UD_{213}$ |
| 2008 $UL_{213}$ | 16.3 | 0.15 | 20081021 | 295.23949 | 91.44120 | 2.88423 | 8.70256 | 0.0243485 | 3.0277868 | 12 | 1 | 5 days | 0.48 | | | MPC | | 2008 $UL_{213}$ |
| 2008 $UO_{213}$ | 16.6 | 0.15 | 20081021 | 40.22550 | 330.52101 | 28.45730 | 6.04501 | 0.1167438 | 3.1048788 | 9 | 1 | 9 days | 0.27 | | | MPC | | 2008 $UO_{213}$ |
| 2008 $UP_{214}$ | 17.3 | 0.15 | 20081021 | 12.13668 | 357.68129 | 12.87686 | 11.92263 | 0.2890144 | 2.7693880 | 17 | 1 | 10 days | 0.58 | | | MPC | | 2008 $UP_{214}$ |
| 2008 $UB_{215}$ | 16.3 | 0.15 | 20081021 | 47.88499 | 314.97513 | 12.92561 | 12.05853 | 0.2052010 | 2.6722863 | 16 | 1 | 24 days | 0.41 | | | MPC | | 2008 $UB_{215}$ |
| 2008 $UT_{215}$ | 18.7 | 0.15 | 20081021 | 15.84154 | 97.26288 | 263.25500 | 2.34266 | 0.4589110 | 3.1250909 | 9 | 1 | 5 days | 0.12 | | | MPC | | 2008 $UT_{215}$ |
| 2008 $UD_{216}$ | 16.2 | 0.15 | 20100104 | 164.91032 | 206.03584 | 124.20579 | 11.88714 | 0.1418094 | 2.5520966 | 42 | 5 | 2004–2009 | 0.63 | M-v | 1 | MPC | 155539 | 2008 $UD_{216}$ |
| 2008 $UD_{217}$ | 18.3 | 0.15 | 20081001 | 331.71104 | 266.55763 | 143.68757 | 1.78900 | 0.1725884 | 2.3750361 | 11 | 1 | 21 days | 0.20 | | | MPC | | 2008 $UD_{217}$ |
| 2008 $UG_{217}$ | 16.0 | 0.15 | 20081021 | 125.57034 | 197.01714 | 40.65419 | 5.44499 | 0.1530970 | 3.0833425 | 18 | 1 | 24 days | 0.30 | | | MPC | | 2008 $UG_{217}$ |
| 2008 $UA_{218}$ | 19.1 | 0.15 | 20081021 | 345.88491 | 177.35406 | 245.86284 | 5.71510 | 0.2410792 | 2.6064674 | 9 | 1 | 8 days | 0.22 | | E | MPC | | 2008 $UA_{218}$ |
| 2008 $UC_{218}$ | 19.1 | 0.15 | 20081021 | 1.14928 | 117.96410 | 279.59311 | 2.70520 | 0.2090366 | 2.3975193 | 9 | 1 | 8 days | 0.31 | | | MPC | | 2008 $UC_{218}$ |
| 2008 $UK_{218}$ | 17.4 | 0.15 | 20081021 | 46.29215 | 2.83025 | 337.66529 | 2.42369 | 0.1625985 | 2.5812021 | 9 | 1 | 8 days | 0.21 | | | MPC | | 2008 $UK_{218}$ |
| 2008 $UX_{218}$ | 17.3 | 0.15 | 20081021 | 45.62063 | 96.06181 | 240.24726 | 8.37486 | 0.2077002 | 3.2616452 | 9 | 1 | 8 days | 0.32 | | | MPC | | 2008 $UX_{218}$ |
| 2008 $UY_{218}$ | 16.2 | 0.15 | 20081001 | 94.74088 | 263.83029 | 32.67970 | 9.45514 | 0.0752767 | 3.1743931 | 16 | 1 | 44 days | 0.28 | | | MPC | | 2008 $UY_{218}$ |
| 2008 $UE_{219}$ | 17.1 | 0.15 | 20081021 | 59.53042 | 85.14374 | 250.90442 | 4.94812 | 0.0643864 | 2.7832500 | 9 | 1 | 8 days | 0.25 | | | MPC | | 2008 $UE_{219}$ |
| 2008 $UF_{219}$ | 16.2 | 0.15 | 20081021 | 255.49281 | 289.09902 | 235.04994 | 11.86692 | 0.1562991 | 3.0432363 | 9 | 1 | 8 days | 0.26 | | | MPC | | 2008 $UF_{219}$ |
| 2008 $UH_{219}$ | 17.4 | 0.15 | 20081021 | 292.14722 | 101.56403 | 33.81285 | 10.55389 | 0.2191590 | 2.7689457 | 12 | 1 | 12 days | 0.33 | | | MPC | | 2008 $UH_{219}$ |
| 2008 $UK_{219}$ | 17.0 | 0.15 | 20081021 | 207.53156 | 329.32325 | 236.90964 | 7.48026 | 0.2651068 | 2.2351035 | 9 | 1 | 8 days | 0.18 | | | MPC | | 2008 $UK_{219}$ |
| 2008 $UM_{219}$ | 16.5 | 0.15 | 20081001 | 294.20740 | 233.69217 | 237.98776 | 8.36535 | 0.0543917 | 3.1578257 | 13 | 1 | 35 days | 0.22 | | | MPC | | 2008 $UM_{219}$ |
| 2008 $UO_{219}$ | 18.3 | 0.15 | 20081021 | 7.77801 | 159.90646 | 226.49707 | 16.01935 | 0.2595898 | 2.7521642 | 9 | 1 | 6 days | 0.14 | | | MPC | | 2008 $UO_{219}$ |
| 2008 $UQ_{219}$ | 17.0 | 0.15 | 20081021 | 279.66734 | 135.67080 | 357.96133 | 2.20753 | 0.0896832 | 2.6760027 | 9 | 1 | 8 days | 0.23 | | | MPC | | 2008 $UQ_{219}$ |
| 2008 $UU_{219}$ | 17.3 | 0.15 | 20081001 | 13.90836 | 336.63271 | 34.34165 | 7.44406 | 0.2650223 | 3.0343059 | 13 | 1 | 31 days | 0.14 | | | MPC | | 2008 $UU_{219}$ |
| 2008 $UV_{219}$ | 16.8 | 0.15 | 20081001 | 39.97072 | 302.64288 | 38.57795 | 16.36887 | 0.2029467 | 3.1433800 | 13 | 1 | 35 days | 0.25 | | | MPC | | 2008 $UV_{219}$ |
| 2008 $UZ_{219}$ | 18.2 | 0.15 | 20081021 | 33.39794 | 335.05474 | 25.25247 | 3.43136 | 0.1091515 | 2.4011347 | 9 | 1 | 6 days | 0.22 | | | MPC | | 2008 $UZ_{219}$ |
| 2008 $UA_{220}$ | 17.6 | 0.15 | 20081021 | 51.65692 | 276.31481 | 38.59591 | 14.35726 | 0.3240961 | 2.7250273 | 9 | 1 | 8 days | 0.20 | | | MPC | | 2008 $UA_{220}$ |
| 2008 $UC_{220}$ | 16.7 | 0.15 | 20081021 | 167.69328 | 276.57381 | 318.27278 | 1.55922 | 0.1021780 | 2.8419927 | 9 | 1 | 8 days | 0.26 | | | MPC | | 2008 $UC_{220}$ |
| 2008 $UE_{220}$ | 16.8 | 0.15 | 20100104 | 359.24015 | 269.89183 | 253.85002 | 2.95066 | 0.1421405 | 2.5829470 | 46 | 6 | 2001–2009 | 0.34 | M-v | 0 | MPC | 149132 | 2008 $UE_{220}$ |
| 2008 $UK_{220}$ | 15.8 | 0.15 | 20081021 | 223.67861 | 314.53301 | 235.07602 | 11.39652 | 0.1022118 | 3.1431319 | 9 | 1 | 8 days | 0.31 | | | MPC | | 2008 $UK_{220}$ |
| 2008 $UL_{220}$ | 19.6 | 0.15 | 20081110 | 345.66438 | 201.59761 | 230.31596 | 8.27990 | 0.2307276 | 2.2327419 | 13 | 1 | 38 days | 0.20 | | | MPC | | 2008 $UL_{220}$ |
| 2008 $UP_{220}$ | 17.5 | 0.15 | 20081021 | 25.02363 | 120.66140 | 242.88176 | 5.11752 | 0.2379945 | 3.2587922 | 9 | 1 | 8 days | 0.21 | | | MPC | | 2008 $UP_{220}$ |
| 2008 $UV_{220}$ | 17.1 | 0.15 | 20081021 | 348.65416 | 103.91870 | 301.80819 | 11.56816 | 0.2680828 | 2.6988335 | 21 | 1 | 29 days | 0.63 | | | MPC | | 2008 $UV_{220}$ |
| 2008 $UH_{221}$ | 17.0 | 0.15 | 20081021 | 32.88789 | 69.33957 | 287.20183 | 5.04162 | 0.2104076 | 2.9922581 | 10 | 1 | 5 days | 0.33 | | | MPC | | 2008 $UH_{221}$ |
| 2008 $UK_{221}$ | 18.6 | 0.15 | 20081021 | 9.17009 | 136.83209 | 251.17907 | 8.21871 | 0.2288533 | 2.5980000 | 13 | 1 | 8 days | 0.31 | | | MPC | | 2008 $UK_{221}$ |
| 2008 $UG_{222}$ | 18.6 | 0.15 | 20081021 | 27.24169 | 343.19263 | 12.76575 | 5.28961 | 0.2681495 | 2.6456358 | 9 | 1 | 5 days | 0.35 | | | MPC | | 2008 $UG_{222}$ |
| 2008 $UJ_{222}$ | 17.3 | 0.15 | 20081021 | 31.30693 | 104.05934 | 244.58082 | 9.18511 | 0.2943141 | 3.1370892 | 9 | 1 | 8 days | 0.40 | | | MPC | | 2008 $UJ_{222}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 $UL_{222}$ | 16.3 | 0.15 | 20081021 | 92.48545 | 325.68828 | 340.28375 | 4.03115 | 0.0789844 | 3.1136562 | 10 | 1 | 5 days | 0.23 | | | MPC | | 2008 $UL_{222}$ |
| 2008 $UZ_{222}$ | 16.7 | 0.15 | 20081021 | 342.00952 | 32.69220 | 35.90041 | 14.28808 | 0.0790239 | 3.1263018 | 9 | 1 | 12 days | 0.14 | | | MPC | | 2008 $UZ_{222}$ |
| 2008 $UG_{223}$ | 17.5 | 0.15 | 20081021 | 214.27704 | 188.85169 | 10.76254 | 4.73001 | 0.1104028 | 2.3398376 | 12 | 1 | 12 days | 0.29 | | | MPC | | 2008 $UG_{223}$ |
| 2008 $UM_{223}$ | 15.5 | 0.15 | 20081021 | 204.84758 | 323.46389 | 246.54432 | 12.66402 | 0.0939575 | 3.4328658 | 9 | 1 | 8 days | 0.24 | | E | MPC | | 2008 $UM_{223}$ |
| 2008 $UA_{224}$ | 15.9 | 0.15 | 20081110 | 28.75452 | 119.27321 | 262.28460 | 11.01054 | 0.0860205 | 3.0923319 | 16 | 1 | 39 days | 0.35 | | | MPC | | 2008 $UA_{224}$ |
| 2008 $UC_{224}$ | 15.5 | 0.15 | 20081021 | 202.53863 | 281.45384 | 291.29923 | 7.86747 | 0.0432374 | 3.1765797 | 9 | 1 | 8 days | 0.28 | | | MPC | | 2008 $UC_{224}$ |
| 2008 $UE_{225}$ | 16.9 | 0.15 | 20081001 | 346.13167 | 21.53958 | 42.95726 | 26.45313 | 0.1169402 | 2.7706344 | 13 | 1 | 55 days | 0.18 | | | MPC | | 2008 $UE_{225}$ |
| 2008 $UY_{225}$ | 15.6 | 0.15 | 20100104 | 131.30555 | 84.08625 | 272.89007 | 12.96637 | 0.0978615 | 2.6038004 | 36 | 1 | 201 days | 0.50 | M-v | 4 | MPC | | 2008 $UY_{225}$ |
| 2008 $UA_{226}$ | 16.6 | 0.15 | 20081021 | 20.71355 | 63.20338 | 293.41625 | 10.09056 | 0.2810623 | 3.0896446 | 16 | 1 | 32 days | 0.48 | | | MPC | | 2008 $UA_{226}$ |
| 2008 $UR_{227}$ | 17.0 | 0.15 | 20081021 | 357.22217 | 49.18264 | 9.88835 | 2.84517 | 0.0866034 | 2.6794181 | 9 | 1 | 8 days | 0.27 | | | MPC | | 2008 $UR_{227}$ |
| 2008 $UC_{228}$ | 17.2 | 0.15 | 20081021 | 300.07609 | 233.26002 | 263.07953 | 3.25470 | 0.2224207 | 2.4815350 | 9 | 1 | 8 days | 0.70 | | E | MPC | | 2008 $UC_{228}$ |
| 2008 $UO_{228}$ | 16.9 | 0.15 | 20100104 | 112.35987 | 93.73756 | 251.46883 | 12.26282 | 0.4678662 | 2.7630908 | 41 | 1 | 217 days | 0.41 | M-v | 3 | MPC | | 2008 $UO_{228}$ |
| 2008 $UY_{229}$ | 17.4 | 0.15 | 20081110 | 297.41320 | 105.33919 | 32.83482 | 6.24158 | 0.1015599 | 2.2429712 | 14 | 1 | 37 days | 0.20 | | | MPC | | 2008 $UY_{229}$ |
| 2008 $UT_{230}$ | 13.9 | 0.15 | 20100104 | 38.48744 | 114.35119 | 260.10002 | 3.48475 | 0.1520095 | 5.2004246 | 45 | 3 | 2007–2009 | 0.36 | M-v | 2 | MPC | 166334 | 2008 $UT_{230}$ |
| 2008 $UL_{231}$ | 14.4 | 0.15 | 20081001 | 307.21424 | 97.08567 | 336.92266 | 5.99807 | 0.0555218 | 5.1212924 | 10 | 1 | 22 days | 0.29 | | | MPC | | 2008 $UL_{231}$ |
| 2008 $UR_{231}$ | 17.4 | 0.15 | 20081001 | 302.65911 | 192.20005 | 277.25174 | 4.18265 | 0.2044427 | 2.9077952 | 13 | 1 | 20 days | 0.43 | | | MPC | | 2008 $UR_{231}$ |
| 2008 $UT_{232}$ | 18.4 | 0.15 | 20081021 | 321.66566 | 96.61691 | 351.70265 | 1.61302 | 0.1724816 | 2.4024193 | 9 | 1 | 5 days | 0.24 | | | MPC | | 2008 $UT_{232}$ |
| 2008 $UO_{233}$ | 15.7 | 0.15 | 20081021 | 234.16760 | 263.66092 | 271.62432 | 7.78665 | 0.0545284 | 3.1646866 | 13 | 1 | 14 days | 0.20 | | | MPC | | 2008 $UO_{233}$ |
| 2008 $UP_{233}$ | 17.4 | 0.15 | 20081021 | 168.14547 | 229.56941 | 3.68622 | 6.91730 | 0.0710783 | 2.3476714 | 12 | 1 | 14 days | 0.27 | | | MPC | | 2008 $UP_{233}$ |
| 2008 $UC_{234}$ | 16.5 | 0.15 | 20081021 | 264.09781 | 265.40271 | 221.06960 | 15.68956 | 0.0658976 | 3.1805663 | 11 | 1 | 6 days | 0.31 | | | MPC | | 2008 $UC_{234}$ |
| 2008 $UR_{234}$ | 17.3 | 0.15 | 20081021 | 22.71432 | 35.19757 | 344.61748 | 5.30187 | 0.0426039 | 2.7284492 | 9 | 1 | 14 days | 0.24 | | | MPC | | 2008 $UR_{234}$ |
| 2008 $UM_{236}$ | 17.5 | 0.15 | 20081001 | 293.57761 | 250.96401 | 226.60993 | 13.20127 | 0.2370724 | 2.9982363 | 12 | 1 | 22 days | 0.31 | | | MPC | | 2008 $UM_{236}$ |
| 2008 $UN_{236}$ | 17.2 | 0.15 | 20081001 | 54.81226 | 50.00219 | 274.22793 | 5.06974 | 0.1497876 | 2.5135231 | 14 | 1 | 34 days | 0.27 | | | MPC | | 2008 $UN_{236}$ |
| 2008 $UO_{236}$ | 16.1 | 0.15 | 20081021 | 276.73458 | 116.99470 | 20.85253 | 11.47475 | 0.1150133 | 2.6043352 | 10 | 1 | 7 days | 0.14 | | | MPC | | 2008 $UO_{236}$ |
| 2008 $UR_{236}$ | 19.1 | 0.15 | 20081001 | 29.44082 | 9.31404 | 317.88380 | 3.47678 | 0.3952935 | 2.7798631 | 10 | 1 | 31 days | 0.26 | | | MPC | | 2008 $UR_{236}$ |
| 2008 $UH_{237}$ | 18.6 | 0.15 | 20081021 | 21.52210 | 27.82982 | 340.88272 | 3.49282 | 0.1836443 | 2.4030473 | 9 | 1 | 8 days | 0.19 | | | MPC | | 2008 $UH_{237}$ |
| 2008 $UR_{237}$ | 18.5 | 0.15 | 20081021 | 330.33427 | 58.24674 | 36.82901 | 27.70853 | 0.2958626 | 2.5962122 | 10 | 1 | 7 days | 0.21 | | | MPC | | 2008 $UR_{237}$ |
| 2008 $UC_{238}$ | 17.4 | 0.15 | 20100104 | 97.53863 | 38.36818 | 12.46206 | 5.34202 | 0.1878667 | 2.6010343 | 21 | 1 | 63 days | 0.50 | M-v | 4 | MPC | | 2008 $UC_{238}$ |
| 2008 $UL_{238}$ | 17.4 | 0.15 | 20081021 | 340.60765 | 46.49833 | 32.66916 | 14.28786 | 0.2816510 | 3.1505437 | 10 | 1 | 8 days | 0.41 | | | MPC | | 2008 $UL_{238}$ |
| 2008 $UQ_{238}$ | 17.2 | 0.15 | 20081021 | 348.16789 | 181.97839 | 235.05917 | 21.50670 | 0.0477102 | 2.5854669 | 8 | 1 | 7 days | 0.19 | | | MPC | | 2008 $UQ_{238}$ |
| 2008 $UV_{238}$ | 17.3 | 0.15 | 20081021 | 74.65419 | 285.42971 | 11.51712 | 7.64784 | 0.1579100 | 2.8647865 | 11 | 1 | 7 days | 0.24 | | | MPC | | 2008 $UV_{238}$ |
| 2008 $UK_{239}$ | 17.4 | 0.15 | 20081021 | 192.48377 | 242.56458 | 333.11739 | 6.41951 | 0.0894436 | 2.2543172 | 13 | 1 | 8 days | 0.41 | | | MPC | | 2008 $UK_{239}$ |
| 2008 $UO_{239}$ | 15.2 | 0.15 | 20081021 | 192.10224 | 296.60758 | 285.74356 | 9.84375 | 0.2359098 | 3.0513732 | 9 | 1 | 8 days | 0.17 | | | MPC | | 2008 $UO_{239}$ |
| 2008 $UR_{239}$ | 15.4 | 0.15 | 20100104 | 52.67227 | 116.86390 | 295.83184 | 7.73219 | 0.2321228 | 3.9575303 | 34 | 3 | 2007–2009 | 0.24 | M-v | 2 | MPC | 149133 | 2008 $UR_{239}$ |
| 2008 $UT_{239}$ | 17.8 | 0.15 | 20081021 | 119.77501 | 249.03216 | 34.31530 | 22.13702 | 0.0129513 | 1.8615015 | 10 | 1 | 6 days | 0.34 | | | MPC | | 2008 $UT_{239}$ |
| 2008 $UU_{239}$ | 16.0 | 0.15 | 20081021 | 52.47745 | 55.27674 | 283.47135 | 7.60051 | 0.1735030 | 3.1387039 | 9 | 1 | 8 days | 0.21 | | | MPC | | 2008 $UU_{239}$ |
| 2008 $UX_{239}$ | 17.0 | 0.15 | 20081021 | 45.84174 | 332.86257 | 13.97046 | 9.35823 | 0.1678628 | 2.7512866 | 9 | 1 | 12 days | 0.13 | | | MPC | | 2008 $UX_{239}$ |
| 2008 $UJ_{240}$ | 16.2 | 0.15 | 20081110 | 353.83624 | 36.83321 | 23.27390 | 12.81357 | 0.1198412 | 3.1225574 | 15 | 1 | 35 days | 0.58 | | | MPC | | 2008 $UJ_{240}$ |
| 2008 $UL_{240}$ | 17.2 | 0.15 | 20081021 | 29.35525 | 1.06447 | 2.68731 | 8.16447 | 0.1993534 | 3.1400254 | 9 | 1 | 8 days | 0.14 | | | MPC | | 2008 $UL_{240}$ |
| 2008 $UV_{240}$ | 16.6 | 0.15 | 20081110 | 24.33196 | 81.82202 | 298.92808 | 4.41983 | 0.1381266 | 2.6668668 | 12 | 1 | 35 days | 0.17 | | | MPC | | 2008 $UV_{240}$ |
| 2008 $UW_{240}$ | 16.4 | 0.15 | 20081021 | 92.31201 | 34.26205 | 274.56049 | 8.60364 | 0.0829255 | 3.1606947 | 9 | 1 | 12 days | 0.25 | | | MPC | | 2008 $UW_{240}$ |
| 2008 $UX_{241}$ | 16.0 | 0.15 | 20081001 | 332.80861 | 311.01058 | 105.32003 | 12.49315 | 0.1145652 | 2.6865793 | 16 | 1 | 32 days | 0.53 | | | MPC | | 2008 $UX_{241}$ |
| 2008 $UY_{241}$ | 17.2 | 0.15 | 20081021 | 18.58557 | 192.63752 | 162.82523 | 14.88098 | 0.2777779 | 2.6027213 | 17 | 1 | 15 days | 0.52 | | | MPC | | 2008 $UY_{241}$ |
| 2008 $UE_{242}$ | 16.6 | 0.15 | 20081021 | 11.10851 | 72.45461 | 327.91270 | 8.27131 | 0.0582180 | 3.2161644 | 12 | 1 | 12 days | 0.18 | | | MPC | | 2008 $UE_{242}$ |
| 2008 $UF_{242}$ | 18.1 | 0.15 | 20081021 | 351.11619 | 64.79054 | 357.62137 | 8.82395 | 0.1911363 | 2.7486120 | 9 | 1 | 8 days | 0.16 | | | MPC | | 2008 $UF_{242}$ |
| 2008 $UJ_{242}$ | 16.6 | 0.15 | 20081021 | 205.39553 | 219.21084 | 354.36816 | 9.13447 | 0.1181423 | 2.6852791 | 12 | 1 | 8 days | 0.24 | | | MPC | | 2008 $UJ_{242}$ |
| 2008 $UN_{242}$ | 16.2 | 0.15 | 20081021 | 244.32405 | 187.32511 | 351.61323 | 8.95169 | 0.0963000 | 2.7740967 | 9 | 1 | 8 days | 0.15 | | | MPC | | 2008 $UN_{242}$ |
| 2008 $UX_{242}$ | 16.2 | 0.15 | 20081021 | 340.14298 | 104.61288 | 338.35404 | 8.02201 | 0.1909650 | 3.1749822 | 9 | 1 | 8 days | 0.14 | | | MPC | | 2008 $UX_{242}$ |
| 2008 $UE_{243}$ | 17.7 | 0.15 | 20081021 | 109.80153 | 333.30533 | 309.98575 | 6.96505 | 0.1574041 | 2.2004601 | 12 | 1 | 12 days | 0.21 | | | MPC | | 2008 $UE_{243}$ |
| 2008 $UK_{243}$ | 17.4 | 0.15 | 20081021 | 69.28864 | 58.41928 | 264.70966 | 12.60334 | 0.1504862 | 2.5589865 | 9 | 1 | 8 days | 0.28 | | | MPC | | 2008 $UK_{243}$ |
| 2008 $UO_{243}$ | 16.5 | 0.15 | 20081021 | 65.23179 | 60.53952 | 280.23649 | 10.47175 | 0.0621833 | 3.0195144 | 9 | 1 | 8 days | 0.23 | | | MPC | | 2008 $UO_{243}$ |
| 2008 $UQ_{243}$ | 18.2 | 0.15 | 20081021 | 3.59787 | 89.61190 | 313.13014 | 5.93330 | 0.2243822 | 2.7569421 | 9 | 1 | 12 days | 0.12 | | | MPC | | 2008 $UQ_{243}$ |
| 2008 $UR_{243}$ | 16.7 | 0.15 | 20081021 | 338.68225 | 69.77862 | 5.34227 | 8.35568 | 0.0570212 | 2.5623626 | 11 | 1 | 27 days | 0.27 | | | MPC | | 2008 $UR_{243}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 $US_{243}$ | 18.2 | 0.15 | 20081021 | 1.94685 | 98.23796 | 307.08993 | 5.80611 | 0.1632318 | 2.3976771 | 9 | 1 | 8 days | 0.15 | | MPC | | 2008 $US_{243}$ |
| 2008 $UC_{244}$ | 16.3 | 0.15 | 20081110 | 209.57471 | 270.17200 | 307.85543 | 7.56416 | 0.1634588 | 2.7450571 | 10 | 1 | 39 days | 0.15 | | MPC | | 2008 $UC_{244}$ |
| 2008 $UR_{244}$ | 16.3 | 0.15 | 20100104 | 110.00942 | 131.31875 | 261.34513 | 15.84350 | 0.1421748 | 2.5548015 | 28 | 1 | 102 days | 0.50 | M-v 3 | MPC | | 2008 $UR_{244}$ |
| 2008 $UU_{244}$ | 17.4 | 0.15 | 20081021 | 2.64935 | 89.59955 | 301.32956 | 11.42879 | 0.2783153 | 2.6751409 | 20 | 1 | 40 days | 0.76 | | MPC | | 2008 $UU_{244}$ |
| 2008 $UC_{248}$ | 16.4 | 0.15 | 20081021 | 117.09910 | 216.23426 | 66.54813 | 18.67699 | 0.2412440 | 2.7377288 | 9 | 1 | 8 days | 0.28 | | MPC | | 2008 $UC_{248}$ |
| 2008 $UJ_{248}$ | 18.1 | 0.15 | 20081110 | 5.88186 | 334.99695 | 79.42045 | 3.72020 | 0.1346956 | 2.5958686 | 13 | 1 | 55 days | 0.26 | | MPC | | 2008 $UJ_{248}$ |
| 2008 $UM_{248}$ | 16.8 | 0.15 | 20081021 | 327.70081 | 13.42254 | 85.39207 | 2.96838 | 0.0937591 | 2.9729973 | 9 | 1 | 14 days | 0.49 | | MPC | | 2008 $UM_{248}$ |
| 2008 $UC_{249}$ | 15.7 | 0.15 | 20081021 | 98.40935 | 198.47551 | 51.55507 | 3.11845 | 0.2502489 | 3.1375751 | 9 | 1 | 3 days | 0.18 | | MPC | | 2008 $UC_{249}$ |
| 2008 $UN_{249}$ | 15.8 | 0.15 | 20100104 | 165.30792 | 251.41247 | 38.31765 | 10.52871 | 0.0567879 | 2.9136673 | 51 | 4 | 1998–2009 | 0.37 | M-v 3 | MPC | 159814 | 2008 $UN_{249}$ |
| 2008 $UP_{249}$ | 16.1 | 0.15 | 20081021 | 61.59363 | 276.84552 | 34.75530 | 12.20427 | 0.0075649 | 3.1031010 | 10 | 1 | 4 days | 0.17 | | MPC | | 2008 $UP_{249}$ |
| 2008 $UW_{249}$ | 16.8 | 0.15 | 20081021 | 113.03838 | 217.62704 | 44.31624 | 13.36782 | 0.2361088 | 2.6823412 | 18 | 1 | 44 days | 0.31 | | MPC | | 2008 $UW_{249}$ |
| 2008 $UF_{250}$ | 17.1 | 0.15 | 20081021 | 336.42057 | 246.00220 | 181.56936 | 4.85682 | 0.1440533 | 3.2294448 | 9 | 1 | 6 days | 0.31 | | MPC | | 2008 $UF_{250}$ |
| 2008 $UH_{250}$ | 18.0 | 0.15 | 20081021 | 9.02235 | 143.98486 | 248.12387 | 9.57708 | 0.0777972 | 2.5941822 | 10 | 1 | 8 days | 0.42 | | MPC | | 2008 $UH_{250}$ |
| 2008 $UB_{251}$ | 16.5 | 0.15 | 20081021 | 262.54840 | 175.66361 | 334.62836 | 0.66554 | 0.0926453 | 2.6885345 | 13 | 1 | 26 days | 0.28 | | MPC | | 2008 $UB_{251}$ |
| 2008 $UR_{251}$ | 17.8 | 0.15 | 20081021 | 337.44916 | 203.06929 | 226.54197 | 13.97080 | 0.0904963 | 2.6833487 | 9 | 1 | 11 days | 0.24 | | MPC | | 2008 $UR_{251}$ |
| 2008 $US_{252}$ | 17.3 | 0.15 | 20081021 | 35.25487 | 148.79371 | 214.13723 | 5.56292 | 0.0533922 | 2.6709535 | 13 | 1 | 12 days | 0.46 | | MPC | | 2008 $US_{252}$ |
| 2008 $UJ_{253}$ | 17.3 | 0.15 | 20100104 | 122.59250 | 162.28317 | 207.89416 | 1.87302 | 0.1302888 | 2.6933727 | 21 | 1 | 75 days | 0.31 | M-v 5 | MPC | | 2008 $UJ_{253}$ |
| 2008 $UK_{253}$ | 16.4 | 0.15 | 20081021 | 5.54808 | 174.57987 | 223.08230 | 9.08806 | 0.0597545 | 3.1418066 | 9 | 1 | 11 days | 0.32 | | MPC | | 2008 $UK_{253}$ |
| 2008 $UO_{253}$ | 16.7 | 0.15 | 20100104 | 251.70849 | 33.95377 | 218.96375 | 6.19208 | 0.0702050 | 2.5736139 | 41 | 8 | 1995–2009 | 0.45 | M-v 0 | MPC | 149135 | 2008 $UO_{253}$ |
| 2008 $UA_{255}$ | 15.2 | 0.15 | 20081001 | 45.59531 | 252.39443 | 71.37909 | 15.11866 | 0.1341097 | 3.1923536 | 20 | 1 | 42 days | 0.61 | | MPC | | 2008 $UA_{255}$ |
| 2008 $UG_{255}$ | 16.0 | 0.15 | 20100104 | 251.94208 | 178.80662 | 57.70503 | 4.05918 | 0.1335297 | 3.0369522 | 47 | 6 | 1995–2009 | 0.41 | M-v 0 | MPC | 150608 | 2008 $UG_{255}$ |
| 2008 $UO_{255}$ | 17.4 | 0.15 | 20081001 | 9.49091 | 222.27929 | 140.02640 | 6.54270 | 0.2007359 | 2.2250728 | 20 | 1 | 43 days | 0.51 | | MPC | | 2008 $UO_{255}$ |
| 2008 $UD_{257}$ | 16.3 | 0.15 | 20081021 | 5.10983 | 249.00032 | 140.81592 | 12.28752 | 0.1775144 | 2.7213772 | 20 | 1 | 43 days | 0.64 | | MPC | | 2008 $UD_{257}$ |
| 2008 $UM_{257}$ | 17.7 | 0.15 | 20081021 | 351.64814 | 167.36734 | 251.11211 | 3.36500 | 0.2064138 | 2.6034419 | 17 | 1 | 24 days | 0.32 | | MPC | | 2008 $UM_{257}$ |
| 2008 $UW_{257}$ | 17.7 | 0.15 | 20100104 | 46.02878 | 245.47367 | 255.11162 | 1.56841 | 0.1513923 | 2.3449281 | 29 | 1 | 82 days | 0.38 | M-v 4 | MPC | | 2008 $UW_{257}$ |
| 2008 $UX_{258}$ | 18.4 | 0.15 | 20081021 | 16.77666 | 145.61316 | 232.12894 | 12.91382 | 0.2752617 | 2.6147495 | 16 | 1 | 28 days | 0.28 | | MPC | | 2008 $UX_{258}$ |
| 2008 $UK_{259}$ | 17.1 | 0.15 | 20081001 | 8.50695 | 268.70264 | 101.75740 | 10.52421 | 0.2301757 | 2.6708630 | 16 | 1 | 34 days | 0.48 | | MPC | | 2008 $UK_{259}$ |
| 2008 $UK_{262}$ | 17.7 | 0.15 | 20081021 | 13.39790 | 24.42977 | 12.79532 | 7.53029 | 0.0957790 | 2.3538135 | 12 | 1 | 13 days | 0.19 | | MPC | | 2008 $UK_{262}$ |
| 2008 $UV_{263}$ | 18.6 | 0.15 | 20081021 | 44.69741 | 40.16165 | 274.98069 | 2.46146 | 0.2182341 | 2.2888057 | 12 | 1 | 15 days | 0.30 | | MPC | | 2008 $UV_{263}$ |
| 2008 $UC_{264}$ | 16.8 | 0.15 | 20100104 | 56.53986 | 14.65035 | 28.51236 | 5.97796 | 0.0159333 | 2.4208126 | 31 | 5 | 2001–2009 | 0.23 | M-v 0 | MPC | 160586 | 2008 $UC_{264}$ |
| 2008 $UD_{264}$ | 17.9 | 0.15 | 20081021 | 9.27785 | 16.57188 | 7.85866 | 7.67378 | 0.1378930 | 2.6151707 | 10 | 1 | 3 days | 0.21 | | MPC | | 2008 $UD_{264}$ |
| 2008 $UH_{264}$ | 19.2 | 0.15 | 20081001 | 354.65764 | 32.41474 | 1.67231 | 5.01266 | 0.2386364 | 2.2642184 | 12 | 1 | 21 days | 0.22 | | MPC | | 2008 $UH_{264}$ |
| 2008 $UO_{264}$ | 17.9 | 0.15 | 20081021 | 52.33609 | 69.17823 | 261.49322 | 5.40120 | 0.1387851 | 2.3264878 | 15 | 1 | 23 days | 0.25 | | MPC | | 2008 $UO_{264}$ |
| 2008 $UP_{264}$ | 16.9 | 0.15 | 20081021 | 352.37911 | 114.66456 | 291.95111 | 3.88471 | 0.0499809 | 2.7181010 | 19 | 1 | 50 days | 0.36 | | MPC | | 2008 $UP_{264}$ |
| 2008 $UU_{264}$ | 15.9 | 0.15 | 20081001 | 251.80018 | 129.47849 | 20.56462 | 11.36828 | 0.0475482 | 3.1639378 | 9 | 1 | 21 days | 0.21 | | MPC | | 2008 $UU_{264}$ |
| 2008 $UF_{265}$ | 16.1 | 0.15 | 20100104 | 232.37737 | 269.40750 | 334.25772 | 4.54602 | 0.1025125 | 3.1323355 | 44 | 7 | 1997–2009 | 0.41 | M-v 0 | MPC | 149136 | 2008 $UF_{265}$ |
| 2008 $UK_{265}$ | 18.1 | 0.15 | 20081021 | 61.00469 | 333.65227 | 333.78063 | 3.45064 | 0.2454898 | 2.2620099 | 12 | 1 | 23 days | 0.29 | | MPC | | 2008 $UK_{265}$ |
| 2008 $UU_{265}$ | 19.0 | 0.15 | 20081021 | 22.75408 | 77.79883 | 283.31092 | 3.03996 | 0.2018442 | 2.2873356 | 15 | 1 | 23 days | 0.19 | | MPC | | 2008 $UU_{265}$ |
| 2008 $UP_{266}$ | 16.0 | 0.15 | 20100104 | 139.48737 | 310.80675 | 13.32449 | 4.53231 | 0.1190626 | 3.2018980 | 52 | 7 | 2000–2009 | 0.41 | M-v 0 | MPC | 148683 | 2008 $UP_{266}$ |
| 2008 $UT_{266}$ | 18.2 | 0.15 | 20081110 | 56.10771 | 358.36465 | 334.17861 | 2.36305 | 0.1579127 | 2.4134996 | 12 | 1 | 27 days | 0.21 | | MPC | | 2008 $UT_{266}$ |
| 2008 $UN_{268}$ | 17.2 | 0.15 | 20081021 | 335.01170 | 10.16335 | 60.67437 | 5.07711 | 0.0874818 | 2.7833529 | 16 | 1 | 19 days | 0.30 | | MPC | | 2008 $UN_{268}$ |
| 2008 $UV_{268}$ | 16.0 | 0.15 | 20100104 | 263.08585 | 123.33918 | 99.11474 | 2.78094 | 0.1776475 | 3.0712581 | 44 | 8 | 1994–2009 | 0.48 | M-v 0 | MPC | 150615 | 2008 $UV_{268}$ |
| 2008 $UY_{269}$ | 17.4 | 0.15 | 20081021 | 25.39142 | 224.66063 | 144.37341 | 2.84878 | 0.1261148 | 2.8960254 | 18 | 1 | 12 days | 0.26 | | MPC | | 2008 $UY_{269}$ |
| 2008 $UT_{270}$ | 18.6 | 0.15 | 20081021 | 329.45332 | 225.44274 | 203.77817 | 10.20780 | 0.1729277 | 2.7747658 | 12 | 1 | 9 days | 0.34 | | MPC | | 2008 $UT_{270}$ |
| 2008 $UX_{270}$ | 16.2 | 0.15 | 20081021 | 282.36259 | 280.71681 | 201.75785 | 12.80536 | 0.1606249 | 3.2273674 | 12 | 1 | 9 days | 0.18 | | MPC | | 2008 $UX_{270}$ |
| 2008 $UD_{271}$ | 16.5 | 0.15 | 20100104 | 151.43414 | 337.26283 | 330.14882 | 16.70237 | 0.2522630 | 2.7104246 | 19 | 1 | 62 days | 0.56 | M-v 5 | MPC | | 2008 $UD_{271}$ |
| 2008 $UR_{271}$ | 16.2 | 0.15 | 20081021 | 175.19598 | 340.20880 | 249.35719 | 5.61127 | 0.1036621 | 2.4171496 | 9 | 1 | 12 days | 0.10 | | MPC | | 2008 $UR_{271}$ |
| 2008 $US_{271}$ | 18.2 | 0.15 | 20081021 | 295.93644 | 231.32512 | 251.10580 | 4.49544 | 0.1332041 | 2.3348944 | 9 | 1 | 12 days | 0.37 | | MPC | | 2008 $US_{271}$ |
| 2008 $UX_{271}$ | 16.9 | 0.15 | 20081021 | 35.36573 | 89.66516 | 273.28668 | 2.28897 | 0.1129292 | 3.1026294 | 9 | 1 | 12 days | 0.20 | | MPC | | 2008 $UX_{271}$ |
| 2008 $UA_{272}$ | 16.4 | 0.15 | 20081021 | 280.00128 | 124.44805 | 2.81693 | 3.16224 | 0.0038051 | 2.6745324 | 9 | 1 | 8 days | 0.15 | | MPC | | 2008 $UA_{272}$ |
| 2008 $UF_{272}$ | 17.3 | 0.15 | 20081021 | 128.34835 | 236.49196 | 33.41011 | 6.42128 | 0.1049420 | 2.4311195 | 9 | 1 | 12 days | 0.20 | | MPC | | 2008 $UF_{272}$ |
| 2008 $UJ_{272}$ | 16.2 | 0.15 | 20081021 | 52.23016 | 71.04456 | 266.60273 | 3.52285 | 0.1782724 | 3.2645700 | 13 | 1 | 12 days | 0.25 | | MPC | | 2008 $UJ_{272}$ |
| 2008 $UL_{272}$ | 17.1 | 0.15 | 20081021 | 282.93303 | 238.51555 | 254.93019 | 4.30736 | 0.0865356 | 2.5457545 | 10 | 1 | 12 days | 0.25 | | MPC | | 2008 $UL_{272}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 $UK_{273}$ | 18.7 | 0.15 | 20081021 | 10.25793 | 92.78272 | 282.97809 | 5.48643 | 0.1975622 | 2.3312715 | 12 | 1 | 12 days | 0.21 | | | MPC | | 2008 $UK_{273}$ |
| 2008 $UN_{273}$ | 17.0 | 0.15 | 20081021 | 27.05111 | 126.94032 | 233.06864 | 8.58173 | 0.2465675 | 3.2721915 | 9 | 1 | 4 days | 0.20 | | | MPC | | 2008 $UN_{273}$ |
| 2008 $UO_{273}$ | 17.3 | 0.15 | 20081021 | 302.83826 | 120.73520 | 10.93275 | 1.74961 | 0.2642742 | 2.9846887 | 9 | 1 | 5 days | 0.22 | | | MPC | | 2008 $UO_{273}$ |
| 2008 $US_{273}$ | 17.0 | 0.15 | 20081021 | 307.81675 | 66.84361 | 41.95788 | 12.28926 | 0.1101794 | 3.0237173 | 9 | 1 | 12 days | 0.30 | | | MPC | | 2008 $US_{273}$ |
| 2008 $UT_{273}$ | 15.3 | 0.15 | 20100104 | 74.60209 | 106.08529 | 280.27362 | 1.59565 | 0.0500521 | 3.9558043 | 28 | 4 | 2006–2009 | 0.29 | M-v | 1 | MPC | 150616 | 2008 $UT_{273}$ |
| 2008 $UB_{274}$ | 16.9 | 0.15 | 20081021 | 347.30234 | 188.50068 | 233.09657 | 9.85940 | 0.0813776 | 3.1341223 | 13 | 1 | 23 days | 0.18 | | | MPC | | 2008 $UB_{274}$ |
| 2008 $UT_{274}$ | 16.8 | 0.15 | 20081021 | 230.33251 | 313.14560 | 234.34385 | 2.37249 | 0.1173250 | 2.7045586 | 9 | 1 | 8 days | 0.22 | | | MPC | | 2008 $UT_{274}$ |
| 2008 $UF_{275}$ | 18.7 | 0.15 | 20081021 | 353.33402 | 164.59216 | 248.43168 | 1.03956 | 0.1423725 | 2.2488876 | 14 | 1 | 22 days | 0.15 | | | MPC | | 2008 $UF_{275}$ |
| 2008 $UU_{275}$ | 17.6 | 0.15 | 20081021 | 19.09020 | 25.94717 | 341.84128 | 0.34151 | 0.1951259 | 3.0350265 | 14 | 1 | 17 days | 0.37 | | | MPC | | 2008 $UU_{275}$ |
| 2008 $UZ_{276}$ | 16.2 | 0.15 | 20081021 | 338.16835 | 10.82084 | 52.72697 | 3.46214 | 0.0776252 | 3.1013814 | 20 | 1 | 53 days | 0.38 | | | MPC | | 2008 $UZ_{276}$ |
| 2008 $UH_{277}$ | 17.0 | 0.15 | 20100104 | 223.18801 | 209.39635 | 55.06219 | 0.70823 | 0.1767466 | 2.5474011 | 57 | 7 | 1998–2009 | 0.43 | M-v | 1 | MPC | 153691 | 2008 $UH_{277}$ |
| 2008 $US_{277}$ | 17.7 | 0.15 | 20081021 | 332.14519 | 35.41918 | 38.71902 | 5.54217 | 0.1712450 | 2.5789324 | 15 | 1 | 56 days | 0.21 | | | MPC | | 2008 $US_{277}$ |
| 2008 $UY_{277}$ | 17.2 | 0.15 | 20081021 | 350.40926 | 181.67720 | 230.30752 | 0.48285 | 0.2190018 | 3.9510103 | 11 | 1 | 9 days | 0.29 | | E | MPC | | 2008 $UY_{277}$ |
| 2008 $UA_{278}$ | 18.9 | 0.15 | 20081021 | 13.29888 | 148.88860 | 218.44352 | 6.05687 | 0.3339949 | 3.1007184 | 17 | 1 | 23 days | 0.33 | | | MPC | | 2008 $UA_{278}$ |
| 2008 $UB_{278}$ | 17.2 | 0.15 | 20081021 | 281.47327 | 100.34377 | 37.77130 | 17.23657 | 0.2016143 | 2.6069668 | 20 | 1 | 44 days | 0.26 | | | MPC | | 2008 $UB_{278}$ |
| 2008 $UN_{278}$ | 18.3 | 0.15 | 20081021 | 344.72917 | 46.82637 | 12.76060 | 0.36941 | 0.2092620 | 2.9295444 | 11 | 1 | 9 days | 0.32 | | | MPC | | 2008 $UN_{278}$ |
| 2008 $UX_{278}$ | 19.5 | 0.15 | 20081001 | 9.07057 | 327.01513 | 42.83098 | 5.88857 | 0.2414757 | 2.3880454 | 13 | 1 | 25 days | 0.17 | | | MPC | | 2008 $UX_{278}$ |
| 2008 $UY_{278}$ | 16.0 | 0.15 | 20100104 | 15.92536 | 57.96592 | 57.61141 | 1.96093 | 0.1422571 | 3.1029373 | 40 | 4 | 2004–2009 | 0.32 | M-v | 0 | MPC | 150620 | 2008 $UY_{278}$ |
| 2008 $UZ_{278}$ | 16.8 | 0.15 | 20081021 | 18.83062 | 329.84137 | 43.46600 | 9.78260 | 0.0934543 | 2.9942033 | 17 | 1 | 32 days | 0.26 | | | MPC | | 2008 $UZ_{278}$ |
| 2008 $UG_{281}$ | 15.6 | 0.15 | 20081021 | 168.31980 | 141.82628 | 83.82410 | 6.11600 | 0.0469426 | 2.7684911 | 26 | 1 | 5 days | 0.65 | | | MPC | | 2008 $UG_{281}$ |
| 2008 $UO_{281}$ | 16.0 | 0.15 | 20081021 | 166.95696 | 189.43600 | 58.83188 | 13.64776 | 0.1186503 | 3.1533800 | 9 | 1 | 8 days | 0.19 | | | MPC | | 2008 $UO_{281}$ |
| 2008 $UF_{283}$ | 17.7 | 0.15 | 20081021 | 115.81022 | 212.74694 | 59.33426 | 5.54803 | 0.0916023 | 2.2580378 | 6 | 1 | 52 days | 0.47 | | | MPC | | 2008 $UF_{283}$ |
| 2008 $UG_{283}$ | 16.2 | 0.15 | 20081110 | 354.71361 | 196.84474 | 213.66626 | 17.66610 | 0.1815951 | 3.1249302 | 20 | 1 | 41 days | 0.44 | | | MPC | | 2008 $UG_{283}$ |
| 2008 $UC_{286}$ | 17.7 | 0.15 | 20081001 | 33.88370 | 167.10493 | 170.49135 | 3.57055 | 0.2175543 | 2.5652300 | 13 | 1 | 34 days | 0.24 | | | MPC | | 2008 $UC_{286}$ |
| 2008 $UO_{286}$ | 17.0 | 0.15 | 20081021 | 40.06706 | 302.76279 | 49.41671 | 17.27688 | 0.0545375 | 2.7269528 | 13 | 1 | 50 days | 0.25 | | | MPC | | 2008 $UO_{286}$ |
| 2008 $UZ_{286}$ | 15.6 | 0.15 | 20100104 | 19.73916 | 323.51431 | 135.83100 | 3.81200 | 0.1189332 | 3.4187407 | 30 | 5 | 1995–2009 | 0.32 | M-v | 0 | MPC | 155544 | 2008 $UZ_{286}$ |
| 2008 $US_{287}$ | 17.6 | 0.15 | 20081021 | 124.03913 | 153.88345 | 117.43663 | 3.20846 | 0.0353129 | 2.5968639 | 10 | 1 | 20 days | 0.23 | | | MPC | | 2008 $US_{287}$ |
| 2008 $UX_{287}$ | 17.6 | 0.15 | 20081021 | 12.35555 | 323.02972 | 60.90836 | 6.35774 | 0.0453851 | 2.6484873 | 10 | 1 | 12 days | 0.28 | | | MPC | | 2008 $UX_{287}$ |
| 2008 $UH_{288}$ | 16.1 | 0.15 | 20100104 | 239.73477 | 122.25164 | 115.48620 | 3.04816 | 0.0691048 | 3.0641354 | 42 | 5 | 2003–2009 | 0.36 | M-v | 0 | MPC | 148688 | 2008 $UH_{288}$ |
| 2008 $UX_{288}$ | 16.2 | 0.15 | 20100104 | 170.64573 | 243.17031 | 68.71351 | 5.35519 | 0.0603195 | 2.8020918 | 33 | 3 | 2003–2009 | 0.29 | M-v | 2 | MPC | 160587 | 2008 $UX_{288}$ |
| 2008 $UB_{289}$ | 17.2 | 0.15 | 20081021 | 349.98802 | 348.81502 | 59.19915 | 7.13481 | 0.0554151 | 2.8304270 | 19 | 1 | 55 days | 0.29 | | | MPC | | 2008 $UB_{289}$ |
| 2008 $US_{289}$ | 17.7 | 0.15 | 20100104 | 66.99016 | 18.84957 | 104.68129 | 3.28588 | 0.1519605 | 2.3746737 | 24 | 1 | 65 days | 0.29 | M-v | 4 | MPC | | 2008 $US_{289}$ |
| 2008 $UW_{290}$ | 15.5 | 0.15 | 20081021 | 219.64980 | 299.37320 | 243.20266 | 9.48109 | 0.0511335 | 3.1758420 | 18 | 1 | 29 days | 0.28 | | | MPC | | 2008 $UW_{290}$ |
| 2008 $UK_{291}$ | 13.8 | 0.15 | 20081021 | 90.14282 | 237.05099 | 35.03413 | 5.09068 | 0.0915115 | 4.9444966 | 9 | 1 | 3 days | 0.19 | | E | MPC | | 2008 $UK_{291}$ |
| 2008 $UN_{291}$ | 17.4 | 0.15 | 20081021 | 315.09100 | 23.18132 | 48.67199 | 4.82732 | 0.0961220 | 2.6722865 | 9 | 1 | 10 days | 0.35 | | | MPC | | 2008 $UN_{291}$ |
| 2008 $UV_{291}$ | 16.3 | 0.15 | 20081021 | 268.47164 | 106.84619 | 26.73904 | 9.16632 | 0.0293392 | 3.0530437 | 15 | 1 | 45 days | 0.28 | | | MPC | | 2008 $UV_{291}$ |
| 2008 $UX_{291}$ | 19.0 | 0.15 | 20081021 | 344.51853 | 103.47560 | 315.80769 | 1.43764 | 0.1985638 | 2.4411948 | 15 | 1 | 49 days | 0.29 | | | MPC | | 2008 $UX_{291}$ |
| 2008 $UT_{292}$ | 17.7 | 0.15 | 20100104 | 100.85770 | 83.08669 | 283.64785 | 4.75753 | 0.2558860 | 2.6232612 | 25 | 1 | 93 days | 0.61 | M-v | 4 | MPC | | 2008 $UT_{292}$ |
| 2008 $UQ_{293}$ | 16.9 | 0.15 | 20081021 | 1.82821 | 152.93228 | 248.28855 | 8.20992 | 0.0399149 | 3.0764451 | 9 | 1 | 12 days | 0.27 | | | MPC | | 2008 $UQ_{293}$ |
| 2008 $UU_{293}$ | 15.8 | 0.15 | 20081021 | 183.34254 | 332.99017 | 248.69313 | 7.14444 | 0.1323074 | 2.9877496 | 9 | 1 | 12 days | 0.22 | | | MPC | | 2008 $UU_{293}$ |
| 2008 $UV_{294}$ | 16.8 | 0.15 | 20081021 | 350.24026 | 23.71092 | 33.38622 | 10.43206 | 0.0693597 | 3.1096426 | 9 | 1 | 8 days | 0.28 | | | MPC | | 2008 $UV_{294}$ |
| 2008 $UR_{295}$ | 17.7 | 0.15 | 20081021 | 7.71548 | 132.38729 | 255.68329 | 3.06349 | 0.2396972 | 2.9923460 | 12 | 1 | 12 days | 0.17 | | | MPC | | 2008 $UR_{295}$ |
| 2008 $UV_{295}$ | 16.9 | 0.15 | 20081021 | 139.87165 | 6.79237 | 253.51241 | 4.38552 | 0.0414382 | 2.5639008 | 9 | 1 | 8 days | 0.33 | | | MPC | | 2008 $UV_{295}$ |
| 2008 $UX_{295}$ | 16.9 | 0.15 | 20081001 | 67.10766 | 261.36197 | 39.68311 | 13.32603 | 0.2780909 | 3.0098924 | 10 | 1 | 31 days | 0.15 | | | MPC | | 2008 $UX_{295}$ |
| 2008 $UE_{296}$ | 17.3 | 0.15 | 20081001 | 1.05837 | 16.90663 | 18.63626 | 3.43938 | 0.2049061 | 3.1119579 | 13 | 1 | 44 days | 0.15 | | | MPC | | 2008 $UE_{296}$ |
| 2008 $UH_{296}$ | 17.7 | 0.15 | 20081021 | 300.47521 | 118.97999 | 357.39646 | 2.01581 | 0.1301524 | 2.5811424 | 12 | 1 | 12 days | 0.19 | | | MPC | | 2008 $UH_{296}$ |
| 2008 $UO_{296}$ | 17.9 | 0.15 | 20081021 | 255.40985 | 125.99686 | 32.09423 | 5.49275 | 0.0930415 | 2.4253550 | 9 | 1 | 4 days | 0.45 | | | MPC | | 2008 $UO_{296}$ |
| 2008 $UY_{296}$ | 17.5 | 0.15 | 20081110 | 355.31934 | 183.63258 | 231.82723 | 16.37724 | 0.1383707 | 2.8408690 | 14 | 1 | 34 days | 0.24 | | | MPC | | 2008 $UY_{296}$ |
| 2008 $UF_{297}$ | 17.2 | 0.15 | 20081021 | 299.72980 | 267.06821 | 198.59993 | 8.93688 | 0.0827558 | 3.1817784 | 12 | 1 | 13 days | 0.24 | | | MPC | | 2008 $UF_{297}$ |
| 2008 $UH_{297}$ | 16.6 | 0.15 | 20081021 | 295.34135 | 220.08907 | 257.38030 | 9.75335 | 0.0573983 | 3.1194780 | 15 | 1 | 11 days | 0.45 | | E | MPC | | 2008 $UH_{297}$ |
| 2008 $UJ_{297}$ | 16.8 | 0.15 | 20081021 | 56.68797 | 322.95508 | 20.14378 | 9.21426 | 0.0741893 | 3.1394967 | 12 | 1 | 4 days | 0.18 | | | MPC | | 2008 $UJ_{297}$ |
| 2008 $UK_{297}$ | 17.7 | 0.15 | 20081021 | 36.65389 | 68.33366 | 295.48220 | 4.89505 | 0.0718365 | 2.7967347 | 13 | 1 | 12 days | 0.28 | | | MPC | | 2008 $UK_{297}$ |
| 2008 $UL_{297}$ | 18.8 | 0.15 | 20081021 | 351.83697 | 116.97505 | 298.07945 | 3.69266 | 0.2058758 | 2.5248385 | 12 | 1 | 4 days | 0.44 | | | MPC | | 2008 $UL_{297}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 $UT_{297}$ | 17.9 | 0.15 | 20081021 | 194.53107 | 185.38124 | 26.57531 | 10.47146 | 0.0255327 | 2.3724523 | 12 | 1 | 12 days | 0.29 | | | MPC | | 2008 $UT_{297}$ |
| 2008 $UU_{297}$ | 17.2 | 0.15 | 20081021 | 265.11977 | 166.58928 | 343.80753 | 5.19149 | 0.0729427 | 2.8211911 | 10 | 1 | 4 days | 0.28 | | | MPC | | 2008 $UU_{297}$ |
| 2008 $UB_{298}$ | 17.7 | 0.15 | 20081021 | 83.12021 | 294.39382 | 6.13772 | 5.65152 | 0.2018169 | 2.4753050 | 10 | 1 | 4 days | 0.26 | | | MPC | | 2008 $UB_{298}$ |
| 2008 $UG_{298}$ | 16.0 | 0.15 | 20081021 | 73.89738 | 75.21715 | 243.33208 | 17.78253 | 0.1401012 | 3.1843760 | 15 | 1 | 16 days | 0.18 | | | MPC | | 2008 $UG_{298}$ |
| 2008 $UA_{299}$ | 18.0 | 0.15 | 20081110 | 345.64959 | 185.99684 | 243.56233 | 14.16989 | 0.0614422 | 2.5434009 | 14 | 1 | 32 days | 0.31 | | | MPC | | 2008 $UA_{299}$ |
| 2008 $UK_{299}$ | 17.1 | 0.15 | 20081021 | 151.26658 | 237.22285 | 12.48902 | 6.32800 | 0.1072675 | 2.5413009 | 13 | 1 | 8 days | 0.30 | | | MPC | | 2008 $UK_{299}$ |
| 2008 $UK_{300}$ | 13.4 | 0.15 | 20081001 | 269.42104 | 154.00808 | 314.55205 | 9.70064 | 0.0673929 | 5.1670511 | 12 | 1 | 31 days | 0.15 | | | MPC | | 2008 $UK_{300}$ |
| 2008 $UX_{300}$ | 16.8 | 0.15 | 20081110 | 342.66122 | 50.03549 | 25.98599 | 9.47749 | 0.0741644 | 3.1732699 | 13 | 1 | 35 days | 0.22 | | | MPC | | 2008 $UX_{300}$ |
| 2008 $UG_{301}$ | 15.8 | 0.15 | 20100104 | 155.77389 | 34.81280 | 275.62201 | 10.48319 | 0.1728624 | 2.6499112 | 40 | 5 | 2002–2009 | 0.47 | M-v | 1 | MPC | 166334 | 2008 $UG_{301}$ |
| 2008 $UP_{301}$ | 16.3 | 0.15 | 20081021 | 86.09440 | 59.82193 | 255.99063 | 10.61732 | 0.0903037 | 2.6090351 | 9 | 1 | 16 days | 0.30 | | | MPC | | 2008 $UP_{301}$ |
| 2008 $UQ_{301}$ | 16.3 | 0.15 | 20081110 | 80.10942 | 64.91690 | 255.96046 | 13.15883 | 0.1503758 | 3.0262459 | 12 | 1 | 41 days | 0.26 | | | MPC | | 2008 $UQ_{301}$ |
| 2008 $UV_{302}$ | 17.2 | 0.15 | 20081021 | 335.86843 | 43.65557 | 42.62236 | 6.84664 | 0.1223852 | 2.7107800 | 12 | 1 | 29 days | 0.20 | | | MPC | | 2008 $UV_{302}$ |
| 2008 $UO_{303}$ | 16.4 | 0.15 | 20100104 | 240.99971 | 24.38977 | 251.92351 | 7.55916 | 0.2146420 | 2.3728716 | 35 | 5 | 2000–2009 | 0.43 | M-v | 1 | MPC | 158176 | 2008 $UO_{303}$ |
| 2008 $UX_{304}$ | 16.9 | 0.15 | 20081001 | 24.97504 | 158.95824 | 207.45086 | 14.77638 | 0.1437876 | 2.8616495 | 12 | 1 | 28 days | 0.27 | | | MPC | | 2008 $UX_{304}$ |
| 2008 $UP_{305}$ | 16.8 | 0.15 | 20081001 | 18.69784 | 127.10839 | 222.88979 | 9.37725 | 0.1416581 | 3.0844186 | 12 | 1 | 37 days | 0.21 | | | MPC | | 2008 $UP_{305}$ |
| 2008 $UX_{305}$ | 19.0 | 0.15 | 20081021 | 18.07609 | 353.77306 | 13.43674 | 7.85079 | 0.2733634 | 2.5571504 | 10 | 1 | 11 days | 0.22 | | | MPC | | 2008 $UX_{305}$ |
| 2008 $UG_{306}$ | 16.2 | 0.15 | 20081001 | 242.42670 | 276.17689 | 248.91518 | 11.24157 | 0.0925118 | 3.0881916 | 14 | 1 | 41 days | 0.30 | | | MPC | | 2008 $UG_{306}$ |
| 2008 $UH_{306}$ | 17.5 | 0.15 | 20081021 | 215.62730 | 210.16511 | 344.15156 | 5.40583 | 0.1410334 | 2.3352088 | 10 | 1 | 7 days | 0.36 | | | MPC | | 2008 $UH_{306}$ |
| 2008 $UZ_{306}$ | 17.5 | 0.15 | 20081021 | 19.56393 | 70.38989 | 305.23037 | 6.32480 | 0.2223356 | 3.1968156 | 9 | 1 | 12 days | 0.18 | | | MPC | | 2008 $UZ_{306}$ |
| 2008 $UC_{307}$ | 16.8 | 0.15 | 20081110 | 308.23410 | 194.48434 | 276.66369 | 9.20498 | 0.0765815 | 2.8307337 | 16 | 1 | 40 days | 0.30 | | | MPC | | 2008 $UC_{307}$ |
| 2008 $UK_{307}$ | 17.3 | 0.15 | 20081021 | 343.67375 | 305.25501 | 120.85065 | 8.81728 | 0.3263125 | 2.6762360 | 24 | 1 | 54 days | 0.66 | | | MPC | | 2008 $UK_{307}$ |
| 2008 $UZ_{307}$ | 17.2 | 0.15 | 20081021 | 113.40022 | 28.13535 | 252.11369 | 13.74263 | 0.1264723 | 2.6026736 | 13 | 1 | 8 days | 0.39 | | | MPC | | 2008 $UZ_{307}$ |
| 2008 $UD_{308}$ | 16.5 | 0.15 | 20081021 | 86.54232 | 21.60227 | 284.14872 | 6.81836 | 0.1364582 | 3.1271899 | 10 | 1 | 11 days | 0.21 | | | MPC | | 2008 $UD_{308}$ |
| 2008 $UQ_{308}$ | 18.6 | 0.15 | 20081021 | 1.78360 | 92.52555 | 308.22727 | 3.89254 | 0.1529607 | 2.2401080 | 11 | 1 | 12 days | 0.36 | | | MPC | | 2008 $UQ_{308}$ |
| 2008 $UR_{308}$ | 16.9 | 0.15 | 20081021 | 257.44332 | 278.36950 | 241.48073 | 26.09391 | 0.0969372 | 2.5735700 | 12 | 1 | 12 days | 0.51 | | | MPC | | 2008 $UR_{308}$ |
| 2008 $UX_{308}$ | 16.6 | 0.15 | 20081021 | 261.51275 | 243.45981 | 273.15217 | 7.95443 | 0.0787298 | 2.7192356 | 9 | 1 | 12 days | 0.14 | | | MPC | | 2008 $UX_{308}$ |
| 2008 $UJ_{309}$ | 16.1 | 0.15 | 20100104 | 84.80216 | 68.64661 | 356.38043 | 8.46242 | 0.1316894 | 2.5992743 | 47 | 4 | 1991–2009 | 0.48 | M-v | 1 | MPC | 152520 | 2008 $UJ_{309}$ |
| 2008 $UC_{310}$ | 16.3 | 0.15 | 20081021 | 289.35691 | 222.57567 | 255.36321 | 11.90336 | 0.0927622 | 2.6990124 | 15 | 1 | 5 days | 0.40 | | | MPC | | 2008 $UC_{310}$ |
| 2008 $UO_{310}$ | 17.8 | 0.15 | 20081021 | 21.03553 | 112.31913 | 250.94285 | 13.29963 | 0.1924986 | 2.5666367 | 15 | 1 | 10 days | 0.64 | | | MPC | | 2008 $UO_{310}$ |
| 2008 $US_{310}$ | 16.6 | 0.15 | 20081021 | 8.19282 | 128.72510 | 253.06905 | 13.47432 | 0.2474527 | 3.2252012 | 12 | 1 | 7 days | 0.54 | | | MPC | | 2008 $US_{310}$ |
| 2008 $UD_{311}$ | 15.6 | 0.15 | 20100104 | 91.16268 | 16.90656 | 0.41213 | 14.91483 | 0.1985898 | 3.0665243 | 27 | 1 | 61 days | 0.44 | M-v | 4 | MPC | | 2008 $UD_{311}$ |
| 2008 $UR_{311}$ | 16.2 | 0.15 | 20081021 | 6.51730 | 62.48800 | 341.41848 | 8.50459 | 0.1405846 | 3.0880787 | 9 | 1 | 8 days | 0.47 | | | MPC | | 2008 $UR_{311}$ |
| 2008 $US_{311}$ | 16.9 | 0.15 | 20081021 | 38.09172 | 83.83500 | 267.65275 | 14.22481 | 0.2440693 | 3.1535567 | 9 | 1 | 12 days | 0.17 | | | MPC | | 2008 $US_{311}$ |
| 2008 $US_{312}$ | 17.2 | 0.15 | 20081110 | 22.39808 | 3.22761 | 11.19355 | 7.16595 | 0.2940887 | 2.5656627 | 22 | 1 | 44 days | 0.66 | | | MPC | | 2008 $US_{312}$ |
| 2008 $UT_{312}$ | 16.2 | 0.15 | 20081021 | 115.86099 | 341.74808 | 301.63486 | 7.41087 | 0.1661292 | 2.7400249 | 9 | 1 | 12 days | 0.18 | | | MPC | | 2008 $UT_{312}$ |
| 2008 $UH_{313}$ | 16.8 | 0.15 | 20100104 | 198.55007 | 317.28836 | 346.35988 | 6.99972 | 0.1234952 | 2.3838550 | 56 | 5 | 1999–2009 | 0.58 | M-v | 1 | MPC | 153692 | 2008 $UH_{313}$ |
| 2008 $UX_{313}$ | 15.9 | 0.15 | 20081021 | 321.40111 | 65.19282 | 14.07737 | 12.02891 | 0.0787409 | 3.1118639 | 11 | 1 | 8 days | 0.49 | | | MPC | | 2008 $UX_{313}$ |
| 2008 $UG_{314}$ | 16.5 | 0.15 | 20081021 | 42.86154 | 43.28784 | 300.48739 | 4.66452 | 0.0877074 | 2.7075437 | 18 | 1 | 19 days | 0.42 | | | MPC | | 2008 $UG_{314}$ |
| 2008 $UV_{314}$ | 16.2 | 0.15 | 20081021 | 155.94875 | 221.34875 | 25.93931 | 11.24484 | 0.0916990 | 2.5386246 | 13 | 1 | 31 days | 0.25 | | | MPC | | 2008 $UV_{314}$ |
| 2008 $UY_{314}$ | 18.6 | 0.15 | 20081110 | 321.03241 | 221.29089 | 245.09712 | 12.09770 | 0.2055977 | 2.6011467 | 11 | 1 | 33 days | 0.24 | | | MPC | | 2008 $UY_{314}$ |
| 2008 $UL_{315}$ | 18.7 | 0.15 | 20081001 | 7.14526 | 103.85031 | 266.80960 | 4.10497 | 0.1861172 | 2.1725731 | 14 | 1 | 38 days | 0.22 | | | MPC | | 2008 $UL_{315}$ |
| 2008 $UZ_{315}$ | 16.0 | 0.15 | 20100104 | 130.61739 | 78.31266 | 265.67982 | 4.99800 | 0.0755700 | 2.9033912 | 58 | 4 | 2003–2009 | 0.29 | M-v | 2 | MPC | 166334 | 2008 $UZ_{315}$ |
| 2008 $UL_{316}$ | 17.1 | 0.15 | 20081110 | 24.94519 | 321.23154 | 65.08678 | 18.37882 | 0.2155028 | 3.1623534 | 12 | 1 | 45 days | 0.21 | | | MPC | | 2008 $UL_{316}$ |
| 2008 $UR_{316}$ | 16.8 | 0.15 | 20081021 | 80.09893 | 180.29448 | 136.75842 | 1.27114 | 0.2028978 | 2.4442623 | 9 | 1 | 12 days | 0.31 | | | MPC | | 2008 $UR_{316}$ |
| 2008 $UY_{316}$ | 16.3 | 0.15 | 20081021 | 229.38428 | 144.54405 | 86.55663 | 5.73525 | 0.0493840 | 2.3396227 | 15 | 1 | 2 days | 0.58 | | E | MPC | | 2008 $UY_{316}$ |
| 2008 $UG_{317}$ | 18.2 | 0.15 | 20081110 | 325.46912 | 286.32788 | 165.72118 | 3.59162 | 0.1835533 | 2.7713505 | 10 | 1 | 30 days | 0.20 | | | MPC | | 2008 $UG_{317}$ |
| 2008 $UK_{317}$ | 16.6 | 0.15 | 20081001 | 13.53519 | 96.22444 | 258.42873 | 16.71576 | 0.1706345 | 2.7147323 | 21 | 1 | 41 days | 0.51 | | | MPC | | 2008 $UK_{317}$ |
| 2008 $UN_{317}$ | 17.3 | 0.15 | 20081021 | 56.75633 | 120.41927 | 206.15188 | 0.22574 | 0.1629482 | 3.1345633 | 9 | 1 | 5 days | 0.24 | | | MPC | | 2008 $UN_{317}$ |
| 2008 $UP_{317}$ | 17.7 | 0.15 | 20081001 | 9.25353 | 103.49085 | 256.94774 | 11.50265 | 0.3026763 | 2.5709009 | 23 | 1 | 45 days | 0.45 | | | MPC | | 2008 $UP_{317}$ |
| 2008 $UV_{317}$ | 16.7 | 0.15 | 20081021 | 25.83788 | 52.48494 | 313.91623 | 5.63104 | 0.0683056 | 2.7865307 | 14 | 1 | 22 days | 0.25 | | | MPC | | 2008 $UV_{317}$ |
| 2008 $US_{318}$ | 18.4 | 0.15 | 20081021 | 27.64783 | 33.03774 | 327.33378 | 5.05328 | 0.1325268 | 2.7837246 | 11 | 1 | 3 days | 0.44 | | | MPC | | 2008 $US_{318}$ |
| 2008 $UZ_{318}$ | 18.6 | 0.15 | 20081021 | 328.26733 | 106.77011 | 330.84043 | 4.53478 | 0.1442393 | 2.4504627 | 11 | 1 | 3 days | 0.29 | | | MPC | | 2008 $UZ_{318}$ |
| 2008 $UD_{319}$ | 16.9 | 0.15 | 20081021 | 98.03936 | 289.51473 | 358.79813 | 9.39870 | 0.0955419 | 3.0540914 | 12 | 1 | 22 days | 0.46 | | | MPC | | 2008 $UD_{319}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 $UG_{319}$ | 17.5 | 0.15 | 20081021 | 9.58115 | 110.79939 | 269.86357 | 6.36649 | 0.2007151 | 3.0612717 | 16 | 1 | 22 days | 0.34 | | | MPC | | 2008 $UG_{319}$ |
| 2008 $US_{319}$ | 15.5 | 0.15 | 20100104 | 284.01247 | 301.02209 | 256.73416 | 9.88553 | 0.1032873 | 3.0623009 | 32 | 5 | 1996–2009 | 0.32 | M-v | 1 | MPC | 155546 | 2008 $US_{319}$ |
| 2008 $UV_{320}$ | 18.0 | 0.15 | 20081021 | 60.49871 | 76.19032 | 228.77932 | 7.25413 | 0.2099950 | 2.2021430 | 21 | 1 | 57 days | 0.26 | | | MPC | | 2008 $UV_{320}$ |
| 2008 $UY_{320}$ | 16.7 | 0.15 | 20100104 | 8.17047 | 181.56569 | 325.63586 | 2.55673 | 0.1881296 | 2.5630530 | 36 | 3 | 2006–2009 | 0.47 | M-v | 2 | MPC | 164339 | 2008 $UY_{320}$ |
| 2008 $UG_{321}$ | 17.6 | 0.15 | 20081021 | 1.74567 | 31.38584 | 356.25614 | 6.01160 | 0.0536696 | 2.7673955 | 10 | 1 | 13 days | 0.23 | | | MPC | | 2008 $UG_{321}$ |
| 2008 $UN_{321}$ | 15.9 | 0.15 | 20081001 | 297.89653 | 226.20747 | 234.00603 | 10.21765 | 0.1202904 | 3.0888856 | 14 | 1 | 24 days | 0.17 | | | MPC | | 2008 $UN_{321}$ |
| 2008 $UR_{321}$ | 19.1 | 0.15 | 20081021 | 35.86154 | 50.55363 | 293.15571 | 3.26653 | 0.1297075 | 2.2900725 | 14 | 1 | 2 days | 0.22 | | E | MPC | | 2008 $UR_{321}$ |
| 2008 $UU_{321}$ | 17.2 | 0.15 | 20081021 | 232.05539 | 302.67892 | 225.31100 | 17.18009 | 0.1295495 | 2.5231129 | 10 | 1 | 11 days | 0.15 | | | MPC | | 2008 $UU_{321}$ |
| 2008 $UJ_{322}$ | 17.0 | 0.15 | 20081021 | 51.91598 | 328.99644 | 347.19893 | 6.37374 | 0.2060688 | 2.7398349 | 14 | 1 | 27 days | 0.29 | | | MPC | | 2008 $UJ_{322}$ |
| 2008 $UL_{322}$ | 18.5 | 0.15 | 20081001 | 340.78743 | 156.01116 | 257.58067 | 5.63628 | 0.2434820 | 2.6288123 | 14 | 1 | 39 days | 0.33 | | | MPC | | 2008 $UL_{322}$ |
| 2008 $UR_{322}$ | 17.3 | 0.15 | 20081021 | 15.28596 | 116.94103 | 251.72366 | 8.43386 | 0.1463296 | 2.9990805 | 14 | 1 | 28 days | 0.22 | | | MPC | | 2008 $UR_{322}$ |
| 2008 $UK_{323}$ | 16.3 | 0.15 | 20081021 | 35.59320 | 13.79188 | 330.33141 | 7.09523 | 0.2668488 | 3.0095316 | 16 | 1 | 10 days | 0.52 | | | MPC | | 2008 $UK_{323}$ |
| 2008 $UN_{326}$ | 17.0 | 0.15 | 20081021 | 28.30583 | 352.54728 | 0.98015 | 11.12563 | 0.2054912 | 2.5631637 | 20 | 1 | 25 days | 0.57 | | | MPC | | 2008 $UN_{326}$ |
| 2008 $UC_{327}$ | 17.0 | 0.15 | 20081110 | 308.26026 | 46.10670 | 60.53174 | 12.22126 | 0.1075497 | 3.1954367 | 13 | 1 | 21 days | 0.19 | | | MPC | | 2008 $UC_{327}$ |
| 2008 $UA_{328}$ | 16.0 | 0.15 | 20100104 | 215.06968 | 347.99514 | 252.26862 | 6.99419 | 0.0231131 | 3.1914690 | 31 | 5 | 2003–2009 | 0.26 | M-v | 0 | MPC | 150641 | 2008 $UA_{328}$ |
| 2008 $UG_{328}$ | 16.2 | 0.15 | 20081001 | 259.61512 | 236.15644 | 248.41855 | 7.03457 | 0.0541462 | 2.8457262 | 16 | 1 | 43 days | 0.28 | | | MPC | | 2008 $UG_{328}$ |
| 2008 $UL_{328}$ | 17.4 | 0.15 | 20081110 | 52.00897 | 85.60350 | 234.71619 | 12.45308 | 0.2369460 | 2.5194399 | 15 | 1 | 39 days | 0.68 | | | MPC | | 2008 $UL_{328}$ |
| 2008 $UR_{328}$ | 17.2 | 0.15 | 20081021 | 317.28383 | 155.99582 | 289.46946 | 3.76395 | 0.0903162 | 2.7625315 | 20 | 1 | 55 days | 0.38 | | | MPC | | 2008 $UR_{328}$ |
| 2008 $UY_{328}$ | 17.2 | 0.15 | 20081021 | 83.41273 | 65.38645 | 246.11293 | 10.56453 | 0.1004470 | 2.6243475 | 10 | 1 | 7 days | 0.24 | | | MPC | | 2008 $UY_{328}$ |
| 2008 $UJ_{330}$ | 18.2 | 0.15 | 20081021 | 286.37557 | 259.29433 | 227.38764 | 1.49850 | 0.1115299 | 2.4239987 | 9 | 1 | 15 days | 0.26 | | | MPC | | 2008 $UJ_{330}$ |
| 2008 $UN_{330}$ | 16.0 | 0.15 | 20081021 | 50.50687 | 299.94878 | 46.09759 | 9.02882 | 0.0709550 | 3.0607066 | 13 | 1 | 28 days | 0.22 | | | MPC | | 2008 $UN_{330}$ |
| 2008 $UW_{330}$ | 15.6 | 0.15 | 20100104 | 133.56185 | 277.45113 | 61.87146 | 5.51101 | 0.1400548 | 3.2084990 | 63 | 5 | 2000–2009 | 0.47 | M-v | 1 | MPC | 158626 | 2008 $UW_{330}$ |
| 2008 $UU_{331}$ | 16.2 | 0.15 | 20081021 | 28.83928 | 136.23522 | 268.67725 | 31.30720 | 0.2036810 | 2.6204558 | 12 | 1 | 14 days | 0.14 | | | MPC | | 2008 $UU_{331}$ |
| 2008 $UP_{332}$ | 13.8 | 0.15 | 20081001 | 349.84126 | 274.50134 | 116.36793 | 26.04664 | 0.3345964 | 5.5307477 | 5 | 1 | 26 days | 0.26 | | | MPC | | 2008 $UP_{332}$ |
| 2008 $UL_{335}$ | 16.5 | 0.15 | 20081110 | 298.38519 | 240.81124 | 247.96190 | 9.29651 | 0.1028853 | 3.1210050 | 17 | 1 | 58 days | 0.38 | | | MPC | | 2008 $UL_{335}$ |
| 2008 $UJ_{337}$ | 16.4 | 0.15 | 20100104 | 3.84533 | 210.36675 | 307.60943 | 4.16428 | 0.1236730 | 2.7659998 | 45 | 6 | 1998–2009 | 0.35 | M-v | 1 | MPC | 152521 | 2008 $UJ_{337}$ |
| 2008 $UL_{338}$ | 16.1 | 0.15 | 20100104 | 37.65119 | 213.14651 | 260.87111 | 10.72465 | 0.1493737 | 2.9968398 | 20 | 1 | 71 days | 0.49 | M-v | 4 | MPC | | 2008 $UL_{338}$ |
| 2008 $UL_{340}$ | 18.0 | 0.15 | 20100104 | 51.39396 | 198.66926 | 302.18894 | 1.39994 | 0.1591529 | 2.3691623 | 16 | 1 | 89 days | 0.24 | M-v | 4 | MPC | | 2008 $UL_{340}$ |
| 2008 $US_{341}$ | 17.8 | 0.15 | 20081021 | 298.04381 | 239.55000 | 233.36003 | 3.68715 | 0.0990757 | 2.2422871 | 16 | 1 | 24 days | 0.67 | | | MPC | | 2008 $US_{341}$ |
| 2008 $UH_{342}$ | 17.3 | 0.15 | 20081110 | 36.92415 | 116.55134 | 246.81338 | 8.42705 | 0.1738491 | 2.7432822 | 14 | 1 | 54 days | 0.18 | | | MPC | | 2008 $UH_{342}$ |
| 2008 $UX_{342}$ | 18.0 | 0.15 | 20081021 | 336.79564 | 203.79167 | 222.31972 | 19.17550 | 0.1070418 | 1.9609600 | 16 | 1 | 51 days | 0.46 | | | MPC | | 2008 $UX_{342}$ |
| 2008 $UD_{343}$ | 16.5 | 0.15 | 20100104 | 159.02887 | 77.56615 | 267.97966 | 8.82245 | 0.0613375 | 2.6963218 | 17 | 1 | 102 days | 0.31 | M-v | 4 | MPC | | 2008 $UD_{343}$ |
| 2008 $UR_{348}$ | 17.4 | 0.15 | 20100104 | 230.39064 | 20.37759 | 264.01413 | 5.93658 | 0.0905056 | 2.4349373 | 14 | 1 | 67 days | 0.36 | M-v | 5 | MPC | | 2008 $UR_{348}$ |
| 2008 $UT_{348}$ | 16.8 | 0.15 | 20100104 | 255.27524 | 5.18710 | 251.92950 | 12.47108 | 0.1206715 | 2.6215032 | 13 | 1 | 65 days | 0.29 | M-v | 5 | MPC | | 2008 $UT_{348}$ |
| 2008 $UA_{350}$ | 16.9 | 0.15 | 20081021 | 28.47984 | 359.19263 | 1.96403 | 7.70947 | 0.0841871 | 3.0388418 | 14 | 1 | 39 days | 0.57 | | | MPC | | 2008 $UA_{350}$ |
| 2008 $UO_{350}$ | 17.0 | 0.15 | 20081001 | 35.50288 | 77.22140 | 277.85054 | 1.42839 | 0.0691023 | 2.9589291 | 14 | 1 | 37 days | 0.32 | | | MPC | | 2008 $UO_{350}$ |
| 2008 $UT_{350}$ | 16.9 | 0.15 | 20100104 | 99.39340 | 198.95004 | 215.24007 | 7.76455 | 0.1160234 | 2.5695367 | 20 | 1 | 75 days | 0.25 | M-v | 3 | MPC | | 2008 $UT_{350}$ |
| 2008 $UT_{351}$ | 16.8 | 0.15 | 20081021 | 6.68953 | 320.27365 | 72.64231 | 15.18427 | 0.1872009 | 2.5990106 | 15 | 1 | 24 days | 0.54 | | | MPC | | 2008 $UT_{351}$ |
| 2008 $UU_{351}$ | 16.5 | 0.15 | 20081110 | 3.20511 | 236.70727 | 174.17443 | 8.19118 | 0.3171884 | 2.9773969 | 21 | 1 | 37 days | 0.38 | | | MPC | | 2008 $UU_{351}$ |
| 2008 $UW_{353}$ | 15.8 | 0.15 | 20100104 | 225.73848 | 129.99525 | 134.09668 | 1.78438 | 0.1320990 | 3.1138510 | 49 | 5 | 2000–2009 | 0.45 | M-v | 1 | MPC | 165629 | 2008 $UW_{353}$ |
| 2008 $UB_{355}$ | 15.2 | 0.15 | 20100104 | 276.64287 | 154.47718 | 60.38993 | 5.35345 | 0.1338564 | 3.2101181 | 36 | 4 | 2005–2009 | 0.44 | M-v | 1 | MPC | 165631 | 2008 $UB_{355}$ |
| 2008 $UQ_{360}$ | 17.5 | 0.15 | 20081110 | 356.65380 | 224.69905 | 186.63712 | 4.73864 | 0.0391921 | 2.6756145 | 14 | 1 | 38 days | 0.42 | | | MPC | | 2008 $UQ_{360}$ |
| 2008 $UY_{360}$ | 16.3 | 0.15 | 20100104 | 69.37111 | 6.71372 | 58.28175 | 14.62886 | 0.1655962 | 2.7337201 | 20 | 1 | 103 days | 0.53 | M-v | 4 | MPC | | 2008 $UY_{360}$ |
| 2008 $UA_{361}$ | 15.6 | 0.15 | 20081021 | 21.56677 | 282.42497 | 92.70371 | 10.00878 | 0.1386764 | 3.1391643 | 18 | 1 | 24 days | 0.65 | | | MPC | | 2008 $UA_{361}$ |
| 2008 $UE_{361}$ | 16.9 | 0.15 | 20081021 | 356.70110 | 81.03825 | 324.60668 | 7.69323 | 0.1902102 | 2.7514272 | 15 | 1 | 28 days | 0.73 | | | MPC | | 2008 $UE_{361}$ |
| 2008 $UF_{361}$ | 15.7 | 0.15 | 20081021 | 321.47449 | 300.39844 | 149.45064 | 16.19559 | 0.2399358 | 3.1150104 | 12 | 1 | 11 days | 0.58 | | | MPC | | 2008 $UF_{361}$ |
| 2008 $UG_{361}$ | 15.7 | 0.15 | 20081021 | 49.37561 | 33.05927 | 304.80239 | 13.55398 | 0.1231246 | 2.6224892 | 27 | 1 | 54 days | 0.64 | | | MPC | | 2008 $UG_{361}$ |
| 2008 $UJ_{361}$ | 16.8 | 0.15 | 20081021 | 7.62232 | 172.40374 | 222.67658 | 11.43827 | 0.1600273 | 2.6745309 | 23 | 1 | 59 days | 0.51 | | | MPC | | 2008 $UJ_{361}$ |
| 2008 $UK_{361}$ | 16.8 | 0.15 | 20081021 | 356.52788 | 312.17120 | 91.37662 | 17.69022 | 0.2131019 | 3.1574295 | 12 | 1 | 23 days | 0.53 | | | MPC | | 2008 $UK_{361}$ |
| 2008 $UL_{361}$ | 16.7 | 0.15 | 20081021 | 333.51435 | 94.04817 | 340.06532 | 10.81253 | 0.1430659 | 2.5449062 | 16 | 1 | 17 days | 0.71 | | | MPC | | 2008 $UL_{361}$ |
| 2008 $UO_{361}$ | 15.6 | 0.15 | 20081021 | 36.18159 | 79.67262 | 260.07960 | 23.21292 | 0.2087295 | 2.7276240 | 22 | 1 | 58 days | 0.54 | | | MPC | | 2008 $UO_{361}$ |
| 2008 $US_{361}$ | 16.3 | 0.15 | 20081021 | 19.37477 | 101.73223 | 261.07704 | 10.71025 | 0.0885181 | 3.1983518 | 12 | 1 | 24 days | 0.47 | | | MPC | | 2008 $US_{361}$ |
| 2008 $UJ_{362}$ | 16.6 | 0.15 | 20081021 | 351.96552 | 326.51339 | 89.29564 | 9.54166 | 0.2197451 | 2.8100511 | 12 | 1 | 15 days | 0.58 | | | MPC | | 2008 $UJ_{362}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 $UO_{362}$ | 16.7 | 0.15 | 20081021 | 350.79182 | 98.30104 | 303.72655 | 12.10285 | 0.2085502 | 2.7475289 | 21 | 1 | 29 days | 0.57 | | | MPC | | 2008 $UO_{362}$ |
| 2008 $UA_{363}$ | 17.5 | 0.15 | 20081001 | 329.64066 | 135.42865 | 273.49262 | 16.83219 | 0.1020555 | 1.9540198 | 14 | 1 | 24 days | 0.71 | | | MPC | | 2008 $UA_{363}$ |
| 2008 $UJ_{363}$ | 16.4 | 0.15 | 20081021 | 11.69822 | 215.49232 | 152.98131 | 14.55458 | 0.2170141 | 3.1025628 | 12 | 1 | 24 days | 0.57 | | | MPC | | 2008 $UJ_{363}$ |
| 2008 $UU_{363}$ | 15.3 | 0.15 | 20081001 | 68.47201 | 201.61817 | 98.95572 | 20.40213 | 0.1932169 | 3.2282780 | 12 | 1 | 36 days | 0.55 | | | MPC | | 2008 $UU_{363}$ |
| 2008 $UK_{364}$ | 17.3 | 0.15 | 20081021 | 3.22249 | 281.93932 | 102.29557 | 14.10284 | 0.2795100 | 2.6158049 | 12 | 1 | 24 days | 0.51 | | | MPC | | 2008 $UK_{364}$ |
| 2008 $UG_{365}$ | 17.2 | 0.15 | 20081021 | 350.01426 | 66.91142 | 344.79159 | 12.57445 | 0.2231570 | 2.5442837 | 18 | 1 | 42 days | 0.64 | | | MPC | | 2008 $UG_{365}$ |
| 2008 $UH_{365}$ | 17.4 | 0.15 | 20081110 | 16.58101 | 286.17347 | 102.09715 | 13.34214 | 0.2018645 | 2.3397720 | 20 | 1 | 59 days | 0.58 | | | MPC | | 2008 $UH_{365}$ |
| 2008 $UK_{365}$ | 16.2 | 0.15 | 20081110 | 334.52750 | 327.34777 | 116.32960 | 8.47682 | 0.1730384 | 2.6072145 | 11 | 1 | 35 days | 0.57 | | | MPC | | 2008 $UK_{365}$ |
| 2008 $UP_{365}$ | 17.4 | 0.15 | 20081021 | 29.15320 | 135.57860 | 215.25522 | 8.83275 | 0.2213355 | 2.6891794 | 18 | 1 | 19 days | 0.17 | | | MPC | | 2008 $UP_{365}$ |
| 2008 $UQ_{365}$ | 17.4 | 0.15 | 20081021 | 356.95538 | 0.05323 | 32.49752 | 14.77847 | 0.1781251 | 2.6348417 | 11 | 1 | 19 days | 0.18 | | | MPC | | 2008 $UQ_{365}$ |
| 2008 $UR_{365}$ | 16.8 | 0.15 | 20081021 | 26.14566 | 163.13913 | 196.00614 | 4.21189 | 0.0844217 | 2.7670487 | 10 | 1 | 18 days | 0.29 | | | MPC | | 2008 $UR_{365}$ |
| 2008 $UV_{365}$ | 16.9 | 0.15 | 20100104 | 123.63490 | 286.05628 | 94.99010 | 4.18047 | 0.2090279 | 2.6654684 | 24 | 1 | 90 days | 0.35 | M-v | 4 | MPC | | 2008 $UV_{365}$ |
| 2008 VQ | 17.0 | 0.15 | 20081021 | 321.18994 | 4.58192 | 73.90580 | 13.26218 | 0.1101887 | 2.6002993 | 10 | 1 | 8 days | 0.44 | | | MPC | | 2008 VQ |
| 2008 $VL_1$ | 17.9 | 0.15 | 20081001 | 2.71168 | 32.90851 | 342.16100 | 6.95057 | 0.4177807 | 3.0677761 | 28 | 1 | 36 days | 0.54 | | | MPC | | 2008 $VL_1$ |
| 2008 $VS_1$ | 17.0 | 0.15 | 20081001 | 325.21963 | 56.15720 | 30.07208 | 13.89255 | 0.1666175 | 2.6321874 | 22 | 1 | 59 days | 0.41 | | | MPC | | 2008 $VS_1$ |
| 2008 $VT_3$ | 19.0 | 0.15 | 20081021 | 15.97977 | 320.84818 | 59.79268 | 24.80976 | 0.0668488 | 1.9298074 | 10 | 1 | 2 days | 1.05 | | E | MPC | | 2008 $VT_3$ |
| 2008 $VK_5$ | 15.5 | 0.15 | 20081021 | 310.43908 | 113.34586 | 327.98390 | 9.85827 | 0.1068486 | 3.1189344 | 12 | 1 | 12 days | 0.34 | | | MPC | | 2008 $VK_5$ |
| 2008 $VY_5$ | 15.1 | 0.15 | 20081021 | 155.73689 | 304.14211 | 290.14082 | 9.67390 | 0.0793999 | 3.1025132 | 16 | 1 | 11 days | 0.68 | | | MPC | | 2008 $VY_5$ |
| 2008 $VW_6$ | 16.6 | 0.15 | 20081021 | 2.69190 | 215.00595 | 190.25699 | 5.59969 | 0.0726069 | 2.6153870 | 20 | 1 | 55 days | 0.25 | | | MPC | | 2008 $VW_6$ |
| 2008 $VE_7$ | 16.1 | 0.15 | 20081001 | 8.38356 | 3.23564 | 3.12433 | 30.07112 | 0.2320854 | 3.1575835 | 28 | 1 | 58 days | 0.62 | | | MPC | | 2008 $VE_7$ |
| 2008 $VM_7$ | 17.4 | 0.15 | 20081021 | 356.97288 | 243.65743 | 155.91335 | 2.39324 | 0.0674184 | 2.8581223 | 18 | 1 | 44 days | 0.34 | | | MPC | | 2008 $VM_7$ |
| 2008 $VX_7$ | 16.5 | 0.15 | 20081021 | 24.17790 | 116.95929 | 251.93488 | 11.98737 | 0.1409809 | 2.9783974 | 15 | 1 | 10 days | 0.61 | | | MPC | | 2008 $VX_7$ |
| 2008 $VV_9$ | 18.2 | 0.15 | 20081021 | 109.43692 | 85.95694 | 186.95710 | 4.00295 | 0.1381034 | 2.7043871 | 12 | 1 | 3 days | 0.24 | | | MPC | | 2008 $VV_9$ |
| 2008 $VB_{10}$ | 16.0 | 0.15 | 20081021 | 319.35342 | 292.40052 | 171.60202 | 8.54806 | 0.1863947 | 2.9843599 | 15 | 1 | 25 days | 0.73 | | | MPC | | 2008 $VB_{10}$ |
| 2008 $VQ_{10}$ | 16.6 | 0.15 | 20081021 | 37.00983 | 270.24820 | 96.78489 | 5.35312 | 0.0515804 | 2.7882188 | 20 | 1 | 32 days | 0.48 | | | MPC | | 2008 $VQ_{10}$ |
| 2008 $VU_{10}$ | 17.2 | 0.15 | 20081001 | 23.18527 | 176.88969 | 185.65018 | 4.65581 | 0.2118145 | 2.5418388 | 24 | 1 | 41 days | 0.21 | | | MPC | | 2008 $VU_{10}$ |
| 2008 $VZ_{11}$ | 16.4 | 0.15 | 20081021 | 331.32947 | 344.58681 | 98.34588 | 6.23287 | 0.0902027 | 3.1309255 | 24 | 1 | 32 days | 0.38 | | | MPC | | 2008 $VZ_{11}$ |
| 2008 $VC_{12}$ | 16.8 | 0.15 | 20081021 | 331.36156 | 15.62439 | 67.60828 | 15.37689 | 0.1124222 | 2.9353526 | 19 | 1 | 5 days | 0.29 | | | MPC | | 2008 $VC_{12}$ |
| 2008 $VJ_{12}$ | 16.1 | 0.15 | 20081021 | 55.65952 | 238.90733 | 99.90464 | 6.81622 | 0.1544574 | 3.0635665 | 20 | 1 | 59 days | 0.29 | | | MPC | | 2008 $VJ_{12}$ |
| 2008 $VX_{13}$ | 15.9 | 0.15 | 20100104 | 114.20383 | 252.17049 | 137.35338 | 4.54059 | 0.0890400 | 2.7050980 | 68 | 6 | 1993–2009 | 0.51 | M-v | 1 | MPC | 159137 | 2008 $VX_{13}$ |
| 2008 $VC_{14}$ | 16.1 | 0.15 | 20100104 | 113.69244 | 313.77366 | 78.97540 | 12.14308 | 0.1075226 | 2.6319258 | 23 | 1 | 76 days | 0.32 | M-v | 4 | MPC | | 2008 $VC_{14}$ |
| 2008 $VR_{15}$ | 15.5 | 0.15 | 20100104 | 124.37628 | 283.46650 | 54.99736 | 3.32616 | 0.0892594 | 3.2314970 | 51 | 4 | 2005–2009 | 0.30 | M-v | 0 | MPC | 158627 | 2008 $VR_{15}$ |
| 2008 $VS_{15}$ | 18.0 | 0.15 | 20081021 | 48.82033 | 266.39491 | 60.00628 | 2.54717 | 0.1979728 | 2.3969073 | 19 | 1 | 56 days | 0.32 | | | MPC | | 2008 $VS_{15}$ |
| 2008 $VY_{15}$ | 19.6 | 0.15 | 20081021 | 346.27869 | 203.88971 | 217.24693 | 5.22165 | 0.2684665 | 2.5901254 | 12 | 1 | 26 days | 0.29 | | | MPC | | 2008 $VY_{15}$ |
| 2008 $VR_{16}$ | 17.3 | 0.15 | 20100104 | 85.48932 | 193.76115 | 216.89772 | 8.50159 | 0.1111987 | 2.7709849 | 21 | 1 | 93 days | 0.47 | M-v | 4 | MPC | | 2008 $VR_{16}$ |
| 2008 $VV_{16}$ | 16.6 | 0.15 | 20081021 | 276.64014 | 50.12418 | 79.68763 | 1.98927 | 0.0386069 | 3.1912723 | 9 | 1 | 15 days | 0.24 | | | MPC | | 2008 $VV_{16}$ |
| 2008 $VW_{16}$ | 19.1 | 0.15 | 20081021 | 0.21497 | 237.58168 | 160.24403 | 1.12970 | 0.1769716 | 2.3656049 | 12 | 1 | 28 days | 0.24 | | | MPC | | 2008 $VW_{16}$ |
| 2008 $VY_{16}$ | 17.3 | 0.15 | 20081021 | 30.87175 | 225.20032 | 136.21478 | 1.48378 | 0.1340062 | 3.2099140 | 9 | 1 | 10 days | 0.56 | | | MPC | | 2008 $VY_{16}$ |
| 2008 $VB_{17}$ | 17.3 | 0.15 | 20081021 | 4.91104 | 346.38058 | 49.87702 | 11.52125 | 0.0232703 | 2.7188748 | 12 | 1 | 19 days | 0.23 | | | MPC | | 2008 $VB_{17}$ |
| 2008 $VC_{17}$ | 17.5 | 0.15 | 20081021 | 346.87803 | 7.20542 | 51.87858 | 10.29120 | 0.1617247 | 2.9587570 | 13 | 1 | 11 days | 0.47 | | E | MPC | | 2008 $VC_{17}$ |
| 2008 $VE_{18}$ | 17.5 | 0.15 | 20081021 | 346.37509 | 283.72019 | 136.84176 | 2.18275 | 0.1967619 | 3.0969765 | 9 | 1 | 19 days | 0.23 | | | MPC | | 2008 $VE_{18}$ |
| 2008 $VF_{18}$ | 17.9 | 0.15 | 20081001 | 8.17712 | 168.93414 | 213.91277 | 11.68621 | 0.1777683 | 2.9824317 | 14 | 1 | 38 days | 0.29 | | | MPC | | 2008 $VF_{18}$ |
| 2008 $VH_{18}$ | 17.8 | 0.15 | 20081021 | 348.95907 | 334.90774 | 80.16254 | 4.36486 | 0.1450702 | 2.9685894 | 9 | 1 | 15 days | 0.31 | | | MPC | | 2008 $VH_{18}$ |
| 2008 $VP_{18}$ | 18.2 | 0.15 | 20081021 | 334.47145 | 236.97863 | 199.69175 | 4.93631 | 0.1887962 | 2.5643531 | 13 | 1 | 19 days | 0.29 | | | MPC | | 2008 $VP_{18}$ |
| 2008 $VU_{18}$ | 16.8 | 0.15 | 20081021 | 8.91477 | 250.95286 | 140.78363 | 2.55448 | 0.0801913 | 3.1893460 | 10 | 1 | 15 days | 0.25 | | | MPC | | 2008 $VU_{18}$ |
| 2008 $VH_{19}$ | 18.4 | 0.15 | 20081021 | 318.32574 | 245.49889 | 212.24928 | 9.32838 | 0.1710153 | 2.3370818 | 13 | 1 | 19 days | 0.32 | | | MPC | | 2008 $VH_{19}$ |
| 2008 $VK_{19}$ | 14.7 | 0.15 | 20081110 | 120.72603 | 33.18689 | 250.24783 | 26.16388 | 0.1344468 | 3.1614401 | 19 | 1 | 29 days | 0.63 | | | MPC | | 2008 $VK_{19}$ |
| 2008 $VP_{21}$ | 16.5 | 0.15 | 20081021 | 37.74053 | 166.18579 | 192.11314 | 5.31727 | 0.1375985 | 3.1077742 | 16 | 1 | 57 days | 0.20 | | | MPC | | 2008 $VP_{21}$ |
| 2008 $VT_{21}$ | 17.8 | 0.15 | 20081021 | 0.78550 | 189.25145 | 213.71051 | 10.51409 | 0.1955728 | 2.6307262 | 12 | 1 | 6 days | 0.27 | | | MPC | | 2008 $VT_{21}$ |
| 2008 $VW_{21}$ | 16.8 | 0.15 | 20081021 | 6.25665 | 191.80649 | 205.96614 | 7.44920 | 0.1639645 | 3.0617941 | 12 | 1 | 6 days | 0.26 | | | MPC | | 2008 $VW_{21}$ |
| 2008 $VY_{21}$ | 17.4 | 0.15 | 20081021 | 302.22954 | 323.31986 | 152.66335 | 3.16514 | 0.1119480 | 2.6477062 | 12 | 1 | 6 days | 0.22 | | | MPC | | 2008 $VY_{21}$ |
| 2008 $VD_{22}$ | 16.8 | 0.15 | 20081021 | 35.90634 | 132.38051 | 215.88257 | 11.67342 | 0.2467603 | 2.6635945 | 12 | 1 | 6 days | 0.20 | | | MPC | | 2008 $VD_{22}$ |
| 2008 $VM_{22}$ | 15.7 | 0.15 | 20081021 | 327.37951 | 236.15032 | 210.65348 | 10.31382 | 0.0669671 | 3.1569206 | 12 | 1 | 6 days | 0.25 | | | MPC | | 2008 $VM_{22}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 $VD_{24}$ | 15.8 | 0.15 | 20081110 | 339.92009 | 237.49258 | 209.31412 | 6.56568 | 0.0355111 | 3.1381704 | 13 | 1 | 40 days | 0.24 | | | MPC | 2008 $VD_{24}$ |
| 2008 $VL_{25}$ | 16.5 | 0.15 | 20081021 | 162.51684 | 143.82343 | 88.45970 | 4.06676 | 0.0203465 | 3.0182293 | 14 | 1 | 38 days | 0.34 | | | MPC | 2008 $VL_{25}$ |
| 2008 $VN_{25}$ | 18.3 | 0.15 | 20081021 | 71.40080 | 184.81172 | 117.01028 | 2.62407 | 0.1880046 | 2.3242360 | 11 | 1 | 16 days | 0.36 | | | MPC | 2008 $VN_{25}$ |
| 2008 $VU_{25}$ | 18.4 | 0.15 | 20081021 | 1.07487 | 316.30908 | 76.90423 | 4.37633 | 0.1704856 | 2.5407454 | 10 | 1 | 12 days | 0.51 | | | MPC | 2008 $VU_{25}$ |
| 2008 $VF_{26}$ | 15.9 | 0.15 | 20100104 | 147.14448 | 11.46600 | 306.24603 | 13.43062 | 0.2577749 | 2.6335531 | 26 | 3 | 2006–2009 | 0.41 | M-v | 3 | MPC | 159137 2008 $VF_{26}$ |
| 2008 $VL_{26}$ | 15.5 | 0.15 | 20081001 | 162.32085 | 201.47933 | 33.62191 | 17.21186 | 0.0822537 | 3.2087390 | 19 | 1 | 45 days | 0.24 | | | MPC | 2008 $VL_{26}$ |
| 2008 $VO_{26}$ | 17.3 | 0.15 | 20081021 | 320.31937 | 74.98855 | 18.99968 | 8.62063 | 0.1517119 | 2.9082548 | 9 | 1 | 15 days | 0.19 | | | MPC | 2008 $VO_{26}$ |
| 2008 $VR_{26}$ | 18.3 | 0.15 | 20081021 | 354.53311 | 58.26795 | 349.44403 | 3.63852 | 0.2098429 | 2.5611751 | 9 | 1 | 15 days | 0.20 | | | MPC | 2008 $VR_{26}$ |
| 2008 $VT_{26}$ | 19.1 | 0.15 | 20081021 | 335.23582 | 55.68345 | 22.50269 | 6.41464 | 0.2373482 | 2.2929077 | 15 | 1 | 16 days | 0.25 | | | MPC | 2008 $VT_{26}$ |
| 2008 $VV_{26}$ | 17.0 | 0.15 | 20081021 | 159.02571 | 248.00469 | 354.68756 | 4.30968 | 0.0246691 | 2.7661259 | 9 | 1 | 16 days | 0.26 | | | MPC | 2008 $VV_{26}$ |
| 2008 $VB_{27}$ | 17.1 | 0.15 | 20081021 | 46.21766 | 80.12902 | 253.42508 | 5.48870 | 0.2174794 | 2.5382316 | 15 | 1 | 24 days | 0.28 | | | MPC | 2008 $VB_{27}$ |
| 2008 $VD_{27}$ | 16.8 | 0.15 | 20081021 | 147.37181 | 247.50928 | 7.48256 | 4.23985 | 0.0194272 | 2.7921996 | 12 | 1 | 12 days | 0.62 | | | MPC | 2008 $VD_{27}$ |
| 2008 $VL_{27}$ | 17.0 | 0.15 | 20081021 | 173.20898 | 202.11619 | 27.43843 | 8.05327 | 0.1906222 | 2.3160196 | 10 | 1 | 16 days | 0.21 | | | MPC | 2008 $VL_{27}$ |
| 2008 $VN_{27}$ | 18.1 | 0.15 | 20081001 | 23.35150 | 326.89459 | 35.20661 | 9.50694 | 0.1942644 | 2.7213424 | 13 | 1 | 35 days | 0.27 | | | MPC | 2008 $VN_{27}$ |
| 2008 $VS_{27}$ | 15.2 | 0.15 | 20100104 | 245.70078 | 312.46639 | 282.60649 | 3.85665 | 0.1219948 | 3.1951173 | 44 | 4 | 2005–2009 | 0.58 | M-v | 1 | MPC | 164339 2008 $VS_{27}$ |
| 2008 $VZ_{27}$ | 17.9 | 0.15 | 20100104 | 101.71464 | 10.11710 | 36.07572 | 8.11798 | 0.1445876 | 2.5592390 | 16 | 1 | 73 days | 0.35 | M-v | 4 | MPC | 2008 $VZ_{27}$ |
| 2008 $VA_{28}$ | 17.7 | 0.15 | 20081021 | 310.05198 | 67.29689 | 38.23036 | 13.88231 | 0.1375202 | 2.6695768 | 9 | 1 | 14 days | 0.13 | | | MPC | 2008 $VA_{28}$ |
| 2008 $VW_{28}$ | 16.8 | 0.15 | 20081021 | 142.63233 | 252.60805 | 356.65041 | 6.28841 | 0.1850489 | 2.6586687 | 10 | 1 | 14 days | 0.39 | | | MPC | 2008 $VW_{28}$ |
| 2008 $VB_{29}$ | 16.0 | 0.15 | 20081110 | 267.07589 | 228.07390 | 281.23671 | 6.24096 | 0.0310348 | 3.2065013 | 13 | 1 | 37 days | 0.29 | | | MPC | 2008 $VB_{29}$ |
| 2008 $VE_{29}$ | 17.4 | 0.15 | 20081021 | 303.43296 | 67.83203 | 41.44487 | 22.34323 | 0.0435812 | 2.6692882 | 9 | 1 | 12 days | 0.16 | | | MPC | 2008 $VE_{29}$ |
| 2008 $VH_{29}$ | 17.9 | 0.15 | 20081021 | 353.96485 | 68.55407 | 345.53535 | 3.28927 | 0.1738324 | 2.6108032 | 12 | 1 | 16 days | 0.25 | | | MPC | 2008 $VH_{29}$ |
| 2008 $VN_{29}$ | 16.2 | 0.15 | 20081021 | 266.20431 | 220.65048 | 280.88639 | 7.05446 | 0.0349940 | 3.1323618 | 13 | 1 | 17 days | 0.46 | | | MPC | 2008 $VN_{29}$ |
| 2008 $VC_{30}$ | 15.9 | 0.15 | 20081021 | 276.22935 | 251.89258 | 245.01215 | 10.44195 | 0.0435866 | 3.0850459 | 10 | 1 | 15 days | 0.28 | | E | MPC | 2008 $VC_{30}$ |
| 2008 $VF_{30}$ | 17.0 | 0.15 | 20081021 | 266.68562 | 128.47130 | 13.99630 | 4.31926 | 0.0126790 | 2.7563715 | 9 | 1 | 17 days | 0.26 | | | MPC | 2008 $VF_{30}$ |
| 2008 $VR_{30}$ | 17.4 | 0.15 | 20081021 | 27.81566 | 359.45778 | 10.05334 | 4.07454 | 0.1529841 | 2.7016562 | 9 | 1 | 8 days | 0.39 | | | MPC | 2008 $VR_{30}$ |
| 2008 $VT_{30}$ | 15.0 | 0.15 | 20081021 | 89.39841 | 104.93517 | 205.71148 | 18.26175 | 0.0781908 | 3.0704450 | 9 | 1 | 6 days | 0.58 | | | MPC | 2008 $VT_{30}$ |
| 2008 $VY_{30}$ | 16.4 | 0.15 | 20081021 | 309.88532 | 287.00750 | 170.13270 | 4.21209 | 0.0035812 | 2.7771578 | 12 | 1 | 6 days | 0.18 | | | MPC | 2008 $VY_{30}$ |
| 2008 $VZ_{30}$ | 17.0 | 0.15 | 20081110 | 31.27549 | 300.74572 | 64.20594 | 12.70442 | 0.1941403 | 3.0898473 | 14 | 1 | 17 days | 0.27 | | | MPC | 2008 $VZ_{30}$ |
| 2008 $VD_{31}$ | 16.6 | 0.15 | 20081021 | 90.81165 | 207.22652 | 81.63470 | 6.68431 | 0.2485609 | 2.6121600 | 12 | 1 | 6 days | 0.19 | | | MPC | 2008 $VD_{31}$ |
| 2008 $VU_{31}$ | 17.4 | 0.15 | 20081021 | 357.43063 | 261.63857 | 145.11610 | 2.92686 | 0.1912220 | 2.4378281 | 12 | 1 | 5 days | 0.33 | | | MPC | 2008 $VU_{31}$ |
| 2008 $VB_{32}$ | 15.9 | 0.15 | 20081021 | 30.48723 | 165.80133 | 209.15497 | 10.00386 | 0.0481089 | 3.0641768 | 19 | 1 | 5 days | 0.24 | | | MPC | 2008 $VB_{32}$ |
| 2008 $VH_{32}$ | 17.2 | 0.15 | 20081110 | 167.76764 | 131.60327 | 111.01019 | 3.54726 | 0.0380987 | 2.2203475 | 16 | 1 | 17 days | 0.21 | | | MPC | 2008 $VH_{32}$ |
| 2008 $VN_{32}$ | 18.1 | 0.15 | 20081021 | 356.85917 | 321.20557 | 87.13220 | 5.08329 | 0.2058794 | 2.5393605 | 18 | 1 | 5 days | 0.25 | | | MPC | 2008 $VN_{32}$ |
| 2008 $VO_{32}$ | 18.2 | 0.15 | 20081021 | 17.76456 | 255.20072 | 120.90604 | 3.22956 | 0.2256428 | 2.6946263 | 20 | 1 | 5 days | 0.28 | | | MPC | 2008 $VO_{32}$ |
| 2008 $VR_{32}$ | 16.4 | 0.15 | 20081021 | 271.74167 | 340.71366 | 188.51266 | 6.20792 | 0.2970785 | 2.6888824 | 16 | 1 | 5 days | 0.29 | | | MPC | 2008 $VR_{32}$ |
| 2008 $VS_{32}$ | 17.8 | 0.15 | 20081021 | 54.18553 | 195.17621 | 138.49054 | 3.42727 | 0.1781158 | 2.6544012 | 16 | 1 | 5 days | 0.32 | | | MPC | 2008 $VS_{32}$ |
| 2008 $VU_{32}$ | 18.3 | 0.15 | 20081021 | 354.35223 | 336.26792 | 73.02140 | 5.72133 | 0.1621442 | 2.0807742 | 12 | 1 | 5 days | 0.17 | | | MPC | 2008 $VU_{32}$ |
| 2008 $VV_{32}$ | 16.8 | 0.15 | 20081021 | 96.25344 | 208.40961 | 96.05547 | 5.70568 | 0.0594238 | 2.6645607 | 16 | 1 | 5 days | 0.26 | | | MPC | 2008 $VV_{32}$ |
| 2008 $VA_{33}$ | 16.6 | 0.15 | 20081021 | 68.78791 | 253.95096 | 73.42186 | 9.94025 | 0.1019691 | 2.7701322 | 16 | 1 | 5 days | 0.25 | | | MPC | 2008 $VA_{33}$ |
| 2008 $VC_{33}$ | 20.0 | 0.15 | 20081021 | 343.46945 | 253.38471 | 170.09531 | 3.14817 | 0.1450109 | 1.9784651 | 16 | 1 | 5 days | 0.29 | | | MPC | 2008 $VC_{33}$ |
| 2008 $VD_{33}$ | 17.4 | 0.15 | 20081021 | 58.13514 | 106.50292 | 214.05148 | 12.45837 | 0.2515812 | 2.5450768 | 20 | 1 | 5 days | 0.34 | | | MPC | 2008 $VD_{33}$ |
| 2008 $VG_{33}$ | 16.6 | 0.15 | 20081021 | 62.12437 | 211.70681 | 104.81439 | 4.72543 | 0.2564365 | 2.8499650 | 16 | 1 | 5 days | 0.19 | | | MPC | 2008 $VG_{33}$ |
| 2008 $VK_{33}$ | 16.8 | 0.15 | 20081110 | 23.75909 | 198.68500 | 183.29968 | 4.87267 | 0.1204406 | 2.7187793 | 20 | 1 | 16 days | 0.48 | | | MPC | 2008 $VK_{33}$ |
| 2008 $VL_{33}$ | 17.5 | 0.15 | 20081021 | 35.18894 | 158.41437 | 201.60515 | 6.74226 | 0.1329904 | 2.3856886 | 16 | 1 | 5 days | 0.23 | | | MPC | 2008 $VL_{33}$ |
| 2008 $VM_{33}$ | 16.2 | 0.15 | 20081021 | 163.53348 | 33.06616 | 211.29013 | 11.25696 | 0.0850256 | 3.0965061 | 12 | 1 | 5 days | 0.42 | | | MPC | 2008 $VM_{33}$ |
| 2008 $VP_{33}$ | 17.3 | 0.15 | 20081021 | 295.74494 | 350.95961 | 132.02421 | 4.03081 | 0.1059423 | 2.6419508 | 12 | 1 | 5 days | 0.34 | | | MPC | 2008 $VP_{33}$ |
| 2008 $VQ_{33}$ | 18.1 | 0.15 | 20081021 | 7.63881 | 319.20993 | 73.86748 | 8.33230 | 0.2166141 | 2.8251801 | 16 | 1 | 5 days | 0.21 | | | MPC | 2008 $VQ_{33}$ |
| 2008 $VX_{33}$ | 15.7 | 0.15 | 20081021 | 181.06605 | 29.37040 | 199.57271 | 8.47848 | 0.0078616 | 3.0454934 | 20 | 1 | 5 days | 0.34 | | | MPC | 2008 $VX_{33}$ |
| 2008 $VY_{33}$ | 18.2 | 0.15 | 20081021 | 10.72673 | 201.14145 | 185.24639 | 4.72703 | 0.2781380 | 3.0297933 | 12 | 1 | 5 days | 0.18 | | | MPC | 2008 $VY_{33}$ |
| 2008 $VB_{34}$ | 17.7 | 0.15 | 20081021 | 347.85522 | 348.81666 | 73.18991 | 9.46952 | 0.1424691 | 2.5454006 | 11 | 1 | 5 days | 0.17 | | | MPC | 2008 $VB_{34}$ |
| 2008 $VH_{34}$ | 16.5 | 0.15 | 20081110 | 196.34426 | 100.80523 | 117.67924 | 4.47290 | 0.0348455 | 2.7771655 | 11 | 1 | 19 days | 0.28 | | | MPC | 2008 $VH_{34}$ |
| 2008 $VN_{34}$ | 16.3 | 0.15 | 20081110 | 267.12717 | 68.32064 | 87.23449 | 7.75993 | 0.0775845 | 2.9894231 | 12 | 1 | 19 days | 0.22 | | | MPC | 2008 $VN_{34}$ |
| 2008 $VM_{35}$ | 15.5 | 0.15 | 20081110 | 238.01007 | 307.46658 | 249.77898 | 17.42462 | 0.2462416 | 2.8712221 | 10 | 1 | 19 days | 0.21 | | | MPC | 2008 $VM_{35}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 $VN_{35}$ | 15.9 | 0.15 | 20081021 | 266.86170 | 159.85429 | 25.93847 | 9.47468 | 0.3805716 | 3.0082040 | 9 | 1 | 5 days | 0.42 | | | MPC | | 2008 $VN_{35}$ |
| 2008 $VQ_{35}$ | 16.7 | 0.15 | 20081021 | 85.67002 | 317.15997 | 4.96824 | 5.85758 | 0.0353746 | 2.8831068 | 9 | 1 | 12 days | 0.38 | | | MPC | | 2008 $VQ_{35}$ |
| 2008 $VS_{35}$ | 16.6 | 0.15 | 20081110 | 352.17309 | 43.58360 | 26.62005 | 10.16605 | 0.2436859 | 3.9756369 | 13 | 1 | 39 days | 0.20 | | | MPC | | 2008 $VS_{35}$ |
| 2008 $VV_{35}$ | 17.2 | 0.15 | 20081021 | 48.05113 | 310.07859 | 32.57341 | 9.42181 | 0.2140246 | 2.8238516 | 9 | 1 | 13 days | 0.26 | | | MPC | | 2008 $VV_{35}$ |
| 2008 $VW_{35}$ | 16.1 | 0.15 | 20081110 | 167.99440 | 345.19591 | 263.37764 | 9.36439 | 0.0707622 | 2.9848482 | 12 | 1 | 43 days | 0.57 | | | MPC | | 2008 $VW_{35}$ |
| 2008 $VQ_{36}$ | 16.1 | 0.15 | 20081110 | 292.79519 | 50.09875 | 74.15011 | 10.67068 | 0.0504651 | 3.0363652 | 12 | 1 | 17 days | 0.26 | | | MPC | | 2008 $VQ_{36}$ |
| 2008 $VA_{37}$ | 14.6 | 0.15 | 20081021 | 358.90915 | 310.64593 | 99.87381 | 6.20787 | 0.1414495 | 3.8722981 | 16 | 1 | 5 days | 0.21 | | | MPC | | 2008 $VA_{37}$ |
| 2008 $VT_{37}$ | 16.8 | 0.15 | 20081021 | 308.33972 | 268.22306 | 214.23748 | 14.98560 | 0.2076883 | 3.1617486 | 19 | 1 | 5 days | 0.46 | | | MPC | | 2008 $VT_{37}$ |
| 2008 $VL_{38}$ | 16.5 | 0.15 | 20100104 | 19.89072 | 152.78612 | 348.87516 | 2.18050 | 0.0504282 | 2.6710600 | 55 | 6 | 2003–2009 | 0.31 | M-v | 0 | MPC | 152522 | 2008 $VL_{38}$ |
| 2008 $VB_{40}$ | 17.5 | 0.15 | 20100104 | 355.87033 | 266.04836 | 259.55070 | 1.90395 | 0.0840213 | 2.2913302 | 42 | 6 | 2001–2009 | 0.40 | M-v | 1 | MPC | 152522 | 2008 $VB_{40}$ |
| 2008 $VE_{40}$ | 18.0 | 0.15 | 20081021 | 43.18052 | 339.35253 | 335.67142 | 9.52521 | 0.2464343 | 2.4456840 | 12 | 1 | 10 days | 0.19 | | | MPC | | 2008 $VE_{40}$ |
| 2008 $VK_{40}$ | 16.4 | 0.15 | 20081021 | 237.01079 | 170.10698 | 3.65138 | 8.90407 | 0.0170453 | 3.0521300 | 15 | 1 | 12 days | 0.51 | | E | MPC | | 2008 $VK_{40}$ |
| 2008 $VO_{40}$ | 16.0 | 0.15 | 20081110 | 160.86119 | 347.63150 | 263.84581 | 11.96108 | 0.0068791 | 3.2410100 | 13 | 1 | 36 days | 0.34 | | | MPC | | 2008 $VO_{40}$ |
| 2008 $VU_{40}$ | 17.8 | 0.15 | 20081021 | 23.35574 | 35.96210 | 343.91555 | 5.88973 | 0.0908308 | 2.5274330 | 12 | 1 | 12 days | 0.21 | | | MPC | | 2008 $VU_{40}$ |
| 2008 $VH_{41}$ | 18.4 | 0.15 | 20081110 | 351.19370 | 135.03896 | 291.12891 | 4.05101 | 0.2187873 | 2.5796203 | 12 | 1 | 41 days | 0.24 | | | MPC | | 2008 $VH_{41}$ |
| 2008 $VQ_{41}$ | 15.7 | 0.15 | 20100104 | 130.64044 | 6.53641 | 319.47889 | 9.67918 | 0.1263195 | 3.1256937 | 34 | 6 | 1991–2009 | 0.42 | M-v | 1 | MPC | 160588 | 2008 $VQ_{41}$ |
| 2008 $VR_{41}$ | 17.1 | 0.15 | 20081021 | 340.80878 | 140.63324 | 280.67679 | 8.20021 | 0.2229188 | 2.6874638 | 20 | 1 | 9 days | 0.75 | | | MPC | | 2008 $VR_{41}$ |
| 2008 $VK_{42}$ | 16.1 | 0.15 | 20081021 | 62.62350 | 261.36299 | 81.22240 | 8.57810 | 0.0291487 | 2.9123133 | 20 | 1 | 32 days | 0.20 | | | MPC | | 2008 $VK_{42}$ |
| 2008 $VL_{42}$ | 15.9 | 0.15 | 20081021 | 39.87397 | 199.26790 | 145.52393 | 4.31193 | 0.2506165 | 3.2519050 | 12 | 1 | 4 days | 0.16 | | | MPC | | 2008 $VL_{42}$ |
| 2008 $VM_{42}$ | 17.3 | 0.15 | 20081021 | 23.21145 | 273.96407 | 96.44272 | 4.76021 | 0.1964083 | 2.5133819 | 27 | 1 | 19 days | 0.39 | | | MPC | | 2008 $VM_{42}$ |
| 2008 $VZ_{42}$ | 17.2 | 0.15 | 20100104 | 167.28882 | 220.59111 | 83.62777 | 4.95009 | 0.1694826 | 2.5210906 | 31 | 4 | 1995–2009 | 0.44 | M-v | 1 | MPC | 155553 | 2008 $VZ_{42}$ |
| 2008 $VG_{43}$ | 16.9 | 0.15 | 20081021 | 306.55039 | 162.22051 | 336.75077 | 7.91403 | 0.3044207 | 2.9314659 | 9 | 1 | 12 days | 0.19 | | | MPC | | 2008 $VG_{43}$ |
| 2008 $VJ_{43}$ | 16.8 | 0.15 | 20081110 | 234.04880 | 263.81368 | 284.49236 | 9.75129 | 0.0712796 | 2.6096707 | 13 | 1 | 38 days | 0.12 | | | MPC | | 2008 $VJ_{43}$ |
| 2008 $VR_{43}$ | 18.0 | 0.15 | 20081021 | 39.48511 | 43.81125 | 311.77994 | 5.71112 | 0.1412219 | 2.2825864 | 9 | 1 | 12 days | 0.17 | | | MPC | | 2008 $VR_{43}$ |
| 2008 $VX_{43}$ | 16.2 | 0.15 | 20081110 | 358.25820 | 118.32157 | 301.24407 | 8.01369 | 0.3066799 | 3.9506872 | 13 | 1 | 30 days | 0.28 | | | MPC | | 2008 $VX_{43}$ |
| 2008 $VF_{45}$ | 16.6 | 0.15 | 20081021 | 299.39003 | 292.83885 | 195.94162 | 10.67344 | 0.1543733 | 3.1823227 | 15 | 1 | 6 days | 0.41 | | | MPC | | 2008 $VF_{45}$ |
| 2008 $VK_{45}$ | 17.5 | 0.15 | 20081021 | 99.22878 | 164.66865 | 139.82745 | 6.72501 | 0.0594217 | 2.7185674 | 15 | 1 | 6 days | 0.23 | | | MPC | | 2008 $VK_{45}$ |
| 2008 $VL_{45}$ | 16.8 | 0.15 | 20081021 | 340.95864 | 284.83745 | 156.59087 | 6.14682 | 0.2691119 | 3.0804064 | 16 | 1 | 6 days | 0.22 | | | MPC | | 2008 $VL_{45}$ |
| 2008 $VD_{46}$ | 17.5 | 0.15 | 20081021 | 266.20754 | 330.50775 | 188.05736 | 8.60387 | 0.1430202 | 2.3135069 | 18 | 1 | 6 days | 0.21 | | | MPC | | 2008 $VD_{46}$ |
| 2008 $VE_{46}$ | 17.6 | 0.15 | 20081021 | 37.01336 | 247.97561 | 111.12102 | 6.55260 | 0.1344662 | 2.3740937 | 18 | 1 | 6 days | 0.18 | | | MPC | | 2008 $VE_{46}$ |
| 2008 $VN_{46}$ | 15.9 | 0.15 | 20100104 | 73.06620 | 5.33280 | 58.74687 | 15.90652 | 0.0492473 | 3.0900546 | 23 | 1 | 86 days | 0.46 | M-v | 4 | MPC | | 2008 $VN_{46}$ |
| 2008 $VZ_{48}$ | 17.0 | 0.15 | 20081021 | 161.65308 | 22.88147 | 233.44642 | 11.56264 | 0.0457299 | 2.6560744 | 13 | 1 | 19 days | 0.42 | | | MPC | | 2008 $VZ_{48}$ |
| 2008 $VM_{49}$ | 15.9 | 0.15 | 20081021 | 139.99761 | 323.71411 | 283.40835 | 9.19583 | 0.0617294 | 3.1616124 | 11 | 1 | 12 days | 0.22 | | | MPC | | 2008 $VM_{49}$ |
| 2008 $VN_{49}$ | 17.7 | 0.15 | 20081110 | 332.42502 | 150.09508 | 282.57782 | 7.66390 | 0.1317773 | 2.5999092 | 10 | 1 | 26 days | 0.24 | | | MPC | | 2008 $VN_{49}$ |
| 2008 $VB_{52}$ | 16.9 | 0.15 | 20081021 | 90.68070 | 109.94235 | 182.81404 | 4.72857 | 0.1073587 | 2.7450050 | 11 | 1 | 16 days | 0.19 | | | MPC | | 2008 $VB_{52}$ |
| 2008 $VX_{52}$ | 16.0 | 0.15 | 20081021 | 58.25240 | 101.58338 | 219.08609 | 12.66776 | 0.1272049 | 3.2122659 | 10 | 1 | 13 days | 0.39 | | | MPC | | 2008 $VX_{52}$ |
| 2008 $VD_{53}$ | 17.6 | 0.15 | 20081021 | 181.55384 | 346.25295 | 223.27837 | 5.73438 | 0.0562055 | 2.3221782 | 11 | 1 | 12 days | 0.15 | | | MPC | | 2008 $VD_{53}$ |
| 2008 $VL_{54}$ | 17.5 | 0.15 | 20081021 | 101.24560 | 14.84694 | 261.68369 | 4.42013 | 0.1514932 | 2.6687195 | 11 | 1 | 12 days | 0.21 | | | MPC | | 2008 $VL_{54}$ |
| 2008 $VP_{54}$ | 17.2 | 0.15 | 20081110 | 31.03659 | 130.46513 | 230.87024 | 12.80496 | 0.0856341 | 3.0151580 | 11 | 1 | 12 days | 0.21 | | | MPC | | 2008 $VP_{54}$ |
| 2008 $VD_{55}$ | 17.1 | 0.15 | 20081021 | 0.26315 | 162.61066 | 232.67375 | 6.52075 | 0.2078892 | 3.0709381 | 14 | 1 | 24 days | 0.19 | | | MPC | | 2008 $VD_{55}$ |
| 2008 $VE_{55}$ | 17.0 | 0.15 | 20081021 | 346.73631 | 21.56877 | 32.12687 | 10.38220 | 0.1303183 | 3.1711898 | 13 | 1 | 19 days | 0.26 | | | MPC | | 2008 $VE_{55}$ |
| 2008 $VF_{55}$ | 19.4 | 0.15 | 20081021 | 340.90443 | 40.92272 | 22.44515 | 2.47018 | 0.2024977 | 2.3808164 | 19 | 1 | 31 days | 0.38 | | | MPC | | 2008 $VF_{55}$ |
| 2008 $VL_{55}$ | 17.6 | 0.15 | 20081021 | 357.73738 | 358.54927 | 40.79995 | 2.65944 | 0.1682916 | 3.0830351 | 12 | 1 | 11 days | 0.33 | | | MPC | | 2008 $VL_{55}$ |
| 2008 $VO_{55}$ | 17.4 | 0.15 | 20081021 | 348.50377 | 191.02042 | 220.00008 | 9.90946 | 0.1016940 | 3.0427461 | 12 | 1 | 11 days | 0.24 | | | MPC | | 2008 $VO_{55}$ |
| 2008 $VQ_{55}$ | 19.0 | 0.15 | 20081021 | 185.02509 | 348.42910 | 222.29837 | 20.84538 | 0.0248240 | 1.8188962 | 13 | 1 | 22 days | 0.36 | | | MPC | | 2008 $VQ_{55}$ |
| 2008 $VW_{55}$ | 18.4 | 0.15 | 20081021 | 33.51776 | 10.55789 | 346.29501 | 3.15048 | 0.1251035 | 2.3840571 | 10 | 1 | 9 days | 0.22 | | | MPC | | 2008 $VW_{55}$ |
| 2008 $VX_{55}$ | 16.9 | 0.15 | 20081021 | 50.30405 | 98.95238 | 242.54164 | 10.91370 | 0.1002100 | 3.0680052 | 10 | 1 | 10 days | 0.21 | | | MPC | | 2008 $VX_{55}$ |
| 2008 $VB_{56}$ | 15.6 | 0.15 | 20100104 | 105.68807 | 71.22066 | 308.32423 | 8.31979 | 0.0408410 | 3.0853637 | 39 | 7 | 1999–2009 | 0.30 | M-v | 0 | MPC | 150680 | 2008 $VB_{56}$ |
| 2008 $VM_{56}$ | 17.5 | 0.15 | 20081110 | 310.68482 | 168.31560 | 302.81334 | 4.07222 | 0.0801895 | 2.5239568 | 11 | 1 | 38 days | 0.22 | | | MPC | | 2008 $VM_{56}$ |
| 2008 $VU_{56}$ | 17.4 | 0.15 | 20081021 | 40.81157 | 274.90363 | 79.48820 | 6.73212 | 0.1324685 | 2.8570428 | 12 | 1 | 5 days | 0.44 | | | MPC | | 2008 $VU_{56}$ |
| 2008 $VW_{56}$ | 17.1 | 0.15 | 20081021 | 148.99683 | 132.69260 | 114.18817 | 4.19453 | 0.2699777 | 2.2439604 | 12 | 1 | 5 days | 0.35 | | | MPC | | 2008 $VW_{56}$ |
| 2008 $VP_{57}$ | 15.7 | 0.15 | 20081021 | 233.47228 | 128.20581 | 56.17546 | 27.31167 | 0.0694607 | 3.0936238 | 18 | 1 | 53 days | 0.28 | | | MPC | | 2008 $VP_{57}$ |
| 2008 $VY_{58}$ | 16.1 | 0.15 | 20081021 | 23.74842 | 155.75764 | 220.47155 | 18.83749 | 0.1280031 | 3.0653971 | 11 | 1 | 17 days | 0.17 | | | MPC | | 2008 $VY_{58}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 $VQ_{60}$ | 17.5 | 0.15 | 20081021 | 329.04503 | 359.29023 | 79.21267 | 2.26478 | 0.1642079 | 3.0741456 | 13 | 1 | 24 days | 0.37 | | MPC | | 2008 $VQ_{60}$ |
| 2008 $VY_{60}$ | 18.2 | 0.15 | 20081110 | 3.64728 | 316.41197 | 85.55017 | 2.07231 | 0.2656217 | 2.6908154 | 23 | 1 | 43 days | 0.21 | | MPC | | 2008 $VY_{60}$ |
| 2008 $VK_{61}$ | 17.7 | 0.15 | 20081021 | 17.11216 | 314.41663 | 68.50720 | 7.42938 | 0.0381332 | 2.7545707 | 20 | 1 | 13 days | 0.44 | | MPC | | 2008 $VK_{61}$ |
| 2008 $VP_{61}$ | 17.4 | 0.15 | 20100104 | 53.25677 | 274.51453 | 181.84748 | 3.87682 | 0.1764704 | 2.7928957 | 23 | 1 | 61 days | 0.33 | M-v 5 | MPC | | 2008 $VP_{61}$ |
| 2008 $VY_{61}$ | 17.2 | 0.15 | 20081021 | 42.97986 | 302.07738 | 49.07724 | 5.25881 | 0.1235619 | 2.6971414 | 16 | 1 | 24 days | 0.28 | | MPC | | 2008 $VY_{61}$ |
| 2008 $VZ_{61}$ | 16.8 | 0.15 | 20081021 | 72.97844 | 90.93103 | 226.06914 | 7.53243 | 0.1382073 | 2.7419843 | 9 | 1 | 17 days | 0.16 | | MPC | | 2008 $VZ_{61}$ |
| 2008 $VF_{62}$ | 17.6 | 0.15 | 20081021 | 74.33288 | 142.27983 | 183.15833 | 0.48546 | 0.0553897 | 2.5552400 | 13 | 1 | 25 days | 0.27 | | MPC | | 2008 $VF_{62}$ |
| 2008 $VJ_{62}$ | 18.8 | 0.15 | 20081021 | 3.94836 | 339.29738 | 57.70737 | 2.14772 | 0.1828440 | 2.4276523 | 13 | 1 | 24 days | 0.22 | | MPC | | 2008 $VJ_{62}$ |
| 2008 $VR_{62}$ | 16.7 | 0.15 | 20081021 | 79.66183 | 92.04659 | 219.91375 | 6.31888 | 0.1156431 | 3.1023147 | 13 | 1 | 38 days | 0.22 | | MPC | | 2008 $VR_{62}$ |
| 2008 $VU_{62}$ | 18.3 | 0.15 | 20081021 | 303.56100 | 57.25103 | 58.61929 | 5.32927 | 0.1600409 | 2.4801997 | 9 | 1 | 9 days | 0.18 | | MPC | | 2008 $VU_{62}$ |
| 2008 $VW_{62}$ | 18.0 | 0.15 | 20081021 | 296.23009 | 56.48681 | 55.86323 | 7.31395 | 0.0577773 | 2.3175584 | 12 | 1 | 18 days | 0.57 | | MPC | | 2008 $VW_{62}$ |
| 2008 $VK_{63}$ | 17.9 | 0.15 | 20081021 | 26.42550 | 166.38476 | 205.04801 | 3.82557 | 0.1027732 | 2.6640514 | 12 | 1 | 17 days | 0.28 | | MPC | | 2008 $VK_{63}$ |
| 2008 $VN_{63}$ | 17.4 | 0.15 | 20081021 | 333.62073 | 295.97886 | 145.57862 | 1.67597 | 0.1715808 | 3.1252099 | 9 | 1 | 13 days | 0.30 | | MPC | | 2008 $VN_{63}$ |
| 2008 $VY_{65}$ | 17.7 | 0.15 | 20100104 | 107.14947 | 308.99332 | 104.11240 | 2.52204 | 0.1776633 | 2.4472884 | 20 | 1 | 78 days | 0.34 | M-v 4 | MPC | | 2008 $VY_{65}$ |
| 2008 $VL_{67}$ | 15.0 | 0.15 | 20100104 | 271.57539 | 141.71923 | 89.59047 | 17.06266 | 0.0828254 | 3.2162782 | 35 | 4 | 2004–2009 | 0.57 | M-v 1 | MPC | 158628 | 2008 $VL_{67}$ |
| 2008 $VF_{69}$ | 16.7 | 0.15 | 20081110 | 157.81539 | 188.82307 | 67.07331 | 4.79030 | 0.0498460 | 2.8036053 | 16 | 1 | 45 days | 0.22 | | MPC | | 2008 $VF_{69}$ |
| 2008 $VH_{69}$ | 16.9 | 0.15 | 20081110 | 17.75851 | 329.34014 | 64.70069 | 9.38308 | 0.0993497 | 3.0499314 | 16 | 1 | 44 days | 0.27 | | MPC | | 2008 $VH_{69}$ |
| 2008 $VF_{70}$ | 16.4 | 0.15 | 20100104 | 226.40076 | 356.12995 | 253.64784 | 4.18550 | 0.1095416 | 2.7676702 | 45 | 4 | 2003–2009 | 0.30 | M-v 1 | MPC | 158934 | 2008 $VF_{70}$ |
| 2008 $VG_{71}$ | 16.6 | 0.15 | 20081021 | 334.36883 | 60.33215 | 10.02507 | 13.62962 | 0.1612405 | 2.5390810 | 33 | 1 | 59 days | 0.65 | | MPC | | 2008 $VG_{71}$ |
| 2008 $VW_{71}$ | 15.8 | 0.15 | 20100104 | 64.55241 | 22.57986 | 76.78485 | 30.07218 | 0.1552472 | 2.6961909 | 40 | 3 | 2004–2009 | 0.40 | M-v 2 | MPC | 165639 | 2008 $VW_{71}$ |
| 2008 $VB_{72}$ | 15.8 | 0.15 | 20100104 | 42.32200 | 353.58150 | 125.14214 | 10.77104 | 0.1093890 | 2.7800379 | 36 | 2 | 2004–2008 | 0.59 | M-v 4 | MPC | 165639 | 2008 $VB_{72}$ |
| 2008 $VB_{75}$ | 16.8 | 0.15 | 20081110 | 26.99977 | 108.96328 | 241.97903 | 28.84700 | 0.2869381 | 2.6238632 | 15 | 1 | 15 days | 0.67 | | MPC | | 2008 $VB_{75}$ |
| 2008 $VW_{75}$ | 16.5 | 0.15 | 20081130 | 342.55830 | 25.24214 | 91.61055 | 12.94558 | 0.0988069 | 2.5777703 | 15 | 1 | 52 days | 0.22 | | MPC | | 2008 $VW_{75}$ |
| 2008 WF | 16.8 | 0.15 | 20100104 | 97.41136 | 154.32519 | 215.18276 | 13.11892 | 0.1700215 | 2.6875326 | 24 | 1 | 72 days | 0.61 | M-v 4 | MPC | | 2008 WF |
| 2008 $WF_1$ | 17.2 | 0.15 | 20100104 | 89.59122 | 162.29804 | 258.24182 | 13.38244 | 0.2317385 | 2.6182187 | 20 | 1 | 66 days | 0.45 | M-v 4 | MPC | | 2008 $WF_1$ |
| 2008 $WF_2$ | 16.9 | 0.15 | 20100104 | 105.12193 | 310.37003 | 94.05120 | 8.57554 | 0.2802040 | 2.6772445 | 32 | 1 | 71 days | 0.43 | M-v 4 | MPC | | 2008 $WF_2$ |
| 2008 $WL_3$ | 17.0 | 0.15 | 20081110 | 358.15587 | 12.18442 | 33.94940 | 10.95150 | 0.1373765 | 3.0334513 | 12 | 1 | 24 days | 0.29 | | MPC | | 2008 $WL_3$ |
| 2008 $WP_3$ | 16.6 | 0.15 | 20081110 | 5.60589 | 166.10188 | 230.05547 | 8.05384 | 0.0898751 | 2.9756693 | 12 | 1 | 23 days | 0.20 | | MPC | | 2008 $WP_3$ |
| 2008 $WS_3$ | 18.3 | 0.15 | 20081110 | 349.58633 | 196.43819 | 226.40340 | 19.29733 | 0.2896132 | 3.0795713 | 12 | 1 | 14 days | 0.28 | | MPC | | 2008 $WS_3$ |
| 2008 $WO_4$ | 17.0 | 0.15 | 20081110 | 86.72967 | 77.50236 | 230.64018 | 7.27810 | 0.0775164 | 2.7421278 | 15 | 1 | 21 days | 0.35 | | MPC | | 2008 $WO_4$ |
| 2008 $WP_4$ | 17.2 | 0.15 | 20081021 | 23.34968 | 142.05469 | 228.10173 | 8.27341 | 0.1060163 | 2.9438458 | 9 | 1 | 21 days | 0.33 | | MPC | | 2008 $WP_4$ |
| 2008 $WY_4$ | 16.3 | 0.15 | 20081021 | 48.96972 | 118.78545 | 223.50945 | 26.09671 | 0.0885933 | 3.1506698 | 16 | 1 | 52 days | 0.39 | | MPC | | 2008 $WY_4$ |
| 2008 $WB_5$ | 18.4 | 0.15 | 20081021 | 16.41208 | 318.98277 | 48.61825 | 24.13563 | 0.2625316 | 2.4214501 | 16 | 1 | 25 days | 0.23 | | MPC | | 2008 $WB_5$ |
| 2008 $WK_5$ | 16.6 | 0.15 | 20081021 | 259.22035 | 307.87445 | 215.44722 | 13.20642 | 0.2159754 | 3.0283857 | 10 | 1 | 22 days | 0.22 | | MPC | | 2008 $WK_5$ |
| 2008 $WL_5$ | 18.4 | 0.15 | 20081110 | 345.46560 | 11.17061 | 53.42033 | 12.88604 | 0.1687863 | 2.5570952 | 12 | 1 | 19 days | 0.19 | | MPC | | 2008 $WL_5$ |
| 2008 $WY_5$ | 18.6 | 0.15 | 20081021 | 31.07888 | 277.76478 | 75.21331 | 5.42388 | 0.1722054 | 2.2439358 | 14 | 1 | 51 days | 0.26 | | MPC | | 2008 $WY_5$ |
| 2008 $WZ_5$ | 16.0 | 0.15 | 20081110 | 160.80881 | 212.64436 | 29.94790 | 9.62759 | 0.0525872 | 3.1701401 | 12 | 1 | 27 days | 0.24 | | MPC | | 2008 $WZ_5$ |
| 2008 $WM_6$ | 16.3 | 0.15 | 20081021 | 40.88238 | 114.12986 | 237.57683 | 8.76818 | 0.0993627 | 3.1701159 | 12 | 1 | 28 days | 0.22 | | MPC | | 2008 $WM_6$ |
| 2008 $WO_6$ | 18.8 | 0.15 | 20081110 | 68.27205 | 282.14609 | 46.55039 | 21.76795 | 0.0829545 | 1.9606575 | 15 | 1 | 20 days | 0.42 | | MPC | | 2008 $WO_6$ |
| 2008 $WP_6$ | 17.0 | 0.15 | 20081021 | 66.00286 | 95.04594 | 235.40270 | 8.57897 | 0.0427010 | 2.9955416 | 12 | 1 | 45 days | 0.18 | | MPC | | 2008 $WP_6$ |
| 2008 $WX_6$ | 17.1 | 0.15 | 20081110 | 300.13113 | 77.06804 | 37.19231 | 7.23432 | 0.0852842 | 2.8975776 | 12 | 1 | 27 days | 0.24 | | MPC | | 2008 $WX_6$ |
| 2008 $WB_7$ | 16.1 | 0.15 | 20081021 | 229.29715 | 142.70658 | 43.78171 | 28.89786 | 0.1722250 | 3.1969372 | 12 | 1 | 25 days | 0.27 | | MPC | | 2008 $WB_7$ |
| 2008 $WQ_7$ | 16.4 | 0.15 | 20081021 | 171.47374 | 182.02727 | 47.30276 | 11.60016 | 0.0518732 | 3.0843241 | 12 | 1 | 26 days | 0.28 | | MPC | | 2008 $WQ_7$ |
| 2008 $WX_7$ | 17.9 | 0.15 | 20081021 | 50.15412 | 183.23168 | 159.05332 | 0.90299 | 0.0774434 | 2.5856501 | 12 | 1 | 22 days | 0.20 | | MPC | | 2008 $WX_7$ |
| 2008 $WY_7$ | 20.0 | 0.15 | 20081110 | 352.51067 | 200.66046 | 216.66473 | 2.93924 | 0.2073956 | 2.2651842 | 10 | 1 | 11 days | 0.51 | | MPC | | 2008 $WY_7$ |
| 2008 $WB_8$ | 16.8 | 0.15 | 20081021 | 254.79959 | 100.01576 | 56.14495 | 3.51889 | 0.0955252 | 2.7221971 | 16 | 1 | 24 days | 0.29 | | MPC | | 2008 $WB_8$ |
| 2008 $WM_8$ | 16.5 | 0.15 | 20081021 | 284.74864 | 326.65923 | 158.03842 | 2.37577 | 0.0784647 | 3.2418622 | 17 | 1 | 24 days | 0.27 | | MPC | | 2008 $WM_8$ |
| 2008 $WO_8$ | 18.2 | 0.15 | 20081021 | 329.01770 | 19.85944 | 61.69686 | 5.93317 | 0.1640586 | 2.6609740 | 13 | 1 | 24 days | 0.29 | | MPC | | 2008 $WO_8$ |
| 2008 $WO_9$ | 18.7 | 0.15 | 20081021 | 39.38959 | 233.10743 | 105.18526 | 3.38242 | 0.2230088 | 2.3555393 | 10 | 1 | 23 days | 0.22 | | MPC | | 2008 $WO_9$ |
| 2008 $WS_9$ | 18.2 | 0.15 | 20081110 | 13.34015 | 333.45091 | 61.70422 | 11.07803 | 0.2023989 | 2.5936121 | 10 | 1 | 15 days | 0.30 | | MPC | | 2008 $WS_9$ |
| 2008 $WB_{10}$ | 17.1 | 0.15 | 20081110 | 66.55686 | 269.65486 | 74.72859 | 3.18158 | 0.0595952 | 2.6553666 | 11 | 1 | 12 days | 0.20 | | MPC | | 2008 $WB_{10}$ |
| 2008 $WC_{10}$ | 16.6 | 0.15 | 20081110 | 133.48923 | 292.03213 | 352.11563 | 3.80068 | 0.0667350 | 2.7012232 | 9 | 1 | 11 days | 0.16 | | MPC | | 2008 $WC_{10}$ |
| 2008 $WR_{11}$ | 15.6 | 0.15 | 20081110 | 23.36999 | 159.65091 | 228.23972 | 9.23377 | 0.0535062 | 3.0943872 | 20 | 1 | 59 days | 0.46 | | MPC | | 2008 $WR_{11}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 $WY_{11}$ | 17.9 | 0.15 | 20081110 | 337.39820 | 260.46903 | 183.77962 | 0.96459 | 0.1553520 | 2.4508290 | 12 | 1 | 13 days | 0.38 | | | MPC | 2008 $WY_{11}$ |
| 2008 $WZ_{11}$ | 15.8 | 0.15 | 20081110 | 273.91902 | 290.46971 | 229.67162 | 11.66106 | 0.1650494 | 3.1516601 | 11 | 1 | 13 days | 0.31 | | | MPC | 2008 $WZ_{11}$ |
| 2008 $WS_{15}$ | 18.6 | 0.15 | 20100104 | 127.06232 | 200.41651 | 182.81887 | 2.01435 | 0.2090022 | 2.3470199 | 21 | 1 | 75 days | 0.39 | M-v | 4 | MPC | 2008 $WS_{15}$ |
| 2008 $WA_{16}$ | 15.6 | 0.15 | 20081110 | 24.20272 | 22.00883 | 349.66375 | 3.32488 | 0.1261801 | 3.0146847 | 14 | 1 | 11 days | 0.45 | | | MPC | 2008 $WA_{16}$ |
| 2008 $WD_{16}$ | 18.9 | 0.15 | 20081021 | 359.03728 | 137.28493 | 259.37834 | 3.75427 | 0.2383111 | 2.5966915 | 12 | 1 | 23 days | 0.24 | | | MPC | 2008 $WD_{16}$ |
| 2008 $WN_{16}$ | 17.1 | 0.15 | 20081021 | 351.26267 | 92.76671 | 314.57959 | 0.80375 | 0.0824721 | 2.7051323 | 12 | 1 | 28 days | 0.22 | | | MPC | 2008 $WN_{16}$ |
| 2008 $WR_{16}$ | 16.8 | 0.15 | 20081021 | 7.72315 | 344.63408 | 41.27889 | 13.23922 | 0.1359700 | 3.1301782 | 20 | 1 | 23 days | 0.27 | | | MPC | 2008 $WR_{16}$ |
| 2008 $WX_{17}$ | 18.0 | 0.15 | 20081021 | 294.42299 | 206.74376 | 265.05757 | 4.19757 | 0.0758138 | 2.4356569 | 9 | 1 | 23 days | 0.23 | | | MPC | 2008 $WX_{17}$ |
| 2008 $WC_{18}$ | 18.2 | 0.15 | 20081021 | 86.25966 | 40.47669 | 256.47989 | 5.84279 | 0.1360395 | 2.2668298 | 13 | 1 | 56 days | 0.24 | | | MPC | 2008 $WC_{18}$ |
| 2008 $WJ_{18}$ | 16.4 | 0.15 | 20100104 | 112.91100 | 76.69273 | 282.15551 | 2.29158 | 0.0662841 | 3.1539429 | 16 | 1 | 62 days | 0.22 | M-v | 5 | MPC | 2008 $WJ_{18}$ |
| 2008 $WQ_{18}$ | 16.7 | 0.15 | 20081021 | 303.45861 | 65.34309 | 40.14638 | 5.68359 | 0.1083266 | 3.1494696 | 13 | 1 | 23 days | 0.34 | | | MPC | 2008 $WQ_{18}$ |
| 2008 $WW_{18}$ | 17.9 | 0.15 | 20081021 | 29.56829 | 280.98083 | 73.99582 | 4.28366 | 0.1662316 | 2.7182550 | 16 | 1 | 55 days | 0.34 | | | MPC | 2008 $WW_{18}$ |
| 2008 $WA_{19}$ | 17.0 | 0.15 | 20081110 | 336.91460 | 215.30112 | 211.97355 | 11.83345 | 0.0473448 | 2.9354409 | 17 | 1 | 27 days | 0.28 | | | MPC | 2008 $WA_{19}$ |
| 2008 $WF_{19}$ | 16.1 | 0.15 | 20100104 | 150.76069 | 66.12185 | 254.15535 | 6.47361 | 0.1105705 | 3.0008527 | 33 | 4 | 2002–2009 | 0.20 | M-v | 0 | MPC | 150696 2008 $WF_{19}$ |
| 2008 $WH_{19}$ | 19.0 | 0.15 | 20081110 | 343.15065 | 286.95527 | 139.84000 | 1.92832 | 0.1550789 | 2.3282863 | 12 | 1 | 22 days | 0.25 | | | MPC | 2008 $WH_{19}$ |
| 2008 $WJ_{20}$ | 17.6 | 0.15 | 20081110 | 68.91270 | 281.58353 | 43.45388 | 2.53780 | 0.2038738 | 2.5993816 | 19 | 1 | 25 days | 0.21 | | | MPC | 2008 $WJ_{20}$ |
| 2008 $WU_{20}$ | 18.8 | 0.15 | 20081021 | 41.51704 | 290.37578 | 55.03456 | 3.43001 | 0.2303514 | 2.2891746 | 16 | 1 | 24 days | 0.24 | | | MPC | 2008 $WU_{20}$ |
| 2008 $WR_{21}$ | 17.3 | 0.15 | 20081110 | 359.78769 | 358.36157 | 41.99428 | 6.06337 | 0.0263629 | 2.7554730 | 10 | 1 | 18 days | 0.23 | | | MPC | 2008 $WR_{21}$ |
| 2008 $WR_{22}$ | 16.2 | 0.15 | 20081110 | 352.98541 | 178.52049 | 238.16716 | 4.56335 | 0.1593273 | 3.0750716 | 24 | 1 | 24 days | 0.42 | | | MPC | 2008 $WR_{22}$ |
| 2008 $WA_{23}$ | 15.9 | 0.15 | 20081021 | 53.83656 | 293.57931 | 54.17805 | 14.45498 | 0.0631107 | 3.2021849 | 10 | 1 | 28 days | 0.21 | | | MPC | 2008 $WA_{23}$ |
| 2008 $WE_{23}$ | 16.2 | 0.15 | 20081021 | 356.48070 | 12.85101 | 41.03821 | 1.18695 | 0.2960398 | 3.9773270 | 11 | 1 | 23 days | 0.21 | | | MPC | 2008 $WE_{23}$ |
| 2008 $WF_{23}$ | 16.9 | 0.15 | 20081110 | 24.40179 | 323.70596 | 55.99896 | 7.64010 | 0.1343387 | 2.5800146 | 19 | 1 | 17 days | 0.40 | | | MPC | 2008 $WF_{23}$ |
| 2008 $WP_{23}$ | 17.5 | 0.15 | 20100104 | 139.07541 | 3.02414 | 33.62597 | 4.70662 | 0.1208745 | 2.2145029 | 28 | 1 | 87 days | 0.53 | M-v | 4 | MPC | 2008 $WP_{23}$ |
| 2008 $WW_{23}$ | 16.1 | 0.15 | 20100104 | 297.78207 | 193.17196 | 15.93544 | 1.93573 | 0.0368357 | 2.7426109 | 64 | 7 | 1994–2009 | 0.42 | M-v | 0 | MPC | 158628 2008 $WW_{23}$ |
| 2008 $WL_{24}$ | 16.4 | 0.15 | 20081110 | 1.00900 | 53.54325 | 3.21038 | 1.81319 | 0.0329388 | 3.1274612 | 17 | 1 | 19 days | 0.22 | | | MPC | 2008 $WL_{24}$ |
| 2008 $WJ_{25}$ | 15.3 | 0.15 | 20081110 | 52.98964 | 276.88420 | 62.17995 | 26.51859 | 0.2062489 | 3.1899801 | 20 | 1 | 49 days | 0.37 | | | MPC | 2008 $WJ_{25}$ |
| 2008 $WP_{25}$ | 19.3 | 0.15 | 20081110 | 326.97620 | 235.18376 | 222.10963 | 2.50971 | 0.2063880 | 2.2520999 | 14 | 1 | 25 days | 0.28 | | | MPC | 2008 $WP_{25}$ |
| 2008 $WB_{26}$ | 18.5 | 0.15 | 20081021 | 347.99416 | 156.29787 | 256.99299 | 4.18941 | 0.2193987 | 2.4140385 | 16 | 1 | 41 days | 0.39 | | | MPC | 2008 $WB_{26}$ |
| 2008 $WS_{26}$ | 18.6 | 0.15 | 20081021 | 34.60501 | 334.56606 | 346.37857 | 2.34661 | 0.2197856 | 2.2771547 | 12 | 1 | 28 days | 0.33 | | | MPC | 2008 $WS_{26}$ |
| 2008 $WU_{27}$ | 18.0 | 0.15 | 20081110 | 9.51831 | 341.14223 | 56.59312 | 17.95440 | 0.2057529 | 3.0345103 | 11 | 1 | 11 days | 0.35 | | | MPC | 2008 $WU_{27}$ |
| 2008 $WV_{27}$ | 19.6 | 0.15 | 20081110 | 28.14426 | 165.66133 | 215.81306 | 0.95744 | 0.0458081 | 2.0991908 | 10 | 1 | 19 days | 0.36 | | | MPC | 2008 $WV_{27}$ |
| 2008 $WZ_{27}$ | 16.3 | 0.15 | 20081021 | 74.60535 | 93.23686 | 225.20543 | 3.50181 | 0.1483370 | 3.2568870 | 10 | 1 | 24 days | 0.17 | | | MPC | 2008 $WZ_{27}$ |
| 2008 $WE_{28}$ | 15.7 | 0.15 | 20081110 | 0.74818 | 354.43918 | 58.19081 | 11.99050 | 0.1389321 | 3.9914041 | 14 | 1 | 30 days | 0.20 | | | MPC | 2008 $WE_{28}$ |
| 2008 $WC_{29}$ | 17.1 | 0.15 | 20081021 | 38.47719 | 141.99858 | 223.03069 | 10.78458 | 0.0707490 | 2.6869194 | 12 | 1 | 24 days | 0.34 | | | MPC | 2008 $WC_{29}$ |
| 2008 $WH_{29}$ | 18.0 | 0.15 | 20081110 | 337.14265 | 226.66579 | 219.72824 | 6.14246 | 0.1545680 | 2.4302215 | 16 | 1 | 28 days | 0.26 | | | MPC | 2008 $WH_{29}$ |
| 2008 $WO_{30}$ | 16.5 | 0.15 | 20081110 | 50.21042 | 294.88794 | 63.85921 | 10.58725 | 0.2263981 | 3.1825191 | 10 | 1 | 13 days | 0.21 | | | MPC | 2008 $WO_{30}$ |
| 2008 $WR_{33}$ | 17.8 | 0.15 | 20081021 | 351.11510 | 221.47510 | 185.88876 | 1.47449 | 0.0879404 | 2.5166718 | 14 | 1 | 24 days | 0.18 | | | MPC | 2008 $WR_{33}$ |
| 2008 $WU_{33}$ | 16.8 | 0.15 | 20081110 | 327.38740 | 24.51409 | 54.30960 | 9.33315 | 0.0637553 | 3.0378947 | 9 | 1 | 19 days | 0.17 | | | MPC | 2008 $WU_{33}$ |
| 2008 $WC_{34}$ | 18.5 | 0.15 | 20081110 | 19.62361 | 330.10056 | 46.20047 | 7.43749 | 0.1776549 | 2.6015250 | 12 | 1 | 20 days | 0.29 | | | MPC | 2008 $WC_{34}$ |
| 2008 $WW_{34}$ | 16.3 | 0.15 | 20081021 | 150.93882 | 35.72978 | 209.83823 | 7.10750 | 0.0759036 | 3.1079276 | 10 | 1 | 24 days | 0.24 | | | MPC | 2008 $WW_{34}$ |
| 2008 $WG_{35}$ | 16.6 | 0.15 | 20081110 | 190.40779 | 306.96378 | 281.84496 | 1.03230 | 0.0878851 | 2.8430957 | 10 | 1 | 4 days | 0.34 | | E | MPC | 2008 $WG_{35}$ |
| 2008 $WY_{35}$ | 18.0 | 0.15 | 20081021 | 353.67420 | 4.41742 | 54.36558 | 3.71775 | 0.0293291 | 2.4001953 | 12 | 1 | 24 days | 0.19 | | | MPC | 2008 $WY_{35}$ |
| 2008 $WZ_{35}$ | 17.0 | 0.15 | 20081021 | 39.24766 | 148.80870 | 220.75336 | 1.33927 | 0.0657570 | 2.8415657 | 9 | 1 | 24 days | 0.19 | | | MPC | 2008 $WZ_{35}$ |
| 2008 $WE_{36}$ | 19.3 | 0.15 | 20081110 | 346.20310 | 34.86749 | 43.45911 | 1.03811 | 0.2458112 | 2.2439904 | 9 | 1 | 18 days | 0.10 | | | MPC | 2008 $WE_{36}$ |
| 2008 $WF_{36}$ | 17.1 | 0.15 | 20081110 | 62.04091 | 131.30869 | 217.20776 | 1.26342 | 0.0785571 | 2.8944589 | 13 | 1 | 54 days | 0.20 | | | MPC | 2008 $WF_{36}$ |
| 2008 $WS_{36}$ | 17.4 | 0.15 | 20081110 | 355.15941 | 3.42963 | 62.04377 | 9.90760 | 0.1617397 | 3.0580505 | 13 | 1 | 44 days | 0.21 | | | MPC | 2008 $WS_{36}$ |
| 2008 $WW_{36}$ | 16.0 | 0.15 | 20081130 | 315.03779 | 46.90096 | 62.77354 | 26.60395 | 0.0124084 | 3.1657207 | 14 | 1 | 45 days | 0.17 | | | MPC | 2008 $WW_{36}$ |
| 2008 $WZ_{36}$ | 16.6 | 0.15 | 20081110 | 75.29169 | 269.18899 | 61.61584 | 10.82580 | 0.1237234 | 3.0257463 | 9 | 1 | 18 days | 0.24 | | | MPC | 2008 $WZ_{36}$ |
| 2008 $WV_{37}$ | 16.6 | 0.15 | 20081130 | 359.99877 | 0.83866 | 64.25390 | 3.42840 | 0.1442084 | 3.0735577 | 14 | 1 | 34 days | 0.31 | | | MPC | 2008 $WV_{37}$ |
| 2008 $WW_{38}$ | 17.0 | 0.15 | 20081110 | 60.99559 | 115.36598 | 217.98932 | 2.24715 | 0.2139869 | 3.1323999 | 9 | 1 | 18 days | 0.18 | | | MPC | 2008 $WW_{38}$ |
| 2008 $WZ_{38}$ | 18.5 | 0.15 | 20081110 | 5.78049 | 343.41204 | 63.16241 | 7.30855 | 0.2401121 | 2.8051802 | 9 | 1 | 4 days | 0.31 | | | MPC | 2008 $WZ_{38}$ |
| 2008 $WK_{39}$ | 17.7 | 0.15 | 20081021 | 357.85118 | 216.23539 | 195.80639 | 1.47929 | 0.1948532 | 2.5396019 | 26 | 1 | 54 days | 0.26 | | D | MPC | 2008 $WK_{39}$ |
| 2008 $WW_{40}$ | 16.7 | 0.15 | 20081110 | 351.85598 | 357.57335 | 71.86150 | 10.82153 | 0.0805888 | 2.9654664 | 10 | 1 | 20 days | 0.22 | | | MPC | 2008 $WW_{40}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 $WU_{41}$ | 18.9 | 0.15 | 20081110 | 11.96394 | 159.74269 | 245.22728 | 20.52566 | 0.0363603 | 1.9083180 | 9 | 1 | 15 days | 0.16 | | | MPC | 2008 $WU_{41}$ |
| 2008 $WB_{42}$ | 17.0 | 0.15 | 20081110 | 225.00506 | 165.76316 | 43.97871 | 4.77689 | 0.1812224 | 2.3156015 | 17 | 1 | 27 days | 0.44 | | | MPC | 2008 $WB_{42}$ |
| 2008 $WR_{42}$ | 17.1 | 0.15 | 20081110 | 135.74177 | 231.61864 | 48.48413 | 5.63364 | 0.1023348 | 2.4147162 | 9 | 1 | 13 days | 0.18 | | | MPC | 2008 $WR_{42}$ |
| 2008 $WQ_{44}$ | 17.0 | 0.15 | 20081110 | 357.92204 | 175.30616 | 250.67190 | 7.76835 | 0.0838908 | 3.1819653 | 9 | 1 | 13 days | 0.23 | | | MPC | 2008 $WQ_{44}$ |
| 2008 $WF_{45}$ | 15.6 | 0.15 | 20100104 | 172.84204 | 255.64097 | 64.23260 | 3.88381 | 0.0947041 | 3.0260996 | 18 | 1 | 62 days | 0.40 | M-v | 5 | MPC | 2008 $WF_{45}$ |
| 2008 $WH_{46}$ | 17.8 | 0.15 | 20081130 | 338.87660 | 199.22233 | 254.41311 | 6.12129 | 0.0451120 | 2.3391243 | 13 | 1 | 33 days | 0.21 | | | MPC | 2008 $WH_{46}$ |
| 2008 $WY_{46}$ | 16.4 | 0.15 | 20081110 | 14.77651 | 101.96300 | 303.30457 | 0.36268 | 0.1461767 | 3.1618164 | 19 | 1 | 39 days | 0.21 | | | MPC | 2008 $WY_{46}$ |
| 2008 $WA_{49}$ | 16.5 | 0.15 | 20081110 | 315.85457 | 240.07083 | 223.30850 | 9.74881 | 0.0945522 | 2.9592387 | 12 | 1 | 12 days | 0.44 | | E | MPC | 2008 $WA_{49}$ |
| 2008 $WK_{50}$ | 17.8 | 0.15 | 20081110 | 138.13623 | 212.28783 | 67.95330 | 23.36838 | 0.0733557 | 1.9175024 | 16 | 1 | 23 days | 0.26 | | | MPC | 2008 $WK_{50}$ |
| 2008 $WT_{50}$ | 17.5 | 0.15 | 20081110 | 8.34079 | 181.60789 | 216.39241 | 3.75621 | 0.1938039 | 3.0655585 | 14 | 1 | 21 days | 0.29 | | | MPC | 2008 $WT_{50}$ |
| 2008 $WU_{50}$ | 17.1 | 0.15 | 20081021 | 16.03803 | 320.21369 | 59.34455 | 10.63879 | 0.2029096 | 2.7931736 | 19 | 1 | 46 days | 0.41 | | | MPC | 2008 $WU_{50}$ |
| 2008 $WH_{51}$ | 18.7 | 0.15 | 20081110 | 2.05444 | 346.55515 | 60.95231 | 9.49206 | 0.1987378 | 2.7494717 | 10 | 1 | 12 days | 0.29 | | | MPC | 2008 $WH_{51}$ |
| 2008 $WX_{51}$ | 16.1 | 0.15 | 20081110 | 89.38284 | 325.95948 | 299.93685 | 1.85565 | 0.4771256 | 2.7382435 | 9 | 1 | 4 days | 0.19 | | | MPC | 2008 $WX_{51}$ |
| 2008 $WK_{52}$ | 18.1 | 0.15 | 20081110 | 63.86103 | 286.47598 | 40.27377 | 7.33141 | 0.1389526 | 2.4916226 | 9 | 1 | 4 days | 0.42 | | | MPC | 2008 $WK_{52}$ |
| 2008 $WS_{52}$ | 17.3 | 0.15 | 20081110 | 74.72780 | 268.40567 | 48.00222 | 9.82349 | 0.1239721 | 2.8809497 | 12 | 1 | 22 days | 0.24 | | | MPC | 2008 $WS_{52}$ |
| 2008 $WY_{52}$ | 16.9 | 0.15 | 20081110 | 302.47787 | 82.27181 | 47.89717 | 13.25502 | 0.2429536 | 3.0577262 | 18 | 1 | 43 days | 0.47 | | | MPC | 2008 $WY_{52}$ |
| 2008 $WB_{53}$ | 17.3 | 0.15 | 20081110 | 344.00736 | 5.56388 | 60.04956 | 5.80596 | 0.1245111 | 3.1240965 | 10 | 1 | 13 days | 0.24 | | | MPC | 2008 $WB_{53}$ |
| 2008 $WK_{53}$ | 16.4 | 0.15 | 20081110 | 241.07801 | 320.87588 | 211.33442 | 7.87311 | 0.0981239 | 3.0410039 | 13 | 1 | 22 days | 0.24 | | | MPC | 2008 $WK_{53}$ |
| 2008 $WP_{53}$ | 17.5 | 0.15 | 20081021 | 352.71202 | 301.12431 | 108.02439 | 2.94301 | 0.1710125 | 3.0686608 | 13 | 1 | 24 days | 0.22 | | | MPC | 2008 $WP_{53}$ |
| 2008 $WV_{53}$ | 18.7 | 0.15 | 20081110 | 356.12636 | 309.53214 | 101.53566 | 3.26464 | 0.2028129 | 2.4061097 | 9 | 1 | 4 days | 0.21 | | | MPC | 2008 $WV_{53}$ |
| 2008 $WD_{55}$ | 17.5 | 0.15 | 20081021 | 347.10468 | 156.43101 | 259.59289 | 4.01941 | 0.1500571 | 2.8028683 | 15 | 1 | 46 days | 0.16 | | | MPC | 2008 $WD_{55}$ |
| 2008 $WB_{56}$ | 17.5 | 0.15 | 20081110 | 98.66629 | 267.68335 | 24.91113 | 5.59821 | 0.2263414 | 2.3272996 | 11 | 1 | 13 days | 0.19 | | | MPC | 2008 $WB_{56}$ |
| 2008 $WY_{57}$ | 16.6 | 0.15 | 20081021 | 71.67731 | 237.58288 | 80.75179 | 2.18313 | 0.1656192 | 3.0882268 | 14 | 1 | 29 days | 0.24 | | | MPC | 2008 $WY_{57}$ |
| 2008 $WB_{58}$ | 15.3 | 0.15 | 20081110 | 118.91934 | 219.28234 | 67.40929 | 10.35204 | 0.0763735 | 3.1804303 | 12 | 1 | 20 days | 0.11 | | | MPC | 2008 $WB_{58}$ |
| 2008 $WK_{58}$ | 16.9 | 0.15 | 20081021 | 83.68717 | 227.72034 | 84.87814 | 3.63941 | 0.1152128 | 3.0883016 | 11 | 1 | 25 days | 0.33 | | | MPC | 2008 $WK_{58}$ |
| 2008 $WB_{59}$ | 19.3 | 0.15 | 20100104 | 196.80288 | 188.79556 | 60.53527 | 25.64506 | 0.1879739 | 1.0448947 | 182 | 2 | 2008–2009 | 0.36 | M-v | 2 | MPC | 166337 2008 $WB_{59}$ |
| 2008 $WD_{59}$ | 16.0 | 0.15 | 20100104 | 49.23217 | 208.44764 | 242.10389 | 9.37091 | 0.1877013 | 3.1391374 | 44 | 1 | 86 days | 0.53 | M-v | 4 | MPC | 2008 $WD_{59}$ |
| 2008 $WU_{59}$ | 16.2 | 0.15 | 20100104 | 84.45851 | 342.83314 | 86.02802 | 10.13024 | 0.1801455 | 2.7710297 | 28 | 1 | 75 days | 0.58 | M-v | 3 | MPC | 2008 $WU_{59}$ |
| 2008 $WA_{60}$ | 16.0 | 0.15 | 20100104 | 114.40191 | 187.37377 | 216.14772 | 7.87273 | 0.1022785 | 2.5690744 | 29 | 1 | 92 days | 0.41 | M-v | 4 | MPC | 2008 $WA_{60}$ |
| 2008 $WQ_{62}$ | 18.5 | 0.15 | 20081110 | 12.14396 | 295.89862 | 91.91016 | 6.12898 | 0.2356743 | 2.5885234 | 16 | 1 | 27 days | 0.62 | | | MPC | 2008 $WQ_{62}$ |
| 2008 $WU_{63}$ | 17.2 | 0.15 | 20081110 | 77.80410 | 223.99131 | 74.91794 | 17.27989 | 0.2104212 | 2.4349026 | 23 | 1 | 27 days | 0.48 | | | MPC | 2008 $WU_{63}$ |
| 2008 $WG_{64}$ | 15.7 | 0.15 | 20100104 | 84.32892 | 153.81245 | 264.30654 | 9.08183 | 0.1685365 | 2.9779974 | 44 | 1 | 74 days | 0.57 | M-v | 4 | MPC | 2008 $WG_{64}$ |
| 2008 $WP_{64}$ | 16.8 | 0.15 | 20081110 | 18.13729 | 138.44944 | 239.41909 | 12.06315 | 0.1684013 | 3.1361432 | 9 | 1 | 15 days | 0.14 | | | MPC | 2008 $WP_{64}$ |
| 2008 $WU_{64}$ | 17.1 | 0.15 | 20081021 | 23.50521 | 151.57482 | 214.34340 | 10.39727 | 0.1508716 | 3.1582149 | 13 | 1 | 35 days | 0.38 | | | MPC | 2008 $WU_{64}$ |
| 2008 $WV_{64}$ | 16.7 | 0.15 | 20081110 | 114.24721 | 71.53104 | 208.52260 | 4.37768 | 0.0815135 | 2.7124361 | 13 | 1 | 27 days | 0.16 | | | MPC | 2008 $WV_{64}$ |
| 2008 $WB_{65}$ | 17.1 | 0.15 | 20081110 | 57.18171 | 300.15549 | 33.26328 | 11.62647 | 0.1393371 | 3.0257400 | 9 | 1 | 7 days | 0.21 | | | MPC | 2008 $WB_{65}$ |
| 2008 $WE_{65}$ | 16.2 | 0.15 | 20081110 | 323.83554 | 20.75292 | 59.21353 | 5.44008 | 0.0240225 | 3.2204723 | 16 | 1 | 27 days | 0.33 | | | MPC | 2008 $WE_{65}$ |
| 2008 $WY_{72}$ | 17.2 | 0.15 | 20081110 | 327.65566 | 64.82879 | 44.52574 | 4.42873 | 0.1139098 | 2.6502055 | 13 | 1 | 17 days | 0.27 | | | MPC | 2008 $WY_{72}$ |
| 2008 $WZ_{72}$ | 16.2 | 0.15 | 20081130 | 106.86454 | 293.41474 | 26.62655 | 2.94889 | 0.0840460 | 3.0282836 | 11 | 1 | 33 days | 0.28 | | | MPC | 2008 $WZ_{72}$ |
| 2008 $WC_{74}$ | 16.3 | 0.15 | 20081110 | 354.90262 | 189.29425 | 267.49036 | 14.13937 | 0.2496859 | 3.1783870 | 12 | 1 | 23 days | 0.33 | | | MPC | 2008 $WC_{74}$ |
| 2008 $WL_{74}$ | 18.4 | 0.15 | 20081110 | 1.83291 | 4.63287 | 72.98518 | 7.55569 | 0.2426842 | 2.4433224 | 14 | 1 | 5 days | 0.29 | | | MPC | 2008 $WL_{74}$ |
| 2008 $WM_{74}$ | 16.6 | 0.15 | 20100104 | 108.52016 | 350.56861 | 351.61797 | 8.71454 | 0.1760521 | 2.7172593 | 23 | 1 | 78 days | 0.41 | M-v | 4 | MPC | 2008 $WM_{74}$ |
| 2008 $WX_{74}$ | 16.0 | 0.15 | 20100104 | 302.16292 | 121.21997 | 53.66048 | 11.17761 | 0.0408313 | 3.1658141 | 23 | 1 | 90 days | 0.47 | M-v | 4 | MPC | 2008 $WX_{74}$ |
| 2008 $WY_{74}$ | 17.0 | 0.15 | 20081021 | 149.05490 | 183.60055 | 60.75700 | 5.49648 | 0.0671274 | 2.6547343 | 12 | 1 | 56 days | 0.27 | | | MPC | 2008 $WY_{74}$ |
| 2008 $WT_{76}$ | 16.4 | 0.15 | 20081110 | 125.75470 | 212.30273 | 72.90618 | 16.36196 | 0.1288552 | 2.5910310 | 13 | 1 | 37 days | 0.20 | | | MPC | 2008 $WT_{76}$ |
| 2008 $WL_{77}$ | 16.2 | 0.15 | 20100104 | 120.07024 | 289.59388 | 82.30379 | 10.58157 | 0.1007414 | 3.0485930 | 17 | 1 | 65 days | 0.34 | M-v | 5 | MPC | 2008 $WL_{77}$ |
| 2008 $WT_{77}$ | 18.4 | 0.15 | 20081130 | 285.90052 | 54.16069 | 95.13995 | 4.85193 | 0.0657134 | 2.2257063 | 10 | 1 | 32 days | 0.32 | | | MPC | 2008 $WT_{77}$ |
| 2008 $WZ_{77}$ | 15.6 | 0.15 | 20081110 | 14.96650 | 171.85372 | 227.61791 | 9.87103 | 0.2512765 | 3.9722866 | 10 | 1 | 17 days | 0.16 | | | MPC | 2008 $WZ_{77}$ |
| 2008 $WV_{79}$ | 16.7 | 0.15 | 20100104 | 119.86724 | 247.52496 | 156.30932 | 3.88798 | 0.0883703 | 2.5124729 | 17 | 1 | 65 days | 0.39 | M-v | 5 | MPC | 2008 $WV_{79}$ |
| 2008 $WA_{80}$ | 17.5 | 0.15 | 20081110 | 269.83773 | 84.24012 | 72.03330 | 24.95964 | 0.0427912 | 2.0201216 | 13 | 1 | 35 days | 0.24 | | | MPC | 2008 $WA_{80}$ |
| 2008 $WE_{81}$ | 16.8 | 0.15 | 20081110 | 324.95011 | 224.47258 | 241.25734 | 21.33292 | 0.0569831 | 2.6651540 | 12 | 1 | 38 days | 0.19 | | | MPC | 2008 $WE_{81}$ |
| 2008 $WL_{81}$ | 17.1 | 0.15 | 20081110 | 305.13743 | 295.88457 | 194.08209 | 4.74116 | 0.0782812 | 2.7868316 | 10 | 1 | 17 days | 0.32 | | | MPC | 2008 $WL_{81}$ |
| 2008 $WW_{82}$ | 16.0 | 0.15 | 20081110 | 174.12001 | 164.57365 | 88.41448 | 16.32392 | 0.0986314 | 2.8536013 | 9 | 1 | 13 days | 0.25 | | | MPC | 2008 $WW_{82}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 $WJ_{83}$ | 17.5 | 0.15 | 20081130 | 293.23664 | 293.68633 | 224.41220 | 9.69532 | 0.1609416 | 2.3969119 | 14 | 1 | 55 days | 0.31 | | | MPC | | 2008 $WJ_{83}$ |
| 2008 $WF_{84}$ | 15.9 | 0.15 | 20100104 | 117.26468 | 111.61056 | 273.02423 | 9.64736 | 0.1274967 | 3.0234662 | 19 | 1 | 61 days | 0.59 | M-v | 4 | MPC | | 2008 $WF_{84}$ |
| 2008 $WZ_{84}$ | 16.6 | 0.15 | 20081110 | 40.70995 | 94.74238 | 275.34011 | 6.78744 | 0.2428946 | 3.3227494 | 9 | 1 | 12 days | 0.57 | | E | MPC | | 2008 $WZ_{84}$ |
| 2008 $WF_{85}$ | 16.2 | 0.15 | 20081110 | 274.82980 | 66.91717 | 121.41550 | 2.40799 | 0.1642740 | 2.9130944 | 9 | 1 | 15 days | 0.22 | | | MPC | | 2008 $WF_{85}$ |
| 2008 $WH_{85}$ | 16.2 | 0.15 | 20081110 | 64.05149 | 267.03525 | 106.42824 | 5.13847 | 0.0772827 | 3.1507457 | 12 | 1 | 11 days | 0.16 | | | MPC | | 2008 $WH_{85}$ |
| 2008 $WO_{86}$ | 16.2 | 0.15 | 20081021 | 256.81228 | 270.66316 | 246.56853 | 7.67546 | 0.1266600 | 2.9724063 | 16 | 1 | 57 days | 0.26 | | | MPC | | 2008 $WO_{86}$ |
| 2008 $WT_{86}$ | 16.7 | 0.15 | 20081110 | 193.00855 | 189.99502 | 23.44988 | 2.31552 | 0.0075082 | 2.7413699 | 15 | 1 | 28 days | 0.19 | | | MPC | | 2008 $WT_{86}$ |
| 2008 $WZ_{88}$ | 17.1 | 0.15 | 20081110 | 39.82373 | 32.80996 | 330.43159 | 0.60279 | 0.1666203 | 2.9953765 | 9 | 1 | 5 days | 0.28 | | | MPC | | 2008 $WZ_{88}$ |
| 2008 $WV_{89}$ | 16.5 | 0.15 | 20081021 | 56.44287 | 279.44545 | 94.50791 | 13.42702 | 0.1976062 | 2.5774732 | 16 | 1 | 31 days | 0.26 | | | MPC | | 2008 $WV_{89}$ |
| 2008 $WH_{90}$ | 17.7 | 0.15 | 20081130 | 12.02441 | 13.19591 | 59.08666 | 4.03178 | 0.2084149 | 2.4658122 | 14 | 1 | 52 days | 0.32 | | | MPC | | 2008 $WH_{90}$ |
| 2008 $WQ_{90}$ | 16.5 | 0.15 | 20100104 | 39.32380 | 207.96999 | 287.04467 | 6.57900 | 0.2651267 | 2.8384624 | 26 | 1 | 90 days | 0.44 | M-v | 4 | MPC | | 2008 $WQ_{90}$ |
| 2008 $WF_{91}$ | 17.3 | 0.15 | 20081110 | 296.18180 | 248.75885 | 212.90666 | 8.45572 | 0.0444980 | 2.5660588 | 12 | 1 | 27 days | 0.16 | | | MPC | | 2008 $WF_{91}$ |
| 2008 $WP_{91}$ | 16.1 | 0.15 | 20100104 | 94.82018 | 321.01824 | 117.48431 | 17.71136 | 0.2416415 | 3.1093203 | 22 | 1 | 86 days | 0.43 | M-v | 4 | MPC | | 2008 $WP_{91}$ |
| 2008 $WA_{92}$ | 18.0 | 0.15 | 20081110 | 358.92985 | 180.15547 | 237.91832 | 4.81017 | 0.1030010 | 2.3499773 | 11 | 1 | 24 days | 0.33 | | | MPC | | 2008 $WA_{92}$ |
| 2008 $WB_{92}$ | 17.9 | 0.15 | 20081130 | 43.46572 | 302.10690 | 65.47923 | 7.00554 | 0.1420347 | 2.2891367 | 17 | 1 | 54 days | 0.25 | | | MPC | | 2008 $WB_{92}$ |
| 2008 $WD_{92}$ | 15.7 | 0.15 | 20100104 | 61.96530 | 189.21683 | 243.72705 | 7.97846 | 0.0400453 | 3.1199795 | 22 | 1 | 85 days | 0.26 | M-v | 4 | MPC | | 2008 $WD_{92}$ |
| 2008 $WP_{92}$ | 12.8 | 0.15 | 20100104 | 324.62112 | 18.80229 | 76.07478 | 4.64214 | 0.0359903 | 5.3411288 | 72 | 5 | 2005–2009 | 0.41 | M-v | 1 | MPC | 166337 | 2008 $WP_{92}$ |
| 2008 $WY_{92}$ | 15.5 | 0.15 | 20100104 | 56.18336 | 239.14412 | 185.75196 | 9.84502 | 0.0764999 | 3.1878732 | 17 | 1 | 61 days | 0.29 | M-v | 4 | MPC | | 2008 $WY_{92}$ |
| 2008 $WD_{94}$ | 18.1 | 0.15 | 20081110 | 185.56245 | 167.67196 | 67.44694 | 23.67892 | 0.0733739 | 1.9968518 | 16 | 1 | 25 days | 0.51 | | | MPC | | 2008 $WD_{94}$ |
| 2008 $WS_{94}$ | 16.6 | 0.15 | 20081021 | 341.31571 | 344.70720 | 80.72279 | 6.93185 | 0.0315159 | 2.6932832 | 19 | 1 | 59 days | 0.49 | | | MPC | | 2008 $WS_{94}$ |
| 2008 $WS_{95}$ | 17.3 | 0.15 | 20100104 | 115.80974 | 287.72050 | 105.07851 | 5.41329 | 0.2899298 | 2.5359758 | 30 | 1 | 103 days | 0.39 | M-v | 4 | MPC | | 2008 $WS_{95}$ |
| 2008 $WY_{95}$ | 15.9 | 0.15 | 20100104 | 58.53129 | 333.84599 | 127.30180 | 4.69744 | 0.0584019 | 2.7708893 | 49 | 6 | 2001–2009 | 0.44 | M-v | 0 | MPC | 155567 | 2008 $WY_{95}$ |
| 2008 $WC_{96}$ | 18.2 | 0.15 | 20081110 | 331.21041 | 28.96413 | 70.97581 | 14.35919 | 0.1681794 | 2.5911723 | 12 | 1 | 11 days | 0.51 | | | MPC | | 2008 $WC_{96}$ |
| 2008 $WJ_{98}$ | 16.8 | 0.15 | 20081021 | 24.08106 | 72.88380 | 265.64625 | 11.41965 | 0.2860820 | 2.6874638 | 24 | 1 | 55 days | 0.50 | | | MPC | | 2008 $WJ_{98}$ |
| 2008 $WM_{98}$ | 15.2 | 0.15 | 20081110 | 355.28509 | 280.99197 | 147.62576 | 10.51596 | 0.0951408 | 3.0804232 | 19 | 1 | 35 days | 0.52 | | | MPC | | 2008 $WM_{98}$ |
| 2008 $WY_{98}$ | 16.0 | 0.15 | 20100104 | 138.16707 | 148.04686 | 235.48006 | 8.36877 | 0.0653706 | 2.5629501 | 16 | 1 | 79 days | 0.49 | M-v | 5 | MPC | | 2008 $WY_{98}$ |
| 2008 $WE_{99}$ | 17.8 | 0.15 | 20081130 | 84.97132 | 253.98702 | 75.45626 | 22.98814 | 0.1468901 | 1.9079288 | 19 | 1 | 28 days | 0.48 | | | MPC | | 2008 $WE_{99}$ |
| 2008 $WL_{100}$ | 18.2 | 0.15 | 20100104 | 141.52174 | 305.25774 | 71.75745 | 5.72104 | 0.2084318 | 2.2884694 | 18 | 1 | 84 days | 0.21 | M-v | 4 | MPC | | 2008 $WL_{100}$ |
| 2008 $WY_{101}$ | 19.1 | 0.15 | 20081110 | 4.94575 | 168.34800 | 248.21804 | 11.85823 | 0.2120344 | 1.6913181 | 16 | 1 | 12 days | 0.57 | | | MPC | | 2008 $WY_{101}$ |
| 2008 $WG_{102}$ | 17.1 | 0.15 | 20100104 | 103.81697 | 227.16748 | 180.42607 | 2.07216 | 0.2075064 | 2.5655095 | 33 | 1 | 130 days | 0.50 | M-v | 4 | MPC | | 2008 $WG_{102}$ |
| 2008 $WU_{102}$ | 16.9 | 0.15 | 20081130 | 18.94901 | 296.97396 | 93.37595 | 14.51890 | 0.3196931 | 2.7734952 | 9 | 1 | 7 days | 0.69 | | | MPC | | 2008 $WU_{102}$ |
| 2008 $WO_{103}$ | 18.2 | 0.15 | 20081110 | 5.19747 | 6.19688 | 50.28275 | 3.44417 | 0.0245868 | 2.3740695 | 9 | 1 | 10 days | 0.27 | | | MPC | | 2008 $WO_{103}$ |
| 2008 $WT_{103}$ | 16.3 | 0.15 | 20081110 | 334.33047 | 357.39218 | 89.52170 | 3.08586 | 0.1610581 | 3.9615369 | 14 | 1 | 11 days | 0.23 | | | MPC | | 2008 $WT_{103}$ |
| 2008 $WY_{103}$ | 15.1 | 0.15 | 20081110 | 348.51890 | 178.52926 | 247.86313 | 27.15413 | 0.1171077 | 3.1309884 | 20 | 1 | 51 days | 0.58 | | | MPC | | 2008 $WY_{103}$ |
| 2008 $WH_{104}$ | 19.0 | 0.15 | 20081130 | 7.51636 | 88.26414 | 326.60796 | 1.99502 | 0.2562881 | 2.6519411 | 10 | 1 | 6 days | 0.34 | | | MPC | | 2008 $WH_{104}$ |
| 2008 $WP_{104}$ | 17.9 | 0.15 | 20081110 | 328.85400 | 7.48307 | 94.32508 | 2.26172 | 0.1729437 | 3.1808734 | 9 | 1 | 15 days | 0.23 | | | MPC | | 2008 $WP_{104}$ |
| 2008 $WT_{104}$ | 16.6 | 0.15 | 20081110 | 192.88547 | 161.32612 | 77.43494 | 4.30374 | 0.1887389 | 2.7782709 | 11 | 1 | 10 days | 0.39 | | E | MPC | | 2008 $WT_{104}$ |
| 2008 $WE_{105}$ | 17.9 | 0.15 | 20081130 | 304.28818 | 53.07508 | 81.93596 | 4.11680 | 0.0864680 | 2.3664568 | 21 | 1 | 33 days | 0.29 | | | MPC | | 2008 $WE_{105}$ |
| 2008 $WT_{105}$ | 16.2 | 0.15 | 20081110 | 110.25251 | 252.13601 | 83.09409 | 10.58117 | 0.0279431 | 2.9730129 | 12 | 1 | 14 days | 0.40 | | | MPC | | 2008 $WT_{105}$ |
| 2008 $WW_{105}$ | 15.3 | 0.15 | 20081130 | 69.89508 | 238.62246 | 95.87065 | 18.04630 | 0.1047428 | 3.1389321 | 11 | 1 | 4 days | 0.48 | | | MPC | | 2008 $WW_{105}$ |
| 2008 $WX_{105}$ | 15.5 | 0.15 | 20081130 | 46.22998 | 190.55037 | 169.02218 | 10.89882 | 0.1346313 | 3.0520662 | 9 | 1 | 4 days | 0.39 | | | MPC | | 2008 $WX_{105}$ |
| 2008 $WB_{106}$ | 17.7 | 0.15 | 20081130 | 1.79639 | 59.58160 | 1.16630 | 5.53596 | 0.1661267 | 3.1669213 | 10 | 1 | 4 days | 0.31 | | | MPC | | 2008 $WB_{106}$ |
| 2008 $WW_{107}$ | 16.2 | 0.15 | 20081110 | 108.03300 | 213.98930 | 98.97525 | 10.84504 | 0.0731799 | 2.7514824 | 9 | 1 | 9 days | 0.69 | | | MPC | | 2008 $WW_{107}$ |
| 2008 $WP_{108}$ | 15.8 | 0.15 | 20081110 | 26.62547 | 118.44846 | 269.10575 | 9.21631 | 0.0385644 | 3.1176646 | 15 | 1 | 39 days | 0.44 | | | MPC | | 2008 $WP_{108}$ |
| 2008 $WX_{108}$ | 16.8 | 0.15 | 20081110 | 69.63570 | 142.14548 | 209.82855 | 1.38745 | 0.0869514 | 2.8718839 | 13 | 1 | 16 days | 0.20 | | | MPC | | 2008 $WX_{108}$ |
| 2008 $WQ_{109}$ | 17.8 | 0.15 | 20081130 | 28.82741 | 12.03593 | 23.07942 | 1.56647 | 0.0885334 | 2.6408266 | 13 | 1 | 38 days | 0.21 | | | MPC | | 2008 $WQ_{109}$ |
| 2008 $WR_{109}$ | 17.2 | 0.15 | 20081110 | 80.55275 | 71.75072 | 256.53188 | 9.77239 | 0.1405110 | 2.6932468 | 9 | 1 | 17 days | 0.17 | | | MPC | | 2008 $WR_{109}$ |
| 2008 $WM_{110}$ | 17.0 | 0.15 | 20081110 | 284.50968 | 78.89312 | 64.99887 | 4.93095 | 0.0439467 | 2.6316715 | 9 | 1 | 13 days | 0.16 | | | MPC | | 2008 $WM_{110}$ |
| 2008 $WR_{110}$ | 17.4 | 0.15 | 20100104 | 82.68110 | 132.20506 | 284.07321 | 0.32456 | 0.1659669 | 3.0508167 | 17 | 1 | 63 days | 0.49 | M-v | 5 | MPC | | 2008 $WR_{110}$ |
| 2008 $WC_{111}$ | 18.3 | 0.15 | 20081110 | 355.95963 | 102.91600 | 326.08662 | 1.38124 | 0.1841339 | 2.6577747 | 9 | 1 | 13 days | 0.17 | | | MPC | | 2008 $WC_{111}$ |
| 2008 $WB_{112}$ | 16.0 | 0.15 | 20100104 | 93.23399 | 334.62399 | 69.35657 | 10.90901 | 0.1271173 | 3.1227911 | 22 | 1 | 62 days | 0.27 | M-v | 4 | MPC | | 2008 $WB_{112}$ |
| 2008 $WH_{113}$ | 16.2 | 0.15 | 20100104 | 90.77268 | 332.24899 | 76.47213 | 9.87647 | 0.1116840 | 3.1041815 | 23 | 1 | 74 days | 0.36 | M-v | 4 | MPC | | 2008 $WH_{113}$ |
| 2008 $WZ_{113}$ | 15.8 | 0.15 | 20100104 | 22.48079 | 241.86347 | 249.50950 | 7.58182 | 0.0546785 | 3.0215065 | 31 | 1 | 120 days | 0.41 | M-v | 4 | MPC | | 2008 $WZ_{113}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 $WT_{114}$ | 16.9 | 0.15 | 20100104 | 54.26840 | 40.70791 | 62.33295 | 4.94211 | 0.1738748 | 3.0165309 | 24 | 1 | 62 days | 0.25 | M-v | 4 | MPC | | 2008 $WT_{114}$ |
| 2008 $WU_{114}$ | 18.6 | 0.15 | 20081130 | 37.09061 | 100.19052 | 259.80877 | 4.57053 | 0.3563051 | 2.5897752 | 17 | 1 | 33 days | 0.21 | | | MPC | | 2008 $WU_{114}$ |
| 2008 $WT_{115}$ | 17.1 | 0.15 | 20081130 | 38.44170 | 321.92706 | 65.45830 | 4.11706 | 0.1155885 | 2.6125219 | 13 | 1 | 34 days | 0.24 | | | MPC | | 2008 $WT_{115}$ |
| 2008 $WF_{117}$ | 17.0 | 0.15 | 20081110 | 343.66468 | 27.43928 | 75.26452 | 32.53593 | 0.3459539 | 3.1462605 | 17 | 1 | 11 days | 0.53 | | | MPC | | 2008 $WF_{117}$ |
| 2008 $WC_{119}$ | 16.6 | 0.15 | 20081130 | 193.21301 | 347.65039 | 254.79623 | 5.06391 | 0.0837823 | 2.6905937 | 14 | 1 | 30 days | 0.18 | | | MPC | | 2008 $WC_{119}$ |
| 2008 $WA_{122}$ | 17.2 | 0.15 | 20081110 | 41.43745 | 120.32845 | 235.68226 | 14.46051 | 0.1972261 | 3.1538971 | 12 | 1 | 16 days | 0.30 | | | MPC | | 2008 $WA_{122}$ |
| 2008 $WL_{122}$ | 16.3 | 0.15 | 20081110 | 13.49212 | 45.63558 | 347.21727 | 10.19624 | 0.1103539 | 2.6004891 | 16 | 1 | 42 days | 0.56 | | | MPC | | 2008 $WL_{122}$ |
| 2008 $WN_{122}$ | 18.4 | 0.15 | 20081110 | 349.47231 | 323.60017 | 116.46150 | 2.85829 | 0.1911220 | 2.3666491 | 10 | 1 | 16 days | 0.18 | | | MPC | | 2008 $WN_{122}$ |
| 2008 $WO_{128}$ | 17.1 | 0.15 | 20081130 | 12.07118 | 302.29138 | 115.85050 | 4.25763 | 0.0651218 | 2.5635233 | 15 | 1 | 54 days | 0.29 | | | MPC | | 2008 $WO_{128}$ |
| 2008 $WL_{131}$ | 14.8 | 0.15 | 20081130 | 142.63031 | 57.20055 | 231.68410 | 7.72302 | 0.0543123 | 3.1731323 | 13 | 1 | 37 days | 0.59 | | | MPC | | 2008 $WL_{131}$ |
| 2008 $WM_{131}$ | 15.5 | 0.15 | 20081110 | 345.12572 | 273.95444 | 167.45503 | 11.92683 | 0.1239986 | 3.0908706 | 16 | 1 | 59 days | 0.65 | | | MPC | | 2008 $WM_{131}$ |
| 2008 $WN_{131}$ | 18.2 | 0.15 | 20081130 | 339.17192 | 5.40294 | 107.99263 | 7.52723 | 0.3806940 | 2.6737778 | 12 | 1 | 33 days | 0.65 | | | MPC | | 2008 $WN_{131}$ |
| 2008 $WS_{132}$ | 17.1 | 0.15 | 20100104 | 119.06290 | 230.78788 | 153.84136 | 13.31474 | 0.3085665 | 2.5027074 | 25 | 1 | 62 days | 0.58 | M-v | 4 D | MPC | | 2008 $WS_{132}$ |
| 2008 $WW_{132}$ | 15.1 | 0.15 | 20081110 | 214.05677 | 70.97186 | 143.32615 | 10.76117 | 0.0537801 | 3.0696848 | 11 | 1 | 24 days | 0.35 | | | MPC | | 2008 $WW_{132}$ |
| 2008 $WE_{133}$ | 17.7 | 0.15 | 20081021 | 11.34599 | 5.76322 | 11.27812 | 14.44560 | 0.2594480 | 2.6628254 | 20 | 1 | 51 days | 0.76 | | | MPC | | 2008 $WE_{133}$ |
| 2008 $WF_{133}$ | 17.8 | 0.15 | 20100104 | 119.62304 | 17.63247 | 35.03270 | 3.11278 | 0.1982941 | 2.3792388 | 18 | 1 | 73 days | 0.23 | M-v | 3 | MPC | | 2008 $WF_{133}$ |
| 2008 XZ | 16.6 | 0.15 | 20081110 | 1.96550 | 287.95189 | 135.41888 | 1.42456 | 0.1868919 | 3.0281540 | 17 | 1 | 18 days | 0.67 | | | MPC | | 2008 XZ |
| 2008 $XP_{1}$ | 15.8 | 0.15 | 20081110 | 359.28479 | 3.43313 | 65.06063 | 18.67446 | 0.2009845 | 3.0030087 | 22 | 1 | 30 days | 0.41 | | | MPC | | 2008 $XP_{1}$ |
| 2008 $XR_{2}$ | 16.0 | 0.15 | 20100104 | 21.47243 | 239.74778 | 253.82415 | 1.66645 | 0.1702293 | 3.0441348 | 59 | 5 | 1997–2009 | 0.33 | M-v | 0 | MPC | 150752 | 2008 $XR_{2}$ |
| 2008 $XE_{3}$ | 16.3 | 0.15 | 20100104 | 130.18333 | 44.45248 | 315.32646 | 7.47585 | 0.5496574 | 2.6111353 | 108 | 2 | 2005–2009 | 0.42 | M-v | 3 | MPC | 154217 | 2008 $XE_{3}$ |
| 2008 $XH_{4}$ | 16.2 | 0.15 | 20100104 | 119.47959 | 118.83178 | 277.57766 | 8.35338 | 0.1768352 | 2.5641738 | 29 | 1 | 74 days | 0.42 | M-v | 4 | MPC | | 2008 $XH_{4}$ |
| 2008 $XK_{4}$ | 17.1 | 0.15 | 20081220 | 2.16412 | 166.86240 | 269.46943 | 12.87945 | 0.2281225 | 2.6712044 | 33 | 1 | 46 days | 0.59 | | | MPC | | 2008 $XK_{4}$ |
| 2008 $XF_{7}$ | 16.2 | 0.15 | 20081130 | 22.86155 | 39.62311 | 1.01005 | 13.19830 | 0.1860861 | 2.5699405 | 16 | 1 | 22 days | 0.30 | | | MPC | | 2008 $XF_{7}$ |
| 2008 $XY_{10}$ | 16.8 | 0.15 | 20081130 | 326.12704 | 287.80905 | 199.94781 | 7.12145 | 0.2629110 | 2.6177946 | 23 | 1 | 47 days | 0.68 | | | MPC | | 2008 $XY_{10}$ |
| 2008 $XA_{11}$ | 16.6 | 0.15 | 20081110 | 34.95122 | 228.62904 | 136.93181 | 5.31166 | 0.2804623 | 2.6233498 | 19 | 1 | 44 days | 0.51 | | | MPC | | 2008 $XA_{11}$ |
| 2008 $XO_{13}$ | 18.2 | 0.15 | 20081110 | 28.04764 | 75.02965 | 303.78940 | 5.03654 | 0.1416063 | 2.6560242 | 12 | 1 | 13 days | 0.28 | | | MPC | | 2008 $XO_{13}$ |
| 2008 $XP_{15}$ | 16.2 | 0.15 | 20081110 | 80.30915 | 76.40762 | 253.38973 | 9.81113 | 0.1951499 | 3.2816140 | 10 | 1 | 12 days | 0.22 | | | MPC | | 2008 $XP_{15}$ |
| 2008 $XU_{15}$ | 17.7 | 0.15 | 20081130 | 333.57630 | 22.40852 | 86.42528 | 2.51495 | 0.1379899 | 2.4371949 | 17 | 1 | 34 days | 0.34 | | | MPC | | 2008 $XU_{15}$ |
| 2008 $XY_{15}$ | 19.1 | 0.15 | 20081110 | 32.37928 | 135.79817 | 243.68088 | 19.27129 | 0.0824672 | 1.8584299 | 10 | 1 | 18 days | 0.42 | | | MPC | | 2008 $XY_{15}$ |
| 2008 $XF_{16}$ | 16.5 | 0.15 | 20081110 | 134.59571 | 180.84041 | 111.20248 | 2.86391 | 0.0702512 | 2.7665939 | 9 | 1 | 16 days | 0.19 | | | MPC | | 2008 $XF_{16}$ |
| 2008 $XE_{17}$ | 16.7 | 0.15 | 20081110 | 318.71404 | 2.69248 | 112.41470 | 3.31490 | 0.0549653 | 2.8858186 | 9 | 1 | 16 days | 0.12 | | | MPC | | 2008 $XE_{17}$ |
| 2008 $XB_{18}$ | 17.4 | 0.15 | 20081130 | 35.49976 | 207.93299 | 165.98561 | 2.70842 | 0.2884637 | 2.5804776 | 10 | 1 | 5 days | 0.37 | | | MPC | | 2008 $XB_{18}$ |
| 2008 $XV_{20}$ | 17.3 | 0.15 | 20081220 | 0.70613 | 351.53018 | 103.42669 | 4.76295 | 0.1170492 | 2.3613269 | 15 | 1 | 56 days | 0.33 | | | MPC | | 2008 $XV_{20}$ |
| 2008 $XZ_{20}$ | 17.0 | 0.15 | 20081110 | 5.42400 | 299.45014 | 141.92938 | 1.45179 | 0.1613072 | 3.1873169 | 9 | 1 | 12 days | 0.12 | | | MPC | | 2008 $XZ_{20}$ |
| 2008 $XP_{21}$ | 16.1 | 0.15 | 20081110 | 35.97204 | 140.38310 | 261.92535 | 16.14790 | 0.1118709 | 3.0740825 | 9 | 1 | 15 days | 0.09 | | | MPC | | 2008 $XP_{21}$ |
| 2008 $XW_{21}$ | 16.1 | 0.15 | 20081220 | 52.84172 | 291.44462 | 101.00824 | 20.09814 | 0.1316396 | 3.2318203 | 26 | 1 | 53 days | 0.39 | | | MPC | | 2008 $XW_{21}$ |
| 2008 $XZ_{29}$ | 16.6 | 0.15 | 20081110 | 13.72021 | 262.46190 | 125.19431 | 12.51402 | 0.2205382 | 2.7453494 | 15 | 1 | 39 days | 0.78 | | | MPC | | 2008 $XZ_{29}$ |
| 2008 $XX_{30}$ | 16.4 | 0.15 | 20081110 | 180.65374 | 203.92806 | 41.97330 | 8.73067 | 0.0521016 | 2.9518366 | 9 | 1 | 17 days | 0.22 | | | MPC | | 2008 $XX_{30}$ |
| 2008 $XH_{31}$ | 18.2 | 0.15 | 20081110 | 22.87706 | 333.72761 | 58.18025 | 15.51401 | 0.1153104 | 2.5863584 | 9 | 1 | 15 days | 0.20 | | | MPC | | 2008 $XH_{31}$ |
| 2008 $XV_{32}$ | 17.5 | 0.15 | 20081110 | 126.34471 | 26.69143 | 267.53372 | 8.36819 | 0.0441000 | 2.5721477 | 12 | 1 | 42 days | 0.15 | | | MPC | | 2008 $XV_{32}$ |
| 2008 $XB_{35}$ | 16.4 | 0.15 | 20081220 | 325.09874 | 217.38162 | 261.86123 | 20.46995 | 0.0907358 | 2.6698748 | 29 | 1 | 55 days | 0.33 | | | MPC | | 2008 $XB_{35}$ |
| 2008 $XV_{35}$ | 16.8 | 0.15 | 20081130 | 118.76801 | 30.17921 | 270.17840 | 6.89098 | 0.1248015 | 2.7693128 | 12 | 1 | 33 days | 0.23 | | | MPC | | 2008 $XV_{35}$ |
| 2008 $XY_{36}$ | 16.8 | 0.15 | 20081110 | 76.42316 | 325.20115 | 17.31476 | 2.37582 | 0.0790011 | 2.8081611 | 9 | 1 | 17 days | 0.14 | | | MPC | | 2008 $XY_{36}$ |
| 2008 $XH_{38}$ | 16.0 | 0.15 | 20081130 | 276.94490 | 135.92165 | 33.66188 | 4.95522 | 0.0777807 | 3.1971427 | 9 | 1 | 12 days | 0.17 | | | MPC | | 2008 $XH_{38}$ |
| 2008 $XS_{38}$ | 16.0 | 0.15 | 20081110 | 111.49990 | 40.96860 | 264.87759 | 12.02207 | 0.1400700 | 3.0549582 | 9 | 1 | 16 days | 0.13 | | | MPC | | 2008 $XS_{38}$ |
| 2008 $XY_{41}$ | 16.7 | 0.15 | 20081110 | 278.44404 | 241.95066 | 299.04137 | 7.33118 | 0.0987561 | 2.6236549 | 13 | 1 | 35 days | 0.22 | | | MPC | | 2008 $XY_{41}$ |
| 2008 $XC_{42}$ | 15.9 | 0.15 | 20081130 | 180.55607 | 215.66247 | 59.36875 | 7.13489 | 0.0457190 | 2.8337504 | 12 | 1 | 37 days | 0.31 | | | MPC | | 2008 $XC_{42}$ |
| 2008 $XU_{42}$ | 16.8 | 0.15 | 20081110 | 39.50349 | 319.29375 | 76.12890 | 7.06557 | 0.1253655 | 2.5983516 | 9 | 1 | 14 days | 0.23 | | | MPC | | 2008 $XU_{42}$ |
| 2008 $XP_{45}$ | 16.9 | 0.15 | 20081110 | 349.91136 | 13.24802 | 62.90673 | 17.44303 | 0.0940574 | 3.0724490 | 12 | 1 | 27 days | 0.20 | | | MPC | | 2008 $XP_{45}$ |
| 2008 $XE_{46}$ | 16.5 | 0.15 | 20081130 | 18.86708 | 207.59227 | 202.28732 | 13.47142 | 0.1555959 | 2.6510655 | 12 | 1 | 2 days | 0.43 | | | MPC | | 2008 $XE_{46}$ |
| 2008 $XG_{51}$ | 16.0 | 0.15 | 20100104 | 123.88717 | 323.92822 | 86.46094 | 29.52910 | 0.1551268 | 2.6628476 | 21 | 1 | 67 days | 0.42 | M-v | 4 | MPC | | 2008 $XG_{51}$ |
| 2008 $XM_{51}$ | 16.8 | 0.15 | 20100104 | 103.45978 | 321.05221 | 75.70262 | 12.15602 | 0.1093677 | 3.0108901 | 12 | 1 | 63 days | 0.29 | M-v | 4 | MPC | | 2008 $XM_{51}$ |
| 2008 $XF_{52}$ | 15.9 | 0.15 | 20081130 | 81.23063 | 288.86369 | 79.50394 | 28.32268 | 0.1376619 | 2.5605514 | 12 | 1 | 18 days | 0.47 | | | MPC | | 2008 $XF_{52}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 $XG_{52}$ | 17.4 | 0.15 | 20081130 | 355.58063 | 10.27834 | 68.75141 | 5.17834 | 0.1220479 | 2.3326473 | 9 | 1 | 27 days | 0.21 | | MPC | | 2008 $XG_{52}$ |
| 2008 YC | 17.1 | 0.15 | 20081130 | 347.06376 | 350.61318 | 107.13537 | 6.30674 | 0.0537691 | 2.2628199 | 17 | 1 | 36 days | 0.38 | | MPC | | 2008 YC |
| 2008 YD | 15.6 | 0.15 | 20100104 | 109.02237 | 297.67083 | 75.25033 | 12.40092 | 0.1721880 | 3.0313361 | 36 | 1 | 76 days | 0.29 | M-v 4 | MPC | | 2008 YD |
| 2008 YE | 18.3 | 0.15 | 20081130 | 356.02581 | 305.99578 | 121.71726 | 3.81395 | 0.1743744 | 2.3249477 | 18 | 1 | 30 days | 0.34 | | MPC | | 2008 YE |
| 2008 YZ | 17.1 | 0.15 | 20081220 | 21.41180 | 131.64010 | 265.32741 | 14.24801 | 0.3041638 | 2.7430346 | 23 | 1 | 56 days | 0.36 | | MPC | | 2008 YZ |
| 2008 $YK_{1}$ | 16.4 | 0.15 | 20081220 | 30.71715 | 322.84367 | 93.05919 | 14.41059 | 0.1461514 | 2.6024989 | 26 | 1 | 37 days | 0.47 | | MPC | | 2008 $YK_{1}$ |
| 2008 $YH_{4}$ | 19.2 | 0.15 | 20081220 | 346.67697 | 8.17737 | 117.52445 | 5.79705 | 0.2936777 | 2.1720628 | 19 | 1 | 25 days | 0.34 | | MPC | | 2008 $YH_{4}$ |
| 2008 $YW_{4}$ | 17.0 | 0.15 | 20081220 | 39.00610 | 123.41944 | 265.54684 | 16.10412 | 0.1978038 | 2.6396561 | 18 | 1 | 30 days | 0.20 | | MPC | | 2008 $YW_{4}$ |
| 2008 $YZ_{4}$ | 18.2 | 0.15 | 20081130 | 25.72874 | 113.30562 | 302.02639 | 0.84234 | 0.1737391 | 2.3476392 | 22 | 1 | 29 days | 0.30 | | MPC | | 2008 $YZ_{4}$ |
| 2008 $YO_{5}$ | 16.1 | 0.15 | 20081220 | 8.17205 | 301.16613 | 126.33811 | 4.18837 | 0.2259968 | 3.0633045 | 23 | 1 | 57 days | 0.35 | | MPC | | 2008 $YO_{5}$ |
| 2008 $YO_{6}$ | 17.4 | 0.15 | 20081130 | 40.92006 | 244.14704 | 130.14549 | 7.32155 | 0.1840277 | 2.4018035 | 17 | 1 | 30 days | 0.26 | | MPC | | 2008 $YO_{6}$ |
| 2008 $YM_{7}$ | 17.6 | 0.15 | 20081220 | 7.77615 | 169.09492 | 266.63335 | 17.30702 | 0.0972291 | 1.9533518 | 18 | 1 | 36 days | 0.60 | | MPC | | 2008 $YM_{7}$ |
| 2008 $YB_{8}$ | 17.1 | 0.15 | 20100104 | 124.47951 | 266.65510 | 153.29722 | 3.63197 | 0.1790101 | 2.5600393 | 22 | 1 | 86 days | 0.23 | M-v 4 | MPC | | 2008 $YB_{8}$ |
| 2008 $YM_{8}$ | 17.5 | 0.15 | 20081220 | 345.55653 | 261.12090 | 220.20934 | 0.64206 | 0.1389634 | 2.4367585 | 33 | 1 | 28 days | 0.49 | | MPC | | 2008 $YM_{8}$ |
| 2008 $YX_{8}$ | 17.6 | 0.15 | 20081220 | 46.35273 | 289.96945 | 89.94416 | 4.04444 | 0.1941551 | 2.5716823 | 25 | 1 | 23 days | 0.20 | | MPC | | 2008 $YX_{8}$ |
| 2008 $YH_{9}$ | 16.9 | 0.15 | 20081130 | 349.72334 | 296.09752 | 147.55078 | 6.16125 | 0.0569360 | 2.5587053 | 19 | 1 | 55 days | 0.31 | | MPC | | 2008 $YH_{9}$ |
| 2008 $YR_{9}$ | 16.8 | 0.15 | 20081130 | 351.09573 | 342.09104 | 85.57151 | 11.09677 | 0.1753789 | 2.7320425 | 29 | 1 | 56 days | 0.31 | | MPC | | 2008 $YR_{9}$ |
| 2008 $YY_{9}$ | 15.6 | 0.15 | 20100104 | 290.44258 | 324.88821 | 283.44551 | 9.44519 | 0.0433002 | 3.0817851 | 21 | 1 | 71 days | 0.25 | M-v 5 | MPC | | 2008 $YY_{9}$ |
| 2008 $YC_{10}$ | 17.0 | 0.15 | 20100104 | 85.39374 | 31.12872 | 94.04409 | 6.90629 | 0.0607965 | 2.3677598 | 23 | 1 | 74 days | 0.34 | M-v 3 | MPC | | 2008 $YC_{10}$ |
| 2008 $YD_{10}$ | 14.7 | 0.15 | 20100104 | 6.76521 | 257.35518 | 241.52126 | 15.02668 | 0.1952239 | 3.1212416 | 41 | 3 | 2005–2009 | 0.53 | M-v 2 | MPC | 166338 | 2008 $YD_{10}$ |
| 2008 $YK_{11}$ | 17.3 | 0.15 | 20081220 | 55.83673 | 116.45375 | 278.11108 | 17.98433 | 0.1066082 | 1.9396882 | 19 | 1 | 9 days | 0.47 | | MPC | | 2008 $YK_{11}$ |
| 2008 $YO_{11}$ | 17.2 | 0.15 | 20081130 | 61.18211 | 288.69674 | 57.53846 | 2.57272 | 0.2307860 | 2.5999404 | 34 | 1 | 57 days | 0.28 | | MPC | | 2008 $YO_{11}$ |
| 2008 $YP_{11}$ | 17.6 | 0.15 | 20100104 | 105.80027 | 1.03836 | 75.57529 | 5.74309 | 0.1230331 | 2.3607095 | 24 | 1 | 62 days | 0.31 | M-v 4 | MPC | | 2008 $YP_{11}$ |
| 2008 $YH_{12}$ | 16.6 | 0.15 | 20081130 | 254.24037 | 293.93787 | 259.66750 | 12.15965 | 0.1308257 | 2.7670848 | 24 | 1 | 58 days | 0.39 | | MPC | | 2008 $YH_{12}$ |
| 2008 $YP_{12}$ | 16.0 | 0.15 | 20081130 | 27.82202 | 136.56935 | 260.56208 | 13.06612 | 0.1281945 | 2.7062378 | 34 | 1 | 49 days | 0.43 | | MPC | | 2008 $YP_{12}$ |
| 2008 $YF_{13}$ | 15.7 | 0.15 | 20081130 | 40.39076 | 133.72705 | 279.83858 | 8.73474 | 0.0938978 | 3.1278019 | 19 | 1 | 56 days | 0.28 | | MPC | | 2008 $YF_{13}$ |
| 2008 $YE_{14}$ | 17.3 | 0.15 | 20081220 | 339.60656 | 22.40428 | 111.38203 | 9.89083 | 0.2179944 | 2.4400663 | 37 | 1 | 56 days | 0.57 | | MPC | | 2008 $YE_{14}$ |
| 2008 $YG_{14}$ | 16.8 | 0.15 | 20100104 | 110.73140 | 164.29980 | 263.00594 | 5.91210 | 0.1530979 | 2.7453496 | 24 | 1 | 142 days | 0.33 | M-v 3 | MPC | | 2008 $YG_{14}$ |
| 2008 $YK_{15}$ | 16.7 | 0.15 | 20081220 | 96.47961 | 250.45493 | 109.59729 | 10.99408 | 0.1467757 | 2.5878894 | 22 | 1 | 42 days | 0.20 | | MPC | | 2008 $YK_{15}$ |
| 2008 $YX_{15}$ | 18.0 | 0.15 | 20081130 | 340.33558 | 7.39678 | 115.12252 | 3.28895 | 0.1494450 | 2.3999795 | 21 | 1 | 43 days | 0.35 | | MPC | | 2008 $YX_{15}$ |
| 2008 $YZ_{15}$ | 18.1 | 0.15 | 20081220 | 335.84314 | 224.29342 | 274.19606 | 3.42398 | 0.1971541 | 2.3219447 | 22 | 1 | 32 days | 0.59 | | MPC | | 2008 $YZ_{15}$ |
| 2008 $YH_{16}$ | 18.0 | 0.15 | 20100104 | 19.21766 | 95.52159 | 114.76069 | 2.75382 | 0.1405065 | 2.3025596 | 33 | 3 | 2002–2009 | 0.33 | M-v 3 | MPC | 157178 | 2008 $YH_{16}$ |
| 2008 $YJ_{16}$ | 16.4 | 0.15 | 20090109 | 62.69501 | 277.76836 | 115.62364 | 5.75618 | 0.1539995 | 3.2331393 | 25 | 1 | 42 days | 0.33 | | MPC | | 2008 $YJ_{16}$ |
| 2008 $YU_{16}$ | 18.6 | 0.15 | 20081220 | 4.70337 | 352.13219 | 110.93594 | 6.55499 | 0.1942396 | 2.6842969 | 16 | 1 | 28 days | 0.28 | | MPC | | 2008 $YU_{16}$ |
| 2008 $YK_{17}$ | 17.7 | 0.15 | 20090109 | 91.07512 | 70.24689 | 295.25033 | 13.59367 | 0.1933415 | 2.4416316 | 22 | 1 | 42 days | 0.36 | | MPC | | 2008 $YK_{17}$ |
| 2008 $YL_{20}$ | 18.1 | 0.15 | 20081220 | 45.79010 | 298.26238 | 111.50166 | 3.19241 | 0.1840837 | 2.3918467 | 19 | 1 | 25 days | 0.25 | | MPC | | 2008 $YL_{20}$ |
| 2008 $YQ_{20}$ | 17.3 | 0.15 | 20090109 | 337.38973 | 218.55455 | 290.84586 | 8.09310 | 0.1202568 | 2.7460284 | 24 | 1 | 45 days | 0.26 | | MPC | | 2008 $YQ_{20}$ |
| 2008 $YE_{22}$ | 17.0 | 0.15 | 20100104 | 161.04143 | 271.08998 | 120.10027 | 15.81321 | 0.1669518 | 2.5424201 | 27 | 1 | 104 days | 0.31 | M-v 4 | MPC | | 2008 $YE_{22}$ |
| 2008 $YP_{24}$ | 17.1 | 0.15 | 20100104 | 145.16265 | 252.65467 | 134.41002 | 3.48638 | 0.2456736 | 2.5705721 | 37 | 1 | 86 days | 0.28 | M-v 4 | MPC | | 2008 $YP_{24}$ |
| 2008 $YC_{25}$ | 17.1 | 0.15 | 20081130 | 18.52852 | 323.51812 | 82.64424 | 7.08211 | 0.2840261 | 2.5933706 | 20 | 1 | 30 days | 0.42 | | MPC | | 2008 $YC_{25}$ |
| 2008 $YH_{25}$ | 17.9 | 0.15 | 20081220 | 324.69467 | 237.43581 | 275.78997 | 5.39629 | 0.1873056 | 2.5361389 | 17 | 1 | 28 days | 0.26 | | MPC | | 2008 $YH_{25}$ |
| 2008 $YR_{25}$ | 16.1 | 0.15 | 20081220 | 345.20034 | 13.15309 | 90.79075 | 9.08697 | 0.1282803 | 3.0645334 | 19 | 1 | 26 days | 0.62 | | MPC | | 2008 $YR_{25}$ |
| 2008 $YT_{25}$ | 17.8 | 0.15 | 20081220 | 56.25583 | 232.64871 | 138.63174 | 0.68419 | 0.1675121 | 2.5335474 | 17 | 1 | 19 days | 0.22 | | MPC | | 2008 $YT_{25}$ |
| 2008 $YY_{25}$ | 17.1 | 0.15 | 20081130 | 21.63545 | 130.38068 | 277.83481 | 8.93057 | 0.2229469 | 3.1529405 | 15 | 1 | 42 days | 0.33 | | MPC | | 2008 $YY_{25}$ |
| 2008 $YF_{26}$ | 16.9 | 0.15 | 20081130 | 89.08879 | 268.10712 | 73.40331 | 9.15432 | 0.1936840 | 2.6175485 | 18 | 1 | 38 days | 0.31 | | MPC | | 2008 $YF_{26}$ |
| 2008 $YL_{28}$ | 18.8 | 0.15 | 20081130 | 16.91563 | 359.11676 | 66.29411 | 6.20902 | 0.1277700 | 2.2576086 | 20 | 1 | 36 days | 0.38 | | MPC | | 2008 $YL_{28}$ |
| 2008 $YK_{30}$ | 17.7 | 0.15 | 20081130 | 37.01394 | 246.79643 | 129.51864 | 2.16732 | 0.1574384 | 2.3599985 | 24 | 1 | 54 days | 0.39 | | MPC | | 2008 $YK_{30}$ |
| 2008 $YH_{31}$ | 17.8 | 0.15 | 20081220 | 10.84680 | 41.65926 | 45.24499 | 1.92954 | 0.1572420 | 2.4524302 | 22 | 1 | 25 days | 0.21 | | MPC | | 2008 $YH_{31}$ |
| 2008 $YW_{31}$ | 18.9 | 0.15 | 20081220 | 21.65133 | 346.65689 | 86.74760 | 2.99721 | 0.2655571 | 2.5036494 | 19 | 1 | 18 days | 0.60 | | MPC | | 2008 $YW_{31}$ |
| 2008 $YJ_{32}$ | 17.1 | 0.15 | 20081220 | 230.65441 | 148.01215 | 93.42222 | 3.74850 | 0.1274539 | 2.6106720 | 18 | 1 | 9 days | 0.44 | | MPC | | 2008 $YJ_{32}$ |
| 2008 $YN_{32}$ | 16.4 | 0.15 | 20090109 | 18.25178 | 9.60090 | 71.44314 | 3.32964 | 0.1898514 | 2.6431603 | 39 | 1 | 40 days | 0.51 | | MPC | | 2008 $YN_{32}$ |
| 2008 $YV_{34}$ | 16.4 | 0.15 | 20081220 | 8.71962 | 134.67177 | 313.41569 | 13.42299 | 0.2846418 | 3.1683301 | 16 | 1 | 13 days | 0.44 | | MPC | | 2008 $YV_{34}$ |
| 2008 $YZ_{34}$ | 16.8 | 0.15 | 20100104 | 74.75141 | 35.54167 | 89.42267 | 14.56532 | 0.2146603 | 2.6370204 | 32 | 1 | 86 days | 0.36 | M-v 3 | MPC | | 2008 $YZ_{34}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 $YU_{35}$ | 17.1 | 0.15 | 20081220 | 330.65746 | 48.24738 | 102.08744 | 5.24928 | 0.0776826 | 2.6991456 | 19 | 1 | 25 days | 0.27 | | MPC | | 2008 $YU_{35}$ |
| 2008 $YY_{39}$ | 16.7 | 0.15 | 20090109 | 54.26887 | 312.61753 | 96.52212 | 7.21107 | 0.0603241 | 2.8095388 | 17 | 1 | 22 days | 0.37 | | MPC | | 2008 $YY_{39}$ |
| 2008 $YM_{40}$ | 17.5 | 0.15 | 20100104 | 98.43289 | 138.71208 | 323.03635 | 11.08177 | 0.0937816 | 2.7229207 | 20 | 1 | 64 days | 0.37 | M-v 4 | MPC | | 2008 $YM_{40}$ |
| 2008 $YY_{47}$ | 15.7 | 0.15 | 20100104 | 45.43063 | 34.51668 | 101.41649 | 12.84397 | 0.1417898 | 3.1575310 | 18 | 1 | 62 days | 0.37 | M-v 4 | MPC | | 2008 $YY_{47}$ |
| 2008 $YK_{48}$ | 18.9 | 0.15 | 20081220 | 17.05065 | 136.57062 | 306.06305 | 4.38625 | 0.2129211 | 2.3864683 | 13 | 1 | 20 days | 0.37 | | MPC | | 2008 $YK_{48}$ |
| 2008 $YQ_{48}$ | 16.4 | 0.15 | 20081220 | 78.16079 | 279.66489 | 111.21784 | 9.73123 | 0.0799175 | 3.1821173 | 16 | 1 | 27 days | 0.40 | | MPC | | 2008 $YQ_{48}$ |
| 2008 $YY_{48}$ | 17.5 | 0.15 | 20081220 | 8.87892 | 354.13345 | 107.65753 | 9.59873 | 0.2213061 | 3.0394567 | 19 | 1 | 29 days | 0.33 | | MPC | | 2008 $YY_{48}$ |
| 2008 $YX_{49}$ | 16.4 | 0.15 | 20081220 | 92.80107 | 52.35344 | 313.97367 | 12.58613 | 0.1896594 | 2.6577420 | 19 | 1 | 18 days | 0.36 | | MPC | | 2008 $YX_{49}$ |
| 2008 $YZ_{49}$ | 16.9 | 0.15 | 20081220 | 52.99292 | 349.94532 | 57.16578 | 2.76161 | 0.1970684 | 3.1160080 | 16 | 1 | 10 days | 0.25 | | MPC | | 2008 $YZ_{49}$ |
| 2008 $YK_{56}$ | 17.8 | 0.15 | 20100104 | 114.22901 | 5.43894 | 75.70926 | 3.40722 | 0.1898729 | 2.3847446 | 31 | 1 | 89 days | 0.47 | M-v 4 | MPC | | 2008 $YK_{56}$ |
| 2008 $YF_{57}$ | 18.2 | 0.15 | 20081220 | 20.10875 | 2.91530 | 69.46649 | 3.69725 | 0.1712646 | 2.3815870 | 19 | 1 | 12 days | 0.49 | | MPC | | 2008 $YF_{57}$ |
| 2008 $YG_{57}$ | 16.7 | 0.15 | 20090109 | 149.20956 | 348.02205 | 325.33190 | 4.26924 | 0.1054808 | 2.7529277 | 17 | 1 | 21 days | 0.39 | | MPC | | 2008 $YG_{57}$ |
| 2008 $YJ_{57}$ | 17.9 | 0.15 | 20081220 | 51.70187 | 91.45152 | 298.76211 | 11.84357 | 0.1987250 | 2.6357801 | 19 | 1 | 29 days | 0.26 | | MPC | | 2008 $YJ_{57}$ |
| 2008 $YK_{57}$ | 16.8 | 0.15 | 20081220 | 48.35398 | 86.43460 | 298.29259 | 11.28313 | 0.2770564 | 2.6649790 | 20 | 1 | 46 days | 0.18 | | MPC | | 2008 $YK_{57}$ |
| 2008 $YO_{57}$ | 18.6 | 0.15 | 20090109 | 336.18727 | 186.30632 | 310.81518 | 5.73315 | 0.0973254 | 2.2454585 | 17 | 1 | 21 days | 0.21 | | MPC | | 2008 $YO_{57}$ |
| 2008 $YX_{57}$ | 18.7 | 0.15 | 20090109 | 350.23247 | 101.35455 | 20.53239 | 2.33167 | 0.1368954 | 2.3401504 | 18 | 1 | 21 days | 0.24 | | MPC | | 2008 $YX_{57}$ |
| 2008 $YU_{58}$ | 17.8 | 0.15 | 20081220 | 276.34168 | 196.90369 | 1.81960 | 1.14877 | 0.1061570 | 2.4402990 | 16 | 1 | 11 days | 0.40 | | MPC | | 2008 $YU_{58}$ |
| 2008 $YB_{59}$ | 16.5 | 0.15 | 20081220 | 144.91489 | 342.76125 | 331.45479 | 2.42674 | 0.0886425 | 2.6598031 | 20 | 1 | 29 days | 0.25 | | MPC | | 2008 $YB_{59}$ |
| 2008 $YE_{59}$ | 17.6 | 0.15 | 20081220 | 336.48827 | 150.63752 | 343.17703 | 1.44886 | 0.1429099 | 2.6054515 | 22 | 1 | 29 days | 0.27 | | MPC | | 2008 $YE_{59}$ |
| 2008 $YM_{59}$ | 17.7 | 0.15 | 20090109 | 27.87906 | 334.54836 | 100.43892 | 12.63634 | 0.1022640 | 2.6663441 | 20 | 1 | 21 days | 0.23 | | MPC | | 2008 $YM_{59}$ |
| 2008 $YS_{59}$ | 16.2 | 0.15 | 20090109 | 58.78642 | 305.03771 | 98.67363 | 11.27927 | 0.0703262 | 3.3719441 | 17 | 1 | 21 days | 0.31 | | MPC | | 2008 $YS_{59}$ |
| 2008 $YV_{59}$ | 15.2 | 0.15 | 20100104 | 247.15905 | 342.04672 | 302.64690 | 6.36165 | 0.0331005 | 3.2104290 | 45 | 6 | 2001–2009 | 0.26 | M-v 0 | MPC | 155598 | 2008 $YV_{59}$ |
| 2008 $YX_{59}$ | 16.3 | 0.15 | 20090109 | 85.75921 | 308.09196 | 65.68445 | 2.47212 | 0.0883673 | 2.8121790 | 20 | 1 | 21 days | 0.21 | | MPC | | 2008 $YX_{59}$ |
| 2008 $YJ_{69}$ | 17.3 | 0.15 | 20081220 | 36.41016 | 303.14726 | 103.01929 | 24.04855 | 0.2348203 | 3.1462606 | 16 | 1 | 13 days | 0.57 | | MPC | | 2008 $YJ_{69}$ |
| 2008 $YN_{69}$ | 17.5 | 0.15 | 20090109 | 39.03591 | 346.98098 | 72.26089 | 1.83065 | 0.1275388 | 2.9969380 | 17 | 1 | 22 days | 0.37 | | MPC | | 2008 $YN_{69}$ |
| 2008 $YN_{70}$ | 18.3 | 0.15 | 20081220 | 136.70204 | 26.86430 | 298.17033 | 19.17533 | 0.0706416 | 1.9637103 | 17 | 1 | 18 days | 0.21 | | MPC | | 2008 $YN_{70}$ |
| 2008 $YL_{74}$ | 18.0 | 0.15 | 20090109 | 338.96256 | 34.97291 | 96.28316 | 8.09938 | 0.0603477 | 2.3685559 | 17 | 1 | 21 days | 0.35 | | MPC | | 2008 $YL_{74}$ |
| 2008 $YU_{74}$ | 18.4 | 0.15 | 20081220 | 36.66747 | 8.85226 | 42.60538 | 1.16266 | 0.1706601 | 2.5163688 | 21 | 1 | 47 days | 0.32 | | MPC | | 2008 $YU_{74}$ |
| 2008 $YC_{81}$ | 17.4 | 0.15 | 20100104 | 122.24251 | 313.01516 | 95.56605 | 14.42486 | 0.2504148 | 2.5810804 | 28 | 1 | 61 days | 0.37 | M-v 4 | MPC | | 2008 $YC_{81}$ |
| 2008 $YA_{83}$ | 17.7 | 0.15 | 20081220 | 30.61520 | 336.45651 | 81.11773 | 2.41301 | 0.1719270 | 2.3593038 | 24 | 1 | 30 days | 0.42 | | MPC | | 2008 $YA_{83}$ |
| 2008 $YB_{84}$ | 16.3 | 0.15 | 20081220 | 239.88455 | 301.41648 | 299.07846 | 12.28988 | 0.1612243 | 2.7228165 | 16 | 1 | 29 days | 0.32 | | MPC | | 2008 $YB_{84}$ |
| 2008 $YH_{85}$ | 17.8 | 0.15 | 20081130 | 2.71171 | 161.14304 | 267.39629 | 4.92705 | 0.1299605 | 2.2763529 | 28 | 1 | 45 days | 0.29 | | MPC | | 2008 $YH_{85}$ |
| 2008 $YR_{86}$ | 16.3 | 0.15 | 20100104 | 170.45978 | 255.01699 | 102.04301 | 15.29592 | 0.1995707 | 2.5682722 | 19 | 1 | 67 days | 0.38 | M-v 4 | MPC | | 2008 $YR_{86}$ |
| 2008 $YB_{88}$ | 15.9 | 0.15 | 20081220 | 330.98951 | 210.72425 | 280.15000 | 7.81173 | 0.0209712 | 3.0715976 | 12 | 1 | 25 days | 0.49 | | MPC | | 2008 $YB_{88}$ |
| 2008 $YX_{88}$ | 16.8 | 0.15 | 20081220 | 99.74509 | 62.03438 | 286.46387 | 12.61455 | 0.1286353 | 2.5175610 | 15 | 1 | 30 days | 0.26 | | MPC | | 2008 $YX_{88}$ |
| 2008 $YS_{89}$ | 17.4 | 0.15 | 20100104 | 54.37754 | 213.77267 | 287.37783 | 3.66130 | 0.1115412 | 2.6896565 | 21 | 1 | 60 days | 0.72 | M-v 6 | MPC | | 2008 $YS_{89}$ |
| 2008 $YU_{89}$ | 17.5 | 0.15 | 20081220 | 94.91024 | 51.18609 | 295.04819 | 5.08880 | 0.2093333 | 2.4122394 | 12 | 1 | 17 days | 0.29 | | MPC | | 2008 $YU_{89}$ |
| 2008 $YD_{91}$ | 16.2 | 0.15 | 20081220 | 21.78147 | 321.80993 | 108.64889 | 7.64076 | 0.2025291 | 3.1616746 | 13 | 1 | 34 days | 0.17 | | MPC | | 2008 $YD_{91}$ |
| 2008 $YP_{98}$ | 17.0 | 0.15 | 20090109 | 354.51403 | 8.23810 | 114.50230 | 18.33798 | 0.1954918 | 3.1622733 | 20 | 1 | 23 days | 0.23 | | MPC | | 2008 $YP_{98}$ |
| 2008 $YT_{98}$ | 17.5 | 0.15 | 20100104 | 174.77822 | 264.52828 | 112.67548 | 5.70661 | 0.1663269 | 2.3689680 | 17 | 1 | 77 days | 0.32 | M-v 5 | MPC | | 2008 $YT_{98}$ |
| 2008 $YW_{98}$ | 17.6 | 0.15 | 20081220 | 70.80973 | 271.89785 | 112.25068 | 6.60226 | 0.1213772 | 2.4375867 | 17 | 1 | 18 days | 0.23 | | MPC | | 2008 $YW_{98}$ |
| 2008 $YY_{98}$ | 17.0 | 0.15 | 20100104 | 324.67534 | 140.53775 | 112.01304 | 5.74242 | 0.1709582 | 2.5321201 | 38 | 4 | 1993–2009 | 0.39 | M-v 2 | MPC | 157502 | 2008 $YY_{98}$ |
| 2008 $YH_{99}$ | 18.5 | 0.15 | 20081220 | 300.75710 | 251.40064 | 287.87943 | 2.23891 | 0.1203863 | 2.2158386 | 13 | 1 | 18 days | 0.23 | | MPC | | 2008 $YH_{99}$ |
| 2008 $YY_{100}$ | 18.2 | 0.15 | 20081220 | 241.46229 | 99.08291 | 132.55916 | 3.74839 | 0.0695163 | 2.1563952 | 16 | 1 | 19 days | 0.21 | | MPC | | 2008 $YY_{100}$ |
| 2008 $YZ_{100}$ | 17.4 | 0.15 | 20081220 | 8.84743 | 173.28933 | 282.62868 | 11.47532 | 0.1507733 | 3.0021384 | 17 | 1 | 18 days | 0.21 | | MPC | | 2008 $YZ_{100}$ |
| 2008 $YM_{102}$ | 18.9 | 0.15 | 20081220 | 41.14117 | 257.56701 | 158.94003 | 1.33546 | 0.1128043 | 2.1604506 | 13 | 1 | 19 days | 0.27 | | MPC | | 2008 $YM_{102}$ |
| 2008 $YY_{102}$ | 17.0 | 0.15 | 20081220 | 299.77210 | 76.72138 | 118.24300 | 18.27714 | 0.2002557 | 3.0829839 | 16 | 1 | 20 days | 0.23 | | MPC | | 2008 $YY_{102}$ |
| 2008 $YV_{104}$ | 16.1 | 0.15 | 20100104 | 77.29959 | 344.18395 | 118.85046 | 12.88864 | 0.1158141 | 3.0813101 | 27 | 1 | 61 days | 0.38 | M-v 4 | MPC | | 2008 $YV_{104}$ |
| 2008 $YC_{122}$ | 17.0 | 0.15 | 20090109 | 35.10906 | 310.23678 | 118.42524 | 11.05398 | 0.0855101 | 3.0011095 | 13 | 1 | 19 days | 0.37 | | MPC | | 2008 $YC_{122}$ |
| 2008 $YQ_{125}$ | 17.0 | 0.15 | 20081220 | 226.64907 | 149.90257 | 108.67634 | 6.14611 | 0.2029032 | 2.3410630 | 13 | 1 | 17 days | 0.25 | | MPC | | 2008 $YQ_{125}$ |
| 2008 $YW_{125}$ | 16.3 | 0.15 | 20100104 | 105.27388 | 315.81814 | 107.42545 | 6.05567 | 0.1340789 | 3.1264887 | 25 | 1 | 69 days | 0.21 | M-v 4 | MPC | | 2008 $YW_{125}$ |
| 2008 $YJ_{133}$ | 16.4 | 0.15 | 20081130 | 331.37528 | 30.64233 | 99.40761 | 15.43784 | 0.1352453 | 2.7032884 | 34 | 1 | 56 days | 0.62 | | MPC | | 2008 $YJ_{133}$ |
| 2008 $YE_{136}$ | 16.6 | 0.15 | 20081220 | 39.46163 | 121.88665 | 293.60693 | 12.00400 | 0.0604723 | 3.0376799 | 15 | 1 | 16 days | 0.40 | | MPC | | 2008 $YE_{136}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 $YU_{137}$ | 18.7 | 0.15 | 20090109 | 346.00457 | 221.99305 | 275.63372 | 6.33555 | 0.1686522 | 2.3827190 | 25 | 1 | 43 days | 0.41 | | | MPC | | 2008 $YU_{137}$ |
| 2008 $YU_{138}$ | 15.8 | 0.15 | 20081220 | 117.04552 | 220.54227 | 135.32424 | 11.05806 | 0.0525778 | 3.1494574 | 14 | 1 | 18 days | 0.21 | | | MPC | | 2008 $YU_{138}$ |
| 2008 $YA_{139}$ | 18.4 | 0.15 | 20081220 | 51.02662 | 188.92867 | 211.04179 | 1.63544 | 0.2107407 | 2.3483216 | 14 | 1 | 18 days | 0.36 | | | MPC | | 2008 $YA_{139}$ |
| 2008 $YT_{142}$ | 17.4 | 0.15 | 20081220 | 113.55530 | 238.24042 | 103.44983 | 4.23896 | 0.1478454 | 2.3985568 | 13 | 1 | 17 days | 0.18 | | | MPC | | 2008 $YT_{142}$ |
| 2008 $YK_{143}$ | 16.8 | 0.15 | 20081220 | 114.14647 | 226.04645 | 130.17140 | 6.98237 | 0.0494264 | 2.6851832 | 13 | 1 | 16 days | 0.29 | | | MPC | | 2008 $YK_{143}$ |
| 2008 $YA_{145}$ | 17.4 | 0.15 | 20081220 | 340.14383 | 13.05639 | 125.19088 | 16.85157 | 0.0684103 | 2.5910117 | 12 | 1 | 16 days | 0.19 | | | MPC | | 2008 $YA_{145}$ |
| 2008 $YK_{148}$ | 15.4 | 0.15 | 20100104 | 93.30343 | 305.19648 | 73.74600 | 17.42427 | 0.2144454 | 3.1524795 | 33 | 3 | 2002–2009 | 0.42 | M-v | 2 | MPC | 165647 | 2008 $YK_{148}$ |
| 2009 $AR_{1}$ | 17.5 | 0.15 | 20081220 | 319.47829 | 258.64138 | 241.35901 | 21.00903 | 0.0850625 | 1.9076877 | 13 | 1 | 5 days | 0.58 | | | MPC | | 2009 $AR_{1}$ |
| 2009 $AK_{2}$ | 16.7 | 0.15 | 20081220 | 71.77885 | 152.55921 | 209.77769 | 2.10632 | 0.2635808 | 2.5763732 | 17 | 1 | 48 days | 0.43 | | | MPC | | 2009 $AK_{2}$ |
| 2009 $AV_{12}$ | 17.1 | 0.15 | 20081220 | 46.97537 | 205.60359 | 206.83869 | 1.45223 | 0.0650403 | 2.8689500 | 14 | 1 | 27 days | 0.28 | | | MPC | | 2009 $AV_{12}$ |
| 2009 $AG_{43}$ | 16.6 | 0.15 | 20100104 | 116.35477 | 133.40994 | 287.17276 | 7.85957 | 0.0873473 | 3.1812672 | 18 | 1 | 72 days | 0.50 | M-v | 5 | MPC | | 2009 $AG_{43}$ |
| 2009 BW | 17.1 | 0.15 | 20081220 | 28.70238 | 87.10860 | 330.11617 | 11.63379 | 0.2083282 | 2.4261526 | 23 | 1 | 27 days | 0.46 | | | MPC | | 2009 BW |
| 2009 $BX_{2}$ | 16.7 | 0.15 | 20100104 | 105.88692 | 269.39893 | 122.49018 | 14.12840 | 0.4124574 | 2.6662634 | 23 | 1 | 89 days | 0.60 | M-v | 4 | MPC | | 2009 $BX_{2}$ |
| 2009 $BC_{9}$ | 17.6 | 0.15 | 20090109 | 1.48276 | 205.44097 | 266.85555 | 2.78043 | 0.1170475 | 2.3165012 | 21 | 1 | 33 days | 0.40 | | | MPC | | 2009 $BC_{9}$ |
| 2009 $BS_{15}$ | 18.6 | 0.15 | 20090109 | 34.45140 | 132.69324 | 299.66174 | 3.65380 | 0.1203783 | 2.4253772 | 17 | 1 | 30 days | 0.35 | | | MPC | | 2009 $BS_{15}$ |
| 2009 $BY_{28}$ | 17.4 | 0.15 | 20100104 | 105.94029 | 9.47368 | 95.06855 | 2.57491 | 0.1515432 | 2.4041798 | 32 | 3 | 2002–2009 | 0.29 | M-v | 3 | MPC | 153806 | 2009 $BY_{28}$ |
| 2009 $BX_{36}$ | 15.7 | 0.15 | 20100104 | 311.77619 | 124.11793 | 124.65243 | 2.32832 | 0.1760491 | 3.0709937 | 69 | 6 | 2004–2009 | 0.36 | M-v | 0 | MPC | 155651 | 2009 $BX_{36}$ |
| 2009 $BJ_{50}$ | 18.2 | 0.15 | 20090109 | 26.33098 | 325.78708 | 123.48571 | 8.24104 | 0.1799653 | 2.7058062 | 16 | 1 | 19 days | 0.37 | | | MPC | | 2009 $BJ_{50}$ |
| 2009 $BA_{53}$ | 17.9 | 0.15 | 20090129 | 52.28230 | 48.72852 | 17.56730 | 1.50502 | 0.1482449 | 2.3682638 | 22 | 1 | 42 days | 0.46 | | | MPC | | 2009 $BA_{53}$ |
| 2009 $BP_{58}$ | 18.6 | 0.15 | 20100104 | 116.31586 | 193.92626 | 83.65769 | 12.57819 | 0.5550757 | 1.4448027 | 78 | 3 | 2002–2009 | 0.45 | M-v | 2 | MPC | 166338 | 2009 $BP_{58}$ |
| 2009 $BY_{77}$ | 15.9 | 0.15 | 20100104 | 97.92445 | 0.22239 | 90.47386 | 7.72766 | 0.1444843 | 3.0876433 | 40 | 3 | 2002–2009 | 0.50 | M-v | 2 | MPC | 155663 | 2009 $BY_{77}$ |
| 2009 $BZ_{80}$ | 15.8 | 0.15 | 20090109 | 29.23770 | 359.16396 | 82.10115 | 12.67584 | 0.1346556 | 3.1839219 | 23 | 1 | 31 days | 0.60 | | | MPC | | 2009 $BZ_{80}$ |
| 2009 $BS_{101}$ | 15.9 | 0.15 | 20100104 | 72.55920 | 15.42872 | 119.47811 | 12.52510 | 0.0842994 | 2.9977475 | 24 | 1 | 113 days | 0.47 | M-v | 4 | MPC | | 2009 $BS_{101}$ |
| 2009 $BT_{136}$ | 17.8 | 0.15 | 20090129 | 36.97204 | 309.47796 | 131.54227 | 10.24026 | 0.1836142 | 2.7132182 | 12 | 1 | 30 days | 0.21 | | | MPC | | 2009 $BT_{136}$ |
| 2009 $BY_{137}$ | 17.4 | 0.15 | 20100104 | 85.73502 | 356.69402 | 126.69000 | 4.45106 | 0.1794860 | 2.6478276 | 17 | 1 | 73 days | 0.40 | M-v | 4 | MPC | | 2009 $BY_{137}$ |
| 2009 $BY_{145}$ | 17.2 | 0.15 | 20090129 | 12.00902 | 147.72703 | 334.75112 | 7.63342 | 0.1783048 | 3.0570472 | 20 | 1 | 59 days | 0.18 | | | MPC | | 2009 $BY_{145}$ |
| 2009 $BL_{163}$ | 17.0 | 0.15 | 20100104 | 134.97419 | 317.39673 | 102.81158 | 5.38203 | 0.2477795 | 2.5302828 | 19 | 1 | 73 days | 0.43 | M-v | 5 | MPC | | 2009 $BL_{163}$ |
| 2009 $CV_{25}$ | 17.0 | 0.15 | 20100104 | 106.87041 | 141.22391 | 346.55251 | 7.03388 | 0.0562182 | 2.3622379 | 39 | 3 | 2002–2009 | 0.36 | M-v | 2 | MPC | 157508 | 2009 $CV_{25}$ |
| 2009 $DX_{40}$ | 17.9 | 0.15 | 20100104 | 66.57381 | 103.33249 | 68.03805 | 2.15888 | 0.1205541 | 2.3996453 | 40 | 4 | 1998–2009 | 0.40 | M-v | 1 | MPC | 153980 | 2009 $DX_{40}$ |
| 2009 $EF_{20}$ | 15.2 | 0.15 | 20100104 | 89.19032 | 353.99495 | 135.19770 | 11.13297 | 0.0696525 | 3.1208493 | 57 | 3 | 2001–2009 | 0.54 | M-v | 2 | MPC | 155829 | 2009 $EF_{20}$ |
| 2009 $EO_{25}$ | 16.7 | 0.15 | 20100104 | 221.35589 | 4.19597 | 13.68861 | 5.77589 | 0.0297327 | 2.6969327 | 29 | 3 | 2002–2009 | 0.34 | M-v | 3 | MPC | 158230 | 2009 $EO_{25}$ |
| 2009 FV | 15.6 | 0.15 | 20100104 | 73.71457 | 147.24690 | 7.12796 | 4.83726 | 0.0864790 | 3.1079161 | 69 | 3 | 2003–2009 | 0.33 | M-v | 2 | MPC | 158638 | 2009 FV |
| 2009 $FK_{18}$ | 16.2 | 0.15 | 20100104 | 27.53133 | 242.16048 | 352.05839 | 14.88347 | 0.0796461 | 2.5248528 | 54 | 5 | 2001–2009 | 0.52 | M-v | 2 | MPC | 155846 | 2009 $FK_{18}$ |
| 2009 $FF_{19}$ | 21.3 | 0.15 | 20100104 | 103.35299 | 245.43093 | 84.27616 | 0.55359 | 0.4094542 | 1.2129996 | 70 | 3 | 2005–2009 | 0.44 | M-v | 3 | MPC | 158970 | 2009 $FF_{19}$ |
| 2009 $FR_{26}$ | 17.5 | 0.15 | 20100104 | 117.90210 | 48.11709 | 67.59335 | 3.21421 | 0.1598706 | 2.5762926 | 30 | 3 | 2005–2009 | 0.40 | M-v | 2 | MPC | 158973 | 2009 $FR_{26}$ |
| 2009 $FE_{47}$ | 16.8 | 0.15 | 20100104 | 218.82959 | 313.20967 | 83.59241 | 3.07629 | 0.0397750 | 2.7928793 | 40 | 4 | 2004–2009 | 0.37 | M-v | 1 | MPC | 158979 | 2009 $FE_{47}$ |
| 2009 $FS_{47}$ | 17.4 | 0.15 | 20100104 | 16.71938 | 344.26059 | 281.03589 | 2.17885 | 0.1415881 | 2.3767785 | 46 | 6 | 1998–2009 | 0.46 | M-v | 1 | MPC | 162106 | 2009 $FS_{47}$ |
| 2009 $GC_{5}$ | 17.0 | 0.15 | 20100104 | 308.17106 | 191.74508 | 126.12304 | 3.06829 | 0.0608316 | 2.9308102 | 36 | 5 | 2001–2009 | 0.27 | M-v | 0 | MPC | 158268 | 2009 $GC_{5}$ |
| 2009 $HU_{16}$ | 16.5 | 0.15 | 20100104 | 322.61695 | 183.34353 | 106.16502 | 3.32301 | 0.0920551 | 3.1815688 | 26 | 4 | 2005–2009 | 0.29 | M-v | 2 | MPC | 158991 | 2009 $HU_{16}$ |
| 2009 $HM_{36}$ | 17.3 | 0.15 | 20090419 | 296.02809 | 245.79311 | 23.94321 | 13.01133 | 0.1276885 | 2.6063845 | 11 | 1 | 10 days | 0.19 | | | MPC | | 2009 $HM_{36}$ |
| 2009 $HO_{94}$ | 17.2 | 0.15 | 20100104 | 131.89559 | 273.99281 | 232.67885 | 6.23006 | 0.2342058 | 2.3080713 | 48 | 3 | 2005–2009 | 0.28 | M-v | 3 | MPC | 158329 | 2009 $HO_{94}$ |
| 2009 $HK_{96}$ | 16.3 | 0.15 | 20100104 | 192.40749 | 303.94376 | 123.46436 | 3.38841 | 0.0976655 | 3.0249242 | 39 | 3 | 2006–2009 | 0.33 | M-v | 3 | MPC | 158331 | 2009 $HK_{96}$ |
| 2009 $JL_{1}$ | 21.0 | 0.15 | 20100104 | 71.22900 | 289.48471 | 69.62450 | 11.50776 | 0.1708659 | 1.1799966 | 75 | 1 | 240 days | 0.48 | M-v | 3 | MPC | 166339 | 2009 $JL_{1}$ |
| 2009 KK | 20.4 | 0.15 | 20100104 | 84.84823 | 247.23591 | 68.23619 | 18.22386 | 0.4552326 | 1.5021478 | 115 | 2 | 2009–2009 | 0.40 | M-v | 3 | MPC | 165649 | 2009 KK |
| 2009 $KL_{2}$ | 18.0 | 0.15 | 20100104 | 30.23882 | 165.67700 | 173.85792 | 9.44358 | 0.4690002 | 2.2000430 | 244 | 2 | 1996–2009 | 0.39 | M-v | 1 | MPC | 166339 | 2009 $KL_{2}$ |
| 2009 $KN_{4}$ | 18.3 | 0.15 | 20100104 | 51.18479 | 37.98941 | 308.44441 | 9.16888 | 0.5252114 | 1.9401872 | 76 | 2 | 2001–2009 | 0.47 | M-v | 1 | MPC | 163898 | 2009 $KN_{4}$ |
| 2009 $KQ_{31}$ | 18.5 | 0.15 | 20090509 | 48.09433 | 236.36115 | 312.99460 | 2.47515 | 0.0997666 | 5.3201325 | 16 | 1 | 2 days | 0.13 | | E | MPC | | 2009 $KQ_{31}$ |
| 2009 $KU_{31}$ | 17.0 | 0.15 | 20090509 | 292.22017 | 38.25880 | 306.79123 | 2.56479 | 0.2643676 | 5.2227957 | 21 | 1 | 2 days | 0.09 | | E | MPC | | 2009 $KU_{31}$ |
| 2009 LC | 16.0 | 0.15 | 20100104 | 12.88987 | 103.13685 | 264.29279 | 20.66794 | 0.3188101 | 2.4478653 | 79 | 3 | 2002–2009 | 0.42 | M-v | 1 | MPC | 166339 | 2009 LC |
| 2009 $MN_{1}$ | 15.0 | 0.15 | 20100104 | 17.25572 | 116.17289 | 250.72089 | 24.21619 | 0.2683219 | 2.4320169 | 80 | 5 | 1998–2009 | 0.53 | M-v | 1 | MPC | 166339 | 2009 $MN_{1}$ |
| 2009 $MX_{6}$ | 19.2 | 0.15 | 20100104 | 36.30711 | 76.29198 | 271.47155 | 9.02690 | 0.5629181 | 2.1502508 | 283 | 1 | 177 days | 0.38 | M-v | 4 | MPC | 166339 | 2009 $MX_{6}$ |
| 2009 $MK_{7}$ | 16.9 | 0.15 | 20100104 | 49.64251 | 96.54418 | 244.81375 | 26.03226 | 0.3429377 | 2.1935475 | 80 | 2 | 1996–2009 | 0.56 | M-v | 2 | MPC | 165651 | 2009 $MK_{7}$ |
| 2009 NA | 17.6 | 0.15 | 20100104 | 25.15901 | 98.74990 | 269.57544 | 10.09151 | 0.5532549 | 2.6582188 | 461 | 1 | 180 days | 0.35 | M-v | 2 | MPC | 166339 | 2009 NA |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2009 ND | 15.8 | 0.15 | 20100104 | 42.08808 | 113.56224 | 222.75694 | 21.19117 | 0.2668439 | 2.4197899 | 89 | 3 | 2001–2009 | 0.46 | M-v | 1 | MPC | 166339 | 2009 ND |
| 2009 NG | 15.5 | 0.15 | 20100104 | 30.56383 | 78.61254 | 283.36341 | 18.32322 | 0.3311085 | 2.7964299 | 71 | 3 | 2004–2009 | 0.48 | M-v | 1 | MPC | 166339 | 2009 NG |
| 2009 NH | 18.8 | 0.15 | 20100104 | 31.43374 | 216.61457 | 145.71662 | 7.32835 | 0.4862564 | 2.1756066 | 453 | 1 | 162 days | 0.35 | M-v | 3 | MPC | 166339 | 2009 NH |
| 2009 $ND_1$ | 16.8 | 0.15 | 20100104 | 355.34374 | 291.26809 | 98.75817 | 11.77428 | 0.5661722 | 2.7451218 | 27 | 1 | 147 days | 0.47 | M-v | 4 | MPC | 160911 | 2009 $ND_1$ |
| 2009 $NG_2$ | 17.6 | 0.15 | 20090708 | 351.80423 | 194.00986 | 126.70007 | 3.25525 | 0.2185545 | 2.4579327 | 13 | 1 | 17 days | 0.37 | | | MPC | | 2009 $NG_2$ |
| 2009 OG | 16.2 | 0.15 | 20100104 | 20.85126 | 114.08204 | 309.57161 | 48.33378 | 0.8587805 | 2.7057139 | 202 | 1 | 143 days | 0.32 | M-v | 2 | MPC | 160911 | 2009 OG |
| 2009 $OU_2$ | 15.4 | 0.15 | 20100104 | 315.88471 | 228.64758 | 204.30940 | 13.26386 | 0.0823681 | 3.2379205 | 45 | 5 | 2000–2009 | 0.39 | M-v | 0 | MPC | 163901 | 2009 $OU_2$ |
| 2009 $OV_2$ | 16.3 | 0.15 | 20100104 | 24.80710 | 262.48569 | 115.79464 | 23.03095 | 0.3593972 | 2.3136476 | 54 | 3 | 2002–2009 | 0.36 | M-v | 1 | MPC | 166339 | 2009 $OV_2$ |
| 2009 $OY_3$ | 16.5 | 0.15 | 20100104 | 44.43952 | 179.76619 | 124.99818 | 15.56318 | 0.2585906 | 2.5749938 | 43 | 3 | 2001–2009 | 0.50 | M-v | 2 | MPC | 162546 | 2009 $OY_3$ |
| 2009 $OL_5$ | 16.4 | 0.15 | 20100104 | 38.64596 | 97.08710 | 226.47850 | 6.25889 | 0.2665869 | 3.0217507 | 44 | 3 | 2004–2009 | 0.37 | M-v | 1 | MPC | 163902 | 2009 $OL_5$ |
| 2009 $OX_7$ | 16.2 | 0.15 | 20100104 | 31.02096 | 126.88414 | 229.94702 | 16.30187 | 0.2508684 | 2.6528799 | 45 | 3 | 2005–2009 | 0.42 | M-v | 1 | MPC | 165651 | 2009 $OX_7$ |
| 2009 $OR_8$ | 17.8 | 0.15 | 20100104 | 51.06477 | 110.36561 | 195.75017 | 5.18724 | 0.1974507 | 2.2227608 | 46 | 3 | 2006–2009 | 0.37 | M-v | 3 | MPC | 160635 | 2009 $OR_8$ |
| 2009 $OP_9$ | 19.3 | 0.15 | 20100104 | 39.74250 | 224.13802 | 142.62553 | 13.43808 | 0.4758835 | 2.0202384 | 59 | 1 | 129 days | 0.54 | M-v | 4 | MPC | 162547 | 2009 $OP_9$ |
| 2009 $OT_{14}$ | 16.6 | 0.15 | 20090708 | 358.52975 | 233.72236 | 42.14559 | 9.74756 | 0.1404232 | 2.6709969 | 17 | 1 | 3 days | 0.44 | | E | MPC | | 2009 $OT_{14}$ |
| 2009 $OQ_{15}$ | 12.7 | 0.15 | 20100104 | 60.69675 | 302.25934 | 41.06347 | 13.42888 | 0.0773616 | 5.1750253 | 73 | 7 | 1997–2009 | 0.46 | M-v | 0 | MPC | 166340 | 2009 $OQ_{15}$ |
| 2009 $OE_{23}$ | 16.3 | 0.15 | 20100104 | 18.60761 | 261.99266 | 75.25929 | 13.54551 | 0.0961789 | 2.7087639 | 25 | 3 | 2005–2009 | 0.43 | M-v | 3 | MPC | 163903 | 2009 $OE_{23}$ |
| 2009 $ON_{24}$ | 16.4 | 0.15 | 20100104 | 30.60842 | 258.44521 | 95.33817 | 14.88229 | 0.1150313 | 2.3898820 | 11 | 1 | 87 days | 0.46 | M-v | 4 | MPC | | 2009 $ON_{24}$ |
| 2009 PB | 16.1 | 0.15 | 20100104 | 32.48177 | 106.87993 | 247.13580 | 6.74780 | 0.3656674 | 2.3975637 | 153 | 5 | 1992–2009 | 0.50 | M-v | 1 | MPC | 166340 | 2009 PB |
| 2009 PU | 16.0 | 0.15 | 20100104 | 19.10013 | 348.64258 | 6.75192 | 9.66974 | 0.3227331 | 3.0662708 | 83 | 1 | 137 days | 0.44 | M-v | 3 | MPC | 166340 | 2009 PU |
| 2009 $PW_3$ | 17.7 | 0.15 | 20090817 | 0.49407 | 159.29431 | 165.90644 | 11.29409 | 0.2385623 | 2.4316933 | 16 | 1 | 54 days | 0.32 | | | MPC | | 2009 $PW_3$ |
| 2009 $PP_9$ | 17.0 | 0.15 | 20100104 | 31.24347 | 8.55926 | 339.07976 | 8.38778 | 0.2118864 | 2.7924625 | 31 | 1 | 127 days | 0.24 | M-v | 3 | MPC | 166340 | 2009 $PP_9$ |
| 2009 $PW_{12}$ | 16.4 | 0.15 | 20100104 | 13.61764 | 19.46611 | 348.02307 | 4.97877 | 0.2463352 | 3.1702756 | 27 | 1 | 125 days | 0.36 | M-v | 3 | MPC | | 2009 $PW_{12}$ |
| 2009 $PX_{15}$ | 16.1 | 0.15 | 20100104 | 51.87549 | 335.96647 | 348.24387 | 8.25368 | 0.0805688 | 3.1617516 | 30 | 4 | 1992–2009 | 0.33 | M-v | 1 | MPC | 165654 | 2009 $PX_{15}$ |
| 2009 $PM_{16}$ | 16.5 | 0.15 | 20100104 | 322.31164 | 253.35808 | 172.19903 | 5.59514 | 0.0243241 | 2.6373225 | 49 | 3 | 2005–2009 | 0.33 | M-v | 2 | MPC | 163907 | 2009 $PM_{16}$ |
| 2009 $PA_{17}$ | 16.1 | 0.15 | 20100104 | 59.07070 | 218.62684 | 87.13063 | 24.84767 | 0.2074952 | 2.3823330 | 14 | 1 | 71 days | 0.35 | M-v | 4 | MPC | | 2009 $PA_{17}$ |
| 2009 $PG_{18}$ | 19.1 | 0.15 | 20090906 | 4.90204 | 12.03159 | 334.39047 | 7.59970 | 0.2036755 | 2.3938233 | 16 | 1 | 44 days | 0.36 | | | MPC | | 2009 $PG_{18}$ |
| 2009 QW | 15.5 | 0.15 | 20100104 | 39.61551 | 314.31199 | 33.68507 | 8.35528 | 0.3603407 | 2.6546160 | 124 | 5 | 2002–2009 | 0.40 | M-v | 1 | MPC | 166341 | 2009 QW |
| 2009 $QH_2$ | 21.2 | 0.15 | 20100104 | 33.05696 | 103.88732 | 241.32686 | 4.73670 | 0.5022829 | 2.3349155 | 170 | 1 | 116 days | 0.44 | M-v | 4 | MPC | 166341 | 2009 $QH_2$ |
| 2009 $QS_3$ | 17.0 | 0.15 | 20090817 | 19.38816 | 123.06080 | 171.73094 | 16.44195 | 0.3300562 | 3.2026902 | 28 | 1 | 37 days | 0.47 | | | MPC | | 2009 $QS_3$ |
| 2009 $QY_6$ | 14.8 | 0.15 | 20100104 | 2.03967 | 194.93878 | 197.57706 | 137.80174 | 0.8344462 | 12.4979598 | 151 | 1 | 107 days | 0.34 | M-v | 3 | MPC | 166341 | 2009 $QY_6$ |
| 2009 $QL_8$ | 19.5 | 0.15 | 20100104 | 19.61862 | 339.47437 | 84.55584 | 4.23930 | 0.5410790 | 1.9314211 | 85 | 1 | 127 days | 0.41 | M-v | 4 | MPC | 166341 | 2009 $QL_8$ |
| 2009 $QM_8$ | 17.2 | 0.15 | 20100104 | 46.39338 | 14.17012 | 322.30010 | 6.97743 | 0.2053206 | 2.2104463 | 68 | 4 | 1999–2009 | 0.43 | M-v | 1 | MPC | 165658 | 2009 $QM_8$ |
| 2009 $QR_9$ | 16.2 | 0.15 | 20100104 | 30.10388 | 214.51266 | 156.92919 | 7.56134 | 0.3955556 | 2.5785268 | 83 | 4 | 1994–2009 | 0.41 | M-v | 1 | MPC | 166342 | 2009 $QR_9$ |
| 2009 $QY_9$ | 16.7 | 0.15 | 20100104 | 40.55917 | 4.43941 | 337.12385 | 3.02398 | 0.2869105 | 2.6057821 | 89 | 3 | 2005–2009 | 0.45 | M-v | 2 | MPC | 164346 | 2009 $QY_9$ |
| 2009 $QC_{11}$ | 16.8 | 0.15 | 20100104 | 306.54485 | 117.64718 | 334.18121 | 4.65293 | 0.1399843 | 2.3272787 | 46 | 5 | 1997–2009 | 0.45 | M-v | 1 | MPC | 166342 | 2009 $QC_{11}$ |
| 2009 $QQ_{16}$ | 16.1 | 0.15 | 20100104 | 45.90963 | 334.26050 | 358.69344 | 13.33724 | 0.1169474 | 2.6533399 | 55 | 5 | 1996–2009 | 0.43 | M-v | 1 | MPC | 164347 | 2009 $QQ_{16}$ |
| 2009 $QC_{19}$ | 16.8 | 0.15 | 20090906 | 341.40568 | 340.24937 | 35.26683 | 17.48220 | 0.3197154 | 2.6932108 | 16 | 1 | 38 days | 0.49 | | | MPC | | 2009 $QC_{19}$ |
| 2009 $QJ_{21}$ | 16.3 | 0.15 | 20100104 | 28.77261 | 291.86076 | 35.72507 | 2.10112 | 0.2102557 | 3.0383501 | 53 | 5 | 2004–2009 | 0.49 | M-v | 1 | MPC | 165661 | 2009 $QJ_{21}$ |
| 2009 $QZ_{24}$ | 18.5 | 0.15 | 20100104 | 19.20485 | 87.80056 | 281.55562 | 2.19550 | 0.2670894 | 2.2769215 | 34 | 2 | 2006–2009 | 0.35 | M-v | 2 | MPC | 166342 | 2009 $QZ_{24}$ |
| 2009 $QS_{26}$ | 17.0 | 0.15 | 20100104 | 51.55612 | 123.23041 | 198.24962 | 6.61997 | 0.1431797 | 2.2571404 | 60 | 5 | 2001–2009 | 0.48 | M-v | 1 | MPC | 164348 | 2009 $QS_{26}$ |
| 2009 $QP_{29}$ | 16.6 | 0.15 | 20100104 | 8.51497 | 181.98360 | 204.60712 | 8.37429 | 0.3143738 | 2.6716376 | 72 | 4 | 1996–2009 | 0.46 | M-v | 1 | MPC | 166343 | 2009 $QP_{29}$ |
| 2009 $QH_{30}$ | 16.0 | 0.15 | 20100104 | 28.13846 | 77.64730 | 244.83281 | 17.33267 | 0.2570512 | 3.0395544 | 31 | 2 | 2004–2009 | 0.45 | M-v | 2 | MPC | 162158 | 2009 $QH_{30}$ |
| 2009 $QY_{33}$ | 19.5 | 0.15 | 20100104 | 356.85226 | 285.54861 | 162.11414 | 23.00878 | 0.2827761 | 1.4732011 | 59 | 2 | 2003–2009 | 0.46 | M-v | 3 | MPC | 164349 | 2009 $QY_{33}$ |
| 2009 $QD_{34}$ | 18.0 | 0.15 | 20100104 | 36.43156 | 252.40765 | 98.66031 | 6.41281 | 0.4919753 | 2.4347220 | 124 | 1 | 113 days | 0.41 | M-v | 3 | MPC | 166343 | 2009 $QD_{34}$ |
| 2009 $QQ_{34}$ | 16.6 | 0.15 | 20100104 | 38.24918 | 41.59871 | 295.80129 | 12.36766 | 0.2773103 | 2.6312089 | 30 | 1 | 111 days | 0.56 | M-v | 4 | MPC | | 2009 $QQ_{34}$ |
| 2009 $QS_{34}$ | 15.2 | 0.15 | 20100104 | 44.23737 | 17.95825 | 306.02100 | 15.62551 | 0.2407709 | 3.0520433 | 31 | 2 | 2006–2009 | 0.50 | M-v | 4 | MPC | 165662 | 2009 $QS_{34}$ |
| 2009 $QT_{34}$ | 16.3 | 0.15 | 20100104 | 24.91955 | 58.71819 | 297.21571 | 13.26143 | 0.2798167 | 2.9966380 | 20 | 1 | 114 days | 0.60 | M-v | 4 | MPC | | 2009 $QT_{34}$ |
| 2009 $QX_{34}$ | 17.4 | 0.15 | 20090906 | 9.02312 | 38.83472 | 300.06267 | 13.49615 | 0.3077993 | 2.4281919 | 25 | 1 | 31 days | 0.55 | | | MPC | | 2009 $QX_{34}$ |
| 2009 $QZ_{34}$ | 22.5 | 0.15 | 20100104 | 28.00326 | 229.61785 | 171.79678 | 2.39986 | 0.4298910 | 1.7730536 | 94 | 1 | 119 days | 0.40 | M-v | 4 | MPC | 166343 | 2009 $QZ_{34}$ |
| 2009 $QS_{35}$ | 16.9 | 0.15 | 20100104 | 97.92600 | 295.76565 | 329.60145 | 7.34851 | 0.0787474 | 2.6061223 | 43 | 6 | 1999–2009 | 0.49 | M-v | 1 | MPC | 165663 | 2009 $QS_{35}$ |
| 2009 $QC_{37}$ | 16.2 | 0.15 | 20100104 | 25.45970 | 352.57708 | 7.23792 | 9.64893 | 0.0971617 | 3.0986575 | 29 | 2 | 2007–2009 | 0.30 | M-v | 3 | MPC | 163914 | 2009 $QC_{37}$ |
| 2009 $QE_{37}$ | 15.0 | 0.15 | 20100104 | 50.50732 | 280.27707 | 79.22356 | 27.07260 | 0.2167941 | 3.0965388 | 73 | 4 | 1998–2009 | 0.54 | M-v | 1 | MPC | 165663 | 2009 $QE_{37}$ |
| 2009 $QF_{37}$ | 17.2 | 0.15 | 20100104 | 22.95116 | 147.36012 | 223.11153 | 29.80458 | 0.3577224 | 2.6412417 | 41 | 1 | 104 days | 0.40 | M-v | 3 | MPC | 166343 | 2009 $QF_{37}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2009 $QJ_{37}$ | 17.1 | 0.15 | 20100104 | 18.51956 | 358.48170 | 347.41373 | 16.87284 | 0.2119824 | 3.0968368 | 28 | 1 | 113 days | 0.14 | M-v | 3 | MPC | | 2009 $QJ_{37}$ |
| 2009 $QU_{38}$ | 17.3 | 0.15 | 20100104 | 20.84108 | 344.47871 | 32.53227 | 1.21486 | 0.2256667 | 2.3919197 | 82 | 4 | 1998–2009 | 0.39 | M-v | 1 | MPC | 166343 | 2009 $QU_{38}$ |
| 2009 $QV_{38}$ | 11.9 | 0.15 | 20100104 | 358.37641 | 13.29865 | 11.62518 | 19.88600 | 0.4506932 | 10.9323802 | 96 | 1 | 110 days | 0.40 | M-v | 3 | MPC | 166343 | 2009 $QV_{38}$ |
| 2009 $QJ_{40}$ | 17.3 | 0.15 | 20100104 | 17.18555 | 86.86954 | 273.65303 | 0.34533 | 0.2523422 | 2.7356405 | 52 | 4 | 2000–2009 | 0.46 | M-v | 1 | MPC | 166343 | 2009 $QJ_{40}$ |
| 2009 $QP_{40}$ | 17.6 | 0.15 | 20100104 | 31.55145 | 136.81206 | 210.77734 | 0.52409 | 0.2026036 | 2.3552587 | 57 | 5 | 1991–2009 | 0.50 | M-v | 1 | MPC | 166343 | 2009 $QP_{40}$ |
| 2009 $QL_{41}$ | 17.2 | 0.15 | 20100104 | 53.20531 | 312.08044 | 9.57768 | 2.37407 | 0.2166674 | 2.3406430 | 48 | 3 | 2002–2009 | 0.32 | M-v | 2 | MPC | 166343 | 2009 $QL_{41}$ |
| 2009 $QN_{42}$ | 17.4 | 0.15 | 20100104 | 25.47274 | 4.53761 | 351.56491 | 1.93535 | 0.2129582 | 2.4641476 | 63 | 5 | 2003–2009 | 0.35 | M-v | 1 | MPC | 166343 | 2009 $QN_{42}$ |
| 2009 $QP_{43}$ | 18.3 | 0.15 | 20090817 | 342.04669 | 25.26364 | 341.64881 | 11.89632 | 0.1906416 | 2.5418917 | 13 | 1 | 40 days | 0.26 | | | MPC | | 2009 $QP_{43}$ |
| 2009 $QN_{46}$ | 17.9 | 0.15 | 20100104 | 25.62257 | 16.23450 | 347.82769 | 2.77099 | 0.2089268 | 2.4060185 | 42 | 1 | 124 days | 0.38 | M-v | 3 | MPC | 166344 | 2009 $QN_{46}$ |
| 2009 $QD_{47}$ | 17.0 | 0.15 | 20100104 | 55.82611 | 298.88953 | 19.20224 | 7.20722 | 0.1564763 | 2.4168778 | 43 | 3 | 2005–2009 | 0.39 | M-v | 2 | MPC | 166344 | 2009 $QD_{47}$ |
| 2009 $QT_{47}$ | 16.1 | 0.15 | 20100104 | 6.59508 | 359.81908 | 25.33791 | 4.28018 | 0.1065130 | 2.7913498 | 49 | 5 | 1995–2009 | 0.48 | M-v | 1 | MPC | 166344 | 2009 $QT_{47}$ |
| 2009 $QX_{47}$ | 16.6 | 0.15 | 20100104 | 12.92719 | 18.83312 | 8.99594 | 14.20326 | 0.2766872 | 2.6296261 | 76 | 1 | 105 days | 0.55 | M-v | 3 | MPC | 166344 | 2009 $QX_{47}$ |
| 2009 $QK_{50}$ | 17.5 | 0.15 | 20100104 | 31.82732 | 217.41600 | 151.64867 | 3.22473 | 0.2713827 | 2.7100019 | 25 | 1 | 84 days | 0.40 | M-v | 4 | MPC | | 2009 $QK_{50}$ |
| 2009 $QO_{50}$ | 15.6 | 0.15 | 20100104 | 88.18950 | 279.39409 | 32.94050 | 14.82078 | 0.0942298 | 2.7774813 | 55 | 2 | 2007–2009 | 0.49 | M-v | 4 | MPC | 166344 | 2009 $QO_{50}$ |
| 2009 $QY_{51}$ | 16.8 | 0.15 | 20100104 | 25.48496 | 246.94116 | 128.42405 | 30.36321 | 0.3628388 | 2.5857056 | 29 | 2 | 1998–2009 | 0.56 | M-v | 3 | MPC | 162171 | 2009 $QY_{51}$ |
| 2009 $QB_{55}$ | 16.4 | 0.15 | 20100104 | 33.93030 | 250.95968 | 101.89509 | 13.49142 | 0.2822742 | 2.6710500 | 25 | 1 | 120 days | 0.56 | M-v | 4 | MPC | 166344 | 2009 $QB_{55}$ |
| 2009 $QZ_{56}$ | 15.7 | 0.15 | 20100104 | 16.77890 | 3.97126 | 1.27459 | 11.15485 | 0.1035922 | 3.0779033 | 34 | 3 | 2004–2009 | 0.39 | M-v | 2 | MPC | 165669 | 2009 $QZ_{56}$ |
| 2009 $QM_{57}$ | 17.9 | 0.15 | 20100104 | 348.00302 | 62.25798 | 354.29390 | 1.98071 | 0.2181164 | 2.4162030 | 22 | 1 | 94 days | 0.27 | M-v | 4 | MPC | | 2009 $QM_{57}$ |
| 2009 $QT_{57}$ | 16.6 | 0.15 | 20100104 | 29.23021 | 220.76052 | 124.26523 | 19.56791 | 0.3757744 | 2.6686241 | 24 | 1 | 168 days | 0.39 | M-v | 3 | MPC | | 2009 $QT_{57}$ |
| 2009 RA | 16.4 | 0.15 | 20100104 | 37.66340 | 242.98910 | 107.82490 | 14.24350 | 0.2823729 | 2.6692320 | 26 | 1 | 105 days | 0.57 | M-v | 4 | MPC | 166345 | 2009 RA |
| 2009 RB | 15.1 | 0.15 | 20100104 | 70.14701 | 289.90829 | 52.46840 | 14.19031 | 0.2166957 | 2.5794140 | 96 | 5 | 2000–2009 | 0.51 | M-v | 1 | MPC | 166345 | 2009 RB |
| 2009 RN | 20.0 | 0.15 | 20100104 | 12.82925 | 310.00690 | 93.51527 | 3.39434 | 0.6135940 | 2.8404643 | 307 | 1 | 105 days | 0.34 | M-v | 3 | MPC | 166345 | 2009 RN |
| 2009 $RD_1$ | 20.5 | 0.15 | 20100104 | 24.92565 | 0.22407 | 353.65418 | 2.11363 | 0.5370380 | 2.5736210 | 109 | 1 | 91 days | 0.44 | M-v | 4 | MPC | 166345 | 2009 $RD_1$ |
| 2009 $RG_1$ | 17.0 | 0.15 | 20100104 | 47.67065 | 284.72918 | 45.58018 | 8.70520 | 0.2361356 | 2.4008493 | 36 | 3 | 1998–2009 | 0.59 | M-v | 3 | MPC | 165670 | 2009 $RG_1$ |
| 2009 $RQ_1$ | 17.3 | 0.15 | 20100104 | 44.87491 | 142.56371 | 194.41445 | 1.67350 | 0.2214492 | 2.3943002 | 66 | 4 | 1998–2009 | 0.43 | M-v | 1 | MPC | 166345 | 2009 $RQ_1$ |
| 2009 $RV_1$ | 21.9 | 0.15 | 20100104 | 12.85087 | 56.29223 | 2.20126 | 1.89891 | 0.6370212 | 2.6982684 | 57 | 1 | 90 days | 0.52 | M-v | 4 | MPC | 166345 | 2009 $RV_1$ |
| 2009 $RF_2$ | 15.7 | 0.15 | 20100104 | 39.89277 | 316.65875 | 37.46797 | 13.88925 | 0.2634247 | 2.6637716 | 116 | 3 | 2002–2009 | 0.53 | M-v | 2 | MPC | 166345 | 2009 $RF_2$ |
| 2009 $RR_2$ | 16.5 | 0.15 | 20100104 | 2.95577 | 157.50589 | 232.37833 | 6.97471 | 0.1342647 | 2.4649014 | 56 | 4 | 2004–2009 | 0.51 | M-v | 2 | MPC | 166345 | 2009 $RR_2$ |
| 2009 $RT_2$ | 16.8 | 0.15 | 20100104 | 15.30325 | 125.68817 | 243.75947 | 9.61193 | 0.2478591 | 2.7652952 | 37 | 1 | 98 days | 0.41 | M-v | 4 | MPC | | 2009 $RT_2$ |
| 2009 $RM_3$ | 16.9 | 0.15 | 20100104 | 57.16279 | 97.69351 | 210.86091 | 13.81635 | 0.2775614 | 2.4064331 | 55 | 4 | 1998–2009 | 0.43 | M-v | 1 | MPC | 166345 | 2009 $RM_3$ |
| 2009 $RS_3$ | 19.0 | 0.15 | 20090926 | 8.56247 | 321.36267 | 16.31741 | 6.99445 | 0.4455737 | 2.6147964 | 18 | 1 | 43 days | 0.45 | | | MPC | | 2009 $RS_3$ |
| 2009 $RX_5$ | 17.6 | 0.15 | 20090906 | 3.96280 | 139.56365 | 211.79287 | 3.69974 | 0.0964802 | 2.7837691 | 14 | 1 | 6 days | 0.55 | | | MPC | | 2009 $RX_5$ |
| 2009 $RE_6$ | 17.1 | 0.15 | 20100104 | 44.34239 | 320.38252 | 25.92395 | 6.05133 | 0.1655345 | 2.2228330 | 53 | 3 | 1999–2009 | 0.41 | M-v | 2 | MPC | 165672 | 2009 $RE_6$ |
| 2009 $RX_6$ | 16.9 | 0.15 | 20100104 | 43.52508 | 79.21245 | 257.44748 | 2.99918 | 0.2075611 | 2.3933742 | 61 | 4 | 2003–2009 | 0.43 | M-v | 1 | MPC | 163924 | 2009 $RX_6$ |
| 2009 $RY_6$ | 18.2 | 0.15 | 20090906 | 13.43510 | 348.37939 | 350.78180 | 18.84568 | 0.0621489 | 1.9414451 | 34 | 1 | 59 days | 0.70 | | | MPC | | 2009 $RY_6$ |
| 2009 $RZ_6$ | 16.0 | 0.15 | 20100104 | 51.05036 | 20.53345 | 299.86598 | 2.76586 | 0.1907408 | 2.7826679 | 96 | 5 | 2004–2009 | 0.35 | M-v | 0 | MPC | 163925 | 2009 $RZ_6$ |
| 2009 $RH_7$ | 18.4 | 0.15 | 20100104 | 20.57605 | 148.62869 | 226.77570 | 5.22460 | 0.3029180 | 2.2545155 | 37 | 2 | 1999–2009 | 0.50 | M-v | 3 | MPC | 166345 | 2009 $RH_7$ |
| 2009 $RR_7$ | 16.7 | 0.15 | 20100104 | 37.60275 | 340.51724 | 1.97088 | 11.09004 | 0.3351219 | 2.7572650 | 70 | 1 | 113 days | 0.52 | M-v | 4 | MPC | 166345 | 2009 $RR_7$ |
| 2009 $RY_7$ | 17.7 | 0.15 | 20100104 | 310.52920 | 174.19365 | 290.24757 | 1.54381 | 0.1734439 | 2.4326907 | 37 | 3 | 2003–2009 | 0.39 | M-v | 2 | MPC | 162176 | 2009 $RY_7$ |
| 2009 $RF_8$ | 17.8 | 0.15 | 20100104 | 31.56096 | 6.05721 | 346.00793 | 2.57138 | 0.3036590 | 2.6161657 | 53 | 3 | 1992–2009 | 0.39 | M-v | 2 | MPC | 164353 | 2009 $RF_8$ |
| 2009 $RO_8$ | 16.8 | 0.15 | 20100104 | 328.77234 | 212.87704 | 238.27128 | 1.74795 | 0.2915167 | 3.1125685 | 38 | 4 | 1994–2009 | 0.26 | M-v | 0 | MPC | 165672 | 2009 $RO_8$ |
| 2009 $RN_9$ | 15.1 | 0.15 | 20100104 | 34.91182 | 11.26212 | 337.20100 | 1.61703 | 0.0658926 | 3.9513550 | 55 | 7 | 1993–2009 | 0.31 | M-v | 0 | MPC | 165673 | 2009 $RN_9$ |
| 2009 $RH_{10}$ | 16.1 | 0.15 | 20100104 | 323.60956 | 72.62202 | 2.44184 | 8.72401 | 0.0990194 | 3.0238785 | 38 | 1 | 96 days | 0.24 | M-v | 4 | MPC | | 2009 $RH_{10}$ |
| 2009 $RF_{11}$ | 17.5 | 0.15 | 20100104 | 17.93919 | 191.45101 | 189.32222 | 1.19110 | 0.1955397 | 2.4355837 | 62 | 2 | 2007–2009 | 0.47 | M-v | 3 | MPC | 166346 | 2009 $RF_{11}$ |
| 2009 $RN_{11}$ | 16.1 | 0.15 | 20100104 | 54.88271 | 130.38322 | 190.13429 | 5.05443 | 0.1633956 | 3.0987514 | 49 | 5 | 1998–2009 | 0.40 | M-v | 1 | MPC | 164354 | 2009 $RN_{11}$ |
| 2009 $RT_{11}$ | 16.8 | 0.15 | 20100104 | 20.09366 | 180.21550 | 186.88823 | 0.73667 | 0.2446502 | 3.0842152 | 38 | 2 | 2004–2009 | 0.28 | M-v | 2 | MPC | 166346 | 2009 $RT_{11}$ |
| 2009 $RU_{11}$ | 15.7 | 0.15 | 20100104 | 338.02426 | 45.39787 | 14.38961 | 5.08884 | 0.1098846 | 3.1302634 | 56 | 6 | 1995–2009 | 0.35 | M-v | 0 | MPC | 166346 | 2009 $RU_{11}$ |
| 2009 $RA_{12}$ | 13.8 | 0.15 | 20100104 | 280.30722 | 279.16260 | 191.39637 | 5.12821 | 0.0688289 | 5.2475662 | 27 | 2 | 2008–2009 | 0.46 | M-v | 3 | MPC | 165674 | 2009 $RA_{12}$ |
| 2009 $RW_{12}$ | 17.8 | 0.15 | 20100104 | 25.25550 | 342.56418 | 29.85795 | 1.43695 | 0.2081815 | 2.3952033 | 46 | 4 | 1998–2009 | 0.37 | M-v | 0 | MPC | 166346 | 2009 $RW_{12}$ |
| 2009 $RH_{13}$ | 16.5 | 0.15 | 20100104 | 13.82618 | 355.09302 | 22.74543 | 5.57440 | 0.1375734 | 3.1943450 | 27 | 1 | 96 days | 0.28 | M-v | 3 | MPC | 166346 | 2009 $RH_{13}$ |
| 2009 $RJ_{13}$ | 16.4 | 0.15 | 20100104 | 97.93549 | 264.91152 | 19.43527 | 6.89170 | 0.1103132 | 2.7205010 | 37 | 3 | 2003–2009 | 0.36 | M-v | 2 | MPC | 166346 | 2009 $RJ_{13}$ |
| 2009 $RQ_{13}$ | 18.2 | 0.15 | 20100104 | 38.36251 | 26.68382 | 326.36101 | 0.71146 | 0.1975732 | 2.3891275 | 24 | 1 | 89 days | 0.30 | M-v | 4 | MPC | | 2009 $RQ_{13}$ |
| 2009 $RT_{13}$ | 17.0 | 0.15 | 20100104 | 19.40801 | 184.68481 | 192.06608 | 2.16739 | 0.1331856 | 2.6386367 | 46 | 4 | 1996–2009 | 0.33 | M-v | 1 | MPC | 165675 | 2009 $RT_{13}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2009 $RH_{14}$ | 16.2 | 0.15 | 20100104 | 82.01767 | 117.50408 | 189.80567 | 5.50139 | 0.0617213 | 2.7021307 | 43 | 5 | 2000–2009 | 0.42 | M-v | 1 | MPC | 163928 | 2009 $RH_{14}$ |
| 2009 $RF_{15}$ | 18.2 | 0.15 | 20100104 | 25.80973 | 204.60635 | 173.59012 | 3.90817 | 0.2225355 | 2.2051293 | 34 | 3 | 2001–2009 | 0.38 | M-v | 2 | MPC | 164354 | 2009 $RF_{15}$ |
| 2009 $RN_{15}$ | 16.6 | 0.15 | 20100104 | 65.49726 | 299.21905 | 14.05289 | 13.10485 | 0.1922345 | 2.6615798 | 23 | 1 | 97 days | 0.35 | M-v | 4 | MPC | | 2009 $RN_{15}$ |
| 2009 $RR_{15}$ | 18.1 | 0.15 | 20100104 | 43.87562 | 317.87375 | 12.14211 | 6.90331 | 0.3396632 | 2.6067171 | 40 | 1 | 96 days | 0.46 | M-v | 4 | MPC | | 2009 $RR_{15}$ |
| 2009 $RJ_{16}$ | 15.9 | 0.15 | 20100104 | 93.74851 | 270.97331 | 21.76603 | 11.82063 | 0.0745692 | 3.1778756 | 38 | 3 | 2003–2009 | 0.33 | M-v | 1 | MPC | 165677 | 2009 $RJ_{16}$ |
| 2009 $RZ_{16}$ | 17.0 | 0.15 | 20100104 | 33.46534 | 349.19172 | 16.07317 | 4.91643 | 0.2123442 | 2.2084316 | 87 | 4 | 1999–2009 | 0.42 | M-v | 1 | MPC | 166346 | 2009 $RZ_{16}$ |
| 2009 $RC_{18}$ | 16.0 | 0.15 | 20100104 | 356.13314 | 28.90366 | 19.81317 | 17.04203 | 0.2081568 | 3.0942943 | 50 | 1 | 97 days | 0.46 | M-v | 3 | MPC | 166346 | 2009 $RC_{18}$ |
| 2009 $RT_{18}$ | 17.6 | 0.15 | 20100104 | 23.53631 | 86.79845 | 269.40265 | 4.18016 | 0.2740229 | 2.6340531 | 43 | 2 | 2005–2009 | 0.37 | M-v | 2 | MPC | 162183 | 2009 $RT_{18}$ |
| 2009 $RA_{19}$ | 18.0 | 0.15 | 20090926 | 23.45037 | 17.94534 | 315.15344 | 6.03180 | 0.2122809 | 2.2245195 | 19 | 1 | 41 days | 0.56 | | | MPC | | 2009 $RA_{19}$ |
| 2009 $RC_{19}$ | 15.3 | 0.15 | 20100104 | 34.50759 | 131.66349 | 215.62436 | 11.32068 | 0.1631554 | 3.1088870 | 64 | 4 | 1998–2009 | 0.52 | M-v | 1 | MPC | 163930 | 2009 $RC_{19}$ |
| 2009 $RD_{19}$ | 17.4 | 0.15 | 20100104 | 0.48368 | 132.66864 | 276.71598 | 4.29997 | 0.2137795 | 2.4222519 | 32 | 1 | 95 days | 0.66 | M-v | 4 | MPC | | 2009 $RD_{19}$ |
| 2009 $RO_{19}$ | 17.5 | 0.15 | 20100104 | 38.92698 | 154.33159 | 188.07096 | 3.19157 | 0.1928026 | 2.3858389 | 42 | 3 | 1998–2009 | 0.35 | M-v | 2 | MPC | 165678 | 2009 $RO_{19}$ |
| 2009 $RA_{21}$ | 18.5 | 0.15 | 20090906 | 29.29803 | 172.73134 | 146.51718 | 1.74915 | 0.1766707 | 2.3695463 | 9 | 1 | 2 days | 0.38 | | | MPC | | 2009 $RA_{21}$ |
| 2009 $RR_{22}$ | 17.8 | 0.15 | 20100104 | 25.86957 | 153.69180 | 193.96001 | 6.83560 | 0.1265884 | 2.3118897 | 28 | 4 | 2002–2009 | 0.34 | M-v | 1 | MPC | 165679 | 2009 $RR_{22}$ |
| 2009 $RP_{23}$ | 16.1 | 0.15 | 20090906 | 152.27569 | 170.41459 | 9.24027 | 10.75205 | 0.2108533 | 2.9023541 | 10 | 1 | 2 days | 0.19 | | E | MPC | | 2009 $RP_{23}$ |
| 2009 $RC_{26}$ | 15.3 | 0.15 | 20100104 | 309.81461 | 258.56602 | 204.50145 | 12.35784 | 0.1271049 | 3.0747689 | 56 | 5 | 1996–2009 | 0.48 | M-v | 1 | MPC | 165680 | 2009 $RC_{26}$ |
| 2009 $RK_{26}$ | 17.6 | 0.15 | 20100104 | 43.64273 | 302.20953 | 39.08540 | 5.72015 | 0.1984013 | 2.1833892 | 41 | 2 | 2006–2009 | 0.37 | M-v | 3 | MPC | 164356 | 2009 $RK_{26}$ |
| 2009 $RL_{26}$ | 17.1 | 0.15 | 20100104 | 47.90280 | 313.80508 | 19.69234 | 7.53648 | 0.1820913 | 2.3461476 | 31 | 2 | 2008–2009 | 0.49 | M-v | 3 | MPC | 163933 | 2009 $RL_{26}$ |
| 2009 $RM_{26}$ | 15.2 | 0.15 | 20100104 | 52.46621 | 261.63172 | 23.03824 | 16.19964 | 0.4333373 | 3.1250961 | 48 | 4 | 1998–2009 | 0.54 | M-v | 1 | MPC | 165680 | 2009 $RM_{26}$ |
| 2009 $RO_{26}$ | 15.7 | 0.15 | 20100104 | 12.65015 | 186.10977 | 200.16501 | 18.25402 | 0.1697752 | 3.1483511 | 46 | 2 | 2003–2009 | 0.47 | M-v | 2 | MPC | 165680 | 2009 $RO_{26}$ |
| 2009 $RU_{26}$ | 17.4 | 0.15 | 20100104 | 63.17054 | 6.95018 | 320.16188 | 3.17260 | 0.1694218 | 2.3047670 | 60 | 5 | 2002–2009 | 0.41 | M-v | 1 | MPC | 164356 | 2009 $RU_{26}$ |
| 2009 $RR_{27}$ | 14.7 | 0.15 | 20100104 | 35.83208 | 3.23869 | 335.29258 | 15.58546 | 0.2186130 | 3.1432598 | 57 | 2 | 2001–2009 | 0.52 | M-v | 3 | MPC | 166346 | 2009 $RR_{27}$ |
| 2009 $RD_{28}$ | 17.5 | 0.15 | 20100104 | 22.05966 | 120.38840 | 250.93722 | 5.48667 | 0.1703254 | 2.2461960 | 60 | 4 | 2002–2009 | 0.58 | M-v | 1 | MPC | 163933 | 2009 $RD_{28}$ |
| 2009 $RN_{28}$ | 17.9 | 0.15 | 20100104 | 45.64815 | 330.48922 | 15.22659 | 3.19526 | 0.1752355 | 2.4326378 | 47 | 3 | 2005–2009 | 0.41 | M-v | 2 | MPC | 165681 | 2009 $RN_{28}$ |
| 2009 $RQ_{28}$ | 17.0 | 0.15 | 20100104 | 39.72322 | 108.04868 | 240.35540 | 3.79701 | 0.2100283 | 2.3812445 | 89 | 4 | 2002–2009 | 0.45 | M-v | 1 | MPC | 166346 | 2009 $RQ_{28}$ |
| 2009 $RK_{29}$ | 16.4 | 0.15 | 20100104 | 332.45633 | 216.55504 | 213.22131 | 6.81117 | 0.0623384 | 2.4401194 | 51 | 5 | 2004–2009 | 0.45 | M-v | 1 | MPC | 164357 | 2009 $RK_{29}$ |
| 2009 $RL_{29}$ | 16.7 | 0.15 | 20100104 | 47.63680 | 111.52435 | 231.96630 | 5.38764 | 0.0388373 | 2.7374394 | 20 | 1 | 94 days | 0.19 | M-v | 4 | MPC | | 2009 $RL_{29}$ |
| 2009 $RQ_{29}$ | 18.2 | 0.15 | 20100104 | 354.55237 | 118.32429 | 298.70118 | 2.77498 | 0.2368451 | 2.5895158 | 41 | 2 | 2005–2009 | 0.34 | M-v | 3 | MPC | 163934 | 2009 $RQ_{29}$ |
| 2009 $RB_{30}$ | 17.0 | 0.15 | 20100104 | 70.76444 | 59.83613 | 254.17990 | 3.13511 | 0.1431681 | 2.3987008 | 45 | 2 | 2008–2009 | 0.44 | M-v | 3 | MPC | 164357 | 2009 $RB_{30}$ |
| 2009 $RF_{30}$ | 16.3 | 0.15 | 20100104 | 5.40729 | 188.31272 | 201.43099 | 15.64395 | 0.1460137 | 3.0975417 | 21 | 1 | 90 days | 0.33 | M-v | 3 | MPC | 166346 | 2009 $RF_{30}$ |
| 2009 $RL_{30}$ | 16.3 | 0.15 | 20100104 | 114.65586 | 62.96397 | 206.08099 | 8.75541 | 0.0982852 | 2.7653927 | 45 | 6 | 2000–2009 | 0.38 | M-v | 0 | MPC | 165682 | 2009 $RL_{30}$ |
| 2009 $RP_{30}$ | 17.5 | 0.15 | 20100104 | 115.58122 | 63.28301 | 206.77028 | 6.09013 | 0.1292859 | 2.3003432 | 35 | 2 | 2008–2009 | 0.40 | M-v | 3 | MPC | 166347 | 2009 $RP_{30}$ |
| 2009 $RV_{30}$ | 17.5 | 0.15 | 20100104 | 69.61929 | 99.98874 | 213.98696 | 4.73165 | 0.1798185 | 2.3044846 | 52 | 5 | 2002–2009 | 0.37 | M-v | 1 | MPC | 165682 | 2009 $RV_{30}$ |
| 2009 $RF_{31}$ | 17.4 | 0.15 | 20100104 | 52.59605 | 345.84280 | 351.51749 | 6.01944 | 0.1528277 | 2.3994122 | 46 | 3 | 2004–2009 | 0.39 | M-v | 2 | MPC | 164357 | 2009 $RF_{31}$ |
| 2009 $RK_{31}$ | 17.1 | 0.15 | 20100104 | 34.18126 | 145.70016 | 209.40759 | 3.80278 | 0.2190190 | 2.6242788 | 55 | 2 | 2005–2009 | 0.41 | M-v | 3 | MPC | 166347 | 2009 $RK_{31}$ |
| 2009 $RM_{31}$ | 16.1 | 0.15 | 20100104 | 67.27586 | 14.37316 | 297.44513 | 2.21770 | 0.1497688 | 3.0464504 | 45 | 5 | 1998–2009 | 0.40 | M-v | 0 | MPC | 164357 | 2009 $RM_{31}$ |
| 2009 $RN_{31}$ | 15.0 | 0.15 | 20100104 | 68.79668 | 108.34200 | 202.49397 | 10.33373 | 0.1371574 | 3.0939347 | 62 | 6 | 1998–2009 | 0.48 | M-v | 1 | MPC | 166347 | 2009 $RN_{31}$ |
| 2009 $RG_{32}$ | 16.4 | 0.15 | 20100104 | 61.03665 | 333.70175 | 343.28231 | 4.32733 | 0.1626603 | 2.7811723 | 35 | 5 | 2003–2009 | 0.45 | M-v | 1 | MPC | 162189 | 2009 $RG_{32}$ |
| 2009 $RH_{32}$ | 17.2 | 0.15 | 20100104 | 34.22569 | 135.19898 | 210.85845 | 3.76240 | 0.3353432 | 2.6158851 | 85 | 2 | 2005–2009 | 0.40 | M-v | 2 | MPC | 166347 | 2009 $RH_{32}$ |
| 2009 $RL_{32}$ | 16.7 | 0.15 | 20100104 | 49.26233 | 97.26630 | 233.22375 | 8.70514 | 0.1360629 | 2.3736058 | 21 | 1 | 95 days | 0.49 | M-v | 4 | MPC | | 2009 $RL_{32}$ |
| 2009 $RL_{33}$ | 16.3 | 0.15 | 20100104 | 36.29465 | 351.41294 | 2.80019 | 3.25782 | 0.3252602 | 2.6211952 | 64 | 4 | 2003–2009 | 0.43 | M-v | 2 | MPC | 166347 | 2009 $RL_{33}$ |
| 2009 $RE_{35}$ | 17.6 | 0.15 | 20100104 | 25.56004 | 185.98675 | 196.35835 | 6.48343 | 0.2318075 | 2.3629161 | 51 | 4 | 1996–2009 | 0.60 | M-v | 1 | MPC | 164358 | 2009 $RE_{35}$ |
| 2009 $RV_{37}$ | 16.8 | 0.15 | 20100104 | 15.74471 | 355.84667 | 13.03823 | 1.34111 | 0.1919084 | 3.0956754 | 25 | 1 | 87 days | 0.31 | M-v | 3 | MPC | 166347 | 2009 $RV_{37}$ |
| 2009 $RM_{39}$ | 17.7 | 0.15 | 20100104 | 38.72485 | 94.48089 | 253.44428 | 4.58571 | 0.2531218 | 2.3996031 | 36 | 1 | 122 days | 0.52 | M-v | 4 | MPC | 166347 | 2009 $RM_{39}$ |
| 2009 $RS_{39}$ | 16.8 | 0.15 | 20100104 | 353.68043 | 202.73350 | 206.78927 | 17.04119 | 0.2407525 | 3.1490823 | 22 | 1 | 89 days | 0.28 | M-v | 4 | MPC | | 2009 $RS_{39}$ |
| 2009 $RV_{40}$ | 17.3 | 0.15 | 20100104 | 41.05067 | 120.77340 | 214.26995 | 9.42220 | 0.2843042 | 2.7957071 | 29 | 1 | 86 days | 0.29 | M-v | 4 | MPC | 166347 | 2009 $RV_{40}$ |
| 2009 $RK_{41}$ | 16.9 | 0.15 | 20100104 | 20.17412 | 151.27994 | 213.93187 | 9.89096 | 0.2742622 | 3.1192195 | 24 | 1 | 89 days | 0.42 | M-v | 3 | MPC | 166347 | 2009 $RK_{41}$ |
| 2009 $RS_{41}$ | 16.9 | 0.15 | 20100104 | 28.95265 | 123.20844 | 241.39091 | 5.05790 | 0.1499756 | 2.4641497 | 44 | 3 | 2005–2009 | 0.43 | M-v | 2 | MPC | 166347 | 2009 $RS_{41}$ |
| 2009 $RO_{42}$ | 17.0 | 0.15 | 20100104 | 347.69193 | 210.95189 | 207.39131 | 12.48319 | 0.1567204 | 2.6359016 | 35 | 2 | 2005–2009 | 0.30 | M-v | 3 | MPC | 166347 | 2009 $RO_{42}$ |
| 2009 $RV_{42}$ | 15.7 | 0.15 | 20100104 | 354.45289 | 176.65585 | 225.62736 | 7.83162 | 0.1351094 | 3.1769577 | 25 | 1 | 93 days | 0.47 | M-v | 4 | MPC | | 2009 $RV_{42}$ |
| 2009 $RY_{42}$ | 18.2 | 0.15 | 20100104 | 1.62077 | 205.08695 | 213.39958 | 5.56382 | 0.2717902 | 2.2122701 | 47 | 2 | 2007–2009 | 0.48 | M-v | 3 | MPC | 165685 | 2009 $RY_{42}$ |
| 2009 $RD_{43}$ | 17.1 | 0.15 | 20100104 | 20.52644 | 43.47192 | 331.70587 | 5.05845 | 0.2229951 | 2.6417632 | 34 | 1 | 94 days | 0.46 | M-v | 3 | MPC | | 2009 $RD_{43}$ |
| 2009 $RT_{43}$ | 17.8 | 0.15 | 20100104 | 26.59848 | 154.34234 | 220.89674 | 4.96560 | 0.1423901 | 2.2330196 | 57 | 4 | 1999–2009 | 0.49 | M-v | 1 | MPC | 166347 | 2009 $RT_{43}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2009 $RA_{44}$ | 16.3 | 0.15 | 20100104 | 325.57200 | 76.92330 | 359.65620 | 8.01029 | 0.0498364 | 2.7326979 | 37 | 3 | 2004–2009 | 0.31 | M-v | 2 | MPC | 164359 | 2009 $RA_{44}$ |
| 2009 $RS_{44}$ | 17.7 | 0.15 | 20100104 | 347.04845 | 206.44044 | 222.35065 | 2.39097 | 0.1735764 | 2.3848149 | 36 | 3 | 1998–2009 | 0.30 | M-v | 2 | MPC | 163938 | 2009 $RS_{44}$ |
| 2009 $RW_{44}$ | 16.4 | 0.15 | 20100104 | 5.88820 | 40.14378 | 354.78242 | 5.01013 | 0.2393501 | 3.1866409 | 40 | 3 | 1992–2009 | 0.47 | M-v | 2 | MPC | 165685 | 2009 $RW_{44}$ |
| 2009 $RN_{45}$ | 17.7 | 0.15 | 20100104 | 357.82249 | 71.97140 | 341.19924 | 2.12805 | 0.1850217 | 2.5649941 | 17 | 1 | 93 days | 0.21 | M-v | 4 | MPC | | 2009 $RN_{45}$ |
| 2009 $RV_{45}$ | 15.8 | 0.15 | 20100104 | 352.72739 | 38.85723 | 9.38816 | 9.73822 | 0.0946617 | 3.1599018 | 18 | 1 | 93 days | 0.33 | M-v | 4 | MPC | | 2009 $RV_{45}$ |
| 2009 $RB_{46}$ | 17.0 | 0.15 | 20100104 | 339.62513 | 68.79338 | 3.08344 | 5.56825 | 0.1243770 | 2.6469883 | 17 | 1 | 93 days | 0.23 | M-v | 4 | MPC | | 2009 $RB_{46}$ |
| 2009 $RU_{46}$ | 16.1 | 0.15 | 20100104 | 122.14956 | 66.37417 | 199.57619 | 12.21006 | 0.0576354 | 2.9320625 | 39 | 2 | 2004–2009 | 0.39 | M-v | 4 | MPC | 166348 | 2009 $RU_{46}$ |
| 2009 $RL_{47}$ | 17.4 | 0.15 | 20100104 | 31.58074 | 146.92117 | 215.83415 | 1.08935 | 0.1540608 | 2.5855644 | 23 | 1 | 86 days | 0.37 | M-v | 3 | MPC | | 2009 $RL_{47}$ |
| 2009 $RQ_{47}$ | 17.4 | 0.15 | 20100104 | 347.13358 | 60.68237 | 6.64984 | 5.78125 | 0.2096075 | 2.6476812 | 35 | 1 | 94 days | 0.43 | M-v | 4 | MPC | | 2009 $RQ_{47}$ |
| 2009 $RU_{47}$ | 15.9 | 0.15 | 20100104 | 32.16733 | 346.46042 | 12.31332 | 10.89282 | 0.1173910 | 2.9901226 | 28 | 1 | 94 days | 0.26 | M-v | 3 | MPC | | 2009 $RU_{47}$ |
| 2009 $RX_{47}$ | 16.2 | 0.15 | 20100104 | 110.82891 | 266.82163 | 11.54172 | 6.53905 | 0.0838733 | 2.5997903 | 38 | 2 | 2005–2009 | 0.40 | M-v | 4 | MPC | 166348 | 2009 $RX_{47}$ |
| 2009 $RC_{48}$ | 15.5 | 0.15 | 20100104 | 141.57840 | 47.53538 | 199.32541 | 11.61004 | 0.0782421 | 3.0747791 | 39 | 2 | 2007–2009 | 0.41 | M-v | 3 | MPC | 165686 | 2009 $RC_{48}$ |
| 2009 $RE_{48}$ | 17.6 | 0.15 | 20100104 | 36.84878 | 165.96238 | 190.26892 | 1.63566 | 0.2314343 | 2.3772869 | 59 | 1 | 92 days | 0.39 | M-v | 4 | MPC | | 2009 $RE_{48}$ |
| 2009 $RH_{48}$ | 15.2 | 0.15 | 20100104 | 330.81868 | 58.15375 | 13.58617 | 16.39079 | 0.0855459 | 3.1319044 | 40 | 2 | 2006–2009 | 0.47 | M-v | 3 | MPC | 163939 | 2009 $RH_{48}$ |
| 2009 $RB_{49}$ | 15.3 | 0.15 | 20100104 | 279.70862 | 107.33629 | 16.55980 | 10.08232 | 0.0518538 | 3.1630514 | 29 | 1 | 93 days | 0.22 | M-v | 4 | MPC | 166348 | 2009 $RB_{49}$ |
| 2009 $RD_{49}$ | 18.1 | 0.15 | 20100104 | 35.76010 | 153.13005 | 208.02747 | 1.51395 | 0.2286224 | 2.3486182 | 47 | 1 | 91 days | 0.42 | M-v | 4 | MPC | | 2009 $RD_{49}$ |
| 2009 $RZ_{49}$ | 16.8 | 0.15 | 20100104 | 91.54621 | 276.75552 | 16.06395 | 11.11564 | 0.1619526 | 2.5355127 | 37 | 5 | 2002–2009 | 0.42 | M-v | 0 | MPC | 165688 | 2009 $RZ_{49}$ |
| 2009 $RC_{50}$ | 17.6 | 0.15 | 20100104 | 70.43883 | 289.58260 | 13.49515 | 4.88096 | 0.2903962 | 2.3680055 | 41 | 3 | 1998–2009 | 0.42 | M-v | 2 | MPC | 166348 | 2009 $RC_{50}$ |
| 2009 $RD_{50}$ | 17.4 | 0.15 | 20100104 | 48.37121 | 145.43882 | 195.55229 | 12.47722 | 0.1533267 | 2.8589632 | 20 | 1 | 62 days | 0.30 | M-v | 4 | MPC | | 2009 $RD_{50}$ |
| 2009 $RG_{50}$ | 16.8 | 0.15 | 20100104 | 262.55229 | 127.10605 | 18.29008 | 5.00379 | 0.0647080 | 2.7597468 | 51 | 3 | 2004–2009 | 0.37 | M-v | 3 | MPC | 165688 | 2009 $RG_{50}$ |
| 2009 $RJ_{50}$ | 15.8 | 0.15 | 20100104 | 143.70264 | 236.18281 | 17.10076 | 12.33717 | 0.0234752 | 3.1617732 | 21 | 1 | 93 days | 0.39 | M-v | 4 | MPC | 166348 | 2009 $RJ_{50}$ |
| 2009 $RU_{50}$ | 17.7 | 0.15 | 20100104 | 19.90376 | 22.42680 | 0.52254 | 1.73035 | 0.2252650 | 2.6271226 | 29 | 3 | 2002–2009 | 0.39 | M-v | 2 | MPC | 165689 | 2009 $RU_{50}$ |
| 2009 $RP_{51}$ | 17.9 | 0.15 | 20100104 | 6.58954 | 30.06121 | 16.10296 | 1.72746 | 0.1825783 | 2.3416824 | 39 | 1 | 92 days | 0.36 | M-v | 3 | MPC | 166348 | 2009 $RP_{51}$ |
| 2009 $RB_{52}$ | 16.9 | 0.15 | 20100104 | 100.17959 | 96.40125 | 190.23800 | 12.44956 | 0.1428926 | 2.6098225 | 37 | 4 | 1992–2009 | 0.40 | M-v | 0 | MPC | 165689 | 2009 $RB_{52}$ |
| 2009 $RC_{52}$ | 17.0 | 0.15 | 20090926 | 61.60237 | 261.14395 | 35.97882 | 2.32403 | 0.1872784 | 2.6224389 | 24 | 1 | 57 days | 0.29 | | | MPC | | 2009 $RC_{52}$ |
| 2009 $RQ_{55}$ | 16.9 | 0.15 | 20100104 | 41.66382 | 320.56773 | 35.68929 | 7.01891 | 0.1398821 | 2.7091330 | 36 | 3 | 1991–2009 | 0.37 | M-v | 2 | MPC | 165692 | 2009 $RQ_{55}$ |
| 2009 $RG_{56}$ | 16.6 | 0.15 | 20100104 | 134.86223 | 69.23457 | 196.09302 | 18.10139 | 0.0506714 | 3.0882460 | 20 | 3 | 2003–2009 | 0.24 | M-v | 2 | MPC | 162198 | 2009 $RG_{56}$ |
| 2009 $RW_{57}$ | 17.1 | 0.15 | 20100104 | 24.07163 | 114.30758 | 263.97173 | 4.75489 | 0.1632717 | 2.2068606 | 71 | 2 | 2006–2009 | 0.46 | M-v | 2 | MPC | 166349 | 2009 $RW_{57}$ |
| 2009 $RK_{58}$ | 18.2 | 0.15 | 20100104 | 2.30397 | 187.76007 | 221.88755 | 4.49295 | 0.2016157 | 2.3440898 | 25 | 1 | 86 days | 0.22 | M-v | 3 | MPC | 166349 | 2009 $RK_{58}$ |
| 2009 $RL_{59}$ | 17.5 | 0.15 | 20100104 | 30.38655 | 281.39067 | 86.26369 | 0.62724 | 0.3100352 | 2.4065662 | 79 | 3 | 1994–2009 | 0.42 | M-v | 1 | MPC | 165693 | 2009 $RL_{59}$ |
| 2009 $RD_{60}$ | 15.0 | 0.15 | 20100104 | 16.88234 | 144.39890 | 220.43799 | 16.60488 | 0.2351121 | 3.1318156 | 56 | 4 | 1998–2009 | 0.54 | M-v | 2 | MPC | 166349 | 2009 $RD_{60}$ |
| 2009 $RN_{60}$ | 16.9 | 0.15 | 20100104 | 33.75077 | 115.03371 | 228.91969 | 7.57921 | 0.2468180 | 2.3839161 | 32 | 1 | 95 days | 0.48 | M-v | 4 | MPC | | 2009 $RN_{60}$ |
| 2009 $RD_{61}$ | 17.4 | 0.15 | 20100104 | 47.85186 | 132.64069 | 208.53066 | 21.83041 | 0.0898180 | 2.0186091 | 23 | 1 | 196 days | 0.59 | M-v | 4 | MPC | 166349 | 2009 $RD_{61}$ |
| 2009 $RF_{61}$ | 16.8 | 0.15 | 20090926 | 340.94820 | 68.53700 | 325.16831 | 24.57509 | 0.2006155 | 2.5767586 | 12 | 1 | 30 days | 0.63 | | | MPC | | 2009 $RF_{61}$ |
| 2009 $RU_{61}$ | 17.6 | 0.15 | 20100104 | 26.45250 | 350.64518 | 11.79869 | 2.20846 | 0.2369575 | 2.3523365 | 37 | 5 | 1991–2009 | 0.30 | M-v | 1 | MPC | 165694 | 2009 $RU_{61}$ |
| 2009 $RW_{61}$ | 17.2 | 0.15 | 20100104 | 6.05149 | 345.31833 | 49.94287 | 2.43392 | 0.2206764 | 2.4177747 | 33 | 2 | 2007–2009 | 0.42 | M-v | 3 | MPC | 165694 | 2009 $RW_{61}$ |
| 2009 $RD_{62}$ | 18.0 | 0.15 | 20100104 | 20.22052 | 203.97944 | 191.90773 | 5.59114 | 0.2247301 | 2.2036952 | 42 | 1 | 87 days | 0.45 | M-v | 4 | MPC | 166349 | 2009 $RD_{62}$ |
| 2009 $RE_{62}$ | 16.0 | 0.15 | 20100104 | 7.32170 | 25.49679 | 22.22527 | 14.74181 | 0.2179638 | 2.6546110 | 69 | 3 | 2005–2009 | 0.44 | M-v | 2 | MPC | 165695 | 2009 $RE_{62}$ |
| 2009 $RV_{68}$ | 14.0 | 0.15 | 20100104 | 324.90209 | 33.77009 | 45.40926 | 11.21819 | 0.0480948 | 5.1572785 | 21 | 1 | 86 days | 0.35 | M-v | 4 | MPC | 166349 | 2009 $RV_{68}$ |
| 2009 $RM_{69}$ | 17.3 | 0.15 | 20100104 | 29.95213 | 115.38278 | 251.14089 | 2.90583 | 0.1899605 | 2.3623904 | 76 | 6 | 1998–2009 | 0.44 | M-v | 1 | MPC | 166349 | 2009 $RM_{69}$ |
| 2009 $RN_{69}$ | 16.1 | 0.15 | 20100104 | 34.71134 | 137.56966 | 212.39836 | 8.82862 | 0.1853692 | 3.0654244 | 46 | 4 | 2001–2009 | 0.58 | M-v | 1 | MPC | 165697 | 2009 $RN_{69}$ |
| 2009 $RC_{70}$ | 15.5 | 0.15 | 20100104 | 73.16610 | 85.14980 | 230.11451 | 4.23187 | 0.0552499 | 3.1319602 | 46 | 3 | 2004–2009 | 0.33 | M-v | 2 | MPC | 166350 | 2009 $RC_{70}$ |
| 2009 $RT_{70}$ | 16.2 | 0.15 | 20100104 | 13.88883 | 316.58790 | 66.44971 | 2.20169 | 0.1652010 | 3.1073971 | 38 | 6 | 1998–2009 | 0.46 | M-v | 1 | MPC | 165699 | 2009 $RT_{70}$ |
| 2009 $RV_{70}$ | 17.9 | 0.15 | 20100104 | 8.89453 | 25.46356 | 7.06187 | 1.98005 | 0.1925804 | 2.4003015 | 30 | 4 | 1994–2009 | 0.50 | M-v | 1 | MPC | 165699 | 2009 $RV_{70}$ |
| 2009 $RZ_{70}$ | 18.3 | 0.15 | 20100104 | 24.83436 | 159.00731 | 223.31872 | 20.47174 | 0.1290873 | 1.8059538 | 38 | 3 | 2006–2009 | 0.46 | M-v | 2 | MPC | 165700 | 2009 $RZ_{70}$ |
| 2009 $RP_{71}$ | 18.3 | 0.15 | 20100104 | 51.71213 | 120.51411 | 221.03430 | 1.69132 | 0.1840841 | 2.1565916 | 33 | 3 | 2006–2009 | 0.41 | M-v | 2 | MPC | 165701 | 2009 $RP_{71}$ |
| 2009 $RE_{72}$ | 16.6 | 0.15 | 20100104 | 293.53778 | 99.81844 | 25.86092 | 10.85506 | 0.1522701 | 2.7624806 | 26 | 1 | 93 days | 0.26 | M-v | 4 | MPC | 166350 | 2009 $RE_{72}$ |
| 2009 $RN_{72}$ | 16.8 | 0.15 | 20100104 | 30.59682 | 346.79041 | 19.58789 | 4.36369 | 0.0856327 | 2.7610248 | 37 | 3 | 2005–2009 | 0.34 | M-v | 3 | MPC | 165703 | 2009 $RN_{72}$ |
| 2009 $RW_{72}$ | 18.8 | 0.15 | 20100104 | 4.15267 | 27.17704 | 24.22180 | 2.39061 | 0.1925817 | 2.2820350 | 21 | 1 | 64 days | 0.40 | M-v | 4 | MPC | | 2009 $RW_{72}$ |
| 2009 $RX_{72}$ | 19.2 | 0.15 | 20090926 | 4.51302 | 166.19098 | 201.22172 | 1.89652 | 0.2225080 | 2.4260111 | 19 | 1 | 57 days | 0.30 | | | MPC | | 2009 $RX_{72}$ |
| 2009 $RY_{72}$ | 18.5 | 0.15 | 20090926 | 356.74403 | 122.97476 | 258.05041 | 0.40162 | 0.1904791 | 2.3768794 | 14 | 1 | 57 days | 0.32 | | | MPC | | 2009 $RY_{72}$ |
| 2009 $RA_{73}$ | 17.8 | 0.15 | 20090926 | 20.09436 | 90.45443 | 255.99206 | 1.10943 | 0.1615016 | 2.9636981 | 16 | 1 | 42 days | 0.49 | | | MPC | | 2009 $RA_{73}$ |
| 2009 $RD_{73}$ | 16.8 | 0.15 | 20090906 | 204.64045 | 324.25024 | 199.85133 | 5.17291 | 0.0278476 | 2.7737535 | 12 | 1 | 16 days | 0.54 | | | MPC | | 2009 $RD_{73}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2009 $RG_{73}$ | 15.8 | 0.15 | 20090926 | 340.11919 | 136.79475 | 261.45013 | 21.68521 | 0.2151414 | 3.1674128 | 16 | 1 | 33 days | 0.66 | | | MPC | | 2009 $RG_{73}$ |
| 2009 SO | 17.0 | 0.15 | 20100104 | 49.90376 | 68.52237 | 250.10088 | 4.12421 | 0.2453234 | 2.3874739 | 68 | 5 | 1998–2009 | 0.39 | M-v | 1 | MPC | 164363 | 2009 SO |
| 2009 SW | 22.1 | 0.15 | 20100104 | 22.34068 | 203.87068 | 191.08459 | 6.98595 | 0.4370997 | 2.0195720 | 81 | 1 | 80 days | 0.37 | M-v | 4 | MPC | 166350 | 2009 SW |
| 2009 $SZ_1$ | 16.9 | 0.15 | 20100104 | 58.71351 | 71.06432 | 245.51920 | 8.47234 | 0.3221499 | 2.4177862 | 71 | 3 | 2001–2009 | 0.44 | M-v | 2 | MPC | 166350 | 2009 $SZ_1$ |
| 2009 $SF_2$ | 20.8 | 0.15 | 20100104 | 21.31992 | 59.80630 | 334.47442 | 6.42223 | 0.4486733 | 2.2511896 | 70 | 1 | 78 days | 0.49 | M-v | 4 | MPC | 166350 | 2009 $SF_2$ |
| 2009 $SK_2$ | 18.8 | 0.15 | 20100104 | 94.91260 | 257.09208 | 24.02074 | 38.24309 | 0.4714867 | 1.7192549 | 41 | 1 | 79 days | 0.31 | M-v | 4 | MPC | 164364 | 2009 $SK_2$ |
| 2009 $SZ_2$ | 18.4 | 0.15 | 20100104 | 21.66043 | 152.60935 | 224.25996 | 4.22022 | 0.2345735 | 2.2323610 | 29 | 1 | 88 days | 0.36 | M-v | 3 | MPC | | 2009 $SZ_2$ |
| 2009 $SX_5$ | 16.6 | 0.15 | 20100104 | 36.92684 | 195.52483 | 148.77071 | 1.47866 | 0.1771039 | 3.0794345 | 44 | 5 | 2003–2009 | 0.35 | M-v | 1 | MPC | 163949 | 2009 $SX_5$ |
| 2009 $SA_{10}$ | 18.0 | 0.15 | 20100104 | 7.16233 | 62.82468 | 333.30177 | 6.92991 | 0.2502016 | 2.2649693 | 42 | 3 | 1997–2009 | 0.38 | M-v | 1 | MPC | 163950 | 2009 $SA_{10}$ |
| 2009 $SX_{13}$ | 17.5 | 0.15 | 20100104 | 42.62834 | 117.21582 | 225.42052 | 12.84112 | 0.2913806 | 2.5754413 | 45 | 2 | 2005–2009 | 0.46 | M-v | 3 | MPC | 165704 | 2009 $SX_{13}$ |
| 2009 $SN_{14}$ | 18.4 | 0.15 | 20100104 | 31.40694 | 149.65215 | 204.47232 | 4.93117 | 0.2883015 | 2.3633881 | 35 | 1 | 94 days | 0.37 | M-v | 3 | MPC | 166351 | 2009 $SN_{14}$ |
| 2009 $SS_{14}$ | 15.7 | 0.15 | 20090906 | 48.36207 | 48.96081 | 250.79470 | 4.15353 | 0.1008408 | 3.1092960 | 15 | 1 | 7 days | 0.53 | | | MPC | | 2009 $SS_{14}$ |
| 2009 $ST_{14}$ | 17.5 | 0.15 | 20100104 | 11.61796 | 109.70378 | 272.74637 | 2.54138 | 0.1967282 | 2.4691211 | 46 | 3 | 1999–2009 | 0.44 | M-v | 2 | MPC | 164365 | 2009 $ST_{14}$ |
| 2009 $SW_{15}$ | 15.6 | 0.15 | 20100104 | 55.24820 | 353.48979 | 330.12494 | 6.78839 | 0.0905279 | 3.1035337 | 65 | 5 | 2001–2009 | 0.49 | M-v | 1 | MPC | 165705 | 2009 $SW_{15}$ |
| 2009 $SO_{16}$ | 17.9 | 0.15 | 20090906 | 52.57120 | 302.97882 | 334.06138 | 2.19229 | 0.1912822 | 2.3469804 | 15 | 1 | 8 days | 0.67 | | | MPC | | 2009 $SO_{16}$ |
| 2009 $SV_{16}$ | 18.0 | 0.15 | 20100104 | 38.80013 | 162.01582 | 191.41672 | 4.10564 | 0.1760688 | 2.3158217 | 32 | 1 | 92 days | 0.36 | M-v | 3 | MPC | 166351 | 2009 $SV_{16}$ |
| 2009 $SJ_{17}$ | 16.4 | 0.15 | 20100104 | 4.26187 | 193.75914 | 174.99202 | 18.16858 | 0.2119624 | 3.1421731 | 38 | 1 | 64 days | 0.64 | M-v | 4 | MPC | 164365 | 2009 $SJ_{17}$ |
| 2009 $SK_{17}$ | 16.8 | 0.15 | 20100104 | 356.80525 | 51.31938 | 349.59408 | 10.62292 | 0.2269529 | 3.0764497 | 18 | 1 | 93 days | 0.42 | M-v | 5 | MPC | | 2009 $SK_{17}$ |
| 2009 $SO_{17}$ | 15.4 | 0.15 | 20100104 | 65.37867 | 336.31680 | 338.74042 | 9.01521 | 0.0612593 | 3.1175282 | 29 | 1 | 93 days | 0.35 | M-v | 5 | MPC | | 2009 $SO_{17}$ |
| 2009 $SR_{17}$ | 15.8 | 0.15 | 20090906 | 253.77416 | 139.23792 | 344.98749 | 10.73063 | 0.1288611 | 3.0461692 | 18 | 1 | 7 days | 0.49 | | | MPC | | 2009 $SR_{17}$ |
| 2009 $SS_{17}$ | 16.1 | 0.15 | 20090926 | 326.67723 | 107.64568 | 297.57880 | 4.33943 | 0.0675073 | 2.7907774 | 33 | 1 | 28 days | 0.55 | | | MPC | | 2009 $SS_{17}$ |
| 2009 $ST_{17}$ | 16.8 | 0.15 | 20090906 | 216.95587 | 168.90647 | 341.64856 | 8.74438 | 0.0594058 | 2.7362821 | 20 | 1 | 7 days | 0.52 | | | MPC | | 2009 $ST_{17}$ |
| 2009 $SU_{17}$ | 18.0 | 0.15 | 20100104 | 16.66201 | 82.74187 | 317.88742 | 5.19661 | 0.3921692 | 2.3708406 | 51 | 3 | 1998–2009 | 0.49 | M-v | 1 | MPC | 165705 | 2009 $SU_{17}$ |
| 2009 $SV_{17}$ | 19.6 | 0.15 | 20100104 | 354.03449 | 125.78586 | 322.61066 | 3.43661 | 0.5868501 | 2.7026870 | 44 | 1 | 89 days | 0.36 | M-v | 4 | MPC | 166351 | 2009 $SV_{17}$ |
| 2009 $SA_{18}$ | 15.1 | 0.15 | 20100104 | 28.11592 | 320.03904 | 48.13776 | 17.89463 | 0.2068077 | 3.0825702 | 75 | 3 | 2002–2009 | 0.46 | M-v | 2 | MPC | 165705 | 2009 $SA_{18}$ |
| 2009 $SA_{19}$ | 17.2 | 0.15 | 20100104 | 93.04896 | 323.65537 | 325.88599 | 4.80980 | 0.1463342 | 2.2041103 | 63 | 4 | 2005–2009 | 0.52 | M-v | 1 | MPC | 165705 | 2009 $SA_{19}$ |
| 2009 $SE_{20}$ | 16.4 | 0.15 | 20100104 | 5.57582 | 161.91936 | 239.15293 | 7.31122 | 0.3145928 | 2.6635848 | 61 | 1 | 87 days | 0.55 | M-v | 4 | MPC | | 2009 $SE_{20}$ |
| 2009 $SJ_{20}$ | 18.2 | 0.15 | 20100104 | 29.37100 | 50.63840 | 320.09522 | 1.69988 | 0.1977392 | 2.2282490 | 30 | 1 | 90 days | 0.39 | M-v | 3 | MPC | 166351 | 2009 $SJ_{20}$ |
| 2009 $SB_{21}$ | 18.0 | 0.15 | 20100104 | 27.27641 | 117.50795 | 246.37874 | 3.59480 | 0.2482437 | 2.3778950 | 43 | 1 | 91 days | 0.52 | M-v | 4 | MPC | | 2009 $SB_{21}$ |
| 2009 $SQ_{21}$ | 17.1 | 0.15 | 20100104 | 114.12408 | 333.75161 | 294.84479 | 6.39377 | 0.1075262 | 2.2914743 | 32 | 3 | 2006–2009 | 0.34 | M-v | 2 | MPC | 165707 | 2009 $SQ_{21}$ |
| 2009 $ST_{21}$ | 17.7 | 0.15 | 20100104 | 54.14322 | 89.95860 | 234.90956 | 10.08273 | 0.2800395 | 2.4176330 | 36 | 1 | 89 days | 0.51 | M-v | 4 | MPC | | 2009 $ST_{21}$ |
| 2009 $SP_{23}$ | 17.8 | 0.15 | 20090817 | 332.33409 | 33.19476 | 346.83937 | 3.77410 | 0.2059727 | 2.7878318 | 16 | 1 | 36 days | 0.30 | | | MPC | | 2009 $SP_{23}$ |
| 2009 $SS_{23}$ | 17.2 | 0.15 | 20090906 | 356.16825 | 182.85083 | 166.47491 | 5.93100 | 0.0685323 | 2.7282302 | 10 | 1 | 5 days | 0.13 | | | MPC | | 2009 $SS_{23}$ |
| 2009 $SU_{23}$ | 17.4 | 0.15 | 20100104 | 31.81192 | 120.89378 | 228.05824 | 4.88859 | 0.2257250 | 2.6498869 | 36 | 2 | 2005–2009 | 0.30 | M-v | 2 | MPC | 165707 | 2009 $SU_{23}$ |
| 2009 $SJ_{24}$ | 17.0 | 0.15 | 20100104 | 35.68405 | 56.12374 | 298.78161 | 3.75276 | 0.0692278 | 2.3422752 | 42 | 4 | 2002–2009 | 0.50 | M-v | 1 | MPC | 165708 | 2009 $SJ_{24}$ |
| 2009 $SN_{25}$ | 15.2 | 0.15 | 20100104 | 221.75760 | 168.33158 | 1.88435 | 12.02213 | 0.0843564 | 3.1075910 | 50 | 5 | 2001–2009 | 0.52 | M-v | 1 | MPC | 163955 | 2009 $SN_{25}$ |
| 2009 $SP_{25}$ | 17.7 | 0.15 | 20100104 | 8.89181 | 47.47105 | 346.10928 | 4.06291 | 0.2851486 | 2.6755417 | 49 | 2 | 2005–2009 | 0.38 | M-v | 3 | MPC | 164366 | 2009 $SP_{25}$ |
| 2009 $SX_{26}$ | 17.2 | 0.15 | 20090906 | 270.51322 | 103.47794 | 4.76775 | 1.87007 | 0.1153564 | 2.8574844 | 9 | 1 | 4 days | 0.31 | | E | MPC | | 2009 $SX_{26}$ |
| 2009 $SL_{27}$ | 17.1 | 0.15 | 20100104 | 20.82680 | 180.73774 | 190.20805 | 5.28272 | 0.1673917 | 2.7576199 | 27 | 3 | 2000–2009 | 0.31 | M-v | 2 | MPC | 165709 | 2009 $SL_{27}$ |
| 2009 $SD_{29}$ | 17.5 | 0.15 | 20100104 | 15.31380 | 20.61090 | 9.20776 | 2.74506 | 0.2284826 | 2.3871060 | 42 | 2 | 1998–2009 | 0.59 | M-v | 4 | MPC | 164367 | 2009 $SD_{29}$ |
| 2009 $SG_{29}$ | 16.2 | 0.15 | 20100104 | 50.41159 | 326.04180 | 14.14168 | 11.87142 | 0.1107765 | 2.6281857 | 37 | 1 | 94 days | 0.59 | M-v | 4 | MPC | | 2009 $SG_{29}$ |
| 2009 $SO_{29}$ | 17.2 | 0.15 | 20100104 | 351.08205 | 43.52821 | 16.15827 | 6.43301 | 0.1418549 | 2.4181363 | 21 | 1 | 93 days | 0.45 | M-v | 4 | MPC | | 2009 $SO_{29}$ |
| 2009 $SP_{29}$ | 17.1 | 0.15 | 20090906 | 39.52342 | 309.05172 | 17.12733 | 8.23654 | 0.0656497 | 2.7802199 | 13 | 1 | 8 days | 0.51 | | | MPC | | 2009 $SP_{29}$ |
| 2009 $SQ_{30}$ | 18.4 | 0.15 | 20100104 | 21.93209 | 215.39608 | 168.59443 | 4.56120 | 0.2450043 | 2.2312099 | 41 | 1 | 88 days | 0.62 | M-v | 4 | MPC | | 2009 $SQ_{30}$ |
| 2009 $SW_{30}$ | 16.2 | 0.15 | 20100104 | 79.13432 | 282.19843 | 25.71909 | 8.62784 | 0.0884957 | 2.7867982 | 40 | 5 | 1998–2009 | 0.35 | M-v | 1 | MPC | 165710 | 2009 $SW_{30}$ |
| 2009 $SC_{31}$ | 16.6 | 0.15 | 20100104 | 356.19936 | 32.35027 | 21.78333 | 12.50245 | 0.2841646 | 3.1021919 | 36 | 1 | 93 days | 0.32 | M-v | 3 | MPC | 166351 | 2009 $SC_{31}$ |
| 2009 $SG_{31}$ | 16.4 | 0.15 | 20090906 | 53.50867 | 192.91259 | 108.38756 | 2.56785 | 0.1722561 | 3.1516747 | 12 | 1 | 16 days | 0.27 | | | MPC | | 2009 $SG_{31}$ |
| 2009 $SO_{32}$ | 18.5 | 0.15 | 20090906 | 331.88057 | 71.43044 | 324.57438 | 6.45934 | 0.2151967 | 2.7914978 | 16 | 1 | 3 days | 0.25 | | | MPC | | 2009 $SO_{32}$ |
| 2009 $SV_{32}$ | 15.8 | 0.15 | 20100104 | 314.08268 | 230.29243 | 234.76683 | 5.02479 | 0.1952646 | 3.1351141 | 56 | 6 | 1997–2009 | 0.44 | M-v | 0 | MPC | 166351 | 2009 $SV_{32}$ |
| 2009 $SH_{33}$ | 16.1 | 0.15 | 20100104 | 10.75296 | 170.58126 | 217.68172 | 10.47961 | 0.0998812 | 3.1094173 | 35 | 2 | 2007–2009 | 0.25 | M-v | 2 | MPC | 165710 | 2009 $SH_{33}$ |
| 2009 $SR_{34}$ | 16.5 | 0.15 | 20100104 | 38.90222 | 18.77200 | 341.39791 | 3.77433 | 0.0812404 | 2.7128588 | 46 | 4 | 2004–2009 | 0.41 | M-v | 1 | MPC | 166352 | 2009 $SR_{34}$ |
| 2009 $SQ_{36}$ | 15.8 | 0.15 | 20100104 | 316.70858 | 82.79090 | 7.75588 | 9.48084 | 0.0943596 | 3.1581231 | 40 | 3 | 2003–2009 | 0.37 | M-v | 1 | MPC | 163958 | 2009 $SQ_{36}$ |
| 2009 $ST_{37}$ | 16.8 | 0.15 | 20100104 | 331.57423 | 227.42230 | 208.77179 | 9.08546 | 0.1185459 | 3.3427910 | 22 | 1 | 61 days | 0.28 | M-v | 4 | MPC | | 2009 $ST_{37}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2009 $SD_{38}$ | 17.0 | 0.15 | 20100104 | 172.39439 | 219.35110 | 9.62436 | 6.65968 | 0.0757710 | 2.4122010 | 38 | 3 | 2004–2009 | 0.38 | M-v | 2 | MPC | 163959 | 2009 $SD_{38}$ |
| 2009 $ST_{38}$ | 16.9 | 0.15 | 20100104 | 64.94866 | 316.79939 | 8.45943 | 5.36906 | 0.1413532 | 2.6184023 | 42 | 5 | 1999–2009 | 0.41 | M-v | 1 | MPC | 166352 | 2009 $ST_{38}$ |
| 2009 $SS_{40}$ | 16.8 | 0.15 | 20100104 | 354.63327 | 41.99661 | 16.05594 | 1.82619 | 0.2056156 | 3.0557092 | 59 | 3 | 2004–2009 | 0.33 | M-v | 2 | MPC | 166352 | 2009 $SS_{40}$ |
| 2009 $SE_{41}$ | 18.1 | 0.15 | 20100104 | 4.27518 | 181.88397 | 220.11531 | 4.96908 | 0.1482928 | 2.2538205 | 40 | 1 | 103 days | 0.40 | M-v | 3 | MPC | 166352 | 2009 $SE_{41}$ |
| 2009 $SR_{41}$ | 17.8 | 0.15 | 20090906 | 233.37286 | 285.77234 | 208.40494 | 2.64264 | 0.1595551 | 2.3928777 | 11 | 1 | 4 days | 0.22 | | | MPC | | 2009 $SR_{41}$ |
| 2009 $SU_{42}$ | 16.9 | 0.15 | 20100104 | 327.09299 | 225.72574 | 227.39164 | 8.77759 | 0.1401028 | 2.6405846 | 43 | 3 | 2005–2009 | 0.29 | M-v | 2 | MPC | 166352 | 2009 $SU_{42}$ |
| 2009 $SH_{43}$ | 15.6 | 0.15 | 20100104 | 34.59692 | 139.09395 | 225.87877 | 9.53462 | 0.0965148 | 3.0518191 | 58 | 4 | 2003–2009 | 0.43 | M-v | 1 | MPC | 165715 | 2009 $SH_{43}$ |
| 2009 $SP_{43}$ | 17.1 | 0.15 | 20100104 | 263.26859 | 291.07853 | 220.69676 | 7.97762 | 0.0338372 | 2.2110122 | 55 | 3 | 2006–2009 | 0.40 | M-v | 1 | MPC | 166352 | 2009 $SP_{43}$ |
| 2009 $SW_{43}$ | 16.2 | 0.15 | 20100104 | 329.13524 | 198.27763 | 243.08324 | 5.89669 | 0.0395068 | 2.7119029 | 38 | 3 | 2002–2009 | 0.47 | M-v | 3 | MPC | 163961 | 2009 $SW_{43}$ |
| 2009 $SK_{45}$ | 17.0 | 0.15 | 20100104 | 47.60015 | 91.71200 | 251.58906 | 3.95069 | 0.1771599 | 2.7591313 | 34 | 2 | 2005–2009 | 0.46 | M-v | 3 | MPC | 166352 | 2009 $SK_{45}$ |
| 2009 $SV_{47}$ | 16.1 | 0.15 | 20100104 | 9.52696 | 143.20979 | 253.39973 | 3.81274 | 0.1403121 | 3.0307668 | 61 | 4 | 2002–2009 | 0.40 | M-v | 1 | MPC | 165718 | 2009 $SV_{47}$ |
| 2009 $SB_{49}$ | 16.1 | 0.15 | 20100104 | 130.34939 | 236.07730 | 37.14170 | 12.14524 | 0.1388046 | 3.0167971 | 42 | 4 | 2002–2009 | 0.36 | M-v | 0 | MPC | 166353 | 2009 $SB_{49}$ |
| 2009 $SE_{49}$ | 16.5 | 0.15 | 20100104 | 19.71373 | 91.75606 | 296.98022 | 10.19339 | 0.2009726 | 2.5776977 | 41 | 2 | 2005–2009 | 0.55 | M-v | 4 | MPC | 165719 | 2009 $SE_{49}$ |
| 2009 $SM_{49}$ | 17.7 | 0.15 | 20090906 | 324.34551 | 165.05463 | 217.39108 | 5.59802 | 0.1256238 | 2.3809827 | 9 | 1 | 4 days | 0.16 | | | MPC | | 2009 $SM_{49}$ |
| 2009 $SW_{49}$ | 17.3 | 0.15 | 20100104 | 26.29328 | 6.54025 | 357.39541 | 13.04142 | 0.2031248 | 2.3513855 | 28 | 2 | 2004–2009 | 0.39 | M-v | 2 | MPC | 164370 | 2009 $SW_{49}$ |
| 2009 $SZ_{50}$ | 16.8 | 0.15 | 20100104 | 9.69617 | 13.00386 | 6.36203 | 5.82947 | 0.3107589 | 3.0653101 | 38 | 1 | 95 days | 0.31 | M-v | 3 | MPC | 166353 | 2009 $SZ_{50}$ |
| 2009 $SL_{52}$ | 16.1 | 0.15 | 20100104 | 358.34663 | 16.84478 | 18.62025 | 10.64131 | 0.0866996 | 3.1582879 | 28 | 1 | 91 days | 0.24 | M-v | 3 | MPC | 166353 | 2009 $SL_{52}$ |
| 2009 $SM_{52}$ | 17.0 | 0.15 | 20100104 | 251.69219 | 355.76695 | 160.87722 | 2.84087 | 0.1378882 | 2.4286353 | 43 | 4 | 1996–2009 | 0.65 | M-v | 3 | MPC | 165720 | 2009 $SM_{52}$ |
| 2009 $SO_{52}$ | 13.4 | 0.15 | 20100104 | 317.62303 | 24.49775 | 50.60796 | 4.65934 | 0.0754850 | 5.1604801 | 31 | 4 | 1998–2009 | 0.32 | M-v | 0 | MPC | 165720 | 2009 $SO_{52}$ |
| 2009 $SQ_{52}$ | 18.1 | 0.15 | 20100104 | 345.68583 | 47.97555 | 18.28900 | 6.12326 | 0.1427655 | 2.1983337 | 33 | 3 | 1996–2009 | 0.38 | M-v | 2 | MPC | 165721 | 2009 $SQ_{52}$ |
| 2009 $SK_{53}$ | 17.2 | 0.15 | 20100104 | 46.02475 | 66.10631 | 268.38978 | 2.30303 | 0.1870122 | 2.5817851 | 23 | 1 | 91 days | 0.46 | M-v | 5 | MPC | | 2009 $SK_{53}$ |
| 2009 $SR_{53}$ | 16.9 | 0.15 | 20100104 | 25.11687 | 142.07408 | 227.00160 | 4.63182 | 0.2305762 | 2.3965379 | 84 | 4 | 2004–2009 | 0.49 | M-v | 1 | MPC | 166353 | 2009 $SR_{53}$ |
| 2009 $SN_{55}$ | 16.9 | 0.15 | 20100104 | 278.63453 | 245.91456 | 244.76596 | 6.51618 | 0.0447928 | 2.3356517 | 38 | 4 | 2004–2009 | 0.30 | M-v | 1 | MPC | 165722 | 2009 $SN_{55}$ |
| 2009 $SP_{55}$ | 15.4 | 0.15 | 20100104 | 32.43616 | 141.77241 | 218.17720 | 15.71250 | 0.1199755 | 3.0798072 | 84 | 5 | 2002–2009 | 0.50 | M-v | 1 | MPC | 165722 | 2009 $SP_{55}$ |
| 2009 $SW_{55}$ | 16.4 | 0.15 | 20100104 | 312.59733 | 218.45928 | 235.68678 | 10.43437 | 0.0822718 | 3.0621887 | 32 | 3 | 1993–2009 | 0.32 | M-v | 3 | MPC | 163965 | 2009 $SW_{55}$ |
| 2009 $SC_{56}$ | 15.7 | 0.15 | 20100104 | 27.07313 | 145.94433 | 219.72683 | 13.11815 | 0.1580502 | 3.0953550 | 57 | 1 | 89 days | 0.50 | M-v | 3 | MPC | 166353 | 2009 $SC_{56}$ |
| 2009 $SP_{56}$ | 18.9 | 0.15 | 20100104 | 5.74484 | 175.77048 | 233.93377 | 5.69633 | 0.2208202 | 2.3451406 | 31 | 1 | 89 days | 0.24 | M-v | 3 | MPC | 166353 | 2009 $SP_{56}$ |
| 2009 $SZ_{56}$ | 15.4 | 0.15 | 20100104 | 2.71424 | 183.82662 | 217.34807 | 16.04456 | 0.1715473 | 3.1044042 | 79 | 4 | 1998–2009 | 0.48 | M-v | 1 | MPC | 165723 | 2009 $SZ_{56}$ |
| 2009 $SS_{58}$ | 15.4 | 0.15 | 20100104 | 338.85893 | 211.94630 | 222.20501 | 11.74149 | 0.1376356 | 2.9732925 | 60 | 3 | 2001–2009 | 0.37 | M-v | 2 | MPC | 166353 | 2009 $SS_{58}$ |
| 2009 $SA_{59}$ | 17.8 | 0.15 | 20090906 | 345.12742 | 85.13335 | 310.03713 | 4.11982 | 0.1546102 | 2.6611033 | 9 | 1 | 7 days | 0.18 | | | MPC | | 2009 $SA_{59}$ |
| 2009 $SO_{59}$ | 16.8 | 0.15 | 20100104 | 299.63577 | 249.56822 | 221.01385 | 9.02400 | 0.0612973 | 2.3959640 | 28 | 1 | 84 days | 0.43 | M-v | 4 | MPC | | 2009 $SO_{59}$ |
| 2009 $SW_{59}$ | 16.9 | 0.15 | 20100104 | 335.30957 | 215.81547 | 221.14862 | 11.32737 | 0.1660406 | 3.0088005 | 20 | 1 | 91 days | 0.27 | M-v | 4 | MPC | | 2009 $SW_{59}$ |
| 2009 $SZ_{59}$ | 18.0 | 0.15 | 20100104 | 97.24058 | 9.49477 | 276.82233 | 3.41190 | 0.1939161 | 2.2148791 | 29 | 3 | 2005–2009 | 0.38 | M-v | 2 | MPC | 165724 | 2009 $SZ_{59}$ |
| 2009 $SH_{60}$ | 16.3 | 0.15 | 20100104 | 16.29434 | 106.67139 | 274.33986 | 4.62191 | 0.1297994 | 3.1345780 | 39 | 3 | 2003–2009 | 0.45 | M-v | 2 | MPC | 166353 | 2009 $SH_{60}$ |
| 2009 $SK_{60}$ | 15.6 | 0.15 | 20100104 | 230.62235 | 296.68855 | 232.78127 | 8.33240 | 0.0357872 | 3.1614460 | 47 | 5 | 1998–2009 | 0.33 | M-v | 0 | MPC | 166353 | 2009 $SK_{60}$ |
| 2009 $SS_{60}$ | 16.1 | 0.15 | 20100104 | 298.05180 | 244.00177 | 231.31442 | 8.16362 | 0.1133707 | 2.8027856 | 34 | 1 | 91 days | 0.34 | M-v | 4 | MPC | 166353 | 2009 $SS_{60}$ |
| 2009 $SZ_{60}$ | 16.5 | 0.15 | 20100104 | 64.65071 | 95.34759 | 238.73959 | 5.70309 | 0.0256533 | 2.7535194 | 24 | 1 | 91 days | 0.26 | M-v | 4 | MPC | 166353 | 2009 $SZ_{60}$ |
| 2009 $SC_{61}$ | 16.4 | 0.15 | 20100104 | 39.51778 | 129.16136 | 225.23895 | 9.12628 | 0.1207777 | 2.8726213 | 31 | 1 | 90 days | 0.35 | M-v | 3 | MPC | 166353 | 2009 $SC_{61}$ |
| 2009 $SE_{61}$ | 17.4 | 0.15 | 20100104 | 17.40388 | 136.13231 | 254.55390 | 3.66526 | 0.1929792 | 2.3587615 | 66 | 6 | 2000–2009 | 0.37 | M-v | 1 | MPC | 166353 | 2009 $SE_{61}$ |
| 2009 $SU_{61}$ | 19.1 | 0.15 | 20090906 | 9.50992 | 146.29485 | 184.78013 | 5.14733 | 0.2613043 | 2.5512045 | 11 | 1 | 3 days | 0.27 | | | MPC | | 2009 $SU_{61}$ |
| 2009 $SB_{62}$ | 16.7 | 0.15 | 20090906 | 173.80171 | 188.71885 | 346.37053 | 12.51973 | 0.1038024 | 2.6586865 | 12 | 1 | 3 days | 0.25 | | | MPC | | 2009 $SB_{62}$ |
| 2009 $SP_{62}$ | 18.2 | 0.15 | 20090906 | 320.73957 | 194.30569 | 204.85710 | 1.27206 | 0.1374674 | 2.8277364 | 14 | 1 | 6 days | 0.41 | | | MPC | | 2009 $SP_{62}$ |
| 2009 $SF_{66}$ | 17.2 | 0.15 | 20100104 | 353.26509 | 352.31942 | 74.04832 | 3.33852 | 0.1831121 | 2.3754312 | 67 | 3 | 2004–2009 | 0.45 | M-v | 2 | MPC | 166353 | 2009 $SF_{66}$ |
| 2009 $ST_{66}$ | 16.2 | 0.15 | 20100104 | 315.47049 | 49.74522 | 50.56784 | 5.20734 | 0.1059363 | 2.7184203 | 52 | 3 | 2002–2009 | 0.33 | M-v | 2 | MPC | 165726 | 2009 $ST_{66}$ |
| 2009 $SA_{67}$ | 17.9 | 0.15 | 20100104 | 70.69403 | 350.00576 | 351.70667 | 1.55032 | 0.1676951 | 2.2845432 | 35 | 3 | 1995–2009 | 0.35 | M-v | 4 | MPC | 165727 | 2009 $SA_{67}$ |
| 2009 $SD_{67}$ | 17.1 | 0.15 | 20100104 | 21.75118 | 104.53940 | 299.98544 | 0.96875 | 0.0801343 | 2.6781000 | 37 | 5 | 2002–2009 | 0.33 | M-v | 0 | MPC | 165727 | 2009 $SD_{67}$ |
| 2009 $SF_{67}$ | 17.6 | 0.15 | 20100104 | 11.86455 | 194.18578 | 228.59186 | 3.15050 | 0.1937164 | 2.2569158 | 57 | 4 | 2002–2009 | 0.37 | M-v | 1 | MPC | 165727 | 2009 $SF_{67}$ |
| 2009 $SC_{68}$ | 16.4 | 0.15 | 20100104 | 40.44358 | 311.32256 | 46.43692 | 8.45986 | 0.1185074 | 2.8052667 | 45 | 1 | 89 days | 0.42 | M-v | 3 | MPC | 166354 | 2009 $SC_{68}$ |
| 2009 $SE_{69}$ | 16.6 | 0.15 | 20100104 | 39.18104 | 307.43689 | 45.38613 | 6.69405 | 0.2343129 | 2.7456583 | 63 | 6 | 2000–2009 | 0.30 | M-v | 0 | MPC | 165728 | 2009 $SE_{69}$ |
| 2009 $SK_{69}$ | 15.7 | 0.15 | 20090926 | 128.75743 | 191.38758 | 53.47266 | 9.21643 | 0.1714490 | 3.0352758 | 10 | 1 | 38 days | 0.28 | | | MPC | | 2009 $SK_{69}$ |
| 2009 $SA_{70}$ | 16.9 | 0.15 | 20100104 | 34.25679 | 113.61745 | 230.88991 | 1.65217 | 0.1843288 | 2.7832858 | 44 | 4 | 2000–2009 | 0.36 | M-v | 2 | MPC | 165728 | 2009 $SA_{70}$ |
| 2009 $SZ_{70}$ | 15.2 | 0.15 | 20100104 | 29.48744 | 197.72720 | 175.10779 | 9.99977 | 0.0936986 | 3.1097680 | 36 | 2 | 2006–2009 | 0.47 | M-v | 3 | MPC | 165728 | 2009 $SZ_{70}$ |
| 2009 $SE_{71}$ | 17.3 | 0.15 | 20100104 | 54.05127 | 12.38958 | 316.28176 | 1.76952 | 0.0464241 | 2.7033605 | 34 | 4 | 2000–2009 | 0.38 | M-v | 1 | MPC | 163970 | 2009 $SE_{71}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2009 $SG_{73}$ | 17.1 | 0.15 | 20090906 | 306.06487 | 228.98405 | 188.25029 | 9.48613 | 0.0511855 | 2.9932897 | 11 | 1 | 4 days | 0.27 | | E | MPC | | 2009 $SG_{73}$ |
| 2009 $SW_{73}$ | 16.7 | 0.15 | 20100104 | 0.42680 | 351.13289 | 58.33539 | 6.17513 | 0.1394920 | 2.7138498 | 61 | 3 | 2005–2009 | 0.34 | M-v | 2 | MPC | 166354 | 2009 $SW_{73}$ |
| 2009 $SN_{75}$ | 16.1 | 0.15 | 20100104 | 23.27838 | 326.11602 | 51.54240 | 10.24738 | 0.0792741 | 3.1288791 | 42 | 4 | 2001–2009 | 0.35 | M-v | 1 | MPC | 165730 | 2009 $SN_{75}$ |
| 2009 $SO_{77}$ | 16.2 | 0.15 | 20100104 | 110.21874 | 265.04389 | 30.27563 | 5.14357 | 0.2076815 | 2.5294593 | 41 | 2 | 2005–2009 | 0.28 | M-v | 3 | MPC | 165730 | 2009 $SO_{77}$ |
| 2009 $SV_{77}$ | 17.1 | 0.15 | 20100104 | 346.32942 | 65.32762 | 350.69011 | 12.37770 | 0.1933807 | 2.8944441 | 29 | 1 | 93 days | 0.45 | M-v | 5 | MPC | | 2009 $SV_{77}$ |
| 2009 $SG_{86}$ | 18.9 | 0.15 | 20090906 | 36.76469 | 296.84285 | 2.64881 | 1.65375 | 0.1618221 | 2.4927295 | 15 | 1 | 4 days | 0.31 | | | MPC | | 2009 $SG_{86}$ |
| 2009 $SN_{86}$ | 16.7 | 0.15 | 20100104 | 1.35570 | 107.75359 | 296.49714 | 3.55701 | 0.1214869 | 2.6847767 | 51 | 4 | 2002–2009 | 0.35 | M-v | 1 | MPC | 164376 | 2009 $SN_{86}$ |
| 2009 $ST_{87}$ | 17.9 | 0.15 | 20100104 | 24.29310 | 305.58216 | 74.34822 | 2.57753 | 0.1926765 | 2.4445742 | 51 | 2 | 2005–2009 | 0.34 | M-v | 2 | MPC | 166354 | 2009 $ST_{87}$ |
| 2009 $SY_{89}$ | 16.9 | 0.15 | 20100104 | 352.54818 | 83.73348 | 327.13244 | 6.65618 | 0.2257407 | 2.7672136 | 33 | 2 | 2005–2009 | 0.22 | M-v | 3 | MPC | 162213 | 2009 $SY_{89}$ |
| 2009 $SE_{91}$ | 19.3 | 0.15 | 20090906 | 7.51120 | 166.64589 | 171.51820 | 6.76329 | 0.1877054 | 2.5675793 | 12 | 1 | 2 days | 0.25 | | | MPC | | 2009 $SE_{91}$ |
| 2009 $SF_{92}$ | 16.7 | 0.15 | 20100104 | 4.17253 | 167.50938 | 224.25061 | 6.11553 | 0.2815737 | 3.0554496 | 31 | 1 | 90 days | 0.44 | M-v | 4 | MPC | | 2009 $SF_{92}$ |
| 2009 $SR_{92}$ | 17.9 | 0.15 | 20100104 | 43.54186 | 347.06358 | 22.35820 | 3.38384 | 0.1963570 | 2.3373757 | 30 | 1 | 91 days | 0.35 | M-v | 4 | MPC | 166354 | 2009 $SR_{92}$ |
| 2009 $SS_{92}$ | 16.1 | 0.15 | 20100104 | 353.13271 | 42.73815 | 38.36510 | 14.21684 | 0.2400395 | 3.1216809 | 37 | 1 | 88 days | 0.38 | M-v | 3 | MPC | 166354 | 2009 $SS_{92}$ |
| 2009 $ST_{92}$ | 16.1 | 0.15 | 20100104 | 64.11918 | 290.65659 | 40.53114 | 13.28253 | 0.2811073 | 2.6343887 | 45 | 3 | 2003–2009 | 0.46 | M-v | 1 | MPC | 165733 | 2009 $ST_{92}$ |
| 2009 $SU_{92}$ | 15.1 | 0.15 | 20100104 | 348.64277 | 34.96327 | 11.67934 | 26.72257 | 0.1554479 | 3.2030623 | 23 | 1 | 92 days | 0.32 | M-v | 4 | MPC | | 2009 $SU_{92}$ |
| 2009 $SV_{95}$ | 16.1 | 0.15 | 20100104 | 27.75150 | 11.17583 | 341.80397 | 0.23819 | 0.2242394 | 3.1935451 | 40 | 2 | 2005–2009 | 0.35 | M-v | 3 | MPC | 166354 | 2009 $SV_{95}$ |
| 2009 $SF_{96}$ | 16.4 | 0.15 | 20100104 | 0.39953 | 28.10179 | 39.93872 | 9.57220 | 0.1423634 | 3.1741813 | 15 | 1 | 64 days | 0.18 | M-v | 4 | MPC | | 2009 $SF_{96}$ |
| 2009 $SK_{96}$ | 16.9 | 0.15 | 20100104 | 19.00440 | 10.00459 | 41.78956 | 9.71805 | 0.2032402 | 2.5228234 | 44 | 2 | 2005–2009 | 0.44 | M-v | 3 | MPC | 165733 | 2009 $SK_{96}$ |
| 2009 $SP_{96}$ | 16.7 | 0.15 | 20100104 | 20.39893 | 199.70611 | 207.22639 | 3.24468 | 0.1884693 | 2.5756100 | 43 | 1 | 83 days | 0.51 | M-v | 4 | MPC | 166354 | 2009 $SP_{96}$ |
| 2009 $SR_{96}$ | 17.5 | 0.15 | 20100104 | 105.18635 | 253.06357 | 48.79142 | 4.84106 | 0.2234957 | 2.2009001 | 35 | 2 | 2002–2009 | 0.41 | M-v | 3 | MPC | 165733 | 2009 $SR_{96}$ |
| 2009 $SU_{96}$ | 16.1 | 0.15 | 20100104 | 59.99487 | 297.85588 | 58.02492 | 5.10432 | 0.1293849 | 2.9983972 | 34 | 3 | 2006–2009 | 0.33 | M-v | 2 | MPC | 165733 | 2009 $SU_{96}$ |
| 2009 $SW_{96}$ | 16.1 | 0.15 | 20100104 | 312.65373 | 255.79409 | 224.21996 | 10.74909 | 0.0389567 | 3.0161540 | 34 | 3 | 2003–2009 | 0.29 | M-v | 2 | MPC | 165734 | 2009 $SW_{96}$ |
| 2009 $SG_{98}$ | 16.8 | 0.15 | 20100104 | 26.28056 | 143.79168 | 215.34156 | 12.94494 | 0.2718989 | 2.6972826 | 57 | 1 | 93 days | 0.58 | M-v | 3 | MPC | 166355 | 2009 $SG_{98}$ |
| 2009 $SJ_{98}$ | 15.4 | 0.15 | 20100104 | 27.72693 | 66.35061 | 299.01620 | 16.05239 | 0.2214371 | 3.0272886 | 41 | 1 | 126 days | 0.48 | M-v | 3 | MPC | 166355 | 2009 $SJ_{98}$ |
| 2009 $SG_{99}$ | 18.1 | 0.15 | 20100104 | 13.85647 | 200.16568 | 188.60662 | 2.21339 | 0.2134801 | 2.3320347 | 45 | 2 | 2007–2009 | 0.36 | M-v | 3 | MPC | 166355 | 2009 $SG_{99}$ |
| 2009 $SH_{99}$ | 16.5 | 0.15 | 20100104 | 45.52249 | 329.47680 | 8.71078 | 3.98223 | 0.1097200 | 2.8078625 | 32 | 3 | 2004–2009 | 0.44 | M-v | 2 | MPC | 165734 | 2009 $SH_{99}$ |
| 2009 $SW_{99}$ | 16.0 | 0.15 | 20100104 | 32.08033 | 88.93609 | 252.49439 | 5.13081 | 0.2574916 | 3.0490726 | 55 | 3 | 2000–2009 | 0.49 | M-v | 2 | MPC | 163977 | 2009 $SW_{99}$ |
| 2009 $ST_{100}$ | 17.6 | 0.15 | 20100104 | 49.72194 | 62.41822 | 283.52910 | 6.64788 | 0.3018267 | 2.2277089 | 46 | 2 | 2006–2009 | 0.43 | M-v | 3 | MPC | 166355 | 2009 $ST_{100}$ |
| 2009 $SY_{100}$ | 15.4 | 0.15 | 20100104 | 314.54369 | 212.47316 | 219.66060 | 13.79640 | 0.0603902 | 3.4335677 | 43 | 5 | 1999–2009 | 0.37 | M-v | 0 | MPC | 165735 | 2009 $SY_{100}$ |
| 2009 $SD_{101}$ | 14.9 | 0.15 | 20100104 | 231.31447 | 271.23521 | 262.73926 | 10.96531 | 0.0843636 | 3.1384706 | 37 | 5 | 2003–2009 | 0.46 | M-v | 1 | MPC | 165735 | 2009 $SD_{101}$ |
| 2009 $SE_{101}$ | 17.5 | 0.15 | 20090926 | 356.91270 | 33.49279 | 350.39012 | 15.90294 | 0.1688594 | 2.5392784 | 20 | 1 | 22 days | 0.42 | | | MPC | | 2009 $SE_{101}$ |
| 2009 $SM_{101}$ | 16.0 | 0.15 | 20100104 | 347.12005 | 193.71209 | 239.22418 | 13.05057 | 0.2224020 | 2.6830209 | 54 | 1 | 78 days | 0.46 | M-v | 4 | MPC | 166355 | 2009 $SM_{101}$ |
| 2009 $SU_{101}$ | 16.7 | 0.15 | 20100104 | 356.61669 | 201.39728 | 208.71468 | 23.52525 | 0.2310191 | 2.3850765 | 82 | 2 | 2008–2009 | 0.51 | M-v | 2 | MPC | 166355 | 2009 $SU_{101}$ |
| 2009 $SG_{102}$ | 18.3 | 0.15 | 20100104 | 19.89574 | 195.51333 | 186.49989 | 2.23556 | 0.1884506 | 2.2654738 | 24 | 1 | 84 days | 0.38 | M-v | 4 | MPC | 166355 | 2009 $SG_{102}$ |
| 2009 $SN_{102}$ | 16.1 | 0.15 | 20100104 | 25.06991 | 335.43472 | 45.81161 | 12.95955 | 0.2810759 | 2.7811877 | 117 | 3 | 2004–2009 | 0.49 | M-v | 2 | MPC | 166355 | 2009 $SN_{102}$ |
| 2009 $SQ_{102}$ | 16.4 | 0.15 | 20100104 | 247.42374 | 151.48289 | 343.86059 | 0.81614 | 0.0641719 | 2.9388182 | 29 | 3 | 2004–2009 | 0.35 | M-v | 3 | MPC | 162214 | 2009 $SQ_{102}$ |
| 2009 $SR_{102}$ | 16.7 | 0.15 | 20100104 | 5.43730 | 251.47366 | 148.56706 | 5.52256 | 0.1320728 | 2.6053280 | 41 | 3 | 2005–2009 | 0.39 | M-v | 3 | MPC | 165736 | 2009 $SR_{102}$ |
| 2009 $SC_{103}$ | 16.8 | 0.15 | 20100104 | 46.39179 | 333.94826 | 18.34917 | 5.41070 | 0.3451163 | 2.6088312 | 42 | 1 | 81 days | 0.48 | M-v | 4 | MPC | 166355 | 2009 $SC_{103}$ |
| 2009 $SD_{103}$ | 15.7 | 0.15 | 20100104 | 46.84166 | 133.24568 | 236.49228 | 12.21669 | 0.2589148 | 2.5921292 | 50 | 1 | 84 days | 0.48 | M-v | 4 | MPC | 166355 | 2009 $SD_{103}$ |
| 2009 $SG_{103}$ | 15.1 | 0.15 | 20100104 | 21.93204 | 178.25340 | 235.40150 | 31.31111 | 0.1940663 | 2.5804784 | 64 | 1 | 86 days | 0.50 | M-v | 3 | MPC | | 2009 $SG_{103}$ |
| 2009 $SM_{103}$ | 16.8 | 0.15 | 20100104 | 26.47209 | 26.10403 | 300.52504 | 12.75574 | 0.5580891 | 2.8323571 | 300 | 1 | 84 days | 0.34 | M-v | 4 | MPC | 166355 | 2009 $SM_{103}$ |
| 2009 $SO_{103}$ | 17.3 | 0.15 | 20100104 | 340.20862 | 304.60339 | 194.78697 | 29.46438 | 0.6639340 | 2.0037483 | 90 | 1 | 82 days | 0.41 | M-v | 4 | MPC | 166355 | 2009 $SO_{103}$ |
| 2009 $ST_{103}$ | 18.1 | 0.15 | 20100104 | 0.71875 | 233.77671 | 227.29374 | 15.93437 | 0.7216972 | 2.6890810 | 110 | 3 | 2000–2009 | 0.38 | M-v | 2 | MPC | 166355 | 2009 $ST_{103}$ |
| 2009 $SF_{104}$ | 17.1 | 0.15 | 20100104 | 84.47974 | 203.72757 | 88.63449 | 4.01309 | 0.2336235 | 2.3725612 | 47 | 3 | 2005–2009 | 0.42 | M-v | 2 | MPC | 164378 | 2009 $SF_{104}$ |
| 2009 $SH_{104}$ | 15.1 | 0.15 | 20100104 | 77.73793 | 308.31911 | 26.10872 | 13.90272 | 0.2115065 | 2.5615787 | 50 | 1 | 74 days | 0.55 | M-v | 4 | MPC | | 2009 $SH_{104}$ |
| 2009 $SL_{104}$ | 23.4 | 0.15 | 20100104 | 26.85331 | 105.72397 | 296.85493 | 2.81551 | 0.4451708 | 1.7898978 | 74 | 1 | 76 days | 0.43 | M-v | 5 | MPC | 166355 | 2009 $SL_{104}$ |
| 2009 $SC_{105}$ | 16.9 | 0.15 | 20100104 | 38.58317 | 116.87242 | 221.71361 | 4.21334 | 0.2280126 | 2.6764796 | 54 | 3 | 2005–2009 | 0.36 | M-v | 2 | MPC | 164378 | 2009 $SC_{105}$ |
| 2009 $SK_{106}$ | 17.1 | 0.15 | 20100104 | 13.67269 | 134.68162 | 241.62480 | 3.88487 | 0.1361454 | 2.3846217 | 41 | 4 | 2004–2009 | 0.31 | M-v | 1 | MPC | 165736 | 2009 $SK_{106}$ |
| 2009 $SF_{107}$ | 17.7 | 0.15 | 20100104 | 356.09510 | 204.87796 | 214.80840 | 4.95484 | 0.1484757 | 2.3636810 | 43 | 1 | 90 days | 0.44 | M-v | 4 | MPC | 166355 | 2009 $SF_{107}$ |
| 2009 $SL_{107}$ | 16.6 | 0.15 | 20100104 | 1.88510 | 109.95866 | 298.35620 | 1.98648 | 0.1909893 | 2.6568480 | 43 | 3 | 2005–2009 | 0.41 | M-v | 2 | MPC | 166355 | 2009 $SL_{107}$ |
| 2009 $SB_{108}$ | 15.8 | 0.15 | 20100104 | 21.55564 | 180.17194 | 207.11433 | 8.73138 | 0.2800062 | 3.0527482 | 84 | 3 | 1998–2009 | 0.49 | M-v | 2 | MPC | 165737 | 2009 $SB_{108}$ |
| 2009 $SD_{108}$ | 18.2 | 0.15 | 20100104 | 29.04833 | 189.02610 | 200.41170 | 5.44761 | 0.1562045 | 2.2813808 | 20 | 1 | 64 days | 0.28 | M-v | 4 | MPC | | 2009 $SD_{108}$ |
| 2009 $SU_{108}$ | 17.1 | 0.15 | 20100104 | 50.01541 | 13.51739 | 316.95471 | 9.37701 | 0.3662305 | 2.3483909 | 46 | 1 | 114 days | 0.57 | M-v | 4 | MPC | 166355 | 2009 $SU_{108}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2009 $SV_{108}$ | 15.5 | 0.15 | 20100104 | 37.04274 | 130.14117 | 224.87425 | 16.42493 | 0.2148350 | 3.1378154 | 48 | 1 | 84 days | 0.58 | M-v | 4 | MPC | 166355 | 2009 $SV_{108}$ |
| 2009 $SB_{109}$ | 17.0 | 0.15 | 20090906 | 359.19504 | 39.06698 | 313.91620 | 8.54242 | 0.1530672 | 3.1002901 | 10 | 1 | 6 days | 0.68 | | | MPC | | 2009 $SB_{109}$ |
| 2009 $SU_{110}$ | 16.5 | 0.15 | 20100104 | 354.13879 | 24.09854 | 22.04123 | 3.66235 | 0.1776954 | 3.1422135 | 39 | 3 | 1998–2009 | 0.38 | M-v | 3 | MPC | 165738 | 2009 $SU_{110}$ |
| 2009 $SR_{111}$ | 16.4 | 0.15 | 20100104 | 255.84073 | 271.51863 | 233.17461 | 5.65684 | 0.0567596 | 2.4041848 | 33 | 5 | 1996–2009 | 0.52 | M-v | 1 | MPC | 162215 | 2009 $SR_{111}$ |
| 2009 $SZ_{111}$ | 15.8 | 0.15 | 20100104 | 336.65005 | 165.96357 | 259.19346 | 4.21514 | 0.1550570 | 3.1631674 | 30 | 1 | 90 days | 0.22 | M-v | 4 | MPC | | 2009 $SZ_{111}$ |
| 2009 $SD_{112}$ | 17.6 | 0.15 | 20100104 | 52.12824 | 127.07709 | 202.44517 | 12.56701 | 0.1735960 | 2.5752941 | 38 | 3 | 2005–2009 | 0.31 | M-v | 2 | MPC | 166356 | 2009 $SD_{112}$ |
| 2009 $SO_{112}$ | 17.8 | 0.15 | 20090906 | 19.18833 | 129.89151 | 198.17420 | 15.42056 | 0.2308323 | 2.7577431 | 16 | 1 | 7 days | 0.70 | | | MPC | | 2009 $SO_{112}$ |
| 2009 $SP_{112}$ | 17.6 | 0.15 | 20090906 | 351.89911 | 174.73101 | 199.61090 | 15.04244 | 0.2719570 | 3.1529122 | 15 | 1 | 11 days | 0.26 | | | MPC | | 2009 $SP_{112}$ |
| 2009 $SQ_{112}$ | 18.5 | 0.15 | 20090906 | 39.86921 | 17.93550 | 282.28388 | 3.29181 | 0.2005149 | 2.2032712 | 13 | 1 | 7 days | 0.43 | | | MPC | | 2009 $SQ_{112}$ |
| 2009 $ST_{112}$ | 17.3 | 0.15 | 20090906 | 269.97537 | 195.74957 | 271.19463 | 3.96692 | 0.1301827 | 2.6185515 | 13 | 1 | 11 days | 0.89 | | | MPC | | 2009 $ST_{112}$ |
| 2009 $SV_{112}$ | 18.2 | 0.15 | 20090906 | 1.15357 | 61.58612 | 294.84627 | 3.62343 | 0.2047646 | 2.4524570 | 17 | 1 | 11 days | 0.47 | | | MPC | | 2009 $SV_{112}$ |
| 2009 $SM_{113}$ | 17.1 | 0.15 | 20100104 | 14.51159 | 112.77443 | 261.25279 | 3.88037 | 0.1748152 | 3.0289321 | 16 | 1 | 90 days | 0.20 | M-v | 4 | MPC | | 2009 $SM_{113}$ |
| 2009 $SA_{114}$ | 16.9 | 0.15 | 20100104 | 59.34003 | 42.32083 | 275.33142 | 3.60372 | 0.1569780 | 2.7401616 | 20 | 1 | 90 days | 0.27 | M-v | 5 | MPC | | 2009 $SA_{114}$ |
| 2009 $SB_{114}$ | 15.6 | 0.15 | 20100104 | 33.40159 | 139.06928 | 209.90634 | 10.08875 | 0.1123025 | 3.1175583 | 46 | 4 | 2003–2009 | 0.37 | M-v | 0 | MPC | 163983 | 2009 $SB_{114}$ |
| 2009 $SX_{114}$ | 17.6 | 0.15 | 20100104 | 345.28935 | 208.11061 | 210.52966 | 6.24492 | 0.1037035 | 2.3738378 | 21 | 1 | 86 days | 0.28 | M-v | 4 | MPC | 166356 | 2009 $SX_{114}$ |
| 2009 $SF_{115}$ | 16.3 | 0.15 | 20100104 | 45.88115 | 116.92010 | 210.20322 | 8.36994 | 0.2049293 | 3.1442129 | 42 | 5 | 1998–2009 | 0.38 | M-v | 0 | MPC | 165739 | 2009 $SF_{115}$ |
| 2009 $SG_{115}$ | 16.0 | 0.15 | 20100104 | 72.52833 | 99.94663 | 209.11506 | 8.84122 | 0.0640243 | 3.1255976 | 33 | 3 | 2004–2009 | 0.34 | M-v | 2 | MPC | 163984 | 2009 $SG_{115}$ |
| 2009 $SL_{115}$ | 15.9 | 0.15 | 20090926 | 345.16081 | 35.20064 | 352.82310 | 10.24836 | 0.0777796 | 3.1496946 | 19 | 1 | 28 days | 0.46 | | | MPC | | 2009 $SL_{115}$ |
| 2009 $SN_{115}$ | 18.3 | 0.15 | 20100104 | 35.97547 | 150.74663 | 209.64545 | 5.94129 | 0.1445432 | 2.2029071 | 34 | 1 | 91 days | 0.36 | M-v | 3 | MPC | | 2009 $SN_{115}$ |
| 2009 $SO_{115}$ | 18.0 | 0.15 | 20090906 | 283.86226 | 180.31951 | 266.93111 | 2.64896 | 0.0688011 | 2.2847095 | 16 | 1 | 11 days | 0.43 | | | MPC | | 2009 $SO_{115}$ |
| 2009 $SM_{116}$ | 18.1 | 0.15 | 20090906 | 314.31826 | 65.48817 | 345.94060 | 3.43532 | 0.1824978 | 2.6027338 | 10 | 1 | 6 days | 0.17 | | | MPC | | 2009 $SM_{116}$ |
| 2009 $SD_{117}$ | 18.3 | 0.15 | 20090906 | 36.66418 | 85.49006 | 214.10643 | 6.53257 | 0.3041713 | 2.8886003 | 9 | 1 | 8 days | 0.39 | | E | MPC | | 2009 $SD_{117}$ |
| 2009 $SU_{118}$ | 17.7 | 0.15 | 20090906 | 218.92091 | 193.35860 | 324.38221 | 3.15544 | 0.1245789 | 2.3275550 | 9 | 1 | 8 days | 0.34 | | | MPC | | 2009 $SU_{118}$ |
| 2009 $SX_{118}$ | 18.5 | 0.15 | 20090906 | 331.27233 | 45.18719 | 2.21298 | 12.99089 | 0.1811844 | 2.6092429 | 9 | 1 | 6 days | 0.25 | | | MPC | | 2009 $SX_{118}$ |
| 2009 $SB_{121}$ | 18.0 | 0.15 | 20100104 | 334.12958 | 225.66542 | 210.13802 | 3.72361 | 0.1097731 | 2.2936214 | 36 | 3 | 2002–2009 | 0.27 | M-v | 1 | MPC | 165740 | 2009 $SB_{121}$ |
| 2009 $SZ_{121}$ | 16.7 | 0.15 | 20100104 | 30.61579 | 154.17156 | 205.00160 | 5.23596 | 0.1429935 | 2.8145577 | 30 | 1 | 86 days | 0.59 | M-v | 4 | MPC | | 2009 $SZ_{121}$ |
| 2009 $SY_{122}$ | 18.2 | 0.15 | 20090906 | 313.56317 | 66.06589 | 350.50553 | 3.63936 | 0.2484944 | 2.8918645 | 10 | 1 | 4 days | 0.43 | | E | MPC | | 2009 $SY_{122}$ |
| 2009 $SE_{123}$ | 16.3 | 0.15 | 20100104 | 332.89111 | 185.68410 | 245.99320 | 6.10718 | 0.1283017 | 3.0969259 | 23 | 2 | 2004–2009 | 0.35 | M-v | 3 | MPC | 163985 | 2009 $SE_{123}$ |
| 2009 $SA_{124}$ | 17.9 | 0.15 | 20100104 | 34.17319 | 135.46556 | 228.22550 | 5.19064 | 0.1638421 | 2.3409137 | 21 | 1 | 90 days | 0.28 | M-v | 3 | MPC | | 2009 $SA_{124}$ |
| 2009 $SC_{124}$ | 17.8 | 0.15 | 20100104 | 41.29247 | 131.69117 | 222.63832 | 5.64773 | 0.2192596 | 2.1979834 | 72 | 6 | 1996–2009 | 0.37 | M-v | 1 | MPC | 166356 | 2009 $SC_{124}$ |
| 2009 $SE_{124}$ | 15.8 | 0.15 | 20100104 | 52.30461 | 95.97956 | 223.32568 | 8.93368 | 0.2541850 | 3.1447095 | 65 | 4 | 1998–2009 | 0.49 | M-v | 0 | MPC | 166356 | 2009 $SE_{124}$ |
| 2009 $SH_{124}$ | 15.8 | 0.15 | 20100104 | 32.54122 | 140.49104 | 218.11172 | 11.14057 | 0.0865139 | 3.1627031 | 53 | 5 | 1996–2009 | 0.52 | M-v | 1 | MPC | 166356 | 2009 $SH_{124}$ |
| 2009 $SQ_{124}$ | 16.9 | 0.15 | 20100104 | 47.61256 | 115.97905 | 219.21141 | 8.40914 | 0.2038227 | 2.7954018 | 24 | 1 | 83 days | 0.42 | M-v | 4 | MPC | | 2009 $SQ_{124}$ |
| 2009 $SR_{124}$ | 17.0 | 0.15 | 20100104 | 72.12446 | 346.03381 | 315.82243 | 3.88805 | 0.2422621 | 2.5532155 | 43 | 4 | 1997–2009 | 0.38 | M-v | 2 | MPC | 165742 | 2009 $SR_{124}$ |
| 2009 $SV_{124}$ | 18.8 | 0.15 | 20100104 | 15.31711 | 114.72815 | 278.46845 | 2.85011 | 0.2552269 | 2.3739327 | 25 | 1 | 89 days | 0.40 | M-v | 3 | MPC | 166356 | 2009 $SV_{124}$ |
| 2009 $SD_{125}$ | 16.9 | 0.15 | 20100104 | 43.09397 | 36.04298 | 312.87834 | 3.83403 | 0.1515000 | 2.6077555 | 33 | 1 | 90 days | 0.42 | M-v | 4 | MPC | | 2009 $SD_{125}$ |
| 2009 $SK_{125}$ | 16.5 | 0.15 | 20100104 | 59.71406 | 111.38157 | 215.82899 | 10.57103 | 0.1392188 | 2.7464912 | 40 | 3 | 2003–2009 | 0.40 | M-v | 2 | MPC | 165742 | 2009 $SK_{125}$ |
| 2009 $SL_{125}$ | 17.7 | 0.15 | 20100104 | 342.93671 | 119.14264 | 311.08506 | 3.12636 | 0.1240862 | 2.3921736 | 38 | 3 | 2005–2009 | 0.30 | M-v | 1 | MPC | 164381 | 2009 $SL_{125}$ |
| 2009 $SS_{125}$ | 17.7 | 0.15 | 20100104 | 118.11543 | 2.79542 | 277.12133 | 3.38213 | 0.0576035 | 2.3078927 | 23 | 3 | 2006–2009 | 0.21 | M-v | 2 | MPC | 163986 | 2009 $SS_{125}$ |
| 2009 $SY_{125}$ | 16.1 | 0.15 | 20100104 | 297.51767 | 256.03495 | 209.43016 | 13.28248 | 0.0217868 | 2.6422370 | 51 | 3 | 2003–2009 | 0.59 | M-v | 3 | MPC | 165743 | 2009 $SY_{125}$ |
| 2009 $SU_{126}$ | 17.0 | 0.15 | 20100104 | 64.84660 | 350.98548 | 337.95653 | 4.40031 | 0.0532232 | 2.6419188 | 39 | 5 | 2000–2009 | 0.41 | M-v | 1 | MPC | 162219 | 2009 $SU_{126}$ |
| 2009 $SF_{127}$ | 15.6 | 0.15 | 20100104 | 15.70478 | 38.36987 | 341.13508 | 5.33802 | 0.1153322 | 3.0673827 | 46 | 3 | 1998–2009 | 0.45 | M-v | 3 | MPC | 164381 | 2009 $SF_{127}$ |
| 2009 $SM_{127}$ | 16.7 | 0.15 | 20090906 | 6.90348 | 108.50162 | 255.16033 | 2.78824 | 0.1546713 | 3.5220000 | 9 | 1 | 8 days | 0.18 | | | MPC | | 2009 $SM_{127}$ |
| 2009 $SP_{127}$ | 17.3 | 0.15 | 20100104 | 347.48606 | 92.69736 | 327.59792 | 3.69175 | 0.1078201 | 2.5823530 | 31 | 4 | 2003–2009 | 0.35 | M-v | 1 | MPC | 165743 | 2009 $SP_{127}$ |
| 2009 $SV_{127}$ | 16.3 | 0.15 | 20100104 | 25.26127 | 64.90052 | 311.45515 | 12.23995 | 0.2139804 | 2.6092572 | 37 | 1 | 83 days | 0.59 | M-v | 4 | MPC | 166356 | 2009 $SV_{127}$ |
| 2009 $SX_{127}$ | 17.0 | 0.15 | 20100104 | 347.53877 | 211.49671 | 210.76687 | 8.25334 | 0.1520354 | 2.7083530 | 24 | 1 | 88 days | 0.42 | M-v | 4 | MPC | | 2009 $SX_{127}$ |
| 2009 $SB_{129}$ | 18.3 | 0.15 | 20100104 | 1.86919 | 28.53996 | 23.72929 | 6.26935 | 0.1665355 | 2.2749736 | 24 | 1 | 90 days | 0.27 | M-v | 4 | MPC | 166356 | 2009 $SB_{129}$ |
| 2009 $SG_{129}$ | 17.6 | 0.15 | 20100104 | 319.71981 | 53.96765 | 39.82218 | 3.03577 | 0.0859804 | 2.3629924 | 37 | 2 | 2007–2009 | 0.29 | M-v | 4 | MPC | 165744 | 2009 $SG_{129}$ |
| 2009 $SM_{129}$ | 16.7 | 0.15 | 20100104 | 276.80821 | 110.50918 | 25.14251 | 7.50646 | 0.0701796 | 2.3253331 | 38 | 3 | 1995–2009 | 0.29 | M-v | 3 | MPC | 166356 | 2009 $SM_{129}$ |
| 2009 $SC_{130}$ | 17.7 | 0.15 | 20100104 | 12.39241 | 6.61773 | 28.27615 | 7.85438 | 0.1199950 | 2.3765177 | 38 | 3 | 1993–2009 | 0.24 | M-v | 2 | MPC | 165744 | 2009 $SC_{130}$ |
| 2009 $SE_{130}$ | 18.0 | 0.15 | 20100104 | 27.56879 | 323.38682 | 54.73210 | 1.98042 | 0.1536238 | 2.2355185 | 37 | 1 | 88 days | 0.39 | M-v | 3 | MPC | 166356 | 2009 $SE_{130}$ |
| 2009 $SQ_{130}$ | 16.8 | 0.15 | 20100104 | 86.74694 | 266.62028 | 29.79152 | 11.54406 | 0.1558585 | 2.7748139 | 34 | 2 | 2003–2009 | 0.38 | M-v | 4 | MPC | 165744 | 2009 $SQ_{130}$ |
| 2009 $SF_{132}$ | 16.6 | 0.15 | 20100104 | 334.08252 | 52.01343 | 28.54415 | 12.85384 | 0.1856248 | 2.9900171 | 54 | 3 | 2001–2009 | 0.40 | M-v | 2 | MPC | 166357 | 2009 $SF_{132}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2009 $SM_{132}$ | 18.1 | 0.15 | 20090926 | 340.72121 | 233.34704 | 171.19403 | 6.14853 | 0.1856224 | 2.5633830 | 20 | 1 | 36 days | 0.34 | | D | MPC | | 2009 $SM_{132}$ |
| 2009 $SR_{132}$ | 15.2 | 0.15 | 20100104 | 314.60565 | 57.64751 | 31.61751 | 11.18272 | 0.0605971 | 3.1170140 | 62 | 3 | 2004–2009 | 0.32 | M-v | 2 | MPC | 165746 | 2009 $SR_{132}$ |
| 2009 $SZ_{133}$ | 16.0 | 0.15 | 20100104 | 338.02851 | 24.03947 | 44.57218 | 10.16340 | 0.0814106 | 3.0756165 | 33 | 3 | 2004–2009 | 0.28 | M-v | 2 | MPC | 166357 | 2009 $SZ_{133}$ |
| 2009 $SN_{135}$ | 16.2 | 0.15 | 20100104 | 243.84334 | 249.85331 | 279.93575 | 1.47149 | 0.1431520 | 3.0368008 | 35 | 4 | 2001–2009 | 0.43 | M-v | 1 | MPC | 165747 | 2009 $SN_{135}$ |
| 2009 $SX_{135}$ | 17.0 | 0.15 | 20100104 | 31.52424 | 155.46086 | 213.37925 | 4.48905 | 0.1795829 | 2.5936398 | 49 | 3 | 2005–2009 | 0.39 | M-v | 2 | MPC | 165748 | 2009 $SX_{135}$ |
| 2009 $SC_{136}$ | 17.6 | 0.15 | 20100104 | 3.30024 | 198.15137 | 211.33155 | 7.05997 | 0.0953313 | 2.3784319 | 27 | 3 | 1998–2009 | 0.45 | M-v | 3 | MPC | 165748 | 2009 $SC_{136}$ |
| 2009 $SH_{138}$ | 17.4 | 0.15 | 20100104 | 66.20661 | 284.00277 | 28.34817 | 4.01145 | 0.2622181 | 2.6602994 | 50 | 2 | 2008–2009 | 0.33 | M-v | 3 | MPC | 165750 | 2009 $SH_{138}$ |
| 2009 $SK_{138}$ | 15.8 | 0.15 | 20100104 | 340.12301 | 50.08699 | 23.50961 | 4.26671 | 0.1340560 | 3.1281433 | 67 | 6 | 1995–2009 | 0.44 | M-v | 0 | MPC | 165751 | 2009 $SK_{138}$ |
| 2009 $SX_{139}$ | 14.3 | 0.15 | 20090906 | 313.58037 | 212.90215 | 221.45229 | 13.78942 | 0.1656756 | 5.1652070 | 9 | 1 | 8 days | 0.23 | | | MPC | | 2009 $SX_{139}$ |
| 2009 $SB_{140}$ | 15.5 | 0.15 | 20100104 | 289.74184 | 240.68748 | 229.26022 | 8.83551 | 0.0544234 | 2.8753173 | 32 | 3 | 2004–2009 | 0.50 | M-v | 1 | MPC | 163992 | 2009 $SB_{140}$ |
| 2009 $SH_{140}$ | 15.4 | 0.15 | 20100104 | 315.99772 | 240.83607 | 209.54803 | 14.77526 | 0.1772003 | 3.2244899 | 41 | 4 | 2003–2009 | 0.31 | M-v | 0 | MPC | 165752 | 2009 $SH_{140}$ |
| 2009 $SO_{140}$ | 17.4 | 0.15 | 20100104 | 47.56251 | 128.41830 | 211.37576 | 9.38325 | 0.1713966 | 2.3553628 | 44 | 3 | 2001–2009 | 0.41 | M-v | 2 | MPC | 165752 | 2009 $SO_{140}$ |
| 2009 $SX_{140}$ | 17.8 | 0.15 | 20100104 | 16.05586 | 143.74368 | 246.13832 | 3.22789 | 0.2281314 | 2.2979244 | 36 | 1 | 89 days | 0.49 | M-v | 3 | MPC | 166357 | 2009 $SX_{140}$ |
| 2009 $SC_{141}$ | 17.8 | 0.15 | 20100104 | 18.71186 | 135.85896 | 247.41731 | 1.98734 | 0.1868367 | 2.4452491 | 51 | 3 | 2005–2009 | 0.41 | M-v | 2 | MPC | 165752 | 2009 $SC_{141}$ |
| 2009 $SH_{141}$ | 16.9 | 0.15 | 20100104 | 55.18135 | 328.74554 | 0.31006 | 7.07675 | 0.1899140 | 2.5653400 | 35 | 2 | 2005–2009 | 0.35 | M-v | 4 | MPC | 164384 | 2009 $SH_{141}$ |
| 2009 $SY_{141}$ | 17.7 | 0.15 | 20100104 | 16.67367 | 185.13376 | 200.90933 | 2.03449 | 0.2310512 | 2.4493012 | 59 | 5 | 1999–2009 | 0.43 | M-v | 1 | MPC | 163993 | 2009 $SY_{141}$ |
| 2009 $SO_{142}$ | 17.0 | 0.15 | 20100104 | 58.53556 | 335.86154 | 357.52248 | 3.32647 | 0.0895728 | 2.5963304 | 45 | 6 | 1992–2009 | 0.40 | M-v | 1 | MPC | 165753 | 2009 $SO_{142}$ |
| 2009 $SS_{143}$ | 17.6 | 0.15 | 20100104 | 96.99813 | 286.85748 | 14.23091 | 3.32700 | 0.0586126 | 2.3651337 | 38 | 4 | 1998–2009 | 0.37 | M-v | 1 | MPC | 165753 | 2009 $SS_{143}$ |
| 2009 $SW_{143}$ | 18.0 | 0.15 | 20100104 | 342.59624 | 62.08343 | 19.08475 | 2.88270 | 0.1964268 | 2.3281392 | 45 | 3 | 2002–2009 | 0.45 | M-v | 2 | MPC | 165754 | 2009 $SW_{143}$ |
| 2009 $SY_{143}$ | 16.2 | 0.15 | 20100104 | 60.12029 | 304.63097 | 19.02373 | 5.78410 | 0.1779006 | 2.9676839 | 56 | 4 | 2002–2009 | 0.36 | M-v | 1 | MPC | 166357 | 2009 $SY_{143}$ |
| 2009 $SB_{144}$ | 17.8 | 0.15 | 20100104 | 36.92821 | 326.57888 | 25.81938 | 4.64658 | 0.2665965 | 2.5927376 | 43 | 1 | 90 days | 0.35 | M-v | 4 | MPC | 166357 | 2009 $SB_{144}$ |
| 2009 $SJ_{146}$ | 17.2 | 0.15 | 20100104 | 1.53080 | 28.58546 | 25.71025 | 6.17740 | 0.1158760 | 2.2518661 | 73 | 4 | 2002–2009 | 0.45 | M-v | 1 | MPC | 166357 | 2009 $SJ_{146}$ |
| 2009 $SN_{146}$ | 16.7 | 0.15 | 20100104 | 310.61691 | 75.45762 | 30.62687 | 12.43337 | 0.0846755 | 2.5923667 | 55 | 2 | 2005–2009 | 0.36 | M-v | 3 | MPC | 166358 | 2009 $SN_{146}$ |
| 2009 $SS_{146}$ | 16.2 | 0.15 | 20100104 | 40.44458 | 321.19326 | 41.51724 | 8.92287 | 0.0716075 | 2.8784416 | 31 | 1 | 90 days | 0.35 | M-v | 3 | MPC | 166358 | 2009 $SS_{146}$ |
| 2009 $SW_{146}$ | 18.0 | 0.15 | 20100104 | 49.85976 | 299.17629 | 41.28959 | 2.78063 | 0.2301040 | 2.4145004 | 34 | 3 | 1994–2009 | 0.29 | M-v | 2 | MPC | 165755 | 2009 $SW_{146}$ |
| 2009 $SX_{146}$ | 15.8 | 0.15 | 20100104 | 7.18127 | 1.03155 | 35.12539 | 11.96178 | 0.1022963 | 3.1827823 | 48 | 1 | 90 days | 0.38 | M-v | 3 | MPC | 166358 | 2009 $SX_{146}$ |
| 2009 $SP_{148}$ | 15.2 | 0.15 | 20100104 | 303.08500 | 270.64759 | 222.05244 | 14.54297 | 0.0857504 | 3.0970402 | 70 | 5 | 2000–2009 | 0.53 | M-v | 1 | MPC | 165755 | 2009 $SP_{148}$ |
| 2009 $SQ_{148}$ | 13.2 | 0.15 | 20100104 | 355.99099 | 150.22101 | 242.34730 | 8.14874 | 0.1188240 | 5.1979234 | 24 | 2 | 2008–2009 | 0.52 | M-v | 3 | MPC | 163995 | 2009 $SQ_{148}$ |
| 2009 $SR_{148}$ | 17.8 | 0.15 | 20100104 | 32.30084 | 92.87194 | 274.72051 | 4.11528 | 0.1903610 | 2.2146297 | 45 | 5 | 1999–2009 | 0.58 | M-v | 1 | MPC | 165755 | 2009 $SR_{148}$ |
| 2009 $SX_{148}$ | 16.8 | 0.15 | 20090906 | 348.39454 | 96.40907 | 259.78402 | 8.46107 | 0.2277011 | 2.9751288 | 13 | 1 | 29 days | 0.50 | | | MPC | | 2009 $SX_{148}$ |
| 2009 $SS_{149}$ | 19.2 | 0.15 | 20090906 | 5.63885 | 135.88033 | 211.72748 | 5.80749 | 0.2372842 | 2.4344843 | 13 | 1 | 3 days | 0.47 | | | MPC | | 2009 $SS_{149}$ |
| 2009 $ST_{149}$ | 15.2 | 0.15 | 20090906 | 201.79717 | 318.69958 | 207.64165 | 9.35219 | 0.1045983 | 3.3712879 | 9 | 1 | 6 days | 0.33 | | E | MPC | | 2009 $ST_{149}$ |
| 2009 $SY_{149}$ | 18.3 | 0.15 | 20100104 | 14.51311 | 190.91444 | 190.99158 | 14.60543 | 0.2699009 | 2.6174565 | 16 | 1 | 87 days | 0.24 | M-v | 3 | MPC | | 2009 $SY_{149}$ |
| 2009 $SE_{150}$ | 15.8 | 0.15 | 20100104 | 53.27662 | 312.89086 | 354.22563 | 13.91266 | 0.2824237 | 3.1641938 | 40 | 1 | 115 days | 0.50 | M-v | 4 | MPC | | 2009 $SE_{150}$ |
| 2009 $SK_{150}$ | 17.5 | 0.15 | 20100104 | 349.73126 | 209.22183 | 211.15046 | 5.18784 | 0.1930653 | 2.4064095 | 27 | 1 | 84 days | 0.56 | M-v | 4 | MPC | | 2009 $SK_{150}$ |
| 2009 $SN_{150}$ | 17.0 | 0.15 | 20100104 | 107.46002 | 289.25149 | 347.76744 | 6.46048 | 0.1006262 | 2.3281369 | 40 | 3 | 2004–2009 | 0.44 | M-v | 2 | MPC | 163996 | 2009 $SN_{150}$ |
| 2009 $SS_{150}$ | 16.2 | 0.15 | 20100104 | 51.83256 | 124.26977 | 212.59518 | 5.67243 | 0.0345582 | 2.7748848 | 40 | 5 | 2000–2009 | 0.49 | M-v | 0 | MPC | 165756 | 2009 $SS_{150}$ |
| 2009 $ST_{150}$ | 18.0 | 0.15 | 20090906 | 345.14233 | 179.37427 | 202.04043 | 6.45131 | 0.1378723 | 2.4646641 | 16 | 1 | 8 days | 0.39 | | | MPC | | 2009 $ST_{150}$ |
| 2009 $SU_{150}$ | 16.7 | 0.15 | 20100104 | 332.50380 | 213.98952 | 214.32689 | 4.31207 | 0.0951375 | 2.7076239 | 34 | 3 | 2005–2009 | 0.46 | M-v | 3 | MPC | 165756 | 2009 $SU_{150}$ |
| 2009 $SV_{150}$ | 16.2 | 0.15 | 20100104 | 104.10607 | 76.92035 | 206.90462 | 5.92068 | 0.0321735 | 2.7733123 | 26 | 1 | 82 days | 0.29 | M-v | 5 | MPC | | 2009 $SV_{150}$ |
| 2009 $SP_{151}$ | 17.8 | 0.15 | 20100104 | 7.84937 | 192.53374 | 198.20144 | 4.61409 | 0.1151195 | 2.4162219 | 27 | 1 | 94 days | 0.27 | M-v | 4 | MPC | 166358 | 2009 $SP_{151}$ |
| 2009 $SY_{152}$ | 16.8 | 0.15 | 20090906 | 57.17498 | 303.92851 | 340.77631 | 11.30800 | 0.0674890 | 3.1770447 | 10 | 1 | 4 days | 0.29 | | E | MPC | | 2009 $SY_{152}$ |
| 2009 $SA_{153}$ | 19.2 | 0.15 | 20090906 | 336.83996 | 44.98741 | 339.45665 | 4.90209 | 0.2362833 | 2.2210009 | 13 | 1 | 10 days | 0.21 | | | MPC | | 2009 $SA_{153}$ |
| 2009 $SL_{153}$ | 15.8 | 0.15 | 20090906 | 159.79932 | 200.87250 | 342.46480 | 15.92796 | 0.1858099 | 3.1192081 | 9 | 1 | 4 days | 0.22 | | E | MPC | | 2009 $SL_{153}$ |
| 2009 $SC_{154}$ | 16.9 | 0.15 | 20090906 | 324.40919 | 217.23261 | 193.72612 | 2.52395 | 0.1161519 | 3.0321704 | 9 | 1 | 12 days | 0.17 | | | MPC | | 2009 $SC_{154}$ |
| 2009 $SE_{154}$ | 16.8 | 0.15 | 20100104 | 348.28432 | 224.53612 | 184.84585 | 4.80311 | 0.1340490 | 3.1380369 | 21 | 1 | 84 days | 0.24 | M-v | 5 | MPC | | 2009 $SE_{154}$ |
| 2009 $SL_{156}$ | 17.7 | 0.15 | 20100104 | 346.50285 | 56.22031 | 20.89665 | 5.41800 | 0.2291696 | 2.3070572 | 38 | 3 | 1995–2009 | 0.56 | M-v | 2 | MPC | 165758 | 2009 $SL_{156}$ |
| 2009 $SE_{157}$ | 18.2 | 0.15 | 20100104 | 45.94847 | 318.51781 | 31.16343 | 4.07161 | 0.1519159 | 2.2729995 | 51 | 5 | 2002–2009 | 0.44 | M-v | 1 | MPC | 163999 | 2009 $SE_{157}$ |
| 2009 $SJ_{157}$ | 16.9 | 0.15 | 20100104 | 358.43165 | 27.52192 | 22.77572 | 1.04396 | 0.1701877 | 3.1851800 | 35 | 3 | 2003–2009 | 0.51 | M-v | 2 | MPC | 166358 | 2009 $SJ_{157}$ |
| 2009 $SA_{158}$ | 18.7 | 0.15 | 20100104 | 31.96648 | 175.45847 | 193.94901 | 7.29603 | 0.2666837 | 2.5286307 | 16 | 1 | 64 days | 0.26 | M-v | 5 | MPC | | 2009 $SA_{158}$ |
| 2009 $SV_{158}$ | 17.4 | 0.15 | 20100104 | 23.93372 | 155.81042 | 228.71142 | 5.49764 | 0.1176915 | 2.4139199 | 46 | 2 | 2005–2009 | 0.44 | M-v | 2 | MPC | 165759 | 2009 $SV_{158}$ |
| 2009 $SW_{158}$ | 16.9 | 0.15 | 20100104 | 337.19637 | 232.75280 | 219.84656 | 9.51940 | 0.2514947 | 2.7515337 | 39 | 1 | 86 days | 0.39 | M-v | 3 | MPC | 166358 | 2009 $SW_{158}$ |
| 2009 $SX_{158}$ | 16.6 | 0.15 | 20090906 | 121.69727 | 275.00395 | 328.34765 | 4.04407 | 0.2108732 | 2.6287242 | 9 | 1 | 8 days | 0.26 | | | MPC | | 2009 $SX_{158}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2009 $SB_{159}$ | 16.2 | 0.15 | 20100104 | 135.81057 | 36.41702 | 221.24210 | 13.90804 | 0.1513678 | 2.7299600 | 38 | 4 | 2000–2009 | 0.27 | M-v | 1 | MPC | 165759 | 2009 $SB_{159}$ |
| 2009 $SY_{159}$ | 16.9 | 0.15 | 20100104 | 77.73283 | 343.01019 | 323.00773 | 2.63203 | 0.1854719 | 2.7402107 | 34 | 4 | 2004–2009 | 0.32 | M-v | 1 | MPC | 165759 | 2009 $SY_{159}$ |
| 2009 $SN_{160}$ | 18.1 | 0.15 | 20100104 | 7.38016 | 182.63172 | 222.71060 | 5.75170 | 0.2008864 | 2.6339574 | 32 | 3 | 1996–2009 | 0.33 | M-v | 2 | MPC | 166358 | 2009 $SN_{160}$ |
| 2009 $SZ_{160}$ | 17.2 | 0.15 | 20100104 | 9.98481 | 19.30200 | 54.01502 | 3.18345 | 0.1700626 | 2.4527853 | 35 | 1 | 81 days | 0.47 | M-v | 4 | MPC | | 2009 $SZ_{160}$ |
| 2009 $SA_{164}$ | 16.6 | 0.15 | 20090906 | 51.69120 | 167.51605 | 154.91789 | 2.35470 | 0.1040174 | 2.8777606 | 10 | 1 | 2 days | 0.17 | | E | MPC | | 2009 $SA_{164}$ |
| 2009 $SM_{164}$ | 18.0 | 0.15 | 20090906 | 29.65590 | 274.23630 | 53.14001 | 3.75375 | 0.2758948 | 2.6867276 | 9 | 1 | 7 days | 0.13 | | | MPC | 166359 | 2009 $SM_{164}$ |
| 2009 $SN_{164}$ | 16.2 | 0.15 | 20090906 | 261.60667 | 96.65679 | 54.15273 | 4.54024 | 0.2633319 | 2.5133902 | 10 | 1 | 2 days | 0.20 | | E | MPC | | 2009 $SN_{164}$ |
| 2009 $SV_{164}$ | 16.4 | 0.15 | 20100104 | 355.72778 | 223.19637 | 197.34688 | 10.96480 | 0.1457145 | 3.0354607 | 46 | 4 | 1993–2009 | 0.56 | M-v | 1 | MPC | 165760 | 2009 $SV_{164}$ |
| 2009 $SW_{164}$ | 15.8 | 0.15 | 20090906 | 233.45797 | 137.13367 | 38.91798 | 19.00409 | 0.2710748 | 2.7735440 | 10 | 1 | 2 days | 0.32 | | E | MPC | | 2009 $SW_{164}$ |
| 2009 $SD_{165}$ | 16.6 | 0.15 | 20090906 | 6.13261 | 20.03210 | 331.06384 | 5.81882 | 0.2154742 | 3.1378037 | 14 | 1 | 3 days | 0.51 | | | MPC | | 2009 $SD_{165}$ |
| 2009 $SW_{166}$ | 16.7 | 0.15 | 20100104 | 33.89519 | 333.72227 | 26.97890 | 14.94282 | 0.1542836 | 2.6993354 | 45 | 4 | 2000–2009 | 0.28 | M-v | 0 | MPC | 165761 | 2009 $SW_{166}$ |
| 2009 $SC_{167}$ | 17.0 | 0.15 | 20100104 | 324.36198 | 87.32231 | 2.20133 | 4.90521 | 0.2389365 | 3.0585723 | 23 | 1 | 96 days | 0.27 | M-v | 4 | MPC | | 2009 $SC_{167}$ |
| 2009 $SE_{167}$ | 18.8 | 0.15 | 20090906 | 357.82189 | 6.12075 | 345.03003 | 13.21839 | 0.1434732 | 2.4852536 | 10 | 1 | 4 days | 0.29 | | | MPC | | 2009 $SE_{167}$ |
| 2009 $SX_{167}$ | 17.0 | 0.15 | 20090906 | 239.59882 | 216.79153 | 259.72150 | 2.15294 | 0.0800600 | 2.8038477 | 9 | 1 | 4 days | 0.20 | | | MPC | | 2009 $SX_{167}$ |
| 2009 $SB_{168}$ | 15.9 | 0.15 | 20100104 | 7.94148 | 225.68996 | 192.25653 | 29.96535 | 0.3183312 | 2.6051284 | 65 | 4 | 2002–2009 | 0.44 | M-v | 1 | MPC | 165761 | 2009 $SB_{168}$ |
| 2009 $SE_{168}$ | 16.9 | 0.15 | 20100104 | 355.85901 | 170.46301 | 236.67411 | 6.38424 | 0.2811562 | 2.9914810 | 26 | 1 | 91 days | 0.48 | M-v | 5 | MPC | | 2009 $SE_{168}$ |
| 2009 $SW_{168}$ | 15.6 | 0.15 | 20100104 | 5.86076 | 232.46663 | 166.62106 | 11.96939 | 0.3419402 | 3.0515494 | 53 | 4 | 1993–2009 | 0.44 | M-v | 1 | MPC | 164004 | 2009 $SW_{168}$ |
| 2009 $SS_{169}$ | 16.6 | 0.15 | 20100104 | 64.91066 | 67.16965 | 231.73014 | 6.61216 | 0.2203687 | 2.9704502 | 45 | 6 | 1999–2009 | 0.40 | M-v | 0 | MPC | 162224 | 2009 $SS_{169}$ |
| 2009 $SV_{169}$ | 12.7 | 0.15 | 20100104 | 286.81975 | 222.19781 | 258.52242 | 6.46627 | 0.2792240 | 5.1650370 | 24 | 1 | 92 days | 0.52 | M-v | 6 | MPC | | 2009 $SV_{169}$ |
| 2009 $SW_{169}$ | 18.2 | 0.15 | 20100104 | 28.74684 | 140.88951 | 225.50725 | 5.97263 | 0.1139078 | 2.2428448 | 36 | 5 | 1999–2009 | 0.38 | M-v | 0 | MPC | 164004 | 2009 $SW_{169}$ |
| 2009 $SH_{170}$ | 18.2 | 0.15 | 20100104 | 19.54459 | 134.08864 | 260.82693 | 5.79714 | 0.3629655 | 2.3885365 | 56 | 1 | 83 days | 0.45 | M-v | 4 | MPC | | 2009 $SH_{170}$ |
| 2009 $SL_{170}$ | 15.8 | 0.15 | 20100104 | 161.63847 | 210.43833 | 2.91712 | 7.86565 | 0.1081909 | 3.1217695 | 43 | 2 | 2007–2009 | 0.36 | M-v | 3 | MPC | 165762 | 2009 $SL_{170}$ |
| 2009 $SN_{170}$ | 17.3 | 0.15 | 20100104 | 345.23199 | 109.74802 | 306.67316 | 7.46726 | 0.1072966 | 2.4053465 | 35 | 2 | 2007–2009 | 0.47 | M-v | 3 | MPC | 164005 | 2009 $SN_{170}$ |
| 2009 $SU_{170}$ | 16.0 | 0.15 | 20100104 | 9.13434 | 354.29035 | 44.05147 | 10.55232 | 0.2206621 | 2.6800926 | 64 | 3 | 2000–2009 | 0.32 | M-v | 2 | MPC | 165763 | 2009 $SU_{170}$ |
| 2009 $SW_{170}$ | 16.5 | 0.15 | 20100104 | 23.48281 | 337.85648 | 28.21111 | 12.15686 | 0.1772451 | 2.7204041 | 61 | 5 | 1991–2009 | 0.51 | M-v | 1 | MPC | 166359 | 2009 $SW_{170}$ |
| 2009 $SV_{171}$ | 19.6 | 0.15 | 20100104 | 6.39456 | 233.22821 | 209.35100 | 12.98095 | 0.5892400 | 2.6326911 | 123 | 1 | 75 days | 0.39 | M-v | 4 | MPC | 166359 | 2009 $SV_{171}$ |
| 2009 $SU_{172}$ | 16.3 | 0.15 | 20090906 | 163.97422 | 336.21534 | 224.30367 | 8.01569 | 0.0274129 | 3.1829708 | 9 | 1 | 7 days | 0.32 | | | MPC | | 2009 $SU_{172}$ |
| 2009 $SA_{173}$ | 17.3 | 0.15 | 20090926 | 43.24470 | 107.41059 | 206.75888 | 10.18842 | 0.1040894 | 2.8323161 | 17 | 1 | 38 days | 0.40 | | | MPC | | 2009 $SA_{173}$ |
| 2009 $SH_{173}$ | 15.8 | 0.15 | 20090906 | 277.96494 | 109.20175 | 347.95592 | 11.01840 | 0.0749820 | 3.0446912 | 9 | 1 | 7 days | 0.57 | | | MPC | | 2009 $SH_{173}$ |
| 2009 $SM_{173}$ | 18.3 | 0.15 | 20090926 | 347.72404 | 184.57336 | 203.95142 | 8.80087 | 0.2226002 | 2.7020951 | 17 | 1 | 33 days | 0.33 | | | MPC | | 2009 $SM_{173}$ |
| 2009 $ST_{173}$ | 16.4 | 0.15 | 20090926 | 357.71247 | 75.22551 | 302.20132 | 11.89346 | 0.3075143 | 3.1745804 | 23 | 1 | 30 days | 0.59 | | | MPC | | 2009 $ST_{173}$ |
| 2009 $SZ_{173}$ | 17.3 | 0.15 | 20090906 | 203.19354 | 179.59690 | 338.34016 | 7.00074 | 0.0580193 | 2.3970360 | 17 | 1 | 39 days | 0.42 | | | MPC | | 2009 $SZ_{173}$ |
| 2009 $SO_{174}$ | 16.1 | 0.15 | 20100104 | 33.00697 | 4.08592 | 337.87697 | 10.26063 | 0.2238768 | 3.0973742 | 37 | 1 | 125 days | 0.52 | M-v | 4 | MPC | 164389 | 2009 $SO_{174}$ |
| 2009 $SU_{176}$ | 13.5 | 0.15 | 20100104 | 311.21850 | 132.51874 | 302.78970 | 6.89895 | 0.0779902 | 5.2200508 | 14 | 1 | 92 days | 0.16 | M-v | 5 | MPC | | 2009 $SU_{176}$ |
| 2009 $SD_{177}$ | 16.6 | 0.15 | 20090906 | 100.28393 | 44.73501 | 205.41608 | 9.21626 | 0.1304705 | 2.6780327 | 9 | 1 | 8 days | 0.30 | | | MPC | | 2009 $SD_{177}$ |
| 2009 $SZ_{177}$ | 15.7 | 0.15 | 20100104 | 22.69763 | 352.10582 | 18.14779 | 16.68722 | 0.0962345 | 3.1771744 | 21 | 1 | 97 days | 0.41 | M-v | 3 | MPC | | 2009 $SZ_{177}$ |
| 2009 $SR_{182}$ | 16.8 | 0.15 | 20090906 | 80.24528 | 239.71003 | 4.91051 | 13.51430 | 0.3172015 | 3.0501980 | 12 | 1 | 8 days | 0.20 | | E | MPC | | 2009 $SR_{182}$ |
| 2009 $SN_{183}$ | 16.8 | 0.15 | 20100104 | 23.45602 | 131.95728 | 243.35311 | 7.05032 | 0.1549830 | 2.7665989 | 26 | 1 | 90 days | 0.21 | M-v | 3 | MPC | 166359 | 2009 $SN_{183}$ |
| 2009 $SQ_{183}$ | 13.6 | 0.15 | 20090906 | 276.91539 | 105.64212 | 6.09778 | 18.72827 | 0.0412415 | 5.2298679 | 9 | 1 | 8 days | 0.17 | | | MPC | | 2009 $SQ_{183}$ |
| 2009 $ST_{183}$ | 17.0 | 0.15 | 20100104 | 277.81841 | 241.07821 | 254.51248 | 5.70037 | 0.0819864 | 2.4825627 | 45 | 4 | 2002–2009 | 0.51 | M-v | 1 | MPC | 165764 | 2009 $ST_{183}$ |
| 2009 $SZ_{183}$ | 15.5 | 0.15 | 20090926 | 81.09074 | 302.95973 | 349.29072 | 9.30916 | 0.0816995 | 3.0007493 | 16 | 1 | 35 days | 0.56 | | | MPC | | 2009 $SZ_{183}$ |
| 2009 $SC_{185}$ | 16.9 | 0.15 | 20100104 | 351.87859 | 188.27192 | 234.49482 | 5.99442 | 0.1460935 | 2.4142423 | 43 | 3 | 2005–2009 | 0.45 | M-v | 2 | MPC | 165765 | 2009 $SC_{185}$ |
| 2009 $SK_{186}$ | 14.1 | 0.15 | 20090906 | 296.34864 | 54.55774 | 47.63522 | 9.97278 | 0.1178871 | 5.2248080 | 9 | 1 | 10 days | 0.70 | | E | MPC | | 2009 $SK_{186}$ |
| 2009 $SZ_{186}$ | 18.2 | 0.15 | 20100104 | 20.19576 | 290.84405 | 97.56109 | 2.87731 | 0.1836537 | 2.3991029 | 27 | 1 | 85 days | 0.17 | M-v | 3 | MPC | | 2009 $SZ_{186}$ |
| 2009 $SV_{187}$ | 17.6 | 0.15 | 20100104 | 29.95653 | 324.74194 | 48.69795 | 5.53921 | 0.2220087 | 2.3253278 | 77 | 3 | 2002–2009 | 0.40 | M-v | 2 | MPC | 166360 | 2009 $SV_{187}$ |
| 2009 $SJ_{188}$ | 16.9 | 0.15 | 20090906 | 351.33560 | 235.99981 | 155.63248 | 6.03251 | 0.1618467 | 3.1963251 | 9 | 1 | 8 days | 0.37 | | | MPC | | 2009 $SJ_{188}$ |
| 2009 $SL_{188}$ | 17.6 | 0.15 | 20100104 | 47.76288 | 277.74138 | 71.61706 | 4.76280 | 0.2207688 | 2.2124800 | 53 | 4 | 1999–2009 | 0.43 | M-v | 2 | MPC | 165767 | 2009 $SL_{188}$ |
| 2009 $SO_{188}$ | 17.1 | 0.15 | 20100104 | 356.13056 | 10.48259 | 51.01742 | 8.59309 | 0.1059577 | 2.2011272 | 43 | 1 | 85 days | 0.36 | M-v | 3 | D MPC | 166360 | 2009 $SO_{188}$ |
| 2009 $SS_{188}$ | 16.1 | 0.15 | 20100104 | 328.54458 | 28.46733 | 53.36014 | 12.08397 | 0.0841892 | 3.2044829 | 23 | 1 | 89 days | 0.25 | M-v | 4 | MPC | | 2009 $SS_{188}$ |
| 2009 $SX_{188}$ | 15.9 | 0.15 | 20100104 | 61.25844 | 318.65796 | 348.69934 | 12.20172 | 0.2137057 | 2.7791209 | 46 | 3 | 2003–2009 | 0.51 | M-v | 3 | MPC | 164010 | 2009 $SX_{188}$ |
| 2009 $SY_{188}$ | 15.7 | 0.15 | 20100104 | 41.77112 | 138.74106 | 202.33722 | 14.94231 | 0.1043148 | 3.0456831 | 42 | 2 | 2007–2009 | 0.42 | M-v | 3 | MPC | 166360 | 2009 $SY_{188}$ |
| 2009 $SS_{189}$ | 16.0 | 0.15 | 20100104 | 35.13259 | 126.01410 | 226.05945 | 6.80135 | 0.1120085 | 2.7767478 | 42 | 1 | 86 days | 0.60 | M-v | 4 | MPC | | 2009 $SS_{189}$ |
| 2009 $ST_{189}$ | 17.2 | 0.15 | 20090906 | 122.60891 | 314.26125 | 285.16591 | 4.19458 | 0.0444199 | 2.7486324 | 9 | 1 | 5 days | 0.27 | | | MPC | | 2009 $ST_{189}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2009 $SV_{189}$ | 18.1 | 0.15 | 20090906 | 94.28981 | 318.27552 | 305.33607 | 4.25435 | 0.0588327 | 2.3940826 | 9 | 1 | 5 days | 0.17 | | | MPC | | 2009 $SV_{189}$ |
| 2009 $SY_{189}$ | 16.2 | 0.15 | 20100104 | 120.31431 | 256.98449 | 356.92010 | 16.70445 | 0.1851610 | 2.6328893 | 35 | 4 | 2003–2009 | 0.54 | M-v | 2 | MPC | 164011 | 2009 $SY_{189}$ |
| 2009 $ST_{191}$ | 15.9 | 0.15 | 20100104 | 333.93220 | 161.35091 | 266.93182 | 2.51080 | 0.1437903 | 3.0540958 | 43 | 4 | 1995–2009 | 0.42 | M-v | 1 | MPC | 164011 | 2009 $ST_{191}$ |
| 2009 $SE_{192}$ | 17.7 | 0.15 | 20100104 | 26.05838 | 67.57907 | 298.67332 | 2.47561 | 0.1948412 | 2.5990555 | 22 | 2 | 2005–2009 | 0.33 | M-v | 3 | MPC | 165767 | 2009 $SE_{192}$ |
| 2009 $SK_{193}$ | 14.5 | 0.15 | 20090926 | 306.44411 | 73.22655 | 8.58678 | 17.32158 | 0.0980508 | 5.2012804 | 15 | 1 | 39 days | 0.27 | | | MPC | | 2009 $SK_{193}$ |
| 2009 $SK_{195}$ | 16.5 | 0.15 | 20100104 | 4.25893 | 60.26234 | 331.72588 | 2.47405 | 0.1873721 | 3.2173583 | 21 | 1 | 90 days | 0.54 | M-v | 5 | MPC | | 2009 $SK_{195}$ |
| 2009 $SY_{195}$ | 17.6 | 0.15 | 20090906 | 52.39477 | 117.94605 | 174.16554 | 10.25672 | 0.1207977 | 3.0544538 | 12 | 1 | 7 days | 0.38 | | | MPC | | 2009 $SY_{195}$ |
| 2009 $SZ_{196}$ | 17.4 | 0.15 | 20090906 | 317.74865 | 72.06209 | 358.18030 | 15.01710 | 0.2145568 | 2.6832170 | 9 | 1 | 7 days | 0.33 | | | MPC | | 2009 $SZ_{196}$ |
| 2009 $SD_{197}$ | 17.4 | 0.15 | 20100104 | 45.13832 | 31.04736 | 313.09349 | 3.67388 | 0.1935889 | 2.4255498 | 44 | 3 | 2005–2009 | 0.41 | M-v | 2 | MPC | 165768 | 2009 $SD_{197}$ |
| 2009 $SG_{197}$ | 16.9 | 0.15 | 20090906 | 269.35261 | 265.79745 | 223.22791 | 9.00150 | 0.2407360 | 2.8144488 | 8 | 1 | 8 days | 0.38 | | | MPC | | 2009 $SG_{197}$ |
| 2009 $SJ_{197}$ | 13.3 | 0.15 | 20090906 | 299.45486 | 232.35591 | 213.01858 | 19.66281 | 0.0796059 | 5.2395038 | 9 | 1 | 8 days | 0.23 | | E | MPC | | 2009 $SJ_{197}$ |
| 2009 $SK_{197}$ | 16.3 | 0.15 | 20090906 | 260.12770 | 228.21837 | 256.71889 | 4.89290 | 0.1171546 | 2.8632539 | 9 | 1 | 8 days | 0.20 | | | MPC | | 2009 $SK_{197}$ |
| 2009 $SR_{199}$ | 17.2 | 0.15 | 20090906 | 292.83684 | 95.35093 | 351.60109 | 8.43116 | 0.0757841 | 2.8400292 | 9 | 1 | 8 days | 0.45 | | | MPC | | 2009 $SR_{199}$ |
| 2009 $SD_{200}$ | 15.1 | 0.15 | 20100104 | 70.83528 | 323.73375 | 357.89387 | 8.39080 | 0.0368472 | 3.0546679 | 67 | 6 | 2002–2009 | 0.57 | M-v | 1 | MPC | 165768 | 2009 $SD_{200}$ |
| 2009 $SP_{200}$ | 17.7 | 0.15 | 20100104 | 65.53523 | 70.87958 | 254.29000 | 2.36473 | 0.1415248 | 2.3928165 | 43 | 5 | 1998–2009 | 0.35 | M-v | 1 | MPC | 164013 | 2009 $SP_{200}$ |
| 2009 $ST_{200}$ | 16.7 | 0.15 | 20090926 | 4.50121 | 129.19386 | 230.51022 | 12.93974 | 0.3039054 | 3.1735824 | 22 | 1 | 45 days | 0.53 | | | MPC | | 2009 $ST_{200}$ |
| 2009 $SY_{200}$ | 16.5 | 0.15 | 20100104 | 38.12183 | 112.46951 | 227.24024 | 8.18842 | 0.2379973 | 2.7937818 | 23 | 1 | 98 days | 0.58 | M-v | 4 | MPC | | 2009 $SY_{200}$ |
| 2009 $SZ_{200}$ | 16.2 | 0.15 | 20100104 | 51.18111 | 303.48323 | 35.88942 | 13.94598 | 0.2840494 | 2.6415085 | 67 | 3 | 1996–2009 | 0.41 | M-v | 2 | MPC | 165768 | 2009 $SZ_{200}$ |
| 2009 $SY_{201}$ | 17.9 | 0.15 | 20100104 | 41.85756 | 311.05104 | 42.51448 | 4.56645 | 0.2063934 | 2.3580157 | 35 | 1 | 84 days | 0.37 | M-v | 4 | MPC | 166360 | 2009 $SY_{201}$ |
| 2009 $SD_{202}$ | 18.0 | 0.15 | 20100104 | 28.49892 | 317.76027 | 52.00521 | 3.06751 | 0.2363442 | 2.4164772 | 27 | 1 | 84 days | 0.44 | M-v | 3 | MPC | 166360 | 2009 $SD_{202}$ |
| 2009 $SJ_{202}$ | 18.0 | 0.15 | 20100104 | 8.40262 | 251.72561 | 151.74444 | 3.15163 | 0.2171859 | 2.3649163 | 45 | 4 | 1996–2009 | 0.39 | M-v | 1 | MPC | 166360 | 2009 $SJ_{202}$ |
| 2009 $SU_{202}$ | 17.2 | 0.15 | 20100104 | 14.75065 | 219.45718 | 172.64912 | 5.78316 | 0.3578696 | 2.6542208 | 51 | 3 | 1996–2009 | 0.44 | M-v | 2 | MPC | 166360 | 2009 $SU_{202}$ |
| 2009 $SY_{202}$ | 16.7 | 0.15 | 20100104 | 296.40806 | 80.17999 | 37.58550 | 10.87940 | 0.1061800 | 2.6832305 | 34 | 3 | 2002–2009 | 0.29 | M-v | 1 | MPC | 165769 | 2009 $SY_{202}$ |
| 2009 $SA_{203}$ | 17.1 | 0.15 | 20100104 | 314.70456 | 347.91683 | 116.94795 | 3.28191 | 0.1231024 | 2.3599863 | 42 | 4 | 2002–2009 | 0.59 | M-v | 1 | MPC | 165770 | 2009 $SA_{203}$ |
| 2009 $SB_{203}$ | 16.6 | 0.15 | 20100104 | 35.82585 | 303.50960 | 55.31036 | 4.55658 | 0.1797812 | 2.6684630 | 46 | 4 | 2002–2009 | 0.40 | M-v | 1 | MPC | 164013 | 2009 $SB_{203}$ |
| 2009 $SF_{203}$ | 16.8 | 0.15 | 20100104 | 328.81587 | 279.31108 | 160.09908 | 5.72784 | 0.0621237 | 2.7171049 | 40 | 5 | 1998–2009 | 0.31 | M-v | 0 | MPC | 164013 | 2009 $SF_{203}$ |
| 2009 $SF_{205}$ | 16.3 | 0.15 | 20100104 | 148.10075 | 40.21888 | 209.91377 | 12.95925 | 0.1335809 | 2.6290333 | 31 | 4 | 2003–2009 | 0.62 | M-v | 1 | MPC | 165772 | 2009 $SF_{205}$ |
| 2009 $SE_{206}$ | 17.3 | 0.15 | 20090906 | 148.54739 | 220.78162 | 345.49484 | 7.95158 | 0.1267214 | 2.2373288 | 10 | 1 | 3 days | 0.25 | | | MPC | | 2009 $SE_{206}$ |
| 2009 $SS_{206}$ | 16.9 | 0.15 | 20100104 | 42.17983 | 3.73490 | 338.32442 | 4.41497 | 0.1232227 | 2.7188870 | 42 | 4 | 2000–2009 | 0.42 | M-v | 1 | MPC | 165772 | 2009 $SS_{206}$ |
| 2009 $SP_{207}$ | 15.3 | 0.15 | 20090926 | 343.58791 | 115.57005 | 275.41951 | 17.61162 | 0.1998802 | 3.1957597 | 11 | 1 | 22 days | 0.32 | | | MPC | | 2009 $SP_{207}$ |
| 2009 $SX_{207}$ | 13.9 | 0.15 | 20100104 | 341.94643 | 103.67182 | 308.61124 | 2.52567 | 0.1206174 | 5.2577317 | 16 | 1 | 66 days | 0.19 | M-v | 4 | MPC | | 2009 $SX_{207}$ |
| 2009 $SB_{208}$ | 17.7 | 0.15 | 20100104 | 8.54460 | 194.10807 | 206.87538 | 4.89900 | 0.1590691 | 2.2730232 | 42 | 5 | 1992–2009 | 0.51 | M-v | 1 | MPC | 164015 | 2009 $SB_{208}$ |
| 2009 $SJ_{208}$ | 17.1 | 0.15 | 20090926 | 347.09293 | 182.88160 | 212.19117 | 4.25433 | 0.1839020 | 3.1837468 | 12 | 1 | 32 days | 0.11 | | | MPC | | 2009 $SJ_{208}$ |
| 2009 $SY_{208}$ | 14.0 | 0.15 | 20100104 | 336.71935 | 51.62615 | 9.69837 | 6.42247 | 0.1166814 | 5.1639998 | 21 | 1 | 70 days | 0.21 | M-v | 4 | MPC | | 2009 $SY_{208}$ |
| 2009 $SG_{209}$ | 17.6 | 0.15 | 20100104 | 2.37115 | 55.80495 | 354.40337 | 1.11949 | 0.1788541 | 2.3861685 | 61 | 4 | 2002–2009 | 0.37 | M-v | 1 | MPC | 166361 | 2009 $SG_{209}$ |
| 2009 $SK_{209}$ | 16.1 | 0.15 | 20100104 | 349.02639 | 39.14757 | 14.90763 | 11.25218 | 0.1047890 | 3.1587353 | 33 | 3 | 1992–2009 | 0.36 | M-v | 2 | MPC | 166361 | 2009 $SK_{209}$ |
| 2009 $SR_{209}$ | 16.2 | 0.15 | 20090926 | 286.03627 | 276.55081 | 197.44085 | 25.54048 | 0.2149314 | 3.0964900 | 13 | 1 | 26 days | 0.19 | | | MPC | | 2009 $SR_{209}$ |
| 2009 $SS_{210}$ | 13.7 | 0.15 | 20090906 | 302.62417 | 196.84578 | 261.51069 | 0.59143 | 0.2114872 | 5.1984438 | 12 | 1 | 12 days | 0.19 | | | MPC | | 2009 $SS_{210}$ |
| 2009 $SC_{211}$ | 13.3 | 0.15 | 20090906 | 142.67720 | 214.33054 | 20.97604 | 7.80475 | 0.0313612 | 5.2985042 | 9 | 1 | 12 days | 0.16 | | | MPC | | 2009 $SC_{211}$ |
| 2009 $SQ_{211}$ | 16.4 | 0.15 | 20100104 | 41.38954 | 316.78731 | 21.93053 | 12.02088 | 0.1632518 | 3.0061580 | 18 | 1 | 85 days | 0.27 | M-v | 4 | MPC | | 2009 $SQ_{211}$ |
| 2009 $SB_{212}$ | 17.4 | 0.15 | 20090906 | 12.46400 | 165.05452 | 192.05654 | 1.47366 | 0.1379762 | 2.8944711 | 9 | 1 | 12 days | 0.19 | | | MPC | | 2009 $SB_{212}$ |
| 2009 $SG_{212}$ | 17.6 | 0.15 | 20100104 | 8.62393 | 202.83064 | 196.61714 | 12.10993 | 0.1676770 | 2.5699045 | 28 | 1 | 89 days | 0.46 | M-v | 3 | MPC | | 2009 $SG_{212}$ |
| 2009 $SB_{213}$ | 16.6 | 0.15 | 20100104 | 14.19453 | 3.03420 | 27.12457 | 4.65363 | 0.0748625 | 2.7949793 | 43 | 3 | 2004–2009 | 0.32 | M-v | 2 | MPC | 165774 | 2009 $SB_{213}$ |
| 2009 $SC_{213}$ | 16.4 | 0.15 | 20100104 | 73.99337 | 276.53175 | 30.46512 | 5.08330 | 0.2211464 | 2.6089474 | 64 | 4 | 2004–2009 | 0.37 | M-v | 0 | MPC | 165774 | 2009 $SC_{213}$ |
| 2009 $SF_{213}$ | 15.5 | 0.15 | 20100104 | 68.73868 | 290.92526 | 29.21692 | 11.27181 | 0.1244930 | 3.1408220 | 61 | 2 | 2007–2009 | 0.44 | M-v | 2 | MPC | 165774 | 2009 $SF_{213}$ |
| 2009 $SH_{213}$ | 16.9 | 0.15 | 20100104 | 356.82465 | 14.18951 | 34.77395 | 6.21414 | 0.0433765 | 2.7979771 | 28 | 1 | 71 days | 0.33 | M-v | 4 | MPC | | 2009 $SH_{213}$ |
| 2009 $SP_{213}$ | 16.3 | 0.15 | 20100104 | 25.15286 | 348.30484 | 20.66276 | 9.41236 | 0.1128638 | 3.1447898 | 27 | 1 | 93 days | 0.36 | M-v | 3 | MPC | | 2009 $SP_{213}$ |
| 2009 $SQ_{213}$ | 18.0 | 0.15 | 20100104 | 349.25686 | 21.55525 | 49.08586 | 1.26276 | 0.2167120 | 2.4343988 | 46 | 4 | 1998–2009 | 0.34 | M-v | 1 | MPC | 165775 | 2009 $SQ_{213}$ |
| 2009 $SV_{213}$ | 17.3 | 0.15 | 20100104 | 321.79354 | 74.63096 | 19.06974 | 4.30528 | 0.1365878 | 2.6588570 | 53 | 5 | 1996–2009 | 0.39 | M-v | 1 | MPC | 166361 | 2009 $SV_{213}$ |
| 2009 $SZ_{213}$ | 17.6 | 0.15 | 20100104 | 350.39739 | 17.38987 | 49.97413 | 1.21361 | 0.1868835 | 2.3960010 | 49 | 5 | 1998–2009 | 0.43 | M-v | 1 | MPC | 164017 | 2009 $SZ_{213}$ |
| 2009 $SP_{214}$ | 15.6 | 0.15 | 20100104 | 10.83307 | 3.75502 | 29.35462 | 10.85146 | 0.0913121 | 3.1159174 | 51 | 1 | 86 days | 0.43 | M-v | 3 | MPC | 166361 | 2009 $SP_{214}$ |
| 2009 $SC_{215}$ | 17.1 | 0.15 | 20100104 | 9.26996 | 351.53191 | 53.68027 | 4.02312 | 0.1893108 | 2.4209796 | 45 | 1 | 83 days | 0.54 | M-v | 4 | MPC | | 2009 $SC_{215}$ |
| 2009 $SU_{215}$ | 18.6 | 0.15 | 20090926 | 9.13343 | 179.93812 | 172.49421 | 1.46248 | 0.2109012 | 2.3293695 | 17 | 1 | 41 days | 0.21 | | | MPC | | 2009 $SU_{215}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2009 $SA_{216}$ | 16.1 | 0.15 | 20100104 | 52.11148 | 316.51430 | 11.25725 | 9.43524 | 0.0941545 | 3.1623248 | 21 | 1 | 93 days | 0.23 | M-v | 4 | MPC | | 2009 $SA_{216}$ |
| 2009 $SB_{216}$ | 16.6 | 0.15 | 20090926 | 13.52340 | 171.12359 | 181.55538 | 2.49421 | 0.1017070 | 3.1664067 | 13 | 1 | 31 days | 0.31 | | | MPC | | 2009 $SB_{216}$ |
| 2009 $SC_{216}$ | 15.5 | 0.15 | 20100104 | 206.57806 | 169.39556 | 12.79293 | 9.91400 | 0.0413617 | 3.0700220 | 39 | 3 | 2006–2009 | 0.39 | M-v | 2 | MPC | 165777 | 2009 $SC_{216}$ |
| 2009 $SH_{217}$ | 16.5 | 0.15 | 20090906 | 1.26057 | 346.58226 | 15.62735 | 10.91751 | 0.1070817 | 2.9121615 | 9 | 1 | 12 days | 0.19 | | | MPC | | 2009 $SH_{217}$ |
| 2009 $SP_{217}$ | 15.8 | 0.15 | 20100104 | 45.60705 | 344.85147 | 354.36280 | 5.03444 | 0.0607272 | 3.1329573 | 20 | 1 | 96 days | 0.25 | M-v | 4 | MPC | | 2009 $SP_{217}$ |
| 2009 $SW_{217}$ | 18.8 | 0.15 | 20090906 | 16.58594 | 139.65141 | 183.44053 | 16.81462 | 0.1724810 | 2.5762638 | 10 | 1 | 8 days | 0.32 | | | MPC | | 2009 $SW_{217}$ |
| 2009 $SC_{218}$ | 16.8 | 0.15 | 20100104 | 11.66550 | 5.90187 | 16.21001 | 9.44689 | 0.3611772 | 3.2659933 | 47 | 1 | 95 days | 0.44 | M-v | 3 | MPC | 166361 | 2009 $SC_{218}$ |
| 2009 $SR_{220}$ | 17.7 | 0.15 | 20100104 | 359.50694 | 9.57968 | 32.12896 | 9.82045 | 0.1991369 | 2.7821744 | 21 | 1 | 110 days | 0.25 | M-v | 3 | MPC | | 2009 $SR_{220}$ |
| 2009 $SW_{220}$ | 17.1 | 0.15 | 20090926 | 6.12755 | 73.59095 | 280.20166 | 11.56075 | 0.2825336 | 2.6366730 | 15 | 1 | 20 days | 0.63 | | | MPC | | 2009 $SW_{220}$ |
| 2009 $SG_{222}$ | 16.8 | 0.15 | 20090926 | 331.15992 | 75.31888 | 324.97568 | 4.60242 | 0.1199635 | 2.6446403 | 26 | 1 | 37 days | 0.15 | | | MPC | | 2009 $SG_{222}$ |
| 2009 $SY_{222}$ | 17.2 | 0.15 | 20090906 | 157.13268 | 235.54003 | 323.17593 | 4.96758 | 0.0809870 | 2.3620987 | 10 | 1 | 10 days | 0.19 | | | MPC | | 2009 $SY_{222}$ |
| 2009 $SP_{224}$ | 15.8 | 0.15 | 20100104 | 316.90286 | 67.28539 | 30.76763 | 15.20655 | 0.1194857 | 2.8468950 | 53 | 3 | 2002–2009 | 0.48 | M-v | 3 | MPC | 166361 | 2009 $SP_{224}$ |
| 2009 $SS_{224}$ | 17.6 | 0.15 | 20090906 | 266.57459 | 163.99166 | 301.96938 | 6.63319 | 0.1130774 | 2.4393109 | 11 | 1 | 9 days | 0.58 | | | MPC | | 2009 $SS_{224}$ |
| 2009 $SR_{225}$ | 16.0 | 0.15 | 20090906 | 180.98874 | 287.48309 | 241.00886 | 6.08869 | 0.0704348 | 3.4379181 | 13 | 1 | 40 days | 0.15 | | | MPC | | 2009 $SR_{225}$ |
| 2009 $SB_{228}$ | 17.6 | 0.15 | 20090906 | 356.69030 | 171.92829 | 191.27050 | 5.10733 | 0.0300615 | 2.7074870 | 10 | 1 | 8 days | 0.21 | | | MPC | | 2009 $SB_{228}$ |
| 2009 $SD_{229}$ | 19.1 | 0.15 | 20100104 | 70.68183 | 180.87156 | 124.18045 | 8.10860 | 0.4091751 | 2.0991871 | 53 | 1 | 73 days | 0.37 | M-v | 4 | MPC | 166362 | 2009 $SD_{229}$ |
| 2009 $SH_{229}$ | 18.4 | 0.15 | 20090906 | 337.31882 | 189.93916 | 193.61472 | 2.25553 | 0.2102668 | 2.4113437 | 18 | 1 | 5 days | 0.64 | | | MPC | | 2009 $SH_{229}$ |
| 2009 $SU_{229}$ | 15.9 | 0.15 | 20100104 | 6.94892 | 181.59115 | 197.40539 | 9.07833 | 0.1117240 | 3.1536929 | 33 | 3 | 1996–2009 | 0.31 | M-v | 2 | MPC | 165780 | 2009 $SU_{229}$ |
| 2009 $SH_{230}$ | 16.8 | 0.15 | 20100104 | 25.21460 | 337.05597 | 31.18962 | 13.71346 | 0.1924423 | 2.4697863 | 55 | 4 | 2003–2009 | 0.44 | M-v | 1 | MPC | 165780 | 2009 $SH_{230}$ |
| 2009 $SR_{230}$ | 15.2 | 0.15 | 20100104 | 355.34642 | 28.99785 | 36.81591 | 17.36261 | 0.1893863 | 3.1784916 | 91 | 5 | 2003–2009 | 0.45 | M-v | 1 | MPC | 165780 | 2009 $SR_{230}$ |
| 2009 $SS_{230}$ | 16.9 | 0.15 | 20100104 | 3.98376 | 152.13956 | 240.81376 | 3.11557 | 0.2548573 | 2.4182774 | 45 | 4 | 2003–2009 | 0.36 | M-v | 1 | MPC | 166362 | 2009 $SS_{230}$ |
| 2009 $SC_{232}$ | 17.4 | 0.15 | 20100104 | 0.41016 | 38.83819 | 0.49446 | 12.08374 | 0.2165226 | 2.6482185 | 22 | 1 | 92 days | 0.29 | M-v | 3 | MPC | | 2009 $SC_{232}$ |
| 2009 $SH_{232}$ | 16.3 | 0.15 | 20100104 | 351.95650 | 208.68027 | 205.86693 | 10.03939 | 0.2032796 | 3.1522138 | 52 | 3 | 2000–2009 | 0.40 | M-v | 1 | MPC | 165781 | 2009 $SH_{232}$ |
| 2009 $SN_{232}$ | 16.8 | 0.15 | 20100104 | 9.63712 | 357.01471 | 31.50669 | 11.55155 | 0.1793614 | 2.3864822 | 44 | 4 | 1998–2009 | 0.48 | M-v | 2 | MPC | 164020 | 2009 $SN_{232}$ |
| 2009 $SX_{232}$ | 16.8 | 0.15 | 20100104 | 37.85874 | 319.38815 | 22.45075 | 14.28095 | 0.2276755 | 2.6547811 | 33 | 2 | 1999–2009 | 0.42 | M-v | 3 | MPC | 166362 | 2009 $SX_{232}$ |
| 2009 $SC_{233}$ | 17.4 | 0.15 | 20100104 | 18.59950 | 0.66707 | 25.60471 | 5.96999 | 0.2629230 | 2.6050925 | 45 | 3 | 2001–2009 | 0.60 | M-v | 2 | MPC | 166362 | 2009 $SC_{233}$ |
| 2009 $SD_{233}$ | 16.3 | 0.15 | 20100104 | 19.34824 | 346.83048 | 41.57201 | 15.70224 | 0.2656441 | 2.6176400 | 62 | 1 | 84 days | 0.38 | M-v | 3 | MPC | 166362 | 2009 $SD_{233}$ |
| 2009 $SK_{233}$ | 15.2 | 0.15 | 20100104 | 342.18930 | 26.85121 | 36.19556 | 12.04355 | 0.0575289 | 3.2027110 | 48 | 3 | 2001–2009 | 0.37 | M-v | 2 | MPC | 166362 | 2009 $SK_{233}$ |
| 2009 $SW_{233}$ | 17.5 | 0.15 | 20100104 | 66.05684 | 90.67844 | 224.79738 | 1.58431 | 0.2269925 | 2.3756021 | 49 | 3 | 2005–2009 | 0.47 | M-v | 2 | MPC | 165782 | 2009 $SW_{233}$ |
| 2009 $SX_{233}$ | 18.6 | 0.15 | 20100104 | 30.44409 | 5.78506 | 2.72390 | 2.21833 | 0.2577020 | 2.3316097 | 25 | 1 | 62 days | 0.36 | M-v | 4 | MPC | 166362 | 2009 $SX_{233}$ |
| 2009 $SB_{234}$ | 17.0 | 0.15 | 20100104 | 16.04811 | 12.88351 | 19.29031 | 7.38694 | 0.0171369 | 2.2160114 | 31 | 1 | 85 days | 0.46 | M-v | 4 | MPC | | 2009 $SB_{234}$ |
| 2009 $SK_{234}$ | 15.3 | 0.15 | 20100104 | 15.57856 | 349.49348 | 37.23727 | 11.26632 | 0.1174037 | 3.1256461 | 93 | 3 | 2006–2009 | 0.51 | M-v | 2 | MPC | 166362 | 2009 $SK_{234}$ |
| 2009 $SN_{234}$ | 15.8 | 0.15 | 20100104 | 50.12392 | 231.36968 | 96.15696 | 9.90056 | 0.2972036 | 2.7862779 | 53 | 3 | 2001–2009 | 0.53 | M-v | 3 | MPC | 166362 | 2009 $SN_{234}$ |
| 2009 $SW_{234}$ | 16.9 | 0.15 | 20100104 | 43.01220 | 284.99835 | 43.85930 | 30.27038 | 0.4048403 | 2.7839258 | 27 | 1 | 68 days | 0.43 | M-v | 4 | MPC | 166362 | 2009 $SW_{234}$ |
| 2009 $SX_{234}$ | 16.0 | 0.15 | 20100104 | 7.84913 | 277.64487 | 127.21098 | 13.57436 | 0.3375770 | 3.0333369 | 26 | 1 | 89 days | 0.45 | M-v | 3 | D MPC | 166362 | 2009 $SX_{234}$ |
| 2009 $SA_{235}$ | 16.8 | 0.15 | 20100104 | 25.13985 | 47.50400 | 331.19422 | 11.21102 | 0.3088869 | 2.6445250 | 23 | 1 | 64 days | 0.48 | M-v | 4 | MPC | 166362 | 2009 $SA_{235}$ |
| 2009 $SD_{235}$ | 16.8 | 0.15 | 20100104 | 33.03029 | 353.58278 | 28.71316 | 4.05980 | 0.2058161 | 2.3641728 | 95 | 6 | 2000–2009 | 0.46 | M-v | 1 | MPC | 166362 | 2009 $SD_{235}$ |
| 2009 $SG_{235}$ | 15.8 | 0.15 | 20100104 | 29.55589 | 348.95165 | 46.34715 | 14.33517 | 0.1975581 | 2.6076399 | 83 | 5 | 2003–2009 | 0.47 | M-v | 1 | MPC | 165783 | 2009 $SG_{235}$ |
| 2009 $SK_{235}$ | 17.6 | 0.15 | 20100104 | 40.70921 | 340.81570 | 16.01311 | 7.50439 | 0.3414919 | 2.3277941 | 57 | 1 | 73 days | 0.62 | M-v | 4 | MPC | 166362 | 2009 $SK_{235}$ |
| 2009 $SN_{236}$ | 16.1 | 0.15 | 20100104 | 55.53633 | 195.52964 | 112.73985 | 9.21643 | 0.1932209 | 2.7247558 | 42 | 5 | 1996–2009 | 0.51 | M-v | 1 | MPC | 165783 | 2009 $SN_{236}$ |
| 2009 $SP_{237}$ | 15.8 | 0.15 | 20090926 | 321.84818 | 333.36176 | 87.70924 | 8.94901 | 0.1931025 | 2.9949718 | 20 | 1 | 37 days | 0.78 | | | MPC | | 2009 $SP_{237}$ |
| 2009 $SQ_{238}$ | 16.6 | 0.15 | 20100104 | 4.73935 | 280.91971 | 127.38500 | 7.71276 | 0.4267462 | 3.0208472 | 38 | 1 | 125 days | 0.47 | M-v | 4 | MPC | 166362 | 2009 $SQ_{238}$ |
| 2009 $SB_{239}$ | 16.5 | 0.15 | 20100104 | 26.90962 | 84.09201 | 260.72772 | 12.99327 | 0.2755285 | 2.7531627 | 19 | 1 | 70 days | 0.54 | M-v | 4 | MPC | | 2009 $SB_{239}$ |
| 2009 $SD_{239}$ | 16.9 | 0.15 | 20100104 | 9.65045 | 144.38895 | 238.08108 | 5.30469 | 0.2707291 | 2.8419164 | 43 | 3 | 2004–2009 | 0.53 | M-v | 2 | MPC | 165784 | 2009 $SD_{239}$ |
| 2009 $SE_{240}$ | 15.2 | 0.15 | 20100104 | 29.65018 | 316.74576 | 29.95967 | 23.66176 | 0.1680434 | 3.1805155 | 30 | 1 | 110 days | 0.64 | M-v | 3 | MPC | | 2009 $SE_{240}$ |
| 2009 $SP_{240}$ | 16.4 | 0.15 | 20090926 | 54.46022 | 29.60865 | 267.77018 | 11.62085 | 0.1563182 | 2.5698435 | 16 | 1 | 37 days | 0.67 | | | MPC | | 2009 $SP_{240}$ |
| 2009 $SU_{240}$ | 16.6 | 0.15 | 20100104 | 13.64742 | 124.15975 | 260.81108 | 10.53015 | 0.1511070 | 2.7094337 | 30 | 5 | 2000–2009 | 0.63 | M-v | 1 | MPC | 165784 | 2009 $SU_{240}$ |
| 2009 $SW_{240}$ | 16.5 | 0.15 | 20100104 | 47.68523 | 96.99390 | 228.13347 | 11.78694 | 0.3127091 | 2.6525912 | 64 | 3 | 2004–2009 | 0.50 | M-v | 1 | MPC | 166362 | 2009 $SW_{240}$ |
| 2009 $SK_{241}$ | 16.9 | 0.15 | 20100104 | 349.20398 | 85.34425 | 358.53353 | 28.73694 | 0.3246025 | 2.5922698 | 20 | 1 | 66 days | 0.39 | M-v | 4 | MPC | | 2009 $SK_{241}$ |
| 2009 $SQ_{241}$ | 15.3 | 0.15 | 20100104 | 28.10537 | 138.59122 | 221.65565 | 25.85537 | 0.2091447 | 3.1552010 | 37 | 1 | 90 days | 0.51 | M-v | 3 | MPC | 166362 | 2009 $SQ_{241}$ |
| 2009 $SU_{241}$ | 16.0 | 0.15 | 20100104 | 85.28496 | 333.72271 | 340.22774 | 14.88047 | 0.1161987 | 2.5320318 | 44 | 5 | 2001–2009 | 0.63 | M-v | 3 | MPC | 165785 | 2009 $SU_{241}$ |
| 2009 $SY_{241}$ | 17.2 | 0.15 | 20100104 | 37.06157 | 305.29198 | 42.18047 | 5.51657 | 0.2600637 | 2.3822166 | 60 | 5 | 1998–2009 | 0.58 | M-v | 1 | MPC | 164025 | 2009 $SY_{241}$ |
| 2009 $SU_{242}$ | 15.6 | 0.15 | 20100104 | 24.20227 | 50.36399 | 311.97753 | 6.28292 | 0.3768925 | 3.1349313 | 35 | 1 | 74 days | 0.59 | M-v | 4 | MPC | | 2009 $SU_{242}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2009 $SV_{242}$ | 16.4 | 0.15 | 20100104 | 61.16113 | 72.70346 | 244.42387 | 7.76582 | 0.2973290 | 2.3660374 | 63 | 4 | 1998–2009 | 0.51 | M-v | 1 | MPC | 165785 | 2009 $SV_{242}$ |
| 2009 $SM_{245}$ | 13.5 | 0.15 | 20100104 | 341.02733 | 78.24564 | 321.67901 | 5.96386 | 0.1282089 | 5.3041787 | 38 | 5 | 2001–2009 | 0.33 | M-v | 0 | MPC | 165786 | 2009 $SM_{245}$ |
| 2009 $SO_{246}$ | 16.6 | 0.15 | 20100104 | 44.04092 | 317.65489 | 22.11563 | 13.19441 | 0.1969450 | 2.6429228 | 40 | 1 | 92 days | 0.37 | M-v | 4 | MPC | 166363 | 2009 $SO_{246}$ |
| 2009 $ST_{246}$ | 13.2 | 0.15 | 20100104 | 13.59963 | 347.36882 | 32.91465 | 31.45727 | 0.1014984 | 5.2024588 | 43 | 1 | 92 days | 0.42 | M-v | 3 | MPC | 166363 | 2009 $ST_{246}$ |
| 2009 $SG_{248}$ | 14.3 | 0.15 | 20100104 | 345.15787 | 206.28488 | 204.94208 | 6.00100 | 0.1227442 | 5.1618280 | 22 | 1 | 63 days | 0.37 | M-v | 5 | MPC | | 2009 $SG_{248}$ |
| 2009 $SC_{251}$ | 16.2 | 0.15 | 20100104 | 355.02121 | 139.34779 | 272.64024 | 1.69945 | 0.1925210 | 3.1289252 | 38 | 3 | 2003–2009 | 0.41 | M-v | 2 | MPC | 166363 | 2009 $SC_{251}$ |
| 2009 $SP_{251}$ | 16.8 | 0.15 | 20100104 | 19.51079 | 140.14212 | 241.81715 | 3.93064 | 0.1675934 | 2.7709452 | 38 | 2 | 2005–2009 | 0.47 | M-v | 3 | MPC | 166363 | 2009 $SP_{251}$ |
| 2009 $SA_{253}$ | 15.6 | 0.15 | 20100104 | 35.55855 | 166.19833 | 217.79696 | 5.21861 | 0.2315198 | 3.0337623 | 43 | 3 | 2003–2009 | 0.44 | M-v | 3 | MPC | 165788 | 2009 $SA_{253}$ |
| 2009 $SB_{253}$ | 17.6 | 0.15 | 20100104 | 37.10873 | 320.32595 | 69.23382 | 2.98421 | 0.2360565 | 2.3211205 | 26 | 1 | 88 days | 0.40 | M-v | 4 | MPC | | 2009 $SB_{253}$ |
| 2009 $SD_{253}$ | 15.8 | 0.15 | 20100104 | 63.11908 | 300.79057 | 70.55802 | 6.51263 | 0.0504571 | 2.7231295 | 35 | 2 | 2007–2009 | 0.36 | M-v | 3 | MPC | 165788 | 2009 $SD_{253}$ |
| 2009 $SG_{253}$ | 16.6 | 0.15 | 20100104 | 351.82460 | 47.63120 | 52.95919 | 8.35947 | 0.2157068 | 2.6641984 | 48 | 3 | 2000–2009 | 0.47 | M-v | 1 | MPC | 165788 | 2009 $SG_{253}$ |
| 2009 $SH_{253}$ | 16.8 | 0.15 | 20100104 | 31.38262 | 347.39855 | 20.72280 | 5.52232 | 0.0391676 | 2.6603639 | 52 | 4 | 1996–2009 | 0.36 | M-v | 1 | MPC | 166363 | 2009 $SH_{253}$ |
| 2009 $SO_{254}$ | 16.4 | 0.15 | 20100104 | 7.48041 | 312.36950 | 86.91652 | 2.88513 | 0.1904763 | 3.0003495 | 37 | 1 | 87 days | 0.47 | M-v | 3 | MPC | | 2009 $SO_{254}$ |
| 2009 $SS_{254}$ | 17.2 | 0.15 | 20100104 | 357.37276 | 161.05936 | 262.19316 | 3.56191 | 0.2050064 | 2.2833704 | 74 | 3 | 2002–2009 | 0.47 | M-v | 1 | MPC | 165789 | 2009 $SS_{254}$ |
| 2009 $SO_{255}$ | 14.7 | 0.15 | 20100104 | 359.92033 | 316.78836 | 106.38217 | 27.23356 | 0.1443090 | 3.2015277 | 44 | 5 | 2002–2009 | 0.42 | M-v | 1 | MPC | 165790 | 2009 $SO_{255}$ |
| 2009 $SU_{255}$ | 16.7 | 0.15 | 20100104 | 14.93817 | 136.20096 | 235.60550 | 12.18366 | 0.2786159 | 2.6786623 | 25 | 1 | 89 days | 0.37 | M-v | 4 | MPC | | 2009 $SU_{255}$ |
| 2009 $SM_{257}$ | 16.8 | 0.15 | 20100104 | 45.10173 | 43.49344 | 283.69866 | 12.14484 | 0.1938077 | 2.6163764 | 16 | 1 | 62 days | 0.55 | M-v | 4 | MPC | | 2009 $SM_{257}$ |
| 2009 $SO_{257}$ | 16.9 | 0.15 | 20100104 | 350.70640 | 207.88832 | 209.56617 | 15.01554 | 0.2702317 | 2.6474005 | 48 | 2 | 2005–2009 | 0.45 | M-v | 3 | MPC | 164030 | 2009 $SO_{257}$ |
| 2009 $SZ_{260}$ | 17.5 | 0.15 | 20090926 | 337.29478 | 59.30435 | 352.97391 | 9.59996 | 0.2111954 | 3.1659799 | 13 | 1 | 29 days | 0.19 | | | MPC | | 2009 $SZ_{260}$ |
| 2009 $SN_{261}$ | 18.7 | 0.15 | 20100104 | 6.19124 | 177.69523 | 234.98780 | 2.25105 | 0.1795521 | 2.1962327 | 26 | 1 | 84 days | 0.56 | M-v | 4 | MPC | | 2009 $SN_{261}$ |
| 2009 $SY_{261}$ | 15.4 | 0.15 | 20100104 | 68.95183 | 92.93250 | 223.41749 | 10.58706 | 0.0520669 | 3.0939507 | 26 | 1 | 93 days | 0.54 | M-v | 4 | MPC | | 2009 $SY_{261}$ |
| 2009 $SC_{262}$ | 17.3 | 0.15 | 20090906 | 123.90243 | 332.57224 | 258.99429 | 5.27809 | 0.1569981 | 2.4208410 | 10 | 1 | 15 days | 0.23 | | | MPC | | 2009 $SC_{262}$ |
| 2009 $SH_{262}$ | 16.7 | 0.15 | 20090906 | 93.54990 | 269.18936 | 348.32652 | 11.18523 | 0.1595011 | 2.6861646 | 10 | 1 | 15 days | 0.14 | | | MPC | | 2009 $SH_{262}$ |
| 2009 $SC_{263}$ | 17.0 | 0.15 | 20100104 | 0.71005 | 6.43696 | 39.65627 | 5.38471 | 0.1876579 | 2.3788883 | 47 | 2 | 2003–2009 | 0.47 | M-v | 4 | MPC | 164031 | 2009 $SC_{263}$ |
| 2009 $SK_{263}$ | 15.3 | 0.15 | 20100104 | 42.85157 | 316.68074 | 25.71242 | 13.40847 | 0.0528314 | 3.1818877 | 26 | 2 | 2007–2009 | 0.37 | M-v | 3 | MPC | 164031 | 2009 $SK_{263}$ |
| 2009 $SZ_{263}$ | 16.0 | 0.15 | 20100104 | 78.44416 | 274.61263 | 29.12728 | 13.57099 | 0.1156129 | 2.6950372 | 52 | 3 | 2003–2009 | 0.35 | M-v | 3 | MPC | 165791 | 2009 $SZ_{263}$ |
| 2009 $SM_{264}$ | 12.8 | 0.15 | 20100104 | 315.92494 | 58.65754 | 26.21642 | 27.71591 | 0.1717034 | 5.1829315 | 32 | 1 | 88 days | 0.34 | M-v | 4 | MPC | | 2009 $SM_{264}$ |
| 2009 $SJ_{267}$ | 17.3 | 0.15 | 20100104 | 16.96464 | 165.69257 | 232.25998 | 4.36872 | 0.1045347 | 2.3986285 | 40 | 2 | 2005–2009 | 0.43 | M-v | 3 | MPC | 165792 | 2009 $SJ_{267}$ |
| 2009 $SM_{267}$ | 15.4 | 0.15 | 20100104 | 319.03533 | 253.43221 | 216.98969 | 14.65875 | 0.1879157 | 3.0508326 | 45 | 3 | 1996–2009 | 0.46 | M-v | 2 | MPC | 165792 | 2009 $SM_{267}$ |
| 2009 $SV_{267}$ | 14.0 | 0.15 | 20090926 | 321.97593 | 164.41841 | 267.72819 | 12.65476 | 0.1094952 | 5.2530605 | 16 | 1 | 28 days | 0.37 | | | MPC | | 2009 $SV_{267}$ |
| 2009 $SV_{268}$ | 18.5 | 0.15 | 20090926 | 335.80921 | 22.65112 | 20.24665 | 2.85470 | 0.1643366 | 2.4106363 | 13 | 1 | 21 days | 0.31 | | | MPC | | 2009 $SV_{268}$ |
| 2009 $SB_{269}$ | 17.8 | 0.15 | 20100104 | 47.03312 | 321.18849 | 16.03190 | 6.32852 | 0.2439106 | 2.3366480 | 29 | 1 | 92 days | 0.44 | M-v | 4 | MPC | 166364 | 2009 $SB_{269}$ |
| 2009 $SG_{270}$ | 15.3 | 0.15 | 20100104 | 63.33548 | 287.01775 | 21.65502 | 25.51279 | 0.2148603 | 3.1668933 | 42 | 2 | 2003–2009 | 0.31 | M-v | 3 | MPC | 165794 | 2009 $SG_{270}$ |
| 2009 $SH_{270}$ | 16.3 | 0.15 | 20090906 | 47.98003 | 205.59548 | 105.86677 | 2.13676 | 0.1345644 | 3.0115503 | 9 | 1 | 8 days | 0.17 | | | MPC | | 2009 $SH_{270}$ |
| 2009 $SL_{270}$ | 19.0 | 0.15 | 20090926 | 12.01023 | 219.33301 | 130.59768 | 3.34045 | 0.1905474 | 2.1102699 | 10 | 1 | 4 days | 0.29 | | | MPC | | 2009 $SL_{270}$ |
| 2009 $SA_{273}$ | 15.8 | 0.15 | 20100104 | 339.94036 | 178.69228 | 237.92677 | 4.77630 | 0.1321978 | 3.1921139 | 29 | 3 | 1998–2009 | 0.49 | M-v | 3 | MPC | 164034 | 2009 $SA_{273}$ |
| 2009 $SU_{273}$ | 17.4 | 0.15 | 20090926 | 36.40220 | 134.88857 | 186.90528 | 14.75764 | 0.1554129 | 2.8671557 | 16 | 1 | 35 days | 0.22 | | | MPC | | 2009 $SU_{273}$ |
| 2009 $SW_{273}$ | 14.7 | 0.15 | 20090926 | 320.92198 | 44.51593 | 17.56602 | 10.32273 | 0.1234211 | 5.3159330 | 10 | 1 | 29 days | 0.28 | | E | MPC | | 2009 $SW_{273}$ |
| 2009 $SY_{273}$ | 15.6 | 0.15 | 20100104 | 248.07128 | 125.22592 | 17.01616 | 8.39411 | 0.0182572 | 3.2267179 | 17 | 1 | 83 days | 0.36 | M-v | 5 | MPC | | 2009 $SY_{273}$ |
| 2009 $SU_{274}$ | 16.3 | 0.15 | 20100104 | 50.09686 | 310.81079 | 21.87021 | 10.36760 | 0.1336484 | 2.8854991 | 21 | 1 | 91 days | 0.39 | M-v | 4 | MPC | | 2009 $SU_{274}$ |
| 2009 $SR_{275}$ | 16.6 | 0.15 | 20100104 | 84.74796 | 269.94460 | 35.79779 | 7.07879 | 0.0460823 | 2.7266859 | 36 | 5 | 2000–2009 | 0.62 | M-v | 1 | MPC | 165796 | 2009 $SR_{275}$ |
| 2009 $SZ_{276}$ | 17.5 | 0.15 | 20100104 | 46.43452 | 155.54849 | 180.67363 | 13.88853 | 0.1814382 | 2.6279854 | 16 | 1 | 90 days | 0.28 | M-v | 4 | MPC | | 2009 $SZ_{276}$ |
| 2009 $ST_{277}$ | 17.7 | 0.15 | 20090906 | 319.03479 | 258.49720 | 162.81874 | 5.84425 | 0.1736465 | 2.6338769 | 12 | 1 | 12 days | 0.21 | | | MPC | | 2009 $ST_{277}$ |
| 2009 $SA_{278}$ | 14.1 | 0.15 | 20090926 | 242.55658 | 103.93438 | 33.22831 | 12.58276 | 0.0566088 | 5.1669904 | 10 | 1 | 29 days | 0.41 | | | MPC | | 2009 $SA_{278}$ |
| 2009 $SS_{278}$ | 15.7 | 0.15 | 20100104 | 338.50305 | 28.76502 | 28.61882 | 11.07271 | 0.0573991 | 3.0880324 | 57 | 6 | 1993–2009 | 0.48 | M-v | 1 | MPC | 164037 | 2009 $SS_{278}$ |
| 2009 $SL_{279}$ | 18.9 | 0.15 | 20100104 | 12.77446 | 340.84480 | 55.37255 | 2.89438 | 0.1960668 | 2.2645776 | 25 | 1 | 89 days | 0.45 | M-v | 4 | MPC | | 2009 $SL_{279}$ |
| 2009 $SM_{279}$ | 16.9 | 0.15 | 20100104 | 52.80504 | 288.83625 | 41.82007 | 5.79158 | 0.1747512 | 2.7356782 | 28 | 1 | 84 days | 0.23 | M-v | 4 | MPC | | 2009 $SM_{279}$ |
| 2009 $SN_{279}$ | 15.5 | 0.15 | 20100104 | 301.76871 | 286.91725 | 170.40162 | 7.89363 | 0.0368752 | 3.0982207 | 36 | 3 | 1998–2009 | 0.33 | M-v | 2 | MPC | 164037 | 2009 $SN_{279}$ |
| 2009 $SO_{279}$ | 17.1 | 0.15 | 20100104 | 40.80429 | 322.08337 | 33.41660 | 7.58673 | 0.1241048 | 2.3881136 | 36 | 2 | 2005–2009 | 0.40 | M-v | 3 | MPC | 165797 | 2009 $SO_{279}$ |
| 2009 $SV_{279}$ | 15.8 | 0.15 | 20100104 | 339.11140 | 41.61012 | 28.52594 | 17.79929 | 0.1912890 | 3.2357336 | 29 | 1 | 92 days | 0.27 | M-v | 3 | MPC | 166365 | 2009 $SV_{279}$ |
| 2009 $SC_{280}$ | 17.6 | 0.15 | 20100104 | 7.89986 | 358.72630 | 39.93546 | 7.26721 | 0.1514746 | 2.4395992 | 23 | 1 | 91 days | 0.26 | M-v | 3 | MPC | 166365 | 2009 $SC_{280}$ |
| 2009 $SG_{281}$ | 16.3 | 0.15 | 20090906 | 278.25957 | 285.88051 | 173.16931 | 11.18948 | 0.0514334 | 3.0350587 | 13 | 1 | 12 days | 0.20 | | | MPC | | 2009 $SG_{281}$ |
| 2009 $SC_{282}$ | 17.5 | 0.15 | 20090926 | 19.25854 | 193.02542 | 149.17486 | 5.74792 | 0.2451627 | 3.1815243 | 10 | 1 | 4 days | 0.26 | | | MPC | | 2009 $SC_{282}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2009 $SD_{282}$ | 16.5 | 0.15 | 20100104 | 51.64481 | 287.57099 | 53.01176 | 5.83739 | 0.0596471 | 2.7884621 | 37 | 4 | 1995–2009 | 0.43 | M-v | 1 | MPC | 164038 | 2009 $SD_{282}$ |
| 2009 $SL_{282}$ | 16.2 | 0.15 | 20090926 | 97.63557 | 98.11272 | 174.78703 | 11.64434 | 0.0529807 | 3.1202185 | 13 | 1 | 30 days | 0.28 | | | MPC | | 2009 $SL_{282}$ |
| 2009 $SN_{282}$ | 17.2 | 0.15 | 20090906 | 29.79755 | 175.30275 | 147.74655 | 5.98740 | 0.2243417 | 3.0690836 | 13 | 1 | 12 days | 0.23 | | | MPC | | 2009 $SN_{282}$ |
| 2009 $SJ_{284}$ | 17.4 | 0.15 | 20100104 | 41.51876 | 151.89586 | 218.44722 | 20.74237 | 0.0861853 | 1.8861413 | 64 | 2 | 2004–2009 | 0.53 | M-v | 3 | MPC | 166365 | 2009 $SJ_{284}$ |
| 2009 $SW_{285}$ | 19.9 | 0.15 | 20090906 | 351.34423 | 6.02623 | 0.72791 | 9.36990 | 0.2287225 | 2.2245927 | 10 | 1 | 6 days | 0.69 | | | MPC | | 2009 $SW_{285}$ |
| 2009 $SK_{286}$ | 15.5 | 0.15 | 20100104 | 265.15542 | 267.57633 | 242.07531 | 8.92971 | 0.1852086 | 3.1636455 | 36 | 5 | 1998–2009 | 0.30 | M-v | 0 | MPC | 165800 | 2009 $SK_{286}$ |
| 2009 $SM_{286}$ | 15.7 | 0.15 | 20100104 | 139.83246 | 14.37807 | 238.05049 | 9.97894 | 0.0598131 | 2.9987849 | 21 | 1 | 87 days | 0.27 | M-v | 4 | MPC | | 2009 $SM_{286}$ |
| 2009 $SV_{286}$ | 18.0 | 0.15 | 20100104 | 24.01185 | 118.56278 | 262.80182 | 3.93767 | 0.2425667 | 2.3074728 | 41 | 1 | 84 days | 0.35 | M-v | 3 | MPC | | 2009 $SV_{286}$ |
| 2009 $SJ_{287}$ | 16.1 | 0.15 | 20100104 | 324.15976 | 244.22247 | 216.93788 | 15.49716 | 0.2425118 | 3.1553741 | 32 | 3 | 2003–2009 | 0.32 | M-v | 2 | MPC | 166365 | 2009 $SJ_{287}$ |
| 2009 $SL_{288}$ | 17.4 | 0.15 | 20090926 | 31.72589 | 20.68986 | 312.05142 | 3.27279 | 0.2005696 | 2.8915265 | 9 | 1 | 4 days | 0.66 | | E | MPC | | 2009 $SL_{288}$ |
| 2009 $SP_{288}$ | 17.3 | 0.15 | 20100104 | 18.22568 | 356.77084 | 25.83603 | 7.33669 | 0.1238107 | 2.3360466 | 30 | 1 | 91 days | 0.41 | M-v | 3 | MPC | 166365 | 2009 $SP_{288}$ |
| 2009 $SQ_{288}$ | 17.2 | 0.15 | 20100104 | 24.38391 | 347.11835 | 21.04306 | 8.11266 | 0.2394883 | 2.6495266 | 38 | 2 | 1996–2009 | 0.42 | M-v | 3 | MPC | 166365 | 2009 $SQ_{288}$ |
| 2009 $SR_{288}$ | 17.3 | 0.15 | 20100104 | 24.46992 | 339.32425 | 34.35520 | 5.84070 | 0.1055171 | 2.3836662 | 31 | 1 | 87 days | 0.35 | M-v | 3 | MPC | 166365 | 2009 $SR_{288}$ |
| 2009 $SS_{288}$ | 17.2 | 0.15 | 20100104 | 356.58900 | 267.96506 | 145.24516 | 2.92250 | 0.1761816 | 2.3970657 | 45 | 3 | 2005–2009 | 0.33 | M-v | 2 | MPC | 164039 | 2009 $SS_{288}$ |
| 2009 $SW_{288}$ | 17.6 | 0.15 | 20090906 | 344.93526 | 196.69587 | 181.29089 | 7.50294 | 0.1596932 | 2.5263731 | 12 | 1 | 8 days | 0.31 | | | MPC | | 2009 $SW_{288}$ |
| 2009 $SX_{288}$ | 16.2 | 0.15 | 20100104 | 358.01207 | 7.37713 | 24.79283 | 0.69393 | 0.1757323 | 3.1466718 | 29 | 3 | 2004–2009 | 0.39 | M-v | 2 | MPC | 164040 | 2009 $SX_{288}$ |
| 2009 $SV_{289}$ | 16.8 | 0.15 | 20100104 | 58.20002 | 285.71657 | 46.18998 | 8.16518 | 0.1777820 | 2.6115608 | 65 | 3 | 2005–2009 | 0.37 | M-v | 2 | MPC | 166365 | 2009 $SV_{289}$ |
| 2009 $SA_{290}$ | 18.0 | 0.15 | 20090926 | 12.65940 | 242.96726 | 115.43390 | 3.19426 | 0.2556043 | 2.7436411 | 17 | 1 | 34 days | 0.34 | | | MPC | | 2009 $SA_{290}$ |
| 2009 $SC_{290}$ | 16.2 | 0.15 | 20100104 | 336.78002 | 41.45997 | 38.63273 | 14.10884 | 0.1342661 | 2.6928341 | 58 | 2 | 2007–2009 | 0.45 | M-v | 3 | MPC | 166365 | 2009 $SC_{290}$ |
| 2009 $SH_{290}$ | 13.7 | 0.15 | 20090926 | 275.90446 | 75.05387 | 55.69929 | 13.54798 | 0.1427138 | 5.1859768 | 13 | 1 | 34 days | 0.15 | | | MPC | | 2009 $SH_{290}$ |
| 2009 $SJ_{290}$ | 19.1 | 0.15 | 20090926 | 347.55334 | 276.33821 | 119.60912 | 3.21548 | 0.2015536 | 2.2799626 | 9 | 1 | 7 days | 0.62 | | | MPC | | 2009 $SJ_{290}$ |
| 2009 $SO_{290}$ | 17.7 | 0.15 | 20100104 | 328.07916 | 34.15295 | 60.08246 | 5.34918 | 0.1212887 | 2.2332956 | 37 | 1 | 89 days | 0.32 | M-v | 4 | MPC | 166365 | 2009 $SO_{290}$ |
| 2009 $SZ_{290}$ | 17.9 | 0.15 | 20100104 | 351.06323 | 0.75414 | 72.01696 | 5.03400 | 0.2089850 | 2.3861574 | 25 | 1 | 81 days | 0.28 | M-v | 4 | MPC | | 2009 $SZ_{290}$ |
| 2009 $SX_{291}$ | 15.9 | 0.15 | 20090906 | 22.79365 | 253.82565 | 69.39259 | 1.94081 | 0.1719055 | 3.1681017 | 20 | 1 | 42 days | 0.29 | | | MPC | | 2009 $SX_{291}$ |
| 2009 $SK_{293}$ | 19.0 | 0.15 | 20090906 | 329.83044 | 331.22048 | 66.66554 | 3.23455 | 0.1807536 | 2.2793580 | 12 | 1 | 6 days | 0.27 | | | MPC | | 2009 $SK_{293}$ |
| 2009 $SN_{293}$ | 16.8 | 0.15 | 20090906 | 293.67497 | 238.66887 | 191.68327 | 9.81298 | 0.0429763 | 2.9831770 | 18 | 1 | 58 days | 0.22 | | | MPC | | 2009 $SN_{293}$ |
| 2009 $SP_{293}$ | 17.6 | 0.15 | 20100104 | 25.65288 | 108.78673 | 272.41780 | 1.60926 | 0.1764710 | 2.2740635 | 69 | 3 | 2002–2009 | 0.45 | M-v | 2 | MPC | 166366 | 2009 $SP_{293}$ |
| 2009 $SR_{293}$ | 17.2 | 0.15 | 20100104 | 19.07090 | 6.49002 | 19.01888 | 1.42595 | 0.1236735 | 2.6127642 | 51 | 4 | 2003–2009 | 0.40 | M-v | 1 | MPC | 166366 | 2009 $SR_{293}$ |
| 2009 $SZ_{293}$ | 16.2 | 0.15 | 20100104 | 309.42028 | 63.32702 | 16.18880 | 10.26386 | 0.0251663 | 3.0750366 | 29 | 3 | 2006–2009 | 0.41 | M-v | 3 | MPC | 165803 | 2009 $SZ_{293}$ |
| 2009 $SP_{294}$ | 19.6 | 0.15 | 20090906 | 354.23617 | 231.19641 | 128.95026 | 4.62784 | 0.1319848 | 2.0090864 | 9 | 1 | 10 days | 0.51 | | | MPC | | 2009 $SP_{294}$ |
| 2009 $SQ_{294}$ | 16.9 | 0.15 | 20090926 | 287.04919 | 10.28661 | 81.61268 | 5.94477 | 0.1591935 | 2.8645494 | 20 | 1 | 2 days | 0.39 | | | MPC | | 2009 $SQ_{294}$ |
| 2009 $SV_{294}$ | 16.9 | 0.15 | 20090906 | 301.10907 | 74.59973 | 357.30016 | 11.35201 | 0.1194961 | 3.1597705 | 12 | 1 | 11 days | 0.20 | | | MPC | | 2009 $SV_{294}$ |
| 2009 $SW_{294}$ | 17.0 | 0.15 | 20090926 | 301.48718 | 238.84419 | 199.11841 | 4.32483 | 0.1450857 | 3.0514426 | 19 | 1 | 37 days | 0.31 | | | MPC | | 2009 $SW_{294}$ |
| 2009 $SS_{296}$ | 15.4 | 0.15 | 20100104 | 261.74373 | 106.70371 | 26.88809 | 10.70794 | 0.0601642 | 3.1183685 | 28 | 3 | 2004–2009 | 0.44 | M-v | 2 | MPC | 164042 | 2009 $SS_{296}$ |
| 2009 $SV_{297}$ | 17.8 | 0.15 | 20090926 | 346.86178 | 227.18137 | 170.27463 | 9.37282 | 0.2809763 | 2.7414001 | 13 | 1 | 26 days | 0.43 | | | MPC | | 2009 $SV_{297}$ |
| 2009 $SY_{297}$ | 16.8 | 0.15 | 20100104 | 6.58488 | 348.55041 | 41.30666 | 10.30625 | 0.1035551 | 3.0081601 | 26 | 2 | 2004–2009 | 0.27 | M-v | 3 | MPC | 165805 | 2009 $SY_{297}$ |
| 2009 $SW_{299}$ | 16.1 | 0.15 | 20100104 | 164.56905 | 193.24550 | 29.76747 | 9.60291 | 0.0696558 | 2.8513467 | 17 | 1 | 87 days | 0.32 | M-v | 5 | MPC | | 2009 $SW_{299}$ |
| 2009 $SN_{302}$ | 13.5 | 0.15 | 20100104 | 349.16370 | 172.99829 | 234.92999 | 6.45898 | 0.0884866 | 5.2920821 | 41 | 3 | 1995–2009 | 0.44 | M-v | 2 | MPC | 165806 | 2009 $SN_{302}$ |
| 2009 $SL_{307}$ | 15.6 | 0.15 | 20100104 | 320.88263 | 10.10643 | 74.50345 | 3.91212 | 0.1326964 | 3.2464113 | 35 | 3 | 2003–2009 | 0.49 | M-v | 3 | MPC | 164043 | 2009 $SL_{307}$ |
| 2009 $SG_{310}$ | 17.7 | 0.15 | 20100104 | 90.71442 | 294.22392 | 352.69891 | 3.24160 | 0.2088194 | 2.2087927 | 32 | 4 | 2005–2009 | 0.34 | M-v | 1 | MPC | 165807 | 2009 $SG_{310}$ |
| 2009 $SS_{310}$ | 17.7 | 0.15 | 20100104 | 357.23643 | 163.48890 | 256.88524 | 2.94314 | 0.2762305 | 2.6299728 | 26 | 1 | 89 days | 0.55 | M-v | 4 | MPC | | 2009 $SS_{310}$ |
| 2009 $SA_{311}$ | 15.8 | 0.15 | 20100104 | 123.86783 | 36.54392 | 224.72153 | 7.81282 | 0.0884677 | 3.3668309 | 30 | 3 | 2007–2009 | 0.29 | M-v | 2 | MPC | 165807 | 2009 $SA_{311}$ |
| 2009 $SW_{312}$ | 16.8 | 0.15 | 20090926 | 349.54202 | 57.34797 | 343.37563 | 13.59343 | 0.2906682 | 2.6150579 | 20 | 1 | 51 days | 0.61 | | | MPC | | 2009 $SW_{312}$ |
| 2009 $SC_{320}$ | 16.5 | 0.15 | 20100104 | 7.91654 | 186.30551 | 244.33061 | 1.04026 | 0.0773759 | 2.5819927 | 70 | 6 | 1999–2009 | 0.31 | M-v | 1 | MPC | 165808 | 2009 $SC_{320}$ |
| 2009 $SD_{320}$ | 15.0 | 0.15 | 20100104 | 332.58541 | 53.03094 | 57.65096 | 10.50333 | 0.0690148 | 3.0917416 | 54 | 3 | 2003–2009 | 0.51 | M-v | 3 | MPC | 165809 | 2009 $SD_{320}$ |
| 2009 $SE_{320}$ | 17.2 | 0.15 | 20100104 | 7.27450 | 195.69113 | 237.50426 | 4.22375 | 0.1959823 | 2.6491503 | 17 | 1 | 82 days | 0.23 | M-v | 3 | MPC | | 2009 $SE_{320}$ |
| 2009 $SM_{320}$ | 16.4 | 0.15 | 20100104 | 19.47417 | 135.88678 | 230.65656 | 12.59988 | 0.2105385 | 2.7817097 | 39 | 3 | 2000–2009 | 0.51 | M-v | 2 | MPC | 165809 | 2009 $SM_{320}$ |
| 2009 $SC_{321}$ | 17.5 | 0.15 | 20100104 | 49.86205 | 86.09187 | 247.82264 | 6.40148 | 0.2339803 | 2.3849613 | 38 | 1 | 87 days | 0.43 | M-v | 4 | MPC | | 2009 $SC_{321}$ |
| 2009 $SJ_{323}$ | 17.2 | 0.15 | 20090926 | 189.85483 | 180.08123 | 6.63397 | 7.42705 | 0.1336803 | 2.5663708 | 15 | 1 | 21 days | 0.35 | | | MPC | | 2009 $SJ_{323}$ |
| 2009 $SU_{323}$ | 16.9 | 0.15 | 20100104 | 339.84592 | 45.60529 | 33.36534 | 6.09075 | 0.1964151 | 3.0335318 | 19 | 1 | 86 days | 0.34 | M-v | 4 | MPC | | 2009 $SU_{323}$ |
| 2009 $SE_{324}$ | 17.2 | 0.15 | 20090926 | 341.81121 | 15.58453 | 21.89499 | 17.66013 | 0.2178313 | 3.1645341 | 15 | 1 | 32 days | 0.19 | | | MPC | | 2009 $SE_{324}$ |
| 2009 $SO_{324}$ | 18.1 | 0.15 | 20100104 | 39.84428 | 113.18457 | 250.35483 | 3.30743 | 0.1793574 | 2.2441376 | 34 | 3 | 2002–2009 | 0.37 | M-v | 3 | MPC | 165809 | 2009 $SO_{324}$ |
| 2009 $SW_{324}$ | 16.1 | 0.15 | 20100104 | 65.07874 | 271.47778 | 24.35045 | 25.36280 | 0.3018497 | 3.1711454 | 22 | 1 | 84 days | 0.19 | M-v | 4 | MPC | | 2009 $SW_{324}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2009 $SC_{325}$ | 17.0 | 0.15 | 20100104 | 33.90243 | 106.79587 | 258.12163 | 5.22205 | 0.0378423 | 2.7097658 | 32 | 2 | 2005–2009 | 0.48 | M-v | 3 | MPC | 164045 | 2009 $SC_{325}$ |
| 2009 $SX_{325}$ | 16.8 | 0.15 | 20100104 | 62.05490 | 258.14024 | 71.52938 | 7.30774 | 0.2271867 | 2.2095675 | 55 | 4 | 2004–2009 | 0.57 | M-v | 1 | MPC | 165809 | 2009 $SX_{325}$ |
| 2009 $SJ_{326}$ | 17.1 | 0.15 | 20100104 | 8.86319 | 290.82910 | 117.79820 | 6.42066 | 0.2326254 | 2.3601021 | 28 | 1 | 72 days | 0.56 | M-v | 4 | MPC | | 2009 $SJ_{326}$ |
| 2009 $SK_{326}$ | 16.3 | 0.15 | 20100104 | 17.05865 | 344.05582 | 51.92554 | 9.50054 | 0.2339550 | 2.3484677 | 85 | 3 | 2005–2009 | 0.51 | M-v | 2 | MPC | 166366 | 2009 $SK_{326}$ |
| 2009 $SQ_{326}$ | 17.4 | 0.15 | 20100104 | 61.98302 | 288.20014 | 69.40822 | 6.02075 | 0.2081570 | 2.2263766 | 45 | 1 | 76 days | 0.36 | M-v | 5 | MPC | | 2009 $SQ_{326}$ |
| 2009 $SX_{326}$ | 16.9 | 0.15 | 20100104 | 26.59172 | 189.24737 | 187.92161 | 9.90823 | 0.3923869 | 2.6687270 | 27 | 1 | 69 days | 0.46 | M-v | 4 | MPC | | 2009 $SX_{326}$ |
| 2009 $SF_{327}$ | 12.7 | 0.15 | 20090906 | 284.43587 | 136.31935 | 325.11604 | 14.72360 | 0.0310075 | 5.2931386 | 12 | 1 | 14 days | 0.61 | | | MPC | | 2009 $SF_{327}$ |
| 2009 $SL_{327}$ | 15.9 | 0.15 | 20100104 | 39.38340 | 110.98370 | 236.95664 | 11.79778 | 0.3013052 | 2.6437683 | 57 | 1 | 121 days | 0.41 | M-v | 3 | MPC | 166367 | 2009 $SL_{327}$ |
| 2009 $SN_{328}$ | 16.3 | 0.15 | 20100104 | 8.31961 | 196.23836 | 205.52327 | 32.39043 | 0.1516158 | 2.6254890 | 54 | 3 | 2003–2009 | 0.58 | M-v | 2 | MPC | 165811 | 2009 $SN_{328}$ |
| 2009 $SF_{329}$ | 16.8 | 0.15 | 20100104 | 5.31214 | 178.65515 | 207.77444 | 6.60280 | 0.1280403 | 2.4072586 | 38 | 6 | 1998–2009 | 0.48 | M-v | 1 | MPC | 164046 | 2009 $SF_{329}$ |
| 2009 $SX_{329}$ | 16.9 | 0.15 | 20100104 | 57.65672 | 292.00085 | 30.16883 | 10.15199 | 0.2569224 | 2.3411767 | 50 | 1 | 121 days | 0.45 | M-v | 4 | MPC | 166367 | 2009 $SX_{329}$ |
| 2009 $SC_{330}$ | 14.3 | 0.15 | 20090926 | 41.14133 | 216.64927 | 99.39744 | 17.53826 | 0.2136518 | 3.9788526 | 12 | 1 | 30 days | 0.49 | | | MPC | | 2009 $SC_{330}$ |
| 2009 $SB_{331}$ | 16.1 | 0.15 | 20100104 | 37.48656 | 321.29514 | 14.44794 | 13.78588 | 0.2002064 | 2.8041541 | 27 | 1 | 90 days | 0.49 | M-v | 4 | MPC | 166367 | 2009 $SB_{331}$ |
| 2009 $SW_{331}$ | 16.2 | 0.15 | 20100104 | 22.67530 | 299.20325 | 94.42970 | 10.70814 | 0.2114545 | 2.7643209 | 53 | 2 | 2004–2009 | 0.43 | M-v | 3 | MPC | 165813 | 2009 $SW_{331}$ |
| 2009 $SX_{331}$ | 16.3 | 0.15 | 20100104 | 10.20607 | 253.37678 | 158.90784 | 11.43558 | 0.1779281 | 2.6266621 | 30 | 1 | 91 days | 0.44 | M-v | 3 | MPC | | 2009 $SX_{331}$ |
| 2009 $SR_{332}$ | 17.8 | 0.15 | 20100104 | 24.74239 | 85.63565 | 288.01557 | 2.20181 | 0.2018524 | 2.3594988 | 55 | 3 | 2005–2009 | 0.41 | M-v | 2 | MPC | 165814 | 2009 $SR_{332}$ |
| 2009 $SJ_{333}$ | 17.6 | 0.15 | 20100104 | 23.93549 | 0.00351 | 6.75163 | 2.46874 | 0.1957814 | 2.4587074 | 52 | 4 | 2003–2009 | 0.43 | M-v | 1 | MPC | 166367 | 2009 $SJ_{333}$ |
| 2009 $SV_{333}$ | 17.3 | 0.15 | 20100104 | 337.19728 | 22.28806 | 50.73311 | 5.05418 | 0.0964974 | 2.2973310 | 48 | 4 | 2001–2009 | 0.38 | M-v | 1 | MPC | 165815 | 2009 $SV_{333}$ |
| 2009 $SS_{334}$ | 16.0 | 0.15 | 20100104 | 15.36312 | 354.25616 | 36.44722 | 15.43703 | 0.1731331 | 2.6472572 | 83 | 2 | 2003–2009 | 0.42 | M-v | 3 | MPC | 166367 | 2009 $SS_{334}$ |
| 2009 $SU_{334}$ | 17.2 | 0.15 | 20100104 | 50.91577 | 327.73990 | 351.98209 | 6.05409 | 0.2949321 | 2.6712660 | 28 | 1 | 83 days | 0.60 | M-v | 5 | MPC | | 2009 $SU_{334}$ |
| 2009 $SW_{334}$ | 16.0 | 0.15 | 20100104 | 58.13543 | 319.54802 | 358.92895 | 13.29812 | 0.1409156 | 2.7632509 | 38 | 4 | 2002–2009 | 0.50 | M-v | 1 | MPC | 165815 | 2009 $SW_{334}$ |
| 2009 $SD_{336}$ | 17.0 | 0.15 | 20100104 | 15.33277 | 213.57521 | 172.93653 | 2.51960 | 0.2135194 | 3.0954770 | 35 | 2 | 2006–2009 | 0.52 | M-v | 3 | MPC | 165816 | 2009 $SD_{336}$ |
| 2009 $SS_{336}$ | 15.7 | 0.15 | 20090926 | 43.89460 | 300.86574 | 4.84303 | 27.81384 | 0.2842383 | 3.1558221 | 20 | 1 | 35 days | 0.72 | | | MPC | | 2009 $SS_{336}$ |
| 2009 $SV_{336}$ | 17.6 | 0.15 | 20090926 | 8.05320 | 118.18642 | 233.06684 | 11.41963 | 0.2890400 | 2.6258297 | 12 | 1 | 28 days | 0.59 | | | MPC | | 2009 $SV_{336}$ |
| 2009 $SJ_{337}$ | 15.2 | 0.15 | 20100104 | 14.83801 | 341.22446 | 31.93021 | 16.40929 | 0.1866184 | 3.1483750 | 38 | 2 | 1998–2009 | 0.59 | M-v | 3 | MPC | 164049 | 2009 $SJ_{337}$ |
| 2009 $SN_{337}$ | 16.7 | 0.15 | 20100104 | 31.18744 | 331.98606 | 2.88039 | 12.88694 | 0.3025054 | 2.6385775 | 49 | 3 | 2005–2009 | 0.53 | M-v | 2 | MPC | 165816 | 2009 $SN_{337}$ |
| 2009 $SO_{337}$ | 16.8 | 0.15 | 20100104 | 39.19235 | 130.79363 | 222.67820 | 12.86552 | 0.2148538 | 2.7135289 | 63 | 2 | 2008–2009 | 0.45 | M-v | 2 | MPC | 166367 | 2009 $SO_{337}$ |
| 2009 $SP_{337}$ | 16.7 | 0.15 | 20100104 | 39.10786 | 128.87347 | 220.11399 | 9.71201 | 0.3090686 | 2.6096120 | 59 | 3 | 2004–2009 | 0.50 | M-v | 2 | MPC | 165816 | 2009 $SP_{337}$ |
| 2009 $SQ_{337}$ | 16.6 | 0.15 | 20100104 | 19.84328 | 134.12497 | 248.88263 | 8.10742 | 0.2661193 | 2.6780537 | 58 | 3 | 1996–2009 | 0.55 | M-v | 2 | MPC | 166367 | 2009 $SQ_{337}$ |
| 2009 $SR_{337}$ | 16.5 | 0.15 | 20100104 | 24.63611 | 146.48957 | 230.75826 | 12.57068 | 0.2296511 | 2.6585649 | 59 | 2 | 2008–2009 | 0.51 | M-v | 3 | MPC | 165816 | 2009 $SR_{337}$ |
| 2009 $SS_{337}$ | 16.7 | 0.15 | 20100104 | 15.93567 | 184.46326 | 219.41791 | 13.47126 | 0.2441730 | 2.6151261 | 76 | 2 | 2003–2009 | 0.55 | M-v | 3 | MPC | 166367 | 2009 $SS_{337}$ |
| 2009 $ST_{337}$ | 15.3 | 0.15 | 20100104 | 20.04711 | 328.39532 | 53.95013 | 7.77511 | 0.2409296 | 3.0557001 | 62 | 5 | 1993–2009 | 0.43 | M-v | 1 | MPC | 166367 | 2009 $ST_{337}$ |
| 2009 $SM_{338}$ | 14.9 | 0.15 | 20100104 | 4.05940 | 10.53783 | 43.43029 | 9.77379 | 0.1223525 | 3.0458540 | 82 | 5 | 2003–2009 | 0.57 | M-v | 1 | MPC | 166367 | 2009 $SM_{338}$ |
| 2009 $SO_{338}$ | 17.8 | 0.15 | 20090906 | 277.75108 | 287.35148 | 180.67858 | 7.27031 | 0.2551961 | 2.3615113 | 14 | 1 | 52 days | 0.22 | | | MPC | | 2009 $SO_{338}$ |
| 2009 $SS_{338}$ | 16.4 | 0.15 | 20100104 | 4.58796 | 5.88005 | 47.25001 | 11.86250 | 0.2819837 | 3.1084980 | 40 | 1 | 94 days | 0.48 | M-v | 3 | MPC | 166367 | 2009 $SS_{338}$ |
| 2009 $ST_{338}$ | 17.6 | 0.15 | 20100104 | 58.82492 | 302.31602 | 39.46892 | 7.57170 | 0.2158144 | 2.2013687 | 61 | 3 | 2005–2009 | 0.45 | M-v | 3 | MPC | 165817 | 2009 $ST_{338}$ |
| 2009 $SC_{339}$ | 16.4 | 0.15 | 20100104 | 9.66958 | 164.13749 | 227.62301 | 13.71424 | 0.0949317 | 2.7106512 | 16 | 1 | 87 days | 0.61 | M-v | 4 | MPC | | 2009 $SC_{339}$ |
| 2009 $SG_{339}$ | 16.6 | 0.15 | 20100104 | 18.27245 | 214.30026 | 194.85776 | 6.30250 | 0.2895596 | 2.5675328 | 66 | 4 | 2001–2009 | 0.56 | M-v | 2 | MPC | 165818 | 2009 $SG_{339}$ |
| 2009 $SN_{339}$ | 16.7 | 0.15 | 20100104 | 5.33803 | 15.37608 | 60.98710 | 9.08013 | 0.2017738 | 2.7717268 | 48 | 2 | 1995–2009 | 0.46 | M-v | 2 | MPC | 165818 | 2009 $SN_{339}$ |
| 2009 $SS_{339}$ | 17.0 | 0.15 | 20100104 | 27.42057 | 2.24732 | 51.27586 | 6.98483 | 0.0863700 | 2.2322326 | 47 | 4 | 2004–2009 | 0.54 | M-v | 1 | MPC | 165818 | 2009 $SS_{339}$ |
| 2009 $ST_{339}$ | 15.2 | 0.15 | 20100104 | 311.21572 | 71.03496 | 61.52643 | 9.92306 | 0.0450836 | 3.0155258 | 32 | 1 | 87 days | 0.28 | M-v | 4 | MPC | 166367 | 2009 $ST_{339}$ |
| 2009 $SV_{339}$ | 15.0 | 0.15 | 20100104 | 325.82328 | 241.49353 | 242.28500 | 10.62126 | 0.1149944 | 3.0428387 | 47 | 3 | 2003–2009 | 0.37 | M-v | 3 | MPC | 165819 | 2009 $SV_{339}$ |
| 2009 $SX_{339}$ | 16.3 | 0.15 | 20100104 | 355.54230 | 25.45781 | 88.07757 | 15.70333 | 0.1249794 | 2.7586794 | 17 | 1 | 80 days | 0.40 | M-v | 4 | MPC | | 2009 $SX_{339}$ |
| 2009 $SY_{339}$ | 17.4 | 0.15 | 20100104 | 41.22573 | 160.24324 | 221.96982 | 5.84422 | 0.2187646 | 2.5505297 | 25 | 1 | 72 days | 0.41 | M-v | 4 | MPC | | 2009 $SY_{339}$ |
| 2009 $SE_{340}$ | 15.9 | 0.15 | 20100104 | 44.12033 | 207.92167 | 132.64675 | 11.92687 | 0.2326478 | 3.0442628 | 45 | 3 | 2006–2009 | 0.56 | M-v | 2 | MPC | 165819 | 2009 $SE_{340}$ |
| 2009 $SG_{340}$ | 17.7 | 0.15 | 20100104 | 73.37398 | 238.54476 | 75.33466 | 0.78299 | 0.0656970 | 2.7590644 | 24 | 4 | 2002–2009 | 0.37 | M-v | 2 | MPC | 165820 | 2009 $SG_{340}$ |
| 2009 $SB_{341}$ | 15.6 | 0.15 | 20100104 | 265.19893 | 106.50877 | 28.58307 | 12.66324 | 0.0947798 | 3.0370670 | 31 | 3 | 2004–2009 | 0.34 | M-v | 2 | MPC | 165820 | 2009 $SB_{341}$ |
| 2009 $SX_{341}$ | 16.7 | 0.15 | 20100104 | 85.55848 | 265.63435 | 24.93941 | 12.82903 | 0.1602088 | 2.5636444 | 46 | 3 | 2005–2009 | 0.31 | M-v | 1 | MPC | 165822 | 2009 $SX_{341}$ |
| 2009 $SH_{342}$ | 18.1 | 0.15 | 20100104 | 43.77203 | 345.32447 | 5.35150 | 2.76093 | 0.2208981 | 2.3466561 | 18 | 1 | 93 days | 0.35 | M-v | 4 | MPC | | 2009 $SH_{342}$ |
| 2009 $SJ_{342}$ | 18.1 | 0.15 | 20100104 | 349.96901 | 194.46775 | 234.87305 | 0.64675 | 0.1764872 | 2.4188695 | 32 | 2 | 2005–2009 | 0.39 | M-v | 4 | MPC | 165822 | 2009 $SJ_{342}$ |
| 2009 $SW_{342}$ | 16.4 | 0.15 | 20100104 | 81.97623 | 182.05697 | 126.86962 | 2.80532 | 0.0412500 | 2.8275808 | 39 | 6 | 2002–2009 | 0.34 | M-v | 0 | MPC | 165824 | 2009 $SW_{342}$ |
| 2009 $ST_{344}$ | 15.9 | 0.15 | 20100104 | 78.82558 | 280.80438 | 26.65200 | 16.68118 | 0.1221340 | 3.0317177 | 29 | 1 | 90 days | 0.29 | M-v | 4 | MPC | 166369 | 2009 $ST_{344}$ |
| 2009 $SK_{345}$ | 17.7 | 0.15 | 20100104 | 22.73390 | 343.59256 | 38.21217 | 0.88925 | 0.1589999 | 2.5975618 | 29 | 1 | 88 days | 0.33 | M-v | 3 | MPC | 166369 | 2009 $SK_{345}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2009 $SR_{345}$ | 18.3 | 0.15 | 20100104 | 15.53063 | 332.37183 | 56.04532 | 5.05883 | 0.2562817 | 2.3112105 | 25 | 2 | 1995–2009 | 0.43 | M-v | 3 | MPC | 165828 2009 $SR_{345}$ |
| 2009 $ST_{346}$ | 15.5 | 0.15 | 20100104 | 283.48477 | 96.33852 | 19.79874 | 16.85046 | 0.1148902 | 3.0928003 | 38 | 4 | 2001–2009 | 0.33 | M-v | 1 | MPC | 165830 2009 $ST_{346}$ |
| 2009 $SC_{347}$ | 16.8 | 0.15 | 20100104 | 5.74315 | 313.28841 | 90.87059 | 6.04913 | 0.1841365 | 2.4092323 | 38 | 4 | 2003–2009 | 0.49 | M-v | 1 | MPC | 165831 2009 $SC_{347}$ |
| 2009 $SO_{348}$ | 14.8 | 0.15 | 20100104 | 356.92610 | 218.95489 | 221.80527 | 11.31474 | 0.1054821 | 2.9910539 | 60 | 4 | 1998–2009 | 0.50 | M-v | 3 | MPC | 165833 2009 $SO_{348}$ |
| 2009 $SD_{349}$ | 18.5 | 0.15 | 20091016 | 344.77413 | 196.61474 | 216.40578 | 4.28286 | 0.1702452 | 2.3714301 | 19 | 1 | 59 days | 0.28 | | | MPC | 2009 $SD_{349}$ |
| 2009 $SE_{349}$ | 16.7 | 0.15 | 20091016 | 55.97320 | 207.63603 | 97.54411 | 1.08878 | 0.2962111 | 3.0900243 | 19 | 1 | 58 days | 0.32 | | | MPC | 2009 $SE_{349}$ |
| 2009 $SG_{349}$ | 15.7 | 0.15 | 20091016 | 349.55000 | 30.46638 | 28.60551 | 18.02947 | 0.2013857 | 3.1147801 | 23 | 1 | 57 days | 0.22 | | | MPC | 2009 $SG_{349}$ |
| 2009 $SJ_{349}$ | 16.1 | 0.15 | 20091016 | 286.65870 | 62.74714 | 41.82314 | 22.45923 | 0.0578734 | 2.6673345 | 19 | 1 | 48 days | 0.41 | | | MPC | 2009 $SJ_{349}$ |
| 2009 $SL_{349}$ | 16.6 | 0.15 | 20091016 | 29.06105 | 143.63772 | 213.76410 | 8.62932 | 0.1233007 | 3.1194063 | 16 | 1 | 59 days | 0.22 | | | MPC | 2009 $SL_{349}$ |
| 2009 $SO_{349}$ | 17.1 | 0.15 | 20091016 | 12.60139 | 161.51696 | 221.15085 | 8.38255 | 0.1136267 | 3.1297499 | 16 | 1 | 58 days | 0.36 | | | MPC | 2009 $SO_{349}$ |
| 2009 $SR_{349}$ | 16.6 | 0.15 | 20100104 | 17.99526 | 154.26544 | 225.20984 | 14.39762 | 0.2247809 | 3.0480181 | 23 | 1 | 77 days | 0.55 | M-v | 4 | MPC | 2009 $SR_{349}$ |
| 2009 $ST_{349}$ | 17.2 | 0.15 | 20100104 | 358.27078 | 20.20639 | 35.82034 | 15.91954 | 0.0517574 | 2.6188103 | 18 | 1 | 63 days | 0.50 | M-v | 4 | MPC | 2009 $ST_{349}$ |
| 2009 $SU_{349}$ | 16.0 | 0.15 | 20100104 | 206.49284 | 169.42910 | 28.29414 | 9.62532 | 0.0368811 | 3.1623696 | 20 | 1 | 62 days | 0.34 | M-v | 5 | MPC | 2009 $SU_{349}$ |
| 2009 $SW_{349}$ | 16.3 | 0.15 | 20100104 | 70.60643 | 285.91954 | 57.28010 | 9.75852 | 0.1696592 | 2.7209090 | 22 | 1 | 87 days | 0.28 | M-v | 4 | MPC | 2009 $SW_{349}$ |
| 2009 $SX_{349}$ | 13.7 | 0.15 | 20090926 | 5.59389 | 298.55552 | 81.78156 | 2.48429 | 0.0793013 | 5.2616391 | 17 | 1 | 51 days | 0.26 | | | MPC | 2009 $SX_{349}$ |
| 2009 $SZ_{349}$ | 17.4 | 0.15 | 20091016 | 253.83873 | 284.91858 | 216.06063 | 8.29553 | 0.1115099 | 2.2704950 | 15 | 1 | 52 days | 0.36 | | | MPC | 2009 $SZ_{349}$ |
| 2009 $SB_{350}$ | 18.0 | 0.15 | 20091016 | 343.76299 | 109.80419 | 297.38002 | 2.03441 | 0.1255797 | 2.2302641 | 14 | 1 | 51 days | 0.30 | | | MPC | 2009 $SB_{350}$ |
| 2009 $SD_{350}$ | 14.2 | 0.15 | 20100104 | 11.85152 | 172.37453 | 222.86248 | 17.01001 | 0.1247236 | 5.2208701 | 19 | 1 | 89 days | 0.28 | M-v | 4 | MPC | 2009 $SD_{350}$ |
| 2009 $SE_{350}$ | 16.5 | 0.15 | 20090926 | 352.78878 | 188.50868 | 216.21931 | 8.91462 | 0.1375076 | 3.0381984 | 15 | 1 | 48 days | 0.22 | | | MPC | 2009 $SE_{350}$ |
| 2009 $SG_{350}$ | 17.0 | 0.15 | 20091016 | 355.26668 | 357.02978 | 45.81145 | 5.17431 | 0.1359847 | 3.0812310 | 16 | 1 | 50 days | 0.29 | | | MPC | 2009 $SG_{350}$ |
| 2009 $SH_{350}$ | 18.0 | 0.15 | 20091016 | 32.74322 | 240.00789 | 105.06188 | 3.31729 | 0.1057422 | 2.6859304 | 14 | 1 | 55 days | 0.27 | | | MPC | 2009 $SH_{350}$ |
| 2009 $SJ_{350}$ | 17.9 | 0.15 | 20091016 | 78.66836 | 251.83933 | 36.56664 | 2.00341 | 0.1760054 | 2.3406662 | 15 | 1 | 50 days | 0.42 | | | MPC | 2009 $SJ_{350}$ |
| 2009 $SK_{350}$ | 17.2 | 0.15 | 20091016 | 352.82561 | 18.01418 | 16.43229 | 6.94977 | 0.1265578 | 2.6834532 | 15 | 1 | 48 days | 0.38 | | | MPC | 2009 $SK_{350}$ |
| 2009 $SO_{350}$ | 16.7 | 0.15 | 20091016 | 339.43208 | 328.65922 | 84.30437 | 4.17962 | 0.1601792 | 3.0143504 | 15 | 1 | 51 days | 0.20 | | | MPC | 2009 $SO_{350}$ |
| 2009 $SP_{350}$ | 18.0 | 0.15 | 20091016 | 265.06901 | 67.11365 | 63.58288 | 5.49835 | 0.1010632 | 2.2990762 | 15 | 1 | 51 days | 0.38 | | | MPC | 2009 $SP_{350}$ |
| 2009 $SQ_{350}$ | 16.6 | 0.15 | 20091016 | 271.83718 | 46.62232 | 81.54466 | 5.13714 | 0.1253035 | 3.0599608 | 15 | 1 | 51 days | 0.19 | | | MPC | 2009 $SQ_{350}$ |
| 2009 $SS_{350}$ | 16.1 | 0.15 | 20100104 | 51.76972 | 294.89210 | 43.87126 | 12.02809 | 0.0842674 | 3.1710631 | 19 | 1 | 60 days | 0.34 | M-v | 4 | MPC | 2009 $SS_{350}$ |
| 2009 $ST_{350}$ | 18.1 | 0.15 | 20091016 | 1.39545 | 354.10473 | 31.77681 | 7.36205 | 0.2072192 | 2.6515830 | 13 | 1 | 45 days | 0.32 | | | MPC | 2009 $ST_{350}$ |
| 2009 $SU_{350}$ | 16.2 | 0.15 | 20091016 | 311.22332 | 51.54322 | 42.64848 | 16.89770 | 0.2133373 | 3.0825965 | 15 | 1 | 49 days | 0.16 | | | MPC | 2009 $SU_{350}$ |
| 2009 $SV_{350}$ | 16.5 | 0.15 | 20091016 | 76.44888 | 251.59497 | 39.57585 | 20.78433 | 0.1363552 | 2.8086575 | 21 | 1 | 59 days | 0.24 | | | MPC | 2009 $SV_{350}$ |
| 2009 $SW_{350}$ | 16.6 | 0.15 | 20091016 | 10.96096 | 323.91344 | 45.09623 | 14.98037 | 0.1218829 | 2.9895017 | 16 | 1 | 49 days | 0.21 | | | MPC | 2009 $SW_{350}$ |
| 2009 $SX_{350}$ | 17.5 | 0.15 | 20091016 | 336.63577 | 20.95505 | 39.61973 | 15.62656 | 0.2243144 | 3.1627263 | 15 | 1 | 49 days | 0.26 | | | MPC | 2009 $SX_{350}$ |
| 2009 $SY_{350}$ | 16.0 | 0.15 | 20091016 | 300.61600 | 52.40984 | 45.98318 | 15.08613 | 0.1349398 | 3.1754592 | 16 | 1 | 49 days | 0.23 | | | MPC | 2009 $SY_{350}$ |
| 2009 $SZ_{350}$ | 16.1 | 0.15 | 20091016 | 145.07406 | 186.98220 | 51.26607 | 10.63894 | 0.0183566 | 2.8683887 | 16 | 1 | 49 days | 0.28 | | | MPC | 2009 $SZ_{350}$ |
| 2009 $SB_{351}$ | 18.2 | 0.15 | 20091016 | 324.88072 | 26.43010 | 50.38080 | 9.42933 | 0.2092699 | 2.7419288 | 16 | 1 | 49 days | 0.27 | | | MPC | 2009 $SB_{351}$ |
| 2009 $SC_{351}$ | 18.9 | 0.15 | 20091016 | 331.69917 | 5.28167 | 54.60826 | 6.92729 | 0.1185049 | 2.1898485 | 15 | 1 | 49 days | 0.23 | | | MPC | 2009 $SC_{351}$ |
| 2009 $SD_{351}$ | 16.8 | 0.15 | 20091016 | 61.51485 | 257.95982 | 45.12588 | 11.86370 | 0.1804844 | 2.6865661 | 16 | 1 | 49 days | 0.19 | | | MPC | 2009 $SD_{351}$ |
| 2009 $SF_{351}$ | 18.5 | 0.15 | 20091016 | 306.60232 | 277.68721 | 175.54747 | 5.21821 | 0.1453020 | 2.3206142 | 15 | 1 | 48 days | 0.49 | | | MPC | 2009 $SF_{351}$ |
| 2009 $SG_{351}$ | 17.5 | 0.15 | 20091016 | 98.88021 | 231.08604 | 55.95662 | 7.61294 | 0.0175493 | 2.5570860 | 16 | 1 | 56 days | 0.29 | | | MPC | 2009 $SG_{351}$ |
| 2009 $SK_{351}$ | 16.6 | 0.15 | 20090926 | 274.75899 | 260.20647 | 221.00672 | 8.07106 | 0.0844299 | 3.0415241 | 13 | 1 | 56 days | 0.42 | | | MPC | 2009 $SK_{351}$ |
| 2009 $SM_{351}$ | 14.7 | 0.15 | 20100104 | 339.21867 | 178.92496 | 243.36500 | 16.36068 | 0.1753073 | 3.1430951 | 28 | 1 | 74 days | 0.45 | M-v | 4 | MPC | 2009 $SM_{351}$ |
| 2009 $SN_{351}$ | 16.8 | 0.15 | 20100104 | 25.88051 | 151.44073 | 214.13851 | 10.95529 | 0.1638686 | 3.1600416 | 18 | 1 | 64 days | 0.29 | M-v | 4 | MPC | 2009 $SN_{351}$ |
| 2009 $SO_{351}$ | 19.4 | 0.15 | 20091016 | 8.98825 | 336.97210 | 33.02800 | 1.96084 | 0.2076976 | 2.3242879 | 14 | 1 | 53 days | 0.32 | | | MPC | 2009 $SO_{351}$ |
| 2009 $SP_{351}$ | 17.2 | 0.15 | 20091016 | 334.17662 | 119.72990 | 312.45418 | 13.76039 | 0.2570057 | 2.5614151 | 16 | 1 | 55 days | 0.57 | | | MPC | 2009 $SP_{351}$ |
| 2009 $SQ_{351}$ | 18.0 | 0.15 | 20090926 | 2.05357 | 55.71686 | 317.18148 | 2.37935 | 0.0922860 | 2.1889285 | 14 | 1 | 41 days | 0.47 | | | MPC | 2009 $SQ_{351}$ |
| 2009 $SS_{351}$ | 18.3 | 0.15 | 20090926 | 7.39376 | 190.60075 | 178.87536 | 6.65695 | 0.1551615 | 2.6701305 | 10 | 1 | 33 days | 0.15 | | | MPC | 2009 $SS_{351}$ |
| 2009 $ST_{351}$ | 18.6 | 0.15 | 20091016 | 32.38086 | 263.31543 | 72.00700 | 5.43086 | 0.2171032 | 2.3226606 | 20 | 1 | 48 days | 0.29 | | | MPC | 2009 $ST_{351}$ |
| 2009 $SU_{351}$ | 17.8 | 0.15 | 20090926 | 339.34736 | 214.95865 | 178.78935 | 0.65389 | 0.2087552 | 3.0409510 | 11 | 1 | 26 days | 0.31 | | | MPC | 2009 $SU_{351}$ |
| 2009 $SV_{351}$ | 16.7 | 0.15 | 20100104 | 1.75655 | 189.55353 | 204.86485 | 17.20085 | 0.1799422 | 3.1090307 | 22 | 1 | 81 days | 0.40 | M-v | 4 | MPC | 2009 $SV_{351}$ |
| 2009 $SA_{352}$ | 16.6 | 0.15 | 20090906 | 348.93434 | 44.80609 | 318.88454 | 28.11558 | 0.2022384 | 2.5827867 | 20 | 1 | 55 days | 0.51 | | | MPC | 2009 $SA_{352}$ |
| 2009 $SM_{352}$ | 16.7 | 0.15 | 20100104 | 10.08064 | 202.73160 | 205.57135 | 3.28801 | 0.0933078 | 2.7887287 | 19 | 1 | 70 days | 0.27 | M-v | 4 | MPC | 2009 $SM_{352}$ |
| 2009 $SN_{352}$ | 17.4 | 0.15 | 20100104 | 25.79419 | 347.61837 | 60.93361 | 4.79300 | 0.1374654 | 2.3612282 | 26 | 1 | 87 days | 0.26 | M-v | 4 | MPC | 2009 $SN_{352}$ |
| 2009 $SO_{352}$ | 16.4 | 0.15 | 20090926 | 12.62986 | 354.51435 | 7.31466 | 11.77238 | 0.1286804 | 3.0202952 | 14 | 1 | 41 days | 0.59 | | | MPC | 2009 $SO_{352}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2009 $SP_{352}$ | 15.8 | 0.15 | 20090926 | 350.25661 | 336.48324 | 50.90825 | 10.67822 | 0.0124883 | 2.9712871 | 12 | 1 | 27 days | 0.40 | | | MPC | | 2009 $SP_{352}$ |
| 2009 TA | 15.7 | 0.15 | 20100104 | 14.82748 | 36.76871 | 354.38541 | 19.47883 | 0.4103153 | 2.7801736 | 115 | 5 | 1995–2009 | 0.44 | M-v | 0 | MPC | 166370 | 2009 TA |
| 2009 TY | 18.8 | 0.15 | 20100104 | 36.60910 | 340.53820 | 21.00868 | 5.64822 | 0.2185179 | 2.1751191 | 42 | 1 | 92 days | 0.46 | M-v | 3 | MPC | 166370 | 2009 TY |
| 2009 $TE_1$ | 18.0 | 0.15 | 20100104 | 45.61494 | 282.51469 | 63.57673 | 4.98839 | 0.2467964 | 2.3256462 | 42 | 1 | 74 days | 0.44 | M-v | 4 | MPC | | 2009 $TE_1$ |
| 2009 $TF_1$ | 17.7 | 0.15 | 20100104 | 50.50426 | 287.15363 | 60.25148 | 5.64626 | 0.1545789 | 2.3185080 | 46 | 3 | 2006–2009 | 0.36 | M-v | 2 | MPC | 166370 | 2009 $TF_1$ |
| 2009 $TK_1$ | 19.2 | 0.15 | 20100104 | 7.82558 | 227.21369 | 196.16025 | 3.16997 | 0.3816593 | 2.2699853 | 61 | 1 | 87 days | 0.45 | M-v | 4 | MPC | 166370 | 2009 $TK_1$ |
| 2009 $TS_1$ | 17.6 | 0.15 | 20100104 | 16.84307 | 172.96602 | 210.64503 | 4.92331 | 0.2388368 | 2.5942094 | 50 | 3 | 2005–2009 | 0.51 | M-v | 2 | MPC | 164052 | 2009 $TS_1$ |
| 2009 $TU_1$ | 16.7 | 0.15 | 20100104 | 353.01414 | 40.35218 | 25.49055 | 12.85913 | 0.2426222 | 2.6281829 | 60 | 1 | 84 days | 0.49 | M-v | 4 | MPC | 166370 | 2009 $TU_1$ |
| 2009 $TX_1$ | 17.2 | 0.15 | 20100104 | 27.13191 | 328.58218 | 40.48982 | 7.48649 | 0.2546792 | 2.3691662 | 62 | 3 | 1998–2009 | 0.41 | M-v | 2 | MPC | 165834 | 2009 $TX_1$ |
| 2009 $TZ_1$ | 17.5 | 0.15 | 20100104 | 48.29403 | 315.87645 | 31.98762 | 1.78945 | 0.2363441 | 2.3394777 | 66 | 4 | 1991–2009 | 0.44 | M-v | 2 | MPC | 165835 | 2009 $TZ_1$ |
| 2009 $TP_2$ | 15.7 | 0.15 | 20100104 | 67.53429 | 298.25215 | 15.91873 | 14.33452 | 0.0627945 | 2.7495124 | 36 | 4 | 2003–2009 | 0.47 | M-v | 2 | MPC | 165835 | 2009 $TP_2$ |
| 2009 $TS_2$ | 17.1 | 0.15 | 20100104 | 21.20633 | 305.36793 | 79.80208 | 4.75980 | 0.3260734 | 2.4077888 | 69 | 1 | 117 days | 0.47 | M-v | 3 | MPC | 166370 | 2009 $TS_2$ |
| 2009 $TW_2$ | 16.4 | 0.15 | 20100104 | 72.95421 | 269.44146 | 43.69797 | 4.35595 | 0.0880300 | 2.7899007 | 30 | 3 | 2003–2009 | 0.50 | M-v | 3 | MPC | 164052 | 2009 $TW_2$ |
| 2009 $TE_3$ | 16.9 | 0.15 | 20100104 | 330.59079 | 235.14244 | 214.22745 | 6.68528 | 0.0822464 | 2.2121051 | 73 | 5 | 1996–2009 | 0.46 | M-v | 1 | MPC | 166370 | 2009 $TE_3$ |
| 2009 $TH_3$ | 16.5 | 0.15 | 20100104 | 354.59277 | 215.56047 | 217.73691 | 22.57139 | 0.2314860 | 2.3978703 | 58 | 2 | 1998–2009 | 0.54 | M-v | 3 | MPC | 166370 | 2009 $TH_3$ |
| 2009 $TK_3$ | 15.8 | 0.15 | 20100104 | 45.28837 | 111.46800 | 225.40253 | 13.72489 | 0.2967712 | 3.1506068 | 55 | 3 | 2003–2009 | 0.48 | M-v | 2 | MPC | 165837 | 2009 $TK_3$ |
| 2009 $TN_3$ | 16.8 | 0.15 | 20100104 | 36.84604 | 130.17132 | 230.67709 | 11.68071 | 0.2751997 | 2.6461237 | 47 | 1 | 67 days | 0.43 | M-v | 4 | MPC | | 2009 $TN_3$ |
| 2009 $TR_3$ | 16.8 | 0.15 | 20100104 | 359.47704 | 192.38483 | 226.41941 | 1.87183 | 0.1693279 | 2.6812460 | 28 | 1 | 90 days | 0.44 | M-v | 4 | MPC | | 2009 $TR_3$ |
| 2009 $TT_3$ | 16.1 | 0.15 | 20100104 | 43.41696 | 130.53280 | 225.01844 | 11.48346 | 0.1074757 | 2.7172001 | 55 | 4 | 2002–2009 | 0.47 | M-v | 1 | MPC | 165837 | 2009 $TT_3$ |
| 2009 $TV_3$ | 16.3 | 0.15 | 20100104 | 9.89910 | 0.85295 | 21.43349 | 23.26824 | 0.1670590 | 2.4454285 | 54 | 3 | 2002–2009 | 0.56 | M-v | 1 | MPC | 164054 | 2009 $TV_3$ |
| 2009 $TX_3$ | 15.9 | 0.15 | 20100104 | 19.01218 | 122.10345 | 261.81598 | 8.96442 | 0.3358118 | 3.1577286 | 49 | 1 | 71 days | 0.55 | M-v | 4 | MPC | | 2009 $TX_3$ |
| 2009 $TA_4$ | 17.2 | 0.15 | 20100104 | 43.32862 | 174.70293 | 186.96103 | 13.24057 | 0.1803313 | 2.5505462 | 30 | 4 | 1999–2009 | 0.63 | M-v | 1 | MPC | 165838 | 2009 $TA_4$ |
| 2009 $TD_4$ | 15.1 | 0.15 | 20100104 | 92.33125 | 31.74733 | 248.38194 | 15.24864 | 0.1953444 | 3.1444022 | 44 | 3 | 2002–2009 | 0.42 | M-v | 2 | MPC | 164054 | 2009 $TD_4$ |
| 2009 $TL_4$ | 21.6 | 0.15 | 20100104 | 33.70334 | 160.27171 | 212.21191 | 6.47717 | 0.3873312 | 1.8540356 | 86 | 1 | 65 days | 0.37 | M-v | 4 | MPC | 166370 | 2009 $TL_4$ |
| 2009 $TM_4$ | 16.5 | 0.15 | 20100104 | 53.39182 | 322.59680 | 6.22433 | 0.26099 | 0.1819455 | 3.0573806 | 36 | 1 | 93 days | 0.38 | M-v | 4 | MPC | 166370 | 2009 $TM_4$ |
| 2009 $TY_4$ | 15.8 | 0.15 | 20100104 | 15.41650 | 169.21168 | 208.79825 | 12.29618 | 0.2260998 | 3.1246060 | 44 | 1 | 84 days | 0.57 | M-v | 3 | MPC | | 2009 $TY_4$ |
| 2009 $TZ_4$ | 17.3 | 0.15 | 20100104 | 31.01602 | 347.67263 | 23.80497 | 6.57398 | 0.1097564 | 2.3730550 | 46 | 3 | 1998–2009 | 0.39 | M-v | 2 | MPC | 165838 | 2009 $TZ_4$ |
| 2009 $TG_5$ | 16.8 | 0.15 | 20100104 | 31.38945 | 11.18733 | 13.97921 | 6.81723 | 0.1382255 | 2.3240305 | 49 | 3 | 2005–2009 | 0.56 | M-v | 4 | MPC | 165838 | 2009 $TG_5$ |
| 2009 $TJ_5$ | 17.8 | 0.15 | 20100104 | 25.23239 | 158.97609 | 217.20422 | 4.43048 | 0.1826063 | 2.3346392 | 29 | 1 | 88 days | 0.43 | M-v | 3 | MPC | | 2009 $TJ_5$ |
| 2009 $TW_5$ | 17.8 | 0.15 | 20100104 | 57.53992 | 292.64900 | 35.33380 | 6.49978 | 0.2423864 | 2.2259040 | 41 | 4 | 1999–2009 | 0.43 | M-v | 1 | MPC | 165839 | 2009 $TW_5$ |
| 2009 $TG_6$ | 16.8 | 0.15 | 20100104 | 15.24676 | 338.24875 | 45.64294 | 2.05484 | 0.1717704 | 2.9926147 | 38 | 2 | 2004–2009 | 0.36 | M-v | 2 | MPC | 166370 | 2009 $TG_6$ |
| 2009 $TU_6$ | 17.5 | 0.15 | 20100104 | 10.17243 | 176.66621 | 233.78140 | 7.00911 | 0.2313098 | 2.2046730 | 53 | 1 | 68 days | 0.53 | M-v | 4 | MPC | | 2009 $TU_6$ |
| 2009 $TY_6$ | 16.4 | 0.15 | 20100104 | 17.91854 | 73.13189 | 322.27964 | 7.36195 | 0.0663094 | 2.6459667 | 36 | 5 | 2002–2009 | 0.50 | M-v | 1 | MPC | 165840 | 2009 $TY_6$ |
| 2009 $TC_7$ | 16.0 | 0.15 | 20100104 | 47.65473 | 122.76214 | 224.47120 | 11.62344 | 0.1800428 | 3.0341087 | 23 | 1 | 68 days | 0.48 | M-v | 5 | MPC | | 2009 $TC_7$ |
| 2009 $TM_7$ | 15.9 | 0.15 | 20100104 | 29.96585 | 100.37835 | 269.90297 | 8.28012 | 0.2841201 | 3.0632373 | 36 | 1 | 60 days | 0.61 | M-v | 4 | MPC | | 2009 $TM_7$ |
| 2009 $TN_7$ | 15.7 | 0.15 | 20100104 | 10.55927 | 89.69519 | 316.09709 | 5.25842 | 0.2534281 | 3.1053592 | 49 | 3 | 2003–2009 | 0.43 | M-v | 2 | MPC | 165841 | 2009 $TN_7$ |
| 2009 $TT_7$ | 13.1 | 0.15 | 20100104 | 313.73381 | 40.38804 | 39.65345 | 26.05810 | 0.0631830 | 5.3189778 | 38 | 3 | 2002–2009 | 0.48 | M-v | 2 | MPC | 164056 | 2009 $TT_7$ |
| 2009 $TX_7$ | 15.6 | 0.15 | 20100104 | 31.25216 | 312.82646 | 52.80227 | 15.79303 | 0.1531025 | 2.8485371 | 52 | 1 | 70 days | 0.53 | M-v | 4 | MPC | | 2009 $TX_7$ |
| 2009 $TZ_7$ | 15.9 | 0.15 | 20100104 | 15.37516 | 289.92547 | 92.70374 | 6.24152 | 0.1504560 | 3.0900082 | 42 | 1 | 76 days | 0.45 | M-v | 4 | MPC | | 2009 $TZ_7$ |
| 2009 $TA_8$ | 15.7 | 0.15 | 20100104 | 13.01333 | 150.55886 | 241.46804 | 13.15518 | 0.2610213 | 3.1232998 | 65 | 2 | 2003–2009 | 0.47 | M-v | 2 | MPC | 165841 | 2009 $TA_8$ |
| 2009 $TB_8$ | 18.1 | 0.15 | 20100104 | 341.97651 | 227.34671 | 277.52365 | 10.32207 | 0.7092725 | 2.2691673 | 43 | 1 | 75 days | 0.29 | M-v | 4 | MPC | 166371 | 2009 $TB_8$ |
| 2009 $TK_8$ | 20.2 | 0.15 | 20100104 | 190.85115 | 222.20558 | 29.30852 | 21.16185 | 0.3402621 | 0.9294332 | 234 | 1 | 63 days | 0.33 | M-v | 5 | MPC | 166371 | 2009 $TK_8$ |
| 2009 $TW_8$ | 16.0 | 0.15 | 20100104 | 334.12392 | 31.50069 | 39.63936 | 10.95726 | 0.0822516 | 3.0593820 | 48 | 5 | 2001–2009 | 0.38 | M-v | 1 | MPC | 165842 | 2009 $TW_8$ |
| 2009 $TZ_8$ | 15.1 | 0.15 | 20100104 | 62.01961 | 289.14145 | 41.51022 | 17.50074 | 0.1525504 | 3.2069940 | 50 | 4 | 2001–2009 | 0.53 | M-v | 1 | MPC | 166371 | 2009 $TZ_8$ |
| 2009 $TC_9$ | 17.4 | 0.15 | 20100104 | 357.75978 | 161.78232 | 261.93874 | 4.11710 | 0.1572655 | 2.3434143 | 36 | 3 | 2002–2009 | 0.45 | M-v | 3 | MPC | 165842 | 2009 $TC_9$ |
| 2009 $TJ_9$ | 18.6 | 0.15 | 20091016 | 27.23229 | 153.84567 | 193.63133 | 2.44648 | 0.2288373 | 2.1501195 | 11 | 1 | 4 days | 0.43 | | | MPC | | 2009 $TJ_9$ |
| 2009 $TT_9$ | 16.3 | 0.15 | 20100104 | 36.35794 | 348.40233 | 356.51482 | 4.66774 | 0.1982204 | 2.6762192 | 42 | 3 | 2001–2009 | 0.55 | M-v | 2 | MPC | 164058 | 2009 $TT_9$ |
| 2009 $TW_9$ | 17.5 | 0.15 | 20100104 | 28.98028 | 319.65107 | 48.26162 | 10.06335 | 0.2639663 | 2.4277665 | 47 | 2 | 2005–2009 | 0.49 | M-v | 3 | MPC | 165843 | 2009 $TW_9$ |
| 2009 $TE_{10}$ | 18.8 | 0.15 | 20100104 | 170.51579 | 346.37385 | 218.31091 | 44.73940 | 0.2493795 | 1.0119097 | 30 | 1 | 42 days | 0.38 | M-v | 7 | MPC | 166371 | 2009 $TE_{10}$ |
| 2009 $TF_{10}$ | 22.1 | 0.15 | 20100104 | 23.70768 | 201.88639 | 204.96526 | 5.27245 | 0.3430059 | 1.6652627 | 77 | 1 | 47 days | 0.47 | M-v | 5 | MPC | 166371 | 2009 $TF_{10}$ |
| 2009 $TM_{10}$ | 19.4 | 0.15 | 20100104 | 9.22246 | 284.18027 | 131.13079 | 2.78562 | 0.4704821 | 2.4334288 | 66 | 1 | 84 days | 0.47 | M-v | 4 | MPC | 166371 | 2009 $TM_{10}$ |
| 2009 $TO_{11}$ | 17.3 | 0.15 | 20100104 | 47.58099 | 299.22343 | 49.83684 | 10.07543 | 0.1946177 | 2.5979420 | 39 | 3 | 2005–2009 | 0.41 | M-v | 3 | MPC | 165844 | 2009 $TO_{11}$ |
| 2009 $TB_{12}$ | 16.5 | 0.15 | 20100104 | 49.54518 | 310.62381 | 47.94104 | 12.44117 | 0.1751551 | 2.6048015 | 75 | 1 | 60 days | 0.62 | M-v | 4 | MPC | | 2009 $TB_{12}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2009 $TG_{12}$ | 15.9 | 0.15 | 20091016 | 352.81404 | 190.81999 | 213.69450 | 9.69290 | 0.0987178 | 3.0244148 | 27 | 1 | 33 days | 0.57 | | | MPC | | 2009 $TG_{12}$ |
| 2009 $TS_{12}$ | 17.7 | 0.15 | 20090926 | 34.32042 | 292.99630 | 21.70900 | 1.19927 | 0.2631770 | 2.3603750 | 22 | 1 | 31 days | 0.35 | | | MPC | | 2009 $TS_{12}$ |
| 2009 $TY_{12}$ | 16.3 | 0.15 | 20100104 | 55.35576 | 289.06780 | 41.05412 | 14.80630 | 0.2017742 | 2.6887031 | 63 | 3 | 2000–2009 | 0.49 | M-v | 1 | MPC | 166371 | 2009 $TY_{12}$ |
| 2009 $TD_{13}$ | 15.8 | 0.15 | 20100104 | 25.39273 | 337.61245 | 42.74852 | 32.06341 | 0.1136202 | 2.6198331 | 56 | 3 | 2003–2009 | 0.53 | M-v | 2 | MPC | 165846 | 2009 $TD_{13}$ |
| 2009 $TJ_{13}$ | 18.7 | 0.15 | 20100104 | 351.93788 | 47.99326 | 43.80149 | 8.57827 | 0.4098584 | 2.3844332 | 53 | 2 | 1998–2009 | 0.59 | M-v | 3 | MPC | 165846 | 2009 $TJ_{13}$ |
| 2009 $TL_{13}$ | 16.5 | 0.15 | 20100104 | 123.28680 | 256.52882 | 10.12252 | 8.24428 | 0.1066832 | 2.7057960 | 40 | 2 | 2003–2009 | 0.67 | M-v | 4 | MPC | 166371 | 2009 $TL_{13}$ |
| 2009 $TR_{13}$ | 15.9 | 0.15 | 20100104 | 28.47589 | 172.75127 | 219.63857 | 13.64995 | 0.2607795 | 2.6132633 | 77 | 2 | 2002–2009 | 0.45 | M-v | 3 | MPC | 165846 | 2009 $TR_{13}$ |
| 2009 $TM_{14}$ | 16.8 | 0.15 | 20100104 | 10.94052 | 14.30736 | 41.05764 | 16.49944 | 0.2406389 | 2.5429835 | 61 | 3 | 2005–2009 | 0.57 | M-v | 2 | MPC | 165847 | 2009 $TM_{14}$ |
| 2009 $TO_{14}$ | 17.2 | 0.15 | 20100104 | 7.38245 | 223.51225 | 190.35865 | 6.23651 | 0.1446631 | 2.2431289 | 63 | 5 | 2002–2009 | 0.50 | M-v | 1 | MPC | 166371 | 2009 $TO_{14}$ |
| 2009 $TP_{14}$ | 17.5 | 0.15 | 20100104 | 25.94970 | 143.94937 | 247.40437 | 5.14391 | 0.2127687 | 2.3540746 | 59 | 2 | 2005–2009 | 0.50 | M-v | 3 | MPC | 165847 | 2009 $TP_{14}$ |
| 2009 $TR_{14}$ | 17.5 | 0.15 | 20100104 | 39.50035 | 120.39643 | 236.58628 | 6.86929 | 0.2778298 | 2.3507246 | 41 | 1 | 84 days | 0.57 | M-v | 4 | MPC | | 2009 $TR_{14}$ |
| 2009 $TA_{15}$ | 16.6 | 0.15 | 20100104 | 16.05081 | 340.43284 | 31.02726 | 10.52344 | 0.2322734 | 2.7383183 | 47 | 4 | 1991–2009 | 0.58 | M-v | 2 | MPC | 165847 | 2009 $TA_{15}$ |
| 2009 $TB_{15}$ | 16.0 | 0.15 | 20100104 | 13.64784 | 341.38187 | 36.67843 | 9.80437 | 0.1638603 | 2.8125229 | 24 | 1 | 77 days | 0.47 | M-v | 4 | MPC | | 2009 $TB_{15}$ |
| 2009 $TH_{15}$ | 16.5 | 0.15 | 20091105 | 340.29559 | 163.19510 | 260.13414 | 9.97539 | 0.0663109 | 3.1384397 | 21 | 1 | 55 days | 0.60 | | | MPC | | 2009 $TH_{15}$ |
| 2009 $TK_{15}$ | 16.7 | 0.15 | 20091016 | 85.11507 | 207.44496 | 75.34997 | 5.27172 | 0.1180097 | 2.3404936 | 15 | 1 | 9 days | 0.47 | | | MPC | | 2009 $TK_{15}$ |
| 2009 $TL_{15}$ | 17.5 | 0.15 | 20100104 | 50.54826 | 303.21403 | 31.04459 | 2.92150 | 0.2061278 | 2.4560723 | 56 | 4 | 2004–2009 | 0.50 | M-v | 2 | MPC | 165848 | 2009 $TL_{15}$ |
| 2009 $TW_{15}$ | 16.1 | 0.15 | 20100104 | 37.38481 | 307.49555 | 61.43137 | 11.74842 | 0.0650947 | 2.4613196 | 37 | 2 | 2005–2009 | 0.53 | M-v | 3 | MPC | 165848 | 2009 $TW_{15}$ |
| 2009 $TE_{16}$ | 17.2 | 0.15 | 20091016 | 0.51318 | 336.77594 | 48.08201 | 10.99735 | 0.2241384 | 3.1625717 | 32 | 1 | 53 days | 0.38 | | | MPC | | 2009 $TE_{16}$ |
| 2009 $TF_{17}$ | 18.0 | 0.15 | 20100104 | 13.10945 | 349.23690 | 61.39847 | 7.81377 | 0.2406187 | 2.2359740 | 33 | 2 | 1999–2009 | 0.47 | M-v | 3 | MPC | 165849 | 2009 $TF_{17}$ |
| 2009 $TX_{17}$ | 14.5 | 0.15 | 20100104 | 70.87427 | 222.29511 | 103.89819 | 18.16511 | 0.2069817 | 3.0521078 | 56 | 7 | 1997–2009 | 0.45 | M-v | 1 | MPC | 165850 | 2009 $TX_{17}$ |
| 2009 $TZ_{17}$ | 16.4 | 0.15 | 20100104 | 2.16166 | 286.65948 | 141.39301 | 13.72353 | 0.1626323 | 2.5382748 | 46 | 4 | 2001–2009 | 0.53 | M-v | 2 | MPC | 166372 | 2009 $TZ_{17}$ |
| 2009 $TS_{18}$ | 17.7 | 0.15 | 20090926 | 357.90771 | 56.85948 | 318.79905 | 2.87190 | 0.2260776 | 2.9934477 | 14 | 1 | 27 days | 0.28 | | | MPC | | 2009 $TS_{18}$ |
| 2009 $TZ_{19}$ | 17.0 | 0.15 | 20100104 | 51.62351 | 313.87062 | 30.13492 | 1.80635 | 0.2615844 | 2.3314288 | 112 | 3 | 2006–2009 | 0.48 | M-v | 2 | MPC | 166372 | 2009 $TZ_{19}$ |
| 2009 $TD_{20}$ | 15.7 | 0.15 | 20100104 | 78.49842 | 123.65786 | 202.59725 | 1.29612 | 0.1785532 | 3.0495648 | 63 | 7 | 2002–2009 | 0.38 | M-v | 0 | MPC | 165851 | 2009 $TD_{20}$ |
| 2009 $TL_{20}$ | 17.3 | 0.15 | 20100104 | 9.35785 | 8.41096 | 29.77473 | 10.61341 | 0.2082393 | 2.3695122 | 42 | 1 | 81 days | 0.44 | M-v | 4 | MPC | | 2009 $TL_{20}$ |
| 2009 $TM_{20}$ | 16.0 | 0.15 | 20091105 | 21.96591 | 324.24871 | 38.72822 | 13.99297 | 0.0285813 | 2.7676257 | 31 | 1 | 59 days | 0.48 | | | MPC | | 2009 $TM_{20}$ |
| 2009 $TN_{20}$ | 17.9 | 0.15 | 20100104 | 20.61395 | 357.57021 | 31.43164 | 7.66360 | 0.1651623 | 2.1866980 | 35 | 1 | 65 days | 0.46 | M-v | 4 | MPC | | 2009 $TN_{20}$ |
| 2009 $TS_{20}$ | 17.6 | 0.15 | 20100104 | 2.74439 | 238.06491 | 171.82907 | 4.33406 | 0.1413994 | 2.3377877 | 48 | 6 | 2002–2009 | 0.35 | M-v | 1 | MPC | 166372 | 2009 $TS_{20}$ |
| 2009 $TX_{20}$ | 17.8 | 0.15 | 20100104 | 41.97256 | 284.63895 | 70.90343 | 4.33080 | 0.2231929 | 2.2180102 | 41 | 3 | 1999–2009 | 0.34 | M-v | 2 | MPC | 165852 | 2009 $TX_{20}$ |
| 2009 $TB_{21}$ | 17.4 | 0.15 | 20100104 | 0.85125 | 359.17986 | 54.89636 | 7.50139 | 0.1332321 | 2.1984405 | 54 | 2 | 2006–2009 | 0.43 | M-v | 4 | MPC | 165852 | 2009 $TB_{21}$ |
| 2009 $TC_{21}$ | 16.5 | 0.15 | 20091016 | 7.46169 | 329.04771 | 42.67666 | 13.45592 | 0.1503169 | 2.7642270 | 14 | 1 | 12 days | 0.27 | | | MPC | | 2009 $TC_{21}$ |
| 2009 $TE_{21}$ | 17.6 | 0.15 | 20100104 | 23.04010 | 331.09373 | 57.59604 | 5.50940 | 0.1493164 | 2.2027659 | 43 | 5 | 1996–2009 | 0.44 | M-v | 1 | MPC | 165852 | 2009 $TE_{21}$ |
| 2009 $TN_{21}$ | 15.4 | 0.15 | 20100104 | 42.49781 | 300.83436 | 44.65568 | 27.32593 | 0.2921712 | 3.1603782 | 90 | 1 | 87 days | 0.52 | M-v | 4 | MPC | 166372 | 2009 $TN_{21}$ |
| 2009 $TR_{21}$ | 16.0 | 0.15 | 20100104 | 33.43854 | 325.37133 | 47.05696 | 14.59775 | 0.2271209 | 2.6890601 | 78 | 4 | 2000–2009 | 0.55 | M-v | 1 | MPC | 165853 | 2009 $TR_{21}$ |
| 2009 $TS_{21}$ | 12.6 | 0.15 | 20090926 | 306.22764 | 32.55844 | 35.64014 | 9.70256 | 0.0338823 | 5.1761998 | 11 | 1 | 24 days | 0.24 | | | MPC | | 2009 $TS_{21}$ |
| 2009 $TE_{22}$ | 17.4 | 0.15 | 20100104 | 20.61107 | 154.52235 | 229.26093 | 5.26435 | 0.2290843 | 2.4379340 | 52 | 3 | 2003–2009 | 0.44 | M-v | 2 | MPC | 166372 | 2009 $TE_{22}$ |
| 2009 $TJ_{22}$ | 15.8 | 0.15 | 20091016 | 351.72274 | 160.10528 | 240.29882 | 18.11679 | 0.1488938 | 3.1281319 | 19 | 1 | 54 days | 0.62 | | | MPC | | 2009 $TJ_{22}$ |
| 2009 $TK_{22}$ | 16.2 | 0.15 | 20100104 | 63.52259 | 139.68766 | 193.15806 | 5.13313 | 0.0814099 | 2.6844946 | 39 | 3 | 2000–2009 | 0.55 | M-v | 3 | MPC | 166372 | 2009 $TK_{22}$ |
| 2009 $TP_{22}$ | 16.1 | 0.15 | 20100104 | 54.29642 | 337.40310 | 359.38607 | 14.05494 | 0.2456775 | 2.6049140 | 18 | 1 | 64 days | 0.52 | M-v | 4 | MPC | | 2009 $TP_{22}$ |
| 2009 $TB_{23}$ | 15.7 | 0.15 | 20100104 | 346.71709 | 34.39714 | 47.18060 | 14.24429 | 0.2265747 | 3.0870916 | 69 | 3 | 2004–2009 | 0.50 | M-v | 2 | MPC | 165854 | 2009 $TB_{23}$ |
| 2009 $TE_{23}$ | 12.8 | 0.15 | 20100104 | 4.57817 | 298.10310 | 111.63728 | 8.65814 | 0.0855676 | 5.2418887 | 38 | 3 | 2003–2009 | 0.64 | M-v | 3 | MPC | 165855 | 2009 $TE_{23}$ |
| 2009 $TH_{23}$ | 17.7 | 0.15 | 20100104 | 43.51580 | 130.78502 | 220.92001 | 6.42924 | 0.3309680 | 2.4067622 | 54 | 2 | 2005–2009 | 0.52 | M-v | 3 | MPC | 165855 | 2009 $TH_{23}$ |
| 2009 $TJ_{23}$ | 16.0 | 0.15 | 20100104 | 60.66727 | 309.51941 | 41.35542 | 9.40204 | 0.1016865 | 2.6137864 | 60 | 5 | 2002–2009 | 0.50 | M-v | 2 | MPC | 165855 | 2009 $TJ_{23}$ |
| 2009 $TM_{23}$ | 16.2 | 0.15 | 20100104 | 50.57111 | 139.14958 | 225.73424 | 5.30513 | 0.1126062 | 2.5841341 | 68 | 3 | 2003–2009 | 0.49 | M-v | 3 | MPC | 165855 | 2009 $TM_{23}$ |
| 2009 $TP_{23}$ | 17.7 | 0.15 | 20090926 | 292.77557 | 85.43655 | 354.78957 | 3.49660 | 0.0996866 | 2.4752344 | 15 | 1 | 30 days | 0.23 | | | MPC | | 2009 $TP_{23}$ |
| 2009 $TQ_{23}$ | 18.4 | 0.15 | 20090926 | 46.58564 | 294.18236 | 0.82622 | 5.73850 | 0.2063219 | 2.4482887 | 11 | 1 | 23 days | 0.37 | | | MPC | | 2009 $TQ_{23}$ |
| 2009 $TU_{23}$ | 16.9 | 0.15 | 20100104 | 74.09145 | 255.61922 | 49.04010 | 1.73392 | 0.1726740 | 3.1350886 | 44 | 3 | 2003–2009 | 0.29 | M-v | 3 | MPC | 165855 | 2009 $TU_{23}$ |
| 2009 $TB_{25}$ | 16.6 | 0.15 | 20100104 | 88.71133 | 271.99166 | 33.87118 | 24.71042 | 0.1775204 | 2.2634852 | 46 | 3 | 2002–2009 | 0.57 | M-v | 2 | MPC | 166372 | 2009 $TB_{25}$ |
| 2009 $TK_{26}$ | 16.4 | 0.15 | 20100104 | 43.22911 | 312.70316 | 35.42745 | 15.51361 | 0.1539137 | 2.6087181 | 44 | 2 | 2005–2009 | 0.41 | M-v | 3 | MPC | 166373 | 2009 $TK_{26}$ |
| 2009 $TX_{26}$ | 16.2 | 0.15 | 20100104 | 37.71186 | 285.94588 | 71.15208 | 11.67058 | 0.2144591 | 2.6694668 | 41 | 5 | 2002–2009 | 0.58 | M-v | 2 | MPC | 165857 | 2009 $TX_{26}$ |
| 2009 $TB_{27}$ | 15.7 | 0.15 | 20100104 | 359.17916 | 6.37678 | 41.25796 | 18.30846 | 0.1932796 | 3.1404651 | 61 | 1 | 85 days | 0.40 | M-v | 3 | MPC | 166373 | 2009 $TB_{27}$ |
| 2009 $TE_{27}$ | 15.3 | 0.15 | 20100104 | 36.41973 | 285.27892 | 69.16359 | 8.88309 | 0.2267771 | 3.0752814 | 49 | 3 | 2004–2009 | 0.53 | M-v | 3 | MPC | 165858 | 2009 $TE_{27}$ |
| 2009 $TO_{27}$ | 17.2 | 0.15 | 20100104 | 41.05868 | 273.25179 | 87.49140 | 6.24569 | 0.2305822 | 2.3363910 | 46 | 3 | 2002–2009 | 0.56 | M-v | 3 | MPC | 165858 | 2009 $TO_{27}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2009 $TW_{27}$ | 17.5 | 0.15 | 20091016 | 349.74070 | 326.88908 | 82.84506 | 6.04967 | 0.2163613 | 2.3698345 | 31 | 1 | 39 days | 0.61 | | | MPC | | 2009 $TW_{27}$ |
| 2009 $TY_{27}$ | 15.6 | 0.15 | 20100104 | 359.55382 | 337.68479 | 85.40849 | 10.34854 | 0.1503120 | 2.7516119 | 47 | 3 | 2006–2009 | 0.54 | M-v | 3 | MPC | 165859 | 2009 $TY_{27}$ |
| 2009 $TE_{28}$ | 16.9 | 0.15 | 20100104 | 354.28211 | 245.17114 | 206.68871 | 12.74797 | 0.2409363 | 2.5888871 | 32 | 1 | 61 days | 0.53 | M-v | 4 | MPC | | 2009 $TE_{28}$ |
| 2009 $TZ_{28}$ | 14.3 | 0.15 | 20090926 | 280.25323 | 275.32736 | 181.09167 | 7.39569 | 0.0262043 | 5.1909452 | 11 | 1 | 21 days | 0.36 | | | MPC | | 2009 $TZ_{28}$ |
| 2009 $TA_{29}$ | 17.8 | 0.15 | 20091016 | 186.04011 | 6.41178 | 185.12440 | 6.78503 | 0.0211664 | 2.4128064 | 10 | 1 | 9 days | 0.24 | | | MPC | | 2009 $TA_{29}$ |
| 2009 $TD_{29}$ | 14.1 | 0.15 | 20090926 | 20.38299 | 79.32413 | 280.55345 | 5.60801 | 0.0285919 | 5.1782727 | 14 | 1 | 22 days | 0.35 | | | MPC | | 2009 $TD_{29}$ |
| 2009 $TH_{29}$ | 17.6 | 0.15 | 20090926 | 356.76521 | 165.40828 | 216.58011 | 16.77167 | 0.2450152 | 3.1079116 | 16 | 1 | 27 days | 0.26 | | | MPC | | 2009 $TH_{29}$ |
| 2009 $TV_{29}$ | 17.2 | 0.15 | 20100104 | 57.14295 | 3.98108 | 327.54880 | 4.19716 | 0.1480654 | 2.6749968 | 34 | 4 | 2000–2009 | 0.37 | M-v | 1 | MPC | 165860 | 2009 $TV_{29}$ |
| 2009 $TK_{30}$ | 18.1 | 0.15 | 20091016 | 6.22587 | 229.14288 | 144.16392 | 3.66502 | 0.2015744 | 3.1267945 | 15 | 1 | 9 days | 0.43 | | | MPC | | 2009 $TK_{30}$ |
| 2009 $TO_{30}$ | 17.1 | 0.15 | 20100104 | 85.14230 | 250.57644 | 50.23940 | 6.36941 | 0.1740239 | 2.3120258 | 31 | 1 | 61 days | 0.49 | M-v | 5 | MPC | | 2009 $TO_{30}$ |
| 2009 $TV_{30}$ | 17.4 | 0.15 | 20091016 | 114.06855 | 189.81588 | 61.30650 | 5.75187 | 0.1904209 | 2.4301431 | 15 | 1 | 9 days | 0.22 | | | MPC | | 2009 $TV_{30}$ |
| 2009 $TQ_{31}$ | 15.0 | 0.15 | 20100104 | 48.97174 | 296.84929 | 35.69759 | 26.79603 | 0.2503753 | 3.1772420 | 64 | 3 | 1996–2009 | 0.58 | M-v | 1 | MPC | 165860 | 2009 $TQ_{31}$ |
| 2009 $TT_{31}$ | 15.6 | 0.15 | 20100104 | 38.67099 | 312.38531 | 46.61225 | 22.04262 | 0.1943508 | 3.1352074 | 44 | 2 | 2007–2009 | 0.58 | M-v | 3 | MPC | 165860 | 2009 $TT_{31}$ |
| 2009 $TX_{31}$ | 18.2 | 0.15 | 20100104 | 26.60538 | 321.89391 | 64.15392 | 5.72928 | 0.2684834 | 2.3192526 | 49 | 1 | 60 days | 0.74 | M-v | 4 | MPC | | 2009 $TX_{31}$ |
| 2009 $TC_{32}$ | 16.1 | 0.15 | 20100104 | 27.33467 | 320.53843 | 36.84517 | 12.20940 | 0.2324545 | 3.1226047 | 28 | 1 | 73 days | 0.33 | M-v | 4 | MPC | | 2009 $TC_{32}$ |
| 2009 $TE_{32}$ | 15.6 | 0.15 | 20100104 | 358.93600 | 4.28063 | 36.07394 | 18.15912 | 0.1696246 | 3.1609444 | 31 | 1 | 88 days | 0.58 | M-v | 4 | MPC | | 2009 $TE_{32}$ |
| 2009 $TH_{33}$ | 16.1 | 0.15 | 20100104 | 20.27286 | 341.40960 | 47.65626 | 13.36343 | 0.1289058 | 2.7227350 | 49 | 2 | 2000–2009 | 0.54 | M-v | 3 | MPC | 166373 | 2009 $TH_{33}$ |
| 2009 $TZ_{33}$ | 15.7 | 0.15 | 20100104 | 359.76364 | 71.13220 | 330.02670 | 10.98093 | 0.0462460 | 2.9689759 | 36 | 4 | 1996–2009 | 0.56 | M-v | 2 | MPC | 164067 | 2009 $TZ_{33}$ |
| 2009 $TG_{34}$ | 17.0 | 0.15 | 20100104 | 38.55861 | 291.31852 | 71.13182 | 7.03344 | 0.0871638 | 2.3981205 | 23 | 1 | 76 days | 0.64 | M-v | 4 | MPC | | 2009 $TG_{34}$ |
| 2009 $TQ_{34}$ | 14.8 | 0.15 | 20100104 | 334.27054 | 40.10554 | 55.31401 | 17.14051 | 0.2249787 | 3.1369281 | 74 | 5 | 1998–2009 | 0.44 | M-v | 1 | MPC | 165862 | 2009 $TQ_{34}$ |
| 2009 $TE_{35}$ | 12.8 | 0.15 | 20100104 | 339.88671 | 13.76181 | 61.55418 | 8.45366 | 0.1013307 | 5.2437801 | 61 | 3 | 2003–2009 | 0.58 | M-v | 3 | MPC | 165862 | 2009 $TE_{35}$ |
| 2009 $TG_{35}$ | 17.4 | 0.15 | 20100104 | 63.85216 | 281.08816 | 57.14223 | 5.25287 | 0.1870187 | 2.2290924 | 80 | 5 | 2002–2009 | 0.46 | M-v | 1 | MPC | 165862 | 2009 $TG_{35}$ |
| 2009 $TO_{35}$ | 14.6 | 0.15 | 20100104 | 222.45456 | 139.71528 | 57.20054 | 10.15791 | 0.0434985 | 3.0817703 | 83 | 6 | 2001–2009 | 0.52 | M-v | 1 | MPC | 165863 | 2009 $TO_{35}$ |
| 2009 $TP_{35}$ | 16.5 | 0.15 | 20100104 | 3.55795 | 234.95076 | 185.55041 | 4.45743 | 0.1869163 | 2.8025261 | 53 | 5 | 1997–2009 | 0.53 | M-v | 1 | MPC | 165863 | 2009 $TP_{35}$ |
| 2009 $TR_{35}$ | 15.8 | 0.15 | 20100104 | 19.15194 | 263.65701 | 132.94504 | 2.07823 | 0.1910595 | 3.1477828 | 63 | 5 | 1992–2009 | 0.47 | M-v | 1 | MPC | 165863 | 2009 $TR_{35}$ |
| 2009 $TV_{35}$ | 17.5 | 0.15 | 20100104 | 67.81831 | 55.20118 | 258.99104 | 1.35137 | 0.2220641 | 2.3539125 | 36 | 2 | 2008–2009 | 0.51 | M-v | 4 | MPC | 164068 | 2009 $TV_{35}$ |
| 2009 $TE_{36}$ | 15.6 | 0.15 | 20100104 | 8.89636 | 0.64492 | 45.89001 | 10.83023 | 0.1485748 | 3.0667735 | 49 | 2 | 2007–2009 | 0.48 | M-v | 3 | MPC | 165864 | 2009 $TE_{36}$ |
| 2009 $TJ_{36}$ | 17.2 | 0.15 | 20100104 | 40.99664 | 356.02591 | 8.16579 | 2.49486 | 0.2074283 | 2.3723181 | 58 | 4 | 1998–2009 | 0.49 | M-v | 1 | MPC | 165865 | 2009 $TJ_{36}$ |
| 2009 $TQ_{36}$ | 16.9 | 0.15 | 20091105 | 350.80675 | 343.88628 | 75.61755 | 11.33001 | 0.2694095 | 2.4365283 | 35 | 1 | 56 days | 0.58 | | | MPC | | 2009 $TQ_{36}$ |
| 2009 $TR_{36}$ | 17.4 | 0.15 | 20091105 | 355.35054 | 336.94533 | 73.50430 | 12.49106 | 0.2343973 | 2.4340854 | 24 | 1 | 56 days | 0.64 | | | MPC | | 2009 $TR_{36}$ |
| 2009 $TV_{36}$ | 16.5 | 0.15 | 20100104 | 344.50625 | 167.24310 | 264.96142 | 8.99933 | 0.2053435 | 2.4627598 | 40 | 4 | 2001–2009 | 0.62 | M-v | 1 | MPC | 165865 | 2009 $TV_{36}$ |
| 2009 $TX_{36}$ | 17.2 | 0.15 | 20100104 | 17.38681 | 345.17328 | 50.85568 | 11.72021 | 0.3018417 | 2.6586387 | 46 | 1 | 63 days | 0.60 | M-v | 4 | MPC | | 2009 $TX_{36}$ |
| 2009 $TG_{37}$ | 16.2 | 0.15 | 20100104 | 8.80335 | 155.07852 | 243.52744 | 7.05515 | 0.2279471 | 2.7855495 | 40 | 3 | 2004–2009 | 0.47 | M-v | 2 | MPC | 166373 | 2009 $TG_{37}$ |
| 2009 $TT_{37}$ | 15.3 | 0.15 | 20100104 | 40.02019 | 171.43175 | 220.05154 | 13.41909 | 0.1052333 | 2.5740018 | 42 | 1 | 67 days | 0.49 | M-v | 4 | MPC | | 2009 $TT_{37}$ |
| 2009 $TF_{38}$ | 15.4 | 0.15 | 20100104 | 2.69377 | 164.56765 | 248.69328 | 10.60512 | 0.0962787 | 3.1170023 | 37 | 5 | 2000–2009 | 0.34 | M-v | 0 | MPC | 165866 | 2009 $TF_{38}$ |
| 2009 $TG_{38}$ | 16.1 | 0.15 | 20100104 | 37.76291 | 315.63395 | 62.45431 | 18.84112 | 0.2014779 | 2.6408838 | 54 | 1 | 80 days | 0.54 | M-v | 4 | MPC | | 2009 $TG_{38}$ |
| 2009 $TO_{38}$ | 15.2 | 0.15 | 20100104 | 32.70052 | 223.75050 | 152.72002 | 15.41257 | 0.3026497 | 3.0635494 | 35 | 3 | 2003–2009 | 0.50 | M-v | 3 | MPC | 165866 | 2009 $TO_{38}$ |
| 2009 $TR_{38}$ | 16.5 | 0.15 | 20100104 | 356.00131 | 180.56534 | 228.92947 | 14.14144 | 0.1179201 | 2.4248197 | 40 | 4 | 2004–2009 | 0.45 | M-v | 2 | MPC | 165866 | 2009 $TR_{38}$ |
| 2009 $TJ_{39}$ | 16.2 | 0.15 | 20100104 | 30.61139 | 307.40363 | 70.66881 | 29.27080 | 0.2540014 | 2.7721169 | 26 | 2 | 2000–2009 | 0.50 | M-v | 3 | MPC | 165867 | 2009 $TJ_{39}$ |
| 2009 $TK_{39}$ | 15.7 | 0.15 | 20100104 | 36.81651 | 112.16520 | 245.11070 | 20.12830 | 0.2465710 | 3.1163600 | 38 | 2 | 2003–2009 | 0.56 | M-v | 2 | MPC | 165867 | 2009 $TK_{39}$ |
| 2009 $TS_{39}$ | 17.1 | 0.15 | 20100104 | 3.28836 | 173.46829 | 242.93106 | 1.41846 | 0.1933283 | 2.6244027 | 36 | 3 | 2000–2009 | 0.35 | M-v | 3 | MPC | 165868 | 2009 $TS_{39}$ |
| 2009 $TX_{39}$ | 17.2 | 0.15 | 20100104 | 49.19436 | 280.50414 | 64.31155 | 8.45318 | 0.2426673 | 2.1708662 | 43 | 4 | 2003–2009 | 0.34 | M-v | 2 | MPC | 165868 | 2009 $TX_{39}$ |
| 2009 $TN_{40}$ | 16.1 | 0.15 | 20091016 | 15.66783 | 316.33214 | 48.19147 | 26.22022 | 0.1127870 | 2.7150583 | 12 | 1 | 34 days | 0.89 | | | MPC | | 2009 $TN_{40}$ |
| 2009 $TA_{41}$ | 15.4 | 0.15 | 20100104 | 50.14224 | 294.86040 | 63.28696 | 14.48878 | 0.1371501 | 3.0616350 | 39 | 3 | 2000–2009 | 0.49 | M-v | 2 | MPC | 165869 | 2009 $TA_{41}$ |
| 2009 $TP_{41}$ | 16.3 | 0.15 | 20100104 | 22.79903 | 164.36092 | 231.27774 | 21.07567 | 0.0463523 | 2.7036167 | 32 | 1 | 68 days | 0.42 | M-v | 4 | MPC | | 2009 $TP_{41}$ |
| 2009 $TV_{41}$ | 12.7 | 0.15 | 20100104 | 334.81747 | 122.56900 | 314.97479 | 9.53092 | 0.0592338 | 5.0908703 | 29 | 3 | 2001–2009 | 0.48 | M-v | 3 | MPC | 165870 | 2009 $TV_{41}$ |
| 2009 $TB_{42}$ | 17.6 | 0.15 | 20091016 | 20.56543 | 279.70564 | 100.85250 | 4.02036 | 0.1138982 | 2.6881269 | 12 | 1 | 43 days | 0.39 | | | MPC | | 2009 $TB_{42}$ |
| 2009 $TJ_{42}$ | 17.6 | 0.15 | 20091016 | 51.07636 | 276.50401 | 50.73618 | 1.24856 | 0.1433023 | 2.6488741 | 14 | 1 | 39 days | 0.34 | | | MPC | | 2009 $TJ_{42}$ |
| 2009 $TM_{42}$ | 16.7 | 0.15 | 20091016 | 349.15687 | 196.80128 | 215.80870 | 4.26380 | 0.1700313 | 3.0922326 | 15 | 1 | 38 days | 0.17 | | | MPC | | 2009 $TM_{42}$ |
| 2009 $TN_{42}$ | 16.1 | 0.15 | 20091016 | 3.52896 | 159.28228 | 239.18578 | 11.70905 | 0.0720312 | 2.8850689 | 13 | 1 | 30 days | 0.45 | | | MPC | | 2009 $TN_{42}$ |
| 2009 $TQ_{42}$ | 18.4 | 0.15 | 20091016 | 10.88617 | 72.96510 | 305.49640 | 3.06360 | 0.2304094 | 2.1798721 | 14 | 1 | 37 days | 0.18 | | | MPC | | 2009 $TQ_{42}$ |
| 2009 $TR_{42}$ | 18.2 | 0.15 | 20091016 | 49.55511 | 351.80134 | 330.64039 | 4.11182 | 0.2470720 | 2.2213524 | 16 | 1 | 40 days | 0.48 | | | MPC | | 2009 $TR_{42}$ |
| 2009 $TS_{42}$ | 17.8 | 0.15 | 20091016 | 358.01841 | 76.23631 | 328.14933 | 5.44495 | 0.2216668 | 2.9784419 | 15 | 1 | 37 days | 0.22 | | | MPC | | 2009 $TS_{42}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2009 $TU_{42}$ | 19.2 | 0.15 | 20091016 | 335.45264 | 191.68832 | 224.49910 | 1.78161 | 0.1345919 | 2.1974375 | 16 | 1 | 35 days | 0.34 | | | MPC | | 2009 $TU_{42}$ |
| 2009 $TW_{42}$ | 17.7 | 0.15 | 20100104 | 325.43118 | 229.72175 | 233.73948 | 18.90913 | 0.1052730 | 1.9816972 | 19 | 1 | 75 days | 0.51 | M-v | 4 | MPC | | 2009 $TW_{42}$ |
| 2009 $TZ_{42}$ | 17.2 | 0.15 | 20091016 | 12.03652 | 325.37186 | 43.57661 | 15.48538 | 0.2026246 | 3.0681466 | 15 | 1 | 41 days | 0.35 | | | MPC | | 2009 $TZ_{42}$ |
| 2009 $TA_{43}$ | 17.4 | 0.15 | 20091016 | 44.09987 | 288.35197 | 33.17652 | 30.25826 | 0.2210102 | 2.6775049 | 14 | 1 | 39 days | 0.29 | | | MPC | | 2009 $TA_{43}$ |
| 2009 $TB_{43}$ | 15.3 | 0.15 | 20100104 | 62.63297 | 255.97095 | 51.17322 | 14.05390 | 0.2971138 | 3.3428857 | 18 | 1 | 75 days | 0.43 | M-v | 5 | MPC | | 2009 $TB_{43}$ |
| 2009 $TC_{43}$ | 17.3 | 0.15 | 20091016 | 19.27400 | 289.02061 | 72.31104 | 5.29279 | 0.0856221 | 2.7958633 | 15 | 1 | 46 days | 0.27 | | | MPC | | 2009 $TC_{43}$ |
| 2009 $TD_{43}$ | 17.1 | 0.15 | 20091016 | 5.59057 | 318.32938 | 59.73698 | 6.86010 | 0.0517897 | 2.7495927 | 15 | 1 | 46 days | 0.20 | | | MPC | | 2009 $TD_{43}$ |
| 2009 $TE_{43}$ | 17.3 | 0.15 | 20091016 | 8.85963 | 311.57407 | 63.51202 | 6.63441 | 0.0687753 | 2.7906209 | 16 | 1 | 45 days | 0.32 | | | MPC | | 2009 $TE_{43}$ |
| 2009 $TF_{43}$ | 15.6 | 0.15 | 20091016 | 280.22869 | 64.27201 | 55.91330 | 8.62300 | 0.1302127 | 3.2186160 | 19 | 1 | 45 days | 0.20 | | | MPC | | 2009 $TF_{43}$ |
| 2009 $TG_{43}$ | 17.7 | 0.15 | 20091016 | 279.93812 | 54.85369 | 55.69123 | 7.38837 | 0.0500235 | 2.4204577 | 16 | 1 | 45 days | 0.49 | | | MPC | | 2009 $TG_{43}$ |
| 2009 $TH_{43}$ | 17.0 | 0.15 | 20091016 | 265.93426 | 43.81121 | 79.72704 | 4.94190 | 0.0378101 | 2.5325298 | 14 | 1 | 45 days | 0.25 | | | MPC | | 2009 $TH_{43}$ |
| 2009 $TM_{44}$ | 17.3 | 0.15 | 20091105 | 4.06622 | 252.30549 | 145.77337 | 5.41074 | 0.2555447 | 2.6205474 | 16 | 1 | 42 days | 0.62 | | | MPC | | 2009 $TM_{44}$ |
| 2009 $TQ_{44}$ | 16.4 | 0.15 | 20100104 | 1.48906 | 178.95094 | 242.61752 | 18.23022 | 0.2793250 | 3.0777096 | 26 | 1 | 61 days | 0.42 | M-v | 4 | MPC | | 2009 $TQ_{44}$ |
| 2009 $TR_{44}$ | 15.8 | 0.15 | 20091016 | 27.18991 | 264.32802 | 84.55722 | 11.97837 | 0.0987209 | 2.9855024 | 14 | 1 | 13 days | 0.76 | | | MPC | | 2009 $TR_{44}$ |
| 2009 $TU_{44}$ | 16.1 | 0.15 | 20091105 | 356.50681 | 112.35224 | 293.19393 | 7.74313 | 0.1725885 | 2.8953504 | 12 | 1 | 43 days | 0.51 | | | MPC | | 2009 $TU_{44}$ |
| 2009 $TV_{44}$ | 16.5 | 0.15 | 20091016 | 18.87849 | 114.85950 | 236.26839 | 10.28773 | 0.3525452 | 3.0726760 | 12 | 1 | 23 days | 0.56 | | | MPC | | 2009 $TV_{44}$ |
| 2009 $TW_{45}$ | 15.7 | 0.15 | 20091016 | 342.58884 | 18.83423 | 38.81650 | 9.37672 | 0.0635925 | 3.1731798 | 21 | 1 | 40 days | 0.32 | | D | MPC | | 2009 $TW_{45}$ |
| 2009 UK | 20.0 | 0.15 | 20100104 | 349.60288 | 309.25771 | 165.70868 | 3.52593 | 0.4818969 | 1.9783575 | 71 | 1 | 61 days | 0.45 | M-v | 4 | MPC | 166374 | 2009 UK |
| 2009 UM | 20.7 | 0.15 | 20100104 | 181.58814 | 217.92358 | 37.17219 | 18.24654 | 0.3711633 | 1.0696020 | 44 | 1 | 62 days | 0.40 | M-v | 5 | MPC | 166374 | 2009 UM |
| 2009 UN | 21.4 | 0.15 | 20100104 | 14.77156 | 6.84210 | 34.89657 | 2.36657 | 0.5824564 | 2.8495797 | 47 | 1 | 65 days | 0.36 | M-v | 4 | MPC | 166374 | 2009 UN |
| 2009 US | 16.4 | 0.15 | 20100104 | 211.72975 | 308.84533 | 258.43802 | 20.41700 | 0.0524261 | 1.9236664 | 60 | 5 | 2001–2009 | 0.54 | M-v | 1 | MPC | 166374 | 2009 US |
| 2009 $UB_1$ | 15.9 | 0.15 | 20100104 | 60.37312 | 118.77384 | 213.17527 | 4.07708 | 0.0667275 | 3.1036362 | 56 | 4 | 2003–2009 | 0.30 | M-v | 0 | MPC | 165871 | 2009 $UB_1$ |
| 2009 $US_1$ | 15.0 | 0.15 | 20100104 | 22.40303 | 143.16269 | 250.16949 | 17.48679 | 0.2343915 | 3.1106001 | 83 | 2 | 2003–2009 | 0.45 | M-v | 3 | MPC | 165872 | 2009 $US_1$ |
| 2009 $UD_2$ | 22.2 | 0.15 | 20100104 | 352.68924 | 106.60822 | 2.93314 | 3.81279 | 0.3227641 | 1.3922413 | 59 | 1 | 62 days | 0.39 | M-v | 5 | MPC | 166374 | 2009 $UD_2$ |
| 2009 $UE_2$ | 20.1 | 0.15 | 20100104 | 344.31923 | 156.63579 | 324.78911 | 7.67817 | 0.4579898 | 1.5001162 | 21 | 1 | 61 days | 0.45 | M-v | 6 | MPC | 166374 | 2009 $UE_2$ |
| 2009 $UF_2$ | 24.4 | 0.15 | 20100104 | 9.87292 | 253.81081 | 161.22133 | 2.50365 | 0.6341020 | 2.8282250 | 42 | 1 | 69 days | 0.56 | M-v | 5 | MPC | 166374 | 2009 $UF_2$ |
| 2009 $UH_2$ | 15.7 | 0.15 | 20100104 | 99.87087 | 260.55696 | 20.54063 | 11.78804 | 0.1566689 | 2.9888190 | 47 | 5 | 1997–2009 | 0.38 | M-v | 1 | MPC | 166374 | 2009 $UH_2$ |
| 2009 $UL_2$ | 12.4 | 0.15 | 20100104 | 354.88837 | 147.35375 | 268.80612 | 13.50698 | 0.1495205 | 5.2292883 | 61 | 4 | 1998–2009 | 0.47 | M-v | 1 | MPC | 165872 | 2009 $UL_2$ |
| 2009 $UN_2$ | 19.9 | 0.15 | 20091016 | 334.37349 | 45.02483 | 21.07890 | 1.40838 | 0.2889078 | 2.0738784 | 10 | 1 | 5 days | 0.52 | | | MPC | | 2009 $UN_2$ |
| 2009 $UW_2$ | 20.0 | 0.15 | 20100104 | 9.99688 | 225.08045 | 191.29075 | 12.66254 | 0.5731309 | 2.4771188 | 48 | 1 | 93 days | 0.57 | M-v | 4 | MPC | 166374 | 2009 $UW_2$ |
| 2009 $UK_3$ | 16.1 | 0.15 | 20100104 | 17.13706 | 141.42664 | 231.14503 | 15.95202 | 0.1870519 | 3.0976299 | 39 | 2 | 2004–2009 | 0.41 | M-v | 2 | MPC | 165873 | 2009 $UK_3$ |
| 2009 $UN_3$ | 17.7 | 0.15 | 20100104 | 354.61518 | 338.79406 | 142.02056 | 37.41711 | 0.5762182 | 2.3287349 | 27 | 1 | 64 days | 0.22 | M-v | 4 | MPC | 166374 | 2009 $UN_3$ |
| 2009 $UV_3$ | 16.2 | 0.15 | 20100104 | 44.71007 | 293.14419 | 38.83287 | 14.73031 | 0.2591464 | 3.0920839 | 48 | 1 | 65 days | 0.46 | M-v | 5 | MPC | | 2009 $UV_3$ |
| 2009 $UB_4$ | 16.6 | 0.15 | 20100104 | 12.85376 | 180.03517 | 224.52079 | 4.03945 | 0.0490986 | 2.7979478 | 41 | 3 | 2004–2009 | 0.45 | M-v | 3 | MPC | 165873 | 2009 $UB_4$ |
| 2009 $UY_4$ | 16.0 | 0.15 | 20100104 | 31.55434 | 230.13041 | 131.04765 | 4.92377 | 0.1584808 | 3.0397469 | 30 | 1 | 76 days | 0.41 | M-v | 4 | MPC | | 2009 $UY_4$ |
| 2009 $UA_5$ | 17.0 | 0.15 | 20091016 | 354.92450 | 153.77349 | 236.14264 | 11.31909 | 0.2510518 | 2.3830499 | 42 | 1 | 59 days | 0.66 | | | MPC | | 2009 $UA_5$ |
| 2009 $UD_5$ | 15.9 | 0.15 | 20100104 | 352.99671 | 22.73104 | 39.42127 | 18.52900 | 0.2258759 | 3.1529761 | 38 | 1 | 80 days | 0.54 | M-v | 4 | MPC | | 2009 $UD_5$ |
| 2009 $UM_5$ | 16.2 | 0.15 | 20100104 | 330.90478 | 238.89480 | 225.40436 | 9.66442 | 0.1697240 | 2.3671469 | 75 | 4 | 2001–2009 | 0.55 | M-v | 2 | MPC | 165875 | 2009 $UM_5$ |
| 2009 $UO_5$ | 16.9 | 0.15 | 20100104 | 31.85920 | 308.96316 | 48.29067 | 32.60599 | 0.3240936 | 2.6093080 | 40 | 1 | 87 days | 0.44 | M-v | 4 | MPC | 166375 | 2009 $UO_5$ |
| 2009 $UQ_5$ | 24.4 | 0.15 | 20100104 | 18.79472 | 188.55618 | 217.45276 | 3.35191 | 0.4677409 | 2.0750910 | 40 | 1 | 56 days | 0.40 | M-v | 5 | MPC | 166375 | 2009 $UQ_5$ |
| 2009 $UV_6$ | 17.6 | 0.15 | 20091016 | 29.06933 | 295.49444 | 49.40158 | 5.24223 | 0.0480998 | 2.7631148 | 12 | 1 | 8 days | 0.22 | | | MPC | | 2009 $UV_6$ |
| 2009 $UW_6$ | 18.0 | 0.15 | 20091016 | 86.18852 | 105.18828 | 163.45757 | 4.69400 | 0.1997348 | 2.3232373 | 12 | 1 | 8 days | 0.28 | | | MPC | | 2009 $UW_6$ |
| 2009 $UF_7$ | 19.6 | 0.15 | 20091016 | 42.87257 | 134.77563 | 181.76993 | 4.63793 | 0.1813426 | 2.1114628 | 12 | 1 | 2 days | 0.36 | | E | MPC | | 2009 $UF_7$ |
| 2009 $UF_8$ | 13.2 | 0.15 | 20090926 | 243.40832 | 67.53435 | 66.19009 | 5.58850 | 0.0215114 | 5.2343091 | 18 | 1 | 22 days | 0.26 | | E | MPC | | 2009 $UF_8$ |
| 2009 $UE_9$ | 19.2 | 0.15 | 20091016 | 23.56813 | 291.34477 | 54.78244 | 6.22492 | 0.2054257 | 2.5217805 | 11 | 1 | 3 days | 0.25 | | | MPC | | 2009 $UE_9$ |
| 2009 $US_9$ | 16.8 | 0.15 | 20091016 | 304.64102 | 65.21000 | 30.22584 | 26.39681 | 0.1928849 | 3.0241415 | 15 | 1 | 8 days | 0.23 | | | MPC | | 2009 $US_9$ |
| 2009 $UB_{10}$ | 16.9 | 0.15 | 20100104 | 50.53997 | 104.60063 | 226.37962 | 12.68259 | 0.2250232 | 2.6985693 | 20 | 1 | 81 days | 0.49 | M-v | 4 | MPC | | 2009 $UB_{10}$ |
| 2009 $UK_{10}$ | 18.8 | 0.15 | 20090926 | 347.69060 | 353.70726 | 43.27816 | 7.54623 | 0.2127089 | 2.6646189 | 12 | 1 | 15 days | 0.20 | | | MPC | | 2009 $UK_{10}$ |
| 2009 $UP_{10}$ | 16.3 | 0.15 | 20100104 | 77.37667 | 274.85231 | 37.31394 | 13.98781 | 0.1277837 | 2.6666901 | 47 | 4 | 2004–2009 | 0.46 | M-v | 1 | MPC | 165876 | 2009 $UP_{10}$ |
| 2009 $UY_{11}$ | 16.9 | 0.15 | 20100104 | 28.18451 | 307.12258 | 60.51910 | 11.44575 | 0.3315140 | 2.8468792 | 50 | 2 | 2004–2009 | 0.53 | M-v | 3 | MPC | 165876 | 2009 $UY_{11}$ |
| 2009 $UC_{12}$ | 16.5 | 0.15 | 20100104 | 70.57161 | 97.65657 | 222.90393 | 6.19100 | 0.2767280 | 2.5966375 | 47 | 3 | 2004–2009 | 0.47 | M-v | 2 | MPC | 165876 | 2009 $UC_{12}$ |
| 2009 $UE_{12}$ | 17.1 | 0.15 | 20100104 | 29.34436 | 327.32802 | 47.57103 | 4.97098 | 0.3073057 | 2.9864459 | 59 | 2 | 2004–2009 | 0.40 | M-v | 3 | MPC | 166375 | 2009 $UE_{12}$ |
| 2009 $UF_{12}$ | 16.6 | 0.15 | 20100104 | 17.25798 | 189.98676 | 217.35598 | 8.42009 | 0.1778974 | 2.3769734 | 82 | 3 | 1998–2009 | 0.46 | M-v | 2 | MPC | 165877 | 2009 $UF_{12}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2009 $UR_{12}$ | 16.6 | 0.15 | 20091016 | 118.55581 | 239.98256 | 353.35292 | 12.25925 | 0.1649145 | 3.0747373 | 9 | 1 | 7 days | 0.39 | | E | MPC | | 2009 $UR_{12}$ |
| 2009 $UP_{13}$ | 17.5 | 0.15 | 20091016 | 257.95162 | 266.40695 | 255.35234 | 3.95689 | 0.1527930 | 2.7155857 | 9 | 1 | 6 days | 0.44 | | E | MPC | | 2009 $UP_{13}$ |
| 2009 $UT_{13}$ | 13.9 | 0.15 | 20100104 | 340.27319 | 188.06279 | 251.14474 | 6.15646 | 0.0809433 | 5.2471780 | 22 | 1 | 61 days | 0.34 | M-v | 4 | MPC | | 2009 $UT_{13}$ |
| 2009 $UZ_{13}$ | 15.9 | 0.15 | 20090926 | 347.87416 | 359.79863 | 27.00252 | 19.75273 | 0.2307259 | 3.0526620 | 14 | 1 | 11 days | 0.41 | | | MPC | | 2009 $UZ_{13}$ |
| 2009 $UO_{14}$ | 15.8 | 0.15 | 20091105 | 325.35617 | 195.47658 | 265.34923 | 21.03039 | 0.0483082 | 2.6836920 | 20 | 1 | 56 days | 0.44 | | | MPC | | 2009 $UO_{14}$ |
| 2009 $US_{14}$ | 16.9 | 0.15 | 20100104 | 28.05528 | 125.43364 | 255.12184 | 4.27239 | 0.2122162 | 2.1946037 | 65 | 2 | 2006–2009 | 0.49 | M-v | 3 | MPC | 166375 | 2009 $US_{14}$ |
| 2009 $UJ_{15}$ | 16.0 | 0.15 | 20100104 | 334.13978 | 312.53658 | 120.23289 | 6.02909 | 0.1088792 | 3.1721145 | 37 | 5 | 1994–2009 | 0.31 | M-v | 2 | MPC | 165879 | 2009 $UJ_{15}$ |
| 2009 $UV_{15}$ | 15.9 | 0.15 | 20100104 | 8.70442 | 340.96862 | 51.92973 | 4.65148 | 0.1161455 | 3.0758370 | 48 | 5 | 2001–2009 | 0.38 | M-v | 1 | MPC | 165879 | 2009 $UV_{15}$ |
| 2009 $UH_{16}$ | 15.3 | 0.15 | 20100104 | 54.50984 | 275.95874 | 51.91104 | 16.41154 | 0.3059381 | 3.1552693 | 55 | 2 | 2003–2009 | 0.52 | M-v | 4 | MPC | 165880 | 2009 $UH_{16}$ |
| 2009 $UN_{16}$ | 17.2 | 0.15 | 20100104 | 55.43086 | 96.29502 | 236.47783 | 11.14394 | 0.2159661 | 2.3397187 | 23 | 1 | 77 days | 0.58 | M-v | 4 | MPC | | 2009 $UN_{16}$ |
| 2009 $UQ_{16}$ | 15.0 | 0.15 | 20100104 | 65.46962 | 262.73534 | 53.30644 | 13.32944 | 0.2506879 | 3.0509027 | 61 | 5 | 1998–2009 | 0.48 | M-v | 1 | MPC | 165880 | 2009 $UQ_{16}$ |
| 2009 $UE_{17}$ | 17.9 | 0.15 | 20091016 | 55.24381 | 317.68519 | 356.32498 | 6.47222 | 0.2326914 | 2.6176821 | 12 | 1 | 5 days | 0.45 | | | MPC | | 2009 $UE_{17}$ |
| 2009 $UQ_{17}$ | 15.7 | 0.15 | 20100104 | 341.67918 | 216.64619 | 226.52776 | 15.05303 | 0.1757660 | 3.0436974 | 76 | 1 | 66 days | 0.56 | M-v | 4 | MPC | | 2009 $UQ_{17}$ |
| 2009 $UX_{17}$ | 21.6 | 0.15 | 20100104 | 323.25657 | 278.46945 | 216.17908 | 10.80380 | 0.0835447 | 1.1892529 | 88 | 1 | 61 days | 0.48 | M-v | 4 | MPC | 166375 | 2009 $UX_{17}$ |
| 2009 $UZ_{17}$ | 22.4 | 0.15 | 20100104 | 27.61440 | 192.44820 | 152.99488 | 4.25591 | 0.6223193 | 2.4312395 | 43 | 1 | 50 days | 0.37 | M-v | 5 | MPC | 166375 | 2009 $UZ_{17}$ |
| 2009 $UK_{18}$ | 14.8 | 0.15 | 20100104 | 354.63086 | 346.75005 | 67.87106 | 22.87728 | 0.1541098 | 3.2192137 | 40 | 4 | 2003–2009 | 0.47 | M-v | 1 | MPC | 165881 | 2009 $UK_{18}$ |
| 2009 $US_{18}$ | 16.0 | 0.15 | 20100104 | 330.00792 | 223.72512 | 235.71070 | 11.44240 | 0.1780444 | 2.7731121 | 49 | 2 | 2006–2009 | 0.57 | M-v | 4 | MPC | 165881 | 2009 $US_{18}$ |
| 2009 $UV_{18}$ | 15.6 | 0.15 | 20100104 | 357.41914 | 62.68373 | 86.81495 | 8.34165 | 0.6325536 | 3.1771801 | 229 | 2 | 2004–2009 | 0.35 | M-v | 1 | MPC | 166376 | 2009 $UV_{18}$ |
| 2009 $UE_{19}$ | 20.5 | 0.15 | 20100104 | 18.76316 | 349.14192 | 42.34873 | 19.96839 | 0.5363191 | 2.6364952 | 51 | 1 | 42 days | 0.41 | M-v | 5 | MPC | 166376 | 2009 $UE_{19}$ |
| 2009 $UM_{19}$ | 18.4 | 0.15 | 20100104 | 39.26747 | 354.18452 | 18.94959 | 3.26656 | 0.1839086 | 2.1811272 | 32 | 1 | 93 days | 0.36 | M-v | 4 | MPC | | 2009 $UM_{19}$ |
| 2009 $UN_{19}$ | 16.3 | 0.15 | 20091105 | 334.90694 | 318.96799 | 120.01111 | 17.21793 | 0.2327994 | 2.7196750 | 33 | 1 | 54 days | 0.41 | | | MPC | | 2009 $UN_{19}$ |
| 2009 $UO_{19}$ | 17.1 | 0.15 | 20091105 | 353.55693 | 182.43621 | 230.45284 | 13.26458 | 0.2364144 | 2.7001550 | 38 | 1 | 57 days | 0.51 | | | MPC | | 2009 $UO_{19}$ |
| 2009 $UA_{20}$ | 17.4 | 0.15 | 20100104 | 27.84850 | 308.14695 | 61.78242 | 6.42328 | 0.2377472 | 2.4413928 | 37 | 3 | 2005–2009 | 0.45 | M-v | 3 | MPC | 165883 | 2009 $UA_{20}$ |
| 2009 $UB_{20}$ | 15.0 | 0.15 | 20100104 | 28.18474 | 273.41405 | 87.28277 | 22.26924 | 0.3504141 | 3.1535609 | 137 | 3 | 2004–2009 | 0.36 | M-v | 1 | MPC | 165883 | 2009 $UB_{20}$ |
| 2009 $UG_{20}$ | 16.6 | 0.15 | 20100104 | 37.05218 | 109.18332 | 261.12031 | 14.01229 | 0.2746113 | 2.8779042 | 53 | 2 | 2004–2009 | 0.49 | M-v | 3 | MPC | 165884 | 2009 $UG_{20}$ |
| 2009 $UH_{20}$ | 17.9 | 0.15 | 20100104 | 99.00752 | 73.65066 | 237.47451 | 19.72711 | 0.0610193 | 1.9266637 | 31 | 1 | 93 days | 0.30 | M-v | 4 | MPC | | 2009 $UH_{20}$ |
| 2009 $UO_{20}$ | 16.5 | 0.15 | 20100104 | 49.32510 | 78.17508 | 280.39231 | 5.19928 | 0.1577150 | 2.3789930 | 72 | 3 | 2005–2009 | 0.41 | M-v | 3 | MPC | 165884 | 2009 $UO_{20}$ |
| 2009 $UQ_{20}$ | 16.1 | 0.15 | 20091016 | 17.06031 | 297.03061 | 62.78570 | 5.85568 | 0.1751720 | 3.1460890 | 24 | 1 | 45 days | 0.43 | | | MPC | | 2009 $UQ_{20}$ |
| 2009 $UR_{20}$ | 17.2 | 0.15 | 20100104 | 356.61882 | 18.64343 | 44.23110 | 14.26620 | 0.2781486 | 2.6848531 | 47 | 1 | 80 days | 0.39 | M-v | 3 | MPC | | 2009 $UR_{20}$ |
| 2009 $UT_{20}$ | 17.9 | 0.15 | 20091105 | 34.59054 | 286.51522 | 58.77284 | 4.26658 | 0.2555350 | 2.3527652 | 31 | 1 | 56 days | 0.52 | | | MPC | | 2009 $UT_{20}$ |
| 2009 $UW_{20}$ | 17.7 | 0.15 | 20100104 | 32.34268 | 63.73522 | 299.13377 | 3.18041 | 0.3393205 | 2.6164180 | 59 | 3 | 2002–2009 | 0.36 | M-v | 2 | MPC | 165884 | 2009 $UW_{20}$ |
| 2009 $UE_{21}$ | 18.3 | 0.15 | 20091105 | 359.98056 | 323.46670 | 82.17136 | 3.52048 | 0.2162066 | 2.3746711 | 23 | 1 | 56 days | 0.48 | | | MPC | | 2009 $UE_{21}$ |
| 2009 $UG_{21}$ | 13.3 | 0.15 | 20091105 | 335.34347 | 8.41482 | 67.56597 | 10.61347 | 0.0615954 | 5.0774580 | 35 | 1 | 56 days | 0.40 | | | MPC | | 2009 $UG_{21}$ |
| 2009 $UP_{21}$ | 16.0 | 0.15 | 20090926 | 312.41735 | 321.82244 | 117.27078 | 6.48615 | 0.1282337 | 3.2570894 | 16 | 1 | 26 days | 0.12 | | | MPC | | 2009 $UP_{21}$ |
| 2009 $UL_{23}$ | 17.5 | 0.15 | 20091016 | 338.86020 | 210.83412 | 202.43243 | 5.59791 | 0.0709745 | 2.7729285 | 11 | 1 | 6 days | 0.20 | | | MPC | | 2009 $UL_{23}$ |
| 2009 $UO_{23}$ | 17.9 | 0.15 | 20091016 | 319.92328 | 228.53342 | 205.10086 | 5.98686 | 0.0573860 | 2.5441635 | 11 | 1 | 6 days | 0.20 | | | MPC | | 2009 $UO_{23}$ |
| 2009 $UL_{24}$ | 18.2 | 0.15 | 20091016 | 342.92773 | 211.68334 | 209.18913 | 12.31856 | 0.2252777 | 2.6644581 | 15 | 1 | 33 days | 0.24 | | | MPC | | 2009 $UL_{24}$ |
| 2009 $UN_{24}$ | 16.4 | 0.15 | 20100104 | 127.22184 | 223.59297 | 65.39159 | 2.79724 | 0.0311110 | 2.6374085 | 62 | 5 | 2000–2009 | 0.35 | M-v | 0 | MPC | 165885 | 2009 $UN_{24}$ |
| 2009 $US_{24}$ | 15.2 | 0.15 | 20100104 | 315.18099 | 66.24750 | 39.94349 | 13.12222 | 0.0623804 | 3.2272624 | 50 | 2 | 2003–2009 | 0.44 | M-v | 4 | MPC | 165886 | 2009 $US_{24}$ |
| 2009 $UW_{24}$ | 18.4 | 0.15 | 20091016 | 45.02594 | 52.72259 | 273.48501 | 0.40129 | 0.2686712 | 2.6937228 | 11 | 1 | 6 days | 0.29 | | | MPC | | 2009 $UW_{24}$ |
| 2009 $UB_{25}$ | 17.9 | 0.15 | 20091016 | 333.99573 | 45.04664 | 36.75897 | 12.58677 | 0.2667807 | 2.6225207 | 15 | 1 | 21 days | 0.18 | | | MPC | | 2009 $UB_{25}$ |
| 2009 $UE_{25}$ | 16.4 | 0.15 | 20091105 | 34.10884 | 288.09191 | 71.90938 | 2.05688 | 0.1765175 | 3.0363729 | 23 | 1 | 53 days | 0.20 | | | MPC | | 2009 $UE_{25}$ |
| 2009 $UH_{25}$ | 18.5 | 0.15 | 20091016 | 8.16408 | 166.54785 | 213.59451 | 8.16702 | 0.3417350 | 2.6576296 | 23 | 1 | 32 days | 0.38 | | | MPC | | 2009 $UH_{25}$ |
| 2009 $UL_{25}$ | 15.4 | 0.15 | 20100104 | 288.07013 | 274.19552 | 223.42616 | 10.37886 | 0.0314613 | 3.0418593 | 62 | 3 | 2003–2009 | 0.33 | M-v | 2 | MPC | 165886 | 2009 $UL_{25}$ |
| 2009 $UN_{25}$ | 16.8 | 0.15 | 20100104 | 40.87716 | 169.91110 | 207.45968 | 3.46741 | 0.1170683 | 2.5881084 | 36 | 2 | 2005–2009 | 0.34 | M-v | 4 | MPC | 165886 | 2009 $UN_{25}$ |
| 2009 $UO_{25}$ | 18.0 | 0.15 | 20100104 | 11.15195 | 218.32094 | 200.72154 | 2.62195 | 0.1429415 | 2.2289644 | 52 | 2 | 2007–2009 | 0.40 | M-v | 3 | MPC | 165887 | 2009 $UO_{25}$ |
| 2009 $UR_{25}$ | 16.2 | 0.15 | 20100104 | 15.39910 | 245.44242 | 152.46181 | 5.75264 | 0.1119338 | 2.6401619 | 51 | 5 | 2003–2009 | 0.56 | M-v | 1 | MPC | 165887 | 2009 $UR_{25}$ |
| 2009 $UT_{25}$ | 16.2 | 0.15 | 20100104 | 13.74330 | 340.83530 | 63.02587 | 13.95487 | 0.1527613 | 2.6123861 | 43 | 1 | 62 days | 0.69 | M-v | 4 | MPC | | 2009 $UT_{25}$ |
| 2009 $UK_{26}$ | 15.1 | 0.15 | 20100104 | 203.39843 | 157.91747 | 55.35156 | 12.31842 | 0.0161069 | 3.1470781 | 57 | 6 | 2001–2009 | 0.48 | M-v | 1 | MPC | 165887 | 2009 $UK_{26}$ |
| 2009 $UP_{26}$ | 17.0 | 0.15 | 20100104 | 36.30179 | 181.51678 | 191.67517 | 4.98803 | 0.2123836 | 2.6156854 | 42 | 3 | 2005–2009 | 0.50 | M-v | 4 | MPC | 165888 | 2009 $UP_{26}$ |
| 2009 $UQ_{26}$ | 15.3 | 0.15 | 20100104 | 36.56180 | 313.66536 | 59.64200 | 11.87420 | 0.1448281 | 3.2835686 | 60 | 3 | 2003–2009 | 0.47 | M-v | 3 | MPC | 165888 | 2009 $UQ_{26}$ |
| 2009 $UT_{26}$ | 15.1 | 0.15 | 20100104 | 21.40814 | 339.88559 | 53.30956 | 18.33718 | 0.1858771 | 3.1347051 | 88 | 3 | 2001–2009 | 0.42 | M-v | 2 | MPC | 165889 | 2009 $UT_{26}$ |
| 2009 $UU_{26}$ | 15.4 | 0.15 | 20100104 | 65.60730 | 276.88171 | 60.77735 | 11.32715 | 0.1691929 | 3.0613497 | 54 | 4 | 2003–2009 | 0.60 | M-v | 1 | MPC | 165889 | 2009 $UU_{26}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2009 $UW_{26}$ | 12.3 | 0.15 | 20100104 | 19.17362 | 169.52688 | 230.79687 | 27.73468 | 0.0875525 | 5.1977102 | 78 | 3 | 2004–2009 | 0.51 | M-v | 2 | MPC | 165889 | 2009 $UW_{26}$ |
| 2009 $UC_{27}$ | 16.6 | 0.15 | 20100104 | 46.47513 | 154.90429 | 206.11847 | 8.57327 | 0.1671513 | 2.7211930 | 22 | 1 | 60 days | 0.55 | M-v | 5 | MPC | | 2009 $UC_{27}$ |
| 2009 $UD_{27}$ | 17.6 | 0.15 | 20100104 | 32.82119 | 184.50807 | 199.96326 | 6.08237 | 0.1420574 | 2.3833128 | 30 | 2 | 2005–2009 | 0.50 | M-v | 4 | MPC | 165890 | 2009 $UD_{27}$ |
| 2009 $UH_{27}$ | 15.6 | 0.15 | 20100104 | 33.35015 | 316.14724 | 57.37893 | 18.78036 | 0.2282452 | 3.1455251 | 79 | 1 | 81 days | 0.47 | M-v | 4 | MPC | | 2009 $UH_{27}$ |
| 2009 $UK_{27}$ | 16.9 | 0.15 | 20100104 | 25.05917 | 331.00521 | 57.78093 | 9.60596 | 0.2656528 | 2.6994937 | 74 | 2 | 2000–2009 | 0.47 | M-v | 3 | MPC | 165890 | 2009 $UK_{27}$ |
| 2009 $UM_{27}$ | 15.8 | 0.15 | 20091105 | 34.64088 | 310.58142 | 53.86778 | 18.67421 | 0.1862084 | 2.6140369 | 72 | 1 | 55 days | 0.52 | | | MPC | | 2009 $UM_{27}$ |
| 2009 $UP_{27}$ | 16.8 | 0.15 | 20091105 | 356.15009 | 212.08530 | 203.18423 | 9.37987 | 0.1886174 | 2.7539950 | 17 | 1 | 50 days | 0.60 | | | MPC | | 2009 $UP_{27}$ |
| 2009 $UQ_{27}$ | 16.3 | 0.15 | 20091105 | 0.82600 | 227.85631 | 180.10211 | 3.89721 | 0.2789377 | 2.9959930 | 44 | 1 | 50 days | 0.49 | | | MPC | | 2009 $UQ_{27}$ |
| 2009 $US_{27}$ | 16.2 | 0.15 | 20100104 | 213.45179 | 132.80613 | 78.51481 | 6.39949 | 0.0099121 | 2.7840710 | 36 | 3 | 1995–2009 | 0.31 | M-v | 3 | MPC | 165890 | 2009 $US_{27}$ |
| 2009 $UW_{27}$ | 16.5 | 0.15 | 20091105 | 329.65771 | 191.59975 | 248.29186 | 5.63749 | 0.0972806 | 2.6433073 | 26 | 1 | 57 days | 0.28 | | | MPC | | 2009 $UW_{27}$ |
| 2009 $UZ_{27}$ | 17.2 | 0.15 | 20100104 | 32.78261 | 129.64278 | 243.95258 | 4.15473 | 0.2280342 | 2.6005289 | 36 | 2 | 2005–2009 | 0.41 | M-v | 3 | MPC | 165891 | 2009 $UZ_{27}$ |
| 2009 $UC_{28}$ | 14.6 | 0.15 | 20100104 | 15.64648 | 321.52757 | 75.48762 | 3.78658 | 0.1583503 | 5.1947996 | 34 | 2 | 2008–2009 | 0.33 | M-v | 3 | MPC | 165891 | 2009 $UC_{28}$ |
| 2009 $UD_{28}$ | 17.9 | 0.15 | 20091105 | 18.38590 | 326.25675 | 56.98211 | 6.52048 | 0.1536351 | 2.3683717 | 31 | 1 | 49 days | 0.41 | | | MPC | | 2009 $UD_{28}$ |
| 2009 $UF_{28}$ | 17.1 | 0.15 | 20100104 | 45.69855 | 178.50749 | 186.09022 | 2.78928 | 0.1758430 | 2.6033714 | 59 | 4 | 2000–2009 | 0.35 | M-v | 1 | MPC | 165891 | 2009 $UF_{28}$ |
| 2009 $UG_{28}$ | 17.3 | 0.15 | 20091105 | 39.71158 | 254.96666 | 106.36945 | 3.05040 | 0.1130456 | 2.8889486 | 15 | 1 | 33 days | 0.29 | | | MPC | | 2009 $UG_{28}$ |
| 2009 $UH_{28}$ | 15.8 | 0.15 | 20100104 | 127.03412 | 242.12612 | 33.28918 | 14.67499 | 0.1690187 | 2.5489911 | 50 | 3 | 2003–2009 | 0.40 | M-v | 2 | MPC | 165891 | 2009 $UH_{28}$ |
| 2009 $UJ_{28}$ | 16.1 | 0.15 | 20100104 | 325.73915 | 227.25668 | 229.72871 | 12.71502 | 0.0500747 | 2.6003194 | 63 | 3 | 2004–2009 | 0.49 | M-v | 3 | MPC | 165891 | 2009 $UJ_{28}$ |
| 2009 $UK_{28}$ | 19.7 | 0.15 | 20100104 | 27.35564 | 330.10615 | 52.69816 | 27.42304 | 0.4100652 | 2.1786205 | 106 | 1 | 40 days | 0.36 | M-v | 5 | MPC | 166377 | 2009 $UK_{28}$ |
| 2009 $UX_{28}$ | 13.6 | 0.15 | 20091105 | 345.18829 | 12.94344 | 50.60032 | 11.05307 | 0.0482567 | 5.1002766 | 27 | 1 | 58 days | 0.34 | | | MPC | | 2009 $UX_{28}$ |
| 2009 $UK_{29}$ | 16.4 | 0.15 | 20100104 | 16.10814 | 182.12474 | 215.19749 | 2.86440 | 0.2084140 | 3.1046925 | 42 | 3 | 1998–2009 | 0.44 | M-v | 3 | MPC | 165892 | 2009 $UK_{29}$ |
| 2009 $UZ_{29}$ | 16.3 | 0.15 | 20100104 | 0.42888 | 198.00733 | 221.90354 | 1.18857 | 0.0538208 | 2.8664983 | 64 | 6 | 2002–2009 | 0.36 | M-v | 1 | MPC | 165893 | 2009 $UZ_{29}$ |
| 2009 $UG_{30}$ | 16.7 | 0.15 | 20100104 | 338.78868 | 249.37896 | 199.40104 | 0.57909 | 0.1339302 | 3.1178965 | 37 | 5 | 1998–2009 | 0.34 | M-v | 0 | MPC | 165894 | 2009 $UG_{30}$ |
| 2009 $UK_{30}$ | 17.0 | 0.15 | 20100104 | 32.41556 | 162.68567 | 217.51342 | 12.21772 | 0.1807491 | 2.5997083 | 36 | 1 | 78 days | 0.57 | M-v | 4 | MPC | | 2009 $UK_{30}$ |
| 2009 $UN_{30}$ | 16.1 | 0.15 | 20100104 | 0.27956 | 20.72869 | 43.75488 | 15.35426 | 0.2446629 | 3.2139160 | 60 | 2 | 2003–2009 | 0.51 | M-v | 2 | MPC | 166377 | 2009 $UN_{30}$ |
| 2009 $UU_{30}$ | 17.5 | 0.15 | 20091105 | 327.57801 | 244.57784 | 214.04268 | 2.77484 | 0.2325662 | 2.6283784 | 18 | 1 | 53 days | 0.26 | | | MPC | | 2009 $UU_{30}$ |
| 2009 $UX_{30}$ | 16.4 | 0.15 | 20091105 | 9.05355 | 342.53241 | 53.75876 | 5.35805 | 0.1336628 | 2.7083497 | 42 | 1 | 55 days | 0.47 | | | MPC | | 2009 $UX_{30}$ |
| 2009 $UF_{31}$ | 15.1 | 0.15 | 20100104 | 319.64621 | 239.26830 | 224.37443 | 9.36791 | 0.0595215 | 3.0514185 | 74 | 5 | 2003–2009 | 0.38 | M-v | 0 | MPC | 165894 | 2009 $UF_{31}$ |
| 2009 $UT_{31}$ | 18.0 | 0.15 | 20091105 | 42.79605 | 129.52318 | 212.91811 | 1.20359 | 0.2174054 | 2.1924539 | 19 | 1 | 38 days | 0.44 | | | MPC | | 2009 $UT_{31}$ |
| 2009 $UV_{31}$ | 16.0 | 0.15 | 20100104 | 356.34834 | 26.74382 | 40.53603 | 5.01099 | 0.1262151 | 2.9968193 | 48 | 5 | 1996–2009 | 0.40 | M-v | 1 | MPC | 165895 | 2009 $UV_{31}$ |
| 2009 $UA_{32}$ | 16.9 | 0.15 | 20091105 | 25.47614 | 332.74866 | 42.17565 | 5.43500 | 0.1245667 | 2.7385688 | 15 | 1 | 37 days | 0.39 | | | MPC | | 2009 $UA_{32}$ |
| 2009 $UB_{32}$ | 16.3 | 0.15 | 20100104 | 345.20424 | 125.53277 | 316.38409 | 0.27545 | 0.1409967 | 3.1401145 | 39 | 5 | 2000–2009 | 0.33 | M-v | 1 | MPC | 165895 | 2009 $UB_{32}$ |
| 2009 $UH_{32}$ | 15.8 | 0.15 | 20100104 | 333.54069 | 228.36514 | 225.28258 | 6.82907 | 0.0923907 | 3.0009836 | 49 | 1 | 92 days | 0.42 | M-v | 4 | MPC | 166377 | 2009 $UH_{32}$ |
| 2009 $UL_{32}$ | 15.9 | 0.15 | 20100104 | 345.73549 | 214.82632 | 226.92527 | 1.27557 | 0.1307315 | 3.0497405 | 67 | 6 | 1998–2009 | 0.37 | M-v | 0 | MPC | 165895 | 2009 $UL_{32}$ |
| 2009 $UT_{32}$ | 15.8 | 0.15 | 20100104 | 149.92822 | 207.74639 | 48.50700 | 5.74735 | 0.2849150 | 2.6068734 | 53 | 6 | 2000–2009 | 0.38 | M-v | 1 | MPC | 165896 | 2009 $UT_{32}$ |
| 2009 $UV_{32}$ | 17.9 | 0.15 | 20091105 | 20.89005 | 161.65320 | 220.41167 | 9.06826 | 0.1173553 | 2.3829732 | 15 | 1 | 37 days | 0.18 | | | MPC | | 2009 $UV_{32}$ |
| 2009 $UZ_{32}$ | 16.9 | 0.15 | 20100104 | 314.63381 | 76.55809 | 47.89736 | 10.34634 | 0.1468401 | 2.6637930 | 35 | 3 | 1998–2009 | 0.42 | M-v | 2 | MPC | 165896 | 2009 $UZ_{32}$ |
| 2009 $UB_{33}$ | 18.7 | 0.15 | 20100104 | 11.23080 | 210.96067 | 205.22099 | 0.76649 | 0.1707280 | 2.3556667 | 26 | 2 | 2005–2009 | 0.33 | M-v | 3 | MPC | 166377 | 2009 $UB_{33}$ |
| 2009 $UK_{33}$ | 18.7 | 0.15 | 20100104 | 31.45340 | 340.04976 | 48.30121 | 4.00662 | 0.1820900 | 2.2887472 | 27 | 2 | 1995–2009 | 0.29 | M-v | 3 | MPC | 165897 | 2009 $UK_{33}$ |
| 2009 $UL_{33}$ | 15.7 | 0.15 | 20100104 | 245.27933 | 323.90571 | 225.57082 | 8.22146 | 0.1318521 | 3.0910620 | 43 | 5 | 1998–2009 | 0.27 | M-v | 1 | MPC | 165897 | 2009 $UL_{33}$ |
| 2009 $UM_{33}$ | 18.2 | 0.15 | 20100104 | 5.91925 | 3.41272 | 63.37884 | 1.56343 | 0.1802796 | 2.2149716 | 74 | 4 | 2001–2009 | 0.42 | M-v | 2 | MPC | 166377 | 2009 $UM_{33}$ |
| 2009 $UO_{33}$ | 16.6 | 0.15 | 20100104 | 66.34906 | 298.29003 | 51.74467 | 11.55075 | 0.0713049 | 2.9860861 | 23 | 1 | 61 days | 0.23 | M-v | 4 | MPC | | 2009 $UO_{33}$ |
| 2009 $UQ_{33}$ | 16.6 | 0.15 | 20100104 | 304.20576 | 100.57742 | 49.90650 | 24.22362 | 0.2619105 | 2.7992288 | 24 | 1 | 63 days | 0.34 | M-v | 4 | MPC | | 2009 $UQ_{33}$ |
| 2009 $US_{33}$ | 16.9 | 0.15 | 20100104 | 67.93697 | 270.56682 | 49.12671 | 16.81059 | 0.3243767 | 2.7450891 | 47 | 3 | 2004–2009 | 0.36 | M-v | 1 | MPC | 165897 | 2009 $US_{33}$ |
| 2009 $UT_{33}$ | 16.9 | 0.15 | 20100104 | 312.06576 | 66.74235 | 55.42828 | 8.96953 | 0.0827863 | 2.7169431 | 34 | 2 | 2000–2009 | 0.41 | M-v | 4 | MPC | 165897 | 2009 $UT_{33}$ |
| 2009 $UU_{33}$ | 16.2 | 0.15 | 20100104 | 290.01041 | 275.19892 | 225.32958 | 9.04452 | 0.0480913 | 2.9941771 | 19 | 1 | 62 days | 0.26 | M-v | 4 | MPC | | 2009 $UU_{33}$ |
| 2009 $UW_{33}$ | 17.8 | 0.15 | 20100104 | 10.43446 | 356.38850 | 62.84749 | 3.19787 | 0.1861752 | 2.3821809 | 48 | 4 | 1994–2009 | 0.41 | M-v | 1 | MPC | 166377 | 2009 $UW_{33}$ |
| 2009 $UZ_{33}$ | 17.0 | 0.15 | 20100104 | 40.49087 | 156.45588 | 212.53623 | 0.48064 | 0.1840039 | 2.9983999 | 31 | 1 | 84 days | 0.35 | M-v | 4 | MPC | 166377 | 2009 $UZ_{33}$ |
| 2009 $UD_{34}$ | 16.2 | 0.15 | 20100104 | 96.24452 | 92.29954 | 219.79653 | 2.65464 | 0.1378766 | 2.9995714 | 52 | 6 | 2002–2009 | 0.39 | M-v | 0 | MPC | 164075 | 2009 $UD_{34}$ |
| 2009 $UJ_{34}$ | 18.6 | 0.15 | 20091105 | 4.02376 | 353.82439 | 46.90790 | 4.77160 | 0.2462884 | 2.3107217 | 27 | 1 | 58 days | 0.35 | | | MPC | | 2009 $UJ_{34}$ |
| 2009 $UU_{34}$ | 16.6 | 0.15 | 20100104 | 341.35218 | 41.87143 | 58.40166 | 11.09192 | 0.1971181 | 3.1448038 | 29 | 3 | 1992–2009 | 0.33 | M-v | 2 | MPC | 165898 | 2009 $UU_{34}$ |
| 2009 $UX_{34}$ | 17.5 | 0.15 | 20091105 | 353.34132 | 202.06770 | 223.84798 | 3.60084 | 0.1925490 | 2.7628696 | 26 | 1 | 59 days | 0.37 | | | MPC | | 2009 $UX_{34}$ |
| 2009 $UC_{35}$ | 15.8 | 0.15 | 20100104 | 322.75119 | 57.07179 | 56.38708 | 4.38967 | 0.0678191 | 2.9752917 | 44 | 5 | 1993–2009 | 0.36 | M-v | 0 | MPC | 165898 | 2009 $UC_{35}$ |
| 2009 $UE_{35}$ | 16.4 | 0.15 | 20100104 | 80.86200 | 292.55855 | 49.42431 | 6.60639 | 0.0688491 | 2.6975123 | 27 | 3 | 1994–2009 | 0.29 | M-v | 3 | MPC | 165898 | 2009 $UE_{35}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2009 $UG_{35}$ | 17.8 | 0.15 | 20100104 | 353.97867 | 51.78614 | 32.42301 | 2.00370 | 0.0915543 | 2.1497534 | 66 | 5 | 1996–2009 | 0.36 | M-v | 1 | MPC | 165899 | 2009 $UG_{35}$ |
| 2009 $UH_{35}$ | 15.9 | 0.15 | 20100104 | 319.55084 | 69.59767 | 53.50543 | 12.17972 | 0.1343053 | 3.0153969 | 27 | 1 | 90 days | 0.26 | M-v | 4 | MPC | 166378 | 2009 $UH_{35}$ |
| 2009 $UJ_{35}$ | 17.1 | 0.15 | 20100104 | 63.34218 | 156.44020 | 192.74145 | 1.38195 | 0.1820797 | 2.6045944 | 38 | 4 | 1996–2009 | 0.25 | M-v | 1 | MPC | 165899 | 2009 $UJ_{35}$ |
| 2009 $UK_{35}$ | 18.2 | 0.15 | 20100104 | 47.46456 | 144.09427 | 220.35937 | 4.84003 | 0.2495844 | 2.2939960 | 26 | 1 | 89 days | 0.28 | M-v | 3 | MPC | 166378 | 2009 $UK_{35}$ |
| 2009 $UL_{35}$ | 17.4 | 0.15 | 20091105 | 21.72044 | 313.16297 | 66.51780 | 3.05668 | 0.2452203 | 2.6410622 | 25 | 1 | 51 days | 0.33 | | | MPC | | 2009 $UL_{35}$ |
| 2009 $UN_{35}$ | 16.5 | 0.15 | 20091105 | 3.62168 | 344.26349 | 67.66810 | 1.08094 | 0.2063037 | 3.0352677 | 26 | 1 | 51 days | 0.34 | | | MPC | | 2009 $UN_{35}$ |
| 2009 $UO_{35}$ | 17.3 | 0.15 | 20100104 | 30.71188 | 181.27562 | 212.28759 | 1.54507 | 0.1519333 | 2.6611753 | 45 | 4 | 2000–2009 | 0.35 | M-v | 1 | MPC | 165899 | 2009 $UO_{35}$ |
| 2009 $UP_{35}$ | 15.4 | 0.15 | 20100104 | 77.01547 | 280.09564 | 60.70520 | 7.31157 | 0.1101240 | 3.2375168 | 45 | 5 | 2002–2009 | 0.31 | M-v | 0 | MPC | 165899 | 2009 $UP_{35}$ |
| 2009 $UQ_{35}$ | 16.8 | 0.15 | 20100104 | 55.13382 | 84.84816 | 266.80871 | 1.00016 | 0.2451440 | 2.5918966 | 64 | 6 | 2001–2009 | 0.47 | M-v | 1 | MPC | 165899 | 2009 $UQ_{35}$ |
| 2009 $UT_{35}$ | 17.8 | 0.15 | 20100104 | 1.43009 | 203.93552 | 230.74832 | 1.21931 | 0.1779488 | 2.5842548 | 39 | 1 | 97 days | 0.30 | M-v | 3 | MPC | 166378 | 2009 $UT_{35}$ |
| 2009 $UE_{37}$ | 17.9 | 0.15 | 20091105 | 55.93050 | 121.48666 | 207.43812 | 5.90553 | 0.1542726 | 2.4297649 | 22 | 1 | 32 days | 0.20 | | | MPC | | 2009 $UE_{37}$ |
| 2009 $UF_{37}$ | 13.6 | 0.15 | 20100104 | 117.44736 | 69.74865 | 227.77523 | 20.31243 | 0.0255845 | 5.2013928 | 40 | 3 | 2004–2009 | 0.29 | M-v | 2 | MPC | 165901 | 2009 $UF_{37}$ |
| 2009 $UG_{37}$ | 16.9 | 0.15 | 20100104 | 93.73577 | 107.76539 | 205.87507 | 3.29951 | 0.1415336 | 2.5766493 | 54 | 6 | 1995–2009 | 0.29 | M-v | 1 | MPC | 165901 | 2009 $UG_{37}$ |
| 2009 $UH_{37}$ | 15.6 | 0.15 | 20100104 | 248.87960 | 124.04752 | 54.22245 | 13.24566 | 0.0655905 | 3.2059752 | 32 | 3 | 2003–2009 | 0.62 | M-v | 3 | MPC | 165901 | 2009 $UH_{37}$ |
| 2009 $UK_{37}$ | 16.7 | 0.15 | 20100104 | 196.18814 | 173.40616 | 53.00951 | 11.93507 | 0.0426109 | 2.9066068 | 36 | 5 | 1999–2009 | 0.37 | M-v | 2 | MPC | 165901 | 2009 $UK_{37}$ |
| 2009 $UL_{37}$ | 15.2 | 0.15 | 20091105 | 298.15453 | 28.36731 | 106.94021 | 1.46287 | 0.1969589 | 3.9764562 | 18 | 1 | 50 days | 0.27 | | | MPC | | 2009 $UL_{37}$ |
| 2009 $UO_{37}$ | 17.4 | 0.15 | 20091105 | 119.25266 | 218.28510 | 59.53635 | 6.16097 | 0.1360467 | 2.3646220 | 27 | 1 | 49 days | 0.39 | | | MPC | | 2009 $UO_{37}$ |
| 2009 $UQ_{37}$ | 18.1 | 0.15 | 20091105 | 357.20875 | 339.16838 | 73.41627 | 3.07809 | 0.1694335 | 2.3303567 | 32 | 1 | 50 days | 0.43 | | | MPC | | 2009 $UQ_{37}$ |
| 2009 $US_{37}$ | 18.0 | 0.15 | 20091105 | 351.36212 | 340.35159 | 82.86400 | 3.03619 | 0.2122127 | 2.7664297 | 27 | 1 | 50 days | 0.42 | | | MPC | | 2009 $US_{37}$ |
| 2009 $UT_{37}$ | 17.9 | 0.15 | 20091016 | 19.82304 | 311.63316 | 59.46776 | 6.37252 | 0.2189012 | 2.6023661 | 10 | 1 | 5 days | 0.18 | | | MPC | | 2009 $UT_{37}$ |
| 2009 $UY_{37}$ | 15.5 | 0.15 | 20100104 | 33.70714 | 315.56925 | 59.30945 | 10.73341 | 0.2134207 | 3.1803103 | 89 | 3 | 2003–2009 | 0.50 | M-v | 2 | MPC | 165902 | 2009 $UY_{37}$ |
| 2009 $UZ_{37}$ | 16.5 | 0.15 | 20091105 | 57.82615 | 241.35921 | 97.36541 | 2.88617 | 0.1398449 | 2.9980174 | 19 | 1 | 58 days | 0.25 | | | MPC | | 2009 $UZ_{37}$ |
| 2009 $UA_{38}$ | 16.2 | 0.15 | 20100104 | 345.06130 | 230.85945 | 217.10641 | 9.05885 | 0.1805238 | 3.1840946 | 39 | 1 | 79 days | 0.38 | M-v | 4 | MPC | 166378 | 2009 $UA_{38}$ |
| 2009 $UB_{38}$ | 16.7 | 0.15 | 20100104 | 103.08959 | 224.08750 | 90.08167 | 3.10268 | 0.0565062 | 2.8583017 | 51 | 5 | 1999–2009 | 0.44 | M-v | 1 | MPC | 165902 | 2009 $UB_{38}$ |
| 2009 $UD_{38}$ | 17.0 | 0.15 | 20091016 | 35.42323 | 284.86907 | 65.71173 | 4.01359 | 0.2152360 | 2.7745627 | 10 | 1 | 5 days | 0.19 | | | MPC | | 2009 $UD_{38}$ |
| 2009 $UH_{38}$ | 16.8 | 0.15 | 20100104 | 38.17454 | 276.70902 | 93.05681 | 1.80938 | 0.2059967 | 3.0391479 | 24 | 3 | 2003–2009 | 0.32 | M-v | 4 | MPC | 165902 | 2009 $UH_{38}$ |
| 2009 $UK_{38}$ | 17.4 | 0.15 | 20091105 | 34.53276 | 161.93433 | 200.13251 | 2.74003 | 0.1704975 | 2.5671757 | 33 | 1 | 58 days | 0.26 | | | MPC | | 2009 $UK_{38}$ |
| 2009 $UN_{38}$ | 15.7 | 0.15 | 20091105 | 263.31085 | 106.89723 | 54.88168 | 12.80323 | 0.1188398 | 3.0638984 | 29 | 1 | 57 days | 0.23 | | | MPC | | 2009 $UN_{38}$ |
| 2009 $UP_{38}$ | 17.5 | 0.15 | 20100104 | 349.10077 | 29.10509 | 56.53559 | 5.86755 | 0.1167815 | 2.2068460 | 70 | 4 | 1999–2009 | 0.43 | M-v | 1 | MPC | 165902 | 2009 $UP_{38}$ |
| 2009 $US_{38}$ | 16.9 | 0.15 | 20100104 | 33.53968 | 332.82862 | 49.22417 | 14.77126 | 0.1846361 | 2.5644882 | 54 | 1 | 60 days | 0.47 | M-v | 4 | MPC | | 2009 $US_{38}$ |
| 2009 $UD_{39}$ | 16.4 | 0.15 | 20091105 | 13.82356 | 337.14963 | 54.56610 | 11.00430 | 0.1745105 | 3.0594232 | 37 | 1 | 57 days | 0.44 | | | MPC | | 2009 $UD_{39}$ |
| 2009 $UF_{39}$ | 17.1 | 0.15 | 20091105 | 29.80552 | 305.24306 | 58.81835 | 5.02404 | 0.2276542 | 2.7082787 | 55 | 1 | 50 days | 0.52 | | | MPC | | 2009 $UF_{39}$ |
| 2009 $UG_{39}$ | 17.8 | 0.15 | 20100104 | 36.75924 | 295.03615 | 83.01667 | 1.90873 | 0.2176494 | 2.3379692 | 55 | 2 | 2005–2009 | 0.52 | M-v | 3 | MPC | 165903 | 2009 $UG_{39}$ |
| 2009 $UH_{39}$ | 17.8 | 0.15 | 20100104 | 55.17813 | 156.37414 | 198.58190 | 2.75885 | 0.1893357 | 2.3752939 | 45 | 2 | 2005–2009 | 0.31 | M-v | 2 | MPC | 165903 | 2009 $UH_{39}$ |
| 2009 $UL_{39}$ | 16.1 | 0.15 | 20091105 | 93.59722 | 248.13432 | 59.20442 | 10.75745 | 0.1010823 | 2.7749446 | 25 | 1 | 50 days | 0.27 | | | MPC | | 2009 $UL_{39}$ |
| 2009 $UM_{39}$ | 16.9 | 0.15 | 20100104 | 344.40148 | 265.38425 | 186.58966 | 2.04306 | 0.1941218 | 2.9979670 | 33 | 3 | 1995–2009 | 0.28 | M-v | 2 | MPC | 165903 | 2009 $UM_{39}$ |
| 2009 $UQ_{39}$ | 17.0 | 0.15 | 20100104 | 22.01881 | 169.37284 | 224.04537 | 9.44731 | 0.2776494 | 2.7272543 | 76 | 2 | 2000–2009 | 0.51 | M-v | 4 | MPC | 166378 | 2009 $UQ_{39}$ |
| 2009 $US_{39}$ | 15.4 | 0.15 | 20091105 | 354.09167 | 193.03872 | 231.41920 | 15.99678 | 0.1860610 | 3.1177263 | 49 | 1 | 57 days | 0.39 | | | MPC | | 2009 $US_{39}$ |
| 2009 $UT_{39}$ | 16.8 | 0.15 | 20100104 | 26.53575 | 341.35522 | 53.29803 | 5.11762 | 0.2108805 | 2.5820416 | 56 | 1 | 88 days | 0.48 | M-v | 4 | MPC | 166378 | 2009 $UT_{39}$ |
| 2009 $UU_{39}$ | 16.9 | 0.15 | 20100104 | 48.47242 | 116.24106 | 255.52170 | 2.14685 | 0.1331437 | 2.6268298 | 41 | 4 | 1996–2009 | 0.36 | M-v | 2 | MPC | 165904 | 2009 $UU_{39}$ |
| 2009 $UV_{39}$ | 18.1 | 0.15 | 20100104 | 47.40389 | 329.47624 | 39.31222 | 3.96925 | 0.2049406 | 2.3040783 | 41 | 3 | 2002–2009 | 0.38 | M-v | 3 | MPC | 165904 | 2009 $UV_{39}$ |
| 2009 $UA_{40}$ | 16.9 | 0.15 | 20091105 | 13.35084 | 112.09442 | 266.12415 | 16.22009 | 0.2156623 | 2.5445031 | 32 | 1 | 56 days | 0.50 | | | MPC | | 2009 $UA_{40}$ |
| 2009 $UK_{41}$ | 17.1 | 0.15 | 20100104 | 40.42993 | 310.64912 | 42.11737 | 2.44438 | 0.2172919 | 2.7019709 | 46 | 3 | 2000–2009 | 0.47 | M-v | 3 | MPC | 165905 | 2009 $UK_{41}$ |
| 2009 $UJ_{44}$ | 16.3 | 0.15 | 20100104 | 167.90521 | 197.84258 | 39.37664 | 8.15559 | 0.1513019 | 2.5732503 | 40 | 3 | 2005–2009 | 0.37 | M-v | 3 | MPC | 165905 | 2009 $UJ_{44}$ |
| 2009 $UJ_{45}$ | 13.7 | 0.15 | 20100104 | 54.56752 | 301.18104 | 47.90207 | 12.98437 | 0.0181807 | 5.2206242 | 15 | 1 | 62 days | 0.28 | M-v | 5 | MPC | | 2009 $UJ_{45}$ |
| 2009 $UZ_{45}$ | 16.0 | 0.15 | 20100104 | 349.36437 | 24.66391 | 43.95103 | 11.31530 | 0.0651654 | 3.1094147 | 17 | 1 | 87 days | 0.33 | M-v | 4 | MPC | | 2009 $UZ_{45}$ |
| 2009 $UC_{46}$ | 16.9 | 0.15 | 20100104 | 18.36462 | 352.76811 | 45.02145 | 20.12640 | 0.2372792 | 3.0576693 | 33 | 1 | 63 days | 0.31 | M-v | 4 | MPC | | 2009 $UC_{46}$ |
| 2009 $UF_{46}$ | 16.7 | 0.15 | 20100104 | 48.62245 | 134.17677 | 230.96119 | 4.09441 | 0.1296064 | 2.7221938 | 41 | 3 | 2006–2009 | 0.40 | M-v | 3 | MPC | 165906 | 2009 $UF_{46}$ |
| 2009 $UH_{46}$ | 16.9 | 0.15 | 20100104 | 350.70716 | 37.61845 | 42.73679 | 7.35204 | 0.0811430 | 2.3184138 | 67 | 5 | 2002–2009 | 0.52 | M-v | 1 | MPC | 165906 | 2009 $UH_{46}$ |
| 2009 $UJ_{46}$ | 16.0 | 0.15 | 20100104 | 78.26448 | 291.14717 | 45.43205 | 7.32911 | 0.0883899 | 2.6867660 | 63 | 4 | 2003–2009 | 0.51 | M-v | 2 | MPC | 165907 | 2009 $UJ_{46}$ |
| 2009 $UQ_{46}$ | 17.0 | 0.15 | 20100104 | 35.95744 | 334.99408 | 41.49932 | 4.02128 | 0.2375045 | 2.4198772 | 77 | 2 | 2005–2009 | 0.43 | M-v | 3 | MPC | 165907 | 2009 $UQ_{46}$ |
| 2009 $UV_{46}$ | 15.5 | 0.15 | 20100104 | 343.80902 | 37.23788 | 48.25616 | 11.05269 | 0.0903938 | 2.9914761 | 76 | 3 | 2004–2009 | 0.49 | M-v | 2 | MPC | 165907 | 2009 $UV_{46}$ |
| 2009 $UA_{47}$ | 16.1 | 0.15 | 20100104 | 97.12183 | 254.45167 | 48.52059 | 13.51728 | 0.2314768 | 2.6175002 | 43 | 4 | 1995–2009 | 0.58 | M-v | 1 | MPC | 165908 | 2009 $UA_{47}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2009 $UC_{47}$ | 17.0 | 0.15 | 20100104 | 346.14302 | 39.14646 | 50.37844 | 3.89134 | 0.1681301 | 2.7725339 | 38 | 2 | 2002–2009 | 0.27 | M-v | 3 | MPC | 165908 | 2009 $UC_{47}$ |
| 2009 $UE_{47}$ | 18.4 | 0.15 | 20100104 | 339.21966 | 52.33059 | 47.14264 | 1.98409 | 0.1357631 | 2.3472018 | 32 | 3 | 2000–2009 | 0.26 | M-v | 2 | MPC | 165908 | 2009 $UE_{47}$ |
| 2009 $UF_{47}$ | 18.4 | 0.15 | 20100104 | 57.03758 | 130.06780 | 222.85926 | 4.58910 | 0.2092373 | 2.2011364 | 25 | 1 | 89 days | 0.29 | M-v | 4 | MPC | 166379 | 2009 $UF_{47}$ |
| 2009 $UG_{47}$ | 18.1 | 0.15 | 20100104 | 19.27649 | 356.05751 | 50.06051 | 3.28942 | 0.1898475 | 2.3934047 | 55 | 2 | 2005–2009 | 0.41 | M-v | 3 | MPC | 166379 | 2009 $UG_{47}$ |
| 2009 $US_{47}$ | 17.0 | 0.15 | 20100104 | 39.29022 | 137.97282 | 234.37253 | 6.27094 | 0.1641986 | 2.6012794 | 45 | 2 | 2005–2009 | 0.45 | M-v | 3 | MPC | 165908 | 2009 $US_{47}$ |
| 2009 $UW_{47}$ | 16.4 | 0.15 | 20100104 | 335.27049 | 240.28917 | 229.39939 | 13.60784 | 0.2632813 | 2.6752347 | 56 | 2 | 2005–2009 | 0.47 | M-v | 3 | MPC | 165908 | 2009 $UW_{47}$ |
| 2009 $UB_{49}$ | 14.2 | 0.15 | 20090926 | 263.62552 | 62.88862 | 68.51361 | 2.55816 | 0.0568245 | 5.2560391 | 10 | 1 | 27 days | 0.34 | | E | MPC | | 2009 $UB_{49}$ |
| 2009 $UQ_{50}$ | 18.1 | 0.15 | 20100104 | 325.81092 | 52.24343 | 44.26215 | 5.09427 | 0.1079082 | 2.2797151 | 25 | 2 | 2002–2009 | 0.28 | M-v | 3 | MPC | 165909 | 2009 $UQ_{50}$ |
| 2009 $UB_{51}$ | 12.6 | 0.15 | 20100104 | 348.78639 | 33.37084 | 30.37302 | 13.06255 | 0.1151455 | 5.2269952 | 72 | 5 | 2001–2009 | 0.54 | M-v | 1 | MPC | 165909 | 2009 $UB_{51}$ |
| 2009 $UA_{52}$ | 16.0 | 0.15 | 20100104 | 23.34322 | 164.74228 | 223.04979 | 9.66650 | 0.0792794 | 3.1272216 | 29 | 2 | 2003–2009 | 0.25 | M-v | 3 | MPC | 165910 | 2009 $UA_{52}$ |
| 2009 $UF_{53}$ | 17.3 | 0.15 | 20100104 | 30.30300 | 356.69566 | 20.48154 | 4.87613 | 0.2987976 | 2.5953418 | 32 | 1 | 61 days | 0.49 | M-v | 4 | MPC | 166379 | 2009 $UF_{53}$ |
| 2009 $UL_{53}$ | 17.2 | 0.15 | 20100104 | 51.05232 | 137.83304 | 227.67773 | 3.47601 | 0.1515197 | 2.1844408 | 57 | 1 | 87 days | 0.49 | M-v | 4 | MPC | 166379 | 2009 $UL_{53}$ |
| 2009 $UM_{53}$ | 15.4 | 0.15 | 20100104 | 59.09585 | 296.81729 | 48.02314 | 17.26685 | 0.2081722 | 3.0478645 | 67 | 3 | 2002–2009 | 0.44 | M-v | 2 | MPC | 165911 | 2009 $UM_{53}$ |
| 2009 $UJ_{55}$ | 18.0 | 0.15 | 20100104 | 45.28873 | 140.23416 | 219.05238 | 6.26156 | 0.2377921 | 2.2330437 | 31 | 3 | 1999–2009 | 0.48 | M-v | 3 | MPC | 165911 | 2009 $UJ_{55}$ |
| 2009 $UK_{55}$ | 17.7 | 0.15 | 20091016 | 350.83076 | 9.91827 | 39.72912 | 4.20574 | 0.0448831 | 2.7455659 | 11 | 1 | 16 days | 0.23 | | | MPC | | 2009 $UK_{55}$ |
| 2009 $UE_{56}$ | 15.2 | 0.15 | 20100104 | 221.45706 | 160.12062 | 36.56071 | 9.92004 | 0.0286906 | 3.0686501 | 29 | 2 | 2006–2009 | 0.31 | M-v | 3 | MPC | 165911 | 2009 $UE_{56}$ |
| 2009 $UF_{56}$ | 17.3 | 0.15 | 20091105 | 34.99907 | 341.74190 | 19.19267 | 2.42787 | 0.1236441 | 2.9894023 | 15 | 1 | 30 days | 0.32 | | | MPC | | 2009 $UF_{56}$ |
| 2009 $UD_{57}$ | 16.5 | 0.15 | 20091105 | 6.22029 | 167.12525 | 228.30454 | 6.48119 | 0.1454814 | 2.6586218 | 49 | 1 | 57 days | 0.59 | | | MPC | | 2009 $UD_{57}$ |
| 2009 $UJ_{58}$ | 19.6 | 0.15 | 20091016 | 14.80911 | 113.44483 | 249.23373 | 2.39114 | 0.3281185 | 2.4227594 | 11 | 1 | 16 days | 0.31 | | E | MPC | | 2009 $UJ_{58}$ |
| 2009 $UZ_{58}$ | 16.9 | 0.15 | 20091105 | 326.85234 | 223.07419 | 225.71000 | 17.46650 | 0.1692117 | 3.1675382 | 19 | 1 | 55 days | 0.28 | | | MPC | | 2009 $UZ_{58}$ |
| 2009 $UV_{59}$ | 16.9 | 0.15 | 20091016 | 8.54988 | 179.87988 | 266.15787 | 19.03426 | 0.1933858 | 2.6238358 | 9 | 1 | 2 days | 0.33 | | E | MPC | | 2009 $UV_{59}$ |
| 2009 $UX_{59}$ | 16.1 | 0.15 | 20100104 | 45.43088 | 115.83224 | 227.90184 | 29.30300 | 0.2830650 | 2.6049548 | 50 | 2 | 2005–2009 | 0.52 | M-v | 3 | MPC | 165913 | 2009 $UX_{59}$ |
| 2009 $UM_{61}$ | 17.7 | 0.15 | 20090926 | 38.35048 | 188.37452 | 126.70480 | 3.26129 | 0.2112377 | 2.3782399 | 18 | 1 | 37 days | 0.41 | | | MPC | | 2009 $UM_{61}$ |
| 2009 $UO_{61}$ | 17.4 | 0.15 | 20100104 | 355.13015 | 28.06797 | 29.62399 | 17.79567 | 0.2808786 | 2.7790440 | 20 | 1 | 62 days | 0.23 | M-v | 4 | MPC | | 2009 $UO_{61}$ |
| 2009 $UQ_{64}$ | 14.4 | 0.15 | 20090926 | 348.45491 | 332.45124 | 65.33966 | 10.21669 | 0.0451131 | 5.2956233 | 12 | 1 | 26 days | 0.22 | | | MPC | | 2009 $UQ_{64}$ |
| 2009 $UW_{66}$ | 17.3 | 0.15 | 20091016 | 330.76603 | 333.03682 | 85.24850 | 3.48273 | 0.1622961 | 2.9568617 | 15 | 1 | 8 days | 0.25 | | | MPC | | 2009 $UW_{66}$ |
| 2009 $UN_{67}$ | 13.0 | 0.15 | 20090926 | 279.75807 | 53.02528 | 57.29574 | 13.57021 | 0.0288586 | 5.2676145 | 16 | 1 | 22 days | 0.46 | | | MPC | | 2009 $UN_{67}$ |
| 2009 $UX_{67}$ | 17.0 | 0.15 | 20090926 | 27.34849 | 302.82394 | 48.78219 | 12.66946 | 0.0700376 | 2.9435163 | 14 | 1 | 25 days | 0.25 | | | MPC | | 2009 $UX_{67}$ |
| 2009 $UB_{68}$ | 18.5 | 0.15 | 20090926 | 356.78716 | 298.71076 | 84.85444 | 3.59033 | 0.2053207 | 2.4377748 | 14 | 1 | 48 days | 0.23 | | | MPC | | 2009 $UB_{68}$ |
| 2009 $UA_{69}$ | 16.9 | 0.15 | 20100104 | 353.18247 | 31.32143 | 7.91377 | 7.00705 | 0.1215246 | 2.4162646 | 22 | 1 | 83 days | 0.20 | M-v | 4 | MPC | | 2009 $UA_{69}$ |
| 2009 $UG_{69}$ | 15.6 | 0.15 | 20100104 | 10.61385 | 1.52586 | 43.12759 | 14.14858 | 0.1497961 | 3.1323278 | 59 | 1 | 87 days | 0.51 | M-v | 4 | MPC | 166380 | 2009 $UG_{69}$ |
| 2009 $UH_{69}$ | 16.4 | 0.15 | 20091016 | 6.18397 | 215.44631 | 170.87452 | 13.77962 | 0.2000547 | 2.6937598 | 14 | 1 | 47 days | 0.33 | | | MPC | | 2009 $UH_{69}$ |
| 2009 $UJ_{69}$ | 17.4 | 0.15 | 20091016 | 8.62462 | 220.01190 | 152.65217 | 6.90323 | 0.1042817 | 2.9847145 | 11 | 1 | 8 days | 0.34 | | | MPC | | 2009 $UJ_{69}$ |
| 2009 $UQ_{69}$ | 15.7 | 0.15 | 20100104 | 335.99844 | 255.31042 | 213.17066 | 13.80143 | 0.3110861 | 3.1039190 | 55 | 3 | 2003–2009 | 0.58 | M-v | 2 | MPC | 165915 | 2009 $UQ_{69}$ |
| 2009 $UR_{69}$ | 15.2 | 0.15 | 20100104 | 30.74293 | 322.95517 | 59.34494 | 11.38965 | 0.1219536 | 2.9865648 | 67 | 5 | 2002–2009 | 0.49 | M-v | 1 | MPC | 165915 | 2009 $UR_{69}$ |
| 2009 $US_{69}$ | 15.8 | 0.15 | 20100104 | 39.32773 | 146.62248 | 229.68021 | 8.91321 | 0.2134090 | 2.9995679 | 59 | 4 | 2002–2009 | 0.52 | M-v | 1 | MPC | 165915 | 2009 $US_{69}$ |
| 2009 $UW_{69}$ | 18.2 | 0.15 | 20090926 | 12.15320 | 259.32362 | 103.42575 | 5.33657 | 0.0799564 | 2.2737236 | 16 | 1 | 26 days | 0.18 | | | MPC | | 2009 $UW_{69}$ |
| 2009 $UX_{69}$ | 18.4 | 0.15 | 20100104 | 20.93420 | 313.47740 | 64.26496 | 7.71181 | 0.3053809 | 2.6615022 | 20 | 2 | 2005–2009 | 0.44 | M-v | 3 | MPC | 165915 | 2009 $UX_{69}$ |
| 2009 $UB_{70}$ | 17.3 | 0.15 | 20091016 | 2.15653 | 319.39156 | 61.65274 | 9.90316 | 0.2508269 | 2.7460121 | 12 | 1 | 18 days | 0.42 | | | MPC | | 2009 $UB_{70}$ |
| 2009 $UP_{70}$ | 14.2 | 0.15 | 20090926 | 334.75561 | 234.49976 | 178.12407 | 15.47510 | 0.0313115 | 5.1537025 | 12 | 1 | 26 days | 0.27 | | | MPC | | 2009 $UP_{70}$ |
| 2009 $UY_{70}$ | 17.8 | 0.15 | 20091016 | 8.11474 | 11.13019 | 15.01403 | 7.70255 | 0.1397263 | 2.2079719 | 16 | 1 | 17 days | 0.45 | | | MPC | | 2009 $UY_{70}$ |
| 2009 $UL_{71}$ | 15.7 | 0.15 | 20100104 | 351.73705 | 39.40938 | 36.00218 | 19.39399 | 0.1531518 | 3.1059813 | 28 | 1 | 61 days | 0.64 | M-v | 4 | MPC | 166380 | 2009 $UL_{71}$ |
| 2009 $UN_{71}$ | 17.5 | 0.15 | 20100104 | 62.72015 | 138.23938 | 229.96002 | 20.44268 | 0.0335137 | 1.8600045 | 68 | 1 | 85 days | 0.50 | M-v | 4 | MPC | 166380 | 2009 $UN_{71}$ |
| 2009 $UO_{71}$ | 16.8 | 0.15 | 20100104 | 25.95630 | 14.17176 | 25.57905 | 7.20813 | 0.1385284 | 2.3357587 | 77 | 3 | 1991–2009 | 0.48 | M-v | 2 | MPC | 166380 | 2009 $UO_{71}$ |
| 2009 $UP_{71}$ | 16.7 | 0.15 | 20100104 | 30.41187 | 26.02170 | 359.08239 | 4.45479 | 0.2091969 | 2.5993403 | 50 | 4 | 1992–2009 | 0.58 | M-v | 1 | MPC | 165917 | 2009 $UP_{71}$ |
| 2009 $UZ_{71}$ | 17.9 | 0.15 | 20100104 | 33.77816 | 156.19460 | 226.05449 | 3.74744 | 0.1911690 | 2.2345836 | 56 | 4 | 1999–2009 | 0.44 | M-v | 1 | MPC | 165918 | 2009 $UZ_{71}$ |
| 2009 $UA_{72}$ | 17.9 | 0.15 | 20100104 | 42.01275 | 141.71455 | 229.44311 | 4.68829 | 0.1650167 | 2.3500159 | 44 | 5 | 1991–2009 | 0.46 | M-v | 1 | MPC | 165918 | 2009 $UA_{72}$ |
| 2009 $UE_{72}$ | 13.4 | 0.15 | 20100104 | 343.74593 | 35.37541 | 35.38697 | 14.58064 | 0.0808434 | 5.1667569 | 29 | 3 | 2003–2009 | 0.42 | M-v | 3 | MPC | 165918 | 2009 $UE_{72}$ |
| 2009 $UM_{72}$ | 17.3 | 0.15 | 20100104 | 15.62819 | 345.46646 | 56.64259 | 10.26282 | 0.2971490 | 2.7388195 | 87 | 2 | 2000–2009 | 0.56 | M-v | 3 | MPC | 165919 | 2009 $UM_{72}$ |
| 2009 $UN_{72}$ | 16.8 | 0.15 | 20100104 | 24.03456 | 336.30933 | 50.91696 | 13.90796 | 0.2731111 | 2.7908249 | 43 | 1 | 76 days | 0.55 | M-v | 4 | MPC | | 2009 $UN_{72}$ |
| 2009 $UQ_{72}$ | 16.8 | 0.15 | 20100104 | 59.52021 | 259.81508 | 71.52451 | 6.95239 | 0.2909519 | 2.6403361 | 42 | 4 | 1996–2009 | 0.38 | M-v | 1 | MPC | 165919 | 2009 $UQ_{72}$ |
| 2009 $UT_{72}$ | 16.6 | 0.15 | 20091105 | 1.86865 | 347.97564 | 57.31898 | 14.57942 | 0.1247972 | 2.6137729 | 40 | 1 | 57 days | 0.51 | | | MPC | | 2009 $UT_{72}$ |
| 2009 $UW_{72}$ | 17.3 | 0.15 | 20100104 | 9.03168 | 23.88095 | 39.61248 | 6.02120 | 0.2201722 | 2.3390713 | 46 | 1 | 79 days | 0.55 | M-v | 3 | MPC | | 2009 $UW_{72}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2009 $UY_{72}$ | 16.5 | 0.15 | 20100104 | 2.55770 | 1.93025 | 64.53986 | 5.64881 | 0.0852903 | 2.6231055 | 62 | 3 | 2005–2009 | 0.49 | M-v | 3 | MPC | 165920 | 2009 $UY_{72}$ |
| 2009 $UZ_{72}$ | 15.5 | 0.15 | 20100104 | 32.38806 | 338.01499 | 48.65230 | 14.50767 | 0.1538917 | 3.0636072 | 72 | 5 | 1998–2009 | 0.47 | M-v | 1 | MPC | 165920 | 2009 $UZ_{72}$ |
| 2009 $UA_{73}$ | 17.3 | 0.15 | 20100104 | 18.77317 | 201.76470 | 201.18918 | 5.83582 | 0.2844732 | 2.6114217 | 48 | 1 | 87 days | 0.43 | M-v | 3 | MPC | 166381 | 2009 $UA_{73}$ |
| 2009 $UC_{73}$ | 17.2 | 0.15 | 20100104 | 15.66628 | 6.77537 | 6.56216 | 6.99414 | 0.1542182 | 2.4101275 | 46 | 2 | 1996–2009 | 0.27 | M-v | 3 | MPC | 165920 | 2009 $UC_{73}$ |
| 2009 $UF_{73}$ | 17.9 | 0.15 | 20091016 | 324.70327 | 73.74784 | 350.66509 | 2.00102 | 0.2440401 | 2.5686851 | 10 | 1 | 7 days | 0.28 | | E | MPC | | 2009 $UF_{73}$ |
| 2009 $UL_{75}$ | 18.5 | 0.15 | 20100104 | 358.77052 | 179.94196 | 239.63720 | 4.02360 | 0.1484164 | 2.3520836 | 19 | 1 | 60 days | 0.24 | M-v | 4 | MPC | | 2009 $UL_{75}$ |
| 2009 $UG_{77}$ | 17.8 | 0.15 | 20091016 | 347.22126 | 182.88512 | 227.50067 | 7.44991 | 0.2304185 | 2.8034067 | 9 | 1 | 19 days | 0.58 | | | MPC | | 2009 $UG_{77}$ |
| 2009 $UD_{78}$ | 13.7 | 0.15 | 20091016 | 321.89233 | 48.46680 | 25.68553 | 10.40135 | 0.0463966 | 5.2279618 | 14 | 1 | 59 days | 0.23 | | | MPC | | 2009 $UD_{78}$ |
| 2009 $UF_{79}$ | 18.1 | 0.15 | 20100104 | 43.80911 | 163.48097 | 208.29898 | 2.62875 | 0.2118025 | 2.3805507 | 16 | 1 | 68 days | 0.18 | M-v | 4 | MPC | | 2009 $UF_{79}$ |
| 2009 $UR_{79}$ | 17.0 | 0.15 | 20100104 | 77.56902 | 355.06059 | 323.26909 | 2.57949 | 0.1966369 | 2.3049034 | 33 | 3 | 2002–2009 | 0.49 | M-v | 5 | MPC | 166381 | 2009 $UR_{79}$ |
| 2009 $UR_{80}$ | 18.4 | 0.15 | 20091016 | 33.52234 | 106.21770 | 233.60075 | 4.38095 | 0.2097663 | 2.1799964 | 19 | 1 | 42 days | 0.44 | | | MPC | | 2009 $UR_{80}$ |
| 2009 $US_{80}$ | 16.0 | 0.15 | 20100104 | 12.95286 | 175.16122 | 223.74421 | 13.57290 | 0.0696352 | 2.6872796 | 39 | 3 | 2000–2009 | 0.48 | M-v | 3 | MPC | 165922 | 2009 $US_{80}$ |
| 2009 $UT_{80}$ | 17.4 | 0.15 | 20100104 | 3.13417 | 152.67825 | 261.92654 | 2.32448 | 0.1678785 | 2.6444790 | 28 | 1 | 82 days | 0.74 | M-v | 5 | MPC | | 2009 $UT_{80}$ |
| 2009 $UV_{80}$ | 17.6 | 0.15 | 20100104 | 21.95651 | 109.85095 | 279.05241 | 1.29408 | 0.2233035 | 2.3584191 | 54 | 4 | 1998–2009 | 0.51 | M-v | 1 | MPC | 166381 | 2009 $UV_{80}$ |
| 2009 $UE_{81}$ | 17.6 | 0.15 | 20100104 | 0.62790 | 52.16306 | 15.82274 | 4.56846 | 0.3083752 | 2.5827795 | 44 | 3 | 2002–2009 | 0.53 | M-v | 3 | MPC | 165923 | 2009 $UE_{81}$ |
| 2009 $UK_{82}$ | 16.0 | 0.15 | 20100104 | 339.81330 | 47.58614 | 46.29608 | 17.41642 | 0.1852994 | 3.1116612 | 40 | 2 | 2006–2009 | 0.46 | M-v | 3 | MPC | 165924 | 2009 $UK_{82}$ |
| 2009 $UP_{82}$ | 13.5 | 0.15 | 20091105 | 54.46824 | 288.81533 | 70.04865 | 11.63853 | 0.0290400 | 5.1808256 | 18 | 1 | 57 days | 0.36 | | | MPC | | 2009 $UP_{82}$ |
| 2009 $UR_{82}$ | 16.5 | 0.15 | 20100104 | 336.71264 | 241.95324 | 218.31709 | 11.80565 | 0.1603963 | 3.0279405 | 19 | 1 | 68 days | 0.38 | M-v | 4 | MPC | | 2009 $UR_{82}$ |
| 2009 $US_{82}$ | 18.3 | 0.15 | 20091105 | 308.82067 | 282.85946 | 188.89036 | 3.53799 | 0.0968654 | 2.1990572 | 15 | 1 | 32 days | 0.22 | | | MPC | | 2009 $US_{82}$ |
| 2009 $UU_{82}$ | 16.9 | 0.15 | 20091105 | 26.02244 | 180.33580 | 196.14770 | 4.14581 | 0.1692958 | 2.9639370 | 15 | 1 | 32 days | 0.30 | | | MPC | | 2009 $UU_{82}$ |
| 2009 $UW_{82}$ | 17.2 | 0.15 | 20100104 | 26.61284 | 319.61118 | 73.23074 | 5.68312 | 0.1702700 | 2.7713929 | 32 | 3 | 1995–2009 | 0.27 | M-v | 3 | MPC | 165924 | 2009 $UW_{82}$ |
| 2009 $UX_{82}$ | 17.6 | 0.15 | 20091105 | 26.29245 | 312.95404 | 59.26086 | 10.47197 | 0.2079567 | 2.6983286 | 22 | 1 | 55 days | 0.36 | | | MPC | | 2009 $UX_{82}$ |
| 2009 $UB_{83}$ | 16.6 | 0.15 | 20100104 | 40.03111 | 220.21668 | 152.10335 | 1.83314 | 0.1647535 | 3.1841428 | 39 | 4 | 2000–2009 | 0.32 | M-v | 2 | MPC | 165925 | 2009 $UB_{83}$ |
| 2009 $UH_{83}$ | 16.9 | 0.15 | 20100104 | 325.09717 | 42.92113 | 65.59395 | 5.55359 | 0.0453841 | 2.2841532 | 55 | 4 | 1995–2009 | 0.47 | M-v | 3 | MPC | 165925 | 2009 $UH_{83}$ |
| 2009 $UL_{83}$ | 17.4 | 0.15 | 20100104 | 17.48681 | 215.92133 | 192.68790 | 2.04440 | 0.1269922 | 2.5997212 | 22 | 1 | 88 days | 0.25 | M-v | 3 | MPC | 166382 | 2009 $UL_{83}$ |
| 2009 $UN_{83}$ | 17.4 | 0.15 | 20100104 | 27.95661 | 204.81497 | 189.12078 | 1.90819 | 0.2098314 | 2.3172321 | 70 | 3 | 2005–2009 | 0.46 | M-v | 3 | MPC | 165925 | 2009 $UN_{83}$ |
| 2009 $UO_{83}$ | 16.6 | 0.15 | 20091105 | 358.45704 | 356.24502 | 60.07895 | 8.19766 | 0.0377544 | 2.8510916 | 28 | 1 | 49 days | 0.25 | | | MPC | | 2009 $UO_{83}$ |
| 2009 $UQ_{83}$ | 16.9 | 0.15 | 20091105 | 13.20016 | 327.31383 | 66.11816 | 4.44594 | 0.1955304 | 2.7504027 | 37 | 1 | 49 days | 0.51 | | | MPC | | 2009 $UQ_{83}$ |
| 2009 $UZ_{83}$ | 16.4 | 0.15 | 20100104 | 297.37299 | 73.62046 | 72.36935 | 4.73477 | 0.1404211 | 2.7667523 | 39 | 3 | 2000–2009 | 0.43 | M-v | 3 | MPC | 165925 | 2009 $UZ_{83}$ |
| 2009 $UA_{84}$ | 15.1 | 0.15 | 20100104 | 99.97900 | 255.50474 | 62.76750 | 11.54714 | 0.0678172 | 3.0882880 | 73 | 6 | 2003–2009 | 0.58 | M-v | 0 | MPC | 165925 | 2009 $UA_{84}$ |
| 2009 $UB_{84}$ | 17.6 | 0.15 | 20100104 | 55.23912 | 278.74482 | 81.35380 | 2.72361 | 0.1803827 | 2.1313048 | 65 | 5 | 2003–2009 | 0.33 | M-v | 2 | MPC | 165926 | 2009 $UB_{84}$ |
| 2009 $UF_{84}$ | 17.7 | 0.15 | 20100104 | 68.82875 | 158.61592 | 178.57774 | 1.91066 | 0.2205296 | 2.3012487 | 26 | 1 | 88 days | 0.22 | M-v | 4 | MPC | | 2009 $UF_{84}$ |
| 2009 $UL_{84}$ | 18.0 | 0.15 | 20091105 | 338.20212 | 18.39042 | 62.71805 | 8.77488 | 0.1504000 | 2.3662558 | 14 | 1 | 55 days | 0.22 | | | MPC | | 2009 $UL_{84}$ |
| 2009 $UP_{84}$ | 13.5 | 0.15 | 20100104 | 317.15165 | 23.15150 | 84.68576 | 6.54431 | 0.0272601 | 5.2406256 | 40 | 4 | 1996–2009 | 0.42 | M-v | 3 | MPC | 165926 | 2009 $UP_{84}$ |
| 2009 $UQ_{84}$ | 18.7 | 0.15 | 20091105 | 352.06846 | 262.35806 | 161.45286 | 2.20157 | 0.1957892 | 2.4130106 | 19 | 1 | 57 days | 0.25 | | | MPC | | 2009 $UQ_{84}$ |
| 2009 $UR_{84}$ | 18.5 | 0.15 | 20091105 | 48.73843 | 269.22991 | 63.14744 | 6.91099 | 0.2848033 | 2.3235107 | 14 | 1 | 49 days | 0.36 | | | MPC | | 2009 $UR_{84}$ |
| 2009 $US_{84}$ | 16.8 | 0.15 | 20100104 | 11.31430 | 1.15247 | 55.26810 | 15.49435 | 0.2489148 | 2.5980295 | 74 | 3 | 2002–2009 | 0.43 | M-v | 2 | MPC | 166382 | 2009 $US_{84}$ |
| 2009 $UU_{84}$ | 18.2 | 0.15 | 20100104 | 60.94825 | 258.57028 | 84.36550 | 3.03067 | 0.2537407 | 2.2554796 | 32 | 2 | 2002–2009 | 0.45 | M-v | 4 | MPC | 165926 | 2009 $UU_{84}$ |
| 2009 $UV_{84}$ | 17.1 | 0.15 | 20100104 | 3.43781 | 292.80081 | 135.85987 | 2.46926 | 0.2505492 | 2.8080643 | 50 | 3 | 2001–2009 | 0.39 | M-v | 2 | MPC | 165926 | 2009 $UV_{84}$ |
| 2009 $UY_{84}$ | 16.4 | 0.15 | 20091105 | 17.93241 | 257.40051 | 136.43775 | 2.92130 | 0.0723093 | 2.8572880 | 19 | 1 | 57 days | 0.31 | | | MPC | | 2009 $UY_{84}$ |
| 2009 $UD_{85}$ | 18.2 | 0.15 | 20100104 | 10.34776 | 346.73013 | 75.17604 | 3.93242 | 0.1069148 | 2.1861283 | 48 | 3 | 2003–2009 | 0.37 | M-v | 2 | MPC | 165927 | 2009 $UD_{85}$ |
| 2009 $UF_{85}$ | 18.6 | 0.15 | 20091105 | 35.79503 | 278.20411 | 78.87135 | 2.97562 | 0.2262270 | 2.3215078 | 19 | 1 | 49 days | 0.28 | | | MPC | | 2009 $UF_{85}$ |
| 2009 $UG_{85}$ | 18.2 | 0.15 | 20091105 | 2.37751 | 349.63753 | 58.05640 | 6.73673 | 0.2335190 | 2.3385933 | 24 | 1 | 55 days | 0.35 | | | MPC | | 2009 $UG_{85}$ |
| 2009 $UH_{85}$ | 17.5 | 0.15 | 20091105 | 39.44020 | 153.59789 | 204.07523 | 4.15912 | 0.1910876 | 2.6390269 | 19 | 1 | 57 days | 0.40 | | | MPC | | 2009 $UH_{85}$ |
| 2009 $UK_{85}$ | 17.1 | 0.15 | 20091105 | 10.26922 | 335.06787 | 63.70474 | 10.15977 | 0.2064342 | 3.1080542 | 15 | 1 | 55 days | 0.24 | | | MPC | | 2009 $UK_{85}$ |
| 2009 $UR_{85}$ | 17.8 | 0.15 | 20100104 | 53.82617 | 165.37804 | 190.25649 | 2.06690 | 0.2264071 | 2.3329514 | 50 | 5 | 1991–2009 | 0.38 | M-v | 0 | MPC | 165927 | 2009 $UR_{85}$ |
| 2009 $US_{85}$ | 17.5 | 0.15 | 20091105 | 2.92555 | 329.34377 | 79.23609 | 2.45890 | 0.1743209 | 2.3556035 | 18 | 1 | 49 days | 0.42 | | | MPC | | 2009 $US_{85}$ |
| 2009 $UT_{85}$ | 17.2 | 0.15 | 20091105 | 17.74124 | 284.14153 | 109.33865 | 1.68516 | 0.1084838 | 2.9341132 | 18 | 1 | 49 days | 0.29 | | | MPC | | 2009 $UT_{85}$ |
| 2009 $UV_{85}$ | 16.6 | 0.15 | 20091105 | 33.16011 | 153.05099 | 215.08479 | 5.45637 | 0.1735651 | 2.6531762 | 26 | 1 | 57 days | 0.33 | | | MPC | | 2009 $UV_{85}$ |
| 2009 $UO_{86}$ | 17.3 | 0.15 | 20091105 | 5.72088 | 177.41124 | 221.29326 | 12.57226 | 0.1896314 | 2.5849139 | 25 | 1 | 53 days | 0.51 | | | MPC | | 2009 $UO_{86}$ |
| 2009 $UQ_{86}$ | 16.8 | 0.15 | 20100104 | 104.92941 | 42.40576 | 263.79208 | 6.14440 | 0.0774590 | 2.3674635 | 44 | 4 | 2001–2009 | 0.49 | M-v | 2 | MPC | 165927 | 2009 $UQ_{86}$ |
| 2009 $UR_{86}$ | 16.3 | 0.15 | 20091105 | 21.45139 | 357.43313 | 11.39407 | 7.10679 | 0.2716383 | 3.1326224 | 22 | 1 | 28 days | 0.56 | | | MPC | | 2009 $UR_{86}$ |
| 2009 $UU_{86}$ | 15.7 | 0.15 | 20100104 | 81.24393 | 293.53856 | 35.52920 | 13.98205 | 0.1247188 | 2.6099848 | 68 | 4 | 2003–2009 | 0.52 | M-v | 1 | MPC | 165928 | 2009 $UU_{86}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2009 $UX_{86}$ | 16.5 | 0.15 | 20091016 | 165.62298 | 192.25835 | 35.82715 | 13.68793 | 0.1680482 | 2.5954112 | 10 | 1 | 14 days | 0.30 | | | MPC | | 2009 $UX_{86}$ |
| 2009 $UG_{87}$ | 12.5 | 0.15 | 20100104 | 43.86842 | 281.60143 | 73.72979 | 13.13168 | 0.1633234 | 5.2371720 | 59 | 5 | 2003–2009 | 0.57 | M-v | 0 | MPC | 165928 | 2009 $UG_{87}$ |
| 2009 $UJ_{87}$ | 16.4 | 0.15 | 20091105 | 336.17489 | 210.95619 | 231.91962 | 12.96662 | 0.1846690 | 2.5977473 | 88 | 1 | 59 days | 0.46 | | | MPC | | 2009 $UJ_{87}$ |
| 2009 $UO_{87}$ | 16.2 | 0.15 | 20100104 | 65.82379 | 109.52574 | 235.42206 | 13.74141 | 0.1325765 | 2.5993550 | 56 | 1 | 64 days | 0.57 | M-v | 4 | MPC | | 2009 $UO_{87}$ |
| 2009 $UP_{87}$ | 15.8 | 0.15 | 20100104 | 308.17478 | 256.80851 | 235.30162 | 10.68698 | 0.1458252 | 2.6826721 | 75 | 5 | 2000–2009 | 0.60 | M-v | 1 | MPC | 165929 | 2009 $UP_{87}$ |
| 2009 $UQ_{87}$ | 16.9 | 0.15 | 20100104 | 41.05854 | 144.19618 | 229.98333 | 4.73380 | 0.1882179 | 2.2602110 | 66 | 1 | 87 days | 0.37 | M-v | 4 | MPC | 166382 | 2009 $UQ_{87}$ |
| 2009 $US_{87}$ | 22.0 | 0.15 | 20100104 | 16.19939 | 323.26911 | 104.47885 | 0.53675 | 0.2394862 | 1.6397105 | 50 | 1 | 43 days | 0.44 | M-v | 5 | MPC | 166382 | 2009 $US_{87}$ |
| 2009 $UG_{88}$ | 16.2 | 0.15 | 20100104 | 333.16571 | 48.52455 | 58.05262 | 12.77260 | 0.2421918 | 2.7922456 | 72 | 4 | 1995–2009 | 0.60 | M-v | 1 | MPC | 165929 | 2009 $UG_{88}$ |
| 2009 $UM_{88}$ | 14.9 | 0.15 | 20100104 | 82.62161 | 282.87576 | 46.42349 | 21.61706 | 0.0261900 | 3.1447083 | 55 | 4 | 2001–2009 | 0.63 | M-v | 1 | MPC | 165930 | 2009 $UM_{88}$ |
| 2009 $UO_{88}$ | 15.8 | 0.15 | 20100104 | 33.90789 | 319.61489 | 66.41340 | 9.82302 | 0.1256980 | 2.6717730 | 53 | 2 | 2006–2009 | 0.48 | M-v | 4 | MPC | 165930 | 2009 $UO_{88}$ |
| 2009 $UR_{88}$ | 17.0 | 0.15 | 20100104 | 22.91410 | 137.07420 | 259.51810 | 6.67257 | 0.1017401 | 2.3643965 | 35 | 3 | 2004–2009 | 0.40 | M-v | 3 | MPC | 165931 | 2009 $UR_{88}$ |
| 2009 $UT_{88}$ | 15.4 | 0.15 | 20100104 | 22.27809 | 10.13592 | 27.02300 | 9.90975 | 0.0994845 | 3.0317335 | 56 | 4 | 1998–2009 | 0.49 | M-v | 2 | MPC | 165931 | 2009 $UT_{88}$ |
| 2009 $UU_{88}$ | 18.0 | 0.15 | 20100104 | 42.99362 | 24.43279 | 347.07570 | 3.47299 | 0.2043324 | 2.1944062 | 43 | 3 | 1996–2009 | 0.66 | M-v | 3 | MPC | 165931 | 2009 $UU_{88}$ |
| 2009 $UB_{89}$ | 16.8 | 0.15 | 20100104 | 25.47420 | 321.09000 | 62.14597 | 10.54124 | 0.2248051 | 2.7267734 | 24 | 1 | 63 days | 0.65 | M-v | 4 | MPC | | 2009 $UB_{89}$ |
| 2009 $UL_{89}$ | 16.7 | 0.15 | 20100104 | 15.72408 | 163.63933 | 230.55862 | 16.75399 | 0.1989625 | 3.0924196 | 17 | 1 | 67 days | 0.46 | M-v | 4 | MPC | | 2009 $UL_{89}$ |
| 2009 $UN_{89}$ | 17.5 | 0.15 | 20091105 | 41.71920 | 102.09058 | 239.68673 | 9.97963 | 0.2091768 | 2.6372510 | 15 | 1 | 28 days | 0.52 | | | MPC | | 2009 $UN_{89}$ |
| 2009 $UQ_{89}$ | 17.7 | 0.15 | 20091105 | 30.81085 | 358.40144 | 350.01831 | 4.37443 | 0.2983295 | 2.5537741 | 25 | 1 | 44 days | 0.48 | | | MPC | | 2009 $UQ_{89}$ |
| 2009 $UR_{89}$ | 15.7 | 0.15 | 20091105 | 35.29138 | 346.49095 | 17.16627 | 10.11820 | 0.0825510 | 3.0682868 | 28 | 1 | 45 days | 0.42 | | | MPC | | 2009 $UR_{89}$ |
| 2009 $UZ_{89}$ | 15.4 | 0.15 | 20091105 | 316.76109 | 49.16577 | 53.02013 | 27.96698 | 0.1164792 | 3.1619754 | 34 | 1 | 49 days | 0.59 | | | MPC | | 2009 $UZ_{89}$ |
| 2009 $UA_{90}$ | 17.1 | 0.15 | 20100104 | 60.98215 | 307.21356 | 46.43095 | 7.55830 | 0.1164897 | 2.2466129 | 43 | 5 | 2002–2009 | 0.68 | M-v | 1 | MPC | 165932 | 2009 $UA_{90}$ |
| 2009 $UE_{90}$ | 15.5 | 0.15 | 20100104 | 54.06128 | 279.77452 | 72.71314 | 13.04527 | 0.2013029 | 2.6080746 | 81 | 3 | 2005–2009 | 0.50 | M-v | 2 | MPC | 165933 | 2009 $UE_{90}$ |
| 2009 $UK_{90}$ | 16.7 | 0.15 | 20100104 | 26.90910 | 321.48134 | 35.28183 | 17.64780 | 0.2935851 | 2.6419251 | 20 | 1 | 62 days | 0.39 | M-v | 4 | MPC | | 2009 $UK_{90}$ |
| 2009 $UQ_{91}$ | 16.5 | 0.15 | 20100104 | 10.27844 | 351.49855 | 50.95764 | 20.58142 | 0.2363687 | 3.0610702 | 32 | 1 | 63 days | 0.45 | M-v | 4 | MPC | | 2009 $UQ_{91}$ |
| 2009 $US_{91}$ | 17.1 | 0.15 | 20091016 | 359.61791 | 248.42768 | 149.13564 | 8.66776 | 0.2944704 | 2.7016883 | 15 | 1 | 30 days | 0.58 | | | MPC | | 2009 $US_{91}$ |
| 2009 $UB_{92}$ | 16.3 | 0.15 | 20100104 | 70.18683 | 301.80658 | 57.88355 | 7.53384 | 0.0482944 | 2.7175844 | 57 | 5 | 1998–2009 | 0.45 | M-v | 1 | MPC | 165934 | 2009 $UB_{92}$ |
| 2009 $UH_{92}$ | 17.0 | 0.15 | 20100104 | 35.32836 | 331.88885 | 54.33874 | 4.68739 | 0.2073103 | 2.6041478 | 48 | 4 | 2003–2009 | 0.27 | M-v | 1 | MPC | 165934 | 2009 $UH_{92}$ |
| 2009 $UL_{92}$ | 17.5 | 0.15 | 20091016 | 19.94980 | 326.45700 | 37.88936 | 10.15825 | 0.1198785 | 3.1293325 | 14 | 1 | 4 days | 0.31 | | | MPC | | 2009 $UL_{92}$ |
| 2009 $UP_{92}$ | 17.7 | 0.15 | 20091105 | 17.83416 | 280.75243 | 99.33707 | 2.61445 | 0.2066534 | 2.3801579 | 20 | 1 | 32 days | 0.58 | | | MPC | | 2009 $UP_{92}$ |
| 2009 $UX_{92}$ | 15.1 | 0.15 | 20100104 | 324.97128 | 248.99993 | 243.27077 | 24.91496 | 0.2487067 | 3.2054779 | 61 | 2 | 2003–2009 | 0.45 | M-v | 3 | MPC | 166383 | 2009 $UX_{92}$ |
| 2009 $UC_{93}$ | 17.0 | 0.15 | 20091016 | 258.27865 | 217.26492 | 283.62732 | 2.91413 | 0.0429468 | 2.7548466 | 10 | 1 | 3 days | 0.55 | | | MPC | | 2009 $UC_{93}$ |
| 2009 $UG_{93}$ | 18.5 | 0.15 | 20091016 | 324.55959 | 99.47514 | 341.73793 | 2.39086 | 0.1489223 | 2.3173939 | 11 | 1 | 4 days | 0.31 | | | MPC | | 2009 $UG_{93}$ |
| 2009 $UJ_{93}$ | 19.8 | 0.15 | 20091016 | 356.86777 | 27.14649 | 10.61231 | 3.88792 | 0.2106666 | 2.3194186 | 11 | 1 | 4 days | 0.47 | | | MPC | | 2009 $UJ_{93}$ |
| 2009 $UK_{93}$ | 16.2 | 0.15 | 20091016 | 232.21984 | 153.61333 | 26.43815 | 12.87639 | 0.1710483 | 2.9926881 | 10 | 1 | 4 days | 0.45 | | | MPC | | 2009 $UK_{93}$ |
| 2009 $UL_{93}$ | 17.3 | 0.15 | 20091016 | 112.39566 | 18.33480 | 251.96714 | 4.29318 | 0.1467465 | 2.5483288 | 10 | 1 | 4 days | 0.50 | | | MPC | | 2009 $UL_{93}$ |
| 2009 $UM_{93}$ | 18.8 | 0.15 | 20091016 | 22.59924 | 346.68016 | 19.44713 | 6.10997 | 0.1237449 | 2.4068571 | 11 | 1 | 4 days | 0.34 | | | MPC | | 2009 $UM_{93}$ |
| 2009 $UC_{94}$ | 17.0 | 0.15 | 20091105 | 14.74972 | 136.78924 | 241.32838 | 29.69697 | 0.3656864 | 2.6394185 | 52 | 1 | 57 days | 0.44 | | | MPC | | 2009 $UC_{94}$ |
| 2009 $UM_{94}$ | 15.9 | 0.15 | 20091105 | 66.70069 | 263.95389 | 48.96498 | 14.83771 | 0.1727868 | 3.0570302 | 18 | 1 | 50 days | 0.44 | | | MPC | | 2009 $UM_{94}$ |
| 2009 $US_{94}$ | 18.3 | 0.15 | 20091105 | 6.73580 | 148.26991 | 245.16763 | 12.97428 | 0.2757551 | 2.6089827 | 20 | 1 | 56 days | 0.22 | | | MPC | | 2009 $US_{94}$ |
| 2009 $US_{95}$ | 17.2 | 0.15 | 20091105 | 352.74942 | 6.49485 | 40.74328 | 18.39842 | 0.1885091 | 3.1656319 | 15 | 1 | 33 days | 0.45 | | | MPC | | 2009 $US_{95}$ |
| 2009 $UK_{96}$ | 16.1 | 0.15 | 20091105 | 35.06610 | 203.35004 | 156.92330 | 2.20526 | 0.0862139 | 3.0869722 | 15 | 1 | 32 days | 0.39 | | | MPC | | 2009 $UK_{96}$ |
| 2009 $UC_{97}$ | 15.7 | 0.15 | 20100104 | 12.71487 | 164.56069 | 251.05778 | 8.82597 | 0.1699923 | 3.0961625 | 66 | 5 | 2000–2009 | 0.47 | M-v | 0 | MPC | 165936 | 2009 $UC_{97}$ |
| 2009 $UP_{97}$ | 15.6 | 0.15 | 20091105 | 342.35739 | 11.22370 | 54.33131 | 12.66229 | 0.0586447 | 3.1007003 | 28 | 1 | 53 days | 0.61 | | | MPC | | 2009 $UP_{97}$ |
| 2009 $UW_{97}$ | 13.4 | 0.15 | 20100104 | 350.32881 | 8.04031 | 55.85423 | 9.48319 | 0.0530371 | 5.1425713 | 42 | 4 | 2002–2009 | 0.45 | M-v | 1 | MPC | 165936 | 2009 $UW_{97}$ |
| 2009 $UM_{98}$ | 16.1 | 0.15 | 20100104 | 33.57338 | 315.05399 | 59.70226 | 5.81118 | 0.1706342 | 3.0537057 | 40 | 4 | 1998–2009 | 0.38 | M-v | 1 | MPC | 165936 | 2009 $UM_{98}$ |
| 2009 $UR_{98}$ | 18.4 | 0.15 | 20100104 | 27.58003 | 329.87865 | 60.40242 | 5.16292 | 0.1592812 | 2.2975940 | 28 | 2 | 1995–2009 | 0.52 | M-v | 4 | MPC | 165936 | 2009 $UR_{98}$ |
| 2009 $UT_{98}$ | 17.9 | 0.15 | 20091105 | 45.02991 | 289.73448 | 62.81321 | 4.89536 | 0.0896952 | 2.3499119 | 18 | 1 | 53 days | 0.35 | | | MPC | | 2009 $UT_{98}$ |
| 2009 $UU_{98}$ | 15.9 | 0.15 | 20100104 | 275.34840 | 81.02484 | 83.12221 | 3.56161 | 0.1990614 | 3.0145062 | 52 | 5 | 2001–2009 | 0.47 | M-v | 1 | MPC | 165937 | 2009 $UU_{98}$ |
| 2009 $UE_{99}$ | 16.5 | 0.15 | 20100104 | 33.93268 | 303.93277 | 76.47130 | 3.18600 | 0.0905474 | 2.9633625 | 41 | 5 | 2003–2009 | 0.34 | M-v | 0 | MPC | 165937 | 2009 $UE_{99}$ |
| 2009 $UN_{99}$ | 16.3 | 0.15 | 20100104 | 339.28759 | 46.74946 | 50.86225 | 8.17326 | 0.1582849 | 2.7538276 | 68 | 2 | 2006–2009 | 0.40 | M-v | 3 | MPC | 165937 | 2009 $UN_{99}$ |
| 2009 $UR_{99}$ | 19.3 | 0.15 | 20091105 | 17.01848 | 283.57906 | 97.49963 | 1.98004 | 0.1979194 | 2.3335826 | 15 | 1 | 48 days | 0.35 | | | MPC | | 2009 $UR_{99}$ |
| 2009 $UT_{99}$ | 17.2 | 0.15 | 20091105 | 19.93464 | 206.46664 | 174.42511 | 2.17535 | 0.1475305 | 2.6677962 | 19 | 1 | 57 days | 0.28 | | | MPC | | 2009 $UT_{99}$ |
| 2009 $UU_{99}$ | 17.7 | 0.15 | 20100104 | 39.30160 | 305.72779 | 73.40576 | 2.89348 | 0.1219548 | 2.2556648 | 49 | 5 | 2002–2009 | 0.49 | M-v | 1 | MPC | 165937 | 2009 $UU_{99}$ |
| 2009 $UV_{99}$ | 16.7 | 0.15 | 20091105 | 13.75684 | 334.73876 | 51.94018 | 14.42473 | 0.2102157 | 3.1652417 | 19 | 1 | 48 days | 0.27 | | | MPC | | 2009 $UV_{99}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2009 $UK_{100}$ | 16.1 | 0.15 | 20091105 | 50.69627 | 284.17040 | 66.39283 | 11.49899 | 0.0756981 | 3.1508660 | 19 | 1 | 57 days | 0.27 | | MPC | | 2009 $UK_{100}$ |
| 2009 $UV_{100}$ | 17.2 | 0.15 | 20091105 | 268.17668 | 81.03793 | 66.18288 | 6.75922 | 0.0652975 | 2.3912967 | 23 | 1 | 53 days | 0.32 | | MPC | | 2009 $UV_{100}$ |
| 2009 $UF_{101}$ | 16.8 | 0.15 | 20091105 | 355.53701 | 200.10472 | 214.24231 | 9.65143 | 0.0948774 | 2.9626275 | 14 | 1 | 27 days | 0.20 | | MPC | | 2009 $UF_{101}$ |
| 2009 $UJ_{101}$ | 16.4 | 0.15 | 20091105 | 37.37030 | 296.32203 | 65.61051 | 6.49176 | 0.1223776 | 2.9853389 | 23 | 1 | 48 days | 0.20 | | MPC | | 2009 $UJ_{101}$ |
| 2009 $UK_{101}$ | 17.4 | 0.15 | 20091105 | 11.58374 | 330.44511 | 54.65005 | 8.33859 | 0.3125553 | 3.0059264 | 43 | 1 | 56 days | 0.34 | | MPC | | 2009 $UK_{101}$ |
| 2009 $UQ_{101}$ | 16.1 | 0.15 | 20091105 | 307.71042 | 56.85771 | 56.35069 | 15.03458 | 0.1268391 | 2.7762914 | 50 | 1 | 48 days | 0.50 | | MPC | | 2009 $UQ_{101}$ |
| 2009 $US_{101}$ | 17.6 | 0.15 | 20091105 | 15.18618 | 317.90636 | 68.40848 | 5.80321 | 0.1614519 | 2.4273314 | 23 | 1 | 48 days | 0.38 | | MPC | | 2009 $US_{101}$ |
| 2009 $UT_{101}$ | 18.1 | 0.15 | 20091105 | 14.58953 | 327.43302 | 62.07835 | 7.10113 | 0.1076896 | 2.3695135 | 18 | 1 | 48 days | 0.32 | | MPC | | 2009 $UT_{101}$ |
| 2009 $UX_{101}$ | 17.1 | 0.15 | 20091016 | 4.86499 | 184.40679 | 204.88781 | 5.03577 | 0.2845144 | 3.0694856 | 15 | 1 | 22 days | 0.72 | | MPC | | 2009 $UX_{101}$ |
| 2009 $UY_{101}$ | 17.8 | 0.15 | 20091105 | 29.64933 | 200.45210 | 157.05375 | 2.78872 | 0.2079853 | 2.3581409 | 15 | 1 | 27 days | 0.30 | | MPC | | 2009 $UY_{101}$ |
| 2009 $UD_{102}$ | 15.5 | 0.15 | 20091016 | 313.52440 | 24.64366 | 63.97564 | 10.56927 | 0.0540658 | 3.1132868 | 18 | 1 | 36 days | 0.36 | | MPC | | 2009 $UD_{102}$ |
| 2009 $UE_{102}$ | 16.2 | 0.15 | 20091105 | 333.67949 | 23.53801 | 51.83157 | 15.93687 | 0.1190615 | 2.8786661 | 19 | 1 | 56 days | 0.44 | | MPC | | 2009 $UE_{102}$ |
| 2009 $UR_{102}$ | 17.1 | 0.15 | 20100104 | 31.62874 | 138.51014 | 247.18350 | 7.90821 | 0.2240051 | 2.4021060 | 71 | 3 | 2003–2009 | 0.48 | M-v 2 | MPC | 165938 | 2009 $UR_{102}$ |
| 2009 $UV_{102}$ | 17.0 | 0.15 | 20100104 | 56.93196 | 62.10793 | 310.25615 | 3.84551 | 0.0571618 | 2.1225098 | 54 | 3 | 1995–2009 | 0.45 | M-v 3 | MPC | 165938 | 2009 $UV_{102}$ |
| 2009 $UW_{102}$ | 14.9 | 0.15 | 20100104 | 350.91431 | 208.89755 | 243.21889 | 18.83660 | 0.2796611 | 3.1316788 | 94 | 4 | 1998–2009 | 0.48 | M-v 1 | MPC | 165939 | 2009 $UW_{102}$ |
| 2009 $UZ_{102}$ | 15.1 | 0.15 | 20100104 | 65.04147 | 292.25750 | 32.04423 | 17.57960 | 0.3448003 | 2.6507879 | 53 | 3 | 2000–2009 | 0.47 | M-v 2 | MPC | 165939 | 2009 $UZ_{102}$ |
| 2009 $UD_{103}$ | 17.1 | 0.15 | 20100104 | 9.14755 | 222.52744 | 197.53275 | 6.27288 | 0.2936213 | 2.6950006 | 38 | 2 | 2000–2009 | 0.54 | M-v 3 | MPC | 165939 | 2009 $UD_{103}$ |
| 2009 $UE_{103}$ | 16.4 | 0.15 | 20100104 | 10.64869 | 347.62974 | 70.71739 | 11.52609 | 0.2762567 | 2.7829975 | 62 | 1 | 84 days | 0.44 | M-v 3 | MPC | | 2009 $UE_{103}$ |
| 2009 $UF_{103}$ | 16.3 | 0.15 | 20100104 | 22.29050 | 330.20531 | 71.90881 | 5.95927 | 0.1657457 | 2.7287035 | 75 | 6 | 1991–2009 | 0.49 | M-v 1 | MPC | 165939 | 2009 $UF_{103}$ |
| 2009 $UG_{103}$ | 16.5 | 0.15 | 20100104 | 21.97879 | 166.19603 | 228.24171 | 3.34549 | 0.2261695 | 3.0273247 | 49 | 1 | 81 days | 0.46 | M-v 4 | MPC | 166384 | 2009 $UG_{103}$ |
| 2009 $UH_{103}$ | 17.3 | 0.15 | 20091105 | 4.12689 | 359.09863 | 48.20914 | 2.72487 | 0.0940865 | 2.8523429 | 13 | 1 | 31 days | 0.41 | | MPC | | 2009 $UH_{103}$ |
| 2009 $UK_{103}$ | 17.7 | 0.15 | 20091105 | 11.74582 | 350.21373 | 44.95298 | 4.28957 | 0.1753975 | 2.5951139 | 18 | 1 | 54 days | 0.32 | | MPC | | 2009 $UK_{103}$ |
| 2009 $UL_{103}$ | 17.6 | 0.15 | 20100104 | 41.31331 | 322.04515 | 39.02307 | 2.78229 | 0.3069694 | 2.5674053 | 40 | 2 | 2005–2009 | 0.39 | M-v 3 | MPC | 165940 | 2009 $UL_{103}$ |
| 2009 $UO_{103}$ | 16.7 | 0.15 | 20100104 | 33.65121 | 128.24092 | 261.49362 | 0.84806 | 0.0762146 | 2.7828231 | 52 | 5 | 2004–2009 | 0.30 | M-v 0 | MPC | 165940 | 2009 $UO_{103}$ |
| 2009 $UY_{103}$ | 16.9 | 0.15 | 20091105 | 338.16475 | 27.50334 | 47.20764 | 12.31020 | 0.1676635 | 2.6800549 | 29 | 1 | 54 days | 0.61 | | MPC | | 2009 $UY_{103}$ |
| 2009 $UZ_{103}$ | 18.0 | 0.15 | 20100104 | 20.39898 | 331.33037 | 44.89447 | 11.05834 | 0.3241632 | 3.0427374 | 19 | 1 | 62 days | 0.36 | M-v 4 | MPC | | 2009 $UZ_{103}$ |
| 2009 $UN_{104}$ | 16.0 | 0.15 | 20090926 | 19.62607 | 169.23088 | 191.18078 | 9.35308 | 0.1536803 | 3.0366742 | 19 | 1 | 41 days | 0.28 | | MPC | | 2009 $UN_{104}$ |
| 2009 $UU_{104}$ | 17.2 | 0.15 | 20091016 | 15.30990 | 200.33013 | 173.03632 | 5.45766 | 0.1023319 | 2.8515594 | 12 | 1 | 2 days | 0.21 | | MPC | | 2009 $UU_{104}$ |
| 2009 $UV_{104}$ | 18.8 | 0.15 | 20091016 | 14.25749 | 315.57288 | 48.03499 | 11.97820 | 0.2811093 | 2.5995304 | 12 | 1 | 2 days | 0.24 | | MPC | | 2009 $UV_{104}$ |
| 2009 $UJ_{105}$ | 16.3 | 0.15 | 20100104 | 32.20579 | 158.06511 | 227.36775 | 12.68622 | 0.1832725 | 2.8979841 | 46 | 3 | 2004–2009 | 0.44 | M-v 2 | MPC | 165940 | 2009 $UJ_{105}$ |
| 2009 $UA_{106}$ | 16.1 | 0.15 | 20091105 | 336.11868 | 29.16931 | 57.98728 | 9.81108 | 0.1076162 | 3.0356305 | 19 | 1 | 58 days | 0.20 | | MPC | | 2009 $UA_{106}$ |
| 2009 $UB_{106}$ | 16.8 | 0.15 | 20091105 | 8.21384 | 353.23758 | 54.93231 | 10.81848 | 0.0781649 | 3.0088195 | 17 | 1 | 58 days | 0.21 | | MPC | | 2009 $UB_{106}$ |
| 2009 $UC_{106}$ | 16.8 | 0.15 | 20100104 | 293.80373 | 279.35697 | 229.68541 | 8.55678 | 0.0813520 | 2.2555610 | 44 | 3 | 2004–2009 | 0.46 | M-v 3 | MPC | 165941 | 2009 $UC_{106}$ |
| 2009 $UG_{106}$ | 16.0 | 0.15 | 20100104 | 284.31336 | 97.25095 | 50.71499 | 12.67864 | 0.0098558 | 2.5988673 | 56 | 3 | 2003–2009 | 0.53 | M-v 2 | MPC | 165941 | 2009 $UG_{106}$ |
| 2009 $UJ_{106}$ | 17.6 | 0.15 | 20100104 | 8.36276 | 130.42810 | 295.68285 | 0.52883 | 0.1637350 | 2.3648737 | 51 | 5 | 1998–2009 | 0.42 | M-v 0 | MPC | 165941 | 2009 $UJ_{106}$ |
| 2009 $UL_{106}$ | 16.9 | 0.15 | 20091105 | 346.12738 | 35.33902 | 41.13369 | 1.26554 | 0.1449606 | 3.0152359 | 17 | 1 | 51 days | 0.22 | | MPC | | 2009 $UL_{106}$ |
| 2009 $UO_{106}$ | 16.4 | 0.15 | 20100104 | 62.00335 | 109.28298 | 236.74895 | 8.99453 | 0.2064844 | 3.0746188 | 23 | 1 | 89 days | 0.28 | M-v 4 | MPC | | 2009 $UO_{106}$ |
| 2009 $UT_{106}$ | 16.5 | 0.15 | 20091105 | 37.07295 | 261.69497 | 97.62479 | 2.61735 | 0.1713201 | 3.2184299 | 30 | 1 | 58 days | 0.23 | | MPC | | 2009 $UT_{106}$ |
| 2009 $UW_{106}$ | 18.2 | 0.15 | 20091105 | 350.19722 | 4.67226 | 59.73702 | 7.25334 | 0.2018711 | 2.3380102 | 26 | 1 | 57 days | 0.48 | | MPC | | 2009 $UW_{106}$ |
| 2009 $UY_{106}$ | 18.3 | 0.15 | 20091105 | 7.30952 | 205.57531 | 193.02897 | 2.82405 | 0.1803035 | 2.3938078 | 15 | 1 | 33 days | 0.22 | | MPC | | 2009 $UY_{106}$ |
| 2009 $UL_{107}$ | 15.9 | 0.15 | 20100104 | 70.32335 | 244.07543 | 74.49682 | 6.04872 | 0.2958363 | 3.1060642 | 29 | 2 | 2003–2009 | 0.35 | M-v 3 | MPC | 165941 | 2009 $UL_{107}$ |
| 2009 $UM_{107}$ | 17.9 | 0.15 | 20091105 | 331.41268 | 14.50357 | 75.61473 | 4.21970 | 0.1690835 | 2.4309939 | 23 | 1 | 50 days | 0.43 | | MPC | | 2009 $UM_{107}$ |
| 2009 $UN_{107}$ | 18.0 | 0.15 | 20091105 | 353.98418 | 347.00223 | 73.18837 | 4.38599 | 0.2380926 | 2.5789137 | 19 | 1 | 50 days | 0.64 | | MPC | | 2009 $UN_{107}$ |
| 2009 $UP_{107}$ | 18.4 | 0.15 | 20091105 | 3.08065 | 194.84263 | 210.97399 | 4.98898 | 0.1251015 | 2.2500507 | 15 | 1 | 33 days | 0.21 | | MPC | | 2009 $UP_{107}$ |
| 2009 $UQ_{107}$ | 16.9 | 0.15 | 20091105 | 55.77260 | 106.25445 | 244.48479 | 4.77095 | 0.1058204 | 2.6697379 | 17 | 1 | 50 days | 0.39 | | MPC | | 2009 $UQ_{107}$ |
| 2009 $UV_{107}$ | 16.0 | 0.15 | 20091105 | 311.38152 | 56.73908 | 54.02012 | 8.94943 | 0.1351871 | 3.1262074 | 21 | 1 | 57 days | 0.37 | | MPC | | 2009 $UV_{107}$ |
| 2009 $UW_{107}$ | 17.3 | 0.15 | 20100104 | 21.20619 | 170.17605 | 227.97950 | 2.26213 | 0.1578679 | 2.6844330 | 32 | 2 | 2005–2009 | 0.33 | M-v 3 | MPC | 165942 | 2009 $UW_{107}$ |
| 2009 $UX_{107}$ | 15.4 | 0.15 | 20100104 | 342.46985 | 35.37779 | 53.48464 | 3.63389 | 0.2092530 | 3.9507794 | 37 | 1 | 132 days | 0.54 | M-v 4 | MPC | | 2009 $UX_{107}$ |
| 2009 $UY_{107}$ | 16.3 | 0.15 | 20100104 | 332.84495 | 225.23832 | 227.43814 | 8.69017 | 0.0567868 | 3.0829231 | 24 | 2 | 1998–2009 | 0.30 | M-v 3 | MPC | 165942 | 2009 $UY_{107}$ |
| 2009 $UZ_{107}$ | 18.3 | 0.15 | 20100104 | 35.04051 | 324.54959 | 55.56821 | 2.25373 | 0.2018190 | 2.3303815 | 33 | 3 | 2000–2009 | 0.29 | M-v 2 | MPC | 165942 | 2009 $UZ_{107}$ |
| 2009 $UB_{108}$ | 17.7 | 0.15 | 20100104 | 10.96174 | 189.07304 | 223.02689 | 2.47616 | 0.2438912 | 2.8002045 | 31 | 2 | 2004–2009 | 0.22 | M-v 2 | MPC | 165942 | 2009 $UB_{108}$ |
| 2009 $UC_{108}$ | 15.8 | 0.15 | 20100104 | 152.53874 | 39.45532 | 224.62018 | 8.87068 | 0.0787363 | 3.2305951 | 47 | 5 | 2000–2009 | 0.42 | M-v 0 | MPC | 165942 | 2009 $UC_{108}$ |
| 2009 $UE_{108}$ | 13.5 | 0.15 | 20091105 | 357.28105 | 0.46512 | 56.13946 | 8.94255 | 0.1017400 | 5.1994767 | 51 | 1 | 54 days | 0.42 | | MPC | | 2009 $UE_{108}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2009 $UG_{108}$ | 15.7 | 0.15 | 20100104 | 191.48216 | 177.08121 | 54.85782 | 13.49667 | 0.0617837 | 3.1727037 | 21 | 1 | 61 days | 0.27 | M-v | 5 | MPC | | 2009 $UG_{108}$ |
| 2009 $UL_{108}$ | 16.2 | 0.15 | 20100104 | 44.87515 | 159.10638 | 208.37132 | 1.20596 | 0.1536731 | 3.0192529 | 62 | 7 | 1993–2009 | 0.48 | M-v | 0 | MPC | 165942 | 2009 $UL_{108}$ |
| 2009 $UN_{108}$ | 16.9 | 0.15 | 20100104 | 339.56196 | 38.46265 | 53.95930 | 8.26887 | 0.0806799 | 2.6031527 | 50 | 3 | 2005–2009 | 0.33 | M-v | 2 | MPC | 165943 | 2009 $UN_{108}$ |
| 2009 $US_{108}$ | 16.2 | 0.15 | 20091105 | 0.44697 | 358.18840 | 51.13049 | 11.98603 | 0.0747493 | 3.0493355 | 17 | 1 | 31 days | 0.36 | | | MPC | | 2009 $US_{108}$ |
| 2009 $UT_{108}$ | 17.4 | 0.15 | 20091105 | 90.82194 | 223.78398 | 74.95202 | 3.41128 | 0.1806295 | 2.7151619 | 14 | 1 | 32 days | 0.34 | | | MPC | | 2009 $UT_{108}$ |
| 2009 $UV_{108}$ | 18.9 | 0.15 | 20091105 | 13.28580 | 319.28610 | 70.98199 | 2.92748 | 0.1406558 | 2.1409786 | 21 | 1 | 48 days | 0.28 | | | MPC | | 2009 $UV_{108}$ |
| 2009 $UW_{108}$ | 16.5 | 0.15 | 20100104 | 344.69029 | 34.21922 | 55.50955 | 13.49777 | 0.1463674 | 2.6278086 | 59 | 2 | 2007–2009 | 0.48 | M-v | 3 | MPC | 165943 | 2009 $UW_{108}$ |
| 2009 $UY_{108}$ | 18.4 | 0.15 | 20091105 | 341.91566 | 14.69966 | 64.39663 | 3.70597 | 0.2578377 | 2.6643362 | 28 | 1 | 48 days | 0.29 | | | MPC | | 2009 $UY_{108}$ |
| 2009 $UC_{109}$ | 16.1 | 0.15 | 20091105 | 217.52359 | 130.35408 | 65.90740 | 7.19686 | 0.0524513 | 3.1922524 | 19 | 1 | 49 days | 0.28 | | | MPC | | 2009 $UC_{109}$ |
| 2009 $UD_{109}$ | 17.0 | 0.15 | 20100104 | 39.30592 | 300.27758 | 76.99440 | 3.01818 | 0.1030707 | 2.7086473 | 34 | 3 | 2004–2009 | 0.28 | M-v | 3 | MPC | 165944 | 2009 $UD_{109}$ |
| 2009 $UG_{109}$ | 16.5 | 0.15 | 20100104 | 324.55085 | 274.24473 | 188.93577 | 2.50779 | 0.0681481 | 2.9865612 | 42 | 5 | 1998–2009 | 0.31 | M-v | 0 | MPC | 165944 | 2009 $UG_{109}$ |
| 2009 $UJ_{109}$ | 15.8 | 0.15 | 20100104 | 153.78035 | 253.69786 | 15.02667 | 2.32664 | 0.0549655 | 3.1406019 | 40 | 3 | 2003–2009 | 0.26 | M-v | 3 | MPC | 165944 | 2009 $UJ_{109}$ |
| 2009 $UK_{109}$ | 16.9 | 0.15 | 20100104 | 347.09203 | 56.95068 | 33.74913 | 4.06973 | 0.1626537 | 2.5641901 | 58 | 4 | 2002–2009 | 0.41 | M-v | 2 | MPC | 165944 | 2009 $UK_{109}$ |
| 2009 $UL_{109}$ | 16.3 | 0.15 | 20100104 | 21.49872 | 67.21892 | 333.15228 | 1.49234 | 0.1222558 | 3.2450895 | 52 | 5 | 1997–2009 | 0.36 | M-v | 0 | MPC | 165944 | 2009 $UL_{109}$ |
| 2009 $UT_{109}$ | 16.7 | 0.15 | 20091105 | 36.38475 | 299.27890 | 69.47410 | 4.23032 | 0.1008373 | 2.7590625 | 22 | 1 | 49 days | 0.41 | | | MPC | | 2009 $UT_{109}$ |
| 2009 $UB_{110}$ | 17.9 | 0.15 | 20100104 | 28.34622 | 24.05617 | 10.91999 | 1.13580 | 0.1784392 | 2.3664183 | 50 | 5 | 1998–2009 | 0.30 | M-v | 0 | MPC | 165945 | 2009 $UB_{110}$ |
| 2009 $UF_{110}$ | 17.9 | 0.15 | 20100104 | 27.55117 | 347.64026 | 37.91057 | 4.48027 | 0.3169077 | 2.6186703 | 38 | 2 | 2005–2009 | 0.38 | M-v | 3 | MPC | 165945 | 2009 $UF_{110}$ |
| 2009 $UJ_{110}$ | 16.6 | 0.15 | 20091105 | 347.26919 | 198.58587 | 236.41811 | 7.21917 | 0.2041437 | 2.7795162 | 36 | 1 | 49 days | 0.47 | | | MPC | | 2009 $UJ_{110}$ |
| 2009 $UL_{110}$ | 16.9 | 0.15 | 20100104 | 119.18761 | 259.25819 | 46.44715 | 5.01710 | 0.0537733 | 2.7923816 | 36 | 3 | 1993–2009 | 0.35 | M-v | 2 | MPC | 165946 | 2009 $UL_{110}$ |
| 2009 $UM_{110}$ | 16.4 | 0.15 | 20100104 | 58.72589 | 279.02950 | 53.54166 | 10.06433 | 0.3177979 | 3.0408501 | 28 | 1 | 86 days | 0.38 | M-v | 4 | MPC | 166385 | 2009 $UM_{110}$ |
| 2009 $UO_{110}$ | 16.0 | 0.15 | 20100104 | 17.16957 | 353.61066 | 50.79559 | 6.02885 | 0.2234321 | 3.0544066 | 66 | 3 | 2004–2009 | 0.49 | M-v | 3 | MPC | 165946 | 2009 $UO_{110}$ |
| 2009 $UR_{110}$ | 18.2 | 0.15 | 20091105 | 33.58037 | 316.54466 | 51.85594 | 3.31724 | 0.1436579 | 2.2457171 | 23 | 1 | 55 days | 0.22 | | | MPC | | 2009 $UR_{110}$ |
| 2009 $US_{110}$ | 16.8 | 0.15 | 20100104 | 39.82842 | 138.81213 | 244.58656 | 1.01090 | 0.0760445 | 2.8633963 | 47 | 6 | 2002–2009 | 0.38 | M-v | 1 | MPC | 165946 | 2009 $US_{110}$ |
| 2009 $UV_{110}$ | 18.2 | 0.15 | 20091105 | 355.75106 | 5.13422 | 53.80423 | 6.90191 | 0.1211656 | 2.4242143 | 19 | 1 | 55 days | 0.21 | | | MPC | | 2009 $UV_{110}$ |
| 2009 $UW_{110}$ | 17.6 | 0.15 | 20091105 | 29.37532 | 318.73992 | 52.49059 | 10.44405 | 0.1947638 | 2.7390296 | 19 | 1 | 55 days | 0.18 | | | MPC | | 2009 $UW_{110}$ |
| 2009 $UB_{111}$ | 17.9 | 0.15 | 20091105 | 15.06939 | 340.19161 | 52.68371 | 5.00108 | 0.1582940 | 2.3940353 | 20 | 1 | 55 days | 0.24 | | | MPC | | 2009 $UB_{111}$ |
| 2009 $UG_{111}$ | 17.5 | 0.15 | 20100104 | 223.62717 | 341.47215 | 229.70800 | 6.26765 | 0.0480982 | 2.3013737 | 33 | 3 | 1995–2009 | 0.32 | M-v | 3 | MPC | 165946 | 2009 $UG_{111}$ |
| 2009 $UJ_{111}$ | 17.4 | 0.15 | 20091105 | 23.41925 | 153.38781 | 233.11232 | 1.97042 | 0.1108961 | 2.6289022 | 16 | 1 | 49 days | 0.22 | | | MPC | | 2009 $UJ_{111}$ |
| 2009 $UK_{111}$ | 18.0 | 0.15 | 20091105 | 49.77739 | 294.67506 | 56.92777 | 7.00122 | 0.1324271 | 2.2732211 | 18 | 1 | 55 days | 0.23 | | | MPC | | 2009 $UK_{111}$ |
| 2009 $UL_{111}$ | 18.5 | 0.15 | 20100104 | 39.17599 | 317.34371 | 61.91319 | 3.36590 | 0.2033892 | 2.4053650 | 25 | 2 | 2005–2009 | 0.32 | M-v | 3 | MPC | 165947 | 2009 $UL_{111}$ |
| 2009 $US_{111}$ | 16.9 | 0.15 | 20091105 | 6.41906 | 167.22482 | 236.25210 | 11.74446 | 0.1661048 | 2.5550659 | 37 | 1 | 56 days | 0.59 | | | MPC | | 2009 $US_{111}$ |
| 2009 $UT_{111}$ | 17.0 | 0.15 | 20091105 | 353.73239 | 181.76092 | 241.85805 | 5.56722 | 0.1840770 | 2.5744405 | 30 | 1 | 48 days | 0.40 | | | MPC | | 2009 $UT_{111}$ |
| 2009 $UX_{111}$ | 17.3 | 0.15 | 20100104 | 315.97342 | 258.51657 | 234.99381 | 4.05904 | 0.1940160 | 2.5528927 | 51 | 3 | 2005–2009 | 0.33 | M-v | 2 | MPC | 165947 | 2009 $UX_{111}$ |
| 2009 $UY_{111}$ | 17.2 | 0.15 | 20100104 | 27.60111 | 345.96928 | 53.26861 | 12.82909 | 0.0193878 | 2.7787114 | 35 | 2 | 2007–2009 | 0.36 | M-v | 3 | MPC | 165947 | 2009 $UY_{111}$ |
| 2009 $UA_{112}$ | 17.1 | 0.15 | 20091105 | 357.05424 | 4.90788 | 52.74554 | 5.65663 | 0.1127104 | 2.7273242 | 16 | 1 | 54 days | 0.19 | | | MPC | | 2009 $UA_{112}$ |
| 2009 $UL_{112}$ | 17.0 | 0.15 | 20091105 | 342.86423 | 26.70558 | 55.84518 | 8.81926 | 0.2426259 | 3.0359869 | 16 | 1 | 53 days | 0.32 | | | MPC | | 2009 $UL_{112}$ |
| 2009 $UD_{113}$ | 16.4 | 0.15 | 20100104 | 32.54460 | 138.86413 | 239.44458 | 11.22410 | 0.1509389 | 2.8025709 | 37 | 3 | 1995–2009 | 0.55 | M-v | 2 | MPC | 165948 | 2009 $UD_{113}$ |
| 2009 $UK_{114}$ | 14.6 | 0.15 | 20090926 | 347.39267 | 4.64993 | 27.02299 | 2.26280 | 0.0431164 | 5.1972085 | 17 | 1 | 45 days | 0.30 | | | MPC | | 2009 $UK_{114}$ |
| 2009 $UN_{114}$ | 17.3 | 0.15 | 20091016 | 266.41251 | 100.58024 | 21.09697 | 5.45426 | 0.0636805 | 2.7059602 | 12 | 1 | 16 days | 0.24 | | | MPC | | 2009 $UN_{114}$ |
| 2009 $UZ_{114}$ | 14.3 | 0.15 | 20100104 | 336.29660 | 34.55283 | 21.04462 | 38.94226 | 0.0831704 | 5.3160255 | 18 | 1 | 69 days | 0.32 | M-v | 4 | MPC | | 2009 $UZ_{114}$ |
| 2009 $UG_{116}$ | 19.0 | 0.15 | 20091016 | 341.26204 | 67.15865 | 350.76910 | 3.88721 | 0.1782862 | 2.0885735 | 10 | 1 | 17 days | 0.24 | | | MPC | | 2009 $UG_{116}$ |
| 2009 $UO_{117}$ | 14.0 | 0.15 | 20091016 | 57.30599 | 193.09319 | 138.26534 | 4.96843 | 0.0788013 | 5.3055903 | 12 | 1 | 13 days | 0.35 | | | MPC | | 2009 $UO_{117}$ |
| 2009 $UA_{119}$ | 16.8 | 0.15 | 20090926 | 312.03068 | 243.80204 | 203.16986 | 15.94797 | 0.2131364 | 3.1109037 | 13 | 1 | 39 days | 0.34 | | | MPC | | 2009 $UA_{119}$ |
| 2009 $UN_{119}$ | 16.9 | 0.15 | 20091016 | 324.05269 | 220.48424 | 202.38114 | 7.68563 | 0.0536492 | 3.0802319 | 12 | 1 | 13 days | 0.21 | | | MPC | | 2009 $UN_{119}$ |
| 2009 $UR_{119}$ | 17.1 | 0.15 | 20091016 | 159.34470 | 184.47243 | 34.90037 | 2.37510 | 0.1332826 | 2.5239842 | 16 | 1 | 13 days | 0.25 | | | MPC | | 2009 $UR_{119}$ |
| 2009 $US_{119}$ | 17.2 | 0.15 | 20091016 | 316.40031 | 235.14631 | 200.65429 | 5.24909 | 0.1023461 | 2.8998757 | 12 | 1 | 13 days | 0.21 | | | MPC | | 2009 $US_{119}$ |
| 2009 $UH_{120}$ | 17.4 | 0.15 | 20091016 | 26.89699 | 189.35985 | 152.51042 | 1.29125 | 0.2169571 | 3.2123126 | 12 | 1 | 13 days | 0.28 | | | MPC | | 2009 $UH_{120}$ |
| 2009 $UW_{120}$ | 17.1 | 0.15 | 20091016 | 34.12845 | 303.90913 | 35.56318 | 6.51885 | 0.1335131 | 3.0303165 | 18 | 1 | 53 days | 0.31 | | | MPC | | 2009 $UW_{120}$ |
| 2009 $UZ_{120}$ | 17.7 | 0.15 | 20100104 | 51.10586 | 108.14104 | 245.66082 | 5.67230 | 0.2174713 | 2.2111584 | 33 | 1 | 64 days | 0.48 | M-v | 4 | MPC | | 2009 $UZ_{120}$ |
| 2009 $UA_{121}$ | 15.4 | 0.15 | 20100104 | 48.67745 | 134.16999 | 223.07254 | 14.85154 | 0.0862849 | 3.0952008 | 39 | 3 | 2003–2009 | 0.58 | M-v | 3 | MPC | 165948 | 2009 $UA_{121}$ |
| 2009 $UB_{121}$ | 16.4 | 0.15 | 20091105 | 52.53501 | 109.57864 | 221.64797 | 14.36081 | 0.1739828 | 2.7142607 | 13 | 1 | 30 days | 0.32 | | | MPC | | 2009 $UB_{121}$ |
| 2009 $UV_{121}$ | 17.1 | 0.15 | 20091016 | 351.68302 | 355.51191 | 46.18977 | 17.50447 | 0.0755494 | 2.9073227 | 12 | 1 | 2 days | 0.33 | | E | MPC | | 2009 $UV_{121}$ |
| 2009 $UT_{123}$ | 16.5 | 0.15 | 20091105 | 26.47458 | 301.59688 | 54.72151 | 17.87597 | 0.2539491 | 3.1051284 | 20 | 1 | 54 days | 0.20 | | | MPC | | 2009 $UT_{123}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2009 $UC_{124}$ | 16.0 | 0.15 | 20091105 | 350.62825 | 239.50672 | 172.69522 | 8.17585 | 0.0581681 | 2.9350320 | 20 | 1 | 34 days | 0.49 | | | MPC | | 2009 $UC_{124}$ |
| 2009 $UE_{125}$ | 17.5 | 0.15 | 20100104 | 15.13998 | 215.93962 | 180.75863 | 5.67343 | 0.2448011 | 2.6343799 | 28 | 1 | 86 days | 0.39 | M-v | 3 | MPC | 166386 | 2009 $UE_{125}$ |
| 2009 $UP_{126}$ | 16.6 | 0.15 | 20100104 | 50.51354 | 332.51988 | 17.64998 | 12.25324 | 0.3041015 | 2.5301153 | 37 | 2 | 2005–2009 | 0.57 | M-v | 3 | MPC | 165949 | 2009 $UP_{126}$ |
| 2009 $UU_{126}$ | 17.0 | 0.15 | 20091105 | 14.28091 | 200.34013 | 184.33135 | 4.02216 | 0.2717113 | 2.6115945 | 40 | 1 | 50 days | 0.49 | | | MPC | | 2009 $UU_{126}$ |
| 2009 $UZ_{126}$ | 12.7 | 0.15 | 20100104 | 5.91474 | 173.41592 | 226.41448 | 24.82943 | 0.1035179 | 5.2002569 | 64 | 6 | 2001–2009 | 0.54 | M-v | 0 | MPC | 165950 | 2009 $UZ_{126}$ |
| 2009 $UA_{127}$ | 15.1 | 0.15 | 20100104 | 56.61033 | 108.57242 | 227.56444 | 25.38161 | 0.1978878 | 3.0783788 | 40 | 1 | 67 days | 0.50 | M-v | 4 | MPC | | 2009 $UA_{127}$ |
| 2009 $UD_{127}$ | 15.9 | 0.15 | 20091105 | 278.35229 | 268.92237 | 238.60961 | 15.87910 | 0.1393001 | 2.6104947 | 41 | 1 | 49 days | 0.50 | | | MPC | | 2009 $UD_{127}$ |
| 2009 $UK_{127}$ | 16.3 | 0.15 | 20100104 | 351.97314 | 6.33469 | 81.35514 | 11.31714 | 0.2341546 | 2.7909129 | 38 | 1 | 74 days | 0.65 | M-v | 4 | MPC | | 2009 $UK_{127}$ |
| 2009 $UP_{127}$ | 16.3 | 0.15 | 20100104 | 358.37011 | 146.08979 | 288.34031 | 12.08592 | 0.2200535 | 2.7063612 | 35 | 1 | 63 days | 0.55 | M-v | 4 | MPC | | 2009 $UP_{127}$ |
| 2009 $US_{127}$ | 19.1 | 0.15 | 20091016 | 34.07500 | 317.44023 | 20.42081 | 7.57858 | 0.2634526 | 2.4970942 | 9 | 1 | 4 days | 0.31 | | | MPC | | 2009 $US_{127}$ |
| 2009 $UT_{127}$ | 17.1 | 0.15 | 20091105 | 3.14359 | 2.66157 | 41.48361 | 14.68417 | 0.1837017 | 2.7737023 | 42 | 1 | 57 days | 0.49 | | | MPC | | 2009 $UT_{127}$ |
| 2009 $UU_{127}$ | 18.2 | 0.15 | 20091105 | 351.71808 | 31.05988 | 29.50795 | 5.22552 | 0.2046334 | 2.3219092 | 42 | 1 | 57 days | 0.53 | | | MPC | | 2009 $UU_{127}$ |
| 2009 $UX_{127}$ | 18.3 | 0.15 | 20091105 | 355.31398 | 194.30480 | 223.95140 | 18.52406 | 0.2044757 | 1.9947185 | 19 | 1 | 55 days | 0.60 | | | MPC | | 2009 $UX_{127}$ |
| 2009 $UZ_{127}$ | 16.4 | 0.15 | 20091105 | 339.35733 | 202.94707 | 231.57434 | 10.51590 | 0.1290191 | 3.1224578 | 21 | 1 | 47 days | 0.26 | | | MPC | | 2009 $UZ_{127}$ |
| 2009 $UD_{128}$ | 16.7 | 0.15 | 20100104 | 111.18610 | 236.48885 | 70.46107 | 5.34060 | 0.1021136 | 2.7444294 | 34 | 3 | 2005–2009 | 0.25 | M-v | 2 | MPC | 165950 | 2009 $UD_{128}$ |
| 2009 $UE_{128}$ | 16.1 | 0.15 | 20091105 | 321.98386 | 42.99515 | 59.51586 | 15.89106 | 0.1087611 | 2.8757747 | 25 | 1 | 53 days | 0.40 | | | MPC | | 2009 $UE_{128}$ |
| 2009 $UF_{128}$ | 16.4 | 0.15 | 20100104 | 133.09371 | 60.75321 | 229.81019 | 13.84356 | 0.0742178 | 2.5549190 | 54 | 3 | 2004–2009 | 0.29 | M-v | 2 | MPC | 165950 | 2009 $UF_{128}$ |
| 2009 $UO_{128}$ | 17.3 | 0.15 | 20091105 | 35.37929 | 332.86955 | 17.78252 | 9.85084 | 0.2212313 | 2.6195324 | 21 | 1 | 42 days | 0.49 | | | MPC | | 2009 $UO_{128}$ |
| 2009 $UV_{128}$ | 18.2 | 0.15 | 20091105 | 0.59265 | 170.29750 | 236.94035 | 7.53518 | 0.1110408 | 2.3651731 | 20 | 1 | 44 days | 0.27 | | | MPC | | 2009 $UV_{128}$ |
| 2009 $UW_{128}$ | 16.1 | 0.15 | 20091105 | 42.36847 | 116.52306 | 237.26472 | 6.97352 | 0.1654255 | 3.0101945 | 32 | 1 | 48 days | 0.49 | | | MPC | | 2009 $UW_{128}$ |
| 2009 $UX_{128}$ | 18.1 | 0.15 | 20100104 | 359.76900 | 143.02420 | 291.00522 | 0.94497 | 0.1944432 | 2.3885705 | 59 | 4 | 2003–2009 | 0.43 | M-v | 1 | MPC | 165951 | 2009 $UX_{128}$ |
| 2009 $UY_{128}$ | 15.4 | 0.15 | 20091105 | 86.71179 | 259.82842 | 47.73856 | 13.88265 | 0.1545128 | 3.0778876 | 18 | 1 | 49 days | 0.41 | | | MPC | | 2009 $UY_{128}$ |
| 2009 $UA_{129}$ | 18.0 | 0.15 | 20100104 | 37.09468 | 351.67967 | 30.77945 | 2.99941 | 0.1396691 | 2.3434881 | 39 | 5 | 1998–2009 | 0.36 | M-v | 1 | MPC | 165951 | 2009 $UA_{129}$ |
| 2009 $UB_{129}$ | 16.0 | 0.15 | 20100104 | 89.36488 | 81.33642 | 234.04372 | 13.98181 | 0.1700969 | 2.7669782 | 52 | 3 | 2003–2009 | 0.38 | M-v | 3 | MPC | 165951 | 2009 $UB_{129}$ |
| 2009 $UD_{129}$ | 14.7 | 0.15 | 20100104 | 349.11239 | 176.31604 | 255.18424 | 16.02792 | 0.1725381 | 3.1491057 | 64 | 4 | 2003–2009 | 0.41 | M-v | 1 | MPC | 165952 | 2009 $UD_{129}$ |
| 2009 $UF_{129}$ | 16.6 | 0.15 | 20091105 | 324.23719 | 221.48259 | 239.19984 | 15.55640 | 0.2218588 | 2.7443511 | 30 | 1 | 47 days | 0.33 | | | MPC | | 2009 $UF_{129}$ |
| 2009 $UO_{129}$ | 17.9 | 0.15 | 20091105 | 21.54272 | 145.56684 | 233.30640 | 19.33654 | 0.1088286 | 1.9657498 | 40 | 1 | 55 days | 0.46 | | | MPC | | 2009 $UO_{129}$ |
| 2009 $UQ_{129}$ | 17.4 | 0.15 | 20091105 | 14.84190 | 134.50819 | 243.47251 | 11.04887 | 0.3064890 | 2.6447066 | 44 | 1 | 58 days | 0.46 | | | MPC | | 2009 $UQ_{129}$ |
| 2009 $UR_{129}$ | 17.0 | 0.15 | 20091105 | 351.89219 | 181.00119 | 236.91681 | 21.35287 | 0.1093660 | 2.5775273 | 18 | 1 | 54 days | 0.27 | | | MPC | | 2009 $UR_{129}$ |
| 2009 $UT_{129}$ | 16.0 | 0.15 | 20091016 | 6.46661 | 20.32373 | 9.26021 | 16.93200 | 0.2028243 | 3.0971081 | 23 | 1 | 36 days | 0.60 | | | MPC | | 2009 $UT_{129}$ |
| 2009 $UX_{129}$ | 15.7 | 0.15 | 20100104 | 349.86977 | 132.00722 | 306.50714 | 9.09083 | 0.2040807 | 3.1494451 | 38 | 3 | 2003–2009 | 0.48 | M-v | 2 | MPC | 165952 | 2009 $UX_{129}$ |
| 2009 $UB_{130}$ | 16.7 | 0.15 | 20100104 | 18.96387 | 347.49545 | 62.46188 | 15.11708 | 0.2440903 | 2.6195105 | 61 | 2 | 2005–2009 | 0.47 | M-v | 2 | MPC | 165952 | 2009 $UB_{130}$ |
| 2009 $UD_{130}$ | 16.1 | 0.15 | 20100104 | 35.25786 | 317.03095 | 61.14995 | 13.23516 | 0.2869684 | 3.0962983 | 47 | 2 | 1998–2009 | 0.43 | M-v | 3 | MPC | 165953 | 2009 $UD_{130}$ |
| 2009 $UJ_{130}$ | 17.2 | 0.15 | 20100104 | 98.69914 | 269.72124 | 55.69876 | 22.48164 | 0.0782239 | 1.9577018 | 90 | 5 | 2000–2009 | 0.55 | M-v | 1 | MPC | 165953 | 2009 $UJ_{130}$ |
| 2009 $UK_{130}$ | 17.6 | 0.15 | 20100104 | 24.40701 | 337.52033 | 65.16393 | 23.43672 | 0.0929497 | 1.9146971 | 53 | 1 | 86 days | 0.56 | M-v | 4 | MPC | | 2009 $UK_{130}$ |
| 2009 $UM_{130}$ | 17.3 | 0.15 | 20100104 | 31.27088 | 327.20686 | 53.66436 | 11.88925 | 0.3349201 | 2.4054165 | 55 | 1 | 78 days | 0.54 | M-v | 4 | MPC | | 2009 $UM_{130}$ |
| 2009 $UN_{130}$ | 15.4 | 0.15 | 20100104 | 94.59449 | 120.63030 | 196.78162 | 8.22892 | 0.1748543 | 2.5672664 | 59 | 6 | 1999–2009 | 0.49 | M-v | 1 | MPC | 165953 | 2009 $UN_{130}$ |
| 2009 $UO_{130}$ | 16.7 | 0.15 | 20100104 | 51.83895 | 292.41581 | 56.78899 | 16.26723 | 0.2954626 | 2.6148779 | 54 | 4 | 1992–2009 | 0.41 | M-v | 0 | MPC | 165953 | 2009 $UO_{130}$ |
| 2009 $UP_{130}$ | 17.1 | 0.15 | 20100104 | 358.77434 | 7.97590 | 72.21919 | 5.83378 | 0.2403478 | 2.6332745 | 73 | 2 | 2006–2009 | 0.47 | M-v | 3 | MPC | 165954 | 2009 $UP_{130}$ |
| 2009 $UB_{131}$ | 16.7 | 0.15 | 20100104 | 35.95243 | 133.45114 | 249.21113 | 22.76072 | 0.2296337 | 2.3407756 | 52 | 1 | 64 days | 0.42 | M-v | 4 | MPC | | 2009 $UB_{131}$ |
| 2009 $UE_{131}$ | 15.5 | 0.15 | 20100104 | 38.64566 | 290.82181 | 76.48659 | 27.20224 | 0.2200303 | 3.1989864 | 25 | 2 | 2003–2009 | 0.61 | M-v | 4 | MPC | 165954 | 2009 $UE_{131}$ |
| 2009 $UL_{131}$ | 15.4 | 0.15 | 20091105 | 0.11082 | 331.46941 | 71.90984 | 21.51638 | 0.1992304 | 3.2144074 | 20 | 1 | 53 days | 0.44 | | | MPC | | 2009 $UL_{131}$ |
| 2009 $UM_{131}$ | 17.5 | 0.15 | 20091016 | 4.63983 | 202.08548 | 184.58216 | 18.66784 | 0.2843571 | 2.6741371 | 14 | 1 | 53 days | 0.56 | | | MPC | | 2009 $UM_{131}$ |
| 2009 $UO_{131}$ | 17.4 | 0.15 | 20091105 | 344.11223 | 239.06587 | 195.25730 | 5.65843 | 0.1332618 | 2.3015665 | 24 | 1 | 53 days | 0.57 | | | MPC | | 2009 $UO_{131}$ |
| 2009 $UP_{131}$ | 16.2 | 0.15 | 20091105 | 2.96144 | 125.19755 | 284.86357 | 9.02485 | 0.0754339 | 2.5377761 | 14 | 1 | 29 days | 0.55 | | | MPC | | 2009 $UP_{131}$ |
| 2009 $UB_{132}$ | 17.0 | 0.15 | 20091016 | 341.79079 | 157.01897 | 268.21592 | 8.89562 | 0.3116861 | 2.8549576 | 24 | 1 | 54 days | 0.60 | | | MPC | | 2009 $UB_{132}$ |
| 2009 $UM_{132}$ | 15.3 | 0.15 | 20100104 | 18.84698 | 151.28966 | 240.13367 | 26.79335 | 0.1293871 | 3.0878882 | 28 | 1 | 65 days | 0.53 | M-v | 4 | MPC | | 2009 $UM_{132}$ |
| 2009 $UM_{134}$ | 17.9 | 0.15 | 20100104 | 23.58584 | 208.21313 | 189.80914 | 1.17630 | 0.1772005 | 2.3375820 | 28 | 1 | 84 days | 0.26 | M-v | 3 | MPC | 166387 | 2009 $UM_{134}$ |
| 2009 $UQ_{134}$ | 16.2 | 0.15 | 20100104 | 47.60815 | 151.33399 | 205.71072 | 4.64163 | 0.1702091 | 3.0685189 | 26 | 2 | 2007–2009 | 0.33 | M-v | 3 | MPC | 165956 | 2009 $UQ_{134}$ |
| 2009 $UW_{134}$ | 16.2 | 0.15 | 20100104 | 296.45741 | 86.76492 | 50.84678 | 3.85351 | 0.0589521 | 3.1549076 | 37 | 6 | 1992–2009 | 0.37 | M-v | 0 | MPC | 165956 | 2009 $UW_{134}$ |
| 2009 $UX_{134}$ | 16.7 | 0.15 | 20091105 | 17.90043 | 158.26331 | 230.06222 | 11.33743 | 0.1862886 | 2.5618576 | 25 | 1 | 56 days | 0.37 | | | MPC | | 2009 $UX_{134}$ |
| 2009 $UA_{135}$ | 17.4 | 0.15 | 20100104 | 23.76804 | 151.31650 | 236.95718 | 12.51368 | 0.2611141 | 2.6536803 | 33 | 1 | 68 days | 0.41 | M-v | 4 | MPC | | 2009 $UA_{135}$ |
| 2009 $UD_{135}$ | 17.4 | 0.15 | 20091105 | 321.44383 | 231.49480 | 234.47065 | 2.50256 | 0.1580299 | 2.7385840 | 17 | 1 | 48 days | 0.25 | | | MPC | | 2009 $UD_{135}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2009 $US_{135}$ | 17.2 | 0.15 | 20100104 | 2.51774 | 195.08711 | 228.21834 | 4.24976 | 0.2881309 | 2.6447397 | 27 | 1 | 60 days | 0.42 | M-v | 4 | MPC | | 2009 $US_{135}$ |
| 2009 $UF_{136}$ | 15.9 | 0.15 | 20100104 | 18.06933 | 185.35724 | 224.37158 | 14.55445 | 0.1217576 | 2.8355279 | 54 | 4 | 1999–2009 | 0.38 | M-v | 1 | MPC | 165957 | 2009 $UF_{136}$ |
| 2009 $UJ_{136}$ | 17.4 | 0.15 | 20100104 | 70.62323 | 234.52166 | 89.43830 | 3.63564 | 0.2513182 | 2.3164124 | 28 | 2 | 2008–2009 | 0.55 | M-v | 4 | MPC | 165957 | 2009 $UJ_{136}$ |
| 2009 $UL_{136}$ | 14.7 | 0.15 | 20091105 | 331.92533 | 323.13959 | 116.23160 | 28.88397 | 0.1439609 | 3.1328142 | 18 | 1 | 50 days | 0.61 | | | MPC | | 2009 $UL_{136}$ |
| 2009 $UP_{136}$ | 14.9 | 0.15 | 20091105 | 23.55371 | 138.67836 | 251.26431 | 22.51598 | 0.1290125 | 3.2235877 | 40 | 1 | 53 days | 0.60 | | | MPC | | 2009 $UP_{136}$ |
| 2009 $UT_{136}$ | 16.2 | 0.15 | 20100104 | 23.24538 | 189.02832 | 207.79843 | 10.26230 | 0.1486266 | 2.8983669 | 52 | 6 | 1994–2009 | 0.44 | M-v | 2 | MPC | 165957 | 2009 $UT_{136}$ |
| 2009 $UX_{136}$ | 16.5 | 0.15 | 20100104 | 30.59108 | 328.27727 | 56.31087 | 13.81236 | 0.1677384 | 2.5919320 | 80 | 2 | 2005–2009 | 0.41 | M-v | 3 | MPC | 165958 | 2009 $UX_{136}$ |
| 2009 $UB_{137}$ | 16.9 | 0.15 | 20100104 | 38.93372 | 92.72894 | 271.98591 | 11.46296 | 0.2903008 | 2.6567825 | 44 | 3 | 2000–2009 | 0.48 | M-v | 2 | MPC | 165958 | 2009 $UB_{137}$ |
| 2009 $UF_{137}$ | 15.0 | 0.15 | 20100104 | 349.95059 | 154.24592 | 286.99456 | 11.42126 | 0.1507495 | 3.2226873 | 47 | 5 | 2002–2009 | 0.52 | M-v | 1 | MPC | 165959 | 2009 $UF_{137}$ |
| 2009 $UG_{137}$ | 14.8 | 0.15 | 20091105 | 1.03902 | 335.87205 | 84.67397 | 18.93930 | 0.1146029 | 3.0753047 | 45 | 1 | 45 days | 0.58 | | | MPC | | 2009 $UG_{137}$ |
| 2009 $UK_{137}$ | 17.1 | 0.15 | 20091105 | 23.10328 | 130.83875 | 245.04771 | 13.98712 | 0.2603466 | 2.7367252 | 25 | 1 | 46 days | 0.33 | | | MPC | | 2009 $UK_{137}$ |
| 2009 $UL_{137}$ | 17.5 | 0.15 | 20100104 | 13.85564 | 124.66860 | 261.28198 | 5.71002 | 0.2873312 | 2.7536825 | 16 | 1 | 79 days | 0.36 | M-v | 4 | MPC | | 2009 $UL_{137}$ |
| 2009 $UU_{137}$ | 16.8 | 0.15 | 20100104 | 1.56418 | 183.85797 | 230.78552 | 12.98719 | 0.2749360 | 3.1329098 | 28 | 1 | 66 days | 0.46 | M-v | 4 | MPC | | 2009 $UU_{137}$ |
| 2009 $UZ_{137}$ | 16.2 | 0.15 | 20100104 | 57.66486 | 66.53872 | 282.24308 | 4.18415 | 0.2367484 | 2.6260946 | 62 | 3 | 2000–2009 | 0.48 | M-v | 3 | MPC | 165959 | 2009 $UZ_{137}$ |
| 2009 $UA_{138}$ | 18.1 | 0.15 | 20091105 | 289.47590 | 252.28453 | 233.48401 | 21.50820 | 0.0478064 | 1.8846853 | 26 | 1 | 47 days | 0.47 | | | MPC | | 2009 $UA_{138}$ |
| 2009 $UC_{138}$ | 17.3 | 0.15 | 20091105 | 350.61385 | 181.27166 | 249.41256 | 12.59835 | 0.2292031 | 2.6455942 | 31 | 1 | 53 days | 0.47 | | | MPC | | 2009 $UC_{138}$ |
| 2009 $UD_{138}$ | 16.4 | 0.15 | 20091105 | 32.06408 | 131.79095 | 247.16655 | 13.18048 | 0.1018488 | 2.6982445 | 22 | 1 | 53 days | 0.22 | | | MPC | | 2009 $UD_{138}$ |
| 2009 $UE_{138}$ | 15.9 | 0.15 | 20100104 | 40.77178 | 166.28831 | 211.23249 | 3.52371 | 0.1052723 | 2.9726877 | 63 | 5 | 1998–2009 | 0.41 | M-v | 0 | MPC | 165960 | 2009 $UE_{138}$ |
| 2009 $UF_{138}$ | 16.9 | 0.15 | 20100104 | 27.09987 | 139.38409 | 245.21051 | 9.75160 | 0.2201497 | 2.3833704 | 42 | 1 | 63 days | 0.58 | M-v | 4 | MPC | | 2009 $UF_{138}$ |
| 2009 $UW_{138}$ | 16.7 | 0.15 | 20091105 | 32.83582 | 262.81358 | 107.85415 | 10.23735 | 0.1250232 | 2.5585167 | 12 | 1 | 27 days | 0.53 | | | MPC | | 2009 $UW_{138}$ |
| 2009 $UX_{138}$ | 15.8 | 0.15 | 20100104 | 354.34046 | 336.96163 | 83.58219 | 3.81352 | 0.0340866 | 3.0461130 | 37 | 6 | 2001–2009 | 0.42 | M-v | 0 | MPC | 165960 | 2009 $UX_{138}$ |
| 2009 $UO_{139}$ | 15.4 | 0.15 | 20100104 | 15.36918 | 298.95399 | 96.55873 | 25.84457 | 0.2329924 | 3.1710227 | 24 | 1 | 88 days | 0.59 | M-v | 4 | MPC | | 2009 $UO_{139}$ |
| 2009 $UP_{139}$ | 14.1 | 0.15 | 20091105 | 346.92598 | 334.78364 | 96.95017 | 29.08628 | 0.1544880 | 3.1939032 | 22 | 1 | 52 days | 0.49 | | | MPC | | 2009 $UP_{139}$ |
| 2009 $UR_{139}$ | 12.4 | 0.15 | 20100104 | 343.99334 | 320.63870 | 115.19476 | 12.32500 | 0.0287916 | 5.2209552 | 35 | 5 | 2000–2009 | 0.50 | M-v | 0 | MPC | 165961 | 2009 $UR_{139}$ |
| 2009 $UW_{139}$ | 16.2 | 0.15 | 20100104 | 12.79116 | 291.93060 | 121.65571 | 12.30334 | 0.1868599 | 2.6225283 | 27 | 3 | 2002–2009 | 0.42 | M-v | 3 | MPC | 165961 | 2009 $UW_{139}$ |
| 2009 $UD_{140}$ | 16.7 | 0.15 | 20091105 | 352.17685 | 359.86712 | 57.30307 | 7.10716 | 0.0628055 | 2.7099097 | 25 | 1 | 48 days | 0.31 | | | MPC | | 2009 $UD_{140}$ |
| 2009 $UG_{140}$ | 15.3 | 0.15 | 20091016 | 353.84959 | 227.67656 | 185.72155 | 13.44917 | 0.1621849 | 3.2402775 | 15 | 1 | 34 days | 0.62 | | | MPC | | 2009 $UG_{140}$ |
| 2009 $UL_{140}$ | 13.1 | 0.15 | 20091105 | 84.93687 | 257.21017 | 72.55605 | 8.67572 | 0.0182035 | 5.0888137 | 15 | 1 | 31 days | 0.19 | | | MPC | | 2009 $UL_{140}$ |
| 2009 $UM_{140}$ | 15.8 | 0.15 | 20091105 | 197.95779 | 3.77223 | 218.76205 | 10.15737 | 0.1345087 | 3.1779260 | 12 | 1 | 31 days | 0.27 | | | MPC | | 2009 $UM_{140}$ |
| 2009 $UN_{140}$ | 14.5 | 0.15 | 20091105 | 240.08215 | 299.92169 | 235.37735 | 10.81996 | 0.0205449 | 3.9528295 | 14 | 1 | 48 days | 0.20 | | | MPC | | 2009 $UN_{140}$ |
| 2009 $UO_{140}$ | 17.9 | 0.15 | 20091105 | 313.98144 | 250.56400 | 222.44323 | 8.66623 | 0.1367050 | 2.3735491 | 13 | 1 | 29 days | 0.38 | | | MPC | | 2009 $UO_{140}$ |
| 2009 $UT_{140}$ | 16.0 | 0.15 | 20091105 | 297.21210 | 224.45151 | 259.03078 | 8.61838 | 0.0319606 | 3.1001558 | 13 | 1 | 53 days | 0.23 | | | MPC | | 2009 $UT_{140}$ |
| 2009 $UV_{140}$ | 15.8 | 0.15 | 20091105 | 124.85545 | 227.13684 | 65.64378 | 11.10538 | 0.1235851 | 3.0823746 | 17 | 1 | 45 days | 0.31 | | | MPC | | 2009 $UV_{140}$ |
| 2009 $UW_{140}$ | 15.5 | 0.15 | 20091105 | 203.84191 | 240.01922 | 344.54147 | 3.63352 | 0.0107983 | 3.1182540 | 10 | 1 | 23 days | 0.52 | | | MPC | | 2009 $UW_{140}$ |
| 2009 $UX_{140}$ | 19.3 | 0.15 | 20091105 | 352.84339 | 11.13567 | 51.20905 | 7.10196 | 0.1792157 | 2.1996619 | 12 | 1 | 28 days | 0.31 | | | MPC | | 2009 $UX_{140}$ |
| 2009 $UB_{141}$ | 13.0 | 0.15 | 20091105 | 349.08566 | 14.54479 | 39.20449 | 21.39815 | 0.0895370 | 5.2417762 | 15 | 1 | 32 days | 0.49 | | | MPC | | 2009 $UB_{141}$ |
| 2009 $UF_{141}$ | 15.8 | 0.15 | 20091105 | 337.01687 | 57.14602 | 36.83522 | 27.10495 | 0.2590354 | 3.1452292 | 14 | 1 | 26 days | 0.47 | | | MPC | | 2009 $UF_{141}$ |
| 2009 $UG_{141}$ | 15.6 | 0.15 | 20091105 | 51.83924 | 353.46075 | 356.28959 | 8.93299 | 0.0757957 | 2.9611861 | 12 | 1 | 24 days | 0.47 | | | MPC | | 2009 $UG_{141}$ |
| 2009 $UL_{141}$ | 17.0 | 0.15 | 20091105 | 19.10712 | 33.20844 | 342.53519 | 8.67731 | 0.2249107 | 2.7188596 | 18 | 1 | 29 days | 0.72 | | | MPC | | 2009 $UL_{141}$ |
| 2009 $UR_{141}$ | 17.3 | 0.15 | 20091105 | 42.86695 | 146.48788 | 205.44776 | 8.04961 | 0.1656278 | 2.7373612 | 12 | 1 | 27 days | 0.41 | | | MPC | | 2009 $UR_{141}$ |
| 2009 $US_{141}$ | 17.8 | 0.15 | 20091105 | 29.48937 | 131.06828 | 222.81315 | 12.07035 | 0.2756975 | 2.5818007 | 11 | 1 | 24 days | 0.11 | | | MPC | | 2009 $US_{141}$ |
| 2009 $UU_{141}$ | 18.5 | 0.15 | 20091105 | 330.29427 | 59.80375 | 46.69846 | 7.64264 | 0.2733809 | 2.5561362 | 16 | 1 | 53 days | 0.18 | | | MPC | | 2009 $UU_{141}$ |
| 2009 $UH_{142}$ | 16.5 | 0.15 | 20091016 | 17.54338 | 334.67669 | 43.74538 | 6.66203 | 0.1678608 | 3.0419141 | 10 | 1 | 24 days | 0.23 | | | MPC | | 2009 $UH_{142}$ |
| 2009 $UM_{142}$ | 15.7 | 0.15 | 20091105 | 138.83827 | 217.43962 | 49.80829 | 9.98184 | 0.0546536 | 3.1554034 | 18 | 1 | 53 days | 0.20 | | | MPC | | 2009 $UM_{142}$ |
| 2009 $US_{142}$ | 19.3 | 0.15 | 20091016 | 42.97092 | 288.47403 | 49.38411 | 3.16782 | 0.2100726 | 2.2447660 | 10 | 1 | 24 days | 0.21 | | | MPC | | 2009 $US_{142}$ |
| 2009 $UV_{142}$ | 17.8 | 0.15 | 20091105 | 33.89050 | 151.73304 | 204.45831 | 1.04073 | 0.2401846 | 2.8648766 | 11 | 1 | 36 days | 0.42 | | | MPC | | 2009 $UV_{142}$ |
| 2009 $UY_{142}$ | 18.1 | 0.15 | 20091105 | 26.28698 | 154.28478 | 221.44090 | 6.00993 | 0.1445366 | 2.6546116 | 11 | 1 | 36 days | 0.33 | | | MPC | | 2009 $UY_{142}$ |
| 2009 $UH_{143}$ | 16.8 | 0.15 | 20091105 | 34.54626 | 148.22713 | 221.80266 | 0.91403 | 0.0907542 | 3.0386510 | 15 | 1 | 36 days | 0.25 | | | MPC | | 2009 $UH_{143}$ |
| 2009 $UL_{143}$ | 13.5 | 0.15 | 20100104 | 2.66621 | 185.21736 | 231.76405 | 20.08649 | 0.0691582 | 5.1534123 | 15 | 1 | 62 days | 0.21 | M-v | 4 | MPC | | 2009 $UL_{143}$ |
| 2009 $UN_{143}$ | 17.1 | 0.15 | 20091105 | 351.14470 | 202.62864 | 222.01465 | 4.67725 | 0.1788575 | 3.0343087 | 14 | 1 | 36 days | 0.18 | | | MPC | | 2009 $UN_{143}$ |
| 2009 $UC_{144}$ | 19.3 | 0.15 | 20091105 | 11.64030 | 334.65061 | 56.13641 | 3.39351 | 0.1923984 | 2.3597947 | 14 | 1 | 31 days | 0.27 | | | MPC | | 2009 $UC_{144}$ |
| 2009 $UM_{144}$ | 16.0 | 0.15 | 20091016 | 315.59092 | 89.22529 | 2.95542 | 16.89939 | 0.1641362 | 3.1152521 | 12 | 1 | 34 days | 0.61 | | | MPC | | 2009 $UM_{144}$ |
| 2009 $UN_{144}$ | 15.7 | 0.15 | 20091105 | 278.84792 | 174.27175 | 316.11006 | 5.63619 | 0.1884587 | 2.7131788 | 11 | 1 | 32 days | 0.86 | | | MPC | | 2009 $UN_{144}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2009 $UR_{144}$ | 17.2 | 0.15 | 20091016 | 356.16629 | 330.08135 | 73.79381 | 13.85661 | 0.2294204 | 2.6252141 | 12 | 1 | 34 days | 0.51 | | | MPC | | 2009 $UR_{144}$ |
| 2009 $UJ_{145}$ | 18.2 | 0.15 | 20091016 | 300.16122 | 92.78697 | 17.25023 | 23.46494 | 0.1416879 | 1.9382362 | 12 | 1 | 36 days | 0.59 | | | MPC | | 2009 $UJ_{145}$ |
| 2009 $UE_{146}$ | 17.4 | 0.15 | 20091105 | 21.76729 | 321.44444 | 61.52630 | 7.93679 | 0.1263341 | 2.4865635 | 14 | 1 | 50 days | 0.17 | | | MPC | | 2009 $UE_{146}$ |
| 2009 $UG_{146}$ | 18.0 | 0.15 | 20091105 | 12.50625 | 191.93401 | 190.48923 | 5.46034 | 0.3412089 | 2.6224596 | 16 | 1 | 35 days | 0.50 | | | MPC | | 2009 $UG_{146}$ |
| 2009 $UH_{146}$ | 17.6 | 0.15 | 20091105 | 51.35905 | 69.61775 | 265.95600 | 3.81214 | 0.2743902 | 2.6035304 | 17 | 1 | 57 days | 0.23 | | | MPC | | 2009 $UH_{146}$ |
| 2009 $UJ_{146}$ | 17.1 | 0.15 | 20091105 | 27.83665 | 335.18450 | 18.90916 | 5.40444 | 0.2999148 | 3.1700868 | 15 | 1 | 30 days | 0.41 | | | MPC | | 2009 $UJ_{146}$ |
| 2009 $UK_{146}$ | 16.0 | 0.15 | 20091105 | 94.77365 | 225.94894 | 56.34663 | 9.36249 | 0.2649916 | 2.7991702 | 19 | 1 | 55 days | 0.21 | | | MPC | | 2009 $UK_{146}$ |
| 2009 $UL_{146}$ | 17.3 | 0.15 | 20091105 | 42.21865 | 311.61441 | 41.46301 | 9.46728 | 0.1217289 | 2.6219012 | 18 | 1 | 35 days | 0.31 | | | MPC | | 2009 $UL_{146}$ |
| 2009 VC | 16.1 | 0.15 | 20100104 | 73.47218 | 257.40088 | 48.56396 | 27.87360 | 0.3008510 | 2.6659163 | 55 | 4 | 1996–2009 | 0.49 | M-v | 1 | MPC | 165961 | 2009 VC |
| 2009 VO | 17.1 | 0.15 | 20100104 | 35.27004 | 311.69329 | 55.14820 | 23.89357 | 0.2448497 | 2.3297523 | 50 | 1 | 80 days | 0.57 | M-v | 4 | MPC | | 2009 VO |
| 2009 VT | 22.2 | 0.15 | 20100104 | 331.51079 | 300.09922 | 214.82187 | 3.39920 | 0.3998848 | 1.3698615 | 63 | 1 | 42 days | 0.39 | M-v | 6 | MPC | 166388 | 2009 VT |
| 2009 VZ | 21.3 | 0.15 | 20100104 | 8.89094 | 221.40115 | 233.76408 | 12.29977 | 0.3246602 | 1.4113037 | 116 | 1 | 21 days | 0.30 | M-v | 5 | MPC | 166388 | 2009 VZ |
| 2009 $VA_1$ | 18.7 | 0.15 | 20100104 | 23.40896 | 134.18141 | 207.76949 | 34.63114 | 0.5739827 | 2.4396232 | 36 | 1 | 40 days | 0.55 | M-v | 6 | MPC | 166388 | 2009 $VA_1$ |
| 2009 $VJ_1$ | 16.4 | 0.15 | 20100104 | 55.77271 | 196.63405 | 160.99046 | 14.25090 | 0.1826543 | 2.5337370 | 38 | 5 | 2001–2009 | 0.40 | M-v | 3 | MPC | 165962 | 2009 $VJ_1$ |
| 2009 $VO_1$ | 16.3 | 0.15 | 20091125 | 351.37665 | 159.19606 | 253.34944 | 6.92326 | 0.1647991 | 2.8039759 | 38 | 1 | 42 days | 0.46 | | | MPC | | 2009 $VO_1$ |
| 2009 $VR_1$ | 16.7 | 0.15 | 20100104 | 56.03032 | 246.10280 | 110.03520 | 2.63759 | 0.1697082 | 3.1267444 | 31 | 3 | 1992–2009 | 0.38 | M-v | 3 | MPC | 165963 | 2009 $VR_1$ |
| 2009 $VS_1$ | 16.9 | 0.15 | 20091105 | 345.12470 | 269.51606 | 178.06454 | 20.42500 | 0.3013123 | 2.3387997 | 24 | 1 | 54 days | 0.60 | | | MPC | | 2009 $VS_1$ |
| 2009 $VU_1$ | 16.5 | 0.15 | 20091105 | 350.59471 | 58.48211 | 1.14523 | 21.28733 | 0.2871527 | 3.1053205 | 15 | 1 | 12 days | 0.54 | | | MPC | | 2009 $VU_1$ |
| 2009 $VV_1$ | 17.2 | 0.15 | 20091105 | 23.30014 | 116.11302 | 256.09120 | 20.14212 | 0.1102169 | 1.8588545 | 19 | 1 | 59 days | 0.55 | | | MPC | | 2009 $VV_1$ |
| 2009 $VZ_1$ | 16.6 | 0.15 | 20091016 | 30.62244 | 21.29338 | 333.32791 | 13.44494 | 0.1800210 | 2.5265018 | 15 | 1 | 25 days | 0.60 | | | MPC | | 2009 $VZ_1$ |
| 2009 $VF_2$ | 16.2 | 0.15 | 20091125 | 357.65792 | 143.19700 | 274.50170 | 15.42881 | 0.2231288 | 2.7768427 | 20 | 1 | 39 days | 0.38 | | | MPC | | 2009 $VF_2$ |
| 2009 $VH_2$ | 17.6 | 0.15 | 20091105 | 24.66900 | 108.35023 | 258.36572 | 23.36337 | 0.2431106 | 2.3004463 | 11 | 1 | 10 days | 0.45 | | | MPC | | 2009 $VH_2$ |
| 2009 $VJ_2$ | 15.6 | 0.15 | 20100104 | 335.22874 | 222.91380 | 256.31776 | 24.28688 | 0.3263765 | 2.7571868 | 80 | 4 | 2000–2009 | 0.42 | M-v | 1 | MPC | 165963 | 2009 $VJ_2$ |
| 2009 $VK_2$ | 16.9 | 0.15 | 20091105 | 9.24042 | 43.66901 | 349.62982 | 11.62633 | 0.3017738 | 2.6449532 | 12 | 1 | 11 days | 0.40 | | | MPC | | 2009 $VK_2$ |
| 2009 $VP_2$ | 15.4 | 0.15 | 20100104 | 311.05473 | 175.98243 | 326.26783 | 12.00827 | 0.1979400 | 2.5509663 | 39 | 4 | 2004–2009 | 0.45 | M-v | 3 | MPC | 165963 | 2009 $VP_2$ |
| 2009 $VU_2$ | 16.6 | 0.15 | 20091105 | 348.18154 | 129.94076 | 295.43983 | 15.29230 | 0.2205287 | 2.7294127 | 10 | 1 | 10 days | 0.54 | | | MPC | | 2009 $VU_2$ |
| 2009 $VW_2$ | 16.4 | 0.15 | 20091105 | 15.65917 | 40.30328 | 351.76156 | 13.56524 | 0.1225102 | 2.6271523 | 11 | 1 | 10 days | 0.46 | | | MPC | | 2009 $VW_2$ |
| 2009 $VZ_2$ | 17.6 | 0.15 | 20091105 | 9.54431 | 103.30038 | 287.85194 | 11.06369 | 0.2918270 | 2.5867935 | 17 | 1 | 17 days | 0.54 | | | MPC | | 2009 $VZ_2$ |
| 2009 $VC_3$ | 17.3 | 0.15 | 20100104 | 46.31485 | 270.15740 | 94.50423 | 4.33454 | 0.2115032 | 2.3405883 | 68 | 5 | 2001–2009 | 0.56 | M-v | 1 | MPC | 165963 | 2009 $VC_3$ |
| 2009 $VG_3$ | 17.8 | 0.15 | 20091105 | 284.51530 | 90.01679 | 50.82424 | 3.31435 | 0.0956638 | 2.3261054 | 22 | 1 | 55 days | 0.22 | | | MPC | | 2009 $VG_3$ |
| 2009 $VJ_3$ | 17.2 | 0.15 | 20091125 | 15.48783 | 156.23802 | 242.53696 | 13.37348 | 0.2711417 | 2.7348533 | 37 | 1 | 37 days | 0.36 | | | MPC | | 2009 $VJ_3$ |
| 2009 $VM_3$ | 17.2 | 0.15 | 20091105 | 323.12506 | 238.19174 | 221.92116 | 23.06090 | 0.2520091 | 2.2822155 | 35 | 1 | 54 days | 0.61 | | | MPC | | 2009 $VM_3$ |
| 2009 $VO_3$ | 14.9 | 0.15 | 20091105 | 45.55676 | 262.63776 | 93.61677 | 11.14239 | 0.1100108 | 2.9598121 | 34 | 1 | 55 days | 0.65 | | | MPC | | 2009 $VO_3$ |
| 2009 $VC_4$ | 15.3 | 0.15 | 20091105 | 273.33904 | 283.92060 | 236.46976 | 24.72303 | 0.2138699 | 3.1861138 | 20 | 1 | 32 days | 0.28 | | | MPC | | 2009 $VC_4$ |
| 2009 $VK_4$ | 13.7 | 0.15 | 20091105 | 27.71734 | 137.27594 | 237.83523 | 14.31136 | 0.0904329 | 5.2316701 | 24 | 1 | 47 days | 0.23 | | | MPC | | 2009 $VK_4$ |
| 2009 $VC_5$ | 17.4 | 0.15 | 20091105 | 40.17494 | 311.30426 | 42.48975 | 14.15809 | 0.1638212 | 2.7522926 | 14 | 1 | 36 days | 0.34 | | | MPC | | 2009 $VC_5$ |
| 2009 $VF_5$ | 17.3 | 0.15 | 20091105 | 304.19214 | 222.74543 | 254.82216 | 4.09498 | 0.1276807 | 2.7983969 | 14 | 1 | 32 days | 0.26 | | | MPC | | 2009 $VF_5$ |
| 2009 $VN_5$ | 15.6 | 0.15 | 20091105 | 9.15724 | 149.94590 | 242.15608 | 14.85427 | 0.1078857 | 3.1027471 | 28 | 1 | 49 days | 0.57 | | | MPC | | 2009 $VN_5$ |
| 2009 $VP_5$ | 17.6 | 0.15 | 20091125 | 13.77416 | 325.77745 | 69.50026 | 5.44217 | 0.2488946 | 2.5942808 | 26 | 1 | 33 days | 0.59 | | | MPC | | 2009 $VP_5$ |
| 2009 $VX_5$ | 16.0 | 0.15 | 20091016 | 187.33518 | 351.44730 | 223.61660 | 23.16667 | 0.1541643 | 3.0292929 | 11 | 1 | 16 days | 0.49 | | E | MPC | | 2009 $VX_5$ |
| 2009 $VN_6$ | 15.1 | 0.15 | 20091105 | 10.50485 | 354.31205 | 33.84268 | 10.34250 | 0.1405136 | 5.1701378 | 12 | 1 | 9 days | 0.32 | | E | MPC | | 2009 $VN_6$ |
| 2009 $VO_6$ | 14.6 | 0.15 | 20091016 | 347.81141 | 164.50569 | 248.85113 | 2.19991 | 0.0455066 | 5.2036179 | 11 | 1 | 17 days | 0.30 | | | MPC | | 2009 $VO_6$ |
| 2009 $VQ_6$ | 14.0 | 0.15 | 20091016 | 155.23960 | 330.45791 | 270.81032 | 1.39844 | 0.0888185 | 5.1071894 | 11 | 1 | 17 days | 0.30 | | E | MPC | | 2009 $VQ_6$ |
| 2009 $VA_7$ | 16.0 | 0.15 | 20100104 | 354.63176 | 38.66996 | 31.16912 | 15.01521 | 0.0742030 | 2.6157963 | 40 | 3 | 2004–2009 | 0.44 | M-v | 2 | MPC | 165965 | 2009 $VA_7$ |
| 2009 $VB_7$ | 18.9 | 0.15 | 20091125 | 11.13256 | 113.28190 | 287.19158 | 1.69995 | 0.2623268 | 2.5548582 | 17 | 1 | 39 days | 0.23 | | | MPC | | 2009 $VB_7$ |
| 2009 $VC_7$ | 17.9 | 0.15 | 20091125 | 348.75761 | 196.88202 | 241.26163 | 4.53500 | 0.2132641 | 2.4053806 | 26 | 1 | 33 days | 0.42 | | | MPC | | 2009 $VC_7$ |
| 2009 $VF_7$ | 15.9 | 0.15 | 20091125 | 353.95302 | 161.83140 | 258.74910 | 8.37356 | 0.0920969 | 3.1374645 | 23 | 1 | 51 days | 0.47 | | | MPC | | 2009 $VF_7$ |
| 2009 $VG_7$ | 16.4 | 0.15 | 20091105 | 5.10925 | 153.62514 | 247.03421 | 13.30824 | 0.2213981 | 3.0216704 | 35 | 1 | 53 days | 0.40 | | | MPC | | 2009 $VG_7$ |
| 2009 $VH_7$ | 18.1 | 0.15 | 20091016 | 17.50328 | 337.73254 | 43.25826 | 22.56365 | 0.0600076 | 1.9381305 | 18 | 1 | 29 days | 0.23 | | | MPC | | 2009 $VH_7$ |
| 2009 $VJ_7$ | 17.9 | 0.15 | 20091105 | 22.91711 | 97.61475 | 276.60348 | 3.42115 | 0.2039786 | 2.3719451 | 34 | 1 | 49 days | 0.39 | | | MPC | | 2009 $VJ_7$ |
| 2009 $VL_7$ | 16.3 | 0.15 | 20100104 | 16.51083 | 6.11460 | 40.00995 | 9.83747 | 0.1592964 | 2.7403455 | 53 | 2 | 2004–2009 | 0.48 | M-v | 3 | MPC | 165965 | 2009 $VL_7$ |
| 2009 $VM_7$ | 15.5 | 0.15 | 20100104 | 1.36389 | 185.70718 | 237.56812 | 6.06865 | 0.1484373 | 3.0099797 | 65 | 2 | 2007–2009 | 0.55 | M-v | 3 | MPC | 165965 | 2009 $VM_7$ |
| 2009 $VP_7$ | 17.4 | 0.15 | 20091125 | 7.72479 | 6.31171 | 40.47622 | 8.63949 | 0.1723507 | 2.2574719 | 17 | 1 | 37 days | 0.68 | | | MPC | | 2009 $VP_7$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2009 $VY_{7}$ | 15.7 | 0.15 | 20091125 | 333.81998 | 35.87348 | 56.18966 | 12.04705 | 0.0722205 | 2.9894980 | 22 | 1 | 41 days | 0.40 | | | MPC | | 2009 $VY_{7}$ |
| 2009 $VZ_{7}$ | 16.9 | 0.15 | 20100104 | 9.57804 | 51.02996 | 6.25333 | 2.03408 | 0.2022737 | 2.6043571 | 72 | 6 | 1996–2009 | 0.45 | M-v | 0 | MPC | 165966 | 2009 $VZ_{7}$ |
| 2009 $VA_{8}$ | 17.5 | 0.15 | 20100104 | 72.65284 | 308.82934 | 32.24482 | 2.43153 | 0.1472147 | 2.1646383 | 59 | 4 | 2003–2009 | 0.41 | M-v | 1 | MPC | 165966 | 2009 $VA_{8}$ |
| 2009 $VC_{8}$ | 17.4 | 0.15 | 20100104 | 21.14316 | 161.80548 | 242.96762 | 2.66653 | 0.1498744 | 2.2629189 | 48 | 3 | 2005–2009 | 0.45 | M-v | 2 | MPC | 165966 | 2009 $VC_{8}$ |
| 2009 $VE_{8}$ | 17.2 | 0.15 | 20100104 | 36.25292 | 341.97786 | 36.58773 | 4.66560 | 0.1852146 | 2.6588250 | 47 | 1 | 91 days | 0.51 | M-v | 4 | MPC | 166389 | 2009 $VE_{8}$ |
| 2009 $VF_{8}$ | 14.9 | 0.15 | 20100104 | 27.21950 | 154.49414 | 237.16202 | 26.84399 | 0.1221713 | 3.1054633 | 71 | 3 | 2003–2009 | 0.51 | M-v | 2 | MPC | 165966 | 2009 $VF_{8}$ |
| 2009 $VV_{9}$ | 17.6 | 0.15 | 20100104 | 13.98042 | 183.43406 | 226.66438 | 6.20021 | 0.3206558 | 2.6128943 | 58 | 1 | 66 days | 0.51 | M-v | 4 | MPC | | 2009 $VV_{9}$ |
| 2009 $VW_{9}$ | 15.6 | 0.15 | 20100104 | 17.35799 | 326.49878 | 81.75301 | 6.02089 | 0.1245216 | 3.1272984 | 52 | 3 | 2001–2009 | 0.50 | M-v | 3 | MPC | 165967 | 2009 $VW_{9}$ |
| 2009 $VB_{10}$ | 17.0 | 0.15 | 20100104 | 26.19472 | 20.48069 | 9.34652 | 3.22499 | 0.2885906 | 2.6053205 | 62 | 1 | 89 days | 0.44 | M-v | 4 | MPC | 166390 | 2009 $VB_{10}$ |
| 2009 $VD_{10}$ | 17.7 | 0.15 | 20100104 | 355.33752 | 48.40586 | 36.24427 | 6.60266 | 0.2302756 | 2.5588314 | 41 | 1 | 82 days | 0.56 | M-v | 4 | MPC | | 2009 $VD_{10}$ |
| 2009 $VW_{10}$ | 16.2 | 0.15 | 20091105 | 356.00900 | 339.28472 | 69.29465 | 5.07058 | 0.0993014 | 2.8118685 | 20 | 1 | 53 days | 0.46 | | | MPC | | 2009 $VW_{10}$ |
| 2009 $VY_{10}$ | 15.8 | 0.15 | 20091125 | 315.71704 | 282.97969 | 188.69065 | 2.68510 | 0.2233622 | 3.9588620 | 16 | 1 | 39 days | 0.28 | | | MPC | | 2009 $VY_{10}$ |
| 2009 $VL_{11}$ | 15.8 | 0.15 | 20091105 | 108.34333 | 69.27485 | 212.63155 | 7.55265 | 0.1276249 | 2.7678847 | 16 | 1 | 10 days | 0.48 | | | MPC | | 2009 $VL_{11}$ |
| 2009 $VZ_{11}$ | 16.7 | 0.15 | 20091105 | 266.95244 | 105.46538 | 37.45683 | 8.04157 | 0.0367447 | 2.6758797 | 11 | 1 | 14 days | 0.17 | | | MPC | | 2009 $VZ_{11}$ |
| 2009 $VC_{12}$ | 17.2 | 0.15 | 20091105 | 44.94987 | 319.86581 | 32.89852 | 6.60792 | 0.0925408 | 2.9303460 | 12 | 1 | 14 days | 0.33 | | | MPC | | 2009 $VC_{12}$ |
| 2009 $VZ_{12}$ | 16.6 | 0.15 | 20091105 | 99.69817 | 258.09773 | 40.27302 | 9.23799 | 0.0762217 | 3.1600347 | 15 | 1 | 30 days | 0.40 | | | MPC | | 2009 $VZ_{12}$ |
| 2009 $VQ_{13}$ | 16.9 | 0.15 | 20091105 | 108.44557 | 37.85581 | 249.15624 | 5.95201 | 0.1027861 | 2.7752807 | 12 | 1 | 14 days | 0.21 | | | MPC | | 2009 $VQ_{13}$ |
| 2009 $VD_{14}$ | 14.5 | 0.15 | 20091016 | 22.11038 | 47.25876 | 330.56657 | 2.62122 | 0.0921883 | 5.3431764 | 11 | 1 | 17 days | 0.16 | | E | MPC | | 2009 $VD_{14}$ |
| 2009 $VE_{14}$ | 19.6 | 0.15 | 20091105 | 338.27206 | 56.23616 | 20.82881 | 3.86424 | 0.1913890 | 2.1799761 | 12 | 1 | 14 days | 0.39 | | | MPC | | 2009 $VE_{14}$ |
| 2009 $VF_{14}$ | 16.1 | 0.15 | 20091105 | 107.36422 | 41.05001 | 233.66539 | 18.16794 | 0.2429775 | 3.0599572 | 11 | 1 | 14 days | 0.29 | | | MPC | | 2009 $VF_{14}$ |
| 2009 $VG_{14}$ | 16.7 | 0.15 | 20091105 | 116.65562 | 28.94643 | 238.28775 | 12.12939 | 0.2514063 | 2.6624794 | 12 | 1 | 14 days | 0.21 | | | MPC | | 2009 $VG_{14}$ |
| 2009 $VL_{14}$ | 15.9 | 0.15 | 20100104 | 332.85023 | 214.71094 | 241.39331 | 11.71255 | 0.1690809 | 3.2035438 | 42 | 4 | 2003–2009 | 0.46 | M-v | 1 | MPC | 165968 | 2009 $VL_{14}$ |
| 2009 $VT_{14}$ | 17.2 | 0.15 | 20091105 | 337.99646 | 40.76735 | 33.87761 | 14.00039 | 0.1275078 | 3.0843141 | 11 | 1 | 13 days | 0.30 | | | MPC | | 2009 $VT_{14}$ |
| 2009 $VG_{15}$ | 19.3 | 0.15 | 20091016 | 5.94480 | 90.24515 | 297.65683 | 1.95636 | 0.1981112 | 2.3342546 | 11 | 1 | 16 days | 0.19 | | | MPC | | 2009 $VG_{15}$ |
| 2009 $VD_{16}$ | 16.3 | 0.15 | 20091105 | 34.22126 | 95.21865 | 280.53728 | 0.71896 | 0.1930322 | 2.9844851 | 22 | 1 | 50 days | 0.33 | | | MPC | | 2009 $VD_{16}$ |
| 2009 $VE_{16}$ | 17.5 | 0.15 | 20100104 | 54.31629 | 309.74101 | 60.13717 | 5.89365 | 0.1738750 | 2.3224871 | 29 | 1 | 84 days | 0.36 | M-v | 4 | MPC | 166391 | 2009 $VE_{16}$ |
| 2009 $VP_{16}$ | 17.0 | 0.15 | 20091125 | 24.24378 | 4.76233 | 29.35155 | 2.82285 | 0.1963314 | 3.0075263 | 18 | 1 | 40 days | 0.24 | | | MPC | | 2009 $VP_{16}$ |
| 2009 $VQ_{16}$ | 15.9 | 0.15 | 20091125 | 349.99567 | 190.42627 | 250.27375 | 21.24079 | 0.0479389 | 2.6139190 | 27 | 1 | 39 days | 0.45 | | | MPC | | 2009 $VQ_{16}$ |
| 2009 $VT_{16}$ | 15.0 | 0.15 | 20091125 | 91.55955 | 60.49999 | 257.07944 | 13.38776 | 0.2007148 | 3.1573812 | 24 | 1 | 37 days | 0.32 | | | MPC | | 2009 $VT_{16}$ |
| 2009 $VV_{16}$ | 17.2 | 0.15 | 20091125 | 15.19398 | 351.33722 | 58.36602 | 9.76799 | 0.1663144 | 2.6629598 | 17 | 1 | 41 days | 0.33 | | | MPC | | 2009 $VV_{16}$ |
| 2009 $VW_{16}$ | 16.1 | 0.15 | 20091105 | 118.61516 | 36.89854 | 256.13806 | 13.11017 | 0.1953588 | 2.7160262 | 17 | 1 | 32 days | 0.32 | | | MPC | | 2009 $VW_{16}$ |
| 2009 $VY_{16}$ | 17.1 | 0.15 | 20091105 | 343.03178 | 191.97122 | 256.56078 | 7.78224 | 0.1397513 | 2.7682213 | 16 | 1 | 32 days | 0.19 | | | MPC | | 2009 $VY_{16}$ |
| 2009 $VB_{17}$ | 16.3 | 0.15 | 20100104 | 22.81261 | 345.00795 | 60.83555 | 8.46115 | 0.2114604 | 3.0995613 | 30 | 3 | 2003–2009 | 0.55 | M-v | 3 | MPC | 165968 | 2009 $VB_{17}$ |
| 2009 $VD_{17}$ | 16.2 | 0.15 | 20091125 | 39.56666 | 122.48604 | 256.04810 | 10.59455 | 0.1645401 | 3.1875389 | 17 | 1 | 32 days | 0.25 | | | MPC | | 2009 $VD_{17}$ |
| 2009 $VG_{17}$ | 16.7 | 0.15 | 20100104 | 34.88917 | 86.43391 | 298.85911 | 3.39945 | 0.1690038 | 2.5772553 | 52 | 3 | 1998–2009 | 0.44 | M-v | 2 | MPC | 165968 | 2009 $VG_{17}$ |
| 2009 $VH_{17}$ | 16.4 | 0.15 | 20091105 | 346.88141 | 188.50657 | 248.70416 | 12.52764 | 0.2540222 | 3.0708723 | 49 | 1 | 53 days | 0.52 | | | MPC | | 2009 $VH_{17}$ |
| 2009 $VK_{17}$ | 16.9 | 0.15 | 20091016 | 358.55443 | 318.64628 | 80.46596 | 2.33781 | 0.1926758 | 3.1737392 | 13 | 1 | 17 days | 0.30 | | | MPC | | 2009 $VK_{17}$ |
| 2009 $VN_{17}$ | 18.2 | 0.15 | 20091125 | 357.02486 | 358.45299 | 56.91540 | 4.28861 | 0.1934188 | 2.3086983 | 18 | 1 | 39 days | 0.45 | | | MPC | | 2009 $VN_{17}$ |
| 2009 $VQ_{17}$ | 18.1 | 0.15 | 20091105 | 345.62999 | 349.53508 | 72.84236 | 2.60388 | 0.1585002 | 2.3612245 | 23 | 1 | 55 days | 0.25 | | | MPC | | 2009 $VQ_{17}$ |
| 2009 $VU_{17}$ | 16.4 | 0.15 | 20091125 | 322.62376 | 8.95367 | 87.88783 | 2.36504 | 0.1533298 | 3.1183836 | 16 | 1 | 39 days | 0.24 | | | MPC | | 2009 $VU_{17}$ |
| 2009 $VP_{18}$ | 16.8 | 0.15 | 20091105 | 88.66484 | 42.97156 | 266.93171 | 3.63448 | 0.1077821 | 2.7583623 | 24 | 1 | 55 days | 0.36 | | | MPC | | 2009 $VP_{18}$ |
| 2009 $VT_{18}$ | 16.5 | 0.15 | 20100104 | 69.89090 | 95.71618 | 254.43151 | 7.19108 | 0.0263061 | 2.9997222 | 30 | 2 | 2008–2009 | 0.39 | M-v | 3 | MPC | 165970 | 2009 $VT_{18}$ |
| 2009 $VV_{18}$ | 16.6 | 0.15 | 20100104 | 36.15805 | 356.99844 | 28.88479 | 6.34003 | 0.0412945 | 2.7578802 | 46 | 6 | 1995–2009 | 0.29 | M-v | 0 | MPC | 165970 | 2009 $VV_{18}$ |
| 2009 $VW_{18}$ | 17.1 | 0.15 | 20100104 | 4.65052 | 98.30096 | 325.29705 | 2.09360 | 0.1714095 | 2.5987250 | 42 | 3 | 2002–2009 | 0.30 | M-v | 3 | MPC | 165970 | 2009 $VW_{18}$ |
| 2009 $VY_{18}$ | 16.3 | 0.15 | 20100104 | 37.51945 | 336.78271 | 34.38904 | 8.13960 | 0.2002645 | 3.1847985 | 34 | 2 | 2003–2009 | 0.29 | M-v | 3 | MPC | 165970 | 2009 $VY_{18}$ |
| 2009 $VZ_{18}$ | 16.8 | 0.15 | 20091125 | 49.77670 | 80.03876 | 271.79045 | 3.52071 | 0.1493816 | 2.6542997 | 18 | 1 | 39 days | 0.19 | | | MPC | | 2009 $VZ_{18}$ |
| 2009 $VA_{19}$ | 17.5 | 0.15 | 20091125 | 24.29433 | 28.30353 | 352.82599 | 2.54411 | 0.1931725 | 2.6142753 | 21 | 1 | 39 days | 0.34 | | | MPC | | 2009 $VA_{19}$ |
| 2009 $VY_{19}$ | 21.1 | 0.15 | 20091105 | 347.37241 | 85.48870 | 336.77186 | 1.96746 | 0.1953305 | 1.9087760 | 12 | 1 | 10 days | 0.28 | | | MPC | | 2009 $VY_{19}$ |
| 2009 $VK_{20}$ | 13.6 | 0.15 | 20091125 | 297.24541 | 115.60531 | 0.86872 | 5.81066 | 0.0780880 | 5.1751484 | 14 | 1 | 39 days | 0.15 | | | MPC | | 2009 $VK_{20}$ |
| 2009 $VN_{20}$ | 17.5 | 0.15 | 20091105 | 15.55270 | 345.01024 | 38.87035 | 28.33072 | 0.1377386 | 3.1925663 | 14 | 1 | 28 days | 0.33 | | | MPC | | 2009 $VN_{20}$ |
| 2009 $VR_{20}$ | 17.7 | 0.15 | 20091125 | 1.26622 | 156.25621 | 260.04315 | 7.56730 | 0.1746911 | 2.2387459 | 26 | 1 | 39 days | 0.50 | | | MPC | | 2009 $VR_{20}$ |
| 2009 $VD_{21}$ | 17.0 | 0.15 | 20091125 | 5.68068 | 340.39065 | 74.29297 | 7.26534 | 0.0852582 | 2.2851032 | 26 | 1 | 33 days | 0.46 | | | MPC | | 2009 $VD_{21}$ |
| 2009 $VL_{21}$ | 17.6 | 0.15 | 20100104 | 81.76560 | 227.62329 | 101.19491 | 3.41620 | 0.1893066 | 2.3918990 | 41 | 4 | 2001–2009 | 0.44 | M-v | 1 | MPC | 165971 | 2009 $VL_{21}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2009 $VN_{21}$ | 15.7 | 0.15 | 20100104 | 82.73028 | 107.66415 | 223.19112 | 9.87894 | 0.1413989 | 3.0332879 | 42 | 5 | 2002–2009 | 0.40 | M-v | 0 | MPC | 165971 | 2009 $VN_{21}$ |
| 2009 $VR_{21}$ | 17.8 | 0.15 | 20091125 | 35.98701 | 298.39799 | 68.39938 | 13.93318 | 0.2227673 | 2.7112057 | 20 | 1 | 40 days | 0.38 | | | MPC | | 2009 $VR_{21}$ |
| 2009 $VU_{21}$ | 17.4 | 0.15 | 20100104 | 5.31888 | 335.54807 | 91.70432 | 4.52327 | 0.1785634 | 2.7397949 | 36 | 4 | 2002–2009 | 0.44 | M-v | 1 | MPC | 165971 | 2009 $VU_{21}$ |
| 2009 $VB_{22}$ | 17.9 | 0.15 | 20091105 | 357.61261 | 344.25534 | 73.14047 | 6.20513 | 0.2349576 | 2.3385115 | 54 | 1 | 49 days | 0.39 | | | MPC | | 2009 $VB_{22}$ |
| 2009 $VX_{22}$ | 16.1 | 0.15 | 20091125 | 267.23437 | 293.07627 | 234.97209 | 14.80840 | 0.0944135 | 2.5730205 | 30 | 1 | 32 days | 0.41 | | | MPC | | 2009 $VX_{22}$ |
| 2009 $VY_{22}$ | 18.0 | 0.15 | 20091105 | 34.17552 | 196.05762 | 171.49612 | 1.49607 | 0.1911021 | 2.3590329 | 22 | 1 | 18 days | 0.28 | | | MPC | | 2009 $VY_{22}$ |
| 2009 $VC_{23}$ | 17.0 | 0.15 | 20100104 | 9.15525 | 325.63394 | 99.22064 | 2.51528 | 0.1455453 | 2.5944933 | 27 | 2 | 2007–2009 | 0.37 | M-v | 4 | MPC | 165972 | 2009 $VC_{23}$ |
| 2009 $VE_{23}$ | 16.6 | 0.15 | 20100104 | 36.35208 | 163.28508 | 221.48903 | 4.86009 | 0.1974166 | 2.5779011 | 48 | 4 | 2003–2009 | 0.49 | M-v | 2 | MPC | 165972 | 2009 $VE_{23}$ |
| 2009 $VH_{23}$ | 12.9 | 0.15 | 20091105 | 32.78689 | 313.70873 | 69.57945 | 22.49884 | 0.0647862 | 5.1762118 | 29 | 1 | 47 days | 0.46 | | | MPC | | 2009 $VH_{23}$ |
| 2009 $VM_{23}$ | 16.5 | 0.15 | 20091125 | 19.79227 | 323.96170 | 68.11246 | 14.69418 | 0.2586563 | 2.6275261 | 36 | 1 | 37 days | 0.55 | | | MPC | | 2009 $VM_{23}$ |
| 2009 $VN_{23}$ | 17.1 | 0.15 | 20091125 | 16.86525 | 181.34598 | 217.13644 | 5.32647 | 0.2512695 | 2.6071728 | 27 | 1 | 32 days | 0.51 | | | MPC | | 2009 $VN_{23}$ |
| 2009 $VO_{23}$ | 16.3 | 0.15 | 20091125 | 357.26205 | 352.56457 | 78.82051 | 10.30967 | 0.1539098 | 2.7471836 | 30 | 1 | 36 days | 0.41 | | | MPC | | 2009 $VO_{23}$ |
| 2009 $VP_{23}$ | 16.5 | 0.15 | 20100104 | 48.39756 | 296.81593 | 79.58648 | 6.85371 | 0.1595362 | 2.3789953 | 68 | 4 | 2001–2009 | 0.51 | M-v | 2 | MPC | 165972 | 2009 $VP_{23}$ |
| 2009 $VR_{23}$ | 16.5 | 0.15 | 20091125 | 236.41384 | 292.80444 | 262.08805 | 9.93502 | 0.0218433 | 2.6787536 | 20 | 1 | 36 days | 0.27 | | | MPC | | 2009 $VR_{23}$ |
| 2009 $VZ_{23}$ | 17.5 | 0.15 | 20091125 | 9.05626 | 102.73482 | 309.20628 | 3.02555 | 0.2688719 | 2.7715573 | 32 | 1 | 31 days | 0.59 | | | MPC | | 2009 $VZ_{23}$ |
| 2009 $VD_{24}$ | 15.6 | 0.15 | 20091125 | 12.11452 | 358.93062 | 67.43429 | 15.04781 | 0.0189563 | 2.5800134 | 16 | 1 | 36 days | 0.38 | | | MPC | | 2009 $VD_{24}$ |
| 2009 $VN_{24}$ | 17.3 | 0.15 | 20100104 | 15.60474 | 324.71488 | 66.03585 | 16.82799 | 0.4655276 | 3.1484145 | 60 | 1 | 84 days | 0.53 | M-v | 4 | MPC | | 2009 $VN_{24}$ |
| 2009 $VO_{24}$ | 19.6 | 0.15 | 20100104 | 335.29385 | 343.46152 | 163.75759 | 6.05129 | 0.4624012 | 1.5477264 | 42 | 1 | 35 days | 0.47 | M-v | 6 | MPC | 166392 | 2009 $VO_{24}$ |
| 2009 $VP_{24}$ | 15.5 | 0.15 | 20100104 | 13.84931 | 154.13289 | 244.20587 | 13.92699 | 0.1849839 | 3.1328784 | 39 | 1 | 65 days | 0.52 | M-v | 4 | MPC | | 2009 $VP_{24}$ |
| 2009 $VS_{24}$ | 17.1 | 0.15 | 20100104 | 3.34174 | 118.03102 | 313.37363 | 5.84043 | 0.1932978 | 2.3479802 | 49 | 2 | 2003–2009 | 0.51 | M-v | 4 | MPC | 165973 | 2009 $VS_{24}$ |
| 2009 $VP_{25}$ | 17.7 | 0.15 | 20091105 | 1.40974 | 167.51772 | 237.00480 | 8.48592 | 0.2807578 | 2.6980292 | 42 | 1 | 59 days | 0.43 | | | MPC | | 2009 $VP_{25}$ |
| 2009 $VV_{25}$ | 18.4 | 0.15 | 20100104 | 42.47608 | 332.18698 | 49.88513 | 22.52082 | 0.1314957 | 1.9068214 | 53 | 3 | 2001–2009 | 0.47 | M-v | 2 | MPC | 165973 | 2009 $VV_{25}$ |
| 2009 $VY_{25}$ | 19.2 | 0.15 | 20100104 | 53.67266 | 27.88361 | 295.80740 | 4.34710 | 0.4810415 | 2.3284869 | 29 | 1 | 38 days | 0.35 | M-v | 5 | MPC | 166392 | 2009 $VY_{25}$ |
| 2009 $VZ_{25}$ | 23.7 | 0.15 | 20100104 | 8.54137 | 172.40592 | 249.10189 | 2.17190 | 0.5870100 | 2.8414050 | 40 | 1 | 25 days | 0.41 | M-v | 6 | MPC | 166392 | 2009 $VZ_{25}$ |
| 2009 $VA_{26}$ | 20.7 | 0.15 | 20100104 | 303.27518 | 307.42678 | 230.77228 | 38.93633 | 0.3839591 | 1.5128486 | 57 | 1 | 35 days | 0.46 | M-v | 5 | MPC | 166392 | 2009 $VA_{26}$ |
| 2009 $VD_{26}$ | 17.8 | 0.15 | 20091105 | 319.02660 | 48.56611 | 46.62616 | 2.70975 | 0.1618397 | 2.3902081 | 19 | 1 | 16 days | 0.46 | | | MPC | | 2009 $VD_{26}$ |
| 2009 $VA_{27}$ | 17.7 | 0.15 | 20091016 | 20.83747 | 123.42116 | 239.57117 | 9.29628 | 0.2484861 | 2.4194058 | 21 | 1 | 36 days | 0.57 | | | MPC | | 2009 $VA_{27}$ |
| 2009 $VD_{27}$ | 17.9 | 0.15 | 20091105 | 350.43798 | 184.19645 | 241.10719 | 4.17457 | 0.2928584 | 2.5951848 | 36 | 1 | 47 days | 0.53 | | | MPC | | 2009 $VD_{27}$ |
| 2009 $VE_{27}$ | 18.5 | 0.15 | 20091105 | 344.77299 | 184.19313 | 242.96346 | 3.90006 | 0.1236381 | 2.1918797 | 18 | 1 | 32 days | 0.25 | | | MPC | | 2009 $VE_{27}$ |
| 2009 $VG_{27}$ | 17.5 | 0.15 | 20091105 | 5.35221 | 159.99870 | 235.95949 | 7.32454 | 0.3334496 | 2.6529392 | 34 | 1 | 56 days | 0.35 | | | MPC | | 2009 $VG_{27}$ |
| 2009 $VJ_{27}$ | 16.3 | 0.15 | 20091105 | 55.72032 | 122.88690 | 226.17486 | 8.67582 | 0.0731211 | 3.4232874 | 21 | 1 | 45 days | 0.39 | | | MPC | | 2009 $VJ_{27}$ |
| 2009 $VN_{27}$ | 17.0 | 0.15 | 20100104 | 15.10021 | 187.43962 | 221.08875 | 4.29927 | 0.1088968 | 2.7143113 | 60 | 5 | 2000–2009 | 0.32 | M-v | 0 | MPC | 165974 | 2009 $VN_{27}$ |
| 2009 $VS_{27}$ | 16.7 | 0.15 | 20091105 | 11.34564 | 65.13165 | 327.01635 | 3.66979 | 0.2149145 | 2.9982535 | 18 | 1 | 49 days | 0.38 | | | MPC | | 2009 $VS_{27}$ |
| 2009 $VT_{27}$ | 16.2 | 0.15 | 20100104 | 3.77638 | 183.59079 | 241.26168 | 11.64453 | 0.1753476 | 2.6132494 | 50 | 1 | 63 days | 0.53 | M-v | 4 | MPC | | 2009 $VT_{27}$ |
| 2009 $VV_{27}$ | 16.2 | 0.15 | 20091105 | 315.96407 | 225.58249 | 234.00989 | 12.34662 | 0.0818635 | 2.7265976 | 39 | 1 | 47 days | 0.54 | | | MPC | | 2009 $VV_{27}$ |
| 2009 $VW_{27}$ | 15.9 | 0.15 | 20100104 | 326.73912 | 244.38316 | 231.09359 | 25.24167 | 0.2424869 | 3.1184896 | 50 | 3 | 2003–2009 | 0.48 | M-v | 1 | MPC | 165974 | 2009 $VW_{27}$ |
| 2009 $VX_{27}$ | 13.3 | 0.15 | 20100104 | 355.75398 | 191.37069 | 229.02468 | 18.04207 | 0.0922004 | 5.1942375 | 48 | 2 | 2008–2009 | 0.40 | M-v | 3 | MPC | 165975 | 2009 $VX_{27}$ |
| 2009 $VA_{28}$ | 18.1 | 0.15 | 20091105 | 18.04179 | 331.82720 | 47.57453 | 6.15197 | 0.2260712 | 2.5766235 | 19 | 1 | 31 days | 0.36 | | | MPC | | 2009 $VA_{28}$ |
| 2009 $VB_{28}$ | 17.8 | 0.15 | 20091105 | 37.10130 | 121.94629 | 233.84665 | 2.38316 | 0.1845008 | 2.2910452 | 26 | 1 | 32 days | 0.41 | | | MPC | | 2009 $VB_{28}$ |
| 2009 $VF_{28}$ | 17.6 | 0.15 | 20091105 | 1.39194 | 179.49883 | 228.02176 | 4.27492 | 0.1826111 | 2.3655494 | 55 | 1 | 56 days | 0.48 | | | MPC | | 2009 $VF_{28}$ |
| 2009 $VG_{28}$ | 17.5 | 0.15 | 20091125 | 27.31334 | 135.53802 | 240.64765 | 5.31652 | 0.2113088 | 2.2907003 | 31 | 1 | 33 days | 0.46 | | | MPC | | 2009 $VG_{28}$ |
| 2009 $VH_{28}$ | 17.7 | 0.15 | 20100104 | 15.74970 | 165.11108 | 246.23616 | 2.44039 | 0.2349030 | 2.3260135 | 90 | 5 | 2000–2009 | 0.42 | M-v | 1 | MPC | 165975 | 2009 $VH_{28}$ |
| 2009 $VM_{28}$ | 16.5 | 0.15 | 20091105 | 10.33266 | 172.32287 | 231.80950 | 5.69742 | 0.1832560 | 2.6255843 | 36 | 1 | 48 days | 0.46 | | | MPC | | 2009 $VM_{28}$ |
| 2009 $VO_{28}$ | 15.7 | 0.15 | 20091105 | 10.10372 | 343.89891 | 48.53159 | 12.28500 | 0.1264035 | 3.0987557 | 25 | 1 | 32 days | 0.56 | | | MPC | | 2009 $VO_{28}$ |
| 2009 $VU_{28}$ | 15.5 | 0.15 | 20091105 | 358.38059 | 199.34765 | 228.97536 | 2.98369 | 0.1753275 | 3.9813273 | 25 | 1 | 46 days | 0.35 | | | MPC | | 2009 $VU_{28}$ |
| 2009 $VV_{28}$ | 17.4 | 0.15 | 20091105 | 17.37345 | 337.71643 | 46.05433 | 10.71418 | 0.1396005 | 2.3473138 | 35 | 1 | 31 days | 0.64 | | | MPC | | 2009 $VV_{28}$ |
| 2009 $VY_{28}$ | 17.1 | 0.15 | 20100104 | 64.17915 | 331.98261 | 21.52850 | 7.52204 | 0.1630333 | 2.2179046 | 54 | 4 | 1999–2009 | 0.51 | M-v | 1 | MPC | 165975 | 2009 $VY_{28}$ |
| 2009 $VJ_{29}$ | 17.4 | 0.15 | 20100104 | 37.32482 | 67.93156 | 313.21724 | 1.95471 | 0.1525293 | 2.3365353 | 48 | 4 | 2002–2009 | 0.40 | M-v | 1 | MPC | 165976 | 2009 $VJ_{29}$ |
| 2009 $VK_{29}$ | 18.1 | 0.15 | 20091125 | 12.88449 | 146.14515 | 250.31761 | 4.16116 | 0.2345327 | 2.3835588 | 24 | 1 | 32 days | 0.32 | | | MPC | | 2009 $VK_{29}$ |
| 2009 $VM_{29}$ | 15.4 | 0.15 | 20100104 | 190.06782 | 182.58320 | 51.24615 | 11.51963 | 0.1015993 | 3.0065036 | 30 | 1 | 61 days | 0.38 | M-v | 4 | MPC | | 2009 $VM_{29}$ |
| 2009 $VQ_{29}$ | 18.3 | 0.15 | 20100104 | 20.33388 | 352.20115 | 41.25469 | 9.99485 | 0.1837982 | 2.2928247 | 23 | 2 | 2002–2009 | 0.32 | M-v | 2 | MPC | 165976 | 2009 $VQ_{29}$ |
| 2009 $VX_{29}$ | 16.9 | 0.15 | 20091105 | 13.24969 | 136.75212 | 259.19273 | 7.05359 | 0.1588814 | 3.0218725 | 22 | 1 | 52 days | 0.26 | | | MPC | | 2009 $VX_{29}$ |
| 2009 $VY_{29}$ | 15.8 | 0.15 | 20091105 | 31.50338 | 335.65950 | 43.22798 | 11.87455 | 0.0810657 | 3.1197410 | 12 | 1 | 16 days | 0.41 | | | MPC | | 2009 $VY_{29}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2009 $VA_{30}$ | 16.4 | 0.15 | 20100104 | 21.22708 | 5.61305 | 44.78946 | 9.52545 | 0.1237473 | 2.5884926 | 71 | 4 | 2003–2009 | 0.45 | M-v | 1 | MPC | 165976 | 2009 $VA_{30}$ |
| 2009 $VH_{30}$ | 15.8 | 0.15 | 20091105 | 15.65357 | 348.29221 | 45.36524 | 27.67658 | 0.1242904 | 3.1667981 | 15 | 1 | 15 days | 0.54 | | | MPC | | 2009 $VH_{30}$ |
| 2009 $VT_{30}$ | 17.2 | 0.15 | 20091105 | 29.66599 | 107.72684 | 270.74410 | 7.21196 | 0.0912181 | 3.1505145 | 11 | 1 | 13 days | 0.25 | | | MPC | | 2009 $VT_{30}$ |
| 2009 $VW_{30}$ | 16.9 | 0.15 | 20091105 | 3.47815 | 6.62179 | 42.25763 | 19.01489 | 0.1926172 | 3.1651634 | 11 | 1 | 13 days | 0.17 | | | MPC | | 2009 $VW_{30}$ |
| 2009 $VC_{31}$ | 17.9 | 0.15 | 20100104 | 328.77906 | 101.64103 | 20.57918 | 6.07943 | 0.2116453 | 2.3061027 | 44 | 3 | 2000–2009 | 0.42 | M-v | 1 | MPC | 165977 | 2009 $VC_{31}$ |
| 2009 $VE_{31}$ | 16.3 | 0.15 | 20100104 | 15.76388 | 19.64016 | 31.71013 | 8.46351 | 0.1575821 | 2.5705772 | 59 | 4 | 2001–2009 | 0.47 | M-v | 3 | MPC | 165978 | 2009 $VE_{31}$ |
| 2009 $VN_{31}$ | 18.3 | 0.15 | 20091125 | 225.27724 | 314.24586 | 243.91321 | 19.10552 | 0.0549377 | 1.9368961 | 22 | 1 | 32 days | 0.39 | | | MPC | | 2009 $VN_{31}$ |
| 2009 $VX_{31}$ | 18.2 | 0.15 | 20091125 | 55.83990 | 44.88189 | 291.90664 | 3.62579 | 0.2438898 | 2.3158862 | 17 | 1 | 38 days | 0.36 | | | MPC | | 2009 $VX_{31}$ |
| 2009 $VM_{32}$ | 17.2 | 0.15 | 20100104 | 32.76382 | 119.49003 | 276.71280 | 6.14383 | 0.1204222 | 2.6524127 | 29 | 3 | 2002–2009 | 0.29 | M-v | 2 | MPC | 165978 | 2009 $VM_{32}$ |
| 2009 $VO_{32}$ | 18.1 | 0.15 | 20091125 | 34.45958 | 78.46664 | 288.75060 | 4.03158 | 0.2688793 | 2.6054645 | 17 | 1 | 37 days | 0.18 | | | MPC | | 2009 $VO_{32}$ |
| 2009 $VU_{32}$ | 14.9 | 0.15 | 20091125 | 2.65738 | 21.99145 | 41.29764 | 10.29762 | 0.0773537 | 2.9973896 | 41 | 1 | 36 days | 0.66 | | | MPC | | 2009 $VU_{32}$ |
| 2009 $VV_{32}$ | 15.8 | 0.15 | 20091125 | 86.46007 | 74.33723 | 262.03595 | 10.71929 | 0.0234178 | 2.6658502 | 25 | 1 | 37 days | 0.50 | | | MPC | | 2009 $VV_{32}$ |
| 2009 $VX_{32}$ | 17.0 | 0.15 | 20091125 | 69.57296 | 67.30349 | 269.50571 | 7.84473 | 0.1697558 | 2.7798048 | 17 | 1 | 37 days | 0.37 | | | MPC | | 2009 $VX_{32}$ |
| 2009 $VY_{32}$ | 17.6 | 0.15 | 20091105 | 59.17618 | 105.92021 | 246.27514 | 19.22968 | 0.0480442 | 1.8853099 | 10 | 1 | 8 days | 0.19 | | | MPC | | 2009 $VY_{32}$ |
| 2009 $VB_{33}$ | 15.8 | 0.15 | 20091125 | 277.41232 | 258.04029 | 266.82559 | 10.66940 | 0.1385797 | 3.0525707 | 23 | 1 | 40 days | 0.22 | | | MPC | | 2009 $VB_{33}$ |
| 2009 $VD_{33}$ | 17.0 | 0.15 | 20100104 | 76.12349 | 288.11860 | 47.85758 | 13.92821 | 0.2060796 | 2.6382823 | 24 | 1 | 89 days | 0.40 | M-v | 4 | MPC | | 2009 $VD_{33}$ |
| 2009 $VS_{33}$ | 16.6 | 0.15 | 20100104 | 25.48784 | 131.20413 | 262.58545 | 7.72258 | 0.1557025 | 2.7339996 | 44 | 3 | 2004–2009 | 0.52 | M-v | 2 | MPC | 165979 | 2009 $VS_{33}$ |
| 2009 $VG_{35}$ | 16.3 | 0.15 | 20091125 | 340.38557 | 187.67566 | 249.96975 | 9.76019 | 0.0762061 | 3.1073978 | 22 | 1 | 38 days | 0.37 | | | MPC | | 2009 $VG_{35}$ |
| 2009 $VK_{35}$ | 15.6 | 0.15 | 20100104 | 251.63557 | 293.08036 | 248.62669 | 12.27769 | 0.1204646 | 3.1534033 | 41 | 4 | 2002–2009 | 0.31 | M-v | 0 | MPC | 165979 | 2009 $VK_{35}$ |
| 2009 $VT_{35}$ | 16.0 | 0.15 | 20091105 | 298.53811 | 226.76053 | 254.30843 | 9.41677 | 0.0726014 | 3.1428244 | 18 | 1 | 53 days | 0.28 | | | MPC | | 2009 $VT_{35}$ |
| 2009 $VB_{36}$ | 16.5 | 0.15 | 20091125 | 47.68025 | 103.00510 | 250.53735 | 10.20470 | 0.1601999 | 2.7804363 | 26 | 1 | 38 days | 0.38 | | | MPC | | 2009 $VB_{36}$ |
| 2009 $VD_{36}$ | 15.9 | 0.15 | 20091125 | 240.12804 | 138.00474 | 43.19517 | 19.18668 | 0.0419511 | 3.1708364 | 18 | 1 | 40 days | 0.20 | | | MPC | | 2009 $VD_{36}$ |
| 2009 $VE_{37}$ | 17.0 | 0.15 | 20091125 | 6.53674 | 188.93064 | 221.86215 | 5.30985 | 0.1548988 | 2.6326857 | 17 | 1 | 41 days | 0.22 | | | MPC | | 2009 $VE_{37}$ |
| 2009 $VF_{37}$ | 17.8 | 0.15 | 20091125 | 54.38030 | 279.41729 | 64.04610 | 5.49728 | 0.2087988 | 2.2199141 | 14 | 1 | 33 days | 0.24 | | | MPC | | 2009 $VF_{37}$ |
| 2009 $VH_{37}$ | 16.6 | 0.15 | 20091125 | 8.01359 | 346.85268 | 62.76005 | 10.09326 | 0.1203137 | 2.5985833 | 20 | 1 | 39 days | 0.35 | | | MPC | | 2009 $VH_{37}$ |
| 2009 $VJ_{37}$ | 16.1 | 0.15 | 20091125 | 39.49740 | 88.30746 | 275.11390 | 2.43178 | 0.1911959 | 2.9474420 | 22 | 1 | 39 days | 0.43 | | | MPC | | 2009 $VJ_{37}$ |
| 2009 $VK_{37}$ | 16.0 | 0.15 | 20100104 | 38.04613 | 329.15475 | 51.40388 | 16.04527 | 0.1421069 | 2.8391837 | 55 | 3 | 2004–2009 | 0.50 | M-v | 2 | MPC | 165980 | 2009 $VK_{37}$ |
| 2009 $VL_{37}$ | 16.1 | 0.15 | 20100104 | 10.85411 | 4.52283 | 51.41185 | 10.82989 | 0.0932494 | 2.9813748 | 28 | 2 | 2004–2009 | 0.25 | M-v | 3 | MPC | 165980 | 2009 $VL_{37}$ |
| 2009 $VM_{37}$ | 17.9 | 0.15 | 20091125 | 12.01685 | 160.78659 | 238.49657 | 13.47530 | 0.2608639 | 2.6977135 | 19 | 1 | 41 days | 0.32 | | | MPC | | 2009 $VM_{37}$ |
| 2009 $VN_{37}$ | 15.2 | 0.15 | 20091125 | 214.38930 | 320.43226 | 250.18966 | 7.92006 | 0.0875069 | 3.0455627 | 19 | 1 | 39 days | 0.21 | | | MPC | | 2009 $VN_{37}$ |
| 2009 $VO_{37}$ | 18.1 | 0.15 | 20100104 | 51.18922 | 124.85086 | 228.82922 | 1.71286 | 0.2234839 | 2.3487949 | 31 | 2 | 2005–2009 | 0.42 | M-v | 4 | MPC | 165980 | 2009 $VO_{37}$ |
| 2009 $VQ_{37}$ | 15.8 | 0.15 | 20091125 | 11.25421 | 168.20982 | 235.08122 | 13.19697 | 0.1692897 | 3.1253604 | 22 | 1 | 41 days | 0.37 | | | MPC | | 2009 $VQ_{37}$ |
| 2009 $VS_{37}$ | 16.5 | 0.15 | 20091105 | 358.08312 | 182.05763 | 237.07644 | 32.04821 | 0.1396053 | 2.6040473 | 41 | 1 | 49 days | 0.48 | | | MPC | | 2009 $VS_{37}$ |
| 2009 $VU_{37}$ | 17.6 | 0.15 | 20100104 | 53.75893 | 317.63160 | 49.03408 | 4.31998 | 0.1693192 | 2.1905010 | 48 | 5 | 2002–2009 | 0.53 | M-v | 1 | MPC | 165980 | 2009 $VU_{37}$ |
| 2009 $VV_{37}$ | 17.0 | 0.15 | 20100104 | 347.71633 | 70.36240 | 40.45333 | 6.91745 | 0.4311901 | 3.2522719 | 71 | 3 | 2003–2009 | 0.40 | M-v | 1 | MPC | 165980 | 2009 $VV_{37}$ |
| 2009 $VY_{37}$ | 16.0 | 0.15 | 20091125 | 52.93493 | 279.77296 | 61.97988 | 15.87016 | 0.2689510 | 3.0147202 | 16 | 1 | 40 days | 0.19 | | | MPC | | 2009 $VY_{37}$ |
| 2009 $VZ_{37}$ | 15.5 | 0.15 | 20091125 | 351.61510 | 12.90564 | 64.56515 | 17.75945 | 0.1294301 | 3.0482890 | 24 | 1 | 38 days | 0.41 | | | MPC | | 2009 $VZ_{37}$ |
| 2009 $VB_{38}$ | 17.6 | 0.15 | 20091105 | 6.89269 | 330.48476 | 63.93621 | 3.68485 | 0.1855956 | 2.3815752 | 25 | 1 | 53 days | 0.29 | | | MPC | | 2009 $VB_{38}$ |
| 2009 $VD_{38}$ | 18.0 | 0.15 | 20091125 | 19.09063 | 157.79537 | 225.45236 | 4.23327 | 0.2406094 | 2.1894498 | 28 | 1 | 41 days | 0.49 | | | MPC | | 2009 $VD_{38}$ |
| 2009 $VM_{38}$ | 16.6 | 0.15 | 20091125 | 71.86406 | 88.67610 | 237.65845 | 10.22383 | 0.1515942 | 2.6054579 | 17 | 1 | 32 days | 0.29 | | | MPC | | 2009 $VM_{38}$ |
| 2009 $VN_{38}$ | 16.7 | 0.15 | 20100104 | 11.49234 | 90.87997 | 319.51096 | 1.21672 | 0.2003350 | 2.9724989 | 39 | 2 | 2004–2009 | 0.36 | M-v | 3 | MPC | 165981 | 2009 $VN_{38}$ |
| 2009 $VO_{38}$ | 18.3 | 0.15 | 20091125 | 22.96447 | 73.70053 | 309.29728 | 0.89481 | 0.1935055 | 2.3678179 | 16 | 1 | 39 days | 0.27 | | | MPC | | 2009 $VO_{38}$ |
| 2009 $VP_{38}$ | 16.6 | 0.15 | 20091125 | 343.11778 | 205.20196 | 236.55650 | 16.39292 | 0.1967859 | 3.1535075 | 24 | 1 | 40 days | 0.49 | | | MPC | | 2009 $VP_{38}$ |
| 2009 $VU_{38}$ | 15.9 | 0.15 | 20091105 | 335.48764 | 206.17778 | 245.90669 | 15.94952 | 0.1960308 | 3.1189799 | 29 | 1 | 46 days | 0.54 | | | MPC | | 2009 $VU_{38}$ |
| 2009 $VX_{38}$ | 17.5 | 0.15 | 20100104 | 76.26530 | 64.40619 | 265.36926 | 3.37891 | 0.2531010 | 2.1800207 | 49 | 7 | 1999–2009 | 0.40 | M-v | 1 | MPC | 165982 | 2009 $VX_{38}$ |
| 2009 $VZ_{38}$ | 17.0 | 0.15 | 20100104 | 10.97699 | 155.71363 | 268.19539 | 2.59289 | 0.1879124 | 2.3866523 | 60 | 3 | 2002–2009 | 0.52 | M-v | 2 | MPC | 165982 | 2009 $VZ_{38}$ |
| 2009 $VA_{39}$ | 16.8 | 0.15 | 20100104 | 347.94126 | 41.88631 | 54.32267 | 10.79749 | 0.1284086 | 2.5524022 | 34 | 3 | 2001–2009 | 0.43 | M-v | 2 | MPC | 165982 | 2009 $VA_{39}$ |
| 2009 $VB_{39}$ | 16.4 | 0.15 | 20100104 | 9.16074 | 8.70285 | 60.29425 | 13.32223 | 0.1564128 | 2.6162404 | 73 | 3 | 1992–2009 | 0.55 | M-v | 2 | MPC | 165982 | 2009 $VB_{39}$ |
| 2009 $VD_{39}$ | 16.7 | 0.15 | 20100104 | 21.85956 | 2.60209 | 50.38250 | 7.82479 | 0.0921751 | 2.3919250 | 56 | 4 | 2001–2009 | 0.43 | M-v | 2 | MPC | 165982 | 2009 $VD_{39}$ |
| 2009 $VG_{39}$ | 16.8 | 0.15 | 20100104 | 12.33266 | 14.13353 | 46.38455 | 9.07624 | 0.3469021 | 2.6667832 | 51 | 1 | 84 days | 0.56 | M-v | 3 | MPC | | 2009 $VG_{39}$ |
| 2009 $VJ_{39}$ | 16.2 | 0.15 | 20091105 | 5.79022 | 152.24012 | 241.56723 | 7.29743 | 0.1954096 | 2.6432502 | 38 | 1 | 56 days | 0.43 | | | MPC | | 2009 $VJ_{39}$ |
| 2009 $VN_{39}$ | 15.3 | 0.15 | 20100104 | 341.73870 | 44.97495 | 40.53985 | 14.77299 | 0.0541139 | 3.0020911 | 33 | 2 | 2006–2009 | 0.47 | M-v | 3 | MPC | 165983 | 2009 $VN_{39}$ |
| 2009 $VO_{39}$ | 16.4 | 0.15 | 20091125 | 318.55696 | 240.96463 | 228.94426 | 25.85464 | 0.1515505 | 2.5889371 | 38 | 1 | 29 days | 0.54 | | | MPC | | 2009 $VO_{39}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2009 $VQ_{39}$ | 15.5 | 0.15 | 20091125 | 46.13670 | 126.00055 | 249.59760 | 21.17664 | 0.0351651 | 2.6693337 | 25 | 1 | 35 days | 0.50 | | | MPC | | 2009 $VQ_{39}$ |
| 2009 $VV_{39}$ | 16.2 | 0.15 | 20091105 | 39.13227 | 296.61424 | 57.31406 | 12.52809 | 0.2154899 | 3.1488452 | 14 | 1 | 13 days | 0.51 | | | MPC | | 2009 $VV_{39}$ |
| 2009 $VY_{39}$ | 15.9 | 0.15 | 20091125 | 32.70311 | 125.47464 | 255.90687 | 9.61287 | 0.0792915 | 3.0293105 | 21 | 1 | 36 days | 0.51 | | | MPC | | 2009 $VY_{39}$ |
| 2009 $VB_{40}$ | 16.3 | 0.15 | 20091105 | 40.17809 | 296.14237 | 66.46974 | 8.07217 | 0.2297316 | 2.9682747 | 26 | 1 | 47 days | 0.32 | | | MPC | | 2009 $VB_{40}$ |
| 2009 $VF_{40}$ | 14.9 | 0.15 | 20100104 | 167.19053 | 206.05583 | 47.34750 | 10.46915 | 0.0357390 | 3.0992344 | 51 | 2 | 2008–2009 | 0.53 | M-v | 3 | MPC | 165983 | 2009 $VF_{40}$ |
| 2009 $VJ_{40}$ | 18.0 | 0.15 | 20100104 | 26.38880 | 166.82946 | 223.10936 | 4.43515 | 0.1957917 | 2.4294743 | 25 | 1 | 64 days | 0.51 | M-v | 4 | MPC | | 2009 $VJ_{40}$ |
| 2009 $VL_{40}$ | 16.0 | 0.15 | 20100104 | 307.99968 | 270.48921 | 211.25915 | 4.79035 | 0.1035951 | 3.1158410 | 41 | 5 | 1998–2009 | 0.35 | M-v | 0 | MPC | 165983 | 2009 $VL_{40}$ |
| 2009 $VN_{40}$ | 17.9 | 0.15 | 20091105 | 357.66444 | 354.61632 | 58.27108 | 11.39982 | 0.2499346 | 2.5933733 | 29 | 1 | 56 days | 0.55 | | | MPC | | 2009 $VN_{40}$ |
| 2009 $VR_{40}$ | 17.4 | 0.15 | 20100104 | 93.21738 | 82.69505 | 245.03262 | 15.71924 | 0.1065358 | 1.8593706 | 38 | 1 | 63 days | 0.52 | M-v | 5 | MPC | | 2009 $VR_{40}$ |
| 2009 $VA_{41}$ | 16.5 | 0.15 | 20100104 | 142.80327 | 62.25897 | 220.09511 | 8.47845 | 0.0452810 | 2.3928126 | 38 | 3 | 2004–2009 | 0.43 | M-v | 3 | MPC | 165984 | 2009 $VA_{41}$ |
| 2009 $VB_{41}$ | 15.6 | 0.15 | 20100104 | 357.38687 | 187.22453 | 237.32494 | 22.69625 | 0.1420988 | 3.1013081 | 40 | 1 | 61 days | 0.62 | M-v | 4 | MPC | | 2009 $VB_{41}$ |
| 2009 $VF_{41}$ | 16.8 | 0.15 | 20091125 | 4.76577 | 331.49722 | 74.09480 | 6.28501 | 0.1037771 | 2.2626446 | 15 | 1 | 40 days | 0.50 | | | MPC | | 2009 $VF_{41}$ |
| 2009 $VK_{41}$ | 16.5 | 0.15 | 20100104 | 21.42266 | 310.41764 | 85.47853 | 4.49139 | 0.2257113 | 2.6190520 | 61 | 4 | 2000–2009 | 0.46 | M-v | 1 | MPC | 165984 | 2009 $VK_{41}$ |
| 2009 $VO_{41}$ | 17.7 | 0.15 | 20091125 | 30.10314 | 283.26536 | 79.62683 | 6.19049 | 0.3131931 | 2.5677130 | 25 | 1 | 40 days | 0.51 | | | MPC | | 2009 $VO_{41}$ |
| 2009 $VQ_{41}$ | 16.4 | 0.15 | 20100104 | 38.35604 | 276.77370 | 104.41467 | 3.39408 | 0.1524028 | 2.6452376 | 60 | 5 | 1998–2009 | 0.43 | M-v | 1 | MPC | 165984 | 2009 $VQ_{41}$ |
| 2009 $VR_{41}$ | 15.5 | 0.15 | 20091105 | 318.75291 | 245.48720 | 225.91226 | 16.32026 | 0.1694928 | 3.1539609 | 38 | 1 | 48 days | 0.47 | | | MPC | | 2009 $VR_{41}$ |
| 2009 $VT_{41}$ | 16.9 | 0.15 | 20100104 | 326.46071 | 8.94009 | 103.01585 | 3.99872 | 0.1051535 | 2.5865739 | 39 | 4 | 2003–2009 | 0.40 | M-v | 2 | MPC | 165985 | 2009 $VT_{41}$ |
| 2009 $VU_{41}$ | 18.3 | 0.15 | 20100104 | 30.14617 | 313.15256 | 70.53062 | 7.84129 | 0.3042373 | 2.4061484 | 41 | 1 | 74 days | 0.56 | M-v | 4 | MPC | | 2009 $VU_{41}$ |
| 2009 $VV_{41}$ | 17.0 | 0.15 | 20100104 | 25.68142 | 220.11626 | 177.16412 | 2.45392 | 0.1998936 | 2.6146953 | 49 | 4 | 1996–2009 | 0.41 | M-v | 1 | MPC | 165985 | 2009 $VV_{41}$ |
| 2009 $VW_{41}$ | 17.0 | 0.15 | 20100104 | 357.26006 | 331.89471 | 106.42257 | 3.79734 | 0.1627415 | 2.7890312 | 43 | 4 | 1996–2009 | 0.47 | M-v | 1 | MPC | 165985 | 2009 $VW_{41}$ |
| 2009 $VY_{41}$ | 18.4 | 0.15 | 20091125 | 16.40519 | 129.27124 | 261.70127 | 6.70697 | 0.2465695 | 2.2264369 | 29 | 1 | 38 days | 0.51 | | | MPC | | 2009 $VY_{41}$ |
| 2009 $VC_{42}$ | 19.1 | 0.15 | 20100104 | 28.24477 | 338.96384 | 58.78416 | 17.29649 | 0.2944350 | 1.8545125 | 55 | 1 | 52 days | 0.33 | M-v | 4 | MPC | 166395 | 2009 $VC_{42}$ |
| 2009 $VF_{42}$ | 15.4 | 0.15 | 20100104 | 325.13038 | 272.60728 | 225.72684 | 11.08046 | 0.2383189 | 3.0796094 | 58 | 6 | 2000–2009 | 0.47 | M-v | 1 | MPC | 165985 | 2009 $VF_{42}$ |
| 2009 $VH_{42}$ | 16.5 | 0.15 | 20100104 | 54.23431 | 306.53553 | 60.77511 | 2.36695 | 0.0271457 | 2.9673744 | 43 | 4 | 2004–2009 | 0.42 | M-v | 1 | MPC | 165986 | 2009 $VH_{42}$ |
| 2009 $VJ_{42}$ | 17.7 | 0.15 | 20091105 | 24.85264 | 140.22450 | 233.43058 | 13.86066 | 0.1150836 | 2.4239079 | 24 | 1 | 56 days | 0.39 | | | MPC | | 2009 $VJ_{42}$ |
| 2009 $VL_{42}$ | 15.5 | 0.15 | 20100104 | 62.87444 | 238.65355 | 97.33414 | 11.03921 | 0.1133017 | 3.1096440 | 39 | 3 | 2003–2009 | 0.45 | M-v | 2 | MPC | 165986 | 2009 $VL_{42}$ |
| 2009 $VR_{42}$ | 16.6 | 0.15 | 20091125 | 1.74979 | 10.98844 | 41.94763 | 5.05489 | 0.1655429 | 3.0630430 | 16 | 1 | 40 days | 0.37 | | | MPC | | 2009 $VR_{42}$ |
| 2009 $VS_{42}$ | 16.0 | 0.15 | 20100104 | 25.31056 | 1.94670 | 30.38654 | 9.64881 | 0.1390691 | 3.0642195 | 18 | 1 | 88 days | 0.40 | M-v | 4 | MPC | | 2009 $VS_{42}$ |
| 2009 $VU_{42}$ | 15.9 | 0.15 | 20091105 | 352.52699 | 10.98505 | 60.56202 | 10.74649 | 0.2084403 | 3.0213996 | 47 | 1 | 56 days | 0.53 | | | MPC | | 2009 $VU_{42}$ |
| 2009 $VX_{42}$ | 16.1 | 0.15 | 20100104 | 46.06732 | 340.23914 | 33.16932 | 12.20458 | 0.0851029 | 2.6685878 | 45 | 2 | 2007–2009 | 0.44 | M-v | 3 | MPC | 165986 | 2009 $VX_{42}$ |
| 2009 $VZ_{42}$ | 16.0 | 0.15 | 20091105 | 39.20557 | 312.15663 | 54.16217 | 9.82307 | 0.1664572 | 3.0009498 | 25 | 1 | 56 days | 0.44 | | | MPC | | 2009 $VZ_{42}$ |
| 2009 $VA_{43}$ | 15.4 | 0.15 | 20091125 | 58.34931 | 99.28630 | 247.26564 | 10.73195 | 0.1821802 | 2.9981212 | 16 | 1 | 31 days | 0.24 | | | MPC | | 2009 $VA_{43}$ |
| 2009 $VC_{43}$ | 14.9 | 0.15 | 20100104 | 34.04830 | 331.66471 | 61.27525 | 28.59952 | 0.1403085 | 3.1708539 | 46 | 2 | 2003–2009 | 0.31 | M-v | 2 | MPC | 165987 | 2009 $VC_{43}$ |
| 2009 $VD_{43}$ | 17.7 | 0.15 | 20091125 | 359.25263 | 343.44859 | 79.67850 | 9.51285 | 0.3297440 | 2.7780825 | 39 | 1 | 40 days | 0.54 | | | MPC | | 2009 $VD_{43}$ |
| 2009 $VF_{43}$ | 16.3 | 0.15 | 20100104 | 62.00535 | 221.18111 | 125.06995 | 2.85783 | 0.1997730 | 2.6061485 | 63 | 4 | 2005–2009 | 0.49 | M-v | 1 | MPC | 165987 | 2009 $VF_{43}$ |
| 2009 $VG_{43}$ | 16.0 | 0.15 | 20091105 | 327.82133 | 207.68328 | 248.12002 | 13.15159 | 0.0498169 | 2.6135068 | 27 | 1 | 53 days | 0.50 | | | MPC | | 2009 $VG_{43}$ |
| 2009 $VH_{43}$ | 17.7 | 0.15 | 20091125 | 22.21043 | 292.35516 | 99.66652 | 2.36231 | 0.1901064 | 2.3384650 | 21 | 1 | 31 days | 0.64 | | | MPC | | 2009 $VH_{43}$ |
| 2009 $VL_{43}$ | 16.8 | 0.15 | 20091125 | 6.12163 | 350.56321 | 53.78695 | 4.27194 | 0.1950516 | 3.1185626 | 15 | 1 | 29 days | 0.26 | | | MPC | | 2009 $VL_{43}$ |
| 2009 $VN_{43}$ | 17.0 | 0.15 | 20100104 | 21.72172 | 67.47123 | 332.99838 | 1.95814 | 0.1404393 | 2.6436749 | 43 | 4 | 2003–2009 | 0.36 | M-v | 1 | MPC | 165987 | 2009 $VN_{43}$ |
| 2009 $VQ_{43}$ | 16.9 | 0.15 | 20100104 | 30.27490 | 292.47149 | 97.27362 | 6.04227 | 0.2446446 | 2.3345216 | 62 | 5 | 2002–2009 | 0.43 | M-v | 1 | MPC | 165987 | 2009 $VQ_{43}$ |
| 2009 $VU_{43}$ | 16.2 | 0.15 | 20091125 | 331.68786 | 223.28147 | 233.41370 | 11.35891 | 0.1708931 | 3.1476184 | 28 | 1 | 38 days | 0.44 | | | MPC | | 2009 $VU_{43}$ |
| 2009 $VW_{43}$ | 16.8 | 0.15 | 20091105 | 359.55789 | 150.26706 | 261.38387 | 4.75459 | 0.1821958 | 2.3368593 | 51 | 1 | 53 days | 0.53 | | | MPC | | 2009 $VW_{43}$ |
| 2009 $VX_{43}$ | 17.6 | 0.15 | 20091105 | 349.99339 | 354.88329 | 66.18861 | 8.25356 | 0.1612418 | 2.2500761 | 29 | 1 | 57 days | 0.41 | | | MPC | | 2009 $VX_{43}$ |
| 2009 $VY_{43}$ | 16.7 | 0.15 | 20091105 | 340.48160 | 24.93343 | 61.68451 | 15.01423 | 0.3282625 | 3.1198968 | 29 | 1 | 59 days | 0.53 | | | MPC | | 2009 $VY_{43}$ |
| 2009 $VA_{44}$ | 17.3 | 0.15 | 20091105 | 326.13771 | 16.30138 | 84.56230 | 6.82459 | 0.2195904 | 2.3998531 | 25 | 1 | 59 days | 0.58 | | | MPC | | 2009 $VA_{44}$ |
| 2009 $VG_{44}$ | 17.3 | 0.15 | 20100104 | 22.49685 | 213.51958 | 190.46924 | 5.17657 | 0.2228702 | 2.3803368 | 50 | 4 | 2003–2009 | 0.48 | M-v | 0 | MPC | 165988 | 2009 $VG_{44}$ |
| 2009 $VM_{44}$ | 17.4 | 0.15 | 20100104 | 0.68180 | 331.15560 | 104.63646 | 4.61813 | 0.0727032 | 2.2824549 | 56 | 5 | 2000–2009 | 0.49 | M-v | 1 | MPC | 165988 | 2009 $VM_{44}$ |
| 2009 $VZ_{44}$ | 17.6 | 0.15 | 20100104 | 50.32288 | 46.42128 | 315.95890 | 4.87099 | 0.1928641 | 2.2126640 | 32 | 2 | 2006–2009 | 0.49 | M-v | 5 | MPC | 165989 | 2009 $VZ_{44}$ |
| 2009 $VB_{45}$ | 17.1 | 0.15 | 20100104 | 74.03637 | 308.39147 | 24.42993 | 6.22956 | 0.2053432 | 2.3436785 | 56 | 6 | 1991–2009 | 0.40 | M-v | 0 | MPC | 165989 | 2009 $VB_{45}$ |
| 2009 $VE_{45}$ | 16.5 | 0.15 | 20100104 | 142.67424 | 268.05795 | 19.00686 | 6.08936 | 0.0450805 | 2.1818209 | 50 | 3 | 2002–2009 | 0.43 | M-v | 3 | MPC | 165989 | 2009 $VE_{45}$ |
| 2009 $VF_{45}$ | 15.4 | 0.15 | 20100104 | 4.57258 | 42.75539 | 26.35657 | 7.66780 | 0.0607359 | 2.9824468 | 46 | 3 | 2001–2009 | 0.52 | M-v | 3 | MPC | 165989 | 2009 $VF_{45}$ |
| 2009 $VG_{45}$ | 17.4 | 0.15 | 20100104 | 66.39094 | 334.36759 | 11.14009 | 4.10159 | 0.2471689 | 2.3218939 | 30 | 3 | 2005–2009 | 0.47 | M-v | 3 | MPC | 165990 | 2009 $VG_{45}$ |
| 2009 $VH_{45}$ | 17.0 | 0.15 | 20100104 | 351.05686 | 76.55200 | 11.67362 | 7.05289 | 0.1304215 | 2.2973520 | 29 | 3 | 2002–2009 | 0.46 | M-v | 3 | MPC | 165990 | 2009 $VH_{45}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2009 $VT_{45}$ | 16.7 | 0.15 | 20091105 | 344.54889 | 199.79911 | 232.38782 | 16.05717 | 0.0875265 | 2.5624550 | 31 | 1 | 31 days | 0.51 | | | MPC | | 2009 $VT_{45}$ |
| 2009 $VW_{45}$ | 16.8 | 0.15 | 20091105 | 18.25674 | 320.53632 | 57.37118 | 8.43060 | 0.2753924 | 3.0725245 | 30 | 1 | 52 days | 0.55 | | | MPC | | 2009 $VW_{45}$ |
| 2009 $VX_{45}$ | 17.9 | 0.15 | 20091105 | 41.75411 | 108.82030 | 233.12173 | 8.43823 | 0.2882703 | 2.3220676 | 23 | 1 | 57 days | 0.22 | | | MPC | | 2009 $VX_{45}$ |
| 2009 $VC_{46}$ | 18.7 | 0.15 | 20091105 | 15.91063 | 350.35959 | 36.16986 | 4.12194 | 0.1784705 | 2.1710786 | 27 | 1 | 55 days | 0.53 | | | MPC | | 2009 $VC_{46}$ |
| 2009 $VD_{46}$ | 16.2 | 0.15 | 20091125 | 316.23830 | 244.38448 | 237.28267 | 21.38002 | 0.2177554 | 3.1088021 | 18 | 1 | 40 days | 0.43 | | | MPC | | 2009 $VD_{46}$ |
| 2009 $VF_{46}$ | 16.5 | 0.15 | 20091125 | 345.18952 | 24.89421 | 49.75706 | 11.32639 | 0.1041213 | 3.0403458 | 20 | 1 | 39 days | 0.28 | | | MPC | | 2009 $VF_{46}$ |
| 2009 $VJ_{46}$ | 17.7 | 0.15 | 20100104 | 10.95232 | 236.48316 | 179.55159 | 3.59238 | 0.2018096 | 2.4113169 | 49 | 3 | 2005–2009 | 0.47 | M-v | 3 | MPC | 165991 | 2009 $VJ_{46}$ |
| 2009 $VV_{46}$ | 17.1 | 0.15 | 20091125 | 17.65231 | 304.56823 | 89.15469 | 4.85615 | 0.1713225 | 2.9802827 | 16 | 1 | 40 days | 0.23 | | | MPC | | 2009 $VV_{46}$ |
| 2009 $VF_{47}$ | 18.1 | 0.15 | 20100104 | 20.50978 | 339.33886 | 67.69227 | 8.63215 | 0.1773292 | 2.2303656 | 29 | 1 | 74 days | 0.52 | M-v | 4 | MPC | | 2009 $VF_{47}$ |
| 2009 $VK_{47}$ | 15.3 | 0.15 | 20100104 | 76.25955 | 260.59768 | 71.04228 | 11.86015 | 0.1600303 | 3.0536753 | 71 | 6 | 1993–2009 | 0.53 | M-v | 1 | MPC | 165992 | 2009 $VK_{47}$ |
| 2009 $VF_{48}$ | 16.0 | 0.15 | 20091125 | 6.32543 | 226.65795 | 186.54637 | 4.61662 | 0.1368006 | 3.2145651 | 14 | 1 | 40 days | 0.27 | | | MPC | | 2009 $VF_{48}$ |
| 2009 $VK_{48}$ | 17.0 | 0.15 | 20091125 | 333.58839 | 249.04203 | 213.42107 | 8.52415 | 0.2119070 | 3.1110107 | 15 | 1 | 40 days | 0.19 | | | MPC | | 2009 $VK_{48}$ |
| 2009 $VN_{48}$ | 17.4 | 0.15 | 20100104 | 4.33175 | 344.27691 | 85.15647 | 4.77276 | 0.0748226 | 2.7633569 | 20 | 2 | 2006–2009 | 0.32 | M-v | 4 | MPC | 165992 | 2009 $VN_{48}$ |
| 2009 $VQ_{48}$ | 16.7 | 0.15 | 20100104 | 357.75326 | 272.96587 | 163.16262 | 2.01123 | 0.2107963 | 3.0504168 | 38 | 5 | 1998–2009 | 0.44 | M-v | 0 | MPC | 165992 | 2009 $VQ_{48}$ |
| 2009 $VS_{48}$ | 16.2 | 0.15 | 20091105 | 322.51727 | 55.77900 | 63.91581 | 31.32403 | 0.2613546 | 2.6558001 | 36 | 1 | 52 days | 0.52 | | | MPC | | 2009 $VS_{48}$ |
| 2009 $VW_{48}$ | 16.9 | 0.15 | 20091125 | 73.26178 | 250.95988 | 101.36404 | 7.42110 | 0.0580447 | 2.7409804 | 26 | 1 | 31 days | 0.30 | | | MPC | | 2009 $VW_{48}$ |
| 2009 $VY_{48}$ | 18.0 | 0.15 | 20091016 | 36.55314 | 306.64715 | 43.31105 | 4.89543 | 0.1724397 | 2.2580036 | 21 | 1 | 54 days | 0.24 | | | MPC | | 2009 $VY_{48}$ |
| 2009 $VA_{49}$ | 18.3 | 0.15 | 20091125 | 3.49080 | 131.52279 | 279.87609 | 0.39028 | 0.1682709 | 2.3463273 | 18 | 1 | 29 days | 0.27 | | | MPC | | 2009 $VA_{49}$ |
| 2009 $VT_{49}$ | 16.1 | 0.15 | 20091105 | 272.83595 | 93.03538 | 56.14860 | 5.87642 | 0.1093400 | 2.7929321 | 20 | 1 | 48 days | 0.36 | | | MPC | | 2009 $VT_{49}$ |
| 2009 $VY_{49}$ | 15.9 | 0.15 | 20091105 | 25.73665 | 297.31683 | 75.32541 | 4.23039 | 0.1798538 | 3.0427847 | 38 | 1 | 55 days | 0.55 | | | MPC | | 2009 $VY_{49}$ |
| 2009 $VA_{50}$ | 17.5 | 0.15 | 20091125 | 37.61738 | 340.72677 | 23.56837 | 2.58018 | 0.1866654 | 2.3492194 | 25 | 1 | 36 days | 0.31 | | | MPC | | 2009 $VA_{50}$ |
| 2009 $VD_{50}$ | 17.5 | 0.15 | 20091125 | 355.19543 | 5.89445 | 69.89937 | 7.35556 | 0.2863866 | 2.5935999 | 22 | 1 | 34 days | 0.39 | | | MPC | | 2009 $VD_{50}$ |
| 2009 $VJ_{50}$ | 16.9 | 0.15 | 20091125 | 38.67660 | 296.60622 | 65.99718 | 14.00640 | 0.1932550 | 2.6514628 | 14 | 1 | 28 days | 0.24 | | | MPC | | 2009 $VJ_{50}$ |
| 2009 $VK_{50}$ | 17.4 | 0.15 | 20100104 | 5.69619 | 246.55578 | 177.79443 | 3.55360 | 0.2091741 | 2.6790976 | 37 | 3 | 2000–2009 | 0.50 | M-v | 2 | MPC | 165992 | 2009 $VK_{50}$ |
| 2009 $VQ_{50}$ | 16.2 | 0.15 | 20091125 | 81.22751 | 73.13045 | 255.09454 | 4.24179 | 0.0834298 | 2.6197004 | 33 | 1 | 39 days | 0.31 | | | MPC | | 2009 $VQ_{50}$ |
| 2009 $VR_{50}$ | 16.8 | 0.15 | 20091125 | 334.52672 | 211.89386 | 240.50389 | 12.60146 | 0.1300681 | 2.7054588 | 27 | 1 | 33 days | 0.26 | | | MPC | | 2009 $VR_{50}$ |
| 2009 $VT_{50}$ | 16.0 | 0.15 | 20091125 | 108.01211 | 65.71944 | 242.06582 | 11.04730 | 0.0647784 | 2.7307355 | 16 | 1 | 33 days | 0.34 | | | MPC | | 2009 $VT_{50}$ |
| 2009 $VZ_{50}$ | 18.1 | 0.15 | 20091125 | 356.41885 | 340.66995 | 83.63870 | 3.89732 | 0.2191026 | 2.3962943 | 29 | 1 | 40 days | 0.50 | | | MPC | | 2009 $VZ_{50}$ |
| 2009 $VF_{51}$ | 17.1 | 0.15 | 20091125 | 38.13181 | 258.02726 | 102.50021 | 4.31228 | 0.2580039 | 2.3267785 | 27 | 1 | 34 days | 0.55 | | | MPC | | 2009 $VF_{51}$ |
| 2009 $VK_{51}$ | 17.3 | 0.15 | 20091105 | 328.70023 | 231.11032 | 231.43834 | 23.82959 | 0.2399675 | 2.4100764 | 30 | 1 | 32 days | 0.60 | | | MPC | | 2009 $VK_{51}$ |
| 2009 $VL_{51}$ | 16.3 | 0.15 | 20091105 | 263.23687 | 267.36673 | 250.05510 | 17.46764 | 0.0966253 | 3.0626480 | 10 | 1 | 7 days | 0.33 | | | MPC | | 2009 $VL_{51}$ |
| 2009 $VP_{51}$ | 18.4 | 0.15 | 20091125 | 34.16946 | 311.58582 | 61.43718 | 22.45534 | 0.2411207 | 2.2797779 | 25 | 1 | 39 days | 0.36 | | | MPC | | 2009 $VP_{51}$ |
| 2009 $VQ_{51}$ | 17.8 | 0.15 | 20091125 | 314.73258 | 232.12029 | 244.21411 | 19.56018 | 0.0791152 | 1.8630521 | 23 | 1 | 31 days | 0.50 | | | MPC | | 2009 $VQ_{51}$ |
| 2009 $VR_{51}$ | 17.4 | 0.15 | 20091125 | 26.34537 | 87.86615 | 297.01606 | 1.42795 | 0.2407047 | 2.3569023 | 22 | 1 | 37 days | 0.41 | | | MPC | | 2009 $VR_{51}$ |
| 2009 $VB_{52}$ | 16.1 | 0.15 | 20100104 | 356.79543 | 208.38500 | 229.62576 | 7.66906 | 0.1792235 | 3.0630126 | 37 | 3 | 1998–2009 | 0.46 | M-v | 3 | MPC | 165993 | 2009 $VB_{52}$ |
| 2009 $VC_{52}$ | 17.3 | 0.15 | 20100104 | 47.50676 | 291.14086 | 80.43836 | 3.67520 | 0.1787384 | 2.3166746 | 53 | 4 | 2002–2009 | 0.42 | M-v | 1 | MPC | 165993 | 2009 $VC_{52}$ |
| 2009 $VD_{52}$ | 17.9 | 0.15 | 20091016 | 290.62474 | 243.05163 | 224.52433 | 19.54694 | 0.0987976 | 1.9102321 | 21 | 1 | 53 days | 0.38 | | | MPC | | 2009 $VD_{52}$ |
| 2009 $VE_{52}$ | 15.7 | 0.15 | 20091125 | 65.31653 | 258.29214 | 82.03584 | 6.31671 | 0.1500693 | 3.0320027 | 26 | 1 | 39 days | 0.41 | | | MPC | | 2009 $VE_{52}$ |
| 2009 $VG_{52}$ | 14.0 | 0.15 | 20091105 | 336.77800 | 199.69453 | 226.08837 | 5.81403 | 0.0371639 | 5.1694409 | 11 | 1 | 24 days | 0.30 | | | MPC | | 2009 $VG_{52}$ |
| 2009 $VQ_{52}$ | 14.2 | 0.15 | 20091016 | 285.99211 | 256.12185 | 224.21394 | 16.50603 | 0.0620001 | 5.1923032 | 12 | 1 | 26 days | 0.35 | | | MPC | | 2009 $VQ_{52}$ |
| 2009 $VW_{52}$ | 14.0 | 0.15 | 20091105 | 301.81385 | 245.17438 | 223.56928 | 19.33466 | 0.0914206 | 5.1301852 | 11 | 1 | 23 days | 0.20 | | | MPC | | 2009 $VW_{52}$ |
| 2009 $VJ_{53}$ | 15.6 | 0.15 | 20091105 | 17.04550 | 146.70635 | 234.17665 | 7.99075 | 0.1020005 | 3.0657325 | 16 | 1 | 13 days | 0.37 | | | MPC | | 2009 $VJ_{53}$ |
| 2009 $VF_{54}$ | 14.6 | 0.15 | 20091105 | 8.11473 | 3.67933 | 28.46246 | 7.68671 | 0.0934594 | 5.1386280 | 11 | 1 | 24 days | 0.23 | | | MPC | | 2009 $VF_{54}$ |
| 2009 $VU_{54}$ | 16.3 | 0.15 | 20091105 | 18.30446 | 107.38493 | 262.54828 | 15.02315 | 0.3635660 | 3.0430992 | 26 | 1 | 55 days | 0.46 | | | MPC | | 2009 $VU_{54}$ |
| 2009 $VX_{54}$ | 16.0 | 0.15 | 20091125 | 349.03566 | 176.83286 | 272.45250 | 10.19499 | 0.0534162 | 3.1587447 | 14 | 1 | 31 days | 0.24 | | | MPC | | 2009 $VX_{54}$ |
| 2009 $VA_{55}$ | 16.4 | 0.15 | 20100104 | 92.09857 | 63.95659 | 268.55782 | 11.55064 | 0.1877040 | 3.0181197 | 23 | 2 | 2003–2009 | 0.26 | M-v | 4 | MPC | 165993 | 2009 $VA_{55}$ |
| 2009 $VB_{55}$ | 17.3 | 0.15 | 20091016 | 33.17749 | 244.21935 | 104.60659 | 11.47481 | 0.3482177 | 2.7033181 | 16 | 1 | 53 days | 0.40 | | | MPC | | 2009 $VB_{55}$ |
| 2009 $VD_{55}$ | 16.1 | 0.15 | 20091105 | 75.90960 | 266.03727 | 40.16941 | 23.18846 | 0.0815923 | 3.0545711 | 12 | 1 | 13 days | 0.43 | | | MPC | | 2009 $VD_{55}$ |
| 2009 $VQ_{55}$ | 16.7 | 0.15 | 20100104 | 6.13910 | 177.06963 | 245.08983 | 13.69391 | 0.0833640 | 2.5750454 | 44 | 2 | 2005–2009 | 0.43 | M-v | 3 | MPC | 165993 | 2009 $VQ_{55}$ |
| 2009 $VS_{55}$ | 18.4 | 0.15 | 20091125 | 270.29526 | 272.48138 | 246.41198 | 18.82968 | 0.0785293 | 1.9559778 | 13 | 1 | 30 days | 0.16 | | | MPC | | 2009 $VS_{55}$ |
| 2009 $VY_{56}$ | 19.0 | 0.15 | 20091125 | 18.94955 | 330.73612 | 44.74899 | 7.20515 | 0.3106320 | 2.3573696 | 15 | 1 | 37 days | 0.21 | | | MPC | | 2009 $VY_{56}$ |
| 2009 $VD_{57}$ | 13.0 | 0.15 | 20091125 | 52.50526 | 295.03549 | 62.33513 | 8.39917 | 0.0270864 | 5.1605297 | 18 | 1 | 29 days | 0.25 | | | MPC | | 2009 $VD_{57}$ |
| 2009 $VE_{57}$ | 16.4 | 0.15 | 20100104 | 80.68954 | 136.57897 | 187.36120 | 2.24058 | 0.1565566 | 2.6083571 | 46 | 3 | 2005–2009 | 0.29 | M-v | 3 | MPC | 165994 | 2009 $VE_{57}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2009 $VL_{57}$ | 16.9 | 0.15 | 20091125 | 9.29209 | 139.57310 | 272.47533 | 5.36334 | 0.0794852 | 2.3384708 | 25 | 1 | 36 days | 0.23 | | | MPC | | 2009 $VL_{57}$ |
| 2009 $VS_{57}$ | 17.8 | 0.15 | 20100104 | 11.18654 | 312.05633 | 104.70721 | 3.09570 | 0.1739920 | 2.4047093 | 30 | 3 | 2005–2009 | 0.40 | M-v | 3 | MPC | 165994 | 2009 $VS_{57}$ |
| 2009 $VW_{57}$ | 16.1 | 0.15 | 20091125 | 289.78657 | 276.72207 | 220.48552 | 16.49416 | 0.0840168 | 2.7636797 | 18 | 1 | 27 days | 0.43 | | | MPC | | 2009 $VW_{57}$ |
| 2009 $VY_{57}$ | 16.3 | 0.15 | 20100104 | 60.48946 | 267.00857 | 80.70400 | 8.33043 | 0.1755650 | 2.7316207 | 21 | 1 | 68 days | 0.30 | M-v | 4 | MPC | | 2009 $VY_{57}$ |
| 2009 $VC_{58}$ | 17.1 | 0.15 | 20100104 | 343.89752 | 5.61536 | 85.59527 | 3.34702 | 0.1605256 | 2.4069873 | 53 | 5 | 1994–2009 | 0.43 | M-v | 0 | MPC | 165994 | 2009 $VC_{58}$ |
| 2009 $VD_{58}$ | 15.3 | 0.15 | 20100104 | 35.56929 | 284.22734 | 91.88044 | 6.22922 | 0.1578566 | 3.2164932 | 48 | 5 | 2003–2009 | 0.55 | M-v | 1 | MPC | 165994 | 2009 $VD_{58}$ |
| 2009 $VG_{58}$ | 12.6 | 0.15 | 20091105 | 20.25497 | 330.24480 | 57.24481 | 26.97949 | 0.0593439 | 5.1745813 | 28 | 1 | 47 days | 0.50 | | | MPC | | 2009 $VG_{58}$ |
| 2009 $VH_{58}$ | 16.7 | 0.15 | 20091125 | 16.80178 | 239.53020 | 150.28412 | 1.99699 | 0.2025916 | 3.0308772 | 22 | 1 | 39 days | 0.44 | | | MPC | | 2009 $VH_{58}$ |
| 2009 $VK_{58}$ | 17.6 | 0.15 | 20091105 | 289.45983 | 55.06807 | 81.38732 | 6.55747 | 0.1345638 | 2.3017024 | 16 | 1 | 9 days | 0.31 | | | MPC | | 2009 $VK_{58}$ |
| 2009 $VN_{58}$ | 17.9 | 0.15 | 20091125 | 21.12539 | 256.20684 | 129.45305 | 3.15143 | 0.2343980 | 2.3269691 | 24 | 1 | 34 days | 0.54 | | | MPC | | 2009 $VN_{58}$ |
| 2009 $VP_{58}$ | 17.5 | 0.15 | 20100104 | 23.79858 | 184.31633 | 206.55229 | 6.08044 | 0.3688980 | 2.6068435 | 41 | 1 | 86 days | 0.46 | M-v | 4 | MPC | | 2009 $VP_{58}$ |
| 2009 $VR_{58}$ | 15.2 | 0.15 | 20100104 | 334.57111 | 222.42223 | 238.99220 | 6.76715 | 0.1838766 | 3.9522635 | 48 | 4 | 2001–2009 | 0.51 | M-v | 1 | MPC | 165995 | 2009 $VR_{58}$ |
| 2009 $VB_{59}$ | 16.7 | 0.15 | 20100104 | 1.29173 | 192.77897 | 231.64918 | 11.16006 | 0.1695531 | 2.6633658 | 46 | 2 | 1996–2009 | 0.52 | M-v | 4 | MPC | 165995 | 2009 $VB_{59}$ |
| 2009 $VF_{59}$ | 17.8 | 0.15 | 20091125 | 28.98203 | 323.47711 | 49.40961 | 3.45092 | 0.2365228 | 2.3101505 | 28 | 1 | 39 days | 0.35 | | | MPC | | 2009 $VF_{59}$ |
| 2009 $VO_{59}$ | 16.1 | 0.15 | 20091105 | 348.70152 | 331.97271 | 95.48383 | 6.76957 | 0.2132210 | 2.8946403 | 27 | 1 | 57 days | 0.59 | | | MPC | | 2009 $VO_{59}$ |
| 2009 $VS_{59}$ | 19.0 | 0.15 | 20091125 | 342.57352 | 20.26992 | 62.01781 | 23.69137 | 0.1504283 | 1.9069219 | 29 | 1 | 41 days | 0.35 | | | MPC | | 2009 $VS_{59}$ |
| 2009 $VT_{59}$ | 17.4 | 0.15 | 20091125 | 27.13919 | 279.81079 | 85.81218 | 8.94875 | 0.3390889 | 2.7313923 | 21 | 1 | 40 days | 0.32 | | | MPC | | 2009 $VT_{59}$ |
| 2009 $VX_{59}$ | 16.6 | 0.15 | 20091125 | 331.19417 | 274.11059 | 198.43319 | 8.14256 | 0.2589694 | 2.6857954 | 25 | 1 | 34 days | 0.62 | | | MPC | | 2009 $VX_{59}$ |
| 2009 $VA_{60}$ | 16.2 | 0.15 | 20100104 | 6.06923 | 342.85680 | 83.25455 | 10.64580 | 0.2110980 | 2.7288815 | 46 | 1 | 82 days | 0.46 | M-v | 4 | MPC | | 2009 $VA_{60}$ |
| 2009 $VB_{60}$ | 15.4 | 0.15 | 20100104 | 8.50532 | 194.12317 | 233.39603 | 23.82909 | 0.1994408 | 3.1763245 | 41 | 2 | 2003–2009 | 0.44 | M-v | 3 | MPC | 165996 | 2009 $VB_{60}$ |
| 2009 $VH_{60}$ | 18.3 | 0.15 | 20091125 | 10.92844 | 125.13002 | 272.50758 | 8.11022 | 0.3318212 | 2.3635187 | 50 | 1 | 39 days | 0.57 | | | MPC | | 2009 $VH_{60}$ |
| 2009 $VO_{60}$ | 16.7 | 0.15 | 20100104 | 17.82118 | 2.56745 | 56.43550 | 24.65276 | 0.4051270 | 2.5812518 | 24 | 1 | 84 days | 0.47 | M-v | 4 | MPC | | 2009 $VO_{60}$ |
| 2009 $VT_{60}$ | 16.2 | 0.15 | 20091125 | 69.50263 | 274.86322 | 63.39884 | 10.01135 | 0.0838711 | 3.1351835 | 14 | 1 | 33 days | 0.31 | | | MPC | | 2009 $VT_{60}$ |
| 2009 $VX_{60}$ | 16.3 | 0.15 | 20091105 | 317.82540 | 225.27164 | 223.36681 | 11.76105 | 0.0513711 | 2.6745591 | 24 | 1 | 57 days | 0.49 | | | MPC | | 2009 $VX_{60}$ |
| 2009 $VF_{61}$ | 17.2 | 0.15 | 20100104 | 43.37508 | 321.31647 | 44.24693 | 6.28525 | 0.2444225 | 2.6273626 | 24 | 1 | 89 days | 0.23 | M-v | 3 | MPC | | 2009 $VF_{61}$ |
| 2009 $VG_{61}$ | 15.7 | 0.15 | 20091125 | 239.39932 | 137.90307 | 48.98309 | 9.41761 | 0.0675732 | 3.0495832 | 17 | 1 | 39 days | 0.33 | | | MPC | | 2009 $VG_{61}$ |
| 2009 $VH_{61}$ | 17.5 | 0.15 | 20100104 | 23.50086 | 101.61883 | 298.44295 | 1.38056 | 0.1905583 | 2.6272806 | 38 | 4 | 2002–2009 | 0.32 | M-v | 2 | MPC | 165996 | 2009 $VH_{61}$ |
| 2009 $VJ_{61}$ | 17.4 | 0.15 | 20091125 | 329.39203 | 218.96375 | 239.54106 | 13.10674 | 0.1061375 | 2.5642877 | 15 | 1 | 41 days | 0.16 | | | MPC | | 2009 $VJ_{61}$ |
| 2009 $VO_{61}$ | 16.0 | 0.15 | 20091125 | 206.61564 | 333.96556 | 239.20794 | 4.82775 | 0.0065921 | 3.0479865 | 13 | 1 | 33 days | 0.18 | | | MPC | | 2009 $VO_{61}$ |
| 2009 $VP_{61}$ | 16.6 | 0.15 | 20091125 | 45.93771 | 176.47218 | 178.29292 | 0.23922 | 0.1940267 | 3.1024014 | 16 | 1 | 33 days | 0.28 | | | MPC | | 2009 $VP_{61}$ |
| 2009 $VQ_{61}$ | 17.0 | 0.15 | 20100104 | 14.92120 | 358.04701 | 52.35136 | 3.41788 | 0.1123794 | 3.0353066 | 41 | 4 | 1998–2009 | 0.31 | M-v | 0 | MPC | 165996 | 2009 $VQ_{61}$ |
| 2009 $VS_{61}$ | 19.0 | 0.15 | 20091125 | 13.05527 | 341.36955 | 59.43131 | 2.14645 | 0.1908393 | 2.3459300 | 16 | 1 | 33 days | 0.18 | | | MPC | | 2009 $VS_{61}$ |
| 2009 $VT_{61}$ | 15.9 | 0.15 | 20091125 | 95.23174 | 74.78829 | 239.16500 | 17.82966 | 0.1031328 | 3.1218248 | 15 | 1 | 41 days | 0.16 | | | MPC | | 2009 $VT_{61}$ |
| 2009 $VV_{61}$ | 16.4 | 0.15 | 20100104 | 103.50152 | 252.08389 | 64.32970 | 3.61731 | 0.0962181 | 2.5759973 | 46 | 3 | 2004–2009 | 0.43 | M-v | 3 | MPC | 165996 | 2009 $VV_{61}$ |
| 2009 $VZ_{61}$ | 16.0 | 0.15 | 20091105 | 338.71363 | 205.18618 | 238.66288 | 12.07158 | 0.0852951 | 3.0524876 | 19 | 1 | 34 days | 0.39 | | | MPC | | 2009 $VZ_{61}$ |
| 2009 $VD_{62}$ | 17.2 | 0.15 | 20091125 | 41.43629 | 326.49931 | 48.39074 | 5.10403 | 0.0752380 | 2.7213798 | 17 | 1 | 40 days | 0.29 | | | MPC | | 2009 $VD_{62}$ |
| 2009 $VF_{62}$ | 17.1 | 0.15 | 20100104 | 331.52106 | 72.73617 | 41.35825 | 3.16763 | 0.1529832 | 2.5687518 | 36 | 4 | 2002–2009 | 0.32 | M-v | 2 | MPC | 165997 | 2009 $VF_{62}$ |
| 2009 $VG_{62}$ | 17.9 | 0.15 | 20091125 | 12.89011 | 165.77299 | 238.86182 | 5.69792 | 0.1787252 | 2.6375435 | 16 | 1 | 33 days | 0.14 | | | MPC | | 2009 $VG_{62}$ |
| 2009 $VJ_{62}$ | 15.9 | 0.15 | 20091125 | 309.98605 | 59.59421 | 58.94630 | 10.53426 | 0.0433809 | 3.1520245 | 16 | 1 | 38 days | 0.20 | | | MPC | | 2009 $VJ_{62}$ |
| 2009 $VK_{62}$ | 18.3 | 0.15 | 20091125 | 11.28899 | 356.23736 | 51.25720 | 2.41529 | 0.1794489 | 2.3786728 | 18 | 1 | 38 days | 0.26 | | | MPC | | 2009 $VK_{62}$ |
| 2009 $VL_{62}$ | 17.1 | 0.15 | 20100104 | 23.98251 | 341.06314 | 60.20104 | 4.96487 | 0.2416393 | 2.6613900 | 38 | 3 | 1996–2009 | 0.42 | M-v | 1 | MPC | 165997 | 2009 $VL_{62}$ |
| 2009 $VO_{62}$ | 18.3 | 0.15 | 20091125 | 12.63443 | 341.59281 | 64.70448 | 3.97430 | 0.1603161 | 2.2644479 | 16 | 1 | 33 days | 0.14 | | | MPC | | 2009 $VO_{62}$ |
| 2009 $VP_{62}$ | 15.5 | 0.15 | 20091125 | 278.30772 | 80.51484 | 68.42698 | 13.47492 | 0.0069970 | 3.0688808 | 20 | 1 | 37 days | 0.47 | | | MPC | | 2009 $VP_{62}$ |
| 2009 $VS_{62}$ | 16.5 | 0.15 | 20100104 | 322.55045 | 251.23854 | 236.06820 | 7.00264 | 0.1493879 | 2.6858975 | 28 | 2 | 2006–2009 | 0.39 | M-v | 4 | MPC | 165997 | 2009 $VS_{62}$ |
| 2009 $VX_{62}$ | 17.2 | 0.15 | 20100104 | 57.13438 | 315.95391 | 60.78770 | 2.38823 | 0.0339705 | 2.6143371 | 44 | 7 | 2000–2009 | 0.36 | M-v | 0 | MPC | 165997 | 2009 $VX_{62}$ |
| 2009 $VD_{63}$ | 16.3 | 0.15 | 20091125 | 344.20467 | 19.32003 | 69.07722 | 5.82522 | 0.1070176 | 2.7176043 | 32 | 1 | 33 days | 0.39 | | | MPC | | 2009 $VD_{63}$ |
| 2009 $VE_{63}$ | 16.4 | 0.15 | 20091105 | 319.36863 | 226.05140 | 246.07081 | 7.37405 | 0.0898854 | 2.6667283 | 22 | 1 | 50 days | 0.48 | | | MPC | | 2009 $VE_{63}$ |
| 2009 $VF_{63}$ | 15.6 | 0.15 | 20091125 | 257.68036 | 291.17819 | 245.01517 | 8.15752 | 0.0262908 | 3.1674474 | 21 | 1 | 33 days | 0.41 | | | MPC | | 2009 $VF_{63}$ |
| 2009 $VG_{63}$ | 16.1 | 0.15 | 20091125 | 236.74140 | 314.37944 | 249.34356 | 6.87081 | 0.1092854 | 2.6046377 | 26 | 1 | 37 days | 0.38 | | | MPC | | 2009 $VG_{63}$ |
| 2009 $VH_{63}$ | 17.2 | 0.15 | 20091125 | 23.69841 | 144.31675 | 236.50609 | 9.40516 | 0.3219700 | 3.0855940 | 16 | 1 | 39 days | 0.40 | | | MPC | | 2009 $VH_{63}$ |
| 2009 $VJ_{63}$ | 17.6 | 0.15 | 20091125 | 17.35161 | 258.31431 | 139.94960 | 1.34430 | 0.2447499 | 3.0507366 | 13 | 1 | 39 days | 0.39 | | | MPC | | 2009 $VJ_{63}$ |
| 2009 $VL_{63}$ | 17.3 | 0.15 | 20100104 | 13.28047 | 287.59014 | 134.91825 | 1.14361 | 0.0594014 | 2.7704484 | 24 | 3 | 2004–2009 | 0.40 | M-v | 4 | MPC | 165997 | 2009 $VL_{63}$ |
| 2009 $VM_{63}$ | 18.2 | 0.15 | 20091105 | 20.62349 | 318.28400 | 64.90119 | 5.33062 | 0.2523042 | 2.3465791 | 16 | 1 | 25 days | 0.36 | | | MPC | | 2009 $VM_{63}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2009 $VN_{63}$ | 17.9 | 0.15 | 20100104 | 14.38190 | 350.56010 | 72.02834 | 3.77742 | 0.1501649 | 2.4030880 | 21 | 1 | 60 days | 0.25 | M-v | 4 | MPC | | 2009 $VN_{63}$ |
| 2009 $VQ_{63}$ | 16.5 | 0.15 | 20091125 | 22.14532 | 327.92536 | 68.74887 | 14.36899 | 0.1938634 | 2.6295509 | 24 | 1 | 40 days | 0.43 | | | MPC | | 2009 $VQ_{63}$ |
| 2009 $VR_{63}$ | 15.7 | 0.15 | 20091125 | 35.20838 | 146.69522 | 240.28402 | 10.37143 | 0.1307896 | 3.4172859 | 22 | 1 | 42 days | 0.33 | | | MPC | | 2009 $VR_{63}$ |
| 2009 $VT_{63}$ | 18.2 | 0.15 | 20091125 | 38.05856 | 315.31412 | 65.42341 | 8.30660 | 0.1402791 | 2.3178469 | 20 | 1 | 33 days | 0.18 | | | MPC | | 2009 $VT_{63}$ |
| 2009 $VZ_{63}$ | 17.7 | 0.15 | 20100104 | 6.28655 | 193.51080 | 240.75318 | 10.15821 | 0.2828289 | 2.7184315 | 28 | 3 | 2000–2009 | 0.41 | M-v | 2 | MPC | 165997 | 2009 $VZ_{63}$ |
| 2009 $VA_{64}$ | 16.1 | 0.15 | 20091125 | 19.34182 | 162.52963 | 243.16549 | 7.37315 | 0.1327178 | 2.9876331 | 24 | 1 | 33 days | 0.49 | | | MPC | | 2009 $VA_{64}$ |
| 2009 $VD_{64}$ | 15.9 | 0.15 | 20100104 | 5.51625 | 193.01119 | 242.50208 | 14.35787 | 0.1132468 | 2.8355987 | 19 | 1 | 62 days | 0.45 | M-v | 4 | MPC | | 2009 $VD_{64}$ |
| 2009 $VF_{64}$ | 17.3 | 0.15 | 20091105 | 34.42304 | 298.55452 | 80.89828 | 6.96255 | 0.1573192 | 2.6595081 | 13 | 1 | 32 days | 0.19 | | | MPC | | 2009 $VF_{64}$ |
| 2009 $VL_{64}$ | 16.0 | 0.15 | 20100104 | 356.02445 | 22.76381 | 27.17697 | 10.03335 | 0.0947010 | 3.0353214 | 32 | 1 | 84 days | 0.32 | M-v | 4 | MPC | | 2009 $VL_{64}$ |
| 2009 $VS_{64}$ | 17.7 | 0.15 | 20091125 | 343.88332 | 151.52042 | 288.71766 | 1.62106 | 0.1576337 | 2.3673059 | 23 | 1 | 39 days | 0.52 | | | MPC | | 2009 $VS_{64}$ |
| 2009 $VT_{64}$ | 16.6 | 0.15 | 20091125 | 31.99299 | 344.59010 | 37.53795 | 8.14471 | 0.0503456 | 2.9132254 | 14 | 1 | 39 days | 0.20 | | | MPC | | 2009 $VT_{64}$ |
| 2009 $VX_{64}$ | 16.7 | 0.15 | 20091125 | 21.55558 | 97.50385 | 294.67443 | 4.12340 | 0.1322707 | 2.9863486 | 17 | 1 | 40 days | 0.28 | | | MPC | | 2009 $VX_{64}$ |
| 2009 $VC_{65}$ | 16.6 | 0.15 | 20091125 | 39.16426 | 286.85940 | 61.64303 | 11.82458 | 0.2590001 | 3.1546998 | 20 | 1 | 36 days | 0.29 | | | MPC | | 2009 $VC_{65}$ |
| 2009 $VE_{65}$ | 16.3 | 0.15 | 20091125 | 8.25391 | 156.39603 | 255.26468 | 9.65530 | 0.0708043 | 3.0947023 | 14 | 1 | 40 days | 0.23 | | | MPC | | 2009 $VE_{65}$ |
| 2009 $VJ_{65}$ | 18.1 | 0.15 | 20091105 | 358.65892 | 129.84496 | 286.38940 | 3.43945 | 0.1731137 | 2.3774209 | 20 | 1 | 53 days | 0.31 | | | MPC | | 2009 $VJ_{65}$ |
| 2009 $VT_{65}$ | 18.7 | 0.15 | 20091125 | 346.34497 | 116.55498 | 323.15504 | 2.09576 | 0.1773606 | 2.4024738 | 16 | 1 | 38 days | 0.18 | | | MPC | | 2009 $VT_{65}$ |
| 2009 $VU_{65}$ | 16.5 | 0.15 | 20091105 | 282.09903 | 261.26049 | 247.30580 | 16.03866 | 0.1291335 | 3.1235477 | 12 | 1 | 52 days | 0.23 | | | MPC | | 2009 $VU_{65}$ |
| 2009 $VY_{65}$ | 17.5 | 0.15 | 20091125 | 16.97228 | 91.34916 | 296.74956 | 1.80874 | 0.3061801 | 2.7193670 | 20 | 1 | 40 days | 0.12 | | | MPC | | 2009 $VY_{65}$ |
| 2009 $VZ_{65}$ | 18.8 | 0.15 | 20091125 | 16.32249 | 116.51155 | 281.66316 | 2.21650 | 0.1534362 | 2.2806530 | 16 | 1 | 38 days | 0.23 | | | MPC | | 2009 $VZ_{65}$ |
| 2009 $VA_{66}$ | 17.1 | 0.15 | 20100104 | 29.42610 | 134.26846 | 263.78774 | 4.74126 | 0.0313335 | 2.7407107 | 27 | 2 | 2006–2009 | 0.18 | M-v | 3 | MPC | 165998 | 2009 $VA_{66}$ |
| 2009 $VB_{66}$ | 17.1 | 0.15 | 20100104 | 249.35222 | 185.15697 | 5.94687 | 2.64737 | 0.1233200 | 2.6926482 | 31 | 5 | 1993–2009 | 0.43 | M-v | 1 | MPC | 165998 | 2009 $VB_{66}$ |
| 2009 $VE_{66}$ | 17.8 | 0.15 | 20091125 | 20.72495 | 130.73481 | 263.12427 | 4.12991 | 0.1310819 | 2.3247001 | 13 | 1 | 38 days | 0.23 | | | MPC | | 2009 $VE_{66}$ |
| 2009 $VH_{66}$ | 16.7 | 0.15 | 20091125 | 15.81148 | 145.30597 | 258.11793 | 5.98301 | 0.0472853 | 2.6221802 | 23 | 1 | 40 days | 0.45 | | | MPC | | 2009 $VH_{66}$ |
| 2009 $VJ_{66}$ | 18.1 | 0.15 | 20091125 | 1.48719 | 139.96634 | 279.10778 | 3.05352 | 0.1670148 | 2.5872562 | 13 | 1 | 39 days | 0.21 | | | MPC | | 2009 $VJ_{66}$ |
| 2009 $VK_{66}$ | 17.2 | 0.15 | 20091125 | 343.11677 | 70.58116 | 16.97081 | 3.36392 | 0.2064922 | 3.1749885 | 13 | 1 | 40 days | 0.34 | | | MPC | | 2009 $VK_{66}$ |
| 2009 $VN_{66}$ | 16.7 | 0.15 | 20100104 | 52.32988 | 48.55512 | 315.16379 | 2.58665 | 0.1411374 | 3.0359110 | 30 | 4 | 2003–2009 | 0.29 | M-v | 1 | MPC | 165998 | 2009 $VN_{66}$ |
| 2009 $VO_{66}$ | 17.7 | 0.15 | 20100104 | 65.16170 | 85.42449 | 261.00097 | 3.62106 | 0.1972116 | 2.3060438 | 35 | 3 | 2005–2009 | 0.34 | M-v | 3 | MPC | 165998 | 2009 $VO_{66}$ |
| 2009 $VZ_{66}$ | 18.2 | 0.15 | 20100104 | 41.57876 | 24.81147 | 352.74120 | 2.17534 | 0.2113077 | 2.3597752 | 27 | 4 | 1998–2009 | 0.37 | M-v | 1 | MPC | 165998 | 2009 $VZ_{66}$ |
| 2009 $VM_{67}$ | 17.6 | 0.15 | 20091125 | 56.58175 | 92.85959 | 256.12709 | 5.69738 | 0.1615631 | 2.3495790 | 21 | 1 | 39 days | 0.27 | | | MPC | | 2009 $VM_{67}$ |
| 2009 $VQ_{67}$ | 15.7 | 0.15 | 20091125 | 261.51583 | 290.38650 | 248.03898 | 17.49759 | 0.1513913 | 3.1238657 | 13 | 1 | 32 days | 0.16 | | | MPC | | 2009 $VQ_{67}$ |
| 2009 $VD_{68}$ | 17.5 | 0.15 | 20091125 | 30.59750 | 111.79521 | 260.74162 | 3.86602 | 0.2756362 | 2.5961812 | 24 | 1 | 32 days | 0.40 | | | MPC | | 2009 $VD_{68}$ |
| 2009 $VO_{68}$ | 15.8 | 0.15 | 20100104 | 20.09076 | 159.25099 | 252.46539 | 7.83319 | 0.0996658 | 3.1341306 | 28 | 2 | 2003–2009 | 0.28 | M-v | 4 | MPC | 165999 | 2009 $VO_{68}$ |
| 2009 $VP_{68}$ | 16.1 | 0.15 | 20100104 | 31.15123 | 103.60455 | 284.93299 | 4.86574 | 0.1393386 | 3.0512442 | 36 | 5 | 2003–2009 | 0.24 | M-v | 0 | MPC | 165999 | 2009 $VP_{68}$ |
| 2009 $VQ_{68}$ | 18.0 | 0.15 | 20100104 | 65.45452 | 326.58462 | 23.10684 | 2.61734 | 0.2097581 | 2.3348030 | 29 | 3 | 1998–2009 | 0.43 | M-v | 3 | MPC | 165999 | 2009 $VQ_{68}$ |
| 2009 $VY_{68}$ | 17.7 | 0.15 | 20091125 | 338.74679 | 202.72829 | 254.24743 | 12.42262 | 0.1381716 | 2.6207400 | 20 | 1 | 36 days | 0.26 | | | MPC | | 2009 $VY_{68}$ |
| 2009 $VZ_{68}$ | 18.3 | 0.15 | 20091125 | 7.50963 | 98.89409 | 318.28476 | 1.62735 | 0.1882658 | 2.3242227 | 20 | 1 | 36 days | 0.26 | | | MPC | | 2009 $VZ_{68}$ |
| 2009 $VC_{69}$ | 18.8 | 0.15 | 20091125 | 21.79561 | 62.08331 | 333.83058 | 1.73995 | 0.2132636 | 2.3401266 | 13 | 1 | 32 days | 0.19 | | | MPC | | 2009 $VC_{69}$ |
| 2009 $VD_{69}$ | 16.4 | 0.15 | 20100104 | 111.64585 | 56.93147 | 248.57709 | 13.37718 | 0.1978061 | 2.4317280 | 29 | 4 | 2004–2009 | 0.51 | M-v | 1 | MPC | 165999 | 2009 $VD_{69}$ |
| 2009 $VE_{69}$ | 16.5 | 0.15 | 20091125 | 347.53409 | 29.42969 | 56.18822 | 4.48480 | 0.1278245 | 3.1175340 | 13 | 1 | 36 days | 0.22 | | | MPC | | 2009 $VE_{69}$ |
| 2009 $VF_{69}$ | 15.8 | 0.15 | 20091125 | 136.39618 | 34.57554 | 253.08538 | 11.85618 | 0.0942176 | 2.7831052 | 17 | 1 | 36 days | 0.26 | | | MPC | | 2009 $VF_{69}$ |
| 2009 $VJ_{69}$ | 15.5 | 0.15 | 20100104 | 21.43474 | 353.96432 | 61.90874 | 9.95804 | 0.1475166 | 2.8146268 | 45 | 4 | 2004–2009 | 0.39 | M-v | 1 | MPC | 165999 | 2009 $VJ_{69}$ |
| 2009 $VP_{69}$ | 16.7 | 0.15 | 20091125 | 54.72957 | 106.49717 | 252.25612 | 5.88125 | 0.1182656 | 2.6001438 | 14 | 1 | 37 days | 0.18 | | | MPC | | 2009 $VP_{69}$ |
| 2009 $VS_{69}$ | 17.9 | 0.15 | 20091125 | 28.49313 | 128.21992 | 248.29937 | 13.27568 | 0.2733826 | 3.0052253 | 14 | 1 | 38 days | 0.35 | | | MPC | | 2009 $VS_{69}$ |
| 2009 $VV_{69}$ | 16.9 | 0.15 | 20091125 | 34.31200 | 110.35096 | 270.74160 | 3.26923 | 0.1686357 | 3.0922700 | 14 | 1 | 37 days | 0.30 | | | MPC | | 2009 $VV_{69}$ |
| 2009 $VX_{69}$ | 16.3 | 0.15 | 20100104 | 346.66785 | 64.38311 | 31.24480 | 2.00817 | 0.1222839 | 3.0319375 | 33 | 4 | 1995–2009 | 0.25 | M-v | 1 | MPC | 166000 | 2009 $VX_{69}$ |
| 2009 $VC_{70}$ | 17.1 | 0.15 | 20091125 | 86.14606 | 31.86305 | 291.35673 | 2.60382 | 0.1682631 | 2.5318389 | 17 | 1 | 37 days | 0.40 | | | MPC | | 2009 $VC_{70}$ |
| 2009 $VF_{70}$ | 17.7 | 0.15 | 20100104 | 313.81499 | 122.29361 | 17.96458 | 2.34244 | 0.1578666 | 2.4338927 | 26 | 3 | 2005–2009 | 0.30 | M-v | 3 | MPC | 166000 | 2009 $VF_{70}$ |
| 2009 $VH_{70}$ | 16.3 | 0.15 | 20091125 | 318.99412 | 234.83343 | 248.44258 | 25.46730 | 0.1642486 | 3.1855821 | 17 | 1 | 38 days | 0.18 | | | MPC | | 2009 $VH_{70}$ |
| 2009 $VW_{70}$ | 17.4 | 0.15 | 20100104 | 38.43044 | 359.95442 | 31.26433 | 2.52890 | 0.2318106 | 2.5883663 | 29 | 2 | 2005–2009 | 0.33 | M-v | 4 | MPC | 166000 | 2009 $VW_{70}$ |
| 2009 $VZ_{70}$ | 16.3 | 0.15 | 20091125 | 133.08230 | 217.75165 | 73.58873 | 8.71708 | 0.2153005 | 2.5372252 | 14 | 1 | 45 days | 0.31 | | | MPC | | 2009 $VZ_{70}$ |
| 2009 $VE_{71}$ | 17.3 | 0.15 | 20100104 | 309.42425 | 192.70249 | 315.90208 | 1.88947 | 0.1332652 | 2.4529103 | 29 | 2 | 2005–2009 | 0.29 | M-v | 4 | MPC | 166000 | 2009 $VE_{71}$ |
| 2009 $VG_{71}$ | 15.9 | 0.15 | 20091125 | 14.49347 | 354.46417 | 61.00364 | 11.03441 | 0.0976767 | 3.0052493 | 17 | 1 | 34 days | 0.18 | | | MPC | | 2009 $VG_{71}$ |
| 2009 $VJ_{71}$ | 16.4 | 0.15 | 20100104 | 20.20675 | 358.15677 | 59.10713 | 4.07235 | 0.1038370 | 2.7893854 | 27 | 3 | 2004–2009 | 0.32 | M-v | 3 | MPC | 166000 | 2009 $VJ_{71}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2009 $VN_{71}$ | 15.5 | 0.15 | 20091125 | 164.96102 | 184.81732 | 71.01424 | 16.68049 | 0.1418665 | 3.1653528 | 16 | 1 | 36 days | 0.21 | | | MPC | | 2009 $VN_{71}$ |
| 2009 $VO_{71}$ | 17.0 | 0.15 | 20100104 | 7.50334 | 256.59724 | 173.57369 | 1.18679 | 0.1441006 | 2.6002698 | 39 | 4 | 1992–2009 | 0.50 | M-v | 1 | MPC | 166000 | 2009 $VO_{71}$ |
| 2009 $VR_{71}$ | 17.2 | 0.15 | 20091125 | 30.68699 | 164.18680 | 214.59027 | 2.61379 | 0.0816262 | 2.5850900 | 14 | 1 | 29 days | 0.24 | | | MPC | | 2009 $VR_{71}$ |
| 2009 $VS_{71}$ | 16.2 | 0.15 | 20091016 | 37.51344 | 294.20739 | 55.62879 | 15.41379 | 0.2046417 | 3.0050323 | 11 | 1 | 23 days | 0.39 | | | MPC | | 2009 $VS_{71}$ |
| 2009 $VY_{71}$ | 16.8 | 0.15 | 20100104 | 92.35548 | 60.65967 | 267.18109 | 4.31727 | 0.0596143 | 2.6922265 | 34 | 3 | 2004–2009 | 0.36 | M-v | 3 | MPC | 166001 | 2009 $VY_{71}$ |
| 2009 $VB_{72}$ | 17.2 | 0.15 | 20091125 | 15.69715 | 320.63966 | 78.33973 | 7.58652 | 0.0889322 | 2.3553916 | 15 | 1 | 36 days | 0.34 | | | MPC | | 2009 $VB_{72}$ |
| 2009 $VC_{72}$ | 17.3 | 0.15 | 20100104 | 8.16274 | 342.79692 | 68.59233 | 10.00623 | 0.2881088 | 2.6632070 | 27 | 1 | 63 days | 0.41 | M-v | 4 | MPC | | 2009 $VC_{72}$ |
| 2009 $VD_{72}$ | 17.4 | 0.15 | 20100104 | 350.66744 | 272.53871 | 183.69792 | 6.84913 | 0.3360061 | 2.5539630 | 36 | 2 | 2002–2009 | 0.42 | M-v | 3 | MPC | 166001 | 2009 $VD_{72}$ |
| 2009 $VJ_{72}$ | 16.9 | 0.15 | 20100104 | 21.76558 | 311.12483 | 89.24850 | 8.16455 | 0.2506482 | 2.5781224 | 38 | 3 | 2002–2009 | 0.51 | M-v | 3 | MPC | 166001 | 2009 $VJ_{72}$ |
| 2009 $VN_{72}$ | 16.7 | 0.15 | 20100104 | 34.48834 | 258.38149 | 120.03695 | 7.00403 | 0.2825308 | 2.6255379 | 50 | 3 | 2005–2009 | 0.43 | M-v | 2 | MPC | 166001 | 2009 $VN_{72}$ |
| 2009 $VO_{72}$ | 15.8 | 0.15 | 20091105 | 20.32697 | 287.06404 | 77.56595 | 9.85289 | 0.1784758 | 2.7764154 | 12 | 1 | 8 days | 0.61 | | | MPC | | 2009 $VO_{72}$ |
| 2009 $VP_{72}$ | 13.0 | 0.15 | 20091105 | 1.93640 | 314.48540 | 84.02578 | 12.01366 | 0.2232466 | 5.1843465 | 17 | 1 | 19 days | 0.51 | | | MPC | | 2009 $VP_{72}$ |
| 2009 $VR_{72}$ | 17.4 | 0.15 | 20100104 | 27.25865 | 334.37483 | 60.47019 | 23.03418 | 0.0941708 | 1.9495305 | 39 | 1 | 61 days | 0.59 | M-v | 4 | MPC | | 2009 $VR_{72}$ |
| 2009 $VS_{72}$ | 17.6 | 0.15 | 20100104 | 299.83527 | 77.60343 | 63.37317 | 22.38824 | 0.1193010 | 1.8819864 | 32 | 2 | 2008–2009 | 0.48 | M-v | 4 | MPC | 166002 | 2009 $VS_{72}$ |
| 2009 $VU_{72}$ | 15.7 | 0.15 | 20091016 | 31.68620 | 281.39035 | 80.86733 | 12.41455 | 0.0940748 | 2.6801666 | 17 | 1 | 34 days | 0.82 | | | MPC | | 2009 $VU_{72}$ |
| 2009 $VZ_{72}$ | 16.9 | 0.15 | 20091016 | 352.09942 | 329.56930 | 60.69912 | 15.33217 | 0.2683295 | 2.6889977 | 19 | 1 | 54 days | 0.59 | | | MPC | | 2009 $VZ_{72}$ |
| 2009 $VS_{73}$ | 16.8 | 0.15 | 20091125 | 31.75954 | 272.73739 | 74.65439 | 0.69249 | 0.3076748 | 3.0572316 | 17 | 1 | 38 days | 0.23 | | | MPC | | 2009 $VS_{73}$ |
| 2009 $VG_{74}$ | 17.4 | 0.15 | 20091105 | 359.33936 | 358.50034 | 42.47789 | 2.72147 | 0.1003686 | 2.3142468 | 14 | 1 | 36 days | 0.38 | | | MPC | | 2009 $VG_{74}$ |
| 2009 $VD_{75}$ | 17.0 | 0.15 | 20091105 | 32.67850 | 134.46052 | 232.71009 | 10.03414 | 0.1974802 | 2.6965009 | 15 | 1 | 52 days | 0.38 | | | MPC | | 2009 $VD_{75}$ |
| 2009 $VM_{75}$ | 17.6 | 0.15 | 20100104 | 17.80287 | 122.83474 | 289.26544 | 4.67775 | 0.2677674 | 2.3410972 | 47 | 4 | 1998–2009 | 0.42 | M-v | 0 | MPC | 166002 | 2009 $VM_{75}$ |
| 2009 $VO_{75}$ | 16.6 | 0.15 | 20100104 | 37.74695 | 299.59322 | 88.45110 | 5.84077 | 0.0995584 | 2.6076364 | 33 | 3 | 2002–2009 | 0.40 | M-v | 3 | MPC | 166003 | 2009 $VO_{75}$ |
| 2009 $VX_{75}$ | 16.6 | 0.15 | 20091105 | 32.88774 | 239.35305 | 124.88459 | 7.32788 | 0.2532324 | 2.5639240 | 33 | 1 | 46 days | 0.47 | | | MPC | | 2009 $VX_{75}$ |
| 2009 $VC_{76}$ | 17.3 | 0.15 | 20100104 | 347.15338 | 4.86228 | 88.79148 | 4.74317 | 0.0937635 | 2.3861357 | 28 | 2 | 2007–2009 | 0.49 | M-v | 4 | MPC | 166003 | 2009 $VC_{76}$ |
| 2009 $VM_{76}$ | 18.3 | 0.15 | 20091125 | 339.32432 | 16.96570 | 68.50795 | 22.17594 | 0.0790044 | 1.9128885 | 23 | 1 | 32 days | 0.22 | | | MPC | | 2009 $VM_{76}$ |
| 2009 $VU_{76}$ | 15.5 | 0.15 | 20091105 | 51.19897 | 342.69980 | 358.01235 | 10.90320 | 0.1477916 | 3.0449392 | 27 | 1 | 43 days | 0.67 | | | MPC | | 2009 $VU_{76}$ |
| 2009 $VW_{76}$ | 17.5 | 0.15 | 20100104 | 36.26620 | 339.81548 | 28.35577 | 14.58666 | 0.2589093 | 2.6346837 | 24 | 1 | 69 days | 0.64 | M-v | 4 | MPC | | 2009 $VW_{76}$ |
| 2009 $VD_{77}$ | 12.3 | 0.15 | 20100104 | 46.14281 | 271.82867 | 96.80196 | 20.25378 | 0.0769867 | 5.1916616 | 50 | 7 | 2002–2009 | 0.62 | M-v | 1 | MPC | 166004 | 2009 $VD_{77}$ |
| 2009 $VK_{78}$ | 16.9 | 0.15 | 20100104 | 32.18496 | 295.11178 | 97.06443 | 6.32324 | 0.1155464 | 2.2910368 | 47 | 4 | 2004–2009 | 0.45 | M-v | 1 | MPC | 166004 | 2009 $VK_{78}$ |
| 2009 $VN_{78}$ | 17.4 | 0.15 | 20091125 | 347.28105 | 7.29891 | 73.29245 | 14.19058 | 0.2514976 | 2.5973331 | 27 | 1 | 40 days | 0.38 | | | MPC | | 2009 $VN_{78}$ |
| 2009 $VP_{78}$ | 16.3 | 0.15 | 20100104 | 13.84644 | 234.45850 | 184.69170 | 12.81085 | 0.1622336 | 2.5565399 | 47 | 4 | 2003–2009 | 0.59 | M-v | 2 | MPC | 166004 | 2009 $VP_{78}$ |
| 2009 $VS_{78}$ | 15.5 | 0.15 | 20100104 | 61.28523 | 267.91463 | 92.12464 | 16.15184 | 0.1632238 | 2.5943094 | 59 | 6 | 2001–2009 | 0.56 | M-v | 1 | MPC | 166004 | 2009 $VS_{78}$ |
| 2009 $VX_{78}$ | 15.6 | 0.15 | 20091125 | 314.56311 | 211.89380 | 255.55195 | 24.48249 | 0.1258142 | 2.7951526 | 16 | 1 | 38 days | 0.46 | | | MPC | | 2009 $VX_{78}$ |
| 2009 $VG_{79}$ | 16.0 | 0.15 | 20091016 | 353.96020 | 29.04680 | 23.36187 | 17.48239 | 0.2074208 | 3.1475371 | 19 | 1 | 44 days | 0.56 | | | MPC | | 2009 $VG_{79}$ |
| 2009 $VU_{79}$ | 15.9 | 0.15 | 20091125 | 343.32387 | 345.44232 | 104.42917 | 27.96264 | 0.2513930 | 3.1609858 | 17 | 1 | 40 days | 0.64 | | | MPC | | 2009 $VU_{79}$ |
| 2009 $VV_{79}$ | 16.4 | 0.15 | 20100104 | 39.64009 | 228.17045 | 143.63383 | 14.11715 | 0.2823788 | 2.6165635 | 21 | 1 | 66 days | 0.61 | M-v | 5 | MPC | | 2009 $VV_{79}$ |
| 2009 $VF_{80}$ | 16.4 | 0.15 | 20100104 | 16.46994 | 255.81468 | 143.62848 | 13.39083 | 0.2693316 | 2.6832429 | 27 | 1 | 95 days | 0.53 | M-v | 3 | MPC | | 2009 $VF_{80}$ |
| 2009 $VG_{80}$ | 16.6 | 0.15 | 20100104 | 21.73183 | 237.54861 | 150.68544 | 13.73025 | 0.2736673 | 2.6248001 | 27 | 1 | 93 days | 0.61 | M-v | 4 | MPC | | 2009 $VG_{80}$ |
| 2009 $VH_{80}$ | 13.1 | 0.15 | 20091016 | 329.74017 | 319.95044 | 116.50919 | 22.10374 | 0.1077716 | 5.2263004 | 12 | 1 | 47 days | 0.34 | | | MPC | | 2009 $VH_{80}$ |
| 2009 $VO_{80}$ | 15.3 | 0.15 | 20091016 | 37.96836 | 218.78683 | 113.86468 | 22.53054 | 0.2025285 | 3.1905977 | 16 | 1 | 57 days | 0.72 | | | MPC | | 2009 $VO_{80}$ |
| 2009 $VW_{80}$ | 17.8 | 0.15 | 20091125 | 10.22038 | 259.80666 | 139.51245 | 4.10001 | 0.3531740 | 2.8132507 | 13 | 1 | 25 days | 0.66 | | | MPC | | 2009 $VW_{80}$ |
| 2009 $VY_{80}$ | 17.5 | 0.15 | 20091105 | 338.24181 | 25.97503 | 50.91122 | 3.30747 | 0.1577288 | 2.4006021 | 20 | 1 | 37 days | 0.34 | | | MPC | | 2009 $VY_{80}$ |
| 2009 $VZ_{80}$ | 16.9 | 0.15 | 20100104 | 37.60188 | 294.13742 | 57.00682 | 22.71311 | 0.3181142 | 2.3843329 | 30 | 1 | 117 days | 0.51 | M-v | 3 | MPC | | 2009 $VZ_{80}$ |
| 2009 $VD_{81}$ | 13.0 | 0.15 | 20100104 | 21.28283 | 336.89254 | 43.22269 | 9.57088 | 0.1434830 | 5.2107760 | 24 | 1 | 67 days | 0.41 | M-v | 4 | MPC | | 2009 $VD_{81}$ |
| 2009 $VE_{81}$ | 16.8 | 0.15 | 20091105 | 347.84236 | 14.26689 | 49.23350 | 10.05905 | 0.1496160 | 2.7597829 | 27 | 1 | 54 days | 0.41 | | | MPC | | 2009 $VE_{81}$ |
| 2009 $VH_{81}$ | 15.0 | 0.15 | 20091125 | 54.33056 | 268.50433 | 82.90687 | 17.14612 | 0.1588389 | 3.1092700 | 20 | 1 | 27 days | 0.50 | | | MPC | | 2009 $VH_{81}$ |
| 2009 $VY_{81}$ | 17.2 | 0.15 | 20091125 | 332.09388 | 36.47729 | 56.99127 | 13.01741 | 0.0984145 | 2.7736624 | 13 | 1 | 39 days | 0.22 | | | MPC | | 2009 $VY_{81}$ |
| 2009 $VK_{82}$ | 15.9 | 0.15 | 20091125 | 273.40461 | 89.26576 | 67.22171 | 5.56344 | 0.0495288 | 2.7825174 | 14 | 1 | 33 days | 0.34 | | | MPC | | 2009 $VK_{82}$ |
| 2009 $VV_{82}$ | 18.6 | 0.15 | 20091016 | 21.51194 | 321.11122 | 32.14369 | 1.49046 | 0.2110944 | 2.3644644 | 17 | 1 | 37 days | 0.20 | | | MPC | | 2009 $VV_{82}$ |
| 2009 $VW_{82}$ | 16.7 | 0.15 | 20091016 | 342.67637 | 16.73157 | 32.36805 | 8.30592 | 0.0999316 | 3.0391803 | 16 | 1 | 54 days | 0.20 | | | MPC | | 2009 $VW_{82}$ |
| 2009 $VX_{82}$ | 18.4 | 0.15 | 20100104 | 13.63050 | 341.92264 | 56.38872 | 2.87812 | 0.1675661 | 2.3829905 | 16 | 1 | 62 days | 0.52 | M-v | 4 | MPC | | 2009 $VX_{82}$ |
| 2009 $VG_{83}$ | 15.9 | 0.15 | 20091105 | 209.07345 | 305.10527 | 261.20878 | 8.86223 | 0.1257292 | 2.7010696 | 10 | 1 | 19 days | 0.23 | | | MPC | | 2009 $VG_{83}$ |
| 2009 $VQ_{83}$ | 16.7 | 0.15 | 20091105 | 314.19946 | 74.93992 | 41.24713 | 9.85723 | 0.1181061 | 3.0349340 | 13 | 1 | 28 days | 0.32 | | | MPC | | 2009 $VQ_{83}$ |
| 2009 $VY_{83}$ | 18.0 | 0.15 | 20091125 | 7.91496 | 146.63897 | 266.96846 | 4.41429 | 0.1116470 | 2.3074114 | 13 | 1 | 39 days | 0.20 | | | MPC | | 2009 $VY_{83}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2009 $VB_{84}$ | 18.1 | 0.15 | 20091125 | 323.65026 | 205.93235 | 266.18386 | 5.74964 | 0.1360542 | 2.3117267 | 10 | 1 | 37 days | 0.16 | | | MPC | | 2009 $VB_{84}$ |
| 2009 $VG_{84}$ | 15.2 | 0.15 | 20091125 | 48.87201 | 117.94368 | 257.41172 | 8.13071 | 0.0296067 | 3.4009429 | 19 | 1 | 36 days | 0.24 | | | MPC | | 2009 $VG_{84}$ |
| 2009 $VQ_{84}$ | 18.2 | 0.15 | 20091125 | 311.66898 | 73.26409 | 57.09302 | 3.52166 | 0.1244451 | 2.3914853 | 14 | 1 | 36 days | 0.36 | | | MPC | | 2009 $VQ_{84}$ |
| 2009 $VX_{84}$ | 17.4 | 0.15 | 20100104 | 41.49347 | 216.78871 | 126.19555 | 8.11650 | 0.3194677 | 2.2552924 | 23 | 1 | 93 days | 0.55 | M-v | 4 | MPC | | 2009 $VX_{84}$ |
| 2009 $VB_{86}$ | 18.2 | 0.15 | 20091125 | 22.40890 | 235.69347 | 140.90995 | 1.65677 | 0.3680606 | 3.0045307 | 13 | 1 | 37 days | 0.15 | | | MPC | | 2009 $VB_{86}$ |
| 2009 $VG_{86}$ | 18.0 | 0.15 | 20100104 | 329.54795 | 39.29273 | 75.73535 | 6.88609 | 0.0992784 | 2.4571878 | 27 | 3 | 2005–2009 | 0.40 | M-v | 2 | MPC | 166005 | 2009 $VG_{86}$ |
| 2009 $VH_{86}$ | 15.5 | 0.15 | 20091105 | 344.98198 | 201.42366 | 240.58101 | 24.74471 | 0.1026821 | 3.1983609 | 20 | 1 | 56 days | 0.58 | | | MPC | | 2009 $VH_{86}$ |
| 2009 $VY_{86}$ | 17.0 | 0.15 | 20091105 | 186.80826 | 154.43797 | 79.16992 | 7.40670 | 0.0822647 | 2.3474198 | 12 | 1 | 17 days | 0.26 | | | MPC | | 2009 $VY_{86}$ |
| 2009 $VE_{88}$ | 16.1 | 0.15 | 20091105 | 30.87613 | 117.96396 | 267.78870 | 9.01756 | 0.1398450 | 3.0319620 | 14 | 1 | 46 days | 0.17 | | | MPC | | 2009 $VE_{88}$ |
| 2009 $VF_{88}$ | 16.3 | 0.15 | 20091125 | 14.53094 | 89.82688 | 321.26966 | 3.56480 | 0.1608441 | 3.0727790 | 14 | 1 | 38 days | 0.24 | | | MPC | | 2009 $VF_{88}$ |
| 2009 $VW_{88}$ | 14.3 | 0.15 | 20091016 | 326.47368 | 35.36058 | 36.82601 | 9.53766 | 0.1327304 | 5.2331441 | 16 | 1 | 53 days | 0.21 | | | MPC | | 2009 $VW_{88}$ |
| 2009 $VX_{88}$ | 16.3 | 0.15 | 20091105 | 346.65200 | 19.09398 | 46.70858 | 10.15777 | 0.0919322 | 3.0674552 | 20 | 1 | 36 days | 0.25 | | | MPC | | 2009 $VX_{88}$ |
| 2009 $VY_{88}$ | 16.5 | 0.15 | 20091105 | 11.81265 | 138.06062 | 259.52935 | 9.10619 | 0.1078670 | 2.8917070 | 13 | 1 | 53 days | 0.16 | | | MPC | | 2009 $VY_{88}$ |
| 2009 $VB_{89}$ | 17.1 | 0.15 | 20091016 | 3.33443 | 298.64153 | 81.08550 | 13.42413 | 0.2238394 | 2.4250207 | 20 | 1 | 28 days | 0.56 | | | MPC | | 2009 $VB_{89}$ |
| 2009 $VZ_{89}$ | 17.0 | 0.15 | 20091105 | 13.19601 | 27.82910 | 12.95000 | 5.76858 | 0.0949034 | 2.6524507 | 17 | 1 | 50 days | 0.55 | | | MPC | | 2009 $VZ_{89}$ |
| 2009 $VB_{90}$ | 16.3 | 0.15 | 20091016 | 310.42270 | 76.12676 | 35.16621 | 10.89622 | 0.0724662 | 3.0033202 | 15 | 1 | 35 days | 0.18 | | | MPC | | 2009 $VB_{90}$ |
| 2009 $VE_{90}$ | 17.2 | 0.15 | 20091105 | 352.74633 | 155.26697 | 271.98376 | 6.24796 | 0.1124922 | 2.7426291 | 13 | 1 | 53 days | 0.25 | | | MPC | | 2009 $VE_{90}$ |
| 2009 $VR_{90}$ | 15.9 | 0.15 | 20091125 | 30.01347 | 119.22421 | 269.14828 | 10.58422 | 0.1003813 | 3.1821754 | 13 | 1 | 38 days | 0.29 | | | MPC | | 2009 $VR_{90}$ |
| 2009 $VB_{91}$ | 17.9 | 0.15 | 20091125 | 94.41709 | 42.62998 | 276.34145 | 6.35855 | 0.0998260 | 2.4094954 | 13 | 1 | 35 days | 0.17 | | | MPC | | 2009 $VB_{91}$ |
| 2009 $VF_{91}$ | 17.2 | 0.15 | 20100104 | 21.23098 | 251.52560 | 144.81968 | 22.74792 | 0.2852247 | 2.3568150 | 15 | 1 | 65 days | 0.46 | M-v | 4 | MPC | | 2009 $VF_{91}$ |
| 2009 $VH_{91}$ | 16.3 | 0.15 | 20100104 | 81.62179 | 261.30877 | 66.34404 | 14.47369 | 0.2006995 | 2.5812131 | 31 | 2 | 2005–2009 | 0.43 | M-v | 4 | MPC | 166006 | 2009 $VH_{91}$ |
| 2009 $VJ_{91}$ | 18.5 | 0.15 | 20091105 | 4.83266 | 37.94250 | 7.27754 | 6.21428 | 0.2827833 | 2.9188437 | 9 | 1 | 16 days | 0.12 | | | MPC | | 2009 $VJ_{91}$ |
| 2009 $VL_{91}$ | 15.7 | 0.15 | 20091105 | 207.74191 | 148.33519 | 61.11009 | 8.79168 | 0.0550079 | 2.7637798 | 14 | 1 | 16 days | 0.44 | | E | MPC | | 2009 $VL_{91}$ |
| 2009 $VF_{92}$ | 16.7 | 0.15 | 20091105 | 320.66192 | 243.96948 | 222.81924 | 11.14158 | 0.1529499 | 2.6649809 | 11 | 1 | 15 days | 0.49 | | | MPC | | 2009 $VF_{92}$ |
| 2009 $VK_{92}$ | 18.2 | 0.15 | 20091105 | 19.71564 | 149.73088 | 234.71819 | 5.11849 | 0.1399523 | 2.1777531 | 10 | 1 | 15 days | 0.22 | | | MPC | | 2009 $VK_{92}$ |
| 2009 $VL_{92}$ | 18.9 | 0.15 | 20100104 | 6.43442 | 9.06403 | 59.89545 | 8.27947 | 0.3636946 | 2.6211440 | 19 | 1 | 43 days | 0.35 | M-v | 4 | D MPC | | 2009 $VL_{92}$ |
| 2009 $VQ_{92}$ | 16.3 | 0.15 | 20091105 | 61.98257 | 221.85350 | 121.18250 | 3.50548 | 0.1066290 | 2.6147062 | 10 | 1 | 30 days | 0.29 | | | MPC | | 2009 $VQ_{92}$ |
| 2009 $VR_{92}$ | 15.5 | 0.15 | 20091125 | 45.88677 | 289.03306 | 72.61860 | 27.27115 | 0.2192960 | 3.0839208 | 22 | 1 | 32 days | 0.46 | | | MPC | | 2009 $VR_{92}$ |
| 2009 $VU_{92}$ | 17.8 | 0.15 | 20091105 | 353.24248 | 137.44263 | 278.19036 | 8.72568 | 0.2948887 | 2.3778275 | 19 | 1 | 53 days | 0.57 | | | MPC | | 2009 $VU_{92}$ |
| 2009 $VL_{93}$ | 17.5 | 0.15 | 20091105 | 16.28932 | 2.48799 | 18.68948 | 5.68372 | 0.3142844 | 2.9206728 | 12 | 1 | 13 days | 0.56 | | | MPC | | 2009 $VL_{93}$ |
| 2009 $VN_{93}$ | 15.6 | 0.15 | 20091016 | 39.67693 | 267.57762 | 94.89214 | 10.43071 | 0.0859922 | 3.1656566 | 12 | 1 | 39 days | 0.32 | | | MPC | | 2009 $VN_{93}$ |
| 2009 $VQ_{93}$ | 18.3 | 0.15 | 20100104 | 16.18338 | 134.76723 | 274.56643 | 0.68966 | 0.1713616 | 2.3342395 | 29 | 1 | 83 days | 0.52 | M-v | 4 | D MPC | | 2009 $VQ_{93}$ |
| 2009 $VE_{94}$ | 17.5 | 0.15 | 20091105 | 13.07580 | 336.86955 | 58.43428 | 6.36325 | 0.1044781 | 2.2563378 | 14 | 1 | 31 days | 0.39 | | | MPC | | 2009 $VE_{94}$ |
| 2009 $VG_{94}$ | 18.6 | 0.15 | 20091125 | 8.56806 | 84.59235 | 327.10015 | 2.31130 | 0.2574135 | 2.5442374 | 14 | 1 | 37 days | 0.18 | | | MPC | | 2009 $VG_{94}$ |
| 2009 $VH_{94}$ | 19.5 | 0.15 | 20091105 | 18.71711 | 270.18293 | 113.31475 | 2.18106 | 0.2727506 | 2.3653628 | 9 | 1 | 16 days | 0.49 | | | MPC | | 2009 $VH_{94}$ |
| 2009 $VJ_{94}$ | 17.0 | 0.15 | 20091125 | 355.74123 | 0.42195 | 61.43336 | 3.00120 | 0.0619303 | 2.8795902 | 15 | 1 | 33 days | 0.43 | | | MPC | | 2009 $VJ_{94}$ |
| 2009 $VL_{94}$ | 18.4 | 0.15 | 20091125 | 353.27283 | 205.57403 | 234.15942 | 8.94913 | 0.3050834 | 2.7117677 | 15 | 1 | 33 days | 0.52 | | | MPC | | 2009 $VL_{94}$ |
| 2009 $VN_{94}$ | 19.4 | 0.15 | 20091105 | 342.12321 | 188.75245 | 252.94136 | 3.91135 | 0.2601432 | 2.3776556 | 8 | 1 | 18 days | 0.66 | | | MPC | | 2009 $VN_{94}$ |
| 2009 $VP_{94}$ | 16.7 | 0.15 | 20091105 | 350.59120 | 162.71343 | 264.91596 | 7.05187 | 0.0100142 | 2.9117869 | 9 | 1 | 16 days | 0.33 | | | MPC | | 2009 $VP_{94}$ |
| 2009 $VQ_{94}$ | 18.2 | 0.15 | 20091105 | 308.13970 | 84.94914 | 30.69725 | 4.67007 | 0.0746503 | 2.2158726 | 9 | 1 | 16 days | 0.16 | | | MPC | | 2009 $VQ_{94}$ |
| 2009 $VR_{94}$ | 16.3 | 0.15 | 20091125 | 3.23154 | 170.74270 | 249.05434 | 19.14644 | 0.1152816 | 3.2084392 | 13 | 1 | 32 days | 0.32 | | | MPC | | 2009 $VR_{94}$ |
| 2009 $VS_{94}$ | 18.7 | 0.15 | 20091105 | 345.37948 | 189.10041 | 253.73873 | 8.72850 | 0.2772169 | 2.6914961 | 9 | 1 | 16 days | 0.25 | | | MPC | | 2009 $VS_{94}$ |
| 2009 $VT_{94}$ | 16.9 | 0.15 | 20091105 | 68.29150 | 16.57710 | 326.76160 | 1.33710 | 0.0685821 | 2.8951130 | 17 | 1 | 57 days | 0.43 | | | MPC | | 2009 $VT_{94}$ |
| 2009 $VV_{94}$ | 15.7 | 0.15 | 20091105 | 126.74042 | 35.75910 | 256.51481 | 9.21337 | 0.0608263 | 3.1671846 | 9 | 1 | 16 days | 0.19 | | | MPC | | 2009 $VV_{94}$ |
| 2009 $VY_{94}$ | 16.0 | 0.15 | 20091105 | 137.22544 | 183.15631 | 81.98073 | 9.19010 | 0.2842937 | 2.6447563 | 10 | 1 | 17 days | 0.59 | | | MPC | | 2009 $VY_{94}$ |
| 2009 $VC_{95}$ | 18.0 | 0.15 | 20100104 | 346.11443 | 71.24522 | 28.73226 | 2.82184 | 0.1683178 | 2.3451812 | 21 | 1 | 87 days | 0.40 | M-v | 4 | MPC | | 2009 $VC_{95}$ |
| 2009 $VD_{95}$ | 18.4 | 0.15 | 20091105 | 354.42515 | 14.70826 | 59.97669 | 4.62564 | 0.1967585 | 2.5981943 | 9 | 1 | 16 days | 0.23 | | | MPC | | 2009 $VD_{95}$ |
| 2009 $VE_{95}$ | 17.7 | 0.15 | 20091105 | 83.41156 | 62.93742 | 257.36267 | 6.01983 | 0.1539735 | 2.2447910 | 10 | 1 | 16 days | 0.19 | | | MPC | | 2009 $VE_{95}$ |
| 2009 $VH_{95}$ | 17.1 | 0.15 | 20091105 | 31.22385 | 316.90051 | 54.16868 | 10.04365 | 0.2572987 | 2.5621522 | 20 | 1 | 41 days | 0.25 | | | MPC | | 2009 $VH_{95}$ |
| 2009 $VL_{95}$ | 19.9 | 0.15 | 20091105 | 16.44147 | 242.23973 | 143.32096 | 1.53317 | 0.2765744 | 2.3303659 | 9 | 1 | 16 days | 0.43 | | | MPC | | 2009 $VL_{95}$ |
| 2009 $VM_{95}$ | 18.3 | 0.15 | 20091105 | 41.29915 | 292.19280 | 76.88006 | 6.16976 | 0.1019490 | 2.3546441 | 9 | 1 | 16 days | 0.10 | | | MPC | | 2009 $VM_{95}$ |
| 2009 $VN_{95}$ | 19.1 | 0.15 | 20091105 | 330.80872 | 319.39519 | 137.04737 | 2.55915 | 0.1410778 | 2.4132626 | 9 | 1 | 16 days | 0.32 | | | MPC | | 2009 $VN_{95}$ |
| 2009 $VO_{95}$ | 15.9 | 0.15 | 20091105 | 59.91752 | 106.91682 | 230.76550 | 14.92556 | 0.2378444 | 3.1179644 | 12 | 1 | 17 days | 0.24 | | | MPC | | 2009 $VO_{95}$ |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2009 $VP_{95}$ | 17.2 | 0.15 | 20091016 | 5.11747 | 194.88366 | 209.07680 | 5.76347 | 0.2336352 | 2.6713308 | 16 | 1 | 46 days | 0.25 | | MPC | | 2009 $VP_{95}$ |
| 2009 $VR_{95}$ | 16.6 | 0.15 | 20091105 | 35.96494 | 201.55161 | 177.71077 | 3.79037 | 0.1839898 | 3.0072725 | 9 | 1 | 16 days | 0.25 | | MPC | | 2009 $VR_{95}$ |
| 2009 $VS_{95}$ | 16.5 | 0.15 | 20091125 | 53.66331 | 271.47137 | 95.39552 | 10.78390 | 0.1475771 | 2.8530976 | 13 | 1 | 31 days | 0.18 | | MPC | | 2009 $VS_{95}$ |
| 2009 $VT_{95}$ | 16.3 | 0.15 | 20091125 | 25.28181 | 344.32462 | 60.66618 | 12.42034 | 0.1185316 | 2.7382094 | 13 | 1 | 30 days | 0.25 | | MPC | | 2009 $VT_{95}$ |
| 2009 $VU_{95}$ | 17.5 | 0.15 | 20091105 | 48.09343 | 75.75282 | 284.26367 | 7.73546 | 0.1378501 | 3.0633521 | 9 | 1 | 16 days | 0.31 | | MPC | | 2009 $VU_{95}$ |
| 2009 $VX_{95}$ | 16.2 | 0.15 | 20100104 | 333.21195 | 230.12229 | 228.55522 | 16.13027 | 0.1096583 | 3.0519444 | 18 | 1 | 63 days | 0.23 | M-v 4 | MPC | | 2009 $VX_{95}$ |
| 2009 $VO_{96}$ | 18.5 | 0.15 | 20091125 | 44.46385 | 295.32227 | 59.90383 | 5.92795 | 0.2438385 | 2.4154115 | 14 | 1 | 40 days | 0.24 | | MPC | | 2009 $VO_{96}$ |
| 2009 $VP_{96}$ | 16.7 | 0.15 | 20100104 | 4.16642 | 191.69279 | 241.65955 | 16.39605 | 0.2864616 | 3.0617153 | 18 | 1 | 65 days | 0.33 | M-v 3 | MPC | | 2009 $VP_{96}$ |
| 2009 $VU_{96}$ | 16.1 | 0.15 | 20091105 | 36.26338 | 316.57728 | 51.84527 | 2.23663 | 0.2335683 | 3.0437317 | 18 | 1 | 50 days | 0.37 | | MPC | | 2009 $VU_{96}$ |
| 2009 $VW_{96}$ | 14.0 | 0.15 | 20091105 | 338.11062 | 189.06209 | 265.82988 | 3.37214 | 0.0214245 | 5.2443827 | 11 | 1 | 32 days | 0.28 | | MPC | | 2009 $VW_{96}$ |
| 2009 $VJ_{97}$ | 18.2 | 0.15 | 20091125 | 3.23456 | 176.28988 | 237.76606 | 7.58687 | 0.1482914 | 2.5685594 | 11 | 1 | 32 days | 0.21 | | MPC | | 2009 $VJ_{97}$ |
| 2009 $VT_{97}$ | 18.6 | 0.15 | 20091105 | 3.38208 | 140.09954 | 268.57760 | 3.00307 | 0.2202462 | 2.3513119 | 19 | 1 | 30 days | 0.39 | | MPC | | 2009 $VT_{97}$ |
| 2009 $VH_{99}$ | 16.6 | 0.15 | 20091125 | 34.19537 | 126.17289 | 259.80174 | 9.59961 | 0.1721752 | 3.1133034 | 17 | 1 | 40 days | 0.22 | | MPC | | 2009 $VH_{99}$ |
| 2009 $VN_{99}$ | 17.2 | 0.15 | 20091125 | 26.75889 | 140.39365 | 256.97075 | 3.17654 | 0.1574219 | 2.5625238 | 10 | 1 | 31 days | 0.31 | | MPC | | 2009 $VN_{99}$ |
| 2009 $VU_{99}$ | 15.6 | 0.15 | 20091125 | 204.77464 | 225.59988 | 5.29710 | 2.54285 | 0.2196919 | 2.6442642 | 10 | 1 | 30 days | 0.30 | | MPC | | 2009 $VU_{99}$ |
| 2009 $VF_{100}$ | 16.2 | 0.15 | 20091125 | 50.99758 | 305.57980 | 54.46040 | 6.61035 | 0.2159784 | 3.1053488 | 11 | 1 | 32 days | 0.20 | | MPC | | 2009 $VF_{100}$ |
| 2009 $VA_{103}$ | 17.4 | 0.15 | 20091105 | 321.72733 | 82.37307 | 28.16347 | 5.34391 | 0.1502721 | 2.6074844 | 11 | 1 | 14 days | 0.55 | | MPC | | 2009 $VA_{103}$ |
| 2009 $VC_{103}$ | 17.1 | 0.15 | 20091125 | 14.49360 | 344.47536 | 75.04703 | 7.23942 | 0.3093003 | 2.5969615 | 22 | 1 | 38 days | 0.32 | | MPC | | 2009 $VC_{103}$ |
| 2009 $VS_{103}$ | 17.2 | 0.15 | 20091125 | 26.17551 | 133.24388 | 295.58886 | 6.37941 | 0.0980549 | 2.3432196 | 18 | 1 | 44 days | 0.17 | | MPC | | 2009 $VS_{103}$ |
| 2009 $VV_{103}$ | 15.5 | 0.15 | 20091125 | 95.16207 | 84.31966 | 244.50288 | 14.12189 | 0.0929244 | 3.1417293 | 13 | 1 | 33 days | 0.12 | | MPC | | 2009 $VV_{103}$ |
| 2009 $VW_{103}$ | 15.5 | 0.15 | 20091125 | 215.42813 | 329.32022 | 257.44537 | 10.90670 | 0.1201812 | 3.1241165 | 13 | 1 | 31 days | 0.44 | | MPC | | 2009 $VW_{103}$ |
| 2009 $VY_{103}$ | 16.0 | 0.15 | 20091125 | 336.13377 | 230.24161 | 274.89537 | 26.13781 | 0.3855532 | 3.1509950 | 28 | 1 | 40 days | 0.31 | | MPC | | 2009 $VY_{103}$ |
| 2009 $VG_{104}$ | 16.7 | 0.15 | 20091016 | 16.41911 | 357.74206 | 6.03502 | 13.35265 | 0.3047920 | 3.1595834 | 23 | 1 | 52 days | 0.73 | | MPC | | 2009 $VG_{104}$ |
| 2009 $VX_{104}$ | 15.6 | 0.15 | 20091105 | 29.53302 | 57.47368 | 305.64439 | 12.30965 | 0.1656605 | 3.0235430 | 15 | 1 | 39 days | 0.75 | | MPC | | 2009 $VX_{104}$ |
| 2009 $VD_{105}$ | 17.8 | 0.15 | 20091016 | 359.34559 | 215.50799 | 180.88728 | 7.39670 | 0.3278943 | 2.6316972 | 17 | 1 | 33 days | 0.41 | | MPC | | 2009 $VD_{105}$ |
| 2009 $VN_{105}$ | 16.1 | 0.15 | 20091016 | 19.40042 | 279.24291 | 77.70397 | 26.19766 | 0.2842032 | 3.0831143 | 16 | 1 | 28 days | 0.62 | | MPC | | 2009 $VN_{105}$ |
| 2009 $VQ_{105}$ | 15.7 | 0.15 | 20091105 | 270.46452 | 284.53189 | 233.88953 | 11.83151 | 0.1763603 | 2.7326279 | 19 | 1 | 12 days | 0.52 | | MPC | | 2009 $VQ_{105}$ |
| 2009 $VS_{105}$ | 16.8 | 0.15 | 20100104 | 24.10522 | 148.37213 | 233.03129 | 18.05839 | 0.2920767 | 3.1082185 | 24 | 1 | 41 days | 0.32 | M-v 4 D | MPC | | 2009 $VS_{105}$ |
| 2009 $VT_{105}$ | 16.4 | 0.15 | 20091105 | 29.72422 | 304.63380 | 54.43756 | 14.05247 | 0.2142444 | 2.7702187 | 19 | 1 | 53 days | 0.81 | | MPC | | 2009 $VT_{105}$ |
| 2009 $VU_{105}$ | 16.2 | 0.15 | 20091105 | 45.69698 | 320.05382 | 22.59965 | 15.89178 | 0.2115873 | 2.7246555 | 19 | 1 | 43 days | 0.57 | | MPC | | 2009 $VU_{105}$ |
| 2009 $VW_{105}$ | 18.0 | 0.15 | 20091105 | 353.95174 | 351.03833 | 64.32878 | 6.77481 | 0.1321983 | 2.2606541 | 18 | 1 | 48 days | 0.64 | | MPC | | 2009 $VW_{105}$ |
| 2009 $VO_{107}$ | 18.2 | 0.15 | 20091125 | 18.64745 | 143.02914 | 239.38124 | 1.52916 | 0.2195679 | 2.3795797 | 14 | 1 | 39 days | 0.20 | | MPC | | 2009 $VO_{107}$ |
| 2009 $VS_{109}$ | 15.9 | 0.15 | 20091125 | 17.34793 | 331.15495 | 66.64273 | 13.79526 | 0.1214901 | 2.9949302 | 19 | 1 | 32 days | 0.61 | | MPC | | 2009 $VS_{109}$ |
| 2009 $VW_{111}$ | 16.6 | 0.15 | 20091105 | 347.69868 | 163.29908 | 258.35844 | 12.56067 | 0.1559505 | 2.7305608 | 28 | 1 | 36 days | 0.42 | | MPC | | 2009 $VW_{111}$ |
| 2009 $VU_{112}$ | 16.3 | 0.15 | 20091105 | 350.97094 | 10.58754 | 67.70890 | 7.98454 | 0.1053031 | 3.0788469 | 9 | 1 | 32 days | 0.14 | | MPC | | 2009 $VU_{112}$ |
| 2009 $VX_{112}$ | 17.7 | 0.15 | 20091125 | 52.06027 | 104.84830 | 244.66363 | 8.89159 | 0.1879096 | 2.3171493 | 10 | 1 | 32 days | 0.33 | | MPC | | 2009 $VX_{112}$ |
| 2009 $VZ_{112}$ | 16.5 | 0.15 | 20091125 | 221.53272 | 318.41330 | 255.49717 | 12.26358 | 0.0446146 | 2.6939186 | 14 | 1 | 32 days | 0.31 | | MPC | | 2009 $VZ_{112}$ |
| 2009 $VA_{113}$ | 17.2 | 0.15 | 20091125 | 326.84969 | 214.32232 | 253.58515 | 6.42886 | 0.0563894 | 2.6978166 | 10 | 1 | 31 days | 0.28 | | MPC | | 2009 $VA_{113}$ |
| 2009 $VB_{113}$ | 18.6 | 0.15 | 20091125 | 34.40427 | 328.44358 | 56.25863 | 2.43538 | 0.1920939 | 2.3776512 | 10 | 1 | 32 days | 0.24 | | MPC | | 2009 $VB_{113}$ |
| 2009 $VC_{113}$ | 16.1 | 0.15 | 20091125 | 32.39033 | 332.16988 | 68.50164 | 7.57262 | 0.0919107 | 3.1669520 | 14 | 1 | 41 days | 0.29 | | MPC | | 2009 $VC_{113}$ |
| 2009 $VF_{113}$ | 17.2 | 0.15 | 20100104 | 37.61354 | 315.86551 | 68.70935 | 9.98928 | 0.1518883 | 2.7131917 | 23 | 1 | 31 days | 0.40 | M-v 6 D | MPC | | 2009 $VF_{113}$ |
| 2009 $VG_{113}$ | 15.1 | 0.15 | 20091125 | 333.42865 | 195.38503 | 272.56578 | 9.25104 | 0.0689760 | 3.1074766 | 16 | 1 | 40 days | 0.15 | | MPC | | 2009 $VG_{113}$ |
| 2009 $VH_{113}$ | 16.8 | 0.15 | 20091125 | 279.37076 | 268.17201 | 233.00436 | 13.37512 | 0.0530425 | 2.6107543 | 19 | 1 | 38 days | 0.37 | | MPC | | 2009 $VH_{113}$ |
| 2009 $VJ_{113}$ | 16.6 | 0.15 | 20091105 | 355.59006 | 359.01046 | 56.52618 | 14.85410 | 0.0919207 | 3.1045059 | 15 | 1 | 48 days | 0.24 | | MPC | | 2009 $VJ_{113}$ |
| 2009 $VK_{113}$ | 18.9 | 0.15 | 20091125 | 339.96538 | 351.42714 | 95.54780 | 1.36697 | 0.2006984 | 2.3626636 | 11 | 1 | 30 days | 0.51 | | MPC | | 2009 $VK_{113}$ |
| 2009 $VL_{113}$ | 18.9 | 0.15 | 20091105 | 355.44312 | 351.41984 | 64.55810 | 2.24047 | 0.1809323 | 2.3032434 | 17 | 1 | 45 days | 0.22 | | MPC | | 2009 $VL_{113}$ |
| 2009 $VM_{113}$ | 17.4 | 0.15 | 20091125 | 18.71619 | 143.09642 | 248.65981 | 20.39614 | 0.2427212 | 3.0514869 | 13 | 1 | 37 days | 0.24 | | MPC | | 2009 $VM_{113}$ |
| 2009 $VO_{113}$ | 17.0 | 0.15 | 20091125 | 273.39593 | 124.70133 | 56.97765 | 3.39915 | 0.3635579 | 2.6431531 | 11 | 1 | 30 days | 0.42 | | MPC | | 2009 $VO_{113}$ |
| 2009 $VP_{113}$ | 17.3 | 0.15 | 20091105 | 26.85906 | 326.29159 | 55.37875 | 6.22870 | 0.0345495 | 2.7060488 | 16 | 1 | 49 days | 0.27 | | MPC | | 2009 $VP_{113}$ |
| 2009 $VS_{113}$ | 15.7 | 0.15 | 20091125 | 17.17910 | 158.53640 | 253.27063 | 9.01138 | 0.0533095 | 3.1733224 | 14 | 1 | 37 days | 0.29 | | MPC | | 2009 $VS_{113}$ |
| 2009 $VT_{113}$ | 17.3 | 0.15 | 20091125 | 27.15789 | 304.09921 | 80.83742 | 14.60377 | 0.2830898 | 2.6381693 | 14 | 1 | 39 days | 0.26 | | MPC | | 2009 $VT_{113}$ |
| 2009 WA | 21.2 | 0.15 | 20100104 | 342.89478 | 70.97684 | 47.56932 | 29.88100 | 0.1451104 | 1.1362429 | 40 | 1 | 17 days | 0.36 | M-v 7 | MPC | 166403 | 2009 WA |
| 2009 WF | 19.8 | 0.15 | 20100104 | 71.89926 | 76.54204 | 269.19948 | 15.80078 | 0.3285007 | 1.3851288 | 129 | 1 | 39 days | 0.35 | M-v 5 | MPC | 166403 | 2009 WF |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2009 WJ | 17.4 | 0.15 | 20100104 | 62.41369 | 108.68448 | 248.35576 | 5.87067 | 0.1340582 | 2.2661823 | 51 | 5 | 1995–2009 | 0.39 | M-v | 0 | MPC | 166006 | 2009 WJ |
| 2009 WL | 19.1 | 0.15 | 20091125 | 358.73642 | 329.51790 | 93.64902 | 9.93666 | 0.4544613 | 2.6598571 | 43 | 1 | 32 days | 0.44 | | | MPC | | 2009 WL |
| 2009 WN | 18.8 | 0.15 | 20100104 | 356.41085 | 236.14922 | 249.38555 | 32.78356 | 0.2213293 | 1.3798671 | 51 | 1 | 26 days | 0.43 | M-v | 7 | MPC | 166403 | 2009 WN |
| 2009 WR | 17.1 | 0.15 | 20100104 | 59.30988 | 180.42108 | 159.80595 | 4.91886 | 0.2160533 | 2.5353629 | 51 | 6 | 2000–2009 | 0.50 | M-v | 1 | MPC | 166006 | 2009 WR |
| 2009 WU | 17.6 | 0.15 | 20100104 | 346.96652 | 151.80716 | 299.17834 | 6.05232 | 0.1767434 | 2.3510608 | 31 | 2 | 2005–2009 | 0.28 | M-v | 3 | MPC | 166006 | 2009 WU |
| 2009 WV | 15.5 | 0.15 | 20100104 | 359.59207 | 185.65890 | 228.63428 | 27.56750 | 0.1656640 | 3.1265560 | 30 | 1 | 65 days | 0.54 | M-v | 4 | MPC | | 2009 WV |
| 2009 WX | 15.8 | 0.15 | 20100104 | 37.23013 | 285.24965 | 97.40031 | 6.78422 | 0.0843999 | 2.8923762 | 36 | 3 | 1996–2009 | 0.47 | M-v | 4 | MPC | 166007 | 2009 WX |
| 2009 WY | 16.7 | 0.15 | 20091125 | 52.99203 | 294.39894 | 80.82975 | 8.52480 | 0.1025062 | 2.7570328 | 41 | 1 | 38 days | 0.21 | | | MPC | | 2009 WY |
| 2009 $WA_1$ | 17.8 | 0.15 | 20091125 | 349.56358 | 341.53071 | 90.57973 | 33.69374 | 0.1672161 | 1.7976584 | 50 | 1 | 33 days | 0.56 | | | MPC | | 2009 $WA_1$ |
| 2009 $WF_1$ | 16.8 | 0.15 | 20100104 | 44.77967 | 302.90798 | 65.72194 | 25.90396 | 0.2111053 | 2.2642012 | 64 | 3 | 2002–2009 | 0.43 | M-v | 2 | MPC | 166007 | 2009 $WF_1$ |
| 2009 $WL_1$ | 18.7 | 0.15 | 20100104 | 39.00998 | 322.91076 | 65.05952 | 29.00895 | 0.3350292 | 1.7863976 | 107 | 1 | 41 days | 0.37 | M-v | 4 | MPC | 166403 | 2009 $WL_1$ |
| 2009 $WM_1$ | 20.4 | 0.15 | 20100104 | 52.19383 | 162.57082 | 240.30067 | 25.75991 | 0.1689108 | 1.1804590 | 81 | 1 | 35 days | 0.50 | M-v | 5 | MPC | 166403 | 2009 $WM_1$ |
| 2009 $WE_3$ | 18.1 | 0.15 | 20100104 | 27.53778 | 342.87147 | 60.19865 | 7.37076 | 0.1632706 | 2.3995570 | 20 | 1 | 61 days | 0.29 | M-v | 4 | MPC | | 2009 $WE_3$ |
| 2009 $WN_3$ | 16.6 | 0.15 | 20091125 | 280.53430 | 77.61855 | 60.47628 | 10.43785 | 0.0427960 | 2.9811453 | 16 | 1 | 24 days | 0.33 | | | MPC | | 2009 $WN_3$ |
| 2009 $WH_4$ | 17.9 | 0.15 | 20091125 | 5.63392 | 342.97503 | 64.23980 | 11.80597 | 0.1428734 | 2.6348893 | 15 | 1 | 24 days | 0.25 | | | MPC | | 2009 $WH_4$ |
| 2009 $WY_4$ | 16.6 | 0.15 | 20091125 | 89.83769 | 269.46401 | 37.07495 | 7.44756 | 0.1909134 | 2.6375852 | 19 | 1 | 39 days | 0.15 | | | MPC | | 2009 $WY_4$ |
| 2009 $WE_5$ | 13.2 | 0.15 | 20100104 | 339.69989 | 179.42318 | 259.53785 | 13.38098 | 0.0587277 | 5.1874130 | 37 | 3 | 2006–2009 | 0.28 | M-v | 2 | MPC | 166007 | 2009 $WE_5$ |
| 2009 $WL_5$ | 16.4 | 0.15 | 20091105 | 13.02867 | 266.44871 | 126.81760 | 15.99453 | 0.1808171 | 3.0297834 | 12 | 1 | 8 days | 0.78 | | | MPC | | 2009 $WL_5$ |
| 2009 $WS_5$ | 13.1 | 0.15 | 20091105 | 34.63890 | 272.02766 | 97.23601 | 4.29878 | 0.0638813 | 5.2205549 | 27 | 1 | 47 days | 0.46 | | | MPC | | 2009 $WS_5$ |
| 2009 $WT_5$ | 16.3 | 0.15 | 20100104 | 213.99034 | 161.10499 | 67.29651 | 14.30160 | 0.0980969 | 2.7028922 | 50 | 3 | 2000–2009 | 0.53 | M-v | 3 | MPC | 166008 | 2009 $WT_5$ |
| 2009 $WV_5$ | 12.7 | 0.15 | 20091125 | 38.72870 | 276.29740 | 95.28462 | 8.43275 | 0.0650757 | 5.2728086 | 18 | 1 | 23 days | 0.43 | | | MPC | | 2009 $WV_5$ |
| 2009 $WX_5$ | 18.8 | 0.15 | 20091125 | 31.53761 | 84.26755 | 269.83593 | 8.62144 | 0.3196776 | 2.3147696 | 12 | 1 | 23 days | 0.68 | | | MPC | | 2009 $WX_5$ |
| 2009 $WB_6$ | 17.7 | 0.15 | 20091125 | 41.04893 | 115.92541 | 260.07669 | 19.59940 | 0.0823937 | 1.8650517 | 40 | 1 | 29 days | 0.52 | | | MPC | | 2009 $WB_6$ |
| 2009 $WC_6$ | 14.9 | 0.15 | 20091125 | 8.50103 | 357.81024 | 73.67000 | 18.01833 | 0.2657299 | 3.1047817 | 21 | 1 | 28 days | 0.27 | | | MPC | | 2009 $WC_6$ |
| 2009 $WK_6$ | 19.2 | 0.15 | 20100104 | 39.84924 | 88.56346 | 255.39572 | 6.72911 | 0.5976851 | 2.3649093 | 45 | 1 | 33 days | 0.34 | M-v | 5 | MPC | 166404 | 2009 $WK_6$ |
| 2009 $WL_6$ | 20.2 | 0.15 | 20100104 | 11.60738 | 1.22187 | 23.85788 | 13.50811 | 0.5673000 | 2.7532394 | 30 | 1 | 32 days | 0.38 | M-v | 7 | MPC | 166404 | 2009 $WL_6$ |
| 2009 $WN_6$ | 24.7 | 0.15 | 20100104 | 39.81571 | 317.38983 | 57.35430 | 0.73503 | 0.3867284 | 1.5827727 | 32 | 1 | 28 days | 0.45 | M-v | 7 | MPC | 166404 | 2009 $WN_6$ |
| 2009 $WO_6$ | 17.3 | 0.15 | 20100104 | 350.96546 | 30.38121 | 76.25573 | 28.74504 | 0.5803682 | 3.0891973 | 40 | 1 | 60 days | 0.44 | M-v | 4 | MPC | 166404 | 2009 $WO_6$ |
| 2009 $WR_6$ | 18.3 | 0.15 | 20100104 | 47.92566 | 114.71779 | 284.92079 | 26.49068 | 0.2770745 | 1.6632745 | 67 | 1 | 32 days | 0.39 | M-v | 5 | MPC | 166405 | 2009 $WR_6$ |
| 2009 $WS_6$ | 17.7 | 0.15 | 20091125 | 41.17593 | 323.32347 | 52.84209 | 5.39103 | 0.1278179 | 2.5688982 | 26 | 1 | 39 days | 0.50 | | | MPC | | 2009 $WS_6$ |
| 2009 $WV_6$ | 17.6 | 0.15 | 20091125 | 2.09496 | 166.15846 | 252.24410 | 20.43151 | 0.1390513 | 2.3503786 | 34 | 1 | 29 days | 0.45 | | | MPC | | 2009 $WV_6$ |
| 2009 $WX_6$ | 23.9 | 0.15 | 20100104 | 40.20032 | 332.73227 | 13.44328 | 1.40261 | 0.5426714 | 1.7614841 | 44 | 1 | 8 days | 0.34 | M-v | 7 | MPC | 166405 | 2009 $WX_6$ |
| 2009 $WZ_6$ | 17.4 | 0.15 | 20091125 | 70.78524 | 271.72126 | 64.41828 | 4.63180 | 0.1890981 | 2.5660666 | 24 | 1 | 37 days | 0.35 | | | MPC | | 2009 $WZ_6$ |
| 2009 $WA_7$ | 18.8 | 0.15 | 20091125 | 40.47519 | 284.38545 | 71.62643 | 3.27413 | 0.3123634 | 2.2459992 | 18 | 1 | 28 days | 0.41 | | | MPC | | 2009 $WA_7$ |
| 2009 $WF_7$ | 18.9 | 0.15 | 20091125 | 265.68904 | 104.01142 | 67.34590 | 18.22643 | 0.1666168 | 1.6627615 | 24 | 1 | 22 days | 0.26 | | | MPC | | 2009 $WF_7$ |
| 2009 $WH_7$ | 17.2 | 0.15 | 20100104 | 36.43418 | 124.40966 | 249.84594 | 23.25777 | 0.2856446 | 2.3378059 | 35 | 1 | 60 days | 0.71 | M-v | 5 | MPC | | 2009 $WH_7$ |
| 2009 $WJ_7$ | 17.0 | 0.15 | 20091125 | 334.56370 | 210.15293 | 238.52636 | 21.25468 | 0.0434052 | 2.6678257 | 26 | 1 | 33 days | 0.50 | | | MPC | | 2009 $WJ_7$ |
| 2009 $WO_7$ | 17.1 | 0.15 | 20091125 | 15.33622 | 14.09489 | 31.91366 | 13.81625 | 0.1910431 | 2.6309485 | 23 | 1 | 19 days | 0.35 | | | MPC | | 2009 $WO_7$ |
| 2009 $WS_7$ | 16.8 | 0.15 | 20100104 | 36.34889 | 235.41194 | 141.06418 | 4.23151 | 0.2052130 | 2.7388745 | 47 | 4 | 2000–2009 | 0.45 | M-v | 1 | MPC | 166008 | 2009 $WS_7$ |
| 2009 $WU_7$ | 17.3 | 0.15 | 20091125 | 351.29482 | 188.62563 | 231.49546 | 13.42632 | 0.1286934 | 2.6091647 | 21 | 1 | 39 days | 0.34 | | | MPC | | 2009 $WU_7$ |
| 2009 $WY_7$ | 24.1 | 0.15 | 20100104 | 270.64998 | 172.22137 | 64.17818 | 3.97858 | 0.6066542 | 0.6502919 | 48 | 1 | 17 days | 0.41 | M-v | 9 | MPC | 166405 | 2009 $WY_7$ |
| 2009 $WZ_7$ | 19.8 | 0.15 | 20100104 | 40.23159 | 250.31703 | 76.72904 | 20.69427 | 0.6895832 | 1.9364850 | 46 | 1 | 26 days | 0.42 | M-v | 6 | MPC | 166405 | 2009 $WZ_7$ |
| 2009 $WK_8$ | 16.3 | 0.15 | 20091125 | 76.84159 | 282.69079 | 48.03936 | 16.68561 | 0.1889470 | 2.5677972 | 38 | 1 | 30 days | 0.42 | | | MPC | | 2009 $WK_8$ |
| 2009 $WQ_8$ | 18.0 | 0.15 | 20091125 | 9.10884 | 339.82370 | 60.54451 | 14.69886 | 0.2548061 | 2.6824171 | 14 | 1 | 31 days | 0.16 | | | MPC | | 2009 $WQ_8$ |
| 2009 $WB_9$ | 15.5 | 0.15 | 20091125 | 16.75280 | 321.18956 | 76.52061 | 11.15529 | 0.1041977 | 3.1224412 | 29 | 1 | 33 days | 0.43 | | | MPC | | 2009 $WB_9$ |
| 2009 $WD_9$ | 17.8 | 0.15 | 20091105 | 26.19363 | 305.16913 | 69.39446 | 6.09631 | 0.1892848 | 2.2198528 | 30 | 1 | 47 days | 0.52 | | | MPC | | 2009 $WD_9$ |
| 2009 $WF_9$ | 17.3 | 0.15 | 20091125 | 6.23049 | 346.85500 | 64.85825 | 25.54374 | 0.2069550 | 2.2632363 | 36 | 1 | 28 days | 0.38 | | | MPC | | 2009 $WF_9$ |
| 2009 $WP_9$ | 16.1 | 0.15 | 20091105 | 36.88388 | 284.41962 | 78.39489 | 9.79955 | 0.1475284 | 2.6338446 | 29 | 1 | 57 days | 0.46 | | | MPC | | 2009 $WP_9$ |
| 2009 $WQ_9$ | 17.7 | 0.15 | 20091125 | 26.41539 | 262.65734 | 112.28218 | 4.48168 | 0.2658414 | 2.3784826 | 27 | 1 | 34 days | 0.41 | | | MPC | | 2009 $WQ_9$ |
| 2009 $WV_9$ | 16.6 | 0.15 | 20100104 | 346.45195 | 242.37004 | 220.38152 | 10.64150 | 0.2470841 | 2.6391853 | 30 | 1 | 85 days | 0.57 | M-v | 4 | MPC | | 2009 $WV_9$ |
| 2009 $WY_9$ | 16.8 | 0.15 | 20100104 | 25.10916 | 190.18081 | 206.09098 | 7.25010 | 0.2852937 | 2.7408255 | 26 | 1 | 60 days | 0.54 | M-v | 4 | MPC | | 2009 $WY_9$ |
| 2009 $WZ_9$ | 15.4 | 0.15 | 20091125 | 358.62904 | 203.89632 | 226.24336 | 15.96166 | 0.2363969 | 3.0616565 | 27 | 1 | 30 days | 0.53 | | | MPC | | 2009 $WZ_9$ |
| 2009 $WA_{10}$ | 16.8 | 0.15 | 20091125 | 29.13511 | 302.20200 | 81.23258 | 15.24333 | 0.1940713 | 2.4358562 | 45 | 1 | 30 days | 0.46 | | | MPC | | 2009 $WA_{10}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2009 $WC_{10}$ | 17.2 | 0.15 | 20091125 | 311.96012 | 48.67703 | 74.01148 | 25.47124 | 0.0908781 | 2.0017444 | 17 | 1 | 26 days | 0.44 | | | MPC | | 2009 $WC_{10}$ |
| 2009 $WH_{10}$ | 16.5 | 0.15 | 20091125 | 17.51238 | 176.90595 | 222.65558 | 8.46720 | 0.2763502 | 2.5514732 | 31 | 1 | 26 days | 0.49 | | | MPC | | 2009 $WH_{10}$ |
| 2009 $WN_{10}$ | 14.4 | 0.15 | 20091125 | 347.83981 | 240.14993 | 206.33203 | 10.08031 | 0.2115762 | 3.9362283 | 21 | 1 | 26 days | 0.45 | | | MPC | | 2009 $WN_{10}$ |
| 2009 $WX_{10}$ | 15.3 | 0.15 | 20091125 | 217.40803 | 142.82367 | 59.56221 | 5.03137 | 0.0249812 | 3.2125283 | 34 | 1 | 33 days | 0.46 | | | MPC | | 2009 $WX_{10}$ |
| 2009 $WC_{11}$ | 22.1 | 0.15 | 20100104 | 14.00932 | 342.02468 | 73.02521 | 2.34483 | 0.4977869 | 2.3992312 | 42 | 1 | 30 days | 0.30 | M-v | 5 | MPC | 166406 | 2009 $WC_{11}$ |
| 2009 $WD_{11}$ | 22.0 | 0.15 | 20100104 | 313.67707 | 127.34824 | 65.44207 | 11.65135 | 0.4079674 | 1.0658317 | 79 | 1 | 27 days | 0.42 | M-v | 7 | MPC | 166406 | 2009 $WD_{11}$ |
| 2009 $WU_{11}$ | 17.3 | 0.15 | 20091105 | 22.47288 | 212.34483 | 161.14105 | 2.36459 | 0.0761284 | 2.8583400 | 12 | 1 | 28 days | 0.20 | | | MPC | | 2009 $WU_{11}$ |
| 2009 $WP_{12}$ | 14.0 | 0.15 | 20091125 | 60.16255 | 274.55269 | 75.63471 | 8.52708 | 0.0462874 | 5.1371172 | 14 | 1 | 33 days | 0.18 | | | MPC | | 2009 $WP_{12}$ |
| 2009 $WV_{12}$ | 15.7 | 0.15 | 20091125 | 177.53759 | 170.83962 | 66.56575 | 11.73795 | 0.0696068 | 3.0291142 | 18 | 1 | 25 days | 0.29 | | | MPC | | 2009 $WV_{12}$ |
| 2009 $WE_{14}$ | 18.0 | 0.15 | 20091125 | 105.63250 | 239.04676 | 72.52042 | 24.32242 | 0.1027556 | 1.8574810 | 18 | 1 | 30 days | 0.24 | | | MPC | | 2009 $WE_{14}$ |
| 2009 $WF_{14}$ | 15.7 | 0.15 | 20091125 | 320.75673 | 49.59523 | 77.89697 | 17.86789 | 0.2045467 | 3.1424280 | 25 | 1 | 25 days | 0.14 | | | MPC | | 2009 $WF_{14}$ |
| 2009 $WJ_{14}$ | 16.7 | 0.15 | 20091125 | 70.03425 | 258.79621 | 96.34418 | 7.07061 | 0.0472794 | 2.7378148 | 14 | 1 | 25 days | 0.23 | | | MPC | | 2009 $WJ_{14}$ |
| 2009 $WK_{14}$ | 16.8 | 0.15 | 20091125 | 1.77266 | 349.46122 | 77.76182 | 14.34667 | 0.1309905 | 2.6631628 | 23 | 1 | 29 days | 0.26 | | | MPC | | 2009 $WK_{14}$ |
| 2009 $WN_{14}$ | 17.8 | 0.15 | 20100104 | 40.89019 | 259.81507 | 128.83858 | 2.33699 | 0.1408291 | 2.5850233 | 34 | 5 | 1996–2009 | 0.34 | M-v | 1 | MPC | 166009 | 2009 $WN_{14}$ |
| 2009 $WP_{14}$ | 17.0 | 0.15 | 20091125 | 85.42283 | 233.49695 | 87.83185 | 7.41050 | 0.2101867 | 2.6366484 | 19 | 1 | 25 days | 0.27 | | | MPC | | 2009 $WP_{14}$ |
| 2009 $WQ_{14}$ | 16.1 | 0.15 | 20091125 | 253.56411 | 113.83118 | 79.66004 | 18.05414 | 0.1505414 | 3.0908535 | 13 | 1 | 25 days | 0.22 | | | MPC | | 2009 $WQ_{14}$ |
| 2009 $WS_{14}$ | 16.6 | 0.15 | 20091125 | 96.71591 | 201.79192 | 124.70607 | 2.89189 | 0.0760584 | 2.8916126 | 14 | 1 | 25 days | 0.32 | | | MPC | | 2009 $WS_{14}$ |
| 2009 $WV_{14}$ | 17.4 | 0.15 | 20091125 | 22.38087 | 294.78544 | 90.13100 | 6.94412 | 0.3397200 | 3.1939767 | 11 | 1 | 25 days | 0.14 | | | MPC | | 2009 $WV_{14}$ |
| 2009 $WE_{15}$ | 17.4 | 0.15 | 20091125 | 354.45696 | 213.81939 | 225.37635 | 8.39151 | 0.2505289 | 2.3536772 | 25 | 1 | 32 days | 0.52 | | | MPC | | 2009 $WE_{15}$ |
| 2009 $WF_{15}$ | 17.6 | 0.15 | 20091125 | 334.34642 | 0.54672 | 107.63101 | 5.03975 | 0.1893318 | 2.4436293 | 20 | 1 | 25 days | 0.22 | | | MPC | | 2009 $WF_{15}$ |
| 2009 $WG_{15}$ | 17.4 | 0.15 | 20091125 | 26.93480 | 306.95841 | 85.57546 | 12.73267 | 0.1801467 | 2.6455200 | 17 | 1 | 25 days | 0.20 | | | MPC | | 2009 $WG_{15}$ |
| 2009 $WM_{15}$ | 17.7 | 0.15 | 20091125 | 28.74825 | 272.82644 | 117.93791 | 4.02149 | 0.1692778 | 2.5202635 | 14 | 1 | 25 days | 0.31 | | | MPC | | 2009 $WM_{15}$ |
| 2009 $WN_{15}$ | 17.5 | 0.15 | 20091125 | 58.60912 | 253.97852 | 107.46676 | 4.80054 | 0.1131279 | 2.6609518 | 14 | 1 | 25 days | 0.33 | | | MPC | | 2009 $WN_{15}$ |
| 2009 $WO_{15}$ | 18.9 | 0.15 | 20091125 | 348.67229 | 232.78430 | 211.87347 | 3.27232 | 0.1229021 | 2.2000629 | 2 | 1 | 25 days | 0.00 | | | MPC | | 2009 $WO_{15}$ |
| 2009 $WQ_{15}$ | 18.0 | 0.15 | 20091125 | 10.97796 | 284.46868 | 128.03080 | 3.07025 | 0.2071830 | 2.6676174 | 13 | 1 | 25 days | 0.29 | | | MPC | | 2009 $WQ_{15}$ |
| 2009 $WS_{15}$ | 17.9 | 0.15 | 20091125 | 1.29080 | 256.62540 | 171.58642 | 3.20721 | 0.2114881 | 2.5479356 | 22 | 1 | 25 days | 0.35 | | | MPC | | 2009 $WS_{15}$ |
| 2009 $WX_{15}$ | 16.9 | 0.15 | 20100104 | 60.35688 | 287.16231 | 80.75891 | 4.62751 | 0.0572969 | 2.3545656 | 49 | 5 | 1991–2009 | 0.55 | M-v | 1 | MPC | 166010 | 2009 $WX_{15}$ |
| 2009 $WL_{16}$ | 17.7 | 0.15 | 20091105 | 22.27406 | 9.30618 | 16.88153 | 2.67171 | 0.1732547 | 2.5767579 | 17 | 1 | 55 days | 0.25 | | | MPC | | 2009 $WL_{16}$ |
| 2009 $WO_{16}$ | 18.6 | 0.15 | 20091105 | 26.05114 | 335.45974 | 45.48623 | 7.01565 | 0.1780986 | 2.2008579 | 18 | 1 | 40 days | 0.40 | | | MPC | | 2009 $WO_{16}$ |
| 2009 $WP_{16}$ | 16.5 | 0.15 | 20091125 | 286.91858 | 267.98209 | 255.47993 | 10.33391 | 0.2246628 | 3.1272530 | 13 | 1 | 29 days | 0.18 | | | MPC | | 2009 $WP_{16}$ |
| 2009 $WX_{17}$ | 16.5 | 0.15 | 20091105 | 53.83419 | 263.47200 | 73.48886 | 6.04594 | 0.1549663 | 2.5899557 | 11 | 1 | 10 days | 0.35 | | | MPC | | 2009 $WX_{17}$ |
| 2009 $WM_{18}$ | 16.8 | 0.15 | 20091125 | 281.89667 | 30.94339 | 104.73030 | 3.20133 | 0.0163297 | 2.8800845 | 15 | 1 | 32 days | 0.26 | | | MPC | | 2009 $WM_{18}$ |
| 2009 $WT_{18}$ | 16.6 | 0.15 | 20091125 | 18.51051 | 328.58875 | 66.21465 | 12.93546 | 0.0650896 | 2.8841489 | 16 | 1 | 24 days | 0.20 | | | MPC | | 2009 $WT_{18}$ |
| 2009 $WB_{19}$ | 17.3 | 0.15 | 20091125 | 332.12720 | 344.19674 | 107.70023 | 3.09537 | 0.1215992 | 2.9056605 | 16 | 1 | 32 days | 0.60 | | | MPC | | 2009 $WB_{19}$ |
| 2009 $WL_{19}$ | 15.7 | 0.15 | 20091125 | 214.40133 | 324.63384 | 256.05310 | 12.90398 | 0.1340346 | 2.8882867 | 20 | 1 | 37 days | 0.23 | | | MPC | | 2009 $WL_{19}$ |
| 2009 $WB_{20}$ | 16.9 | 0.15 | 20091125 | 331.55923 | 187.51344 | 284.69822 | 4.47440 | 0.1427608 | 2.6989818 | 17 | 1 | 24 days | 0.37 | | | MPC | | 2009 $WB_{20}$ |
| 2009 $WD_{20}$ | 16.3 | 0.15 | 20091125 | 277.68287 | 275.39595 | 271.66254 | 10.52699 | 0.2583239 | 2.5878640 | 24 | 1 | 24 days | 0.23 | | | MPC | | 2009 $WD_{20}$ |
| 2009 $WE_{20}$ | 17.3 | 0.15 | 20091125 | 32.69950 | 117.41338 | 273.29966 | 5.92046 | 0.1260569 | 2.3245100 | 20 | 1 | 24 days | 0.27 | | | MPC | | 2009 $WE_{20}$ |
| 2009 $WJ_{20}$ | 16.6 | 0.15 | 20091125 | 74.13688 | 66.65118 | 282.24940 | 5.18126 | 0.0978048 | 2.4813350 | 13 | 1 | 24 days | 0.19 | | | MPC | | 2009 $WJ_{20}$ |
| 2009 $WO_{20}$ | 18.0 | 0.15 | 20091125 | 9.67048 | 119.18972 | 301.42955 | 3.30744 | 0.1228824 | 2.1952897 | 13 | 1 | 26 days | 0.27 | | | MPC | | 2009 $WO_{20}$ |
| 2009 $WR_{20}$ | 16.9 | 0.15 | 20091125 | 28.09664 | 321.02872 | 51.69164 | 7.39388 | 0.3672776 | 2.5979749 | 13 | 1 | 31 days | 0.25 | | | MPC | | 2009 $WR_{20}$ |
| 2009 $WM_{21}$ | 16.6 | 0.15 | 20091125 | 7.28568 | 240.18693 | 170.31093 | 6.13406 | 0.0621448 | 2.8768910 | 20 | 1 | 32 days | 0.12 | | | MPC | | 2009 $WM_{21}$ |
| 2009 $WH_{22}$ | 16.0 | 0.15 | 20091125 | 73.86423 | 244.27025 | 85.16844 | 11.28743 | 0.2597155 | 2.9723564 | 20 | 1 | 23 days | 0.29 | | | MPC | | 2009 $WH_{22}$ |
| 2009 $WJ_{22}$ | 17.7 | 0.15 | 20091125 | 327.84753 | 282.38871 | 196.17657 | 3.27521 | 0.1919819 | 2.5658778 | 16 | 1 | 23 days | 0.29 | | | MPC | | 2009 $WJ_{22}$ |
| 2009 $WM_{22}$ | 16.0 | 0.15 | 20091125 | 105.66119 | 236.09087 | 86.70175 | 12.34520 | 0.0519119 | 3.0818368 | 13 | 1 | 23 days | 0.46 | | | MPC | | 2009 $WM_{22}$ |
| 2009 $WW_{22}$ | 17.2 | 0.15 | 20091125 | 14.09673 | 56.04016 | 340.80542 | 2.34879 | 0.2037979 | 3.1133066 | 19 | 1 | 36 days | 0.13 | | | MPC | | 2009 $WW_{22}$ |
| 2009 $WY_{22}$ | 18.5 | 0.15 | 20091125 | 29.70470 | 66.79657 | 308.25927 | 1.90190 | 0.2026410 | 2.2656709 | 16 | 1 | 29 days | 0.14 | | | MPC | | 2009 $WY_{22}$ |
| 2009 $WZ_{22}$ | 17.1 | 0.15 | 20091125 | 302.23953 | 242.50477 | 248.25334 | 11.22038 | 0.1399469 | 2.6959438 | 17 | 1 | 29 days | 0.14 | | | MPC | | 2009 $WZ_{22}$ |
| 2009 $WA_{23}$ | 17.7 | 0.15 | 20091105 | 74.04714 | 281.20460 | 41.56844 | 7.89249 | 0.1416262 | 2.2974494 | 15 | 1 | 30 days | 0.17 | | | MPC | | 2009 $WA_{23}$ |
| 2009 $WE_{23}$ | 17.6 | 0.15 | 20091125 | 5.32180 | 150.46119 | 261.71041 | 5.00189 | 0.0998663 | 2.8829315 | 19 | 1 | 29 days | 0.31 | | | MPC | | 2009 $WE_{23}$ |
| 2009 $WF_{23}$ | 17.1 | 0.15 | 20091125 | 348.18643 | 169.05867 | 264.28452 | 4.96768 | 0.1048564 | 3.0240065 | 23 | 1 | 36 days | 0.30 | | | MPC | | 2009 $WF_{23}$ |
| 2009 $WQ_{23}$ | 17.9 | 0.15 | 20091125 | 22.99387 | 130.89988 | 266.52235 | 9.15934 | 0.2189563 | 2.3394022 | 28 | 1 | 39 days | 0.28 | | | MPC | | 2009 $WQ_{23}$ |
| 2009 $WR_{23}$ | 16.9 | 0.15 | 20091125 | 68.90708 | 87.51142 | 248.41195 | 10.76392 | 0.1232064 | 2.6907228 | 20 | 1 | 29 days | 0.16 | | | MPC | | 2009 $WR_{23}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2009 $WV_{23}$ | 16.1 | 0.15 | 20091105 | 42.02105 | 327.55443 | 20.29871 | 13.52111 | 0.1786286 | 2.6110230 | 19 | 1 | 41 days | 0.47 | | | MPC | 2009 $WV_{23}$ |
| 2009 $WX_{23}$ | 15.4 | 0.15 | 20100104 | 73.93211 | 301.45719 | 46.61797 | 11.74060 | 0.0351685 | 2.9874922 | 53 | 3 | 2004–2009 | 0.46 | M-v | 2 | MPC | 166011 2009 $WX_{23}$ |
| 2009 $WB_{24}$ | 15.9 | 0.15 | 20091125 | 351.86013 | 0.62431 | 75.27455 | 6.30047 | 0.1107565 | 2.8123227 | 20 | 1 | 27 days | 0.44 | | | MPC | 2009 $WB_{24}$ |
| 2009 $WG_{24}$ | 15.7 | 0.15 | 20091125 | 31.25391 | 314.44176 | 72.96898 | 32.43591 | 0.1867127 | 2.6059357 | 39 | 1 | 39 days | 0.51 | | | MPC | 2009 $WG_{24}$ |
| 2009 $WJ_{24}$ | 17.1 | 0.15 | 20100104 | 336.74971 | 30.89680 | 66.30253 | 9.61548 | 0.1312496 | 2.3632816 | 25 | 1 | 63 days | 0.46 | M-v | 5 | MPC | 2009 $WJ_{24}$ |
| 2009 $WK_{24}$ | 17.5 | 0.15 | 20091125 | 279.59241 | 104.88649 | 71.86085 | 8.32296 | 0.2275470 | 2.8322242 | 18 | 1 | 26 days | 0.43 | | | MPC | 2009 $WK_{24}$ |
| 2009 $WN_{24}$ | 15.8 | 0.15 | 20091105 | 112.82691 | 219.53809 | 68.98081 | 11.50662 | 0.0811860 | 2.9863282 | 22 | 1 | 57 days | 0.34 | | | MPC | 2009 $WN_{24}$ |
| 2009 $WP_{24}$ | 16.0 | 0.15 | 20091125 | 40.43757 | 308.38168 | 66.98878 | 7.98450 | 0.0844010 | 3.1749514 | 29 | 1 | 38 days | 0.43 | | | MPC | 2009 $WP_{24}$ |
| 2009 $WS_{24}$ | 16.1 | 0.15 | 20100104 | 74.81574 | 108.43565 | 240.13225 | 9.89853 | 0.0582701 | 3.1836000 | 37 | 1 | 89 days | 0.47 | M-v | 4 | MPC | 2009 $WS_{24}$ |
| 2009 $WT_{24}$ | 18.8 | 0.15 | 20091125 | 13.03744 | 332.90672 | 73.42367 | 1.43422 | 0.1066271 | 2.1327439 | 27 | 1 | 33 days | 0.49 | | | MPC | 2009 $WT_{24}$ |
| 2009 $WV_{24}$ | 17.3 | 0.15 | 20091125 | 348.24367 | 334.45981 | 105.36790 | 4.91059 | 0.1691862 | 2.5586944 | 30 | 1 | 21 days | 0.54 | | | MPC | 2009 $WV_{24}$ |
| 2009 $WA_{25}$ | 16.3 | 0.15 | 20100104 | 357.25497 | 126.76549 | 306.75744 | 1.83011 | 0.2009826 | 3.0764287 | 44 | 4 | 1998–2009 | 0.44 | M-v | 1 | MPC | 166011 2009 $WA_{25}$ |
| 2009 $WF_{25}$ | 17.7 | 0.15 | 20091125 | 342.21081 | 356.48059 | 96.96561 | 24.50465 | 0.0777625 | 1.9524904 | 37 | 1 | 27 days | 0.55 | | | MPC | 2009 $WF_{25}$ |
| 2009 $WM_{25}$ | 16.4 | 0.15 | 20100104 | 39.92512 | 284.97841 | 90.36913 | 23.65961 | 0.3020720 | 2.2704432 | 37 | 1 | 113 days | 0.47 | M-v | 3 | MPC | 2009 $WM_{25}$ |
| 2009 $WN_{25}$ | 18.3 | 0.15 | 20100104 | 6.97632 | 180.81789 | 232.13628 | 71.95708 | 0.6606862 | 3.2466718 | 116 | 1 | 25 days | 0.36 | M-v | 5 | MPC | 166409 2009 $WN_{25}$ |
| 2009 $WP_{25}$ | 19.7 | 0.15 | 20100104 | 66.61181 | 28.92028 | 245.31324 | 27.56913 | 0.7724296 | 1.3977458 | 67 | 1 | 27 days | 0.36 | M-v | 6 | MPC | 166409 2009 $WP_{25}$ |
| 2009 $WR_{25}$ | 21.6 | 0.15 | 20100104 | 159.95765 | 31.32478 | 238.25880 | 31.73651 | 0.4809490 | 0.8674709 | 66 | 1 | 27 days | 0.40 | M-v | 7 | MPC | 166409 2009 $WR_{25}$ |
| 2009 $WT_{25}$ | 23.1 | 0.15 | 20100104 | 13.03762 | 172.63871 | 248.25816 | 5.39628 | 0.4581089 | 2.2572175 | 30 | 1 | 15 days | 0.37 | M-v | 6 | MPC | 166409 2009 $WT_{25}$ |
| 2009 $WV_{25}$ | 24.0 | 0.15 | 20100104 | 351.45631 | 154.92856 | 341.97913 | 0.41349 | 0.4272308 | 1.4011762 | 189 | 1 | 9 days | 0.42 | M-v | 5 | MPC | 166409 2009 $WV_{25}$ |
| 2009 $WW_{25}$ | 20.7 | 0.15 | 20100104 | 10.43007 | 155.89760 | 269.36273 | 1.48207 | 0.4529800 | 1.9768252 | 76 | 1 | 98 days | 0.42 | M-v | 4 | MPC | 166409 2009 $WW_{25}$ |
| 2009 $WX_{25}$ | 17.9 | 0.15 | 20091125 | 25.98499 | 318.25398 | 66.88358 | 2.80463 | 0.1808132 | 2.6710660 | 18 | 1 | 33 days | 0.60 | | | MPC | 2009 $WX_{25}$ |
| 2009 $WY_{25}$ | 13.3 | 0.15 | 20091105 | 24.04857 | 335.99449 | 45.84156 | 12.94358 | 0.1653675 | 5.2254169 | 20 | 1 | 54 days | 0.54 | | | MPC | 2009 $WY_{25}$ |
| 2009 $WC_{26}$ | 17.3 | 0.15 | 20100104 | 326.87583 | 350.73293 | 203.16309 | 12.01644 | 0.7001373 | 2.1672630 | 69 | 1 | 34 days | 0.40 | M-v | 5 | MPC | 166409 2009 $WC_{26}$ |
| 2009 $WM_{26}$ | 15.7 | 0.15 | 20091125 | 254.49347 | 149.73950 | 25.21079 | 11.09297 | 0.0645896 | 2.9848241 | 22 | 1 | 30 days | 0.43 | | | MPC | 2009 $WM_{26}$ |
| 2009 $WR_{26}$ | 16.5 | 0.15 | 20091125 | 72.24021 | 72.95393 | 261.21634 | 4.18139 | 0.1128102 | 2.8804812 | 17 | 1 | 31 days | 0.25 | | | MPC | 2009 $WR_{26}$ |
| 2009 $WT_{26}$ | 16.5 | 0.15 | 20100104 | 29.97953 | 104.45727 | 289.78275 | 1.73927 | 0.0754076 | 2.8555242 | 49 | 5 | 1994–2009 | 0.29 | M-v | 2 | MPC | 166011 2009 $WT_{26}$ |
| 2009 $WU_{26}$ | 17.0 | 0.15 | 20091105 | 7.84983 | 356.01744 | 49.85144 | 10.12088 | 0.0868280 | 3.0207627 | 16 | 1 | 51 days | 0.25 | | | MPC | 2009 $WU_{26}$ |
| 2009 $WY_{26}$ | 17.5 | 0.15 | 20091125 | 43.34065 | 312.35928 | 45.39499 | 4.02702 | 0.1998867 | 2.7370842 | 14 | 1 | 31 days | 0.23 | | | MPC | 2009 $WY_{26}$ |
| 2009 $WZ_{26}$ | 18.3 | 0.15 | 20091105 | 314.12001 | 224.63512 | 244.71481 | 4.73411 | 0.1096237 | 2.3273437 | 19 | 1 | 45 days | 0.40 | | | MPC | 2009 $WZ_{26}$ |
| 2009 $WB_{27}$ | 17.4 | 0.15 | 20091125 | 252.32955 | 147.53818 | 33.88402 | 2.99240 | 0.1337086 | 2.3863921 | 13 | 1 | 31 days | 0.28 | | | MPC | 2009 $WB_{27}$ |
| 2009 $WD_{27}$ | 18.1 | 0.15 | 20091125 | 2.16426 | 172.21172 | 245.50325 | 6.16638 | 0.1530767 | 2.2197425 | 17 | 1 | 25 days | 0.40 | | | MPC | 2009 $WD_{27}$ |
| 2009 $WH_{27}$ | 16.4 | 0.15 | 20100104 | 348.95580 | 111.11001 | 332.35024 | 1.34780 | 0.0648016 | 2.9252557 | 40 | 3 | 2006–2009 | 0.29 | M-v | 3 | MPC | 166012 2009 $WH_{27}$ |
| 2009 $WU_{27}$ | 17.9 | 0.15 | 20091125 | 308.84498 | 66.76205 | 58.72753 | 3.28729 | 0.1438572 | 2.4470483 | 13 | 1 | 25 days | 0.26 | | | MPC | 2009 $WU_{27}$ |
| 2009 $WC_{28}$ | 17.5 | 0.15 | 20091105 | 311.99291 | 76.20945 | 52.10262 | 3.77142 | 0.2324480 | 2.6386388 | 26 | 1 | 56 days | 0.49 | | | MPC | 2009 $WC_{28}$ |
| 2009 $WE_{28}$ | 18.0 | 0.15 | 20100104 | 9.98720 | 15.50981 | 48.12065 | 3.30954 | 0.1613021 | 2.3764446 | 27 | 1 | 90 days | 0.25 | M-v | 3 | MPC | 2009 $WE_{28}$ |
| 2009 $WG_{28}$ | 18.1 | 0.15 | 20091125 | 39.81677 | 331.14189 | 36.61978 | 2.13856 | 0.1749938 | 2.6438229 | 19 | 1 | 40 days | 0.21 | | | MPC | 2009 $WG_{28}$ |
| 2009 $WH_{28}$ | 18.2 | 0.15 | 20091125 | 47.10554 | 299.11207 | 53.74807 | 7.09219 | 0.2265607 | 2.6338701 | 16 | 1 | 40 days | 0.26 | | | MPC | 2009 $WH_{28}$ |
| 2009 $WJ_{28}$ | 17.7 | 0.15 | 20091125 | 39.20621 | 106.16748 | 257.99782 | 2.28669 | 0.2206771 | 3.0216300 | 12 | 1 | 25 days | 0.18 | | | MPC | 2009 $WJ_{28}$ |
| 2009 $WQ_{28}$ | 16.1 | 0.15 | 20100104 | 243.43045 | 310.40523 | 244.65061 | 13.19632 | 0.0450118 | 2.6659584 | 20 | 1 | 60 days | 0.29 | M-v | 5 | MPC | 2009 $WQ_{28}$ |
| 2009 $WS_{28}$ | 16.9 | 0.15 | 20091125 | 333.86347 | 160.99607 | 298.68509 | 0.28539 | 0.1226260 | 3.1889981 | 16 | 1 | 37 days | 0.37 | | | MPC | 2009 $WS_{28}$ |
| 2009 $WU_{28}$ | 16.2 | 0.15 | 20100104 | 4.41295 | 180.19114 | 251.22066 | 4.37027 | 0.0383198 | 2.7077344 | 26 | 2 | 2004–2009 | 0.35 | M-v | 4 | MPC | 166012 2009 $WU_{28}$ |
| 2009 $WV_{28}$ | 15.8 | 0.15 | 20091125 | 253.65341 | 107.21132 | 67.20615 | 10.32642 | 0.0410884 | 3.0383755 | 22 | 1 | 25 days | 0.49 | | | MPC | 2009 $WV_{28}$ |
| 2009 $WY_{28}$ | 17.7 | 0.15 | 20091125 | 8.96328 | 348.38663 | 62.91630 | 7.57834 | 0.1566425 | 2.3973066 | 14 | 1 | 32 days | 0.38 | | | MPC | 2009 $WY_{28}$ |
| 2009 $WB_{29}$ | 16.8 | 0.15 | 20091125 | 345.18474 | 15.68147 | 66.56631 | 8.21127 | 0.0973217 | 2.5621149 | 19 | 1 | 25 days | 0.26 | | | MPC | 2009 $WB_{29}$ |
| 2009 $WF_{30}$ | 17.5 | 0.15 | 20091105 | 22.82997 | 149.42894 | 214.12495 | 21.03071 | 0.2360175 | 3.0684911 | 11 | 1 | 27 days | 0.25 | | | MPC | 2009 $WF_{30}$ |
| 2009 $WK_{30}$ | 18.1 | 0.15 | 20091125 | 338.43696 | 23.18261 | 73.23419 | 2.48739 | 0.1600632 | 2.5357288 | 13 | 1 | 29 days | 0.24 | | | MPC | 2009 $WK_{30}$ |
| 2009 $WN_{30}$ | 18.9 | 0.15 | 20091125 | 4.44131 | 173.55815 | 245.78031 | 7.37062 | 0.2155311 | 2.3942815 | 13 | 1 | 31 days | 0.29 | | | MPC | 2009 $WN_{30}$ |
| 2009 $WP_{30}$ | 17.6 | 0.15 | 20091105 | 49.23638 | 301.51987 | 66.52953 | 4.59514 | 0.0567410 | 2.6128734 | 9 | 1 | 8 days | 0.35 | | | MPC | 2009 $WP_{30}$ |
| 2009 $WQ_{30}$ | 17.8 | 0.15 | 20091125 | 8.08863 | 356.82378 | 57.22174 | 1.73988 | 0.2237087 | 2.7422704 | 13 | 1 | 29 days | 0.15 | | | MPC | 2009 $WQ_{30}$ |
| 2009 $WB_{31}$ | 16.0 | 0.15 | 20091105 | 2.14254 | 174.78716 | 248.39262 | 8.01814 | 0.0885100 | 3.0032060 | 25 | 1 | 50 days | 0.33 | | | MPC | 2009 $WB_{31}$ |
| 2009 $WC_{31}$ | 17.9 | 0.15 | 20091125 | 303.74202 | 265.31434 | 229.89250 | 2.30642 | 0.1232943 | 2.3016895 | 13 | 1 | 31 days | 0.20 | | | MPC | 2009 $WC_{31}$ |
| 2009 $WO_{31}$ | 16.2 | 0.15 | 20091125 | 341.95856 | 17.06658 | 68.91021 | 22.87380 | 0.0226808 | 2.6592745 | 20 | 1 | 36 days | 0.44 | | | MPC | 2009 $WO_{31}$ |
| 2009 $WQ_{31}$ | 16.4 | 0.15 | 20100104 | 122.67810 | 96.09686 | 204.74248 | 2.37040 | 0.1420258 | 2.5271339 | 37 | 3 | 2005–2009 | 0.46 | M-v | 3 | MPC | 166012 2009 $WQ_{31}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2009 $WT_{31}$ | 16.0 | 0.15 | 20091105 | 155.02602 | 196.98896 | 70.09908 | 13.92536 | 0.0663567 | 3.0102547 | 9 | 1 | 12 days | 0.15 | | | MPC | | 2009 $WT_{31}$ |
| 2009 $WU_{31}$ | 17.5 | 0.15 | 20091125 | 48.28940 | 124.32445 | 242.72251 | 14.48979 | 0.1283674 | 2.5439869 | 29 | 1 | 31 days | 0.31 | | | MPC | | 2009 $WU_{31}$ |
| 2009 $WX_{31}$ | 16.2 | 0.15 | 20091125 | 294.26562 | 71.45657 | 77.19990 | 6.23439 | 0.1262887 | 3.1256639 | 19 | 1 | 36 days | 0.26 | | | MPC | | 2009 $WX_{31}$ |
| 2009 $WB_{32}$ | 17.9 | 0.15 | 20091125 | 5.84762 | 189.72056 | 229.90144 | 4.23844 | 0.1987985 | 2.6889119 | 13 | 1 | 25 days | 0.16 | | | MPC | | 2009 $WB_{32}$ |
| 2009 $WD_{32}$ | 16.3 | 0.15 | 20091125 | 357.54606 | 359.56941 | 73.41057 | 17.64682 | 0.1069799 | 3.0169164 | 33 | 1 | 30 days | 0.24 | | | MPC | | 2009 $WD_{32}$ |
| 2009 $WF_{32}$ | 16.4 | 0.15 | 20091125 | 64.59693 | 212.46323 | 135.46827 | 1.99389 | 0.1680144 | 2.9772557 | 16 | 1 | 25 days | 0.21 | | | MPC | | 2009 $WF_{32}$ |
| 2009 $WG_{32}$ | 18.3 | 0.15 | 20091125 | 21.31201 | 317.22195 | 79.44881 | 3.02136 | 0.2073337 | 2.3048716 | 12 | 1 | 24 days | 0.16 | | | MPC | | 2009 $WG_{32}$ |
| 2009 $WH_{32}$ | 17.1 | 0.15 | 20091125 | 325.20306 | 43.56213 | 73.19489 | 14.95260 | 0.1463632 | 2.7112391 | 17 | 1 | 29 days | 0.31 | | | MPC | | 2009 $WH_{32}$ |
| 2009 $WJ_{32}$ | 15.9 | 0.15 | 20091125 | 81.46774 | 266.73102 | 79.20942 | 11.01974 | 0.0457013 | 3.4088322 | 13 | 1 | 24 days | 0.22 | | | MPC | | 2009 $WJ_{32}$ |
| 2009 $WQ_{32}$ | 18.7 | 0.15 | 20091125 | 315.57297 | 58.00209 | 72.51016 | 1.80281 | 0.1834000 | 2.1905935 | 22 | 1 | 29 days | 0.35 | | | MPC | | 2009 $WQ_{32}$ |
| 2009 $WS_{32}$ | 17.0 | 0.15 | 20100104 | 331.09360 | 230.77975 | 245.53234 | 1.99935 | 0.1075432 | 2.7537447 | 27 | 2 | 2004–2009 | 0.34 | M-v | 4 | MPC | 166012 | 2009 $WS_{32}$ |
| 2009 $WU_{32}$ | 16.8 | 0.15 | 20091125 | 52.74790 | 300.01611 | 70.73625 | 5.60700 | 0.0772217 | 2.7658700 | 19 | 1 | 29 days | 0.21 | | | MPC | | 2009 $WU_{32}$ |
| 2009 $WZ_{32}$ | 18.0 | 0.15 | 20091125 | 326.15486 | 236.28991 | 242.38065 | 2.21459 | 0.1781001 | 2.6886811 | 13 | 1 | 24 days | 0.23 | | | MPC | | 2009 $WZ_{32}$ |
| 2009 $WB_{33}$ | 16.4 | 0.15 | 20100104 | 11.53697 | 355.94852 | 72.95103 | 11.32064 | 0.0321734 | 2.8721133 | 25 | 3 | 2004–2009 | 0.30 | M-v | 3 | MPC | 166012 | 2009 $WB_{33}$ |
| 2009 $WE_{33}$ | 15.3 | 0.15 | 20091125 | 169.18718 | 190.97622 | 73.27762 | 8.71558 | 0.0127993 | 3.1659915 | 16 | 1 | 41 days | 0.29 | | | MPC | | 2009 $WE_{33}$ |
| 2009 $WH_{33}$ | 17.2 | 0.15 | 20091125 | 67.87304 | 282.17837 | 72.48814 | 12.84846 | 0.0956721 | 2.6866903 | 10 | 1 | 24 days | 0.26 | | | MPC | | 2009 $WH_{33}$ |
| 2009 $WP_{33}$ | 15.2 | 0.15 | 20091125 | 170.42077 | 182.28190 | 78.97102 | 11.02311 | 0.0598852 | 3.1516525 | 14 | 1 | 33 days | 0.17 | | | MPC | | 2009 $WP_{33}$ |
| 2009 $WV_{33}$ | 16.3 | 0.15 | 20091125 | 63.82778 | 122.09070 | 240.08507 | 9.15166 | 0.0642796 | 3.0264399 | 13 | 1 | 33 days | 0.17 | | | MPC | | 2009 $WV_{33}$ |
| 2009 $WW_{33}$ | 16.4 | 0.15 | 20100104 | 347.82917 | 298.47748 | 160.14053 | 1.29295 | 0.1519286 | 3.1588824 | 40 | 5 | 2000–2009 | 0.28 | M-v | 0 | MPC | 166013 | 2009 $WW_{33}$ |
| 2009 $WZ_{33}$ | 16.1 | 0.15 | 20091125 | 103.42386 | 232.87153 | 80.89438 | 11.22560 | 0.1435096 | 2.6499501 | 13 | 1 | 33 days | 0.14 | | | MPC | | 2009 $WZ_{33}$ |
| 2009 $WB_{34}$ | 16.7 | 0.15 | 20091125 | 22.82414 | 155.95838 | 244.08979 | 11.58698 | 0.1703619 | 2.6427895 | 21 | 1 | 26 days | 0.39 | | | MPC | | 2009 $WB_{34}$ |
| 2009 $WC_{34}$ | 17.4 | 0.15 | 20091125 | 26.26790 | 311.41347 | 74.02825 | 10.60504 | 0.2803872 | 2.6888316 | 17 | 1 | 33 days | 0.17 | | | MPC | | 2009 $WC_{34}$ |
| 2009 $WE_{34}$ | 15.9 | 0.15 | 20100104 | 254.37073 | 322.76927 | 232.03191 | 3.71701 | 0.0527419 | 3.0382299 | 14 | 1 | 25 days | 0.56 | M-v | 7 D | MPC | | 2009 $WE_{34}$ |
| 2009 $WG_{34}$ | 15.6 | 0.15 | 20091125 | 331.09690 | 27.61607 | 79.95264 | 10.34635 | 0.0423829 | 3.1608739 | 17 | 1 | 41 days | 0.29 | | | MPC | | 2009 $WG_{34}$ |
| 2009 $WH_{34}$ | 16.5 | 0.15 | 20091125 | 33.08439 | 313.67909 | 83.06034 | 2.75851 | 0.0917353 | 3.1786398 | 12 | 1 | 33 days | 0.35 | | | MPC | | 2009 $WH_{34}$ |
| 2009 $WL_{34}$ | 15.7 | 0.15 | 20091125 | 86.62784 | 240.18548 | 99.52381 | 3.28396 | 0.0872926 | 2.9288306 | 10 | 1 | 24 days | 0.17 | | | MPC | | 2009 $WL_{34}$ |
| 2009 $WM_{34}$ | 15.8 | 0.15 | 20091125 | 309.71177 | 244.66908 | 248.99587 | 14.24379 | 0.0743903 | 2.9791381 | 16 | 1 | 25 days | 0.16 | | | MPC | | 2009 $WM_{34}$ |
| 2009 $WT_{34}$ | 17.2 | 0.15 | 20100104 | 359.90279 | 22.82654 | 71.57544 | 5.51010 | 0.1614576 | 2.6307098 | 22 | 4 | 1997–2009 | 0.52 | M-v | 1 | MPC | 166013 | 2009 $WT_{34}$ |
| 2009 $WW_{34}$ | 16.8 | 0.15 | 20091125 | 357.98708 | 33.64096 | 53.69309 | 1.90966 | 0.1444936 | 3.1292705 | 16 | 1 | 33 days | 0.43 | | | MPC | | 2009 $WW_{34}$ |
| 2009 $WE_{35}$ | 17.1 | 0.15 | 20100104 | 44.11565 | 176.52601 | 194.76055 | 5.93411 | 0.2518178 | 2.3190803 | 22 | 1 | 62 days | 0.45 | M-v | 5 | MPC | | 2009 $WE_{35}$ |
| 2009 $WT_{35}$ | 17.3 | 0.15 | 20091105 | 357.43978 | 177.89263 | 220.01879 | 18.22844 | 0.2328732 | 2.7663995 | 23 | 1 | 43 days | 0.54 | | | MPC | | 2009 $WT_{35}$ |
| 2009 $WX_{35}$ | 17.2 | 0.15 | 20091016 | 0.55530 | 196.21182 | 190.08624 | 1.70028 | 0.0740057 | 2.8613750 | 21 | 1 | 54 days | 0.34 | | | MPC | | 2009 $WX_{35}$ |
| 2009 $WF_{36}$ | 16.9 | 0.15 | 20091125 | 329.18006 | 54.97654 | 43.22713 | 11.06130 | 0.0817686 | 3.0132051 | 14 | 1 | 32 days | 0.19 | | | MPC | | 2009 $WF_{36}$ |
| 2009 $WH_{36}$ | 16.9 | 0.15 | 20100104 | 51.09574 | 24.13741 | 341.21893 | 2.74084 | 0.1272182 | 2.8525081 | 36 | 5 | 1999–2009 | 0.30 | M-v | 1 | MPC | 166013 | 2009 $WH_{36}$ |
| 2009 $WN_{36}$ | 18.2 | 0.15 | 20100104 | 60.27051 | 81.00448 | 269.13447 | 3.22334 | 0.2156590 | 2.2161845 | 25 | 2 | 2002–2009 | 0.26 | M-v | 3 | MPC | 166013 | 2009 $WN_{36}$ |
| 2009 $WP_{36}$ | 14.3 | 0.15 | 20091125 | 39.27056 | 328.26700 | 48.40965 | 12.29254 | 0.0533287 | 5.0900248 | 19 | 1 | 32 days | 0.21 | | | MPC | | 2009 $WP_{36}$ |
| 2009 $WR_{36}$ | 17.7 | 0.15 | 20091125 | 310.54506 | 54.39746 | 83.48913 | 3.62737 | 0.1222555 | 2.3573028 | 25 | 1 | 26 days | 0.18 | | | MPC | | 2009 $WR_{36}$ |
| 2009 $WU_{36}$ | 18.3 | 0.15 | 20100104 | 12.77781 | 30.71908 | 29.65711 | 2.97029 | 0.1977621 | 2.4383966 | 40 | 2 | 2005–2009 | 0.40 | M-v | 3 | MPC | 166014 | 2009 $WU_{36}$ |
| 2009 $WV_{36}$ | 18.2 | 0.15 | 20091105 | 33.68124 | 17.32149 | 349.63512 | 1.12113 | 0.2021686 | 2.3500327 | 17 | 1 | 55 days | 0.20 | | | MPC | | 2009 $WV_{36}$ |
| 2009 $WW_{36}$ | 17.2 | 0.15 | 20091125 | 1.56175 | 9.40502 | 52.33909 | 6.81032 | 0.2192598 | 2.5736774 | 27 | 1 | 38 days | 0.39 | | | MPC | | 2009 $WW_{36}$ |
| 2009 $WY_{36}$ | 17.7 | 0.15 | 20091125 | 25.61813 | 348.26520 | 39.00091 | 2.14295 | 0.1830344 | 2.3544343 | 16 | 1 | 31 days | 0.37 | | | MPC | | 2009 $WY_{36}$ |
| 2009 $WE_{37}$ | 16.3 | 0.15 | 20100104 | 344.02434 | 46.83138 | 50.37656 | 7.35494 | 0.0846305 | 2.6839836 | 34 | 1 | 87 days | 0.27 | M-v | 4 | MPC | | 2009 $WE_{37}$ |
| 2009 $WJ_{37}$ | 17.6 | 0.15 | 20091125 | 282.44242 | 102.49083 | 54.56583 | 8.04341 | 0.1045903 | 2.2149822 | 19 | 1 | 37 days | 0.25 | | | MPC | | 2009 $WJ_{37}$ |
| 2009 $WM_{37}$ | 17.0 | 0.15 | 20100104 | 152.86530 | 324.08754 | 316.59369 | 2.59382 | 0.0641818 | 2.7692285 | 29 | 5 | 1999–2009 | 0.36 | M-v | 0 | MPC | 166014 | 2009 $WM_{37}$ |
| 2009 $WO_{37}$ | 18.0 | 0.15 | 20100104 | 68.64478 | 309.08446 | 37.36701 | 3.30090 | 0.2104279 | 2.4547531 | 26 | 2 | 2005–2009 | 0.36 | M-v | 4 | MPC | 166014 | 2009 $WO_{37}$ |
| 2009 $WP_{37}$ | 17.2 | 0.15 | 20100104 | 32.87440 | 75.24880 | 317.90977 | 2.16612 | 0.1721467 | 2.9704447 | 22 | 2 | 2004–2009 | 0.17 | M-v | 4 | MPC | 166014 | 2009 $WP_{37}$ |
| 2009 $WZ_{37}$ | 15.8 | 0.15 | 20091105 | 25.69586 | 340.99180 | 59.31996 | 12.86758 | 0.0113441 | 2.9070792 | 20 | 1 | 53 days | 0.35 | | | MPC | | 2009 $WZ_{37}$ |
| 2009 $WF_{38}$ | 15.9 | 0.15 | 20091105 | 89.94300 | 250.61184 | 61.42701 | 13.59813 | 0.2346199 | 2.7305996 | 10 | 1 | 13 days | 0.16 | | | MPC | | 2009 $WF_{38}$ |
| 2009 $WJ_{38}$ | 17.7 | 0.15 | 20091125 | 23.91011 | 145.55819 | 254.32211 | 14.40433 | 0.1232296 | 2.6299729 | 12 | 1 | 23 days | 0.17 | | | MPC | | 2009 $WJ_{38}$ |
| 2009 $WP_{38}$ | 16.1 | 0.15 | 20100104 | 77.93928 | 287.47097 | 60.95834 | 10.02218 | 0.0777102 | 3.1129122 | 24 | 2 | 2003–2009 | 0.22 | M-v | 3 | MPC | 166014 | 2009 $WP_{38}$ |
| 2009 $WT_{38}$ | 18.3 | 0.15 | 20091125 | 314.21021 | 210.89936 | 276.59521 | 1.31586 | 0.1572430 | 2.3310981 | 10 | 1 | 28 days | 0.40 | | | MPC | | 2009 $WT_{38}$ |
| 2009 $WV_{38}$ | 17.4 | 0.15 | 20100104 | 56.00885 | 312.17622 | 58.90689 | 7.50942 | 0.1222651 | 2.3486980 | 33 | 1 | 77 days | 0.26 | M-v | 4 | MPC | | 2009 $WV_{38}$ |
| 2009 $WW_{38}$ | 16.5 | 0.15 | 20091105 | 68.95236 | 274.68141 | 63.40645 | 12.00787 | 0.1554838 | 3.0636097 | 9 | 1 | 13 days | 0.14 | | | MPC | | 2009 $WW_{38}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2009 $WX_{38}$ | 16.1 | 0.15 | 20091125 | 76.39992 | 273.95155 | 63.18202 | 9.83901 | 0.1297383 | 2.9887678 | 13 | 1 | 29 days | 0.23 | | | MPC | | 2009 $WX_{38}$ |
| 2009 $WY_{38}$ | 17.3 | 0.15 | 20091125 | 15.79114 | 154.67018 | 253.44088 | 4.49190 | 0.0960739 | 2.3974042 | 21 | 1 | 36 days | 0.31 | | | MPC | | 2009 $WY_{38}$ |
| 2009 $WB_{39}$ | 16.8 | 0.15 | 20091125 | 11.17180 | 156.44573 | 258.19001 | 7.61229 | 0.1054810 | 3.2079206 | 13 | 1 | 28 days | 0.53 | | | MPC | | 2009 $WB_{39}$ |
| 2009 $WG_{39}$ | 16.3 | 0.15 | 20091125 | 41.63466 | 100.42015 | 249.09179 | 19.92156 | 0.3533352 | 3.0471410 | 14 | 1 | 30 days | 0.51 | | | MPC | | 2009 $WG_{39}$ |
| 2009 $WK_{39}$ | 17.7 | 0.15 | 20100104 | 14.05967 | 22.78155 | 39.57591 | 2.68160 | 0.1999257 | 2.3814223 | 30 | 1 | 87 days | 0.23 | M-v | 3 | MPC | | 2009 $WK_{39}$ |
| 2009 $WL_{39}$ | 16.6 | 0.15 | 20091125 | 306.43371 | 255.38856 | 254.86011 | 11.23147 | 0.2533837 | 3.1478026 | 13 | 1 | 28 days | 0.22 | | | MPC | | 2009 $WL_{39}$ |
| 2009 $WN_{39}$ | 17.5 | 0.15 | 20091125 | 36.58215 | 5.07265 | 11.96556 | 1.27788 | 0.1799573 | 2.5711878 | 17 | 1 | 37 days | 0.42 | | | MPC | | 2009 $WN_{39}$ |
| 2009 $WQ_{39}$ | 17.5 | 0.15 | 20091125 | 69.06971 | 74.07742 | 252.28775 | 11.69874 | 0.2924501 | 2.6185893 | 10 | 1 | 28 days | 0.27 | | | MPC | | 2009 $WQ_{39}$ |
| 2009 $WS_{39}$ | 15.5 | 0.15 | 20091105 | 60.64416 | 287.69162 | 65.40559 | 14.50730 | 0.1257053 | 3.2071754 | 24 | 1 | 53 days | 0.26 | | | MPC | | 2009 $WS_{39}$ |
| 2009 $WV_{39}$ | 16.5 | 0.15 | 20091125 | 17.25975 | 151.63397 | 262.07194 | 10.71340 | 0.0609036 | 2.9989211 | 19 | 1 | 32 days | 0.28 | | | MPC | | 2009 $WV_{39}$ |
| 2009 $WY_{39}$ | 18.5 | 0.15 | 20091125 | 42.48409 | 309.81994 | 44.85118 | 2.67930 | 0.3286266 | 2.4057932 | 13 | 1 | 24 days | 0.23 | | | MPC | | 2009 $WY_{39}$ |
| 2009 $WZ_{39}$ | 17.1 | 0.15 | 20091125 | 184.98930 | 189.92973 | 59.58797 | 8.15209 | 0.1439426 | 2.2615841 | 13 | 1 | 24 days | 0.29 | | | MPC | | 2009 $WZ_{39}$ |
| 2009 $WD_{40}$ | 17.0 | 0.15 | 20091125 | 79.68374 | 66.88521 | 281.05412 | 4.94026 | 0.0577828 | 2.7620039 | 13 | 1 | 24 days | 0.28 | | | MPC | | 2009 $WD_{40}$ |
| 2009 $WF_{40}$ | 17.8 | 0.15 | 20100104 | 313.29757 | 110.21025 | 33.91957 | 2.11972 | 0.1271985 | 2.3690829 | 39 | 3 | 2005–2009 | 0.31 | M-v | 3 | MPC | 166014 | 2009 $WF_{40}$ |
| 2009 $WJ_{40}$ | 16.9 | 0.15 | 20091125 | 34.87738 | 335.77642 | 45.41380 | 3.98576 | 0.2155621 | 2.6177468 | 22 | 1 | 24 days | 0.31 | | | MPC | | 2009 $WJ_{40}$ |
| 2009 $WK_{40}$ | 16.8 | 0.15 | 20091105 | 74.30165 | 300.81909 | 41.89344 | 2.38996 | 0.0939096 | 2.9269797 | 14 | 1 | 32 days | 0.21 | | | MPC | | 2009 $WK_{40}$ |
| 2009 $WO_{40}$ | 17.7 | 0.15 | 20091125 | 20.87327 | 351.67844 | 40.38925 | 1.74019 | 0.2933103 | 2.9892492 | 13 | 1 | 23 days | 0.17 | | | MPC | | 2009 $WO_{40}$ |
| 2009 $WU_{40}$ | 17.8 | 0.15 | 20091125 | 43.19096 | 325.46833 | 51.93222 | 3.51815 | 0.1172145 | 2.1484183 | 13 | 1 | 24 days | 0.20 | | | MPC | | 2009 $WU_{40}$ |
| 2009 $WX_{40}$ | 15.6 | 0.15 | 20091125 | 160.41771 | 12.31125 | 256.63312 | 12.34261 | 0.1580209 | 2.6344481 | 14 | 1 | 32 days | 0.16 | | | MPC | | 2009 $WX_{40}$ |
| 2009 $WC_{41}$ | 16.9 | 0.15 | 20091125 | 43.70289 | 102.72514 | 283.69971 | 1.62364 | 0.0494699 | 2.5529478 | 17 | 1 | 32 days | 0.27 | | | MPC | | 2009 $WC_{41}$ |
| 2009 $WE_{41}$ | 18.2 | 0.15 | 20091125 | 6.92030 | 354.50313 | 66.60103 | 3.20493 | 0.2082582 | 2.3387296 | 14 | 1 | 32 days | 0.22 | | | MPC | | 2009 $WE_{41}$ |
| 2009 $WH_{41}$ | 16.8 | 0.15 | 20100104 | 49.09798 | 316.76161 | 69.92435 | 15.33925 | 0.1046128 | 2.4745858 | 33 | 2 | 2005–2009 | 0.26 | M-v | 3 | MPC | 166014 | 2009 $WH_{41}$ |
| 2009 $WL_{41}$ | 16.2 | 0.15 | 20100104 | 2.76405 | 350.09304 | 72.24741 | 11.55579 | 0.1652122 | 3.0343614 | 36 | 2 | 2004–2009 | 0.40 | M-v | 3 | MPC | 166015 | 2009 $WL_{41}$ |
| 2009 $WS_{41}$ | 18.2 | 0.15 | 20091125 | 21.16021 | 12.39683 | 27.60411 | 1.40904 | 0.2228082 | 2.4603642 | 14 | 1 | 24 days | 0.28 | | | MPC | | 2009 $WS_{41}$ |
| 2009 $WV_{41}$ | 17.9 | 0.15 | 20091125 | 311.18873 | 65.65964 | 59.29980 | 6.20810 | 0.0190795 | 2.1681357 | 13 | 1 | 26 days | 0.21 | | | MPC | | 2009 $WV_{41}$ |
| 2009 $WW_{41}$ | 16.7 | 0.15 | 20100104 | 60.53850 | 182.03000 | 168.77251 | 4.77204 | 0.1903545 | 2.6170709 | 33 | 2 | 2007–2009 | 0.47 | M-v | 4 | MPC | 166015 | 2009 $WW_{41}$ |
| 2009 $WC_{42}$ | 18.0 | 0.15 | 20091125 | 71.94360 | 275.80100 | 71.88103 | 5.70576 | 0.1318196 | 2.2416010 | 12 | 1 | 23 days | 0.20 | | | MPC | | 2009 $WC_{42}$ |
| 2009 $WP_{42}$ | 16.2 | 0.15 | 20091125 | 351.36290 | 177.26748 | 268.17907 | 9.73898 | 0.0450759 | 3.0693049 | 18 | 1 | 32 days | 0.24 | | | MPC | | 2009 $WP_{42}$ |
| 2009 $WT_{42}$ | 16.3 | 0.15 | 20091125 | 250.83956 | 116.93547 | 83.73052 | 9.70569 | 0.0970514 | 2.8135205 | 19 | 1 | 29 days | 0.53 | | | MPC | | 2009 $WT_{42}$ |
| 2009 $WK_{43}$ | 16.7 | 0.15 | 20091125 | 23.49782 | 261.22385 | 129.98341 | 5.57449 | 0.2222418 | 2.5482339 | 30 | 1 | 25 days | 0.31 | | | MPC | | 2009 $WK_{43}$ |
| 2009 $WP_{43}$ | 16.0 | 0.15 | 20091105 | 267.06900 | 87.41683 | 108.64758 | 3.62130 | 0.2055165 | 2.7655328 | 9 | 1 | 8 days | 0.21 | | E | MPC | | 2009 $WP_{43}$ |
| 2009 $WY_{43}$ | 16.2 | 0.15 | 20091125 | 6.72348 | 174.83505 | 282.94268 | 12.50751 | 0.1550268 | 2.7262414 | 16 | 1 | 28 days | 0.33 | | | MPC | | 2009 $WY_{43}$ |
| 2009 $WA_{44}$ | 16.8 | 0.15 | 20091125 | 63.14525 | 100.20240 | 247.40283 | 13.58309 | 0.1564290 | 2.5632733 | 22 | 1 | 38 days | 0.40 | | | MPC | | 2009 $WA_{44}$ |
| 2009 $WQ_{44}$ | 16.4 | 0.15 | 20091105 | 47.97998 | 134.16733 | 229.26752 | 7.98388 | 0.0556521 | 2.9706924 | 16 | 1 | 30 days | 0.27 | | | MPC | | 2009 $WQ_{44}$ |
| 2009 $WR_{44}$ | 18.2 | 0.15 | 20091125 | 3.51286 | 179.84560 | 235.84023 | 13.37250 | 0.1880231 | 2.7400309 | 20 | 1 | 31 days | 0.27 | | | MPC | | 2009 $WR_{44}$ |
| 2009 $WU_{44}$ | 16.7 | 0.15 | 20091125 | 345.88368 | 201.08738 | 236.12005 | 15.61582 | 0.0766939 | 3.0597677 | 16 | 1 | 40 days | 0.27 | | | MPC | | 2009 $WU_{44}$ |
| 2009 $WY_{44}$ | 16.9 | 0.15 | 20091125 | 32.98807 | 318.59142 | 65.94912 | 7.76308 | 0.0495507 | 2.7637788 | 25 | 1 | 31 days | 0.35 | | | MPC | | 2009 $WY_{44}$ |
| 2009 $WZ_{44}$ | 15.9 | 0.15 | 20091105 | 221.28744 | 144.59736 | 63.04674 | 17.58838 | 0.1695748 | 3.1736175 | 20 | 1 | 47 days | 0.21 | | | MPC | | 2009 $WZ_{44}$ |
| 2009 $WD_{45}$ | 18.1 | 0.15 | 20091125 | 321.27659 | 242.74457 | 223.98346 | 3.05637 | 0.0876906 | 2.3014750 | 20 | 1 | 39 days | 0.18 | | | MPC | | 2009 $WD_{45}$ |
| 2009 $WJ_{45}$ | 16.6 | 0.15 | 20091125 | 14.63524 | 334.16566 | 68.04667 | 15.16946 | 0.1283931 | 2.7089708 | 28 | 1 | 40 days | 0.49 | | | MPC | | 2009 $WJ_{45}$ |
| 2009 $WM_{45}$ | 17.7 | 0.15 | 20091125 | 19.90300 | 312.06055 | 75.88776 | 7.69036 | 0.2679476 | 2.6354909 | 12 | 1 | 30 days | 0.40 | | | MPC | | 2009 $WM_{45}$ |
| 2009 $WN_{45}$ | 17.8 | 0.15 | 20091125 | 54.71196 | 160.50064 | 190.07332 | 2.54912 | 0.1682424 | 2.1763555 | 22 | 1 | 31 days | 0.37 | | | MPC | | 2009 $WN_{45}$ |
| 2009 $WP_{45}$ | 16.5 | 0.15 | 20091125 | 291.26305 | 247.43145 | 253.69010 | 13.45400 | 0.1160031 | 2.4737089 | 24 | 1 | 38 days | 0.37 | | | MPC | | 2009 $WP_{45}$ |
| 2009 $WQ_{45}$ | 16.5 | 0.15 | 20100104 | 327.70080 | 32.37622 | 83.60339 | 5.99593 | 0.1199665 | 2.7599782 | 41 | 3 | 2000–2009 | 0.52 | M-v | 2 | MPC | 166015 | 2009 $WQ_{45}$ |
| 2009 $WS_{45}$ | 17.2 | 0.15 | 20091125 | 32.24049 | 314.80540 | 72.37489 | 13.80686 | 0.1147918 | 2.7012462 | 13 | 1 | 27 days | 0.42 | | | MPC | | 2009 $WS_{45}$ |
| 2009 $WY_{45}$ | 17.3 | 0.15 | 20091125 | 28.62541 | 106.20474 | 279.47983 | 3.91933 | 0.2002103 | 2.4337022 | 13 | 1 | 27 days | 0.21 | | | MPC | | 2009 $WY_{45}$ |
| 2009 $WF_{46}$ | 16.7 | 0.15 | 20100104 | 94.47018 | 58.60796 | 272.52432 | 5.53886 | 0.1342413 | 2.2940125 | 41 | 3 | 2005–2009 | 0.34 | M-v | 3 | MPC | 166015 | 2009 $WF_{46}$ |
| 2009 $WT_{46}$ | 16.0 | 0.15 | 20091125 | 292.52261 | 41.02034 | 109.28108 | 6.77554 | 0.0690578 | 3.0931838 | 17 | 1 | 31 days | 0.40 | | | MPC | | 2009 $WT_{46}$ |
| 2009 $WZ_{46}$ | 17.8 | 0.15 | 20091105 | 0.06897 | 234.24800 | 174.33307 | 4.92221 | 0.2292705 | 2.3134533 | 19 | 1 | 27 days | 0.72 | | | MPC | | 2009 $WZ_{46}$ |
| 2009 $WA_{47}$ | 15.9 | 0.15 | 20091105 | 337.56919 | 3.87919 | 74.46399 | 16.32329 | 0.1104990 | 2.8611259 | 28 | 1 | 50 days | 0.62 | | | MPC | | 2009 $WA_{47}$ |
| 2009 $WG_{47}$ | 16.6 | 0.15 | 20100104 | 9.48661 | 315.78567 | 105.79375 | 9.09307 | 0.3269217 | 2.8478310 | 37 | 2 | 2004–2009 | 0.51 | M-v | 3 | MPC | 166016 | 2009 $WG_{47}$ |
| 2009 $WM_{47}$ | 15.2 | 0.15 | 20091125 | 220.19523 | 320.11659 | 219.68128 | 26.48097 | 0.0485816 | 3.1422817 | 13 | 1 | 34 days | 0.31 | | | MPC | | 2009 $WM_{47}$ |
| 2009 $WQ_{47}$ | 16.1 | 0.15 | 20100104 | 242.46075 | 128.55365 | 35.70709 | 10.76210 | 0.0244610 | 2.9157837 | 55 | 4 | 1994–2009 | 0.39 | M-v | 2 | MPC | 166016 | 2009 $WQ_{47}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2009 $WC_{48}$ | 16.4 | 0.15 | 20091105 | 23.17593 | 139.44253 | 244.49181 | 16.79129 | 0.1169186 | 2.6030293 | 39 | 1 | 51 days | 0.40 | | | MPC | | 2009 $WC_{48}$ |
| 2009 $WE_{48}$ | 17.2 | 0.15 | 20100104 | 327.51800 | 334.15483 | 150.81441 | 1.81867 | 0.1605622 | 2.8890821 | 21 | 2 | 2006–2009 | 0.29 | M-v | 4 | MPC | 166016 | 2009 $WE_{48}$ |
| 2009 $WH_{48}$ | 15.7 | 0.15 | 20091105 | 277.04316 | 258.09818 | 236.13088 | 16.05689 | 0.0746755 | 3.0717299 | 14 | 1 | 10 days | 0.18 | | | MPC | | 2009 $WH_{48}$ |
| 2009 $WJ_{48}$ | 16.8 | 0.15 | 20091105 | 229.75681 | 299.37182 | 240.13193 | 11.17355 | 0.0772508 | 2.9660287 | 11 | 1 | 10 days | 0.19 | | | MPC | | 2009 $WJ_{48}$ |
| 2009 $WG_{49}$ | 16.0 | 0.15 | 20091105 | 308.38062 | 359.05392 | 124.94333 | 11.44674 | 0.0705137 | 3.1202614 | 11 | 1 | 7 days | 0.14 | | | MPC | | 2009 $WG_{49}$ |
| 2009 $WM_{50}$ | 15.3 | 0.15 | 20091105 | 304.65516 | 13.87372 | 98.65971 | 9.91369 | 0.0928960 | 3.0600106 | 19 | 1 | 53 days | 0.69 | | | MPC | | 2009 $WM_{50}$ |
| 2009 $WV_{50}$ | 16.2 | 0.15 | 20091125 | 255.57791 | 117.05526 | 54.47312 | 12.53819 | 0.0503526 | 3.1765487 | 13 | 1 | 29 days | 0.26 | | | MPC | | 2009 $WV_{50}$ |
| 2009 $WW_{50}$ | 18.0 | 0.15 | 20100104 | 322.71461 | 181.17716 | 294.37247 | 1.28353 | 0.0459453 | 2.1579938 | 32 | 3 | 2004–2009 | 0.36 | M-v | 4 | MPC | 166016 | 2009 $WW_{50}$ |
| 2009 $WY_{50}$ | 18.1 | 0.15 | 20100104 | 335.74029 | 79.58921 | 21.81689 | 2.27898 | 0.0954298 | 2.5783303 | 19 | 2 | 2005–2009 | 0.35 | M-v | 5 | MPC | 166016 | 2009 $WY_{50}$ |
| 2009 $WD_{51}$ | 18.2 | 0.15 | 20091125 | 30.16004 | 160.74203 | 222.90114 | 2.31797 | 0.2345705 | 2.3090301 | 13 | 1 | 25 days | 0.26 | | | MPC | | 2009 $WD_{51}$ |
| 2009 $WG_{51}$ | 16.2 | 0.15 | 20091125 | 335.58299 | 206.97955 | 258.18856 | 7.97925 | 0.1233609 | 2.7553840 | 17 | 1 | 20 days | 0.27 | | | MPC | | 2009 $WG_{51}$ |
| 2009 $WM_{51}$ | 15.1 | 0.15 | 20091125 | 112.09763 | 240.63026 | 72.54680 | 16.31625 | 0.1078471 | 3.0080258 | 14 | 1 | 21 days | 0.43 | | | MPC | | 2009 $WM_{51}$ |
| 2009 $WX_{51}$ | 20.2 | 0.15 | 20100104 | 355.07053 | 118.02267 | 31.75157 | 9.59433 | 0.7405206 | 3.0828126 | 99 | 1 | 29 days | 0.41 | M-v | 6 | MPC | 166414 | 2009 $WX_{51}$ |
| 2009 $WY_{51}$ | 21.8 | 0.15 | 20100104 | 24.46896 | 87.14681 | 249.33668 | 11.82944 | 0.7123309 | 2.6251774 | 26 | 1 | 27 days | 0.49 | M-v | 7 | MPC | 166414 | 2009 $WY_{51}$ |
| 2009 $WA_{52}$ | 26.3 | 0.15 | 20100104 | 1.27810 | 214.17998 | 253.37725 | 1.78246 | 0.4716682 | 1.7876664 | 43 | 1 | 9 days | 0.42 | M-v | 7 | MPC | 166414 | 2009 $WA_{52}$ |
| 2009 $WJ_{52}$ | 15.5 | 0.15 | 20091105 | 29.26452 | 7.44234 | 12.31044 | 9.63479 | 0.1187708 | 2.9736576 | 29 | 1 | 33 days | 0.62 | | | MPC | | 2009 $WJ_{52}$ |
| 2009 $WK_{52}$ | 16.3 | 0.15 | 20091125 | 52.84568 | 82.90652 | 268.31118 | 13.52753 | 0.1645827 | 2.6250742 | 18 | 1 | 21 days | 0.27 | | | MPC | | 2009 $WK_{52}$ |
| 2009 $WA_{53}$ | 17.8 | 0.15 | 20091125 | 11.02861 | 338.54991 | 73.43006 | 8.08739 | 0.1648361 | 2.3080044 | 24 | 1 | 23 days | 0.31 | | | MPC | | 2009 $WA_{53}$ |
| 2009 $WB_{53}$ | 18.7 | 0.15 | 20091125 | 43.53683 | 164.57017 | 195.22930 | 1.25744 | 0.2450053 | 2.1171185 | 14 | 1 | 4 days | 0.56 | | | MPC | | 2009 $WB_{53}$ |
| 2009 $WE_{53}$ | 16.7 | 0.15 | 20100104 | 12.56411 | 55.52063 | 7.40988 | 3.85899 | 0.2284663 | 2.5541861 | 32 | 2 | 2002–2009 | 0.41 | M-v | 4 | MPC | 166016 | 2009 $WE_{53}$ |
| 2009 $WK_{53}$ | 18.3 | 0.15 | 20091105 | 345.79966 | 208.38983 | 227.81753 | 30.61014 | 0.4145631 | 3.0829107 | 16 | 1 | 28 days | 0.42 | | | MPC | | 2009 $WK_{53}$ |
| 2009 $WN_{53}$ | 17.5 | 0.15 | 20091105 | 355.91854 | 350.78714 | 69.23852 | 6.57670 | 0.2310792 | 2.2133241 | 43 | 1 | 57 days | 0.37 | | | MPC | | 2009 $WN_{53}$ |
| 2009 $WP_{53}$ | 16.1 | 0.15 | 20100104 | 348.51856 | 190.89895 | 254.04418 | 13.69512 | 0.1615452 | 2.6219154 | 46 | 1 | 61 days | 0.53 | M-v | 4 | MPC | | 2009 $WP_{53}$ |
| 2009 $WR_{53}$ | 16.1 | 0.15 | 20100104 | 9.57786 | 131.98771 | 286.81617 | 7.51490 | 0.2382692 | 2.8512233 | 34 | 3 | 1995–2009 | 0.41 | M-v | 2 | MPC | 166017 | 2009 $WR_{53}$ |
| 2009 $WB_{54}$ | 26.4 | 0.15 | 20100104 | 54.37243 | 300.05989 | 61.69450 | 18.93850 | 0.3570697 | 1.3685934 | 30 | 1 | 1 days | 0.55 | M-v | 7 | MPC | 166415 | 2009 $WB_{54}$ |
| 2009 $WG_{54}$ | 21.1 | 0.15 | 20100104 | 322.87744 | 85.75293 | 64.44334 | 13.02385 | 0.2878088 | 1.5627162 | 21 | 1 | 27 days | 0.45 | M-v | 7 | MPC | 166415 | 2009 $WG_{54}$ |
| 2009 $WR_{55}$ | 17.0 | 0.15 | 20100104 | 42.47534 | 139.66377 | 231.80698 | 5.99632 | 0.2552739 | 2.6645185 | 38 | 2 | 2000–2009 | 0.49 | M-v | 4 | MPC | 166017 | 2009 $WR_{55}$ |
| 2009 $WS_{55}$ | 18.0 | 0.15 | 20091105 | 91.97134 | 81.55284 | 242.53288 | 19.00424 | 0.0446503 | 1.8865419 | 17 | 1 | 54 days | 0.30 | | | MPC | | 2009 $WS_{55}$ |
| 2009 $WF_{56}$ | 18.2 | 0.15 | 20091105 | 325.38753 | 11.86989 | 87.21942 | 3.78680 | 0.1606891 | 2.4208765 | 23 | 1 | 57 days | 0.32 | | | MPC | | 2009 $WF_{56}$ |
| 2009 $WP_{56}$ | 16.3 | 0.15 | 20100104 | 94.29014 | 241.47136 | 68.24892 | 12.18795 | 0.1784964 | 3.0722689 | 19 | 1 | 68 days | 0.31 | M-v | 4 | MPC | | 2009 $WP_{56}$ |
| 2009 $WR_{56}$ | 17.0 | 0.15 | 20091105 | 125.75172 | 181.56457 | 101.73699 | 3.18706 | 0.0491768 | 2.7439582 | 15 | 1 | 31 days | 0.36 | | | MPC | | 2009 $WR_{56}$ |
| 2009 $WF_{57}$ | 16.5 | 0.15 | 20091105 | 305.69577 | 50.08758 | 64.53751 | 10.03222 | 0.0762298 | 3.1174016 | 11 | 1 | 15 days | 0.20 | | | MPC | | 2009 $WF_{57}$ |
| 2009 $WH_{57}$ | 16.4 | 0.15 | 20100104 | 329.76391 | 41.83423 | 60.33702 | 15.05121 | 0.0708540 | 2.6436415 | 29 | 1 | 67 days | 0.25 | M-v | 4 | MPC | | 2009 $WH_{57}$ |
| 2009 $WX_{57}$ | 18.3 | 0.15 | 20091105 | 346.74747 | 3.42201 | 68.00306 | 5.03721 | 0.2193130 | 2.3563656 | 25 | 1 | 49 days | 0.39 | | | MPC | | 2009 $WX_{57}$ |
| 2009 $WJ_{58}$ | 13.9 | 0.15 | 20091105 | 315.65661 | 36.44578 | 64.90398 | 15.42254 | 0.0330652 | 5.1572481 | 18 | 1 | 58 days | 0.32 | | | MPC | | 2009 $WJ_{58}$ |
| 2009 $WT_{59}$ | 17.3 | 0.15 | 20091125 | 35.01034 | 271.14518 | 96.72183 | 2.61284 | 0.1672002 | 3.1438734 | 12 | 1 | 25 days | 0.21 | | | MPC | | 2009 $WT_{59}$ |
| 2009 $WK_{60}$ | 16.9 | 0.15 | 20100104 | 27.53906 | 182.07469 | 227.93660 | 4.79123 | 0.0713118 | 2.6471779 | 57 | 7 | 2000–2009 | 0.31 | M-v | 0 | MPC | 166017 | 2009 $WK_{60}$ |
| 2009 $WD_{64}$ | 16.8 | 0.15 | 20091125 | 101.92901 | 240.35622 | 61.53006 | 11.28526 | 0.1034695 | 2.7218042 | 23 | 1 | 25 days | 0.27 | | | MPC | | 2009 $WD_{64}$ |
| 2009 $WJ_{64}$ | 15.8 | 0.15 | 20091125 | 78.80091 | 237.06742 | 100.66597 | 5.95175 | 0.1304677 | 3.1914299 | 14 | 1 | 25 days | 0.19 | | | MPC | | 2009 $WJ_{64}$ |
| 2009 $WM_{64}$ | 16.7 | 0.15 | 20091125 | 353.32171 | 345.07484 | 93.64967 | 7.51480 | 0.0548535 | 2.9174937 | 14 | 1 | 25 days | 0.17 | | | MPC | | 2009 $WM_{64}$ |
| 2009 $WP_{64}$ | 18.0 | 0.15 | 20100104 | 28.57145 | 276.13242 | 126.34850 | 2.63006 | 0.2152754 | 2.3277018 | 35 | 4 | 1991–2009 | 0.48 | M-v | 1 | MPC | 166017 | 2009 $WP_{64}$ |
| 2009 $WQ_{64}$ | 19.0 | 0.15 | 20091125 | 21.46012 | 256.06451 | 141.28767 | 2.28089 | 0.2037521 | 2.3110660 | 14 | 1 | 25 days | 0.27 | | | MPC | | 2009 $WQ_{64}$ |
| 2009 $WK_{65}$ | 17.0 | 0.15 | 20091125 | 10.75512 | 76.43262 | 338.24238 | 1.79970 | 0.1397343 | 3.1362914 | 13 | 1 | 29 days | 0.20 | | | MPC | | 2009 $WK_{65}$ |
| 2009 $WL_{66}$ | 16.2 | 0.15 | 20091125 | 40.65740 | 307.96139 | 58.71476 | 15.30264 | 0.0749385 | 2.7422629 | 11 | 1 | 23 days | 0.22 | | | MPC | | 2009 $WL_{66}$ |
| 2009 $WU_{66}$ | 18.1 | 0.15 | 20091105 | 38.43568 | 305.39823 | 56.35166 | 23.18723 | 0.0845205 | 1.9309101 | 19 | 1 | 31 days | 0.32 | | | MPC | | 2009 $WU_{66}$ |
| 2009 $WV_{66}$ | 16.0 | 0.15 | 20091125 | 315.01867 | 58.31585 | 55.08998 | 16.30367 | 0.1905620 | 3.2165767 | 19 | 1 | 28 days | 0.41 | | | MPC | | 2009 $WV_{66}$ |
| 2009 $WW_{66}$ | 16.6 | 0.15 | 20091016 | 4.38953 | 339.65125 | 53.12497 | 18.51622 | 0.2050217 | 3.1559842 | 19 | 1 | 42 days | 0.66 | | | MPC | | 2009 $WW_{66}$ |
| 2009 $WN_{67}$ | 18.5 | 0.15 | 20091125 | 343.00910 | 40.31075 | 67.20168 | 23.31078 | 0.4487879 | 3.2482922 | 16 | 1 | 30 days | 0.24 | | | MPC | | 2009 $WN_{67}$ |
| 2009 $WD_{69}$ | 16.7 | 0.15 | 20091125 | 39.07984 | 122.48309 | 264.10290 | 14.11967 | 0.1129452 | 2.5738720 | 21 | 1 | 32 days | 0.20 | | | MPC | | 2009 $WD_{69}$ |
| 2009 $WH_{69}$ | 17.0 | 0.15 | 20100104 | 341.07487 | 201.43670 | 269.47389 | 11.57432 | 0.1284136 | 2.6085849 | 36 | 3 | 2002–2009 | 0.32 | M-v | 2 | MPC | 166018 | 2009 $WH_{69}$ |
| 2009 $WJ_{69}$ | 16.1 | 0.15 | 20091125 | 48.02656 | 101.26524 | 279.90229 | 8.73093 | 0.0811524 | 3.1234929 | 14 | 1 | 26 days | 0.20 | | | MPC | | 2009 $WJ_{69}$ |
| 2009 $WK_{69}$ | 16.0 | 0.15 | 20091125 | 12.56478 | 144.63860 | 271.70762 | 9.89484 | 0.1971893 | 3.0474360 | 18 | 1 | 24 days | 0.39 | | | MPC | | 2009 $WK_{69}$ |
| 2009 $WM_{69}$ | 17.3 | 0.15 | 20091125 | 10.14834 | 342.54481 | 96.67231 | 14.60707 | 0.2070950 | 2.7187146 | 17 | 1 | 32 days | 0.23 | | | MPC | | 2009 $WM_{69}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2009 $WT_{69}$ | 18.5 | 0.15 | 20091105 | 2.58147 | 4.28320 | 38.14431 | 15.34411 | 0.2847096 | 2.6546943 | 9 | 1 | 13 days | 0.23 | | MPC | | 2009 $WT_{69}$ |
| 2009 $WG_{70}$ | 17.4 | 0.15 | 20091105 | 60.55044 | 60.33279 | 281.92928 | 5.10987 | 0.0626844 | 2.6951791 | 9 | 1 | 13 days | 0.24 | | MPC | | 2009 $WG_{70}$ |
| 2009 $WH_{70}$ | 15.5 | 0.15 | 20091105 | 263.02762 | 271.59206 | 245.27895 | 16.07662 | 0.0894653 | 3.0835490 | 13 | 1 | 23 days | 0.22 | | MPC | | 2009 $WH_{70}$ |
| 2009 $WO_{70}$ | 18.2 | 0.15 | 20091105 | 16.66253 | 322.21802 | 64.67126 | 9.71228 | 0.2363751 | 2.6988758 | 16 | 1 | 47 days | 0.23 | | MPC | | 2009 $WO_{70}$ |
| 2009 $WR_{70}$ | 17.4 | 0.15 | 20091125 | 15.63922 | 313.83148 | 83.48824 | 1.84257 | 0.2089937 | 3.1399986 | 13 | 1 | 23 days | 0.22 | | MPC | | 2009 $WR_{70}$ |
| 2009 $WS_{70}$ | 17.2 | 0.15 | 20091105 | 20.02069 | 315.60623 | 71.33525 | 6.02231 | 0.1710731 | 2.7094433 | 27 | 1 | 55 days | 0.41 | | MPC | | 2009 $WS_{70}$ |
| 2009 $WX_{70}$ | 15.6 | 0.15 | 20100104 | 295.44869 | 265.71378 | 230.88000 | 10.81752 | 0.0163083 | 3.0113621 | 30 | 1 | 90 days | 0.40 | M-v 4 | MPC | | 2009 $WX_{70}$ |
| 2009 $WA_{71}$ | 16.3 | 0.15 | 20091105 | 52.88013 | 126.00580 | 232.16731 | 8.96220 | 0.0822552 | 3.1917940 | 16 | 1 | 36 days | 0.26 | | MPC | | 2009 $WA_{71}$ |
| 2009 $WD_{71}$ | 18.6 | 0.15 | 20091125 | 42.62131 | 289.33467 | 71.20935 | 4.53517 | 0.2067184 | 2.1682589 | 18 | 1 | 31 days | 0.38 | | MPC | | 2009 $WD_{71}$ |
| 2009 $WN_{71}$ | 19.1 | 0.15 | 20091125 | 353.70768 | 6.51152 | 66.64450 | 13.10260 | 0.2059794 | 2.3718994 | 16 | 1 | 38 days | 0.25 | | MPC | | 2009 $WN_{71}$ |
| 2009 $WP_{71}$ | 16.4 | 0.15 | 20091105 | 49.94190 | 125.49776 | 234.28425 | 10.19294 | 0.0976338 | 2.6562078 | 23 | 1 | 37 days | 0.34 | | MPC | | 2009 $WP_{71}$ |
| 2009 $WQ_{71}$ | 16.6 | 0.15 | 20091125 | 324.00638 | 66.91330 | 67.98333 | 15.66168 | 0.3600792 | 3.0480106 | 19 | 1 | 23 days | 0.42 | | MPC | | 2009 $WQ_{71}$ |
| 2009 $WR_{71}$ | 17.7 | 0.15 | 20091125 | 347.81830 | 5.05036 | 74.13166 | 6.99136 | 0.1173856 | 2.2633823 | 21 | 1 | 31 days | 0.32 | | MPC | | 2009 $WR_{71}$ |
| 2009 $WS_{71}$ | 15.6 | 0.15 | 20091125 | 25.11052 | 322.13769 | 73.62400 | 12.04669 | 0.0608359 | 3.0434093 | 20 | 1 | 31 days | 0.33 | | MPC | | 2009 $WS_{71}$ |
| 2009 $WZ_{71}$ | 18.2 | 0.15 | 20091125 | 340.70312 | 234.32617 | 219.86259 | 5.29000 | 0.2591615 | 2.5706026 | 13 | 1 | 30 days | 0.26 | | MPC | | 2009 $WZ_{71}$ |
| 2009 $WA_{72}$ | 18.2 | 0.15 | 20091105 | 67.64877 | 269.16903 | 72.77392 | 7.43559 | 0.0423054 | 2.1600261 | 20 | 1 | 47 days | 0.23 | | MPC | | 2009 $WA_{72}$ |
| 2009 $WC_{72}$ | 17.5 | 0.15 | 20091125 | 352.49625 | 350.70160 | 79.95763 | 6.42895 | 0.1449788 | 2.7786440 | 14 | 1 | 31 days | 0.34 | | MPC | | 2009 $WC_{72}$ |
| 2009 $WG_{72}$ | 17.2 | 0.15 | 20091125 | 51.21532 | 276.44636 | 68.29715 | 13.80608 | 0.2313719 | 2.7295854 | 18 | 1 | 32 days | 0.26 | | MPC | | 2009 $WG_{72}$ |
| 2009 $WR_{72}$ | 15.7 | 0.15 | 20091125 | 137.65277 | 202.79768 | 75.85863 | 10.96049 | 0.0630939 | 3.0963513 | 12 | 1 | 31 days | 0.21 | | MPC | | 2009 $WR_{72}$ |
| 2009 $WT_{72}$ | 17.3 | 0.15 | 20091125 | 18.98483 | 324.62242 | 66.38765 | 18.78484 | 0.2226551 | 3.1090984 | 16 | 1 | 23 days | 0.19 | | MPC | | 2009 $WT_{72}$ |
| 2009 $WB_{73}$ | 15.6 | 0.15 | 20100104 | 146.96788 | 57.45007 | 223.64571 | 7.82198 | 0.0271815 | 2.9879526 | 40 | 3 | 2003–2009 | 0.32 | M-v 2 | MPC | 166018 | 2009 $WB_{73}$ |
| 2009 $WC_{73}$ | 17.9 | 0.15 | 20091125 | 357.52751 | 311.77820 | 114.23660 | 3.06487 | 0.1672684 | 2.5532933 | 19 | 1 | 40 days | 0.23 | | MPC | | 2009 $WC_{73}$ |
| 2009 $WR_{73}$ | 16.2 | 0.15 | 20100104 | 315.01839 | 11.77187 | 109.81399 | 3.24106 | 0.0400815 | 2.9700369 | 36 | 5 | 2001–2009 | 0.25 | M-v 0 | MPC | 166018 | 2009 $WR_{73}$ |
| 2009 $WU_{73}$ | 15.8 | 0.15 | 20091125 | 359.07362 | 353.08963 | 73.21367 | 11.80107 | 0.0380734 | 3.0075155 | 17 | 1 | 28 days | 0.23 | | MPC | | 2009 $WU_{73}$ |
| 2009 $WV_{73}$ | 18.1 | 0.15 | 20091125 | 47.25198 | 208.53856 | 146.57078 | 1.11561 | 0.2235354 | 2.2054776 | 13 | 1 | 36 days | 0.17 | | MPC | | 2009 $WV_{73}$ |
| 2009 $WW_{73}$ | 16.3 | 0.15 | 20100104 | 0.06089 | 323.99216 | 111.39355 | 2.23337 | 0.1470886 | 3.1507843 | 46 | 5 | 2000–2009 | 0.27 | M-v 0 | MPC | 166019 | 2009 $WW_{73}$ |
| 2009 $WY_{73}$ | 15.9 | 0.15 | 20091105 | 56.89331 | 139.98941 | 220.27708 | 5.54295 | 0.0538968 | 3.0791945 | 20 | 1 | 48 days | 0.35 | | MPC | | 2009 $WY_{73}$ |
| 2009 $WF_{74}$ | 16.3 | 0.15 | 20091125 | 32.00521 | 297.90044 | 88.48418 | 5.92703 | 0.1322685 | 2.7582276 | 15 | 1 | 37 days | 0.22 | | MPC | | 2009 $WF_{74}$ |
| 2009 $WG_{74}$ | 17.1 | 0.15 | 20091125 | 28.14170 | 297.05434 | 90.30698 | 3.62605 | 0.1743694 | 2.4035092 | 19 | 1 | 27 days | 0.39 | | MPC | | 2009 $WG_{74}$ |
| 2009 $WK_{74}$ | 16.6 | 0.15 | 20091105 | 27.99478 | 308.17990 | 79.48683 | 10.45769 | 0.0679852 | 3.1318050 | 9 | 1 | 12 days | 0.27 | | MPC | | 2009 $WK_{74}$ |
| 2009 $WW_{74}$ | 16.5 | 0.15 | 20091125 | 30.25250 | 318.61653 | 70.66482 | 15.74263 | 0.0725930 | 2.6892400 | 22 | 1 | 23 days | 0.34 | | MPC | | 2009 $WW_{74}$ |
| 2009 $WA_{75}$ | 17.2 | 0.15 | 20091125 | 320.18731 | 40.55422 | 75.32345 | 12.75448 | 0.1444736 | 2.5695678 | 16 | 1 | 23 days | 0.41 | | MPC | | 2009 $WA_{75}$ |
| 2009 $WM_{75}$ | 17.3 | 0.15 | 20091105 | 25.79654 | 159.23937 | 223.25677 | 8.00107 | 0.1638497 | 2.5548320 | 26 | 1 | 51 days | 0.36 | | MPC | | 2009 $WM_{75}$ |
| 2009 $WN_{75}$ | 15.9 | 0.15 | 20091125 | 93.26607 | 232.47789 | 83.89333 | 9.57041 | 0.1341604 | 2.7733785 | 13 | 1 | 23 days | 0.48 | | MPC | | 2009 $WN_{75}$ |
| 2009 $WQ_{75}$ | 16.6 | 0.15 | 20091125 | 41.81636 | 208.63461 | 166.14458 | 2.47257 | 0.1033588 | 2.6480722 | 19 | 1 | 37 days | 0.32 | | MPC | | 2009 $WQ_{75}$ |
| 2009 $WU_{75}$ | 17.5 | 0.15 | 20091125 | 338.79028 | 1.76161 | 91.19646 | 5.48970 | 0.1336519 | 2.4197530 | 16 | 1 | 37 days | 0.18 | | MPC | | 2009 $WU_{75}$ |
| 2009 $WB_{76}$ | 17.1 | 0.15 | 20100104 | 267.96036 | 70.25194 | 109.12131 | 4.59596 | 0.0948164 | 2.4481674 | 33 | 4 | 1994–2009 | 0.37 | M-v 1 | MPC | 166019 | 2009 $WB_{76}$ |
| 2009 $WF_{76}$ | 17.9 | 0.15 | 20091125 | 156.12903 | 176.72911 | 91.48212 | 6.33017 | 0.0696340 | 2.2142126 | 16 | 1 | 37 days | 0.34 | | MPC | | 2009 $WF_{76}$ |
| 2009 $WX_{76}$ | 18.5 | 0.15 | 20091125 | 20.65187 | 351.66367 | 43.00307 | 8.24902 | 0.2256011 | 2.2314015 | 18 | 1 | 27 days | 0.53 | | MPC | | 2009 $WX_{76}$ |
| 2009 $WY_{76}$ | 17.8 | 0.15 | 20091105 | 1.00685 | 54.30303 | 7.94588 | 4.64826 | 0.0896875 | 2.6432213 | 9 | 1 | 8 days | 0.21 | | MPC | | 2009 $WY_{76}$ |
| 2009 $WR_{77}$ | 17.3 | 0.15 | 20091125 | 181.33369 | 304.34170 | 302.86065 | 3.70789 | 0.0560626 | 2.5548116 | 16 | 1 | 36 days | 0.21 | | MPC | | 2009 $WR_{77}$ |
| 2009 $WF_{78}$ | 16.1 | 0.15 | 20091125 | 338.60523 | 197.45282 | 260.29958 | 13.08433 | 0.1445254 | 2.7314711 | 18 | 1 | 27 days | 0.33 | | MPC | | 2009 $WF_{78}$ |
| 2009 $WG_{78}$ | 16.5 | 0.15 | 20100104 | 51.30943 | 35.38651 | 340.96098 | 2.86381 | 0.1165362 | 3.0540830 | 46 | 5 | 2003–2009 | 0.28 | M-v 0 | MPC | 166019 | 2009 $WG_{78}$ |
| 2009 $WA_{79}$ | 17.0 | 0.15 | 20091105 | 332.57730 | 233.98561 | 204.07808 | 3.19430 | 0.1372234 | 2.7059555 | 12 | 1 | 17 days | 0.51 | | MPC | | 2009 $WA_{79}$ |
| 2009 $WM_{79}$ | 16.9 | 0.15 | 20100104 | 2.62326 | 206.47093 | 235.57929 | 8.27717 | 0.2395044 | 2.8023757 | 32 | 1 | 83 days | 0.29 | M-v 3 | MPC | | 2009 $WM_{79}$ |
| 2009 $WP_{79}$ | 18.2 | 0.15 | 20091125 | 23.14718 | 250.17900 | 142.24929 | 2.13817 | 0.2592107 | 2.6194540 | 10 | 1 | 23 days | 0.42 | | MPC | | 2009 $WP_{79}$ |
| 2009 $WY_{79}$ | 17.0 | 0.15 | 20091125 | 32.10976 | 301.19298 | 87.01625 | 13.73554 | 0.1534998 | 2.7677805 | 13 | 1 | 23 days | 0.20 | | MPC | | 2009 $WY_{79}$ |
| 2009 $WD_{80}$ | 17.3 | 0.15 | 20100104 | 58.27262 | 90.34844 | 286.53379 | 6.23982 | 0.1081422 | 2.2811286 | 24 | 3 | 2005–2009 | 0.22 | M-v 3 | MPC | 166020 | 2009 $WD_{80}$ |
| 2009 $WK_{80}$ | 17.1 | 0.15 | 20091125 | 46.34071 | 86.76056 | 281.70544 | 7.07591 | 0.2124435 | 2.5829839 | 16 | 1 | 32 days | 0.19 | | MPC | | 2009 $WK_{80}$ |
| 2009 $WR_{81}$ | 14.5 | 0.15 | 20091105 | 352.36642 | 303.38768 | 124.00782 | 12.53138 | 0.1198776 | 3.4881741 | 12 | 1 | 4 days | 0.58 | | MPC | | 2009 $WR_{81}$ |
| 2009 $WW_{81}$ | 16.6 | 0.15 | 20100104 | 3.58423 | 311.22147 | 119.60568 | 8.61031 | 0.2976415 | 3.1989899 | 25 | 2 | 2003–2009 | 0.48 | M-v 3 | MPC | 166020 | 2009 $WW_{81}$ |
| 2009 $WS_{82}$ | 17.1 | 0.15 | 20091125 | 9.03948 | 145.24102 | 261.12394 | 14.23830 | 0.2484342 | 2.9790109 | 17 | 1 | 29 days | 0.24 | | MPC | | 2009 $WS_{82}$ |
| 2009 $WC_{83}$ | 18.6 | 0.15 | 20091105 | 16.10024 | 41.12064 | 349.55370 | 4.15053 | 0.1567560 | 2.2793628 | 13 | 1 | 27 days | 0.17 | | MPC | | 2009 $WC_{83}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2009 $WJ_{83}$ | 15.7 | 0.15 | 20091105 | 44.11363 | 85.55506 | 271.89790 | 8.68768 | 0.1512347 | 2.9307074 | 31 | 1 | 54 days | 0.39 | | | MPC | | 2009 $WJ_{83}$ |
| 2009 $WO_{83}$ | 16.9 | 0.15 | 20091125 | 36.07969 | 100.43332 | 268.80186 | 10.01240 | 0.1831383 | 3.1286581 | 13 | 1 | 38 days | 0.20 | | | MPC | | 2009 $WO_{83}$ |
| 2009 $WK_{84}$ | 15.9 | 0.15 | 20100104 | 154.43242 | 4.95555 | 265.17669 | 10.17310 | 0.1240746 | 2.7049920 | 34 | 4 | 2003–2009 | 0.36 | M-v | 2 | MPC | 166020 | 2009 $WK_{84}$ |
| 2009 $WW_{85}$ | 17.4 | 0.15 | 20100104 | 86.09433 | 306.23677 | 29.09982 | 7.54352 | 0.1419562 | 2.2828712 | 35 | 4 | 1997–2009 | 0.52 | M-v | 1 | MPC | 166021 | 2009 $WW_{85}$ |
| 2009 $WY_{85}$ | 16.4 | 0.15 | 20091125 | 328.15709 | 194.03945 | 279.49569 | 7.04333 | 0.2046977 | 2.7331907 | 24 | 1 | 27 days | 0.38 | | | MPC | | 2009 $WY_{85}$ |
| 2009 $WF_{86}$ | 17.5 | 0.15 | 20091125 | 31.53500 | 121.66593 | 250.75025 | 30.22326 | 0.2669908 | 2.5905530 | 16 | 1 | 28 days | 0.26 | | | MPC | | 2009 $WF_{86}$ |
| 2009 $WG_{86}$ | 18.1 | 0.15 | 20091105 | 22.77785 | 24.65164 | 3.60430 | 4.24611 | 0.1720573 | 2.5905732 | 9 | 1 | 12 days | 0.29 | | | MPC | | 2009 $WG_{86}$ |
| 2009 $WC_{87}$ | 15.9 | 0.15 | 20100104 | 250.65942 | 138.37780 | 52.76141 | 17.29490 | 0.0847905 | 3.0856119 | 23 | 3 | 2003–2009 | 0.33 | M-v | 2 | MPC | 166021 | 2009 $WC_{87}$ |
| 2009 $WT_{87}$ | 17.4 | 0.15 | 20100104 | 2.47601 | 71.48640 | 3.16088 | 3.26408 | 0.0803837 | 2.6276618 | 29 | 2 | 2005–2009 | 0.32 | M-v | 4 | MPC | 166022 | 2009 $WT_{87}$ |
| 2009 $WE_{88}$ | 16.6 | 0.15 | 20091105 | 229.47863 | 156.04999 | 50.36180 | 12.83807 | 0.1450668 | 2.6457076 | 9 | 1 | 8 days | 0.30 | | | MPC | | 2009 $WE_{88}$ |
| 2009 $WH_{88}$ | 17.3 | 0.15 | 20091125 | 139.65250 | 120.48519 | 168.69994 | 2.35775 | 0.0125211 | 2.6715188 | 17 | 1 | 22 days | 0.21 | | | MPC | | 2009 $WH_{88}$ |
| 2009 $WJ_{88}$ | 16.7 | 0.15 | 20100104 | 228.15881 | 71.45218 | 139.76165 | 2.77976 | 0.0159833 | 2.8455549 | 31 | 4 | 2002–2009 | 0.33 | M-v | 0 | MPC | 166022 | 2009 $WJ_{88}$ |
| 2009 $WM_{88}$ | 17.9 | 0.15 | 20091105 | 36.18779 | 154.96689 | 218.78441 | 3.65397 | 0.1422078 | 2.1924252 | 20 | 1 | 56 days | 0.15 | | | MPC | | 2009 $WM_{88}$ |
| 2009 $WO_{88}$ | 17.6 | 0.15 | 20091125 | 17.65426 | 308.74591 | 94.27312 | 3.97623 | 0.1826429 | 2.4189711 | 25 | 1 | 26 days | 0.27 | | | MPC | | 2009 $WO_{88}$ |
| 2009 $WS_{88}$ | 15.8 | 0.15 | 20091125 | 348.71359 | 5.27164 | 77.88182 | 17.18128 | 0.0646854 | 3.0025218 | 20 | 1 | 22 days | 0.39 | | | MPC | | 2009 $WS_{88}$ |
| 2009 $WT_{88}$ | 18.9 | 0.15 | 20091125 | 5.20773 | 235.31867 | 186.45201 | 1.71959 | 0.1415906 | 2.2564533 | 18 | 1 | 22 days | 0.21 | | | MPC | | 2009 $WT_{88}$ |
| 2009 $WU_{88}$ | 17.2 | 0.15 | 20091125 | 329.88093 | 314.61188 | 156.27803 | 2.45328 | 0.1575573 | 2.6861580 | 13 | 1 | 22 days | 0.23 | | | MPC | | 2009 $WU_{88}$ |
| 2009 $WX_{88}$ | 17.7 | 0.15 | 20091125 | 18.00896 | 313.69017 | 89.03273 | 4.61588 | 0.1955643 | 2.4235956 | 14 | 1 | 22 days | 0.19 | | | MPC | | 2009 $WX_{88}$ |
| 2009 $WA_{89}$ | 17.1 | 0.15 | 20091125 | 63.20696 | 122.05286 | 226.31081 | 5.43942 | 0.1815665 | 2.5322320 | 13 | 1 | 22 days | 0.18 | | | MPC | | 2009 $WA_{89}$ |
| 2009 $WM_{89}$ | 16.4 | 0.15 | 20091125 | 48.43270 | 278.19545 | 78.99118 | 15.91055 | 0.2282928 | 2.7169207 | 19 | 1 | 26 days | 0.32 | | | MPC | | 2009 $WM_{89}$ |
| 2009 $WO_{89}$ | 16.5 | 0.15 | 20091125 | 180.31962 | 165.35491 | 84.42188 | 13.26000 | 0.1271031 | 2.5993000 | 12 | 1 | 22 days | 0.19 | | | MPC | | 2009 $WO_{89}$ |
| 2009 $WT_{89}$ | 15.9 | 0.15 | 20100104 | 335.07212 | 233.47429 | 232.70556 | 12.64980 | 0.0393702 | 3.0320708 | 14 | 1 | 72 days | 0.46 | M-v | 4 | MPC | | 2009 $WT_{89}$ |
| 2009 $WB_{90}$ | 16.0 | 0.15 | 20091125 | 50.36592 | 105.54365 | 266.99344 | 15.89224 | 0.1087329 | 3.0454838 | 10 | 1 | 22 days | 0.30 | | | MPC | | 2009 $WB_{90}$ |
| 2009 $WE_{90}$ | 18.4 | 0.15 | 20091125 | 14.39285 | 19.11528 | 28.74065 | 5.03475 | 0.2637692 | 2.7340568 | 9 | 1 | 29 days | 0.39 | | | MPC | | 2009 $WE_{90}$ |
| 2009 $WW_{90}$ | 18.3 | 0.15 | 20091125 | 340.88741 | 77.10000 | 20.47622 | 2.67242 | 0.1136771 | 2.3113174 | 13 | 1 | 24 days | 0.15 | | | MPC | | 2009 $WW_{90}$ |
| 2009 $WO_{92}$ | 17.1 | 0.15 | 20091125 | 0.22571 | 350.59127 | 87.53951 | 14.06632 | 0.1487477 | 2.5962996 | 13 | 1 | 28 days | 0.28 | | | MPC | | 2009 $WO_{92}$ |
| 2009 $WS_{92}$ | 19.1 | 0.15 | 20091125 | 19.67400 | 131.96275 | 258.26931 | 11.87711 | 0.2138595 | 2.3354210 | 13 | 1 | 28 days | 0.20 | | | MPC | | 2009 $WS_{92}$ |
| 2009 $WM_{93}$ | 17.2 | 0.15 | 20091125 | 351.42884 | 351.47529 | 82.89075 | 10.85231 | 0.2613678 | 2.8013045 | 23 | 1 | 30 days | 0.47 | | | MPC | | 2009 $WM_{93}$ |
| 2009 $WZ_{93}$ | 17.5 | 0.15 | 20100104 | 14.08668 | 314.03685 | 100.87305 | 6.90823 | 0.2278717 | 2.5780941 | 15 | 1 | 73 days | 0.32 | M-v | 5 | MPC | | 2009 $WZ_{93}$ |
| 2009 $WG_{94}$ | 14.4 | 0.15 | 20091125 | 42.38529 | 129.05086 | 237.36725 | 15.03150 | 0.1146314 | 5.1656822 | 14 | 1 | 21 days | 0.30 | | | MPC | | 2009 $WG_{94}$ |
| 2009 $WU_{94}$ | 17.2 | 0.15 | 20091105 | 24.19578 | 256.71261 | 106.49955 | 3.07453 | 0.2238017 | 2.6307166 | 24 | 1 | 36 days | 0.52 | | | MPC | | 2009 $WU_{94}$ |
| 2009 $WH_{95}$ | 16.9 | 0.15 | 20091125 | 21.21190 | 289.21590 | 96.11622 | 14.35541 | 0.3601964 | 2.6289314 | 24 | 1 | 31 days | 0.66 | | | MPC | | 2009 $WH_{95}$ |
| 2009 $WK_{95}$ | 16.7 | 0.15 | 20091105 | 35.90962 | 308.12646 | 66.46185 | 6.71760 | 0.0501314 | 2.7668313 | 19 | 1 | 49 days | 0.23 | | | MPC | | 2009 $WK_{95}$ |
| 2009 $WN_{95}$ | 16.8 | 0.15 | 20100104 | 31.81906 | 325.12947 | 60.65285 | 17.54468 | 0.1562570 | 2.9706609 | 23 | 1 | 66 days | 0.25 | M-v | 4 | MPC | | 2009 $WN_{95}$ |
| 2009 $WO_{95}$ | 18.1 | 0.15 | 20100104 | 355.43347 | 11.78780 | 65.31342 | 9.12808 | 0.0694850 | 2.3233010 | 19 | 1 | 60 days | 0.25 | M-v | 4 | MPC | | 2009 $WO_{95}$ |
| 2009 $WK_{96}$ | 14.0 | 0.15 | 20091105 | 35.21605 | 150.55635 | 225.22959 | 2.50892 | 0.0775293 | 5.1229131 | 18 | 1 | 48 days | 0.30 | | | MPC | | 2009 $WK_{96}$ |
| 2009 $WQ_{96}$ | 14.0 | 0.15 | 20091125 | 294.83825 | 60.32591 | 67.30467 | 2.71281 | 0.0372287 | 5.2938154 | 12 | 1 | 21 days | 0.19 | | | MPC | | 2009 $WQ_{96}$ |
| 2009 $WS_{96}$ | 19.2 | 0.15 | 20091125 | 22.75780 | 325.43932 | 62.66129 | 5.57070 | 0.1677138 | 2.2128345 | 19 | 1 | 27 days | 0.30 | | | MPC | | 2009 $WS_{96}$ |
| 2009 $WY_{96}$ | 18.4 | 0.15 | 20100104 | 52.53866 | 140.86687 | 220.41974 | 4.06196 | 0.2174210 | 2.1387042 | 30 | 1 | 89 days | 0.29 | M-v | 4 | MPC | | 2009 $WY_{96}$ |
| 2009 $WN_{97}$ | 17.2 | 0.15 | 20091125 | 292.04449 | 44.21791 | 116.06575 | 4.77314 | 0.1657336 | 2.7300728 | 11 | 1 | 21 days | 0.40 | | | MPC | | 2009 $WN_{97}$ |
| 2009 $WL_{98}$ | 16.2 | 0.15 | 20091105 | 24.52140 | 346.45891 | 28.91221 | 9.73230 | 0.1391017 | 3.0673461 | 13 | 1 | 15 days | 0.61 | | | MPC | | 2009 $WL_{98}$ |
| 2009 $WX_{98}$ | 17.2 | 0.15 | 20091105 | 24.49193 | 59.24533 | 312.28304 | 2.68051 | 0.2076917 | 2.5933856 | 10 | 1 | 15 days | 0.28 | | | MPC | | 2009 $WX_{98}$ |
| 2009 $WY_{98}$ | 18.8 | 0.15 | 20091105 | 342.50761 | 36.72618 | 35.34833 | 5.43893 | 0.1485552 | 2.2094054 | 12 | 1 | 15 days | 0.48 | | | MPC | | 2009 $WY_{98}$ |
| 2009 $WD_{99}$ | 17.8 | 0.15 | 20091105 | 42.89139 | 291.26129 | 39.75819 | 12.06183 | 0.3187124 | 2.6407222 | 21 | 1 | 39 days | 0.46 | | | MPC | | 2009 $WD_{99}$ |
| 2009 $WK_{99}$ | 18.7 | 0.15 | 20091105 | 352.31186 | 11.91408 | 48.82323 | 14.11192 | 0.2464239 | 2.5857589 | 21 | 1 | 58 days | 0.26 | | | MPC | | 2009 $WK_{99}$ |
| 2009 $WO_{99}$ | 16.1 | 0.15 | 20091105 | 77.20721 | 276.79305 | 46.17229 | 9.69487 | 0.0842832 | 3.1645042 | 17 | 1 | 36 days | 0.37 | | | MPC | | 2009 $WO_{99}$ |
| 2009 $WA_{100}$ | 17.4 | 0.15 | 20091125 | 289.21800 | 230.11238 | 290.45068 | 2.74657 | 0.1847448 | 2.5655546 | 17 | 1 | 37 days | 0.30 | | | MPC | | 2009 $WA_{100}$ |
| 2009 $WO_{100}$ | 17.6 | 0.15 | 20091105 | 32.16292 | 262.45310 | 91.31873 | 1.39854 | 0.2692569 | 3.0027831 | 13 | 1 | 36 days | 0.30 | | | MPC | | 2009 $WO_{100}$ |
| 2009 $WR_{100}$ | 16.8 | 0.15 | 20091105 | 320.49643 | 55.42706 | 55.46084 | 13.44734 | 0.2444141 | 3.0958343 | 26 | 1 | 48 days | 0.50 | | | MPC | | 2009 $WR_{100}$ |
| 2009 $WX_{100}$ | 17.9 | 0.15 | 20091125 | 334.66638 | 25.57142 | 68.87474 | 13.90591 | 0.1495081 | 2.6140391 | 18 | 1 | 32 days | 0.30 | | | MPC | | 2009 $WX_{100}$ |
| 2009 $WB_{101}$ | 17.5 | 0.15 | 20091125 | 351.37314 | 4.60032 | 69.19385 | 14.84746 | 0.1928022 | 2.7218745 | 14 | 1 | 19 days | 0.22 | | | MPC | | 2009 $WB_{101}$ |
| 2009 $WL_{101}$ | 15.6 | 0.15 | 20091105 | 13.40103 | 150.01869 | 240.59529 | 8.01543 | 0.0676369 | 3.1816290 | 20 | 1 | 15 days | 0.41 | | | MPC | | 2009 $WL_{101}$ |
| 2009 $WP_{101}$ | 16.4 | 0.15 | 20091105 | 299.58424 | 271.57651 | 221.13375 | 7.10051 | 0.1729541 | 2.7789565 | 11 | 1 | 15 days | 0.46 | | | MPC | | 2009 $WP_{101}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2009 $WQ_{101}$ | 19.2 | 0.15 | 20091105 | 306.23905 | 237.34965 | 236.32751 | 19.65774 | 0.0818308 | 1.9558817 | 14 | 1 | 15 days | 0.36 | | | MPC | | 2009 $WQ_{101}$ |
| 2009 $WV_{101}$ | 17.1 | 0.15 | 20091125 | 40.27719 | 259.00194 | 99.83903 | 2.87748 | 0.2311144 | 2.3297099 | 26 | 1 | 40 days | 0.53 | | | MPC | | 2009 $WV_{101}$ |
| 2009 $WK_{102}$ | 15.9 | 0.15 | 20091105 | 356.07447 | 292.11617 | 131.09211 | 9.77458 | 0.1876009 | 3.1055625 | 14 | 1 | 15 days | 0.65 | | | MPC | | 2009 $WK_{102}$ |
| 2009 $WW_{102}$ | 16.2 | 0.15 | 20091125 | 344.98137 | 7.95902 | 82.04307 | 15.92221 | 0.0522508 | 3.2181781 | 16 | 1 | 27 days | 0.26 | | | MPC | | 2009 $WW_{102}$ |
| 2009 $WX_{102}$ | 17.0 | 0.15 | 20091125 | 281.25191 | 10.01251 | 161.69614 | 2.60145 | 0.1758735 | 2.5764936 | 10 | 1 | 19 days | 0.14 | | | MPC | | 2009 $WX_{102}$ |
| 2009 $WZ_{102}$ | 18.1 | 0.15 | 20091105 | 351.93532 | 218.89092 | 215.23573 | 4.25148 | 0.1398387 | 2.2260308 | 9 | 1 | 13 days | 0.08 | | | MPC | | 2009 $WZ_{102}$ |
| 2009 $WS_{103}$ | 17.2 | 0.15 | 20091105 | 356.58082 | 31.69177 | 27.47566 | 10.67162 | 0.0580158 | 3.0542101 | 11 | 1 | 14 days | 0.20 | | | MPC | | 2009 $WS_{103}$ |
| 2009 $WB_{104}$ | 16.3 | 0.15 | 20091125 | 277.32576 | 126.81273 | 25.11810 | 13.43324 | 0.1075781 | 2.6114218 | 24 | 1 | 40 days | 0.42 | | | MPC | | 2009 $WB_{104}$ |
| 2009 $WD_{104}$ | 15.6 | 0.15 | 20091125 | 253.81662 | 289.22315 | 255.08680 | 29.98734 | 0.1390588 | 2.7150126 | 22 | 1 | 22 days | 0.53 | | | MPC | | 2009 $WD_{104}$ |
| 2009 $WF_{104}$ | 16.9 | 0.15 | 20100104 | 332.46068 | 94.06100 | 81.97963 | 17.00381 | 0.6580245 | 3.0747600 | 40 | 1 | 33 days | 0.38 | M-v | 5 | MPC | 166422 | 2009 $WF_{104}$ |
| 2009 $WG_{104}$ | 20.1 | 0.15 | 20100104 | 45.96988 | 103.44099 | 261.99646 | 15.70395 | 0.3051744 | 1.6857811 | 33 | 1 | 26 days | 0.43 | M-v | 5 | MPC | 166422 | 2009 $WG_{104}$ |
| 2009 $WH_{104}$ | 21.1 | 0.15 | 20100104 | 23.98426 | 122.65313 | 243.44053 | 16.44075 | 0.5513542 | 2.5853356 | 38 | 1 | 25 days | 0.48 | M-v | 6 | MPC | 166422 | 2009 $WH_{104}$ |
| 2009 $WU_{104}$ | 16.1 | 0.15 | 20091125 | 293.35353 | 127.41345 | 11.32010 | 11.88271 | 0.0278477 | 3.1045616 | 10 | 1 | 19 days | 0.33 | | | MPC | | 2009 $WU_{104}$ |
| 2009 $WV_{104}$ | 15.5 | 0.15 | 20091125 | 353.18085 | 150.52662 | 266.35106 | 8.62992 | 0.0973509 | 3.0902682 | 22 | 1 | 42 days | 0.56 | | | MPC | | 2009 $WV_{104}$ |
| 2009 $WW_{104}$ | 22.6 | 0.15 | 20100104 | 53.99808 | 84.62462 | 254.81655 | 7.08230 | 0.4621124 | 1.5271553 | 25 | 1 | 24 days | 0.45 | M-v | 6 | MPC | 166422 | 2009 $WW_{104}$ |
| 2009 $WZ_{104}$ | 20.5 | 0.15 | 20100104 | 184.51752 | 10.47536 | 263.36791 | 9.83842 | 0.1925862 | 0.8555945 | 268 | 1 | 33 days | 0.28 | M-v | 6 | MPC | 166422 | 2009 $WZ_{104}$ |
| 2009 $WA_{105}$ | 24.0 | 0.15 | 20100104 | 8.86547 | 7.98381 | 58.24810 | 7.99853 | 0.5936855 | 2.5310780 | 42 | 1 | 10 days | 0.32 | M-v | 6 | MPC | 166422 | 2009 $WA_{105}$ |
| 2009 $WB_{105}$ | 23.3 | 0.15 | 20100104 | 251.01233 | 347.65205 | 242.63566 | 38.39693 | 0.2526002 | 0.8252011 | 34 | 1 | 4 days | 0.37 | M-v | 8 | MPC | 166422 | 2009 $WB_{105}$ |
| 2009 $WJ_{105}$ | 18.5 | 0.15 | 20100104 | 16.53534 | 181.88728 | 241.70594 | 19.15760 | 0.0998085 | 1.8233915 | 28 | 2 | 2004–2009 | 0.53 | M-v | 3 | MPC | 166023 | 2009 $WJ_{105}$ |
| 2009 $WM_{105}$ | 23.0 | 0.15 | 20100104 | 227.09445 | 198.01813 | 45.78656 | 9.23341 | 0.1559482 | 0.9005697 | 22 | 1 | 22 days | 0.54 | M-v | 7 | MPC | 166422 | 2009 $WM_{105}$ |
| 2009 $WN_{105}$ | 22.4 | 0.15 | 20100104 | 356.84867 | 34.54291 | 76.09529 | 13.93153 | 0.5485596 | 2.6102759 | 27 | 1 | 32 days | 0.43 | M-v | 5 | MPC | 166422 | 2009 $WN_{105}$ |
| 2009 $WO_{105}$ | 16.8 | 0.15 | 20091125 | 6.94159 | 69.63060 | 327.53179 | 11.89343 | 0.1952892 | 2.5960727 | 9 | 1 | 29 days | 0.35 | | | MPC | | 2009 $WO_{105}$ |
| 2009 $WP_{105}$ | 18.1 | 0.15 | 20091125 | 339.52916 | 176.03135 | 275.90672 | 9.96249 | 0.1316338 | 2.2929905 | 15 | 1 | 23 days | 0.27 | | | MPC | | 2009 $WP_{105}$ |
| 2009 $WR_{105}$ | 18.6 | 0.15 | 20091125 | 28.28122 | 161.45091 | 219.36292 | 1.89907 | 0.2188058 | 2.3751689 | 16 | 1 | 30 days | 0.37 | | | MPC | | 2009 $WR_{105}$ |
| 2009 $WS_{105}$ | 15.2 | 0.15 | 20091125 | 316.70118 | 11.02099 | 108.73520 | 6.62024 | 0.1144290 | 3.1777289 | 24 | 1 | 18 days | 0.43 | | | MPC | | 2009 $WS_{105}$ |
| 2009 $WU_{105}$ | 16.1 | 0.15 | 20091125 | 5.97049 | 320.58649 | 99.21659 | 7.74989 | 0.0358897 | 2.7386799 | 16 | 1 | 16 days | 0.54 | | | MPC | | 2009 $WU_{105}$ |
| 2009 $WX_{105}$ | 17.4 | 0.15 | 20091125 | 338.11429 | 31.65764 | 71.39944 | 42.04335 | 0.2525609 | 2.3873083 | 31 | 1 | 10 days | 0.26 | | | MPC | | 2009 $WX_{105}$ |
| 2009 $WY_{105}$ | 13.7 | 0.15 | 20091105 | 316.60916 | 132.33627 | 318.20632 | 7.78182 | 0.0872045 | 5.2417924 | 14 | 1 | 57 days | 0.40 | | | MPC | | 2009 $WY_{105}$ |
| 2009 $WZ_{105}$ | 16.9 | 0.15 | 20100104 | 25.60156 | 329.44461 | 105.26428 | 6.07732 | 0.1555622 | 2.4339406 | 40 | 2 | 2005–2009 | 0.35 | M-v | 3 | MPC | 166023 | 2009 $WZ_{105}$ |
| 2009 $WF_{106}$ | 20.1 | 0.15 | 20100104 | 352.55116 | 102.47144 | 76.84852 | 36.77636 | 0.7094367 | 2.0988330 | 48 | 1 | 9 days | 0.57 | M-v | 8 | MPC | 166422 | 2009 $WF_{106}$ |
| 2009 $WG_{106}$ | 25.5 | 0.15 | 20100104 | 33.96270 | 149.34414 | 252.98359 | 2.40228 | 0.3131543 | 1.4152621 | 44 | 1 | 31 days | 0.46 | M-v | 6 | MPC | 166422 | 2009 $WG_{106}$ |
| 2009 $WH_{106}$ | 22.5 | 0.15 | 20100104 | 18.19435 | 98.34189 | 278.63621 | 2.91696 | 0.6202189 | 2.4972691 | 46 | 1 | 30 days | 0.55 | M-v | 6 | MPC | 166422 | 2009 $WH_{106}$ |
| 2009 $WN_{106}$ | 24.8 | 0.15 | 20100104 | 10.59273 | 24.58555 | 62.01732 | 11.42450 | 0.3162273 | 1.4742010 | 34 | 1 | 9 days | 0.39 | M-v | 6 | MPC | 166422 | 2009 $WN_{106}$ |
| 2009 $WO_{106}$ | 19.1 | 0.15 | 20100104 | 41.73642 | 134.59581 | 281.79168 | 17.34745 | 0.3856495 | 1.3751916 | 28 | 1 | 22 days | 0.53 | M-v | 6 | MPC | | 2009 $WO_{106}$ |
| 2009 $WP_{106}$ | 25.2 | 0.15 | 20100104 | 14.35920 | 198.17180 | 241.31199 | 9.85877 | 0.2777829 | 1.3956279 | 24 | 1 | 4 days | 0.33 | M-v | 6 | MPC | 166422 | 2009 $WP_{106}$ |
| 2009 $WG_{113}$ | 17.7 | 0.15 | 20100104 | 33.66038 | 139.38284 | 226.76143 | 4.97878 | 0.1847084 | 2.3397684 | 26 | 1 | 81 days | 0.31 | M-v | 3 | MPC | | 2009 $WG_{113}$ |
| 2009 $WM_{113}$ | 17.3 | 0.15 | 20100104 | 332.49031 | 48.12601 | 34.21489 | 5.89826 | 0.1430907 | 2.6980383 | 22 | 1 | 67 days | 0.33 | M-v | 4 | MPC | | 2009 $WM_{113}$ |
| 2009 $WR_{124}$ | 18.7 | 0.15 | 20091125 | 336.83035 | 226.68741 | 245.67127 | 11.70759 | 0.3141613 | 2.6403006 | 26 | 1 | 22 days | 0.31 | | | MPC | | 2009 $WR_{124}$ |
| 2009 $WY_{125}$ | 18.1 | 0.15 | 20091125 | 60.17573 | 125.01711 | 230.97723 | 4.26924 | 0.1095456 | 2.1624830 | 36 | 1 | 37 days | 0.50 | | | MPC | | 2009 $WY_{125}$ |
| 2009 $WO_{130}$ | 17.2 | 0.15 | 20091125 | 99.94506 | 70.85131 | 247.50088 | 9.51999 | 0.0057459 | 2.2420339 | 22 | 1 | 27 days | 0.21 | | D | MPC | | 2009 $WO_{130}$ |
| 2009 $WZ_{133}$ | 15.7 | 0.15 | 20091105 | 7.16669 | 335.87965 | 66.03494 | 11.59771 | 0.0796706 | 3.1159355 | 23 | 1 | 34 days | 0.56 | | | MPC | | 2009 $WZ_{133}$ |
| 2009 $WH_{138}$ | 18.2 | 0.15 | 20091105 | 0.18261 | 231.09635 | 180.20158 | 2.91148 | 0.1369407 | 2.1606890 | 22 | 1 | 32 days | 0.50 | | | MPC | | 2009 $WH_{138}$ |
| 2009 $WG_{139}$ | 16.1 | 0.15 | 20091125 | 338.28869 | 304.13095 | 157.63574 | 5.29766 | 0.2023970 | 2.9869814 | 18 | 1 | 22 days | 0.57 | | | MPC | | 2009 $WG_{139}$ |
| 2009 $WH_{139}$ | 16.1 | 0.15 | 20091125 | 30.42102 | 351.00372 | 20.72454 | 11.50705 | 0.1906848 | 3.0773745 | 25 | 1 | 31 days | 0.59 | | | MPC | | 2009 $WH_{139}$ |
| 2009 $WK_{139}$ | 15.2 | 0.15 | 20091125 | 32.00813 | 99.11553 | 272.41480 | 14.41433 | 0.2756693 | 3.1147185 | 19 | 1 | 24 days | 0.69 | | | MPC | | 2009 $WK_{139}$ |
| 2009 $WM_{139}$ | 18.6 | 0.15 | 20100104 | 14.36084 | 265.37835 | 127.46850 | 20.78252 | 0.5032668 | 2.3898855 | 35 | 1 | 161 days | 0.29 | M-v | 3 | MPC | 166423 | 2009 $WM_{139}$ |
| 2009 $WN_{139}$ | 16.2 | 0.15 | 20091125 | 30.11299 | 8.39221 | 24.11694 | 9.55382 | 0.0718569 | 3.0563630 | 13 | 1 | 13 days | 0.25 | | | MPC | | 2009 $WN_{139}$ |
| 2009 $WH_{142}$ | 17.8 | 0.15 | 20091125 | 20.95119 | 134.28727 | 256.95822 | 14.60712 | 0.1838740 | 2.5835969 | 14 | 1 | 29 days | 0.36 | | | MPC | | 2009 $WH_{142}$ |
| 2009 $WO_{142}$ | 17.7 | 0.15 | 20091125 | 49.29134 | 88.53923 | 264.04899 | 7.87652 | 0.1997145 | 2.2929125 | 14 | 1 | 30 days | 0.25 | | | MPC | | 2009 $WO_{142}$ |
| 2009 $WP_{142}$ | 17.2 | 0.15 | 20091105 | 344.60922 | 192.25970 | 230.34759 | 20.92249 | 0.2001499 | 2.4323146 | 27 | 1 | 45 days | 0.47 | | | MPC | | 2009 $WP_{142}$ |
| 2009 $WF_{149}$ | 17.3 | 0.15 | 20100104 | 38.89281 | 168.25038 | 207.08789 | 8.59231 | 0.1947846 | 2.5808818 | 20 | 1 | 64 days | 0.50 | M-v | 5 | MPC | | 2009 $WF_{149}$ |
| 2009 $WG_{152}$ | 13.0 | 0.15 | 20091105 | 173.50024 | 348.70290 | 251.85218 | 29.20825 | 0.0052157 | 5.2183028 | 16 | 1 | 29 days | 0.14 | | | MPC | | 2009 $WG_{152}$ |
| 2009 $WQ_{152}$ | 16.7 | 0.15 | 20091105 | 44.06275 | 41.29016 | 302.84947 | 5.80629 | 0.2511847 | 2.5277587 | 19 | 1 | 32 days | 0.49 | | | MPC | | 2009 $WQ_{152}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2009 $WU_{152}$ | 15.8 | 0.15 | 20091105 | 312.91765 | 187.25733 | 290.91005 | 7.52064 | 0.1686001 | 3.1623504 | 12 | 1 | 15 days | 0.46 | MPC | 2009 $WU_{152}$ |
| 2009 $WN_{155}$ | 15.7 | 0.15 | 20091125 | 32.42963 | 280.73472 | 90.30632 | 16.21183 | 0.2587542 | 3.1361617 | 18 | 1 | 23 days | 0.34 | MPC | 2009 $WN_{155}$ |
| 2009 $WF_{156}$ | 17.4 | 0.15 | 20091125 | 21.55879 | 312.86312 | 71.43890 | 3.56202 | 0.3485724 | 3.0310865 | 16 | 1 | 25 days | 0.27 | MPC | 2009 $WF_{156}$ |
| 2009 $WQ_{156}$ | 17.0 | 0.15 | 20091105 | 256.59822 | 305.99855 | 234.16015 | 11.92042 | 0.1928485 | 2.6928748 | 10 | 1 | 16 days | 0.19 | MPC | 2009 $WQ_{156}$ |
| 2009 $WX_{156}$ | 17.6 | 0.15 | 20091105 | 34.64993 | 350.64296 | 7.55294 | 6.60243 | 0.2193041 | 2.2333762 | 19 | 1 | 7 days | 0.35 | MPC | 2009 $WX_{156}$ |
| 2009 $WD_{159}$ | 17.6 | 0.15 | 20091125 | 51.10179 | 268.91943 | 97.21315 | 5.83854 | 0.1607849 | 2.3461293 | 11 | 1 | 21 days | 0.28 | MPC | 2009 $WD_{159}$ |
| 2009 $WK_{159}$ | 17.3 | 0.15 | 20091125 | 345.28592 | 12.96443 | 74.83328 | 8.34346 | 0.2348465 | 2.6963394 | 21 | 1 | 20 days | 0.48 | MPC | 2009 $WK_{159}$ |
| 2009 $WL_{159}$ | 18.0 | 0.15 | 20091125 | 30.22486 | 289.05108 | 86.73086 | 5.07541 | 0.2648061 | 2.3289891 | 23 | 1 | 26 days | 0.35 | MPC | 2009 $WL_{159}$ |
| 2009 $WR_{159}$ | 16.2 | 0.15 | 20091125 | 276.85341 | 268.17748 | 256.77668 | 12.20686 | 0.1939079 | 3.0914869 | 20 | 1 | 38 days | 0.42 | MPC | 2009 $WR_{159}$ |
| 2009 $WY_{159}$ | 16.2 | 0.15 | 20091125 | 329.21361 | 60.57116 | 38.83455 | 6.40703 | 0.1325587 | 3.0563114 | 13 | 1 | 26 days | 0.20 | MPC | 2009 $WY_{159}$ |
| 2009 $WE_{160}$ | 18.3 | 0.15 | 20091125 | 342.74470 | 161.81427 | 283.27923 | 2.08434 | 0.1581899 | 2.2953400 | 20 | 1 | 40 days | 0.28 | MPC | 2009 $WE_{160}$ |
| 2009 $WK_{160}$ | 17.7 | 0.15 | 20091105 | 34.80975 | 91.41002 | 254.52701 | 9.22879 | 0.2805976 | 2.3819031 | 21 | 1 | 43 days | 0.42 | MPC | 2009 $WK_{160}$ |
| 2009 $WH_{161}$ | 18.7 | 0.15 | 20091125 | 27.91038 | 145.52571 | 249.53161 | 20.54761 | 0.0533419 | 1.8775597 | 19 | 1 | 28 days | 0.39 | MPC | 2009 $WH_{161}$ |
| 2009 $WT_{161}$ | 14.7 | 0.15 | 20091125 | 254.42881 | 296.79558 | 255.03058 | 25.61467 | 0.1560725 | 3.1298897 | 20 | 1 | 36 days | 0.29 | MPC | 2009 $WT_{161}$ |
| 2009 $WY_{161}$ | 16.9 | 0.15 | 20091125 | 42.41852 | 70.12259 | 293.63973 | 2.68822 | 0.2426037 | 2.5692885 | 13 | 1 | 24 days | 0.23 | MPC | 2009 $WY_{161}$ |
| 2009 $WZ_{161}$ | 17.9 | 0.15 | 20091125 | 40.64917 | 106.09510 | 271.08728 | 4.17381 | 0.1352451 | 2.3317251 | 13 | 1 | 28 days | 0.28 | MPC | 2009 $WZ_{161}$ |
| 2009 $WC_{162}$ | 17.9 | 0.15 | 20091125 | 34.55048 | 342.65881 | 30.53337 | 2.92095 | 0.2594986 | 2.7166367 | 10 | 1 | 27 days | 0.24 | MPC | 2009 $WC_{162}$ |
| 2009 $WF_{162}$ | 18.9 | 0.15 | 20091125 | 36.32994 | 14.94726 | 350.61993 | 1.68707 | 0.2976032 | 2.3272674 | 14 | 1 | 27 days | 0.30 | MPC | 2009 $WF_{162}$ |
| 2009 $WJ_{162}$ | 19.5 | 0.15 | 20091125 | 13.45542 | 352.24659 | 51.26832 | 4.34436 | 0.2414090 | 2.3065648 | 13 | 1 | 29 days | 0.19 | MPC | 2009 $WJ_{162}$ |
| 2009 $WE_{163}$ | 17.5 | 0.15 | 20091125 | 349.28599 | 192.10668 | 248.07319 | 18.91332 | 0.1098550 | 1.9407129 | 30 | 1 | 26 days | 0.58 | MPC | 2009 $WE_{163}$ |
| 2009 $WH_{163}$ | 16.2 | 0.15 | 20091125 | 29.34130 | 140.49609 | 256.69913 | 7.73933 | 0.0480784 | 3.0506413 | 17 | 1 | 36 days | 0.26 | MPC | 2009 $WH_{163}$ |
| 2009 $WV_{163}$ | 17.1 | 0.15 | 20091125 | 32.71614 | 309.47508 | 58.23543 | 6.53236 | 0.3447869 | 2.5527750 | 14 | 1 | 22 days | 0.22 | MPC | 2009 $WV_{163}$ |
| 2009 $WX_{163}$ | 18.4 | 0.15 | 20091125 | 28.48570 | 350.77929 | 37.52954 | 2.29267 | 0.2145310 | 2.3382290 | 13 | 1 | 20 days | 0.15 | MPC | 2009 $WX_{163}$ |
| 2009 $WA_{164}$ | 19.4 | 0.15 | 20091125 | 21.61856 | 353.55156 | 41.36238 | 3.05172 | 0.2625371 | 2.4389132 | 9 | 1 | 20 days | 0.44 | MPC | 2009 $WA_{164}$ |
| 2009 $WB_{164}$ | 18.0 | 0.15 | 20091125 | 21.56525 | 114.96078 | 288.87057 | 1.65007 | 0.1508498 | 2.3914401 | 10 | 1 | 19 days | 0.17 | MPC | 2009 $WB_{164}$ |
| 2009 $WG_{164}$ | 16.9 | 0.15 | 20091105 | 340.64558 | 27.97770 | 66.26559 | 11.78718 | 0.2296697 | 2.7736170 | 26 | 1 | 32 days | 0.52 | MPC | 2009 $WG_{164}$ |
| 2009 $WL_{164}$ | 16.9 | 0.15 | 20091125 | 93.36269 | 77.33485 | 254.73183 | 9.43827 | 0.0536192 | 3.0548198 | 10 | 1 | 19 days | 0.39 | MPC | 2009 $WL_{164}$ |
| 2009 $WP_{164}$ | 16.7 | 0.15 | 20091125 | 309.21413 | 82.54315 | 66.76265 | 14.08711 | 0.2535096 | 3.1633288 | 13 | 1 | 27 days | 0.14 | MPC | 2009 $WP_{164}$ |
| 2009 $WE_{165}$ | 17.1 | 0.15 | 20091125 | 23.50485 | 331.91230 | 66.81648 | 5.34258 | 0.1808879 | 2.5528704 | 17 | 1 | 41 days | 0.28 | MPC | 2009 $WE_{165}$ |
| 2009 $WF_{165}$ | 18.1 | 0.15 | 20091125 | 342.79473 | 198.41713 | 257.01294 | 4.02503 | 0.1524482 | 2.3053189 | 13 | 1 | 25 days | 0.13 | MPC | 2009 $WF_{165}$ |
| 2009 $WH_{165}$ | 16.1 | 0.15 | 20091125 | 35.41085 | 321.98070 | 72.00955 | 5.39528 | 0.0719476 | 2.8108247 | 13 | 1 | 32 days | 0.15 | MPC | 2009 $WH_{165}$ |
| 2009 $WW_{165}$ | 16.9 | 0.15 | 20091125 | 4.11433 | 136.33396 | 294.84137 | 1.04057 | 0.0460408 | 2.8630777 | 14 | 1 | 28 days | 0.22 | MPC | 2009 $WW_{165}$ |
| 2009 $WX_{165}$ | 16.6 | 0.15 | 20091125 | 1.09127 | 177.80289 | 255.07551 | 14.14153 | 0.2473173 | 3.1788263 | 9 | 1 | 19 days | 0.18 | MPC | 2009 $WX_{165}$ |
| 2009 $WC_{166}$ | 16.0 | 0.15 | 20091125 | 52.55833 | 300.51543 | 74.47816 | 9.64966 | 0.0956248 | 3.0503456 | 17 | 1 | 32 days | 0.23 | MPC | 2009 $WC_{166}$ |
| 2009 $WV_{166}$ | 16.9 | 0.15 | 20091125 | 11.31164 | 329.92392 | 89.76655 | 6.02061 | 0.2071547 | 2.3791311 | 22 | 1 | 34 days | 0.24 | MPC | 2009 $WV_{166}$ |
| 2009 $WK_{167}$ | 17.5 | 0.15 | 20091105 | 32.11116 | 91.46583 | 265.94990 | 4.70147 | 0.3464674 | 2.5789991 | 24 | 1 | 51 days | 0.33 | MPC | 2009 $WK_{167}$ |
| 2009 $WO_{167}$ | 16.4 | 0.15 | 20091105 | 291.71444 | 87.47258 | 66.28556 | 14.04902 | 0.2464801 | 3.1663584 | 16 | 1 | 47 days | 0.22 | MPC | 2009 $WO_{167}$ |
| 2009 $WO_{168}$ | 17.0 | 0.15 | 20091125 | 281.49584 | 85.47665 | 75.94854 | 12.19661 | 0.1458688 | 2.5600904 | 9 | 1 | 5 days | 0.30 | MPC | 2009 $WO_{168}$ |
| 2009 $WQ_{168}$ | 17.4 | 0.15 | 20091125 | 25.83323 | 246.70064 | 149.92269 | 1.80185 | 0.0874978 | 2.5825316 | 13 | 1 | 37 days | 0.25 | MPC | 2009 $WQ_{168}$ |
| 2009 $WS_{168}$ | 17.1 | 0.15 | 20091125 | 354.32406 | 2.39328 | 73.38566 | 24.49223 | 0.1764084 | 3.1085528 | 12 | 1 | 17 days | 0.36 | MPC | 2009 $WS_{168}$ |
| 2009 $WD_{169}$ | 16.8 | 0.15 | 20091125 | 50.57763 | 197.84438 | 166.60107 | 2.69814 | 0.1161535 | 2.5954908 | 13 | 1 | 37 days | 0.17 | MPC | 2009 $WD_{169}$ |
| 2009 $WL_{169}$ | 18.1 | 0.15 | 20091125 | 1.56431 | 336.92268 | 88.44165 | 7.16599 | 0.0948037 | 2.3914574 | 18 | 1 | 33 days | 0.39 | MPC | 2009 $WL_{169}$ |
| 2009 $WN_{169}$ | 17.6 | 0.15 | 20091105 | 8.39827 | 143.08697 | 241.25946 | 30.62217 | 0.4372765 | 3.0825242 | 22 | 1 | 57 days | 0.64 | MPC | 2009 $WN_{169}$ |
| 2009 $WB_{170}$ | 16.6 | 0.15 | 20091125 | 52.57323 | 310.85712 | 51.31727 | 13.02430 | 0.1437116 | 2.6257176 | 18 | 1 | 39 days | 0.38 | MPC | 2009 $WB_{170}$ |
| 2009 $WS_{170}$ | 17.5 | 0.15 | 20091125 | 306.12101 | 224.61712 | 272.81822 | 7.70199 | 0.1277891 | 2.4742188 | 10 | 1 | 26 days | 0.16 | MPC | 2009 $WS_{170}$ |
| 2009 $WX_{170}$ | 17.0 | 0.15 | 20091105 | 58.91849 | 82.85531 | 254.57175 | 8.86692 | 0.1549602 | 3.0031033 | 12 | 1 | 15 days | 0.31 | MPC | 2009 $WX_{170}$ |
| 2009 $WH_{171}$ | 15.8 | 0.15 | 20091105 | 104.76438 | 277.73798 | 18.71264 | 5.31894 | 0.1272625 | 3.0802630 | 9 | 1 | 15 days | 0.23 | MPC | 2009 $WH_{171}$ |
| 2009 $WF_{172}$ | 15.2 | 0.15 | 20091105 | 254.45971 | 254.65172 | 272.79281 | 7.86926 | 0.0832804 | 3.2172833 | 18 | 1 | 31 days | 0.37 | MPC | 2009 $WF_{172}$ |
| 2009 $WM_{173}$ | 15.2 | 0.15 | 20091125 | 168.67398 | 175.12983 | 86.16214 | 20.27778 | 0.1870978 | 3.1214148 | 14 | 1 | 25 days | 0.19 | MPC | 2009 $WM_{173}$ |
| 2009 $WA_{175}$ | 18.1 | 0.15 | 20091105 | 339.42133 | 165.78197 | 274.38992 | 3.91309 | 0.2424110 | 2.6885763 | 15 | 1 | 18 days | 0.37 | MPC | 2009 $WA_{175}$ |
| 2009 $WR_{175}$ | 18.7 | 0.15 | 20091125 | 27.49190 | 297.61867 | 82.17559 | 4.59382 | 0.2077751 | 2.2945314 | 15 | 1 | 39 days | 0.20 | MPC | 2009 $WR_{175}$ |
| 2009 $WE_{176}$ | 18.5 | 0.15 | 20091125 | 21.83328 | 126.98809 | 255.23594 | 12.31094 | 0.2825171 | 2.5933796 | 16 | 1 | 37 days | 0.31 | MPC | 2009 $WE_{176}$ |
| 2009 $WK_{176}$ | 16.1 | 0.15 | 20091125 | 7.20632 | 150.92029 | 262.73790 | 12.57368 | 0.0897687 | 3.1788832 | 15 | 1 | 25 days | 0.39 | MPC | 2009 $WK_{176}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2009 $WE_{177}$ | 17.9 | 0.15 | 20091105 | 263.50968 | 158.19961 | 5.82756 | 6.43256 | 0.0997913 | 2.2047542 | 12 | 1 | 24 days | 0.24 | | | MPC | | 2009 $WE_{177}$ |
| 2009 $WP_{177}$ | 15.6 | 0.15 | 20091125 | 264.15844 | 293.22795 | 237.72165 | 9.01327 | 0.1571146 | 3.1271337 | 11 | 1 | 18 days | 0.13 | | | MPC | | 2009 $WP_{177}$ |
| 2009 $WQ_{177}$ | 17.8 | 0.15 | 20091125 | 31.25331 | 325.56897 | 57.15946 | 3.97492 | 0.0775177 | 2.2638295 | 18 | 1 | 24 days | 0.18 | | | MPC | | 2009 $WQ_{177}$ |
| 2009 $WE_{178}$ | 17.0 | 0.15 | 20091105 | 346.95006 | 343.89580 | 84.09278 | 3.18643 | 0.0682959 | 2.6950300 | 20 | 1 | 49 days | 0.21 | | | MPC | | 2009 $WE_{178}$ |
| 2009 $WW_{179}$ | 17.3 | 0.15 | 20091125 | 348.84802 | 9.39952 | 68.98798 | 14.77101 | 0.2237056 | 2.6167217 | 17 | 1 | 18 days | 0.42 | | | MPC | | 2009 $WW_{179}$ |
| 2009 $WF_{180}$ | 17.7 | 0.15 | 20091125 | 330.07531 | 294.21584 | 173.06213 | 2.34772 | 0.1158048 | 2.6891855 | 10 | 1 | 18 days | 0.24 | | | MPC | | 2009 $WF_{180}$ |
| 2009 $WK_{180}$ | 18.9 | 0.15 | 20091125 | 27.28954 | 248.64185 | 140.94864 | 1.94781 | 0.1854415 | 2.3744259 | 14 | 1 | 18 days | 0.18 | | | MPC | | 2009 $WK_{180}$ |
| 2009 $WM_{180}$ | 16.5 | 0.15 | 20091125 | 307.48738 | 59.49476 | 87.14739 | 9.78886 | 0.2179971 | 2.7492362 | 14 | 1 | 18 days | 0.29 | | | MPC | | 2009 $WM_{180}$ |
| 2009 $WP_{180}$ | 15.6 | 0.15 | 20091125 | 356.08001 | 325.17073 | 115.98486 | 4.49956 | 0.2585941 | 3.9099534 | 16 | 1 | 31 days | 0.21 | | | MPC | | 2009 $WP_{180}$ |
| 2009 $WT_{180}$ | 15.1 | 0.15 | 20091125 | 304.89481 | 42.57127 | 85.69243 | 12.66648 | 0.0368944 | 2.9621257 | 21 | 1 | 34 days | 0.36 | | | MPC | | 2009 $WT_{180}$ |
| 2009 $WY_{180}$ | 16.8 | 0.15 | 20091125 | 347.77215 | 359.92213 | 87.08533 | 11.41066 | 0.1750758 | 3.1443830 | 15 | 1 | 18 days | 0.31 | | | MPC | | 2009 $WY_{180}$ |
| 2009 $WJ_{181}$ | 17.8 | 0.15 | 20091125 | 348.88430 | 334.09906 | 111.35500 | 3.55766 | 0.1955169 | 2.4327275 | 13 | 1 | 18 days | 0.28 | | | MPC | | 2009 $WJ_{181}$ |
| 2009 $WK_{181}$ | 16.5 | 0.15 | 20091125 | 36.31582 | 284.71374 | 89.36288 | 11.03709 | 0.2287095 | 3.1693506 | 10 | 1 | 18 days | 0.23 | | | MPC | | 2009 $WK_{181}$ |
| 2009 $WO_{181}$ | 16.5 | 0.15 | 20091125 | 110.11394 | 228.99313 | 90.86750 | 12.64821 | 0.0275111 | 3.0378904 | 13 | 1 | 18 days | 0.25 | | | MPC | | 2009 $WO_{181}$ |
| 2009 $WP_{181}$ | 15.6 | 0.15 | 20100104 | 342.26065 | 220.46112 | 241.53197 | 20.24083 | 0.0612356 | 3.1502188 | 16 | 1 | 80 days | 0.57 | M-v | 4 | MPC | | 2009 $WP_{181}$ |
| 2009 $WB_{183}$ | 17.3 | 0.15 | 20091105 | 207.26069 | 7.70348 | 202.76712 | 7.18704 | 0.0410337 | 2.3218068 | 12 | 1 | 8 days | 0.44 | | | MPC | | 2009 $WB_{183}$ |
| 2009 $WC_{183}$ | 18.7 | 0.15 | 20100104 | 19.45437 | 70.60116 | 334.04727 | 3.58501 | 0.2520964 | 2.5447116 | 15 | 1 | 14 days | 0.20 | M-v | 6 D | MPC | | 2009 $WC_{183}$ |
| 2009 $WE_{183}$ | 16.4 | 0.15 | 20100104 | 304.81580 | 212.32589 | 272.59445 | 9.44219 | 0.0188351 | 3.1019225 | 18 | 1 | 16 days | 0.21 | M-v | 6 D | MPC | | 2009 $WE_{183}$ |
| 2009 $WV_{184}$ | 16.0 | 0.15 | 20091125 | 62.87413 | 98.82097 | 239.12565 | 11.61622 | 0.2506716 | 2.6853439 | 13 | 1 | 3 days | 0.28 | | | MPC | | 2009 $WV_{184}$ |
| 2009 $WY_{184}$ | 17.2 | 0.15 | 20091125 | 42.70363 | 295.61184 | 81.14806 | 10.04273 | 0.1100765 | 2.2386041 | 29 | 1 | 29 days | 0.36 | | | MPC | | 2009 $WY_{184}$ |
| 2009 $WB_{185}$ | 15.4 | 0.15 | 20091125 | 25.19843 | 148.46341 | 248.09957 | 9.48906 | 0.1448103 | 3.1541017 | 16 | 1 | 17 days | 0.39 | | | MPC | | 2009 $WB_{185}$ |
| 2009 $WF_{185}$ | 15.9 | 0.15 | 20091125 | 33.15730 | 115.66224 | 271.51230 | 28.49265 | 0.3743088 | 2.6216692 | 15 | 1 | 24 days | 0.43 | | | MPC | | 2009 $WF_{185}$ |
| 2009 $WX_{185}$ | 18.3 | 0.15 | 20091105 | 335.76062 | 200.37106 | 234.39479 | 5.69153 | 0.0517799 | 2.4048387 | 11 | 1 | 14 days | 0.25 | | | MPC | | 2009 $WX_{185}$ |
| 2009 $WA_{186}$ | 17.3 | 0.15 | 20100104 | 318.65809 | 68.82877 | 58.25190 | 8.96178 | 0.1793280 | 2.7312331 | 24 | 1 | 39 days | 0.27 | M-v | 5 D | MPC | | 2009 $WA_{186}$ |
| 2009 $WB_{186}$ | 15.6 | 0.15 | 20091105 | 343.84135 | 301.87496 | 113.92481 | 22.34402 | 0.2799372 | 3.0491400 | 10 | 1 | 14 days | 0.56 | | | MPC | | 2009 $WB_{186}$ |
| 2009 $WJ_{186}$ | 13.6 | 0.15 | 20091125 | 53.14364 | 100.85029 | 248.55072 | 13.61344 | 0.1112955 | 5.1868263 | 15 | 1 | 37 days | 0.37 | | | MPC | | 2009 $WJ_{186}$ |
| 2009 $WG_{187}$ | 16.6 | 0.15 | 20091105 | 336.51076 | 166.26910 | 281.25854 | 1.61023 | 0.1926054 | 3.1703360 | 11 | 1 | 3 days | 0.54 | | | MPC | | 2009 $WG_{187}$ |
| 2009 $WU_{188}$ | 16.1 | 0.15 | 20091125 | 122.80617 | 35.46402 | 250.47843 | 9.14177 | 0.0638400 | 3.1171783 | 15 | 1 | 38 days | 0.21 | | | MPC | | 2009 $WU_{188}$ |
| 2009 $WD_{189}$ | 17.4 | 0.15 | 20091125 | 26.30085 | 133.80878 | 248.25848 | 8.25651 | 0.2282405 | 2.7672231 | 14 | 1 | 17 days | 0.47 | | | MPC | | 2009 $WD_{189}$ |
| 2009 $WR_{189}$ | 16.7 | 0.15 | 20091125 | 53.64876 | 279.83807 | 71.96014 | 10.65186 | 0.2217667 | 3.1296668 | 14 | 1 | 29 days | 0.28 | | | MPC | | 2009 $WR_{189}$ |
| 2009 $WU_{189}$ | 17.1 | 0.15 | 20091125 | 29.69990 | 145.37891 | 242.70645 | 4.65447 | 0.1579764 | 2.5784397 | 16 | 1 | 21 days | 0.43 | | | MPC | | 2009 $WU_{189}$ |
| 2009 $WC_{190}$ | 15.2 | 0.15 | 20091125 | 157.16662 | 190.06340 | 79.30062 | 4.81633 | 0.1041655 | 3.2249709 | 16 | 1 | 21 days | 0.31 | | | MPC | | 2009 $WC_{190}$ |
| 2009 $WD_{190}$ | 16.9 | 0.15 | 20091125 | 105.47504 | 67.21832 | 250.14706 | 9.55564 | 0.0679799 | 2.8684026 | 16 | 1 | 21 days | 0.29 | | | MPC | | 2009 $WD_{190}$ |
| 2009 $WE_{190}$ | 16.9 | 0.15 | 20091125 | 13.19013 | 161.29701 | 253.66557 | 2.79887 | 0.0574910 | 2.7958830 | 12 | 1 | 16 days | 0.17 | | | MPC | | 2009 $WE_{190}$ |
| 2009 $WF_{190}$ | 15.3 | 0.15 | 20091125 | 238.09992 | 225.80572 | 345.62190 | 0.01641 | 0.2246619 | 3.0372420 | 12 | 1 | 21 days | 0.25 | | | MPC | | 2009 $WF_{190}$ |
| 2009 $WG_{190}$ | 17.6 | 0.15 | 20091125 | 2.93097 | 355.79151 | 70.51234 | 5.27765 | 0.0683188 | 2.7481078 | 14 | 1 | 22 days | 0.48 | | | MPC | | 2009 $WG_{190}$ |
| 2009 $WK_{190}$ | 17.4 | 0.15 | 20091125 | 17.28261 | 302.92032 | 105.15443 | 1.04704 | 0.1079303 | 2.6257575 | 15 | 1 | 21 days | 0.18 | | | MPC | | 2009 $WK_{190}$ |
| 2009 $WL_{190}$ | 13.9 | 0.15 | 20091125 | 15.46847 | 162.47856 | 250.44016 | 2.61259 | 0.1114292 | 5.2591333 | 12 | 1 | 16 days | 0.24 | | | MPC | | 2009 $WL_{190}$ |
| 2009 $WX_{190}$ | 16.3 | 0.15 | 20091125 | 25.66030 | 323.34005 | 76.21853 | 11.21098 | 0.0913648 | 3.1683218 | 16 | 1 | 21 days | 0.32 | | | MPC | | 2009 $WX_{190}$ |
| 2009 $WC_{191}$ | 17.1 | 0.15 | 20091125 | 49.05563 | 164.13559 | 207.57699 | 1.72070 | 0.1025602 | 2.8628557 | 15 | 1 | 17 days | 0.24 | | | MPC | | 2009 $WC_{191}$ |
| 2009 $WK_{191}$ | 18.0 | 0.15 | 20091125 | 337.26179 | 203.99003 | 241.05618 | 4.77856 | 0.0796074 | 2.6817958 | 11 | 1 | 17 days | 0.27 | | | MPC | | 2009 $WK_{191}$ |
| 2009 $WO_{191}$ | 18.6 | 0.15 | 20091125 | 3.34283 | 4.73555 | 49.93005 | 1.80653 | 0.1498684 | 2.3327299 | 14 | 1 | 17 days | 0.26 | | | MPC | | 2009 $WO_{191}$ |
| 2009 $WG_{192}$ | 18.1 | 0.15 | 20100104 | 347.17911 | 41.57927 | 51.20835 | 6.18202 | 0.2210468 | 2.5843236 | 21 | 1 | 61 days | 0.35 | M-v | 4 | MPC | | 2009 $WG_{192}$ |
| 2009 $WH_{193}$ | 18.7 | 0.15 | 20091125 | 24.31096 | 134.58575 | 244.61376 | 4.80484 | 0.2315009 | 2.3238945 | 17 | 1 | 32 days | 0.32 | | | MPC | | 2009 $WH_{193}$ |
| 2009 $WM_{193}$ | 17.3 | 0.15 | 20091125 | 49.04087 | 267.14407 | 54.74421 | 19.31941 | 0.4000670 | 2.7719912 | 13 | 1 | 24 days | 0.23 | | | MPC | | 2009 $WM_{193}$ |
| 2009 $WV_{193}$ | 16.3 | 0.15 | 20091125 | 32.68513 | 329.04761 | 49.04492 | 4.00413 | 0.1130833 | 2.9231221 | 13 | 1 | 38 days | 0.16 | | | MPC | | 2009 $WV_{193}$ |
| 2009 $WC_{194}$ | 16.8 | 0.15 | 20100104 | 351.13297 | 213.29350 | 240.88950 | 3.50630 | 0.1418636 | 2.5877903 | 46 | 4 | 2002–2009 | 0.31 | M-v | 2 | MPC | 166024 | 2009 $WC_{194}$ |
| 2009 $WD_{194}$ | 16.7 | 0.15 | 20091125 | 303.57503 | 252.12419 | 248.94549 | 7.96029 | 0.1310699 | 3.0185473 | 12 | 1 | 16 days | 0.18 | | | MPC | | 2009 $WD_{194}$ |
| 2009 $WE_{196}$ | 17.4 | 0.15 | 20091125 | 40.49194 | 35.30928 | 339.07307 | 2.25741 | 0.1427043 | 2.6716299 | 16 | 1 | 29 days | 0.22 | | | MPC | | 2009 $WE_{196}$ |
| 2009 $WG_{196}$ | 18.4 | 0.15 | 20091125 | 40.76604 | 105.86801 | 249.66884 | 20.70259 | 0.3222937 | 2.4413249 | 18 | 1 | 20 days | 0.23 | | | MPC | | 2009 $WG_{196}$ |
| 2009 $WK_{196}$ | 16.6 | 0.15 | 20091105 | 354.88575 | 200.31974 | 218.02572 | 15.43165 | 0.0731389 | 3.1576766 | 13 | 1 | 9 days | 0.35 | | | MPC | | 2009 $WK_{196}$ |
| 2009 $WN_{196}$ | 16.5 | 0.15 | 20100104 | 349.73781 | 335.69050 | 111.07191 | 2.28715 | 0.1550757 | 3.1616013 | 44 | 6 | 1992–2009 | 0.36 | M-v | 0 | MPC | 166024 | 2009 $WN_{196}$ |
| 2009 $WO_{196}$ | 17.2 | 0.15 | 20091125 | 268.26546 | 91.09909 | 72.55095 | 8.86519 | 0.0777125 | 2.3746961 | 25 | 1 | 45 days | 0.52 | | | MPC | | 2009 $WO_{196}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2009 $WP_{196}$ | 17.2 | 0.15 | 20091125 | 335.54092 | 24.47791 | 74.68986 | 9.13087 | 0.1938977 | 2.7716548 | 17 | 1 | 45 days | 0.45 | | | MPC | | 2009 $WP_{196}$ |
| 2009 $WA_{197}$ | 17.6 | 0.15 | 20091125 | 41.32268 | 98.12530 | 275.65823 | 5.88617 | 0.1223890 | 2.3550409 | 17 | 1 | 35 days | 0.51 | | | MPC | | 2009 $WA_{197}$ |
| 2009 $WC_{197}$ | 17.8 | 0.15 | 20091125 | 3.22367 | 167.77382 | 251.98430 | 34.07322 | 0.2344489 | 2.5850306 | 14 | 1 | 22 days | 0.37 | | | MPC | | 2009 $WC_{197}$ |
| 2009 $WV_{197}$ | 15.0 | 0.15 | 20091105 | 80.11374 | 213.90649 | 109.79865 | 11.03723 | 0.1563177 | 3.1902204 | 12 | 1 | 17 days | 0.41 | | | MPC | | 2009 $WV_{197}$ |
| 2009 $WL_{198}$ | 16.2 | 0.15 | 20091105 | 62.42598 | 201.42607 | 141.02581 | 6.52414 | 0.1575403 | 2.5712703 | 14 | 1 | 10 days | 0.18 | | | MPC | | 2009 $WL_{198}$ |
| 2009 $WT_{198}$ | 15.0 | 0.15 | 20091125 | 346.22137 | 285.56823 | 166.12026 | 5.08654 | 0.2635165 | 3.9397084 | 14 | 1 | 15 days | 0.31 | | | MPC | | 2009 $WT_{198}$ |
| 2009 $WM_{199}$ | 16.1 | 0.15 | 20091125 | 349.28759 | 325.01818 | 114.88485 | 6.18400 | 0.0475722 | 2.7197568 | 18 | 1 | 23 days | 0.41 | | | MPC | | 2009 $WM_{199}$ |
| 2009 $WK_{200}$ | 16.3 | 0.15 | 20100104 | 354.11148 | 284.81054 | 156.31450 | 6.21639 | 0.1823347 | 3.1901398 | 19 | 1 | 5 days | 0.50 | M-v | 8 D | MPC | | 2009 $WK_{200}$ |
| 2009 $WO_{200}$ | 19.0 | 0.15 | 20091125 | 43.98725 | 261.85276 | 104.42951 | 2.91473 | 0.1927167 | 2.2245559 | 14 | 1 | 22 days | 0.39 | | | MPC | | 2009 $WO_{200}$ |
| 2009 $WY_{200}$ | 16.6 | 0.15 | 20091125 | 331.90956 | 24.36668 | 80.70330 | 13.85977 | 0.1189911 | 2.7754689 | 21 | 1 | 26 days | 0.35 | | | MPC | | 2009 $WY_{200}$ |
| 2009 $WA_{201}$ | 17.3 | 0.15 | 20091125 | 38.94094 | 166.60452 | 198.63484 | 4.15719 | 0.2605790 | 2.5880499 | 14 | 1 | 15 days | 0.41 | | | MPC | | 2009 $WA_{201}$ |
| 2009 $WZ_{201}$ | 17.1 | 0.15 | 20091105 | 15.61378 | 301.98638 | 101.16843 | 10.46743 | 0.0892921 | 2.5760318 | 13 | 1 | 10 days | 0.48 | | | MPC | | 2009 $WZ_{201}$ |
| 2009 $WA_{202}$ | 15.3 | 0.15 | 20091125 | 28.14976 | 299.19797 | 96.52928 | 13.41289 | 0.0660953 | 2.8592352 | 18 | 1 | 32 days | 0.43 | | | MPC | | 2009 $WA_{202}$ |
| 2009 $WW_{202}$ | 16.0 | 0.15 | 20091105 | 342.04053 | 57.80008 | 26.99557 | 0.84783 | 0.1704583 | 3.9504825 | 13 | 1 | 34 days | 0.22 | | | MPC | | 2009 $WW_{202}$ |
| 2009 $WA_{203}$ | 16.9 | 0.15 | 20091125 | 333.46972 | 28.09330 | 66.08353 | 11.28720 | 0.0623184 | 3.1513506 | 10 | 1 | 25 days | 0.23 | | | MPC | | 2009 $WA_{203}$ |
| 2009 $WC_{203}$ | 18.0 | 0.15 | 20091125 | 330.37583 | 234.38753 | 227.61969 | 4.30884 | 0.1190993 | 2.3098983 | 13 | 1 | 33 days | 0.41 | | | MPC | | 2009 $WC_{203}$ |
| 2009 $WJ_{203}$ | 17.0 | 0.15 | 20091125 | 17.72332 | 164.95466 | 242.16112 | 3.33411 | 0.0862114 | 2.7347346 | 13 | 1 | 37 days | 0.27 | | | MPC | | 2009 $WJ_{203}$ |
| 2009 $WK_{203}$ | 16.8 | 0.15 | 20091125 | 10.19513 | 347.62007 | 66.52975 | 11.53842 | 0.1791237 | 2.7742180 | 14 | 1 | 32 days | 0.24 | | | MPC | | 2009 $WK_{203}$ |
| 2009 $WL_{203}$ | 17.3 | 0.15 | 20091125 | 348.81680 | 18.91254 | 69.03974 | 16.37566 | 0.2382553 | 3.1907781 | 17 | 1 | 40 days | 0.35 | | | MPC | | 2009 $WL_{203}$ |
| 2009 $WS_{203}$ | 17.7 | 0.15 | 20091125 | 27.51697 | 297.46017 | 89.11411 | 3.17733 | 0.2178480 | 2.3458806 | 18 | 1 | 26 days | 0.26 | | | MPC | | 2009 $WS_{203}$ |
| 2009 $WU_{203}$ | 16.4 | 0.15 | 20091125 | 10.83293 | 178.24040 | 239.42490 | 9.29562 | 0.1184903 | 3.0970589 | 13 | 1 | 25 days | 0.30 | | | MPC | | 2009 $WU_{203}$ |
| 2009 $WL_{204}$ | 16.6 | 0.15 | 20091105 | 331.97338 | 210.29765 | 250.13938 | 13.69885 | 0.2455097 | 3.1869932 | 21 | 1 | 52 days | 0.56 | | | MPC | | 2009 $WL_{204}$ |
| 2009 $WQ_{204}$ | 17.6 | 0.15 | 20091125 | 17.35985 | 127.79727 | 271.26726 | 5.43136 | 0.1210983 | 2.4541549 | 16 | 1 | 40 days | 0.30 | | | MPC | | 2009 $WQ_{204}$ |
| 2009 $WM_{205}$ | 17.8 | 0.15 | 20091105 | 334.11891 | 186.90055 | 266.44539 | 3.97730 | 0.2018546 | 2.5839960 | 26 | 1 | 54 days | 0.23 | | | MPC | | 2009 $WM_{205}$ |
| 2009 $WN_{205}$ | 18.1 | 0.15 | 20091125 | 314.69836 | 216.84790 | 266.32213 | 4.25582 | 0.1743912 | 2.3583435 | 14 | 1 | 32 days | 0.25 | | | MPC | | 2009 $WN_{205}$ |
| 2009 $WO_{205}$ | 19.2 | 0.15 | 20091125 | 357.83695 | 139.20834 | 285.54876 | 1.81714 | 0.1837426 | 2.3064038 | 12 | 1 | 40 days | 0.20 | | | MPC | | 2009 $WO_{205}$ |
| 2009 $WM_{206}$ | 16.0 | 0.15 | 20100104 | 257.41429 | 287.50458 | 259.45838 | 7.88016 | 0.1070969 | 2.7718569 | 37 | 6 | 1995–2009 | 0.49 | M-v | 0 | MPC | 166024 | 2009 $WM_{206}$ |
| 2009 $WR_{206}$ | 17.5 | 0.15 | 20100104 | 300.18187 | 236.36228 | 274.34842 | 3.82107 | 0.1258517 | 2.3646601 | 33 | 5 | 2002–2009 | 0.34 | M-v | 0 | MPC | 166024 | 2009 $WR_{206}$ |
| 2009 $WF_{207}$ | 18.6 | 0.15 | 20091125 | 10.67399 | 4.83331 | 43.29409 | 3.34149 | 0.1852411 | 2.3707585 | 13 | 1 | 31 days | 0.22 | | | MPC | | 2009 $WF_{207}$ |
| 2009 $WL_{207}$ | 17.6 | 0.15 | 20091125 | 12.45088 | 17.11197 | 29.05888 | 1.98375 | 0.1857306 | 2.3375904 | 24 | 1 | 37 days | 0.59 | | | MPC | | 2009 $WL_{207}$ |
| 2009 $WQ_{207}$ | 18.3 | 0.15 | 20091125 | 8.86151 | 14.39115 | 37.78379 | 2.87090 | 0.1894682 | 2.3662298 | 16 | 1 | 37 days | 0.21 | | | MPC | | 2009 $WQ_{207}$ |
| 2009 $WW_{207}$ | 16.3 | 0.15 | 20091125 | 91.70033 | 263.62199 | 57.32807 | 11.53044 | 0.1298510 | 3.1356590 | 13 | 1 | 37 days | 0.25 | | | MPC | | 2009 $WW_{207}$ |
| 2009 $WY_{207}$ | 16.6 | 0.15 | 20091125 | 7.42043 | 356.75151 | 60.98769 | 13.24687 | 0.0964905 | 2.7902079 | 14 | 1 | 32 days | 0.19 | | | MPC | | 2009 $WY_{207}$ |
| 2009 $WL_{208}$ | 17.8 | 0.15 | 20100104 | 7.42566 | 72.36656 | 0.01121 | 2.00446 | 0.1647767 | 2.6389841 | 28 | 4 | 2002–2009 | 0.32 | M-v | 1 | MPC | 166024 | 2009 $WL_{208}$ |
| 2009 $WN_{208}$ | 17.5 | 0.15 | 20100104 | 50.68601 | 338.44466 | 20.46243 | 2.04153 | 0.2979668 | 2.5846427 | 25 | 2 | 2005–2009 | 0.38 | M-v | 3 | MPC | 166025 | 2009 $WN_{208}$ |
| 2009 $WP_{208}$ | 17.3 | 0.15 | 20091125 | 30.77726 | 4.15471 | 16.00141 | 2.43346 | 0.2538827 | 3.0213139 | 14 | 1 | 33 days | 0.21 | | | MPC | | 2009 $WP_{208}$ |
| 2009 $WU_{208}$ | 17.4 | 0.15 | 20091125 | 53.21196 | 97.14651 | 247.59239 | 15.52318 | 0.2745757 | 2.6050937 | 14 | 1 | 38 days | 0.41 | | | MPC | | 2009 $WU_{208}$ |
| 2009 $WW_{208}$ | 16.8 | 0.15 | 20091125 | 47.34349 | 116.60798 | 251.62842 | 11.29806 | 0.1486738 | 2.7418731 | 17 | 1 | 28 days | 0.33 | | | MPC | | 2009 $WW_{208}$ |
| 2009 $WA_{209}$ | 17.0 | 0.15 | 20091125 | 21.08839 | 342.44703 | 62.98293 | 7.01794 | 0.0914756 | 2.7596536 | 16 | 1 | 31 days | 0.30 | | | MPC | | 2009 $WA_{209}$ |
| 2009 $WB_{209}$ | 16.9 | 0.15 | 20091125 | 349.69137 | 128.78493 | 316.88124 | 1.12381 | 0.1716318 | 3.0129268 | 10 | 1 | 23 days | 0.25 | | | MPC | | 2009 $WB_{209}$ |
| 2009 $WG_{209}$ | 17.0 | 0.15 | 20091105 | 8.66567 | 211.59555 | 186.44795 | 13.82140 | 0.2541327 | 2.6037705 | 11 | 1 | 15 days | 0.34 | | | MPC | | 2009 $WG_{209}$ |
| 2009 $WU_{209}$ | 15.4 | 0.15 | 20100104 | 33.54841 | 286.91421 | 97.73251 | 15.97955 | 0.2519031 | 3.0733356 | 34 | 2 | 2005–2009 | 0.45 | M-v | 3 | MPC | 166025 | 2009 $WU_{209}$ |
| 2009 $WW_{209}$ | 17.1 | 0.15 | 20091125 | 204.47266 | 153.37690 | 70.36740 | 5.84364 | 0.2014421 | 2.3985576 | 10 | 1 | 23 days | 0.18 | | | MPC | | 2009 $WW_{209}$ |
| 2009 $WM_{210}$ | 17.1 | 0.15 | 20091125 | 53.06948 | 246.97905 | 101.17923 | 3.51195 | 0.2255006 | 3.0521375 | 13 | 1 | 37 days | 0.20 | | | MPC | | 2009 $WM_{210}$ |
| 2009 $WW_{210}$ | 16.3 | 0.15 | 20100104 | 93.84899 | 92.49739 | 233.53867 | 10.32769 | 0.1267541 | 2.9273057 | 25 | 1 | 88 days | 0.29 | M-v | 4 | MPC | | 2009 $WW_{210}$ |
| 2009 $WZ_{210}$ | 17.5 | 0.15 | 20091105 | 351.63020 | 351.98567 | 77.50486 | 8.03647 | 0.0866041 | 2.4061612 | 9 | 1 | 9 days | 0.28 | | | MPC | | 2009 $WZ_{210}$ |
| 2009 $WP_{211}$ | 17.8 | 0.15 | 20091125 | 24.23473 | 302.63870 | 88.68939 | 6.10614 | 0.1633153 | 2.7114129 | 13 | 1 | 37 days | 0.30 | | | MPC | | 2009 $WP_{211}$ |
| 2009 $WA_{212}$ | 18.3 | 0.15 | 20091125 | 339.87944 | 282.18826 | 172.18067 | 2.57257 | 0.1621960 | 2.6080156 | 10 | 1 | 29 days | 0.23 | | | MPC | | 2009 $WA_{212}$ |
| 2009 $WE_{212}$ | 16.0 | 0.15 | 20100104 | 50.82161 | 150.70020 | 227.93998 | 9.02916 | 0.0943623 | 2.5924212 | 28 | 1 | 89 days | 0.34 | M-v | 4 | MPC | | 2009 $WE_{212}$ |
| 2009 $WA_{213}$ | 16.1 | 0.15 | 20091125 | 350.75931 | 181.45330 | 268.15556 | 12.75220 | 0.1421175 | 2.6963143 | 20 | 1 | 32 days | 0.42 | | | MPC | | 2009 $WA_{213}$ |
| 2009 $WH_{214}$ | 17.4 | 0.15 | 20091016 | 12.25613 | 103.94883 | 248.15636 | 20.51556 | 0.3319153 | 2.2783648 | 20 | 1 | 58 days | 0.61 | | | MPC | | 2009 $WH_{214}$ |
| 2009 $WJ_{214}$ | 18.0 | 0.15 | 20091125 | 313.44069 | 237.44139 | 247.51483 | 3.59044 | 0.1401835 | 2.3716842 | 10 | 1 | 21 days | 0.57 | | | MPC | | 2009 $WJ_{214}$ |
| 2009 $WQ_{214}$ | 16.5 | 0.15 | 20091125 | 85.88927 | 248.48450 | 79.88448 | 9.49078 | 0.2118262 | 2.7644098 | 14 | 1 | 29 days | 0.34 | | | MPC | | 2009 $WQ_{214}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2009 $WX_{214}$ | 17.8 | 0.15 | 20100104 | 21.10971 | 250.62335 | 141.58283 | 7.80748 | 0.3560867 | 2.5708375 | 23 | 1 | 74 days | 0.51 | M-v | 4 | MPC | | 2009 $WX_{214}$ |
| 2009 $WZ_{214}$ | 17.6 | 0.15 | 20100104 | 47.56657 | 334.46728 | 59.42478 | 0.96422 | 0.0685030 | 2.1534147 | 43 | 3 | 2004–2009 | 0.32 | M-v | 2 | MPC | 166025 | 2009 $WZ_{214}$ |
| 2009 $WD_{215}$ | 14.9 | 0.15 | 20091125 | 105.97157 | 224.58131 | 83.61435 | 11.78076 | 0.1166282 | 3.2189109 | 13 | 1 | 37 days | 0.26 | | | MPC | | 2009 $WD_{215}$ |
| 2009 $WN_{215}$ | 15.9 | 0.15 | 20091125 | 43.48897 | 284.81531 | 79.43964 | 11.24856 | 0.2193455 | 3.0218078 | 23 | 1 | 32 days | 0.49 | | | MPC | | 2009 $WN_{215}$ |
| 2009 $WO_{215}$ | 16.7 | 0.15 | 20091105 | 328.08232 | 12.88131 | 85.70209 | 6.40389 | 0.0763785 | 2.3372136 | 20 | 1 | 14 days | 0.58 | | E | MPC | | 2009 $WO_{215}$ |
| 2009 $WP_{215}$ | 17.9 | 0.15 | 20091125 | 4.81924 | 278.35237 | 126.25429 | 28.36876 | 0.3845256 | 2.5374890 | 8 | 1 | 8 days | 0.21 | | | MPC | | 2009 $WP_{215}$ |
| 2009 $WV_{215}$ | 15.3 | 0.15 | 20091125 | 340.34292 | 180.51315 | 265.22299 | 16.49943 | 0.2164234 | 3.0652383 | 17 | 1 | 26 days | 0.43 | | | MPC | | 2009 $WV_{215}$ |
| 2009 $WZ_{215}$ | 16.2 | 0.15 | 20091105 | 280.45391 | 98.55727 | 45.84404 | 10.71081 | 0.0197918 | 3.0130560 | 10 | 1 | 6 days | 0.72 | | | MPC | | 2009 $WZ_{215}$ |
| 2009 $WA_{216}$ | 15.8 | 0.15 | 20091105 | 85.25022 | 118.56751 | 199.71202 | 9.42038 | 0.0924893 | 3.0548661 | 14 | 1 | 6 days | 0.28 | | | MPC | | 2009 $WA_{216}$ |
| 2009 $WO_{216}$ | 15.5 | 0.15 | 20091125 | 140.16428 | 208.52396 | 68.74238 | 12.16933 | 0.0625088 | 3.1144391 | 13 | 1 | 26 days | 0.37 | | | MPC | | 2009 $WO_{216}$ |
| 2009 $WG_{217}$ | 18.0 | 0.15 | 20091125 | 47.21136 | 277.65378 | 99.04181 | 27.07393 | 0.0837953 | 1.8925725 | 14 | 1 | 19 days | 0.61 | | | MPC | | 2009 $WG_{217}$ |
| 2009 $WM_{217}$ | 16.5 | 0.15 | 20091016 | 290.64271 | 30.52925 | 88.59012 | 7.25354 | 0.0600200 | 2.4075382 | 14 | 1 | 38 days | 0.33 | | | MPC | | 2009 $WM_{217}$ |
| 2009 $WE_{218}$ | 16.3 | 0.15 | 20091016 | 70.13839 | 119.97037 | 174.79716 | 9.67894 | 0.0797867 | 3.1627385 | 16 | 1 | 54 days | 0.21 | | | MPC | | 2009 $WE_{218}$ |
| 2009 $WJ_{218}$ | 15.4 | 0.15 | 20091105 | 39.42734 | 228.62844 | 76.27998 | 10.65639 | 0.1252122 | 3.0404199 | 9 | 1 | 3 days | 0.15 | | | MPC | | 2009 $WJ_{218}$ |
| 2009 $WL_{218}$ | 16.7 | 0.15 | 20091105 | 55.49636 | 268.94370 | 95.59298 | 10.30152 | 0.0769177 | 2.7618111 | 10 | 1 | 7 days | 0.43 | | E | MPC | | 2009 $WL_{218}$ |
| 2009 $WT_{218}$ | 16.8 | 0.15 | 20091105 | 329.15096 | 29.47933 | 67.72234 | 4.44155 | 0.1204614 | 2.5590422 | 10 | 1 | 34 days | 0.57 | | | MPC | | 2009 $WT_{218}$ |
| 2009 $WU_{218}$ | 16.0 | 0.15 | 20091125 | 108.31505 | 230.83212 | 69.96363 | 12.63604 | 0.1721369 | 3.0347793 | 13 | 1 | 37 days | 0.28 | | | MPC | | 2009 $WU_{218}$ |
| 2009 $WK_{220}$ | 16.5 | 0.15 | 20091105 | 4.02705 | 177.62429 | 226.83184 | 16.84265 | 0.1915823 | 3.1559303 | 19 | 1 | 28 days | 0.33 | | | MPC | | 2009 $WK_{220}$ |
| 2009 $WS_{220}$ | 16.8 | 0.15 | 20091105 | 57.32718 | 127.52315 | 212.91187 | 4.96007 | 0.1157601 | 2.6582495 | 14 | 1 | 32 days | 0.48 | | | MPC | | 2009 $WS_{220}$ |
| 2009 $WW_{220}$ | 17.1 | 0.15 | 20091105 | 338.99120 | 221.59744 | 212.17160 | 4.38600 | 0.0585158 | 2.7918073 | 21 | 1 | 57 days | 0.23 | | | MPC | | 2009 $WW_{220}$ |
| 2009 $WS_{222}$ | 17.8 | 0.15 | 20091105 | 339.65161 | 3.25515 | 72.14474 | 7.23838 | 0.0987607 | 2.6597430 | 11 | 1 | 27 days | 0.35 | | | MPC | | 2009 $WS_{222}$ |
| 2009 $WJ_{223}$ | 17.7 | 0.15 | 20091125 | 64.81918 | 273.38104 | 75.91300 | 7.45952 | 0.1463119 | 2.3106244 | 14 | 1 | 29 days | 0.33 | | | MPC | | 2009 $WJ_{223}$ |
| 2009 $WL_{224}$ | 17.0 | 0.15 | 20091125 | 347.64017 | 206.70352 | 247.25881 | 13.36468 | 0.2173752 | 2.6600078 | 17 | 1 | 39 days | 0.47 | | | MPC | | 2009 $WL_{224}$ |
| 2009 $WD_{225}$ | 18.2 | 0.15 | 20100104 | 20.77325 | 149.14397 | 212.38853 | 3.34055 | 0.2411753 | 2.2768987 | 15 | 1 | 83 days | 0.58 | M-v | 5 | MPC | | 2009 $WD_{225}$ |
| 2009 $WG_{225}$ | 17.9 | 0.15 | 20091125 | 6.78931 | 161.07831 | 251.23487 | 9.08530 | 0.1054442 | 2.2225056 | 20 | 1 | 32 days | 0.44 | | | MPC | | 2009 $WG_{225}$ |
| 2009 $WH_{225}$ | 17.3 | 0.15 | 20100104 | 33.85062 | 332.21018 | 49.67418 | 6.79334 | 0.2834200 | 2.6403111 | 25 | 1 | 85 days | 0.44 | M-v | 4 | MPC | | 2009 $WH_{225}$ |
| 2009 $WP_{225}$ | 16.9 | 0.15 | 20091105 | 158.31415 | 290.70867 | 312.28908 | 0.88620 | 0.0141160 | 2.9111741 | 13 | 1 | 27 days | 0.24 | | | MPC | | 2009 $WP_{225}$ |
| 2009 $WY_{226}$ | 16.2 | 0.15 | 20091105 | 27.87665 | 312.92353 | 64.22773 | 9.93465 | 0.0787701 | 3.0303973 | 12 | 1 | 32 days | 0.22 | | | MPC | | 2009 $WY_{226}$ |
| 2009 $WG_{230}$ | 17.1 | 0.15 | 20100104 | 50.25106 | 139.37826 | 211.47862 | 6.52072 | 0.2067101 | 2.9379436 | 19 | 1 | 67 days | 0.29 | M-v | 5 | MPC | | 2009 $WG_{230}$ |
| 2009 $WN_{230}$ | 16.5 | 0.15 | 20091125 | 63.66979 | 300.97636 | 64.11047 | 12.03882 | 0.0393283 | 2.7103996 | 17 | 1 | 31 days | 0.40 | | | MPC | | 2009 $WN_{230}$ |
| 2009 $WP_{230}$ | 16.4 | 0.15 | 20091125 | 72.29355 | 75.47510 | 260.31196 | 2.71117 | 0.2173772 | 2.8244971 | 10 | 1 | 23 days | 0.19 | | | MPC | | 2009 $WP_{230}$ |
| 2009 $WQ_{231}$ | 13.8 | 0.15 | 20100104 | 39.95993 | 298.61257 | 67.92037 | 20.79429 | 0.1609444 | 5.1185446 | 16 | 1 | 68 days | 0.14 | M-v | 4 | MPC | | 2009 $WQ_{231}$ |
| 2009 $WS_{233}$ | 16.8 | 0.15 | 20091105 | 253.06855 | 258.23998 | 296.47493 | 5.71241 | 0.2287155 | 2.5967893 | 8 | 1 | 5 days | 0.42 | | | MPC | | 2009 $WS_{233}$ |
| 2009 $WX_{233}$ | 13.4 | 0.15 | 20100104 | 293.57111 | 84.39573 | 33.87063 | 8.36915 | 0.0793633 | 5.2577347 | 22 | 1 | 60 days | 0.32 | M-v | 5 | MPC | | 2009 $WX_{233}$ |
| 2009 $WE_{234}$ | 17.2 | 0.15 | 20091016 | 35.49342 | 292.65563 | 43.80039 | 15.32476 | 0.2413478 | 2.4522462 | 26 | 1 | 39 days | 0.35 | | | MPC | | 2009 $WE_{234}$ |
| 2009 $WZ_{234}$ | 15.8 | 0.15 | 20091105 | 121.14897 | 282.86754 | 8.07458 | 7.87195 | 0.0681717 | 3.1467104 | 11 | 1 | 12 days | 0.31 | | | MPC | | 2009 $WZ_{234}$ |
| 2009 $WC_{235}$ | 19.1 | 0.15 | 20091125 | 1.15805 | 176.97263 | 243.05523 | 5.15596 | 0.2154074 | 2.3414438 | 10 | 1 | 21 days | 0.30 | | | MPC | | 2009 $WC_{235}$ |
| 2009 $WA_{236}$ | 17.5 | 0.15 | 20091125 | 323.17274 | 230.44238 | 247.51733 | 12.27798 | 0.1628102 | 2.7837457 | 16 | 1 | 27 days | 0.40 | | | MPC | | 2009 $WA_{236}$ |
| 2009 $WD_{236}$ | 17.8 | 0.15 | 20091125 | 10.62090 | 330.38638 | 87.53499 | 4.07559 | 0.1595380 | 2.3288592 | 13 | 1 | 25 days | 0.19 | | | MPC | | 2009 $WD_{236}$ |
| 2009 $WQ_{236}$ | 15.6 | 0.15 | 20091105 | 43.68625 | 152.29889 | 211.11529 | 9.61926 | 0.1002586 | 3.0931973 | 11 | 1 | 8 days | 0.39 | | | MPC | | 2009 $WQ_{236}$ |
| 2009 $WR_{236}$ | 16.0 | 0.15 | 20091125 | 4.15325 | 176.00150 | 247.73848 | 8.11355 | 0.1425050 | 3.1687072 | 19 | 1 | 27 days | 0.58 | | | MPC | | 2009 $WR_{236}$ |
| 2009 $WS_{236}$ | 16.5 | 0.15 | 20091125 | 17.29400 | 190.11403 | 218.81470 | 6.89678 | 0.1653759 | 2.5542468 | 25 | 1 | 35 days | 0.53 | | | MPC | | 2009 $WS_{236}$ |
| 2009 $WW_{236}$ | 16.0 | 0.15 | 20091125 | 34.96248 | 290.14891 | 92.19540 | 2.18072 | 0.1638585 | 3.2178235 | 15 | 1 | 29 days | 0.19 | | | MPC | | 2009 $WW_{236}$ |
| 2009 $WX_{236}$ | 16.5 | 0.15 | 20091125 | 327.84315 | 31.12504 | 73.18685 | 14.97738 | 0.0302556 | 2.5556609 | 16 | 1 | 29 days | 0.22 | | | MPC | | 2009 $WX_{236}$ |
| 2009 $WG_{237}$ | 15.8 | 0.15 | 20091125 | 231.86751 | 152.81161 | 49.33832 | 11.75362 | 0.1515693 | 3.0453148 | 10 | 1 | 31 days | 0.21 | | | MPC | | 2009 $WG_{237}$ |
| 2009 $WL_{237}$ | 16.1 | 0.15 | 20100104 | 70.17639 | 284.20788 | 56.81297 | 15.71329 | 0.2070029 | 3.0373471 | 18 | 1 | 64 days | 0.29 | M-v | 5 | MPC | | 2009 $WL_{237}$ |
| 2009 $WC_{238}$ | 17.8 | 0.15 | 20091125 | 47.93219 | 71.81739 | 298.20295 | 2.52159 | 0.0699052 | 2.5939120 | 14 | 1 | 31 days | 0.33 | | | MPC | | 2009 $WC_{238}$ |
| 2009 $WP_{239}$ | 18.2 | 0.15 | 20091125 | 12.94356 | 341.06549 | 69.56785 | 3.80536 | 0.2732737 | 2.7340687 | 9 | 1 | 23 days | 0.28 | | | MPC | | 2009 $WP_{239}$ |
| 2009 $WS_{239}$ | 16.4 | 0.15 | 20091125 | 317.61811 | 65.20819 | 68.92564 | 14.92114 | 0.1833103 | 2.7698427 | 10 | 1 | 26 days | 0.11 | | | MPC | | 2009 $WS_{239}$ |
| 2009 $WY_{239}$ | 16.2 | 0.15 | 20091125 | 295.59278 | 235.86709 | 295.76215 | 5.56753 | 0.2669987 | 3.1898212 | 11 | 1 | 26 days | 0.44 | | | MPC | | 2009 $WY_{239}$ |
| 2009 $WA_{242}$ | 15.9 | 0.15 | 20091125 | 358.17425 | 61.52022 | 17.29858 | 3.48890 | 0.0390828 | 2.7845901 | 9 | 1 | 23 days | 0.28 | | | MPC | | 2009 $WA_{242}$ |
| 2009 $WU_{242}$ | 17.1 | 0.15 | 20091125 | 352.32292 | 355.19257 | 84.08115 | 8.09159 | 0.1435399 | 2.6507555 | 16 | 1 | 26 days | 0.21 | | | MPC | | 2009 $WU_{242}$ |
| 2009 $WW_{242}$ | 16.8 | 0.15 | 20091125 | 31.36646 | 310.07707 | 79.33741 | 13.32208 | 0.1356551 | 3.1143676 | 12 | 1 | 22 days | 0.23 | | | MPC | | 2009 $WW_{242}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2009 $WZ_{242}$ | 17.5 | 0.15 | 20091125 | 105.61900 | 224.47528 | 86.02920 | 7.12510 | 0.1312297 | 2.2875564 | 13 | 1 | 26 days | 0.16 | | | MPC | 2009 $WZ_{242}$ |
| 2009 $WT_{243}$ | 16.8 | 0.15 | 20091125 | 7.18426 | 150.61402 | 273.26357 | 6.85826 | 0.1175578 | 2.8137785 | 10 | 1 | 22 days | 0.29 | | | MPC | 2009 $WT_{243}$ |
| 2009 $WB_{245}$ | 17.0 | 0.15 | 20091125 | 26.09032 | 311.17398 | 89.58137 | 9.05026 | 0.1200575 | 2.5715592 | 14 | 1 | 21 days | 0.23 | | | MPC | 2009 $WB_{245}$ |
| 2009 $WO_{246}$ | 16.3 | 0.15 | 20091125 | 66.89158 | 95.37625 | 244.77158 | 12.03166 | 0.1970467 | 3.0727607 | 17 | 1 | 15 days | 0.52 | | | MPC | 2009 $WO_{246}$ |
| 2009 $WS_{246}$ | 18.3 | 0.15 | 20091125 | 7.83308 | 169.45837 | 249.80951 | 5.90782 | 0.1256793 | 2.3572941 | 16 | 1 | 21 days | 0.28 | | | MPC | 2009 $WS_{246}$ |
| 2009 $WT_{246}$ | 16.6 | 0.15 | 20091125 | 11.60353 | 136.51427 | 266.15204 | 15.56631 | 0.2079845 | 3.1389097 | 17 | 1 | 16 days | 0.49 | | | MPC | 2009 $WT_{246}$ |
| 2009 $WU_{246}$ | 16.6 | 0.15 | 20091125 | 330.24351 | 200.37289 | 259.79642 | 11.72560 | 0.1369546 | 3.0141553 | 14 | 1 | 24 days | 0.35 | | | MPC | 2009 $WU_{246}$ |
| 2009 $WC_{247}$ | 17.3 | 0.15 | 20091125 | 319.90058 | 208.03771 | 261.15111 | 17.56169 | 0.0799210 | 2.0003614 | 17 | 1 | 19 days | 0.61 | | | MPC | 2009 $WC_{247}$ |
| 2009 $WT_{247}$ | 17.2 | 0.15 | 20091125 | 327.97533 | 148.50451 | 325.62066 | 5.27413 | 0.1853192 | 2.5437664 | 28 | 1 | 18 days | 0.47 | | | MPC | 2009 $WT_{247}$ |
| 2009 $WU_{247}$ | 17.1 | 0.15 | 20091125 | 247.84034 | 188.78382 | 82.30267 | 27.04946 | 0.0634824 | 1.9795797 | 9 | 1 | 1 days | 0.38 | | E | MPC | 2009 $WU_{247}$ |
| 2009 $WC_{248}$ | 17.4 | 0.15 | 20091105 | 58.65431 | 289.75477 | 44.27338 | 3.91823 | 0.2181702 | 2.3442432 | 13 | 1 | 8 days | 0.45 | | E | MPC | 2009 $WC_{248}$ |
| 2009 $WE_{248}$ | 16.7 | 0.15 | 20091125 | 354.41003 | 17.21164 | 57.69600 | 5.97287 | 0.1425700 | 2.7125578 | 14 | 1 | 29 days | 0.43 | | | MPC | 2009 $WE_{248}$ |
| 2009 $WW_{248}$ | 17.6 | 0.15 | 20091125 | 23.64533 | 233.69549 | 153.17047 | 5.86845 | 0.2848855 | 2.5681045 | 13 | 1 | 24 days | 0.53 | | | MPC | 2009 $WW_{248}$ |
| 2009 $WM_{249}$ | 17.3 | 0.15 | 20091125 | 16.62992 | 245.12282 | 162.49798 | 0.41694 | 0.0942825 | 2.1950878 | 12 | 1 | 18 days | 0.19 | | | MPC | 2009 $WM_{249}$ |
| 2009 $WR_{249}$ | 15.4 | 0.15 | 20091125 | 359.05598 | 172.74942 | 316.16437 | 37.80769 | 0.2839455 | 2.8257143 | 7 | 1 | 19 days | 0.35 | | E | MPC | 2009 $WR_{249}$ |
| 2009 $WS_{249}$ | 15.1 | 0.15 | 20091125 | 342.04664 | 5.60676 | 77.36066 | 13.40620 | 0.0336975 | 2.8575451 | 13 | 1 | 17 days | 0.41 | | | MPC | 2009 $WS_{249}$ |
| 2009 $WT_{249}$ | 17.2 | 0.15 | 20091105 | 22.23636 | 316.62237 | 68.45342 | 8.63371 | 0.0865040 | 2.9417616 | 15 | 1 | 50 days | 0.31 | | | MPC | 2009 $WT_{249}$ |
| 2009 $WV_{249}$ | 15.8 | 0.15 | 20091125 | 213.86274 | 318.45713 | 266.34286 | 11.41605 | 0.0282657 | 2.9056096 | 14 | 1 | 32 days | 0.22 | | | MPC | 2009 $WV_{249}$ |
| 2009 $WW_{249}$ | 16.3 | 0.15 | 20091125 | 271.75568 | 93.26111 | 75.51554 | 16.08558 | 0.0247551 | 3.0128973 | 10 | 1 | 24 days | 0.13 | | | MPC | 2009 $WW_{249}$ |
| 2009 $WZ_{249}$ | 15.9 | 0.15 | 20091125 | 154.34152 | 200.77738 | 73.97220 | 8.53784 | 0.0642019 | 2.7278696 | 11 | 1 | 21 days | 0.22 | | | MPC | 2009 $WZ_{249}$ |
| 2009 $WA_{250}$ | 16.6 | 0.15 | 20091125 | 335.59965 | 36.42332 | 70.36007 | 13.23987 | 0.1361327 | 2.5438926 | 11 | 1 | 18 days | 0.26 | | | MPC | 2009 $WA_{250}$ |
| 2009 $WB_{250}$ | 17.4 | 0.15 | 20091125 | 92.67931 | 197.70052 | 126.81649 | 3.14557 | 0.1059591 | 2.6780030 | 14 | 1 | 16 days | 0.32 | | | MPC | 2009 $WB_{250}$ |
| 2009 $WC_{250}$ | 17.8 | 0.15 | 20091125 | 350.62658 | 0.96876 | 80.54944 | 17.73903 | 0.1694886 | 2.7313432 | 14 | 1 | 15 days | 0.18 | | | MPC | 2009 $WC_{250}$ |
| 2009 $WD_{250}$ | 18.8 | 0.15 | 20100104 | 31.77357 | 155.58097 | 244.73618 | 3.03656 | 0.1728720 | 2.2734224 | 19 | 1 | 23 days | 0.25 | M-v 6 | D | MPC | 2009 $WD_{250}$ |
| 2009 $WF_{250}$ | 13.7 | 0.15 | 20091125 | 271.08371 | 306.68974 | 220.02736 | 19.60029 | 0.1370403 | 3.2415230 | 8 | 1 | 18 days | 0.63 | | E | MPC | 2009 $WF_{250}$ |
| 2009 $WG_{250}$ | 17.1 | 0.15 | 20091125 | 23.65309 | 260.64024 | 131.81224 | 4.71032 | 0.2209359 | 2.2100799 | 6 | 1 | 12 days | 0.40 | | E | MPC | 2009 $WG_{250}$ |
| 2009 $WM_{250}$ | 13.2 | 0.15 | 20091105 | 17.87438 | 322.28999 | 72.57895 | 8.42907 | 0.0886466 | 5.1808510 | 15 | 1 | 49 days | 0.33 | | | MPC | 2009 $WM_{250}$ |
| 2009 $WU_{251}$ | 15.2 | 0.15 | 20091125 | 348.37893 | 230.79528 | 222.96812 | 10.55028 | 0.2353299 | 3.9473754 | 12 | 1 | 18 days | 0.42 | | | MPC | 2009 $WU_{251}$ |
| 2009 $WA_{253}$ | 16.2 | 0.15 | 20091105 | 73.24217 | 264.30397 | 78.92692 | 9.71472 | 0.0967462 | 3.1401325 | 12 | 1 | 32 days | 0.18 | | | MPC | 2009 $WA_{253}$ |
| 2009 $WP_{253}$ | 15.4 | 0.15 | 20091125 | 149.01999 | 193.19057 | 88.93706 | 8.61051 | 0.0176134 | 3.2144690 | 14 | 1 | 25 days | 0.37 | | | MPC | 2009 $WP_{253}$ |
| 2009 $WM_{255}$ | 17.5 | 0.15 | 20091125 | 20.69122 | 327.39697 | 98.03875 | 7.24419 | 0.1309880 | 2.3934324 | 14 | 1 | 36 days | 0.17 | | | MPC | 2009 $WM_{255}$ |
| 2009 $WQ_{256}$ | 18.0 | 0.15 | 20091125 | 11.52334 | 170.08785 | 245.06972 | 1.51105 | 0.1733759 | 2.2957075 | 13 | 1 | 24 days | 0.24 | | | MPC | 2009 $WQ_{256}$ |
| 2009 $WT_{256}$ | 15.3 | 0.15 | 20091125 | 319.17237 | 233.14909 | 248.17161 | 16.54387 | 0.0853465 | 3.0723901 | 10 | 1 | 23 days | 0.18 | | | MPC | 2009 $WT_{256}$ |
| 2009 $WJ_{257}$ | 15.6 | 0.15 | 20091125 | 39.57271 | 131.74929 | 259.51160 | 20.98644 | 0.0359685 | 3.1283385 | 11 | 1 | 24 days | 0.10 | | | MPC | 2009 $WJ_{257}$ |
| 2009 $WK_{257}$ | 15.6 | 0.15 | 20091125 | 253.37794 | 285.15982 | 264.65352 | 14.01969 | 0.0786553 | 3.1632342 | 11 | 1 | 24 days | 0.17 | | | MPC | 2009 $WK_{257}$ |
| 2009 $WH_{258}$ | 16.3 | 0.15 | 20091125 | 359.97033 | 353.97338 | 75.54914 | 10.56446 | 0.0667893 | 3.1740990 | 13 | 1 | 18 days | 0.23 | | | MPC | 2009 $WH_{258}$ |
| 2009 $WL_{258}$ | 17.1 | 0.15 | 20091125 | 181.42511 | 175.10860 | 74.10756 | 2.54991 | 0.1424671 | 2.4511976 | 13 | 1 | 18 days | 0.23 | | | MPC | 2009 $WL_{258}$ |
| 2009 XC | 17.1 | 0.15 | 20091125 | 359.75407 | 187.19625 | 240.92330 | 10.61748 | 0.2200614 | 3.0165005 | 17 | 1 | 40 days | 0.38 | | | MPC | 2009 XC |
| 2009 XD | 18.7 | 0.15 | 20100104 | 347.60673 | 269.26730 | 256.03722 | 31.45363 | 0.6741685 | 2.4457224 | 214 | 1 | 21 days | 0.34 | M-v 6 | | MPC | 2009 XD |
| 2009 XE | 15.8 | 0.15 | 20091125 | 140.79087 | 33.60271 | 240.33239 | 13.45927 | 0.2419742 | 2.6861934 | 18 | 1 | 13 days | 0.62 | | E | MPC | 2009 XE |
| 2009 XG | 17.6 | 0.15 | 20091125 | 320.39079 | 30.84374 | 86.25157 | 5.80317 | 0.1139510 | 2.2579670 | 20 | 1 | 19 days | 0.18 | | | MPC | 2009 XG |
| 2009 XK | 16.8 | 0.15 | 20091125 | 356.70673 | 215.61902 | 216.36608 | 1.09751 | 0.0826552 | 2.9337410 | 9 | 1 | 23 days | 0.36 | | | MPC | 2009 XK |
| 2009 XO | 20.2 | 0.15 | 20100104 | 342.55595 | 140.70734 | 27.60558 | 0.35662 | 0.5418686 | 1.8499915 | 112 | 1 | 19 days | 0.35 | M-v 6 | | MPC | 2009 XO |
| 2009 XP | 16.9 | 0.15 | 20091125 | 332.59220 | 26.88959 | 81.79868 | 34.73425 | 0.1606474 | 2.4258712 | 9 | 1 | 2 days | 0.39 | | | MPC | 2009 XP |
| 2009 XQ | 15.7 | 0.15 | 20091125 | 122.74260 | 223.88153 | 74.93545 | 8.22201 | 0.1994277 | 2.4933690 | 15 | 1 | 2 days | 0.66 | | | MPC | 2009 XQ |
| 2009 XR | 15.7 | 0.15 | 20091125 | 51.57685 | 193.17553 | 163.34368 | 5.72152 | 0.2029735 | 2.9739690 | 12 | 1 | 10 days | 0.44 | | | MPC | 2009 XR |
| 2009 XS | 14.6 | 0.15 | 20091125 | 258.04869 | 331.42353 | 206.24818 | 8.67348 | 0.0524711 | 3.1313561 | 11 | 1 | 4 days | 0.29 | | | MPC | 2009 XS |
| 2009 XU | 16.2 | 0.15 | 20091125 | 100.32185 | 169.96756 | 150.88756 | 5.99308 | 0.0735634 | 2.7092799 | 11 | 1 | 14 days | 0.36 | | | MPC | 2009 XU |
| 2009 XV | 21.0 | 0.15 | 20100104 | 18.12456 | 326.80316 | 44.75339 | 3.33023 | 0.6851996 | 2.5825015 | 90 | 1 | 17 days | 0.42 | M-v 6 | | MPC | 2009 XV |
| 2009 XX | 17.5 | 0.15 | 20091215 | 311.39274 | 185.31524 | 308.72022 | 6.63684 | 0.1412929 | 2.3595192 | 30 | 1 | 10 days | 0.44 | | | MPC | 2009 XX |
| 2009 XY | 17.9 | 0.15 | 20091215 | 332.05670 | 27.76772 | 98.53062 | 4.21866 | 0.1305108 | 2.2337026 | 18 | 1 | 16 days | 0.34 | | | MPC | 2009 XY |
| 2009 XZ | 15.4 | 0.15 | 20091125 | 100.92401 | 252.10602 | 69.56653 | 13.87366 | 0.0848834 | 3.1486384 | 17 | 1 | 21 days | 0.51 | | | MPC | 2009 XZ |
| 2009 $XA_1$ | 17.8 | 0.15 | 20091125 | 2.89387 | 162.19531 | 262.01012 | 20.13847 | 0.0402531 | 1.8697550 | 17 | 1 | 27 days | 0.28 | | | MPC | 2009 $XA_1$ |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2009 $XB_1$ | 18.3 | 0.15 | 20091125 | 1.94595 | 159.60853 | 266.41599 | 17.00407 | 0.0919116 | 1.9046239 | 11 | 1 | 2 days | 0.47 | | | MPC | 2009 $XB_1$ |
| 2009 $XG_1$ | 15.4 | 0.15 | 20091215 | 322.84166 | 180.26825 | 324.31633 | 11.24334 | 0.1184936 | 3.1592175 | 12 | 1 | 15 days | 0.35 | | | MPC | 2009 $XG_1$ |
| 2009 $XK_1$ | 17.7 | 0.15 | 20091125 | 355.58733 | 144.04973 | 296.86339 | 1.60331 | 0.1555217 | 2.3533340 | 14 | 1 | 10 days | 0.54 | | | MPC | 2009 $XK_1$ |
| 2009 $XM_1$ | 16.8 | 0.15 | 20091125 | 336.66028 | 190.36723 | 271.90601 | 16.12122 | 0.1958752 | 2.7242132 | 30 | 1 | 6 days | 0.55 | | | MPC | 2009 $XM_1$ |
| 2009 $XN_1$ | 15.4 | 0.15 | 20091215 | 214.03389 | 183.25945 | 37.83513 | 11.03283 | 0.0287318 | 3.0202850 | 25 | 1 | 10 days | 0.61 | | | MPC | 2009 $XN_1$ |
| 2009 $XP_1$ | 15.7 | 0.15 | 20091215 | 314.52833 | 101.84058 | 32.77146 | 11.24495 | 0.1653173 | 2.9804256 | 29 | 1 | 15 days | 0.42 | | | MPC | 2009 $XP_1$ |
| 2009 $XQ_1$ | 22.3 | 0.15 | 20100104 | 271.31895 | 318.48039 | 256.83273 | 17.78253 | 0.2968403 | 1.0789067 | 35 | 1 | 15 days | 0.57 | M-v | 7 | MPC | 2009 $XQ_1$ |
| 2009 $XR_1$ | 29.2 | 0.15 | 20100104 | 359.92394 | 210.41020 | 257.46108 | 0.44442 | 0.4250678 | 1.6723619 | 15 | 1 | 0 days | 0.59 | M-v | 7 | MPC | 2009 $XR_1$ |
| 2009 $XS_1$ | 17.0 | 0.15 | 20091125 | 316.43969 | 359.26810 | 121.77194 | 5.93674 | 0.1001325 | 2.3105432 | 17 | 1 | 16 days | 0.50 | | | MPC | 2009 $XS_1$ |
| 2009 $XU_1$ | 17.9 | 0.15 | 20091125 | 210.39088 | 150.37946 | 80.95946 | 26.71577 | 0.1573436 | 1.9215176 | 14 | 1 | 1 days | 0.39 | | E | MPC | 2009 $XU_1$ |
| 2009 $XV_1$ | 22.9 | 0.15 | 20100104 | 37.11102 | 254.83329 | 80.90974 | 19.51281 | 0.6611851 | 1.7117526 | 28 | 1 | 14 days | 0.26 | M-v | 7 | MPC | 2009 $XV_1$ |
| 2009 $XX_1$ | 17.3 | 0.15 | 20091105 | 343.74408 | 301.82441 | 119.40549 | 5.99827 | 0.1271311 | 2.3207975 | 21 | 1 | 57 days | 0.55 | | | MPC | 2009 $XX_1$ |
| 2009 $XY_1$ | 16.7 | 0.15 | 20091125 | 358.49352 | 193.44894 | 256.59027 | 26.36438 | 0.1580001 | 2.1488352 | 11 | 1 | 2 days | 0.59 | | | MPC | 2009 $XY_1$ |
| 2009 $XZ_1$ | 21.6 | 0.15 | 20100104 | 265.30243 | 152.90879 | 82.07980 | 8.20999 | 0.5353733 | 0.8555497 | 26 | 1 | 5 days | 0.28 | M-v | 9 | MPC | 2009 $XZ_1$ |
| 2009 $XA_2$ | 23.2 | 0.15 | 20100104 | 41.12885 | 107.72809 | 255.88619 | 26.63409 | 0.4584183 | 1.5734239 | 26 | 1 | 8 days | 0.50 | M-v | 8 | MPC | 2009 $XA_2$ |
| 2009 $XB_2$ | 20.7 | 0.15 | 20100104 | 35.43212 | 301.21012 | 99.46058 | 11.92893 | 0.3445868 | 1.6731251 | 22 | 1 | 15 days | 0.31 | M-v | 6 | MPC | 2009 $XB_2$ |
| 2009 $XC_2$ | 17.0 | 0.15 | 20100104 | 344.44525 | 93.17297 | 104.40717 | 25.79548 | 0.5853404 | 2.6447693 | 62 | 1 | 17 days | 0.35 | M-v | 7 | MPC | 2009 $XC_2$ |
| 2009 $XD_2$ | 17.7 | 0.15 | 20091125 | 38.74122 | 132.37170 | 248.73639 | 6.99200 | 0.1389556 | 2.2323269 | 15 | 1 | 18 days | 0.40 | | | MPC | 2009 $XD_2$ |
| 2009 $XE_2$ | 15.3 | 0.15 | 20091125 | 57.35942 | 235.12231 | 112.28709 | 9.35950 | 0.2258576 | 3.0825409 | 8 | 1 | 5 days | 0.43 | | | MPC | 2009 $XE_2$ |
| 2009 $XF_2$ | 20.1 | 0.15 | 20100104 | 278.46483 | 113.27024 | 88.55995 | 14.00992 | 0.2470226 | 1.2857209 | 34 | 1 | 14 days | 0.46 | M-v | 6 | MPC | 2009 $XF_2$ |
| 2009 $XL_2$ | 15.1 | 0.15 | 20091125 | 22.45837 | 287.48281 | 120.93116 | 10.66460 | 0.0722432 | 3.0265363 | 19 | 1 | 4 days | 0.47 | | | MPC | 2009 $XL_2$ |
| 2009 $XM_2$ | 15.6 | 0.15 | 20091125 | 28.37892 | 271.35350 | 116.70240 | 11.59642 | 0.2376597 | 3.1539276 | 15 | 1 | 2 days | 0.49 | | | MPC | 2009 $XM_2$ |
| 2009 $XN_2$ | 14.6 | 0.15 | 20091125 | 84.08643 | 97.77509 | 238.96464 | 23.54582 | 0.1436756 | 3.1656166 | 10 | 1 | 2 days | 0.30 | | E | MPC | 2009 $XN_2$ |
| 2009 $XO_2$ | 23.5 | 0.15 | 20100104 | 359.85212 | 15.49995 | 91.17440 | 12.62810 | 0.4878825 | 1.9378204 | 54 | 1 | 8 days | 0.38 | M-v | 6 | MPC | 2009 $XO_2$ |
| 2009 $XP_2$ | 25.2 | 0.15 | 20100104 | 39.51293 | 325.45071 | 79.98836 | 9.25898 | 0.1973339 | 1.2125627 | 41 | 1 | 4 days | 0.42 | M-v | 6 | MPC | 2009 $XP_2$ |
| 2009 $XQ_2$ | 25.2 | 0.15 | 20100104 | 332.36299 | 282.51947 | 271.12982 | 6.79627 | 0.5657942 | 1.1692989 | 16 | 1 | 0 days | 0.71 | M-v | 9 | MPC | 2009 $XQ_2$ |
| 2009 $XR_2$ | 19.1 | 0.15 | 20100104 | 33.54614 | 130.99179 | 271.54869 | 26.71530 | 0.2889766 | 1.4911375 | 119 | 1 | 15 days | 0.29 | M-v | 7 | MPC | 2009 $XR_2$ |
| 2009 $XV_2$ | 17.0 | 0.15 | 20091125 | 346.51150 | 60.13599 | 32.60799 | 8.30246 | 0.2739276 | 3.0376603 | 20 | 1 | 4 days | 0.50 | | | MPC | 2009 $XV_2$ |
| 2009 $XW_2$ | 13.4 | 0.15 | 20091105 | 305.07034 | 59.10080 | 24.56481 | 25.82140 | 0.1254947 | 5.2431731 | 15 | 1 | 58 days | 0.66 | | E | MPC | 2009 $XW_2$ |
| 2009 $XY_2$ | 15.1 | 0.15 | 20091125 | 75.00670 | 63.14813 | 270.24137 | 16.84739 | 0.1456292 | 3.0744229 | 23 | 1 | 5 days | 0.63 | | | MPC | 2009 $XY_2$ |
| 2009 $XC_3$ | 16.2 | 0.15 | 20091125 | 317.92775 | 230.57784 | 269.72156 | 9.12005 | 0.2583325 | 2.9724530 | 9 | 1 | 7 days | 0.24 | | | MPC | 2009 $XC_3$ |
| 2009 $XG_3$ | 17.1 | 0.15 | 20091125 | 28.69812 | 293.52897 | 85.95559 | 3.60593 | 0.3058240 | 2.3363292 | 14 | 1 | 10 days | 0.28 | | | MPC | 2009 $XG_3$ |
| 2009 $XH_3$ | 14.6 | 0.15 | 20091125 | 186.75237 | 169.62492 | 82.59509 | 8.71420 | 0.1261293 | 2.6858298 | 15 | 1 | 10 days | 0.67 | | | MPC | 2009 $XH_3$ |
| 2009 $XK_3$ | 16.5 | 0.15 | 20091125 | 348.19033 | 316.97185 | 136.85423 | 1.58558 | 0.2239553 | 2.7943086 | 11 | 1 | 8 days | 0.45 | | | MPC | 2009 $XK_3$ |
| 2009 $XO_3$ | 15.1 | 0.15 | 20091125 | 21.72938 | 155.61937 | 252.97107 | 21.78755 | 0.1254733 | 3.1279759 | 12 | 1 | 8 days | 0.25 | | | MPC | 2009 $XO_3$ |
| 2009 $XQ_3$ | 15.4 | 0.15 | 20091125 | 293.70403 | 61.26643 | 92.06782 | 16.19255 | 0.0988130 | 2.8712796 | 12 | 1 | 8 days | 0.42 | | | MPC | 2009 $XQ_3$ |
| 2009 $XR_3$ | 16.4 | 0.15 | 20091125 | 349.22486 | 211.73571 | 245.57349 | 12.32366 | 0.3284635 | 3.1471626 | 9 | 1 | 8 days | 0.18 | | | MPC | 2009 $XR_3$ |
| 2009 $XS_3$ | 18.0 | 0.15 | 20091125 | 320.01300 | 60.58093 | 78.77924 | 24.47762 | 0.2668109 | 2.2388444 | 13 | 1 | 2 days | 0.22 | | | MPC | 2009 $XS_3$ |
| 2009 $XT_3$ | 17.0 | 0.15 | 20091125 | 324.19681 | 49.78145 | 71.77279 | 12.75221 | 0.2247898 | 2.5586862 | 11 | 1 | 5 days | 0.41 | | | MPC | 2009 $XT_3$ |
| 2009 $XV_3$ | 18.0 | 0.15 | 20091125 | 3.76666 | 140.67443 | 282.62790 | 4.13029 | 0.2418036 | 2.4783905 | 10 | 1 | 1 days | 0.65 | | | MPC | 2009 $XV_3$ |
| 2009 $XG_4$ | 16.9 | 0.15 | 20091215 | 347.54786 | 350.95738 | 100.47716 | 2.73819 | 0.0631228 | 2.8958335 | 11 | 1 | 9 days | 0.32 | | | MPC | 2009 $XG_4$ |
| 2009 $XW_4$ | 16.9 | 0.15 | 20091125 | 39.92217 | 129.43087 | 247.06576 | 5.17874 | 0.1951422 | 2.6048110 | 18 | 1 | 25 days | 0.19 | | | MPC | 2009 $XW_4$ |
| 2009 $XD_5$ | 16.1 | 0.15 | 20091125 | 4.24144 | 341.59622 | 88.27939 | 6.52391 | 0.0736017 | 2.7383516 | 15 | 1 | 17 days | 0.16 | | | MPC | 2009 $XD_5$ |
| 2009 $XL_5$ | 16.4 | 0.15 | 20091215 | 323.79716 | 57.84414 | 77.89327 | 14.71596 | 0.1992582 | 2.7362340 | 11 | 1 | 10 days | 0.15 | | | MPC | 2009 $XL_5$ |
| 2009 $XY_5$ | 15.5 | 0.15 | 20091125 | 130.00028 | 46.65160 | 253.96156 | 13.24011 | 0.0972900 | 2.6712862 | 10 | 1 | 7 days | 0.25 | | | MPC | 2009 $XY_5$ |
| 2009 $XB_6$ | 15.8 | 0.15 | 20091125 | 337.80072 | 11.21319 | 96.86492 | 11.57502 | 0.1883026 | 3.0645778 | 10 | 1 | 6 days | 0.49 | | | MPC | 2009 $XB_6$ |
| 2009 $XK_6$ | 17.5 | 0.15 | 20091105 | 23.80496 | 69.16522 | 286.76013 | 4.89795 | 0.3317208 | 2.3470094 | 22 | 1 | 51 days | 0.45 | | | MPC | 2009 $XK_6$ |
| 2009 $XR_6$ | 16.7 | 0.15 | 20091215 | 76.68091 | 87.63753 | 262.05586 | 20.64661 | 0.1328896 | 1.9121020 | 37 | 1 | 9 days | 0.35 | | | MPC | 2009 $XR_6$ |
| 2009 $XS_6$ | 20.1 | 0.15 | 20100104 | 8.78898 | 195.31962 | 233.79133 | 9.47586 | 0.4567773 | 2.5225696 | 10 | 1 | 2 days | 0.38 | M-v | 9 | MPC | 2009 $XS_6$ |
| 2009 $XT_6$ | 20.2 | 0.15 | 20100104 | 22.36415 | 81.56514 | 265.38498 | 5.72983 | 0.7662358 | 2.1695021 | 93 | 1 | 15 days | 0.44 | M-v | 7 | MPC | 2009 $XT_6$ |
| 2009 $XW_6$ | 14.7 | 0.15 | 20091215 | 335.67809 | 39.15206 | 53.90892 | 3.85436 | 0.1004919 | 3.8290572 | 12 | 1 | 8 days | 0.42 | | | MPC | 2009 $XW_6$ |
| 2009 $XX_6$ | 15.9 | 0.15 | 20091125 | 16.76895 | 154.53494 | 245.75557 | 10.17395 | 0.1144545 | 3.0715580 | 18 | 1 | 5 days | 0.37 | | E | MPC | 2009 $XX_6$ |
| 2009 $XY_6$ | 18.0 | 0.15 | 20091215 | 25.13568 | 127.00095 | 266.33616 | 3.52894 | 0.1802412 | 2.3753014 | 16 | 1 | 7 days | 0.43 | | | MPC | 2009 $XY_6$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2009 $XZ_{6}$ | 26.2 | 0.15 | 20100104 | 35.09975 | 326.75801 | 85.14561 | 6.47453 | 0.2016498 | 1.2217824 | 47 | 1 | 11 days | 0.33 | M-v | 6 | MPC | 2009 $XZ_{6}$ |
| 2009 $XL_{7}$ | 16.9 | 0.15 | 20091215 | 300.34475 | 48.77765 | 122.15213 | 6.49750 | 0.0818770 | 2.4387936 | 17 | 1 | 13 days | 0.49 | | | MPC | 2009 $XL_{7}$ |
| 2009 $XM_{7}$ | 15.5 | 0.15 | 20091125 | 106.97369 | 48.14105 | 268.58033 | 6.30248 | 0.1435429 | 2.8514851 | 20 | 1 | 10 days | 0.58 | | | MPC | 2009 $XM_{7}$ |
| 2009 $XP_{7}$ | 24.1 | 0.15 | 20100104 | 21.48022 | 148.10756 | 264.53313 | 12.11102 | 0.3866817 | 1.6695971 | 31 | 1 | 7 days | 0.56 | M-v | 7 | MPC | 2009 $XP_{7}$ |
| 2009 $XR_{7}$ | 16.5 | 0.15 | 20091215 | 2.49921 | 57.18812 | 9.93451 | 7.68629 | 0.0883487 | 3.1958839 | 9 | 1 | 5 days | 0.53 | | | MPC | 2009 $XR_{7}$ |
| 2009 $XS_{7}$ | 16.5 | 0.15 | 20091215 | 72.49145 | 46.10707 | 296.27538 | 8.14959 | 0.1313803 | 2.9019065 | 11 | 1 | 5 days | 0.38 | | | MPC | 2009 $XS_{7}$ |
| 2009 $XX_{7}$ | 16.9 | 0.15 | 20091215 | 305.74672 | 228.94493 | 273.56655 | 4.34289 | 0.0833015 | 2.2283423 | 10 | 1 | 8 days | 0.32 | | | MPC | 2009 $XX_{7}$ |
| 2009 $XY_{7}$ | 16.4 | 0.15 | 20091215 | 65.94495 | 213.85803 | 159.91765 | 4.21334 | 0.0275547 | 2.4518342 | 12 | 1 | 4 days | 0.16 | | | MPC | 2009 $XY_{7}$ |
| 2009 $XD_{8}$ | 17.8 | 0.15 | 20091215 | 82.50863 | 58.57316 | 280.33415 | 24.33558 | 0.2475370 | 1.8305640 | 28 | 1 | 1 days | 0.35 | | | MPC | 2009 $XD_{8}$ |
| 2009 $XE_{8}$ | 18.6 | 0.15 | 20091215 | 26.70725 | 113.45360 | 280.84763 | 27.33128 | 0.4364023 | 2.3673836 | 26 | 1 | 2 days | 0.29 | | | MPC | 2009 $XE_{8}$ |
| 2009 $XF_{8}$ | 19.1 | 0.15 | 20100104 | 330.87022 | 50.33368 | 76.26570 | 67.01361 | 0.1956690 | 2.3519930 | 23 | 1 | 5 days | 0.39 | M-v | 8 | MPC | 2009 $XF_{8}$ |
| 2009 $XG_{8}$ | 18.8 | 0.15 | 20100104 | 232.07969 | 150.69862 | 50.90936 | 59.93366 | 0.1883244 | 1.4316583 | 39 | 1 | 3 days | 0.30 | M-v | 9 | MPC | 2009 $XG_{8}$ |
| 2009 $XH_{8}$ | 23.1 | 0.15 | 20100104 | 6.04773 | 1.43670 | 79.40448 | 4.89449 | 0.4762330 | 2.0543416 | 22 | 1 | 1 days | 0.32 | M-v | 8 | MPC | 2009 $XH_{8}$ |
| 2009 $XJ_{8}$ | 20.9 | 0.15 | 20100104 | 7.72453 | 344.64078 | 78.93937 | 5.06643 | 0.4730654 | 2.4479265 | 23 | 1 | 10 days | 0.22 | M-v | 7 | MPC | 2009 $XJ_{8}$ |
| 2009 $XK_{8}$ | 25.1 | 0.15 | 20100104 | 11.96601 | 300.89568 | 106.86888 | 2.75872 | 0.6117277 | 2.4635857 | 30 | 1 | 6 days | 0.53 | M-v | 7 | MPC | 2009 $XK_{8}$ |
| 2009 $XL_{8}$ | 22.5 | 0.15 | 20100104 | 323.60169 | 283.19623 | 270.32308 | 13.72511 | 0.4813905 | 1.2409881 | 35 | 1 | 5 days | 0.39 | M-v | 8 | MPC | 2009 $XL_{8}$ |
| 2009 $XN_{8}$ | 17.0 | 0.15 | 20091215 | 18.49820 | 327.19278 | 99.33913 | 7.71798 | 0.1943712 | 2.3385478 | 23 | 1 | 13 days | 0.38 | | | MPC | 2009 $XN_{8}$ |
| 2009 $XO_{8}$ | 15.4 | 0.15 | 20091215 | 30.39552 | 318.80265 | 97.47633 | 12.77465 | 0.1554537 | 3.0790107 | 22 | 1 | 14 days | 0.39 | | | MPC | 2009 $XO_{8}$ |
| 2009 $XP_{8}$ | 16.8 | 0.15 | 20091215 | 346.91986 | 14.03876 | 102.17393 | 11.47605 | 0.2024144 | 2.6784027 | 18 | 1 | 13 days | 0.43 | | | MPC | 2009 $XP_{8}$ |
| 2009 $XS_{8}$ | 18.3 | 0.15 | 20091215 | 357.40514 | 6.47625 | 71.06735 | 2.00980 | 0.1874363 | 2.3555906 | 20 | 1 | 5 days | 0.52 | | | MPC | 2009 $XS_{8}$ |
| 2009 $XT_{8}$ | 15.7 | 0.15 | 20091125 | 44.46082 | 170.89093 | 214.71022 | 10.36922 | 0.0513371 | 2.6881713 | 10 | 1 | 4 days | 0.32 | | E | MPC | 2009 $XT_{8}$ |
| 2009 $XU_{8}$ | 16.6 | 0.15 | 20091125 | 38.05493 | 137.96952 | 226.98631 | 12.19217 | 0.3121013 | 2.6867237 | 9 | 1 | 4 days | 0.50 | | | MPC | 2009 $XU_{8}$ |
| 2009 $XV_{8}$ | 16.8 | 0.15 | 20091215 | 32.59498 | 224.17526 | 176.43618 | 6.29218 | 0.1044561 | 2.2744881 | 17 | 1 | 5 days | 0.55 | | | MPC | 2009 $XV_{8}$ |
| 2009 $XW_{8}$ | 15.8 | 0.15 | 20091215 | 31.44299 | 294.67403 | 91.96749 | 26.67028 | 0.2608699 | 3.0403876 | 11 | 1 | 8 days | 0.49 | | | MPC | 2009 $XW_{8}$ |
| 2009 $XZ_{8}$ | 16.4 | 0.15 | 20091215 | 4.73007 | 174.44230 | 262.00450 | 13.44641 | 0.0915471 | 2.7280308 | 11 | 1 | 10 days | 0.58 | | | MPC | 2009 $XZ_{8}$ |
| 2009 $XB_{9}$ | 16.9 | 0.15 | 20091215 | 350.23429 | 187.59706 | 269.93644 | 13.24628 | 0.2215824 | 2.6378225 | 17 | 1 | 10 days | 0.55 | | | MPC | 2009 $XB_{9}$ |
| 2009 $XE_{9}$ | 16.3 | 0.15 | 20091215 | 6.10528 | 166.19807 | 281.00261 | 22.14255 | 0.0364880 | 1.9814378 | 18 | 1 | 11 days | 0.47 | | | MPC | 2009 $XE_{9}$ |
| 2009 $XF_{9}$ | 15.9 | 0.15 | 20091215 | 291.16923 | 250.23858 | 290.80159 | 10.54561 | 0.1488858 | 2.4808148 | 16 | 1 | 16 days | 0.47 | | | MPC | 2009 $XF_{9}$ |
| 2009 $XH_{9}$ | 18.0 | 0.15 | 20091215 | 32.65606 | 41.99942 | 350.79606 | 4.83498 | 0.1418463 | 2.2084504 | 16 | 1 | 5 days | 0.35 | | | MPC | 2009 $XH_{9}$ |
| 2009 $XK_{9}$ | 17.1 | 0.15 | 20091215 | 23.02404 | 322.76491 | 85.35305 | 9.74593 | 0.2501768 | 2.6827764 | 18 | 1 | 7 days | 0.48 | | | MPC | 2009 $XK_{9}$ |
| 2009 $XM_{9}$ | 16.0 | 0.15 | 20091215 | 31.15399 | 242.51087 | 154.76343 | 6.53341 | 0.1734644 | 2.6414751 | 11 | 1 | 8 days | 0.57 | | | MPC | 2009 $XM_{9}$ |
| 2009 $XO_{9}$ | 16.4 | 0.15 | 20091125 | 68.56439 | 217.55608 | 133.11954 | 4.32446 | 0.0668855 | 2.4982131 | 15 | 1 | 21 days | 0.54 | | | MPC | 2009 $XO_{9}$ |
| 2009 $XP_{9}$ | 16.0 | 0.15 | 20091215 | 11.82464 | 189.21738 | 236.50673 | 11.70310 | 0.1595336 | 2.5821009 | 16 | 1 | 6 days | 0.38 | | | MPC | 2009 $XP_{9}$ |
| 2009 $XQ_{9}$ | 16.4 | 0.15 | 20091215 | 328.45603 | 359.78704 | 123.56472 | 5.33948 | 0.1306291 | 2.2809384 | 18 | 1 | 6 days | 0.45 | | | MPC | 2009 $XQ_{9}$ |
| 2009 $XU_{9}$ | 16.3 | 0.15 | 20091215 | 356.50809 | 353.40215 | 115.21859 | 23.19428 | 0.0685292 | 1.9014414 | 12 | 1 | 7 days | 0.39 | | | MPC | 2009 $XU_{9}$ |
| 2009 $XN_{10}$ | 16.3 | 0.15 | 20091215 | 163.34718 | 17.36115 | 254.55660 | 6.30517 | 0.1195308 | 2.7516459 | 10 | 1 | 9 days | 0.45 | | | MPC | 2009 $XN_{10}$ |
| 2009 $XB_{11}$ | 18.2 | 0.15 | 20091215 | 327.84295 | 229.28038 | 270.09753 | 5.91628 | 0.1005340 | 2.2704453 | 16 | 1 | 16 days | 0.40 | | | MPC | 2009 $XB_{11}$ |
| 2009 $XJ_{11}$ | 15.9 | 0.15 | 20091215 | 131.30323 | 219.06560 | 101.78381 | 13.55934 | 0.1431651 | 2.7712903 | 10 | 1 | 15 days | 0.20 | | | MPC | 2009 $XJ_{11}$ |
| 2009 $XL_{11}$ | 17.5 | 0.15 | 20091215 | 294.81608 | 258.47312 | 286.53215 | 5.52262 | 0.1757692 | 2.2959460 | 13 | 1 | 15 days | 0.35 | | | MPC | 2009 $XL_{11}$ |
| 2009 $XO_{11}$ | 16.8 | 0.15 | 20091125 | 15.94240 | 156.76842 | 283.09827 | 14.25938 | 0.0858594 | 2.6249901 | 15 | 1 | 37 days | 0.19 | | | MPC | 2009 $XO_{11}$ |
| 2009 $XP_{12}$ | 17.2 | 0.15 | 20091215 | 347.91290 | 29.17897 | 57.88227 | 4.32802 | 0.2013750 | 2.5828224 | 14 | 1 | 8 days | 0.33 | | | MPC | 2009 $XP_{12}$ |
| 2009 $XB_{14}$ | 16.1 | 0.15 | 20091215 | 217.16902 | 347.88934 | 239.64352 | 11.76759 | 0.0362935 | 2.5363300 | 12 | 1 | 4 days | 0.41 | | | MPC | 2009 $XB_{14}$ |
| 2009 $XR_{14}$ | 16.9 | 0.15 | 20091215 | 17.20184 | 331.90422 | 111.35290 | 13.13362 | 0.1191221 | 3.1176323 | 11 | 1 | 11 days | 0.23 | | | MPC | 2009 $XR_{14}$ |
| 2009 $XS_{14}$ | 17.6 | 0.15 | 20091215 | 15.09901 | 335.70532 | 107.04172 | 7.22070 | 0.1023195 | 2.4168517 | 11 | 1 | 10 days | 0.37 | | | MPC | 2009 $XS_{14}$ |
| 2009 $XE_{15}$ | 16.3 | 0.15 | 20091215 | 272.84104 | 266.30233 | 293.23728 | 10.21853 | 0.0629176 | 3.0969345 | 11 | 1 | 10 days | 0.24 | | | MPC | 2009 $XE_{15}$ |
| 2009 $XF_{15}$ | 18.2 | 0.15 | 20091215 | 20.73416 | 346.16784 | 85.94962 | 3.91708 | 0.1486030 | 2.3182212 | 11 | 1 | 10 days | 0.25 | | | MPC | 2009 $XF_{15}$ |
| 2009 $XL_{15}$ | 18.2 | 0.15 | 20091215 | 11.79507 | 171.61702 | 269.74565 | 2.15100 | 0.2047449 | 2.3205544 | 11 | 1 | 11 days | 0.20 | | | MPC | 2009 $XL_{15}$ |
| 2009 $XR_{15}$ | 18.6 | 0.15 | 20091215 | 19.27957 | 281.40526 | 147.47641 | 1.37773 | 0.2508340 | 2.6299893 | 11 | 1 | 10 days | 0.47 | | | MPC | 2009 $XR_{15}$ |
| 2009 $XS_{15}$ | 15.4 | 0.15 | 20091215 | 85.57763 | 260.90740 | 113.32307 | 13.57463 | 0.0652551 | 3.1764585 | 11 | 1 | 10 days | 0.24 | | | MPC | 2009 $XS_{15}$ |
| 2009 $XW_{15}$ | 17.3 | 0.15 | 20091215 | 2.37326 | 353.25532 | 105.97080 | 8.61250 | 0.1640040 | 2.6345905 | 10 | 1 | 11 days | 0.14 | | | MPC | 2009 $XW_{15}$ |
| 2009 $XX_{15}$ | 17.3 | 0.15 | 20091215 | 236.50246 | 114.42370 | 119.70357 | 7.26795 | 0.0665025 | 2.2766722 | 11 | 1 | 10 days | 0.21 | | | MPC | 2009 $XX_{15}$ |
| 2009 $XA_{16}$ | 17.2 | 0.15 | 20091215 | 18.42855 | 331.10757 | 109.16916 | 13.92576 | 0.1286562 | 2.6334918 | 10 | 1 | 10 days | 0.18 | | | MPC | 2009 $XA_{16}$ |
| 2009 $XB_{16}$ | 16.3 | 0.15 | 20091215 | 310.09107 | 70.59771 | 108.96092 | 17.60660 | 0.2221126 | 3.0890431 | 10 | 1 | 11 days | 0.25 | | | MPC | 2009 $XB_{16}$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2009 $XD_{16}$ | 17.8 | 0.15 | 20091215 | 51.16566 | 103.51227 | 281.14293 | 11.51341 | 0.2646078 | 2.6670028 | 10 | 1 | 10 days | 0.31 | | | MPC | 2009 $XD_{16}$ |
| 2009 $XE_{16}$ | 15.9 | 0.15 | 20091215 | 26.40236 | 327.39961 | 106.91571 | 12.03778 | 0.1014984 | 3.1223330 | 10 | 1 | 11 days | 0.50 | | | MPC | 2009 $XE_{16}$ |
| 2009 $XF_{16}$ | 15.9 | 0.15 | 20091215 | 47.76729 | 294.11863 | 119.15710 | 3.02622 | 0.0643247 | 2.9552919 | 9 | 1 | 10 days | 0.26 | | | MPC | 2009 $XF_{16}$ |
| 2009 $XG_{16}$ | 18.0 | 0.15 | 20091215 | 321.78205 | 8.85885 | 141.84088 | 0.01133 | 0.1287093 | 2.3174548 | 10 | 1 | 11 days | 0.23 | | | MPC | 2009 $XG_{16}$ |
| 2009 $XH_{16}$ | 17.0 | 0.15 | 20091215 | 258.92138 | 285.84129 | 295.07870 | 6.70529 | 0.1447578 | 2.2771913 | 10 | 1 | 11 days | 0.16 | | | MPC | 2009 $XH_{16}$ |
| 2009 $XP_{16}$ | 16.5 | 0.15 | 20091215 | 6.85801 | 351.26331 | 106.44332 | 16.10858 | 0.0939200 | 2.6799753 | 12 | 1 | 11 days | 0.40 | | | MPC | 2009 $XP_{16}$ |
| 2009 $XS_{16}$ | 16.5 | 0.15 | 20091215 | 341.20510 | 37.15515 | 92.02733 | 6.23006 | 0.1132074 | 2.7121851 | 13 | 1 | 11 days | 0.25 | | | MPC | 2009 $XS_{16}$ |
| 2009 $XV_{16}$ | 16.8 | 0.15 | 20091215 | 43.81792 | 294.10794 | 106.53494 | 14.55998 | 0.2297490 | 2.8868192 | 10 | 1 | 6 days | 0.32 | | | MPC | 2009 $XV_{16}$ |
| 2009 $XB_{17}$ | 17.0 | 0.15 | 20091215 | 337.89267 | 25.37976 | 113.84045 | 5.03823 | 0.2051029 | 2.7106397 | 10 | 1 | 10 days | 0.14 | | | MPC | 2009 $XB_{17}$ |
| 2009 $XG_{17}$ | 17.9 | 0.15 | 20091215 | 16.52109 | 333.81129 | 109.64898 | 7.52619 | 0.1430747 | 2.4424228 | 10 | 1 | 10 days | 0.26 | | | MPC | 2009 $XG_{17}$ |
| 2009 $XL_{17}$ | 16.7 | 0.15 | 20091215 | 83.95157 | 90.54732 | 292.19052 | 2.72702 | 0.0215812 | 2.7462912 | 10 | 1 | 10 days | 0.31 | | | MPC | 2009 $XL_{17}$ |
| 2009 $XM_{17}$ | 18.3 | 0.15 | 20091215 | 26.66808 | 340.25074 | 87.59136 | 2.17912 | 0.1575374 | 2.3886074 | 10 | 1 | 11 days | 0.28 | | | MPC | 2009 $XM_{17}$ |
| 2009 $XF_{18}$ | 17.4 | 0.15 | 20091215 | 326.67167 | 200.54634 | 301.32230 | 6.19449 | 0.0394876 | 2.2666578 | 10 | 1 | 11 days | 0.16 | | | MPC | 2009 $XF_{18}$ |
| 2009 $XG_{18}$ | 16.9 | 0.15 | 20091215 | 351.57838 | 31.29267 | 86.11581 | 3.18014 | 0.0399579 | 2.6775015 | 10 | 1 | 5 days | 0.25 | | | MPC | 2009 $XG_{18}$ |
| 2009 $XN_{18}$ | 16.9 | 0.15 | 20091215 | 43.03370 | 106.67103 | 288.28942 | 11.70256 | 0.2832224 | 2.5961406 | 13 | 1 | 4 days | 0.15 | | | MPC | 2009 $XN_{18}$ |
| 2009 $XO_{18}$ | 16.5 | 0.15 | 20091215 | 53.54787 | 283.14874 | 116.22485 | 5.19786 | 0.1617821 | 2.9123770 | 10 | 1 | 10 days | 0.21 | | | MPC | 2009 $XO_{18}$ |
| 2009 $XR_{18}$ | 16.4 | 0.15 | 20091125 | 32.08705 | 307.28484 | 110.36302 | 11.58688 | 0.1690262 | 2.6802776 | 10 | 1 | 6 days | 0.45 | | | MPC | 2009 $XR_{18}$ |
| 2009 $XY_{18}$ | 17.2 | 0.15 | 20091215 | 83.25634 | 262.55300 | 106.79375 | 7.45861 | 0.1417074 | 2.3653080 | 21 | 1 | 11 days | 0.51 | | | MPC | 2009 $XY_{18}$ |
| 2009 $XB_{19}$ | 14.8 | 0.15 | 20091125 | 342.76394 | 14.85783 | 112.86552 | 11.34244 | 0.0373830 | 3.1187298 | 10 | 1 | 7 days | 0.33 | | | MPC | 2009 $XB_{19}$ |
| 2009 $XD_{19}$ | 16.5 | 0.15 | 20091215 | 39.86141 | 300.23788 | 117.76939 | 5.53018 | 0.1502891 | 2.9102502 | 10 | 1 | 10 days | 0.17 | | | MPC | 2009 $XD_{19}$ |
| 2009 $XF_{19}$ | 16.2 | 0.15 | 20091215 | 249.14940 | 301.84026 | 287.05823 | 9.17904 | 0.0464537 | 2.9921186 | 10 | 1 | 10 days | 0.29 | | | MPC | 2009 $XF_{19}$ |
| 2009 $XH_{19}$ | 18.4 | 0.15 | 20091215 | 341.95566 | 24.65492 | 107.85850 | 6.35819 | 0.1718155 | 2.4030324 | 10 | 1 | 10 days | 0.34 | | | MPC | 2009 $XH_{19}$ |
| 2009 $XJ_{19}$ | 17.7 | 0.15 | 20091215 | 6.26065 | 352.48485 | 109.56507 | 9.25156 | 0.0531267 | 2.3604018 | 10 | 1 | 10 days | 0.19 | | | MPC | 2009 $XJ_{19}$ |
| 2009 $XK_{19}$ | 16.2 | 0.15 | 20091215 | 290.24447 | 247.36469 | 306.62137 | 1.45841 | 0.1123409 | 2.6555539 | 10 | 1 | 10 days | 0.21 | | | MPC | 2009 $XK_{19}$ |
| 2009 $XO_{19}$ | 17.6 | 0.15 | 20091215 | 17.60169 | 331.34055 | 115.38518 | 7.64613 | 0.0924616 | 2.2750421 | 10 | 1 | 10 days | 0.12 | | | MPC | 2009 $XO_{19}$ |
| 2009 $XT_{19}$ | 17.0 | 0.15 | 20091215 | 270.10763 | 251.73065 | 314.71320 | 1.05369 | 0.0577516 | 2.8144239 | 10 | 1 | 11 days | 0.22 | | | MPC | 2009 $XT_{19}$ |
| 2009 $XV_{19}$ | 17.2 | 0.15 | 20091215 | 324.68548 | 207.01643 | 306.05584 | 2.02782 | 0.1202690 | 2.8247246 | 10 | 1 | 11 days | 0.29 | | | MPC | 2009 $XV_{19}$ |
| 2009 $XW_{19}$ | 18.6 | 0.15 | 20091215 | 308.99326 | 71.29922 | 102.61732 | 3.13690 | 0.1656308 | 2.3617127 | 13 | 1 | 11 days | 0.33 | | | MPC | 2009 $XW_{19}$ |
| 2009 $XZ_{19}$ | 17.1 | 0.15 | 20091215 | 275.37773 | 100.87154 | 98.64303 | 3.24163 | 0.0386680 | 2.8274827 | 10 | 1 | 11 days | 0.41 | | | MPC | 2009 $XZ_{19}$ |
| 2009 $XC_{20}$ | 16.3 | 0.15 | 20091215 | 194.03533 | 1.47842 | 241.10110 | 11.93386 | 0.1207710 | 2.5385560 | 13 | 1 | 15 days | 0.63 | | | MPC | 2009 $XC_{20}$ |
| 2009 $XG_{20}$ | 15.4 | 0.15 | 20091215 | 47.72343 | 313.31552 | 73.92558 | 14.68120 | 0.2467591 | 2.6054724 | 20 | 1 | 15 days | 0.35 | | | MPC | 2009 $XG_{20}$ |
| 2009 $XH_{20}$ | 16.8 | 0.15 | 20091125 | 31.33427 | 61.22054 | 306.22109 | 4.41647 | 0.1753949 | 2.6945089 | 14 | 1 | 52 days | 0.28 | | | MPC | 2009 $XH_{20}$ |
| 2009 $XM_{20}$ | 16.2 | 0.15 | 20091215 | 7.75258 | 322.24000 | 130.86292 | 5.54394 | 0.1217690 | 2.7354503 | 13 | 1 | 16 days | 0.31 | | | MPC | 2009 $XM_{20}$ |
| 2009 $XD_{21}$ | 16.0 | 0.15 | 20091125 | 46.88100 | 257.91328 | 103.79708 | 14.23856 | 0.2610680 | 2.7140672 | 17 | 1 | 24 days | 0.42 | | | MPC | 2009 $XD_{21}$ |
| 2009 $XK_{21}$ | 17.4 | 0.15 | 20091215 | 53.20532 | 292.96912 | 98.96561 | 7.27605 | 0.1447842 | 2.3788462 | 10 | 1 | 15 days | 0.17 | | | MPC | 2009 $XK_{21}$ |
| 2009 $XL_{21}$ | 18.0 | 0.15 | 20091215 | 59.28562 | 106.78685 | 275.61142 | 6.03581 | 0.1555175 | 2.2351270 | 10 | 1 | 15 days | 0.29 | | | MPC | 2009 $XL_{21}$ |
| 2009 $XM_{21}$ | 16.6 | 0.15 | 20091215 | 4.93250 | 353.95327 | 101.73632 | 5.47311 | 0.0258984 | 2.7705149 | 10 | 1 | 15 days | 0.24 | | | MPC | 2009 $XM_{21}$ |
| 2009 $XN_{21}$ | 15.7 | 0.15 | 20091215 | 199.32057 | 164.98166 | 101.43826 | 11.37161 | 0.0978506 | 3.0847824 | 9 | 1 | 10 days | 0.43 | | | MPC | 2009 $XN_{21}$ |
| 2009 $XP_{21}$ | 16.0 | 0.15 | 20091215 | 352.07313 | 13.04655 | 96.72191 | 7.41308 | 0.0501365 | 2.8692541 | 10 | 1 | 10 days | 0.12 | | | MPC | 2009 $XP_{21}$ |
| 2009 $XT_{21}$ | 18.0 | 0.15 | 20091125 | 25.98137 | 143.57977 | 278.53436 | 17.86737 | 0.0894297 | 1.8837083 | 17 | 1 | 29 days | 0.51 | | | MPC | 2009 $XT_{21}$ |
| 2009 $XC_{22}$ | 15.7 | 0.15 | 20091215 | 316.03630 | 33.81829 | 113.51777 | 7.54463 | 0.0179863 | 2.7706828 | 9 | 1 | 16 days | 0.20 | | | MPC | 2009 $XC_{22}$ |
| 2009 $XH_{22}$ | 18.5 | 0.15 | 20091215 | 55.30262 | 83.65634 | 298.21883 | 4.26123 | 0.2084293 | 2.1440579 | 11 | 1 | 10 days | 0.26 | | | MPC | 2009 $XH_{22}$ |
| 2009 YA | 24.8 | 0.15 | 20100104 | 356.10869 | 31.72499 | 84.63391 | 25.04945 | 0.4414809 | 1.8274863 | 10 | 1 | 0 days | 0.45 | M-v | 9 | MPC | 2009 YA |
| 2009 YD | 17.0 | 0.15 | 20091215 | 359.82899 | 336.34184 | 127.92965 | 4.36416 | 0.1451720 | 2.5874810 | 21 | 1 | 10 days | 0.44 | | | MPC | 2009 YD |
| 2009 YE | 16.3 | 0.15 | 20091215 | 315.79597 | 114.30657 | 74.39397 | 26.52730 | 0.1595494 | 1.9007552 | 12 | 1 | 1 days | 0.98 | | E | MPC | 2009 YE |
| 2009 YF | 24.7 | 0.15 | 20100104 | 179.72787 | 193.39442 | 87.64920 | 1.52015 | 0.1209825 | 0.9355720 | 39 | 1 | 11 days | 0.43 | M-v | 6 | MPC | 2009 YF |
| 2009 YG | 18.3 | 0.15 | 20100104 | 348.12111 | 64.61747 | 140.74680 | 3.45279 | 0.7204503 | 2.3099353 | 38 | 1 | 10 days | 0.57 | M-v | 8 | MPC | 2009 YG |
| 2009 YH | 15.7 | 0.15 | 20091215 | 7.54387 | 190.86902 | 238.62513 | 15.55604 | 0.2009648 | 3.0843336 | 13 | 1 | 3 days | 0.43 | | | MPC | 2009 YH |
| 2009 YL | 15.8 | 0.15 | 20091215 | 103.62100 | 113.25681 | 198.15041 | 7.88384 | 0.1382542 | 2.8629289 | 8 | 1 | 2 days | 0.29 | | | MPC | 2009 YL |
| 2009 YO | 18.6 | 0.15 | 20100104 | 166.61691 | 1.76333 | 266.46040 | 31.62113 | 0.5604456 | 1.2508310 | 20 | 1 | 7 days | 0.30 | M-v | 9 | MPC | 2009 YO |
| 2009 YP | 24.0 | 0.15 | 20100104 | 163.24041 | 202.55434 | 86.02271 | 10.01828 | 0.4270859 | 0.8173603 | 17 | 1 | 1 days | 0.28 | M-v | 9 | MPC | 2009 YP |
| 2009 YQ | 20.5 | 0.15 | 20100104 | 341.35865 | 310.62486 | 264.35199 | 8.35872 | 0.7028373 | 2.0030887 | 23 | 1 | 9 days | 0.89 | M-v | 7 | MPC | 2009 YQ |
| 2009 YR | 28.0 | 0.15 | 20100104 | 259.48046 | 127.84953 | 87.34530 | 0.71099 | 0.1115942 | 0.9415372 | 29 | 1 | 7 days | 0.41 | M-v | 6 | MPC | 2009 YR |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2009 YS | 25.3 | 0.15 | 20100104 | 31.00428 | 338.64427 | 81.54523 | 6.76158 | 0.1795806 | 1.1925707 | 31 | 1 | 3 days | 0.39 | M-v | 6 | MPC | 2009 YS |
| 2009 $YE_1$ | 18.2 | 0.15 | 20091215 | 28.44584 | 111.28200 | 293.03836 | 2.04296 | 0.2920179 | 2.8621167 | 11 | 1 | 10 days | 0.17 | | | MPC | 2009 $YE_1$ |
| 2009 $YN_1$ | 17.0 | 0.15 | 20091215 | 346.15924 | 27.80906 | 92.42621 | 13.63868 | 0.2080767 | 2.6823088 | 10 | 1 | 2 days | 0.14 | | | MPC | 2009 $YN_1$ |
| 2009 $YR_1$ | 17.6 | 0.15 | 20091125 | 51.49188 | 84.94122 | 280.38944 | 27.52339 | 0.3515561 | 2.6461489 | 10 | 1 | 8 days | 0.32 | | E | MPC | 2009 $YR_1$ |
| 2009 $YW_1$ | 16.2 | 0.15 | 20091215 | 229.92505 | 338.72865 | 272.50417 | 7.61130 | 0.2085890 | 2.7828371 | 10 | 1 | 2 days | 0.36 | | | MPC | 2009 $YW_1$ |
| 2009 $YY_1$ | 16.3 | 0.15 | 20091215 | 0.65435 | 190.87577 | 273.06898 | 12.53353 | 0.1040261 | 3.1537570 | 15 | 1 | 9 days | 0.25 | | | MPC | 2009 $YY_1$ |
| 2009 $YZ_1$ | 17.4 | 0.15 | 20091215 | 39.89847 | 273.26462 | 104.40258 | 29.09015 | 0.4010516 | 2.6103610 | 14 | 1 | 3 days | 0.17 | | | MPC | 2009 $YZ_1$ |
| 2009 $YB_2$ | 17.3 | 0.15 | 20091215 | 21.39317 | 316.70091 | 108.78885 | 11.86175 | 0.2368685 | 2.6158996 | 11 | 1 | 9 days | 0.34 | | | MPC | 2009 $YB_2$ |
| 2009 $YD_2$ | 17.3 | 0.15 | 20091215 | 3.97071 | 253.43230 | 202.37768 | 2.84302 | 0.1567130 | 2.7346927 | 13 | 1 | 9 days | 0.30 | | | MPC | 2009 $YD_2$ |
| 2009 $YG_2$ | 15.6 | 0.15 | 20091215 | 229.26523 | 340.90693 | 267.35714 | 9.39786 | 0.1476250 | 3.1840018 | 11 | 1 | 9 days | 0.30 | | | MPC | 2009 $YG_2$ |
| 2009 $YM_2$ | 16.1 | 0.15 | 20091215 | 26.31666 | 311.46010 | 114.07792 | 12.87557 | 0.1546128 | 2.7759493 | 10 | 1 | 9 days | 0.41 | | | MPC | 2009 $YM_2$ |
| 2009 $YJ_3$ | 17.3 | 0.15 | 20091215 | 288.03860 | 101.85010 | 117.27708 | 6.72148 | 0.3677613 | 2.4519286 | 9 | 1 | 8 days | 0.25 | | | MPC | 2009 $YJ_3$ |
| 2009 $YK_3$ | 16.4 | 0.15 | 20091215 | 44.24685 | 268.90744 | 135.75977 | 4.54277 | 0.1428341 | 2.8416487 | 11 | 1 | 9 days | 0.13 | | | MPC | 2009 $YK_3$ |
| 2009 $YO_3$ | 18.7 | 0.15 | 20091215 | 26.41270 | 250.98392 | 172.49050 | 1.45047 | 0.1627751 | 2.3504117 | 10 | 1 | 2 days | 0.25 | | | MPC | 2009 $YO_3$ |
| 2009 $YV_3$ | 16.9 | 0.15 | 20091215 | 24.21632 | 317.65447 | 112.54146 | 18.06584 | 0.1801240 | 3.0545719 | 10 | 1 | 8 days | 0.12 | | | MPC | 2009 $YV_3$ |
| 2009 $YY_3$ | 18.1 | 0.15 | 20091215 | 357.07514 | 300.41731 | 164.97613 | 1.87507 | 0.1675476 | 2.3177435 | 10 | 1 | 8 days | 0.29 | | | MPC | 2009 $YY_3$ |
| 2009 $YZ_3$ | 16.5 | 0.15 | 20091215 | 38.36686 | 293.28499 | 125.63843 | 4.80675 | 0.1030036 | 2.7391565 | 10 | 1 | 8 days | 0.12 | | | MPC | 2009 $YZ_3$ |
| 2009 $YN_4$ | 18.3 | 0.15 | 20091215 | 309.46765 | 89.74984 | 86.78906 | 5.25658 | 0.1821525 | 2.3611159 | 10 | 1 | 9 days | 0.25 | | | MPC | 2009 $YN_4$ |
| 2009 $YT_4$ | 18.6 | 0.15 | 20091215 | 36.93278 | 309.29742 | 96.14489 | 12.41428 | 0.2660015 | 2.4756248 | 10 | 1 | 3 days | 0.30 | | | MPC | 2009 $YT_4$ |
| 2009 $YX_4$ | 16.7 | 0.15 | 20091215 | 305.63823 | 236.22007 | 302.15105 | 11.70729 | 0.1451430 | 2.7444791 | 10 | 1 | 9 days | 0.15 | | | MPC | 2009 $YX_4$ |
| 2009 $YA_5$ | 17.1 | 0.15 | 20091215 | 70.00004 | 271.82898 | 96.73911 | 9.89643 | 0.2744980 | 2.7179086 | 10 | 1 | 9 days | 0.28 | | | MPC | 2009 $YA_5$ |
| 2009 $YD_5$ | 17.6 | 0.15 | 20091215 | 9.38943 | 9.26375 | 81.78098 | 4.41777 | 0.2204129 | 2.5912033 | 10 | 1 | 9 days | 0.12 | | | MPC | 2009 $YD_5$ |
| 2009 $YF_5$ | 17.0 | 0.15 | 20091215 | 8.58953 | 160.33508 | 293.55372 | 18.20835 | 0.2358614 | 3.0735449 | 10 | 1 | 9 days | 0.15 | | | MPC | 2009 $YF_5$ |
| 2009 $YL_5$ | 15.2 | 0.15 | 20091215 | 31.23522 | 132.02447 | 294.64796 | 25.27766 | 0.1805264 | 3.2069886 | 10 | 1 | 8 days | 0.32 | | | MPC | 2009 $YL_5$ |
| 2009 $YN_5$ | 16.2 | 0.15 | 20091215 | 344.53361 | 22.18674 | 106.28828 | 15.63827 | 0.1114438 | 2.6868037 | 10 | 1 | 9 days | 0.14 | | | MPC | 2009 $YN_5$ |
| 2009 $YP_5$ | 16.2 | 0.15 | 20091215 | 114.39542 | 236.35083 | 109.03489 | 13.65827 | 0.1287897 | 2.6473243 | 10 | 1 | 9 days | 0.18 | | | MPC | 2009 $YP_5$ |
| 2009 $YC_6$ | 16.7 | 0.15 | 20091215 | 69.16435 | 302.13826 | 83.35219 | 5.23249 | 0.1389224 | 2.8414842 | 10 | 1 | 2 days | 0.28 | | | MPC | 2009 $YC_6$ |
| 2009 $YD_6$ | 16.8 | 0.15 | 20091215 | 326.81070 | 47.58135 | 105.92076 | 5.13517 | 0.1584067 | 2.7561916 | 13 | 1 | 2 days | 0.24 | | | MPC | 2009 $YD_6$ |
| 2009 $YG_6$ | 16.2 | 0.15 | 20091215 | 56.83873 | 170.67335 | 185.26065 | 6.40114 | 0.1636062 | 2.9978623 | 9 | 1 | 3 days | 0.40 | | | MPC | 2009 $YG_6$ |
| 2009 $YH_6$ | 16.6 | 0.15 | 20091215 | 70.71641 | 209.72391 | 125.51798 | 7.17393 | 0.2000425 | 2.8452069 | 10 | 1 | 4 days | 0.59 | | | MPC | 2009 $YH_6$ |
| 2009 $YJ_6$ | 16.5 | 0.15 | 20091215 | 67.64758 | 246.99148 | 107.18601 | 9.69558 | 0.0610835 | 2.9284707 | 9 | 1 | 4 days | 0.52 | | | MPC | 2009 $YJ_6$ |
| 2009 $YM_6$ | 15.4 | 0.15 | 20091215 | 358.28900 | 15.87684 | 86.69525 | 8.55096 | 0.2230334 | 3.1517057 | 13 | 1 | 3 days | 0.26 | | | MPC | 2009 $YM_6$ |
| 2009 $YP_6$ | 17.4 | 0.15 | 20091215 | 32.08352 | 72.34242 | 312.01234 | 3.82610 | 0.2471384 | 2.3551875 | 11 | 1 | 3 days | 0.44 | | E | MPC | 2009 $YP_6$ |
| 2009 $YQ_6$ | 16.6 | 0.15 | 20091215 | 313.85644 | 256.95254 | 234.98570 | 4.17292 | 0.2446607 | 2.8872690 | 10 | 1 | 10 days | 0.38 | | | MPC | 2009 $YQ_6$ |
| 2009 $YS_6$ | 14.3 | 0.15 | 20091215 | 324.92016 | 309.21682 | 295.77020 | 144.09178 | 0.7605608 | 5.2967295 | 34 | 1 | 4 days | 0.29 | | E | MPC | 2009 $YS_6$ |
| 2009 $YT_6$ | 20.7 | 0.15 | 20100104 | 322.59624 | 99.63365 | 72.49620 | 21.67830 | 0.4892313 | 1.6583777 | 20 | 1 | 2 days | 0.39 | M-v | 9 | MPC | 2009 $YT_6$ |
| 2009 $YU_6$ | 21.5 | 0.15 | 20100104 | 20.80640 | 295.30833 | 91.57516 | 11.91368 | 0.6202931 | 2.3903770 | 30 | 1 | 6 days | 0.60 | M-v | 8 | MPC | 2009 $YU_6$ |
| 2009 $YV_6$ | 21.1 | 0.15 | 20100104 | 273.04545 | 295.88883 | 270.22358 | 12.10199 | 0.2291225 | 1.4138805 | 13 | 1 | 5 days | 0.39 | M-v | 9 | MPC | 2009 $YV_6$ |
| 2009 $YW_6$ | 17.4 | 0.15 | 20091215 | 19.12184 | 119.85445 | 299.11025 | 5.06144 | 0.2874001 | 2.6056188 | 13 | 1 | 9 days | 0.62 | | | MPC | 2009 $YW_6$ |
| 2009 $YA_7$ | 17.3 | 0.15 | 20091215 | 349.44276 | 23.74799 | 77.46529 | 6.35640 | 0.2078313 | 2.4140653 | 13 | 1 | 9 days | 0.52 | | | MPC | 2009 $YA_7$ |
| 2009 $YB_7$ | 16.0 | 0.15 | 20091215 | 359.12458 | 194.29428 | 255.51605 | 12.23903 | 0.2203395 | 3.1769024 | 19 | 1 | 3 days | 0.55 | | | MPC | 2009 $YB_7$ |
| 2009 $YC_7$ | 17.4 | 0.15 | 20091215 | 85.00660 | 283.57509 | 67.82372 | 22.90941 | 0.1026631 | 1.9380860 | 14 | 1 | 9 days | 0.47 | | | MPC | 2009 $YC_7$ |
| 2009 $YD_7$ | 8.7 | 0.15 | 20091125 | 358.90326 | 326.81444 | 125.99288 | 30.80488 | 0.8900669 | 121.7611112 | 12 | 1 | 34 days | 0.30 | | | MPC | 2009 $YD_7$ |
| 2009 $YE_7$ | 2.8 | 0.15 | 20091215 | 180.73419 | 96.11184 | 138.81889 | 29.22239 | 0.1748288 | 43.5310856 | 8 | 1 | 5 days | 0.42 | | E | MPC | 2009 $YE_7$ |
| 2009 $YF_7$ | 9.3 | 0.15 | 20091215 | 197.57104 | 142.64362 | 88.38737 | 38.94310 | 0.4475568 | 9.6452516 | 12 | 1 | 3 days | 0.30 | | E | MPC | 2009 $YF_7$ |
| 2009 $YH_7$ | | | 20091215 | 336.28494 | 28.67681 | 96.20605 | 3.62239 | 0.1675983 | 2.4003171 | 9 | 1 | 9 days | 0.23 | | | MPC | 2009 $YH_7$ |
| 2009 $YM_7$ | | | 20091215 | 318.07750 | 271.51245 | 227.45445 | 1.74889 | 0.0464425 | 2.4121947 | 9 | 1 | 9 days | 0.14 | | | MPC | 2009 $YM_7$ |
| 2009 $YS_7$ | 16.7 | 0.15 | 20091215 | 318.13110 | 59.35401 | 97.82297 | 13.48313 | 0.1650766 | 3.0504644 | 9 | 1 | 10 days | 0.37 | | | MPC | 2009 $YS_7$ |
| 2009 $YZ_7$ | 15.6 | 0.15 | 20091215 | 227.12055 | 324.48831 | 273.83922 | 9.09140 | 0.0739748 | 3.0953571 | 11 | 1 | 9 days | 0.21 | | | MPC | 2009 $YZ_7$ |
| 2009 $YA_8$ | 17.2 | 0.15 | 20091215 | 22.40614 | 327.51884 | 102.24352 | 8.51347 | 0.0910398 | 2.4794789 | 11 | 1 | 9 days | 0.21 | | | MPC | 2009 $YA_8$ |
| 2009 $YH_8$ | 16.0 | 0.15 | 20091215 | 89.92828 | 230.29056 | 115.52141 | 3.14367 | 0.1981877 | 2.6716565 | 10 | 1 | 9 days | 0.13 | | | MPC | 2009 $YH_8$ |
| 2009 $YM_8$ | 16.2 | 0.15 | 20091215 | 69.52774 | 104.37300 | 280.23463 | 8.96931 | 0.0325426 | 2.9764202 | 11 | 1 | 9 days | 0.25 | | | MPC | 2009 $YM_8$ |
| 2009 $YR_8$ | 17.4 | 0.15 | 20091215 | 31.94453 | 302.94601 | 105.17096 | 2.09258 | 0.2125943 | 3.0691606 | 10 | 1 | 9 days | 0.18 | | | MPC | 2009 $YR_8$ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2009 $YU_{8}$ | 16.1 | 0.15 | 20091215 | 358.32892 | 185.99650 | 272.49901 | 7.46139 | 0.1264462 | 2.7676697 | 11 | 1 | 9 days | 0.12 | | MPC | | 2009 $YU_{8}$ |
| 2009 $YJ_{9}$ | 18.4 | 0.15 | 20091215 | 15.14789 | 270.22429 | 141.94283 | 1.65590 | 0.4728694 | 2.9288122 | 11 | 1 | 9 days | 0.19 | | MPC | | 2009 $YJ_{9}$ |
| 2009 $YB_{10}$ | 16.4 | 0.15 | 20091215 | 262.71072 | 297.95493 | 297.29419 | 3.79099 | 0.2495647 | 2.7494075 | 13 | 1 | 8 days | 0.41 | | MPC | | 2009 $YB_{10}$ |
| 2009 $YV_{12}$ | 16.2 | 0.15 | 20091215 | 354.65748 | 195.95090 | 272.97063 | 6.20537 | 0.0564439 | 2.6965995 | 9 | 1 | 8 days | 0.20 | | MPC | | 2009 $YV_{12}$ |
| 2009 $YT_{16}$ | 17.8 | 0.15 | 20091215 | 14.27151 | 311.40962 | 113.73389 | 21.23059 | 0.1060294 | 1.8591824 | 13 | 1 | 4 days | 0.53 | | MPC | | 2009 $YT_{16}$ |
| 2009 $YP_{18}$ | 17.6 | 0.15 | 20091215 | 337.41783 | 257.79910 | 256.79443 | 19.09984 | 0.4966163 | 3.0299835 | 20 | 1 | 4 days | 0.55 | | MPC | | 2009 $YP_{18}$ |
| 2009 $YR_{18}$ | 16.0 | 0.15 | 20100104 | 6.17032 | 14.57557 | 59.46003 | 13.52048 | 0.1749942 | 3.0464168 | 15 | 1 | 94 days | 0.38 | M-v 3 | MPC | | 2009 $YR_{18}$ |
| 2718 P-L | 17.4 | 0.15 | 20100104 | 41.63512 | 10.17451 | 357.33269 | 2.20469 | 0.2612153 | 2.5473914 | 67 | 4 | 1960–2009 | 0.44 | M-v 3 | MPC | 166428 | 2718 P-L |
| 4277 P-L | 17.3 | 0.15 | 20100104 | 280.76874 | 171.43473 | 202.38173 | 4.97779 | 0.3238172 | 2.5905996 | 115 | 3 | 1960–2006 | 0.46 | M-v 2 | MPC | 160923 | 4277 P-L |
| 4331 P-L | 18.2 | 0.15 | 20100104 | 65.68578 | 27.34991 | 334.38293 | 1.82158 | 0.2023950 | 2.1923063 | 49 | 5 | 1960–2009 | 0.53 | M-v 1 | MPC | 157547 | 4331 P-L |
| 7602 P-L | 15.3 | 0.15 | 20100104 | 48.89219 | 356.31798 | 28.80460 | 6.81041 | 0.2637347 | 3.0771434 | 91 | 4 | 1960–2009 | 0.49 | M-v 0 | MPC | 157548 | 7602 P-L |
| 1062 T-3 | 16.1 | 0.15 | 20100104 | 101.64189 | 62.26982 | 268.14731 | 6.22979 | 0.1440607 | 2.3098668 | 94 | 5 | 1977–2009 | 0.56 | M-v 3 | MPC | 166429 | 1062 T-3 |
| 2413 T-3 | 16.5 | 0.15 | 20100104 | 111.69203 | 94.80210 | 226.28353 | 6.50899 | 0.1306950 | 2.3101362 | 63 | 4 | 1977–2009 | 0.81 | M-v 4 | MPC | 90385 | 2413 T-3 |
| 3266 T-3 | 16.7 | 0.15 | 20100104 | 22.42121 | 355.91898 | 14.97282 | 2.99952 | 0.2465053 | 3.0535604 | 60 | 4 | 1977–2009 | 0.51 | M-v 1 | MPC | 166429 | 3266 T-3 |
| 3386 T-3 | 16.7 | 0.15 | 20100104 | 61.07513 | 329.08346 | 19.44855 | 8.78123 | 0.1466162 | 2.3221730 | 64 | 5 | 1977–2009 | 0.70 | M-v 1 | MPC | 166026 | 3386 T-3 |
| 3493 T-3 | 16.9 | 0.15 | 20100104 | 41.85751 | 284.89721 | 35.32696 | 2.05699 | 0.3988818 | 3.0354090 | 56 | 3 | 1977–2009 | 0.57 | M-v 2 | MPC | 166429 | 3493 T-3 |
| 4119 T-3 | 17.4 | 0.15 | 20100104 | 24.48393 | 331.82823 | 44.00806 | 7.71656 | 0.2087233 | 2.3294859 | 82 | 3 | 1977–2009 | 0.56 | M-v 2 | MPC | 166429 | 4119 T-3 |

2007 $RB_{310}$ = 2007 $PW_{23}$ (Minor Planet Center)
2008 $RM_{110}$ = 2008 $TX_{159}$ (Minor Planet Center, *MPO* 147613)
2008 $SV_{16}$ = 2008 $SA_{17}$ = 2008 $SF_{247}$ (Minor Planet Center, *MPO* 147613)
2008 $SZ_{202}$ = 2008 $TW_{156}$ (Minor Planet Center, *MPO* 147613)
2008 $TE_{8}$ = 2008 $UC_{86}$ (Minor Planet Center)
2008 $WK_{39}$ = 2008 $VX_{64}$ (Minor Planet Center, *MPO* 151130)
2008 $WS_{132}$ = 2008 $TW_{179}$ (Minor Planet Center)
2009 $SM_{132}$ = 2009 $UV_{141}$ (Minor Planet Center)
2009 $SO_{188}$ = 2009 $VL_{26}$ (Minor Planet Center, *MPO* 166429)
2009 $SX_{234}$ = 2009 $UL_{130}$ (Minor Planet Center, *MPO* 166429)
2009 $TW_{45}$ = 2009 $WD_{39}$ (Minor Planet Center)
2009 $VL_{92}$ = 2009 $WU_{119}$ (Minor Planet Center)
2009 $VQ_{93}$ = 2009 $WL_{136}$ (Minor Planet Center)
2009 $VQ_{93}$ = 2009 $WL_{136}$ (Minor Planet Center)
2009 $VS_{105}$ = 2009 $WB_{133}$ (Minor Planet Center)
2009 $VF_{113}$ = 2009 $WY_{132}$ (Minor Planet Center)
2009 $WE_{34}$ = 2009 $XW_{7}$ (Minor Planet Center)
2009 $WE_{34}$ = 2009 $XW_{7}$ (Minor Planet Center)
2009 $WO_{130}$ = 2009 $WS_{195}$ (Minor Planet Center)
2009 $WC_{183}$ = 2009 $WS_{138}$ (Minor Planet Center)
2009 $WE_{183}$ = 2009 $WT_{138}$ (Minor Planet Center)
2009 $WA_{186}$ = 2009 $WF_{137}$ (Minor Planet Center)
2009 $WK_{200}$ = 2009 $WZ_{138}$ (Minor Planet Center)
2009 $WD_{250}$ = 2009 $WR_{126}$ (Minor Planet Center)